Aeroformation

Airbus Industrie / FlightSafety

ZALLCHL011285

DEPARTURE

	BEFORE START	
1-2	COCKPIT PREP	COMPLETE
1	SIGNS	ON
2	GEAR PINS & COVERS	REMOVED
1	FUEL QUANTITY	CHECKED
2	NAV SYSTEMS	NAV
1-2	T/O DATA V-BUGS	SET
2	LDG ELEV	SET
1-2	ALTIMETERS	SET
1	BRK-A/SKID	NORM / ON
1	BEACON	ON
1	PARKING BRK	AS REQD

	AFTER START	
1	TRIMS	SET
2	SLATS / FLAPS	SET
2	SPOILERS	ARMED
1	ANTI ICE	AS REQD
2	ECAM STATUS	CHECK

	BEFORE TAKE-OFF	
PF	FLIGHT CONTROLS	CHECK
ALL	FLIGHT INST	CHECK
ALL	TRP / T.O. SPEEDS	CONFIRM
PNF	T.O. CONFIG	SET / TEST
---	---	---
PNF	TRANSPONDER	SET
PNF	AUTO BRAKE	MAX
PNF	IGNITION	CONT RELIGHT
PNF	PACKS	OFF

	AFTER TAKE-OFF	
PNF	LANDING GEAR	UP/NEUTRAL
PNF	SLATS/FLAPS	RETRACT
PNF	PACKS	ON
ALL	ALTIMETERS	SET
PNF	LDG LIGHTS	OFF

ARRIVAL

	APPROACH	
PNF	ECAM STATUS	CHECK
ALL	ALTIMETERS / MDA / DH	SET
ALL	V-BUGS	SET
PNF	SIGNS	ON
PNF	IGNITION	AS RQRD R
PNF	LDG ELEV/CAB ALT	CHECK

	LANDING	
PNF	LANDING GEAR	DOWN
PNF	ANTI SKID	CHECK
ALL	SLATS / FLAPS	SET
PNF	SPOILERS	ARMED

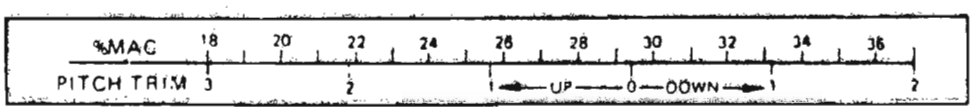
	AFTER LANDING	
PNF	TRANSPONDER	OFF
PNF	SLATS / FLAPS	AS REQD
PNF	SPOILERS	DISARMED
PNF	APU	START

	PARKING	
2	APU BLEED	ON
1	ENGINES	OFF
1	LIGHTS / SIGNS	AS REQD
2	FUEL PUMPS	OFF/SET
2	TRIM TK MODE	CHECK AUTO
2	WINDOW & PROBE HEAT	OFF
2	NAV SYSTEMS	OFF
1-2	CRT'S	DIM / OFF
1	PARKING BRAKE / CHOCKS	AS REQD

	LEAVING AIRCRAFT	
2	APU BLEED	OFF
2	OXYGEN	OFF
2	EMER EXIT LT	OFF
2	APU and BATTERIES	OFF

Mod. : 4801

GE Eng. : All



AIRBUS

THIS MINI DOC, BUILT UP FROM EXTRACTS OF FCOM AND FCTM, HAS BEEN PREPARED FOR :

IFL/05 CREW : E 024765 CPT
90-048 FROM 18/10/89 GERD
B FC2 TO 26/11/89 RITTER

Course number.....

It is updated only for the duration of the course

FLIGHT PLANNING

Aeroformation
Airbus Industrie / FlightSafety

LOAD and TRIM SHEET

VALID ONLY WITH 2 OPERATIONAL ACT'S

A310-304
VERSION : 42 B/C - 166 Y/C

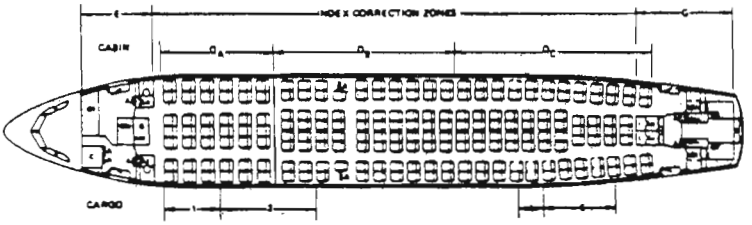
DRY OPER. WEIGHT CONDITIONS	
WEIGHT tons	% MAC
I = [(C − 25) x W x 0.029] + 40	
DRY OPER. WT INDEX	

AIRCRAFT REGISTR :	
DATE :	PREPARED BY :
FLT Nbr :	
FROM :	TO :

DRY OPERATING WEIGHT	
WEIGHT DEVIATION (PANTRY)	
CORRECTED DRY OPER. WEIGHT	
CARGO	
PASSENGERS [ ] x [ ]	
ZERO FUEL WEIGHT	
TOTAL FUEL	
TOTAL WEIGHT	

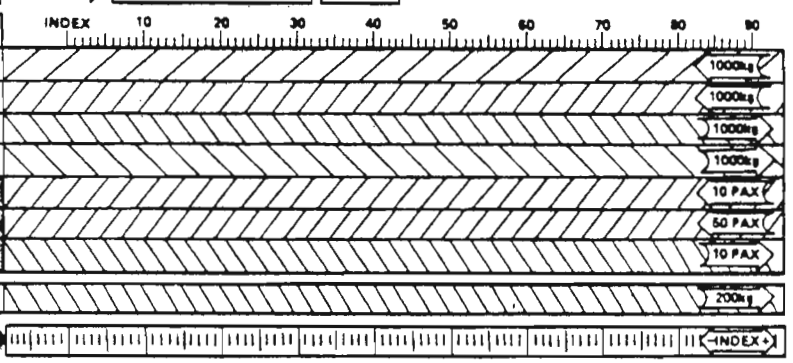
ZONES	E		G
WEIGHT (kg) DEVIATION			

BASIC INDEX CORRECTION			
DRY OPER. WEIGHT DEVIATION	ZONES E		G
+ 100kg	− 0.8		+ 0.7
− 100kg	+ 0.8		− 0.7
INDEX CORRECTION			



CORRECTED INDEX

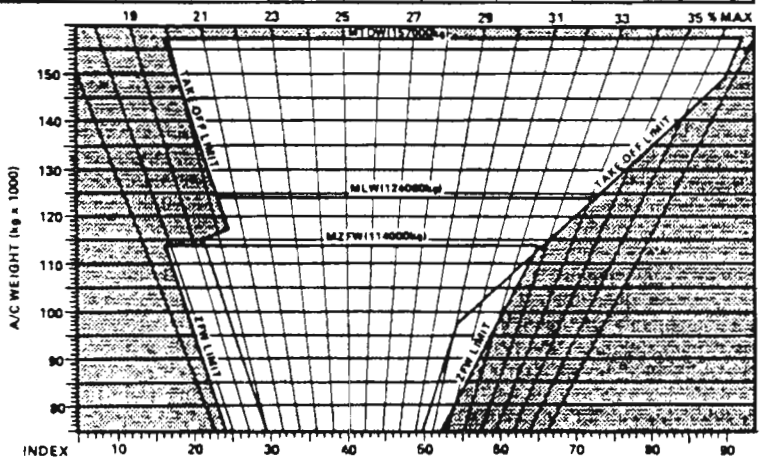
ZONES	Nbr	WEIGHT (kg)
CARGO 1		
CARGO 2		
CARGO 4		
CARGO 5		
CABIN O_A		
CABIN O_B		
CABIN O_C		
TRANSFER TRIM TANK		kg
FUEL CORRECTION		



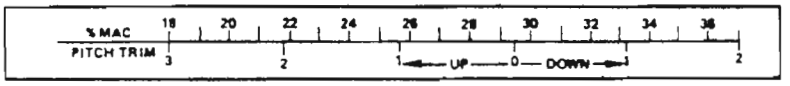
FUEL INDEX CORRECTION

WEIGHT (kg)	INDEX	WEIGHT (kg)	INDEX
1000	+1.0	21000	+0.4
2000	+2.4	22000	+0.3
3000	+4.0	23000	+0.1
4000	+5.7	24000	+0.1
5000	+7.8	25000	+0.3
6000	+9.5	26000	+0.5
7000	+8.6	27000	+0.9
8000	+7.8	28000	+0.8
9000	+6.9	29000	-0.2
10000	+6.2	30000	-1.2
11000	+5.5	31000	-2.3
12000	+4.8	32000	-3.3
13000	+4.2	33000	-4.4
14000	+3.6	34000	-5.5
15000	+3.0	35000	-6.5
16000	+2.4	36000	-7.6
17000	+2.0	37000	-8.7
18000	+1.5	38000	-9.7
19000	+1.1	39000	-10.8
20000	+0.7	40000	-11.9
		41000	-13.0

NOTE FOR FUEL WEIGHT GREATER THAN 41 000kg (see table overleaf)

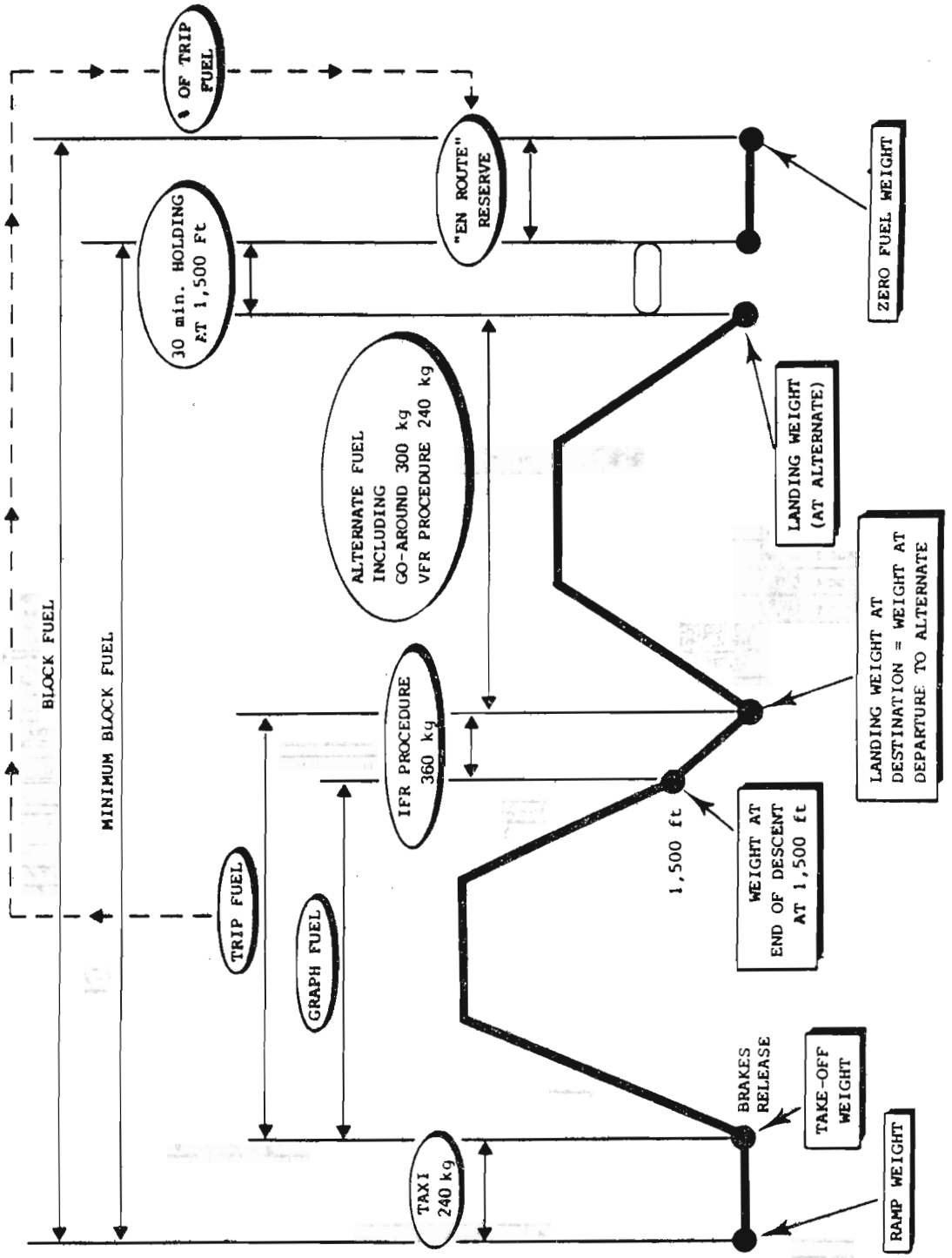


ZFW CDU INPUT	
WEIGHT tons	CG % MAC



Mod. : 4801 + 6920 + 7468

STANDARD FUEL PLAN PROFILE
FUEL AND WEIGHT DEFINITIONS



Vers. : All Eng. : All

NAUTICAL GROUND MILES TO AIR MILES CONVERSION
M 0.79

GROUND DIST. (NM)	AIR DISTANCE (NM)						
	TAIL WIND		WIND COMPONENTS (KTS)			HEAD WIND	
	+ 120	+ 80	+ 40	0	-40	-80	-120
200	158	170	184	200	219	243	272
250	198	213	230	250	274	303	339
300	237	255	276	300	329	364	407
350	277	298	322	350	384	425	475
400	317	340	368	400	439	485	543
450	356	383	414	450	493	546	611
500	396	425	460	500	548	607	679
550	435	468	506	550	603	667	747
600	475	510	552	600	658	728	815
650	514	553	598	650	713	789	883
700	554	595	643	700	767	849	950
750	594	638	689	750	822	910	1018
800	633	680	735	800	877	970	1086
850	673	723	781	850	932	1031	1154
900	712	766	827	900	987	1092	1222
950	752	808	873	950	1041	1152	1290
1000	791	851	919	1000	1096	1213	1358
1050	831	893	965	1050	1151	1274	1426
1100	871	936	1011	1100	1206	1334	1494
1150	910	978	1057	1150	1261	1395	1561
1200	950	1021	1103	1200	1316	1456	1629
1250	989	1063	1149	1250	1370	1516	1697
1300	1029	1106	1195	1300	1425	1577	1765
1350	1068	1148	1241	1350	1480	1638	1833
1400	1108	1191	1287	1400	1535	1698	1901
1450	1148	1233	1333	1450	1590	1759	1969
1500	1187	1276	1379	1500	1644	1820	2037
1550	1227	1318	1425	1550	1699	1880	2105
1600	1266	1361	1471	1600	1754	1941	2173
1650	1306	1403	1517	1650	1809	2002	2240
1700	1345	1446	1563	1700	1864	2062	2308
1750	1385	1489	1609	1750	1919	2123	2376
1800	1425	1531	1655	1800	1973	2184	2444
1850	1464	1574	1701	1850	2028	2244	2512
1900	1504	1616	1747	1900	2083	2305	2580
1950	1543	1659	1793	1950	2138	2366	2648
2000	1583	1701	1839	2000	2193	2426	2716
2050	1622	1744	1884	2050	2247	2487	2784
2100	1662	1786	1930	2100	2302	2548	2851
2150	1702	1829	1976	2150	2357	2608	2919

FLIP18A A310-304 CF6-80C2A2 2320 03751.000021 443250300 0.7900 0.000100 382 0350350220 0 420420 27 27 18590 BB

GE Eng. : All

FLIGHT PLANNING FROM BRAKES RELEASE TO LANDING

REFERENCE LANDING WEIGHT : 100 tons
INCLUDING : IMC PROCEDURE = 360 KG (6 MIN)
CLIMB = 250 KT/300 KT/M.79 – DESCENT = M.79/300 KT/250 KT
R C.G. POSITION = 37.5 % – ECONOMIC AIR CONDITIONING
ISA
200 NM TO 900 NM

AIR-DIST NM	TIME (h.min) / FUEL CONSUMED (1000 kg) FLIGHT LEVEL 290		310		330		350		370		390		* ΔFC(kg/t) FL 290 310	FL 330 350	FL 370 390
900	2.08	9.8	2.09	9.3	2.10	8.9	2.10	8.6	2.11	8.4	2.11	8.3			
	2.05	9.6	2.06	9.1	2.07	8.8	2.08	8.5	2.08	8.2	2.08	8.2	29	36	53
	2.03	9.4	2.04	9.0	2.04	8.6	2.05	8.3	2.06	8.1	2.06	8.0			
	2.00	9.2	2.01	8.8	2.02	8.4	2.03	8.1	2.03	7.9	2.03	7.8			
	1.58	9.0	1.58	8.6	1.59	8.2	1.60	8.0	2.00	7.8	2.00	7.7			
800	1.55	8.8	1.56	8.4	1.57	8.1	1.57	7.8	1.58	7.6	1.58	7.5			
	1.52	8.6	1.53	8.2	1.54	7.9	1.55	7.6	1.55	7.4	1.55	7.4			
	1.50	8.4	1.51	8.0	1.51	7.7	1.52	7.4	1.52	7.3	1.52	7.2	26	33	47
	1.47	8.2	1.48	7.8	1.49	7.5	1.49	7.3	1.50	7.1	1.50	7.0			
	1.45	8.0	1.45	7.7	1.46	7.4	1.47	7.1	1.47	7.0	1.47	6.9			
700	1.42	7.8	1.43	7.5	1.43	7.2	1.44	6.9	1.44	6.8	1.44	6.7			
	1.40	7.6	1.40	7.3	1.41	7.0	1.41	6.8	1.42	6.6	1.42	6.6			
	1.37	7.4	1.38	7.1	1.38	6.8	1.39	6.6	1.39	6.5	1.39	6.4	24	29	41
	1.34	7.2	1.35	6.9	1.36	6.7	1.36	6.4	1.36	6.3	1.36	6.2			
	1.32	7.0	1.32	6.7	1.33	6.5	1.34	6.3	1.34	6.1	1.34	6.1			
600	1.29	6.8	1.30	6.5	1.30	6.3	1.31	6.1	1.31	6.0	1.31	5.9			
	1.27	6.6	1.27	6.4	1.28	6.1	1.28	5.9	1.29	5.8	1.29	5.8			
	1.24	6.4	1.25	6.2	1.25	6.0	1.26	5.8	1.26	5.7	1.26	5.6	21	26	35
	1.22	6.2	1.22	6.0	1.23	5.8	1.23	5.6	1.23	5.5	1.23	5.5			
	1.19	6.0	1.19	5.8	1.20	5.6	1.20	5.5	1.21	5.3	1.21	5.3			
500	1.16	5.8	1.17	5.6	1.17	5.4	1.18	5.3	1.18	5.2	1.18	5.1			
	1.14	5.6	1.14	5.4	1.15	5.3	1.15	5.1	1.15	5.0	1.15	5.0			
	1.11	5.4	1.12	5.2	1.12	5.1	1.12	5.0	1.13	4.9	1.13	4.8	19	22	30
	1.09	5.2	1.09	5.1	1.09	4.9	1.10	4.8	1.10	4.7	1.10	4.7			
	1.06	5.0	1.07	4.9	1.07	4.7	1.07	4.6	1.07	4.5	1.07	4.5			
400	1.04	4.8	1.04	4.7	1.04	4.6	1.04	4.5	1.05	4.4	1.05	4.4			
	1.01	4.6	1.01	4.5	1.02	4.4	1.02	4.3	1.02	4.2	1.02	4.2			
	0.58	4.4	0.59	4.3	0.59	4.2	0.59	4.1	0.59	4.1	0.59	4.1	16	19	24
	0.56	4.2	0.56	4.1	0.56	4.0	0.57	4.0	0.57	3.9	0.57	3.9			
	0.53	4.1	0.54	4.0	0.54	3.9	0.54	3.8	0.54	3.8	0.54	3.7			
300	0.51	3.9	0.51	3.8	0.51	3.7	0.51	3.6	0.51	3.6	0.51	3.6			
	0.48	3.7	0.48	3.6	0.49	3.5	0.49	3.5	0.49	3.4	0.49	3.4			
	0.46	3.5	0.46	3.4	0.46	3.3	0.46	3.3	0.46	3.3	0.46	3.3	14	16	19
	0.43	3.3	0.43	3.2	0.43	3.2	0.43	3.1	0.43	3.1	0.43	3.1			
	0.40	3.1	0.41	3.0	0.41	3.0	0.41	3.0	0.41	3.0	0.41	3.0			
200	0.38	2.9	0.38	2.9	0.38	2.8	0.38	2.8	0.38	2.8	0.38	2.8			

FB2.1730.004.AA.092

* CORRECTION FOR DEVIATION FROM REFERENCE:

WEIGHT – ADD (SUB) ΔFC PER TONS ABOVE (BELOW) REFERENCE

TEMPERATURE – ADD 0.20 % FUEL CONSUMPTION PER DEG. C ABOVE ISA.

Mod. : 4801 + 4863

GE Eng. : 80C2A2

FLIGHT PLANNING FROM BRAKES RELEASE TO LANDING

REFERENCE LANDING WEIGHT : 100 tons
INCLUDING : IMC PROCEDURE = 360 KG (6 MIN)
CLIMB = 250 KT/300 KT/M.79 - DESCENT = M.79/300 KT/250 KT
C.G. POSITION = 37.5 % - ECONOMIC AIR CONDITIONING
ISA
800 NM TO 1500 NM

AIR-DIST NM	TIME (h.min) / FUEL CONSUMED (1000 kg) — FLIGHT LEVEL 290		310		330		350		370		390		* ΔFC (kg/t) FL 290 310	FL 330 350	FL 370 390
1500	3.25	15.8	3.27	15.0	3.28	14.3	3.30	13.7	3.31	13.4	3.31	13.2			
	3.22	15.6	3.24	14.8	3.25	14.1	3.27	13.6	3.28	13.2	3.28	13.1	45	60	93
	3.20	15.3	3.21	14.6	3.23	13.9	3.24	13.4	3.25	13.0	3.25	12.9			
	3.17	15.1	3.19	14.4	3.20	13.7	3.22	13.2	3.23	12.9	3.23	12.7			
	3.15	14.9	3.16	14.2	3.18	13.6	3.19	13.0	3.20	12.7	3.20	12.6			
1400	3.12	14.7	3.14	14.0	3.15	13.4	3.16	12.9	3.17	12.5	3.17	12.4			
	3.10	14.5	3.11	13.8	3.12	13.2	3.14	12.7	3.15	12.4	3.15	12.2			
	3.07	14.3	3.08	13.6	3.10	13.0	3.11	12.5	3.12	12.2	3.12	12.1	42	56	86
	3.04	14.1	3.06	13.5	3.07	12.8	3.09	12.4	3.09	12.0	3.09	11.9			
	3.02	13.9	3.03	13.3	3.05	12.7	3.06	12.2	3.07	11.9	3.07	11.7			
1300	2.59	13.7	3.01	13.1	3.02	12.5	3.03	12.0	3.04	11.7	3.04	11.6			
	2.57	13.5	2.58	12.9	2.59	12.3	3.01	11.8	3.01	11.5	3.01	11.4			
	2.54	13.3	2.55	12.7	2.57	12.1	2.58	11.7	2.59	11.4	2.59	11.2	39	52	79
	2.52	13.1	2.53	12.5	2.54	12.0	2.55	11.5	2.56	11.2	2.56	11.1			
	2.49	12.9	2.50	12.3	2.51	11.8	2.53	11.3	2.53	11.0	2.53	10.9			
1200	2.46	12.7	2.48	12.1	2.49	11.6	2.50	11.2	2.51	10.9	2.51	10.8			
	2.44	12.5	2.45	11.9	2.46	11.4	2.47	11.0	2.48	10.7	2.48	10.6			
	2.41	12.3	2.42	11.8	2.44	11.2	2.45	10.8	2.45	10.5	2.45	10.4	37	48	72
	2.39	12.1	2.40	11.6	2.41	11.1	2.42	10.7	2.43	10.4	2.43	10.3			
	2.36	11.9	2.37	11.4	2.38	10.9	2.40	10.5	2.40	10.2	2.40	10.1			
1100	2.34	11.7	2.35	11.2	2.36	10.7	2.37	10.3	2.37	10.0	2.37	9.9			
	2.31	11.5	2.32	11.0	2.33	10.5	2.34	10.1	2.35	9.9	2.35	9.8			
	2.28	11.3	2.30	10.8	2.31	10.4	2.32	10.0	2.32	9.7	2.32	9.6	34	44	66
	2.26	11.1	2.27	10.6	2.28	10.2	2.29	9.8	2.30	9.6	2.30	9.4			
	2.23	11.0	2.24	10.4	2.25	10.0	2.26	9.6	2.27	9.4	2.27	9.3			
1000	2.21	10.8	2.22	10.3	2.23	9.8	2.24	9.5	2.24	9.2	2.24	9.1			
	2.18	10.6	2.19	10.1	2.20	9.6	2.21	9.3	2.22	9.1	2.22	9.0			
	2.16	10.4	2.17	9.9	2.17	9.5	2.18	9.1	2.19	8.9	2.19	8.8	31	40	59
	2.13	10.2	2.14	9.7	2.15	9.3	2.16	9.0	2.16	8.7	2.16	8.6			
	2.10	10.0	2.11	9.5	2.12	9.1	2.13	8.8	2.14	8.6	2.14	8.5			
900	2.08	9.8	2.09	9.3	2.10	8.9	2.10	8.6	2.11	8.4	2.11	8.3			
	2.05	9.6	2.06	9.1	2.07	8.8	2.08	8.5	2.08	8.2	2.08	8.2			
	2.03	9.4	2.04	9.0	2.04	8.6	2.05	8.3	2.06	8.1	2.06	8.0	29	36	53
	2.00	9.2	2.01	8.8	2.02	8.4	2.03	8.1	2.03	7.9	2.03	7.8			
	1.58	9.0	1.58	8.6	1.59	8.2	1.60	8.0	2.00	7.8	2.00	7.7			
800	1.55	8.8	1.56	8.4	1.57	8.1	1.57	7.8	1.58	7.6	1.58	7.5			

* CORRECTION FOR DEVIATION FROM REFERENCE:

WEIGHT - ADD (SUB) ΔFC PER TONS ABOVE (BELOW) REFERENCE

TEMPERATURE - ADD 0.20 % FUEL CONSUMPTION PER DEG. C ABOVE ISA.

