

SECTION 1INTRODUCTION

1. Book 2 of the Operating Data Manual provides the data needed for flight planning and cruise control. It is divided into seven sections as follows:

Section 1: Introduction

This includes a description of the flight planning methods and cruise control techniques used for VC 10, together with specimen flight plan worked out in detail.

Section 2: Rapid Flight Planning

This section contains data to permit rapid planning of a proposed flight and for quickly checking a completed flight plan, if necessary. A rapid flight plan made in this way is an approximation in that it does not divide the flight into a number of different segments and so does not fully take account of variations of wind and temperature along the route.

Section 3: Normal Flight Planning and Cruise Control

The flight planning tables in this section are used for the normal detailed preparation of a flight plan, dividing the proposed flight into its components of climb, cruise segments, descent, holding and diversion, and applying the forecast weather conditions to each. The cruise control tables are for carrying out a running check during a flight to ascertain that the aircraft is performing as expected.

Section 4: En-Route Performance (One Engine Inoperative)

This section contains the flight planning and cruise control data required for operating the aircraft on three engines.

Section 5: En-Route Performance (Two Engines Inoperative)

This section contains the data needed in flight in the unlikely event of a second engine failure during three-engine ferry operation or a double engine failure during normal operation.

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Section 6: Long Range Cruise-Climb Performance

This contains data for making maximum range flights when air traffic control does not require level flight at quadrantal heights.

Section 7: Miscellaneous

This includes airspeed conversion charts and the Navigator's Operating Card.

DEFINITIONS OF TERMS

2. V_1 Decision Speed: speed at which, in the event of engine failure, it is possible to abandon the take-off and come safely to a stop in the emergency distance available or to continue the take-off and pass through the screen at 35 feet on a dry runway or between 15 and 35 feet on a wet runway. For a wet runway V_1 established in take-off calculations is reduced by 10 knots.
- V_R Rotation speed - varies only with weight and is 10% above minimum measured unstick speed.
- V_2 Take-off safety speed required at screen height following failure of engine during the take-off. Never less than $1.1V_{MCA}$ or $1.2V_{MS}$.
- V_3 Speed achieved at screen height with all engines operating.
- V_4 Steady initial climb speed with all engines operating. Not less than $1.2V_{MCA}$ or less than $1.3V_{MS}$.
- Minimum speed for flap retraction: Speed which ensures aircraft remains above $1.2 V_{MS}$ during flap retraction period.
- $V_2 + 60$: Minimum speed for safe manoeuvres in the clean configuration.
- V_{MO} Maximum operating indicated air speed.
- M_{MO} Maximum operating indicated Mach No.

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DEFINITIONS OF TERMS (CONTINUED)

V_D Maximum diving indicated air speed.

M_D Maximum diving indicated Mach No.

V_{MD} Indicated air speed for minimum drag.

V_{RA} Indicated rough air speed

M_{RA} Indicated rough air Mach No.

Aerodynamic Ceiling: Height at which for a given "g" excess it is neither possible to increase nor decrease speed without encountering buffet.

1.2g) Buffet speed: Speed at which aircraft will encounter onset of buffet provided
1.35g) excess "g" is applied (i.e. 0.2g or 0.35g).

Net ceiling: Absolute minimum height aircraft will maintain in given conditions with one or two engines inoperative.

Maximum threshold speed: Target threshold speed plus 15 knots.

V_{MS} Minimum speed in a stall with the aircraft in configuration appropriate to case under consideration.

V_{MU} Indicated minimum unstick speed.

V_{MCA} Minimum control speed in the air with critical engine inoperative.

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FLIGHT PLANNINGGeneral

3. The flight should be divided into approximately hourly segments at convenient reporting points, turning points or FIR boundaries. In the meteorological forecast all temperatures must be converted into deviations from Jet Standard Atmosphere (J.S.A.). Calculate the take-off weight from the sum of the following:

- (a) A.P.S. (Aircraft Prepared for Service) weight.
- (b) Payload.
- (c) Total usable fuel on board at take-off.

The total fuel on board is not to be less than the minimum sector fuel given in the Quarterly Sector Fuel Tables. If, however, the forecast wind component is more adverse than that given in the Table, a rapid estimate of the total fuel required may be made from the Rapid Planning Tables.

Choice of Operating Procedure

4. This manual presents data for three indicated cruise Mach Nos., 0.88, 0.86 and 0.84. Maximum Recommended Cruise **H.P.R.P.M. is 91.5%**.

