

CHAPTER 1 PRELIMINARY

1.01 Name of instrument

- (1) This instrument is the *Part 101 (Unmanned Aircraft and Rockets) Manual of Standards 2019*.
- (2) This instrument may also be cited as the Part 101 MOS.
- (3) In this instrument, unless the contrary intention appears, references to “the MOS” or “this MOS” are references to the Part 101 MOS.

1.02 Commencement

- (1) Subject to subsections (2) and (3), this MOS commences on the day of registration.
- (2) The provisions of this MOS, other than those mentioned in section 1.03 take effect on the day after registration.
- (3) The provisions mentioned in section 1.03 take effect in accordance with section 1.03.

1.03 Provisions which take effect later than on commencement

A provision of this MOS mentioned in column 1 of an item in the following Table takes effect on the day mentioned in column 2 for the item.

Item	This provision: (Column 1)	Takes effect on: (Column 2)
1	Chapter 2, other than paragraph 2.30 (2) (c) in Division 2.7	10 October 2020
1A	Paragraph 2.30 (2) (c) in Division 2.7 of Chapter 2	10 April 2024
2	Chapter 4	10 April 2020
3	Chapter 9, except Division 9.2	10 April 2020
4	Chapter 10, except Divisions 10.1 and 10. 4	10 October 2020

Note 1 Each item in this Table sets out the date on which the corresponding relevant provisions of this MOS take effect.

Note 2 Chapters 1 and 5, Division 9.2 of Chapter 9, Divisions 10.1 and 10.4 of Chapter 10, and Chapter 11 took effect on 10 April 2019, the day after registration of this MOS. Chapters 3, 6, 7 and 8 are reserved. (Division 9.2 of Chapter 9 was repealed by the *Part 101 Manual of Standards (Miscellaneous Revisions) Amendment Instrument 2022 (No. 2)*).

1.04 Definitions

- (1) In this MOS, words and phrases have the same meaning as in CASR, unless a contrary intention appears.

Note Some CASR definitions are included in subsection (2) for ease of reference.

- (2) Without affecting subsection (1), in this MOS:

AA means Airservices Australia.

ADF means the Australian Defence Force.

aeronautical knowledge component: see paragraph 2.02 (1) (a) of this MOS.

aeronautical knowledge standards means the standards and requirements for the aeronautical knowledge component of a RePL training course.

Note See also section 2.02 of this MOS.

AGL means above ground or water level.

AIP ERSA means the *Aeronautical Information Package, En Route Supplement Australia*, as published by AA.

applicant means a person who applies for, or undergoes training for, a RePL.

approach or departure path, for a controlled aerodrome, has the meaning given in Chapter 4 of this MOS.

approved means approved in writing by CASA, unless a contrary intention is expressly stated.

approved educational institution means an educational institution approved by a State or Territory government for training to the Certificate IV level of the Australian Qualifications Framework (AQF).

ARN means aviation reference number.

AROC means aeronautical radio operator certificate.

as safely possible, in relation to the landing of an RPA as soon as safely possible, refers to the safety of people, manned aircraft and property other than the RPA itself.

ATC means air traffic control.

automated operation, for an RPA, means the mode of operation in which, after take-off and until it lands, the RPA:

(a) either:

- (i) flies a predetermined flight path programmed into the RPAS before take-off; or
- (ii) changes its flight path or configuration in flight solely because of dynamic updating of pre-programmed turning, way point data, or configuration settings; and

Note Dynamic updating involves electronically changing an RPA's flight path without the manual operation of command and control levers or switches.

(b) is not subject to any manual operation.

AWIS means the aerodrome weather information service of the BOM.

BOM means the Bureau of Meteorology.

CAO means Civil Aviation Order.

CAR means the *Civil Aviation Regulations 1988*.

CASR means the *Civil Aviation Safety Regulations 1998*.

CASR Dictionary means the dictionary mentioned in regulation 1.4 of CASR.

category, for an RPA, means 1 of the following:

- (a) the aeroplane category;
- (b) the helicopter (multirotor class) category;
- (c) the helicopter (single rotor class) category;
- (d) the powered-lift category.

chief remote pilot has the same meaning as in subregulation 101.340 (1) of CASR.

civil aviation legislation has the meaning given in section 3 of the *Civil Aviation Act 1988*.

classification, for a model aircraft, refers to whether the model aircraft is (in an ascending scale):

- (a) a model aircraft; or

(b) a giant model aircraft.

classification, for an RPA, refers to whether the RPA is (in an ascending scale):

- (a) a micro RPA; or
- (b) a very small RPA; or
- (c) a small RPA; or
- (d) a medium RPA.

