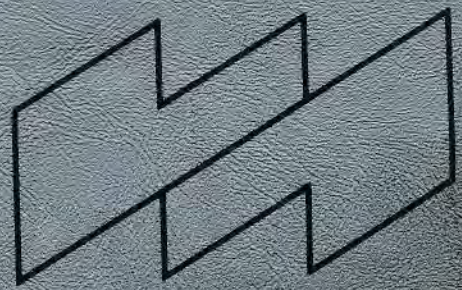


VOEST-ALPINE

INTERFLUG
BETRIEB
VERKEHRSFLUG

Flugbetriebsdokumentation

Betriebsdaten-Handbuch A 310

BDH-310

1. Basic data
1.1.Basic weight/index

Tab. 2.2.1/1

A/C registration	factory-No.	SELCAL-CODE	C/G [%MAC]	basic-index	basic-weight [kg
DDR-ABA	498	EQ-GK	26,61	83,7	79125
DDR-ABB	499	EQ-GL	26,45	83,4	79363
DDR-ABC	503	EQ-GM	26,98	84,6	79483

$BI=[(MAC_{BW}-25)\cdot BW_{[t]}\cdot 0{,}029]+80$

BW and BI including unusable fuel, oil for engines and APU, fluids for toilets, a/c documents, tool kit, emergency e/c (incl. slide rafts and life jackets), potable water.

1.2. Dry operating weight/index computation

DOI=BI+IND. CORR. **DOW=BW+WEIGHT-CORR.**

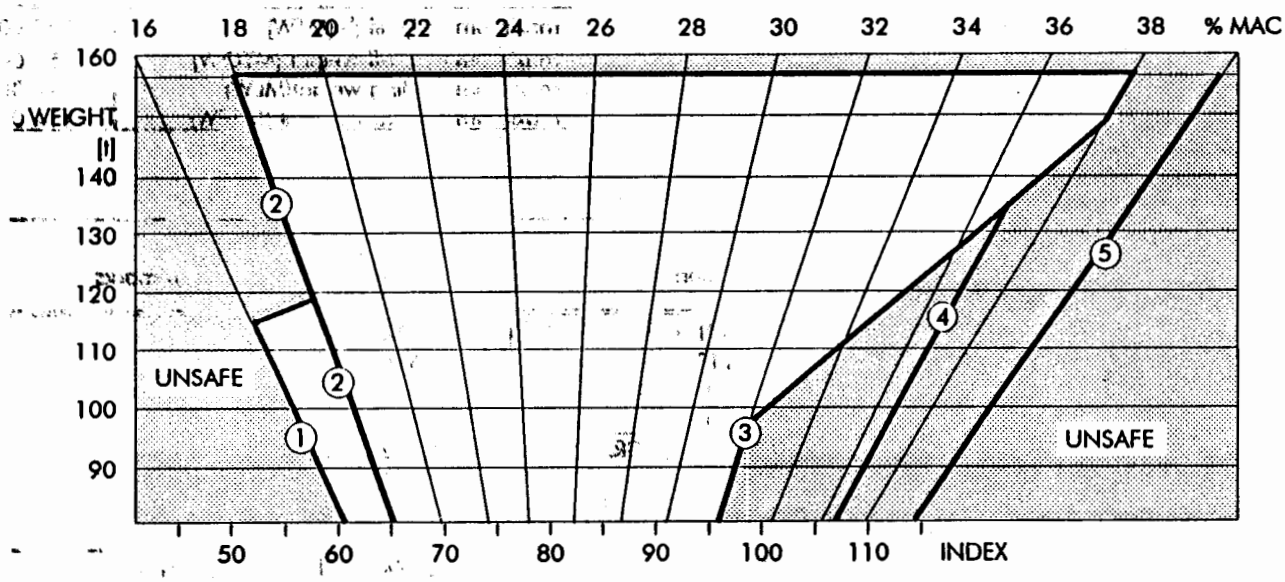
Tab.2.2.1/2

ITEM			MAX.WEIGHT PER IT. [KG]	BI/BW INCLUDES:	INDEX-INFLUENCE PER KG	INDEX-INFLUENCE PER ITEM
COCKP. CREW	PILOT		80	—	-0,00890	-1,424/2 PERS.
	MEMBER 3				-0,00855	-0,684/1 PERS.
	MEMBER 4				-0,00829	-0,663/1 PERS.
POTABLE WATER			400	400 KG	-0,00222	+0,222/-100 KG
C/A	PURSER STATION		65	—	-0,00749	-0,487/1 PERS.
	FWD DOOR				-0,00695	-0,452/1 PERS.
	EMERGENCY EXIT				-0,00164	-0,107/1 PERS.
	GALLEY 6A/7A				+0,00704	+0,458/1 PERS.
GALLEY STRUCTURE & PROVIANT	G1	E	1040		-0,00798	-0,7/100 KG
	G1C		800		-0,00704	
	G10		436		-0,00663	
	G6+6A	G	1315		+0,00781	+0,8/100 KG
	G7+7A					
ADDITIONAL CABIN STOWAGE CPTS.	FWD		227		-0,00794	—
	AFT		58		+0,00854	

2.Limitations

2.1. Design center of gravity

Fig.2.2.1/1



① forward limit for flight and landing
② forward limit for take-off
③ aft limit for take-off
④ aft limit for landing and flight below 20000 ft
⑤ aft limit for flight above 20000 ft

2.2. Index influence of fuel

Tab. 2.2.1/3

W[t]	corr.	W[t]	corr.	W[t]	correction						W[t]	correction					
					FUEL-DENSITY[kg/l]												
	0,785				0,780	0,785	0,790	0,795	0,800	0,810		0,780	0,785	0,790	0,795	0,800	0,[illegible]
1	+1,0	21	+0,4	41,0	-13,2	-13,0	-12,8	-12,5	-12,3	-11,9	51,0	+20,3	+17,0	+13,7	+10,4	+7,1	+0,6
2	+2,4	22	+0,3	41,5	-13,8	-13,6	-13,3	-13,1	-12,9	-12,5	51,5	+25,6	+22,3	+19,0	+15,7	+12,4	+5,3
3	+4,0	23	+0,1	42,0	-14,5	-14,2	-14,0	-13,7	-13,5	-13,0	52,0	+30,9	+27,6	+24,2	+20,9	+17,6	+11,0
4	+5,7	24	+0,1	42,5	-15,2	-14,9	-14,6	-14,4	-14,1	-13,6	52,5	+33,9	+32,9	+29,5	+26,2	+22,9	+16,3
5	+7,8	25	+0,3	43,0	-15,5	-15,7	-15,4	-15,1	-14,8	-14,2	53,0	+41,9	+38,4	+34,9	+31,5	+28,1	+21,5
6	+9,5	26	+0,5	43,5	-14,7	-15,2	-15,8	-15,8	-15,5	-14,9	53,5	+45,6	+44,1	+40,5	+36,9	+33,5	+26,2
7	+8,6	27	+0,9	44,0	-13,8	-14,4	-14,9	-15,5	-16,1	-15,6	54,0	+46,8	+46,3	+45,7	+42,5	+39,0	+32,1
8	+7,8	28	+0,8	44,5	-12,9	-13,5	-14,1	-14,6	-15,2	-16,3	54,5	+48,1	+47,6	+47,0	+46,4	+44,6	+37,5
9	+6,9	29	-0,2	45,0	-12,0	-12,6	-13,2	-13,8	-14,4	-15,5	55,0	+49,4	+48,8	+48,2	+47,6	+47,1	+43,1
10	+6,2	30	-1,2	45,5	-11,2	-11,7	-12,3	-12,9	-13,5	-14,7	55,5	+50,7	+50,1	+49,5	+48,9	+48,4	+47,2
11	+5,5	31	-2,3	46,0	-10,3	-10,9	-11,5	-12,0	-12,6	-13,8	56,0	+51,9	+51,3	+50,7	+50,2	+49,6	+48,4
12	+4,8	32	-3,3	46,5	-9,4	-10,0	-10,6	-11,2	-11,7	-12,9	56,5	+53,2	+52,6	+52,0	+51,5	+50,9	+49,7
13	+4,2	33	-4,4	47,0	-8,6	-9,1	-9,7	-10,3	-10,9	-12,0	57,0	+54,4	+53,8	+53,3	+52,7	+52,1	+51,0
14	+3,6	34	-5,5	47,5	-7,7	-8,3	-8,8	-9,4	-10,0	-11,2	57,5	+55,7	+55,2	+54,6	+54,0	+53,4	+52,3
15	+3,0	35	-6,5	48,0	-6,8	-7,4	-8,0	-8,6	-9,1	-10,3	58,0	+56,9	+56,4	+55,8	+55,2	+54,8	+53,5
16	+2,4	36	-7,6	48,5	-4,4	-6,5	-7,1	-7,7	-8,3	-9,4	58,5	+58,3	+57,7	+57,1	+56,5	+56,0	+54,8
17	+2,0	37	-8,7	49,0	-0,6	-3,8	-6,2	-6,8	-7,4	-8,5	59,0		+58,9	+58,3	+57,7	+57,2	+56,0
18	+1,5	38	-9,7	49,5	+4,6	+1,4	-1,9	-5,1	-6,5	-7,7	59,5			+59,6	+59,1	+58,5	+57,3
19	+1,1	39	-10,8	50,0	+9,8	+6,5	+3,3	0,0	-3,2	-6,8	60,0				+60,3	+59,7	+58,5
20	+0,7	40	-11,9	50,5	+15,1	+11,8	+8,5	+5,2	+2,0	-4,5	60,5						+59,8
											61,0						+61,1

2.3. Design weight

Tab.2.2.1/4

	[KG]
maximum taxi-weight(MTW)	157 900
maximum take-off-weight (MTOW)	157 000
maximum landing-weight(MLW)	124 000
maximum zero-fuel-weight (MZFW)	114 000

2.4.Cargo compartment loading

Tab. 2.2.1/5

hold (CPT)	number and type of ULD(IATA)	position	max.gross weight [kg]*)	remarks
FWD1	2 containers V3	11R/11L	3174	
	1 pallet A2	11P	4626	
	1 pallet W2	11	3174	
	1 container W3	11	3174	
FWD2	6 containers V3	21R/21L, 22R/22L, 23R/23L	9522	see note 1 and 2
	2 pallets A2	21P, 22P	9252	
	3 palletsW2	21, 22, 23	9522	
	3 containers W3	21, 22, 23	9522	
AFT4	2 containers V3	43R/43L	3174	see note 1 and 3
	1 container W3	43	3174	
AFT5 (bulk)	-	A(fwd)	1841	see note 3 and 4
		B(middle)	657	
		C(crew-bag)	272	

*)including tare-weights

Note:
1. It is prohibited to carry loose bulk freight or loose baggage in the cargo holds 1,2 or 4.
2. Cargo holds FWD 1 and FWD 2 have a maximum cumulative load capacity of 12 700 kg.
3. Cargo holds AFT 4 and AFT 5(bulk) have a maximum cumulative load capacity of 12426 kg(including weight of usable fuel in ACT 1 and ACT 2). With the two ACTs full, the CPT 5 may be used for the transport of crew baggage or last minute bags up to 460 kg.
4. The maximum weight of any single piece of baggage/cargo is limited to 25 kg . The cargo shall not be able to pass through the meshes (250 x 250 mm) of the separation net.
5. For determination of maximum cumulative load in hold 4 and 5 see fig. 2.2.1/3.

3.ACN-determination

Tab.2.2.1/6

pavement		ACN							
		rigid (R)				flexible (F)			
category		A	B	C	D	A	B	C	D
weight [t]	157	45	54	63	71	47	53	64	81
	150	42	50	59	67	44	50	60	76
	145	40	48	56	63	42	47	57	72
	140	38	45	53	60	40	45	53	69
	135	36	43	50	57	38	42	50	65
	125	32	38	44	51	34	37	44	58
	115	28	33	38	44	30	32	38	50
	105	24	28	33	38	25	27	31	43
	100	22	25	30	35	23	25	28	40
	80	14	15	18	22	15	15	16	25

4.Balance chart utilisation

The balance-chart (see 2.06.40 p.2) allows the determination of the CG-location(MAC) of the aircraft function of dry-operating-weight, pantry adjustments, cargo-load, passengers and fuel on board. It must be checked, that ZFCG and TOCG are within the corresponding limits.

CAUTION

The CG-limits of the INTERFLUG-Balance-Chart are the certified limits of the aircraft ,which must **not be exceeded.**

4.1.Computation of the basic-index:

Take the corresponding value from the table 2.2.1/1 or compute the basic-index using the formulae:

$$BI = [(MAC_{BW} - 25) \cdot BW_{[t]} \cdot 0{,}029] + 80$$

4.2.Computation of the dry operating-index/weight:

For computation of actual dry operating index/weight use the table "DOI/DOW COMPUTATION"(back of balance-chart - see Tab.2.2.1/2 and7).

Example 1(DOI/DOW-computation):

Conditions:

BI	83,7		
BW	79125 kg		
crew	cockpit		2 persons
	purser station		2 persons
	fwd door		1 person
	emergency exit		2 persons
	galley 6/7		2 persons
water		200 kg	
galley	G 1	1000 kg	
	G1C	500 kg	
	G6/7	1000 kg	

Computation (see page 5)

Results:

Dry-operating-index/weight: 78,3 / 82040 kg

4.3.Computation of CG-location:

Example 2:

Conditions:

DOI	78,3	
DOW		82040 kg
cargo	1	1000 kg
	2	1000 kg
	4	1000 kg
	5	1000 kg
passengers	10 (CPT A)	750 kg
	50 (CPT B)	3750 kg
	50 (CPT C)	3750 kg
ZFW		94290 kg
fuel(density=0,8)		54000 kg
TOW		148290 kg

Computation (see page 6):

a)Enter index-scale with 78,3 (1)and apply corresponding index variations according to cargo and passenger loading through the scales of cabin-compartments and cargo-holds. Draw from the final point (cabin C) a vertical line down to the zero-fuel-weight of 94920 kg(2).Read corresponding LIZFW = 84,5.

b)Check that the intersection is within the corresponding ZFW limit. If not it is necessary to rearrange loading.

c)With the table "FUEL INDEX CORRECTION" (back of balance-chart/Tab.2.2.1/3) determine fuel index correction +39 and apply corresponding correction on fuel-index-correction scale to determine intersection of TOW-line and TOW-index(3).Read TOI = 123,5 and corresponding TOMAC = 35,2 %. Check that the intersection is in the corresponding TO-limit.

d)With TOMAC = 35,2 % determine in the corresponding scale "PITCH-TRIM" of 1,5 DOWN (4).

Example 3:

Conditions:

DOI 78,3

DOW 82040 kg

pantry weight deviation: zone E: -500 kg

zone G: +500 kg

Using the table on top of the balance-chart for corrections in case of pantry-weight-deviations (see poge 7) compute corrected DOI/DOW:

corrected DOI	85,8	
corrected DOW		82040 kg
cargo	1	2500 kg
	2	1000 kg
	4	0 kg
	5	0 kg
passengers	35 (CPT A)	2625 kg
	75 (CPT B)	5625 kg
ZFW		93790 kg
fuel		17000 kg
TOW		110790 kg

Computation (see page 7):

Proceed as described in example 2 up to take off weight index determination.In this example the TOCG is out of take off limit(1). It is possible to get it inside the limit by filling partially the trim tank. If refuelling is already performed, apply a manual refuelling procedure to transfer 400 kg from center tank to trim tank(2).Read corresponding TOMAC = 18,3%(3) and determine in the corresponding scale "PITCH-TRIM" of 2,9 UP (4).

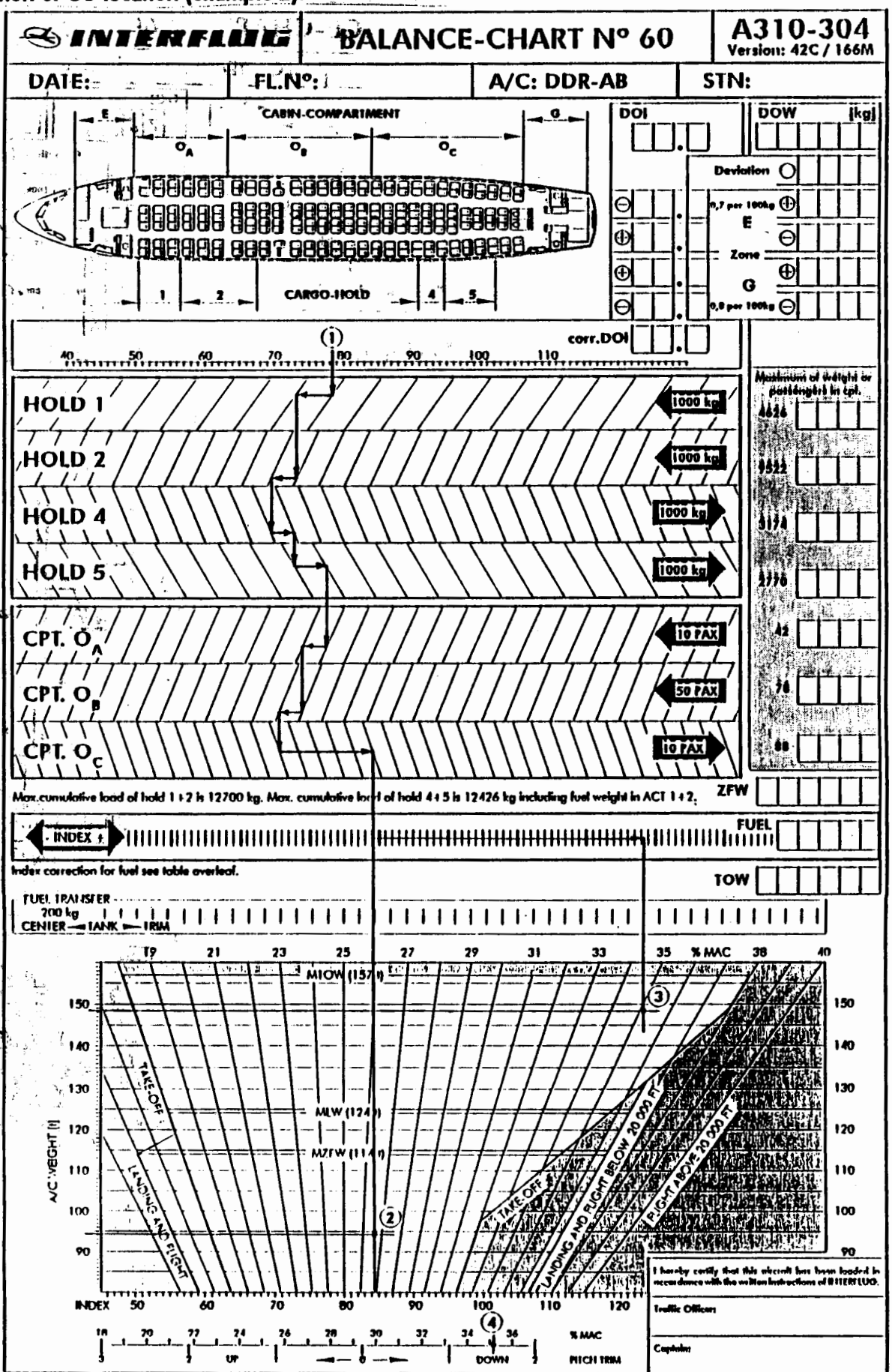
Tab.2.2.1/7 Example of DOI/DOW Computation

ITEM			MAX. WEIGHT PER IT. [KG]	INDEX-INFLUENCE PER KG	INDEX-INFLUENCE PER ITEM	INDEX-CORR. +	INDEX-CORR. -	WEIGHT-CORR. +	WEIGHT-CORR. -
COCKP. CREW	PILOT			-0,00890	-1,424/2 PERS.		1,424	160	
	MEMBER 3		80	-0,00855	-0,684/1 PERS.				
	MEMBER 4			-0,00829	-0,663/1 PERS.				
POTABLE WATER*)			400	-0,00222	+0,222/-100 KG	0,444			200
C/A	PURSER STATION			-0,00749	-0,487/1 PERS.		0,974	130	
	FWD DOOR		65	-0,00695	-0,452/1 PERS.		0,452	65	
	EMERGENCY EXIT			-0,00164	-0,107/1 PERS.		0,214	130	
	GALLEY 6A/7A			+0,00704	+0,458/1 PERS.	0,916		130	
GALLEY STRUCTURE & PROVIANT	G1		1040	-0,00798			7,98	1000	
	G1C	E	800	-0,00704	-0,7/100 KG		3,52	500	
	G10		436	-0,00663					
	G6+6A	G	1315	+0,00781	+0,8/100 KG	7,81		1000	
	G7+7A								
ADDITIONAL CABIN STOWAGE CPTS.	FWD		227	-0,00794					
	AFT		58	+0,00854					
					Σ	9,17	-14,564	3115	-200
					INDEX/WEIGHT Correction:	- 5,394		2915	
					BASIC INDEX/WEIGHT:	83,7		79125	
					DRY OPERATING INDEX/WEIGHT:	78,3		82040	

*) BI/BW includes 400 kg

Computation of CG location (example 2):

Fig.2.2.1/2



Computation of CG location (example 3):

Fig.2.2.1/3

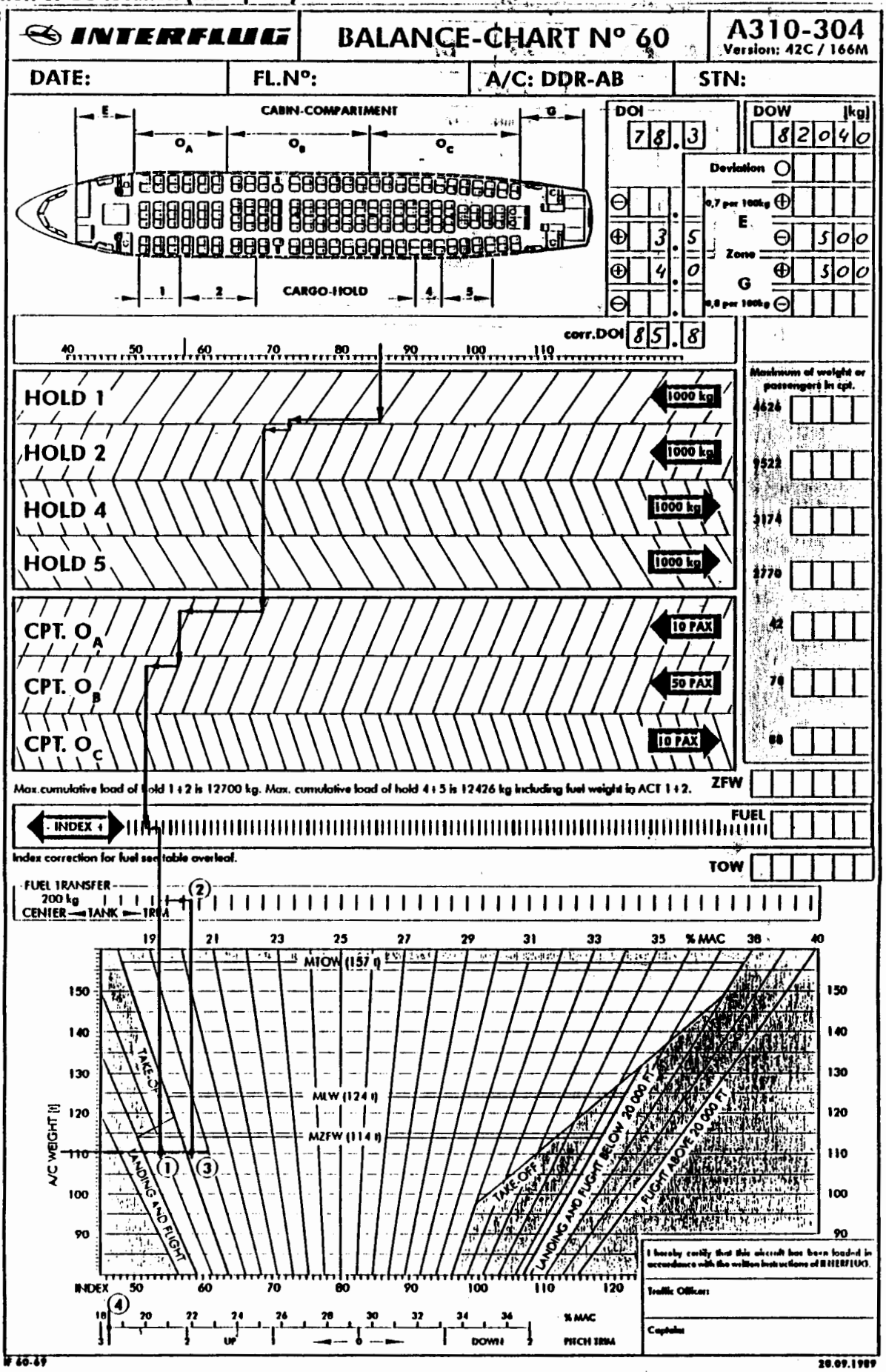
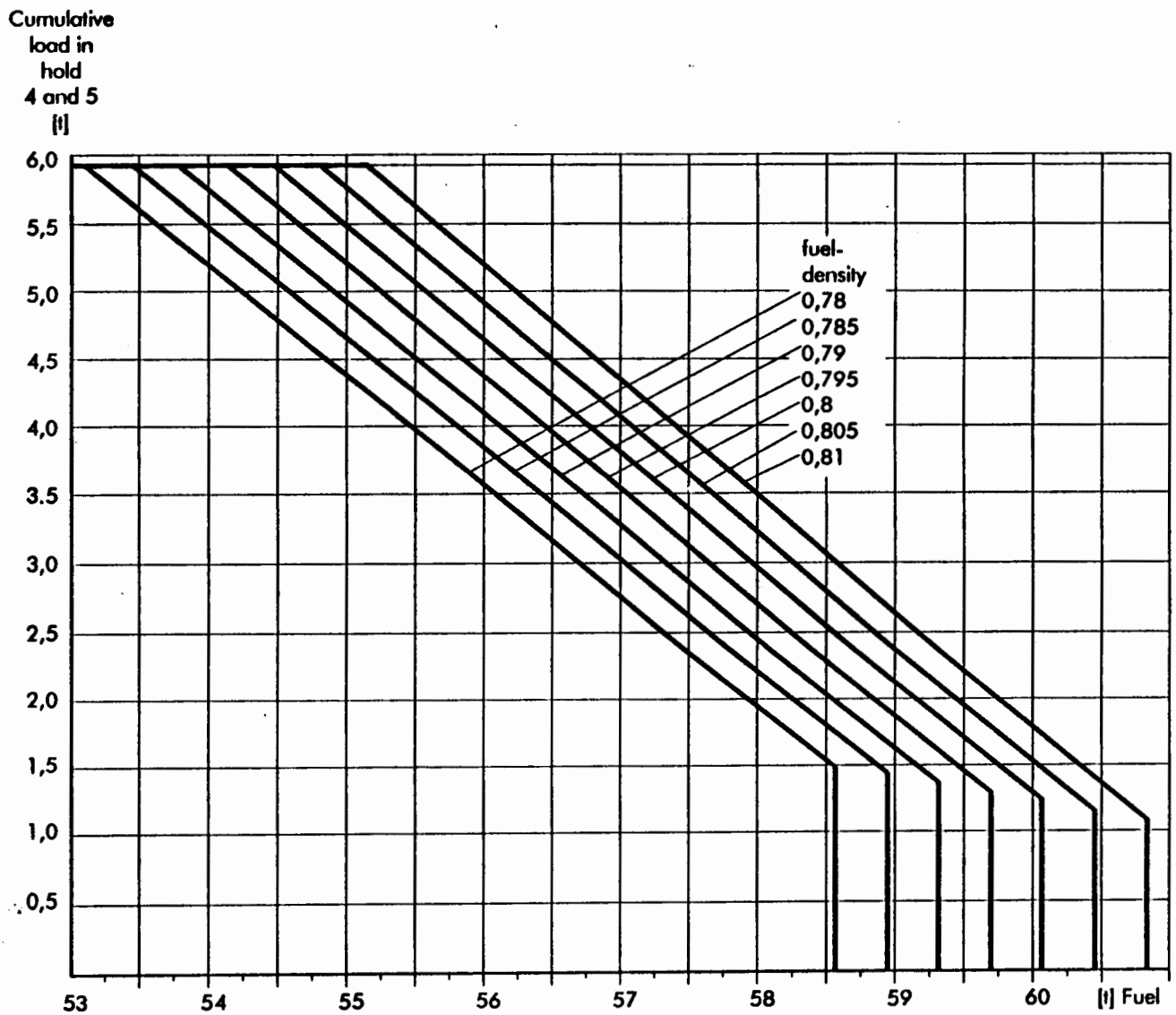


Fig. 2.2.1/3 Maximum cumulative load in hold 4 and 5 and total fuel quantity



INTERFLUG

EDP-SYSTEM
SEMI-PERMANENT DATA

COMMUNICATION ADDRESSES | A Sheet 1 | Carrier IF

1. HANDLING AGENT'S CONTACT ADDRESS
Completed sheets and changes of basic data must be forwarded to:

MAILING ADDRESS:

TELETYPE ADDRESS:

REMARKS:

2. CARRIER'S CONTACT ADDRESS
MAILING ADDRESS: INTERFLUG Verkehrsflug/Flugbetrieb
DDR-1189 Berlin-Schönefeld Flughafen

TELETYPE ADDRESS: SXFVOIF, SXFONIF

REMARKS:

Completed by: (Signature) Issue No.: 4 Date: 13.03.1989

INTERFLUG

EDP-SYSTEM
SEMI-PERMANENT DATA

COMMUNICATION ADDRESSES | A Sheet 2 | Carrier IF

3. AUTOMATICALLY PRODUCED DOCUMENTS
(Tick as required)

- [x] NOTOC
- [ ] SEATPLAN
- [x] LOADPLAN
- [ ] PASSENGER INFO LIST
- [x] LOADSHEET
- [x] LOADING INSTRUCTION REPORT

4. MESSAGE REQUIREMENTS
(Tick as required)

- [ ] LPM Load Planning Message AHM 580
- [x] LDM Load Message AHM 583
- [ ] ALI Abbreviated Load Information Message AHM 584
- [x] CPM Container/Pallet Distribution Message AHM 587
- [x] UCM ULD Control Message AHM 388 (Dispatch only)
- [x] MVT Movement Message AHM 011 and 780
- [x] DIV Diversion Message AHM 781
- [ ] SOM Seats Occupied Message RP 1712
- [x] PTM Passenger Transfer Message RP 1718
- [x] PSM Passenger Service Message RP 1715 (Dispatch only)
- [ ] TPM Teletype Passenger Manifest RP 1717 (Dispatch only)
- [ ] PFS Passenger Final Sales Message RP 1719 (Dispatch only)
- [ ] IDM Industry Discount Message RP 1714
- [ ] RQL Request List Message RP 1709 (Dispatch only)
- [x] PNL/ADL Passenger Name List and Additions and Deletions List RP 1708 (Acceptance Only)
- [ ] SAL Seats Available List RP 1713 (Acceptance Only)
- [ ] SLS Statistical Load Summary AHM 588
- [ ] FMM Fuel Monitoring Message AHM 782
- [ ] RQM Request Information Message AHM 783
- [ ] UWS ULD/Bulk Load Weight Signal AHM 581 (Acceptance Only)

5. MESSAGE ADDRESSES
Attach a complete address list for all messages mentioned under paragraph 4 above
Note: ON PNL/ADL/LDM only number of PAX, no names.

Completed by: (Signature) Issue No.: 4 Date: 30.10.1989

1. PASSENGER AND BAGGAGE WEIGHT

1.1. Passenger weights

Adult male	75 kgs
Adult female	65 kgs
Child	35 kgs
Infant	15 kgs

Remarks:

1.2. Cabin Baggage Weight

Cabin baggage weight is included in the above mentioned Passenger weights — YES ☐ NO ☒
If NO: Actual cabin baggage weight must be used

1.3. Checked Baggage Weight

Weight per piece	actual
Weight per passenger	actual

Enter "actual" if standard weight not permitted.
Remarks:

5. MESSAGE ADDRESSES

Message	Destination			
	SXF	DRS	LEJ	ERF
LDM	SXFOAIF SXFKLIF SXFOPIF SXFCPIF	DRSAPIF SXFOPIF SXFCPIF	LEJAPIF SXFOPIF SXFCPIF	ERFAPIF SXFOPIF SXFCPIF
CPM/UCM	SXFOAIF SXFKLIF SXFOPIF	DRSAPIF SXFOPIF	LEJAPIF SXFOPIF	ERFAPIF SXFOPIF
MVT/DIV	SXFOPIF	DRSAPIF SXFOPIF	LEJAPIF SXFOPIF	ERFAPIF SXFOPIF
PTM/PSM	SXFOAIF SXFKBIF SXFOPIF	DRSAPIF	LEJAPIF	ERFAPIF
PNL/ADL	HDQCRIF	HDQCRIF	HDQCRIF	HDQCRIF

Note: Valid for INTERFLUG-Flights only.

INTERFLUG
EDP-SYSTEM
SEMI-PERMANENT DATA

GENERAL INFORMATION | B Sheet 2 | Carrier IF

2. CREW WEIGHTS

Cockpit crew	80 kgs
Cabin crew	65 kgs

	YES	NO
Crew baggage is included in the above crew weights:	X	

If NO: Actual crew baggage weight must be used.

Remarks:

Completed by: (Signature) Kowell
Issue No: 2
Date: 30.08.1989

INTERFLUG
EDP-SYSTEM
SEMI-PERMANENT DATA

GENERAL INFORMATION | B Sheet 3 | Carrier IF

3. DRY OPERATING WEIGHT AND DRY OPERATING INDEX SPECIFICATIONS

(Tick as appropriate)

Item	DOW Incl.	DOW Excl.	DOI Incl.	DOI Excl.	Remarks
Basic Weight	X		X		
Crew	X		X		
Crew baggage	X		X		
Pantry	X		X		
Containers	X		X		at A310 excluded
Pallets	X		X		at A310 excluded

Completed by: (Signature) Kowell
Issue No: 2
Date: 30.08.1989

INTERFLUG

EDP-SYSTEM
SEMI-PERMANENT DATA

AIRCRAFT DATA	C Sheet 1
A/C Type A310 - 304	Carrier IF

1. BALANCE AND SPECIAL INFORMATION - OUTPUT ON LOADSHEET

1.1. Balance output

Please mark your requirements in respective box.			Remarks
Basic index	BI		
Dry Operating Index	DOI	X	
Deadload Index	DLI		
Loaded Index at zero fuel weight	LIZFW	X	
Loaded Index at take-off weight	LITOW	X	
Loaded Index at landing weight	LILAW	X	
MAC - at zero fuel weight	MACZFW	X	
MAC - at take-off weight	MACTOW	X	
MAC - at landing weight	MACLAW	X	
Stabilizer trim setting at take-off	STABTO *)	X	

*) Specify ANU or AND as appropriate.

Completed by: (Signature) Konell
Issue No: 2
Date: 30.08.1989

INTERFLUG

EDP-SYSTEM
SEMI-PERMANENT DATA

AIRCRAFT DATA	C Sheet 2
A/C Type all	Carrier IF

1.2. Special information

The following information must be entered in the lower part of the EDP-Loadsheet, e.g. Loadmessage before LMC. Baggage, Cargo and Mail specifications, etc.

Loadmessage in standardized format, board dead load

2. AIRCRAFT REGISTRATIONS, WEIGHT AND INDEX DETAILS

DRY OPERATING WEIGHT [ ] BASIC WEIGHT [X] (tick as appropriate)

Attach a list of weight and index values for each aircraft registration, cabin configuration and compartment configuration. (Either fleet data with adjustments or absolute values).

Note: Notification for data changes at short notice may also be made by means of a teletype message.

Completed by: (Signature) Konell
Issue No: 1
Date: 15.06.1989

INTERFLUG

EDP-SYSTEM
SEMI-PERMANENT DATA

AIRCRAFT DATA	C Sheet 3
A/C Type A310-304	Carrier IF

3. BASIC INDEX AND MAC FORMULA

3.1. Examples and Definitions

Index = $\frac{W * (Sta - Ref.Sta)}{C} + K$

%MAC = $\frac{\frac{C * (I - K)}{W} + Ref.Sta - LEMAC}{\frac{MAC}{100}}$

W	=	Weight, actual
Sta.	=	Station, horizontal distance in meters from station zero to the location.
Ref.Sta.	=	Reference station/axis. Selected station around which all index values are calculated.
K	=	Constant used as a plus value to avoid negative index figures.
C	=	Constant used as a denominator to convert moment values into index values.
I	=	Index value corresponding to respective weight.
MAC	=	Length of Mean Aerodynamic Chord in meters.
LEMAC	=	Horizontal distance in meters from the station zero to location of the Leading Edge of the MAC.

3.2. Index formula

Ref. Sta. at : 26,67 meters from zero.

K (constant) = 80

C (constant) = 2.000

3.3. MAC Information

Length of MAC = 5,8287 meters.

LEMAC at = 25,2132 meters from zero.

3.4. Stabilizer trim setting

MAC Range min 18 max 37

Stab Range min +3 UP max -2 DOWN

Stabilizer change item per 1% MAC 0,263

(attach a table or diagram if item changing at different weights.)

Completed by: (Signature) Kowell

Issue No: 2
Date: 19.04.1990

INTERFLUG

EDP-SYSTEM
SEMI-PERMANENT DATA

AIRCRAFT DATA	C Sheet 4
A/C Type A310-304	Carrier IF

4. EFFECT OF FUEL/INJECTION WATER

Fuel Loading ☒
Fuel Usage ☐
Standard Procedure ☒ (Tick as appropriate)
Non-Standard Procedure ☐

FUEL DENSITY: 0,81

Fuel Weight	Index value +/-	100	10	1
1000	+		1,	00
3000	+		4,	00
6000	+		9,	50
11000	+		5,	50
16000	+		2,	40
21000	+		0,	40
22000	+		0,	30
23000	+		0,	10
24000	+		0,	10
27000	+		0,	90
28000	+		0,	80
41000	-	1	1,	90
44400	-	1	6,	30
50200	-		6,	50
55400	+	4	6,	90
61000	+	6	1,	10

Fuel Weight	Index value +/-	100	10	1

Weight of injection water	Index value +/-

NOTES:

1. Use additional sheets for other fuel densities or state correction factors.
2. Specify maximum capacities.

Completed by: (Signature) Kowell

Issue No: 1
Date: 14.02.1990

INTERFLUG

EDP-SYSTEM
SEMI-PERMANENT DATA

AIRCRAFT DATA	C Sheet 4
A/C Type A310-304	Carrier IF

4. EFFECT OF FUEL/INJECTION WATER

Fuel Loading	☒	
Fuel Usage	☐	
Standard Procedure	☒	(Tick as appropriate)
Non-Standard Procedure	☐	

FUEL DENSITY: 0,79

Fuel Weight	Index value +/- 100 10 1
1000	+ 1,00
3000	+ 4,00
6000	+ 9,50
11000	+ 5,50
16000	+ 2,40
21000	+ 0,40
22000	+ 0,30
23000	+ 0,10
24000	+ 0,10
27000	+ 0,90
28000	+ 0,80
41000	- 12,80
43400	- 16,00
49000	- 6,20
54000	+ 45,70
59600	+ 59,80

Fuel Weight	Index value +/- 100 10 1

Weight of injection water	Index value +/-

NOTES:

1. Use additional sheets for other fuel densities or state correction factors.
2. Specify maximum capacities.

Completed by: (Signature) [signature]

Issue No: 1
Date: 14.02.1990

27.06.1990
Ausgabe: 1

INTERFLUG

EDP-SYSTEM
SEMI-PERMANENT DATA

AIRCRAFT DATA	C Sheet 4
A/C Type A310-304	Carrier IF

4. EFFECT OF FUEL/INJECTION WATER

Fuel Loading	☒	
Fuel Usage	☐	
Standard Procedure	☒	(Tick as appropriate)
Non-Standard Procedure	☐	

FUEL DENSITY: 0,80

Fuel Weight	Index value +/- 100 10 1
1000	+ 1,00
3000	+ 4,00
6000	+ 9,50
11000	+ 5,50
16000	+ 2,40
21000	+ 0,40
22000	+ 0,30
23000	+ 0,10
24000	+ 0,10
27000	+ 0,90
28000	+ 0,80
41000	- 12,30
44000	- 16,10
49600	- 6,30
54600	+ 45,70
60200	+ 60,20

Fuel Weight	Index value +/- 100 10 1

Weight of injection water	Index value +/-

NOTES:

1. Use additional sheets for other fuel densities or state correction factors.
2. Specify maximum capacities.

Completed by: (Signature) [signature]

Issue No: 1
Date: 14.02.1990

INTERFLUG

EDP-SYSTEM
SEMI-PERMANENT DATA

AIRCRAFT DATA	C Sheet 4
A/C Type A310-304	Carrier IF

4. EFFECT OF FUEL/INJECTION WATER

Fuel Loading	☒	(Tick as appropriate)
Fuel Usage	☐	
Standard Procedure	☒	
Non-Standard Procedure	☐	

FUEL DENSITY: 0,78

Fuel Weight	Index value +/- 100 10 1
1000	+ 1,00
3000	+ 4,00
6000	+ 9,50
11000	+ 5,50
16000	+ 2,40
21000	+ 0,40
22000	+ 0,30
23000	+ 0,10
24000	+ 0,10
27000	+ 0,90
28000	+ 0,80
41000	- 13,20
42800	- 15,70
48400	- 6,10
53200	+ 44,20
58800	+ 59,00

Fuel Weight	Index value +/- 100 10 1

Weight of injection water	Index value +/-

NOTES:

1. Use additional sheets for other fuel densities or state correction factors.
2. Specify maximum capacities.

Completed by: (Signature)

Issue No: 2
Date: 14.02.1990

INTERFLUG

EDP-SYSTEM
SEMI-PERMANENT DATA

AIRCRAFT DATA	C Sheet 5
A/C Type A310-304	Carrier IF

5. COCKPIT, number of seats and average station

Maximum number of cockpit seats	Length of arm from reference station		Index influence per 1 kg	
	+/-	m	+/-	
Pilots	+	8,872	-	0,0089
3. Member	+	9,578	-	0,0055
4. Member	+	10,085	-	0,0029

Remarks:

Completed by: (Signature)

Issue No: 1
Date: 15.06.1989

6. LIMITATIONS

6.1. Aircraft Weight Limitations

Maximum weights for:

Aircraft Reg. or Subtype Nr.	Ramp/Taxi	Design Take-off wet *)	Design Take-off dry	Zero Fuel	Design Landing
DDR-A8A	157 900	-	157 000	114 000	124 000
DDR-A8B	157 900	-	157 000	114 000	124 000
DDR-A8C	157 900	-	157 000	114 000	124 000

*) Valid for Take-off with Water-Injektion

Completed by: (Signature) Kowell

Issue No: 1
Date: 15.06.1989

6.2. CG - LIMITS FOR LOADSHEET PURPOSES

Enter the forward and the aft balance limits in the boxes, commencing at the lowest weight and terminating at the highest weight to be checked.
IMPORTANT - If limits are affected and/or determined by passenger/fuel/version or other conditions, specify each seat of limits on a separate sheet, entering the special condition(s) in the box.

FORWARD

Special condition if applicable:

Specify applicability*)	Weight	Index value +/- 100 10 1 0,1 0,01
TOW	80000	+ 6 3, 6 9
TOW	157000	+ 4 8, 0 0
LW, ZFW, Inflight	80000	+ 5 9, 0 3
LW, ZFW, Inflight	114000	+ 5 0, 1 2
LW, ZFW, Inflight	119000	+ 5 5, 7 5
LW, ZFW, Inflight	157000	+ 4 8, 0 0

AFT

Special condition if applicable:

Specify applicability*)	Weight	Index value +/- 100 10 1 0,1 0,01
TOW	80000	+ 9 6, 3 4
TOW	98000	+ 10 0, 0 1
TOW	149000	+ 13 6, 4 8
TOW	157000	+ 13 9, 5 1
LW, ZFW, Inflight	80000	+ 10 6, 8 3
LW, ZFW, Inflight	131000	+ 12 3, 9 3
LW, ZFW, Inflight	149000	+ 13 6, 4 8
LW, ZFW, Inflight	157000	+ 13 9, 5 1

*) Zero Fuel, Taxi, Take-off, Inflight, Landing

Note: Attach a balance chart for check purposes

Remarks:

Completed by: (Signature) Kowell

Issue No: 1
Date: 15.06.1989

INTERFLUG

EDP-SYSTEM
SEMI-PERMANENT DATA

AIRCRAFT DATA	C Sheet 8
A/C Type all	Carrier IF

7. SEATING CONDITIONS

7.1. Loadsheet Output

State below how the seating conditions should be shown in the respective loadsheet box. Give example. Enclose a passenger distribution table if used.

Example: A/20 B/15 C/15 D/10

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Issue No: 2
Date: 18.01.1985

INTERFLUG

EDP-SYSTEM
SEMI-PERMANENT DATA

AIRCRAFT DATA	C Sheet 9
42/166	A/C Type A310-304 / Carrier IF

8. PASSENGER SEATS

Class codes: (e.g. F, Y, C, M, etc.)

Class 1 C Class 4 _____
Class 2 M Class 5 _____
Class 3 _____

NOTE: Fill in one table for each cabin configuration code.

Name of Cabin section	Number of seats						Total per cabin section
	Class 1	Class 2	Class 3	Class 4	Class 5		
A	42	-	-	-	-		42
B	-	78	-	-	-		78
C	-	88	-	-	-		88
Subtotal	42	166	-	-	-		
Total per class							

Remarks:

Completed by: (Signature) Kowell

Issue No: 1
Date: 15.06.1989

INTERFLUG
EDP-SYSTEM
SEMI-PERMANENT DATA

AIRCRAFT DATA	C Sheet 10

Cabin-Configuration(s)	A/C Type	Carrier
42/166	A310 - 304	IF

9. AVERAGE STATION

9.1. Class/Cabin Sections

Class/ Cabin Section	Lenght of arm from reference station		Index influence	
	+/-	m	+/-	per 1 kg
A	+	17,166	-	0,00407,5
B	+	24,945	-	0,00408,6
C	+	34,108	+	0,00307,2

9.2. Seating Layout

Show the passenger seating layout for the configuration given in the box at the top by inserting the seat row numbers and letters in the following table. For special seats use the description codes listed below:

B	=	Bassinett position	P	=	Stretcher location
C	=	Crew seat	Q	=	Quiet zone
E	=	Emergency seat	S	=	Smoking
G	=	Groups	T	=	Near toilet
H	=	Incapacitated passenger	U	=	Unaccompanied minor
I	=	Infant preference rows/seats	V	=	Seat left vacant/offered last
J	=	Rear facing seats	W	=	No movie
K	=	Near galley	X	=	No facility seat (e.g. no distinction
L	=	Leg space seat			between smoking and non-smoking
M	=	Wheel chair	Y	=	Not fitted
N	=	No Smoking	Z	=	Buffer zone
O	=	Over wing seat	*	=	Aisle

Alpha/Charakters - A, D, F, R, Blank, not used
Note: Seat designators to be in accordance with Recommended Practice 1711.

Completed by: (Signature) Konell
Issue No.: 1
Date: 15.06.1989

INTERFLUG
EDP-SYSTEM
SEMI-PERMANENT DATA

AIRCRAFT DATA	C Sheet 11

Cabin-Configuration(s)	A/C Type	Carrier
42/166 No Smoking	A310 - 304	IF

9.2.1. Seatplan Layout/Facilities and Row Index Influence

SEC-TION	ROW No.	ROW LETTER									Index Influence per seat row						
		A	B	C	D		F	G	H	K	+/-	per 1 kg					
A	1	BKLNWT	KLNBT	KLNT	KLNT		--	KLNT	KLNBT	BKLNWT	-	0,	0	0	5	9	3
	2	NU	NU	NV	N		--	N	N	N	-	0,	0	0	5	4	6
	3	NI	NI	NI	NI		--	NI	NI	NI	-	0,	0	0	4	9	9
	4	HNQZ	NQZ	NQZ	NQZ		--	NQZ	NQZ	HNQZ	-	0,	0	0	4	5	2
	5	HQN	QN	QN	QN		--	QN	QN	HQN	-	0,	0	0	4	0	5
	6	QN	QN	QN	QN		--	QN	QN	QN	-	0,	0	0	3	5	8
B	7	BLNW	BLNW	LN	LN		LN	LN	BLNW	BLNW	-	0,	0	0	2	9	0
	8	NOI	NOI	NOI	NOI		NOI	NOI	NOI	NOI	-	0,	0	0	2	4	6
	9	NOQ	NOQ	NOQ	NOQ		NOQ	NOQ	NOQ	NOQ	-	0,	0	0	2	0	3
	10	--	ENOQ	NOQ	NOQ		NOQ	NOQ	ENOQ	--	-	0,	0	0	1	6	0
	11	CLNOV	CLNOV	CLNOV	CLNOV		CLNOV	CLNOV	CLNOV	CLNOV	-	0,	0	0	1	0	0
	12	NOU	NOU	NO	NO		NO	NO	NO	NO	-	0,	0	0	0	5	8
	13	NO	NO	NO	NO		NO	NO	NO	NO	-	0,	0	0	0	1	5
	14	NO	NO	NO	NO		NO	NO	NO	NO	+	0,	0	0	0	2	7
	15	NO	NO	NO	NO		NO	NO	NO	NO	+	0,	0	0	0	7	0
	16	GNO	GNO	GNO	GNO		GNO	GNO	GNO	GNO	+	0,	0	0	1	1	2
C	17	GNO	GNO	GNOV	GNO		GNO	GNO	GNO	GNO	+	0,	0	0	1	5	5
	18	GHNZ	GNZ	GNZ	GNZ		GNZ	GNZ	GNZ	GHNZ	+	0,	0	0	1	9	8
	19	GHNZ	GNZ	GNZ	GNZ		GNZ	GNZ	GNZ	GHNZ	+	0,	0	0	2	4	0
	20	GHN	GN	GN	GN		GN	GN	GN	GHN	+	0,	0	0	2	8	3
	21	GN	GN	GN	GN		GN	GN	GN	GN	+	0,	0	0	3	2	5
	22	N	N	N	N		N	N	N	N	+	0,	0	0	3	6	7
	23	N	N	N	N		N	N	N	N	+	0,	0	0	4	0	9
	24	MN	MN	N	N		--	N	MN	MN	+	0,	0	0	4	5	2
	25	N	N	N	N		--	N	N	N	+	0,	0	0	4	9	4
	26	CNV	CNV	N	N		--	N	N	N	+	0,	0	0	5	3	6
	27	CNTV	CNTV	NT	NT		--	NT	NT	NT	+	0,	0	0	5	7	8
	28	CKNTV	CKNTV	--	--		--	--	KNT	KNT	+	0,	0	0	6	2	4

Completed by: (Signature) Konell
Issue No.: 1
Date: 27.11.1989

INTERFLUG
EDP-SYSTEM
SEMI-PERMANENT DATA

AIRCRAFT DATA

C
Sheet 11

Cabin-Configuration(s)	A/C Type	Carrier
42/166	A310 - 304	IF

9.2.1. Seatplan Layout/Facilities and Row Index Influence

SEC-TION	ROW No.	ROW LETTER A	B	C	D		F	G	H	K		Index Influence per seat row +/- per 1 kg
A	1	WBKLNT	KLNBT	KLNT	KLNT		--	KLNT	KLNBT	WBKLNT		- 0,00595
	2	NU	NU	NV	N		--	N	N	N		- 0,00546
	3	NI	NI	NI	NI		--	NI	NI	NI		- 0,00499
	4	HNQZ	NQZ	NQZ	NQZ		--	NQZ	NQZ	HNQZ		- 0,00452
	5	HQS	QS	QS	QS		--	QS	QS	HQS		- 0,00405
	6	QS	QS	QS	QS		--	QS	QS	QS		- 0,00358
B	7	BLNW	BLNW	LN	LN		LN	LN	BLNW	BLNW		- 0,00290
	8	NOI	NOI	NOI	NOI		NOI	NOI	NOI	NOI		- 0,00246
	9	NOQ	NOQ	NOQ	NOQ		NOQ	NOQ	NOQ	NOQ		- 0,00203
	10	--	ENOQ	NOQ	NOQ		NOQ	NOQ	ENOQ	--		- 0,00160
	11	CLNOV	CLNOV	CLNOV	CLNOV		CLNOV	CLNOV	CLNOV	CLNOV		- 0,00110
	12	NOU	NOU	NO	NO		NO	NO	NO	NO		- 0,00058
	13	NO	NO	NO	NO		NO	NO	NO	NO		- 0,00011
	14	NO	NO	NO	NO		NO	NO	NO	NO		+ 0,00027
	15	NO	NO	NO	NO		NO	NO	NO	NO		+ 0,00070
	16	GNO	GNO	GNO	GNO		GNO	GNO	GNO	GNO		+ 0,00112
C	17	GNO	GNO	GNOV	GNO		GNO	GNO	GNO	GNO		+ 0,00155
	18	GHNZ	GNZ	GNZ	GNZ		GNZ	GNZ	GNZ	GHNZ		+ 0,00198
	19	GHNZ	GNZ	GNZ	GNZ		GNZ	GNZ	GNZ	GHNZ		+ 0,00240
	20	GHS	GS	GS	GS		GS	GS	GS	GH		+ 0,00283
	21	GS	GS	GS	GS		GS	GS	GS	GS		+ 0,00325
	22	S	S	S	S		S	S	S	S		+ 0,00367
	23	S	S	S	S		S	S	S	S		+ 0,00409
	24	MS	MS	S	S		--	S	MS	MS		+ 0,00452
	25	S	S	S	S		--	S	S	S		+ 0,00494
	26	CSV	CSV	S	S		--	S	S	S		+ 0,00536
	27	CSTV	CSTV	ST	ST		--	ST	ST	ST		+ 0,00578
	28	CKSTV	CKSTV	--	--		--	--	KST	KST		+ 0,00621

Completed by: (Signature) Konell
Issue No.: 2
Date: 27.06.1989

INTERFLUG
EDP-SYSTEM
SEMI-PERMANENT DATA

AIRCRAFT DATA

C
Sheet 12

Cabin-Configuration(s)	A/C Type	Carrier
42/166	A310-304	IF

9.3. Cabin Crew seats

Crew seats locations	Max. No. of seats	Length of arm from reference station +/-	m	Index influence +/-	per 1 kg
Purser station	2	+	11,7	-	0,00749
Forward daar	2	+	12,78	-	0,00695
Emergency exit	2	+	23,39	-	0,00614
Galley G6a	1	+	40,74	+	0,00704
Galley G7a	1	+	40,74	+	0,00704

Remarks:

9.4. Galleys

Galley locations	Length of arm from reference station +/-	m	Index influence +/-	per 1 kg
Forward cabin G1	+	10,714	-	0,00798
Forward cabin G1c	+	12,596	-	0,00704
Rear cabin G6 + G6a	+	42,293	+	0,00781
Rear cabin G7 + G7a	+	42,293	+	0,00781
Forward cabin G10	+	13,409	-	0,00663

Remarks:

Completed by: (Signature) Konell
Issue No: 1
Date: 15.06.1989

INTERFLUG
EDP-SYSTEM
SEMI-PERMANENT DATA

AIRCRAFT DATA	C Sheet 13

Cabin-Configuration(s)	A/C Type	Carrier
42/166	A310-304	IF

9.5. Pantry Weight/Pantry Code (normally used for above mentioned cabin configurations).

Pantry Code	Pantry Weight	Location*)
see remarks	550/550	G1
	550/320	G1c
	500/460	G6
	550/550	G7
	330/120	G10
Total		

NOTE: The columns "Pantry Weight" and "Location" must be filled in only if Basic Weight is specified under paragraph 2 above.

*) Use the locations as under paragraph 9.4.

Remarks: For planning purposes only. 1.value for destinations SIN,PEK - pantry code: L. 2.value for destinations ROM,HER, ATH, LCA - pantry code: M.

9.6. Crew Distribution/Crew-Code (normally used for above mentioned cabin configurations).

NOTE: The column "Location" is to be filled-in only if Basic Weight is specified under paragraph 2 above.

Crew Code	Cockpit Crew	Cabincrew	Location*)	Location of Crew Baggage
2/6	2	6	see9.3.	bulk cargo
2/7	2	7		
2/8	2	8		
3/6	3	6		
3/7	3	7		
3/8	3	8		
4/6	4	6		
4/7	4	7		
4/8	4	8		

*) Use the locations as under paragraph 9.3.

Completed by: (Signature) Kowalik
Issue No.: 1
Date: 15.06.1989

INTERFLUG
EDP-SYSTEM
SEMI-PERMANENT DATA

AIRCRAFT DATA	C Sheet 14

Cabin-Configuration(s)	A/C Type	Carrier
42/166	A310-304	IF

10. DETAILS FOR COMPARTMENT TRIM

Compartment Number	DESCRIPTION	Maximum Capacity: Gross Weight	Maximum Capacity: Volume*)	Index value per 1 kg +/-
1	forward cargo hold, fwd.	4 626 kgs		- 0,0 0 0 5 1 5
2	forward cargo hold, aft	9 528 kgs		- 0,0 0 0 3 6 9
4	aft cargo hold	3 175 kgs		+ 0,0 0 0 3 3 3
5	bulk cargo hold	2 770 kgs	17,3 cums	+ 0,0 0 0 4 5 4
DIP-Locker				

*) Volume information required for bulk compartments only.

Remarks: Cumulative gross weight in compartments 1 and 2 - 12 700 kgs.

10.1. Combined Load Limitations

Attach relevant company regulations.

Completed by: (Signature) Kowalik
Issue No.: 2
Date: 03.01.1990

INTERFLUG

EDP-SYSTEM
SEMI-PERMANENT DATA

AIRCRAFT DATA		C Sheet 15
Cabin-Configuration(s) 42/166	A/C Type A310-304	Carrier IF

11. DETAILS FOR BAY/SECTION TRIM

Bay/Section	Maximum Capacity GROSS WEIGHT	VOLUME*)	=	Index value per 1 kg
Fwd.cargo, 1.quarter			-	0, 0 0 . 5 2 7
Fwd.cargo, 2.quarter	12700 kgs		-	0, 0 0 4 4 9
Fwd.cargo, 3.quarter			-	0, 0 0 3 7 0
Fwd.cargo, 4.quorter			-	0, 0 0 2 9 1
Fwd. cargo, 1. third			-	0, 0 0 5 4 4
Fwd. cargo, 2. third	12700 kgs		-	0, 0 0 4 2 1
Fwd. cargo, 3. third			-	0, 0 0 3 0 8
Aft cargo	3175 kgs		+	0, 0 0 3 3 3
Fwd. bulk	1841 kgs	11,5 cums	+	0, 0 0 4 2 4
Middle bulk	657 kgs	4,1 cums	+	0, 0 0 5 0 3
Crew baggage	272 kgs	1,7 cums	+	0, 0 0 5 4 3
Security Locker				

*) Volume information required for bulk compartment only.

Remarks: Maximum cumulative load of aft cargo hold and bulk cargo hold is 12 426 kgs including fuel weight in ACT 1 + 2.
In one quarter of forward cargo hold may be loaded one container V1,V3 or W3 resp. one pallett W2.
In one third of forward cargo hold may be loaded one pallett A2.

11.1. Unsymmetrical Load Limitations
Attach relevant company regulations.

No regulations.

Completed by: (Signature) Koneli
Issue No.: 2
Date: 02.01.1990

INTERFLUG

EDP-SYSTEM
SEMI-PERMANENT DATA

AIRCRAFT DATA		C Sheet 16
A/C Type A310-304	kg / lb	Carrier IF

12. BALLAST

FIXED PROVISIONS FOR CARRYING BALLAST None

Specify or attach a table.

Remarks:

Completed by: (Signature) Koneli
Issue No: 1
Date: 15.06.1989

INTERFLUG

EDP-SYSTEM
SEMI-PERMANENT DATA

LOADPLANNING DATA	D Sheet 2
A/C Type A310-304	Carrier IF

2. UNIT LOAD DEVICES DETAILS

		MAXIMUM CAPACITY		
TYPE CODE	TARE WT	GROSS WT	VOLUME *)	REMARKS
LD3 (AKE)	80 kgs	1 588 kgs	3,8 cum	
LD3 (AVE)	94,5 kgs	1 588 kgs	3,8 cum	
PLE 60,4in. x 125in.		3 175 kgs		Lower deck
PAE 88 in. x 125 in.		4 626 kgs		Lower deck

*) Containers/Igloos only

Note: For pallets, specify Lower Deck or Main Deck.

Completed by: (Signature) Kowell

Issue No: 1
Date: 15.06.1989

INTERFLUG

EDP-SYSTEM
SEMI-PERMANENT DATA

LOADPLANNING DATA	D Sheet 1
A/C Type A310-304	Carrier IF

1. CG - LIMITS

1.1. Planning Limits

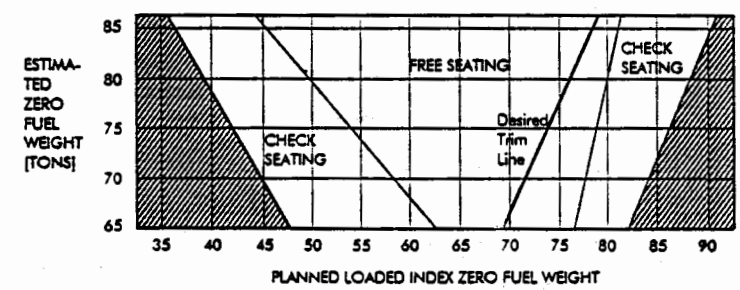
CG-Limits for loadplanning purposes shall be agreed between carrier and system operator.

1.2. Desired Trim Line for Fuel Saving Purposes

The DESIRED TRIM LINE shown in the balance graph below is a loadplanning limit only. In the interest of fuel economy the load in the compartments shall, whenever possible, be distributed in such a way that the LIZFW is aft of this line. The respective breakpoints (weight/index) of the desired trim line shall be entered in the table below.

Weight						Index value					
						+/-	100	10	1	0,1	0,01
	8	0	0	0	0	+		9	5,	3	0
	9	8	0	0	0	+		9	9,	0	0
1	3	1	0	0	0	+	1	2	3,	0	0
1	4	9	0	0	0	+	1	3	5,	5	0
1	5	7	0	0	0	+	1	3	8,	5	0

Example



Completed by: (Signature) Kowell

Issue No: 1
Date: 15.06.1989

INTERFLUG

EDP-SYSTEM
SEMI-PERMANENT DATA

LOADPLANNING DATA	D Sheet 3
A/C Type A310-304	Carrier IF

3. SPECIAL LOAD

Attach relevant company regulations for special load (AVI, Dangerous Goods, etc.)

Transport of cargo in aft cargo hold which - according to the "ICAO TECHNICAL INSTRUCTIONS FOR THE SAFE TRANSPORT OF DANGEROUS GOODS BY AIR" and the "IATA RESTRICTED ARTICLES REGULATIONS" - by it's nature is corrosive, explosive, or aggressive to the additional center tank structure, and transport of combustible liquids and gases is not allowed.

Completed by: (Signature) Kowell

Issue No: 1
Date: 15.06.1989

INTERFLUG

EDP-SYSTEM
SEMI-PERMANENT DATA

LOADPLANNING DATA	D Sheet 4
A/C Type A310 - 304	Carrier IF

4. ADDITIONAL LOADING INFORMATION

Code	Hold	Units
01/00	1,2	8 Containers
02/00	1,2,4	10 Containers
03/01	1	2 Containers
	2, Pos. 21L/R	2 Containers
	2, Pos. 22P	1 Pallett PAE
03/11	1	1 Pallett PAE
	2	6 Containers
04/01	1	2 Containers
	2, Pos. 21L/R	2 Containers
	2, Pos. 22P	1 Pallett PAE
	4	2 Containers
04/11	1	1 Pallett PAE
	2	6 Containers
	4	2 Containers
05/01	1	2 Containers
	2	2 Palletts PAE
06/01	1	2 Containers
	2	2 Palletts PAE
	4	2 Containers
07/01	1,2	3 Palletts PAE
08/01	1,2	3 Palletts PAE
	4	2 Containers
09/02	1	1 Pallett PLE
	2	6 Containers

Code	Hold	Units
10/02	1	1 Pallett PLE
	2	6 Containers
	4	2 Containers
11/02	1	1 Pallett PLE
	2, Pos. 21L/R	1 Pallett PLE
	2, Pos. 22+23L/R	4 Containers
12/02	1	1 Pallett PLE
	2, Pos. 21L/R	1 Pallett PLE
	2, Pos. 22+23L/R	4 Containers
	4	2 Containers
13/99	1	1 Pallett PLE
	2	6 Containers
	4	1 Pallett PLE
14/99	1	1 Pallett PLE
	2, Pos.21L/R	1 Pallett PLE
	2, Pos. 22+23L/R	4 Containers
	4	1 Pallett PLE
15/02	1	1 Pallett PLE
	2	3 Palletts PLE
16/02	1	1 Pallett PLE
	2	3 Palletts PLE
	4	2 Containers
17/02	1,2,4	5 Palletts PLE

Note: Container in Dimensions 60,4x61,5 in.; Pallett PAE - 88x125 in.; Pallett PLE - 60,4x125 in.

Completed by: (Signature) Kowell

Issue No: 1
Date: 20.11.1989

airport	elev.[ft]	runway	flaps	sheet
Abu Dhabi	88	13/31	0	123
			15	124
Acapulco	18	28/10	0	339
			15	340
Amman	2395	08R/26L	0	191
			15	192
		26R	0	193
			15	194
		08L	0	195
			15	196
Amsterdam	-10	01R/19L	0	255
			15	256
		24	0	257
			15	258
		06	0	259
			15	260
		01L/19R	0	261
			15	262
		09/27	0	263
			15	264
Ankara	3126	21	0	73
			15	74
		03	0	75
			15	76
Athens	92	33R	0	29
			15	30
		15L	0	31
			15	32
		33L	0	33
			15	34
		15R	0	35
			15	36
Bangkok	10	03L/21R	0	171
			15	172
		03R/23L	0	173
			15	174
Barbados (Bridget.)(Ada.)	169	09	15	409
		27	15	410
Barcelona	25	15	15	397
		33	15	398
Beijing	115	18L/36R	0	111
			15	112
		18R/36L	0	113
			15	114
Berlin-Schönefeld	154	25L/07R	0	1
			15	2
		25R	0	3
			15	4
		07L	0	5
			15	6
Berlin-Tegel	121	08L	15	465
		08R	15	466
		26L	15	467
		26R	15	468
Berlin-Tempelhof	164	09R	15	469
		27L	15	470
Bermuda NAS	12	12	15	392
		30	15	393
BGSF	165	28	0	289
			15	290
		10	0	291
			15	292
BIKF	171	25	0	277
			15	278
		07	0	279

airport	elev.[ft]	runway	flaps	sheet
			15	280
		20	0	281
			15	282
		02	0	283
			15	284
		29	0	285
			15	286
		11	0	287
			15	288
Bombay	27	09/27	0	357
			15	358
		14	0	359
			15	360
		32	0	361
			15	362
Bratsk	1608	12/30	0	385
			15	386
Brazzaville	1047	06/24	0	209
			15	210
Burgas	135	22	0	139
			15	140
		04	0	141
			15	142
Cairo	380	05L/23R	0	149
			15	150
		05R/23L	0	151
			15	152
		34	0	153
			15	154
		16	0	155
			15	156
Calcutta	17	01L/19R	0	177
			15	178
		19L	0	179
			15	180
		01R	0	181
			15	182
Camaguey	413	25	0	323
			15	324
		07	0	325
			15	326
Chita	2270	11	0	381
			15	382
		29	0	383
			15	384
Cologne-Bonn	300	07	15	420
		14L	15	421
		25	15	422
		32R	15	423
Colombo	29	04/22	0	183
			15	184
Constanta	354	36	0	145
			15	146
		18	0	147
			15	148
CYHZ	477	06/24	0	313
			15	314
CYJT	84	28	0	307
			15	308
		10	0	309
			15	310
CYQX	496	13	0	299
			15	300
		31	0	301
			15	302

airport	elev.[ft]	runway	flaps	sheet
		22	0	303
			15	304
		04	0	305
			15	306
CYYR	160	08/26	0	311
			15	312
CYYT	461	11	0	315
			15	316
		29	0	317
			15	318
Damaskus	2021	05L/23R	0	125
			15	126
		05R/23L	0	127
			15	128
Doha	36	16	0	197
			15	198
		34	0	199
			15	200
Dresden	755	22	0	7
			15	8
		04	0	9
			15	10
DTMB	7	08/26	15	391
DTTA	20	01/19	0	227
			15	228
		29	0	229
			15	230
		11	0	231
			15	232
Dubai	33	30L	0	117
			15	118
		12L/30R	0	119
			15	120
		12R	0	121
			15	122
Dusseldorf	147	05	15	415
		23	15	416
EDBB	164	09R	20	469
		27L	20	470
EDBT	121	08L	15	465
		08R	15	466
		26L	15	467
		26R	15	468
EDDF	364	07	15	417
		18	15	418
		25	15	419
EDDH	53	23	0	265
			15	266
		05	0	267
			15	268
		33	0	269
			15	270
		15	0	271
			15	272
EDDK	300	07	15	420
		14L	15	421
		25	15	422
		32R	15	423
EDDL	147	05	15	415
		23	15	416
EDDM	1737	07R	15	424
		25L	15	425
EDDS	1300	26	15	438
		08	15	439

airport	elev.[ft]	runway	flaps	sheet
EDVV	183	27L/09R	15	413
		27R/09L	15	414
EFHK	167	04	15	471
		15/33	15	472
		22	15	473
EFTU	161	08	15	474
		26	15	475
EHAM	-10	01R/19L	0	255
			15	256
		24	0	257
			15	258
		06	0	259
			15	260
		01L/19R	0	261
			15	262
		09/27	0	263
			15	264
EINN	47	24	0	273
			15	274
		06	0	275
			15	276
Erfurt	1033	28	0	15
			15	16
		28	20	17
		10	0	18
			15	19
			20	20
ETBS	154	25L/07R	0	1
			15	2
		25R	0	3
			15	4
		07L	0	5
			15	6
ETDN	755	22	0	7
			15	8
		04	0	9
			15	10
ETEF	1033	28	0	15
			15	16
			20	17
		10	0	18
			15	19
			20	20
ETLS	466	29	0	11
			15	12
		11	0	13
			15	14
FCBB	1047	06/24	0	209
			15	210
FNLU	243	26	0	211
			15	212
		08	0	213
			15	214
		24	0	215
			15	216
		06	0	217
			15	218
FOON	1447	15	0	219
			15	220
		33	0	221
			15	222
Franceville	1447	15	0	219
			15	220
		33	0	221
			15	222

airport	elev.[ft]	runway	flaps	sheet
Frankfurt/Main	364	07	15	417
		18	15	418
		25	15	419
Freeport	7	06/24	15	455
Ft de France	16	09	15	411
		27	15	412
Fukuoka	30	16/34	0	347
			15	348
FZAA	1010	24	0	223
			15	224
		06	0	225
			15	226
Gander	496	13	0	299
			15	300
		31	0	301
			15	302
		22	0	303
			15	304
		04	0	305
			15	306
GCLP	75	21L	0	233
			15	234
		21R	0	235
			15	236
		03R	0	237
			15	238
		03L	0	239
			15	240
GCTS	210	08	15	476
		26	15	477
GCXO	2073	12	15	478
		30	15	479
Goose Bay	160	08/26	0	311
			15	312
Gran Canaria	75	21L	0	233
			15	234
		21R	0	235
			15	236
		03R	0	237
			15	238
		03L	0	239
			15	240
Halifax	477	06/24	0	313
			15	314
Hamburg	53	23	0	265
			15	266
		05	0	267
			15	268
		33	0	269
			15	270
		15	0	271
			15	272
Hannover	183	27L/09R	15	413
		27R/09L	15	414
Hanoi	39	11/29	15	462
Havana	210	23	0	319
			15	320
		05	0	321
			15	322
HECA	380	05L/23R	0	149
			15	150
		05R/23L	0	151
			15	152
		34	0	153
			15	154

airport	elev.[ft]	runway	flaps	sheet
		16	0	155
			15	156
Helsinki	167	04	15	471
		15/33	15	472
		22	15	473
Hiroshima	10	04/22	0	351
			15	352
HLLT	263	27	0	205
			15	206
		09	0	207
			15	208
Hochimin	33	07R/25L	15	464
Iraklion	115	27	0	41
			15	42
		09	0	43
			15	44
Irkutsk	1673	30	0	103
			15	104
		12	0	105
			15	106
Istanbul	158	36	0	67
			15	68
		18	0	69
			15	70
		06/24	0	71
			15	72
Johor Bahru	135	16	0	167
			15	168
Kalinin	469	25	0	81
			15	82
		07	0	83
			15	84
Keflavik	171	25	0	277
			15	278
		07	0	279
			15	280
		20	0	281
			15	282
		02	0	283
			15	284
		29	0	285
			15	286
		11	0	287
			15	288
Khabarovsk	240	05L/23R	0	107
			15	108
		05R/23L	0	109
			15	110
Kinshasa	1010	24	0	223
			15	224
		06	0	225
			15	226
KMIA	11	09L	15	456
		09R	15	457
		12	15	458
		27L	15	459
		27R	15	460
		30	15	461
Kos	409	15	15	440
		33	15	441
Köln	300	07	15	420
		14L	15	421
		25	15	422
		32R	15	423

airport	elev.[ft]	runway	flaps	sheet
Kuala Lumpur	89	15/33	0	169
			15	170
Kumamoto	632	07	15	446
Lajes	180	34	0	295
			15	296
		16	0	297
			15	298
Larnaca	8	22	0	129
			15	130
		04	0	131
			15	132
LBBG	135	22	0	139
			15	140
		04	0	141
			15	142
LBSF	1742	10/28	0	137
			15	138
LBWN	230	09/27	0	143
			15	144
LCLK	8	22	0	129
			15	130
		04	0	131
			15	132
LCPH	39	29	0	133
			15	134
		11	0	135
			15	136
Leipzig	466	29	0	11
			15	12
		11	0	13
			15	14
LEMD	1999	15	0	365
			15	366
		33	0	367
			15	368
Leningrad	79	10L/28R	0	95
			15	96
		10R/28L	0	97
			15	98
LEPA	32	06L	15	387
		06R	15	388
		24L	15	389
		24R	15	390
LEVC	226	12	15	434
		30	15	435
LEZG	863	12	0	369
			15	370
		12L/30R	0	371
			15	372
		30	0	373
			15	374
LFPG	387	09/27	15	407
		10/28	15	408
LFPO	292	02L/20R	0	245
			15	246
		26	0	247
			15	248
		08	0	249
			15	250
		25	0	251
			15	252
		07	0	253
			15	254

airport	elev.[ft]	runway	flaps	sheet
LGAT	92	33R	0	29
			15	30
		15L	0	31
			15	32
		33L	0	33
			15	34
		15R	0	35
			15	36
LGIR	115	27	0	41
			15	42
		09	0	43
			15	44
LGKO	409	15	15	440
		33	15	441
LGRP	13	07/25	0	45
			15	46
LGTS	26	17/35	0	37
			15	38
		10/28	0	39
			15	40
LICJ	75	25	0	63
			15	64
		07	0	65
			15	66
LIMC	768	35R	0	55
			15	56
		17L	0	57
			15	58
		35L	0	59
			15	60
		17R	0	61
			15	62
LIRF	13	25	0	47
		07	0	48
		25	15	49
		07	15	50
		16L/34R	0	51
			15	52
		16R/34L	0	53
			15	54
LKPR	1247	13	0	21
			15	22
		04/22	0	23
			15	24
		07/25	0	25
			15	26
		31	0	27
			15	28
LLBG	135	08	15	447
		12	15	448
		26	15	449
		30	15	450
LLOV	1492	02L	15	451
		02R	15	452
		20L	15	453
		20R	15	454
LMML	300	06	15	442
		14	15	443
		24	15	444
		32	15	445
LPAZ	305	01/19	0	293
			15	294
LPLA	180	34	0	295
			15	296

airport	elev.[ft]	runway	flaps	sheet
		16	0	297
			15	298
LRCK	354	36	0	145
			15	146
		18	0	147
			15	148
LTAC	3126	21	0	73
			15	74
		03	0	75
			15	76
LTBA	158	36	0	67
			15	68
		18	0	69
			15	70
		06/24	0	71
			15	72
Luanda	243	26	0	211
			15	212
		08	0	213
			15	214
		24	0	215
			15	216
		06	0	217
			15	218
Madras	34	07/25	0	175
			15	176
Madrid	1999	15	0	365
			15	366
		33	0	367
			15	368
Maiquetia (Near Caracas)	235	09	15	399
		09R	15	400
		27	15	401
		27L	15	402
Male	4	18	0	353
			15	354
		36	0	355
			15	356
Malta	300	06	15	442
		14	15	443
		24	15	444
		32	15	445
Margarita	74	09	15	395
		27	15	396
MDPP	16	08/26	15	432
MDSD	58	17	15	403
		35	15	404
Mexico City	7341	05L	0	331
			15	332
		05R	0	333
			15	334
		23L	0	335
			15	336
		23R	0	337
			15	338
Miami	11	09L	15	456
		09R	15	457
		12	15	458
		27L	15	459
		27R	15	460
		30	15	461
Milano	768	35R	0	55
			15	56
		17L	0	57

airport	elev.[ft]	runway	flaps	sheet
			15	58
		35L	0	59
			15	60
		17R	0	61
			15	62
MMAA	18	28/10	0	339
			15	340
MMMX	7341	05L	0	331
			15	332
		05R	0	333
			15	334
		23L	0	335
			15	336
		23R	0	337
			15	338
MMTM	80	13/31	0	341
			15	342
MMVR	95	18/36	0	343
			15	344
Monastir	7	08/26	15	391
Montevideo	105	24	0	241
			15	242
		06	0	243
			15	244
Moscow-Sheremetevo	627	07L/25R	0	77
			15	78
		07R/25L	0	79
			15	80
Moscow-Vnukovo	686	24	0	85
			15	86
		06	0	87
			15	88
		20	0	89
			15	90
		02	0	91
			15	92
MTPP	109	09	15	430
		27	15	431
MUCM	413	25	0	323
			15	324
		07	0	325
			15	326
MUHA	210	23	0	319
			15	320
		05	0	321
			15	322
Munich	1737	07R	15	424
		25L	15	425
MUVR	213	24	15	436
		06	15	437
MYGF	7	06/24	15	455
MYNN	10	14/32	0	327
			15	328
		09/27	0	329
			15	330
Nagoya	46	16/34	0	345
			15	346
Nassau	10	14/32	0	327
			15	328
		09/27	0	329
			15	330
Novosibirsk	364	07/25	0	93
			15	94
OJAI	2395	08R/26L	0	191
			15	192

airport	elev.[ft]	runway	flaps	sheet
		26R	0	193
			15	194
		08L	0	195
			15	196
Okinava	13	18/36	0	375
			15	376
OMAA	88	13/31	0	123
			15	124
OMDB	33	30L	0	117
			15	118
		12L/30R	0	119
			15	120
		12R	0	121
			15	122
Osaka	39	14R/32L	0	349
			15	350
OSDI	2021	05L/23R	0	125
			15	126
		05R/23L	0	127
			15	128
OTBD	36	16	0	197
			15	198
		34	0	199
			15	200
Ovda	1492	02L	15	451
		02R	15	452
		20L	15	453
		20R	15	454
Palermo	75	25	0	63
			15	64
		07	0	65
			15	66
Palma de Mallorca	32	06L	15	387
		06R	15	388
		24L	15	389
		24R	15	390
Paphos	39	29	0	133
			15	134
		11	0	135
			15	136
Paris (Charles-de-G.)	387	09/27	15	407
		10/28	15	408
Paris-Orly	292	02L/20R	0	245
			15	246
		26	0	247
			15	248
		08	0	249
			15	250
		25	0	251
			15	252
		07	0	253
			15	254
Pointe-a-Pitre	36	11	15	405
		29	15	406
Port-au-Prince (INTL.)	109	09	15	430
		27	15	431
Prague	1247	13	0	21
			15	22
		04/22	0	23
			15	24
		07/25	0	25
			15	26
		31	0	27
			15	28
Puerto Plata (INTL.)	16	08/26	15	432

airport	elev.[ft]	runway	flaps	sheet
Rangoon	109	21	0	185
			15	186
		03	0	187
			15	188
Rhodos	13	07/25	0	45
			15	46
RJAA	135	34	0	201
			15	202
		16	0	203
			15	204
RJFF	30	16/34	0	347
			15	348
RJFT	632	07	15	446
RJNN	46	16/34	0	345
			15	346
RJOA	10	04/22	0	351
			15	352
RJOO	39	14R/32L	0	349
			15	350
ROAH	13	18/36	0	375
			15	376
Rome-Fiumicino	13	25	0	47
			15	49
		07	0	48
			15	50
		16L/34R	0	51
			15	52
		16R/34L	0	53
			15	54
San Juan (Luis Munoz...)	10	10	15	426
		08	15	427
		26	15	428
		28	15	429
Santa Maria	305	01/19	0	293
			15	294
Santo Domingo	58	17	15	403
		35	15	404
Shannon	47	24	0	273
			15	274
		06	0	275
			15	276
Singapore-Changi	20	02L	0	157
			15	158
		20R	0	159
			15	160
		02R/20L	0	161
			15	162
Singapore-Paya Lebar	66	02	0	163
			15	164
		20	0	165
			15	166
Sofia	1742	10/28	0	137
			15	138
Sondre Stromfjord	165	28	0	289
			15	290
		10	0	291
			15	292
Stephenville	84	28	0	307
			15	308
		10	0	309
			15	310
St. Johns	461	11	0	315
			15	316
		29	0	317
			15	318

airport	elev.[ft]	runway	flaps	sheet
St. Lucia (Hewanorra)	11	10/28	15	433
Stuttgart	1300	26	15	438
		08	15	439
SUMU	105	24	0	241
			15	242
		06	0	243
			15	244
SVBC	25	15	15	397
		33	15	398
SVMG	74	09	15	395
		27	15	396
SVMI	235	09	15	399
		09R	15	400
		27	15	401
		27L	15	402
Tampico	80	13/31	0	341
			15	342
TBPB	169	09	15	409
		27	15	410
Tel Aviv (Ben Gurion)	135	08	15	447
		12	15	448
		26	15	449
		30	15	450
Tenerife	2073	12	15	478
		30	15	479
Tenerife-South	210	08	15	476
		26	15	477
TFFF	16	09	15	411
		27	15	412
TFFR	36	11	15	405
		29	15	406
Thesaloniki	26	17/35	0	37
			15	38
		10/28	0	39
			15	40
Tianjin	13	16/34	0	115
			15	116
TJSJ	10	10	15	426
		08	15	427
		26	15	428
		28	15	429
TLPL	11	10/28	15	433
Tokio-Narita	135	34	0	201
			15	202
		16	0	203
			15	204
Tripoli	263	27	0	205
			15	206
		09	0	207
			15	208
Trivandrum	13	14/32	0	363
			15	364
Tunis	20	01/19	0	227
			15	228
		29	0	229
			15	230
		11	0	231
			15	232
Turku	161	08	15	474
		26	15	475
TXKF	12	12	15	392
		30	15	393
UEEE	322	05L/23R	0	377
			15	378
		05R/23L	0	379

airport	elev.[ft]	runway	flaps	sheet
			15	380
UHHH	240	05L/23R	0	107
			15	108
		05R/23L	0	109
			15	110
UIAA	2270	11	0	381
			15	382
		29	0	383
			15	384
UIBB	1608	12/30	0	385
			15	386
UIII	1673	30	0	103
			15	104
		12	0	105
			15	106
UIUU	1690	26	0	99
			15	100
		08	0	101
			15	102
Ulan-Ude	1690	26	0	99
			15	100
		08	0	101
			15	102
ULLI	79	10L/28R	0	95
			15	96
		10R/28L	0	97
			15	98
UNNN	364	07/25	0	93
			15	94
UUEE	627	07L/25R	0	77
			15	78
		07R/25L	0	79
			15	80
UUEM	469	25	0	81
			15	82
		07	0	83
			15	84
UUWW	686	24	0	85
			15	86
		06	0	87
			15	88
		20	0	89
			15	90
		02	0	91
			15	92
VABB	27	09/27	0	357
			15	358
		14	0	359
			15	360
		32	0	361
			15	362
Valencia	226	12	15	434
		30	15	435
Varadero	213	24	15	436
		06	15	437
Varna	230	09/27	0	143
			15	144
VBRR	109	21	0	185
			15	186
		03	0	187
			15	188
VCBI	29	04/22	0	183
			15	184

airport	elev.[ft]	runway	flaps	sheet
VECC	17	01L/19R	0	177
			15	178
		19L	0	179
			15	180
		01R	0	181
			15	182
Veracruz	95	18/36	0	343
			15	344
Vientiane	559	13/31	15	463
VLVT	559	13/31	15	463
VOMM	34	07/25	0	175
			15	176
VOTV	13	14/32	0	363
			15	364
VRMM	4	18	0	353
			15	354
		36	0	355
			15	356
VTBD	10	03L/21R	0	171
			15	172
		03R/23L	0	173
			15	174
VVNB	39	11/29	15	462
VVTS	33	07R/25L	15	464
WMKJ	135	16	0	167
			15	168
WMKK	89	15/33	0	169
			15	170
WSAP	66	02	0	163
			15	164
		20	0	165
			15	166
WSSS	20	02L	0	157
			15	158
		20R	0	159
			15	160
		02R/20L	0	161
			15	162
Yakutsk	322	05L/23R	0	377
			15	378
		05R/23L	0	379
			15	380
Zaragoza	863	12	0	369
			15	370
		12L/30R	0	371
			15	372
		30	0	373
			15	374
ZBAA	115	18L/36R	0	111
			15	112
		18R/36L	0	113
			15	114
ZBTJ	13	16/34	0	115
			15	116

airport	elev.[ft]	runway	flaps	sheet

ETBS
BERLIN-SCHÖNEFELD
25L/07R

ELEV. = 154 ft TORA = 3000 m
SLOPE = .00 % ASDA = 3000 m
TODA = 3600 m

15/00

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

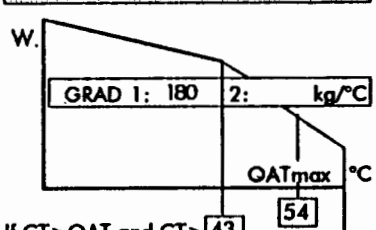
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1019 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>43
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-10	-5.0	-10	-3

Minimum v_1: 119 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1700 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	0 2-3 .0 167-172-177	14 2-3 .0 168-173-177	28 2-3 .1 170-174-178	43
157.0	- -	- -	15 2-3 .1 164-170-174	30 2-3 .1 166-170-174	43 2-3 .1 167-171-175	45
155.0	- -	1 3-3 .2 162-168-172	25 2-3 .2 163-168-172	42 2-3 .1 164-168-172	45 2-3 .4 167-171-175	46
153.0	- -	10 3-3 .1 161-167-171	34 3-3 .2 162-167-171	43 2-3 1.9 163-168-172	47 2-3 .1 167-170-174	47 43
151.0	- -	19 3-3 .0 159-166-170	43 3-3 .1 161-166-170	47 2-3 .4 163-167-171	48 2-3 .9 167-170-174	49 44
149.0	5 3-3 .1 157-164-169	27 3-3 .2 158-165-169	46 3-3 .1 160-165-169	49 2-3 .0 163-167-170	50 2-3 .5 166-170-174	50 46
147.0	14 3-3 .0 156-163-168	36 3-3 .2 157-164-168	48 3-3 .4 159-164-168	50 2-3 .9 162-166-170	52 2-3 .1 166-169-173	52 47
145.0	22 3-3 .2 155-162-167	43 3-3 .6 156-163-167	50 3-3 .8 159-163-167	52 2-3 .6 162-166-170	53 2-3 .9 166-169-173	53 49
143.0	31 3-3 .2 153-161-165	46 3-3 .5 155-162-166	52 2-3 .9 158-163-166	54 2-3 .2 162-166-169	55 2-3 .6 166-169-172	54 50
141.0	40 3-3 .2 152-160-164	49 3-3 .1 154-161-164	54 2-3 .6 158-163-166	55 2-3 1.1 162-166-169	57 2-3 .2 166-168-172	54 52
136.0	43 3-3 4.5 152-160-164	55 3-3 .3 153-158-161	58 2-3 1.0 157-161-164	60 2-3 .3 161-164-167	61 2-3 .5 165-167-170	54 54
131.0	55 3-3 .2 149-155-159	60 3-3 .8 151-156-159	63 2-3 .4 156-160-163	64 2-3 .6 160-163-166	65 2-3 .8 164-166-169	54 54
126.0	60 3-3 .8 147-153-156	65 2-3 1.0 150-154-157	67 2-3 .8 156-159-161	68 2-3 1.0 160-162-164	69 2-3 1.1 164-165-168	54 54
121.0	67 3-3 .1 145-150-153	70 2-3 .4 149-153-155	71 2-3 1.3 155-158-160	71 2-3 2.6 160-161-164	71 2-3 3.8 164-165-167	54 54
116.0	71 3-3 2.0 144-148-151	71 2-3 4.3 149-153-155	71 .0 147-147-150	71 .0 147-147-150	71 .0 147-147-150	54 54
111.0	71 .0 143-144-147	71 .0 143-144-147	71 .0 143-144-147	71 .0 143-144-147	71 .0 143-144-147	54 54
106.0	71 .0 140-140-143	71 .0 140-140-143	71 .0 140-140-143	71 .0 140-140-143	71 .0 140-140-143	54 54
101.0	71 .0 136-137-140	71 .0 136-137-140	71 .0 136-137-140	71 .0 136-137-140	71 .0 136-137-140	54 54

ETBS BERLIN-SCHÖNEFELD 25L/07R

ELEV. = 154 ft TORA = 3000 m
SLOPE = .00 % ASDA = 3000 m
TODA = 3600 m

15/15

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

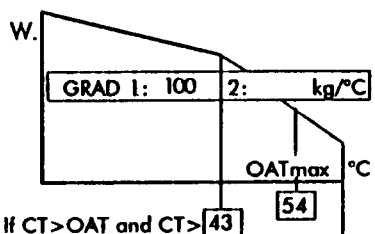
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1019 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>43
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-2	-2.0	-12	-3

Minimum v_1: 117 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1700 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	- -	8 2-2 .0 168-174-177	19 2-2 .0 169-175-178	43
157.0	- -	- -	15 2-3 .1 162-169-173	28 2-3 .0 163-170-174	39 2-3 .0 165-171-175	45
155.0	- -	13 2-3 .0 156-164-168	33 2-3 .0 158-166-169	43 2-3 .2 160-167-171	43 2-3 1.5 164-171-174	46
153.0	11 2-3 .1 151-160-164	30 2-3 .1 153-161-165	43 2-3 .8 156-164-168	45 2-3 .5 160-167-170	46 2-3 .6 164-170-173	47 43
151.0	28 2-3 .1 148-156-161	43 2-3 .4 150-158-163	45 2-3 1.1 156-163-167	47 2-3 .1 160-166-170	48 2-3 .2 164-170-173	49 44
149.0	43 2-3 .1 145-154-158	45 2-3 .7 150-158-162	47 2-3 .8 156-163-167	48 2-3 1.0 160-166-170	49 2-3 1.0 164-170-173	50 46
147.0	45 2-3 .4 145-153-158	47 2-3 .5 150-158-162	49 2-3 .5 156-163-166	50 2-3 .6 160-166-169	51 2-3 .5 163-169-172	52 47
145.0	47 2-3 .2 145-153-157	49 2-3 .2 150-157-161	51 2-3 .1 156-162-166	52 2-3 .2 160-166-169	52 2-2 1.1 163-168-171	53 49
143.0	49 2-3 .0 145-153-157	50 2-3 1.1 150-157-161	52 2-3 .9 156-162-166	53 2-3 1.0 160-165-169	54 2-2 .3 162-166-170	54 50
141.0	50 2-3 .9 144-152-157	52 2-3 .8 149-157-161	54 2-3 .6 156-162-165	55 2-3 .7 160-165-168	55 2-2 .9 161-166-169	54 52
136.0	55 2-3 .3 144-151-155	57 2-3 .1 149-156-159	58 2-3 .9 155-161-164	59 2-2 .5 158-163-166	59 2-2 .5 158-163-166	54 54
131.0	59 2-3 .9 143-150-154	61 2-3 .6 148-154-158	63 3-3 .2 155-159-162	63 2-2 .2 156-159-162	63 2-2 .2 154-159-162	54 54
126.0	64 2-3 .3 143-149-152	65 2-3 1.0 148-153-157	66 2-2 1.2 153-157-160	66 2-2 1.2 153-157-160	66 2-2 1.2 152-157-160	54 54
121.0	68 2-3 .9 142-148-151	70 2-3 .3 147-152-155	70 2-2 .9 150-154-157	70 2-2 .9 149-154-157	70 2-2 .9 148-154-157	54 54
116.0	71 2-3 2.5 142-147-150	71 2-3 4.2 147-152-155	71 2-2 4.5 149-153-156	71 2-2 4.5 148-153-156	71 2-2 4.5 146-153-156	54 54
111.0	71 .0 131-132-136	71 .0 131-132-136	71 .0 131-132-136	71 .0 131-132-136	71 .0 131-132-136	54 54
106.0	71 .0 128-129-133	71 .0 128-129-133	71 .0 128-129-133	71 .0 128-129-133	71 .0 128-129-133	54 54
101.0	71 .0 125-125-130	71 .0 125-125-130	71 .0 125-125-130	71 .0 125-125-130	71 .0 125-125-130	54 54

ETBS
BERLIN-SCHÖNEFELD
25R

ELEV. = 154 ft TORA = 2700 m
SLOPE = .00 % ASDA = 2850 m
TODA = 3300 m

15/00

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

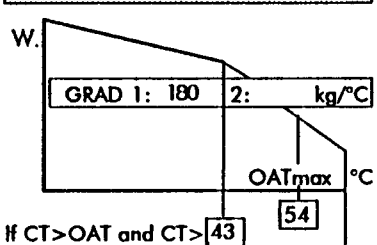
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1019 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>[43]
use Corr. Flex. T/O Temp. up to [71]

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-10	-5.0	-10	-3

Minimum v_1: [119] [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1700 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	- -	- -	10 2-1 .1 171-173-177	43
157.0	- -	- -	- -	13 2-3 .1 166-169-173	28 2-3 .1 167-170-174	45
155.0	- -	- -	6 3-3 .0 164-168-172	22 2-3 .1 165-168-172	38 2-3 .1 166-168-172	46
153.0	- -	- -	14 3-3 .2 163-167-171	31 3-3 .1 164-167-171	43 2-3 1.2 165-168-172	47 43
151.0	- -	-2 3-3 .2 161-166-170	23 3-3 .1 162-166-170	40 3-3 .0 163-166-170	47 2-3 .0 164-166-170	49 44
149.0	- -	7 3-3 .1 160-165-169	32 3-3 .0 161-165-169	43 3-3 1.3 162-166-169	48 2-3 .9 164-166-170	50 46
147.0	- -	16 3-3 .0 158-163-168	40 3-3 .2 160-164-168	47 3-3 .5 161-164-168	50 2-3 .6 164-166-169	52 47
145.0	2 3-3 .1 156-162-166	24 3-3 .2 157-162-167	43 3-3 1.5 159-163-167	50 3-3 .0 160-163-166	52 2-3 .2 164-165-169	53 49
143.0	10 3-3 .2 155-161-165	33 3-3 .2 156-161-165	47 3-3 .7 158-162-166	52 3-3 .4 160-162-166	53 2-3 1.1 163-165-169	54 50
141.0	19 3-3 .2 154-160-164	42 3-3 .1 155-160-164	50 3-3 .2 157-161-164	54 2-3 .3 159-162-165	55 2-3 .8 163-165-168	54 52
136.0	41 3-3 .2 151-157-161	43 3-3 4.9 155-160-164	56 3-3 .4 156-159-162	58 2-3 .7 159-161-164	59 2-3 1.1 163-164-167	54 54
131.0	43 3-3 4.7 150-157-161	55 3-3 .7 151-156-159	61 3-3 .8 154-156-159	63 2-3 .1 158-159-162	64 2-3 .4 162-162-165	54 54
126.0	55 3-3 .6 147-152-156	61 3-3 .5 149-153-156	66 2-3 .3 153-155-158	67 2-3 .6 157-158-161	68 2-3 .8 161-161-164	54 54
121.0	61 3-3 .5 145-150-153	67 3-3 .6 148-150-153	70 2-3 .9 153-154-156	71 2-3 1.1 157-157-160	71 2-3 2.4 161-161-163	54 54
116.0	68 3-3 .1 143-147-150	71 3-3 2.6 146-149-151	71 2-3 4.8 153-154-156	71 .0 147-147-150	71 .0 147-147-150	54 54
111.0	71 3-3 2.9 142-146-148	71 .0 143-144-147	71 .0 143-144-147	71 .0 143-144-147	71 .0 143-144-147	54 54
106.0	71 .0 140-140-143	71 .0 140-140-143	71 .0 140-140-143	71 .0 140-140-143	71 .0 140-140-143	54 54
101.0	71 .0 136-137-140	71 .0 136-137-140	71 .0 136-137-140	71 .0 136-137-140	71 .0 136-137-140	54 54

ETBS
BERLIN-SCHÖNEFELD
25R

ELEV. = 154 ft TORA = 2700 m
SLOPE = .00 % ASDA = 2850 m
TODA = 3300 m

15/15

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

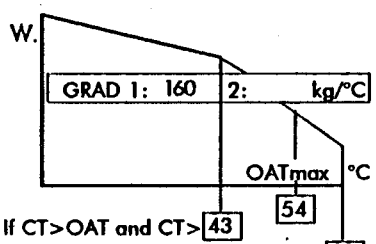
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1019 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>43
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-8	-5.5	-12	-3

Minimum v_1: 117 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1700 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	- -	- -	5 2-3 .0 170-174-177	43
157.0	- -	- -	-2 2-3 .1 163-168-172	11 2-3 .0 164-169-173	24 2-3 .0 165-170-173	45
155.0	- -	- -	16 2-3 .1 159-165-168	29 2-3 .1 160-165-169	40 2-3 .1 162-167-170	46
153.0	- -	12 2-3 .1 154-160-164	33 2-3 .1 156-161-165	43 2-3 .3 158-163-166	43 2-3 1.7 161-166-170	47 43
151.0	10 2-3 .0 149-156-160	29 2-3 .1 151-157-161	43 2-3 .8 154-159-163	45 2-3 .6 157-162-166	46 2-3 .9 161-166-169	49 44
149.0	26 2-3 .1 146-152-157	43 2-3 .2 148-154-158	45 2-3 1.1 154-159-163	47 2-3 .3 157-162-166	48 2-3 .5 161-165-169	50 46
147.0	36 2-3 .1 145-151-156	45 2-3 .6 148-154-158	47 2-3 .9 154-159-163	49 2-3 .0 157-162-165	50 2-3 .2 161-165-168	52 47
145.0	43 2-3 .7 144-150-155	47 2-3 .4 148-153-158	49 2-3 .6 153-158-162	50 2-3 .8 157-161-165	51 2-3 1.0 161-165-168	53 49
143.0	46 3-3 .7 143-149-154	49 2-3 .2 147-153-157	51 2-3 .3 153-158-162	52 2-3 .5 157-161-165	53 2-3 .6 161-164-168	54 50
141.0	48 2-3 .9 143-148-153	50 2-3 1.1 147-153-157	53 2-3 .0 153-157-161	54 2-3 .2 157-161-164	55 2-3 .3 161-164-167	54 52
136.0	53 2-3 .5 142-147-152	55 2-3 .5 147-152-156	57 2-3 .4 153-156-160	58 2-3 .6 156-160-163	59 2-3 .5 160-162-165	54 54
131.0	58 2-3 .0 141-146-150	59 2-3 1.0 146-150-154	61 2-3 .9 152-155-159	62 2-3 1.0 156-158-162	63 2-2 .2 157-159-162	54 54
126.0	62 2-3 .7 141-145-149	64 2-3 .5 145-149-153	66 2-3 .2 151-154-157	66 2-3 1.2 155-157-160	66 2-2 1.2 154-157-160	54 54
121.0	67 2-3 .3 140-144-147	68 2-3 1.0 145-148-151	70 2-3 .6 151-153-156	70 2-2 .9 152-154-157	70 2-2 .9 150-154-157	54 54
116.0	71 2-3 .9 139-143-146	71 2-3 2.7 144-147-151	71 2-2 4.5 150-153-156	71 2-2 4.5 151-153-156	71 2-2 4.5 149-153-156	54 54
111.0	71 .0 131-132-136	71 .0 131-132-136	71 .0 131-132-136	71 .0 131-132-136	71 .0 131-132-136	54 54
106.0	71 .0 128-129-133	71 .0 128-129-133	71 .0 128-129-133	71 .0 128-129-133	71 .0 128-129-133	54 54
101.0	71 .0 125-125-130	71 .0 125-125-130	71 .0 125-125-130	71 .0 125-125-130	71 .0 125-125-130	54 54

ETBS
BERLIN-SCHÖNEFELD
07L

ELEV. = 154 ft TORA = 2700 m
SLOPE = .00 % ASDA = 3000 m
TODA = 3000 m

15/00

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

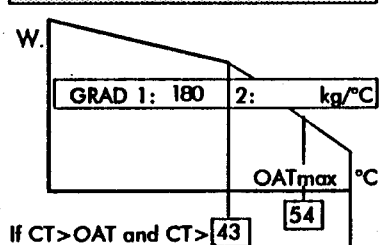
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1019 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>43
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-10	-5.0	-10	-3

Minimum v_1: 119 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1700 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	- -	5 2-3 .0 171-173-177	19 2-3 .1 172-174-178	43
157.0	- -	- -	4 2-3 .0 167-169-174	20 2-3 .0 168-170-174	35 2-3 .1 169-170-174	45
155.0	- -	- -	14 3-3 .2 166-168-172	31 3-3 .2 166-168-172	43 2-3 1.0 168-169-173	46
153.0	- -	-2 3-3 .1 163-167-171	23 3-3 .1 164-167-171	40 3-3 .1 165-167-171	46 2-3 .1 167-168-172	47 43
151.0	- -	7 3-3 .0 162-166-170	32 3-3 .0 163-166-170	43 3-3 1.4 165-167-171	47 2-3 1.0 167-168-172	49 44
149.0	- -	15 3-3 .2 161-165-169	40 3-3 .2 162-165-169	47 3-3 .6 164-165-169	49 2-3 .7 167-168-172	50 46
147.0	1 3-3 .2 159-163-168	24 3-3 .1 160-164-168	43 3-3 1.5 162-164-168	49 3-3 .8 163-165-168	51 2-3 .3 167-167-171	52 47
145.0	10 3-3 .1 158-162-166	33 3-3 .1 159-162-166	47 3-3 .7 161-163-167	51 2-3 .6 163-164-168	52 2-3 1.1 167-167-171	53 49
143.0	19 3-3 .0 156-161-165	42 3-3 .0 157-161-165	50 3-3 .2 160-162-165	53 2-3 .3 163-164-167	54 2-3 .8 166-167-170	54 50
141.0	27 3-3 .2 155-160-164	43 3-3 1.8 157-161-165	52 3-3 .7 159-161-165	55 2-3 .1 162-163-167	56 2-3 .5 166-166-170	54 52
136.0	43 3-3 1.6 153-158-162	51 3-3 .8 155-158-162	58 2-3 .0 158-159-162	59 2-3 .5 162-162-165	60 2-3 .8 165-165-168	54 54
131.0	51 3-3 .5 151-155-159	57 3-3 .8 153-156-159	62 2-3 .6 157-158-161	63 2-3 .9 161-161-164	64 2-3 .9 163-163-166	54 54
126.0	57 3-3 .7 149-153-156	64 3-3 .0 151-153-156	66 2-3 1.1 156-157-159	68 2-3 .0 160-160-162	68 2-3 1.0 162-162-164	54 54
121.0	63 3-3 .8 147-150-153	69 2-3 .6 150-151-154	71 2-3 .5 156-156-158	71 2-3 1.5 159-159-161	71 2-3 2.4 161-161-163	54 54
116.0	70 3-3 .4 145-147-150	71 2-3 3.4 150-151-153	71 .0 147-147-150	71 .0 147-147-150	71 .0 147-147-150	54 54
111.0	71 3-3 4.7 145-147-150	71 .0 143-144-147	71 .0 143-144-147	71 .0 143-144-147	71 .0 143-144-147	54 54
106.0	71 .0 140-140-143	71 .0 140-140-143	71 .0 140-140-143	71 .0 140-140-143	71 .0 140-140-143	54 54
101.0	71 .0 136-137-140	71 .0 136-137-140	71 .0 136-137-140	71 .0 136-137-140	71 .0 136-137-140	54 54

ETBS
BERLIN-SCHÖNEFELD
07L

ELEV. = 154 ft TORA = 2700 m
SLOPE = .00 % ASDA = 3000 m
TODA = 3000 m

15/15

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

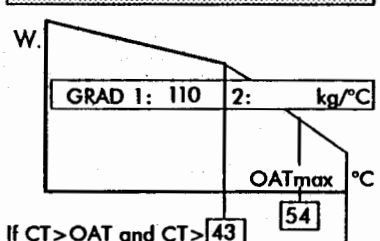
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1019 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>43
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-8	-5.5	-12	-3

Minimum v_1: 117 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1700 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	- -	-1 2-3 .1 171-173-177	11 2-2 .0 172-174-178	43
157.0	- -	- -	5 2-3 .0 165-169-172	18 2-3 .0 166-169-173	30 2-3 .1 167-170-174	45
155.0	- -	2 2-3 .1 159-164-168	23 2-3 .1 161-165-169	35 2-3 .1 163-166-170	43 2-3 .4 165-168-171	46
153.0	0 2-3 .0 154-159-164	19 2-3 .1 156-160-164	39 2-3 .1 158-162-166	43 2-3 1.0 161-164-168	45 2-3 .7 165-168-171	47 43
151.0	16 2-3 .1 151-156-160	35 2-3 .1 152-157-161	43 2-3 1.6 157-161-165	46 2-3 .2 161-164-168	47 2-3 .4 164-167-171	49 44
149.0	32 2-3 .1 148-153-157	43 2-3 1.0 151-156-160	46 2-3 .8 157-161-164	47 2-3 1.1 161-164-167	49 2-3 .1 164-167-170	50 46
147.0	43 2-3 .4 146-151-156	46 2-3 .3 151-155-159	48 2-3 .5 157-160-164	49 2-3 .7 160-163-167	50 2-3 .9 164-167-170	52 47
145.0	45 2-3 1.0 146-150-155	48 2-3 .1 150-155-159	50 2-3 .2 156-160-163	51 2-3 .4 160-163-167	52 2-3 .5 164-166-170	53 49
143.0	47 2-3 .8 145-150-155	49 2-3 1.0 150-155-159	51 2-3 1.0 156-160-163	53 2-3 .1 160-163-166	54 2-3 .1 164-166-169	54 50
141.0	49 2-3 .6 145-150-154	51 2-3 .7 150-154-158	53 2-3 .7 156-159-163	54 2-3 .9 160-163-166	55 2-2 .9 164-166-169	54 52
136.0	54 2-3 .2 145-149-153	56 2-3 .1 150-153-157	57 2-3 1.1 156-158-162	59 2-3 .1 159-161-164	59 2-2 .5 161-163-166	54 54
131.0	58 2-3 .8 144-148-152	60 2-3 .6 149-152-156	62 2-3 .4 155-157-160	63 2-2 .2 158-159-162	63 2-2 .2 157-159-162	54 54
126.0	63 2-3 .3 143-146-150	65 2-3 .0 148-151-154	66 2-3 .8 154-156-159	66 2-2 1.2 156-157-160	66 2-2 1.2 154-157-160	54 54
121.0	67 2-3 .9 142-145-149	69 2-3 .5 147-149-153	70 2-2 .9 153-154-157	70 2-2 .9 152-154-157	70 2-2 .9 150-154-157	54 54
116.0	71 2-3 1.6 142-144-148	71 2-3 3.3 147-149-152	71 2-2 4.5 152-153-156	71 2-2 4.5 151-153-156	71 2-2 4.5 149-153-156	54 54
111.0	71 .0 131-132-136	71 .0 131-132-136	71 .0 131-132-136	71 .0 131-132-136	71 .0 131-132-136	54 54
106.0	71 .0 128-129-133	71 .0 128-129-133	71 .0 128-129-133	71 .0 128-129-133	71 .0 128-129-133	54 54
101.0	71 .0 125-125-130	71 .0 125-125-130	71 .0 125-125-130	71 .0 125-125-130	71 .0 125-125-130	54 54

ETDN DRESDEN 04

ELEV. = 755 ft TORA = 2500 m
SLOPE = -.64 % ASDA = 2500 m
TODA = 3100 m

15/00

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

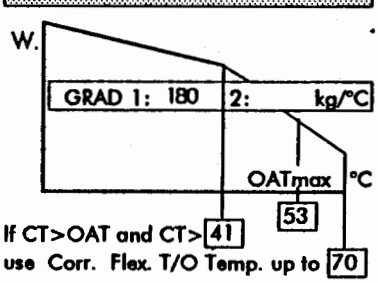
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1040 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-10	-5.0	-10	-3

Minimum v_1: 119 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 2300 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	- -	- -	- -	
157.0	- -	- -	- -	- -	-3 2-3 .0 165-169-174	41
155.0	- -	- -	- -	- -	8 2-3 .0 163-168-172	44
153.0	- -	- -	- -	1 3-3 .1 161-166-171	17 3-3 .1 162-166-171	45
151.0	- -	- -	- -	9 3-3 .2 160-165-170	26 3-3 .0 161-165-170	47 41
149.0	- -	- -	2 3-3 .1 158-164-169	18 3-3 .1 159-164-169	34 3-3 .2 160-164-169	48 43
147.0	- -	- -	11 3-3 .0 157-163-168	27 3-3 .0 158-163-168	41 3-3 .5 159-164-168	49 45
145.0	- -	- -	19 3-3 .2 156-162-167	35 3-3 .2 157-162-167	44 3-3 .5 158-163-167	51 46
143.0	- -	4 3-3 .1 153-161-165	28 3-3 .1 155-161-165	41 3-3 .8 156-161-166	47 3-3 .2 157-162-165	52 48
141.0	- -	13 3-3 .0 152-160-164	37 3-3 .1 153-160-164	45 3-3 .0 155-160-164	49 3-3 .7 157-161-165	53 50
136.0	12 3-3 .1 148-157-161	35 3-3 .0 149-157-161	41 3-3 4.2 153-159-164	51 3-3 .5 153-158-162	56 3-3 .1 155-158-162	53 53
131.0	34 3-3 .1 145-154-159	41 3-3 3.6 148-156-161	53 3-3 .3 150-155-159	57 3-3 .7 151-155-159	60 2-3 1.0 154-157-160	53 53
126.0	41 3-3 3.5 144-153-158	52 3-3 .6 145-152-156	59 3-3 .5 148-152-156	64 3-3 .3 149-153-156	65 2-3 .9 153-156-159	53 53
121.0	52 3-3 .7 141-149-153	59 3-3 .2 143-149-153	66 3-3 .3 146-150-153	69 2-3 .4 149-151-154	70 2-3 .7 152-155-157	53 53
116.0	59 3-3 .5 139-146-150	66 3-3 .1 141-146-150	70 3-3 2.4 145-148-151	70 2-3 4.4 148-151-154	70 .0 146-147-150	53 53
111.0	66 3-3 .5 137-143-147	70 3-3 2.4 140-145-148	70 .0 143-143-147	70 .0 143-143-147	70 .0 143-143-147	53 53
106.0	70 3-3 2.9 136-142-145	70 .0 139-140-143	70 .0 139-140-143	70 .0 139-140-143	70 .0 139-140-143	53 53
101.0	70 .0 136-136-140	70 .0 136-136-140	70 .0 136-136-140	70 .0 136-136-140	70 .0 136-136-140	53 53

ETDN DRESDEN 04

ELEV. = 755 ft TORA = 2500 m
SLOPE = -.64 % ASDA = 2500 m
TODA = 3100 m

15/15

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

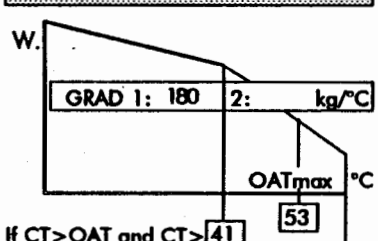
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1040 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>41
use Corr. Flex. T/O Temp. up to 70

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-8	-5.5	-12	-3

Minimum v_1: 117 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 2300 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	- -	- -	- -	
157.0	- -	- -	- -	- -	- -	41
155.0	- -	- -	- -	0 2-3 .1 158-165-169	13 2-3 .1 159-166-170	44
153.0	- -	- -	5 2-3 .0 153-161-165	18 2-3 .0 154-161-166	30 2-3 .0 155-162-167	45
151.0	- -	1 2-3 .0 148-156-161	22 2-3 .0 150-157-162	33 2-3 .1 151-158-163	41 2-3 .4 153-160-165	47 41
149.0	-3 2-3 .1 144-152-157	17 2-3 .1 145-153-158	36 2-3 .0 147-155-159	41 2-3 .8 150-157-162	43 2-3 1.1 153-160-164	48 43
147.0	8 2-3 .1 142-150-156	30 2-3 .1 143-151-156	41 2-3 1.2 146-154-158	44 2-3 .5 149-156-161	45 2-3 .9 153-159-164	49 45
145.0	17 3-3 .2 141-149-154	39 2-3 .2 142-149-154	44 2-3 .9 146-153-158	46 2-3 .4 149-156-160	47 2-3 .8 153-159-163	51 46
143.0	26 3-3 .1 140-148-153	41 2-3 1.8 141-149-154	46 2-3 .9 146-153-157	48 2-3 .3 149-155-160	49 2-3 .6 152-159-163	52 48
141.0	35 3-3 .0 139-147-152	46 3-3 .3 140-147-152	48 2-3 .8 146-152-157	50 2-3 .2 149-155-159	51 2-3 .5 152-158-162	53 50
136.0	41 3-3 3.6 138-146-151	51 2-3 .2 140-146-151	53 2-3 .6 145-151-156	54 2-3 .9 148-154-158	56 2-3 .2 152-157-161	53 53
131.0	53 3-3 .0 135-142-147	56 2-3 .2 139-145-150	58 2-3 .4 144-150-154	59 2-3 .7 148-153-157	60 2-3 1.0 151-156-160	53 53
126.0	59 2-3 .0 133-140-144	61 2-3 .2 138-144-148	63 2-3 .3 143-148-152	64 2-3 .5 147-151-155	65 2-3 .7 150-155-158	53 53
121.0	64 2-3 .1 133-139-143	66 2-3 .2 137-143-147	68 2-3 .2 143-147-151	69 2-3 .4 146-150-154	70 2-2 .2 149-153-156	53 53
116.0	69 2-3 .3 132-138-142	70 2-3 1.3 137-142-146	70 2-3 3.2 142-147-150	70 2-3 4.3 146-150-154	70 2 .0 129-139-143	53 53
111.0	70 2-3 4.4 131-137-141	70 .0 131-131-136	70 .0 131-131-136	70 .0 131-131-136	70 .0 131-131-136	53 53
106.0	70 .0 128-128-133	70 .0 128-128-133	70 .0 128-128-133	70 .0 128-128-133	70 .0 128-128-133	53 53
101.0	70 .0 124-125-130	70 .0 124-125-130	70 .0 124-125-130	70 .0 124-125-130	70 .0 124-125-130	53 53

ETDN DRESDEN 22

ELEV. = 755 ft TORA = 2500 m
SLOPE = .64 % ASDA = 2500 m
TODA = 3100 m

15/00

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

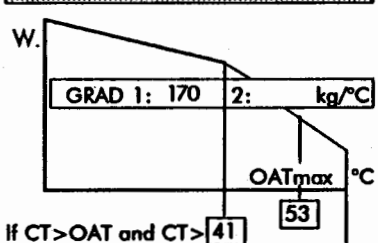
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1040 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>41
use Corr. Flex. T/O Temp. up to 70

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-10	-5.0	-10	-3

Minimum v_1: 119 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 2300 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	- -	- -	- -	
157.0	- -	- -	- -	- -	- -	41
155.0	- -	- -	- -	- -	- -	44
153.0	- -	- -	- -	- -	2 3-3 .1 164-167-171	45
151.0	- -	- -	- -	- -	10 3-3 .2 163-166-170	47 41
149.0	- -	- -	- -	3 3-3 .1 161-165-169	19 3-3 .2 162-165-169	48 43
147.0	- -	- -	-4 3-3 .0 159-164-168	11 3-3 .2 160-164-168	28 3-3 .1 161-164-168	49 45
145.0	- -	- -	4 3-3 .1 158-163-167	20 3-3 .1 159-163-167	36 3-3 .2 159-163-167	51 46
143.0	- -	- -	13 3-3 .0 157-162-165	29 3-3 .1 157-162-165	41 3-3 1.1 159-162-166	52 48
141.0	- -	-3 3-3 .1 154-160-164	21 3-3 .2 156-161-164	38 3-3 .0 156-161-164	45 3-3 .3 158-161-164	53 50
136.0	-4 3-3 .2 150-157-161	19 3-3 .0 151-157-161	41 3-3 .6 153-158-162	41 3-3 4.3 156-160-164	52 3-3 .0 156-159-161	53 53
131.0	18 3-3 .0 147-154-159	40 3-3 .2 148-155-159	48 3-3 .5 151-156-159	53 3-3 .6 153-156-159	58 3-3 .2 154-156-159	53 53
126.0	40 3-3 .1 144-152-156	41 3-3 5.0 148-155-159	55 3-3 .3 149-153-156	60 3-3 .0 151-153-156	64 2-2 .6 152-154-156	53 53
121.0	41 3-3 4.9 144-151-156	54 3-3 .7 145-150-153	62 3-3 .0 147-150-153	66 3-3 .5 149-151-153	69 2-3 .5 152-153-155	53 53
116.0	55 3-3 .0 140-146-150	61 3-3 .5 143-147-150	68 3-3 .7 145-148-150	70 3-3 2.7 148-149-151	70 2-3 4.5 151-153-154	53 53
111.0	62 3-3 .1 138-144-147	68 3-3 .6 141-144-147	70 3-3 4.3 145-147-149	70 .0 144-144-147	70 .0 144-144-147	53 53
106.0	69 3-3 .4 136-141-144	70 3-3 4.3 140-144-146	70 .0 140-141-143	70 .0 140-141-143	70 .0 140-141-143	53 53
101.0	70 3-3 4.8 136-141-143	70 .0 137-137-140	70 .0 137-137-140	70 .0 137-137-140	70 .0 137-137-140	53 53

ETDN
DRESDEN
22

ELEV. = 755 ft
SLOPE = .64 %

TORA = 2500 m
ASDA = 2500 m
TODA = 3100 m

15/15

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

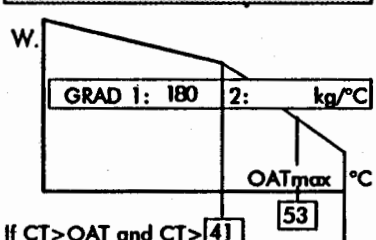
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1040 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>41
use Corr. Flex. T/O Temp. up to 70

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-8	-5.5	-12	-3

Minimum v_1: 117 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 2300 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	- -	- -	- -	
157.0	- -	- -	- -	- -	- -	41
155.0	- -	- -	- -	- -	-1 2-3 .1 161-166-169	44
153.0	- -	- -	- -	4 2-3 .0 156-161-165	17 2-3 .0 157-162-166	45
151.0	- -	- -	7 2-3 .1 152-157-161	21 2-3 .0 153-158-162	32 2-3 .1 154-159-163	47 41
149.0	- -	1 2-3 .1 148-153-158	24 2-3 .0 149-154-158	35 2-3 .0 150-155-159	41 2-3 .7 153-158-161	48 43
147.0	- -	13 3-3 .2 145-151-155	37 2-3 .0 147-152-156	41 2-3 1.1 149-154-158	44 2-3 .4 152-157-160	49 45
145.0	0 3-3 .1 144-150-154	22 3-3 .2 144-150-154	41 2-3 1.4 146-151-155	44 2-3 .8 149-153-157	46 2-3 .3 152-156-160	51 46
143.0	8 3-3 .2 143-149-153	31 3-3 .1 143-149-153	45 2-3 .2 145-150-154	46 2-3 .8 148-153-157	48 2-3 .2 152-156-160	52 48
141.0	17 3-3 .1 141-148-152	39 3-3 .2 142-148-152	47 2-3 .1 145-150-154	48 2-3 .7 148-153-156	50 2-3 .1 152-156-159	53 50
136.0	39 3-3 .0 138-145-149	41 3-3 4.8 142-148-152	51 2-3 1.0 145-149-153	53 2-3 .5 148-152-155	54 2-3 .9 151-155-158	53 53
131.0	41 3-3 4.5 138-145-149	54 3-3 .3 139-143-147	56 2-3 .9 144-148-151	58 2-3 .3 147-150-154	59 2-3 .7 150-153-157	53 53
126.0	54 3-3 .2 135-140-144	59 2-3 .6 138-142-145	61 2-3 .9 143-146-150	63 2-3 .2 146-149-152	64 2-3 .5 149-152-155	53 53
121.0	60 3-3 .6 133-138-142	64 2-3 .7 137-141-144	66 2-3 .9 142-145-148	68 2-3 .1 145-148-151	69 2-3 .3 149-151-154	53 53
116.0	67 3-3 .5 131-136-139	69 2-3 .8 136-140-143	70 2-3 1.9 142-144-147	70 2-3 3.1 145-147-150	70 2-3 4.3 149-151-153	53 53
111.0	70 2-3 2.8 131-135-138	70 2-3 4.8 136-139-142	70 .0 132-132-136	70 .0 132-132-136	70 .0 132-132-136	53 53
106.0	70 .0 129-129-133	70 .0 129-129-133	70 .0 129-129-133	70 .0 129-129-133	70 .0 129-129-133	53 53
101.0	70 .0 125-126-130	70 .0 125-126-130	70 .0 125-126-130	70 .0 125-126-130	70 .0 125-126-130	53 53

ETLS
LEIPZIG
29

ELEV. = 466 ft TORA = 2500 m
SLOPE = -.48 % ASDA = 2500 m
TODA = 3000 m

15/00

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

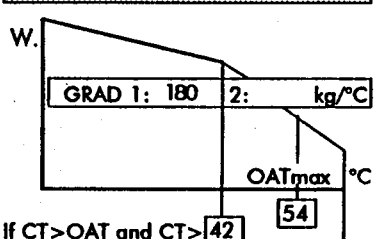
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1030 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>42
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-10	-5.0	-10	-3

Minimum v_1: 119 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 2000 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	- -	- -	- -	
157.0	- -	- -	- -	- -	-1 2-3 .1 165-169-174	43
155.0	- -	- -	- -	- -	10 2-3 .0 163-168-172	45
153.0	- -	- -	- -	2 3-3 .2 162-166-171	19 3-3 .0 162-167-171	46
151.0	- -	- -	- -	11 3-3 .1 160-165-170	27 3-3 .2 161-166-170	48 43
149.0	- -	- -	4 3-3 .0 158-164-169	20 3-3 .0 159-164-169	36 3-3 .1 160-164-169	49 45
147.0	- -	- -	12 3-3 .2 157-163-168	28 3-3 .2 158-163-168	42 3-3 .7 159-164-168	50 46
145.0	- -	-3 3-3 .1 155-162-167	21 3-3 .1 156-162-167	37 3-3 .1 157-162-166	45 3-3 .7 158-163-167	52 48
143.0	- -	6 3-3 .0 153-161-165	30 3-3 .1 155-161-165	42 3-3 .9 156-162-166	48 3-3 .3 157-162-165	53 49
141.0	- -	14 3-3 .2 152-160-164	38 3-3 .2 154-160-164	46 3-3 .2 155-160-164	50 3-3 .8 157-161-165	54 51
136.0	14 3-3 .1 148-157-161	36 3-3 .1 149-157-161	42 3-3 4.3 153-159-164	52 3-3 .5 153-158-162	56 3-3 1.0 155-159-162	54 54
131.0	36 3-3 .0 145-154-159	42 3-3 3.7 148-156-161	54 3-3 .3 150-155-159	58 3-3 .6 152-156-159	61 2-3 .6 154-157-160	54 54
126.0	42 3-3 3.6 144-153-158	53 3-3 .6 146-152-156	60 3-3 .3 148-152-156	64 3-3 .7 150-153-156	66 2-3 .3 153-156-159	54 54
121.0	53 3-3 .7 141-149-153	60 3-3 .0 144-149-153	66 3-3 .6 146-150-153	69 2-3 .7 149-152-154	70 2-3 1.0 153-155-158	54 54
116.0	60 3-3 .2 139-146-150	66 3-3 .5 142-147-150	71 3-3 2.0 145-148-151	71 2-3 3.6 149-151-154	71 2-3 5.0 153-155-157	54 54
111.0	67 3-3 .1 137-143-147	71 3-3 1.9 140-145-148	71 .0 143-143-147	71 .0 143-143-147	71 .0 143-143-147	54 54
106.0	71 3-3 2.4 136-142-145	71 .0 140-140-143	71 .0 140-140-143	71 .0 140-140-143	71 .0 140-140-143	54 54
101.0	71 .0 136-136-140	71 .0 136-136-140	71 .0 136-136-140	71 .0 136-136-140	71 .0 136-136-140	54 54

ETLS
LEIPZIG
29

ELEV. = 466 ft TORA = 2500 m
SLOPE = -.48 % ASDA = 2500 m
TODA = 3000 m

15/15

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

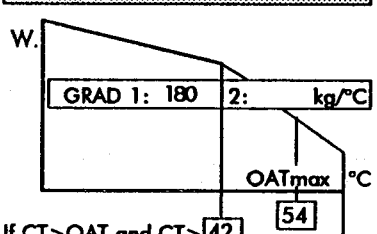
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1030 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>42
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-8	-5.5	-12	-3

Minimum v_1: 117 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 2000 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	- -	- -	- -	
157.0	- -	- -	- -	- -	-1 2-3 .0 163-169-173	43
155.0	- -	- -	- -	4 2-3 .1 158-164-169	17 2-3 .0 159-165-169	45
153.0	- -	- -	8 2-3 .1 153-160-165	21 2-3 .1 154-161-165	33 2-3 .1 155-162-166	46
151.0	- -	4 2-3 .1 148-156-161	25 2-3 .1 150-157-161	36 2-3 .1 151-158-163	42 2-3 .7 154-160-165	48 43
149.0	-1 2-3 .2 144-152-157	20 2-3 .1 145-153-157	39 2-3 .1 147-154-159	42 2-3 1.2 150-157-161	45 2-3 .2 153-160-164	49 45
147.0	10 2-3 .1 142-150-155	32 2-3 .1 143-151-155	42 2-3 1.6 147-154-158	45 2-3 .7 150-156-161	47 2-3 .0 153-159-163	50 46
145.0	19 3-3 .1 141-149-154	41 2-3 .1 142-149-154	46 2-3 .1 146-153-157	47 2-3 .6 149-156-160	48 2-3 .9 153-159-163	52 48
143.0	28 3-3 .0 140-148-153	42 2-3 1.9 142-149-154	47 2-3 1.0 146-153-157	49 2-3 .4 149-156-160	50 2-3 .7 153-159-163	53 49
141.0	36 3-3 .1 139-147-152	47 3-3 .4 141-148-152	49 2-3 .9 146-152-157	51 2-3 .2 149-155-159	52 2-3 .5 153-158-162	54 51
136.0	42 3-3 3.7 138-146-151	52 2-3 .2 140-147-151	54 2-3 .5 145-151-156	55 2-3 .8 149-154-158	56 2-3 1.0 152-157-161	54 54
131.0	53 3-3 .7 135-143-147	56 2-3 1.0 139-146-150	59 2-3 .1 145-150-154	60 2-3 .4 148-153-157	61 2-3 .6 151-156-160	54 54
126.0	59 2-3 .7 134-140-145	61 2-3 .8 139-144-148	63 2-3 .9 144-149-153	64 2-3 1.1 147-152-155	66 2-3 .1 151-155-158	54 54
121.0	64 2-3 .7 133-139-143	66 2-3 .6 138-143-147	68 2-3 .6 143-147-151	69 2-3 .7 147-151-154	70 2-2 .5 150-153-156	54 54
116.0	69 2-3 .6 132-138-142	71 2-3 .5 137-142-146	71 2-3 2.4 143-147-150	71 2-3 3.5 146-150-153	71 2-2 4.2 149-152-156	54 54
111.0	71 2-3 3.6 132-137-141	71 .0 131-132-136	71 .0 131-132-136	71 .0 131-132-136	71 .0 131-132-136	54 54
106.0	71 .0 128-128-133	71 .0 128-128-133	71 .0 128-128-133	71 .0 128-128-133	71 .0 128-128-133	54 54
101.0	71 .0 124-125-130	71 .0 124-125-130	71 .0 124-125-130	71 .0 124-125-130	71 .0 124-125-130	54 54

ETLS LEIPZIG 11

ELEV. = 466 ft TORA = 2500 m
SLOPE = .48 % ASDA = 2500 m
TODA = 3000 m

15/00

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

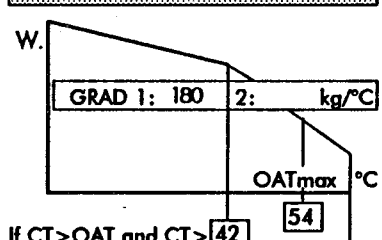
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1030 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>42
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-10	-5.0	-10	-3

Minimum v_1: 119 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 2000 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	- -	- -	- -	
157.0	- -	- -	- -	- -	- -	43
155.0	- -	- -	- -	- -	-1 3-3 .1 165-168-172	45
153.0	- -	- -	- -	- -	7 3-3 .2 164-167-171	46
151.0	- -	- -	- -	0 3-3 .1 162-166-170	16 3-3 .1 163-166-170	48 43
149.0	- -	- -	- -	8 3-3 .2 161-165-169	25 3-3 .1 161-165-169	49 45
147.0	- -	- -	1 3-3 .1 159-164-168	17 3-3 .1 160-164-168	33 3-3 .2 160-164-168	50 46
145.0	- -	- -	10 3-3 .0 158-163-166	26 3-3 .1 158-163-166	42 3-3 .0 159-163-166	52 48
143.0	- -	- -	18 3-3 .2 156-162-165	34 3-3 .2 157-162-165	45 3-3 .1 158-162-165	53 49
141.0	- -	3 3-3 .0 154-160-164	27 3-3 .1 155-161-164	42 3-3 .3 156-161-164	47 3-3 .5 158-161-164	54 51
136.0	2 3-3 .1 150-157-161	24 3-3 .2 151-157-161	42 3-3 1.6 153-159-162	49 3-3 .2 154-158-161	54 3-3 .2 156-159-161	54 54
131.0	23 3-3 .2 147-154-159	42 3-3 1.0 148-155-159	50 3-3 .7 151-156-159	55 3-3 .6 153-156-159	60 3-3 .1 154-156-159	54 54
126.0	42 3-3 .9 144-152-156	50 3-3 .2 146-152-156	57 3-3 .2 149-153-156	61 3-3 .6 151-153-156	65 2-3 .4 153-154-157	54 54
121.0	50 3-3 .2 142-149-153	56 3-3 .6 145-150-153	63 3-3 .6 147-150-153	68 3-3 .2 149-151-153	70 2-3 .1 152-153-155	54 54
116.0	56 3-3 .8 140-147-150	63 3-3 .3 143-147-150	70 3-3 .4 145-148-150	71 2-3 2.7 148-150-152	71 2-3 4.1 152-153-155	54 54
111.0	63 3-3 .6 138-144-147	70 3-3 .3 141-144-147	71 3-3 4.7 145-147-150	71 .0 144-144-147	71 .0 144-144-147	54 54
106.0	71 3-3 .1 136-141-144	71 3-3 4.6 140-144-146	71 .0 140-141-143	71 .0 140-141-143	71 .0 140-141-143	54 54
101.0	71 .0 137-137-140	71 .0 137-137-140	71 .0 137-137-140	71 .0 137-137-140	71 .0 137-137-140	54 54

ETLS LEIPZIG 11

ELEV. = 466 ft TORA = 2500 m
SLOPE = .48 % ASDA = 2500 m
TODA = 3000 m

15/15

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

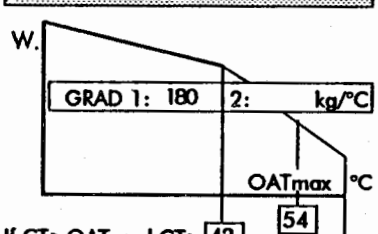
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1030 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>42
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-8	-5.5	-12	-3

Minimum v_1: 117 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 2000 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	- -	- -	- -	
157.0	- -	- -	- -	- -	- -	43
155.0	- -	- -	- -	- -	6 2-3 .1 160-165-169	45
153.0	- -	- -	-2 2-3 .0 155-160-164	11 2-3 .0 156-161-165	24 2-3 .1 157-162-165	46
151.0	- -	- -	14 2-3 .1 151-157-161	28 2-3 .0 152-157-161	38 2-3 .1 154-159-163	48 43
149.0	- -	9 2-3 .0 147-153-157	30 2-3 .1 148-154-158	41 2-3 .0 150-155-159	42 2-3 1.5 153-158-162	49 45
147.0	-3 3-3 .2 144-151-155	19 2-3 .1 145-151-155	42 2-3 .2 146-152-156	42 2-3 1.9 150-155-159	45 2-3 1.0 153-158-161	50 46
145.0	6 3-3 .0 143-150-154	28 3-3 .2 144-150-154	44 2-3 .9 146-151-155	46 2-3 .4 149-154-158	47 2-3 .8 152-157-161	52 48
143.0	14 3-3 .2 142-149-153	37 3-3 .1 143-149-153	46 2-3 .8 146-151-155	48 2-3 .3 149-154-158	49 2-3 .7 152-157-160	53 49
141.0	23 3-3 .1 141-147-152	42 3-3 .9 142-148-153	48 2-3 .7 145-150-154	50 2-3 .1 149-153-157	51 2-3 .5 152-156-160	54 51
136.0	42 3-3 .7 138-145-150	50 3-3 .1 140-145-150	53 2-3 .4 145-149-153	54 2-3 .8 148-153-156	55 2-3 1.1 152-156-159	54 54
131.0	49 3-3 .7 137-143-147	55 2-3 .8 139-144-148	58 2-3 .1 144-148-152	59 2-3 .4 147-151-155	60 2-3 .7 151-154-157	54 54
126.0	56 3-3 .3 135-140-144	60 2-3 .7 138-143-146	62 2-3 .9 143-147-151	64 2-3 .1 147-150-153	65 2-3 .3 150-153-156	54 54
121.0	62 3-3 .6 133-138-142	65 2-3 .5 137-141-145	67 2-3 .6 143-146-149	68 2-3 .8 146-149-152	69 2-3 .9 149-152-155	54 54
116.0	68 2-3 .5 132-136-139	70 2-3 .4 136-140-143	71 2-3 1.4 142-145-148	71 2-3 2.6 146-148-151	71 2-3 3.7 149-152-154	54 54
111.0	71 2-3 2.5 131-136-139	71 2-3 4.4 136-140-143	71 .0 132-132-136	71 .0 132-132-136	71 .0 132-132-136	54 54
106.0	71 .0 129-129-133	71 .0 129-129-133	71 .0 129-129-133	71 .0 129-129-133	71 .0 129-129-133	54 54
101.0	71 .0 125-126-130	71 .0 125-126-130	71 .0 125-126-130	71 .0 125-126-130	71 .0 125-126-130	54 54

ETEF ERFURT 28

ELEV. = 1033 ft TORA = 2000 m
SLOPE = .45 % ASDA = 2200 m
TODA = 2500 m

15/00

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

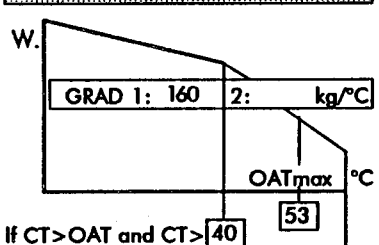
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1050 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>40
use Corr. Flex. T/O Temp. up to 69

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-10	-5.0	-10	-3

Minimum v_1: 119 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 2600 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	- -	- -	- -	
157.0	- -	- -	- -	- -	- -	40
155.0	- -	- -	- -	- -	- -	42
153.0	- -	- -	- -	- -	- -	44
151.0	- -	- -	- -	- -	- -	45 39
149.0	- -	- -	- -	- -	- -	47 42
147.0	- -	- -	- -	- -	- -	48 44
145.0	- -	- -	- -	- -	- -	50 45
143.0	- -	- -	- -	- -	0 3-3 .2 160-162-165	52 47
141.0	- -	- -	- -	- -	9 3-3 .0 159-160-164	53 49
136.0	- -	- -	-2 3-3 .0 155-157-161	14 3-3 .0 155-157-161	31 3-3 .0 156-157-161	53 53
131.0	- -	- -	19 3-3 .1 152-154-159	36 3-3 .1 152-155-159	40 3-3 3.0 154-156-160	53 53
126.0	- -	15 3-3 .2 147-151-156	40 3-3 .4 149-152-156	40 3-3 4.2 152-154-158	51 3-3 .2 152-153-156	53 53
121.0	14 3-3 .1 143-148-153	38 3-3 .2 144-148-153	47 3-3 .6 147-149-153	53 3-3 .1 148-149-153	58 3-3 .1 149-150-153	53 53
116.0	38 3-3 .0 140-145-150	40 3-3 4.8 144-148-153	55 3-3 .1 144-146-150	60 3-3 .2 146-147-150	65 3-3 .0 147-147-150	53 53
111.0	40 3-3 4.6 139-144-149	54 3-3 .5 140-143-147	62 3-3 .4 142-144-147	67 3-3 .5 144-144-147	70 3-3 1.4 145-145-147	53 53
106.0	54 3-3 .6 136-140-144	62 3-3 .2 138-140-144	70 3-3 .4 140-141-144	70 3-3 3.7 143-143-146	70 .0 140-141-143	53 53
101.0	62 3-3 .6 133-137-141	70 3-3 .4 136-137-140	70 .0 137-137-140	70 .0 137-137-140	70 .0 137-137-140	53 53

ETEF
ERFURT
28

ELEV. = 1033 ft TORA = 2000 m
SLOPE = .45 % ASDA = 2200 m
TODA = 2500 m

15/15

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

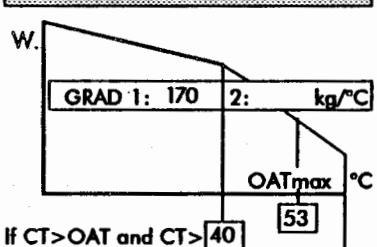
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1050 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>40
use Corr. Flex. T/O Temp. up to 69

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-9	-6.0	-15	-3

Minimum v_1: 117 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 2600 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	- -	- -	- -	
157.0	- -	- -	- -	- -	- -	40
155.0	- -	- -	- -	- -	- -	42
153.0	- -	- -	- -	- -	- -	44
151.0	- -	- -	- -	- -	- -	45 39
149.0	- -	- -	- -	-4 2-3 .0 151-153-158	9 2-3 .1 152-154-158	47 42
147.0	- -	- -	- -	8 2-3 .0 149-151-155	24 2-3 .1 149-151-155	48 44
145.0	- -	- -	1 3-3 .1 148-150-154	17 3-3 .1 148-150-154	33 3-3 .1 148-150-154	50 45
143.0	- -	- -	9 3-3 .2 146-149-153	25 3-3 .2 147-149-153	40 3-3 .5 147-149-153	52 47
141.0	- -	- -	18 3-3 .1 145-147-152	34 3-3 .2 145-148-152	43 3-3 .5 146-148-152	53 49
136.0	- -	14 3-3 .2 142-145-150	40 3-3 .1 142-145-150	40 3-3 3.8 145-147-152	49 2-3 .8 145-146-150	53 53
131.0	12 3-3 .2 138-142-147	36 3-3 .1 139-142-147	47 3-3 .2 141-143-147	52 3-3 .4 142-143-147	54 2-3 .9 145-145-149	53 53
126.0	34 3-3 .2 135-139-144	40 3-3 4.2 138-142-146	54 3-3 .3 139-140-144	58 2-3 .6 140-141-145	60 2-3 .2 143-144-147	53 53
121.0	40 3-3 3.9 134-138-144	53 3-3 .3 135-137-142	61 3-3 .2 137-138-142	63 2-3 .9 139-140-143	65 2-3 .5 143-143-146	53 53
116.0	53 3-3 .1 131-134-139	60 3-3 .3 133-135-139	67 2-3 .7 135-136-139	69 2-3 .3 138-139-142	70 2-3 .7 142-142-145	53 53
111.0	60 3-3 .2 129-132-136	67 3-3 .5 131-132-136	70 2-3 3.0 135-135-139	70 2-3 4.4 138-139-142	70 .0 132-132-136	53 53
106.0	67 3-3 .6 127-129-133	70 3-3 3.6 130-131-135	70 .0 129-129-133	70 .0 129-129-133	70 .0 129-129-133	53 53
101.0	70 3-3 3.8 126-128-132	70 .0 125-126-130	70 .0 125-126-130	70 .0 125-126-130	70 .0 125-126-130	53 53

ETEF ERFURT 28

ELEV. = 1033 ft SLOPE = .45 %
TORA = 2000 m ASDA = 2200 m TODA = 2500 m

20/20

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

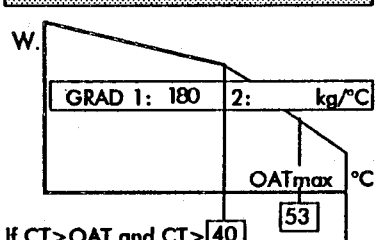
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1050 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>40
use Corr. Flex. T/O Temp. up to 69

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-9	-6.0	-13	-3

Minimum v_1: 118 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 2600 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	- -	- -	- -	
157.0	- -	- -	- -	- -	- -	40
155.0	- -	- -	- -	- -	- -	42
153.0	- -	- -	- -	- -	- -	44
151.0	- -	- -	- -	- -	- -	45 39
149.0	- -	- -	- -	- -	-3 2-3 .0 157-159-163	47 42
147.0	- -	- -	- -	1 2-3 .1 152-154-159	15 2-3 .1 153-155-159	48 44
145.0	- -	- -	5 2-3 .1 148-150-155	20 2-3 .0 148-150-155	31 2-3 .1 150-152-156	50 45
143.0	- -	1 2-3 .0 143-145-150	23 2-3 .0 144-146-151	34 2-3 .1 146-148-153	40 2-3 .8 148-150-155	52 47
141.0	-5 2-3 .2 139-142-147	17 2-3 .0 140-143-148	37 2-3 .0 142-144-149	40 2-3 1.2 145-147-152	43 2-3 .6 147-150-154	53 49
136.0	17 3-3 .1 136-139-144	40 3-3 .5 137-140-144	40 2-3 4.6 141-144-149	47 2-3 .1 143-145-150	48 2-3 .7 147-148-153	53 53
131.0	39 3-3 .1 133-137-142	47 3-3 .5 135-137-142	50 2-3 .7 140-142-146	52 2-3 .2 143-144-149	53 2-3 .7 146-147-152	53 53
126.0	40 3-3 4.8 133-137-142	53 2-3 .4 134-136-140	55 2-3 .9 139-140-145	57 2-3 .5 142-143-147	58 2-3 .8 145-146-150	53 53
121.0	53 3-3 .7 130-133-137	58 2-3 .8 133-135-139	61 2-3 .3 138-139-143	62 2-3 .7 141-142-146	64 2-3 .0 144-145-148	53 53
116.0	60 3-3 .5 128-130-134	64 2-3 .3 132-133-137	66 2-3 .6 137-138-141	67 2-3 .9 140-141-144	69 2-3 .2 143-144-147	53 53
111.0	67 3-3 .5 126-128-132	69 2-3 .8 131-132-136	70 2-3 1.9 136-137-140	70 2-3 3.1 140-140-143	70 2-3 4.2 143-143-147	53 53
106.0	70 2-3 2.9 126-127-131	70 2-3 4.9 131-132-136	70 .0 124-125-129	70 .0 124-125-129	70 .0 124-125-129	53 53
101.0	70 .0 124-125-129	70 .0 124-125-129	70 .0 124-125-129	70 .0 124-125-129	70 .0 124-125-129	53 53

ETEF
ERFURT
10

ELEV. = 1033 ft TORA = 2000 m
SLOPE = -.45 % ASDA = 2200 m
TODA = 2500 m

15/00

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

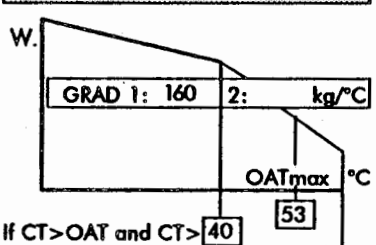
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1050 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT> 40
use Corr. Flex. T/O Temp. up to 69

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-10	-5.0	-10	-3

Minimum v_1: 119 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 2600 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	- -	- -	- -	
157.0	- -	- -	- -	- -	- -	40
155.0	- -	- -	- -	- -	- -	42
153.0	- -	- -	- -	- -	- -	44
151.0	- -	- -	- -	- -	- -	45 39
149.0	- -	- -	- -	- -	- -	47 42
147.0	- -	- -	- -	- -	- -	48 44
145.0	- -	- -	- -	- -	1 3-3 .2 160-162-167	50 45
143.0	- -	- -	- -	- -	10 3-3 .1 159-161-165	52 47
141.0	- -	- -	- -	2 3-3 .2 157-160-164	18 3-3 .2 158-160-164	53 49
136.0	- -	- -	7 3-3 .2 153-157-161	24 3-3 .0 154-157-161	40 3-3 .3 154-157-161	53 53
131.0	- -	4 3-3 .1 149-154-159	29 3-3 .2 150-154-159	40 3-3 1.4 152-155-159	47 3-3 .2 153-155-159	53 53
126.0	3 3-3 .0 145-150-156	26 3-3 .1 146-151-156	40 3-3 2.7 149-152-157	49 3-3 .0 149-152-156	54 3-3 .2 151-152-156	53 53
121.0	25 3-3 .1 142-147-153	40 3-3 2.1 144-149-154	51 3-3 .1 146-149-153	56 3-3 .1 147-149-153	61 3-3 .1 149-149-153	53 53
116.0	40 3-3 2.0 139-145-151	50 3-3 .3 141-145-150	58 3-3 .1 144-146-150	63 3-3 .2 145-146-150	68 3-3 .3 147-147-150	53 53
111.0	50 3-3 .4 137-142-147	57 3-3 .6 139-143-147	65 3-3 .4 142-143-147	70 3-3 .6 143-144-147	70 3-3 4.0 146-146-149	53 53
106.0	58 3-3 .1 135-139-144	65 3-3 .4 137-140-144	70 3-3 2.3 140-142-145	70 .0 140-140-143	70 .0 140-140-143	53 53
101.0	66 3-3 .2 132-136-140	70 3-3 2.4 136-138-142	70 .0 136-136-140	70 .0 136-136-140	70 .0 136-136-140	53 53

ETEF ERFURT 10

ELEV. = 1033 ft TORA = 2000 m
SLOPE = -.45 % ASDA = 2200 m
TODA = 2500 m

15/15

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

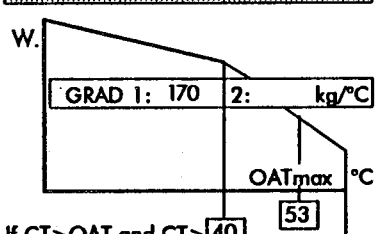
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1050 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT> 40
use Corr. Flex. T/O Temp. up to 69

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-9	-6.0	-15	-3

Minimum v_1: 117 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 2600 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	- -	- -	- -	
157.0	- -	- -	- -	- -	- -	40
155.0	- -	- -	- -	- -	- -	42
153.0	- -	- -	- -	- -	- -	44
151.0	- -	- -	- -	- -	2 2-3 .1 154-157-162	45 39
149.0	- -	- -	- -	5 2-3 .0 150-153-158	19 2-3 .0 151-154-158	47 42
147.0	- -	- -	2 2-3 .2 147-151-156	17 2-3 .2 148-151-156	33 2-3 .1 148-151-156	48 44
145.0	- -	- -	12 3-3 .1 146-149-154	28 3-3 .0 146-149-154	40 2-2 1.0 147-150-155	50 45
143.0	- -	-4 3-3 .1 144-148-153	20 3-3 .2 145-148-153	37 3-3 .0 145-148-153	43 3-3 .7 146-149-154	52 47
141.0	- -	4 3-3 .2 143-147-152	29 3-3 .2 143-147-152	40 3-3 1.3 145-148-153	45 2-3 .8 146-149-153	53 49
136.0	3 3-3 .0 139-144-150	26 3-3 .0 140-144-149	40 3-3 2.7 142-146-151	49 3-3 .0 142-145-149	50 2-3 .9 145-148-152	53 53
131.0	24 3-3 .1 136-141-147	40 3-3 1.9 138-142-148	50 3-3 .6 140-143-147	54 2-3 .4 142-144-148	56 2-3 .0 145-146-151	53 53
126.0	40 3-3 1.6 134-139-145	49 3-3 .5 136-140-144	57 3-3 .5 138-140-144	59 2-3 .6 141-143-147	61 2-3 .2 144-145-149	53 53
121.0	49 3-3 .3 132-136-142	56 3-3 .5 134-137-142	63 2-3 .4 136-138-142	64 2-3 .9 140-141-145	66 2-3 .4 143-144-148	53 53
116.0	56 3-3 .5 130-134-139	63 3-3 .6 132-135-139	68 2-3 .8 136-137-141	70 2-3 .3 139-140-144	70 2-3 1.6 142-143-147	53 53
111.0	63 3-3 .6 128-131-136	70 3-3 .9 130-132-136	70 2-3 3.9 135-137-141	70 .0 131-132-136	70 .0 131-132-136	53 53
106.0	70 3-3 1.1 126-129-133	70 .0 128-128-133	70 .0 128-128-133	70 .0 128-128-133	70 .0 128-128-133	53 53
101.0	70 .0 124-125-130	70 .0 124-125-130	70 .0 124-125-130	70 .0 124-125-130	70 .0 124-125-130	53 53

