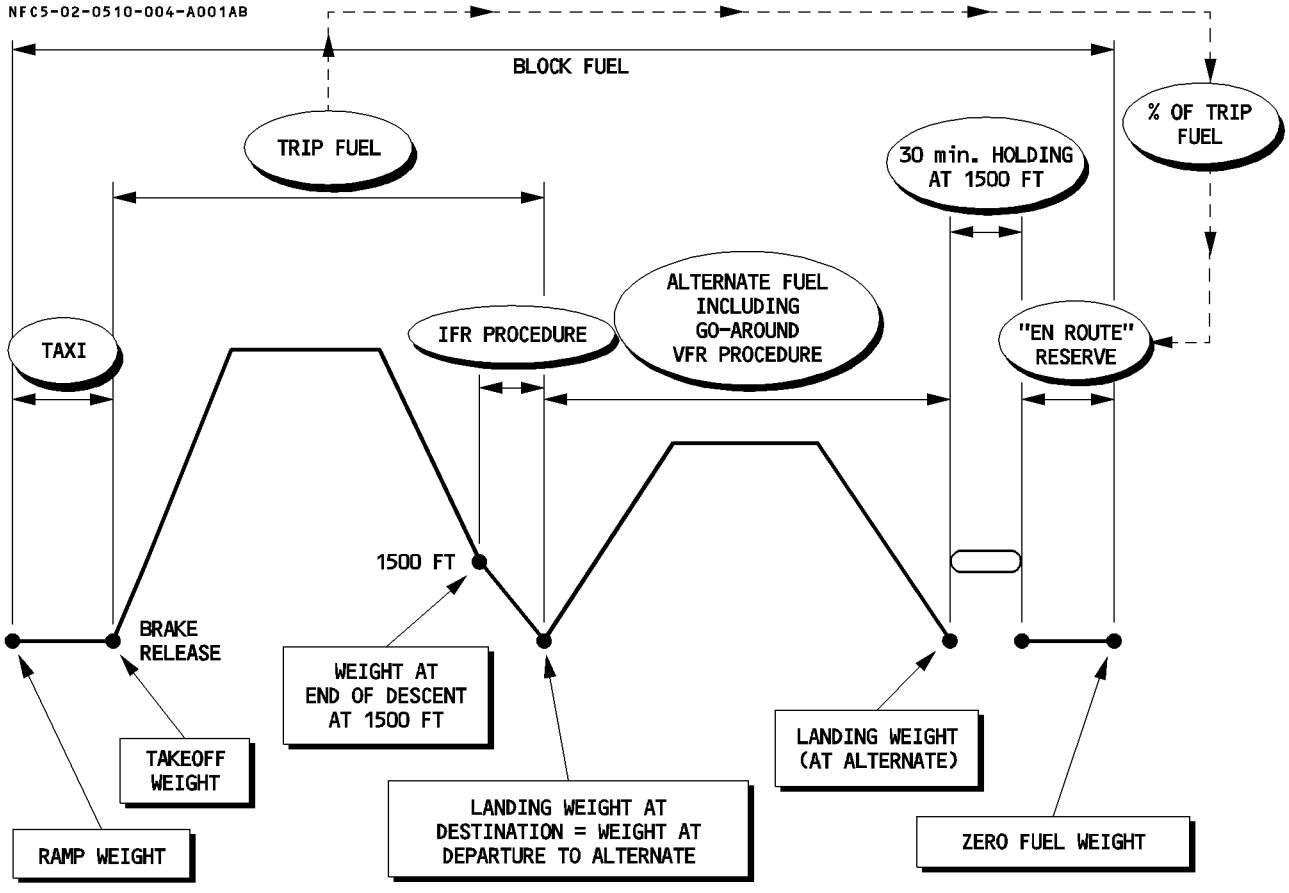
FLIGHT PLAN

When no precalculated flight plan is available, flight planning can be determined by using the tables given in this chapter.
Fuel policy will be the same as for precalculated flight plan.
The graph on the following page defines the different terms used in this chapter.


NFC5-02-0510-004-A001AB
BLOCK FUEL
TRIP FUEL
% OF TRIP FUEL
30 min. HOLDING AT 1500 FT
ALTERNATE FUEL INCLUDING GO-AROUND VFR PROCEDURE
IFR PROCEDURE
"EN ROUTE" RESERVE
TAXI
1500 FT
BRAKE RELEASE
WEIGHT AT END OF DESCENT AT 1500 FT
TAKEOFF WEIGHT
LANDING WEIGHT (AT ALTERNATE)
RAMP WEIGHT
LANDING WEIGHT AT DESTINATION = WEIGHT AT DEPARTURE TO ALTERNATE
ZERO FUEL WEIGHT

MINIMUM RECOMMENDED FUEL REQUIREMENTS

The total fuel quantity required to fly a given sector is the sum of the following quantities:

