INDEX TO UNITS OF COMPETENCY FOR PRIVATE IFR RATING AND FLIGHT PROCEDURE AUTHORISATION

	Page
INTRODUCTION	**6**
DEFINITIONS	**7**
1. FLIGHT MANAGEMENT AND OPERATIONAL AND FUEL PLANNING	**10**
Possess and use current operational documents	
Obtain meteorological and NOTAM pre flight briefing	
Plan flight	
Determine operational and fuel requirements	
Make flight notification	
2. MANAGEMENT OF PRE AND POST FLIGHT ACTIONS	**13**
Determine aircraft certified and suitably equipped for IFR flight	
Conduct daily inspection	
Conduct pre flight serviceability test of flight and radio navigation aids	
Complete post flight actions	
3. CONDUCT FLIGHT USING IFR PROCEDURES	**16**
Conduct visual departure to LSALT	
Conduct flight in IMC/simulated IMC at a safe height over a route distance of at least 100 nm which involves at least two radio navigation aids	
Conduct visual approach to the circuit at an aerodrome other than that of departure	
Use approved altimetry procedure	
Conduct diversion to an alternate	
Conduct holding procedures	
4. COMPLY WITH AIR TRAFFIC CONTROL (ATC) AND AIRSPACE PROCEDURES	**19**
Obtain and comply with airspace clearances	
Maintain separation from other traffic	
Communicate using radio	
Use transponder	
5. MANAGEMENT OF EMERGENCY PROCEDURES	**22**
Manage engine failure	
Manage radio communication and navigation aid or navigation system failure	
Manage electrical/vacuum system failure	
Manage instrument failure	
Manage hazardous weather conditions	
Demonstrate turbulence penetration technique	
Fly helicopter without hydraulic assistance	
Fly helicopter without stability augmentation	
6. TASK MANAGEMENT	**27**
Prioritise tasks	
Use autopilot	
7. CONDUCT OF INSTRUMENT FLIGHT USING FULL PANEL	**29**
Fly level climb and descend	
Accelerate and decelerate in level flight (helicopter only)	
Fly at low speed (helicopter only)	
Make level, climbing and descending turns and steep turns through at least 180 degrees onto nominated heading	
Recover from unusual attitudes	

8. CONDUCT OF INSTRUMENT FLIGHT USING LIMITED PANEL (WITHOUT REFERENCE TO ATTITUDE INDICATOR OR DIRECTION INDICATOR) **31**
Fly level, climb and descend
Make level, climbing and descending turns through at least 180 degrees onto nominated heading
Recover from unusual attitudes

9. NAVIGATION USING NDB (NON DIRECTIONAL BEACON) **34**
Tune identify, and monitor navigation aids
Determine position in relation to navigation aids
Intercept and maintain desired tracks to and from stations
Make station passage

10. NAVIGATE USING VOR (VHF OMNI DIRECTIONAL RADIO RANGE) **36**
Tune, identify and monitor navigation aids
Determine position in relation to navigation aids
Intercept and maintain desired tracks to and from stations
Make station passage

11. NAVIGATE USING GPS (GLOBAL POSITIONING SYSTEM) **38**
Check GPS receiver operation
Enter, retrieve, edit delete and activate flight plan and waypoints
Determine position and other relevant navigation information from GPS
Intercept and maintain desired track to selected WPT
Diversion
Conduct confidence checks of GPS navigational information
Monitor integrity of GPS navigation
Respond to GPS message

12. NAVIGATION USING DME (DISTANCE MEASURING EQUIPMENT) **40**
Tune and identify DME station
Use DME to provide distance information and fix position
Conduct DME homing procedure
Fly DME arc procedure

13. NDB HOLDING **42**
Make sector entry to holding pattern
Fly published holding pattern

14. VOR HOLDING **44**
Make sector entry to holding pattern
Fly published holding pattern

15. GPS HOLDING **46**
Make sector entry to holding pattern
Fly published holding pattern

16. NIGHT **48**
Determine whether an aerodrome is suitable for night operations
Determine that the aircraft is serviceable for flight at night
Taxi at night
Take off at night
Make visual departure under the IFR at night
Make visual approach under the IFR at night
Activate PAL lighting
Land at night, with and without the use of aircraft landing lights
Make baulked approach
Take off and land at night at an aerodrome remote from ground lighting
Manage electrical system failure at night

17. STAR **52**

Conduct arrival using STAR

18. INSTRUMENT DEPARTURE (SE) 54
Determine applicable standard take off minima
Determine obstacle clearance limits for take off
Take off and climb to cruising altitude/level under the IFR from an aerodrome which does not have SID and/or SRD procedures

19. INSTRUMENT DEPARTURE (SE) SID 56
Determine applicable standard take off minima
Determine obstacle clearance requirements for take off
Take off and climb to cruising level using SID and/or SRD procedure

20. INSTRUMENT DEPARTURE (MEA) 58
Determine applicable standard take off minima
Determine obstacle clearance requirements for take off including compliance in event of engine failure
Take off and climb to cruising altitude/level under the IFR from an aerodrome which does not have SID and/or SRD procedures
Manage engine failure after take off

21. INSTRUMENT DEPARTURE (MEA) SID 60
Determine applicable standard take off minima
Determine obstacle clearance requirements for take off
Take off and climb to cruising level using SID and/or SRD procedure
Manage engine failure after take off

22. INSTRUMENT DEPARTURE (MEH) 62
Determine applicable standard take off minima
Determine obstacle clearance requirements for take off including compliance in event of engine failure
Take off and climb to cruising altitude/level under the IFR from an aerodrome which does not have SID and/or SRD procedures
Manage engine failure after take off

23. INSTRUMENT DEPARTURE (MEH) SID 64
Determine applicable standard take off minima
Determine obstacle clearance requirements for take off
Take off and climb to cruising level using SID and/or SRD procedure
Manage engine failure after take off

24. VISUAL CIRCLING APPROACH 66
Determine minima applicable for visual circling for specified instrument approach
Conduct visual circling procedure
Conduct missed approach from visual circling

25. IAL NDB 68
Select approach and determine applicable minima
Monitor aid signal integrity
Conduct initial approach
Conduct holding pattern
Conduct approach procedure
Conduct missed approach procedure

26. IAL VOR 71
Select approach and determine applicable minima
Monitor aid signal integrity
Conduct initial approach
Conduct holding pattern
Conduct approach procedure
Conduct missed approach procedure

27. IAL LLZ 74

Select approach and determine applicable minima
Monitor aid signal integrity
Conduct initial approach
Conduct holding pattern
Conduct approach procedure
Conduct missed approach procedure

28. IAL ILS **78**
Select approach and determine applicable minima
Monitor aid signal integrity
Conduct initial approach
Conduct holding pattern
Conduct approach procedure
Conduct missed approach procedure

29. DME GPS ARRIVAL **82**
Select approach and determine applicable minima
Use appropriate tracking aid and distance information and monitor aid signal integrity
Conduct initial approach
Conduct approach procedure
Conduct missed approach procedure

30. GPS NPA **85**
Select approach and determine applicable minima
Select, retrieve and activate approach from database
Monitor GPS signal integrity
Conduct initial approach
Conduct holding pattern
Transit to approach mode
Conduct approach procedure
Conduct missed approach procedure

31. INSTRUMENT APPROACH (MEA) **89**
Simulate engine failure during instrument approach procedure
Conduct missed approach with simulated instrument failure

32. INSTRUMENT APPROACH (MEH) **91**
Simulate engine failure during instrument approach procedure
Conduct missed approach with

PRIVATE IFR RATING AERONAUTICAL KNOWLEDGE SYLLABUS OF TRAINING **93**

FLIGHT PROCEDURE AUTHORISATION AERONAUTICAL KNOWLEDGE SYLLABUS OF TRAINING **99**

APPLICATION FOR A PRIVATE IFR RATING **102**

APPLICATION FOR FLIGHT PROCEDURE AUTHORISATION **104**

Introduction

The syllabus attached to CAAP 5.13-1(0) applies to both the Private IFR rating (PIFR) and the Flight Procedure Authorisation (FPA) relating to Civil Aviation Order 40.2.3.

The purpose of the syllabus is to provide guidance to applicants, instructors and testing officers for the Private IFR rating and any Flight Procedure Authorisations sought. The syllabus details the flying skills and theoretical knowledge requirements for a applicants to obtain a PIFR or FPA(s). In addition, the syllabus explains the standard of flying competency which must be demonstrated to qualify for the rating and authorisations.

The competency standards are comprised of Units and Elements of competency and Assessment Guides.

All the planning and flying requirements of a PIFR and FPA are divided into realistic individual tasks called Units of Competency, such as 'Conduct Flight Using IFR Procedures'.

The Units are further divided into Elements of Competency, which simply describe what the candidate must do.

Each Element of Competency has a number of Performance Criteria which clearly define the performance an applicant must demonstrate to achieve the required standard.

Included with the Units and Elements is an Assessment Guide. This guide is provided to applicants, instructors and testing officers to objectively measure whether the actions required to meet the competency standard have been achieved. The Assessment Guide also details the flying tolerances which must be met.

When assessing pilot competency, testing officers should use the specified tolerances as a guide to confirm that approved flying techniques are always used. These flying techniques involve the accurate use of power, aircraft attitude, trim, balance and control movements which are smooth, timely and coordinated.

To this end, the assessor should be driven by approved technique, rather than solely by specified numerical tolerances.

This document also contains and the Aeronautical Knowledge Syllabus of Training and the flight test forms for the PIFR and FPA(s).

DEFINITIONS

When these terms appear in the text of the standard they are underlined.

The checks and actions detailed in these definitions are advisory. Checks and actions in approved checklists, placards, Flight Manual/POHs, or Operations Manuals have precedence and must be complied with.

Aircraft is balanced	The skid ball in the balance indicator is less than a quarter of the ball diameter from the centre.
Airspace cleared	Collision avoidance must always be practiced and a procedure followed to ensure a collision does not occur. This procedure is performed before all turns and manoeuvres. The procedure is: - when turning left, “Clear right, clear ahead, clear left-turning left” or - when turning right, “Clear left, clear ahead, clear right-turning right”. If an object is closing and remains on a line of constant bearing (stays at the same point on the windscreen), a collision will occur if avoiding action is not taken.
Approved checklist	A checklist derived from information set out in the Flight Manual/POH, placards or other documents provided with the aircraft, necessary to ensure the safe operation of the aircraft.
Controlled corrective action	means that smooth, timely and coordinated control movements are made to adjust aeroplane attitude and balance to achieve a specified performance.
Effect of turbulence	The effect of turbulence must be considered when measuring standards of flying competency. Assessors must evaluate each situation and then apply considered judgement to compensate for variations to the published standards.
Immediate actions	These actions are performed immediately after an engine failure, while maintaining control of the aeroplane. The purpose of these actions is to re-establish engine power. The actions may include; - Carburettor heat-hot; - Fuel selected on or to another tank; - Mixture rich; - Fuel pump set as detailed in Flight Manual/POH; - Ignition on; - Any additional checks detailed in aeroplane Flight Manual/POH
Line up checks	These checks are performed before take-off when lined up in the runway or take-off direction. The checks should include: Attitude indicator erect, warning flags away and attitude pitch datum straight and level Compass and Directional Indicator checked and aligned with take-off direction; Transponder operating as required Strobe lights on Engine instruments indicate engine within operating limits.
Operational documents	means those documents that are essential for safe planning and execution of a flight and include AIP GEN and ENR, ERSA, ERC, PCA, DAP EAST and/or WEST or equivalent CASA approved operational documents.
Operational requirements	means the effect that weather forecasts, availability and serviceability of radio navigation aids and aerodrome lighting status have on the determination of fuel, holding and alternate aerodrome requirements.

DEFINITIONS Continued.

Optimum single engine climb performance	means best single engine rate of climb speed with take off power applied to the operating engine, undercarriage and flaps retracted, propeller feathered on failed engine, without slip or skid, rudder trimmed and no more than 5° angle of bank towards the live engine.
Orientation	means to be aware of the position of the aircraft relative to a navigation aid or feature, based on the direction and estimated distance of the aircraft from the navigation aid or feature.
Pre-descent or navigation turning point checks	These checks are completed before descending for approach and landing or operations at low level. The mnemonic 'CLEAR' may be used as a reminder for this check: C Compass and DI are synchronised and checked. L Log position and ETA to next reporting point. E Engine instruments and fuel are checked. A Altimeter sub scale is set and new altitude is confirmed. R Radio is tuned to area frequency and traffic information obtained from ATS.
Review and brief	means to study the instrument approach chart, comprehend the instructions and self brief or brief any crew/assessor about the conduct of the approach procedure.
Safe	means that a manoeuvre or flight is completed without injury to persons, damage to aircraft or breach of aviation safety regulations, while meeting the requirements of the Australian National Competency Standards for Private and Commercial Pilots.
Situation awareness	An appreciation of all factors relevant to the safe progress of a flight.
Wings level	means that a line joining the wing tips is kept parallel to the earth's horizon.

PRIVATE IFR RATING

UNITS OF COMPETENCY

UNIT: 1. FLIGHT MANAGEMENT AND OPERATIONAL AND FUEL PLANNING

Description:

Knowledge and skills to plan and make flight notification for a private IFR flight using all applicable current operational documents, after obtaining and applying pre flight briefing information and allowing for operational requirements.

Elements	Performance Criteria
1.1 Possess and use current operational documents ***Item 1(a)***	• All current operational documents applicable to the flight are in the pilot's possession and used for flight planning and management.
1.2 Obtain meteorological and NOTAM pre- flight briefing ***Item 1(b)***	• Meteorological, airways facilities, aerodrome and NOTAM information applicable to the flight is obtained and used for planning and conduct of a flight.
1.3 Plan flight ***Item 1(c)***	• Charts suitable for intended flight are selected and prepared. • Applicable information is obtained , analysed and applied to prepare a flight plan which details tracks, distances, times, altitudes to be flown and fuel requirements to reach destination in accordance with the IFR requirements.
1.4 Determine operational and fuel requirements ***Item 1(d)***	• Duration of flight is determined. • Alternate, holding and fuel reserve requirement is determined by applying operational requirements due to weather, navigation aid availability and aerodrome lighting in accordance with regulations. • Total fuel required is calculated in accordance with regulations and CAAP 234-1(0).
1.5 Make flight notification ***Item 1(e)***	• Completed flight plan is submitted to and accepted by National Aeronautical Information Processing System (NAIPS) at a time adequate to ensure processing of flight plan or at least 30 minutes before flight.

Item numbers included in the elements refer to CAO 40.2.3 Appendix 1

UNIT: 1. FLIGHT MANAGEMENT AND OPERATIONAL AND FUEL PLANNING

ASSESSMENT GUIDE

During assessment the pilot should be observed to perform the following checks and actions as evidence of ability to meet the licensing standards.

The checks and actions detailed in this guide are advisory. Checks and actions in approved checklists, placards, Flight Manual/POHs, or Operations Manuals have precedence and must be complied with.

Element	Evidence
1.1 Possess and use operational documents	Pilot possesses a complete set of approved operational documents that are applicable to the flight. Pilot demonstrates ability to ascertain currency of operational documents. All documents required for the flight are stowed and accessible to the pilot during flight. Applicable information contained in documents is derived and applied for flight planning and management.
1.2 Obtain meteorological and NOTAM pre- flight briefing	Meteorological information is obtained using NAIPS, DECTALK, AVFAX, INTERNET or briefing offices. Met information includes at least ARFOR with TAF and TTF where available for the route and aerodromes to be used including alternate aerodromes. Met information is valid for the period of the flight. Met briefing is updated in accordance with requirements in AIP. NOTAM information is obtained using NAIPS, AVFAX, INTERNET or briefing offices. NOTAM briefing includes all aerodromes airspace and navigation aids for the proposed flight including flight to an alternate aerodrome.
1.3 Plan flight	Planning Chart Australia (AUS PCA) is used to assist R/T communication planning. A topographical World Aeronautical Chart (WAC) or Visual Navigation Chart (VNC) suitable for visual navigation is selected. Suitability of en route, destination and diversion aerodromes is determined. En Route Chart (ERC) is used for pre flight planning and airspace assessment. The route is planned so that the distance and/or time between position fixes is in accordance with IFR navigation requirements specified in AIP. Determine LSALT for route segments from published routes or derive LSALT by the method specified in AIP where the flight does not follow published routes. Routes selected allow for engine failure for both SE and ME operations. Plan tracking tolerances to utilise or avoid controlled airspace when required. Control, Prohibited, Restricted and Danger areas that that the flight may pass close to or through are identified. Plan to either obtain clearances through or avoid designated airspace. Any additional information required for the flight is included on the chart. Charts for use in flight are folded secured and accessible. Compile a flight plan. Track, distance and Lowest Safe Altitude for route segments are transferred from chart to flight plan. Plan position reporting points in accordance with full position reporting procedures as specified in AIP. Obtain, interpret and assess the effect of all applicable aviation meteorological forecast and reports on the flight. Obtain, interpret and assess the effect of all NOTAMs applicable to the flight. Most suitable IFR cruising altitude or flight level is selected and entered on flight plan. Choose route or altitude to avoid forecast icing conditions. Wind velocity obtained from a meteorological forecast is entered on flight plan. TAS, heading, ground speed and time intervals are calculated ± 5 kts, ±3° and ±2 min. Fuel requirements for flight, holding and reserves are calculated ±5 minutes. Beginning and end of daylight is determined. Flight planning information is transferred to Flight Notification Form. Elements of Airmanship: Pre flight planning is used to minimise in flight navigational work load. A decision to proceed with the cross country flight is made after analysis of meteorological and ATC conditions. Contingencies are anticipated. Correct grade of fuel is used. Situation awareness is maintained.

1.4 Determine operational and fuel requirements	*Operational requirements* Alternate and/or holding requirements are determined, applicable to meteorological forecast. Alternate aerodrome requirement for radio navigation aid is determined, as detailed in AIP. Alternate requirement for destination aerodrome lighting is determined, as detailed in AIP. *Plan fuel requirement* Fuel required for duration of flight is calculated (+5 -0 minutes). Mandatory fuel reserve is calculated. Fuel allowance is made for diversion to an alternate aerodrome when forecast meteorological conditions are below alternate minima. Fuel allowance is made for holding or diversions during periods of 'Intermittent' (INTER) or 'temporary' (TEMPO) deterioration of weather conditions below alternate minima. Fuel allowance is made for ATS routing, departure and arrival procedures which are anticipated. Fuel allowance is made for pressurisation failure if applicable. Fuel allowance is made to avoid icing conditions. Fuel log is prepared for navigation. Any necessary additional fuel reserves are calculated. Total fuel required for flight and all reserves is calculated. Fuel planning is revised as flight circumstances change before and during flight. Elements of Airmanship Latest diversion time from destination or a point en route is provided to ATS/ATC. Situation awareness is maintained.
1.5 Make flight notification	IFR Flight notification is submitted to ATS using NAIPS, facsimile, telephone or radiotelephone at least 30 minutes before ETD. Flight details submitted include: Flight rules - IFR Aircraft performance category Navigation aids which are fitted and which pilot is qualified to use ETD Route to be flown and ETIs Any requirements for navigation aid training Fuel endurance Receipt of facsimile transmission to ATS is confirmed by telephone prior to ETD. Significant changes to flight notification details are notified as specified in AIP.

UNIT: 2. MANAGEMENT OF PRE AND POST FLIGHT ACTIONS

Description:

Knowledge and skills to determine aircraft equipment suitability for IFR flight, perform and certify daily inspection, conduct serviceability test of flight and radio navigation instruments before flight and complete post flight actions.

Elements	Performance Criteria
2.1 Determine aircraft meets requirements for IFR flight ***Item 2(a)***	• Determine that aircraft is equipped for flight in accordance with Instrument Flight Rules and ensure that the flight and navigation instruments, minimum electrical lighting equipment, navigation equipment and any other requirements fitted to the aircraft are suitable and acceptable for IFR flight in accordance with regulations.
2.2 Conduct daily inspection ***Item 2(b)***	• A daily inspection of aircraft is performed in accordance with aircraft system of maintenance approved by CASA and certified in accordance with regulations.
2.3 Conduct pre flight serviceability test of flight and radio navigation instruments ***Item 2(c)***	• Flight instruments and radio navigation aids are checked and serviceable for IFR flight.
2.4 Complete post flight actions	• Ensure SARWATCH is terminated. • Maintenance release (Flight Technical Log) is certified if required.

Item numbers included in the elements refer to CAO 40.2.3 Appendix 1

UNIT: 2. MANAGEMENT OF PRE AND POST FLIGHT ACTIONS

ASSESSMENT GUIDE

During assessment the pilot should be observed to perform the following checks and actions as evidence of ability to meet the licensing standards.

The checks and actions detailed in this guide are advisory. Checks and actions in approved checklists, placards, Flight Manual/POHs, or Operations Manuals have precedence and must be complied with.

Element	Evidence
2.1 Determine aircraft meets requirements for IFR flight	*Aircraft certification* Flight manual is valid and carried in the aircraft. Maintenance Release (Flight Technical Log) certified approved for IFR flight. Ensure all equipment is serviceable or that any unserviceable equipment is in compliance with Permissible Unserviceability (PUS) or Minimum Equipment List (MEL). *Aircraft IFR instrumentation* Aircraft is equipped with serviceable flight and navigation instruments suitable for IFR operations in accordance with CAO 20.18. *Radio navigation aids* Aircraft operating outside control area (OCTA) is equipped with at least one ADF or VOR. Aircraft operating in controlled area (CTA) is equipped with a combination of at least two navigation aids comprised of ADF, VOR, DME or GPS, including one ADF or VOR. Radio navigation aids are serviceable. *VHF and HF radiotelephone (R/T) equipment* Aircraft is equipped with VHF and/or HF R/T which ensures continuous communication with ATS during normal and abnormal operations, when on the ground or airborne, in accordance with regulations. R/T frequency fit is adequate for the area of operations as specified in AIP ERSA. Planning Chart Australia (AUS PCA) is used to assist R/T communication planning. *Electric lighting equipment* Anti-collision beacon is fitted and serviceable.
2.2 Conduct daily inspection	Daily inspection is carried out in accordance with maintenance schedule or system of maintenance procedures before the first flight of each day, using applicable data. Daily inspection ensures that no defect or damage to the aeroplane could compromise safety of the operation. Ensure that maintenance release (Flight Technical Log) is valid for period of intended flight. Serviceability of aeroplane is determined. Any endorsements, conditions or limitations on maintenance release can be complied with. Maintenance release (Flight Technical Log) is applicable to category of intended flight. Endorsements related to any Permissible Unserviceability (PUS) are entered into the maintenance release. No maintenance will fall due during proposed flight. Time in service is recorded in maintenance release in accordance with the relevant CAR/CASR. Maintenance release (Flight Technical Log) is endorsed and certified after completion of daily inspection or approved maintenance in accordance with regulations. The following items relevant to IFR operations are checked: Operation of anti-collision beacon Operation of pitot heat Radio navigation and communication antennae are identified and checked. Elements of Airmanship: Attention to detail and thoroughness is evident in all actions.

2.3 Conduct pre flight serviceability test of flight and radio navigation instruments	Condition and security of glass on all instruments checked serviceable. Instrument faces undamaged and readable. All instrument readings appropriate to existing conditions. Instrument power sources checked for condition/serviceability. Altimeter reading ±75 feet of airfield elevation when QNH is set. When two altimeters are fitted, pre flight check is conducted in accordance with AIP. Auto pilot operation and disconnect is checked . Gyroscopic instrument operation is checked during taxying.
2.4 Complete post flight actions	SARWATCH is cancelled by advising ATS using radiotelephone. Aircraft is secured. Flight time and aircraft unserviceablities are entered in Maintenance Release (Flight Technical Log) and certified when applicable.

UNIT: 3. CONDUCT OF FLIGHT USING IFR PROCEDURES

Description:

Knowledge and skills to use IFR procedures, perform a visual departure to lowest safe altitude (LSALT), navigate in cloud above LSALT, using navigation aids, perform diversions and holding procedures and complete a visual approach below LSALT to the destination.