Mod. : 4801 + 4863

GE Eng. : 80C2A2

FLIGHT PLANNING FROM BRAKES RELEASE TO LANDING

REFERENCE LANDING WEIGHT : 100 tons
INCLUDING : IMC PROCEDURE = 360 KG (6 MIN)
R CLIMB = 250 KT/300 KT/M.79 - DESCENT = M.79/300 KT/250 KT
R C.G. POSITION = 37.5 % - ECONOMIC AIR CONDITIONING
ISA
1400 NM TO 2100 NM

AIR-DIST NM	TIME (h.min) / FUEL CONSUMED (1000 kg) — FLIGHT LEVEL 290		310		330		350		370		390		* ΔFC(kg/t) FL 290 310	FL 330 350	FL 370 390
2100	4.42	21.8	4.44	20.7	4.47	19.7	4.49	19.0	4.50	18.5	4.50	18.4			
	4.40	21.6	4.42	20.5	4.44	19.5	4.46	18.8	4.47	18.3	4.47	18.2	63	87	141
	4.37	21.4	4.39	20.3	4.41	19.4	4.44	18.6	4.45	18.2	4.45	18.0			
	4.35	21.2	4.37	20.1	4.39	19.2	4.41	18.4	4.42	18.0	4.42	17.9			
	4.32	21.0	4.34	19.9	4.36	19.0	4.38	18.3	4.39	17.8	4.39	17.7			
2000	4.29	20.8	4.31	19.7	4.34	18.8	4.36	18.1	4.37	17.6	4.37	17.5			
	4.27	20.6	4.29	19.5	4.31	18.6	4.33	17.9	4.34	17.5	4.34	17.3			
	4.24	20.4	4.26	19.4	4.28	18.4	4.30	17.7	4.32	17.3	4.32	17.2	59	82	132
	4.22	20.2	4.24	19.2	4.26	18.3	4.28	17.6	4.29	17.1	4.29	17.0			
	4.19	20.0	4.21	19.0	4.23	18.1	4.25	17.4	4.26	17.0	4.26	16.8			
1900	4.17	19.8	4.18	18.8	4.20	17.9	4.22	17.2	4.24	16.8	4.24	16.6			
	4.14	19.6	4.16	18.6	4.18	17.7	4.20	17.0	4.21	16.6	4.21	16.5			
	4.11	19.4	4.13	18.4	4.15	17.5	4.17	16.9	4.18	16.4	4.18	16.3	56	78	124
	4.09	19.2	4.11	18.2	4.13	17.4	4.15	16.7	4.16	16.3	4.16	16.1			
	4.06	19.0	4.08	18.0	4.10	17.2	4.12	16.5	4.13	16.1	4.13	16.0			
1800	4.04	18.8	4.05	17.8	4.07	17.0	4.09	16.3	4.10	15.9	4.10	15.8			
	4.01	18.6	4.03	17.6	4.05	16.8	4.07	16.2	4.08	15.7	4.08	15.6			
	3.59	18.4	4.00	17.4	4.02	16.6	4.04	16.0	4.05	15.6	4.05	15.4	53	73	116
	3.56	18.2	3.58	17.2	3.59	16.4	4.01	15.8	4.02	15.4	4.02	15.3			
	3.53	18.0	3.55	17.1	3.57	16.3	3.59	15.6	3.60	15.2	3.60	15.1			
1700	3.51	17.8	3.53	16.9	3.54	16.1	3.56	15.5	3.57	15.1	3.57	14.9			
	3.48	17.6	3.50	15.7	3.52	15.9	3.53	15.3	3.54	14.9	3.54	14.8			
	3.46	17.4	3.47	16.5	3.49	15.7	3.51	15.1	3.52	14.7	3.52	14.6	51	68	108
	3.43	17.2	3.45	16.3	3.46	15.5	3.48	14.9	3.49	14.6	3.49	14.4			
	3.41	17.0	3.42	16.1	3.44	15.4	3.45	14.8	3.46	14.4	3.46	14.3			
1600	3.38	16.8	3.40	15.9	3.41	15.2	3.43	14.6	3.44	14.2	3.44	14.1			
	3.35	16.6	3.37	15.7	3.39	15.0	3.40	14.4	3.41	14.0	3.41	13.9			
	3.33	16.4	3.34	15.5	3.36	14.8	3.38	14.2	3.38	13.9	3.38	13.7	48	64	100
	3.30	16.2	3.32	15.3	3.33	14.6	3.35	14.1	3.36	13.7	3.36	13.6			
	3.28	16.0	3.29	15.2	3.31	14.5	3.32	13.9	3.33	13.5	3.33	13.4			
1500	3.25	15.8	3.27	15.0	3.28	14.3	3.30	13.7	3.31	13.4	3.31	13.2			
	3.22	15.6	3.24	14.8	3.25	14.1	3.27	13.6	3.28	13.2	3.28	13.1			
	3.20	15.3	3.21	14.6	3.23	13.9	3.24	13.4	3.25	13.0	3.25	12.9	45	60	93
	3.17	15.1	3.19	14.4	3.20	13.7	3.22	13.2	3.23	12.9	3.23	12.7			
	3.15	14.9	3.16	14.2	3.18	13.6	3.19	13.0	3.20	12.7	3.20	12.6			
1400	3.12	14.7	3.14	14.0	3.15	13.4	3.16	12.9	3.17	12.5	3.17	12.4			

* CORRECTION FOR DEVIATION FROM REFERENCE:

WEIGHT - ADD (SUB) ΔFC PER TONS ABOVE (BELOW) REFERENCE

R TEMPERATURE - ADD 0.20 % FUEL CONSUMPTION PER DEG. C ABOVE ISA.

Mod. : 4801 + 4863

GE Eng. : 80C2A2

CLEAN CONFIGURATION ISA	HOLDING 2 ENGINES	GREEN DOT SPEED

WEIGHT (1000KG)	FL 15	FL 50	FL100	FL120	FL140	FL160	FL180	FL200	FL250	FL290	N1 KG/H/ENG IAS
85	50.7 1407 185	52.8 1370 185	56.5 1321 185	58.3 1306 185	59.7 1290 185	61.4 1274 185	63.0 1263 185	64.7 1254 185	69.7 1256 195	73.8 1272 203	
90	51.9 1478 190	54.1 1437 190	58.1 1391 190	59.6 1375 190	61.1 1358 190	62.8 1344 190	64.5 1336 190	66.3 1324 190	71.2 1329 200	75.1 1345 208	
95	53.0 1548 195	55.4 1505 195	59.4 1451 195	60.9 1444 195	62.6 1426 195	64.2 1417 195	65.9 1406 195	67.7 1395 195	72.6 1403 205	76.5 1420 213	
100	54.2 1615 200	56.7 1575 200	60.7 1531 200	62.2 1512 200	63.9 1499 200	65.6 1489 200	67.3 1476 200	69.0 1467 200	74.0 1476 210	77.9 1498 218	
105	55.3 1683 205	58.0 1646 205	61.9 1600 205	63.5 1582 205	65.2 1573 205	66.9 1559 205	68.6 1548 205	70.4 1540 205	75.3 1550 215	79.1 1574 223	
110	56.5 1753 210	59.3 1718 210	63.1 1669 210	64.7 1657 210	66.4 1644 210	68.1 1631 210	69.9 1622 210	71.7 1615 210	76.4 1625 220	80.3 1650 228	
115	57.7 1825 215	60.5 1790 215	64.3 1741 215	65.9 1731 215	67.7 1715 215	69.3 1704 215	71.1 1696 215	72.9 1690 215	77.6 1701 225	81.4 1727 233	
120	58.8 1898 220	61.5 1862 220	65.4 1817 220	67.1 1802 220	68.8 1788 220	70.5 1778 220	72.3 1771 220	74.1 1766 220	78.7 1780 230	82.5 1805 238	
125	60.0 1972 225	62.6 1933 225	66.5 1890 225	68.3 1873 225	69.9 1862 225	71.7 1853 225	73.4 1847 225	75.3 1843 225	79.9 1859 235	83.6 1886 243	
130	61.1 2046 230	63.6 2004 230	67.6 1963 230	69.3 1948 230	71.0 1937 230	72.8 1929 230	74.6 1924 230	76.4 1920 230	80.9 1938 240	84.6 1972 248	
135	62.0 2118 235	64.7 2075 235	68.8 2035 235	70.3 2023 235	72.1 2012 235	73.8 2006 235	75.7 2002 235	77.4 1997 235	81.9 2017 245	85.6 2066 253	
140	62.9 2191 240	65.7 2152 240	69.7 2110 240	71.4 2098 240	73.2 2090 240	74.9 2084 240	76.8 2079 240	78.4 2074 240	82.9 2096 250	86.5 2161 258	
145	63.9 2265 245	66.6 2229 245	70.7 2186 245	72.4 2175 245	74.2 2168 245	75.9 2163 245	77.7 2156 245	79.3 2152 245	83.8 2177 255	87.5 2259 263	
150	64.9 2339 250	67.6 2304 250	71.7 2262 250	73.5 2253 250	75.1 2247 250	77.0 2241 250	78.6 2235 250	80.3 2230 250	84.8 2260 260	88.5 2360 268	
155	65.8 2414 255	68.5 2379 255	72.6 2341 255	74.4 2332 255	76.1 2327 255	77.9 2319 255	79.5 2313 255	81.2 2312 255	85.7 2348 265	89.4 2460 273	

R310304 FB2.1310.003-AA.080

Per degree above (below) ISA add (subtract) 5 kg/h/eng.

Mod. : 4863

GE Eng. : 80C2A2

DIVERSION

Aeroformation
Airbus Industrie / FlightSafety

REFERENCE INITIAL WEIGHT : 115 TONS
FUEL AND TIME TO DESTINATION FROM ANY POINT IN CRUISE TO LANDING
INCLUDING CRUISE = M.79 - DESCENT = M.79/300 KT/250 KT - APPROACH : 360 KG (6 mn)
ISA
200 NM TO 900 NM

AIR-DIST NM	TIME (h.mn) / FUEL CONSUMED (1000 kg) — FLIGHT LEVEL 290		310		330		350		370		390		* ΔFC(kg/t) FL 290 310	FL 330 350	FL 370 390
900	2.05	8.6	2.06	8.2	2.07	7.7	2.08	7.4	2.09	7.2	2.09	7.2			
	2.03	8.4	2.04	8.0	2.05	7.8	2.05	7.3	2.06	7.1	2.06	7.0	17	27	48
	2.00	8.2	2.01	7.8	2.02	7.4	2.03	7.1	2.03	6.9	2.03	6.9			
	1.58	8.0	1.58	7.6	1.59	7.2	2.00	6.9	2.01	6.8	2.01	6.7			
	1.55	7.8	1.56	7.4	1.57	7.0	1.58	6.8	1.58	6.6	1.58	6.5			
800	1.52	7.7	1.57	7.2	1.54	8.9	1.55	6.8	1.55	6.4	1.55	6.4			
	1.50	7.5	1.51	7.0	1.52	6.7	1.52	6.4	1.53	6.3	1.53	6.2			
	1.47	7.3	1.48	6.9	1.49	6.5	1.50	6.3	1.50	6.1	1.50	6.1	15	24	42
	1.45	7.1	1.46	6.7	1.46	6.3	1.47	6.1	1.47	5.9	1.47	5.9			
	1.42	6.9	1.43	6.5	1.44	6.2	1.44	5.9	1.45	5.8	1.45	5.7			
700	1.40	6.7	1.40	6.3	1.41	6.0	1.42	5.7	1.42	5.6	1.42	5.6			
	1.37	6.5	1.38	6.1	1.38	5.8	1.39	5.6	1.40	5.4	1.40	5.4			
	1.35	6.3	1.35	5.9	1.36	5.8	1.37	5.4	1.37	5.3	1.37	5.2	12	20	35
	1.32	6.1	1.33	5.7	1.33	5.5	1.34	5.2	1.34	5.1	1.34	5.1			
	1.29	5.9	1.30	5.8	1.31	5.3	1.31	5.1	1.32	4.9	1.32	4.9			
600	1.27	5.7	1.27	5.4	1.28	5.1	1.29	4.9	1.29	4.8	1.29	4.7			
	1.24	5.5	1.25	5.2	1.25	4.9	1.26	4.7	1.26	4.6	1.26	4.6			
	1.22	5.3	1.22	5.0	1.23	4.8	1.23	4.6	1.24	4.4	1.24	4.4	9	18	29
	1.19	5.1	1.20	4.8	1.20	4.6	1.21	4.4	1.21	4.3	1.21	4.3			
	1.17	4.9	1.17	4.6	1.18	4.4	1.18	4.2	1.18	4.1	1.18	4.1			
500	1.14	4.7	1.14	4.4	1.15	4.2	1.15	4.1	1.16	4.0	1.16	3.9			
	1.11	4.5	1.12	4.3	1.12	4.0	1.13	3.9	1.13	3.8	1.13	3.8			
	1.09	4.3	1.09	4.1	1.10	3.9	1.10	3.7	1.10	3.6	1.10	3.6	7	12	22
	1.06	4.1	1.07	3.9	1.07	3.7	1.08	3.5	1.08	3.4	1.08	3.4			
	1.04	3.9	1.04	3.7	1.05	3.5	1.05	3.4	1.05	3.3	1.05	3.3			
400	1.01	3.7	1.02	3.5	1.02	3.3	1.02	3.2	1.02	3.1	1.02	3.1			
	0.59	3.5	0.59	3.3	0.59	3.2	0.60	3.0	0.60	2.9	0.60	2.9			
	0.56	3.3	0.56	3.1	0.57	3.0	0.57	2.9	0.57	2.8	0.57	2.8	4	8	15
	0.54	3.1	0.54	2.9	0.54	2.8	0.54	2.7	0.55	2.6	0.55	2.6			
	0.51	2.9	0.51	2.8	0.51	2.6	0.52	2.5	0.52	2.4	0.52	2.4			
300	0.48	2.7	0.49	2.6	0.49	2.4	0.49	2.3	0.49	2.3	0.49	2.2			
	0.46	2.5	0.46	2.4	0.46	2.3	0.46	2.2	0.47	2.1	0.47	2.1			
	0.43	2.3	0.43	2.2	0.44	2.1	0.44	2.0	0.44	1.9	0.44	1.9	2	4	8
	0.41	2.1	0.41	2.0	0.41	1.9	0.41	1.8	0.41	1.8	0.41	1.7			
	0.38	1.9	0.38	1.8	0.38	1.7	0.39	1.7	0.39	1.6	0.39	1.6			
200	0.36	1.7	0.36	1.6	0.38	1.6	0.36	1.5	0.36	1.4	0.38	1.4			

* CORRECTION FOR DEVIATION FROM REFERENCE:

WEIGHT - ADD (SUB) ΔFC PER TONS ABOVE (BELOW) REFERENCE

TEMPERATURE - ADD 0.20 % FUEL CONSUMPTION PER DEG. C ABOVE STD.

Mod. : 4801 + 4863

GE Eng. : 80C2A2

REFERENCE INITIAL WEIGHT : 115 TONS
FUEL AND TIME TO DESTINATION FROM ANY POINT IN CRUISE TO LANDING
INCLUDING CRUISE = M.79 - DESCENT = M.79/300 KT/250 KT - APPROACH : 360 KG (6 mn)
ISA
800 NM TO 1500 NM

AIR-DIST NM	TIME (h.mn) / FUEL CONSUMED (1000 kg) — FLIGHT LEVEL 290		310		330		350		370		390		* ΔFC(kg/t) FL 290 310	FL 330 350	FL 370 390
1500	3.22	14.5	3.24	13.6	3.25	12.9	3.27	12.4	3.28	12.0	3.28	11.9			
	3.20	14.3	3.21	13.5	3.23	12.8	3.24	12.2	3.25	11.9	3.25	11.8	32	48	81
	3.17	14.1	3.19	13.3	3.20	12.6	3.22	12.1	3.23	11.7	3.23	11.6			
	3.15	13.9	3.16	13.1	3.18	12.4	3.19	11.9	3.20	11.6	3.20	11.5			
	3.12	13.7	3.13	12.9	3.15	12.2	3.17	11.7	3.17	11.4	3.17	11.3			
1400	3.09	13.5	3.11	12.7	3.12	12.1	3.14	11.6	3.15	11.3	3.15	11.2			
	3.07	13.3	3.08	12.6	3.10	11.9	3.11	11.4	3.12	11.1	3.12	11.0			
	3.04	13.1	3.06	12.4	3.07	11.7	3.09	11.2	3.09	10.9	3.09	10.9	29	44	76
	3.02	12.9	3.03	12.2	3.05	11.6	3.06	11.1	3.07	10.8	3.07	10.7			
	2.59	12.7	3.01	12.0	3.02	11.4	3.03	10.9	3.04	10.6	3.04	10.5			
1300	2.57	12.5	2.58	11.8	2.59	11.2	3.01	10.7	3.02	10.5	3.02	10.4			
	2.54	12.3	2.55	11.6	2.57	11.0	2.58	10.6	2.59	10.3	2.59	10.2			
	2.51	12.1	2.53	11.5	2.54	10.9	2.56	10.4	2.56	10.1	2.56	10.1	27	41	70
	2.49	11.9	2.50	11.3	2.52	10.7	2.53	10.2	2.54	10.0	2.54	9.9			
	2.46	11.8	2.48	11.1	2.49	10.5	2.50	10.1	2.51	9.8	2.51	9.8			
1200	2.44	11.6	2.45	10.9	2.46	10.4	2.48	9.8	2.48	9.7	2.48	9.6			
	2.41	11.4	2.42	10.7	2.44	10.2	2.45	9.8	2.46	9.5	2.46	9.4			
	2.39	11.2	2.40	10.5	2.41	10.0	2.42	9.8	2.43	9.3	2.43	9.3	25	38	65
	2.36	11.0	2.37	10.4	2.38	9.8	2.40	9.4	2.40	9.2	2.40	9.1			
	2.34	10.8	2.35	10.2	2.36	9.7	2.37	9.3	2.38	9.0	2.38	9.0			
1100	2.31	10.6	2.32	10.0	2.33	9.5	2.34	9.1	2.35	8.9	2.35	8.8			
	2.28	10.4	2.30	9.8	2.31	9.3	2.32	8.9	2.32	8.7	2.32	8.6			
	2.26	10.2	2.27	9.6	2.28	9.1	2.29	8.8	2.30	8.5	2.30	8.5	22	35	59
	2.23	10.0	2.24	9.4	2.25	9.0	2.27	8.6	2.27	8.4	2.27	8.3			
	2.21	9.8	2.22	9.3	2.23	8.8	2.24	8.4	2.25	8.2	2.25	8.2			
1000	2.18	9.6	2.19	9.1	2.20	8.6	2.21	8.3	2.22	8.1	2.22	8.0			
	2.16	9.4	2.17	8.9	2.18	8.4	2.19	8.1	2.19	7.8	2.19	7.8			
	2.13	9.2	2.14	8.7	2.15	8.3	2.16	7.9	2.17	7.7	2.17	7.7	20	31	53
	2.10	9.0	2.11	8.5	2.12	8.1	2.13	7.8	2.14	7.6	2.14	7.5			
	2.08	8.8	2.09	8.3	2.10	7.9	2.11	7.6	2.11	7.4	2.11	7.4			
900	2.05	8.6	2.06	8.2	2.07	7.7	2.08	7.4	2.09	7.2	2.09	7.2			
	2.03	8.4	2.04	8.0	2.05	7.6	2.05	7.3	2.06	7.1	2.06	7.0			
	2.00	8.2	2.01	7.8	2.02	7.4	2.03	7.1	2.03	6.8	2.03	6.9	17	27	48
	1.58	8.0	1.58	7.6	1.59	7.2	2.00	6.9	2.01	6.8	2.01	6.7			
	1.55	7.8	1.56	7.4	1.57	7.0	1.58	6.8	1.58	6.6	1.58	6.5			
800	1.52	7.7	1.53	7.2	1.54	6.9	1.55	6.6	1.55	6.4	1.55	6.4			

* CORRECTION FOR DEVIATION FROM REFERENCE:

WEIGHT - ADD (SUB) ΔFC PER TONS ABOVE (BELOW) REFERENCE

TEMPERATURE - ADD 0.20 % FUEL CONSUMPTION PER DEG. C ABOVE STD.

Mod. : 4801 + 4883

GE Eng. : 80C2A2

FLIGHT PLANNING FROM GO AROUND TO LANDING INCLUDING

REFERENCE LANDING WEIGHT : 100 tons
GO AROUND = 300 KG - CLIMB = 250 KT/270 KT/M.65 - CRUISE AT LONG RANGE
DESCENT = M.65/270 KT/250 KT - VMC PROCEDURE = 240 KG (4 MIN)
ECONOMIC AIR CONDITIONING
ISA
100 NM TO 800 NM

AIR-DIST NM	TIME (h.mn) / FUEL CONSUMED (1000 kg) — FLIGHT LEVEL 100		150		200		250		270		290		310		* ΔFC (kg/t) FL 100 150	FL 200 250	FL 270 290	FL 310
800	2.34	10.9	2.25	9.9	2.20	9.1	2.10	8.5	2.06	8.3	2.04	8.1	2.02	7.8				
	2.31	10.6	2.22	9.7	2.17	8.9	2.07	8.3	2.03	8.1	2.01	7.9	1.59	7.7	41	41	39	38
	2.27	10.3	2.18	9.5	2.13	8.7	2.04	8.1	2.00	7.9	1.58	7.7	1.56	7.5				
	2.23	10.1	2.15	9.2	2.10	8.5	2.01	7.9	1.57	7.7	1.55	7.5	1.54	7.3				
	2.20	9.8	2.11	9.0	2.07	8.3	1.58	7.7	1.54	7.5	1.52	7.3	1.51	7.1				
700	2.16	9.6	2.08	8.8	2.03	8.1	1.55	7.5	1.52	7.3	1.49	7.2	1.48	7.0				
	2.12	9.3	2.04	8.5	1.60	7.9	1.52	7.3	1.49	7.2	1.47	7.0	1.45	6.8				
	2.09	9.1	2.01	8.3	1.57	7.6	1.49	7.1	1.46	7.0	1.44	6.8	1.42	6.6	36	36	34	33
	2.05	8.8	1.58	8.1	1.53	7.4	1.46	7.0	1.43	6.8	1.41	6.6	1.40	6.5				
	2.01	8.5	1.54	7.8	1.50	7.2	1.43	6.8	1.40	6.6	1.38	6.4	1.37	6.3				
600	1.58	8.3	1.51	7.6	1.47	7.0	1.40	6.6	1.37	6.4	1.35	6.2	1.34	6.1				
	1.54	8.0	1.47	7.4	1.43	6.8	1.37	6.4	1.34	6.2	1.32	6.1	1.31	5.9				
	1.50	7.8	1.44	7.1	1.40	6.6	1.34	6.2	1.31	6.0	1.29	5.9	1.28	5.8	31	30	29	28
	1.47	7.5	1.40	6.9	1.37	6.4	1.31	6.0	1.28	5.8	1.27	5.7	1.26	5.8				
	1.43	7.3	1.37	6.7	1.33	6.2	1.28	5.8	1.25	5.7	1.24	5.5	1.23	5.4				
500	1.39	7.0	1.34	6.4	1.30	6.0	1.25	5.6	1.22	5.5	1.21	5.3	1.20	5.2				
	1.35	6.7	1.30	6.2	1.27	5.7	1.22	5.4	1.19	5.3	1.18	5.2	1.17	5.1				
	1.32	6.5	1.27	6.0	1.23	5.5	1.19	5.2	1.16	5.1	1.15	5.0	1.14	4.9	26	25	24	24
	1.28	6.2	1.23	5.7	1.20	5.3	1.15	5.0	1.13	4.9	1.12	4.8	1.11	4.7				
	1.24	6.0	1.20	5.5	1.17	5.1	1.12	4.8	1.10	4.7	1.09	4.6	1.09	4.5				
400	1.21	5.7	1.16	5.3	1.13	4.9	1.09	4.6	1.08	4.5	1.06	4.5	1.06	4.4				
	1.17	5.5	1.13	5.0	1.10	4.7	1.06	4.4	1.05	4.4	1.04	4.3	1.03	4.2				
	1.13	5.2	1.09	4.8	1.07	4.5	1.03	4.2	1.02	4.2	1.01	4.1	1.00	4.0	20	19	19	19
	1.09	5.0	1.06	4.6	1.03	4.3	1.00	4.1	0.59	4.0	0.58	3.9	0.57	3.9				
	1.06	4.7	1.02	4.4	0.60	4.1	0.57	3.9	0.56	3.8	0.55	3.7	0.54	3.7				
300	1.02	4.4	0.59	4.1	0.57	3.9	0.54	3.7	0.53	3.6	0.52	3.6	0.52	3.5				
	0.58	4.2	0.55	3.9	0.53	3.7	0.51	3.5	0.50	3.4	0.49	3.4	0.49	3.3				
	0.54	3.9	0.52	3.7	0.50	3.4	0.48	3.3	0.47	3.2	0.46	3.2	0.46	3.2	15	14	15	15
	0.51	3.7	0.48	3.4	0.47	3.2	0.45	3.1	0.44	3.1	0.43	3.0	0.43	3.0				
	0.47	3.4	0.45	3.2	0.43	3.0	0.42	2.9	0.41	2.9	0.40	2.9	0.40	2.8				
200	0.43	3.2	0.41	3.0	0.40	2.8	0.38	2.7	0.38	2.7	0.38	2.7	0.37	2.7				
	0.39	2.9	0.38	2.8	0.37	2.6												
	0.35	2.7	0.34	2.5	0.33	2.4									9	10	12	12
	0.32	2.4	0.30	2.3	0.30	2.2												
	0.28	2.2	0.27	2.1	0.26	2.0												
100	0.24	1.9	0.23	1.8	0.23	1.8												

* CORRECTION FOR DEVIATION FROM REFERENCE:

WEIGHT - ADD (SUB) ΔFC PER TONS ABOVE (BELOW) REFERENCE
- ADD (SUB) 0.1 MINUTE PER 100 NM PER TON ABOVE (BELOW) REFERENCE

TEMPERATURE - ADD 0.20 % FUEL CONSUMPTION PER DEG. C ABOVE ISA.

