

## VFR OPERATIONS

**1 A passenger on a regular public transport flight wishes to carry a small clinical mercury thermometer. Carriage of this item is:**

- (a) Permitted provided it carried in checked (hold) baggage.
- (b) Permitted provided it is carried in its protective case as carry-on baggage.
- (c) Not permitted unless with the written approval of the operator.
- (d) Not permitted under any circumstances.

**2 For the purpose of transport by air, dangerous goods are defined as those listed in:**

- (a) The current edition of the ICAO publication Technical Instructions for the Safe Transport of dangerous Goods by Air.
- (b) Sub part B of CASR 92.
- (c) Subsection 23 (3) of the Civil Aviation Act 1988.
- (d) The IATA Dangerous Goods Regulations.

**3 A MULTICOM is a:**

- (a) Frequency of 126.7.
- (b) Frequency of 119.1.

- (c) Frequency of 123.45.
- (d) CTAF facility that can be used to provide information to aircraft operating at a non-towered airport.

**4 A true airspeed of 220kt is entered in NAIPS as**

- (a) 220K.
- (b) K220.
- (c) N220.
- (d) N0220.

**5 You hold a private licence and want to take six friends on a short cross-country flight and share the costs of hiring the aircraft. In the circumstances you:**

- (a) May share the aircraft costs because the flight is regarded as private.
- (b) May share the aircraft costs because the operation is not scheduled and the pilot is not paid.
- (c) May not share the aircraft costs because, with more than six persons on board, it is not regarded as a cost-sharing private flight.
- (d) May not share the aircraft costs because to do so in the case of any flight would make that flight a commercial operation.

cial operation.

**6 A commercial pilot who is 65 years old must not act as pilot in command in commercial operation carrying passengers:**

- (a) Under any circumstances.
- (b) Unless the flight crew includes a second pilot who is appropriately rated.
- (c) Unless a flight review or proficiency check has been successfully completed in the previous year.
- (d) Unless a flight review or proficiency check has been successfully completed in the previous six months.

**7 A METAR "RF02.0/004.0" indicates that:**

- (a) 2mm of rain has fallen in the previous 15 minutes and 4mm has fallen since 0600 local time.
- (b) 2mm of rain has fallen in the previous 10 minutes and 4mm has fallen since 0900 local time.
- (c) 4mm of rain has fallen in the previous 15 minutes and 2mm has fallen prior to that since 0600 local time.
- (d) 4mm of rain has fallen in the

previous 10 minutes and 2mm has fallen prior to that since 0900 local time.

**8 When reading back ATC clearances, instructions and information, in which of the following may only key elements be read back to indicate compliance?**

- (a) An ATC route clearance.
- (b) An amendment to an ATC route clearance.
- (c) Clearance to land on, back-track on, enter, cross or hold short of a runway.
- (d) An amended ATC route clearance with enroute holding.

**9 When navigating visually in controlled airspace, you shall notify ATC if the aircraft deviates from the approved track by:**

- (a) More than 2nm, or if navigating by an NDB  $\pm 5$  degrees.
- (b) More than 1nm, or if navigating by an NDB  $\pm 5$  degrees.
- (c) More than 2nm, or if navigating by an NDB  $\pm 3$  degrees.
- (d) More than 1nm, or if navigating by an NDB  $\pm 3$  degrees.

## MAINTENANCE

**1 The main reason for use of dry nitrogen instead of air for inflating tyres on some aircraft types is because:**

- (a) The type of rubber used to allow tyres to meet the low temperature requirements of high altitude flight makes the tyres slightly porous.
- (b) Nitrogen preserves rubber.
- (c) Nitrogen preserves the aluminium/magnesium alloys from which wheels are made.
- (d) Air mixed with a gas liberated by overheated rubber forms an explosive mixture.

**2 A fuel quantity indicator is calibrated in fractions of the usable fuel capacity and is found to be correct within 3 per cent. A calibration card is:**

- (a) Not required because the error does not exceed 5 per cent.
- (b) Not required because the error does not exceed 7 per cent.
- (c) Required because the calibration is in fractions of capacity.
- (d) Required because the error is 3 per cent or more.

