



Australian Government
Civil Aviation Safety Authority



Competency-based training & challenges A regulator's perspective

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An Australian perspective - attachment

Roger Crosthwaite

Branch Manager Flight Standards

National Operations and Standards Division

Aviation Group / Civil Aviation Safety Authority / Australia

roger.crosthwaite@casa.gov.au

Part 61 Manual of Standards

- Aeronautical knowledge standards
- Examination standards
- Practical flight standards
- Flight test standards
- Proficiency check standards
- Flight review standards
- English language proficiency standards

Extracts from Manual of Standards

- Schedule 1 of Part 61 MOS lists the mandatory units of knowledge and practical flight standards for each licence, rating and endorsement
- Example is recreational pilot licence
 - First slide lists knowledge standards
 - Second slide lists practical flight standards
 - Third slide shows sample knowledge standard
 - Following slides show various practical standards
- Courses of training must cover all the relevant standards
- Flight tests must cover the flight test standards
- Sufficient experience (hours) and related requirements such as language proficiency, apply

Section G Recreational pilot licence (RPL)

Appendix G.1 Aeroplane category rating (RPL)

Aeronautical knowledge standards

Unit code	Unit of knowledge
BAKC	Basic aeronautical knowledge
RFRC	RPL Flight rules and air law
RMTC	RPL Meteorology
PHFC	PPL Human factors
RBKA	Basic aeronautical knowledge – aeroplane

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Practical flight standards – aeroplane category rating

Unit code	Unit of competency
C1	Communicating in the aviation environment
C2	Perform pre- and post-flight actions and procedures
C4	Manage fuel
C5	Manage passengers and cargo
NTS1	Non-technical skills 1
NTS2	Non-technical skills 2
A1	Control aeroplane on the ground
A2	Take-off aeroplane
A3	Control aeroplane in normal flight
A4	Land an aeroplane
A5	Aeroplane advanced manoeuvres
A6	Manage abnormal situations – single-engine aeroplanes
IFF	Instrument flight full panel

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Example knowledge standard

3.2 Flight controls

- 3.2.1 Describe the primary and further effects of the elevator, rudder and aileron on an aeroplane's movement about its longitudinal, lateral and normal (vertical) axes.
- 3.2.2 Describe the effect of changes in power and airspeed on pitch trim and on the effectiveness of the elevator, rudder and ailerons.
- 3.2.3 Describe the purpose of trim controls.
- 3.2.4 State the effect of lowering or raising flap on lift, drag and attitude.

2.15 Threat and error management

- 2.15.1 Describe the basic principles of TEM.
- 2.15.2 Explain the principles of TEM and detail a process to identify and manage threats and errors during single-pilot operations.
- 2.15.3 Define 'threat' and give examples of threats.
- 2.15.4 Give an example of a committed error and how action could be taken to ensure safe flight.
- 2.15.5 Explain how the use of checklists and standard operating procedures can prevent errors.
- 2.15.6 Give examples of how an undesired aircraft state can develop from an unmanaged threat or error.
- 2.15.7 Explain what resources a pilot could identify and use to avoid or manage an undesired aircraft state such as being lost or entering adverse weather.
- 2.15.8 Explain the importance of ensuring that tasks are prioritised to manage an undesired aircraft state.
- 2.15.9 Give examples of how establishing and maintaining interpersonal relationships can promote safe flight.

Example practical competency standard

A3.1 – Climb aeroplane

- (a) operate and monitor all aircraft systems when commencing, during, and completing a climbing flight manoeuvre;
- (b) adjust altimeter subscale according to applicable settings;
- (c) identify and avoid terrain and traffic;
- (d) for the following climbing manoeuvres select power, attitude and configuration as required for the flight path, balance and trim the aeroplane accurately, and apply smooth, coordinated control inputs to achieve the required flight tolerances that apply to the manoeuvre:
 - (i) cruise climb;
 - (ii) best angle climb;
 - (iii) best rate climb;
- (e) anticipate level-off altitude and achieve straight and level flight.

