ANNEX A

Consultation Draft - Part 138 (Aerial Work Operations) Manual of Standards 2020

Australian Government

Civil Aviation Safety Authority

Part 138 (Aerial Work Operations) Manual of Standards 2020

Consultation version as of 23 April 2020

I, SHANE PATRICK CARMODY, Director of Aviation Safety, on behalf of CASA, make this instrument under regulations 138.020 and 201.025 of the *Civil Aviation Safety Regulations 1998*, and section 4 of the *Acts Interpretation Act 1901*.

Shane Carmody
Director of Aviation Safety

[DATE] 2020

Contents

Note This Table of Contents is for guidance only. It is not a formal part of the *Part 138 (Aerial Work Operations) Manual of Standards 2020*. See subsection 1.01 (4).

Part 138 (Aerial Work Operations) Manual of Standards 2020

CHAPTER 1 PRELIMINARY AND DEFINITIONS

Division 1 Preliminary

1.01 Name of instrument

(1) This instrument is the *Part 138 (Aerial Work Operations) Manual of Standards 2020*.

(2) This instrument may be cited as the Part 138 MOS.

(3) Unless the contrary intention appears, references in this instrument to "the MOS" or "this MOS" are references to the Part 138 MOS.

(4) The Table of Contents at the front of this MOS is not part of this instrument. It is for guidance only and may be modified or edited in any published version of this instrument.

1.02 Commencement

This instrument commences immediately after the commencement of Part 138 of CASR.

1.03 Application

(1) Consistent with regulation 138.005, except where a provision of this MOS is expressed to apply to a limited aerial work operator:

(a) this MOS only applies to an operator who is an aerial work certificate holder; and

(b) the aerial work operations mentioned in this MOS may only be conducted by an aerial work certificate holder.

(2) Where a provision of this MOS is expressed to apply to a limited aerial work operator:

(a) the provision so applies according to its terms; and

(b) any relevant definitions in this MOS also apply for the provision.

Note 1 Some provisions of this MOS, for some aerial work operations, also apply, according to their terms, to limited aerial work operators as defined.

Note 2 Some provisions of this MOS expressly mention that the provision applies to an aerial work certificate holder. This is merely to assist readers and does not in any way affect the operation of this section.

Division 2 Definitions — general

1.04 Definitions

(1) In this instrument words and phrases have the same meaning as in Part 138 of CASR.

(2) In this instrument, unless a contrary intention appears, mention of a provision with the prefix "91." or "138." is a reference to that provision in Part 91 or Part 138 of CASR.

(3) In this instrument, a reference to an emergency services operation (an ***ESO***) is a reference to an aerial work operation that is part of an ESO.

(4) In this instrument, unless a contrary intention appears, mention of anything that must be in accordance with procedures (however described) in an operations manual is to be taken as requiring the operations manual to contain the procedures as if they had been expressly prescribed for paragraph 138.155 (1) (a).

Note Operations manual procedures may be in the form of procedures, instructions, requirements, specifications, operational criteria, restrictions and similar matters. It is an offence not to comply with relevant operations manual requirements: see regulations 138.155 and 138.160.

(5) In this instrument, a reference to any document that is applied, adopted or incorporated is a reference to the document as it exists or is in force from time to time, unless a contrary intention appears, for example, by the document being identified by reference to a particular dated version.

(6) Without affecting subsection (1), in this instrument:

active firefighting area of a fireground means the area where an active fire is actively being fought.

adequate vertical margin, for a rotorcraft, means the minimum vertical distance the rotorcraft must be from an object during a stage of a flight mentioned in:

(a) the rotorcraft's flight manual; or

(b) if paragraph (a) does not apply — the rotorcraft operator's operations manual.

aerial work cargo means things (but not persons) carried on an aircraft in an aerial work operation:

(a) that are not carried as an external load operation; and

(b) whose carriage is the purpose of, or required for carrying out the purpose of, the operation.

aerial work certificate holder is the expression used in this MOS to more explicitly denote an ***aerial work operator***.

aerial work operation has the same meaning as in regulation 138.010.

aerial work operator has the same meaning as in the CASR Dictionary.

Note A aerial work operator is defined in the CASR Dictionary as a person holding an aerial work certificate (an ***aerial work certificate holder***). Only aerial work certificate holders are permitted to carry ***aerial work passengers*** as defined in the CASR Dictionary. See Chapter 2.

aerial work passenger has the same meaning as in the CASR Dictionary.

Note An aerial work passenger is a specific subset of the general definition of ***passenger*** in the CASR dictionary. Only ***aerial work passengers*** may be carried in an aerial work operation and only on an aerial work certificate holder's aircraft.

aerial work task means each task performed during an aerial work operation by an FCM, an air crew member or a task specialist.

aerial work zone, or ***AWZ***, has the meaning given in section 1.05.

AFCS means automatic flight control system.

AFM means aircraft flight manual.

air crew member has the same meaning as in the CASR Dictionary.

alternate aerodrome has the same meaning as in section 1.07 of the Part 91 Manual of Standards.

Note Section 7.07 of the Part 91 MOS does not permit a helideck to be used as an alternate aerodrome. Helideck has the same meaning as in the CASR Dictionary ("***helideck*** means an area

intended for use wholly or partly for the arrival or departure of rotorcraft, on: (a) a ship; or (b) a floating or fixed structure on water").

approved cargo rack means a cargo rack whose fitment and use on a rotorcraft has been approved for the carriage of aerial work cargo by:

(a) an STC for the rotorcraft; or

(b) an approved engineering order under Subpart 21.M of CASR, designed for fitment and use of the cargo rack on the rotorcraft.

approved GNSS means:

(a) a GNSS system that is authorised in accordance with one of the following:

(i) (E)TSO-C129;

(ii) (E)TSO-C145;

(iii) (E)TSO-C146;

(iv) (E) TSO-C196a; or

(b) a multi-sensor navigation system that:

(i) includes GNSS and inertial integration; and

(ii) is approved in writing by CASA as providing a level of performance equivalent to a GNSS system mentioned in paragraph (a).

authorised meteorological forecast has the meaning given in the CASR Dictionary.

authorised meteorological report has the meaning given in the CASR Dictionary.

automatic flight control system is a system which integrates the functionality of the autopilot, the flight director, the flight management and navigation system and other systems fitted to an aircraft.

avoid area of the HV curve, for a rotorcraft, means the combinations of altitude and airspeed displayed on the height-velocity diagram in the AFM which have been determined by the OEM as not offering safe autorotational landing capability, or OEI capability, in the event of engine failure.

ATSO means Australian Technical Standard Order.

AWZ-RMP means a risk management plan for an AWZ.

belly hook means a hook that:

(a) is attached to the underside of a rotorcraft in accordance with the AFM; and

(b) if a Class D external load is carried — either:

(i) is certified by its manufacturer for the carriage of such a load; or

(ii) complies with the standard approved in writing by CASA for the carriage of such a load.

Note For example, CASA may approve a standard so that a belly hook may be used for a Class D external load where there is a supplementary type certificate (STC) for a change to the rotorcraft made by someone other than the original equipment manufacturer (OEM).

CAO means Civil Aviation Order.

CAO 82.6 means *Civil Aviation Order 82.6 (Night vision imaging system — helicopters) 2007*.

CAR means the *Civil Aviation Regulations 1988*.

CASR means the *Civil Aviation Safety Regulations 1998*.

CASR Dictionary means the dictionary under regulation 1.004 of CASR.

Category A, in relation to a rotorcraft, means a multi-engine rotorcraft that is:

(a) designed with engine and system isolation features stated for Category A requirements in any of the following:

(i) Part 27 of the FARs;

(ii) Part 29 of the FARs;

(iii) EASA CS — 27;

(iv) EASA CS — 29;

(v) an equivalent airworthiness certification code of a Contracting State; and

(b) capable of operation using scheduled take-off and landing data under a critical engine failure concept which assures adequate designated ground or water area and adequate performance capability for continued safe flight or safe rejected take-off in the event of engine failure, as mentioned in the rotorcraft's flight manual.

Note This definition is based on the ICAO, FAA and EASA definitions of the term ***Category A*** in relation to rotorcraft.

Category A rotorcraft means a rotorcraft that:

(a) meets the requirements stated in the definition ***Category A***; and

(b) is type-certificated in accordance with any of the following:

(i) Part 27 of the FARs;

(ii) Part 29 of the FARs;

(iii) EASA CS — 27;

(iv) EASA CS — 29;

(v) an equivalent airworthiness certification code of a Contracting State.

Note These documents are available as follows:

(a) Part 27 of the FARs — https://www.faa.gov/regulations_policies/faa_regulations/;

(b) Part 29 of the FARs — https://www.faa.gov/regulations_policies/faa_regulations/;

(c) EASA CS-27 — https://www.easa.europa.eu/document-library/regulations;

(d) EASA CS-29 — https://www.easa.europa.eu/document-library/regulations.

Category B rotorcraft means a rotorcraft that is not a Category A rotorcraft.

Class A external load means a load, carried by a rotorcraft in an external load operation (which under this MOS is called a Class A external load operation) that:

(a) is external to the rotorcraft; and

(b) is not carried in an approved cargo rack, or in a sealed receptacle; and

(c) is not jettisonable; and

(d) cannot move freely; and

(e) does not extend below the rotorcraft's landing gear.

Note An example of an operation involving a Class A external load is when a load is carried on a platform from which the load has the potential to fall off if it is not properly secured. See the definition of ***sealed receptacle*** which means a belly tank for firefighting, or a cargo pod, basket, bin or similar thing in which a load can be fully enclosed and sealed.

Class B external load means a load, carried by a rotorcraft in an external load operation (which under this MOS is called a Class B external load operation) that is:

(a) external to the rotorcraft; and

(b) jettisonable; and

(c) carried above or below the rotorcraft's landing gear; and

(d) by using the rotorcraft's belly hook or winch:

(i) lifted off land or water, or off a structure that is on land or water; and

(ii) carried in flight; and

(iii) set down on land or water, or on a structure that is on land or water.

Note An example of an operation involving a Class B external load is the picking up and carriage, using a sling attached to the belly hook of a rotorcraft, of an air-conditioning unit that is then set down on the roof of a tall building.

Class C external load means a load, carried by a rotorcraft in an external load operation (which under this MOS is called a Class C external load operation):

(a) that is external to the rotorcraft; and

(b) that is jettisonable; and

(c) part of which remains in contact with land or water during the lifting.

Note An example of an operation involving a Class C external load is powerline stringing.

Class D external load means a load, carried by a rotorcraft in an external load operation (which under this MOS is called a Class D external load operation)) that is a person who is carried external to the rotorcraft.

Note Examples of operations involving a Class D external load are the following: winching a person on board from land or water; winching a person already aboard onto land or into the water; positioning a person on or at a transmission wire using a fixed line attached to the rotorcraft's belly hook; carrying a person on a platform; conducting a person's hover exit from, or entry to, the rotorcraft. The belly hook, winch, hard point or platform must be approved for the purpose of the lifting, placement or carrying of the person (see for example, subsection 15.06 (4)). Only an aerial work certificate holder may carry out a Class D external load operation – see generally regulation 138.030 (1) and subsection 13.03 of this MOS.

Class E external load means a load, carried by an aeroplane in an external load operation (which under this MOS is called a Class E external load operation) that is:

(a) external to the aeroplane; and

(b) jettisonable; and

(c) either:

(i) attached to the exterior of the aeroplane; or

(ii) picked up, towed, and released by, the aeroplane.

Note 1 An example of an operation involving a Class E external load is a banner towing operation by an aeroplane.

Note 2 Glider towing is excluded from the definition of aerial work operation by paragraph 138.010 (5) (c). Therefore, a glider that is towed by an aeroplane is not a Class E load.

cloud seeding, for a dispensing operation, means the dropping of approved substances from an aeroplane flying though, or above, cloud formations, for the purpose of causing precipitation from the clouds.

D, for a rotorcraft, means the maximum dimension of the rotorcraft.

defined point before landing, or ***DPBL***, for a rotorcraft flying in performance class 2, or performance class 2 with exposure, means the point in the approach and landing stage of the flight after which:

(a) the rotorcraft may not be able to continue the flight safely with 1 engine inoperative; and

(b) a forced landing may be required.

defined point after take-off, or ***DPATO***, for a rotorcraft flying in performance class 2 or performance class 2 with exposure, means the point in the take-off and initial climb stage of the flight before which:

(a) the rotorcraft may not be able to continue the flight safely with 1 engine inoperative; and

(b) a forced landing may be required.

destination alternate aerodrome, for a flight of an aircraft, means an alternate aerodrome at which the aircraft may land if it becomes either impossible, or inadvisable, to land at the aerodrome of intended landing.

EASA means the European Union Aviation Safety Agency.

EGPWS means enhanced ground proximity warning system.

emergency service operation has the same meaning as in the CASR Dictionary.

en route alternate aerodrome, for a flight of an aircraft, means an alternate aerodrome at which the aircraft may land if a diversion becomes necessary while en route.

ESO means an aerial work operation that is part of an emergency service operation.

Note Emergency service operation is defined in the CASR Dictionary.

ESO operating site means:

(a) a location on the ground, on a vessel or on an offshore facility, at or from which an aircraft lands or takes off for the purposes of an ESO, or for training for an ESO; or

(b) a position in the air at which a rotorcraft hovers for carrying out an aerial work operation as part of an ESO or training for an ESO.

Note 1 ESO operating sites are places where an aerial work objective is actually carried out, for example, a clearing or reserve adjacent to a relevant incident site, on to which, or from which, a rotorcraft lands or takes off, or over which it hovers in an ESO external load operation, for the purpose of facilitating a SAR or police operation. ESO operating sites do not include, for example, an aerodrome that is the operator's normal base, or a hospital or other location which is served by a purpose-built heliport.

exposure time, for a rotorcraft that is flying in still air, means the period during which the rotorcraft, with 1 engine inoperative, may not be able to achieve a safe forced landing or continue the flight safely.

external load means a load that is external to an aircraft.

Note An external load is not cargo.

external load operation has the same meaning as in regulation 138.010 (2.

Note 1 An external load operation means carrying or towing a load outside an aircraft in flight and includes training for such an operation.

Note 2 An external load operation is not a cargo transport operation.

ETSO means European Technical Standard Order.

FAA means the United States Federal Aviation Administration.

FAR means the Federal Aviation Regulations of the United States.

FATO means final approach and take-off area, as that expression is defined in the CASR Dictionary.

FCM means a flight crew member.

FD means flight director.

firefighter means a member of a public firefighting service that is supported by a State or Territory government.

fireground means an area in which a fire is being fought and includes:

(a) the fire front;

(b) the area immediately threatened by the fire;

(c) the area in the vicinity of the fire:

(i) whether the area is still burning or is burnt out; or

(ii) used for access to the fire front; or

(iii) used for containment of the fire through backburning, firebreaks and other measures; or

(iv) where personnel, vehicles and equipment directly involved in fighting the fire are assembled.

flight director means a system within the AFCS, which overlays the attitude indicator, and whose purpose is to compute and indicate the aircraft attitude required to attain and maintain a preselected flight condition for a particular flight trajectory.

FMS means flight management system, and is an aircraft's on-board multi-purpose navigation, performance and aircraft operations computer.

GNSS means the global navigation satellite system.

head of operations, for an aerial work certificate holder, has the same meaning as in subparagraph (b) (ii) of the definition of ***key personnel*** in the CASR Dictionary.

helicopter clearway, for an aerodrome, means an area of ground or water that is selected and prepared by the aerodrome operator as a suitable area over which a rotorcraft may accelerate and achieve the height mentioned in the rotorcraft's flight manual for the take-off procedure being used.

HLS means helicopter landing site.

IFR means instrument flight rules.

in-flight risk assessment procedures means the procedures referred to in subsection 13.02 (8).

ISA means international standard atmosphere.

key personnel, for an aerial work certificate holder, has the same meaning as in paragraph (b) of the definition of ***key personnel*** in the CASR Dictionary.

Note Refer to the CASR Dictionary. Generally, relevant key personnel are the chief executive officer, the head of operations, the head of training and checking (if required under CASR Part 138), and the safety manager (if required under CASR Part 138).

landing decision point, for a landing of a rotorcraft at an aerodrome, means the point, mentioned in the rotorcraft's flight manual, from which, if an engine failure is recognised:

(a) a baulked landing may be initiated; or

(b) the landing may be continued safely.

landing distance available — rotorcraft, or ***LDAR***, for a landing of a rotorcraft at an aerodrome, means the total of the following that are available for the rotorcraft to complete the landing from the height, mentioned in the rotorcraft's flight manual for the landing procedure being used, above the final approach and take-off area for the aerodrome:

(a) the length of the final approach and take-off area;

(b) the length of the area that is available and suitable for the rotorcraft to complete a landing on.

landing distance required — rotorcraft, for a landing of a rotorcraft at an aerodrome, means the horizontal distance required for the rotorcraft to land and come to a full stop from a point 50 ft above the aerodrome.

limited aerial work operation means an aerial work operation by an aircraft:

(a) that is described in subsection 138.030 (2); and

(b) for which the operator is not required by subsection 138.030 (1) to be an aerial work certificate holder.

Note The effect of this definition is that a limited aerial work operation is either or both of the following:

(a) spotting or photography where no remuneration is received by any of the following for the operation:

(i) the pilot;

(ii) for a registered aircraft — the registered operator;

(iii) for an unregistered aircraft — the aircraft owner;

(iv) a person or organisation on whose behalf the operation is conducted;

(b) an operation that is:

(i) for a registered aircraft — conducted over land owned or occupied by the registered operator; and

(ii) otherwise — conducted over land owned or occupied by the aircraft owner; and

(iii) not conducted over a populous area or public gathering; and

(iv) not an external load operation involving the carriage of a person as an external load.

limited aerial work operator means an operator who conducts a limited aerial work operation.

load, in the expression ***external load***, means anyone or anything that is picked- up, carried and set-down by an aircraft during an external load operation.

Note A load is not cargo.

LSALT means lowest safe altitude.

MEL means minimum equipment list.

minimum flight altitude, for a point on the route, or a route segment, of a flight of a rotorcraft, means:

(a) for an IFR flight or a VFR flight at night:

(i) the published LSALT for the route or route segment; or

(ii) if subparagraph (i) does not apply — the LSALT for the route or route segment; or

(b) for a VFR flight at night when not using the LSALT determined under paragraph (a) — 1 000 ft above the highest obstacle on the ground or water

within 10 nautical miles ahead of, and to either side of, the aircraft at that point; or

(c) for a VFR flight by day over a populous area — 1 000 ft above the highest feature or obstacle within a horizontal radius of 300 metres of that point on the ground or water immediately below the rotorcraft; or

(d) for a VFR flight by day other than over a populous area — 500 ft above the highest feature or obstacle within a horizontal radius of 300 metres of that point on the ground or water immediately below the rotorcraft.

MOS means Manual of Standards.

MTOW means maximum take-off weight.

MTOW HOGE means maximum take-off weight hover out of ground effect.

navigation system, in relation to an aircraft, means one of the following systems by which the aircraft can be navigated:

(a) a radio navigation system;

(b) a self-contained navigation system.

NM means nautical miles.

NVIS means night vision imaging system.

NVIS qualified crew means a crew that is qualified for NVIS operations in accordance with Part 61 of CASR, and CAO 82.6, as applicable.

OEI means 1 engine inoperative for a multi-engine rotorcraft.

offshore facility has the same meaning as in the *Maritime Transport and Offshore Facilities Act 2003*.

offshore surveillance operation means a surveillance operation that is conducted over the sea.

Part 91 MOS means the Part 91 Manual of Standards made under Part 91 of CASR.

performance class means a class of performance capability of a rotorcraft, and is one of the following:

(a) performance class 1;

(b) performance class 2;

(c) performance class 2 with exposure;

(d) performance class 3.

performance class 1, or ***PC1***, for a stage of a flight of a rotorcraft: see section 21.02.

performance class 2, or ***PC2***, for a stage of a flight of a rotorcraft: see section 21.09.

performance class 2 with exposure, or ***PC2WE***, for a stage of a flight of a rotorcraft: see section 21.16.

performance class 3, or ***PC3***, for a stage of a flight of a rotorcraft: see section 21.36.

prescribed single-engine aeroplane has the same meaning as in the CASR Dictionary.

PSEA means a prescribed single-engine aeroplane.

Note A single-engine aeroplane is a ***prescribed single-engine aeroplane*** if it is of a kind prescribed by the Part 135 Manual of Standards for the purposes of subregulation 135.240 (3) of CASR.

Part 142 operator has the same meaning as in regulation 142.015 of CASR.

positioning flight means a flight of an aircraft:

(a) solely to place a task specialist or an aerial work passenger in position for an aerial work operation in an aircraft at the same position on the same or a subsequent day (the ***designated workday***); or

(b) solely to retrieve a task specialist or an aerial work passenger from a position after an aerial work operation in an aircraft at the same position on the same or the previous day (the ***designated retrieval day***);

provided that if either of the following:

(c) demonstrable mechanical failure of the aircraft; or

(d) adverse meteorological conditions;

make it impossible:

(e) to use the same aircraft; or

(f) to conduct the aerial work operation on the designated workday; or

(g) to retrieve the person on the designated retrieval day);

then:

(h) another aircraft may be used; or

(i) the designated workday may be the immediately following day; or

(j) the designated retrieval day may be the immediately following day.

pre-flight risk assessment means the assessment to be performed in accordance with section 13.02.

QNH is an atmospheric pressure adjusted to sea level and measured in hectopascals so that when QNH is set the altimeter will read elevation AMSL.

R, for a rotorcraft, means the largest radius of the rotorcraft's main rotor disc, as mentioned in the rotorcraft's flight manual.

radio navigation system means equipment carried on, or installed in, an aircraft for the purpose of navigating the aircraft by reference to the signals emitted by a radio navigation aid.

RAIM means receiver autonomous integrity monitoring for GNSS.

rejected take-off distance available - rotorcraft, or ***RTODAR***, for a take-off of a rotorcraft at an aerodrome, means the total of the following that are available for the rotorcraft to use to stop following an engine failure and rejection of the take-off at the take-off decision point for the take-off:

(a) the length of the final approach and take-off area for the aerodrome;

(b) the length of the area that is available and suitable for the rotorcraft to complete a landing on.

rejected take-off distance required - rotorcraft, or ***RTODRR*** for a take-off of a rotorcraft at an aerodrome, means the horizontal distance required to fully contain the rotorcraft from the start of the take-off to the point where the rotorcraft comes to a full stop following an engine failure and rejection of the take-off at the take-off decision point for the take-off.

relevant obstacle, for the take-off stage, or the approach and landing or baulked landing, stage of a flight of a rotorcraft flying in performance class 1 or 2, or performance class 2 with exposure, means an obstacle that is relevant, within the meaning of section 21.45, to that stage of the flight.

restricted person has the same meaning as in the CASR Dictionary.

