

Leeming Aerodrome

Aerodrome Manual

Copy Number 2

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Foreword

The Leeming aerodrome manual has been written in accordance with CASR 139 Division 139.B.2 requirements.

To satisfy the requirements of CASR 139.B.3 the Leeming Shire will operate and maintain the aerodrome in accordance with the procedures of this manual.

Issued under authority of ...**to be signed by the most senior operational person!!**

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Introduction - Master Contact list

Chief Executive Officer

John Smith Work 08 9366 2872
 A/h 08 9366 2872

Airport Manager

Jane Smith Work 08 7777 6666
 A/h 0417 333 888

Manual Controller

Jane Smith [Airport Manager]

Reporting Officer

Fred Smith Work 08 7777 4412
 A/h 0417 111 222

Reporting Officer

Jim Smith Work 08 7777 4412
 A/h 0417 111 222

NOTAM office [NOF] Brisbane

(07) 3866 3648
Fax (07) 3866 3553

Electrical Contractor

James Smith Work 08 5555 6666
 A/h 0417 999 333

CASA national switchboard

131 757

AuSAR

1800 815 257

This list must include [at least] all people who are involved with operational aspects of the aerodrome.

Introduction - Distribution list

Copy 1 [Airport Manager](#)
Copy 2 CASA
Copy 3 [Reporting Officer's office](#)

Note that CASR 139.090 states that:

- The operator must give CASA a copy of the manual and must keep another copy at the operator's principal place of business or at the aerodrome.
- The operator must make the copy of the manual kept at the operator's principal place of business or at the aerodrome available to authorised persons during normal business hours.

Introduction - Supporting Operational Documents

CASR 139.100 (3) states that; if CASA approves the manual may consist of more than one document. If this applies then list these documents here.

This section will also contain titles and location of all files and databases used for recording operational activities such as reporting, AEP activity, airside access and vehicle control etc

Manuals for installations such as PAPI, standby generators, AFRU etc are also to be listed – including their location.

Part 1 Section 1 Aerodrome site information

For subparagraph 139.095 (a) (i), the particulars are as follows:

- (a) A plan of the aerodrome showing the main aerodrome facilities, including the wind direction indicators, for the operation of the aerodrome;*

- (b) A plan of the aerodrome showing the aerodrome boundaries;*

- (c) A plan showing the distance of the aerodrome from the nearest city, town or other populous area, and the location of any aerodrome facilities and equipment outside the boundaries of the aerodrome;*

- (d) Either:*
 - (i) Particulars of title of the aerodrome site; or*
 - (ii) If the boundaries of the aerodrome are not defined in the documents of title — the particulars of the title to, or interests in, the property on which the aerodrome is located and a plan showing the boundaries and position of the aerodrome.*

Note: Taxiway widths should also be shown on the drawing.

Part 2 Section 1 Aerodrome administration

Organisational structure

(i) The organisational structure;

Management Positions

(ii) The management positions responsible for the operation and maintenance of the aerodrome;

- Include the person responsible for ensuring that the aerodrome facilities and equipment are planned, constructed, installed and maintained in accordance with the MOS standards.*
- Include the person responsible for ensuring that all personnel are trained in accordance with the MOS [Note this includes Reporting Officers, Works Safety Officers and personnel conducting Technical Inspections] and maintaining training records.*

(iii) Responsibilities and contact details of the person who is the aerodrome manual controller and include the following responsibilities.

- Keep a record of the persons who hold copies of the whole or part of the aerodrome manual.*
- Distributing updates of information for the manual [in printed or electronic form] to those persons and compliance with a specified time.*
- Monitor currency of all distributed copies.*
- Amending the manual whenever necessary to maintain its accuracy.*
- Complying with directions given by CASA to amend the manual.*
- Must tell CASA, in writing, of any amendment that the operator makes to the aerodrome manual for the aerodrome within 30 days after the amendment is made.*
- Include information on where electronic master copy of manual is held.*

Conditions, Exemptions, Directions and Variations

List the following:

Details of exemptions applicable to the aerodrome, if any. Include the position responsible for applying for and administering exemptions.

If CASA gives the operator an exemption under regulation 139.020 in relation to the aerodrome then list:

- (i) Any identifying number given to the exemption by CASA; and*
- (ii) The date on which the exemption came into effect; and*
- (iii) Any condition subject to which the exemption is granted.*

Details of conditions applicable to the aerodrome certificate if any. Include the position responsible for ensuring compliance with conditions.

Details of directions issued by CASA if any. Include the position responsible for ensuring compliance with directions.

Details of any variations to standards that have been agreed to with CASA. Include the position responsible for identifying non-compliances with standards, notifying CASA and administering any variations agreed to.

Part 2 Section 2 Aerodrome emergency plan

- (i) The composition of the aerodrome emergency committee and contact details for the emergency service organisations represented on the committee;*

- (ii) A description of the role of each emergency service organisation involved in the plan;*

- (iii) The activation, control and coordination of the emergency service organisations during an emergency;*

- (iv) The aerodrome's emergency facilities and arrangements for keeping them in readiness;*

- (v) The operational response to an emergency, including arrangements for aerodrome access and assembly areas;*

- (vi) The response to a local stand-by call out;*

- (vii) The response to a full emergency call out;*

- (viii) The arrangements to return the aerodrome to operational status after an emergency;*

- (ix) Arrangements for periodic review [at least annually] of the AEP by the committee*

- (x) Arrangements for testing the aerodrome emergency plan at least every two years.*
 - To test the co-ordination of the emergency service organisations and the adequacy of the procedures and facilities provided.*
 - Note: If a real emergency occurs within six months before an emergency exercise is due, you may ask CASA to defer the exercise.*

Arrangements for reviewing actual emergencies or exercises as soon as practicable to assess the plan's adequacy and take corrective action. Determine if documented procedures were generally achieved by each agency.

Arrangements for ensuring that all AEP activities are appropriately recorded and followed up and the records kept for at least three years.

Part 2 Section 3 Aerodrome lighting

All new and existing lighting facilities will be installed and maintained in accord with the requirements of MOS 139.

Before certain lighting facilities are put into operation and where appropriate they will be:

- Checked by an electrical engineer or licensed electrician
- Surveyed when required by a suitably qualified person
- Flight checked by a CASA approved pilot

Details of these checks will be forwarded to CASA for approval of the issue of a permanent NOTAM.