LGAT ATHENS 33R

ELEV. = 92 ft
SLOPE = -.25 %

TORA = 3500 m
ASDA = 3500 m
TODA = 3500 m

15/00

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

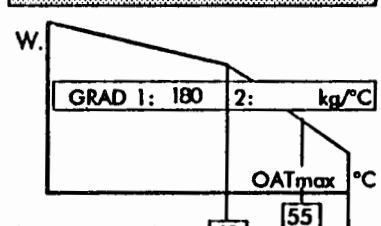
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1016 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>43
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-6	-4.5	-8	-3

Minimum v_1: 119 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1600 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	15 2-6 .1 167-173-177	29 2-6 .0 168-174-178	39 2-1 .0 169-175-179	43
157.0	- -	10 2-6 .0 162-169-174	30 2-6 .1 163-170-174	43 2-6 .1 165-171-175	43 2-1 1.7 168-174-178	45
155.0	-2 6-6 .3 160-168-172	19 6-6 .1 160-168-172	41 2-6 .2 162-168-172	45 2-6 .7 165-171-175	47 2-6 .3 170-175-179	46
153.0	6 6-6 .2 158-167-171	27 6-6 .2 159-167-171	43 2-6 1.8 161-168-172	47 2-6 .7 166-171-175	49 2-6 .2 171-175-179	48 43
151.0	14 6-6 .1 157-166-170	36 6-6 .1 158-166-170	48 2-6 .0 162-168-172	49 2-6 .6 167-171-175	51 2-6 .0 172-175-179	49 45
149.0	22 6-6 .2 155-165-169	43 6-6 .4 157-165-169	50 2-6 .0 163-168-172	51 2-6 .5 168-172-176	52 2-6 .9 173-176-179	50 46
147.0	31 6-6 .0 154-163-168	48 6-6 .1 157-164-168	51 2-6 1.0 164-168-172	53 2-6 .4 169-172-176	54 2-6 .7 174-176-179	52 48
145.0	39 6-6 .1 153-162-167	51 6-6 .3 158-163-167	53 2-6 .9 165-168-172	55 2-6 .3 170-172-176	56 2-6 .6 175-176-180	53 49
143.0	43 6-6 1.2 152-162-166	53 2-6 .5 159-164-167	55 2-6 .8 166-169-173	57 2-6 .2 171-173-176	58 2-6 .3 176-176-179	54 50
141.0	49 6-6 .3 153-161-164	55 2-6 .5 159-164-167	57 2-6 .8 166-169-172	58 2-6 1.0 171-172-176	59 2-3 1.1 176-176-179	55 52
136.0	58 2-6 .2 155-159-162	60 2-3 .1 160-163-166	61 2-3 1.1 166-168-171	63 2-3 .0 170-171-174	63 2-3 1.1 175-175-178	55 55
131.0	62 2-3 .8 154-158-161	64 2-3 .5 160-162-165	66 2-3 .1 166-167-170	67 2-3 .2 170-170-173	67 2-2 .5 171-172-174	55 55
126.0	67 2-3 .1 154-157-159	68 2-3 .9 159-161-164	70 2-3 .4 165-166-168	70 2-2 1.3 169-169-172	70 2-2 1.3 168-169-172	55 55
121.0	71 2-3 .6 153-156-158	72 2-3 1.3 159-161-163	72 2-3 3.0 165-166-168	72 2-2 3.5 167-167-170	72 2-2 3.5 166-167-170	55 55
116.0	72 2-3 4.5 153-156-158	72 .0 147-147-150	72 .0 147-147-150	72 .0 147-147-150	72 .0 147-147-150	55 55
111.0	72 .0 143-144-147	72 .0 143-144-147	72 .0 143-144-147	72 .0 143-144-147	72 .0 143-144-147	55 55
106.0	72 .0 140-140-143	72 .0 140-140-143	72 .0 140-140-143	72 .0 140-140-143	72 .0 140-140-143	55 55
101.0	72 .0 136-137-140	72 .0 136-137-140	72 .0 136-137-140	72 .0 136-137-140	72 .0 136-137-140	55 55

LGAT ATHENS 33R

ELEV. = 92 ft TORA = 3500 m
SLOPE = -.25 % ASDA = 3500 m
TODA = 3500 m

15/15

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

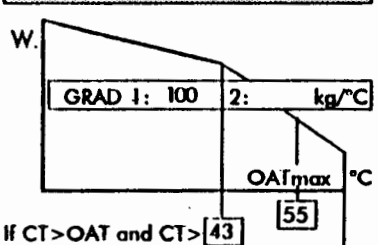
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1016 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>43
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-2	-2.0	-12	-3

Minimum v_1: 117 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1600 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	-2 2-6 .1 165-173-177	17 2-6 .0 167-174-178	29 2-2 .0 168-175-178	30 2-2 .0 169-175-179	43
157.0	- -	15 2-6 .1 160-169-173	34 2-6 .1 162-170-174	43 2-2 .4 165-172-176	43 2-2 1.4 168-175-178	45
155.0	13 2-6 .0 154-164-168	32 2-6 .1 156-165-169	43 2-6 1.0 160-169-172	45 2-6 1.0 165-172-176	46 2-2 .1 167-173-176	46
153.0	29 2-6 .0 150-160-165	43 2-6 .7 153-163-167	46 2-6 .5 161-169-172	47 2-2 .6 166-172-176	47 2-2 .6 167-172-176	48 43
151.0	43 2-6 .2 147-158-162	46 2-6 .2 154-163-167	48 2-6 .3 162-169-173	48 2-2 1.2 166-171-175	48 2-2 1.2 166-171-175	49 45
149.0	45 2-6 .8 147-158-162	48 2-6 .2 155-163-167	50 2-6 .2 163-169-173	50 2-2 .3 165-170-173	50 2-2 .3 164-170-173	50 46
147.0	47 2-6 .8 148-158-162	50 2-6 .1 156-164-167	51 2-6 .8 163-169-172	51 2-2 .9 164-169-172	51 2-2 .9 163-169-172	52 48
145.0	49 2-6 .8 149-158-162	51 2-6 1.0 157-164-167	52 2-2 1.4 163-168-171	52 2-2 1.4 163-168-171	52 2-2 1.4 162-168-171	53 49
143.0	51 2-6 .8 150-158-162	53 2-6 .9 158-164-168	54 2-2 .5 163-166-170	54 2-2 .5 161-166-170	54 2-2 .5 160-166-170	54 50
141.0	53 2-6 .7 151-159-162	55 2-3 .6 159-164-168	55 2-2 1.1 162-166-169	55 2-2 1.1 160-166-169	55 2-2 1.1 158-166-169	55 52
136.0	58 2-3 .3 152-158-162	59 2-2 .7 158-163-166	59 2-2 .7 158-163-166	59 2-2 .7 156-163-166	59 2-2 .7 155-163-166	55 55
131.0	62 2-3 .7 152-157-161	63 2-2 .3 155-159-162	63 2-2 .3 154-159-162	63 2-2 .3 152-159-162	63 2-2 .3 151-159-162	55 55
126.0	66 2-3 1.0 151-156-159	66 2-2 1.3 153-157-160	66 2-2 1.3 151-157-160	66 2-2 1.3 150-157-160	66 2-2 1.3 148-157-160	55 55
121.0	70 2-2 .9 149-154-157	70 2-2 .9 149-154-157	70 2-2 .9 147-154-157	70 2-2 .9 145-154-157	70 2-2 .9 144-154-157	55 55
116.0	72 2-2 3.2 148-152-155	72 2-2 3.2 147-152-155	72 2-2 3.2 145-152-155	72 2-2 3.2 143-152-155	72 2-2 3.2 141-152-155	55 55
111.0	72 .0 131-132-136	72 .0 131-132-136	72 .0 131-132-136	72 .0 131-132-136	72 .0 131-132-136	55 55
106.0	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	55 55
101.0	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	55 55

LGAT ATHENS 15L

ELEV. = 92 ft TORA = 3350 m
SLOPE = .25 % ASDA = 3350 m
TODA = 3350 m

15/00

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

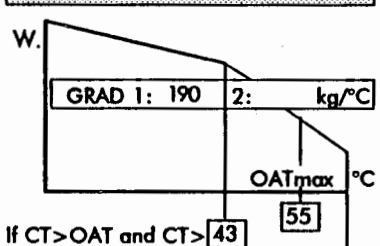
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1016 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>43
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-6	-4.5	-8	-3

Minimum v_1: 119 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID: •

Accel. Alt.: 1600 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	11 2-1 .0 170-173-177	24 2-1 .0 171-174-178	36 2-1 .1 172-175-178	43
157.0	- -	4 2-6 .2 166-170-174	27 2-6 .1 166-170-174	40 2-6 .0 167-171-174	43 2-1 1.3 171-174-177	45
155.0	- -	14 6-6 .2 164-168-172	36 2-6 .2 165-168-172	43 2-6 1.6 167-170-174	46 2-6 .9 172-174-178	46
153.0	1 6-6 .2 162-167-171	22 6-6 .2 163-167-171	43 2-6 .7 164-168-171	47 2-6 .3 168-170-174	48 2-6 .8 173-174-178	48 43
151.0	9 6-6 .1 160-166-170	31 6-6 .1 161-166-170	47 2-6 .5 164-167-171	49 2-3 .2 169-171-174	50 2-3 .6 173-174-178	49 45
149.0	17 6-6 .1 159-165-169	39 6-6 .1 160-165-169	49 2-3 .5 165-167-171	50 2-3 1.0 169-171-174	52 2-3 .2 173-174-177	50 46
147.0	25 6-6 .2 158-164-168	43 6-6 1.2 159-164-168	51 2-3 .2 165-167-170	52 2-3 .7 169-170-174	53 2-3 1.0 173-174-177	52 48
145.0	34 6-6 .0 156-163-166	49 3-3 .4 160-163-167	52 2-3 1.1 165-167-170	54 2-3 .3 168-170-173	55 2-3 .6 173-174-177	53 49
143.0	42 6-6 .1 155-162-165	52 3-3 .1 159-162-165	54 2-3 .7 164-167-170	55 2-3 1.1 168-170-173	57 2-3 .1 172-173-176	54 50
141.0	43 6-6 1.9 155-161-165	54 2-3 .3 158-162-165	56 2-3 .4 164-166-169	57 2-3 .7 168-169-172	58 2-3 .9 172-173-176	55 52
136.0	54 3-3 .4 154-158-162	58 2-3 .7 158-160-163	60 2-3 .7 163-165-168	61 2-3 1.0 167-168-171	62 2-3 1.0 171-171-174	55 55
131.0	60 3-3 .1 152-156-159	63 2-3 .1 157-159-162	64 2-3 1.1 163-164-166	66 2-3 .0 167-167-169	66 2-3 .9 169-169-172	55 55
126.0	65 2-3 .7 151-154-156	67 2-3 .5 156-158-160	69 2-3 .2 162-163-165	70 2-3 .1 165-165-168	70 2-3 .9 168-168-170	55 55
121.0	70 2-3 .2 150-153-155	71 2-3 1.0 156-157-159	72 2-3 1.7 162-162-164	72 2-3 2.7 165-165-167	72 2-3 3.4 167-167-169	55 55
116.0	72 2-3 3.0 150-152-154	72 2-3 4.9 156-157-159	72 .0 147-147-150	72 .0 147-147-150	72 .0 147-147-150	55 55
111.0	72 .0 144-144-147	72 .0 144-144-147	72 .0 144-144-147	72 .0 144-144-147	72 .0 144-144-147	55 55
106.0	72 .0 140-141-143	72 .0 140-141-143	72 .0 140-141-143	72 .0 140-141-143	72 .0 140-141-143	55 55
101.0	72 .0 137-137-140	72 .0 137-137-140	72 .0 137-137-140	72 .0 137-137-140	72 .0 137-137-140	55 55

LGAT ATHENS 15L

ELEV. = 92 ft TORA = 3350 m
SLOPE = .25 % ASDA = 3350 m
TODA = 3350 m

15/15

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

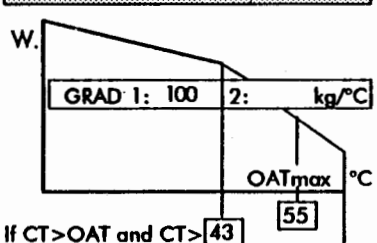
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1016 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>43
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-2	-2.0	-12	-3

Minimum v_1: 117 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1600 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	10 1-1 .1 170-174-177	21 2-2 .0 171-175-178	30 2-2 .0 173-175-178	43
157.0	- -	9 2-3 .1 164-169-172	30 2-6 .0 166-170-173	41 2-3 .1 168-172-175	43 2-2 1.1 171-175-178	45
155.0	7 2-3 .1 158-164-168	27 2-3 .0 160-165-169	43 2-6 .4 163-168-171	43 2-3 1.9 167-171-174	46 2-2 .1 170-173-176	46
153.0	23 2-6 .0 154-160-164	42 2-6 .1 156-162-166	45 2-3 .9 163-167-171	46 2-3 1.1 167-171-174	47 2-2 .6 170-173-176	48 43
151.0	38 2-6 .1 151-157-161	43 2-6 2.0 156-162-166	47 2-3 .6 163-167-170	48 2-3 .7 167-170-173	48 2-2 1.2 169-172-175	49 45
149.0	43 2-6 1.4 150-156-160	47 2-3 .3 156-162-165	49 2-3 .2 163-167-170	50 2-2 .3 167-170-173	50 2-2 .3 167-170-173	50 46
147.0	47 2-3 .1 151-157-161	49 2-3 .1 156-161-165	50 2-3 1.0 163-167-170	51 2-2 .9 166-169-172	51 2-2 .9 166-169-172	52 48
145.0	48 2-3 1.0 151-156-160	50 2-3 .9 156-161-165	52 2-3 .7 163-166-169	52 2-2 1.4 165-168-171	52 2-2 1.4 165-168-171	53 49
143.0	50 2-3 .7 150-156-160	52 2-3 .6 156-161-164	54 2-3 .3 163-166-169	54 2-2 .5 164-167-170	54 2-2 .5 163-167-170	54 50
141.0	52 2-3 .5 150-156-159	54 2-3 .2 156-160-164	55 3-3 1.1 163-166-169	55 2-2 1.1 163-166-169	55 2-2 1.1 162-166-169	55 52
136.0	56 2-3 1.0 150-155-158	58 2-3 .6 155-159-163	59 2-2 .7 160-163-166	59 2-2 .7 159-163-166	59 2-2 .7 158-163-166	55 55
131.0	61 2-3 .3 149-153-157	62 2-3 .9 155-158-161	63 2-2 .3 157-160-162	63 2-2 .3 155-160-162	63 2-2 .3 154-160-162	55 55
126.0	65 2-3 .7 148-152-156	66 2-3 1.2 154-157-160	66 2-2 1.3 154-157-160	66 2-2 1.3 153-157-160	66 2-2 1.3 151-157-160	55 55
121.0	70 2-3 .0 148-151-154	70 2-2 .9 152-154-157	70 2-2 .9 150-154-157	70 2-2 .9 149-154-157	70 2-2 .9 147-154-157	55 55
116.0	72 2-3 2.7 148-151-153	72 2-2 3.2 150-152-155	72 2-2 3.2 148-152-155	72 2-2 3.2 146-152-155	72 2-2 3.2 145-152-155	55 55
111.0	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	55 55
106.0	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	55 55
101.0	72 .0 125-126-130	72 .0 125-126-130	72 .0 125-126-130	72 .0 125-126-130	72 .0 125-126-130	55 55

LGAT ATHENS 33L

ELEV. = 92 ft
SLOPE = -.23 %

TORA = 2695 m
ASDA = 3150 m
TODA = 3150 m

15/00

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

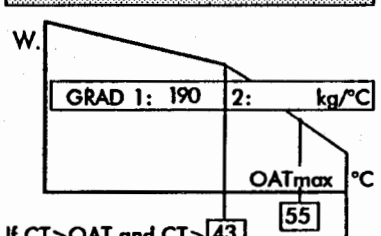
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1016 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT> 43
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-10	-5.0	-10	-3

Minimum v_1: 119 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1600 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	1 2-3 .0 171-172-177	15 2-6 .0 172-173-177	28 2-6 .1 173-174-178	43
157.0	- -	- -	15 2-6 .1 168-169-174	29 2-6 .1 169-170-174	42 2-6 .1 170-171-175	45
155.0	- -	1 3-3 .1 166-168-172	24 2-6 .2 166-168-172	39 2-6 .2 167-168-172	43 2-6 1.9 170-171-175	46
153.0	- -	10 3-3 .0 164-167-171	33 6-6 .1 165-167-171	43 2-6 1.4 166-168-172	47 2-3 .5 171-171-175	48 43
151.0	- -	18 3-3 .1 163-166-170	41 6-6 .2 164-166-170	47 2-3 .7 166-167-171	49 2-3 .0 170-170-174	49 45
149.0	4 3-3 .1 161-164-169	26 3-3 .2 162-165-169	43 6-6 1.7 164-166-170	49 2-3 .4 166-167-171	50 2-3 .7 170-170-174	50 46
147.0	12 3-3 .2 160-163-168	34 6-6 .2 161-164-168	48 3-3 .7 163-164-168	51 2-3 .1 166-166-170	52 2-3 .3 169-169-173	52 48
145.0	20 6-6 .2 159-162-167	43 6-6 .0 159-162-166	51 3-3 .2 162-163-167	52 2-3 .9 166-166-170	53 2-3 1.0 169-169-173	53 49
143.0	28 6-6 .2 157-161-165	46 6-6 .5 159-162-166	53 2-3 .1 162-163-166	54 2-3 .6 166-166-169	55 2-3 .6 168-168-172	54 50
141.0	37 6-6 .1 156-160-164	49 3-3 .1 158-161-164	54 2-3 .9 162-163-166	56 2-3 .2 165-165-169	56 2-3 1.3 168-168-171	55 52
136.0	43 6-6 3.6 155-159-163	55 3-3 .4 157-158-162	59 2-3 .2 161-161-164	60 2-3 .2 163-163-167	61 2-3 .0 165-165-169	55 55
131.0	55 3-3 .1 152-155-159	61 3-3 .2 155-156-159	63 2-3 .5 160-160-163	64 2-3 .3 162-162-165	65 2-3 .1 164-164-167	55 55
126.0	60 3-3 .8 151-153-156	65 2-3 1.1 154-154-157	67 2-3 .7 158-158-161	68 2-3 .4 160-160-163	69 2-3 .1 162-162-165	55 55
121.0	67 3-3 .1 149-150-153	70 2-3 .6 153-153-156	71 2-3 1.0 157-157-159	72 2-3 .7 159-159-161	72 2-3 1.5 161-161-163	55 55
116.0	72 3-3 1.4 147-148-151	72 2-3 3.4 153-153-155	72 2-3 4.8 157-157-159	72 .0 147-147-150	72 .0 147-147-150	55 55
111.0	72 .0 143-144-147	72 .0 143-144-147	72 .0 143-144-147	72 .0 143-144-147	72 .0 143-144-147	55 55
106.0	72 .0 140-140-143	72 .0 140-140-143	72 .0 140-140-143	72 .0 140-140-143	72 .0 140-140-143	55 55
101.0	72 .0 136-137-140	72 .0 136-137-140	72 .0 136-137-140	72 .0 136-137-140	72 .0 136-137-140	55 55

LGAT ATHENS 33L

ELEV. = 92 ft TORA = 2695 m
SLOPE = -.23 % ASDA = 3150 m
TODA = 3150 m

15/15

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

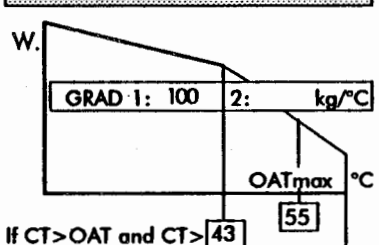
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1016 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>43
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-8	-5.5	-12	-3

Minimum v_1: 117 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1600 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0				8 1-1 .1 172-174-177	20 2-2 .0 173-174-178	43
	- -	- -	- -			
157.0			15 2-3 .0 167-169-173	28 2-3 .0 168-170-173	39 2-3 .1 169-171-175	45
	- -	- -				
155.0		12 2-3 .0 161-164-168	32 2-3 .1 163-165-169	43 2-3 .2 164-167-170	43 2-3 1.6 168-170-174	46
	- -					
153.0	9 2-3 .1 156-160-164	29 2-3 .1 157-160-165	43 2-3 .8 161-163-167	45 2-3 .6 164-166-170	46 2-3 .8 168-170-173	48 43
151.0	26 2-3 .1 152-156-161	43 2-3 .3 154-158-162	46 2-3 .1 160-163-167	47 2-3 .3 164-166-170	48 2-3 .4 168-169-173	49 45
149.0	41 2-3 .1 149-153-158	45 2-3 .8 154-158-162	47 2-3 .9 160-163-167	48 2-3 1.1 164-166-170	50 2-3 .0 168-169-172	50 46
147.0	43 2-3 1.8 148-153-157	47 2-3 .5 154-157-161	49 2-3 .6 160-162-166	50 2-3 .8 164-166-169	51 2-3 .7 168-169-172	52 48
145.0	47 2-3 .2 148-152-157	49 2-3 .3 154-157-161	51 2-3 .2 160-162-166	52 2-3 .4 164-165-169	52 2-2 1.4 167-168-171	53 49
143.0	48 2-3 1.1 148-152-157	50 2-3 1.1 153-157-161	52 2-3 1.1 160-162-165	54 2-3 .0 164-165-168	54 2-2 .5 165-166-170	54 50
141.0	50 2-3 .9 148-152-156	52 2-3 .8 153-156-160	54 2-3 .7 160-161-165	55 2-3 .8 164-165-168	55 2-2 1.1 164-166-169	55 52
136.0	55 2-3 .3 148-151-155	57 2-3 .1 153-155-159	58 2-3 1.1 159-160-164	59 2-2 .7 162-163-166	59 2-2 .7 161-163-166	55 55
131.0	59 2-3 .8 147-149-154	61 2-3 .6 152-154-158	63 2-3 .2 158-159-162	63 2-2 .3 158-159-162	63 2-2 .3 157-159-162	55 55
126.0	64 2-3 .3 146-148-152	65 2-3 1.0 151-153-156	66 2-2 1.3 156-157-160	66 2-2 1.3 155-157-160	66 2-2 1.3 154-157-160	55 55
121.0	68 2-3 .8 145-147-151	70 2-3 .3 151-152-155	70 2-2 .9 152-154-157	70 2-2 .9 151-154-157	70 2-2 .9 150-154-157	55 55
116.0	72 2-3 1.4 145-146-150	72 2-3 3.0 150-151-154	72 2-2 3.2 150-152-155	72 2-2 3.2 149-152-155	72 2-2 3.2 148-152-155	55 55
111.0	72 .0 131-132-136	72 .0 131-132-136	72 .0 131-132-136	72 .0 131-132-136	72 .0 131-132-136	55 55
106.0	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	55 55
101.0	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	55 55

LGAT ATHENS 15R

ELEV. = 92 ft TORA = 3010 m
SLOPE = .23 % ASDA = 3150 m
TODA = 3150 m

15/00

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

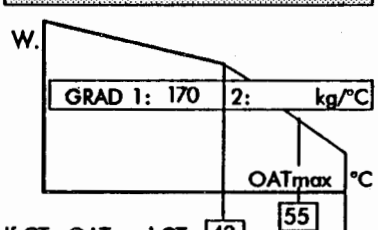
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1016 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>43
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-10	-5.0	-10	-3

Minimum v_1: 119 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1600 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	1 2-3 .1 170-173-177	16 2-3 .1 171-173-177	30 2-3 .1 173-174-178	43
157.0	- -	- -	16 2-3 .1 167-170-174	32 2-3 .0 168-170-174	43 2-3 .4 170-172-176	45
155.0	- -	2 3-3 .1 165-168-172	27 2-3 .1 166-168-172	43 2-3 .4 166-169-172	45 2-3 .9 170-172-175	46
153.0	- -	11 3-3 .1 163-167-171	36 3-3 .1 164-167-171	46 2-3 .0 166-168-172	47 2-3 .6 170-171-175	48 43
151.0	- -	20 3-3 .1 162-166-170	43 3-3 .6 163-166-170	47 2-3 .8 166-168-171	49 2-3 .2 169-171-174	49 45
149.0	6 3-3 .1 160-165-169	29 3-3 .0 161-165-169	46 3-3 .6 163-165-169	49 2-3 .5 165-167-171	50 2-3 1.0 169-171-174	50 46
147.0	15 3-3 .0 159-164-168	38 3-3 .0 160-164-168	49 3-3 .2 162-164-168	51 2-3 .2 165-167-170	52 2-3 .7 169-170-174	52 48
145.0	23 3-3 .2 158-163-167	43 3-3 .9 159-163-167	51 3-3 .4 161-164-167	52 2-3 1.0 165-167-170	54 2-3 .3 169-170-173	53 49
143.0	32 3-3 .2 156-162-165	47 3-3 .2 158-162-165	53 2-3 .2 161-163-166	54 2-3 .7 165-166-170	55 2-3 1.1 169-170-173	54 50
141.0	41 3-3 .2 155-160-164	49 3-3 .6 157-161-164	54 2-3 1.1 161-163-166	56 2-3 .4 165-166-169	57 2-3 .7 169-169-172	55 52
136.0	43 3-3 4.8 155-160-164	55 3-3 .9 156-159-162	59 2-3 .3 160-162-165	60 2-3 .7 164-165-168	61 2-3 1.0 168-168-171	55 55
131.0	55 3-3 .7 152-156-159	61 3-3 .5 154-156-159	63 2-3 .8 160-161-163	64 2-3 1.1 163-164-166	65 2-3 1.0 166-166-169	55 55
126.0	61 3-3 .5 150-153-156	66 2-3 .1 153-155-157	68 2-3 .0 159-159-162	69 2-3 .2 163-163-165	69 2-3 1.0 165-165-167	55 55
121.0	67 3-3 .5 148-151-153	70 2-3 .7 152-154-156	72 2-3 .5 158-159-161	72 2-3 1.5 162-162-163	72 2-3 2.4 164-164-166	55 55
116.0	72 2-3 1.6 146-149-151	72 2-3 3.5 152-153-155	72 .0 147-147-150	72 .0 147-147-150	72 .0 147-147-150	55 55
111.0	72 .0 144-144-147	72 .0 144-144-147	72 .0 144-144-147	72 .0 144-144-147	72 .0 144-144-147	55 55
106.0	72 .0 140-141-143	72 .0 140-141-143	72 .0 140-141-143	72 .0 140-141-143	72 .0 140-141-143	55 55
101.0	72 .0 136-137-140	72 .0 136-137-140	72 .0 136-137-140	72 .0 136-137-140	72 .0 136-137-140	55 55

LGAT ATHENS 15R

ELEV. = 92 ft TORA = 3010 m
SLOPE = .23 % ASDA = 3150 m
TODA = 3150 m

15/15

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

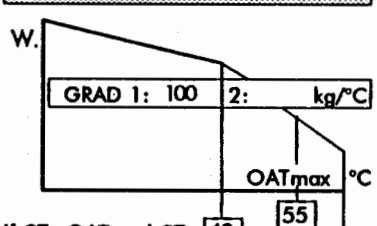
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1016 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT> 43
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-2	-2.0	-12	-3

Minimum v_1: 117 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1600 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0				9 1-1 .1 171-174-177	20 2-2 .1 172-175-178	43
	- -	- -	- -			
157.0			16 2-3 .0 165-169-173	29 2-3 .0 166-170-173	40 2-3 .1 168-171-175	45
	- -	- -				
155.0		13 2-3 .1 160-164-168	34 2-3 .0 162-166-169	43 2-3 .4 164-167-171	43 2-3 1.8 167-171-174	46
	- -					
153.0	11 2-3 .0 154-160-164	30 2-3 .1 156-161-165	43 2-3 .9 160-164-168	45 2-3 .8 163-167-170	46 2-3 1.0 167-170-174	48 43
151.0	28 2-3 .0 151-156-161	43 2-3 .5 153-159-163	46 2-3 .2 159-164-167	47 2-3 .5 163-167-170	48 2-3 .6 167-170-173	49 45
149.0	43 2-3 .1 148-154-158	45 2-3 1.0 153-158-162	47 2-3 1.1 159-163-167	49 2-3 .1 163-166-170	50 2-3 .2 167-170-173	50 46
147.0	45 2-3 .6 148-153-158	47 2-3 .7 153-158-162	49 2-3 .8 159-163-166	50 2-3 .9 163-166-170	51 2-3 .8 166-169-172	52 48
145.0	47 2-3 .4 148-153-157	49 2-3 .5 153-157-161	51 2-3 .4 159-163-166	52 2-3 .6 163-166-169	52 2-2 1.4 166-168-171	53 49
143.0	49 2-3 .2 147-153-157	51 2-3 .2 153-157-161	53 2-3 .1 159-162-166	54 2-3 .2 163-166-169	54 2-2 .5 164-167-170	54 50
141.0	50 2-3 1.1 147-152-156	52 2-3 1.0 153-157-161	54 2-3 .9 159-162-166	55 2-3 1.0 163-166-169	55 2-2 1.1 163-166-169	55 52
136.0	55 2-3 .5 147-152-155	57 2-3 .4 152-156-159	59 2-3 .1 158-161-164	59 2-2 .7 161-163-166	59 2-2 .7 160-163-166	55 55
131.0	59 2-3 1.0 146-150-154	61 2-3 .8 151-155-158	63 2-3 .3 157-159-162	63 2-2 .3 157-160-162	63 2-2 .3 156-160-162	55 55
126.0	64 2-3 .5 145-149-152	66 2-3 .0 151-153-156	66 2-2 1.3 155-157-160	66 2-2 1.3 154-157-160	66 2-2 1.3 153-157-160	55 55
121.0	68 2-3 1.0 145-148-151	70 2-3 .4 150-152-155	70 2-2 .9 151-154-157	70 2-2 .9 150-154-157	70 2-2 .9 149-154-157	55 55
116.0	72 2-3 1.5 144-147-150	72 2-3 3.2 150-152-155	72 2-2 3.2 149-152-155	72 2-2 3.2 148-152-155	72 2-2 3.2 147-152-155	55 55
111.0	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	55 55
106.0	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	55 55
101.0	72 .0 125-126-130	72 .0 125-126-130	72 .0 125-126-130	72 .0 125-126-130	72 .0 125-126-130	55 55

LGIR IRAKLION 27

ELEV. = 115 ft TORA = 2680 m
SLOPE = .00 % ASDA = 2680 m
TODA = 2680 m

15/00

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

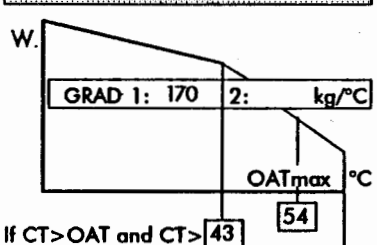
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1017 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>43
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-10	-5.0	-10	-3

Minimum v_1: 119 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1700 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	- -	- -	- -	43
157.0	- -	- -	- -	- -	7 2-3 .1 168-170-174	45
155.0	- -	- -	- -	1 3-3 .1 166-168-172	18 3-3 .1 167-168-172	46
153.0	- -	- -	- -	10 3-3 .1 165-167-171	27 3-3 .1 165-167-171	48 43
151.0	- -	- -	2 3-3 .1 163-166-170	19 3-3 .0 164-166-170	36 3-3 .0 164-166-170	49 44
149.0	- -	- -	11 3-3 .1 162-165-169	27 3-3 .2 162-165-169	43 3-3 .4 163-165-169	50 46
147.0	- -	- -	20 3-3 .0 161-163-168	36 3-3 .2 161-164-168	46 3-3 .5 162-164-168	52 47
145.0	- -	4 3-3 .1 158-162-166	29 3-3 .0 159-162-166	43 3-3 .6 160-163-167	49 3-3 .1 162-163-166	53 49
143.0	- -	12 3-3 .2 157-161-165	37 3-3 .2 158-161-165	46 3-3 .7 160-162-166	51 3-3 .5 161-162-166	54 50
141.0	-1 3-3 .0 155-160-164	21 3-3 .2 156-160-164	43 3-3 .9 157-161-165	49 3-3 .3 159-161-164	53 3-3 1.0 160-162-165	54 52
136.0	21 3-3 .0 152-157-161	43 3-3 .3 153-157-161	50 3-3 .7 155-158-162	55 3-3 .6 157-159-162	58 2-3 .6 159-160-163	54 54
131.0	43 3-3 .0 148-154-159	50 3-3 .1 151-155-159	57 3-3 .0 153-155-159	61 3-3 .3 155-156-159	62 2-3 1.1 159-159-162	54 54
126.0	49 3-3 .7 147-152-156	56 3-3 .4 149-152-156	63 3-3 .0 151-153-156	66 2-3 .1 154-154-157	67 2-3 .3 157-157-160	54 54
121.0	56 3-3 .3 145-149-153	62 3-3 .4 147-150-153	69 3-3 .0 150-150-153	70 2-3 .6 153-154-156	71 2-3 .6 156-156-158	54 54
116.0	62 3-3 .5 143-147-150	68 3-3 .6 145-147-150	71 2-3 3.1 149-150-152	71 2-3 4.5 153-153-156	71 .0 147-147-150	54 54
111.0	69 3-3 .2 141-144-147	71 3-3 3.4 144-146-149	71 .0 143-144-147	71 .0 143-144-147	71 .0 143-144-147	54 54
106.0	71 3-3 3.7 140-143-146	71 .0 140-140-143	71 .0 140-140-143	71 .0 140-140-143	71 .0 140-140-143	54 54
101.0	71 .0 136-137-140	71 .0 136-137-140	71 .0 136-137-140	71 .0 136-137-140	71 .0 136-137-140	54 54

LGIR IRAKLION 27

ELEV. = 115 ft TORA = 2680 m
SLOPE = .00 % ASDA = 2680 m
TODA = 2680 m

15/15

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

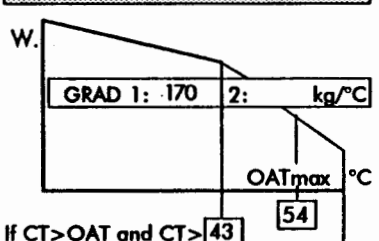
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1017 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>43
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-8	-5.5	-12	-3

Minimum v_1: 117 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1700 ft

Weight [t]	TAILWIND [kts] -10	TAILWIND [kts] -5	NO WIND 0	HEADWIND [kts] 10	HEADWIND [kts] 20	TGA 15/15 20/20
159.0	- -	- -	- -	- -	- -	43
157.0	- -	- -	- -	- -	7 2-3 .1 166-169-172	45
155.0	- -	- -	-1 2-3 .0 160-163-168	12 2-3 .0 161-164-168	25 2-3 .1 162-165-169	46
153.0	- -	- -	16 2-3 .0 156-160-164	29 2-3 .1 157-161-165	41 2-3 .1 159-162-166	48 43
151.0	- -	11 2-3 .0 151-156-160	32 2-3 .1 153-157-161	43 2-3 .3 155-158-162	43 2-3 1.9 158-162-165	49 44
149.0	4 2-3 .1 148-152-157	27 2-3 .1 148-152-157	43 2-3 .7 151-155-159	45 2-3 .7 154-158-162	47 2-3 .0 158-161-165	50 46
147.0	14 3-3 .2 146-151-155	37 2-3 .1 147-151-156	46 2-3 .0 151-154-159	47 2-3 .5 154-158-162	48 2-3 .9 158-161-165	52 47
145.0	23 3-3 .2 145-149-154	43 2-3 .9 146-150-155	47 2-3 1.0 150-154-158	49 2-3 .3 154-157-161	50 2-3 .6 158-160-164	53 49
143.0	32 3-3 .2 144-148-153	47 3-3 .2 145-149-153	49 2-3 .7 150-154-158	51 2-3 .0 154-157-161	52 2-3 .3 157-160-164	54 50
141.0	41 3-3 .2 142-147-152	49 2-3 .1 145-148-153	51 2-3 .5 150-153-158	52 2-3 .9 154-157-161	53 2-3 1.1 157-160-164	54 52
136.0	43 3-3 4.7 142-147-152	53 2-3 .8 144-148-152	55 2-3 1.1 150-153-157	57 2-3 .2 153-155-159	58 2-3 .4 157-159-162	54 54
131.0	55 3-3 .8 139-143-147	58 2-3 .3 143-146-151	60 2-3 .4 149-151-155	61 2-3 .6 152-154-158	62 2-3 .8 156-158-161	54 54
126.0	60 2-3 .9 138-141-145	62 2-3 1.0 143-145-149	64 2-3 1.0 148-150-154	65 2-3 1.1 152-153-157	66 2-3 1.1 156-156-159	54 54
121.0	65 2-3 .6 137-140-144	67 2-3 .5 142-144-148	69 2-3 .3 147-149-152	70 2-3 .4 151-152-155	70 2-2 .9 153-154-157	54 54
116.0	70 2-3 .3 136-139-142	71 2-3 1.2 141-143-147	71 2-3 3.1 147-148-152	71 2-3 4.2 151-152-155	71 2-2 4.6 152-153-156	54 54
111.0	71 2-3 4.2 136-139-142	71 .0 131-132-136	71 .0 131-132-136	71 .0 131-132-136	71 .0 131-132-136	54 54
106.0	71 .0 128-129-133	71 .0 128-129-133	71 .0 128-129-133	71 .0 128-129-133	71 .0 128-129-133	54 54
101.0	71 .0 125-125-130	71 .0 125-125-130	71 .0 125-125-130	71 .0 125-125-130	71 .0 125-125-130	54 54

LGIR IRAKLION 09

ELEV. = 115 ft TORA = 2680 m
SLOPE = .00 % ASDA = 2680 m
TODA = 2680 m

15/00

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

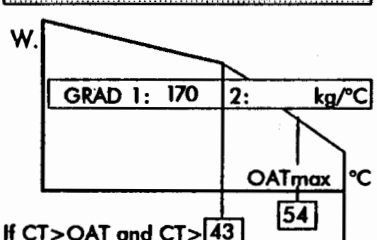
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1017 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>43
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-10	-5.0	-10	-3

Minimum v_1: 119 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1700 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	- -	- -	- -	43
157.0	- -	- -	- -	- -	7 2-3 .1 168-170-174	45
155.0	- -	- -	- -	1 3-3 .1 166-168-172	18 3-3 .1 167-168-172	46
153.0	- -	- -	- -	10 3-3 .1 165-167-171	27 3-3 .1 165-167-171	48 43
151.0	- -	- -	2 3-3 .1 163-166-170	19 3-3 .0 164-166-170	36 3-3 .0 164-166-170	49 44
149.0	- -	- -	11 3-3 .1 162-165-169	27 3-3 .2 162-165-169	43 3-3 .4 163-165-169	50 46
147.0	- -	- -	20 3-3 .0 161-163-168	36 3-3 .2 161-164-168	46 3-3 .5 162-164-168	52 47
145.0	- -	4 3-3 .1 158-162-166	29 3-3 .0 159-162-166	43 3-3 .6 160-163-167	49 3-3 .1 162-163-166	53 49
143.0	- -	12 3-3 .2 157-161-165	37 3-3 .2 158-161-165	46 3-3 .7 160-162-166	51 3-3 .5 161-162-166	54 50
141.0	-1 3-3 .0 155-160-164	21 3-3 .2 156-160-164	43 3-3 .9 157-161-165	49 3-3 .3 159-161-164	53 3-3 1.0 160-162-165	54 52
136.0	21 3-3 .0 152-157-161	43 3-3 .3 153-157-161	50 3-3 .7 155-158-162	55 3-3 .6 157-159-162	58 2-3 .6 159-160-163	54 54
131.0	43 3-3 .0 148-154-159	50 3-3 .1 151-155-159	57 3-3 .0 153-155-159	61 3-3 .3 155-156-159	62 2-3 1.1 159-159-162	54 54
126.0	49 3-3 .7 147-152-156	56 3-3 .4 149-152-156	63 3-3 .0 151-153-156	66 2-3 .1 154-154-157	67 2-3 .3 157-157-160	54 54
121.0	56 3-3 .3 145-149-153	62 3-3 .4 147-150-153	69 3-3 .0 150-150-153	70 2-3 .6 153-154-156	71 2-3 .6 156-156-158	54 54
116.0	62 3-3 .5 143-147-150	68 3-3 .6 145-147-150	71 2-3 3.1 149-150-152	71 2-3 4.5 153-153-156	71 .0 147-147-150	54 54
111.0	69 3-3 .2 141-144-147	71 3-3 3.4 144-146-149	71 .0 143-144-147	71 .0 143-144-147	71 .0 143-144-147	54 54
106.0	71 3-3 3.7 140-143-146	71 .0 140-140-143	71 .0 140-140-143	71 .0 140-140-143	71 .0 140-140-143	54 54
101.0	71 .0 136-137-140	71 .0 136-137-140	71 .0 136-137-140	71 .0 136-137-140	71 .0 136-137-140	54 54

LGIR IRAKLION 09

ELEV. = 115 ft TORA = 2680 m
SLOPE = .00 % ASDA = 2680 m
TODA = 2680 m

15/15

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

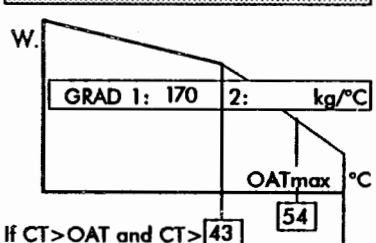
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1017 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>43
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-8	-5.5	-12	-3

Minimum v_1: 117 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1700 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	- -	- -	- -	43
157.0	- -	- -	- -	- -	7 2-3 .1 166-169-172	45
155.0	- -	- -	-1 2-3 .0 160-163-168	12 2-3 .0 161-164-168	25 2-3 .1 162-165-169	46
153.0	- -	- -	16 2-3 .0 156-160-164	29 2-3 .1 157-161-165	41 2-3 .1 159-162-166	48 43
151.0	- -	11 2-3 .0 151-156-160	32 2-3 .1 153-157-161	43 2-3 .3 155-158-162	43 2-3 1.9 158-162-165	49 44
149.0	4 2-3 .1 148-152-157	27 2-3 .1 148-152-157	43 2-3 .7 151-155-159	45 2-3 .7 154-158-162	47 2-3 .0 158-161-165	50 46
147.0	14 3-3 .2 146-151-155	37 2-3 .1 147-151-156	46 2-3 .0 151-154-159	47 2-3 .5 154-158-162	48 2-3 .9 158-161-165	52 47
145.0	23 3-3 .2 145-149-154	43 2-3 .9 146-150-155	47 2-3 1.0 150-154-158	49 2-3 .3 154-157-161	50 2-3 .6 158-160-164	53 49
143.0	32 3-3 .2 144-148-153	47 3-3 .2 145-149-153	49 2-3 .7 150-154-158	51 2-3 .0 154-157-161	52 2-3 .3 157-160-164	54 50
141.0	41 3-3 .2 142-147-152	49 2-3 .1 145-148-153	51 2-3 .5 150-153-158	52 2-3 .9 154-157-161	53 2-3 1.1 157-160-164	54 52
136.0	43 3-3 4.7 142-147-152	53 2-3 .8 144-148-152	55 2-3 .1 150-153-157	57 2-3 .2 153-155-159	58 2-3 .4 157-159-162	54 54
131.0	55 3-3 .8 139-143-147	58 2-3 .3 143-146-151	60 2-3 .4 149-151-155	61 2-3 .6 152-154-158	62 2-3 .8 156-158-161	54 54
126.0	60 2-3 .9 138-141-145	62 2-3 1.0 143-145-149	64 2-3 1.0 148-150-154	65 2-3 1.1 152-153-157	66 2-3 1.1 156-156-159	54 54
121.0	65 2-3 .6 137-140-144	67 2-3 .5 142-144-148	69 2-3 .3 147-149-152	70 2-3 .4 151-152-155	70 2-2 .9 153-154-157	54 54
116.0	70 2-3 .3 136-139-142	71 2-3 1.2 141-143-147	71 2-3 3.1 147-148-152	71 2-3 4.2 151-152-155	71 2-2 4.6 152-153-156	54 54
111.0	71 2-3 4.2 136-139-142	71 .0 131-132-136	71 .0 131-132-136	71 .0 131-132-136	71 .0 131-132-136	54 54
106.0	71 .0 128-129-133	71 .0 128-129-133	71 .0 128-129-133	71 .0 128-129-133	71 .0 128-129-133	54 54
101.0	71 .0 125-125-130	71 .0 125-125-130	71 .0 125-125-130	71 .0 125-125-130	71 .0 125-125-130	54 54

LIRF
ROME FIUMICINO
25

ELEV. = 13 ft TORA = 3295 m
SLOPE = .00 % ASDA = 3295 m
TODA = 3355 m

15/00

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

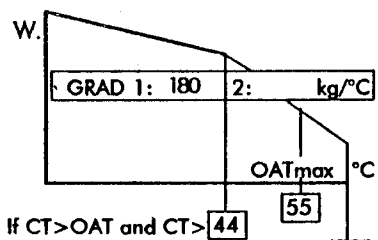
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1013 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>44
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-6	-4.5	-8	-3

Minimum v_1: 119 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1600 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	12 2-1 .1 169-173-177	25 2-1 .0 170-173-177	38 2-1 .0 171-174-178	44
157.0	- -	6 2-6 .0 165-169-174	28 2-6 .1 165-170-174	41 2-6 .1 166-170-174	44 2-6 1.3 170-173-177	45
155.0	- -	15 6-6 .2 163-168-172	38 2-6 .0 163-168-172	44 2-6 1.6 166-170-174	47 2-6 .2 171-174-178	47
153.0	3 6-6 .0 161-167-171	24 6-6 .0 161-167-171	44 6-6 .7 163-167-171	47 2-6 .6 167-170-174	49 2-6 .1 172-174-178	48 44
151.0	10 6-6 .2 159-166-170	32 6-6 .1 160-166-170	47 2-6 .9 163-167-171	49 2-6 .5 168-171-175	50 2-3 1.0 173-175-178	49 45
149.0	18 6-6 .2 158-165-169	40 6-6 .2 159-165-169	49 2-6 .9 164-167-171	51 2-3 .3 168-171-174	52 2-3 .6 172-174-178	51 46
147.0	27 6-6 .0 156-163-168	44 6-6 1.2 158-164-168	51 2-3 .6 164-167-171	52 2-3 1.1 168-170-174	54 2-3 .1 172-174-177	52 48
145.0	35 6-6 .1 155-162-167	50 3-3 .1 159-163-167	53 2-3 .3 164-167-170	54 2-3 .7 168-170-174	55 2-3 .9 172-174-177	53 49
143.0	43 6-6 .2 154-161-165	52 3-3 .5 158-162-166	54 2-3 1.1 164-167-170	56 2-3 .3 168-170-173	57 2-3 .5 172-173-176	55 51
141.0	44 6-6 2.0 154-161-165	54 2-3 .7 158-162-165	56 2-3 .7 163-166-169	57 2-3 1.0 167-169-173	59 2-3 .0 171-172-176	55 52
136.0	55 3-3 .1 153-158-161	58 2-3 1.1 157-161-164	60 2-3 1.0 163-165-168	62 2-3 .1 167-168-171	63 2-3 .2 171-171-174	55 55
131.0	60 3-3 .5 152-156-159	63 2-3 .3 156-159-162	65 2-3 .1 162-164-166	66 2-3 .2 166-167-170	67 2-3 .1 170-170-172	55 55
126.0	65 2-3 1.0 150-154-156	67 2-3 .7 156-158-161	69 2-3 .4 162-163-165	70 2-3 .4 166-166-168	70 2-3 1.3 169-169-171	55 55
121.0	70 2-3 .4 150-153-155	72 2-3 .0 155-157-159	72 2-3 1.8 161-162-164	72 2-3 3.0 166-166-168	72 2-2 3.5 167-167-170	55 55
116.0	72 2-3 3.2 149-152-154	72 .0 147-147-150	72 .0 147-147-150	72 .0 147-147-150	72 .0 147-147-150	55 55
111.0	72 .0 143-144-147	72 .0 143-144-147	72 .0 143-144-147	72 .0 143-144-147	72 .0 143-144-147	55 55
106.0	72 .0 140-140-143	72 .0 140-140-143	72 .0 140-140-143	72 .0 140-140-143	72 .0 140-140-143	55 55
101.0	72 .0 136-137-140	72 .0 136-137-140	72 .0 136-137-140	72 .0 136-137-140	72 .0 136-137-140	55 55

LIRF
ROME FIUMICINO
07

ELEV. = 13 ft TORA = 3295 m
SLOPE = .00 % ASDA = 3295 m
TODA = 3355 m

15/00

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

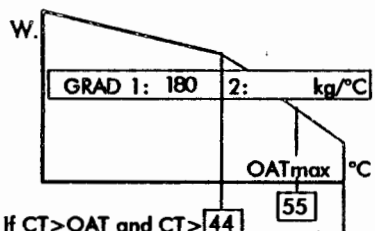
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1013 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>[44]
use Corr. Flex. T/O Temp. up to [71]

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-6	-4.5	-8	-3

Minimum v_1: [119] [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1600 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	-	- -	12 2-1 .1 169-173-177	25 2-1 .0 170-173-177	38 2-1 .0 171-174-178	44
157.0	- -	6 2-6 .0 165-169-174	28 2-6 .1 165-170-174	41 2-6 .1 166-170-174	44 2-6 1.3 170-173-177	45
155.0	- -	15 6-6 .2 163-168-172	38 2-6 .0 163-168-172	44 2-6 1.6 166-170-174	47 2-6 .2 171-174-178	47
153.0	3 6-6 .0 161-167-171	24 6-6 .0 161-167-171	44 6-6 .7 163-167-171	47 2-6 .6 167-170-174	49 2-6 .1 172-174-178	48 44
151.0	10 6-6 .2 159-166-170	32 6-6 .1 160-166-170	47 2-6 .9 163-167-171	49 2-6 .5 168-171-175	50 2-3 1.0 173-175-178	49 45
149.0	18 6-6 .2 158-165-169	40 6-6 .2 159-165-169	49 2-6 .9 164-167-171	51 2-3 .3 168-171-174	52 2-3 .6 172-174-178	51 46
147.0	27 6-6 .0 156-163-168	44 6-6 1.2 158-164-168	51 2-3 .6 164-167-171	52 2-3 1.1 168-170-174	54 2-3 .1 172-174-177	52 48
145.0	35 6-6 .1 155-162-167	50 3-3 .1 159-163-167	53 2-3 .3 164-167-170	54 2-3 .7 168-170-174	55 2-3 .9 172-174-177	53 49
143.0	43 6-6 .2 154-161-165	52 3-3 .5 158-162-166	54 2-3 1.1 164-167-170	56 2-3 .3 168-170-173	57 2-3 .5 172-173-176	55 51
141.0	44 6-6 2.0 154-161-165	54 2-3 .7 158-162-165	56 2-3 .7 163-166-169	57 2-3 1.0 167-169-173	59 2-3 .0 171-172-176	55 52
136.0	55 3-3 .1 153-158-161	58 2-3 1.1 157-161-164	60 2-3 1.0 163-165-168	62 2-3 .1 167-168-171	63 2-3 .2 171-171-174	55 55
131.0	60 3-3 .5 152-156-159	63 2-3 .3 156-159-162	65 2-3 .1 162-164-166	66 2-3 .2 166-167-170	67 2-3 .1 170-170-172	55 55
126.0	65 2-3 1.0 150-154-156	67 2-3 .7 156-158-161	69 2-3 .4 162-163-165	70 2-3 .4 166-166-168	70 2-3 1.3 169-169-171	55 55
121.0	70 2-3 .4 150-153-155	72 2-3 .0 155-157-159	72 2-3 1.8 161-162-164	72 2-3 3.0 166-166-168	72 2-2 3.5 167-167-170	55 55
116.0	72 2-3 3.2 149-152-154	72 .0 147-147-150	72 .0 147-147-150	72 .0 147-147-150	72 .0 147-147-150	55 55
111.0	72 .0 143-144-147	72 .0 143-144-147	72 .0 143-144-147	72 .0 143-144-147	72 .0 143-144-147	55 55
106.0	72 .0 140-140-143	72 .0 140-140-143	72 .0 140-140-143	72 .0 140-140-143	72 .0 140-140-143	55 55
101.0	72 .0 136-137-140	72 .0 136-137-140	72 .0 136-137-140	72 .0 136-137-140	72 .0 136-137-140	55 55

LIRF
ROME FIUMICINO
25

ELEV. = 13 ft TORA = 3295 m
SLOPE = .00 % ASDA = 3295 m
TODA = 3355 m

15/15

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

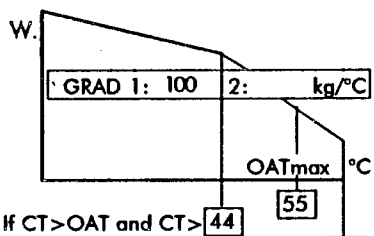
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1013 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT> 44
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-2	-2.0	-12	-3

Minimum v_1: 117 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1600 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	14 2-3 .0 169-174-177	24 2-2 .1 170-175-178	33 2-2 .0 171-175-178	44
157.0	- -	12 2-3 .1 163-169-172	32 2-6 .0 164-170-173	43 2-3 .2 166-171-175	44 2-3 1.2 170-175-178	45
155.0	9 2-6 .1 157-164-168	29 2-6 .0 158-165-169	44 2-6 .5 162-167-171	44 2-6 1.9 166-171-175	46 2-2 .5 169-173-177	47
153.0	25 2-6 .1 152-160-164	44 2-6 .1 155-162-166	46 2-3 .3 162-168-171	47 2-3 .4 166-171-174	47 2-2 1.1 169-173-176	48 44
151.0	41 2-6 .0 149-157-161	46 2-3 .1 156-162-166	47 2-3 1.1 162-168-171	49 2-3 .0 166-171-174	49 2-2 .2 167-171-174	49 45
149.0	44 2-6 1.5 148-156-161	47 2-3 .9 156-162-166	49 2-3 .7 162-167-170	50 2-2 .7 166-170-173	50 2-2 .7 166-170-173	51 46
147.0	47 2-6 .6 150-157-161	49 2-3 .6 155-162-165	51 2-3 .3 162-167-170	51 2-2 1.3 165-169-172	51 2-2 1.3 165-169-172	52 48
145.0	49 2-3 .5 150-157-161	51 2-3 .2 155-161-165	52 2-3 1.1 162-167-170	53 2-2 .3 164-168-171	53 2-2 .3 163-168-171	53 49
143.0	51 2-3 .2 150-156-160	52 2-3 1.1 155-161-165	54 2-3 .8 162-166-170	54 2-2 .9 163-167-170	54 2-2 .9 162-167-170	55 51
141.0	52 2-3 1.0 150-156-160	54 2-3 .7 155-161-164	56 2-2 .1 161-165-168	56 2-2 .1 161-165-168	56 2-2 .1 160-165-168	55 52
136.0	57 2-3 .2 149-155-159	58 2-3 1.0 155-160-163	59 2-2 1.0 159-163-166	59 2-2 1.0 159-163-166	59 2-2 1.0 157-163-166	55 55
131.0	61 2-3 .7 148-154-157	63 2-3 .1 154-158-161	63 2-2 .6 156-160-163	63 2-2 .6 155-160-163	63 2-2 .6 153-160-163	55 55
126.0	65 2-3 1.0 148-153-156	67 2-2 .1 153-156-159	67 2-2 .1 152-156-159	67 2-2 .1 151-156-159	67 2-2 .1 149-156-159	55 55
121.0	70 2-3 .3 147-151-154	70 2-2 1.0 151-154-157	70 2-2 1.0 149-154-157	70 2-2 1.0 148-154-157	70 2-2 1.0 146-154-157	55 55
116.0	72 2-3 3.0 147-151-154	72 2-2 3.3 149-152-155	72 2-2 3.3 147-152-155	72 2-2 3.3 145-152-155	72 2-2 3.3 144-152-155	55 55
111.0	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	55 55
106.0	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	55 55
101.0	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	55 55

LIRF ROME FIUMICINO 07

ELEV. = 13 ft TORA = 3295 m
SLOPE = .00 % ASDA = 3295 m
TODA = 3355 m

15/15

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

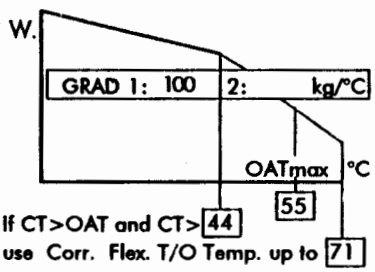
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1013 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT> 44
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-2	-2.0	-12	-3

Minimum v_1: 117 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1600 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	14 2-3 .0 169-174-177	24 2-2 .1 170-175-178	33 2-2 .0 171-175-178	44
157.0	- -	12 2-3 .1 163-169-172	32 2-6 .0 164-170-173	43 2-3 .2 166-171-175	44 2-3 1.2 170-175-178	45
155.0	9 2-6 .1 157-164-168	29 2-6 .0 158-165-169	44 2-6 .5 162-167-171	44 2-6 1.9 166-171-175	46 2-2 .5 169-173-177	47
153.0	25 2-6 .1 152-160-164	44 2-6 .1 155-162-166	46 2-3 .3 162-168-171	47 2-3 .4 166-171-174	47 2-2 1.1 169-173-176	48 44
151.0	41 2-6 .0 149-157-161	46 2-3 .1 156-162-166	47 2-3 1.1 162-168-171	49 2-3 .0 166-171-174	49 2-2 .2 167-171-174	49 45
149.0	44 2-6 1.5 148-156-161	47 2-3 .9 156-162-166	49 2-3 .7 162-167-170	50 2-2 .7 166-170-173	50 2-2 .7 166-170-173	51 46
147.0	47 2-6 .6 150-157-161	49 2-3 .6 155-162-165	51 2-3 .3 162-167-170	51 2-2 1.3 165-169-172	51 2-2 1.3 165-169-172	52 48
145.0	49 2-3 .5 150-157-161	51 2-3 .2 155-161-165	52 2-3 1.1 162-167-170	53 2-2 .3 164-168-171	53 2-2 .3 163-168-171	53 49
143.0	51 2-3 .2 150-156-160	52 2-3 1.1 155-161-165	54 2-3 .8 162-166-170	54 2-2 .9 163-167-170	54 2-2 .9 162-167-170	55 51
141.0	52 2-3 1.0 150-156-160	54 2-3 .7 155-161-164	56 2-2 .1 161-165-168	56 2-2 .1 161-165-168	56 2-2 .1 160-165-168	55 52
136.0	57 2-3 .2 149-155-159	58 2-3 1.0 155-160-163	59 2-2 1.0 159-163-166	59 2-2 1.0 159-163-166	59 2-2 1.0 157-163-166	55 55
131.0	61 2-3 .7 148-154-157	63 2-3 .1 154-158-161	63 2-2 .6 156-160-163	63 2-2 .6 155-160-163	63 2-2 .6 153-160-163	55 55
126.0	65 2-3 1.0 148-153-156	67 2-2 .1 153-156-159	67 2-2 .1 152-156-159	67 2-2 .1 151-156-159	67 2-2 .1 149-156-159	55 55
121.0	70 2-3 .3 147-151-154	70 2-2 1.0 151-154-157	70 2-2 1.0 149-154-157	70 2-2 1.0 148-154-157	70 2-2 1.0 146-154-157	55 55
116.0	72 2-3 3.0 147-151-154	72 2-2 3.3 149-152-155	72 2-2 3.3 147-152-155	72 2-2 3.3 145-152-155	72 2-2 3.3 144-152-155	55 55
111.0	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	55 55
106.0	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	55 55
101.0	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	55 55

LIRF
ROME FIUMICINO
16L/34R

ELEV. = 13 ft TORA = 3900 m
SLOPE = .00 % ASDA = 3900 m
TODA = 3960 m

15/00

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

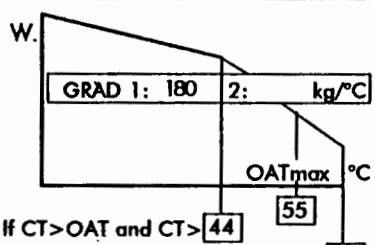
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1013 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT> 44
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-1	-0.5	-6	-1

Minimum v_1: 119 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1600 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	8 2-1 .1 162-173-177	29 2-6 .1 164-174-178	40 2-1 .0 165-175-178	44 2-1 .9 168-177-181	44
157.0	3 2-6 .2 158-169-174	24 2-6 .0 159-170-174	43 2-6 .2 161-171-175	44 2-6 1.6 165-174-178	46 2-6 1.0 169-178-182	45
155.0	12 2-6 .2 156-168-172	34 6-6 .2 157-168-172	44 2-6 2.0 161-171-175	47 2-6 .5 166-175-178	48 2-6 .8 170-178-182	47
153.0	21 6-6 .1 154-167-171	43 6-6 .1 156-167-171	47 2-6 .9 162-171-175	49 2-6 .3 167-175-178	50 2-6 .6 172-179-182	48 44
151.0	29 6-6 .2 153-166-170	44 6-6 1.8 155-167-171	49 2-6 .8 163-171-175	51 2-6 .1 168-175-179	52 2-6 .4 173-179-182	49 45
149.0	38 6-6 .1 152-165-169	49 2-6 .4 157-166-170	51 2-6 .7 164-171-175	52 2-6 1.0 168-175-179	54 2-6 .1 174-179-183	51 46
147.0	44 6-6 .7 151-164-168	51 2-6 .3 158-166-170	53 2-6 .5 165-172-175	54 2-6 .8 169-176-179	55 2-6 1.0 175-180-183	52 48
145.0	48 6-6 .5 151-163-167	53 2-6 .3 159-167-170	55 2-6 .3 166-172-176	56 2-6 .6 170-176-179	57 2-6 .7 176-180-183	53 49
143.0	52 6-6 .3 152-162-166	55 2-6 .2 160-167-170	57 2-6 .2 167-172-175	58 2-6 .4 172-176-179	59 2-2 .2 176-179-182	55 51
141.0	54 2-6 .9 153-162-165	57 2-6 .1 161-167-170	58 2-6 1.1 167-172-176	60 2-6 .2 173-176-179	60 2-2 .7 176-178-181	55 52
136.0	59 2-6 .8 155-162-165	61 2-6 .9 163-167-170	63 2-6 .6 170-173-176	64 2-2 .0 173-175-177	64 2-2 .0 172-175-177	55 55
131.0	64 2-5 .4 157-162-164	66 2-6 .6 165-168-170	67 2-2 .7 171-172-175	67 2-2 .7 170-172-175	67 2-2 .7 169-172-175	55 55
126.0	68 2-5 .8 158-161-163	70 2-3 .8 165-167-169	70 2-2 1.4 168-169-172	70 2-2 1.4 167-169-172	70 2-2 1.4 166-169-172	55 55
121.0	72 2-5 1.3 158-161-163	72 2-3 3.4 165-167-169	72 2-2 3.5 166-167-170	72 2-2 3.5 165-167-170	72 2-2 3.5 164-167-170	55 55
116.0	72 .0 147-147-150	72 .0 147-147-150	72 .0 147-147-150	72 .0 147-147-150	72 .0 147-147-150	55 55
111.0	72 .0 143-144-147	72 .0 143-144-147	72 .0 143-144-147	72 .0 143-144-147	72 .0 143-144-147	55 55
106.0	72 .0 140-140-143	72 .0 140-140-143	72 .0 140-140-143	72 .0 140-140-143	72 .0 140-140-143	55 55
101.0	72 .0 136-137-140	72 .0 136-137-140	72 .0 136-137-140	72 .0 136-137-140	72 .0 136-137-140	55 55

LIRF
ROME FIUMICINO
16L/34R

ELEV. = 13 ft TORA = 3900 m
SLOPE = .00 % ASDA = 3900 m
TODA = 3960 m

15/15

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

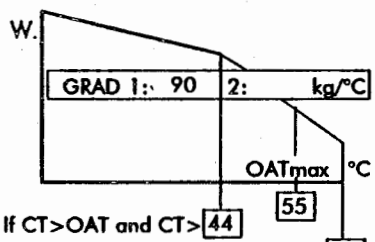
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1013 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>44
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-2	-2.0	-12	-3

Minimum v_1: 117 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1600 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0		11 2-1 .0 161-174-177	30 6-6 .1 164-175-178	34 2-2 .0 165-175-179	34 2-2 .0 166-175-179	44
157.0	11 2-6 .0 155-168-172	29 2-6 .1 157-170-173	44 2-6 .4 160-172-176	44 2-2 1.4 164-175-178	44 2-2 1.4 165-175-178	45
155.0	27 2-6 .1 150-165-169	44 2-6 .2 154-167-170	46 2-6 .2 161-173-176	46 2-2 .5 163-173-177	46 2-2 .5 164-173-177	47
153.0	43 2-6 .2 147-162-166	46 2-6 .1 154-167-171	47 2-2 1.1 162-173-176	47 2-2 1.1 163-173-176	47 2-2 1.1 164-173-176	48 44
151.0	44 2-6 1.9 147-161-165	47 2-6 1.0 155-167-171	49 2-2 .2 161-171-174	49 2-2 .2 162-171-174	49 2-2 .2 161-171-174	49 45
149.0	47 2-6 .8 148-162-166	49 2-6 .9 156-167-171	50 2-2 .7 161-170-173	50 2-2 .7 162-170-173	50 2-2 .7 160-170-173	51 46
147.0	49 2-6 .7 149-162-166	51 2-6 .7 157-168-171	51 2-2 1.3 161-169-172	51 2-2 1.3 161-169-172	51 2-2 1.3 159-169-172	52 48
145.0	51 2-6 .6 150-162-166	53 2-6 .2 158-167-170	53 2-2 .3 160-168-171	53 2-2 .3 159-168-171	53 2-2 .3 157-168-171	53 49
143.0	53 2-6 .5 151-162-166	54 2-2 .9 158-167-170	54 2-2 .9 159-167-170	54 2-2 .9 157-167-170	54 2-2 .9 156-167-170	55 51
141.0	55 2-6 .3 153-163-166	56 2-2 .1 157-165-168	56 2-2 .1 157-165-168	56 2-2 .1 155-165-168	56 2-2 .1 153-165-168	55 52
136.0	59 5-5 1.0 155-163-166	59 2-2 1.0 157-163-166	59 2-2 1.0 154-163-166	59 2-2 1.0 153-163-166	59 2-2 1.0 151-163-166	55 55
131.0	63 2-2 .6 154-160-163	63 2-2 .6 153-160-163	63 2-2 .6 150-160-163	63 2-2 .6 149-160-163	63 2-2 .6 147-160-163	55 55
126.0	67 2-2 .1 151-156-159	67 2-2 .1 149-156-159	67 2-2 .1 146-156-159	67 2-2 .1 144-156-159	67 2-2 .1 144-156-159	55 55
121.0	70 2-2 1.0 148-154-157	70 2-2 1.0 146-154-157	70 2-2 1.0 143-154-157	70 2-2 1.0 142-154-157	70 2-2 1.0 142-154-157	55 55
116.0	72 2-2 3.3 146-152-155	72 2-2 3.3 143-152-155	72 2-2 3.3 141-152-155	72 2-2 3.3 141-152-155	72 2-2 3.3 141-152-155	55 55
111.0	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	55 55
106.0	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	55 55
101.0	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	55 55

LIRF
ROME FIUMICINO
16R/34L

ELEV. = 13 ft TORA = 3900 m
SLOPE = .00 % ASDA = 3900 m
TODA = 3960 m

15/00

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
V_1 - V_R - V_2 [kts] IAS

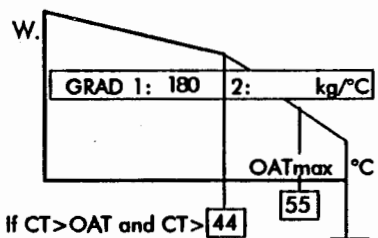
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1013 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>44
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	V_1 [kt]	V_R&V_2 [kt]
-1	-0.5	-6	-1

Minimum V_1: 119 [kt]

1. Actual TOW is equal to maximum TOW and V_1 is lower than minimum V_1: Take this last value as V_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and V_1 corresponding to actual TOW is lower than minimum V_1 and V_1 corresponding to maximum TOW is equal to or above minimum V_1: Retain minimum V_1 as V_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1600 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0		8 2-1 .1 162-173-177	29 2-6 .1 164-174-178	40 2-1 .0 165-175-178	44 2-1 .9 168-177-181	44
	- -					
157.0	3 2-6 .2 158-169-174	24 2-6 .0 159-170-174	43 2-6 .2 161-171-175	44 2-6 1.6 165-174-178	46 2-6 1.0 169-178-182	45
155.0	12 2-6 .2 156-168-172	34 6-6 .2 157-168-172	44 2-6 2.0 161-171-175	47 2-6 .5 166-175-178	48 2-6 .8 170-178-182	47
153.0	21 6-6 .1 154-167-171	43 6-6 .1 156-167-171	47 2-6 .9 162-171-175	49 2-6 .3 167-175-178	50 2-6 .6 172-179-182	48 44
151.0	29 6-6 .2 153-166-170	44 6-6 1.8 155-167-171	49 2-6 .8 163-171-175	51 2-6 .1 168-175-179	52 2-6 .4 173-179-182	49 45
149.0	38 6-6 .1 152-165-169	49 2-6 .4 157-166-170	51 2-6 .7 164-171-175	52 2-6 1.0 168-175-179	54 2-6 .1 174-179-183	51 46
147.0	44 6-6 .7 151-164-168	51 2-6 .3 158-166-170	53 2-6 .5 165-172-175	54 2-6 .8 169-176-179	55 2-6 1.0 175-180-183	52 48
145.0	48 6-6 .5 151-163-167	53 2-6 .3 159-167-170	55 2-6 .3 166-172-176	56 2-6 .6 170-176-179	57 2-6 .7 176-180-183	53 49
143.0	52 6-6 .3 152-162-166	55 2-6 .2 160-167-170	57 2-6 .2 167-172-175	58 2-6 .4 172-176-179	59 2-2 .2 176-179-182	55 51
141.0	54 2-6 .9 153-162-165	57 2-6 .1 161-167-170	58 2-6 1.1 167-172-176	60 2-6 .2 173-176-179	60 2-2 .7 176-178-181	55 52
136.0	59 2-6 .8 155-162-165	61 2-6 .9 163-167-170	63 2-6 .6 170-173-176	64 2-2 .0 173-175-177	64 2-2 .0 172-175-177	55 55
131.0	64 2-5 .4 157-162-164	66 2-6 .6 165-168-170	67 2-2 .7 171-172-175	67 2-2 .7 170-172-175	67 2-2 .7 169-172-175	55 55
126.0	68 2-5 .8 158-161-163	70 2-3 .8 165-167-169	70 2-2 1.4 168-169-172	70 2-2 1.4 167-169-172	70 2-2 1.4 166-169-172	55 55
121.0	72 2-5 1.3 158-161-163	72 2-3 3.4 165-167-169	72 2-2 3.5 166-167-170	72 2-2 3.5 165-167-170	72 2-2 3.5 164-167-170	55 55
116.0	72 .0 147-147-150	72 .0 147-147-150	72 .0 147-147-150	72 .0 147-147-150	72 .0 147-147-150	55 55
111.0	72 .0 143-144-147	72 .0 143-144-147	72 .0 143-144-147	72 .0 143-144-147	72 .0 143-144-147	55 55
106.0	72 .0 140-140-143	72 .0 140-140-143	72 .0 140-140-143	72 .0 140-140-143	72 .0 140-140-143	55 55
101.0	72 .0 136-137-140	72 .0 136-137-140	72 .0 136-137-140	72 .0 136-137-140	72 .0 136-137-140	55 55

LIRF
ROME FIUMICINO
16R/34L

ELEV. = 13 ft TORA = 3900 m
SLOPE = .00 % ASDA = 3900 m
TODA = 3960 m

15/15

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

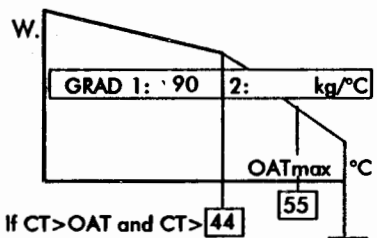
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1013 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>44
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-2	-2.0	-12	-3

Minimum v_1: 117 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1600 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0		11 2-1 .0 161-174-177	30 6-6 .1 164-175-178	34 2-2 .0 165-175-179	34 2-2 .0 166-175-179	44
157.0	11 2-6 .0 155-168-172	29 2-6 .3 157-170-173	44 2-6 .4 160-172-176	44 2-2 1.4 164-175-178	44 2-2 1.4 165-175-178	45
155.0	27 2-6 .1 150-165-169	44 2-6 .2 154-167-170	46 2-6 .2 161-173-176	46 2-2 .5 163-173-177	46 2-2 .5 164-173-177	47
153.0	43 2-6 .2 147-162-166	46 2-6 .1 154-167-171	47 2-2 1.1 162-173-176	47 2-2 1.1 163-173-176	47 2-2 1.1 164-173-176	48 44
151.0	44 2-6 1.9 147-161-165	47 2-6 1.0 155-167-171	49 2-2 .2 161-171-174	49 2-2 .2 162-171-174	49 2-2 .2 161-171-174	49 45
149.0	47 2-6 .8 148-162-166	49 2-6 .9 156-167-171	50 2-2 .7 161-170-173	50 2-2 .7 162-170-173	50 2-2 .7 160-170-173	51 46
147.0	49 2-6 .7 149-162-166	51 2-6 .7 157-168-171	51 2-2 1.3 161-169-172	51 2-2 1.3 161-169-172	51 2-2 1.3 159-169-172	52 48
145.0	51 2-6 .6 150-162-166	53 2-6 .2 158-167-170	53 2-2 .3 160-168-171	53 2-2 .3 159-168-171	53 2-2 .3 157-168-171	53 49
143.0	53 2-6 .5 151-162-166	54 2-2 .9 158-167-170	54 2-2 .9 159-167-170	54 2-2 .9 157-167-170	54 2-2 .9 156-167-170	55 51
141.0	55 2-6 .3 153-163-166	56 2-2 .1 157-165-168	56 2-2 .1 157-165-168	56 2-2 .1 155-165-168	56 2-2 .1 153-165-168	55 52
136.0	59 5-5 1.0 155-163-166	59 2-2 1.0 157-163-166	59 2-2 1.0 154-163-166	59 2-2 1.0 153-163-166	59 2-2 1.0 151-163-166	55 55
131.0	63 2-2 .6 154-160-163	63 2-2 .6 153-160-163	63 2-2 .6 150-160-163	63 2-2 .6 149-160-163	63 2-2 .6 147-160-163	55 55
126.0	67 2-2 .1 151-156-159	67 2-2 .1 149-156-159	67 2-2 .1 146-156-159	67 2-2 .1 144-156-159	67 2-2 .1 144-156-159	55 55
121.0	70 2-2 1.0 148-154-157	70 2-2 1.0 146-154-157	70 2-2 1.0 143-154-157	70 2-2 1.0 142-154-157	70 2-2 1.0 142-154-157	55 55
116.0	72 2-2 3.3 146-152-155	72 2-2 3.3 143-152-155	72 2-2 3.3 141-152-155	72 2-2 3.3 141-152-155	72 2-2 3.3 141-152-155	55 55
111.0	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	55 55
106.0	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	55 55
101.0	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	55 55

LTBA ISTANBUL 36

ELEV. = 158 ft TORA = 3000 m
SLOPE = .60 % ASDA = 3060 m
TODA = 3060 m

15/00

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

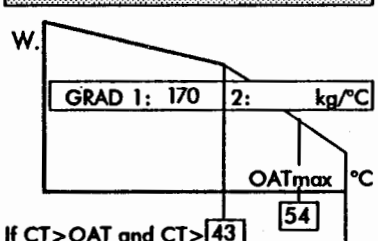
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1019 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>43
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-10	-5.0	-10	-3

Minimum v_1: 119 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1700 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	- -	4 2-3 .0 172-173-177	18 2-3 .1 173-174-178	43
157.0	- -	- -	3 2-3 .1 168-170-174	19 2-3 .0 169-170-174	34 2-3 .1 170-171-175	45
155.0	- -	- -	13 3-3 .2 166-168-172	30 3-3 .2 167-169-172	43 2-3 .9 168-169-173	46
153.0	- -	- -	22 3-3 .2 165-167-171	39 3-3 .2 166-167-171	46 2-3 .1 168-169-172	47 43
151.0	- -	6 3-3 .1 163-166-170	31 3-3 .1 164-166-170	43 3-3 1.3 165-167-171	47 2-3 .9 168-169-172	49 44
149.0	- -	15 3-3 .1 162-165-169	40 3-3 .1 163-165-169	47 3-3 .5 164-166-169	49 2-3 .6 167-168-172	50 46
147.0	1 3-3 .1 160-164-168	24 3-3 .0 160-164-168	43 3-3 1.4 162-165-168	49 3-3 .7 164-165-168	51 2-3 .3 167-168-171	52 47
145.0	10 3-3 .0 158-163-166	33 3-3 .0 159-163-166	47 3-3 .6 161-164-167	51 2-3 .6 163-165-168	52 2-3 1.1 167-168-171	53 49
143.0	18 3-3 .2 157-162-165	41 3-3 .2 158-162-165	50 3-3 .2 160-162-165	53 2-3 .3 163-164-167	54 2-3 .8 167-167-170	54 50
141.0	27 3-3 .2 156-161-164	43 3-3 1.8 158-162-165	52 3-3 .7 160-162-165	55 2-3 .1 163-164-167	56 2-3 .5 167-167-170	54 52
136.0	43 3-3 1.6 154-159-162	51 3-3 .8 156-159-162	58 2-3 .0 158-160-162	59 2-3 .5 162-163-165	60 2-3 .8 166-166-168	54 54
131.0	51 3-3 .6 151-156-159	57 3-3 .9 154-156-159	62 2-3 .6 158-158-161	63 2-3 1.0 162-162-164	64 2-3 .9 164-164-166	54 54
126.0	57 3-3 .7 150-153-156	64 3-3 .0 152-153-156	66 2-3 1.1 157-157-159	68 2-3 .1 160-160-162	68 2-3 1.0 162-162-164	54 54
121.0	64 3-3 .0 148-150-153	69 2-3 .6 150-151-153	71 2-3 .5 156-156-158	71 2-3 1.5 159-159-161	71 2-3 2.4 162-162-163	54 54
116.0	70 3-3 .4 146-148-150	71 2-3 3.4 150-151-153	71 .0 147-148-150	71 .0 147-148-150	71 .0 147-148-150	54 54
111.0	71 3-3 4.6 145-147-149	71 .0 144-144-147	71 .0 144-144-147	71 .0 144-144-147	71 .0 144-144-147	54 54
106.0	71 .0 140-141-143	71 .0 140-141-143	71 .0 140-141-143	71 .0 140-141-143	71 .0 140-141-143	54 54
101.0	71 .0 137-137-140	71 .0 137-137-140	71 .0 137-137-140	71 .0 137-137-140	71 .0 137-137-140	54 54

LTBA ISTANBUL 36

ELEV. = 158 ft TORA = 3000 m
SLOPE = .60 % ASDA = 3060 m
TODA = 3060 m

15/15

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

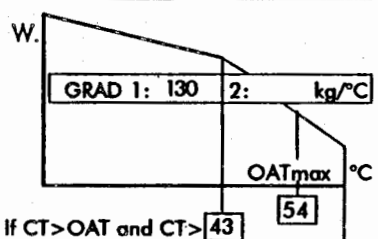
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1019 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>43
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-2	-2.0	-12	-3

Minimum v_1: 117 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1700 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	- -	-2 2-3 .0 172-174-177	9 2-2 .0 173-174-177	43
157.0	- -	- -	3 2-3 .1 166-169-172	16 2-3 .1 167-170-173	29 2-3 .1 168-171-174	45
155.0	- -	0 2-3 .1 160-164-168	21 2-3 .1 162-165-169	34 2-3 .0 163-166-169	43 2-3 .3 165-168-171	46
153.0	-2 2-3 .0 155-159-163	17 2-3 .1 157-161-164	38 2-3 .0 159-162-166	43 2-3 .9 162-164-168	45 2-3 .6 165-168-171	47 43
151.0	14 2-3 .0 152-156-160	34 2-3 .0 153-157-161	43 2-3 .4 158-161-165	46 2-3 .1 161-164-167	47 2-3 .3 165-167-170	49 44
149.0	30 2-3 .0 149-153-157	43 2-3 .8 152-156-160	46 2-3 .6 157-161-164	47 2-3 .9 161-164-167	48 2-3 1.1 165-167-170	50 46
147.0	41 2-3 .2 147-151-156	46 2-3 .1 151-155-159	48 2-3 .3 157-160-164	49 2-3 .6 161-163-167	50 2-3 .8 165-167-170	52 47
145.0	43 2-3 1.8 147-151-155	47 2-3 1.0 151-155-159	50 2-3 .1 157-160-163	51 2-3 .3 161-163-166	52 2-3 .4 165-167-169	53 49
143.0	47 2-3 .6 146-150-154	49 2-3 .8 151-155-158	51 2-3 .9 157-160-163	52 2-3 1.1 161-163-166	54 2-3 .0 165-166-169	54 50
141.0	49 2-3 .4 146-150-154	51 2-3 .6 151-154-158	53 2-3 .7 157-159-163	54 2-3 .8 161-163-166	55 2-2 .8 164-166-169	54 52
136.0	54 2-3 .0 145-149-153	55 2-3 1.1 150-154-157	57 2-3 1.0 156-158-162	58 2-3 1.1 160-162-165	59 2-2 .5 162-163-166	54 54
131.0	58 2-3 .6 145-148-151	60 2-3 .5 149-152-155	62 2-3 .4 156-157-160	63 2-2 .2 159-160-162	63 2-2 .2 158-160-162	54 54
126.0	63 2-3 .2 144-146-150	64 2-3 1.1 149-151-154	66 2-3 .8 155-156-159	66 2-2 1.2 156-157-160	66 2-2 1.2 155-157-160	54 54
121.0	67 2-3 .8 143-145-149	69 2-3 .5 148-150-153	70 2-2 .8 153-154-157	70 2-2 .8 152-154-157	70 2-2 .8 151-154-157	54 54
116.0	71 2-3 1.5 142-145-147	71 2-3 3.2 148-149-152	71 2-2 4.5 152-153-156	71 2-2 4.5 151-153-156	71 2-2 4.5 150-153-156	54 54
111.0	71 .0 132-132-136	71 .0 132-132-136	71 .0 132-132-136	71 .0 132-132-136	71 .0 132-132-136	54 54
106.0	71 .0 129-129-133	71 .0 129-129-133	71 .0 129-129-133	71 .0 129-129-133	71 .0 129-129-133	54 54
101.0	71 .0 125-126-130	71 .0 125-126-130	71 .0 125-126-130	71 .0 125-126-130	71 .0 125-126-130	54 54

LTBA ISTANBUL 18

ELEV. = 158 ft TORA = 3000 m
SLOPE = -.60 % ASDA = 3060 m
TODA = 3060 m

15/00

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

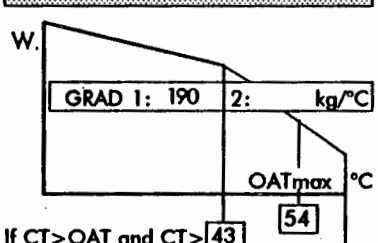
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1019 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>43
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-10	-5.0	-10	-3

Minimum v_1: 119 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1700 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	2 2-3 .0 169-172-177	16 2-6 .0 170-173-177	29 2-6 .0 171-174-178	43
157.0	- -	- -	16 2-6 .1 166-169-174	30 2-6 .1 167-170-174	43 2-6 .0 168-171-175	45
155.0	- -	3 3-3 .2 163-167-172	26 2-6 .2 164-168-172	42 2-6 .0 165-168-172	45 2-6 .6 169-171-175	46
153.0	- -	12 3-3 .1 162-166-171	35 6-6 .1 163-167-171	43 2-6 1.8 164-168-172	47 2-3 .4 169-171-175	47 43
151.0	-2 3-3 .2 160-165-170	20 3-3 .2 161-165-170	43 6-6 .2 162-166-170	47 2-3 .7 165-167-172	49 2-3 .0 168-170-175	49 44
149.0	7 3-3 .1 159-164-169	29 6-6 .1 160-164-169	46 6-6 .7 162-165-169	49 2-3 .4 165-167-171	50 2-3 .9 168-170-174	50 46
147.0	15 6-6 .2 157-163-168	37 6-6 .1 158-163-168	49 3-3 .3 161-164-168	51 2-3 .1 164-167-171	52 2-3 .5 168-170-174	52 47
145.0	23 6-6 .2 156-162-167	43 6-6 .7 157-163-167	51 3-3 .4 160-163-167	52 2-3 .9 164-166-170	54 2-3 .1 168-169-174	53 49
143.0	32 6-6 .0 155-161-165	47 3-3 .3 157-161-166	53 2-3 .1 160-163-167	54 2-3 .6 164-166-170	55 2-3 .9 168-169-173	54 50
141.0	40 6-6 .1 153-160-164	49 3-3 .7 156-161-165	54 2-3 1.0 160-163-166	56 2-3 .3 164-166-169	57 2-3 .6 168-169-173	54 52
136.0	43 6-6 4.4 153-159-164	56 3-3 .1 154-158-161	59 2-3 .3 159-161-165	60 2-3 .6 163-164-168	61 2-3 .9 167-168-171	54 54
131.0	55 3-3 .9 150-155-159	61 3-3 .6 153-156-159	63 2-3 .7 159-160-163	64 2-3 1.0 162-164-167	65 2-3 1.2 166-167-170	54 54
126.0	61 3-3 .7 149-153-156	66 2-3 .1 152-154-157	68 2-3 .0 158-159-162	69 2-3 .2 162-162-165	70 2-3 .1 165-165-168	54 54
121.0	67 3-3 .7 147-150-153	70 2-3 .7 151-153-156	71 2-3 1.6 157-159-161	71 2-3 2.9 162-162-164	71 2-3 3.9 165-165-167	54 54
116.0	71 3-3 2.7 146-148-151	71 2-3 4.7 151-153-156	71 .0 146-147-150	71 .0 146-147-150	71 .0 146-147-150	54 54
111.0	71 .0 143-143-147	71 .0 143-143-147	71 .0 143-143-147	71 .0 143-143-147	71 .0 143-143-147	54 54
106.0	71 .0 139-140-143	71 .0 139-140-143	71 .0 139-140-143	71 .0 139-140-143	71 .0 139-140-143	54 54
101.0	71 .0 136-136-140	71 .0 136-136-140	71 .0 136-136-140	71 .0 136-136-140	71 .0 136-136-140	54 54

LTBA ISTANBUL 18

ELEV. = 158 ft TORA = 3000 m
SLOPE = -.60 % ASDA = 3060 m
TODA = 3060 m

15/15

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

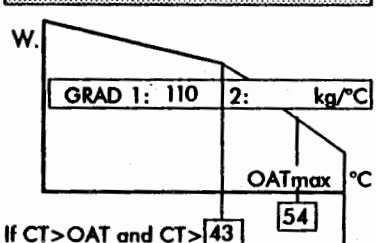
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1019 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>43
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-2	-2.0	-12	-3

Minimum v_1: 117 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1700 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0			-2 2-3 .1 169-173-177	10 2-2 .0 169-174-177	20 2-2 .1 171-175-178	43
157.0			17 2-3 .1 164-169-173	30 2-3 .0 165-170-174	41 2-3 .0 167-171-175	45
155.0		14 2-3 .1 158-164-168	35 2-3 .0 160-166-170	43 2-3 .4 162-167-171	43 2-3 1.8 166-171-175	46
153.0	12 2-3 .1 153-160-164	32 2-3 .0 154-161-165	43 2-3 1.0 159-164-168	45 2-3 .7 162-167-171	46 2-3 .9 166-170-174	47 43
151.0	29 2-3 .1 149-156-161	43 2-3 .6 152-159-163	46 2-3 .2 158-164-168	47 2-3 .4 162-167-171	48 2-3 .5 166-170-174	49 44
149.0	43 2-3 .1 147-153-158	45 2-3 .7 152-158-163	47 2-3 1.1 158-163-167	49 2-3 .0 162-166-170	49 2-3 1.2 166-170-173	50 46
147.0	45 2-3 .6 147-153-158	47 2-3 .7 152-158-162	49 2-3 .7 158-163-167	50 2-3 .9 162-166-170	51 2-2 .5 165-169-172	52 47
145.0	47 2-3 .4 147-153-158	49 2-3 .5 152-158-162	51 2-3 .4 158-163-167	52 2-3 .5 162-166-170	52 2-2 1.1 164-168-171	53 49
143.0	49 2-3 .2 146-153-157	51 2-3 .2 151-157-161	53 2-3 .1 158-162-166	54 2-3 .1 162-166-169	54 2-2 .3 163-166-170	54 50
141.0	51 2-3 .0 146-152-157	52 2-3 1.0 151-157-161	54 2-3 .9 158-162-166	55 2-2 .8 161-165-169	55 2-2 .8 162-165-169	54 52
136.0	55 2-3 .6 146-152-156	57 2-3 .3 151-156-160	59 2-3 .1 157-161-164	59 2-2 .5 159-162-166	59 2-2 .5 158-162-166	54 54
131.0	60 2-3 .0 145-150-154	61 2-3 .8 150-155-159	63 2-2 .2 156-159-162	63 2-2 .2 156-159-162	63 2-2 .2 154-159-162	54 54
126.0	64 2-3 .6 144-149-153	66 2-3 .1 149-153-157	66 2-2 1.2 154-157-160	66 2-2 1.2 153-157-160	66 2-2 1.2 152-157-160	54 54
121.0	68 2-3 1.1 144-148-152	70 2-3 .5 149-152-156	70 2-2 .8 150-153-157	70 2-2 .8 149-153-157	70 2-2 .8 148-153-157	54 54
116.0	71 2-3 2.8 143-147-151	71 2-3 4.4 149-152-155	71 2-2 4.5 149-152-156	71 2-2 4.5 148-152-156	71 2-2 4.5 146-152-156	54 54
111.0	71 .0 131-132-136	71 .0 131-132-136	71 .0 131-132-136	71 .0 131-132-136	71 .0 131-132-136	54 54
106.0	71 .0 128-128-133	71 .0 128-128-133	71 .0 128-128-133	71 .0 128-128-133	71 .0 128-128-133	54 54
101.0	71 .0 124-125-130	71 .0 124-125-130	71 .0 124-125-130	71 .0 124-125-130	71 .0 124-125-130	54 54

LTBA ISTANBUL 06/24

ELEV. = 158 ft TORA = 2300 m
SLOPE = .00 % ASDA = 2360 m
TODA = 2360 m

15/00

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

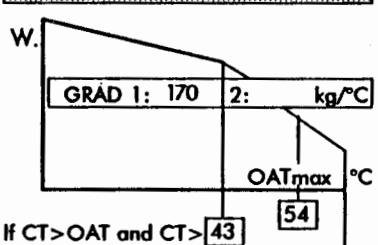
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1019 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>43
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-10	-5.0	-10	-3

Minimum v_1: 119 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1700 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	- -	- -	- -	43
157.0	- -	- -	- -	- -	- -	45
155.0	- -	- -	- -	- -	- -	46
153.0	- -	- -	- -	- -	- -	47 43
151.0	- -	- -	- -	- -	0 3-3 .1 164-166-170	49 44
149.0	- -	- -	- -	- -	8 3-3 .2 163-165-169	50 46
147.0	- -	- -	- -	1 3-3 .0 161-163-168	17 3-3 .1 162-163-168	52 47
145.0	- -	- -	- -	9 3-3 .2 160-162-167	26 3-3 .1 161-162-167	53 49
143.0	- -	- -	2 3-3 .1 158-161-165	18 3-3 .1 159-161-165	35 3-3 .1 159-161-165	54 50
141.0	- -	- -	11 3-3 .0 157-160-164	27 3-3 .1 157-160-164	43 3-3 .3 158-160-164	54 52
136.0	- -	8 3-3 .0 153-157-161	33 3-3 .0 154-157-161	43 3-3 1.5 155-158-162	50 3-3 .1 156-158-161	54 54
131.0	6 3-3 .2 149-154-159	29 3-3 .2 150-154-159	43 3-3 2.7 152-156-160	51 3-3 .5 153-155-159	56 3-3 .3 154-155-159	54 54
126.0	28 3-3 .2 145-151-156	43 3-3 2.1 148-152-157	53 3-3 .3 150-152-156	57 3-3 .7 151-153-156	62 3-3 .3 153-153-156	54 54
121.0	43 3-3 1.9 143-149-154	52 3-3 .5 145-149-153	59 3-3 .4 148-150-153	64 3-3 .1 149-150-153	67 3-3 .8 151-151-153	54 54
116.0	52 3-3 .5 141-146-150	59 3-3 .1 143-146-150	65 3-3 .7 146-147-150	70 3-3 .4 147-147-150	71 3-3 2.3 149-149-151	54 54
111.0	59 3-3 .2 139-143-147	65 3-3 .5 141-144-147	71 3-3 1.3 144-145-147	71 3-3 4.7 147-147-150	71 .0 143-144-147	54 54
106.0	66 3-3 .1 137-140-144	71 3-3 1.3 139-141-144	71 .0 140-140-143	71 .0 140-140-143	71 .0 140-140-143	54 54
101.0	71 3-3 1.7 135-138-141	71 .0 136-137-140	71 .0 136-137-140	71 .0 136-137-140	71 .0 136-137-140	54 54

LTBA ISTANBUL 06/24

ELEV. = 158 ft TORA = 2300 m
SLOPE = .00 % ASDA = 2360 m
TODA = 2360 m

15/15

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

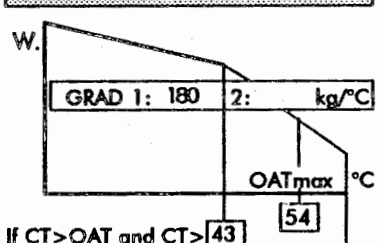
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1019 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT> 43
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-8	-5.5	-12	-3

Minimum v_1: 117 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1700 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	- -	- -	- -	43
157.0	- -	- -	- -	- -	- -	45
155.0	- -	- -	- -	- -	- -	46
153.0	- -	- -	- -	-1 2-3 .0 157-159-164	12 2-3 .1 158-160-164	47 43
151.0	- -	- -	1 2-3 .1 153-155-160	15 2-3 .1 153-156-160	29 2-3 .0 154-157-161	49 44
149.0	- -	- -	16 2-3 .0 150-152-157	30 2-3 .2 150-153-157	43 2-3 .2 151-154-158	50 46
147.0	- -	2 3-3 .1 147-150-155	27 2-3 .0 148-151-155	43 2-3 .0 148-151-155	45 2-3 .5 151-154-158	52 47
145.0	- -	10 3-3 .2 146-149-154	36 3-3 .0 147-149-154	45 2-3 .8 148-150-155	47 2-3 .4 151-153-158	53 49
143.0	- -	19 3-3 .1 145-148-153	43 3-3 .4 146-149-153	47 2-3 .7 147-150-154	49 2-3 .2 151-153-157	54 50
141.0	5 3-3 .1 143-147-152	28 3-3 .1 143-147-152	46 3-3 .5 145-148-152	49 2-3 .5 147-149-154	50 2-3 1.1 150-153-157	54 52
136.0	27 3-3 .1 140-144-150	43 3-3 1.7 141-145-150	52 2-3 .6 143-146-150	54 2-3 .1 147-149-153	55 2-3 .6 150-152-156	54 54
131.0	43 3-3 1.4 138-142-148	52 3-3 .1 139-142-147	57 2-3 .3 143-145-149	58 2-3 .7 146-148-152	60 2-3 .0 149-150-154	54 54
126.0	51 3-3 .5 136-140-144	58 3-3 .2 138-140-144	61 2-3 1.0 142-144-148	63 2-3 .3 145-146-150	64 2-3 .6 148-149-153	54 54
121.0	58 3-3 .0 134-137-141	64 3-3 .3 136-138-142	66 2-3 .6 141-142-146	67 2-3 .9 144-145-149	69 2-3 .0 148-148-151	54 54
116.0	64 3-3 .3 132-135-139	69 2-3 .1 135-136-140	71 2-3 .3 140-141-145	71 2-3 1.6 144-145-148	71 2-3 2.8 147-148-151	54 54
111.0	71 3-3 .0 130-132-136	71 2-3 3.1 134-136-140	71 .0 131-132-136	71 .0 131-132-136	71 .0 131-132-136	54 54
106.0	71 .0 128-129-133	71 .0 128-129-133	71 .0 128-129-133	71 .0 128-129-133	71 .0 128-129-133	54 54
101.0	71 .0 125-125-130	71 .0 125-125-130	71 .0 125-125-130	71 .0 125-125-130	71 .0 125-125-130	54 54

UUEE MOSCOW-SHEREMETEVO 07L/25R

ELEV. = 627 ft TORA = 3538 m
SLOPE = .00 % ASDA = 3538 m
TODA = 3938 m

15/00

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

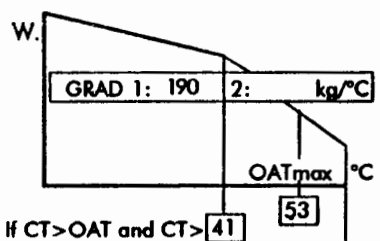
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1036 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>41
use Corr. Flex. T/O Temp. up to 70

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-6	-4.5	-8	-3

Minimum v_1: 119 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 2200 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	-3 2-6 .1 165-174-178	16 2-6 .0 166-174-178	28 2-6 .0 167-175-179	35 2-1 .1 169-177-180	
157.0	- -	12 2-6 .0 161-170-174	30 2-6 .1 163-171-175	40 2-6 .1 165-173-177	41 2-1 1.5 168-176-180	42
155.0	3 2-6 .0 157-168-172	23 2-6 .1 159-168-172	41 2-6 .3 161-169-173	41 2-6 2.0 165-173-177	45 2-6 .7 169-176-180	44
153.0	10 2-6 .2 156-167-171	32 6-6 .0 157-167-171	44 2-6 .6 161-169-173	46 2-6 .2 166-173-177	47 2-6 .6 170-177-180	46
151.0	18 6-6 .2 155-166-170	40 6-6 .1 156-166-170	46 2-6 .6 162-169-173	48 2-6 .2 167-173-177	49 2-6 .6 171-177-180	47 42
149.0	27 6-6 .0 153-165-169	41 6-6 1.8 156-166-170	48 2-6 .6 163-169-173	50 2-6 .1 168-173-177	51 2-6 .5 172-177-180	48 44
147.0	35 6-6 .0 152-164-168	48 2-6 .2 157-165-168	50 2-6 .6 164-169-173	52 2-6 .1 168-173-177	53 2-6 .4 173-177-180	50 45
145.0	41 6-6 .5 151-163-167	50 2-6 .3 157-165-168	52 2-6 .6 164-170-173	54 2-6 .0 169-174-177	55 2-6 .3 174-177-180	51 47
143.0	46 6-6 .3 151-162-165	52 2-6 .4 158-165-168	54 2-6 .6 165-170-173	55 2-6 1.0 170-174-177	57 2-3 .1 175-177-180	53 48
141.0	50 6-6 .2 152-161-164	54 2-6 .4 159-165-168	56 2-6 .6 166-170-173	57 2-3 .9 170-173-177	58 2-3 1.0 175-177-180	53 50
136.0	57 2-6 .3 154-160-163	59 2-3 .2 159-164-167	61 2-3 .1 165-169-172	62 2-3 .2 169-172-175	62 2-2 1.2 174-175-178	53 53
131.0	62 2-3 .1 153-159-162	63 2-3 .9 159-163-166	65 2-3 .6 165-168-170	66 2-3 .7 169-171-174	66 2-2 1.0 171-172-175	53 53
126.0	66 2-3 .8 153-158-160	68 2-3 .5 158-162-164	70 2-3 .0 164-166-169	70 2-2 .7 168-169-171	70 2-2 .7 167-169-171	53 53
121.0	70 2-3 1.6 152-157-159	70 2-3 3.3 158-162-164	70 2 .0 145-153-155	70 2 .0 143-153-155	70 2 .0 142-153-155	53 53
116.0	70 .0 147-147-150	70 .0 147-147-150	70 .0 147-147-150	70 .0 147-147-150	70 .0 147-147-150	53 53
111.0	70 .0 143-144-147	70 .0 143-144-147	70 .0 143-144-147	70 .0 143-144-147	70 .0 143-144-147	53 53
106.0	70 .0 140-140-143	70 .0 140-140-143	70 .0 140-140-143	70 .0 140-140-143	70 .0 140-140-143	53 53
101.0	70 .0 136-137-140	70 .0 136-137-140	70 .0 136-137-140	70 .0 136-137-140	70 .0 136-137-140	53 53

UUEE
MOSCOW-SHEREMETEVO
07L/25R

ELEV. = 627 ft TORA = 3538 m
SLOPE = .00 % ASDA = 3538 m
TODA = 3938 m

15/15

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

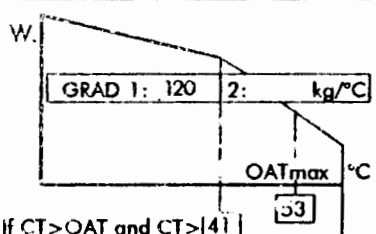
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1036 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>41
use Corr. Flex. T/O Temp. up to 70

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-2	-2.0	-12	-3

Minimum v_1: 117 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 2200 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0		-3 2-2 .1 165-175-178	3 2-2 .0 166-175-179	3 2-2 .0 167-175-179	3 2-2 .0 165-175-179	
157.0	-3 2-6 . 158-169-173	15 2-6 . 160-171-174	32 2-6 . 162-173-176	41 2-2 .0 165-174-177	41 2-2 .0 166-174-177	42
155.0	13 2-6 . 153-166-169	31 2-6 .6 156-167-171	41 2-6 .7 160-171-174	43 2-2 1.1 165-174-177	43 2-2 1.1 166-174-177	44
153.0	29 2-6 . 149-162-166	41 2-6 .5 154-165-169	44 2-6 .6 161-171-174	45 2-2 .4 164-172-175	45 2-2 .4 165-172-175	46
151.0	41 2-6 . 147-160-164	44 2-6 .7 154-165-169	46 2-6 .8 162-171-174	46 2-2 1.1 164-172-175	46 2-2 1.1 164-172-175	47 42
149.0	44 2-6 . 147-160-164	46 2-6 . 155-165-169	48 2-2 .4 162-170-173	48 2-2 .4 163-170-173	48 2-2 .4 163-170-173	48 44
147.0	46 2-6 .4 148-160-164	48 2-6 . 156-165-169	49 2-2 1.0 162-169-172	49 2-2 1.0 163-169-172	49 2-2 1.0 162-169-172	50 45
145.0	48 2-6 .3 149-160-164	50 2-6 .3 157-165-169	51 2-2 .3 161-168-171	51 2-2 .3 161-168-171	51 2-2 .3 159-168-171	51 47
143.0	50 2-6 .3 150-160-164	52 2-3 .3 158-166-169	52 2-2 1.0 161-167-170	52 2-2 1.0 160-167-170	52 2-2 1.0 158-167-170	53 48
141.0	52 2-6 .3 151-160-164	54 2-2 .3 158-165-168	54 2-2 .3 160-165-168	54 2-2 .3 158-165-168	54 2-2 .3 156-165-168	53 50
136.0	57 2-3 .3 152-159-163	58 2-2 .3 156-162-165	58 2-2 .3 156-162-165	58 2-2 .3 155-162-165	58 2-2 .3 153-162-165	53 53
131.0	61 2-3 .2 151-158-161	62 2-2 .3 154-159-162	62 2-2 .3 153-159-162	62 2-2 .3 151-159-162	62 2-2 .3 149-159-162	53 53
126.0	66 2-2 .3 150-156-159	66 2-2 .3 151-156-159	66 2-2 .3 149-156-159	66 2-2 .3 147-156-159	66 2-2 .3 146-156-159	53 53
121.0	70 2-2 .3 147-153-156	70 2-2 .3 147-153-156	70 2-2 .3 145-153-156	70 2-2 .3 143-153-156	70 2-2 .3 142-153-156	53 53
116.0	70 2 . 128-139-143	70 2 .0 128-139-143	70 2 .0 128-139-143	70 2 .0 128-139-143	70 2 .0 128-139-143	53 53
111.0	70 .0 131-132-136	70 .0 131-132-136	70 .0 131-132-136	70 .0 131-132-136	70 .0 131-132-136	53 53
106.0	70 .0 128-129-133	70 .0 128-129-133	70 .0 128-129-133	70 .0 128-129-133	70 .0 128-129-133	53 53
101.0	70 .0 125-125-130	70 .0 125-125-130	70 .0 125-125-130	70 .0 125-125-130	70 .0 125-125-130	53 53

UUEE MOSKOW-SHEREMETEVO 07R/25L

ELEV. = 627 ft SLOPE = .00 %
TORA = 3700 m ASDA = 3700 m TODA = 4100 m

15/00

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

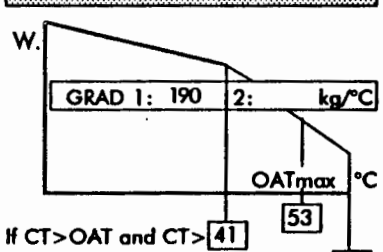
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1036 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>41
use Corr. Flex. T/O Temp. up to 70

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-6	-4.5	-8	-3

Minimum v_1: 119 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 2200 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0		1 2-6 .1 163-174-178	19 2-1 .1 165-175-179	31 2-6 .1 166-176-180	40 2-1 .0 168-177-181	
	- -					
157.0	-3 2-6 .2 158-170-174	16 2-6 .1 160-170-175	34 2-6 .0 162-172-176	41 2-6 .5 164-174-178	41 2-1 2.0 168-177-181	42
155.0	7 2-6 .1 156-168-172	29 6-6 .0 157-168-172	41 2-6 .9 160-170-174	44 2-6 .6 165-174-178	46 2-6 .1 170-177-181	44
153.0	15 6-6 .2 154-167-171	37 6-6 .0 156-167-171	45 2-6 .1 161-170-174	46 2-6 .6 166-174-178	48 2-6 .0 171-178-181	46
151.0	24 6-6 .0 153-166-170	41 6-6 1.1 155-167-170	47 2-6 .1 162-170-174	48 2-6 .6 166-174-178	49 2-6 1.0 171-178-181	47 42
149.0	32 6-6 .1 152-165-169	46 6-6 .5 156-166-169	49 2-6 .1 163-171-174	50 2-6 .5 167-174-178	51 2-6 .9 172-178-181	48 44
147.0	40 6-6 .1 150-164-168	48 2-6 .7 156-166-169	51 2-6 .1 164-171-174	52 2-6 .5 168-174-178	53 2-6 .7 173-178-181	50 45
145.0	41 6-6 1.8 150-164-167	50 2-6 .8 157-166-169	53 2-6 .1 165-171-174	54 2-6 .4 169-175-178	55 2-6 .6 174-178-181	51 47
143.0	48 6-6 .4 151-162-166	52 2-6 .8 158-166-169	55 2-6 .0 165-171-174	56 2-6 .4 170-175-178	57 2-6 .5 175-178-181	53 48
141.0	52 6-6 .4 152-161-164	54 2-6 .9 159-166-169	57 2-6 .0 166-171-174	58 2-6 .3 171-175-178	59 2-2 .2 176-178-181	53 50
136.0	57 2-5 .8 154-161-164	60 2-6 .1 161-166-169	61 2-6 1.0 168-171-174	62 2-3 1.1 172-175-178	62 2-2 1.2 173-175-178	53 53
131.0	62 2-5 .6 155-160-163	64 2-3 .8 161-165-168	66 2-3 .4 167-170-173	66 2-2 1.0 171-172-175	66 2-2 1.0 170-172-175	53 53
126.0	67 2-5 .5 155-160-162	69 2-3 .3 161-164-167	70 2-2 .7 167-169-171	70 2-2 .7 167-169-171	70 2-2 .7 166-169-171	53 53
121.0	70 2-5 2.4 154-159-161	70 2-3 4.2 161-164-166	70 2 .0 143-153-155	70 2 .0 142-153-155	70 2 .0 141-153-155	53 53
116.0	70 .0 147-147-150	70 .0 147-147-150	70 .0 147-147-150	70 .0 147-147-150	70 .0 147-147-150	53 53
111.0	70 .0 143-144-147	70 .0 143-144-147	70 .0 143-144-147	70 .0 143-144-147	70 .0 143-144-147	53 53
106.0	70 .0 140-140-143	70 .0 140-140-143	70 .0 140-140-143	70 .0 140-140-143	70 .0 140-140-143	53 53
101.0	70 .0 136-137-140	70 .0 136-137-140	70 .0 136-137-140	70 .0 136-137-140	70 .0 136-137-140	53 53

UUEE MOSKOW-SHEREMETEVO 07R/25L

ELEV. = 627 ft SLOPE = .00 %
TORA = 3700 m ASDA = 3700 m TODA = 4100 m

15/15

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

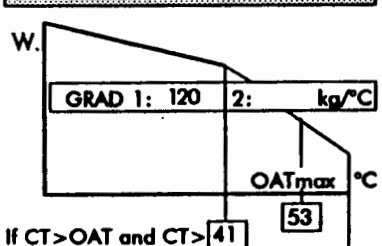
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1036 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>41
use Corr. Flex. T/O Temp. up to 70

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-2	-2.0	-12	-3

Minimum v_1: 117 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 2200 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	-2 2-2 .0 163-175-178	3 2-2 .0 165-175-179	3 2-2 .0 165-175-179	3 2-2 .0 163-175-179	
157.0	1 2-6 .0 156-170-174	19 2-6 .1 158-171-175	35 2-2 .1 161-173-176	41 2-2 .0 163-174-177	41 2-2 .0 164-174-177	42
155.0	18 2-6 .0 151-166-170	34 2-6 .1 155-168-171	41 2-2 1.2 160-172-175	43 2-2 1.1 163-174-177	43 2-2 1.1 164-174-177	44
153.0	33 2-6 .0 148-163-167	41 2-6 1.1 153-167-170	45 2-6 .3 161-172-175	45 2-2 .4 163-172-175	45 2-2 .4 164-172-175	46
151.0	41 2-6 .8 147-161-165	45 2-6 .2 154-166-170	46 2-6 1.0 161-171-174	46 2-2 1.1 162-172-175	46 2-2 1.1 163-172-175	47 42
149.0	44 2-6 1.0 147-161-165	47 2-6 .2 155-166-170	48 2-2 .4 161-170-173	48 2-2 .4 162-170-173	48 2-2 .4 161-170-173	48 44
147.0	47 2-6 .0 148-161-165	49 2-6 .1 156-167-170	49 2-2 1.0 160-169-172	49 2-2 1.0 161-169-172	49 2-2 1.0 160-169-172	50 45
145.0	49 2-6 .0 149-161-165	51 2-6 .0 157-167-170	51 2-2 .3 160-168-171	51 2-2 .3 159-168-171	51 2-2 .3 158-168-171	51 47
143.0	51 2-6 .0 150-161-165	52 2-2 1.0 158-167-170	52 2-2 1.0 160-167-170	52 2-2 1.0 158-167-170	52 2-2 1.0 157-167-170	53 48
141.0	53 2-6 .0 151-162-165	54 2-2 .3 157-165-168	54 2-2 .3 158-165-168	54 2-2 .3 156-165-168	54 2-2 .3 155-165-168	53 50
136.0	57 2-5 .9 153-161-164	58 2-2 .3 156-162-165	58 2-2 .3 155-162-165	58 2-2 .3 153-162-165	58 2-2 .3 151-162-165	53 53
131.0	62 2-2 .3 152-159-162	62 2-2 .3 153-159-162	62 2-2 .3 151-159-162	62 2-2 .3 149-159-162	62 2-2 .3 148-159-162	53 53
126.0	66 2-2 .3 150-156-159	66 2-2 .3 150-156-159	66 2-2 .3 147-156-159	66 2-2 .3 146-156-159	66 2-2 .3 144-156-159	53 53
121.0	70 2-2 .3 148-153-156	70 2-2 .3 146-153-156	70 2-2 .3 143-153-156	70 2-2 .3 142-153-156	70 2-2 .3 142-153-156	53 53
116.0	70 2 .0 128-139-143	70 2 .0 128-139-143	70 2 .0 128-139-143	70 2 .0 128-139-143	70 2 .0 128-139-143	53 53
111.0	70 .0 131-132-136	70 .0 131-132-136	70 .0 131-132-136	70 .0 131-132-136	70 .0 131-132-136	53 53
106.0	70 .0 128-129-133	70 .0 128-129-133	70 .0 128-129-133	70 .0 128-129-133	70 .0 128-129-133	53 53
101.0	70 .0 125-125-130	70 .0 125-125-130	70 .0 125-125-130	70 .0 125-125-130	70 .0 125-125-130	53 53

ZBAA BEIJING 18L/36R

ELEV. = 115 ft TORA = 3800 m
SLOPE = .00 % ASDA = 3860 m
TODA = 3860 m

15/00

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

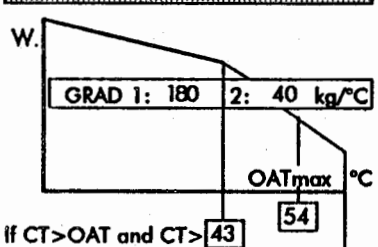
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1017 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT> 43
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-1	-0.5	-6	-1

Minimum v_1: 119 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1700 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	5 2-1 .1 163-173-177	23 2-1 .1 165-174-178	36 1-6 .0 166-175-179	44 2-6 .2 169-177-181	43
157.0	0 2-6 .2 159-169-173	19 2-6 .1 160-170-174	39 2-6 .1 162-171-175	43 1-6 1.2 165-173-177	46 2-6 .2 170-177-181	45
155.0	8 2-6 .2 157-168-172	30 6-6 .1 158-168-172	43 2-6 1.6 161-170-174	46 2-6 .7 166-174-177	48 2-6 .1 171-177-181	46
153.0	17 6-6 .1 155-167-171	38 6-6 .2 157-167-171	47 2-6 .1 162-170-174	48 2-6 .6 167-174-178	49 2-6 1.0 171-178-181	48 43
151.0	25 6-6 .1 154-166-170	43 6-6 1.0 156-166-170	49 2-6 .0 163-170-174	50 2-6 .5 168-174-178	51 2-6 .8 172-178-181	49 44
149.0	33 6-6 .2 153-165-169	48 6-6 .6 156-165-169	50 2-6 1.0 164-171-174	52 2-6 .3 168-174-178	53 2-6 .6 174-178-182	50 46
147.0	42 6-6 .1 151-164-168	50 2-6 .6 157-166-169	52 2-6 .9 164-171-174	54 2-6 .2 169-175-178	55 2-6 .4 175-179-182	52 47
145.0	43 6-6 1.9 151-164-167	52 2-6 .6 158-166-169	54 2-6 .8 165-171-175	55 2-6 1.1 170-175-178	57 2-6 .1 176-179-182	53 49
143.0	50 6-6 .3 152-162-165	54 2-6 .5 159-166-170	56 2-6 .6 166-171-175	57 2-6 .9 171-175-178	58 2-6 1.1 176-179-182	54 50
141.0	53 6-6 .8 153-161-165	56 2-6 .5 160-166-170	58 2-6 .5 167-171-175	59 2-6 .7 172-175-178	60 2-2 .4 177-178-181	54 52
136.0	59 2-6 .2 155-162-164	61 2-6 .3 163-166-170	63 2-6 .2 170-172-175	63 2-2 1.2 174-175-178	63 2-2 1.2 174-175-178	54 54
131.0	64 2-5 .0 157-161-164	66 2-6 .0 165-167-169	67 2-2 .5 171-172-174	67 2-2 .5 170-172-174	67 2-2 .5 170-172-174	54 54
126.0	68 2-5 .6 158-161-163	70 2-3 .3 164-166-168	70 2-2 1.3 168-169-172	70 2-2 1.3 167-169-172	70 2-2 1.3 166-169-172	54 54
121.0	71 2-5 2.2 158-161-163	71 2-3 4.1 164-166-168	71 2-2 4.8 167-168-171	71 2-2 4.8 166-168-171	71 2-2 4.8 165-168-171	54 54
116.0	71 .0 147-147-150	71 .0 147-147-150	71 .0 147-147-150	71 .0 147-147-150	71 .0 147-147-150	54 54
111.0	71 .0 143-144-147	71 .0 143-144-147	71 .0 143-144-147	71 .0 143-144-147	71 .0 143-144-147	54 54
106.0	71 .0 140-140-143	71 .0 140-140-143	71 .0 140-140-143	71 .0 140-140-143	71 .0 140-140-143	54 54
101.0	71 .0 136-137-140	71 .0 136-137-140	71 .0 136-137-140	71 .0 136-137-140	71 .0 136-137-140	54 54

ZBAA BEIJING 18L/36R

ELEV. = 115 ft TORA = 3800 m
SLOPE = .00 % ASDA = 3860 m
TODA = 3860 m

15/15

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

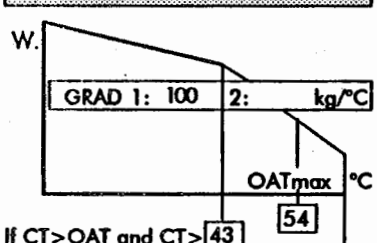
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1017 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>43
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-2	-2.0	-12	-3

Minimum v_1: 117 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1700 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	7 2-2 .0 163-174-177	24 2-2 .0 165-175-178	29 2-2 .1 166-175-179	29 2-2 .1 167-175-179	43
157.0	6 2-6 .1 156-169-172	25 2-6 .0 158-170-173	43 2-6 .0 161-172-175	43 2-2 1.3 165-175-178	43 2-2 1.3 166-175-178	45
155.0	23 2-6 .0 151-165-169	41 2-6 .1 154-166-170	45 2-6 .5 161-172-175	45 2-2 1.4 164-174-177	45 2-2 1.4 165-174-177	46
153.0	38 2-6 .1 148-162-166	43 2-6 1.8 154-166-170	47 2-6 .3 162-172-175	47 2-2 .5 164-172-175	47 2-2 .5 164-172-175	48 43
151.0	43 2-6 1.5 147-161-165	47 2-6 .2 155-166-170	48 2-2 1.1 162-172-175	48 2-2 1.1 163-172-175	48 2-2 1.1 163-172-175	49 44
149.0	47 2-6 .0 148-161-165	49 2-6 .1 156-167-170	50 2-2 .2 162-170-173	50 2-2 .2 163-170-173	50 2-2 .2 161-170-173	50 46
147.0	48 2-6 1.0 149-161-165	50 2-6 1.0 157-167-170	51 2-2 .7 161-169-172	51 2-2 .7 162-169-172	51 2-2 .7 160-169-172	52 47
145.0	50 2-6 .9 150-161-165	52 2-6 .9 158-167-170	52 2-2 1.3 161-168-171	52 2-2 1.3 161-168-171	52 2-2 1.3 159-168-171	53 49
143.0	52 2-6 .8 151-161-165	54 2-6 .4 158-166-170	54 2-2 .4 160-167-170	54 2-2 .4 158-167-170	54 2-2 .4 156-167-170	54 50
141.0	54 2-6 .7 152-162-165	55 2-2 1.0 158-166-169	55 2-2 1.0 159-166-169	55 2-2 1.0 157-166-169	55 2-2 1.0 155-166-169	54 52
136.0	59 2-6 .4 155-162-165	59 2-2 .7 157-163-166	59 2-2 .7 155-163-166	59 2-2 .7 153-163-166	59 2-2 .7 152-163-166	54 54
131.0	63 2-2 .3 155-159-162	63 2-2 .3 153-159-162	63 2-2 .3 151-159-162	63 2-2 .3 150-159-162	63 2-2 .3 148-159-162	54 54
126.0	66 2-2 1.3 153-157-160	66 2-2 1.3 151-157-160	66 2-2 1.3 148-157-160	66 2-2 1.3 147-157-160	66 2-2 1.3 145-157-160	54 54
121.0	70 2-2 .9 149-154-157	70 2-2 .9 147-154-157	70 2-2 .9 144-154-157	70 2-2 .9 142-154-157	70 2-2 .9 142-154-157	54 54
116.0	71 2-2 4.6 147-153-156	71 2-2 4.6 145-153-156	71 2-2 4.6 143-153-156	71 2-2 4.6 141-153-156	71 2-2 4.6 141-153-156	54 54
111.0	71 .0 131-132-136	71 .0 131-132-136	71 .0 131-132-136	71 .0 131-132-136	71 .0 131-132-136	54 54
106.0	71 .0 128-129-133	71 .0 128-129-133	71 .0 128-129-133	71 .0 128-129-133	71 .0 128-129-133	54 54
101.0	71 .0 125-125-130	71 .0 125-125-130	71 .0 125-125-130	71 .0 125-125-130	71 .0 125-125-130	54 54

ZBAA BEIJING 18R/36L

ELEV. = 115 ft TORA = 3200 m
SLOPE = .00 % ASDA = 3260 m
TODA = 3260 m

15/00

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

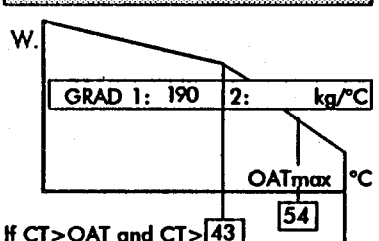
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1017 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>43
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-10	-5.0	-10	-3

Minimum v_1: 119 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1700 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	8 2-1 .0 170-173-177	21 2-1 .1 171-174-178	35 2-6 .0 172-174-178	43
157.0	- -	2 2-6 .1 166-169-174	24 2-6 .1 166-170-174	37 2-6 .0 167-170-174	43 2-6 .9 170-173-177	45
155.0	- -	11 2-6 .1 164-168-172	34 6-6 .1 164-168-172	43 2-6 1.2 166-169-173	46 2-6 .5 171-173-177	46
153.0	-1 6-6 .1 162-167-171	20 6-6 .0 162-167-171	42 6-6 .2 163-167-171	46 2-6 .8 167-169-173	48 2-6 .4 172-173-177	48 43
151.0	6 6-6 .2 160-166-170	28 6-6 .1 161-166-170	43 6-6 2.0 163-167-171	48 2-3 .9 168-170-174	50 2-3 .1 172-173-177	49 44
149.0	14 6-6 .2 159-165-169	36 6-6 .1 160-165-169	48 2-3 1.1 164-166-170	50 2-3 .5 167-169-173	51 2-3 .9 172-173-177	50 46
147.0	22 6-6 .2 158-164-168	43 6-6 .5 159-164-168	50 2-3 .8 163-166-170	52 2-3 .1 167-169-173	53 2-3 .5 171-173-176	52 47
145.0	31 6-6 .0 156-162-166	48 3-3 .1 159-163-167	52 2-3 .5 163-166-169	53 2-3 .9 167-169-173	55 2-3 .1 171-172-176	53 49
143.0	39 6-6 .1 155-161-165	50 3-3 .5 158-162-166	54 2-3 .2 163-165-169	55 2-3 .6 167-169-172	56 2-3 .9 171-172-175	54 50
141.0	43 6-6 1.2 154-161-165	53 3-3 .2 158-161-164	55 2-3 1.0 163-165-169	57 2-3 .2 167-168-171	58 2-3 .5 171-171-175	54 52
136.0	53 3-3 .0 153-158-161	58 2-3 .2 156-159-162	60 2-3 .2 162-164-167	61 2-3 .5 166-167-170	62 2-3 .7 170-170-173	54 54
131.0	58 3-3 .7 152-156-159	62 2-3 .7 156-158-161	64 2-3 .6 162-163-165	65 2-3 .8 165-166-169	66 2-3 .7 168-168-171	54 54
126.0	64 3-3 .7 150-153-156	67 2-3 .1 155-157-159	68 2-3 1.0 161-162-164	69 2-3 1.1 165-165-167	70 2-3 .7 167-167-169	54 54
121.0	69 2-3 .9 149-152-154	71 2-3 .6 154-156-158	71 2-3 2.5 161-161-163	71 2-3 3.6 164-164-167	71 2-3 4.4 167-167-169	54 54
116.0	71 2-3 3.7 149-151-154	71 .0 147-147-150	71 .0 147-147-150	71 .0 147-147-150	71 .0 147-147-150	54 54
111.0	71 .0 143-144-147	71 .0 143-144-147	71 .0 143-144-147	71 .0 143-144-147	71 .0 143-144-147	54 54
106.0	71 .0 140-140-143	71 .0 140-140-143	71 .0 140-140-143	71 .0 140-140-143	71 .0 140-140-143	54 54
101.0	71 .0 136-137-140	71 .0 136-137-140	71 .0 136-137-140	71 .0 136-137-140	71 .0 136-137-140	54 54

ZBAA BEIJING 18R/36L

ELEV. = 115 ft TORA = 3200 m
SLOPE = .00 % ASDA = 3260 m
TODA = 3260 m

15/15

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

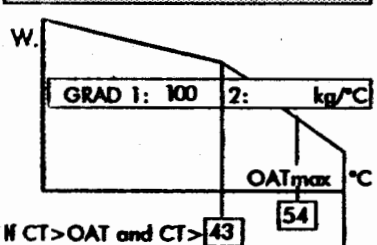
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1017 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT> 43
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-2	-2.0	-12	-3

Minimum v_1: 117 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1700 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	7 2-2 .1 170-174-177	19 2-2 .0 171-175-178	29 2-2 .0 172-175-178	43
157.0	- -	6 2-3 .0 163-169-172	26 2-3 .1 165-170-173	38 2-3 .0 167-171-174	43 2-2 .7 170-174-177	45
155.0	4 2-3 .1 158-164-168	24 2-3 .0 159-165-169	43 2-3 .1 162-167-170	43 2-3 1.5 166-170-173	45 2-3 1.1 169-173-176	46
153.0	20 2-6 .1 154-160-164	40 2-3 .1 156-162-166	45 2-3 .5 162-166-170	46 2-3 .7 165-170-173	47 2-2 .5 169-172-175	48 43
151.0	36 2-6 .0 150-157-161	43 2-3 1.7 155-161-165	47 2-3 .2 161-166-170	48 2-3 .3 165-169-173	48 2-2 1.1 168-172-175	49 44
149.0	43 2-6 1.0 149-156-160	46 2-3 1.0 155-161-165	48 2-3 1.0 161-166-169	49 2-3 1.1 165-169-172	50 2-2 .2 167-170-173	50 46
147.0	46 2-6 .7 149-156-160	48 2-3 .7 155-160-164	50 2-3 .6 161-166-169	51 2-3 .6 165-169-172	51 2-2 .7 166-169-172	52 47
145.0	48 2-3 .5 149-155-160	50 2-3 .4 155-160-164	52 2-3 .3 161-165-169	52 2-2 1.3 165-168-171	52 2-2 1.3 165-168-171	53 49
143.0	50 2-3 .3 149-155-159	52 2-3 .1 155-160-163	53 2-3 1.1 161-165-168	54 2-2 .4 164-167-170	54 2-2 .4 163-167-170	54 50
141.0	52 2-3 .0 149-155-159	53 2-3 1.0 155-160-163	55 2-3 .7 161-165-168	55 2-2 1.0 163-166-169	55 2-2 1.0 162-166-169	54 52
136.0	56 2-3 .5 149-154-158	58 2-3 .2 154-158-162	59 2-2 .7 160-163-166	59 2-2 .7 159-163-166	59 2-2 .7 158-163-166	54 54
131.0	60 2-3 1.0 148-153-156	62 2-3 .6 153-157-160	63 2-2 .3 157-159-162	63 2-2 .3 155-159-162	63 2-2 .3 154-159-162	54 54
126.0	65 2-3 .4 147-151-155	66 2-3 1.0 153-156-159	66 2-2 1.3 154-157-160	66 2-2 1.3 153-157-160	66 2-2 1.3 151-157-160	54 54
121.0	69 2-3 .8 147-150-153	70 2-2 .9 151-154-157	70 2-2 .9 150-154-157	70 2-2 .9 149-154-157	70 2-2 .9 147-154-157	54 54
116.0	71 2-3 3.6 146-150-153	71 2-2 4.6 150-153-156	71 2-2 4.6 149-153-156	71 2-2 4.6 147-153-156	71 2-2 4.6 146-153-156	54 54
111.0	71 .0 131-132-136	71 .0 131-132-136	71 .0 131-132-136	71 .0 131-132-136	71 .0 131-132-136	54 54
106.0	71 .0 128-129-133	71 .0 128-129-133	71 .0 128-129-133	71 .0 128-129-133	71 .0 128-129-133	54 54
101.0	71 .0 125-125-130	71 .0 125-125-130	71 .0 125-125-130	71 .0 125-125-130	71 .0 125-125-130	54 54

OMDB DUBAI 30L

ELEV. = 33 ft TORA = 3805 m
SLOPE = .00 % ASDA = 3866 m
TODA = 3866 m

15/15

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

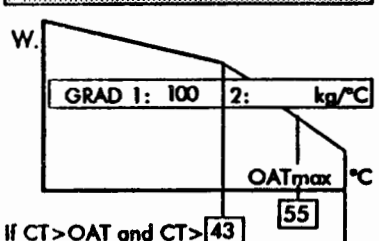
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1014 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>43 use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-2	-2.0	-12	-3

Minimum v_1: 117 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1600 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	8 2-1 .0 162-174-177	28 2-6 .0 164-175-178	33 2-2 .0 166-175-179	33 2-2 .0 167-175-179	44
157.0	8 2-6 .0 156-168-172	26 2-6 .1 158-170-173	43 2-6 .3 161-172-175	43 2-2 1.6 165-175-178	43 2-2 1.6 166-175-178	45
155.0	24 2-6 .1 151-165-169	43 2-6 .1 154-166-170	45 2-6 .9 161-172-175	46 2-2 .4 164-173-177	46 2-2 .4 165-173-177	47
153.0	40 2-6 .1 148-161-165	45 2-6 .8 154-166-170	47 2-6 .8 162-172-175	47 2-2 1.0 164-173-176	47 2-2 1.0 165-173-176	48 43
151.0	43 2-6 1.7 147-161-165	47 2-6 .7 155-166-170	49 2-2 .1 162-171-174	49 2-2 .1 163-171-174	49 2-2 .1 162-171-174	49 45
149.0	47 2-6 .4 148-161-165	49 2-6 .5 156-167-170	50 2-2 .6 162-170-173	50 2-2 .6 163-170-173	50 2-2 .6 161-170-173	51 46
147.0	49 2-6 .3 149-161-165	51 2-6 .3 157-167-170	51 2-2 1.2 161-169-172	51 2-2 1.2 162-169-172	51 2-2 1.2 160-169-172	52 48
145.0	51 2-6 .2 150-161-165	53 2-6 .0 158-167-170	53 2-2 .2 161-168-171	53 2-2 .2 159-168-171	53 2-2 .2 158-168-171	53 49
143.0	53 2-6 .1 152-162-165	54 2-2 .8 159-167-170	54 2-2 .8 160-167-170	54 2-2 .8 158-167-170	54 2-2 .8 157-167-170	55 51
141.0	54 2-6 1.1 152-162-165	55 2-2 1.4 158-166-169	55 2-2 1.4 159-166-169	55 2-2 1.4 157-166-169	55 2-2 1.4 155-166-169	55 52
136.0	59 2-6 .8 155-162-165	59 2-2 .9 157-163-166	59 2-2 .9 155-163-166	59 2-2 .9 154-163-166	59 2-2 .9 152-163-166	55 55
131.0	63 2-2 .5 155-160-163	63 2-2 .5 154-160-163	63 2-2 .5 151-160-163	63 2-2 .5 150-160-163	63 2-2 .5 148-160-163	55 55
126.0	67 2-2 .1 152-156-159	67 2-2 .1 150-156-159	67 2-2 .1 147-156-159	67 2-2 .1 145-156-159	67 2-2 .1 144-156-159	55 55
121.0	70 2-2 1.0 149-154-157	70 2-2 1.0 146-154-157	70 2-2 1.0 144-154-157	70 2-2 1.0 142-154-157	70 2-2 1.0 142-154-157	55 55
116.0	72 2-2 3.3 146-152-155	72 2-2 3.3 144-152-155	72 2-2 3.3 142-152-155	72 2-2 3.3 141-152-155	72 2-2 3.3 141-152-155	55 55
111.0	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	55 55
106.0	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	55 55
101.0	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	55 55

OMDB DUBAI 30L

ELEV. = 33 ft TORA = 3805 m
SLOPE = .00 % ASDA = 3866 m
TODA = 3866 m

15/00

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

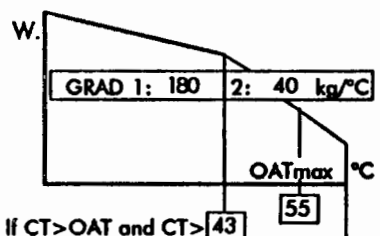
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1014 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>43
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-1	-0.5	-6	-1

Minimum v_1: 119 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1600 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0		6 1-6 .1 163-173-177	25 2-1 .0 165-174-178	37 2-1 .1 166-175-178	44 2-6 .7 169-177-181	44
157.0	1 2-6 .1 159-169-173	20 2-6 .1 160-170-174	41 2-6 .1 161-171-175	43 2-1 1.5 165-174-177	46 2-6 .7 170-177-181	45
155.0	9 2-6 .2 157-168-172	31 6-6 .1 158-168-172	43 2-6 1.8 161-170-174	47 2-6 .1 166-174-178	48 2-6 .5 171-178-181	47
153.0	18 6-6 .1 155-167-171	40 6-6 .0 156-167-171	47 2-6 .5 162-170-174	48 2-6 1.0 167-174-178	50 2-6 .3 172-178-181	48 43
151.0	26 6-6 .2 154-166-170	43 6-6 1.3 156-167-171	49 2-6 .4 163-171-174	50 2-6 .9 168-174-178	52 2-6 .1 173-178-182	49 45
149.0	35 6-6 .0 152-165-169	48 6-6 .7 157-166-169	51 2-6 .3 164-171-175	52 2-6 .7 168-175-178	53 2-6 1.0 174-179-182	51 46
147.0	43 6-6 .2 151-164-168	50 2-6 1.0 157-166-169	53 2-6 .2 165-171-175	54 2-6 .5 169-175-178	55 2-6 .7 175-179-182	52 48
145.0	47 6-6 .3 152-163-167	52 2-6 .9 158-166-170	55 2-6 .0 166-171-175	56 2-6 .3 171-175-178	57 2-6 .5 176-179-182	53 49
143.0	51 6-6 .1 152-162-165	54 2-6 .9 159-166-170	56 2-6 .9 166-171-175	58 2-6 .1 172-175-178	59 2-2 .1 177-179-182	55 51
141.0	54 2-6 .5 153-161-165	56 2-6 .8 160-166-170	58 2-6 .8 167-172-175	59 2-6 1.0 172-175-178	60 2-2 .7 177-178-181	55 52
136.0	59 2-6 .5 155-162-165	61 2-6 .6 163-167-170	63 2-6 .4 170-172-175	63 2-6 1.3 174-175-178	63 2-2 1.4 174-175-178	55 55
131.0	64 2-5 .3 158-162-164	66 2-6 .3 165-167-170	67 2-2 .7 171-172-175	67 2-2 .7 170-172-175	67 2-2 .7 170-172-175	55 55
126.0	68 2-5 .8 158-161-163	70 2-3 .5 165-166-169	70 2-2 1.4 168-169-172	70 2-2 1.4 167-169-172	70 2-2 1.4 166-169-172	55 55
121.0	72 2-5 1.3 158-161-163	72 2-3 3.1 164-166-168	72 2-2 3.5 166-167-170	72 2-2 3.5 165-167-170	72 2-2 3.5 164-167-170	55 55
116.0	72 .0 147-147-150	72 .0 147-147-150	72 .0 147-147-150	72 .0 147-147-150	72 .0 147-147-150	55 55
111.0	72 .0 143-144-147	72 .0 143-144-147	72 .0 143-144-147	72 .0 143-144-147	72 .0 143-144-147	55 55
106.0	72 .0 140-140-143	72 .0 140-140-143	72 .0 140-140-143	72 .0 140-140-143	72 .0 140-140-143	55 55
101.0	72 .0 136-137-140	72 .0 136-137-140	72 .0 136-137-140	72 .0 136-137-140	72 .0 136-137-140	55 55

OMDB DUBAI 12L/30R

ELEV. = 33 ft TORA = 4000 m
SLOPE = .00 % ASDA = 4060 m
TODA = 4060 m

15/00

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

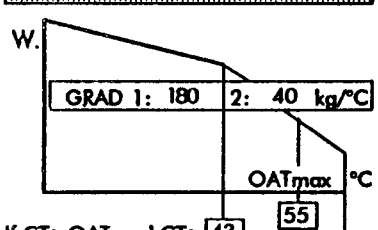
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1014 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT> 43
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-1	-0.5	-6	-1

Minimum v_1: 119 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1600 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	11 2-1 .0 161-173-177	31 2-6 .0 163-174-178	43 2-1 .0 164-175-179	45 2-6 .3 169-178-182	44
157.0	6 2-6 .0 157-169-174	27 2-6 .1 158-170-174	43 2-6 .5 161-172-175	45 2-6 .8 165-175-179	47 2-6 .1 170-179-182	45
155.0	15 6-6 .2 155-168-172	37 2-6 .0 156-168-172	46 2-6 .2 161-172-175	47 2-6 .7 166-175-179	48 2-6 1.0 170-179-182	47
153.0	24 6-6 .1 153-167-171	43 2-6 .7 155-167-171	48 2-6 .1 162-172-176	49 2-6 .5 167-175-179	50 2-6 .8 171-179-183	48 43
151.0	32 6-6 .2 152-166-170	47 2-6 .7 156-167-170	49 2-6 1.0 163-172-176	51 2-6 .3 168-176-179	52 2-6 .5 173-180-183	49 45
149.0	41 6-6 .1 151-165-169	49 2-6 .6 156-167-171	51 2-6 .9 164-172-176	53 2-6 .1 169-176-179	54 2-6 .2 174-180-183	51 46
147.0	43 6-6 1.6 150-165-168	51 2-6 .6 157-167-171	53 2-6 .7 165-172-176	54 2-6 1.0 169-176-180	55 2-6 1.1 174-180-183	52 48
145.0	50 6-6 .0 151-163-166	53 2-6 .5 158-167-171	55 2-6 .5 166-173-176	56 2-6 .7 170-176-180	57 2-6 .8 176-180-183	53 49
143.0	53 6-6 .0 152-163-166	55 2-6 .4 159-168-171	57 2-6 .3 167-173-176	58 2-6 .5 171-177-180	59 2-2 .1 176-179-182	55 51
141.0	55 2-6 .1 153-163-166	57 2-6 .3 160-168-171	59 2-6 .2 168-173-176	60 2-6 .3 173-177-180	60 2-2 .7 176-178-181	55 52
136.0	59 2-5 .9 155-162-165	62 2-6 .0 163-168-171	63 2-6 .8 170-173-176	63 2-2 1.4 173-175-178	63 2-2 1.4 172-175-178	55 55
131.0	64 2-5 .3 156-162-164	66 2-5 .6 165-168-171	67 2-2 .7 170-172-175	67 2-2 .7 169-172-175	67 2-2 .7 168-172-175	55 55
126.0	68 2-5 .8 158-161-163	70 2-5 .9 166-167-170	70 2-2 1.4 167-169-172	70 2-2 1.4 166-169-172	70 2-2 1.4 165-169-172	55 55
121.0	72 2-5 1.3 158-161-163	72 2-5 3.5 166-167-169	72 2-2 3.5 165-167-170	72 2-2 3.5 164-167-170	72 2-2 3.5 163-167-170	55 55
116.0	72 .0 147-147-150	72 .0 147-147-150	72 .0 147-147-150	72 .0 147-147-150	72 .0 147-147-150	55 55
111.0	72 .0 143-144-147	72 .0 143-144-147	72 .0 143-144-147	72 .0 143-144-147	72 .0 143-144-147	55 55
106.0	72 .0 140-140-143	72 .0 140-140-143	72 .0 140-140-143	72 .0 140-140-143	72 .0 140-140-143	55 55
101.0	72 .0 136-137-140	72 .0 136-137-140	72 .0 136-137-140	72 .0 136-137-140	72 .0 136-137-140	55 55

OMDB
DUBAI
12L/30R

ELEV. = 33 ft
SLOPE = .00 %

TORA = 4000 m
ASDA = 4060 m
TODA = 4060 m

15/15

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

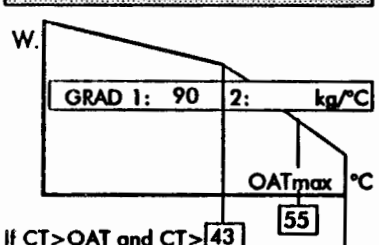
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1014 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>43
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-2	-2.0	-12	-3

Minimum v_1: 117 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1600 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	14 2-6 .0 160-174-177	30 2-2 .0 163-175-178	33 2-2 .0 164-175-179	33 2-2 .0 165-175-179	44
157.0	13 2-6 .0 154-169-172	32 2-6 .0 156-170-174	43 2-2 .9 160-173-176	43 2-2 1.6 163-175-178	43 2-2 1.6 164-175-178	45
155.0	30 2-6 .1 149-165-169	43 2-6 .7 153-168-171	46 2-6 .2 161-173-176	46 2-2 .4 162-173-177	46 2-2 .4 163-173-177	47
153.0	43 2-6 .5 147-162-166	46 2-6 .3 154-168-171	47 2-2 1.0 161-173-176	47 2-2 1.0 162-173-176	47 2-2 1.0 163-173-176	48 43
151.0	46 2-6 .1 148-163-166	48 2-6 .2 155-168-171	49 2-2 .1 160-171-174	49 2-2 .1 161-171-174	49 2-2 .1 160-171-174	49 45
149.0	48 2-6 .0 148-163-166	49 2-6 1.1 156-168-171	50 2-2 .6 160-170-173	50 2-2 .6 161-170-173	50 2-2 .6 159-170-173	51 46
147.0	49 2-6 1.0 149-163-166	51 2-6 .8 157-168-172	51 2-2 1.2 160-169-172	51 2-2 1.2 160-169-172	51 2-2 1.2 158-169-172	52 48
145.0	51 2-6 .8 150-163-166	53 2-2 .2 157-168-171	53 2-2 .2 159-168-171	53 2-2 .2 157-168-171	53 2-2 .2 156-168-171	53 49
143.0	53 2-6 .7 151-163-167	54 2-2 .8 157-167-170	54 2-2 .8 158-167-170	54 2-2 .8 156-167-170	54 2-2 .8 154-167-170	55 51
141.0	55 2-5 .5 152-163-167	55 2-2 1.4 156-166-169	55 2-2 1.4 157-166-169	55 2-2 1.4 155-166-169	55 2-2 1.4 153-166-169	55 52
136.0	59 2-5 .9 154-163-166	59 2-2 .9 156-163-166	59 2-2 .9 153-163-166	59 2-2 .9 151-163-166	59 2-2 .9 150-163-166	55 55
131.0	63 2-2 .5 153-160-163	63 2-2 .5 152-160-163	63 2-2 .5 149-160-163	63 2-2 .5 147-160-163	63 2-2 .5 147-160-163	55 55
126.0	67 2-2 .1 150-156-159	67 2-2 .1 148-156-159	67 2-2 .1 145-156-159	67 2-2 .1 144-156-159	67 2-2 .1 144-156-159	55 55
121.0	70 2-2 1.0 147-154-157	70 2-2 1.0 145-154-157	70 2-2 1.0 142-154-157	70 2-2 1.0 142-154-157	70 2-2 1.0 142-154-157	55 55
116.0	72 2-2 3.3 145-152-155	72 2-2 3.3 142-152-155	72 2-2 3.3 141-152-155	72 2-2 3.3 141-152-155	72 2-2 3.3 141-152-155	55 55
111.0	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	55 55
106.0	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	55 55
101.0	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	55 55

OMDB DUBAI 12R

ELEV. = 33 ft TORA = 3805 m
SLOPE = .00 % ASDA = 3866 m
TODA = 3866 m

15/00

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

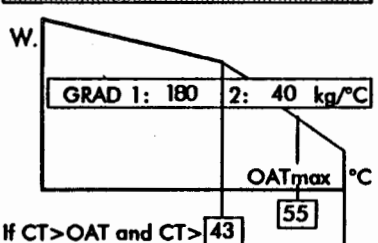
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1014 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>43
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-1	-0.5	-6	-1

Minimum v_1: 119 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1600 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	6 1-6 .1 163-173-177	25 2-1 .0 165-174-178	37 2-1 .1 166-175-178	44 2-6 .7 169-177-181	44
157.0	1 2-6 .1 159-169-173	20 2-6 .1 160-170-174	41 2-6 .1 161-171-175	43 2-1 1.5 165-174-177	46 2-6 .7 170-177-181	45
155.0	9 2-6 .2 157-168-172	31 6-6 .1 158-168-172	43 2-6 1.8 161-170-174	47 2-6 .1 166-174-178	48 2-6 .5 171-178-181	47
153.0	18 6-6 .1 155-167-171	40 6-6 .0 156-167-171	47 2-6 .5 162-170-174	48 2-6 1.0 167-174-178	50 2-6 .3 172-178-181	48 43
151.0	26 6-6 .2 154-166-170	43 6-6 1.3 156-167-171	49 2-6 .4 163-171-174	50 2-6 .9 168-174-178	52 2-6 .1 173-178-182	49 45
149.0	35 6-6 .0 152-165-169	48 6-6 .7 157-166-169	51 2-6 .3 164-171-175	52 2-6 .7 168-175-178	53 2-6 1.0 174-179-182	51 46
147.0	43 6-6 .2 151-164-168	50 2-6 1.0 157-166-169	53 2-6 .2 165-171-175	54 2-6 .5 169-175-178	55 2-6 .7 175-179-182	52 48
145.0	47 6-6 .3 152-163-167	52 2-6 .9 158-166-170	55 2-6 .0 166-171-175	56 2-6 .3 171-175-178	57 2-6 .5 176-179-182	53 49
143.0	51 6-6 .1 152-162-165	54 2-6 .9 159-166-170	56 2-6 .9 166-171-175	58 2-6 .1 172-175-178	59 2-2 .1 177-179-182	55 51
141.0	54 2-6 .5 153-161-165	56 2-6 .8 160-166-170	58 2-6 .8 167-172-175	59 2-6 1.0 172-175-178	60 2-2 .7 177-178-181	55 52
136.0	59 2-6 .5 155-162-165	61 2-6 .6 163-167-170	63 2-6 .4 170-172-175	63 2-6 1.3 174-175-178	63 2-2 1.4 174-175-178	55 55
131.0	64 2-5 .3 158-162-164	66 2-6 .3 165-167-170	67 2-2 .7 171-172-175	67 2-2 .7 170-172-175	67 2-2 .7 170-172-175	55 55
126.0	68 2-5 .8 158-161-163	70 2-3 .5 165-166-169	70 2-2 1.4 168-169-172	70 2-2 1.4 167-169-172	70 2-2 1.4 166-169-172	55 55
121.0	72 2-5 1.3 158-161-163	72 2-3 3.1 164-166-168	72 2-2 3.5 166-167-170	72 2-2 3.5 165-167-170	72 2-2 3.5 164-167-170	55 55
116.0	72 .0 147-147-150	72 .0 147-147-150	72 .0 147-147-150	72 .0 147-147-150	72 .0 147-147-150	55 55
111.0	72 .0 143-144-147	72 .0 143-144-147	72 .0 143-144-147	72 .0 143-144-147	72 .0 143-144-147	55 55
106.0	72 .0 140-140-143	72 .0 140-140-143	72 .0 140-140-143	72 .0 140-140-143	72 .0 140-140-143	55 55
101.0	72 .0 136-137-140	72 .0 136-137-140	72 .0 136-137-140	72 .0 136-137-140	72 .0 136-137-140	55 55

OMDB DUBAI 12R

ELEV. = 33 ft TORA = 3805 m
SLOPE = .00 % ASDA = 3866 m
TODA = 3866 m

15/15

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

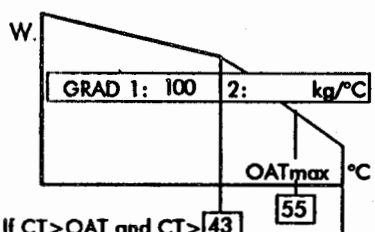
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1014 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>43
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-2	-2.0	-12	-3

Minimum v_1: 117 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1600 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	8 2-1 .0 162-174-177	28 2-6 .0 164-175-178	33 2-2 .0 166-175-179	33 2-2 .0 167-175-179	44
157.0	8 2-6 .0 156-168-172	26 2-6 .1 158-170-173	43 2-6 .3 161-172-175	43 2-2 1.6 165-175-178	43 2-2 1.6 166-175-178	45
155.0	24 2-6 .1 151-165-169	43 2-6 .1 154-166-170	45 2-6 .9 161-172-175	46 2-2 .4 164-173-177	46 2-2 .4 165-173-177	47
153.0	40 2-6 .1 148-161-165	45 2-6 .8 154-166-170	47 2-6 .8 162-172-175	47 2-2 1.0 164-173-176	47 2-2 1.0 165-173-176	48 43
151.0	43 2-6 1.7 147-161-165	47 2-6 .7 155-166-170	49 2-2 .1 162-171-174	49 2-2 .1 163-171-174	49 2-2 .1 162-171-174	49 45
149.0	47 2-6 .4 148-161-165	49 2-6 .5 156-167-170	50 2-2 .6 162-170-173	50 2-2 .6 163-170-173	50 2-2 .6 161-170-173	51 46
147.0	49 2-6 .3 149-161-165	51 2-6 .3 157-167-170	51 2-2 1.2 161-169-172	51 2-2 1.2 162-169-172	51 2-2 1.2 160-169-172	52 48
145.0	51 2-6 .2 150-161-165	53 2-6 .0 158-167-170	53 2-2 .2 161-168-171	53 2-2 .2 159-168-171	53 2-2 .2 158-168-171	53 49
143.0	53 2-6 .1 152-162-165	54 2-2 .8 159-167-170	54 2-2 .8 160-167-170	54 2-2 .8 158-167-170	54 2-2 .8 157-167-170	55 51
141.0	54 2-6 1.1 152-162-165	55 2-2 1.4 158-166-169	55 2-2 1.4 159-166-169	55 2-2 1.4 157-166-169	55 2-2 1.4 155-166-169	55 52
136.0	59 2-6 .8 155-162-165	59 2-2 .9 157-163-166	59 2-2 .9 155-163-166	59 2-2 .9 154-163-166	59 2-2 .9 152-163-166	55 55
131.0	63 2-2 .5 155-160-163	63 2-2 .5 154-160-163	63 2-2 .5 151-160-163	63 2-2 .5 150-160-163	63 2-2 .5 148-160-163	55 55
126.0	67 2-2 .1 152-156-159	67 2-2 .1 150-156-159	67 2-2 .1 147-156-159	67 2-2 .1 145-156-159	67 2-2 .1 144-156-159	55 55
121.0	70 2-2 1.0 149-154-157	70 2-2 1.0 146-154-157	70 2-2 1.0 144-154-157	70 2-2 1.0 142-154-157	70 2-2 1.0 142-154-157	55 55
116.0	72 2-2 3.3 146-152-155	72 2-2 3.3 144-152-155	72 2-2 3.3 142-152-155	72 2-2 3.3 141-152-155	72 2-2 3.3 141-152-155	55 55
111.0	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	55 55
106.0	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	55 55
101.0	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	55 55