**3 Unless overhaul manual procedures dictate otherwise, the transponder code that should be used for testing by maintenance personnel is:**

- (a) 7500.
- (b) 0000.
- (c) 1200.
- (d) 2100.

**4 The reason why some maintenance publications state that the use of petroleum-based solvents to clean the pins of aircraft electrical connectors is not recommended is that the solvent can:**

- (a) Cause deterioration of the of the insulation material due to removal of the plasticiser.
- (b) Affect the adhesion of the gold plating on connector pins.
- (c) Cause carbon tracking of the insulation where the solvent washes contaminants into critical areas.
- (d) Cause stress corrosion of beryllium-copper springs on the receptacles.

**5 A condition where minute movement between two metal parts clamped together under considerable**

**pressure causes transfer of metal from one part to another is termed:**

- (a) Galling.
- (b) Fretting.
- (c) Flaking.
- (d) Burring.

**6 A "shower of sparks" piston engine ignition system has:**

- (a) 2 sets of breaker points, both of which must be open in order for a spark to be produced.
- (b) 2 sets of breaker points which are connected in series.
- (c) 1 set of breaker points and is connected to the aircraft bus during starting.
- (d) 2 sets of breaker points and is isolated from the aircraft bus during starting.

**7 The contacts on a reverse current cut-out relay associated with a DC generator will open when the:**

- (a) Magnetic flux due to the reverse current in the relay series winding opposes the flux due to the current in the shunt winding to the point where spring tensions releases the relay armature.
- (b) Magnetic flux due to the reverse current in the relay

shunt winding opposes the flux due to the current in the series winding to the point where spring tension releases the relay armature.

(c) Current in the series winding becomes insufficient to hold in the armature.

(d) Current in both windings becomes insufficient to hold in the armature.

**8 In the repair of bonded structures, the use of phenolic microballoons:**

- (a) Provides a filler to increase the density of the resin.
- (b) Reduces the density of the resin and make it more flexible thus lowering stress concentrations.
- (c) Thins the resin to increase penetration in recesses.
- (d) Delays the setting of the resin resulting in greater strength.

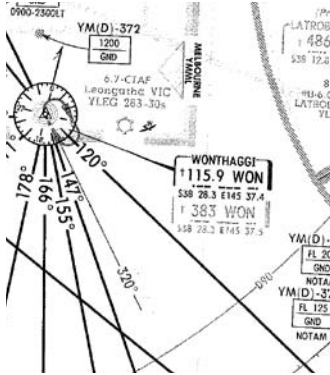
**9 A potential hazard with certain composite aircraft is that Styrofoam:**

- (a) Reacts rapidly with mineral hydraulic fluid.
- (b) Dissolves rapidly in 100LL avgas and mogas.
- (c) Dissolves immediately in 100/130 avgas.
- (d) Creates a fire hazard when in contact with synthetic greases.

## IFR OPERATIONS

For each of the following questions, assume the aircraft is fitted with this navigation equipment:

- 2 VORs.
- 1 fixed card ADF.
- 1 RMI (ADF).
- 1 DME.