Elements	Performance Criteria
3.1 Conduct visual departure to LSALT ***Item 3(a)***	• Conduct a visual departure from an aerodrome using IFR procedures and climb on track clear of obstructions to LSALT.
3.2 Conduct flight in IMC/simulated IMC at a safe height over a route distance of at least 100nm which involves at least two radio navigation aids ***Item 3(b)***	• Maintain planned route above LSALT in accordance with regulations, maintain navigation documents, calculate ETAs, revise fuel planning and complete all checks while flying in IMC simulated IMC in accordance with the IFR.
3.3 Conduct a visual approach to the circuit area of an aerodrome other than that of the departure ***Item 3(c)***	• Conduct a visual approach from LSALT, maintaining track, to the circuit area of an aerodrome other than the aerodrome of the departure, using IFR procedures.
3.4 Use approved altimetry procedure ***Item 3(d)***	• Use altimeter checking and setting procedures specified in AIP.
3.5 Conduct a diversion to an alternate aerodrome ***Item 3(e)***	• Route to alternate aerodrome not previously planned is determined and maintained, ETAs are calculated ± 2 minutes, amended fuel requirements are calculated and airspace requirements are complied with using IFR procedures while in IMC/simulated IMC.
3.6 Conduct holding procedures ***Item 3(f)***	• Conduct a holding procedure while maintaining terrain clearance and traffic separation and determining position of the aircraft in relation to the navigation aid in accordance with IFR procedures.

Item numbers included in the elements refer to CAO 40.2.3 Appendix 1

UNIT: 3. CONDUCT OF FLIGHT USING IFR PROCEDURES

ASSESSMENT GUIDE

During assessment the pilot should be observed to perform the following checks and actions as evidence of ability to meet the licensing standards.

The checks and actions detailed in this guide are advisory. Checks and actions in approved checklists, placards, Flight Manual/POHs, or Operations Manuals have precedence and must be complied with.

Element	Evidence
3.1 Conduct visual departure to LSALT	Track is intercepted within 5 nm of departure aerodrome. Circuit direction is complied with in accordance with AIP. Separation with other IFR and with VFR traffic is maintained in accordance with AIP, as applicable to relevant airspace. Obstacle clearance is maintained to the LSALT by visual reference. Aircraft is maintained clear of cloud and minimum visibility of 5000M while below LSALT. All radio reports and broadcasts for IFR operations are made in accordance with AIP.
3.2 Conduct flight in IMC/simulated IMC at a safe height over a route distance of at least 100nm which involves at least two radio navigation aids	Navigation log is maintained. Fuel log is maintained. Revised ETAs are calculated (± 2 minutes). When ETAs are in error by more that 2 minutes when ground speed checks are not possible, revised wind forecasts are requested from ATS or other aircraft. Revised fuel endurance is calculated when required. Deduced/dead reckoning (DR) technique is used to establish estimated position. Instrument Flight Rules (IFR) are complied with. Area QNH is set when required. IFR cruising level is maintained (± 100 ft). Heading is maintained (±5°). IAS is maintained (± 10 kts). Track is maintained or positive action is taken to regain track. Radio navigation aids ahead of aircraft are tuned and identified in adequate time for use in navigation. In controlled airspace, ATC is advised when aircraft is outside tracking tolerances specified in AIP (± 5 ^{0} or ½ scale CDI deflection). Fixes are obtained by means specified for IFR navigation in AIP. Position is fixed at least once every 2 hours. Full position reporting procedures are complied with. Pitot heat is used in visible moisture. Auto pilot is used as to assist flight management. Pre descent or navigation turning point checks are performed. Transition from IMC to visual flight, clear of cloud is conducted before descending from LSALT. Flight by reference to instruments is maintained until full visual reference is established. Awareness of route and destination weather conditions is maintained and changes reacted to. Continuous radio communications are maintained with ATS/ATC in accordance with IFR procedures. Air traffic separation is maintained. Arrival report is made to ATS Elements of Airmanship: Comprehensive pre flight planning is utilised to reduce the workload airborne. A navigation cycle that ensures accurate navigation is used. Awareness of air traffic is maintained. Orientation is maintained. Emphasis is placed on controlling the aeroplane before conducting navigation administration. Deteriorating situations are recognised and early corrective action is taken. Lookout is maintained using a systematic scan technique at a rate determined by traffic density, visibility and terrain.
3.3 Conduct a visual approach to the circuit area of an aerodrome other than that of the departure	Visual flight conditions of 5000 m clear of cloud are established before descent from LSALT. Visual approach is conducted as specified in AIP. Separation is maintained with IFR and VFR traffic. Track is maintained until within 3 nm of destination aerodrome. Terrain clearance is maintained by visual reference. Arrival report and broadcasts specified in AIP are made. Elements of Airmanship Traffic separation is maintained with IFR and VFR aircraft. Lookout is maintained.

3.4 Use approved altimetry procedure	Altimeter reading ±75 feet of airfield elevation when QNH is set. When two altimeters are fitted, pre flight check is conducted in accordance with AIP. Set local QNH, area QNH or aerodrome elevation if QNH is unknown before departure. Set area QNH immediately prior to reaching cruising altitude. Set standard pressure passing 10,000 ft on climb to cruising level. During cruise at altitudes area QNH is set when applicable. Prior to descent from cruise altitude, local or area QNH is set. On descent from cruise level, local or Area QNH is set approaching Flight Level 110.
3.5 Conduct a diversion to an alternate aerodrome	Most suitable diversion is selected. Meteorological forecast for destination aerodrome is suitable to establish visual flight conditions below LSALT. Present position is fixed and recorded. Track and distance from present position to destination is calculated. Lowest safe altitude is calculated and complied with. Most suitable IFR cruising altitude/level is selected. CTA, CTR, Prohibited, Restricted and Danger areas are identified and allowed for. Traffic separation is maintained. Amended track is maintained or positive action is taken to regain track. Appropriate navigation aids are tuned, identified and monitored. ETAs are calculated (± 2 minutes). Position is fixed at least once every two hours. ATC/ATS is advised of revised flight details. Fuel requirement including holding and reserve, is calculated (± 5 minutes). Revised airways/air traffic clearance is obtained. Destination and en route weather is confirmed. Arrival report is completed. Elements of Airmanship: All required airways clearances are obtained. Situation awareness is maintained
3.6 Conduct holding procedures	Determine a suitable holding procedure at destination Maintain aircraft within selected holding area. Maintain planned holding altitude clear of terrain ± 100 feet. Maintain orientation during holding procedure. Maintain clearance from other IFR traffic. Plan diversion or hold until visual approach is possible. Monitor endurance and calculate latest divert time. Advise ATC/ATS and other traffic of intentions. Elements of Airmanship Maintain situation awareness. Orientation is maintained. Maintain separation with IFR traffic.

UNIT: 4. COMPLIANCE WITH AIR TRAFFIC RULES AND PROCEDURES

Description:

Knowledge and skills to communicate and comply with Air Traffic Services (ATS) instructions, maintain separation with other air traffic and manage airspace procedures.

Elements	Performance Criteria
4.1 Obtain and comply with airspace clearances ***Item 4(a)***	• Obtain air traffic clearances when applicable, prior to entry into the airspace and comply with clearances while operating in that airspace.
4.2 Maintain separation from other traffic ***Item 4(b)***	• Separation is maintained from other air traffic in IMC/simulated IMC and during visual approach and departure in accordance with IFR.
4.3 Communicate using radio ***Item 4(c)***	• Maintain two way communication with ATS and other aircraft in accordance with IFR procedures.
4.4 Use transponder	• Operate and monitor transponder in accordance with AIP during normal operations.

Item numbers included in the elements refer to CAO 40.2.3 Appendix 1

UNIT: 4. COMPLIANCE WITH AIR TRAFFIC RULES AND PROCEDURES

ASSESSMENT GUIDE

During assessment the pilot should be observed to perform the following checks and actions as evidence of ability to meet the licensing standards.

The checks and actions detailed in this guide are advisory. Checks and actions in approved checklists, placards, Flight Manual/POHs, or Operations Manuals have precedence and must be complied with.

Element	Evidence
4.1 Obtain and comply with airspace clearances	Traffic clearance requirements are anticipated and planned for. Automatic broadcasting services are used to obtain information. Applicable aviation documents are consulted. Air traffic and airways clearances are requested using standard radiotelephone procedures. Clearances into controlled airspace are requested and obtained before entry. Clearances are read back in accordance with requirements in AIP All clearances are complied with unless aeroplane safety is compromised. Amendments to clearances are recorded and complied with unless aeroplane safety is compromised. Clearance limits imposed by Air Traffic Services are not exceeded unless aeroplane safety is compromised. Elements of Airmanship: Awareness of the air traffic situation is maintained. Controlled airspace is not entered without a clearance. Local and published noise abatement requirements and curfews are observed.
4.2 Maintain separation from other traffic	Traffic information provided by ATS/ATC is acknowledged and allowed for. Conflicting traffic is recorded. Visual separation is maintained in accordance with AIP class of airspace requirement. Communication is established with other traffic and separation is maintained. At navigation aids, aircraft is manoeuvred to maintain separation from other traffic and holding, approach and missed approach tracks. During visual arrival and departure to and from an aerodrome, separation is maintained with VFR and IFR traffic. Elements of Airmanship Lookout is maintained using a systematic scan technique at a rate determined by traffic density, visibility or terrain.
4.3 Communicate using radio	Pre flight checks are completed in accordance with Flight Manual/POH. Serviceability of all required R/T equipment is checked. All radio control switches are used. The responsibilities of a radiotelephone operator are carried out. All standard radio reports and broadcasts required for IFR procedures in accordance with AIP are performed. Received instructions are complied with. Pilot transmitted information and phraseology is applicable to the flight phase. Traffic and alerting transmissions are complied with. Transmission “in the blind” is demonstrated. Listening watch is maintained. Simulated transmission of urgency and distress messages is demonstrated. Awareness of international distress frequencies is demonstrated. Radio silence is maintained when required. Ability is demonstrated to recognise carrier wave only' transmissions as a transmitting or receiving pilot and react to rectify the abnormal situation. Loss of radio transmission/reception procedure are performed as specified in AIP ERSA EMERG. The ability to communicate with Air Traffic Services and other aircraft, using the RT is demonstrated. Elements of airmanship Standard phraseology is used to communicate, with recourse to colloquial language if unsure of standard phraseology for a particular situation.
4.4 Use transponder	Standby mode is selected for taxying SSR codes for IFR flight are selected and set as specified in AIP. Code selection is accomplished in standby mode. Transponder mode 3A and 3C is selected entering the runway. Identification function (SPI) is only activated when requested by ATS/ATC. Code setting instructions are acknowledged by read back of codes to be set. Transponder 3A and 3C and appropriate code is selected in airspace specified in AIP. Select appropriate code for inflight emergency, loss of two way communications or unlawful

	interference when required. Recognise loss of radio communication when under Radar vectors as specified in AIP. Standby mode is selected as soon as possible after landing. Elements of Airmanship Monitor inflight serviceability of transponder and react appropriately to failure.

UNIT: 5. MANAGEMENT OF EMERGENCY PROCEDURES

Description:

Knowledge and skills to identify abnormal situations in IMC, perform appropriate actions, manage abnormal situations and select and proceed to the nearest suitable landing area.

Elements	Performance Criteria
5.1 Manage engine failure ***Item 5(a)***	• After engine failure, single engine aircraft is controlled, immediate actions are performed, aircraft is flown in a safe direction to achieve visual flight and a controlled landing is performed at a suitable landing area. • Multi engine aeroplane is controlled after failure of an engine, immediate actions and all checks are performed in accordance with the Flight Manual/POH, and if an engine restart is not achieved, asymmetric flight in accordance with IFR procedures is conducted to the nearest suitable aerodrome. • Multi engine helicopter is controlled after failure of an engine, immediate actions and all checks are performed in accordance with the Flight Manual/POH, and if an engine restart is not achieved, a single engine flight in accordance with IFR procedures is conducted to the nearest helicopter landing area (HLA).
5.2 Manage radio communication and navigation aid or navigation system failure ***Item 5(b)***	• Radiotelephone and/or navigation aid failure are identified and abnormal procedures are conducted in accordance with Flight Manual/POH, AIP and ERSA emergency procedures
5.3 Manage electrical /vacuum system failure ***Item 5(c)***	• Electrical or vacuum system failure is identified, aircraft controlled and abnormal procedures are conducted in accordance with Flight Manual/POH.
5.4 Manage instrument failure	• Instrument failure is identified, aircraft is controlled by reference to serviceable instruments and failure is managed in accordance with Flight Manual/POH.
5.5 Manage hazardous weather conditions ***Item 5(d)***	• Hazardous weather conditions are identified and avoided. • Procedures for penetration of hazardous weather are demonstrated.
5.6 Demonstrate turbulence penetration technique ***Item 5(e)***	• Turbulence is penetrated in accordance with Flight Manual/POH.
5.7 Fly helicopter with one hydraulic system failed ***Item 5(f)***	• Hydraulic failure is identified and control of the helicopter is maintained in accordance with Flight Manual/POH procedures.
5.8 Fly helicopter without stability augmentation ***Item 5(g)***	• Stability augmentation failure is identified and control is maintained in accordance with Flight Manual/POH procedures.

Item numbers included in the elements refer to CAO 40.2.3 Appendix 1

UNIT: 5. MANAGEMENT OF EMERGENCY PROCEDURES

ASSESSMENT GUIDE

During assessment the pilot should be observed to perform the following checks and actions as evidence of ability to meet the licensing standards.

The checks and actions detailed in this guide are advisory. Checks and actions in approved checklists, placards, Flight Manual/POHs, or Operations Manuals have precedence and must be complied with.

Element	Evidence
5.1 Manage engine failure	*Single engine aircraft:* Control aircraft by reference to flight instruments. Perform immediate actions in accordance with Flight Manual/POH procedures. Glide attitude is selected and aeroplane is flown in a safe direction. Helicopter is turned into last known wind direction (± 10°) and minimum rate of descent speed is achieved (± 10 kts). Visual flight is achieved. All emergency procedures are performed in accordance with Flight Manual/POH. Suitable landing area is selected. Trouble checks are performed in accordance with aeroplane check list. Emergency is declared to ATC/ATS/other aeroplanes detailing position and intentions and emergency transponder code is selected. Engine restart is attempted if the possibility of a successful start is evident. If engine will not start, shutdown checks are performed in accordance with approved checklist. Passenger are briefed about the situation, brace position and harness is secure. Plan is modified to adapt to changed conditions. Aeroplane/helicopter is landed. ATC/other aircraft are advised of situation. *Multi engine aircraft during cruise:* Aircraft is controlled by reference to flight instruments. Failed engine is identified. Heading is maintained (± 20° initially then ± 5° from datum heading). Power is adjusted to maintain altitude (± 100 ft). All emergency procedures are completed in accordance with Flight Manual/POH. Aircraft is configured for optimum single engine cruise performance (not less than V_{yse}, power as required on operating engine, not more than 5° bank towards operating engine, without slip or skid, rudder trimmed, undercarriage and flap retracted and propeller feathered on failed engine or simulated by setting zero thrust). ATS/ATC are advised of situation and intentions. LSALT is maintained until visual reference is established. If LSALT cannot be maintained action is taken to ensure terrain clearance. Passenger are briefed about the situation, brace position and harness is secure. Aircraft is landed at nearest suitable aerodrome. *Multi engine helicopter:* Helicopter is controlled by reference to flight instruments. Heading is maintained (± 5° of nominated heading). Failed engine is identified and shut down in accordance with Flight Manual/POH. ATS/ATC are advised of situation and intentions. Speed is maintained (± 10 kts). Height is maintained (± 100 ft). LSALT is maintained until visual reference is established. If LSALT cannot be maintained action is taken to ensure terrain clearance. Passenger are briefed about the situation, brace position and harness is secure. Helicopter is landed at nearest suitable helicopter landing area/aerodrome. Elements of Airmanship: Situation awareness is maintained. Orientation is maintained. Plan is formulated and modified as circumstances change. Any unavoidable obstructions are contacted when the aeroplane or helicopter is on the ground (rather than while airborne). Passengers are briefed and managed.
5.2 Manage radio communication and navigation aid or navigation system failure	*Radiotelephone communication failure:* Failure of transmission and/or reception capability is identified. Frequency selector and radiotelephone control switches are checked for appropriate selection. Power source, circuit breakers and fuses are checked for serviceability, engagement and function. All visible electrical connectors are checked to ensure complete connection. Communication with spare microphones, speakers or headsets is attempted. Comply with procedures specified in AIP ERSA EMERG, including:

	Maintain terrain clearance at all times. Advise ATS/ATC and other traffic using 'blind' R/t transmission. Proceed in accordance with latest route clearance and planned altitude. At clearance limit, maintain last assigned level or LSALT and/or hold at nominated location for three minutes then proceed in accordance with ATC route clearance and climb to planned level. When radar vectored, maintain last assigned heading for two minutes and climb to LSALT and proceed in accordance with latest acknowledged ATC clearance. When holding, complete one more holding pattern then proceed with latest flight plan or acknowledged ATC clearance. When transponder equipped, squawk 7600 and listen to ATIS and voice modulated navigation aids. When practical leave/avoid CTA and dense traffic areas and land at the most suitable aerodrome. *Navigation aid:* Maintain control of aircraft by reference to flight instruments. Identify failure of navigation aid. Advise ATS/ATC and other aircraft of aid failure and pilot's intentions. Select alternate navigation aid if available. Apply alternative navigation technique to destination or diversion aerodrome. *Navigation system failure:* Maintain control of aircraft by reference to flight instruments. Identify navigation system failure. Conduct emergency procedures in accordance with Flight Manual/POH. Apply alternative navigation technique to destination or diversion aerodrome. Advise ATS/ATC of pilot's intentions.
5.3 Manage electrical /vacuum system failure	Aircraft is controlled by reference to functioning flight instruments and aircraft systems. Planned track and level are maintained. Electrical or vacuum system failure is identified. Any adversely effected flight instruments are identified and not used for reference. Electrical or vacuum failure emergency procedures are conducted in accordance with Flight Manual/POH. ATC/ATS are advised of situation, intentions and any assistance required.
5.4 Manage instrument failure	Aircraft is controlled by reference to functioning flight instrument. Planned track and level are maintained. Failed instruments are identified and not used to control aircraft. Instrument failure emergency procedure is conducted in accordance with Flight Manual/POH. ATC/ATS are advised of situation, intentions and any assistance required. Elements of Airmanship Functional flight instruments are used and failed instruments ignored. Orientation is maintained.
5.5 Manage hazardous weather conditions	Meteorological forecasts, AIREP, METAR, SIGMET, VOLMET and AIRMET reports are applied to identify and avoid areas of hazardous weather. Recognise meteorological phenomena which indicate hazardous weather and take appropriate action to avoid or reduce the effect of the hazard. Communicate with ATS/ATC and other aircraft for advice on area weather conditions. *Frontal activity* Recognise and interpret cloud formations which indicate frontal activity and take avoidance or minimisation action as required. Determine degree of hazard associated with frontal activity and take appropriate action to avoid damage to or loss of control of aircraft. Transit front by shortest possible route. Avoiding active cells. *Thunderstorms* Avoid thunderstorms by a safe distance. Divert around thunderstorms when possible. When penetrating a thunderstorm, select the most appropriate altitude and track. Avoid reversal of course. When fitted, use radar to identify and avoid most intense area of thunderstorm activity. Adjust aircraft configuration and speed to counter weather hazards. Avoid flight under thunderstorms. Avoid landing into an approaching thunderstorm. *Icing* Plan flight clear of known icing conditions. Remove frost and snow from aircraft before take off. Identify meteorological conditions conducive to ice formation and take avoiding action. Use pitot heat when flying in visible moisture. Take immediate action to leave icing conditions in aircraft not approved for flight in these conditions. Use anti icing and de icing equipment in accordance with Flight Manual/POH in icing conditions. Climb or descend to an altitude which will reduce icing when icing is encountered. Use carburettor heat to prevent or eliminate carburettor icing. Monitor IAS and aircraft performance to avoid stall when wing icing is encountered. Exercise flight controls ensure freedom from icing. *Hail*

	Areas of potential hail are identified and avoided. *Turbulence* Ensure passengers and crew restraint is secure and tight. Achieve manufacturer's recommended turbulence penetration speed (V_{RA} or V_A). When encountering turbulence, maintain straight and level attitude. Identify and avoid orographic turbulence or take minimising action. Maintain constant power settings unless excessive down draughts are encountered near terrain. Minimise turns in turbulence. *Lightning* In low ambient light conditions, ensure cockpit lighting is set to maximum. Avoid looking outside cockpit. *Fog* Take-off and landing is not attempted in fog. When fog affects a landing area, formulate an alternative plan of action. Allow for slant range visibility on approach. <u>Elements of Airmanship</u> Avoid any hazardous weather when possible.
5.6 Demonstrate turbulence penetration technique	Ensure passengers and crew restraint is secure and tight. Achieve manufacturer's recommended turbulence penetration speed (V_{RA} or V_A). Maintain straight and level attitude. Avoid turning aircraft when possible. Exit turbulent area by shortest route. Advise ATS/ATC and other aircraft of location and degree of turbulence.
5.7 Fly helicopter with one hydraulic system failed	Control helicopter by reference to flight instruments Hydraulic system failure is identified. Emergency procedures are completed in accordance with Flight Manual/POH. Helicopter is landed in accordance with Flight Manual/POH. <u>Elements of Airmanship</u> Over controlling is avoided by using control movements appropriate to the attitude and power changes required.
5.8 Fly helicopter without stability augmentation	Control helicopter by reference to flight instruments. Stability augmentation failure is identified. Emergency procedures are completed in accordance with Flight Manual/POH. Helicopter is landed in accordance with Flight Manual/POH. <u>Elements of Airmanship</u> Over controlling is avoided by using control movements appropriate to the attitude and power changes required.

UNIT: 6. TASK MANAGEMENT

Description:

Knowledge and skills to organise documentation and equipment in the cockpit for IFR flight, prioritise and manage flight tasks, navigation and passengers, and when fitted use autopilot in IMC/simulated IMC.

Elements	Performance Criteria
6.1 Prioritise tasks ***Item 6(a)***	• Flight, navigation, communication and passenger management tasks are organised and prioritised to ensure that the work load at any phase of flight allows the pilot to safely manage the flight.
6.2 Use autopilot ***Item 6(b)***	• Autopilot and Flight Director System (FDS) are employed to assist flight and navigation tasks when available.

Item numbers included in the elements refer to CAO 40.2.3 Appendix 1

UNIT: 6. TASK MANAGEMENT

ASSESSMENT GUIDE

During assessment the pilot should be observed to perform the following checks and actions as evidence of ability to meet the licensing standards.

The checks and actions detailed in this guide are advisory. Checks and actions in approved checklists, placards, Flight Manual/POHs, or Operations Manuals have precedence and must be complied with.

Element	Evidence
6.1 Prioritise tasks	Maintain control of aircraft by reference to flight instruments. Workload is organised to ensue completion of all tasks relevant to the safety of the flight, in the time available. Completes all tasks essential for the safety of flight without distraction by less important activities. Maintain situation awareness. Elements of Airmanship Critical events and tasks are anticipated and completed in time available.
6.2 Use autopilot	*Automatic pilot:* Autopilot pre-flight functions and serviceability checks are performed in accordance with Flight Manual/POH. Autopilot is used to assist the conduct of the flight. Autopilot is engaged in accordance with Flight manual/POH. Input to autopilot is appropriate to the navigation and control requirements of the flight. Autopilot is disengaged in accordance with flight Manual/POH. Autopilot is monitored to ensure operation complies with requirements.

UNIT: 7. CONDUCT OF INSTRUMENT FLIGHT USING FULL PANEL

Description:
Skills and knowledge to control the aircraft in normal flight and recover from unusual flight attitudes using the full instrument panel in IMC/simulated IMC.

Elements	Performance Criteria
7.1 Fly level, climb and descend ***Item 7(a)***	• Maintain straight and level flight, climb and descend aircraft solely by reference to full instrument panel.
7.2 Accelerate and decelerate in level flight (helicopter only) ***Item 7(d)***	• Maintain helicopter in straight and level flight while manoeuvring during accelerating and decelerating flight between best climb angle speed and normal cruise speed.
7.3 Fly at low speed (helicopter only) ***Item 7(e)***	• Manoeuvre the helicopter in straight and level, climbing, descending and turning flight at best angle of climb speed.
7.4 Make level, climbing and descending turns and steep turns through at least 180 degrees onto nominated heading **Item 7(b)**	• Turn aircraft during level, climbing and descending flight through more that 180 degrees and achieve a nominated heading. • Turn aircraft using 45° to 60° of bank while maintaining altitude, through 180° and achieving a nominated heading
7.5 Recover from unusual attitudes ***Item 7(c)***	• Recover from unusual attitudes and resume controlled level flight solely by reference to full instrument panel.

