



Australian Government

AVIH0018 Implement flight planning procedures

Release: 1

AVIH0018 Implement flight planning procedures

Modification History

Release 1. This is the first release of this unit of competency in the AVI Aviation Training Package.

Application

This unit involves the skills and knowledge required to implement visual flight rules (VFR) and instrument flight rules (IFR) planning procedures in compliance with the relevant regulatory requirements of the Civil Aviation Safety Authority (CASA), national and international civil aviation operating standards.

It includes assessing flight planning needs, determining aircraft flight instrument requirements, identifying operational flight documentation, and preparing charts and flight plans. It also includes flight route selection; determining operational requirements; submitting a flight plan, including search and rescue (SAR) requirements; and providing extended twin-engine operations (ETOPS) flight planning and flight support.

This unit addresses aviation technical skill requirements (physical, mental and task-management abilities) related to route planning and navigation duties of flight dispatch personnel and contributes to safe and effective performance in complex aviation operational environments.

Operations are conducted as part of commercial and military aircraft activities across a variety of operational contexts within the Australian aviation industry.

Work is performed independently or under limited supervision as a single operator or within a team environment.

Licensing, legislative, regulatory or certification requirements are applicable to this unit.

Pre-requisite Unit

Not applicable.

Competency Field

H – Route Planning and Navigation.

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Assess flight planning needs

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

- 1.1** Operator flight planning objectives and factors contributing to and/or influencing these objectives are defined
- 1.2** Conflicting flight planning objectives, including commercial and safety imperatives, are identified
- 1.3** Direct operating costs of a flight plan, including fuel, resourcing, engineering, and navigational and ground handling factors, are considered and assessed for applicability to flight plan
- 1.4** Relationship between different flight planning objectives, including minimum fuel, maximum speed and thrust, minimum cost and varying operational requirements, is determined and applied
- 1.5** Value of flight plan in establishing track, distance, heading, speed, times, optimum route, altitudes, contingency planning, fuel consumption and reserves is assessed
- 1.6** Value of flight plan to air traffic services in establishing reporting points, flight information, region crossing and coordination, pre-departure clearances, and traffic flow coordination is assessed
- 1.7** Appropriate state/territory and operator authorisations are obtained to plan and manage a range of normal and abnormal flight operations
- 1.8** Flight planning process is applied while assessing a wide range of planning factors, including type of flight, weather, aircraft type, availability and performance, crew, payload, schedule, departure, en route and destination requirements, state/territory-based air service requirements, briefing, flight plan delivery and filing
- 1.9** International Civil Aviation Organization (ICAO) air traffic flight plan format, filing and performance-based navigation requirements are determined and applied to flight planning processes

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| 2 Determine aircraft flight instrument requirements | 2.1 Aircraft requirements for flight instruments are determined |
| | 2.2 Flight and navigation instruments, including minimum electrical lighting, navigation equipment, minimum equipment lists and any other requirements fitted to the aircraft, are identified and assessed to ensure they are suitable and acceptable for flight |
| 3 Identify operational flight documentation | 3.1 Essential operational documentation applicable to flight type is identified for use by flight crew |
| | 3.2 Applicable information contained in documents for flight planning and management is interpreted and applied |
| | 3.3 Aircraft library requirements, including operating manual suite, aeronautical information publications, logbooks and other relevant flight documents or electronic flight bag, are identified |
| 4 Prepare charts and flight plans | 4.1 Charts suitable for intended flight are identified, selected and prepared |
| | 4.2 Applicable information to prepare a flight plan that details tracks, distances, times, altitudes to be flown and fuel requirements to reach destination are obtained, analysed and applied |
| | 4.3 Meteorological, airways facilities, aerodrome and Notice to Airmen (NOTAM) information applicable to planning and conducting a flight is obtained, interpreted and applied |
| | 4.4 Navigation information applicable to flight planning is obtained, interpreted and applied |
| 5 Select flight routes | 5.1 Factors contributing to selecting optimum track noting operational requirements, weather, geography, airspace, aircraft limitations, great circle track and minimum time track are identified |
| | 5.2 Minimum time track on upper air charts is plotted |
| | 5.3 Preferred minimum time track is determined and modified as required |
| | 5.4 Fuel quantities more than minimum fuel are routinely considered, and cost of carriage is assessed and |