An inventory/description of the aerodrome lighting system.

- *Include design aircraft for PAPI*

- (i) *The arrangements for carrying out inspections and the checklist for inspections;*

- ii) *The arrangements for recording the results of inspections and for taking follow-up action to correct deficiencies;*

- (iii) *The arrangements for switching lights on and off, including back-up arrangements for pilot-activated lighting;*
 - *Details of location of switches, switching procedures etc*

- (iv) *The arrangements for carrying out routine maintenance and emergency maintenance;*
 - *Determine and specify a minimum spares holding list.*

- (v) *The arrangements for providing secondary power, stand-by power and portable lighting if any.*

- (vi) *The titles and roles of the persons who are responsible for the inspection and maintenance of the lighting. The telephone numbers for contacting these persons must be included in the master contact list.*

Part 2 Section 4 Aerodrome reporting

- (i) *The arrangements for reporting any changes that may affect aircraft operations to AIS and local air traffic services and recording the reporting of changes during and outside the normal hours of aerodrome operation;*

- (ii) *Details of the persons and organisations to which changes are to be reported. The telephone numbers for contacting these persons must be included in the master contact list.*

- (iii) *The titles and roles of the persons who are responsible for aerodrome reporting. The telephone numbers for contacting these persons must be included in the master contact list.*

 - *Include procedure for raising temporary and permanent NOTAMs.*

- (iv) *The arrangements for reporting and filing changes of aerodrome information published in AIP to AIS and CASA;*

 - *Changes to physical conditions*
 - *Changes to published information*
 - *Obstacle information*
 - *If applicable changes to serviceability of AFRU and PAL.*

- (v) *The arrangements for keeping records of reports made in respect to NOTAMs and AIP amendments.*

 - *File copies of NOTAM requests and the published NOTAMs*
 - *Establish how confirmation of issued NOTAMs is obtained from Airservices Australia.*

Part 2 Section 5 Unauthorised entry to aerodrome

Procedures for preventing the unauthorised entry of persons, vehicles, equipment, plant or animals, or other things that may endanger aircraft safety, into the movement area, including details of the following:

- (i) Arrangements for controlling airside access;*
 - *Authorised access e.g. key register, passes etc*
 - *Physical control methods e.g. fences, gates etc*
 - *Method of monitoring and recording unauthorised entry*

- (ii) The names and roles of the persons who are responsible for controlling access to the movement area. The telephone numbers for contacting these persons must be included in the master contact list*

Part 2 Section 6 Aerodrome serviceability inspections

- (i) The arrangements for carrying out the inspections during and after working hours;*

- (ii) Details of the intervals at which the inspections are carried out and the times of the inspections;*

- (iii) The arrangements for keeping an inspection log, what form it takes and the place where it is kept;*

- (iv) Details of the inspection checklist;*

- (v) The arrangements for communicating with air traffic control, broadcasting intentions on MBZ or monitoring area traffic during the inspections;*

- (vi) The arrangements for reporting the results of the inspections and for taking prompt follow-up action to ensure correction of unsafe conditions;*
 - Records of corrective action requests, follow up action and acquittal.*
 - Arrangements for initiating a Technical Inspection if required following a serviceability inspection.*

- (vii) The titles and roles of the persons who are responsible for serviceability inspections. The telephone numbers for contacting these persons must be included in the master contact list*

Part 2 Section 7 Aerodrome technical inspections

To satisfy CASR 139.240 requirements only appropriately qualified persons will carry out Technical Inspections.

CASR 139.235 allows for the conduct of parts of the technical inspection to be at different times, however each part of the technical inspection will be completed at intervals of not more than twelve months.

Technical Inspections will be carried out if the need is identified by a serviceability inspection.

(i) The items that need to be technically inspected and when the inspections are to be carried out.

The inspection must include the following:

(a) an instrument survey of the approach, take-off and transitional surfaces including GPS-NPA protection;

(b) an inspection and testing of the aerodrome lighting and electrical reticulation systems, including the visual approach slope indicator;

(c) an electrical testing of any earthing points at the aerodrome;

(d) an inspection and assessment of the movement area pavements and drainage;

(e) an inspection of signs on the movement area;

(f) an inspection of facilities at the aerodrome used for any of the following:

(i) aerodrome emergencies;

(ii) the handling of hazardous materials;

(iii) bird and animal hazard management;

(iv) stand-by and emergency aerodrome lighting;

(g) an inspection of airside vehicle control arrangements (if any);

(h) a check of the currency and accuracy of:

(i) aerodrome information published in AIP; and

(ii) aerodrome operating procedures specified in the aerodrome manual for the aerodrome.

Note: For each of parts (a) to (h) include details of when the inspection is to be done, by whom and the process for recording the inspection and developing a plan for corrective action.

- (ii) *The arrangements for technically qualified people to carry out the technical inspections;*
 - *Establish and record credentials of persons doing technical inspections.*

- (iii) *The arrangements for recording the results of the inspections and for taking prompt follow-up action to ensure correction of defects.*
 - *Records are kept for at least three years.*

Part 2 Section 8 Aerodrome works safety

Aerodrome Works means: Construction or maintenance works carried out at an aerodrome, on or adjacent to the movement area, that may create obstacles or restrict the normal take-off and landing of aircraft.

Installation of new facilities and maintenance of existing facilities will be carried in accord with the requirements of MOS 139.

All aerodrome works will be carried out in accordance with MOS 139.

- **NOTAMs will be issued not less than 48 hours before commencement of aerodrome works under an MOWP or 24 hours for time limited works.**
- **Time limited works will not be carried out at night or when visibility is less than 5km.**
- **Duties of the Works Safety Officer will be in accord with MOS 139 Chapter 10 Section 10.12.**

Works within runway strips will be conducted in accord with the requirements in MOS 139 Chapter 10 Sub-section 10.10.12.

Arrangements for ensuring compliance with the MOS requirements relating to the period of notice for works.

Arrangements for providing and setting out visual aids for works.

- *Suitable quantities of visual aids available*
- *The MOWP drawing to depict chainages; for runway, equipment limit line [witches hats], runway end [red and white u/s cones] and displaced threshold.*

Arrangements for providing a trained works safety officer for aerodrome works.

