

# VFR OPS

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## 1 Relative humidity:

- (a) changes with temperature even if the amount of water vapour present does not change
- (b) changes with temperature only if the amount of water vapour present changes
- (c) does not change with temperature if the amount of water vapour present is constant
- (d) does not change with temperature if the dew point temperature does not change.

## 2 When moist air flows over a mountain and forms cloud the cloud base on the lee side compared to that on the windward side is:

- (a) lower if precipitation has occurred
- (b) always due to orographic lift
- (c) always higher due to orographic lift
- (d) higher if moisture has been lost due to precipitation.

## 3 The atmospheric temperature in an inversion:

- (a) decreases with height and the environmental lapse is said to be positive
- (b) decreases with height and

- the environmental lapse rate is said to be negative
- (c) increased with height and the environmental lapse rate is said to be positive
- (d) increases with height and the environmental lapse rate is said to be negative.

## 4 In the presence of an inversion the range of VHF communications may:

- (a) be reduced to less than line of sight due to an ionospheric reflection
- (b) be reduced to less than line of sight due to dielectric losses
- (c) be increased to greater than line of sight due to atmospheric "ducting"
- (d) be increased to greater than line of sight due to ionospheric reflection.

## 5 When the NDB signal crosses a coast, coastal effect may give erroneous ADF indications:

- (a) at other than a right angle and is less significant the further the NDB is situated from the coast
- (b) at other than right angles and is less significant the closer the NDB is situated to the coast

- (c) at right angles and is less significant the further the NDB is situated from the coast
- (d) at right angles and is less significant the closer the NDB is situated to the coast.

## 6 Outside operating hours of a tower in D airspace, when the lower airspace becomes an MBZ, the airspace immediately above the MBZ:

- (a) always changes to G airspace
- (b) always changes to E airspace
- (c) always changes to C airspace
- (d) may change to either C or G depending on the location.

## 7 When there is high ground to the west of an airport the official last light:

- (a) will be earlier
- (b) will be later
- (c) will not change but the actual onset of darkness will occur later
- (d) will not change but the actual onset of darkness will occur earlier.

## 8 The manoeuvring speed (VA) is typically marked on

## an airspeed indicator as:

- (a) a red line
- (b) the junction of the green and yellow arc
- (c) the high end of the white arc
- (d) is not usually marked.

## 9 The gyroscopic portion of a turn coordinator instrument responds to:

- (a) bank angle
- (b) bank angle and rate of yaw
- (c) rate of bank and rate of yaw
- (d) rate of yaw.

## 10 A VFR aircraft with an electrical system capable of powering a transponder may operate in E airspace provided that:

- (a) an airways clearance is first obtained
- (b) a flight plan is submitted and an airways clearance is obtained
- (c) a transponder operating in Mode C is carried and switched on and a listening watch is kept on the centre frequency
- (d) a transponder operating in mode C is carried and a listening watch is kept on the MULTICOM frequency.

# IFR OPS

## New approach plates



**You are inbound to Canberra, ACT. Part of the ATIS reads "...Runway 35, wind 010/20... Visibility 3000 metres, Rain, Cloud BKN 700..."**

**Your aircraft (category B) is equipped with ILS, VOR, DME and ADF and the maximum climb gradient it is capable of meeting is 3.3 per cent.**

**1 What runway approaches can be flown in this aircraft at YSCB?**

- (a) RWY 17 VOR, RWY 35 ILS-Z, RWY 35 ILS - Y, RWY 35 VOR
- (b) RWY 35 ILS-Z, RWY 35 VOR
- (c) RWY 35 ILS-Z, RWY 35 ILS-Y RWY 35 VOR
- (d) RWY35 ILS-Z.

**2 Considering the runway approaches available to you in question 1, which approaches require DME?**

- (a) RWY17 VOR, RWY35 ILS-Z, RWY 35 ILS-Y, RWY 35 VOR
- (b) RWY 35 ILS-Z, RWY 35 ILS-Y, RWY 35 VOR
- (c) RWY35 ILS-Z, RWY 35 ILS-Y but only for LLZ approach
- (d) RWY 35 ILS-Z RWY 35 ILS-Y but only for LLZ approaches and RWY 35 VOR.