Mod. : 4801 + 4863

GE Eng. : 80C2A2

ONE ENGINE INOPERATIVE

Aeroformation
Airbus Industrie / FlightSafety

IN FLIGHT PERFORMANCE ON ONE ENGINE

ANTI-ICING OFF **ISA**
GROSS FLIGHT PATH
AIR CONDITIONING ON

DESCENT AT DRIFT DOWN SPEEDS

1 ENG AT MAX CONTINUOUS

INITIAL GW TONS	INITIAL FLIGHT LEVEL									
	230	250	270	290	310	330	350	370	390	410
155		241 39.7 265 3240 22200	279 45.4 269 3660 22300	307 49.6 273 3950 22300	329 52.7 277 4140 22400	348 55.2 281 4300 22400	362 57.0 285 4400 22400			
150		208 34.3 260 2740 23000	257 42.0 264 3300 23100	288 46.6 268 3610 23100	312 50.1 272 3830 23200	333 52.9 276 4010 23200	349 54.9 280 4120 23200	356 55.8 283 4170 23200		
145		174 28.8 255 2250 23700	238 39.1 259 2990 23900	276 44.8 263 3380 23900	304 48.9 267 3640 24000	327 52.1 271 3840 24000	345 54.4 275 3970 24000	354 55.5 279 4030 24000		
140		109 18.2 250 1400 24400	221 36.4 254 2720 24700	269 43.9 258 3230 24700	302 48.6 262 3530 24800	327 52.3 266 3760 24800	347 55.0 270 3910 24900	359 56.5 269 3990 24900		
135			194 32.0 249 2330 25500	256 41.7 253 2990 25600	293 47.4 257 3360 25700	322 51.5 261 3610 25700	343 54.4 265 3770 25800	358 56.4 267 3870 25800	367 57.5 262 3930 25800	
130			133 22.1 244 1580 26300	235 38.5 248 2690 26500	281 45.4 252 3130 26600	313 50.1 256 3420 26700	336 53.4 260 3600 26700	354 55.7 264 3720 26700	365 57.2 262 3790 26700	
125				225 37.0 243 2520 27400	291 47.2 247 3180 27500	330 53.0 251 3530 27600	356 56.8 255 3740 27600	378 59.7 259 3890 27600	393 61.7 259 3990 27700	
120				154 25.3 238 1690 28300	247 40.1 242 2620 28500	287 46.2 246 2980 28600	314 49.9 250 3180 28600	336 52.9 254 3330 28700	352 55.0 256 3430 28700	359 55.9 250 3470 28700
115					207 33.7 237 2140 29400	266 42.8 241 2680 29500	299 47.6 245 2940 29600	325 51.1 249 3120 29600	344 53.8 251 3250 29700	355 55.2 250 3310 29700
110					144 23.5 232 1460 30300	234 37.7 236 2290 30500	274 43.7 240 2610 30500	303 47.8 244 2820 30600	327 51.0 248 2970 30600	340 52.7 249 3040 30600
105						191 30.8 231 1810 31400	243 38.8 235 2230 31500	277 43.6 239 2470 31500	303 47.2 243 2640 31600	321 49.6 247 2750 31600
100						142 23.0 228 1310 32300	226 36.1 230 2000 32400	267 42.2 234 2310 32500	298 46.5 238 2510 32500	320 49.5 242 2640 32500
90							165 26.5 220 1370 34200	245 38.9 224 1980 34300	288 45.1 228 2260 34300	318 49.3 232 2440 34300
	DISTANCE (NM) INITIAL SPEED (KT) LEVEL OFF (FT)						TIME (MN) FUEL (KG)			

Mod. : 4863

GE Eng. : 80C2A2

NAUTICAL GROUND MILES TO AIR MILES CONVERSION
LONG RANGE

	TAIL			WIND COMPONEND – KTS			HEAD
DIST TO GO	+120	+80	+40	0	-40	-80	-120
200	148	162	179	200	226	259	305
225	167	182	201	225	254	292	343
250	185	203	224	250	282	324	382
275	204	223	246	275	310	357	420
300	222	243	268	300	339	389	458
325	241	264	291	325	367	422	496
350	260	284	313	350	395	454	534
375	278	304	336	375	423	487	573
400	297	325	358	400	452	519	611
425	315	345	381	425	480	552	649
450	334	365	403	450	508	584	687
475	352	386	425	475	536	617	726
500	371	406	448	500	565	649	764
525	390	426	470	525	593	682	802
550	408	446	493	550	621	714	840
575	427	467	515	575	649	747	878
600	445	487	537	600	678	779	917
625	464	507	560	625	706	812	955
650	483	528	582	650	734	844	993
675	501	548	605	675	762	877	1031
700	520	568	627	700	791	909	1069
725	538	589	650	725	819	942	1108
750	557	609	672	750	847	974	1146
775	575	629	694	775	875	1007	1184
800	594	650	717	800	904	1039	1222
825	613	670	739	825	932	1072	1260
850	631	690	762	850	960	1104	1299
875	650	711	784	875	988	1137	1337
900	668	731	806	900	1017	1169	1375
925	687	751	829	925	1045	1202	1413
950	705	772	851	950	1073	1234	1452
975	724	792	874	975	1102	1267	1490
1000	743	812	896	1000	1130	1299	1528

FUEL AND TIME TO LANDING
ONE ENGINE LONG RANGE CRUISE
. ISA – C.G. = 27.0 %
INITIAL WEIGHT : 115 TONS
200 NM TO 800 NM

AIR-DIST NM	TIME (h.mn) / FUEL CONSUMED (1000 kg) — FLIGHT LEVEL 100		150		200		220		240		250		270		* ΔFC (kg/t) FL 100 150	FL 200 220	FL 240 250	FL 270
800	2.33	9.3	2.30	8.5	2.30	7.9	2.29	7.8	2.12	7.8	2.12	7.7	2.08	7.8				
	2.29	9.1	2.26	8.3	2.27	7.7	2.25	7.6	2.09	7.6	2.09	7.5	2.05	7.4	41	52	49	53
	2.26	8.9	2.23	8.1	2.23	7.5	2.22	7.4	2.06	7.4	2.05	7.3	2.02	7.2				
	2.22	8.6	2.19	7.9	2.19	7.3	2.18	7.2	2.03	7.2	2.02	7.1	1.59	7.0				
	2.18	8.4	2.15	7.7	2.15	7.1	2.14	7.0	1.58	7.0	1.58	6.9	1.56	6.8				
700	2.14	8.2	2.11	7.4	2.12	6.9	2.10	6.8	1.56	6.8	1.56	6.7	1.52	6.6				
	2.10	7.9	2.08	7.2	2.08	6.7	2.07	6.6	1.53	6.5	1.52	6.5	1.49	6.4	36	44	42	45
	2.06	7.7	2.04	7.0	2.04	6.5	2.03	6.4	1.50	6.3	1.49	6.3	1.46	6.2				
	2.02	7.5	2.00	6.8	2.00	6.3	1.59	6.2	1.46	6.1	1.46	6.1	1.43	6.0				
	1.58	7.2	1.57	6.6	1.57	6.1	1.55	6.0	1.43	5.9	1.42	5.9	1.40	5.8				
600	1.55	7.0	1.53	6.3	1.53	5.9	1.52	5.8	1.40	5.7	1.39	5.7	1.38	5.6				
	1.51	6.7	1.49	6.1	1.49	5.7	1.48	5.6	1.38	5.5	1.38	5.5	1.33	5.4	30	37	34	37
	1.47	6.5	1.45	5.9	1.45	5.5	1.44	5.4	1.33	5.3	1.33	5.2	1.30	5.2				
	1.43	6.3	1.42	5.7	1.42	5.3	1.41	5.2	1.30	5.1	1.29	5.0	1.27	5.0				
	1.39	6.0	1.38	5.5	1.38	5.0	1.37	5.0	1.27	4.9	1.26	4.8	1.24	4.8				
500	1.35	5.8	1.34	5.2	1.34	4.8	1.33	4.8	1.23	4.7	1.23	4.6	1.21	4.6				
	1.31	5.6	1.30	5.0	1.30	4.6	1.29	4.5	1.20	4.5	1.20	4.4	1.17	4.4	24	29	27	29
	1.28	5.3	1.27	4.8	1.27	4.4	1.26	4.3	1.17	4.3	1.16	4.2	1.14	4.2				
	1.24	5.1	1.23	4.6	1.23	4.2	1.22	4.1	1.14	4.1	1.13	4.0	1.11	3.9				
	1.20	4.8	1.19	4.3	1.19	4.0	1.18	3.9	1.10	3.8	1.10	3.8	1.08	3.7				
400	1.16	4.6	1.15	4.1	1.15	3.8	1.14	3.7	1.07	3.6	1.07	3.6	1.05	3.5				
	1.12	4.4	1.12	3.9	1.12	3.6	1.11	3.5	1.04	3.4	1.03	3.4	1.02	3.3	18	22	19	20
	1.08	4.1	1.08	3.7	1.08	3.4	1.07	3.3	1.00	3.2	1.00	3.2	0.58	3.1				
	1.05	3.9	1.04	3.5	1.04	3.1	1.03	3.1	0.57	3.0	0.57	3.0	0.55	2.9				
	1.01	3.6	1.00	3.2	1.00	2.9	0.60	2.9	0.54	2.8	0.54	2.8	0.52	2.7				
300	0.57	3.4	0.57	3.0	0.57	2.7	0.56	2.7	0.51	2.6	0.50	2.5	0.48	2.5				
	0.53	3.2	0.53	2.8	0.53	2.5	0.52	2.4	0.47	2.4	0.47	2.3	0.46	2.3	12	14	12	12
	0.50	2.9	0.49	2.6	0.49	2.3	0.49	2.2	0.44	2.2	0.44	2.1	0.43	2.1				
	0.46	2.7	0.46	2.3	0.45	2.1	0.45	2.0	0.41	2.0	0.41	1.9	0.40	1.9				
	0.42	2.4	0.42	2.1	0.42	1.9	0.41	1.8	0.38	1.7	0.37	1.7	0.37	1.7				
200	0.38	2.2	0.38	1.9	0.38	1.7	0.37	1.6	0.34	1.5	0.34	1.5	0.33	1.4				

F82.1630.004.AA.050

* CORRECTION FOR DEVIATION FROM REFERENCE :

WEIGHT – ADD (SUB) ΔFC PER TONS ABOVE (BELOW) REFERENCE
TEMPERATURE – ADD 0.20 % FUEL CONSUMPTION PER DEG. C ABOVE ISA.

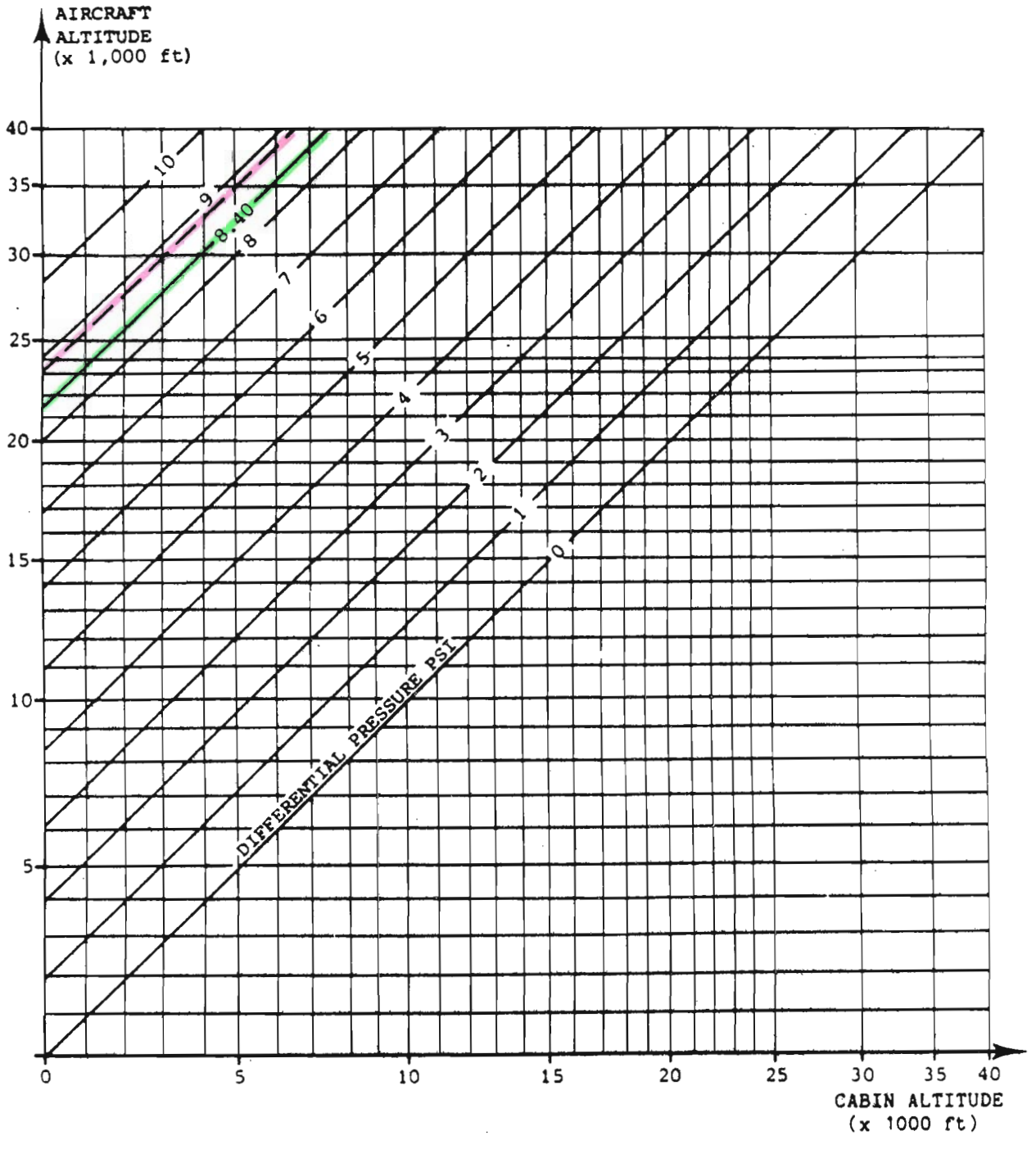
Mod. : 4863

GE Eng. : 80C2A2

MISCELLANEOUS

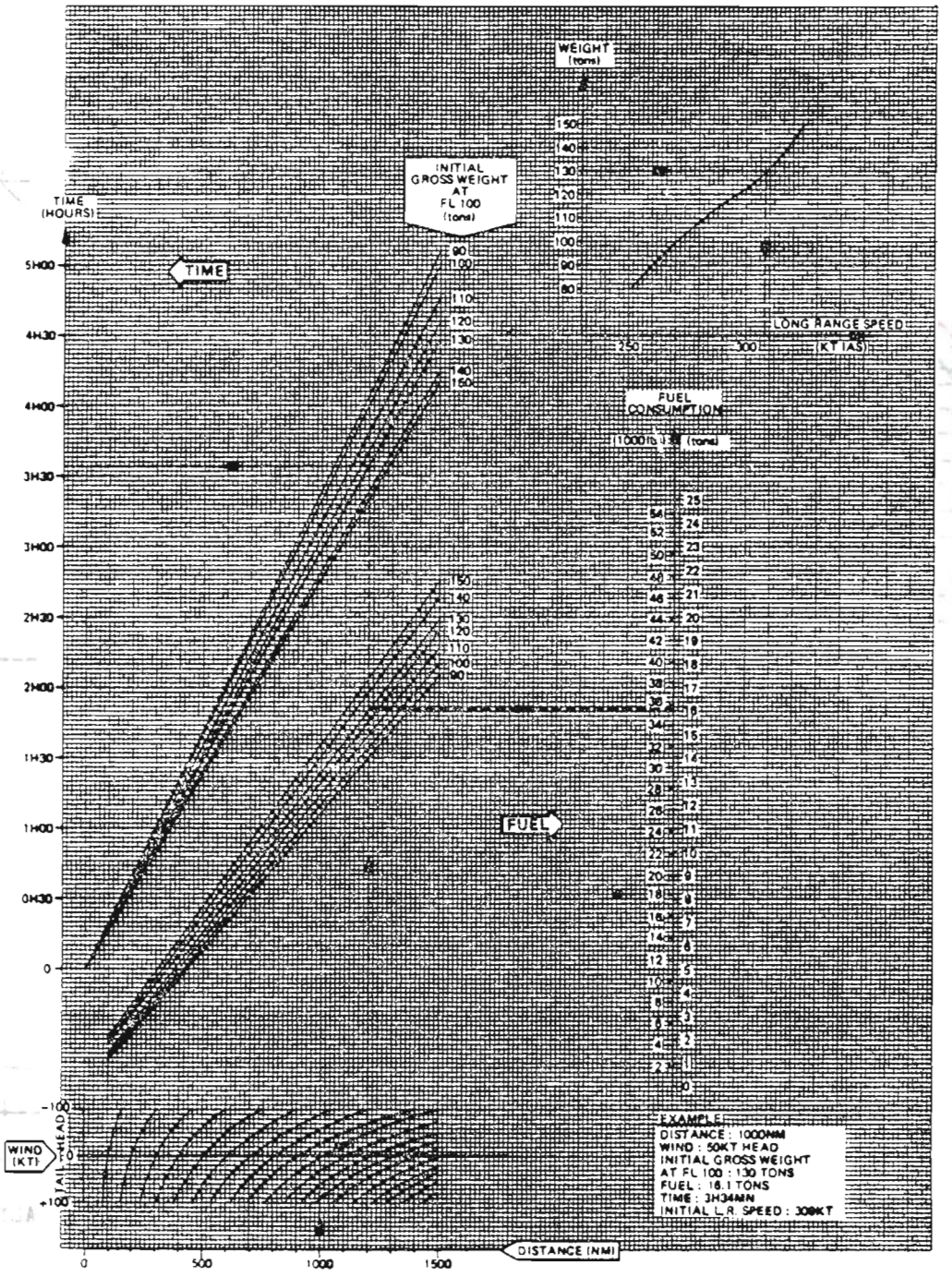
Aeroformation
Airbus Industrie / FlightSafety

positive differential pressure limitation 8.40 PSI
safety relief, max differential pressure 8.85 PSI



Vers. : All Eng. : All

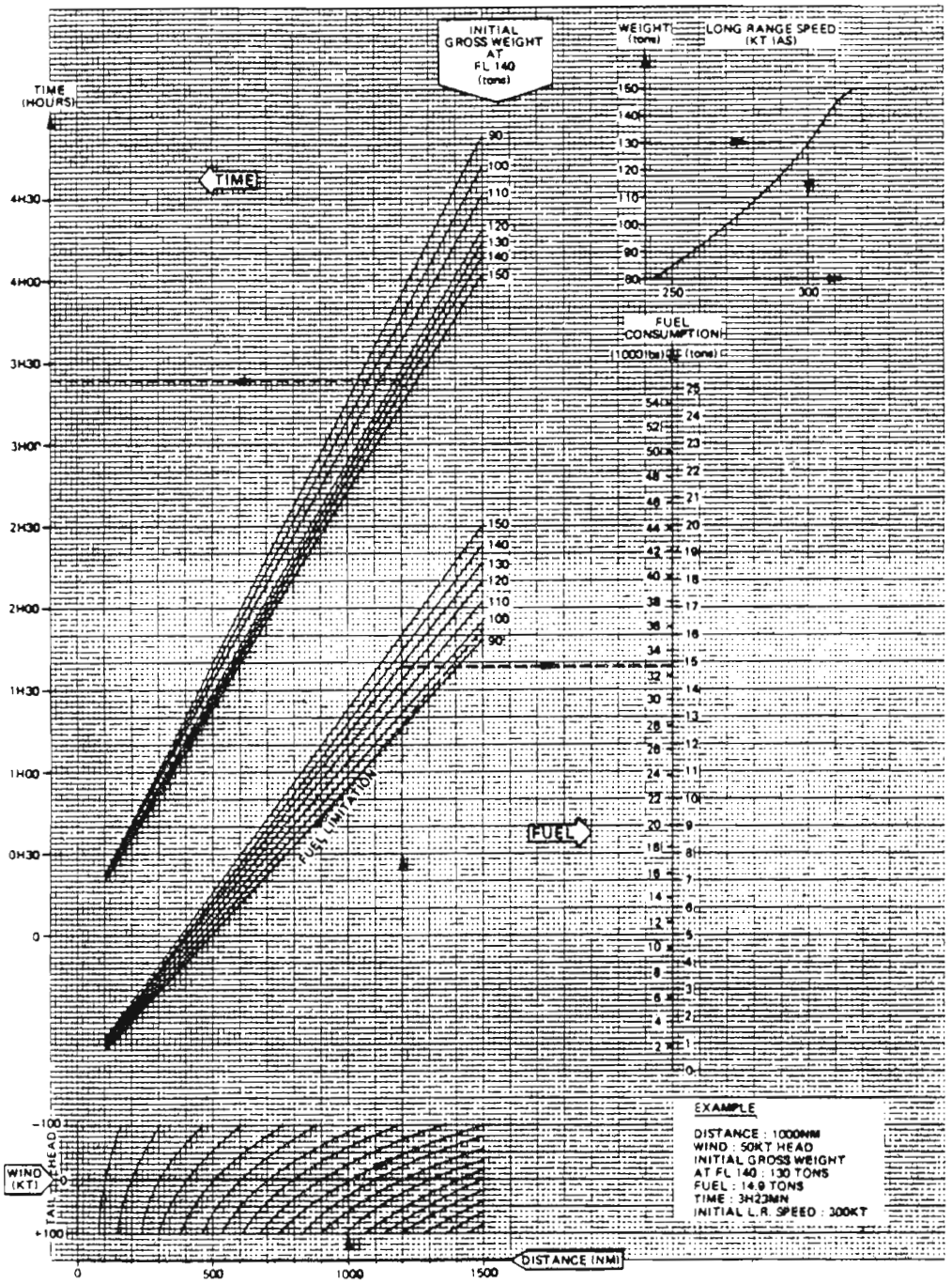
FUEL AND TIME TO DESTINATION AT FL 100 - 2 ENGINES FROM ANY POINT IN CRUISE TO LANDING - LONG RANGE INCLUDING LANDING PROCEDURE = 360 KG



Mod. : 4863

GE Eng. : 80C2A2

FUEL AND TIME TO DESTINATION AT FL 140 - 2 ENGINES FROM ANY POINT IN CRUISE TO LANDING - LONG RANGE INCLUDING LANDING PROCEDURE = 360 KG



Mod. : 4863

GE Eng. : 80C2A2

TAKE-OFF

PROCEDURES AND TECHNIQUES

AIRCRAFT FLEET PARTICULARS

LANDING

Aeroformation
Airbus Industrie / FlightSafety

FOR TRAINING ONLY

LF80 TOULOUSE	RWY ALL	FAR	NOT UPD	ELEV. 499.FT	CONF.
FOR TRAINING ONLY-STRAIGHT TAKE OFF FLIGHT PATH.	CM72		TORA	3000.M	15/ 0
V1/VR=OPTIMUM AND V2/VS=OPTIMUM.			ASDA	3000.M	********
A310-304/AA/204-STD7 DRY RUNWAY			TODA	3000.M	TGA
--------TREF= 42/TMAX=54 GRAD1=180/GRAD2= 0	*****		SLOPE	0.0 %	15/15

WEIGHT 1000KG	-10	-5	0	10	20	20/20
	*** ***	*** ***	8 3-3	25 2-3	42 2-3	43
157.0	**** ****	**** ****	0.2 ****	0.1 ****	0.1 ****	
	**********	**********	166-169-173	167-169-173	167-169-173	**
	*** ***	*** ***	17 3-3	34 3-3	44 2-2	45
155.0	**** ****	**** ****	0.1 ****	0.0 ****	0.8 ****	
	**********	**********	165-168-172	165-168-172	167-169-172	**
	*** ***	1 3-3	26 3-3	42 3-3	46 2-3	46
153.0	**** ****	0.2 ****	0.1 ****	0.2 ****	0.6 ****	
	**********	163-167-171	164-167-171	164-167-171	166-168-172	**
	*** ***	10 3-3	34 3-3	45 3-3	48 2-3	47
151.0	**** ****	0.1 ****	0.2 ****	0.2 ****	0.3 ****	
	**********	161-166-170	162-166-170	164-166-170	166-168-172	42
	*** ***	19 3-3	42 3-3	47 3-3	50 2-3	49
149.0	**** ****	0.0 ****	0.3 ****	0.6 ****	0.1 ****	
	**********	160-165-169	161-165-169	163-166-169	166-168-171	44
	5 3-3	28 3-3	45 3-3	50 3-3	51 2-3	50
147.0	0.1 ****	0.0 ****	0.4 ****	0.1 ****	0.9 ****	
	158-163-168	159-164-168	161-164-168	162-164-168	166-168-171	46
	14 3-3	36 3-3	48 3-3	52 2-3	53 2-3	52
145.0	0.0 ****	0.1 ****	0.0 ****	0.1 ****	0.7 ****	
	157-162-166	158-163-167	160-163-166	162-164-167	166-167-171	47
	40 3-3	42 3-3	55 3-3	57 2-3	58 2-3	54
139.0	0.1 ****	4.8 ****	0.6 ****	0.6 ****	1.1 ****	
	153-159-163	157-162-166	158-160-163	161-163-166	165-166-169	52
	42 3-3	56 3-3	61 2-3	63 2-3	64 2-3	54
133.0	5.7 ****	0.1 ****	0.7 ****	0.0 ****	0.4 ****	
	153-159-163	153-157-160	156-158-161	160-161-164	164-164-167	54
	57 3-3	63 3-3	67 2-3	68 2-3	69 2-3	54
127.0	0.2 ****	0.4 ****	0.2 ****	0.5 ****	0.7 ****	
	148-153-156	151-154-156	155-157-159	159-160-162	163-163-166	54
	64 3-3	70 3-3	71 2-3	71 2-3	71 2-3	54
121.0	0.7 ****	0.8 ****	1.9 ****	3.2 ****	4.2 ****	
	146-150-153	149-151-153	155-156-158	159-160-162	163-163-165	54
	71 3-3	71 2-3	71 ***	71 ***	1 ***	54
115.0	1.5 ****	5.8 ****	0.0 ****	0.0 ****	0.0 ****	
	144-148-150	149-151-153	140-147-149	139-147-149	138-147-149	54
	71 ***	71 ***	71 ***	71 ***	71 ***	54
109.0	0.0 ****	0.0 ****	0.0 ****	0.0 ****	0.0 ****	
	137-142-145	135-142-145	132-142-145	131-142-145	131-142-145	54
	71 ***	71 ***	71 ***	71 ***	71 ***	54
103.0	0.0 ****	0.0 ****	0.0 ****	0.0 ****	0.0 ****	
	128-138-142	128-138-142	128-138-142	128-138-142	128-138-142	54

