

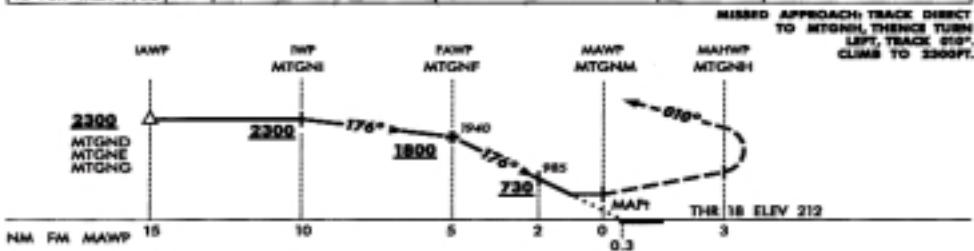
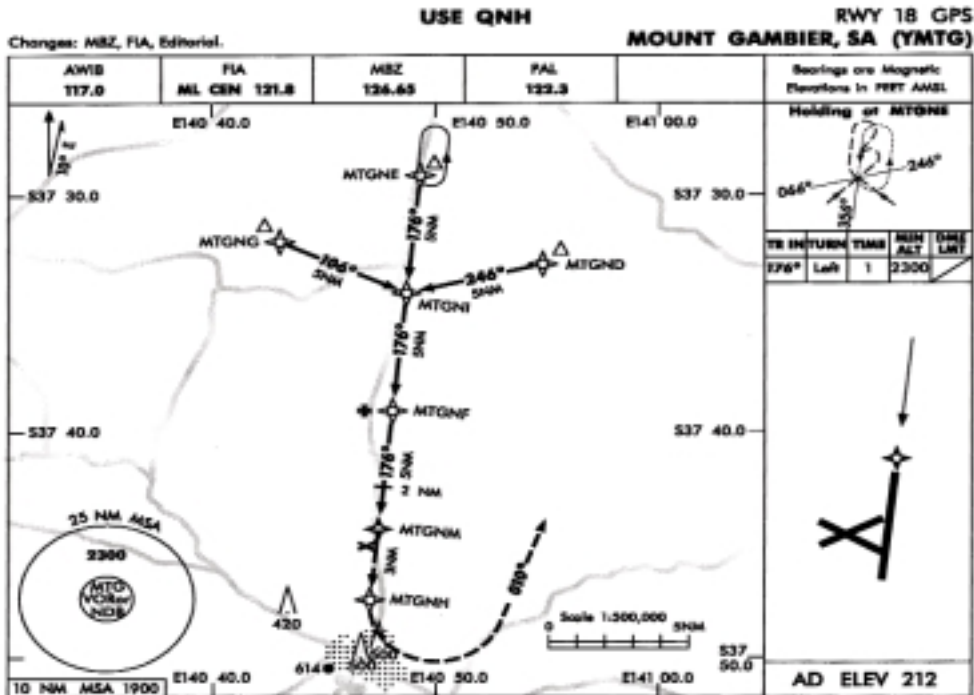
Mt Gambier (GPS)



PHOTO COURTESY: MOUNT GAMBIER AIRPORT

You have a current command instrument rating, with NDB, VOR, ILS and GPS NPA endorsements – you are approved for DME/GPS arrivals. You are inbound to Mount Gambier (YMTG) from Portland (YPOD) on a track of 306°M. You are in IMC on a GPS arrival. Your aircraft is a light twin (category B) fitted with a VOR, NDB and a GPS approved for IFR operations.