TAXI FUEL

Quantity required for startup and taxi. Fuel calculation is based on a consumption of **10 kg/min** or **22 lb/min**
Average quantity (12 minutes) → **120 kg** or **265 lb**

TRIP FUEL

Fuel required from departure to destination includes the following quantities :
- Takeoff and climb at selected speed.
- Cruise at selected speed.
- Descent from cruising level to 1500 feet above destination airport.
- Approach and landing. Fuel calculation is based on a consumption of **17 kg/min** or **40 lb/min**.
  Average quantity (6 minute IFR) → **110 kg** or **240 lb**

RESERVE FUEL

This quantity includes :

"En Route" reserve fuel (contingency fuel)
· According to national regulations and company policy (generally based on a percentage of trip fuel).

Alternate fuel
· Fuel required to fly from destination to alternate airport.
It includes go-around **80 kg** or **180 lb** , climb to cruising level, cruise at long range speed, descent and approach procedure.
60 kg or 140 lb for 4 minute VFR

Holding Fuel
Calculation of holding fuel should take into account the altitude of the alternate and the landing weight at the alternate, using holding charts of chapter 3.05.25.
A conservative quantity corresponding to a 30 minute holding at 1500 feet above alternate airport elevation and "green dot" speed in the clean configuration is **1150 kg** or **2600 lb** .

APU FUEL

During ground operations, APU fuel consumption is about **130 Kg/h** or **290 lb/h** (Packs on, 90 KVA load on APU GEN).

INTRODUCTION

The following flight planning tables allow the planner to determine trip fuel consumption and trip time required to cover a given air distance :
These tables are established for :
- Takeoff
- Climb profile 250kt/300kt/M.78
- Cruise Mach number M.78/LR
- Descent profile M.78/300kt/250kt
- Approach and landing 110 kg – 6 minute IFR
- ISA
- CG = 33 %
- Normal air conditioning
- Anti ice OFF

They are based upon a reference landing weight of 50 000 kg

Note : 1. In the tables, the asterisk (*) means that a step climb of 4000 ft must be flown to reach the corresponding FL.
2. To obtain a flight plan at optimum cruise level, the highest flight level desired within the flight has to be selected in the table.
3. For each degree Celcius above ISA temperature apply fuel correction 0.015 (kg/°C/NM) × △ISA (°C) × Air Distance (NM).

CORRECTION FOR DEVIATION FROM REFERENCE LANDING WEIGHT

The fuel consumption must be corrected when the actual landing weight is different from the reference landing weight.
If it is lower (or greater) than the reference landing weight, subtract (or add) the value given in the correction part of the table per 1000 kg below (or above) the reference landing weight.

EXAMPLE

The following is an example of a complete flight plan based on the assumptions :
- Zero fuel weight : 55 000 kg = landing weight at alternate airport
- Cruise M.78 at FL370
- Ground distance from departure to destination : 1800 NM
- Average wind during flight : - 40 kt (headwind)
- ISA conditions
- "En route" reserve : 5 %
- Ground distance from destination to alternate : 200 NM, no wind at FL200

To calculate the flight plan, a reverse calculation is needed, i.e. start with the landing weight at alternate (the schematic on 2.05.10 p 4 gives an overview of the calculation to be performed).

1. Alternate fuel and time
   – From 2.05.50 p2 ;
   Alternate time = 40 min
R Alternate fuel : 1 519 + 10 × (55 – 50) = 1 569 kg
2. Holding fuel and time
   – A 30 min holding is assumed at 1500 ft. Read from 3.05.25 p2, holding fuel = 1 243 kg
R 3. At destination, the landing weight = 55 000 + 1 569 + 1 243 = 57 812 kg
4. Evaluation of the air distance between departure and destination.
   – The "Ground distance/Air distance" conversion table from 2.05.60 p2 shows that the corresponding air distance is : 1 975 NM.
5. Trip fuel and time
   – Enter air distance and flight level 370 (see table on 2.05.40 p5), read the corresponding values of fuel consumption and time, for the reference landing weight and without deviation from ISA.
R Fuel = 9 840 kg
R Time = 4 h 36 min
   – Correction for landing weight
R △ fuel consumption = 116 × (57.812 – 50) = 907 kg
R – Trip reserves (5 %) = 0.05 × (9 840 + 907) = 538 kg
R 6. Taxi fuel = 120 kg (2.05.10 p 2)
7. Total fuel on board (Block fuel) :
R 9 840 + 907 + 538 + 1 243 + 1 569 + 120 = 14 217 kg

R

FLIGHT PLANNING FROM BRAKE RELEASE TO LANDING
CLIMB : 250KT/300KT/M.78 - CRUISE : M.78 - DESCENT : M.78/300KT/250KT
IMC PROCEDURE : 110 KG (6MIN)

REF. LANDING WEIGHT = 50000 KG
NORMAL AIR CONDITIONING
ANTI-ICING OFF

ISA
CG = 33.0 %

FUEL CONSUMED (KG)