Item numbers included in the elements refer to CAO 40.2.3 Appendix 1

UNIT: 7. CONDUCT OF INSTRUMENT FLIGHT USING FULL PANEL

ASSESSMENT GUIDE

During assessment the pilot should be observed to perform the following checks and actions as evidence of ability to meet the licensing standards.

The checks and actions detailed in this guide are advisory. Checks and actions in approved checklists, placards, Flight Manual/POHs, or Operations Manuals have precedence and must be complied with.

Elements	Evidence
7.1 Fly level, climb and descend	*Before instrument flight:* Pitot/static systems are checked for serviceability and condition. Flight instruments are checked for condition and serviceability. Instrument power sources are checked. The attitude indicator pitch datum is set to the in flight straight and level attitude appropriate for the aircraft type. Turn, heading and attitude indicators are functionally checked while taxiing (or during hover). *During instrument flight:* Attitude indicator is used as primary reference instrument for pitch and roll. Pitch attitude change is made by reference to AI. Attitude is held constant after change to allow for lag in performance instruments Performance instruments (ASI, ALT, VSI) are used to confirm attitude is correct. Adjustments to attitude are based on performance instrument indications Aircraft is trimmed to hold attitude constant , once established, without constant pilot elevator control input. Aircraft is balanced using rudder. Maintain wings level (± 5^0) except during turns. Aileron and rudder trim are used to maintain lateral level and balance when available. Nominated HDG is maintained ±5^0 except during turns. Power and attitude settings achieve desired performance. Engine instruments are monitored for abnormal indications. Change of airspeed is made during straight and level flight (± 10 knots of nominated airspeed, heading ± 5°, ±100 ft altitude). Straight and level flight is achieved in different airframe configurations. Straight and level flight is maintained at a simulated MDA (+100 -0 ft) *Additional evidence while climbing and descending during instrument flight:* Climb is maintained at nominated speed (± 10 knots). Descent is maintained at 500 feet per minute (±150 ft/min) at a nominated speed (± 10 kts). Initial attitude and power change to commence climb or descent is within ±10 kt of nominated speed before adjustment. Level off from climb or descent is within ± 100 feet of nominated altitude. Elements of Airmanship: Sensory illusions are recognised and do not affect aircraft control. Orientation is maintained. Corrective control movements are smooth and excessive muscular force avoided. Instrument power sources are checked for serviceability and monitored in flight. Heading instruments are synchronised before take-off and every 10 minutes in flight.
7.2 Accelerate and decelerate in level flight (helicopter only)	*Accelerate helicopter in level flight* Coordinated application of collective pitch control (power) and cyclic pitch control (attitude) is used, appropriate to the required rate of acceleration, to maintaining altitude (± 100 ft) and achieve a nominated IAS (± 10 kts). When stabilised, collective pitch control (power) and cyclic pitch control (attitude) are adjusted to maintain nominated altitude (± 100 ft) and IAS (± 10 kts). Aircraft is balanced using pedals. *Decelerate helicopter in level flight* Appropriate coordinated reduction of collective pitch control (power) and adjustment of cyclic pitch control (attitude) are used to maintain altitude (± 100 ft) and reduce to nominated IAS (± 10 kts). When stabilised, altitude is maintained using collective pitch control (power) (± 100 ft). IAS is adjusted using cyclic pitch control (attitude) (± 10 kts). Aircraft is balanced using pedals.

7.3 Fly at low speed (helicopter only)	Nominated IAS or minimum IAS for instrument flight (V_{min}IFR) is selected. Cyclic pitch control (attitude) is adjusted to achieve nominated IAS or V_{min}IFR (± 10 kts). Collective pitch control (power) is adjusted to maintain altitude (± 100 ft). Cyclic pitch control (attitude) is adjusted to maintain IAS (± 10 kts). Collective pitch control (power) is adjusted to maintain climb or descent at nominated IAS or V_{min}IFR. Aircraft is balanced using pedals. Coordinated application of collective pitch control (power) and cyclic pitch control (attitude) is made to maintain altitude during turns.
7.4 Make level, climbing and descending turns and steep turns through at least 180 degrees onto nominated heading	Attitude is selected and held to maintain level, climbing or descending flight during the turn. Angle of bank is selected to maintain rate 1 turn. Rate one turns through minimum of 180^0 onto specific headings are completed (±5°). Level turn altitude is maintained (± 100 feet). Angle of bank is maintained (±5°). Nominated airspeed for climb and descent is maintained (± 10 kts). Aircraft is balanced using rudder. Turning errors are allowed for when using magnetic compass to achieve initial roll out from turns within $\pm 15^0$ of nominated HDG. *Steep turns:* Angle of bank is maintained between 40^0 and 60° through minimum of 180^0 of turn. Power is adjusted to maintain an airspeed above the stall warning threshold. Altitude is maintained (± 100 feet). Aircraft is balanced using rudder. Recovery to nominated heading is achieved (±10°).
7.5 Recover from unusual attitudes	*Aeroplanes* Low or decreasing airspeed attitudes are compensated for by application of power and lowering of nose to horizon. High or increasing airspeed is corrected by reducing power, levelling wings parallel to horizon and raising nose to horizon. Attitude indicator is used as primary control instrument. Bank angle is corrected by paralleling wings to horizon using attitude indicator. Straight and level attitude is achieved without excessive oscillations at the horizon (± 200 ft of height at which aircraft nose first passed through horizon). Performance instruments are used to confirm attitudes. *Helicopters* Parallel wings on the attitude indicator to the horizon, by reference to the attitude indicator. Use cyclic pitch control (attitude) to position nose on horizon using attitude indicator. Apply coordinated use of collective and cyclic pitch control (attitude) to achieve desired altitude, IAS, and heading. Elements of Airmanship Orientation is maintained.

UNIT: 8. CONDUCT OF INSTRUMENT FLIGHT USING LIMITED INSTRUMENT PANEL (WITHOUT REFERENCE TO ATTITUDE INDICATOR OR DIRECTION INDICATOR)

Description:
Skills and knowledge to perform all normal flight and recover from unusual flight attitudes using the limited instrument panel without the availability of an artificial horizon, attitude indicator or gyro compass in IMC/simulated IMC.

Elements	Performance Criteria
8.1 Fly level, climb and descend ***Item 8(a)***	• Maintain straight and level, climbing and descending flight, solely by reference to limited instrument panel.
8.2 Make level, climbing and descending turns through at least 180 degrees onto nominated heading ***Item 8(b)***	• Turn aircraft during level, climbing and descending flight through more than 180 degrees and achieve a nominated heading.
8.3 Recover from unusual attitudes **9.1** ***Item 8(c)***	• Recover from unusual attitudes and resume controlled straight and level flight solely by reference to limited instrument panel.

Item numbers included in the elements refer to CAO 40.2.3 Appendix 1

UNIT: 8. CONDUCT OF INSTRUMENT FLIGHT USING LIMITED PANEL (WITHOUT REFERENCE TO ATTITUDE INDICATOR OR DIRECTION INDICATOR)

ASSESSMENT GUIDE

During assessment the pilot should be observed to perform the following checks and actions as evidence of ability to meet the licensing standards.

The checks and actions detailed in this guide are advisory. Checks and actions in approved checklists, placards, Flight Manual/POHs, or Operations Manuals have precedence and must be complied with.

Elements	Evidence
8.1 Fly level, climb and descend	*During instrument flight.* Gyroscopic instrument power sources and instrument warning systems are monitored and gyroscopic instrument indications are checked against performance instruments for serviceability. When attitude and/or direction indicator failure is confirmed flight by reference to limited instrument panel is initiated. Pitch attitude for level flight is confirmed by altimeter and VSI. Pitch attitude for climb and descent is confirmed by ASI and VSI. Maintain wings level by reference to turn and balance indicator/coordinator. Aircraft is balanced using rudder or anti torque pedals. Pitch attitude change is made by reference to stick/control column position. Attitude is held constant after change to allow for instrument lag. Adjustments to attitude are based on performance instrument indications. Aircraft is trimmed to maintain attitude. Aircraft is balanced using rudder or anti torque pedals. Magnetic compass is used to confirm heading (± 15°). Level flight altitude is maintained (± 200ft). Climb or descent speed is maintained (± 10 kts). Maintain wings level (±5°). Nominated heating is maintained (± 15°). Ailerons and rudder are trimmed where available. Power and attitude settings achieve desired performance. Engine instruments are monitored and any abnormal indications detected and appropriate action taken. Smooth adjustments are made when changing attitude, power or bank. Power is set (± 0.5" MAP ± 50 RPM). Aircraft is balanced using rudders or anti torque pedals. Elements of Airmanship Orientation is maintained.
8.2 Make level, climbing and descending turns through at least 180 degrees onto nominated heading	Angle of bank appropriate to airspeed is selected to maintain rate 1 turn (± 5°). Attitude is selected and held to maintain level, climbing or descending flight during turns (± 10 knots). Attitude for level turns is confirmed by altimeter (±200 ft). Attitude for climb or descent is confirmed by reference to ASI (± 10 knots). Angle of bank is maintained (± 5°). Aircraft is balanced using rudder or anti torque pedals. Rate 1 turns through a minimum of 180° onto a nominated heading are achieved (± 15°).

8.3 Recover from unusual attitudes	*Aeroplane* Unusual attitude with high or increasing airspeed is recognised and recovery initiated: • power is reduced • wings are leveled by reference to the turn and balance indicator/coordinator • nose is raised to the level attitude by stopping increasing airspeed Straight and level attitude is achieved without excessive oscillations at the horizon (± 250 ft). Unusual attitude with low or decreasing airspeed is recognised and recovery initiated: • power is increased • wings are levelled by reference to the turn and balance indicator/coordinator • nose is lowered to horizon by stopping the decrease in airspeed. • aircraft is balanced using rudders Straight and level attitude is achieved without excessive oscillations at the horizon (± 250 ft of height at which aircraft nose first passed through horizon). Achievement of level attitude is confirmed by altimeter and VSI. Level flight is maintained (± 200 ft ± 15°). Aircraft is balanced using rudders. *Helicopter* Unusual attitude with high or increasing airspeed is recognised and recovery initiated: · cyclic pitch (attitude) is adjusted until airspeed starts to decrease or stop increasing · cyclic pitch (attitude) is adjusted to stop helicopter turning · collective pitch (power) is adjusted to achieve level flight · aircraft is balanced using anti torque pedals. Unusual attitude with low or decreasing airspeed is recognised and recovery initiated: · cyclic pitch control (attitude) is adjusted until airspeed stops reducing or starts increasing · mast bumping is avoided · cyclic pitch (attitude) is adjusted to stop helicopter turning · collective pitch (power) is adjusted to achieve level flight · aircraft is balanced using anti torque pedals. Achievement of level attitude is confirmed by altimeter and VSI. Elements of Airmanship: Adverse physiological sensations are recognised but ignored. Orientation is maintained. Corrective control movements are smooth and excessive muscular force avoided. Time is allowed for performance instruments to stabilise.

FLIGHT PROCEDURE AUTHORISATION

UNITS OF COMPETENCY

UNIT: 9. NAVIGATION USING NDB (NON DIRECTIONAL BEACON)

Description:

Knowledge and skills to navigate the aircraft by reference to the ADF tuned to an NDB in Instrument Meteorological Conditions (IMC) in compliance with Instrument Flight Rules (IFR).

Elements	Performance Criteria
9.1 Tune, identify and monitor navigation aids ***Item 1(a)***	• Tune navigation equipment, identify and monitor navigation aid and test navigation system.
9.2 Determine position in relation to navigation aids ***Item 1(b)***	• Fix position of the aircraft in relation to the navigation aid using overhead passage or two or more bearings.
9.3 Intercept and maintain desired tracks to and from stations ***Item 1(c)***	• Intercept specified tracks to and from navigation aids using intercept angles appropriate to navigation requirements and maintain the track within tracking tolerances in accordance with AIP.
9.4 Make station passage	• Maintain planned inbound track within the tolerances specified in AIP, pass overheat the navigation aid and ensure a positive back bearing is achieved.

Item numbers included in the elements refer to CAO 40.2.3 Appendix 2 Table 3

UNIT: 9. NAVIGATION USING NDB (NON DIRECTIONAL BEACON)

ASSESSMENT GUIDE

During assessment the pilot should be observed to perform the following checks and actions as evidence of ability to meet the licensing standards.

The checks and actions detailed in this guide are advisory. Checks and actions in approved checklists, placards, Flight Manual/POHs, or Operations Manuals have precedence and must be complied with.

Element	Evidence
9.1 Tune, identify and monitor navigation aids	The ADF frequency is tuned. The NDB is identified by voice or morse code identification. The aeroplane is within the published range of the NDB. The ADF bearing indication is checked against a known bearing or tested by deselecting the loop antenna signal of the ADF. The identification and serviceability of the NDB is monitored and unreliable indications are not used for navigation.
9.2 Determine position in relation to navigation aids	ADF errors are identified and allowed for when obtaining ADF bearings. ADF bearings are used for navigation only when within published range of NDB. NDB is used to determine aircraft position using bearings from two or more NDBs within 30 nm of each station. ADF is used to determine aircraft position using bearings from two or more NDBs within 30 nm of each station. ADF bearings are plotted on a navigational chart to fix position. Position is determined by NDB station passage. *Fixed card ADF:* The ADF relative bearing is applied to the magnetic heading to calculate (determine) the magnetic track to or from (radial) NDB. *Manually rotatable card ADF:* Magnetic heading is set on rotatable card, for the head of ADF needle to indicate magnetic track to NDB and tail of ADF needle to indicate magnetic track from NDB (radial). *Radio Magnetic Indicator:* Track to NDB is determined using head of ADF needle, and track from NDB (radial) is determined using tail of ADF needle. Elements of Airmanship Orientation is maintained.
9.3 Intercept and maintain desired tracks to and from stations	*Intercept track outbound from and inbound to NDB:* Determine HDG required to intercept specified track outbound from or inbound to NDB within a specified time or distance. Track is intercepted.(± 5° initially then on track). Drift is determined and allowed for to maintain track. Track is maintained within tolerances specified in AIP (on track or regaining track). Track is maintained or aircraft is not more than 5^{o} off track for short periods to establish drift allowance. ATC is advised when aircraft is more than ±5° off track in CTA, and action is taken to regain track. The NDB with the most accurate signal is used when tracking between two NDBs. Elements of Airmanship Orientation is maintained.
9.4 Make station passage	Specified track is maintained inbound to the NDB station. ADF relative bearing changes from inbound tracking indication to outbound tracking indication overhead the NDB station without a sustained abeam indication.

UNIT: 10. NAVIGATION USING VOR (VHF OMNI DIRECTIONAL RADIO RANGE)

Description:

Knowledge and skills to navigate the aircraft by reference to the VOR in Meteorological Conditions (IMC) in compliance with Instrument Flight Rules (IFR).

Elements	Performance Criteria
10.1 Tune, identify and monitor navigation aids ***Item 1(a)***	• Tune navigation equipment, identify and monitor navigation aid, ensure no warning flags visible and test navigation system.
10.2 Determine position in relation to navigation aids ***Item 1(b)***	• Fix position of the aircraft in relation to the navigation aid using overhead passage or two or more bearings.
10.3 Intercept and maintain desired tracks to and from stations ***Item 1(c)***	• Intercept tracks to and from navigation aids, with CDI indicating in the command sense using intercept angles appropriate to navigation requirements and maintain tracking tolerances specified in AIP.
10.4 Make station passage	• Maintain planned inbound track within the tolerances specified in AIP, pass overheat the navigation aid and track outbound on the radial desired.

Item numbers included in the elements refer to CAO 40.2.3 Appendix 2 Table

UNIT: 10. NAVIGATION USING VOR (VHF OMNI DIRECTIONAL RADIO RANGE)

ASSESSMENT GUIDE

During assessment the pilot should be observed to perform the following checks and actions as evidence of ability to meet the licensing standards.

The checks and actions detailed in this guide are advisory. Checks and actions in approved checklists, placards, Flight Manual/POHs, or Operations Manuals have precedence and must be complied with.

Element	Evidence
10.1 Tune, identify and monitor navigation aids	The aeroplane is within the rated coverage of the VOR beacon. The VOR frequency is tuned. The VOR is identified by voice or morse code identification. Before flight: • CDI warning flag is visible when tuned to a frequency on which no VOR station is within reception range. • CDI indications are checked with reciprocal OBS settings. CDI warning flags are not visible when station is tuned. CDI warning flags are monitored and, if visible, VOR indications are not used.
10.2 Determine position in relation to navigation aids	VOR errors are identified and allowed for when obtaining VOR bearings. VOR is used to determine the VOR radial. VOR bearings are only used for navigation when within rated coverage of VOR station. VOR is used to fix position using bearings from two or more VORs within rated coverage of each station. VOR bearings are plotted on a navigational chart and position is fixed. Position is determined by VOR station passage.
10.3 Intercept and maintain desired tracks to and from stations	Determine HDG required to intercept specified VOR radials outbound and inbound within a specified time or distance. OBS is aligned with track to be intercepted and interception is accomplished when CDI is centred, in the command sense. Track is intercepted (CDI ±½ scale deflection initially then on track). Drift is determined and HDG established to maintain specified track with CDI centred. Track is maintained within tolerances specified in AIP. Track is maintained, but not more than CDI ±½ scale deflection off track for short periods to establish drift allowance. ATC is advised when aircraft is off track by more that CDI ±½ scale deflection in CTA, and track is regained. The VOR with the most accurate signal is used when tracking between two VORs. Elements of Airmanship Orientation is maintained.
10.4 Make station passage	Specified track is maintained inbound to the VOR station. TO-FROM indicator changes from TO to FROM indication. Specified track is maintained outbound from the VOR station. CDI maintains on track indication to overhead the VOR station without a sustained abeam indication.

UNIT: 11. NAVIGATION USING GPS (GLOBAL POSITIONING SYSTEM)

Description:

Knowledge and skills to navigate the aircraft by reference to Global Positioning System in IMC in compliance with IFR.

Elements	Performance Criteria
11.1 Check GPS receiver operation	• Check operation, settings and indications of receiver including navigation data base currency, signal integrity by accessing appropriate GPS receiver operational modes.
11.2 Enter, retrieve, edit, delete and activate flight plan and waypoints ***Item 2(b)***	• Use GPS computer functions required to enter, retrieve, edit, deletion and activate flight plan and way point information in a GPS.
11.3 Determine position and other relevant navigational information from GPS ***Item 2(c)***	• Use the GPS to determine aircraft position and to extract navigation information including ETA, ETI, G/S and W/V relevant to the flight.
11.4 Intercept and maintain desired track to selected WPT ***Item 2(d)***	• Intercept and maintain desired track to selected WPT accordance with tolerances specified in AIP, using the GPS.
11.5 Diversion **Item 2(e)**	• Divert from flight planned route and track to selected WPT.
11.6 Conduct confidence checks of GPS navigational information ***Item 2(f)***	• Conduct GPS confidence checks is accordance with GPS operators manual. • Check GPS flight plan track and distances against information shown on current charts and check GPS position information using any data available from other sources.
11.7 Monitor integrity of GPS navigation ***Item 2(g)***	• Monitor integrity of GPS navigation by reference to RAIM, recognising the RAIM warnings and messages and take appropriate action.
11.8 Respond to GPS messages ***Item 2(h)***	• Interpret displayed messages on GPS and react appropriately.

Item numbers included in the elements refer to CAO 40.2.3 Appendix 2 Table 3

UNIT: 11. NAVIGATION USING GPS (GLOBAL POSITIONING SYSTEM)

ASSESSMENT GUIDE

During assessment the pilot should be observed to perform the following checks and actions as evidence of ability to meet the licensing standards.

The checks and actions detailed in this guide are advisory. Checks and actions in approved checklists, placards, Flight Manual/POHs, or Operations Manuals have precedence and must be complied with.

Element	Evidence
11.1 Check GPS receiver operation	Turn receiver on and check self test operation and position. Ensure navigational database is current. Ensure RAIM availability. Ensure receiver set as required. Monitor GPS navigational signal integrity during flight and react appropriately.
11.2 Enter, retrieve, edit, delete and activate flight plan and waypoints	Retrieve flight plan from GPS memory. Edit flight plan saved in GPS memory. Create and save new flight plan. Activate selected flight plan. Retrieve WPTs from navigational database. Create and save user WPTs. Retrieved flight plan tracks and distances are confirmed using an aeronautical chart.
11.3 Determine position and other relevant navigational information from GPS	Select GPS receiver navigation mode. Select navigational display which includes CDI display, track, distance and ETI to next WPT. Determine track and distance from selected WPT. Determine ground speed, ETA at next WPT and W/V. Determine track and distance to selected off track WPTs.
11.4 Intercept and maintain desired track to selected WPT	Use Direct To and Nearest functions to select next WPT. Use flight plan to provide automatic sequencing of WPTs. Determine HDG required to intercept selected track by specified time or distance. Intercept and maintain desired track to selected WPT. Determine HDG to maintains desired track. Use ground based navigation aids in preference to GPS as specified in AIP. Determine GPS navigation mode in use.
11.5 Diversion	Select suitable WPT for diversion. Navigate to selected WPT, maintain and resume active flight plan. Navigate to selected WPT with cancellation of active flight plan.
11.6 Conduct confidence checks of GPS navigational information	Compare and confirm GPS derived tracks and distances for active flight plan legs against information on navigational charts. Confirm GPS derived position against position shown by other radio navigation aids.
11.7 Monitor integrity of GPS navigation	Monitor RAIM warnings and messages displayed by GPS receiver and react appropriately. Advise ATC of RAIM loss as specified in AIP.
11.8 Respond to GPS messages	Display GPS messages as they occur. Respond appropriately to GPS messages. Retrieve GPS messages as required.

UNIT: 12. NAVIGATION USING DME (DISTANCE MEASURING EQUIPMENT)

Field: Private Pilot

Description:
Skills and knowledge to use DME to fix position in conjunction with bearings from other navigation aids, home to a station and fly DME arcs.

Elements	Performance Criteria
12.1 Tune and identify DME station ***Item 3(a)***	• Tune navigation equipment, identify and monitor navigation aid and check distance indicator.
12.2 Use DME to provide distance information and fix position ***Item 3(b)***	• Fix position using the distance from a DME navigation aid and bearings from a suitable navigation aid with an azimuth capability.
12.3 Conduct DME homing procedure ***Item 3(c)***	• Track to overhead the DME navigation aid using the ground speed function of the DME navigation system.
12.4 Fly DME arc procedure ***Item 3(d)***	• Track aircraft along a DME arc at a nominated distance by reference to a DME navigation aid within the tolerances specified in AIP in IMC/simulated IMC.

Item numbers included in the elements refer to CAO 40.2.3 Appendix 2 Table 3

UNIT: 12. NAVIGATION USING DME (DISTANCE MEASURING EQUIPMENT)

ASSESSMENT GUIDE

During assessment the pilot should be observed to perform the following checks and actions as evidence of ability to meet the licensing standards.

The checks and actions detailed in this guide are advisory. Checks and actions in approved checklists, placards, Flight Manual/POHs, or Operations Manuals have precedence and must be complied with.

Elements	Evidence
12.1 Tune and identify DME station	DME is tuned to the paired VOR frequency. The DME is identified by voice or morse code identification. The aeroplane is within the rated coverage of the DME station. DME distance indication is checked and distance corresponds to aircraft position. DME station tuning is retained while another VHF azimuth aid is selected.
12.2 Use DME to provide distance information and position in conjunction with another navigation aid	Determine DME distance and ground speed. Calculate ETA at DME station. Fix position using DME distance and a bearing from another aid within rated coverage. Eliminate ambiguity when using two DME stations to fix position. Determine position overhead DME station allowing for slant range effect.
12.3 Conduct DME homing procedure	Using DME only, outside 25 DME, select a heading which ensures rate of closure with DME station. Refine heading to achieve maximum rate of closure with DME station. Maintain heading to achieve maximum rate closure, for at least 15nm inbound to station.
12.4 Fly DME arc procedure	Intercept a DME arc from an inbound track to a DME station using a collocated azimuth tracking aid. Maintain tracking on the DME arc ± 2nm over at least a 90° radial sector, in conjunction with a collocated azimuth aid. Leave the DME arc by Intercepting a specified inbound track to the station using an azimuth tracking aid.