- (i) *The preparation of a method-of-working plan identifying areas of the aerodrome affected during each stage of the work and steps taken to ensure safety standards are met;*
 - *Identify the person/position responsible for writing the MOWP.*
- (ii) *The distribution list for the method-of-working plan;*
- (iii) *The arrangements for telling aircraft operators and other aerodrome users of the method-of-working plan and the telephone numbers for contacting those operators and users during and after working hours;*

- (iv) The arrangements for communicating with air traffic control and aircraft during the carrying out of the works;*

- (v) The arrangements for carrying out time-limited works;*

- (vi) Arrangements for ensuring that any works do not create a hazard to aircraft or confusion to pilots.*

- (vii) The titles and roles of the persons who are responsible for planning and carrying out aerodrome works. The telephone numbers for contacting these persons must be included in the master contact list.*

Part 2 Section 9 Aircraft parking control

- (i) Particulars of the procedures for aircraft parking control, if established, including details of the following:*

- (ii) The arrangements between air traffic control and apron management;*

- (iii) The arrangements for allocating aircraft parking positions;*
 - Procedure for ensuring suitable apron markings are provided.*

- (iv) The arrangements for initiating engine start and ensuring clearances for aircraft push-back;*

- (v) An inventory and description of the activation and deactivation of any visual docking guidance system used at the aerodrome;*

- (vi) The marshalling service;*

- (vii) The leader (van) service or follow-me service;*

- (viii) The names, telephone numbers and roles of the persons responsible for planning and implementing aircraft parking control.*

Part 2 Section 10 Airside vehicle control

- (j) If procedures have been established at the aerodrome for the control of surface vehicles operating on or near the movement area, particulars of those procedures, including details of the following:*

- (ii) The applicable traffic rules (including speed limits) and the means of enforcement of the rules;*

 - Details of how records are managed.*

- (iii) The method of instructing and testing drivers in relation to the applicable traffic rules;*

- (iv) The names, telephone numbers and roles of the persons who are responsible for airside vehicle control.*

Part 2 Section 11 Bird and animal hazard management

To facilitate safe aircraft operations the aerodrome environment is managed to discourage bird and animal activity e.g. minimising water ponding on runway strips, removing food sources etc.

All bird and animal strikes will be reported to ATSB.

Particulars of the procedures to deal with danger to aircraft operations caused by the presence of birds or animals on or near the aerodrome, including details of the following:

- (i) *The arrangements for assessing any bird or animal hazard;*

- (ii) *The arrangements for the removal of any bird or animal hazard;*
 - *Details of licences and permits, if applicable.*

- (iii) *The names and roles of the persons responsible for dealing with bird or animal hazards, and the telephone numbers for contacting them during and after working hours.*

Part 2 Section 12 Obstacle control

The manual will contain information on obstacles that have been assessed as requiring marking and/or lighting and these obstacles will be plotted on the OLS drawing to assist in future assessments.

Particulars of the following:

- (i) The procedures for monitoring the obstacle limitation surfaces and the Type A chart take-off surface for obstacles;*
 - OLS approach/take-off surveys are conducted annually by a consultant and records are kept of all surveys.*

- (ii) The procedures for monitoring building developments (in relation to the height of buildings and other structures) within the horizontal limits of the obstacle limitation surfaces;*

- (iii) If the aerodrome has instrument approach procedures — the procedures for monitoring for new objects or building developments in any other areas nominated by the instrument procedure designers;*
 - Have drawings been received from procedure designer showing pans ops surfaces and obstacle information?*
 - Method for advising procedure designer of change of the status of critical obstacles.*

- (iv) The arrangements between CASA, local planning authorities and other relevant organisations in relation to the approval of building developments that may infringe the obstacle limitation surfaces;*

- (v) The names, telephone numbers and roles of the persons responsible for planning and implementing obstacle control.*

Part 2 Section 13 Disabled aircraft removal

Particulars of the procedures for removing an aircraft that is disabled on or near the movement area, including details of the following:

- (i) The roles of the aerodrome operator and the holder of the aircraft's certificate of registration;*

- (ii) The arrangements for telling the holder of the certificate of registration;*
 - If necessary the holder of the certificate of registration will be identified through the aircraft register on the CASA website <http://casa.gov.au/casadata/register/index.htm>*
 - Disabled aircraft removal activities will be documented.*

- (iii) The arrangements for liaising with air traffic control and the Australian Transport Safety Bureau;*

- (iv) The arrangements for obtaining equipment and persons to remove the aircraft;*
 - Name and contact number of organisations and type of equipment available.*

- (v) The names and roles of the persons who are responsible for arranging for the removal of an aircraft which is disabled, and the telephone numbers for contacting them during and after working hours.*

Part 2 Section 14 Handling of hazardous materials

Hazardous material related incidents are reported and if necessary followed up.

Particulars of the procedures for the safe handling of hazardous materials on the aerodrome, including details of the following:

- (i) The names, telephone numbers and roles of the persons who are to receive and handle hazardous materials;*

- (ii) The arrangements for special areas on the aerodrome to be set up for the storage of flammable liquids (including aviation fuels) and any other hazardous materials;*
 - Details of storage areas are recorded in this section.*

- (iii) The methods to be followed for the delivery, storage, dispensing and handling of these materials.*
 - Include reference to applicable Australian standards*

Note 1 *Hazardous materials include explosives, flammable liquids and solids, corrosive liquids, compressed gases, and magnetised or radioactive materials.*

Note 2 *The arrangements to deal with an accidental spillage of hazardous materials are to be set out in the aerodrome emergency plan.*

Part 2 Section 15 Protection of radar and navigational aids

Particulars of the procedures for the protection of radar and navigational aids located on the aerodrome to ensure that their performance will not be degraded, including details of the following:

- (i) The arrangements for the control of activities near radar and navigational aid installations;*

- (ii) The arrangements, made in consultation with the provider of the navigational aid installation, for the supply and installation of signs warning of hazardous microwave radiation;*

- (iii) The arrangements for ground maintenance near these installations.*

If any of the above is not applicable then:

- Include a statement to that effect; and
- The reasons why it is not applicable

Part 2 Section 16 Low visibility operations

Particulars of the procedures for the management of ground activities at an aerodrome where low visibility operations are conducted, including details of the following:

- (i) The arrangements for measuring visibility along a runway and passing the information to air traffic control, if required;*

- (ii) The arrangements for minimising vehicular traffic within the movement area during periods of low visibility operations;*

- (iii) The arrangements for runway inspections during periods of low visibility operations;*

- (iv) The names and roles of the persons who are responsible for managing low visibility operations, and the telephone numbers for contacting them during and after work hours.*

If these operations are not applicable then:

- Include a statement to that effect; and
- The reasons why it is not applicable

Part 2 Section 17 Local procedures

Where applicable, include information on local procedures to address issues such as:

- Pavement concession procedures
- Private ILS operation and maintenance.
- Cropping that is permitted airside.
- Regular air shows or model aircraft displays.
- Use of aerodrome for annual drag racing.
- Gliding operations
- Parachute jumping.