Note **Classification** does not include a large RPA that is the result of a modification of another RPA because a large RPA would trigger the application of regulations 101.255 of CASR (requiring either a special certificate of airworthiness (restricted category), or an experimental certificate, issued under Subpart 21.H of Part 21 of CASR) and 101.275 (requiring CASA approval to operate).

controlled aerodrome has the same meaning as in Part 139 of CASR.

documented practices and procedures, for a certified RPA operator, means the written practices and procedures of the operator, as existing or in force from time to time, that have been approved in writing by CASA.

Note See also subsection 1.04 (3). An operator is required to have suitable documented practices and procedures. Documented practices and procedures are considered suitable only if CASA approves them.

electronic identification, for an RPA or model aircraft, means the unique, identifying, electronic code that is transmitted or broadcast by the aircraft:

- (a) automatically when in flight; or
- (b) in response to transmissions from the ground-based electronic system used to control, program, prepare or monitor the aircraft for flight or in flight;

but does not include any code that is transmitted or broadcast exclusively for ATC purposes.

emergency and collision avoidance procedures means a certified RPA operator's documented practices and procedures designed to ensure that an RPA in an RPA operation does not become a hazard to any aircraft, person or property during the operation.

employed means employed under a contract of service or a contract for services.

essential duties means tasks whose performance is essential to the safe operation of an RPA.

EVLOS means extended visual line of sight.

Note See also the definitions in section 5.04 for Chapter 5.

examiner, for a medium or large RPA, means 1 of the following:

- (a) the chief remote pilot of a certified RPA operator who is qualified as a RePL training instructor;
- (b) a RePL training instructor who is authorised by the chief remote pilot in accordance with the RPA operator's documented practices and procedures; provided that the chief remote pilot or authorised RePL training instructor:
 - (c) is identified in the operator's documented practices and procedures as an examiner for a medium or large RPA (a **relevant examiner**); and
 - (d) has the length of experience in RPA operations stated in the operator's documented practices and procedures as required to be a relevant examiner; and
 - (e) meets the other requirements stated in the operator's documented practices and procedures as necessary to be a relevant examiner.

examiner, for a small or very small RPA, means 1 of the following:

- (a) the chief remote pilot of a certified RPA operator who is qualified as a RePL training instructor;
- (b) a RePL training instructor who is authorised by the chief remote pilot in accordance with the RPA's documented practices and procedures;

provided that the chief remote pilot or authorised RePL training instructor:

- (c) is identified in the operator's documented practices and procedures as an examiner for a small or very small RPA (a **relevant examiner**); and
- (d) has the length of experience in RPA operations stated in the operator's documented practices and procedures as required to be a relevant examiner; and

flight time, for an RPA operation, means:

- (a) for the flight of an RPA that is an aeroplane — the time from the moment the aeroplane begins to move under the control of the remote pilot in preparation for flight, until the moment the aeroplane comes to rest at the end of the flight; and
- (b) for the flight of an RPA that is an aircraft in 1 of the following categories, namely, helicopter (multirotor class) category, helicopter (single rotor class) category, or RPA powered-lift category — the time from the moment the aircraft's rotor blades start turning under the control of the remote pilot in preparation for flight, until the moment the rotor blades stop turning after the aircraft comes to rest at the end of the flight; and
- (c) for the flight of an airship — the time from the moment the airship is released from its mooring under the control of the remote pilot in preparation for flight, until the moment the airship is tethered at the end of the flight.

gross weight, for an RPA, means the total weight of the RPA at take-off, including fuel, equipment, payloads (if any) and anything attached to the RPA.

gross weight on take-off, in relation to a model aircraft, or an RPA that does not have a certificate of airworthiness, is the maximum weight of the aircraft on take-off and includes, to the extent permitted by the manufacturer or recorded in the RPAS technical log, the weight of:

- (a) propulsion systems; and
- (b) all equipment, payload and energy sources carried on the aircraft in flight.

helicopter, when used to describe an RPA of a type defined in regulation 101.022, means an RPA with 1 or more main rotors.

Note See also subsection 1.04 (4).

HLS or helicopter landing site means an area of land or water, or a defined area on a structure, intended to be used wholly or in part for the arrival, departure and surface movement of helicopters.

indoors operation means use of an RPA in circumstances which meet all of the following requirements:

- (a) the RPA is flown within a building, or another structure, or a naturally occurring or man-made space underground (a **containment area**);
- (b) the containment area is such that it is physically impossible for the RPA to escape and fly away during normal, abnormal or emergency operations;
- (c) entry of people to, and exit of people from, the containment area is controlled in such a way that in flying an RPA in the containment area a remote pilot will not

infringe any provision of Part 101 of CASR concerning proximity of an RPA to people within or outside the containment area;

- (d) in the event that an RPA collides with any part of the containment area, no material from the RPA or the containment area can move or escape and cause injury to a person outside the containment area.