TIME (H.MIN)

AIR DIST. (NM)	FLIGHT LEVEL 290	310	330	350	370	390	CORRECTION ON FUEL CONSUMPTION (KG/1000KG) FL290 FL310	FL330 FL350	FL370 FL390
200	1559 0.38	1540 0.38	1527 0.38	1520 0.38	1518 0.38		11	14	15
225	1703 0.41	1674 0.41	1653 0.41	1639 0.41	1631 0.41	1632 0.41	12	15	16
250	1847 0.44	1809 0.44	1780 0.45	1758 0.45	1745 0.45	1740 0.45	12	15	18
275	1990 0.48	1943 0.48	1906 0.48	1878 0.48	1858 0.48	1849 0.48	13	16	19
300	2134 0.51	2078 0.51	2032 0.51	1997 0.51	1971 0.51	1958 0.51	13	17	20
325	2278 0.54	2213 0.54	2159 0.54	2116 0.55	2085 0.55	2067 0.55	14	17	21
350	2422 0.57	2347 0.58	2286 0.58	2236 0.58	2198 0.58	2176 0.58	15	18	22
375	2566 1.01	2482 1.01	2413 1.01	2356 1.01	2312 1.02	2286 1.02	15	19	23
400	2710 1.04	2617 1.04	2539 1.04	2475 1.05	2426 1.05	2395 1.05	16	20	24
425	2854 1.07	2752 1.07	2666 1.08	2595 1.08	2540 1.08	2505 1.08	16	20	26
450	2999 1.10	2887 1.11	2794 1.11	2715 1.11	2654 1.12	2614 1.12	17	21	27
475	3143 1.14	3023 1.14	2921 1.14	2835 1.15	2768 1.15	2724 1.15	17	22	28
500	3287 1.17	3158 1.17	3048 1.18	2956 1.18	2883 1.18	2834 1.18	18	23	29
525	3432 1.20	3293 1.21	3175 1.21	3076 1.21	2997 1.22	2945 1.22	18	24	30
550	3576 1.23	3429 1.24	3303 1.24	3196 1.25	3112 1.25	3055 1.25	19	24	31
575	3721 1.27	3564 1.27	3430 1.28	3316 1.28	3226 1.28	3165 1.28	19	25	33
600	3865 1.30	3700 1.30	3558 1.31	3437 1.31	3341 1.32	3276 1.32	20	26	34
625	4010 1.33	3835 1.34	3685 1.34	3558 1.35	3456 1.35	3386 1.35	21	27	35
650	4155 1.36	3971 1.37	3813 1.38	3678 1.38	3571 1.38	3497 1.38	21	27	36
675	4300 1.40	4107 1.40	3941 1.41	3799 1.41	3686 1.42	3608 1.42	22	28	37
700	4445 1.43	4243 1.44	4069 1.44	3920 1.45	3801 1.45	3719 1.45	22	29	39
725	4590 1.46	4378 1.47	4196 1.48	4041 1.48	3916 1.49	3830 1.49	23	30	40
750	4735 1.49	4515 1.50	4325 1.51	4162 1.52	4031 1.52	3942 1.52	23	31	41
775	4880 1.53	4651 1.53	4453 1.54	4283 1.55	4147 1.55	4053 1.55	24	31	42
800	5025 1.56	4787 1.57	4581 1.57	4404 1.58	4262 1.59	4165 1.59	25	32	44
825	5171 1.59	4923 2.00	4709 2.01	4525 2.02	4378 2.02	4276 2.02	25	33	45

LOW AIR CONDITIONING
ΔFUEL = – 0.5 %

ENGINE ANTI ICE ON
ΔFUEL = + 3 %

TOTAL ANTI ICE ON
ΔFUEL = + 5.5 %

R

FLIGHT PLANNING FROM BRAKE RELEASE TO LANDING
CLIMB : 250KT/300KT/M.78 - CRUISE : M.78 - DESCENT : M.78/300KT/250KT
IMC PROCEDURE : 110 KG (6MIN)

REF. LANDING WEIGHT = 50000 KG
NORMAL AIR CONDITIONING
ANTI-ICING OFF

ISA
CG = 33.0 %

FUEL CONSUMED (KG)

TIME (H.MIN)