Part 3 Section 1 General information

The following general information about the aerodrome:

- (i) The name of the aerodrome;*

- (ii) The State or Territory where the aerodrome is located;*

- (iii) The geographic coordinates of the aerodrome reference point;*

- (iv) The elevation of the aerodrome, based on the Australian Height Datum;*

- (v) Details of the aerodrome beacon;*

- (vi) The name of the aerodrome operator and the address and telephone numbers at which the aerodrome operator may be contacted at all times.*

It is advantageous to include information on taxiway widths if this is not already annotated on the aerodrome drawing.

Part 3 Section 2 Information for runways

The following information for each runway at the aerodrome:

- (i) The magnetic bearing of the runway and the runway number;*

- (ii) The runway reference code number for the approach and take-off areas that have been surveyed;*

- (iii) The length, width and slopes of the runway;*

- (iv) The length and width of the graded and overall runway strip;*

- (v) The pavement surface type and its strength rating;*

- (vi) The runway declared distances and take-off gradient;*

- (vii) The supplementary take-off distances;*

- (viii) The Aerodrome Obstacle Chart Type A, if applicable.*

Include details of runway shoulders where constructed.
Set out the information similar to the layout in ERSA.
Include RL of runway THR [as published in DAP]

Part 3 Section 3 Information about visual aid systems

The following information about visual aid systems at the aerodrome:

- (i) The type of runway lighting and the stand-by power, if any, for that lighting; [also include portable lighting]*

- (ii) The type of approach lighting;*

- (iii) The visual approach slope indicator system, if any;*

- (iv) A description of the visual docking guidance systems at any aprons used by aircraft conducting international operations, and the aircraft parking positions where the systems are installed.*

Set out the information in the same sequence and layout as in ERSA.

Part 3 Section 4 Local information

The following local information about the aerodrome:

(i) The hours of operation, if applicable;

(ii) The available ground services;

(iii) Any special procedures;

(iv) Any local precautions.

Part 3 Section 5 Aerodrome Radio Communication Services

(1) The operator of a non-controlled aerodrome must ensure that there is a Frequency Confirmation System (AFRU) for the aerodrome if:

- (a) The aerodrome is located in an MBZ; or
- (b) The aerodrome is used at least five times a week by aircraft that:
 - (i) are engaged in RPT or charter operations; and
 - (ii) have a maximum passenger seating capacity of more than nine seats

(2) The Frequency Confirmation System must comply with the standards for Frequency Confirmation Systems set out in manual of standards.

Include in the manual:

- Is AFRU and PAALC combined
- Location of AFRU
- AFRU frequency
- Method of checking AFRU serviceability
- Method of reporting AFRU unserviceability - eg issuing NOTAM

Definitions and Abbreviations

Definitions

Aerodrome	A defined area on land or water (including any buildings, installations, and equipment) intended to be used either wholly or in part for the arrival, departure and surface movement of aircraft.
Aerodrome beacon	Aeronautical beacon used to indicate the location of an aerodrome from the air.
Aerodrome elevation	The elevation of the highest point of the landing area.
Aerodrome reference point	The designated geographical location of an aerodrome.
Aerodrome reference temperature	The monthly mean of the maximum daily temperature for the hottest month of the year (the hottest month being that which has the highest monthly mean temperature.)
Aerodrome traffic density	See Paragraph 9.1.1.2(b).
Aerodrome works	Construction or maintenance works carried out at an aerodrome, on or adjacent to the movement area, that may create obstacles or restrict the normal take-off and landing of aircraft.
Aeronautical beacon	An aeronautical ground light visible at all azimuths, either continuously or intermittently, to designate a particular point on the surface of the earth.
Aeronautical ground light	Any light specially provided as an aid to air navigation, other than a light displayed on an aircraft.
Aeronautical study	An investigation of a problem concerned with some phase of flight, and aimed at identifying possible solutions and selecting the one most acceptable from the point of view of flight safety.
Aeroplane reference field length	The minimum field length required for take-off at maximum certificated take-off mass, sea level, standard atmospheric conditions, still air and zero runway slope, as shown in the appropriate aeroplane flight manual prescribed by the certificating authority or equivalent data from the aeroplane manufacturer. Field length means balanced field length for aeroplanes, if applicable, or take-off distance in other cases.
Aircraft classification number (ACN)	A number expressing the relative effect of an aircraft on a pavement for a specified standard subgrade category.
Aircraft parking position	A designated area on an apron intended to

	be used for parking an aircraft. Also known as an aircraft stand.
Air side	The movement area of an aerodrome, adjacent terrain and buildings or portions thereof, access of which is controlled.
Apron	A defined area on a land aerodrome intended to accommodate aircraft for the purposes of loading or unloading passengers, mail or cargo, fuelling, parking, or maintenance.
Apron management service	A service provided to regulate the activities and the movement of aircraft and vehicles on the apron.
Balanced field length	A field length where the distance to accelerate and stop is equal to the take-off distance of an aeroplane experiencing an engine failure at the critical engine failure recognition speed (V1).
Barrette	Three or more aeronautical ground lights closely spaced in a transverse line so that from a distance they appear as a short bar of light.
Capacity discharge light	A lamp in which high-intensity flashes of extremely short duration are produced by the discharge of electricity at high voltage through a gas enclosed in a tube.
Clearway	A defined area at the end of the take-off run available on the ground or water under the control of the aerodrome operator, selected or prepared as a suitable area over which an aeroplane may make a portion of its initial climb to a specified height.
Critical aeroplane	The aeroplane or aeroplanes identified from among the aeroplanes the aerodrome is intended to serve as having the most demanding operational requirements with respect to the determination of movement area dimensions, pavement bearing strength and other physical characteristics in the design of aerodromes.
Critical obstacle	The obstacle within the take-off climb area and/or the approach area, which subtends the greatest vertical angle when measured from the inner edge of the take-off climb surface and/or the approach surface.
Cross-wind component	The surface wind component at right angles to the runway center line.
Declared distances	<ol style="list-style-type: none"> 1. Take-off run available (TORA). The length of runway declared available and suitable for the ground run of an aeroplane taking off. 2. Take-off distances available