Normal cruise flight levels for the VC 10 are between 30,000 ft. and the maximum permissible altitude of 43,000 ft. At these altitudes Maximum Operating Mach No. is .886 IND (.86 true).

The choice of cruise procedure will depend on whether fuel economy or maximum speed is required and will be influenced by range, payload, A.T.C. requirements, etc.

5. Where fuel economy is of prime importance optimum specific air range is achieved by cruising at 0.84 Mach IND (typically about 480 Kts. T.A.S.) on a cruise-climb technique. Data for this are given in Section 6. However on the majority of flights A.T.C. requirements will dictate a stepped cruise technique at or near the ideal altitude for weight. Horizontal lines on the cruise tables indicate the best altitudes for range. For each 4,000 ft. step 300 lb. of additional fuel should be allowed; no time allowance is required; **for steps of less than 4,000 ft. allow 100 lb. for each 1,000 ft.**

Choice of Operating Procedure (Cont'd)

Where the additional fuel required for the faster block time does not affect payload a high speed cruise of 0.88 Mach IND (typically about 500 Kts. T.A.S.) may be used. For maximum T.A.S. a level cruise around 31,000 ft. should be used; however flights above this level will give only a slight reduction in speed while showing significant reductions in fuel flow.

A compromise procedure between speed and fuel economy is the Intermediate cruise of 0.86 Mach IND. This is particularly applicable if turbulent flight conditions are expected.

6. Occasionally it may be operationally advantageous to change cruise techniques in flight. The obvious cases are:

(a) High Speed to Long Range

To improve the fuel situation. This will give roughly about 15% reduction in fuel used. The reduction in fuel flow is not directly proportional to reduction in Mach No. and about 65% of the saving is in the initial reduction to 0.86 Mach IND.

(b) Long Range to High Speed

To gain time where fuel remaining is sufficient for High Speed cruise for all or part of the remainder of the flight. Approximately 5 minutes per hour of flight time will be gained. Fuel flow changes will be as above.

Start-Up and Taxi

7. A standard allowance of 2,000 lb. fuel should be made for start-up and taxi. This permits about 8 minutes taxiing time: more or less taxiing than this in practice will vary the fuel consumed by about 200 lb. per minute.

Take-Off

8. A standard allowance of 2,000 lb. fuel and 2 minutes time for take-off is included in all climb tables, and covers the period between start of roll and reaching 1,000 ft. above the airfield. For lightweight take-offs this allowance is slightly conservative.

Climb

9. The tables assume a standard climbing technique of 290 knots I.A.S. up to about 34,000 ft. and thereafter Mach 0.84 indicated, at the Maximum Recommended Climbing H.P.R.P.M. of 92.5%. If at high temperatures it is desired to use the Maximum Continuous H.P.R.P.M. of 95.5% initially to facilitate reaching climbing speed, no adjustment of the table readings need be made on this score. This would normally apply at high weights and temperatures above JSA + 10°.

For working out the climb the temperature deviation and wind component should be ascertained from the meteorological forecast for 20,000 ft., except when the flight is to be made at low level (below 30,000 ft.) in which case 15,000 ft. may be used. The climb table appropriate to temperature deviation should then be selected.

Stepped Cruise

10. To facilitate air traffic control it is normal for the VC 10 to be flown level, at quadrantal heights, and only change that height when it is possible to accept the next higher quadrantal height without loss in efficiency.

For maximum efficiency the cruising altitude at the mean weight on each leg should be chosen as near as possible to the optimum altitude underlined in the cruise tables.

Using these tables the fuel and time for each segment of the cruise can be obtained, and an example of this is shown in the specimen flight plan which follows.

Often in practice no step will be needed and the cruise will be completed at one constant level, using the same planning technique.

Cruise-Climb

11. Cruise-climb performance is presented in Section 6. Distance, time and weight information read from here may be split into segments and handled by the normal flight planning procedure described above. Altitude at beginning and end of the cruise-climb may also be read and used in working out the initial climb and the final descent. A fully worked example is given in Specimen Flight Plan 2.

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Low level Cruise

12. Cruise below 30,000 ft. is normally at 300 knots I.A.S. and data on this are given in Table 14A. If time is of paramount importance a slightly faster flight may be made by cruising at V_{MO} for which data are given in Table 14B. The time saved is 3 to 5 minutes per hour at a penalty of increasing the sector fuel requirement by up to about 8%.