**You are inbound to Oakey, QLD. Part of the ATIS reads "...Runway 14, wind 130/30... visibility 5000 m, showers, cloud OVC 900..."**

**Your aircraft (category B) is equipped with VOR, ADF and non-TSO GPS. It has a max crosswind component of 15 kt.**

**3 Which of the following approaches are available to you?**

- (a) DME/GPS arrival, RWY 09 NDB Rwy 14 VOR
- (b) RWY 09 NDB, RWY 14 VOR, RWY 23 VOR, RWY 14 RNAV (GNSS)
- (c) RWY 09 NDB with circling to RWY 14 and RWY 14 VOR
- (d) RWY 14 VOR only.

**4 If the aircraft in question 3 were to have a TSO'd GPS with current database and you are qualified to use it, what minima is applicable for the RWY 14 VOR approach with no actual QNH but a TAF QNH available?**

- (a) 1930 (595 – 3.4)
- (b) 2170 (835 – 4.8)
- (c) 2170 (835 – 2.4)
- (d) The GPS has no relevance on the RWY 14 VOR approach.

**Refer to the Oakey RWY 14 ILS plate (assume TSO'd GPS available).**

**5 What is the landing minima for a LLZ only approach?**

- (a) LLZ only not available since not mentioned in the title
- (b) 1540 (205-1.5)
- (c) 1990 (655-2.4) or 1890 with actual QNH
- (d) 1990 (655-3.7) or 1890 with actual QNH.

**6 During the descent on the RWY14 ILS at Oakey, you pass 3.7 GPS at 2588 ft but receive no audio or light for the OM. What actions will you take?**

- (a) You must execute the published missed approach
- (b) You must not descend below 2588 and this becomes the modified MDA

- (c) You can only continue descent to LLZ minima of 1990 (655-3.7) or 1890 with known QNH
- (d) You may continue the ILS to landing minima of 1540 (205-1.5) having utilised a TSO'd GPS to take the place of DME and markers.

**7 The Brisbane, QLD RWY 19ILS –Y does not require the use of DME since GPS is permitted in lieu of the DME. True or False?**

- (a) True
- (b) False.

**Refer to the Sydney/Bankstown, NSW approach plates.**

**8 What is the final approach track and minimum initial approach altitude for each of the NDB circling only approaches respectively?**

- (a) There is only one NDB approach, track 230, not below 1500
- (b) There are 2 NDB approaches (NDB-A and NDB-B), tracks 230, 325, altitudes not below 1500, 1600 respectively
- (c) There are 3 NDB approaches (NDB-A, -B and C), tracks 230, 325 and 264, altitudes not below 1500, 1600 and 2200 respectively
- (d) There is only one NDB approach for RWY 11C, track 117, not below 5000 ft at the I.A.F, not below 2500 until the FAF.

**Refer to the Longreach QLD, VOR or RWY 04 NDB approach plate.**

**9 Can this approach be used as a straight in approach for both VOR and NDB and what is the minima?**

- (a) Only available as a straight in approach for the NDB from 1190(563-3.2) or 1090 with actual QNH
- (b) Available as straight in approach for both NDB and VOR from 1190(563-3.2) or 1090 with actual QNH
- (c) Only available as a circling approach for both from 1250(623-2.4) or 1150 with actual QNH, for category B aircraft.

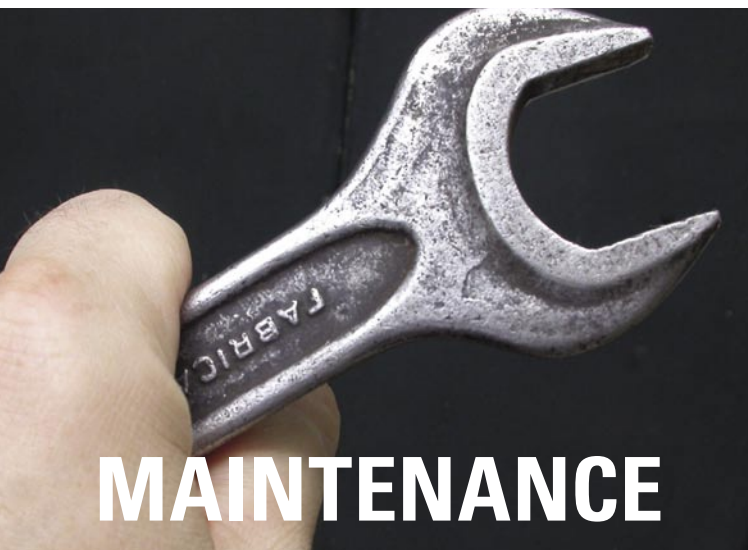
**10 The Morse code identifier can now be found on each ground based navigation aid approach plate. True or False?**

- (a) True
- (b) False.