		determined in context of overall flight plan
6 Determine operational requirements	6.1	Suitability of aerodrome for flight operations is determined
	6.2	Operational constraints are complied with
	6.3	Holding, alternate and reserve fuel requirements due to weather, navigation aid availability and aerodrome lighting are determined in accordance with operational requirements
	6.4	Total fuel requirements are calculated
7 Submit a flight plan	7.1	All required safety conditions, limitations and regulations are met and gross error checks performed
	7.2	Flight crew briefing information is collated, including meteorological information, airport status, navigation aids, communication facilities, aircraft equipment and deviations, and reasons for flight plan submission
	7.3	An ICAO air traffic flight plan is compiled, filed and managed for changes, delays and cancellation purposes
	7.4	Flight plans are re-filed, as required, based on revised flight information, using fuel saving techniques and varying operational requirements
8 Provide ETOPS flight planning and flight support	8.1	ETOPS planning considerations and regulatory requirements are determined and applied to flight planning activities
	8.2	ETOPS approval processes are understood and implemented where necessary
	8.3	System redundancy levels appropriate to ETOPS are identified and applied to ETOPS flight planning activities
	8.4	ETOPS communication and navigation requirements between aircraft and relevant agencies and aids are determined and applied to ETOPS flight planning activities
	8.5	Required ETOPS take-off, destination and alternate aerodrome requirements are assessed for suitability and recorded within flight planning and flight crew operational documentation

- 8.6** Actual or forecast weather conditions for duration of planned flight are assessed for ETOPS planning purposes
- 8.7** Aircraft performance data is interpreted and applied to ETOPS flight planning activities
- 8.8** Relevant flight support information and assistance is provided to pilot in command (PIC) for ETOPS flight planning and normal flight situations
- 8.9** Relevant flight support information and assistance is provided to PIC during abnormal or emergency ETOPS situations

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Non-essential conditions may be found in the AVI Aviation Training Package Companion Volume Implementation Guide.

Unit Mapping Information

New unit. No equivalent unit.

Links

Companion Volume Implementation Guides are found in VETNet' -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=4725260a-0af3-4daf-912b-ef1c2f3e5816>

Assessment Requirements for AVIH0018 Implement flight planning procedures

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Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all of the requirements of the elements and performance criteria on at least one occasion and include:

- adapting to differences in equipment and operating environments in accordance with standard operating procedures (SOPs)
- applying knowledge of:
 - climb and descent tables and charts
 - constant mach flight planning tables and charts
 - long range cruise charts and tables
- applying knowledge of standard extended twin-engine operations (ETOPS) considerations
- applying published visual flight rules (VFR) and instrument flight rules (IFR) procedures
- applying precautions and required actions to minimise, control or eliminate identified hazards
- applying relevant legislation and workplace procedures
- calculating altimeter corrections from authorised sources, true altitude above mean sea level and height above terrain for a range of pressure altitudes and temperatures, and using standard atmosphere tables
- calculating flight time and fuel with varying fuel quantities to determine cost of carriage
- calculating minimum fuel and flight time, including taxi fuel, optimum altitude, use of charts, reserve fuel and critical point (CP) fuel
- calculating minimum fuel to destination including distant alternates and using destination as the alternate
- communicating effectively with others
- completing relevant documentation
- decoding aviation weather reports, including observing, trending and analysing simultaneous reports and conditions
- determining aircraft limits and maximum payloads
- determining conversion angles, convergency applications, plotting relative true north and grid north using Mercator, lambert conformal and polar stereographic charts
- determining operational requirements
- estimating winds and temperatures at flight levels corresponding to upper-air charts and at intermediate flight levels
- examining surface and upper-air charts in mid-latitude and tropical regions
- examining synoptic and aeronautical prognostic charts to determine movement and time

