

1. Aircraft Equipment Requirements

- a) List the flight instrument requirements for a PVT/AWK category IFR flight.

OAT
 Magnetic compass
 Turn Co-ordinator Electric power
 Clock or timepiece for PVT ops.
 ASI
 AH
 Altimeter
 Turn Co-ordinator
 DG
 VSI
 Suction gauge

- b) What variation to the above is required for a charter flight?

Additional AH, ALT, suction system, clock with sweep second hand. If aircraft is fitted with a 3rd AH, may have a slip/skid indicator instead of a turn co-ordinator.

- c) If an aircraft has a remote reading magnetic compass what additional requirement is made? Why?

Standby direct reading magnetic compass. Redundancy due to power failure.

- d) What are balanced static ports?

Provide static air pressure separate from the pitot head unaffected by aircraft flight. Flush mounted either side of the aircraft fuselage. Obviates the need for an alternate static source.

- e) List the aircraft lighting requirements for a PVT/AWK category flight. How does this vary for a CHTR category flight?

Landing light (2 or 1 with 2 elements for CHARTER);
 Navigation lights;
 Strobes and or rotating beacon;
 Means of illuminating the instruments and with a standby power source;
 Intensity control unless one brightness is deemed suitable;
 Pilot compartment documentation;
 1 shock proof torch for each crew member;

- f) What communication requirement must be met for an IFR category flight?

Require continuous 2 way communication, VHF or if outside VHF range HF.

- g) What is the minimum radio navigation aid requirement for an IFR aircraft?

One navaid (VOR or ADF) OCTA, 2 aids CTA (in any combination except 2 DMEs; one may be a TSO GPS).

- h) If an aircraft has a NAV receiver with GS capability, what other equipment item is required?

Marker beacons. If marker beacons U/S then DME/GPS can replace marker beacons.

- i) If an aircraft is not fitted with an Assigned Altitude Indicator or Altitude Alerting System, is it eligible for IFR operation?

Yes, but not in CTA.

- j) Can an IFR aircraft operate to those rules with an unserviceable autopilot?

Yes – PVT/AWK only

- k) Where would you find whether the carriage of headphones on an IFR flight was mandatory?

Minimum Equipment List

2. Flight Time Limitations

For PVT, a maximum of 11 hours tour of duty with a maximum of 8 hours flight time.

3. Privileges and Limitations

- a) You hold a Command Rating endorsed for all navigation aids on a multi-engine aircraft. Can you act as co-pilot on an IFR operation?

Yes

- b) You hold a Command Rating endorsed on all navigation aids and have been asked to conduct a Night VFR private sight-seeing flight over the city. Can you conduct this flight?

Yes

You have not flown at night for 2 months. How might this affect your decision?

Provided 3 night take offs and landings have been conducted within the last 90 days and 1 hour of night flight in the last 12 months, the flight can proceed.

4. Recent Experience Requirement

You have been scheduled for an IFR CHTR flight on the next day and the weather conditions indicate flight in IMC will be necessary. Upon checking your logbook you find you have a total of 2:30 instrument flight in the last 3 months.

a) Are you current for this flight?

No

What alternative do you have to meet the currency if you decide you are not?

Conduct:

- 1 hour of instrument time on an approved simulator, or
- 1 hour instrument time ICUS (or in an approved flight simulator) or,
- 1 hour dual instrument time (or in an approved flight simulator) or,
- have passed the instrument rating test.
- CAT B Sim (GCI) at RVAC can be used for 2 of the 3 hours required for recency;

You have conducted an IFR flight to Mount Isa and an instrument approach is necessary. You have not conducted a VOR aerodrome approach for the last four months but one month ago conducted an ILS in IMC.

b) Can you conduct the VOR approach?

Yes. ILS covers recency requirements for LLZ and VOR. DME/GPS Arrivals are interchangeable for recency requirements.

5. Meteorological Requirements

You are to conduct an IFR flight from Hobart to Moorabbin and Moorabbin requires an alternate for which Albury is suitable.

ETD HB 0100

ETA MB 0330

Flight time to AY 1:00

a) What time must the ARFOR be valid for?
0430.

- b) A TAF is valid 2008. What is the earliest and latest times you could arrive based on this TAF?

2030 to 0700.

- c) The following TAF is issued for Inverell (IVL) NSW:

TAF IVL 121830 2008 160 15 KT 6000 SH BKN 014 TEMPO 0507 4000 RA

Your ETA is 0435

What MET requirement, if any, is there on IVL?

Holding fuel of 60 minutes or ALT due 4000 RA between 0430 and 0730.

- d) A TAF indicates:

TAF IVL 120500 0618 180 10 KT 3000 RA BKN 010 FM 09 6000 RA SCT 015

Your ETA is 0915. The actual QNH is not known.

Is there an alternate requirement on IVL?

Yes due 3000 RA BKN 010 up to 0930. Could also carry 15 minutes holding fuel since conditions are expected to improve FM 09, that is enough fuel to hold until 0930.