Note An example of a man-made space underground is a mine.

job safety assessment, for an operation of an RPA, other than excluded RPA, by a certified RPA operator, means a procedure undertaken in accordance with the RPA operator's documented practices and procedures to:

- (a) assess the safety of the operation; and
- (b) identify safety risks arising from the operation; and
- (c) formulate risk mitigation measures for the operation, including risk management plans.

maintenance controller has the same meaning as in paragraph 101.340 (1) (d) of CASR.

manual operation, for an RPA, means the use, by the remote pilot, of a manual mechanism that is part of the RPAS, in order to exercise control over the RPA, including by reconfiguring the RPA.

measurement point means any point on the actual or notional centreline of a runway between the 2 threshold centrepnts.

mode of operation means:

- (a) manual mode; or
- (b) the mode that is automated operation.

Note Manual mode requires prescribed training in both the manual mode and the automated operation mode, in accordance with this MOS. The applicable mode of operation for a flight is that specified in the provision of this MOS which refers to the mode of operation for the flight.

modification, for an aircraft, means that, as compared to the permit version, the aircraft is:

- (a) altered in any way; or
- (b) a duplicate of the permit version, whether or not it contains some things that were part of the permit version.

MOS means Manual of Standards.

movement area has the same meaning as in regulation 2 of CAR.

Note For ease of reference, **movement area** means that part of an aerodrome to be used for the surface movement of (manned) aircraft, including manoeuvring areas and aprons.

NAIPS means the National Aeronautical Information Processing System administered by AA.

nominated personnel means the following personnel of a certified RPA operator:

- (a) the chief executive officer (the CEO);
- (b) the chief remote pilot (the CRP);
- (c) the maintenance controller.

non-controlled aerodrome means a place that is:

- (a) a helicopter landing site not located at a controlled aerodrome; or
- (b) an aerodrome that is not a controlled aerodrome.

Part 139 Manual of Standards means the Manual of Standards made under regulation 139.005 of CASR.

permit version, for an aircraft, means the version of the aircraft when it was first:

- (a) registered under Division 47.C.2 of CASR; or
- (b) granted a permission under section 13.01.

person, includes a certified RPA operator.

practical competency component: see paragraph 2.02 (1) (b) of this MOS.

practical competency standards means the standards and requirements for the practical competency component of a RePL training course.

Note See also section 2.02 of this MOS.

RAIM means receiver autonomous integrity monitoring, which is a technology developed to assess the integrity of GPS signals.

remote pilot means the holder of a remote pilot licence. However, in Schedule 5 a reference (however expressed) to a remote pilot demonstrating a behaviour is taken to be a reference to an applicant for a RePL.

Note See also the definition of **RePL holder**.

remote pilot in command, for an RPA operation, means the pilot designated by an RPA operator, in accordance with the operator's documented practices and procedures, as being in command of the RPA operation and charged with the safe conduct of the operation.

remote pilot licence has the same meaning as in Division 101.F.3 of CASR.

remote pilot log: see section 10.06 of this MOS.

remote pilot station means the place from which an RPA is operated by a RePL holder.

ReOC means remotely piloted aircraft operator's certificate issued by CASA.

RePL means remote pilot licence.

RePL holder means the holder of a remote pilot licence.

RePL training course is the expression used in this MOS to denote an RPL training course as defined in the CASR Dictionary.

Note **RPL training course** means "training in the operation of RPA for the grant of a remote pilot licence that is conducted: (a) by a person who is certified under regulation 101.335 and whose operations include conducting training; and (b) in accordance with any standards or requirements prescribed by the Part 101 Manual of Standards". The intention behind use of the RePL abbreviation is to avoid confusion with a recreational pilot licence which is also abbreviated elsewhere to "RPL".

RePL training course instructor: see section 2.30 of this MOS.

RePL training organisation means a person certified as an RPA operator under regulation 101.335 of CASR whose operations include the conduct of a RePL training course.

RePL training organisation's procedures means a RePL training organisation's documented practices and procedures for paragraph 101.335 (1) (d) of CASR.

RePL training unit means a unit of aeronautical knowledge or a unit of practical competency for a RePL training course:

- (a) prescribed in Schedules 2 and 3 of this MOS, for the purposes of the definition of **RPL training course** in Part 1 of the CASR Dictionary; and
- (b) contained in Schedules 4 and 5 respectively.