Note The CASR Dictionary defines a ***restricted person*** as one of the following:

(a) a deportee (within the meaning of subsection 5 (1) of the *Migration Act 1958*);

(b) a removee (within the meaning of subsection 5 (1) of the *Migration Act 1958*);

(c) a person in custody;

(d) a passenger [that is, an aerial work passenger] carried on an aircraft:

(i) who is on the aircraft because he or she has been refused entry to a country; or

(ii) whose passport does not include a visa required for entry to the passenger's destination country.

risk assessor means:

(a) the pilot in command of an aircraft in an aerial work operation; or

(b) another person, mentioned in the operator's operations manual, who is:

(i) qualified to conduct the type of aerial work operation for which he or she prepares a pre-flight assessment; or

(ii) appointed in writing by the operator to prepare pre-flight risk assessments.

Note If the risk assessor is not the pilot in command, the operations manual must identify the risk assessor, for example, by name, role or title.

S, in relation to a point in a flight of a rotorcraft, means:

(a) for the take-off and initial climb stage of the flight — the horizontal distance the rotorcraft has travelled from the end of the TODAR at an aerodrome, to the point; or

(b) for the approach and landing, or baulked landing, stage of a flight — the horizontal distance the rotorcraft (the ***relevant rotorcraft***) has travelled, from the end of the TODAR at an aerodrome as if a baulked landing of the relevant rotorcraft were being conducted, to the point.

SAR means search and rescue.

Note For related definitions of ***SAR operation***, ***search***, ***rescue, search and rescue body***, see section 1.08.

sea means the waters extending from the coastline of Australia in a seawards direction.

Note ***Sea*** includes tidal estuaries but does not include inland rivers, lakes, reservoirs, dams, or other similar bodies of water.

sealed receptacle means a belly tank for firefighting, or a cargo pod, basket, bin or similar thing, that:

(a) is a sealed container within which aerial work cargo, water or fire retardant is fully enclosed; and

(b) is fixed to the exterior of a rotorcraft in accordance with the rotorcraft's flight manual supplement.

self-contained navigation system means a navigation system which:

(a) is carried on, or installed in, an aircraft; and

(b) determines the position of the aircraft without reference to externally generated radio signals.

significant change means a change, approved in writing by CASA, which is any of the following:

(a) a change in relation to any of the following:

(i) the location and operation of the operator's main operating bases, including the opening or closing of main operating bases;

(ii) the operator's key personnel;

(iii) any person authorised to carry out the responsibilities of any of the key personnel if a key person is absent from the position, or cannot carry out the responsibilities of the position for any reason;

(iv) the formal reporting lines for a managerial or operational position with safety functions and responsibilities that reports directly to any of the key personnel;

(v) the operator's process for making changes that relate to the safe conduct and management of the operator's aerial work operations;

(vi) the aerial work operations the operator is authorised to conduct under the Part 138 certificate, including a change from an initial capability to conduct a Class D external load operation, to a capability to conduct a different kind of Class D external load operation;

Note For example, a change from conducting one of the following 3 operations, namely, winching, rappelling or belly hook operations, to a capability to conduct a different one of the 3 operations.

(vii) the types of aeroplanes or rotorcraft used in the operator's operations, including the addition of a new type (but not including ceasing to operate a type or model);

(viii) the flight rules category of operation (VFR, night VFR or IFR) under which the operator is operating;

(ix) any change to the operator's approved AWZ RMP;

(b) a change in relation to any of the following, if it is not a change that either maintains or improves, or is likely to maintain or improve, aviation safety:

(i) the plans, processes, procedures, programs and systems for the safe conduct and management of the operator's aerial work operations;

(ii) the qualifications, experience and responsibilities required by the operator for any of the operator's key personnel;

(iii) any other aeronautical or aviation safety related services provided to the operator by third parties;

(iv) any leasing or other arrangements for the supply of an aeroplane or rotorcraft used in the operator's aerial work operations; or

(c) without affecting paragraphs (a) and (b), any other change that requires the approval of CASA under the Regulations, other than a change that merely results in the reissue or replacement of an instrument previously issued by CASA in which the conditions and other substantive content of the instrument are unchanged.

stage, of a flight of a rotorcraft, means any of the following:

(a) take-off;

(b) take-off and initial climb;

(c) en route;

(d) approach and landing, or baulked landing.

STC means supplementary type certificate.

standard rate turn means a turn of approximately 3 degrees per second, or 360 degrees in 2 minutes.

suitable forced landing area has the meaning given in section 1.07.

surveillance operation means an operation to look for, identify or monitor a person or thing.

take-off decision point, for a take-off of a rotorcraft at an aerodrome, means the point, mentioned in the rotorcraft's flight manual, before which, if an engine failure is recognised:

(a) the take-off may be safely rejected; or

(b) the take-off may be continued safely.

take-off distance available - rotorcraft, or ***TODAR*** for a take-off of a rotorcraft at an aerodrome, means the total of the following that are available for the rotorcraft to complete the take-off:

(a) the length of the final approach and take-off area for the aerodrome;

(b) the length of the aerodrome helicopter clearway (if any) that is suitable for the rotorcraft to overfly after the take-off decision point for the take-off, and accelerate.

take-off distance required - rotorcraft or ***TODRR***: see section 1.06.

task specialist has the same meaning as n regulation 138.015.

time-in-service has the same meaning as in the CASR Dictionary.

TODA, or ***take-off distance available***, for an aeroplane: see section 19.02.

TODR, or ***take-off distance required***, for an aeroplane: see section 19.02.

transition mode capability means the capability, through the AFCS, to do the following:

(a) hover hold at a selected height above the surface.

(b) ground speed hold;

(c) transition down and hover to a waypoint under guidance from the navigation function of the FMS (the ***navigation computer***);

(d) transition down and hover near a target over which the helicopter has flown;

(e) transition up, climb, and capture a cruise height;

(f) capture and track search patterns generated by the navigation computer;

(g) monitor the preselected hover height with the option of automatic correction if the aircraft height drops below the safe minimum height.

transition point, for a flight of a rotorcraft that begins in VMC but is not conducted wholly in VMC, means the point in the flight at which the rotorcraft stops flying in VMC and starts to fly in IMC.

unforeseen factors means factors that could have an influence on an aircraft's fuel consumption to the destination aerodrome, including the following:

(a) deviation of the particular aircraft from the expected fuel consumption data for aircraft of that type;

(b) deviation from forecast meteorological conditions;

(c) extended delays, and deviations from planned routings or cruising levels.

vertical reference operation is an external ***load*** operation:

(a) in which a rotorcraft picks up, carries and sets down a load; and

(b) during which the pilot, by looking down vertically from the rotorcraft, is able to observe the position of the load.

Note These operations are sometimes colloquially known as "long-lining" — the load at the end of its long-line below the rotorcraft is always within a vertical line of sight to the pilot in the rotorcraft. The pilot must be able to look down and observe the position of the load so that he or she can alternately scan the load, the flight controls, the instruments and the rotorcraft's position.

vessel means any on-water craft or structure capable of navigation.

VMC means visual meteorological conditions as prescribed by the Part 91 MOS.

V_{mini} means instrument flight minimum speed, utilised in complying with minimum speed limit requirements for instrument flight in a rotorcraft.

V_{TOSS}, for a rotorcraft, means the minimum speed at which climb of the rotorcraft is achieved with 1 engine inoperative, and the remaining engines are operating within the operating limits mentioned in the rotorcraft's flight manual for a take-off.

water rescue operation means:

(a) an external load operation in a rotorcraft to rescue a person from the sea or other water, using rescue equipment attached to an AFM-approved external load attachment point on the rotorcraft, whether or not the attachment hook is certified by its manufacturer for the carriage of a Class D external load; or

(b) training for an operation mentioned in paragraph (a).

Division 3 Definitions — AWZ; take-off distance required - rotorcraft

1.05 Aerial work zone (AWZ)

(1) Subject to subsection (3), an ***aerial work zone*** (an ***AWZ***) means the area:

(a) beneath an aerial work operation in which:

(i) an aircraft is flown below the height, and closer than the distance, specified in paragraph 91.315 (3) (a); and

(ii) none of the circumstances mentioned in subregulation 91.315 (4) applies; and

(b) within which there are, or are likely to be, one or more of the following:

(i) buildings, other than a building involved in the operation;

(ii) persons, other than persons involved in the operation (***participants***);

(iii) vehicles, other than the vehicles of participants; and

(c) where one or more of the following events might occur:

(i) a collision between the aircraft and a building, or between the aircraft and terrain;

(ii) the falling of any load from the aircraft; and

(d) where, if an event mentioned in paragraph (c) were to occur, there would be a reasonable risk of:

(i) serious injury or death to a person in the area (other than the pilot or a participant); or

(ii) serious damage to a building or vehicle in the AWZ (other than a building on which, or from which, a load is to be placed or removed, or the vehicle of a participant).

Note The fact of an operation occurring above an area may attract persons and vehicles to enter the area as spectators unless they are properly prohibited. Such an area may then become an AWZ requiring such persons and vehicles to be properly prohibited from entering.

(2) For this instrument, an area may be an AWZ despite the fact that a person has total control over who may enter, or be in, the area.

Note For example, the presence of contiguous or adjacent buildings not involved in the operation may make an area an AWZ despite the fact that the person for whom the operation is being carried out otherwise has total control over who may enter or be in the area of the building that is involved in the operation.

(3) If the area beneath an aerial work operation is not an AWZ but, in the event of an emergency or a mechanical failure, the reasonably likely trajectory of an aircraft or its external load would be over an AWZ, then the area beneath the aerial work operation is also an AWZ.

1.06 Take-off distance required - rotorcraft

(1) For a take-off of a multi-engine rotorcraft, the ***take-off distance required - rotorcraft*** is the distance, calculated in accordance with the factors mentioned in subsection (2), from the start of the take-off to the point at which the rotorcraft achieves all of the following:

(a) V_{TOSS} for the rotorcraft;

(b) a height of 35 ft above the take-off aerodrome;

(c) a positive climb gradient.

(2) For subsection (1), the factors are that:

(a) 1 engine is inoperative at the take-off decision point for the take-off; and

(b) the remaining engines are operating within the operating limits mentioned in the rotorcraft's flight manual for a take-off.

Division 4 Definition of suitable forced landing area

1.07 Suitable forced landing area

Area of ground

(1) In this MOS, an area of ground is a ***suitable forced landing area*** for a flight of a rotorcraft in an aerial work operation if the rotorcraft could make a forced landing in the area with a reasonable expectation that there would be no injuries to persons in the rotorcraft or on the ground.

Areas of water

(2) In this MOS, an area of water that meets the requirements mentioned in subsection (3) is a ***suitable forced landing area*** for a flight of a rotorcraft in an aerial work operation if the rotorcraft:

(a) is equipped with emergency flotation equipment; or

(b) has a type certificate or supplemental type certificate for landing on water.

(3) For the purposes of subsection (2), and subject to subsection (4), the requirements are the following:

(a) the rotorcraft must be able to ditch in the area of water with a reasonable expectation that there would be no injuries to persons in the rotorcraft or on the water;

(b) there must be a reasonable expectation that persons in the rotorcraft would survive in the area of water for the time that it would take to be rescued;

(c) if an aerial work passenger is carried — the area of water must be:

(i) adjacent to land; or

(ii) adjacent to an offshore installation with search and rescue capabilities; or

(iii) in a location mentioned in the operations manual of an aerial work operator with search and rescue capabilities.

(4) Factors that affect whether there is a reasonable expectation about the matters mentioned in paragraphs (3) (a) and (b) include the following:

(a) the surface condition of the area of water, including the wave height, wind conditions and swell;

(b) the limits of the capability of the rotorcraft's emergency flotation system to stay upright and floating in certain sea states.

Division 5 Definition of SAR, search, and rescue

Note A ***medical transport operation*** does not fall within any of the definitions in this Division, and none of the operations in this Division is a medical transport operation.

1.08 SAR, search and rescue

(1) In this MOS:

rescue operation, or ***rescue***, means an aerial work operation, coordinated by a search and rescue body, the primary purpose if which is to:

(a) retrieve persons in distress; and

(b) provide for their initial survival and other needs; and

(c) deliver them to a place of safety.

SAR operation has the same meaning as ***search and rescue operation***.

search operation, or ***search,*** means an aerial work operation, coordinated by a search and rescue body, the primary purpose of which is to locate persons who are lost and likely to be in distress.

search and rescue body has the same meaning as in the CASR Dictionary.

Note A search and rescue body means any of the following:

(a) a State or Territory police service or the Australian Federal Police;

(b) the Australian Defence Force;

(c) the Australian Maritime Safety Authority.

search and rescue operation means an aerial work operation whose primary purpose is a combined search and rescue.

CHAPTER 2 PRESCRIPTIONS FOR CLASSES OF AERIAL WORK PASSENGERS

2.01 Aerial work passengers — additional classes of persons

The following classes of persons are prescribed for the definition of ***aerial work passenger*** in the CASR Dictionary:

(a) any person rescued as part of a search and rescue operation;

(b) any restricted person if the flight is conducted as part of an emergency service operation;

(c) any emergency service operation personnel if the flight is conducted as part of an emergency service operation;

(d) a marine pilot, when being transferred to or from a ship requiring the services of a marine pilot;

(e) a person whose presence on the aircraft is solely and reasonably required to facilitate an aerial work operation.

(f) a person carried on a positioning flight.

Note For paragraph **(e)**, see also section 7.04. Examples of a person mentioned in paragraph (e) include a person whose absence would be likely to do any of the following:

(1) increase the risks associated with the operation;

(2) make the operation longer in duration;

(3) result in the operation being frustrated or incomplete;

(4) result in training and checking objectives not being accomplished;

(5) result in relevant safety information not being collected to inform an operator's safety management system.

CHAPTER 3 OTHER PRESCRIBED BODIES AND ORGANISATIONS INCLUDED IN, OR EXCLUDED FROM, DEFINITIONS FOR PART 138 OF CASR

3.01 Other operations excluded from definition of aerial work operation

For paragraph 138.010 (5) (g), the following operations that might otherwise be, or appear to be, an aerial work operation, are not included within the definition of ***aerial work operation***:

RESERVED

3.02 Task specialists included in definition

(1) For paragraph 138.015 (2) (a) of the definition of ***task specialists***, this section prescribes kinds of crew members who are task specialists.

(2) In a task specialist operation where only flight crew are carried on the aircraft, each FCM is prescribed as a task specialist for the flight.

(3) In a task specialist operation where an air crew member is required to be carried for the flight, the air crew member is prescribed as a task specialist for the flight, if the member:

(a) is required to carry out a task specialist function on the flight; and

(b) has been trained and found competent to carry out the function.

3.03 Task specialists excluded from definition

The following kinds of crew members, prescribed for paragraph 138.015 (2) (b) of the definition of ***task specialists***, are not task specialists:

RESERVED

3.04 Air crew members included in definition

The following kinds of air crew members, prescribed for subparagraph (b) (ii) of the CASR Dictionary definition of ***air crew member***, are air crew members:

RESERVED

3.05 Air crew members excluded from definition

The following kinds of crew members, prescribed for subparagraph (b) (i) of the CASR Dictionary definition of ***air crew member***, are not air crew members:

RESERVED

3.06 Authorities for emergency service operations

The following authorities are each prescribed for paragraph (b) of the definition of ***emergency service operation*** in the CASR Dictionary:

(a) the Australian Federal Police;

(b) the Australian Defence Force;

(c) the Australian Maritime Safety Authority;

(d) the Australian Border Force;

(e) a State or Territory police service;

(f) a State or Territory fire service;

(g) a State or Territory emergency service;

(h) a State or Territory parks, wildlife or forestry service;

(i) a State or Territory surf lifesaving service.

CHAPTER 4 TRAINING AND CHECKING SYSTEM

4.01 Training and checking system

(1) For paragraph 138.125 (1) (c), an aerial work certificate holder who conducts one or more of the following operations must have a training and checking system:

(a) an operation using offshore airborne radar approach procedures in accordance with section 8.6 of the Part 173 Manual of Standards;

(b) an operation that uses the descent and operational procedures set out in Division 3, 4 or 5 of Chapter 9, as the case requires.

(2) Paragraph (1) (b) does not apply if the operation is a task specialist operation that:

(a) is below minimum height; and

(b) is for the purpose of protecting agricultural crops from frost; and

(c) complies with the requirements in Division 3 of Chapter 9.

CHAPTER 5 SAFETY MANAGEMENT SYSTEM

5.01 Safety management systems

(1) For paragraph 138.140 (1) (c), an aerial work certificate holder who conducts one or more of the following must have a safety management system:

RESERVED

(2) For subregulation 138.140 (2), an aerial work certificate holder is not required to have a safety management system for an aerial work operation conducted in an aeroplane if the following circumstances apply to the aeroplane:

RESERVED

(3) For subregulation 138.140 (2), an aerial work certificate holder is not required to have a safety management system for an aerial work operation conducted in a rotorcraft if the following circumstances apply to the rotorcraft:

RESERVED

CHAPTER 6 PERSONNEL FATIGUE MANAGEMENT

6.01 Personnel fatigue management

(1) For subregulation 138.150 (1), this Chapter applies, according to its terms, to external load, dispensing or task specialist operations of an aerial work certificate holder.

(2) For subregulation 138.150 (2), an aerial work certificate holder must comply, and ensure that flight crew members comply, with *Civil Aviation Order 48.1 Instrument 2019* as if the holder were an AOC holder.

CHAPTER 7 OPERATIONS MANUAL

Division 1 General

7.01 Operations manual — content

For subregulation 138.155 (1), an operations manual for an aerial work certificate holder must include the following:

(a) the operator's name (including any operating or trading name), contact details, ABN (if any) and the address of the operator's operational headquarters;

(b) a description of the operator's proposed or authorised aerial work operations;

(c) a description and diagram of the operator's organisational structure showing formal reporting lines, including the formal reporting lines for each of the key personnel;

(d) if the operator is a corporation — a description of the operator's corporate structure;

(e) for each of the key personnel, the following information:

(i) any qualifications and experience required by the operator for the position in addition to the qualifications and experience required under Division 138.B.4 for the position;

(ii) each matter (if any) for which the holder of the position is responsible in addition to the responsibilities mentioned in Division 138.B.4 of CASR for the position;

(iii) the name of the person appointed to the position;

(iv) the name of each person authorised to carry out the responsibilities of the position when the position holder is absent from the position or cannot carry out the responsibilities;

(v) a description of how the operator will manage the responsibilities of the position during a circumstance mentioned in subparagraph (iv);

(vi) details of:

(A) the content and the conduct of any familiarisation training required under regulation 138.080 that was completed before the appointed person, or the person appointed to act for the appointed person, began to carry out the responsibilities of the position; and

(B) how and where completion of such training is recorded; and

(C) how the training record will be securely retained for at least 2 years for each relevant person;

(f) each matter (if any) for which the chief executive officer is accountable in addition to the matters mentioned in regulation 138.085;

(g) if:

(i) the operator is required, under regulation 138.125, to have a training and checking system — a description of, and the procedures and requirements for, the system, the training and the flight hours, mentioned in subregulation 138.130 (4); and

(ii) the operator is not required, under regulation 138.125, to have a training and checking system — a description of, and any relevant procedures for, the following:

(A) each crew member's qualifications, experience and recency requirements for each aerial work task that is performed;

(B) the training and competency assessment of each crew member for his or her operations;

(C) for an FCM who fails a competency assessment — the remedial training process to enable the FCM to again demonstrate the competency required to be assigned to aerial work operations;

(h) a description of the operator's program for training and assessing operational safety critical personnel;

(i) a description of the duties of the operator's operational safety critical personnel;

(j) for each registered aircraft operated by the operator for its aerial work operations — the kind of aircraft;

(k) for each foreign registered aircraft operated by the operator for its aerial work operations — the kind of aircraft and its nationality;

(l) a description of the arrangements for the maintenance of the aircraft operated by the operator for its aerial work operations;

(m) a description of the operator's safety policy;

(n) if the operator conducts one or more of the operations mentioned in subregulation 138.140 (1) — the safety management system statement, process, and system requirements mentioned in subregulation 138.145;

(o) a description of the way the operator manages the risk of fatigue in its personnel, including the operator's fatigue risk management system manual (if any);

(p) a description of:

(i) the aerial work equipment used by the operator for aerial work purposes; and

(ii) how that equipment is to be used by the operator's personnel.

(q) a list of operations (if any) conducted by the operator that are not aerial work operations;

(r) the operator's dangerous goods manual (if any);

(s) a description of the operator's process for making changes to the operations manual, including the following:

(i) the process by which any proposed significant changes in operations are submitted to CASA for approval;

Note See section 1.04 for the definition of ***significant change***.

(ii) the process, including time frames, by which CASA will be notified of any changes which are not significant changes;

(iii) how the operator's personnel will be informed of changes;

(t) a description of any other matter required to be approved by CASA under Part 138 of CASR in relation to the operations;

(u) a list of material required for the operator's reference library under regulation 138.195;

(v) any other matters specified in this MOS as matters that are to be set out in the operations manual.

7.02 Operations manual — instructions and procedures

For subregulation 138.155 (1), an operations manual for an aerial work certificate holder must include instructions or procedures for pilots in command, FCMs, air crew members, task specialists and aerial work passengers (as applicable), with respect to the following:

(a) pre-flight risk assessments and the in-flight risk assessments:

(i) as required by this MOS; and

(ii) as appropriate for the nature, size and complexity of particular operations;

(b) the procedures for determining take-off and landing weights for Chapters 18, 19 and 20, as applicable;

Note Under paragraph 138.455 (a), an aerial work certificate holder's operations manual must include procedures for loading aircraft in compliance with regulation 138.450.

(c) the normal and emergency operating drills and procedures related to the aircraft and the relevant aerial work tasks;

(d) the minimum fuel requirements and reserve fuel requirements for each aircraft type used;

(e) pilot qualifications, training and recency requirements;

(f) if the operator permits the pilot in command to use an electronic flight bag (***EFB***) — the use of the EFB;

(g) crew duties, and standard phraseology, where applicable;

(h) safety and risk management, including risk assessment, and hazard identification and management;

(i) preparing an AWZ risk management plan (an ***AWZ-RMP***) for any aerial work operation in an AWZ;

Note Only an aerial work certificate holder may conduct external load or dispensing operations which require the establishment of AWZ: see sections 9.06 and 13.04.