Descent

13. The normal descent whether on 4, 3 or two engines is made with the aircraft clean and the engines throttled to idle R.P.M., at Mach 0.84 indicated down to about 34,000 ft., and thereafter at 290 knots I.A.S. The average rate of descent is approximately 2,000 feet per minute. Fuel, time and distance on descent should be obtained from the table.

The rate of descent can be increased to about 6,000 feet per minute by using the air brakes.

The descent may also be made at M_{MO}/V_{MO} and this will use approximately half the time and fuel of the normal descent.

Reserves

14. The reserve fuel should be the total of the following quantities:

- (a) En-route contingency fuel, either 3% or 5% of the flight plan fuel, as appropriate.
- (b) Holding fuel.
- (c) Diversion fuel.
- (d) 5,000 lb. of fuel for instrument let-down, approach and landing.

Providing a standard $\frac{1}{2}$ hour hold at 1,000 ft., 6,000 lb., is to be used, the total fuel for items (b), (c) and (d) above is included on Table 4. Note that the MINIMUM diversion fuel is 8,000 lb; this is the fuel required for a 200 n.m. diversion in still air, starting at the maximum landing weight of 235,000 lb. For other holding durations or techniques or for longer diversion distances, the individual reserve fuel quantities must be obtained from the relevant sections in the manual; Table 12 for holding and Table 13 for diversion.

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Reserves (Cont'd)

This then completes the total usable fuel required in the tanks at start up. Usuable fuel (71 gallons, about 570 lb.) should be included in the A.P.S. (Aircraft Prepared for Service) weight and must not figure in the flight plan calculations.

Reserve endurance is calculated from the fuel remaining at destination and an assumed mean fuel flow of 11,000 lb./hr., or in specially defined holding conditions the flow read from Table 12.

Howgozit

15. The last stage of preparing the flight plan is the completion of the Howgozit. This is achieved by plotting fuel remaining against distance to go at each turning point. From a point approximately half way along track obtain the mean wind velocities to destination and back to departure point. Calculate the wind components for continuation and return.

Extract the two corresponding plotting distances from the appropriate table on the Howgozit form: note that there is one table for flights of under 6 hours and another for flights of over 6 hours. Against the appropriate plotting weight (36,000 lb. for short flights, 60,000 lb. for long) mark the two plotting distances. Join the "continuation" point so found to the destination at 11,000 lb., and the "return" point to the departure at 11,000 lb.

The intersection of these lines, produced if necessary, defines the Critical Point, and the position of this on the route may be read by dropping a perpendicular onto the nautical miles scale.

If the "return" line is produced to meet the flight plan fuel plot, the point of intersection defines the Point of No Return, and the route position of this may be similarly read from the nautical miles scale.

Re-Planning in Flight

16. Reasons for re-planning in the light of the fuel or time situation en-route have been discussed previously. Such re-planning is done by straight-forward use of the normal tables as already described.

In the emergency of partial or complete pressurization failure the flight to destination or to an alternate airfield would have to be re-planned at a lower altitude. This can be done quickly by using the special tables 20A-E.

Three and Two Engine Planning

17. Tables for similar planning procedures with one and with two engines inoperative are contained in Sections 4 and 5.

CRUISE CONTROL

18. In normal level cruise the aircraft is held at the chosen altitude and all four engines R.P.M. adjusted equally to maintain the chosen Mach Number.

Tables 17 to 19 enable a running check to be made that the aircraft is performing in a standard manner. From the Indicated Air Temperature the atmospheric deviation from J.S.A. can be ascertained, following which the expected engine R.P.M. and fuel flow can be read off and compared with those actually occurring. T.A.S. and I.A.S. may also be read from these tables.

In low level cruise the flying technique is similar except that the engine R.P.M. are adjusted to maintain not a Mach Number, but the chosen I.A.S.

In the cruise climb a constant $0.84 M_{IND}$ is maintained. Engine power is adjusted dependent upon aircraft weight and temperature. There will be an approximate increase in altitude of 1,000 ft. per hour of cruise - see Section 6. In-flight performance checks are made using Cruise Control Tables 17 to 19 as with the stepped cruise.

Procedures are in general similar when cruising on three or on two engines, except that the chosen speed is more often an I.A.S. than a Mach Number, and appropriate tables will be found in Sections 4 and 5.