RePL training unit content, for a RePL training unit, means the content for the RePL training unit:

- (a) mentioned in column 2 of an item in an Appendix of Schedules 2 and 3; and

(b) described for the corresponding unit in Schedules 4 and 5, respectively.

RPA means a remotely piloted aircraft, other than a balloon or a kite, which may be identified by the following:

- (a) category (for example, the aeroplane category);
- (b) type, as defined in regulation 101.022;
- (c) complexity (for example, automated, manual, liquid-fuel system).

RPA operator means a person who is certified as an RPA operator in accordance with regulation 101.335 of CASR.

Note Most provisions of this MOS are expressed to apply to RPA operators. However, some provisions are expressed to apply more broadly to a person. Reference to a person includes a certified RPA operator, unless the contrary intention appears.

RPAS means remote pilot aircraft system and has the same meaning as in the CASR Dictionary.

Note **RPAS** means a set of configurable elements consisting of a remotely piloted aircraft, its associated remote pilot station (or stations), the required command and control links and any other system elements that may be required at any point during the operation of the aircraft.

RPAS operational log: see section 10.05 of this MOS.

RPAS operational release: see section 10.04 of this MOS.

RPAS technical log: see section 10.07 of this MOS.

RPIC means remote pilot in command.

Note **Pilot in command** is defined in the CASR Dictionary as the pilot designated by the operator of an aircraft as being in command and charged with the safe conduct of the flight.

RPL training course: see **RePL training course**.

runway has the same meaning as in the Part 139 Manual of Standards.

runway strip has the same meaning as in the Part 139 Manual of Standards.

runway threshold has the same meaning as in the Part 139 Manual of Standards.

significant change, for a certified RPA operator, means:

- (a) a change to any of the following:
 - (i) the operator's nominated personnel;
 - (ii) the formal reporting lines for any managerial or operational position that reports directly to any of the nominated personnel;
 - (iii) the qualifications and experience which the operator requires the nominated personnel to have;
 - (iv) the responsibilities assigned by the operator to the nominated personnel;
 - (v) the operator's process for making changes to the documented practices and procedures;
 - (vi) the managerial or operational positions within the operator's organisation;
 - (vii) the types of RPA being operated by the operator; and
- (b) a change to any of the following that does not maintain or improve, or is not likely to maintain or improve, aviation safety:
 - (i) the documented practices and procedures for the conduct of RPA operations;
 - (ii) the training or checking conducted by the operator;
 - (iii) the documented practices and procedures for managing operational risk;
 - (iv) the documented practices and procedures for managing the risk of fatigue in the operator's personnel;

- (v) the documented practices and procedures for managing RPA maintenance;
and
- (c) any change in relation to the operator that will likely result in the reissue of the operator's ReOC.

Note For example only, a change to the type or category of RPA listed on the operator's ReOC, or a change to the kind of operations to be conducted (for example, to include RePL training), will require the ReOC to be reissued.

student has the same meaning as applicant.

test flight, for an RPA or model aircraft, means a flight of the aircraft solely to test all or any of the following to determine that they or it is in working order and in a condition for safe operation:

- (a) the aircraft;
- (b) the aircraft system;
- (c) any equipment associated with the aircraft or the aircraft system.

tethered operation means use of an RPA in circumstances in which an RPA is flown while securely attached to a lead that:

- (a) is no longer than 150 ft, unless a provision of this MOS provides for a longer lead; and
- (b) makes it impossible for the RPA to escape and fly away during normal, abnormal or emergency operations.

theory component of a RePL training course means the aeronautical knowledge component of the course.

Note See also subsection 2.02 (1) of this MOS.

threshold, for a runway, means the beginning of that portion of the runway usable for landing.

Note This definition also applies to a runway that is a grass landing strip, whether or not the threshold is marked with markers.

threshold centrepoint, for a runway, means the point on the threshold of the runway at which the centreline of the runway intersects (or would intersect if there were a centreline) the threshold.

type, for an RPA, means an RPA of a type mentioned in an item in the Table in regulation 101.022, and that is of a particular category, size and complexity, where:

- (a) category refers to whether the RPA is in the aeroplane category, the helicopter (multirotor class) category, the helicopter (single rotor class) category or the powered-lift category; and
- (b) size refers to whether the RPA is of a particular size (for example, medium, large); and
- (c) complexity refers to whether the RPA:
 - (i) is generally operated in automated mode, or manual mode, or has a liquid-fuel system; and
 - (ii) is of a particular design and make, including of a design and make that:
 - (A) stems from a common basic design; and
 - (B) is essentially similar in different models.

unacceptable modification, for an aircraft, means a modification to the aircraft that, as compared with the aircraft when it was first registered under Division 47.C.2 of CASR, or first granted a permission under section 13.01 (as the case may be):

- (a) changes the category of the aircraft; or

Note The categories for an RPA and model aircraft are as follows: aeroplane; helicopter (single rotor), helicopter (multi-rotor); powered lift and airship.