OMAA
ABU DHABI
13/31

ELEV. = 88 ft TORA = 4100 m
SLOPE = .00 % ASDA = 4155 m
TODA = 4155 m

15/00

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

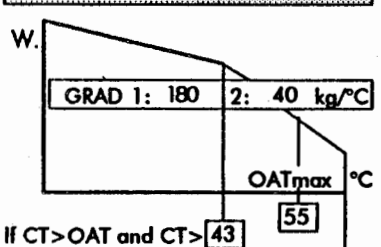
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1016 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT> 43
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-1	-0.5	-6	-1

Minimum v_1: 119 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1600 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	13 2-6 .1 161-173-177	32 2-6 .1 163-174-178	43 2-1 .2 164-175-179	45 2-6 .2 169-179-183	43
157.0	8 2-6 .1 156-170-174	29 2-6 .0 157-170-174	43 2-6 .6 160-172-176	45 2-6 .8 165-176-179	47 2-6 .1 170-179-183	45
155.0	18 6-6 .1 154-168-172	39 2-6 .0 155-168-172	46 2-6 .2 161-172-176	47 2-6 .7 166-176-179	48 2-6 1.0 170-180-183	46
153.0	26 6-6 .2 153-167-171	43 2-6 1.3 155-168-172	48 2-6 .1 162-172-176	49 2-6 .5 167-176-180	50 2-6 .8 171-180-183	48 43
151.0	35 6-6 .0 151-166-170	47 2-6 .7 155-167-171	49 2-6 1.0 163-172-176	51 2-6 .3 168-176-180	52 2-6 .5 173-180-183	49 45
149.0	43 6-6 .2 150-165-169	49 2-6 .7 156-167-171	51 2-6 .9 164-173-176	53 2-6 .1 169-177-180	54 2-6 .2 174-180-184	50 46
147.0	47 6-6 .2 150-164-168	51 2-6 .6 157-168-171	53 2-6 .7 164-173-177	54 2-6 1.0 169-177-180	55 2-6 1.1 174-181-184	52 48
145.0	50 6-6 .5 151-163-167	53 2-6 .5 158-168-171	55 2-6 .5 165-173-177	56 2-6 .7 170-177-180	57 2-2 .7 175-181-184	53 49
143.0	53 2-6 .2 152-163-166	55 2-6 .4 159-168-171	57 2-6 .3 166-173-177	58 2-6 .5 171-177-180	58 2-2 1.3 175-180-183	54 50
141.0	55 2-5 .0 153-163-166	57 2-6 .3 160-168-171	59 2-6 .2 167-173-176	60 2-6 .3 172-177-180	60 2-2 .5 175-178-181	55 52
136.0	59 2-5 .7 154-162-165	62 2-5 .1 163-168-171	63 2-6 .8 169-174-177	63 2-2 1.2 172-175-178	63 2-2 1.2 172-175-178	55 55
131.0	64 2-5 .1 156-162-164	66 2-5 .4 164-168-170	67 2-2 .6 170-172-174	67 2-2 .6 169-172-174	67 2-2 .6 168-172-174	55 55
126.0	68 2-5 .7 157-161-163	70 2-5 .7 165-167-170	70 2-2 1.3 167-169-172	70 2-2 1.3 166-169-172	70 2-2 1.3 165-169-172	55 55
121.0	72 2-5 1.2 157-160-162	72 2-5 3.4 165-167-169	72 2-2 3.5 165-167-170	72 2-2 3.5 164-167-170	72 2-2 3.5 162-167-170	55 55
116.0	72 .0 147-147-150	72 .0 147-147-150	72 .0 147-147-150	72 .0 147-147-150	72 .0 147-147-150	55 55
111.0	72 .0 143-144-147	72 .0 143-144-147	72 .0 143-144-147	72 .0 143-144-147	72 .0 143-144-147	55 55
106.0	72 .0 140-140-143	72 .0 140-140-143	72 .0 140-140-143	72 .0 140-140-143	72 .0 140-140-143	55 55
101.0	72 .0 136-137-140	72 .0 136-137-140	72 .0 136-137-140	72 .0 136-137-140	72 .0 136-137-140	55 55

OMAA
ABU DHABI
13/31

ELEV. = 88 ft TORA = 4100 m
SLOPE = .00 % ASDA = 4155 m
TODA = 4155 m

15/15

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

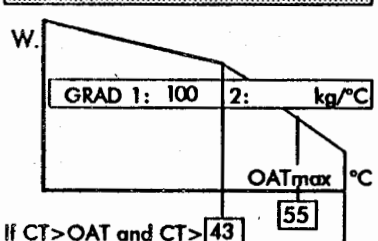
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1016 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT> 43
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-2	-2.0	-12	-3

Minimum v_1: 117 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1600 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	-2 2-6 .0 158-173-177	15 2-6 .1 160-174-178	29 2-2 .1 162-175-179	30 2-2 .0 163-175-179	30 2-2 .0 164-175-179	43
157.0	15 2-6 .0 153-169-173	33 2-6 .1 155-171-174	43 2-2 1.0 160-174-177	43 2-2 1.4 162-175-178	43 2-2 1.4 163-175-178	45
155.0	32 2-6 .0 149-165-169	43 2-6 .9 153-168-172	46 6-6 .1 160-173-176	46 2-2 .1 161-173-176	46 2-2 .1 162-173-176	46
153.0	43 2-6 .6 146-163-167	46 2-6 .4 154-169-172	47 2-2 .6 160-172-176	47 2-2 .6 161-172-176	47 2-2 .6 161-172-176	48 43
151.0	46 2-6 .2 147-163-167	48 2-6 .2 155-169-172	48 2-2 1.2 160-172-175	48 2-2 1.2 160-172-175	48 2-2 1.2 160-172-175	49 45
149.0	48 2-6 .1 148-163-167	49 2-6 1.1 156-169-172	50 2-2 .3 159-170-173	50 2-2 .3 160-170-173	50 2-2 .3 158-170-173	50 46
147.0	49 2-6 1.0 149-163-167	51 2-6 .7 156-169-172	51 2-2 .9 159-169-172	51 2-2 .9 159-169-172	51 2-2 .9 157-169-172	52 48
145.0	51 2-6 .9 150-164-167	52 2-2 1.4 156-168-171	52 2-2 1.4 158-168-171	52 2-2 1.4 158-168-171	52 2-2 1.4 156-168-171	53 49
143.0	53 2-6 .6 151-164-167	54 2-2 .6 156-167-170	54 2-2 .6 157-167-170	54 2-2 .6 155-167-170	54 2-2 .6 154-167-170	54 50
141.0	55 2-5 .2 151-163-167	55 2-2 1.1 156-166-169	55 2-2 1.1 156-166-169	55 2-2 1.1 154-166-169	55 2-2 1.1 153-166-169	55 52
136.0	59 5-5 .7 153-163-166	59 2-2 .7 155-163-166	59 2-2 .7 152-163-166	59 2-2 .7 150-163-166	59 2-2 .7 150-163-166	55 55
131.0	63 2-2 .4 152-159-162	63 2-2 .4 151-159-162	63 2-2 .4 148-159-162	63 2-2 .4 147-159-162	63 2-2 .4 147-159-162	55 55
126.0	66 2-2 1.3 150-157-160	66 2-2 1.3 148-157-160	66 2-2 1.3 145-157-160	66 2-2 1.3 145-157-160	66 2-2 1.3 145-157-160	55 55
121.0	70 2-2 .9 146-154-157	70 2-2 .9 144-154-157	70 2-2 .9 142-154-157	70 2-2 .9 142-154-157	70 2-2 .9 142-154-157	55 55
116.0	72 2-2 3.2 144-152-155	72 2-2 3.2 141-152-155	72 2-2 3.2 141-152-155	72 2-2 3.2 141-152-155	72 2-2 3.2 141-152-155	55 55
111.0	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	55 55
106.0	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	55 55
101.0	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	55 55

OSDI
DAMASKUS
05L/23R

ELEV. = 2021 ft TORA = 3000 m
SLOPE = .00 % ASDA = 3000 m
TODA = 3000 m

15/00

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

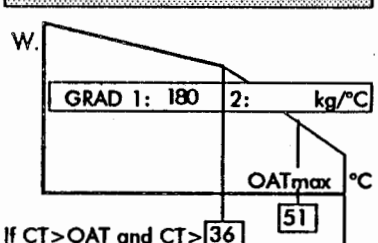
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1085 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-10	-5.0	-10	-3

Minimum v_1: 119 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 3600 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	- -	- -	- -	
157.0	- -	- -	- -	- -	3 2-3 .1 172-173-177	35
155.0	- -	- -	-9 2-3 .0 166-168-172	5 2-3 .1 167-169-173	20 2-3 .1 168-170-174	37
153.0	- -	- -	0 2-3 .1 165-167-171	16 2-3 .1 165-167-171	33 2-3 .1 166-168-171	39
151.0	- -	- -	9 3-3 .1 163-166-170	26 3-3 .0 164-166-170	36 2-3 1.6 165-167-171	41
149.0	- -	-7 3-3 .2 161-165-169	18 3-3 .0 162-165-169	34 3-3 .2 163-165-169	40 2-3 .8 165-166-170	43 37
147.0	- -	.2 3-3 .1 160-164-168	26 3-3 .2 161-164-168	36 3-3 1.7 162-165-169	43 2-3 .0 164-166-169	45 39
145.0	- -	10 3-3 .2 159-163-167	35 3-3 .2 160-163-167	41 3-3 .7 161-163-167	45 2-3 .2 164-165-168	46 41
143.0	-3 3-3 .1 156-161-165	19 3-3 .2 157-162-165	36 3-3 1.9 159-163-166	44 3-3 .6 160-162-166	47 2-3 .3 163-165-168	48 43
141.0	5 3-3 .2 155-160-164	28 3-3 .1 156-160-164	42 3-3 .2 158-161-164	47 3-3 .6 160-161-165	49 2-3 .5 163-164-167	50 45
136.0	28 3-3 .0 152-157-161	36 3-3 3.4 155-159-163	49 3-3 .5 156-159-162	53 2-3 .3 159-160-163	55 2-3 .1 162-163-166	51 49
131.0	36 3-3 3.2 151-156-160	48 3-3 .6 152-156-159	56 3-3 .7 154-156-159	59 2-3 .1 158-159-161	60 2-3 .7 161-162-164	51 51
126.0	48 3-3 .5 148-152-156	56 3-3 .2 150-153-156	63 2-3 .2 153-154-157	64 2-3 .8 157-157-160	66 2-3 .5 161-161-163	51 51
121.0	56 3-3 .3 146-150-153	63 3-3 .6 148-150-153	68 2-3 1.1 152-153-155	68 2-3 2.5 156-157-159	68 2-3 3.7 160-160-162	51 51
116.0	64 3-3 .2 144-147-150	68 3-3 2.6 147-149-151	68 .0 147-147-150	68 .0 147-147-150	68 .0 147-147-150	51 51
111.0	68 3-3 2.9 143-146-148	68 .0 143-144-147	68 .0 143-144-147	68 .0 143-144-147	68 .0 143-144-147	51 51
106.0	68 .0 140-140-143	68 .0 140-140-143	68 .0 140-140-143	68 .0 140-140-143	68 .0 140-140-143	51 51
101.0	68 .0 136-137-140	68 .0 136-137-140	68 .0 136-137-140	68 .0 136-137-140	68 .0 136-137-140	51 51

OSDI
DAMASKUS
05L/23R

ELEV. = 2021 ft TORA = 3000 m
SLOPE = .00 % ASDA = 3000 m
TODA = 3000 m

15/15

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

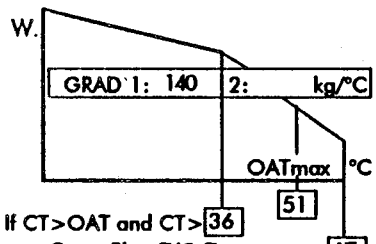
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1085 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>36
use Corr. Flex. T/O Temp. up to 67

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-2	-2.0	-12	-3

Minimum v_1: 117 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 3600 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	- -	- -	- -	
157.0	- -	- -	- -	- -	-8 2-2 .1 171-174-177	35
155.0	- -	- -	- -	2 2-3 .0 166-169-173	14 2-3 .1 167-170-173	37
153.0	- -	- -	7 2-3 .1 160-165-168	20 2-3 .1 161-165-169	33 2-3 .1 162-166-170	39
151.0	- -	4 2-3 .0 155-160-164	25 2-3 .1 157-161-165	36 2-3 .3 158-162-166	36 2-3 1.7 162-166-169	41
149.0	1 2-3 .0 150-155-160	21 2-3 .1 151-156-160	36 2-3 .8 154-159-163	38 2-3 .7 158-162-165	40 2-3 .4 161-165-168	43 37
147.0	17 2-3 .1 147-152-157	36 2-3 .2 148-153-158	39 2-3 .4 154-158-162	41 2-3 .1 158-161-165	42 2-3 .5 161-165-168	45 39
145.0	29 2-3 .2 145-150-155	38 2-3 .7 148-153-157	41 2-3 .6 154-158-162	43 2-3 .3 157-161-165	44 2-3 .7 161-164-168	46 41
143.0	36 2-3 .9 144-149-154	41 2-3 .2 148-153-157	43 2-3 .8 154-158-161	45 2-3 .4 157-161-164	46 2-3 .8 161-164-167	48 43
141.0	40 3-3 .5 143-148-152	43 2-3 .4 147-152-156	46 2-3 .1 153-157-161	47 2-3 .5 157-160-164	48 2-3 .9 161-164-167	50 45
136.0	46 2-3 .5 142-147-151	49 2-3 .1 147-151-155	51 2-3 .6 153-156-160	53 2-3 .1 156-159-162	54 2-3 .4 160-162-165	51 49
131.0	52 2-3 .3 141-146-150	54 2-3 .8 146-150-154	57 2-3 .4 152-154-158	58 2-3 .7 155-158-161	59 2-2 .6 158-160-163	51 51
126.0	58 2-3 .4 140-144-148	60 2-3 .7 145-148-152	63 2-3 .2 151-153-156	64 2-3 .5 154-156-159	64 2-2 .6 155-157-160	51 51
121.0	64 2-3 .4 139-143-146	66 2-3 .7 144-147-150	68 2-3 .9 150-152-155	68 2-2 1.6 153-154-157	68 2-2 1.6 152-154-157	51 51
116.0	68 2-3 2.2 139-142-145	68 2-3 4.0 144-147-150	68 2 .0 128-137-141	68 2 .0 127-137-141	68 2 .0 127-137-141	51 51
111.0	68 .0 131-132-136	68 .0 131-132-136	68 .0 131-132-136	68 .0 131-132-136	68 .0 131-132-136	51 51
106.0	68 .0 128-129-133	68 .0 128-129-133	68 .0 128-129-133	68 .0 128-129-133	68 .0 128-129-133	51 51
101.0	68 .0 125-125-130	68 .0 125-125-130	68 .0 125-125-130	68 .0 125-125-130	68 .0 125-125-130	51 51

OSDI
DAMASKUS
05R/23L

ELEV. = 2021 ft TORA = 3600 m
SLOPE = .00 % ASDA = 3600 m
TODA = 3600 m

15/00

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

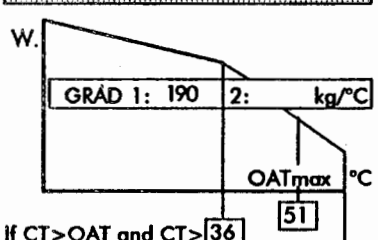
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1085 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>36
use Corr. Flex. T/O Temp. up to 67

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-6	-4.5	-8	-3

Minimum v_1: 119 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 3600 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	- -	-1 2-1 .1 172-178-181	12 2-6 .1 173-178-182	
157.0	- -	- -	3 2-6 .1 167-173-177	16 2-6 .0 168-174-177	28 2-6 .1 169-175-178	35
155.0	- -	-2 2-6 .1 163-169-173	18 2-6 .1 163-170-174	31 2-6 .1 164-170-174	36 2-6 1.1 167-173-176	37
153.0	- -	9 6-6 .1 160-167-171	29 2-6 .2 161-168-171	36 2-6 1.4 163-169-173	40 2-6 .0 168-173-177	39
151.0	-3 6-6 .0 158-166-170	17 6-6 .0 159-166-170	36 2-6 .9 160-167-170	40 2-6 .5 164-169-173	42 2-6 .4 169-173-177	41
149.0	4 6-6 .1 156-165-169	25 6-6 .1 157-165-169	41 2-6 .0 161-166-170	42 2-6 .8 165-169-173	44 2-6 .7 169-173-177	43 37
147.0	12 6-6 .0 155-164-168	33 6-6 .1 156-164-168	43 2-6 .4 161-166-170	45 2-6 .3 166-170-173	47 2-6 .1 170-173-177	45 39
145.0	20 6-6 .0 153-163-166	36 6-6 1.4 155-164-167	45 2-6 .8 162-166-170	47 2-6 .6 166-170-173	49 2-6 .4 171-173-177	46 41
143.0	28 6-6 .1 152-162-165	43 6-6 .4 156-162-166	48 2-6 .3 163-166-170	50 2-6 .1 167-170-173	51 2-6 .6 172-174-177	48 43
141.0	36 6-6 .2 151-161-164	47 6-6 .6 156-162-165	50 2-6 .6 163-167-170	52 2-6 .4 168-170-173	54 2-6 .2 173-174-177	50 45
136.0	47 6-6 .4 152-158-162	54 2-6 .2 158-162-164	56 2-3 .7 164-166-169	58 2-3 .3 168-169-172	59 2-3 .7 173-173-176	51 49
131.0	57 2-3 .6 153-156-159	60 2-3 .1 158-160-163	62 2-3 .4 163-165-167	63 2-3 .8 167-168-171	64 2-3 .9 171-171-173	51 51
126.0	63 2-3 .5 152-155-157	65 2-3 .8 157-159-161	68 2-3 .1 163-164-166	68 2-3 1.3 167-167-169	68 2-3 2.1 169-169-172	51 51
121.0	68 2-3 1.4 151-154-156	68 2-3 3.2 156-159-161	68 2 .0 144-151-153	68 2 .0 143-151-153	68 2 .0 141-151-153	51 51
116.0	68 .0 147-147-150	68 .0 147-147-150	68 .0 147-147-150	68 .0 147-147-150	68 .0 147-147-150	51 51
111.0	68 .0 143-144-147	68 .0 143-144-147	68 .0 143-144-147	68 .0 143-144-147	68 .0 143-144-147	51 51
106.0	68 .0 140-140-143	68 .0 140-140-143	68 .0 140-140-143	68 .0 140-140-143	68 .0 140-140-143	51 51
101.0	68 .0 136-137-140	68 .0 136-137-140	68 .0 136-137-140	68 .0 136-137-140	68 .0 136-137-140	51 51

OSDI
DAMASKUS
05R/23L

ELEV. = 2021 ft TORA = 3600 m
SLOPE = .00 % ASDA = 3600 m
TODA = 3600 m

15/15

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

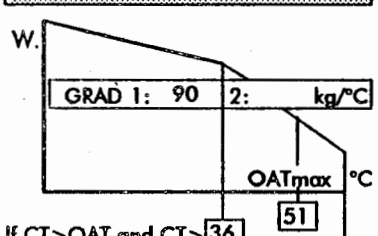
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1085 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>36
use Corr. Flex. T/O Temp. up to 67

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-2	-2.0	-12	-3

Minimum v_1: 117 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 3600 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	- -	- -	- -	
157.0	- -	- -	-6 2-2 .0 168-174-177	-4 2-2 .0 168-174-177	-4 2-2 .0 167-174-177	35
155.0	- -	1 2-6 .0 161-169-173	20 2-6 .1 163-170-174	33 2-6 .0 164-171-174	36 2-2 .9 167-174-177	37
153.0	-1 2-6 .0 154-164-168	18 2-6 .1 156-165-169	36 2-6 .3 159-167-170	36 2-6 1.7 163-171-174	38 2-2 1.0 167-173-176	39
151.0	15 2-6 .0 150-160-164	35 2-6 .1 152-162-165	39 2-6 .0 160-167-170	40 2-6 .5 164-171-174	40 2-2 .8 166-171-174	41
149.0	31 2-6 .1 147-157-161	36 2-6 1.9 152-161-165	41 2-6 .3 160-167-170	42 2-2 .6 164-170-173	42 2-2 .6 166-170-173	43 37
147.0	36 2-6 1.5 146-156-160	41 2-6 .1 153-162-165	43 2-6 .6 161-167-170	44 2-2 .3 164-169-172	44 2-2 .3 164-169-172	45 39
145.0	40 2-6 .5 147-156-160	43 2-6 .5 154-162-165	46 2-6 .0 162-167-170	46 2-2 .1 164-168-171	46 2-2 .1 162-168-171	46 41
143.0	43 2-6 .2 148-156-160	45 2-6 .8 155-162-165	47 2-2 1.0 162-167-170	47 2-2 1.0 163-167-170	47 2-2 1.0 162-167-170	48 43
141.0	45 2-6 .6 148-156-160	48 2-6 .3 156-162-165	49 2-2 .8 162-166-169	49 2-2 .8 161-166-169	49 2-2 .8 160-166-169	50 45
136.0	51 2-6 .7 150-157-160	54 2-3 .0 156-161-164	54 2-2 .6 159-163-166	54 2-2 .6 158-163-166	54 2-2 .6 156-163-166	51 49
131.0	57 2-3 .6 150-155-158	59 2-2 .6 155-160-163	59 2-2 .6 156-160-163	59 2-2 .6 154-160-163	59 2-2 .6 153-160-163	51 51
126.0	63 2-3 .4 149-154-157	64 2-2 .6 153-157-160	64 2-2 .6 152-157-160	64 2-2 .6 151-157-160	64 2-2 .6 149-157-160	51 51
121.0	68 2-3 1.1 148-153-155	68 2-2 1.6 151-154-157	68 2-2 1.6 149-154-157	68 2-2 1.6 148-154-157	68 2-2 1.6 146-154-157	51 51
116.0	68 2 .0 127-137-141	68 2 .0 127-137-141	68 2 .0 127-137-141	68 2 .0 127-137-141	68 2 .0 127-137-141	51 51
111.0	68 .0 131-132-136	68 .0 131-132-136	68 .0 131-132-136	68 .0 131-132-136	68 .0 131-132-136	51 51
106.0	68 .0 128-129-133	68 .0 128-129-133	68 .0 128-129-133	68 .0 128-129-133	68 .0 128-129-133	51 51
101.0	68 .0 125-125-130	68 .0 125-125-130	68 .0 125-125-130	68 .0 125-125-130	68 .0 125-125-130	51 51

LCLK LARNACA 22

ELEV. = 8 ft TORA = 2700 m
SLOPE = .00 % ASDA = 2700 m
TODA = 4000 m

15/00

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

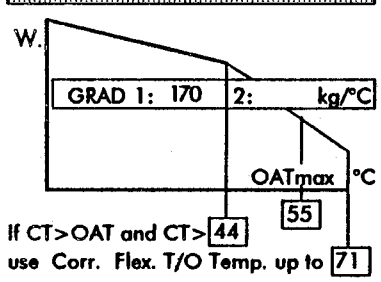
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1013 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>44
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-10	-5.0	-10	-3

Minimum v_1: 119 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1600 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	- -	- -	6 2-3 .0 168-172-177	44
157.0	- -	- -	- -	4 2-3 .2 165-169-174	20 2-3 .1 166-170-174	45
155.0	- -	- -	- -	15 3-3 .1 163-168-172	32 3-3 .0 164-168-172	47
153.0	- -	- -	7 3-3 .1 162-167-171	24 3-3 .0 162-167-171	41 3-3 .0 163-167-171	48 44
151.0	- -	- -	16 3-3 .1 160-166-170	32 3-3 .2 161-166-170	44 3-3 1.3 163-167-171	49 45
149.0	- -	0 3-3 .2 158-164-169	25 3-3 .0 159-165-169	41 3-3 .2 160-165-169	48 3-3 .0 161-165-169	51 46
147.0	- -	9 3-3 .1 157-163-168	34 3-3 .0 158-164-168	44 3-3 1.5 160-164-168	50 2-2 .3 151-164-168	52 48
145.0	- -	18 3-3 .0 155-162-166	43 3-3 .0 157-162-166	48 3-3 .2 158-163-167	51 2-2 1.2 156-164-168	53 49
143.0	4 3-3 .1 153-161-165	26 3-3 .2 154-161-165	44 3-3 1.7 157-162-166	50 3-3 .6 158-162-166	53 2-3 .8 161-164-167	55 51
141.0	13 3-3 .1 152-160-164	36 3-3 .0 153-160-164	48 3-3 .5 155-161-164	53 3-3 .2 157-161-164	55 2-3 .5 160-163-167	55 52
136.0	35 3-3 .1 149-157-161	44 3-3 3.2 152-159-163	54 3-3 .7 154-158-162	58 2-3 .4 156-159-162	59 2-3 .8 160-162-165	55 55
131.0	44 3-3 3.1 148-156-160	54 3-3 .1 149-155-159	60 3-3 .4 152-156-159	62 2-3 .8 155-158-161	64 2-3 .0 159-161-163	55 55
126.0	54 3-3 .1 145-152-156	59 3-3 .8 148-153-156	65 2-3 1.0 150-154-156	67 2-3 .1 154-157-159	68 2-3 .3 158-160-162	55 55
121.0	59 3-3 .8 143-150-153	65 3-3 .8 146-150-153	70 2-3 .3 150-153-155	71 2-3 .6 154-156-158	72 2-3 .7 158-159-161	55 55
116.0	66 3-3 .2 141-147-150	72 3-3 .3 144-147-150	72 2-3 3.1 149-152-154	72 2-3 4.4 154-156-158	72 .0 147-147-150	55 55
111.0	72 3-3 .7 140-144-147	72 .0 143-144-147	72 .0 143-144-147	72 .0 143-144-147	72 .0 143-144-147	55 55
106.0	72 .0 140-140-143	72 .0 140-140-143	72 .0 140-140-143	72 .0 140-140-143	72 .0 140-140-143	55 55
101.0	72 .0 136-137-140	72 .0 136-137-140	72 .0 136-137-140	72 .0 136-137-140	72 .0 136-137-140	55 55

LCLK LARNACA 22

ELEV. = 8 ft TORA = 2700 m
SLOPE = .00 % ASDA = 2700 m
TODA = 4000 m

15/15

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

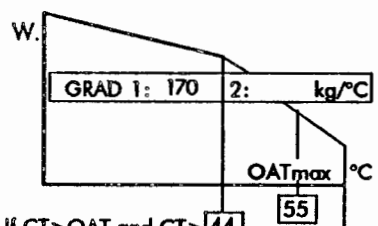
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1013 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT> 44
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-8	-5.5	-12	-3

Minimum v_1: 117 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1600 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	- -	- -	1 2-3 .0 167-173-177	44 -
157.0	- -	- -	- -	7 2-3 .1 162-168-172	20 2-3 .0 163-169-173	45
155.0	- -	- -	12 2-3 .0 157-164-168	25 2-3 .0 158-165-168	38 2-3 .0 159-166-169	47
153.0	- -	8 2-3 .1 152-159-164	29 2-3 .1 154-160-165	42 2-3 .1 155-161-165	44 2-3 1.2 158-164-168	48 44
151.0	5 2-3 .1 147-155-160	25 2-3 .1 148-156-160	44 2-3 .2 151-158-162	44 2-3 1.7 154-161-165	46 2-3 .9 158-164-168	49 45
149.0	19 2-3 .2 145-153-157	41 2-3 .1 146-153-158	45 2-3 1.1 151-158-162	47 2-3 .3 154-161-164	48 2-3 .5 158-164-167	51 46
147.0	31 3-3 .1 143-151-155	44 2-3 1.6 145-153-157	47 2-3 .8 150-157-161	48 2-3 1.1 154-160-164	50 2-3 .1 158-163-167	52 48
145.0	40 3-3 .1 142-150-154	47 2-3 .3 145-152-156	49 2-3 .5 150-157-161	50 2-3 .8 154-160-164	51 2-3 1.0 158-163-167	53 49
143.0	44 3-3 1.1 141-149-154	49 2-3 .1 145-151-156	51 2-3 .2 150-156-160	52 2-3 .5 154-160-163	53 2-3 .6 158-163-166	55 51
141.0	47 3-3 .8 141-148-153	50 2-3 1.0 144-151-156	52 2-3 1.1 150-156-160	54 2-3 .1 154-159-163	55 2-3 .2 157-162-166	55 52
136.0	53 2-3 .3 139-146-150	55 2-3 .3 144-150-155	57 2-3 .3 149-155-159	58 2-3 .4 153-158-161	59 2-3 .5 157-161-164	55 55
131.0	57 2-3 .9 139-145-149	59 2-3 .8 143-149-153	61 2-3 .7 149-154-157	62 2-3 .7 153-157-160	63 2-2 .6 156-160-163	55 55
126.0	62 2-3 .4 138-144-148	64 2-3 .2 143-148-151	65 2-3 1.1 148-153-156	66 2-3 1.1 152-156-159	67 2-2 .1 153-156-159	55 55
121.0	66 2-3 1.0 137-143-146	68 2-3 .7 142-147-150	70 2-3 .3 148-151-154	70 2-2 1.0 150-154-157	70 2-2 1.0 150-154-157	55 55
116.0	71 2-3 .5 136-142-145	72 2-3 1.2 141-146-149	72 2-3 3.0 147-151-154	72 2-2 3.3 149-152-155	72 2-2 3.3 148-152-155	55 55
111.0	72 2-3 4.4 136-141-145	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	55 55
106.0	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	55 55
101.0	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	55 55

LCLK LARNACA 04

ELEV. = 8 ft TORA = 2700 m
SLOPE = .00 % ASDA = 2700 m
TODA = 4000 m

15/00

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

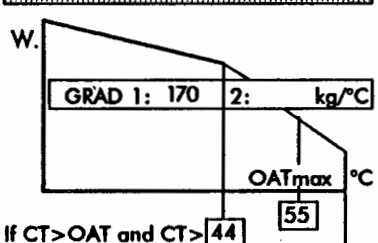
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1013 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>44
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-10	-5.0	-10	-3

Minimum v_1: 119 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1600 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	- -	- -	6 2-3 .0 168-172-177	44
157.0	- -	- -	- -	4 2-3 .2 165-169-174	20 2-3 .1 166-170-174	45
155.0	- -	- -	- -	15 3-3 .1 163-168-172	32 3-3 .0 164-168-172	47
153.0	- -	- -	7 3-3 .1 162-167-171	24 3-3 .0 162-167-171	41 3-3 .0 163-167-171	48 44
151.0	- -	- -	16 3-3 .1 160-166-170	32 3-3 .2 161-166-170	44 3-3 1.3 163-167-171	49 45
149.0	- -	0 3-3 .2 158-164-169	25 3-3 .0 159-165-169	41 3-3 .2 160-165-169	48 3-3 .0 161-165-169	51 46
147.0	- -	9 3-3 .1 157-163-168	34 3-3 .0 158-164-168	44 3-3 1.5 160-164-168	50 2-2 .3 151-164-168	52 48
145.0	- -	18 3-3 .0 155-162-166	43 3-3 .0 157-162-166	48 3-3 .2 158-163-167	51 2-2 1.2 156-164-168	53 49
143.0	4 3-3 .1 153-161-165	26 3-3 .2 154-161-165	44 3-3 1.7 157-162-166	50 3-3 .6 158-162-166	53 2-3 .8 161-164-167	55 51
141.0	13 3-3 .1 152-160-164	36 3-3 .0 153-160-164	48 3-3 .5 155-161-164	53 3-3 .2 157-161-164	55 2-3 .5 160-163-167	55 52
136.0	35 3-3 .1 149-157-161	44 3-3 3.2 152-159-163	54 3-3 .7 154-158-162	58 2-3 .4 156-159-162	59 2-3 .8 160-162-165	55 55
131.0	44 3-3 3.1 148-156-160	54 3-3 .1 149-155-159	60 3-3 .4 152-156-159	62 2-3 .8 155-158-161	64 2-3 .0 159-161-163	55 55
126.0	54 3-3 .1 145-152-156	59 3-3 .8 148-153-156	65 2-3 1.0 150-154-156	67 2-3 .1 154-157-159	68 2-3 .3 158-160-162	55 55
121.0	59 3-3 .8 143-150-153	65 3-3 .8 146-150-153	70 2-3 .3 150-153-155	71 2-3 .6 154-156-158	72 2-3 .7 158-159-161	55 55
116.0	66 3-3 .2 141-147-150	72 3-3 .3 144-147-150	72 2-3 3.1 149-152-154	72 2-3 4.4 154-156-158	72 .0 147-147-150	55 55
111.0	72 3-3 .7 140-144-147	72 .0 143-144-147	72 .0 143-144-147	72 .0 143-144-147	72 .0 143-144-147	55 55
106.0	72 .0 140-140-143	72 .0 140-140-143	72 .0 140-140-143	72 .0 140-140-143	72 .0 140-140-143	55 55
101.0	72 .0 136-137-140	72 .0 136-137-140	72 .0 136-137-140	72 .0 136-137-140	72 .0 136-137-140	55 55

LCLK
LARNACA
04

ELEV. = 8 ft TORA = 2700 m
SLOPE = .00 % ASDA = 2700 m
TODA = 4000 m

15/15

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

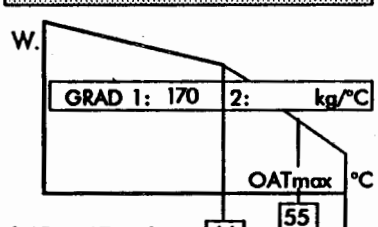
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1013 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT> 44
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-8	-5.5	-12	-3

Minimum v_1: 117 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1600 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	- -	- -	1 2-3 .0 167-173-177	44
157.0	- -	- -	- -	7 2-3 .1 162-168-172	20 2-3 .0 163-169-173	45
155.0	- -	- -	12 2-3 .0 157-164-168	25 2-3 .0 158-165-168	38 2-3 .0 159-166-169	47
153.0	- -	8 2-3 .1 152-159-164	29 2-3 .1 154-160-165	42 2-3 .1 155-161-165	44 2-3 1.2 158-164-168	48 44
151.0	5 2-3 .1 147-155-160	25 2-3 .1 148-156-160	44 2-3 .2 151-158-162	44 2-3 1.7 154-161-165	46 2-3 .9 158-164-168	49 45
149.0	19 2-3 .2 145-153-157	41 2-3 .1 146-153-158	45 2-3 1.1 151-158-162	47 2-3 .3 154-161-164	48 2-3 .5 158-164-167	51 46
147.0	31 3-3 .1 143-151-155	44 2-3 1.6 145-153-157	47 2-3 .8 150-157-161	48 2-3 1.1 154-160-164	50 2-3 .1 158-163-167	52 48
145.0	40 3-3 .1 142-150-154	47 2-3 .3 145-152-156	49 2-3 .5 150-157-161	50 2-3 .8 154-160-164	51 2-3 1.0 158-163-167	53 49
143.0	44 3-3 1.1 141-149-154	49 2-3 .1 145-151-156	51 2-3 .2 150-156-160	52 2-3 .5 154-160-163	53 2-3 .6 158-163-166	55 51
141.0	47 3-3 .8 141-148-153	50 2-3 1.0 144-151-156	52 2-3 1.1 150-156-160	54 2-3 .1 154-159-163	55 2-3 .2 157-162-166	55 52
136.0	53 2-3 .3 139-146-150	55 2-3 .3 144-150-155	57 2-3 .3 149-155-159	58 2-3 .4 153-158-161	59 2-3 .5 157-161-164	55 55
131.0	57 2-3 .9 139-145-149	59 2-3 .8 143-149-153	61 2-3 .7 149-154-157	62 2-3 .7 153-157-160	63 2-2 .6 156-160-163	55 55
126.0	62 2-3 .4 138-144-148	64 2-3 .2 143-148-151	65 2-3 1.1 148-153-156	66 2-3 1.1 152-156-159	67 2-2 .1 153-156-159	55 55
121.0	66 2-3 1.0 137-143-146	68 2-3 .7 142-147-150	70 2-3 .3 148-151-154	70 2-2 1.0 150-154-157	70 2-2 1.0 150-154-157	55 55
116.0	71 2-3 .5 136-142-145	72 2-3 1.2 141-146-149	72 2-3 3.0 147-151-154	72 2-2 3.3 149-152-155	72 2-2 3.3 148-152-155	55 55
111.0	72 2-3 4.4 136-141-145	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	55 55
106.0	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	55 55
101.0	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	55 55

LCPH PAPHOS 29

ELEV. = 39 ft TORA = 2700 m
SLOPE = .00 % ASDA = 2700 m
TODA = 4000 m

15/00

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

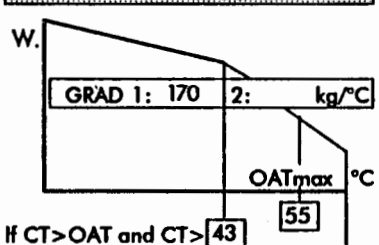
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1014 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>43
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-10	-5.0	-10	-3

Minimum v_1: 119 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1600 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	- -	- -	5 2-3 .0 169-172-177	44
157.0	- -	- -	- -	4 2-3 .1 165-169-174	20 2-3 .0 166-170-174	45
155.0	- -	- -	-2 3-3 .1 163-168-172	14 3-3 .2 164-168-172	31 3-3 .1 164-168-172	46
153.0	- -	- -	7 3-3 .1 162-167-171	23 3-3 .1 162-167-171	40 3-3 .1 163-167-171	48 43
151.0	- -	- -	15 3-3 .2 161-166-170	32 3-3 .1 161-166-170	43 3-3 1.4 163-167-171	49 45
149.0	- -	0 3-3 .1 158-164-169	24 3-3 .2 159-165-169	41 3-3 .1 160-165-169	47 3-3 .7 162-165-169	51 46
147.0	- -	8 3-3 .2 157-163-168	33 3-3 .1 158-164-168	43 3-3 1.6 160-165-168	50 2-3 .2 161-164-168	52 48
145.0	- -	17 3-3 .2 156-162-167	42 3-3 .1 157-163-167	48 3-3 .1 158-163-166	51 2-3 1.0 161-164-167	53 49
143.0	4 3-3 .0 153-161-165	26 3-3 .1 154-161-165	43 3-3 1.9 157-162-166	50 3-3 .4 158-162-166	53 2-3 .7 160-164-167	55 51
141.0	12 3-3 .2 152-160-164	35 3-3 .1 153-160-164	48 3-3 .4 155-161-164	53 3-3 .1 157-161-164	55 2-3 .3 160-163-167	55 52
136.0	35 3-3 .0 149-157-161	43 3-3 3.4 152-159-163	54 3-3 .6 154-158-162	58 2-3 .3 156-159-162	59 2-3 .7 159-162-165	55 55
131.0	43 3-3 3.3 148-156-160	53 3-3 .8 149-155-159	60 3-3 .3 152-156-159	62 2-3 .7 155-158-161	63 2-3 1.1 159-161-164	55 55
126.0	53 3-3 .7 145-152-156	59 3-3 .6 148-153-156	65 2-3 .9 150-154-156	67 2-3 .0 154-156-159	68 2-3 .3 158-160-162	55 55
121.0	59 3-3 .7 143-150-153	65 3-3 .7 146-150-153	70 2-3 .3 150-152-155	71 2-3 .5 154-156-158	72 2-3 .7 158-159-161	55 55
116.0	66 3-3 .1 141-147-150	72 3-3 .3 144-147-150	72 2-3 3.1 149-152-154	72 2-3 4.4 154-156-158	72 .0 147-147-150	55 55
111.0	72 3-3 .7 140-144-147	72 .0 143-144-147	72 .0 143-144-147	72 .0 143-144-147	72 .0 143-144-147	55 55
106.0	72 .0 140-140-143	72 .0 140-140-143	72 .0 140-140-143	72 .0 140-140-143	72 .0 140-140-143	55 55
101.0	72 .0 136-137-140	72 .0 136-137-140	72 .0 136-137-140	72 .0 136-137-140	72 .0 136-137-140	55 55

LCPH
PAPHOS
29

ELEV. = 39 ft TORA = 2700 m
SLOPE = .00 % ASDA = 2700 m
TODA = 4000 m

15/15

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

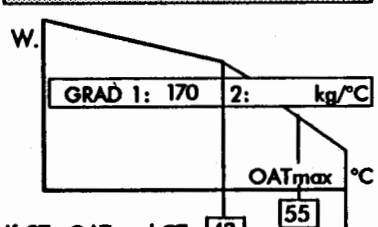
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1014 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT> 43
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-8	-5.5	-12	-3

Minimum v_1: 117 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1600 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	- -	- -	0 2-3 .1 168-173-177	44
157.0	- -	- -	- -	6 2-3 .1 162-168-172	19 2-3 .0 163-169-173	45
155.0	- -	- -	11 2-3 .1 157-164-168	24 2-3 .1 158-165-169	37 2-3 .0 159-166-169	46
153.0	- -	8 2-3 .0 152-159-164	29 2-3 .0 154-160-165	41 2-3 .1 155-162-165	43 2-3 1.3 158-164-168	48 43
151.0	5 2-3 .0 147-155-160	24 2-3 .1 149-156-161	43 2-3 .3 151-158-162	43 2-3 1.9 155-161-165	46 2-3 .7 158-164-168	49 45
149.0	19 2-3 .1 145-152-157	41 2-3 .0 146-153-157	45 2-3 .9 151-157-162	47 2-3 .1 154-160-164	48 2-3 .4 158-164-167	51 46
147.0	30 3-3 .2 143-151-155	43 2-3 1.8 145-153-157	47 2-3 .6 150-157-161	48 2-3 1.0 154-160-164	50 2-3 .0 158-163-167	52 48
145.0	39 3-3 .2 142-150-154	47 2-3 .2 145-152-156	49 2-3 .4 150-157-161	50 2-3 .6 154-160-164	51 2-3 .8 158-163-167	53 49
143.0	43 3-3 1.3 141-149-154	48 2-3 1.0 145-152-156	51 2-3 .1 150-156-160	52 2-3 .3 154-159-163	53 2-3 .5 158-163-166	55 51
141.0	47 3-3 .6 140-148-152	50 2-3 .8 144-151-156	52 2-3 .9 150-156-160	53 2-3 1.2 154-159-163	55 2-3 .1 157-162-166	55 52
136.0	53 2-3 .2 139-146-150	55 2-3 .2 144-150-154	57 2-3 .2 149-155-159	58 2-3 .3 153-158-161	59 2-3 .3 157-161-164	55 55
131.0	57 2-3 .8 139-145-149	59 2-3 .7 143-149-153	61 2-3 .6 149-154-157	62 2-3 .7 152-157-160	63 3-3 .5 156-160-163	55 55
126.0	62 2-3 .3 138-144-148	64 2-3 .1 143-148-151	65 2-3 1.0 148-153-156	66 2-3 1.0 152-156-159	67 2-2 .1 153-156-159	55 55
121.0	66 2-3 .9 137-143-146	68 2-3 .6 142-147-150	70 2-3 .2 147-151-154	70 2-2 1.0 150-154-157	70 2-2 1.0 150-154-157	55 55
116.0	71 2-3 .5 136-142-145	72 2-3 1.1 141-146-149	72 2-3 2.9 147-151-154	72 2-2 3.3 149-152-155	72 2-2 3.3 148-152-155	55 55
111.0	72 2-3 4.4 136-141-145	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	55 55
106.0	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	55 55
101.0	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	55 55

LCPH PAPHOS 11

ELEV. = 39 ft TORA = 2700 m
SLOPE = .00 % ASDA = 2700 m
TODA = 3375 m

15/00

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

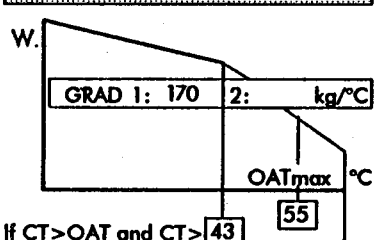
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1014 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT> 43
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-10	-5.0	-10	-3

Minimum v_1: 119 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1600 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	- -	- -	5 2-3 .0 169-172-177	44
157.0	- -	- -	- -	4 2-3 .1 165-169-174	20 2-3 .0 166-170-174	45
155.0	- -	- -	-2 3-3 .1 163-168-172	14 3-3 .2 164-168-172	31 3-3 .1 164-168-172	46
153.0	- -	- -	7 3-3 .1 162-167-171	23 3-3 .1 162-167-171	40 3-3 .1 163-167-171	48 43
151.0	- -	- -	15 3-3 .2 161-166-170	32 3-3 .1 161-166-170	43 3-3 1.4 163-167-171	49 45
149.0	- -	0 3-3 .1 158-164-169	24 3-3 .2 159-165-169	41 3-3 .1 160-165-169	47 3-3 .7 162-165-169	51 46
147.0	- -	8 3-3 .2 157-163-168	33 3-3 .1 158-164-168	43 3-3 1.6 160-165-168	50 2-3 .2 161-164-168	52 48
145.0	- -	17 3-3 .2 156-162-167	42 3-3 .1 157-163-167	48 3-3 .1 158-163-166	51 2-3 1.0 161-164-167	53 49
143.0	4 3-3 .0 153-161-165	26 3-3 .1 154-161-165	43 3-3 1.9 157-162-166	50 3-3 .4 158-162-166	53 2-3 .7 160-164-167	55 51
141.0	12 3-3 .2 152-160-164	35 3-3 .1 153-160-164	48 3-3 .4 155-161-164	53 3-3 .1 157-161-164	55 2-3 .3 160-163-167	55 52
136.0	35 3-3 .0 149-157-161	43 3-3 3.4 152-159-163	54 3-3 .6 154-158-162	58 2-3 .3 156-159-162	59 2-3 .7 159-162-165	55 55
131.0	43 3-3 3.3 148-156-160	53 3-3 .8 149-155-159	60 3-3 .3 152-156-159	62 2-3 .7 155-158-161	63 2-3 1.1 159-161-164	55 55
126.0	53 3-3 .7 145-152-156	59 3-3 .6 148-153-156	65 2-3 .9 150-154-156	67 2-3 .0 154-156-159	68 2-3 .3 158-160-162	55 55
121.0	59 3-3 .7 143-150-153	65 3-3 .7 146-150-153	70 2-3 .3 150-152-155	71 2-3 .5 154-156-158	72 2-3 .7 158-159-161	55 55
116.0	66 3-3 .1 141-147-150	72 3-3 .3 144-147-150	72 2-3 3.1 149-152-154	72 2-3 4.4 154-156-158	72 .0 147-147-150	55 55
111.0	72 3-3 .7 140-144-147	72 .0 143-144-147	72 .0 143-144-147	72 .0 143-144-147	72 .0 143-144-147	55 55
106.0	72 .0 140-140-143	72 .0 140-140-143	72 .0 140-140-143	72 .0 140-140-143	72 .0 140-140-143	55 55
101.0	72 .0 136-137-140	72 .0 136-137-140	72 .0 136-137-140	72 .0 136-137-140	72 .0 136-137-140	55 55

LCPH PAPHOS 11

ELEV. = 39 ft TORA = 2700 m
SLOPE = .00 % ASDA = 2700 m
TODA = 3375 m

15/15

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

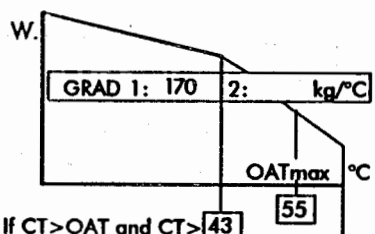
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1014 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>43
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-8	-5.5	-12	-3

Minimum v_1: 117 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1600 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	- -	- -	0 2-3 .1 168-173-177	44
157.0	- -	- -	- -	6 2-3 .1 162-168-172	19 2-3 .0 163-169-173	45
155.0	- -	- -	11 2-3 .1 157-164-168	24 2-3 .1 158-165-169	37 2-3 .0 159-166-169	46
153.0	- -	8 2-3 .0 152-159-164	29 2-3 .0 154-160-165	41 2-3 .1 155-162-165	43 2-3 1.3 158-164-168	48 43
151.0	5 2-3 .0 147-155-160	24 2-3 .1 149-156-161	43 2-3 .3 151-158-162	43 2-3 1.9 155-161-165	46 2-3 .7 158-164-168	49 45
149.0	19 2-3 .1 145-152-157	41 2-3 .0 146-153-157	45 2-3 .9 151-157-162	47 2-3 .1 154-160-164	48 2-3 .4 158-164-167	51 46
147.0	30 3-3 .2 143-151-155	43 2-3 1.8 145-153-157	47 2-3 .6 150-157-161	48 2-3 1.0 154-160-164	50 2-3 .0 158-163-167	52 48
145.0	39 3-3 .2 142-150-154	47 2-3 .2 145-152-156	49 2-3 .4 150-157-161	50 2-3 .6 154-160-164	51 2-3 .8 158-163-167	53 49
143.0	43 3-3 1.3 141-149-154	48 2-3 1.0 145-152-156	51 2-3 .1 150-156-160	52 2-3 .3 154-159-163	53 2-3 .5 158-163-166	55 51
141.0	47 3-3 .6 140-148-152	50 2-3 .8 144-151-156	52 2-3 .9 150-156-160	53 2-3 1.2 154-159-163	55 2-3 .1 157-162-166	55 52
136.0	53 2-3 .2 139-146-150	55 2-3 .2 144-150-154	57 2-3 .2 149-155-159	58 2-3 .3 153-158-161	59 2-3 .3 157-161-164	55 55
131.0	57 2-3 .8 139-145-149	59 2-3 .7 143-149-153	61 2-3 .6 149-154-157	62 2-3 .7 152-157-160	63 3-3 .5 156-160-163	55 55
126.0	62 2-3 .3 138-144-148	64 2-3 .1 143-148-151	65 2-3 1.0 148-153-156	66 2-3 1.0 152-156-159	67 2-2 .1 153-156-159	55 55
121.0	66 2-3 .9 137-143-146	68 2-3 .6 142-147-150	70 2-3 .2 147-151-154	70 2-2 1.0 150-154-157	70 2-2 1.0 150-154-157	55 55
116.0	71 2-3 .5 136-142-145	72 2-3 1.1 141-146-149	72 2-3 2.9 147-151-154	72 2-2 3.3 149-152-155	72 2-2 3.3 148-152-155	55 55
111.0	72 2-3 4.4 136-141-145	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	55 55
106.0	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	55 55
101.0	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	55 55

HECA
CAIRO
05L/23R

ELEV. = 380 ft TORA = 3300 m
SLOPE = .00 % ASDA = 3300 m
TODA = 3300 m

15/00

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

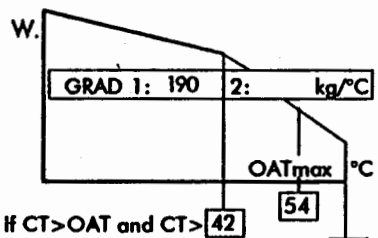
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1027 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT> 42
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-6	-4.5	-8	-3

Minimum v_1: 119 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1900 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	5 2-1 .1 170-173-177	19 2-6 .0 171-174-178	31 2-6 .1 172-175-179	
157.0	- -	0 2-6 .1 165-170-174	21 2-6 .1 166-170-174	33 2-6 .1 168-171-175	42 2-6 .4 170-173-177	43
155.0	- -	9 2-6 .2 164-168-172	32 2-6 .1 164-168-172	42 2-6 .7 166-169-173	45 2-6 .4 170-173-177	45
153.0	-3 6-6 .2 162-167-171	18 6-6 .1 162-167-171	40 2-6 .2 163-167-171	45 2-6 .7 166-169-173	47 2-6 .4 171-173-177	47
151.0	5 6-6 .1 160-166-170	26 6-6 .2 161-166-170	42 2-6 1.8 163-167-171	47 2-6 .8 167-170-174	49 2-3 .3 172-174-177	48 43
149.0	13 6-6 .0 159-165-169	34 6-6 .2 160-165-169	48 2-6 .1 164-166-170	49 2-3 .7 168-170-174	50 2-3 1.1 172-173-177	49 45
147.0	21 6-6 .1 157-164-168	42 6-6 .2 158-164-168	49 2-3 1.0 164-166-170	51 2-3 .4 167-169-173	52 2-3 .8 172-173-176	51 46
145.0	29 6-6 .1 156-162-167	47 6-6 .1 159-163-167	51 2-3 .8 164-166-169	53 2-3 .1 167-169-173	54 2-3 .4 172-173-176	52 48
143.0	37 6-6 .2 154-161-165	50 3-3 .1 158-162-165	53 2-3 .5 163-166-169	54 2-3 1.0 167-169-172	56 2-3 .1 171-172-175	54 49
141.0	42 6-6 .9 154-161-165	52 3-3 .6 158-161-165	55 2-3 .3 163-165-169	56 2-3 .7 167-168-172	57 2-3 1.0 171-172-175	54 51
136.0	52 3-3 .5 154-158-162	57 2-3 .7 157-160-163	59 2-3 .8 162-164-167	60 2-3 1.1 166-167-170	62 2-3 .2 170-170-173	54 54
131.0	58 3-3 .5 152-156-159	62 2-3 .3 156-158-161	64 2-3 .2 162-163-166	65 2-3 .4 166-166-169	66 2-3 .3 169-169-171	54 54
126.0	64 3-3 .6 150-153-156	66 2-3 .9 155-157-160	68 2-3 .7 161-162-164	69 2-3 .8 165-165-168	70 2-3 .5 167-167-170	54 54
121.0	69 2-3 .7 149-152-154	71 2-3 .5 155-156-158	71 2-3 2.4 161-161-164	71 2-3 3.5 165-165-167	71 2-3 4.3 167-167-169	54 54
116.0	71 2-3 3.6 149-151-154	71 .0 147-147-150	71 .0 147-147-150	71 .0 147-147-150	71 .0 147-147-150	54 54
111.0	71 .0 143-144-147	71 .0 143-144-147	71 .0 143-144-147	71 .0 143-144-147	71 .0 143-144-147	54 54
106.0	71 .0 140-140-143	71 .0 140-140-143	71 .0 140-140-143	71 .0 140-140-143	71 .0 140-140-143	54 54
101.0	71 .0 136-137-140	71 .0 136-137-140	71 .0 136-137-140	71 .0 136-137-140	71 .0 136-137-140	54 54

HECA
CAIRO
05L/23R

ELEV. = 380 ft TORA = 3300 m
SLOPE = .00 % ASDA = 3300 m
TODA = 3300 m

15/15

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

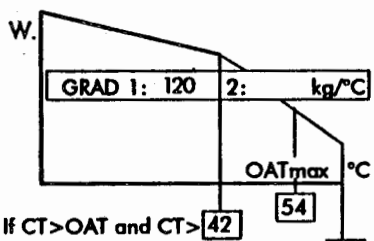
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1027 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>42
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-2	-2.0	-12	-3

Minimum v_1: 117 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1900 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	3 2-2 .1 170-174-178	14 2-2 .0 171-175-178	17 2-2 .0 172-175-179	
157.0	- -	4 2-3 .0 164-169-173	24 2-3 .0 166-170-174	34 2-3 .1 168-172-175	42 2-2 .3 170-174-177	43
155.0	2 2-3 .0 158-164-168	21 2-3 .1 160-165-169	39 2-6 .0 162-167-171	42 2-3 1.1 166-171-174	44 2-3 1.1 170-174-177	45
153.0	17 2-6 .1 154-161-165	36 2-6 .1 156-162-166	42 2-6 1.6 162-167-170	45 2-3 .7 166-170-173	46 2-2 .4 169-172-175	47
151.0	32 2-6 .1 150-158-162	42 2-6 1.2 155-161-165	46 2-3 .2 162-166-170	47 2-3 .4 166-170-173	47 2-2 1.0 168-172-175	48 43
149.0	42 2-6 .6 148-156-160	45 2-6 1.0 155-161-165	47 2-3 1.1 162-166-170	49 2-3 .1 166-169-173	49 2-2 .2 167-170-173	49 45
147.0	45 2-6 .6 149-156-160	47 2-3 .9 155-161-164	49 2-3 .8 162-166-169	50 2-3 .8 165-169-172	50 2-2 .9 166-169-172	51 46
145.0	47 2-6 .6 149-156-160	49 2-3 .6 155-160-164	51 2-3 .5 161-166-169	52 2-2 .1 164-168-171	52 2-2 .1 164-168-171	52 48
143.0	49 2-3 .5 149-155-159	51 2-3 .4 155-160-164	53 2-3 .2 161-165-169	53 2-2 .7 164-167-170	53 2-2 .7 163-167-170	54 49
141.0	51 2-3 .3 149-155-159	53 2-3 .1 155-160-163	54 2-3 1.1 161-165-168	54 2-2 1.3 163-166-169	54 2-2 1.3 162-166-169	54 51
136.0	55 2-3 .9 149-154-158	57 2-3 .7 154-159-162	58 2-2 1.1 160-163-166	58 2-2 1.1 159-163-166	58 2-2 1.1 158-163-166	54 54
131.0	60 2-3 .5 148-153-156	62 2-3 .1 154-157-161	62 2-2 .9 157-160-163	62 2-2 .9 156-160-163	62 2-2 .9 154-160-163	54 54
126.0	64 2-3 1.1 147-152-155	66 2-3 .6 153-156-159	66 2-2 .8 153-157-160	66 2-2 .8 152-157-160	66 2-2 .8 151-157-160	54 54
121.0	69 2-3 .6 147-150-154	70 2-2 .6 151-154-156	70 2-2 .6 149-154-156	70 2-2 .6 148-154-156	70 2-2 .6 147-154-156	54 54
116.0	71 2-3 3.4 146-150-153	71 2-2 4.3 150-153-156	71 2-2 4.3 148-153-156	71 2-2 4.3 147-153-156	71 2-2 4.3 146-153-156	54 54
111.0	71 .0 131-132-136	71 .0 131-132-136	71 .0 131-132-136	71 .0 131-132-136	71 .0 131-132-136	54 54
106.0	71 .0 128-129-133	71 .0 128-129-133	71 .0 128-129-133	71 .0 128-129-133	71 .0 128-129-133	54 54
101.0	71 .0 125-125-130	71 .0 125-125-130	71 .0 125-125-130	71 .0 125-125-130	71 .0 125-125-130	54 54

HECA
CAIRO
05R/23L

ELEV. = 380 ft TORA = 4000 m
SLOPE = .00 % ASDA = 4000 m
TODA = 4000 m

15/00

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

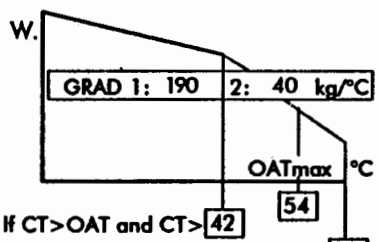
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1027 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>42
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-1	-0.5	-6	-1

Minimum v_1: 119 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1900 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0		5 2-1 .0 163-173-177	23 2-1 .0 164-174-178	34 2-1 .1 166-176-179	43 2-6 .1 168-178-181	
	- -					
157.0	0 2-6 .1 158-170-174	20 2-6 .1 159-170-174	38 2-6 .0 161-171-175	42 2-1 1.0 164-174-178	45 2-6 .4 169-178-181	43
155.0	10 2-6 .0 156-168-172	31 6-6 .2 157-168-172	42 2-6 1.4 161-171-175	45 2-6 .9 165-174-178	47 2-6 .3 170-178-182	45
153.0	18 6-6 .2 154-167-171	40 6-6 .0 155-167-171	46 2-6 .4 162-171-175	47 2-6 .8 166-174-178	49 2-6 .2 171-178-182	47
151.0	27 6-6 .0 153-166-170	42 6-6 1.5 155-167-171	48 2-6 .3 162-171-175	49 2-6 .8 167-175-178	50 2-6 1.1 172-178-182	48 43
149.0	35 6-6 .1 151-165-169	47 6-6 .8 156-166-170	50 2-6 .3 163-171-175	51 2-6 .6 168-175-178	52 2-6 .9 173-179-182	49 45
147.0	42 6-6 .4 150-164-168	49 2-6 .9 157-166-170	52 2-6 .2 164-171-175	53 2-6 .5 169-175-179	54 2-6 .7 174-179-182	51 46
145.0	46 6-6 .5 151-163-167	51 2-6 .9 157-166-170	54 2-6 .1 165-172-175	55 2-6 .4 170-175-179	56 2-6 .6 175-179-182	52 48
143.0	50 6-6 .4 151-162-166	53 2-6 .9 158-166-170	56 2-6 .0 166-172-175	57 2-6 .3 171-175-179	58 2-2 .3 176-179-182	54 49
141.0	53 2-6 .6 152-162-165	55 2-6 .9 159-167-170	57 2-6 1.0 166-172-175	59 2-6 .2 172-176-179	59 2-2 .9 176-178-181	54 51
136.0	58 2-5 .6 154-162-165	60 2-6 .9 162-167-170	62 2-6 .8 169-172-175	63 2-2 .5 173-175-178	63 2-2 .5 172-175-178	54 54
131.0	63 2-5 .3 156-161-163	65 2-5 .8 164-167-170	67 2-2 .0 170-171-174	67 2-2 .0 169-171-174	67 2-2 .0 169-171-174	54 54
126.0	67 2-5 1.1 157-160-163	70 2-5 .2 165-166-169	70 2-2 .9 167-169-171	70 2-2 .9 167-169-171	70 2-2 .9 166-169-171	54 54
121.0	71 2-5 1.7 157-160-162	71 2-5 4.0 165-166-168	71 2-2 4.6 166-168-171	71 2-2 4.6 166-168-171	71 2-2 4.6 165-168-171	54 54
116.0	71 .0 147-147-150	71 .0 147-147-150	71 .0 147-147-150	71 .0 147-147-150	71 .0 147-147-150	54 54
111.0	71 .0 143-144-147	71 .0 143-144-147	71 .0 143-144-147	71 .0 143-144-147	71 .0 143-144-147	54 54
106.0	71 .0 140-140-143	71 .0 140-140-143	71 .0 140-140-143	71 .0 140-140-143	71 .0 140-140-143	54 54
101.0	71 .0 136-137-140	71 .0 136-137-140	71 .0 136-137-140	71 .0 136-137-140	71 .0 136-137-140	54 54

HECA
CAIRO
05R/23L

ELEV. = 380 ft TORA = 4000 m
SLOPE = .00 % ASDA = 4000 m
TODA = 4000 m

15/15

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

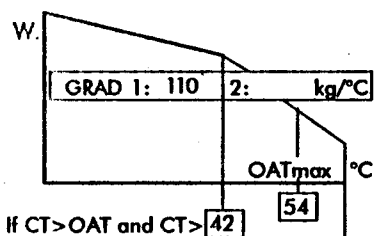
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1027 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT> 42
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-2	-2.0	-12	-3

Minimum v_1: 117 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1900 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	4 2-2 .0 162-174-178	17 2-2 .0 164-175-179	17 2-2 .0 165-175-179	17 2-2 .0 164-175-179	
157.0	5 2-6 .1 155-169-173	24 2-6 .1 157-171-174	40 2-2 .0 161-173-176	42 2-2 .6 163-175-178	42 2-2 .6 164-175-178	43
155.0	22 2-6 .1 151-166-169	39 2-6 .1 154-168-171	42 2-2 1.8 160-173-176	44 2-2 1.2 163-174-177	44 2-2 1.2 164-174-177	45
153.0	37 2-6 .1 148-163-166	42 2-6 1.7 153-167-171	46 2-2 .4 161-172-175	46 2-2 .4 162-172-175	46 2-2 .4 163-172-175	47
151.0	42 2-6 1.3 147-162-166	46 2-6 .5 154-167-170	47 2-2 1.0 161-172-175	47 2-2 1.0 162-172-175	47 2-2 1.0 162-172-175	48 43
149.0	46 2-6 .3 148-162-165	48 2-6 .4 155-167-171	49 2-2 .2 160-170-173	49 2-2 .2 161-170-173	49 2-2 .2 160-170-173	49 45
147.0	48 2-6 .2 149-162-165	50 2-6 .2 157-167-171	50 2-2 .9 160-169-172	50 2-2 .9 160-169-172	50 2-2 .9 159-169-172	51 46
145.0	50 2-6 .2 150-162-165	51 2-6 1.2 157-168-171	52 2-2 .1 159-168-171	52 2-2 .1 158-168-171	52 2-2 .1 157-168-171	52 48
143.0	52 2-6 .1 151-162-166	53 2-2 .7 157-167-170	53 2-2 .7 159-167-170	53 2-2 .7 157-167-170	53 2-2 .7 155-167-170	54 49
141.0	54 2-6 .1 152-162-166	54 2-2 1.3 157-166-169	54 2-2 1.3 158-166-169	54 2-2 1.3 156-166-169	54 2-2 1.3 154-166-169	54 51
136.0	58 2-5 .7 153-162-165	58 2-2 1.1 156-163-166	58 2-2 1.1 154-163-166	58 2-2 1.1 153-163-166	58 2-2 1.1 151-163-166	54 54
131.0	62 2-2 .9 154-160-163	62 2-2 .9 153-160-163	62 2-2 .9 151-160-163	62 2-2 .9 149-160-163	62 2-2 .9 148-160-163	54 54
126.0	66 2-2 .8 151-157-160	66 2-2 .8 149-157-160	66 2-2 .8 147-157-160	66 2-2 .8 145-157-160	66 2-2 .8 145-157-160	54 54
121.0	70 2-2 .6 147-154-156	70 2-2 .6 145-154-156	70 2-2 .6 143-154-156	70 2-2 .6 142-154-156	70 2-2 .6 142-154-156	54 54
116.0	71 2-2 4.3 146-153-156	71 2-2 4.3 144-153-156	71 2-2 4.3 141-153-156	71 2-2 4.3 141-153-156	71 2-2 4.3 141-153-156	54 54
111.0	71 .0 131-132-136	71 .0 131-132-136	71 .0 131-132-136	71 .0 131-132-136	71 .0 131-132-136	54 54
106.0	71 .0 128-129-133	71 .0 128-129-133	71 .0 128-129-133	71 .0 128-129-133	71 .0 128-129-133	54 54
101.0	71 .0 125-125-130	71 .0 125-125-130	71 .0 125-125-130	71 .0 125-125-130	71 .0 125-125-130	54 54

HECA CAIRO 34

ELEV. = 380 ft TORA = 3013 m
SLOPE = -1.60 % ASDA = 3013 m
TODA = 3013 m

15/00

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

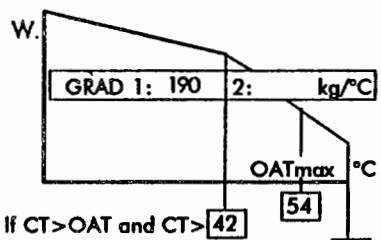
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1027 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT> 42
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-10	-5.0	-10	-3

Minimum v_1: 119 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1900 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	-2 2-6 .1 167-172-177	10 2-1 .0 167-172-178	23 2-1 .0 168-173-178	
157.0	- -	- -	12 2-6 .1 163-169-174	26 2-6 .1 164-169-174	37 2-6 .1 166-170-175	43
155.0	- -	1 6-6 .1 161-167-172	22 2-6 .1 161-167-172	36 2-6 .1 162-167-173	42 2-6 1.3 165-169-174	45
153.0	- -	9 6-6 .1 159-166-171	31 6-6 .0 160-166-171	42 2-6 1.0 161-167-171	46 2-6 .3 166-170-175	47
151.0	-3 6-6 .0 157-164-170	17 6-6 .1 158-165-170	39 6-6 .1 159-165-170	46 2-6 .6 162-166-171	48 2-6 .3 166-170-175	48 43
149.0	4 6-6 .2 156-163-169	25 6-6 .1 156-164-169	42 6-6 1.4 158-164-169	48 2-6 .7 163-166-171	50 2-6 .3 167-170-175	49 45
147.0	12 6-6 .1 154-162-168	33 6-6 .2 155-163-168	49 2-6 .0 159-163-168	50 2-6 .7 163-167-171	52 2-6 .2 168-170-175	51 46
145.0	20 6-6 .1 153-161-167	41 6-6 .2 154-162-167	51 2-6 .1 160-164-168	52 2-6 .6 164-167-171	53 2-3 1.0 168-170-175	52 48
143.0	28 6-6 .2 151-160-165	42 6-6 2.0 154-161-166	52 2-6 1.0 160-163-168	54 2-3 .4 164-167-171	55 2-3 .7 168-170-174	54 49
141.0	36 6-6 .2 150-159-164	50 6-6 .3 154-160-164	54 2-3 .8 160-163-168	56 2-3 .1 163-166-170	57 2-3 .4 167-169-174	54 51
136.0	42 6-6 3.8 149-158-163	56 3-3 1.0 153-158-162	59 2-3 .2 159-162-166	60 2-3 .5 163-165-169	61 2-3 .8 167-168-172	54 54
131.0	57 3-3 .0 149-154-159	61 2-3 .8 152-156-160	63 2-3 .8 158-161-165	64 2-3 1.0 162-164-168	66 2-3 .0 166-167-171	54 54
126.0	63 3-3 .1 147-152-156	66 2-3 .4 152-155-158	68 2-3 .2 157-160-163	69 2-3 .4 162-163-166	70 2-3 .4 166-166-169	54 54
121.0	69 3-3 .1 146-149-153	70 2-3 1.0 151-154-157	71 2-3 1.9 157-159-162	71 2-3 3.1 161-162-166	71 2-3 4.3 166-166-169	54 54
116.0	71 2-3 3.1 145-149-153	71 2-3 4.9 151-154-157	71 .0 145-146-150	71 .0 145-146-150	71 .0 145-146-150	54 54
111.0	71 .0 142-143-147	71 .0 142-143-147	71 .0 142-143-147	71 .0 142-143-147	71 .0 142-143-147	54 54
106.0	71 .0 139-139-143	71 .0 139-139-143	71 .0 139-139-143	71 .0 139-139-143	71 .0 139-139-143	54 54
101.0	71 .0 135-136-140	71 .0 135-136-140	71 .0 135-136-140	71 .0 135-136-140	71 .0 135-136-140	54 54

HECA CAIRO 34

ELEV. = 380 ft TORA = 3013 m
SLOPE = -1.60 % ASDA = 3013 m
TODA = 3013 m

15/15

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

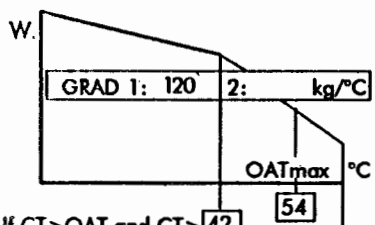
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1027 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT> 42
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-2	-2.0	-12	-3

Minimum v_1: 117 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1900 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	-2 2-6 .1 167-173-178	8 2-2 .0 168-174-178	16 2-2 .0 169-174-178	
157.0	- -	- -	15 2-6 .0 162-169-174	28 2-6 .0 163-170-174	38 2-6 .0 165-172-176	43
155.0	- -	12 2-6 .0 156-164-169	31 2-6 .1 158-166-170	42 2-6 .0 160-167-171	42 2-6 1.5 164-171-175	45
153.0	8 2-6 .1 150-159-165	28 2-6 .1 152-160-165	42 2-6 .5 155-163-168	44 2-6 .9 160-167-171	46 2-3 .3 166-171-175	47
151.0	23 2-6 .1 146-156-161	41 2-6 .1 149-158-163	45 2-6 .4 156-163-168	46 2-6 .9 161-167-172	47 2-3 1.0 165-170-174	48 43
149.0	37 2-6 .1 143-153-158	42 2-6 2.0 149-158-163	47 2-6 .4 157-164-168	48 2-3 .7 162-167-171	49 2-2 .2 164-169-173	49 45
147.0	42 2-6 1.3 142-152-157	47 2-6 .0 150-158-163	49 2-3 .2 158-164-168	50 2-3 .4 161-167-171	50 2-2 .9 164-168-172	51 46
145.0	46 2-6 .4 143-152-157	49 2-3 .0 151-158-163	50 2-3 1.1 158-163-168	51 2-3 1.2 161-167-171	52 2-2 .1 162-167-171	52 48
143.0	48 2-6 .6 144-152-158	50 2-3 .9 151-158-163	52 2-3 .8 157-163-167	53 2-2 .7 161-166-170	53 2-2 .7 162-166-170	54 49
141.0	50 2-6 .7 145-153-158	52 2-3 .7 151-158-162	54 2-3 .5 157-163-167	54 2-2 1.3 160-165-169	54 2-2 1.3 161-165-169	54 51
136.0	55 2-3 .4 145-152-157	57 2-3 .1 150-156-161	58 2-3 1.0 157-162-166	58 2-2 1.1 158-162-166	58 2-2 1.1 157-162-166	54 54
131.0	59 2-3 1.0 145-151-155	61 2-3 .7 150-155-159	62 2-2 .9 155-159-163	62 2-2 .9 155-159-163	62 2-2 .9 153-159-163	54 54
126.0	64 2-3 .6 144-149-154	66 2-3 .1 149-154-158	66 2-2 .8 152-156-160	66 2-2 .8 151-156-160	66 2-2 .8 150-156-160	54 54
121.0	69 2-3 .1 143-148-152	70 2-2 .6 148-152-156	70 2-2 .6 148-152-156	70 2-2 .6 147-152-156	70 2-2 .6 146-152-156	54 54
116.0	71 2-3 3.0 143-148-152	71 2-2 4.3 148-152-156	71 2-2 4.3 147-152-156	71 2-2 4.3 146-152-156	71 2-2 4.3 145-152-156	54 54
111.0	71 .0 130-131-136	71 .0 130-131-136	71 .0 130-131-136	71 .0 130-131-136	71 .0 130-131-136	54 54
106.0	71 .0 127-128-133	71 .0 127-128-133	71 .0 127-128-133	71 .0 127-128-133	71 .0 127-128-133	54 54
101.0	71 .0 124-124-130	71 .0 124-124-130	71 .0 124-124-130	71 .0 124-124-130	71 .0 124-124-130	54 54

HECA CAIRO 16

ELEV. = 380 ft TORA = 3013 m
SLOPE = 1.60 % ASDA = 3013 m
TODA = 3013 m

15/00

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

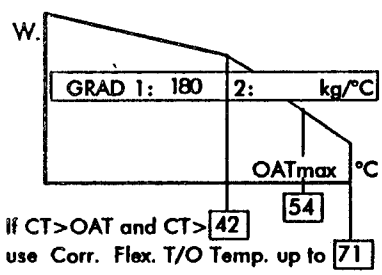
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1027 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>42
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-10	-5.0	-10	-3

Minimum v_1: 119 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1900 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	- -	- -	- -	
157.0	- -	- -	- -	-1 2-3 .0 170-170-173	12 2-3 .1 171-171-174	43
155.0	- -	- -	- -	9 2-3 .1 169-169-172	24 2-3 .0 169-169-172	45
153.0	- -	- -	2 3-3 .0 167-168-171	18 3-3 .2 168-168-171	34 3-3 .1 168-168-171	47
151.0	- -	- -	10 3-3 .2 166-167-170	27 3-3 .2 167-167-170	42 3-3 .4 167-167-170	48 43
149.0	- -	- -	19 3-3 .1 165-166-169	36 3-3 .0 165-166-169	45 3-3 .4 166-166-169	49 45
147.0	- -	3 3-3 .0 163-164-168	28 3-3 .1 164-165-168	42 3-3 .6 165-165-168	47 3-3 .7 165-165-168	51 46
145.0	- -	11 3-3 .2 162-163-167	36 3-3 .2 162-164-167	46 3-3 .1 164-164-167	49 3-3 .9 165-165-167	52 48
143.0	-3 3-3 .2 159-162-165	20 3-3 .1 160-162-165	42 3-3 .8 162-163-166	48 3-3 .5 163-163-166	51 3-3 1.1 164-164-166	54 49
141.0	6 3-3 .1 158-161-164	29 3-3 .1 159-161-164	46 3-3 .3 161-162-164	51 3-3 .2 162-162-164	53 2-3 .8 163-163-165	54 51
136.0	28 3-3 .1 155-158-161	42 3-3 2.1 157-160-162	52 3-3 .7 159-160-162	56 3-3 .6 160-160-162	57 2-3 1.1 162-162-164	54 54
131.0	42 3-3 1.8 153-156-160	51 3-3 .6 155-156-159	58 3-3 .7 157-157-159	61 2-3 .3 157-157-159	62 2-3 .4 160-160-161	54 54
126.0	51 3-3 .4 151-153-156	58 3-3 .1 153-154-156	63 3-3 1.0 155-155-156	65 2-3 .8 156-156-157	66 2-3 .8 158-158-159	54 54
121.0	58 3-3 .0 149-150-153	64 3-3 .4 151-151-153	69 3-3 .1 152-152-153	70 2-3 .2 154-154-155	71 2-3 .1 157-157-158	54 54
116.0	64 3-3 .5 147-148-150	70 3-3 .7 149-149-150	71 2-3 3.0 151-151-152	71 2-3 4.1 154-154-155	71 .0 148-148-150	54 54
111.0	71 3-3 .4 145-145-147	71 3-3 4.9 148-148-150	71 .0 145-145-147	71 .0 145-145-147	71 .0 145-145-147	54 54
106.0	71 .0 141-142-143	71 .0 141-142-143	71 .0 141-142-143	71 .0 141-142-143	71 .0 141-142-143	54 54
101.0	71 .0 137-138-140	71 .0 137-138-140	71 .0 137-138-140	71 .0 137-138-140	71 .0 137-138-140	54 54

HECA CAIRO 16

ELEV. = 380 ft TORA = 3013 m
SLOPE = 1.60 % ASDA = 3013 m
TODA = 3013 m

15/15

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

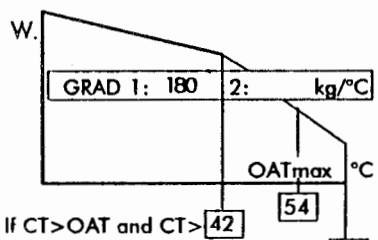
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1027 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>42
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-2	-2.0	-12	-3

Minimum v_1: 117 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1900 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	- -	- -	- -	
157.0	- -	- -	- -	- -	2 2-3 .1 170-170-173	43
155.0	- -	- -	-3 2-3 .0 165-165-168	9 2-3 .1 166-166-169	22 2-3 .1 167-167-169	45
153.0	- -	- -	15 2-3 .1 162-162-165	28 2-3 .1 162-162-165	39 2-3 .0 164-164-166	47
151.0	- -	10 2-3 .1 157-157-161	32 2-3 .0 158-158-162	42 2-3 .2 160-160-163	42 2-3 1.6 163-163-166	48 43
149.0	4 2-3 .1 153-154-157	27 2-3 .0 153-154-157	42 2-3 .6 156-157-160	44 2-3 1.0 160-160-163	46 2-3 .1 162-162-165	49 45
147.0	15 3-3 .2 151-152-155	38 2-3 .0 151-152-156	45 2-3 .3 156-156-159	46 2-3 .8 159-159-162	47 2-3 1.0 162-162-165	51 46
145.0	24 3-3 .2 149-151-154	42 2-3 1.3 151-151-155	47 2-3 .2 156-156-159	48 2-3 .5 159-159-162	49 2-3 .6 161-161-164	52 48
143.0	33 3-3 .1 148-149-153	46 2-3 .5 150-150-154	48 2-3 1.1 156-156-159	50 2-3 .2 158-158-161	51 2-3 .3 161-161-164	54 49
141.0	41 3-3 .2 147-148-152	48 2-3 .5 149-150-153	50 2-3 .9 155-155-158	51 2-3 1.1 158-158-161	53 2-3 .0 160-160-163	54 51
136.0	42 3-3 5.0 147-148-152	53 2-3 .2 149-149-152	55 2-3 .3 154-154-157	56 2-3 .3 156-156-159	57 2-3 .3 159-159-161	54 54
131.0	55 3-3 .6 144-144-147	57 2-3 .9 148-148-151	59 2-3 .7 152-152-155	60 2-3 .7 155-155-157	61 2-3 .7 157-157-159	54 54
126.0	60 2-3 .5 143-143-146	62 2-3 .5 146-146-149	64 2-3 .1 150-150-153	65 2-3 .0 153-153-155	65 2-3 1.1 156-156-158	54 54
121.0	65 2-3 .3 141-141-144	67 2-3 .0 145-145-147	68 2-3 .6 149-149-151	69 2-3 .5 151-151-153	70 2-3 .4 154-154-156	54 54
116.0	70 2-3 .1 140-140-142	71 2-3 .7 144-144-146	71 2-3 2.3 148-148-150	71 2-3 3.3 151-151-153	71 2-3 4.2 154-154-155	54 54
111.0	71 2-3 4.1 140-140-142	71 .0 133-133-136	71 .0 133-133-136	71 .0 133-133-136	71 .0 133-133-136	54 54
106.0	71 .0 129-130-133	71 .0 129-130-133	71 .0 129-130-133	71 .0 129-130-133	71 .0 129-130-133	54 54
101.0	71 .0 126-126-130	71 .0 126-126-130	71 .0 126-126-130	71 .0 126-126-130	71 .0 126-126-130	54 54

WSSS SINGAPORE CHANGI 02L

ELEV. = 20 ft TORA = 4000 m
SLOPE = .00 % ASDA = 4120 m
TODA = 4300 m

15/00

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

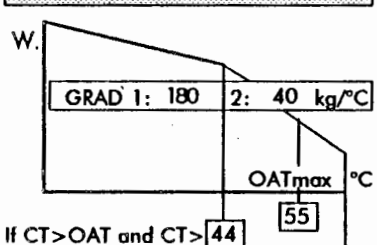
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1014 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>44
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-1	-0.5	-6	-1

Minimum v_1: 119 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1600 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	0 2-6 .1 158-172-176	18 2-6 .1 159-173-177	37 2-1 .0 161-174-178	44 2-6 .5 164-176-180	45 2-6 1.0 168-180-184	44
157.0	14 2-2 .2 154-169-173	33 2-6 .0 156-170-174	44 2-6 1.0 160-173-177	46 2-6 .4 165-177-180	47 2-6 .7 169-180-184	45
155.0	23 2-2 .1 153-168-172	44 6-6 .2 154-168-172	46 2-6 .9 161-173-177	48 2-6 .2 166-177-180	49 2-6 .5 171-181-184	47
153.0	31 6-6 .2 151-167-171	46 2-6 .6 155-168-172	48 2-6 .8 162-173-177	49 2-6 1.1 166-177-180	51 2-6 .2 172-181-184	48 43
151.0	40 6-6 .1 150-166-170	48 2-6 .5 156-168-172	50 2-6 .6 163-173-177	51 2-6 .9 167-177-181	52 2-6 1.0 172-181-184	49 45
149.0	44 5-5 1.1 149-165-169	50 2-6 .4 157-168-172	52 2-6 .4 164-174-177	53 2-6 .6 168-177-181	54 2-6 .7 174-181-184	51 46
147.0	49 6-6 .3 150-164-168	52 2-6 .2 158-168-172	54 2-6 .2 165-174-177	55 2-6 .3 169-178-181	56 2-6 .3 175-181-184	52 48
145.0	51 6-6 .8 151-164-167	54 2-6 .1 159-169-172	55 2-6 1.1 165-174-177	57 2-6 .1 171-178-181	57 2-2 1.0 175-181-184	53 49
143.0	53 2-5 .7 151-164-167	55 2-6 1.0 159-169-172	57 2-6 .8 166-174-177	58 2-6 .9 171-178-181	59 2-2 .1 175-179-182	55 51
141.0	55 2-5 .3 152-163-166	57 2-6 .8 160-169-172	59 2-6 .6 167-174-177	60 2-6 .7 172-178-181	60 2-2 .7 174-178-181	55 52
136.0	59 2-5 .9 153-162-165	62 2-5 .3 162-168-172	63 2-6 1.1 169-174-177	63 2-2 1.4 172-175-178	63 2-2 1.4 171-175-178	55 55
131.0	64 2-5 .3 155-162-164	66 2-5 .6 164-168-171	67 2-2 .7 169-172-175	67 2-2 .7 168-172-175	67 2-2 .7 167-172-175	55 55
126.0	68 2-5 .8 157-161-163	70 2-5 .9 165-167-170	70 2-2 1.4 166-169-172	70 2-2 1.4 165-169-172	70 2-2 1.4 164-169-172	55 55
121.0	72 2-5 1.3 157-161-163	72 2-5 3.5 165-167-169	72 2-2 3.5 164-167-170	72 2-2 3.5 163-167-170	72 2-2 3.5 162-167-170	55 55
116.0	72 .0 147-147-150	72 .0 147-147-150	72 .0 147-147-150	72 .0 147-147-150	72 .0 147-147-150	55 55
111.0	72 .0 143-144-147	72 .0 143-144-147	72 .0 143-144-147	72 .0 143-144-147	72 .0 143-144-147	55 55
106.0	72 .0 140-140-143	72 .0 140-140-143	72 .0 140-140-143	72 .0 140-140-143	72 .0 140-140-143	55 55
101.0	72 .0 136-137-140	72 .0 136-137-140	72 .0 136-137-140	72 .0 136-137-140	72 .0 136-137-140	55 55

WSSS SINGAPORE CHANGI 02L

ELEV. = 20 ft TORA = 4000 m
SLOPE = .00 % ASDA = 4120 m
TODA = 4300 m

15/15

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

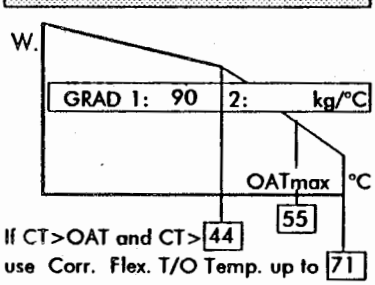
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1014 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>44
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-2	-2.0	-12	-3

Minimum v_1: 117 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1600 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	2 2-6 .1 156-173-177	20 2-2 .0 158-174-178	33 2-2 .0 160-175-178	34 2-2 .0 161-175-179	34 2-2 .0 162-175-179	44
157.0	20 2-6 .0 151-169-173	38 2-6 .1 154-171-174	44 2-6 1.2 160-175-178	44 2-2 1.3 161-175-178	44 2-2 1.3 162-175-178	45
155.0	37 2-6 .0 148-166-169	44 2-6 1.2 153-169-173	46 2-2 .5 159-173-177	46 2-2 .5 160-173-177	46 2-2 .5 161-173-177	47
153.0	44 2-6 1.0 146-164-168	46 2-6 1.1 154-170-173	47 2-2 1.0 159-173-176	47 2-2 1.0 160-173-176	47 2-2 1.0 161-173-176	48 43
151.0	46 2-6 .9 147-164-168	48 2-6 .8 155-170-173	49 2-2 .1 158-171-174	49 2-2 .1 159-171-174	49 2-2 .1 158-171-174	49 45
149.0	48 2-6 .8 148-164-168	50 2-6 .6 156-170-173	50 2-2 .7 158-170-173	50 2-2 .7 159-170-173	50 2-2 .7 157-170-173	51 46
147.0	50 2-5 .6 149-164-168	51 2-6 1.2 156-169-172	51 2-2 1.2 158-169-172	51 2-2 1.2 158-169-172	51 2-2 1.2 156-169-172	52 48
145.0	52 2-5 .2 150-164-168	53 2-2 .3 155-168-171	53 2-2 .3 157-168-171	53 2-2 .3 156-168-171	53 2-2 .3 155-168-171	53 49
143.0	53 2-5 1.0 150-164-167	54 2-2 .9 155-167-170	54 2-2 .9 156-167-170	54 2-2 .9 155-167-170	54 2-2 .9 154-167-170	55 51
141.0	55 2-5 .5 150-163-167	56 2-2 .0 155-165-168	56 2-2 .0 154-165-168	56 2-2 .0 152-165-168	56 2-2 .0 152-165-168	55 52
136.0	59 2-5 .9 152-163-166	59 2-2 1.0 154-163-166	59 2-2 1.0 152-163-166	59 2-2 1.0 150-163-166	59 2-2 1.0 150-163-166	55 55
131.0	63 2-2 .5 152-160-163	63 2-2 .5 150-160-163	63 2-2 .5 148-160-163	63 2-2 .5 147-160-163	63 2-2 .5 147-160-163	55 55
126.0	67 2-2 .1 148-156-159	67 2-2 .1 146-156-159	67 2-2 .1 144-156-159	67 2-2 .1 144-156-159	67 2-2 .1 144-156-159	55 55
121.0	70 2-2 1.0 145-154-157	70 2-2 1.0 143-154-157	70 2-2 1.0 142-154-157	70 2-2 1.0 142-154-157	70 2-2 1.0 142-154-157	55 55
116.0	72 2-2 3.3 143-152-155	72 2-2 3.3 141-152-155	72 2-2 3.3 141-152-155	72 2-2 3.3 141-152-155	72 2-2 3.3 141-152-155	55 55
111.0	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	55 55
106.0	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	55 55
101.0	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	55 55

WSSS SINGAPORE CHANGI 20R

ELEV. = 20 ft TORA = 4000 m
SLOPE = .00 % ASDA = 4060 m
TODA = 4300 m

15/00

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

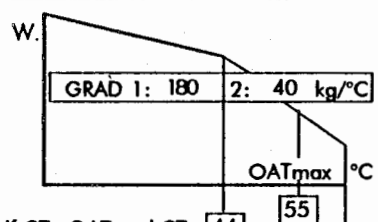
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1014 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>44
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-1	-0.5	-6	-1

Minimum v_1: 119 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1600 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	0 2-6 .1 158-172-176	18 2-6 .1 159-173-177	37 2-1 .0 161-174-178	44 2-6 .5 164-176-180	45 2-6 1.0 168-180-184	44
157.0	14 2-2 .2 154-169-173	33 2-6 .0 156-170-174	44 2-6 1.0 160-173-177	46 2-6 .4 165-177-180	47 2-6 .7 169-180-184	45
155.0	23 2-2 .1 153-168-172	44 6-6 .2 154-168-172	46 2-6 .9 161-173-177	48 2-6 .2 166-177-180	49 2-6 .5 171-181-184	47
153.0	31 6-6 .2 151-167-171	46 2-6 .6 155-168-172	48 2-6 .8 162-173-177	49 2-6 1.1 166-177-180	51 2-6 .2 172-181-184	48 43
151.0	40 6-6 .1 150-166-170	48 2-6 .5 156-168-172	50 2-6 .6 163-173-177	51 2-6 .9 167-177-181	52 2-6 1.0 172-181-184	49 45
149.0	44 5-5 1.1 149-165-169	50 2-6 .4 157-168-172	52 2-6 .4 164-174-177	53 2-6 .6 168-177-181	54 2-6 .7 174-181-184	51 46
147.0	49 6-6 .3 150-164-168	52 2-6 .2 158-168-172	54 2-6 .2 165-174-177	55 2-6 .3 169-178-181	56 2-6 .3 175-181-184	52 48
145.0	51 6-6 .8 151-164-167	54 2-6 .1 159-169-172	55 2-6 1.1 165-174-177	57 2-6 .1 171-178-181	57 2-2 1.0 175-181-184	53 49
143.0	53 2-5 .7 151-164-167	55 2-6 1.0 159-169-172	57 2-6 .8 166-174-177	58 2-6 .9 171-178-181	59 2-2 .1 175-179-182	55 51
141.0	55 2-5 .3 152-163-166	57 2-6 .8 160-169-172	59 2-6 .6 167-174-177	60 2-6 .7 172-178-181	60 2-2 .7 174-178-181	55 52
136.0	59 2-5 .9 153-162-165	62 2-5 .3 162-168-172	63 2-6 1.1 169-174-177	63 2-2 1.4 172-175-178	63 2-2 1.4 171-175-178	55 55
131.0	64 2-5 .3 155-162-164	66 2-5 .6 164-168-171	67 2-2 .7 169-172-175	67 2-2 .7 168-172-175	67 2-2 .7 167-172-175	55 55
126.0	68 2-5 .8 157-161-163	70 2-5 .9 165-167-170	70 2-2 1.4 166-169-172	70 2-2 1.4 165-169-172	70 2-2 1.4 164-169-172	55 55
121.0	72 2-5 1.3 157-161-163	72 2-5 3.5 165-167-169	72 2-2 3.5 164-167-170	72 2-2 3.5 163-167-170	72 2-2 3.5 162-167-170	55 55
116.0	72 .0 147-147-150	72 .0 147-147-150	72 .0 147-147-150	72 .0 147-147-150	72 .0 147-147-150	55 55
111.0	72 .0 143-144-147	72 .0 143-144-147	72 .0 143-144-147	72 .0 143-144-147	72 .0 143-144-147	55 55
106.0	72 .0 140-140-143	72 .0 140-140-143	72 .0 140-140-143	72 .0 140-140-143	72 .0 140-140-143	55 55
101.0	72 .0 136-137-140	72 .0 136-137-140	72 .0 136-137-140	72 .0 136-137-140	72 .0 136-137-140	55 55

WSSS SINGAPORE CHANGI 20R

ELEV. = 20 ft TORA = 4000 m
SLOPE = .00 % ASDA = 4060 m
TODA = 4300 m

15/15

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

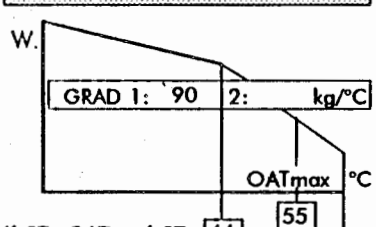
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1014 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>44
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-2	-2.0	-12	-3

Minimum v_1: 117 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1600 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	2 2-6 .1 156-173-177	20 2-2 .0 158-174-178	33 2-2 .0 160-175-178	34 2-2 .0 161-175-179	34 2-2 .0 162-175-179	44
157.0	20 2-6 .0 151-169-173	38 2-6 .1 154-171-174	44 2-6 1.2 160-175-178	44 2-2 1.3 161-175-178	44 2-2 1.3 162-175-178	45
155.0	37 2-6 .0 148-166-169	44 2-6 1.2 153-169-173	46 2-2 .5 159-173-177	46 2-2 .5 160-173-177	46 2-2 .5 161-173-177	47
153.0	44 2-6 1.0 146-164-168	46 2-6 1.1 154-170-173	47 2-2 1.0 159-173-176	47 2-2 1.0 160-173-176	47 2-2 1.0 161-173-176	48 43
151.0	46 2-6 .9 147-164-168	48 2-6 .8 155-170-173	49 2-2 .1 158-171-174	49 2-2 .1 159-171-174	49 2-2 .1 158-171-174	49 45
149.0	48 2-6 .8 148-164-168	50 2-6 .6 156-170-173	50 2-2 .7 158-170-173	50 2-2 .7 159-170-173	50 2-2 .7 157-170-173	51 46
147.0	50 2-5 .6 149-164-168	51 2-6 1.2 156-169-172	51 2-2 1.2 158-169-172	51 2-2 1.2 158-169-172	51 2-2 1.2 156-169-172	52 48
145.0	52 2-5 .2 150-164-168	53 2-2 .3 155-168-171	53 2-2 .3 157-168-171	53 2-2 .3 156-168-171	53 2-2 .3 155-168-171	53 49
143.0	53 2-5 1.0 150-164-167	54 2-2 .9 155-167-170	54 2-2 .9 156-167-170	54 2-2 .9 155-167-170	54 2-2 .9 154-167-170	55 51
141.0	55 2-5 .5 150-163-167	56 2-2 .0 155-165-168	56 2-2 .0 154-165-168	56 2-2 .0 152-165-168	56 2-2 .0 152-165-168	55 52
136.0	59 2-5 .9 152-163-166	59 2-2 1.0 154-163-166	59 2-2 1.0 152-163-166	59 2-2 1.0 150-163-166	59 2-2 1.0 150-163-166	55 55
131.0	63 2-2 .5 152-160-163	63 2-2 .5 150-160-163	63 2-2 .5 148-160-163	63 2-2 .5 147-160-163	63 2-2 .5 147-160-163	55 55
126.0	67 2-2 .1 148-156-159	67 2-2 .1 146-156-159	67 2-2 .1 144-156-159	67 2-2 .1 144-156-159	67 2-2 .1 144-156-159	55 55
121.0	70 2-2 1.0 145-154-157	70 2-2 1.0 143-154-157	70 2-2 1.0 142-154-157	70 2-2 1.0 142-154-157	70 2-2 1.0 142-154-157	55 55
116.0	72 2-2 3.3 143-152-155	72 2-2 3.3 141-152-155	72 2-2 3.3 141-152-155	72 2-2 3.3 141-152-155	72 2-2 3.3 141-152-155	55 55
111.0	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	55 55
106.0	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	55 55
101.0	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	55 55

WSSS SINGAPORE CHANGI 02R/20L

ELEV. = 20 ft TORA = 3355 m
SLOPE = .00 % ASDA = 3415 m
TODA = 3415 m

15/00

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

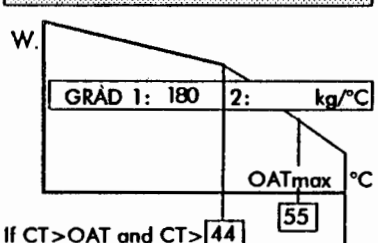
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1014 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT> 44
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-6	-4.5	-8	-3

Minimum v_1: 119 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1600 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	14 2-6 .1 168-173-177	27 2-1 .0 169-174-178	39 2-1 .0 170-175-178	44
157.0	- -	7 2-6 .1 164-170-174	29 2-6 .2 165-170-174	43 2-6 .0 166-170-174	44 2-6 1.4 169-174-178	45
155.0	- -	17 6-6 .1 162-168-172	39 2-6 .2 163-168-172	44 2-6 1.8 166-170-174	47 2-6 .4 171-174-178	47
153.0	4 6-6 .2 160-167-171	25 6-6 .2 161-167-171	44 6-6 1.1 162-168-172	47 2-6 .8 167-171-175	49 2-6 .3 172-175-178	48 43
151.0	12 6-6 .1 159-166-170	34 6-6 .1 159-166-170	48 2-6 .1 163-168-171	49 2-6 .7 168-171-175	51 2-6 .1 173-175-179	49 45
149.0	20 6-6 .2 157-165-169	42 6-6 .2 158-165-169	50 2-6 .1 164-168-172	51 2-6 .6 169-171-175	52 2-6 1.0 174-175-179	51 46
147.0	28 6-6 .2 156-164-168	44 6-6 1.7 158-165-169	52 2-6 .0 165-168-172	53 2-6 .5 170-172-175	54 2-3 .8 175-176-179	52 48
145.0	37 6-6 .1 154-162-166	51 6-6 .1 159-163-167	53 2-6 .9 165-168-172	55 2-3 .1 170-172-175	56 2-3 .3 174-175-178	53 49
143.0	44 6-6 .4 153-162-166	53 2-6 .5 160-163-167	55 2-3 .6 166-168-172	56 2-3 .9 170-171-175	57 2-3 1.1 174-175-178	55 51
141.0	48 6-6 .4 154-161-164	55 2-3 .3 160-163-166	57 2-3 .3 165-167-171	58 2-3 .5 169-171-174	59 2-3 .7 174-174-177	55 52
136.0	56 3-3 .9 154-159-162	59 2-3 .7 159-162-165	61 2-3 .5 165-166-169	62 2-3 .7 169-169-173	63 2-3 .7 173-173-176	55 55
131.0	62 2-3 .1 153-156-159	63 2-3 1.0 158-161-164	65 2-3 .8 164-165-168	66 2-3 .8 168-168-171	67 2-3 .5 171-171-174	55 55
126.0	66 2-3 .6 152-155-158	68 2-3 .2 158-160-162	69 2-3 1.0 164-164-167	70 2-3 .9 167-167-170	70 2-2 1.4 169-169-172	55 55
121.0	70 2-3 1.1 152-154-157	72 2-3 .6 157-159-161	72 2-3 2.4 163-164-166	72 2-3 3.4 167-167-169	72 2-2 3.5 167-167-170	55 55
116.0	72 2-3 3.8 151-154-156	72 .0 147-147-150	72 .0 147-147-150	72 .0 147-147-150	72 .0 147-147-150	55 55
111.0	72 .0 143-144-147	72 .0 143-144-147	72 .0 143-144-147	72 .0 143-144-147	72 .0 143-144-147	55 55
106.0	72 .0 140-140-143	72 .0 140-140-143	72 .0 140-140-143	72 .0 140-140-143	72 .0 140-140-143	55 55
101.0	72 .0 136-137-140	72 .0 136-137-140	72 .0 136-137-140	72 .0 136-137-140	72 .0 136-137-140	55 55

WSSS SINGAPORE CHANGI 02R/20L

ELEV. = 20 ft TORA = 3355 m
SLOPE = .00 % ASDA = 3415 m
TODA = 3415 m

15/15

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

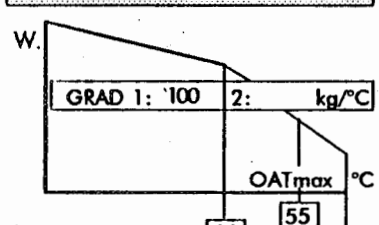
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1014 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>44
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-2	-2.0	-12	-3

Minimum v_1: 117 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1600 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	15 2-6 .1 169-174-178	28 2-2 .0 170-175-178	34 2-2 .0 171-175-179	44
157.0	- -	13 2-6 .1 162-169-173	33 2-6 .1 164-170-174	44 2-6 .1 166-172-175	44 2-2 1.3 170-175-178	45
155.0	11 2-6 .0 156-164-168	31 2-6 .0 158-165-169	44 2-6 .6 162-168-171	45 2-6 1.0 166-172-175	46 2-2 .5 169-173-177	47
153.0	27 2-6 .0 152-160-164	44 2-6 .3 155-162-166	46 2-6 .6 163-168-172	47 2-6 .9 168-172-175	47 2-2 1.0 169-173-176	48 43
151.0	43 2-6 .0 148-157-161	46 2-6 .2 156-163-166	48 2-6 .4 164-169-172	49 2-2 .1 167-171-174	49 2-2 .1 167-171-174	49 45
149.0	44 2-6 1.7 148-157-161	48 2-6 .2 157-163-167	50 2-3 .1 164-169-172	50 2-2 .7 167-170-173	50 2-2 .7 166-170-173	51 46
147.0	47 2-6 .8 149-157-161	50 2-3 .0 158-163-167	51 2-3 .9 164-169-172	51 2-2 1.2 166-169-172	51 2-2 1.2 165-169-172	52 48
145.0	49 2-6 .8 150-158-161	51 2-3 .9 158-163-166	53 3-3 .3 164-168-171	53 2-2 .3 164-168-171	53 2-2 .3 162-168-171	53 49
143.0	51 2-6 .7 151-158-162	53 2-3 .5 157-163-166	54 2-2 .9 163-167-170	54 2-2 .9 163-167-170	54 2-2 .9 161-167-170	55 51
141.0	53 2-3 .5 152-158-161	55 2-3 .1 157-162-166	56 2-2 .0 162-165-168	56 2-2 .0 161-165-168	56 2-2 .0 159-165-168	55 52
136.0	57 2-3 .9 151-157-160	59 2-3 .4 157-161-164	59 2-2 1.0 159-163-166	59 2-2 1.0 158-163-166	59 2-2 1.0 156-163-166	55 55
131.0	62 2-3 .1 150-155-159	63 2-3 .5 156-160-163	63 2-2 .5 155-160-163	63 2-2 .5 154-160-163	63 2-2 .5 153-160-163	55 55
126.0	66 2-3 .5 150-154-157	67 2-2 .1 153-156-159	67 2-2 .1 152-156-159	67 2-2 .1 150-156-159	67 2-2 .1 149-156-159	55 55
121.0	70 2-3 .8 149-153-156	70 2-2 1.0 150-154-157	70 2-2 1.0 148-154-157	70 2-2 1.0 147-154-157	70 2-2 1.0 145-154-157	55 55
116.0	72 2-2 3.3 148-152-155	72 2-2 3.3 148-152-155	72 2-2 3.3 146-152-155	72 2-2 3.3 145-152-155	72 2-2 3.3 143-152-155	55 55
111.0	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	55 55
106.0	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	55 55
101.0	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	55 55

VTBD BANGKOK 03L/21R

ELEV. = 10 ft TORA = 3700 m
SLOPE = .00 % ASDA = 3850 m
TODA = 3850 m

15/00

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

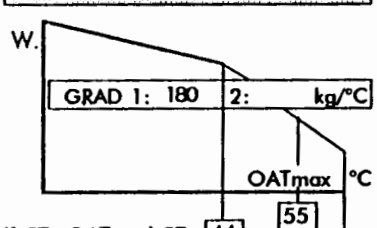
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1013 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>44
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-6	-4.5	-8	-3

Minimum v_1: 119 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1600 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	6 2-1 .1 163-173-177	25 2-1 .0 165-173-177	38 2-1 .0 166-174-178	44 2-6 .8 169-177-181	44
157.0	1 2-6 .2 159-169-173	20 2-6 .1 160-170-174	41 2-6 .1 162-170-174	44 2-6 1.2 165-173-177	46 2-6 .7 170-177-181	45
155.0	9 2-6 .2 157-168-172	31 6-6 .1 158-168-172	44 2-6 1.6 161-170-174	47 2-6 .1 166-174-178	48 2-6 .6 171-178-181	47
153.0	18 6-6 .0 155-167-171	39 6-6 .2 157-167-171	47 2-6 .6 162-170-174	49 2-6 .0 167-174-178	50 2-6 .4 172-178-181	48 44
151.0	26 6-6 .1 154-166-170	44 6-6 1.0 156-166-170	49 2-6 .5 163-171-174	50 2-6 .9 168-174-178	52 2-6 .1 173-178-182	49 45
149.0	34 6-6 .2 153-165-169	49 2-6 .0 157-166-169	51 2-6 .4 164-171-174	52 2-6 .8 169-175-178	53 2-6 1.0 174-178-182	51 46
147.0	43 6-6 .1 151-164-168	50 2-6 1.0 157-166-169	53 2-6 .2 165-171-175	54 2-6 .6 170-175-178	55 2-6 .8 175-179-182	52 48
145.0	44 6-6 1.8 151-164-167	52 2-6 1.0 158-166-169	55 2-6 .1 166-171-175	56 2-6 .4 171-175-178	57 2-6 .5 176-179-182	53 49
143.0	51 6-6 .1 152-162-165	54 2-6 .9 159-166-170	56 2-6 1.0 166-171-175	58 2-6 .2 172-175-178	59 2-2 .2 177-179-182	55 51
141.0	54 2-2 .5 153-161-164	56 2-6 .8 160-166-170	58 2-6 .8 167-171-175	59 2-6 1.1 172-175-178	60 2-2 .7 177-178-181	55 52
136.0	59 2-6 .5 155-162-165	61 2-6 .6 163-167-170	63 2-6 .4 170-172-175	64 2-2 .0 174-175-177	64 2-2 .0 173-175-177	55 55
131.0	64 2-5 .4 158-162-164	66 2-6 .3 165-167-170	67 2-2 .7 171-172-175	67 2-2 .7 171-172-175	67 2-2 .7 170-172-175	55 55
126.0	68 2-5 .8 158-161-163	70 2-3 .4 164-166-168	70 2-2 1.4 168-169-172	70 2-2 1.4 167-169-172	70 2-2 1.4 167-169-172	55 55
121.0	72 2-5 1.3 158-161-163	72 2-3 3.0 164-166-168	72 2-2 3.5 166-167-170	72 2-2 3.5 165-167-170	72 2-2 3.5 164-167-170	55 55
116.0	72 .0 147-147-150	72 .0 147-147-150	72 .0 147-147-150	72 .0 147-147-150	72 .0 147-147-150	55 55
111.0	72 .0 143-144-147	72 .0 143-144-147	72 .0 143-144-147	72 .0 143-144-147	72 .0 143-144-147	55 55
106.0	72 .0 140-140-143	72 .0 140-140-143	72 .0 140-140-143	72 .0 140-140-143	72 .0 140-140-143	55 55
101.0	72 .0 136-137-140	72 .0 136-137-140	72 .0 136-137-140	72 .0 136-137-140	72 .0 136-137-140	55 55

VTBD BANGKOK 03L/21R

ELEV. = 10 ft TORA = 3700 m
SLOPE = .00 % ASDA = 3850 m
TODA = 3850 m

15/15

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

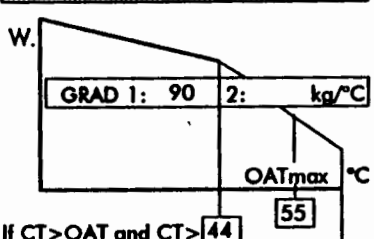
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1013 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>44
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-2	-2.0	-12	-3

Minimum v_1: 117 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1600 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	8 1-1 .1 163-174-177	27 2-2 .0 164-175-178	34 2-2 .0 166-175-179	34 2-2 .0 167-175-179	44
157.0	8 2-6 .0 156-168-172	26 2-6 .1 158-170-173	44 2-6 .1 161-172-175	44 2-6 1.4 165-175-178	44 2-2 1.4 166-175-178	45
155.0	24 2-6 .1 151-165-169	43 2-6 .1 154-166-170	45 2-6 1.0 161-172-175	46 2-2 .5 164-173-177	46 2-2 .5 165-173-177	47
153.0	40 2-6 .1 148-161-165	44 2-6 1.9 154-166-170	47 2-6 .8 162-172-175	47 2-2 1.1 164-173-176	47 2-2 1.1 165-173-176	48 44
151.0	44 2-6 1.5 147-161-165	47 2-6 .7 155-166-170	49 2-2 .2 162-171-174	49 2-2 .2 163-171-174	49 2-2 .2 163-171-174	49 45
149.0	47 2-6 .5 148-161-165	49 2-6 .6 156-167-170	50 2-2 .7 162-170-173	50 2-2 .7 163-170-173	50 2-2 .7 161-170-173	51 46
147.0	49 2-6 .4 149-161-165	51 2-6 .4 157-167-170	51 2-2 1.3 162-169-172	51 2-2 1.3 162-169-172	51 2-2 1.3 160-169-172	52 48
145.0	51 2-6 .3 150-161-165	53 2-6 .1 158-167-170	53 2-2 .4 161-168-171	53 2-2 .4 160-168-171	53 2-2 .4 158-168-171	53 49
143.0	53 2-6 .1 152-162-165	54 2-2 .9 159-167-170	54 2-2 .9 160-167-170	54 2-2 .9 159-167-170	54 2-2 .9 157-167-170	55 51
141.0	55 2-6 .0 153-162-165	56 2-2 .1 158-165-168	56 2-2 .1 158-165-168	56 2-2 .1 156-165-168	56 2-2 .1 155-165-168	55 52
136.0	59 2-6 .8 155-162-165	59 2-2 1.0 158-163-166	59 2-2 1.0 155-163-166	59 2-2 1.0 154-163-166	59 2-2 1.0 152-163-166	55 55
131.0	63 2-2 .6 155-160-163	63 2-2 .6 154-160-163	63 2-2 .6 151-160-163	63 2-2 .6 150-160-163	63 2-2 .6 148-160-163	55 55
126.0	67 2-2 .1 152-156-159	67 2-2 .1 150-156-159	67 2-2 .1 147-156-159	67 2-2 .1 146-156-159	67 2-2 .1 144-156-159	55 55
121.0	70 2-2 1.0 149-154-157	70 2-2 1.0 147-154-157	70 2-2 1.0 144-154-157	70 2-2 1.0 142-154-157	70 2-2 1.0 142-154-157	55 55
116.0	72 2-2 3.3 146-152-155	72 2-2 3.3 144-152-155	72 2-2 3.3 142-152-155	72 2-2 3.3 141-152-155	72 2-2 3.3 141-152-155	55 55
111.0	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	55 55
106.0	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	55 55
101.0	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	55 55

VTBD BANGKOK 03L/21R

ELEV. = 10 ft TORA = 3700 m
SLOPE = .00 % ASDA = 3850 m
TODA = 3850 m

15/00

Take-off Parameters for 1013 hPa, dry RWY and A/C ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

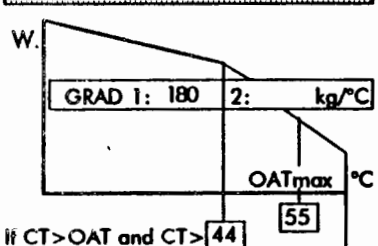
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1013 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT> 44
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-6	-4.5	-8	-3

Minimum v_1: 119 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1600 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	6 2-1 .1 163-173-177	25 2-1 .0 165-173-177	38 2-1 .0 166-174-178	44 2-6 .8 169-177-181	44
157.0	1 2-6 .2 159-169-173	20 2-6 .1 160-170-174	41 2-6 .1 162-170-174	44 2-6 1.2 165-173-177	46 2-6 .7 170-177-181	45
155.0	9 2-6 .2 157-168-172	31 6-6 .1 158-168-172	44 2-6 1.6 161-170-174	47 2-6 .1 166-174-178	48 2-6 .6 171-178-181	47
153.0	18 6-6 .0 155-167-171	39 6-6 .2 157-167-171	47 2-6 .6 162-170-174	49 2-6 .0 167-174-178	50 2-6 .4 172-178-181	48 44
151.0	26 6-6 .1 154-166-170	44 6-6 1.0 156-166-170	49 2-6 .5 163-171-174	50 2-6 .9 168-174-178	52 2-6 .1 173-178-182	49 45
149.0	34 6-6 .2 153-165-169	49 2-6 .0 157-166-169	51 2-6 .4 164-171-174	52 2-6 .8 169-175-178	53 2-6 1.0 174-178-182	51 46
147.0	43 6-6 .1 151-164-168	50 2-6 1.0 157-166-169	53 2-6 .2 165-171-175	54 2-6 .6 170-175-178	55 2-6 .8 175-179-182	52 48
145.0	44 6-6 1.8 151-164-167	52 2-6 1.0 158-166-169	55 2-6 .1 166-171-175	56 2-6 .4 171-175-178	57 2-6 .5 176-179-182	53 49
143.0	51 6-6 .1 152-162-165	54 2-6 .9 159-166-170	56 2-6 1.0 166-171-175	58 2-6 .2 172-175-178	59 2-2 .2 177-179-182	55 51
141.0	54 2-2 .5 153-161-164	56 2-6 .8 160-166-170	58 2-6 .8 167-171-175	59 2-6 1.1 172-175-178	60 2-2 .7 177-178-181	55 52
136.0	59 2-6 .5 155-162-165	61 2-6 .6 163-167-170	63 2-6 .4 170-172-175	64 2-2 .0 174-175-177	64 2-2 .0 173-175-177	55 55
131.0	64 2-5 .4 158-162-164	66 2-6 .3 165-167-170	67 2-2 .7 171-172-175	67 2-2 .7 171-172-175	67 2-2 .7 170-172-175	55 55
126.0	68 2-5 .8 158-161-163	70 2-3 .4 164-166-168	70 2-2 1.4 168-169-172	70 2-2 1.4 167-169-172	70 2-2 1.4 167-169-172	55 55
121.0	72 2-5 1.3 158-161-163	72 2-3 3.0 164-166-168	72 2-2 3.5 166-167-170	72 2-2 3.5 165-167-170	72 2-2 3.5 164-167-170	55 55
116.0	72 .0 147-147-150	72 .0 147-147-150	72 .0 147-147-150	72 .0 147-147-150	72 .0 147-147-150	55 55
111.0	72 .0 143-144-147	72 .0 143-144-147	72 .0 143-144-147	72 .0 143-144-147	72 .0 143-144-147	55 55
106.0	72 .0 140-140-143	72 .0 140-140-143	72 .0 140-140-143	72 .0 140-140-143	72 .0 140-140-143	55 55
101.0	72 .0 136-137-140	72 .0 136-137-140	72 .0 136-137-140	72 .0 136-137-140	72 .0 136-137-140	55 55

MKK
JALA LUMPUR
5/33

ELEV. = 89 ft
SLOPE = .00 %

TORA = 3475 m
ASDA = 3475 m
TODA = 3475 m

15/15

ake-off Parameters for 1013 hPa, dry RWY and AC/ON

<.Temp.[°C] Limitations
ight Increment [t]
v_1 - v_R - v_2 [kts] IAS

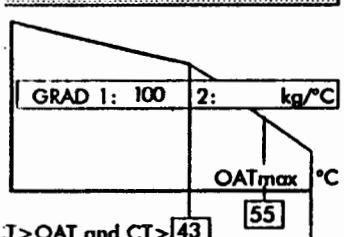
LIMITATIONS

Structure 2 - 2nd Segment 3 - Runway
Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

II>1013 hPa (max. 1016 hPa):
DD: 20 kg per hPa or 1°C per 25 hPa
II<1013 hPa:
B: 170 kg per hPa or 1°C per 7 hPa
le A/I on: SUB: 2.0 t or 2 °C
l A/I on: SUB: 4.8 t or 5 °C
off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



T>OAT and CT> 43
Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

unway wet (or covered with less than m slush, 3 mm standing water, m wet snow, 15 mm dry snow)
rect:

T/O p.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-2	-2.0	-12	-3

Minimum v_1: 117 [kt]

ctual TOW is equal to maximum OW and v_1 is lower than minimum v_1:
ake this last value as v_1 and further ecrease weight by 2 t per kt ifference between both values.
Actual TOW is lower than maximum OW and v_1 corresponding to actual OW is lower than minimum v_1 and v_1 orresponding to maximum TOW is qual to or above minimum v_1:
etain minimum v_1 as v_1 and decrease exible temperature by 3 °C per kt ifference between both values.

EOSID:

Alt.: 1600 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	16 2-6 .0 168-174-178	28 2-6 .1 170-175-179	30 2-2 .0 171-175-179	43
157.0	- -	14 2-6 .1 162-169-173	33 2-6 .1 164-171-174	43 2-6 .3 166-172-175	43 2-2 1.4 170-175-178	45
155.0	12 2-6 .0 155-164-168	31 2-6 .1 157-165-169	43 2-6 .9 161-169-172	45 2-6 .9 166-172-175	46 2-2 .1 169-173-176	46
153.0	28 2-6 .0 151-160-165	43 2-6 .5 155-163-167	46 2-6 .4 162-169-172	47 2-2 .6 167-172-176	47 2-2 .6 168-172-176	48 43
151.0	43 2-6 .0 148-157-162	46 2-6 .1 156-163-167	48 2-6 .3 163-169-172	48 2-2 1.2 167-172-175	48 2-2 1.2 167-172-175	49 45
149.0	45 2-6 .7 148-157-162	48 2-6 .1 157-163-167	50 2-6 .1 165-169-173	50 2-2 .3 167-170-173	50 2-2 .3 165-170-173	50 46
147.0	47 2-6 .7 149-158-162	49 2-6 1.0 157-163-167	51 2-6 .8 164-169-172	51 2-2 .9 165-169-172	51 2-2 .9 164-169-172	52 48
145.0	49 2-6 .7 150-158-162	51 2-6 .9 158-164-167	52 2-2 1.4 164-168-171	52 2-2 1.4 164-168-171	52 2-2 1.4 163-168-171	53 49
143.0	51 2-6 .7 151-158-162	53 2-3 .6 158-164-167	54 2-2 .6 163-167-170	54 2-2 .6 162-167-170	54 2-2 .6 161-167-170	54 50
141.0	53 2-6 .6 152-158-162	55 2-3 .3 158-163-167	55 2-2 1.1 162-166-169	55 2-2 1.1 161-166-169	55 2-2 1.1 159-166-169	55 52
136.0	57 2-3 1.0 152-158-161	59 2-3 .5 158-162-165	59 2-2 .7 159-163-166	59 2-2 .7 157-163-166	59 2-2 .7 156-163-166	55 55
131.0	62 2-3 .3 151-156-159	63 2-2 .4 156-159-162	63 2-2 .4 155-159-162	63 2-2 .4 153-159-162	63 2-2 .4 152-159-162	55 55
126.0	66 2-3 .7 151-155-158	66 2-2 1.3 154-157-160	66 2-2 1.3 152-157-160	66 2-2 1.3 151-157-160	66 2-2 1.3 149-157-160	55 55
121.0	70 2-2 .9 150-154-157	70 2-2 .9 150-154-157	70 2-2 .9 148-154-157	70 2-2 .9 146-154-157	70 2-2 .9 145-154-157	55 55
116.0	72 2-2 3.2 149-152-155	72 2-2 3.2 148-152-155	72 2-2 3.2 146-152-155	72 2-2 3.2 144-152-155	72 2-2 3.2 142-152-155	55 55
111.0	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	55 55
106.0	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	55 55
101.0	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	55 55

VTBD BANGKOK 03R/21L

ELEV. = 10 ft TORA = 3000 m
SLOPE = .00 % ASDA = 3305 m
TODA = 3305 m

15/00

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

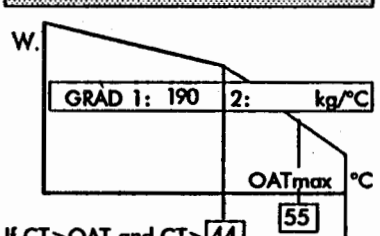
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1013 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>44
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-10	-5.0	-10	-3

Minimum v_1: 119 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1600 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	10 2-1 .0 169-173-177	23 2-1 .1 170-173-177	37 2-1 .0 171-174-178	44
157.0	- -	4 2-6 .1 165-169-174	27 2-6 .0 166-169-173	39 2-6 .1 167-170-174	44 2-6 1.0 170-173-177	45
155.0	- -	13 2-6 .1 163-168-172	36 6-6 .1 164-168-172	44 2-6 1.4 166-169-173	46 2-6 1.0 171-173-177	47
153.0	0 6-6 .2 162-167-171	21 6-6 .2 162-167-171	44 6-6 .2 163-167-171	47 2-6 .4 167-170-174	48 2-6 .9 172-174-177	48 44
151.0	8 6-6 .1 160-166-170	29 6-6 .2 161-166-170	47 2-6 .7 163-167-170	49 2-6 .3 168-170-174	50 2-3 .8 173-174-178	49 45
149.0	16 6-6 .0 159-165-169	38 6-6 .0 159-165-169	49 2-6 .6 164-167-170	51 2-3 .0 168-170-174	52 2-3 .4 173-174-177	51 46
147.0	24 6-6 .0 157-163-168	44 6-6 .6 159-164-168	51 2-3 .4 164-167-170	52 2-3 .8 168-170-173	53 2-3 1.1 173-173-177	52 48
145.0	32 6-6 .1 156-162-166	49 6-6 .1 159-163-167	53 2-3 .0 164-166-170	54 2-3 .4 168-169-173	55 2-3 .7 173-173-177	53 49
143.0	40 6-6 .2 155-161-165	51 3-3 .7 159-162-166	54 2-3 .9 164-166-170	56 2-3 .0 168-169-172	57 2-3 .3 172-172-176	55 51
141.0	44 6-6 1.2 154-161-165	54 3-3 .4 158-161-164	56 2-3 .5 164-166-169	57 2-3 .8 168-169-172	58 2-3 1.0 172-172-175	55 52
136.0	54 3-3 .2 154-158-161	58 2-3 .8 157-160-163	60 2-3 .8 163-164-167	61 2-3 1.0 167-167-171	62 2-3 .9 170-170-173	55 55
131.0	59 3-3 .7 153-156-159	63 2-3 .1 157-159-161	64 2-3 1.1 163-163-166	65 2-3 1.2 166-166-169	66 2-3 .8 168-168-171	55 55
126.0	65 3-3 .6 151-153-156	67 2-3 .5 156-158-160	69 2-3 .2 162-162-164	69 2-3 1.2 165-165-167	70 2-3 .7 167-167-169	55 55
121.0	70 2-3 .1 150-152-154	71 2-3 .9 155-157-159	72 2-3 1.7 162-162-164	72 2-3 2.5 164-164-166	72 2-3 3.2 166-166-168	55 55
116.0	72 2-3 3.0 150-152-154	72 2-3 4.8 155-157-159	72 .0 147-147-150	72 .0 147-147-150	72 .0 147-147-150	55 55
111.0	72 .0 143-144-147	72 .0 143-144-147	72 .0 143-144-147	72 .0 143-144-147	72 .0 143-144-147	55 55
106.0	72 .0 140-140-143	72 .0 140-140-143	72 .0 140-140-143	72 .0 140-140-143	72 .0 140-140-143	55 55
101.0	72 .0 136-137-140	72 .0 136-137-140	72 .0 136-137-140	72 .0 136-137-140	72 .0 136-137-140	55 55

VTBD BANGKOK 03R/21L

ELEV. = 10 ft TORA = 3000 m
SLOPE = .00 % ASDA = 3305 m
TODA = 3305 m

15/15

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

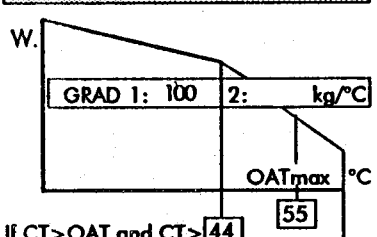
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1013 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT> 44
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-2	-2.0	-12	-3

Minimum v_1: 117 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1600 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	11 1-1 .0 170-174-177	22 2-2 .1 171-175-178	32 2-2 .0 172-175-178	44
157.0	- -	9 2-3 .1 164-169-172	29 2-6 .1 165-170-173	42 2-3 .0 167-171-174	44 2-3 1.0 171-174-177	45
155.0	7 2-6 .1 157-164-168	26 2-6 .1 159-165-169	44 2-6 .2 162-167-170	44 2-6 1.7 166-170-174	46 2-2 .5 170-173-177	47
153.0	23 2-6 .0 153-160-164	43 2-6 .0 155-161-165	46 2-3 .1 163-167-170	47 2-3 .2 167-170-173	47 2-2 1.1 170-173-176	48 44
151.0	38 2-6 .1 150-157-161	44 2-6 1.8 155-161-165	47 2-3 .9 163-167-170	48 2-3 1.0 166-170-173	49 2-2 .2 169-171-174	49 45
149.0	44 2-6 1.2 149-156-160	47 2-3 .6 156-161-165	49 2-3 .5 162-166-170	50 2-3 .5 166-170-173	50 2-2 .7 168-170-173	51 46
147.0	47 2-6 .3 150-156-160	49 2-3 .3 156-161-165	51 2-3 .1 162-166-169	51 2-3 1.2 166-169-172	51 2-2 1.3 166-169-172	52 48
145.0	49 2-3 .1 150-156-160	50 2-3 1.1 156-161-164	52 2-3 .9 162-166-169	53 2-2 .4 165-168-171	53 2-2 .4 164-168-171	53 49
143.0	50 2-3 1.0 150-156-160	52 2-3 .8 156-160-164	54 2-3 .5 162-166-169	54 2-2 .9 164-167-170	54 2-2 .9 163-167-170	55 51
141.0	52 2-3 .7 150-155-159	54 2-3 .4 156-160-164	55 2-3 1.2 162-165-169	56 2-2 .1 163-165-168	56 2-2 .1 161-165-168	55 52
136.0	56 2-3 1.1 150-154-158	58 2-3 .7 155-159-162	59 2-2 1.0 161-163-166	59 2-2 1.0 160-163-166	59 2-2 1.0 158-163-166	55 55
131.0	61 2-3 .4 149-153-157	62 2-3 1.0 155-158-161	63 2-2 .6 157-160-163	63 2-2 .6 156-160-163	63 2-2 .6 155-160-163	55 55
126.0	65 2-3 .8 148-152-155	67 2-2 .1 154-156-159	67 2-2 .1 153-156-159	67 2-2 .1 152-156-159	67 2-2 .1 151-156-159	55 55
121.0	70 2-3 .0 147-151-154	70 2-2 1.0 152-154-157	70 2-2 1.0 150-154-157	70 2-2 1.0 149-154-157	70 2-2 1.0 148-154-157	55 55
116.0	72 2-3 2.7 147-150-153	72 2-2 3.3 150-152-155	72 2-2 3.3 148-152-155	72 2-2 3.3 147-152-155	72 2-2 3.3 145-152-155	55 55
111.0	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	55 55
106.0	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	55 55
101.0	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	55 55

RJAA TOKIO NARITA 34

ELEV. = 135 ft TORA = 4000 m
SLOPE = .00 % ASDA = 4060 m
TODA = 4060 m

15/00

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

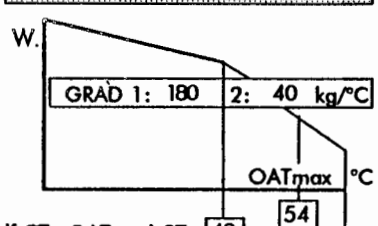
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1018 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>43
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-1	-0.5	-6	-1

Minimum v_1: 119 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1700 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	9 2-1 .0 162-173-177	29 2-6 .1 163-174-178	39 2-1 .1 165-175-179	44 2-1 .5 168-178-182	43
157.0	4 2-6 .2 157-170-174	26 2-6 .0 158-170-174	43 2-6 .2 161-171-175	43 2-1 1.7 164-175-179	46 2-6 .7 169-179-182	45
155.0	14 6-6 .2 155-168-172	35 2-6 .2 156-168-172	45 2-6 .7 161-171-175	47 2-6 .2 166-175-179	48 2-6 .5 170-179-182	46
153.0	23 6-6 .1 153-167-171	43 2-6 .4 155-167-171	47 2-6 .7 162-172-175	49 2-6 .0 167-175-179	50 2-6 .3 172-179-182	47 43
151.0	31 6-6 .2 152-166-170	47 2-6 .2 156-167-170	49 2-6 .5 163-172-176	50 2-6 .9 167-176-179	52 2-6 .1 173-179-183	49 44
149.0	40 6-6 .0 151-165-169	49 2-6 .2 157-167-170	51 2-6 .4 164-172-176	52 2-6 .8 168-176-179	53 2-6 1.0 173-180-183	50 46
147.0	43 6-6 1.3 150-164-168	51 2-6 .1 157-167-171	53 2-6 .3 165-172-176	54 2-6 .5 169-176-179	55 2-6 .7 174-180-183	52 47
145.0	49 6-6 .2 151-163-167	53 2-6 .0 158-167-171	55 2-6 .1 166-173-176	56 2-6 .3 170-176-179	57 2-6 .5 176-180-183	53 49
143.0	52 6-6 .6 152-162-166	54 2-6 1.0 159-167-171	56 2-6 1.0 166-173-176	58 2-6 .1 171-176-179	58 2-2 1.2 176-180-183	54 50
141.0	54 2-6 .7 152-163-166	56 2-6 .9 160-167-171	58 2-6 .9 167-173-176	59 2-6 1.1 172-176-179	60 2-2 .3 175-178-181	54 52
136.0	59 2-5 .5 154-162-165	61 2-6 .8 162-168-171	63 2-6 .5 169-173-176	63 2-2 1.1 173-175-178	63 2-2 1.1 172-175-178	54 54
131.0	63 2-5 1.1 156-162-164	66 2-5 .3 165-167-170	67 2-2 .5 170-172-174	67 2-2 .5 169-172-174	67 2-2 .5 168-172-174	54 54
126.0	68 2-5 .6 158-161-163	70 2-5 .6 165-167-169	70 2-2 1.2 167-169-172	70 2-2 1.2 166-169-172	70 2-2 1.2 165-169-172	54 54
121.0	71 2-5 2.2 158-160-162	71 2-5 4.5 165-167-169	71 2-2 4.8 166-168-171	71 2-2 4.8 165-168-171	71 2-2 4.8 164-168-171	54 54
116.0	71 .0 147-147-150	71 .0 147-147-150	71 .0 147-147-150	71 .0 147-147-150	71 .0 147-147-150	54 54
111.0	71 .0 143-144-147	71 .0 143-144-147	71 .0 143-144-147	71 .0 143-144-147	71 .0 143-144-147	54 54
106.0	71 .0 140-140-143	71 .0 140-140-143	71 .0 140-140-143	71 .0 140-140-143	71 .0 140-140-143	54 54
101.0	71 .0 136-137-140	71 .0 136-137-140	71 .0 136-137-140	71 .0 136-137-140	71 .0 136-137-140	54 54

RJAA TOKIO NARITA 34

ELEV. = 135 ft TORA = 4000 m
SLOPE = .00 % ASDA = 4060 m
TODA = 4060 m

15/15

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

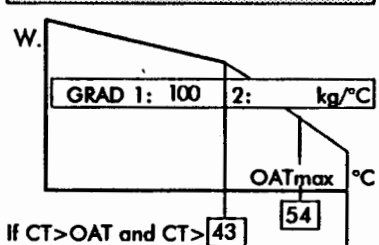
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1018 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT> 43
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-2	-2.0	-12	-3

Minimum v_1: 117 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1700 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	12 2-2 .0 161-174-177	28 2-2 .1 163-175-179	29 2-2 .0 164-175-179	29 2-2 .0 165-175-179	43
157.0	11 2-6 .1 154-169-173	30 2-6 .1 156-170-174	43 2-2 .5 160-173-176	43 2-2 1.2 163-175-178	43 2-2 1.2 164-175-178	45
155.0	28 2-6 .1 150-165-169	43 2-6 .4 153-168-171	45 2-6 1.0 161-173-176	45 2-2 1.2 162-174-177	45 2-2 1.2 163-174-177	46
153.0	43 2-6 .2 147-162-166	45 2-6 .9 154-168-171	47 2-2 .4 161-172-175	47 2-2 .4 162-172-175	47 2-2 .4 162-172-175	47 43
151.0	45 2-6 .7 147-162-166	47 2-6 .8 155-168-171	48 2-2 .9 160-171-175	48 2-2 .9 161-171-175	48 2-2 .9 161-171-175	49 44
149.0	47 2-6 .6 148-162-166	49 2-6 .6 156-168-171	50 2-2 .1 160-170-173	50 2-2 .1 161-170-173	50 2-2 .1 159-170-173	50 46
147.0	49 2-6 .5 149-163-166	51 2-6 .4 157-168-171	51 2-2 .6 159-169-172	51 2-2 .6 160-169-172	51 2-2 .6 158-169-172	52 47
145.0	51 2-6 .4 150-163-166	52 2-2 1.2 157-168-171	52 2-2 1.2 159-168-171	52 2-2 1.2 158-168-171	52 2-2 1.2 157-168-171	53 49
143.0	53 2-6 .3 151-163-166	54 2-2 .4 157-167-170	54 2-2 .4 158-167-170	54 2-2 .4 156-167-170	54 2-2 .4 154-167-170	54 50
141.0	55 2-5 .0 152-163-166	55 2-2 .9 156-166-169	55 2-2 .9 157-166-169	55 2-2 .9 155-166-169	55 2-2 .9 153-166-169	54 52
136.0	59 2-5 .5 154-162-165	59 2-2 .6 155-163-166	59 2-2 .6 153-163-166	59 2-2 .6 151-163-166	59 2-2 .6 150-163-166	54 54
131.0	63 2-2 .2 154-159-162	63 2-2 .2 152-159-162	63 2-2 .2 149-159-162	63 2-2 .2 147-159-162	63 2-2 .2 147-159-162	54 54
126.0	66 2-2 1.2 151-157-160	66 2-2 1.2 149-157-160	66 2-2 1.2 146-157-160	66 2-2 1.2 145-157-160	66 2-2 1.2 145-157-160	54 54
121.0	70 2-2 .9 147-154-157	70 2-2 .9 145-154-157	70 2-2 .9 142-154-157	70 2-2 .9 142-154-157	70 2-2 .9 142-154-157	54 54
116.0	71 2-2 4.5 146-153-156	71 2-2 4.5 143-153-156	71 2-2 4.5 141-153-156	71 2-2 4.5 141-153-156	71 2-2 4.5 141-153-156	54 54
111.0	71 .0 131-132-136	71 .0 131-132-136	71 .0 131-132-136	71 .0 131-132-136	71 .0 131-132-136	54 54
106.0	71 .0 128-129-133	71 .0 128-129-133	71 .0 128-129-133	71 .0 128-129-133	71 .0 128-129-133	54 54
101.0	71 .0 125-125-130	71 .0 125-125-130	71 .0 125-125-130	71 .0 125-125-130	71 .0 125-125-130	54 54

RJAA TOKIO NARITA 16

ELEV. = 135 ft TORA = 4000 m
SLOPE = .00 % ASDA = 4060 m
TODA = 4060 m

15/00

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

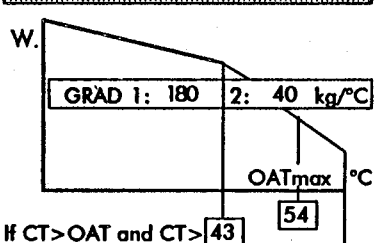
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1018 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>43
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-1	-0.5	-6	-1

Minimum v_1: 119 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1700 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	9 2-1 .0 162-173-177	29 2-6 .1 163-174-178	39 2-1 .1 165-175-179	44 2-1 .5 168-178-182	43
157.0	4 2-6 .2 157-170-174	26 2-6 .0 158-170-174	43 2-6 .2 161-171-175	43 2-1 1.7 164-175-179	46 2-6 .7 169-179-182	45
155.0	14 6-6 .2 155-168-172	35 2-6 .2 156-168-172	45 2-6 .7 161-171-175	47 2-6 .2 166-175-179	48 2-6 .5 170-179-182	46
153.0	23 6-6 .1 153-167-171	43 2-6 .4 155-167-171	47 2-6 .7 162-172-175	49 2-6 .0 167-175-179	50 2-6 .3 172-179-182	47 43
151.0	31 6-6 .2 152-166-170	47 2-6 .2 156-167-170	49 2-6 .5 163-172-176	50 2-6 .9 167-176-179	52 2-6 .1 173-179-183	49 44
149.0	40 6-6 .0 151-165-169	49 2-6 .2 157-167-170	51 2-6 .4 164-172-176	52 2-6 .8 168-176-179	53 2-6 1.0 173-180-183	50 46
147.0	43 6-6 1.3 150-164-168	51 2-6 .1 157-167-171	53 2-6 .3 165-172-176	54 2-6 .5 169-176-179	55 2-6 .7 174-180-183	52 47
145.0	49 6-6 .2 151-163-167	53 2-6 .0 158-167-171	55 2-6 .1 166-173-176	56 2-6 .3 170-176-179	57 2-6 .5 176-180-183	53 49
143.0	52 6-6 .6 152-162-166	54 2-6 1.0 159-167-171	56 2-6 1.0 166-173-176	58 2-6 .1 171-176-179	58 2-2 1.2 176-180-183	54 50
141.0	54 2-6 .7 152-163-166	56 2-6 .9 160-167-171	58 2-6 .9 167-173-176	59 2-6 1.1 172-176-179	60 2-2 .3 175-178-181	54 52
136.0	59 2-5 .5 154-162-165	61 2-6 .8 162-168-171	63 2-6 .5 169-173-176	63 2-2 1.1 173-175-178	63 2-2 1.1 172-175-178	54 54
131.0	63 2-5 1.1 156-162-164	66 2-5 .3 165-167-170	67 2-2 .5 170-172-174	67 2-2 .5 169-172-174	67 2-2 .5 168-172-174	54 54
126.0	68 2-5 .6 158-161-163	70 2-5 .6 165-167-169	70 2-2 1.2 167-169-172	70 2-2 1.2 166-169-172	70 2-2 1.2 165-169-172	54 54
121.0	71 2-5 2.2 158-160-162	71 2-5 4.5 165-167-169	71 2-2 4.8 166-168-171	71 2-2 4.8 165-168-171	71 2-2 4.8 164-168-171	54 54
116.0	71 .0 147-147-150	71 .0 147-147-150	71 .0 147-147-150	71 .0 147-147-150	71 .0 147-147-150	54 54
111.0	71 .0 143-144-147	71 .0 143-144-147	71 .0 143-144-147	71 .0 143-144-147	71 .0 143-144-147	54 54
106.0	71 .0 140-140-143	71 .0 140-140-143	71 .0 140-140-143	71 .0 140-140-143	71 .0 140-140-143	54 54
101.0	71 .0 136-137-140	71 .0 136-137-140	71 .0 136-137-140	71 .0 136-137-140	71 .0 136-137-140	54 54

RJAA
TOKIO NARITA
16

ELEV. = 135 ft TORA = 4000 m
SLOPE = .00 % ASDA = 4060 m
TODA = 4060 m

15/15

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

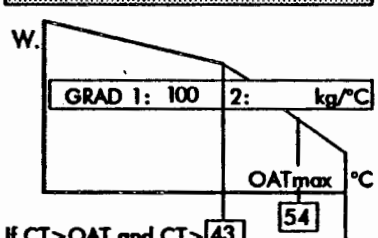
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1018 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>43
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-2	-2.0	-12	-3

Minimum v_1: 117 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1700 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	12 2-2* .0 161-174-177	28 2-2 .1 163-175-179	29 2-2 .0 164-175-179	29 2-2 .0 165-175-179	43
157.0	11 2-6 .1 154-169-173	30 2-6 .1 156-170-174	43 2-2 .5 160-173-176	43 2-2 1.2 163-175-178	43 2-2 1.2 164-175-178	45
155.0	28 2-6 .1 150-165-169	43 2-6 .4 153-168-171	45 2-6 1.0 161-173-176	45 2-2 1.2 162-174-177	45 2-2 1.2 163-174-177	46
153.0	43 2-6 .2 147-162-166	45 2-6 .9 154-168-171	47 2-2 .4 161-172-175	47 2-2 .4 162-172-175	47 2-2 .4 162-172-175	47 43
151.0	45 2-6 .7 147-162-166	47 2-6 .8 155-168-171	48 2-2 .9 160-171-175	48 2-2 .9 161-171-175	48 2-2 .9 161-171-175	49 44
149.0	47 2-6 .6 148-162-166	49 2-6 .6 156-168-171	50 2-2 .1 160-170-173	50 2-2 .1 161-170-173	50 2-2 .1 159-170-173	50 46
147.0	49 2-6 .5 149-163-166	51 2-6 .4 157-168-171	51 2-2 .6 159-169-172	51 2-2 .6 160-169-172	51 2-2 .6 158-169-172	52 47
145.0	51 2-6 .4 150-163-166	52 2-2 1.2 157-168-171	52 2-2 1.2 159-168-171	52 2-2 1.2 158-168-171	52 2-2 1.2 157-168-171	53 49
143.0	53 2-6 .3 151-163-166	54 2-2 .4 157-167-170	54 2-2 .4 158-167-170	54 2-2 .4 156-167-170	54 2-2 .4 154-167-170	54 50
141.0	55 2-5 .0 152-163-166	55 2-2 .9 156-166-169	55 2-2 .9 157-166-169	55 2-2 .9 155-166-169	55 2-2 .9 153-166-169	54 52
136.0	59 2-5 .5 154-162-165	59 2-2 .6 155-163-166	59 2-2 .6 153-163-166	59 2-2 .6 151-163-166	59 2-2 .6 150-163-166	54 54
131.0	63 2-2 .2 154-159-162	63 2-2 .2 152-159-162	63 2-2 .2 149-159-162	63 2-2 .2 147-159-162	63 2-2 .2 147-159-162	54 54
126.0	66 2-2 1.2 151-157-160	66 2-2 1.2 149-157-160	66 2-2 1.2 146-157-160	66 2-2 1.2 145-157-160	66 2-2 1.2 145-157-160	54 54
121.0	70 2-2 .9 147-154-157	70 2-2 .9 145-154-157	70 2-2 .9 142-154-157	70 2-2 .9 142-154-157	70 2-2 .9 142-154-157	54 54
116.0	71 2-2 4.5 146-153-156	71 2-2 4.5 143-153-156	71 2-2 4.5 141-153-156	71 2-2 4.5 141-153-156	71 2-2 4.5 141-153-156	54 54
111.0	71 .0 131-132-136	71 .0 131-132-136	71 .0 131-132-136	71 .0 131-132-136	71 .0 131-132-136	54 54
106.0	71 .0 128-129-133	71 .0 128-129-133	71 .0 128-129-133	71 .0 128-129-133	71 .0 128-129-133	54 54
101.0	71 .0 125-125-130	71 .0 125-125-130	71 .0 125-125-130	71 .0 125-125-130	71 .0 125-125-130	54 54

GCLP
GRAN CANARIA
21L

ELEV. = 75 ft TORA = 3100 m
SLOPE = .43 % ASDA = 3314 m
TODA = 3160 m

15/00

Take-off Parameters for 1013 hPa, dry RWY and AC/OFF

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

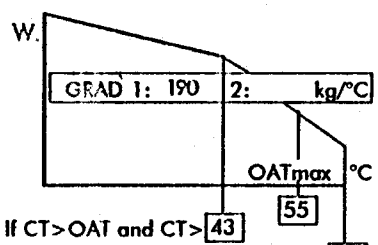
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1016 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>43
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-10	-5.0	-10	-3

Minimum v_1: 119 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1600 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	6 2-1 .1 172-173-177	20 2-6 .1 173-174-178	33 2-6 .1 174-175-178	43
157.0	- -	0 3-3 .1 167-169-173	21 2-6 .0 169-170-174	35 2-6 .1 169-171-174	43 2-6 .7 172-173-176	45
155.0	- -	8 3-3 .2 166-168-172	31 6-6 .2 167-168-172	43 2-6 1.0 168-169-173	46 2-6 .4 173-173-176	46
153.0	- -	17 6-6 .1 165-167-171	40 6-6 .1 165-167-171	46 2-6 .7 168-169-173	48 2-3 .1 173-173-176	48 43
151.0	3 3-3 .1 163-166-170	25 6-6 .1 164-166-170	43 6-6 1.4 165-167-171	48 2-3 .5 169-169-173	49 2-3 .8 172-172-176	49 45
149.0	11 3-3 .1 162-165-169	33 6-6 .2 162-165-169	48 3-3 .5 165-166-169	50 2-3 .1 168-169-172	51 2-3 .4 172-172-175	50 46
147.0	19 6-6 .2 160-164-168	42 6-6 .0 161-164-168	50 2-3 .4 164-165-169	51 2-3 1.0 168-168-172	52 2-3 1.2 171-171-175	52 48
145.0	27 6-6 .2 159-163-167	43 6-6 1.8 161-164-167	52 2-3 .1 164-165-168	53 2-3 .6 168-168-171	54 2-3 .7 171-171-174	53 49
143.0	36 6-6 .1 157-162-165	49 3-3 .1 160-162-165	53 2-3 1.0 164-165-168	55 2-3 .3 168-168-171	56 2-3 .1 170-170-173	55 50
141.0	43 6-6 .4 156-161-164	51 3-3 .5 159-161-164	55 2-3 .7 164-165-167	56 2-3 1.0 167-167-171	57 2-3 .9 169-169-173	55 52
136.0	51 3-3 .3 155-158-161	57 3-3 .6 158-159-162	59 2-3 1.0 163-163-166	60 2-3 1.1 166-166-169	61 2-3 .8 168-168-171	55 55
131.0	57 3-3 .3 153-156-159	62 2-3 .3 156-157-160	64 2-3 .1 162-162-164	64 2-3 1.1 164-164-167	65 2-3 .9 166-166-169	55 55
126.0	63 3-3 .3 152-153-156	66 2-3 .8 156-156-158	68 2-3 .3 160-160-162	68 2-3 1.2 163-163-165	69 2-3 .9 164-164-167	55 55
121.0	69 3-3 .4 150-151-153	71 2-3 .2 155-155-157	72 2-3 .5 159-159-161	72 2-3 1.4 161-161-163	72 2-3 2.2 164-164-165	55 55
116.0	72 2-3 2.2 149-150-152	72 2-3 4.1 155-155-157	72 .0 147-148-150	72 .0 147-148-150	72 .0 147-148-150	55 55
111.0	72 .0 144-144-147	72 .0 144-144-147	72 .0 144-144-147	72 .0 144-144-147	72 .0 144-144-147	55 55
106.0	72 .0 140-141-143	72 .0 140-141-143	72 .0 140-141-143	72 .0 140-141-143	72 .0 140-141-143	55 55
101.0	72 .0 137-137-140	72 .0 137-137-140	72 .0 137-137-140	72 .0 137-137-140	72 .0 137-137-140	55 55

GCLP
GRAN CANARIA
21L

ELEV. = 75 ft TORA = 3100 m
SLOPE = .43 % ASDA = 3314 m
TODA = 3160 m

15/15

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

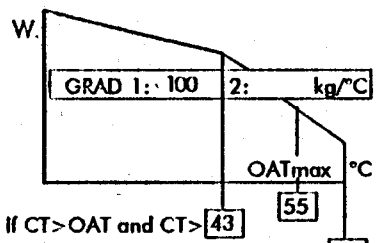
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1016 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>43
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-2	-2.0	-12	-3