FOR TRAINING ONLY

LFBO TOULOUSE	RWY ALL	FAR NOT UPDTELEV. 499.FT	CONF.*
FOR TRAINING ONLY-STRAIGHT TAKE OFF FLIGHT PATH. CM72		TORA 3000.M	*15/15*
V1/VR=OPTIMUM AND V2/VS=OPTIMUM.		ASDA 3000.M	*******
A310-304/AA/204-STD7 DRY RUNWAY		TODA 3000.M	TGA
TREF= 42/TMAX=54 GRAD1=150/GRAD2= 0 *****		SLOPE 0.0 %	15/15

WEIGHT 1000KG	-10	-5	0	10	20	20/20
	*** ***	-1 2-3	20 2-3	31 2-3	41 2-3	43
157.0	**** ****	0.0 ****	0.0 ****	0.1 ****	0.1 ****	
	**********	159-164-168	161-166-169	162-167-170	164-168-172	**
	*** ***	16 2-3	35 2-3	42 2-3	42 2-3	45
155.0	**** ****	0.0 ****	0.1 ****	0.5 ****	2.0 ****	
	**********	155-161-165	158-163-167	160-165-168	164-168-172	**
	12 2-3	31 2-3	42 2-3	44 2-3	46 2-3	46
153.0	0.1 ****	0.1 ****	1.0 ****	1.0 ****	0.2 ****	
	151-157-161	152-158-162	156-162-165	160-164-168	163-168-171	**
	28 2-3	42 2-3	45 2-3	46 2-3	47 2-3	47
151.0	0.1 ****	0.4 ****	0.4 ****	0.8 ****	1.0 ****	
	148-154-158	150-156-160	156-161-165	160-164-168	163-167-171	42
	38 2-3	44 2-3	47 2-3	48 2-3	49 2-3	49
149.0	0.2 ****	1.0 ****	0.2 ****	0.5 ****	0.8 ****	
	146-152-157	150-156-160	156-161-164	159-164-167	163-167-170	44
	42 2-3	46 2-3	49 2-3	50 2-3	51 2-3	50
147.0	1.4 ****	0.9 ****	0.0 ****	0.3 ****	0.5 ****	
	146-152-156	150-155-159	156-160-164	159-164-167	163-167-170	46
	46 2-2	48 2-3	50 2-3	52 2-3	53 2-3	52
145.0	0.4 ****	0.7 ****	0.9 ****	0.0 ****	0.2 ****	
	145-150-155	149-155-159	156-160-164	159-163-167	163-167-170	47
	52 2-3	54 2-3	56 2-3	57 2-3	58 2-2	54
139.0	0.1 ****	0.2 ****	0.2 ****	0.4 ****	0.1 ****	
	144-149-154	149-154-158	155-159-162	159-162-165	162-164-167	52
	57 2-3	59 2-3	61 2-3	62 2-3	62 2-2	54
133.0	0.8 ****	0.8 ****	0.7 ****	0.8 ****	0.9 ****	
	143-148-152	148-153-156	154-158-161	158-161-164	159-161-164	54
	63 2-3	65 2-3	67 2-3	67 2-2	67 2-2	54
127.0	0.5 ****	0.3 ****	0.1 ****	0.5 ****	0.5 ****	
	142-147-150	147-151-154	153-156-159	155-157-160	154-157-160	54
	69 2-3	70 2-3	71 2-2	71 2-2	71 2-2	54
121.0	0.2 ****	0.9 ****	1.3 ****	1.3 ****	1.3 ****	
	142-145-149	147-150-153	152-154-157	151-154-157	150-154-157	54
	71 2-3	71 2-3	71 2**	71 2**	71 2**	54
115.0	4.1 ****	5.8 ****	0.0 ****	0.0 ****	0.0 ****	
	141-145-148	147-150-153	126-135-139	126-135-139	126-135-139	54
	71 ***	71 ***	71 ***	71 ***	71 ***	54
109.0	0.0 ****	0.0 ****	0.0 ****	0.0 ****	0.0 ****	
	123-131-135	123-131-135	123-131-135	123-131-135	123-131-135	54
	71 ***	71 ***	71 ***	71 ***	71 ***	54
103.0	0.0 ****	0.0 ****	0.0 ****	0.0 ****	0.0 ****	
	121-127-131	121-127-131	121-127-131	121-127-131	121-127-131	54

FOR TRAINING ONLY

LFMT MONTPELLIER RWY 13L FAR NOT UPDT ELEV. 16.FT CONF.*
FOR TRAINING ONLY-STRAIGHT TAKE OFF FLIGHT PATH. CM72 TORA 2600.M *15/ 0*
V1/VR=OPTIMUM AND V2/VS=OPTIMUM. ASDA 2600.M ********
A310-304/AA/204-STD7 DRY RUNWAY TODA 2600.M : TGA :
TREF= 44/TMAX=55 GRAD1=170/GRAD2= 0 ***** SLOPE -0.10 % :15/15:
WEIGHT: / :

1000KG:	-10	-5	0	10	20	:20/20:
	*** ***	*** ***	*** ***	*** ***	8 3-3	:45 :
157.0	**** ****	**** ****	**** ****	**** ****	0.2 ****	: :
	**********	**********	**********	**********	167-169-173	** :
	*** ***	*** ***	*** ***	0 3-3	17 3-3	:47 :
155.0	**** ****	**** ****	**** ****	0.2 ****	0.1 ****	: :
	**********	**********	**********	165-168-172	166-168-172	** :
	*** ***	*** ***	*** ***	9 3-3	26 3-3	:48 :
153.0	**** ****	**** ****	**** ****	0.2 ****	0.1 ****	: :
	**********	**********	**********	164-167-171	165-167-171	44:
	*** ***	*** ***	2 3-3	18 3-3	35 3-3	:49 :
151.0	**** ****	**** ****	0.0 ****	0.1 ****	0.1 ****	: :
	**********	**********	162-165-170	163-166-170	164-166-170	45:
	*** ***	*** ***	10 3-3	27 3-3	44 3-3	:51 :
149.0	**** ****	**** ****	0.2 ****	0.1 ****	0.0 ****	: :
	**********	**********	161-164-169	162-165-169	162-165-169	46:
	*** ***	*** ***	19 3-3	36 3-3	46 3-3	:52 :
147.0	**** ****	**** ****	0.1 ****	0.1 ****	0.5 ****	: :
	**********	**********	160-163-168	161-164-168	162-164-168	48:
	*** ***	3 3-3	28 3-3	44 3-3	49 3-3	:53 :
145.0	**** ****	0.2 ****	0.1 ****	0.3 ****	0.1 ****	: :
	**********	158-162-167	159-162-167	159-163-167	161-163-166	49:
	7 3-3	30 3-3	44 3-3	51 3-3	56 3-3	:55 :
139.0	0.1 ****	0.1 ****	2.5 ****	0.7 ****	0.5 ****	: :
	153-159-163	154-159-163	156-160-164	157-160-163	159-160-163	53:
	34 3-3	44 3-3	54 3-3	58 3-3	62 2-3	:55 :
133.0	0.0 ****	3.0 ****	0.6 ****	0.9 ****	0.5 ****	: :
	149-155-160	152-157-161	154-157-160	155-157-160	157-158-161	55:
	44 3-3	55 3-3	61 3-3	66 3-3	67 2-3	:55 :
127.0	3.8 ****	0.3 ****	0.6 ****	0.0 ****	0.8 ****	: :
	148-154-158	149-153-156	151-154-157	153-154-156	156-157-159	55:
	56 3-3	62 3-3	68 3-3	71 2-3	72 2-3	:55 :
121.0	0.4 ****	0.3 ****	0.8 ****	0.8 ****	0.9 ****	: :
	144-149-153	147-150-153	149-151-153	152-152-155	155-155-157	55:
	63 3-3	70 3-3	72 3-3	72 2-3	72 ***	:55 :
115.0	0.7 ****	0.0 ****	3.7 ****	5.7 ****	0.0 ****	: :
	142-146-150	144-146-149	148-149-151	152-152-154	142-146-149	55:
	71 3-3	72 3-3	72 ***	72 ***	72 ***	:55 :
109.0	0.6 ****	4.6 ****	0.0 ****	0.0 ****	0.0 ****	: :
	140-143-146	143-146-148	137-142-145	136-142-145	134-142-145	55:
	72 3-3	72 ***	72 ***	72 ***	72 ***	:55 :
103.0	5.9 ****	0.0 ****	0.0 ****	0.0 ****	0.0 ****	: :
		131-138-142	128-138-142	128-138-142	128-138-142	55:

FOR TRAINING ONLY

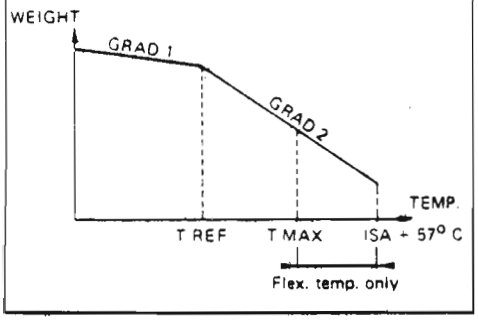
LFMT MONTPELLIER RWY 13L FAR NOT UPDTELEV. 16.FT CONF.														
FOR TRAINING ONLY-STRAIGHT TAKE OFF FLIGHT PATH. CM72												TORA 2600.M		15/15
V1/VR=OPTIMUM AND V2/VS=OPTIMUM.												ASDA 2600.M		
A310-304/AA/204-ST07 DRY RUNWAY												TODA 2600.M	TGA	
TREF= 44/TMAX=55 GRAD1=170/GRAD2= 0 *****												SLOPE -0.10 %		15/15
WEIGHT 1000KG	-10		-5		0		10		20					20/20
	***	***	***	***	***	***	9	2-3	22	2-3	45			
157.0	****	****	****	****	****	****	0.0	****	0.1	****				
	**********		**********		**********		160-164-168		161-164-168			**		
	***	***	***	***	12	2-3	26	2-3	39	2-3	47			
155.0	****	****	****	****	0.1	****	0.0	****	0.0	****				
	**********		**********		156-160-164		156-160-164		157-161-165			**		
	***	***	6	2-3	28	2-3	42	2-3	44	2-3	48			
153.0	****	****	0.1	****	0.1	****	0.1	****	1.3	****				
	**********		151-156-160		152-157-161		153-157-161		156-160-164			44		
	***	***	19	2-3	43	2-3	44	2-3	46	2-3	49			
151.0	****	****	0.1	****	0.2	****	1.7	****	1.1	****				
	**********		148-153-158		150-154-158		153-157-161		156-160-164			45		
	6	3-3	29	3-3	44	2-3	47	2-3	48	2-3	51			
149.0	0.2	****	0.1	****	2.0	****	0.4	****	0.8	****				
	146-152-156		147-152-156		149-154-158		153-157-161		156-160-164			46		
	15	3-3	38	3-3	47	2-3	49	2-3	50	2-3	52			
147.0	0.1	****	0.2	****	0.7	****	0.1	****	0.5	****				
	145-150-155		146-151-155		149-153-157		152-156-160		156-159-163			48		
	24	3-3	44	3-3	49	2-3	50	2-3	52	2-3	53			
145.0	0.1	****	0.8	****	0.5	****	0.9	****	0.1	****				
	144-149-154		145-150-155		149-153-157		152-156-160		156-159-163			49		
	44	3-3	52	2-3	54	2-3	56	2-3	57	2-3	55			
139.0	1.6	****	0.5	****	0.9	****	0.1	****	0.3	****				
	141-147-152		143-147-151		148-152-156		152-155-159		155-158-162			53		
	53	3-3	57	2-3	60	2-3	61	2-3	62	2-3	55			
133.0	0.5	****	1.0	****	0.0	****	0.3	****	0.4	****				
	139-144-148		142-146-150		147-150-154		151-153-157		155-157-160			55		
	60	3-3	63	2-3	65	2-3	66	2-3	67	2-3	55			
127.0	0.6	****	0.4	****	0.4	****	0.5	****	0.5	****				
	137-141-145		141-144-148		147-149-153		150-152-155		154-155-158			55		
	66	2-3	68	2-3	70	2-3	71	2-3	72	2-2	55			
121.0	0.9	****	0.8	****	0.7	****	0.7	****	0.4	****				
	136-139-143		140-143-147		146-148-151		149-151-154		153-153-156			55		
	72	2-3	72	2-3	72	2-3	72	2-3	72	2**	55			
115.0	0.4	****	2.4	****	4.4	****	5.5	****	0.0	****				
	135-138-141		140-142-146		146-147-151		149-151-154		127-137-140			55		
	72	***	72	***	72	***	72	***	72	***	55			
109.0	0.0	****	0.0	****	0.0	****	0.0	****	0.0	****				
	124-131-135		123-131-135		123-131-135		123-131-135		123-131-135			55		
	72	***	72	***	72	***	72	***	72	***	55			
103.0	0.0	****	0.0	****	0.0	****	0.0	****	0.0	****				
	121-127-131		121-127-131		121-127-131		121-127-131		121-127-131			55		

8. RTOLW CHARTS – COMPLEMENTARY INFORMATION : EFFECT OF QNH OR/AND BLEEDS

T REF = Flat rating temperature

T MAX = Maximum certified temperature (ISA + 40°C)

GRAD 1 / GRAD 2 } Weight gradients in kg/°C for each side of T REF. Usable to determine the maximum take off weight for a temperature lower than the temperature shown in the first box of a column.



TAKE OFF PARAMETERS COMPUTED FOR 1013 mb QNH AND BLEEDS OFF

TEMPERATURE (°C) (53)	LIMITATION CODE (2 - 3)
WEIGHT INCREMENT (t) (1.4)	
V_1 (kt IAS) (151)	V_R (kt IAS) (151) / V_2 (kt IAS) (156)

Temperature : max. temp. at which entry weight (128 t) plus weight increment (1.4 t) can be taken off under no wind.

Limitation code
1 = structure
2 = 2nd segment
3 = runway
4 = obstacle
5 = tyre speed
6 = brake energy

53 2-3
1.4 ****
151-151-156

To take into account QNH deviation and/or bleeds ON apply :

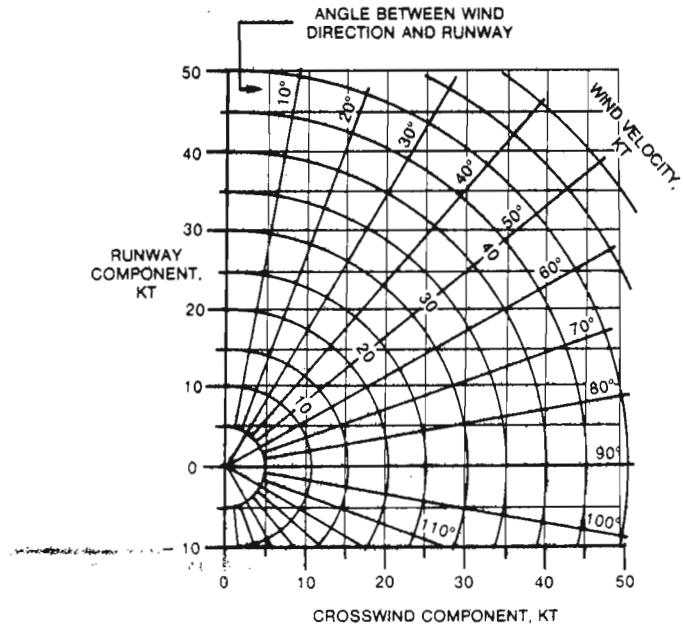
CORRECTIONS ON TEMPERATURE IF FLEX. TAKE OFF PERFORMED		CORRECTIONS ON WEIGHT IF TAKE-OFF WITH FULL THRUST PERFORMED
Add 1° C per 25 mb	QNH above 1013 mb •	Add 20 kg/mb
Sub 1° C per 7 mb	QNH below 1013 mb	Sub 170 kg/mb
Sub 2° C	Engine A/ICE ON	Sub 2000 kg
Sub 5° C	Total A/ICE ON	Sub 4800 kg
Sub 3° C	Air conditioning ON	Sub 2500 kg

COMPARE CORRECTED TEMP. (CT), FLAT RATING TEMP. (T REF) AND OAT

CT Higher than OAT and CT Higher than T REF	Take CT as flex. Temp. limited to ISA + 57° C
Both conditions above not fulfilled	NO FLEX. Determine MAX TOW

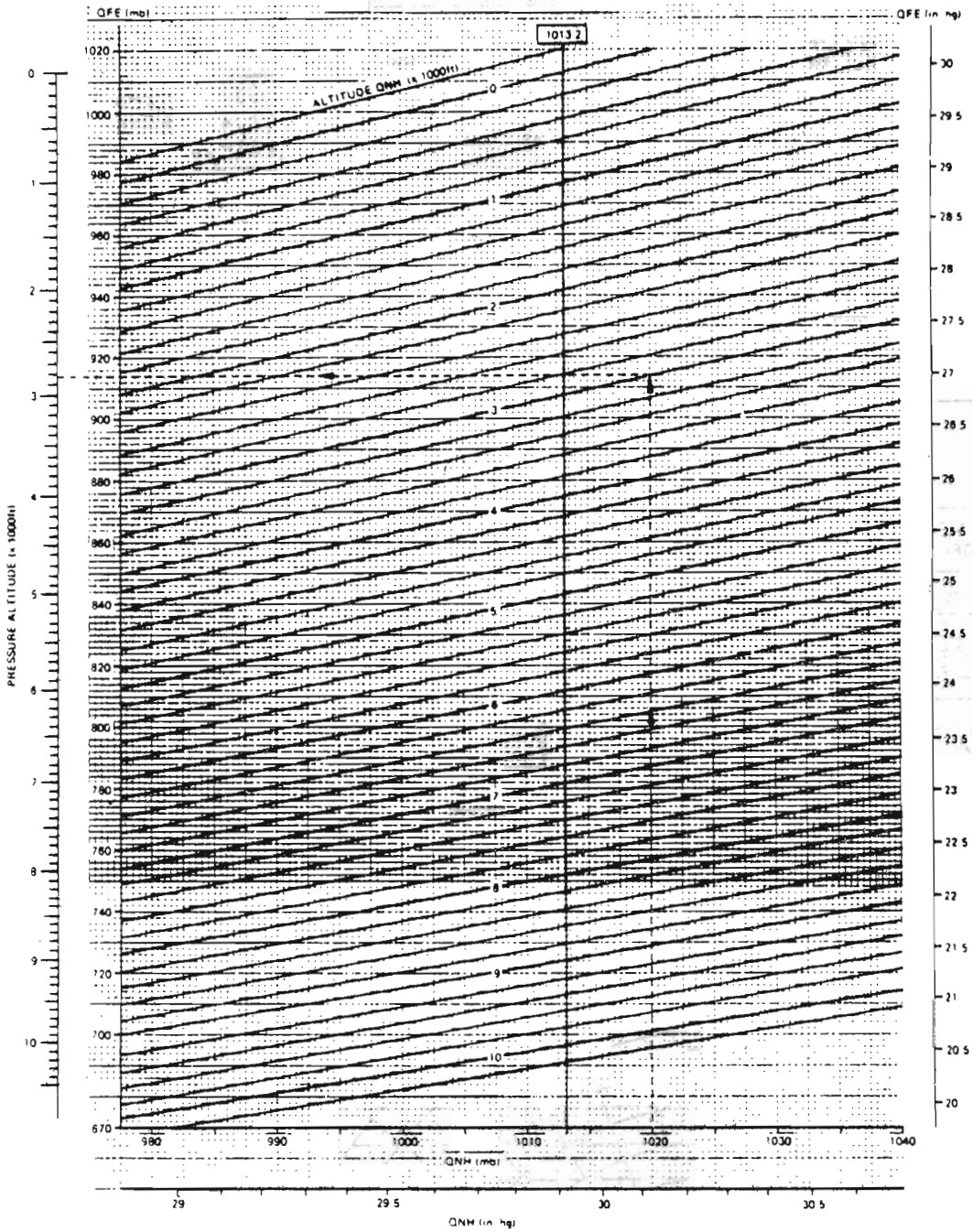
• No correction when Airport pressure altitude = 0 ft or below

GE Eng. : 80C2A2



EXAMPLE : QNH 1020 mb, Z 3000 ft → QFE 914 mb, ZP 2820 ft

R



1. SYMBOLOGY AND DEFINITIONS

- VS : Minimum stalling speed for a specified configuration. It is a function of the aircraft weight and altitude.
- VMCG : Minimum control speed on ground from which a sudden failure of the critical engine can be controlled by use of primary flying controls only. The other engine remaining at take-off power.
- V1 : Speed at which the pilot can make the decision, following failure of critical engine :
  - either to continue take-off
  - or to stop the aircraft.

  Represented by « 1 » on airspeed scale (or V1 value when out of range).
- VR : Speed at which rotation is initiated to reach V2 at an altitude of 35 feet.
- V2 : Take-off safety speed reached before the altitude 35 feet with one engine failed. Represented by the SPEED SELECT symbol on airspeed scale as any speed selected on FCU.
- VMCA : Minimum control speed in flight at which aircraft can be controlled with 5° Max bank, in case of failure of the critical engine, the other engine remaining at take-off power (take-off flaps setting and gear retracted).
- F : Equal to 1.25 VS Slats 15 /Flaps 0 . It is the minimum speed at which the flaps may be retracted to 0°.
  Represented by « F » on airspeed scale.
- S : Equal to 1.25 VS of Slats 0 /Flaps 0 . It is the minimum speed at which the slats may be retracted to 0°.
  Represented by « S » on airspeed scale.
- O (« GREEN DOT ») : ENGINE OUT OPERATING speed (BEST LIFT TO DRAG RATIO speed or DRIFT DOWN speed) in clean configuration. It corresponds also to the FINAL TAKE OFF speed.

  It is equal to 220 kts at 120 t (264500 lbs) ± 1 kt per ton + 2 kt per 1000 ft above 20000 ft.

  Represented by « O » (green dot) on airspeed scale.
- VFE : Maximum speed for each slats and/or flaps configuration
- VREF : Reference speed used for a normal final approach, it is equal to 1.3 VS Slats 30 /Flaps 40 configuration.
- VLS : Lowest Selectable speed. It is represented by an amber strip along the airspeed scale which appears 5 seconds after lift-off.

  In the T/O schedule VLS = 1.2 Vs of the actual T/O configuration.
  In the LANDING Schedule VLS = 1.3 Vs of the actual landing configuration.
  - Change from T/O to landing schedule is triggered by SLATS/FLAPS handle displacement (either retraction or extention).
  - Change from landing to T/O schedule is triggered by LDG GEAR SHOCK absorber compression (A/C on ground).

  Above 25000 ft VLS is calculated so that there is 0.3 g margin with respect to BUFFETING.

  In case of SLATS or/and FLAPS JAMMING, VLS represents 1.3 Vs of the present (ABNORMAL) configuration.
- VSS : Stick shaker speed : The speed at which the stick shaker is activated. It is represented by a red and black strip along the airspeed scale. It is equal to 1.138 Vs in clean configuration, 1.08 Vs in other configurations. R R
- FINAL APPROACH SPEED : VAPP
  - VAPP = VLS + CONFIGURATION CORRECTION + WIND CORRECTION.

  Notes : 1 - In SLATS 30 /FLAPS 40 landing configuration, VLS = VREF
  2 - CONFIGURATION CORRECTION : Represents the speed increment to be applied for the approach speed in some cases of failure.
  This increment is indicated in LANDING chapter and in the corresponding emergency/abnormal check list. R R
  - For AUTOLAND or when significant ice accumulation has occured :
    VAPP = VLS + 5 Kt + WIND correction

2. WIND CORRECTION

WIND CORRECTION = 1/3 OF TOTAL WIND OR GUST IF HIGHER

- Maximum wind correction = 15 Kt.
- Do not apply a wind correction if configuration correction is 20 Kt or more.

INTRODUCTION :

These tables enable the crew to quickly determine take off performance out of an airport, for which no take off chart has been established. They are obviously conservative.

USE OF TABLES :

A first table gives the corrections to be applied to the runway length versus wind and runway slope. For each flap setting three other tables give, for three different pressure altitudes (0, 1000 and 2000 ft) function of temperature and corrected runway length, maximum take off weight, limitation codes and associated speeds. At the top of the table TREF and TMAX are given. For pressure altitude above 2000 ft the flight manual has to be used. Two graphs give for each configuration the penalty to apply in case of obstacles on the flight path.

HOW TO PROCEED ?

Enter the first table with runway length, slope and wind data. Determine the corrected runway length by applying the corrections due to slope and wind data. Select then the configuration as a function of this corrected runway length and enter the table(s) corresponding to the proper configuration and airport pressure altitude. As far as airport pressure altitude is concerned, two methods may be applied :

- either interpolate the take off performance by using the two tables enclosing the airport pressure altitude,
- or, if one only need a conservative figure, use the table corresponding to the pressure altitude immediately above the one of the considered airport.

Enter then the proper column of the table(s) with the corrected runway length as criteria. Once again, two methods may be applied :

- either interpolate the take off performance between the two columns enclosing the corrected runway length
- or, if one only need a conservative figure, use the column corresponding to the foregoing value of the corrected runway length.

A. DETERMINATION OF MAXIMUM TAKE OFF WEIGHT

Enter the proper table(s) and column(s) as explained above with the actual OAT and read maximum take off weight, limitation codes, V1, VR and V2. If necessary interpolate weight and speeds.
In case of obstacles refer to pages 13 to 18 and apply the corresponding weight and speed decrements.

B. DETERMINATION OF FLEXIBLE TEMPERATURE

Determination of flexible temperature is only possible without any obstacle on the flight path.
Enter the proper table(s) and column(s) with the actual take off weight and determine flexible temperature.

C. LIMITATION CODES :

2 : second segment
3 : runway
5 : tirespeed
6 : brake energy

Note : Limitation codes 1 (structural weight) and 4 (obstacles) do not appear in quick reference tables.

D. CORRECTIONS FOR WIND AND RUNWAY SLOPE

Runway length (m)		1 500	2 000	2 500	3 000	3 500	4 000
Effect of wind	per kt of tail* wind subtract (meters)	30	40	50	60	65	75
	per kt of head wind add (meters)	8	10	12	14	15	17
Effect of runway slope	per percent uphill slope subtract (meters)	75	175	225	300	365	440
	per percent downhill slope add (meters)	25	40	65	75	85	100

* For runway length above 2750 m
. reduce Max. Take-off weight by 2.5 tons (5500 lb)/kt tail wind R
. reduce V_1 by 2 kt/kt tail wind
. reduce V_R and V_2 by 1 %/kt tail wind.