UNIT: 13. NDB HOLDING

Field: Private Pilot

Description:
Skills and knowledge to enter and perform an instrument holding pattern using the NDB.

Elements	Performance Criteria
13.1 Make sector entry to holding pattern ***Item 4(a)***	• Enter holding pattern at or above LSALT/MSA using sector entry as depicted or published in IAL charts appropriate to inbound heading.
13.2 Fly published holding pattern ***Item 4(b)***	• Conduct published holding pattern not below the specified minimum altitude, allowing for wind effect, complying with time and/or DME limitations and turning inbound on the prescribed track.

Item numbers included in the elements refer to CAO 40.2.3 Appendix 2 Table 3

UNIT: 13. NDB HOLDING

ASSESSMENT GUIDE

During assessment the pilot should be observed to perform the following checks and actions as evidence of ability to meet the licensing standards.

The checks and actions detailed in this guide are advisory. Checks and actions in approved checklists, placards, Flight Manual/POHs, or Operations Manuals have precedence and must be complied with.

Elements	Evidence
13.1 Make sector entry to holding pattern	Tune and identify the NDB to be used for holding. Maintain at least LSALT or MSA for the inbound track until overhead the NDB. Make a sector entry to the holding pattern based on aircraft inbound HDG in accordance with the IAL chart. After passing over the NDB turn outbound onto the HDG appropriate to the sector entry being used. Comply with airspeed limitations for holding. Comply with timing and distance limitations for the holding pattern outbound in the entry procedure. Descend from LSALT/MSA to the minimum altitude for holding or nominated altitude during the entry procedure. Maintain minimum altitude for holding or nominated holding altitude (± 100 ft). Turn inbound and establish the aircraft on the specified inbound track of the holding pattern before passing overhead the NDB. Elements of Airmanship Orientation is maintained. Traffic separation is maintained.
13.2 Fly published holding pattern	After passing over the NDB turn in the direction specified for the holding pattern onto an outbound HDG which allows for wind effect. Commence timing the outbound leg of the holding pattern from abeam the NDB outbound. Adjust timing on the outbound track as necessary to allow for wind effect. Maintain minimum altitude for holding or nominated holding altitude (± 100 ft). Turn inbound in the holding pattern in compliance with timing and or distance limitations. Intercept and maintain the inbound track (± 5°) before passing overhead the NDB. Maximum endurance configuration is achieved when required Revised endurance using applicable fuel flow and latest time of diversion to alternate aerodrome is calculated. Elements of Airmanship Orientation is maintained. Traffic separation is maintained.

UNIT: 14. VOR HOLDING

Field: Private Pilot

Description:
Skills and knowledge to enter and perform an instrument holding pattern using the VOR.

Elements	Performance Criteria
14.1 Make sector entry to holding pattern ***Item 4(a)***	• Enter holding pattern at or above LSALT/MSA using sector entry as depicted or published in IAL charts appropriate to inbound heading.
14.2 Fly published holding pattern ***Item 4(b)***	• Conduct published holding pattern not below the specified minimum altitude, allowing for wind effect, complying with time and/or DME limitations and turning inbound on the prescribed track.

Item numbers included in the elements refer to CAO40.2.3 Appendix 2 Table 3

UNIT: 14. VOR HOLDING

ASSESSMENT GUIDE

During assessment the pilot should be observed to perform the following checks and actions as evidence of ability to meet the licensing standards.

The checks and actions detailed in this guide are advisory. Checks and actions in approved checklists, placards, Flight Manual/POHs, or Operations Manuals have precedence and must be complied with.

Elements	Evidence
14.1 Make sector entry to holding pattern	Tune and identify the VOR to be used for holding. Maintain at least LSALT or MSA for the inbound track until overhead the VOR. Make a sector entry to the holding pattern based on aircraft inbound HDG in accordance with the IAL chart. After passing over the VOR turn outbound onto the HDG appropriate to the sector entry being used. Comply with airspeed limitations for holding. Comply with timing and distance limitations for the holding pattern outbound. Descend from LSALT/MSA to the minimum altitude for holding or nominated altitude during the entry procedure. Maintain minimum altitude for holding or nominated holding altitude (±100 'feet Set OBS to holding pattern inbound track. Turn inbound and establish the aircraft on the specified inbound track of the holding pattern within CDI full scale deflection, before passing overhead the VOR. Elements of Airmanship Orientation is maintained. Traffic separation is maintained.
14.2 Fly published holding pattern	After passing over the VOR turn in the direction specified for the holding pattern onto an outbound HDG which allows for wind effect. Commence timing the outbound leg of the holding pattern from abeam the VOR outbound. Adjust timing on the outbound leg as necessary to allow for wind effect. Maintain minimum altitude for holding or nominated holding altitude (±100 ft). Set OBS to holding pattern inbound track. Turn inbound in the holding pattern in compliance with timing and or distance limitations. Intercept and maintain the inbound track within (CDI ½ scale deflection) before passing overhead the VOR. Maximum endurance configuration is achieved when required. Revised endurance using applicable fuel flow and latest time of diversion to alternate aerodrome is calculated.

UNIT: 15. GPS HOLDING

Field: Private Pilot

Description:
Skills and knowledge to enter and perform an instrument holding procedure using the GPS.

Elements	Performance Criteria
15.1 Make sector entry to holding pattern ***Item 4(a)***	• Suspend automatic WPT sequencing and enter holding pattern at or above LSALT/MSA using sector entry as depicted or published in IAL charts appropriate to inbound heading.
15.2 Fly published holding pattern ***Item 4(b)***	• Conduct published holding pattern not below the specified minimum altitude, allowing for wind effect, complying with time and/or DME limitations and turning inbound on the prescribed track and resume automatic WPT sequencing to leave the holding pattern.

Item numbers included in the elements refer to CAO 40.2.3 Appendix 2 Table 3

UNIT: 15. GPS HOLDING

ASSESSMENT GUIDE

During assessment the pilot should be observed to perform the following checks and actions as evidence of ability to meet the licensing standards.

The checks and actions detailed in this guide are advisory. Checks and actions in approved checklists, placards, Flight Manual/POHs, or Operations Manuals have precedence and must be complied with.

Elements	Evidence
15.1 Make sector entry to holding pattern	Select and track to holding WPT. Ensure CDI scaling is set for ± 1 nm. Suspend automatic sequencing before reaching holding WPT. Maintain at least LSALT or MSA for the inbound track until overhead the holding WPT. Make a sector entry to the holding pattern based on aircraft inbound HDG in accordance with the IAL chart. After passing over the holding WPT turn outbound onto the HDG appropriate to the sector entry being flown. Comply with airspeed limitations for holding. Comply with timing and distance limitations for the holding pattern outbound in the entry procedure. Descend from LSALT/MSA to the minimum altitude for holding or nominated altitude during the entry procedure. Maintain minimum altitude for holding or nominated holding altitude (±100 ft). Set GPS to track inbound to the holding WPT on the holding pattern inbound track. Turn inbound and establish the aircraft on the inbound track of the holding pattern, within CDI full scale deflection, before passing overhead the holding WPT. Elements of Airmanship Orientation is maintained. Traffic separation is maintained.
15.2 Fly published holding pattern	After passing over the holding WPT turn in the direction specified for the holding pattern onto outbound HDG allowing for wind effect. Commence timing the outbound leg of the holding pattern from abeam the holding WPT. Adjust timing on the outbound leg to allow for wind effect. Maintain minimum altitude for holding or nominated holding altitude (±100ft). Set the GPS to track inbound to the holding WPT on the holding pattern inbound track. Turn inbound in the holding pattern in compliance with timing and or distance limitations. Intercept and maintain the inbound track within CDI ½ scale deflection before passing overhead the holding WPT. Depart the holding pattern by resuming automatic sequencing before crossing the holding WPT. Maximum endurance configuration is achieved when required. Revised endurance using applicable fuel flow and latest time of diversion to alternate aerodrome is calculated.

UNIT: 16. NIGHT

Field: Private Pilot

Description:
Skills and knowledge to take off and land and operate the aeroplane safely at night under the IFR.

Elements	Performance Criteria
16.1 Determine whether an aerodrome is suitable for night operations ***Item 5(a)***	• Determine the aerodrome lighting is suitable and available for night operations. • Determine whether aerodrome requires an alternate or holding fuel due to weather, navigation aids or lighting in accordance with AIP. • Comply with any curfew requirements.
6.2 Determine that the aircraft is serviceable for flight at night ***Item 5(b)***	• Determine the aircraft is equipped for flight in accordance with the IFR at night and ensure that the flight instruments, minimum electrical lighting equipment and navigation aids fitted are suitable and serviceable for the flight and ensure ready access to a shock proof torch in accordance with regulations. • Perform an inspection in accordance with aircraft system of maintenance, approved by CASA and ensure certification in accordance with regulations for flight under the IFR at night.
16.3 Taxi at night ***Item 5(c)***	• Conduct instrument lighting adjustment. • Comply with ATC instructions and manoeuvre the aircraft on the ground at night within the approved movement area as defined by aerodrome ground lighting and using aircraft lighting as required.
16.4 Take off at night ***Item 5(d)***	• Aircraft is lined up in centre of runway in take off direction and line up checks appropriate to night take off are completed in accordance with approved checklist. • Execute take off by reference to flare path/runway lighting and aircraft instruments. • Rotate aircraft at manufacturers recommended speed. • Establish climb attitude and control aircraft in climb after take off solely by reference to instruments. • Establish alignment with runway be visual reference and maintain lookout. • Perform after take off checks at a safe height.
16.5 Make visual departure under the IFR at night ***Item 5(e)***	• Establish aircraft at a height which ensures terrain clearance before departing circuit area. • Intercept departure track within 5 nm of aerodrome. • Climb on track to LSALT.
16.6 Fly enroute under the IFR at night ***Item 5(f)***	• Conduct flight using IFR procedures. • Navigate using NDB, VOR or GPS. • Cockpit and instrument lighting is adjusted to allow reference to documentation, instruments and lookout.

16.7 Make visual approach under the IFR at night ***Item 5(g)***	• Descend from cruising altitude/level to not below LSALT, and maintain track until within the circling area of destination aerodrome, with the aerodrome in sight in accordance with instructions in AIP. • Descend to circuit height, within the circling area by reference to runway lighting
16.8 Activate PAL lighting ***Item 5(h)***	• Select appropriate radiotelephone frequency and activate PAL system when within radio range.
16.9 Land at night, with and without the use of aircraft landing lights ***Item 5(i)***	• Conduct a circuit and approach controlling aircraft and maintaining a safe altitude by reference to instruments and positioning aircraft by reference to runway lighting. • Land aircraft at night with and without landing lights. • After landing checks are performed in accordance with approved checklist.
16.10 Make baulked approach ***Item 5(j)***	• Conduct a baulked approach from any point on the final approach leg.
16.11 Take off and land at night at an aerodrome remote from ground lighting ***Item 5(d)***	• Conduct take off, circuit procedures and land aircraft at night at an aerodrome remote from any ground lighting which could assist the pilot in maintaining control of the aircraft, using runway lights for positioning aircraft in circuit. • Use runway lighting to position the aircraft in the circuit and for landing.
16.12 Manage electrical system failure at night ***Item 5(k)***	• Maintain control of the aircraft, identify electrical system failure and conduct emergency procedures in accordance with Flight Manual/POH.

Item numbers included in the elements refer to CAO 40.2.3 Appendix 2 Table 3

UNIT: 16. NIGHT

ASSESSMENT GUIDE

During assessment the pilot should be observed to perform the following checks and actions as evidence of ability to meet the licensing standards.

The checks and actions detailed in this guide are advisory. Checks and actions in approved checklists, placards, Flight Manual/POHs, or Operations Manuals have precedence and must be complied with.

Elements	Evidence
16.1 Determine whether an aerodrome is suitable for night operations	Ensure that runway dimensions and approach and take-off areas are adequate for night operations. Determine whether aerodrome has the minimum runway and ground lighting facilities for night operations. Determine how lighting is to be activated and arrange for a responsible person to be present when required. Determine whether an alternate aerodrome or holding is required due to the method of lighting activation or availability of standby power. Ensure that local curfew arrangements permit operations.
16.2 Determine that the aircraft is serviceable for flight at night	Determine from aircraft maintenance release that the aircraft is approved and serviceable for flight at night. Check that radio communications and navigation systems required for night flight under the IFR in accordance with AIP, are fitted and serviceable. Ensure that flight and navigation instruments meeting the requirements of CAO 20.18 for flight under the IFR at night are fitted and serviceable. Check serviceability of instrument and cockpit lighting. Ensure that a shockproof torch is serviceable and readily available for internal and external inspection and for emergency use in flight. Check that exterior navigation and anti-collision lights required by regulations for flight under the IFR at night are fitted and serviceable.
16.3 Taxi at night	Ensure adequate night vision adaptation. Ensure that required exterior and interior lighting is on prior to starting engine(s). Adjust cockpit/instrument lighting to a suitable level for taxying. Ensure that required runway and aerodrome lighting is activated. Comply with any ATC clearance requirements and complete radio transmissions applicable to taxying in accordance with AIP. Taxi at a speed which allows for an adequate lookout to be maintained. Use aircraft taxi/landing lights and aerodrome ground lighting to manoeuvre the aircraft on the aerodrome clear of other aircraft and obstacles. Ensure that gyroscopic instruments function correctly while turning in both directions.
16.4 Take off at night	Comply with any ATC clearances. Make radio reports and broadcasts applicable to take off in accordance with AIP. Pre take off checks are completed in accordance with approved checklist. Aircraft is lined up on the runway centre line by reference to the runway lighting. Line up checks applicable to night flight are completed in accordance with approved checklist. Execute the take off run by reference to runway lighting and aircraft flight instruments. Rotate aircraft at manufactures recommended speed. Establish climb attitude (±10 kts), maintaining positive rate of climb after lift off. Track on extended runway centre line (±5°) to 500 ft AGL. Control aircraft in climb after take-off solely by reference to instruments. Establish alignment with runway on initial climb by reference to instruments and visual reference to the runway lighting. Perform after take-off checks at a safe height above terrain or obstacles along the aircraft's climb path in accordance with approved checklist. Elements of Airmanship After lift off control aircraft by reference to flight instruments. Visually refer to runway lighting when above 500 ft to position aircraft in the circuit.
16.5 Make visual departure under the IFR at night	Maintain climb within the prescribed circling area as specified in AIP for the aircraft performance category until reaching a height where the aircraft may be climbed on track clear of obstacles to the LSALT. Give departure report and make any other radio transmissions as required by AIP. Intercept flight planned track within 5 nm of departure aerodrome. Navigate by reference to radio navigation aids or DR during climb to cruising level. Maintain a lookout but control aircraft solely by reference to instruments. Elements of Airmanship Lookout is maintained using a systematic scan technique at a rate determined by traffic density, visibility and terrain.

16.6 Fly enroute under the IFR at night	Conduct level cruise and navigation in accordance with the IFR. Maintain cockpit lighting at a level which ensures that an adequate lookout can be maintained. Control aircraft solely by reference to instruments, maintaining HDG (± 5°) IAS (±10 kts) and altitude (±100 ft). Make radio position reports in accordance with AIP IFR procedures.
16.7 Make visual approach under the IFR at night	Make radio reports and broadcasts as specified in AIP. Make visual approach in accordance with AIP procedures. Descent below LSALT/MSA is commenced when: the aerodrome runway lighting is in sight and identified, and the aircraft is within the aerodrome circling area, and a minimum 5000 metres flight visibility and clear of cloud can be maintained, or the aircraft is established on the runway centre line, not below the on slope indication of a VASIS within the distance from the aerodrome as specified in AIP. Control aircraft by reference to flight instruments and position aircraft by reference to runway lighting. Monitor rate of descent and reduce high rates of descent when in proximity of terrain. Maintain obstacle clearance within circling area. Elements of Airmanship Lookout is maintained using a systematic scan technique at a rate determined by traffic density, visibility or terrain. Maintain traffic separation. Orientation is maintained.
16.8 Activate PAL lighting	Determine PAL frequency for aerodrome. Activate PAL lighting system using VHF transmission. Monitor wind indicator lighting for end of activation period
16.9 Land at night, with and without the use of aircraft landing lights	Position aircraft in the circuit by visual reference to the runway lighting. Control aircraft by reference to instruments. Monitor altitude and HDG in the circuit by reference to instruments. Carry out pre landing checks. Make turn onto final approach path by reference to instruments and align aircraft with runway by reference to runway lighting. Maintain final approach path by reference to runway lighting. Carry out landing flare by reference to runway lighting, with and without landing lights. Make normal landing and maintain directional control by reference to runway lighting.
16.10 Make baulked approach	Make a baulked approach from any point on final approach by applying take off power and transition to climb configuration. Control aircraft by reference to flight instruments. Maintain positive rate of climb after assuming climb attitude (±10 kts). Climb straight ahead to a safe height controlling aircraft by reference to instruments and positioning aircraft in the circuit by reference to runway lighting. Elements of Airmanship Recognise need for baulked approach and initiate baulked approach before encountering a dangerous situation.
16.11 Take off and land at night at an aerodrome remote from ground lighting	Conduct night take off, circuit and landing procedures at an aerodrome where ground lighting is not sufficient to assist the pilot in maintaining control of the aircraft by visual reference. Conduct circuits in accordance with elements 16.4 and 16.9. Control aircraft solely by reference to flight instruments and use runway lights to position aircraft in the circuit and for landing.
16.12 Manage electrical system failure at night	Use torch and emergency lighting. Identify electrical failure and conduct emergency procedures in accordance with Flight Manual/POH. If electrical power is not restored, reduce electrical load to the minimum to conserve battery power. Land at nearest suitable aerodrome and make emergency radio transmissions in accordance with AIP.

UNIT: 17. STAR

Field: Private Pilot

Description:
Skills and knowledge to conduct an arrival from an inbound route, tracking via a Standard Arrival Route (STAR) published in AIP, to a position from which an approach and landing can be made at the destination aerodrome.

Elements	Performance Criteria
17.1 Conduct arrival using STAR ***Item 6***	• Manoeuvre the aircraft from an inbound route in accordance with ATC instructions and published STAR procedures, to a fix at or near the destination aerodrome, using radio navigation aids and transition to an approach as instructed by ATC, in accordance with the IFR.

Item numbers included in the elements refer to CAO 40.2.3 Appendix 2 Table 3

UNIT: 17. STAR

ASSESSMENT GUIDE

During assessment the pilot should be observed to perform the following checks and actions as evidence of ability to meet the licensing standards.

The checks and actions detailed in this guide are advisory. Checks and actions in approved checklists, placards, Flight Manual/POHs, or Operations Manuals have precedence and must be complied with.

Elements	Evidence
17.1 Conduct arrival using STAR	After receiving clearance fro ATC read back STAR identifier and other information as specified in AIP. Select the current chart for the STAR to be flown and review and brief the entry to, and conduct of, the STAR procedure for the nominated runway. Select STAR procedure and WPTs from area navigation system navigation database. Conduct confidence check of tracks and distances between WPTs against those derived from the area navigation system navigational database. Review and brief the approach procedure to be used on completion of the STAR. Review and brief fuel availability and holding or diversion action required if visual reference is not established. Tune and identify the navigation aids to be used for the selected STAR. Monitor the warning flags and CDI indications during the procedure to ensure signal integrity, and react appropriately to warnings. Set altimeter to the appropriate QNH before commencing descent. Track via the WPTs depicted for the arrival runway maintaining altitude clearances and remain above LSALT for each leg of the procedure. Comply with speed restrictions specified in AIP. Comply with ATC instructions amending STAR procedure. On completion of STAR, commence instrument/visual approach to RWY for landing.

UNIT: 18. INSTRUMENT DEPARTURE (SE)

Description:

Skills and knowledge to plan and conduct a departure from an aerodrome without a published instrument departure procedure, intercept track within 5 nm, while maintaining obstacle clearance during climb to LSALT and manage traffic separation using the radiotelephone, in IMC/simulated IMC under the IFR.

Elements	Performance Criteria
18.1 Determine applicable standard take off minima ***Item 7(a)***	• Using AIP or DAP East and West, determine standard take off ceiling (300 ft) and visibility (2,000M) minima for take off from the aerodrome.
18.2 Determine obstacle clearance requirements for take off ***Item 7(a)***	• Plan a departure which ensures that the aircraft can maintain obstacle and terrain after take off and during the climb to LSALT.
18.3 Take off and climb to cruising altitude/level under the IFR from an aerodrome which does not have SID and/or SRD procedures ***Item 7(b) Item 7(c)***	• Take off and climb to cruising altitude/level in IMC/simulated IMC from the standard take off ceiling (300 ft). • Intercept track within 5 nm of the departure aerodrome ensuring obstacle and terrain clearance is maintained below LSALT. • Make all required radio transmissions in accordance with AIP and maintain separation from other traffic.

Item numbers included in the elements refer to CAO 40.2.3 Appendix 2 Table 3

UNIT: 18. INSTRUMENT DEPARTURE (SE)

ASSESSMENT GUIDE

During assessment the pilot should be observed to perform the following checks and actions as evidence of ability to meet the licensing standards.

The checks and actions detailed in this guide are advisory. Checks and actions in approved checklists, placards, Flight Manual/POHs, or Operations Manuals have precedence and must be complied with.

Element	Evidence
18.1 Determine applicable standard take off minima	Use standard take off minima, not less than 300 ft ceiling and 2,000M visibility minima for take off from the aerodrome as specified in AIP Consider factors such as aircraft performance, obstacles and terrain in the vicinity of the aerodrome and possible action required in event of engine failure which might require a higher ceiling or take-off minima to be used.
18.2 Determine obstacle clearance requirements for take off	Determine the height of any obstacles in the take-off area and of terrain on the planned climb track to LSALT. Ensure that aircraft climb performance allows for terrain and obstacle clearance after take-off and during climb to LSALT (minimum 1000 feet above obstacles or terrain within 5nm of the aircraft outside the circuit area of the departure aerodrome). When required, increase the ceiling minima and/or plan a track to ensure terrain clearance.
18.3 Take off and climb to cruising altitude/level under the IFR from an aerodrome which does not have SID and/or SRD procedures	Take-off under visual conditions and transition to instrument/simulated instrument flight without outside visual reference at 300 feet above the departure aerodrome. Maintain obstacle and terrain clearance while climbing in the circuit after take-off. Climb to a height which ensures terrain and obstacle clearance along the planned flight path before departing the circuit area. Intercept planned track within 5nm of departure aerodrome. Climb by reference to instruments to LSALT maintaining terrain clearance (minimum 1000 feet above obstacles or terrain within 5nm of the aircraft outside the circuit area of the departure aerodrome). Maintain heading (± 5°), airspeed (± 10 kts) and track within tolerances specified in AIP. Make radio transmissions in accordance with AIP IFR procedures. Maintain separation with other traffic.

UNIT: 19. INSTRUMENT DEPARTURE (SE) SID

Description:

The skills and knowledge to determine the applicable take off ceiling and visibility minima, calculate and maintain the obstacle clearance limits for climb during flight to LSALT while on climb to cruising altitude/level and to comply with SID or SRD graphic depiction or narrative requirements in IMC/simulated IMC under IFR.

Elements	Performance Criteria
19.1 Determine applicable standard take off minima ***Item 8(b) Item 8(c)***	• Using AIP or DAP East and West, determine standard take off ceiling (300 ft) and visibility (2,000M) minima for take off from the aerodrome.
19.2 Determine SID and obstacle clearance requirements ***Item 8(a)***	• Determine from aircraft take off and climb performance charts that obstacle clearance can be maintained in the take off area and that the minimum design climb gradient of the SID or SRD and any additional specified gradients can be met.
19.3 Take off and climb to cruising level using SID and/or SRD procedure ***Item 8(a) Item 8(b) Item 8(c)***	• After take off, climb to cruising altitude/level in IMC/simulated IMC from standard take off ceiling (300 ft) in accordance with specified tracking and altitude requirements of the SID or SRD procedure. • Ensure obstacle and terrain clearance is maintained below LSALT. • Make all required radio transmissions in accordance with AIP.

Item numbers included in the elements refer to CAO 40.2.3 Appendix 2 Table 3

UNIT: 19. INSTRUMENT DEPARTURE (SE) SID

ASSESSMENT GUIDE

During assessment the pilot should be observed to perform the following checks and actions as evidence of ability to meet the licensing standards.

The checks and actions detailed in this guide are advisory. Checks and actions in approved checklists, placards, Flight Manual/POHs, or Operations Manuals have precedence and must be complied with.