- (b) changes upwards the classification of the aircraft; or
- (c) increases the gross weight on take-off of the aircraft by more than 20%; or
- (d) does not contain parts and components from the permit version that are critical to the flight of the aircraft; or
- (e) fails to retain any of the following for the aircraft:
 - (i) the manufacturer's serial number;
 - (ii) if there is no manufacturer's serial number — the CASA serial number allocated in substitution for a manufacturer's serial number when the aircraft was registered;
 - (iii) any electronic identification of the aircraft.

unit code, for a RePL training unit, means the unit code mentioned:

- (a) in an item of Schedule 2 or Schedule 3 for the RePL training unit; and
- (b) in the corresponding Appendix in Schedule 4 or 5.

VLOS means visual line of sight.

Note See also the definitions in section 5.04 for Chapter 5.

- (3) The following requirements apply for a certified RPA operator's **documented practices and procedures**:

- (a) the RPA operator must provide documented practices and procedures, as required by a provision of this MOS, for the use and guidance of the operator's remote pilots and other operations personnel (including trainees) (the **operations personnel**);
- (b) the documented practices and procedures must contain such information, procedures and instructions with respect to the flight operations of all types of RPA operated by the RPA operator as are required or necessary under this MOS to ensure the safe conduct of the RPA operations;
- (c) the documented practices and procedures must be amended from time to time, where necessary, as the result of changes in the operator's operations, aircraft or equipment, or in the light of experience;

Note Documented practices and procedures do not comply with this MOS unless they have been approved in writing by CASA. See the definition of **documented practices and procedures**. Amendments to documented practices and procedures do not become part of the documented practices and procedures until they have been approved in writing by CASA.

- (d) a copy of the documented practices and procedures must:
 - (i) be given to the operator's remote pilots; and
 - (ii) be given to each member of the operations personnel, as the RPA operator considers necessary; and
 - (iii) be given to CASA; and
 - (iv) be accessible for use by all operations personnel of the RPA operator who have not been given a copy;
- (e) a copy of any approved amendments to the documented practices and procedures must be forwarded, or made accessible (as the case requires), to the persons mentioned in paragraph (d);
- (f) the documented practices and procedures must contain a statement that the RPA operator requires each remote pilot and each member of the operations

personnel to comply with the documented practices and procedures insofar as they relate to their duties or activities for the RPA operator.

- (4) Under this MOS, a helicopter must be in 1 of the following categories:
 - (a) helicopter (single rotor class) category;
 - (b) helicopter (multirotor class) category.

1.05 References to documents

- (1) In this MOS, unless the contrary intention appears, a reference to a document that is applied, adopted or incorporated (however described) is a reference to the document as it exists from time to time.
- (2) In this MOS, a reference to any legislative instrument is a reference to the instrument as in force from time to time.

1.06 Abbreviations

- (1) In this MOS, unless a contrary intention appears, an acronym or abbreviation mentioned in Schedule 1 has the meaning given to it by Schedule 1.
- (2) Unless a contrary intention appears, if an acronym or abbreviation used in this MOS is not given a meaning under Schedule 1, the acronym or abbreviation has the meaning that is given to it by:
 - (a) the *Civil Aviation Act 1988* or the regulations; or
 - (b) if paragraph (a) does not apply — the prevalent usage, custom and practice of the unmanned aviation industry.
- (3) To avoid doubt, in this MOS, neither a unit code nor an examination code is an acronym or abbreviation within the meaning of this section.

1.07 Tables, Figures and Notes

In this instrument:

- (a) if a numbered Figure in the form of a drawing, diagram or similar representation is expressed as *illustrating matters*, it is guidance that is to be taken into account in interpreting the provision which refers to the Figure; and
- (b) if a numbered Figure in the form of a drawing, diagram or similar representation is expressed as *showing matters*, it is to be read with, and may supplement, the information in the provision which refers to the Figure; and
- (c) a Note provides information and does not contain standards unless the contrary intention is expressed in a provision for the Note.

Note Figures and Tables (other than those in Schedules) are not numbered sequentially. For ease of reference, they are numbered by reference to the section or subsection which first refers to the Figure or Table.

1.08 Table of Contents

The Table of Contents for this MOS:

- (a) is not part of this MOS; and
- (b) is for guidance only; and
- (c) may be modified or edited in any published version of this MOS.