evolution

- examining typical charts and forecasts for flight planning to decode aerodrome and trend type landing forecasts
- identifying and briefing aeronautical climatology of a specific route
- identifying and correctly using relevant equipment
- identifying and selecting suitable navigation aids/systems
- implementing contingency plans
- implementing work health and safety (WHS)/occupational health and safety (OHS) procedures and relevant regulations
- inspecting and identifying actual and forecast charts for pressure patterns on surface and upper-air charts, and identifying pressure gradients
- interpreting and following operational instructions and prioritising work
- interpreting flight charts
- interpreting meteorological forecasts
- interpreting tropopause and maximum winds charts
- interpreting weather observations plotted on standard format synoptic charts
- making flight notifications
- making proficient operational decisions
- modifying activities depending on workplace contingencies, situations and environments
- monitoring and anticipating operational problems and hazards and taking appropriate actions
- monitoring work activities in terms of planned schedule
- obtaining and using current operational documents
- operating electronic communications equipment to required protocol
- performing calculations for a given true track, true airspeed (TAS) and distance to CP in zero wind, tailwind and beam wind
- performing calculations for a given true track, TAS and endurance, distance to point of no return (PNR) in zero wind, tailwind and beam wind
- establishing maximum PNR, return to departure airport and alternate airport, all engines and one engine inoperative
- reading, interpreting and following relevant regulations, instructions, procedures, information and signs
- reporting and/or rectifying problems, faults or malfunctions promptly in accordance workplace procedures
- reviewing aircraft performance and cruise control procedures and variations using aircraft flight manual graphs
- selecting and using required personal protective equipment (PPE) conforming to industry and WHS/OHS standards
- working collaboratively with others
- working systematically with required attention to detail without injury to self or others, or damage to goods or equipment.

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all of the requirements of the elements and performance criteria and include knowledge of:

- aerodrome and en route holding procedures
- aircraft documents pouch, including:
 - aircraft radio licence
 - certificate of airworthiness
 - certificate of registration
 - emergency en route charts
 - fuel supplier carnet
 - sabotage checklist
- aircraft fuel planning, including holding, alternate, fixed reserve and usage rates
- aircraft library, including:
 - aeronautical information publications
 - aircraft journey logbook
 - aircraft operating manual
 - section of operating manual applicable to flight crew
- airspace requirements and procedures under IFR conditions
- airspace types and requirements:
 - controlled/uncontrolled airspace
 - designated remote areas (DRA)
 - military airspace
 - restricted/prohibited/danger areas
 - special procedures and fly neighbourly advice airspace
- CP and PNR
- customs and immigration forms, including:
 - crew manifest
 - general declaration forms
 - passenger manifest
- ETOPS:
 - 120 minute operation
 - 180 minute operation
 - 60 minute operation
 - adequate airport
 - airworthiness
 - all engines operating performance
 - altitude capability
 - auxiliary power unit
 - cruise altitude and coverage at 10,000 feet

- drift down
- en route alternate airport requirements
- ETOPS configuration
- extended range entry point
- extended range operations
- fail-safe
- flight planning
- fuel
- fuel and oil supply
- holding
- inflight shutdown
- minimum equipment list
- missed approach
- non-standard atmospheric conditions
- one engine inoperative performance
- operational practices and procedures
- precision and non-precision approaches
- suitable airport
- weather
- factors affecting en route performance, range and endurance
- gross error checking requirements, including:
 - aircraft registration
 - alternate/s
 - flight designator
 - fuel over destination
 - maximum permissible take-off mass
 - minimum fuel
 - name of dispatcher
 - route
 - taxi fuel
 - wind component and temperature
- ground and space-based navigation systems and infrastructure, including:
 - continuous descent final approach (CDFA) techniques
 - global navigation satellite system (GNSS) operating procedure errors
 - ground-based systems
 - space-based systems
- how to determine currency of operational documents
- icing conditions and hazards
- IFR/VFR cruising levels, selection and hazards
- IFR/VFR route planning requirements

- in an Australian Defence Force (ADF) context, relevant Defence Orders and Instructions
- flight documentation requirements
- flight procedures, including:
 - 2-D/3-D instrument approach operations
 - air traffic service requirements
 - alternate aerodrome weather minima
 - altimeter accuracy and variations due to temperature
 - chart symbology and information
 - flight instrument operations, errors and limitations
 - flight plan validity
 - lost communications procedures
 - pilot activated lighting (PAL)
 - pilot responsibilities
 - radio communication phraseology
 - reporting requirements
 - runway visual approach slope lighting system operation and limitations
 - search and rescue times (SARTIME) and pilot obligations
- lowest safe altitude (LSALT), including:
 - calculate route LSALT not specified in aeronautical information publication (AIP)
 - descent below LSALT or minimum safety altitude requirements by day/night/night-visual flight rules (NVFR)
 - establish aircraft above LSALT requirements
 - minimum obstacle clearance provided by minimum circling altitude
 - missed approach minimum obstacle clearance
 - track establishment after take-off
- meteorological considerations for a flight, including:
 - actual atmospheric heating
 - adiabatic processes
 - aeronautical forecasts
 - aeronautical meteorological reports
 - air masses and fronts
 - aircraft icing
 - analysis of surface and upper-air charts
 - atmosphere, composition and structure
 - atmospheric humidity
 - atmospheric pressures
 - atmospheric stability
 - atmospheric temperature and humidity
 - causes of reduced visibility
 - climatology