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Example practical competency standard

C4.2 – Manage fuel system

- (a) verify fuel quantity on-board aircraft prior to flight using 2 independent methods;
- (b) ensure the fuel caps are secured;
- (c) perform fuel quality check prior to flight;
- (d) ensure fuel drain cocks are closed;
- (e) monitor fuel usage during the flight;
- (f) accurately maintain fuel log;
- (g) calculate and state endurance at any point during flight;
- (h) perform fuel tank changes correctly;

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Example practical competency standard

C5.1 – Manage passengers

- (a) supervise passenger safety;
- (b) encourage passengers to participate in and contribute to the safe outcome of the flight;
- (c) conduct pre-flight passenger safety briefing;
- (d) ensure passengers are aware of, and avoid interference with, flight and systems controls;
- (e) ensure passengers are aware of, and comply with, the use of seat harnesses;
- (f) ensure passengers are aware of the use of escape hatches, exits and emergency equipment on board the aircraft;
- (g) manage passenger safety in the event of abnormal or in-flight emergency situations.

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Example practical competency standard

NTS1.2 – Maintain situational awareness

- (a) monitor all aircraft systems using a systematic scan technique;
- (b) collect information to facilitate ongoing system management;
- (c)** monitor flight environment for deviations from planned operations;
- (d) collect flight environment information to update planned operations.

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Example practical competency standard

NTS2.3 – Recognise and manage undesired aircraft state

- (a) recognise an undesired aircraft state;
- (b) prioritise tasks to ensure an undesired aircraft state is managed effectively;
- (c) apply corrective actions to recover an undesired aircraft state in a safe and timely manner.

Old versus new standards

The following slides compare the old style standard and new competency-based standards for the aerial mustering approval

Old helicopter aerial mustering

Training syllabus — helicopters

- (a) Aircraft Handling and Low Flying:
 - (i) hovering and slow flight;
 - (ii) manoeuvring in and out of effective translational lift in varying wind conditions;
 - (iii) manoeuvring in and out of ground effect;
 - (iv) low flying (below 100 feet);
 - (v) quick stops (including review of vortex ring conditions);
 - (vi) methods of losing height;
 - (vii) steep and torque turns;
 - (viii) autorotative landings from normal and low level flight;
 - (ix) precautions for operating in ground effect in dusty conditions;
 - (x) avoidance of obstacles;
 - (xi) low flying in hilly terrain;
 - (xii) effect on false horizons;
 - (xiii) effect of the sun, under certain conditions, on visibility;
 - (xiv) approach to high ground — use of escape routes.

Part 61 MOS standard

LL-M Aerial mustering operations

Unit description

This unit describes the skills and knowledge required to conduct aerial mustering operations.

The range of variables (operational scope) and underpinning knowledge standards are part of the unit.

2 Elements and performance criteria

2.1 LL-M.1 – Plan a stock mustering operation

Formulate a stock mustering operation plan, including:

- (a) determination of location and boundaries of the area of operation, terrain features;
- (b) suitability and serviceability of aircraft, starting point, positioning of support personnel, final destination of stock, location and suitability of landing areas;
- (c) present and forecast weather;
- (d) methods of communication and signals;
- (e) hazards and obstructions;
- (f) emergency procedures to ensure the safe and effective operation.

LL-M.3 – General manoeuvring

- (a) achieves desired ground tracks;
- (b) maintains visual contact with the ground;
- (c) manages the effect of wind and turbulence.

LL-M.4 – Conduct a stock mustering operation using an aircraft

- (a) coordinates and conducts the assembly and movement of stock to predetermined destination in the time available, safely and effectively, using an aircraft;
- (b) establishes and maintains an effective communication system with stock mustering people on the ground.

3 Range of variables

- (a) activities are performed in accordance with published procedures;
- (b) day VFR;
- (c) for the aerial mustering – aeroplane endorsement, the aircraft must be an aeroplane;
- (d) for the aerial mustering – helicopter endorsement, the aircraft must be an helicopter;
- (e) for the aerial mustering – gyroplane endorsement, the aircraft must be an gyroplane;
- (f) obstructions and vertical terrain;
- (g) up to and including light turbulence;
- (h) simulated emergency or abnormal situations;
- (i) simulated hazardous weather;
- (j) stock.

4 Underpinning knowledge of the following:

- (a) the topics mentioned in Section 2.5, Low-level rating in Schedule 3 of this MOS;
- (b) maximum rate and minimum rate turn criteria;
- (c) the effect of wind velocity in low-level operations;
- (d) the effect of aircraft inertia at low level;
- (e) effects of illusions;
- (f) obstruction avoidance techniques;
- (g) critical operational conditions, including, aerodynamic stall, retreating blade stall, blade flap, and negative 'g' effects;
- (h) meteorological factors affecting performance at low level;
- (i) terrain following techniques;
- (j) safety hazards and risks of low-level operations and methods of control.

CASA resources

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Thank you