AIR DIST. (NM)	FLIGHT LEVEL 290	310	330	350	370	390	CORRECTION ON FUEL CONSUMPTION (KG/1000KG) FL290 FL310	FL330 FL350	FL370 FL390
825	5171 1.59	4923 2.00	4709 2.01	4525 2.02	4378 2.02	4276 2.02	25	33	45
850	5316 2.03	5060 2.03	4838 2.04	4647 2.05	4494 2.05	4388 2.05	26	34	46
875	5462 2.06	5196 2.07	4966 2.07	4768 2.08	4610 2.09	4500 2.09	26	35	48
900	5607 2.09	5333 2.10	5095 2.11	4890 2.12	4726 2.12	4612 2.12	27	35	49
925	5753 2.12	5469 2.13	5224 2.14	5011 2.15	4842 2.15	4725 2.15	28	36	50
950	5899 2.16	5606 2.16	5353 2.17	5133 2.18	4958 2.19	4837 2.19	28	37	52
975	6045 2.19	5743 2.20	5482 2.21	5256 2.22	5075 2.22	4950 2.22	29	38	53
1000	6191 2.22	5880 2.23	5611 2.24	5378 2.25	5191 2.25	5062 2.25	29	39	54
1025	6337 2.25	6017 2.26	5740 2.27	5500 2.28	5308 2.29	5175 2.29	30	40	56
1050	6483 2.29	6154 2.30	5870 2.31	5623 2.32	5425 2.32	5289 2.32	31	40	57
1075	6629 2.32	6292 2.33	5999 2.34	5745 2.35	5542 2.36	5402 2.36	31	41	58
1100	6775 2.35	6429 2.36	6129 2.37	5868 2.38	5659 2.39	5516 2.39	32	42	60
1125	6921 2.38	6566 2.39	6258 2.41	5991 2.42	5777 2.42	5630 2.42	33	43	61
1150	7068 2.42	6704 2.43	6388 2.44	6113 2.45	5894 2.46	5744 2.46	33	44	62
1175	7214 2.45	6841 2.46	6518 2.47	6236 2.48	6012 2.49	5858 2.49	34	45	64
1200	7361 2.48	6979 2.49	6648 2.50	6360 2.52	6129 2.52	5973 2.52	35	45	65
1225	7507 2.51	7116 2.53	6778 2.54	6483 2.55	6247 2.56	6087 2.56	35	46	67
1250	7654 2.55	7254 2.56	6908 2.57	6606 2.58	6365 2.59	6202 2.59	36	47	68
1275	7801 2.58	7392 2.59	7038 3.00	6729 3.02	6483 3.02	6317 3.02	37	48	70
1300	7947 3.01	7530 3.02	7168 3.04	6853 3.05	6601 3.06	6432 3.06	37	49	71
1325	8094 3.04	7668 3.06	7299 3.07	6976 3.08	6719 3.09	6547 3.09	38	50	73
1350	8241 3.08	7806 3.09	7429 3.10	7100 3.12	6838 3.13	6662 3.12	39	51	74
1375	8388 3.11	7944 3.12	7560 3.14	7224 3.15	6956 3.16	6778 3.16	39	52	76
1400	8535 3.14	8083 3.16	7691 3.17	7348 3.18	7075 3.19	6893 3.19	40	53	77
1425	8683 3.17	8221 3.19	7821 3.20	7472 3.22	7194 3.23	7009 3.23	41	54	79
1450	8830 3.21	8360 3.22	7952 3.24	7596 3.25	7313 3.26	7125 3.26	41	54	80

LOW AIR CONDITIONING	ENGINE ANTI ICE ON	TOTAL ANTI ICE ON
ΔFUEL = – 0.5 %	ΔFUEL = + 3 %	ΔFUEL = + 5.5 %

R

FLIGHT PLANNING FROM BRAKE RELEASE TO LANDING
CLIMB : 250KT/300KT/M.78 - CRUISE : M.78 - DESCENT : M.78/300KT/250KT
IMC PROCEDURE : 110 KG (6MIN)

REF. LANDING WEIGHT = 50000 KG
NORMAL AIR CONDITIONING
ANTI-ICING OFF

ISA
CG = 33.0 %

FUEL CONSUMED (KG)

TIME (H.MIN)