- 1** Refer to ERC 2. You are tracking from Wonthaggi (WON) to Latrobe Valley (LTV) at 5,000ft (note that this is not a published track). What is the lowest altitude to which you may descend in IMC, and how is this determined?
- (a) The lowest safe altitude (LSALT) that you have calculated for the route being flown – 3,100ft.
  - (b) The grid LSALT for the route being flown – 3,900ft.
  - (c) The minimum safe altitude (MSA.) – 3,000ft – for LTV based on a positive fix from East Sale Tacan (paired 113.5) and LTV NDB.
  - (d) The MSA – 3,000ft – for LTV based on a positive fix from Melbourne DME and LTV NDB.
- 2** Refer to ERC 1. Which of the following choices would be a positive fix to establish the position "Jacka" (south of Cowes VOR/NDB) with the aircraft maintaining 5,000ft on a heading of 170 (M)?
- (a) CWS VOR radial 160, CWS NDB 160 (RMI), NDB 170R (fixed card).
  - (b) WON NDB 032 (RMI) WON NDB 222R (fixed card) CWS VOR radial 160.
  - (c) WON VOR radial 211, CWS NDB 160 (RMI) CWS NDB 190R (fixed card).
  - (d) CWS VOR radial 160, Melbourne DME 70.
  - (e) Both (b) and (d) are correct.
- 3** Refer to TAC 3. You are tracking from Owens to Bendigo (BDG) at 6,000ft (note that this is not a published track). The LSALT is 4,700ft. What is the lowest altitude to which you may descend in IMC, and how can this be determined?
- (a) The LSALT is 4,700ft and applies along the whole of the track line.
  - (b) The MSA is 4,000ft for BDG based on a positive fix tracking BDG NDB and crossing the Mangalore (MNG) VOR radial 250.
  - (c) The MSA is 4,000ft for BDG, tracking BDG NDB at 35 DME ML.
  - (d) The MSA is 4,000ft for BDG tracking BDG NDB and crossing the MNG VOR radial 239.
  - (e) Both (c) and (d) are correct.
- For questions 4-9 refer to Moorabbin (MB) NDB Approach Plate dated 29 September 2005.
- 4** You have been cleared to leave controlled airspace tracking via the ML 158 radial/MB NDB approach. Which of the following

would define the IAF, with the aircraft on a heading of 170 (M)?

- (a) ML VOR radial 158 at 13 DME ML only.
- (b) ML VOR radial 158, MB NDB 112 (RMI) MB NDB 302R (fixed card).
- (c) ML VOR radial 158, MB NDB 100 (RMI) MB NDB 302R (fixed card).
- (d) ML VOR radial 158, MB NDB 112 (RMI) MB NDB 046R (fixed card).

**5** What altitude may the aircraft in Question 4 descend to in IMC having established the IAF?

- (a) Only to the altitude authorised by ATC.
- (b) Not below 2,000ft until established on final.
- (c) Not below 1,400ft until established on final.
- (d) MDA of 620ft (known QNH) for category A and B aircraft.

**6** How will the aircraft in Question 4 establish the lead bearing (LB) position if the ML DME were to drop out?

- (a) The LB cannot be determined without DME so a missed approach should be conducted.
- (b) ML VOR radial 338, MB NDB 088 (RMI) MB NDB 278R (fixed card).
- (c) ML VOR radial 158, MB NDB 076 (RMI) MB NDB 278R (fixed card).
- (d) ML VOR radial 158, MB NDB 088 (RMI) MB NDB 278R (fixed card).

**7** An aircraft is tracking via the Cowes (CWS) VOR 323 radial on a heading of 333 (M) for the MB NDB approach. What is the lowest altitude to which the aircraft may descend in IMC prior to reaching

the IAF?

- (a) Not below 2,100ft.
- (b) Not below 1,400ft.
- (c) 2,000ft being a hemisphere level for the track being flown.
- (d) 4,000ft being a hemisphere level for the track being flown.

**8** How will the aircraft in Question 7 establish the IAF?

- (a) CWS radial 323, ML DME 28 only.
- (b) CWS radial 323, ML DME 28, MB NDB 020 (RMI) MB NDB 047R (fixed card).
- (c) MB NDB 020 (RMI) MB NDB 047R (fixed card).
- (d) CWS radial 333, MB NDB 010 (RMI) MB NDB 047R (fixed card).

**9** Having established the IAF in question 8, what altitude may the aircraft now descend to in IMC until establishing final approach?

- (a) Not below 2,100ft.
- (b) MDA of 620ft (known QNH) for category A and B aircraft.
- (c) MDA of 720ft (forecast QNH) for a category A and B aircraft.
- (d) Not below 1,400ft.

**10** If you are using 2 NDBs to fix a position then the angle must be not less than 45 degrees and you must be within 30nm of each of the beacons being used. True or False?