Minimum v_1: 117 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1600 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	2 2-3 .1 172-174-177	15 2-3 .0 173-174-178	27 2-2 .0 174-175-178	43
157.0	- -	0 2-3 .1 166-168-172	21 2-3 .0 168-170-173	33 2-3 .1 169-171-174	43 2-3 .3 171-172-175	45
155.0	-2 2-3 .1 160-164-168	18 2-3 .0 162-165-168	38 2-3 .1 164-166-170	43 2-3 .9 167-169-172	45 2-3 .7 170-172-175	46
153.0	15 2-3 .1 157-160-164	35 2-3 .0 158-161-165	43 2-3 1.5 163-165-169	46 2-3 .2 166-168-171	47 2-3 .4 170-172-175	48 43
151.0	32 2-3 .1 153-157-161	43 2-3 1.0 156-160-164	46 2-3 .8 163-165-168	47 2-3 1.1 166-168-171	48 2-3 1.1 170-171-174	49 45
149.0	43 2-3 .7 151-155-159	46 2-3 .4 156-159-163	48 2-3 .5 162-165-168	49 2-3 .7 166-168-171	50 2-2 .4 169-170-173	50 46
147.0	46 2-3 .1 151-154-158	48 2-3 .2 156-159-163	50 2-3 .2 162-164-167	51 2-3 .3 166-168-171	51 2-2 .9 168-169-172	52 48
145.0	47 2-3 1.0 150-154-158	49 2-3 1.0 156-159-162	51 2-3 1.0 162-164-167	52 2-3 1.1 166-167-170	53 2-2 .1 166-168-171	53 49
143.0	49 2-3 .8 150-154-158	51 2-3 .7 156-158-162	53 2-3 .7 162-164-167	54 2-2 .6 166-167-170	54 2-2 .6 165-167-170	55 50
141.0	51 2-3 .5 150-153-157	53 2-3 .5 155-158-162	55 2-3 .3 162-164-167	55 2-2 1.2 165-166-169	55 2-2 1.2 164-166-169	55 52
136.0	55 2-3 1.1 150-153-157	57 2-3 .9 155-157-161	59 2-3 .6 161-162-165	59 2-2 .8 162-163-166	59 2-2 .8 160-163-166	55 55
131.0	60 2-3 .5 149-151-155	62 2-3 .1 154-156-159	63 2-2 .4 159-160-162	63 2-2 .4 158-160-162	63 2-2 .4 156-160-162	55 55
126.0	64 2-3 1.0 148-150-154	66 2-3 .5 154-155-158	66 2-2 1.3 156-157-160	66 2-2 1.3 155-157-160	66 2-2 1.3 153-157-160	55 55
121.0	69 2-3 .3 147-149-152	70 2-3 .9 153-154-156	70 2-2 1.0 152-154-157	70 2-2 1.0 151-154-157	70 2-2 1.0 149-154-157	55 55
116.0	72 2-3 2.0 147-148-151	72 2-2 3.3 152-152-155	72 2-2 3.3 150-152-155	72 2-2 3.3 149-152-155	72 2-2 3.3 147-152-155	55 55
111.0	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	55 55
106.0	72 .0 129-129-133	72 .0 129-129-133	72 .0 129-129-133	72 .0 129-129-133	72 .0 129-129-133	55 55
101.0	72 .0 125-126-130	72 .0 125-126-130	72 .0 125-126-130	72 .0 125-126-130	72 .0 125-126-130	55 55

GCLP
GRAN CANARIA
21R

ELEV. = 75 ft TORA = 3100 m
SLOPE = .45 % ASDA = 3314 m
TODA = 3160 m

15/00

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

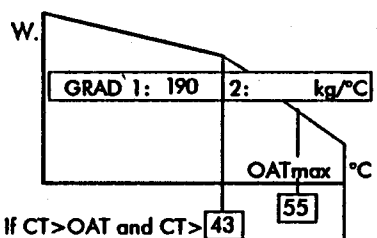
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1016 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT> 43
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-10	-5.0	-10	-3

Minimum v_1: 119 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1600 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	6 2-1 .1 172-173-177	20 2-6 .1 173-174-178	33 2-6 .1 174-175-178	43
157.0	- -	0 3-3 .1 167-169-173	21 2-6 .0 169-170-174	35 2-6 .1 170-171-174	43 2-6 .7 172-173-176	45
155.0	- -	8 3-3 .2 166-168-172	31 6-6 .2 167-168-172	43 2-6 1.0 168-169-173	46 2-6 .3 173-173-176	46
153.0	- -	17 6-6 .1 165-167-171	40 6-6 .1 165-167-171	46 2-6 .7 168-169-173	48 2-3 .0 172-172-176	48 43
151.0	3 3-3 .1 163-166-170	25 6-6 .1 164-166-170	43 6-6 1.4 165-167-171	48 2-3 .5 168-169-173	49 2-3 .8 172-172-176	49 45
149.0	11 3-3 .1 162-165-169	33 6-6 .2 162-165-169	48 3-3 .5 165-166-169	50 2-3 .1 168-169-172	51 2-3 .4 172-172-175	50 46
147.0	19 6-6 .2 160-164-168	42 6-6 .0 161-164-168	50 2-3 .4 164-165-168	51 2-3 1.0 168-168-172	52 2-3 1.1 171-171-175	52 48
145.0	27 6-6 .2 159-163-167	43 6-6 1.8 161-164-167	52 2-3 .1 164-165-168	53 2-3 .6 168-168-171	54 2-3 .6 171-171-174	53 49
143.0	36 6-6 .1 158-162-165	49 3-3 .0 160-162-165	53 2-3 .9 164-165-168	55 2-3 .2 168-168-171	56 2-3 .1 170-170-173	55 50
141.0	43 6-6 .4 156-161-164	51 3-3 .5 159-161-164	55 2-3 .6 164-164-167	56 2-3 1.0 167-167-171	57 2-3 .8 169-169-173	55 52
136.0	51 3-3 .2 155-158-161	57 3-3 .5 158-159-162	59 2-3 1.0 163-163-166	60 2-3 1.1 166-166-168	61 2-3 .8 168-168-170	55 55
131.0	57 3-3 .3 153-156-159	62 2-3 .3 156-157-160	64 2-3 .1 162-162-164	64 2-3 1.1 164-164-167	65 2-3 .8 166-166-168	55 55
126.0	63 3-3 .2 152-153-156	66 2-3 .8 156-156-158	68 2-3 .2 160-160-162	68 2-3 1.2 163-163-165	69 2-3 .8 164-164-166	55 55
121.0	69 3-3 .3 150-151-153	71 2-3 .2 155-155-157	72 2-3 .5 159-159-160	72 2-3 1.3 161-161-163	72 2-3 2.2 164-164-165	55 55
116.0	72 2-3 2.1 149-150-152	72 2-3 4.1 155-155-157	72 .0 147-148-150	72 .0 147-148-150	72 .0 147-148-150	55 55
111.0	72 .0 144-144-147	72 .0 144-144-147	72 .0 144-144-147	72 .0 144-144-147	72 .0 144-144-147	55 55
106.0	72 .0 140-141-143	72 .0 140-141-143	72 .0 140-141-143	72 .0 140-141-143	72 .0 140-141-143	55 55
101.0	72 .0 137-137-140	72 .0 137-137-140	72 .0 137-137-140	72 .0 137-137-140	72 .0 137-137-140	55 55

GCLP
GRAN CANARIA
21R

ELEV. = 75 ft TORA = 3100 m
SLOPE = .45 % ASDA = 3314 m
TODA = 3160 m

15/15

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

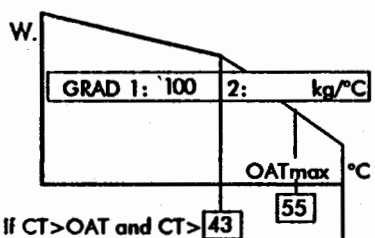
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1016 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>43
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-2	-2.0	-12	-3

Minimum v_1: 117 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1600 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	2 2-3 .1 172-174-177	14 2-3 .1 173-175-178	27 2-2 .0 174-175-178	43
157.0	- -	0 2-3 .0 166-168-172	21 2-3 .0 168-170-173	33 2-3 .1 169-171-174	43 2-3 .3 171-172-175	45
155.0	-2 2-3 .1 160-164-167	18 2-3 .0 162-165-168	38 2-3 .1 164-166-170	43 2-3 .9 167-169-172	45 2-3 .7 170-172-175	46
153.0	15 2-3 .1 157-160-164	35 2-3 .0 158-161-165	43 2-3 1.5 163-165-169	46 2-3 .2 166-168-171	47 2-3 .3 170-172-175	48 43
151.0	32 2-3 .0 153-157-161	43 2-3 1.0 156-160-164	46 2-3 .8 163-165-168	47 2-3 1.0 166-168-171	48 2-3 1.1 170-171-174	49 45
149.0	43 2-3 .6 151-155-159	46 2-3 .4 156-159-163	48 2-3 .5 162-164-168	49 2-3 .7 166-168-171	50 2-2 .4 169-170-173	50 46
147.0	46 2-3 .1 151-154-158	48 2-3 .2 156-159-163	50 2-3 .1 162-164-167	51 2-3 .3 166-168-171	51 2-2 .9 168-169-172	52 48
145.0	47 2-3 1.0 150-154-158	49 2-3 1.0 156-159-162	51 2-3 1.0 162-164-167	52 2-3 1.1 166-167-170	53 2-2 .1 166-168-171	53 49
143.0	49 2-3 .8 150-154-158	51 2-3 .7 156-158-162	53 2-3 .6 162-164-167	54 2-2 .6 166-167-170	54 2-2 .6 165-167-170	55 50
141.0	51 2-3 .5 150-153-157	53 2-3 .4 155-158-162	55 2-3 .3 162-163-166	55 2-2 1.2 165-166-169	55 2-2 1.2 164-166-169	55 52
136.0	55 2-3 1.1 150-153-156	57 2-3 .8 155-157-160	59 2-3 .5 161-162-165	59 2-2 .8 162-163-166	59 2-2 .8 160-163-166	55 55
131.0	60 2-3 .4 149-151-155	62 2-3 .1 154-156-159	63 2-2 .4 159-160-162	63 2-2 .4 158-160-162	63 2-2 .4 156-160-162	55 55
126.0	64 2-3 .9 148-150-153	66 2-3 .5 154-155-158	66 2-2 1.3 156-157-160	66 2-2 1.3 155-157-160	66 2-2 1.3 154-157-160	55 55
121.0	69 2-3 .3 147-149-152	70 2-3 .9 153-154-156	70 2-2 1.0 152-154-157	70 2-2 1.0 151-154-157	70 2-2 1.0 150-154-157	55 55
116.0	72 2-3 1.9 147-148-151	72 2-2 3.3 152-152-155	72 2-2 3.3 150-152-155	72 2-2 3.3 149-152-155	72 2-2 3.3 147-152-155	55 55
111.0	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	55 55
106.0	72 .0 129-129-133	72 .0 129-129-133	72 .0 129-129-133	72 .0 129-129-133	72 .0 129-129-133	55 55
101.0	72 .0 125-126-130	72 .0 125-126-130	72 .0 125-126-130	72 .0 125-126-130	72 .0 125-126-130	55 55

GCLP
GRAN CANARIA
03R

ELEV. = 75 ft TORA = 3100 m
SLOPE = -.43 % ASDA = 3314 m
TODA = 3100 m

15/00

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

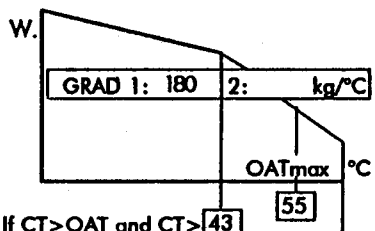
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1016 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT> 43
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-10	-5.0	-10	-3

Minimum v_1: 119 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1600 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	5 2-1 .1 169-172-177	18 2-6 .1 170-173-177	31 2-6 .1 171-174-178	43
157.0	- -	-1 6-6 .2 165-169-173	18 2-6 .1 166-170-174	32 2-6 .1 167-170-174	43 2-6 .5 169-171-176	45
155.0	- -	7 6-6 .1 164-168-172	29 6-6 .1 164-168-172	43 2-6 .4 165-168-172	46 2-6 .1 169-172-176	46
153.0	- -	15 6-6 .1 162-166-171	37 6-6 .2 163-167-171	46 2-6 .4 166-168-172	48 2-6 .1 170-172-176	48 43
151.0	2 6-6 .1 160-165-170	23 6-6 .1 161-165-170	43 6-6 .8 162-166-170	48 2-6 .4 166-168-172	50 2-6 .0 171-172-176	49 45
149.0	10 6-6 .0 159-164-169	31 6-6 .2 160-164-169	48 6-6 .4 163-165-169	50 2-6 .4 167-169-173	51 2-6 1.0 172-172-176	50 46
147.0	18 6-6 .0 157-163-168	40 6-6 .0 158-163-168	50 2-6 .7 163-165-169	52 2-6 .4 168-169-173	53 2-6 .7 172-172-176	52 48
145.0	26 6-6 .0 156-162-166	43 6-6 1.3 158-163-167	52 2-6 .8 164-166-169	54 2-3 .2 169-169-173	55 2-3 .2 172-172-176	53 49
143.0	34 6-6 .1 155-161-165	50 6-6 .1 159-162-165	54 2-3 .6 165-166-169	55 2-3 1.0 169-169-173	56 2-3 .9 171-171-175	55 50
141.0	42 6-6 .2 153-160-164	54 3-3 .1 159-161-164	56 2-3 .3 164-165-169	57 2-3 .6 168-168-172	58 2-3 .4 170-170-174	55 52
136.0	43 6-6 5.0 153-160-164	58 2-3 .6 158-160-163	60 2-3 .6 164-164-167	61 2-3 .6 167-167-170	62 2-3 .3 169-169-172	55 55
131.0	59 3-3 .5 153-155-159	62 2-3 1.1 157-159-162	64 2-3 1.0 163-163-166	65 2-3 .7 165-165-168	66 2-3 .3 167-167-170	55 55
126.0	65 3-3 .4 151-153-156	67 2-3 .4 157-157-160	68 2-3 1.0 161-161-164	69 2-3 .7 163-163-166	70 2-3 .3 165-165-168	55 55
121.0	70 2-3 .1 151-152-154	71 2-3 .9 156-156-159	72 2-3 1.2 160-160-162	72 2-3 2.0 163-163-165	72 2-3 2.8 165-165-167	55 55
116.0	72 2-3 2.9 150-151-154	72 2-3 4.7 156-156-159	72 .0 146-147-150	72 .0 146-147-150	72 .0 146-147-150	55 55
111.0	72 .0 143-144-147	72 .0 143-144-147	72 .0 143-144-147	72 .0 143-144-147	72 .0 143-144-147	55 55
106.0	72 .0 140-140-143	72 .0 140-140-143	72 .0 140-140-143	72 .0 140-140-143	72 .0 140-140-143	55 55
101.0	72 .0 136-136-140	72 .0 136-136-140	72 .0 136-136-140	72 .0 136-136-140	72 .0 136-136-140	55 55

GCLP
GRAN CANARIA
03R

ELEV. = 75 ft TORA = 3100 m
SLOPE = -.43 % ASDA = 3314 m
TODA = 3100 m

15/15

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

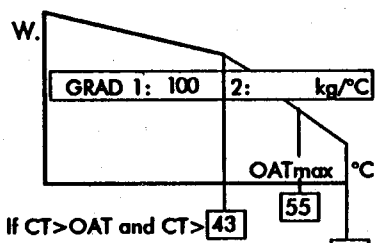
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1016 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT> 43
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-2	-2.0	-12	-3

Minimum v_1: 117 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1600 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	6 1-6 .1 170-173-177	18 2-2 .1 171-174-178	29 2-2 .1 172-175-178	43
157.0	- -	4 2-6 .1 164-168-172	23 2-6 .1 165-169-173	36 2-6 .0 167-170-174	43 2-2 .6 169-173-176	45
155.0	1 2-6 .1 158-163-168	20 2-6 .1 159-164-168	40 2-6 .0 161-166-170	43 2-6 1.2 165-169-173	45 2-6 1.2 170-173-176	46
153.0	16 2-6 .1 153-160-164	36 2-6 .1 155-161-165	43 2-6 1.7 160-165-169	46 2-6 .7 166-169-173	47 2-2 .7 170-172-176	48 43
151.0	32 2-6 .0 150-156-161	43 2-6 1.2 154-160-164	47 2-6 .2 162-166-169	48 2-6 .6 167-169-173	48 2-2 1.3 169-171-175	49 45
149.0	43 2-6 .5 147-154-159	46 2-6 .9 155-160-164	49 2-6 .1 163-166-170	50 2-3 .2 167-169-173	50 2-2 .4 167-170-173	50 46
147.0	46 2-6 .3 148-154-159	48 2-6 .8 156-160-164	50 2-3 1.0 163-166-169	51 2-3 .9 167-169-172	51 2-2 .9 166-169-172	52 48
145.0	48 2-6 .3 149-154-159	50 2-3 .8 157-160-164	52 2-3 .6 163-166-169	53 2-2 .1 165-167-171	53 2-2 .1 164-167-171	53 49
143.0	50 2-6 .4 150-155-159	52 2-3 .5 156-160-164	54 2-3 .2 163-165-169	54 2-2 .6 164-166-170	54 2-2 .6 163-166-170	55 50
141.0	52 2-3 .4 151-155-159	54 2-3 .2 156-160-163	55 2-3 1.0 163-165-169	55 2-2 1.2 163-166-169	55 2-2 1.2 162-166-169	55 52
136.0	56 2-3 .8 150-154-158	58 2-3 .5 156-158-162	59 2-2 .8 161-162-166	59 2-2 .8 160-162-166	59 2-2 .8 158-162-166	55 55
131.0	61 2-3 .2 149-153-156	62 2-3 .9 155-157-161	63 2-2 .4 157-159-162	63 2-2 .4 156-159-162	63 2-2 .4 154-159-162	55 55
126.0	65 2-3 .6 149-151-155	66 2-3 1.2 154-156-160	66 2-2 1.3 154-157-160	66 2-2 1.3 153-157-160	66 2-2 1.3 152-157-160	55 55
121.0	69 2-3 1.1 148-150-154	70 2-2 1.0 152-153-157	70 2-2 1.0 150-153-157	70 2-2 1.0 149-153-157	70 2-2 1.0 148-153-157	55 55
116.0	72 2-3 2.6 148-150-153	72 2-2 3.3 150-152-155	72 2-2 3.3 148-152-155	72 2-2 3.3 147-152-155	72 2-2 3.3 145-152-155	55 55
111.0	72 .0 131-132-136	72 .0 131-132-136	72 .0 131-132-136	72 .0 131-132-136	72 .0 131-132-136	55 55
106.0	72 .0 128-128-133	72 .0 128-128-133	72 .0 128-128-133	72 .0 128-128-133	72 .0 128-128-133	55 55
101.0	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	55 55

GCLP
GRAN CANARIA
03L

ELEV. = 75 ft TORA = 3100 m
SLOPE = -.45 % ASDA = 3314 m
TODA = 3100 m

15/00

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

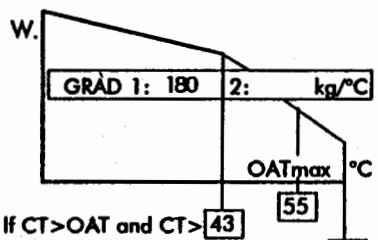
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1016 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>43
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-10	-5.0	-10	-3

Minimum v_1: 119 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1600 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	5 2-1 .1 169-172-177	18 2-6 .1 170-173-177	31 2-6 .1 171-174-178	43
157.0	- -	-1 6-6 .2 165-169-173	18 2-6 .1 166-170-174	32 2-6 .1 167-170-174	43 2-6 .5 169-171-176	45
155.0	- -	7 6-6 .1 164-168-172	29 6-6 .1 164-168-172	43 2-6 .4 165-168-172	46 2-6 .1 169-172-176	46
153.0	- -	15 6-6 .1 162-166-171	37 6-6 .2 163-167-171	46 2-6 .4 166-168-172	48 2-6 .1 170-172-176	48 43
151.0	2 6-6 .1 160-165-170	23 6-6 .1 161-165-170	43 6-6 .8 162-166-170	48 2-6 .4 166-168-172	50 2-6 .0 171-172-176	49 45
149.0	10 6-6 .0 159-164-169	31 6-6 .2 160-164-169	48 6-6 .4 163-165-169	50 2-6 .4 167-169-173	51 2-6 1.0 172-172-176	50 46
147.0	18 6-6 .0 157-163-168	40 6-6 .0 158-163-168	50 2-6 .7 163-165-169	52 2-6 .4 168-169-173	53 2-6 .7 172-173-176	52 48
145.0	26 6-6 .0 156-162-166	43 6-6 1.3 158-163-167	52 2-6 .8 164-166-169	54 2-3 .3 169-169-173	55 2-3 .3 172-172-176	53 49
143.0	34 6-6 .1 155-161-165	50 6-6 .1 158-162-165	54 2-3 .6 165-166-169	55 2-3 1.0 169-169-173	56 2-3 1.0 172-172-175	55 50
141.0	42 6-6 .2 153-160-164	54 3-3 .2 159-161-164	56 2-3 .3 164-165-169	57 2-3 .7 168-168-172	58 2-3 .4 170-170-174	55 52
136.0	43 6-6 5.0 153-160-164	58 2-3 .6 158-160-163	60 2-3 .6 164-164-168	61 2-3 .7 167-167-170	62 2-3 .4 169-169-172	55 55
131.0	59 3-3 .6 153-156-159	62 2-3 1.1 157-159-162	64 2-3 1.0 163-163-166	65 2-3 .7 165-165-168	66 2-3 .3 167-167-170	55 55
126.0	65 3-3 .5 151-153-156	67 2-3 .4 157-157-160	68 2-3 1.0 162-162-164	69 2-3 .7 163-163-166	70 2-3 .3 165-165-168	55 55
121.0	70 2-3 .1 151-152-154	71 2-3 .9 156-156-159	72 2-3 1.2 160-160-163	72 2-3 2.0 163-163-165	72 2-3 2.8 165-165-167	55 55
116.0	72 2-3 2.9 150-151-154	72 2-3 4.8 156-156-159	72 .0 146-147-150	72 .0 146-147-150	72 .0 146-147-150	55 55
111.0	72 .0 143-144-147	72 .0 143-144-147	72 .0 143-144-147	72 .0 143-144-147	72 .0 143-144-147	55 55
106.0	72 .0 140-140-143	72 .0 140-140-143	72 .0 140-140-143	72 .0 140-140-143	72 .0 140-140-143	55 55
101.0	72 .0 136-136-140	72 .0 136-136-140	72 .0 136-136-140	72 .0 136-136-140	72 .0 136-136-140	55 55

GCLP
GRAN CANARIA
03L

ELEV. = 75 ft TORA = 3100 m
SLOPE = -.45 % ASDA = 3314 m
TODA = 3100 m

15/15

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

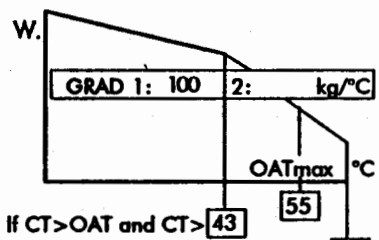
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1016 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT> 43
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-2	-2.0	-12	-3

Minimum v_1: 117 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1600 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	6 1-6 .1 170-173-177	18 2-2 .1 171-174-178	29 2-2 .1 172-175-178	43
157.0	- -	4 2-6 .1 164-168-172	23 2-6 .1 165-169-173	36 2-6 .0 167-170-174	43 2-2 .6 169-173-176	45
155.0	1 2-6 .1 157-163-168	20 2-6 .1 159-164-168	40 2-6 .0 161-166-170	43 2-6 1.2 165-169-173	45 2-6 1.2 170-173-176	46
153.0	16 2-6 .1 153-160-164	36 2-6 .1 155-161-165	43 2-6 1.7 160-165-169	46 2-6 .7 166-169-173	47 2-2 .7 170-172-176	48 43
151.0	32 2-6 .0 149-156-161	43 2-6 1.2 154-160-164	47 2-6 .2 162-166-169	48 2-6 .6 167-169-173	48 2-2 1.3 169-171-175	49 45
149.0	43 2-6 .5 147-154-159	46 2-6 .9 154-160-164	49 2-6 .1 163-166-170	50 2-3 .3 167-169-173	50 2-2 .4 167-170-173	50 46
147.0	46 2-6 .3 148-154-159	48 2-6 .8 155-160-164	50 2-3 1.0 163-166-170	51 2-3 .9 167-169-172	51 2-2 .9 166-169-172	52 48
145.0	48 2-6 .3 149-154-159	50 2-3 .8 157-160-164	52 2-3 .6 163-166-169	53 2-2 .1 165-167-171	53 2-2 .1 164-167-171	53 49
143.0	50 2-6 .4 150-155-159	52 2-3 .5 156-160-164	54 2-3 .2 163-165-169	54 2-2 .6 164-166-170	54 2-2 .6 163-166-170	55 50
141.0	52 2-3 .4 151-155-159	54 2-3 .2 156-160-163	55 2-3 1.1 163-165-169	55 2-2 1.2 163-166-169	55 2-2 1.2 162-166-169	55 52
136.0	56 2-3 .9 150-154-158	58 2-3 .5 156-159-162	59 2-2 .8 161-162-166	59 2-2 .8 160-162-166	59 2-2 .8 158-162-166	55 55
131.0	61 2-3 .2 149-153-157	62 2-3 .9 155-158-161	63 2-2 .4 157-159-162	63 2-2 .4 156-159-162	63 2-2 .4 154-159-162	55 55
126.0	65 2-3 .6 149-151-155	66 2-3 1.2 154-156-160	66 2-2 1.3 154-157-160	66 2-2 1.3 153-157-160	66 2-2 1.3 152-157-160	55 55
121.0	69 2-3 1.1 148-150-154	70 2-2 1.0 152-153-157	70 2-2 1.0 150-153-157	70 2-2 1.0 149-153-157	70 2-2 1.0 147-153-157	55 55
116.0	72 2-3 2.7 148-150-153	72 2-2 3.3 150-152-155	72 2-2 3.3 148-152-155	72 2-2 3.3 147-152-155	72 2-2 3.3 145-152-155	55 55
111.0	72 .0 131-132-136	72 .0 131-132-136	72 .0 131-132-136	72 .0 131-132-136	72 .0 131-132-136	55 55
106.0	72 .0 128-128-133	72 .0 128-128-133	72 .0 128-128-133	72 .0 128-128-133	72 .0 128-128-133	55 55
101.0	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	55 55

EINN SHANNON 24

ELEV. = 47 ft TORA = 3200 m
SLOPE = .28 % ASDA = 3200 m
TODA = 3200 m

15/00

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

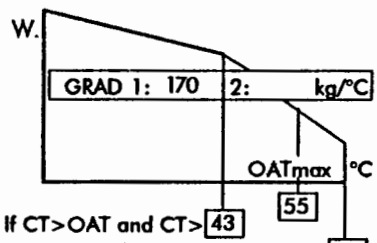
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1015 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT> 43
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-10	-5.0	-10	-3

Minimum v_1: 119 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1600 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	5 2-3 .1 170-173-177	20 2-3 .1 172-174-177	34 2-3 .1 173-175-178	44
157.0	- -	-2 3-3 .0 166-169-173	20 2-3 .1 167-170-174	36 2-3 .1 168-170-174	43 2-3 .9 171-173-176	45
155.0	- -	6 3-3 .2 165-168-172	32 3-3 .0 166-168-172	43 2-3 1.2 167-169-173	46 2-3 .4 171-172-176	46
153.0	- -	15 3-3 .2 164-167-171	41 3-3 .0 164-167-171	46 2-3 .6 167-169-172	48 2-3 .0 171-172-176	48 43
151.0	1 3-3 .2 161-166-170	24 3-3 .2 162-166-170	43 3-3 1.6 164-167-171	48 2-3 .3 167-168-172	49 2-3 .8 170-172-175	49 45
149.0	10 3-3 .1 160-165-169	33 3-3 .1 161-165-169	48 3-3 .1 163-165-169	49 2-3 1.1 166-168-172	51 2-3 .4 170-171-175	51 46
147.0	19 3-3 .1 159-164-168	42 3-3 .2 160-164-168	50 2-3 .3 162-165-168	51 2-3 .8 166-168-171	53 2-3 .0 170-171-174	52 48
145.0	28 3-3 .1 158-163-166	43 3-3 1.9 160-164-168	51 2-3 1.1 162-164-168	53 2-3 .4 166-167-171	54 2-3 .8 170-171-174	53 49
143.0	37 3-3 .1 156-162-165	48 3-3 .4 158-162-166	53 2-3 .8 162-164-167	55 2-3 .1 166-167-170	56 2-3 .4 170-170-174	55 51
141.0	43 3-3 .8 156-161-165	51 3-3 .0 157-161-164	55 2-3 .5 162-164-167	56 2-3 .9 166-167-170	57 2-3 1.2 169-170-173	55 52
136.0	50 3-3 .7 154-158-162	57 3-3 .1 156-159-161	59 2-3 .8 161-163-165	61 2-3 .0 165-165-168	62 2-3 .2 168-168-171	55 55
131.0	56 3-3 .8 152-156-159	62 2-3 .1 154-157-159	64 2-3 .1 160-161-164	65 2-3 .3 164-164-167	66 2-3 .1 167-167-169	55 55
126.0	62 3-3 .6 150-153-156	66 2-3 .6 154-156-158	68 2-3 .4 160-160-163	69 2-3 .5 163-163-165	70 2-3 .1 165-165-167	55 55
121.0	68 3-3 .7 148-151-153	70 2-3 1.1 153-155-157	72 2-3 .8 159-160-161	72 2-3 1.8 162-162-164	72 2-3 2.6 165-165-167	55 55
116.0	72 2-3 2.0 147-150-152	72 2-3 3.9 153-154-156	72 .0 147-147-150	72 .0 147-147-150	72 .0 147-147-150	55 55
111.0	72 .0 144-144-147	72 .0 144-144-147	72 .0 144-144-147	72 .0 144-144-147	72 .0 144-144-147	55 55
106.0	72 .0 140-141-143	72 .0 140-141-143	72 .0 140-141-143	72 .0 140-141-143	72 .0 140-141-143	55 55
101.0	72 .0 137-137-140	72 .0 137-137-140	72 .0 137-137-140	72 .0 137-137-140	72 .0 137-137-140	55 55

EINN SHANNON 24

ELEV. = 47 ft TORA = 3200 m
SLOPE = .28 % ASDA = 3200 m
TODA = 3200 m

15/15

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

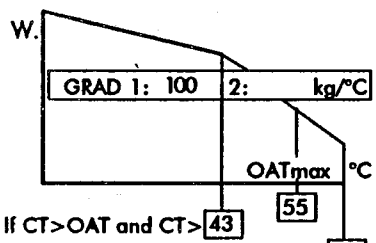
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1015 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>43
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-2	-2.0	-12	-3

Minimum v_1: 117 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1600 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	1 2-3 .1 170-173-177	13 2-3 .1 171-174-178	25 2-2 .0 172-175-178	44
157.0	- -	-1 2-3 .1 164-168-172	20 2-3 .0 166-169-173	32 2-3 .1 167-170-174	43 2-3 .2 168-172-175	45
155.0	-2 2-3 .0 158-163-167	17 2-3 .0 160-164-168	38 2-3 .0 162-166-169	43 2-3 .8 165-168-172	45 2-3 .7 168-171-175	46
153.0	15 2-3 .0 154-160-164	34 2-3 .1 156-161-165	43 2-3 1.4 161-165-168	46 2-3 .2 164-168-171	47 2-3 .3 168-171-174	48 43
151.0	31 2-3 .1 151-157-161	43 2-3 1.0 154-159-163	46 2-3 .8 160-164-168	47 2-3 1.0 164-168-171	48 2-3 1.1 168-171-174	49 45
149.0	43 2-3 .6 149-154-159	46 2-3 .4 154-159-163	48 2-3 .5 160-164-168	49 2-3 .6 164-167-171	50 2-2 .5 168-170-173	51 46
147.0	46 2-3 .1 149-154-158	48 2-3 .2 154-159-162	50 2-3 .1 160-164-167	51 2-3 .2 164-167-170	51 2-2 1.1 167-169-172	52 48
145.0	47 2-3 1.0 148-154-158	49 2-3 1.0 154-158-162	51 2-3 1.0 160-164-167	52 2-3 1.1 164-167-170	53 2-2 .2 165-168-171	53 49
143.0	49 2-3 .8 148-153-157	51 2-3 .7 154-158-162	53 2-3 .6 160-163-167	54 2-3 .7 164-167-170	54 2-2 .7 164-167-170	55 51
141.0	51 2-3 .5 148-153-157	53 2-3 .4 153-158-161	55 2-3 .2 160-163-166	55 2-2 1.3 163-166-169	55 2-2 1.3 163-166-169	55 52
136.0	55 2-3 1.1 148-152-156	57 2-3 .8 153-157-160	59 2-3 .5 159-162-165	59 2-2 .9 161-163-166	59 2-2 .9 160-163-166	55 55
131.0	60 2-3 .4 147-151-155	62 2-3 .1 152-155-159	63 2-2 .5 158-160-163	63 2-2 .5 157-160-163	63 2-2 .5 156-160-163	55 55
126.0	64 2-3 .9 146-150-153	66 2-3 .4 152-154-157	67 2-2 .1 154-156-159	67 2-2 .1 153-156-159	67 2-2 .1 152-156-159	55 55
121.0	69 2-3 .2 145-148-152	70 2-3 .8 151-153-156	70 2-2 1.0 151-154-157	70 2-2 1.0 150-154-157	70 2-2 1.0 149-154-157	55 55
116.0	72 2-3 1.9 145-148-151	72 2-2 3.3 150-152-155	72 2-2 3.3 149-152-155	72 2-2 3.3 148-152-155	72 2-2 3.3 146-152-155	55 55
111.0	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	55 55
106.0	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	55 55
101.0	72 .0 125-126-130	72 .0 125-126-130	72 .0 125-126-130	72 .0 125-126-130	72 .0 125-126-130	55 55

EINN SHANNON 06

ELEV. = 47 ft TORA = 3200 m
SLOPE = -.28 % ASDA = 3200 m
TODA = 3200 m

15/00

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

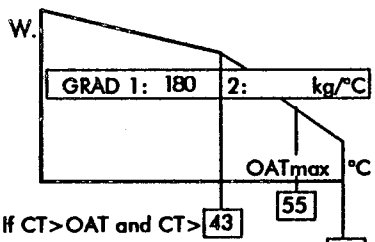
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1015 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>43
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-10	-5.0	-10	-3

Minimum v_1: 119 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1600 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	7 2-1 .0 169-172-177	21 2-1 .0 170-173-177	34 2-6 .1 171-174-178	44
157.0	- -	1 2-6 .2 165-169-174	22 2-6 .1 166-170-174	37 2-6 .0 166-170-174	43 2-6 .9 169-172-176	45
155.0	- -	10 2-6 .1 163-168-172	33 6-6 .0 164-168-172	43 2-6 1.2 165-169-173	46 2-6 .6 170-172-176	46
153.0	-2 6-6 .0 161-166-171	18 6-6 .2 162-167-171	41 6-6 .2 163-167-171	46 2-6 .9 166-169-173	48 2-6 .5 171-173-177	48 43
151.0	5 6-6 .2 160-165-170	27 6-6 .0 161-166-170	43 6-6 1.7 162-167-171	48 2-6 .9 167-169-173	50 2-3 .3 171-173-177	49 45
149.0	13 6-6 .1 158-164-169	35 6-6 .1 159-165-169	49 2-3 .1 163-166-170	50 2-3 .6 167-169-173	51 2-3 1.0 171-172-176	51 46
147.0	21 6-6 .2 157-163-168	43 6-6 .2 158-164-168	50 2-3 .9 163-166-169	52 2-3 .3 167-169-173	53 2-3 .6 171-172-176	52 48
145.0	29 6-6 .2 156-162-167	47 6-6 .5 158-163-167	52 2-3 .6 163-165-169	53 2-3 1.1 166-168-172	55 2-3 .2 171-172-175	53 49
143.0	38 6-6 .1 154-161-165	50 3-3 .4 158-162-166	54 2-3 .3 162-165-169	55 2-3 .7 166-168-172	56 2-3 1.0 170-171-175	55 51
141.0	43 6-6 .9 153-160-165	53 3-3 .0 157-161-164	55 2-3 1.1 162-165-168	57 2-3 .3 166-168-171	58 2-3 .6 170-171-174	55 52
136.0	52 3-3 .7 153-158-162	58 2-3 .3 156-159-162	60 2-3 .3 161-163-167	61 2-3 .6 165-166-170	62 2-3 .7 169-170-173	55 55
131.0	58 3-3 .6 151-156-159	62 2-3 .7 155-158-161	64 2-3 .7 161-162-165	65 2-3 .8 165-165-168	66 2-3 .8 168-168-171	55 55
126.0	64 3-3 .5 150-153-156	67 2-3 .1 154-156-159	68 2-3 1.0 160-161-164	69 2-3 1.1 164-165-167	70 2-3 .7 167-167-169	55 55
121.0	69 2-3 .8 148-151-154	71 2-3 .5 154-156-158	72 2-3 1.3 160-161-163	72 2-3 2.5 164-164-166	72 2-3 3.2 166-166-169	55 55
116.0	72 2-3 2.5 148-151-153	72 2-3 4.4 154-155-158	72 .0 147-147-150	72 .0 147-147-150	72 .0 147-147-150	55 55
111.0	72 .0 143-144-147	72 .0 143-144-147	72 .0 143-144-147	72 .0 143-144-147	72 .0 143-144-147	55 55
106.0	72 .0 140-140-143	72 .0 140-140-143	72 .0 140-140-143	72 .0 140-140-143	72 .0 140-140-143	55 55
101.0	72 .0 136-137-140	72 .0 136-137-140	72 .0 136-137-140	72 .0 136-137-140	72 .0 136-137-140	55 55

EINN SHANNON 06

ELEV. = 47 ft TORA = 3200 m
SLOPE = -.28 % ASDA = 3200 m
TODA = 3200 m

15/15

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

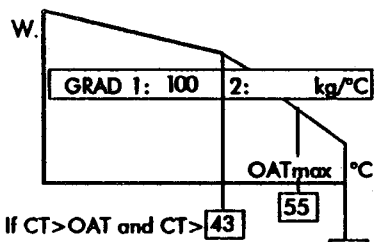
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1015 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>43
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-2	-2.0	-12	-3

Minimum v_1: 117 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1600 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	7 2-1 .1 169-173-177	19 2-2 .1 170-174-178	30 2-2 .0 171-175-178	44
157.0	- -	6 2-3 .0 163-168-172	26 2-3 .1 165-170-173	38 2-3 .1 166-171-174	43 2-2 .8 169-173-176	45
155.0	4 2-3 .1 157-163-168	24 2-3 .0 158-164-168	43 2-3 .1 161-166-170	43 2-3 1.5 165-170-173	46 2-3 .1 169-173-176	46
153.0	20 2-6 .0 153-160-164	40 2-6 .0 155-161-165	45 2-3 .7 161-166-170	46 2-3 .9 165-169-173	47 2-2 .9 168-172-176	48 43
151.0	35 2-6 .1 149-157-161	43 2-6 1.6 154-161-165	47 2-3 .4 161-166-169	48 2-3 .5 165-169-172	48 2-2 1.4 168-172-175	49 45
149.0	43 2-6 1.0 148-155-159	47 2-3 .1 154-160-164	48 2-3 1.2 161-166-169	50 2-3 .1 165-169-172	50 2-2 .5 167-170-173	51 46
147.0	46 2-6 .8 148-155-160	48 2-3 .9 154-160-164	50 2-3 .8 161-165-169	51 2-3 .9 164-168-172	51 2-2 1.1 166-169-172	52 48
145.0	48 2-3 .7 149-155-159	50 2-3 .6 154-160-164	52 2-3 .4 160-165-168	53 2-2 .2 164-167-171	53 2-2 .2 164-167-171	53 49
143.0	50 2-3 .5 148-155-159	52 2-3 .3 154-159-163	54 2-3 .1 160-165-168	54 2-2 .7 163-167-170	54 2-2 .7 163-167-170	55 51
141.0	52 2-3 .2 148-154-159	53 2-3 1.2 154-159-163	55 2-3 .9 160-165-168	55 2-2 1.3 162-166-169	55 2-2 1.3 162-166-169	55 52
136.0	56 2-3 .7 148-154-158	58 2-3 .3 153-158-162	59 2-2 .9 159-163-166	59 2-2 .9 159-163-166	59 2-2 .9 158-163-166	55 55
131.0	60 2-3 1.1 147-152-156	62 2-3 .7 153-157-160	63 2-2 .5 157-159-163	63 2-2 .5 155-159-163	63 2-2 .5 154-159-163	55 55
126.0	65 2-3 .4 147-151-155	66 2-3 1.0 152-156-159	67 2-2 .1 153-156-159	67 2-2 .1 151-156-159	67 2-2 .1 150-156-159	55 55
121.0	69 2-3 .8 146-150-153	70 2-2 1.0 151-154-157	70 2-2 1.0 150-154-157	70 2-2 1.0 148-154-157	70 2-2 1.0 147-154-157	55 55
116.0	72 2-3 2.4 146-149-152	72 2-2 3.3 149-152-155	72 2-2 3.3 148-152-155	72 2-2 3.3 146-152-155	72 2-2 3.3 145-152-155	55 55
111.0	72 .0 131-132-136	72 .0 131-132-136	72 .0 131-132-136	72 .0 131-132-136	72 .0 131-132-136	55 55
106.0	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	55 55
101.0	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	55 55

MUHA HAVANA 23

ELEV. = 210 ft TORA = 4000 m
SLOPE = .00 % ASDA = 4200 m
TODA = 4200 m

15/00

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

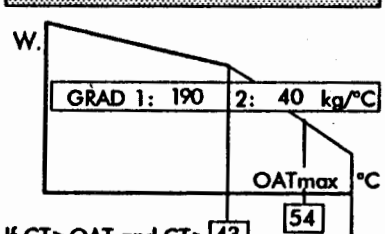
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1021 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>43
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-1	-0.5	-6	-1

Minimum v_1: 119 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1800 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	13 2-6 .0 161-173-177	31 2-6 .1 163-175-178	42 2-1 .0 164-176-179	44 2-1 .4 168-179-182	43
157.0	8 2-6 .0 156-170-174	28 2-6 .1 157-170-174	43 2-6 .4 160-172-176	43 2-1 1.9 164-176-179	46 2-6 .7 169-179-183	44
155.0	18 6-6 .1 154-168-172	38 2-6 .2 155-168-172	45 2-6 .8 161-172-176	47 2-6 .2 166-176-180	48 2-6 .5 170-180-183	46
153.0	26 6-6 .2 152-167-171	43 2-6 1.2 154-168-172	47 2-6 .7 162-172-176	49 2-6 .0 167-176-180	50 2-6 .3 171-180-183	47
151.0	35 6-6 .0 151-166-170	47 2-6 .3 155-167-171	49 2-6 .6 163-173-176	50 2-6 1.0 167-176-180	52 2-6 .1 172-180-183	49 44
149.0	43 6-6 .1 149-165-169	49 2-6 .3 156-168-171	51 2-6 .5 163-173-176	52 2-6 .8 168-177-180	53 2-6 1.0 173-180-184	50 46
147.0	47 6-6 .1 150-164-168	51 2-6 .2 157-168-171	53 2-6 .3 164-173-177	54 2-6 .6 169-177-180	55 2-6 .7 174-181-184	51 47
145.0	50 6-6 .4 151-163-167	53 2-6 .1 158-168-172	55 2-6 .2 165-173-177	56 2-6 .4 170-177-180	57 2-2 .3 175-180-183	53 48
143.0	52 6-6 .8 151-163-166	55 2-6 .1 159-168-172	57 2-6 .0 166-173-177	58 2-6 .2 171-177-180	58 2-2 .9 175-180-182	54 50
141.0	54 2-5 .7 152-163-166	56 2-6 1.0 160-168-172	58 2-6 .9 167-173-177	59 2-6 1.1 172-177-180	60 2-2 .1 174-178-181	54 51
136.0	59 2-5 .2 153-162-165	61 2-6 .8 162-168-171	63 2-6 .6 169-174-177	63 2-2 .9 172-175-178	63 2-2 .9 171-175-178	54 54
131.0	63 2-5 .9 155-161-164	66 2-5 .1 164-167-170	67 2-2 .3 169-172-174	67 2-2 .3 169-172-174	67 2-2 .3 167-172-174	54 54
126.0	68 2-5 .4 157-161-163	70 2-5 .5 164-167-169	70 2-2 1.1 166-169-172	70 2-2 1.1 165-169-172	70 2-2 1.1 164-169-172	54 54
121.0	71 2-5 2.1 156-160-162	71 2-5 4.3 164-167-169	71 2-2 4.7 165-168-171	71 2-2 4.7 164-168-171	71 2-2 4.7 163-168-171	54 54
116.0	71 .0 147-147-150	71 .0 147-147-150	71 .0 147-147-150	71 .0 147-147-150	71 .0 147-147-150	54 54
111.0	71 .0 143-144-147	71 .0 143-144-147	71 .0 143-144-147	71 .0 143-144-147	71 .0 143-144-147	54 54
106.0	71 .0 140-140-143	71 .0 140-140-143	71 .0 140-140-143	71 .0 140-140-143	71 .0 140-140-143	54 54
101.0	71 .0 136-137-140	71 .0 136-137-140	71 .0 136-137-140	71 .0 136-137-140	71 .0 136-137-140	54 54

MUHA HAVANA 05

ELEV. = 210 ft TORA = 4000 m
SLOPE = .00 % ASDA = 4060 m
TODA = 4060 m

15/15

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

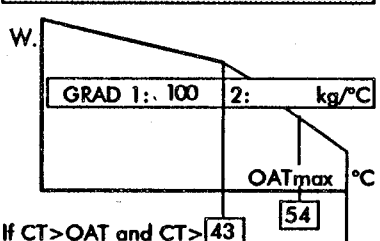
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1021 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>43 use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-2	-2.0	-12	-3

Minimum v_1: 117 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1800 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	9 2-2 .1 161-174-178	26 2-2 .0 163-175-179	26 2-2 .0 164-175-179	26 2-2 .0 165-175-179	43
157.0	10 2-6 .1 154-169-173	29 2-6 .0 156-170-174	43 2-2 .3 160-173-176	43 2-2 1.0 163-175-178	43 2-2 1.0 164-175-178	44
155.0	27 2-6 .1 150-165-169	43 2-6 .2 153-168-171	45 2-6 .6 161-173-176	45 2-2 .8 162-174-177	45 2-2 .8 163-174-177	46
153.0	42 2-6 .1 147-162-166	45 2-6 .5 154-168-171	46 2-2 1.4 161-173-176	46 2-2 1.4 162-173-176	46 2-2 1.4 163-173-176	47
151.0	43 2-6 1.9 147-162-166	47 2-6 .4 155-168-171	48 2-2 .5 160-171-174	48 2-2 .5 161-171-174	48 2-2 .5 161-171-174	49 44
149.0	47 2-6 .2 148-162-166	49 2-6 .2 156-168-171	49 2-2 1.1 160-170-174	49 2-2 1.1 161-170-174	49 2-2 1.1 160-170-174	50 46
147.0	49 2-6 .2 149-163-166	51 2-6 .1 157-168-171	51 2-2 .3 159-169-172	51 2-2 .3 159-169-172	51 2-2 .3 157-169-172	51 47
145.0	51 2-6 .1 150-163-166	52 2-6 .8 157-168-171	52 2-2 .9 159-168-171	52 2-2 .9 158-168-171	52 2-2 .9 156-168-171	53 48
143.0	52 2-6 1.0 151-163-166	54 2-2 .0 157-166-169	54 2-2 .0 158-166-169	54 2-2 .0 156-166-169	54 2-2 .0 154-166-169	54 50
141.0	54 2-6 .8 151-163-166	55 2-2 .6 156-166-169	55 2-2 .6 157-166-169	55 2-2 .6 155-166-169	55 2-2 .6 153-166-169	54 51
136.0	59 2-5 .2 153-162-165	59 2-2 .3 155-162-165	59 2-2 .3 153-162-165	59 2-2 .3 151-162-165	59 2-2 .3 150-162-165	54 54
131.0	63 2-2 .0 153-159-162	63 2-2 .0 152-159-162	63 2-2 .0 149-159-162	63 2-2 .0 147-159-162	63 2-2 .0 147-159-162	54 54
126.0	66 2-2 1.1 151-157-160	66 2-2 1.1 149-157-160	66 2-2 1.1 146-157-160	66 2-2 1.1 145-157-160	66 2-2 1.1 145-157-160	54 54
121.0	70 2-2 .8 147-154-157	70 2-2 .8 145-154-157	70 2-2 .8 142-154-157	70 2-2 .8 142-154-157	70 2-2 .8 142-154-157	54 54
116.0	71 2-2 4.5 146-153-156	71 2-2 4.5 143-153-156	71 2-2 4.5 141-153-156	71 2-2 4.5 141-153-156	71 2-2 4.5 141-153-156	54 54
111.0	71 .0 131-132-136	71 .0 131-132-136	71 .0 131-132-136	71 .0 131-132-136	71 .0 131-132-136	54 54
106.0	71 .0 128-129-133	71 .0 128-129-133	71 .0 128-129-133	71 .0 128-129-133	71 .0 128-129-133	54 54
101.0	71 .0 125-125-130	71 .0 125-125-130	71 .0 125-125-130	71 .0 125-125-130	71 .0 125-125-130	54 54

MUHA
HAVANA
05

ELEV. = 210 ft TORA = 4000 m
SLOPE = .00 % ASDA = 4060 m
TODA = 4060 m

15/00

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

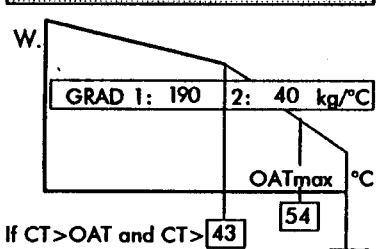
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1021 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT> 43
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-1	-0.5	-6	-1

Minimum v_1: 119 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1800 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	8 2-1 .0 162-173-177	28 2-6 .1 163-174-178	38 2-1 .0 165-175-179	44 1-6 .2 169-178-182	43
157.0	3 2-6 .2 157-170-174	24 2-6 .1 158-170-174	42 2-6 .1 161-171-175	43 2-1 1.5 164-175-178	46 2-6 .3 169-178-182	44
155.0	13 6-6 .2 155-168-172	35 2-6 .0 156-168-172	43 2-6 1.9 161-171-175	46 2-6 .9 165-175-179	48 2-6 .2 170-179-182	46
153.0	22 6-6 .1 154-167-171	43 2-6 .2 155-167-171	47 2-6 .3 162-172-175	48 2-6 .7 166-175-179	49 2-6 1.1 171-179-182	47
151.0	30 6-6 .2 152-166-170	46 6-6 .8 155-167-170	49 2-6 .2 163-172-175	50 2-6 .6 167-175-179	51 2-6 .9 172-179-182	49 44
149.0	39 6-6 .0 151-165-169	48 2-6 .9 156-167-170	51 2-6 .1 164-172-176	52 2-6 .4 168-176-179	53 2-6 .7 173-180-183	50 46
147.0	43 6-6 1.1 150-164-168	50 2-6 .8 157-167-170	52 2-6 1.0 164-172-176	54 2-6 .2 169-176-179	55 2-6 .4 174-180-183	51 47
145.0	48 6-6 .5 151-163-167	52 2-6 .8 158-167-170	54 2-6 .9 165-172-176	56 2-6 .1 170-176-179	57 2-6 .2 175-180-183	53 48
143.0	52 6-6 .1 152-162-166	54 2-6 .7 159-167-171	56 2-6 .8 166-172-176	57 2-6 1.0 171-176-179	58 2-2 .9 176-180-182	54 50
141.0	54 2-6 .4 152-162-166	56 2-6 .7 160-167-171	58 2-6 .6 167-172-176	59 2-6 .8 172-176-179	60 2-2 .1 175-178-181	54 51
136.0	59 2-5 .2 154-162-165	61 2-6 .5 162-167-171	63 2-6 .3 169-173-176	63 2-2 .9 173-175-178	63 2-2 .9 172-175-178	54 54
131.0	63 2-5 .9 156-161-164	66 2-5 .1 164-167-170	67 2-2 .3 170-172-174	67 2-2 .3 169-172-174	67 2-2 .3 168-172-174	54 54
126.0	68 2-5 .4 158-161-163	70 2-5 .5 165-167-169	70 2-2 1.1 167-169-172	70 2-2 1.1 166-169-172	70 2-2 1.1 165-169-172	54 54
121.0	71 2-5 2.1 157-160-162	71 2-5 4.3 165-167-169	71 2-2 4.7 166-168-171	71 2-2 4.7 165-168-171	71 2-2 4.7 164-168-171	54 54
116.0	71 .0 147-147-150	71 .0 147-147-150	71 .0 147-147-150	71 .0 147-147-150	71 .0 147-147-150	54 54
111.0	71 .0 143-144-147	71 .0 143-144-147	71 .0 143-144-147	71 .0 143-144-147	71 .0 143-144-147	54 54
106.0	71 .0 140-140-143	71 .0 140-140-143	71 .0 140-140-143	71 .0 140-140-143	71 .0 140-140-143	54 54
101.0	71 .0 136-137-140	71 .0 136-137-140	71 .0 136-137-140	71 .0 136-137-140	71 .0 136-137-140	54 54

MUHA HAVANA 23

ELEV. = 210 ft TORA = 4000 m
SLOPE = .00 % ASDA = 4200 m
TODA = 4200 m

15/15

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

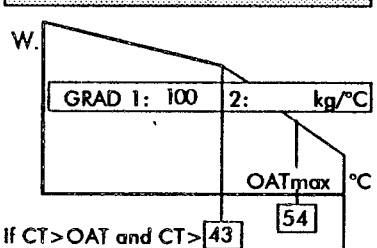
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1021 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>43
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-2	-2.0	-12	-3

Minimum v_1: 117 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1800 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	14 2-6 .1 160-175-178	26 2-2 .0 162-175-179	26 2-2 .0 162-175-179	26 2-2 .0 163-175-179	43
157.0	14 2-6 .0 153-169-173	32 2-6 .1 155-171-174	43 2-2 .7 160-174-177	43 2-2 1.0 162-175-178	43 2-2 1.0 162-175-178	44
155.0	31 2-6 .0 149-166-169	43 2-6 .6 153-169-172	45 2-2 .8 160-174-177	45 2-2 .8 161-174-177	45 2-2 .8 162-174-177	46
153.0	43 2-6 .4 146-163-167	45 2-6 1.0 154-169-172	46 2-2 1.4 160-173-176	46 2-2 1.4 160-173-176	46 2-2 1.4 161-173-176	47
151.0	45 2-6 .8 147-163-167	47 2-6 .8 155-169-172	48 2-2 .5 159-171-174	48 2-2 .5 160-171-174	48 2-2 .5 159-171-174	49 44
149.0	47 2-6 .7 148-163-167	49 2-6 .6 156-169-172	49 2-2 1.1 159-170-174	49 2-2 1.1 159-170-174	49 2-2 1.1 158-170-174	50 46
147.0	49 2-6 .6 149-164-167	51 2-2 .3 156-169-172	51 2-2 .3 158-169-172	51 2-2 .3 158-169-172	51 2-2 .3 156-169-172	51 47
145.0	51 2-5 .5 150-164-167	52 2-2 .9 156-168-171	52 2-2 .9 158-168-171	52 2-2 .9 157-168-171	52 2-2 .9 155-168-171	53 48
143.0	53 2-5 .1 150-163-167	54 2-2 .0 155-166-169	54 2-2 .0 156-166-169	54 2-2 .0 155-166-169	54 2-2 .0 153-166-169	54 50
141.0	54 2-5 .9 150-163-166	55 2-2 .6 155-166-169	55 2-2 .6 155-166-169	55 2-2 .6 153-166-169	55 2-2 .6 153-166-169	54 51
136.0	59 2-5 .2 152-162-165	59 2-2 .3 154-162-165	59 2-2 .3 152-162-165	59 2-2 .3 150-162-165	59 2-2 .3 150-162-165	54 54
131.0	63 2-2 .0 152-159-162	63 2-2 .0 150-159-162	63 2-2 .0 148-159-162	63 2-2 .0 147-159-162	63 2-2 .0 147-159-162	54 54
126.0	66 2-2 1.1 150-157-160	66 2-2 1.1 147-157-160	66 2-2 1.1 145-157-160	66 2-2 1.1 145-157-160	66 2-2 1.1 145-157-160	54 54
121.0	70 2-2 .8 146-154-157	70 2-2 .8 143-154-157	70 2-2 .8 142-154-157	70 2-2 .8 142-154-157	70 2-2 .8 142-154-157	54 54
116.0	71 2-2 4.5 144-153-156	71 2-2 4.5 142-153-156	71 2-2 4.5 141-153-156	71 2-2 4.5 141-153-156	71 2-2 4.5 141-153-156	54 54
111.0	71 .0 131-132-136	71 .0 131-132-136	71 .0 131-132-136	71 .0 131-132-136	71 .0 131-132-136	54 54
106.0	71 .0 128-129-133	71 .0 128-129-133	71 .0 128-129-133	71 .0 128-129-133	71 .0 128-129-133	54 54
101.0	71 .0 125-125-130	71 .0 125-125-130	71 .0 125-125-130	71 .0 125-125-130	71 .0 125-125-130	54 54

MYNN NASSAU 14/32

ELEV. = 10 ft TORA = 3352 m
SLOPE = .00 % ASDA = 3413 m
TODA = 3413 m

15/00

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

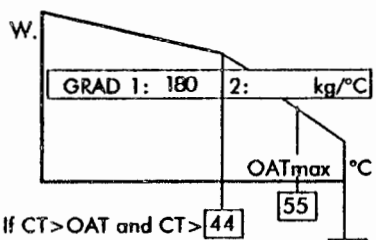
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1013 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>44
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-6	-4.5	-8	-3

Minimum v_1: 119 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this lost value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1600 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	14 2-6 .1 168-173-177	27 2-1 .1 169-174-178	39 2-1 .1 170-174-178	44
157.0	- -	7 2-6 .2 164-170-174	29 2-6 .2 165-170-174	43 2-6 .0 166-170-174	44 2-6 1.5 169-174-178	45
155.0	- -	17 6-6 .1 162-168-172	40 2-6 .0 163-168-172	44 2-6 1.8 166-170-174	47 2-6 .4 171-174-178	47
153.0	4 6-6 .2 160-167-171	25 6-6 .2 161-167-171	44 6-6 1.2 162-168-172	47 2-6 .8 167-171-175	49 2-6 .3 172-175-178	48 44
151.0	12 6-6 .1 159-166-170	34 6-6 .1 159-166-170	48 2-6 .1 163-168-171	49 2-6 .7 168-171-175	51 2-6 .2 173-175-179	49 45
149.0	20 6-6 .2 157-165-169	42 6-6 .2 158-165-169	50 2-6 .1 164-168-172	51 2-6 .7 169-171-175	52 2-6 1.1 174-175-179	51 46
147.0	28 6-6 .2 156-164-168	44 6-6 1.7 158-165-169	52 2-6 .1 165-168-172	53 2-6 .5 170-172-175	54 2-3 .8 175-176-179	52 48
145.0	37 6-6 .1 154-162-167	51 6-6 .1 159-163-167	53 2-6 1.0 165-168-172	55 2-3 .2 170-172-175	56 2-3 .4 174-175-178	53 49
143.0	44 6-6 .4 153-162-166	53 2-6 .5 160-163-166	55 2-3 .7 166-168-172	56 2-3 1.0 170-171-175	57 2-3 1.1 174-175-178	55 51
141.0	48 6-6 .4 154-161-164	55 2-3 .3 160-163-166	57 2-3 .3 165-167-171	58 2-3 .5 169-171-174	59 2-3 .7 174-174-177	55 52
136.0	56 3-3 .9 154-159-162	59 2-3 .7 159-162-165	61 2-3 .5 165-166-169	62 2-3 .7 169-169-173	63 2-3 .7 173-173-176	55 55
131.0	62 2-3 .1 153-156-159	63 2-3 1.0 158-161-163	65 2-3 .8 164-165-168	66 2-3 .9 168-168-171	67 2-3 .5 171-171-173	55 55
126.0	66 2-3 .6 152-155-158	68 2-3 .2 158-160-162	69 2-3 1.0 164-164-167	70 2-3 .9 167-167-170	70 2-2 1.4 169-169-172	55 55
121.0	70 2-3 1.0 152-154-157	72 2-3 .6 157-159-161	72 2-3 2.4 163-164-166	72 2-3 3.4 167-167-169	72 2-2 3.5 167-167-170	55 55
116.0	72 2-3 3.8 151-154-156	72 .0 147-147-150	72 .0 147-147-150	72 .0 147-147-150	72 .0 147-147-150	55 55
111.0	72 .0 143-144-147	72 .0 143-144-147	72 .0 143-144-147	72 .0 143-144-147	72 .0 143-144-147	55 55
106.0	72 .0 140-140-143	72 .0 140-140-143	72 .0 140-140-143	72 .0 140-140-143	72 .0 140-140-143	55 55
101.0	72 .0 136-137-140	72 .0 136-137-140	72 .0 136-137-140	72 .0 136-137-140	72 .0 136-137-140	55 55

MYNN NASSAU 14/32

ELEV. = 10 ft TORA = 3352 m
SLOPE = .00 % ASDA = 3413 m
TODA = 3413 m

15/15

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

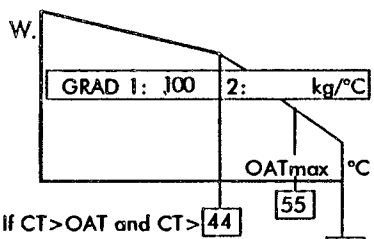
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1013 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>44
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-2	-2.0	-12	-3

Minimum v_1: 117 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1600 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	15 2-6 .1 169-174-178	28 2-2 .0 170-175-178	34 2-2 .0 171-175-179	44
157.0	- -	14 2-6 .0 162-169-172	33 2-6 .1 164-170-174	44 2-6 .1 166-172-175	44 2-2 1.4 170-175-178	45
155.0	11 2-6 .1 156-164-168	31 2-6 .0 158-165-169	44 2-6 .7 162-168-172	45 2-6 1.1 166-172-175	46 2-2 .5 170-173-177	47
153.0	27 2-6 .1 152-160-164	44 2-6 .3 155-162-166	46 2-6 .6 162-168-172	47 2-6 .9 168-172-175	47 2-2 1.1 169-173-176	48 44
151.0	43 2-6 .0 148-157-161	46 2-6 .3 156-163-166	48 2-6 .5 164-169-172	49 2-2 .2 167-171-174	49 2-2 .2 167-171-174	49 45
149.0	44 2-6 1.8 148-157-161	48 2-6 .2 157-163-167	50 2-3 .2 164-169-172	50 2-2 .7 167-170-173	50 2-2 .7 166-170-173	51 46
147.0	47 2-6 .8 149-157-161	50 2-3 .1 158-163-167	51 2-3 1.0 164-169-172	51 2-2 1.3 166-169-172	51 2-2 1.3 165-169-172	52 48
145.0	49 2-6 .8 150-157-161	51 2-3 .9 157-163-166	53 2-3 .3 164-168-171	53 2-2 .4 164-168-171	53 2-2 .4 163-168-171	53 49
143.0	51 2-6 .8 151-158-162	53 2-3 .6 157-163-166	54 2-2 .9 163-167-170	54 2-2 .9 163-167-170	54 2-2 .9 161-167-170	55 51
141.0	53 2-3 .6 152-158-161	55 2-3 .2 157-162-166	56 2-2 .1 162-165-168	56 2-2 .1 161-165-168	56 2-2 .1 159-165-168	55 52
136.0	57 2-3 .9 151-157-160	59 2-3 .4 157-161-164	59 2-2 1.0 159-163-166	59 2-2 1.0 158-163-166	59 2-2 1.0 156-163-166	55 55
131.0	62 2-3 .1 150-155-159	63 2-3 .5 156-160-163	63 2-2 .6 156-160-163	63 2-2 .6 154-160-163	63 2-2 .6 153-160-163	55 55
126.0	66 2-3 .5 150-154-157	67 2-2 .1 153-156-159	67 2-2 .1 152-156-159	67 2-2 .1 150-156-159	67 2-2 .1 149-156-159	55 55
121.0	70 2-3 .8 149-153-156	70 2-2 1.0 150-154-157	70 2-2 1.0 149-154-157	70 2-2 1.0 147-154-157	70 2-2 1.0 145-154-157	55 55
116.0	72 2-2 3.3 148-152-155	72 2-2 3.3 148-152-155	72 2-2 3.3 146-152-155	72 2-2 3.3 145-152-155	72 2-2 3.3 143-152-155	55 55
111.0	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	55 55
106.0	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	55 55
101.0	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	55 55

MYNN NASSAU 09/27

ELEV. = 10 ft TORA = 2510 m
SLOPE = .00 % ASDA = 2510 m
TODA = 2510 m

15/00

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

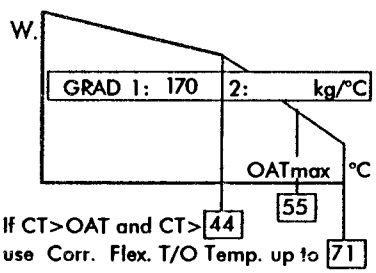
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1013 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>44
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-10	-5.0	-10	-3

Minimum v_1: 119 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1600 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	- -	- -	- -	44
157.0	- -	- -	- -	- -	- -	45
155.0	- -	- -	- -	- -	1 3-3 .1 167-168-172	47
153.0	- -	- -	- -	- -	10 3-3 .0 165-167-171	48 44
151.0	- -	- -	- -	2 3-3 .1 164-166-170	18 3-3 .2 164-166-170	49 45
149.0	- -	- -	- -	11 3-3 .0 162-164-169	27 3-3 .2 163-165-169	51 46
147.0	- -	- -	3 3-3 .1 161-163-168	19 3-3 .2 161-164-168	36 3-3 .2 162-164-168	52 48
145.0	- -	- -	12 3-3 .0 159-162-166	28 3-3 .2 160-162-167	44 3-3 .4 161-163-167	53 49
143.0	- -	- -	21 3-3 .0 158-161-165	37 3-3 .2 159-161-165	47 3-3 .0 160-162-165	55 51
141.0	- -	5 3-3 .0 156-160-164	29 3-3 .2 157-160-164	44 3-3 .6 158-161-164	49 3-3 .4 159-161-164	55 52
136.0	4 3-3 .0 152-157-161	27 3-3 .0 152-157-161	44 3-3 1.9 155-158-162	51 3-3 .0 156-158-161	55 3-3 .8 158-159-162	55 55
131.0	25 3-3 .2 149-154-159	44 3-3 1.2 150-155-159	52 3-3 .5 152-155-159	57 3-3 .1 154-155-159	61 3-3 .4 156-156-159	55 55
126.0	44 3-3 1.0 146-152-156	51 3-3 .7 148-152-156	58 3-3 .5 151-153-156	63 3-3 .0 152-153-156	66 2-3 .1 154-154-157	55 55
121.0	51 3-3 .6 144-149-153	58 3-3 .1 146-149-153	64 3-3 .6 149-150-153	69 3-3 .1 150-150-153	70 2-3 .4 153-153-155	55 55
116.0	58 3-3 .1 142-146-150	64 3-3 .3 144-147-150	71 3-3 .1 147-147-150	72 2-3 2.0 149-149-152	72 2-3 3.1 152-152-154	55 55
111.0	64 3-3 .5 140-143-147	70 3-3 .7 142-144-147	72 3-3 4.4 146-147-149	72 .0 143-144-147	72 .0 143-144-147	55 55
106.0	71 3-3 .3 138-141-144	72 3-3 4.3 142-143-146	72 .0 140-140-143	72 .0 140-140-143	72 .0 140-140-143	55 55
101.0	72 3-3 4.7 138-140-143	72 .0 136-137-140	72 .0 136-137-140	72 .0 136-137-140	72 .0 136-137-140	55 55

MYNN NASSAU 09/27

ELEV. = 10 ft TORA = 2510 m
SLOPE = .00 % ASDA = 2510 m
TODA = 2510 m

15/15

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

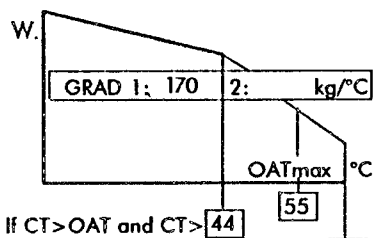
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1013 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>44
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-8	-5.5	-12	-3

Minimum v_1: 117 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1600 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	- -	- -	- -	44
157.0	- -	- -	- -	- -	- -	45
155.0	- -	- -	- -	-1 2-3 .0 160-163-167	12 2-3 .0 161-164-168	47
153.0	- -	- -	2 2-3 .1 156-159-163	16 2-3 .0 157-160-164	29 2-3 .1 158-160-165	48 44
151.0	- -	- -	19 2-3 .0 152-156-160	32 2-3 .1 153-157-161	44 2-3 .2 155-158-162	49 45
149.0	- -	11 2-3 .0 148-152-157	34 2-3 .1 150-153-157	44 2-3 .5 151-154-159	45 2-3 1.1 155-158-162	51 46
147.0	- -	21 3-3 .0 147-151-155	44 3-3 .5 148-151-156	46 2-3 .3 151-154-158	47 2-3 .8 154-157-161	52 48
145.0	6 3-3 .2 145-149-154	29 3-3 .2 146-149-154	46 2-3 .6 147-151-155	48 2-3 .1 151-154-158	49 2-3 .6 154-157-161	53 49
143.0	15 3-3 .1 144-148-153	39 3-3 .0 144-148-153	48 2-3 .5 147-150-155	49 2-3 1.0 150-153-158	51 2-3 .3 154-156-160	55 51
141.0	24 3-3 .1 143-147-152	44 3-3 .9 144-148-153	50 2-3 .2 147-150-154	51 2-3 .7 150-153-157	52 2-3 1.1 154-156-160	55 52
136.0	44 3-3 .6 140-145-150	51 3-3 .4 142-145-150	54 2-3 .8 147-149-153	56 2-3 .1 150-152-156	57 2-3 .4 153-155-159	55 55
131.0	51 3-3 .1 138-142-147	56 2-3 1.1 141-144-148	59 2-3 .3 146-148-152	60 2-3 .6 149-151-155	61 2-3 .8 153-154-158	55 55
126.0	57 3-3 .3 136-140-144	61 2-3 .6 140-142-146	63 2-3 .8 145-147-151	64 2-3 1.1 148-150-153	66 2-3 .0 152-153-156	55 55
121.0	63 3-3 .3 135-138-142	66 2-3 .2 139-141-145	68 2-3 .2 144-146-149	69 2-3 .4 148-149-152	70 2-3 .4 151-152-155	55 55
116.0	68 2-3 .9 133-136-139	70 2-3 .9 138-140-143	72 2-3 .8 144-145-148	72 2-3 2.0 147-148-151	72 2-3 3.1 151-151-154	55 55
111.0	72 2-3 1.8 133-135-138	72 2-3 3.7 138-140-143	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	55 55
106.0	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	55 55
101.0	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	55 55

MMMX MEXICO CITY 05L

ELEV. = 7341 ft
SLOPE = .00 %
TORA = 3340 m
ASDA = 3626 m
TODA = 3626 m

15/00

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

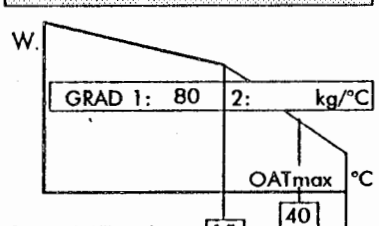
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1254 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>15
use Corr. Flex. T/O Temp. up to 57

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-6	-4.5	-8	-3

Minimum v_1: 119 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 8900 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	- -	- -	- -	
157.0	- -	- -	- -	- -	- -	
155.0	- -	- -	- -	- -	- -	
153.0	- -	- -	- -	- -	- -	
151.0	- -	- -	- -	- -	- -	
149.0	- -	- -	- -	- -	- -	
147.0	- -	- -	- -	- -	- -	16
145.0	- -	- -	- -	- -	- -	18
143.0	- -	- -	- -	- -	- -	21
141.0	- -	- -	- -	- -	- -	23 16
136.0	- -	- -	- -	- -	- -	28 22
131.0	- -	- -	- -	-26 4-4 .0 170-170-174	15 4-4 .2 171-171-174	32 27
126.0	- -	0 4-5 .0 163-163-166	15 4-5 1.8 164-164-168	15 4-4 3.7 168-168-172	22 4-4 .5 168-168-171	37 32
121.0	13 4-5 .0 152-152-156	15 4-5 3.5 158-158-162	25 4-5 .2 162-162-165	27 4-4 .2 165-165-168	28 4-4 .4 165-165-168	40 37
116.0	15 4-5 4.8 152-152-155	27 4-5 .7 156-156-158	31 4-5 .6 161-161-164	33 4-4 .1 162-162-164	34 4-4 .1 162-162-164	40 40
111.0	30 4-5 .2 148-148-151	34 4-5 .4 154-154-157	37 4-4 .5 159-159-161	38 4-4 .6 159-159-161	39 4-4 .6 159-159-161	40 40
106.0	37 4-5 .1 147-147-150	41 4-5 .0 153-153-155	43 4-4 .3 155-155-157	44 4-4 .3 155-155-157	45 4-4 .4 155-155-157	40 40
101.0	44 4-5 .1 146-146-148	47 4-5 .5 152-152-153	49 4-4 .2 152-152-153	50 4-4 .2 152-152-153	51 4-4 .2 152-152-153	40 40

MMMX
MEXICO CITY
05L

ELEV. = 7341 ft
SLOPE = .00 %

TORA = 3340 m
ASDA = 3626 m
TODA = 3626 m

15/15

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

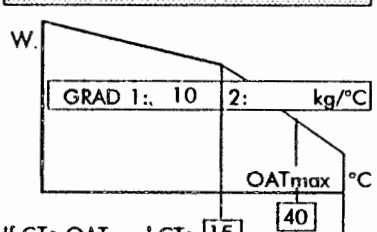
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1254 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>15
use Corr. Flex. T/O Temp. up to 57

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-2	-2.0	-12	-3

Minimum v_1: 117 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 8900 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	- -	- -	- -	
157.0	- -	- -	- -	- -	- -	
155.0	- -	- -	- -	- -	- -	
153.0	- -	- -	- -	- -	- -	
151.0	- -	- -	- -	- -	- -	
149.0	- -	- -	- -	- -	- -	
147.0	- -	- -	- -	- -	- -	16
145.0	- -	- -	- -	- -	- -	18
143.0	- -	- -	- -	- -	- -	21
141.0	- -	- -	- -	- -	- -	23 16
136.0	- -	- -	- -	- -	- -	28 22
131.0	- -	- -	- -	- -	- -	32 27
126.0	- -	- -	- -	- -	- -	37 32
121.0	-14 4-4 .0 151-151-156	15 4-4 1.4 153-153-157	15 4-4 3.2 154-154-158	15 4-4 4.1 155-155-159	15 4-4 4.4 155-155-159	40 37
116.0	15 4-4 4.4 143-151-156	24 4-4 .6 149-149-153	26 4-4 .7 149-149-153	27 4-4 .8 149-149-153	28 4-4 .2 149-149-153	40 40
111.0	28 4-4 .7 146-146-150	31 4-4 .1 146-146-150	33 4-4 .0 146-146-150	33 4-4 .8 147-147-150	34 4-4 .1 146-146-150	40 40
106.0	35 4-4 .1 143-143-146	37 4-4 .1 143-143-146	38 4-4 .8 143-143-147	39 4-4 .6 143-143-147	39 4-4 .8 144-144-147	40 40
101.0	41 4-4 .2 140-140-143	43 4-4 .2 140-140-143	45 4-4 .0 140-140-143	45 4-4 .6 140-140-143	45 4-4 .8 140-140-143	40 40

MMMX MEXICO CITY 05R

ELEV. = 7341 ft TORA = 3900 m
SLOPE = .00 % ASDA = 3900 m
TODA = 3900 m

15/00

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

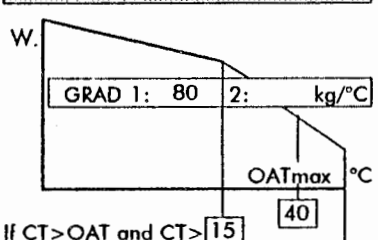
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1254 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>15
use Corr. Flex. T/O Temp. up to 57

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-1	-0.5	-6	-1

Minimum v_1: 119 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 8900 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	- -	- -	- -	
157.0	- -	- -	- -	- -	- -	
155.0	- -	- -	- -	- -	- -	
153.0	- -	- -	- -	- -	- -	
151.0	- -	- -	- -	- -	- -	
149.0	- -	- -	- -	- -	- -	
147.0	- -	- -	- -	- -	- -	16
145.0	- -	- -	- -	- -	- -	18
143.0	- -	- -	- -	- -	- -	21
141.0	- -	- -	- -	- -	- -	23 16
136.0	- -	- -	- -	- -	- -	28 22
131.0	- -	- -	- -	-6 4-4 .0 170-170-174	15 4-4 .7 171-171-175	32 27
126.0	-29 4-5 .1 165-165-169	3 4-5 .1 162-162-165	15 4-5 2.1 164-165-168	15 4-4 4.1 168-168-172	23 4-4 .1 168-168-171	37 32
121.0	15 4-5 .2 152-152-155	15 4-5 3.8 158-158-162	25 4-5 .5 162-162-165	27 4-4 .6 165-165-168	28 4-4 .8 165-165-168	40 37
116.0	23 4-5 .4 150-150-153	28 4-5 .2 155-155-158	32 4-5 .1 161-161-163	33 4-4 .4 162-162-164	34 4-4 .5 162-162-164	40 40
111.0	30 4-5 .5 148-148-151	34 4-5 .7 154-154-157	37 4-4 .9 159-159-161	39 4-4 .0 159-159-160	40 4-4 .1 159-159-160	40 40
106.0	37 4-5 .4 147-147-150	41 4-5 .3 153-153-155	43 4-4 .6 156-156-157	44 4-4 .7 156-156-157	45 4-4 .7 156-156-157	40 40
101.0	44 4-5 .3 146-146-148	48 4-4 .0 152-152-153	49 4-4 .6 152-152-154	50 4-4 .6 152-152-154	51 4-4 .5 152-152-154	40 40

MMMX MEXICO CITY 05R

ELEV. = 7341 ft TORA = 3900 m
SLOPE = .00 % ASDA = 3900 m
TODA = 3900 m

15/15

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

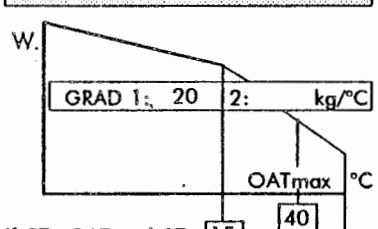
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1254 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>15
use Corr. Flex. T/O Temp. up to 57

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-2	-2.0	-12	-3

Minimum v_1: 117 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 8900 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	- -	- -	- -	
157.0	- -	- -	- -	- -	- -	
155.0	- -	- -	- -	- -	- -	
153.0	- -	- -	- -	- -	- -	
151.0	- -	- -	- -	- -	- -	
149.0	- -	- -	- -	- -	- -	
147.0	- -	- -	- -	- -	- -	16
145.0	- -	- -	- -	- -	- -	18
143.0	- -	- -	- -	- -	- -	21
141.0	- -	- -	- -	- -	- -	23 16
136.0	- -	- -	- -	- -	- -	28 22
131.0	- -	- -	- -	- -	- -	32 27
126.0	- -	- -	- -	- -	- -	37 32
121.0	6 4-4 .0 152-152-156	15 4-4 1.8 153-153-157	15 4-4 3.6 154-154-158	15 4-4 4.1 155-155-159	15 4-4 4.4 155-155-159	40 37
116.0	15 4-4 4.8 151-151-156	25 4-4 .2 149-149-153	27 4-4 .3 149-149-153	27 4-4 .8 149-149-153	28 4-4 .2 149-149-153	40 40
111.0	29 4-4 .3 146-146-150	31 4-4 .5 146-146-150	33 4-4 .4 146-146-150	33 4-4 .8 147-147-150	34 4-4 .1 146-146-150	40 40
106.0	35 4-4 .4 143-143-146	37 4-4 .4 143-143-146	39 4-4 .3 143-143-146	39 4-4 .6 143-143-147	39 4-4 .8 144-144-147	40 40
101.0	41 4-4 .5 140-140-143	43 4-4 .5 140-140-143	45 4-4 .4 140-140-143	45 4-4 .6 140-140-143	45 4-4 .8 140-140-143	40 40

MMMX MEXICO CITY 23L

ELEV. = 7341 ft TORA = 3900 m
SLOPE = .00 % ASDA = 3900 m
TODA = 3900 m

15/00

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

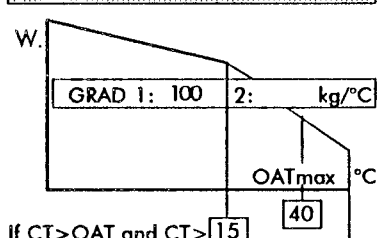
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1254 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>15
use Corr. Flex. T/O Temp. up to 57

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-1	-0.5	-6	-1

Minimum v_1: 119 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 8900 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	- -	- -	- -	
157.0	- -	- -	- -	- -	- -	
155.0	- -	- -	- -	- -	- -	
153.0	- -	- -	- -	- -	- -	
151.0	- -	- -	- -	- -	- -	
149.0	- -	- -	- -	- -	- -	
147.0	- -	- -	- -	- -	- -	16
145.0	- -	- -	- -	- -	- -	18
143.0	- -	- -	- -	- -	- -	21
141.0	- -	- -	- -	- -	- -	23 16
136.0	- -	- -	- -	-7 4-4 .0 171-174-177	15 4-4 .1 169-173-176	28 22
131.0	- -	-5 4-5 .0 161-164-168	15 4-5 1.2 162-164-168	15 4-5 3.3 165-169-172	22 4-5 .7 170-171-174	32 27
126.0	6 4-5 .1 152-154-158	15 4-5 2.8 156-158-161	24 4-5 .4 162-162-165	26 4-5 .7 166-166-169	28 4-4 .6 168-168-171	37 32
121.0	15 4-5 3.9 149-152-155	26 4-5 .6 156-156-159	30 4-5 .6 161-161-164	32 4-5 .8 165-165-167	34 4-4 .1 165-165-167	40 37
116.0	28 4-5 .7 149-149-152	33 4-5 .2 154-154-157	36 4-5 .7 160-160-162	38 4-4 .4 162-162-164	39 4-4 .4 162-162-164	40 40
111.0	35 4-5 .5 147-147-150	39 4-5 .5 153-153-155	42 4-5 .7 159-159-161	43 4-4 .8 159-159-161	44 4-4 .8 159-159-161	40 40
106.0	42 4-5 .2 146-146-149	46 4-5 .0 152-152-154	48 4-4 .5 156-156-157	49 4-4 .5 156-156-157	50 4-4 .4 156-156-157	40 40
101.0	49 4-5 .1 145-145-147	52 4-5 .4 151-151-153	54 4-4 .2 152-152-153	55 4-4 .1 152-152-153	56 4-4 .0 152-152-153	40 40

MMMX
MEXICO CITY
23L

ELEV. = 7341 ft TORA = 3900 m
SLOPE = .00 % ASDA = 3900 m
TODA = 3900 m

15/15

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

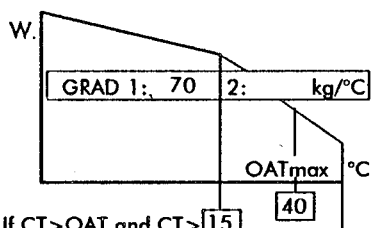
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1254 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>15
use Corr. Flex. T/O Temp. up to 57

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-2	-2.0	-12	-3

Minimum v_1: 117 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 8900 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	- -	- -	- -	
157.0	- -	- -	- -	- -	- -	
155.0	- -	- -	- -	- -	- -	
153.0	- -	- -	- -	- -	- -	
151.0	- -	- -	- -	- -	- -	
149.0	- -	- -	- -	- -	- -	
147.0	- -	- -	- -	- -	- -	16
145.0	- -	- -	- -	- -	- -	18
143.0	- -	- -	- -	- -	- -	21
141.0	- -	- -	- -	- -	- -	23 16
136.0	- -	- -	- -	- -	- -	28 22
131.0	- -	- -	- -	10 4-4 .0 159-159-162	15 4-4 1.0 159-159-163	32 27
126.0	4 4-4 .0 154-154-158	15 4-4 2.0 157-157-160	15 4-4 3.8 158-158-161	15 4-4 4.9 159-159-162	23 4-4 .5 156-156-159	37 32
121.0	15 4-4 4.0 151-151-156	25 4-4 .1 152-152-156	27 4-4 .1 153-153-156	28 4-4 .3 153-153-156	29 4-4 .5 153-153-156	40 37
116.0	28 4-5 .6 148-148-152	31 4-4 .1 149-149-153	32 4-4 .9 150-150-153	34 4-4 .1 149-149-153	35 4-4 .1 150-150-153	40 40
111.0	35 4-4 .0 146-146-150	36 4-4 .8 147-147-150	38 4-4 .6 147-147-150	39 4-4 .6 147-147-150	40 4-4 .6 147-147-150	40 40
106.0	40 4-4 .7 144-144-147	42 4-4 .6 144-144-147	44 4-4 .4 144-144-146	45 4-4 .4 144-144-146	46 4-4 .4 144-144-146	40 40
101.0	46 4-4 .8 141-141-143	48 4-4 .6 141-141-143	50 4-4 .3 140-140-143	51 4-4 .2 141-141-143	52 4-4 .2 141-141-143	40 40

MMMX MEXICO CITY 23R

ELEV. = 7341 ft TORA = 3626 m
SLOPE = .00 % ASDA = 3626 m
TODA = 3626 m

15/00

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

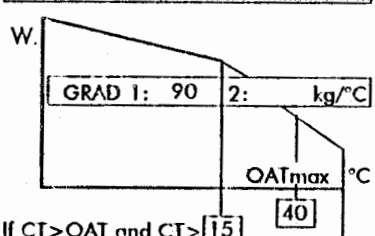
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1254 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>15
use Corr. Flex. T/O Temp. up to 57

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-6	-4.5	-8	-3

Minimum v_1: 119 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 8900 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	- -	- -	- -	
157.0	- -	- -	- -	- -	- -	
155.0	- -	- -	- -	- -	- -	
153.0	- -	- -	- -	- -	- -	
151.0	- -	- -	- -	- -	- -	
149.0	- -	- -	- -	- -	- -	
147.0	- -	- -	- -	- -	- -	16
145.0	- -	- -	- -	- -	- -	18
143.0	- -	- -	- -	- -	- -	21
141.0	- -	- -	- -	- -	- -	23 16
136.0	- -	- -	- -	-12 4-4 .0 173-174-177	12 4-4 .1 170-173-177	28 22
131.0	- -	-7 4-5 .0 162-165-168	15 4-5 1.0 162-164-168	15 4-5 3.0 165-169-172	15 4-4 4.9 169-173-176	32 27
126.0	5 4-5 .1 154-155-158	15 4-5 2.6 156-158-161	24 4-5 .2 162-162-165	26 4-5 .5 166-166-169	28 4-4 .3 168-168-171	37 32
121.0	15 4-5 3.9 151-152-155	26 4-5 .4 156-156-159	30 4-5 .4 161-161-164	32 4-5 .6 165-165-167	33 4-4 .8 165-165-168	40 37
116.0	28 4-5 .5 149-149-152	33 4-5 .0 154-154-157	36 4-5 .5 160-160-162	38 4-4 .1 162-162-164	39 4-4 .1 162-162-164	40 40
111.0	35 4-5 .3 147-147-150	39 4-5 .3 153-153-155	42 4-5 .5 159-159-161	43 4-4 .6 159-159-161	44 4-4 .6 159-159-161	40 40
106.0	42 4-5 .0 146-146-149	45 4-5 .6 152-152-154	48 4-4 .3 156-156-157	49 4-4 .2 156-156-157	50 4-4 .2 156-156-157	40 40
101.0	48 4-5 .6 145-145-147	52 4-5 .2 151-151-153	53 4-4 .9 153-153-154	54 4-4 .8 153-153-154	55 4-4 .7 153-153-154	40 40

MMMX MEXICO CITY 23R

ELEV. = 7341 ft TORA = 3626 m
SLOPE = .00 % ASDA = 3626 m
TODA = 3626 m

15/15

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

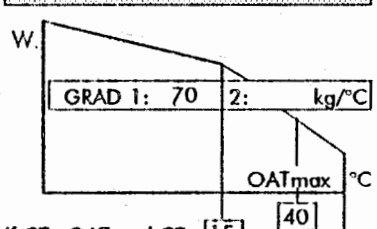
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1254 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT> 15
use Corr. Flex. T/O Temp. up to 57

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-2	-2.0	-12	-3

Minimum v_1: 117 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 8900 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	- -	- -	- -	
157.0	- -	- -	- -	- -	- -	
155.0	- -	- -	- -	- -	- -	
153.0	- -	- -	- -	- -	- -	
151.0	- -	- -	- -	- -	- -	
149.0	- -	- -	- -	- -	- -	
147.0	- -	- -	- -	- -	- -	16
145.0	- -	- -	- -	- -	- -	18
143.0	- -	- -	- -	- -	- -	21
141.0	- -	- -	- -	- -	- -	23 16
136.0	- -	- -	- -	- -	- -	28 22
131.0	- -	- -	- -	-3 4-4 .0 159-159-162	15 4-4 .7 159-159-163	32 27
126.0	1 4-4 .0 155-155-159	15 4-4 1.7 156-156-160	15 4-4 3.5 158-158-161	15 4-4 4.6 158-158-162	23 4-4 .2 156-156-159	37 32
121.0	15 4-4 3.8 151-151-156	24 4-4 .6 153-153-156	26 4-4 .7 153-153-156	28 4-4 .1 153-153-156	29 4-4 .2 153-153-156	40 37
116.0	28 4-5 .4 148-148-152	30 4-4 .8 150-150-153	32 4-4 .6 150-150-153	33 4-4 .7 150-150-153	34 4-4 .8 150-150-153	40 40
111.0	34 4-4 .6 146-146-150	36 4-4 .5 147-147-150	38 4-4 .3 147-147-150	39 4-4 .4 147-147-150	40 4-4 .4 147-147-150	40 40
106.0	40 4-4 .5 143-143-146	42 4-4 .4 143-143-146	44 4-4 .1 143-143-146	45 4-4 .2 144-144-146	46 4-4 .2 144-144-146	40 40
101.0	46 4-4 .5 140-140-143	48 4-4 .4 140-140-143	50 4-4 .1 140-140-143	51 4-4 .0 140-140-143	51 4-4 .8 141-141-143	40 40

MMMX MEXICO CITY 23R

ELEV. = 7341 ft TORA = 3626 m
SLOPE = .00 % ASDA = 3626 m
TODA = 3626 m

15/15

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

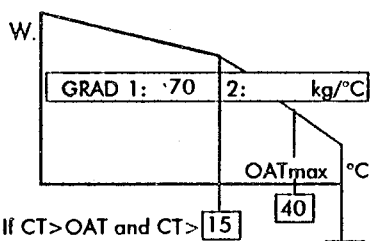
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1254 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT> 15
use Corr. Flex. T/O Temp. up to 57

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-2	-2.0	-12	-3

Minimum v_1: 117 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 8900 ft

Weight [t]	TAILWIND [kts] -10	TAILWIND [kts] -5	NO WIND 0	HEADWIND [kts] 10	HEADWIND [kts] 20	TGA 15/15 20/20
159.0	- -	- -	- -	- -	- -	
157.0	- -	- -	- -	- -	-	
155.0	- -	- -	- -	- -	- -	
153.0	- -	- -	- -	- -	- -	
151.0	- -	- -	- -	- -	- -	
149.0	- -	- -	- -	- -	- -	
147.0	- -	- -	- -	- -	- -	16
145.0	- -	- -	- -	- -	- -	18
143.0	- -	- -	- -	- -	- -	21
141.0	- -	- -	- -	- -	- -	23 16
136.0	- -	- -	- -	- -	- -	28 22
131.0	- -	- -	- -	-3 4-4 .0 159-159-162	15 4-4 .7 159-159-163	32 27
126.0	1 4-4 .0 155-155-159	15 4-4 1.7 156-156-160	15 4-4 3.5 158-158-161	15 4-4 4.6 158-158-162	23 4-4 .2 156-156-159	37 32
121.0	15 4-4 3.8 151-151-156	24 4-4 .6 153-153-156	26 4-4 .7 153-153-156	28 4-4 .1 153-153-156	29 4-4 .2 153-153-156	40 37
116.0	28 4-5 .4 148-148-152	30 4-4 .8 150-150-153	32 4-4 .6 150-150-153	33 4-4 .7 150-150-153	34 4-4 .8 150-150-153	40 40
111.0	34 4-4 .6 146-146-150	36 4-4 .5 147-147-150	38 4-4 .3 147-147-150	39 4-4 .4 147-147-150	40 4-4 .4 147-147-150	40 40
106.0	40 4-4 .5 143-143-146	42 4-4 .4 143-143-146	44 4-4 .1 143-143-146	45 4-4 .2 144-144-146	46 4-4 .2 144-144-146	40 40
101.0	46 4-4 .5 140-140-143	48 4-4 .4 140-140-143	50 4-4 .1 140-140-143	51 4-4 .0 140-140-143	51 4-4 .8 141-141-143	40 40

LEPA
PALMA DE MALLORCA
06L

ELEV. = 32 ft
SLOPE = .00 %

TORA = 3270 m
ASDA = 3330 m
TODA = 3500 m

15/15

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

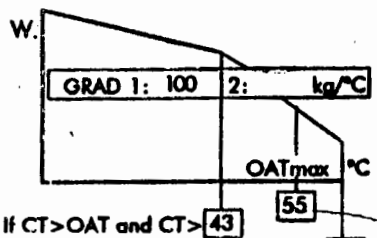
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1014 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>43
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-2	-2.0	-12	-3

Minimum v_1: 117 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1600 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0						44
157.0		-3 2-2 .0 161-168-172	-3 2-2 .0 158-168-172	-3 2-2 .0 157-168-172	-3 2-2 .0 155-168-172	45
155.0	13 2-6 .1 155-164-168	33 2-6 .0 157-165-169	43 2-1 1.1 161-169-172	43 2-1 2.0 165-171-174	43 2-1 2.0 165-171-174	47
153.0	29 2-6 .1 151-161-165	43 2-6 .8 155-163-167	46 2-6 .7 162-169-172	47 3-3 .9 167-172-176	47 2-2 1.0 168-173-176	48 43
151.0	43 2-6 .3 148-158-162	46 2-6 .5 156-163-167	48 2-3 .4 163-169-172	49 2-2 .1 165-171-174	49 2-2 .1 166-171-174	49 45
149.0	46 2-6 .1 149-158-162	48 2-3 .3 156-163-167	50 2-3 .0 162-169-172	50 2-2 .6 165-170-173	50 2-2 .6 165-170-173	51 46
147.0	48 2-6 .1 150-158-162	49 2-3 1.1 156-163-167	51 2-3 .8 162-168-172	51 2-2 1.2 164-169-172	51 2-2 1.2 164-169-172	52 48
145.0	49 2-3 1.1 150-158-162	51 2-3 .8 156-163-166	53 2-3 .2 162-168-171	53 2-2 .3 163-168-171	53 2-2 .3 162-168-171	53 49
143.0	51 2-3 .8 150-158-162	53 2-3 .4 156-163-166	54 2-2 .8 161-167-170	54 2-2 .8 162-167-170	54 2-2 .8 160-167-170	55 51
141.0	53 2-3 .5 150-158-161	55 2-3 .1 156-162-166	56 2-2 .0 160-165-168	56 2-2 .0 160-165-168	56 2-2 .0 158-165-168	55 52
136.0	57 2-3 .8 149-157-160	59 2-3 .3 155-161-164	59 2-2 .9 158-163-166	59 2-2 .9 157-163-166	59 2-2 .9 156-163-166	55 55
131.0	62 2-3 .0 149-155-158	63 2-3 .5 154-159-162	63 2-2 .5 155-160-163	63 2-2 .5 153-160-163	63 2-2 .5 152-160-163	55 55
126.0	66 2-3 .4 148-154-157	67 2-2 .1 152-156-159	67 2-2 .1 151-156-159	67 2-2 .1 149-156-159	67 2-2 .1 148-156-159	55 55
121.0	70 2-3 .7 148-153-156	70 2-2 1.0 150-154-157	70 2-2 1.0 148-154-157	70 2-2 1.0 146-154-157	70 2-2 1.0 145-154-157	55 55
116.0	72 2-2 3.3 147-152-155	72 2-2 3.3 148-152-155	72 2-2 3.3 145-152-155	72 2-2 3.3 144-152-155	72 2-2 3.3 142-152-155	55 55
111.0	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	55 55
106.0	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	55 55
101.0	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	55 55

LEPA
PALMA DE MALLORCA
06R

ELEV. = 32 ft TORA = 3000 m
SLOPE = -.20 % ASDA = 3060 m
TODA = 3060 m

15/15

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

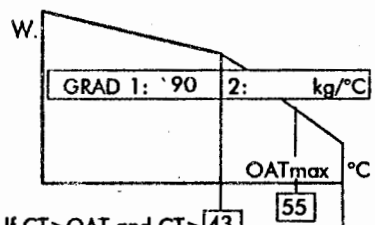
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1014 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>43
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-2	-2.0	-12	-3

Minimum v_1: 117 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1600 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	- -	- -	- -	44
157.0	- -	- -	-3 2-2 .0 163-168-172	-3 2-2 .0 161-168-172	-3 2-2 .0 160-168-172	45
155.0	- -	12 2-3 .1 159-164-168	33 2-3 .1 161-165-169	43 2-1 .4 162-167-170	43 2-1 1.7 166-170-174	47
153.0	10 2-3 .1 153-159-164	30 2-3 .0 155-160-165	43 2-3 .9 159-163-167	45 2-3 1.0 162-167-170	46 2-3 1.1 166-170-173	48 43
151.0	27 2-3 .1 150-156-160	43 2-3 .5 152-158-162	46 2-3 .4 158-163-167	47 2-3 .6 162-166-170	48 2-3 .7 166-170-173	49 45
149.0	43 2-3 .1 147-153-158	45 2-3 1.1 152-158-162	48 2-3 .1 158-163-166	49 2-3 .2 162-166-169	50 2-3 .3 166-169-173	51 46
147.0	45 2-3 .7 147-153-157	47 2-3 .8 152-157-162	49 2-3 .9 158-162-166	50 2-3 1.1 162-166-169	51 2-3 1.0 165-169-172	52 48
145.0	47 2-3 .5 147-152-157	49 2-3 .6 152-157-161	51 2-3 .5 158-162-166	52 2-3 .7 162-165-169	53 2-2 .3 165-167-171	53 49
143.0	49 2-3 .3 146-152-156	51 2-3 .3 151-157-161	53 2-3 .2 158-162-165	54 2-3 .3 162-165-168	54 2-2 .8 164-167-170	55 51
141.0	51 2-3 .1 146-152-156	52 2-3 1.1 151-156-160	54 2-3 1.0 158-162-165	55 2-3 1.1 162-165-168	56 2-2 .0 162-165-168	55 52
136.0	55 2-3 .6 146-151-155	57 2-3 .4 151-155-159	59 2-3 .1 157-160-164	59 2-2 .9 160-163-166	59 2-2 .9 159-163-166	55 55
131.0	59 2-3 1.1 145-150-154	61 2-3 .8 150-154-158	63 2-3 .4 156-159-162	63 2-2 .5 157-159-163	63 2-2 .5 156-159-163	55 55
126.0	64 2-3 .5 144-148-152	66 2-3 .0 149-153-156	67 2-2 .1 154-156-159	67 2-2 .1 153-156-159	67 2-2 .1 152-156-159	55 55
121.0	68 2-3 1.0 144-147-151	70 2-3 .4 149-152-155	70 2-2 1.0 151-154-157	70 2-2 1.0 150-154-157	70 2-2 1.0 149-154-157	55 55
116.0	72 2-3 1.5 143-146-150	72 2-3 3.1 149-151-154	72 2-2 3.3 149-152-155	72 2-2 3.3 148-152-155	72 2-2 3.3 146-152-155	55 55
111.0	72 .0 131-132-136	72 .0 131-132-136	72 .0 131-132-136	72 .0 131-132-136	72 .0 131-132-136	55 55
106.0	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	55 55
101.0	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	55 55

LEPA
PALMA DE MALLORCA
24L

FLEV = 32 ft TORA = 2590 m
SLOPE = .20 % ASDA = 3060 m
TODA = 3060 m

15/15

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

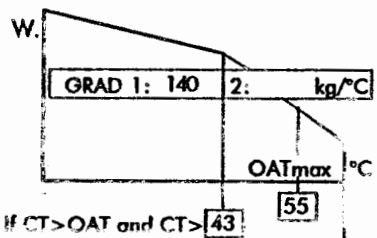
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1014 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>43
use Corr. Flex. T/O Temp. up to 7

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-8	-5.5	-12	-3

Minimum v_1: 117 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1600 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	- -	- -	- -	44
157.0	- -	- -	-3 2-2 .1 167-168-172	-3 2-2 .0 165-168-172	-3 2-2 .0 164-168-172	45
155.0	- -	0 2-3 .1 162-164-168	22 2-3 .0 163-165-168	35 2-3 .0 164-165-169	43 2-1 .5 166-167-171	47
153.0	-2 2-3 .1 156-159-163	17 2-3 .1 158-160-164	39 2-3 .0 160-161-165	43 2-3 1.1 163-164-168	45 2-3 1.1 166-167-170	48 43
151.0	14 2-3 .1 153-156-160	34 2-3 .1 154-157-161	43 2-3 1.5 159-161-164	46 2-3 .5 162-163-167	47 2-3 .7 166-167-170	49 45
149.0	30 2-3 .0 150-153-157	43 2-3 1.0 153-155-159	46 2-3 1.0 158-160-164	48 2-3 .2 162-163-167	49 2-3 .3 166-166-170	51 46
147.0	41 2-3 .0 148-151-155	46 2-3 .5 152-155-159	48 2-3 .7 158-160-163	49 2-3 1.0 162-163-166	50 2-3 1.1 166-166-169	52 48
145.0	43 2-3 .2 148-151-155	46 2-3 .2 152-154-158	50 2-3 .4 158-159-163	51 2-3 .6 162-163-166	52 2-3 .7 166-166-169	53 49
143.0	43 2-3 .3 147-149-154	49 2-3 1.1 152-154-158	52 2-3 .1 158-159-163	53 2-3 .3 162-162-166	54 2-3 .3 166-166-169	55 51
141.0	49 2-3 .3 147-149-153	51 2-3 .3 152-154-158	53 2-3 .9 158-159-162	54 2-3 1.1 162-162-165	55 2-3 1.1 165-165-168	55 52
136.0	54 2-3 .2 146-148-152	56 2-3 .2 151-153-156	58 2-3 .1 157-158-161	59 2-3 .0 160-160-163	59 2-2 .9 163-163-166	55 55
131.0	58 2-3 .9 145-147-151	60 2-3 .7 150-151-155	62 2-3 .4 156-156-159	63 2-3 .2 159-159-162	63 2-2 .5 159-160-163	55 55
126.0	63 2-3 .3 145-146-149	65 2-3 .0 150-150-153	66 2-3 .6 155-155-158	67 2-2 .1 156-156-159	67 2-2 .1 155-156-159	55 55
121.0	67 2-3 .9 144-145-148	69 2-3 .5 149-149-152	70 2-3 .8 153-153-156	70 2-2 1.0 153-154-157	70 2-2 1.0 152-154-157	55 55
116.0	72 2-3 .3 143-144-147	72 2-3 2.1 148-148-151	72 2-2 3.3 152-152-155	72 2-2 3.3 151-152-155	72 2-2 3.3 150-152-155	55 55
111.0	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	55 55
106.0	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	55 55
101.0	72 .0 125-126-130	72 .0 125-126-130	72 .0 125-126-130	72 .0 125-126-130	72 .0 125-126-130	55 55

LEPA
PALMA DE MALLORCA
24R

ELEV. = 32 ft TORA = 3270 m
SLOPE = .00 % ASDA = 3330 m
TODA = 3405 m

15/15

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

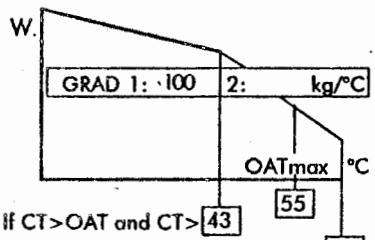
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1014 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>43
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-2	-2.0	-12	-3

Minimum v_1: 117 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1600 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	- -	- -	- -	44
157.0	- -	-3 2-2 .0 162-168-172	-3 2-2 .0 160-168-172	-3 2-2 .0 158-168-172	-3 2-2 .0 156-168-172	45
155.0	10 2-6 .1 156-164-168	30 2-6 .1 158-165-169	43 2-1 .8 162-168-171	43 2-1 2.0 165-171-174	43 2-1 2.0 166-171-174	47
153.0	26 2-6 .1 152-160-165	43 2-6 .5 155-162-166	46 2-6 .4 162-168-172	47 2-3 .6 167-172-175	47 2-2 1.0 169-173-176	48 43
151.0	42 2-6 .0 149-157-161	46 2-6 .2 156-163-166	48 2-3 .2 163-168-171	49 2-2 .1 166-171-174	49 2-2 .1 167-171-174	49 45
149.0	43 2-6 1.9 148-157-161	47 2-3 1.2 156-163-166	49 2-3 .9 163-168-171	50 2-2 .6 166-170-173	50 2-2 .6 166-170-173	51 46
147.0	47 2-6 .7 149-157-161	49 2-3 .8 156-162-166	51 2-3 .5 163-168-171	51 2-2 1.2 165-169-172	51 2-2 1.2 165-169-172	52 48
145.0	49 2-3 .7 150-157-161	51 2-3 .5 156-162-166	53 2-3 .1 162-167-170	53 2-2 .3 164-168-171	53 2-2 .3 163-168-171	53 49
143.0	51 2-3 .4 150-157-161	53 2-3 .1 156-162-165	54 2-2 .8 162-167-170	54 2-2 .8 163-167-170	54 2-2 .8 161-167-170	55 51
141.0	53 2-3 .1 150-157-160	54 2-3 .9 156-162-165	56 2-2 .0 161-165-168	56 2-2 .0 161-165-168	56 2-2 .0 159-165-168	55 52
136.0	57 2-3 .5 150-156-159	59 2-3 .0 155-160-163	59 2-2 .9 159-163-166	59 2-2 .9 158-163-166	59 2-2 .9 157-163-166	55 55
131.0	61 2-3 .9 149-154-158	63 2-3 .3 155-159-162	63 2-2 .5 156-160-163	63 2-2 .5 154-160-163	63 2-2 .5 153-160-163	55 55
126.0	66 2-3 .1 148-153-156	67 2-2 .1 153-156-159	67 2-2 .1 152-156-159	67 2-2 .1 150-156-159	67 2-2 .1 149-156-159	55 55
121.0	70 2-3 .5 148-152-155	70 2-2 1.0 150-154-157	70 2-2 1.0 149-154-157	70 2-2 1.0 147-154-157	70 2-2 1.0 146-154-157	55 55
116.0	72 2-3 3.2 147-152-155	72 2-2 3.3 148-152-155	72 2-2 3.3 146-152-155	72 2-2 3.3 145-152-155	72 2-2 3.3 143-152-155	55 55
111.0	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	55 55
106.0	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	55 55
101.0	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	55 55

DTMB MONASTIR 08/26

ELEV. = 7 ft TORA = 2950 m
SLOPE = .00 % ASDA = 3000 m
TODA = 3000 m

15/15

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

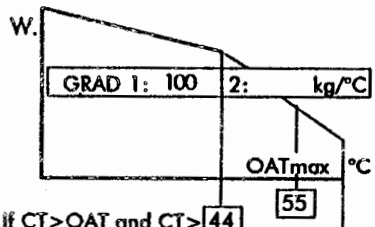
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1013 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>44
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-2	-2.0	-12	-3

Minimum v_1: 117 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1600 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0						44
157.0			-2 2-2 .0 165-168-172	-2 2-2 .0 163-168-172	-2 2-2 .0 161-168-172	45
155.0		6 2-3 .1 159-164-168	27 2-3 .1 161-165-169	40 2-3 .1 162-166-169	44 2-3 .9 165-168-172	47
153.0	4 2-3 .0 154-159-163	23 2-3 .1 155-160-164	43 2-3 .2 157-162-166	44 2-3 1.5 161-165-169	46 2-3 .6 165-168-172	48 44
151.0	20 2-3 .1 150-156-160	40 2-3 .1 152-157-161	44 2-3 2.0 157-162-165	47 2-3 .0 161-165-168	48 2-3 .2 165-168-171	49 45
149.0	36 2-3 .1 147-153-157	44 2-3 .5 151-156-160	47 2-3 .6 157-161-165	48 2-3 .9 161-164-168	49 2-3 1.0 164-168-171	51 46
147.0	44 3-3 1.0 146-151-156	47 2-3 .2 151-156-160	49 2-3 .3 157-161-165	50 2-3 .5 160-164-168	51 2-3 .6 164-167-171	52 48
145.0	46 2-3 .9 146-151-155	48 2-3 1.0 151-155-160	50 2-3 1.1 157-161-164	52 2-3 .1 160-164-167	53 2-3 .1 164-167-170	53 49
143.0	48 2-3 .7 145-151-155	50 2-3 .8 150-155-159	52 2-3 .8 156-160-164	53 2-3 .9 160-164-167	54 2-2 .9 164-167-170	55 51
141.0	50 2-3 .4 145-150-155	52 2-3 .5 150-155-159	54 2-3 .4 156-160-164	55 2-3 .5 160-163-167	56 2-2 .1 163-165-168	55 52
136.0	54 2-3 1.0 145-150-154	56 2-3 .9 150-154-158	58 2-3 .7 156-159-162	59 2-3 .8 160-162-165	59 2-2 1.0 161-163-166	55 55
131.0	59 2-3 .4 144-148-152	61 2-3 .2 149-153-156	62 2-3 1.1 155-158-161	63 2-2 .6 158-160-163	63 2-2 .6 157-160-163	55 55
126.0	63 2-3 1.0 143-147-151	65 2-3 .6 148-151-155	67 2-2 .1 154-156-159	67 2-2 .1 154-156-159	67 2-2 .1 153-156-159	55 55
121.0	68 2-3 .3 143-146-149	69 2-3 1.0 148-150-154	70 2-2 1.0 152-154-157	70 2-2 1.0 151-154-157	70 2-2 1.0 150-154-157	55 55
116.0	72 2-3 .9 142-145-148	72 2-3 2.6 147-150-153	72 2-2 3.3 150-152-155	72 2-2 3.3 149-152-155	72 2-2 3.3 148-152-155	55 55
111.0	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	55 55
106.0	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	55 55
101.0	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	55 55

EDDF FRANKFURT/MAIN 07

ELEV. = 364 ft TORA = 4000 m
SLOPE = .26 % ASDA = 4000 m
TODA = 4000 m

15/15

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight increment [t]
v_1 - v_R - v_2 [kts] IAS

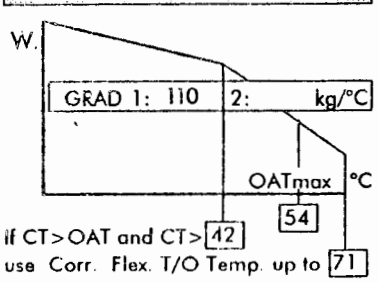
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1026 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



if CT>OAT and CT>42
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-2	-2.0	-12	-3

Minimum v_1: 117 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1900 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	3 - 2-2 .1 164-175-178	18 2-2 .0 165-175-179	18 2-2 .0 166-175-179	18 2-2 .0 166-175-179	
157.0	5 2-6 .0 157-169-173	23 2-6 .1 159-171-174	39 2-2 .1 162-173-176	42 2-2 .6 165-175-178	42 2-2 .6 166-175-178	43
155.0	21 2-6 .1 152-166-169	38 2-6 .1 155-168-171	42 2-2 1.7 161-172-175	44 2-2 1.3 164-174-177	44 2-2 1.3 165-174-177	45
153.0	36 2-6 .1 149-163-166	42 2-6 1.6 155-167-170	46 2-2 .5 163-172-175	46 2-2 .5 164-172-175	46 2-2 .5 164-172-175	47
151.0	42 2-6 1.3 148-161-165	46 2-6 .4 156-167-170	47 2-2 1.1 162-172-175	47 2-2 1.1 163-172-175	47 2-2 1.1 163-172-175	48 43
149.0	46 2-6 .2 149-161-165	48 2-6 .3 157-167-170	49 2-2 .3 162-170-173	49 2-2 .3 163-170-173	49 2-2 .3 161-170-173	49 45
147.0	48 2-6 .2 150-162-165	50 2-6 .2 158-167-170	50 2-2 .9 161-169-172	50 2-2 .9 162-169-172	50 2-2 .9 160-169-172	51 46
145.0	50 2-6 .2 151-162-165	51 2-6 1.2 158-167-170	52 2-2 .2 161-168-171	52 2-2 .2 159-168-171	52 2-2 .2 158-168-171	52 48
143.0	52 2-6 .1 152-162-165	53 2-2 .8 159-167-170	53 2-2 .8 160-167-170	53 2-2 .8 158-167-170	53 2-2 .8 157-167-170	54 49
141.0	54 2-6 .0 153-162-166	55 2-2 .1 158-165-168	55 2-2 .1 158-165-168	55 2-2 .1 156-165-168	55 2-2 .1 155-165-168	54 51
136.0	58 2-5 .8 155-162-165	58 2-2 1.2 158-163-166	58 2-2 1.2 155-163-166	58 2-2 1.2 154-163-166	58 2-2 1.2 152-163-166	54 54
131.0	62 2-2 1.0 155-160-163	62 2-2 1.0 154-160-163	62 2-2 1.0 152-160-163	62 2-2 1.0 150-160-163	62 2-2 1.0 148-160-163	54 54
126.0	66 2-2 .8 152-157-160	66 2-2 .8 150-157-160	66 2-2 .8 148-157-160	66 2-2 .8 146-157-160	66 2-2 .8 145-157-160	54 54
121.0	70 2-2 .6 148-154-156	70 2-2 .6 146-154-156	70 2-2 .6 144-154-156	70 2-2 .6 142-154-156	70 2-2 .6 142-154-156	54 54
116.0	71 2-2 4.3 147-153-156	71 2-2 4.3 145-153-156	71 2-2 4.3 143-153-156	71 2-2 4.3 141-153-156	71 2-2 4.3 141-153-156	54 54
111.0	71 .0 132-132-136	71 .0 132-132-136	71 .0 132-132-136	71 .0 132-132-136	71 .0 132-132-136	54 54
106.0	71 .0 128-129-133	71 .0 128-129-133	71 .0 128-129-133	71 .0 128-129-133	71 .0 128-129-133	54 54
101.0	71 .0 125-125-130	71 .0 125-125-130	71 .0 125-125-130	71 .0 125-125-130	71 .0 125-125-130	54 54

EDDF FRANKFURT/MAIN 18

ELEV. = 364 ft TORA = 3970 m
SLOPE = .00 % ASDA = 3970 m
TODA = 3970 m

15/15

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight increment [t]
v_1 - v_R - v_2 [kts] IAS

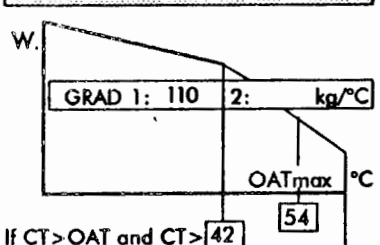
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1026 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>42
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-2	-2.0	-12	-3

Minimum v_1: 117 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1900 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	4 2-2 .0 162-174-178	18 2-2 .0 164-175-179	18 2-2 .0 165-175-179	18 2-2 .0 165-175-179	
157.0	5 2-6 .0 156-169-173	24 2-6 .0 157-170-174	40 2-2 .0 161-173-176	42 2-2 .6 164-175-178	42 2-2 .6 165-175-178	43
155.0	22 2-6 .0 151-165-169	39 2-6 .0 154-167-171	42 2-2 1.7 160-172-175	44 2-2 1.3 163-174-177	44 2-2 1.3 164-174-177	45
153.0	37 2-6 .0 148-162-166	42 2-6 1.6 153-167-170	46 2-2 .5 161-172-175	46 2-2 .5 163-172-175	46 2-2 .5 164-172-175	47
151.0	42 2-6 1.3 147-161-165	46 2-6 .5 155-167-170	47 2-2 1.1 161-172-175	47 2-2 1.1 162-172-175	47 2-2 1.1 162-172-175	48 43
149.0	46 2-6 .2 148-161-165	48 2-6 .4 156-167-170	49 2-2 .3 161-170-173	49 2-2 .3 162-170-173	49 2-2 .3 160-170-173	49 45
147.0	48 2-6 .2 149-161-165	50 2-6 .2 157-167-170	50 2-2 .9 160-169-172	50 2-2 .9 161-169-172	50 2-2 .9 159-169-172	51 46
145.0	50 2-6 .2 150-162-165	51 2-6 1.2 157-167-170	52 2-2 .2 160-168-171	52 2-2 .2 159-168-171	52 2-2 .2 157-168-171	52 48
143.0	52 2-6 .1 151-162-165	53 2-2 .8 157-167-170	53 2-2 .8 159-167-170	53 2-2 .8 158-167-170	53 2-2 .8 156-167-170	54 49
141.0	54 2-6 .1 152-162-166	55 2-2 .1 157-165-168	55 2-2 .1 157-165-168	55 2-2 .1 156-165-168	55 2-2 .1 154-165-168	54 51
136.0	58 2-5 .8 154-162-165	58 2-2 1.2 157-163-166	58 2-2 1.2 155-163-166	58 2-2 1.2 153-163-166	58 2-2 1.2 151-163-166	54 54
131.0	62 2-2 1.0 154-160-163	62 2-2 1.0 153-160-163	62 2-2 1.0 151-160-163	62 2-2 1.0 149-160-163	62 2-2 1.0 148-160-163	54 54
126.0	66 2-2 .8 152-157-160	66 2-2 .8 150-157-160	66 2-2 .8 147-157-160	66 2-2 .8 145-157-160	66 2-2 .8 145-157-160	54 54
121.0	70 2-2 .6 148-154-156	70 2-2 .6 145-154-156	70 2-2 .6 143-154-156	70 2-2 .6 142-154-156	70 2-2 .6 142-154-156	54 54
116.0	71 2-2 4.3 147-153-156	71 2-2 4.3 144-153-156	71 2-2 4.3 142-153-156	71 2-2 4.3 141-153-156	71 2-2 4.3 141-153-156	54 54
111.0	71 .0 131-132-136	71 .0 131-132-136	71 .0 131-132-136	71 .0 131-132-136	71 .0 131-132-136	54 54
106.0	71 .0 128-129-133	71 .0 128-129-133	71 .0 128-129-133	71 .0 128-129-133	71 .0 128-129-133	54 54
101.0	71 .0 125-125-130	71 .0 125-125-130	71 .0 125-125-130	71 .0 125-125-130	71 .0 125-125-130	54 54

EDDF FRANKFURT/MAIN 25

ELEV. = 364 ft TORA = 4000 m
SLOPE = -.26 % ASDA = 4000 m
TODA = 4000 m

15/15

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

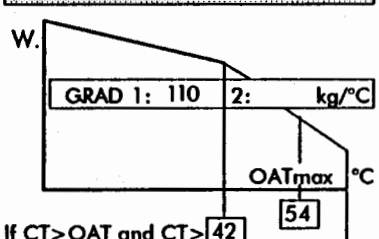
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1026 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>42
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-2	-2.0	-12	-3

Minimum v_1: 117 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1900 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0		5 2-2 .0 161-174-178	18 2-2 .0 162-175-179	18 2-2 .0 163-175-179	18 2-2 .0 163-175-179	
	- -					
157.0	6 2-6 .1 154-169-173	25 2-6 .1 156-170-174	41 2-2 .0 159-173-176	42 2-2 .6 162-175-178	42 2-2 .6 163-175-178	43
155.0	23 2-6 .1 149-165-169	40 2-6 .0 153-167-171	42 2-2 1.9 159-173-176	44 2-2 1.3 162-174-177	44 2-2 1.3 163-174-177	45
153.0	38 2-6 .0 146-162-166	42 2-6 1.7 152-167-171	46 2-2 .5 160-172-175	46 2-2 .5 161-172-175	46 2-2 .5 162-172-175	47
151.0	42 2-6 1.5 146-162-166	46 2-6 .6 153-167-171	47 2-2 1.1 160-171-175	47 2-2 1.1 161-171-175	47 2-2 1.1 161-171-175	48 43
149.0	46 2-6 .4 147-162-166	48 2-6 .5 154-167-171	49 2-2 .3 159-170-173	49 2-2 .3 160-170-173	49 2-2 .3 159-170-173	49 45
147.0	48 2-6 .4 147-162-166	50 2-6 .4 155-167-171	50 2-2 .9 159-169-172	50 2-2 .9 159-169-172	50 2-2 .9 158-169-172	51 46
145.0	50 2-6 .3 148-162-166	52 2-6 .0 156-167-170	52 2-2 .2 158-167-171	52 2-2 .2 158-167-171	52 2-2 .2 156-167-171	52 48
143.0	52 2-6 .2 149-162-166	53 2-2 .8 156-167-170	53 2-2 .8 158-167-170	53 2-2 .8 156-167-170	53 2-2 .8 155-167-170	54 49
141.0	54 2-6 .2 151-162-166	55 2-2 .1 156-165-168	55 2-2 .1 156-165-168	55 2-2 .1 154-165-168	55 2-2 .1 152-165-168	54 51
136.0	58 2-5 .8 152-162-165	58 2-2 1.2 155-163-166	58 2-2 1.2 154-163-166	58 2-2 1.2 152-163-166	58 2-2 1.2 150-163-166	54 54
131.0	62 2-2 1.0 153-160-163	62 2-2 1.0 152-160-163	62 2-2 1.0 150-160-163	62 2-2 1.0 148-160-163	62 2-2 1.0 147-160-163	54 54
126.0	66 2-2 .8 151-157-160	66 2-2 .8 148-157-160	66 2-2 .8 146-157-160	66 2-2 .8 145-157-160	66 2-2 .8 145-157-160	54 54
121.0	70 2-2 .6 147-153-156	70 2-2 .6 144-153-156	70 2-2 .6 142-153-156	70 2-2 .6 142-153-156	70 2-2 .6 142-153-156	54 54
116.0	71 2-2 4.3 146-153-156	71 2-2 4.3 143-153-156	71 2-2 4.3 141-153-156	71 2-2 4.3 141-153-156	71 2-2 4.3 141-153-156	54 54
111.0	71 .0 131-132-136	71 .0 131-132-136	71 .0 131-132-136	71 .0 131-132-136	71 .0 131-132-136	54 54
106.0	71 .0 128-129-133	71 .0 128-129-133	71 .0 128-129-133	71 .0 128-129-133	71 .0 128-129-133	54 54
101.0	71 .0 125-125-130	71 .0 125-125-130	71 .0 125-125-130	71 .0 125-125-130	71 .0 125-125-130	54 54

EDDK COLOGNE-BONN 07

ELEV. = 300 ft TORA = 2459 m
SLOPE = .47 % ASDA = 2459 m
TODA = 2519 m

15/15

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

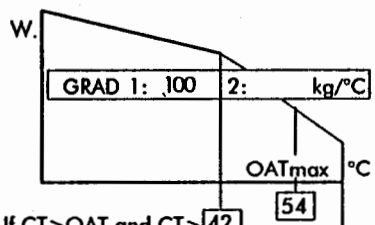
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1024 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>[42]
use Corr. Flex. T/O Temp. up to [71]

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-8	-5.5	-12	-3

Minimum v_1: [117] [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1800 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	- -	- -	- -	42
157.0	- -	- -	- -	- -	- -	44
155.0	- -	- -	- -	- -	- -	45
153.0	- -	- -	- -	- -	- -	47
151.0	- -	- -	- -	- -	- -	48 43
149.0	- -	- -	- -	- -	- -	50 45
147.0	- -	- -	- -	- -	- -	51 47
145.0	- -	- -	- -	- -	- -	52 48
143.0	- -	- -	- -	- -	9 4-4 .0 162-162-166	54 50
141.0	- -	- -	- -	12 4-4 .1 159-159-164	33 4-4 .0 158-158-162	54 51
136.0	- -	14 4-4 .1 151-151-156	42 4-4 .3 151-151-155	42 4-4 2.3 154-154-159	42 4-4 4.1 157-157-162	54 54
131.0	30 4-4 .1 143-143-148	42 4-4 2.0 145-145-150	48 4-4 .1 150-150-154	49 4-4 .8 153-153-157	51 4-4 .2 153-153-157	54 54
126.0	42 4-4 3.5 141-141-146	49 4-4 1.0 144-144-149	52 4-4 .8 149-149-153	54 4-4 .2 151-151-155	55 4-4 .7 153-153-157	54 54
121.0	51 4-4 .8 139-139-143	54 4-4 .8 143-143-147	57 4-4 .4 147-147-151	58 4-4 .9 149-149-153	60 4-4 .2 150-150-153	54 54
116.0	56 4-4 .9 138-138-142	59 4-4 .7 142-142-146	62 4-4 .1 146-146-149	63 4-4 .5 147-147-150	64 4-4 .9 147-147-151	54 54
111.0	62 4-4 .0 137-137-141	64 4-4 .6 141-141-145	66 4-4 .9 144-144-147	68 4-4 .2 144-144-147	69 4-4 .5 144-144-147	54 54
106.0	67 4-4 .2 135-135-139	69 4-4 .6 140-140-143	71 4-4 .7 141-141-144	71 4-4 2.0 142-142-145	71 4-4 3.4 143-143-146	54 54
101.0	71 4-4 1.3 135-135-138	71 4-4 3.6 139-139-143	71 .0 125-126-130	71 .0 125-126-130	71 .0 125-126-130	54 54

LLBG
TEL AVIV (BEN GURION)
08

ELEV. = 135 ft TORA = 3057 m
SLOPE = .32 % ASDA = 3747 m
TODA = 3747 m

15/15

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

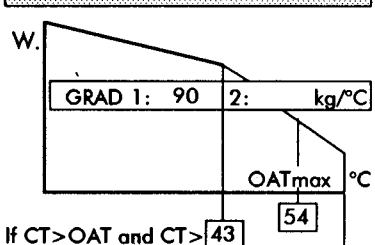
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1018 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>43
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-2	-2.0	-12	-3

Minimum v_1: 117 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1700 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	- -	- -	- -	43
157.0	- -	- -	- -	- -	- -	45
155.0	- -	- -	- -	- -	- -	46
153.0	- -	- -	- -	8 4-4 .0 172-172-175	33 4-4 .0 172-172-175	47 43
151.0	- -	- -	25 4-4 .0 170-170-174	43 4-4 .2 171-171-174	43 4-4 1.3 171-171-175	49 44
149.0	- -	18 4-4 .0 167-169-173	43 4-4 .5 167-170-173	45 4-4 .3 170-170-173	46 4-4 .2 170-170-173	50 46
147.0	8 4-4 .1 164-168-172	39 4-4 .0 162-167-170	45 4-4 .9 168-169-172	46 4-4 1.0 169-169-172	47 4-4 .8 169-169-172	52 47
145.0	29 4-6 .1 158-164-168	43 4-4 1.6 161-166-170	47 4-4 .5 167-167-171	48 4-4 .4 167-167-171	49 4-4 .2 167-167-171	53 49
143.0	43 4-6 .4 155-161-165	46 4-6 1.0 162-166-169	48 4-4 1.2 167-167-170	49 4-4 1.0 167-167-170	50 4-4 .8 167-167-170	54 50
141.0	46 4-6 .0 156-161-165	48 4-4 .9 163-165-169	50 4-4 .5 165-165-169	51 4-4 .4 165-165-168	52 4-4 .2 165-165-168	54 52
136.0	50 4-6 1.0 158-162-165	52 4-4 1.0 162-162-166	54 4-4 .3 162-162-165	55 4-4 .1 162-162-165	55 4-4 1.2 163-163-166	54 54
131.0	55 4-4 .2 159-159-162	56 4-4 .9 159-159-163	58 4-4 .3 159-159-162	59 4-4 .1 159-159-162	59 4-4 1.1 160-160-163	54 54
126.0	59 4-4 .4 156-156-159	60 4-4 1.1 157-157-160	62 4-4 .3 156-156-159	63 4-4 .1 156-156-159	63 4-4 1.0 157-157-160	54 54
121.0	63 4-4 .6 153-153-156	64 4-4 1.2 154-154-157	66 4-4 .4 153-153-156	67 4-4 .1 153-153-156	67 4-4 1.0 154-154-157	54 54
116.0	67 4-4 .9 150-150-153	69 4-4 .1 150-150-153	70 4-4 .4 150-150-153	71 4-4 .1 150-150-153	71 4-4 .9 151-151-153	54 54
111.0	71 4-4 1.1 147-147-150	71 4-4 2.7 148-148-151	71 4-4 4.2 149-149-152	71 4 .0 133-134-137	71 4 .0 132-132-136	54 54
106.0	71 .0 128-129-133	71 .0 128-129-133	71 .0 128-129-133	71 .0 128-129-133	71 .0 128-129-133	54 54
101.0	71 .0 125-126-130	71 .0 125-126-130	71 .0 125-126-130	71 .0 125-126-130	71 .0 125-126-130	54 54

LLBG
TEL AVIV (BEN GURION)
12

ELEV. = 135 ft TORA = 3070 m
SLOPE = .27 % ASDA = 3130 m
TODA = 3130 m

15/15

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

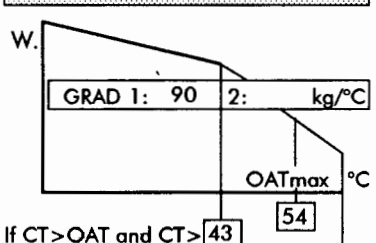
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1018 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>43
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-2	-2.0	-12	-3

Minimum v_1: 117 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1700 ft

Weight [t]	TAILWIND [kts] -10	TAILWIND [kts] -5	NO WIND 0	HEADWIND [kts] 10	HEADWIND [kts] 20	TGA 15/15 20/20
159.0	- -	- -	- -	- -	- -	43
157.0	- -	- -	- -	- -	13 4-4 .0 174-174-177	45
155.0	- -	- -	0 4-4 .0 171-173-176	19 4-4 .1 170-172-176	37 4-4 .1 169-172-176	46
153.0	- -	- -	22 4-3 .0 165-169-173	39 4-3 .1 165-169-173	43 4-4 1.4 168-171-175	47 43
151.0	- -	11 4-3 .0 162-167-171	40 4-3 .1 161-166-169	43 4-3 1.6 164-168-172	46 4-3 .6 168-171-174	49 44
149.0	1 4-3 .0 159-164-169	30 4-3 .1 157-163-167	43 4-3 1.7 161-165-169	46 4-3 .8 164-168-171	48 4-4 .1 168-170-173	50 46
147.0	20 4-3 .0 154-160-165	43 4-3 .6 155-160-164	46 4-3 .9 161-165-168	48 4-3 .4 164-167-171	49 4-4 .8 168-169-172	52 47
145.0	38 4-3 .0 151-157-161	45 4-3 1.0 155-160-164	48 4-3 .6 160-164-168	50 4-3 .0 164-167-170	51 4-4 .3 167-168-171	53 49
143.0	43 4-3 1.4 150-156-160	47 4-3 .7 154-159-163	50 4-3 .3 160-164-167	51 4-3 .8 164-167-170	52 4-4 .9 167-167-170	54 50
141.0	46 4-3 .8 149-155-159	49 4-3 .5 154-159-163	51 4-3 1.1 160-164-167	53 4-4 .3 164-165-168	54 4-4 .2 165-165-168	54 52
136.0	51 4-3 .2 149-154-158	53 4-3 .9 154-158-162	56 4-4 .2 160-162-165	57 4-4 .3 162-162-165	58 4-4 .0 162-162-165	54 54
131.0	55 4-3 .8 148-153-157	58 4-3 .2 153-157-160	60 4-4 .4 159-159-163	61 4-4 .2 159-159-162	61 4-4 1.2 160-160-163	54 54
126.0	60 4-3 .3 147-152-156	62 4-3 .7 152-156-159	64 4-4 .4 156-156-159	65 4-4 .1 156-156-159	65 4-4 1.0 157-157-160	54 54
121.0	64 4-3 .9 147-151-154	66 4-4 1.1 152-154-157	68 4-4 .3 153-153-156	68 4-4 1.3 154-154-157	69 4-4 .9 154-154-157	54 54
116.0	69 4-3 .4 146-149-153	71 4-4 .1 150-150-153	71 4-4 1.6 151-151-154	71 4-4 2.5 152-152-154	71 4-4 3.3 152-152-155	54 54
111.0	71 4-4 3.1 146-149-152	71 4 .0 133-133-137	71 .0 132-132-136	71 .0 132-132-136	71 .0 132-132-136	54 54
106.0	71 .0 128-129-133	71 .0 128-129-133	71 .0 128-129-133	71 .0 128-129-133	71 .0 128-129-133	54 54
101.0	71 .0 125-125-130	71 .0 125-125-130	71 .0 125-125-130	71 .0 125-125-130	71 .0 125-125-130	54 54

LLBG
TEL AVIV (BEN GURION)
26

ELEV. = 135 ft TORA = 3057 m
SLOPE = -.32 % ASDA = 3747 m
TODA = 3747 m

15/15

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

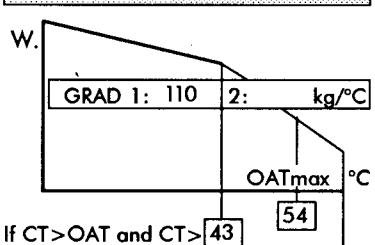
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1018 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>43
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-2	-2.0	-12	-3

Minimum v_1: 117 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1700 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	10 2-2 .1 168-174-177	21 2-2 .0 169-175-178	29 2-2 .0 171-175-179	43
157.0	- -	10 2-6 .0 162-169-172	29 2-6 .0 164-170-174	40 2-6 .1 166-171-175	43 2-2 1.1 169-174-178	45
155.0	7 2-6 .1 156-164-168	26 2-6 .1 157-165-169	43 2-6 .3 160-167-171	43 2-6 1.7 165-171-174	45 2-2 1.2 169-174-177	46
153.0	23 2-6 .0 151-160-164	42 2-6 .0 154-162-166	45 2-6 .7 161-167-171	47 2-6 .0 166-171-174	47 2-2 .4 169-172-175	47 43
151.0	38 2-6 .0 148-157-161	43 2-6 1.9 154-161-166	47 2-6 .6 162-167-171	48 6-6 .9 167-171-175	48 2-2 .9 168-171-175	49 44
149.0	43 2-6 1.3 147-156-160	47 2-6 .4 155-162-166	49 2-6 .5 163-168-171	50 2-2 .1 167-170-173	50 2-2 .1 166-170-173	50 46
147.0	46 2-6 .9 148-156-160	49 2-6 .3 156-162-166	51 2-6 .3 164-168-171	51 2-2 .6 166-169-172	51 2-2 .6 165-169-172	52 47
145.0	48 2-6 .9 149-156-160	51 2-6 .2 157-162-166	52 2-2 1.2 165-168-171	52 2-2 1.2 165-168-171	52 2-2 1.2 164-168-171	53 49
143.0	50 2-6 1.0 150-156-161	53 2-6 .1 158-163-166	54 2-2 .4 164-166-170	54 2-2 .4 163-166-170	54 2-2 .4 162-166-170	54 50
141.0	52 2-6 .9 151-157-161	55 2-6 .0 159-163-166	55 2-2 .9 163-166-169	55 2-2 .9 162-166-169	55 2-2 .9 160-166-169	54 52
136.0	57 2-6 1.0 154-157-161	59 2-2 .6 161-162-166	59 2-2 .6 159-162-166	59 2-2 .6 158-162-166	59 2-2 .6 157-162-166	54 54
131.0	62 2-3 .9 157-158-161	63 2-2 .2 157-159-162	63 2-2 .2 156-159-162	63 2-2 .2 154-159-162	63 2-2 .2 153-159-162	54 54
126.0	66 2-3 1.2 156-157-160	66 2-2 1.2 155-157-160	66 2-2 1.2 153-157-160	66 2-2 1.2 151-157-160	66 2-2 1.2 150-157-160	54 54
121.0	70 2-2 .9 152-153-157	70 2-2 .9 151-153-157	70 2-2 .9 149-153-157	70 2-2 .9 147-153-157	70 2-2 .9 146-153-157	54 54
116.0	71 2-2 4.5 151-153-156	71 2-2 4.5 150-153-156	71 2-2 4.5 148-153-156	71 2-2 4.5 146-153-156	71 2-2 4.5 145-153-156	54 54
111.0	71 .0 131-132-136	71 .0 131-132-136	71 .0 131-132-136	71 .0 131-132-136	71 .0 131-132-136	54 54
106.0	71 .0 128-128-133	71 .0 128-128-133	71 .0 128-128-133	71 .0 128-128-133	71 .0 128-128-133	54 54
101.0	71 .0 125-125-130	71 .0 125-125-130	71 .0 125-125-130	71 .0 125-125-130	71 .0 125-125-130	54 54

LLBG
TEL AVIV (BEN GURION)
30

ELEV. = 135 ft TORA = 3070 m
SLOPE = -.27 % ASDA = 3160 m
TODA = 3214 m

15/15

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

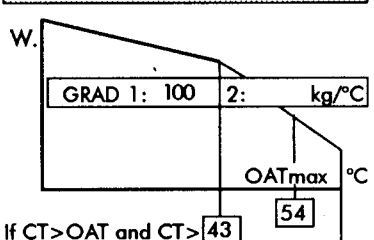
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1018 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>43
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-2	-2.0	-12	-3

Minimum v_1: 117 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1700 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	- -	16 3-3 .1 170-175-178	28 2-2 .1 171-175-179	43
157.0	- -	- -	18 4-3 .0 166-171-175	35 2-3 .1 166-171-174	43 2-2 .4 168-173-176	45
155.0	- -	8 4-3 .0 162-168-172	36 4-3 .1 162-167-171	43 2-3 1.1 164-169-173	45 2-3 .7 168-172-176	46
153.0	-2 4-3 .1 159-166-170	27 4-3 .0 158-164-168	43 4-3 1.3 160-166-170	46 2-3 .3 164-169-172	47 2-2 .4 168-172-175	47 43
151.0	17 4-3 .0 154-162-166	43 4-3 .1 154-161-165	46 4-3 .4 160-166-169	47 2-3 1.1 164-169-172	48 2-2 .9 167-171-175	49 44
149.0	34 4-6 .1 151-158-163	45 4-3 .5 154-161-165	48 4-3 .1 160-165-169	49 2-4 .7 164-168-172	50 2-2 .1 166-170-173	50 46
147.0	43 4-6 .9 149-156-161	47 4-3 .2 154-160-165	49 4-3 .9 160-165-169	51 4-3 .3 163-168-171	51 2-2 .6 165-169-172	52 47
145.0	46 4-3 .3 149-156-161	48 4-3 1.1 154-160-164	51 4-3 .5 160-165-168	52 3-3 1.1 163-168-171	52 2-2 1.2 165-168-171	53 49
143.0	48 4-3 .1 149-156-160	50 4-3 .8 154-160-164	53 4-3 .2 160-165-168	54 2-2 .4 163-166-170	54 2-2 .4 162-166-170	54 50
141.0	49 4-3 .9 149-156-160	52 4-3 .5 154-160-163	54 4-3 1.0 160-164-168	55 2-2 .9 162-166-169	55 2-2 .9 161-166-169	54 52
136.0	54 4-3 .3 148-155-159	56 4-3 .8 153-159-162	58 4-4 1.2 159-163-166	59 2-2 .6 160-162-166	59 2-2 .6 158-162-166	54 54
131.0	58 4-3 .8 148-154-157	61 4-3 .1 152-157-161	63 4-4 .0 159-159-162	63 2-2 .2 156-159-162	63 2-2 .2 154-159-162	54 54
126.0	63 4-3 .2 147-152-156	65 4-4 .5 152-156-159	66 4-4 1.2 157-157-160	66 2-2 1.2 153-157-160	66 2-2 1.2 151-157-160	54 54
121.0	67 4-3 .7 146-151-155	69 4-4 .6 151-153-156	70 2-2 .9 153-154-157	70 2-2 .9 149-154-157	70 2-2 .9 147-154-157	54 54
116.0	71 4-3 1.2 146-150-153	71 4-4 3.2 151-152-155	71 2-2 4.5 152-153-156	71 2-2 4.5 148-153-156	71 2-2 4.5 146-153-156	54 54
111.0	71 .0 131-132-136	71 .0 131-132-136	71 .0 131-132-136	71 .0 131-132-136	71 .0 131-132-136	54 54
106.0	71 .0 128-128-133	71 .0 128-128-133	71 .0 128-128-133	71 .0 128-128-133	71 .0 128-128-133	54 54
101.0	71 .0 125-125-130	71 .0 125-125-130	71 .0 125-125-130	71 .0 125-125-130	71 .0 125-125-130	54 54

VVNB HANOI 11/29

ELEV. = 39 ft TORA = 3200 m
SLOPE = .00 % ASDA = 3600 m
TODA = 3600 m

15/15

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

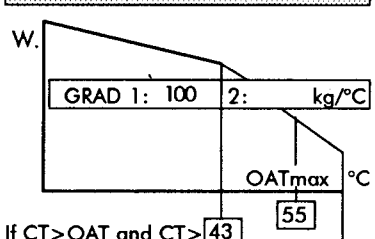
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1014 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>43
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-2	-2.0	-12	-3

Minimum v_1: 117 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1600 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	-2 2-6 .1 166-173-177	17 2-6 .0 168-174-178	29 6-6 .1 169-175-178	32 2-2 .0 171-175-179	44
157.0	- -	15 2-6 .1 162-169-173	34 2-6 .1 164-170-174	43 6-6 .5 166-172-176	43 2-2 1.6 170-175-178	45
155.0	13 2-6 .0 155-164-168	32 2-6 .1 157-165-169	43 2-6 1.0 162-169-172	45 2-6 1.1 166-172-175	46 2-2 .4 169-173-177	46
153.0	28 2-6 .1 151-161-165	43 2-6 .7 155-163-167	46 2-6 .6 162-169-172	47 6-6 .9 167-173-176	47 2-2 .9 169-173-176	48 43
151.0	43 2-6 .2 148-158-162	46 2-6 .3 156-163-167	48 2-6 .4 163-169-172	49 2-2 .0 167-171-174	49 2-2 .0 167-171-174	49 45
149.0	45 2-6 .9 148-157-162	48 2-6 .2 157-163-167	50 2-6 .3 165-169-172	50 2-2 .6 167-170-173	50 2-2 .6 166-170-173	51 46
147.0	47 2-6 .9 149-158-162	50 2-6 .1 158-164-167	51 2-6 1.0 165-169-172	51 2-2 1.1 166-169-172	51 2-2 1.1 164-169-172	52 48
145.0	49 2-6 .9 150-158-162	52 2-6 .0 159-164-167	53 2-2 .2 164-168-171	53 2-2 .2 164-168-171	53 2-2 .2 162-168-171	53 49
143.0	51 2-6 .8 151-158-162	53 2-6 .9 159-164-167	54 2-2 .8 164-167-170	54 2-2 .8 163-167-170	54 2-2 .8 161-167-170	55 51
141.0	53 2-6 .8 152-158-162	55 2-6 .8 161-164-168	55 2-2 1.3 163-166-169	55 2-2 1.3 162-166-169	55 2-2 1.3 160-166-169	55 52
136.0	58 2-3 .4 154-158-162	59 2-2 .9 160-163-166	59 2-2 .9 159-163-166	59 2-2 .9 158-163-166	59 2-2 .9 156-163-166	55 55
131.0	62 2-3 .8 154-157-161	63 2-2 .5 157-160-163	63 2-2 .5 155-160-163	63 2-2 .5 154-160-163	63 2-2 .5 153-160-163	55 55
126.0	66 2-3 1.1 153-156-159	67 2-2 .1 153-156-159	67 2-2 .1 151-156-159	67 2-2 .1 150-156-159	67 2-2 .1 149-156-159	55 55
121.0	70 2-2 1.0 151-154-157	70 2-2 1.0 150-154-157	70 2-2 1.0 148-154-157	70 2-2 1.0 147-154-157	70 2-2 1.0 145-154-157	55 55
116.0	72 2-2 3.3 150-152-155	72 2-2 3.3 148-152-155	72 2-2 3.3 146-152-155	72 2-2 3.3 145-152-155	72 2-2 3.3 143-152-155	55 55
111.0	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	55 55
106.0	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	55 55
101.0	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	55 55

UUWW MOSKOW-VNUKOVO 24

ELEV. = 686 ft TORA = 3000 m
SLOPE = .00 % ASDA = 3000 m
TODA = 3000 m

15/00

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

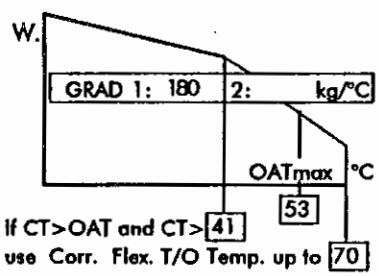
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1038 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>41
use Corr. Flex. T/O Temp. up to 70

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-10	-5.0	-10	-3

Minimum v_1: 119 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 2200 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	- -	-4 2-3 .1 172-174-178	10 2-1 .1 173-174-178	
157.0	- -	- -	-3 2-3 .1 167-170-174	12 2-3 .1 168-170-175	27 2-3 .1 169-171-175	42
155.0	- -	- -	8 2-3 .2 166-168-172	26 3-3 .1 166-168-172	40 2-3 .1 167-169-173	44
153.0	- -	- -	18 3-3 .0 164-167-171	34 3-3 .2 165-167-171	41 2-3 1.9 167-169-173	45
151.0	- -	2 3-3 .1 162-166-170	26 3-3 .2 163-166-170	41 3-3 .6 164-166-170	45 2-3 .7 166-168-172	47 41
149.0	- -	10 3-3 .2 161-165-169	35 3-3 .1 162-165-169	45 3-3 .0 163-165-169	47 2-3 .5 166-167-171	48 44
147.0	-3 3-3 .1 159-163-168	19 3-3 .2 160-164-168	41 3-3 .7 161-164-168	47 3-3 .5 162-164-168	49 2-3 .3 166-167-171	50 45
145.0	5 3-3 .2 157-162-167	28 3-3 .1 158-163-167	45 3-3 .2 160-163-167	49 3-3 .6 162-164-167	51 2-3 .1 166-167-170	51 47
143.0	14 3-3 .1 156-161-165	37 3-3 .1 157-161-165	47 3-3 .6 159-162-166	51 2-3 .4 162-163-167	52 2-3 1.0 165-167-170	53 48
141.0	23 3-3 .1 155-160-164	41 3-3 1.1 156-161-165	50 3-3 .4 159-161-164	53 2-3 .3 161-163-166	54 2-3 .8 165-166-170	53 50
136.0	41 3-3 1.0 152-158-162	49 3-3 .5 154-158-162	56 2-3 .5 157-159-162	57 2-3 1.0 161-162-165	59 2-3 .4 164-165-168	53 53
131.0	49 3-3 .3 150-155-159	56 3-3 .1 152-155-159	61 2-3 .3 156-158-160	62 2-3 .8 160-161-163	64 2-3 .0 164-164-166	53 53
126.0	56 3-3 .0 148-152-156	62 3-3 .4 151-153-156	66 2-3 .1 155-156-159	67 2-3 .4 159-160-162	68 2-3 .5 162-162-165	53 53
121.0	62 3-3 .4 146-150-153	68 3-3 .7 149-151-153	70 2-3 .9 155-156-158	70 2-3 2.3 159-159-161	70 2-3 3.3 162-162-164	53 53
116.0	69 3-3 .3 144-147-150	70 2-3 3.9 149-150-153	70 .0 147-147-150	70 .0 147-147-150	70 .0 147-147-150	53 53
111.0	70 3-3 4.6 144-147-149	70 .0 143-144-147	70 .0 143-144-147	70 .0 143-144-147	70 .0 143-144-147	53 53
106.0	70 .0 140-140-143	70 .0 140-140-143	70 .0 140-140-143	70 .0 140-140-143	70 .0 140-140-143	53 53
101.0	70 .0 136-137-140	70 .0 136-137-140	70 .0 136-137-140	70 .0 136-137-140	70 .0 136-137-140	53 53

UUWW MOSKOW-VNUKOVO 24

ELEV. = 686 ft
SLOPE = .00 %

TORA = 3000 m
ASDA = 3000 m
TODA = 3000 m

15/15

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

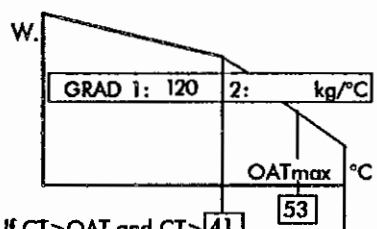
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1038 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>41
use Corr. Flex. T/O Temp. up to 70