- 1> On the GPS arrival at YMTG, which azimuth aid(s) may be used to track inbound?
 - a) GPS track with waypoint on YMTG.
 - b) the MTG NDB is mandatory.
 - c) the MTG VOR or NDB.
 - d) GPS track with waypoint on MTG VOR.
- 2> On the GPS arrival at YMTG the GPS distance is taken from which point?
 - a) GPS distance with the waypoint on YMTG.
 - b) GPS distance with the waypoint on MTG VOR.
 - c) DME MTG.
- 3> On the GPS arrival, at what distance are you permitted to descend below 1,000ft?
 - a) 10 GPS.
 - b) 13 GPS.
 - c) 11 GPS.
 - d) 7 GPS.
 - e) 2 GPS.
- 4> During the approach Melbourne Centre requests your present distance from Mount Gambier. What would be the correct phraseology of your reply?
 - a) 10 miles Mount Gambier VOR.
 - b) 10 GPS Mount Gambier.
 - c) 10 Mount Gambier VOR.
 - d) 10 GPS Mount Gambier VOR.
- 5> Not visual at the MAPt, you climb on track to 2,300ft when an aircraft at Mount Gambier reports a squall crossing the field and suggests you hold for about ten minutes. You now plan to attempt the 18 GPS, at this stage you should:
 - a) Climb to 3,300ft and track to MTGNG for the RWY 18 GPS.
 - b) Remain at 2,300ft and track to MTGNE.
 - c) Descend to 2,200ft and hold at the VOR.
- 6> In the hold for the RWY 18 GPS, which of the following is a requirement before descent may be commenced?
 - a) The CDI sensitivity must be selected to 5nm full-scale deflection.
 - b) RAIM must be available
 - c) The aircraft must be within 2nm of the inbound track before leaving MTGNE.
- 7> The default CDI sensitivity for TSO 129C GPS sets varies between enroute, terminal and approach phases of flight. The tracking tolerance during the approach is:
 - a) Plus or minus 5° of published track.
 - b) Plus or minus 30° of published track.
 - c) Within 7nm of track.
 - d) Within 1nm of track.
 - e) Half-scale deflection.
- 8> To continue the approach, the GPS receiver must transition to the approach mode:
 - a) Before the descent, at MTGNI at Mount Gambier.
 - b) Before 2nm from MTGNF.
 - c) Before or at MTGNF.
 - d) Within 2nm of MTGNM.
 - e) At MTGNM.
- 9> Assuming you don't have an actual QNH, the MDA for the YMTG RWY 18 GPS is:
 - a) 650ft.
 - b) 730ft.
 - c) 750ft.
 - d) 880ft.



NOTES
MAX IAS: INITIAL : 210KT.

CATEGORY	A	B	C	D
GPS	750 (538-3.0)			NOT APPLICABLE
CIRCLING	880 (668-2.4)	980 (768-4.0)		
ALTERNATE	NOT APPLICABLE			

NM FM MAWP	6.1	5	4	3	2	1.3								
ALT	2300	1940	1620	1305	985	750								

AIP Australia **RWY 18 GPS**
MOUNT GAMBIER, SA (YMTG)
15 JUN 2000

GPS ARRIVAL PROCEDURES
MOUNT GAMBIER, SA (YMTG)

AIP Australia

AWB 117.0	FIA ML CEN 121.8	MBZ 126.65	PAL 122.3		Bearings are Magnetic Elevations in FEET AMSL
--------------	---------------------	---------------	--------------	--	---

MOUNT GAMBIER, SA (212) - GPS REFERENCE WAYPOINT MTO VOR

INBOUND TRACK or SECTOR	LOWEST SAFE ALTITUDE	DESCENT STEPS AT GPS DISTANCE...NM DESCEND TO...FT/MS...km											
SECTOR A	2300 within 25NM	3	4	5	6	7	8	9	10	11	12	13	
	2300								13	7		2	
									↓	↓		↓	
									1900	1200		A,B: 880-2.4 C: 980-4.0	
		IAF : 15 NM			FAF : 5 NM			MAP: VOR or NDP					

MISSED APPROACH : CLIMB ON TRACK TO 2300FT.

NOT TO BE USED FOR OPERATIONAL PURPOSES
This chart has been reproduced for the purpose of this quiz with the permission of Airservices Australia.