- components of aerodrome operating minima (AOM) (visibility and runway visual range (RVR))
- constant pressure charts
- fog types
- formation of clouds and precipitation and processes involved
- formation of types of precipitation
- frontal depressions and characteristics
- horizontal forces acting on the air
- International Standard Atmosphere (ISA)
- meteorological communications
- motion in cloud formation and precipitation
- mountain waves (rotors)
- observations from satellites
- other types of pressure systems
- pressure-wind relationships
- prognostic charts
- role of international meteorological services
- smoke and fire-induced weather
- station model
- surface observations
- synoptic charts in the tropics
- temperature at the earth's surface
- thunderstorms
- tropical weather
- types of atmospheric turbulence
- units of measurement
- upper-air observations
- variation to pressure height
- vertical distribution of temperature (lapse rate)
- visibility and RVR/slant visual range (SVR)
- volcanic ash
- weather reporting services
- winds in the free atmosphere
- winds near the earth surface
- navigation requirements, including:
 - aircraft performance categories and operational implications
 - AOM
 - chart projections (all types)
 - charts used by a typical operator
 - CP (equal time point)

- decision altitude (DA)
- general determination of aircraft position
- GNSS requirements
- ground-based radar and direction finding
- gyro heading and grid direction
- instrument landing system (ILS)
- International Civil Aviation Organization (ICAO) chart requirements
- introduction to radio navigation
- measure of aircraft altitude
- measurement of distance
- measurement of true airspeed by airspeed indicator
- measurement of true airspeed by other means
- navigation procedures
- normal segment gradient
- PNR
- position and distance
- position fixing requirements
- pressure error correction (PEC)
- relative bearings, including ADF aircraft
- speed limitations and restrictions
- time and time zones
- track and ground speed
- tracking tolerances
- true, magnetic and compass directions
- use of slide rules and scientific calculators
- very high frequency (VHF) omnidirectional range (VOR) and distance measuring equipment (DME) type radio navigation
- visual circling by day or night
- waypoints, symbology and pilot requirements
- operational planning requirements, including:
 - alternate aerodrome requirements
 - flight planning
 - holding fuel requirements
 - instrument approach ban
 - NVFR operational requirements
 - planned/alternate destination weather conditions below minima
 - receiver autonomous integrity monitoring (RAIM) prediction implications
- performance-based navigation (PBN), including:
 - APV Baro-VNAV instrument approach charts
 - area navigation (RNAV) required navigation performance (RNP) capability

- augmented and non-augmented approaches
- Baro-VNAV vertical guidance principles
- core components
- GNSS receiver mode conditions and actions for Required Navigation Performance Authorization Required (RNP APCH)
- GNSS receiver requirements for RNP APCH operations
- IAP charts for minima information and operational restrictions
- navigation system performance requirements
- PBN principles
- performance monitoring and alerting
- RNP approach differentiation
- RNP instrument approach requirements
- RNP leg transitions
- RNP leg types
- RNP navigation authorisation requirements
- RNP navigation system errors
- RNP specifications and system requirements
- space-based augmentation systems (SBAS)
- validity and accuracy of altimeter subscale setting to obtain elevation or altitude (QNH) or RNP APCH types
- vertical guidance information and operational considerations
- practical uses of CP
- privileges and limitations conferred by an instrument rating
- reduced vertical separation minima (RVSM) operations, including:
 - aircraft altimeter accuracy requirements
 - altimetry system failures
 - operational requirements
 - procedures and standard communication phraseology
 - range of flight levels within Australian airspace
 - vertical height tolerances
- relevant WHS/OHS and environmental procedures and regulations
- relevant sections of Civil Aviation Safety Regulations (CASRs) and Civil Aviation Orders for IFR and planning requirements
- requirements for an alternate aerodrome
- use of a navigational computer.

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory

requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in workplace operational situations. Where this is not appropriate, assessment must occur in simulated workplace operational situations that reflect workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- a range of relevant exercises, case studies and/or simulations
- acceptable means of simulation assessment
- applicable documentation, including workplace procedures, regulations, codes of practice and operation manuals
- relevant materials, tools, equipment and PPE currently used in industry.

Links

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