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-2	-2.0	-12	-3

Minimum v_1: 117 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 2200 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	- -	- -	-3 2-2 .1 173-175-178	
157.0	- -	- -	-3 2-3 .0 166-170-173	9 2-3 .1 167-171-174	22 2-3 .0 168-171-175	42
155.0	- -	- -	15 2-3 .0 162-166-170	27 2-3 .1 163-167-170	37 2-3 .0 165-169-172	44
153.0	- -	11 2-3 .1 156-161-165	31 2-3 .1 158-163-167	41 2-3 .0 160-164-168	41 2-3 1.4 164-168-171	45
151.0	8 2-3 .1 151-157-161	28 2-3 .0 153-158-162	41 2-3 .6 156-161-165	43 2-3 .9 160-164-167	45 2-3 .2 163-167-170	47 41
149.0	25 2-3 .1 148-153-158	41 2-3 .0 150-156-160	44 2-3 .4 156-160-164	45 2-3 .8 160-164-167	46 2-3 1.1 163-167-170	48 44
147.0	38 2-3 .0 146-151-156	43 2-3 1.0 150-155-159	46 2-3 .3 156-160-164	47 2-3 .6 159-163-167	48 2-3 .8 163-166-170	50 45
145.0	41 2-3 1.5 145-151-155	45 2-3 .9 150-155-159	48 2-3 .1 156-160-163	49 2-3 .4 159-163-166	50 2-3 .6 163-166-169	51 47
143.0	45 2-3 .5 145-150-154	47 2-3 .8 149-154-158	49 2-3 1.1 155-159-163	51 2-3 .2 159-163-166	52 2-3 .4 163-166-169	53 48
141.0	47 2-3 .5 144-149-154	49 2-3 .7 149-154-158	51 2-3 .9 155-159-163	53 2-3 .0 159-162-165	54 2-3 .1 163-165-168	53 50
136.0	52 2-3 .3 144-148-153	54 2-3 .5 149-153-157	56 2-3 .5 155-158-161	57 2-3 .7 158-161-164	58 2-2 .1 160-162-165	53 53
131.0	57 2-3 .2 143-147-151	59 2-3 .3 148-152-155	61 2-3 .2 154-157-160	62 2-2 .2 157-159-162	62 2-2 .2 157-159-162	53 53
126.0	62 2-3 .2 142-146-150	64 2-3 .1 147-150-154	65 2-3 .9 153-155-159	66 2-2 .2 155-156-159	66 2-2 .2 153-156-159	53 53
121.0	67 2-3 .1 141-145-148	68 2-3 .9 147-149-153	70 2-2 .3 152-153-156	70 2-2 .3 151-153-156	70 2-2 .3 150-153-156	53 53
116.0	70 2-3 2.1 141-144-148	70 2-3 3.8 146-149-152	70 2 .0 130-139-143	70 2 .0 129-139-143	70 2 .0 128-139-143	53 53
111.0	70 .0 131-132-136	70 .0 131-132-136	70 .0 131-132-136	70 .0 131-132-136	70 .0 131-132-136	53 53
106.0	70 .0 128-129-133	70 .0 128-129-133	70 .0 128-129-133	70 .0 128-129-133	70 .0 128-129-133	53 53
101.0	70 .0 125-125-130	70 .0 125-125-130	70 .0 125-125-130	70 .0 125-125-130	70 .0 125-125-130	53 53

UUWW MOSKOW-VNUKOVO 06

ELEV. = 686 ft TORA = 3000 m
SLOPE = .00 % ASDA = 3000 m
TODA = 3400 m

15/00

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

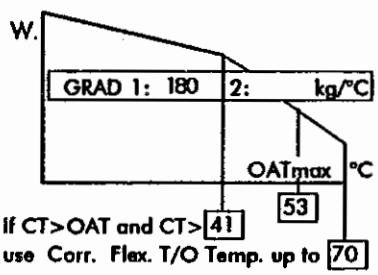
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1038 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP T/O



If CT>OAT and CT>41
use Corr. Flex. T/O Temp. up to 70

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-10	-5.0	-10	-3

Minimum v_1: 119 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 2200 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	- -	4 2-1 .1 169-174-178	19 2-3 .0 171-175-179	
157.0	- -	- -	7 2-3 .1 165-170-174	21 2-3 .1 166-171-175	33 2-3 .1 168-172-176	42
155.0	- -	- -	18 2-3 .2 163-168-172	34 2-3 .1 164-169-173	41 2-3 .8 167-171-175	44
153.0	- -	3 3-3 .2 161-167-171	28 3-3 .1 162-167-171	41 2-3 .8 163-168-171	44 2-3 .6 166-170-174	45
151.0	- -	12 3-3 .1 159-166-170	36 3-3 .2 161-166-170	44 3-3 .8 162-167-170	46 2-3 .4 166-169-173	47 41
149.0	-1 3-3 .0 157-164-169	21 3-3 .0 158-165-169	41 3-3 1.0 160-165-169	46 2-3 .8 162-166-170	48 2-3 .2 166-169-173	48 44
147.0	7 3-3 .1 156-163-168	29 3-3 .2 157-164-168	45 3-3 .4 159-164-168	48 2-3 .6 162-166-169	49 2-3 1.1 165-169-173	50 45
145.0	16 3-3 .1 155-162-166	38 3-3 .1 156-163-167	48 3-3 .0 158-163-166	50 2-3 .4 161-165-169	51 2-3 .9 165-168-172	51 47
143.0	25 3-3 .0 153-161-165	41 3-3 1.4 155-162-166	50 3-3 .5 158-162-166	52 2-3 .2 161-165-168	53 2-3 .6 165-168-172	53 48
141.0	33 3-3 .2 152-160-164	46 3-3 .0 154-161-164	52 2-3 .6 157-162-165	54 2-3 .0 161-165-168	55 2-3 .4 165-168-171	53 50
136.0	41 3-3 3.4 151-159-163	52 3-3 .4 152-158-162	57 2-3 .3 156-160-163	58 2-3 .7 160-163-166	59 2-3 1.1 164-166-170	53 53
131.0	52 3-3 .3 148-155-159	58 3-3 .5 151-156-159	62 2-3 .0 156-159-162	63 2-3 .4 160-162-165	64 2-3 .6 163-165-168	53 53
126.0	58 3-3 .5 147-153-156	64 2-3 .7 149-154-156	66 2-3 .8 155-158-160	68 2-3 .0 159-161-163	69 2-3 .2 163-164-166	53 53
121.0	65 3-3 .2 145-150-153	69 2-3 .6 148-152-155	70 2-3 1.6 154-157-159	70 2-3 2.9 159-161-163	70 2-3 4.1 163-164-166	53 53
116.0	70 3-3 1.6 143-148-151	70 2-3 4.6 148-152-154	70 .0 147-147-150	70 .0 147-147-150	70 .0 147-147-150	53 53
111.0	70 .0 143-144-147	70 .0 143-144-147	70 .0 143-144-147	70 .0 143-144-147	70 .0 143-144-147	53 53
106.0	70 .0 140-140-143	70 .0 140-140-143	70 .0 140-140-143	70 .0 140-140-143	70 .0 140-140-143	53 53
101.0	70 .0 136-137-140	70 .0 136-137-140	70 .0 136-137-140	70 .0 136-137-140	70 .0 136-137-140	53 53

UUWW MOSKOW-VNUKOVO 06

ELEV. = 686 ft TORA = 3000 m
SLOPE = .00 % ASDA = 3000 m
TODA = 3400 m

15/15

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

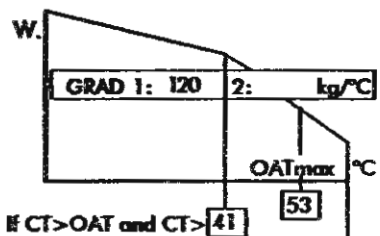
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1038 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C eff: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>41
use Corr. Flex. T/O Temp. up to 70

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-2	-2.0	-12	-3

Minimum v_1: 117 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 2200 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	- -	-3 2-2 .0 169-175-178	0 2-2 .0 170-175-179	
157.0	- -	- -	5 2-3 .1 163-170-174	18 2-3 .0 164-171-174	29 2-3 .0 166-172-176	42
155.0	- -	3 2-3 .1 157-165-169	24 2-3 .0 159-166-170	33 2-3 .1 161-163-172	41 2-3 .3 163-170-173	44
153.0	2 2-3 .0 152-161-165	21 2-3 .0 153-162-166	37 2-3 .1 157-164-168	41 2-3 1.0 160-167-170	44 2-3 .1 163-169-173	45
151.0	19 2-3 .0 148-157-161	35 2-3 .1 151-159-163	41 2-3 1.5 156-163-167	44 2-3 .8 159-166-169	45 2-3 1.0 163-169-172	47 41
149.0	33 2-3 .1 146-155-159	41 2-3 1.2 150-158-162	45 2-3 .3 155-162-166	46 2-3 .5 159-165-169	47 2-3 .7 163-169-172	48 44
147.0	41 2-3 .9 145-153-158	44 2-3 1.0 149-157-161	47 2-3 .1 155-162-166	48 2-3 .3 159-165-168	49 2-3 .5 163-168-172	50 45
145.0	44 2-3 .8 144-152-157	46 2-3 .9 149-157-161	48 2-3 1.0 155-162-165	50 2-3 .1 159-165-168	51 2-3 .0 162-167-171	51 47
143.0	46 2-3 .7 144-152-156	48 2-3 .8 149-156-160	50 2-3 .8 155-161-165	51 2-3 1.0 159-165-168	52 2-2 .7 162-167-170	53 48
141.0	48 2-3 .6 144-152-156	50 2-3 .6 149-156-160	52 2-3 .6 155-161-164	53 2-3 .8 159-164-167	54 2-2 .1 161-165-168	53 50
136.0	53 2-3 .4 143-151-155	55 2-3 .3 148-155-159	57 2-3 .2 154-160-163	58 2-2 .1 158-162-165	58 2-2 .1 158-162-165	53 53
131.0	58 2-3 .2 142-149-153	60 2-3 .0 147-153-157	61 2-3 .9 154-159-162	62 2-2 .2 155-159-162	62 2-2 .2 155-159-162	53 53
126.0	63 2-3 .1 142-148-152	64 2-3 .8 147-152-156	66 2-2 .2 152-156-159	66 2-2 .2 153-156-159	66 2-2 .2 151-156-159	53 53
121.0	67 2-3 .9 141-147-150	69 2-3 .6 146-151-154	70 2-2 .3 150-153-156	70 2-2 .3 149-153-156	70 2-2 .3 148-153-156	53 53
116.0	70 2-3 2.9 141-146-150	70 2-3 4.5 146-151-154	70 2 .0 128-139-143	70 2 .0 128-139-143	70 2 .0 128-139-143	53 53
111.0	70 .0 131-132-136	70 .0 131-132-136	70 .0 131-132-136	70 .0 131-132-136	70 .0 131-132-136	53 53
106.0	70 .0 128-129-133	70 .0 128-129-133	70 .0 128-129-133	70 .0 128-129-133	70 .0 128-129-133	53 53
101.0	70 .0 125-125-130	70 .0 125-125-130	70 .0 125-125-130	70 .0 125-125-130	70 .0 125-125-130	53 53

UUWW MOSCOW-VNUKOVO 20

ELEV. = 686 ft TORA = 3060 m
SLOPE = .00 % ASDA = 3060 m
TODA = 3260 m

15/00

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

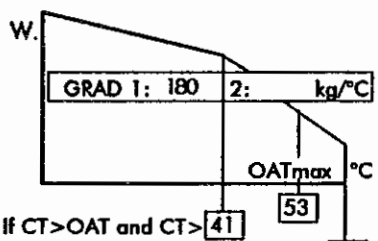
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1038 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>41
use Corr. Flex. T/O Temp. up to 70

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-10	-5.0	-10	-3

Minimum v_1: 119 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 2200 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	- -	6 2-1 .0 170-174-178	21 2-1 .0 171-175-179	
157.0	- -	- -	9 2-3 .1 166-170-174	24 2-3 .0 167-171-175	35 2-3 .1 169-172-176	42
155.0	- -	-3 3-3 .2 163-168-172	21 2-3 .0 164-168-172	37 2-3 .1 165-169-172	41 2-3 1.2 168-171-175	44
153.0	- -	6 3-3 .1 161-167-171	30 3-3 .2 162-167-171	41 2-3 1.4 164-168-172	44 2-3 1.0 167-171-174	45
151.0	- -	15 3-3 .0 160-166-170	39 3-3 .1 161-166-170	45 2-3 .2 163-167-171	46 2-3 .8 167-170-174	47 41
149.0	1 3-3 .2 158-165-169	24 3-3 .0 159-165-169	41 3-3 1.7 161-166-170	47 2-3 .0 163-167-170	48 2-3 .5 167-170-174	48 44
147.0	10 3-3 .1 157-163-168	32 3-3 .2 158-164-168	46 3-3 .3 160-164-168	48 2-3 .9 163-166-170	50 2-3 .3 166-169-173	50 45
145.0	19 3-3 .1 155-162-166	41 3-3 .1 156-163-167	48 3-3 .8 159-163-167	50 2-3 .8 163-166-170	52 2-3 .1 166-169-173	51 47
143.0	28 3-3 .1 154-161-165	44 3-3 .3 156-162-165	51 2-3 .0 158-163-166	52 2-3 .6 162-166-169	53 2-3 1.0 166-169-172	53 48
141.0	37 3-3 .0 153-160-164	46 3-3 .8 155-161-165	52 2-3 1.0 158-162-166	54 2-3 .4 162-165-169	55 2-3 .8 166-168-172	53 50
136.0	41 3-3 4.1 152-160-164	53 3-3 .5 153-158-162	57 2-3 .6 158-161-164	58 2-3 1.1 161-164-167	60 2-3 .3 165-167-170	53 53
131.0	53 3-3 .4 149-155-159	59 3-3 .5 151-156-159	62 2-3 .4 157-160-163	63 2-3 .7 161-163-166	64 2-3 1.0 165-166-169	53 53
126.0	59 3-3 .5 147-153-156	65 2-3 .0 150-154-157	67 2-3 .1 156-159-161	68 2-3 .3 160-162-164	69 2-3 .5 164-165-167	53 53
121.0	66 3-3 .2 145-150-153	69 2-3 1.0 150-153-155	70 2-3 1.9 156-158-160	70 2-3 3.2 160-161-164	70 2-3 4.4 164-165-167	53 53
116.0	70 3-3 2.3 144-149-151	70 2-3 4.9 149-153-155	70 .0 147-147-150	70 .0 147-147-150	70 .0 147-147-150	53 53
111.0	70 .0 143-144-147	70 .0 143-144-147	70 .0 143-144-147	70 .0 143-144-147	70 .0 143-144-147	53 53
106.0	70 .0 140-140-143	70 .0 140-140-143	70 .0 140-140-143	70 .0 140-140-143	70 .0 140-140-143	53 53
101.0	70 .0 136-137-140	70 .0 136-137-140	70 .0 136-137-140	70 .0 136-137-140	70 .0 136-137-140	53 53

UUWW MOSCOW-VNUKOVO 20

ELEV. = 686 ft TORA = 3060 m
SLOPE = .00 % ASDA = 3060 m
TODA = 3260 m

15/15

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

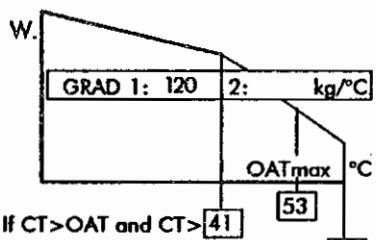
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1038 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>41
use Corr. Flex. T/O Temp. up to 70

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-2	-2.0	-12	-3

Minimum v_1: 117 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 2200 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	- -	-3 2-2 .0 170-175-178	0 2-2 .0 170-175-179	
157.0	- -	- -	7 2-3 .1 164-171-174	20 2-3 .1 165-171-175	31 2-3 .0 167-173-176	42
155.0	- -	5 2-3 .1 158-165-169	26 2-3 .1 160-167-170	35 2-3 .1 162-168-172	41 2-3 .6 165-171-174	44
153.0	4 2-3 .0 153-161-165	23 2-3 .1 154-162-166	40 2-3 .0 157-164-168	41 2-3 1.2 161-167-171	44 2-3 .4 164-170-173	45
151.0	21 2-3 .0 149-157-162	37 2-3 .1 152-159-163	41 2-3 1.9 157-164-168	44 2-3 1.1 160-167-170	46 2-3 .2 164-170-173	47 41
149.0	35 2-3 .0 147-155-159	41 2-3 1.5 151-159-163	45 2-3 .6 157-163-167	46 2-3 .9 160-166-170	47 2-3 1.0 164-170-173	48 44
147.0	41 2-3 1.1 146-154-158	45 2-3 .3 150-158-162	47 2-3 .4 156-163-166	48 2-3 .7 160-166-169	49 2-3 .7 164-169-172	50 45
145.0	45 2-3 .0 145-153-157	47 2-3 .2 150-157-161	49 2-3 .3 156-162-166	50 2-3 .4 160-166-169	51 2-2 .1 163-168-171	51 47
143.0	46 2-3 1.0 145-153-157	49 2-3 .0 150-157-161	51 2-3 .1 156-162-165	52 2-3 .2 160-165-168	52 2-2 .7 162-167-170	53 48
141.0	48 2-3 .9 145-152-156	50 2-3 1.0 150-157-161	52 2-3 1.0 156-162-165	53 2-3 1.1 160-165-168	54 2-2 .1 161-165-168	53 50
136.0	53 2-3 .7 144-151-155	55 2-3 .6 149-156-159	57 2-3 .5 155-161-164	58 2-2 .1 158-162-165	58 2-2 .1 158-162-165	53 53
131.0	58 2-3 .5 144-150-154	60 2-3 .3 148-154-158	62 2-3 .2 155-159-162	62 2-2 .2 156-159-162	62 2-2 .2 154-159-162	53 53
126.0	63 2-3 .3 143-149-152	65 2-3 .1 148-153-156	66 2-2 .2 153-156-159	66 2-2 .2 152-156-159	66 2-2 .2 151-156-159	53 53
121.0	68 2-3 .2 142-147-151	69 2-3 .8 147-152-155	70 2-2 .3 150-153-156	70 2-2 .3 149-153-156	70 2-2 .3 147-153-156	53 53
116.0	70 2-3 3.1 142-147-150	70 2-3 4.8 147-152-155	70 2 .0 128-139-143	70 2 .0 128-139-143	70 2 .0 128-139-143	53 53
111.0	70 .0 131-132-136	70 .0 131-132-136	70 .0 131-132-136	70 .0 131-132-136	70 .0 131-132-136	53 53
106.0	70 .0 128-129-133	70 .0 128-129-133	70 .0 128-129-133	70 .0 128-129-133	70 .0 128-129-133	53 53
101.0	70 .0 125-125-130	70 .0 125-125-130	70 .0 125-125-130	70 .0 125-125-130	70 .0 125-125-130	53 53

UUWW MOSKOW-VNUKOVO 02

ELEV. = 686 ft TORA = 3060 m
SLOPE = .00 % ASDA = 3060 m
TODA = 3160 m

15/00

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

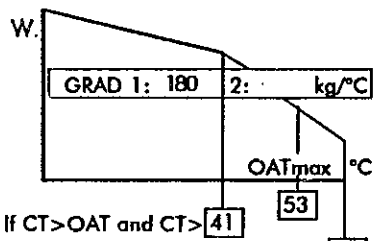
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1038 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>41
use Corr. Flex. T/O Temp. up to 70

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-10	-5.0	-10	-3

Minimum v_1: 119 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 2200 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0				4 2-3 .0 171-174-178	18 2-3 .1 172-175-179	
	- -	- -	- -			
157.0			6 2-3 .1 166-170-174	21 2-3 .0 168-171-175	33 2-3 .1 169-172-176	42
	- -	- -				
155.0			18 2-3 .0 165-168-172	33 2-3 .1 166-169-173	41 2-3 .8 168-171-175	44
	- -	- -				
153.0		2 3-3 .2 162-167-171	27 3-3 .1 163-167-171	41 2-3 .6 164-167-171	44 2-3 .6 167-170-174	45
	- -					
151.0		11 3-3 .1 161-166-170	36 3-3 .0 162-166-170	44 3-3 .7 164-167-170	46 2-3 .5 167-169-173	47 41
	- -					
149.0	-3 3-3 .2 159-165-169	20 3-3 .1 160-165-169	41 3-3 .8 161-165-169	46 2-3 .7 163-166-170	48 2-3 .2 167-169-173	48 44
147.0	6 3-3 .1 158-163-168	29 3-3 .0 158-164-168	45 3-3 .3 160-164-168	48 2-3 .6 163-166-169	50 2-3 .0 167-169-172	50 45
145.0	15 3-3 .1 156-162-166	37 3-3 .2 157-163-167	47 3-3 .7 160-163-167	50 2-3 .4 163-165-169	51 2-3 .9 167-169-172	51 47
143.0	24 3-3 .1 155-161-165	41 3-3 1.3 157-162-166	50 3-3 .4 159-162-166	52 2-3 .3 163-165-168	53 2-3 .7 166-168-172	53 48
141.0	33 3-3 .0 154-160-164	45 3-3 .7 156-161-165	52 2-3 .6 159-162-165	54 2-3 .1 162-165-168	55 2-3 .5 166-168-171	53 50
136.0	41 3-3 3.2 153-159-163	52 3-3 .4 154-158-162	57 2-3 .3 158-161-163	58 2-3 .8 162-164-167	60 2-3 .1 165-166-169	53 53
131.0	52 3-3 .3 150-155-159	58 3-3 .5 152-156-159	62 2-3 .1 157-159-162	63 2-3 .4 161-162-165	64 2-3 .7 165-165-168	53 53
126.0	58 3-3 .5 148-153-156	64 2-3 .7 150-154-156	66 2-3 .8 156-158-161	68 2-3 .1 160-161-163	69 2-3 .3 164-164-167	53 53
121.0	65 3-3 .1 146-150-153	69 2-3 .6 150-152-155	70 2-3 1.7 156-157-160	70 2-3 3.0 160-161-163	70 2-3 4.2 164-164-166	53 53
116.0	70 3-3 1.5 145-148-151	70 2-3 4.6 150-152-154	70 .0 147-147-150	70 .0 147-147-150	70 .0 147-147-150	53 53
111.0	70 .0 143-144-147	70 .0 143-144-147	70 .0 143-144-147	70 .0 143-144-147	70 .0 143-144-147	53 53
106.0	70 .0 140-140-143	70 .0 140-140-143	70 .0 140-140-143	70 .0 140-140-143	70 .0 140-140-143	53 53
101.0	70 .0 136-137-140	70 .0 136-137-140	70 .0 136-137-140	70 .0 136-137-140	70 .0 136-137-140	53 53

UUWW MOSKOW-VNUKOVO 02

ELEV. = 686 ft TORA = 3060 m
SLOPE = .00 % ASDA = 3060 m
TODA = 3160 m

15/15

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

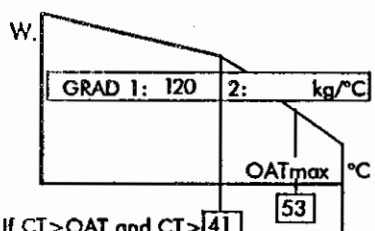
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1038 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>41
use Corr. Flex. T/O Temp. up to 70

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-2	-2.0	-12	-3

Minimum v_1: 117 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 2200 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	- -	-3 2-2 .0 171-175-178	0 2-2 .0 171-175-179	
157.0	- -	- -	4 2-3 .1 165-170-174	17 2-3 .0 166-171-174	28 2-3 .1 168-172-176	42
155.0	- -	2 2-3 .0 159-165-169	23 2-3 .0 161-166-170	33 2-3 .1 163-168-171	41 2-3 .3 165-170-173	44
153.0	0 2-3 .1 154-161-165	20 2-3 .0 155-162-166	37 2-3 .1 158-164-167	41 2-3 .9 161-166-170	44 2-3 .1 164-169-173	45
151.0	-17 2-3 .0 150-157-161	34 2-3 .1 152-159-163	41 2-3 1.5 157-163-167	44 2-3 .7 161-166-169	45 2-3 1.0 164-169-172	47 41
149.0	32 2-3 .1 147-154-159	41 2-3 1.0 151-158-162	45 2-3 .3 157-162-166	46 2-3 .5 160-165-169	47 2-3 .7 164-169-172	48 44
147.0	41 2-3 .7 146-153-157	44 2-3 .9 151-157-161	47 2-3 .1 157-162-165	48 2-3 .3 160-165-168	49 2-3 .5 164-168-172	50 45
145.0	44 2-3 .6 146-152-156	46 2-3 .8 150-157-161	48 2-3 1.0 156-162-165	50 2-3 .1 160-165-168	51 2-3 .0 164-167-171	51 47
143.0	46 2-3 .5 145-152-156	48 2-3 .7 150-156-160	50 2-3 .8 156-161-165	51 2-3 1.0 160-165-168	52 2-2 .7 163-167-170	53 48
141.0	48 2-3 .5 145-151-156	50 2-3 .6 150-156-160	52 2-3 .6 156-161-164	53 2-3 .8 160-164-167	54 2-2 .1 162-165-168	53 50
136.0	53 2-3 .3 145-150-154	55 2-3 .3 149-155-159	57 2-3 .2 156-160-163	58 2-2 .1 159-162-165	58 2-2 .1 159-162-165	53 53
131.0	58 2-3 .1 144-149-153	60 2-3 .0 149-153-157	61 2-3 .9 155-159-162	62 2-2 .2 157-159-162	62 2-2 .2 155-159-162	53 53
126.0	63 2-3 .0 143-148-151	64 2-3 .8 148-152-156	66 2-2 .2 153-156-159	66 2-2 .2 153-156-159	66 2-2 .2 152-156-159	53 53
121.0	67 2-3 .9 142-147-150	69 2-3 .6 147-151-154	70 2-2 .3 151-153-156	70 2-2 .3 149-153-156	70 2-2 .3 148-153-156	53 53
116.0	70 2-3 2.8 142-146-149	70 2-3 4.5 147-151-154	70 2 .0 128-139-143	70 2 .0 128-139-143	70 2 .0 128-139-143	53 53
111.0	70 .0 131-132-136	70 .0 131-132-136	70 .0 131-132-136	70 .0 131-132-136	70 .0 131-132-136	53 53
106.0	70 .0 128-129-133	70 .0 128-129-133	70 .0 128-129-133	70 .0 128-129-133	70 .0 128-129-133	53 53
101.0	70 .0 125-125-130	70 .0 125-125-130	70 .0 125-125-130	70 .0 125-125-130	70 .0 125-125-130	53 53

UNNN NOVOSIBIRSK 07/25

ELEV. = 364 ft TORA = 3599 m
SLOPE = .00 % ASDA = 3599 m
TODA = 3599 m

15/00

Take-off Parameters for 1013 hPa, dry RWY and AC/CN

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

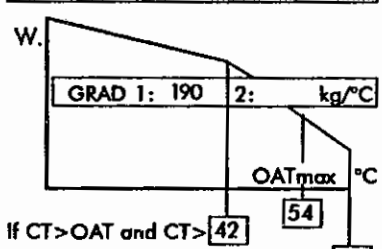
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1026 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>42
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-6	-4.5	-8	-3

Minimum v_1: 119 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1900 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	14 2-6 .0 167-174-178	27 2-6 .0 168-174-178	36 2-1 .0 170-176-179	
157.0	- -	10 2-6 .0 162-169-174	29 2-6 .1 164-170-175	40 2-6 .1 166-172-176	42 2-1 1.4 169-175-179	43
155.0	-2 6-6 .2 160-168-172	19 2-6 .1 161-168-172	41 2-6 .1 162-168-172	42 2-6 1.8 165-171-175	46 2-6 .3 170-175-179	45
153.0	6 6-6 .2 158-167-171	27 6-6 .2 159-167-171	42 2-6 2.0 161-168-172	46 2-6 .8 166-172-175	48 2-6 .2 171-176-179	47
151.0	14 6-6 .1 157-166-170	36 6-6 .0 158-166-170	47 2-6 .1 163-168-172	48 2-6 .7 167-172-176	50 2-6 .2 172-176-179	48 43
149.0	22 6-6 .2 155-165-169	42 6-6 .6 157-165-169	49 2-6 .2 164-168-172	50 2-6 .7 168-172-176	52 2-6 .0 173-176-180	49 45
147.0	31 6-6 .0 154-164-168	47 6-6 .4 157-164-168	51 2-6 .1 164-169-172	52 2-6 .6 169-172-176	53 2-6 1.0 174-176-180	51 46
145.0	39 6-6 .1 153-163-166	50 6-6 .5 158-164-167	53 2-6 .1 165-169-173	54 2-6 .5 170-173-176	55 2-6 .9 175-177-180	52 48
143.0	42 6-6 1.3 152-162-166	52 2-6 .7 159-164-167	55 2-6 .1 166-169-173	56 2-6 .5 171-173-176	57 2-6 .7 176-177-180	54 49
141.0	49 6-6 .1 153-161-164	54 2-6 .8 160-164-167	57 2-6 .1 167-169-173	58 2-6 .4 172-173-176	59 2-3 .6 177-177-180	54 51
136.0	57 2-6 .6 155-159-162	59 2-3 .8 161-164-167	61 2-3 .6 167-169-172	62 2-3 .8 171-172-175	63 2-2 .5 175-175-178	54 54
131.0	62 2-3 .5 155-159-161	64 2-3 .2 161-163-166	65 2-3 1.0 166-168-170	66 2-3 1.1 171-171-174	67 2-2 .1 171-171-174	54 54
126.0	66 2-3 1.1 155-158-160	68 2-3 .7 160-162-164	70 2-3 .3 166-166-169	70 2-2 1.0 169-169-171	70 2-2 1.0 168-169-171	54 54
121.0	71 2-3 .6 154-157-159	71 2-3 2.4 160-161-163	71 2-3 4.1 166-166-169	71 2-2 4.6 168-168-171	71 2-2 4.6 167-168-171	54 54
116.0	71 .0 147-147-150	71 .0 147-147-150	71 .0 147-147-150	71 .0 147-147-150	71 .0 147-147-150	54 54
111.0	71 .0 143-144-147	71 .0 143-144-147	71 .0 143-144-147	71 .0 143-144-147	71 .0 143-144-147	54 54
106.0	71 .0 140-140-143	71 .0 140-140-143	71 .0 140-140-143	71 .0 140-140-143	71 .0 140-140-143	54 54
101.0	71 .0 136-137-140	71 .0 136-137-140	71 .0 136-137-140	71 .0 136-137-140	71 .0 136-137-140	54 54

UNNN NOVOSIBIRSK 07/25

ELEV. = 364 ft TORA = 3599 m
SLOPE = .00 % ASDA = 3599 m
TODA = 3599 m

15/15

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

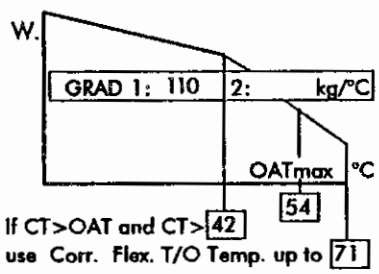
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1026 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-2	-2.0	-12	-3

Minimum v_1: 117 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1900 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	13 2-2 .1 168-175-178	18 2-2 .0 169-175-179	18 2-2 .0 169-175-179	
157.0	- -	13 2-6 .1 161-170-173	31 2-6 .1 164-172-175	41 2-2 .1 166-173-176	42 2-2 .6 168-175-178	43
155.0	11 2-6 .0 155-165-169	30 2-6 .0 157-166-170	42 2-6 .6 161-169-173	42 2-2 2.0 165-173-176	44 2-2 1.3 168-174-177	45
153.0	27 2-6 .1 151-161-165	42 2-6 .3 154-164-167	45 2-6 .5 162-169-173	46 2-2 .5 166-172-175	46 2-2 .5 167-172-175	47
151.0	41 2-6 .0 148-158-163	45 2-6 .3 155-164-167	47 2-6 .4 163-170-173	47 2-2 1.1 166-172-175	47 2-2 1.1 166-172-175	48 43
149.0	42 2-6 1.9 148-158-162	47 2-6 .2 156-164-168	49 6-6 .3 164-170-173	49 2-2 .3 165-170-173	49 2-2 .3 164-170-173	49 45
147.0	46 2-6 .9 149-158-162	49 2-6 .2 157-164-168	50 6-6 .9 164-169-172	50 2-2 .9 164-169-172	50 2-2 .9 163-169-172	51 46
145.0	48 2-6 .9 149-159-162	51 2-6 .1 158-164-168	52 2-2 .2 163-168-171	52 2-2 .2 162-168-171	52 2-2 .2 161-168-171	52 48
143.0	50 2-6 1.0 150-159-163	53 2-6 .1 159-165-168	53 2-2 .8 163-167-170	53 2-2 .8 161-167-170	53 2-2 .8 160-167-170	54 49
141.0	52 2-6 1.0 152-159-163	54 2-6 1.0 160-165-168	55 2-2 .1 161-165-168	55 2-2 .1 159-165-168	55 2-2 .1 158-165-168	54 51
136.0	57 2-3 .9 153-159-162	58 2-2 1.2 158-163-166	58 2-2 1.2 158-163-166	58 2-2 1.2 157-163-166	58 2-2 1.2 155-163-166	54 54
131.0	62 2-3 .2 153-158-161	62 2-2 1.0 156-160-163	62 2-2 1.0 154-160-163	62 2-2 1.0 153-160-163	62 2-2 1.0 151-160-163	54 54
126.0	66 3-3 .8 152-157-160	66 2-2 .8 153-157-160	66 2-2 .8 151-157-160	66 2-2 .8 149-157-160	66 2-2 .8 148-157-160	54 54
121.0	70 2-2 .6 150-154-156	70 2-2 .6 149-154-156	70 2-2 .6 147-154-156	70 2-2 .6 145-154-156	70 2-2 .6 143-154-156	54 54
116.0	71 2-2 4.3 149-153-156	71 2-2 4.3 148-153-156	71 2-2 4.3 146-153-156	71 2-2 4.3 144-153-156	71 2-2 4.3 142-153-156	54 54
111.0	71 .0 131-132-136	71 .0 131-132-136	71 .0 131-132-136	71 .0 131-132-136	71 .0 131-132-136	54 54
106.0	71 .0 128-129-133	71 .0 128-129-133	71 .0 128-129-133	71 .0 128-129-133	71 .0 128-129-133	54 54
101.0	71 .0 125-125-130	71 .0 125-125-130	71 .0 125-125-130	71 .0 125-125-130	71 .0 125-125-130	54 54

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10L/28R

ELEV. = 79 ft TORA = 3400 m
SLOPE = .00 % ASDA = 3400 m
TODA = 3400 m

15/00

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

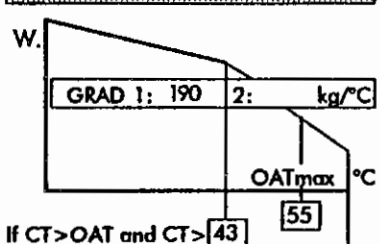
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1016 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>43
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-6	-4.5	-8	-3

Minimum v_1: 119 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1600 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	13 2-6 .1 168-173-177	25 2-1 .1 169-174-178	37 2-1 .1 171-175-179	43
157.0	- -	6 2-6 .1 164-170-174	28 2-6 .1 165-170-174	41 2-6 .1 166-171-175	43 2-1 1.5 170-174-178	45
155.0	- -	16 6-6 .1 162-168-172	38 2-6 .1 163-168-172	43 2-6 1.8 166-170-174	47 2-6 .1 171-174-178	46
153.0	3 6-6 .2 160-167-171	24 6-6 .2 161-167-171	43 2-6 1.1 162-168-172	47 2-6 .5 167-171-175	48 2-6 1.0 172-174-178	48 43
151.0	11 6-6 .1 159-166-170	33 6-6 .0 160-166-170	47 2-6 .8 163-167-171	49 2-6 .4 168-171-175	50 2-6 .9 173-175-178	49 45
149.0	19 6-6 .1 157-165-169	41 6-6 .1 158-165-169	49 2-6 .8 164-168-171	51 2-6 .3 169-171-175	52 2-6 .7 174-175-179	50 46
147.0	27 6-6 .2 156-164-168	43 6-6 1.7 158-165-169	51 2-6 .7 165-168-171	53 2-6 .1 169-171-175	54 2-3 .5 174-175-179	52 48
145.0	36 6-6 .0 155-162-166	50 6-6 .4 159-163-167	53 2-6 .6 165-168-171	54 2-3 1.0 170-171-175	56 2-3 .0 174-175-178	53 49
143.0	43 6-6 .4 153-162-166	53 2-6 .2 159-163-166	55 2-3 .3 165-168-171	56 2-3 .6 169-171-174	57 2-3 .8 174-174-178	54 50
141.0	48 6-6 .1 154-161-164	54 2-3 1.1 159-163-166	56 2-3 1.1 165-167-171	58 2-3 .2 169-170-174	59 2-3 .3 173-174-177	55 52
136.0	56 3-3 .4 154-158-162	59 2-3 .3 159-162-164	61 2-3 .2 164-166-169	62 2-3 .4 168-169-172	63 2-3 .4 172-172-175	55 55
131.0	61 3-3 .8 153-156-159	63 2-3 .7 158-160-163	65 2-3 .5 164-165-168	66 2-3 .6 168-168-171	67 2-3 .2 170-170-173	55 55
126.0	66 2-3 .3 152-155-157	68 2-3 .0 157-159-162	69 2-3 .8 163-164-166	70 2-3 .7 167-167-169	70 2-2 1.3 169-169-172	55 55
121.0	70 2-3 .8 151-154-156	72 2-3 .4 157-158-160	72 2-3 2.3 163-163-166	72 2-3 3.2 166-166-169	72 2-2 3.5 167-167-170	55 55
116.0	72 2-3 3.6 151-154-156	72 .0 147-147-150	72 .0 147-147-150	72 .0 147-147-150	72 .0 147-147-150	55 55
111.0	72 .0 143-144-147	72 .0 143-144-147	72 .0 143-144-147	72 .0 143-144-147	72 .0 143-144-147	55 55
106.0	72 .0 140-140-143	72 .0 140-140-143	72 .0 140-140-143	72 .0 140-140-143	72 .0 140-140-143	55 55
101.0	72 .0 136-137-140	72 .0 136-137-140	72 .0 136-137-140	72 .0 136-137-140	72 .0 136-137-140	55 55

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10L/28R

ELEV. = 79 ft TORA = 3400 m
SLOPE = .00 % ASDA = 3400 m
TODA = 3400 m

15/15

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

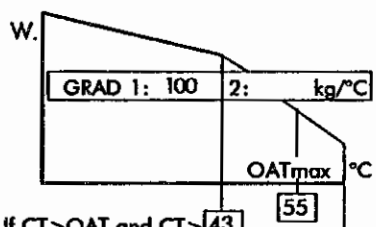
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1016 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>43
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-2	-2.0	-12	-3

Minimum v_1: 117 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1600 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	14 2-6 .0 169-174-178	25 2-2 .0 170-175-178	31 2-2 .0 171-175-179	43
157.0	- -	12 2-6 .1 162-169-173	32 2-6 .0 164-170-174	43 2-6 .1 166-172-175	43 2-2 1.4 170-175-178	45
155.0	10 2-6 .0 156-164-168	29 2-6 .1 158-165-169	43 2-6 .7 162-168-171	45 2-6 .7 167-172-175	46 2-2 .1 169-173-176	46
153.0	25 2-6 .1 152-161-165	43 2-6 .3 155-162-166	46 2-6 .2 163-168-172	47 2-6 .5 168-172-175	47 2-2 .7 169-172-176	48 43
151.0	41 2-6 .0 149-157-161	45 2-6 .9 155-162-166	48 2-6 .1 163-168-172	48 2-6 1.2 167-171-175	48 2-2 1.2 168-172-175	49 45
149.0	43 2-6 1.7 148-157-161	47 2-6 .9 156-163-166	49 2-3 1.0 164-168-172	50 2-2 .4 166-170-173	50 2-2 .4 166-170-173	50 46
147.0	47 2-6 .5 149-157-161	49 2-3 .8 157-163-167	51 2-3 .6 164-168-171	51 2-2 .9 166-169-172	51 2-2 .9 165-169-172	52 48
145.0	49 2-6 .5 150-157-161	51 2-3 .5 157-163-166	52 2-3 1.4 164-168-171	53 2-2 .0 164-167-171	53 2-2 .0 162-167-171	53 49
143.0	51 2-6 .4 151-157-161	53 2-3 .2 157-162-166	54 2-2 .6 163-167-170	54 2-2 .6 163-167-170	54 2-2 .6 161-167-170	54 50
141.0	53 2-3 .2 151-157-161	54 2-3 1.0 157-162-166	55 2-2 1.2 162-166-169	55 2-2 1.2 162-166-169	55 2-2 1.2 160-166-169	55 52
136.0	57 2-3 .6 151-156-160	59 2-3 .1 156-161-164	59 2-2 .8 159-163-166	59 2-2 .8 158-163-166	59 2-2 .8 157-163-166	55 55
131.0	61 2-3 1.0 150-155-158	63 2-3 .3 156-159-162	63 2-2 .4 156-159-162	63 2-2 .4 154-159-162	63 2-2 .4 153-159-162	55 55
126.0	66 2-3 .2 149-154-157	66 2-2 1.3 154-157-160	66 2-2 1.3 153-157-160	66 2-2 1.3 151-157-160	66 2-2 1.3 150-157-160	55 55
121.0	70 2-3 .6 149-153-156	70 2-2 .9 151-154-157	70 2-2 .9 149-154-157	70 2-2 .9 147-154-157	70 2-2 .9 146-154-157	55 55
116.0	72 2-2 3.3 148-152-155	72 2-2 3.3 148-152-155	72 2-2 3.3 146-152-155	72 2-2 3.3 145-152-155	72 2-2 3.3 143-152-155	55 55
111.0	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	55 55
106.0	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	55 55
101.0	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	55 55

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10R/28L

ELEV. = 79 ft TORA = 3780 m
SLOPE = .00 % ASDA = 3780 m
TODA = 3780 m

15/00

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

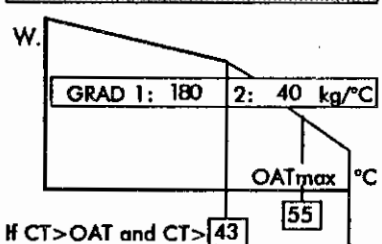
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1016 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>43
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-1	-0.5	-6	-1

Minimum v_1: 119 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1600 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0		4 2-6 .1 164-173-177	22 2-1 .1 165-174-177	35 2-1 .1 167-175-178	44 2-6 .2 169-176-180	43
157.0	-1 6-6 .1 159-169-173	17 2-6 .1 161-170-174	38 2-6 .1 162-170-174	43 2-1 1.1 165-173-177	46 2-6 .2 170-177-180	45
155.0	7 6-6 .0 158-168-172	28 6-6 .1 159-168-172	43 2-6 1.4 161-169-173	46 2-6 .6 166-173-177	48 2-6 .0 171-177-181	46
153.0	15 6-6 .0 156-167-171	36 6-6 .2 157-167-171	47 2-6 .0 162-170-174	48 2-6 .6 167-173-177	49 2-6 1.0 171-177-181	48 43
151.0	23 6-6 .1 155-166-170	43 6-6 .6 156-166-170	48 2-6 1.0 163-170-174	50 2-6 .4 168-174-177	51 2-6 .8 173-178-181	49 45
149.0	31 6-6 .2 153-165-169	48 6-6 .1 157-165-169	50 2-6 .9 164-170-174	52 2-6 .3 169-174-178	53 2-6 .6 174-178-181	50 46
147.0	40 6-6 .1 152-164-168	50 2-6 .5 158-165-169	52 2-6 .8 165-170-174	54 2-6 .1 170-174-178	55 2-6 .3 175-178-181	52 48
145.0	43 6-6 1.4 152-163-167	52 2-6 .5 158-165-169	54 2-6 .7 166-171-174	55 2-6 1.0 170-175-178	57 2-6 .1 176-178-181	53 49
143.0	49 6-6 .4 152-162-166	54 2-6 .4 159-166-169	56 2-6 .6 166-171-174	57 2-6 .9 171-175-178	58 2-6 1.0 177-179-181	54 50
141.0	53 6-6 .4 153-161-164	56 2-6 .4 160-166-169	58 2-6 .5 167-171-174	59 2-6 .7 172-175-178	60 2-2 .5 177-178-181	55 52
136.0	59 2-6 .1 155-161-164	61 2-6 .3 163-166-169	63 2-6 .1 170-171-174	63 2-6 1.1 174-175-178	63 2-2 1.3 174-175-178	55 55
131.0	64 2-5 .2 158-162-164	65 2-3 .9 164-166-169	67 2-3 .3 170-171-173	67 2-2 .6 171-172-174	67 2-2 .6 170-172-174	55 55
126.0	68 2-3 .6 158-161-163	69 2-3 1.1 163-165-167	70 2-2 1.3 169-169-172	70 2-2 1.3 168-169-172	70 2-2 1.3 167-169-172	55 55
121.0	72 2-3 1.0 157-160-162	72 2-3 2.6 163-164-167	72 2-2 3.5 167-167-170	72 2-2 3.5 166-167-170	72 2-2 3.5 165-167-170	55 55
116.0	72 .0 147-147-150	72 .0 147-147-150	72 .0 147-147-150	72 .0 147-147-150	72 .0 147-147-150	55 55
111.0	72 .0 143-144-147	72 .0 143-144-147	72 .0 143-144-147	72 .0 143-144-147	72 .0 143-144-147	55 55
106.0	72 .0 140-140-143	72 .0 140-140-143	72 .0 140-140-143	72 .0 140-140-143	72 .0 140-140-143	55 55
101.0	72 .0 136-137-140	72 .0 136-137-140	72 .0 136-137-140	72 .0 136-137-140	72 .0 136-137-140	55 55

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10R/28L

ELEV. = 79 ft TORA = 3780 m
SLOPE = .00 % ASDA = 3780 m
TODA = 3780 m

15/15

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

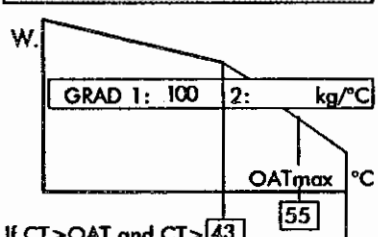
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1016 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT> 43
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-2	-2.0	-12	-3

Minimum v_1: 117 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1600 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	6 2-6 .0 163-174-177	22 2-2 .0 165-175-178	30 2-2 .0 167-175-178	31 2-2 .0 168-175-179	43
157.0	4 2-6 .1 157-169-172	23 2-6 .1 159-170-173	42 2-6 .0 161-171-175	43 2-2 1.2 165-175-178	43 2-2 1.4 167-175-178	45
155.0	21 2-6 .0 152-165-168	40 2-6 .0 155-166-170	43 2-6 1.9 161-171-174	46 2-2 .1 165-173-176	46 2-2 .1 166-173-176	46
153.0	37 2-6 .0 149-161-165	43 2-6 1.7 154-166-169	47 2-6 .3 162-171-175	47 2-2 .7 164-172-176	47 2-2 .7 165-172-176	48 43
151.0	43 2-6 1.3 147-160-164	47 2-6 .2 155-166-169	48 2-6 1.0 162-171-174	48 2-2 1.2 164-172-175	48 2-2 1.2 164-172-175	49 45
149.0	46 2-6 .9 148-160-164	49 2-6 .0 156-166-169	50 2-2 .4 162-170-173	50 2-2 .4 164-170-173	50 2-2 .4 162-170-173	50 46
147.0	48 2-6 .9 149-160-164	50 2-6 1.0 157-166-169	51 2-2 .9 162-169-172	51 2-2 .9 163-169-172	51 2-2 .9 161-169-172	52 48
145.0	50 2-6 .8 150-161-164	52 2-6 .8 158-166-170	53 2-2 .0 161-167-171	53 2-2 .0 160-167-171	53 2-2 .0 159-167-171	53 49
143.0	52 2-6 .7 151-161-164	54 2-2 .6 159-167-170	54 2-2 .6 161-167-170	54 2-2 .6 159-167-170	54 2-2 .6 157-167-170	54 50
141.0	54 2-6 .6 152-161-165	55 2-2 1.2 159-166-169	55 2-2 1.2 160-166-169	55 2-2 1.2 158-166-169	55 2-2 1.2 156-166-169	55 52
136.0	59 2-6 .4 155-162-165	59 2-2 .8 158-163-166	59 2-2 .8 156-163-166	59 2-2 .8 154-163-166	59 2-2 .8 153-163-166	55 55
131.0	63 2-2 .4 155-159-162	63 2-2 .4 154-159-162	63 2-2 .4 152-159-162	63 2-2 .4 150-159-162	63 2-2 .4 149-159-162	55 55
126.0	66 2-2 1.3 153-157-160	66 2-2 1.3 151-157-160	66 2-2 1.3 149-157-160	66 2-2 1.3 147-157-160	66 2-2 1.3 146-157-160	55 55
121.0	70 2-2 .9 149-154-157	70 2-2 .9 147-154-157	70 2-2 .9 145-154-157	70 2-2 .9 143-154-157	70 2-2 .9 142-154-157	55 55
116.0	72 2-2 3.3 147-152-155	72 2-2 3.3 145-152-155	72 2-2 3.3 143-152-155	72 2-2 3.3 141-152-155	72 2-2 3.3 141-152-155	55 55
111.0	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	55 55
106.0	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	55 55
101.0	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	55 55

UIII IRKUTSK 30

ELEV. = 1673 ft TORA = 2744 m
SLOPE = -1.00 % ASDA = 2744 m
TODA = 2744 m

15/00

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

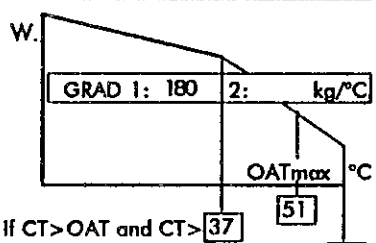
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1073 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>37
use Corr. Flex. T/O Temp. up to 68

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-10	-5.0	-10	-3

Minimum v_1: 119 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 3200 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	- -	- -	- -	
157.0	- -	- -	- -	- -	-2 2-3 .0 169-171-176	37
155.0	- -	- -	- -	-3 2-3 .1 165-168-173	13 2-3 .1 166-168-173	39
153.0	- -	- -	-8 3-3 .1 163-166-171	8 3-3 .1 164-166-171	25 3-3 .0 164-166-171	41
151.0	- -	- -	1 3-3 .0 162-165-170	17 3-3 .1 162-165-170	33 3-3 .2 163-165-170	43 36
149.0	- -	- -	9 3-3 .1 161-164-169	25 3-3 .2 161-164-169	37 3-3 1.2 163-165-169	44 39
147.0	- -	-6 3-3 .1 158-163-168	18 3-3 .1 159-163-168	34 3-3 .1 160-163-168	42 3-3 .3 161-164-168	46 41
145.0	- -	2 3-3 .2 157-162-167	26 3-3 .2 158-162-167	37 3-3 1.4 160-163-167	45 3-3 .2 161-163-167	48 43
143.0	- -	11 3-3 .1 156-161-165	35 3-3 .1 157-161-165	42 3-3 .5 158-161-166	47 2-3 .5 160-162-166	49 44
141.0	-3 3-3 .2 153-159-164	20 3-3 .0 154-160-164	37 3-3 1.7 157-161-165	45 3-3 .4 158-160-164	49 2-3 .6 160-162-166	51 46
136.0	19 3-3 .1 150-157-161	37 3-3 1.1 152-157-162	47 3-3 .3 154-157-161	52 3-3 .7 156-158-162	54 2-3 .9 159-161-164	51 50
131.0	37 3-3 1.0 148-154-159	46 3-3 .4 150-155-159	54 3-3 .4 152-155-159	58 2-3 .7 154-156-159	60 2-3 .5 158-159-162	51 51
126.0	46 3-3 .4 146-151-156	53 3-3 .7 148-152-156	61 3-3 .5 150-153-156	64 2-3 .4 153-155-158	65 2-3 .9 157-158-161	51 51
121.0	54 3-3 .0 143-149-153	61 3-3 .2 146-149-153	68 2-3 .4 149-150-154	68 2-3 1.8 153-154-157	68 2-3 3.2 157-157-160	51 51
116.0	61 3-3 .4 142-146-150	68 3-3 .7 144-147-150	68 .0 146-146-150	68 .0 146-146-150	68 .0 146-146-150	51 51
111.0	68 3-3 1.1 140-144-147	68 .0 142-143-147	68 .0 142-143-147	68 .0 142-143-147	68 .0 142-143-147	51 51
106.0	68 .0 139-140-143	68 .0 139-140-143	68 .0 139-140-143	68 .0 139-140-143	68 .0 139-140-143	51 51
101.0	68 .0 135-136-140	68 .0 135-136-140	68 .0 135-136-140	68 .0 135-136-140	68 .0 135-136-140	51 51

UIII IRKUTSK 30

ELEV. = 1673 ft TORA = 2744 m
SLOPE = -1.00 % ASDA = 2744 m
TODA = 2744 m

15/15

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

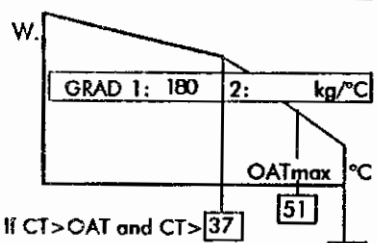
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1073 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>37
use Corr. Flex. T/O Temp. up to 68

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-8	-5.5	-12	-3

Minimum v_1: 117 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 3200 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	- -	- -	- -	
157.0	- -	- -	- -	- -	-8 2-3 .0 168-172-176	37
155.0	- -	- -	- -	-2 2-3 .0 163-167-172	11 2-3 .0 164-168-172	39
153.0	- -	- -	3 2-3 .1 158-163-167	16 2-3 .1 159-164-168	28 2-3 .1 160-165-169	41
151.0	- -	-1 2-3 .1 152-158-163	21 2-3 .0 154-159-164	32 2-3 .1 155-160-165	37 2-3 .9 158-163-167	43 36
149.0	-4 2-3 .1 148-154-159	16 2-3 .1 149-155-160	35 2-3 .1 151-156-161	37 2-3 1.4 154-159-164	41 2-3 .1 158-162-166	44 39
147.0	11 2-3 .0 145-151-156	31 2-3 .1 146-152-157	37 2-3 1.8 151-156-161	41 2-3 .6 154-159-163	43 2-3 .2 157-162-166	46 41
145.0	22 3-3 .2 143-149-154	37 2-3 1.2 145-151-156	42 2-3 .2 150-155-160	43 2-3 .8 154-158-163	45 2-3 .2 157-161-165	48 43
143.0	31 3-3 .1 142-148-153	41 2-3 .5 145-150-155	44 2-3 .3 150-155-159	45 2-3 .8 153-158-162	47 2-3 .3 157-161-165	49 44
141.0	37 3-3 .7 141-147-153	43 2-3 .7 144-150-154	46 2-3 .5 150-154-159	47 2-3 .9 153-158-162	49 2-3 .3 157-161-165	51 46
136.0	46 3-3 .2 139-145-150	49 2-3 .3 144-148-153	51 2-3 .8 149-153-158	53 2-3 .3 152-156-160	54 2-3 .6 156-160-163	51 50
131.0	52 2-3 .3 138-143-148	54 2-3 .7 143-147-152	57 2-3 .3 148-152-156	58 2-3 .7 152-155-159	60 2-3 .0 155-158-162	51 51
126.0	58 2-3 .1 137-142-146	60 2-3 .5 142-146-150	62 2-3 .8 147-151-155	64 2-3 .2 151-153-157	65 2-2 .1 154-156-159	51 51
121.0	63 2-3 .8 136-141-145	66 2-3 .2 141-145-149	68 2-3 .4 146-149-153	68 2-3 1.5 150-153-156	68 2-2 1.9 152-154-157	51 51
116.0	68 2-3 1.5 135-140-144	68 2-3 3.5 141-144-148	68 2 .0 128-136-140	68 2 .0 126-136-140	68 2 .0 126-136-140	51 51
111.0	68 .0 131-131-136	68 .0 131-131-136	68 .0 131-131-136	68 .0 131-131-136	68 .0 131-131-136	51 51
106.0	68 .0 127-128-133	68 .0 127-128-133	68 .0 127-128-133	68 .0 127-128-133	68 .0 127-128-133	51 51
101.0	68 .0 124-124-130	68 .0 124-124-130	68 .0 124-124-130	68 .0 124-124-130	68 .0 124-124-130	51 51

UUII IRKUTSK 12

ELEV. = 1673 ft TORA = 2744 m
SLOPE = 1.00 % ASDA = 2744 m
TODA = 2744 m

15/00

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

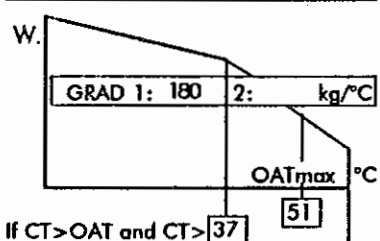
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1073 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>37
use Corr. Flex. T/O Temp. up to 68

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-10	-5.0	-10	-3

Minimum v_1: 119 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 3200 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	- -	- -	- -	
157.0	- -	- -	- -	- -	- -	37
155.0	- -	- -	- -	- -	-7 2-3 .1 169-169-172	39
153.0	- -	- -	- -	- -	1 2-3 .2 167-168-171	41
151.0	- -	- -	- -	-6 3-3 .0 166-166-170	10 3-3 .1 166-167-170	43 36
149.0	- -	- -	- -	2 3-3 .1 164-165-169	19 3-3 .0 165-165-169	44 39
147.0	- -	- -	-6 3-3 .2 163-164-168	10 3-3 .2 163-164-168	27 3-3 .1 164-165-168	46 41
145.0	- -	- -	3 3-3 .1 161-163-166	19 3-3 .2 162-163-167	36 3-3 .0 162-163-166	48 43
143.0	- -	- -	11 3-3 .2 160-162-165	28 3-3 .1 161-162-165	37 3-3 1.8 162-163-166	49 44
141.0	- -	-4 3-3 .0 158-161-164	20 3-3 .1 159-161-164	36 3-3 .2 160-161-164	43 3-3 .3 161-162-164	51 46
136.0	-6 3-3 .2 154-158-161	17 3-3 .1 155-158-161	37 3-3 1.2 156-159-162	37 3-3 5.0 159-161-164	50 3-3 .5 159-159-162	51 50
131.0	16 3-3 .1 151-155-159	37 3-3 .5 152-155-159	46 3-3 .6 154-156-159	52 3-3 .3 156-156-159	56 3-3 .7 157-157-159	51 51
126.0	37 3-3 .3 148-152-156	45 3-3 .6 150-153-156	54 3-3 .1 152-153-156	59 3-3 .4 154-154-156	62 3-3 .8 154-154-156	51 51
121.0	45 3-3 .5 146-150-153	53 3-3 .4 148-150-153	61 3-3 .4 150-151-153	66 3-3 .1 151-151-153	68 2-3 .6 152-152-154	51 51
116.0	53 3-3 .4 144-147-150	61 3-3 .1 146-147-150	68 3-3 1.0 148-148-150	68 3-3 3.7 150-150-152	68 .0 147-148-150	51 51
111.0	61 3-3 .3 141-144-147	68 3-3 .8 144-145-147	68 .0 144-144-147	68 .0 144-144-147	68 .0 144-144-147	51 51
106.0	68 3-3 1.2 140-142-144	68 .0 141-141-143	68 .0 141-141-143	68 .0 141-141-143	68 .0 141-141-143	51 51
101.0	68 .0 137-137-140	68 .0 137-137-140	68 .0 137-137-140	68 .0 137-137-140	68 .0 137-137-140	51 51

UIII IRKUTSK 12

ELEV. = 1673 ft TORA = 2744 m
SLOPE = 1.00 % ASDA = 2744 m
TODA = 2744 m

15/15

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

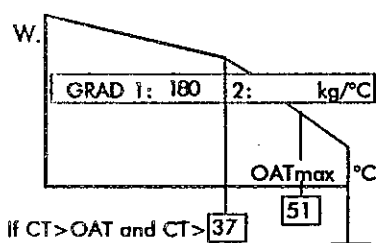
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1073 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>37
use Corr. Flex. T/O Temp. up to 68

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-8	-5.5	-12	-3

Minimum v_1: 117 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 3200 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	- -	- -	- -	
157.0	- -	- -	- -	- -	- -	37
155.0	- -	- -	- -	- -	- -	39
153.0	- -	- -	- -	-7 2-3 .1 163-164-167	7 2-3 .0 163-164-167	41
151.0	- -	- -	-3 2-3 .1 158-159-163	11 2-3 .0 159-160-163	24 2-3 .1 159-161-164	43 36
149.0	- -	-8 2-3 .1 153-155-159	14 2-3 .0 154-156-160	27 2-3 .0 155-157-160	37 2-3 .3 157-158-162	44 39
147.0	- -	7 2-3 .2 150-152-156	29 2-3 .1 151-153-157	37 2-3 .6 153-155-158	40 2-3 .3 156-158-161	46 41
145.0	-5 3-3 .0 148-150-154	17 2-3 .0 148-150-154	37 2-3 .9 150-151-155	40 2-3 .7 153-154-158	42 2-3 .6 156-157-161	48 43
143.0	3 3-3 .1 146-149-153	26 3-3 .1 147-149-153	41 2-3 .3 149-151-154	43 2-3 .1 152-154-157	44 2-3 .8 156-157-160	49 44
141.0	11 3-3 .2 145-148-152	34 3-3 .2 146-148-152	43 2-3 .5 149-150-154	45 2-3 .3 152-153-157	46 2-3 .9 156-157-160	51 46
136.0	33 3-3 .1 142-145-150	37 3-3 4.5 145-148-152	49 2-3 .0 148-149-153	50 2-3 .7 151-152-156	52 2-3 .2 155-155-159	51 50
131.0	37 3-3 4.2 142-145-149	51 3-3 .5 142-144-147	54 2-3 .6 147-148-151	56 2-3 .2 150-151-154	57 2-3 .7 154-154-157	51 51
126.0	51 3-3 .4 138-141-144	57 2-3 .5 141-142-146	60 2-3 .3 146-147-150	61 2-3 .8 150-150-153	63 2-3 .1 152-152-155	51 51
121.0	58 3-3 .6 137-138-142	63 2-3 .4 140-141-144	66 2-3 .1 145-145-148	67 2-3 .3 148-148-151	68 2-3 .5 151-151-153	51 51
116.0	66 3-3 .4 135-136-139	68 2-3 1.2 139-140-143	68 2-3 3.3 145-145-148	68 2-3 4.4 148-148-150	68 2 .0 131-137-140	51 51
111.0	68 2-3 4.0 134-135-138	68 .0 132-133-136	68 .0 132-133-136	68 .0 132-133-136	68 .0 132-133-136	51 51
106.0	68 .0 129-129-133	68 .0 129-129-133	68 .0 129-129-133	68 .0 129-129-133	68 .0 129-129-133	51 51
101.0	68 .0 125-126-130	68 .0 125-126-130	68 .0 125-126-130	68 .0 125-126-130	68 .0 125-126-130	51 51

UHHH KHABAROVSK 05L/23R

ELEV. = 240 ft TORA = 3500 m
SLOPE = .00 % ASDA = 3500 m
TODA = 3900 m

15/00

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

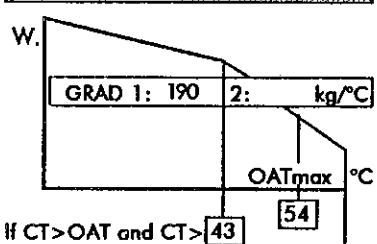
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1022 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT> 43
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-6	-4.5	-8	-3

Minimum v_1: 119 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1800 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	2 2-6 .1 164-173-177	21 2-1 .0 165-174-178	33 2-6 .0 167-175-179	43 2-6 .2 169-176-180	42
157.0	-2 6-6 .1 159-169-173	16 2-6 .0 161-170-174	36 2-6 .0 162-171-175	43 2-6 .6 165-173-177	45 2-6 .4 169-176-180	44
155.0	6 6-6 .0 158-168-172	26 2-6 .2 159-168-172	43 2-6 1.0 161-169-173	45 2-6 .9 165-173-177	47 2-6 .3 170-177-180	46
153.0	13 6-6 .2 156-167-171	35 6-6 .1 157-167-171	46 2-6 .3 162-169-173	47 2-6 .8 166-173-177	49 2-6 .2 171-177-180	47
151.0	21 6-6 .2 155-166-170	43 6-6 .1 156-166-170	48 2-6 .3 163-170-173	49 2-6 .7 167-173-177	51 2-6 .0 173-177-181	48 44
149.0	30 6-6 .0 153-165-169	47 6-6 .1 157-165-169	50 2-6 .2 164-170-174	51 2-6 .6 168-174-177	52 2-6 .9 173-177-181	50 45
147.0	38 6-6 .1 152-164-168	49 6-6 .7 157-165-168	52 2-6 .1 165-170-174	53 2-6 .5 169-174-177	54 2-6 .7 174-178-181	51 47
145.0	43 6-6 .8 151-163-167	51 2-6 .8 158-165-168	53 2-6 1.1 165-170-174	55 2-6 .3 170-174-177	56 2-3 .6 175-178-181	53 48
143.0	48 6-6 .3 152-162-165	53 2-6 .8 159-165-169	55 2-6 .9 166-170-174	57 2-3 .0 170-174-177	58 2-3 .1 175-177-180	54 50
141.0	52 6-6 .3 153-161-164	55 2-6 .8 160-165-169	57 2-3 .7 166-170-173	58 2-3 .8 170-173-177	59 2-3 .9 175-177-180	54 51
136.0	58 2-3 .3 154-160-163	60 2-3 .1 159-164-167	61 2-3 1.0 165-169-172	62 2-3 1.1 169-172-175	63 2-2 .8 174-175-178	54 54
131.0	62 2-3 .9 154-159-162	64 2-3 .5 159-163-166	66 2-3 .1 165-167-170	67 2-3 .1 169-171-173	67 2-2 .3 170-172-174	54 54
126.0	67 2-3 .3 153-158-160	68 2-3 .9 158-162-164	70 2-3 .4 164-167-169	70 2-2 1.1 168-169-172	70 2-2 1.1 167-169-172	54 54
121.0	71 2-3 .8 152-157-159	71 2-3 2.5 158-162-164	71 2-3 4.2 164-166-169	71 2-2 4.7 167-168-171	71 2-2 4.7 166-168-171	54 54
116.0	71 .0 147-147-150	71 .0 147-147-150	71 .0 147-147-150	71 .0 147-147-150	71 .0 147-147-150	54 54
111.0	71 .0 143-144-147	71 .0 143-144-147	71 .0 143-144-147	71 .0 143-144-147	71 .0 143-144-147	54 54
106.0	71 .0 140-140-143	71 .0 140-140-143	71 .0 140-140-143	71 .0 140-140-143	71 .0 140-140-143	54 54
101.0	71 .0 136-137-140	71 .0 136-137-140	71 .0 136-137-140	71 .0 136-137-140	71 .0 136-137-140	54 54

UHHH
KHABAROVSK
05L/23R

ELEV. = 240 ft TORA = 3500 m
SLOPE = .00 % ASDA = 3500 m
TODA = 3900 m

15/15

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

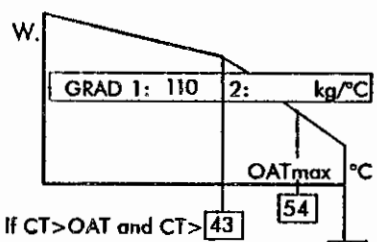
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1022 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>43
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-2	-2.0	-12	-3

Minimum v_1: 117 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1800 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	3 2-6 .1 164-174-177	18 2-2 .0 166-175-178	25 2-2 .0 167-175-179	25 2-2 .0 168-175-179	42
157.0	2 2-6 .0 157-169-172	20 2-6 .1 159-170-174	38 2-6 .0 162-172-175	43 2-6 .7 165-174-177	43 2-2 .9 167-175-178	44
155.0	18 2-6 .1 153-165-169	36 2-6 .1 155-167-170	43 2-6 1.4 161-171-174	45 2-2 .6 165-174-177	45 2-2 .6 166-174-177	46
153.0	34 2-6 .1 149-162-166	43 2-6 1.1 154-165-169	46 2-6 .5 162-171-174	46 2-2 1.2 165-173-176	46 2-2 1.2 166-173-176	47
151.0	43 2-6 .8 147-160-164	46 2-6 .4 155-165-169	48 6-6 .4 163-171-174	48 2-2 .4 164-171-174	48 2-2 .4 164-171-174	48 44
149.0	46 2-6 .1 148-160-164	48 2-6 .3 156-165-169	49 6-6 1.0 163-170-173	49 2-2 1.0 164-170-173	49 2-2 1.0 163-170-173	50 45
147.0	48 2-6 .1 149-160-164	50 2-6 .2 157-166-169	51 2-2 .1 162-169-172	51 2-2 .1 162-169-172	51 2-2 .1 161-169-172	51 47
145.0	50 2-6 .0 150-160-164	51 2-6 1.1 158-166-169	52 2-2 .7 162-168-171	52 2-2 .7 161-168-171	52 2-2 .7 160-168-171	53 48
143.0	51 2-6 1.0 151-160-164	53 2-3 .8 158-166-169	53 2-2 1.3 161-167-170	53 2-2 1.3 160-167-170	53 2-2 1.3 159-167-170	54 50
141.0	53 2-6 .9 152-161-164	55 2-3 .5 158-165-168	55 2-2 .5 160-165-169	55 2-2 .5 158-165-169	55 2-2 .5 157-165-169	54 51
136.0	58 2-3 .3 152-159-163	59 2-2 .2 156-162-165	59 2-2 .2 156-162-165	59 2-2 .2 155-162-165	59 2-2 .2 153-162-165	54 54
131.0	62 2-3 .7 151-158-161	62 2-2 1.3 154-160-163	62 2-2 1.3 153-160-163	62 2-2 1.3 152-160-163	62 2-2 1.3 150-160-163	54 54
126.0	66 2-2 1.0 150-157-160	66 2-2 1.0 152-157-160	66 2-2 1.0 150-157-160	66 2-2 1.0 148-157-160	66 2-2 1.0 146-157-160	54 54
121.0	70 2-2 .7 148-154-156	70 2-2 .7 148-154-156	70 2-2 .7 145-154-156	70 2-2 .7 144-154-156	70 2-2 .7 142-154-156	54 54
116.0	71 2-2 4.4 147-153-156	71 2-2 4.4 147-153-156	71 2-2 4.4 144-153-156	71 2-2 4.4 143-153-156	71 2-2 4.4 141-153-156	54 54
111.0	71 .0 131-132-136	71 .0 131-132-136	71 .0 131-132-136	71 .0 131-132-136	71 .0 131-132-136	54 54
106.0	71 .0 128-129-133	71 .0 128-129-133	71 .0 128-129-133	71 .0 128-129-133	71 .0 128-129-133	54 54
101.0	71 .0 125-125-130	71 .0 125-125-130	71 .0 125-125-130	71 .0 125-125-130	71 .0 125-125-130	54 54

UHHH KHABAROVSK 05R/23L

ELEV. = 240 ft TORA = 4000 m
SLOPE = .00 % ASDA = 4000 m
TODA = 4400 m

15/00

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

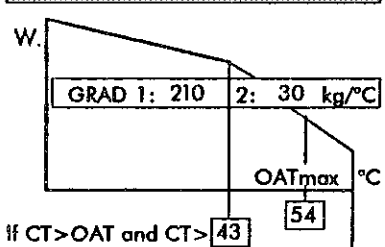
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1022 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>43
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-1	-0.5	-6	-1

Minimum v_1: 119 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1800 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	15 2-6 .1 160-174-178	33 2-6 .1 162-175-179	43 2-6 .1 164-176-180	44 2-1 .4 168-179-183	42
157.0	12 2-6 .1 154-169-173	30 2-6 .1 156-170-174	43 2-6 .6 160-173-177	45 2-6 .4 165-176-180	46 2-6 .8 169-180-183	44
155.0	21 2-2 .1 153-168-172	42 2-6 .1 154-168-172	45 2-6 .9 161-173-177	47 2-6 .3 166-176-180	48 2-6 .5 170-180-184	46
153.0	29 6-6 .1 151-167-171	43 6-6 1.9 154-168-172	47 2-6 .8 162-173-177	49 2-6 .1 166-177-180	50 2-6 .3 171-180-184	47
151.0	37 6-6 .0 150-166-170	47 2-6 .5 155-168-172	49 2-6 .7 162-173-177	50 2-6 1.0 167-177-180	52 2-6 .1 172-181-184	48 44
149.0	43 5-5 .4 149-165-169	49 2-6 .4 156-168-172	51 2-6 .5 163-173-177	52 2-6 .8 168-177-180	53 2-6 .9 173-181-184	50 45
147.0	47 5-5 .4 149-164-168	51 2-6 .3 157-168-172	53 2-6 .3 164-173-177	54 2-6 .6 169-177-180	55 2-6 .7 174-181-184	51 47
145.0	50 6-6 .9 150-164-167	53 2-6 .2 158-168-172	55 2-6 .2 165-174-177	56 2-6 .4 170-177-180	57 2-6 .2 175-180-183	53 48
143.0	52 2-5 .8 151-163-166	55 2-6 .1 159-168-172	57 2-6 .0 166-174-177	58 2-6 .2 171-177-180	58 2-2 .8 174-179-182	54 50
141.0	54 2-5 .5 151-163-166	57 2-6 .1 160-168-172	58 2-6 1.0 167-174-177	59 2-6 1.1 172-177-180	60 2-2 .0 174-178-181	54 51
136.0	59 2-5 .1 153-162-165	61 2-5 .7 161-168-171	63 2-6 .6 169-174-177	63 2-2 .8 172-175-178	63 2-2 .8 171-175-178	54 54
131.0	63 2-5 .7 154-161-164	66 2-5 .0 163-167-170	67 2-2 .3 169-172-174	67 2-2 .3 168-172-174	67 2-2 .3 167-172-174	54 54
126.0	68 2-5 .3 156-161-163	70 2-5 .4 164-167-169	70 2-2 1.1 166-169-172	70 2-2 1.1 165-169-172	70 2-2 1.1 164-169-172	54 54
121.0	71 2-5 2.0 156-160-162	71 2-5 4.3 164-167-169	71 2-2 4.7 165-168-171	71 2-2 4.7 164-168-171	71 2-2 4.7 163-168-171	54 54
116.0	71 .0 147-147-150	71 .0 147-147-150	71 .0 147-147-150	71 .0 147-147-150	71 .0 147-147-150	54 54
111.0	71 .0 143-144-147	71 .0 143-144-147	71 .0 143-144-147	71 .0 143-144-147	71 .0 143-144-147	54 54
106.0	71 .0 140-140-143	71 .0 140-140-143	71 .0 140-140-143	71 .0 140-140-143	71 .0 140-140-143	54 54
101.0	71 .0 136-137-140	71 .0 136-137-140	71 .0 136-137-140	71 .0 136-137-140	71 .0 136-137-140	54 54

UHHH KHABAROVSK 05R/23L

ELEV. = 240 ft TORA = 4000 m
SLOPE = .00 % ASDA = 4000 m
TODA = 4400 m

15/15

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

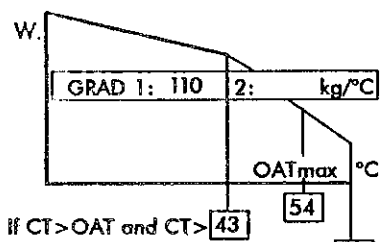
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1022 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT> 43
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt] -	v_R&v_2 [kt]
-2	-2.0	-12	-3

Minimum v_1: 117 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1800 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	-1 2-6 .0 157-174-177	16 2-2 .0 159-175-178	25 2-2 .0 161-175-179	25 2-2 .0 162-175-179	25 2-2 .0 162-175-179	42
157.0	16 2-6 .0 152-170-173	34 2-6 .0 155-171-174	43 2-6 .9 160-175-178	43 2-2 .9 161-175-178	43 2-2 .9 162-175-178	44
155.0	33 2-6 .0 148-166-170	43 2-6 .8 153-169-173	45 2-2 .6 159-174-177	45 2-2 .6 160-174-177	45 2-2 .6 161-174-177	46
153.0	43 2-6 .6 146-164-168	45 2-6 1.0 153-169-173	46 2-2 1.2 159-173-176	46 2-2 1.2 160-173-176	46 2-2 1.2 161-173-176	47
151.0	45 2-6 .9 147-164-168	47 2-6 .9 154-169-173	48 2-2 .4 158-171-174	48 2-2 .4 159-171-174	48 2-2 .4 159-171-174	48 44
149.0	47 2-6 .8 148-164-168	49 2-6 .7 155-169-173	49 2-2 1.0 158-170-173	49 2-2 1.0 159-170-173	49 2-2 1.0 158-170-173	50 45
147.0	49 2-6 .6 148-164-167	51 2-2 .1 156-169-172	51 2-2 .1 157-169-172	51 2-2 .1 157-169-172	51 2-2 .1 155-169-172	51 47
145.0	51 2-5 .3 149-164-167	52 2-2 .7 155-168-171	52 2-2 .7 157-168-171	52 2-2 .7 156-168-171	52 2-2 .7 155-168-171	53 48
143.0	52 2-5 1.1 149-163-167	53 2-2 1.3 155-167-170	53 2-2 1.3 157-167-170	53 2-2 1.3 155-167-170	53 2-2 1.3 154-167-170	54 50
141.0	54 2-5 .8 150-163-166	55 2-2 .5 155-165-169	55 2-2 .5 155-165-169	55 2-2 .5 153-165-169	55 2-2 .5 153-165-169	54 51
136.0	59 2-5 .1 152-162-165	59 2-2 .2 154-162-165	59 2-2 .2 151-162-165	59 2-2 .2 150-162-165	59 2-2 .2 150-162-165	54 54
131.0	62 2-2 1.3 152-160-163	62 2-2 1.3 151-160-163	62 2-2 1.3 148-160-163	62 2-2 1.3 148-160-163	62 2-2 1.3 148-160-163	54 54
126.0	66 2-2 1.0 149-157-160	66 2-2 1.0 147-157-160	66 2-2 1.0 145-157-160	66 2-2 1.0 145-157-160	66 2-2 1.0 145-157-160	54 54
121.0	70 2-2 .7 145-154-156	70 2-2 .7 143-154-156	70 2-2 .7 142-154-156	70 2-2 .7 142-154-156	70 2-2 .7 142-154-156	54 54
116.0	71 2-2 4.4 144-153-156	71 2-2 4.4 142-153-156	71 2-2 4.4 141-153-156	71 2-2 4.4 141-153-156	71 2-2 4.4 141-153-156	54 54
111.0	71 .0 131-132-136	71 .0 131-132-136	71 .0 131-132-136	71 .0 131-132-136	71 .0 131-132-136	54 54
106.0	71 .0 128-129-133	71 .0 128-129-133	71 .0 128-129-133	71 .0 128-129-133	71 .0 128-129-133	54 54
101.0	71 .0 125-125-130	71 .0 125-125-130	71 .0 125-125-130	71 .0 125-125-130	71 .0 125-125-130	54 54

OMAA
ABU DHABI
13/31

ELEV. = 88 ft TORA = 4100 m
SLOPE = .00 % ASDA = 4155 m
TODA = 4155 m

15/00

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

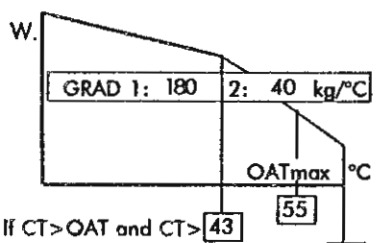
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1016 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>43
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-1	-0.5	-6	-1

Minimum v_1: 119 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1600 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	13 2-6 .1 161-173-177	32 2-6 .1 163-174-178	43 2-1 .2 164-175-179	45 2-6 .2 169-179-183	43
157.0	8 2-6 .1 156-170-174	29 2-6 .0 157-170-174	43 2-6 .6 160-172-176	45 2-6 .8 165-176-179	47 2-6 .1 170-179-183	45
155.0	18 6-6 .1 154-168-172	39 2-6 .0 155-168-172	46 2-6 .2 161-172-176	47 2-6 .7 166-176-179	48 2-6 1.0 170-180-183	46
153.0	26 6-6 .2 153-167-171	43 2-6 1.3 155-168-172	48 2-6 .1 162-172-176	49 2-6 .5 167-176-180	50 2-6 .8 171-180-183	48 43
151.0	35 6-6 .0 151-166-170	47 2-6 .7 155-167-171	49 2-6 1.0 163-172-176	51 2-6 .3 168-176-180	52 2-6 .5 173-180-183	49 45
149.0	43 6-6 .2 150-165-169	49 2-6 .7 156-167-171	51 2-6 .9 164-173-176	53 2-6 .1 169-177-180	54 2-6 .2 174-180-184	50 46
147.0	47 6-6 .2 150-164-168	51 2-6 .6 157-168-171	53 2-6 .7 164-173-177	54 2-6 1.0 169-177-180	55 2-6 1.1 174-181-184	52 48
145.0	50 6-6 .5 151-163-167	53 2-6 .5 158-168-171	55 2-6 .5 165-173-177	56 2-6 .7 170-177-180	57 2-2 .7 175-181-184	53 49
143.0	53 2-6 .2 152-163-166	55 2-6 .4 159-168-171	57 2-6 .3 166-173-177	58 2-6 .5 171-177-180	58 2-2 1.3 175-180-183	54 50
141.0	55 2-5 .0 153-163-166	57 2-6 .3 160-168-171	59 2-6 .2 167-173-176	60 2-6 .3 172-177-180	60 2-2 .5 175-178-181	55 52
136.0	59 2-5 .7 154-162-165	62 2-5 .1 163-168-171	63 2-6 .8 169-174-177	63 2-2 1.2 172-175-178	63 2-2 1.2 172-175-178	55 55
131.0	64 2-5 .1 156-162-164	66 2-5 .4 164-168-170	67 2-2 .6 170-172-174	67 2-2 .6 169-172-174	67 2-2 .6 168-172-174	55 55
126.0	68 2-5 .7 157-161-163	70 2-5 .7 165-167-170	70 2-2 1.3 167-169-172	70 2-2 1.3 166-169-172	70 2-2 1.3 165-169-172	55 55
121.0	72 2-5 1.2 157-160-162	72 2-5 3.4 165-167-169	72 2-2 3.5 165-167-170	72 2-2 3.5 164-167-170	72 2-2 3.5 162-167-170	55 55
116.0	72 .0 147-147-150	72 .0 147-147-150	72 .0 147-147-150	72 .0 147-147-150	72 .0 147-147-150	55 55
111.0	72 .0 143-144-147	72 .0 143-144-147	72 .0 143-144-147	72 .0 143-144-147	72 .0 143-144-147	55 55
106.0	72 .0 140-140-143	72 .0 140-140-143	72 .0 140-140-143	72 .0 140-140-143	72 .0 140-140-143	55 55
101.0	72 .0 136-137-140	72 .0 136-137-140	72 .0 136-137-140	72 .0 136-137-140	72 .0 136-137-140	55 55

OMAA
ABU DHABI
13/31

ELEV. = 88 ft TORA = 4100 m
SLOPE = .00 % ASDA = 4155 m
TODA = 4155 m

15/15

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

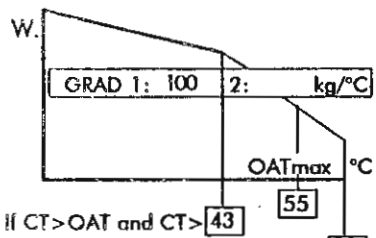
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1016 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>43
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-2	-2.0	-12	-3

Minimum v_1: 117 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1600 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	-2 2-6 .0 158-173-177	15 2-6 .1 160-174-178	29 2-2 .1 162-175-179	30 2-2 .0 163-175-179	30 2-2 .0 164-175-179	43
157.0	15 2-6 .0 153-169-173	33 2-6 .1 155-171-174	43 2-2 1.0 160-174-177	43 2-2 1.4 162-175-178	43 2-2 1.4 163-175-178	45
155.0	32 2-6 .0 149-165-169	43 2-6 .9 153-168-172	46 6-6 .1 160-173-176	46 2-2 .1 161-173-176	46 2-2 .1 162-173-176	46
153.0	43 2-6 .6 146-163-167	46 2-6 .4 154-169-172	47 2-2 .6 160-172-176	47 2-2 .6 161-172-176	47 2-2 .6 161-172-176	48 43
151.0	46 2-6 .2 147-163-167	48 2-6 .2 155-169-172	48 2-2 1.2 160-172-175	48 2-2 1.2 160-172-175	48 2-2 1.2 160-172-175	49 45
149.0	48 2-6 .1 148-163-167	49 2-6 1.1 156-169-172	50 2-2 .3 159-170-173	50 2-2 .3 160-170-173	50 2-2 .3 158-170-173	50 46
147.0	49 2-6 1.0 149-163-167	51 2-6 .7 156-169-172	51 2-2 .9 159-169-172	51 2-2 .9 159-169-172	51 2-2 .9 157-169-172	52 48
145.0	51 2-6 .9 150-164-167	52 2-2 1.4 156-168-171	52 2-2 1.4 158-168-171	52 2-2 1.4 158-168-171	52 2-2 1.4 156-168-171	53 49
143.0	53 2-6 .6 151-164-167	54 2-2 .6 156-167-170	54 2-2 .6 157-167-170	54 2-2 .6 155-167-170	54 2-2 .6 154-167-170	54 50
141.0	55 2-5 .2 151-163-167	55 2-2 1.1 156-166-169	55 2-2 1.1 156-166-169	55 2-2 1.1 154-166-169	55 2-2 1.1 153-166-169	55 52
136.0	59 5-5 .7 153-163-166	59 2-2 .7 155-163-166	59 2-2 .7 152-163-166	59 2-2 .7 150-163-166	59 2-2 .7 150-163-166	55 55
131.0	63 2-2 .4 152-159-162	63 2-2 .4 151-159-162	63 2-2 .4 148-159-162	63 2-2 .4 147-159-162	63 2-2 .4 147-159-162	55 55
126.0	66 2-2 1.3 150-157-160	66 2-2 1.3 148-157-160	66 2-2 1.3 145-157-160	66 2-2 1.3 145-157-160	66 2-2 1.3 145-157-160	55 55
121.0	70 2-2 .9 146-154-157	70 2-2 .9 144-154-157	70 2-2 .9 142-154-157	70 2-2 .9 142-154-157	70 2-2 .9 142-154-157	55 55
116.0	72 2-2 3.2 144-152-155	72 2-2 3.2 141-152-155	72 2-2 3.2 141-152-155	72 2-2 3.2 141-152-155	72 2-2 3.2 141-152-155	55 55
111.0	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	55 55
106.0	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	55 55
101.0	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	55 55

OSDI
DAMASKUS
05L/23R

ELEV. = 2021 ft
SLOPE = .00 %

TORA = 3000 m
ASDA = 3000 m
TODA = 3000 m

15/00

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

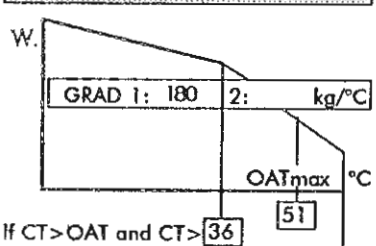
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1085 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>36
use Corr. Flex. T/O Temp. up to 67

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-10	-5.0	-10	-3

Minimum v_1: 119 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 3600 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	- -	- -	- -	
157.0	- -	- -	- -	- -	3 2-3 .1 172-173-177	35
155.0	- -	- -	-9 2-3 .0 166-168-172	5 2-3 .1 167-169-173	20 2-3 .1 168-170-174	37
153.0	- -	- -	0 2-3 .1 165-167-171	16 2-3 .1 165-167-171	33 2-3 .1 166-168-171	39
151.0	- -	- -	9 3-3 .1 163-166-170	26 3-3 .0 164-166-170	36 2-3 1.6 165-167-171	41
149.0	- -	-7 3-3 .2 161-165-169	18 3-3 .0 162-165-169	34 3-3 .2 163-165-169	40 2-3 .8 165-166-170	43 37
147.0	- -	2 3-3 .1 160-164-168	26 3-3 .2 161-164-168	36 3-3 1.7 162-165-169	43 2-3 .0 164-166-169	45 39
145.0	- -	10 3-3 .2 159-163-167	35 3-3 .2 160-163-167	41 3-3 .7 161-163-167	45 2-3 .2 164-165-168	46 41
143.0	-3 3-3 .1 156-161-165	19 3-3 .2 157-162-165	36 3-3 1.9 159-163-166	44 3-3 .6 160-162-166	47 2-3 .3 163-165-168	48 43
141.0	5 3-3 .2 155-160-164	28 3-3 .1 156-160-164	42 3-3 .2 158-161-164	47 3-3 .6 160-161-165	49 2-3 .5 163-164-167	50 45
136.0	28 3-3 .0 152-157-161	36 3-3 3.4 155-159-163	49 3-3 .5 156-159-162	53 2-3 .3 159-160-163	55 2-3 .1 162-163-166	51 49
131.0	36 3-3 3.2 151-156-160	48 3-3 .6 152-156-159	56 3-3 .7 154-156-159	59 2-3 .1 158-159-161	60 2-3 .7 161-162-164	51 51
126.0	48 3-3 .5 148-152-156	56 3-3 .2 150-153-156	63 2-3 .2 153-154-157	64 2-3 .8 157-157-160	66 2-3 .5 161-161-163	51 51
121.0	56 3-3 .3 146-150-153	63 3-3 .6 148-150-153	68 2-3 1.1 152-153-155	68 2-3 2.5 156-157-159	68 2-3 3.7 160-160-162	51 51
116.0	64 3-3 .2 144-147-150	68 3-3 2.6 147-149-151	68 .0 147-147-150	68 .0 147-147-150	68 .0 147-147-150	51 51
111.0	68 3-3 2.9 143-146-148	68 .0 143-144-147	68 .0 143-144-147	68 .0 143-144-147	68 .0 143-144-147	51 51
106.0	68 .0 140-140-143	68 .0 140-140-143	68 .0 140-140-143	68 .0 140-140-143	68 .0 140-140-143	51 51
101.0	68 .0 136-137-140	68 .0 136-137-140	68 .0 136-137-140	68 .0 136-137-140	68 .0 136-137-140	51 51

OSDI
DAMASKUS
05L/23R

ELEV. = 2021 ft TORA = 3000 m
SLOPE = .00 % ASDA = 3000 m
TODA = 3000 m

15/15

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

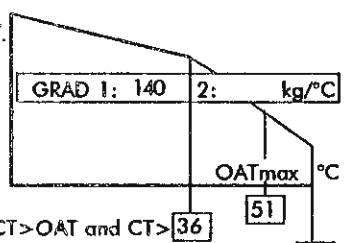
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1085 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>36
use Corr. Flex. T/O Temp. up to 67

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-2	-2.0	-12	-3

Minimum v_1: 117 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 3600 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	- -	- -	- -	
157.0	- -	- -	- -	- -	-8 2-2 .1 171-174-177	35
155.0	- -	- -	- -	2 2-3 .0 166-169-173	14 2-3 .1 167-170-173	37
153.0	- -	- -	7 2-3 .1 160-165-168	20 2-3 .1 161-165-169	33 2-3 .1 162-166-170	39
151.0	- -	4 2-3 .0 155-160-164	25 2-3 .1 157-161-165	36 2-3 .3 158-162-166	36 2-3 1.7 162-166-169	41
149.0	1 2-3 .0 150-155-160	21 2-3 .1 151-156-160	36 2-3 .8 154-159-163	38 2-3 .7 158-162-165	40 2-3 .4 161-165-168	43 37
147.0	17 2-3 .1 147-152-157	36 2-3 .2 148-153-158	39 2-3 .4 154-158-162	41 2-3 .1 158-161-165	42 2-3 .5 161-165-168	45 39
145.0	29 2-3 .2 145-150-155	38 2-3 .7 148-153-157	41 2-3 .6 154-158-162	43 2-3 .3 157-161-165	44 2-3 .7 161-164-168	46 41
143.0	36 2-3 .9 144-149-154	41 2-3 .2 148-153-157	43 2-3 .8 154-158-161	45 2-3 .4 157-161-164	46 2-3 .8 161-164-167	48 43
141.0	40 3-3 .5 143-148-152	43 2-3 .4 147-152-156	46 2-3 .1 153-157-161	47 2-3 .5 157-160-164	48 2-3 .9 161-164-167	50 45
136.0	46 2-3 .5 142-147-151	49 2-3 .1 147-151-155	51 2-3 .6 153-156-160	53 2-3 .1 156-159-162	54 2-3 .4 160-162-165	51 49
131.0	52 2-3 .3 141-146-150	54 2-3 .8 146-150-154	57 2-3 .4 152-154-158	58 2-3 .7 155-158-161	59 2-2 .6 158-160-163	51 51
126.0	58 2-3 .4 140-144-148	60 2-3 .7 145-148-152	63 2-3 .2 151-153-156	64 2-3 .5 154-156-159	64 2-2 .6 155-157-160	51 51
121.0	64 2-3 .4 139-143-146	66 2-3 .7 144-147-150	68 2-3 .9 150-152-155	68 2-2 1.6 153-154-157	68 2-2 1.6 152-154-157	51 51
116.0	68 2-3 2.2 139-142-145	68 2-3 4.0 144-147-150	68 2 .0 128-137-141	68 2 .0 127-137-141	68 2 .0 127-137-141	51 51
111.0	68 .0 131-132-136	68 .0 131-132-136	68 .0 131-132-136	68 .0 131-132-136	68 .0 131-132-136	51 51
106.0	68 .0 128-129-133	68 .0 128-129-133	68 .0 128-129-133	68 .0 128-129-133	68 .0 128-129-133	51 51
101.0	68 .0 125-125-130	68 .0 125-125-130	68 .0 125-125-130	68 .0 125-125-130	68 .0 125-125-130	51 51

OSDI
DAMASKUS
05R/23L

ELEV. = 2021 ft TORA = 3600 m
SLOPE = .00 % ASDA = 3600 m
TODA = 3600 m

15/00

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

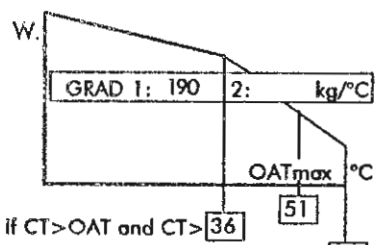
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1085 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT> 36
use Corr. Flex. T/O Temp. up to 67

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-6	-4.5	-8	-3

Minimum v_1: 119 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 3600 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	- -	-1 2-1 .1 172-178-181	12 2-6 .1 173-178-182	
157.0	- -	- -	3 2-6 .1 167-173-177	16 2-6 .0 168-174-177	28 2-6 .1 169-175-178	35
155.0	- -	-2 2-6 .1 163-169-173	18 2-6 .1 163-170-174	31 2-6 .1 164-170-174	36 2-6 1.1 167-173-176	37
153.0	- -	9 6-6 .1 160-167-171	29 2-6 .2 161-168-171	36 2-6 1.4 163-169-173	40 2-6 .0 168-173-177	39
151.0	-3 6-6 .0 158-166-170	17 6-6 .0 159-166-170	36 2-6 .9 160-167-170	40 2-6 .5 164-169-173	42 2-6 .4 169-173-177	41
149.0	4 6-6 .1 156-165-169	25 6-6 .1 157-165-169	41 2-6 .0 161-166-170	42 2-6 .8 165-169-173	44 2-6 .7 169-173-177	43 37
147.0	12 6-6 .0 155-164-168	33 6-6 .1 156-164-168	43 2-6 .4 161-166-170	45 2-6 .3 166-170-173	47 2-6 .1 170-173-177	45 39
145.0	20 6-6 .0 153-163-166	36 6-6 1.4 155-164-167	45 2-6 .8 162-166-170	47 2-6 .6 166-170-173	49 2-6 .4 171-173-177	46 41
143.0	28 6-6 .1 152-162-165	43 6-6 .4 156-162-166	48 2-6 .3 163-166-170	50 2-6 .1 167-170-173	51 2-6 .6 172-174-177	48 43
141.0	36 6-6 .2 151-161-164	47 6-6 .6 156-162-165	50 2-6 .6 163-167-170	52 2-6 .4 168-170-173	54 2-6 .2 173-174-177	50 45
136.0	47 6-6 .4 152-158-162	54 2-6 .2 158-162-164	56 2-3 .7 164-165-169	58 2-3 .3 168-169-172	59 2-3 .7 173-173-176	51 49
131.0	57 2-3 .6 153-156-159	60 2-3 .1 158-160-163	62 2-3 .4 163-165-167	63 2-3 .8 167-168-171	64 2-3 .9 171-171-173	51 51
126.0	63 2-3 .5 152-155-157	65 2-3 .8 157-159-161	68 2-3 .1 163-164-166	68 2-3 1.3 167-167-169	68 2-3 2.1 169-169-172	51 51
121.0	68 2-3 1.4 151-154-156	68 2-3 3.2 156-159-161	68 2 .0 144-151-153	68 2 .0 143-151-153	68 2 .0 141-151-153	51 51
116.0	68 .0 147-147-150	68 .0 147-147-150	68 .0 147-147-150	68 .0 147-147-150	68 .0 147-147-150	51 51
111.0	68 .0 143-144-147	68 .0 143-144-147	68 .0 143-144-147	68 .0 143-144-147	68 .0 143-144-147	51 51
106.0	68 .0 140-140-143	68 .0 140-140-143	68 .0 140-140-143	68 .0 140-140-143	68 .0 140-140-143	51 51
101.0	68 .0 136-137-140	68 .0 136-137-140	68 .0 136-137-140	68 .0 136-137-140	68 .0 136-137-140	51 51

OSDI
DAMASKUS
05R/23L

ELEV. = 2021 ft TORA = 3600 m
SLOPE = .00 % ASDA = 3600 m
TODA = 3600 m

15/15

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

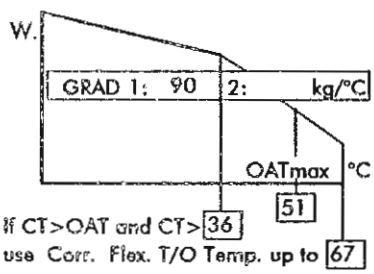
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1085 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>36
use Corr. Flex. T/O Temp. up to 67

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-2	-2.0	-12	-3

Minimum v_1: 117 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 3600 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	- -	- -	- -	
157.0	- -	- -	-6 2-2 .0 168-174-177	-4 2-2 .0 168-174-177	-4 2-2 .0 167-174-177	35
155.0	- -	1 2-6 .0 161-169-173	20 2-6 .1 163-170-174	33 2-6 .0 164-171-174	36 2-2 .9 167-174-177	37
153.0	-1 2-6 .0 154-164-168	18 2-6 .1 156-165-169	36 2-6 .3 159-167-170	36 2-6 1.7 163-171-174	38 2-2 1.0 167-173-176	39
151.0	15 2-6 .0 150-160-164	35 2-6 .1 152-162-165	39 2-6 .0 160-167-170	40 2-6 .5 164-171-174	40 2-2 .8 166-171-174	41
149.0	31 2-6 .1 147-157-161	36 2-6 1.9 152-161-165	41 2-6 .3 160-167-170	42 2-2 .6 164-170-173	42 2-2 .6 166-170-173	43 37
147.0	36 2-6 1.5 146-156-160	41 2-6 .1 153-162-165	43 2-6 .6 161-167-170	44 2-2 .3 164-169-172	44 2-2 .3 164-169-172	45 39
145.0	40 2-6 .5 147-156-160	43 2-6 .5 154-162-165	46 2-6 .0 162-167-170	46 2-2 .1 164-168-171	46 2-2 .1 162-168-171	46 41
143.0	43 2-6 .2 148-156-160	45 2-6 .8 155-162-165	47 2-2 1.0 162-167-170	47 2-2 1.0 163-167-170	47 2-2 1.0 162-167-170	48 43
141.0	45 2-6 .6 148-156-160	48 2-6 .3 156-162-165	49 2-2 .8 162-166-169	49 2-2 .8 161-166-169	49 2-2 .8 160-166-169	50 45
136.0	51 2-6 .7 150-157-160	54 2-3 .0 156-161-164	54 2-2 .6 159-163-166	54 2-2 .6 158-163-166	54 2-2 .6 156-163-166	51 49
131.0	57 2-3 .6 150-155-158	59 2-2 .6 155-160-163	59 2-2 .6 156-160-163	59 2-2 .6 154-160-163	59 2-2 .6 153-160-163	51 51
126.0	63 2-3 .4 149-154-157	64 2-2 .6 153-157-160	64 2-2 .6 152-157-160	64 2-2 .6 151-157-160	64 2-2 .6 149-157-160	51 51
121.0	68 2-3 1.1 148-153-155	68 2-2 1.6 151-154-157	68 2-2 1.6 149-154-157	68 2-2 1.6 148-154-157	68 2-2 1.6 146-154-157	51 51
116.0	68 2 .0 127-137-141	68 2 .0 127-137-141	68 2 .0 127-137-141	68 2 .0 127-137-141	68 2 .0 127-137-141	51 51
111.0	68 .0 131-132-136	68 .0 131-132-136	68 .0 131-132-136	68 .0 131-132-136	68 .0 131-132-136	51 51
106.0	68 .0 128-129-133	68 .0 128-129-133	68 .0 128-129-133	68 .0 128-129-133	68 .0 128-129-133	51 51
101.0	68 .0 125-125-130	68 .0 125-125-130	68 .0 125-125-130	68 .0 125-125-130	68 .0 125-125-130	51 51

LCLK LARNACA 22

ELEV. = 8 ft TORA = 2700 m
SLOPE = .00 % ASDA = 2700 m
TODA = 4000 m

15/00

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

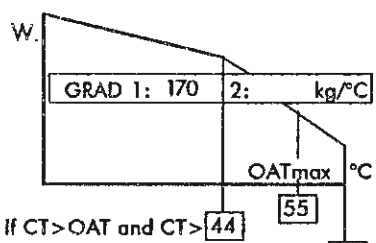
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1013 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT> 44
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-10	-5.0	-10	-3

Minimum v_1: 119 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1600 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	- -	- -	6 2-3 .0 168-172-177	44
157.0	- -	- -	- -	4 2-3 .2 165-169-174	20 2-3 .1 166-170-174	45
155.0	- -	- -	- -	15 3-3 .1 163-168-172	32 3-3 .0 164-168-172	47
153.0	- -	- -	7 3-3 .1 162-167-171	24 3-3 .0 162-167-171	41 3-3 .0 163-167-171	48 44
151.0	- -	- -	16 3-3 .1 160-166-170	32 3-3 .2 161-166-170	44 3-3 1.3 163-167-171	49 45
149.0	- -	0 3-3 .2 158-164-169	25 3-3 .0 159-165-169	41 3-3 .2 160-165-169	48 3-3 .0 161-165-169	51 46
147.0	- -	9 3-3 .1 157-163-168	34 3-3 .0 158-164-168	44 3-3 1.5 160-164-168	50 2-2 .3 151-164-168	52 48
145.0	- -	18 3-3 .0 155-162-166	43 3-3 .0 157-162-166	48 3-3 .2 158-163-167	51 2-2 1.2 156-164-168	53 49
143.0	4 3-3 .1 153-161-165	26 3-3 .2 154-161-165	44 3-3 1.7 157-162-166	50 3-3 .6 158-162-166	53 2-3 .8 161-164-167	55 51
141.0	13 3-3 .1 152-160-164	36 3-3 .0 153-160-164	48 3-3 .5 155-161-164	53 3-3 .2 157-161-164	55 2-3 .5 160-163-167	55 52
136.0	35 3-3 .1 149-157-161	44 3-3 3.2 152-159-163	54 3-3 .7 154-158-162	58 2-3 .4 156-159-162	59 2-3 .8 160-162-165	55 55
131.0	44 3-3 3.1 148-156-160	54 3-3 .1 149-155-159	60 3-3 .4 152-156-159	62 2-3 .8 155-158-161	64 2-3 .0 159-161-163	55 55
126.0	54 3-3 .1 145-152-156	59 3-3 .8 148-153-156	65 2-3 1.0 150-154-156	67 2-3 .1 154-157-159	68 2-3 .3 158-160-162	55 55
121.0	59 3-3 .8 143-150-153	65 3-3 .8 146-150-153	70 2-3 .3 150-153-155	71 2-3 .6 154-156-158	72 2-3 .7 158-159-161	55 55
116.0	66 3-3 .2 141-147-150	72 3-3 .3 144-147-150	72 2-3 3.1 149-152-154	72 2-3 4.4 154-156-158	72 .0 147-147-150	55 55
111.0	72 3-3 .7 140-144-147	72 .0 143-144-147	72 .0 143-144-147	72 .0 143-144-147	72 .0 143-144-147	55 55
106.0	72 .0 140-140-143	72 .0 140-140-143	72 .0 140-140-143	72 .0 140-140-143	72 .0 140-140-143	55 55
101.0	72 .0 136-137-140	72 .0 136-137-140	72 .0 136-137-140	72 .0 136-137-140	72 .0 136-137-140	55 55

LCLK LARNACA 04

ELEV. = 8 ft TORA = 2700 m
SLOPE = .00 % ASDA = 2700 m
TODA = 4000 m

15/00

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

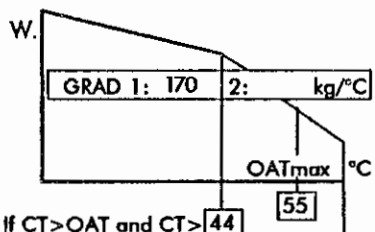
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1013 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>44
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-10	-5.0	-10	-3

Minimum v_1: 119 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1600 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	- -	- -	6 2-3 .0 168-172-177	44
157.0	- -	- -	- -	4 2-3 .2 165-169-174	20 2-3 .1 166-170-174	45
155.0	- -	- -	- -	15 3-3 .1 163-168-172	32 3-3 .0 164-168-172	47
153.0	- -	- -	7 3-3 .1 162-167-171	24 3-3 .0 162-167-171	41 3-3 .0 163-167-171	48 44
151.0	- -	- -	16 3-3 .1 160-166-170	32 3-3 .2 161-166-170	44 3-3 1.3 163-167-171	49 45
149.0	- -	0 3-3 .2 158-164-169	25 3-3 .0 159-165-169	41 3-3 .2 160-165-169	48 3-3 .0 161-165-169	51 46
147.0	- -	9 3-3 .1 157-163-168	34 3-3 .0 158-164-168	44 3-3 1.5 160-164-168	50 2-2 .3 151-164-168	52 48
145.0	- -	18 3-3 .0 155-162-166	43 3-3 .0 157-162-166	48 3-3 .2 158-163-167	51 2-2 1.2 156-164-168	53 49
143.0	4 3-3 .1 153-161-165	26 3-3 .2 154-161-165	44 3-3 1.7 157-162-166	50 3-3 .6 158-162-166	53 2-3 .8 161-164-167	55 51
141.0	13 3-3 .1 152-160-164	36 3-3 .0 153-160-164	48 3-3 .5 155-161-164	53 3-3 .2 157-161-164	55 2-3 .5 160-163-167	55 52
136.0	35 3-3 .1 149-157-161	44 3-3 3.2 152-159-163	54 3-3 .7 154-158-162	58 2-3 .4 156-159-162	59 2-3 .8 160-162-165	55 55
131.0	44 3-3 3.1 148-156-160	54 3-3 .1 149-155-159	60 3-3 .4 152-156-159	62 2-3 .8 155-158-161	64 2-3 .0 159-161-163	55 55
126.0	54 3-3 .1 145-152-156	59 3-3 .8 148-153-156	65 2-3 1.0 150-154-156	67 2-3 .1 154-157-159	68 2-3 .3 158-160-162	55 55
121.0	59 3-3 .8 143-150-153	65 3-3 .8 146-150-153	70 2-3 .3 150-153-155	71 2-3 .6 154-156-158	72 2-3 .7 158-159-161	55 55
116.0	66 3-3 .2 141-147-150	72 3-3 .3 144-147-150	72 2-3 3.1 149-152-154	72 2-3 4.4 154-156-158	72 .0 147-147-150	55 55
111.0	72 3-3 .7 140-144-147	72 .0 143-144-147	72 .0 143-144-147	72 .0 143-144-147	72 .0 143-144-147	55 55
106.0	72 .0 140-140-143	72 .0 140-140-143	72 .0 140-140-143	72 .0 140-140-143	72 .0 140-140-143	55 55
101.0	72 .0 136-137-140	72 .0 136-137-140	72 .0 136-137-140	72 .0 136-137-140	72 .0 136-137-140	55 55

LCLK
LARNACA
04

ELEV. = 8 ft TORA = 2700 m
SLOPE = .00 % ASDA = 2700 m
TODA = 4000 m

15/15

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

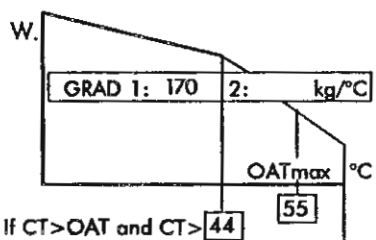
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1013 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT> 44
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-8	-5.5	-12	-3

Minimum v_1: 117 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1600 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	- -	- -	1 2-3 .0 167-173-177	44
157.0	- -	- -	- -	7 2-3 .1 162-168-172	20 2-3 .0 163-169-173	45
155.0	- -	- -	12 2-3 .0 157-164-168	25 2-3 .0 158-165-168	38 2-3 .0 159-166-169	47
153.0	- -	8 2-3 .1 152-159-164	29 2-3 .1 154-160-165	42 2-3 .1 155-161-165	44 2-3 1.2 158-164-168	48 44
151.0	5 2-3 .1 147-155-160	25 2-3 .1 148-156-160	44 2-3 .2 151-158-162	44 2-3 1.7 154-161-165	46 2-3 .9 158-164-168	49 45
149.0	19 2-3 .2 145-153-157	41 2-3 .1 146-153-158	45 2-3 1.1 151-158-162	47 2-3 .3 154-161-164	48 2-3 .5 158-164-167	51 46
147.0	31 3-3 .1 143-151-155	44 2-3 1.6 145-153-157	47 2-3 .8 150-157-161	48 2-3 1.1 154-160-164	50 2-3 .1 158-163-167	52 48
145.0	40 3-3 .1 142-150-154	47 2-3 .3 145-152-156	49 2-3 .5 150-157-161	50 2-3 .8 154-160-164	51 2-3 1.0 158-163-167	53 49
143.0	44 3-3 1.1 141-149-154	49 2-3 .1 145-151-156	51 2-3 .2 150-156-160	52 2-3 .5 154-160-163	53 2-3 .6 158-163-166	55 51
141.0	47 3-3 .8 141-148-153	50 2-3 1.0 144-151-156	52 2-3 1.1 150-156-160	54 2-3 .1 154-159-163	55 2-3 .2 157-162-166	55 52
136.0	53 2-3 .3 139-146-150	55 2-3 .3 144-150-155	57 2-3 .3 149-155-159	58 2-3 .4 153-158-161	59 2-3 .5 157-161-164	55 55
131.0	57 2-3 .9 139-145-149	59 2-3 .8 143-149-153	61 2-3 .7 149-154-157	62 2-3 .7 153-157-160	63 2-2 .6 156-160-163	55 55
126.0	62 2-3 .4 138-144-148	64 2-3 .2 143-148-151	65 2-3 1.1 148-153-156	66 2-3 1.1 152-156-159	67 2-2 .1 153-156-159	55 55
121.0	66 2-3 1.0 137-143-146	68 2-3 .7 142-147-150	70 2-3 .3 148-151-154	70 2-2 1.0 150-154-157	70 2-2 1.0 150-154-157	55 55
116.0	71 2-3 .5 136-142-145	72 2-3 1.2 141-146-149	72 2-3 3.0 147-151-154	72 2-2 3.3 149-152-155	72 2-2 3.3 148-152-155	55 55
111.0	72 2-3 4.4 136-141-145	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	55 55
106.0	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	55 55
101.0	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	55 55

LBSF SOFIA 10/28

ELEV. = 1742 ft TORA = 2800 m
SLOPE = .00 % ASDA = 2800 m
TODA = 2800 m

15/00

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

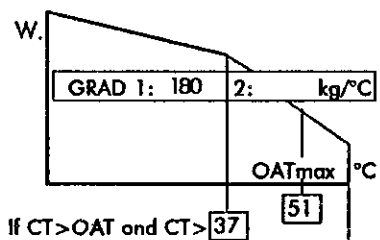
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1075 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT> 37
use Corr. Flex. T/O Temp. up to 68

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-10	-5.0	-10	-3

Minimum v_1: 119 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 3300 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	- -	- -	- -	
157.0	- -	- -	- -	- -	- -	36
155.0	- -	- -	- -	-7 2-3 .0 166-168-172	7 2-3 .2 167-169-173	39
153.0	- -	- -	- -	1 2-3 .2 165-167-171	17 2-3 .2 166-167-171	41
151.0	- -	- -	-6 3-3 .1 163-166-170	10 3-3 .1 164-166-170	27 3-3 .0 164-166-170	42 36
149.0	- -	- -	2 3-3 .2 162-165-169	19 3-3 .0 163-165-169	35 3-3 .2 163-165-169	44 38
147.0	- -	- -	11 3-3 .1 161-164-168	27 3-3 .2 161-164-168	37 3-3 1.7 163-165-169	46 40
145.0	- -	-5 3-3 .2 159-162-167	20 3-3 .0 159-163-166	36 3-3 .1 160-163-166	43 3-3 .0 162-163-166	47 42
143.0	- -	4 3-3 .1 157-161-165	28 3-3 .2 158-162-165	37 3-3 1.9 160-163-166	45 3-3 .6 161-162-166	49 44
141.0	- -	13 3-3 .0 156-160-164	37 3-3 .1 157-160-164	43 3-3 .2 159-161-164	48 3-3 .5 160-161-164	51 46
136.0	12 3-3 .1 152-157-161	34 3-3 .2 153-157-161	45 3-3 .0 155-158-161	50 3-3 .4 157-159-162	54 2-3 .1 159-160-163	51 50
131.0	34 3-3 .0 149-154-159	37 3-3 4.5 152-157-161	52 3-3 .3 153-156-159	57 3-3 .4 155-156-159	59 2-3 .7 158-159-161	51 51
126.0	37 3-3 4.3 148-154-158	51 3-3 .4 149-153-156	59 3-3 .4 151-153-156	63 2-3 .6 154-154-157	65 2-3 .3 157-157-160	51 51
121.0	51 3-3 .5 145-149-153	58 3-3 .6 147-150-153	67 3-3 .1 149-150-153	68 2-3 1.3 153-153-156	68 2-3 2.6 157-157-159	51 51
116.0	59 3-3 .2 143-147-150	66 3-3 .5 145-147-150	68 3-3 4.5 149-150-152	68 .0 147-147-150	68 .0 147-147-150	51 51
111.0	67 3-3 .3 141-144-147	68 3-3 4.3 144-147-149	68 .0 143-144-147	68 .0 143-144-147	68 .0 143-144-147	51 51
106.0	68 3-3 4.7 140-144-146	68 .0 140-140-143	68 .0 140-140-143	68 .0 140-140-143	68 .0 140-140-143	51 51
101.0	68 .0 136-137-140	68 .0 136-137-140	68 .0 136-137-140	68 .0 136-137-140	68 .0 136-137-140	51 51

LBSF SOFIA 10/28

ELEV. = 1742 ft TORA = 2800 m
SLOPE = .00 % ASDA = 2800 m
TODA = 2800 m

15/15

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

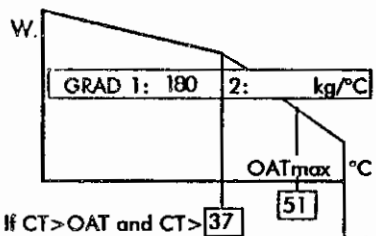
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1075 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>37
use Corr. Flex. T/O Temp. up to 68

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-2	-2.0	-12	-3

Minimum v_1: 117 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 3300 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	- -	- -	- -	
157.0	- -	- -	- -	- -	- -	36
155.0	- -	- -	- -	- -	4 2-3 .1 166-169-172	39
153.0	- -	- -	-4 2-3 .1 160-163-167	9 2-3 .1 161-164-168	23 2-3 .0 161-165-168	41
151.0	- -	-8 2-3 .1 154-159-163	14 2-3 .0 156-160-164	27 2-3 .0 157-160-164	37 2-3 .2 158-162-166	42 36
149.0	- -	9 2-3 .1 151-155-160	30 2-3 .0 152-156-161	37 2-3 .7 155-158-162	39 2-3 .8 158-162-165	44 38
147.0	5 2-3 .1 146-151-156	25 2-3 .0 148-152-156	37 2-3 1.1 151-155-159	40 2-3 .5 154-158-162	42 2-3 .2 158-161-165	46 40
145.0	15 2-3 .0 145-150-154	37 2-3 .2 146-150-154	41 2-3 .1 150-154-159	42 2-3 .8 154-158-161	44 2-3 .3 158-161-164	47 42
143.0	23 3-3 .2 144-149-153	40 2-2 .3 145-149-154	43 2-3 .3 150-154-158	44 2-3 .9 154-157-161	46 2-3 .4 157-160-164	49 44
141.0	32 3-3 .1 143-147-152	42 2-3 .6 145-149-153	45 2-3 .5 150-154-158	47 2-3 .1 153-157-160	48 2-3 .5 157-160-163	51 46
136.0	37 3-3 4.0 142-147-152	48 2-3 .2 144-148-152	50 2-3 .9 149-153-157	52 2-3 .4 153-156-159	53 2-3 .8 157-159-162	51 50
131.0	50 3-3 .7 139-143-147	53 2-3 .8 143-147-151	56 2-3 .4 148-151-155	57 2-3 .9 152-154-158	59 2-3 .3 156-157-160	51 51
126.0	57 2-3 .1 138-141-145	59 2-3 .6 142-145-149	62 2-3 .2 148-150-153	63 2-3 .5 151-153-156	64 2-3 .7 155-156-159	51 51
121.0	63 2-3 .1 136-140-143	65 2-3 .4 141-144-147	67 2-3 .7 147-149-152	68 2-3 1.0 150-152-155	68 2-2 1.9 154-154-157	51 51
116.0	68 2-3 .9 136-139-142	68 2-3 2.9 141-143-147	68 2-3 4.9 147-148-152	68 2 .0 128-137-140	68 2 .0 126-137-140	51 51
111.0	68 .0 131-132-136	68 .0 131-132-136	68 .0 131-132-136	68 .0 131-132-136	68 .0 131-132-136	51 51
106.0	68 .0 128-129-133	68 .0 128-129-133	68 .0 128-129-133	68 .0 128-129-133	68 .0 128-129-133	51 51
101.0	68 .0 125-125-130	68 .0 125-125-130	68 .0 125-125-130	68 .0 125-125-130	68 .0 125-125-130	51 51

LBBG BURGAS 22

ELEV. = 135 ft TORA = 3200 m
SLOPE = -.31 % ASDA = 3260 m
TODA = 3260 m

15/00

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

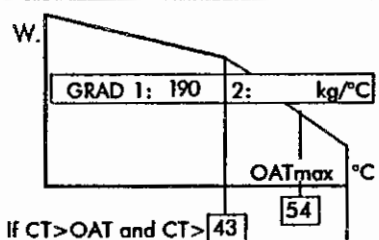
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1018 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>[43]
use Corr. Flex. T/O Temp. up to [71]

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-10	-5.0	-10	-3

Minimum v_1: [119] [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1700 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	7 2-1 .1 169-173-177	21 2-1 .1 169-173-178	34 2-6 .1 171-174-178	43
157.0	- -	2 2-6 .1 164-169-174	23 2-6 .1 165-170-174	36 2-6 .1 166-170-175	43 2-6 .8 169-173-177	45
155.0	- -	11 2-6 .1 163-168-172	34 6-6 .0 163-168-172	43 2-6 1.1 165-169-173	46 2-6 .4 170-173-177	46
153.0	-1 6-6 .0 161-166-171	19 6-6 .2 161-167-171	42 6-6 .1 162-167-171	46 2-6 .7 166-169-173	48 2-6 .3 171-173-177	47 43
151.0	6 6-6 .2 159-165-170	27 6-6 .2 160-166-170	43 6-6 1.9 162-167-171	48 2-6 .7 167-169-174	50 2-6 .2 172-174-177	49 44
149.0	14 6-6 .1 158-164-169	36 6-6 .1 159-165-169	49 2-6 .0 163-166-170	50 2-6 .7 167-170-174	51 2-6 1.1 172-173-177	50 46
147.0	22 6-6 .2 156-163-168	43 6-6 .4 157-164-168	50 2-6 1.0 164-166-170	52 2-3 .4 167-170-174	53 2-3 .7 172-173-177	52 47
145.0	30 6-6 .2 155-162-167	48 6-6 .1 158-163-167	52 2-3 .8 163-166-170	54 2-3 .0 167-169-173	55 2-3 .3 172-173-176	53 49
143.0	39 6-6 .1 153-161-165	51 6-6 .4 158-162-166	54 2-3 .5 163-166-170	55 2-3 .8 167-169-173	56 2-3 1.1 171-172-176	54 50
141.0	43 6-6 1.1 153-161-165	53 3-3 .9 158-161-165	56 2-3 .1 163-165-169	57 2-3 .4 167-168-172	58 2-3 .7 171-172-175	54 52
136.0	54 3-3 .0 153-158-161	58 2-3 .5 157-160-163	60 2-3 .5 162-164-167	61 2-3 .8 166-167-171	62 2-3 .9 170-171-174	54 54
131.0	59 3-3 .6 152-156-159	62 2-3 1.0 156-159-162	64 2-3 .9 162-163-166	65 2-3 1.0 166-166-169	66 2-3 1.0 169-169-172	54 54
126.0	65 3-3 .6 150-153-156	67 2-3 .3 155-157-160	69 2-3 .1 161-162-165	70 2-3 .1 165-165-168	70 2-3 .9 168-168-170	54 54
121.0	70 2-3 .1 149-152-154	71 2-3 .9 155-157-159	71 2-3 2.8 161-162-164	71 2-3 3.9 165-165-168	71 2-3 4.7 167-167-170	54 54
116.0	71 2-3 4.0 149-152-154	71 .0 146-147-150	71 .0 146-147-150	71 .0 146-147-150	71 .0 146-147-150	54 54
111.0	71 .0 143-144-147	71 .0 143-144-147	71 .0 143-144-147	71 .0 143-144-147	71 .0 143-144-147	54 54
106.0	71 .0 140-140-143	71 .0 140-140-143	71 .0 140-140-143	71 .0 140-140-143	71 .0 140-140-143	54 54
101.0	71 .0 136-136-140	71 .0 136-136-140	71 .0 136-136-140	71 .0 136-136-140	71 .0 136-136-140	54 54

LBBG BURGAS 22

ELEV. = 135 ft TORA = 3200 m
SLOPE = -.31 % ASDA = 3260 m
TODA = 3260 m

15/15

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

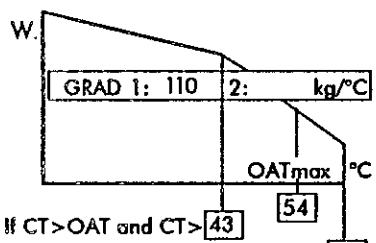
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1018 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>43
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-2	-2.0	-12	-3

Minimum v_1: 117 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1700 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	8 2-2 .1 169-174-177	19 2-2 .1 170-175-178	28 2-2 .1 171-175-179	43
157.0	- -	8 2-3 .0 162-168-172	27 2-6 .1 164-170-173	39 2-6 .0 166-171-175	43 2-2 .9 169-174-177	45
155.0	5 2-6 .0 156-164-168	24 2-6 .1 158-165-169	43 2-6 .1 161-167-170	43 2-6 1.5 165-170-174	45 2-2 1.2 169-174-177	46
153.0	20 2-6 .1 152-160-164	40 2-6 .0 154-162-166	45 2-6 .6 161-167-170	46 2-6 .9 166-170-174	47 2-2 .4 168-172-175	47 43
151.0	35 2-6 .1 149-157-161	43 2-6 1.6 154-161-165	47 2-3 .4 162-167-170	48 2-3 .5 166-170-173	48 2-2 .9 168-171-175	49 44
149.0	43 2-6 1.0 147-155-160	47 2-3 .2 155-161-165	49 2-3 .0 162-166-170	50 2-2 .1 165-170-173	50 2-2 .1 166-170-173	50 46
147.0	46 2-6 .7 148-156-160	48 2-3 1.0 155-161-165	50 2-3 .9 162-166-170	51 2-2 .6 165-169-172	51 2-2 .6 165-169-172	52 47
145.0	48 2-6 .7 149-156-160	50 2-3 .7 155-161-165	52 2-3 .5 161-166-169	52 2-2 1.2 164-168-171	52 2-2 1.2 164-168-171	53 49
143.0	50 2-3 .6 149-156-160	52 2-3 .4 155-160-164	54 2-3 .1 161-166-169	54 2-2 .4 163-166-170	54 2-2 .4 162-166-170	54 50
141.0	52 2-3 .3 149-155-159	54 2-3 .1 155-160-164	55 2-2 .9 161-166-169	55 2-2 .9 162-166-169	55 2-2 .9 161-166-169	54 52
136.0	56 2-3 .8 149-155-158	58 2-3 .5 154-159-162	59 2-2 .6 159-162-166	59 2-2 .6 158-162-166	59 2-2 .6 157-162-166	54 54
131.0	61 2-3 .2 148-153-157	62 2-3 .8 154-158-161	63 2-2 .2 156-159-162	63 2-2 .2 155-159-162	63 2-2 .2 153-159-162	54 54
126.0	65 2-3 .6 147-152-155	66 2-3 1.1 153-156-160	66 2-2 1.2 153-157-160	66 2-2 1.2 152-157-160	66 2-2 1.2 150-157-160	54 54
121.0	69 2-3 1.1 147-151-154	70 2-2 .9 151-153-157	70 2-2 .9 149-153-157	70 2-2 .9 148-153-157	70 2-2 .9 146-153-157	54 54
116.0	71 2-3 3.8 147-150-154	71 2-2 4.5 150-153-156	71 2-2 4.5 148-153-156	71 2-2 4.5 147-153-156	71 2-2 4.5 145-153-156	54 54
111.0	71 .0 131-132-136	71 .0 131-132-136	71 .0 131-132-136	71 .0 131-132-136	71 .0 131-132-136	54 54
106.0	71 .0 128-128-133	71 .0 128-128-133	71 .0 128-128-133	71 .0 128-128-133	71 .0 128-128-133	54 54
101.0	71 .0 125-125-130	71 .0 125-125-130	71 .0 125-125-130	71 .0 125-125-130	71 .0 125-125-130	54 54

LBBG
BURGAS
04

ELEV. = 135 ft TORA = 3200 m
SLOPE = .31 % ASDA = 3260 m
TODA = 3260 m

15/00

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

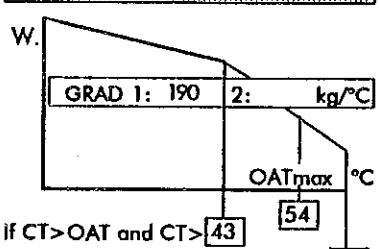
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1018 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>43
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-10	-5.0	-10	-3

Minimum v_1: 119 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1700 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	- -	- -	- -	43
157.0	- -	0 2-1 .1 166-169-173	20 2-1 .0 167-170-173	33 2-1 .0 168-170-174	43 2-1 .5 170-172-176	45
155.0	- -	10 2-1 .1 165-168-172	34 6-6 .0 165-168-172	43 2-1 1.1 167-169-173	46 2-6 .3 172-173-177	46
153.0	- -	19 3-3 .1 163-167-171	42 6-6 .1 164-167-171	46 2-6 .6 167-169-173	48 2-3 .0 172-173-176	47 43
151.0	5 3-3 .1 161-166-170	27 3-3 .2 162-166-170	43 6-6 1.9 164-167-171	48 2-3 .4 167-169-173	49 2-3 .8 171-173-176	49 44
149.0	14 3-3 .1 160-165-169	36 6-6 .1 161-165-169	48 2-3 .6 163-166-169	50 2-3 .0 167-169-172	51 2-3 .4 171-172-176	50 46
147.0	22 3-3 .1 159-164-168	43 6-6 .4 160-164-168	50 2-3 .3 163-165-169	51 2-3 .8 167-169-172	53 2-3 .0 171-172-175	52 47
145.0	30 6-6 .1 157-163-167	46 3-3 .7 160-163-167	52 2-3 .0 163-165-168	53 2-3 .5 167-168-172	54 2-3 .9 171-172-175	53 49
143.0	38 6-6 .2 156-162-165	49 3-3 .3 159-162-165	53 2-3 .9 163-165-168	55 2-3 .2 167-168-171	56 2-3 .5 171-171-174	54 50
141.0	43 6-6 1.0 155-161-165	51 3-3 .7 158-161-165	55 2-3 .6 163-165-168	56 2-3 1.0 166-168-171	58 2-3 .1 170-171-174	54 52
136.0	51 3-3 .6 154-158-162	57 3-3 .8 156-159-162	59 2-3 1.0 162-163-166	61 2-3 .1 166-166-169	62 2-3 .3 169-169-172	54 54
131.0	57 3-3 .6 152-156-159	62 2-3 .3 155-158-160	64 2-3 .2 161-162-165	65 2-3 .5 165-165-168	66 2-3 .2 167-167-170	54 54
126.0	63 3-3 .6 150-153-156	66 2-3 .8 155-157-159	68 2-3 .6 161-161-163	69 2-3 .7 164-164-166	70 2-3 .3 166-166-168	54 54
121.0	69 3-3 .4 149-151-153	71 2-3 .2 154-155-157	71 2-3 2.2 160-161-162	71 2-3 3.2 163-163-165	71 2-3 4.0 166-166-168	54 54
116.0	71 2-3 3.3 148-151-153	71 .0 147-147-150	71 .0 147-147-150	71 .0 147-147-150	71 .0 147-147-150	54 54
111.0	71 .0 144-144-147	71 .0 144-144-147	71 .0 144-144-147	71 .0 144-144-147	71 .0 144-144-147	54 54
106.0	71 .0 140-141-143	71 .0 140-141-143	71 .0 140-141-143	71 .0 140-141-143	71 .0 140-141-143	54 54
101.0	71 .0 136-137-140	71 .0 136-137-140	71 .0 136-137-140	71 .0 136-137-140	71 .0 136-137-140	54 54

LBBG BURGAS 04

ELEV. = 135 ft TORA = 3200 m
SLOPE = .31 % ASDA = 3260 m
TODA = 3260 m

15/15

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

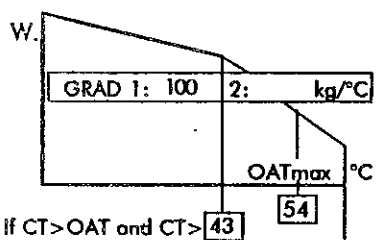
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1018 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>43
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-2	-2.0	-12	-3

Minimum v_1: 117 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1700 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	- -	- -	- -	43
157.0	- -	1 2-3 .1 164-169-172	19 1-3 .1 167-170-173	32 2-1 .1 167-171-174	43 2-1 .3 169-173-176	45
155.0	0 2-3 .1 158-164-168	19 2-3 .1 160-165-169	39 2-3 .1 162-167-170	43 2-1 1.0 165-169-172	45 2-3 .6 169-172-175	46
153.0	17 2-3 .1 155-160-164	36 2-3 .1 157-162-165	43 2-3 1.6 162-166-169	46 2-3 .2 165-169-172	47 2-3 .3 169-172-175	47 43
151.0	34 2-3 .0 151-157-161	43 2-3 1.2 155-160-164	46 2-3 .8 161-165-169	47 2-3 1.0 165-169-172	48 2-2 .9 169-172-175	49 44
149.0	43 2-3 .8 150-155-159	46 2-3 .4 155-160-164	48 2-3 .5 161-165-168	49 2-3 .6 165-168-171	50 2-2 .1 168-170-173	50 46
147.0	46 2-3 .2 149-155-159	48 2-3 .2 155-159-163	50 2-3 .1 161-165-168	51 2-3 .2 165-168-171	51 2-2 .6 167-169-172	52 47
145.0	47 2-3 1.1 149-155-159	49 2-3 1.0 155-159-163	51 2-3 1.0 161-165-168	52 2-3 1.0 165-168-171	52 2-2 1.2 166-168-171	53 49
143.0	49 2-3 .8 149-154-158	51 2-3 .8 154-159-163	53 2-3 .6 161-164-167	54 2-2 .4 164-167-170	54 2-2 .4 164-167-170	54 50
141.0	51 2-3 .6 149-154-158	53 2-3 .5 154-159-162	55 2-3 .2 161-164-167	55 2-2 .9 163-166-169	55 2-2 .9 163-166-169	54 52
136.0	56 2-3 .0 148-153-157	57 2-3 .9 154-158-161	59 2-3 .5 160-162-165	59 2-2 .6 160-163-166	59 2-2 .6 159-163-166	54 54
131.0	60 2-3 .5 148-152-155	62 2-3 .2 153-156-159	63 2-2 .2 158-160-162	63 2-2 .2 156-160-162	63 2-2 .2 155-160-162	54 54
126.0	64 2-3 1.1 147-151-154	66 2-3 .6 152-155-158	66 2-2 1.2 155-157-160	66 2-2 1.2 154-157-160	66 2-2 1.2 152-157-160	54 54
121.0	69 2-3 .4 146-149-152	70 2-2 .9 152-154-157	70 2-2 .9 151-154-157	70 2-2 .9 150-154-157	70 2-2 .9 148-154-157	54 54
116.0	71 2-3 3.2 146-149-152	71 2-2 4.5 151-153-156	71 2-2 4.5 150-153-156	71 2-2 4.5 148-153-156	71 2-2 4.5 147-153-156	54 54
111.0	71 .0 132-132-136	71 .0 132-132-136	71 .0 132-132-136	71 .0 132-132-136	71 .0 132-132-136	54 54
106.0	71 .0 128-129-133	71 .0 128-129-133	71 .0 128-129-133	71 .0 128-129-133	71 .0 128-129-133	54 54
101.0	71 .0 125-125-130	71 .0 125-125-130	71 .0 125-125-130	71 .0 125-125-130	71 .0 125-125-130	54 54

HECA
CAIRO
05L/23R

ELEV. = 380 ft TORA = 3300 m
SLOPE = .00 % ASDA = 3300 m
TODA = 3300 m

15/00

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

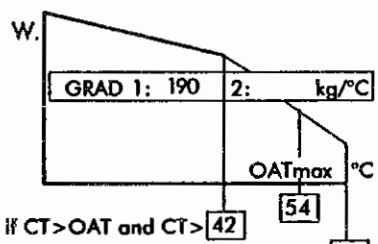
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1027 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT> 42
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-6	-4.5	-8	-3

Minimum v_1: 119 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1900 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	5 2-1 .1 170-173-177	19 2-6 .0 171-174-178	31 2-6 .1 172-175-179	
157.0	- -	0 2-6 .1 165-170-174	21 2-6 .1 166-170-174	33 2-6 .1 168-171-175	42 2-6 .4 170-173-177	43
155.0	- -	9 2-6 .2 164-168-172	32 2-6 .1 164-168-172	42 2-6 .7 166-169-173	45 2-6 .4 170-173-177	45
153.0	-3 6-6 .2 162-167-171	18 6-6 .1 162-167-171	40 2-6 .2 163-167-171	45 2-6 .7 166-169-173	47 2-6 .4 171-173-177	47
151.0	5 6-6 .1 160-166-170	26 6-6 .2 161-166-170	42 2-6 1.8 163-167-171	47 2-6 .8 167-170-174	49 2-3 .3 172-174-177	48 43
149.0	13 6-6 .0 159-165-169	34 6-6 .2 160-165-169	48 2-6 .1 164-166-170	49 2-3 .7 168-170-174	50 2-3 1.1 172-173-177	49 45
147.0	21 6-6 .1 157-164-168	42 6-6 .2 158-164-168	49 2-3 1.0 164-166-170	51 2-3 .4 167-169-173	52 2-3 .8 172-173-176	51 46
145.0	29 6-6 .1 156-162-167	47 6-6 .1 159-163-167	51 2-3 .8 164-166-169	53 2-3 .1 167-169-173	54 2-3 .4 172-173-176	52 48
143.0	37 6-6 .2 154-161-165	50 3-3 .1 158-162-165	53 2-3 .5 163-166-169	54 2-3 1.0 167-169-172	56 2-3 .1 171-172-175	54 49
141.0	42 6-6 .9 154-161-165	52 3-3 .6 158-161-165	55 2-3 .3 163-165-169	56 2-3 .7 167-168-172	57 2-3 1.0 171-172-175	54 51
136.0	52 3-3 .5 154-158-162	57 2-3 .7 157-160-163	59 2-3 .8 162-164-167	60 2-3 1.1 166-167-170	62 2-3 .2 170-170-173	54 54
131.0	58 3-3 .5 152-156-159	62 2-3 .3 156-158-161	64 2-3 .2 162-163-166	65 2-3 .4 166-166-169	66 2-3 .3 169-169-171	54 54
126.0	64 3-3 .6 150-153-156	66 2-3 .9 155-157-160	68 2-3 .7 161-162-164	69 2-3 .8 165-165-168	70 2-3 .5 167-167-170	54 54
121.0	69 2-3 .7 149-152-154	71 2-3 .5 155-156-158	71 2-3 2.4 161-161-164	71 2-3 3.5 165-165-167	71 2-3 4.3 167-167-169	54 54
116.0	71 2-3 3.6 149-151-154	71 .0 147-147-150	71 .0 147-147-150	71 .0 147-147-150	71 .0 147-147-150	54 54
111.0	71 .0 143-144-147	71 .0 143-144-147	71 .0 143-144-147	71 .0 143-144-147	71 .0 143-144-147	54 54
106.0	71 .0 140-140-143	71 .0 140-140-143	71 .0 140-140-143	71 .0 140-140-143	71 .0 140-140-143	54 54
101.0	71 .0 136-137-140	71 .0 136-137-140	71 .0 136-137-140	71 .0 136-137-140	71 .0 136-137-140	54 54

HECA
CAIRO
05L/23R

ELEV. = 380 ft
SLOPE = .00 %

TORA = 3300 m
ASDA = 3300 m
TODA = 3300 m

15/15

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight increment [t]
v_1 - v_R - v_2 [kts] IAS

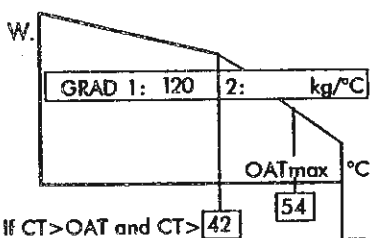
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1027 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT> 42
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-2	-2.0	-12	-3

Minimum v_1: 117 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1900 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	3 2-2 .1 170-174-178	14 2-2 .0 171-175-178	17 2-2 .0 172-175-179	
157.0	- -	4 2-3 .0 164-169-173	24 2-3 .0 166-170-174	34 2-3 .1 168-172-175	42 2-2 .3 170-174-177	43
155.0	2 2-3 .0 158-164-168	21 2-3 .1 160-165-169	39 2-6 .0 162-167-171	42 2-3 1.1 166-171-174	44 2-3 1.1 170-174-177	45
153.0	17 2-6 .1 154-161-165	36 2-6 .1 156-162-166	42 2-6 1.6 162-167-170	45 2-3 .7 166-170-173	46 2-2 .4 169-172-175	47
151.0	32 2-6 .1 150-158-162	42 2-6 1.2 155-161-165	46 2-3 .2 162-166-170	47 2-3 .4 166-170-173	47 2-2 1.0 168-172-175	48 43
149.0	42 2-6 .6 148-156-160	45 2-6 1.0 155-161-165	47 2-3 1.1 162-166-170	49 2-3 .1 166-169-173	49 2-2 .2 167-170-173	49 45
147.0	45 2-6 .6 149-156-160	47 2-3 .9 155-161-164	49 2-3 .8 162-166-169	50 2-3 .8 165-169-172	50 2-2 .9 166-169-172	51 46
145.0	47 2-6 .6 149-156-160	49 2-3 .6 155-160-164	51 2-3 .5 161-166-169	52 2-2 .1 164-168-171	52 2-2 .1 164-168-171	52 48
143.0	49 2-3 .5 149-155-159	51 2-3 .4 155-160-164	53 2-3 .2 161-165-169	53 2-2 .7 164-167-170	53 2-2 .7 163-167-170	54 49
141.0	51 2-3 .3 149-155-159	53 2-3 .1 155-160-163	54 2-3 1.1 161-165-168	54 2-2 1.3 163-166-169	54 2-2 1.3 162-166-169	54 51
136.0	55 2-3 .9 149-154-158	57 2-3 .7 154-159-162	58 2-2 1.1 160-163-166	58 2-2 1.1 159-163-166	58 2-2 1.1 158-163-166	54 54
131.0	60 2-3 .5 148-153-156	62 2-3 .1 154-157-161	62 2-2 .9 157-160-163	62 2-2 .9 156-160-163	62 2-2 .9 154-160-163	54 54
126.0	64 2-3 1.1 147-152-155	66 2-3 .6 153-156-159	66 2-2 .8 153-157-160	66 2-2 .8 152-157-160	66 2-2 .8 151-157-160	54 54
121.0	69 2-3 .6 147-150-154	70 2-2 .6 151-154-156	70 2-2 .6 149-154-156	70 2-2 .6 148-154-156	70 2-2 .6 147-154-156	54 54
116.0	71 2-3 3.4 146-150-153	71 2-2 4.3 150-153-156	71 2-2 4.3 148-153-156	71 2-2 4.3 147-153-156	71 2-2 4.3 146-153-156	54 54
111.0	71 .0 131-132-136	71 .0 131-132-136	71 .0 131-132-136	71 .0 131-132-136	71 .0 131-132-136	54 54
106.0	71 .0 128-129-133	71 .0 128-129-133	71 .0 128-129-133	71 .0 128-129-133	71 .0 128-129-133	54 54
101.0	71 .0 125-125-130	71 .0 125-125-130	71 .0 125-125-130	71 .0 125-125-130	71 .0 125-125-130	54 54

HECA
CAIRO
05R/23L

ELEV. = 380 ft TORA = 4000 m
SLOPE = .00 % ASDA = 4000 m
TODA = 4000 m

15/00

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

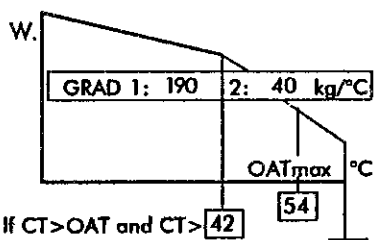
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1027 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>42
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-1	-0.5	-6	-1

Minimum v_1: 119 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1900 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	5 2-1 .0 163-173-177	23 2-1 .0 164-174-178	34 2-1 .1 166-176-179	43 2-6 .1 168-178-181	
157.0	0 2-6 .1 158-170-174	20 2-6 .1 159-170-174	38 2-6 .0 161-171-175	42 2-1 1.0 164-174-178	45 2-6 .4 169-178-181	43
155.0	10 2-6 .0 156-168-172	31 6-6 .2 157-168-172	42 2-6 1.4 161-171-175	45 2-6 .9 165-174-178	47 2-6 .3 170-178-182	45
153.0	18 6-6 .2 154-167-171	40 6-6 .0 155-167-171	46 2-6 .4 162-171-175	47 2-6 .8 166-174-178	49 2-6 .2 171-178-182	47
151.0	27 6-6 .0 153-166-170	42 6-6 1.5 155-167-171	48 2-6 .3 162-171-175	49 2-6 .8 167-175-178	50 2-6 1.1 172-178-182	48 43
149.0	35 6-6 .1 151-165-169	47 6-6 .8 156-166-170	50 2-6 .3 163-171-175	51 2-6 .6 168-175-178	52 2-6 .9 173-179-182	49 45
147.0	42 6-6 .4 150-164-168	49 2-6 .9 157-166-170	52 2-6 .2 164-171-175	53 2-6 .5 169-175-179	54 2-6 .7 174-179-182	51 46
145.0	46 6-6 .5 151-163-167	51 2-6 .9 157-166-170	54 2-6 .1 165-172-175	55 2-6 .4 170-175-179	56 2-6 .6 175-179-182	52 48
143.0	50 6-6 .4 151-162-166	53 2-6 .9 158-166-170	56 2-6 .0 166-172-175	57 2-6 .3 171-175-179	58 2-2 .3 176-179-182	54 49
141.0	53 2-6 .6 152-162-165	55 2-6 .9 159-167-170	57 2-6 1.0 166-172-175	59 2-6 .2 172-176-179	59 2-2 .9 176-178-181	54 51
136.0	58 2-5 .6 154-162-165	60 2-6 .9 162-167-170	62 2-6 .8 169-172-175	63 2-2 .5 173-175-178	63 2-2 .5 172-175-178	54 54
131.0	63 2-5 .3 156-161-163	65 2-5 .8 164-167-170	67 2-2 .0 170-171-174	67 2-2 .0 169-171-174	67 2-2 .0 169-171-174	54 54
126.0	67 2-5 1.1 157-160-163	70 2-5 .2 165-166-169	70 2-2 .9 167-169-171	70 2-2 .9 167-169-171	70 2-2 .9 166-169-171	54 54
121.0	71 2-5 1.7 157-160-162	71 2-5 4.0 165-166-168	71 2-2 4.6 166-168-171	71 2-2 4.6 166-168-171	71 2-2 4.6 165-168-171	54 54
116.0	71 .0 147-147-150	71 .0 147-147-150	71 .0 147-147-150	71 .0 147-147-150	71 .0 147-147-150	54 54
111.0	71 .0 143-144-147	71 .0 143-144-147	71 .0 143-144-147	71 .0 143-144-147	71 .0 143-144-147	54 54
106.0	71 .0 140-140-143	71 .0 140-140-143	71 .0 140-140-143	71 .0 140-140-143	71 .0 140-140-143	54 54
101.0	71 .0 136-137-140	71 .0 136-137-140	71 .0 136-137-140	71 .0 136-137-140	71 .0 136-137-140	54 54

HECA
CAIRO
05R/23L

ELEV. = 380 ft TORA = 4000 m
SLOPE = .00 % ASDA = 4000 m
TODA = 4000 m

15/15

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

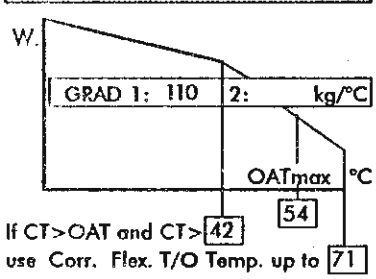
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1027 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>42
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-2	-2.0	-12	-3

Minimum v_1: 117 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1900 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0		4 2-2 .0 162-174-178	17 2-2 .0 164-175-179	17 2-2 .0 165-175-179	17 2-2 .0 164-175-179	
		- -				
157.0	5 2-6 .1 155-169-173	24 2-6 .1 157-171-174	40 2-2 .0 161-173-176	42 2-2 .6 163-175-178	42 2-2 .6 164-175-178	43
155.0	22 2-6 .1 151-166-169	39 2-6 .1 154-168-171	42 2-2 1.8 160-173-176	44 2-2 1.2 163-174-177	44 2-2 1.2 164-174-177	45
153.0	37 2-6 .1 148-163-166	42 2-6 1.7 153-167-171	46 2-2 .4 161-172-175	46 2-2 .4 162-172-175	46 2-2 .4 163-172-175	47
151.0	42 2-6 1.3 147-162-166	46 2-6 .5 154-167-170	47 2-2 1.0 161-172-175	47 2-2 1.0 162-172-175	47 2-2 1.0 162-172-175	48 43
149.0	46 2-6 .3 148-162-165	48 2-6 .4 155-167-171	49 2-2 .2 160-170-173	49 2-2 .2 161-170-173	49 2-2 .2 160-170-173	49 45
147.0	48 2-6 .2 149-162-165	50 2-6 .2 157-167-171	50 2-2 .9 160-169-172	50 2-2 .9 160-169-172	50 2-2 .9 159-169-172	51 46
145.0	50 2-6 .2 150-162-165	51 2-6 1.2 157-168-171	52 2-2 .1 159-168-171	52 2-2 .1 158-168-171	52 2-2 .1 157-168-171	52 48
143.0	52 2-6 .1 151-162-166	53 2-2 .7 157-167-170	53 2-2 .7 159-167-170	53 2-2 .7 157-167-170	53 2-2 .7 155-167-170	54 49
141.0	54 2-6 .1 152-162-166	54 2-2 1.3 157-166-169	54 2-2 1.3 158-166-169	54 2-2 1.3 156-166-169	54 2-2 1.3 154-166-169	54 51
136.0	58 2-5 .7 153-162-165	58 2-2 1.1 156-163-166	58 2-2 1.1 154-163-166	58 2-2 1.1 153-163-166	58 2-2 1.1 151-163-166	54 54
131.0	62 2-2 .9 154-160-163	62 2-2 .9 153-160-163	62 2-2 .9 151-160-163	62 2-2 .9 149-160-163	62 2-2 .9 148-160-163	54 54
126.0	66 2-2 .8 151-157-160	66 2-2 .8 149-157-160	66 2-2 .8 147-157-160	66 2-2 .8 145-157-160	66 2-2 .8 145-157-160	54 54
121.0	70 2-2 .6 147-154-156	70 2-2 .6 145-154-156	70 2-2 .6 143-154-156	70 2-2 .6 142-154-156	70 2-2 .6 142-154-156	54 54
116.0	71 2-2 4.3 146-153-156	71 2-2 4.3 144-153-156	71 2-2 4.3 141-153-156	71 2-2 4.3 141-153-156	71 2-2 4.3 141-153-156	54 54
111.0	71 .0 131-132-136	71 .0 131-132-136	71 .0 131-132-136	71 .0 131-132-136	71 .0 131-132-136	54 54
106.0	71 .0 128-129-133	71 .0 128-129-133	71 .0 128-129-133	71 .0 128-129-133	71 .0 128-129-133	54 54
101.0	71 .0 125-125-130	71 .0 125-125-130	71 .0 125-125-130	71 .0 125-125-130	71 .0 125-125-130	54 54

IIECA CAIRO 34

ELEV. = 380 ft TORA = 3013 m
SLOPE = -1.60 % ASDA = 3013 m
TODA = 3013 m

15/00

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight increment [t]
v_1 - v_R - v_2 [kts] IAS

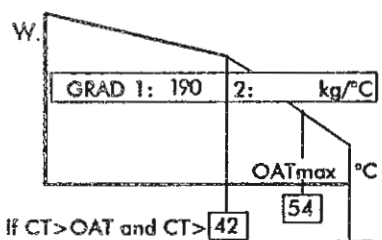
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1027 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT> 42
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-10	-5.0	-10	-3