- (a) True.
- (b) False.

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## QUIZ ANSWERS

## VFR

1. (b) CASR 92.030 note 2 (L) which quotes portion of the ICAO technical instruction.
2. (a) Refer CASR 92.101 (1); general industry practice is to comply with the IATA DG regulations which will result in compliance with the Technical Instructions (ref. note 2 to the regulation).
3. (a) AIP GEN 2.2; answer (d) is a UNICOM.
4. (d).
5. (c) CAR 2 (7A)(b)
6. (d) CAR 1988 5.110.
7. (b) AIP GEN 3.5 para. 12.18.1.
8. (c) GEN 3.4 para. 4.4.1.
9. (b) AIP ENR 1.1 para. 19.2 and 19.6.

## MAINTENANCE

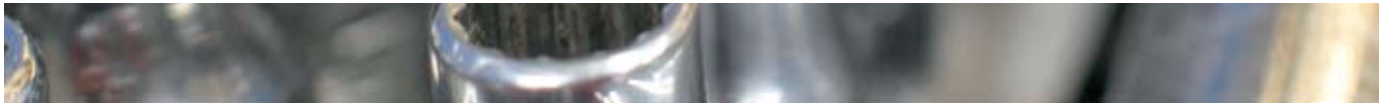
1. (d) The gas is called isoprene; (a) is true but not relevant to the question; (b) & (c) may well be correct statements but are not the primary reason for nitrogen use. AD/WHE/4 refers.
2. (c) AD/GEN/46 requires calibration when the error exceeds 5% per cent, or the calibration is in fractions.
3. (d) By agreement with ATC a transponder code of 2100 should be used (ref. AD/RAD/47 and /43).
4. (c) One reference is the AACs (now discontinued) number 175-1. Also FACTS June 1984.
5. (a) Fretting is generally said not to involve metal transfer.

6. (a) The second "retard" set of points must be open. This retards the spark.
7. (a) Without the opposing magnetic fields the points would not open when generator output dropped.
8. (b) Microballoons are also regarded as a thixotropic agent which makes the resin easier to apply to vertical surfaces.
9. (b) Tests done by the Commonwealth Department of Aviation in 1986.

## IFR

1. (c) ERC. 2; AIP ENR 1.1 – 34, para 19.5.1.
2. (e) ERC. 1. At 5,000ft you are still within ML DME range AIP GEN 1.5 – 6, para 2.2b.

3. (e) TAC 3. BDG NDB approach plate (b) is incorrect because magnetic variation has not been applied.
4. (b) MB NDB approach plate (c) is incorrect since an RMI shows track to station, irrespective of aircraft heading.
5. (c).
6. (d) Option (b) is incorrect because you are tracking away from ML VOR reference the 158 radial.
7. (a).
8. (b). Option (c) is incorrect since it gives a position line only.
9. (d).
10. (a) AIP ENR 1.1 – 34, para 19.5.1.



# ADVERTISEMENT

# WHAT'S THE MESSAGE?

LAST ISSUE'S WINNER



A

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B

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**A. Melbourne Centre, this is Bravo Zulu Alpha, currently 1500 above Moonah Links "FORE"!!!!**

Wayne B. Thomas,  
Warburton, Victoria

**B. Readers were stumped by this one – no winning entries. We are still open to suggestions. Specify 'July-August B' with your entry (\$100 prize).**

## WRITE AN AMUSING CAPTION



A

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B

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**Write an amusing caption of up to 25 words for pictures A or B. 2x \$100 prizes for the best captions. Send your entry to: *Flight Safety Australia*, GPO Box 2005, Canberra ACT 2601 or email to: [fsa@casa.gov.au](mailto:fsa@casa.gov.au) by November 22, 2006.**

## PICK THE PIC



A

Courtesy Boeing

**A. What aircraft is this?  
Answer below**

Boeing 747-400 Large Cargo Freighter, used to transport major assemblies for the Boeing 747 Dreamliner.