(j) aerial work techniques for each aerial work operation that is conducted;

(k) aerial work equipment, and equipment serviceability checks;

(l) for an external load operation — the correct preparation and rigging of the load;

(m) loads that may be classified as dangerous goods or that may, subject to environmental conditions during carriage, constitute a potential environmental hazard;

(n) carriage of any Class D external loads;

(o) ensuring that each crew member, and each other member of the operator's personnel who is involved in an operation:

(i) has access to all of the procedures required under this section; and

(ii) is briefed on relevant procedures before an operation commences;

(p) monitoring, reviewing and, continually improving, the effectiveness of the procedures for, and the conduct of, aerial work operations;

(q) the use of seat belts, other restraint devices, safety harnesses and restraint straps, as applicable, for relevant aerial work operations;

(r) the qualifications, identification and use of risk assessors (if other than the pilot in command);

Note See section 13.02.

(s) the process to be followed in preparing and following pre-flight and in-flight risk assessments that comply with section 13.02;

(t) external load rappelling operations (if any);

7.03 Operations manual procedures for operations — general

If a rotorcraft's flight manual does not include details of the minimum distance the rotorcraft must be from an object during a stage of flight, the rotorcraft operator's operations manual must include the details.

Division 2 Operations with aerial work passengers

7.04 Operations manual requirements for aerial work passengers

(1) For subregulation 138.155 (1), this section applies for a flight with a person whose presence on an aircraft is solely and reasonably required to facilitate an aerial work operation.

Note See paragraph 2.01 (e).

(2) An aerial work certificate holder must have procedures in the operations manual:

(a) to ensure that the flight is conducted in accordance with:

(i) Chapter 11 of this MOS (as applicable); and

(ii) regulations 91.305. 91.310, 91.315 and 91.320, as and when they apply to the flight; and

(b) for the following:

(i) to ensure that the presence of a person on the aircraft is solely and reasonably required to facilitate the aerial work operation;

(ii) the conduct of a risk assessment for the carriage of the person, with risk mitigation measures as appropriate; and

(iii) to provide for how the operation is to be conducted when the person is on board the aircraft; and

(iv) to ensure the safety of the person.

Division 3 PSEA operations manual requirements

7.05 Operations manual requirements for prescribed single-engine aeroplane (PSEA)

For subregulation 138.155 (1), the operations manual of an aerial work certificate holder who conducts aerial work operations in a PSEA must include the procedures for PSEA operations that are specified in the Part 135 Manual of Standards for the purposes of subregulation 135.240 (3) of CASR.

Division 4 Performance class 1 — operations manual requirements

7.06 Operations manual requirements for performance class 1

(1) For subregulation 138.155 (1), for a rotorcraft that is flown in performance class 1 during any stage of a flight for an aerial work operation, the operations manual must include procedures for the pilot in command that are set out in subsection (2).

(2) The procedures are the following:

(a) procedures for the pilot in command of the rotorcraft for a flight to determine whether the rotorcraft's take-off and landing weights for the flight are within the limits, and comply with the requirements, under Chapter 18;

(b) procedures for the pilot in command to determine the following for the flight:

(i) the most suitable flight path and track for take-off;

(ii) take-off obstacle clearance requirements;

(iii) the take-off decision point for the take-off of the rotorcraft;

(iv) en route obstacle clearance requirements;

(v) the most suitable flight path and track for the approach and landing, or baulked landing, of the rotorcraft;

(vi) baulked landing obstacle clearance requirements;

(vii) the landing decision point for the landing of the rotorcraft.

Division 5 Performance class 2 and performance class 2 with exposure — operations manual requirements

7.07 Operations manual requirements for performance class 2 and performance class 2 with exposure

(1) For subregulation 138.155 (1), for a rotorcraft that is flown in performance class 2, or performance class 2 with exposure, during any stage of a flight for an aerial work operation, the operations manual must include procedures for the pilot in command that are set out in subsection (2).

(2) The procedures are the following:

(a) procedures for the pilot in command of the rotorcraft for a flight to determine whether the rotorcraft's take-off and landing weights for the flight are within the limits, and comply with the requirements stated in Chapter 18;

(b) procedures for the pilot in command to identify relevant obstacles for the flight under subsection 21.45 (7);

(c) procedures for the pilot in command to determine the following for the flight:

(i) the most suitable flight path and track for take-off;

(ii) take-off obstacle clearance requirements;

(iii) the defined point after take-off for the rotorcraft;

(iv) en route obstacle clearance requirements;

(v) the most suitable flight path and track for the approach and landing or baulked landing (if any);

(vi) baulked landing obstacle clearance requirements;

(vii) the defined point before landing for the rotorcraft;

(d) for a rotorcraft flown in performance class 2 — procedures for the pilot in command to determine a contingency plan for the failure of an engine during the take-off and initial climb stage, or the approach and landing, or the baulked landing, stage, of the flight, including a procedure to identify a suitable forced landing area for the flight:

(i) for an engine failure during take-off — before the defined point after take-off for the rotorcraft; and

(ii) for an engine failure during landing — after the defined point before landing for the rotorcraft;

(e) for a rotorcraft flown in performance class 2 with exposure:

(i) procedures for the take-off and initial climb stage, or the approach and landing or baulked landing, stage that meet the requirements stated in Chapter 21, Divisions 5 and 6; and

(ii) a procedure for the operator to ensure that the rotorcraft is operated within the maximum permitted exposure time for the rotorcraft.

Division 6 Performance class 3 — operations manual requirements

7.08 Operations manual requirements for performance class 3

(1) For subregulation 138.155 (1), for a rotorcraft that is flown in performance class 3 during any stage of a flight for an aerial work operation, the operations manual must include procedures for the pilot in command that are set out in subsection (2).

(2) The operator's operations manual must include the following:

(a) procedures for the pilot in command of the rotorcraft for a flight to determine whether the rotorcraft's take-off and landing weights are within the limits, and comply with the requirements stated in Chapter 18;

(b) procedures for the pilot in command to determine the following for the flight:

(i) the most suitable flight path and track for take-off;

(ii) take-off obstacle clearance requirements;

(iii) the location of suitable forced landing areas for the flight;

(iv) en route obstacle clearance requirements;

(v) the most suitable flight path and track for the approach and landing, or baulked landing, if any;

(vi) baulked landing obstacle clearance requirements.

CHAPTER 8 OPERATIONAL DOCUMENTS

8.01 Compliance with flight manual

(1) This section applies according to its terms, to the following operators:

(a) an aerial work certificate holder; and

(b) a limited aerial work operator.

(2) For subregulation 138.210 (3), the requirements and limitations relating to the operation of an aircraft, as set out in the aircraft flight manual instructions for the aircraft, need not be complied with by the operator of, or the operator's pilot in command of, a rotorcraft mentioned in subsection 8.02 (1) if the circumstances mentioned in subsection 8.02 (2) apply to the aircraft for the flight.

8.02 Avoid area of the HV curve chart of a rotorcraft AFM

(1) For subsection 8.01 (2), the rotorcraft (the ***relevant rotorcraft***):

(a) must be the subject of:

(i) a type approval certificate issued under regulation 21.13A of CASR; and

(ii) a certificate of airworthiness for use as a transport category helicopter, issued under regulation 21.176 of CASR; and

(b) must have an AFM limitation or requirement in relation to operations inside the avoid area of the HV curve; and

(c) must be conducting one of the following operations:

(i) an emergency service operation at an ESO operating site, for which the rotorcraft's operator and crew have:

(A) conducted an operational risk-assessment; and

(B) found the site to be a suitable place to operate the rotorcraft safely;

(ii) an external load operation;

(iii) an operation flown in performance class 2 with exposure during the take-off stage, and the approach and landing or baulked landing, stage, of a flight.

(2) For subsection 8.01 (2), the circumstances are that it would be impossible for the rotorcraft to carry out the operation if, for the operation, the operator were to direct the pilot in command to attempt, and the pilot in command were to attempt, to comply with the AFM limitation or requirement in relation to operations inside the avoid area of the HV curve.

Note Nothing in subsection 8.02 (2) affects the application of AFM limitations and requirements in relation to assessment of rotorcraft performance.

CHAPTER 9 FLIGHT RULES — MINIMUM HEIGHT

Division 1 Preliminary

9.01 Minimum height rules

(1) For regulation 138.275, the minimum height requirements under regulations 91.305 (1) and (2), 91.310 (1) and (2), 91.315 (1), (2) and (3), or 91.320 (1) and (2) do not apply to a pilot in command of an aircraft for a flight involving an aerial work operation if:

(a) the flight occurs in the circumstances described in subregulation 91.305 (3), 91.310 (3), 91.315 (4) or 91.320 (3), as the case requires; or

(b) the applicable requirements prescribed in this Chapter are complied with.

Note 1 In this MOS, references to an aerial work operation include training for the aerial work operation: see regulation 138.010.

Note 2 Regulation 138.275 disapplies regulations 91.305, 91.310, 91.315 or 91.320 if circumstances relevantly prescribed in this MOS apply to an aircraft or an operation. If the circumstances prescribed in this MOS do not apply to an aircraft or an operation, then regulations 91.305. 91.310, 91.315 or 91.320 apply to the aircraft or and operation.

(2) If a positioning flight is conducted to facilitate an aerial work operation, the minimum height requirements under regulation 91.305, 91.310, 91.315 or 91.320, as the case requires, apply to the positioning flight until the aerial work operation that the positioning flight facilitates, commences.

Division 2 Close proximity to an object in an area that is not a populous area or a public gathering

9.02 Requirements for aircraft flight in close proximity to an object in an area that is not a populous area or a public gathering

(1) This section applies, according to its terms, to the following operators:

(a) an aerial work certificate holder; and

(b) a limited aerial work operator.

(2) Without affecting any other provision in this Chapter, this section applies to the pilot in command of an aircraft that is flown in close proximity to an object in an area that is not a populous area or a public gathering.

(3) Regulation 91.320 does not apply to the flight if the requirements in this section are complied with.

(4) For subsection (3), the following must be carried out:

(a) a pre-flight risk assessment appropriate to the nature, size and complexity of the operation; or

(b) for an ESO — a pre-flight risk assessment, or an or inflight risk assessment, appropriate to the size and complexity of the operation, performed in accordance with section 13.02.

(5) Subject to subsection (6), if the operation is to be conducted over any point on the ground or water vertically below the aircraft that is within 150 m of a person, vessel, vehicle, structure or any livestock the operator and the pilot in command must ensure that the person, or the owner of the vessel, vehicle, structure or livestock:

(a) was notified in writing about the operation more than 48 hours before it commenced and did not object to the operator about it; or

(b) if it was not reasonably practicable to give written notice — was notified verbally before the operation and did not object to the operator about it.

Note The operation does not require an AWZ. An objection made to the pilot in command or to any of the operator's personnel is sufficient for paragraph (b).

(6) Subsection (5) does not apply to an ESO operation the purpose of which is to save a person, vessel, vehicle, structure or livestock from harm or destruction.

Division 3 Rotorcraft IFR flight, VFR flight at night, and flight below minimum heights

Note This Division prescribes the requirements for an aerial work operation to descend below the minimum height that might otherwise apply under Part 91 of CASR.

9.03 Requirements for rotorcraft IFR flight, and VFR flight at night, below minimum height

(1) For regulation 138.275, the pilot in command of a rotorcraft may fly below minimum height in an IFR flight, or in a VFR flight at night, only if:

(a) the flight is for an aerial work certificate holder; and

(b) the requirements in subsection (2) are complied with, subject to subsection (3).

(2) For subsection (1), the requirements are the following:

(a) the rotorcraft must be operated in VMC;

(b) subject to paragraph (g), only essential crew members may be carried;

(c) before descent, the pilot in command must have received confirmation that the area in which the rotorcraft is to operate is clear of obstructions and obstacles which may endanger the rotorcraft;

(d) if conditions below VMC are encountered, the rotorcraft must immediately commence a climb to resume operations above the minimum height;

(e) except at an ESO operating site — the rotorcraft must be operated in a performance class;

(f) at an ESO operating site:

(i) the rotorcraft operator must ensure that risk assessment and management procedures for such operations are contained in the operations manual; and

(ii) the operator and the pilot in command must ensure that the procedures are followed for the operation;

(g) an aerial work passenger may only be carried:

(i) if the operation is an ESO; or

(ii) in an operation which descends below, or climbs away from below, minimum height at a location where the purpose of the operation is to disembark or embark an aerial work passenger carried in accordance with Chapter 11;

(h) the flight below minimum height must:

(i) be essential for conducting the aerial work operation; and

(ii) be planned to minimise the time the rotorcraft is unable to achieve a suitable forced landing, or safe continuation of flight, if an engine failure occurs; and

(iii) not create a hazard for third parties not involved in the operation;

(j) for night operations — the rotorcraft must be operated using an NVIS with an NVIS qualified crew, in accordance with CAO 82.6 and Part 61 of CASR;

(k) if the rotorcraft is operated in performance class 3 at night, the requirements in section 9.04 must be met if suitable forced landing areas are not available for the entire time the rotorcraft is operating below the minimum height.

(3) Paragraph (2) (j) does not apply to a task specialist operation:

(a) that is below minimum height; and

(b) that is for the purpose of protecting agricultural crops from frost; and

(c) for which the area of the operation is adequately illuminated with flood lighting.

9.04 When no suitable forced landing area is available

Note This section is for each of the following provisions (but subject to the terms of the provision):

(a) paragraph 9.03 (k) (including the requirements in paragraph 9.04 (c));

(b) subparagraph 9.22 (7) (c) (including the requirements in paragraph 9.04 (c));

(c) sub-subparagraph 11.03 (1) (c) (iv) (B) (but the requirements in paragraph 9.04 (c) do not apply);

(d) sub-sub-subparagraph 15.06 (2) (d) (i) (but the requirements in paragraph 9.04 (c) do not apply);

(e) sub-subparagraph 15.06 (3) (e) (i) (A) (but the requirements in paragraph 9.04 (c) do not apply).

The requirements are as follows:

(a) the operator must hold an approval in writing from CASA for the operation;

(b) the rotorcraft must be a turbine-engine powered rotorcraft.

(c) for paragraphs 9.03 (k) 9.22 (7) (c) — but only with effect from the beginning of 2 December 2023:

(i) the rotorcraft must be fitted with a serviceable usage monitoring system; and

(ii) the operator must download and use the data from the usage monitoring system to ensure the rotorcraft is operated within its limitations;

Note It is recommended that rotorcraft be fitted with a usage monitoring system sooner where this is feasible.

(d) the rotorcraft must be fitted with a redundant means of supplying power to, or maintaining the function of, the hydraulic system;

(e) the rotorcraft must be fitted with a secondary or redundant means of controlling the fuel flow to the engine should the primary means fail;

(f) subject to paragraph (g), only essential FCMs, air crew members and task specialists may be carried on the flight;

(g) an aerial work passenger may only be carried in accordance with be paragraph 9.03 (g) and Chapter 11;

(h) the operation must be planned to minimise the time the rotorcraft is unable to achieve a suitable forced landing, or safe continuation of flight, if an engine failure occurs.

Division 4 Aircraft IFR flight below minimum height over the sea

9.05 Requirements for aircraft IFR flight below minimum height over the sea

(1) This Division applies to the pilot in command of an aircraft of an aerial work certificate holder in an IFR flight below minimum height over the sea (the ***flight***), provided the flight is not a search or rescue operation involving an auto-hover using transition model capability over the sea.

Note 1 The requirements in Chapter 15, particularly section 15.07 for night external load operations, apply to the operation.

Note 2 A rescue operation is the actual rescue component of a SAR operation. A SAR recovery operation involving an auto-hover using transition model capability over the sea falls under Division 4 of this Chapter.

Note 3 Division 4 provides for specific auto-hover SAR manoeuvres which use a complex descent and positioning capability over the sea to position a rotorcraft for an auto-hover and winch recovery operation in IMC or where pilot reference to outside objects is not possible. On the other hand, once a rotorcraft has met the visibility and minimum altitude requirements of sections 9.11 and 9.12, the auto-hover function of the rotorcraft's AFCS may be used for positioning the rotorcraft over the sea in the rescue component of a SAR recovery operation under subsection 9.12 (2), provided the rotorcraft has the required capability and equipment in accordance with the AFM, and the pilot in command considers the descent is safe.

(2) Regulation 91.305 do not apply to the flight if the following requirements are complied with:

Note Regulations 91.310, 91.315 and 91.320 continue to apply but, subject to section 9.12 for regulation 91.320, would have no practical application.

(a) the flight below minimum height must be an IFR flight for surveillance or SAR, and involve flight along a route, or a route segment, over the sea;

(b) the flight must be conducted by an aerial work certificate holder;

(c) the flight must comply with the other requirements set out in this Division.

9.06 Distance and obstacle requirements etc.

(1) The flight must not commence its descent below minimum height unless the pilot in command has determined that the following are not within the area that is 20 nautical miles ahead along track and 5 nautical miles either side of track:

(a) the Australian mainland or Tasmania;

(b) any obstacle having a height greater than 300 ft above sea level.

(2) For a flight below minimum height at night — the flight must be at least 5 nautical miles from the following:

(a) the Australian mainland or Tasmania;

(b) any obstacle having a height greater than 300 ft above sea level;

(3) The distances mentioned in paragraphs (2) (a) and (b) must be in addition to any tolerances that must be applied to the following:

(a) navigation equipment;

(b) techniques used to determine the position of the aircraft before descent from minimum height.

(4) Before descent below minimum height — the pilot in command must:

(a) establish the position of the aircraft and ensure that it will remain clear of obstacles in accordance with this section; and

(b) conduct the operator's pre-low flying procedures set out in the operator's operations manual.

9.07 Crew requirements

(1) The pilot in command must have:

(a) a minimum of 10 hours' experience as pilot in command or pilot in command under supervision (***PICUS***), in night surveillance or night search operations; and

(b) conducted a night surveillance, or night search operation, or a training or recency flight for night surveilance or night search operations, as pilot in command or PICUS within the 60 days before the operation.

(2) The minimum crew must be the greater of:

(a) the crew specified in the AFM for the operation; or

(b) the crew specified in subsection (3).

(3) For paragraph (2) (b), the specified crew are:

(a) for an aeroplane — 2 pilots or 1 pilot and 1 trained radar observer; or

(b) for a rotorcraft — 2 pilots, except if dual 4-axis autopilots are fitted then 1 pilot and 1 trained air crew member in the co-pilot seat.

9.08 Persons who may be carried during the flight

Only the following may be carried during the flight:

(a) the FCMs, the air crew members and the task specialists required for the operation;

(b) a person under training to qualify as an FCM, an air crew member, or a task specialist;

(c) an aerial work passenger described in paragraph 2.01 (1) (a), (c) or (e), provided the aerial work passenger is carried in accordance with Chapter 11.

9.09 Flight below 1 500 ft

For a flight below 1 500 ft above sea level, the following requirements must be complied with:

(a) turns must be limited to the lesser of the following:

(i) 25 degrees angle of bank;

(ii) a standard rate turn;

(iii) the radio altimeter unlock angle;

(b) maximum rate of descent must be no greater than 500 ft per minute;

(c) if the aircraft is an aeroplane:

(i) it must be a PSEA or a multi-engine aeroplane; and

(ii) its minimum airspeed must be 1.3 V_S for the aeroplane configuration; and

(iii) its flap setting must be no greater than that recommended for take-off or manoeuvring; and

(iv) it must, if it is a multi-engine aeroplane, be capable, with 1 engine inoperative, and while complying with the requirements of Part 91 of CASR:

(A) of climbing to the minimum altitude required under Part 91 for the flight; and

(B) thereafter, of flying to a suitable aerodrome for landing.

(d) for a rotorcraft:

(i) its minimum airspeed must be not less than whichever of the following is the greatest:

(A) V_{mini};

(B) V_y for the rotorcraft;

(C) 60 kts; and

(ii) except when operating at an ESO operating site — it must be flown in at least PC2WE during the operation.

Note PC2WE requires performance class 1 climb, en route and approach capability after DPATO and before DPBL.

9.10 Radar and instruments

(1) Operations must not be conducted unless the aircraft's radar, radio altimeter and approved area navigation system are serviceable.

(2) Operations must not be commenced, or if commenced, must be discontinued immediately, if:

(a) any of the instruments, indicators, equipment or systems required for the operation fail or have failed; or

Note For instrument, indicator, equipment or system requirements, see Subpart 138.K, and Part 91, of CASR.

(b) the aircraft radar, radio altimeter or approved area navigation system has failed or fails; or

(c) there is a RAIM warning or any reason to doubt the validity of the GNSS-derived information; or

(d) there is a RAIM loss.

9.11 Visibility

(1) Operations must not be conducted unless visibility at 1 000 ft above sea level for aeroplanes, or 700 ft above sea level for rotorcraft, meets the VMC criteria for the category of aircraft.

(2) After visual investigation of a target or search area, the aircraft must immediately initiate a climb to at least minimum height unless section 9.12 applies.

(3) For an operation in cloud below minimum height the requirements are as follows:

(a) the minimum descent altitude to obtain visual reference below cloud must not be less than 1 000 ft above sea level for aeroplanes, or 700 ft above sea level for rotorcraft, derived from the aircraft radio altimeter;

(b) if:

(i) visibility prescribed in subsection (1) is not obtained; or

(ii) visibility below cloud is reduced to less than that required under subsection (1):

then the pilot in command must immediately return the aircraft to at least minimum height.

9.12 Minimum altitude

(1) Subject to subsection (2), the minimum altitude must be:

(a) for a night operation — not lower than 600 ft, derived from the aircraft radio altimeter; and

(b) for a day operation — not lower than 500 ft, derived from the aircraft radio altimeter.

(2) A rotorcraft may descend below 600 feet by night or 500 feet by day to identify a person or object, or to rescue a person, if the following requirements are met:

(a) at least the minimum visibility to maintain VMC is available below cloud;

(b) the location of the person or object has been identified;

(c) the rotorcraft, in accordance with the AFM, has the performance capability and the equipment required to descend and conduct the rescue operation;

(d) the descent is in accordance with the requirements of section 9.03;

(e) the pilot in command considers that the descent is safe.

(3) For subsections (1) and (2), regulation 91.320 do not apply.

Note The requirements in Chapter 15 for night external load operations apply to the operation.

Division 5 Rotorcraft IFR flight that is a SAR operation involving an auto-hover using transition mode capability over the sea

9.13 Requirements for rotorcraft IFR flight involving an ESO SAR auto-hover using transition mode capability over the sea

(1) This Division applies to the pilot in command of a rotorcraft of an aerial work certificate holder in an IFR flight:

(a) that is an ESO SAR operation involving an auto-hover using transition mode capability over the sea (the ***flight***); and

(b) for which none of the following is available:

(i) VMC;

(ii) reference to external objects that are **adequately** illuminated by ground;

(iii) celestial lighting.