AIR DIST. (NM)	FLIGHT LEVEL 290	310	330	350	370	390	CORRECTION ON FUEL CONSUMPTION (KG/1000KG) FL290 FL310	FL330 FL350	FL370 FL390
1450	8830 3.21	8360 3.22	7952 3.24	7596 3.25	7313 3.26	7125 3.26	41	54	80
1475	8977 3.24	8498 3.25	8083 3.27	7720 3.28	7432 3.29	7241 3.29	42	55	82
1500	9125 3.27	8637 3.29	8214 3.30	7845 3.32	7551 3.33	7357 3.33	43	56	84
1525	9272 3.30	8776 3.32	8346 3.34	7969 3.35	7670 3.36	7474 3.36	43	57	85
1550	9420 3.34	8914 3.35	8477 3.37	8094 3.38	7789 3.39	7591 3.39	44	58	87
1575	9568 3.37	9053 3.39	8609 3.40	8218 3.42	7909 3.43	7707 3.43	45	59	88
1600	9715 3.40	9192 3.42	8740 3.44	8343 3.45	8028 3.46	7824 3.46	45	60	90
1625	9863 3.44	9332 3.45	8872 3.47	8468 3.49	8148 3.49	7941 3.49	46	61	92
1650	10011 3.47	9471 3.48	9004 3.50	8593 3.52	8268 3.53	8059 3.53	47	62	93
1675	10159 3.50	9610 3.52	9135 3.53	8718 3.55	8388 3.56	8176 3.56	47	63	94
1700	10307 3.53	9749 3.55	9267 3.57	8844 3.59	8509 4.00	8294 4.00	48	64	96
1725	10455 3.57	9889 3.58	9399 4.00	8969 4.02	8629 4.03	8412 4.03	49	65	98
1750	10603 4.00	10028 4.02	9532 4.03	9095 4.05	8750 4.06	8530 4.06	50	66	100
1775	10752 4.03	10168 4.05	9664 4.07	9220 4.09	8870 4.10	8649 4.10	50	67	101
1800	10900 4.06	10308 4.08	9796 4.10	9346 4.12	8991 4.13	8767 4.13	51	68	103
1825	11049 4.10	10447 4.11	9929 4.13	9472 4.15	9112 4.16	8886 4.16	52	69	105
1850	11197 4.13	10587 4.15	10061 4.17	9598 4.19	9233 4.20	9005 4.20	52	70	107
1875	11346 4.16	10727 4.18	10194 4.20	9724 4.22	9354 4.23	9124 4.23	53	71	109
1900	11495 4.19	10867 4.21	10327 4.23	9850 4.25	9476 4.26	9243 4.26	54	72	110
1925	11644 4.23	11007 4.25	10459 4.27	9976 4.29	9597 4.30	9363 4.30	55	73	112
1950	11793 4.26	11148 4.28	10592 4.30	10103 4.32	9719 4.33	9482 4.33	55	74	114
1975	11943 4.29	11289 4.31	10725 4.33	10229 4.35	9840 4.36	9602 4.36	56	75	116
2000	12092 4.32	11429 4.34	10859 4.37	10356 4.39	9962 4.40	9722 4.40	57	76	118
2025	12241 4.36	11570 4.38	10992 4.40	10483 4.42	10084 4.43	9842 4.43	58	77	120
2050	12391 4.39	11711 4.41	11125 4.43	10610 4.45	10206 4.47	9963 4.47	58	78	121
2075	12540 4.42	11852 4.44	11259 4.46	10737 4.49	10329 4.50	10083 4.50	59	79	123

LOW AIR CONDITIONING	ENGINE ANTI ICE ON	TOTAL ANTI ICE ON
ΔFUEL = – 0.5 %	ΔFUEL = + 3 %	ΔFUEL = + 5.5 %

R

FLIGHT PLANNING FROM BRAKE RELEASE TO LANDING
CLIMB : 250KT/300KT/M.78 - CRUISE : M.78 - DESCENT : M.78/300KT/250KT
IMC PROCEDURE : 110 KG (6MIN)

REF. LANDING WEIGHT = 50000 KG
NORMAL AIR CONDITIONING
ANTI-ICING OFF

ISA
CG = 33.0 %

FUEL CONSUMED (KG)

TIME (H.MIN)