**Refer to the Longreach QLD Rwy 22 RNAV (GNSS) approach plate.**

**11 Which of the following is a true statement?**

- (a) The distance between IF (LRENI) and FAF (LRENF) is 8 nm and the aircraft must not descend below 2000
- (b) The distance between IF (LRENI) and FAF (LRENF) is 12 nm and the aircraft must not descend below 1800
- (c) The distance between IF (LRENI) and FAF (LRENF) is 4 nm and the aircraft must not descend below 2000
- (d) The distance between IF (LRENI) and FAF (LRENF) is 4 nm and the aircraft must not descend below 1800.



**1 Operating an elevator trim control to the nose down position should move the trim surface:**

- (a) up with reference to the elevator.
- (b) down with reference to the elevator.

**2 A mass balance on a flying control is used to:**

- (a) decrease the moment of inertia of the control surface.
- (b) move the centre of gravity behind the centre of pressure.
- (c) move the centre of gravity

of the control surface forward to enhance its dynamic stability.

- (d) move the centre of gravity of the control surface back to enhance its dynamic stability.

**3 The pressure, measured in pounds per square inch, above atmospheric pressure is correctly termed:**

- (a) PSI
- (b) PSIG
- (c) PSI absolute.

**4 A thermocouple temperature measuring instrument such as an EGT gauge relies for its operation on:**

- (a) the change in electrical resistance of a fine wire and is independent of the aircraft electrical system.
- (b) the change in electrical resistance of a fine wire

and is dependent on DC power from the aircraft electrical system.

- (c) the difference in temperature of two junctions of dissimilar metals and is independent of the aircraft electric system.
- (d) the difference in temperature between two junctions of dissimilar metals and is dependent on DC power from the aircraft electric system.

**5 In a turbo prop engine, an instrument that measures the oil pressure applied to a set of pistons in the propeller reduction gearbox that opposes the axial thrust produced by the helical gears is termed:**

- (a) a thrust meter
- (b) a torquemeter
- (c) a tachometer
- (d) a beta meter.

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# What's the message?



## LAST ISSUES WINNING CAPTION

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*Mark Bowman, Coes Creek, Qld*



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## Quiz answers

### VFR OPS

- 1 (a) RH changes with temperature because the ability of the air to hold water vapour also changes with temperature.
- 2 (d) Moisture loss due to precipitation results in drier air, and therefore a higher condensation level, on the lee side.
- 3 (d) An increase of temperature with height is termed a negative lapse rate (Manual of Meteorology Part 1 para. 4.10).
- 4 (c) Ducting is said to occur when the transmitted wave is curved downwards because the upper portion of the wave encounters air with different refraction characteristics.
- 5 (b) The effect is that the

NDB apparently moves closer to the coast; this is reduced purely by geometry, the closer the NDB is actually located to the coast.

- 6 (d) For example Alics Springs, Hobart and Launceston changes to G whereas Tamworth changes to C (ERSA provides the applicable information).
- 7 (d) Additional time buffers should be considered in such locations because darkness occurs earlier.
- 8 (d)(a) is VNE (b) is VNO (c) is VFE
- 9 (c) The sensitivity to rate of roll is an aid to maintaining wings level but no indication of bank angle is given; (d) applies to the earlier simpler turn and slip indicator.
- 10 (c) AIP para 6.1.2 GEN 1.5 1.4 - 9.

### IFR OPS

#### The new approach plates

- 1 (c) Only RWY 35 ILS-Y minima of 2340 (470) 1.7 can be used since the 4.6 per cent gradient cannot be met.
- 2 (d) Note: LLZ minima is the same.
- 3 (c)
- 4 (a) (a) is correct because the GPS may be used in lieu of DME.
- 5 (d) DAP East 0-3.
- 6 (d)
- 7 (b) DME is required coupled to the 19ILS (ident. IBS) and no statement box allowing GPS in lieu.
- 8 (c)
- 9 (a) DAP East 0-3 table.
- 10 (a) DAP East 0-3 table.
- 11 (d) DAP East 0-3 table.

### MAINTENANCE

- 1 (a) The trim tab positions the main control surface in the opposite direction to the tab movement.
- 2 (c) The inherent stability of the surface increases with the distance forward of the centre of gravity with respect to the hinge line.
- 3 (b) PSIG (pounds per square inch gauge) denotes the pressure above atmospheric pressure.
- 4 (c) A thermocouple is independent; (b) describes a resistance bulb system as may be used for oil temperature measurement.
- 5 (b) A torquemeter is a common means of measuring torque in turboprop engines.