GE Eng. : 80C2A2

SLATS 15/FLAPS 0
PRESSURE ALTITUDE : 0 FT
TREF = 44 / TMAX = 55

TEMPE-RATURE (°C)	CORRECTED RUNWAY LENGTH (meters)				
	3000	3250	3500	3750	4000
-20	163.0 2-3 172-175-179	165.0 6-2 176-180-183	165.0 6-2 173-180-183	165.0 6-2 171-180-183	165.0 6-2 168-180-183
-10	161.7 2-3 170-173-177	163.7 2-6 173-177-181	164.6 2-6 173-179-183	165.0 2-2 171-180-184	165.0 2-2 169-180-184
0	160.4 3-3 168-171-175	162.4 2-6 171-175-179	163.2 2-6 170-177-181	164.1 2-6 170-179-183	164.9 2-6 169-181-184
10	158.1 3-3 167-169-174	161.0 2-6 168-173-177	161.9 2-6 168-174-178	162.8 2-6 167-176-180	163.6 2-6 167-178-182
20	155.8 3-3 165-168-172	159.5 6-6 166-170-174	160.5 2-6 165-172-176	161.4 2-6 165-174-178	162.3 2-6 164-176-180
30	153.6 3-3 164-167-171	157.1 6-6 165-169-173	159.0 6-6 163-170-174	160.1 2-6 163-172-176	161.0 2-6 162-174-178
40	151.4 3-3 162-166-170	154.8 6-6 163-168-172	156.7 6-6 162-169-173	158.6 6-6 161-170-174	159.7 2-6 160-172-176
44	150.5 3-3 162-166-170	153.8 6-6 163-167-171	155.8 6-6 161-169-172	157.7 6-6 160-170-173	159.1 2-6 160-171-175
46	148.9 3-3 161-165-169	152.9 6-6 163-167-171	154.8 6-6 162-168-172	156.2 2-6 161-169-173	157.1 2-6 160-171-175
48	147.3 3-3 161-164-168	151.9 6-6 163-167-170	153.3 2-6 162-168-172	154.1 2-6 162-170-173	155.0 2-6 161-171-175
50	145.7 3-3 160-163-167	150.3 2-3 163-167-170	151.2 2-6 163-168-172	152.1 2-6 163-170-174	152.9 2-6 162-172-175
52	144.1 3-3 160-163-166	148.0 2-3 163-166-170	149.2 2-6 164-169-172	149.9 2-6 164-170-174	150.7 2-6 163-172-176
54	142.5 3-3 159-162-165	145.6 2-3 163-166-169	147.1 2-6 165-169-172	147.8 2-6 165-170-174	148.5 2-6 164-172-176
56	140.8 3-3 158-161-164	143.3 2-3 163-165-169	145.0 2-6 166-169-173	145.7 2-6 165-171-174	146.3 2-6 165-172-176
58	138.7 2-3 158-160-163	140.9 2-3 162-165-168	142.8 2-3 166-169-172	143.5 2-6 166-171-174	144.1 2-6 166-172-176
60	136.4 2-3 158-160-163	138.5 2-3 162-164-167	140.3 2-3 166-168-172	141.3 2-6 167-171-174	141.5 2-6 167-173-176
62	134.1 2-3 157-159-162	136.1 2-3 162-164-167	137.9 2-3 166-168-171	138.7 2-6 169-171-175	138.8 2-6 169-173-176
64	131.8 2-3 157-159-161	133.8 2-3 161-163-166	135.5 2-3 166-167-170	135.9 2-6 170-172-175	136.0 2-6 170-174-177
66	129.4 2-3 157-158-161	131.4 2-3 161-163-165	132.8 2-3 165-167-170	133.1 2-3 170-172-175	133.2 2-2 170-173-176
68	127.1 2-3 156-158-160	129.0 2-3 161-162-165	130.1 2-3 165-167-169	130.3 2-2 169-171-174	130.3 2-2 169-171-174
70	124.8 2-3 156-157-159	126.6 2-3 161-162-164	127.3 2-3 165-166-169	127.4 2-2 168-169-172	127.4 2-2 166-169-172
72	122.5 2-3 156-157-159	124.2 2-3 161-162-164	124.5 2-3 166-166-169	124.5 2-2 166-167-170	124.5 2-2 164-167-170

MAX WEIGHT(1000KG) CODES
V1(IAS.KT) - VR(IAS.KT) - V2(IAS.KT)

FB2.1040.003.AA.080

Code : 1040A

GE Eng. : 80C2A2

SLATS 15/FLAPS 0
PRESSURE ALTITUDE : 1000 FT
TREF = 40 / TMAX = 53

TEMPERATURE (°C)	CORRECTED RUNWAY LENGTH (meters)				
	3000	3250	3500	3750	4000
−20	160.8 2-3 170-173-177	163.0 2-6 174-178-182	163.8 2-6 174-180-184	164.6 2-6 173-182-185	165.0 2-2 172-183-186
−10	159.5 2-3 168-171-175	161.6 2-6 172-176-179	162.5 2-6 171-177-181	163.3 2-6 170-179-183	164.1 2-6 170-181-185
0	157.6 3-3 166-169-173	160.3 2-6 169-173-177	161.2 2-6 169-175-179	162.0 2-6 168-177-181	162.8 2-6 167-179-182
10	155.3 3-3 165-168-172	158.9 2-6 167-171-175	159.8 2-6 166-173-176	160.7 2-6 166-174-178	161.5 2-6 165-176-180
20	153.0 3-3 164-167-171	156.9 6-6 165-169-173	158.5 2-6 164-170-174	159.4 2-6 163-172-176	160.3 2-6 163-174-178
30	150.8 3-3 162-166-170	154.5 6-6 163-168-172	156.4 6-6 162-169-173	158.1 2-2 161-170-174	159.0 2-6 161-172-176
40	148.6 3-3 161-165-168	152.1 6-6 162-167-170	154.0 6-6 161-168-171	155.9 6-6 160-169-173	157.2 2-6 159-170-174
42	147.3 3-3 160-164-168	151.3 6-6 162-166-170	153.2 6-6 161-167-171	155.1 6-6 160-168-172	156.2 2-6 159-170-174
44	145.8 3-3 160-163-167	150.4 6-6 162-166-169	152.3 6-6 161-167-171	153.5 2-6 160-168-172	154.3 2-6 160-170-174
46	144.3 3-3 159-163-166	149.5 3-3 162-166-169	150.8 2-6 162-167-170	151.6 2-6 161-169-172	152.4 2-6 161-170-174
48	142.8 3-3 159-162-165	147.8 2-3 162-165-168	148.9 2-6 162-167-171	149.7 2-6 162-169-172	150.5 2-6 161-170-174
50	141.4 3-3 158-161-164	145.7 2-3 162-165-168	147.1 2-6 163-167-171	147.8 2-6 163-169-172	148.5 2-6 162-170-174
52	139.9 3-3 158-161-164	143.6 2-3 161-164-167	145.2 2-6 164-167-171	145.9 2-6 163-169-172	146.6 2-6 163-171-174
54	138.4 3-3 157-160-163	141.5 2-3 161-164-167	143.3 2-6 164-167-171	144.0 2-6 164-169-172	144.7 2-6 164-171-174
56	136.8 3-3 156-159-162	139.5 2-3 161-163-166	141.4 2-3 165-167-171	142.1 2-6 165-169-172	142.7 2-6 164-171-174
58	135.2 3-3 156-158-161	137.4 2-3 160-163-166	139.3 2-3 164-167-170	140.2 2-6 165-169-172	140.9 2-6 165-171-174
60	133.3 2-3 155-158-160	135.4 2-3 160-162-165	137.2 2-3 164-166-169	138.4 2-6 166-169-172	138.6 2-6 166-171-174
62	131.3 2-3 155-157-160	133.3 2-3 160-162-164	135.1 2-3 164-166-169	136.1 2-6 167-170-173	136.2 2-6 167-171-174
64	129.3 2-3 155-157-159	131.3 2-3 159-161-164	133.0 2-3 164-165-168	133.7 2-3 168-170-173	133.8 2-6 168-172-175
66	127.2 2-3 155-156-159	129.2 2-3 159-161-163	130.9 2-3 163-165-167	131.3 2-3 168-169-172	131.4 2-5 169-172-174
68	125.3 2-3 154-156-158	127.2 2-3 159-160-163	128.6 2-3 163-165-167	128.9 2-3 168-169-172	128.9 2-2 168-170-173
70	123.3 2-3 154-155-158	125.1 2-3 159-160-162	126.2 2-3 163-165-167	126.4 2-2 167-169-171	126.4 2-2 167-169-171

MAX WEIGHT(1000KG) CODES
V1(IAS.KT) - VR(IAS.KT) - V2(IAS.KT)

F82.1040.004.AA.080

Code : 1040A

GE Eng : 80C2A2

SLATS 15/FLAPS 0
PRESSURE ALTITUDE : 2000 FT
TREF = 36 / TMAX = 51

TEMPERATURE (°C)	CORRECTED RUNWAY LENGTH (meters)				
	3000	3250	3500	3750	4000
−20	158.5 2-3 168-171-175	160.9 2-3 173-176-180	161.8 2-6 172-178-182	162.6 2-6 172-180-184	163.3 2-6 171-182-185
−10	157.0 3-3 166-169-173	159.6 2-6 170-174-178	160.4 2-6 170-176-179	161.3 2-6 169-177-181	162.0 2-6 169-179-183
0	154.6 3-3 165-168-172	158.2 2-6 168-171-175	159.1 2-6 167-173-177	159.9 2-6 167-175-179	160.7 2-6 166-177-180
10	152.3 3-3 163-167-171	156.5 6-6 165-169-173	157.7 2-6 164-171-174	158.5 2-6 164-172-176	159.4 2-6 163-174-178
20	149.9 3-3 162-165-169	154.0 6-6 163-168-172	155.9 6-6 162-169-173	157.2 2-6 162-170-174	158.1 2-6 161-172-176
30	147.7 3-3 161-164-168	151.6 6-6 162-166-170	153.5 6-6 161-167-171	155.4 6-6 160-169-172	156.8 2-6 159-170-174
36	146.4 3-3 160-164-167	150.2 6-6 161-166-169	152.1 6-6 160-167-170	154.0 6-6 159-168-171	155.9 6-6 158-169-173
38	145.2 3-3 159-163-167	149.4 6-6 161-165-169	151.3 6-6 160-166-170	153.2 6-6 159-167-171	154.7 2-6 158-169-172
40	143.9 3-3 159-162-166	148.6 6-6 161-165-168	150.5 6-6 160-166-170	152.3 2-2 159-167-171	153.1 2-6 159-169-172
42	142.6 3-3 158-162-165	147.8 3-3 161-165-168	149.6 6-6 160-166-169	150.6 2-6 160-167-171	151.5 2-6 159-169-172
44	141.3 3-3 158-161-164	146.4 3-3 161-164-167	148.2 2-6 161-166-169	149.0 2-6 160-167-171	149.8 2-6 160-169-172
46	139.9 3-3 157-160-164	145.0 3-3 160-163-166	146.5 2-6 161-166-169	147.3 2-6 161-167-171	148.1 2-6 160-169-172
48	138.6 3-3 157-160-163	143.4 2-3 160-163-166	144.9 2-6 162-166-169	145.6 2-6 161-167-171	146.4 2-6 161-169-172
50	137.3 3-3 156-159-162	141.6 2-3 160-162-165	143.2 2-6 162-166-169	144.0 2-6 162-167-171	144.6 2-6 162-169-172
52	135.9 3-3 156-158-161	139.7 2-3 159-162-165	141.6 2-6 163-166-169	142.3 2-6 162-167-171	143.0 2-6 162-169-172
54	134.4 3-3 155-158-160	138.0 2-3 159-161-164	139.9 2-3 163-166-169	140.7 2-6 163-167-170	141.3 2-6 163-169-172
56	133.0 3-3 155-157-160	136.2 2-3 158-161-164	138.1 2-3 163-165-168	139.1 2-6 164-167-170	139.7 2-6 163-169-172
58	131.7 3-3 154-156-159	134.5 2-3 158-161-163	136.4 2-3 162-165-167	137.5 2-6 164-167-170	138.1 2-6 164-169-172
60	130.3 3-3 153-156-158	132.7 2-3 158-160-163	134.6 2-3 162-164-167	135.9 2-6 165-167-170	136.3 2-6 165-169-172
62	129.0 2-3 153-155-157	131.0 2-3 157-160-162	132.8 2-3 162-164-166	134.2 2-6 166-168-170	134.3 2-5 165-169-172
64	127.2 2-3 153-154-157	129.2 2-3 157-159-161	131.0 2-3 161-163-166	132.2 2-3 166-167-170	132.3 2-5 165-169-172
66	125.6 2-3 152-154-156	127.5 2-3 157-159-161	129.2 2-3 161-163-165	130.2 2-3 165-167-170	130.2 2-5 166-168-171
68	123.9 2-3 152-154-156	125.8 2-3 157-158-160	127.5 2-3 161-163-165	128.1 2-3 165-167-169	128.2 2-5 166-168-171

MAX WEIGHT(1000KG) CODES
V1(IAS.KT) - VR(IAS.KT) - V2(IAS.KT)

FB2.1040.005.AA.080

Code : 1040A

GE Eng : 80C2A2

SLATS 15/FLAPS 15
PRESSURE ALTITUDE : 0 FT
TREF = 44 / TMAX = 55

TEMPERATURE (°C)	CORRECTED RUNWAY LENGTH (meters)				
	2250	2500	2750	3000	3250
-20	154.8 2-3 155-157-162	157.8 2-3 161-164-168	160.4 2-3 166-170-174	162.7 2-3 172-175-179	163.5 2-2 174-178-181
-10	153.4 2-3 153-155-160	156.5 2-3 158-162-166	159.2 2-3 164-167-171	161.5 2-3 169-173-177	163.2 2-2 173-178-181
0	152.0 3-3 150-153-158	155.3 2-3 156-160-164	158.0 2-3 161-165-169	160.3 2-3 166-171-174	162.3 2-3 171-176-179
10	149.7 3-3 149-152-157	154.0 2-3 154-157-162	156.8 2-3 159-163-167	159.2 2-3 164-169-172	161.2 2-3 169-174-177
20	147.4 3-3 147-151-156	152.8 2-3 152-156-160	155.6 2-3 157-161-165	158.0 2-3 162-167-170	160.1 2-6 166-172-175
30	145.1 3-3 146-149-154	151.6 2-3 150-154-158	154.5 2-3 155-159-163	156.9 2-3 160-165-168	158.9 2-6 164-169-173
40	142.9 3-3 145-148-153	149.7 3-3 148-152-157	153.2 2-3 153-158-162	155.7 2-3 158-163-167	157.8 2-6 161-167-171
44	142.0 3-3 144-148-153	148.7 3-3 148-152-156	152.7 2-3 152-157-161	155.2 2-3 157-162-166	157.2 2-6 161-167-170
46	140.5 3-3 144-147-152	147.2 3-3 147-151-155	150.4 2-3 152-157-161	152.9 2-3 157-162-166	155.1 2-3 161-167-170
48	138.9 3-3 143-146-151	145.4 2-3 147-150-155	148.2 2-3 152-156-160	150.6 2-3 157-161-165	152.7 2-3 161-166-170
50	137.3 3-3 143-146-150	143.1 2-3 147-150-154	145.9 2-3 152-156-160	148.2 2-3 156-161-165	150.3 2-3 161-166-169
52	135.8 3-3 142-145-149	140.9 2-3 147-150-154	143.6 2-3 151-155-159	145.9 2-3 156-161-164	147.9 2-3 161-166-169
54	134.3 3-3 142-144-149	138.7 2-3 146-149-154	141.3 2-3 151-155-159	143.6 2-3 156-161-164	145.4 2-3 161-166-169
56	132.6 3-3 141-144-148	136.5 2-3 146-149-153	139.0 2-3 151-155-158	141.2 2-3 156-160-164	143.0 2-3 161-165-168
58	130.8 3-3 141-143-147	134.2 2-3 146-148-152	136.7 2-3 151-154-158	138.8 2-3 156-159-163	140.6 2-3 161-165-168
60	129.0 2-3 140-142-146	132.0 2-3 145-148-152	134.4 2-3 150-154-157	136.4 2-3 155-159-162	138.1 2-2 159-164-167
62	126.9 2-3 140-141-145	129.7 2-3 145-147-151	132.1 2-3 150-153-157	134.1 2-3 155-158-162	135.3 2-2 158-162-165
64	124.7 2-3 139-141-145	127.5 2-3 145-147-151	129.8 2-3 150-153-156	131.7 2-3 155-158-161	132.5 2-2 157-160-163
66	122.5 2-3 139-140-144	125.2 2-3 144-146-150	127.4 2-3 149-152-155	129.3 2-3 155-157-160	129.7 2-2 156-159-161
68	120.3 2-3 139-140-143	122.9 2-3 144-146-149	125.1 2-3 149-151-155	126.9 3-3 154-157-160	127.0 2-2 153-157-160
70	118.2 2-3 138-140-143	120.7 2-3 144-145-149	122.8 2-3 149-151-154	124.2 2-2 153-155-158	124.2 2-2 151-155-158
72	116.0 2-3 138-139-142	118.4 2-3 144-145-148	120.5 2-3 149-151-154	121.4 2-2 151-154-156	121.4 2-2 149-154-156

MAX WEIGHT(1000KG) CODES
V1(IAS.KT) - VR(IAS.KT) - V2(IAS.KT)

FB2.1040.006.AA.080

Code : 1040A

GE Eng. : 80C2A2

SLATS 15/FLAPS 15
PRESSURE ALTITUDE : 1000 FT
TREF = 40 / TMAX = 53

TEMPERATURE (°C)	CORRECTED RUNWAY LENGTH (meters)				
	2250	2500	2750	3000	3250
−20	152.6 2-3 153-156-160	155.7 2-3 159-162-166	158.3 2-3 164-168-172	160.5 2-3 169-173-177	161.8 2-2 173-177-180
−10	151.2 2-3 151-153-158	154.4 2-3 156-160-164	157.1 2-3 161-165-169	159.4 2-3 167-171-175	161.3 2-3 172-176-179
0	149.2 3-3 149-152-156	153.2 2-3 154-158-162	155.9 2-3 159-163-167	158.2 2-3 164-169-172	160.2 2-3 169-174-177
10	146.9 3-3 147-150-155	151.9 2-3 152-156-160	154.7 2-3 157-161-165	157.1 2-3 162-167-170	159.2 2-3 167-172-175
20	144.6 3-3 146-149-154	150.7 2-3 150-154-158	153.6 2-3 155-159-163	156.0 2-3 160-165-168	158.1 2-3 164-170-173
30	142.3 3-3 145-148-153	149.0 3-3 148-152-156	152.4 2-3 153-157-161	154.9 2-3 158-163-166	157.0 2-6 162-167-171
40	140.1 3-3 143-147-152	146.8 3-3 147-151-155	150.7 2-3 151-156-160	153.2 2-3 156-161-165	155.3 2-6 160-166-169
42	138.8 3-3 143-146-151	145.6 3-3 146-150-155	149.5 2-3 151-155-159	152.0 2-3 155-160-164	154.2 2-3 160-165-169
44	137.5 3-3 142-146-150	144.2 3-3 146-149-154	147.5 2-3 150-155-159	150.0 2-3 155-160-164	152.1 2-3 160-165-168
46	136.0 3-3 142-145-149	142.7 2-2 145-149-153	145.5 2-3 150-154-158	147.9 2-3 155-160-163	149.9 2-3 160-165-168
48	134.5 3-3 141-144-149	140.7 2-3 145-148-153	143.4 2-3 150-154-158	145.8 2-3 155-159-163	147.8 2-3 159-164-168
50	133.1 3-3 141-144-148	138.7 2-3 145-148-152	141.4 2-3 150-154-158	143.7 2-3 155-159-163	145.7 2-3 159-164-167
52	131.7 3-3 140-143-147	136.7 2-3 145-148-152	139.3 2-3 150-153-157	141.6 2-3 154-159-162	143.5 2-3 159-164-167
54	130.2 3-3 140-142-146	134.8 2-3 144-147-151	137.3 2-3 149-153-157	139.5 2-3 154-158-162	141.4 2-3 159-163-166
56	128.7 3-3 139-142-146	132.8 2-3 144-147-151	135.3 2-3 149-152-156	137.4 2-3 154-158-161	139.3 2-3 159-163-166
58	127.2 3-3 139-141-145	130.8 2-3 144-146-150	133.3 2-3 149-152-156	135.4 2-3 154-157-160	137.2 2-3 158-162-165
60	125.7 3-3 138-140-144	128.9 2-3 143-146-150	131.3 2-3 148-151-155	133.4 2-3 153-157-160	135.1 2-3 158-162-165
62	124.2 2-3 138-139-143	127.0 2-3 143-145-149	129.3 2-3 148-151-154	131.3 2-3 153-156-159	132.8 2-2 157-161-163
64	122.3 2-3 137-139-143	125.0 2-3 143-145-148	127.3 2-3 148-150-154	129.2 2-3 153-156-159	130.4 2-2 156-159-162
66	120.4 2-3 137-139-142	123.1 2-3 142-144-148	125.3 2-3 147-150-153	127.2 2-3 152-155-158	128.0 2-2 155-158-160
68	118.5 2-3 137-138-142	121.1 2-3 142-144-147	123.3 2-3 147-149-153	125.1 2-3 152-155-158	125.6 2-2 153-156-159
70	116.7 2-3 136-138-141	119.2 2-3 142-144-147	121.3 2-3 147-149-152	123.1 2-3 152-154-157	123.2 2-2 151-155-157

MAX WEIGHT(1000KG) CODES
V1(IAS.KT) - VR(IAS.KT) - V2(IAS.KT)

FB2.1040.007.AA.080

Code : 1040A

GE Eng. : 80C2A2

SLATS 15/FLAPS 15
PRESSURE ALTITUDE : 2000 FT
TREF = 36 / TMAX = 51

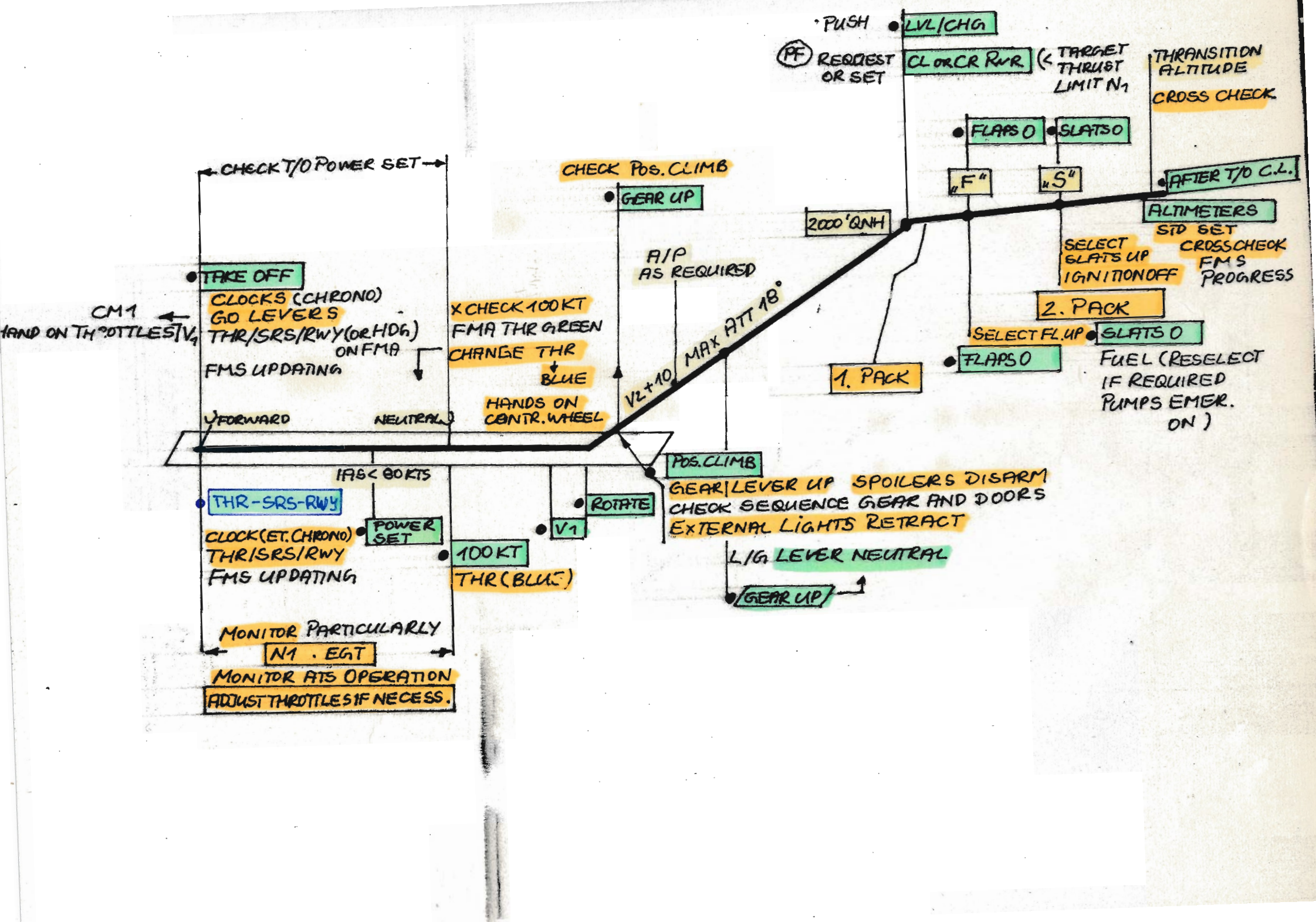
TEMPERATURE (°C)	CORRECTED RUNWAY LENGTH (meters)				
	2250	2500	2750	3000	3250
-20	150.3 2-3 151-153-158	153.5 2-3 156-160-164	156.1 2-3 162-166-169	158.3 2-3 167-171-175	160.2 2-2 171-176-179
-10	148.6 3-3 149-152-156	152.2 2-3 154-158-162	154.9 2-3 159-163-167	157.2 2-3 164-169-172	159.1 2-3 169-174-177
0	146.1 3-3 147-150-155	150.9 2-3 152-155-160	153.7 2-3 157-161-165	156.1 2-3 162-167-170	158.1 2-3 167-172-175
10	143.8 3-3 146-149-154	149.7 2-3 150-153-158	152.5 2-3 155-159-163	154.9 2-3 160-165-168	157.0 2-3 164-169-173
20	141.5 3-3 144-148-152	148.2 3-3 148-152-156	151.4 2-3 153-157-161	153.8 2-3 157-162-166	155.9 2-3 162-167-171
30	139.3 3-3 143-146-151	146.0 3-3 147-150-155	150.1 2-3 151-155-159	152.7 2-3 155-160-164	154.8 2-6 160-165-169
36	138.0 3-3 142-146-151	144.7 3-3 146-150-154	149.4 2-3 150-154-158	152.0 2-3 154-159-163	154.1 2-6 158-164-168
38	136.9 3-3 142-145-150	143.6 3-3 145-149-153	147.9 2-3 149-154-158	150.5 2-3 154-159-163	152.7 2-3 158-164-167
40	135.6 3-3 141-145-149	142.3 3-3 145-148-153	146.2 2-3 149-153-157	148.7 2-3 154-159-162	150.9 2-3 158-164-167
42	134.3 3-3 141-144-149	141.0 3-3 144-148-152	144.5 2-3 149-153-157	146.9 2-3 154-158-162	149.0 2-3 158-163-167
44	133.0 3-3 140-143-148	139.7 3-3 144-147-151	142.7 2-3 149-153-157	145.1 2-3 153-158-162	147.2 2-3 158-163-166
46	131.7 3-3 140-143-147	138.2 2-3 144-147-151	140.9 2-3 148-152-156	143.3 2-3 153-158-161	145.3 2-3 158-163-166
48	130.4 3-3 139-142-147	136.5 2-3 143-146-150	139.1 2-3 148-152-156	141.4 2-3 153-157-161	143.4 2-3 157-162-165
50	129.1 3-3 139-142-146	134.7 2-3 143-146-150	137.4 2-3 148-152-155	139.6 2-3 153-157-160	141.5 2-3 157-162-165
52	127.8 3-3 139-141-145	133.0 2-3 143-146-150	135.6 2-3 148-151-155	137.8 2-3 152-156-160	139.7 2-3 157-161-165
54	126.4 3-3 138-140-144	131.3 2-3 142-145-149	133.9 2-3 147-150-154	136.1 2-3 152-156-159	137.9 2-3 157-161-164
56	125.1 3-3 138-140-144	129.6 2-3 142-145-148	132.2 2-3 147-150-154	134.3 2-3 152-155-159	136.1 2-3 156-160-163
58	123.8 3-3 137-139-143	128.0 2-3 142-144-148	130.5 2-3 147-150-153	132.6 2-3 151-155-158	134.3 2-3 156-160-163
60	122.5 3-3 137-138-142	126.4 2-3 141-144-147	128.8 2-3 146-149-153	130.8 2-3 151-154-158	132.6 2-3 156-159-162
62	121.2 3-3 136-138-142	124.7 2-3 141-143-147	127.1 2-3 146-149-152	129.1 2-3 151-154-157	130.8 2-3 156-159-162
64	120.0 3-3 136-137-141	123.1 2-3 141-143-146	125.4 2-3 146-148-152	127.3 2-3 150-153-156	129.0 2-2 155-158-161
66	118.7 2-3 135-137-140	121.4 2-3 141-143-146	123.7 2-3 145-148-151	125.6 2-3 150-153-156	126.9 2-2 154-157-160
68	117.1 2-3 135-136-140	119.8 2-3 140-142-145	122.0 2-3 145-147-151	123.9 2-3 150-153-155	124.9 2-2 153-156-158