AIR DIST. (NM)	FLIGHT LEVEL 290	310	330	350	370	390	CORRECTION ON FUEL CONSUMPTION (KG/1000KG) FL290 FL310	FL330 FL350	FL370 FL390
2075	12540 4.42	11852 4.44	11259 4.46	10737 4.49	10329 4.50	10083 4.50	59	79	123
2100	12690 4.45	11994 4.48	11392 4.50	10864 4.52	10451 4.53	10204 4.53	60	80	125
2125	12840 4.49	12135 4.51	11526 4.53	10991 4.55	10573 4.57	10325 4.57	61	81	127
2150	12989 4.52	12276 4.54	11660 4.56	11118 4.59	10696 5.00	10446 5.00	61	82	129
2175	13139 4.55	12418 4.57	11794 5.00	11246 5.02	10819 5.03	10567 5.03	62	83	131
2200	13289 4.58	12559 5.01	11928 5.03	11374 5.05	10942 5.07	10688 5.07	63	85	133
2225	13439 5.02	12701 5.04	12062 5.06	11502 5.09	11065 5.10	10810 5.10	64	86	134
2250	13589 5.05	12843 5.07	12196 5.10	11630 5.12	11188 5.13	10932 5.13	64	87	136
2275	13740 5.08	12985 5.11	12330 5.13	11758 5.15	11312 5.17	11054 5.17	65	88	138
2300	13890 5.12	13127 5.14	12464 5.16	11886 5.19	11436 5.20	11176 5.20	66	89	140
2325	14040 5.15	13269 5.17	12599 5.20	12015 5.22	11561 5.24	11299 5.24	67	90	142
2350	14191 5.18	13411 5.20	12734 5.23	12143 5.25	11685 5.27	11422 5.27	68	91	144
2375	14341 5.21	13553 5.24	12868 5.26	12272 5.29	11810 5.30	11546 5.30	68	92	146
2400	14492 5.25	13696 5.27	13003 5.30	12401 5.32	11935 5.34	11671 5.34	69	93	148
2425	14643 5.28	13838 5.30	13138 5.33	12530 5.36	12061 5.37	11796 5.37	70	95	150
2450	14794 5.31	13981 5.34	13273 5.36	12659 5.39	12186 5.40	11921 5.40	71	96	152
2475	14945 5.34	14124 5.37	13408 5.40	12788 5.42	12312 5.44	12046 5.44	72	97	154
2500	15096 5.38	14267 5.40	13543 5.43	12918 5.46	12437 5.47	12172 5.47	73	98	156
2525	15247 5.41	14410 5.43	13679 5.46	13047 5.49	12563 5.50	12298 5.50	73	99	158
2550	15399 5.44	14553 5.47	13814 5.49	13177 5.52	12689 5.54	12424 5.54	74	100	160
2575	15550 5.47	14696 5.50	13949 5.53	13306 5.56	12815 5.57	12550 5.57	75	102	162
2600	15701 5.51	14839 5.53	14085 5.56	13436 5.59	12942 6.00	12677 6.00	76	103	164
2625	15853 5.54	14983 5.57	14221 5.59	13566 6.02	13068 6.04	12804 6.04	77	104	166
2650	16005 5.57	15126 6.00	14357 6.03	13696 6.06	13195 6.07	12931 6.07	78	105	168
2675	16156 6.00	15270 6.03	14493 6.06	13827 6.09	13322 6.11	13058 6.11	79	107	170
2700	16308 6.04	15414 6.06	14629 6.09	13957 6.12	13449 6.14	13185 6.14	79	108	172

LOW AIR CONDITIONING
ΔFUEL = – 0.5 %

ENGINE ANTI ICE ON
ΔFUEL = + 3 %

TOTAL ANTI ICE ON
ΔFUEL = + 5.5 %

R

FLIGHT PLANNING FROM BRAKE RELEASE TO LANDING
CLIMB : 250KT/300KT/M.78 - CRUISE : M.78 - DESCENT : M.78/300KT/250KT
IMC PROCEDURE : 110 KG (6MIN)

REF. LANDING WEIGHT = 50000 KG
NORMAL AIR CONDITIONING
ANTI-ICING OFF

ISA
CG = 33.0 %

FUEL CONSUMED (KG)

TIME (H.MIN)

AIR DIST. (NM)	FLIGHT LEVEL 290	310	330	350	370	390	CORRECTION ON FUEL CONSUMPTION (KG/1000KG) FL290 FL310	FL330 FL350	FL370 FL390
2700	16308 6.04	15414 6.06	14629 6.09	13957 6.12	13449 6.14	13185 6.14	79	108	172
2725	16460 6.07	15557 6.10	14765 6.13	14087 6.16	13576 6.17	13313 6.17	80	109	174
2750	16612 6.10	15701 6.13	14902 6.16	14218 6.19	13703 6.21	13441 6.21	81	110	176
2775	16764 6.13	15845 6.16	15038 6.19	14349 6.22	13831 6.24	13570 6.24	82	112	179
2800	16916 6.17	15989 6.20	15175 6.23	14480 6.26	13959 6.27	13698 6.27	83	113	181
2825	17068 6.20	16134 6.23	15312 6.26	14611 6.29	14087 6.31	13820 6.31*	84	114	183
2850	17221 6.23	16278 6.26	15448 6.29	14743 6.32	14215 6.34	13951 6.34*	85	115	185
2875	17374 6.26	16423 6.29	15585 6.33	14874 6.36	14343 6.37	14082 6.38*	85	117	187
2900	17527 6.30	16567 6.33	15722 6.36	15005 6.39	14472 6.41	14213 6.41*	86	118	189
2925	17680 6.33	16712 6.36	15860 6.39	15137 6.42	14601 6.44	14345 6.44*	87	119	192
2950	17833 6.36	16856 6.39	15997 6.43	15269 6.46	14730 6.48	14477 6.48*	88	121	194
2975	17987 6.40	17001 6.43	16134 6.46	15401 6.49	14859 6.51	14609 6.51*	89	122	196
3000	18140 6.43	17146 6.46	16272 6.49	15533 6.52	14989 6.54	14741 6.54*	90	123	198
3025	18294 6.46	17292 6.49	16409 6.52	15665 6.56	15118 6.58	14873 6.58*	91	125	201
3050	18447 6.49	17437 6.53	16547 6.56	15798 6.59	15248 7.01	15006 7.01*	92	126	203
3075	18601 6.53	17583 6.56	16685 6.59	15930 7.02	15378 7.04	15138 7.04*	93	127	205
3100	18755 6.56	17729 6.59	16823 7.02	16063 7.06	15508 7.08	15271 7.08*	93	129	208

