



Australian Government

AVIY5038 Conduct a 2D global navigation satellite system non-precision instrument approach

Release: 1

AVIY5038 Conduct a 2D global navigation satellite system non-precision instrument approach

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 conduct a 2D instrument approach using global navigation satellite system (GNSS) or non-precision approach (NPA) procedures, in compliance with relevant regulatory requirements of the Civil Aviation Safety Authority and national operating standards.

It includes selecting approach and determining minima, selecting, retrieving and activating the approach from a database, and monitoring GNSS signal integrity. It also includes conducting initial approach, conducting holding patterns, conducting approach procedure, and conducting missed approach procedure.

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

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

Work is performed independently or under limited supervision within a single-pilot or multi-crew environment.

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

Use for Defence Aviation is to be in accordance with relevant Defence Orders, Instructions, Publications and Regulations.

Pre-requisite Unit

Not applicable.

Competency Field

Y – Aircraft Operation and Traffic Management

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

PERFORMANCE CRITERIA

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

1 Select approach and determine applicable minima	1.1	Current instrument approach and landing (IAL) chart for GNSS/NPA approach to be flown is selected
	1.2	Entry to and conduct of instrument approach and missed approach procedure are reviewed and briefed to flight crew
	1.3	Currency of GNSS receiver database is confirmed
	1.4	Applicable meteorological minima of approach for aircraft performance category is determined
	1.5	Fuel availability and holding or diversion action if visual reference is not established, is reviewed and briefed to flight crew
2 Select, retrieve and activate approach from database	2.1	GNSS approach for appropriate runway from GNSS receiver navigation database, is selected
	2.2	Initial approach fix to be used to transition approach procedure is selected
	2.3	Aerodrome altimeter subscale setting to obtain elevation or altitude (QNH) in GNSS receiver is entered, and approach is activated
	2.4	Confidence check of tracks and distances between approach way-point (WPT) as calculated by the GNSS receiver, is performed
	2.5	Course deviation indicators (CDI) are checked and selected to GNSS as required
3 Monitor GNSS signal integrity	3.1	Receiver autonomous integrity monitoring (RAIM) is checked for availability on the approach
	3.2	RAIM indications are monitored throughout the approach
4 Conduct initial approach	4.1	Altimeter is set to appropriate QNH
	4.2	Track to initial approach WPT is maintained at or above route minimum safe altitude (MSA) or lowest safe altitude (LSALT)

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| 5 Conduct holding pattern | 5.1 | Automatic sequencing of GNSS is suspended |
| | 5.2 | Published holding pattern is conducted at appropriate initial approach WPT using prescribed sector entry procedure |
| | 5.3 | Automatic sequencing is resumed to continue approach |
| 6 Conduct approach procedure | 6.1 | GNSS/NPA instrument approach is conducted while descending on specified track to each approach WPT |
| | 6.2 | Approach altitude restrictions are complied with |
| | 6.3 | GNSS receiver transitions to approach mode is confirmed no later than the final approach point (FAP), WPT or discontinue approach |
| | 6.4 | Secondary navigation aid is utilised to maintain situational awareness |
| | 6.5 | Descent to not below the minimum descent altitude (MDA) while tracking to the missed approach point, is conducted within tolerances |
| | 6.6 | Landing runway is identified |
| | 6.7 | Runway or circling approach for landing is conducted after visual reference is established |
| 7 Conduct missed approach procedure | 7.1 | Conditions requiring a missed approach are recognised and missed approach is initiated |
| | 7.2 | Published missed approach procedure is executed if visual reference is not established before reaching the MAPt or RAIM |
| | 7.3 | Missed approach is conducted on any other event specified in aeronautical information publication (AIP) or GNSS operations manual |
| | 7.4 | Aircraft is manoeuvred to MAPt |
| | 7.5 | Missed approach mode is selected |
| | 7.6 | Missed approach procedure is conducted in accordance with IAL chart |
| | 7.7 | GNSS receiver is configured to conduct another approach or to hold or divert as required |
| | 7.8 | Obstacle clearance in instrument meteorological conditions |

(IMC) is maintained

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.