MAX WEIGHT(1000KG) CODES
V1(IAS.KT) - VR(IAS.KT) - V2(IAS.KT)

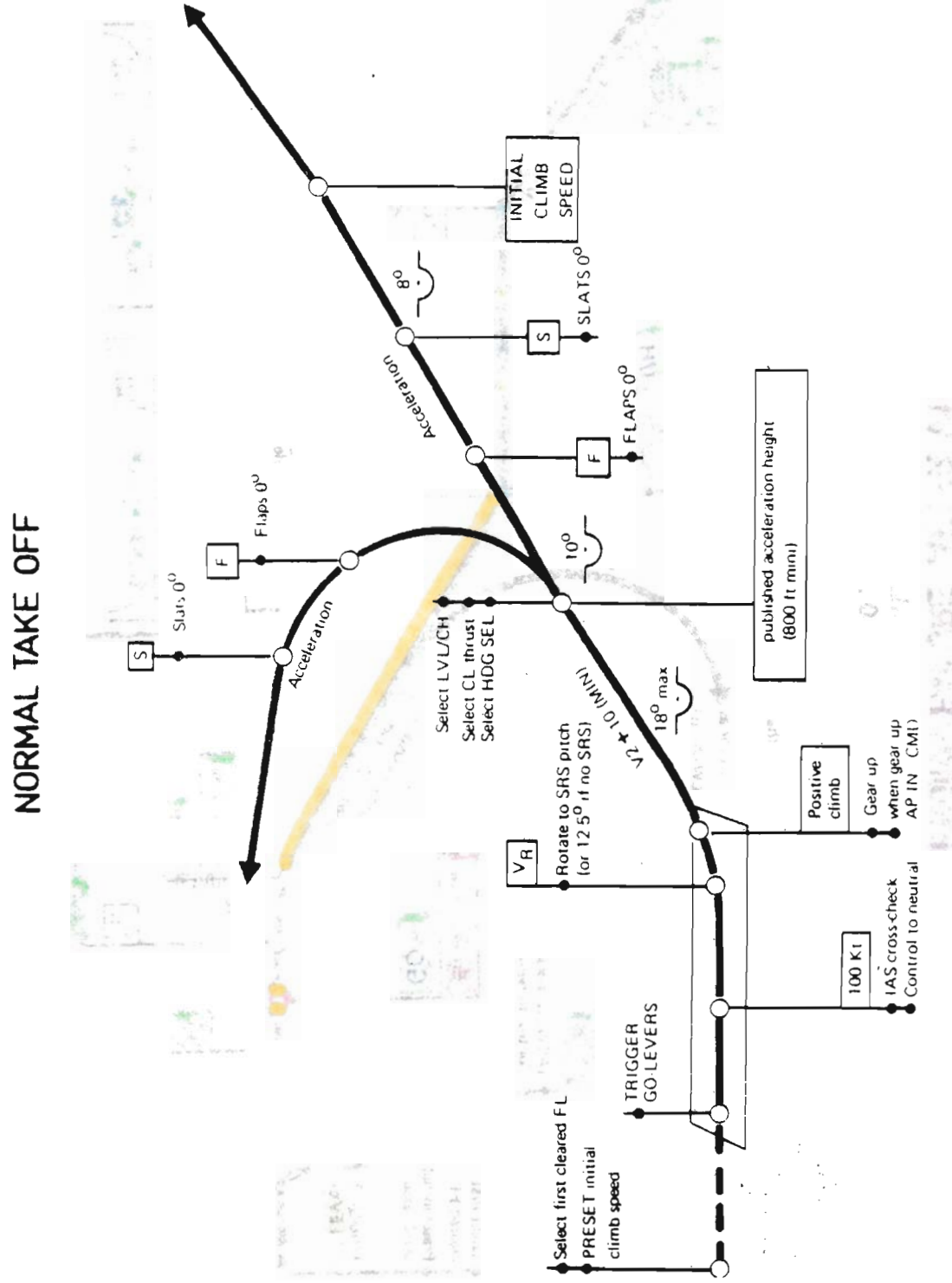
FB2.1040.008.AA.080

Code : 1040A

GE Eng. : 80C2A2

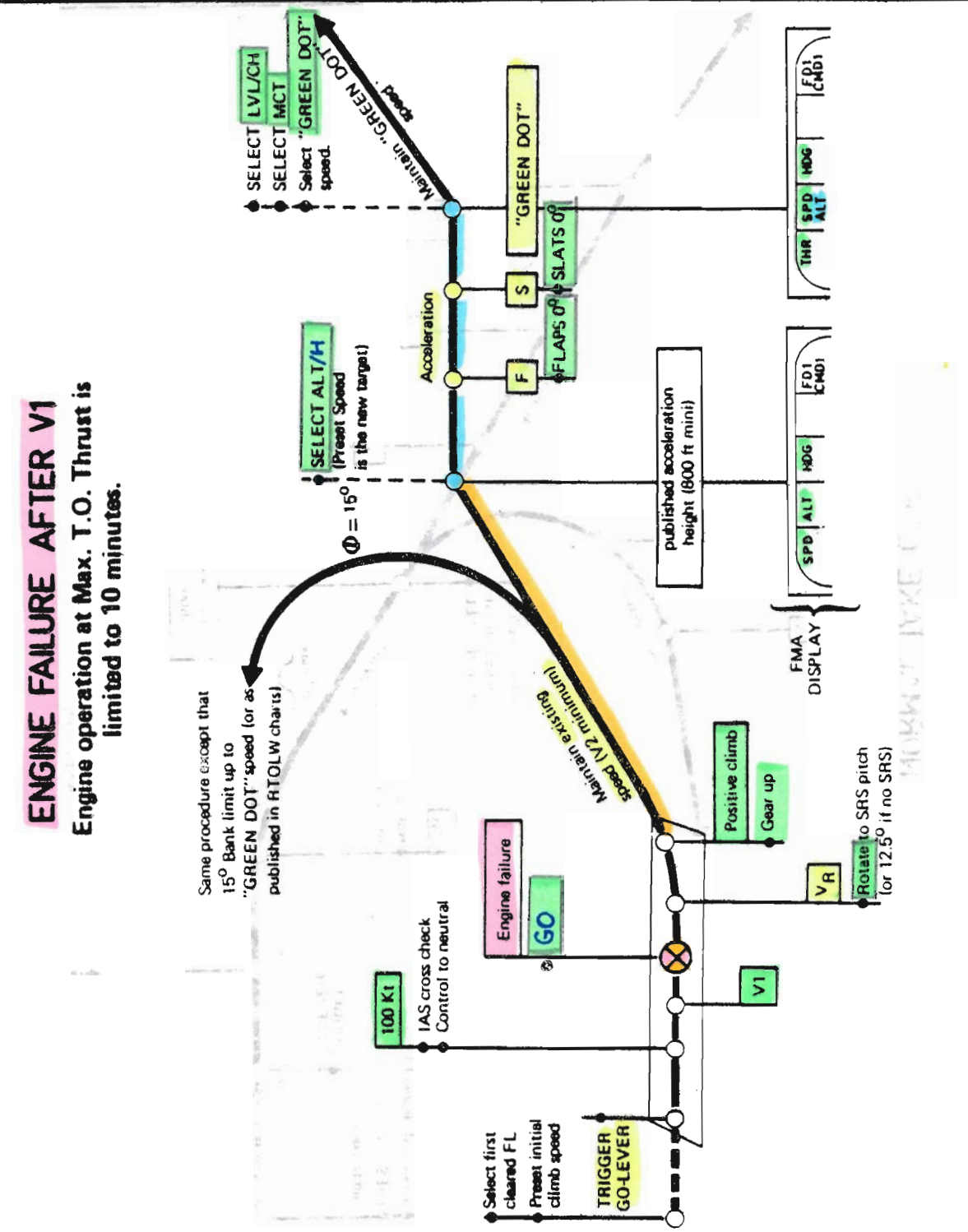

PUSH
LVL/CHG
PF
REQUEST OR SET
CL OR CR RWR
TARGET THRUST LIMIT N1
TRANSITION ALTITUDE
CROSS CHECK
FLAPS 0
SLATS 0
"F"
"S"
AFTER T/O C.L.
ALTIMETERS STD SET CROSSCHECK FMS PROGRESS
2000' QNH
SELECT SLATS UP IGNITION OFF
2. PACK
SELECT FL.UP
SLATS 0
FLAPS 0
1. PACK
FUEL (RESELECT IF REQUIRED PUMPS EMER. ON)
CHECK T/O POWER SET
CHECK POS. CLIMB
GEAR UP
A/P AS REQUIRED
MAX ATT 18°
V2+10
TAKE OFF
CLOCKS (CHRONO) GO LEVERS
CM1 HAND ON THROTTLES
V1
THR/SRS/RWY (OR HDG) ON FMA
FMS UPDATING
X CHECK 100 KT
FMA THR GREEN
CHANGE THR BLUE
HANDS ON CONTR. WHEEL
FORWARD
NEUTRAL
IAS < 80 KTS
POS. CLIMB
GEAR LEVER UP SPOILERS DISARM
CHECK SEQUENCE GEAR AND DOORS
EXTERNAL LIGHTS RETRACT
L/G LEVER NEUTRAL
GEAR UP
THR-SRS-RWY
CLOCK (ET. CHRONO)
THR/SRS/RWY
FMS UPDATING
POWER SET
100 KT
THR (BLUE)
V1
ROTATE
MONITOR PARTICULARLY
N1 . EGT
MONITOR ATS OPERATION
ADJUST THROTTLES IF NECESS.

NORMAL TAKE OFF



Vers. : All

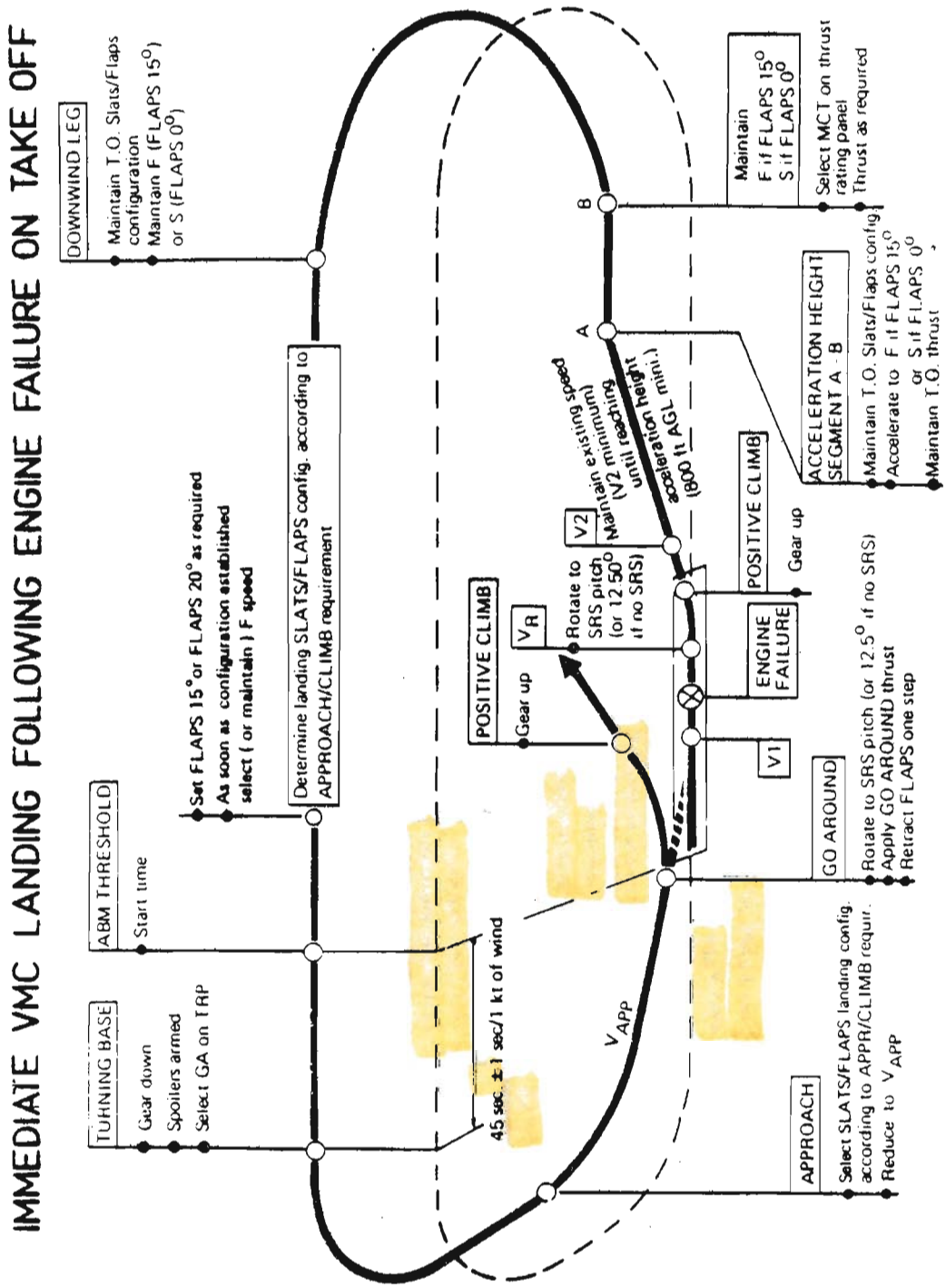
Eng. : All



Vers. : All

Eng. : All

IMMEDIATE VMC LANDING FOLLOWING ENGINE FAILURE ON TAKE OFF

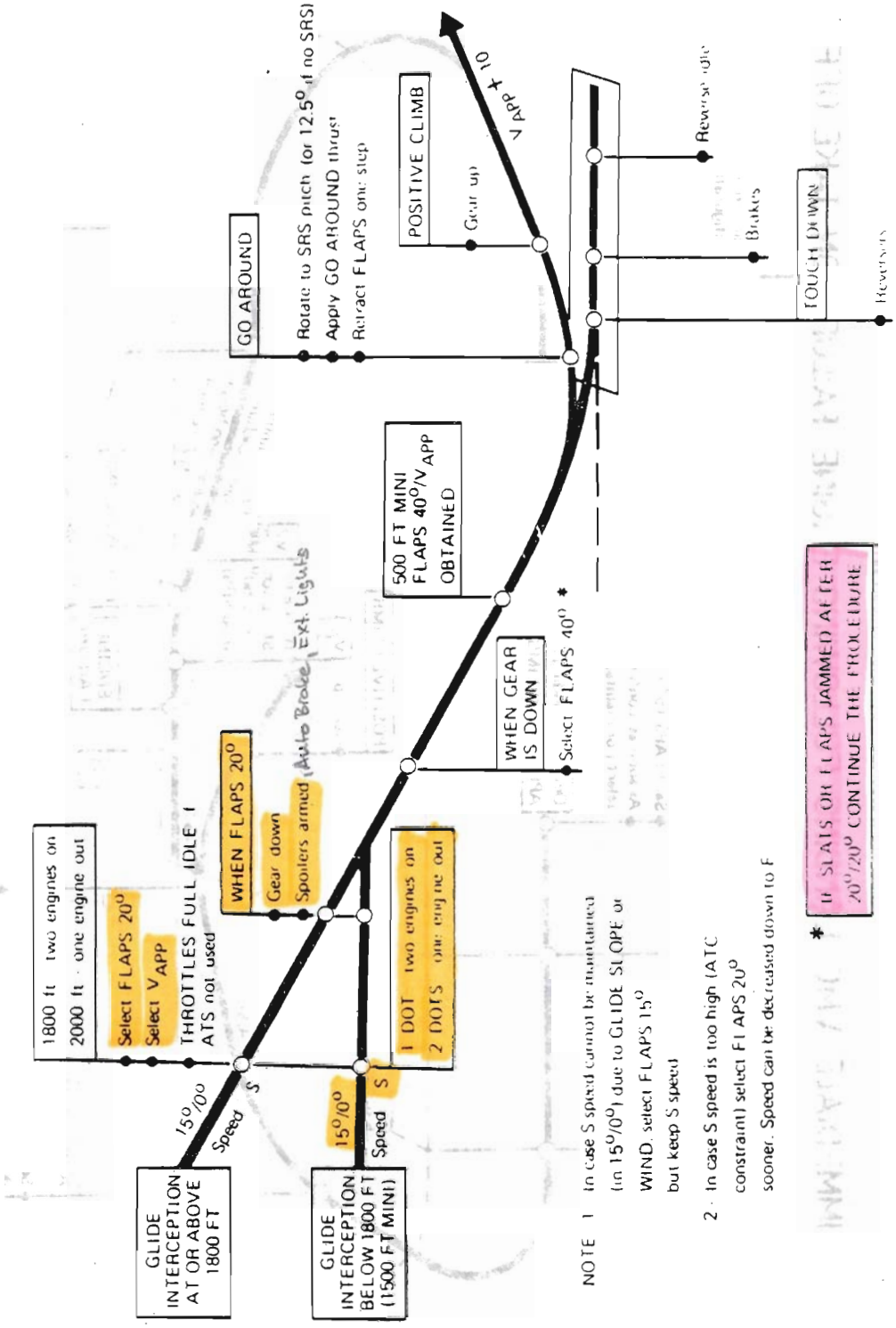


Vers. : All

Eng. : All

STANDARD APPROACH : DECELERATED APPROACH

Performed manually or with AP engaged on a stabilized final slope of about 3°
(visual or ILS approach)



Vers. : All

Eng. : All

STANDARD APPROACH : DECELERATED APPROACH

(TNNB)
S-15°
IAS=S

INTERCEPTION HDG
MAP 15 NM
HDG SELECT P/B on FCU
ILS (NAV-SELECTOR)
LAND ARMED
2ND AP ON

ILS freq. + course →

LANDING BRIEFING
„QNH SET"
APPROACH CHECK LIST

PF
PNF

LOC* → RWY HDG
LOC GREEN
G/S* → GOAROUND ALT → QFE
G/S GREEN

LANDING ELEVATION = 0

THROTTLES IDLE

PF

1800'AGL 2E 2300'QNH(TLSE)
2000'AGL 1E 2500'QNH(TLSE)

FLAPS 20
SELECT VAPP
SET GO AROUND ALTITUDE!
SET QFE

GLID INTERCEPTION AT OR ABOVE 1800'AGL
2300'QNH (TLSE)
+GS*

1,5°/0°
„S"

GLIDE INTERCEPTION BELOW 1800'AGL
2300'QNH (TLSE)

1,5°/0°
„S"

PF
GEAR DOWN

PNF
LG DOWN
SPOILERS ARMED
AUTOBRAKE
EXT. LTS : EXT+ON

GEAR DOWN

PF FLAPS 40

PNF SELECT FLAPS40

1 DOT 2 ENG
2 DOTS 1 ENG
BELOW G/S

QFE

PNF SELECT FLAPS 20

PNF FLAPS 20

SET QFE
LANDING ELEVATION = 0

PF LANDING C.L.

PF
GO AROUND FLAPS
PUSH HDG/SEL ROT/SEL!
(nach GO AROUND Basic Mode!)
ROTATE TO SRS PITCH (OR 12,5° if no SRS)
APPLY GO AROUND THRUST pressing GO LEVERS
RETRACT FLAPS ONE STEP
SELECT 250KT/S=SLAT 0
F-FLAPS 0

PNF CALL OUT OUTER MARKER CLOCK
• 1000'AGL (BARO REF)
• 500'
• 400 LAND GREEN FMA!
• 100 ABOVE (BARO)
• [VISUAL → LANDING]
• MINIMUM → LANDING / GOAROUND FLAPS
CM 1

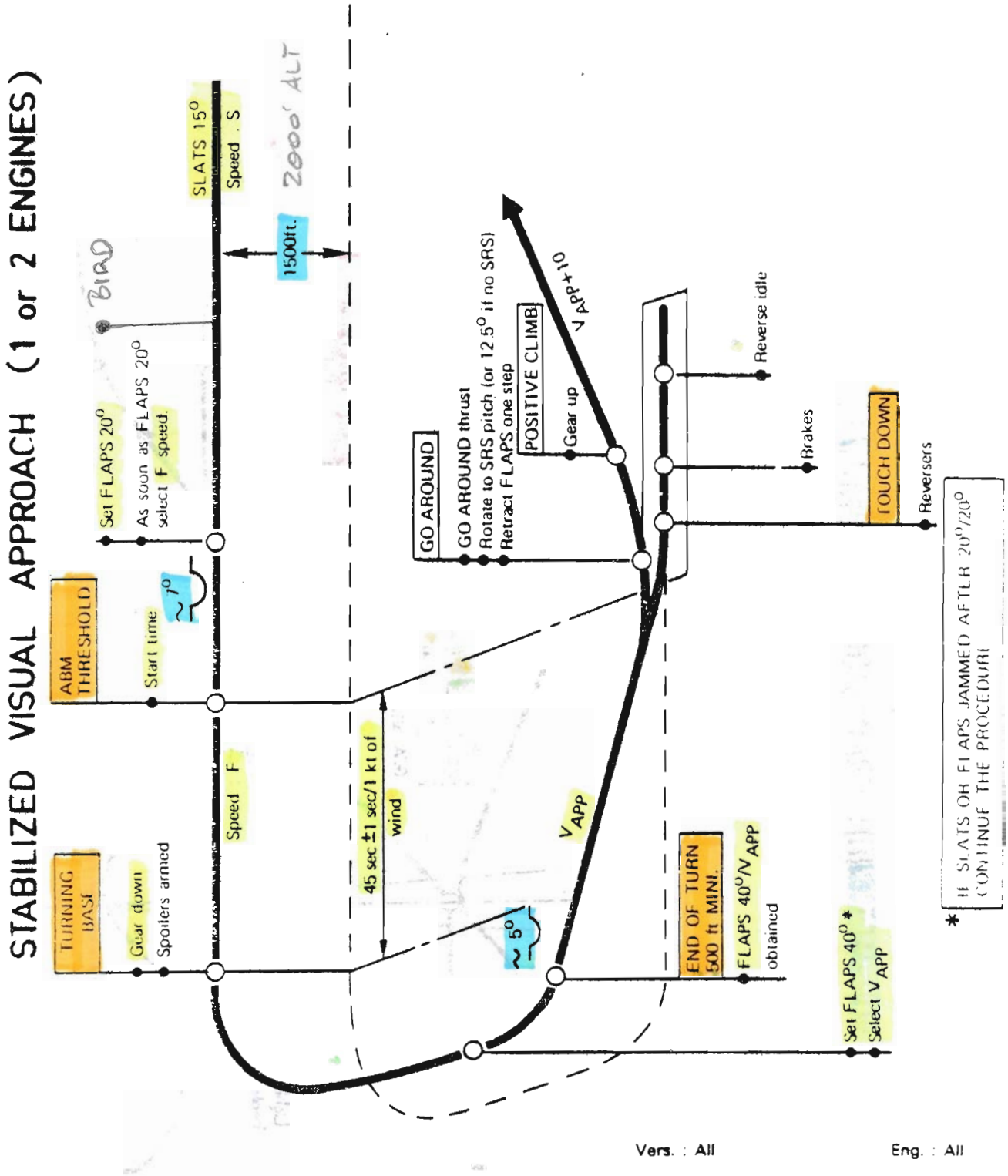
PNF POSITIVE CLIMB

PF GEAR UP

VAPP+10

GEAR UP
PNF

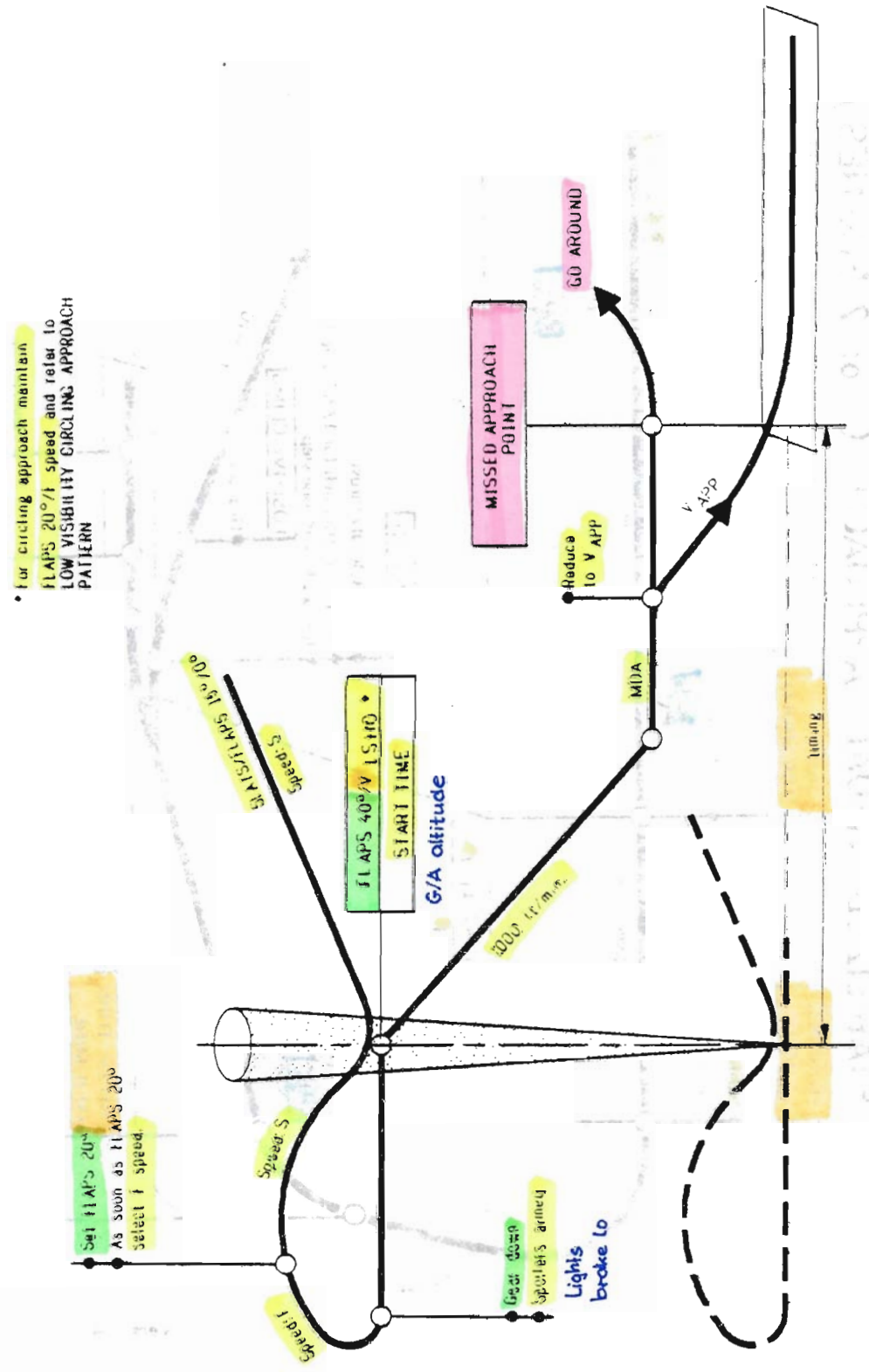
TOUCH DOWN
REVERS
80KTS
60KTS
DISCONN. AP