Note Auto-hover using transition mode capability SAR descent procedures may be used in VMC if the pilot in command considers that this is the most suitable descent profile for the operation or for training in the conduct of such operations.

(2) Regulations 91.305, 91.310 and 91.320 do not apply to the flight if the requirements mentioned in this section are met.

Note Regulation 91.315 continues to apply but would have no practical application.

(3) The flight must be conducted by an aerial work certificate holder.

(4) The flight must comply with the other requirements set out in this Division.

9.14 Operating crew

The operating crew for the flight must:

(a) consist of 2 pilots qualified for IFR flight in accordance with Part 61 of CASR, and at least 1 air crew member; and

(b) be qualified, in accordance with the training set out in the aerial work certificate holder's operations manual, to operate the helicopter or its equipment (as the case requires) for over sea or other water auto-hover using transition mode capability SAR operations; and

(c) be individually equipped with lifesaving and survival equipment applicable to the environment of the operation.

9.15 The rotorcraft requirements

(1) The flight must be in a rotorcraft that complies with the requirements in this section.

(2) The rotorcraft must be operated at a weight that enables a performance capability of flight in at least performance class 2.

(3) The rotorcraft must have auto-hover capability including:

(a) dual 4-axis autopilots with serviceable auto-hover capability and transition mode capability; and

Note See section 1.04 for the definition of ***transition mode capability***.

(b) a flight director system coupled to the autopilot that responds to instructions from a qualified air crew member.

(4) Subject to subsection (5), the rotorcraft must have serviceable navigation and flight equipment for IFR flight, in accordance with Subpart 138.K of CASR.

(5) For subsection (4), a MEL may apply to the rotorcraft's equipment;

(6) Except when operating at an ESO operating site — the rotorcraft must be flown in at least PC2WE during the operation.

9.16 The flight and obstacles

The flight must be carried out at a distance from obstacles, as authorised by the approved procedures in the operator's operations manual.

9.17 Effect of weather on persons carried

If an authorised meteorological forecast for the flight is for conditions during the flight to be:

(a) less than VMC; or

(b) likely to become less than VMC;

only the following persons may be carried on the rotorcraft:

(c) qualified air crew members;

(d) qualified task specialists;

(e) a person rescued in the course of an ESO.

9.18 Requirements for descent

(1) During the flight, descent from minimum flight altitude in the search and rescue area may only begin following a position fix using the aircraft's GNSS-based FMS.

(2) Before, and in the course of, descent from minimum flight altitude to search height, the pilot in command of the rotorcraft must ensure the letdown track remains clear of obstacles and radar contacts by a minimum radar range of 5 nautical miles.

(3) For recovery of a person from water, the minimum height above water:

(a) at which a rotorcraft may be flown in a search area before descent and engagement of auto-hover for the recovery — is 200 ft (as derived from a radio altimeter); and

Note This minimum height is sometimes called the "low search height".

(b) for the auto-hovering — is 50 ft; and

(c) for the auto-hovering for training purposes — is 75 ft.

9.19 Use of the automatic flight control system (AFCS)

(1) Unless the AFM provides otherwise, the flight must use the rotorcraft's AFCS.

Note Some emergency procedures may require disengaging the AFCS to avoid the pilot having to override it to achieve the desired outcome. If disengaged for this reason, the AFCS is normally re-engaged after the new flight profile is set.

(2) The AFCS must be able to institute all procedures initiated by the pilot flying that are necessary for the successful completion of the operation (including go-around and discontinuance where necessary).

(3) The flight must be discontinued immediately if there is a malfunction in the automatic flight control system (***AFCS***).

9.20 Use of the flight director (FD)

(1) The flight must use the rotorcraft's FD.

(2) The active FD must be on the side of the pilot flying the rotorcraft.

(3) FD commands displayed to the non-flying pilot must be those selected by the pilot flying.

Division 6 Aircraft flight over populous areas etc. and other areas

9.21 Requirements for aeroplane flight over populous areas or public gatherings

(1) Without affecting the operation of any other provision in this Chapter, this section applies to the pilot in command of an aeroplane that is flown over a populous area or a public gathering, if:

(a) the aeroplane is flown below the height, and closer than the distance, specified in paragraph 91.315 (3) (a); and

(b) none of the circumstances mentioned in subregulation 91.315 (4) applies.

(2) Regulation 91.315 does not apply to the flight if the requirements in this section are complied with.

(3) The flight must be an aerial work operation in an AWZ.

(4) The flight must be conducted by an aerial work certificate holder.

(5) Unless the flight is an ESO, there must be a pre-flight risk assessment and an AWZ-RMP in accordance with this MOS.

(6) The flight must be:

(a) in a PSEA; or

(b) in a multi-engine aeroplane that, with 1 engine inoperative, is capable, while complying with the requirements of Part 91 of CASR:

(i) of climbing to the minimum altitude required under Part 91 for the flight; and

(ii) thereafter, of flying to a suitable aerodrome for landing.

9.22 Requirements for rotorcraft flight over populous areas or public gatherings

(1) Without affecting the operation of any other provision in this Chapter, this section applies to the pilot in command of a rotorcraft that is flown over a populous area or a public gathering, if:

(a) the rotorcraft is flown below the height, and closer than the distance, specified in paragraph 91.315 (3) (a); and

(b) none of the circumstances mentioned in subregulation 91.315 (4) applies.

Note An external load operation must not be conducted over a populous area or a public gathering without the written permission of CASA. See also section 15.09.

(2) Regulation 91.315 does not apply to the flight if the requirements in this section are complied with.

(3) The flight must be an aerial work operation in an AWZ.

(4) The flight must be conducted by an aerial work certificate holder.

(5) Unless the flight is an ESO, there must be a pre-flight risk assessment and an AWZ-RMP in accordance with this MOS.

(6) The flight must be conducted in VMC and, if the operation is conducted at night, the pilot in command must use, and be qualified to use, an NVIS.

(7) The rotorcraft must be flown:

(a) in performance class 2 with exposure or a higher performance class; or

(b) in performance class 3:

(i) but only:

(A) if multi-engine — with at least en route ***OEI*** stay-up performance capability; or

(B) if not multi-engine — with available suitable forced landing areas at all stages of the flight below the minimum height; and

(ii) if without available suitable forced landing areas at all stages of the flight below the minimum height — with:

(A) the requirements of section 9.04 met; and

(B) the rotorcraft operated so that it will not create a hazard to persons or property on the ground in the event of an engine failure or other emergency; or

(c) if the flight is an external load operation in an AWZ and the rotorcraft cannot be operated in a performance class — only over such parts of the AWZ where a forced landing area is available which, if used for a forced landing, will not create a hazard to persons or property on the ground.

CHAPTER 10 FUEL REQUIREMENTS

Division 1 Preliminary

10.01 Fuel requirements

(1) This Chapter applies, according to its terms, to the following operators:

(a) an aerial work certificate holder; and

(b) a limited aerial work operator.

(2) For subregulation 138.295 (1), this Chapter prescribes fuel requirements relating to aircraft in aerial work operations (***fuel requirements***).

(2) For subregulation 138.155 (1), this Chapter prescribes certain operations manual requirements in relation to fuel requirements.

Division 2 Fuel requirements — aerial work certificate holders and limited aerial work operators

10.02 Fuel requirements

(1) The fuel requirements for an operator are those which ensure that the flight of an aircraft operated by the operator is conducted in accordance with Chapter 19, Divisions 19.1 and 19.2 (as applicable) of the Part 91 MOS.

(2) An aerial work certificate holder's operations manual must include procedures which ensure that the flight of an aircraft operated by the operator is conducted in accordance with Chapter 19, Divisions 19.1 and 19.2 (as applicable) of the Part 91 MOS.

(3) To avoid doubt, for an operator mentioned in this section, except as specified elsewhere in this Chapter, the prescribed requirements for the following:

(a) matters that must be considered when determining whether an aircraft has sufficient fuel to complete a flight safely;

(b) the amounts of fuel that must be carried on board an aircraft for a flight;

(c) procedures for monitoring amounts of fuel during a flight;

(d) procedures to be followed if fuel reaches specified amounts during a flight;

are the relevant requirements for each of those matters mentioned in Chapter 19, Divisions 19.1 and 19.2 of the Part 91 MOS.

CHAPTER 11 CARRIAGE OF AERIAL WORK PASSENGERS OR AERIAL WORK CARGO

11.01 Application

This Chapter applies only to aerial work certificate holders.

Note Only an aerial work certificate holder may carry aerial work passengers.

11.02 Carriage of 1 to 9 aerial work passengers in IFR flights

(1) For paragraph 138.310 (1) (c), the following aircraft are prescribed for an IFR flight with at least 1 but not more than 9 aerial work passengers:

(a) a multi-engine aeroplane;

(b) a PSEA — except that if 4 or more aerial work passengers are being carried, only a PSEA that is operated in accordance with the operator's operations manual procedures for suitable routes and forced landing areas for a PSEA;

Note See section 7.05.

(c) subject to subsection (2), a rotorcraft operated in accordance with at least performance class 2 with exposure.

(2) For paragraph (1) (c), the rotorcraft need not be operated in at least performance class 2 with exposure if the rotorcraft is operated in an ESO, or in training for an ESO, and paragraphs (a) and (c), or (b) and (c), apply:

(a) it is landing at, or taking off from, an ESO operating site outside an AWZ;

(b) it is being operated in accordance with section 13.03 for a Class D external load, that is, a person being rescued or the insertion or extraction of emergency service personnel;

(c) when it departs from the ESO operating site, it is able, from 300 ft above the site, to do the following until it reaches the minimum flight altitude for a point on the route for the flight:

(i) be operated at a weight at which the rate of climb with 1 engine inoperative would be at least 150 ft per minute at a height of 1 000 ft above the departure ESO operating site for the flight;

(ii) clear any obstacles in the flight path.

11.03 Carriage of 1 or 2 aerial work passengers in VFR flights at night

(1) For paragraph 138.310 (3) (a), the following aircraft are prescribed for a VFR flight at night with at least 1 but not more than 2 aerial work passengers:

(a) a multi-engine aeroplane;

(b) a PSEA;

(c) a rotorcraft capable of flight in at least performance class 3 — but only if:

(i) the rotorcraft is equipped for and using an NVIS with an NVIS qualified crew; and

(ii) the rotorcraft operator is authorised for NVIS operations in accordance with CASR; and

(iii) if over water:

(A) the operation occurs within 10 nautical miles of the coast; and

(B) the rotorcraft is equipped with an approved rotorcraft floatation system; and

(iv) either:

(A) one or more suitable forced landing areas are available, and visible using an NVIS, at all stages of the flight; or

(B) the operator, the pilot and the rotorcraft meet each applicable requirement mentioned in section 9.04;

(d) subject to subsection (2), a rotorcraft operated in accordance with at least performance class 2 with exposure.

(2) For paragraph (1) (e), the rotorcraft need not be operated in at least performance class 2 with exposure if the rotorcraft is operated in an ESO, or in training for an ESO, and paragraphs (a) and (c), or (b) and (c) apply:

(a) it is landing at, or taking off from, an ESO operating site outside an AWZ; and

(b) it is being operated in accordance with section 13.03 for a Class D external load, that is, a person being rescued or the insertion or extraction of emergency service personnel; and

(c) when it departs from the ESO operating site, it is able, from 300 ft above the site, to do the following until it reaches the minimum flight altitude for a point on the route for the flight:

(i) be operated at a weight at which the rate of climb with 1 engine inoperative would be at least 150 ft per minute at a height of 1 000 ft above the departure ESO operating site for the flight;

(ii) clear any obstacles in the flight path.

11.04 Carriage of 3 to 9 aerial work passengers in VFR flights at night

(1) For paragraph 138.310 (3) (a), the following aircraft are prescribed for a VFR flight at night with at least 3 but not more than 9 aerial work passengers:

(a) a multi-engine aeroplane;

(b) a PSEA — except that if 4 or more aerial work passengers are being carried, only a PSEA that is operated in accordance with the operator's operations manual procedures for a PSEA;

Note See section 7.05.

(c) subject to subsection (2) — a rotorcraft equipped for flight under the IFR and operated in accordance with at least performance class 2 with exposure;

(d) subject to subsection (2) — a rotorcraft:

(i) equipped for and using NVIS flight, with an NVIS qualified flight crew and an operator approved for NVIS operations; and

(ii) operated in accordance with at least performance class 2 with exposure.

(2) For paragraphs (1) (c) and (d), the rotorcraft need not be operated in at least performance class 2 with exposure if the rotorcraft is operated in an ESO, or in training for an ESO, and paragraphs (a) and (c), or (b) and (c) apply:

(a) it is landing at, or taking off from, an ESO operating site outside an AWZ; and

(b) it is being operated in accordance with section 13.03 for a Class D external load, that is, a person being rescued or the insertion or extraction of emergency service personnel; and

(c) when it departs from the ESO operating site, it is able, from 300 ft above the site, to do the following until it reaches the minimum flight altitude for a point on the route for the flight:

(i) be operated at a weight at which the rate of climb with 1 engine inoperative would be at least 150 ft per minute at a height of 1 000 ft above the departure ESO operating site for the flight;

(ii) clear any obstacles in the flight path.

11.05 Carriage of more than 9 aerial work passengers

For subregulation 138.315 (2), the following circumstances apply to an aircraft and an aerial work operation in which more than 9 aerial work passengers are carried:

(a) for an IFR flight, a VFR flight at night, or an operation over water — the aircraft must be a multi-engine aircraft, type certificated in the transport category;

(b) for a day VFR operation — the aircraft must be type certificated in the transport category;

Note The aircraft's certificate of airworthiness would state that the certificate is issued in the transport category.

(c) the total number of aerial work passengers on board the aircraft must not exceed a passenger limitation specified in the AFM;

(d) any aerial work passenger in excess of 9 may only be a person who has been rescued in the course of an ESO.

CHAPTER 12 NIGHT VISION IMAGING SYSTEMS

12.01 NVIS flights

For subregulation 138.350 (3), the use of a night vision imaging system for a flight of an aircraft in an aerial work operation must be in accordance with the requirements in CAO 82.6 or any successor instrument.

Note CAO 82.6 may be amended or replaced by a successor instrument before the commencement of this MOS.

12.02 RESERVED

CHAPTER 13 RISK ASSESSMENTS (INCLUDING FOR AWZ-RMP)

Division 1 Risk — general

13.01 Conduct of risk assessments — risk criteria

(1) This section applies, according to its terms, to the following operators:

(a) an aerial work certificate holder; and

(b) a limited aerial work operator.

(2) For paragraph 138.370 (1) (a), the risk criteria that must be met to conduct an aerial work operation are the criteria, appropriate for the nature, size and complexity of the operation, which:

(a) are used to evaluate the significance of the risks involved in the operation; and

(b) result in a decision by the operator that the risks are, or are not, acceptable.

(3) For subsection (2), risk criteria include the following:

(a) the potential for exposure of third-party persons or property to injury or damage because of the operation;

(b) the potential for exposure of any FCM, air crew member, task specialist or aerial work passenger to injury because of the operation;

(c) the nature of the operation and its particular characteristics;

(d) the nature of the location of the operation and its particular characteristics;

(e) the nature of the aircraft to be used in the operation, its particular characteristics, and its performance class, if applicable;

(f) the nature and extent of the qualifications and experience of the FCMs, the air crew members and task specialists to be used in the operation;

(g) the hazards, external to the aircraft, that may be met in the course of the operation.

13.02 Conduct of risk assessments — assessment and mitigation processes

(1) For subregulation 138.370, this section applies, according to its terms, to the following operators:

(a) an aerial work certificate holder; and

(b) a limited aerial work operator.

(2) Before an aerial work operation commences, a risk assessor must assess the risks of, and mitigation processes for, the operation by conducting a pre-flight risk assessment in accordance with the risk criteria mentioned in section 13.01.

(3) The pre-flight risk assessment must be appropriate for the nature, size and complexity of the operation, take into account the risk criteria mentioned in section 13.01, and reasonably satisfy the operator that the operation:

(a) is within the capability of his or her aircraft and organisation; and

(b) does not involve an unacceptable level of risk.

(4) As far as relevant information is reasonably available, the pre-flight risk assessment must:

(a) consider and assess all operationally relevant information for the on-site phase of the operation, including the following:

(i) the current and forecast weather conditions;

(ii) the airworthiness status of the aircraft;

(iii) the performance capabilities and limitations of the aircraft, including weight, fuel and aerodynamics;

(iv) the operational environment, including terrain, obstructions, visibility, communications and airspace;

(v) the suitability and serviceability of each item of equipment to be used for the particular operation, including the communications equipment;

(vi) the training, experience and competency of the crew members, including the presence and effects of fatigue, human factors and non-technical skills;

(vii) for rescue operations or other operations that may involve the recovery of a person:

(A) the suitability of the equipment to be used for the recovery of the person; and

(B) any time-sensitive matters arising in the operation; and

(C) consistent with the recovery objective of the operation — whether other available, timely and appropriate methods of recovery would involve less risk to the person or the crew members;

(viii) assessments (if any) of the operation from:

(A) the aircraft's crew members; and

(B) the authority for whom the ESO is being conducted; and

(b) consider how any risks or hazards identified under paragraph (a) may be eliminated, reduced or mitigated (***safe risk strategies***); and

(c) analyse the conduct of the operation, taking into account:

(i) the considerations and assessments made under paragraph (a); and

(ii) the safe risk strategies arrived at under paragraph (b).

(5) The operator must ensure that the pilot in command and the other crew members are familiar with the pre-flight risk assessment.

(6) For an aerial work operation over an AWZ — the pre-flight risk assessment must be in writing and include the full name of the risk assessor.

Note A ***written*** pre-flight risk assessment is only required for an aerial work operation that is over an AWZ.

(7) The pilot in command of an aircraft must not continue to conduct the operation when at the site of the operation, unless at or in the vicinity of the site:

(a) if a pre-flight risk assessment has been prepared — he or she has reviewed the assessment, and modified it if necessary to take account of:

(i) any new operationally relevant information; and

(ii) any changed considerations, assessments or circumstances arising as a result of being on-site; and

(iii) any unforeseen matters arising from being on-site; and

Note A pre-flight risk assessment is required to be in writing only for an AWZ (see subsection 13.02 (6)). A modification to such a written pre-flight risk assessment in the course of the operation over an AWZ is not required to be in writing.

(b) if a pre-flight assessment has not been prepared due to urgency — an in-flight risk assessment has been made; and

Note In an urgent ESO, a pre-flight risk assessment in accordance with section 13.02 is not required, but the operations manual must have in-flight risk assessment procedures to deal with such urgency (see subsection 13.02 (8)).

(c) the pre-flight risk assessment (including as modified) or the in-flight risk assessment indicates that, with any appropriate risk and hazard elimination, reduction or mitigation (***safe risk strategies***), the operation is safe to continue without unacceptable risk to the crew, the aircraft or any other person or property.

(8) Despite anything in this section, if an ESO must be carried out so urgently that there is insufficient time to do a pre-flight risk assessment, such an assessment is not required, provided the operator's operations manual has ***in-flight risk assessment procedures*** for the pilot in command to develop *safe risk strategies* to use in such circumstances.

(9) To the extent that the safe risk strategies mentioned in subsection (8) may affect a crew member's role in or outside the aircraft — the pilot in command must, as far as practicable, inform each crew member of the *safe risk strategies*.

Division 2 Risk — Class D external load operations

13.03 Additional risk assessment requirements for a Class D external load operation

(1) For paragraph 138.370 (1) (b), this section applies for an aerial work operation that is a Class D external load operation (the ***operation***), conducted by an aerial work certificate holder.

(2) Before conducting the operation, the aerial work certificate holder must ensure that the pilot in command:

(a) accepts the risk assessment as appropriate for the safe conduct of the operation; and

(b) agrees to conduct the operation in accordance with the risk assessment; and

(c) without affecting the responsibility of the operator or any other person — accepts responsibility for conducting the operation.

(3) The pilot in command of a rotorcraft must not continue to conduct the operation at the Class D external load site (***on-site***), unless at or in the vicinity of the site:

(a) if a pre-flight risk assessment has been prepared — he or she has reviewed the assessment, and modified it if necessary to take account of:

(i) any new operationally relevant information; and

(ii) any changed considerations, assessments or circumstances arising as a result of being on-site; and

(iii) any unforeseen matters arising from being on-site; and

Note A pre-flight risk assessment is required to be in writing only for an AWZ (see subsection 13.02 (6)). However, a modification to such a written pre-flight risk assessment

in the course of a Class D external load operation over an AWZ is not required to be in writing.

(b) if a pre-flight assessment has not been prepared due to urgency — an in-flight risk assessment has been made; and

Note In an urgent ESO, a pre-flight risk assessment in accordance with section 13.02 is not required, but the operations manual must have in-flight risk assessment procedures to deal with such urgency (see subsection 13.02 (8)).

(c) the pre-flight risk assessment (including as modified) or the in-flight risk assessment indicates that, with any appropriate risk and hazard elimination, reduction or mitigation (***safe risk strategies***), the operation is safe to continue without unnecessary risk to the crew, the rotorcraft or any other person or property.

(5) After a pre-flight risk assessment, or an in-flight risk assessment, the pilot in command must:

(a) actively monitor the following:

(i) the risks and the hazards identified in the assessment;

(ii) the safe risk strategies;

with a view to early identification of new or emerging risks and hazards; and

(b) respond to any new or emerging risks and hazards with new safe risk strategies to the extent that it is safe to do so at that phase of the operation.

(6) To the extent that it may affect a crew member's role in or outside the rotorcraft — each crew member must:

(a) actively monitor the following:

(i) the risks and the hazards identified in the pre-flight risk assessment or in-flight risk assessment;

(ii) the safe risk strategies;

with a view to early identification of new or emerging risks and hazards; and

(b) tell the pilot in command about any new or emerging risks and hazards; and

(c) respond to any new or emerging risks and hazards to the extent that it is safe and appropriate to do so at that phase of the operation.

Division 3 AWZ-RMP — risk and related requirements

13.04 Preparation of an AWZ-RMP — external loads and dispensing

(1) This section is for regulations138.410, 138.425 and 138.430.

(2) Only an aerial work certificate holder may conduct aerial work operations over an AWZ.

(3) Subject to subsection (3), this section applies only to the following operations conducted over an AWZ (the ***AWZ operation***):

(a) an external load operation;

(b) a dispensing operation.

Note ***AWZ*** is defined in section 1.05. See also section 9.21 and 9.22.