Minimum v_1: 119 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1900 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	-2 2-6 .1 167-172-177	10 2-1 .0 167-172-178	23 2-1 .0 168-173-178	
157.0	- -	- -	12 2-6 .1 163-169-174	26 2-6 .1 164-169-174	37 2-6 .1 166-170-175	43
155.0	- -	1 6-6 .1 161-167-172	22 2-6 .1 161-167-172	36 2-6 .1 162-167-173	42 2-6 1.3 165-169-174	45
153.0	- -	9 6-6 .1 159-166-171	31 6-6 .0 160-166-171	42 2-6 1.0 161-167-171	46 2-6 .3 166-170-175	47
151.0	-3 6-6 .0 157-164-170	17 6-6 .1 158-165-170	39 6-6 .1 159-165-170	46 2-6 .6 162-166-171	48 2-6 .3 166-170-175	48 43
149.0	4 6-6 .2 156-163-169	25 6-6 .1 156-164-169	42 6-6 1.4 158-164-169	48 2-6 .7 163-166-171	50 2-6 .3 167-170-175	49 45
147.0	12 6-6 .1 154-162-168	33 6-6 .2 155-163-168	49 2-6 .0 159-163-168	50 2-6 .7 163-167-171	52 2-6 .2 168-170-175	51 46
145.0	20 6-6 .1 153-161-167	41 6-6 .2 154-162-167	51 2-6 .1 160-164-168	52 2-6 .6 164-167-171	53 2-3 1.0 168-170-175	52 48
143.0	28 6-6 .2 151-160-165	42 6-6 2.0 154-161-166	52 2-6 1.0 160-163-168	54 2-3 .4 164-167-171	55 2-3 .7 168-170-174	54 49
141.0	36 6-6 .2 150-159-164	50 6-6 .3 154-160-164	54 2-3 .8 160-163-168	56 2-3 .1 163-166-170	57 2-3 .4 167-169-174	54 51
136.0	42 6-6 3.8 149-158-163	56 3-3 1.0 153-158-162	59 2-3 .2 159-162-166	60 2-3 .5 163-165-169	61 2-3 .8 167-168-172	54 54
131.0	57 3-3 .0 149-154-159	61 2-3 .8 152-156-160	63 2-3 .8 158-161-165	64 2-3 1.0 162-164-168	66 2-3 .0 166-167-171	54 54
126.0	63 3-3 .1 147-152-156	66 2-3 .4 152-155-158	68 2-3 .2 157-160-163	69 2-3 .4 162-163-166	70 2-3 .4 166-166-169	54 54
121.0	69 3-3 .1 146-149-153	70 2-3 1.0 151-154-157	71 2-3 1.9 157-159-162	71 2-3 3.1 161-162-166	71 2-3 4.3 166-166-169	54 54
116.0	71 2-3 3.1 145-149-153	71 2-3 4.9 151-154-157	71 .0 145-146-150	71 .0 145-146-150	71 .0 145-146-150	54 54
111.0	71 .0 142-143-147	71 .0 142-143-147	71 .0 142-143-147	71 .0 142-143-147	71 .0 142-143-147	54 54
106.0	71 .0 139-139-143	71 .0 139-139-143	71 .0 139-139-143	71 .0 139-139-143	71 .0 139-139-143	54 54
101.0	71 .0 135-136-140	71 .0 135-136-140	71 .0 135-136-140	71 .0 135-136-140	71 .0 135-136-140	54 54

HECA CAIRO 34

ELEV. = 380 ft TORA = 3013 m
SLOPE = -1.60 % ASDA = 3013 m
TODA = 3013 m

15/15

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

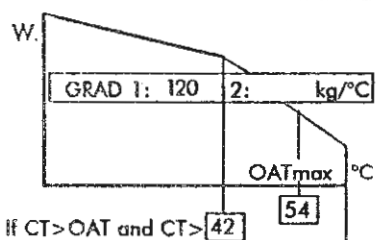
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1027 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>42
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-2	-2.0	-12	-3

Minimum v_1: 117 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1900 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	-2 2-6 .1 167-173-178	8 2-2 .0 168-174-178	16 2-2 .0 169-174-178	
157.0	- -	- -	15 2-6 .0 162-169-174	28 2-6 .0 163-170-174	38 2-6 .0 165-172-176	43
155.0	- -	12 2-6 .0 156-164-169	31 2-6 .1 158-166-170	42 2-6 .0 160-167-171	42 2-6 1.5 164-171-175	45
153.0	8 2-6 .1 150-159-165	28 2-6 .1 152-160-165	42 2-6 .5 155-163-168	44 2-6 .9 160-167-171	46 2-3 .3 166-171-175	47
151.0	23 2-6 .1 146-156-161	41 2-6 .1 149-158-163	45 2-6 .4 156-163-168	46 2-6 .9 161-167-172	47 2-3 1.0 165-170-174	48 43
149.0	37 2-6 .1 143-153-158	42 2-6 2.0 149-158-163	47 2-6 .4 157-164-168	48 2-3 .7 162-167-171	49 2-2 .2 164-169-173	49 45
147.0	42 2-6 1.3 142-152-157	47 2-6 .0 150-158-163	49 2-3 .2 158-164-168	50 2-3 .4 161-167-171	50 2-2 .9 164-168-172	51 46
145.0	46 2-6 .4 143-152-157	49 2-3 .0 151-158-163	50 2-3 1.1 158-163-168	51 2-3 1.2 161-167-171	52 2-2 .1 162-167-171	52 48
143.0	48 2-6 .6 144-152-158	50 2-3 .9 151-158-163	52 2-3 .8 157-163-167	53 2-2 .7 161-166-170	53 2-2 .7 162-166-170	54 49
141.0	50 2-6 .7 145-153-158	52 2-3 .7 151-158-162	54 2-3 .5 157-163-167	54 2-2 1.3 160-165-169	54 2-2 1.3 161-165-169	54 51
136.0	55 2-3 .4 145-152-157	57 2-3 .1 150-156-161	58 2-3 1.0 157-162-166	58 2-2 1.1 158-162-166	58 2-2 1.1 157-162-166	54 54
131.0	59 2-3 1.0 145-151-155	61 2-3 .7 150-155-159	62 2-2 .9 155-159-163	62 2-2 .9 155-159-163	62 2-2 .9 153-159-163	54 54
126.0	64 2-3 .6 144-149-154	66 2-3 .1 149-154-158	66 2-2 .8 152-156-160	66 2-2 .8 151-156-160	66 2-2 .8 150-156-160	54 54
121.0	69 2-3 .1 143-148-152	70 2-2 .6 148-152-156	70 2-2 .6 148-152-156	70 2-2 .6 147-152-156	70 2-2 .6 146-152-156	54 54
116.0	71 2-3 3.0 143-148-152	71 2-2 4.3 148-152-156	71 2-2 4.3 147-152-156	71 2-2 4.3 146-152-156	71 2-2 4.3 145-152-156	54 54
111.0	71 .0 130-131-136	71 .0 130-131-136	71 .0 130-131-136	71 .0 130-131-136	71 .0 130-131-136	54 54
106.0	71 .0 127-128-133	71 .0 127-128-133	71 .0 127-128-133	71 .0 127-128-133	71 .0 127-128-133	54 54
101.0	71 .0 124-124-130	71 .0 124-124-130	71 .0 124-124-130	71 .0 124-124-130	71 .0 124-124-130	54 54

HECA CAIRO 16

ELEV. = 380 ft TORA = 3013 m
SLOPE = 1.60 % ASDA = 3013 m
TODA = 3013 m

15/00

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

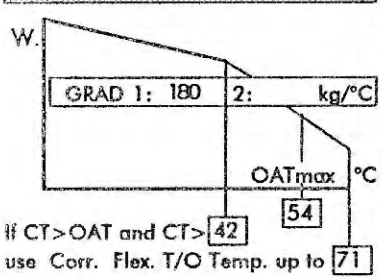
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1027 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT> 42
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-10	-5.0	-10	-3

Minimum v_1: 119 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1900 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	- -	- -	- -	
157.0	- -	- -	- -	-1 2-3 .0 170-170-173	12 2-3 .1 171-171-174	43
155.0	- -	- -	- -	9 2-3 .1 169-169-172	24 2-3 .0 169-169-172	45
153.0	- -	- -	2 3-3 .0 167-168-171	18 3-3 .2 168-168-171	34 3-3 .1 168-168-171	47
151.0	- -	- -	10 3-3 .2 166-167-170	27 3-3 .2 167-167-170	42 3-3 .4 167-167-170	48 43
149.0	- -	- -	19 3-3 .1 165-166-169	36 3-3 .0 165-166-169	45 3-3 .4 166-166-169	49 45
147.0	- -	3 3-3 .0 163-164-168	28 3-3 .1 164-165-168	42 3-3 .6 165-165-168	47 3-3 .7 165-165-168	51 46
145.0	- -	11 3-3 .2 162-163-167	36 3-3 .2 162-164-167	46 3-3 .1 164-164-167	49 3-3 .9 165-165-167	52 48
143.0	-3 3-3 .2 159-162-165	20 3-3 .1 160-162-165	42 3-3 .8 162-163-166	48 3-3 .5 163-163-166	51 3-3 1.1 164-164-166	54 49
141.0	6 3-3 .1 158-161-164	29 3-3 .1 159-161-164	46 3-3 .3 161-162-164	51 3-3 .2 162-162-164	53 2-3 .8 163-163-165	54 51
136.0	28 3-3 .1 155-158-161	42 3-3 2.1 157-160-162	52 3-3 .7 159-160-162	56 3-3 .6 160-160-162	57 2-3 1.1 162-162-164	54 54
131.0	42 3-3 1.8 153-156-160	51 3-3 .6 155-156-159	58 3-3 .7 157-157-159	61 2-3 .3 157-157-159	62 2-3 .4 160-160-161	54 54
126.0	51 3-3 .4 151-153-156	58 3-3 .1 153-154-156	63 3-3 1.0 155-155-156	65 2-3 .8 156-156-157	66 2-3 .8 158-158-159	54 54
121.0	58 3-3 .0 149-150-153	64 3-3 .4 151-151-153	69 3-3 .1 152-152-153	70 2-3 .2 154-154-155	71 2-3 .1 157-157-158	54 54
116.0	64 3-3 .5 147-148-150	70 3-3 .7 149-149-150	71 2-3 3.0 151-151-152	71 2-3 4.1 154-154-155	71 .0 148-148-150	54 54
111.0	71 3-3 .4 145-145-147	71 3-3 4.9 148-148-150	71 .0 145-145-147	71 .0 145-145-147	71 .0 145-145-147	54 54
106.0	71 .0 141-142-143	71 .0 141-142-143	71 .0 141-142-143	71 .0 141-142-143	71 .0 141-142-143	54 54
101.0	71 .0 137-138-140	71 .0 137-138-140	71 .0 137-138-140	71 .0 137-138-140	71 .0 137-138-140	54 54

HECA CAIRO 16

ELEV. = 380 ft TORA = 3013 m
SLOPE = 1.60 % ASDA = 3013 m
TODA = 3013 m

15/15

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

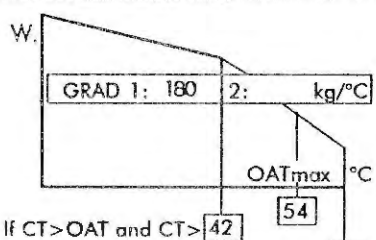
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1027 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>42
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-2	-2.0	-12	-3

Minimum v_1: 117 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1900 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	- -	- -	- -	
157.0	- -	- -	- -	- -	2 2-3 .1 170-170-173	43
155.0	- -	- -	-3 2-3 .0 165-165-168	9 2-3 .1 166-166-169	22 2-3 .1 167-167-169	45
153.0	- -	- -	15 2-3 .1 162-162-165	28 2-3 .1 162-162-165	39 2-3 .0 164-164-166	47
151.0	- -	10 2-3 .1 157-157-161	32 2-3 .0 158-158-162	42 2-3 .2 160-160-163	42 2-3 1.6 163-163-166	48 43
149.0	4 2-3 .1 153-154-157	27 2-3 .0 153-154-157	42 2-3 .6 156-157-160	44 2-3 1.0 160-160-163	46 2-3 .1 162-162-165	49 45
147.0	15 3-3 .2 151-152-155	38 2-3 .0 151-152-156	45 2-3 .3 156-156-159	46 2-3 .8 159-159-162	47 2-3 1.0 162-162-165	51 46
145.0	24 3-3 .2 149-151-154	42 2-3 1.3 151-151-155	47 2-3 .2 156-156-159	48 2-3 .5 159-159-162	49 2-3 .6 161-161-164	52 48
143.0	33 3-3 .1 148-149-153	46 2-3 .5 150-150-154	48 2-3 1.1 156-156-159	50 2-3 .2 158-158-161	51 2-3 .3 161-161-164	54 49
141.0	41 3-3 .2 147-148-152	48 2-3 .5 149-150-153	50 2-3 .9 155-155-158	51 2-3 1.1 158-158-161	53 2-3 .0 160-160-163	54 51
136.0	42 3-3 5.0 147-148-152	53 2-3 .2 149-149-152	55 2-3 .3 154-154-157	56 2-3 .3 156-156-159	57 2-3 .3 159-159-161	54 54
131.0	55 3-3 .6 144-144-147	57 2-3 .9 148-148-151	59 2-3 .7 152-152-155	60 2-3 .7 155-155-157	61 2-3 .7 157-157-159	54 54
126.0	60 2-3 .5 143-143-146	62 2-3 .5 146-146-149	64 2-3 .1 150-150-153	65 2-3 .0 153-153-155	65 2-3 1.1 156-156-158	54 54
121.0	65 2-3 .3 141-141-144	67 2-3 .0 145-145-147	68 2-3 .6 149-149-151	69 2-3 .5 151-151-153	70 2-3 .4 154-154-156	54 54
116.0	70 2-3 .1 140-140-142	71 2-3 .7 144-144-146	71 2-3 2.3 148-148-150	71 2-3 3.3 151-151-153	71 2-3 4.2 154-154-155	54 54
111.0	71 2-3 4.1 140-140-142	71 .0 133-133-136	71 .0 133-133-136	71 .0 133-133-136	71 .0 133-133-136	54 54
106.0	71 .0 129-130-133	71 .0 129-130-133	71 .0 129-130-133	71 .0 129-130-133	71 .0 129-130-133	54 54
101.0	71 .0 126-126-130	71 .0 126-126-130	71 .0 126-126-130	71 .0 126-126-130	71 .0 126-126-130	54 54

WSSS SINGAPORE CHANGI 02L

ELEV. = 20 ft TORA = 4000 m
SLOPE = .00 % ASDA = 4120 m
TODA = 4300 m

15/00

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

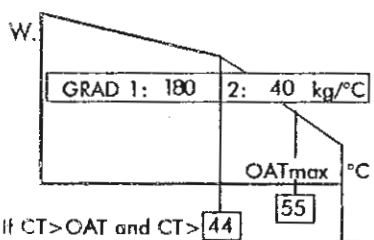
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1014 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>44
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-1	-0.5	-6	-1

Minimum v_1: 119 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1600 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	0 2-6 .1 158-172-176	18 2-6 .1 159-173-177	37 2-1 .0 161-174-178	44 2-6 .5 164-176-180	45 2-6 1.0 168-180-184	44
157.0	14 2-2 .2 154-169-173	33 2-6 .0 156-170-174	44 2-6 1.0 160-173-177	46 2-6 .4 165-177-180	47 2-6 .7 169-180-184	45
155.0	23 2-2 .1 153-168-172	44 6-6 .2 154-168-172	46 2-6 .9 161-173-177	48 2-6 .2 166-177-180	49 2-6 .5 171-181-184	47
153.0	31 6-6 .2 151-167-171	46 2-6 .6 155-168-172	48 2-6 .8 162-173-177	49 2-6 1.1 166-177-180	51 2-6 .2 172-181-184	48 43
151.0	40 6-6 .1 150-166-170	48 2-6 .5 156-168-172	50 2-6 .6 163-173-177	51 2-6 .9 167-177-181	52 2-6 1.0 172-181-184	49 45
149.0	44 5-5 1.1 149-165-169	50 2-6 .4 157-168-172	52 2-6 .4 164-174-177	53 2-6 .6 168-177-181	54 2-6 .7 174-181-184	51 46
147.0	49 6-6 .3 150-164-168	52 2-6 .2 158-168-172	54 2-6 .2 165-174-177	55 2-6 .3 169-178-181	56 2-6 .3 175-181-184	52 48
145.0	51 6-6 .8 151-164-167	54 2-6 .1 159-169-172	55 2-6 1.1 165-174-177	57 2-6 .1 171-178-181	57 2-2 1.0 175-181-184	53 49
143.0	53 2-5 .7 151-164-167	55 2-6 1.0 159-169-172	57 2-6 .8 166-174-177	58 2-6 .9 171-178-181	59 2-2 .1 175-179-182	55 51
141.0	55 2-5 .3 152-163-166	57 2-6 .8 160-169-172	59 2-6 .6 167-174-177	60 2-6 .7 172-178-181	60 2-2 .7 174-178-181	55 52
136.0	59 2-5 .9 153-162-165	62 2-5 .3 162-168-172	63 2-6 1.1 169-174-177	63 2-2 1.4 172-175-178	63 2-2 1.4 171-175-178	55 55
131.0	64 2-5 .3 155-162-164	66 2-5 .6 164-168-171	67 2-2 .7 169-172-175	67 2-2 .7 168-172-175	67 2-2 .7 167-172-175	55 55
126.0	68 2-5 .8 157-161-163	70 2-5 .9 165-167-170	70 2-2 1.4 166-169-172	70 2-2 1.4 165-169-172	70 2-2 1.4 164-169-172	55 55
121.0	72 2-5 1.3 157-161-163	72 2-5 3.5 165-167-169	72 2-2 3.5 164-167-170	72 2-2 3.5 163-167-170	72 2-2 3.5 162-167-170	55 55
116.0	72 .0 147-147-150	72 .0 147-147-150	72 .0 147-147-150	72 .0 147-147-150	72 .0 147-147-150	55 55
111.0	72 .0 143-144-147	72 .0 143-144-147	72 .0 143-144-147	72 .0 143-144-147	72 .0 143-144-147	55 55
106.0	72 .0 140-140-143	72 .0 140-140-143	72 .0 140-140-143	72 .0 140-140-143	72 .0 140-140-143	55 55
101.0	72 .0 136-137-140	72 .0 136-137-140	72 .0 136-137-140	72 .0 136-137-140	72 .0 136-137-140	55 55

WSSS SINGAPORE CHANGI 02L

ELEV. = 20 ft TORA = 4000 m
SLOPE = .00 % ASDA = 4120 m
TODA = 4300 m

15/15

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

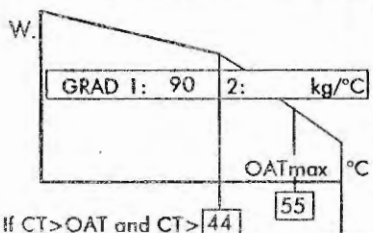
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1014 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>44
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-2	-2.0	-12	-3

Minimum v_1: 117 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1600 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	2 2-6 .1 156-173-177	20 2-2 .0 158-174-178	33 2-2 .0 160-175-178	34 2-2 .0 161-175-179	34 2-2 .0 162-175-179	44
157.0	20 2-6 .0 151-169-173	38 2-6 .1 154-171-174	44 2-6 1.2 160-175-178	44 2-2 1.3 161-175-178	44 2-2 1.3 162-175-178	45
155.0	37 2-6 .0 148-166-169	44 2-6 1.2 153-169-173	46 2-2 .5 159-173-177	46 2-2 .5 160-173-177	46 2-2 .5 161-173-177	47
153.0	44 2-6 1.0 146-164-168	46 2-6 1.1 154-170-173	47 2-2 1.0 159-173-176	47 2-2 1.0 160-173-176	47 2-2 1.0 161-173-176	48 43
151.0	46 2-6 .9 147-164-168	48 2-6 .8 155-170-173	49 2-2 .1 158-171-174	49 2-2 .1 159-171-174	49 2-2 .1 158-171-174	49 45
149.0	48 2-6 .8 148-164-168	50 2-6 .6 156-170-173	50 2-2 .7 158-170-173	50 2-2 .7 159-170-173	50 2-2 .7 157-170-173	51 46
147.0	50 2-5 .6 149-164-168	51 2-6 1.2 156-169-172	51 2-2 1.2 158-169-172	51 2-2 1.2 158-169-172	51 2-2 1.2 156-169-172	52 48
145.0	52 2-5 .2 150-164-168	53 2-2 .3 155-168-171	53 2-2 .3 157-168-171	53 2-2 .3 156-168-171	53 2-2 .3 155-168-171	53 49
143.0	53 2-5 1.0 150-164-167	54 2-2 .9 155-167-170	54 2-2 .9 156-167-170	54 2-2 .9 155-167-170	54 2-2 .9 154-167-170	55 51
141.0	55 2-5 .5 150-163-167	56 2-2 .0 155-165-168	56 2-2 .0 154-165-168	56 2-2 .0 152-165-168	56 2-2 .0 152-165-168	55 52
136.0	59 2-5 .9 152-163-166	59 2-2 1.0 154-163-166	59 2-2 1.0 152-163-166	59 2-2 1.0 150-163-166	59 2-2 1.0 150-163-166	55 55
131.0	63 2-2 .5 152-160-163	63 2-2 .5 150-160-163	63 2-2 .5 148-160-163	63 2-2 .5 147-160-163	63 2-2 .5 147-160-163	55 55
126.0	67 2-2 .1 148-156-159	67 2-2 .1 146-156-159	67 2-2 .1 144-156-159	67 2-2 .1 144-156-159	67 2-2 .1 144-156-159	55 55
121.0	70 2-2 1.0 145-154-157	70 2-2 1.0 143-154-157	70 2-2 1.0 142-154-157	70 2-2 1.0 142-154-157	70 2-2 1.0 142-154-157	55 55
116.0	72 2-2 3.3 143-152-155	72 2-2 3.3 141-152-155	72 2-2 3.3 141-152-155	72 2-2 3.3 141-152-155	72 2-2 3.3 141-152-155	55 55
111.0	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	55 55
106.0	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	55 55
101.0	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	55 55

WSSS SINGAPORE CHANGI 20R

ELEV. = 20 ft
SLOPE = .00 %

TORA = 4000 m
ASDA = 4060 m
TODA = 4300 m

15/00

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

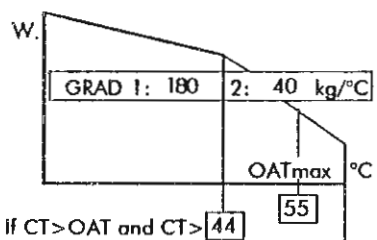
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1014 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>44
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-1	-0.5	-6	-1

Minimum v_1: 119 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1600 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	0 2-6 .1 158-172-176	18 2-6 .1 159-173-177	37 2-1 .0 161-174-178	44 2-6 .5 164-176-180	45 2-6 1.0 168-180-184	44
157.0	14 2-2 .2 154-169-173	33 2-6 .0 156-170-174	44 2-6 1.0 160-173-177	46 2-6 .4 165-177-180	47 2-6 .7 169-180-184	45
155.0	23 2-2 .1 153-168-172	44 6-6 .2 154-168-172	46 2-6 .9 161-173-177	48 2-6 .2 166-177-180	49 2-6 .5 171-181-184	47
153.0	31 6-6 .2 151-167-171	46 2-6 .6 155-168-172	48 2-6 .8 162-173-177	49 2-6 1.1 166-177-180	51 2-6 .2 172-181-184	48 43
151.0	40 6-6 .1 150-166-170	48 2-6 .5 156-168-172	50 2-6 .6 163-173-177	51 2-6 .9 167-177-181	52 2-6 1.0 172-181-184	49 45
149.0	44 5-5 1.1 149-165-169	50 2-6 .4 157-168-172	52 2-6 .4 164-174-177	53 2-6 .6 168-177-181	54 2-6 .7 174-181-184	51 46
147.0	49 6-6 .3 150-164-168	52 2-6 .2 158-168-172	54 2-6 .2 165-174-177	55 2-6 .3 169-178-181	56 2-6 .3 175-181-184	52 48
145.0	51 6-6 .8 151-164-167	54 2-6 .1 159-169-172	55 2-6 1.1 165-174-177	57 2-6 .1 171-178-181	57 2-2 1.0 175-181-184	53 49
143.0	53 2-5 .7 151-164-167	55 2-6 1.0 159-169-172	57 2-6 .8 166-174-177	58 2-6 .9 171-178-181	59 2-2 .1 175-179-182	55 51
141.0	55 2-5 .3 152-163-166	57 2-6 .8 160-169-172	59 2-6 .6 167-174-177	60 2-6 .7 172-178-181	60 2-2 .7 174-178-181	55 52
136.0	59 2-5 .9 153-162-165	62 2-5 .3 162-168-172	63 2-6 1.1 169-174-177	63 2-2 1.4 172-175-178	63 2-2 1.4 171-175-178	55 55
131.0	64 2-5 .3 155-162-164	66 2-5 .6 164-168-171	67 2-2 .7 169-172-175	67 2-2 .7 168-172-175	67 2-2 .7 167-172-175	55 55
126.0	68 2-5 .8 157-161-163	70 2-5 .9 165-167-170	70 2-2 1.4 166-169-172	70 2-2 1.4 165-169-172	70 2-2 1.4 164-169-172	55 55
121.0	72 2-5 1.3 157-161-163	72 2-5 3.5 165-167-169	72 2-2 3.5 164-167-170	72 2-2 3.5 163-167-170	72 2-2 3.5 162-167-170	55 55
116.0	72 .0 147-147-150	72 .0 147-147-150	72 .0 147-147-150	72 .0 147-147-150	72 .0 147-147-150	55 55
111.0	72 .0 143-144-147	72 .0 143-144-147	72 .0 143-144-147	72 .0 143-144-147	72 .0 143-144-147	55 55
106.0	72 .0 140-140-143	72 .0 140-140-143	72 .0 140-140-143	72 .0 140-140-143	72 .0 140-140-143	55 55
101.0	72 .0 136-137-140	72 .0 136-137-140	72 .0 136-137-140	72 .0 136-137-140	72 .0 136-137-140	55 55

WSSS SINGAPORE CHANGI 20R

ELEV. = 20 ft TORA = 4000 m
SLOPE = .00 % ASDA = 4060 m
TODA = 4300 m

15/15

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight increment [t]
v_1 - v_R - v_2 [kts] IAS

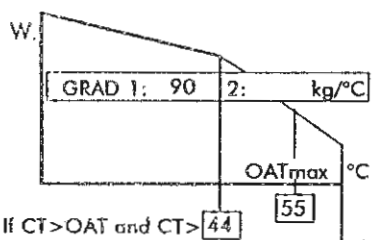
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1014 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT> 44
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-2	-2.0	-12	-3

Minimum v_1: 117 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1600 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	2 2-6 .1 156-173-177	20 2-2 .0 158-174-178	33 2-2 .0 160-175-178	34 2-2 .0 161-175-179	34 2-2 .0 162-175-179	44
157.0	20 2-6 .0 151-169-173	38 2-6 .1 154-171-174	44 2-6 1.2 160-175-178	44 2-2 1.3 161-175-178	44 2-2 1.3 162-175-178	45
155.0	37 2-6 .0 148-166-169	44 2-6 1.2 153-169-173	46 2-2 .5 159-173-177	46 2-2 .5 160-173-177	46 2-2 .5 161-173-177	47
153.0	44 2-6 1.0 146-164-168	46 2-6 1.1 154-170-173	47 2-2 1.0 159-173-176	47 2-2 1.0 160-173-176	47 2-2 1.0 161-173-176	48 43
151.0	46 2-6 .9 147-164-168	48 2-6 .8 155-170-173	49 2-2 .1 158-171-174	49 2-2 .1 159-171-174	49 2-2 .1 158-171-174	49 45
149.0	48 2-6 .8 148-164-168	50 2-6 .6 156-170-173	50 2-2 .7 158-170-173	50 2-2 .7 159-170-173	50 2-2 .7 157-170-173	51 46
147.0	50 2-5 .6 149-164-168	51 2-6 1.2 156-169-172	51 2-2 1.2 158-169-172	51 2-2 1.2 158-169-172	51 2-2 1.2 156-169-172	52 48
145.0	52 2-5 .2 150-164-168	53 2-2 .3 155-168-171	53 2-2 .3 157-168-171	53 2-2 .3 156-168-171	53 2-2 .3 155-168-171	53 49
143.0	53 2-5 1.0 150-164-167	54 2-2 .9 155-167-170	54 2-2 .9 156-167-170	54 2-2 .9 155-167-170	54 2-2 .9 154-167-170	55 51
141.0	55 2-5 .5 150-163-167	56 2-2 .0 155-165-168	56 2-2 .0 154-165-168	56 2-2 .0 152-165-168	56 2-2 .0 152-165-168	55 52
136.0	59 2-5 .9 152-163-166	59 2-2 1.0 154-163-166	59 2-2 1.0 152-163-166	59 2-2 1.0 150-163-166	59 2-2 1.0 150-163-166	55 55
131.0	63 2-2 .5 152-160-163	63 2-2 .5 150-160-163	63 2-2 .5 148-160-163	63 2-2 .5 147-160-163	63 2-2 .5 147-160-163	55 55
126.0	67 2-2 .1 148-156-159	67 2-2 .1 146-156-159	67 2-2 .1 144-156-159	67 2-2 .1 144-156-159	67 2-2 .1 144-156-159	55 55
121.0	70 2-2 1.0 145-154-157	70 2-2 1.0 143-154-157	70 2-2 1.0 142-154-157	70 2-2 1.0 142-154-157	70 2-2 1.0 142-154-157	55 55
116.0	72 2-2 3.3 143-152-155	72 2-2 3.3 141-152-155	72 2-2 3.3 141-152-155	72 2-2 3.3 141-152-155	72 2-2 3.3 141-152-155	55 55
111.0	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	55 55
106.0	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	55 55
101.0	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	55 55

WSSS SINGAPORE CHANGI 02R/20L

ELEV. = 20 ft TORA = 3355 m
SLOPE = .00 % ASDA = 3415 m
TODA = 3415 m

15/00

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

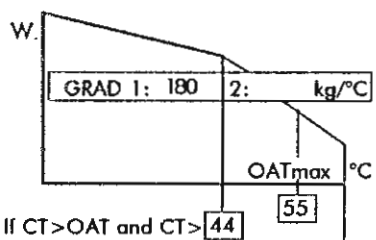
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1014 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>44
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-6	-4.5	-8	-3

Minimum v_1: 119 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1600 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	14 2-6 .1 168-173-177	27 2-1 .0 169-174-178	39 2-1 .0 170-175-178	44
157.0	- -	7 2-6 .1 164-170-174	29 2-6 .2 165-170-174	43 2-6 .0 166-170-174	44 2-6 1.4 169-174-178	45
155.0	- -	17 6-6 .1 162-168-172	39 2-6 .2 163-168-172	44 2-6 1.8 166-170-174	47 2-6 .4 171-174-178	47
153.0	4 6-6 .2 160-167-171	25 6-6 .2 161-167-171	44 6-6 1.1 162-168-172	47 2-6 .8 167-171-175	49 2-6 .3 172-175-178	48 43
151.0	12 6-6 .1 159-166-170	34 6-6 .1 159-166-170	48 2-6 .1 163-168-171	49 2-6 .7 168-171-175	51 2-6 .1 173-175-179	49 45
149.0	20 6-6 .2 157-165-169	42 6-6 .2 158-165-169	50 2-6 .1 164-168-172	51 2-6 .6 169-171-175	52 2-6 1.0 174-175-179	51 46
147.0	28 6-6 .2 156-164-168	44 6-6 1.7 158-165-169	52 2-6 .0 165-168-172	53 2-6 .5 170-172-175	54 2-3 .8 175-176-179	52 48
145.0	37 6-6 .1 154-162-166	51 6-6 .1 159-163-167	53 2-6 .9 165-168-172	55 2-3 .1 170-172-175	56 2-3 .3 174-175-178	53 49
143.0	44 6-6 .4 153-162-166	53 2-6 .5 160-163-167	55 2-3 .6 166-168-172	56 2-3 .9 170-171-175	57 2-3 1.1 174-175-178	55 51
141.0	48 6-6 .4 154-161-164	55 2-3 .3 160-163-166	57 2-3 .3 165-167-171	58 2-3 .5 169-171-174	59 2-3 .7 174-174-177	55 52
136.0	56 3-3 .9 154-159-162	59 2-3 .7 159-162-165	61 2-3 .5 165-166-169	62 2-3 .7 169-169-173	63 2-3 .7 173-173-176	55 55
131.0	62 2-3 .1 153-156-159	63 2-3 1.0 158-161-164	65 2-3 .8 164-165-168	66 2-3 .8 168-168-171	67 2-3 .5 171-171-174	55 55
126.0	66 2-3 .6 152-155-158	68 2-3 .2 158-160-162	69 2-3 1.0 164-164-167	70 2-3 .9 167-167-170	70 2-2 1.4 169-169-172	55 55
121.0	70 2-3 1.1 152-154-157	72 2-3 .6 157-159-161	72 2-3 2.4 163-164-166	72 2-3 3.4 167-167-169	72 2-2 3.5 167-167-170	55 55
116.0	72 2-3 3.8 151-154-156	72 .0 147-147-150	72 .0 147-147-150	72 .0 147-147-150	72 .0 147-147-150	55 55
111.0	72 .0 143-144-147	72 .0 143-144-147	72 .0 143-144-147	72 .0 143-144-147	72 .0 143-144-147	55 55
106.0	72 .0 140-140-143	72 .0 140-140-143	72 .0 140-140-143	72 .0 140-140-143	72 .0 140-140-143	55 55
101.0	72 .0 136-137-140	72 .0 136-137-140	72 .0 136-137-140	72 .0 136-137-140	72 .0 136-137-140	55 55

WSSS SINGAPORE CHANGI 02R/20L

ELEV. = 20 ft TORA = 3355 m
SLOPE = .00 % ASDA = 3415 m
TODA = 3415 m

15/15

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight increment [t]
v_1 - v_R - v_2 [kts] IAS

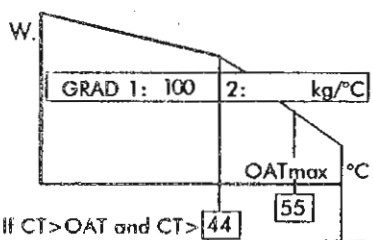
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1014 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>44
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-2	-2.0	-12	-3

Minimum v_1: 117 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1600 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	15 2-6 .1 169-174-178	28 2-2 .0 170-175-178	34 2-2 .0 171-175-179	44
157.0	- -	13 2-6 .1 162-169-173	33 2-6 .1 164-170-174	44 2-6 .1 166-172-175	44 2-2 1.3 170-175-178	45
155.0	11 2-6 .0 156-164-168	31 2-6 .0 158-165-169	44 2-6 .6 162-168-171	45 2-6 1.0 166-172-175	46 2-2 .5 169-173-177	47
153.0	27 2-6 .0 152-160-164	44 2-6 .3 155-162-166	46 2-6 .6 163-168-172	47 2-6 .9 168-172-175	47 2-2 1.0 169-173-176	48 43
151.0	43 2-6 .0 148-157-161	46 2-6 .2 156-163-166	48 2-6 .4 164-169-172	49 2-2 .1 167-171-174	49 2-2 .1 167-171-174	49 45
149.0	44 2-6 1.7 148-157-161	48 2-6 .2 157-163-167	50 2-3 .1 164-169-172	50 2-2 .7 167-170-173	50 2-2 .7 166-170-173	51 46
147.0	47 2-6 .8 149-157-161	50 2-3 .0 158-163-167	51 2-3 .9 164-169-172	51 2-2 1.2 166-169-172	51 2-2 1.2 165-169-172	52 48
145.0	49 2-6 .8 150-158-161	51 2-3 .9 158-163-166	53 3-3 .3 164-168-171	53 2-2 .3 164-168-171	53 2-2 .3 162-168-171	53 49
143.0	51 2-6 .7 151-158-162	53 2-3 .5 157-163-166	54 2-2 .9 163-167-170	54 2-2 .9 163-167-170	54 2-2 .9 161-167-170	55 51
141.0	53 2-3 .5 152-158-161	55 2-3 .1 157-162-166	56 2-2 .0 162-165-168	56 2-2 .0 161-165-168	56 2-2 .0 159-165-168	55 52
136.0	57 2-3 .9 151-157-160	59 2-3 .4 157-161-164	59 2-2 1.0 159-163-166	59 2-2 1.0 158-163-166	59 2-2 1.0 156-163-166	55 55
131.0	62 2-3 .1 150-155-159	63 2-3 .5 156-160-163	63 2-2 .5 155-160-163	63 2-2 .5 154-160-163	63 2-2 .5 153-160-163	55 55
126.0	66 2-3 .5 150-154-157	67 2-2 .1 153-156-159	67 2-2 .1 152-156-159	67 2-2 .1 150-156-159	67 2-2 .1 149-156-159	55 55
121.0	70 2-3 .8 149-153-156	70 2-2 1.0 150-154-157	70 2-2 1.0 148-154-157	70 2-2 1.0 147-154-157	70 2-2 1.0 145-154-157	55 55
116.0	72 2-2 3.3 148-152-155	72 2-2 3.3 148-152-155	72 2-2 3.3 146-152-155	72 2-2 3.3 145-152-155	72 2-2 3.3 143-152-155	55 55
111.0	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	55 55
106.0	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	55 55
101.0	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	55 55

WMKK KUALA LUMPUR 15/33

ELEV. = 89 ft TORA = 3475 m
SLOPE = .00 % ASDA = 3475 m
TODA = 3475 m

15/00

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight increment [t]
v_1 - v_R - v_2 [kts] IAS

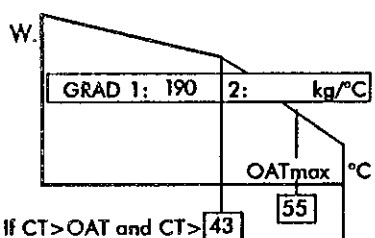
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1016 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>43
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-6	-4.5	-8	-3

Minimum v_1: 119 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1600 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	15 2-6 .1 168-173-177	28 2-6 .1 169-174-178	39 2-1 .0 170-175-179	43
157.0	- -	9 2-6 .0 163-169-174	30 2-6 .0 164-170-174	43 2-6 .0 166-171-175	43 2-1 1.7 169-174-178	45
155.0	-2 6-6 .0 161-168-172	18 6-6 .2 162-168-172	40 2-6 .2 163-168-172	45 2-6 .7 166-171-175	47 2-6 .2 171-175-178	46
153.0	5 6-6 .2 160-167-171	27 6-6 .0 160-167-171	43 2-6 1.6 162-168-172	47 2-6 .6 167-171-175	49 2-6 .1 172-175-179	48 43
151.0	13 6-6 .2 158-166-170	35 6-6 .1 159-166-170	47 2-6 1.0 163-168-172	49 2-6 .6 168-171-175	50 2-6 1.0 172-175-179	49 45
149.0	21 6-6 .2 157-165-169	43 6-6 .2 158-165-169	49 2-6 1.0 164-168-172	51 2-6 .5 169-172-175	52 2-6 .9 174-176-179	50 46
147.0	30 6-6 .0 155-164-168	47 6-6 .4 158-164-168	51 2-6 .9 165-168-172	53 2-6 .4 170-172-176	54 2-6 .7 175-176-179	52 48
145.0	38 6-6 .1 154-163-167	51 6-6 .2 159-163-167	53 2-6 .9 166-169-172	55 2-6 .2 171-173-176	56 2-6 .4 175-176-179	53 49
143.0	43 6-6 .9 153-162-166	53 2-6 .5 160-164-167	55 2-6 .8 166-169-172	56 2-6 1.1 171-172-176	58 2-3 .0 175-175-179	54 50
141.0	49 6-6 .1 154-161-164	55 2-6 .5 160-164-167	57 2-3 .4 166-168-172	58 2-3 .7 170-172-175	59 2-3 .8 175-175-178	55 52
136.0	57 3-3 .8 155-159-162	59 2-3 .9 160-163-166	61 2-3 .7 166-167-170	62 2-3 .9 170-170-174	63 2-3 .8 174-174-177	55 55
131.0	62 2-3 .3 154-157-160	64 2-3 .1 159-161-164	65 2-3 1.0 165-166-169	66 2-3 1.0 169-169-172	67 2-3 .5 172-172-174	55 55
126.0	66 2-3 .8 153-156-159	68 2-3 .5 158-160-163	70 2-3 .0 164-165-167	70 2-3 1.1 168-168-171	70 2-2 1.3 169-169-172	55 55
121.0	71 2-3 .2 152-155-157	72 2-3 .9 158-160-162	72 2-3 2.7 164-165-167	72 2-2 3.5 167-167-170	72 2-2 3.5 167-167-170	55 55
116.0	72 2-3 4.1 152-155-157	72 .0 147-147-150	72 .0 147-147-150	72 .0 147-147-150	72 .0 147-147-150	55 55
111.0	72 .0 143-144-147	72 .0 143-144-147	72 .0 143-144-147	72 .0 143-144-147	72 .0 143-144-147	55 55
106.0	72 .0 140-140-143	72 .0 140-140-143	72 .0 140-140-143	72 .0 140-140-143	72 .0 140-140-143	55 55
101.0	72 .0 136-137-140	72 .0 136-137-140	72 .0 136-137-140	72 .0 136-137-140	72 .0 136-137-140	55 55

WMKK
KUALA LUMPUR
15/33

ELEV. = 89 ft TORA = 3475 m
SLOPE = .00 % ASDA = 3475 m
TODA = 3475 m

15/15

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

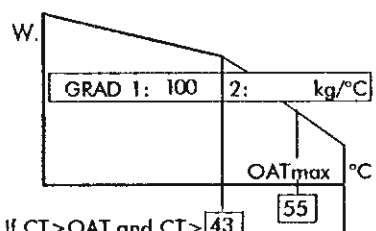
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1016 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>43
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-2	-2.0	-12	-3

Minimum v_1: 117 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1600 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	16 2-6 .0 168-174-178	28 2-6 .1 170-175-179	30 2-2 .0 171-175-179	43
157.0	- -	14 2-6 .1 162-169-173	33 2-6 .1 164-171-174	43 2-6 .3 166-172-175	43 2-2 1.4 170-175-178	45
155.0	12 2-6 .0 155-164-168	31 2-6 .1 157-165-169	43 2-6 .9 161-169-172	45 2-6 .9 166-172-175	46 2-2 .1 169-173-176	46
153.0	28 2-6 .0 151-160-165	43 2-6 .5 155-163-167	46 2-6 .4 162-169-172	47 2-2 .6 167-172-176	47 2-2 .6 168-172-176	48 43
151.0	43 2-6 .0 148-157-162	46 2-6 .1 156-163-167	48 2-6 .3 163-169-172	48 2-2 1.2 167-172-175	48 2-2 1.2 167-172-175	49 45
149.0	45 2-6 .7 148-157-162	48 2-6 .1 157-163-167	50 2-6 .1 165-169-173	50 2-2 .3 167-170-173	50 2-2 .3 165-170-173	50 46
147.0	47 2-6 .7 149-158-162	49 2-6 1.0 157-163-167	51 2-6 .8 164-169-172	51 2-2 .9 165-169-172	51 2-2 .9 164-169-172	52 48
145.0	49 2-6 .7 150-158-162	51 2-6 .9 158-164-167	52 2-2 1.4 164-168-171	52 2-2 1.4 164-168-171	52 2-2 1.4 163-168-171	53 49
143.0	51 2-6 .7 151-158-162	53 2-3 .6 158-164-167	54 2-2 .6 163-167-170	54 2-2 .6 162-167-170	54 2-2 .6 161-167-170	54 50
141.0	53 2-6 .6 152-158-162	55 2-3 .3 158-163-167	55 2-2 1.1 162-166-169	55 2-2 1.1 161-166-169	55 2-2 1.1 159-166-169	55 52
136.0	57 2-3 1.0 152-158-161	59 2-3 .5 158-162-165	59 2-2 .7 159-163-166	59 2-2 .7 157-163-166	59 2-2 .7 156-163-166	55 55
131.0	62 2-3 .3 151-156-159	63 2-2 .4 156-159-162	63 2-2 .4 155-159-162	63 2-2 .4 153-159-162	63 2-2 .4 152-159-162	55 55
126.0	66 2-3 .7 151-155-158	66 2-2 1.3 154-157-160	66 2-2 1.3 152-157-160	66 2-2 1.3 151-157-160	66 2-2 1.3 149-157-160	55 55
121.0	70 2-2 .9 150-154-157	70 2-2 .9 150-154-157	70 2-2 .9 148-154-157	70 2-2 .9 146-154-157	70 2-2 .9 145-154-157	55 55
116.0	72 2-2 3.2 149-152-155	72 2-2 3.2 148-152-155	72 2-2 3.2 146-152-155	72 2-2 3.2 144-152-155	72 2-2 3.2 142-152-155	55 55
111.0	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	55 55
106.0	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	55 55
101.0	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	55 55

VTBD BANGKOK 03L/21R

ELEV. = 10 ft TORA = 3700 m
SLOPE = .00 % ASDA = 3850 m
TODA = 3850 m

15/00

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

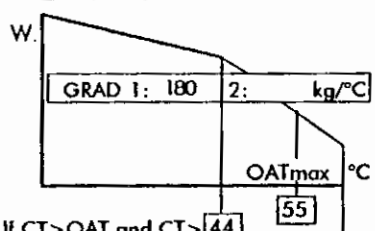
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1013 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>44
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-6	-4.5	-8	-3

Minimum v_1: 119 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1600 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	6 2-1 .1 163-173-177	25 2-1 .0 165-173-177	38 2-1 .0 166-174-178	44 2-6 .8 169-177-181	44
157.0	1 2-6 .2 159-169-173	20 2-6 .1 160-170-174	41 2-6 .1 162-170-174	44 2-6 1.2 165-173-177	46 2-6 .7 170-177-181	45
155.0	9 2-6 .2 157-168-172	31 6-6 .1 158-168-172	44 2-6 1.6 161-170-174	47 2-6 .1 166-174-178	48 2-6 .6 171-178-181	47
153.0	18 6-6 .0 155-167-171	39 6-6 .2 157-167-171	47 2-6 .6 162-170-174	49 2-6 .0 167-174-178	50 2-6 .4 172-178-181	48 44
151.0	26 6-6 .1 154-166-170	44 6-6 1.0 156-166-170	49 2-6 .5 163-171-174	50 2-6 .9 168-174-178	52 2-6 .1 173-178-182	49 45
149.0	34 6-6 .2 153-165-169	49 2-6 .0 157-166-169	51 2-6 .4 164-171-174	52 2-6 .8 169-175-178	53 2-6 1.0 174-178-182	51 46
147.0	43 6-6 .1 151-164-168	50 2-6 1.0 157-166-169	53 2-6 .2 165-171-175	54 2-6 .6 170-175-178	55 2-6 .8 175-179-182	52 48
145.0	44 6-6 1.8 151-164-167	52 2-6 1.0 158-166-169	55 2-6 .1 166-171-175	56 2-6 .4 171-175-178	57 2-6 .5 176-179-182	53 49
143.0	51 6-6 .1 152-162-165	54 2-6 .9 159-166-170	56 2-6 1.0 166-171-175	58 2-6 .2 172-175-178	59 2-2 .2 177-179-182	55 51
141.0	54 2-2 .5 153-161-164	56 2-6 .8 160-166-170	58 2-6 .8 167-171-175	59 2-6 1.1 172-175-178	60 2-2 .7 177-178-181	55 52
136.0	59 2-6 .5 155-162-165	61 2-6 .6 163-167-170	63 2-6 .4 170-172-175	64 2-2 .0 174-175-177	64 2-2 .0 173-175-177	55 55
131.0	64 2-5 .4 158-162-164	66 2-6 .3 165-167-170	67 2-2 .7 171-172-175	67 2-2 .7 171-172-175	67 2-2 .7 170-172-175	55 55
126.0	68 2-5 .8 158-161-163	70 2-3 .4 164-166-168	70 2-2 1.4 168-169-172	70 2-2 1.4 167-169-172	70 2-2 1.4 167-169-172	55 55
121.0	72 2-5 1.3 158-161-163	72 2-3 3.0 164-166-168	72 2-2 3.5 166-167-170	72 2-2 3.5 165-167-170	72 2-2 3.5 164-167-170	55 55
116.0	72 .0 147-147-150	72 .0 147-147-150	72 .0 147-147-150	72 .0 147-147-150	72 .0 147-147-150	55 55
111.0	72 .0 143-144-147	72 .0 143-144-147	72 .0 143-144-147	72 .0 143-144-147	72 .0 143-144-147	55 55
106.0	72 .0 140-140-143	72 .0 140-140-143	72 .0 140-140-143	72 .0 140-140-143	72 .0 140-140-143	55 55
101.0	72 .0 136-137-140	72 .0 136-137-140	72 .0 136-137-140	72 .0 136-137-140	72 .0 136-137-140	55 55

VTBD BANGKOK 03L/21R

ELEV. = 10 ft TORA = 3700 m
SLOPE = .00 % ASDA = 3850 m
TODA = 3850 m

15/15

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

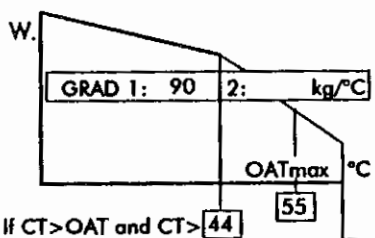
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1013 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>44
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-2	-2.0	-12	-3

Minimum v_1: 117 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1600 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	8 1-1 .1 163-174-177	27 2-2 .0 164-175-178	34 2-2 .0 166-175-179	34 2-2 .0 167-175-179	44
157.0	8 2-6 .0 156-168-172	26 2-6 .1 158-170-173	44 2-6 .1 161-172-175	44 2-6 1.4 165-175-178	44 2-2 1.4 166-175-178	45
155.0	24 2-6 .1 151-165-169	43 2-6 .1 154-166-170	45 2-6 1.0 161-172-175	46 2-2 .5 164-173-177	46 2-2 .5 165-173-177	47
153.0	40 2-6 .1 148-161-165	44 2-6 1.9 154-166-170	47 2-6 .8 162-172-175	47 2-2 1.1 164-173-176	47 2-2 1.1 165-173-176	48 44
151.0	44 2-6 1.5 147-161-165	47 2-6 .7 155-166-170	49 2-2 .2 162-171-174	49 2-2 .2 163-171-174	49 2-2 .2 163-171-174	49 45
149.0	47 2-6 .5 148-161-165	49 2-6 .6 156-167-170	50 2-2 .7 162-170-173	50 2-2 .7 163-170-173	50 2-2 .7 161-170-173	51 46
147.0	49 2-6 .4 149-161-165	51 2-6 .4 157-167-170	51 2-2 1.3 162-169-172	51 2-2 1.3 162-169-172	51 2-2 1.3 160-169-172	52 48
145.0	51 2-6 .3 150-161-165	53 2-6 .1 158-167-170	53 2-2 .4 161-168-171	53 2-2 .4 160-168-171	53 2-2 .4 158-168-171	53 49
143.0	53 2-6 .1 152-162-165	54 2-2 .9 159-167-170	54 2-2 .9 160-167-170	54 2-2 .9 159-167-170	54 2-2 .9 157-167-170	55 51
141.0	55 2-6 .0 153-162-165	56 2-2 .1 158-165-168	56 2-2 .1 158-165-168	56 2-2 .1 156-165-168	56 2-2 .1 155-165-168	55 52
136.0	59 2-6 .8 155-162-165	59 2-2 1.0 158-163-166	59 2-2 1.0 155-163-166	59 2-2 1.0 154-163-166	59 2-2 1.0 152-163-166	55 55
131.0	63 2-2 .6 155-160-163	63 2-2 .6 154-160-163	63 2-2 .6 151-160-163	63 2-2 .6 150-160-163	63 2-2 .6 148-160-163	55 55
126.0	67 2-2 .1 152-156-159	67 2-2 .1 150-156-159	67 2-2 .1 147-156-159	67 2-2 .1 146-156-159	67 2-2 .1 144-156-159	55 55
121.0	70 2-2 1.0 149-154-157	70 2-2 1.0 147-154-157	70 2-2 1.0 144-154-157	70 2-2 1.0 142-154-157	70 2-2 1.0 142-154-157	55 55
116.0	72 2-2 3.3 146-152-155	72 2-2 3.3 144-152-155	72 2-2 3.3 142-152-155	72 2-2 3.3 141-152-155	72 2-2 3.3 141-152-155	55 55
111.0	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	55 55
106.0	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	55 55
101.0	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	55 55

VTBD BANGKOK 03L/21R

ELEV. = 10 ft TORA = 3700 m
SLOPE = .00 % ASDA = 3850 m
TODA = 3850 m

15/00

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

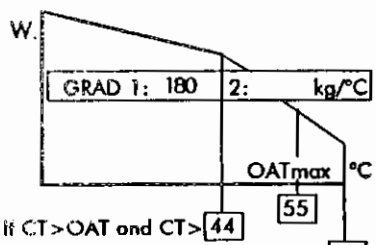
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1013 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>44
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-6	-4.5	-8	-3

Minimum v_1: 119 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1600 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	6 - 2-1 .1 163-173-177	25 2-1 .0 165-173-177	38 2-1 .0 166-174-178	44 2-6 .8 169-177-181	44
157.0	1 2-6 .2 159-169-173	20 2-6 .1 160-170-174	41 2-6 .1 162-170-174	44 2-6 1.2 165-173-177	46 2-6 .7 170-177-181	45
155.0	9 2-6 .2 157-168-172	31 6-6 .1 158-168-172	44 2-6 1.6 161-170-174	47 2-6 .1 166-174-178	48 2-6 .6 171-178-181	47
153.0	18 6-6 .0 155-167-171	39 6-6 .2 157-167-171	47 2-6 .6 162-170-174	49 2-6 .0 167-174-178	50 2-6 .4 172-178-181	48 44
151.0	26 6-6 .1 154-166-170	44 6-6 1.0 156-166-170	49 2-6 .5 163-171-174	50 2-6 .9 168-174-178	52 2-6 .1 173-178-182	49 45
149.0	34 6-6 .2 153-165-169	49 2-6 .0 157-166-169	51 2-6 .4 164-171-174	52 2-6 .8 169-175-178	53 2-6 1.0 174-178-182	51 46
147.0	43 6-6 .1 151-164-168	50 2-6 1.0 157-166-169	53 2-6 .2 165-171-175	54 2-6 .6 170-175-178	55 2-6 .8 175-179-182	52 48
145.0	44 6-6 1.8 151-164-167	52 2-6 1.0 158-166-169	55 2-6 .1 166-171-175	56 2-6 .4 171-175-178	57 2-6 .5 176-179-182	53 49
143.0	51 6-6 .1 152-162-165	54 2-6 .9 159-166-170	56 2-6 1.0 166-171-175	58 2-6 .2 172-175-178	59 2-2 .2 177-179-182	55 51
141.0	54 2-2 .5 153-161-164	56 2-6 .8 160-166-170	58 2-6 .8 167-171-175	59 2-6 1.1 172-175-178	60 2-2 .7 177-178-181	55 52
136.0	59 2-6 .5 155-162-165	61 2-6 .6 163-167-170	63 2-6 .4 170-172-175	64 2-2 .0 174-175-177	64 2-2 .0 173-175-177	55 55
131.0	64 2-5 .4 158-162-164	66 2-6 .3 165-167-170	67 2-2 .7 171-172-175	67 2-2 .7 171-172-175	67 2-2 .7 170-172-175	55 55
126.0	68 2-5 .8 158-161-163	70 2-3 .4 164-166-168	70 2-2 1.4 168-169-172	70 2-2 1.4 167-169-172	70 2-2 1.4 167-169-172	55 55
121.0	72 2-5 1.3 158-161-163	72 2-3 3.0 164-166-168	72 2-2 3.5 166-167-170	72 2-2 3.5 165-167-170	72 2-2 3.5 164-167-170	55 55
116.0	72 .0 147-147-150	72 .0 147-147-150	72 .0 147-147-150	72 .0 147-147-150	72 .0 147-147-150	55 55
111.0	72 .0 143-144-147	72 .0 143-144-147	72 .0 143-144-147	72 .0 143-144-147	72 .0 143-144-147	55 55
106.0	72 .0 140-140-143	72 .0 140-140-143	72 .0 140-140-143	72 .0 140-140-143	72 .0 140-140-143	55 55
101.0	72 .0 136-137-140	72 .0 136-137-140	72 .0 136-137-140	72 .0 136-137-140	72 .0 136-137-140	55 55

MKK
JALA LUMPUR
5/33

ELEV. = 89 ft
SLOPE = .00 %

TORA = 3475 m
ASDA = 3475 m
TODA = 3475 m

15/15

ke-off Parameters for 1013 hPa, dry RWY and AC/ON

.Temp [°C] Limitations
ight Increment [t]
v_1 - v_R - v_2 [kts] IAS

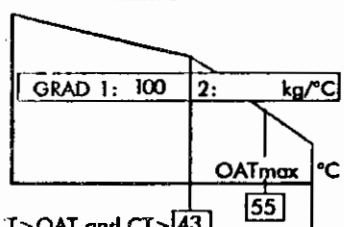
LIMITATIONS

Structure 2 - 2nd Segment 3 - Runway
Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

II>1013 hPa (max. 1016 hPa):
OD: 20 kg per hPa or 1°C per 25 hPa
II<1013 hPa:
B: 170 kg per hPa or 1°C per 7 hPa
le A/I on: SUB: 2.0 t or 2 °C
l A/I on: SUB: 4.8 t or 5 °C
off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



T>OAT and CT> 43
Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

unway wet (or covered with less than m slush, 3 mm standing water, m wet snow, 15 mm dry snow)
ect:

T/O p.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-2	-2.0	-12	-3

Minimum v_1: 117 [kt]

ctual TOW is equal to maximum OW and v_1 is lower than minimum v_1:
ake this last value as v_1 and further ecrease weight by 2 t per kt ifference between both values.
Actual TOW is lower than maximum OW and v_1 corresponding to actual OW is lower than minimum v_1 and v_1 orresponding to maximum TOW is qual to or above minimum v_1:
etain minimum v_1 as v_1 and decrease exible temperature by 3 °C per kt ifference between both values.

EOSID:

Alt.: 1600 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	16 2-6 .0 168-174-178	28 2-6 .1 170-175-179	30 2-2 .0 171-175-179	43
157.0	- -	14 2-6 .1 162-169-173	33 2-6 .1 164-171-174	43 2-6 .3 166-172-175	43 2-2 1.4 170-175-178	45
155.0	12 2-6 .0 155-164-168	31 2-6 .1 157-165-169	43 2-6 .9 161-169-172	45 2-6 .9 166-172-175	46 2-2 .1 169-173-176	46
153.0	28 2-6 .0 151-160-165	43 2-6 .5 155-163-167	46 2-6 .4 162-169-172	47 2-2 .6 167-172-176	47 2-2 .6 168-172-176	48 43
151.0	43 2-6 .0 148-157-162	46 2-6 .1 156-163-167	48 2-6 .3 163-169-172	48 2-2 1.2 167-172-175	48 2-2 1.2 167-172-175	49 45
149.0	45 2-6 .7 148-157-162	48 2-6 .1 157-163-167	50 2-6 .1 165-169-173	50 2-2 .3 167-170-173	50 2-2 .3 165-170-173	50 46
147.0	47 2-6 .7 149-158-162	49 2-6 1.0 157-163-167	51 2-6 .8 164-169-172	51 2-2 .9 165-169-172	51 2-2 .9 164-169-172	52 48
145.0	49 2-6 .7 150-158-162	51 2-6 .9 158-164-167	52 2-2 1.4 164-168-171	52 2-2 1.4 164-168-171	52 2-2 1.4 163-168-171	53 49
143.0	51 2-6 .7 151-158-162	53 2-3 .6 158-164-167	54 2-2 .6 163-167-170	54 2-2 .6 162-167-170	54 2-2 .6 161-167-170	54 50
141.0	53 2-6 .6 152-158-162	55 2-3 .3 158-163-167	55 2-2 1.1 162-166-169	55 2-2 1.1 161-166-169	55 2-2 1.1 159-166-169	55 52
136.0	57 2-3 1.0 152-158-161	59 2-3 .5 158-162-165	59 2-2 .7 159-163-166	59 2-2 .7 157-163-166	59 2-2 .7 156-163-166	55 55
131.0	62 2-3 .3 151-156-159	63 2-2 .4 156-159-162	63 2-2 .4 155-159-162	63 2-2 .4 153-159-162	63 2-2 .4 152-159-162	55 55
126.0	66 2-3 .7 151-155-158	66 2-2 1.3 154-157-160	66 2-2 1.3 152-157-160	66 2-2 1.3 151-157-160	66 2-2 1.3 149-157-160	55 55
121.0	70 2-2 .9 150-154-157	70 2-2 .9 150-154-157	70 2-2 .9 148-154-157	70 2-2 .9 146-154-157	70 2-2 .9 145-154-157	55 55
116.0	72 2-2 3.2 149-152-155	72 2-2 3.2 148-152-155	72 2-2 3.2 146-152-155	72 2-2 3.2 144-152-155	72 2-2 3.2 142-152-155	55 55
111.0	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	55 55
106.0	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	55 55
101.0	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	55 55

VTBD BANGKOK 03R/21L

ELEV. = 10 ft TORA = 3000 m
SLOPE = .00 % ASDA = 3305 m
TODA = 3305 m

15/00

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

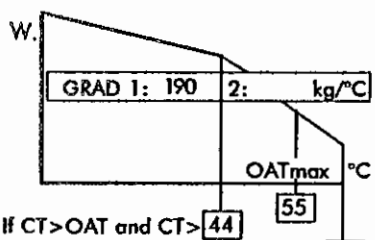
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1013 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>44
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-10	-5.0	-10	-3

Minimum v_1: 119 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1600 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	10 2-1 .0 169-173-177	23 2-1 .1 170-173-177	37 2-1 .0 171-174-178	44
157.0	- -	4 2-6 .1 165-169-174	27 2-6 .0 166-169-173	39 2-6 .1 167-170-174	44 2-6 1.0 170-173-177	45
155.0	- -	13 2-6 .1 163-168-172	36 6-6 .1 164-168-172	44 2-6 1.4 166-169-173	46 2-6 1.0 171-173-177	47
153.0	0 6-6 .2 162-167-171	21 6-6 .2 162-167-171	44 6-6 .2 163-167-171	47 2-6 .4 167-170-174	48 2-6 .9 172-174-177	48 44
151.0	8 6-6 .1 160-166-170	29 6-6 .2 161-166-170	47 2-6 .7 163-167-170	49 2-6 .3 168-170-174	50 2-3 .8 173-174-178	49 45
149.0	16 6-6 .0 159-165-169	38 6-6 .0 159-165-169	49 2-6 .6 164-167-170	51 2-3 .0 168-170-174	52 2-3 .4 173-174-177	51 46
147.0	24 6-6 .0 157-163-168	44 6-6 .6 159-164-168	51 2-3 .4 164-167-170	52 2-3 .8 168-170-173	53 2-3 1.1 173-173-177	52 48
145.0	32 6-6 .1 156-162-166	49 6-6 .1 159-163-167	53 2-3 .0 164-166-170	54 2-3 .4 168-169-173	55 2-3 .7 173-173-177	53 49
143.0	40 6-6 .2 155-161-165	51 3-3 .7 159-162-166	54 2-3 .9 164-166-170	56 2-3 .0 168-169-172	57 2-3 .3 172-172-176	55 51
141.0	44 6-6 1.2 154-161-165	54 3-3 .4 158-161-164	56 2-3 .5 164-166-169	57 2-3 .8 168-169-172	58 2-3 1.0 172-172-175	55 52
136.0	54 3-3 .2 154-158-161	58 2-3 .8 157-160-163	60 2-3 .8 163-164-167	61 2-3 1.0 167-167-171	62 2-3 .9 170-170-173	55 55
131.0	59 3-3 .7 153-156-159	63 2-3 .1 157-159-161	64 2-3 1.1 163-163-166	65 2-3 1.2 166-166-169	66 2-3 .8 168-168-171	55 55
126.0	65 3-3 .6 151-153-156	67 2-3 .5 156-158-160	69 2-3 .2 162-162-164	69 2-3 1.2 165-165-167	70 2-3 .7 167-167-169	55 55
121.0	70 2-3 .1 150-152-154	71 2-3 .9 155-157-159	72 2-3 1.7 162-162-164	72 2-3 2.5 164-164-166	72 2-3 3.2 166-166-168	55 55
116.0	72 2-3 3.0 150-152-154	72 2-3 4.8 155-157-159	72 .0 147-147-150	72 .0 147-147-150	72 .0 147-147-150	55 55
111.0	72 .0 143-144-147	72 .0 143-144-147	72 .0 143-144-147	72 .0 143-144-147	72 .0 143-144-147	55 55
106.0	72 .0 140-140-143	72 .0 140-140-143	72 .0 140-140-143	72 .0 140-140-143	72 .0 140-140-143	55 55
101.0	72 .0 136-137-140	72 .0 136-137-140	72 .0 136-137-140	72 .0 136-137-140	72 .0 136-137-140	55 55

VTBD BANGKOK 03R/21L

ELEV. = 10 ft TORA = 3000 m
SLOPE = .00 % ASDA = 3305 m
TODA = 3305 m

15/15

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

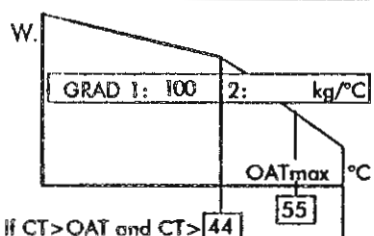
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1013 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>44
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-2	-2.0	-12	-3

Minimum v_1: 117 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1600 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	11 1-1 .0 170-174-177	22 2-2 .1 171-175-178	32 2-2 .0 172-175-178	44
157.0	- -	9 2-3 .1 164-169-172	29 2-6 .1 165-170-173	42 2-3 .0 167-171-174	44 2-3 1.0 171-174-177	45
155.0	7 2-6 .1 157-164-168	26 2-6 .1 159-165-169	44 2-6 .2 162-167-170	44 2-6 1.7 166-170-174	46 2-2 .5 170-173-177	47
153.0	23 2-6 .0 153-160-164	43 2-6 .0 155-161-165	46 2-3 .1 163-167-170	47 2-3 .2 167-170-173	47 2-2 1.1 170-173-176	48 44
151.0	38 2-6 .1 150-157-161	44 2-6 1.8 155-161-165	47 2-3 .9 163-167-170	48 2-3 1.0 166-170-173	49 2-2 .2 169-171-174	49 45
149.0	44 2-6 1.2 149-156-160	47 2-3 .6 156-161-165	49 2-3 .5 162-166-170	50 2-3 .5 166-170-173	50 2-2 .7 168-170-173	51 46
147.0	47 2-6 .3 150-156-160	49 2-3 .3 156-161-165	51 2-3 .1 162-166-169	51 2-3 1.2 166-169-172	51 2-2 1.3 166-169-172	52 48
145.0	49 2-3 .1 150-156-160	50 2-3 1.1 156-161-164	52 2-3 .9 162-166-169	53 2-2 .4 165-168-171	53 2-2 .4 164-168-171	53 49
143.0	50 2-3 1.0 150-156-160	52 2-3 .8 156-160-164	54 2-3 .5 162-166-169	54 2-2 .9 164-167-170	54 2-2 .9 163-167-170	55 51
141.0	52 2-3 .7 150-155-159	54 2-3 .4 156-160-164	55 2-3 1.2 162-165-169	56 2-2 .1 163-165-168	56 2-2 .1 161-165-168	55 52
136.0	56 2-3 1.1 150-154-158	58 2-3 .7 155-159-162	59 2-2 1.0 161-163-166	59 2-2 1.0 160-163-166	59 2-2 1.0 158-163-166	55 55
131.0	61 2-3 .4 149-153-157	62 2-3 1.0 155-158-161	63 2-2 .6 157-160-163	63 2-2 .6 156-160-163	63 2-2 .6 155-160-163	55 55
126.0	65 2-3 .8 148-152-155	67 2-2 .1 154-156-159	67 2-2 .1 153-156-159	67 2-2 .1 152-156-159	67 2-2 .1 151-156-159	55 55
121.0	70 2-3 .0 147-151-154	70 2-2 1.0 152-154-157	70 2-2 1.0 150-154-157	70 2-2 1.0 149-154-157	70 2-2 1.0 148-154-157	55 55
116.0	72 2-3 2.7 147-150-153	72 2-2 3.3 150-152-155	72 2-2 3.3 148-152-155	72 2-2 3.3 147-152-155	72 2-2 3.3 145-152-155	55 55
111.0	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	55 55
106.0	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	55 55
101.0	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	55 55

RJAA
TOKIO NARITA
34

ELEV. = 135 ft TORA = 4000 m
SLOPE = .00 % ASDA = 4060 m
TODA = 4060 m

15/00

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

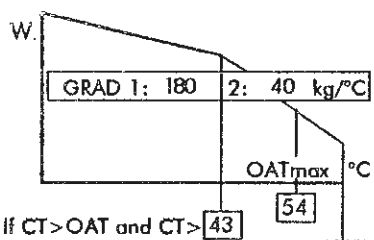
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1018 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>43
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-1	-0.5	-6	-1

Minimum v_1: 119 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1700 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	9 2-1 .0 162-173-177	29 2-6 .1 163-174-178	39 2-1 .1 165-175-179	44 2-1 .5 168-178-182	43
157.0	4 2-6 .2 157-170-174	26 2-6 .0 158-170-174	43 2-6 .2 161-171-175	43 2-1 1.7 164-175-179	46 2-6 .7 169-179-182	45
155.0	14 6-6 .2 155-168-172	35 2-6 .2 156-168-172	45 2-6 .7 161-171-175	47 2-6 .2 166-175-179	48 2-6 .5 170-179-182	46
153.0	23 6-6 .1 153-167-171	43 2-6 .4 155-167-171	47 2-6 .7 162-172-175	49 2-6 .0 167-175-179	50 2-6 .3 172-179-182	47 43
151.0	31 6-6 .2 152-166-170	47 2-6 .2 156-167-170	49 2-6 .5 163-172-176	50 2-6 .9 167-176-179	52 2-6 .1 173-179-183	49 44
149.0	40 6-6 .0 151-165-169	49 2-6 .2 157-167-170	51 2-6 .4 164-172-176	52 2-6 .8 168-176-179	53 2-6 1.0 173-180-183	50 46
147.0	43 6-6 1.3 150-164-168	51 2-6 .1 157-167-171	53 2-6 .3 165-172-176	54 2-6 .5 169-176-179	55 2-6 .7 174-180-183	52 47
145.0	49 6-6 .2 151-163-167	53 2-6 .0 158-167-171	55 2-6 .1 166-173-176	56 2-6 .3 170-176-179	57 2-6 .5 176-180-183	53 49
143.0	52 6-6 .6 152-162-166	54 2-6 1.0 159-167-171	56 2-6 1.0 166-173-176	58 2-6 .1 171-176-179	58 2-2 1.2 176-180-183	54 50
141.0	54 2-6 .7 152-163-166	56 2-6 .9 160-167-171	58 2-6 .9 167-173-176	59 2-6 1.1 172-176-179	60 2-2 .3 175-178-181	54 52
136.0	59 2-5 .5 154-162-165	61 2-6 .8 162-168-171	63 2-6 .5 169-173-176	63 2-2 1.1 173-175-178	63 2-2 1.1 172-175-178	54 54
131.0	63 2-5 1.1 156-162-164	66 2-5 .3 165-167-170	67 2-2 .5 170-172-174	67 2-2 .5 169-172-174	67 2-2 .5 168-172-174	54 54
126.0	68 2-5 .6 158-161-163	70 2-5 .6 165-167-169	70 2-2 1.2 167-169-172	70 2-2 1.2 166-169-172	70 2-2 1.2 165-169-172	54 54
121.0	71 2-5 2.2 158-160-162	71 2-5 4.5 165-167-169	71 2-2 4.8 166-168-171	71 2-2 4.8 165-168-171	71 2-2 4.8 164-168-171	54 54
116.0	71 .0 147-147-150	71 .0 147-147-150	71 .0 147-147-150	71 .0 147-147-150	71 .0 147-147-150	54 54
111.0	71 .0 143-144-147	71 .0 143-144-147	71 .0 143-144-147	71 .0 143-144-147	71 .0 143-144-147	54 54
106.0	71 .0 140-140-143	71 .0 140-140-143	71 .0 140-140-143	71 .0 140-140-143	71 .0 140-140-143	54 54
101.0	71 .0 136-137-140	71 .0 136-137-140	71 .0 136-137-140	71 .0 136-137-140	71 .0 136-137-140	54 54

RJAA
TOKIO NARITA
34

ELEV. = 135 ft TORA = 4000 m
SLOPE = .00 % ASDA = 4060 m
TODA = 4060 m

15/15

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

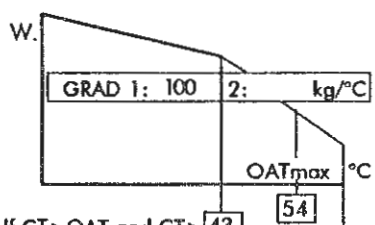
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1018 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT> 43
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-2	-2.0	-12	-3

Minimum v_1: 117 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1700 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	12 2-2 .0 161-174-177	28 2-2 .1 163-175-179	29 2-2 .0 164-175-179	29 2-2 .0 165-175-179	43
157.0	11 2-6 .1 154-169-173	30 2-6 .1 156-170-174	43 2-2 .5 160-173-176	43 2-2 1.2 163-175-178	43 2-2 1.2 164-175-178	45
155.0	28 2-6 .1 150-165-169	43 2-6 .4 153-168-171	45 2-6 1.0 161-173-176	45 2-2 1.2 162-174-177	45 2-2 1.2 163-174-177	46
153.0	43 2-6 .2 147-162-166	45 2-6 .9 154-168-171	47 2-2 .4 161-172-175	47 2-2 .4 162-172-175	47 2-2 .4 162-172-175	47 43
151.0	45 2-6 .7 147-162-166	47 2-6 .8 155-168-171	48 2-2 .9 160-171-175	48 2-2 .9 161-171-175	48 2-2 .9 161-171-175	49 44
149.0	47 2-6 .6 148-162-166	49 2-6 .6 156-168-171	50 2-2 .1 160-170-173	50 2-2 .1 161-170-173	50 2-2 .1 159-170-173	50 46
147.0	49 2-6 .5 149-163-166	51 2-6 .4 157-168-171	51 2-2 .6 159-169-172	51 2-2 .6 160-169-172	51 2-2 .6 158-169-172	52 47
145.0	51 2-6 .4 150-163-166	52 2-2 1.2 157-168-171	52 2-2 1.2 159-168-171	52 2-2 1.2 158-168-171	52 2-2 1.2 157-168-171	53 49
143.0	53 2-6 .3 151-163-166	54 2-2 .4 157-167-170	54 2-2 .4 158-167-170	54 2-2 .4 156-167-170	54 2-2 .4 154-167-170	54 50
141.0	55 2-5 .0 152-163-166	55 2-2 .9 156-166-169	55 2-2 .9 157-166-169	55 2-2 .9 155-166-169	55 2-2 .9 153-166-169	54 52
136.0	59 2-5 .5 154-162-165	59 2-2 .6 155-163-166	59 2-2 .6 153-163-166	59 2-2 .6 151-163-166	59 2-2 .6 150-163-166	54 54
131.0	63 2-2 .2 154-159-162	63 2-2 .2 152-159-162	63 2-2 .2 149-159-162	63 2-2 .2 147-159-162	63 2-2 .2 147-159-162	54 54
126.0	66 2-2 1.2 151-157-160	66 2-2 1.2 149-157-160	66 2-2 1.2 146-157-160	66 2-2 1.2 145-157-160	66 2-2 1.2 145-157-160	54 54
121.0	70 2-2 .9 147-154-157	70 2-2 .9 145-154-157	70 2-2 .9 142-154-157	70 2-2 .9 142-154-157	70 2-2 .9 142-154-157	54 54
116.0	71 2-2 4.5 146-153-156	71 2-2 4.5 143-153-156	71 2-2 4.5 141-153-156	71 2-2 4.5 141-153-156	71 2-2 4.5 141-153-156	54 54
111.0	71 .0 131-132-136	71 .0 131-132-136	71 .0 131-132-136	71 .0 131-132-136	71 .0 131-132-136	54 54
106.0	71 .0 128-129-133	71 .0 128-129-133	71 .0 128-129-133	71 .0 128-129-133	71 .0 128-129-133	54 54
101.0	71 .0 125-125-130	71 .0 125-125-130	71 .0 125-125-130	71 .0 125-125-130	71 .0 125-125-130	54 54

RJAA
TOKIO NARITA
16

ELEV. = 135 ft TORA = 4000 m
SLOPE = .00 % ASDA = 4060 m
TODA = 4060 m

15/00

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

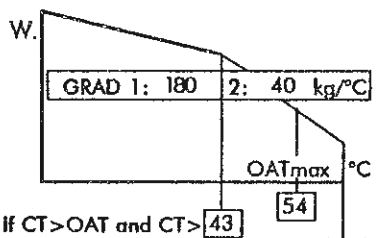
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1018 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>43
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-1	-0.5	-6	-1

Minimum v_1: 119 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1700 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	9 2-1 .0 162-173-177	29 2-6 .1 163-174-178	39 2-1 .1 165-175-179	44 2-1 .5 168-178-182	43
157.0	4 2-6 .2 157-170-174	26 2-6 .0 158-170-174	43 2-6 .2 161-171-175	43 2-1 1.7 164-175-179	46 2-6 .7 169-179-182	45
155.0	14 6-6 .2 155-168-172	35 2-6 .2 156-168-172	45 2-6 .7 161-171-175	47 2-6 .2 166-175-179	48 2-6 .5 170-179-182	46
153.0	23 6-6 .1 153-167-171	43 2-6 .4 155-167-171	47 2-6 .7 162-172-175	49 2-6 .0 167-175-179	50 2-6 .3 172-179-182	47 43
151.0	31 6-6 .2 152-166-170	47 2-6 .2 156-167-170	49 2-6 .5 163-172-176	50 2-6 .9 167-176-179	52 2-6 .1 173-179-183	49 44
149.0	40 6-6 .0 151-165-169	49 2-6 .2 157-167-170	51 2-6 .4 164-172-176	52 2-6 .8 168-176-179	53 2-6 1.0 173-180-183	50 46
147.0	43 6-6 1.3 150-164-168	51 2-6 .1 157-167-171	53 2-6 .3 165-172-176	54 2-6 .5 169-176-179	55 2-6 .7 174-180-183	52 47
145.0	49 6-6 .2 151-163-167	53 2-6 .0 158-167-171	55 2-6 .1 166-173-176	56 2-6 .3 170-176-179	57 2-6 .5 176-180-183	53 49
143.0	52 6-6 .6 152-162-166	54 2-6 1.0 159-167-171	56 2-6 1.0 166-173-176	58 2-6 .1 171-176-179	58 2-2 1.2 176-180-183	54 50
141.0	54 2-6 .7 152-163-166	56 2-6 .9 160-167-171	58 2-6 .9 167-173-176	59 2-6 1.1 172-176-179	60 2-2 .3 175-178-181	54 52
136.0	59 2-5 .5 154-162-165	61 2-6 .8 162-168-171	63 2-6 .5 169-173-176	63 2-2 1.1 173-175-178	63 2-2 1.1 172-175-178	54 54
131.0	63 2-5 1.1 156-162-164	66 2-5 .3 165-167-170	67 2-2 .5 170-172-174	67 2-2 .5 169-172-174	67 2-2 .5 168-172-174	54 54
126.0	68 2-5 .6 158-161-163	70 2-5 .6 165-167-169	70 2-2 1.2 167-169-172	70 2-2 1.2 166-169-172	70 2-2 1.2 165-169-172	54 54
121.0	71 2-5 2.2 158-160-162	71 2-5 4.5 165-167-169	71 2-2 4.8 166-168-171	71 2-2 4.8 165-168-171	71 2-2 4.8 164-168-171	54 54
116.0	71 .0 147-147-150	71 .0 147-147-150	71 .0 147-147-150	71 .0 147-147-150	71 .0 147-147-150	54 54
111.0	71 .0 143-144-147	71 .0 143-144-147	71 .0 143-144-147	71 .0 143-144-147	71 .0 143-144-147	54 54
106.0	71 .0 140-140-143	71 .0 140-140-143	71 .0 140-140-143	71 .0 140-140-143	71 .0 140-140-143	54 54
101.0	71 .0 136-137-140	71 .0 136-137-140	71 .0 136-137-140	71 .0 136-137-140	71 .0 136-137-140	54 54

RJAA TOKIO NARITA 16

ELEV. = 135 ft TORA = 4000 m
SLOPE = .00 % ASDA = 4060 m
TODA = 4060 m

15/15

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

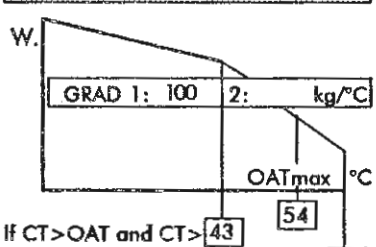
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1018 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>43
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-2	-2.0	-12	-3

Minimum v_1: 117 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1700 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	12 2-2 .0 161-174-177	28 2-2 .1 163-175-179	29 2-2 .0 164-175-179	29 2-2 .0 165-175-179	43
157.0	11 2-6 .1 154-169-173	30 2-6 .1 156-170-174	43 2-2 .5 160-173-176	43 2-2 1.2 163-175-178	43 2-2 1.2 164-175-178	45
155.0	28 2-6 .1 150-165-169	43 2-6 .4 153-168-171	45 2-6 1.0 161-173-176	45 2-2 1.2 162-174-177	45 2-2 1.2 163-174-177	46
153.0	43 2-6 .2 147-162-166	45 2-6 .9 154-168-171	47 2-2 .4 161-172-175	47 2-2 .4 162-172-175	47 2-2 .4 162-172-175	47 43
151.0	45 2-6 .7 147-162-166	47 2-6 .8 155-168-171	48 2-2 .9 160-171-175	48 2-2 .9 161-171-175	48 2-2 .9 161-171-175	49 44
149.0	47 2-6 .6 148-162-166	49 2-6 .6 156-168-171	50 2-2 .1 160-170-173	50 2-2 .1 161-170-173	50 2-2 .1 159-170-173	50 46
147.0	49 2-6 .5 149-163-166	51 2-6 .4 157-168-171	51 2-2 .6 159-169-172	51 2-2 .6 160-169-172	51 2-2 .6 158-169-172	52 47
145.0	51 2-6 .4 150-163-166	52 2-2 1.2 157-168-171	52 2-2 1.2 159-168-171	52 2-2 1.2 158-168-171	52 2-2 1.2 157-168-171	53 49
143.0	53 2-6 .3 151-163-166	54 2-2 .4 157-167-170	54 2-2 .4 158-167-170	54 2-2 .4 156-167-170	54 2-2 .4 154-167-170	54 50
141.0	55 2-5 .0 152-163-166	55 2-2 .9 156-166-169	55 2-2 .9 157-166-169	55 2-2 .9 155-166-169	55 2-2 .9 153-166-169	54 52
136.0	59 2-5 .5 154-162-165	59 2-2 .6 155-163-166	59 2-2 .6 153-163-166	59 2-2 .6 151-163-166	59 2-2 .6 150-163-166	54 54
131.0	63 2-2 .2 154-159-162	63 2-2 .2 152-159-162	63 2-2 .2 149-159-162	63 2-2 .2 147-159-162	63 2-2 .2 147-159-162	54 54
126.0	66 2-2 1.2 151-157-160	66 2-2 1.2 149-157-160	66 2-2 1.2 146-157-160	66 2-2 1.2 145-157-160	66 2-2 1.2 145-157-160	54 54
121.0	70 2-2 .9 147-154-157	70 2-2 .9 145-154-157	70 2-2 .9 142-154-157	70 2-2 .9 142-154-157	70 2-2 .9 142-154-157	54 54
116.0	71 2-2 4.5 146-153-156	71 2-2 4.5 143-153-156	71 2-2 4.5 141-153-156	71 2-2 4.5 141-153-156	71 2-2 4.5 141-153-156	54 54
111.0	71 .0 131-132-136	71 .0 131-132-136	71 .0 131-132-136	71 .0 131-132-136	71 .0 131-132-136	54 54
106.0	71 .0 128-129-133	71 .0 128-129-133	71 .0 128-129-133	71 .0 128-129-133	71 .0 128-129-133	54 54
101.0	71 .0 125-125-130	71 .0 125-125-130	71 .0 125-125-130	71 .0 125-125-130	71 .0 125-125-130	54 54

SUMU MONTEVIDEO 24

ELEV. = 105 ft TORA = 2700 m
SLOPE = -.48 % ASDA = 2850 m
TODA = 3130 m

15/00

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

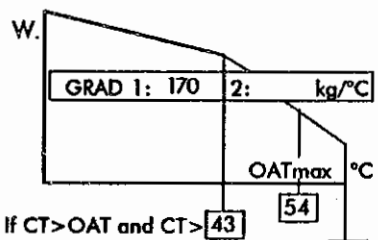
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1017 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>43
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-10	-5.0	-10	-3

Minimum v_1: 119 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1700 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	- -	2 2-3 .1 169-172-177	17 2-3 .0 170-173-177	43
157.0	- -	- -	2 2-3 .1 165-169-174	17 2-3 .1 166-169-174	33 2-3 .0 167-170-174	45
155.0	- -	- -	12 2-3 .1 164-168-172	29 3-3 .0 164-168-172	43 2-3 .7 165-168-172	46
153.0	- -	- -	21 3-3 .0 162-166-171	37 3-3 .2 163-167-171	46 2-3 .0 165-168-172	48 43
151.0	- -	5 3-3 .1 160-165-170	29 3-3 .2 161-166-170	43 3-3 .8 162-166-170	47 2-3 .9 165-167-171	49 44
149.0	- -	13 3-3 .2 159-164-169	38 3-3 .2 160-164-169	47 3-3 .0 161-165-169	49 2-3 .5 164-167-171	50 46
147.0	0 3-3 .0 157-163-168	22 3-3 .1 158-163-168	43 3-3 1.0 159-164-168	49 3-3 .4 161-164-168	51 2-3 .2 164-167-170	52 47
145.0	8 3-3 .2 155-162-167	31 3-3 .1 156-162-167	47 3-3 .2 158-163-167	51 3-3 .5 160-163-167	52 2-3 1.0 164-166-170	53 49
143.0	17 3-3 .1 154-161-165	40 3-3 .1 155-161-165	49 3-3 .6 158-162-166	53 2-3 .2 160-163-167	54 2-3 .7 164-166-170	54 50
141.0	26 3-3 .1 153-160-164	43 3-3 1.4 155-161-165	52 3-3 .2 157-161-164	54 2-3 1.1 160-163-166	56 2-3 .3 164-166-169	54 52
136.0	43 3-3 1.3 151-158-162	51 3-3 .4 153-158-162	57 3-3 1.0 155-159-162	59 2-3 .3 159-161-165	60 2-3 .6 163-164-168	54 54
131.0	51 3-3 .2 148-155-159	57 3-3 .4 151-155-159	62 2-3 .4 154-157-160	63 2-3 .8 158-160-163	64 2-3 1.0 162-163-166	54 54
126.0	57 3-3 .3 147-152-156	63 3-3 .4 149-153-156	66 2-3 .9 154-156-159	68 2-3 .0 158-159-162	69 2-3 .2 162-162-165	54 54
121.0	63 3-3 .4 145-150-153	69 3-3 .3 147-150-153	71 2-3 .3 153-155-157	71 2-3 1.6 157-158-161	71 2-3 2.8 162-162-164	54 54
116.0	69 3-3 .7 143-147-150	71 2-3 3.2 147-150-152	71 .0 146-147-150	71 .0 146-147-150	71 .0 146-147-150	54 54
111.0	71 3-3 4.2 142-146-149	71 .0 143-143-147	71 .0 143-143-147	71 .0 143-143-147	71 .0 143-143-147	54 54
106.0	71 .0 139-140-143	71 .0 139-140-143	71 .0 139-140-143	71 .0 139-140-143	71 .0 139-140-143	54 54
101.0	71 .0 136-136-140	71 .0 136-136-140	71 .0 136-136-140	71 .0 136-136-140	71 .0 136-136-140	54 54

SUMU MONTEVIDEO 24

ELEV. = 105 ft TORA = 2700 m
SLOPE = -.48 % ASDA = 2850 m
TODA = 3130 m

15/15

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

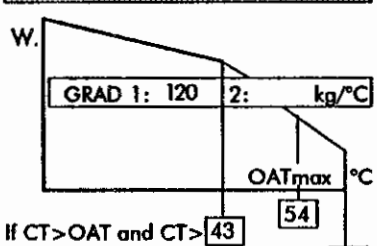
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1017 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>43
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-8	-5.5	-12	-3

Minimum v_1: 117 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1700 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	- -	-2 2-3 .1 168-173-177	10 2-2 .0 169-174-177	43
157.0	- -	- -	4 2-3 .1 163-168-172	17 2-3 .0 164-169-173	30 2-3 .0 165-170-173	45
155.0	- -	1 2-3 .1 157-163-168	22 2-3 .1 159-165-169	34 2-3 .1 160-166-170	43 2-3 .4 162-167-171	46
153.0	-1 2-3 .1 152-159-164	19 2-3 .0 153-160-164	39 2-3 .0 155-161-165	43 2-3 1.0 158-164-168	45 2-3 .8 162-167-171	48 43
151.0	16 2-3 .0 148-155-160	35 2-3 .1 150-157-161	43 2-3 1.5 154-161-165	46 2-3 .3 158-163-167	47 2-3 .5 162-167-170	49 44
149.0	31 2-3 .2 146-153-157	43 2-3 1.0 148-155-160	46 2-3 .8 154-160-164	47 2-3 1.1 158-163-167	49 2-3 .1 161-166-170	50 46
147.0	43 2-3 .3 144-151-155	46 2-3 .4 148-155-159	48 2-3 .5 154-159-164	49 2-3 .8 158-163-167	50 2-3 .9 161-166-170	52 47
145.0	46 2-3 .0 143-150-155	48 2-3 .2 148-154-159	50 2-3 .2 154-159-163	51 2-3 .4 157-162-166	52 2-3 .5 161-166-169	53 49
143.0	47 2-3 .9 143-150-154	49 2-3 1.0 148-154-158	51 2-3 1.1 154-159-163	53 2-3 .1 157-162-166	54 2-3 .2 161-165-169	54 50
141.0	49 2-3 .7 143-149-154	51 2-3 .8 148-154-158	53 2-3 .8 154-159-163	54 2-3 .9 157-162-166	55 2-3 1.0 161-165-169	54 52
136.0	54 2-3 .2 142-148-153	56 2-3 .1 147-153-157	57 2-3 1.1 153-158-161	59 2-3 .0 157-160-164	59 2-2 .7 159-162-166	54 54
131.0	58 2-3 .8 142-147-151	60 2-3 .6 146-151-155	62 2-3 .4 152-156-160	63 2-2 .3 156-159-162	63 2-2 .3 156-159-162	54 54
126.0	63 2-3 .3 141-146-150	65 2-3 .0 146-150-154	66 2-3 .7 152-155-158	66 2-2 1.3 154-157-160	66 2-2 1.3 153-157-160	54 54
121.0	67 2-3 .9 140-145-149	69 2-3 .5 145-149-152	70 2-2 .9 150-153-157	70 2-2 .9 150-153-157	70 2-2 .9 149-153-157	54 54
116.0	71 2-3 1.5 139-144-147	71 2-3 3.3 145-148-152	71 2-2 4.6 150-153-156	71 2-2 4.6 149-153-156	71 2-2 4.6 148-153-156	54 54
111.0	71 .0 131-132-136	71 .0 131-132-136	71 .0 131-132-136	71 .0 131-132-136	71 .0 131-132-136	54 54
106.0	71 .0 128-128-133	71 .0 128-128-133	71 .0 128-128-133	71 .0 128-128-133	71 .0 128-128-133	54 54
101.0	71 .0 124-125-130	71 .0 124-125-130	71 .0 124-125-130	71 .0 124-125-130	71 .0 124-125-130	54 54

SUMU MONTEVIDEO 06

ELEV. = 105 ft TORA = 2700 m
SLOPE = .48 % ASDA = 2700 m
TODA = 3130 m

15/00

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

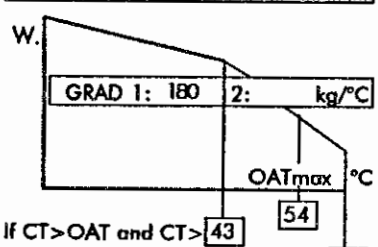
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1017 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>43
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-10	-5.0	-10	-3

Minimum v_1: 119 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1700 ft

Weight [t]	TAILWIND [kts] -10	TAILWIND [kts] -5	NO WIND 0	HEADWIND [kts] 10	HEADWIND [kts] 20	TGA 15/15 20/20
159.0	- -	- -	- -	- -	-1 2-3 .0 169-173-177	43
157.0	- -	- -	- -	-1 3-3 .1 165-169-173	14 2-3 .2 166-170-174	45
155.0	- -	- -	- -	8 3-3 .0 164-168-172	24 2-3 .1 165-168-172	46
153.0	- -	- -	0 3-3 .1 162-167-171	16 3-3 .2 163-167-171	33 3-3 .1 164-167-171	48 43
151.0	- -	- -	9 3-3 .0 161-166-170	25 3-3 .1 162-166-170	42 3-3 .1 163-166-170	49 44
149.0	- -	- -	17 3-3 .2 160-165-169	34 3-3 .1 161-165-169	43 3-3 1.8 162-166-170	50 46
147.0	- -	2 3-3 .0 158-164-168	26 3-3 .1 159-164-168	43 3-3 .0 160-164-168	48 3-3 .2 161-164-168	52 47
145.0	- -	10 3-3 .2 157-163-167	35 3-3 .1 158-163-167	46 3-3 .0 159-163-166	50 3-3 .6 161-164-167	53 49
143.0	- -	19 3-3 .1 155-162-165	43 3-3 .3 157-162-165	48 3-3 .4 158-162-166	52 2-2 1.0 160-163-166	54 50
141.0	5 3-3 .2 153-160-164	28 3-3 .1 154-160-164	46 3-3 .3 156-161-164	51 3-3 .0 157-161-164	54 2-3 .7 160-163-165	54 52
136.0	27 3-3 .2 150-157-161	43 3-3 1.8 152-159-162	52 3-3 .5 154-159-162	57 3-3 .0 156-159-161	58 2-3 1.1 159-161-164	54 54
131.0	43 3-3 1.6 148-155-159	51 3-3 .7 150-156-159	58 3-3 .4 152-156-159	61 2-3 1.1 155-157-160	63 2-3 .4 158-160-162	54 54
126.0	51 3-3 .6 146-152-156	57 3-3 .8 148-153-156	64 3-3 .4 151-153-156	66 2-3 .5 154-156-158	67 2-3 .8 158-159-161	54 54
121.0	57 3-3 .8 144-150-153	64 3-3 .0 146-150-153	69 2-3 .8 149-152-154	70 2-3 1.1 153-155-157	71 2-3 1.3 157-158-160	54 54
116.0	64 3-3 .2 142-147-150	70 3-3 .4 144-148-150	71 2-3 3.6 149-151-153	71 2-3 4.9 153-155-157	71 .0 147-148-150	54 54
111.0	70 3-3 .7 140-145-147	71 3-3 4.6 144-147-149	71 .0 144-144-147	71 .0 144-144-147	71 .0 144-144-147	54 54
106.0	71 3-3 5.0 140-144-147	71 .0 140-141-143	71 .0 140-141-143	71 .0 140-141-143	71 .0 140-141-143	54 54
101.0	71 .0 137-137-140	71 .0 137-137-140	71 .9 137-137-140	71 .0 137-137-140	71 .0 137-137-140	54 54

SUMU MONTEVIDEO 06

ELEV. = 105 ft TORA = 2700 m
SLOPE = .48 % ASDA = 2700 m
TODA = 3130 m

15/15

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

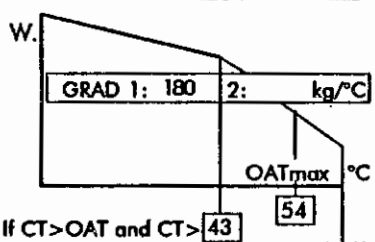
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1017 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>43
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-8	-5.5	-12	-3

Minimum v_1: 117 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1700 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	- -	- -	- -	43
157.0	- -	- -	- -	0 2-3 .0 163-168-172	12 2-3 .1 164-169-173	45
155.0	- -	- -	5 2-3 .0 158-164-168	17 2-3 .1 159-165-168	30 2-3 .1 160-166-169	46
153.0	- -	1 2-3 .0 153-159-163	22 2-3 .0 155-160-164	34 2-3 .1 156-162-165	43 2-3 .5 158-163-167	48 43
151.0	-2 2-3 .0 148-155-159	17 2-3 .1 150-156-160	38 2-3 .0 151-157-161	43 2-3 1.0 154-160-164	45 2-3 .9 158-163-166	49 44
149.0	13 2-3 .1 145-152-157	33 2-3 .0 147-153-157	43 2-3 1.4 151-156-160	46 2-3 .3 154-159-163	47 2-3 .6 157-162-166	50 46
147.0	22 2-3 .2 144-151-155	43 2-3 .6 145-151-156	46 2-3 .8 150-156-160	48 2-3 .0 154-159-162	49 2-3 .3 157-162-165	52 47
145.0	31 3-3 .1 143-150-154	46 2-3 .2 145-151-155	48 2-3 .5 150-156-159	49 2-3 .9 153-159-162	50 2-3 1.1 157-162-165	53 49
143.0	40 3-3 .1 142-149-153	48 2-3 .0 144-150-154	50 2-3 .2 150-155-159	51 2-3 .5 153-158-162	52 2-3 .8 157-162-165	54 50
141.0	43 3-3 1.4 141-148-153	49 2-3 .9 144-150-154	52 2-3 .0 150-155-158	53 2-3 .3 153-158-161	54 2-3 .4 157-161-164	54 52
136.0	51 3-3 .5 139-146-150	54 2-3 .4 144-149-153	56 2-3 .5 149-154-157	57 2-3 .7 153-157-160	58 2-3 .8 156-160-163	54 54
131.0	56 2-3 .9 138-144-148	58 2-3 .9 143-148-152	60 2-3 .9 148-153-156	61 2-3 1.1 152-156-159	62 2-3 1.1 156-159-162	54 54
126.0	61 2-3 .5 138-143-146	63 2-3 .5 142-147-150	65 2-3 .3 148-151-154	66 2-3 .3 151-154-157	66 2-2 1.3 155-157-160	54 54
121.0	66 2-3 .2 137-141-145	67 2-3 1.0 142-146-149	69 2-3 .8 147-150-153	70 2-3 .7 151-153-156	70 2-2 .9 152-154-157	54 54
116.0	70 2-3 .9 136-141-144	71 2-3 1.6 141-145-148	71 2-3 3.5 147-150-153	71 2-2 4.6 151-153-156	71 2-2 4.6 151-153-156	54 54
111.0	71 2-3 4.8 136-140-143	71 .0 132-132-136	71 .0 132-132-136	71 .0 132-132-136	71 .0 132-132-136	54 54
106.0	71 .0 129-129-133	71 .0 129-129-133	71 .0 129-129-133	71 .0 129-129-133	71 .0 129-129-133	54 54
101.0	71 .0 125-126-130	71 .0 125-126-130	71 .0 125-126-130	71 .0 125-126-130	71 .0 125-126-130	54 54

LFPO
PARIS ORLY
02L/20R

ELEV. = 292 ft TORA = 2400 m
SLOPE = .00 % ASDA = 2400 m
TODA = 2400 m

15/00

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

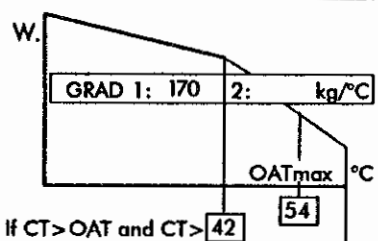
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1024 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>42
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-10	-5.0	-10	-3

Minimum v_1: 119 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1800 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	- -	- -	- -	42
157.0	- -	- -	- -	- -	- -	44
155.0	- -	- -	- -	- -	- -	45
153.0	- -	- -	- -	- -	- -	47
151.0	- -	- -	- -	- -	3 3-3 .0 164-166-170	48 43
149.0	- -	- -	- -	- -	11 3-3 .2 163-165-169	50 45
147.0	- -	- -	- -	4 3-3 .0 161-163-168	20 3-3 .1 162-164-168	51 47
145.0	- -	- -	- -	12 3-3 .2 160-162-167	29 3-3 .1 161-162-166	52 48
143.0	- -	- -	5 3-3 .1 158-161-165	21 3-3 .1 159-161-165	38 3-3 .0 159-161-165	54 50
141.0	- -	- -	13 3-3 .2 157-160-164	30 3-3 .1 157-160-164	42 3-3 1.1 159-161-165	54 51
136.0	- -	10 3-3 .2 153-157-161	35 3-3 .2 154-157-161	42 3-3 2.3 156-159-163	50 3-3 .6 157-158-162	54 54
131.0	9 3-3 .2 149-154-159	32 3-3 .2 150-154-159	42 3-3 3.6 153-156-161	52 3-3 .2 153-155-159	56 3-3 .8 155-156-159	54 54
126.0	31 3-3 .2 145-151-156	42 3-3 2.9 148-153-157	54 3-3 .0 150-152-156	58 3-3 .4 151-153-156	63 3-3 .1 153-153-156	54 54
121.0	42 3-3 2.7 144-149-154	53 3-3 .3 145-149-153	60 3-3 .2 148-150-153	64 3-3 .6 149-150-153	68 3-3 .5 150-150-153	54 54
116.0	53 3-3 .3 141-146-150	59 3-3 .6 143-146-150	66 3-3 .6 146-147-150	71 3-3 .4 147-147-150	71 2-3 2.7 149-149-152	54 54
111.0	59 3-3 .7 139-143-147	66 3-3 .4 141-144-147	71 3-3 2.0 144-145-148	71 .0 143-144-147	71 .0 143-144-147	54 54
106.0	66 3-3 .7 137-140-144	71 3-3 1.9 140-142-145	71 .0 140-140-143	71 .0 140-140-143	71 .0 140-140-143	54 54
101.0	71 3-3 2.3 136-138-142	71 .0 136-137-140	71 .0 136-137-140	71 .0 136-137-140	71 .0 136-137-140	54 54

LFPO
PARIS ORLY
02L/20R

ELEV. = 292 ft TORA = 2400 m
SLOPE = .00 % ASDA = 2400 m
TODA = 2400 m

15/15

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

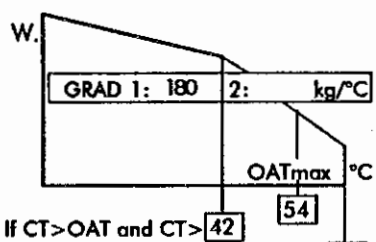
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1024 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT> 42
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-8	-5.5	-12	-3

Minimum v_1: 117 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1800 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	- -	- -	- -	42
157.0	- -	- -	- -	- -	- -	44
155.0	- -	- -	- -	- -	-3 2-3 .0 162-164-168	45
153.0	- -	- -	- -	0 2-3 .1 157-160-164	14 2-3 .0 158-160-164	47
151.0	- -	- -	3 2-3 .1 153-156-160	17 2-3 .0 153-156-161	30 2-3 .1 154-157-161	48 43
149.0	- -	- -	18 2-3 .1 150-153-157	32 2-3 .1 150-153-158	42 2-3 .3 152-155-159	50 45
147.0	- -	5 3-3 .1 147-150-155	30 3-3 .1 148-151-155	42 2-3 .6 149-151-156	45 2-3 .3 152-154-159	51 47
145.0	- -	13 3-3 .2 146-149-154	38 3-3 .2 147-150-154	45 2-3 .6 148-151-155	47 2-3 .2 151-154-158	52 48
143.0	-1 3-3 .2 144-148-153	22 3-3 .1 145-148-153	42 3-3 1.3 146-149-154	47 2-3 .5 148-151-155	49 2-3 .0 151-154-158	54 50
141.0	8 3-3 .1 143-147-152	31 3-3 .1 143-147-152	47 3-3 .2 145-148-152	49 2-3 .4 148-150-155	50 2-3 .9 151-153-158	54 51
136.0	30 3-3 .1 140-144-150	42 3-3 2.6 142-146-151	52 2-3 .5 144-146-151	54 2-3 .0 147-149-153	55 2-3 .5 151-153-157	54 54
131.0	42 3-3 2.3 138-143-148	52 3-3 .6 140-143-147	57 2-3 .2 143-145-149	58 2-3 .7 146-148-152	59 2-3 1.1 150-151-155	54 54
126.0	52 3-3 .3 136-140-144	58 3-3 .7 138-140-145	61 2-3 1.0 143-144-148	63 2-3 .4 146-147-151	64 2-3 .6 149-150-154	54 54
121.0	58 3-3 .6 134-137-142	64 2-3 .5 136-138-142	66 2-3 .7 142-143-147	67 2-3 1.0 145-146-149	69 2-3 .1 148-149-152	54 54
116.0	65 3-3 .1 132-135-139	69 2-3 .3 135-137-141	71 2-3 .5 141-142-145	71 2-3 1.8 144-145-148	71 2-3 3.0 148-148-152	54 54
111.0	71 3-3 .7 130-132-136	71 2-3 3.3 135-137-140	71 .0 131-132-136	71 .0 131-132-136	71 .0 131-132-136	54 54
106.0	71 .0 128-129-133	71 .0 128-129-133	71 .0 128-129-133	71 .0 128-129-133	71 .0 128-129-133	54 54
101.0	71 .0 125-125-130	71 .0 125-125-130	71 .0 125-125-130	71 .0 125-125-130	71 .0 125-125-130	54 54

LFPO
PARIS ORLY
26

ELEV. = 292 ft TORA = 3320 m
SLOPE = .00 % ASDA = 3320 m
TODA = 3320 m

15/00

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

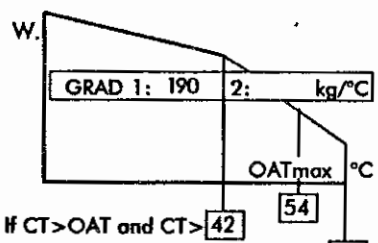
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1024 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>42
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-6	-4.5	-8	-3

Minimum v_1: 119 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1800 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	6 1-6 .1 170-173-177	20 2-1 .1 170-174-178	33 2-6 .0 172-175-179	42
157.0	- -	1 2-6 .2 165-170-174	23 2-6 .1 166-170-174	35 2-6 .1 167-171-175	42 2-6 .7 170-173-177	44
155.0	- -	11 2-6 .1 163-168-172	33 2-6 .2 164-168-172	42 2-6 1.0 166-170-174	45 2-6 .8 170-173-177	45
153.0	-1 6-6 .0 161-167-171	19 6-6 .2 162-167-171	42 2-6 .1 163-167-171	46 2-6 .2 167-170-174	47 2-6 .8 171-174-177	47
151.0	6 6-6 .2 160-166-170	28 6-6 .1 161-166-170	46 2-6 .5 163-166-170	48 2-6 .2 168-170-174	49 2-6 .8 172-174-177	48 43
149.0	14 6-6 .2 158-165-169	36 6-6 .1 159-165-169	48 2-6 .6 164-167-170	50 2-3 .1 168-170-174	51 2-3 .5 172-174-177	50 45
147.0	22 6-6 .2 157-164-168	42 6-6 .6 158-164-168	50 2-3 .5 164-167-170	51 2-3 1.0 168-170-174	53 2-3 .1 172-173-177	51 47
145.0	31 6-6 .0 155-162-166	48 6-6 .1 159-163-166	52 2-3 .2 164-166-170	53 2-3 .7 168-170-173	54 2-3 1.0 172-173-177	52 48
143.0	39 6-6 .1 154-161-165	51 3-3 .1 158-162-165	53 2-3 1.1 164-166-170	55 2-3 .3 168-169-173	56 2-3 .6 172-173-176	54 50
141.0	42 6-6 1.4 154-161-165	53 3-3 .6 158-161-165	55 2-3 .8 164-166-169	56 2-3 1.1 167-169-172	58 2-3 .2 171-172-175	54 51
136.0	53 3-3 .5 154-158-162	58 2-3 .1 157-160-163	60 2-3 .1 163-164-167	61 2-3 .4 167-168-171	62 2-3 .5 171-171-174	54 54
131.0	59 3-3 .3 152-156-159	62 2-3 .7 156-159-162	64 2-3 .6 162-163-166	65 2-3 .8 166-167-169	66 2-3 .6 169-169-172	54 54
126.0	65 2-3 .3 150-153-156	67 2-3 .1 155-158-160	68 2-3 1.0 162-162-165	69 2-3 1.1 166-166-168	70 2-3 .7 168-168-170	54 54
121.0	69 2-3 1.0 150-152-155	71 2-3 .7 155-157-159	71 2-3 2.6 161-162-164	71 2-3 3.7 165-165-167	71 2-3 4.5 167-167-170	54 54
116.0	71 2-3 3.9 149-152-154	71 .0 147-147-150	71 .0 147-147-150	71 .0 147-147-150	71 .0 147-147-150	54 54
111.0	71 .0 143-144-147	71 .0 143-144-147	71 .0 143-144-147	71 .0 143-144-147	71 .0 143-144-147	54 54
106.0	71 .0 140-140-143	71 .0 140-140-143	71 .0 140-140-143	71 .0 140-140-143	71 .0 140-140-143	54 54
101.0	71 .0 136-137-140	71 .0 136-137-140	71 .0 136-137-140	71 .0 136-137-140	71 .0 136-137-140	54 54

LFPO PARIS ORLY 26

ELEV. = 292 ft TORA = 3320 m
SLOPE = .00 % ASDA = 3320 m
TODA = 3320 m

15/15

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

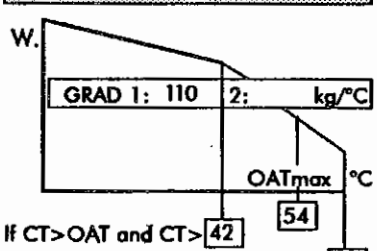
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1024 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>42
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-2	-2.0	-12	-3

Minimum v_1: 117 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1800 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	6 2-2 .0 170-174-178	16 2-2 .0 171-175-178	22 2-2 .0 172-175-179	42
157.0	- -	6 2-3 .1 164-169-173	26 2-6 .1 165-170-174	37 2-6 .0 167-172-175	42 2-2 .7 171-174-178	44
155.0	4 2-6 .0 158-164-168	23 2-6 .1 159-165-169	41 2-6 .0 162-167-171	42 2-6 1.4 166-171-174	45 2-2 .3 170-173-176	45
153.0	19 2-6 .1 154-161-165	38 2-6 .1 156-162-166	42 2-6 1.9 162-167-171	46 2-3 .2 166-171-174	46 2-2 .9 169-173-176	47
151.0	34 2-6 .1 150-158-162	42 2-6 1.5 155-162-165	46 2-3 .9 162-167-170	47 2-3 1.0 166-170-174	48 2-2 .1 168-171-174	48 43
149.0	42 2-6 .9 148-156-160	46 2-3 .6 156-161-165	48 2-3 .5 162-167-170	49 2-3 .5 166-170-173	49 2-2 .7 167-170-173	50 45
147.0	46 2-6 .2 149-156-160	48 2-3 .3 156-161-165	50 2-3 .2 162-166-170	50 2-2 1.3 166-169-172	50 2-2 1.3 166-169-172	51 47
145.0	48 2-3 .2 150-156-160	50 2-3 .1 155-161-164	51 2-3 1.0 162-166-169	52 2-2 .5 164-168-171	52 2-2 .5 164-168-171	52 48
143.0	49 2-3 1.1 150-156-160	51 2-3 .9 155-161-164	53 2-3 .7 162-166-169	53 2-2 1.1 164-167-170	53 2-2 1.1 163-167-170	54 50
141.0	51 2-3 .9 150-156-160	53 2-3 .7 155-160-164	55 2-2 .3 162-165-168	55 2-2 .3 162-165-168	55 2-2 .3 161-165-168	54 51
136.0	56 2-3 .3 149-154-158	57 2-3 1.1 155-159-163	59 2-2 .1 159-162-165	59 2-2 .1 158-162-165	59 2-2 .1 157-162-165	54 54
131.0	60 2-3 .9 149-153-157	62 2-3 .5 154-158-161	62 2-2 1.2 157-160-163	62 2-2 1.2 156-160-163	62 2-2 1.2 154-160-163	54 54
126.0	65 2-3 .3 148-152-155	66 2-2 .9 153-157-160	66 2-2 .9 153-157-160	66 2-2 .9 152-157-160	66 2-2 .9 150-157-160	54 54
121.0	69 2-3 .9 147-151-154	70 2-2 .7 151-154-156	70 2-2 .7 149-154-156	70 2-2 .7 148-154-156	70 2-2 .7 146-154-156	54 54
116.0	71 2-3 3.7 147-151-154	71 2-2 4.4 150-153-156	71 2-2 4.4 148-153-156	71 2-2 4.4 147-153-156	71 2-2 4.4 145-153-156	54 54
111.0	71 .0 131-132-136	71 .0 131-132-136	71 .0 131-132-136	71 .0 131-132-136	71 .0 131-132-136	54 54
106.0	71 .0 128-129-133	71 .0 128-129-133	71 .0 128-129-133	71 .0 128-129-133	71 .0 128-129-133	54 54
101.0	71 .0 125-125-130	71 .0 125-125-130	71 .0 125-125-130	71 .0 125-125-130	71 .0 125-125-130	54 54

LFPO PARIS ORLY 08

ELEV. = 292 ft TORA = 3320 m
SLOPE = .00 % ASDA = 3320 m
TODA = 3320 m

15/00

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

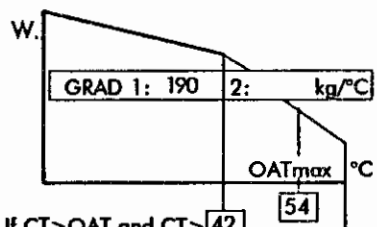
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1024 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>42
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-6	-4.5	-8	-3

Minimum v_1: 119 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1800 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	6 1-6 .1 170-173-177	20 2-1 .1 170-174-178	33 2-6 .0 172-175-179	42
157.0	- -	1 2-6 .2 165-170-174	23 2-6 .1 166-170-174	35 2-6 .1 167-171-175	42 2-6 .7 170-173-177	44
155.0	- -	11 2-6 .1 163-168-172	33 2-6 .2 164-168-172	42 2-6 1.0 166-170-174	45 2-6 .8 170-173-177	45
153.0	-1 6-6 .0 161-167-171	19 6-6 .2 162-167-171	42 2-6 .1 163-167-171	46 2-6 .2 167-170-174	47 2-6 .8 171-174-177	47
151.0	6 6-6 .2 160-166-170	28 6-6 .1 161-166-170	46 2-6 .5 163-166-170	48 2-6 .2 168-170-174	49 2-6 .8 172-174-177	48 43
149.0	14 6-6 .2 158-165-169	36 6-6 .1 159-165-169	48 2-6 .6 164-167-170	50 2-3 .1 168-170-174	51 2-3 .5 172-174-177	50 45
147.0	22 6-6 .2 157-164-168	42 6-6 .6 158-164-168	50 2-3 .5 164-167-170	51 2-3 1.0 168-170-174	53 2-3 .1 172-173-177	51 47
145.0	31 6-6 .0 155-162-166	48 6-6 .1 159-163-166	52 2-3 .2 164-166-170	53 2-3 .7 168-170-173	54 2-3 1.0 172-173-177.	52 48
143.0	39 6-6 .1 154-161-165	51 3-3 .1 158-162-165	53 2-3 1.1 164-166-170	55 2-3 .3 168-169-173	56 2-3 .6 172-173-176	54 50
141.0	42 6-6 1.4 154-161-165	53 3-3 .6 158-161-165	55 2-3 .8 164-166-169	56 2-3 1.1 167-169-172	58 2-3 .2 171-172-175	54 51
136.0	53 3-3 .5 154-158-162	58 2-3 .1 157-160-163	60 2-3 .1 163-164-167	61 2-3 .4 167-168-171	62 2-3 .5 171-171-174	54 54
131.0	59 3-3 .3 152-156-159	62 2-3 .7 156-159-162	64 2-3 .6 162-163-166	65 2-3 .8 166-167-169	66 2-3 .6 169-169-172	54 54
126.0	65 2-3 .3 150-153-156	67 2-3 .1 155-158-160	68 2-3 1.0 162-162-165	69 2-3 1.1 166-166-168	70 2-3 .7 168-168-170	54 54
121.0	69 2-3 1.0 150-152-155	71 2-3 .7 155-157-159	71 2-3 2.6 161-162-164	71 2-3 3.7 165-165-167	71 2-3 4.5 167-167-170	54 54
116.0	71 2-3 3.9 149-152-154	71 .0 147-147-150	71 .0 147-147-150	71 .0 147-147-150	71 .0 147-147-150	54 54
111.0	71 .0 143-144-147	71 .0 143-144-147	71 .0 143-144-147	71 .0 143-144-147	71 .0 143-144-147	54 54
106.0	71 .0 140-140-143	71 .0 140-140-143	71 .0 140-140-143	71 .0 140-140-143	71 .0 140-140-143	54 54
101.0	71 .0 136-137-140	71 .0 136-137-140	71 .0 136-137-140	71 .0 136-137-140	71 .0 136-137-140	54 54

LFPO PARIS ORLY 08

ELEV. = 292 ft TORA = 3320 m
SLOPE = .00 % ASDA = 3320 m
TODA = 3320 m

15/15

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

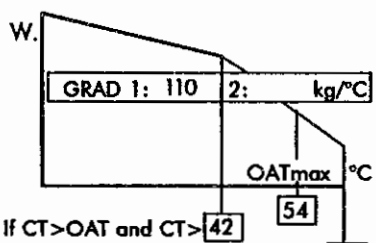
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1024 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>42
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-2	-2.0	-12	-3

Minimum v_1: 117 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1800 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	6 2-2 .0 170-174-178	16 2-2 .0 171-175-178	22 2-2 .0 172-175-179	42
157.0	- -	6 2-3 .1 164-169-173	26 2-6 .1 165-170-174	37 2-6 .0 167-172-175	42 2-2 .7 171-174-178	44
155.0	4 2-6 .0 158-164-168	23 2-6 .1 159-165-169	41 2-6 .0 162-167-171	42 2-6 1.4 166-171-174	45 2-2 .3 170-173-176	45
153.0	19 2-6 .1 154-161-165	38 2-6 .1 156-162-166	42 2-6 1.9 162-167-171	46 2-3 .2 166-171-174	46 2-2 .9 169-173-176	47
151.0	34 2-6 .1 150-158-162	42 2-6 1.5 155-162-165	46 2-3 .9 162-167-170	47 2-3 1.0 166-170-174	48 2-2 .1 168-171-174	48 43
149.0	42 2-6 .9 148-156-160	46 2-3 .6 156-161-165	48 2-3 .5 162-167-170	49 2-3 .5 166-170-173	49 2-2 .7 167-170-173	50 45
147.0	46 2-6 .2 149-156-160	48 2-3 .3 156-161-165	50 2-3 .2 162-166-170	50 2-2 1.3 166-169-172	50 2-2 1.3 166-169-172	51 47
145.0	48 2-3 .2 150-156-160	50 2-3 .1 155-161-164	51 2-3 1.0 162-166-169	52 2-2 .5 164-168-171	52 2-2 .5 164-168-171	52 48
143.0	49 2-3 1.1 150-156-160	51 2-3 .9 155-161-164	53 2-3 .7 162-166-169	53 2-2 1.1 164-167-170	53 2-2 1.1 163-167-170	54 50
141.0	51 2-3 .9 150-156-160	53 2-3 .7 155-160-164	55 2-2 .3 162-165-168	55 2-2 .3 162-165-168	55 2-2 .3 161-165-168	54 51
136.0	56 2-3 .3 149-154-158	57 2-3 1.1 155-159-163	59 2-2 .1 159-162-165	59 2-2 .1 158-162-165	59 2-2 .1 157-162-165	54 54
131.0	60 2-3 .9 149-153-157	62 2-3 .5 154-158-161	62 2-2 1.2 157-160-163	62 2-2 1.2 156-160-163	62 2-2 1.2 154-160-163	54 54
126.0	65 2-3 .3 148-152-155	66 2-2 .9 153-157-160	66 2-2 .9 153-157-160	66 2-2 .9 152-157-160	66 2-2 .9 150-157-160	54 54
121.0	69 2-3 .9 147-151-154	70 2-2 .7 151-154-156	70 2-2 .7 149-154-156	70 2-2 .7 148-154-156	70 2-2 .7 146-154-156	54 54
116.0	71 2-3 3.7 147-151-154	71 2-2 4.4 150-153-156	71 2-2 4.4 148-153-156	71 2-2 4.4 147-153-156	71 2-2 4.4 145-153-156	54 54
111.0	71 .0 131-132-136	71 .0 131-132-136	71 .0 131-132-136	71 .0 131-132-136	71 .0 131-132-136	54 54
106.0	71 .0 128-129-133	71 .0 128-129-133	71 .0 128-129-133	71 .0 128-129-133	71 .0 128-129-133	54 54
101.0	71 .0 125-125-130	71 .0 125-125-130	71 .0 125-125-130	71 .0 125-125-130	71 .0 125-125-130	54 54

LFPO PARIS ORLY 25

ELEV. = 292 ft TORA = 3650 m
SLOPE = .00 % ASDA = 3650 m
TODA = 3650 m

15/00

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

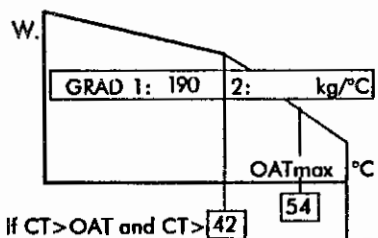
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1024 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>42
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-6	-4.5	-8	-3

Minimum v_1: 119 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1800 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	-2 2-6 .0 165-173-177	16 2-6 .1 167-174-178	29 2-6 .0 168-175-178	38 2-1 .0 169-176-179	42
157.0	- -	12 2-6 .1 162-169-174	31 2-6 .1 164-171-175	42 2-6 .1 165-172-176	42 2-1 1.7 169-175-179	44
155.0	1 6-6 .0 159-168-172	21 2-6 .1 160-168-172	42 2-6 .5 161-169-172	45 2-6 .2 166-172-176	46 2-6 .8 170-176-179	45
153.0	8 6-6 .2 158-167-171	30 6-6 .1 159-167-171	45 2-6 .6 162-168-172	47 2-6 .2 167-172-176	48 2-6 .7 171-176-180	47
151.0	16 6-6 .2 156-166-170	38 6-6 .1 157-166-170	47 2-6 .6 163-169-172	49 2-6 .2 167-172-176	50 2-6 .6 172-176-180	48 43
149.0	25 6-6 .1 155-165-169	42 6-6 1.2 157-165-169	49 2-6 .6 163-169-173	51 2-6 .1 168-173-176	52 2-6 .5 173-177-180	50 45
147.0	33 6-6 .1 154-164-168	48 6-6 .5 157-164-168	51 2-6 .6 164-169-173	52 2-6 1.0 169-173-176	54 2-6 .3 174-177-180	51 47
145.0	41 6-6 .2 152-163-167	51 2-6 .2 158-164-168	53 2-6 .6 165-169-173	54 2-6 .9 170-173-177	56 2-6 .2 175-177-180	52 48
143.0	42 6-6 2.0 152-163-166	53 2-6 .2 159-164-168	55 2-6 .5 166-170-173	56 2-6 .9 171-173-177	58 2-6 .0 177-177-180	54 50
141.0	50 6-6 .2 153-161-164	55 2-6 .2 160-165-168	57 2-6 .4 167-170-173	58 2-6 .8 172-174-177	59 2-6 .9 177-177-180	54 51
136.0	58 2-6 .0 155-160-163	60 2-3 .3 162-165-168	62 2-3 .0 168-169-172	63 2-3 .1 172-173-176	63 2-2 .7 175-175-178	54 54
131.0	62 2-3 1.0 156-160-162	64 2-3 .7 161-164-167	66 2-3 .3 167-168-171	67 2-3 .2 171-171-174	67 2-2 .2 171-172-174	54 54
126.0	67 2-3 .4 155-158-161	69 2-3 .0 161-163-165	70 2-3 .7 167-167-170	70 2-2 1.0 168-169-171	70 2-2 1.0 168-169-171	54 54
121.0	71 2-3 1.0 155-158-160	71 2-3 2.7 161-162-164	71 2-3 4.5 167-167-170	71 2-2 4.7 167-168-171	71 2-2 4.7 167-168-171	54 54
116.0	71 .0 147-147-150	71 .0 147-147-150	71 .0 147-147-150	71 .0 147-147-150	71 .0 147-147-150	54 54
111.0	71 .0 143-144-147	71 .0 143-144-147	71 .0 143-144-147	71 .0 143-144-147	71 .0 143-144-147	54 54
106.0	71 .0 140-140-143	71 .0 140-140-143	71 .0 140-140-143	71 .0 140-140-143	71 .0 140-140-143	54 54
101.0	71 .0 136-137-140	71 .0 136-137-140	71 .0 136-137-140	71 .0 136-137-140	71 .0 136-137-140	54 54

LFPO
PARIS ORLY
25

ELEV. = 292 ft TORA = 3650 m
SLOPE = .00 % ASDA = 3650 m
TODA = 3650 m

15/15

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

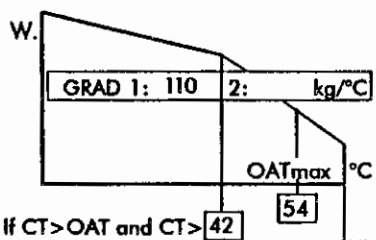
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1024 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>42
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-2	-2.0	-12	-3

Minimum v_1: 117 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1800 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	-1 2-6 .0 165-174-177	15 2-2 .0 167-175-178	22 2-2 .0 168-175-179	22 2-2 .0 169-175-179	42
157.0	-3 2-6 .1 159-169-172	16 2-6 .0 160-170-173	34 2-6 .0 163-171-175	42 2-2 .3 165-173-177	42 2-2 .8 168-175-178	44
155.0	13 2-6 .1 154-165-169	32 2-6 .1 156-166-170	42 2-6 1.0 161-170-173	45 2-6 .2 166-173-176	45 2-2 .3 167-173-176	45
153.0	29 2-6 .1 150-161-165	42 2-6 .7 154-164-168	45 2-6 1.0 162-170-173	46 2-2 .9 166-173-176	46 2-2 .9 167-173-176	47
151.0	42 2-6 .3 148-159-163	45 2-6 .8 155-164-168	47 2-6 .9 163-170-173	48 2-2 .1 165-171-174	48 2-2 .1 165-171-174	48 43
149.0	45 2-6 .4 148-159-163	47 2-6 .7 156-164-168	49 2-6 .6 163-170-173	49 2-2 .7 165-170-173	49 2-2 .7 164-170-173	50 45
147.0	47 2-6 .4 149-159-163	49 2-6 .7 157-165-168	50 2-2 1.3 163-169-172	50 2-2 1.3 164-169-172	50 2-2 1.3 163-169-172	51 47
145.0	49 2-6 .4 150-159-163	51 2-6 .6 158-165-168	52 2-2 .5 163-168-171	52 2-2 .5 162-168-171	52 2-2 .5 160-168-171	52 48
143.0	51 2-6 .4 151-159-163	53 2-6 .5 159-165-168	53 2-2 1.1 163-167-170	53 2-2 1.1 161-167-170	53 2-2 1.1 159-167-170	54 50
141.0	53 2-6 .4 152-160-163	55 2-2 .3 160-165-168	55 2-2 .3 160-165-168	55 2-2 .3 159-165-168	55 2-2 .3 157-165-168	54 51
136.0	58 2-3 .3 154-160-163	59 2-2 .1 158-162-165	59 2-2 .1 157-162-165	59 2-2 .1 155-162-165	59 2-2 .1 154-162-165	54 54
131.0	62 2-3 .8 154-159-162	62 2-2 1.2 156-160-163	62 2-2 1.2 154-160-163	62 2-2 1.2 153-160-163	62 2-2 1.2 151-160-163	54 54
126.0	66 2-2 .9 152-157-160	66 2-2 .9 152-157-160	66 2-2 .9 150-157-160	66 2-2 .9 149-157-160	66 2-2 .9 147-157-160	54 54
121.0	70 2-2 .7 150-154-156	70 2-2 .7 148-154-156	70 2-2 .7 146-154-156	70 2-2 .7 145-154-156	70 2-2 .7 143-154-156	54 54
116.0	71 2-2 4.4 149-153-156	71 2-2 4.4 147-153-156	71 2-2 4.4 145-153-156	71 2-2 4.4 143-153-156	71 2-2 4.4 142-153-156	54 54
111.0	71 .0 131-132-136	71 .0 131-132-136	71 .0 131-132-136	71 .0 131-132-136	71 .0 131-132-136	54 54
106.0	71 .0 128-129-133	71 .0 128-129-133	71 .0 128-129-133	71 .0 128-129-133	71 .0 128-129-133	54 54
101.0	71 .0 125-125-130	71 .0 125-125-130	71 .0 125-125-130	71 .0 125-125-130	71 .0 125-125-130	54 54

LFPO PARIS ORLY 07

ELEV. = 292 ft TORA = 3650 m
SLOPE = .00 % ASDA = 3650 m
TODA = 3650 m

15/00

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

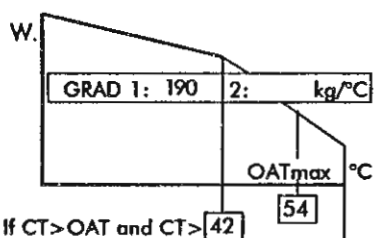
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1024 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>42 use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-6	-4.5	-8	-3

Minimum v_1: 119 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1800 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	-2 2-6 .0 165-173-177	16 2-6 .1 167-174-178	29 2-6 .0 168-175-178	38 2-1 .0 169-176-179	42
157.0	- -	12 2-6 .1 162-169-174	31 2-6 .1 164-171-175	42 2-6 .1 165-172-176	42 2-1 1.7 169-175-179	44
155.0	1 6-6 .0 159-168-172	21 2-6 .1 160-168-172	42 2-6 .5 161-169-172	45 2-6 .2 166-172-176	46 2-6 .8 170-176-179	45
153.0	8 6-6 .2 158-167-171	30 6-6 .1 159-167-171	45 2-6 .6 162-168-172	47 2-6 .2 167-172-176	48 2-6 .7 171-176-180	47
151.0	16 6-6 .2 156-166-170	38 6-6 .1 157-166-170	47 2-6 .6 163-169-172	49 2-6 .2 167-172-176	50 2-6 .6 172-176-180	48 43
149.0	25 6-6 .1 155-165-169	42 6-6 1.2 157-165-169	49 2-6 .6 163-169-173	51 2-6 .1 168-173-176	52 2-6 .5 173-177-180	50 45
147.0	33 6-6 .1 154-164-168	48 6-6 .5 157-164-168	51 2-6 .6 164-169-173	52 2-6 1.0 169-173-176	54 2-6 .3 174-177-180	51 47
145.0	41 6-6 .2 152-163-167	51 2-6 .2 158-164-168	53 2-6 .6 165-169-173	54 2-6 .9 170-173-177	56 2-6 .2 175-177-180	52 48
143.0	42 6-6 2.0 152-163-166	53 2-6 .2 159-164-168	55 2-6 .5 166-170-173	56 2-6 .9 171-173-177	58 2-6 .0 177-177-180	54 50
141.0	50 6-6 .2 153-161-164	55 2-6 .2 160-165-168	57 2-6 .4 167-170-173	58 2-6 .8 172-174-177	59 2-6 .9 177-177-180	54 51
136.0	58 2-6 .0 155-160-163	60 2-3 .3 162-165-168	62 2-3 .0 168-169-172	63 2-3 .1 172-173-176	63 2-2 .7 175-175-178	54 54
131.0	62 2-3 1.0 156-160-162	64 2-3 .7 161-164-167	66 2-3 .3 167-168-171	67 2-3 .2 171-171-174	67 2-2 .2 171-172-174	54 54
126.0	67 2-3 .4 155-158-161	69 2-3 .0 161-163-165	70 2-3 .7 167-167-170	70 2-2 1.0 168-169-171	70 2-2 1.0 168-169-171	54 54
121.0	71 2-3 1.0 155-158-160	71 2-3 2.7 161-162-164	71 2-3 4.5 167-167-170	71 2-2 4.7 167-168-171	71 2-2 4.7 167-168-171	54 54
116.0	71 .0 147-147-150	71 .0 147-147-150	71 .0 147-147-150	71 .0 147-147-150	71 .0 147-147-150	54 54
111.0	71 .0 143-144-147	71 .0 143-144-147	71 .0 143-144-147	71 .0 143-144-147	71 .0 143-144-147	54 54
106.0	71 .0 140-140-143	71 .0 140-140-143	71 .0 140-140-143	71 .0 140-140-143	71 .0 140-140-143	54 54
101.0	71 .0 136-137-140	71 .0 136-137-140	71 .0 136-137-140	71 .0 136-137-140	71 .0 136-137-140	54 54

LFPO
PARIS ORLY
07

ELEV. = 292 ft TORA = 3650 m
SLOPE = .00 % ASDA = 3650 m
TODA = 3650 m

15/15

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

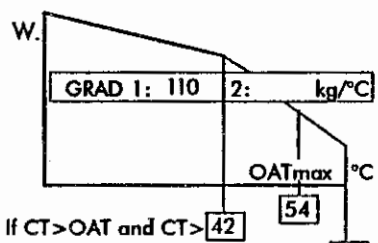
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1024 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>42
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-2	-2.0	-12	-3

Minimum v_1: 117 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1800 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	-1 2-6 .0 165-174-177	15 2-2 .0 167-175-178	22 2-2 .0 168-175-179	22 2-2 .0 169-175-179	42
157.0	-3 2-6 .1 159-169-172	16 2-6 .0 160-170-173	34 2-6 .0 163-171-175	42 2-2 .3 165-173-177	42 2-2 .8 168-175-178	44
155.0	13 2-6 .1 154-165-169	32 2-6 .1 156-166-170	42 2-6 1.0 161-170-173	45 2-6 .2 166-173-176	45 2-2 .3 167-173-176	45
153.0	29 2-6 .1 150-161-165	42 2-6 .7 154-164-168	45 2-6 1.0 162-170-173	46 2-2 .9 166-173-176	46 2-2 .9 167-173-176	47
151.0	42 2-6 .3 148-159-163	45 2-6 .8 155-164-168	47 2-6 .9 163-170-173	48 2-2 .1 165-171-174	48 2-2 .1 165-171-174	48 43
149.0	45 2-6 .4 148-159-163	47 2-6 .7 156-164-168	49 2-6 .6 163-170-173	49 2-2 .7 165-170-173	49 2-2 .7 164-170-173	50 45
147.0	47 2-6 .4 149-159-163	49 2-6 .7 157-165-168	50 2-2 1.3 163-169-172	50 2-2 1.3 164-169-172	50 2-2 1.3 163-169-172	51 47
145.0	49 2-6 .4 150-159-163	51 2-6 .6 158-165-168	52 2-2 .5 163-168-171	52 2-2 .5 162-168-171	52 2-2 .5 160-168-171	52 48
143.0	51 2-6 .4 151-159-163	53 2-6 .5 159-165-168	53 2-2 1.1 163-167-170	53 2-2 1.1 161-167-170	53 2-2 1.1 159-167-170	54 50
141.0	53 2-6 .4 152-160-163	55 2-2 .3 160-165-168	55 2-2 .3 160-165-168	55 2-2 .3 159-165-168	55 2-2 .3 157-165-168	54 51
136.0	58 2-3 .3 154-160-163	59 2-2 .1 158-162-165	59 2-2 .1 157-162-165	59 2-2 .1 155-162-165	59 2-2 .1 154-162-165	54 54
131.0	62 2-3 .8 154-159-162	62 2-2 1.2 156-160-163	62 2-2 1.2 154-160-163	62 2-2 1.2 153-160-163	62 2-2 1.2 151-160-163	54 54
126.0	66 2-2 .9 152-157-160	66 2-2 .9 152-157-160	66 2-2 .9 150-157-160	66 2-2 .9 149-157-160	66 2-2 .9 147-157-160	54 54
121.0	70 2-2 .7 150-154-156	70 2-2 .7 148-154-156	70 2-2 .7 146-154-156	70 2-2 .7 145-154-156	70 2-2 .7 143-154-156	54 54
116.0	71 2-2 4.4 149-153-156	71 2-2 4.4 147-153-156	71 2-2 4.4 145-153-156	71 2-2 4.4 143-153-156	71 2-2 4.4 142-153-156	54 54
111.0	71 .0 131-132-136	71 .0 131-132-136	71 .0 131-132-136	71 .0 131-132-136	71 .0 131-132-136	54 54
106.0	71 .0 128-129-133	71 .0 128-129-133	71 .0 128-129-133	71 .0 128-129-133	71 .0 128-129-133	54 54
101.0	71 .0 125-125-130	71 .0 125-125-130	71 .0 125-125-130	71 .0 125-125-130	71 .0 125-125-130	54 54

EHAM AMSTERDAM 01R/19L

ELEV. = -10 ft TORA = 3400 m
SLOPE = .00 % ASDA = 3400 m
TODA = 3400 m

15/00

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

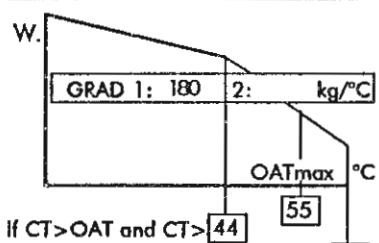
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1013 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>44
use Corr. Flex. T/O Temp. up to 72

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-6	-4.5	-8	-3

Minimum v_1: 119 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1500 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	14 2-6 .1 168-173-177	27 2-1 .0 169-174-178	39 2-1 .1 170-174-178	44
157.0	- -	7 2-6 .1 164-170-174	29 2-6 .2 165-170-174	43 2-6 .0 166-170-174	44 2-6 1.5 169-174-178	45
155.0	- -	17 6-6 .1 162-168-172	39 2-6 .2 163-168-172	44 2-6 1.9 166-170-174	47 2-6 .5 171-174-178	47
153.0	4 6-6 .2 160-167-171	25 6-6 .2 161-167-171	44 6-6 1.1 162-168-172	47 2-6 .9 167-171-175	49 2-6 .4 172-175-178	48 44
151.0	12 6-6 .1 159-166-170	34 6-6 .0 160-166-170	48 2-6 .2 163-167-171	49 2-6 .8 168-171-175	51 2-6 .2 173-175-179	49 45
149.0	20 6-6 .1 157-165-169	42 6-6 .2 158-165-169	50 2-6 .2 164-168-171	51 2-6 .7 169-171-175	53 2-6 .0 174-175-179	51 46
147.0	28 6-6 .2 156-164-168	44 6-6 1.7 158-165-169	52 2-6 .1 165-168-172	53 2-6 .6 169-172-175	54 2-3 .9 174-175-179	52 48
145.0	37 6-6 .1 154-162-166	51 6-6 .2 159-163-167	53 2-6 1.0 165-168-172	55 2-3 .2 170-171-175	56 2-3 .4 174-175-178	53 49
143.0	44 6-6 .4 153-162-166	53 2-6 .6 159-163-166	55 2-3 .7 165-168-171	56 2-3 1.0 169-171-175	57 2-3 1.2 174-175-178	55 51
141.0	48 6-6 .4 154-161-164	55 2-3 .3 160-163-166	57 2-3 .3 165-167-171	58 2-3 .6 169-170-174	59 2-3 .7 174-174-177	55 52
136.0	56 3-3 .8 154-159-162	59 2-3 .7 159-162-165	61 2-3 .5 165-166-169	62 2-3 .7 169-169-172	63 2-3 .7 173-173-176	55 55
131.0	62 2-3 .1 153-156-159	63 2-3 1.1 158-161-163	65 2-3 .8 164-165-168	66 2-3 .9 168-168-171	67 2-3 .5 171-171-173	55 55
126.0	66 2-3 .6 152-155-158	68 2-3 .2 157-159-162	69 2-3 1.0 163-164-167	70 2-3 .9 167-167-170	71 2-2 .0 168-168-171	55 55
121.0	70 2-3 1.1 151-154-156	72 2-3 .6 157-159-161	72 2-3 2.4 163-164-166	72 2-3 3.4 166-166-169	72 2-2 3.6 167-168-170	55 55
116.0	72 2-3 3.8 151-154-156	72 .0 147-147-150	72 .0 147-147-150	72 .0 147-147-150	72 .0 147-147-150	55 55
111.0	72 .0 143-144-147	72 .0 143-144-147	72 .0 143-144-147	72 .0 143-144-147	72 .0 143-144-147	55 55
106.0	72 .0 140-140-143	72 .0 140-140-143	72 .0 140-140-143	72 .0 140-140-143	72 .0 140-140-143	55 55
101.0	72 .0 136-137-140	72 .0 136-137-140	72 .0 136-137-140	72 .0 136-137-140	72 .0 136-137-140	55 55

EHAM AMSTERDAM 01R/19L

ELEV. = -10 ft TORA = 3400 m
SLOPE = .00 % ASDA = 3400 m
TODA = 3400 m

15/15

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

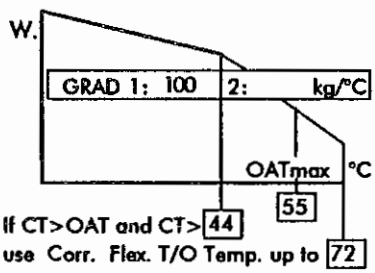
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1013 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>[44]
use Corr. Flex. T/O Temp. up to [72]

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-2	-2.0	-12	-3

Minimum v_1: [117] [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1500 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	15 2-6 .1 169-174-177	28 2-2 .0 170-175-178	34 2-2 .0 171-175-179	44
157.0	- -	14 2-6 .0 162-169-172	33 2-6 .1 164-170-174	44 2-6 .2 166-172-175	44 2-2 1.5 170-175-178	45
155.0	11 2-6 .1 156-164-168	31 2-6 .0 158-165-169	44 2-6 .7 162-168-171	46 2-6 .1 167-172-175	46 2-2 .6 170-174-177	47
153.0	27 2-6 .0 152-160-164	44 2-6 .4 155-162-166	46 2-6 .6 163-168-172	47 2-6 1.0 168-172-175	47 2-2 1.2 169-173-176	48 44
151.0	42 2-6 .1 149-157-161	46 2-6 .3 156-163-166	48 2-6 .5 164-169-172	49 2-2 .3 167-171-174	49 2-2 .3 167-171-174	49 45
149.0	44 2-6 1.8 148-157-161	48 2-6 .3 157-163-167	50 2-3 .2 164-168-172	50 2-2 .8 167-170-173	50 2-2 .8 166-170-173	51 46
147.0	47 2-6 .9 149-157-161	50 2-6 .1 157-163-166	51 2-3 1.0 164-168-172	51 2-2 1.4 166-169-173	51 2-2 1.4 165-169-173	52 48
145.0	49 2-6 .9 150-157-161	51 2-3 .9 157-163-166	53 2-3 .4 164-168-171	53 2-2 .5 164-168-171	53 2-2 .5 163-168-171	53 49
143.0	51 2-3 .9 152-158-162	53 2-3 .6 157-162-166	54 2-2 1.0 163-167-170	54 2-2 1.0 163-167-170	54 2-2 1.0 162-167-170	55 51
141.0	53 2-3 .6 151-157-161	55 2-3 .2 157-162-165	56 2-2 .2 162-165-168	56 2-2 .2 161-165-168	56 2-2 .2 160-165-168	55 52
136.0	57 2-3 .9 151-156-160	59 2-3 .4 157-161-164	59 2-2 1.1 160-163-166	59 2-2 1.1 158-163-166	59 2-2 1.1 157-163-166	55 55
131.0	62 2-3 .1 150-155-158	63 2-3 .6 156-159-162	63 2-2 .7 156-160-163	63 2-2 .7 154-160-163	63 2-2 .7 153-160-163	55 55
126.0	66 2-3 .5 150-154-157	67 2-2 .2 153-156-159	67 2-2 .2 152-156-159	67 2-2 .2 150-156-159	67 2-2 .2 149-156-159	55 55
121.0	70 2-3 .8 149-153-156	70 2-2 1.1 151-154-157	70 2-2 1.1 149-154-157	70 2-2 1.1 147-154-157	70 2-2 1.1 146-154-157	55 55
116.0	72 2-2 3.4 148-152-155	72 2-2 3.4 148-152-155	72 2-2 3.4 147-152-155	72 2-2 3.4 145-152-155	72 2-2 3.4 143-152-155	55 55
111.0	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	55 55
106.0	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	55 55
101.0	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	55 55

EHAM AMSTERDAM 24

ELEV. = -10 ft TORA = 3200 m
SLOPE = .00 % ASDA = 3200 m
TODA = 3260 m

15/00

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

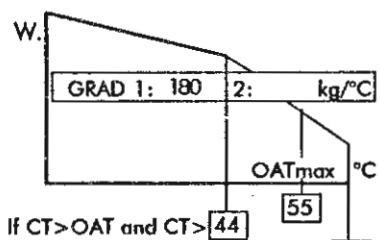
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1013 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>44
use Corr. Flex. T/O Temp. up to 72

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-10	-5.0	-10	-3

Minimum v_1: 119 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1500 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	9 2-1 .1 169-173-177	23 1-6 .1 171-173-177	36 2-1 .1 172-174-178	44
157.0	- -	3 2-3 .1 165-169-173	26 2-6 .0 166-169-174	39 2-6 .1 167-170-174	44 2-6 1.1 170-173-177	45
155.0	- -	12 2-3 .2 164-168-172	35 6-6 .2 164-168-172	44 2-6 1.4 166-169-173	47 2-3 .0 171-173-177	47
153.0	-1 3-3 .1 162-167-171	21 6-6 .1 162-167-171	44 6-6 .1 163-167-171	47 2-3 .3 167-170-173	48 2-3 .8 171-173-177	48 44
151.0	7 3-3 .2 160-166-170	29 6-6 .1 161-166-170	47 3-3 .5 163-166-170	49 2-3 .0 167-169-173	50 2-3 .4 171-173-176	49 45
149.0	15 6-6 .2 159-165-169	38 6-6 .0 160-165-169	49 2-3 .3 163-166-170	50 2-3 .8 167-169-173	51 2-3 1.2 171-173-176	51 46
147.0	24 6-6 .0 157-163-168	44 6-6 .6 159-164-168	50 2-3 1.1 163-166-169	52 2-3 .4 166-169-172	53 2-3 .8 170-172-176	52 48
145.0	32 6-6 .1 156-162-167	48 3-3 .0 158-163-166	52 2-3 .8 162-165-169	54 2-3 .0 166-168-172	55 2-3 .3 170-172-175	53 49
143.0	40 6-6 .2 155-161-165	50 3-3 .4 158-162-166	54 2-3 .5 162-165-168	55 2-3 .8 166-168-172	56 2-3 1.1 170-172-175	55 51
141.0	44 6-6 1.3 154-161-165	53 3-3 .0 157-161-164	56 2-3 .1 162-165-168	57 2-3 .5 166-168-171	58 2-3 .7 170-171-174	55 52
136.0	52 3-3 .7 153-158-162	58 2-2 .4 155-159-162	60 2-3 .4 161-163-166	61 2-3 .7 165-166-170	62 2-3 .8 169-170-173	55 55
131.0	58 3-3 .6 151-156-159	62 2-3 .8 155-158-161	64 2-3 .7 161-162-165	65 2-3 .9 165-165-168	66 2-3 1.0 168-169-171	55 55
126.0	64 3-3 .4 149-153-156	67 2-3 .1 154-156-159	68 2-3 1.0 160-161-164	69 2-3 1.1 164-165-167	70 2-3 .9 167-167-170	55 55
121.0	69 2-3 .9 148-151-154	71 2-3 .6 153-156-158	72 2-3 1.4 160-161-163	72 2-3 2.6 164-164-166	72 2-3 3.4 166-166-169	55 55
116.0	72 2-3 2.6 148-151-153	72 2-3 4.4 153-155-158	72 .0 147-147-150	72 .0 147-147-150	72 .0 147-147-150	55 55
111.0	72 .0 143-144-147	72 .0 143-144-147	72 .0 143-144-147	72 .0 143-144-147	72 .0 143-144-147	55 55
106.0	72 .0 140-140-143	72 .0 140-140-143	72 .0 140-140-143	72 .0 140-140-143	72 .0 140-140-143	55 55
101.0	72 .0 136-137-140	72 .0 136-137-140	72 .0 136-137-140	72 .0 136-137-140	72 .0 136-137-140	55 55

EHAM AMSTERDAM 24

ELEV. = -10 ft TORA = 3200 m
SLOPE = .00 % ASDA = 3200 m
TODA = 3260 m

15/15

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

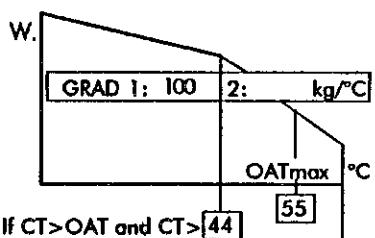
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1013 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>44
use Corr. Flex. T/O Temp. up to 72