	<p>(TODA). The length of the takeoff run available plus the length of the clearway, if provided.</p> <p>3. Accelerate-stop distance available (ASDA). The length of the take-off run available plus the length of the stopway, if provided.</p> <p>4. Landing distance available (LDA). The length of runway which is declared available and suitable for the ground run of an aeroplane landing.</p>
Dependent parallel approaches	Simultaneous approaches to parallel or near-parallel instrument runways where radar separation minima between aircraft on adjacent extended runway centre lines are prescribed.
Displaced threshold	A threshold not located at the extremity of a runway.
Effective intensity	The effective intensity of a flashing light is equal to the intensity of a fixed light of the same colour, which will produce the same visual range under identical conditions of observation.
Elevation	The vertical distance of a point or a level, on or affixed to the surface of the earth, measured from the mean sea level.
Fixed light	A light having constant luminous intensity when observed from a fixed point.
Frangible object	An object of low mass designed to break, distort or yield on impact so as to present the minimum hazard to aircraft.
Hazard beacon	An aeronautical beacon used to designate a danger to air navigation.
Holding bay	A defined area where aircraft can be held, or bypassed, to facilitate efficient surface movement of aircraft.
Independent parallel approaches	Simultaneous approaches to parallel or near-parallel instrument runways where radar separation minima between aircraft on adjacent extended runway centre lines are not prescribed.
Independent parallel departures	Simultaneous departures from parallel or near-parallel instrument runways.
Instrument approach procedures	The procedures to be followed by aircraft in letting down from cruising level and landing at an aerodrome. (A series of predetermined manoeuvres by reference to flight instruments for the orderly transfer of an aircraft from the beginning of the initial approach to a landing, or to a point from which a landing may be made.)
Instrument meteorological conditions	Meteorological conditions expressed in

(IMC)	terms of visibility, distance from cloud, and ceiling, less than the minimum specified for visual meteorological conditions.
Instrument runway	<p>One of the following types of runway intended for the operation of aircraft using instrument approach procedures:</p> <ol style="list-style-type: none"> 1. Non-precision approach runway. An instrument runway served by visual aids and a radio aid providing at least directional guidance adequate for a straight-in approach with a published minimum descent altitude, also known as landing minima for a particular radio aid or a combination of radio aids. 2. Precision approach runway, category I. An instrument runway served by ILS or MLS and visual aids intended for operations with a decision height not lower than 60 m (200 ft) and either a visibility not less than 800 m or a runway visual range not less than 550 m. 3. Precision approach runway, category II. An instrument runway served by ILS or MLS and visual aids intended for operations with a decision height lower than 60 m (200 ft) but not lower than 30 m (100 ft) and a runway visual range not less than 350 m. 4. Precision approach runway, category III. An instrument runway served by ILS or MLS to and along the surface of the runway and: <ol style="list-style-type: none"> a. intended for operations with a decision height lower than 30 m (100 ft), or no decision height and a runway visual range not less than 200 m. b. intended for operations with a decision height lower than 15 m (50 ft), or no decision height and a runway visual range less than 200 m but not less than 50 m. c. intended for operations with no decision height and no runway visual range limitations. <p>Note Visual aids need not necessarily be matched to the scale of non-visual aids provided. The criterion for the selection of visual aids is the conditions in which operations are intended to be conducted.</p>
Intermediate holding position	A designated holding position intended for traffic control at which taxiing aircraft and vehicles shall stop and hold until further clearance to proceed, when so instructed by the aerodrome control tower.
Joint user aerodromes	An aerodrome under the control of a part of the Defence Force in respect of which an

	arrangement under Section 20 of the Act is in force.
Landing area	That part of a movement area intended for the landing or take-off of aircraft.
Light failure	A light shall be deemed to be unserviceable when the main beam average intensity is less than 50% of the value specified in the appropriate figure showing the isocandella diagram. For light units where the designed main beam average intensity is above the value shown in the isocandella diagram, the 50% value shall be related to that design value. (When assessing the main beam, specified angles of beam elevation, toe-in and beam spread shall be taken into consideration).
Lighting system reliability	The probability that the complete installation operates within the specified tolerances and that the system is operationally usable.
Manoeuvring area	That part of the aerodrome to be used for the take-off, landing and taxiing of aircraft, excluding aprons.
Marker	An object displayed above ground level in order to indicate an obstacle or delineate a boundary.
Marking	A symbol or group of symbols displayed on the surface of the movement area in order to convey aeronautical information.
Mass	The terms mass and weight used in this MOS have the same meaning.
MAUM	Maximum all up mass.
MTOW	Maximum take-off weight.
Movement	Either a take-off or a landing by an aircraft.
Movement area	That part of the aerodrome to be used for the take-off, landing and taxiing of aircraft, consisting of the manoeuvring area and the apron(s).
Near parallel runways	Non-intersecting runways whose extended centre lines have an angle of convergence/divergence of 15 degrees or less.
Non-instrument runway	A runway intended for the operation of aircraft using visual approach procedures.
Non-precision approach runway	See Instrument runway .
Notices to airmen (NOTAMs)	A notice issued by the NOTAM office containing information or instruction concerning the establishment, condition or change in any aeronautical facility, service, procedure or hazard, the timely knowledge of which is essential to persons concerned with flight operations.