(4) This section does not apply to an ESO involving an external load operation over an area that would otherwise require an AWZ if:

(a) the authority for whom the ESO is being conducted, and the aircraft operator:

(i) have assessed the operational circumstances and the associated safety risks involved in the operation; and

(ii) have advised, or are advising, the operator, and the pilot in command, of the aircraft on the conduct of the operation to ensure the safety of persons on the ground; and

(b) the pilot in command of the aircraft is satisfied that, having considered all foreseeable safety risks, a reasonable pilot would conduct the ESO.

(5) Before conducting the AWZ operation, the operator must:

(a) prepare and document an AWZ-RMP; and

(b) obtain CASA's written approval of the plan unless:

(i) subsection (10) applies; or

(ii) it is planned that the aircraft will at all times:

(A) be above 500 feet; and

(B) when operating below 1 000 feet above the highest obstacle within 600m, have a suitable force landing area.

(6) An aerial work certificate holder does not require CASA approval of an AWZ-RMP for an external load operation if:

(a) the entire operation, including:

(i) pick-up and set-down points, and

(ii) entry and exit routes for the AWZ;

is planned to occur in an AWZ; and

(b) the AWZ is totally under the control of:

(i) the operator; or

(ii) the person requesting the operation; and

(c) access to the AWZ is limited to persons essential for the conduct of the operation.

(7) An application for CASA approval of an AWZ-RMP for an external load operation in an area must be made:

(a) to the CASA regional office for the area; and

(b) at least 15 business days before the operation is to occur.

(8) The AWZ operation must be conducted:

(a) in accordance with the AWZ-RMP; and

(b) taking into account all matters contained within the plan.

(9) An AWZ-RMP must include the following:

(a) the name and contact details of a person designated by the operator for management of the operation;

(b) the date, alternate date, time of day, likely duration, and general area location, of the operation;

(c) the location and size of the AWZ depicted on a large-scale map of the area;

(d) the operational procedures to be used;

(e) a summary of the qualifications and experience of the aircraft's crew;

(f) the size, type and minimum performance of the rotorcraft to be used as determined in accordance with the pre-flight risk assessment;

(g) a description, including the estimated weight and number, of the external loads to be carried and their dynamic characteristics;

(h) the length of sling line or strop to be used;

(i) a description of items to be carried in order to be dispensed — including:

(A) their estimated weight and number; and

(B) their dynamic characteristics; and

(C) the method of dispensing them.

(j) the altitudes, and the entry and exit routes, to be used for the operation;

(k) significant features within the AWZ, including obstacles, possible obstacles, occupied buildings and thoroughfares;

(l) if the operation is to place a load onto, or remove a load from, the roof of a building — the safety precautions to be taken in the event of:

(i) a forced landing onto the roof; or

(ii) load penetration through the roof; or

(iii) a failure of a critical system of the rotorcraft which may result in such a forced landing or load penetration;

(m) evidence that, where necessary, the relevant local government authority is aware of, and does not object to, the proposed operation;

(n) evidence that the relevant police and emergency services have been informed of the proposed operation;

(o) the security arrangements proposed for the AWZ;

(p) where traffic density, and street and thoroughfare locations, may impact on the operation — a detailed traffic management plan and map to address this;

(q) the methods, for example by way of notices, announcements, advertisements or other communications, to be used to ensure that persons in, or likely to be in, the AWZ are aware of the operation;

(r) how the opinions (if any) of persons who would be directly affected by the operation in the AWZ have been taken into account in the AWZ-RMP.

Note If persons whose safety or amenity would be directly affected by the operation express opinions about the operation to the operator, these views must be taken into account for the operation. How that is done is relevant for the CASA approval mentioned in subsection (7). Persons likely to be directly affected by the operation within the AWZ include, for example, persons living, working or conducting businesses in the AWZ.

(10) An aerial work certificate holder must retain possession or control of an AWZ-RMP for at least 3 years after the external load operation has ended.

(11) An AWZ-RMP prepared by the operator for a Class B external load operation must:

(a) include the pick-up and set-down points of the operation; and

(b) include the routes between the pick-up and set-down points; and

(c) subject to paragraph (d), be at least 150 metres in diameter; and

(d) if the safe management of all risks and hazards so requires — be more than 150 metres in diameter; and

(e) be an area:

(i) free of risk of injury to persons who are not associated with the operation; and

(ii) which minimises, as far as practicable, risk of injury to the persons:

(A) carrying out the operation; or

(B) for whom the operation is being carried out; and

(iii) in which hazard to property not associated with the operation is not unduly present or likely to arise.

13.05 Preparation of an AWZ-RMP task specialist operations

(1) This subsection is for regulation138.430 (2).

(2) Subject to subsection (3), this section applies only to a task specialist operation over an AWZ (an ***operation***) if:

(a) the aircraft is flown below the height, and closer than the distance, specified in paragraph 91.315 (2) (a) or (3) (a); and

(b) none of the circumstances mentioned in subregulation 91.315 (4) applies.

Note ***AWZ*** is defined in section 1.05. See also section 9.21 and 9.22.

(3) This section does not apply to an ESO over an AWZ if:

(a) the authority responsible for the conduct of the ESO, and the aircraft operator:

(i) have assessed the operational circumstances and the associated safety risks involved in the operation; and

(ii) have advised, or are advising, the operator, and the pilot in command, of the aircraft on the conduct of the operation to ensure the safety of persons on the ground; and

(b) the pilot in command of the aircraft is satisfied that, having considered all foreseeable safety risks, a reasonable pilot would conduct the ESO.

(4) Before conducting an operation, the operator must:

(a) prepare and document an AWZ-RMP; and

(b) obtain CASA's written approval of the plan unless:

(i) subsection (5) applies; or

(ii) it is planned that the aircraft will at all times:

(A) be above 500 feet; and

(B) when operating below 1 000 feet above the highest obstacle within 600m, have a suitable forced landing area.

(5) An aerial work certificate holder does not require CASA approval of an AWZ-RMP that is for a series of related task specialist operations if the entire series of operations, including entry and exit routes for the AWZ and heights and methods of operation, are planned to occur in an AWZ which is:

(a) the subject of a CASA approved AWZ RMP for the aerial work certificate holder;

(b) contained within the aerial work certificate holder's operations manual.

(6) An application for CASA approval of an AWZ-RMP for a task specialist operation in an area must be made:

(a) to the CASA regional office for the area; and

(b) at least 15 business days before the operation is to occur.

(7) The operation must be conducted:

(a) in accordance with the AWZ-RMP; and

(b) taking into account all matters contained within the plan.

(8) An AWZ-RMP for the operation must include the following:

(a) the name and contact details of a person designated by the operator for management of the operation;

(b) except for an AWZ-RMP mentioned in subsection (5):

(i) the date, alternate date, time of day, and likely duration, for the operation;

(ii) the general area location of the operation;

(iii) the location and size of the AWZ, depicted on a large-scale map of the area;

(c) a detailed description of the type of task specialist operation to be undertaken;

(d) a summary of the minimum qualifications and experience of the aircraft crew for the operation;

(e) the size, type and minimum performance of the aircraft to be used, as determined in accordance with the pre-flight risk assessment;

Note For performance, this may be expressed, for a rotorcraft, in terms of utilising a minimum performance class for the entire operation, or for an aeroplane, in terms of the use of PSEA, or multi engine aircraft with single engine performance capability to continue safe flight operations after an engine failure.

(e) the altitudes, and the entry and exit routes, to be used for the operation;

(f) significant features within the AWZ, including obstacles, possible obstacles, occupied buildings and thoroughfares;

(g) evidence that, where necessary, the relevant local government authority is aware of, and does not object to, the proposed operation;

(h) evidence that the relevant police and emergency services have been informed of the proposed operation;

(i) the security arrangements (if any) proposed for the AWZ;

(9) An aerial work certificate holder must retain possession or control of an AWZ-RMP, for at least 3 years after the task specialist operation has ended.

CHAPTER 14 SEATBELTS AND OTHER RESTRAINT DEVICES

14.01 Wearing of seatbelts and other restraint devices

(1) This section applies, according to its terms, to operations of the following operators:

(a) an aerial work certificate holder; and

(b) a limited aerial work operator.

(2) For subregulation 138.375 (1), a seatbelt must be worn by each person on an aircraft during an aerial work operation whenever any of the following occurs:

(a) the aircraft flies below 1 000 ft AGL;

(b) the aircraft flies above 1 000 ft AGL and the pilot in command directs that a seatbelt must be worn;

(c) the aircraft is on the ground and the pilot in command directs that a seatbelt must be worn.

(3) For subregulation 138.375 (1), a seatbelt must be worn by each FCM when stationed at his or her crew station.

Note For crew station, see the Dictionary.

14.02 Safety harness or a restraint strap

(1) For subregulation 138.375 (1), this section applies only for an operation of an aerial work certificate holder.

(2) A person is taken to comply with section 14.01 if the person wears a safety harness or a restraint strap instead of a seatbelt.

(3) When a safety harness or a restraint strap (the ***equipment***) is worn instead of a seatbelt, the equipment must be:

(a) fit for the particular purpose of the operation; and

(b) approved under Part 21 of CASR; and

(c) serviceable before the operation commences.

(4) Before the aircraft's flight, or a related series of flights, a crew member intending to wear the equipment must have been trained by the operator in the use of the equipment and assessed as competent.

(5) The equipment must be:

(a) available at all times for the crew member who is to use the equipment; and

(b) correctly fitted, worn and adjusted to prevent the crew member who is using the equipment from completely exiting the aircraft when wearing the equipment; and

(c) secured, via the restraint strap, to an aircraft hard point in accordance with relevant approved data; and

(d) the subject of confirmation by the pilot in command and the crew member that paragraphs (a) to (c) are complied with.

(6) A crew member who intends during flight to transfer from a seatbelt to the equipment must be secured by the equipment before he or she unfastens the seatbelt.

(7) The aircraft must not be manoeuvred in a way that subjects a crew member to additional flight loads unless the crew member has been briefed on the manoeuvre by the pilot in command.

(8) A crew member moving around in the aircraft's cabin while wearing the equipment, must:

(a) not adversely affect the aircraft's centre of gravity or controllability; and

(b) advise the pilot in command of the crew member's proposed movements.

CHAPTER 15 ADDITIONAL RULES FOR EXTERNAL LOAD OPERATIONS

Division 1 General

15.01 Classes of external loads

(1) This section applies, according to its terms, to the following operators:

(a) an aerial work certificate holder; and

(b) a limited aerial work operator.

Note By virtue of regulation 138.030, only an aerial work certificate holder may conduct a Class D external load operation.

(2) For subregulation 138.410 (3), the following classes of external load operations are prescribed:

(a) a Class A external load, as defined in subsection 1.04 (6);

(b) a Class B external load, as defined in subsection 1.04 (6);

(c) a Class C external load, as defined in subsection 1.04 (6);

(d) a Class D external load, as defined in subsection 1.04 (6);

(e) a Class E external load, as defined in subsection 1.04 (6).

15.02 Classes of persons who may be carried as external loads

For paragraph 138.390 (2) (a), the following classes of persons are prescribed for carriage on or in a part of an aircraft that is not normally specified in the AFM as being for the carriage of crew members or aerial work passengers in an aerial work operation:

(a) air crew members;

(b) task specialists;

(c) aerial work passengers.

Note Some AFM Supplements may provide, as part of a winching equipment supplement, for the carriage of a person on, for example, additional steps or footholds installed on a rotorcraft.

15.03 Aerial work operation requirements if a person is carried as an external load

For paragraph 138.390 (2) (e), for an operation in which a person mentioned in section 15.02 is carried as an external load:

(a) restraint equipment appropriate to the task must be worn in accordance with section 14.02; and

(b) for an aerial work passenger who is being rescued in an SAR operation — a rescue harness, or other rescue device that complies with the applicable requirements under Part 21 of CASR, must be worn as instructed or fitted by a crew member; and

(c) the rescue harness or other rescue device mentioned in paragraph (b) must be used:

(i) strictly in accordance with the instructions for its use; and

(ii) only in the rescue situations for which it was designed to be used.

15.04 Operational requirements if person carried on or in an attachment to an aircraft

For paragraph 138.390 (2) (e), for an operation mentioned in section 15.02, all external load equipment, fittings, lines, safety harnesses, restraint straps and rescue harnesses must be approved under Part 21 of CASR.

15.05 Classes of persons who may be picked-up or set-down

For paragraph 138.390 (2) (a), the following classes of persons are prescribed for pick-up or set-down:

(a) air crew members;

(b) task specialists;

(c) aerial work passengers.

15.06 Operational requirements if a person is picked-up or set-down

(1) For paragraph 138.390 (2) (e), the operational requirements for a flight in which a person is picked-up or set-down by an aircraft in flight are those set out in this section.

Class D external loads — winching

(2) A Class D external load operation that involves winching a person (***operation***) must meet the following requirements:

(a) the operation must meet at least the acceptable risk criteria set out in sections 13.01, 13.02 and 13.03;

(b) for an operation that is not an ESO — the rotorcraft must be capable of hovering out of ground effect with 1 engine inoperative during the winching operation;

(c) despite paragraph (b), for a day VFR operation that is not an ESO — the rotorcraft need not be capable of hovering out of ground effect (***HOGE***) with 1 engine inoperative during the winching operation provided that the rotorcraft:

(i) meets the requirements set out in paragraphs 9.04 (b), (c), (d) and (e); and

(ii) has a mass that does not exceed 90% of the MTOW HOGE permitted by the AFM for the most limiting mass of the operation; and

(iii) is not operating over water; and

(iv) carries only flight crew, and essential air crew and task specialists (if any);

(d) for an operation that is an ESO, or training for an ESO — the rotorcraft must:

(i) for day VFR operations — at least meet the requirements set out in paragraphs 9.04 (b), (c), (d) and (e); and

(ii) for operations under the IFR — be capable of operations in PC2WE or a higher performance class; and

(iii) for operations at night:

(A) be capable of operations in PC2WE or a higher performance class; and

(B) be capable of using, (and the pilot in command must use) NVIS for the operation;

(e) despite paragraphs (d) (ii) and (iii), and subject to Chapter 11, for an operation that is an ESO, or is training for an ESO, when operating over an ESO operating site, the rotorcraft need not be operated in the applicable performance class provided the operator's risk assessment indicates that it is safe not to so operate;

(f) the flight crew members, air crew members and task specialists in the operation must be able to communicate directly with each other using:

(i) radiocommunications; or

(ii) an effective system of visual communication.

Class D external loads — belly hook or platform

(3) If an operation is a Class D external load operation in the form of a person:

(a) suspended from a belly hook attached to the rotorcraft; or

(b) carried on a platform attached to the rotorcraft;

then:

(c) the operation must meet at least the acceptable risk criteria set out in sections 13.01 and 13.02; and

(d) the flight crew members, air crew members and task specialists in the operation must be able to communicate directly with each other using:

(i) radiocommunications; or

(i) an effective system of visual communication; and

(e) if the rotorcraft cannot hover out of ground effect (***HOGE***) with 1 engine inoperative during the operation, the following requirements apply:

(i) the rotorcraft must:

(A) meet the requirements set out in paragraphs 9.04 (b), (c), (d) and (e); and

(B) have a mass that does not exceed 90% of the MTOW HOGE permitted by the AFM for the most limiting mass of the operation;

(ii) if the operation is a water rescue operation;

(A) the operation must occur within 5 nautical miles of the coast; and

(B) the rotorcraft must be equipped with an approved rotorcraft floatation system;

(iii) except for a water rescue operation, only essential air crew members or task specialists may be carried in the operation.

Class D external loads — belly hook

(4) Subject to subsection (5), for an operation mentioned in paragraph (3) (a), the hook must:

(a) be approved in writing by CASA; and

(b) include a primary load path and a backup load path, each of which allow the person to be jettisoned in an emergency; and

(c) for each load path — consist of:

(i) a primary quick release system that requires 2 separate and distinct actions to release; and

(ii) a backup quick release system that requires 2 separate and distinct actions to release.

(5) If the operation mentioned in (3)(a) is a water rescue operation, the hook must be attached to an approved attachment point on the helicopter and be such that:

(a) it meets the requirements of paragraphs (4) (a) to (c); or

(b) it allows the rescue equipment to be released by:

(i) a means of release operated by the pilot; and

(ii) another means of release operated manually by a crew member stationed in the helicopter.

Class D external loads — rappelling

(6) A Class D external load operation, that involves a person exiting or entering an aircraft in flight using a rope or ladder attached to the rotorcraft (***rappelling***), must be:

(a) an ESO conducted by ESO personnel who have received advanced operational training in rappelling techniques; or

(b) training of ESO personnel for an operation described in subparagraph (i).

Class D external loads — hover exits

(7) For a Class D external load operation that involves a person emplaning or deplaning while the rotorcraft is in flight or partially in flight (a ***hover exit***), the person must be an air crew member, task specialist, or an aerial work passenger, who has received hover exit training in accordance with the operator's operations manual.

15.07 Helicopter external load operations at night over water, including SAR

(1) For paragraph 138.405 (2) (b), this section prescribes the requirements that must be met by an aerial work certificate holder for an external load operation at night over water.

Note This includes a night SAR operation involving an auto-hover over water.

(2) For the operation, the flight attitude, height and position of the helicopter must be maintained by the following:

(a) monitoring the aircraft's instruments;

(b) reference to visible external objects.

(3) For subsection (2), external objects are visible only if they are:

(a) visible because they are adequately illuminated by ground or celestial lighting; or

(b) visible through the use of NVIS in accordance with this MOS.

(4) Despite subsection (2), if the operation is a SAR operation with an auto-hover using a transition mode capability over water in accordance with Division 4 of Chapter 9, the flight attitude, height and position of the helicopter must be maintained by the following:

(a) monitoring the aircraft's instruments;

(b) monitoring the aircraft's navigation source data;

(c) monitoring the aircraft's autopilot and flight director SAR modes; and

(d) reference to external objects, if any.

CHAPTER 15 ADDITIONAL RULES FOR EXTERNAL LOAD OPERATIONS

Division 2 Additional requirements for external load operations

15.08 Additional requirements for external loads

(1) This section applies, according to its terms, to the following operators:

(a) an aerial work certificate holder; and

(b) a limited aerial work operator.

(2) For subregulation 138.410 (2), the requirements set out in this Division are prescribed relating to the flight of an aircraft involving an external load operation, including for prescribed classes of such flights.

15.09 Additional approvals required for certain external load operations

(1) Except for an ESO, no external load operation may be conducted over a populous area or a public gathering without the written approval of CASA.

Note Applications for approval may be made under Part 11 of CASR. See also section 9.22 and subsections 13.04 (4) and (7) of this MOS.

(2) A limited aerial work operator must not conduct a Class C external operation or a Class E external load operation unless CASA has given written approval for the operation.

(3) For subsection (2), an application for written approval must be accompanied by the operator's:

(a) detailed risk assessment;

(b) detailed safety case; and

(c) indication of how the applicable requirements of this Chapter would be complied with.

15.10 External load operations over an AWZ

(1) An aircraft of an aerial work certificate holder may only be used in an external load operation over an AWZ if its certificate of airworthiness permits it to operate over a populous area.

Note A limited aerial work operator is not permitted to conduct an external load operation over an AWZ that is over a populous area: see regulation 138.030.

15.11 External load operations — AFM supplement

(1) An external load operation may only be conducted in an aircraft type for which an approved supplement to the AFM specifies the aircraft equipment and operating criteria required for the particular operation.

(2) An external load operation may only be carried out in accordance with the limitations and procedures contained in the approved AFM supplement that are applicable to the class of external load that is carried.

15.12 External load operations — loads etc.

(1) Subject to subsection (2), the pilot in command of an aircraft in an external load operation must use an effective methodology for monitoring the load and the belly hook for the effects of hazardous conditions.

(2) Where the external load operation is conducted by an aerial work certificate holder, the methodology mentioned in subsection (1) must be based on procedures in the holder's operations manual.

(3) For an external load operation that involves a Class C external load, the magnitude and direction of the loading force must be established at the values for which the effective location of the centre of gravity of the rotorcraft remains within the established range.

15.13 External load operations — visibility etc.

(1) A rotorcraft of an aerial work certificate holder conducting an external load operation at night over water must be equipped:

(a) as specified under Chapter 23 for rotorcraft IFR and NVIS operations; and

(b) with lighting as specified under:

(i) Chapter 23 for rotorcraft IFR at night; and

(ii) for NVIS operations — the relevant provisions of this MOS; and

(iii) section 23.05 as if it applied to the operation; and

(c) with an approved intercommunication system which permits continuous communication between the FCMs and the air crew members.

Note 1 A limited aerial work operator is not permitted to conduct an external load operation at night over water: see sections 9.02, 9.05 and 9.13.

Note 2 Regulation 138.405 also applies to external load operations.

15.14 Additional requirements for Class E external loads

(1) The following additional requirements are prescribed relating to the flight of an aeroplane in a Class E external load operation.

(2) In addition to any other matter that must be contained in the operations manual of an aeroplane operator, the operations manual must contain detailed external load instructions, procedures and requirements.

(3) For a towing operation, the operator, and the pilot in command, must ensure that:

(a) the operation is conducted in VMC; and

(b) the route is such that any accidental or emergency release of the load will not cause a hazard to any person or property on ground that is within a populous area or a public gathering.

(4) The operator, and the pilot in command, must ensure that a risk assessment, in accordance with 13.02, is carried out:

(a) before the flight commences; or

(b) for a series of flights in the same aircraft, over the same area, on the same day, with the same external load, and for the same purpose — before the first flight commences.

CHAPTER 16 ADDITIONAL REQUIREMENTS FOR DISPENSING OPERATIONS

16.01 Dispensing operations outside VMC

(1) For subregulation 138.415 (3), the following dispensing operations are prescribed:

(a) cloud seeding conducted in IMC;

(b) dispensing in the course of an ESO for the purposes of a surveillance or SAR operation.

Note The effect of subsection (1) is that a prescribed dispensing operation may be conducted outside VMC.

(2) An aerial application operation under regulation 137.010 of CASR is not a prescribed dispensing operation.

16.02 Additional requirements for dispensing operations

(1) For subregulation 138.425 (2), this section prescribes additional requirements for dispensing operations by:

(a) an aerial work certificate holder; and

(b) a limited aerial work operator.

(2) The substance or object to be dropped or released in the dispensing operation must be carried:

(a) inside the aircraft; or

(b) in a manner specified in the aircraft flight manual; or

(c) in a manner set out in the operator's operations manual.

(3) The opening through which the substance or object is dropped must be such that, when dropped, the substance or object does not:

(a) damage any part of the aircraft; or

(b) affect the operation of any part of the aircraft.