Element	Evidence
19.1 Determine applicable standard take off minima	Use standard take off minima, not less than 300 ft ceiling and 2,000M visibility minima for take off from the aerodrome as specified in AIP. Consider factors such as aircraft performance, obstacles and terrain in the vicinity of the aerodrome and possible action required in event of engine failure which might require a higher ceiling or take-off minima to be used.
19.2 Determine SID requirements	Obtain airways clearance including SID procedure to be flown. Read back clearance, including SID, as specified in AIP. Select current chart for the SID to be flown. Determine the climb gradient requirements of the SID and ensure that aircraft climb performance will achieve gradient requirements. Review and brief track and altitude requirements of the SID. Advise ATC if unable to comply with any element of the SID. Elements of Airmanship Maintain awareness of obstacle and terrain clearance during flight.
19.3 Take off and climb to cruising level using SID and/or SRD procedure	Take-off under visual conditions and transition to instrument flight/simulated instrument flight without outside visual reference at 300 feet above the departure aerodrome. Track via the SID or follow ATC instructions for initial heading and subsequent radar vectors when tracking via a radar SID (SRD). Climb by reference to instruments to LSALT, maintaining at least the required climb gradient and complying with any altitude restrictions of the SID. Make radio reports as specified in AIP IFR procedures. Maintain heading ($\pm 5^0$), airspeed (±10 kts) and tracking within tolerances specified in AIP.

UNIT: 20. INSTRUMENT DEPARTURE (MEA)

Description:

Knowledge and skills to determine the take off ceiling and visibility minima for a multi engine aeroplane, calculate and maintain obstacle clearance limits during the climb to LSALT in normal and asymmetric flight, resolve whether a return to the aerodrome of departure is possible in the event of and engine failure or complete a suitable course action if otherwise, and manage a simulated/actual engine failure in IMC.

Elements	Performance Criteria
20.1 Determine applicable standard take off minima ***Item 9(a) Item 9(c)***	• Using AIP or DAP East and West, determine take off ceiling and visibility minima for take off from the aerodrome. • Determine whether an engine failure after take off in IMC will require a return to the departure aerodrome and if a return is required, select, if necessary, a higher take off minima which will allow the return to be made using an instrument or visual approach.
20.2 Determine obstacle clearance requirements for take off including compliance in event of engine failure ***Item 9(a)***	• Plan a departure which ensures an aircraft can maintain obstacle and terrain clearance after take off and during climb to LSALT in the event of an engine failure.
20.3 Take off and climb to cruising altitude/level under the IFR from an aerodrome which does not have SID and/or SRD procedures ***Item 7(b) Item 7(c)***	• Take off and climb to cruising altitude/level in IMC/simulated IMC from the standard take off ceiling applicable to the aircraft type and performance. • Intercept track within 5 nm of the departure aerodrome ensuring obstacle and terrain clearance is maintained below LSALT. • Make all required radio transmissions in accordance with AIP and maintain separation from other traffic.
20.4 Manage engine failure after take off ***Item 9(a)***	• Manage simulated engine failure after take off in simulated IMC.

Item numbers included in the elements refer to CAO 40.2.3 Appendix 2 Table 3

UNIT: 20. INSTRUMENT DEPARTURE (MEA)

ASSESSMENT GUIDE

During assessment the pilot should be observed to perform the following checks and actions as evidence of ability to meet the licensing standards.

The checks and actions detailed in this guide are advisory. Checks and actions in approved checklists, placards, Flight Manual/POHs, or Operations Manuals have precedence and must be complied with.

Element	Evidence
20.1 Determine applicable standard take off minima	Determine standard take off minima for take off from the aerodrome as specified in AIP. Consider factors including aircraft performance, obstacles and terrain in the vicinity of the aerodrome and possible action required in event of engine failure which might require a higher ceiling or take-off minima to be used. Determine whether an engine failure after take off in IMC will require a return to the departure aerodrome. If a return is required, select, if necessary, a higher take off minima which will allow the return to be made using an instrument or visual approach.
20.2 Determine obstacle clearance requirements for take off including compliance in event of engine failure	Determine the height of any obstacles in the take-off area and of terrain on the planned climb track to LSALT. Ensure that aircraft one engine inoperative climb performance allows for terrain clearance after take-off and during climb to LSALT (minimum 1000 feet above obstacles or terrain within 5nm of the aircraft outside the circuit area of the departure aerodrome). When required, increase the ceiling minima and/or plan a track to ensure terrain clearance. If aircraft one engine inoperative climb to LSALT is not possible ensure that take-off minima allows a return to the departure aerodrome.
20.3 Take off and climb to cruising altitude/level under the IFR from an aerodrome which does not have SID and/or SRD procedures	Pre take-off safety brief includes intended actions in event of engine failure. Take-off under visual conditions and transition to instrument flight without outside visual reference at 300 feet above the departure aerodrome. Maintain obstacle and terrain clearance during while climbing in the circuit after take-off. Climb to a height which ensures terrain and obstacle clearance along the planned flight path before departing the circuit area. Intercept planned track within 5nm of departure aerodrome. Climb by reference to instruments to LSALT maintaining terrain clearance (minimum 1000 feet above obstacles or terrain within 5nm of the aircraft outside the circuit area of the departure aerodrome). Maintain heading (± 5°), airspeed (± 10 kts) and track within tolerances specified in AIP. Make radio transmissions in accordance with AIP IFR procedures. Maintain separation with other traffic.
20.4 Manage engine failure after take off	*Multi engine aircraft engine failure after take off:* Aircraft is controlled by reference to flight instruments from 300 feet above aerodrome after take-off. Failed engine is identified after simulated failure and aircraft is controlled by reference to instruments. Heading is maintained (± 20° initially then ±5°, from datum heading). Initial climb not less than best single engine angle of climb speed ($V_{xse)}$ or best single engine rate of climb speed (V_{yse}) is maintained (+5 -0 kts) until clear of obstacles, then V_{yse} (± 10 kts/ ± M.02). Emergency procedures are completed in accordance with Flight Manual/POH. Aircraft is configured for optimum single engine climb performance (V_{yse} ±10 kts, take off power on operating engine, not more than 5° bank towards operating engine, without slip or skid, rudder trimmed, undercarriage and flap retracted and propeller feathered on failed engine or simulated by setting zero thrust). Decision is made to continue climb or return to aerodrome. Terrain clearance is maintained during IMC/simulated IMC phase.

UNIT: 21. INSTRUMENT DEPARTURE (MEA) SID

Description:

The skills and knowledge to determine the applicable take off ceiling and visibility minima, calculate and maintain the obstacle clearance limits for climb during normal and asymmetric flight to LSALT while on climb to cruising altitude/level and complying with SID or SRD graphic depiction or narrative requirements in IMC/simulated IMC under IFR.

Elements	Performance Criteria
21.1 Determine applicable standard take off minima ***Item 10.(b)***	• Using AIP or DAP East and West, determine take off ceiling and visibility minima for take off from the aerodrome. • Determine whether and engine failure after take off in IMC will require a return to the departure aerodrome and if a return is required, select a higher take off minima which will allow the return to be made using an instrument or visual approach.
21.2 Determine obstacle clearance requirements for take off ***Item 10(a)***	• Determine from aircraft take off and climb performance charts that obstacle clearance can be maintained in the take off area and that the minimum design climb gradient of the SID or SRD and any additional specified gradients can be met and procedure is able to ensure obstacle and terrain clearance in event of engine failure.
21.3 Take off and climb to cruising level using SID and/or SRD procedure ***Item 10(b) Item 10(c)***	• After take off, climb to cruising altitude/level in IMC/simulated IMC from standard take off ceiling (300 ft) in accordance with specified tracking and altitude requirements of the SID or SRD procedure. • Ensure obstacle and terrain clearance is maintained below LSALT. • Make all required radio transmissions in accordance with AIP.
21.4 Manage engine failure after take off ***Item 10(a)***	• Manage simulated engine failure after take off in simulated IMC.

Item numbers included in the elements refer to CAO 40.2.3 Appendix 2 Table 3

UNIT: 21. INSTRUMENT DEPARTURE (MEA) SID

ASSESSMENT GUIDE

During assessment the pilot should be observed to perform the following checks and actions as evidence of ability to meet the licensing standards.

The checks and actions detailed in this guide are advisory. Checks and actions in approved checklists, placards, Flight Manual/POHs, or Operations Manuals have precedence and must be complied with.

Element	Evidence
21.1 Determine applicable standard take off minima	Determine standard take off minima for take off from the aerodrome as specified in AIP. Consider factors such as aircraft performance, obstacles and terrain in the vicinity of the aerodrome and possible action required in event of engine failure which might require a higher ceiling or take-off minima to be used. Determine whether an engine failure after take off in IMC will require a return to the departure aerodrome. If a return is required, select a higher take off minima which will allow the return to be made using an instrument or visual approach.
21.2 Determine obstacle clearance requirements for take off	Obtain airways clearance including SID procedure to be flown. Read back clearance, including SID, as specified in AIP. Select current chart for the SID to be flown. Determine the climb gradient requirements of the SID and ensure that aircraft one engine inoperative climb performance will achieve gradient requirements or select an alternative course of action. If aircraft one engine inoperative climb to LSALT is not possible ensure that take off minima allows a return to the departure aerodrome. Review and brief track and altitude requirements of the SID. Advise ATC if unable to comply with any element of the SID. Elements of Airmanship Maintain awareness of obstacle and terrain clearance during flight.
21.3 Take off and climb to cruising level using SID and/or SRD procedure	Pre take-off safety brief includes intended actions in event of engine failure. Take-off under visual conditions and transition to instrument flight/simulated instrument flight without outside visual reference at 300 feet above the departure aerodrome. Track via the SID or follow ATC instructions for initial heading and subsequent radar vectors when tracking via a radar SID (SRD). Climb by reference to instruments to LSALT, maintaining at least the required climb gradient and complying with any altitude restrictions of the SID. Make radio transmissions as specified in AIP IFR procedures. Maintain heading (± 5°), airspeed (±10 kts) and tracking within tolerances specified in AIP.
21.4 Manage engine failure after take off	*Multi engine aircraft engine failure after take off:* Aircraft is controlled by reference to flight instruments from 300 feet above aerodrome after take-off. Failed engine is identified after simulated failure and aircraft is controlled by reference to instruments. Heading is maintained (± 20° initially then ± 5° from datum heading). Initial climb not less than best single engine angle of climb speed ($V_{xse)}$ or best single engine rate of climb speed (V_{yse}) is maintained (+5 -0 kts) until clear of obstacles, then V_{yse} (± 10 kts/ ± M.02). Emergency procedures are completed in accordance with Flight Manual/POH. Aircraft is configured for optimum single engine climb performance (V_{yse} ±10 kts, take off power on operating engine, not more than 5° bank towards operating engine, without slip or skid, rudder trimmed, undercarriage and flap retracted and propeller feathered on failed engine or simulated by setting zero thrust). Decision is made to continue climb or return to aerodrome. Terrain clearance is maintained during simulated IMC phase. ATC is advised of intentions.

UNIT: 22. INSTRUMENT DEPARTURE (MEH)

Description:

Knowledge and skills to determine the take off ceiling and visibility minima for a multi engine helicopter, calculate and maintain obstacle clearance limits during the climb to LSALT in normal and single engine flight, resolve whether a return to the aerodrome of departure is possible in the event of and engine failure or complete a suitable course action if otherwise, and manage a simulated/actual engine failure in IMC.

Elements	Performance Criteria
22.1 Determine applicable standard take off minima ***Item 11(c)***	• Using AIP or DAP East and West, determine take off ceiling and visibility minima for take off from the aerodrome applicable to the type of helicopter, operating procedures or airfield lighting. • Determine whether and engine failure after take off in IMC will require a return to the departure aerodrome and if a return is required, select a higher take off minima which will allow the return to be made using an instrument or visual approach.
22.2 Determine obstacle clearance requirements for take off ***Item 11(a)***	• Using take off and climb performance charts, determine obstacle clearance requirements in the take off area during normal and single engine operations in accordance with regulations.
22.3 Take off and climb to cruising altitude/level under the IFR from an aerodrome which does not have SID and/or SRD procedures ***Item 11(a)***	• Take off and climb to cruising altitude/level in IMC/simulated IMC from the standard take off ceiling applicable to the aircraft type and performance. • Intercept track within 5 nm of the departure aerodrome ensuring obstacle and terrain clearance is maintained below LSALT. • Make all required radio transmissions in accordance with AIP and maintain separation from other traffic.
22.4 Manage engine failure after take off **22.1** ***Item 11(a)***	• Manage simulated engine failure after take off in simulated IMC.

Item numbers included in the elements refer to CAO 40.2.3 Appendix 2 Table 3

UNIT: 22. INSTRUMENT DEPARTURE (MEH)

ASSESSMENT GUIDE

During assessment the pilot should be observed to perform the following checks and actions as evidence of ability to meet the licensing standards.

The checks and actions detailed in this guide are advisory. Checks and actions in approved checklists, placards, Flight Manual/POHs, or Operations Manuals have precedence and must be complied with.

Element	Evidence
22.1 Determine applicable standard take off minima	Determine standard take off minima for take off from the aerodrome as specified in AIP Consider factors such as aircraft performance, obstacles and terrain in the vicinity of the aerodrome and possible action required in event of engine failure which might require a higher ceiling or take-off minima to be used. Determine whether an engine failure after take off in IMC will require a return to the departure aerodrome. If a return is required, select a higher take off minima which will allow the return to be made using an instrument or visual approach.
22.2 Determine obstacle clearance requirements for take off	Determine the height of any obstacles in the take-off area and of terrain on the planned climb track to LSALT. Ensure that aircraft one engine inoperative climb performance allows for terrain clearance after take-off and during climb to LSALT (minimum 1000 feet above obstacles or terrain within 5nm of the aircraft outside the circuit area of the departure aerodrome). When required, increase the ceiling minima and/or plan a track to ensure terrain clearance. If aircraft one engine inoperative climb to LSALT is not possible ensure that TO minima allows a return to the departure aerodrome.
22.3 Take off and climb to cruising altitude/level under the IFR from an aerodrome which does not have SID and/or SRD procedures	Pre take-off safety brief includes intended actions in event of engine failure. Take-off under visual conditions and transition to instrument flight without outside visual reference at 300 feet above the departure aerodrome. Maintain obstacle and terrain clearance during while climbing in the circuit after take-off. Climb to a height which ensures terrain and obstacle clearance along the planned flight path before departing the circuit area. Intercept planned track within 5nm of departure aerodrome. Climb by reference to instruments to LSALT maintaining terrain clearance (minimum 1000 feet above obstacles or terrain within 5nm of the aircraft outside the circuit area of the departure aerodrome). Maintain heading (± 5^0), airspeed (± 10 kts) and track within tolerances specified in AIP. Make radio transmissions in accordance with AIP IFR procedures. Maintain separation with other traffic.
22.4 Manage engine failure after take off	*Multi engine aircraft engine failure after take off:* Aircraft is controlled by reference to flight instruments from 300 feet above aerodrome after take-off. Failed engine is identified after simulated failure and aircraft is controlled by reference to instruments. Heading is maintained (± 5° from nominated heading). One engine inoperative best rate of climb speed (V_{yse}) is maintained (± 10 kts). Emergency procedures are completed in accordance with Flight Manual/POH. Aircraft is configured for optimum single engine climb performance. Decision is made to continue climb or return to aerodrome. Terrain clearance is maintained during IMC/simulated IMC phase.

UNIT: 23. INSTRUMENT DEPARTURE (MEH) SID

Description:

The skills and knowledge to determine the applicable take off ceiling and visibility minima, calculate and maintain the obstacle clearance limits for climb during normal and single engine flight to LSALT while on climb to cruising altitude/level and complying with SID or SRD graphic depiction or narrative requirements in IMC/simulated IMC under IFR.

Elements	Performance Criteria
23.1 Determine applicable standard take off minima ***Item 12(b) Item 12(c)***	• Using AIP or DAP East and West, determine take off ceiling and visibility minima for take off from the aerodrome applicable to the type of helicopter, operating procedures or airfield lighting. • Determine whether and engine failure after take off in IMC will require a return to the departure aerodrome and if a return is required, select a higher take off minima which will allow the return to be made using an instrument or visual approach.
23.2 Determine obstacle clearance requirements for take off ***Item 12(a)***	• Determine from aircraft take off and climb performance charts that obstacle clearance can be maintained in the take off area and that the minimum design climb gradient of the SID or SRD and any additional specified gradients can be met and procedure is able to ensure obstacle and terrain clearance in event of engine failure.
23.3 Take off and climb to cruising level using SID and/or SRD procedure ***Item 12(a) Item (B) Item12(C)***	• After take off, climb to cruising altitude/level in IMC/simulated IMC from standard take off ceiling minima in accordance with specified tracking and altitude requirements of the SID or SRD procedure. • Ensure obstacle and terrain clearance is maintained below LSALT. • Make all required radio transmissions in accordance with AIP.
23.4 Manage engine failure after take off ***Item 12(a)***	• Manage simulated engine failure after take off in simulated IMC.

Item numbers included in the elements refer to CAO40.2.3 Appendix 2 Table 3

UNIT: 23. INSTRUMENT DEPARTURE (MEH) SID

ASSESSMENT GUIDE

During assessment the pilot should be observed to perform the following checks and actions as evidence of ability to meet the licensing standards.

The checks and actions detailed in this guide are advisory. Checks and actions in approved checklists, placards, Flight Manual/POHs, or Operations Manuals have precedence and must be complied with.

Element	Evidence
23.1 Determine applicable standard take off minima	Determine standard take off minima for take off from the aerodrome as specified in AIP. Consider factors such as aircraft performance, obstacles and terrain in the vicinity of the aerodrome and possible action required in event of engine failure which might require a higher ceiling or take-off minima to be used. Determine whether an engine failure after take off in IMC will require a return to the departure aerodrome. If a return is required, select a higher take off minima which will allow the return to be made using an instrument or visual approach.
23.2 Determine obstacle clearance requirements for take off	Obtain airways clearance including SID procedure to be flown. Read back clearance, including SID, as specified in AIP. Select current chart for the SID to be flown. Determine the climb gradient requirements of the SID and ensure that aircraft one engine inoperative climb performance will achieve gradient requirements or select an alternative course of action. If aircraft one engine inoperative climb to LSALT is not possible ensure that TO minima allows a return to the departure aerodrome. Review and brief track and altitude requirements of the SID. Advise ATC if unable to comply with any element of the SID. Elements of Airmanship Maintain awareness of obstacle and terrain clearance during flight.
23.3 Take off and climb to cruising level using SID and/or SRD procedure	Pre take-off safety brief includes intended actions in event of engine failure. Take-off under visual conditions and transition to instrument flight/simulated instrument flight without outside visual reference at 300 feet above the departure aerodrome. Track via the SID or follow ATC instructions for initial heading and subsequent radar vectors when tracking via a radar SID (SRD). Climb by reference to instruments to LSALT, maintaining at least the required climb gradient and complying with any altitude restrictions of the SID. Make radio transmissions as specified in AIP IFR procedures. Maintain heading ($\pm 5^0$), airspeed (±10 kts) and tracking within tolerances specified in AIP.
23.4 Manage engine failure after take off	*Multi engine aircraft engine failure after take off:* Aircraft is controlled by reference to flight instruments from 300 feet above aerodrome after take-off. Failed engine is identified after simulated failure and aircraft is controlled by reference to instruments. Heading is maintained ($\pm 5^\circ$ from nominated heading). One engine inoperative best rate of climb speed (V_{yse}) is maintained (± 10 kts). Emergency procedures are completed in accordance with Flight Manual/POH. Aircraft is configured for optimum single engine climb performance. Decision is made to continue climb or return to aerodrome. Terrain clearance is maintained during simulated IMC phase. ATC is advised of intentions.

UNIT: 24. VISUAL CIRCLING APPROACH

Field: Private Pilot

Description:
Knowledge and skills to determine the visual circling minima for the specified instrument approach and to manoeuvre an aircraft from the MDA while maintaining ceiling and visibility minima appropriate to circling and visual contact with the landing runway environment, staying within the circling area specified for the aircraft category and remaining at or above the MDA until interception of a position on downwind, base or final leg from which a continuous descent with visual reference to the runway, clear of obstacles may be completed to the runway threshold and land or conduct missed approach.

Elements	Performance Criteria
24.1 Determine minima applicable for visual circling for specified instrument approach ***Item 13(a)***	• Using applicable instrument approach charts, determine ceiling and visibility minima for a circling approach appropriate for the instrument approach procedure and category of aircraft being used.
24.2 Conduct visual circling procedure following instrument approach, using appropriate visual cues ***Item 13(b)***	• Manoeuvre an aircraft from the MDA while maintaining ceiling and visibility minima appropriate to circling, and visual contact with the landing runway environment. • Maintain within the circling area specified for the aircraft category. • Remain at or above the MDA until interception of a position on downwind, base or final leg from which a continuous descent with visual reference to the runway, clear of obstacles may be completed to the runway threshold. • Control aircraft and maintain altitude limitations by reference to instruments and use visual cues only for positioning aircraft on approach.
24.3 Conduct missed approach from visual circling	• Recognise the conditions requiring a missed approach to be initiated, and manoeuvre aircraft to MAPT and conduct a missed approach procedure as detailed on the applicable instrument approach chart. • Maintain obstacle clearance in IMC/simulated IMC in accordance with the IFR.

Item numbers included in the elements refer to CAO 40.2.3 Appendix 2 Table 3

UNIT: 24. VISUAL CIRCLING APPROACH

ASSESSMENT GUIDE

During assessment the pilot should be observed to perform the following checks and actions as evidence of ability to meet the licensing standards.

The checks and actions detailed in this guide are advisory. Checks and actions in approved checklists, placards, Flight Manual/POHs, or Operations Manuals have precedence and must be complied with.

Elements	Evidence
24.1 Determine minima applicable for visual circling for specified instrument approach	Prior to instrument approach, use applicable instrument approach chart to determine MDA and visibility minima for a circling approach. Select minima for category of aircraft being used. Determine position and height of significant obstacles in the circling area. Review and brief the position of the runway relative to the aircraft as it will appear to the pilot when approaching minima and a plan of a circling procedure which maintains obstacle clearance in the circling area.
24.2 Conduct visual circling procedure following instrument approach, using appropriate visual cues	After establishing visual reference from an instrument approach where a straight in runway approach is not available, manoeuvre within the circling area for a landing. Maintaining ceiling and visibility minima appropriate to circling. Maintain visual contact with the landing runway environment. Maintain aircraft within the circling area specified for the aircraft category. Configure aircraft at a suitable speed and flap setting for flight in reduced visibility. Complete pre landing checks in accordance with approved checklist. Descend below MDA from a position at which a continuous descent with visual reference to the runway, clear of obstacles may be completed to the runway threshold. By day, maintain obstacle clearance visually along the flight path subsequent to visual descent below MDA. By night, remain at or above the MDA until interception of a position on downwind, base or final leg from which the visual descent may be commenced. Control aircraft and maintain altitude limitations by reference to instruments. Use visual cues for positioning aircraft on approach. Limit manoeuvring to a bank angle of $\pm 30^{\circ}$ along a stabilised approach path.
24.3 Conduct missed approach from visual circling	Commence a missed approach if visual reference to the runway is lost during circling. Manoeuvre aircraft on climb to MAPT within circling area. Conduct a missed approach procedure from MAPT as specified on the instrument approach chart. Maintain obstacle clearance in IMC/simulated IMC in accordance with the IFR. Elements of Airmanship Make a positive decision and conduct a missed approach if ceiling and visibility minima is not achieved at MDA or if visibility reduces below minima while manoeuvring for landing.

UNIT: 25. IAL NDB

Description:

Knowledge and skills to conduct an instrument approach using the NDB approach procedure beginning with a descent from a route MSA or LSALT in compliance with any altitude restrictions on a prescribed track, to the MDA applicable to the aircraft category whilst maintaining obstacle clearance in accordance with instructions in AIP and conducting a published missed approach if visual reference is not achieved by the MAPT specified for the procedure.