Instrument Readings

19. Throughout this book altitude means pressure altitude as shown by an altimeter when the sub-scale is set to 1013.2 mb. Similarly, whenever indicated airspeeds and Mach Numbers are quoted, the figures are those which should be set on the appropriate instrument using the normal static source: they have already had the corrections applied.

SPECIMEN FLIGHT PLAN : 1. STEPPED CRUISE

20. The specimen plan described below is for a flight from Brize Norton to Entebbe using normal long range stepped cruise technique at M 0.84 indicated and complying with current Air Traffic Control flight level requirements. The plan would be similar except for the actual numbers if the intermediate or the high speed cruise were used instead.

The skeleton flight plan is completed initially with safety heights, route, climb cruise and descent speeds, temperature deviations, tracks and distances for each leg. 30% and 70% sector fuel, planning Mach No. and block time are completed from the appropriate Quarterly Sector Fuel Payload Tables.

The weight at take-off comprises the A.P.S. weight, payload and chosen fuel load.

Climb

21. For convenience a standard mean height of 20,000 feet is used for wind data purposes for the climb unless it is not intended to go above 30,000 feet when the mean height used is 15,000 feet. Wind velocity and temperature deviation for the appropriate mean height are taken from the forecast. Reference to Table 6E shows that at 323,000 lb. the aircraft can climb to an initial quadrantal height of 33,000 feet. From this table, therefore, cruise height, mean T.A.S. on the climb, fuel used and time to height are extracted and entered in the flight plan. The heading, drift and ground speed columns can now be completed. The climb tables include 2,000 lb. and 2 minutes as an allowance for the aircraft to take off and climb to 1,000 feet over the airfield. To obtain distance travelled on the climb the ground speed is multiplied by the tabulated time less 2 minutes. The all-up weight and fuel remaining at the top of climb are now completed by subtracting the fuel used on the climb.

Cruise

22. From Table 10E T.A.S. for the first leg is extracted against the first cruise height. The next leg of the flight plan is now completed so as to obtain a time. It is necessary now to establish a mean weight for this leg in order to find a mean fuel flow. This can normally be done sufficiently accurately by taking the fuel flow for the nearest 10,000 lb. of all-up weight below T.O.C. all-up weight. This figure is multiplied by half the time of the leg and the result is subtracted from the T.O.C. A.U.W. to give mean weight for the leg. By re-entering the cruise table with this mean weight an accurate fuel flow is extracted to the nearest 100 lb/hr. The actual fuel used on the leg is now calculated by multiplying this fuel flow by the leg time. This figure is subtracted from the T.O.C. A.U.W. to give weight at the end of the leg. For particularly long legs it may be necessary to extract a more accurate fuel flow by re-entering the cruise table with the mean of the initial and final weights just calculated.

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Cruise (Cont'd)

The process is now repeated for the remainder of the cruise legs except the last. When it is clear from the tables that an appropriate step (usually 4,000 feet) in cruise height can be made then this is done. Cruise altitudes for best Specific Air Range are underlined in cruise tables. There is no time penalty for the step-climb but an extra 300 lb. of fuel is used. The last leg of the cruise cannot be completed until the descent has been calculated.

Descent

23. Mean T.A.S., fuel used and time are extracted from the descent table. The wind velocity for 20,000 feet is used as a mean, to obtain ground speed and distance. Subtracting descent distance from the length of the last leg, gives the final cruise distance. The flight plan can now be completed. If the height of the destination airfield is greater than 1,000 feet, fuel and time for descent is found by taking the difference between the fuels and times at cruising height and airfield height respectively. The T.A.S. is obtained by adding the two T.A.S. together and subtracting 290.

Fuel

24. Totalling all the fuel-used columns gives the expected fuel burn-off and this can be arithmetically checked by comparison with the difference between take-off A.U.W. and final weight, or the difference between take-off fuel and final fuel. The fuel used is entered in the Flight Plan Fuel column. Contingency fuel of 3% or 5% of burn-off is allowed and this is also entered in the fuel block. A standard landing reserve of 11,000 lb. is carried, which allows for half an hour holding at 1,000 feet (6,000 lb.), and an instrument let-down approach and landing (5,000 lb). Diversion fuel is extracted directly from Table 13B or 13C which assume I.S.A. + 10 conditions and a start of diversion weight of 220,000 lb.