- e) What is a forecast endorsed PROV?

Provisional.

- f) What operational requirement is placed on a TAF so endorsed?

An alternate that has a firm forecast must be carried.

6. Alternate Requirements

You are to conduct an IFR CHTR from Hobart (HB) to Strahan (SRN) in a Beech Baron that has one of each radio navigation aid on board, on August 15th.

The following TAF on SRN is issued:

TAF SRN 141800 2008 20015 6000 SH BKN 011 INTER 0205 3000 RA

ETA is 0525

- a) Is an alternate required?

Yes due 6000 SH BKN 011.

- b) Your departure HB is delayed so that the ETA SRN becomes 0900Z. You obtain a new TAF for SRN and this indicates no further weather alternate requirement.

Are there any further alternate considerations other than weather?

Yes due lighting unless a responsible person is available to switch on the lighting. Alternate can be PAL if A/C if fitted with 2 VHF comms or 1 VHF and 1 HF comm and carry 30 minutes holding fuel.

- c) The following TAF is issued on Moorabbin (YMMB):

**TAF YMMB 221830 2008 19020G35 6000 SH BKN 015 FN 06 24025G40
4000 RA BKN 009**

ETA MB 0545

Do you have a weather alternate requirement?

Yes due 24025G40 (max crosswind?) 4000 RA (visibility < ALT Minimum)
BKN 009 (cloud < ALT Minimum).

- d) You are planning an IFR flight from Bendigo (BDG) to Ararat (ARA).

Since ARA is a no-aid aerodrome it would require an alternate but if you elected to operate the segment VFR what weather alternate requirements apply?

8KM visibility and ceiling of 1500'.

7. GAAP Separation

- a) What is the separation within the GAAP between aircraft?

No separation standards given – don't hit anything.

- b) Who is responsible for this separation?

PIC.

8. Interpretation of DAP.

Refer to the Brisbane Runway 01 ILS/DME approach plate.

- a) Explain the meaning of the following symbols:

Open triangle – Initial Approach Fix;

Maltese Cross – Final Approach Fix;

1000 – Not below 1000' and crossing height on glideslope;

^^ – Lit obstacle;

*
* – Special Alternate Minimum (400'/1.2 Km if aircraft is equipped with 2 independent Nav receivers with ILS, 2 ADFs and 2 marker beacons or marker beacon and DME). AD requires ATC at AD and have TTF information.

- b) What criteria is used to place an aircraft in Category A and Category B?

Vat (stall speed * 1.3) is used to differentiate aircraft categories

Category A Vat: < 91 Kts;

Category B Vat: 91 – 120 Kts

Circling limits:

Category A – 100 Kts

Category B – 135 Kts

- c) How is the circling area defined for a Category A and Category B aircraft?

Category A: 1.68 nm arc from RWY thresholds joined tangentially;

Category B: 2.66 nm arc from RWY thresholds joined tangentially;

Old criteria charts: 3 nm;

- d) List the speed limitations imposed on your category aircraft during the conduct of an approach and missed approach.

Category B

Initial Approach: 120 – 180;

Final Approach: 85 – 130;

Missed Approach: 150

Max Circling: 135

- e) What is the missed approach profile on an approach chart?

Climb at 2.5%

- f) How can you determine if a multi-engine aircraft on an asymmetric missed approach can meet the climb gradient?

On Flight Computer - set Yse (e.g. 88 Kt) on outer scale against 60 (minutes) on inner scale; against 152 (ft/nm) on inner scale, read required climb rate on outer scale. Determine from POH if SE rate of climb is greater than required climb rate.

If the required SE RoC is not available, the minima must be raised by an amount that will enable climb to the missed approach height with the available RoC.

- g) What is a DA?

Decision Altitude – altitude on ILS at which a missed approach must be made if not visual.

- h) What is an MDA?

Minimum Descent Altitude – is the minimum height that must be descended to on a non-runway approach. This altitude may be held until the MAPt.

- i) Explain Position Error Correction.

An adjustment to the DA on an ILS approach that compensates for errors introduced into the altimeter system by the location of the static sources. This is a standard +50' if no manufacturer supplied PEC value is provided.

- j) Explain temperature correction.

Where the temperature on the ground is colder than -15° , the DA should be adjusted for true altitude.

- k) Refer to the Avalon (AV) Twin Locator approach plate.

What do the shaded boxes in the minima alternate table refer to?

If a true QNH is available for the approach, the minima may be reduced by 100'. If area QNH is used, then add 50' to the published minima.

- l) What is the significance of the 10nm circle on the approach plate?

Identifies obstacles and features to the correct scale within 10nm of the aerodrome.

- m) What is the Base Turn?

Turn from the intermediate approach to the final approach.

- n) If the HIAL is not functioning for a LLZ approach, what is the required landing visibility?