Elements	Performance Criteria
25.1 Select approach and determine applicable minima ***Item 15(a) Item 15(b)***	• In flight select the current IAL chart for the NDB approach to be flown and review and brief the entry to, and conduct of, the instrument approach and missed approach procedure. • Determine the applicable meteorological minima for the approach for the aircraft performance category. • Review and brief fuel availability and holding or diversion action required if visual reference is not established.
25.2 Monitor aid signal integrity ***Item 15(c)***	• Tune and identify the NDB to be used for the selected approach and monitor the morse code identification and ADF indications throughout the approach to ensure signal integrity.
25.3 Conduct initial approach ***Item 15(d)***	• Ensure altimeter is set to the appropriate QNH and conduct the initial approach from a distance of at least 25 nm from the NDB, maintaining the inbound track at or above route MSA or LSALT in accordance with instructions in AIP, using the NDB.
25.4 Conduct holding pattern ***Item 15(e)***	• Enter the holding pattern at or above LSALT or MSA in accordance with the specified sector entry and perform a holding pattern is accordance with instructions in AIP, using the NDB.
25.5 Conduct instrument approach procedure ***Item 15(f)***	• Conduct an instrument approach, descending on a specified track, complying with any altitude restrictions to not below the MDA within the tolerances specified in regulations, using the NDB. • After establishing visual reference, identify the landing runway and conduct visual circling or runway approach for a landing on the selected runway. Note: Visual circling need not be demonstrated if a flight procedure endorsement for visual circling is already held.
25.6 Conduct missed approach procedure ***Item 15(g)***	• Commence the published missed approach procedure if visual reference is not established before reaching the MAPT, or any other event specified in AIP as requiring conduct of a missed approach occurs. • Conduct the missed approach procedure by tracking to the MAPT and complying with the published missed approach procedure specified on the IAL chart.

Item numbers included in the elements refer to CAO 40.2.3 Appendix 2, Table 3

UNIT: 25. IAL NDB

ASSESSMENT GUIDE

During assessment the pilot should be observed to perform the following checks and actions as evidence of ability to meet the licensing standards.

The checks and actions detailed in this guide are advisory. Checks and actions in approved checklists, placards, Flight Manual/POHs, or Operations Manuals have precedence and must be complied with.

Element	Evidence
25.1 Select approach and determine applicable minima	In flight select the current IAL chart for the NDB approach to be flown. Review and brief: • whether entry to the approach will be direct via the holding pattern. • Minimum altitude (LSALT or MSA) prior to approach entry. • tracks, distances, timing and descent limitations for the approach; • the approach minima for the aircraft performance category and runway to be used; • the conduct of visual circling if required; • the missed approach procedure; • the holding or diversion action required if visual reference is not established; and • fuel availability and latest divert time if required.
25.2 Monitor aid signal integrity	Tune and identify the NDB to be used for the selected approach. Monitor the morse code identification and ADF indications during the approach to ensure signal integrity. Initiate missed approach if operation of the NDB or ADF becomes suspect.
25.3 Conduct initial approach	Altimeter is set to the aerodrome QNH. Conduct the initial approach from a distance of at least 25 nm from the NDB. Maintain the inbound track at or above route MSA or LSALT within the tracking tolerances specified in AIP, or Within 25nm and at or above MSA, divert to intercept a track for direct entry to the approach procedure in accordance with instructions in AIP. Comply with airspeed limitations specified in AIP. Make radio reports and broadcasts and obtain clearances as specified in AIP Traffic separation is maintained.
25.4 Conduct holding pattern	Conduct holding pattern using the NDB, as specified in Unit 13 of this syllabus.
25.5 Conduct instrument approach procedure	Aircraft is established ±30° of the initial track of the approach procedure before passing overhead the NDB to commence the approach. After crossing the NDB the aircraft is established on the specified outbound track (±5 ^{0}) before commencing descent. Timing is commenced for the outbound leg of the approach passing overhead the NDB. Outbound timing is adjusted to allow for the effect of a head or tail wind component. Descend on the specified outbound track and comply with altitude limitations. Outbound track is maintained (±5°). A reversal or base turn as specified for the procedure is conducted. The aircraft is established on the final approach track (±5°) before continuing descent below the specified altitude. The specified final approach track is maintained (±5°). Altitude limitations on descent are complied with. Rate of descent does not exceed 1000fpm on final approach. Descent on final approach is made to not below the MDA (+100 feet - 0 feet) until visual reference is established. Aircraft is on specified track at MDA (±5°). If visual reference is not established by the MAPT a missed approach is commenced. If visual reference is established, the landing runway is identified and a visual approach is made to the circling area as specified in AIP for day or night When established within the circling area, a visual circling or a runway approach for a landing on the selected runway is conducted. Note: Visual circling need not be demonstrated if a flight procedure endorsement for visual circling is held.
25.6 Conduct missed approach procedure	Commence the published missed approach procedure if visual reference is not established before reaching the MAPT, or any other event specified in AIP as requiring conduct of a missed approach occurs. Initiate the missed approach by immediately establishing a climb and tracking to the MAPT. Comply with the published missed approach procedure specified on the IAL chart: • direction of turn if applicable, • maintain published track, • climb to published altitude maintaining terrain clearance.

	Elements of Airmanship Make a positive decision and conduct a missed approach if ceiling and visibility minima is not achieved at MDA or if visibility reduces below minima while manoeuvring for landing.

UNIT: 26. IAL VOR

Description:

Knowledge and skills to conduct an instrument approach using the VOR approach procedure beginning with a descent from a route MSA or LSALT in compliance with any altitude restrictions on a prescribed track, to the MDA applicable to the aircraft category whilst maintaining obstacle clearance in accordance with instructions in AIP and conducting a published missed approach if visual reference is not achieved by the MAPT for the procedure.

Elements	Performance Criteria
26.1 Select approach and determine applicable minima ***Item 15(a) Item 15(b)***	• In flight select the current IAL chart for the VOR approach to be flown and review and brief the entry to, and conduct of, the instrument approach and missed approach procedure. • Determine the applicable meteorological minima for the approach for the aircraft performance category. • Review and brief fuel availability and holding or diversion action required if visual reference is not established.
26.2 Monitor aid signal integrity ***Item 15(c)***	• Tune and identify the VOR to be used for the selected approach and monitor the warning flags and CDI indications throughout the approach to ensure signal integrity.
26.3 Conduct initial approach ***Item 15(d)***	• Ensure altimeter is set to the appropriate QNH and conduct the initial approach from a distance of at least 25 nm from the VOR, maintaining the inbound track at or above route MSA or LSALT in accordance with instructions in AIP, using the VOR.
26.4 Conduct holding pattern ***Item 15(e)***	• Enter the holding pattern at or above LSALT or MSA in accordance with the specified sector entry and perform a holding pattern is accordance with instructions in AIP, using the VOR.
26.5 Conduct approach procedure ***Item 15(f)***	• Conduct an instrument approach, descending on a specified track, complying with any altitude restrictions to not below the MDA within the tolerances specified in AIP, using the VOR. • After establishing visual reference, identify the landing runway and conduct visual circling or runway approach for a landing on the selected runway. Note: Visual circling need not be demonstrated if a flight procedure endorsement for visual circling is already held.
26.6 Conduct missed approach procedure ***Item 15(g)***	• Commence the published missed approach procedure if visual reference is not established before reaching the MAPT, or any other event specified in AIP as requiring conduct of a missed approach occurs. • Conduct the missed approach procedure by tracking to the MAPT and complying with the published missed approach procedure specified on the IAL chart.

Item numbers included in the elements refer to CAO 40.2.3 Appendix 2 Table 3

UNIT: 26. IAL VOR

ASSESSMENT GUIDE

During assessment the pilot should be observed to perform the following checks and actions as evidence of ability to meet the licensing standards.

The checks and actions detailed in this guide are advisory. Checks and actions in approved checklists, placards, Flight Manual/POHs, or Operations Manuals have precedence and must be complied with.

Element	Evidence
26.1 Select approach and determine applicable minima	In flight select the current IAL chart for the VOR approach to be flown. Review and brief: • whether entry to the approach will be direct or via the holding pattern. • Minimum altitude (LSALT or MSA) prior to approach entry. • tracks, distances, timing and descent limitations for the approach; • the approach minima for the aircraft performance category and runway to be used; • the conduct of visual circling if required; • the missed approach procedure; • the holding or diversion action required if visual reference is not established; and • fuel availability and latest divert time if required.
26.2 Monitor aid signal integrity	Tune and identify the VOR to be used for the selected approach. Monitor the warning flag and CDI indications throughout the approach to ensure signal integrity. Initiate missed approach if operation of the VOR becomes suspect.
26.3 Conduct initial approach	Altimeter is set to the aerodrome QNH. Conduct the initial approach from a distance of at least 25 nm from the VOR. Maintain the inbound track at or above route MSA or LSALT within the tracking tolerances specified in AIP, or Within 25nm and at or above MSA, divert to intercept a track enabling direct entry to the approach procedure in accordance with instructions in AIP. Comply with airspeed limitations specified in AIP. Make radio reports and broadcasts and obtain clearances as specified in AIP. Traffic separation is maintained.
26.4 Conduct holding pattern	Conduct holding pattern using the VOR, as specified in Unit 14 of this syllabus.
26.5 Conduct approach procedure	Aircraft is established ±30° of the initial track of the approach procedure before passing overhead the VOR to commence the approach. After crossing the VOR the aircraft is established on the specified outbound track (±1/2 scale CDI) before commencing descent. Timing is commenced for the outbound leg of the approach passing overhead the VOR. Outbound timing is adjusted to allow for the effect of a head or tail wind component. Descend on the specified outbound track and comply with altitude limitations. Outbound track is maintained (±1/2 scale CDI). A reversal or base turn as specified for the procedure is conducted. The aircraft is established on the final approach track (±1/2 scale CDI) before continuing descent below the specified altitude. OBS is set to align with final approach track so that CDI indicates in the command sense. The specified final approach track is maintained (±1/2 scale CDI). Altitude limitations on descent are complied with. Rate of descent does not exceed 1000 fpm on final approach. Descend on final approach to not below the MDA (+100 feet - 0 feet) until visual reference is established. Aircraft is on specified track at MDA (±1/2 scale CDI). If visual reference is not established by the MAPT a missed approach is commenced. If visual reference is established, the landing runway is identified and a visual approach is made to the circling area as specified in AIP for day or night. When established within the circling area, a visual circling or a runway approach for a landing on the selected runway is conducted. Note: Visual circling need not be demonstrated if a flight procedure endorsement for visual circling is held.
26.6 Conduct missed approach procedure	Commence the published missed approach procedure if visual reference is not established before reaching the MAPT, or any other event specified in AIP as requiring conduct of a missed approach occurs. Initiate the missed approach by immediately establishing a climb and tracking to the MAPT. Comply with the published missed approach procedure specified on the IAL chart: • direction of turn where applicable,

	• maintain published track, • climb to published altitude maintaining terrain clearance. Elements of Airmanship Make a positive decision and conduct a missed approach if ceiling and visibility minima is not achieved at MDA or if visibility reduces below minima while manoeuvring for landing.

UNIT: 27. IAL LLZ

Description:

Knowledge and skills to conduct an instrument approach using the LLZ approach procedure beginning with a descent from a route MSA or LSALT in compliance with any altitude restrictions to intercept track on the LLZ using marker beacons or DME to fix position on the LLZ track, descending in accordance with specified distance/altitude limitations to the MDA applicable to the aircraft category and conducting a published missed approach if visual reference is not achieved by the MAPT specified for the procedure.

Elements	Performance Criteria
27.1 Select approach and determine applicable minima ***Item 15(a) Item 15(b)***	• In flight select the current IAL chart for the LLZ approach to be flown and review and brief the entry to, and conduct of, the instrument approach and missed approach procedure. • Determine the applicable meteorological minima for the approach for the aircraft performance category. • Review and brief fuel availability and holding or diversion action required if visual reference is not established.
27.2 Monitor aid signal integrity ***Item 15(c)***	• Tune and identify the LLZ to be used for the selected approach and monitor the warning flags and CDI indications throughout the approach to ensure signal integrity. • Tune and identify locator beacon used for initial approach fix. • Test marker beacon operation and monitor visual and aural indications during approach. • Tune and identify DME and monitor distance indications during approach.
27.3 Conduct initial approach ***Item 15(d)***	• Set the altimeter to the aerodrome QNH and conduct the initial approach from a distance of at least 25 nm from the LLZ, maintaining track to the initial approach fix using appropriate tracking aids or radar vectors at or above route MSA or LSALT.
27.4 Conduct holding pattern ***Item 15(e)***	• Enter the instrument approach procedure at or above LSALT or MSA in accordance with the specified sector entry and perform a holding pattern is accordance with instructions in AIP, using the LLZ and the other navigation aid used to identify the holding fix.
27.5 Conduct approach procedure ***Item 15(f)***	• Conduct an instrument approach, descending on the LLZ track, complying with any distance/altitude restrictions to not below the MDA within the tolerances specified in AIP, using the LLZ for tracking and marker beacons or DME to provide distance indications. • After establishing visual reference, identify the landing runway and conduct straight-in runway approach or visual circling for a landing on the selected runway. Note: Visual circling need not be demonstrated if a flight procedure endorsement for visual circling is already held.

27.6 Conduct missed approach procedure ***Item 15(g)***	• Commence the published missed approach procedure if visual reference is not established before reaching the MAPT, or any other event specified in AIP as requiring conduct of a missed approach occurs. • Conduct the missed approach procedure by tracking to the MAPT and complying with the published missed approach procedure specified on the IAL chart.

Item numbers included in the elements refer to CAO 40.2.3 Appendix 2 Table 3

UNIT: 27. IAL LLZ

ASSESSMENT GUIDE

During assessment the pilot should be observed to perform the following checks and actions as evidence of ability to meet the licensing standards.

The checks and actions detailed in this guide are advisory. Checks and actions in approved checklists, placards, Flight Manual/POHs, or Operations Manuals have precedence and must be complied with.

Element	Evidence
27.1 Select approach and determine applicable minima	In flight select the current IAL chart for the LLZ approach to be flown. Review and brief: • whether entry to the approach will be direct or via the holding pattern. • Minimum altitude (LSALT or MSA) prior to approach entry. • tracks, distances, timing and descent limitations for the approach • the applicable approach minima for the aircraft performance category and runway to be used; • the conduct of visual circling if required; • the missed approach procedure; • the holding or diversion action required if visual reference is not established; and • fuel availability and latest divert time if required.
27.2 Monitor aid signal integrity	Tune and identify the LLZ to be used for the selected approach . Tune and identify locator beacon used for initial approach fix. Test marker beacon operation and monitor visual and aural indications during approach. Tune and identify DME and monitor distance indications during approach. Monitor the LLZ warning flag and CDI indications during the approach to ensure signal integrity. Initiate missed approach if operation of the LLZ becomes suspect or if CDI indication reaches full scale deflection during the approach.
27.3 Conduct initial approach	Set altimeter to the aerodrome QNH. Conduct the initial approach from a distance of at least 25 nm from the LLZ. Track to the initial approach fix using appropriate tracking aids or radar vectors at or above route LSALT, MSA or MVA. Monitor other navigation aids to identify LLZ course reversal indications. Comply with airspeed limitations specified in AIP. Make radio reports and broadcasts and obtain clearances as specified in AIP. Establish track on the LLZ before crossing the initial approach fix.
27.4 Conduct holding pattern	LLZ and navigation aid used to identify the holding fix are both tuned and identified. LSALT or MSA for the inbound track is maintained until crossing the LLZ holding fix. Sector entry to the holding pattern is made based on aircraft inbound HDG in accordance with the IAL chart. Turns are made in direction specified for the holding pattern. Timing for the outbound leg of the holding pattern is commenced abeam the holding fix outbound. Timing and HDG on the outbound leg is adjusted as necessary to allow for wind effect. Minimum altitude for holding or nominated holding altitude is maintained(±100 ft). Inbound turn in the holding pattern is made in compliance with timing and or distance limitations. Intercept and maintain the LLZ track inbound in the holding pattern within CDI ½ scale deflection before passing the holding fix.
27.5 Conduct approach procedure	The aircraft is established within a ±5° sector either side of the specified LLZ track before crossing the initial approach fix. Aircraft is established (within ±1/2 scale deflection) on the LLZ track before commencing descent. LLZ track is maintained (±1/2 scale CDI) on final approach. Aircraft is maintained on the LLZ track by establishing a HDG which allows for drift. Comply with altitude limitations on descent using marker beacons or DME to fix position. Aircraft is maintained on the approach profile by establishing a configuration of stabilised power, airspeed and rate of descent. Rate of descent does not exceed 1000 fpm on final approach. On final approach, the LLZ track is maintained without constant changes of HDG. Descend on final approach to not below the MDA (+100 - 0 ft) until visual reference is established. Aircraft is on LLZ track at MDA (±1/2 scale CDI). If visual reference is not established by the MAPT commence a missed approach.

	If visual reference is established conduct a straight in approach to land or a circling approach to another runway. Note: Visual circling need not be demonstrated if a flight procedure endorsement for visual circling is held.
27.6 Conduct missed approach procedure	Commence the published missed approach procedure if visual reference is not established before reaching the MAPT, or any other event specified in AIP as requiring a missed approach occurs. Initiate the missed approach by immediately establishing a climb and tracking to the MAPT. Comply with the published missed approach procedure specified on the IAL chart: • direction of turn if applicable, • maintain published track; and • climb to published altitude maintaining terrain clearance. Elements of Airmanship Make a positive decision and conduct a missed approach if ceiling and visibility minima is not achieved at MDA or if visibility reduces below minima while manoeuvring for landing.

UNIT: 28. IAL ILS

Description:

Knowledge and skills to conduct an instrument approach using the ILS approach procedure, beginning with a descent from a route MSA or LSALT in compliance with any altitude restrictions to intercept track on the LLZ using marker beacons or DME to fix position on the LLZ track, descending by reference to the GS to the decision altitude (DA) and land or conduct a published missed approach if visual reference is not established by DA or DH.

Elements	Performance Criteria
28.1 Select approach and determine applicable minima ***Item 15(a) Item 15(b)***	• In flight select the current IAL chart for the ILS approach to be flown and plan the transition to, and conduct of, the instrument approach and missed approach procedure. • Determine the applicable meteorological minima for the approach for the aircraft performance category. • Review and brief fuel availability and holding or diversion action required if visual reference is not established.
28.2 Monitor aid signal integrity ***Item 15(c)***	• Tune and identify the LLZ to be used for the selected approach and monitor the warning flags and CDI indications for both LLZ and glideslope throughout the approach to ensure signal integrity. • Tune and identify locator beacon used for initial approach fix. • Test marker beacon operation and monitor visual and aural indications during approach. • Tune and identify DME and monitor distance indications during approach.
28.3 Conduct initial approach ***Item 15(d)***	• Set the altimeter to the aerodrome QNH and conduct the initial approach from a distance of at least 25 nm from the ILS, maintaining track to the initial approach fix using appropriate tracking aids or radar vectors at or above route MSA or LSALT to intercept the LLZ track.
28.4 Conduct holding pattern ***Item 15(e)***	• Enter the holding pattern at or above LSALT or MSA in accordance with the specified sector entry and perform a holding pattern in accordance with instructions in AIP, using the LLZ and the other navigation aid used to identify the holding fix.
29.5 Conduct approach procedure ***Item 15(f)***	• Conduct an ILS approach from the initial approach fix, tracking by reference to the LLZ, descending on the glideslope and using marker beacons or DME to provide distance indications. • Make at least one specified altitude check on glideslope and adjust DA or DH if necessary. • Continue descent on glideslope to the DA or DH as applicable within the tolerances specified in AIP. • After establishing visual reference, identify the landing runway and conduct straight-in runway approach or visual circling for a landing on another runway. Note: Visual circling need not be demonstrated if a flight procedure endorsement for visual circling is already held..
28.6 Conduct missed approach procedure	• Commence the published missed approach procedure if visual reference is not established at DA or DH, or any other event specified in AIP as requiring conduct of a missed approach occurs.

Item 15(g)	• Conduct the missed approach procedure by tracking to the MAPT and complying with the published missed approach procedure specified on the IAL chart.

Item numbers included in the elements refer to CAO 40.2.3 Appendix 2 Table 3

UNIT: 28. IAL ILS

ASSESSMENT GUIDE

During assessment the pilot should be observed to perform the following checks and actions as evidence of ability to meet the licensing standards.

The checks and actions detailed in this guide are advisory. Checks and actions in approved checklists, placards, Flight Manual/POHs, or Operations Manuals have precedence and must be complied with.

Element	Evidence
28.1 Select approach and determine applicable minima	In flight select the current IAL chart for the ILS approach to be flown. Review and brief: • whether entry to the approach will be direct or via the holding pattern. • Minimum altitude (LSALT or MSA) prior to approach entry. • tracks, distances, timing and descent limitations for the approach • the applicable approach minima for the aircraft performance category and runway to be used; • apply pressure error correction to DA; • the conduct of visual circling if required; • the missed approach procedure; • the holding or diversion action required if visual reference is not established; and • fuel availability and latest divert time if required.
28.2 Monitor aid signal integrity	Tune and identify the LLZ to be used for the ILS approach . Tune and identify locator beacon used for initial approach fix. Test marker beacon operation and monitor visual and aural indications during approach. Tune and identify DME and monitor distance indications during approach. Monitor the LLZ and GS warning flags and CDI and GS indications during the approach to ensure signal integrity. Initiate missed approach if operation of the LLZ becomes suspect or if CDI or GS indication reaches full scale deflection during the approach.
28.3 Conduct initial approach	Set altimeter to the aerodrome QNH. Conduct the initial approach from a distance of at least 25 nm from the ILS. Track to the initial approach fix using appropriate tracking aids or radar vectors at or above route LSALT, MSA or MVA. Monitor other navigation aids to identify LLZ course reversal indications. Comply with airspeed limitations specified in AIP. Make radio reports and broadcasts and obtain clearances as specified in AIP Establish track on the LLZ before crossing the initial approach fix. Commence descent when established on the GS.
28.4 Conduct holding pattern	Conduct holding pattern using the LLZ in conjunction with another navigation aid to provide a holding fix as specified for LLZ holding in element 27.4 of this syllabus.
28.5 Conduct approach procedure	Aircraft is established within a 30° sector either side of the specified LLZ track before crossing the initial approach fix. Aircraft is established on the LLZ track (±1/2 scale CDI) and on or above GS before commencing descent. Aircraft is maintained on the LLZ track (±1/2 scale CDI) by establishing a HDG which allows for drift. Aircraft is maintained on the GS (±1/2 scale GS) by establishing a stabilised power/airspeed /rate of descent. Rate of descent does not exceed 1000 fpm on final approach. A check of GS accuracy is made and DA or DH adjusted as specified in AIP. Descend on final approach to DA or DH (+100 - 0 ft) until visual reference is established. Constant HDG changes are not required to maintain LLZ track Aircraft is on LLZ track at DA/DH (±1/2 scale CDI). Aircraft is on GS at DA/DH (±1/2 scale GS). If visual reference is not established by DA or DH a missed approach is commenced. If visual reference is established, a straight in approach to land or a circling approach to another runway is conducted. Maintain stabilised power/airspeed rate of descent for a straight-in runway approach after establishing visual reference to maintain aircraft on the glideslope by reference to the VASI. Configure aircraft for landing. Note: Visual circling need not be demonstrated if a flight procedure endorsement for visual circling is held.
	Commence the published missed approach procedure if visual reference is not established before reaching the DA or DH, or any other event specified in AIP as requiring a missed

28.6 Conduct missed approach procedure	approach occurs. Initiate the missed approach by immediately establishing a climb and tracking to the MAPT. Comply with the published missed approach procedure specified on the IAL chart: • direction of turn if applicable; • maintain published track; and • climb to published altitude maintaining terrain clearance. Elements of Airmanship Make a positive decision and conduct a missed approach if ceiling and visibility minima is not achieved at DA or DH or if visual reference is lost before landing.

UNIT: 29. DME GPS ARRIVAL

Description:

Knowledge and skills to conduct a DME or GPS arrival procedure from the LSALT, within a specified sector or on a specified track, descending not below the distance/altitude descent steps specified for the procedure to the MDA applicable to the aircraft category and conducting a published missed approach if visual reference is not achieved by the MAPT, using NDB or VOR for tracking and DME or GPS to provide distance indications.