In this example diversion is assumed to start at 5,000 ft. (i.e. 1,500 ft. above Entebbe) and finish at 7,000 ft. (1,500 ft. over Nairobi). The figures obtained are 10,000 lb. of fuel, 45 minutes and a cruise altitude of 43,000 ft. These figures are corrected for deviations from Table 13B or C conditions by reference to Table 13A and in this example 500 lb. is subtracted from the fuel figure to allow for start of diversion at 5,000 ft. There is also a very small correction for finish of diversion height at 7,000 ft., but for practical purposes this has been ignored.

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Fuel (Cont'd)

Adding Flight Plan Fuel, Contingency, Landing and Diversion Fuel gives the total fuel required at take-off. A further 2,000 lb. is added to this figure for start up and taxi giving the total usable required in the tanks. Unusable fuel of 71 gallons is accounted for in the A.P.S. weight.

To obtain the reserve endurance a mean destination fuel flow of 11,000 lb./hr. is assumed. This figure is applied to the Total Reserve, or in the case of extra fuel being carried, to the Actual Reserve. This time is added to the flight plan time to obtain the total endurance.

Howgozit

25. The fuel line is drawn on the graph at the back of the flight plan, by plotting the fuel remaining at each turning point against its appropriate distance. For Critical Point and Point of No Return information two plotting distance tables are provided. For flights up to six hours a plotting weight of 36,000 lb. is used and for flights over six hours a plotting weight of 60,000 lb. From the Met. forecast, wind components from a position roughly half way to Entebbe are extracted both for a return to Brize and for continuation to Entebbe, using mean tracks out and back. From the appropriate plotting weight table distances corresponding to these wind components are obtained. The distance for return to Brize is plotted from Brize along the 60,000 lb. plotting line to give point X. This point is joined to the 11,000 lb. plotting line at Brize and the line produced to cut the fuel line. The point where it cuts the fuel line is the P.N.R. to Brize. Similarly the plotting distance corresponding to continuation to Entebbe is plotted along the 60,000 lb. plotting line from Entebbe to give Point Y. This point is joined to the 1,000 lb. plotting line at Entebbe and produced to cut the other construction line. The intersection of these two lines projected on to the fuel line gives the Critical Point between Brize and Entebbe. The positions and times to these points are entered in the appropriate block on the front of the flight plan.

Landing Data.

26. The landing data block is completed by
- Inserting zero fuel weight at flight planning stage
 - From fuel at T.O.D. estimate landing fuel to give landing weight
 - Apply necessary correction for landing in other than normal configuration, e.g. flapless
 - Add one third of the windspeed to tabulated threshold speed up to a maximum increment of 15 knots.

Fuel Log

27. During flight a record of fuel readings, cruise Mach no. and buffet speeds is maintained. The speed giving a 0.2 or 0.35 g margin to the onset of low-speed buffet is set on the datum of the Pilot's A.S.I. so that at all times the band of safe operating speeds is displayed between datum and V_{MO} pointer.

SPECIMEN FLIGHT PLAN 1: STEPPED CRUISE

ROYAL AIR FORCE TRANSPORT COMMAND

FLIGHT PLAN

VC10

AIRCRAFT XR 806	CAPTAIN SMITH	DATE 1.8.66	ALTERNATES	TRACK (M)	SCHEDULE ETDD109000TD
CALLSIGN MJOAM	NAVIGATOR BROWN	FROM BRIZE	U.K. MASTER 2	DIST W/C	SCHEDULE ETA011645ATA
FLT No. 2104	ENGINEER WHITE	TO ENTebbe	NAIROBI 2	107/234-20	FLIGHT TIME