(4) The size to weight ratio of each individual object to be dropped must be such that, when released, the object immediately drops away from the aircraft.

(5) The dimensions of the site onto which the substance or object is to be dropped (the ***drop site***) must be such that there is no risk of the substance or object falling outside the site. However, this does not apply in an ESO, or in the dropping of leaflets, liquids, powders or fine grains, provided that what falls outside the drop site does not create a hazard for persons or property on the ground.

(6) A drop site must be cleared of all persons and livestock before a substance or object is dropped onto the site unless a risk assessment, performed in accordance with section 13.02, establishes that dropping the substance or object on the site, in the circumstances, does not constitute an unacceptable risk of injury or damage to any person, property or livestock on the site.

(7) The dropping of a substance or object must be controlled by a task specialist.

(8) The pilot in command of the aircraft may be the task specialist for the dropping but only if he or she can perform the role:

(a) while remaining at all times in his or her normal flying crew position; and

(b) without in any way affecting his or her ability to control the aircraft normally.

(9) During the dropping phase of a dispensing operation in which the pilot in command is not the task specialist:

(a) the pilot in command and the task specialist must maintain effective communication with each other; and

(b) the substance or object may only be dropped with the expressed consent of the pilot in command.

CHAPTER 17 ADDITIONAL REQUIREMENTS FOR TASK SPECIALIST OPERATIONS

Division 1 Preliminary

17.01 Purpose

Unless a contrary intention is expressed, this Chapter applies, according to its terms, to task specialist operations of the following operators:

(a) an aerial work certificate holder; and

(b) a limited aerial work operator.

Division 2 Aerial mustering operations

17.02 Pilot qualifications and experience

(1) This Division applies in relation to a task specialist operation that involves aerial mustering below 500 ft AGL (the ***proposed aerial mustering***).

(2) For paragraph 138.500 (1) (c), the pilot in command must have at least the following:

(a) 200 hours' experience as a pilot in the category of aircraft in which the proposed aerial mustering will be carried out, of which at least 100 hours must have been spent as pilot in command or pilot in command under supervision (PICUS);

(b) either:

(i) 100 hours' experience as a pilot in the type or class of aircraft in which the proposed aerial mustering will be carried out; or

(ii) if the pilot already has 100 hours' experience as a pilot in aerial mustering operations — 5 hours' experience as a pilot in the type or class of aircraft in which the proposed aerial mustering will be carried out;

(c) before commencing unsupervised operations as the pilot in command of an aircraft in an aerial mustering operation below 500 ft — 100 hours of operational training in aerial mustering operations in the category of aircraft in which the proposed aerial mustering will be carried out;

(d) for paragraph (c):

(i) at least 60 of the 100 hours must have been training as in command under supervision (PICUS) with the training pilot; and

(ii) the remaining hours may be either of the following, in the discretion of the training pilot:

(A) in command under supervision (PICUS) with the training pilot; or

(B) solo under the detailed personal direction of the training pilot.

(3) For subsection (1) and without affecting section 25.06:

training pilot means a pilot who:

(a) is qualified to conduct aerial mustering in the category and type of aircraft in which the proposed aerial mustering is to be conducted (the ***relevant aircraft***); and

(b) has at least the following conducting aerial mustering operations in the relevant aircraft:

(i) 2 000 hours' experience;

(ii) 4 years' experience and

(c) for an operation by an aerial work certificate holder — is nominated by the holder to conduct the training.

Division 3 Carrying, otherwise possessing, and discharging firearms — task specialist operations

17.03 Carrying, otherwise possessing, and discharging firearms

(1) This Division applies in relation to task specialist operations.

(2) For paragraph 138.420 (1) (b), the operator and the pilot in command must each ensure that the requirements of this Division are complied with for a task specialist on an aircraft to:

(a) carry, or otherwise possess, a firearm on the aircraft; or

(b) discharge a firearm from the aircraft.

17.04 Pilot requirements

The pilot in command of the aircraft must:

(a) either:

(i) have documented experience as a pilot in aerial platform shooting operations; or

(ii) for the purpose of gaining such documented experience — has commenced and is still engaged in training which:

(A) if the operator is an aerial work certificate holder — is in accordance with the procedures in the operator's operations manual; or

(B) if the operator is a limited aerial work operator — is conducted by a person who both satisfies the requirement in subparagraph (i) and holds a flight training qualification that is, or that CASA agrees in writing is equivalent to, at least a flight instructor rating for the class of aircraft; and

(b) have been trained by the operator in the safe carriage and discharge of firearms from aircraft.

17.05 Task specialist requirements — firearms

(1) For this section of the MOS, to be authorised to carry, otherwise possess, and discharge, a firearm for a particular task specialist operation in a particular category of aircraft, a task specialist must:

(a) be authorised to carry or otherwise possess the firearm by a law of the Commonwealth, the State or the Territory; and

(b) meet the additional requirements of this section.

(2) The task specialist must have successfully completed a training course about carrying, otherwise possessing, and discharging, a firearm for the particular task specialist operation in the particular category of aircraft to be used in the operation.

(3) For subsection (2), the training course must be:

(a) based on a written syllabus; and

(b) conducted by:

(i) the operator, in accordance with a firearms possession and use training program set out in the operator's operations manual; or

(ii) an aerial platform shooting training organisation whose course is accredited for this purpose by an approved authority of a State or Territory; and

(c) documented by the operator or the organisation (as the case may be) in records that must be retained in safe custody for at least 4 years after the training course was completed.

(4) The task specialist must have a current certificate of competency, issued by the operator or the training organisation (as the case may be), certifying that, for 2 years from completion of the training course, the task specialist may safely carry the relevant firearm in, and may safely discharge the relevant firearm from, the category of aircraft used in the operation.

(5) For animal culling operations, within the 2 years immediately before commencing the culling operation in a particular category of aircraft, the shooter must have:

(a) discharged a firearm from an aircraft of the same category, for animal culling purposes; or

(b) successfully completed, for an aircraft of the same category:

(i) the training course mentioned in subsection (2); or

(ii) a refresher training course based on the training course mentioned in subsection (2).

(5) For subparagraph (4) (b) (ii), subsections (2) and (3) apply to a refresher training course as if, in those subsections, references to "training course" were references to "refresher training course".

17.06 Firearm requirements

(1) Before the firearm is discharged from the aircraft in flight, the pilot in command must have conducted a trial to ensure that neither of the following will affect the safe operation of the aircraft:

(a) the ejection of empty cartridge cases from the firearm;

(b) the noise level of the firearm when fired.

(2) Only a task specialist, authorised in accordance with subsection 17.05 (1), may operate the firearm.

(3) The pilot in command must not assist in any way with the operation of the firearm.

(4) For animal culling operations, the firearm must remain unloaded at all times during the flight, except when it is to be fired at an identified target for culling purposes.

(5) Subject to subsection (6), for a licenced firearm which in normal operation is designed to eject spent cartridge cases, the ejection must be:

(a) downwards, and not more than 90 degrees back from the line of fire; or

(b) into a rigid container securely attached to the firearm.

(6) If there is any risk that a cartridge (whether spent or not) may cause foreign object damage to any external or internal part of the aircraft on being ejected from a firearm, a collection case must be used to receive the ejected cartridge.

(7) Any rigid container or collection case must be securely closed;

(a) during take-off and landing; and

(b) at any time when the pilot in command directs.

(8) An aerial work operation whose purpose involves the discharge of a firearm from an aircraft must not occur within 3 NM of any of the following:

(a) an occupied building;

(b) a populous area;

(c) a public gathering.

17.07 Communication requirements

(1) An operation is not permitted unless the rotorcraft is equipped with a serviceable intercom.

(2) The intercom must be such as to enable the pilot in command and the task specialist to maintain hands-free communication with each other throughout the operation.

(3) If the intercom fails during the operation, the operation must cease immediately.

Division 4 Marine pilot transfer

17.08 Task specialist marine pilot transfer operations

(1) This Division applies for a task specialist operation (the ***operation***) that is:

(a) a marine pilot transfer; and

(b) operated at a distance greater than 10 NM from land.

(2) For subregulation 138.430 (2), the operator and the pilot in command must each ensure that the requirements of this Division are complied with.

(3) The rotorcraft used in the operation must:

(a) be flown by 2 pilots; or

(b) be fitted with a serviceable autopilot and flown by one or more pilots.

CHAPTER 18 PERFORMANCE — ROTORCRAFT IN A PERFORMANCE CLASS

Division 1 Take-off weights — rotorcraft flown in a performance class

18.01 Application

This Chapter applies to a rotorcraft flown in a performance class in an operation of an aerial work certificate holder.

18.02 Circumstances and methods for calculation of take-off weight

(1) For paragraph 138.435 (2) (a), for a flight that is to be flown in a performance class, the take-off weight must be calculated to ensure that the rotorcraft's weight at take-off is not more than a weight which will ensure the rotorcraft will not exceed the most limiting weight for the most limiting stage of the flight when the rotorcraft is flown in that stage of the flight.

Note The MTOW may be limited by various factors, including the type of take-off, the TODAR, the RTODAR, the obstacle clearance climb requirements, the en route ability to stay at LSALT, minimum altitude or to clear terrain, the baulked landing climb criteria at the planned destination aerodrome, the LDA at the destination and the type of approach and landing needed at the destination.

(2) For paragraph 138.435 (2) (b), the take-off weight of the rotorcraft must be calculated in accordance with the AFM or equivalent.

(3) For subsection (2):

calculated in accordance with the AFM or equivalent means calculated in accordance with instructions set out in the relevant AFM or in the operator's operations manual.

Note For example, the operations manual may have procedures for an electronic load and trim system based on the data in the AFM and authorised for use by a weight control authority holder for the particular aircraft.

18.03 Calculation of take-off weight

For subsection 18.02 (2), the following matters must be taken into account in calculating the take-off weight of a rotorcraft to which this Division applies:

(a) the requirements of the particular performance class, as stated in the Division of Chapter 21 that is for the performance class;

(b) the configuration and type of take-off required for the rotorcraft to take-off from the particular aerodrome for an operation in the performance class;

(c) the operation, or failure, of any systems for a flight in the performance class;

(d) the characteristics of, and conditions at, the aerodrome at which the rotorcraft takes off for a flight in the performance class;

(e) the characteristics (including terrain and lowest safe altitude) of the route to be flown by the rotorcraft in the performance class;

(f) the characteristics of, and conditions at, the aerodrome at which the rotorcraft, in the most limiting configuration, will land for the flight flown in the performance class.

Division 2 Landing weights — rotorcraft flown in a performance class

18.04 Circumstances and methods for calculation of landing weight

(1) For paragraph 138.440 (2) (a), the landing weight of a rotorcraft must be calculated for the most landing-weight-limited stage of flight if the stage of the flight is to be flown in a performance class.

(2) For paragraph 138.440 (2) (b), the landing weight of the rotorcraft must be calculated in accordance with instructions set out in the relevant AFM or in the operator's operations manual.

18.05 Calculation of landing weight

For subsection 18.04 (2), the following matters must be taken into account in calculating the landing weight of a rotorcraft to which this Division applies:

(a) the requirements of the particular performance class, as stated in the Division of Chapter 21 that is for the performance class;

(b) the configuration and type of approach and landing required for the rotorcraft to approach and land, or conduct a baulked landing, at the particular aerodrome for an operation in the performance class;

(c) the operation, or failure, of any systems for a flight in the performance class;

(d) the characteristics of, and conditions at, the aerodrome at which the rotorcraft lands in the performance class;

(e) the characteristics (including terrain and lowest safe altitude) of the route to be flown by the rotorcraft in the performance class;

(f) the characteristics of, and conditions at, the aerodrome at which the rotorcraft, in the most limiting configuration, will land, and subsequently take off from, for the flight flown in the performance class.

CHAPTER 19 PERFORMANCE — CERTAIN MULTI-ENGINE AEROPLANES

Division 1 Preliminary

19.01 Application of Chapter

(1) This Chapter applies, according to its terms, to operations of the following operators (***relevant operators***):

(a) an aerial work certificate holder; and

(b) a limited aerial work operator.

(2) This Chapter applies only in relation to the operation by a relevant operator of the following aeroplanes:

(a) a propeller-driven, multi-engine aeroplane with an MTOW of more than 5 700 kg;

(b) a jet-driven, multi-engine aeroplane with an MTOW of more than 2 722 kg.

19.02 Definitions for Chapter

In this Chapter:

calculated in accordance with the AFM or equivalent means calculated in accordance with instructions set out in the relevant AFM or in the operator's operations manual.

Note For example, the operations manual may have procedures for an electronic load and trim system based on the data in the AFM and authorised for use by a weight control authority holder for the particular aircraft.

clearway means a defined rectangular area at the end of the take-off run available, at an aerodrome, on the ground under the control of the aerodrome operator, selected and prepared as a suitable area over which an aircraft may make a portion of its initial climb to a specified height.

commuter type aeroplane means:

(a) a SFAR 41 aeroplane; or

(b) an aeroplane that is certificated as a commuter category aircraft.

contaminated runway means a runway that is "contaminated" within the meaning of the CASR Dictionary.

dry runway means a runway that is "dry" within the meaning of the CASR Dictionary.

gross flight path means the flight path it is assumed an aeroplane will follow when flown in a particular configuration in accordance with specified procedures in ambient conditions, and that is established, from the aeroplane's certification performance data, as representing the average fleet performance of the aeroplane type.

landing distance available, at an aerodrome, means the length of runway declared to be available for the ground run of an aeroplane landing at the aerodrome.

net flight path means the gross flight path of an aeroplane reduced in elevation or extended in length by margins stated in this Chapter.

Note The margins are to allow for factors such as deterioration in aeroplane performance and variations in pilot techniques in relating aeroplane performance to obstacle clearance.

RNP means required navigation performance.

OEM means original equipment manufacturer.

SFAR 41 aeroplane means an aeroplane that:

(a) is certificated as a normal category aircraft; and

(b) is such that an applicant under part 4 (c) of SFAR No. 41 would be entitled to a type certificate amendment or a supplemental type certificate that shows compliance with ICAO Annex 8 in relation to the aeroplane; and

(c) is operated in accordance with a flight manual that specifies performance standards that are at least equivalent to the standards set out in ICAO Annex 8.

SFAR No. 41 means Special Federal Aviation Regulation No. 41 of the United States of America.

stopway means a defined rectangular area on the ground at the end of the take-off run available, at an aerodrome, prepared as a suitable area in which an aircraft can be stopped in the case of an abandoned take-off.

take-off area means the area calculated in accordance with Division 2.

Note See sections 19.09, 19.10 and 19.11.

take-off distance available, or ***TODA***, for an aeroplane, means the total of:

(a) the length of the take-off run available at an aerodrome; and

(b) if a clearway is provided at the aerodrome — the length of the clearway.

take-off distance required, or ***TODR***, for an aeroplane, means the take-off distance for the aeroplane calculated in accordance with the relevant requirements in its flight manual.

take-off run available, at an aerodrome, means the length of runway declared to be available and suitable for the ground run of an aeroplane taking off at the aerodrome.

$\boldsymbol{V_1}$ means the take-off decision speed.

wet runway means a runway that is wet within the meaning of the CASR Dictionary.

Note The effect of the definition is that a runway is wet if the surface area required for a take-off or landing is neither dry nor contaminated.

Division 2 Take-off weights for certain aeroplanes

19.03 Purpose of Division 2

The purpose of this Division is to prescribe:

(a) for paragraph 138.435 (2) (a) — the circumstances in which the weight for an aeroplane to which this Chapter applies must be calculated for a flight; and

(b) for paragraph 138.435 (2) (b) — the methods for calculating that weight.

19.04 Circumstances and methods

(1) For paragraph 19.03 (a), the circumstances are before the aeroplane takes off for a flight.

(2) For paragraph 19.03 (b), the methods are as set out in this Division.

19.05 Take-off weight for certain aeroplanes

(1) Subject to this section, an aeroplane to which this Chapter applies must not take off unless the take-off weight and performance capability of the aeroplane are:

(a) calculated by the pilot in command before take-off; and

(b) such that the aeroplane may safely take-off without being a hazard to another aircraft, a person or property.

(2) For subsection (1):

(a) the take-off weight of the aeroplane must be calculated in accordance with the AFM or equivalent; and

(b) the performance of the aeroplane at the take-off weight, must be calculated from the AFM or the manufacturer's data manual; and

(c) taking into account the matters mentioned in section 19.06, the take-off weight of the aeroplane must not exceed the lessor of:

(i) the weight which will ensure compliance with section 19.07, 19.08, 19.10, 19.11 or 19.12, and sections 19.14 and 19.15; or

(ii) a take-off weight which will ensure a landing weight that is compliant with sections 19.22 and 19.23 for the aeroplane at the destination aerodrome.

19.06 Matters to be taken into account

The following matters must be taken into account when calculating the maximum weight at which an aeroplane can take off from an aerodrome:

(a) the take-off configuration of the aeroplane;

(b) the take-off distance available for the runway, at the aerodrome, proposed to be used for take-off;

(c) the pressure altitude and temperature at the aerodrome;

(d) the condition, and type, of the runway surface;

(e) the gradient of the runway in the direction of take-off;

(f) unless otherwise accounted for in the performance data stated in the aeroplane's flight manual:

(i) not more than 50% of the headwind, if any, at the aerodrome; and

(ii) not less than 150% of the tailwind, if any, at the aerodrome;

(g) the loss of any runway length due to the aligning of the aeroplane for take-off;

(h) credit for the stopway, and clearway, at the aerodrome, on the basis that each of these areas meets the requirements of the *Part 139 (Aerodromes) Manual of Standards 2019*;

(i) the obstacles, if any, in the vicinity of the take-off path and en route;

(j) the forecast weather en route;

(k) the landing distance available for the runway proposed to be used at the destination aerodrome for the flight, or any runway which may be required to be used at a destination alternate aerodrome for the flight.

19.07 Accelerate stop distance and take-off distance

(1) This section states other requirements the operator, and the pilot in command, of the aeroplane must take into account when calculating the maximum weight at which the aeroplane can take off from a runway at an aerodrome.

(2) The accelerate stop distance required for a take-off from the runway must not exceed the accelerate stop distance available for the runway.

(3) Subject to subsection (4), the take-off distance required for a take-off from the runway must not exceed the take-off run available for the runway.

(4) The take-off distance required for a take-off from the runway may exceed the take-off run available for the runway if:

(a) the take-off distance required for the take-off from the runway does not exceed the take-off run available for the runway, with the clearway distance required, for the take-off (not exceeding one-half of the take-off run available at the aerodrome) being added to the take-off distance available; and

(b) the take-off run required for the take-off from the runway does not exceed the take-off run available for the runway.

(5) For a take-off on a wet runway, or contaminated runway, at the aerodrome, the maximum weight at which the aeroplane can take off from the runway is the equivalent weight for a take-off on a dry runway at the aerodrome.

(6) In making the calculations for this section, a single value of V_1 for the rejected, or continued, take-off of the aeroplane from the aerodrome must be used.

(7) In this section:

accelerate stop distance available, for the runway at the aerodrome, means the length of the take-off run of the runway plus the length of the stopway, if available, at the aerodrome.

accelerate stop distance required, for a take-off of the aeroplane from the runway at the aerodrome, means the distance to accelerate and stop the aeroplane, determined by reference to the accelerate stop distance charts in the aeroplane's flight manual, taking into account:

(a) the aeroplane's weight and configuration; and

(b) the conditions at the aerodrome at the time of take-off.

19.08 Take-off obstacle clearance limitations

(1) This section states the obstacle clearance requirements that must be met in calculating the maximum weight at which an aeroplane can take off from an aerodrome.

(2) The aeroplane must not commence a take-off at the aerodrome if the aeroplane's weight exceeds the maximum weight at which its net flight path, following a failure of the critical engine that is recognised at V_1 appropriate to a dry runway at the aerodrome, would clear all obstacles in the aerodrome's take-off area by:

(a) at least a height of 35 ft vertically; and

(b) if the aeroplane has a wingspan of 60 metres or more — a horizontal distance of at least the total of the following:

90 metres + (0.125 x D); and

(c) if the aeroplane has a wingspan of less than 60 metres —a horizontal distance of at least the total of the following:

(0.5 x the aeroplane's wingspan) + 60 metres + (0.125 x D).

(3) In this section:

D means the horizontal distance the aeroplane will travel from the end of the take-off distance available at the aerodrome or, if a turn is scheduled before the end of the take-off distance available, the end of the take-off distance required for the take-off.

Note The calculation of *D* is limited by the expansion parameters, for the planned flight path, stated in subsections 19.09 (3) and (4).

19.09 Calculations for take-off obstacle clearance limitations

(1) In making the calculations under subsection 19.08 (2), the following matters must be taken into account:

(a) the weight of the aeroplane at the commencement of the take-off run;

(b) the following meteorological conditions:

(i) the pressure altitude;

(ii) the ambient temperature;

(iii) unless otherwise accounted for in the performance data stated in the aeroplane's flight manual, not more than 50% of the headwind, if any, and not less than 150% of the tailwind, if any.

(2) In making the calculations under subsection 19.08 (2), the following apply:

(a) track changes must not be allowed up to a point at which the aeroplane's net take-off path has achieved a height equal to the greater of the following:

(i) one-half of the aeroplane's wingspan; or

(ii) 50 ft above the elevation of the end of the take-off run available at the aerodrome;

(b) after the point mentioned in paragraph (a) and up to a height of 400 ft, it is assumed that the angle of bank of the aeroplane is no more than 15 degrees;

(c) above 400 ft height, a bank angle greater than 15 degrees but not more than 25 degrees, may be used;

(d) for any part of the net flight path in which the aeroplane is banked by more than 15 degrees, the aeroplane must clear all obstacles within the horizontal distances stated in subsection 19.08 (2), and subsections (3) and (4) of this section, by a vertical distance of at least 50 ft;

(e) if provided in the operations manual approved under regulation 138.045, the aeroplane operator may use special procedures to apply increased bank angles of not more than 20 degrees between 200 ft and 400 ft, and not more than 30 degrees above 400 ft;

(f) adequate clearance must be made for the effect of bank angle on operating speeds and flight path, including the distance increments required from the increased operating speeds.

(3) In making the calculations under subsection 19.08 (2), if the aeroplane's planned flight path does not require track changes of more than 15 degrees, any obstacles that have a lateral distance greater than either of the following does not need to be considered:

(a) if the aeroplane's pilot is able to maintain the required navigational accuracy from the departure end of the runway to the LSALT for the route — 300 metres;

(b) otherwise — 600 metres.