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-2	-2.0	-12	-3

Minimum v_1: 117 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1500 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	7 2-3 .1 169-174-177	20 2-3 .0 170-174-178	31 2-2 .1 171-175-178	44
157.0	- -	6 2-3 .0 162-168-172	26 2-3 .1 164-170-173	39 2-3 .0 166-170-174	44 2-3 .7 168-173-176	45
155.0	4 2-3 .1 157-164-168	24 2-3 .0 158-164-168	44 2-3 .0 161-166-170	44 2-3 1.4 165-170-173	46 2-3 .4 168-173-176	47
153.0	22 2-3 .0 153-160-164	41 2-3 .0 155-161-165	45 2-3 .9 161-166-170	46 2-3 1.1 164-169-173	47 2-3 1.2 168-173-176	48 44
151.0	38 2-3 .0 150-157-161	44 2-3 1.6 154-161-165	47 2-3 .5 161-166-169	48 2-3 .7 164-169-172	49 2-2 .3 167-171-174	49 45
149.0	44 2-6 1.2 149-156-160	47 2-3 .3 154-160-164	49 2-3 .2 160-165-169	50 2-3 .3 164-169-172	50 2-2 .8 167-170-173	51 46
147.0	47 2-3 .0 149-155-160	48 2-3 1.1 154-160-164	50 2-3 1.0 160-165-169	51 2-3 1.1 164-169-172	51 2-2 1.4 166-169-173	52 48
145.0	48 2-3 .9 148-155-159	50 2-3 .8 154-160-163	52 2-3 .6 160-165-168	53 2-3 .4 164-168-171	53 2-2 .5 164-168-171	53 49
143.0	50 2-3 .6 148-155-159	52 2-3 .5 154-159-163	54 2-3 .2 160-165-168	54 2-2 1.0 163-167-170	54 2-2 1.0 163-167-170	55 51
141.0	52 2-3 .4 148-154-158	54 2-3 .2 154-159-163	55 2-3 1.0 160-164-168	56 2-2 .2 162-165-168	56 2-2 .2 161-165-168	55 52
136.0	56 2-3 .8 148-154-157	58 2-3 .4 153-158-161	59 2-2 1.1 159-163-166	59 2-2 1.1 160-163-166	59 2-2 1.1 158-163-166	55 55
131.0	61 2-3 .1 147-152-156	62 2-3 .8 152-157-160	63 2-2 .7 157-160-163	63 2-2 .7 156-160-163	63 2-2 .7 154-160-163	55 55
126.0	65 2-3 .5 146-151-154	66 2-3 1.1 152-156-159	67 2-2 .2 153-156-159	67 2-2 .2 152-156-159	67 2-2 .2 150-156-159	55 55
121.0	69 2-3 .9 146-150-153	70 2-2 1.1 151-154-157	70 2-2 1.1 150-154-157	70 2-2 1.1 149-154-157	70 2-2 1.1 147-154-157	55 55
116.0	72 2-3 2.5 145-149-152	72 2-2 3.4 149-152-155	72 2-2 3.4 148-152-155	72 2-2 3.4 146-152-155	72 2-2 3.4 145-152-155	55 55
111.0	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	55 55
106.0	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	55 55
101.0	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	55 55

EHAM AMSTERDAM 06

ELEV. = -10 ft SLOPE = .00 %
TORA = 3250 m ASDA = 3350 m TODA = 3350 m

15/00

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

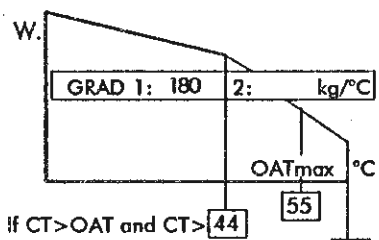
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1013 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>44
use Corr. Flex. T/O Temp. up to 72

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-6	-4.5	-8	-3

Minimum v_1: 119 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1500 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	13 2-1 .0 168-173-177	25 2-1 .1 170-173-177	38 2-1 .1 171-174-178	44
157.0	- -	6 2-6 .0 165-169-174	29 2-6 .0 165-169-173	41 2-6 .1 166-170-174	44 2-6 1.4 170-173-177	45
155.0	- -	15 6-6 .2 163-168-172	38 2-6 .1 164-168-172	44 2-6 1.7 166-170-174	47 2-6 .3 171-174-178	47
153.0	3 6-6 .0 161-167-171	24 6-6 .0 161-167-171	44 6-6 .8 163-167-171	47 2-6 .7 167-170-174	49 2-6 .2 172-174-178	48 44
151.0	10 6-6 .2 159-166-170	32 6-6 .1 160-166-170	48 2-6 .0 164-167-171	49 2-6 .7 168-171-175	51 2-6 .1 173-175-178	49 45
149.0	18 6-6 .2 158-165-169	41 6-6 .0 159-165-169	49 2-6 1.0 164-167-171	51 2-6 .6 169-171-175	52 2-3 1.0 174-175-178	51 46
147.0	27 6-6 .0 156-163-168	44 6-6 1.3 158-164-168	51 2-6 1.0 165-168-171	53 2-3 .2 169-171-175	54 2-3 .5 173-175-178	52 48
145.0	35 6-6 .1 155-162-167	50 6-6 .3 159-163-167	53 2-3 .7 165-167-171	54 2-3 1.0 169-171-174	56 2-3 .1 173-174-177	53 49
143.0	43 6-6 .2 154-161-165	53 3-3 .2 159-163-166	55 2-3 .3 165-167-170	56 2-3 .6 169-170-174	57 2-3 .8 173-174-177	55 51
141.0	44 6-6 2.0 154-161-165	54 2-3 1.1 159-162-165	56 2-3 1.1 165-167-170	58 2-3 .2 168-169-173	59 2-3 .4 173-173-176	55 52
136.0	55 3-3 .7 154-159-162	59 2-3 .3 158-161-164	61 2-3 .2 164-165-168	62 2-3 .4 168-168-172	63 2-3 .4 172-172-175	55 55
131.0	61 3-3 .3 152-156-159	63 2-3 .7 157-160-162	65 2-3 .4 163-164-167	66 2-3 .6 167-167-170	67 2-3 .2 170-170-172	55 55
126.0	66 2-3 .2 151-154-157	67 2-3 1.0 157-159-161	69 2-3 .7 163-163-166	70 2-3 .6 166-166-169	70 2-3 1.4 168-168-171	55 55
121.0	70 2-3 .7 151-153-156	72 2-3 .3 156-158-160	72 2-3 2.1 162-163-165	72 2-3 3.1 166-166-168	72 2-2 3.6 167-168-170	55 55
116.0	72 2-3 3.5 150-153-155	72 .0 147-147-150	72 .0 147-147-150	72 .0 147-147-150	72 .0 147-147-150	55 55
111.0	72 .0 143-144-147	72 .0 143-144-147	72 .0 143-144-147	72 .0 143-144-147	72 .0 143-144-147	55 55
106.0	72 .0 140-140-143	72 .0 140-140-143	72 .0 140-140-143	72 .0 140-140-143	72 .0 140-140-143	55 55
101.0	72 .0 136-137-140	72 .0 136-137-140	72 .0 136-137-140	72 .0 136-137-140	72 .0 136-137-140	55 55

EHAM AMSTERDAM 06

ELEV. = -10 ft TORA = 3250 m
SLOPE = .00 % ASDA = 3350 m
TODA = 3350 m

15/15

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

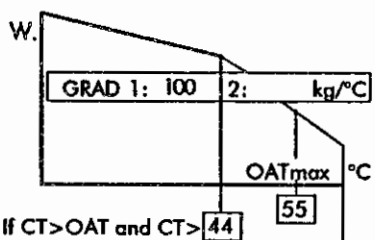
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1013 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>44
use Corr. Flex. T/O Temp. up to 72

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-2	-2.0	-12	-3

Minimum v_1: 117 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1500 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	14 2-6 .0 169-174-177	25 2-2 .0 170-175-178	33 2-2 .0 172-175-178	44
157.0	- -	12 2-6 .1 163-169-172	32 2-6 .0 164-170-173	44 2-6 .0 166-171-175	44 2-6 1.4 170-175-178	45
155.0	9 2-6 .1 157-164-168	29 2-6 .1 158-165-169	44 2-6 .6 162-167-171	45 2-6 1.0 167-171-175	46 2-2 .6 170-174-177	47
153.0	25 2-6 .1 153-160-164	44 2-6 .2 155-162-166	46 2-6 .5 163-168-171	47 2-3 .8 167-172-175	47 2-2 1.2 169-173-176	48 44
151.0	41 2-6 .0 149-157-161	46 2-6 .2 156-162-166	48 2-6 .3 163-168-171	49 2-2 .3 167-171-174	49 2-2 .3 168-171-174	49 45
149.0	44 2-6 1.6 148-156-161	48 2-6 .0 156-162-166	49 2-3 1.1 163-168-171	50 2-2 .8 166-170-173	50 2-2 .8 167-170-173	51 46
147.0	47 2-6 .7 150-157-161	49 2-3 .9 157-162-166	51 2-3 .7 163-167-171	51 2-2 1.4 166-169-173	51 2-2 1.4 165-169-173	52 48
145.0	49 2-6 .7 151-157-161	51 2-3 .6 156-162-165	53 2-3 .2 163-167-170	53 2-2 .5 164-168-171	53 2-2 .5 163-168-171	53 49
143.0	51 2-3 .5 151-157-161	53 2-3 .2 156-162-165	54 2-2 1.0 163-167-170	54 2-2 1.0 164-167-170	54 2-2 1.0 162-167-170	55 51
141.0	53 2-3 .2 151-156-160	54 2-3 1.0 156-161-165	56 2-2 .2 162-165-168	56 2-2 .2 162-165-168	56 2-2 .2 160-165-168	55 52
136.0	57 2-3 .6 150-156-159	59 2-3 .1 156-160-163	59 2-2 1.1 160-163-166	59 2-2 1.1 159-163-166	59 2-2 1.1 157-163-166	55 55
131.0	61 2-3 1.0 149-154-158	63 2-3 .4 155-159-162	63 2-2 .7 156-160-163	63 2-2 .7 155-160-163	63 2-2 .7 153-160-163	55 55
126.0	66 2-3 .2 149-153-156	67 2-2 .2 153-156-159	67 2-2 .2 152-156-159	67 2-2 .2 151-156-159	67 2-2 .2 149-156-159	55 55
121.0	70 2-3 .5 148-152-155	70 2-2 1.1 151-154-157	70 2-2 1.1 149-154-157	70 2-2 1.1 148-154-157	70 2-2 1.1 146-154-157	55 55
116.0	72 2-3 3.2 148-152-154	72 2-2 3.4 149-152-155	72 2-2 3.4 147-152-155	72 2-2 3.4 146-152-155	72 2-2 3.4 144-152-155	55 55
111.0	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	55 55
106.0	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	55 55
101.0	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	55 55

EHAM AMSTERDAM 01L/19R

ELEV. = -10 ft TORA = 3300 m
SLOPE = .00 % ASDA = 3300 m
TODA = 3360 m

15/00

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
V_1 - V_R - V_2 [kts] IAS

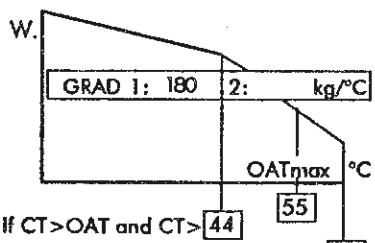
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1013 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT> 44
use Corr. Flex. T/O Temp. up to 72

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	V_1 [kt]	V_R&V_2 [kt]
-6	-4.5	-8	-3

Minimum V_1: 119 [kt]

1. Actual TOW is equal to maximum TOW and V_1 is lower than minimum V_1: Take this last value as V_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and V_1 corresponding to actual TOW is lower than minimum V_1 and V_1 corresponding to maximum TOW is equal to or above minimum V_1: Retain minimum V_1 as V_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1500 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	13 2-1 .0 168-173-177	26 2-1 .0 169-173-177	38 2-1 .1 171-174-178	44
157.0	- -	6 2-6 .1 165-170-174	29 2-6 .1 165-169-174	42 2-6 .0 166-170-174	44 2-6 1.4 170-174-177	45
155.0	- -	16 6-6 .0 163-168-172	38 2-6 .1 164-168-172	44 2-6 1.7 166-170-174	47 2-6 .4 171-174-178	47
153.0	3 6-6 .1 161-167-171	24 6-6 .1 161-167-171	44 6-6 .8 163-167-171	47 2-6 .7 167-170-174	49 2-6 .3 172-174-178	48 44
151.0	11 6-6 .0 159-166-170	32 6-6 .2 160-166-170	48 2-6 .1 164-167-171	49 2-6 .7 168-171-175	50 2-6 1.1 172-174-178	49 45
149.0	19 6-6 .1 158-165-169	41 6-6 .1 159-165-169	49 2-6 1.0 164-167-171	51 2-3 .4 168-171-174	52 2-3 .8 172-174-178	51 46
147.0	27 6-6 .1 156-164-168	44 6-6 1.4 158-164-168	51 2-3 .8 164-167-171	53 2-3 .0 168-170-174	54 2-3 .3 172-174-177	52 48
145.0	35 6-6 .2 155-163-167	50 6-6 .2 159-163-167	53 2-3 .5 164-167-170	54 2-3 .8 168-170-174	55 2-3 1.1 172-174-177	53 49
143.0	44 6-6 .1 154-161-165	52 3-3 .7 158-162-166	55 2-3 .1 164-167-170	56 2-3 .4 168-170-173	57 2-3 .6 172-173-176	55 51
141.0	48 6-6 .1 154-161-164	54 2-3 .9 158-162-165	56 2-3 .9 164-166-170	57 2-3 1.2 167-169-173	59 2-3 .2 172-172-176	55 52
136.0	55 3-3 .2 153-158-161	59 2-3 .1 157-160-163	60 2-3 1.2 163-165-168	62 2-3 .2 167-168-171	63 2-3 .3 171-171-174	55 55
131.0	60 3-3 .7 152-156-159	63 2-3 .5 156-159-162	65 2-3 .2 162-164-166	66 2-3 .4 166-167-170	67 2-3 .3 170-170-173	55 55
126.0	65 2-3 1.1 150-154-157	67 2-3 .8 156-158-161	69 2-3 .5 162-163-165	70 2-3 .6 166-166-168	71 2-3 .0 168-168-171	55 55
121.0	70 2-3 .5 150-153-155	72 2-3 .1 155-157-159	72 2-3 2.0 161-162-164	72 2-3 3.1 166-166-168	72 2-2 3.6 167-168-170	55 55
116.0	72 2-3 3.3 149-152-155	72 .0 147-147-150	72 .0 147-147-150	72 .0 147-147-150	72 .0 147-147-150	55 55
111.0	72 .0 143-144-147	72 .0 143-144-147	72 .0 143-144-147	72 .0 143-144-147	72 .0 143-144-147	55 55
106.0	72 .0 140-140-143	72 .0 140-140-143	72 .0 140-140-143	72 .0 140-140-143	72 .0 140-140-143	55 55
101.0	72 .0 136-137-140	72 .0 136-137-140	72 .0 136-137-140	72 .0 136-137-140	72 .0 136-137-140	55 55

EHAM AMSTERDAM 01L/19R

ELEV. = -10 ft
SLOPE = .00 %

TORA = 3300 m
ASDA = 3300 m
TODA = 3360 m

15/15

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

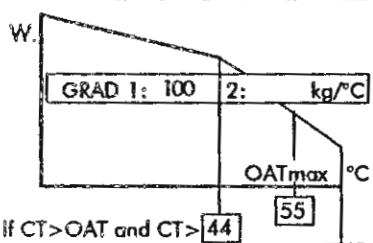
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1013 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT> 44
use Corr. Flex. T/O Temp. up to 72

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-2	-2.0	-12	-3

Minimum v_1: 117 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1500 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	14 2-3 .1 169-174-177	25 2-2 .1 170-175-178	34 2-2 .0 171-175-178	44
157.0	- -	12 2-3 .1 163-169-172	32 2-6 .1 164-170-173	44 2-6 .1 166-171-175	44 2-3 1.4 170-175-178	45
155.0	10 2-6 .0 156-164-168	29 2-6 .1 158-165-169	44 2-6 .6 162-168-171	45 2-6 .9 166-171-174	46 2-2 .6 169-174-177	47
153.0	26 2-6 .0 152-160-164	44 2-6 .2 155-162-166	46 2-3 .5 162-168-171	47 2-3 .6 166-171-174	47 2-2 1.2 169-173-176	48 44
151.0	41 2-6 .1 149-157-161	46 2-3 .2 156-162-166	48 2-3 .1 162-167-171	49 2-3 .2 166-171-174	49 2-2 .3 167-171-174	49 45
149.0	44 2-6 1.7 148-156-161	47 2-3 1.1 156-162-166	49 2-3 .9 162-167-171	50 2-3 .8 166-170-173	50 2-2 .8 166-170-173	51 46
147.0	47 2-6 .7 150-157-161	49 2-3 .7 156-162-165	51 2-3 .5 162-167-170	51 2-2 1.4 165-169-173	51 2-2 1.4 165-169-173	52 48
145.0	49 2-3 .6 150-157-161	51 2-3 .4 155-161-165	53 2-3 .1 162-167-170	53 2-2 .5 164-168-171	53 2-2 .5 163-168-171	53 49
143.0	51 2-3 .3 150-156-160	53 2-3 .0 155-161-165	54 2-3 .9 162-167-170	54 2-2 1.0 163-167-170	54 2-2 1.0 162-167-170	55 51
141.0	53 2-3 .0 150-156-160	54 2-3 .9 155-161-164	56 2-2 .2 161-165-168	56 2-2 .2 161-165-168	56 2-2 .2 160-165-168	55 52
136.0	57 2-3 .4 149-155-159	58 2-3 1.1 155-160-163	59 2-2 1.1 159-163-166	59 2-2 1.1 159-163-166	59 2-2 1.1 157-163-166	55 55
131.0	61 2-3 .8 149-154-157	63 2-3 .3 154-158-162	63 2-2 .7 156-160-163	63 2-2 .7 155-160-163	63 2-2 .7 153-160-163	55 55
126.0	66 2-3 .0 148-153-156	67 2-2 .2 153-156-159	67 2-2 .2 152-156-159	67 2-2 .2 151-156-159	67 2-2 .2 149-156-159	55 55
121.0	70 2-3 .4 147-151-155	70 2-2 1.1 151-154-157	70 2-2 1.1 149-154-157	70 2-2 1.1 148-154-157	70 2-2 1.1 146-154-157	55 55
116.0	72 2-3 3.1 147-151-154	72 2-2 3.4 149-152-155	72 2-2 3.4 147-152-155	72 2-2 3.4 145-152-155	72 2-2 3.4 144-152-155	55 55
111.0	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	55 55
106.0	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	55 55
101.0	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	55 55

EHAM AMSTERDAM 09/27

ELEV. = -10 ft TORA = 3453 m
SLOPE = .00 % ASDA = 3453 m
TODA = 3513 m

15/00

Take-off Parameters for 1013 hPa, dry RWY and A/C ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

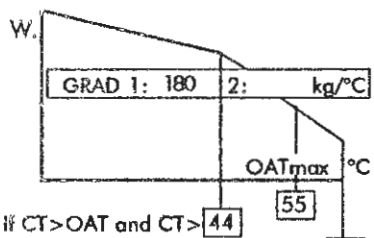
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1013 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>44
use Corr. Flex. T/O Temp. up to 72

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-6	-4.5	-8	-3

Minimum v_1: 119 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last volue as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1500 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	-1 2-6 .0 166-172-176	17 2-6 .1 167-173-177	31 2-6 .0 168-174-178	43 2-1 .0 169-175-178	44
157.0	- -	11 2-6 .1 163-169-174	32 2-6 .0 164-170-174	44 2-6 .2 165-171-175	44 2-6 1.9 169-175-178	45
155.0	0 6-6 .1 161-168-172	20 6-6 .2 161-168-172	43 2-6 .2 162-168-172	46 2-6 .2 166-171-175	47 2-6 .8 171-175-179	47
153.0	8 6-6 .0 159-167-171	29 6-6 .1 160-167-171	44 6-6 2.0 162-168-172	48 2-6 .2 167-172-176	49 2-6 .7 172-175-179	48 44
151.0	15 6-6 .2 158-166-170	37 6-6 .2 159-166-170	48 2-6 .6 163-168-172	50 2-6 .1 168-172-176	51 2-6 .5 173-176-179	49 45
149.0	24 6-6 .0 156-165-169	44 6-6 .5 157-165-169	50 2-6 .5 164-168-172	51 2-6 1.0 169-172-176	53 2-6 .3 174-176-180	51 46
147.0	32 6-6 .1 155-164-168	49 6-6 .0 158-164-168	52 2-6 .4 165-169-172	53 2-6 .9 170-172-176	55 2-6 .1 175-176-180	52 48
145.0	41 6-6 .0 153-162-166	51 2-2 1.0 158-164-167	54 2-6 .3 166-169-173	55 2-6 .7 170-173-176	56 2-3 .9 175-176-180	53 49
143.0	44 6-6 1.3 153-162-166	53 2-6 1.0 159-164-167	56 2-3 .1 166-169-172	57 2-3 .3 170-172-176	58 2-3 .4 175-176-179	55 51
141.0	50 6-6 .2 154-161-164	55 2-6 .9 160-164-167	57 2-3 .8 166-168-172	58 2-3 1.1 170-172-175	59 2-3 1.2 175-175-178	55 52
134.0	58 3-3 .2 154-159-162	60 2-3 .1 159-163-166	61 2-3 1.0 165-167-171	62 2-3 1.2 169-171-174	64 2-3 .0 174-174-177	55 55
131.0	62 2-3 .7 153-157-160	64 2-3 .4 159-162-164	66 2-3 .0 165-166-169	67 2-3 .1 169-169-172	67 2-2 .8 172-172-175	55 55
126.0	66 2-3 1.1 153-156-159	68 2-3 .7 158-161-163	70 2-3 .2 164-165-168	70 2-3 1.4 168-169-171	71 2-2 .0 167-168-171	55 55
121.0	71 2-3 .4 152-155-157	72 2-3 1.1 158-160-162	72 2-3 2.9 164-165-167	72 2-2 3.6 167-168-170	72 2-2 3.6 166-168-170	55 55
116.0	72 2-3 4.3 152-155-157	72 .0 147-147-150	72 .0 147-147-150	72 .0 147-147-150	72 .0 147-147-150	55 55
111.0	72 .0 143-144-147	72 .0 143-144-147	72 .0 143-144-147	72 .0 143-144-147	72 .0 143-144-147	55 55
106.0	72 .0 140-140-143	72 .0 140-140-143	72 .0 140-140-143	72 .0 140-140-143	72 .0 140-140-143	55 55
101.0	72 .0 136-137-140	72 .0 136-137-140	72 .0 136-137-140	72 .0 136-137-140	72 .0 136-137-140	55 55

EHAM AMSTERDAM 09/27

ELEV. = -10 ft TORA = 3453 m
SLOPE = .00 % ASDA = 3453 m
TODA = 3513 m

15/15

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

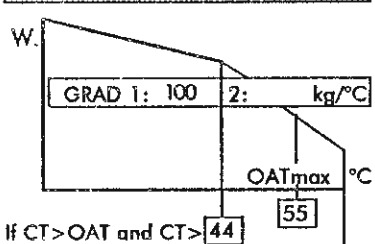
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1013 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT> 44
use Corr. Flex. T/O Temp. up to 72

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-2	-2.0	-12	-3

Minimum v_1: 117 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1500 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	0 2-6 .0 166-173-176	19 2-6 .0 167-174-177	31 2-2 .0 169-175-178	34 2-2 .0 170-175-179	44
157.0	- -	17 2-6 .1 161-169-173	36 2-6 .1 163-170-174	44 2-6 .5 166-173-176	44 2-2 1.5 169-175-178	45
155.0	14 2-6 .1 155-164-168	34 2-6 .1 157-165-169	44 2-6 1.1 161-169-172	46 2-6 .4 167-173-176	46 2-2 .6 169-174-177	47
153.0	30 2-6 .1 151-161-165	44 2-6 .8 155-163-167	46 2-6 1.0 162-169-172	47 2-2 1.2 167-173-176	47 2-2 1.2 168-173-176	48 44
151.0	44 2-6 .3 148-158-162	46 2-6 .8 155-164-167	48 2-6 .8 163-169-173	49 2-2 .3 167-171-174	49 2-2 .3 166-171-174	49 45
149.0	46 2-6 .3 149-158-162	48 2-6 .7 156-164-167	50 2-6 .6 164-170-173	50 2-2 .8 166-170-173	50 2-2 .8 165-170-173	51 46
147.0	48 2-6 .3 150-158-162	50 2-6 .5 158-164-168	51 2-2 1.4 164-169-173	51 2-2 1.4 165-169-173	51 2-2 1.4 164-169-173	52 48
145.0	50 2-6 .3 151-158-162	52 2-3 .3 158-164-167	53 2-2 .5 163-168-171	53 2-2 .5 163-168-171	53 2-2 .5 162-168-171	53 49
143.0	52 2-6 .2 152-159-163	53 2-3 1.1 158-164-167	54 2-2 1.0 163-167-170	54 2-2 1.0 162-167-170	54 2-2 1.0 160-167-170	55 51
141.0	54 2-3 .0 152-159-162	55 2-3 .7 158-164-167	56 2-2 .2 161-165-168	56 2-2 .2 160-165-168	56 2-2 .2 158-165-168	55 52
136.0	58 2-3 .3 152-158-161	59 2-3 .9 157-162-166	59 2-2 1.1 159-163-166	59 2-2 1.1 157-163-166	59 2-2 1.1 156-163-166	55 55
131.0	62 2-3 .7 151-156-160	63 2-2 .7 155-160-163	63 2-2 .7 155-160-163	63 2-2 .7 153-160-163	63 2-2 .7 152-160-163	55 55
126.0	66 2-3 1.0 150-155-158	67 2-2 .2 153-156-159	67 2-2 .2 151-156-159	67 2-2 .2 149-156-159	67 2-2 .2 148-156-159	55 55
121.0	70 2-2 1.1 149-154-157	70 2-2 1.1 150-154-157	70 2-2 1.1 148-154-157	70 2-2 1.1 146-154-157	70 2-2 1.1 144-154-157	55 55
116.0	72 2-2 3.4 148-152-155	72 2-2 3.4 148-152-155	72 2-2 3.4 145-152-155	72 2-2 3.4 144-152-155	72 2-2 3.4 142-152-155	55 55
111.0	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	55 55
106.0	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	55 55
101.0	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	55 55

EDDH HAMBURG 23

ELEV. = 53 ft TORA = 3250 m
SLOPE = .00 % ASDA = 3250 m
TODA = 3310 m

15/00

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight increment [t]
v_1 - v_R - v_2 [kts] IAS

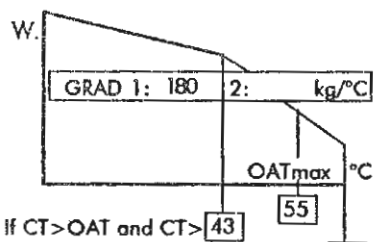
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1015 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>43
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-6	-4.5	-8	-3

Minimum v_1: 119 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1600 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	10 2-1 .0 169-173-177	23 2-1 .1 170-174-178	36 2-1 .1 171-174-178	44
157.0	- -	4 2-6 .1 165-170-174	27 2-6 .0 165-169-173	39 2-6 .1 167-170-174	43 2-1 1.3 170-173-177	45
155.0	- -	14 6-6 .0 163-168-172	36 2-6 .1 164-168-172	43 2-6 1.6 166-170-174	46 2-6 .9 171-173-177	46
153.0	1 6-6 .1 161-167-171	22 6-6 .1 162-167-171	43 2-6 .5 163-167-171	47 2-6 .3 167-170-174	48 2-6 .8 171-174-177	48 43
151.0	9 6-6 .0 160-166-170	30 6-6 .1 161-166-170	47 2-6 .6 163-167-170	49 2-3 .1 167-170-174	50 2-3 .5 172-173-177	49 45
149.0	16 6-6 .2 158-165-169	38 6-6 .2 159-165-169	49 2-3 .4 163-167-170	50 2-3 .9 167-170-174	52 2-3 .1 171-173-177	51 46
147.0	25 6-6 .0 157-163-168	43 6-6 1.0 158-164-168	51 2-3 .1 163-166-170	52 2-3 .5 167-169-173	53 2-3 .9 171-173-177	52 48
145.0	33 6-6 .1 156-162-167	48 6-6 .6 159-163-167	52 2-3 .9 163-166-170	54 2-3 .1 167-169-173	55 2-3 .4 171-173-176	53 49
143.0	41 6-6 .2 154-161-165	51 3-3 .3 158-162-165	54 2-3 .6 163-166-169	55 2-3 1.0 167-169-173	56 2-3 1.2 171-172-176	55 50
141.0	43 6-6 1.7 154-161-165	53 3-3 .7 157-161-165	56 2-3 .2 163-165-169	57 2-3 .6 166-168-172	58 2-3 .8 171-172-175	55 52
136.0	53 3-3 .6 153-158-162	58 2-3 .5 156-160-163	60 2-3 .5 162-164-167	61 2-3 .8 166-167-170	62 2-3 1.0 170-170-174	55 55
131.0	59 3-3 .4 151-156-159	62 2-3 1.0 155-159-161	64 2-3 .9 161-163-166	65 2-3 1.0 165-166-169	66 2-3 1.1 169-169-172	55 55
126.0	65 3-3 .3 150-153-156	67 2-3 .3 155-157-160	69 2-3 .0 161-162-164	70 2-3 .1 165-165-167	70 2-3 1.0 168-168-170	55 55
121.0	69 2-3 1.1 149-152-154	71 2-3 .8 154-156-159	72 2-3 1.5 160-161-163	72 2-3 2.7 165-165-167	72 2-3 3.5 167-167-169	55 55
116.0	72 2-3 2.8 148-151-154	72 2-3 4.7 154-156-158	72 .0 147-147-150	72 .0 147-147-150	72 .0 147-147-150	55 55
111.0	72 .0 143-144-147	72 .0 143-144-147	72 .0 143-144-147	72 .0 143-144-147	72 .0 143-144-147	55 55
106.0	72 .0 140-140-143	72 .0 140-140-143	72 .0 140-140-143	72 .0 140-140-143	72 .0 140-140-143	55 55
101.0	72 .0 136-137-140	72 .0 136-137-140	72 .0 136-137-140	72 .0 136-137-140	72 .0 136-137-140	55 55

EDDH HAMBURG 23

ELEV. = 53 ft TORA = 3250 m
SLOPE = .00 % ASDA = 3250 m
TODA = 3310 m

15/15

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

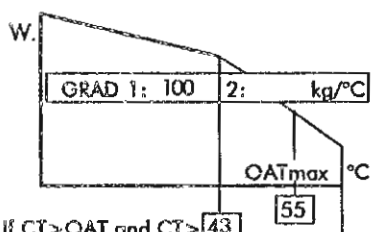
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1015 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>43
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-2	-2.0	-12	-3

Minimum v_1: 117 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1600 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	9 2-1 .1 169-174-177	21 2-2 .0 170-174-178	30 2-2 .0 171-175-178	44
157.0	- -	8 2-3 .1 163-169-172	29 2-3 .0 165-170-173	41 2-3 .0 166-171-174	43 2-2 1.1 169-174-177	45
155.0	7 2-3 .0 157-164-168	26 2-3 .1 159-165-169	43 2-3 .4 162-167-171	43 2-3 1.8 166-171-174	46 2-3 .2 169-173-176	46
153.0	23 2-6 .1 153-160-164	43 2-3 .0 155-162-165	45 2-3 .9 161-167-170	46 2-3 1.1 165-170-173	47 2-2 .8 168-173-176	48 43
151.0	38 2-6 .1 150-157-161	45 2-3 .6 155-161-165	47 2-3 .6 161-167-170	48 2-3 .7 165-170-173	48 2-2 1.4 168-172-175	49 45
149.0	43 2-6 1.5 149-156-160	47 2-3 .3 155-161-165	49 2-3 .2 161-166-170	50 2-3 .3 165-169-173	50 2-2 .5 167-170-173	51 46
147.0	47 2-3 .1 149-156-160	49 2-3 .0 155-161-164	50 2-3 1.0 161-166-169	51 2-3 .9 165-169-172	51 2-2 1.1 166-169-172	52 48
145.0	48 2-3 1.0 149-156-160	50 2-3 .9 155-160-164	52 2-3 .6 161-166-169	53 2-2 .2 164-168-171	53 2-2 .2 163-168-171	53 49
143.0	50 2-3 .7 149-156-160	52 2-3 .6 154-160-164	54 2-3 .3 161-165-169	54 2-2 .7 163-167-170	54 2-2 .7 162-167-170	55 50
141.0	52 2-3 .5 149-155-159	54 2-3 .2 154-160-163	55 2-3 1.1 161-165-168	55 2-2 1.3 162-166-169	55 2-2 1.3 161-166-169	55 52
136.0	56 2-3 .9 148-154-158	58 2-3 .5 154-159-162	59 2-2 .9 159-163-166	59 2-2 .9 159-163-166	59 2-2 .9 157-163-166	55 55
131.0	61 2-3 .2 148-153-156	62 2-3 .9 153-158-161	63 2-2 .5 156-160-163	63 2-2 .5 155-160-163	63 2-2 .5 154-160-163	55 55
126.0	65 2-3 .6 147-152-155	67 2-2 .0 152-156-159	67 2-2 .0 152-156-159	67 2-2 .0 151-156-159	67 2-2 .0 150-156-159	55 55
121.0	69 2-3 1.1 146-151-154	70 2-2 1.0 151-154-157	70 2-2 1.0 149-154-157	70 2-2 1.0 148-154-157	70 2-2 1.0 147-154-157	55 55
116.0	72 2-3 2.6 146-150-153	72 2-2 3.3 149-152-155	72 2-2 3.3 147-152-155	72 2-2 3.3 146-152-155	72 2-2 3.3 144-152-155	55 55
111.0	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	55 55
106.0	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	55 55
101.0	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	55 55

EDDH HAMBURG 05

ELEV. = 53 ft TORA = 3250 m
SLOPE = .00 % ASDA = 3250 m
TODA = 3310 m

15/00

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

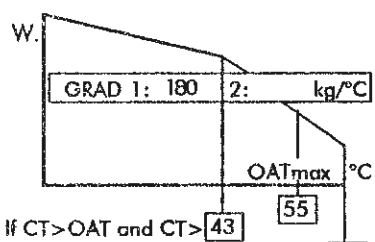
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1015 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>43
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-6	-4.5	-8	-3

Minimum v_1: 119 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1600 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	10 2-1 .0 169-173-177	23 2-1 .1 170-174-178	36 2-1 .1 171-174-178	44
157.0	- -	4 2-6 .1 165-170-174	27 2-6 .0 165-169-173	39 2-6 .1 167-170-174	43 2-1 1.3 170-173-177	45
155.0	- -	14 6-6 .0 163-168-172	36 2-6 .1 164-168-172	43 2-6 1.6 166-170-174	46 2-6 .9 171-173-177	46
153.0	1 6-6 .1 161-167-171	22 6-6 .1 162-167-171	43 2-6 .5 163-167-171	47 2-6 .3 167-170-174	48 2-6 .8 171-174-177	48 43
151.0	9 6-6 .0 160-166-170	30 6-6 .1 161-166-170	47 2-6 .6 163-167-170	49 2-3 .1 167-170-174	50 2-3 .5 172-173-177	49 45
149.0	16 6-6 .2 158-165-169	38 6-6 .2 159-165-169	49 2-3 .4 163-167-170	50 2-3 .9 167-170-174	52 2-3 .1 171-173-177	51 46
147.0	25 6-6 .0 157-163-168	43 6-6 1.0 158-164-168	51 2-3 .1 163-166-170	52 2-3 .5 167-169-173	53 2-3 .9 171-173-177	52 48
145.0	33 6-6 .1 156-162-167	48 6-6 .6 159-163-167	52 2-3 .9 163-166-170	54 2-3 .1 167-169-173	55 2-3 .4 171-173-176	53 49
143.0	41 6-6 .2 154-161-165	51 3-3 .3 158-162-165	54 2-3 .6 163-166-169	55 2-3 1.0 167-169-173	56 2-3 1.2 171-172-176	55 50
141.0	43 6-6 1.7 154-161-165	53 3-3 .7 157-161-165	56 2-3 .2 163-165-169	57 2-3 .6 166-168-172	58 2-3 .8 171-172-175	55 52
136.0	53 3-3 .6 153-158-162	58 2-3 .5 156-160-163	60 2-3 .5 162-164-167	61 2-3 .8 166-167-170	62 2-3 1.0 170-170-174	55 55
131.0	59 3-3 .4 151-156-159	62 2-3 1.0 155-159-161	64 2-3 .9 161-163-166	65 2-3 1.0 165-166-169	66 2-3 1.1 169-169-172	55 55
126.0	65 3-3 .3 150-153-156	67 2-3 .3 155-157-160	69 2-3 .0 161-162-164	70 2-3 .1 165-165-167	70 2-3 1.0 168-168-170	55 55
121.0	69 2-3 1.1 149-152-154	71 2-3 .8 154-156-159	72 2-3 1.5 160-161-163	72 2-3 2.7 165-165-167	72 2-3 3.5 167-167-169	55 55
116.0	72 2-3 2.8 148-151-154	72 2-3 4.7 154-156-158	72 .0 147-147-150	72 .0 147-147-150	72 .0 147-147-150	55 55
111.0	72 .0 143-144-147	72 .0 143-144-147	72 .0 143-144-147	72 .0 143-144-147	72 .0 143-144-147	55 55
106.0	72 .0 140-140-143	72 .0 140-140-143	72 .0 140-140-143	72 .0 140-140-143	72 .0 140-140-143	55 55
101.0	72 .0 136-137-140	72 .0 136-137-140	72 .0 136-137-140	72 .0 136-137-140	72 .0 136-137-140	55 55

EDDH HAMBURG 05

ELEV. = 53 ft
SLOPE = .00 %

TORA = 3250 m
ASDA = 3250 m
TODA = 3310 m

15/15

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

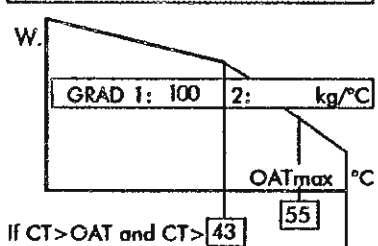
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1015 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>43
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-2	-2.0	-12	-3

Minimum v_1: 117 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1600 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	9 2-1 .1 169-174-177	21 2-2 .0 170-174-178	30 2-2 .0 171-175-178	44
157.0	- -	8 2-3 .1 163-169-172	29 2-3 .0 165-170-173	41 2-3 .0 166-171-174	43 2-2 1.1 169-174-177	45
155.0	7 2-3 .0 157-164-168	26 2-3 .1 159-165-169	43 2-3 .4 162-167-171	43 2-3 1.8 166-171-174	46 2-3 .2 169-173-176	46
153.0	23 2-6 .1 153-160-164	43 2-3 .0 155-162-165	45 2-3 .9 161-167-170	46 2-3 1.1 165-170-173	47 2-2 .8 168-173-176	48 43
151.0	38 2-6 .1 150-157-161	45 2-3 .6 155-161-165	47 2-3 .6 161-167-170	48 2-3 .7 165-170-173	48 2-2 1.4 168-172-175	49 45
149.0	43 2-6 1.5 149-156-160	47 2-3 .3 155-161-165	49 2-3 .2 161-166-170	50 2-3 .3 165-169-173	50 2-2 .5 167-170-173	51 46
147.0	47 2-3 .1 149-156-160	49 2-3 .0 155-161-164	50 2-3 1.0 161-166-169	51 2-3 .9 165-169-172	51 2-2 1.1 166-169-172	52 48
145.0	48 2-3 1.0 149-156-160	50 2-3 .9 155-160-164	52 2-3 .6 161-166-169	53 2-2 .2 164-168-171	53 2-2 .2 163-168-171	53 49
143.0	50 2-3 .7 149-156-160	52 2-3 .6 154-160-164	54 2-3 .3 161-165-169	54 2-2 .7 163-167-170	54 2-2 .7 162-167-170	55 50
141.0	52 2-3 .5 149-155-159	54 2-3 .2 154-160-163	55 2-3 1.1 161-165-168	55 2-2 1.3 162-166-169	55 2-2 1.3 161-166-169	55 52
136.0	56 2-3 .9 148-154-158	58 2-3 .5 154-159-162	59 2-2 .9 159-163-166	59 2-2 .9 159-163-166	59 2-2 .9 157-163-166	55 55
131.0	61 2-3 .2 148-153-156	62 2-3 .9 153-158-161	63 2-2 .5 156-160-163	63 2-2 .5 155-160-163	63 2-2 .5 154-160-163	55 55
126.0	65 2-3 .6 147-152-155	67 2-2 .0 152-156-159	67 2-2 .0 152-156-159	67 2-2 .0 151-156-159	67 2-2 .0 150-156-159	55 55
121.0	69 2-3 1.1 146-151-154	70 2-2 1.0 151-154-157	70 2-2 1.0 149-154-157	70 2-2 1.0 148-154-157	70 2-2 1.0 147-154-157	55 55
116.0	72 2-3 2.6 146-150-153	72 2-2 3.3 149-152-155	72 2-2 3.3 147-152-155	72 2-2 3.3 146-152-155	72 2-2 3.3 144-152-155	55 55
111.0	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	55 55
106.0	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	55 55
101.0	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	55 55

EDDH HAMBURG 33

ELEV. = 53 ft TORA = 3666 m
SLOPE = .00 % ASDA = 3666 m
TODA = 3725 m

15/00

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

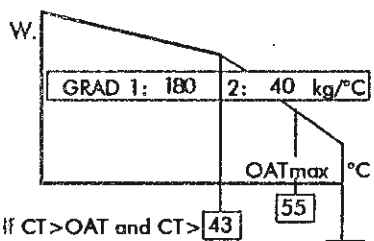
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1015 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>43
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-6	-4.5	-8	-3

Minimum v_1: 119 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1600 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	3 2-6 .1 164-172-177	21 2-1 .1 166-174-178	35 2-6 .0 167-174-178	44 2-6 .2 169-176-180	44
157.0	- -	16 2-6 .1 161-170-174	37 2-6 .1 163-170-174	43 2-6 1.0 165-173-177	46 2-6 .2 170-176-180	45
155.0	5 6-6 .2 158-168-172	26 2-6 .1 159-168-172	43 2-6 1.3 161-169-173	46 2-6 .6 166-173-177	48 2-6 .0 171-177-180	46
153.0	13 6-6 .2 157-167-171	35 6-6 .1 158-167-171	46 2-6 1.0 162-169-173	48 2-6 .5 167-173-177	49 2-6 .9 171-177-180	48 43
151.0	22 6-6 .0 155-166-170	43 6-6 .2 157-166-170	48 2-6 1.0 163-169-173	50 2-6 .4 168-173-177	51 2-6 .8 173-177-181	49 45
149.0	30 6-6 .1 154-165-169	47 6-6 .4 157-165-169	50 2-6 .9 164-170-174	52 2-6 .3 169-174-177	53 2-6 .5 174-178-181	51 46
147.0	38 6-6 .2 153-164-168	50 2-6 .4 158-165-168	52 2-6 .8 165-170-174	54 2-6 .1 170-174-177	55 2-6 .3 175-178-181	52 48
145.0	43 6-6 1.0 152-163-167	52 2-6 .4 159-165-168	54 2-6 .7 166-170-174	55 2-6 1.0 170-174-178	57 2-6 .1 176-178-181	53 49
143.0	49 6-6 .1 153-162-165	54 2-6 .4 160-165-169	56 2-6 .5 167-170-174	57 2-6 .8 171-174-178	58 2-6 1.0 177-178-181	55 50
141.0	53 6-6 .1 153-161-164	56 2-6 .3 160-165-169	58 2-6 .4 167-171-174	59 2-6 .7 172-175-178	60 2-2 .6 178-178-181	55 52
136.0	59 2-6 .0 156-161-164	61 2-6 .1 162-166-169	62 2-3 .9 169-170-174	63 2-3 1.0 173-174-177	63 2-2 1.3 175-175-178	55 55
131.0	63 2-3 .9 157-161-163	65 2-3 .4 162-165-167	66 2-3 1.1 168-169-172	67 2-2 .6 171-172-175	67 2-2 .6 170-172-175	55 55
126.0	68 2-3 .1 156-159-162	69 2-3 .7 162-164-166	70 2-3 1.2 168-168-171	70 2-2 1.3 168-169-172	70 2-2 1.3 167-169-172	55 55
121.0	72 2-3 .5 155-158-160	72 2-3 2.2 161-163-165	72 2-2 3.5 167-167-170	72 2-2 3.5 166-167-170	72 2-2 3.5 165-167-170	55 55
116.0	72 .0 147-147-150	72 .0 147-147-150	72 .0 147-147-150	72 .0 147-147-150	72 .0 147-147-150	55 55
111.0	72 .0 143-144-147	72 .0 143-144-147	72 .0 143-144-147	72 .0 143-144-147	72 .0 143-144-147	55 55
106.0	72 .0 140-140-143	72 .0 140-140-143	72 .0 140-140-143	72 .0 140-140-143	72 .0 140-140-143	55 55
101.0	72 .0 136-137-140	72 .0 136-137-140	72 .0 136-137-140	72 .0 136-137-140	72 .0 136-137-140	55 55

EDDH HAMBURG 33

ELEV. = 53 ft TORA = 3666 m
SLOPE = .00 % ASDA = 3666 m
TODA = 3725 m

15/15

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

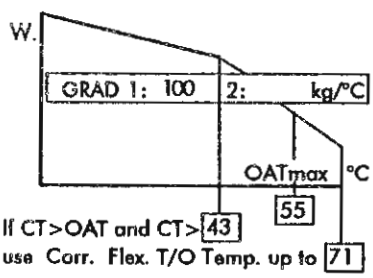
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1015 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>43
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-2	-2.0	-12	-3

Minimum v_1: 117 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1600 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	5 2-6* .0 164-173-177	21 2-2 .0 166-175-178	30 2-2 .1 167-175-178	32 2-2 .0 168-175-179	44
157.0	3 2-6 .1 157-168-172	22 2-6 .1 159-169-173	41 2-6 .0 161-171-174	43 2-2 1.2 165-174-177	43 2-2 1.5 167-175-178	45
155.0	20 2-6 .0 153-164-168	39 2-6 .0 155-166-170	43 2-6 1.8 161-171-174	46 2-2 .3 165-173-176	46 2-2 .3 166-173-176	46
153.0	36 2-6 .0 149-161-165	43 2-6 1.6 154-165-169	47 2-6 .3 162-171-174	47 2-2 .8 165-173-176	47 2-2 .8 166-173-176	48 43
151.0	43 2-6 1.1 148-160-164	47 2-6 .1 155-165-169	48 2-6 1.1 163-171-174	48 2-2 1.4 165-172-175	48 2-2 1.4 165-172-175	49 45
149.0	46 2-6 .8 148-160-164	48 2-6 1.0 156-165-169	50 2-2 .5 163-170-173	50 2-2 .5 164-170-173	50 2-2 .5 163-170-173	51 46
147.0	48 2-6 .8 149-160-164	50 2-6 .9 157-166-169	51 2-2 1.1 163-169-172	51 2-2 1.1 163-169-172	51 2-2 1.1 161-169-172	52 48
145.0	50 2-6 .7 150-160-164	52 2-6 .7 158-166-169	53 2-2 .2 162-168-171	53 2-2 .2 161-168-171	53 2-2 .2 159-168-171	53 49
143.0	52 2-6 .7 151-160-164	54 2-6 .6 159-166-169	54 2-2 .7 161-167-170	54 2-2 .7 160-167-170	54 2-2 .7 158-167-170	55 50
141.0	54 2-6 .6 152-161-164	55 2-2 1.3 159-166-169	55 2-2 1.3 160-166-169	55 2-2 1.3 159-166-169	55 2-2 1.3 157-166-169	55 52
136.0	59 2-3 .2 155-161-164	59 2-2 .9 158-163-166	59 2-2 .9 156-163-166	59 2-2 .9 155-163-166	59 2-2 .9 153-163-166	55 55
131.0	63 2-3 .4 154-159-162	63 2-2 .5 155-160-163	63 2-2 .5 153-160-163	63 2-2 .5 151-160-163	63 2-2 .5 149-160-163	55 55
126.0	67 2-2 .0 152-156-159	67 2-2 .0 151-156-159	67 2-2 .0 149-156-159	67 2-2 .0 147-156-159	67 2-2 .0 145-156-159	55 55
121.0	70 2-2 1.0 150-154-157	70 2-2 1.0 148-154-157	70 2-2 1.0 145-154-157	70 2-2 1.0 144-154-157	70 2-2 1.0 142-154-157	55 55
116.0	72 2-2 3.3 148-152-155	72 2-2 3.3 146-152-155	72 2-2 3.3 143-152-155	72 2-2 3.3 141-152-155	72 2-2 3.3 141-152-155	55 55
111.0	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	55 55
106.0	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	55 55
101.0	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	55 55

EDDH HAMBURG 15

ELEV. = 53 ft TORA = 3666 m
SLOPE = .00 % ASDA = 3666 m
TODA = 3725 m

15/00

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

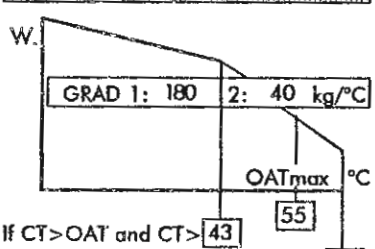
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1015 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>43
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-6	-4.5	-8	-3

Minimum v_1: 119 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1600 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	3 2-6 .1 164-172-177	21 2-1 .1 166-174-178	35 2-6 .0 167-174-178	44 2-6 .2 169-176-180	44
157.0	- -	16 2-6 .1 161-170-174	37 2-6 .1 163-170-174	43 2-6 1.0 165-173-177	46 2-6 .2 170-176-180	45
155.0	5 6-6 .2 158-168-172	26 2-6 .1 159-168-172	43 2-6 1.3 161-169-173	46 2-6 .6 166-173-177	48 2-6 .0 171-177-180	46
153.0	13 6-6 .2 157-167-171	35 6-6 .1 158-167-171	46 2-6 1.0 162-169-173	48 2-6 .5 167-173-177	49 2-6 .9 171-177-180	48 43
151.0	22 6-6 .0 155-166-170	43 6-6 .2 157-166-170	48 2-6 1.0 163-169-173	50 2-6 .4 168-173-177	51 2-6 .8 173-177-181	49 45
149.0	30 6-6 .1 154-165-169	47 6-6 .4 157-165-169	50 2-6 .9 164-170-174	52 2-6 .3 169-174-177	53 2-6 .5 174-178-181	51 46
147.0	38 6-6 .2 153-164-168	50 2-6 .4 158-165-168	52 2-6 .8 165-170-174	54 2-6 .1 170-174-177	55 2-6 .3 175-178-181	52 48
145.0	43 6-6 1.0 152-163-167	52 2-6 .4 159-165-168	54 2-6 .7 166-170-174	55 2-6 1.0 170-174-178	57 2-6 .1 176-178-181	53 49
143.0	49 6-6 .1 153-162-165	54 2-6 .4 160-165-169	56 2-6 .5 167-170-174	57 2-6 .8 171-174-178	58 2-6 1.0 177-178-181	55 50
141.0	53 6-6 .1 153-161-164	56 2-6 .3 160-165-169	58 2-6 .4 167-171-174	59 2-6 .7 172-175-178	60 2-2 .6 178-178-181	55 52
136.0	59 2-6 .0 156-161-164	61 2-6 .1 162-166-169	62 2-3 .9 169-170-174	63 2-3 1.0 173-174-177	63 2-2 1.3 175-175-178	55 55
131.0	63 2-3 .9 157-161-163	65 2-3 .4 162-165-167	66 2-3 1.1 168-169-172	67 2-2 .6 171-172-175	67 2-2 .6 170-172-175	55 55
126.0	68 2-3 .1 156-159-162	69 2-3 .7 162-164-166	70 2-3 1.2 168-168-171	70 2-2 1.3 168-169-172	70 2-2 1.3 167-169-172	55 55
121.0	72 2-3 .5 155-158-160	72 2-3 2.2 161-163-165	72 2-2 3.5 167-167-170	72 2-2 3.5 166-167-170	72 2-2 3.5 165-167-170	55 55
116.0	72 .0 147-147-150	72 .0 147-147-150	72 .0 147-147-150	72 .0 147-147-150	72 .0 147-147-150	55 55
111.0	72 .0 143-144-147	72 .0 143-144-147	72 .0 143-144-147	72 .0 143-144-147	72 .0 143-144-147	55 55
106.0	72 .0 140-140-143	72 .0 140-140-143	72 .0 140-140-143	72 .0 140-140-143	72 .0 140-140-143	55 55
101.0	72 .0 136-137-140	72 .0 136-137-140	72 .0 136-137-140	72 .0 136-137-140	72 .0 136-137-140	55 55

EDDH HAMBURG 15

ELEV. = 53 ft TORA = 3666 m
SLOPE = .00 % ASDA = 3666 m
TODA = 3725 m

15/15

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

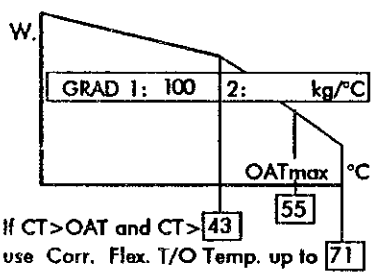
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1015 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>43
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-2	-2.0	-12	-3

Minimum v_1: 117 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1600 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	5 2-6 .0 164-173-177	21 2-2 .0 166-175-178	30 2-2 .1 167-175-178	32 2-2 .0 168-175-179	44
157.0	3 2-6 .1 157-168-172	22 2-6 .1 159-169-173	41 2-6 .0 161-171-174	43 2-2 1.2 165-174-177	43 2-2 1.5 167-175-178	45
155.0	20 2-6 .0 153-164-168	39 2-6 .0 155-166-170	43 2-6 1.8 161-171-174	46 2-2 .3 165-173-176	46 2-2 .3 166-173-176	46
153.0	36 2-6 .0 149-161-165	43 2-6 1.6 154-165-169	47 2-6 .3 162-171-174	47 2-2 .8 165-173-176	47 2-2 .8 166-173-176	48 43
151.0	43 2-6 1.1 148-160-164	47 2-6 .1 155-165-169	48 2-6 1.1 163-171-174	48 2-2 1.4 165-172-175	48 2-2 1.4 165-172-175	49 45
149.0	46 2-6 .8 148-160-164	48 2-6 1.0 156-165-169	50 2-2 .5 163-170-173	50 2-2 .5 164-170-173	50 2-2 .5 163-170-173	51 46
147.0	48 2-6 .8 149-160-164	50 2-6 .9 157-166-169	51 2-2 1.1 163-169-172	51 2-2 1.1 163-169-172	51 2-2 1.1 161-169-172	52 48
145.0	50 2-6 .7 150-160-164	52 2-6 .7 158-166-169	53 2-2 .2 162-168-171	53 2-2 .2 161-168-171	53 2-2 .2 159-168-171	53 49
143.0	52 2-6 .7 151-160-164	54 2-6 .6 159-166-169	54 2-2 .7 161-167-170	54 2-2 .7 160-167-170	54 2-2 .7 158-167-170	55 50
141.0	54 2-6 .6 152-161-164	55 2-2 1.3 159-166-169	55 2-2 1.3 160-166-169	55 2-2 1.3 159-166-169	55 2-2 1.3 157-166-169	55 52
136.0	59 2-3 .2 155-161-164	59 2-2 .9 158-163-166	59 2-2 .9 156-163-166	59 2-2 .9 155-163-166	59 2-2 .9 153-163-166	55 55
131.0	63 2-3 .4 154-159-162	63 2-2 .5 155-160-163	63 2-2 .5 153-160-163	63 2-2 .5 151-160-163	63 2-2 .5 149-160-163	55 55
126.0	67 2-2 .0 152-156-159	67 2-2 .0 151-156-159	67 2-2 .0 149-156-159	67 2-2 .0 147-156-159	67 2-2 .0 145-156-159	55 55
121.0	70 2-2 1.0 150-154-157	70 2-2 1.0 148-154-157	70 2-2 1.0 145-154-157	70 2-2 1.0 144-154-157	70 2-2 1.0 142-154-157	55 55
116.0	72 2-2 3.3 148-152-155	72 2-2 3.3 146-152-155	72 2-2 3.3 143-152-155	72 2-2 3.3 141-152-155	72 2-2 3.3 141-152-155	55 55
111.0	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	55 55
106.0	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	55 55
101.0	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	55 55

EINN SHANNON 24

ELEV. = 47 ft TORA = 3200 m
SLOPE = .28 % ASDA = 3200 m
TODA = 3200 m

15/00

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

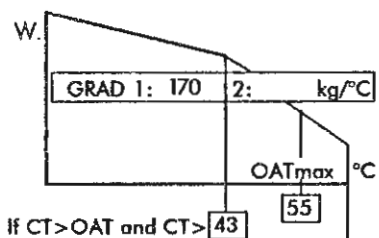
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1015 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>43
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-10	-5.0	-10	-3

Minimum v_1: 119 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1600 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	5 2-3 .1 170-173-177	20 2-3 .1 172-174-177	34 2-3 .1 173-175-178	44
157.0	- -	-2 3-3 .0 166-169-173	20 2-3 .1 167-170-174	36 2-3 .1 168-170-174	43 2-3 .9 171-173-176	45
155.0	- -	6 3-3 .2 165-168-172	32 3-3 .0 166-168-172	43 2-3 1.2 167-169-173	46 2-3 .4 171-172-176	46
153.0	- -	15 3-3 .2 164-167-171	41 3-3 .0 164-167-171	46 2-3 .6 167-169-172	48 2-3 .0 171-172-176	48 43
151.0	1 3-3 .2 161-166-170	24 3-3 .2 162-166-170	43 3-3 1.6 164-167-171	48 2-3 .3 167-168-172	49 2-3 .8 170-172-175	49 45
149.0	10 3-3 .1 160-165-169	33 3-3 .1 161-165-169	48 3-3 .1 163-165-169	49 2-3 1.1 166-168-172	51 2-3 .4 170-171-175	51 46
147.0	19 3-3 .1 159-164-168	42 3-3 .2 160-164-168	50 2-3 .3 162-165-168	51 2-3 .8 166-168-171	53 2-3 .0 170-171-174	52 48
145.0	28 3-3 .1 158-163-166	43 3-3 1.9 160-164-168	51 2-3 1.1 162-164-168	53 2-3 .4 166-167-171	54 2-3 .8 170-171-174	53 49
143.0	37 3-3 .1 156-162-165	48 3-3 .4 158-162-166	53 2-3 .8 162-164-167	55 2-3 .1 166-167-170	56 2-3 .4 170-170-174	55 51
141.0	43 3-3 .8 156-161-165	51 3-3 .0 157-161-164	55 2-3 .5 162-164-167	56 2-3 .9 166-167-170	57 2-3 1.2 169-170-173	55 52
136.0	50 3-3 .7 154-158-162	57 3-3 .1 156-159-161	59 2-3 .8 161-163-165	61 2-3 .0 165-165-168	62 2-3 .2 168-168-171	55 55
131.0	56 3-3 .8 152-156-159	62 2-3 .1 154-157-159	64 2-3 .1 160-161-164	65 2-3 .3 164-164-167	66 2-3 .1 167-167-169	55 55
126.0	62 3-3 .6 150-153-156	66 2-3 .6 154-156-158	68 2-3 .4 160-160-163	69 2-3 .5 163-163-165	70 2-3 .1 165-165-167	55 55
121.0	68 3-3 .7 148-151-153	70 2-3 1.1 153-155-157	72 2-3 .8 159-160-161	72 2-3 1.8 162-162-164	72 2-3 2.6 165-165-167	55 55
116.0	72 2-3 2.0 147-150-152	72 2-3 3.9 153-154-156	72 .0 147-147-150	72 .0 147-147-150	72 .0 147-147-150	55 55
111.0	72 .0 144-144-147	72 .0 144-144-147	72 .0 144-144-147	72 .0 144-144-147	72 .0 144-144-147	55 55
106.0	72 .0 140-141-143	72 .0 140-141-143	72 .0 140-141-143	72 .0 140-141-143	72 .0 140-141-143	55 55
101.0	72 .0 137-137-140	72 .0 137-137-140	72 .0 137-137-140	72 .0 137-137-140	72 .0 137-137-140	55 55

EINN SHANNON 24

ELEV. = 47 ft TORA = 3200 m
SLOPE = .28 % ASDA = 3200 m
TODA = 3200 m

15/15

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

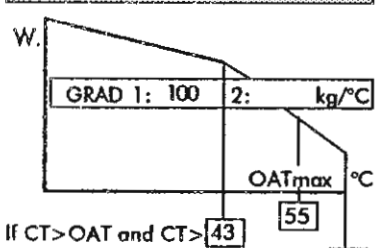
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1015 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>43
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-2	-2.0	-12	-3

Minimum v_1: 117 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1600 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	1 2-3 .1 170-173-177	13 2-3 .1 171-174-178	25 2-2 .0 172-175-178	44
157.0	- -	-1 2-3 .1 164-168-172	20 2-3 .0 166-169-173	32 2-3 .1 167-170-174	43 2-3 .2 168-172-175	45
155.0	-2 2-3 .0 158-163-167	17 2-3 .0 160-164-168	38 2-3 .0 162-166-169	43 2-3 .8 165-168-172	45 2-3 .7 168-171-175	46
153.0	15 2-3 .0 154-160-164	34 2-3 .1 156-161-165	43 2-3 1.4 161-165-168	46 2-3 .2 164-168-171	47 2-3 .3 168-171-174	48 43
151.0	31 2-3 .1 151-157-161	43 2-3 1.0 154-159-163	46 2-3 .8 160-164-168	47 2-3 1.0 164-168-171	48 2-3 1.1 168-171-174	49 45
149.0	43 2-3 .6 149-154-159	46 2-3 .4 154-159-163	48 2-3 .5 160-164-168	49 2-3 .6 164-167-171	50 2-2 .5 168-170-173	51 46
147.0	46 2-3 .1 149-154-158	48 2-3 .2 154-159-162	50 2-3 .1 160-164-167	51 2-3 .2 164-167-170	51 2-2 1.1 167-169-172	52 48
145.0	47 2-3 1.0 148-154-158	49 2-3 1.0 154-158-162	51 2-3 1.0 160-164-167	52 2-3 1.1 164-167-170	53 2-2 .2 165-168-171	53 49
143.0	49 2-3 .8 148-153-157	51 2-3 .7 154-158-162	53 2-3 .6 160-163-167	54 2-3 .7 164-167-170	54 2-2 .7 164-167-170	55 51
141.0	51 2-3 .5 148-153-157	53 2-3 .4 153-158-161	55 2-3 .2 160-163-166	55 2-2 1.3 163-166-169	55 2-2 1.3 163-166-169	55 52
136.0	55 2-3 1.1 148-152-156	57 2-3 .8 153-157-160	59 2-3 .5 159-162-165	59 2-2 .9 161-163-166	59 2-2 .9 160-163-166	55 55
131.0	60 2-3 .4 147-151-155	62 2-3 .1 152-155-159	63 2-2 .5 158-160-163	63 2-2 .5 157-160-163	63 2-2 .5 156-160-163	55 55
126.0	64 2-3 .9 146-150-153	66 2-3 .4 152-154-157	67 2-2 .1 154-156-159	67 2-2 .1 153-156-159	67 2-2 .1 152-156-159	55 55
121.0	69 2-3 .2 145-148-152	70 2-3 .8 151-153-156	70 2-2 1.0 151-154-157	70 2-2 1.0 150-154-157	70 2-2 1.0 149-154-157	55 55
116.0	72 2-3 1.9 145-148-151	72 2-2 3.3 150-152-155	72 2-2 3.3 149-152-155	72 2-2 3.3 148-152-155	72 2-2 3.3 146-152-155	55 55
111.0	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	55 55
106.0	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	55 55
101.0	72 .0 125-126-130	72 .0 125-126-130	72 .0 125-126-130	72 .0 125-126-130	72 .0 125-126-130	55 55

EINN SHANNON 06

ELEV. = 47 ft TORA = 3200 m
SLOPE = -.28 % ASDA = 3200 m
TODA = 3200 m

15/00

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

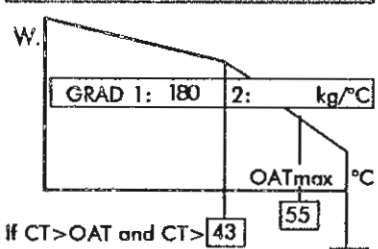
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1015 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>43
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-10	-5.0	-10	-3

Minimum v_1: 119 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1600 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	7 2-1 .0 169-172-177	21 2-1 .0 170-173-177	34 2-6 .1 171-174-178	44
157.0	- -	1 2-6 .2 165-169-174	22 2-6 .1 166-170-174	37 2-6 .0 166-170-174	43 2-6 .9 169-172-176	45
155.0	- -	10 2-6 .1 163-168-172	33 6-6 .0 164-168-172	43 2-6 1.2 165-169-173	46 2-6 .6 170-172-176	46
153.0	-2 6-6 .0 161-166-171	18 6-6 .2 162-167-171	41 6-6 .2 163-167-171	46 2-6 .9 166-169-173	48 2-6 .5 171-173-177	48 43
151.0	5 6-6 .2 160-165-170	27 6-6 .0 161-166-170	43 6-6 1.7 162-167-171	48 2-6 .9 167-169-173	50 2-3 .3 171-173-177	49 45
149.0	13 6-6 .1 158-164-169	35 6-6 .1 159-165-169	49 2-3 .1 163-166-170	50 2-3 .6 167-169-173	51 2-3 1.0 171-172-176	51 46
147.0	21 6-6 .2 157-163-168	43 6-6 .2 158-164-168	50 2-3 .9 163-166-169	52 2-3 .3 167-169-173	53 2-3 .6 171-172-176	52 48
145.0	29 6-6 .2 156-162-167	47 6-6 .5 158-163-167	52 2-3 .6 163-165-169	53 2-3 1.1 166-168-172	55 2-3 .2 171-172-175	53 49
143.0	38 6-6 .1 154-161-165	50 3-3 .4 158-162-166	54 2-3 .3 162-165-169	55 2-3 .7 166-168-172	56 2-3 1.0 170-171-175	55 51
141.0	43 6-6 .9 153-160-165	53 3-3 .0 157-161-164	55 2-3 1.1 162-165-168	57 2-3 .3 166-168-171	58 2-3 .6 170-171-174	55 52
136.0	52 3-3 .7 153-158-162	58 2-3 .3 156-159-162	60 2-3 .3 161-163-167	61 2-3 .6 165-166-170	62 2-3 .7 169-170-173	55 55
131.0	58 3-3 .6 151-156-159	62 2-3 .7 155-158-161	64 2-3 .7 161-162-165	65 2-3 .8 165-165-168	66 2-3 .8 168-168-171	55 55
126.0	64 3-3 .5 150-153-156	67 2-3 .1 154-156-159	68 2-3 1.0 160-161-164	69 2-3 1.1 164-165-167	70 2-3 .7 167-167-169	55 55
121.0	69 2-3 .8 148-151-154	71 2-3 .5 154-156-158	72 2-3 1.3 160-161-163	72 2-3 2.5 164-164-166	72 2-3 3.2 166-166-169	55 55
116.0	72 2-3 2.5 148-151-153	72 2-3 4.4 154-155-158	72 .0 147-147-150	72 .0 147-147-150	72 .0 147-147-150	55 55
111.0	72 .0 143-144-147	72 .0 143-144-147	72 .0 143-144-147	72 .0 143-144-147	72 .0 143-144-147	55 55
106.0	72 .0 140-140-143	72 .0 140-140-143	72 .0 140-140-143	72 .0 140-140-143	72 .0 140-140-143	55 55
101.0	72 .0 136-137-140	72 .0 136-137-140	72 .0 136-137-140	72 .0 136-137-140	72 .0 136-137-140	55 55

EINN SHANNON 06

ELEV. = 47 ft TORA = 3200 m
SLOPE = -.28 % ASDA = 3200 m
TODA = 3200 m

15/15

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

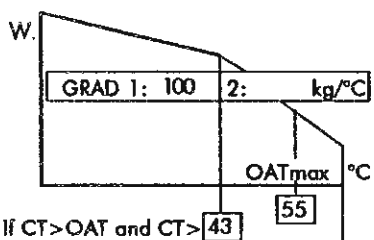
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1015 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT> 43
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-2	-2.0	-12	-3

Minimum v_1: 117 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1600 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	7 2-1 .1 169-173-177	19 2-2 .1 170-174-178	30 2-2 .0 171-175-178	44
157.0	- -	6 2-3 .0 163-168-172	26 2-3 .1 165-170-173	38 2-3 .1 166-171-174	43 2-2 .8 169-173-176	45
155.0	4 2-3 .1 157-163-168	24 2-3 .0 158-164-168	43 2-3 .1 161-166-170	43 2-3 1.5 165-170-173	46 2-3 .1 169-173-176	46
153.0	20 2-6 .0 153-160-164	40 2-6 .0 155-161-165	45 2-3 .7 161-166-170	46 2-3 .9 165-169-173	47 2-2 .9 168-172-176	48 43
151.0	35 2-6 .1 149-157-161	43 2-6 1.6 154-161-165	47 2-3 .4 161-166-169	48 2-3 .5 165-169-172	48 2-2 1.4 168-172-175	49 45
149.0	43 2-6 1.0 148-155-159	47 2-3 .1 154-160-164	48 2-3 1.2 161-166-169	50 2-3 .1 165-169-172	50 2-2 .5 167-170-173	51 46
147.0	46 2-6 .8 148-155-160	48 2-3 .9 154-160-164	50 2-3 .8 161-165-169	51 2-3 .9 164-168-172	51 2-2 1.1 166-169-172	52 48
145.0	48 2-3 .7 149-155-159	50 2-3 .6 154-160-164	52 2-3 .4 160-165-168	53 2-2 .2 164-167-171	53 2-2 .2 164-167-171	53 49
143.0	50 2-3 .5 148-155-159	52 2-3 .3 154-159-163	54 2-3 .1 160-165-168	54 2-2 .7 163-167-170	54 2-2 .7 163-167-170	55 51
141.0	52 2-3 .2 148-154-159	53 2-3 1.2 154-159-163	55 2-3 .9 160-165-168	55 2-2 1.3 162-166-169	55 2-2 1.3 162-166-169	55 52
136.0	56 2-3 .7 148-154-158	58 2-3 .3 153-158-162	59 2-2 .9 159-163-166	59 2-2 .9 159-163-166	59 2-2 .9 158-163-166	55 55
131.0	60 2-3 1.1 147-152-156	62 2-3 .7 153-157-160	63 2-2 .5 157-159-163	63 2-2 .5 155-159-163	63 2-2 .5 154-159-163	55 55
126.0	65 2-3 .4 147-151-155	66 2-3 1.0 152-156-159	67 2-2 .1 153-156-159	67 2-2 .1 151-156-159	67 2-2 .1 150-156-159	55 55
121.0	69 2-3 .8 146-150-153	70 2-2 1.0 151-154-157	70 2-2 1.0 150-154-157	70 2-2 1.0 148-154-157	70 2-2 1.0 147-154-157	55 55
116.0	72 2-3 2.4 146-149-152	72 2-2 3.3 149-152-155	72 2-2 3.3 148-152-155	72 2-2 3.3 146-152-155	72 2-2 3.3 145-152-155	55 55
111.0	72 .0 131-132-136	72 .0 131-132-136	72 .0 131-132-136	72 .0 131-132-136	72 .0 131-132-136	55 55
106.0	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	55 55
101.0	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	55 55

LPAZ
SANTA MARIA
01/19

ELEV. = 305 ft TORA = 3048 m
SLOPE = .00 % ASDA = 3198 m
TODA = 3198 m

15/00

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
V_1 - V_R - V_2 [kts] IAS

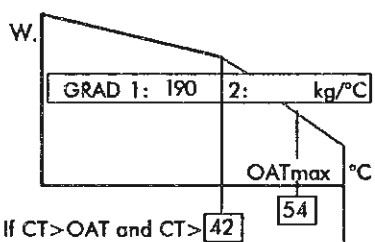
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1024 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT> 42
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	V_1 [kt]	V_R&V_2 [kt]
-10	-5.0	-10	-3

Minimum V_1: 119 [kt]

1. Actual TOW is equal to maximum TOW and V_1 is lower than minimum V_1: Take this last value as V_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and V_1 corresponding to actual TOW is lower than minimum V_1 and V_1 corresponding to maximum TOW is equal to or above minimum V_1: Retain minimum V_1 as V_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1900 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	4 2-3 .0 170-173-177	17 2-6 .1 172-174-178	30 2-6 .1 173-175-179	42
157.0	- -	-2 2-3 .1 165-169-173	19 2-3 .0 167-170-174	32 2-6 .1 168-171-175	42 2-6 .3 170-172-176	44
155.0	- -	7 2-3 .0 164-168-172	30 6-6 .1 165-168-172	42 2-6 .6 166-169-173	45 2-6 .3 170-172-176	45
153.0	- -	15 3-3 .2 163-167-171	38 6-6 .2 164-167-171	45 2-6 .6 166-169-173	47 2-3 .2 170-172-176	47
151.0	2 3-3 .0 161-166-170	24 3-3 .0 162-166-170	42 6-6 1.2 163-167-170	47 2-3 .5 166-169-172	48 2-3 1.0 170-172-176	48 43
149.0	10 3-3 .1 160-165-169	32 6-6 .1 160-165-169	47 3-3 .5 163-165-169	49 2-3 .2 166-168-172	50 2-3 .7 170-172-175	50 45
147.0	18 6-6 .2 158-164-168	40 6-6 .2 159-164-168	49 2-3 .5 162-165-168	50 2-3 1.1 166-168-172	52 2-3 .3 170-171-175	51 47
145.0	26 6-6 .2 157-163-167	42 6-6 1.7 159-163-167	51 2-3 .2 162-164-168	52 2-3 .8 166-168-171	53 2-3 1.2 170-171-175	52 48
143.0	35 6-6 .0 155-161-165	48 3-3 .0 158-162-165	52 2-3 1.1 162-164-168	54 2-3 .5 166-167-171	55 2-3 .8 170-171-174	54 50
141.0	42 6-6 .3 154-160-164	50 3-3 .5 157-161-164	54 2-3 .9 162-164-167	56 2-3 .2 165-167-170	57 2-3 .5 169-170-173	54 51
136.0	50 3-3 .3 153-158-161	56 3-3 .7 155-159-162	59 2-3 .2 161-163-165	60 2-3 .6 165-166-169	61 2-3 .9 169-169-172	54 54
131.0	56 3-3 .5 151-156-159	61 2-3 .7 154-157-160	63 2-3 .8 160-162-164	64 2-3 1.1 164-165-167	65 2-3 1.1 167-167-170	54 54
126.0	62 3-3 .5 150-153-156	66 2-3 .3 153-156-158	68 2-3 .2 159-160-163	69 2-3 .3 163-164-166	70 2-3 .0 166-166-168	54 54
121.0	68 3-3 .7 148-151-153	70 2-3 .9 153-155-157	71 2-3 1.8 159-160-162	71 2-3 3.0 163-163-165	71 2-3 3.8 165-165-168	54 54
116.0	71 2-3 2.9 147-150-152	71 2-3 4.9 153-155-157	71 .0 147-147-150	71 .0 147-147-150	71 .0 147-147-150	54 54
111.0	71 .0 143-144-147	71 .0 143-144-147	71 .0 143-144-147	71 .0 143-144-147	71 .0 143-144-147	54 54
106.0	71 .0 140-140-143	71 .0 140-140-143	71 .0 140-140-143	71 .0 140-140-143	71 .0 140-140-143	54 54
101.0	71 .0 136-137-140	71 .0 136-137-140	71 .0 136-137-140	71 .0 136-137-140	71 .0 136-137-140	54 54

LPAZ
SANTA MARIA
01/19

ELEV. = 305 ft TORA = 3048 m
SLOPE = .00 % ASDA = 3198 m
TODA = 3198 m

15/15

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

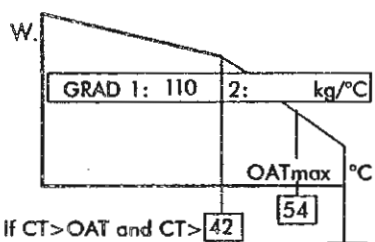
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1024 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>42
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-2	-2.0	-12	-3

Minimum v_1: 117 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1900 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	-1 2-3 .1 170-174-178	12 2-3 .0 171-175-178	20 2-2 .0 172-175-178	42
157.0	- -	-2 2-3 .0 164-169-172	18 2-3 .1 166-170-174	30 2-3 .1 167-171-174	40 3-3 .1 169-173-176	44
155.0	- -	16 2-3 .0 159-165-169	35 2-3 .1 162-167-170	42 2-3 .5 164-169-172	42 3-3 1.8 168-172-175	45
153.0	14 2-3 .0 154-160-164	32 2-3 .1 156-162-166	42 2-3 1.1 161-165-169	45 2-3 .3 164-168-172	46 2-3 .5 168-172-175	47
151.0	30 2-3 .1 151-157-161	42 2-3 .7 154-160-164	45 2-3 1.0 160-165-168	47 2-3 .0 164-168-171	48 2-2 .0 168-171-174	48 43
149.0	42 2-3 .4 149-155-159	45 2-3 .6 154-159-163	47 2-3 .7 160-165-168	48 2-3 .9 164-168-171	49 2-2 .6 167-170-173	50 45
147.0	45 2-3 .3 148-154-159	47 2-3 .4 154-159-163	49 2-3 .4 160-164-168	50 2-3 .6 164-167-171	50 2-2 1.2 166-169-172	51 47
145.0	47 2-3 .2 148-154-158	49 2-3 .2 153-159-162	51 2-3 .1 160-164-167	52 2-3 .2 164-167-170	52 2-2 .4 165-168-171	52 48
143.0	48 2-3 1.1 148-154-158	50 2-3 1.1 153-158-162	52 2-3 1.0 160-164-167	53 2-2 1.0 164-167-170	53 2-2 1.0 164-167-170	54 50
141.0	50 2-3 .9 148-153-158	52 2-3 .8 153-158-162	54 2-3 .7 160-163-167	55 2-2 .3 162-165-168	55 2-2 .3 162-165-168	54 51
136.0	55 2-3 .4 147-153-156	57 2-3 .2 153-157-160	58 2-3 1.1 159-162-165	59 2-2 .0 160-162-165	59 2-2 .0 158-162-165	54 54
131.0	59 2-3 1.0 147-151-155	61 2-3 .7 152-156-159	62 2-2 1.1 157-160-163	62 2-2 1.1 157-160-163	62 2-2 1.1 155-160-163	54 54
126.0	64 2-3 .6 146-150-154	66 2-3 .1 151-154-158	66 2-2 .9 154-157-160	66 2-2 .9 153-157-160	66 2-2 .9 152-157-160	54 54
121.0	69 2-3 .1 145-149-152	70 3-3 .6 151-154-156	70 2-2 .7 150-154-156	70 2-2 .7 149-154-156	70 2-2 .7 148-154-156	54 54
116.0	71 2-3 2.9 145-148-151	71 2-2 4.4 150-153-156	71 2-2 4.4 149-153-156	71 2-2 4.4 148-153-156	71 2-2 4.4 147-153-156	54 54
111.0	71 .0 131-132-136	71 .0 131-132-136	71 .0 131-132-136	71 .0 131-132-136	71 .0 131-132-136	54 54
106.0	71 .0 128-129-133	71 .0 128-129-133	71 .0 128-129-133	71 .0 128-129-133	71 .0 128-129-133	54 54
101.0	71 .0 125-125-130	71 .0 125-125-130	71 .0 125-125-130	71 .0 125-125-130	71 .0 125-125-130	54 54

LPLA LAJES 34

ELEV. = 180 ft TORA = 3310 m
SLOPE = -.20 % ASDA = 3613 m
TODA = 3613 m

15/00

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

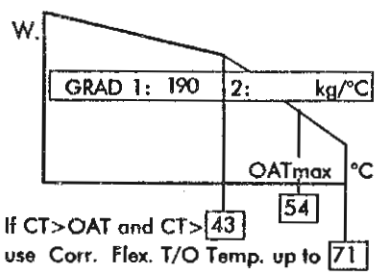
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1020 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT> 43
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-6	-4.5	-8	-3

Minimum v_1: 119 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1700 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	-2 2-6 .1 165-172-177	17 2-6 .0 166-173-177	29 2-6 .1 167-174-178	39 2-1 .1 169-175-179	43
157.0	- -	13 2-2 .0 161-169-173	32 2-6 .0 163-170-174	43 2-6 .1 165-171-175	43 2-1 1.7 168-175-179	44
155.0	1 6-6 .0 159-168-172	21 2-2 .2 160-168-172	43 2-6 .3 161-168-172	45 2-6 .6 165-171-175	47 2-6 .1 170-175-179	46
153.0	8 6-6 .2 157-167-171	30 6-6 .0 158-167-171	45 2-6 .9 161-168-172	47 2-6 .5 166-172-176	48 2-6 1.0 170-175-179	47
151.0	16 6-6 .2 156-166-170	38 6-6 .1 157-166-170	47 2-6 .9 162-168-172	49 2-6 .5 167-172-176	50 2-6 .9 172-176-179	49 44
149.0	24 6-6 .2 155-165-169	43 6-6 .8 156-165-169	49 2-6 .9 163-168-172	51 2-6 .4 168-172-176	52 2-6 .7 173-176-180	50 46
147.0	32 6-6 .2 153-164-168	48 6-6 .4 157-164-168	51 2-6 .8 164-169-172	53 2-6 .2 169-172-176	54 2-6 .5 174-176-180	51 47
145.0	41 6-6 .1 152-162-166	51 6-6 .4 158-164-167	53 2-6 .8 165-169-173	55 2-6 .1 170-173-176	56 2-6 .4 175-177-180	53 49
143.0	43 6-6 1.6 152-162-166	53 2-6 .4 159-164-167	55 2-6 .7 166-169-173	56 2-6 1.0 170-173-176	58 2-6 .2 176-177-180	54 50
141.0	50 6-6 .1 153-161-164	55 2-6 .4 159-164-168	57 2-6 .6 166-169-173	58 2-6 .9 171-173-176	60 2-3 .0 177-177-180	54 51
136.0	58 2-6 .2 155-159-162	60 2-6 .5 162-164-168	62 2-3 .2 168-169-172	63 2-3 .3 172-173-176	63 2-2 1.0 175-175-178	54 54
131.0	63 2-3 .1 156-159-162	64 2-3 .9 161-164-166	66 2-3 .5 167-168-171	67 2-3 .3 171-171-174	67 2-2 .4 171-171-174	54 54
126.0	67 2-3 .6 155-158-161	69 2-3 .1 161-162-165	70 2-3 .7 167-167-170	70 2-2 1.2 169-169-172	70 2-2 1.2 168-169-172	54 54
121.0	71 2-3 1.1 155-157-160	71 2-3 2.8 161-162-164	71 2-3 4.5 167-167-169	71 2-2 4.8 168-168-171	71 2-2 4.8 167-168-171	54 54
116.0	71 .0 147-147-150	71 .0 147-147-150	71 .0 147-147-150	71 .0 147-147-150	71 .0 147-147-150	54 54
111.0	71 .0 143-144-147	71 .0 143-144-147	71 .0 143-144-147	71 .0 143-144-147	71 .0 143-144-147	54 54
106.0	71 .0 140-140-143	71 .0 140-140-143	71 .0 140-140-143	71 .0 140-140-143	71 .0 140-140-143	54 54
101.0	71 .0 136-137-140	71 .0 136-137-140	71 .0 136-137-140	71 .0 136-137-140	71 .0 136-137-140	54 54

LPLA LAJES 34

ELEV. = 180 ft TORA = 3310 m
SLOPE = -.20 % ASDA = 3613 m
TODA = 3613 m

15/15

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
V_1 - V_R - V_2 [kts] IAS

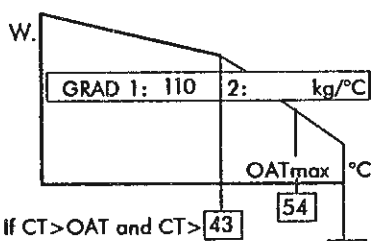
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1020 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>43
use Carr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	V_1 [kt]	V_R&V_2 [kt]
-2	-2.0	-12	-3

Minimum V_1: 117 [kt]

1. Actual TOW is equal to maximum TOW and V_1 is lower than minimum V_1: Take this last value as V_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and V_1 corresponding to actual TOW is lower than minimum V_1 and V_1 corresponding to maximum TOW is equal to or above minimum V_1: Retain minimum V_1 as V_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1700 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	-1 2-6 .1 165-173-177	17 2-2 .0 166-175-178	28 2-2 .0 168-175-179	28 2-2 .0 169-175-179	43
157.0	-2 2-6 .0 158-168-172	16 2-6 .1 160-169-173	34 2-6 .1 162-171-174	43 2-2 .4 165-173-176	43 2-2 1.1 168-175-178	44
155.0	14 2-6 .0 153-164-168	33 2-6 .0 156-166-169	43 2-6 1.0 160-169-173	45 2-6 .7 165-173-176	45 2-2 1.0 167-174-177	46
153.0	30 2-6 .0 149-161-165	43 2-6 .7 153-164-168	46 2-6 .3 161-169-173	47 2-2 .1 165-172-175	47 2-2 .1 167-172-175	47
151.0	43 2-6 .2 147-158-162	46 2-6 .1 154-164-168	48 2-6 .1 162-170-173	48 2-2 .7 165-171-174	48 2-2 .7 166-171-174	49 44
149.0	45 2-6 .7 147-158-162	47 2-6 1.0 155-164-168	49 2-6 1.0 163-170-173	49 2-2 1.3 165-170-174	49 2-2 1.3 165-170-174	50 46
147.0	47 2-6 .7 148-158-162	49 2-6 .9 156-164-168	51 2-2 .4 163-169-172	51 2-2 .4 164-169-172	51 2-2 .4 162-169-172	51 47
145.0	49 2-6 .7 149-159-163	51 2-6 .8 157-164-168	52 2-2 1.0 163-168-171	52 2-2 1.0 163-168-171	52 2-2 1.0 161-168-171	53 49
143.0	51 2-6 .6 150-159-163	53 2-6 .7 158-165-168	54 2-2 .2 162-166-170	54 2-2 .2 161-166-170	54 2-2 .2 159-166-170	54 50
141.0	53 2-6 .6 151-159-163	55 2-6 .6 159-165-168	55 2-2 .8 161-165-169	55 2-2 .8 160-165-169	55 2-2 .8 158-165-169	54 51
136.0	58 2-3 .5 154-160-163	59 2-2 .4 158-162-166	59 2-2 .4 157-162-166	59 2-2 .4 156-162-166	59 2-2 .4 154-162-166	54 54
131.0	62 2-3 .9 154-158-162	63 2-2 .1 156-159-162	63 2-2 .1 154-159-162	63 2-2 .1 152-159-162	63 2-2 .1 151-159-162	54 54
126.0	66 2-2 1.1 153-157-160	66 2-2 1.1 153-157-160	66 2-2 1.1 151-157-160	66 2-2 1.1 149-157-160	66 2-2 1.1 148-157-160	54 54
121.0	70 2-2 .8 150-154-157	70 2-2 .8 149-154-157	70 2-2 .8 147-154-157	70 2-2 .8 145-154-157	70 2-2 .8 143-154-157	54 54
116.0	71 2-2 4.5 149-153-156	71 2-2 4.5 148-153-156	71 2-2 4.5 146-153-156	71 2-2 4.5 144-153-156	71 2-2 4.5 142-153-156	54 54
111.0	71 .0 131-132-136	71 .0 131-132-136	71 .0 131-132-136	71 .0 131-132-136	71 .0 131-132-136	54 54
106.0	71 .0 128-129-133	71 .0 128-129-133	71 .0 128-129-133	71 .0 128-129-133	71 .0 128-129-133	54 54
101.0	71 .0 125-125-130	71 .0 125-125-130	71 .0 125-125-130	71 .0 125-125-130	71 .0 125-125-130	54 54

LPLA LAJES 16

ELEV. = 180 ft TORA = 3310 m
SLOPE = .20 % ASDA = 3613 m
TODA = 3613 m

15/00

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

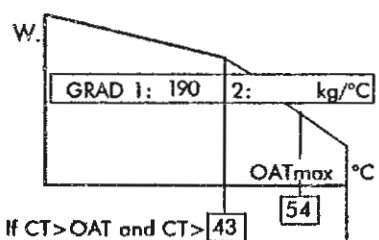
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1020 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>43
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-6	-4.5	-8	-3

Minimum v_1: 119 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actuol TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1700 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	-2 2-6 .1 166-173-177	17 2-6 .0 168-174-177	29 2-6 .1 169-174-178	39 2-1 .1 170-175-179	43
157.0	- -	12 2-6 .1 163-169-173	31 2-6 .1 165-171-174	43 2-6 .1 166-172-175	43 2-1 1.7 170-175-179	44
155.0	0 6-6 .2 161-168-172	21 2-6 .1 161-168-172	43 2-6 .3 162-168-172	45 2-6 .6 166-172-175	47 2-6 .1 171-176-179	46
153.0	8 6-6 .1 159-167-171	29 6-6 .2 160-167-171	45 2-6 .9 163-168-172	47 2-6 .5 167-172-176	48 2-6 1.0 172-176-179	47
151.0	16 6-6 .0 158-166-170	37 6-6 .2 159-166-170	47 2-6 .9 163-168-172	49 2-6 .5 168-172-176	50 2-6 .9 173-176-179	49 44
149.0	24 6-6 .0 156-165-169	43 6-6 .8 158-165-169	49 2-6 .9 164-169-172	51 2-6 .4 169-172-176	52 2-6 .7 174-176-180	50 46
147.0	32 6-6 .1 155-164-168	48 6-6 .4 158-164-168	51 2-6 .8 165-169-172	53 2-6 .2 170-173-176	54 2-6 .6 175-177-180	51 47
145.0	40 6-6 .1 154-163-167	51 6-6 .4 159-164-167	53 2-6 .8 166-169-173	55 2-6 .1 171-173-176	56 2-6 .4 176-177-180	53 49
143.0	43 6-6 1.4 153-162-166	53 2-6 .4 160-164-167	55 2-6 .7 167-169-173	57 2-6 .0 172-173-176	58 2-3 .1 177-177-180	54 50
141.0	49 6-6 .5 154-161-164	55 2-6 .4 161-165-168	57 2-6 .6 168-169-173	58 2-3 .9 172-173-176	59 2-3 .8 176-176-179	54 51
136.0	58 2-6 .2 156-160-162	60 2-3 .0 162-164-167	61 2-3 1.0 167-169-172	62 2-3 1.1 172-172-175	63 2-3 .7 174-174-177	54 54
131.0	62 2-3 .7 156-159-161	64 2-3 .5 161-163-165	66 2-3 .1 167-167-170	66 2-3 1.1 170-170-173	67 2-2 .4 172-172-174	54 54
126.0	67 2-3 .1 155-157-160	68 2-3 .8 160-162-164	70 2-3 .4 166-166-169	70 2-3 1.1 169-169-171	70 2-2 1.2 169-169-172	54 54
121.0	71 2-3 .7 154-157-159	71 2-3 2.4 160-161-163	71 2-3 4.2 166-166-168	71 2-2 4.8 168-168-171	71 2-2 4.8 168-168-171	54 54
116.0	71 .0 147-147-150	71 .0 147-147-150	71 .0 147-147-150	71 .0 147-147-150	71 .0 147-147-150	54 54
111.0	71 .0 143-144-147	71 .0 143-144-147	71 .0 143-144-147	71 .0 143-144-147	71 .0 143-144-147	54 54
106.0	71 .0 140-140-143	71 .0 140-140-143	71 .0 140-140-143	71 .0 140-140-143	71 .0 140-140-143	54 54
101.0	71 .0 136-137-140	71 .0 136-137-140	71 .0 136-137-140	71 .0 136-137-140	71 .0 136-137-140	54 54

LPLA LAJES 16

ELEV. = 180 ft TORA = 3310 m
SLOPE = .20 % ASDA = 3613 m
TODA = 3613 m

15/15

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

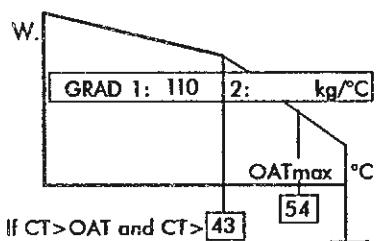
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1020 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>43
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-2	-2.0	-12	-3

Minimum v_1: 117 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1700 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	-1 2-6 .0 166-173-177	17 2-2 .0 168-175-178	28 2-2 .0 169-175-179	28 2-2 .0 171-175-179	43
157.0	- -	15 2-6 .1 162-170-173	34 2-6 .0 164-171-174	43 2-2 .3 166-173-176	43 2-2 1.1 170-175-178	44
155.0	13 2-6 .1 155-165-168	32 2-6 .1 158-166-169	43 2-6 .9 162-169-172	45 2-6 .6 167-173-176	45 2-2 1.0 169-174-177	46
153.0	29 2-6 .1 152-161-165	43 2-6 .6 155-164-167	46 2-6 .2 163-169-173	47 2-2 .1 167-172-175	47 2-2 .1 168-172-175	47
151.0	43 2-6 .1 149-158-162	46 2-6 .0 156-164-167	48 2-6 .1 164-170-173	48 2-2 .7 167-171-174	48 2-2 .7 167-171-174	49 44
149.0	45 2-6 .6 149-158-162	47 2-6 1.0 157-164-167	49 2-6 1.0 165-170-173	49 2-2 1.3 167-171-174	49 2-2 1.3 166-171-174	50 46
147.0	47 2-6 .6 150-158-162	49 2-6 .9 158-164-168	51 2-2 .4 165-169-172	51 2-2 .4 165-169-172	51 2-2 .4 164-169-172	51 47
145.0	49 2-6 .6 151-159-162	51 2-6 .8 159-164-168	52 2-2 1.0 165-168-171	52 2-2 1.0 164-168-171	52 2-2 1.0 163-168-171	53 49
143.0	51 2-6 .6 152-159-163	53 2-6 .6 160-165-168	54 2-2 .2 163-167-170	54 2-2 .2 162-167-170	54 2-2 .2 160-167-170	54 50
141.0	53 2-6 .6 153-159-163	55 2-3 .4 160-165-168	55 2-2 .8 162-166-169	55 2-2 .8 161-166-169	55 2-2 .8 159-166-169	54 51
136.0	58 2-3 .1 154-158-162	59 2-2 .4 159-163-166	59 2-2 .4 159-163-166	59 2-2 .4 157-163-166	59 2-2 .4 156-163-166	54 54
131.0	62 2-3 .5 153-157-161	63 2-2 .1 157-159-162	63 2-2 .1 155-159-162	63 2-2 .1 153-159-162	63 2-2 .1 152-159-162	54 54
126.0	66 2-3 .9 153-156-159	66 2-2 1.1 154-157-160	66 2-2 1.1 152-157-160	66 2-2 1.1 151-157-160	66 2-2 1.1 149-157-160	54 54
121.0	70 2-2 .8 151-154-157	70 2-2 .8 150-154-157	70 2-2 .8 148-154-157	70 2-2 .8 147-154-157	70 2-2 .8 145-154-157	54 54
116.0	71 2-2 4.5 150-153-156	71 2-2 4.5 149-153-156	71 2-2 4.5 147-153-156	71 2-2 4.5 145-153-156	71 2-2 4.5 144-153-156	54 54
111.0	71 .0 132-132-136	71 .0 132-132-136	71 .0 132-132-136	71 .0 132-132-136	71 .0 132-132-136	54 54
106.0	71 .0 128-129-133	71 .0 128-129-133	71 .0 128-129-133	71 .0 128-129-133	71 .0 128-129-133	54 54
101.0	71 .0 125-125-130	71 .0 125-125-130	71 .0 125-125-130	71 .0 125-125-130	71 .0 125-125-130	54 54

CYQX GANDER 13

ELEV. = 496 ft TORA = 2713 m
SLOPE = -.34 % ASDA = 2713 m
TODA = 3010 m

15/00

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

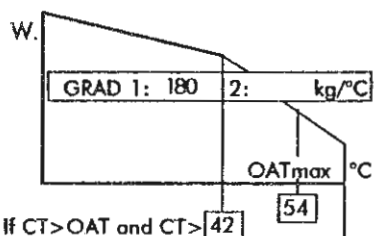
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1031 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>42
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-10	-5.0	-10	-3

Minimum v_1: 119 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 2000 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	- -	- -	1 2-3 .1 169-173-178	
157.0	- -	- -	- -	2 2-3 .1 165-170-174	18 2-3 .1 166-170-174	43
155.0	- -	- -	-2 3-3 .1 162-168-172	14 3-3 .1 163-168-172	31 3-3 .0 164-168-172	45
153.0	- -	- -	6 3-3 .2 161-167-171	23 3-3 .1 162-167-171	39 3-3 .1 163-167-171	46
151.0	- -	- -	15 3-3 .1 160-166-170	31 3-3 .2 161-166-170	42 3-3 1.4 162-166-171	48 42
149.0	- -	0 3-3 .1 157-164-169	24 3-3 .1 159-164-169	40 3-3 .1 159-165-169	46 3-3 .6 161-165-169	49 44
147.0	- -	8 3-3 .2 156-163-168	32 3-3 .2 158-163-168	42 3-3 1.6 159-164-168	48 3-3 .7 161-165-168	50 46
145.0	- -	17 3-3 .1 155-162-167	41 3-3 .1 156-162-167	46 3-3 .8 158-163-167	50 2-3 .6 160-164-168	52 47
143.0	4 3-3 .0 153-161-165	26 3-3 .1 154-161-165	42 3-3 1.9 156-162-166	49 3-3 .4 157-162-166	52 2-3 .3 160-164-167	53 49
141.0	12 3-3 .2 152-160-164	34 3-3 .2 153-160-164	47 3-3 .3 155-161-164	52 3-3 .1 156-161-164	54 2-3 .1 160-163-167	54 50
136.0	34 3-3 .1 148-157-161	42 3-3 3.4 152-159-163	53 3-3 .7 153-158-162	57 2-3 .3 155-159-162	58 2-3 .7 159-162-165	54 54
131.0	42 3-3 3.3 147-156-160	53 3-3 .1 149-155-159	59 3-3 .6 151-156-159	61 2-3 1.0 155-158-161	63 2-3 .3 158-161-164	54 54
126.0	53 3-3 .1 144-152-156	59 3-3 .2 147-152-156	65 2-3 .2 150-154-156	66 2-3 .6 154-157-159	67 2-3 .9 158-160-162	54 54
121.0	59 3-3 .3 143-149-153	65 3-3 .5 145-150-153	69 2-3 1.0 149-153-155	71 2-3 .3 153-156-158	71 2-3 1.5 157-159-161	54 54
116.0	65 3-3 .7 141-147-150	71 3-3 1.1 143-148-150	71 2-3 3.9 149-152-155	71 .0 146-147-150	71 .0 146-147-150	54 54
111.0	71 3-3 1.5 139-145-148	71 .0 143-144-147	71 .0 143-144-147	71 .0 143-144-147	71 .0 143-144-147	54 54
106.0	71 .0 140-140-143	71 .0 140-140-143	71 .0 140-140-143	71 .0 140-140-143	71 .0 140-140-143	54 54
101.0	71 .0 136-137-140	71 .0 136-137-140	71 .0 136-137-140	71 .0 136-137-140	71 .0 136-137-140	54 54

CYQX GANDER 13

ELEV. = 496 ft TORA = 2713 m
SLOPE = -.34 % ASDA = 2713 m
TODA = 3010 m

15/15

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

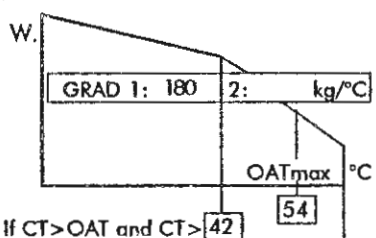
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1031 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>42
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-8	-5.5	-12	-3

Minimum v_1: 117 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 2000 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	- -	- -	- -	
157.0	- -	- -	- -	2 2-3 .1 163-169-173	15 2-3 .0 164-170-174	43
155.0	- -	- -	8 2-3 .0 158-165-169	20 2-3 .1 159-166-170	32 2-3 .0 160-167-170	45
153.0	- -	4 2-3 .1 152-160-165	25 2-3 .1 154-161-165	36 2-3 .0 156-163-167	42 2-3 .6 158-165-169	46
151.0	2 2-3 .1 147-156-161	21 2-3 .1 149-157-161	39 2-3 .1 151-159-163	42 2-3 1.1 154-161-165	44 2-3 1.1 158-164-168	48 42
149.0	18 2-3 .1 144-153-157	36 2-3 .0 146-154-159	42 2-3 1.6 151-158-162	45 2-3 .5 154-161-165	46 2-3 .8 158-164-168	49 44
147.0	30 3-3 .2 142-151-155	42 2-3 1.1 145-153-158	46 2-3 .0 150-157-161	47 2-3 .3 154-160-164	48 2-3 .6 157-164-167	50 46
145.0	39 3-3 .1 141-149-154	45 2-3 .6 145-152-157	47 2-3 .9 150-157-161	49 2-3 .1 154-160-164	50 2-3 .3 157-163-167	52 47
143.0	42 3-3 1.4 141-149-154	47 2-3 .5 144-152-156	49 2-3 .7 150-157-161	50 2-3 1.0 154-160-164	52 2-3 .1 157-163-166	53 49
141.0	46 3-3 .6 140-148-152	49 2-3 .3 144-151-156	51 2-3 .5 150-156-160	52 2-3 .8 153-159-163	53 2-3 1.0 157-163-166	54 50
136.0	51 2-3 1.0 139-146-151	54 2-3 .0 144-150-155	56 2-3 .1 149-155-159	57 2-3 .3 153-158-162	58 2-3 .3 157-161-165	54 54
131.0	56 2-3 .7 138-145-150	58 2-3 .7 143-149-153	60 2-3 .7 149-154-158	61 2-3 .9 152-157-161	62 2-2 .6 155-159-163	54 54
126.0	61 2-3 .6 138-144-148	63 2-3 .5 142-148-152	65 2-3 .3 148-153-156	66 2-3 .3 151-156-159	66 2-2 .6 153-156-160	54 54
121.0	66 2-3 .4 137-143-146	68 2-3 .2 141-147-150	69 2-3 1.0 147-152-155	70 2-2 .5 150-153-156	70 2-2 .5 149-153-156	54 54
116.0	71 2-3 .3 136-142-145	71 2-3 2.0 141-146-149	71 2-3 3.8 147-151-154	71 2-2 4.2 149-152-156	71 2-2 4.2 148-152-156	54 54
111.0	71 .0 131-132-136	71 .0 131-132-136	71 .0 131-132-136	71 .0 131-132-136	71 .0 131-132-136	54 54
106.0	71 .0 128-128-133	71 .0 128-128-133	71 .0 128-128-133	71 .0 128-128-133	71 .0 128-128-133	54 54
101.0	71 .0 125-125-130	71 .0 125-125-130	71 .0 125-125-130	71 .0 125-125-130	71 .0 125-125-130	54 54

CYQX GANDER 31

ELEV. = 496 ft TORA = 2713 m
SLOPE = .34 % ASDA = 2713 m
TODA = 3010 m

15/00

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

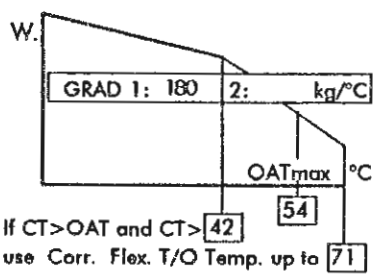
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1031 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>42
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-10	-5.0	-10	-3

Minimum v_1: 119 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 2000 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	- -	- -	- -	
157.0	- -	- -	- -	-3 2-3 .1 165-169-173	11 2-3 .1 167-170-174	43
155.0	- -	- -	- -	6 2-3 .0 164-168-172	22 2-3 .0 165-168-172	45
153.0	- -	- -	-2 3-3 .2 162-167-171	14 3-3 .2 163-167-171	31 3-3 .1 164-167-171	46
151.0	- -	- -	7 3-3 .1 161-166-170	23 3-3 .2 162-166-170	39 3-3 .2 163-166-170	48 42
149.0	- -	- -	16 3-3 .0 160-165-169	32 3-3 .1 161-165-169	42 3-3 1.5 162-166-170	49 44
147.0	- -	0 3-3 .1 157-164-168	24 3-3 .2 159-164-168	40 3-3 .2 159-164-168	46 3-3 .7 161-165-168	50 46
145.0	- -	9 3-3 .0 156-162-166	33 3-3 .1 157-163-166	42 3-3 1.7 159-164-167	49 3-3 .3 160-163-167	52 47
143.0	- -	17 3-3 .2 155-162-165	41 3-3 .2 156-162-165	47 3-3 .1 158-162-165	51 2-3 .6 160-163-166	53 49
141.0	4 3-3 .0 153-160-164	26 3-3 .1 154-160-164	42 3-3 2.0 156-162-165	49 3-3 .5 157-161-164	53 2-3 .4 160-162-165	54 50
136.0	26 3-3 .0 150-157-161	42 3-3 1.4 152-158-162	51 3-3 .3 154-158-161	56 3-3 .0 155-159-161	57 2-3 1.1 159-161-164	54 54
131.0	42 3-3 1.3 147-155-159	50 3-3 .4 149-155-159	57 3-3 .4 152-156-159	61 2-3 .2 154-157-159	62 2-3 .7 158-160-162	54 54
126.0	50 3-3 .4 145-152-156	56 3-3 .8 148-153-156	63 3-3 .6 150-154-156	65 2-3 1.0 153-156-158	67 2-3 .2 157-159-161	54 54
121.0	57 3-3 .0 143-149-153	63 3-3 .3 146-150-153	69 2-3 .3 149-152-154	70 2-3 .7 153-155-157	71 2-3 .9 157-158-160	54 54
116.0	63 3-3 .5 142-147-150	70 3-3 .1 144-147-150	71 2-3 3.3 149-151-153	71 2-3 4.6 153-155-156	71 .0 147-147-150	54 54
111.0	70 3-3 .5 140-144-147	71 3-3 4.4 143-147-149	71 .0 144-144-147	71 .0 144-144-147	71 .0 144-144-147	54 54
106.0	71 3-3 4.8 139-144-146	71 .0 140-141-143	71 .0 140-141-143	71 .0 140-141-143	71 .0 140-141-143	54 54
101.0	71 .0 137-137-140	71 .0 137-137-140	71 .0 137-137-140	71 .0 137-137-140	71 .0 137-137-140	54 54

CYQX GANDER 31

ELEV. = 496 ft TORA = 2713 m
SLOPE = .34 % ASDA = 2713 m
TODA = 3010 m

15/15

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

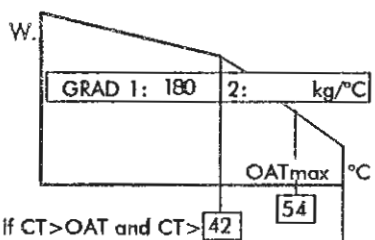
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1031 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>42
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-8	-5.5	-12	-3

Minimum v_1: 117 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 2000 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	- -	- -	- -	
157.0	- -	- -	- -	- -	8 2-3 .0 165-170-173	43
155.0	- -	- -	0 2-3 .1 159-165-169	13 2-3 .0 160-165-169	26 2-3 .1 161-166-170	45
153.0	- -	-3 2-3 .0 153-160-164	17 2-3 .1 155-161-165	30 2-3 .0 156-162-166	40 2-3 .0 158-164-167	46
151.0	- -	13 2-3 .1 150-157-161	33 2-3 .1 152-158-162	42 2-3 .2 154-160-164	42 2-3 1.7 158-163-167	48 42
149.0	10 2-3 .0 145-153-157	29 2-3 .1 147-154-158	42 2-3 .7 150-157-161	44 2-3 .8 154-159-163	46 2-3 .0 157-162-166	49 44
147.0	20 2-3 .1 144-151-156	42 2-3 .1 145-151-156	45 2-3 .2 150-156-160	46 2-3 .6 153-159-163	47 2-3 .9 157-162-166	50 46
145.0	29 3-3 .2 143-150-154	44 2-3 .7 144-151-155	47 2-3 .0 150-156-159	48 2-3 .4 153-159-162	49 2-3 .7 157-162-165	52 47
143.0	38 3-3 .1 142-149-153	46 2-3 .6 144-150-155	48 2-3 .9 150-155-159	50 2-3 .2 153-158-162	51 2-3 .4 157-161-165	53 49
141.0	42 3-3 1.2 141-148-153	48 2-3 .5 144-150-154	50 2-3 .8 149-155-159	51 2-3 1.1 153-158-162	53 2-3 .2 157-161-164	54 50
136.0	50 3-3 .4 139-145-150	53 2-3 .2 143-149-153	55 2-3 .3 149-154-157	56 2-3 .6 152-157-160	57 2-3 .8 156-160-163	54 54
131.0	55 2-3 .8 138-144-148	57 2-3 1.0 143-148-152	59 2-3 1.0 148-153-156	61 2-3 .2 152-155-159	62 2-3 .3 155-159-162	54 54
126.0	60 2-3 .7 137-143-146	62 2-3 .8 142-147-150	64 2-3 .7 147-151-155	65 2-3 .8 151-154-157	66 2-2 .6 154-157-160	54 54
121.0	65 2-3 .6 136-141-145	67 2-3 .5 141-145-149	69 2-3 .3 147-150-153	70 2-3 .3 150-153-156	70 2-2 .5 151-154-156	54 54
116.0	70 2-3 .5 136-140-144	71 2-3 1.3 141-145-148	71 2-3 3.2 146-150-153	71 2-2 4.2 150-153-156	71 2-2 4.2 150-153-156	54 54
111.0	71 2-3 4.5 135-140-143	71 .0 132-132-136	71 .0 132-132-136	71 .0 132-132-136	71 .0 132-132-136	54 54
106.0	71 .0 128-129-133	71 .0 128-129-133	71 .0 128-129-133	71 .0 128-129-133	71 .0 128-129-133	54 54
101.0	71 .0 125-126-130	71 .0 125-126-130	71 .0 125-126-130	71 .0 125-126-130	71 .0 125-126-130	54 54

CYQX GANDER 22

ELEV. = 496 ft TORA = 3109 m
SLOPE = -.15 % ASDA = 3109 m
TODA = 3414 m

15/00

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

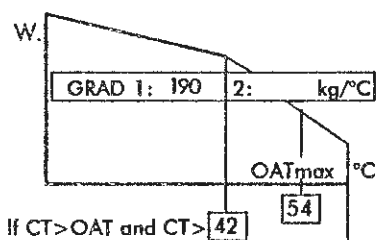
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1031 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT> 42
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-10	-5.0	-10	-3

Minimum v_1: 119 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 2000 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	4 2-3 .0 168-173-178	18 2-3 .0 169-174-178	31 2-3 .0 171-175-179	
157.0	- -	-2 2-3 .1 163-169-174	21 2-3 .0 165-170-174	33 2-3 .1 166-171-175	42 2-3 .4 169-173-177	43
155.0	- -	8 2-3 .1 162-168-172	32 2-3 .2 163-168-172	42 2-3 .7 165-170-174	44 2-3 .8 168-173-177	45
153.0	- -	17 3-3 .2 160-167-171	41 2-3 .2 162-167-171	45 2-3 .1 164-169-173	46 2-3 .5 168-172-176	46
151.0	4 3-3 .1 158-166-170	26 3-3 .2 159-166-170	42 2-3 2.0 161-167-171	46 2-3 .9 164-169-173	48 2-3 .2 168-172-176	48 42
149.0	12 3-3 .2 157-165-169	35 3-3 .0 158-165-169	47 2-3 .2 160-165-169	48 2-3 .7 164-168-172	49 2-3 1.1 168-172-175	49 44
147.0	21 3-3 .2 156-163-168	42 3-3 .4 157-164-168	48 2-3 1.0 160-165-169	50 2-3 .4 164-168-172	51 2-3 .8 168-171-175	50 46
145.0	30 3-3 .1 154-162-166	45 3-3 .4 156-163-167	50 2-3 .8 160-165-168	52 2-3 .1 164-168-171	53 2-3 .5 168-171-174	52 47
143.0	38 3-3 .2 153-161-165	47 3-3 .8 156-162-166	52 2-3 .6 160-164-168	53 2-3 1.0 164-167-171	55 2-3 .2 167-170-174	53 49
141.0	42 3-3 1.2 153-161-165	50 3-3 .4 155-161-164	54 2-3 .3 159-164-167	55 2-3 .7 163-167-170	56 2-3 1.0 167-170-174	54 50
136.0	50 3-3 .3 151-158-162	56 3-3 .6 153-159-162	58 2-3 .9 159-163-166	60 2-3 .1 163-165-169	61 2-3 .4 166-169-172	54 54
131.0	56 3-3 .5 149-156-159	61 2-3 .4 152-157-160	63 2-3 .4 158-161-164	64 2-3 .7 162-164-167	65 2-3 .9 166-168-170	54 54
126.0	62 3-3 .6 147-153-156	66 2-3 .1 151-156-158	67 2-3 1.1 157-161-163	69 2-3 .1 161-163-166	70 2-3 .2 165-167-169	54 54
121.0	68 3-3 .9 145-151-153	70 2-3 .9 151-155-157	71 2-3 1.7 157-160-162	71 2-3 2.9 161-163-165	71 2-3 4.1 165-166-169	54 54
116.0	71 2-3 2.9 145-150-152	71 2-3 4.8 151-155-157	71 .0 147-147-150	71 .0 147-147-150	71 .0 147-147-150	54 54
111.0	71 .0 143-144-147	71 .0 143-144-147	71 .0 143-144-147	71 .0 143-144-147	71 .0 143-144-147	54 54
106.0	71 .0 140-140-143	71 .0 140-140-143	71 .0 140-140-143	71 .0 140-140-143	71 .0 140-140-143	54 54
101.0	71 .0 136-137-140	71 .0 136-137-140	71 .0 136-137-140	71 .0 136-137-140	71 .0 136-137-140	54 54

CYQX GANDER 22

ELEV. = 496 ft
SLOPE = -.15 %

TORA = 3109 m
ASDA = 3109 m
TODA = 3414 m

15/15

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

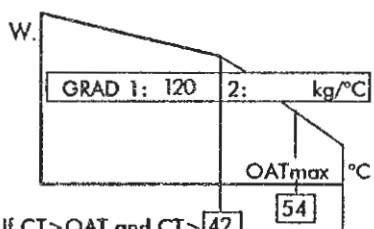
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1031 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>42
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-2	-2.0	-12	-3

Minimum v_1: 117 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 2000 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	-1 2-3 .1 168-175-178	11 2-2 .0 168-175-179	11 2-2 .0 169-175-179	
157.0	- -	-2 2-3 .1 161-169-173	18 2-3 .1 163-171-174	30 2-3 .0 164-171-175	38 2-2 .1 167-173-177	43
155.0	-2 2-3 .0 155-164-168	16 2-3 .1 157-165-169	34 2-3 .1 160-167-171	42 2-3 .3 162-169-173	42 2-2 1.6 166-173-176	45
153.0	15 2-3 .1 152-161-165	32 2-3 .1 154-162-166	42 2-3 1.0 158-166-170	44 2-3 .8 162-169-172	45 2-3 .9 166-172-175	46
151.0	31 2-3 .1 148-158-162	42 2-3 .7 152-160-165	45 2-3 .3 158-165-169	46 2-3 .5 162-168-172	47 2-2 .4 165-171-174	48 42
149.0	42 2-3 .4 147-156-160	45 2-3 .1 151-160-164	47 2-3 .1 158-165-168	48 2-3 .2 161-168-171	48 2-2 1.0 164-170-173	49 44
147.0	44 2-3 1.0 146-155-160	46 2-3 1.0 151-160-164	48 2-3 1.0 158-165-168	49 2-3 1.1 161-168-171	50 2-2 .3 163-169-172	50 46
145.0	46 2-3 .8 146-155-159	48 2-3 .8 151-159-163	50 2-3 .7 157-164-168	51 2-3 .8 161-168-171	51 2-2 .9 163-168-171	52 47
143.0	48 2-3 .7 146-154-159	50 2-3 .6 151-159-163	52 2-3 .4 157-164-167	53 2-2 .2 161-166-170	53 2-2 .2 161-166-170	53 49
141.0	50 2-3 .5 146-154-158	52 2-3 .4 151-159-162	54 2-3 .1 157-164-167	54 2-2 .8 160-166-169	54 2-2 .8 161-166-169	54 50
136.0	55 2-3 .1 145-153-157	56 2-3 .9 150-158-161	58 2-3 .6 157-162-165	58 2-2 .7 158-163-166	58 2-2 .7 157-163-166	54 54
131.0	59 2-3 .8 145-152-156	61 2-3 .5 150-156-159	62 2-2 .6 155-160-163	62 2-2 .6 155-160-163	62 2-2 .6 154-160-163	54 54
126.0	64 2-3 .4 144-150-154	65 2-3 1.1 149-155-158	66 2-2 .6 152-156-160	66 2-2 .6 151-156-160	66 2-2 .6 150-156-160	54 54
121.0	69 2-3 .1 143-149-152	70 3-3 .4 148-153-156	70 2-2 .5 149-153-156	70 2-2 .5 147-153-156	70 2-2 .5 146-153-156	54 54
116.0	71 2-3 2.9 143-149-152	71 2-2 4.2 147-153-156	71 2-2 4.2 148-153-156	71 2-2 4.2 146-153-156	71 2-2 4.2 145-153-156	54 54
111.0	71 .0 131-132-136	71 .0 131-132-136	71 .0 131-132-136	71 .0 131-132-136	71 .0 131-132-136	54 54
106.0	71 .0 128-129-133	71 .0 128-129-133	71 .0 128-129-133	71 .0 128-129-133	71 .0 128-129-133	54 54
101.0	71 .0 125-125-130	71 .0 125-125-130	71 .0 125-125-130	71 .0 125-125-130	71 .0 125-125-130	54 54

CYQX GANDER 04

ELEV. = 496 ft TORA = 3109 m
SLOPE = .15 % ASDA = 3200 m
TODA = 3368 m

15/00

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight increment [t]
v_1 - v_R - v_2 [kts] IAS

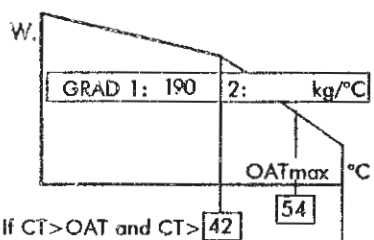
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1031 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>42
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-10	-5.0	-10	-3

Minimum v_1: 119 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 2000 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	4 2-3 .0 169-174-178	18 2-3 .1 171-175-178	31 2-6 .0 172-176-179	
157.0	- -	-2 2-3 .1 165-169-174	21 2-3 .0 166-170-174	33 2-3 .1 168-171-175	42 2-6 .3 170-173-177	43
155.0	- -	8 2-3 .1 163-168-172	32 2-3 .2 164-168-172	42 2-3 .6 166-170-174	44 2-3 .9 170-173-177	45
153.0	- -	17 3-3 .2 162-167-171	41 2-3 .2 163-167-171	45 2-3 .1 166-169-173	46 2-3 .7 170-173-176	46
151.0	4 3-3 .1 160-166-170	26 3-3 .2 161-166-170	42 2-3 1.9 163-167-171	46 2-3 1.0 166-169-173	48 2-3 .4 170-172-176	48 42
149.0	12 3-3 .2 158-165-169	35 3-3 .1 159-165-169	47 2-3 .2 162-166-169	48 2-3 .8 166-169-172	50 2-3 .1 169-172-175	49 44
147.0	21 3-3 .2 157-164-168	42 3-3 .4 158-164-168	48 2-3 1.1 162-165-169	50 2-3 .5 165-168-172	51 2-3 .9 169-172-175	50 46
145.0	30 6-6 .1 156-163-166	45 3-3 .5 158-163-167	50 2-3 .9 161-165-168	52 2-3 .2 165-168-171	53 2-3 .6 169-171-175	52 47
143.0	38 6-6 .1 154-162-165	48 3-3 .1 157-162-165	52 2-3 .7 161-165-168	53 2-3 1.1 165-168-171	55 2-3 .3 169-171-174	53 49
141.0	42 6-6 1.1 154-161-165	50 3-3 .6 156-161-164	54 2-3 .5 161-164-168	55 2-3 .8 165-167-171	57 2-3 .0 168-170-173	54 50
136.0	50 3-3 .5 152-158-162	56 3-3 .8 154-159-162	58 2-3 1.0 160-163-166	60 2-3 .3 164-166-169	61 2-3 .5 168-169-172	54 54
131.0	56 3-3 .7 150-156-159	61 2-3 .5 154-157-160	63 2-3 .6 159-162-164	64 2-3 .8 163-165-168	65 2-3 1.0 167-168-171	54 54
126.0	63 3-3 .0 148-153-156	66 2-3 .2 153-156-158	68 2-3 .1 159-161-163	69 2-3 .2 163-164-166	70 2-3 .3 167-167-169	54 54
121.0	69 2-3 .1 147-151-153	70 2-3 .9 152-155-157	71 2-3 1.8 158-160-162	71 2-3 3.0 163-164-166	71 2-3 4.2 167-167-169	54 54
116.0	71 2-3 3.0 147-150-153	71 2-3 4.9 152-155-157	71 .0 147-147-150	71 .0 147-147-150	71 .0 147-147-150	54 54
111.0	71 .0 143-144-147	71 .0 143-144-147	71 .0 143-144-147	71 .0 143-144-147	71 .0 143-144-147	54 54
106.0	71 .0 140-140-143	71 .0 140-140-143	71 .0 140-140-143	71 .0 140-140-143	71 .0 140-140-143	54 54
101.0	71 .0 136-137-140	71 .0 136-137-140	71 .0 136-137-140	71 .0 136-137-140	71 .0 136-137-140	54 54

CYQX GANDER 04

ELEV. = 496 ft TORA = 3109 m
SLOPE = .15 % ASDA = 3200 m
TODA = 3368 m

15/15

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

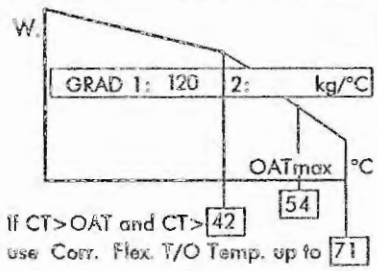
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1031 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>42
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-2	-2.0	-12	-3

Minimum v_1: 117 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 2000 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	-1 2-3 .1 169-175-178	11 2-2 .0 170-175-179	11 2-2 .0 171-175-179	
157.0	- -	-2 2-3 .0 163-169-173	18 2-3 .1 165-171-174	30 2-3 .0 166-172-175	39 2-2 .0 168-173-176	43
155.0	-3 2-3 .1 157-164-168	16 2-3 .1 159-166-169	34 2-3 .1 161-167-171	42 2-3 .3 164-169-173	42 2-2 1.6 168-173-176	45
153.0	14 2-3 .1 153-161-165	32 2-3 .1 155-162-166	42 2-3 1.0 160-166-170	44 2-3 .8 163-169-172	45 2-3 1.0 167-172-175	46
151.0	30 2-3 .2 150-158-162	42 2-3 .6 153-161-164	45 2-3 .4 159-165-169	46 2-3 .6 163-169-172	47 2-2 .4 167-171-174	48 42
149.0	42 2-3 .3 148-156-160	45 2-3 .1 153-160-164	47 2-3 .1 159-165-168	48 2-3 .3 163-168-171	48 2-2 1.0 166-170-173	49 44
147.0	44 2-3 .9 148-155-159	46 2-3 1.0 153-160-164	48 2-3 1.0 159-165-168	49 2-3 1.1 163-168-171	50 2-2 .3 165-169-172	50 46
145.0	46 2-3 .8 148-155-159	48 2-3 .8 153-159-163	50 2-3 .7 159-165-168	51 2-3 .8 163-168-171	51 2-2 .9 164-168-171	52 47
143.0	48 2-3 .6 147-154-159	50 2-3 .6 153-159-163	52 2-3 .4 159-164-167	53 2-2 .2 162-167-170	53 2-2 .2 163-167-170	53 49
141.0	50 2-3 .5 147-154-158	52 2-3 .4 152-159-162	54 2-3 .2 159-164-167	54 2-2 .8 162-166-169	54 2-2 .8 161-166-169	54 50
136.0	55 2-3 .1 147-153-157	56 2-3 .9 152-158-161	58 2-3 .6 158-162-165	58 2-2 .7 159-163-166	58 2-2 .7 158-163-166	54 54
131.0	59 2-3 .8 146-152-156	61 2-3 .5 151-156-160	62 2-2 .6 156-160-163	62 2-2 .6 156-160-163	62 2-2 .6 154-160-163	54 54
126.0	64 2-3 .4 145-151-154	65 2-3 1.1 151-155-158	66 2-2 .6 153-157-160	66 2-2 .6 152-157-160	66 2-2 .6 151-157-160	54 54
121.0	69 2-3 .1 145-149-152	70 3-3 .5 149-154-156	70 2-2 .5 150-154-156	70 2-2 .5 148-154-156	70 2-2 .5 147-154-156	54 54
116.0	71 2-3 3.0 144-149-152	71 2-2 4.2 149-153-156	71 2-2 4.2 149-153-156	71 2-2 4.2 147-153-156	71 2-2 4.2 146-153-156	54 54
111.0	71 .0 132-132-136	71 .0 132-132-136	71 .0 132-132-136	71 .0 132-132-136	71 .0 132-132-136	54 54
106.0	71 .0 128-129-133	71 .0 128-129-133	71 .0 128-129-133	71 .0 128-129-133	71 .0 128-129-133	54 54
101.0	71 .0 125-125-130	71 .0 125-125-130	71 .0 125-125-130	71 .0 125-125-130	71 .0 125-125-130	54 54

MUHA HAVANA 23

ELEV. = 210 ft TORA = 4000 m
SLOPE = .00 % ASDA = 4200 m
TODA = 4200 m

15/00

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

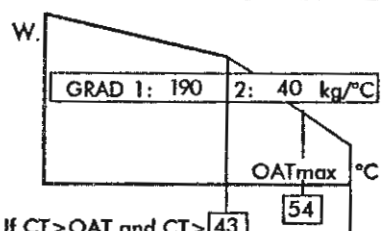
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1021 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>43
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-1	-0.5	-6	-1

Minimum v_1: 119 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1800 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	13 2-6 .0 161-173-177	31 2-6 .1 163-175-178	42 2-1 .0 164-176-179	44 2-1 .4 168-179-182	43
157.0	8 2-6 .0 156-170-174	28 2-6 .1 157-170-174	43 2-6 .4 160-172-176	43 2-1 1.9 164-176-179	46 2-6 .7 169-179-183	44
155.0	18 6-6 .1 154-168-172	38 2-6 .2 155-168-172	45 2-6 .8 161-172-176	47 2-6 .2 166-176-180	48 2-6 .5 170-180-183	46
153.0	26 6-6 .2 152-167-171	43 2-6 1.2 154-168-172	47 2-6 .7 162-172-176	49 2-6 .0 167-176-180	50 2-6 .3 171-180-183	47
151.0	35 6-6 .0 151-166-170	47 2-6 .3 155-167-171	49 2-6 .6 163-173-176	50 2-6 1.0 167-176-180	52 2-6 .1 172-180-183	49 44
149.0	43 6-6 .1 149-165-169	49 2-6 .3 156-168-171	51 2-6 .5 163-173-176	52 2-6 .8 168-177-180	53 2-6 1.0 173-180-184	50 46
147.0	47 6-6 .1 150-164-168	51 2-6 .2 157-168-171	53 2-6 .3 164-173-177	54 2-6 .6 169-177-180	55 2-6 .7 174-181-184	51 47
145.0	50 6-6 .4 151-163-167	53 2-6 .1 158-168-172	55 2-6 .2 165-173-177	56 2-6 .4 170-177-180	57 2-2 .3 175-180-183	53 48
143.0	52 6-6 .8 151-163-166	55 2-6 .1 159-168-172	57 2-6 .0 166-173-177	58 2-6 .2 171-177-180	58 2-2 .9 175-180-182	54 50
141.0	54 2-5 .7 152-163-166	56 2-6 1.0 160-168-172	58 2-6 .9 167-173-177	59 2-6 1.1 172-177-180	60 2-2 .1 174-178-181	54 51
136.0	59 2-5 .2 153-162-165	61 2-6 .8 162-168-171	63 2-6 .6 169-174-177	63 2-2 .9 172-175-178	63 2-2 .9 171-175-178	54 54
131.0	63 2-5 .9 155-161-164	66 2-5 .1 164-167-170	67 2-2 .3 169-172-174	67 2-2 .3 169-172-174	67 2-2 .3 167-172-174	54 54
126.0	68 2-5 .4 157-161-163	70 2-5 .5 164-167-169	70 2-2 1.1 166-169-172	70 2-2 1.1 165-169-172	70 2-2 1.1 164-169-172	54 54
121.0	71 2-5 2.1 156-160-162	71 2-5 4.3 164-167-169	71 2-2 4.7 165-168-171	71 2-2 4.7 164-168-171	71 2-2 4.7 163-168-171	54 54
116.0	71 .0 147-147-150	71 .0 147-147-150	71 .0 147-147-150	71 .0 147-147-150	71 .0 147-147-150	54 54
111.0	71 .0 143-144-147	71 .0 143-144-147	71 .0 143-144-147	71 .0 143-144-147	71 .0 143-144-147	54 54
106.0	71 .0 140-140-143	71 .0 140-140-143	71 .0 140-140-143	71 .0 140-140-143	71 .0 140-140-143	54 54
101.0	71 .0 136-137-140	71 .0 136-137-140	71 .0 136-137-140	71 .0 136-137-140	71 .0 136-137-140	54 54

MUHA
HAVANA
05

ELEV. = 210 ft
SLOPE = .00 %

TORA = 4000 m
ASDA = 4060 m
TODA = 4060 m

15/15

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

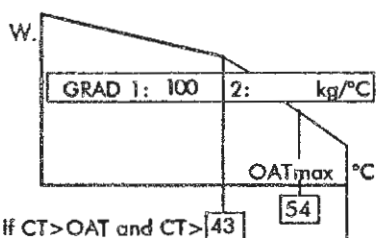
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1021 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>43
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-2	-2.0	-12	-3

Minimum v_1: 117 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1800 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	9 2-2 .1 161-174-178	26 2-2 .0 163-175-179	26 2-2 .0 164-175-179	26 2-2 .0 165-175-179	43
157.0	10 2-6 .1 154-169-173	29 2-6 .0 156-170-174	43 2-2 .3 160-173-176	43 2-2 1.0 163-175-178	43 2-2 1.0 164-175-178	44
155.0	27 2-6 .1 150-165-169	43 2-6 .2 153-168-171	45 2-6 .6 161-173-176	45 2-2 .8 162-174-177	45 2-2 .8 163-174-177	46
153.0	42 2-6 .1 147-162-166	45 2-6 .5 154-168-171	46 2-2 1.4 161-173-176	46 2-2 1.4 162-173-176	46 2-2 1.4 163-173-176	47
151.0	43 2-6 1.9 147-162-166	47 2-6 .4 155-168-171	48 2-2 .5 160-171-174	48 2-2 .5 161-171-174	48 2-2 .5 161-171-174	49 44
149.0	47 2-6 .2 148-162-166	49 2-6 .2 156-168-171	49 2-2 1.1 160-170-174	49 2-2 1.1 161-170-174	49 2-2 1.1 160-170-174	50 46
147.0	49 2-6 .2 149-163-166	51 2-6 .1 157-168-171	51 2-2 .3 159-169-172	51 2-2 .3 159-169-172	51 2-2 .3 157-169-172	51 47
145.0	51 2-6 .1 150-163-166	52 2-6 .8 157-168-171	52 2-2 .9 159-168-171	52 2-2 .9 158-168-171	52 2-2 .9 156-168-171	53 48
143.0	52 2-6 1.0 151-163-166	54 2-2 .0 157-166-169	54 2-2 .0 158-166-169	54 2-2 .0 156-166-169	54 2-2 .0 154-166-169	54 50
141.0	54 2-6 .8 151-163-166	55 2-2 .6 156-166-169	55 2-2 .6 157-166-169	55 2-2 .6 155-166-169	55 2-2 .6 153-166-169	54 51
136.0	59 2-5 .2 153-162-165	59 2-2 .3 155-162-165	59 2-2 .3 153-162-165	59 2-2 .3 151-162-165	59 2-2 .3 150-162-165	54 54
131.0	63 2-2 .0 153-159-162	63 2-2 .0 152-159-162	63 2-2 .0 149-159-162	63 2-2 .0 147-159-162	63 2-2 .0 147-159-162	54 54
126.0	66 2-2 1.1 151-157-160	66 2-2 1.1 149-157-160	66 2-2 1.1 146-157-160	66 2-2 1.1 145-157-160	66 2-2 1.1 145-157-160	54 54
121.0	70 2-2 .8 147-154-157	70 2-2 .8 145-154-157	70 2-2 .8 142-154-157	70 2-2 .8 142-154-157	70 2-2 .8 142-154-157	54 54
116.0	71 2-2 4.5 146-153-156	71 2-2 4.5 143-153-156	71 2-2 4.5 141-153-156	71 2-2 4.5 141-153-156	71 2-2 4.5 141-153-156	54 54
111.0	71 .0 131-132-136	71 .0 131-132-136	71 .0 131-132-136	71 .0 131-132-136	71 .0 131-132-136	54 54
106.0	71 .0 128-129-133	71 .0 128-129-133	71 .0 128-129-133	71 .0 128-129-133	71 .0 128-129-133	54 54
101.0	71 .0 125-125-130	71 .0 125-125-130	71 .0 125-125-130	71 .0 125-125-130	71 .0 125-125-130	54 54

MUHA HAVANA 05

ELEV. = 210 ft TORA = 4000 m
SLOPE = .00 % ASDA = 4060 m
TODA = 4060 m

15/00

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

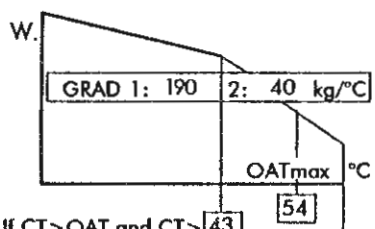
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1021 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>43
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-1	-0.5	-6	-1

Minimum v_1: 119 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1800 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	8 2-1 .0 162-173-177	28 2-6 .1 163-174-178	38 2-1 .0 165-175-179	44 1-6 .2 169-178-182	43
157.0	3 2-6 .2 157-170-174	24 2-6 .1 158-170-174	42 2-6 .1 161-171-175	43 2-1 1.5 164-175-178	46 2-6 .3 169-178-182	44
155.0	13 6-6 .2 155-168-172	35 2-6 .0 156-168-172	43 2-6 1.9 161-171-175	46 2-6 .9 165-175-179	48 2-6 .2 170-179-182	46
153.0	22 6-6 .1 154-167-171	43 2-6 .2 155-167-171	47 2-6 .3 162-172-175	48 2-6 .7 166-175-179	49 2-6 1.1 171-179-182	47
151.0	30 6-6 .2 152-166-170	46 6-6 .8 155-167-170	49 2-6 .2 163-172-175	50 2-6 .6 167-175-179	51 2-6 .9 172-179-182	49 44
149.0	39 6-6 .0 151-165-169	48 2-6 .9 156-167-170	51 2-6 .1 164-172-176	52 2-6 .4 168-176-179	53 2-6 .7 173-180-183	50 46
147.0	43 6-6 1.1 150-164-168	50 2-6 .8 157-167-170	52 2-6 1.0 164-172-176	54 2-6 .2 169-176-179	55 2-6 .4 174-180-183	51 47
145.0	48 6-6 .5 151-163-167	52 2-6 .8 158-167-170	54 2-6 .9 165-172-176	56 2-6 .1 170-176-179	57 2-6 .2 175-180-183	53 48
143.0	52 6-6 .1 152-162-166	54 2-6 .7 159-167-171	56 2-6 .8 166-172-176	57 2-6 1.0 171-176-179	58 2-2 .9 176-180-182	54 50
141.0	54 2-6 .4 152-162-166	56 2-6 .7 160-167-171	58 2-6 .6 167-172-176	59 2-6 .8 172-176-179	60 2-2 .1 175-178-181	54 51
136.0	59 2-5 .2 154-162-165	61 2-6 .5 162-167-171	63 2-6 .3 169-173-176	63 2-2 .9 173-175-178	63 2-2 .9 172-175-178	54 54
131.0	63 2-5 .9 156-161-164	66 2-5 .1 164-167-170	67 2-2 .3 170-172-174	67 2-2 .3 169-172-174	67 2-2 .3 168-172-174	54 54
126.0	68 2-5 .4 158-161-163	70 2-5 .5 165-167-169	70 2-2 1.1 167-169-172	70 2-2 1.1 166-169-172	70 2-2 1.1 165-169-172	54 54
121.0	71 2-5 2.1 157-160-162	71 2-5 4.3 165-167-169	71 2-2 4.7 166-168-171	71 2-2 4.7 165-168-171	71 2-2 4.7 164-168-171	54 54
116.0	71 .0 147-147-150	71 .0 147-147-150	71 .0 147-147-150	71 .0 147-147-150	71 .0 147-147-150	54 54
111.0	71 .0 143-144-147	71 .0 143-144-147	71 .0 143-144-147	71 .0 143-144-147	71 .0 143-144-147	54 54
106.0	71 .0 140-140-143	71 .0 140-140-143	71 .0 140-140-143	71 .0 140-140-143	71 .0 140-140-143	54 54
101.0	71 .0 136-137-140	71 .0 136-137-140	71 .0 136-137-140	71 .0 136-137-140	71 .0 136-137-140	54 54

MUHA
HAVANA
23

ELEV. = 210 ft TORA = 4000 m
SLOPE = .00 % ASDA = 4200 m
TODA = 4200 m

15/15

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

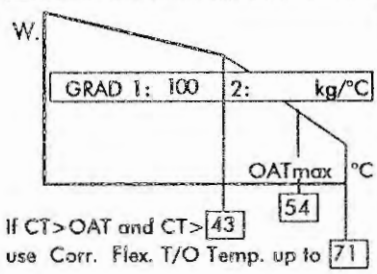
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1021 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>43
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-2	-2.0	-12	-3

Minimum v_1: 117 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1800 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	14 2-6 .1 160-175-178	26 2-2 .0 162-175-179	26 2-2 .0 162-175-179	26 2-2 .0 163-175-179	43
157.0	14 2-6 .0 153-169-173	32 2-6 .1 155-171-174	43 2-2 .7 160-174-177	43 2-2 1.0 162-175-178	43 2-2 1.0 162-175-178	44
155.0	31 2-6 .0 149-166-169	43 2-6 .6 153-169-172	45 2-2 .8 160-174-177	45 2-2 .8 161-174-177	45 2-2 .8 162-174-177	46
153.0	43 2-6 .4 146-163-167	45 2-6 1.0 154-169-172	46 2-2 1.4 160-173-176	46 2-2 1.4 160-173-176	46 2-2 1.4 161-173-176	47
151.0	45 2-6 .8 147-163-167	47 2-6 .8 155-169-172	48 2-2 .5 159-171-174	48 2-2 .5 160-171-174	48 2-2 .5 159-171-174	49 44
149.0	47 2-6 .7 148-163-167	49 2-6 .6 156-169-172	49 2-2 1.1 159-170-174	49 2-2 1.1 159-170-174	49 2-2 1.1 158-170-174	50 46
147.0	49 2-6 .6 149-164-167	51 2-2 .3 156-169-172	51 2-2 .3 158-169-172	51 2-2 .3 158-169-172	51 2-2 .3 156-169-172	51 47
145.0	51 2-5 .5 150-164-167	52 2-2 .9 156-168-171	52 2-2 .9 158-168-171	52 2-2 .9 157-168-171	52 2-2 .9 155-168-171	53 48
143.0	53 2-5 .1 150-163-167	54 2-2 .0 155-166-169	54 2-2 .0 156-166-169	54 2-2 .0 155-166-169	54 2-2 .0 153-166-169	54 50
141.0	54 2-5 .9 150-163-166	55 2-2 .6 155-166-169	55 2-2 .6 155-166-169	55 2-2 .6 153-166-169	55 2-2 .6 153-166-169	54 51
136.0	59 2-5 .2 152-162-165	59 2-2 .3 154-162-165	59 2-2 .3 152-162-165	59 2-2 .3 150-162-165	59 2-2 .3 150-162-165	54 54
131.0	63 2-2 .0 152-159-162	63 2-2 .0 150-159-162	63 2-2 .0 148-159-162	63 2-2 .0 147-159-162	63 2-2 .0 147-159-162	54 54
126.0	66 2-2 1.1 150-157-160	66 2-2 1.1 147-157-160	66 2-2 1.1 145-157-160	66 2-2 1.1 145-157-160	66 2-2 1.1 145-157-160	54 54
121.0	70 2-2 .8 146-154-157	70 2-2 .8 143-154-157	70 2-2 .8 142-154-157	70 2-2 .8 142-154-157	70 2-2 .8 142-154-157	54 54
116.0	71 2-2 4.5 144-153-156	71 2-2 4.5 142-153-156	71 2-2 4.5 141-153-156	71 2-2 4.5 141-153-156	71 2-2 4.5 141-153-156	54 54
111.0	71 .0 131-132-136	71 .0 131-132-136	71 .0 131-132-136	71 .0 131-132-136	71 .0 131-132-136	54 54
106.0	71 .0 128-129-133	71 .0 128-129-133	71 .0 128-129-133	71 .0 128-129-133	71 .0 128-129-133	54 54
101.0	71 .0 125-125-130	71 .0 125-125-130	71 .0 125-125-130	71 .0 125-125-130	71 .0 125-125-130	54 54

RJNN NAGOYA 16/34

ELEV. = 46 ft TORA = 2740 m
SLOPE = .00 % ASDA = 2800 m
TODA = 2800 m

15/15

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight increment [t]
v_1 - v_R - v_2 [kts] IAS

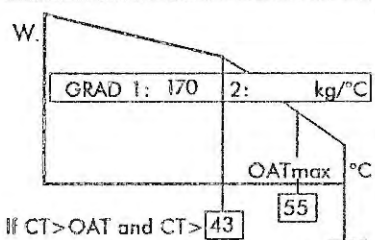
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1015 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>43
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-8	-5.5	-12	-3

Minimum v_1: 117 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1600 ft

Weight [t]	TAILWIND [kts] -10	TAILWIND [kts] -5	NO WIND 0	HEADWIND [kts] 10	HEADWIND [kts] 20	TGA 15/15 20/20
159.0	- -	- -	- -	- -	0 2-3 .0 170-173-177	44
157.0	- -	- -	- -	5 2-3 .1 165-168-172	18 2-3 .1 166-169-173	45
155.0	- -	- -	10 2-3 .1 160-164-168	23 2-3 .1 161-165-169	36 2-3 .1 162-166-169	46
153.0	- -	6 2-3 .1 155-159-164	28 2-3 .0 156-160-164	40 2-3 .1 158-161-165	43 2-3 1.3 161-164-168	48 43
151.0	3 2-3 .0 150-155-160	23 2-3 .0 151-156-160	43 2-3 .2 153-158-162	43 2-3 1.8 157-161-165	46 2-3 .7 161-164-168	49 45
149.0	17 2-3 .0 147-152-157	39 2-3 .0 148-153-157	45 2-3 .8 153-157-161	47 2-3 .1 157-160-164	48 2-3 .3 160-164-167	51 46
147.0	28 3-3 .0 146-151-155	43 2-3 1.5 148-152-157	47 2-3 .5 153-157-161	48 2-3 .9 157-160-164	49 2-3 1.2 160-163-167	52 48
145.0	37 3-3 .1 145-150-154	46 2-3 1.0 147-152-156	49 2-3 .3 153-157-161	50 2-3 .6 156-160-163	51 2-3 .8 160-163-167	53 49
143.0	43 3-3 .7 144-149-154	48 2-3 .8 147-151-156	50 2-3 1.1 153-156-160	52 2-3 .3 156-159-163	53 2-3 .5 160-163-166	55 51
141.0	47 3-3 .1 143-148-152	50 2-3 .6 147-151-155	52 2-3 .9 152-156-160	53 2-3 1.1 156-159-163	55 2-3 .1 160-162-166	55 52
136.0	52 2-3 1.0 142-146-150	55 2-3 .1 146-150-154	57 2-3 .1 152-155-159	58 2-3 .3 156-158-161	59 2-3 .4 159-161-164	55 55
131.0	57 2-3 .6 141-145-149	59 2-3 .6 146-149-153	61 2-3 .6 151-154-157	62 2-3 .7 155-157-160	63 2-2 .5 158-160-163	55 55
126.0	62 2-3 .2 140-143-147	64 2-3 .1 145-148-151	65 2-3 1.0 151-153-156	66 2-3 1.0 154-156-159	67 2-2 .1 155-156-159	55 55
121.0	66 2-3 .8 139-142-146	68 2-3 .6 144-147-150	70 2-3 .2 150-151-154	70 2-2 1.0 153-154-157	70 2-2 1.0 152-154-157	55 55
116.0	71 2-3 .4 138-141-145	72 2-3 1.1 143-146-149	72 2-3 2.9 150-151-154	72 2-2 3.3 151-152-155	72 2-2 3.3 149-152-155	55 55
111.0	72 2-3 4.3 138-141-144	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	55 55
106.0	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	55 55
101.0	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	55 55

RJFF FUKUOKA 16/34

ELEV. = 30 ft TORA = 2800 m
SLOPE = .00 % ASDA = 2860 m
TODA = 2860 m

15/00

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

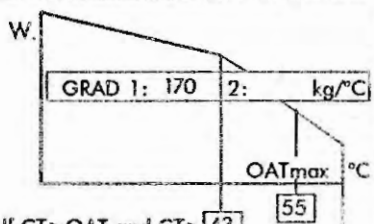
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1014 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>43
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-10	-5.0	-10	-3

Minimum v_1: 119 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1600 ft

Weight [t]	TAILWIND [kts] -10	TAILWIND [kts] -5	NO WIND 0	HEADWIND [kts] 10	HEADWIND [kts] 20	TGA 15/15 20/20
159.0	- -	- -	- -	- -	9 2-1 .1 171-173-177	44
157.0	- -	- -	- -	11 2-3 .0 167-169-173	27 2-3 .1 168-170-174	45
155.0	- -	- -	4 3-3 .0 165-168-172	20 3-3 .2 166-168-172	37 2-3 .1 167-168-172	47
153.0	- -	- -	12 3-3 .2 164-167-171	29 3-3 .2 165-167-171	43 2-3 .9 166-167-171	48 43
151.0	- -	- -	21 3-3 .2 163-166-170	38 3-3 .2 164-166-170	47 3-3 .3 165-166-170	49 45
149.0	- -	5 3-3 .2 161-165-169	30 3-3 .1 162-165-169	43 3-3 1.1 163-165-169	49 2-3 .1 164-166-169	51 46
147.0	- -	14 3-3 .1 159-163-168	39 3-3 .2 161-164-168	47 3-3 .4 162-164-168	50 2-3 .9 164-166-169	52 48
145.0	0 3-3 .2 157-162-167	23 3-3 .1 158-162-166	43 3-3 1.3 160-163-167	49 3-3 .8 161-163-167	52 2-3 .6 164-165-169	53 49
143.0	9 3-3 .1 156-161-165	32 3-3 .1 157-161-165	47 3-3 .6 159-162-166	52 3-3 .4 160-162-166	54 2-3 .3 164-165-168	55 51
141.0	18 3-3 .1 155-160-164	41 3-3 .1 156-160-164	50 3-3 .2 158-161-164	54 2-3 .6 160-162-165	55 2-3 1.1 164-165-168	55 52
136.0	40 3-3 .2 152-157-161	43 3-3 4.7 155-160-164	56 3-3 .4 156-158-162	58 2-3 1.0 159-161-163	60 2-3 .2 163-163-166	55 55
131.0	43 3-3 4.5 151-157-161	55 3-3 .7 152-156-159	61 3-3 .8 155-156-159	63 2-3 .3 158-159-162	64 2-3 .6 162-162-165	55 55
126.0	55 3-3 .6 148-152-156	61 3-3 .4 150-153-156	66 2-3 .4 154-155-157	67 2-3 .7 158-158-161	68 2-3 .7 161-161-163	55 55
121.0	61 3-3 .4 146-150-153	67 3-3 .4 148-150-153	70 2-3 .9 153-154-156	71 2-3 1.1 157-157-159	72 2-3 .9 160-160-162	55 55
116.0	67 3-3 .6 144-147-150	72 2-3 1.6 147-148-151	72 2-3 3.7 153-154-156	72 2-3 5.0 157-157-159	72 .0 147-147-150	55 55
111.0	72 3-3 1.9 143-145-148	72 .0 143-144-147	72 .0 143-144-147	72 .0 143-144-147	72 .0 143-144-147	55 55
106.0	72 .0 140-140-143	72 .0 140-140-143	72 .0 140-140-143	72 .0 140-140-143	72 .0 140-140-143	55 55
101.0	72 .0 136-137-140	72 .0 136-137-140	72 .0 136-137-140	72 .0 136-137-140	72 .0 136-137-140	55 55

RJFF FUKUOKA 16/34

ELEV. = 30 ft TORA = 2800 m
SLOPE = .00 % ASDA = 2860 m
TODA = 2860 m

15/15

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max. Temp. [°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

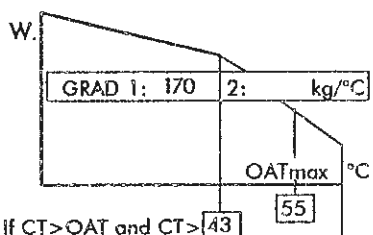
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1014 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>43
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp. [°C]	MAX T/O Weight [t]	v_1 [kt]	v_R & v_2 [kt]
-2	-2.0	-12	-3

