ATPL THEORY

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ATPL Examination Information Book Flight Planning Extract

This document contains extracts from The Australian Air Transport Pilot Licence (Aeroplane) Examination Information Book specific to ATPL Flight Planning. These are the methods and processes that CASA use for their questions so ATPL Theory highly recommends a complete understanding of CASA's techniques prior to sitting your exam. If you have any questions about this document please email contact@atpl-theory.com.au.

GENERAL

The standardised methods of calculation for flight planning cover rules of interpolation, 'rounding out' and other common assumptions. The objective is to ensure that the numerical values derived by the candidates through correct techniques of calculation are similar, or reasonably close, to the values provided by the correct answer of the question.

For ATPL(A) Flight Planning…CASA's calculations are based on the "In-Flight Tables".

For drift angles of 5 degrees or less, Effective TAS can be ignored, and will not result in a significant difference in the resultant ground speed. For drift angles greater than 5 degrees, candidates should make due allowance for Effective TAS to ensure that there is no significant difference between their calculated ground speed and that of the CASA's solution.

The availability of aerodromes may be indicated by the use of the terms 'suitable' and 'acceptable' as defined in the Handbook; this may be in reference to a forecast or simply a statement of the aerodrome status. The aerodromes status will generally be for the period of possible use.

Candidates are to assume that the B727 used is not RVSM-approved, but has been cleared to operate in all RVSM airspace in accordance with conventional IFR cruising levels

Average data may be used where appropriate. Candidates should use their discretion as to the use of average data or whether a more detailed calculation should be made.

Generally, in calculations which cover more than one zone of a flight, as in CP and/or PNR problems, or when determining fuel burn from a given point to landing, the use of average data may be appropriate. Any of the common methods of averaging data such as winds and temperatures are suitable for examination purposes. Average fuel flows and speeds should be extracted at the estimated mid-zone weight of the flight zone(s).

NORMAL OPERATIONS

Use of the phrase 'highest appropriate level' means the highest available flight level, in accordance with IFR Levels, based on thrust limited gross weight at the start of a cruise sector (or zone).

Reference to 'optimum level' means the optimum flight level listed in the Altitude Capability Table of the Handbook (page 2-14, Table 2.5) for the estimated mid-zone weight of a cruise sector. Relevant thrust limits and the IFR Levels must be considered when selecting optimum level.

Candidates should use the met data, wind and temperature deviation, closest to 2/3rds of the height of the initial cruise level. For a climb from one level to another, e.g. FL220 to FL310 then the winds and temperatures should be used from the height 2/3rds between the two levels.

For descents to landing, use the wind closest to 1/2 the height of the final cruise level.

Use data at FL185 [that is, assume the FL185 wind applies at all levels below FL185, and the temperature deviation from ISA (not the temperature itself) is constant below FL185].
Extract wind from the forecast to the nearest 10 degrees and 5 knots, then apply variation as appropriate for the situation. Interpolation of met data between levels is not necessary. Wind direction should be adjusted for magnetic variation as appropriate for the sector under consideration.

Candidates are to select the wind and ISA deviation from the level closest to that at which the B727 is operating.

The time and distance in the climb should be used as it is in the B727 Handbook without any rounding. If interpolation is required, and as a result a time interval or a distance value is determined that is not a whole minute or whole anm, then the fraction(s) of minutes and/or anm, should be used to determine the climb performance. The TAS for the climb should be determined using a combination of the exact time in the climb with the exact anm in the climb.

The fuel burn in a climb may be rounded to the nearest whole kg, if the fuel burn ends with 0.5 kg, then it should be rounded up to the next whole kg.

When making temperature adjustment to fuel-burn, round out the deviation from ISA to the nearest (multiples of) 3 degrees, that is, for ISA+10 assume ISA+9, and for ISA+14 assume ISA+15.

The fuel flow tables should be entered with gross weight to the nearest 1000 kg, as follows:
• enter for 72000 kg when EMZW is 71500 to 72499 kg
• enter for 73000 kg when EMZW is 72500 to 73499 kg
• enter for 74000 kg when EMZW is 73500 to 74499 kg

Interpolate cruise data as required, e.g. for gross weight 73000 kg, average the figures for 72000 and 74000 kg.

For temperature deviation from STD TAT, use temperature to the nearest multiple of 3 degrees, that is, use; 6 degrees when deviation is 5, and 9 degrees when deviation is 10.

There is no requirement to interpolate for values of landing weight. Use the appropriate landing weight column by rounding out to the nearest '10000 kg', that is, for 64999 kg use 60000 kg, and for 65000 kg use 70000 kg.

Holding: Enter the table with gross weight to the nearest 1000 kg and the appropriate flight level, and interpolate data as required. Temperature deviation from ISA may be taken to the nearest 5 degrees for fuel flow adjustments, that is, for ISA + 8 assume ISA + 10, and for ISA + 7 assume ISA + 5.

INOP

1-INOP cruise may be considered to commence at the gross weight and time that engine failure occurred, that is, the candidate may assume an "instantaneous descent" to the appropriate 1- INOP level.

Cruise level should be selected at the gross weight and temperature at the point of engine failure. Speed should be selected at the estimated mid-zone weight of a cruise sector.

Altitude Capability. Refer to Handbook, page 5-6, Table 5.2. Enter the table with gross weight to the nearest 1000 kg and temperature to the nearest 5 degrees deviation from ISA.

GEAR DOWN

Enter the table with gross weight to the nearest 1000 kg and temperature to the nearest 5 degrees deviation from ISA.

CRITICAL POINT

CP calculations may involve any flight condition, both normal and abnormal operations. Descent to an aerodrome may be ignored for determination of the CP position.

PNR

PNR calculations may be based on normal or abnormal operations to and from the PNR. Descent and approach to the diversion aerodrome must be considered when determining a PNR.