Flying ops



- 1> The communication equipment normally required for a VFR flight intending to land at an aerodrome within a MBZ is:
- A VHF transceiver.
 - Two VHF transceivers.
 - One VHF or one HF transceiver.
 - One VHF and HF transceiver.
- 2> One limitation imposed on normal circuit flying at a non-controlled aerodrome is that aircraft shall:
- Maintain runway direction after take-off till at least 500 metres from the aerodrome perimeter.
 - Maintain 1,000ft AGL on the downwind leg.
 - Join the circuit at 1,500ft AGL on the upwind leg.
 - Maintain runway direction after take-off till at least 500ft AGL.
- 3> Match the agency that corresponds to ATC function.
- | Agency | Function |
|-------------------------|------------------------------------|
| 1. Bankstown Tower. | (a) Area control. |
| 2. Adelaide Departures. | (b) Aerodrome control. |
| 3. Sydney Ground. | (c) Departure Control. |
| 4. Perth Centre. | (d) Surface Movement Control(SMC). |
- 4> When an Airways Clearance is concluded with the phrase "Clearance Void Time 2145", this indicates:
- A clearance is to be requested after 2145UTC.
 - A clearance is to be requested before 2145UTC.
 - Entry into controlled airspace is to be at 2145UTC.
 - Entry into controlled airspace must be carried out at or before 2145UTC.
- 5> Air-to-air communication carried out between pilots to exchange important operational information is to be carried out on:
- the current ATS frequency.

- 121.5MHz.
- 123.45MHz.
- On any pre-arranged frequency.

- 6> Unless otherwise instructed, all aircraft operating at a GAAP aerodrome must report on the:
- Downwind leg.
 - Base leg.
 - Final leg.
 - Joining the circuit on the upwind leg.
- 7> At which of the following aerodromes is a taxi clearance a requirement before taxiing for departure?
- At an aerodrome within a CTAF.
 - At an aerodrome within a MBZ.
 - At an aerodrome within a GAAP control zone.
 - At an aerodrome within a class "C" or class "D" control zone.
- 8> You are on the ground at Adelaide International airport and require an airways clearance to proceed to Melbourne. Which station would you call?
- Adelaide Ground on the SMC frequency.
 - Adelaide Tower on the tower frequency.
 - Adelaide Clearance Delivery on the ACD frequency.
 - All the above would give you an airways clearance, depending on which part of the movement area you are on.
- 9> By convention, circuits in Australia are flown at which of the following heights?
- Jet aircraft at 1,500ft AGL, and piston/turbo prop at 1,000ft AGL.
 - All conventional aircraft at 1,000ft.
 - Jet aircraft at 1,200ft AGL and piston engine aircraft at 1,000ft AGL.
 - Jet aircraft at 1,500ft AMSL and piston engine aircraft at 1,000ft AMSL.
- 10> You are a VFR pilot approaching a major aerodrome in daylight. If the controller tells you, "make visual approach", you are required to:
- Position your aircraft for an upwind circuit entry.
 - Descend as necessary and position your aircraft for an approach.
 - Descend as necessary, maintaining track to within 3nm of the aerodrome (by day).
 - Descend as necessary, maintaining track to within 5nm of the aerodrome (by day).

Maintenance



- 1> Possible causes of a spun crankshaft main bearing in a typical horizontally opposed piston engine are:
- A standard bearing in a high crush crankcase.
 - The excessive/improper use of silk thread and sealant during crankcase assembly.
 - Crankcase not clamped during multiple cylinder changes during service.
 - All of the above.
- 2> A missing cylinder base nut in a typical horizontally opposed piston engine is rectified by:
- Replacing the nut and torquing the nut to manufacturer's data.
 - Replacing the cylinder.
 - Replacing the cylinder and the opposite cylinder.
 - Replacing the nut and checking torquing of all cylinder base nuts and through bolts.
- 3> A broken crankcase through bolt in a typical horizontally opposed piston engine can result from:
- A fatigue fracture of the bolt associated with bolt high time in service.
 - Overload fracture of the bolt following a sudden stoppage/prop strike.
 - Crankcase cylinder deck studs loose.
 - Bolt overtorqued during engine assembly.
- 4> When carrying out multiple cylinder changes in a typical horizontally opposed piston engine:
- The cylinders should be removed in engine firing order.
 - The crankcase should be clamped immediately after each cylinder is removed and before the crankshaft is rotated to position the piston in the next cylinder to be removed.
 - Only one cylinder is to be removed at any one time.
 - The front of the crankcase should be supported.