Obstacles	All fixed (whether temporary or permanent) and mobile objects, or parts thereof, that are located on an area intended for the surface movement of aircraft or that extend above a defined surface intended to protect aircraft in flight.
Obstacle free zone (OFZ)	The airspace above the inner approach surface, inner transitional surfaces, balked landing surfaces, and that portion of the strip bounded by these surfaces, which is not penetrated by any fixed obstacle other than a low-mass and frangibly mounted one required for air navigation purposes.
Obstacle limitation surfaces (OLS)	A series of planes associated with each runway at an aerodrome that defines the desirable limits to which objects may project into the airspace around the aerodrome so that aircraft operations at the aerodrome may be conducted safely.
Pavement classification number (PCN)	A number expressing the bearing strength of a pavement for unrestricted operations by aircraft with ACN value less than or equal to the PCN.
Precision approach runway	See Instrument runway .
Primary runway(s)	Runway(s) used in preference to others whenever conditions permit.
Radio aids	Also known as non-visual aids. These aids may consist of NDB, VOR, VOR/DME or GPS.
Runway	A defined rectangular area on a land aerodrome prepared for the landing and take-off of aircraft.
Runway end safety area (RESA)	An area symmetrical about the extended runway centre line and adjacent to the end of the strip primarily intended to reduce the risk of damage to an aeroplane undershooting or overrunning the runway.
Runway holding position	A designated position intended to protect a runway, an obstacle limitation surface, or an ILS/MLS critical/sensitive area at which taxiing aircraft and vehicles shall stop and hold, unless otherwise authorised by the aerodrome control tower.
Runway guard light	A light system intended to caution pilots or vehicle drivers that they are about to enter an active runway.
Runway strip	A defined area including the runway and stopway, if provided, intended: <ol style="list-style-type: none"> 1. to reduce the risk of damage to aircraft running off a runway; and 2. to protect aircraft flying over it during take-off or landing operations.

Runway visual range (RVR)	The range over which the pilot of an aircraft on the centre line of the runway can see the runway surface markings or the lights delineating the runway or identifying its centre line.
Segregated parallel operations	Simultaneous operations on parallel or near-parallel instrument runways in which one runway is used exclusively for approaches and the other runway is used exclusively for departures.
Shoulders	An area adjacent to the edge of a pavement so prepared as to provide a transition between the pavement and the adjacent surface.
Signal circle	An area on an aerodrome used for the display of ground signals.
Stopway	A defined rectangular area on the ground at the end of the take-off run available prepared as a suitable area in which an aircraft can be stopped in the case of an abandoned take-off.
Switch-over time (light)	The time required for the actual intensity of a light measured in a given direction to fall from 50% and recover to 50% during a power supply changeover, when the light is being operated at intensities of 25% or above.
Take-off runway	A runway intended for take-off only.
Taxi-holding position	See definition of runway holding position and intermediate holding position.
Taxiway	A defined path on a land aerodrome established for the taxiing of aircraft and intended to provide a link between one part of the aerodrome from another, including: <ol style="list-style-type: none"> 1. Aircraft parking position taxilane. A portion of an apron designated as a taxiway and intended to provide access to aircraft parking positions only. 2. Apron taxiway. A portion of a taxiway system located on an apron and intended to provide a through taxi route across the apron. 3. Rapid exit taxiway. A taxiway connected to a runway at an acute angle and designed to allow landing aeroplanes to turn off at higher speeds than are achieved on other exit taxiways thereby minimizing runway occupancy times.
Taxiway intersection	A junction of two or more taxiways.
Taxiway strip	An area including a taxiway intended to protect an aircraft operating on the taxiway and to reduce the risk of damage to an

	aircraft accidentally running off the taxiway.
Threshold	The beginning of that portion of the runway usable for landing.
Time limited works	Aerodrome works that may be carried out if normal aircraft operations are not disrupted and the movement area can be restored to normal safety standards in not more than 30 minutes.
Touchdown zone	The portion of a runway, beyond the threshold, where it is intended landing aeroplanes first contact the runway.
Usability factor	The percentage of time during which the use of a runway or system of runways is not restricted because of cross-wind component.
Visibility	The ability, as determined by atmospheric conditions and expressed in units of distance, to see and identify prominent unlit objects by day and prominent lit objects by night.
Visual aids	May consist of T-VASIS, PAPI, runway markings and runway lights.
Visual meteorological conditions (VMC)	Meteorological conditions expressed in terms of visibility, distance from cloud, and ceiling, equal or better than specified minima.
Weight	The terms weight and mass used in this MOS have the same meaning.

Abbreviations

General word abbreviations and phrase contractions to minimise message length of aerodrome NOTAMs
(Abbreviations shown in singular words are also applicable to the plural of those words)

April	APR
Abbreviated 'T' Visual Approach Slope Indicator System	AT-VASIS
Abbreviated Visual Approach Slope Indicator System	A-VASIS
Abeam	ABM
About	ABT
Above Aerodrome level	AAL
Above ground level	AGL
Above mean sea level	AMSL
Accelerate-stop distance available	ASDA
Accept or accepted	ACPT
Active, activated, activity	ACT
Actual time of arrival	ATA
Actual time of departure	ATD
Addition or additional	ADDN
Adjacent	ADJ

Advise	ADZ
Aerodrome	AD
Aerodrome Diagrams	ADDGM
Aerodrome beacon	ABN
Aerodrome control or aerodrome control tower	TWR
Aerodrome Frequency Response Unit	AFRU
Aerodrome obstruction chart	AOC
Aerodrome reference point	ARP
Aeronautical Information Circular	AIC
Aeronautical Information Publication	AIP
Aeronautical Information Service	AIS
After....(time or place)	AFT
Again	AGN
Air Traffic Control (in general)	ATC
Air traffic services	ATS
Aircraft	ACFT
Aircraft classification number	ACN
Airport	AP
Airway	AWY
All-up-weight	AUW
Alternate (Aerodrome)	ALTN
Alternate or alternating (light alternates in colour)	ALTN
Altimeter sub-scale setting to obtain elevation or altitude	QNH
Altitude	ALT
Amend(ed)	AMD
Amendment (AIP Amendment)	AMDT
Approach	APCH
Approach lighting system	ALS
Approximate(ly)	APRX
Arrange	ARNG
Arrive or arrival	ARR
As soon as possible	ASAP
Asphalt	ASPH
Associated with	ASSW
Attention	ATTN
Aeroplane landing area (previously known as Authorised landing area)	ALA
Authorised or authorisation	AUTH
Automatic terminal information service	ATIS
Auxiliary	AUX
Available	AVBL
Average	AVG
Aviation gasoline	AVGAS
Azimuth	AZM
Aerodrome weather information service	AWIS
Beacon (aeronautical ground light)	BCN
Bearing	BRG
Becoming	BECMG
Before	BFR
Below	BLW