Elements	Performance Criteria
29.1 Select approach and determine applicable minima ***Item 16(a)***	• In flight select the current IAL chart for the DME or GPS arrival procedure to be flown according to inbound track or sector and review and brief the entry to, and conduct of, the instrument approach and missed approach procedure. • Determine the applicable meteorological minima for the approach for the aircraft performance category. • Review and brief fuel availability and holding or diversion action required if visual reference is not established.
29.2 Use appropriate tracking aid and distance information and monitor aid signal integrity ***Item 16(b)***	• Tune and identify the NDB or VOR to be used for tracking inbound and monitor the aid throughout the approach to ensure signal integrity. • Tune and identify DME or select the reference WPT for GPS and check the distance indication and signal integrity as required. Use DME or GPS to provide distance indications for descent via the distance/altitude steps of the approach.
29.3 Conduct initial approach ***Item 16(d)***	• Set the altimeter to the aerodrome QNH and conduct the initial approach from a distance of at least 25 nm from the reference aid, and maintain at or above route MSA or LSALT until commencing descent not below the specified limiting altitude for the distance/altitude descent steps.
29.4 Conduct approach procedure ***Item 16(e)***	• Conduct the arrival procedure, descending on the specified track or sector, descending not below the specified distance/altitude descent steps to the MDA within the tolerances specified in AIP. • Comply with applicable tracking and speed restrictions after passing the initial approach fix. • After establishing visual reference, identify the landing runway and conduct visual circling or straight-in runway approach or for a landing on the selected runway. Note: Visual circling need not be demonstrated if a flight procedure endorsement for visual circling is already held.
29.5 Conduct missed approach	• Commence the published missed approach procedure if visual reference is not established before reaching the MAPT, or any other event specified in AIP

procedure		as requiring conduct of a missed approach occurs.
Item 16(f)	•	Conduct the missed approach procedure by tracking to the MAPT and complying with the published missed approach procedure specified on the IAL chart.

Item numbers included in the elements refer to CAO 40.2.3 Appendix 2 Table 3

UNIT: 29. DME GPS ARRIVAL

ASSESSMENT GUIDE

During assessment the pilot should be observed to perform the following checks and actions as evidence of ability to meet the licensing standards.

The checks and actions detailed in this guide are advisory. Checks and actions in approved checklists, placards, Flight Manual/POHs, or Operations Manuals have precedence and must be complied with.

Element	Evidence
29.1 Select approach and determine applicable minima	In flight select the current DME or GPS arrival procedure for the aerodrome. Select the arrival procedure according to inbound track or sector. Review and brief the entry to, and conduct of, the DME or GPS Arrival and missed approach procedure. Determine the approach minima for the aircraft performance category. Review and brief fuel availability and holding or diversion action required if visual reference is not established.
29.2 Use appropriate tracking aid and distance information and monitor aid signal integrity	Tune and identify the NDB or VOR to be used for tracking inbound and monitor the aid throughout the approach to ensure signal integrity. Tune and identify DME or select the reference WPT for GPS. Check the distance indication and signal integrity as required. Monitor DME indications and GPS integrity throughout the approach.
29.3 Conduct initial approach	Set the altimeter to the aerodrome QNH. Obtain and comply with ATC clearance and/or make radio reports and broadcasts as specified in AIP. Conduct the initial approach from a distance of at least 25 nm from the reference aid. Maintain at or above route MSA or until arrival procedure is commenced.
29.4 Conduct approach procedure	Aircraft is established on the specified track or in the specified sector using NDB or VOR for track guidance, before commencing descent below LSALT/MSA. Use DME or GPS to provide distance indications for the distance/altitude steps of the approach. Descend not below the specified distance/altitude descent steps (± 100 feet). Establish a rate of descent which maintains the descent profile above the arrival steps. Comply with tracking and speed restrictions specified in AIP after passing the initial approach and the final approach fix. If DME distance indications fail conduct a missed approach. If GPS RAIM is lost, continue not below the minimum altitude specified for the step in which the loss occurred. Descend on final approach to not below the MDA (+100 feet - 0 feet). Aircraft is on specified track at MDA ($\pm 5^0$ or ±1/2 scale CDI). If visual reference is not established by the MAPT conduct the missed approach procedure. After establishing visual reference, identify the landing runway and conduct visual circling or straight-in runway approach or for a landing on the selected runway. Note: Visual circling need not be demonstrated if a flight procedure endorsement for visual circling is already held.
29.5 Conduct missed approach procedure	Commence the published missed approach procedure if visual reference is not established before reaching the MAPT, or any other event specified in AIP requiring a missed approach occurs. Conduct the missed approach procedure by tracking to the MAPT and complying with the published missed approach procedure specified on the IAL chart. <u>Elements of Airmanship</u> Make a positive decision and conduct a missed approach if ceiling and visibility minima is not achieved at MDA or if visibility reduces below minima while manoeuvring for landing.

UNIT: 30. GPS/NPA

Field: Private Pilot

Description:
Skills and knowledge to conduct a GPS/NPA instrument approach from route LSALT, entering the GPS/NPA approach procedure in compliance with any altitude restrictions, tracking via the specified approach WPTs, descending in accordance with specified altitude limitations to a straight in or circling MDA, and perform a straight-in or circling approach or conduct a published missed approach if visual reference is not established by the MAPT, using the GPS.

Elements	Performance Criteria
30.1 Select approach and determine applicable minima ***Item 17(a)***	• In flight select the current IAL chart for the GPS/NPA approach to be flown and. and review and brief the entry to, and conduct of, the instrument approach and missed approach procedure. • Determine the applicable meteorological minima for the approach for the aircraft performance category. • Review and brief fuel availability and holding or diversion action required if visual reference is not established.
30.2 Select, retrieve and activate approach from database ***Item 17(b)***	• Select the GPS approach for the appropriate runway from the GPS receiver navigation database. • Select the initial approach fix to be used to transition to the approach procedure, enter the aerodrome QNH in the GPS receiver, and activate the approach. • Make a confidence check of tracks and distances between the approach WPTs as calculated by the GPS receiver. • Check CDI is selected to GPS as applicable.
31.3 Monitor GPS signal integrity ***Item 17(c)***	• Check RAIM availability for the approach and monitor RAIM indications throughout the approach.
30.4 Conduct initial approach ***Item 17(d)***	• Set the altimeter to the aerodrome QNH and conduct the initial approach from a distance of at least 25 nm from the GPS/NPA MAPT, maintaining track to the initial approach WPT at or above route MSA or LSALT.
30.5 Conduct holding pattern ***Item 17(e)***	• Suspend automatic sequencing of the GPS and enter the published holding pattern at the appropriate initial approach WPT using the prescribed sector entry procedure. Conduct the published holding pattern and resume automatic sequencing to continue the approach.

30.6 Conduct approach procedure ***Item 17(g)***	• Conduct the GPS/NPA instrument approach, descending on the specified track to each approach WPT while complying with approach altitude restrictions. • Check that the GPS receiver transitions to approach mode no later than the FAP WPT or discontinue approach. • Continue descent to not below the MDA while tracking to the MAP WPT within the tolerances specified in AIP. • After establishing visual reference, identify the landing runway and conduct straight-in runway approach or visual circling for a landing on the selected runway. Note: Visual circling need not be demonstrated if a flight procedure endorsement for visual circling is already held.
30.7 Conduct missed approach procedure ***Item 17(h)***	• Commence the published missed approach procedure if visual reference is not established before reaching the MAPT or RAIM is lost, or any other event specified in AIP or in the GPS operations manual as requiring conduct of a missed approach occurs. • Conduct the missed approach procedure by tracking to the MAPT, selecting missed approach mode and complying with the published missed approach procedure and tracking to the MAP Holding WPT. • Configure GPS receiver to conduct another approach or to hold or divert as required.

Item numbers included in the elements refer to CAO 40.2.3 Appendix 2 Table 3

UNIT: 30. GPS NPA

ASSESSMENT GUIDE

During assessment the pilot should be observed to perform the following checks and actions as evidence of ability to meet the licensing standards.

The checks and actions detailed in this guide are advisory. Checks and actions in approved checklists, placards, Flight Manual/POHs, or Operations Manuals have precedence and must be complied with.

Elements	Evidence
30.1 Select approach and determine applicable minima	In flight select the current IAL chart for the GPS/NPA approach to be flown. Review and brief the entry to, and conduct of, the instrument approach and missed approach procedure. Determine the applicable meteorological minima for the approach for the aircraft performance category. Review and brief fuel availability and holding or diversion action required if visual reference is not established.
30.2 Select, retrieve and activate approach from database	Select the GPS approach for the appropriate runway from the current GPS navigation database Select the initial approach fix to be used to transition to the approach procedure. Enter the aerodrome QNH in the GPS receiver. Activate the GPS approach. Make a confidence check of tracks and distances between the approach WPTs as calculated by the GPS receiver against those shown on the approach chart. Check CDI is selected to GPS as applicable and CDI scaling is applicable to the approach phase.
31.3 Monitor GPS signal integrity	Check RAIM availability for the approach and monitor RAIM indications throughout the approach.
30.4 Conduct initial approach	Set the altimeter to the aerodrome QNH. Obtain and comply with ATC clearance and/or make radio reports and broadcasts as specified in AIP. Conduct the initial approach from a distance of at least 25 nm from the GPS/NPA MAPT. Maintain track to the initial approach WPT at or above route LSALT or sector MSA.
30.5 Conduct holding pattern	Suspend automatic WPT sequencing and enter the published holding pattern at the holding initial approach WPT using the prescribed sector entry procedure. Conduct the published holding pattern as per Unit 15 of this syllabus. Resume automatic WPT sequencing before leaving the holding pattern and continue the approach.
30.6 Conduct approach procedure	Conduct the GPS/NPA instrument approach, tracking on the specified track to each approach WPT (± ½ scale deflection). Initiate turns prior to crossing flyby WPTs so as to intercept the required track to the next WPT. Descend in compliance with altitude restrictions for each segment (± 100 feet). Check that the GPS receiver transitions to approach mode no later than the FAP WPT or conduct missed approach. Continue descent to not below the MDA (+100 -0 feet at MDA). Maintain track to the MAP WPT (±1/2 scale CDI). If RAIM is lost or a RAIM warning is received conduct a missed approach. If visual reference is not established at the MAP WPT conduct a missed approach. After establishing visual reference, identify the landing runway and conduct straight in runway approach or visual circling for a landing on the selected runway. Note: Visual circling need not be demonstrated if a flight procedure endorsement for visual circling is already held. Elements of Airmanship Do not attempt to access other GPS modes during the approach Do not fixate on GPS. Cross reference GPS indications from other available data.

30.7 Conduct missed approach procedure	Commence the published missed approach procedure if visual reference is not established before reaching the MAPT or RAIM is lost, or any other event specified in AIP or in the GPS operations manual as requiring conduct of a missed approach occurs. Commence climb and track to the MAP WPT. At MAP WPT commence or maintain climb and turn to intercept the specified track to the MAP holding WPT. After establishing the aircraft in the missed approach, select GPS missed approach mode. Comply with the published missed approach procedure and track to the MAP Holding WPT. Configure GPS receiver to conduct another approach or to hold or divert as required.

UNIT: 31. INSTRUMENT APPROACH (MEA)

Field: Private Pilot

Description:
Skills and knowledge to conduct an instrument approach and published missed approach and maintain control an aeroplane during asymmetric flight in IMC/simulated IMC under the IFR.

Elements	Performance Criteria
31.1 Simulate engine failure during instrument approach procedure ***Item 18(a)***	• A simulated engine failure is identified during an instrument approach, the aircraft is controlled and operated in accordance with the Flight Manual/POH and the instrument approach is conducted within the tolerances specified in AIP.
31.2 Conduct missed approach with simulated engine failure ***Item 18(b)***	• A simulated engine failure is identified during an instrument approach, and a published missed approach is conducted from the MAPT in accordance with Flight Manual/POH.

Item numbers included in the elements refer to CAO 40.2.3 Appendix 2 Table 3

UNIT: 31. INSTRUMENT APPROACH (MEA)

ASSESSMENT GUIDE

During assessment the pilot should be observed to perform the following checks and actions as evidence of ability to meet the licensing standards.

The checks and actions detailed in this guide are advisory. Checks and actions in approved checklists, placards, Flight Manual/POHs, or Operations Manuals have precedence and must be complied with.

Elements	Evidence
31.1 Simulate engine failure during instrument approach procedure	A simulated engine failure is identified during an instrument approach. The aircraft is controlled by reference to flight instruments and the instrument approach procedure is maintained, (heading $\pm 20^0$ initially then $\pm 5^0$). Descent is continued in compliance with altitude limitations. The failed engine is identified and secured in accordance with the Flight Manual/POH. Aircraft is configured for optimum single engine cruise performance (not less than V_{yse}, power as required on operating engine, not more than 5° bank towards operating engine, without slip or skid, rudder trimmed, undercarriage and flap retracted and propeller feathered on failed engine or simulated by setting zero thrust). MDA is increased if necessary to allow for obstacle clearance with OEI performance during missed approach. Radio transmissions are made in accordance with AIP and ERSA emergency procedures. If visual reference is not established by MAPT or DA, a missed approach is conducted. Elements of Airmanship Situation awareness is maintained.
31.2 Conduct missed approach with simulated engine failure	A published missed approach is conducted from the MAPT. A simulated engine failure is identified prior to or during the missed approach. Climb is established and drag is minimised. Aircraft is configured for optimum single engine best rate of climb performance (V_{yse} ±10 kts, take off power on operating engine, not more than 5° bank towards operating engine, without slip or skid, rudder trimmed, undercarriage and flap retracted and propeller feathered on failed engine or simulated by setting zero thrust). The missed approach is initiated not below DA for a precision approach or to ensure descent not below MDA for non-precision approach. Aircraft is tracked to the MAPT (heading ±5°). Published missed approach procedure specified on the IAL chart are complied with; direction of turn if applicable, published track and climb to published altitude maintaining terrain clearance. Elements of Airmanship Maintain control of aircraft using flight instruments. Maintain situation awareness.

UNIT: 32. INSTRUMENT APPROACH (MEH)

Field: Private Pilot

Description:
Skills and knowledge to conduct an instrument approach and published missed approach and maintain control a helicopter during asymmetric flight in IMC/simulated IMC under the IFR.

Elements	Performance Criteria
31.1 Simulate engine failure during instrument approach procedure ***Item 18(a)***	• A simulated engine failure is identified during an instrument approach, the aircraft is controlled and operated in accordance with the Flight Manual/POH and the instrument approach is completed within the tolerances specified in AIP.
31.2 Conduct missed approach with simulated engine failure ***Item 18(b)***	• A simulated engine failure is identified during an instrument approach, and a published missed approach is conducted from the MAPT in accordance with Flight Manual/POH.

Item numbers included in the elements refer to CAO 40.2.3 Appendix 2 Table 3

UNIT: 32. INSTRUMENT APPROACH (MEH)

ASSESSMENT GUIDE

During assessment the pilot should be observed to perform the following checks and actions as evidence of ability to meet the licensing standards.

The checks and actions detailed in this guide are advisory. Checks and actions in approved checklists, placards, Flight Manual/POHs, or Operations Manuals have precedence and must be complied with.

Elements	Evidence
32.1 Simulate engine failure during instrument approach procedure	A simulated engine failure is identified during an instrument approach. The aircraft is controlled by reference to flight instruments and the instrument approach track and altitude limitations are maintained, (heading ± 5° and altitude ± 100 ft). The failed engine is identified and secured in accordance with the Flight Manual/POH. MDA is reassessed to allow for terrain clearance with OEI performance reduction during missed approach procedure. Radio reports and broadcasts are made in accordance with AIP and ERSA emergency procedures. If visual reference is not established by MAPT or DA, a missed approach is conducted. Elements of Airmanship Situation awareness is maintained.
32.2 Conduct missed approach with simulated engine failure	A published missed approach is conducted from the MAPT. A simulated engine failure is identified prior to or during the missed approach. Optimum climb performance is established. Aircraft configuration is optimised for OEI climb performance speed Vyse (+ 5 - 0 kts). The missed approach is initiated not below DA for a precision approach and with descent not below MDA for non-precision approach. Aircraft is tracked to the MAPT (heading ±5°). Published missed approach procedure specified on the IAL chart are complied with; direction of turn if applicable, published track and climb to published altitude maintaining terrain clearance. Elements of Airmanship Maintain control of aircraft using flight instruments. Maintain sinuation awareness.

PRIVATE IFR RATING (PIFR)

AERONAUTICAL KNOWLEDGE SYLLABUS OF TRAINING

1 - INTRODUCTION

1.1 This syllabus provides details of the aeronautical knowledge requirements for the issue of a PPL instrument flight rules rating (PIFR) by modules corresponding to the 'Basic Rating' and unique 'Flight Procedure Authorisation' (FPA). However, all applicants for the PIFR must undertake training for, and successfully complete the 'Basic Rating' module, before attempting the FPA modules.

1.2 The knowledge learning of topic areas in this syllabus would be best achieved as an integrated component of the flying training. Certain syllabus items are deliberately repeated in a subsequent unit or separate FPA module to provide the required completeness to each appropriate unit of study.

1.3 For endorsements in the use of GPS under the IFR, whether as a primary means of IFR navigation, GPS Arrival procedure and/or GPS/NPA procedure, the relevant syllabus items are already contained in CAO 40.2.1, Appendix IV. Thus, where GPS procedures are mentioned it will be on the basis that the candidate has already completed and achieved the required standard laid down in the appropriate section of CAO 40.2.1, Appendix IV.

1.4 The syllabus contains 25 units, of which 17 units pertain to the 'Basic Rating'; the remaining units each relate to the unique FPA that the candidate may acquire (add-on) after the 'Basic Rating' has been achieved. The units are organised along the following areas of study:

- Unit 1 Pilot's Fitness and Qualifications
- Unit 2 Basic Aircraft Instruments and Equipment
- Unit 3 IFR Operations - General
- Unit 4 Required Documents for IFR Flight
- Unit 5 IFR Navigation Requirements
- Unit 6 Selection of IFR Routes
- Unit 7 LSALT and Selection of IFR Altitudes/Levels
- Unit 8 IFR Alternate Aerodrome Requirements
- Unit 9 Operation of Aircraft Equipment
- Unit 10 CTA Operations
- Unit 11 Radar Services
- Unit 12 OCTA Operations
- Unit 13 Meteorology relevant to IFR Operations
- Unit 14 VOR - General
- Unit 15 NDB - General
- Unit 16 Human Factors relevant to IFR Operations
- Unit 17 Flight Instrument Errors
- Unit 18 IFR Take-off and Departure (not using a SID) FPA
- Unit 19 IFR Take-off and Departure (using a SID) FPA
- Unit 20 STAR FPA
- Unit 21 DME or GPS Arrival FPA
- Unit 22 VOR or VOR/DME instrument approach FPA
- Unit 23 NDB or NDB/DME (including Twin Locator) instrument approach FPA
- Unit 24 ILS or ILS/DME or LLZ or LLZ/DME FPA
- Unit 25 GPS/NPA FPA

1.5 Where the candidate has **not** accomplished the requirements stated in paragraph 1.3 above, but has successfully trained to Unit 21 of this syllabus, **only** a **DME Arrival** FPA may be approved. The DME **or GPS** Arrival FPA may only be added after the candidate has successfully accomplished the requirements of paragraph 1.3 above.

1.6 The written examination, to be conducted by CASA approved flying training schools, will be based on this aeronautical knowledge syllabus, and set at the PPL (aircraft) level. A provisional pass may be awarded for an achievement less than 100% **but not less than 70%**. A pre-condition for the conduct of a flight test for a candidate holding a provisional pass is that any item unsuccessfully attempted in the written examination, as recorded in the Knowledge Deficiency Report (KDR), shall be orally re-tested by the FOI or ATO until the examiner is completely satisfied that the candidate has acquired the required level of knowledge in the specified areas.

1.7 During the written examination, candidates may refer to Civil Aviation Regulations (CAR), CAO Parts 20 to 95.2, Aeronautical Information Publications (AIP) 'complete' and the Civil Aviation Advisory Publication (CAAP) 234-1(0). However, the candidate should be aware that time permitted for the written examination requires a comprehensive knowledge of the relevant syllabus items, while references to the said publications should be only for specific details.

Note: AIP 'complete' shall be taken to mean the AIP Book, En route Supplement Australia (ERSA), Departure and Arrival Procedure (DAPs) East & West, the complete set of En Route Charts (ERC) Low, the complete set of Terminal Area Charts (TAC), and Planning Chart Australia (PCA).

2 - BASIC RATING

Unit 1 - Pilot's Fitness and Qualifications:

1.1 Determine pilot medical fitness for IFR flight.
1.2 Determine pilot qualifications for IFR flight.

Unit 2 - Basic Aircraft Instruments and Equipment:

2.1 Determine aircraft flight instruments for IFR flight.
2.2 Determine aircraft electrical lighting equipment for IFR flight.
2.3 Determine aircraft radio communication equipment for IFR flight.
2.4 Determine aircraft radio navigation equipment for IFR flight.
2.5 Determine limitations specified in the flight manual for IFR flight.

Unit 3 - IFR Operations - General:

3.1 State the IFR operations a single-engine aircraft is limited to.
3.2 State the requirements for submission of flight notification and SARWATCH.
3.3 State the speed restrictions an IFR flight must operate to.
3.4 State the requirements for in flight progress reports.
3.5 State the procedures for flight plan amendments and revised estimates.

Unit 4 - Required Documents for IFR Flight:

4.1 Determine documents required to be carried on an IFR flight.
4.2 Demonstrate ability to extract relevant information from operational documents.
4.3 Determine the meteorological forecasts required for an IFR flight.
4.4 State sources of, and actions to obtain, these meteorological forecasts.
4.5 Determine validity of a meteorological forecast for an IFR flight.
4.6 Determine whether a flight should proceed based on available meteorological forecasts.
4.7 State what meteorological broadcast services are available in Australia for the flight.

Unit 5 - IFR Navigation Requirements:

5.1 Determine the navigation requirements for an IFR flight using radio navigation systems.
5.2 Determine the navigation requirements for an IFR flight using self contained or long range navigation systems.
5.3 Determine the navigation requirements for an IFR flight using visual reference to ground and water.
5.4 Determine the navigation tolerance for an IFR flight avoiding CTA.
5.5 Determine the requirements for positive radio fixing.
5.6 Determine the requirements for the most precise track guidance.
5.7 Apply the navigation requirements of IFR flight with respect to time interval between fixes, accuracy of time reference, accuracy and procedures in track keeping.
5.8 Apply the procedures of IFR flight in all classes of airspace when diverting from track due navigation or weather.

Unit 6 - Selection of IFR Routes:

6.1 Determine route for IFR flight with respect to forecast weather, controlled airspace, PRDs, engine out performance for multi engine aircraft, specified route limitations, airways operational requirements, and the availability of published routes, en route alternate aerodromes, navigation aids, rated coverage and radio communication.
6.2 Determine compulsory reporting points for route selected.
6.3 Determine whether the flight may proceed based on route, aircraft equipment and IFR navigation requirements.

Unit 7 - LSALT and Selection of IFR Altitudes/Levels:

7.1 Determine LSALT for an IFR flight for a route published on a chart.
7.2 Determine dimensions of the significant safety sector when calculating LSALT for a route not published on a chart.
7.3 Determine methods of calculating LSALT for a route not published on a chart.
7.4 Select cruising altitude/level after assessing LSALT, forecast freezing level, engine out performance for multi engine aircraft, CTA and PRDs, Table of IFR cruising level, availability of published routes, availability of navigation aids, rated coverage, specified route limitations, airways operational requirements.
7.5 Determine LSALT when uncertain of position.
7.6 Determine conditions for descent below LSALT
7.7 Determine whether the flight may proceed based on altitude, aircraft equipment and IFR navigation requirements.

Unit 8 - IFR Alternate Aerodrome Requirements:

8.1 Determine alternate aerodrome requirements for an IFR flight to a specified destination, given relevant information including NOTAMs.
8.2 Determine suitability of a specified alternate aerodrome for an IFR flight given relevant information including NOTAMs.
8.3 Determine holding requirements due to weather, traffic, traffic advisory, and procedures.
8.4 Determine fuel required for an IFR flight in accordance with CAAP 234-1(0).
8.5 Determine whether the flight may proceed based on alternate or holding requirements and fuel capacity.

Unit 9 - Operation of Aircraft Equipment:

9.1 State the safety precautions defined in the CAO that must be observed when operating aircraft radar equipment on the ground.
9.2 State the pre-flight altimeter accuracy check for an IFR flight.
9.3 Apply altimetry procedures to all stages of an IFR flight.
9.4 Apply use of transponder, and the associated radio phraseology, in all classes of airspace.