Minimum v_1: 117 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1600 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	- -	- -	5 2-3 .0 171-173-177	44
157.0	- -	- -	-2 2-3 .0 164-168-172	11 2-3 .0 165-169-172	24 2-3 .0 166-169-173	45
155.0	- -	- -	15 2-3 .1 160-164-168	29 2-3 .0 161-165-169	41 2-3 .1 163-166-170	47
153.0	- -	11 2-3 .1 155-160-164	33 2-3 .0 157-161-165	43 2-3 .4 158-162-166	43 2-3 1.9 162-166-169	48 43
151.0	8 2-3 .1 150-155-160	28 2-3 .1 151-156-161	43 2-3 .8 155-159-163	45 2-3 1.0 158-162-166	47 2-3 .1 162-165-169	49 45
149.0	23 2-3 .1 147-152-157	43 2-3 .2 149-153-158	46 2-3 .3 154-158-162	47 2-3 .7 158-162-165	48 2-3 .9 162-165-168	51 46
147.0	34 3-3 .1 146-151-155	45 2-3 .8 148-153-158	48 2-3 .1 154-158-162	49 2-3 .4 158-161-165	50 2-3 .6 161-165-168	52 48
145.0	43 3-3 .1 144-150-154	47 2-3 .7 148-153-157	49 2-3 .9 154-158-162	51 2-3 .0 158-161-165	52 2-3 .2 161-164-168	53 49
143.0	46 3-3 .3 144-149-153	49 2-3 .4 148-152-157	51 2-3 .6 154-157-161	52 2-3 .9 158-161-164	53 2-3 1.0 161-164-167	55 51
141.0	48 3-3 .7 143-148-153	51 2-3 .2 148-152-156	53 2-3 .3 154-157-161	54 2-3 .5 157-161-164	55 2-3 .6 161-164-167	55 52
136.0	53 2-3 .7 143-147-151	55 2-3 .7 147-151-155	57 2-3 .7 153-156-160	58 2-3 .9 157-159-163	59 3-3 .9 161-163-166	55 55
131.0	58 2-3 .2 142-146-150	60 2-3 .1 146-150-154	61 2-3 1.1 153-155-159	63 2-3 .0 156-158-161	63 2-2 .5 158-160-163	55 55
126.0	62 2-3 .8 141-145-148	64 2-3 .6 146-149-152	66 2-3 .3 152-154-157	67 2-2 .1 155-156-159	67 2-2 .1 154-156-159	55 55
121.0	67 2-3 .3 140-143-147	68 2-3 1.1 145-148-151	70 2-3 .7 151-153-156	70 2-2 1.0 152-154-157	70 2-2 1.0 151-154-157	55 55
116.0	71 2-3 .9 140-143-146	72 2-3 1.6 145-147-150	72 2-2 3.3 151-152-155	72 2-2 3.3 150-152-155	72 2-2 3.3 149-152-155	55 55
111.0	72 2-3 4.8 139-142-146	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	55 55
106.0	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	55 55
101.0	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	55 55

RIOO OSAKA 14R/32L

ELEV. = 39 ft TORA = 3000 m
SLOPE = .00 % ASDA = 3060 m
TODA = 3060 m

15/00

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

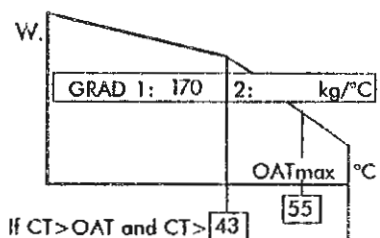
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1014 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C aff: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>43
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-10	-5.0	-10	-3

Minimum v_1: 119 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1600 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	-2 2-3 .0 169-172-176	12 2-1 .0 171-173-177	27 2-1 .0 172-174-178	44
157.0	- -	- -	13 2-2 .2 167-169-173	28 2-3 .2 168-170-174	43 2-3 .1 169-171-175	45
155.0	- -	-2 3-3 .0 164-168-172	22 2-2 .2 165-168-172	39 2-3 .1 166-168-172	45 2-3 .6 169-170-174	46
153.0	- -	6 3-3 .2 163-167-171	31 3-3 .2 164-167-171	43 2-3 1.4 165-168-172	47 2-3 .3 168-170-174	48 43
151.0	- -	15 3-3 .1 162-166-170	40 3-3 .2 163-166-170	47 2-3 .6 165-167-170	48 2-3 1.1 168-170-174	49 45
149.0	1 3-3 .2 160-164-169	24 3-3 .1 161-165-169	43 3-3 1.6 163-166-170	49 2-3 .2 164-166-170	50 2-3 .8 168-169-173	51 46
147.0	10 3-3 .1 158-163-168	33 3-3 .1 159-164-168	48 3-3 .3 161-164-168	50 2-3 1.1 164-166-170	52 2-3 .4 168-169-173	52 48
145.0	19 3-3 .1 157-162-166	42 3-3 .1 158-163-167	50 3-3 .4 161-163-167	52 2-3 .8 164-166-169	54 2-3 .0 168-169-172	53 49
143.0	28 3-3 .3 156-161-165	43 3-3 1.9 158-162-166	52 3-3 .9 160-163-166	54 2-3 .4 164-165-169	55 2-3 .8 168-169-172	55 51
141.0	37 3-3 .1 155-160-164	48 3-3 .4 157-161-164	54 2-3 .8 160-162-165	56 2-3 .1 163-165-168	57 2-3 .4 167-168-171	55 52
136.0	43 3-3 3.8 154-159-163	54 3-3 .7 155-158-162	59 2-3 .0 159-161-164	60 2-3 .4 163-164-167	61 2-3 .7 167-167-170	55 55
131.0	54 3-3 .5 151-155-159	60 3-3 .4 153-156-159	63 2-3 .5 158-160-162	64 2-3 .8 162-163-165	65 2-3 .9 166-166-168	55 55
126.0	60 3-3 .3 149-153-156	65 2-3 .9 152-154-156	67 2-3 .8 158-159-161	68 2-3 1.1 162-162-164	69 2-3 .8 164-164-166	55 55
121.0	66 3-3 .4 147-150-153	70 2-3 .3 151-153-155	72 2-3 .1 157-158-160	72 2-3 1.3 161-161-163	72 2-3 2.2 163-163-165	55 55
116.0	72 3-3 .7 145-148-150	72 2-3 3.1 151-152-155	72 .0 147-147-150	72 .0 147-147-150	72 .0 147-147-150	55 55
111.0	72 .0 143-144-147	72 .0 143-144-147	72 .0 143-144-147	72 .0 143-144-147	72 .0 143-144-147	55 55
106.0	72 .0 140-140-143	72 .0 140-140-143	72 .0 140-140-143	72 .0 140-140-143	72 .0 140-140-143	55 55
101.0	72 .0 136-137-140	72 .0 136-137-140	72 .0 136-137-140	72 .0 136-137-140	72 .0 136-137-140	55 55

RJOO OSAKA 14R/32L

ELEV. = 39 ft TORA = 3000 m
SLOPE = .00 % ASDA = 3060 m
TODA = 3060 m

15/15

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

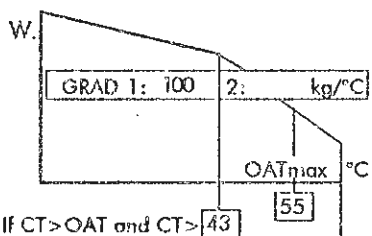
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1014 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>43
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp [°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-2	-2.0	-12	-3

Minimum v_1: 117 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1600 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	- -	7 2-1 .1 170-174-177	19 2-2 .1 171-174-178	44
157.0	- -	- -	13 2-3 .1 165-169-173	26 2-3 .1 166-170-173	38 2-3 .1 167-171-174	45
155.0	- -	10 2-3 .1 159-164-168	31 2-3 .1 161-165-169	43 2-3 .1 162-166-170	43 2-3 1.5 166-170-173	46
153.0	8 2-3 .0 154-159-164	28 2-3 .0 155-160-164	43 2-3 .7 158-163-167	45 2-3 .7 162-166-170	46 2-3 .9 166-169-173	48 43
151.0	24 2-3 .1 150-156-161	43 2-3 .2 152-157-162	46 2-3 .1 158-162-166	47 2-3 .3 162-166-169	48 2-3 .5 166-169-172	49 45
149.0	40 2-3 .1 148-153-158	45 2-3 .8 152-157-161	47 2-3 .9 158-162-166	48 2-3 1.2 162-166-169	50 2-3 .1 166-169-172	51 46
147.0	43 2-3 1.7 147-153-157	47 2-3 .5 152-157-161	49 2-3 .6 158-162-166	50 2-3 .8 162-165-169	51 2-3 .9 165-169-172	52 48
145.0	47 2-3 .2 146-152-156	49 2-3 .3 151-156-160	51 2-3 .3 158-162-165	52 2-3 .4 161-165-168	53 2-2 .2 165-168-171	53 49
143.0	48 2-3 1.1 146-152-156	51 2-3 .0 151-156-160	52 2-3 1.1 158-162-165	54 2-3 .0 161-165-168	54 2-2 .8 164-167-170	55 51
141.0	50 2-3 .9 146-151-156	52 2-3 .9 151-156-160	54 2-3 .8 158-161-165	55 2-3 .8 161-165-168	55 2-2 1.3 164-166-169	55 52
136.0	55 2-3 .3 146-150-155	57 2-3 .1 151-155-159	58 2-3 1.1 157-160-163	59 2-2 .9 160-163-166	59 2-2 .9 160-163-166	55 55
131.0	59 2-3 .8 145-149-153	61 2-3 .6 150-154-157	63 2-3 .2 156-159-162	63 2-2 .5 157-160-163	63 2-2 .5 156-160-163	55 55
126.0	64 2-3 .2 144-148-152	65 2-3 1.0 149-153-156	67 2-2 .1 155-156-159	67 2-2 .1 153-156-159	67 2-2 .1 152-156-159	55 55
121.0	68 2-3 .7 143-147-150	70 2-3 .2 149-151-154	70 2-2 1.0 152-154-157	70 2-2 1.0 150-154-157	70 2-2 1.0 149-154-157	55 55
116.0	72 2-3 1.3 143-146-149	72 2-3 2.9 148-151-154	72 2-2 3.3 149-152-155	72 2-2 3.3 148-152-155	72 2-2 3.3 147-152-155	55 55
111.0	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	55 55
106.0	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	55 55
101.0	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	55 55

RIOA HIROSHIMA 04/22

ELEV. = 10 ft TORA = 1800 m
SLOPE = .00 % ASDA = 1860 m
TODA = 1860 m

15/00

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

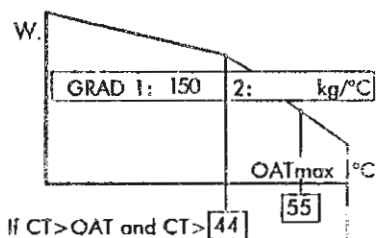
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1013 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>44
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-10	-5.0	-10	-3

Minimum v_1: 119 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1600 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	- -	- -	- -	44
157.0	- -	- -	- -	- -	- -	45
155.0	- -	- -	- -	- -	- -	47
153.0	- -	- -	- -	- -	- -	48 44
151.0	- -	- -	- -	- -	- -	49 45
149.0	- -	- -	- -	- -	- -	51 46
147.0	- -	- -	- -	- -	- -	52 48
145.0	- -	- -	- -	- -	- -	53 49
143.0	- -	- -	- -	- -	- -	55 51
141.0	- -	- -	- -	- -	- -	55 52
136.0	- -	- -	- -	- -	2 3-3 .2 155-157-161	55 55
131.0	- -	- -	- -	7 3-3 .2 151-154-159	24 3-3 .1 152-154-159	55 55
126.0	- -	- -	13 3-3 .1 147-151-156	29 3-3 .2 148-151-156	44 3-3 .7 149-151-156	55 55
121.0	- -	9 3-3 .1 143-147-153	36 3-3 .1 144-148-153	44 3-3 1.9 146-149-154	51 3-3 .3 147-149-153	55 55
116.0	7 3-3 .1 139-144-150	32 3-3 .2 140-144-150	44 3-3 .3 143-146-152	53 3-3 .2 143-145-150	57 3-3 .7 145-146-150	55 55
111.0	31 3-3 .1 135-140-147	44 3-3 2.7 138-142-148	55 3-3 .4 140-142-147	59 3-3 .6 141-143-147	64 3-3 .3 143-143-147	55 55
106.0	44 3-3 2.5 133-139-145	55 3-3 .0 135-138-143	62 3-3 .0 138-139-143	66 3-3 .4 139-140-144	71 3-3 .1 140-140-144	55 55
101.0	55 3-3 .1 130-135-140	61 3-3 .6 133-136-141	69 3-3 .1 135-136-140	72 3-3 1.3 137-138-141	72 3-3 4.3 140-140-143	55 55

ROAH OKINAVA (NAHA) 18/36

ELEV. = 13 ft TORA = 3000 m
SLOPE = .00 % ASDA = 3060 m
TODA = 3060 m

15/15

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

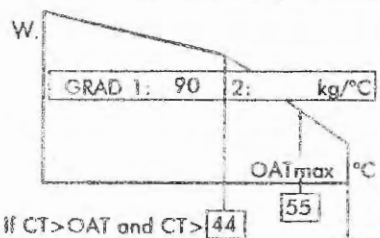
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1013 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C oft: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>44
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-2	-2.0	-12	-3

Minimum v_1: 117 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1600 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	- -	8 2-3 .0 170-173-177	20 2-2 .1 171-174-178	44
157.0	- -	- -	14 2-3 .0 165-169-172	26 2-3 .1 166-170-173	39 2-3 .0 167-171-174	45
155.0	- -	11 2-3 .0 159-164-168	32 2-3 .0 161-165-169	43 2-3 .2 162-166-170	44 2-3 1.3 166-170-173	47
153.0	8 2-3 .1 154-159-164	28 2-3 .1 155-160-164	44 2-3 .5 158-163-167	44 2-3 2.0 162-166-170	46 2-3 1.0 166-169-173	48 44
151.0	25 2-3 .0 150-156-160	44 2-3 .0 152-157-162	46 2-3 .2 158-163-166	47 2-3 .5 162-166-169	48 2-3 .6 166-169-172	49 45
149.0	41 2-3 .3 147-153-157	45 2-3 .9 152-157-161	47 2-3 1.1 158-162-166	49 2-3 .1 162-165-169	50 2-3 .2 166-169-172	51 46
147.0	46 2-3 1.6 147-153-157	47 2-3 .7 152-157-161	49 2-3 .8 158-162-166	50 2-3 .9 162-165-169	51 2-3 1.0 166-169-172	52 48
145.0	47 2-3 .3 147-152-156	49 2-3 .4 151-157-161	51 2-3 .4 158-162-165	52 2-3 .6 162-165-168	53 2-2 .3 165-168-171	53 49
143.0	49 2-3 .3 146-152-156	51 2-3 .1 151-156-160	53 2-3 .1 158-161-165	54 2-3 .1 161-165-168	54 2-2 .9 164-167-170	55 51
141.0	50 2-3 1.0 146-151-156	52 2-3 1.0 151-156-160	54 2-3 .9 158-161-165	55 2-3 1.0 161-165-168	56 2-2 .1 163-165-168	55 52
136.0	55 2-3 .4 146-151-155	57 2-3 .2 151-155-159	58 2-3 1.2 157-160-163	59 2-2 1.0 160-163-166	59 2-2 1.0 160-163-166	55 55
131.0	59 2-3 .9 145-149-153	61 2-3 .6 150-154-157	63 2-3 .3 156-159-162	63 2-2 .6 157-160-163	63 2-2 .6 156-160-163	55 55
126.0	64 2-3 .3 144-148-152	65 2-3 1.0 149-153-156	67 2-2 .1 155-156-159	67 2-2 .1 153-156-159	67 2-2 .1 152-156-159	55 55
121.0	68 2-3 .8 144-147-150	70 2-3 .3 149-151-154	70 2-2 1.0 152-154-157	70 2-2 1.0 150-154-157	70 2-2 1.0 149-154-157	55 55
116.0	72 2-3 1.3 143-146-149	72 2-3 3.0 148-151-154	72 2-2 3.3 150-152-155	72 2-2 3.3 148-152-155	72 2-2 3.3 147-152-155	55 55
111.0	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	55 55
106.0	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	55 55
101.0	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	55 55

UEEE YAKUTSK 05L/23R

ELEV. = 322 ft TORA = 2400 m
SLOPE = 00 % ASDA = 2500 m
TODA = 2800 m

15/00

Take-off Parameters for 1013 hPa, dry RWY and A/C ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

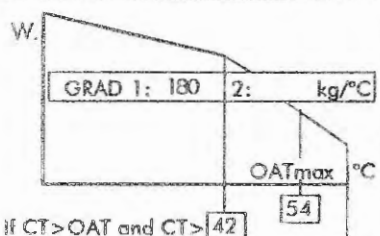
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1025 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>42
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-10	-5.0	-10	-3

Minimum v_1: 119 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1900 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	- -	- -	- -	42
157.0	- -	- -	- -	- -	- -	44
155.0	- -	- -	- -	- -	2 3-3 .1 165-168-172	45
153.0	- -	- -	- -	- -	11 3-3 .0 164-167-171	47
151.0	- -	- -	- -	3 3-3 .1 162-166-170	19 3-3 .2 163-166-170	48 43
149.0	- -	- -	- -	11 3-3 .2 161-165-169	28 3-3 .1 162-165-169	50 45
147.0	- -	- -	4 3-3 .1 159-163-168	20 3-3 .1 160-164-168	36 3-3 .2 161-164-168	51 47
145.0	- -	- -	12 3-3 .2 158-162-167	29 3-3 .1 159-162-166	42 3-3 .8 160-163-167	52 48
143.0	- -	.3 3-3 .1 156-161-165	21 3-3 .2 157-161-165	37 3-3 .2 157-161-165	46 3-3 .3 159-162-166	54 50
141.0	- -	5 3-3 .2 154-160-164	30 3-3 .1 155-160-164	42 3-3 1.0 157-161-165	48 3-3 .7 158-161-165	54 51
136.0	5 3-3 .0 150-157-161	27 3-3 .2 151-157-161	42 3-3 .3 154-159-163	50 3-3 .4 155-158-162	55 3-3 .3 156-158-161	54 54
131.0	26 3-3 .2 147-154-159	42 3-3 .7 149-155-159	52 3-3 .1 151-155-159	56 3-3 .6 153-156-159	61 3-3 .2 154-156-159	54 54
126.0	42 3-3 .5 145-152-157	51 3-3 .3 147-152-156	58 3-3 .2 149-153-156	62 3-3 .7 151-153-156	65 2-3 .9 154-155-157	54 54
121.0	51 3-3 .2 143-149-153	57 3-3 .6 145-150-153	64 3-3 .5 148-150-153	68 3-3 .9 149-151-153	70 2-3 .5 153-154-156	54 54
116.0	57 3-3 .7 141-146-150	64 3-3 .2 143-147-150	71 3-3 .3 145-147-150	71 2-3 3.0 149-150-152	71 2-3 4.4 153-153-156	54 54
111.0	64 3-3 .5 139-143-147	71 3-3 .2 141-144-147	71 .0 143-144-147	71 .0 143-144-147	71 .0 143-144-147	54 54
106.0	71 3-3 .6 137-141-144	71 .0 140-140-143	71 .0 140-140-143	71 .0 140-140-143	71 .0 140-140-143	54 54
101.0	71 .0 136-137-140	71 .0 136-137-140	71 .0 136-137-140	71 .0 136-137-140	71 .0 136-137-140	54 54

LEPA
PALMA DE MALLORCA
06R

ELEV. = 32 ft TORA = 3000 m
SLOPE = -.20 % ASDA = 3060 m
TODA = 3060 m

15/15

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

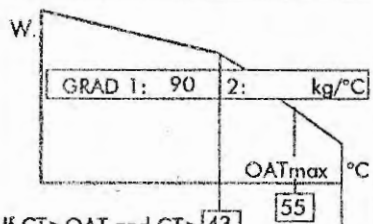
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1014 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>43
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-2	-2.0	-12	-3

Minimum v_1: 117 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1600 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	- -	- -	- -	44
157.0	- -	- -	-3 2-2 .0 163-168-172	-3 2-2 .0 161-168-172	-3 2-2 .0 160-168-172	45
155.0	- -	12 2-3 .1 159-164-168	33 2-3 .1 161-165-169	43 2-1 .4 162-167-170	43 2-1 1.7 166-170-174	47
153.0	10 2-3 .1 153-159-164	30 2-3 .0 155-160-165	43 2-3 .9 159-163-167	45 2-3 1.0 162-167-170	46 2-3 1.1 166-170-173	48 43
151.0	27 2-3 .1 150-156-160	43 2-3 .5 152-158-162	46 2-3 .4 158-163-167	47 2-3 .6 162-166-170	48 2-3 .7 166-170-173	49 45
149.0	43 2-3 .1 147-153-158	45 2-3 1.1 152-158-162	48 2-3 .1 158-163-166	49 2-3 .2 162-166-169	50 2-3 .3 166-169-173	51 46
147.0	45 2-3 .7 147-153-157	47 2-3 .8 152-157-162	49 2-3 .9 158-162-166	50 2-3 1.1 162-166-169	51 2-3 1.0 165-169-172	52 48
145.0	47 2-3 .5 147-152-157	49 2-3 .6 152-157-161	51 2-3 .5 158-162-166	52 2-3 .7 162-165-169	53 2-2 .3 165-167-171	53 49
143.0	49 2-3 .3 146-152-156	51 2-3 .3 151-157-161	53 2-3 .2 158-162-165	54 2-3 .3 162-165-168	54 2-2 .8 164-167-170	55 51
141.0	51 2-3 .1 146-152-156	52 2-3 1.1 151-156-160	54 2-3 1.0 158-162-165	55 2-3 1.1 162-165-168	56 2-2 .0 162-165-168	55 52
136.0	55 2-3 .6 146-151-155	57 2-3 .4 151-155-159	59 2-3 .1 157-160-164	59 2-2 .9 160-163-166	59 2-2 .9 159-163-166	55 55
131.0	59 2-3 1.1 145-150-154	61 2-3 .8 150-154-158	63 2-3 .4 156-159-162	63 2-2 .5 157-159-163	63 2-2 .5 156-159-163	55 55
126.0	64 2-3 .5 144-148-152	66 2-3 .0 149-153-156	67 2-2 .1 154-156-159	67 2-2 .1 153-156-159	67 2-2 .1 152-156-159	55 55
121.0	68 2-3 1.0 144-147-151	70 2-3 .4 149-152-155	70 2-2 1.0 151-154-157	70 2-2 1.0 150-154-157	70 2-2 1.0 149-154-157	55 55
116.0	72 2-3 1.5 143-146-150	72 2-3 3.1 149-151-154	72 2-2 3.3 149-152-155	72 2-2 3.3 148-152-155	72 2-2 3.3 146-152-155	55 55
111.0	72 .0 131-132-136	72 .0 131-132-136	72 .0 131-132-136	72 .0 131-132-136	72 .0 131-132-136	55 55
106.0	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	55 55
101.0	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	55 55

LEPA
PALMA DE MALLORCA
24L

FLEV = 32 ft TORA = 2590 m
SLOPE = 20 % ASDA = 3060 m
TODA = 3060 m

15/15

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

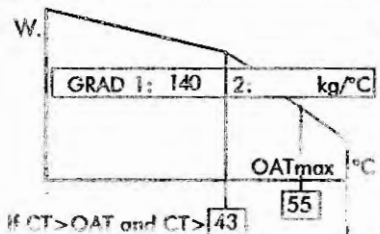
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1014 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>43
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-8	-5.5	-12	-3

Minimum v_1: 117 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1600 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	- -	- -	- -	44
157.0	- -	- -	-3 2-2 .1 167-168-172	-3 2-2 .0 165-168-172	-3 2-2 .0 164-168-172	45
155.0	- -	0 2-3 .1 162-164-168	22 2-3 .0 163-165-168	35 2-3 .0 164-165-169	43 2-1 .5 166-167-171	47
153.0	-2 2-3 .1 156-159-163	12 2-3 .1 158-160-164	39 2-3 .0 160-161-165	43 2-3 1.1 163-164-168	45 2-3 1.1 166-167-170	48 43
151.0	14 2-3 .2 153-156-160	34 2-3 .1 154-157-161	43 2-3 1.5 159-161-164	46 2-3 .5 162-163-167	47 2-3 .7 166-167-170	49 45
149.0	30 2-3 .0 150-153-157	43 2-3 1.0 153-155-159	46 2-3 1.0 158-160-164	48 2-3 .2 162-163-167	49 2-3 .3 166-166-170	51 46
147.0	41 2-3 .3 148-151-155	46 2-3 .5 152-155-159	48 2-3 .7 158-160-163	49 2-3 1.0 162-163-166	50 2-3 1.1 166-166-169	52 48
145.0	43 2-3 1.2 148-151-155	46 2-3 .2 152-156-158	50 2-3 .4 158-159-163	51 2-3 .6 162-163-166	52 2-3 .7 166-166-169	53 49
143.0	47 2-3 .9 147-149-154	49 2-3 1.1 152-156-158	52 2-3 .1 158-159-163	53 2-3 .3 162-162-166	54 2-3 .3 166-166-169	55 51
141.0	49 2-3 .2 147-149-153	51 2-3 .8 152-156-158	53 2-3 .9 158-159-162	54 2-3 1.1 162-162-165	55 2-3 1.1 165-165-168	55 52
136.0	54 2-3 .2 146-148-152	56 2-3 .2 151-153-156	58 2-3 .1 157-158-161	59 2-3 .0 160-160-163	59 2-2 .9 163-163-166	55 55
131.0	58 2-3 .8 145-147-151	60 2-3 .7 150-151-155	62 2-3 .4 156-156-159	63 2-3 .2 159-159-162	63 2-2 .5 159-160-163	55 55
126.0	63 2-3 .3 145-146-149	65 2-3 .0 150-150-153	66 2-3 .6 155-155-158	67 2-2 .1 156-156-159	67 2-2 .1 155-156-159	55 55
121.0	67 2-3 .8 144-145-148	69 2-3 .5 149-149-152	70 2-3 .8 153-153-156	70 2-2 1.0 153-154-157	70 2-2 1.0 152-154-157	55 55
116.0	72 2-3 .2 143-144-147	72 2-3 2.1 148-148-151	72 2-2 3.3 152-152-155	72 2-2 3.3 151-152-155	72 2-2 3.3 150-152-155	55 55
111.0	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	55 55
106.0	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	55 55
101.0	72 .0 125-126-130	72 .0 125-126-130	72 .0 125-126-130	72 .0 125-126-130	72 .0 125-126-130	55 55

LEPA
PALMA DE MALLORCA
24R

ELEV. = 32 ft
SLOPE = .00 %

TORA = 3270 m
ASDA = 3330 m
TODA = 3405 m

15/15

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

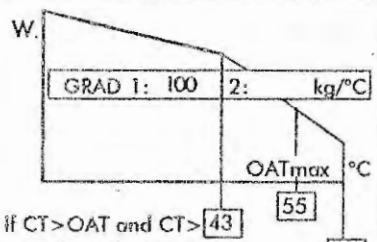
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1014 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>43
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-2	-2.0	-12	-3

Minimum v_1: 117 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1600 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	- -	- -	- -	44
157.0	- -	-3 2-2 .0 162-168-172	-3 2-2 .0 160-168-172	-3 2-2 .0 158-168-172	-3 2-2 .0 156-168-172	45
155.0	10 2-6 .1 156-164-168	30 2-6 .1 158-165-169	43 2-1 .8 162-168-171	43 2-1 2.0 165-171-174	43 2-1 2.0 166-171-174	47
153.0	26 2-6 .1 152-160-165	43 2-6 .5 155-162-166	46 2-6 .4 162-168-172	47 2-3 .6 167-172-175	47 2-2 1.0 169-173-176	48 43
151.0	42 2-6 .0 149-157-161	46 2-6 .2 156-163-166	48 2-3 .2 163-168-171	49 2-2 .1 166-171-174	49 2-2 .1 167-171-174	49 45
149.0	43 2-6 1.9 148-157-161	47 2-3 1.2 156-163-166	49 2-3 .9 163-168-171	50 2-2 .6 166-170-173	50 2-2 .6 166-170-173	51 46
147.0	47 2-6 .7 149-157-161	49 2-3 .8 156-162-166	51 2-3 .5 163-168-171	51 2-2 1.2 165-169-172	51 2-2 1.2 165-169-172	52 48
145.0	49 2-3 .7 150-157-161	51 2-3 .5 156-162-166	53 2-3 .1 162-167-170	53 2-2 .3 164-168-171	53 2-2 .3 163-168-171	53 49
143.0	51 2-3 .4 150-157-161	53 2-3 .1 156-162-165	54 2-2 .8 162-167-170	54 2-2 .8 163-167-170	54 2-2 .8 161-167-170	55 51
141.0	53 2-3 .1 150-157-160	54 2-3 .9 156-162-165	56 2-2 .0 161-165-168	56 2-2 .0 161-165-168	56 2-2 .0 159-165-168	55 52
136.0	57 2-3 .5 150-156-159	59 2-3 .0 155-160-163	59 2-2 .9 159-163-166	59 2-2 .9 158-163-166	59 2-2 .9 157-163-166	55 55
131.0	61 2-3 .9 149-154-158	63 2-3 .3 155-159-162	63 2-2 .5 156-160-163	63 2-2 .5 154-160-163	63 2-2 .5 153-160-163	55 55
126.0	66 2-3 .1 148-153-156	67 2-2 .1 153-156-159	67 2-2 .1 152-156-159	67 2-2 .1 150-156-159	67 2-2 .1 149-156-159	55 55
121.0	70 2-3 .5 148-152-155	70 2-2 1.0 150-154-157	70 2-2 1.0 149-154-157	70 2-2 1.0 147-154-157	70 2-2 1.0 146-154-157	55 55
116.0	72 2-3 3.2 147-152-155	72 2-2 3.3 148-152-155	72 2-2 3.3 146-152-155	72 2-2 3.3 145-152-155	72 2-2 3.3 143-152-155	55 55
111.0	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	55 55
106.0	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	55 55
101.0	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	55 55

DTMB MONASTIR 08/26

ELEV. = 7 ft TORA = 2950 m
SLOPE = .00 % ASDA = 3000 m
TODA = 3000 m

15/15

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

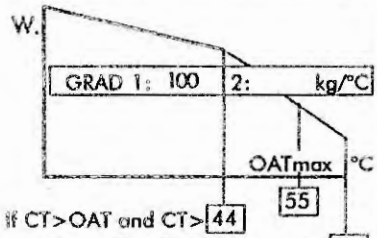
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1013 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>44
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-2	-2.0	-12	-3

Minimum v_1: 117 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1600 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0						44
157.0			-2 2-2 .0 165-168-172	-2 2-2 .0 163-168-172	-2 2-2 .0 161-168-172	45
155.0		6 2-3 .1 159-164-168	27 2-3 .1 161-165-169	40 2-3 .1 162-166-169	44 2-3 .9 165-168-172	47
153.0	4 2-3 .0 154-159-163	23 2-3 .1 155-160-164	43 2-3 .2 157-162-166	44 2-3 1.5 161-165-169	46 2-3 .6 165-168-172	48 44
151.0	20 2-3 .1 150-156-160	40 2-3 .1 152-157-161	44 2-3 2.0 157-162-165	47 2-3 .0 161-165-168	48 2-3 .2 165-168-171	49 45
149.0	36 2-3 .1 147-153-157	44 2-3 1.5 151-156-160	47 2-3 .6 157-161-165	48 2-3 .9 161-164-168	49 2-3 1.0 164-168-171	51 46
147.0	44 3-3 1.0 146-151-156	47 2-3 .2 151-156-160	49 2-3 .3 157-161-165	50 2-3 .5 160-164-168	51 2-3 .6 164-167-171	52 48
145.0	46 2-3 .9 146-151-155	48 2-3 1.0 151-155-160	50 2-3 1.1 157-161-164	52 2-3 .1 160-164-167	53 2-3 .1 164-167-170	53 49
143.0	48 2-3 .7 145-151-155	50 2-3 .8 150-155-159	52 2-3 .8 156-160-164	53 2-3 .9 160-164-167	54 2-2 .9 164-167-170	55 51
141.0	50 2-3 .4 145-150-155	52 2-3 .5 150-155-159	54 2-3 .4 156-160-164	55 2-3 .5 160-163-167	56 2-2 .1 163-165-168	55 52
136.0	54 2-3 1.0 145-150-154	56 2-3 .9 150-154-158	58 2-3 .7 156-159-162	59 2-3 .8 160-162-165	59 2-2 1.0 161-163-166	55 55
131.0	59 2-3 .4 144-148-152	61 2-3 .2 149-153-156	62 2-3 1.1 155-158-161	63 2-2 .6 158-160-163	63 2-2 .6 157-160-163	55 55
126.0	63 2-3 1.0 143-147-151	65 2-3 .6 148-151-155	67 2-2 .1 154-156-159	67 2-2 .1 154-156-159	67 2-2 .1 153-156-159	55 55
121.0	68 2-3 .3 143-146-149	69 2-3 1.0 148-150-154	70 2-2 1.0 152-154-157	70 2-2 1.0 151-154-157	70 2-2 1.0 150-154-157	55 55
116.0	72 2-3 .9 142-145-148	72 2-3 2.6 147-150-153	72 2-2 3.3 150-152-155	72 2-2 3.3 149-152-155	72 2-2 3.3 148-152-155	55 55
111.0	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	55 55
106.0	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	55 55
101.0	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	55 55

TXKF
BERMUDA NAS
12

ELEV. = 12 ft TORA = 2955 m
SLOPE = .00 % ASDA = 3025 m
TODA = 2955 m

15/15

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

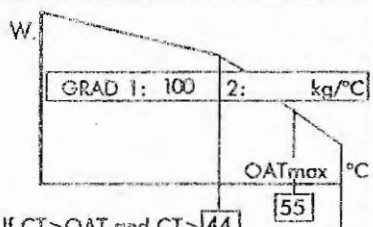
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1013 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>44
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-2	-2.0	-12	-3

Minimum v_1: 117 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1600 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	- -	- -	- -	44
157.0	- -	- -	-2 2-2 .0 165-168-172	-2 2-2 .0 163-168-172	-2 2-2 .0 162-168-172	45
155.0	- -	5 2-3 .1 160-164-168	27 2-3 .0 161-165-169	39 2-3 .1 163-166-170	44 2-3 .8 165-168-172	47
153.0	3 2-3 .1 154-159-163	23 2-3 .0 156-160-164	43 2-3 .2 158-162-166	44 2-3 1.4 162-165-169	46 2-3 .5 165-168-172	48 44
151.0	19 2-3 .1 151-156-160	39 2-3 .1 153-157-161	44 2-3 1.9 158-161-165	46 2-3 1.1 161-165-168	48 2-3 .1 165-168-171	49 45
149.0	35 2-3 .1 148-153-157	44 2-3 1.3 152-156-160	47 2-3 .5 158-161-165	48 2-3 .8 161-164-168	49 2-3 .9 165-168-171	51 46
147.0	44 3-3 .8 147-151-156	47 2-3 .1 151-156-160	49 2-3 .2 157-161-164	50 2-3 .4 161-164-167	51 2-3 .5 165-167-171	52 48
145.0	46 2-3 .7 146-151-155	48 2-3 .9 151-155-160	50 2-3 1.0 157-161-164	52 2-3 .1 161-164-167	53 2-3 .1 165-167-170	53 49
143.0	48 2-3 .5 146-150-155	50 2-3 .7 151-155-159	52 2-3 .7 157-160-164	53 2-3 .9 161-164-167	54 2-2 .9 165-167-170	55 51
141.0	50 2-3 .3 146-150-154	52 2-3 .4 151-155-159	54 2-3 .4 157-160-163	55 2-3 .5 161-163-167	56 2-2 .1 164-165-168	55 52
136.0	54 2-3 .9 145-149-154	56 2-3 .8 150-154-158	58 2-3 .7 156-159-162	59 2-3 .7 160-162-165	59 2-2 1.0 161-163-166	55 55
131.0	59 2-3 .3 145-148-152	61 2-3 .1 149-152-156	62 2-3 1.0 156-158-161	63 2-2 .6 158-160-163	63 2-2 .6 157-160-163	55 55
126.0	63 2-3 .9 144-147-151	65 2-3 .6 149-151-155	67 2-2 .1 155-156-159	67 2-2 .1 154-156-159	67 2-2 .1 153-156-159	55 55
121.0	68 2-3 .3 143-146-149	69 2-3 1.0 148-150-154	70 2-2 1.0 153-154-157	70 2-2 1.0 151-154-157	70 2-2 1.0 150-154-157	55 55
116.0	72 2-3 .8 142-145-148	72 2-3 2.5 148-150-153	72 2-2 3.3 150-152-155	72 2-2 3.3 149-152-155	72 2-2 3.3 148-152-155	55 55
111.0	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	55 55
106.0	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	55 55
101.0	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	55 55

TXKF
BERMUDA NAS
30

ELEV = 12 ft
SLOPE = .00 %

TORA = 2955 m
ASDA = 3120 m
TODA = 2955 m

15/15

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight increment [t]
v_1 - v_R - v_2 [kts] IAS

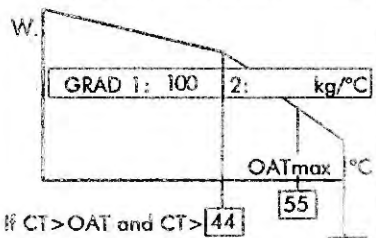
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1013 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>44
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-2	-2.0	-12	-3

Minimum v_1: 117 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1600 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0						44
157.0			-2 2-2 .0 165-168-172	-2 2-2 .0 163-168-172	-2 2-2 .0 162-168-172	45
155.0		9 2-3 .3 161-164-168	31 2-3 .0 162-165-169	43 2-3 .1 164-166-170	44 2-3 1.2 167-169-173	47
153.0	7 2-3 .8 155-159-164	27 2-3 .0 157-160-164	44 2-3 .4 160-163-166	44 2-3 1.8 164-166-170	46 2-3 1.0 167-169-173	48 44
151.0	24 2-3 .0 152-156-160	43 2-3 .1 154-157-161	46 2-3 .1 160-162-166	47 2-3 .4 163-166-169	48 2-3 .6 167-169-172	49 45
149.0	40 2-3 .0 149-153-157	44 2-3 1.9 153-157-161	47 2-3 1.0 159-162-166	49 2-3 .0 163-165-169	50 2-3 .2 167-169-172	51 46
147.0	44 2-3 1.6 146-152-157	47 2-3 .6 153-157-161	49 2-3 .7 159-162-165	50 2-3 .9 163-165-169	51 2-3 .9 167-168-172	52 48
145.0	47 2-3 .2 148-152-156	49 2-3 .3 153-156-160	51 2-3 .3 159-161-165	52 2-3 .5 163-165-168	53 2-3 .3 166-168-171	53 49
143.0	46 2-3 1.0 148-151-156	51 2-3 .0 153-156-160	52 2-3 1.2 159-161-165	54 2-3 .1 163-165-168	54 2-2 .9 166-167-170	55 51
141.0	50 2-3 .6 147-151-155	52 2-3 .9 153-156-160	54 2-3 .8 159-161-165	55 2-3 .9 163-164-168	56 2-2 .1 164-165-168	55 52
136.0	55 2-3 .3 147-150-154	57 2-3 .1 152-155-158	58 2-3 1.1 158-160-163	59 2-2 1.0 162-163-166	59 2-2 1.0 161-163-166	55 55
131.0	59 2-3 .8 146-149-153	61 2-3 .5 151-153-157	63 2-3 .2 158-159-162	63 2-2 .6 158-160-163	63 2-2 .6 157-160-163	55 55
126.0	64 2-3 .2 145-148-151	65 2-3 1.0 151-152-156	67 2-2 .1 156-156-159	67 2-2 .1 154-156-159	67 2-2 .1 153-156-159	55 55
121.0	68 2-3 .7 145-147-150	70 2-3 .2 150-151-154	70 2-2 1.0 153-154-157	70 2-2 1.0 151-154-157	70 2-2 1.0 150-154-157	55 55
116.0	72 2-3 1.2 144-146-149	72 2-3 2.9 150-151-154	72 2-2 3.3 150-152-155	72 2-2 3.3 149-152-155	72 2-2 3.3 148-152-155	55 55
111.0	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	55 55
106.0	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	55 55
101.0	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	55 55

SVBC BARCELONA(GEN.JOSE ANT.) 15

ELEV. = 25 ft
SLOPE = .00 %

TORA = 2500 m
ASDA = 2500 m
TODA = 2500 m

15/15

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

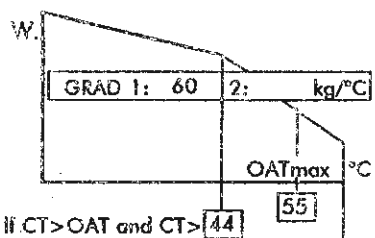
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1014 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>44
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-8	-5.5	-12	-3

Minimum v_1: 117 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1600 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	- -	- -	- -	44
157.0	- -	- -	- -	- -	- -	45
155.0	- -	- -	- -	- -	- -	47
153.0	- -	- -	- -	- -	- -	48 / 43
151.0	- -	- -	- -	- -	- -	49 / 45
149.0	- -	- -	- -	- -	- -	51 / 46
147.0	- -	- -	- -	- -	- -	52 / 48
145.0	- -	- -	- -	- -	- -	53 / 49
143.0	- -	- -	- -	- -	- -	55 / 51
141.0	- -	- -	- -	- -	- -	55 / 52
136.0	- -	- -	- -	- -	- -	55 / 55
131.0	- -	- -	32 4-4 .0 157-157-162	44 4-4 .6 158-158-163	44 4-4 2.1 159-159-164	55 / 55
126.0	21 4-4 .0 149-154-159	44 4-4 1.0 149-155-160	44 4-4 4.0 156-157-162	48 4-4 1.1 155-155-160	50 4-4 .2 155-155-159	55 / 55
121.0	44 4-3 3.0 144-152-157	49 4-4 .8 149-151-157	52 4-4 .2 151-151-156	53 4-4 .4 152-152-156	54 4-4 .5 152-152-156	55 / 55
116.0	51 4-4 1.0 143-148-153	54 4-4 .6 148-148-153	56 4-4 .7 149-149-153	57 4-4 .9 149-149-153	58 4-4 1.1 149-149-153	55 / 55
111.0	56 4-4 .9 142-145-150	59 4-4 .4 145-145-150	61 4-4 .3 145-145-150	62 4-4 .5 146-146-150	63 4-4 .6 146-146-150	55 / 55
106.0	62 4-4 .0 141-142-146	64 4-4 .1 142-142-146	65 4-4 1.0 143-143-147	67 4-4 .0 142-142-146	68 4-4 .1 143-143-146	55 / 55
101.0	67 4-4 .0 139-139-143	68 4-4 1.0 140-140-143	70 4-4 .7 140-140-143	71 4-4 .7 140-140-143	72 4-4 .7 140-140-143	55 / 55

SVBC BARCELONA (GEN.JOSE ANT.) 33

FLEX = 25 °C TORA = 2500 m
SLOPE = .00 % ASDA = 2500 m
SODA = 2500 m

15/15

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] tAS

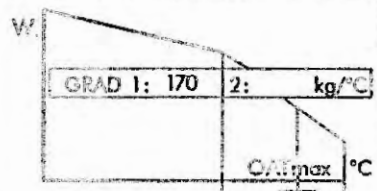
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1014 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C aff: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>44
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 3 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-8	-5.5	-12	-3

Minimum v_1: 117 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1600 ft

Weight [t]	TAILWIND [kts]		HEAD/X WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	- -	- -	- -	44
157.0	- -	- -	- -	- -	- -	45
155.0	- -	- -	- -	- -	11 2-3 .0 161-164-168	47
153.0	- -	- -	1 2-3 0 156-159-163	14 2-3 .1 157-160-164	28 2-3 .1 158-160-165	48 43
151.0	- -	- -	17 2-3 .1 153-156-160	31 2-3 .1 153-156-161	43 2-3 .3 155-158-162	49 45
149.0	- -	2-3 .1 148-152-157	33 2-3 .0 149-153-157	44 2-3 .3 151-154-158	44 2-3 2.0 154-157-162	51 46
147.0	- -	19 3-3 .2 147-151-155	34 3-3 .2 148-151-155	46 2-3 .1 151-154-158	47 2-3 .7 154-157-161	52 48
145.0	5 3-3 .2 145-149-154	28 3-3 .1 144-149-154	36 3-3 .4 147-150-155	47 2-3 1.0 151-154-158	49 2-3 .4 154-157-161	53 49
143.0	12 3-3 .1 144-148-153	37 3-3 .2 144-148-153	48 2-3 .3 147-150-154	49 2-3 .9 150-153-157	51 2-3 .1 154-156-160	55 51
141.0	23 3-3 .0 143-147-152	44 3-3 .5 143-148-152	50 2-3 .1 147-150-154	51 2-3 .5 150-153-157	52 2-3 1.0 154-156-160	55 52
139.0	41 3-3 .3 140-145-150	51 3-3 .1 142-145-150	54 2-3 .7 146-149-153	55 2-3 1.1 150-152-156	57 2-3 .2 153-155-159	55 55
137.0	50 3-3 .6 138-142-147	56 2-2 .9 140-143-148	59 2-3 .1 145-148-152	60 2-3 .4 149-151-155	61 2-3 .7 152-154-157	55 55
135.0	56 3-3 .9 137-140-145	61 2-3 .5 140-142-146	63 2-3 .7 145-147-150	64 2-3 1.0 148-150-153	65 2-3 1.1 152-153-156	55 55
133.0	63 3-3 .0 135-137-141	66 2-3 .1 139-141-144	68 2-3 .1 144-145-149	69 2-3 .3 147-148-152	70 2-3 .3 151-152-155	55 55
131.0	69 3-3 .7 133-135-139	70 2-3 .3 138-140-143	72 2-3 .7 143-145-148	72 2-3 1.9 147-148-151	72 2-3 3.0 151-151-154	55 55
129.0	72 2-3 1.6 132-135-138	72 2-3 3.5 138-139-143	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	55 55
127.0	72 .0 129-129-133	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	55 55
125.0	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	55 55

LFPG PARIS(CHARLES-DE-G.) 09/27

ELEV. = 387 ft SLOPE = .00 %
TORA = 3600 m ASDA = 3660 m TODA = 3775 m

15/15

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
V_1 - V_R - V_2 [kts] IAS

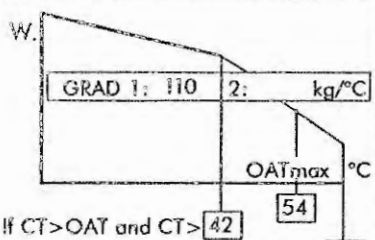
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1027 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>42
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	V_1 [kt]	V_R&V_2 [kt]
-2	-2.0	-12	-3

Minimum V_1: 117 [kt]

1. Actual TOW is equal to maximum TOW and V_1 is lower than minimum V_1: Take this last value as V_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and V_1 corresponding to actual TOW is lower than minimum V_1 and V_1 corresponding to maximum TOW is equal to or above minimum V_1: Retain minimum V_1 as V_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1900 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	- -	- -	- -	
157.0	-4 0 0 .1 159-169-173	-4 2-2 .0 159-169-173	-4 2-2 .0 157-169-173	-4 2-2 .0 155-169-173	-4 2-2 .0 155-169-173	43
155.0	16 2-6 .0 153-165-169	34 2-6 .0 156-167-170	42 2-1 1.1 161-171-174	42 2-1 2.0 164-173-176	42 2-1 2.0 165-173-176	45
153.0	31 2-6 .1 149-162-166	42 2-6 .9 154-165-169	45 2-6 .9 161-171-174	46 2-2 .4 164-172-175	46 2-2 .4 165-172-175	47
151.0	42 2-6 .5 147-160-164	45 2-6 .7 154-165-169	47 2-6 .7 162-171-174	47 2-2 1.0 164-171-175	47 2-2 1.0 164-171-175	48 43
149.0	45 2-6 .4 148-160-164	47 2-6 .7 155-165-169	49 2-2 .2 162-170-173	49 2-2 .2 164-170-173	49 2-2 .2 162-170-173	49 45
147.0	47 2-6 .5 149-160-164	49 2-6 .6 156-166-169	50 2-2 .8 162-169-172	50 2-2 .8 163-169-172	50 2-2 .8 161-169-172	51 46
145.0	49 2-6 .4 150-160-164	51 2-6 .5 158-166-169	52 2-2 .0 161-168-171	52 2-2 .0 161-168-171	52 2-2 .0 159-168-171	52 48
143.0	51 2-6 .5 151-160-164	53 2-6 .4 159-166-169	53 2-2 .7 161-167-170	53 2-2 .7 160-167-170	53 2-2 .7 158-167-170	54 49
141.0	53 2-6 .4 152-161-164	54 2-2 1.3 159-166-169	54 2-2 1.3 160-166-169	54 2-2 1.3 158-166-169	54 2-2 1.3 157-166-169	54 51
136.0	58 2-3 .3 154-161-164	58 2-2 1.1 158-163-166	58 2-2 1.1 156-163-166	58 2-2 1.1 155-163-166	58 2-2 1.1 153-163-166	54 54
131.0	62 2-3 .8 153-159-162	62 2-2 .9 155-160-163	62 2-2 .9 153-160-163	62 2-2 .9 151-160-163	62 2-2 .9 149-160-163	54 54
126.0	66 2-2 .7 151-157-160	66 2-2 .7 151-157-160	66 2-2 .7 149-157-160	66 2-2 .7 147-157-160	66 2-2 .7 146-157-160	54 54
121.0	70 2-2 .6 149-154-156	70 2-2 .6 147-154-156	70 2-2 .6 145-154-156	70 2-2 .6 143-154-156	70 2-2 .6 142-154-156	54 54
116.0	71 2-2 4.3 148-153-156	71 2-2 4.3 146-153-156	71 2-2 4.3 144-153-156	71 2-2 4.3 142-153-156	71 2-2 4.3 141-153-156	54 54
111.0	71 .0 131-132-136	71 .0 131-132-136	71 .0 131-132-136	71 .0 131-132-136	71 .0 131-132-136	54 54
106.0	71 .0 128-129-133	71 .0 128-129-133	71 .0 128-129-133	71 .0 128-129-133	71 .0 128-129-133	54 54
101.0	71 .0 125-125-130	71 .0 125-125-130	71 .0 125-125-130	71 .0 125-125-130	71 .0 125-125-130	54 54

LFPG PARIS(CHARLES-DE-G.) 10/28

ELEV. = 387 ft TORA = 3615 m
SLOPE = .00 % ASDA = 3675 m
TODA = 3675 m

15/15

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

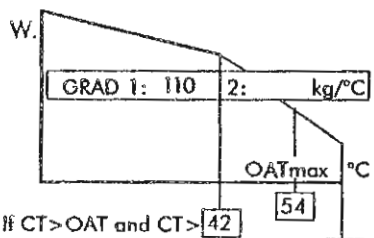
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1027 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>42
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-2	-2.0	-12	-3

Minimum v_1: 117 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1900 ft

Weight [t]	TAILWIND [kts] -10	TAILWIND [kts] -5	NO WIND 0	HEADWIND [kts] 10	HEADWIND [kts] 20	TGA 15/15 20/20
159.0	- -	- -	- -	- -	- -	
157.0	- -	-4 2-2 .0 161-169-173	-4 2-2 .0 158-169-173	-4 2-2 .0 156-169-173	-4 2-2 .0 155-169-173	43
155.0	13 2-6 .0 154-165-169	31 2-6 .1 156-166-170	42 2-1 .8 161-170-173	42 2-1 2.0 165-173-176	42 2-1 2.0 166-173-176	45
153.0	29 2-6 .0 150-161-165	42 2-6 .5 154-164-168	45 2-6 .6 162-170-173	46 2-2 .4 165-172-175	46 2-2 .4 166-172-175	47
151.0	42 2-6 .1 147-159-163	45 2-6 .4 155-164-168	47 2-6 .5 163-170-173	47 2-2 1.0 165-171-175	47 2-2 1.0 165-171-175	48 43
149.0	45 2-6 .1 148-159-163	47 2-6 .4 156-165-168	49 2-2 .2 163-170-173	49 2-2 .2 165-170-173	49 2-2 .2 163-170-173	49 45
147.0	47 2-6 .1 149-159-163	49 2-6 .3 157-165-168	50 2-2 .8 163-169-172	50 2-2 .8 164-169-172	50 2-2 .8 162-169-172	51 46
145.0	49 2-6 .1 150-159-163	51 2-6 .3 158-165-168	52 2-2 .0 162-168-171	52 2-2 .0 162-168-171	52 2-2 .0 160-168-171	52 48
143.0	51 2-6 .1 151-159-163	53 2-6 .2 159-165-168	53 2-2 .7 162-167-170	53 2-2 .7 161-167-170	53 2-2 .7 159-167-170	54 49
141.0	53 2-6 .1 152-160-163	54 2-6 1.1 159-166-169	54 2-2 1.3 161-166-169	54 2-2 1.3 159-166-169	54 2-2 1.3 158-166-169	54 51
136.0	58 2-3 .1 154-160-163	58 2-2 1.1 159-163-166	58 2-2 1.1 157-163-166	58 2-2 1.1 156-163-166	58 2-2 1.1 154-163-166	54 54
131.0	62 2-3 .6 154-159-162	62 2-2 .9 156-160-163	62 2-2 .9 154-160-163	62 2-2 .9 152-160-163	62 2-2 .9 151-160-163	54 54
126.0	66 2-2 .7 152-157-160	66 2-2 .7 152-157-160	66 2-2 .7 150-157-160	66 2-2 .7 148-157-160	66 2-2 .7 147-157-160	54 54
121.0	70 2-2 .6 150-154-156	70 2-2 .6 148-154-156	70 2-2 .6 146-154-156	70 2-2 .6 144-154-156	70 2-2 .6 142-154-156	54 54
116.0	71 2-2 4.3 149-153-156	71 2-2 4.3 147-153-156	71 2-2 4.3 145-153-156	71 2-2 4.3 143-153-156	71 2-2 4.3 141-153-156	54 54
111.0	71 .0 131-132-136	71 .0 131-132-136	71 .0 131-132-136	71 .0 131-132-136	71 .0 131-132-136	54 54
106.0	71 .0 128-129-133	71 .0 128-129-133	71 .0 128-129-133	71 .0 128-129-133	71 .0 128-129-133	54 54
101.0	71 .0 125-125-130	71 .0 125-125-130	71 .0 125-125-130	71 .0 125-125-130	71 .0 125-125-130	54 54

EDVV HANNOVER 27L/09R

ELEV. = 183 ft TORA = 2340 m
SLOPE = .00 % ASDA = 2340 m
TODA = 2400 m

15/15

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

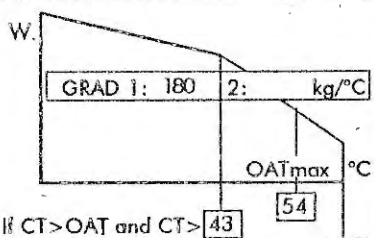
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1020 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>43
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-8	-5.5	-12	-3

Minimum v_1: 117 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1700 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	- -	- -	- -	43
157.0	- -	- -	- -	- -	- -	44
155.0	- -	- -	- -	- -	- -	46
153.0	- -	- -	- -	-1 2-3 .0 156-159-164	12 2-3 .1 157-160-164	47
151.0	- -	- -	1 2-3 .1 152-155-160	15 2-3 .1 153-156-160	29 2-3 .1 153-157-161	49 44
149.0	- -	- -	16 2-3 .1 149-152-157	31 2-3 .0 149-153-157	43 2-3 .1 151-154-158	50 46
147.0	- -	2 3-3 .2 146-150-155	27 2-3 .1 147-151-155	43 2-3 .1 147-151-155	45 2-3 .5 150-154-158	51 47
145.0	- -	11 3-3 .1 145-149-154	36 3-3 .1 146-150-154	45 2-3 .8 147-150-155	47 2-3 .3 150-153-158	53 49
143.0	- -	20 3-3 .1 144-148-153	43 3-3 .5 145-149-153	47 2-3 .7 147-150-154	49 2-3 .1 150-153-157	54 50
141.0	6 3-3 .1 142-147-152	29 3-3 .0 143-147-152	46 3-3 .5 144-148-152	49 2-3 .5 146-150-154	50 2-3 1.0 150-153-157	54 51
136.0	28 3-3 .0 139-144-149	43 3-3 1.9 141-145-150	52 2-3 .6 143-146-150	54 2-3 .1 146-149-153	55 2-3 .5 149-152-156	54 54
131.0	43 3-3 1.6 137-142-148	52 3-3 .2 139-142-147	57 2-3 .2 142-145-149	58 2-3 .7 145-148-152	59 2-3 1.1 149-151-155	54 54
126.0	51 3-3 .7 135-140-145	58 3-3 .3 137-140-144	61 2-3 1.0 141-144-148	63 2-3 .3 144-146-150	64 2-3 .6 148-149-153	54 54
121.0	58 3-3 .1 133-137-141	64 3-3 .3 135-138-142	66 2-3 .6 140-142-146	67 2-3 .9 144-145-149	69 2-3 .0 147-148-152	54 54
116.0	64 3-3 .4 131-135-139	69 2-3 .2 134-137-140	71 2-3 .3 140-141-145	71 2-3 1.6 143-145-148	71 2-3 2.8 147-148-151	54 54
111.0	71 3-3 .1 129-132-136	71 2-3 3.1 134-136-140	71 .0 131-132-136	71 .0 131-132-136	71 .0 131-132-136	54 54
106.0	71 .0 128-129-133	71 .0 128-129-133	71 .0 128-129-133	71 .0 128-129-133	71 .0 128-129-133	54 54
101.0	71 .0 125-125-130	71 .0 125-125-130	71 .0 125-125-130	71 .0 125-125-130	71 .0 125-125-130	54 54

EDVV HANNOVER 27R/09L

ELEV. = 183 ft TORA = 2700 m
SLOPE = .00 % ASDA = 2700 m
TODA = 2760 m

15/15

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

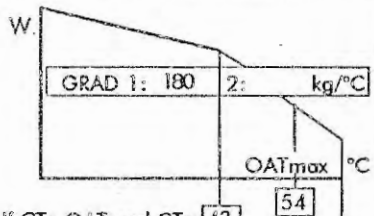
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1020 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>43
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-8	-5.5	-12	-3

Minimum v_1: 117 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1700 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	- -	- -	- -	43
157.0	- -	- -	- -	- -	-3 2-2 .0 165-168-172	44
155.0	- -	- -	2 2-3 .0 160-164-168	15 2-3 .0 160-164-168	28 2-3 .0 161-165-169	46
153.0	- -	- -	19 2-3 .0 156-160-164	32 2-3 .0 157-161-165	43 2-3 .1 158-162-166	47
151.0	- -	14 2-3 .0 151-156-160	35 2-3 .0 153-157-161	43 2-3 .6 155-159-163	45 2-3 .4 158-162-166	49 44
149.0	8 2-3 .1 147-152-157	30 2-3 .0 148-153-157	43 2-3 1.0 151-156-160	45 2-3 .9 154-159-163	47 2-3 .1 158-162-166	50 46
147.0	19 3-3 .0 145-151-155	41 2-3 .1 146-151-156	46 2-3 .2 151-155-159	47 2-3 .7 154-158-162	48 2-3 1.0 158-162-165	51 47
145.0	28 3-3 .0 144-149-154	43 2-3 1.8 146-151-155	47 2-3 1.1 151-155-159	49 2-3 .4 154-158-162	50 2-3 .7 158-161-165	53 49
143.0	36 3-3 .2 143-148-153	47 2-3 .5 145-150-154	49 2-3 .9 150-155-159	51 2-3 .1 154-158-161	52 2-3 .4 158-161-165	54 50
141.0	43 3-3 .6 142-148-152	49 2-3 .3 145-149-154	51 2-3 .7 150-154-158	52 2-3 1.0 154-157-161	54 2-3 .1 157-161-164	54 51
136.0	50 3-3 .5 140-145-150	53 2-3 1.0 144-148-153	56 2-3 .1 150-153-157	57 2-3 .3 153-156-160	58 2-3 .5 157-160-163	54 54
131.0	56 2-3 .4 139-143-147	58 2-3 .6 143-147-151	60 2-3 .6 149-152-156	61 2-3 .8 153-155-159	62 2-3 .9 156-159-162	54 54
126.0	61 2-3 .1 138-142-146	63 2-3 .2 143-146-150	65 2-3 .1 148-151-154	66 2-3 .1 152-154-157	66 3-3 1.1 155-157-160	54 54
121.0	65 2-3 .9 137-141-145	67 2-3 .8 142-145-149	69 2-3 .6 148-150-153	70 2-3 .6 151-153-156	70 2-2 .8 152-154-157	54 54
116.0	70 2-3 .6 136-140-143	71 2-3 1.4 141-144-147	71 2-3 3.3 147-149-152	71 2-3 4.5 151-153-156	71 2-2 4.5 151-153-156	54 54
111.0	71 2-3 4.5 136-140-143	71 .0 131-132-136	71 .0 131-132-136	71 .0 131-132-136	71 .0 131-132-136	54 54
106.0	71 .0 128-129-133	71 .0 128-129-133	71 .0 128-129-133	71 .0 128-129-133	71 .0 128-129-133	54 54
101.0	71 .0 125-125-130	71 .0 125-125-130	71 .0 125-125-130	71 .0 125-125-130	71 .0 125-125-130	54 54

EDDL DUSSELDORF 05

ELEV. = 147 ft TORA = 2700 m
SLOPE = .34 % ASDA = 2700 m
TODA = 2760 m

15/15

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

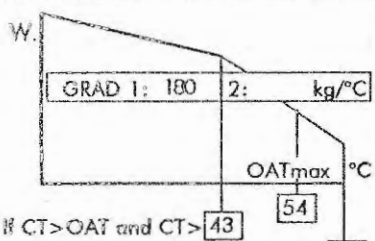
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1018 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT> 43
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-8	-5.5	-12	-3

Minimum v_1: 117 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1700 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	- -	- -	- -	43
157.0	- -	- -	- -	- -	6 2-3 .1 166-169-173	45
155.0	- -	- -	-2 2-3 .1 160-164-168	11 2-3 .1 161-164-168	24 2-3 .1 162-165-169	46
153.0	- -	- -	15 2-3 .1 157-160-164	29 2-3 .0 157-161-165	41 2-3 .0 159-162-166	47 43
151.0	- -	10 2-3 .1 151-156-160	32 2-3 .0 153-157-161	43 2-3 .2 155-158-162	43 2-3 1.8 158-162-165	49 44
149.0	3 2-3 .2 148-152-157	26 2-3 .1 148-153-157	43 2-3 .5 151-155-159	45 2-3 .6 154-158-162	46 2-3 1.0 158-161-165	50 46
147.0	14 3-3 .1 146-151-155	36 2-3 .2 147-151-156	45 2-3 .9 151-155-159	47 2-3 .3 154-158-161	48 2-3 .7 158-161-164	52 47
145.0	23 3-3 .1 145-150-154	43 2-3 .8 146-150-155	47 2-3 .8 150-154-158	49 2-3 .1 154-157-161	50 2-3 .4 158-161-164	53 49
143.0	32 3-3 .0 144-148-153	47 3-3 .0 145-149-153	49 2-3 .6 150-154-158	50 2-3 1.0 154-157-161	52 2-3 .1 157-160-164	54 50
141.0	41 3-3 .0 142-147-152	48 2-3 1.0 145-149-153	51 2-3 .3 150-153-157	52 2-3 .7 154-157-160	53 2-3 1.0 157-160-163	54 52
136.0	43 3-3 4.6 142-147-152	53 2-3 .6 144-148-152	55 2-3 .9 150-153-157	57 2-3 .0 153-156-159	58 2-3 .2 157-159-162	54 54
131.0	55 3-3 .6 139-143-147	58 2-3 .2 143-147-150	60 2-3 .3 149-151-155	61 2-3 .5 152-154-158	62 2-3 .6 156-158-161	54 54
126.0	60 2-3 .8 138-141-145	62 2-3 .9 143-146-149	64 2-3 .9 148-150-154	65 2-3 1.0 152-153-156	66 2-3 1.0 156-157-159	54 54
121.0	65 2-3 .5 137-140-144	67 2-3 .4 142-144-148	69 2-3 .3 147-149-152	70 2-3 .3 151-152-155	70 2-2 .9 153-154-157	54 54
116.0	70 2-3 .2 136-139-142	71 2-3 1.1 141-143-146	71 2-3 3.1 147-149-152	71 2-3 4.2 151-152-155	71 2-2 4.5 152-153-156	54 54
111.0	71 2-3 4.2 136-139-142	71 .0 132-132-136	71 .0 132-132-136	71 .0 132-132-136	71 .0 132-132-136	54 54
106.0	71 .0 128-129-133	71 .0 128-129-133	71 .0 128-129-133	71 .0 128-129-133	71 .0 128-129-133	54 54
101.0	71 .0 125-126-130	71 .0 125-126-130	71 .0 125-126-130	71 .0 125-126-130	71 .0 125-126-130	54 54

EDDL DUSSELDORF 23

ELEV. = 147 ft TORA = 2700 m
SLOPE = -.34 % ASDA = 2700 m
TODA = 2760 m

15/15

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

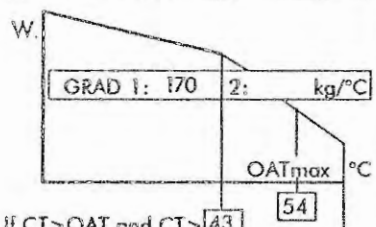
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1018 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>43
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-8	-5.5	-12	-3

Minimum v_1: 117 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1700 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	- -	- -	- -	43
157.0	- -	- -	- -	-3 2-2 .1 164-168-172	-3 2-2 .0 164-168-172	45
155.0	- -	- -	6 2-3 .0 159-164-168	19 2-3 .1 160-164-169	32 2-3 .0 161-165-169	46
153.0	- -	2 2-3 .0 154-159-164	23 2-3 .1 155-160-165	36 2-3 .0 156-161-165	43 2-3 .6 159-163-167	47 43
151.0	-2 2-3 .1 149-155-160	18 2-3 .1 150-156-160	39 2-3 .0 152-157-162	43 2-3 1.1 155-160-164	45 2-3 1.0 158-163-167	49 44
149.0	14 2-3 .0 146-152-157	34 2-3 .1 147-153-157	43 2-3 1.5 151-156-161	46 2-3 .4 155-159-163	47 2-3 .7 158-163-167	50 46
147.0	23 2-3 .2 145-151-156	43 2-3 .8 146-151-156	46 2-3 .8 151-156-160	48 2-3 .1 154-159-163	49 2-3 .4 158-162-166	52 47
145.0	33 3-3 .0 143-149-154	46 2-3 .2 145-151-155	48 2-3 .6 151-156-160	49 2-3 1.0 154-159-163	51 2-3 .1 158-162-166	53 49
143.0	41 3-3 .2 142-148-153	48 2-3 .0 145-150-155	50 2-3 .3 151-155-160	51 2-3 .7 154-158-162	52 2-3 .9 158-162-165	54 50
141.0	43 3-3 1.8 142-148-153	49 2-3 .9 145-150-155	52 2-3 .1 150-155-159	53 2-3 .4 154-158-162	54 2-3 .6 158-161-165	54 52
136.0	52 3-3 .1 140-145-150	54 2-3 .5 144-149-154	56 2-3 .6 150-154-158	57 2-3 .8 154-157-161	58 2-3 .9 157-160-164	54 54
131.0	56 2-3 1.0 139-144-148	58 2-3 1.1 144-148-152	60 2-3 1.1 149-153-157	62 2-3 .1 153-156-159	63 2-3 .2 157-159-162	54 54
126.0	61 2-3 .7 138-143-147	63 2-3 .7 143-147-151	65 2-3 .5 148-151-155	66 2-3 .5 152-155-158	66 2-2 1.2 155-157-160	54 54
121.0	66 2-3 .3 137-141-145	68 2-3 .1 142-145-149	69 2-3 1.0 148-150-154	70 2-2 .9 151-153-157	70 2-2 .9 151-153-157	54 54
116.0	70 2-3 1.0 137-141-144	71 2-3 1.8 142-145-148	71 2-3 3.7 148-150-153	71 2-2 4.5 151-153-156	71 2-2 4.5 150-153-156	54 54
111.0	71 2-3 5.0 136-140-144	71 .0 131-132-136	71 .0 131-132-136	71 .0 131-132-136	71 .0 131-132-136	54 54
106.0	71 .0 128-128-133	71 .0 128-128-133	71 .0 128-128-133	71 .0 128-128-133	71 .0 128-128-133	54 54
101.0	71 .0 125-125-130	71 .0 125-125-130	71 .0 125-125-130	71 .0 125-125-130	71 .0 125-125-130	54 54

EDDF FRANKFURT/MAIN 07

ELEV. = 364 ft TORA = 4000 m
SLOPE = .26 % ASDA = 4000 m
TODA = 4000 m

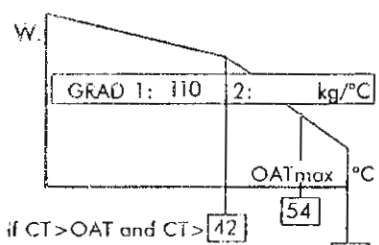
15/15

Take-off Parameters for 1013 hPa, dry RWY and AC/ON
Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

LIMITATIONS
1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS
QNH>1013 hPa (max. 1026 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



WET RUNWAY CORRECTIONS
If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-2	-2.0	-12	-3

Minimum v_1: 117 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:
Accel. Alt.: 1900 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	3 - 2-2 .1 164-175-178	18 2-2 .0 165-175-179	18 2-2 .0 166-175-179	18 2-2 .0 166-175-179	
157.0	5 2-6 .0 157-169-173	23 2-6 .1 159-171-174	39 2-2 .1 162-173-176	42 2-2 .6 165-175-178	42 2-2 .6 166-175-178	43
155.0	21 2-6 .1 152-166-169	38 2-6 .1 155-168-171	42 2-2 1.7 161-172-175	44 2-2 1.3 164-174-177	44 2-2 1.3 165-174-177	45
153.0	36 2-6 .1 149-163-166	42 2-6 1.6 155-167-170	46 2-2 .5 163-172-175	46 2-2 .5 164-172-175	46 2-2 .5 164-172-175	47
151.0	42 2-6 1.3 148-161-165	46 2-6 .4 156-167-170	47 2-2 1.1 162-172-175	47 2-2 1.1 163-172-175	47 2-2 1.1 163-172-175	48 43
149.0	46 2-6 .2 149-161-165	48 2-6 .3 157-167-170	49 2-2 .3 162-170-173	49 2-2 .3 163-170-173	49 2-2 .3 161-170-173	49 45
147.0	48 2-6 .2 150-162-165	50 2-6 .2 158-167-170	50 2-2 .9 161-169-172	50 2-2 .9 162-169-172	50 2-2 .9 160-169-172	51 46
145.0	50 2-6 .2 151-162-165	51 2-6 1.2 158-167-170	52 2-2 .2 161-168-171	52 2-2 .2 159-168-171	52 2-2 .2 158-168-171	52 48
143.0	52 2-6 .1 152-162-165	53 2-2 .8 159-167-170	53 2-2 .8 160-167-170	53 2-2 .8 158-167-170	53 2-2 .8 157-167-170	54 49
141.0	54 2-6 .0 153-162-166	55 2-2 .1 158-165-168	55 2-2 .1 158-165-168	55 2-2 .1 156-165-168	55 2-2 .1 155-165-168	54 51
136.0	58 2-5 .8 155-162-165	58 2-2 1.2 158-163-166	58 2-2 1.2 155-163-166	58 2-2 1.2 154-163-166	58 2-2 1.2 152-163-166	54 54
131.0	62 2-2 1.0 155-160-163	62 2-2 1.0 154-160-163	62 2-2 1.0 152-160-163	62 2-2 1.0 150-160-163	62 2-2 1.0 148-160-163	54 54
126.0	66 2-2 .8 152-157-160	66 2-2 .8 150-157-160	66 2-2 .8 148-157-160	66 2-2 .8 146-157-160	66 2-2 .8 145-157-160	54 54
121.0	70 2-2 .6 148-154-156	70 2-2 .6 146-154-156	70 2-2 .6 144-154-156	70 2-2 .6 142-154-156	70 2-2 .6 142-154-156	54 54
116.0	71 2-2 4.3 147-153-156	71 2-2 4.3 145-153-156	71 2-2 4.3 143-153-156	71 2-2 4.3 141-153-156	71 2-2 4.3 141-153-156	54 54
111.0	71 .0 132-132-136	71 .0 132-132-136	71 .0 132-132-136	71 .0 132-132-136	71 .0 132-132-136	54 54
106.0	71 .0 128-129-133	71 .0 128-129-133	71 .0 128-129-133	71 .0 128-129-133	71 .0 128-129-133	54 54
101.0	71 .0 125-125-130	71 .0 125-125-130	71 .0 125-125-130	71 .0 125-125-130	71 .0 125-125-130	54 54

EDDF FRANKFURT/MAIN 18

ELEV. = 364 ft TORA = 3970 m
SLOPE = .00 % ASDA = 3970 m
TODA = 3970 m

15/15

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

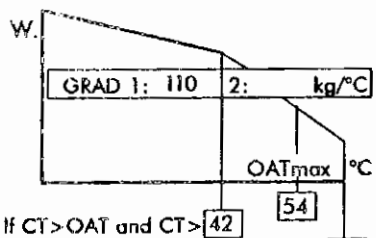
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1026 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>42
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-2	-2.0	-12	-3

Minimum v_1: 117 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1900 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	4 2-2 .0 162-174-178	18 2-2 .0 164-175-179	18 2-2 .0 165-175-179	18 2-2 .0 165-175-179	
157.0	5 2-6 .0 156-169-173	24 2-6 .0 157-170-174	40 2-2 .0 161-173-176	42 2-2 .6 164-175-178	42 2-2 .6 165-175-178	43
155.0	22 2-6 .0 151-165-169	39 2-6 .0 154-167-171	42 2-2 1.7 160-172-175	44 2-2 1.3 163-174-177	44 2-2 1.3 164-174-177	45
153.0	37 2-6 .0 148-162-166	42 2-6 1.6 153-167-170	46 2-2 .5 161-172-175	46 2-2 .5 163-172-175	46 2-2 .5 164-172-175	47
151.0	42 2-6 1.3 147-161-165	46 2-6 .5 155-167-170	47 2-2 1.1 161-172-175	47 2-2 1.1 162-172-175	47 2-2 1.1 162-172-175	48 43
149.0	46 2-6 .2 148-161-165	48 2-6 .4 156-167-170	49 2-2 .3 161-170-173	49 2-2 .3 162-170-173	49 2-2 .3 160-170-173	49 45
147.0	48 2-6 .2 149-161-165	50 2-6 .2 157-167-170	50 2-2 .9 160-169-172	50 2-2 .9 161-169-172	50 2-2 .9 159-169-172	51 46
145.0	50 2-6 .2 150-162-165	51 2-6 1.2 157-167-170	52 2-2 .2 160-168-171	52 2-2 .2 159-168-171	52 2-2 .2 157-168-171	52 48
143.0	52 2-6 .1 151-162-165	53 2-2 .8 157-167-170	53 2-2 .8 159-167-170	53 2-2 .8 158-167-170	53 2-2 .8 156-167-170	54 49
141.0	54 2-6 .1 152-162-166	55 2-2 .1 157-165-168	55 2-2 .1 157-165-168	55 2-2 .1 156-165-168	55 2-2 .1 154-165-168	54 51
136.0	58 2-5 .8 154-162-165	58 2-2 1.2 157-163-166	58 2-2 1.2 155-163-166	58 2-2 1.2 153-163-166	58 2-2 1.2 151-163-166	54 54
131.0	62 2-2 1.0 154-160-163	62 2-2 1.0 153-160-163	62 2-2 1.0 151-160-163	62 2-2 1.0 149-160-163	62 2-2 1.0 148-160-163	54 54
126.0	66 2-2 .8 152-157-160	66 2-2 .8 150-157-160	66 2-2 .8 147-157-160	66 2-2 .8 145-157-160	66 2-2 .8 145-157-160	54 54
121.0	70 2-2 .6 148-154-156	70 2-2 .6 145-154-156	70 2-2 .6 143-154-156	70 2-2 .6 142-154-156	70 2-2 .6 142-154-156	54 54
116.0	71 2-2 4.3 147-153-156	71 2-2 4.3 144-153-156	71 2-2 4.3 142-153-156	71 2-2 4.3 141-153-156	71 2-2 4.3 141-153-156	54 54
111.0	71 .0 131-132-136	71 .0 131-132-136	71 .0 131-132-136	71 .0 131-132-136	71 .0 131-132-136	54 54
106.0	71 .0 128-129-133	71 .0 128-129-133	71 .0 128-129-133	71 .0 128-129-133	71 .0 128-129-133	54 54
101.0	71 .0 125-125-130	71 .0 125-125-130	71 .0 125-125-130	71 .0 125-125-130	71 .0 125-125-130	54 54

EDDM MUNICH 25L

ELEV. = 1737 ft TORA = 2804 m
SLOPE = .00 % ASDA = 2804 m
TODA = 2864 m

15/15

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

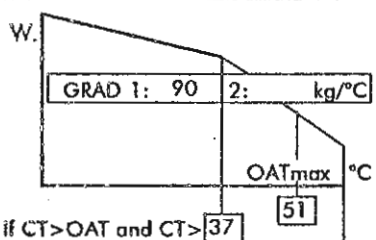
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1075 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



if CT>OAT and CT>37
use Corr. Flex. T/O Temp. up to 68

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-2	-2.0	-12	-3

Minimum v_1: 117 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 3300 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	- -	- -	- -	
157.0	- -	- -	- -	- -	- -	36
155.0	- -	- -	- -	- -	- -	39
153.0	- -	- -	- -	- -	- -	41
151.0	- -	- -	- -	- -	- -	42 36
149.0	- -	- -	- -	- -	- -	44 38
147.0	- -	- -	- -	- -	-5 4-4 .1 168-168-172	46 40
145.0	- -	- -	- -	2 4-4 .0 166-166-170	24 4-4 .0 166-166-169	47 42
143.0	- -	- -	5 4-4 .1 163-163-167	26 4-4 .0 161-161-166	37 4-4 .7 163-163-167	49 44
141.0	- -	-6 4-4 .0 159-159-164	27 4-4 .1 157-157-162	37 4-4 .9 159-159-163	40 4-4 .5 162-162-166	51 46
136.0	13 4-4 .0 149-150-155	37 4-4 .6 149-149-154	37 4-4 3.9 155-155-160	44 4-4 .0 158-158-162	45 4-4 .7 162-162-165	51 50
131.0	37 4-4 2.3 145-147-152	44 4-4 .2 148-148-153	47 4-4 .5 154-154-158	49 4-4 .3 157-157-161	50 4-4 .8 159-159-163	51 51
126.0	46 4-4 .3 143-143-148	49 4-4 .7 148-148-152	52 4-4 .9 153-153-157	54 4-4 .6 156-156-160	56 4-4 .2 156-156-159	51 51
121.0	52 4-4 .2 142-142-147	55 4-4 .5 147-147-151	58 4-4 .6 152-152-156	60 4-4 .2 153-153-156	61 4-4 .6 153-153-156	51 51
116.0	58 4-4 .3 141-141-145	61 4-4 .5 145-145-149	64 4-4 .3 150-150-153	65 4-4 .7 150-150-153	67 4-4 .1 150-150-153	51 51
111.0	64 4-4 .4 140-140-144	67 4-4 .5 144-144-148	68 4-4 1.7 147-147-151	68 4-4 3.0 148-148-151	68 4-4 4.2 149-149-152	51 51
106.0	68 4-4 2.2 139-139-143	68 4-4 4.6 144-144-147	68 .0 128-129-133	68 .0 128-129-133	68 .0 128-129-133	51 51
101.0	68 .0 125-125-130	68 .0 125-125-130	68 .0 125-125-130	68 .0 125-125-130	68 .0 125-125-130	51 51

TJSJ
SAN JUAN(LUIS MUNOZ...)
10

ELEV. = 10 ft TORA = 2443 m
SLOPE = .00 % ASDA = 2443 m
TODA = 2443 m

15/15

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

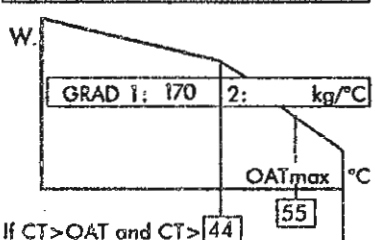
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1013 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>44
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-8	-5.5	-12	-3

Minimum v_1: 117 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1600 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	- -	- -	- -	44
157.0	- -	- -	- -	- -	- -	45
155.0	- -	- -	- -	- -	6 2-3 .0 161-164-168	47
153.0	- -	- -	- -	9 2-3 .1 157-159-164	23 2-3 .1 157-160-164	48 44
151.0	- -	- -	12 2-3 .1 152-155-160	26 2-3 .0 153-156-160	40 2-3 .0 154-157-161	49 45
149.0	- -	3 2-3 .1 149-152-157	28 2-3 .1 149-152-157	42 2-3 .1 150-153-158	44 2-3 1.4 153-156-160	51 46
147.0	- -	13 2-3 .1 147-151-155	38 2-3 .1 148-151-155	44 2-3 1.7 150-153-157	47 2-3 .1 153-156-160	52 48
145.0	-1 3-3 .1 145-149-154	22 3-3 .1 146-149-154	44 3-3 .9 147-150-155	47 2-3 .4 149-152-157	48 2-3 1.0 153-155-160	53 49
143.0	8 3-3 .0 144-148-153	31 3-3 .1 144-148-153	47 3-3 .6 146-149-154	49 2-3 .2 149-152-156	50 2-3 .7 153-155-159	55 51
141.0	16 3-3 .2 143-147-152	40 3-3 .1 143-147-152	49 2-3 .6 146-148-153	51 2-3 .0 149-151-156	52 2-3 .4 152-155-159	55 52
136.0	39 3-3 .1 140-144-150	44 3-3 4.1 143-147-152	54 2-3 .1 145-148-152	55 2-3 .5 148-151-155	56 2-3 .9 152-154-158	55 55
131.0	44 3-3 3.9 139-144-149	55 3-3 .6 140-143-147	58 2-3 .7 145-147-151	59 2-3 1.0 148-150-154	61 2-3 .2 151-152-156	55 55
126.0	55 3-3 .4 136-140-144	60 2-3 1.0 139-141-145	63 2-3 .1 144-145-149	64 2-3 .4 147-148-152	65 2-3 .6 150-151-155	55 55
121.0	61 3-3 .2 134-137-142	65 2-3 .6 138-140-143	67 2-3 .7 143-144-148	68 2-3 .9 146-147-151	69 2-3 1.0 150-150-154	55 55
116.0	67 3-3 .4 132-135-139	70 2-3 .3 137-139-142	72 2-3 .2 142-143-146	72 2-3 1.4 146-146-150	72 2-3 2.6 149-150-153	55 55
111.0	72 2-3 1.1 131-133-137	72 2-3 3.1 136-138-141	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	55 55
106.0	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	55 55
101.0	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	55 55

MUVR VARADERO 06

ELEV. = 213 ft TORA = 3500 m
SLOPE = .00 % ASDA = 3560 m
TODA = 3800 m

15/15

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight increment [t]
v_1 - v_R - v_2 [kts] IAS

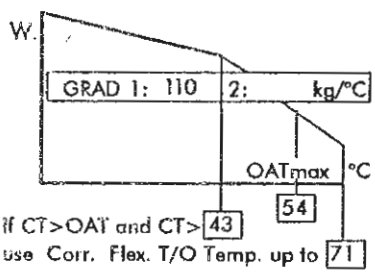
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1021 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



if CT>OAT and CT> 43
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-2	-2.0	-12	-3

Minimum v_1: 117 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1800 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	- -	- -	- -	43
157.0	2 2-1 .0 157-169-172	18 2-1 .1 159-170-173	35 2-1 .0 161-171-174	43 2-1 .5 164-174-177	43 2-1 .5 166-174-177	44
155.0	19 2-6 .0 152-165-169	37 2-6 .0 155-166-170	43 2-1 1.5 161-171-174	45 2-2 .8 165-174-177	45 2-2 .8 166-174-177	46
153.0	34 2-6 .1 149-162-166	43 2-6 1.2 154-165-169	46 2-6 .7 162-171-174	46 2-2 1.4 165-173-176	46 2-2 1.4 166-173-176	47
151.0	43 2-6 .9 147-160-164	46 2-6 .5 155-165-169	48 2-6 .5 163-171-174	48 2-2 .5 164-171-174	48 2-2 .5 164-171-174	49 44
149.0	46 2-6 .2 148-160-164	48 2-6 .4 156-166-169	49 2-6 1.1 163-170-173	49 2-2 1.1 164-170-174	49 2-2 1.1 163-170-174	50 46
147.0	48 2-6 .2 149-160-164	50 2-6 .3 157-166-169	51 2-2 .3 162-169-172	51 2-2 .3 163-169-172	51 2-2 .3 161-169-172	51 47
145.0	50 2-6 .1 150-160-164	52 2-6 .1 158-166-169	52 2-2 .8 162-168-171	52 2-2 .8 161-168-171	52 2-2 .8 160-168-171	53 48
143.0	52 2-6 .1 151-160-164	53 2-6 1.1 159-166-169	54 2-2 .0 161-166-169	54 2-2 .0 159-166-169	54 2-2 .0 158-166-169	54 50
141.0	54 2-6 .0 152-161-164	55 2-2 .6 159-166-169	55 2-2 .6 160-166-169	55 2-2 .6 158-166-169	55 2-2 .6 157-166-169	54 51
136.0	58 2-3 .6 153-160-163	59 2-2 .3 156-162-165	59 2-2 .3 156-162-165	59 2-2 .3 155-162-165	59 2-2 .3 153-162-165	54 54
131.0	62 2-3 1.0 152-159-162	63 2-2 .0 154-159-162	63 2-2 .0 152-159-162	63 2-2 .0 151-159-162	63 2-2 .0 149-159-162	54 54
126.0	66 2-2 1.1 151-157-160	66 2-2 1.1 152-157-160	66 2-2 1.1 150-157-160	66 2-2 1.1 148-157-160	66 2-2 1.1 146-157-160	54 54
121.0	70 2-2 .8 148-154-157	70 2-2 .8 148-154-157	70 2-2 .8 145-154-157	70 2-2 .8 144-154-157	70 2-2 .8 142-154-157	54 54
116.0	71 2-2 4.5 148-153-156	71 2-2 4.5 147-153-156	71 2-2 4.5 144-153-156	71 2-2 4.5 143-153-156	71 2-2 4.5 141-153-156	54 54
111.0	71 .0 131-132-136	71 .0 131-132-136	71 .0 131-132-136	71 .0 131-132-136	71 .0 131-132-136	54 54
106.0	71 .0 128-129-133	71 .0 128-129-133	71 .0 128-129-133	71 .0 128-129-133	71 .0 128-129-133	54 54
101.0	71 .0 125-125-130	71 .0 125-125-130	71 .0 125-125-130	71 .0 125-125-130	71 .0 125-125-130	54 54

EDDS STUTTGART 26

ELEV. = 1300 ft TORA = 2550 m
SLOPE = 1.04 % ASDA = 2550 m
TODA = 2550 m

15/15

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
V_1 - V_R - V_2 [kts] IAS

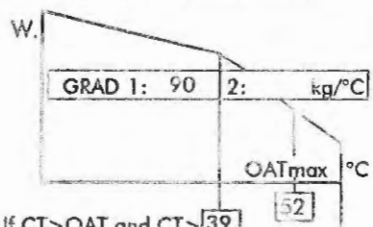
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1060 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>39
use Corr. Flex. T/O Temp. up to 69

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	V_1 [kt]	V_R&V_2 [kt]
-8	-5.5	-12	-3

Minimum V_1: 117 [kt]

1. Actual TOW is equal to maximum TOW and V_1 is lower than minimum V_1: Take this last value as V_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and V_1 corresponding to actual TOW is lower than minimum V_1 and V_1 corresponding to maximum TOW is equal to or above minimum V_1: Retain minimum V_1 as V_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 2800 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	-	- -	- -	
157.0	- -	- -	-	- -	- -	39
155.0	- -	- -	-	- -	- -	41
153.0	- -	- -	-	- -	- -	43
151.0	- -	- -	-	- -	- -	44 38
149.0	- -	- -	-	- -	- -	46 41
147.0	- -	- -	-	- -	- -	47 43
145.0	- -	- -	-	- -	- -	49 44
143.0	- -	- -	-	- -	- -	51 46
141.0	- -	- -	-	- -	- -	52 48
136.0	- -	- -	-	-5 4-4 .0 161-161-165	21 4-4 .0 161-161-165	52 52
131.0	- -	3 4-4 .1 155-155-159	36 4-4 .0 153-153-158	39 4-4 1.5 156-156-161	39 4-4 3.2 160-160-164	52 52
126.0	25 4-4 .0 145-145-149	39 4-4 1.3 147-147-151	39 4-4 4.7 153-153-157	46 4-4 .6 155-155-159	48 4-4 .2 156-156-159	52 52
121.0	39 4-4 3.2 142-142-147	47 4-4 .1 145-145-150	50 4-4 .1 151-151-155	51 4-4 .8 153-153-157	53 4-4 .3 153-153-156	52 52
116.0	49 4-4 .3 140-140-144	52 4-4 .3 144-145-148	55 4-4 .6 150-150-153	57 4-4 .2 149-149-153	58 4-4 .7 150-150-153	52 52
111.0	55 4-4 .3 139-139-143	58 4-4 .5 143-143-147	61 4-4 .2 146-146-150	62 4-4 .7 147-147-150	64 4-4 .2 147-147-150	52 52
106.0	61 4-4 .4 137-137-141	64 4-4 .4 142-142-145	66 4-4 .5 144-144-147	68 4-4 .4 144-144-146	69 4-4 .7 144-144-147	52 52
101.0	67 4-4 .5 136-136-139	69 4-4 1.2 141-141-144	69 4-4 3.4 142-142-145	69 4-4 4.5 143-143-146	69 .0 125-126-130	52 52

EDDS STUTTGARD 08

ELEV. = 1300 ft TORA = 2550 m
SLOPE = -1.04 % ASDA = 2550 m
TODA = 2550 m

15/15

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

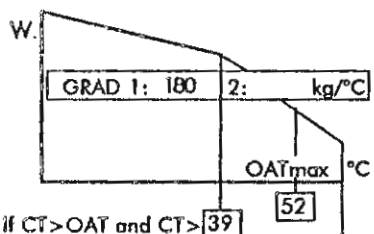
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1060 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>39
use Corr. Flex. T/O Temp. up to 69

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-8	-5.5	-12	-3

Minimum v_1: 117 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 2800 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	- -	- -	- -	
157.0	- -	- -	- -	- -	- -	39
155.0	- -	- -	- -	- -	2 2-3 .0 162-166-171	41
153.0	- -	- -	- -	6 2-3 .1 158-162-167	20 2-3 .0 158-163-167	43
151.0	- -	- -	10 2-3 .1 153-158-163	24 2-3 .0 154-158-163	34 2-3 .1 156-160-164	44 38
149.0	- -	5 2-3 .1 148-153-159	26 2-3 .1 150-155-160	37 2-3 .1 151-156-161	39 2-3 1.3 155-159-164	46 41
147.0	-2 2-3 .1 145-150-156	20 2-3 .0 145-150-156	39 2-3 .1 147-152-157	39 2-3 1.7 151-156-160	43 2-3 .2 154-158-163	47 43
145.0	7 2-3 .1 143-149-154	30 3-3 .1 144-149-154	41 2-3 .8 147-152-157	43 2-3 .6 150-155-159	45 2-3 .2 154-158-162	49 44
143.0	16 3-3 .1 142-148-153	38 3-3 .2 143-148-153	44 2-3 .1 147-151-156	45 2-3 .7 150-154-159	47 2-3 .2 153-157-162	51 46
141.0	25 3-3 .0 141-147-152	39 3-3 2.0 143-148-153	46 2-3 .2 146-151-156	47 2-3 .7 150-154-159	49 2-3 .2 153-157-161	52 48
136.0	39 3-3 1.8 139-145-150	48 2-3 .7 141-145-150	51 2-3 .4 146-150-155	52 2-3 .8 149-153-158	54 2-3 .2 153-156-160	52 52
131.0	49 3-3 .1 137-142-147	54 2-3 .1 140-144-149	56 2-3 .6 145-149-153	58 2-3 .1 148-151-156	59 2-3 .4 152-155-159	52 52
126.0	56 3-3 .0 135-139-144	59 2-3 .5 139-143-147	61 2-3 .9 144-147-152	63 2-3 .3 148-150-154	64 2-3 .6 151-153-157	52 52
121.0	62 2-3 .6 133-137-142	65 2-3 .0 138-141-146	67 2-3 .3 143-146-150	68 2-3 .6 147-149-153	69 2-3 .7 150-152-156	52 52
116.0	68 2-3 .3 132-136-140	69 2-3 1.4 137-141-145	69 2-3 3.4 143-146-150	69 2-3 4.6 147-149-153	69 2 .0 129-137-141	52 52
111.0	69 2-3 4.4 132-136-140	69 .0 131-131-136	69 .0 131-131-136	69 .0 131-131-136	69 .0 131-131-136	52 52
106.0	69 .0 127-128-133	69 .0 127-128-133	69 .0 127-128-133	69 .0 127-128-133	69 .0 127-128-133	52 52
101.0	69 .0 124-124-130	69 .0 124-124-130	69 .0 124-124-130	69 .0 124-124-130	69 .0 124-124-130	52 52

LLBG
TEL AVIV (BEN GURION)
08

ELEV. = 135 ft TORA = 3057 m
SLOPE = .32 % ASDA = 3747 m
TODA = 3747 m

15/15

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

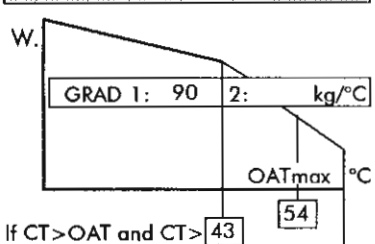
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1018 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT> 43
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-2	-2.0	-12	-3

Minimum v_1: 117 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1700 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	- -	- -	- -	43
157.0	- -	- -	- -	- -	- -	45
155.0	- -	- -	- -	- -	- -	46
153.0	- -	- -	- -	8 4-4 .0 172-172-175	33 4-4 .0 172-172-175	47 43
151.0	- -	- -	25 4-4 .0 170-170-174	43 4-4 .2 171-171-174	43 4-4 1.3 171-171-175	49 44
149.0	- -	18 4-4 .0 167-169-173	43 4-4 .5 167-170-173	45 4-4 .3 170-170-173	46 4-4 .2 170-170-173	50 46
147.0	8 4-4 .1 164-168-172	39 4-4 .0 162-167-170	45 4-4 .9 168-169-172	46 4-4 1.0 169-169-172	47 4-4 .8 169-169-172	52 47
145.0	29 4-6 .1 158-164-168	43 4-4 1.6 161-166-170	47 4-4 .5 167-167-171	48 4-4 .4 167-167-171	49 4-4 .2 167-167-171	53 49
143.0	43 4-6 .4 155-161-165	46 4-6 1.0 162-166-169	48 4-4 1.2 167-167-170	49 4-4 1.0 167-167-170	50 4-4 .8 167-167-170	54 50
141.0	46 4-6 .0 156-161-165	48 4-4 .9 163-165-169	50 4-4 .5 165-165-169	51 4-4 .4 165-165-168	52 4-4 .2 165-165-168	54 52
136.0	50 4-6 1.0 158-162-165	52 4-4 1.0 162-162-166	54 4-4 .3 162-162-165	55 4-4 .1 162-162-165	55 4-4 1.2 163-163-166	54 54
131.0	55 4-4 .2 159-159-162	56 4-4 .9 159-159-163	58 4-4 .3 159-159-162	59 4-4 .1 159-159-162	59 4-4 1.1 160-160-163	54 54
126.0	59 4-4 .4 156-156-159	60 4-4 1.1 157-157-160	62 4-4 .3 156-156-159	63 4-4 .1 156-156-159	63 4-4 1.0 157-157-160	54 54
121.0	63 4-4 .6 153-153-156	64 4-4 1.2 154-154-157	66 4-4 .4 153-153-156	67 4-4 .1 153-153-156	67 4-4 1.0 154-154-157	54 54
116.0	67 4-4 .9 150-150-153	69 4-4 .1 150-150-153	70 4-4 .4 150-150-153	71 4-4 .1 150-150-153	71 4-4 .9 151-151-153	54 54
111.0	71 4-4 1.1 147-147-150	71 4-4 2.7 148-148-151	71 4-4 4.2 149-149-152	71 4 .0 133-134-137	71 4 .0 132-132-136	54 54
106.0	71 .0 128-129-133	71 .0 128-129-133	71 .0 128-129-133	71 .0 128-129-133	71 .0 128-129-133	54 54
101.0	71 .0 125-126-130	71 .0 125-126-130	71 .0 125-126-130	71 .0 125-126-130	71 .0 125-126-130	54 54

LLBG
TEL AVIV (BEN GURION)
12

ELEV. = 135 ft TORA = 3070 m
SLOPE = .27 % ASDA = 3130 m
TODA = 3130 m

15/15

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

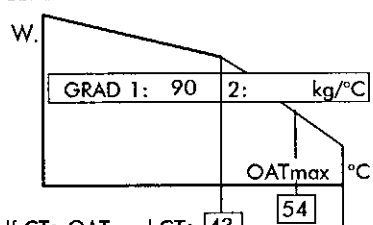
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1018 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>43
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-2	-2.0	-12	-3

Minimum v_1: 117 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1700 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	- -	- -	- -	43
157.0	- -	- -	- -	- -	13 4-4 .0 174-174-177	45
155.0	- -	- -	0 4-4 .0 171-173-176	19 4-4 .1 170-172-176	37 4-4 .1 169-172-176	46
153.0	- -	- -	22 4-3 .0 165-169-173	39 4-3 .1 165-169-173	43 4-4 1.4 168-171-175	47 43
151.0	- -	11 4-3 .0 162-167-171	40 4-3 .1 161-166-169	43 4-3 1.6 164-168-172	46 4-3 .6 168-171-174	49 44
149.0	1 4-3 .0 159-164-169	30 4-3 .1 157-163-167	43 4-3 1.7 161-165-169	46 4-3 .8 164-168-171	48 4-4 .1 168-170-173	50 46
147.0	20 4-3 .0 154-160-165	43 4-3 .6 155-160-164	46 4-3 .9 161-165-168	48 4-3 .4 164-167-171	49 4-4 .8 168-169-172	52 47
145.0	38 4-3 .0 151-157-161	45 4-3 1.0 155-160-164	48 4-3 .6 160-164-168	50 4-3 .0 164-167-170	51 4-4 .3 167-168-171	53 49
143.0	43 4-3 1.4 150-156-160	47 4-3 .7 154-159-163	50 4-3 .3 160-164-167	51 4-3 .8 164-167-170	52 4-4 .9 167-167-170	54 50
141.0	46 4-3 .8 149-155-159	49 4-3 .5 154-159-163	51 4-3 1.1 160-164-167	53 4-4 .3 164-165-168	54 4-4 .2 165-165-168	54 52
136.0	51 4-3 .2 149-154-158	53 4-3 .9 154-158-162	56 4-4 .2 160-162-165	57 4-4 .3 162-162-165	58 4-4 .0 162-162-165	54 54
131.0	55 4-3 .8 148-153-157	58 4-3 .2 153-157-160	60 4-4 .4 159-159-163	61 4-4 .2 159-159-162	61 4-4 1.2 160-160-163	54 54
126.0	60 4-3 .3 147-152-156	62 4-3 .7 152-156-159	64 4-4 .4 156-156-159	65 4-4 .1 156-156-159	65 4-4 1.0 157-157-160	54 54
121.0	64 4-3 .9 147-151-154	66 4-4 1.1 152-154-157	68 4-4 .3 153-153-156	68 4-4 1.3 154-154-157	69 4-4 .9 154-154-157	54 54
116.0	69 4-3 .4 146-149-153	71 4-4 .1 150-150-153	71 4-4 1.6 151-151-154	71 4-4 2.5 152-152-154	71 4-4 3.3 152-152-155	54 54
111.0	71 4-4 3.1 146-149-152	71 4 .0 133-133-137	71 .0 132-132-136	71 .0 132-132-136	71 .0 132-132-136	54 54
106.0	71 .0 128-129-133	71 .0 128-129-133	71 .0 128-129-133	71 .0 128-129-133	71 .0 128-129-133	54 54
101.0	71 .0 125-125-130	71 .0 125-125-130	71 .0 125-125-130	71 .0 125-125-130	71 .0 125-125-130	54 54

LLBG
TEL AVIV (BEN GURION)
26

ELEV. = 135 ft TORA = 3057 m
SLOPE = -.32 % ASDA = 3747 m
TODA = 3747 m

15/15

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

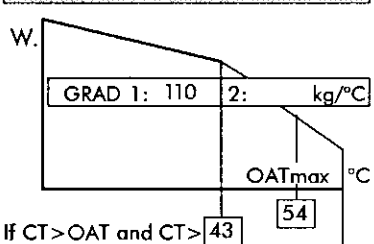
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1018 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT> 43
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snaw, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-2	-2.0	-12	-3

Minimum v_1: 117 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1700 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	10 2-2 .1 168-174-177	21 2-2 .0 169-175-178	29 2-2 .0 171-175-179	43
157.0	- -	10 2-6 .0 162-169-172	29 2-6 .0 164-170-174	40 2-6 .1 166-171-175	43 2-2 1.1 169-174-178	45
155.0	7 2-6 .1 156-164-168	26 2-6 .1 157-165-169	43 2-6 .3 160-167-171	43 2-6 1.7 165-171-174	45 2-2 1.2 169-174-177	46
153.0	23 2-6 .0 151-160-164	42 2-6 .0 154-162-166	45 2-6 .7 161-167-171	47 2-6 .0 166-171-174	47 2-2 .4 169-172-175	47 43
151.0	38 2-6 .0 148-157-161	43 2-6 1.9 154-161-166	47 2-6 .6 162-167-171	48 6-6 .9 167-171-175	48 2-2 .9 168-171-175	49 44
149.0	43 2-6 1.3 147-156-160	47 2-6 .4 155-162-166	49 2-6 .5 163-168-171	50 2-2 .1 167-170-173	50 2-2 .1 166-170-173	50 46
147.0	46 2-6 .9 148-156-160	49 2-6 .3 156-162-166	51 2-6 .3 164-168-171	51 2-2 .6 166-169-172	51 2-2 .6 165-169-172	52 47
145.0	48 2-6 .9 149-156-160	51 2-6 .2 157-162-166	52 2-2 1.2 165-168-171	52 2-2 1.2 165-168-171	52 2-2 1.2 164-168-171	53 49
143.0	50 2-6 1.0 150-156-161	53 2-6 .1 158-163-166	54 2-2 .4 164-166-170	54 2-2 .4 163-166-170	54 2-2 .4 162-166-170	54 50
141.0	52 2-6 .9 151-157-161	55 2-6 .0 159-163-166	55 2-2 .9 163-166-169	55 2-2 .9 162-166-169	55 2-2 .9 160-166-169	54 52
136.0	57 2-6 1.0 154-157-161	59 2-2 .6 161-162-166	59 2-2 .6 159-162-166	59 2-2 .6 158-162-166	59 2-2 .6 157-162-166	54 54
131.0	62 2-3 .9 157-158-161	63 2-2 .2 157-159-162	63 2-2 .2 156-159-162	63 2-2 .2 154-159-162	63 2-2 .2 153-159-162	54 54
126.0	66 2-3 1.2 156-157-160	66 2-2 1.2 155-157-160	66 2-2 1.2 153-157-160	66 2-2 1.2 151-157-160	66 2-2 1.2 150-157-160	54 54
121.0	70 2-2 .9 152-153-157	70 2-2 .9 151-153-157	70 2-2 .9 149-153-157	70 2-2 .9 147-153-157	70 2-2 .9 146-153-157	54 54
116.0	71 2-2 4.5 151-153-156	71 2-2 4.5 150-153-156	71 2-2 4.5 148-153-156	71 2-2 4.5 146-153-156	71 2-2 4.5 145-153-156	54 54
111.0	71 .0 131-132-136	71 .0 131-132-136	71 .0 131-132-136	71 .0 131-132-136	71 .0 131-132-136	54 54
106.0	71 .0 128-128-133	71 .0 128-128-133	71 .0 128-128-133	71 .0 128-128-133	71 .0 128-128-133	54 54
101.0	71 .0 125-125-130	71 .0 125-125-130	71 .0 125-125-130	71 .0 125-125-130	71 .0 125-125-130	54 54

LLBG
TEL AVIV (BEN GURION)
30

ELEV. = 135 ft TORA = 3070 m
SLOPE = -.27 % ASDA = 3160 m
TODA = 3214 m

15/15

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

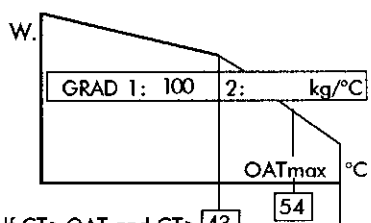
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1018 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>43
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-2	-2.0	-12	-3

Minimum v_1: 117 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1700 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	- -	16 3-3 .1 170-175-178	28 2-2 .1 171-175-179	43
157.0	- -	- -	18 4-3 .0 166-171-175	35 2-3 .1 166-171-174	43 2-2 .4 168-173-176	45
155.0	- -	8 4-3 .0 162-168-172	36 4-3 .1 162-167-171	43 2-3 1.1 164-169-173	45 2-3 .7 168-172-176	46
153.0	-2 4-3 .1 159-166-170	27 4-3 .0 158-164-168	43 4-3 1.3 160-166-170	46 2-3 .3 164-169-172	47 2-2 .4 168-172-175	47 43
151.0	17 4-3 .0 154-162-166	43 4-3 .1 154-161-165	46 4-3 .4 160-166-169	47 2-3 1.1 164-169-172	48 2-2 .9 167-171-175	49 44
149.0	34 4-6 .1 151-158-163	45 4-3 .5 154-161-165	48 4-3 .1 160-165-169	49 2-4 .7 164-168-172	50 2-2 .1 166-170-173	50 46
147.0	43 4-6 .9 149-156-161	47 4-3 .2 154-160-165	49 4-3 .9 160-165-169	51 4-3 .3 163-168-171	51 2-2 .6 165-169-172	52 47
145.0	46 4-3 .3 149-156-161	48 4-3 1.1 154-160-164	51 4-3 .5 160-165-168	52 3-3 1.1 163-168-171	52 2-2 1.2 165-168-171	53 49
143.0	48 4-3 .1 149-156-160	50 4-3 .8 154-160-164	53 4-3 .2 160-165-168	54 2-2 .4 163-166-170	54 2-2 .4 162-166-170	54 50
141.0	49 4-3 .9 149-156-160	52 4-3 .5 154-160-163	54 4-3 1.0 160-164-168	55 2-2 .9 162-166-169	55 2-2 .9 161-166-169	54 52
136.0	54 4-3 .3 148-155-159	56 4-3 .8 153-159-162	58 4-4 1.2 159-163-166	59 2-2 .6 160-162-166	59 2-2 .6 158-162-166	54 54
131.0	58 4-3 .8 148-154-157	61 4-3 .1 152-157-161	63 4-4 .0 159-159-162	63 2-2 .2 156-159-162	63 2-2 .2 154-159-162	54 54
126.0	63 4-3 .2 147-152-156	65 4-4 .5 152-156-159	66 4-4 1.2 157-157-160	66 2-2 1.2 153-157-160	66 2-2 1.2 151-157-160	54 54
121.0	67 4-3 .7 146-151-155	69 4-4 .6 151-153-156	70 2-2 .9 153-154-157	70 2-2 .9 149-154-157	70 2-2 .9 147-154-157	54 54
116.0	71 4-3 1.2 146-150-153	71 4-4 3.2 151-152-155	71 2-2 4.5 152-153-156	71 2-2 4.5 148-153-156	71 2-2 4.5 146-153-156	54 54
111.0	71 .0 131-132-136	71 .0 131-132-136	71 .0 131-132-136	71 .0 131-132-136	71 .0 131-132-136	54 54
106.0	71 .0 128-128-133	71 .0 128-128-133	71 .0 128-128-133	71 .0 128-128-133	71 .0 128-128-133	54 54
101.0	71 .0 125-125-130	71 .0 125-125-130	71 .0 125-125-130	71 .0 125-125-130	71 .0 125-125-130	54 54

KMIA MIAMI 09R

ELEV. = 11 ft TORA = 3963 m
SLOPE = .00 % ASDA = 3963 m
TODA = 3963 m

15/15

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

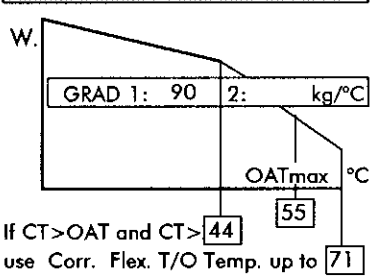
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1013 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT> 44
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-2	-2.0	-12	-3

Minimum v_1: 117 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1600 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	11 1-1 .0 161-174-177	31 2-2 .0 163-175-178	34 2-2 .0 165-175-179	34 2-2 .0 166-175-179	44
157.0	11 2-6 .0 155-168-172	30 2-6 .0 157-170-173	44 2-6 .4 160-172-176	44 2-2 1.4 164-175-178	44 2-2 1.4 165-175-178	45
155.0	28 2-6 .0 150-165-169	44 2-6 .2 154-167-170	46 2-6 .2 161-173-176	46 2-2 .5 163-173-177	46 2-2 .5 164-173-177	47
153.0	43 2-6 .2 147-162-166	46 2-6 .1 154-167-171	47 2-2 1.1 162-173-176	47 2-2 1.1 163-173-176	47 2-2 1.1 164-173-176	48 44
151.0	44 2-6 1.9 147-162-165	47 2-6 1.1 155-167-171	49 2-2 .2 161-171-174	49 2-2 .2 162-171-174	49 2-2 .2 161-171-174	49 45
149.0	47 2-6 .9 148-162-166	49 2-6 .9 156-167-171	50 2-2 .7 161-170-173	50 2-2 .7 162-170-173	50 2-2 .7 160-170-173	51 46
147.0	49 2-6 .8 149-162-166	51 2-6 .7 157-168-171	51 2-2 1.3 161-169-172	51 2-2 1.3 161-169-172	51 2-2 1.3 159-169-172	52 48
145.0	51 2-6 .6 150-162-166	53 2-6 .2 158-167-170	53 2-2 .4 160-168-171	53 2-2 .4 159-168-171	53 2-2 .4 157-168-171	53 49
143.0	53 2-6 .5 151-163-166	54 2-2 .9 158-167-170	54 2-2 .9 159-167-170	54 2-2 .9 157-167-170	54 2-2 .9 156-167-170	55 51
141.0	55 2-6 .3 152-163-166	56 2-2 .1 157-165-168	56 2-2 .1 157-165-168	56 2-2 .1 155-165-168	56 2-2 .1 153-165-168	55 52
136.0	59 5-5 1.0 155-163-166	59 2-2 1.0 157-163-166	59 2-2 1.0 154-163-166	59 2-2 1.0 153-163-166	59 2-2 1.0 151-163-166	55 55
131.0	63 2-2 .6 154-160-163	63 2-2 .6 153-160-163	63 2-2 .6 150-160-163	63 2-2 .6 149-160-163	63 2-2 .6 147-160-163	55 55
126.0	67 2-2 .1 151-156-159	67 2-2 .1 149-156-159	67 2-2 .1 146-156-159	67 2-2 .1 144-156-159	67 2-2 .1 144-156-159	55 55
121.0	70 2-2 1.0 148-154-157	70 2-2 1.0 146-154-157	70 2-2 1.0 143-154-157	70 2-2 1.0 142-154-157	70 2-2 1.0 142-154-157	55 55
116.0	72 2-2 3.3 145-152-155	72 2-2 3.3 143-152-155	72 2-2 3.3 141-152-155	72 2-2 3.3 141-152-155	72 2-2 3.3 141-152-155	55 55
111.0	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	55 55
106.0	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	55 55
101.0	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	55 55

KMIA
MIAMI
12

ELEV. = 11 ft TORA = 2851 m
SLOPE = .00 % ASDA = 2851 m
TODA = 2851 m

15/15

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

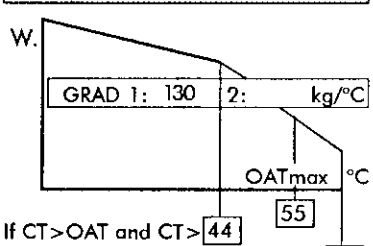
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1013 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>44
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-2	-2.0	-12	-3

Minimum v_1: 117 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1600 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	- -	- -	4 2-3 .1 171-173-177	44
157.0	- -	- -	- -	10 2-3 .1 165-169-172	23 2-3 .1 166-169-173	45
155.0	- -	- -	15 2-3 .1 160-164-168	28 2-3 .1 161-165-169	41 2-3 .1 162-166-170	47
153.0	- -	8 4-3 .0 156-160-165	33 2-3 .0 156-161-165	44 2-3 .1 158-162-166	44 2-3 1.6 162-165-169	48 44
151.0	- -	25 4-3 .0 152-157-161	44 2-3 .6 154-159-163	45 2-3 1.0 158-162-166	47 2-3 .1 162-165-168	49 45
149.0	14 4-3 .1 149-155-159	41 4-3 .1 149-154-158	46 2-3 .3 154-158-162	47 2-3 .7 158-161-165	48 2-3 1.0 161-165-168	51 46
147.0	30 4-3 .1 146-152-156	44 4-3 1.6 149-153-158	48 2-3 .1 154-158-162	49 2-3 .4 158-161-165	50 2-3 .6 161-164-168	52 48
145.0	42 4-3 .1 145-150-154	47 4-3 .3 148-153-157	49 2-3 .9 154-158-162	51 2-3 .1 157-161-164	52 2-3 .2 161-164-168	53 49
143.0	44 3-3 1.7 144-149-154	49 4-3 .1 148-152-157	51 2-3 .6 154-157-161	52 2-3 .9 157-161-164	53 2-3 1.0 161-164-167	55 51
141.0	48 4-3 .0 143-148-153	50 4-3 1.0 148-152-157	53 2-3 .3 153-157-161	54 2-3 .5 157-160-164	55 2-3 .6 161-164-167	55 52
136.0	52 4-3 .6 143-148-152	55 4-3 .3 147-151-156	57 2-3 .7 153-156-160	58 2-3 .9 157-159-163	59 2-3 .9 161-163-166	55 55
131.0	57 4-3 .1 142-146-151	59 4-3 .8 147-150-154	61 2-3 1.1 152-155-158	63 2-3 .0 156-158-161	63 2-2 .6 158-160-163	55 55
126.0	61 4-3 .7 142-145-149	64 4-3 .2 146-149-153	66 2-3 .3 152-154-157	67 2-2 .1 155-156-159	67 2-2 .1 154-156-159	55 55
121.0	66 4-3 .2 141-144-148	68 4-3 .6 145-148-151	70 2-3 .7 151-153-156	70 2-2 1.0 152-154-157	70 2-2 1.0 151-154-157	55 55
116.0	70 4-3 .8 140-143-146	72 4-3 1.1 145-147-150	72 2-2 3.3 151-152-155	72 2-2 3.3 150-152-155	72 2-2 3.3 149-152-155	55 55
111.0	72 4-3 3.6 140-143-146	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	55 55
106.0	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	55 55
101.0	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	55 55

KMIA MIAMI 27L

ELEV. = 11 ft TORA = 3963 m
SLOPE = .00 % ASDA = 3963 m
TODA = 3963 m

15/15

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

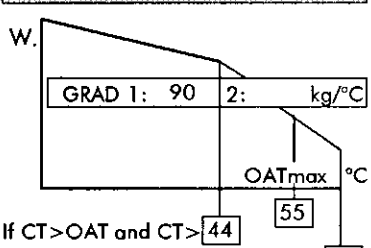
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1013 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT> 44
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-2	-2.0	-12	-3

Minimum v_1: 117 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1600 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	7 2-4 .1 172-174-177	22 2-2 .1 171-175-178	34 2-2 .0 171-175-179	44
157.0	- -	-1 4-4 .1 168-169-172	26 2-4 .1 166-170-173	43 2-4 .0 166-171-174	44 2-2 1.4 170-175-178	45
155.0	- -	16 4-4 .1 163-166-170	43 2-4 .2 162-166-170	44 2-4 1.8 166-171-174	46 2-2 .5 170-173-177	47
153.0	6 4-4 .1 159-164-168	34 4-4 .1 158-164-167	44 4-4 2.0 162-166-170	47 2-4 .5 168-171-174	47 2-2 1.1 169-173-176	48 44
151.0	23 4-4 .1 155-161-165	44 4-4 .8 156-162-166	47 2-4 .7 164-166-170	49 2-2 .2 169-171-174	49 2-2 .2 167-171-174	49 45
149.0	41 4-4 .0 150-159-163	46 4-4 .7 157-162-166	49 2-4 .5 165-167-170	50 2-2 .7 169-170-173	50 2-2 .7 166-170-173	51 46
147.0	44 4-4 1.5 150-159-163	48 4-4 .6 158-162-165	51 2-4 .3 166-167-170	51 2-2 1.3 168-169-172	51 2-2 1.3 165-169-172	52 48
145.0	47 4-4 .5 151-157-162	50 4-4 .5 159-161-165	53 2-4 .0 167-167-170	53 2-2 .4 166-168-171	53 2-2 .4 163-168-171	53 49
143.0	49 4-4 .5 152-157-161	52 4-4 .4 160-160-164	54 4-4 .8 167-167-170	54 2-2 .9 164-167-170	54 2-2 .9 162-167-170	55 51
141.0	51 4-4 .4 153-157-161	54 4-4 .3 161-161-165	56 2-2 .1 165-165-168	56 2-2 .1 162-165-168	56 2-2 .1 160-165-168	55 52
136.0	56 4-4 .3 156-157-160	58 4-4 .7 162-162-166	59 2-2 1.0 162-163-166	59 2-2 1.0 160-163-166	59 2-2 1.0 157-163-166	55 55
131.0	60 4-4 1.1 159-159-162	62 4-4 .5 159-159-163	63 2-2 .6 158-160-163	63 2-2 .6 156-160-163	63 2-2 .6 153-160-163	55 55
126.0	64 4-4 1.2 157-157-160	66 4-4 .4 156-156-159	67 2-2 .1 155-156-159	67 2-2 .1 152-156-159	67 2-2 .1 149-156-159	55 55
121.0	68 4-4 1.1 154-154-157	70 4-4 .3 153-153-156	70 2-2 1.0 151-154-157	70 2-2 1.0 149-154-157	70 2-2 1.0 146-154-157	55 55
116.0	72 4-4 1.2 151-151-154	72 4-4 2.8 152-152-155	72 2-2 3.3 149-152-155	72 2-2 3.3 147-152-155	72 2-2 3.3 143-152-155	55 55
111.0	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	55 55
106.0	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	55 55
101.0	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	55 55

KMIA MIAMI 27R

ELEV. = 11 ft TORA = 3445 m
SLOPE = .00 % ASDA = 3445 m
TODA = 3445 m

15/15

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

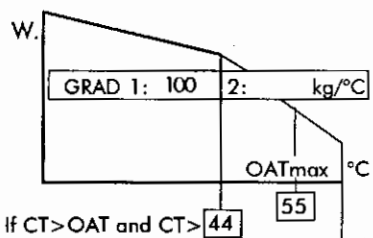
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1013 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>44
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-2	-2.0	-12	-3

Minimum v_1: 117 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1600 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	16 2-6 .1 168-174-178	29 2-6 .1 169-175-178	34 2-2 .0 171-175-179	44
157.0	- -	15 2-6 .0 162-169-172	34 2-6 .1 164-170-174	44 2-6 .2 166-172-175	44 2-2 1.4 170-175-178	45
155.0	12 2-6 .0 156-164-168	32 2-6 .0 157-165-169	44 2-6 .8 162-168-172	46 2-6 .1 167-172-175	46 2-2 .5 169-173-177	47
153.0	28 2-6 .1 151-160-164	44 2-6 .4 155-163-166	46 2-6 .7 162-169-172	47 2-6 1.0 167-172-176	47 2-2 1.1 169-173-176	48 44
151.0	43 2-6 .2 148-157-162	46 2-6 .4 156-163-167	48 2-6 .5 163-169-172	49 2-2 .2 167-171-174	49 2-2 .2 167-171-174	49 45
149.0	44 2-6 1.9 148-157-161	48 2-6 .3 157-163-167	50 2-6 .4 165-169-172	50 2-2 .7 167-170-173	50 2-2 .7 166-170-173	51 46
147.0	47 2-6 1.0 149-158-162	50 2-6 .2 158-163-167	51 2-6 1.1 164-169-172	51 2-2 1.3 166-169-172	51 2-2 1.3 164-169-172	52 48
145.0	49 2-6 1.0 150-158-162	51 2-6 1.1 158-163-167	53 2-2 .4 164-168-171	53 2-2 .4 164-168-171	53 2-2 .4 162-168-171	53 49
143.0	51 2-6 .9 151-158-162	53 2-3 .8 158-163-167	54 2-2 .9 163-167-170	54 2-2 .9 163-167-170	54 2-2 .9 161-167-170	55 51
141.0	53 2-6 .8 152-158-162	55 2-3 .4 158-163-166	56 2-2 .1 162-165-168	56 2-2 .1 161-165-168	56 2-2 .1 159-165-168	55 52
136.0	57 2-3 1.1 152-157-161	59 2-3 .6 157-162-165	59 2-2 1.0 159-163-166	59 2-2 1.0 158-163-166	59 2-2 1.0 156-163-166	55 55
131.0	62 2-3 .3 151-156-159	63 2-2 .6 156-160-163	63 2-2 .6 155-160-163	63 2-2 .6 154-160-163	63 2-2 .6 152-160-163	55 55
126.0	66 2-3 .7 150-155-158	67 2-2 .1 153-156-159	67 2-2 .1 151-156-159	67 2-2 .1 150-156-159	67 2-2 .1 148-156-159	55 55
121.0	70 2-3 1.0 150-154-157	70 2-2 1.0 150-154-157	70 2-2 1.0 148-154-157	70 2-2 1.0 147-154-157	70 2-2 1.0 145-154-157	55 55
116.0	72 2-2 3.3 149-152-155	72 2-2 3.3 148-152-155	72 2-2 3.3 146-152-155	72 2-2 3.3 144-152-155	72 2-2 3.3 143-152-155	55 55
111.0	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	55 55
106.0	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	55 55
101.0	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	55 55

KMIA MIAMI 30

ELEV. = 11 ft TORA = 2851 m
SLOPE = .00 % ASDA = 2851 m
TODA = 2851 m

15/15

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

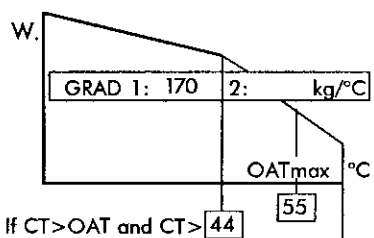
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1013 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>44
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-2	-2.0	-12	-3

Minimum v_1: 117 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1600 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	- -	- -	4 2-3 .1 171-173-177	44
157.0	- -	- -	- -	10 2-3 .1 165-169-172	23 2-3 .1 166-169-173	45
155.0	- -	- -	15 2-3 .1 160-164-168	28 2-3 .1 161-165-169	41 2-3 .1 162-166-170	47
153.0	- -	11 2-3 .0 155-159-164	33 2-3 .0 156-161-165	44 2-3 .1 158-162-166	44 2-3 1.6 162-165-169	48 44
151.0	8 2-3 .0 150-155-160	28 2-3 .0 151-156-160	44 2-3 .6 154-159-163	45 2-3 1.0 158-162-166	47 2-3 .1 162-165-168	49 45
149.0	22 2-3 .1 147-152-157	43 2-3 .2 149-153-158	46 2-3 .3 154-158-162	47 2-3 .7 158-161-165	48 2-3 1.0 161-165-168	51 46
147.0	33 3-3 .2 146-151-155	44 2-3 1.9 148-153-158	48 2-3 .1 154-158-162	49 2-3 .4 158-161-165	50 2-3 .6 161-164-168	52 48
145.0	43 3-3 .0 144-149-154	47 2-3 .7 148-153-157	49 2-3 .9 154-158-162	51 2-3 .1 157-161-164	52 2-3 .2 161-164-168	53 49
143.0	44 3-3 1.7 144-149-154	49 2-3 .4 148-152-157	51 2-3 .6 154-157-161	52 2-3 .9 157-161-164	53 2-3 1.0 161-164-167	55 51
141.0	48 3-3 .6 143-148-152	51 2-3 .2 148-152-156	53 2-3 .3 153-157-161	54 2-3 .5 157-160-164	55 2-3 .6 161-164-167	55 52
136.0	53 2-3 .6 142-147-151	55 2-3 .7 147-151-155	57 2-3 .7 153-156-160	58 2-3 .9 157-159-163	59 2-3 .9 161-163-166	55 55
131.0	58 2-3 .1 142-146-150	60 2-3 .1 146-150-154	61 2-3 1.1 152-155-158	63 2-3 .0 156-158-161	63 2-2 .6 158-160-163	55 55
126.0	62 2-3 .8 141-144-148	64 2-3 .6 146-149-152	66 2-3 .3 152-154-157	67 2-2 .1 155-156-159	67 2-2 .1 154-156-159	55 55
121.0	67 2-3 .2 140-143-147	68 2-3 1.1 145-148-151	70 2-3 .7 151-153-156	70 2-2 1.0 152-154-157	70 2-2 1.0 151-154-157	55 55
116.0	71 2-3 .9 139-142-146	72 2-3 1.5 145-147-150	72 2-2 3.3 151-152-155	72 2-2 3.3 150-152-155	72 2-2 3.3 149-152-155	55 55
111.0	72 2-3 4.8 139-142-145	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	55 55
106.0	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	55 55
101.0	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	55 55

VVTS HOCHIMINH 07R/25L

ELEV. = 33 ft TORA = 3036 m
SLOPE = .00 % ASDA = 3341 m
TODA = 3341 m

15/15

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

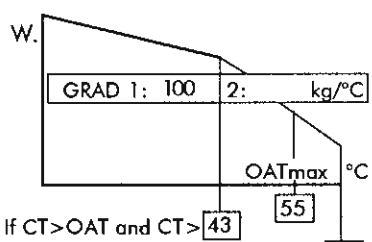
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1014 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>43
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-2	-2.0	-12	-3

Minimum v_1: 117 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1600 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	12 2-1 .0 170-174-177	23 2-2 .0 171-175-178	31 2-2 .0 172-175-178	44
157.0	- -	10 2-3 .1 163-169-172	30 2-6 .0 165-170-173	42 2-6 .1 167-171-174	43 2-2 1.3 171-174-178	45
155.0	8 2-6 .0 157-164-168	27 2-6 .1 159-165-169	43 2-6 .5 162-167-171	43 2-6 2.0 166-171-174	46 2-2 .4 170-173-177	47
153.0	23 2-6 .1 153-160-164	43 2-6 .1 155-162-166	46 2-6 .1 163-167-171	47 2-3 .3 167-171-174	47 2-2 1.0 170-173-176	48 43
151.0	39 2-6 .0 149-157-161	45 2-6 .8 156-162-165	47 2-3 1.0 163-167-171	48 2-3 1.1 167-171-174	49 2-2 .1 168-171-174	49 45
149.0	43 2-6 1.5 149-156-160	47 2-6 .8 156-162-166	49 2-3 .6 163-167-170	50 2-2 .6 167-170-173	50 2-2 .6 167-170-173	51 46
147.0	47 2-6 .3 150-156-160	49 2-3 .4 156-161-165	51 2-3 .2 163-167-170	51 2-2 1.2 166-169-172	51 2-2 1.2 166-169-172	52 48
145.0	49 2-3 .3 151-156-161	51 2-3 .1 156-161-165	52 2-3 1.0 163-167-170	53 2-2 .2 165-168-171	53 2-2 .2 164-168-171	53 49
143.0	51 2-3 .0 151-156-160	52 2-3 .9 156-161-165	54 2-3 .6 163-166-169	54 2-2 .8 164-167-170	54 2-2 .8 163-167-170	55 51
141.0	52 2-3 .9 151-156-160	54 2-3 .6 156-161-164	55 2-2 1.4 163-166-169	55 2-2 1.4 163-166-169	55 2-2 1.4 162-166-169	55 52
136.0	57 2-3 .1 150-155-159	58 2-3 .9 156-160-163	59 2-2 .9 161-163-166	59 2-2 .9 159-163-166	59 2-2 .9 158-163-166	55 55
131.0	61 2-3 .5 149-154-157	63 2-3 .0 155-158-161	63 2-2 .5 157-160-163	63 2-2 .5 156-160-163	63 2-2 .5 154-160-163	55 55
126.0	65 2-3 1.0 149-152-156	67 2-2 .1 154-156-159	67 2-2 .1 153-156-159	67 2-2 .1 152-156-159	67 2-2 .1 150-156-159	55 55
121.0	70 2-3 .2 148-151-154	70 2-2 1.0 151-154-157	70 2-2 1.0 150-154-157	70 2-2 1.0 149-154-157	70 2-2 1.0 147-154-157	55 55
116.0	72 2-3 2.9 148-151-154	72 2-2 3.3 149-152-155	72 2-2 3.3 148-152-155	72 2-2 3.3 146-152-155	72 2-2 3.3 145-152-155	55 55
111.0	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	72 .0 132-132-136	55 55
106.0	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	72 .0 128-129-133	55 55
101.0	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	72 .0 125-125-130	55 55

EDBT
BERLIN-TEGEL
08L

ELEV. = 121 ft TORA = 3023 m
SLOPE = .00 % ASDA = 3092 m
TODA = 3092 m

15/15

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

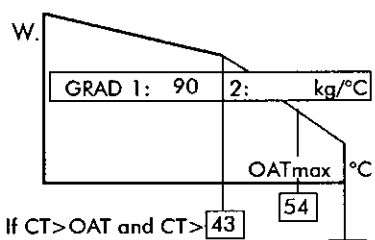
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1017 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>43
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-2	-2.0	-12	-3

Minimum v_1: 117 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 ond decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1700 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	- -	- -	- -	43
157.0	- -	- -	- -	- -	- -	45
155.0	- -	- -	- -	- -	-2 4-4 .1 166-166-170	46
153.0	- -	- -	- -	2 4-4 .0 163-163-167	21 4-4 .1 162-162-166	48 43
151.0	- -	- -	5 4-4 .1 160-160-165	25 4-4 .0 160-160-165	41 4-4 .1 161-161-165	49 44
149.0	- -	-2 4-4 .0 158-158-163	27 4-4 .1 159-159-163	43 4-4 .1 159-159-163	43 4-4 1.9 160-160-164	50 46
147.0	- -	19 4-4 .0 155-155-160	43 4-4 .4 156-156-161	45 4-4 .5 158-158-163	46 4-4 1.0 159-159-163	52 47
145.0	8 4-4 .1 153-153-158	38 4-4 .0 153-153-158	45 4-4 .7 156-156-160	47 4-4 .1 157-157-161	48 4-4 .6 158-158-162	53 49
143.0	28 4-4 .0 152-152-157	43 4-4 1.5 153-153-158	47 4-4 .4 156-156-160	48 4-4 .9 157-157-161	50 4-4 .2 156-156-160	54 50
141.0	43 4-4 .3 150-150-155	46 4-4 .8 152-152-156	49 4-4 .1 155-155-159	50 4-4 .6 155-155-159	51 4-4 1.0 156-156-160	54 52
136.0	48 4-4 .4 148-148-153	51 4-4 .0 149-149-153	53 4-4 .4 152-152-157	54 4-4 .8 153-153-157	55 4-4 1.1 155-155-159	54 54
131.0	52 4-4 1.0 146-146-151	55 4-4 .5 147-147-152	57 4-4 .6 150-150-154	58 4-4 1.0 151-151-155	60 4-4 .1 153-153-156	54 54
126.0	57 4-4 .4 144-144-148	59 4-4 .8 145-145-150	61 4-4 .9 148-148-152	63 4-4 .1 150-150-153	64 4-4 .3 150-150-154	54 54
121.0	61 4-4 1.0 141-141-145	64 4-4 .2 143-143-147	66 4-4 .1 146-146-150	67 4-4 .4 147-147-151	68 4-4 .6 147-147-151	54 54
116.0	66 4-4 .5 138-138-142	68 4-4 .7 142-142-145	70 4-4 .6 144-144-148	71 4-4 .8 145-145-148	71 2-4 2.0 146-146-149	54 54
111.0	71 4-4 .1 137-137-140	71 4-4 2.4 141-141-144	71 4-4 4.5 144-144-147	71 .0 131-132-136	71 .0 131-132-136	54 54
106.0	71 .0 128-129-133	71 .0 128-129-133	71 .0 128-129-133	71 .0 128-129-133	71 .0 128-129-133	54 54
101.0	71 .0 125-125-130	71 .0 125-125-130	71 .0 125-125-130	71 .0 125-125-130	71 .0 125-125-130	54 54

EDBT
BERLIN-TEGEL
08R

ELEV. = 121 ft TORA = 2424 m
SLOPE = .00 % ASDA = 2492 m
TODA = 2492 m

15/15

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

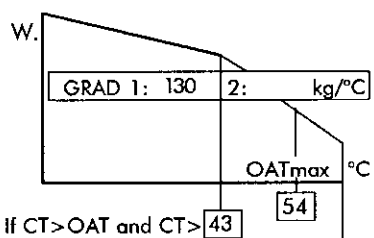
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1017 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>43
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-8	-5.5	-12	-3

Minimum v_1: 117 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1700 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	- -	- -	- -	43
157.0	- -	- -	- -	- -	- -	45
155.0	- -	- -	- -	- -	- -	46
153.0	- -	- -	- -	- -	- -	48 43
151.0	- -	- -	- -	- -	0 4-4 .1 158-158-163	49 44
149.0	- -	- -	- -	3 4-4 .1 158-158-162	22 4-4 .0 156-156-160	50 46
147.0	- -	- -	5 4-4 .1 155-155-160	25 4-4 .0 155-155-159	41 4-4 .1 155-155-159	52 47
145.0	- -	- -	25 4-4 .0 152-152-157	42 4-4 .1 152-152-157	43 4-4 1.8 155-155-159	53 49
143.0	- -	13 4-4 .1 150-150-155	42 4-4 .0 149-149-154	43 4-4 2.0 152-152-157	46 4-4 1.1 153-153-158	54 50
141.0	1 4-4 .1 147-148-153	29 4-4 .1 147-147-152	43 4-4 1.9 149-149-154	47 4-4 .2 151-151-156	48 4-4 .7 152-152-156	54 52
136.0	33 4-4 .1 142-144-150	43 4-4 2.7 144-146-151	49 4-4 .9 148-148-152	51 4-4 .6 149-149-154	52 4-4 1.0 151-151-155	54 54
131.0	43 4-4 3.4 140-143-149	51 4-4 .6 143-143-148	54 4-4 .3 146-146-151	55 4-4 .9 148-148-152	57 4-4 .2 149-149-153	54 54
126.0	52 4-4 .6 138-140-145	56 4-4 .2 142-142-146	58 4-4 .8 144-144-148	60 4-4 .2 146-146-150	61 4-4 .5 147-147-151	54 54
121.0	58 4-4 .1 137-137-141	60 4-4 .8 140-140-145	63 4-4 .3 141-141-145	64 4-4 .6 144-144-148	65 4-4 .9 144-144-148	54 54
116.0	62 4-4 .9 136-136-140	65 4-4 .4 138-138-142	67 4-4 .8 140-140-143	68 4-4 1.1 142-142-145	70 4-4 .2 141-141-145	54 54
111.0	67 4-4 .7 134-134-138	70 4-4 .1 135-135-139	71 4-4 1.4 138-138-142	71 4-4 2.8 140-140-143	71 4-4 4.1 141-141-144	54 54
106.0	71 4-4 1.6 133-133-137	71 4-4 4.1 135-135-138	71 .0 128-129-133	71 .0 128-129-133	71 .0 128-129-133	54 54
101.0	71 .0 125-125-130	71 .0 125-125-130	71 .0 125-125-130	71 .0 125-125-130	71 .0 125-125-130	54 54

EDBT BERLIN-TEGEL 26L

ELEV. = 121 ft TORA = 2424 m
SLOPE = .00 % ASDA = 2472 m
TODA = 2784 m

15/15

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

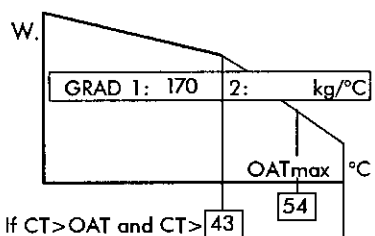
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1017 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>43
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-8	-5.5	-12	-3

Minimum v_1: 117 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this lost value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actuol TOW is lower than maximum TOW ond v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1700 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	- -	- -	- -	43
157.0	- -	- -	- -	- -	- -	45
155.0	- -	- -	- -	1 2-3 .0 158-164-168	14 2-3 .0 159-164-168	46
153.0	- -	- -	5 2-3 .0 154-159-164	18 2-3 .0 155-160-164	31 2-3 .1 156-161-165	48 43
151.0	- -	0 2-3 .0 149-155-160	21 2-3 .1 150-156-161	34 2-3 .1 151-157-161	43 2-3 .5 153-159-163	49 44
149.0	- -	15 2-3 .0 146-152-157	37 2-3 .1 147-153-158	43 2-3 .9 150-155-160	45 2-3 .9 153-158-162	50 46
147.0	3 3-3 .0 144-150-155	25 2-3 .0 145-151-155	43 2-3 1.3 146-152-157	46 2-3 .3 149-155-159	47 2-3 .7 153-158-162	52 47
145.0	11 3-3 .1 143-149-154	34 3-3 .1 143-150-154	46 2-3 .6 146-151-156	48 2-3 .0 149-154-159	49 2-3 .4 153-157-161	53 49
143.0	20 3-3 .1 141-148-153	43 3-3 .1 142-148-153	48 2-3 .4 146-151-155	49 2-3 .9 149-154-158	51 2-3 .1 153-157-161	54 50
141.0	29 3-3 .0 140-147-152	46 3-3 .1 141-147-152	50 2-3 .2 146-151-155	51 2-3 .7 149-154-158	52 2-3 1.0 152-157-161	54 52
136.0	43 3-3 1.9 138-145-150	52 3-3 .4 140-145-150	54 2-3 .8 145-150-154	56 2-3 .0 148-153-157	57 2-3 .3 152-156-159	54 54
131.0	52 3-3 .1 136-142-147	57 2-3 .1 139-144-148	59 2-3 .3 144-148-152	60 2-3 .5 148-151-155	61 2-3 .7 151-155-158	54 54
126.0	58 3-3 .2 135-140-144	61 2-3 .8 138-143-147	63 2-3 .9 144-147-151	64 2-3 1.1 147-150-154	66 2-3 .0 150-153-156	54 54
121.0	64 3-3 .3 133-138-142	66 2-3 .4 138-142-145	68 2-3 .3 143-146-150	69 2-3 .4 146-149-152	70 2-3 .4 150-152-155	54 54
116.0	69 2-3 .2 132-136-140	71 2-3 .0 137-141-144	71 2-3 2.0 142-146-149	71 2-3 3.2 146-149-152	71 2-3 4.3 150-152-155	54 54
111.0	71 2-3 3.1 132-136-140	71 .0 131-132-136	71 .0 131-132-136	71 .0 131-132-136	71 .0 131-132-136	54 54
106.0	71 .0 128-129-133	71 .0 128-129-133	71 .0 128-129-133	71 .0 128-129-133	71 .0 128-129-133	54 54
101.0	71 .0 125-125-130	71 .0 125-125-130	71 .0 125-125-130	71 .0 125-125-130	71 .0 125-125-130	54 54

EDBT
BERLIN-TEGEL
26R

ELEV. = 121 ft TORA = 3023 m
SLOPE = .00 % ASDA = 3091 m
TODA = 3091 m

15/15

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

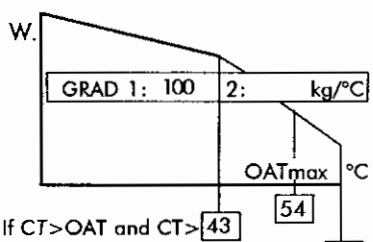
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1017 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>43
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-2	-2.0	-12	-3

Minimum v_1: 117 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1700 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	- -	7 2-2 .1 170-174-177	19 2-2 .0 171-175-178	43
157.0	- -	- -	14 2-3 .0 165-169-173	27 2-3 .0 166-170-173	38 2-3 .1 168-171-175	45
155.0	- -	11 2-3 .1 159-164-168	32 2-3 .0 161-165-169	43 2-3 .1 163-167-170	43 2-3 1.5 166-170-174	46
153.0	9 2-3 .0 154-160-164	28 2-3 .1 155-161-165	43 2-3 .7 159-163-167	45 2-3 .5 162-166-170	46 2-3 .7 166-170-173	48 43
151.0	25 2-3 .1 151-156-161	43 2-3 .2 153-158-162	45 2-3 1.1 159-163-167	47 2-3 .2 162-166-170	48 2-3 .3 166-170-173	49 44
149.0	41 2-3 .0 148-153-158	45 2-3 .6 152-158-162	47 2-3 .8 158-163-166	48 2-3 1.0 162-166-169	49 2-3 1.1 166-169-173	50 46
147.0	43 2-3 1.8 147-153-157	47 2-3 .4 152-157-161	49 2-3 .5 158-162-166	50 2-3 .7 162-166-169	51 2-3 .6 166-169-172	52 47
145.0	47 2-3 .1 147-152-157	49 2-3 .2 152-157-161	51 2-3 .1 158-162-166	52 2-3 .3 162-165-169	52 2-2 1.3 165-168-171	53 49
143.0	48 2-3 1.0 147-152-156	50 2-3 1.0 152-157-161	52 2-3 1.0 158-162-165	53 2-3 1.1 162-165-169	54 2-2 .4 164-167-170	54 50
141.0	50 2-3 .8 146-152-156	52 2-3 .8 152-156-160	54 2-3 .7 158-162-165	55 2-3 .7 162-165-168	55 2-2 1.0 163-166-169	54 52
136.0	55 2-3 .3 146-151-155	57 2-3 .1 151-155-159	58 2-3 1.0 157-161-164	59 2-2 .6 160-163-166	59 2-2 .6 160-163-166	54 54
131.0	59 2-3 .8 145-150-154	61 2-3 .5 150-154-158	63 2-3 .2 157-159-162	63 2-2 .3 157-159-162	63 2-2 .3 156-159-162	54 54
126.0	64 2-3 .2 145-148-152	65 2-3 1.0 150-153-156	66 2-2 1.3 155-157-160	66 2-2 1.3 154-157-160	66 2-2 1.3 153-157-160	54 54
121.0	68 2-3 .8 144-147-151	70 2-3 .3 149-152-155	70 2-2 .9 151-154-157	70 2-2 .9 150-154-157	70 2-2 .9 149-154-157	54 54
116.0	71 2-3 2.5 143-147-150	71 2-3 4.1 149-152-155	71 2-2 4.6 150-153-156	71 2-2 4.6 149-153-156	71 2-2 4.6 148-153-156	54 54
111.0	71 .0 131-132-136	71 .0 131-132-136	71 .0 131-132-136	71 .0 131-132-136	71 .0 131-132-136	54 54
106.0	71 .0 128-129-133	71 .0 128-129-133	71 .0 128-129-133	71 .0 128-129-133	71 .0 128-129-133	54 54
101.0	71 .0 125-125-130	71 .0 125-125-130	71 .0 125-125-130	71 .0 125-125-130	71 .0 125-125-130	54 54

EDBB BERLIN-TEMPELHOF 09R

ELEV. = 164 ft
SLOPE = .26 %

TORA = 2116 m
ASDA = 2116 m
TODA = 2116 m

20/20

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

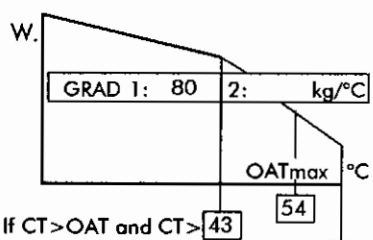
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1019 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT>43
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-9	-6.0	-13	-3

Minimum v_1: 118 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1700 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	- -	- -	- -	43
157.0	- -	- -	- -	- -	- -	44
155.0	- -	- -	- -	- -	- -	46
153.0	- -	- -	- -	- -	- -	47 43
151.0	- -	- -	- -	- -	- -	49 44
149.0	- -	- -	- -	- -	- -	50 46
147.0	- -	- -	- -	- -	- -	51 47
145.0	- -	- -	- -	- -	- -	53 49
143.0	- -	- -	- -	- -	- -	54 50
141.0	- -	- -	- -	- -	- -	54 52
136.0	- -	- -	- -	- -	- -	54 54
131.0	- -	- -	- -	- -	- -	54 54
126.0	- -	- -	- -	7 4-4 .1 135-135-141	31 4-4 .1 134-134-139	54 54
121.0	- -	-1 4-4 .1 132-132-139	36 4-4 .1 131-131-137	43 4-4 1.6 132-132-138	43 4-4 3.8 133-133-139	54 54
116.0	14 4-4 .0 128-128-135	43 4-4 .7 128-128-135	43 4-4 4.3 130-130-136	50 4-4 .2 129-129-134	52 4-4 .3 129-129-134	54 54
111.0	43 4-4 2.1 126-126-133	49 4-4 .6 126-126-132	53 4-4 .2 126-126-132	55 4-4 .4 128-128-133	57 4-4 .4 128-128-133	54 54
106.0	51 4-4 .4 123-123-129	55 4-4 .2 123-123-129	58 4-4 .5 125-125-130	60 4-4 .6 125-125-130	62 4-4 .6 125-125-130	54 54
101.0	56 4-4 .9 123-123-129	60 4-4 .5 123-123-129	63 4-4 .8 124-124-129	65 4-4 .8 124-124-129	67 4-4 .7 124-124-129	54 54

EDBB BERLIN-TEMPELHOF 27L

ELEV. = 164 ft TORA = 2116 m
SLOPE = -.26 % ASDA = 2127 m
TODA = 2127 m

20/20

Take-off Parameters for 1013 hPa, dry RWY and AC/ON

Max.Temp.[°C] Limitations
Weight Increment [t]
v_1 - v_R - v_2 [kts] IAS

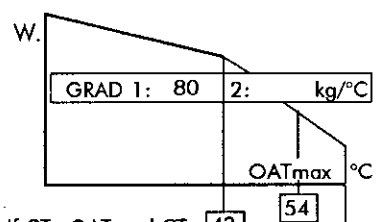
LIMITATIONS

1 - Structure 2 - 2nd Segment 3 - Runway
4 - Obstacle 5 - Tyre Speed 6 - Brake Energy

CORRECTIONS

QNH>1013 hPa (max. 1019 hPa):
ADD: 20 kg per hPa or 1°C per 25 hPa
QNH<1013 hPa:
SUB: 170 kg per hPa or 1°C per 7 hPa
Nacelle A/I on: SUB: 2.0 t or 2 °C
Total A/I on: SUB: 4.8 t or 5 °C
A/C off: ADD: 2.5 t or 3 °C

FLEX. TEMP. T/O



If CT>OAT and CT> 43
use Corr. Flex. T/O Temp. up to 71

WET RUNWAY CORRECTIONS

If runway wet (or covered with less than 2 mm slush, 3 mm standing water, 4 mm wet snow, 15 mm dry snow) correct:

FLEX T/O Temp.[°C]	MAX T/O Weight[t]	v_1 [kt]	v_R&v_2 [kt]
-9	-6.0	-13	-3

Minimum v_1: 118 [kt]

1. Actual TOW is equal to maximum TOW and v_1 is lower than minimum v_1: Take this last value as v_1 and further decrease weight by 2 t per kt difference between both values.
2. Actual TOW is lower than maximum TOW and v_1 corresponding to actual TOW is lower than minimum v_1 and v_1 corresponding to maximum TOW is equal to or above minimum v_1: Retain minimum v_1 as v_1 and decrease flexible temperature by 3 °C per kt difference between both values.

EOSID:

Accel. Alt.: 1700 ft

Weight [t]	TAILWIND [kts]		NO WIND	HEADWIND [kts]		TGA 15/15 20/20
	-10	-5	0	10	20	
159.0	- -	- -	- -	- -	- -	43
157.0	- -	- -	- -	- -	- -	44
155.0	- -	- -	- -	- -	- -	46
153.0	- -	- -	- -	- -	- -	47 43
151.0	- -	- -	- -	- -	- -	49 44
149.0	- -	- -	- -	- -	- -	50 46
147.0	- -	- -	- -	- -	- -	51 47
145.0	- -	- -	- -	- -	- -	53 49
143.0	- -	- -	- -	- -	- -	54 50
141.0	- -	- -	- -	- -	- -	54 52
136.0	- -	- -	- -	18 4-4 .0 143-143-149	39 4-4 .0 144-144-149	54 54
131.0	- -	13 4-4 .1 138-138-144	43 4-4 .4 139-139-144	43 4-4 2.5 140-140-146	43 4-4 4.6 143-143-149	54 54
126.0	31 4-4 .0 135-135-141	43 4-4 2.1 137-137-143	48 4-4 .7 136-136-142	50 4-4 .6 138-138-143	52 4-4 .4 139-139-144	54 54
121.0	43 4-4 3.7 135-135-141	50 4-4 .5 133-133-139	53 4-4 .4 135-135-140	55 4-4 .3 136-136-142	56 4-4 1.0 137-137-142	54 54
116.0	52 4-4 .3 130-130-136	55 4-4 .4 131-131-136	58 4-4 .2 133-133-138	59 4-4 1.0 134-134-139	61 4-4 .7 134-134-139	54 54
111.0	57 4-4 .4 128-128-133	60 4-4 .3 129-129-134	63 4-4 .1 131-131-136	64 4-4 .8 131-131-136	66 4-4 .4 131-131-136	54 54
106.0	62 4-4 .6 125-125-130	65 4-4 .4 128-128-133	68 4-4 .1 128-128-133	69 4-4 .7 128-128-133	71 4-4 .1 130-130-134	54 54
101.0	67 4-4 .8 124-124-129	70 4-4 .5 125-125-130	71 4-4 2.1 126-126-131	71 4-4 3.6 127-127-132	71 .0 124-124-129	54 54