(4) In making the calculations under subsection 19.08 (2), if the aeroplane's planned flight path requires track changes of more than 15 degrees, any obstacles that have a lateral distance greater than either of the following does not need to be considered:

(a) if the aeroplane's pilot is able to maintain the required navigational accuracy through the area delineated in subsection 19.08 (2) — 600 metres;

(b) otherwise — 900 metres.

(5) In making the calculations under subsection 19.08 (2), it must be assumed that the point on the net flight path where a horizontal flight segment commences is the same horizontal distance from the end of the runway as the point where the gross flight path intersects the height selected for the level flight acceleration manoeuvre.

Note This subsection requires the height selected by the operator for the level flight acceleration manoeuvre to be more than 35 feet higher than the height of the highest obstacle in the take-off area.

19.10 Performance — take-off configuration

(1) An aeroplane's weight at take-off must be such that, in the take-off configuration, assuming failure of the critical engine so that it is recognised at V_1, the aeroplane can:

(a) climb, without ground effect and without landing gear retraction, at the speed established as the speed at which the aeroplane becomes airborne; and

(b) in so climbing — achieve a gross gradient of climb which is at least:

(i) if the aeroplane is twin-engined — positive; or

(ii) if the aeroplane has 3-engines — 0.3%; or

(iii) if the aeroplane has 4-engines — 0.5%.

(2) An aeroplane's weight at take-off must be such that, in the take-off configuration that exists with the critical engine inoperative and the landing gear fully retracted, the aeroplane at speed V_2 can achieve a gross gradient of climb of at least:

(a) if the aeroplane is certificated in the commuter category — 2%; or

(b) if the aeroplane is not certificated in the commuter category:

(i) if the aeroplane is twin-engined — 2.4%; or

(ii) if the aeroplane has 3-engines — 2.7%; or

(iii) if the aeroplane has 4-engines — 3.0%.

19.11 Performance — level flight

(1) An aeroplane may be accelerated in level flight from V_2 speed to final take-off climb speed at a height above the take-off surface that is the greater of:

(a) 400 feet; or

(b) the height necessary to achieve obstacle clearance in accordance with subsection 19.08 (2).

(2) During any such level flight acceleration manoeuvre, an aeroplane with the critical engine inoperative must be operated at a weight which allows it to have an available gross gradient of climb of at least:

(a) if the aeroplane is twin-engined aeroplane — 1.2%; or

(b) if the aeroplane has 3-engines — 1.4%; or

(c) if the aeroplane has 4-engines — 1.5%.

19.12 Performance — en route configuration

(1) In the en route configuration existing at the end of the level flight acceleration manoeuvre, an aeroplane's weight and available performance must be such that the aeroplane is able to achieve a gross gradient of climb of at least:

(a) if the aeroplane is twin-engined aeroplane — 1.2%; or

(b) if the aeroplane has 3-engines — 1.4%; or

(c) if the aeroplane has 4-engines — 1.5%.

(2) The gradient of climb must be achievable at final take-off climb speed with the critical engine inoperative and the remaining engines at maximum continuous power or thrust.

19.13 Performance — net flight path

(1) In calculating the net flight path of an aeroplane to show compliance with subsection 19.08 (2), the gross gradients of climb achieved under sections 19.10 and 19.12 must be reduced by:

(a) if the aeroplane is twin-engined aeroplane — 0.8%; or

(b) if the aeroplane has 3-engines — 0.9%; or

(c) if the aeroplane has 4-engines — 1.0%.

(2) The horizontal distance to accelerate in compliance with section 19.11 must be increased due to the acceleration reduction equivalent to the climb gradient reductions mentioned in subsection (1).

Note The net flight path and the gross flight path may be considered identical when the aeroplane is in the take-off configuration described in section 19.10.

19.14 En route — 1 engine inoperative

(1) An aeroplane must not commence a take-off at a weight more than that which, in accordance with the 1 engine inoperative en route net flight path data stated in the aeroplane's flight manual, provides compliance with paragraph (2) (a) or (b) at all points along the route.

(2) For subsection (1), the net flight path must:

(a) have a positive gradient at 1 500 ft above the aerodrome where the landing is planned to be made after an engine failure; and

(b) take into account the following:

(i) normal operating altitudes;

(ii) operating weights;

(iii) ambient temperature anticipated along the route;

(iv) if meteorological conditions require icing protection systems to be operable — the effect of their use.

(3) The 1 engine inoperative en route net flight path must at all points along the route comply with subsection (4) or (5).

(4) For an operation that does not involve a drift-down procedure, the gradient of the net flight path, at least 1 000 ft above the terrain or any obstacles along the route within the distance of 5 nautical miles on either side of the intended track, must be positive.

(5) For an operation involving a drift-down procedure:

(a) the net flight path must permit the aeroplane to continue the flight from the cruising altitude to an aerodrome where a landing can be made in accordance with the landing distance requirements stated in Division 3; and

(b) the net flight path must provide clearance, by at least 2 000 ft, from all terrain and obstacles along the route within 5 nautical miles on either side of the intended track; and

(c) the following requirements must be met:

(i) the engine is assumed to fail at the most critical point along the route;

(ii) account is to be taken of the forecast wind on the flight path;

(iii) account is to be taken of fuel jettison, if applicable, consistent with the fuel requirements stated in the AFM;

(iv) the aerodrome where the aeroplane is planned to land after the engine failure is stated in the operational flight plan, and meets the landing performance requirements at the expected landing weight;

(v) the meteorological forecast or reports, or any combination, must indicate that a safe landing can be made at the aerodrome at the expected time of landing.

(6) The aeroplane operator must increase the route width margins stated in subsections (4) and (5) to 10 nautical miles where the navigational accuracy does not meet RNP 5.

19.15 Take-off weight — planned missed approach climb

(1) For an instrument approach procedure, stated in the AIP, with a missed approach gradient that is more than 2.5%, the aeroplane must not commence a take-off at a weight more than that which would allow, at the landing weight of the aeroplane determined in accordance with Division 3, a missed approach for the procedure to be carried out in the 1 engine inoperative missed approach configuration for the aeroplane.

(2) For an instrument approach procedure, stated in the AIP, with a decision height below 200 ft, the aeroplane must not commence a take-off at a weight more than that which would allow, at the landing weight of the aeroplane determined in accordance with Division 3, a missed approach:

(a) with a climb gradient of at least 2.5% or the climb gradient published in the AIP, whichever is greater; and

(b) for the procedure to be carried out in the 1 engine inoperative missed approach configuration for the aeroplane.

19.16 Calculation of take-off area — aeroplanes below 22 700 kg

(1) In VMC operations of an aeroplane with an MTOW below 22 700 kg, the take-off area is the area, on either side of the planned flight path after take-off from an aerodrome, within a lateral distance of at least the total of the following:

45 metres + (0.125 x D).

(2) For the calculation under subsection (1), the area more than 300 metres either side of the planned flight path need not be considered, unless the planned flight path involves a change of heading in excess of 15 degrees.

(3) If the planned flight path involves a change of heading in excess of 15 degrees, the lateral area will continue to expand throughout the turn, and the limiting lateral distance must be the greater of the following:

(a) 300 metres; or

(b) the total of the following:

45 metres + (0.125 x D);

where **D** is measured to the point of completion of the turn.

(4) In this section:

D means the distance in metres measured horizontally along the planned flight path and commencing from the end of the take-off distance available at the aerodrome.

Note The calculation of *D* is limited by the expansion parameters, for the planned flight path, stated in subsections (2) and (3).

19.17 Calculation of take-off area — aeroplanes of 22 700 kg and above

(1) In IMC operations, and in VMC operations of an aeroplane with an MTOW of 22 700 kg or more, the take-off area is the area, on either side of the planned flight path after take-off from an aerodrome, within a lateral distance of at least the total of the following:

75 metres + (0.125 x D).

(2) For subsection (1), if:

(a) the aeroplane uses an authorised instrument departure procedure which contains a radius-to-fix (RF) leg; and

(b) the aircraft flight manual instructions state that the aeroplane is capable of conducting RF legs;

then the lateral expansion of the take-off area may be discontinued at:

(c) 900 metres either side of the defined flight path where the navigational system accuracy is reported as RNP 0.5 or more; or

(d) 370 metres either side of the defined flight path where the navigational system accuracy is reported as less than RNP 0.2; or

(c) a distance, calculated by linear interpolation, between 370 metres and 900 metres based on the reported navigation system accuracy where this is between RNP 0.2 and RNP 0.5

(3) In this section:

D means the distance in metres measured horizontally along the planned flight path and commencing at the end of the take-off distance available at the aerodrome.

19.18 Alternative take-off area requirements

(1) If subsection 19.16 (1) or 19.17 (1) does not apply, subject to subsections (2) to (4), the take-off area consists of the area on either side of the planned flight path of an aeroplane, after take-off from an aerodrome, within a lateral distance calculated using the formula:

90 metres + (0.125 x D).

(2) Obstacles at a distance greater than 600 metres on either side of the planned flight path need not be considered:

(a) if the planned flight path does not include a change of heading of more than 15 degrees; or

(b) in the case of operations conducted in VMC by day.

(3) If subsection (2) does not apply, obstacles at a distance greater than 900 metres on either side of the planned flight path need not be considered.

(4) Despite subsections (2) and (3), for an RNP-capable aeroplane engaged in an approved RNP operation, the lateral expansion of the take-off area may be discontinued at:

(c) 900 metres either side of the defined flight path where the navigational system accuracy is reported as RNP 0.5 or more; or

(d) 370 metres either side of the defined flight path where the navigational system accuracy is reported as less than RNP 0.2; or

(c) a distance, calculated by linear interpolation, between 370 metres and 900 metres based on the reported navigation system accuracy where this is between RNP 0.2 and RNP 0.5

(5) In this section:

D means the distance in metres measured horizontally along the planned flight path and commencing from the end of the take-off distance available at the aerodrome.

Division 3 Landing weights

19.19 Purpose of Division 3

The purpose of this Division is to prescribe:

(a) for paragraph 138.440 (2) (a) — the circumstances in which the landing weight for an aeroplane to which this Chapter applies must be calculated for a landing; and

(b) for paragraph 138.440 (2) (b) — the methods for calculating that weight.

19.20 Circumstances and methods

(1) For paragraph 19.19 (a), the circumstances are before the aeroplane lands at the end of a flight.

(2) For paragraph 19.19 (b), the methods are as set out in this Division.

19.21 Landing weight

(1) Subject to this Division, an aeroplane must not land unless the landing weight and performance capability of the aeroplane are:

(a) calculated by the pilot in command using the operator's operations manual procedures before take-off, or recalculated during flight; and

(b) such that the aeroplane may safely land without being a hazard to another aircraft, a person or property.

(2) For subsection (1):

(a) the landing weight of the aeroplane must be calculated in accordance with the AFM or equivalent; and

(b) the performance of the aeroplane at the landing weight, must be determined from the AFM or the manufacturer's data manual.

19.22 Dispatch landing weight — dry runway

(1) Subject to subsection (2), the aeroplane's landing weight at the estimated time of arrival at the destination aerodrome or alternate aerodrome, if any, for the flight must not be more than a weight that allows a full-stop landing at the aerodrome, from a distance that is 50 ft above the runway threshold:

(a) for a jet-engine aeroplane — within 60% of the landing distance available for the runway; or

(b) for a turbo-propeller, or piston-engine, aeroplane — within 70% of the landing distance available for the runway.

(2) CASA may, in writing for the purposes of this paragraph, approve a variation of the requirement stated in subsection (1), subject to a risk assessment, submitted by the aeroplane operator to CASA, which demonstrates an acceptable level of safety for the operation.

(3) The following are relevant factors for calculating the aeroplane's landing weight under subsection (1):

(a) a dry runway;

(b) the most favourable runway in still air;

(c) the runway expected to be used, taking into account the wind speed and direction, instrument approach procedure and terrain;

(d) the landing configuration;

(e) the wind direction;

(f) the consumption of fuel and oil;

(g) the aerodrome's elevation;

(h) the runway slope, if greater than +/- 1%;

(i) unless otherwise accounted for in the performance data stated in the aeroplane's flight manual, not more than 50% of the headwind, if any, and not less than 150% of the tailwind, if any.

19.23 Dispatch landing weight — wet or contaminated runway

(1) Subject to subsection (2), if an authorised meteorological report or forecast indicates that the runway at the planned destination aerodrome or alternate aerodrome, if any, for the flight, at the estimated time of arrival, may be wet, the landing distance available at the aerodrome must be at least 115% of the required landing distance calculated for the landing weight under subsection 19.22 (1).

(2) A landing distance on a wet runway shorter than that required under subsection (1), but not less than that required under subsection 19.22 (1), may be used if the aeroplane's flight manual provides landing distance information for wet runways.

(3) Subject to subsection (4), if an authorised meteorological report or an authorised meteorological forecast indicates that the runway at the planned destination aerodrome or alternate aerodrome, if any, for the flight, at the estimated time of arrival, may be contaminated, the landing distance available at the aerodrome must be at least the greater of the following:

(a) the landing distance available at the aerodrome stated in subsection (1); or

(b) 115% of the required landing distance calculated in accordance with the requirements of the aeroplane's flight manual relating to operations on contaminated runways.

(4) A landing distance on a contaminated runway shorter than that required under subsection (3), but not less than that required under subsection 19.22 (1), may be used if the aeroplane's flight manual provides landing distance information for contaminated runways.

19.24 In-flight landing distance

(1) During the flight and before landing, the pilot in command of the aeroplane must calculate the landing distance required at the estimated time of landing the aeroplane at the destination aerodrome or alternate aerodrome, if any, for the flight.

(2) If the actual landing distance is available from the OEM for the aeroplane, and that landing distance is used for the purpose of calculating the landing distance required under subsection (1), the pilot in command must ensure that the landing distance available, at the aerodrome, is at least 115% of the landing distance required.

(3) When calculating the landing distance required under subsection (1), the pilot in command must take into account the following matters:

(a) landing on the runway expected to be used, taking into account the wind speed and direction;

(b) the landing weight of the aeroplane at the estimated time of landing;

(c) the expected instrument approach procedure and terrain;

(d) the pressure altitude at the aerodrome;

(e) the runway surface conditions;

(f) the runway slope, if greater than +/- 1%;

(g) the wind direction at the estimated time of landing;

(h) the ground handling characteristics of the aeroplane;

(i) the landing configuration;

(j) the deceleration devices required to be used to land within the landing distance required.

(4) If the actual landing distance is not available from the OEM for the aeroplane, or if it is available but not used under subsection (2), the calculation of the landing distance required under subsection (1) must be made in accordance with section 19.22 or 19.23, as applicable to the runway surface conditions in accordance with paragraph (3) (e).

(5) In this section:

actual landing distance means the landing distance required for the actual conditions, at the aerodrome, using the deceleration devices required to be used for the landing.

CHAPTER 20 PERFORMANCE — TAKE-OFF AND LANDING WEIGHTS FOR OTHER AIRCRAFT

Division 1 Preliminary

20.01 Application of this Chapter

(1) This section applies, according to its terms, to the operations of the following operators:

(a) an aerial work certificate holder; and

(b) a limited aerial work operator.

(2) This Chapter applies only in relation to the operation of an aircraft to which neither Chapter 18 nor Chapter 19 applies.

(3) The aircraft to which this Chapter applies are referred to in this Chapter as ***other aircraft***, ***other rotorcraft*** or ***other aeroplanes*** as the case may be.

20.02 Definitions for this Chapter

In this Chapter, unless a contrary intention appears, the words and expressions defined in section 19.02 apply in relation to aeroplanes to which this Chapter applies.

Division 2 Take-off weights for other aircraft

20.03 Purpose of Division 2

The purpose of this Division is to prescribe:

(a) for paragraph 138.435 (2) (a) — the circumstances in which the weight for an aircraft to which this Chapter applies must be calculated for a flight; and

(b) for paragraph 138.435 (2) (b) — the methods for calculating that weight.

20.04 Circumstances and methods

(1) For paragraph 20.03 (a), the circumstances are before the aircraft takes off for a flight.

(2) For paragraph 20.03 (b), the methods are as set out in this Division.

20.05 Take-off weight for other aeroplanes

(1) Subject to this section, an aeroplane must not take off unless the take-off weight and performance capability of the aeroplane are:

(a) calculated by the pilot in command before take-off; and

(b) such that the aeroplane may safely take-off without being a hazard to another aircraft, a person or property.

(2) For subsection (1):

(a) the take-off weight of the aeroplane must be calculated in accordance with the AFM or equivalent; and

(b) the performance of the aeroplane at the take-off weight, must be determined from the AFM or the manufacturer's data manual.

(3) For subsection (2), an aerial work certificate holder's operations manual must contain procedures which ensure that the pilot in command takes into account

all relevant operational considerations for the take-off, the take-off climb, the en route approach, and the landing and baulked landing stages of the flight.

Note For example, the operations manual should, where relevant, address matters such as the take-off distance available; the adequacy of the departure, destination and alternate aerodromes; the pressure altitude and temperature; the gradient of the take-off and initial climb stages; the climb flight path; the wind direction, velocity and characteristics (if known) or zero wind; the take-off and en route weather forecast; the obstacles in the vicinity of the take-off path; the obstacles en route.

(4) The weight of the aeroplane at take-off must not exceed the weight limitations contained in, or derived from, the AFM, or manufacturer's data manual.

20.06 Take-off weight for other rotorcraft — general

(1) Subject to this section, a rotorcraft must not take off unless the take-off weight and the performance capability of the rotorcraft are:

(a) calculated by the pilot in command before take-off; and

(b) such that the rotorcraft may safely take-off without being a hazard to another aircraft, a person or property.

(2) For subsection (1):

(a) the take-off weight of the rotorcraft must be calculated in accordance with the AFM or equivalent; and

(b) the performance of the rotorcraft at the take-off weight must be calculated from the AFM or the manufacturer's data manual using, in the case of an aerial work certificate holder, the operator's operations manual procedures.

(3) For subsection (2), the operator's operations manual must contain procedures which ensure that the pilot in command takes into account all relevant operational considerations for the take-off, the take-off climb, the en route approach, and the landing and baulked landing stages of the flight.

Note For example, the operations manual should, where relevant, address matters such as the TODAR; the adequacy of the departure, destination and alternate aerodromes; the pressure altitude and temperature; the gradient of the take-off and initial climb stages; the climb flight path; the wind direction, velocity and characteristics (if known) or zero wind; the take-off and en route weather forecast; the obstacles in the vicinity of the take-off path; the obstacles en route.

(4) The weight of the rotorcraft at take-off must not exceed the weight limitations contained in, or derived from, the AFM or manufacturer's data manual.

20.07 Take-off weight for other rotorcraft — Category A rotorcraft within populous areas

(1) This section applies to a rotorcraft until the rotorcraft achieves the minimum height required under regulation 91.315 if the rotorcraft:

(a) is not in an AWZ operation; and

(b) takes off from a place in a populous area (a ***relevant place***) provided that the place is not a HLS or an aerodrome that is publicly available (with or without permission).

(2) Regardless of the requirement in subsection 20.06 (3), but without otherwise affecting section 20.06, the pilot in command of the rotorcraft may only take-off from the relevant HLS if subsection (3) applies.

(3) For subsection (2), the pilot in command may take off only if:

(a) the take-off weight allows compliance with the relevant Category A procedure for take-off and initial departure at the relevant HLS; or

(b) the rotorcraft is operated in PC1, PC2 or PC2WE.

Note 1 The Category A procedure allows rejected take-off within TODAR or after TDP flight clear of persons and property in the event of a critical engine failure.

Note 2 ***Category A rotorcraft*** is defined in section 1.04.

20.08 Take-off weight for other rotorcraft — Category B rotorcraft within populous areas

(1) This section applies to a rotorcraft until the rotorcraft achieves the minimum height required under regulation 91.315 if the rotorcraft:

(a) is not in an AWZ operation; and

(b) takes off from a place in a populous area (a ***relevant place***) provided that the place is not a HLS or an aerodrome that is publicly available (with or without permission).

(2) The pilot in command of the rotorcraft may take off from a relevant place only if subsection (3) applies.

(3) For subsection (2), the pilot in command may take off only if:

(a) the take-off weight allows hover out of ground effect performance for the take-off; and

(b) the planned take-off profile minimises time within the avoid area of the HV curve; and

(c) the rotorcraft's weight allows sufficient performance for the rotorcraft to:

(i) avoid obstacles during the take-off and initial climb stage of the flight; and

(ii) autorotate or fly clear of persons or property in the event of a critical engine failure.

Division 3 Landing weight for other aircraft

20.09 Purpose of Division 3

The purpose of this Division is to prescribe:

(a) for paragraph 138.440 (2) (a) — the circumstances in which the landing weight for an aircraft to which this Chapter applies must be calculated for a flight; and

(b) for paragraph 138.440 (2) (b) — the methods for calculating that weight.

20.10 Circumstances and methods

(1) For paragraph 20.09 (a), the circumstances are before the aircraft lands at the end of a flight.

(2) For paragraph 20.09 (b), the methods are as set out in this Division.

20.11 Landing weight for other aeroplanes

(1) Subject to this section, an aeroplane must not land unless the landing weight and performance capability of the aeroplane are:

(a) calculated by the pilot in command before the landing; and

(b) such that the aeroplane may safely land without being a hazard to another aircraft, a person or property.

(2) For subsection (1):

(a) the landing weight of the aeroplane must be calculated in accordance with the AFM or equivalent; and

(b) the performance of the aeroplane at the take-off weight, must be determined from the AFM or the manufacturer's data manual.

(3) For subsection (2), an aerial work certificate holder's operations manual must contain procedures which ensure that the pilot in command takes into account all relevant operational considerations for the approach, and the landing and baulked landing stages of the flight.

Note For example, the operations manual should, where relevant, address matters such as the take-off distance available at the departure aerodrome; the adequacy of the departure, destination and alternate aerodromes; the pressure altitude and temperature; the gradient of the take-off and initial climb stages; the climb flight path at the departure aerodrome; the wind direction, velocity and characteristics (if known) or zero wind; the take-off, en route and landing weather forecast; the obstacles in the vicinity of the take-off path; the obstacles en route.

(4) The weight of the aeroplane at landing must not exceed the weight limitations contained in, or derived from, the AFM, or manufacturer's data manual.

20.12 Landing weight for other rotorcraft — general

(1) Subject to this section, a rotorcraft must not land unless the landing weight and the performance capability of the rotorcraft are:

(a) calculated by the pilot in command before landing; and

(b) such that the rotorcraft may safely land without being a hazard to another aircraft, a person or property.

(2) For subsection (1):

(a) the landing weight of the rotorcraft must be calculated in accordance with the AFM or equivalent; and

(b) the performance of the rotorcraft at the landing weight, must be calculated from the AFM or the manufacturer's data manual.