LOW AIR CONDITIONING
ΔFUEL = – 0.5 %

ENGINE ANTI ICE ON
ΔFUEL = + 3 %

TOTAL ANTI ICE ON
ΔFUEL = + 5.5 %

GENERAL

The alternate planning tables allow the flight crew to determine the fuel consumption and time required to cover a given air distance from go-around at destination airport to landing at alternate airport.
These tables are established for :
- Go-around : 80 kg or 180 lb
- Climb profile : 250kt/300kt/M.78
- Long Range Speed
- Descent profile : M.78/300kt/250kt
- Approach and landing at alternate airport : 60 kg or 140 lb (4 minutes)
- ISA
- CG = 33 %
- Normal air conditioning
- Anti ice OFF

Note : 1. In the tables, the asterisk (*) means that a step climb of 4000 feet must be flown to reach the corresponding flight level.
2. The flight level shown on the top of each column is the final flight level.
3. For each degree Celsius above ISA temperature apply a fuel correction of 0.015 (kg/°C/NM) × △ISA (°C) × Air Distance (NM)
or 0.033 (lb/°C/NM) ×△ISA (°C) × Air Distance (NM)

CORRECTION FOR DEVIATION FROM REFERENCE WEIGHT

The alternate planning tables are based on a reference landing weight at alternate.
The fuel consumption must be corrected when the actual weight is different from the reference weight.
If it is lower (or greater) than the reference weight, subtract (or add) the value given in the correction part of the table per 1000 kg or 1000 lb below (or above) the reference weight.

R

ALTERNATE PLANNING FROM DESTINATION TO ALTERNATE AIRPORT
GO-AROUND : 80 KG - CLIMB : 250KT/300KT/M.78 - CRUISE : LONG RANGE
DESCENT : M.78/300KT/250KT - VMC PROCEDURE : 60 KG (4MIN)

REF. LDG WT AT ALTERNATE = 50000 KG
NORMAL AIR CONDITIONING
ANTI-ICING OFF

ISA
CG = 33.0 %

FUEL CONSUMED (KG)

TIME (H.MIN)

AIR DIST. (NM)	FLIGHT LEVEL 100	120	140	160	180	200	CORRECTION ON FUEL CONSUMPTION (KG/1000KG) FL100 FL120	FL140 FL160	FL180 FL200
20									
40	483 0.12						2		
60	642 0.16	615 0.16	611 0.16	612 0.16			3	3	
80	801 0.20	768 0.20	757 0.20	751 0.19	749 0.19	751 0.19	5	4	4
100	961 0.25	921 0.24	903 0.23	891 0.23	883 0.23	879 0.22	6	5	5
120	1120 0.29	1075 0.28	1050 0.27	1030 0.27	1016 0.26	1006 0.26	8	6	6
140	1280 0.33	1228 0.32	1196 0.31	1170 0.30	1149 0.30	1134 0.29	9	7	7
160	1441 0.37	1382 0.35	1343 0.35	1310 0.34	1283 0.34	1262 0.33	10	8	8
180	1601 0.41	1536 0.39	1490 0.38	1450 0.38	1417 0.37	1390 0.36	11	9	9
200	1762 0.45	1690 0.43	1637 0.42	1590 0.41	1551 0.41	1519 0.40	13	10	10
220	1923 0.49	1845 0.47	1784 0.46	1731 0.45	1685 0.44	1647 0.43	14	11	11
240	2084 0.53	1999 0.51	1931 0.50	1871 0.49	1819 0.48	1776 0.47	15	12	12
260	2246 0.57	2154 0.54	2078 0.53	2012 0.52	1953 0.52	1904 0.50	17	13	13
280	2407 1.01	2309 0.58	2226 0.57	2153 0.56	2088 0.55	2033 0.53	18	14	14
300	2569 1.05	2464 1.02	2374 1.01	2293 1.00	2223 0.59	2162 0.57	19	15	15
320	2732 1.09	2619 1.06	2522 1.04	2435 1.03	2357 1.02	2291 1.00	20	16	16
340	2894 1.13	2774 1.10	2670 1.08	2576 1.07	2492 1.06	2420 1.04	22	17	17
360	3057 1.17	2930 1.13	2818 1.12	2717 1.11	2627 1.09	2550 1.07	23	18	18
380	3220 1.21	3086 1.17	2966 1.16	2859 1.14	2762 1.13	2679 1.11	24	19	19
400	3384 1.25	3242 1.21	3115 1.19	3001 1.18	2898 1.17	2809 1.14	25	20	20
420	3548 1.28	3398 1.25	3263 1.23	3142 1.22	3033 1.20	2939 1.17	27	21	21
440	3712 1.32	3554 1.28	3412 1.27	3284 1.25	3169 1.24	3069 1.21	28	22	22
460	3876 1.36	3710 1.32	3561 1.30	3426 1.29	3305 1.27	3199 1.24	29	23	23
480	4040 1.40	3867 1.36	3710 1.34	3569 1.33	3440 1.31	3329 1.27	30	24	24
500	4205 1.44	4024 1.39	3859 1.38	3711 1.36	3576 1.34	3460 1.31	31	25	25