SAFETY HT.	TO	FINISHING WT.	FUEL USED	FUEL REMAINING	MEAN WT	FUEL FLOW	FINISH HT.	RAS IND MACH No	AMB TEMP DEV	TRACK (T)	W/V	DRIFT	HOG (T)	TAS	GS	DIST	TIME	ETA	DIST TO RUN
3200	WT AT TAKE-OFF	323 000		130 500															3582
	TOC	309 400	13600	116 900			33000	290.84	-15+10	14.5	240/30	5P	150	389	392	190	31		3592
	AJACCIO	291 600	17800	99 100	301	15500	33000	.84	-4+10	14.5	250/50	6P	151	484	494	569	69		2823
	MISURATA	272 800	18700	80 300	282	14500	34000	.84	-4+3+10	150	260/60	7P	157	482	499	643	77½		2180
	2600N 1947E	261 400	11400	68 900	265	13900	34000	.84	-4+3+10	14.6	280/20	10P	156	482	559	455	49		1725
	2000N 2400E	261 100	300	68 600															
	2000N 2400E	250 100	11000	57 600	256	12900	38000	.84	-5+1+10	14.6	270/50	5P	151	473	500	427	51		1298
	1500N 2611E	242 000	8100	49 500	246	12300	38000	.84	-5+1+10	15.7	280/40	4P	161	473	494	325	39½		973
	1000N 2818E	234 500	7500	42 000	238	11900	38000	.84	-5+1+10	15.7	330/40	1P	158	473	513	325	38		648
	0400N 3048E	224 500	10000	32 000	230	11600	38000	.84	-5+1+10	15.7	100/30	3S	154	473	455	390	51½		258
	TOD	220 600	3900	28 100	222	11400	38000	.84	-5+1+10	15.7	120/40	3S	154	473	440	150	20½		108
10300	ENTebbe	219 500	1100	27 000			5000	290.84		15.7	080/20	3S	154	366	362	108	18		0
		103 500	103500	103 500												TOTAL	3582	445	

FLIGHT PLAN FUEL	103	500	CONTINGENCY	5	200
TOTAL RESERVE	25	700	LANDING	11	000
TOTAL REQD AT TO	129	200	DIVERSION	9	500
TOTAL IN TANKS	132	500	TOTAL RESERVE	29	700
TAXI & UNAVAIL	2	000	ACTUAL RESERVE	27	000
TOTAL AT TAKE-OFF	130	500	FLIGHT PLAN TIME	7H	25M
DEST. FUEL FLOW	11	000	RESERVE ENDURANCE	2H	27M
			TOTAL ENDURANCE	9H	52M

SECTOR FUEL			
304	127000	W/C +20	MACH .84 BLOCK 7.37
702	128000	W/C +10	No .84 TIME 7.47
MIN DIV FUEL	9500	DIV	NAIROBI
CRITICAL POINT	3 HRS 3½ MIN	POS.	320NM MS
PNR.	4 HRS 3 MIN	POS.	130NM 26N
WATCH SYNCH	CORR SEC'S	AT 010700 GMT	

TAKE-OFF DATA			
PRESS ALT	400	AMB TEMP	+15
SURFACE W/V	270/20	A.T.O.W	323000
R/W	26	R/W	
COMP	-25	COMP	
R.T.O.W	323000	R.T.O.W	
V1	145	V1	
VR	155	VR	
V2	167	V2	
MIN FLAP RET.	201	V2+60	224

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SPECIMEN FLIGHT PLAN : 2. CRUISE CLIMB

28. A second specimen flight plan has been included to demonstrate the use of the cruise climb graphs in Section 6. The technique will seldom be used due to ATC considerations. The fuel economy given by a long range cruise climb at $0.84 M_{IND}$ is approximately 2½% over the $0.84 M_{IND}$ stepped cruise, so that only when extreme range or maximum payload over long range is required should it be considered. The graphs in Section 6 enable a cruise climb to be fully planned, and a detailed example is given in Specimen Flight Plan 2.

Climb

29. The climb is planned in the normal way from the appropriate Table 6A - 6J. Reference to the $0.84 M_{IND}$ cruise tables 10A - 10J will show the optimum altitude to start the cruise climb. Fuel used in climbing to this height is subtracted from the take-off weight to give weight at the top of the climb. Against this weight the reference equivalent still air distance is read from the graph in Section 6.

Cruise

30. The cruise legs should where possible be kept to lengths of approximately one hour, but these may be tailored to fit in with turning points. TAS for the leg is extracted from the block on the graph and groundspeed and time for the leg are calculated. Time applied to TAS gives the equivalent still air distance at the end of the leg. Re-entry of the graph with this total distance gives weight at the end of the leg and this subtracted from weight at the top of the climb gives fuel used on the leg. This process is continued for the rest of the cruise. The descent is planned in the normal way.

There is no requirement to complete fuel flow and mean weight columns, but from a performance point of view, if these are required, then the mean weight is obtained by subtracting half the leg fuel from the weight at the start of the leg, and the leg time applied to fuel used will give fuel flow.

The remainder of the flight plan and howgozit is completed in exactly the same way as illustrated in Specimen Flight Plan 1.

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