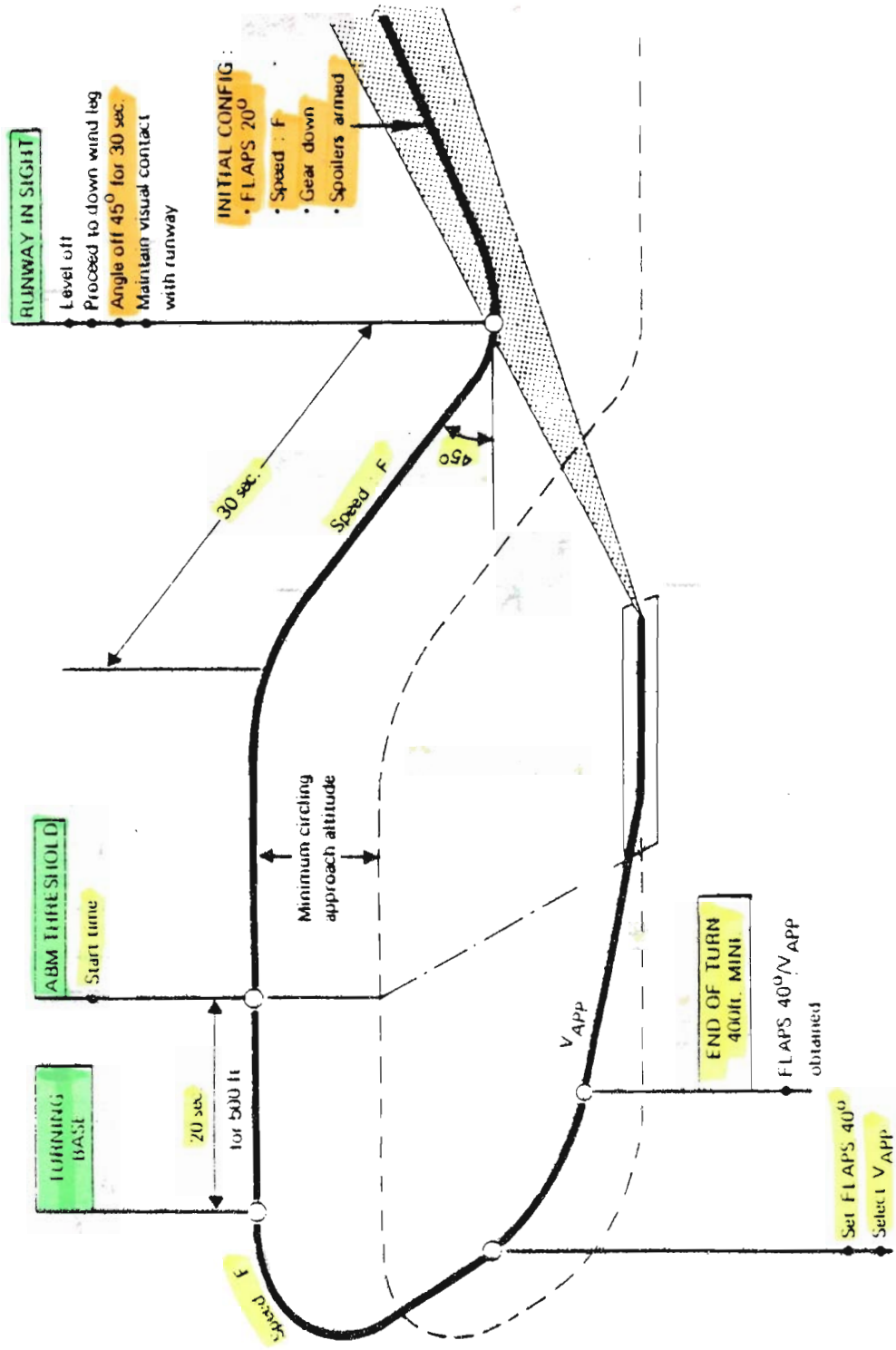
Vers. : All

Eng. : All

VOR-ADF NON PRECISION APPROACH (1 or 2 ENGINES)

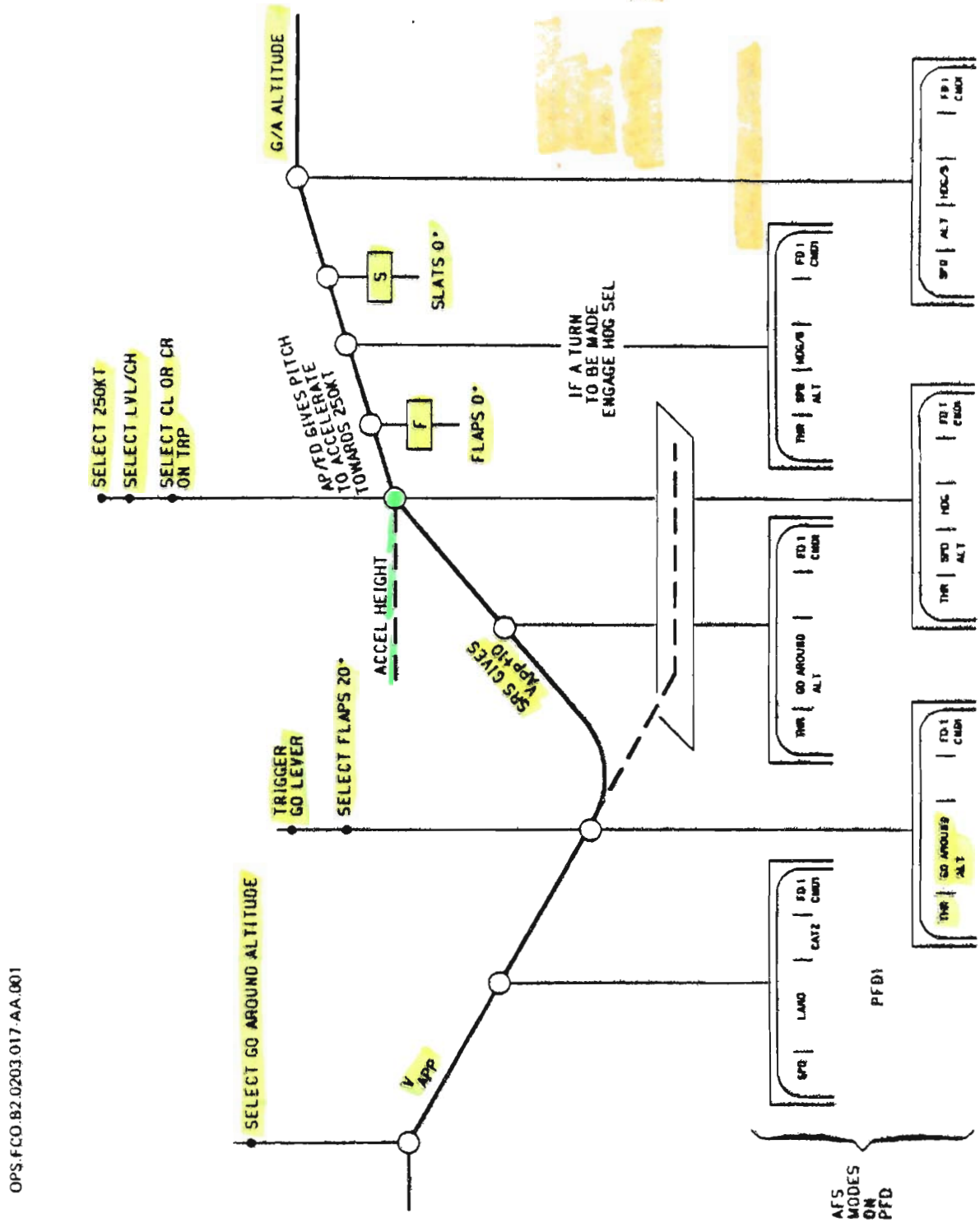


LOW VISIBILITY CIRCLING APPROACH



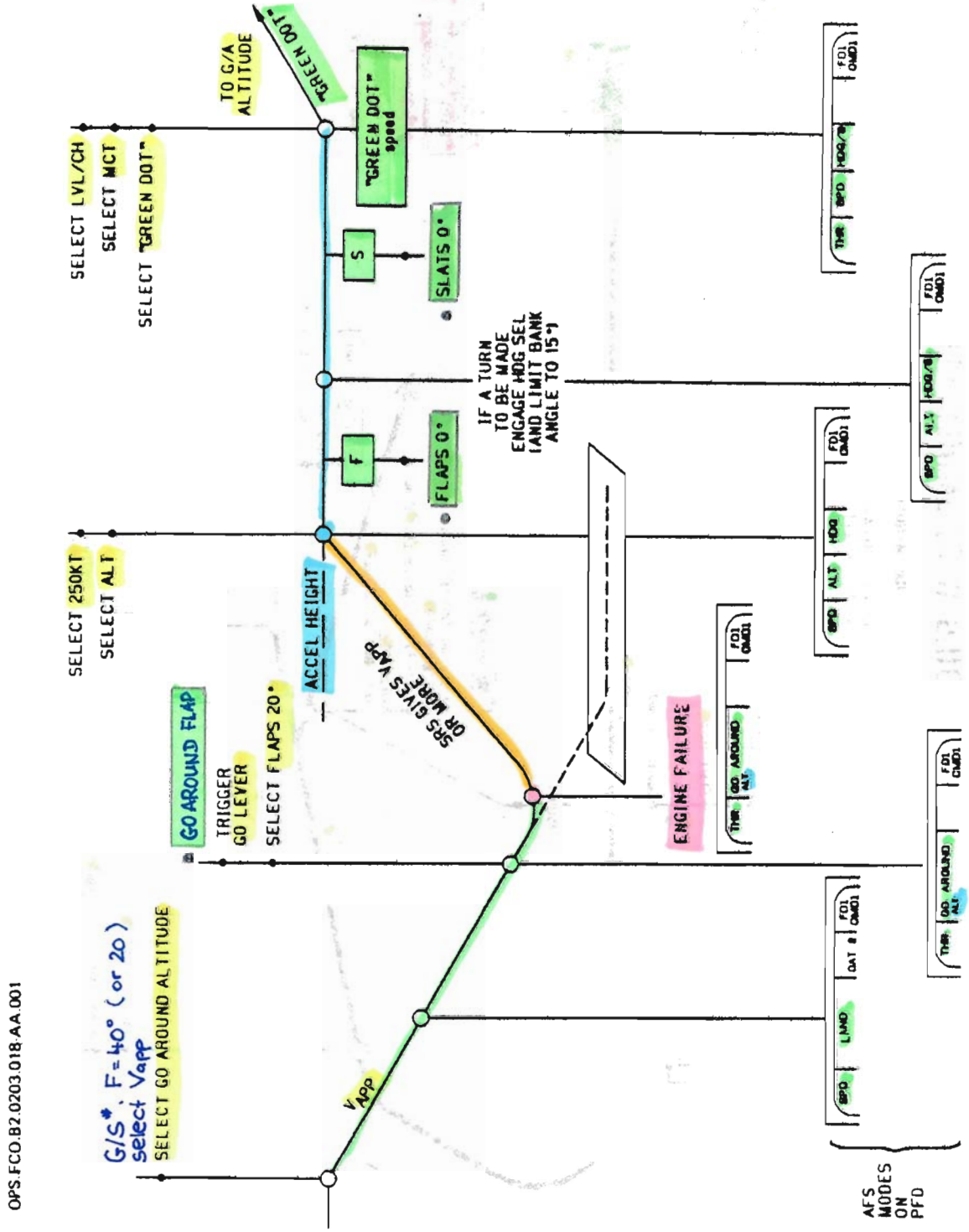
Vers. . All Eng. . All

TWO ENGINE GO AROUND



OPS.FCO.B2.0203.017.AA.001

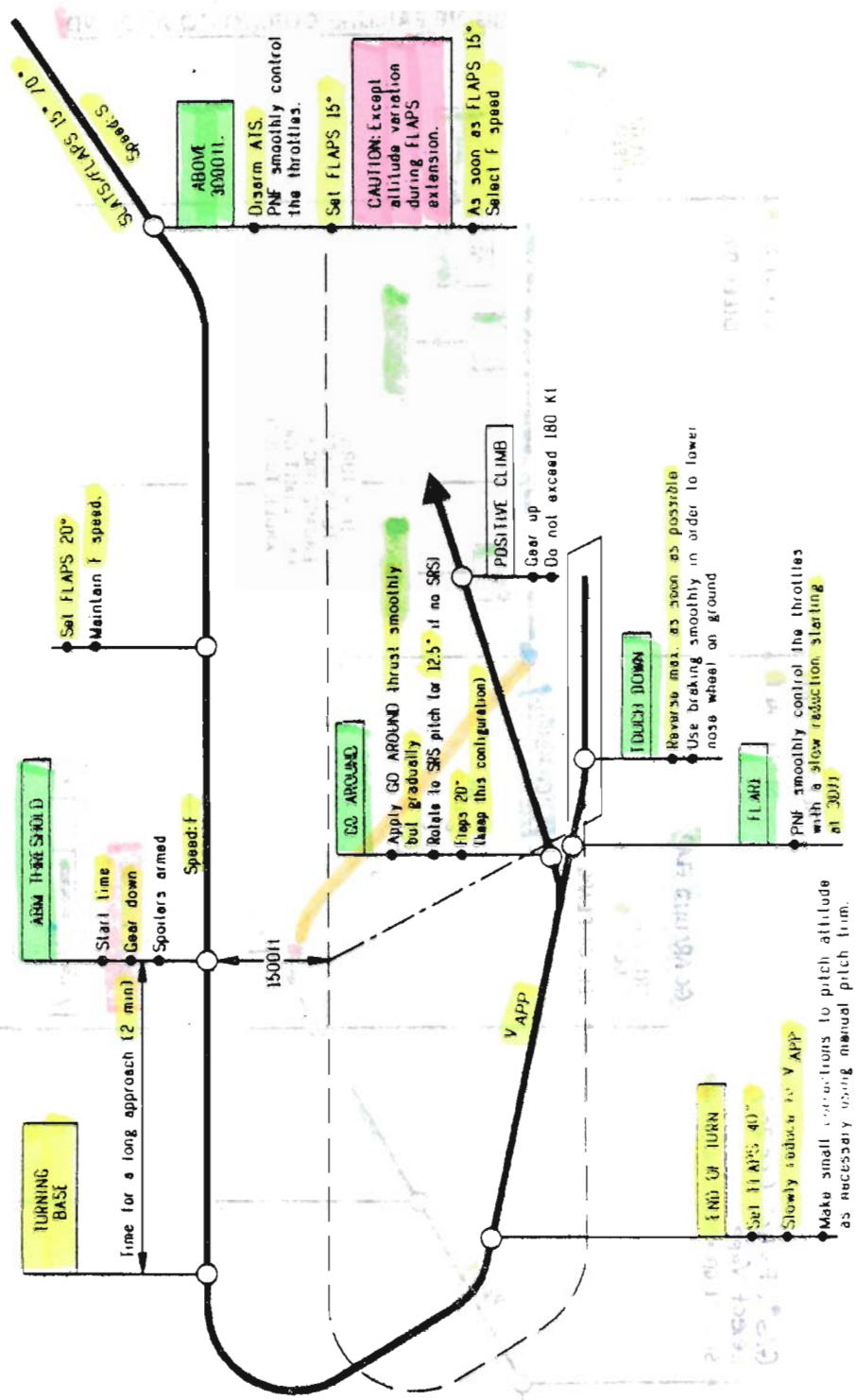
ENGINE FAILURE DURING GO AROUND



LANDING WITH JAMMED ELEVATOR

USE MANUAL PITCH TRIM

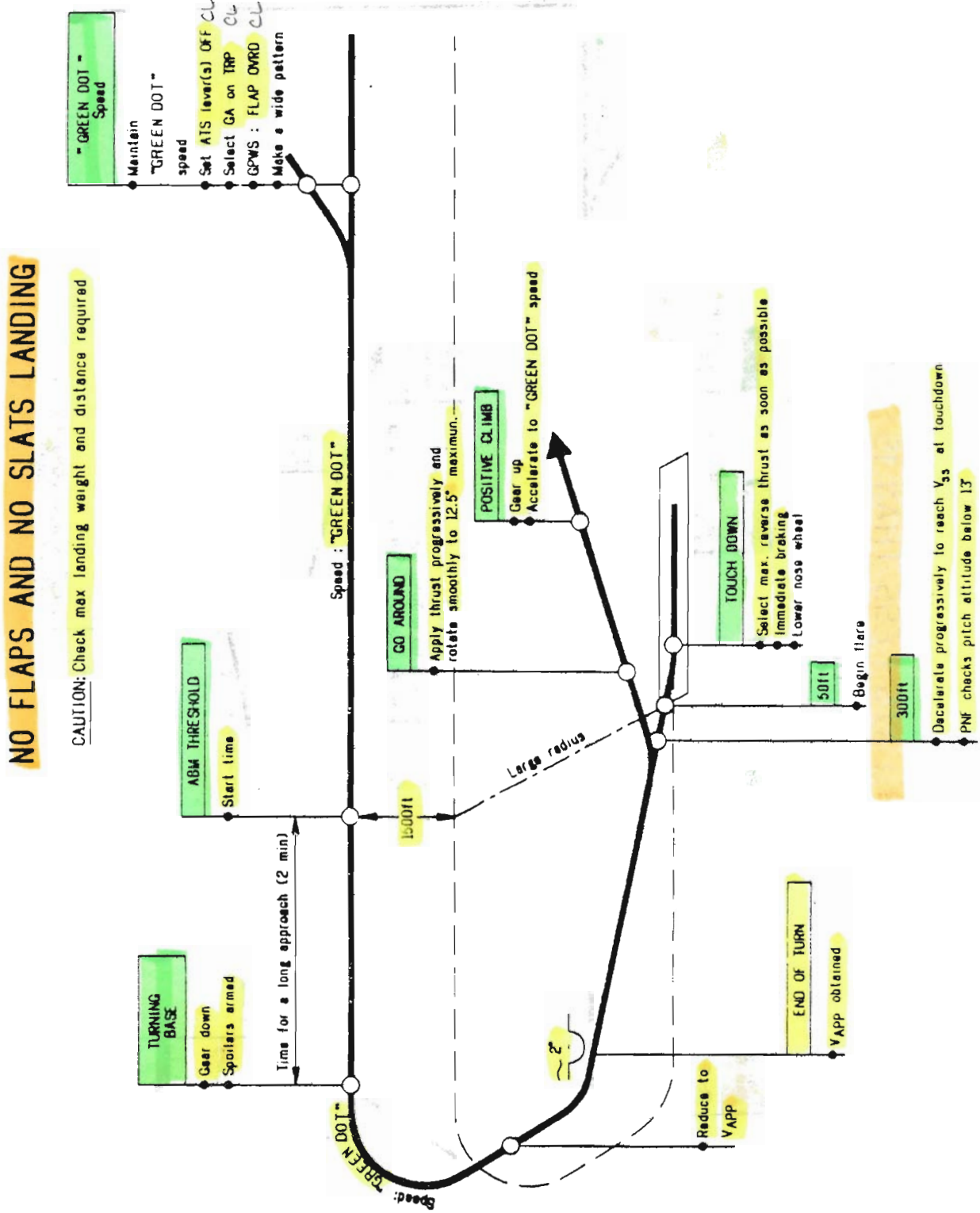
CAUTION : IF JAMMING OCCURS DURING TAKE OFF ROTATION,BOTH PILOTS MAY HAVE TO ACT TOGETHER ON THE CONTROL COLUMN TO ACHIEVE A SAFE ATTITUDE.IT MAY BE NECESSARY TO USE PITCH TRIM AND ELEVATOR CONTROLS SIMULTANEOUSLY.ATTEMPT TO MAINTAIN THE SPEED BELOW 195KT IN ORDER TO REGAIN INDEPENDANT ELEVATOR SURFACE MOVEMENT,WHEN PITCH IS STABILIZED USE TRIM ONLY.