LOW AIR CONDITIONING
ΔFUEL = – 0.5 %

ENGINE ANTI ICE ON
ΔFUEL = + 3.5 %

TOTAL ANTI ICE ON
ΔFUEL = + 6.5 %

R

ALTERNATE PLANNING FROM DESTINATION TO ALTERNATE AIRPORT
GO-AROUND : 80 KG - CLIMB : 250KT/300KT/M.78 - CRUISE : LONG RANGE
DESCENT : M.78/300KT/250KT - VMC PROCEDURE : 60 KG (4MIN)

REF. LDG WT AT ALTERNATE=50000KG
NORMAL AIR CONDITIONING
ANTI-ICING OFF

ISA
CG = 33.0 %

FUEL CONSUMED (KG)

TIME (H.MIN)

AIR DIST. (NM)	FLIGHT LEVEL 230	270	310	350	390	CORRECTION ON FUEL CONSUMPTION (KG/1000KG) FL230 FL270	FL310 FL350	FL390
100	880 0.22					6		
120	999 0.25	1005 0.24				7		
140	1119 0.28	1113 0.28				8		
160	1238 0.32	1221 0.31	1226 0.30			9	10	
180	1358 0.35	1330 0.34	1324 0.33	1332 0.32		9	11	
200	1477 0.38	1438 0.37	1422 0.36	1423 0.35		10	12	
220	1597 0.41	1546 0.40	1521 0.39	1515 0.38		11	13	
240	1717 0.44	1655 0.43	1619 0.42	1606 0.41	1608 0.40	12	14	14
260	1836 0.48	1763 0.46	1718 0.45	1698 0.44	1695 0.43	12	15	16
280	1956 0.51	1872 0.49	1817 0.48	1790 0.47	1782 0.46	13	16	17
300	2076 0.54	1980 0.52	1915 0.51	1882 0.50	1869 0.48	14	17	18
320	2197 0.57	2089 0.55	2014 0.54	1974 0.52	1955 0.51	15	18	19
340	2317 1.01	2198 0.58	2113 0.57	2066 0.55	2042 0.54	16	19	20
360	2437 1.04	2307 1.01	2212 1.00	2158 0.58	2130 0.57	16	20	22
380	2558 1.07	2416 1.04	2311 1.03	2251 1.01	2217 0.59	17	21	23
400	2678 1.10	2525 1.07	2410 1.06	2343 1.04	2304 1.02	18	22	24
420	2799 1.13	2635 1.10	2510 1.09	2436 1.07	2392 1.05	19	23	25
440	2920 1.16	2744 1.14	2609 1.12	2528 1.10	2479 1.07	20	24	26
460	3041 1.20	2853 1.17	2708 1.15	2621 1.12	2567 1.10	20	25	28
480	3162 1.23	2963 1.20	2808 1.18	2714 1.15	2654 1.13	21	26	29
500	3283 1.26	3073 1.23	2908 1.21	2807 1.18	2742 1.15	22	27	30

LOW AIR CONDITIONING	ENGINE ANTI ICE ON	TOTAL ANTI ICE ON
ΔFUEL = – 0.5 %	ΔFUEL = + 3.5 %	ΔFUEL = + 6.5 %

GENERAL

R The ground distance/air distance conversion tables show the air distance for a given ground distance due to the influence of the wind.
The tables are given for:
- M.78
- Long range speed.

M.78

R

GROUND DIST. (NM)	AIR DISTANCE (NM)						
	TAIL WIND			WIND COMPONENTS (KT)			HEAD WIND
	+ 150	+ 100	+ 50	0	– 50	– 100	– 150
10	7	8	9	10	11	13	15
20	15	16	18	20	23	26	30
30	22	25	27	30	34	39	45
40	30	33	36	40	45	51	60
50	37	41	45	50	56	64	75
100	75	82	90	100	113	129	150
200	150	164	180	200	225	257	300
300	225	245	270	300	338	386	450
400	300	327	360	400	450	514	600
500	375	409	450	500	563	643	750
1000	750	818	900	1000	1125	1286	1501
1500	1125	1227	1350	1500	1688	1929	2251
2000	1500	1636	1800	2000	2248	2572	3001
2500	1875	2045	2250	2500	2813	3215	3752
3000	2250	2454	2700	3000	3375	3858	4502
3500	2624	2863	3150	3500	3938	4501	5252
4000	2999	3272	3600	4000	4500	5144	6003
4500	3374	3681	4050	4500	5063	5787	6753
5000	3749	4090	4500	5000	5626	6430	7503

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