Unit 10 - CTA Operations:

10.1 State airways clearance requirements for operating in all classes of airspace, including lead time required for flight plan submission, contents, 'clearance void time', and 'read back' requirement.
10.2 State airways clearance requirements for entering, operating in and departing CTA and CTR, including what details to provide to ATC, and what details to expect from ATC.
10.3 State what is 'controlled area protection'.
10.4 State ATC requirements for a change of level in CTA, including in an emergency situation.
10.5 State departure, climb, transition to cruise (levelling out), cruise, change of levels, descent and visual approach procedures, day and night, in CTA and CTR.
10.6 State the provision of separation between IFR flights, and IFR and VFR flights in the various classes of CTA.
10.7 State the provision of separation between IFR flights, and IFR and VFR flights in GAAP CTR.
10.8 Demonstrate knowledge of radio procedures in CTA and CTR.
10.9 Determine procedures for loss of radio communication in CTA and CTR.
10.10 Determine procedures for abnormal operations and/or emergencies in CTA and CTR.

Unit 11 - Radar Services:

11.1 State what radar services are provided by ATC.
11.2 Demonstrate knowledge of radar vectoring procedures, including radio procedures and phraseologies.
11.3 State what is permissible intervals between ATC transmissions during radar vectoring.
11.4 Demonstrate knowledge of radar emergency procedures, including loss of radio communication, radar failure, transponder emergency codes, and aircraft emergencies.

Unit 12 - OCTA Operations:

12.1 State departure, climb, transition to cruise (levelling out), cruise, change of levels, descent, and arrival procedures in Class G airspace and at non-controlled aerodromes.
12.2 State visual approach procedures, day and night, in Class G airspace and at non-controlled aerodromes, including landing manoeuvres, cancellation of SARWATCH, and operation of VHF aerodrome lighting (PAL).
12.3 Demonstrate knowledge of radio procedures in Class G airspace and at non-controlled aerodromes.
12.4 Determine procedures for loss of radio communication in Class G airspace and at non-controlled aerodromes.
12.5 Determine procedures for abnormal operations and/or emergencies Class G airspace and at non-controlled aerodromes..

Unit 13 - Meteorology relevant to IFR Operations:

13.1 Demonstrate knowledge of flying conditions likely to be associated with any phenomenon listed in AIP documents and the Bureau of Meteorology publication, **Manual of Meteorology Part 2**
13.2 Demonstrate knowledge of Australian climatology as enumerated in **Manual of Meteorology Parts 1 & 2**, with emphasis on the seasonal variations in the location and frequency of frontal weather, tropical cyclones, dust devils, thunderstorms, fog, and the associated penetration and/or avoidance techniques.
13.3 Predict probability and likely duration and extent of airframe icing, hail, microbursts, wind shear, turbulence en route, when experiencing and/or observing certain cloud types, precipitation, temperature and/or turbulence.

Unit 14 - VOR - General:

14.1 Determine scalloping, VOR station passage, abeam VOR station, VOR radial the aircraft is on, track error and/or drift experienced, from VOR cockpit indications.
14.2 Determine off-track distance experienced. from VOR and DME cockpit indications.
14.3 State VOR omni bearing selector (OBS) settings required to provide command indications when flying on given tracks both to and from the VOR.
14.4 Calculate the heading to steer to intercept a new or original track to or from a VOR.
14.5 Fix position, given cockpit instrument indications utilising two VOR stations.
14.6 Fix position, given instrument indications utilising combinations of VOR, NDB and DME.

Unit 15 - NDB - General:

15.1 State how NDB indications or range may be affected by coastal refraction, night error, thunderstorms, mountainous areas, types of terrain, altitude of aircraft.
15.2 State the method of using the most appropriate NDB for tracking during navigation.
15.3 Determine NDB station passage, abeam NDB station, NDB bearing the aircraft is on, track error and/or drift experienced, from ADF relative bearing indications.
15.4 Calculate track to and from the NDB, given heading and relative bearings
15.5 Calculate heading to steer to intercept a new or original track to or from a NDB.
15.6 Calculate heading to steer to intercept desired inbound track before reaching the NDB.
15.7 Calculate relative bearing which will indicate that a desired track to or from a NDB has been intercepted, given the intercept heading
15.8 Fix position, given relative bearing indications utilising two NDB stations.

Unit 16 - Human Factors relevant to IFR Operations:

16.1 State the part played by the vestibular systems, namely the semicircular canals and otiliths, in helping the pilot maintain orientation.
16.2 State what circumstances aggravate vestibular disorientation, and how to overcome this problem.
16.3 State what causes, and may aggravate, vestibular disorientation such as somatogravic illusions, somatogyral illusions and 'graveyard spiral', coriolis effect, and 'leans'.
16.4 State conditions and causes under which visual illusions, such as 'false horizons', visual-cue illusions, relative motion illusions, 'flicker' effect', black hole' illusion, and autokinesis may occur.

Unit 17 - Flight Instrument Errors:

17.1 State how the compass is affected by turning error, acceleration and deceleration error.
17.2 State how the attitude indicator is affected by power source output, acceleration and deceleration error, and bank and pitch limits.

3 - FLIGHT PROCEDURE AUTHORISATIONs (FPAs)

Unit 18 - 'IF Take-Off & Departure' (not using a SID) FPA:

18.1 Determine take-off minima for single and twin engine aircraft at aerodromes with and without suitable instrument approach procedures.
18.2 Determine conditions for take-off if a forecast cannot be obtained
18.3 State the departure procedure.
18.4 Determine what transponder code to use.
18.5 State when departure track must be established.
18.6 State contents of airborne and departure reports, and when these must be made.
18.7 State pilot's responsibility in an IFR visual departure.
18.8 Determine procedures for loss of radio communication.
18.9 Determine procedures for abnormal operations and/or emergencies.

Unit 19 - 'IF Take-Off & Departure' (using a SID) FPA:

19.1 Determine take-off minima for single and twin engine aircraft for aerodromes with and without the relevant instrument approach procedures.
19.2 Determine conditions for take-off if a forecast cannot be obtained.
19.3 Demonstrate ability to read and interpret a SID chart.
19.4 State SID procedures and limitations.
19.5 State SID tracking and performance requirements, and flight parameters assumed of the aircraft.
19.6 State pilot's responsibilities if SID tracking and performance requirements cannot be met.
19.7 State pilot's responsibilities when SID clearance is given or cancelled.
19.8 State when and what radio reports shall be made in an SID.
19.9 Determine procedures for loss of radio communication during SID.
19.10 Determine procedures for abnormal operations and/or emergencies during SID, including navigation aid failure.

Unit 20 - 'STAR' FPA:

20.1 Demonstrate ability to read and interpret a STAR chart.
20.2 State STAR procedures and limitations.
20.3 State pilot's responsibilities when STAR clearance is given or cancelled.
20.4 Identify applicable instrument approach procedure or visual approach at end of STAR.
20.5 Demonstrate knowledge of STAR radio procedures
20.6 Determine procedures for loss of radio communication during STAR.
20.7 Determine procedures for abnormal operations and/or emergencies during STAR, including navigation aid failure.

Unit 21 - 'DME or GPS Arrival' FPA:

21.1 Demonstrate ability to read and interpret a DME or GPS Arrival chart.
21.2 State DME or GPS Arrival procedures and limitations in all classes of airspace.
21.3 State pilot's responsibilities when DME or GPS Arrival is conducted outside controlled airspace.
21.4 State conditions and limitations for manoeuvring within a DME or GPS Arrival sector.
21.5 Determine DME or GPS Arrival applicable minima for aircraft.
21.6 Determine conditions permitting descent below minima.
21.7 Determine procedure for joining the circuit from a DME or GPS Arrival.
21.8 State the DME or GPS Arrival missed approach procedure.
21.9 State minimum obstacle clearance criteria during a DME or GPS Arrival missed approach procedure.
21.10 Demonstrate knowledge of DME or GPS Arrival radio procedures.
21.11 Determine procedures for loss of radio communication during a DME or GPS Arrival.
21.12 Determine procedures for abnormal operations and/or emergencies during a DME or GPS Arrival, including navigation aid failure, loss of GPS RAIM, GPS RAIM warning, and disparity between VOR/NDB track and GPS track indication.

Unit 22 - 'VOR or VOR/DME' Instrument Approach FPA:

22.1 Demonstrate ability to read and interpret a VOR or VOR/DME instrument approach procedure chart.
22.2 State the VOR or VOR/DME instrument approach procedures and limitations.
22.3 State the correct sector entry join for entering the holding pattern of the VOR or VOR/DME approach procedure.
22.4 State the tracking tolerance and altitude limitations for flying the published DME arc of the VOR/DME approach procedure.
22.5 Determine VOR or VOR/DME approach procedure applicable minima for aircraft.
22.6 Determine conditions permitting descent below minima.
22.7 Determine procedure for joining the circuit from a VOR or VOR/DME approach procedure.
22.8 State the VOR or VOR/DME approach procedure missed approach procedure.
22.9 State minimum obstacle clearance criteria during a VOR or VOR/DME approach procedure missed approach procedure.
22.10 Demonstrate knowledge of VOR or VOR/DME approach procedure radio procedures.
22.11 Determine procedures for loss of radio communication during a VOR or VOR/DME approach procedure.
22.12 Determine procedures for abnormal operations and/or emergencies during a VOR or VOR/DME approach procedure, including navigation aid failure.

Unit 23 - 'NDB or NDB/DME' (including 'Twin Locator') Instrument Approach FPA:

23.1 Demonstrate ability to read and interpret a NDB instrument approach procedure chart.
23.2 State the NDB instrument approach procedures and limitations.
23.3 State the correct sector entry join for entering the holding pattern of the NDB approach procedure.
23.4 State the tracking tolerance and altitude limitations for flying the published DME arc of the NDB approach procedure.
23.5 Determine NDB approach procedure applicable minima for aircraft.
23.6 Determine conditions permitting descent below minima.
23.7 Determine procedure for joining the circuit from a NDB approach procedure.
23.8 State the NDB approach procedure missed approach procedure.
23.9 State minimum obstacle clearance criteria during a NDB approach procedure missed approach procedure.
23.10 Demonstrate knowledge of NDB approach procedure radio procedures.
23.11 Determine procedures for loss of radio communication during a NDB approach procedure.
23.12 Determine procedures for abnormal operations and/or emergencies during a NDB approach procedure, including navigation aid failure.

Unit 24 - 'ILS' Instrument Approach FPA

(The use of the term 'ILS" in Unit 24 shall also be taken to mean ILS/DME, LLZ/DME or LLZ)

24.1 Demonstrate ability to read and interpret an ILS instrument approach procedure chart.
24.2 State the ILS instrument approach procedures and limitations, including the minimum system components required to conduct an approach.
24.3 State the correct sector entry join for entering the holding pattern of the ILS approach procedure.
24.4 State the tracking tolerance and altitude limitations for flying the published DME arc of the ILS approach procedure.
24.5 Determine the ILS approach procedure applicable minima for aircraft.
24.6 State the procedure for altimeter check during the ILS final approach.
24.7 Determine conditions permitting descent below minima.
24.8 Determine procedure for joining the circuit from an ILS approach procedure.
24.9 State the ILS approach procedure missed approach procedure.
24.10 State minimum obstacle clearance criteria during an ILS approach procedure missed approach procedure.
24.11 Demonstrate knowledge of ILS approach procedure radio procedures.
24.12 Determine procedures for loss of radio communication during an ILS approach procedure.
24.13 Determine procedures for abnormal operations and/or emergencies during an ILS approach procedure, including the failure of any of its system components.

Unit 25 - 'GPS/NPA' Instrument Approach FPA

25.1 Demonstrate ability to read and interpret a GPS/NPA instrument approach procedure chart.
25.2 The candidate shall be trained to the 'Syllabus of Training for the use of the GPS under the IFR' as contained in CAO 40.2.1, Appendix IV, Sections 1 and 2.

CIVIL AVIATION SAFETY AUTHORITY AUSTRALIA

APPLICATION FOR A PRIVATE IFR RATING

SECTION A: PERSONAL & LICENCE DETAILS

Family Name	Given Names	Title	Date of Birth

Postal Address			
Licence Number	Licence Type CofV ☐ PPL ☐ CPL ☐ ATPL ☐	Medical Class 1 ☐ 2 ☐ Expire / /	Aircraft Category *(This rating application)** Aeroplane ☐ Helicopter ☐

SECTION B: EXPERIENCE DETAILS

Examination passed	Title	Location	Date

Dual instrument flight time Aeroplane	*Dual instrument flight time Helicopter*	*Instrument flight time*	*Instrument ground time*	*Total Instrument time*

SECTION C: AUTHORISATIONS REQUESTED

Grade of rating	Flight Procedure Authorisation(s):
Aeroplane Single Engine ☐ Multi Engine ☐ *Helicopter* Single Engine ☐ Multi Engine ☐	NDB ☐ VOR ☐ DME ☐ NIGHT ☐ *Tick appropriate authorisation(s)*

SECTION D: DECLARATION OF THE APPLICANT

I certify that the particulars given above are, to the best of my knowledge, true in every respect.	
Signature of Applicant	Date

SECTION E: DECLARATION OF THE CHIEF FLYING INSTRUCTOR

Training Organisation:			
I certify that the applicant has been trained to and achieved the standard in the Private IFR Rating and Flight Procedure Authorisations syllabus and holds the theory examination credit shown in section B. I recommend the candidate for a Private IFR Rating flight test.			
Signature of CFI	Date	Printed Name	ARN

SECTION F: DECLARATION OF THE TESTING OFFICER *(AIRCRAFT IN FLIGHT)*

Flight Test Number	Date	Route Flown

I certify that I conducted a Private IFR Rating flight test in accordance with CAO 40.3.0, the syllabus for the Private IFR Rating and as described overleaf in column **A**. Where a pass or ✓ has been awarded the applicant demonstrated a standard which met the requirements of the syllabus for the following Flight Procedure Authorisation(s).	
Grade *Aeroplane* Single Engine ☐ Multi Engine ☐ *Helicopter* Single Engine ☐ Multi Engine ☐	Flight Procedure Authorisation(s): NDB ☐ VOR ☐ DME ☐ NIGHT ☐ *Tick appropriate authorisation(s)*

Signature of Testing Officer	Date	Printed Name	ARN

Rating issued from: Date		Delegate's Signature	ARN

INTRODUCTION

The aim of this test is to demonstrate the applicant's ability to safely operate under the IFR to the standard specified in the Private IFR Rating (PIFR) and Flight Procedure Authorisation (FPA) syllabi. The test must be conducted under the IFR. In the Flight Test Report, i**tems in bold** represent Units of Competency and must be fully completed. Elements of competency are to be completed individually. Due to space restrictions, some of the element names may be different to the syllabus, and applicants should refer to element numbers in the syllabus for clarification.

The issue of the rating is dependant on a pass in the pre-flight aeronautical knowledge, general instrument flight and the use of at least the NDB or VOR as a navigation aid. An unsatisfactory final performance of any test item or procedure in any of these areas will result in an overall fail assessment for the instrument flight test.
The test may be discontinued at any point where an overall fail assessment is made.

DME and NIGHT FPAs may be included in the PIFR rating test, but failure in these items will not preclude the issue of the rating.

No other FPAs may be undertaken in the PIFR rating test.

An applicant for the PIFR rating must demonstrate adequate knowledge of all items listed on the Knowledge Deficiency Report provided by the training organisation.

Questions are to be asked on all items in the Pre-flight Examination section.

A simulated engine failure should be conducted under simulated IMC conditions during cruise and introduced with no prior warning. The simulation need not involve the feathering of a propeller.

*Only one item of elements 5.2 or 5.3 are required to be examined.
*Only one item of elements 5.7 or 5.8 are required to be examined.

* *May be determined by simulation and questioning.

A - *Aircraft in flight*
✓ *Satisfactory* **X** *Unsatisfactory* **N** *Not Tested*

PRIVATE IFR RATING FLIGHT TEST REPORT

Pre-flight Examination

	Sequence	A
A	All Knowledge Deficiency Report items checked	
B	Knew privileges and limitations of rating	
C	Knew aircraft equipment limits and requirements	
D	Interpret meteorological information	
E	Determine alternate and/or holding requirements	
F	Knew IFR procedures for all airspace categories	
G	Knew rules for operation below LSALT/MSA day/night	

	Pre-flight Activities	
1.1	Possess and use current operational documents	
1.2	Obtain meteorological and NOTAM pre flight briefing	
1.3	Plan flight	
1.4	Determine operational and fuel requirements	
1.5	Make flight notification	
2.1	Determine aircraft certified and equipped for IFR light	
2.2	Conduct daily inspection	
2.3	Conduct serviceability test of flight/radio nav aids	
2.4	Complete post flight actions	

In-flight Examination

3.1	Conduct visual departure to LSALT	
3.2	Conduct flight in IMC/sim IMC	
3.3	Conduct visual approach to circuit	
3.4	Use approved altimetry procedure	
3.5	Conduct diversion to an alternate	
3.6	Conduct holding procedure	
4.1	Obtain and comply with airspace clearances	
4.2	Maintain separation from other traffic	
4.3	Communicate using radio	
4.4	Use transponder	

	Sequence	A
5.1	Manage engine failure in cruise	
5.2	Manage radio/navigation failure*	
5.3	Manage electrical/vacuum system failure*	
5.5	Manage hazardous weather conditions**	
5.6	Demonstrate turbulence penetration*	
5.7	Fly helicopter without hydraulic assistance*	
5.8	Fly helicopter without stability augmentation*	
6.1	Prioritise tasks	
6.2	Use autopilot (when fitted)	
7.0	**Conduct instrument flight using full panel**	
8.0	**Conduct instrument flight on limited panel**	
8.3	Recover from unusual attitudes	
9.0	**Navigate using NDB**	
10.0	**Navigate using VOR**	
12.0	**Navigate using DME**	

	Night	
16.1	Determine aerodrome suitable for night ops	
16.2	Determine aircraft serviceability for night flight	
16.3	Taxi at night	
16.4	Take off at night	
16.5	Make visual departure under the IFR at night	
16.6	Make visual approach under the IFR at night	
16.7	Activate PAL lighting	
16.8	Land at night, with/without use of landing light	
16.9	Make baulked approach	
16.10	Take off/land at night away from ambient light	
16.11	Manage electrical system failure at night	

PASS / FAIL	Aircraft flight time	Aircraft type(s)	VH-

CIVIL AVIATION SAFETY AUTHORITY AUSTRALIA

APPLICATION FOR A PRIVATE IFR RATING-

FLIGHT PROCEDURE AUTHORISATION

SECTION A: PERSONAL & LICENCE DETAILS

Family Name	Given Names	Title	Date of Birth

Postal Address				
Licence Number	Licence Type CofV ☐ PPL ☐ CPL ☐ ATPL ☐	Grade of PIFR rating SEA ☐ MEA ☐ SEH ☐ MEH ☐	Medical Class 1 ☐ 2 ☐ Expire / /	Aircraft Category Aeroplane ☐ Helicopter ☐

SECTION B: EXPERIENCE DETAIL

Examination(s) passed	Title	Location	Date

SECTION C: FLIGHT PROCEDURE AUTHORISATION(S) REQUESTED

Navigate using NDB ☐ Navigate using VOR ☐ Navigate Using GPS ☐ Navigate using DME ☐ NDB Holding ☐

VOR Holding ☐ GPS Holding ☐ Night ☐ STAR ☐ Instrument Departure (SE) ☐

Instrument Departure (SE) SID ☐ Instrument Departure (MEA) ☐ Instrument Departure (MEA) SID ☐

Instrument Departure (MEH) ☐ Instrument Departure (MEH) SID ☐ Visual Circling Approach ☐ IAL NDB ☐

IAL VOR ☐ IAL LLZ ☐ IAL ILS ☐ DME GPS Arrival ☐ GPS NPA ☐ Instrument Approach (MEA) ☐

Instrument Approach (MEH) ☐

SECTION D: DECLARATION OF THE APPLICANT

I certify that the particulars given above are, to the best of my knowledge, true in every respect.	
Signature of Applicant	Date

SECTION E: DECLARATION OF THE CHIEF FLYING INSTRUCTOR

Training Organisation:			
I certify that the applicant has been trained to and achieved the standard in the Flight Procedure Authorisation (FPA) syllabus, and holds the theory examination credit shown in section B. I recommend the candidate for a flight test for the FPAs requested.			
Signature of CFI	Date	Printed Name	ARN

SECTION F: DECLARATION OF THE TESTING OFFICER *(AIRCRAFT IN FLIGHT)*

I certify that I conducted a Flight Procedure Authorisation flight test in accordance with CAO 40.3.0' the Flight Procedure Authorisation syllabus and as described overleaf in column **A**. Where a pass or ✓ has been awarded the applicant demonstrated a standard which met the requirements of the syllabus for the following Flight Procedure Authorisation(s).

Navigate using NDB ☐ Navigate using VOR ☐ Navigate Using GPS ☐ Navigate using DME ☐ NDB Holding ☐

VOR Holding ☐ GPS Holding ☐ Night ☐ STAR ☐ Instrument Departure (SE) ☐

Instrument Departure (SE) SID ☐ Instrument Departure (MEA) ☐ Instrument Departure (MEA) SID ☐

Instrument Departure (MEH) ☐ Instrument Departure (MEH) SID ☐ Visual Circling Approach ☐ IAL NDB ☐

IAL VOR ☐ IAL LLZ ☐ IAL ILS ☐ DME GPS Arrival ☐ GPS NPA ☐ Instrument Approach (MEA) ☐

Tick Authorisation(s) passed in flight test Instrument Approach (MEH) ☐

Signature of Testing Officer	Date	Printed Name	ARN

Rating issued from: Date		Delegate's Signature	ARN

INTRODUCTION

The aim of this test is to demonstrate the applicant's ability to safely operate under the IFR to the standard specified in Flight Procedure Authorisation (FPA) syllabi. The test must be conducted under the IFR.

Items in the Flight Test Report are Units of Competency of the PIFR and FPA syllabus. The test should cover all the elements of each Unit as specified in the FPA syllabus.

The issue of an authorisations is dependant on a pass in the pre-flight aeronautical knowledge and achieving the standard of the applicable Unit of Competency for the authorisation required.

A satisfactory result will permit the endorsement of the Fight Procedure Authorisation in the applicant's log book.
The testing officer need only test the Authorisations required by the candidate and successful results should be transferred to Section F at page one of this application form.

Any Unit of competency not tested must be annotated with an **N**.

An applicant for the Flight Procedure Authorisation(s) must demonstrate adequate knowledge of all items listed on the Knowledge Deficiency Report provided by the training organisation.

Questions are to be asked on all items in the Pre-flight Examination section relating to the FPA(s) sought..

Simulated engine failures should be introduced at random times as required in the applicable elements of competency. These engine failures should only be conducted in simulated IMC. The simulation need not involve the feathering of a propeller.

A - *Aircraft in flight*
✓ *Satisfactory* **X** *Unsatisfactory* **N** *Not Tested*

PRIVATE IFR RATING FLIGHT PROCEDURE AUTHORISATION FLIGHT TEST REPORT

Pre-flight Examination

	Sequence	A
A	All Knowledge Deficiency Report items checked	
B	Knew privileges and limitations of the FPA(s)	
C	Knew aircraft equipment limits and requirements	
D	Interpret meteorological information	
E	Determine alternate and/or holding requirements	
F	Knew IFR procedures relating to FPA	
G	Knew rules for operation below LSALT/MSA day/night	

	Pre-flight Activities	
1	**Flight management and operational/fuel planning**	
2	**Management of pre and post flight actions**	

In-flight Examination

	Sequence	A
9	**Navigate using NDB**	
10	**Navigate using VOR**	
11	**Navigate using GPS**	
12	**Navigate using DME**	
13	**NDB holding**	
14	**VOR holding**	
15	**GPS holding**	
16	**Night**	
17	**STAR**	
18	**Instrument departure (SE)**	
19	**Instrument departure (SE) SID**	
20	**Instrument departure (MEA)**	
21	**Instrument departure (MEA) SID**	
22	**Instrument departure (MEH)**	
23	**Instrument departure (MEH) SID**	
24	**Visual circling approach**	
25	**IAL NDB**	
26	**IAL VOR**	
27	**IAL LLZ**	
28	**IAL ILS**	
29	**DME GPS arrival**	
30	**GPS NPA**	
31	**Instrument approach (MEA)**	
32	**Instrument approach (MEH)**	

PASS/FAIL	Aircraft Flight Time

Aircraft Type(s)	VH-