Add 900 m
Other visibility standards:

800 m Cat I;
1200 m if A/C has no coupled autopilot and Flight Director;
1500 m if AD does not have the HIAL available;

9. Descent below LSALT

You are tracking from Hobart (HB) to Strahan (SRN) at A080 in cloud. The aircraft is equipped with one each of the following: ADF, VOR.

- a) How will you plan the descent to SRN assuming IMC to the aid?

Descent can be made to 6000 when on R-190 from DPO VOR and tracking 279 to SRN NDB. Over the aid, descent can be made to 3600. MSA within 25 or 10 nm.

- b) What would you do if you established visual reference en route to the aid by day? By night?

By day: Descend below LSALT when within 30 nm and visual at or above LSALT or MSA.

By night: Visual within the circling area.

- c) What other circumstances, not applicable at SRN, would enable descent below the LSALT?

DME or GPS arrival, when being radar vectored.

By night, if established on an ILS, then within 10nm. If AD has VASIS/PAPI operating, then within 5 nm.

10. Descent below approach minima.

After passing over the SRN NDB you are still in cloud and elect to fly the NDB approach. Inbound and at minima, you establish visual reference.

- a) How will you set up further descent and position for the landing?

Manoeuvre to land straight ahead on RWY 36. Or position on a right downwind for RWY 18. No circling to the east. Keep approach end of RWY in sight.

Normal descent profile (e.g. mid-base).

Note, if the circling minima is higher than the normal circuit height, you are permitted to descend on downwind to turn base at 1000', that is, a normal profile.

- b) What is the minimum obstacle clearance for a Category A and B aircraft within the circling area on a new criteria chart?

300'.

11. ERSA Emergency Procedures.

You have a flight planned Essendon (EN) to Albury (AY) at A070. The departure EN is from runway 26 with the following information:

“Radar departure turn right heading 030 maintain 3000 call Departures 118.9 airborne, clear for takeoff”

After becoming airborne you enter cloud and find you have a communication failure. All the nav aids are still serviceable.

- a) Detail all of your actions regarding the comm failure.

SQUAWK 7600.

Transmit intentions, prefixing with TRANSMITTING BLIND.

Listen out on any voice modulated aids. See ERSA for guidance of which aids to use.

Maintain radar vector for 2 minutes. Remember V – 2 strokes to write.

Maintain altitude for 3 minutes. Remember A – 3 strokes to write.

Then, continue as flight planned at A070.

Descend using DME/GPS Arrival to approach height, then fly the appropriate approach. With runway information available, can fly the runway approach – e.g. ILS.

- b) Assuming you established VMC en route, how would this affect your actions regarding the comm failure?

Land at nearest suitable aerodrome and report to ATC.

12. DME Arrivals and DME arcs.

Refer to Adelaide DME/GPS page 1 detailing 318 MTG to AD VOR/NDB.

- a) Explain each of the columns relating to this arrival.

Not below 3800 before 8 nm to VOR;

Descend to 2000 when within 8nm;

Descend to 1100 when within 5 nm;

Descend to MDA when within 4 nm;

- b) Where is the missed approach executed from?

VOR or NDB, whichever is providing track guidance.

Refer to the East Sale Runway 22 ILS/DME chart. You are tracking into ESL 270° and are instructed to track via the 10 DME arc to intercept the LLZ.

- c) How would this be done?

Tracking into the aid, use 1% of groundspeed as a lead-in distance to turn at rate-1 onto 90° of in-bound course. Watch distance – if increasing, alter course by 20° into the arc, then wait for a distance increase. Repeat.

- d) What is the track tolerance?

+/- 2 nm.

13. LSALT calculations.

Determine the criteria for working out the LSALT in each of the following cases.

- a) Aid to Aid.

Lines from an aid diverge by 10.3° with a 5 nm buffer to a limit of 50 nm either side of the track line. Lines to the aid converge at 10.3° with a 5 nm buffer from a limit of 50 nm either side of the track line.

- b) Aid to No Aid.

Lines from an aid diverge by 10.3° with a 5 nm buffer to abeam the no aid AD. Then an arc is described around the no aid AD.

- c) No Aid to Aid.

Lines from the no aid AD diverge by 15° with a 5 nm buffer to a limit of 50 nm either side of the track line. Lines to the aid converge at 10.3° with a 5 nm buffer from a limit of 50 nm either side of the track line.

- d) Aid to a turning point then Aid.

Lines from an aid diverge by 10.3° with a 5 nm buffer to a limit of 50 nm either side of the track line. Lines to the aid converge at 10.3° with a 5 nm buffer from a limit of 50 nm either side of the track line. Join the lines at the turning point.

When determining the LSALT value, use maximum of tints and spot heights then add 1400'.

14. Standard Takeoff Minima

- a) What is the standard take-off minima for your training aircraft from an aid aerodrome?

300' ceiling, 2000m visibility. Company policy is to make the take-off minima the same as the approach minima to ensure ability to return to take-off AD in the event of an emergency on take-off in IMC.

- b) From a no-aid aerodrome?

1000' ceiling, 5000m visibility.