Between	BTN
Blue	B
Boundary	BDRY
Braking	BRKG
Broken	BKN
Building	BLDG
By way of..	VIA
Calibration	CLBG
Callsign (used to request a callsign)	CSGN
Category	CAT
Caution	CTN
Celsius (Centigrade)	C
Centreline	C/L
Centimetre	CM
Centre (runway)	C
Change frequency to...	CF
Channel	CH
Check	CK
Civil	CIV
Clear cleared to clearance	CLR
Clearway	CWY
Close or closed or closing	CLSD
Code number (runway)	CN
Commissioned	CMSD
Common Traffic Advisory Frequency	CTAF
Communications	COM
Completion or completed or complete	CMPL
Concrete	CONC
Condition	COND
Confirm(ing) or I confirm	CFM
Conical surface	COS
Construction or constructed	CONST
Contact	CTC
Continue(s) or continued	CONT
Continuous day and night service	H24
Continuous(ly)	CONS
Co-ordinated Universal Time	UTC
Correction or correct or corrected	COR
Cover or covered or covering	COV
Cross	X
Crossbar (of approach lighting system)	XBAR
Crossing	XNG
Customs	CUST
Danger or dangerous	DNG
Decommissioned	DCMSD
Degrees	DEG
Delay or delayed	DLA
Depart or departure	DEP
Departure and Approach procedures	DAP
Depth	DPT

Destination	DEST
Deteriorate deteriorating	DTRT
Deviation or deviated	DEV
Direct	DCT
Displaced	DISP
Distance	DIST
Distance measuring equipment	DME
Divert or diverting or diversion	DIV
Docking	DOCK
Document	DOC
Domestic	DOM
Doppler VOR	DVOR
Duration	DUR
During	DRG
Dust	DU
Dust storm	DS
East north-east	ENE
East or east longitude	E
East south-east	ESE
Eastbound	EB
Effective operational length	EOL
Elevation	ELEV
Emergency	EMERG
Enroute Supplement Australia	(AIP) ERSA
En route	ENRT
Engine	ENG
Equipment	EQPT
Estimate or estimated	EST
Estimated/estimating time of arrival	ETA
Estimated/estimating time of departure	ETD
Every	EV
Except	EXC
Exercises or exercising or to exercise	EXER
Expect(ed)(ing)	EXP
Expected approach time	EAT
Extend(ed)(ing)	EXTD
February	FEB
Facility facilities	FAC
Facsimile transmission	FAX
Feet (dimensional unit)	FT
Field	FLD
First	FST
Flares	FLR
Flight	FLG
Flight information service	FIS
Flight service (in general)	FS
Flight service centre	FSC
Flight service unit	FSU
Flight plan (domestic)	PLN
Fluctuating fluctuation fluctuated	FLUC

Fly or flying	FLY
Fog	FG
Follow(s) following	FLW
Forecast	FCST
Frequency	FREQ
Frequent	FRQ
Friday	FRI
From	FM
General	GEN
General Aviation	AWK or PVT
General Aviation Aerodrome Procedures	GAAP
Glide path	GP
Glider	GLD
Glider flying	GLY
Gradual(ly)	GRADU
Gravel	GRVL
Green	G
Ground	GND
Hazard beacon	HBN
Haze	HZ
Heading	HDG
Heavy	HVY
Height or height above	HGT
Helicopter	HEL
Helicopter Landing Site	HLS
Hertz (cycles per second)	HZ
High intensity approach lighting	HIAL
High intensity obstacle lights	HIOL
High intensity runway lighting	HIRL
Higher	HYR
Hold(ing)	HLDG
Homestead	HS
Horizontal surface	HZS
Hour	HR
ICAO standard atmosphere	ISA
Immediate(ly)	IMT
Immigration	IMM
Improve(ment) improving	IMPR
Inbound	INBD
Information	INFO
Inner marker	IM
Inoperative	INOP
Install or installed or installation	INSTL
Instrument	INSTR
Instrument approach and landing charts	IAL
Instrument approach chart	IAC
Instrument flight rule	IFR
Instrument landing system	ILS
Instrument meteorological conditions	IMC
Intensify(ing)	INTSF

Intensity	INTST
Intermittent(ly)	INTER
International	INTL
International Civil Aviation Organisation	ICAO
Interrupt(ion)(ed)	INTRP
Intersection	INT
Isolated	ISOL
January	JANUARY
July	JULY
June	JUNE
Jet barrier	JBAR
Jet stream	JTST
Kilogram	KG
Kilometres	KM
Kilometres per hour	KMH
Kilopascals	KPA
Kilowatts	KW
Knots	KT
Landing	LDG
Landing direction indicator	LDI
Landing distance available	LDA
Latitude	LAT
Leave or leaving	LVE
Left (runway identification)	L
Length	LEN
Level	LVL
Light or lighting	LGT
Lighted	LGTD
Limited	LTD
Local mean time	LMT
Local locally location located	LOC
Localiser	LLZ
Low intensity obstacle lights	LIOL
Low intensity runway lights	LIRL
Longitude	LONG
Magnetic	MAG
Magnetic bearing	QDR
Magnetic orientation of runway	QFU
Magnetic variation	VAR
Maintain(ed)(ing)	MNTN
Maintenance	MAINT
Mandatory Broadcast Zone	MBZ
Manual	MAN
Marker radio beacon	MKR
Maximum	MAX
Maximum brakes release weight	MBRW
Maximum landing weight	MLW
Maximum take off weight	MTOW
Maximum tyre pressure	MTP
Mean sea level	MSL

Medical	MED
Medium intensity obstacle lights	MIOL
Medium intensity runway lights	MIRL
Megahertz	MHZ
Men and equipment	MAE
Message	MSG
Method of working plan	MOWP
Metres (preceded by figures)	M
Metres per second	MPS
Microwave landing system	MLS
Mid-point (related to RVR)	MID
Middle marker	MM
Military	MIL
Minimum	MNM
Minimum eye height over threshold (VASI system)	MEHT
Minimum obstacle clearance (required)	MOC
Minus	MS
Minutes	MIN
Miscellaneous	MISC
Missed approach point	MAPT
Mist	BR
Moderate(ly)	MOD
Modification	CHG
Monitor(ed and ing)	MNT
Mountain	MT
Move(d)(ment) moving	MOV
Nautical mile	NM
Navigation	NAV
Near or over large town	CIT
Next	NXT
Night	NGT
Night visual flight rule	NV
Non scheduled commercial transport	CHTR
No SAR action required	NOSAR
No change	NC
No or negative or permission not granted or that is not correct	NEG
No specific working hours	HX
Non-directional radio beacon	NDB
None or nothing	NIL
North north-east	NNE
North north-west	NNW
North or north latitude	N
North-west	NW
Northbound	NB
NOTAM Office	NOF
Not before	NBFR
Notice to airmen	NOTAM
Number	NR
Open(ed)(ing)	OPN