What's the message?



In 25 words or less tell us what you think is the message to be inferred from the above photo. The best entry will be published in the next issue. The winner will receive \$50 worth of safety education products. Send your entries to the editor, Flight Safety Australia, GPO Box 2005, Canberra ACT 2601, by Friday 27 October.

Answers

Mount Gambier chart

1. c) See the YMTG GPS arrival chart. Track may be established using either the VOR or NDB.
2. b) See the YMTG GPS arrival chart. GPS reference waypoint is the MTG VOR.
3. e) See the YMTG GPS arrival chart. At 7 GPS descend to 1,200ft. At 2 GPS descend to 880ft.
4. d) AIP ENR 1.1 para 19.3.4
5. b) MTGNE is the designated holding waypoint for the RWY 18 GPS. A sector 2 entry (offset) to join the holding pattern is appropriate from the south west.
6. b) RAIM must be available before descent below the MSA.
7. e) TSO sets have CDI sensitivities of 5nm (full scale) enroute, 1nm terminal (within 30nm of destination or departure), and 0.3nm between the final approach waypoint and the missed approach waypoint. Half-scale deflection is the tolerance, though pilots should be able to fly more accurately than that.
8. c) Before or at the final approach fix MTGNF at Mount Gambier. It is usual that the receiver begins to transition to the approach mode about 2nm before the final fix.
9. c) Because actual QNH is not available, MDA is as specified on the approach chart. If actual QNH was available from an approved source (eg AWIB or ATIS), the MDA could be lowered by 100ft to 650ft.

Flying ops

1. a) AIP Gen 1.5 para 1.1 table.
2. d) CAR 1988 para 166 (g).
3. 1-b, 2-c, 3-d, 4-a AIP Gen 3.3 para 1.4.
4. d) AIP ENR 1.1 para 3.17.
5. c) AIP Gen 3.4 para 3.1.5.
6. a) AIP ENR 1.1 para 30.2.
7. d) AIP ENR 1.1 para 4.3.3.
8. c) ERSA FAC-2.
9. a) AIP ENR 1.1 para 54.3.1.
10. d) AIP ENR 1.1 para 9.5.2 and 9.5.3.

Maintenance quiz

1. d) A main bearing will spin if the bearing nip (crush) is inadequate at initial assembly or lost through relaxing the crankcase clamping load during cylinder changes. Rotating the crank-

shaft with cylinders removed without first clamping the crankcase can also result in engine oil being pushed into the bearing saddle surfaces. When torquing the cylinders on reassembly, the oil presents a hydraulic lock effect which dissipates in service, effectively lowering the crankcase clamping load.

2. d) You should determine why the nut is missing. If a number of nuts and/or through bolts are then found to be loose or below manufacturer's minimum torque value, the reason should be determined. A bulk strip should be considered.
3. c) The torque applied to cylinder base nuts and through bolts is calculated to achieve a clamping load greater than the cylinder operating load. If a number of cylinder base nuts come loose in service, the through bolt(s) then takes most of that cylinder's operating load. The bolt fails in overload.
4. b) The release of the crankcase clamping load during a cylinder change can disturb the crankshaft main bearing nip (crush). Rotating the crankshaft with cylinders removed without first clamping the crankcase can also result in engine oil being pushed into the bearing saddle surfaces. When torquing the cylinders on reassembly, bearing nip may not be regained and if oil is present on the saddle joint faces, a hydraulic lock effect may occur, effectively lowering the crankcase clamping load.

Correction

In the July-August approach quiz, the answer to question two should have been given as a height above ground level. Question three referred to a DME distance: there is no DME at Scone. The correct answer to question six should have been (b). The explanation given was correct.

LAST ISSUE'S MESSAGE



After a sudden encounter with unemployment the pilot became an author of DIY texts, his first effort titled "How to convert your aircraft into a runway obstruction without really trying."