



Australian Government

Assessment Requirements for AVIH0011 Manage aircraft performance and load

Release: 1

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Modification History

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

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 (SOPs)
- applying basic principles of weight and performance limitations
- applying fuel, payload and load considerations while respecting regulatory and company approved requirements
- applying knowledge of low and high-speed aircraft buffet characteristics and determining speeds at which aircraft buffet is encountered
- applying precautions and required action to minimise, control or eliminate identified hazards
- applying relevant aeronautical knowledge
- calculating aircraft centre of gravity (CG) arithmetically and graphically using practical methods of and within acceptable ranges
- calculating balance weight required given unequal lengths of arm of beam balance and weight of one pan
- calculating CG of fully loaded aircraft with variable passenger and cargo configurations
- calculating moments about aircraft in flight
- calculating point of suspension given unequal weight in the pans of a beam balance and total length of beam
- communicating effectively with others
- completing relevant documentation
- determining maximum permissible take-off and landing weight under variable operating conditions
- determining permissible weight, altitude and temperature limit data using aircraft operating flight manual in varying conditions
- determining take-off and landing runway length and speeds using aircraft operations and flight manual in varying configurations and conditions
- developing an International Air Transport Association (IATA) loadsheet based on weight, balance and control components
- establishing and applying aircraft climb performance limitations
- identifying aircraft weight and performance planning safety factors
- identifying and correctly using equipment required to manage aircraft performance and load

- implementing contingency plans
- implementing work health and safety (WHS) procedures and relevant regulations
- modifying activities depending on workplace contingencies, situations and environments
- monitoring and anticipating operational problems and hazards and taking appropriate action
- monitoring work activities in terms of planned schedule
- operating electronic communications equipment to required protocol
- preparing and planning manual and automated loadsheets based on all known operational constraints and considerations
- reading, interpreting and following relevant regulations, instructions, procedures, information and signs
- reporting and/or rectifying problems, faults and malfunctions promptly in accordance with workplace procedures
- selecting and using required personal protective equipment (PPE) conforming to industry and WHS standards
- using aircraft flight manual charts and graphs to determine buffet boundaries and safe operating conditions
- using aircraft operating environment envelope chart effectively
- using operator advanced allotment tables to determine typical values for various routes, aircraft and operational needs
- 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:

- aircraft design weight, including:
 - maximum taxi weight
 - maximum take-off weight
 - maximum landing weight
 - maximum zero-fuel weight
- aircraft weight, balance and control definitions:
 - basic operating weight (BOW)
 - dry operating weight (DOW)
 - zero-fuel weight (ZFW)
- critical engine failure speed V1 characteristics, including:
 - weight
 - runway slope
 - runway braking coefficient
 - pressure altitude
 - temperature

- wind component
- flap position
- definition of aircraft moment
- derivation of aircraft data and calculation techniques related to aircraft performance, and load planning factors and considerations
- express terms of speed, including:
 - indicated airspeed (IAS)
 - mach number
 - designed dive speed
 - maximum operating speed
 - normal operating speed
- IATA loadsheet information requirements and compilation, including:
 - flight number
 - aircraft registration
 - dry operating weight and dry operating CG
 - zero fuel weight
 - zero fuel CG
 - take off weight CG (MAC %)
 - landing weight
 - landing weight CG (MAC %)
 - passenger distribution
 - deadload distribution – baggage, cargo and mail
 - details of dangerous goods (NOTOC)
 - details of live and perishable cargo
- IATA numbering scheme for cargo holds
- weight and balance calculations, including:
 - graphical
 - arithmetical
 - $\text{weight} \times \text{arm} = \text{moment}$
 - $\text{total moments} = \text{arm of CG}$
 - use of automated systems
- maximum payload limitations, including:
 - volumetric, floor and loading limitations
 - ramp unload and reload limitations
 - CG
 - dangerous goods
 - differences between DOW and Maximum Zero Fuel Weight (MZFW)
 - passenger capacity
- meaning and calculation of take-off safety speed (V_2)
- operating weight definitions and application to load planning, including:

- basic operating weight (BOW)
- $BOW + \text{crew, crew bags, catering, and spares} = DOW$
- $DOW + \text{payload/passenger load} = ZFW$
- $DOW + \text{take-off fuel} = \text{operating weight (OW)}$
- $ZFW + \text{payload/passenger load} = \text{take-off weight (TOW)}$
- $TOW + \text{taxi fuel} = \text{taxi weight}$
- $TOW - \text{fuel consumed en route} = \text{landing weight (LDW)}$
- $TOW - \text{take-off fuel} = ZFW$
- other terminology relevant to aircraft performance calculations not otherwise defined
- principles of balance control
- principles of weight control
- ramp weight or taxi weight, including:
 - TOW
 - LDW.

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

AVI Training Package Companion Volume Implementation Guide available on VET Net: - <https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=4725260a-0af3-4daf-912b-ef1c2f3e5816>