Obscure	OBSC
Observe(d) observation	OBS
Obstacle	OBST
Obstacle clearance altitude/height	OCA/H
Obstacle clearance limit	OCL
Obstruction	OBSTR
Occasional(ly)	OCNL
Occulting (light)	OCC
On request	O/R
On top	OTP
Operate operator operative operating operational	OPR
Operation	OPRT
Operations	OPS
Outbound	OUBD
Outer marker	OM
Overhead	OHD
Parallel	PARL
Parking	PRKG
Passengers	PAX
Passing	PSG
Pavement classification number	PCN
Performance	PER
Persons on board	POB
Pilot activated lighting	PAL
Plus	PS
Position	PSN
Power	PWR
Precision approach path indicator	PAPI
Prior notice required	PN
Probable probability	PROB
Procedure	PROC
Procedures for air navigation services	PANS
Provisional	PROV
Public Holidays	PH
Quadrant(al)	QUAD
Radial	RDL
Radius	RAD
Ragged	RAG
Rain	RA
Rapid or rapidly	RAPID
Reach or reaching	RCH
Read back	RB
Recent (to qualify other abbreviations)	RE
Reference	REF
Reference datum height (for ILS)	RDH
Registration	REG
Remarks	RMK
Report(ed)(ing)(ing point)	REP
Requested	REQ
Require	RQ

Requirements	RQMNTS
Reroute	RE RTE
Rescue and Fire Fighting Services	RFFS
Rescue Coordination Centre	RCC
Rescue Sub Centre	RSC
Restriction	RESTR
Return to service	RTS
Return(ed)(ing)	RTN
Review	REV
Route	RTE
Runway	RWY
Runway centreline	RCL
Runway centreline light	RCLL
Runway edge light	REDL
Runway end light	RENL
Runway lead in lighting system	RLLS
Runway strip	RWS
Runway surface condition	RSCD
Runway threshold light	RTHL
Runway touchdown zone light	RTZL
Runway visual range	RVR
Rules of the air and air traffic services (associated with AIP)	RAC
Sand	SA
Sandstorm	SS
Scattered	SCT
Scheduled	SKED
Scheduled commercial air transport	S
Search and Rescue	SAR
Second(ary)	SRY
Secondary surveillance radar	SSR
Seconds	SEC
Sector	SECT
Service available during scheduled hours of operation	HS
Service available to meet operational requirements	HO
Service(ing) served	SER
Serviceable	SVCBL
Severe	SEV
Short take-off and landing	STOL
Showers	SH
Simple approach lighting system	SALS
Simultaneous(ly)	SIMUL
Simultaneous Runway Operations	SIMOPS
Slow(ly)	SLW
Smoke	FU
Snow	SN
South or south latitude	S
South south-east	SSE
South south-west	SSW
South-east	SE
South-west	SW

Southbound	SB
Special series NOTAM (message type designator)	SNOWTAM
Sport aviation	SPA
Standard	STD
Standard instrument arrival	STAR
Standard instrument departure	SID
Standard departure clearance	SDC
Standby	SDBY
Start of TORA (take-off run available)	SOT
Start of climb	SOC
Station	STN
Stationary	STNR
Status	STS
Stop-end(related to RVR)	END
Stopway	SWY
Stopway light	STWL
Straight in approach	STA
Subject to	SUBJ
Sunrise	SR
Sunrise to sunset	HJ
Sunset	SS
Sunset to sunrise	HN
Supplement (AIP Supplement)	SUP
Supplementary take-off distance	STODA
Surface	SFC
Surface movement control	SMC
Surface movement radar	SMR
'T' visual approach slope indicator system	T-VASIS
Take-off	TKOF
Take-off distance available	TODA
Take-off run available	TORA
Taxiing guidance system	TGS
Taxiing or taxi	TAX
Taxiway	TWY
Taxiway link	TWYL
Technical reason	TECR
Telephone	TEL
Temperature	T
Temporary	TEMPO
Terminal area surveillance radar	TAR
Terminal control area	TMA
Threshold	THR
Threshold crossing height	TCH
Through	THRU
Thunderstorm	TS
Thursday	THU
Time-limited WIP (work in progress)	TLW
Time search action required	SARTIME
To be advised	TBA
Tornado	TDO

Touchdown zone	TDZ
Track	TR
Traffic	TFC
Transitional surface	TNS
Trend or tending to	TEND
Tropical cyclone	TC
True bearing	QTE
Turbulence	TURB
Type of aircraft	TYP
Typhoon	TYPH
UHF tactical air navigation aid	TACAN
Ultra high frequency (300-3000 MHz)	UHF
Unable	UNA
Unable to approve	UNAP
Unlimited	UNL
Unserviceable	U/S
Until	TIL
Until advised by	UAB
Until further notice	UFN
Upper limits	UL
VHF omni-direction radio range	VOR
Variable	VRB
Vertical	VER
Vertical take-off and landing	VTOL
Very high frequency (30-300 MHz)	VHF
Very important person	VIP
Very low frequency (3-30 kHz)	VLF
Vicinity	VCY
Visibility	VIS
Visual approach slope indicator system	VASIS
Visual en route chart	VEC
Visual flight rules	VFR
Visual meteorological conditions	VMC
Visual terminal chart	VTC
Warning	WRNG
We agree or it is correct	OK
Weaken(ing)	WKN
Weather	WX
Weight	WT
West north-west	WNW
West or west longitude	W
West south-west	WSW
White	W
Widespread	WID
Wind direction indicator	WDI
Wind shear	WS
With effect from or effective from	WEF
Within	WI
With immediate effect or effective immediately	WIE
Without	WO

Work in progress	WIP
World Aeronautical Chart (1:1 000)	000 WAC
Yards	YD
Yellow caution zone (runway lighting)	YCZ
Yes or affirm or affirmative or that is correct	AFM
Yours	YR