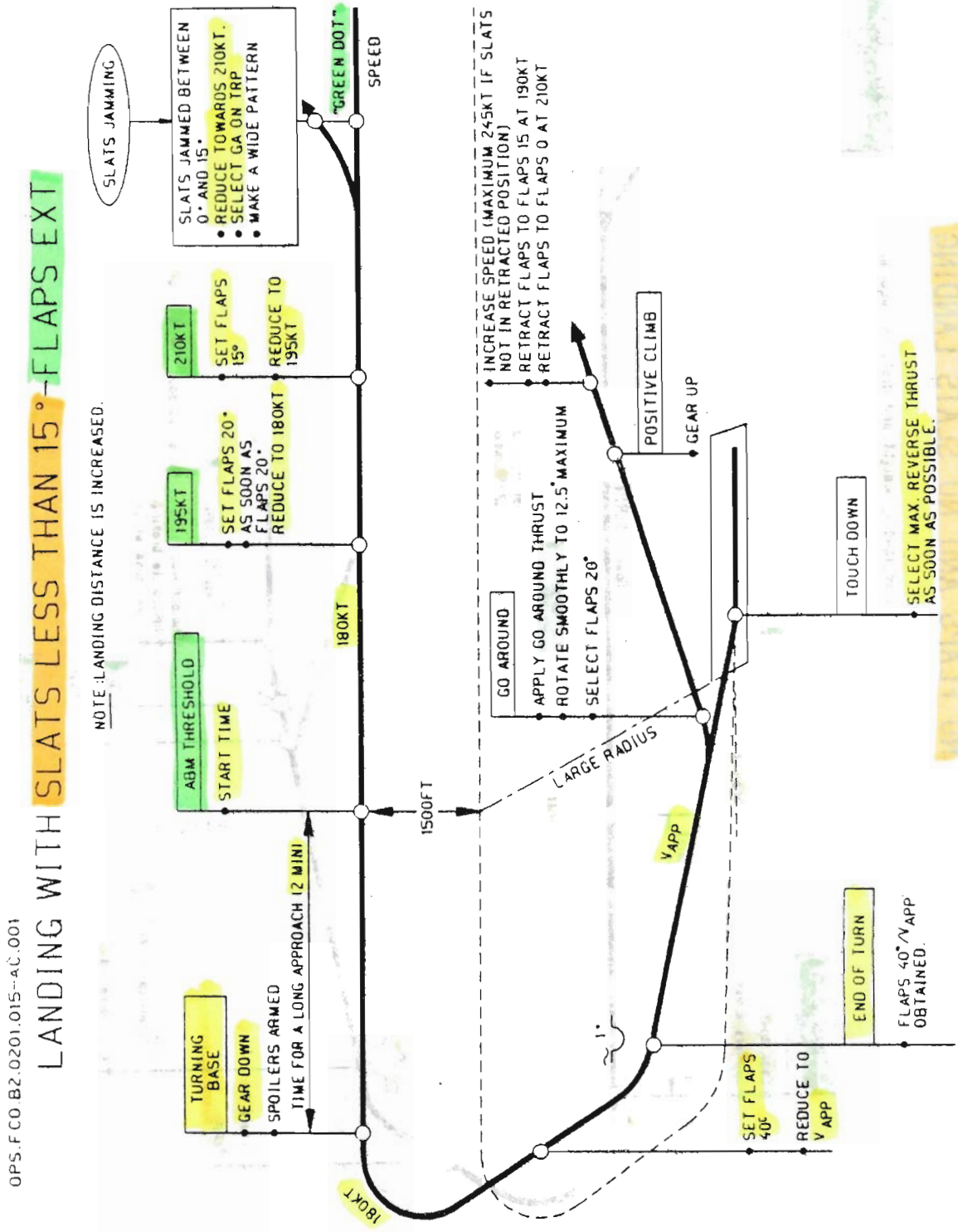
OPS.FCO.B2.0201.013 00.501

Vers. : All

Eng. : All

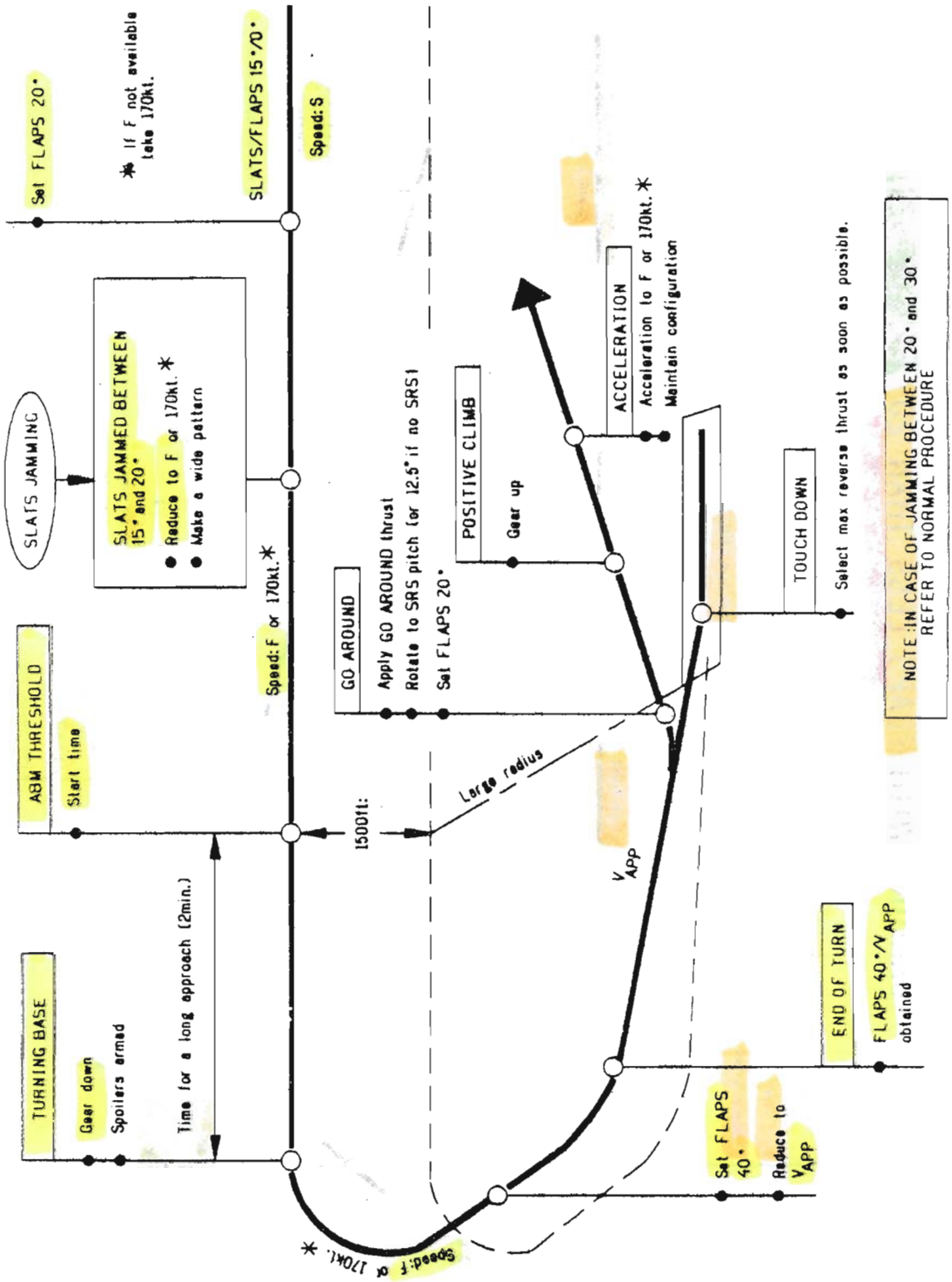


OPS.FCO.B2.0201.014-AB.001

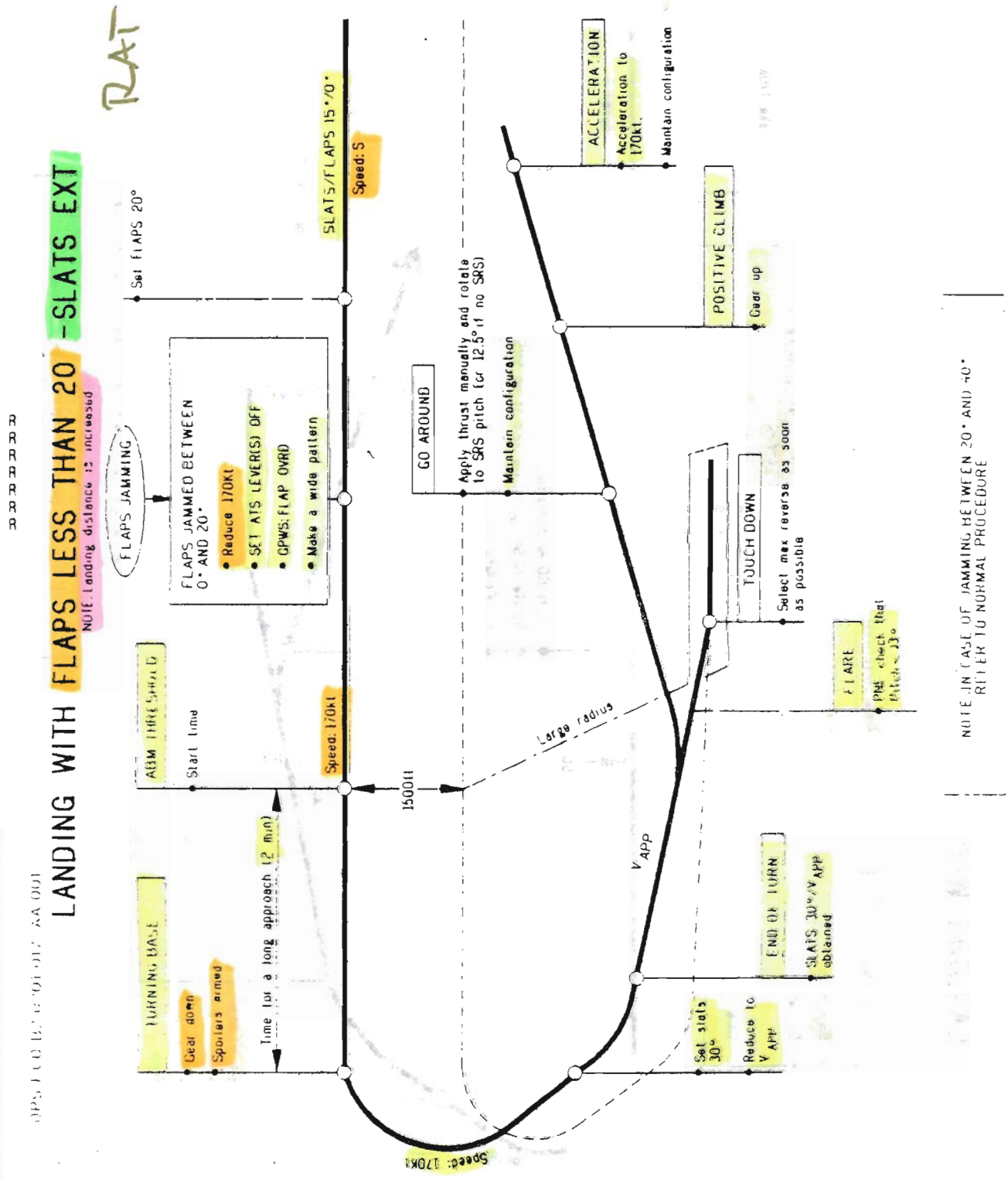


yellow remaining

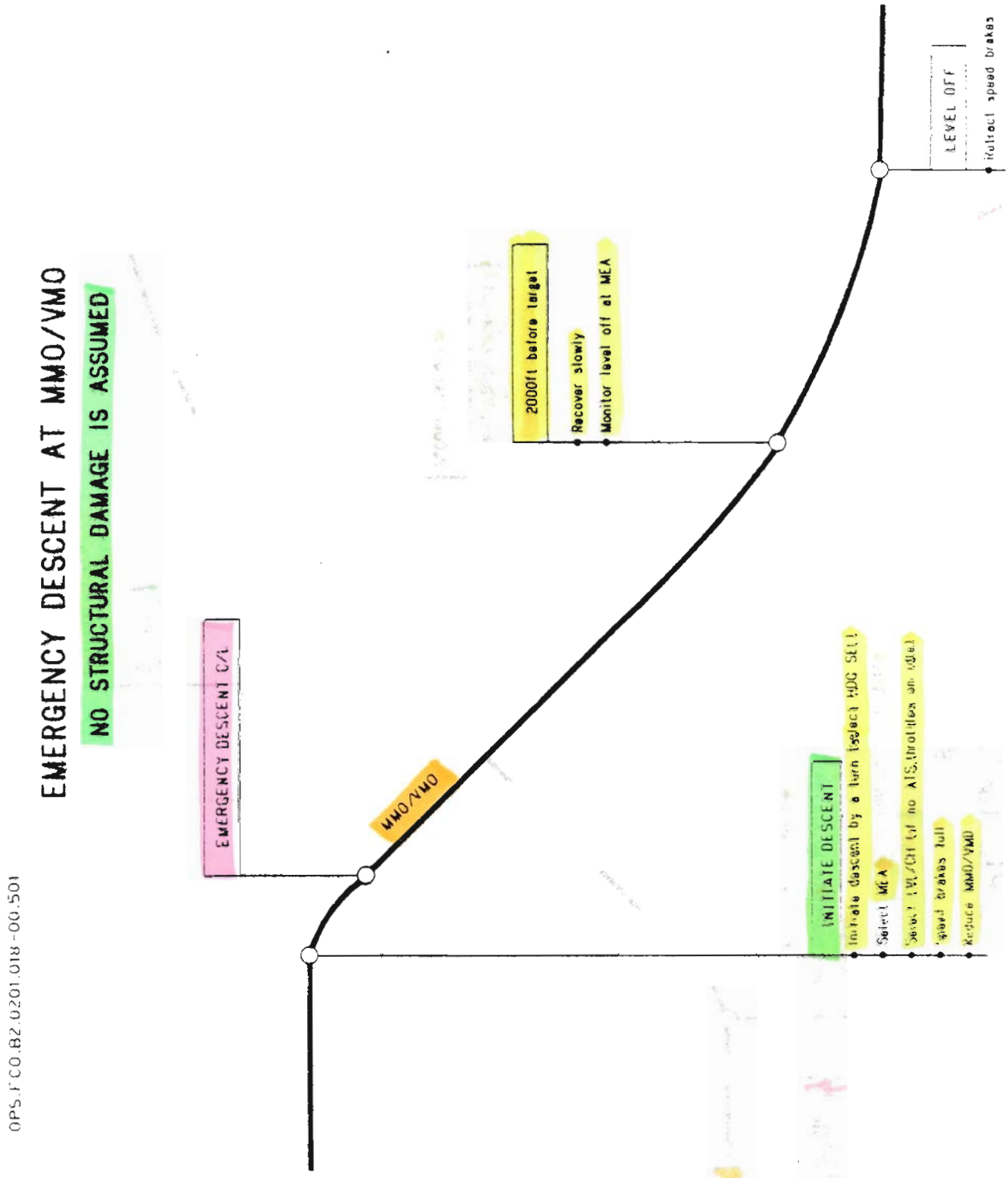
LANDING WITH SLATS BETWEEN 15° AND 20° -FLAPS EXT



OPS.FCO.B2.0201.016-AB.001

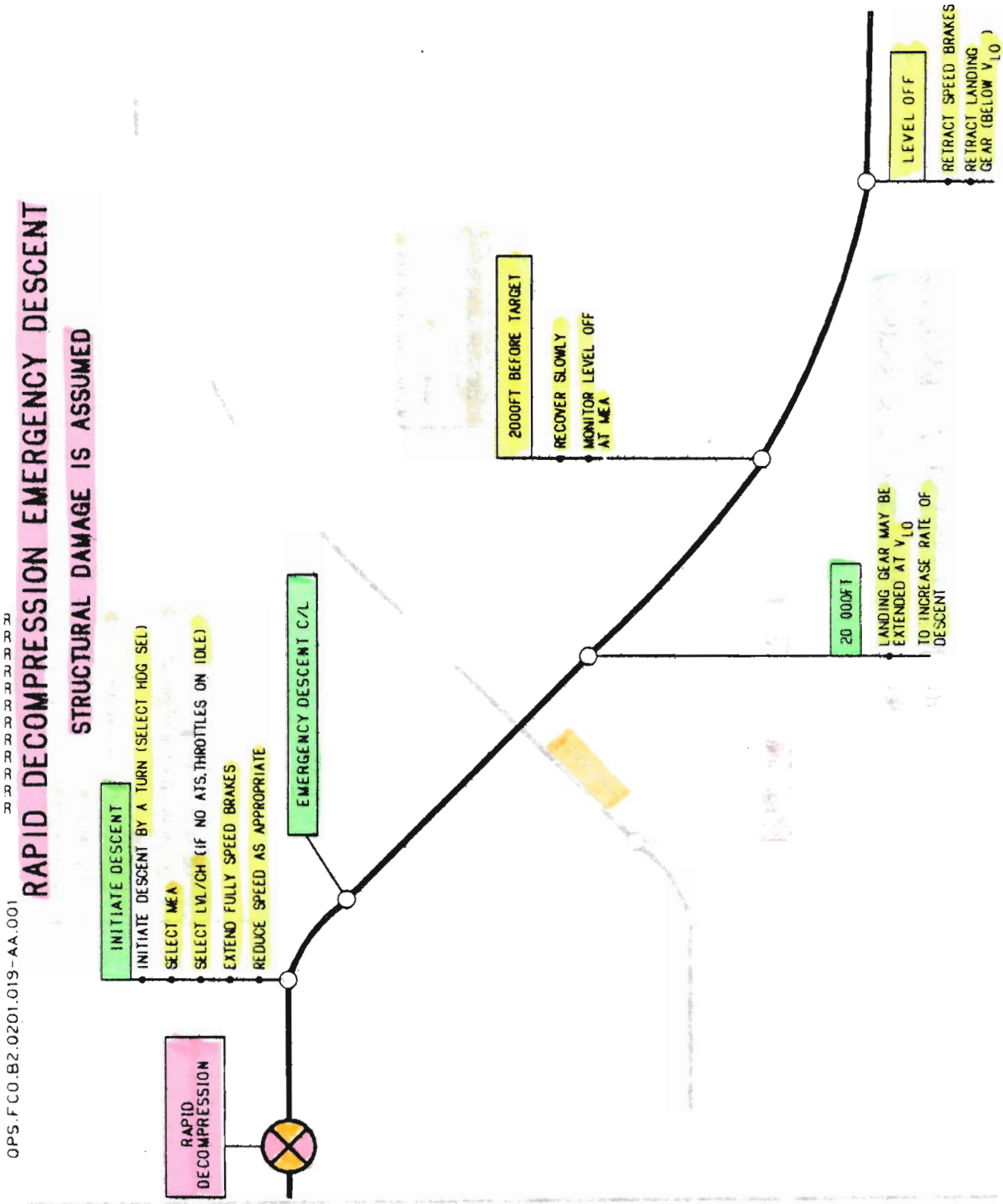


Hyd. blue remaining

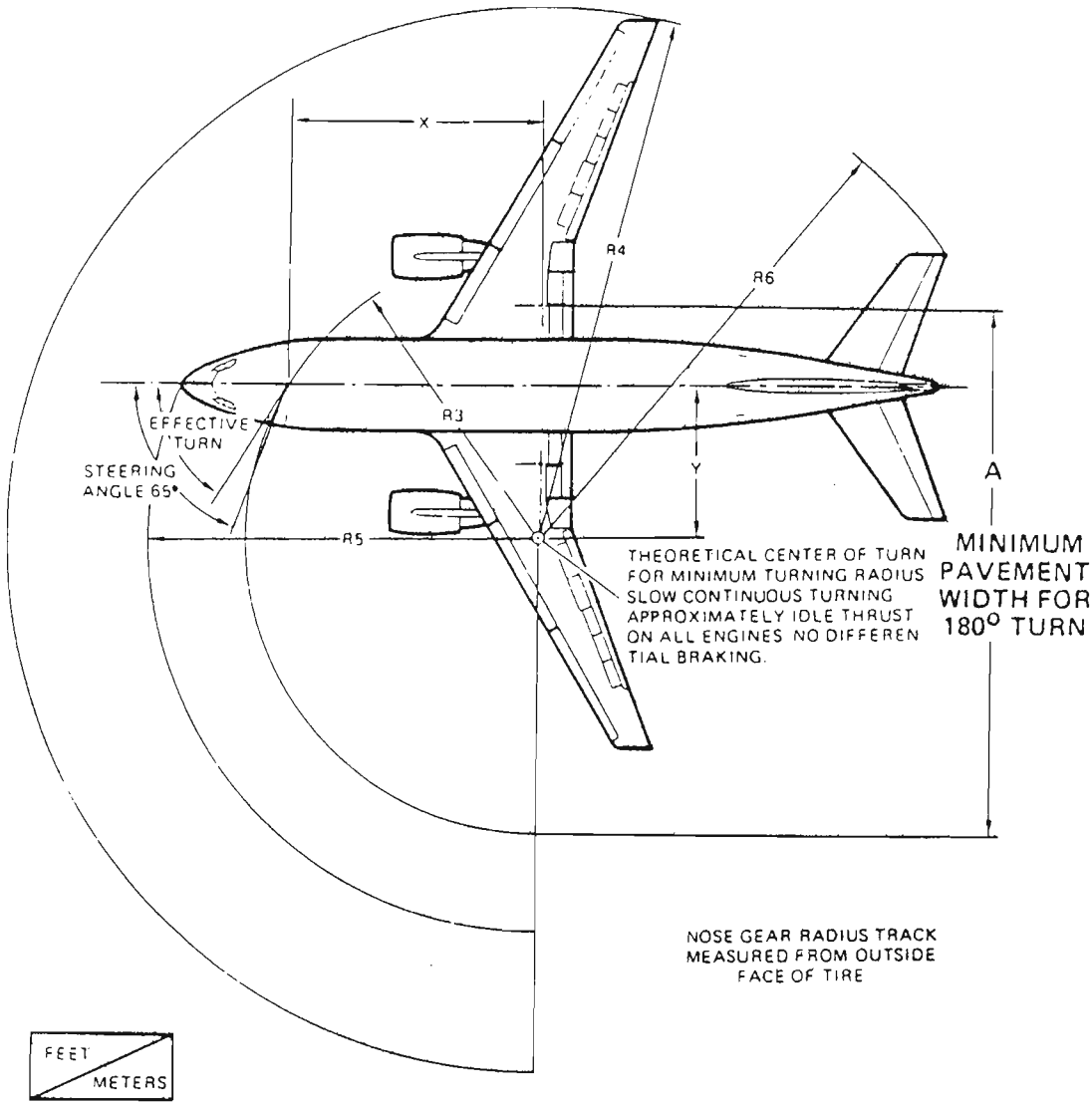


Vers. : All

Eng. : All



MINIMUM TURNING RADIUS



A.C CG	EFFECTIVE TURN ANG	X	Y	A	R3	R4	R5	R6
FWD 18 %	60°2	50.89 15.51	28.77 8.77	105.42 32.13	58.63 17.87	103.25 31.47	77.37 23.58	97.77 29.80
AFT 35 %	55°8	50.89 15.51	34.16 10.41	113.69 34.65	61.52 18.75	108.17 32.97	79.53 24.24	100.92 30.76

Vers. : All Eng. : All

AIRCRAFT FLEET PARTICULARS

MAXIMUM WEIGHTS - AIRSPEED LIMITS - IDENTIFICATION

A. MAXIMUM WEIGHTS
AIRSPEED LIMITS (MAXIMUM OPERATING)

CERTIFICATED WEIGHT LIMITS				MAXIMUM OPERATING SPEED	
TAXI	TAKE-OFF	LANDING	ZERO FUEL WEIGHT	VMO	MMO
157,9 T	157 T	124 T	114 T	340 KT	M. 84

B. AIRCRAFT IDENTIFICATION

	SERIAL NUMBER	MODEL	REGISTRATION MARKS			
(1)	498	A 310 - 304	D-AOAA	TBD	DDR-ABA	10+21
(2)	499	A 310 - 304	D-AOAB	TBD	DDR-ABB	10+22
(3)	503	A 310 - 304	D-AOAC	TBD	DDR-ABC	10+23

(1) "Konrad Adenauer"
(2) "Theodor Heuss"
(3) "Kurt Schumacher"

AIRCRAFT FLEET PARTICULARS (CONT'D)

A310 - 304

SYSTEMS PARTICULARS

	LOCATION
A - FUEL	
- 2 ADDITIONAL FUEL TANKS IN AFT CARGO	AFT CARGO
- FUEL PANEL 2 ADD. FUEL PUMPS	OVERHEAD
B - NAV	
- 2 ADF	
- ADD METRIC ALTIMETER	
- SPERRY FMS - LAT ONLY	
C - LDG GEAR	
- MESSIER LDG GEAR	
- BRAKES GOODGEAR CARBON	
D - POWER PLANT	
- ENGINES ARE CFG - 80C212 MOD : 3504	

1. GENERAL :

The actual distance to land an aircraft and come to a complete stop, as demonstrated during the certification programme, is measured from a point 50 ft above the landing surface. This point is supposed to be situated above the threshold. Regulations have defined the legal landing distance (FAR) as the actual landing distance divided by 0.6.

In normal landing configuration approach speed is 1.3 Vs of the configuration. The deceleration means are the brakes supplied by the green hydraulic system and the ground spoilers. Antiskid system is operative.
It must be checked before departure that available runway length at destination with forecasted landing weight is at least equal to actual landing distance on dry runway divided by 0.6.
In case of forecasted wet runway increase this value by 15 %.

2. ACTUAL LANDING DISTANCE – ISA

SLATS 30°/FLAPS 40°

LANDING DISTANCE (METERS)								
WEIGHT (tons)			150	140	130	120	110	100	90
VREF (KT IAS)			152	146	141	136	129	123	117
RUNWAY CONDITION	DRY		1145	1025	950	880	820	760	705
	WET		1525	1435	1345	1255	1170	1085	1000
	COVERED WITH	6.3 mm (1/4 in.) WATER	2605	2365	2140	1910	1690	1500	1360
		12.7 mm (1/2 in.) WATER	2480	2255	2040	1825	1625	1445	1310
		6.3 mm (1/4 in.) SLUSH	2335	2120	1915	1735	1595	1460	1320
		12.7 mm (1/2 in.) SLUSH	2240	2040	1845	1680	1545	1415	1285
		COMPACT SNOW	1725	1625	1525	1430	1330	1230	1135
		ICE	3720	3525	3330	3140	2950	2765	2595

SLATS 20°/FLAPS 20°

LANDING DISTANCE (METERS)								
WEIGHT (TONS)			150	140	130	120	110	100	90
1.3 Vs (KT IAS)			162	156	151	144	139	133	127
RUNWAY CONDITION	DRY		1270	1120	1020	950	890	830	770
	WET		1710	1605	1500	1400	1300	1200	1105
	COVERED WITH	6.3 mm (1/4 in.) WATER	3390	3075	2765	2455	2165	1880	1650
		12.7 mm (1/2 in.) WATER	3185	2885	2595	2305	2040	1780	1570
		6.3 mm (1/4 in.) SLUSH	3010	2715	2445	2175	1910	1715	1550
		12.7 mm (1/2 in.) SLUSH	2850	2570	2320	2065	1830	1645	1490
		COMPACT SNOW	1960	1845	1735	1620	1505	1390	1280
		ICE	4440	4200	3970	3740	3510	3290	3075

CORRECTION ON LANDING DISTANCES

- **Wind :** per 5 Kts tailwind add 10 %
  per 5 Kts headwind subtract 2 %
  } (valid only for dry and wet runway)
- **Airport Elevation :** per 1000 ft above sea level add 3.5 %
- **With two reverses :** Landing distances are decreased by :
  - 5 % on dry runway
  - 10 % on wet runway
  - 10 % on runway covered with water or slush
  - 18 % on runway covered with compact snow
  - 26 % on icy runway

Code : 1520A

GE Eng. : 80C2A2

OPERATING SPEEDS :

F – S – « GREEN DOT » – VREF

	SPEED / WEIGHT (tons)	F (1.25 Vs 15/0)	S (1.25 Vs 0/0)	« GREEN DOT » SPEED below 20000 FT	VREF (1.3 Vs 30/40)
R	158	177	222	258	156
R	156	175	220	256	155
R	154	174	219	254	154
R	152	173	217	252	153
R	150	172	216	250	152
R	148	171	215	248	151
R	146	170	213	246	150
R	144	169	212	244	148
R	142	167	210	242	147
R	140	167	209	240	146
R	138	166	207	238	145
R	136	164	206	236	144
R	134	163	204	234	143
R	132	162	203	232	142
R	130	161	201	230	141
R	128	159	200	228	140
R	126	158	198	226	139
R	124	157	197	224	138
R	122	156	195	222	137
R	120	154	193	220	136
R	118	153	192	218	135
R	116	152	190	216	133
R	114	151	189	214	132
R	112	149	187	212	131
R	110	148	185	210	129
R	108	147	184	208	127
R	106	145	182	206	126
R	104	144	180	204	125
R	102	142	178	202	124
R	100	141	177	200	123
R	98	140	175	198	121
R	96	138	173	196	120
R	94	137	171	194	119
R	92	135	170	192	118
R	90	134	168	190	117

Mod. : 4863