Unit Mapping Information

This unit replaces and is equivalent to AVIY5038A Perform global positioning system (GNSS)/non-precision approach (NPA).

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 AVIY5038 Conduct a 2D global navigation satellite system non-precision instrument approach

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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 environment in accordance with standard operating procedures
- applying global navigation satellite system (GNSS) operating procedures to typical navigation tasks
- applying precautions and required action to minimise, control or eliminate identified hazards
- applying relevant aeronautical knowledge
- applying relevant legislation and workplace procedures
- communicating effectively with others
- completing relevant documentation
- determining conditions permitting descent below minima
- determining GNSS/ non-precision approach (NPA) procedure applicable minima for aircraft
- identifying and correctly using relevant equipment
- implementing contingency plans
- implementing work health and safety (WHS)/occupational health and safety (OHS) procedures and relevant regulations
- interpreting GNSS/NPA instrument approach procedure chart
- modifying activities depending on workplace contingencies, situations and environments
- monitoring and anticipating operational problems and hazards and taking appropriate action
- monitoring GNSS signal integrity
- monitoring work activities in terms of planned schedule
- operating electronic communications equipment to required protocol
- performing systematic scan techniques
- predicting availability of approach RAIM at the destination or alternate aerodrome
- predicting RAIM availability at destination and estimated time of arrival (ETA) using aircraft GNSS receiver and, as required, an external RAIM prediction service
- reading, interpreting and following relevant regulations, instructions, procedures, information and signs
- reporting and/or rectifying identified problems promptly, in accordance with regulatory requirements and workplace procedures
- selecting and using required personal protective clothing and equipment conforming to

industry and WHS/OHS standards

- selecting, retrieving and activating approach from database
- setting local or area barometric pressure adjusted for sea level (QNH) at appropriate stages of flight
- 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:

- CASR Part 61 Manual of Standards Schedule 3 Aeronautical Knowledge relevant to instrument flight operations
- cause and magnitude of typical GNSS errors
- conditions required to transition to and operate in the mode of operation for a GNSS/NPA, and the associated course deviation indicator (CDI) sensitivity and RAIM protection provided
- effect of each type of RAIM prediction on operational requirements
- effects of availability or otherwise of baro-aiding on RAIM availability and prediction
- effects of satellite unserviceability on reliability of each type of prediction
- emergency procedures
- factors that adversely affect the conduct of a GNSS/NPA and suitable pilot procedures to minimise such effects
- GNSS operating procedures for navigation tasks
- GNSS operational and serviceability checks
- GNSS system fundamentals and principles of operations
- GNSS warnings and messages
- GNSS/NPA instrument approach procedure chart
- human factors limitations associated with using GNSS equipment
- mode of operation required during each segment of a GNSS/NPA
- operating electronic communications equipment
- operating procedures for GNSS equipment that reduce or eliminate errors
- operating procedures that provide safeguards against GNSS navigational errors
- operational requirements that apply to planning a flight on the basis of conducting a required navigation performance (RNAV) (GNSS) procedure at the destination
- parameters applicable to RAIM warnings in the en route, terminal and approach modes
- prediction limitations that apply to availability of approach RAIM at the destination or alternate aerodrome

- procedures for adjusting controls to optimise equipment operation
- procedures for managing and controlling hazardous situations
- relevant sections of national and state/territory regulatory requirements and codes of practice
- relevant WHS/occupational health and safety (OHS) and environmental procedures and regulations
- requirements applicable to pilots and equipment for GNSS operations
- requirements for completing relevant documentation
- sources of information on differences in equipment and related standard operating and servicing procedures
- steps involved in planning work activities
- tracking tolerances, automatic way-point sequencing, CDI sensitivity and RAIM availability parameters for entry, RAIM availability and approach segments.

Assessment Conditions

As a minimum, assessors must satisfy applicable regulatory requirements, which include requirements in the *Standards for Registered Training Organisations* current at the time of assessment.

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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.

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

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 personal protective equipment currently used in industry.

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