(3) For subsection (2), an aerial work certificate holder's operations manual must contain procedures which ensure that the pilot in command takes into account all relevant operational considerations for the approach and the landing and baulked landing stages of the flight.

Note For example, the operations manual should, where relevant, address matters such as the size of the FATO available; the adequacy of the destination and alternate aerodromes; the pressure altitude and temperature; the gradient of the approach and any missed approach; the wind direction, velocity and characteristics (if known) or zero wind; the en route and destination weather forecast; the obstacles in the vicinity of the approach path.

(4) The weight of the rotorcraft at landing must not exceed the weight limitations contained in, or derived from, the AFM or manufacturer's data manual.

20.13 Landing weight for other rotorcraft — Category A rotorcraft within a populous area

(1) This section applies:

(a) to a rotorcraft landing within a populous area while the rotorcraft is below the minimum height required under regulation 91.315; and

(b) only if the rotorcraft:

(i) is a Category A rotorcraft with a Category A performance supplement that is operated to Category A weights, limitations and procedures (the ***rotorcraft***); and

(b) lands at a place in a populous area (a ***relevant place***) provided that the place is not a HLS or an aerodrome that is publicly available (with or without permission).

(2) The pilot in command of the rotorcraft may only land at a relevant place if subsection (3) applies.

(3) For subsection (2), the pilot in command may land only if:

(a) the landing weight allows compliance with the relevant Category A procedure for approach and landing at the relevant HLS; or

(b) the rotorcraft is operated in PC1, PC2 or PC2WE.

Note The Category A procedure allows, in the event of a critical engine failure at or after landing decision point (LDP), a continued approach clear of persons and property, and a landing within the landing distance available — rotorcraft at the helicopter landing site.

20.14 Landing weight for other rotorcraft — Category B rotorcraft within a populous area

(1) This section applies to a rotorcraft that:

(a) is a Category B rotorcraft (the ***rotorcraft***); and

(b) lands at a place in a populous area (a ***relevant place***) provided that the place is not a HLS or an aerodrome that is publicly available (with or without permission).

(2) The pilot in command of the rotorcraft may land at a relevant place only if:

(a) the rotorcraft's weight allows sufficient performance for the rotorcraft to:

(i) avoid obstacles during the landing and any missed approach stage of the flight; and

(ii) autorotate or fly clear of persons or property in the event of a critical engine failure; and

(b) if the area is a confined area for the rotorcraft — the landing weight allows hover out of ground effect performance for the landing; and

(c) the planned landing profile, as far as practical, minimises time within the avoid area of the HV curve.

Note For the ***avoid area of the HV curve***, see the definition in section 1.04, Definitions.

CHAPTER 21 SPECIFIC PERFORMANCE CLASS FLIGHT REQUIREMENTS

Division 1 Flight in performance class 1

21.01 Performance class 1

(1) For subregulation 138.445 (2), the requirements for the flight of a rotorcraft in performance class 1 are set out in this section.

(2) The flight must be conducted in a Category A rotorcraft.

(3) The flight must conform to the performance class 1 requirements set out in Division 2 of this Chapter.

(4) The pre-flight requirements set out in Division 10 of this Chapter must be complied with.

21.02 When a rotorcraft is flown in performance class 1

A multi-engine rotorcraft is flown in ***performance class 1*** during the stage of flight mentioned in column 1 of an item in the following table, if the rotorcraft is flown, during the stage, in accordance with the requirements stated in the provision mentioned in column 2 of the item.

Table 21.02 **Performance class 1 requirements**

Item	Column 1 Stage of flight	Column 2 Provision
1	Take-off	section 21.04
2	Take-off and initial climb	section 21.05
3	En route	section 21.06
4	Approach and landing, or baulked landing	section 21.07

Division 2 Rotorcraft performance class 1 — requirements

21.03 Performance class requirements

The requirements set out in this Division are:

(a) requirements for the purposes of Table 21.02; and

(b) prescribed requirements for the relevant performance class for a flight of a rotorcraft for the purposes of subregulation 138.445 (2).

21.04 Performance class 1 — take-off

(1) For item 1 of Table 21.02, the requirements for the take-off stage of a flight of a rotorcraft are the requirements stated in this section.

(2) The take-off weight of the rotorcraft must not exceed the maximum weight, mentioned in the rotorcraft's flight manual, required:

(a) for the type of take-off procedure to be used; and

(b) to achieve the following rates of climb, with 1 engine inoperative:

(i) 100 ft per minute at 200 ft above the departure aerodrome, for the flight, at V_{TOSS} for the rotorcraft;

(ii) 150 ft per minute at 1 000 ft above the departure aerodrome.

(3) The take-off weight of the rotorcraft must not exceed the maximum weight, mentioned in the rotorcraft's flight manual, required to ensure:

(a) the RTODRR, for the take-off, does not exceed the RTODAR, for the take-off; and

(b) either:

(i) the TODRR does not exceed the TODAR; or

(ii) if the TODARR exceeds the TODAR:

(A) the rotorcraft must be able to clear an obstacle from the take-off decision point, for the take-off, with 1 engine inoperative, by at least 35 ft; and

(B) if the take-off is from an elevated aerodrome, the rotorcraft must be able to clear the edge of the aerodrome by at least 4.5 m.

(4) If an engine becomes inoperative before the take-off decision point for the take-off, the rotorcraft must be able to safely land and stop within the RTODAR for the take-off.

(5) If an engine becomes inoperative while the rotorcraft is conducting a backup take-off procedure or a lateral transition take-off procedure, the rotorcraft must be able to clear a relevant obstacle under the flight path for the procedure or transition by at least the adequate vertical margin, for the rotorcraft, for the take-off stage of the flight.

(6) The dimensions of the final approach and take-off area, for the aerodrome, must be at least the larger of the following:

(a) the dimensions of the final approach and take-off area, as mentioned in the rotorcraft's flight manual;

(b) 1.5 x D, for the rotorcraft.

(7) In this section:

elevated aerodrome means an aerodrome situated on a raised structure.

21.05 Performance class 1 — take-off and initial climb

(1) For item 2 of Table 21.02, the requirements for the take-off and initial climb stage of a flight of a rotorcraft are the requirements stated in this section.

(2) If an engine becomes inoperative after the take-off decision point, for the take-off, the rotorcraft must be able to achieve the rates of climb mentioned in paragraph 21.04 (2) (b).

(3) If an engine becomes inoperative after the take-off decision point, for the take-off, the rotorcraft must be able, from the end of the take-off distance required for the take-off until the rotorcraft reaches the minimum flight altitude for each point in the take-off and initial climb stage of the flight, to clear a relevant obstacle under the flight path by a margin of at least:

(a) for a VFR flight — 35 ft; and

(b) for an IFR flight — the total of:

(i) 35 ft; and

(ii) 0.01 x S, for the point.

(4) For subsection (3), if a change of direction of more than 15 degrees is required to achieve the margin, the rotorcraft must be able, during the change of direction, to clear the relevant obstacle by at least the total of:

(a) the margin; and

(b) 15 ft.

(5) For subsection (4), the rotorcraft may change direction by more than 15 degrees only if the rotorcraft is permitted to do so under its flight manual.

21.06 Performance class 1 — en route

(1) For item 3 of Table 21.02, the requirements for the en route stage of a flight of a rotorcraft are, if an engine becomes inoperative during that stage of the flight:

(a) the rotorcraft must be able to achieve and maintain a rate of climb of at least 50 ft per minute at the minimum flight altitude for each point in the en route stage of the flight; or

(b) the requirements stated in subsection (2), as applicable.

(2) For paragraph (1) (b), the requirements are:

(a) the pilot in command of the rotorcraft for the flight must be permitted under subsection (3) to conduct a drift-down manoeuvre; and

(b) the rotorcraft must be able to comply with the requirements for conducting a drift-down manoeuvre mentioned in:

(i) for an IFR flight — subsection (4); or

(ii) for a VFR flight at night — subsection (5); or

(iii) for a VFR flight by day — subsection (6); and

(c) the rotorcraft must be able to approach and land, or conduct a baulked landing, in accordance with the requirements stated in section 21.07.

(3) For paragraph (2) (a), the pilot in command is permitted to conduct a drift-down manoeuvre if:

(a) the flight planning for the flight has taken into account the effect of wind on the flight path; and

(b) navigational accuracy for the rotorcraft's track for the drift-down manoeuvre can be maintained:

(i) for an IFR flight or a VFR flight at night — using a navigation system; or

(ii) for a VFR flight by day — using visual navigation, and a navigation system if any; and

(c) for a VFR flight — VMC exist.

(4) For subparagraph (2) (b) (i), the requirements for conducting a drift-down manoeuvre for an IFR flight are that the rotorcraft must be able to:

(a) descend to a height of 1 500 ft above an aerodrome that is suitable for the rotorcraft to land at; and

(b) fly at a height that ensures that the pilot in command does not contravene any provision of Part 91 of CASR dealing with minimum heights for IFR flights for the rotorcraft's track for the drift-down manoeuvre to the aerodrome.

(5) For subparagraph (2) (b) (ii), the requirements for conducting a drift-down manoeuvre for a VFR flight at night are that the rotorcraft must be able to:

(a) descend to a height of 1 500 ft above an aerodrome that is suitable for the rotorcraft to land at in VMC; and

(b) fly at a height that ensures that the pilot in command does not contravene any provision of Part 91 of CASR dealing with minimum heights for VFR flights at night for the rotorcraft's track for the drift-down manoeuvre to the aerodrome.

(6) For subparagraph (2) (b) (iii), the requirements for conducting a drift-down manoeuvre for a VFR flight by day are that the rotorcraft must be able to:

(a) descend to a height of 1 000 ft above an aerodrome that is suitable for the rotorcraft to land at; and

(b) fly at least 1 000 ft above the highest obstacle on the ground or water within 900 metres ahead of, and to either side of, the rotorcraft at each point on the rotorcraft's track for the drift-down manoeuvre to the aerodrome.

21.07 Performance class 1 — approach and landing, or baulked landing

(1) For item 4 Table 21.02, the requirements for the approach and landing, or baulked landing, stage of a flight of a rotorcraft are the requirements stated in this section.

(2) The landing weight of the rotorcraft must not exceed the maximum weight, mentioned in the rotorcraft's flight manual, required:

(a) for the type of approach procedure to be used; and

(b) to achieve the following rates of climb with 1 engine inoperative:

(i) 100 ft per minute at 200 ft above the aerodrome;

(ii) 150 ft per minute at 1 000 ft above the aerodrome.

(3) The landing weight of the rotorcraft must not exceed the maximum weight, mentioned in the rotorcraft's flight manual, required for the rotorcraft to safely land and stop with 1 engine inoperative within the landing distance available — rotorcraft for a landing of the rotorcraft at the aerodrome.

(4) If an engine becomes inoperative before the landing decision point for the landing, the rotorcraft must be able to:

(a) safely land and stop within the final approach and take-off area for the aerodrome; or

(b) both:

(i) conduct a baulked landing; and

(ii) clear a relevant obstacle, if any, under the baulked landing climb flight path by a margin of at least:

(A) for a VFR flight — 35 ft; and

(B) for an IFR flight — the total of 35 ft and (0.01 x S, for the point).

(5) For subparagraph (4) (b) (ii), if a change of direction of more than 15 degrees is required to achieve the margin, the rotorcraft must be able, during the change of direction, to clear the relevant obstacle by at least the total of:

(a) the margin; and

(b) 15 ft.

(6) If an engine becomes inoperative at or after the landing decision point for the landing:

(a) for a rotorcraft without OEI hover performance capability at the aerodrome — the rotorcraft must be able to safely land and stop within the final approach and take-off area for the aerodrome; or

(b) for a rotorcraft with OEI hover performance capability at the aerodrome — the rotorcraft must be able to:

(i) safely stop within the final approach and take-off area; and

(ii) land at a suitable location for the rotorcraft at the aerodrome.

(7) The dimensions of the final approach and take-off area, for the aerodrome, must be at least the larger of the following:

(a) the dimensions of the final approach and take-off area, as mentioned in the rotorcraft's flight manual;

(b) 1.5 x D, for the rotorcraft.

Division 3 Flight in performance class 2

21.08 Performance class 2

(1) For subregulation 138.445 (2), the requirements for the flight of a rotorcraft in performance class 2 are set out in this section.

(2) The flight must be conducted in a Category A rotorcraft.

(3) The flight must conform to the performance class 2 requirements set out in Division 4 of this Chapter.

(4) The pre-flight requirements set out in Division 10 must be complied with.

21.09 When a rotorcraft is flown in performance class 2

A multi-engine rotorcraft is flown in ***performance class 2***, during the stage of flight mentioned in column 1 of an item in the following table, if the rotorcraft is flown, during the stage, in accordance with the requirements stated in the provision mentioned in column 2 of the item.

Table 21.09 Performance class 2 requirements

Item	Column 1 Stage of flight	Column 2 Provision
1	Take-off	section 21.11
2	Take-off and initial climb	section 21.12
3	En route	section 21.13
4	Approach and landing, or baulked landing	section 21.14

Division 4 Rotorcraft performance class 2 — requirements

21.10 Performance class requirements

The requirements set out in this Division are:

(a) requirements for the purposes of the Table 21.09; and

(b) prescribed requirements for the relevant performance class for a flight of a rotorcraft for the purposes of subregulation 138.445 (2).

21.11 Performance class 2 — take-off

(1) For item 1 of Table 21.09, the requirements for the take-off stage of a flight of a rotorcraft are the requirements stated in this section.

(2) The take-off weight of the rotorcraft must not exceed the maximum weight, mentioned in the rotorcraft's flight manual, required:

(a) for the type of take-off procedure to be used; and

Note The type of take-off procedure considers the all-engines operating case until DPATO. Therefore, depending on the take-off procedure selected, that procedure may or may not be limited by Category A weight, altitude and temperature OEI considerations.

(e) to achieve a rate of climb, with 1 engine inoperative, of 150 ft per minute at 1 000 ft above the departure aerodrome for the flight.

(3) If an engine becomes inoperative before the DPATO, the rotorcraft must be able to do one of the following without creating a hazard to a person under the flight path:

(a) safely continue the climb out;

(b) safely land on a suitable forced landing area for the flight.

21.12 Performance class 2 — take-off and initial climb

(1) For item 2 of Table 21.09, the requirements for the take-off and initial climb stage of a flight of a rotorcraft are that, if an engine becomes inoperative at the lower of the following:

(a) the defined point after take-off for the rotorcraft;

(b) 300 ft above the departure aerodrome for the flight;

the rotorcraft must be able to clear a relevant obstacle, if any, under the flight by a margin of at least:

(i) for a VFR flight — 35 ft; or

(ii) for an IFR flight — the total of:

(A) 35 ft; and

(b) 0.01 x S, for the point.

(2) For subsection (1), if a change of direction of more than 15 degrees is required to achieve the margin, the rotorcraft must be able, during the change of direction, to clear the relevant obstacle by at least the total of:

(a) the margin; and

(b) 15 ft.

21.13 Performance class 2 — en route

For item 3 of Table 21.09, the requirement for the en route stage of a flight of a rotorcraft is that, if an engine becomes inoperative during that stage of the flight:

(a) the rotorcraft must be able to achieve and maintain a rate of climb of at least 50 ft per minute at the minimum flight altitude for each point in the en route stage of the flight; or

(b) the requirements mentioned in subsections 21.06 (2), (3), (4) and (5), as applicable, must be met.

Note The performance class 2 requirements for the en route stage of a flight of a rotorcraft are the same as the performance class 1 requirements for the en route stage of a flight of a rotorcraft (see section 21.06).

21.14 Performance class 2 — approach and landing, or baulked landing

(1) For item 4 of Table 21.09, the requirements for the approach and landing, or baulked landing, stage of a flight of a rotorcraft are the requirements stated in this section.

(2) The landing weight of the rotorcraft must not exceed the maximum weight, mentioned in the rotorcraft's flight manual, required:

(a) for the type of approach procedure to be used; and

Note The type of approach procedure considers the all-engines operating case from DPBL Therefore, depending on the approach procedure selected by the pilot in command for the approach and landing or balked landing, that procedure may or may not be limited by Category A weight, altitude and temperature OEI considerations after DPBL.

(b) to achieve a rate of climb, with 1 engine inoperative and the remaining engines operating with maximum continuous power, of 150 ft per minute at 1 000 ft above the landing aerodrome; and

(c) for the rotorcraft to safely land within the landing distance available — rotorcraft for a landing of the rotorcraft at the aerodrome.

(3) If an engine becomes inoperative at a particular point before the defined point before landing, the rotorcraft must be able to:

(a) conduct a baulked landing; and

(b) clear a relevant obstacle, if any, under the baulked landing climb flight path, by a margin of at least the following:

(i) for a VFR flight — 35 ft;

(ii) for an IFR flight — the total of:

(A) 35 ft; and

(B) 0.01 x S for the particular point.

(4) During the part of the flight after the defined point before landing for the rotorcraft until the point of landing, a suitable forced landing area for the flight must be available to the rotorcraft.

Division 5 Flight in performance class 2 with exposure

21.15 Definitions

In this Division:

PC2WE flight means a flight of a rotorcraft in performance class 2 with exposure during the take-off and initial climb stage, or the approach and landing or the baulked landing, stage, of the flight.

preventative maintenance actions means any of the following:

(a) engine oil spectrometric, and debris, analysis;

(b) engine-trend monitoring, based on available power assurance checks;

(c) vibration analysis;

(d) oil-consumption monitoring.

21.16 When a rotorcraft is flown in performance class 2 with exposure

(1) A multi-engine rotorcraft is flown in ***performance class 2 with exposure*** during the take-off stage of a flight if, while it is being flown in performance class 2, a suitable forced landing area, for the flight, is not available to the rotorcraft from the beginning of the take-off to the lower of the following:

(a) the defined point after take-off;

(b) 300 ft above the departure aerodrome for the flight.

(2) Also, a multi-engine rotorcraft is flown in ***performance class 2 with exposure*** during the landing stage of a flight if, while it is being flown in performance class 2, a suitable forced landing area, for the flight, is not available to the rotorcraft after the defined point before landing to the point at which a safe landing is assured.

21.17 Performance class 2 with exposure

(1) For subregulation 138.445 (2), the requirements for the flight of a rotorcraft in performance class 2 with exposure are set out in this Division.

(2) The flight must be conducted in a Category A rotorcraft.

(3) The flight must conform to the performance class 2 with exposure requirements set out in Division 6 of this Chapter.

(4) The pre-flight requirements set out in Division 10 must be complied with.

(5) The aerial work certificate holder must have operations manual procedures for the conduct of PC2WE flights with the rotorcraft that:

(a) were approved in accordance with paragraph 138.045 (a); or

(b) otherwise subsequently approved by CASA for the purposes of this subsection.

Division 6 Rotorcraft performance class 2 with exposure — requirements

21.18 Performance class requirements

The requirements set out in this Division are:

(a) requirements for the purposes of section 21.16; and

(b) prescribed requirements for the relevant performance class for a flight of a rotorcraft for the purposes of subregulation 138.445 (2).

21.19 Performance class 2 with exposure

The requirements for performance class 2 with exposure are the same as the requirements for performance class 2, as qualified by section 21.16.

21.20 Maximum permitted exposure time

(1) The rotorcraft may only be flown if the exposure time for each of the following stages of the flight does not exceed 18 seconds:

(a) take-off and initial climb;

(b) approach, and landing or baulked landing.

(2) For paragraph (1) (a), the exposure time for the take-off and initial climb stage of the flight must be measured from the point during that stage of the flight where the rotorcraft is no longer able to land in a suitable forced landing area,

for the flight, until the rotorcraft's gradient of climb with 1 engine inoperative is equal to the gradient that will remain at least 35 feet above relevant obstacles or terrain.

(3) For paragraph (1) (b), the exposure time for the approach, and landing or baulked landing, stage of the flight must be measured from the defined point before landing, for the rotorcraft, until the rotorcraft is able to make a safe landing.

21.21 Take-off weight limitations

The rotorcraft must have a take-off weight for the flight which does not exceed the lowest of the following weights:

(a) the MTOW;

(b) the all engines operative (AEO) hover out of ground effect (HOGE) weight that would allow acceleration from a vertical take-off profile for the environment;

(c) the weight at which the rate of climb with 1 engine inoperative would be 150 ft per minute at a height of 1 000 ft above the departure aerodrome for the flight;

(d) the weight at which, with 1 engine inoperative:

(i) at the defined point after take-off for the rotorcraft; or

(ii) at a height of 300 ft;

the gradient of climb would be equal to the gradient of the obstacle-clear take-off surface;

(e) the weight that, with 1 engine inoperative in the en route configuration, would allow a rate of climb of 50 ft per minute at the minimum flight altitude for each point in the en route stage of the flight;

(f) the weight that, allowing for normal consumption of fuel in flight to the destination aerodrome for the flight, or for the alternate aerodrome if required for the flight, would allow the following with 1 engine inoperative:

(i) a rate of climb of 150 ft per minute at a height of 1 000 ft above the destination aerodrome or alternate aerodrome;

(ii) the landing distance required — rotorcraft to equal the landing distance available — rotorcraft, for a landing of the rotorcraft at the destination aerodrome or alternate aerodrome.

21.22 Preventative maintenance

The rotorcraft must have had all preventative maintenance actions completed for the rotorcraft and its engines, before the flight, as recommended for the rotorcraft and its engines by the holder of the rotorcraft's type certificate, or the holders of the type certificates for the rotorcraft and its engines.

21.23 Risk assessments

The rotorcraft may only be flown in accordance with:

(a) the rotorcraft operator's risk assessment procedures for PC2WE flight risks relevant to the rotorcraft; and

(b) the rotorcraft operator's operational and airworthiness measures which are used to mitigate identified risks.

21.24 Flight manual and operations manual

The rotorcraft may only be flown in accordance with:

(a) the rotorcraft's flight manual procedures, if any, for PC2WE flights; and

(b) the rotorcraft operator's operations manual procedures for PC2WE flights.

Note For operations manuals see Chapter 7.

21.25 Flight crew training and checking requirements

(1) The rotorcraft may only be flown with FCMs who have successfully completed all approved flight crew training and competency checking requirements.

(2) In this section:

approved flight crew training and competency checking requirements means flight crew training and competency checking requirements for PC2WE flights with the rotorcraft, based on which CASA issued its approval to the rotorcraft's operator to conduct PC2WE flights with the rotorcraft.

Division 7 CASA approval to conduct PC2WE flights

21.26 Applications for CASA approval

For paragraph 21.17 (5) (a), an aerial work certificate holder's application to CASA for approval to conduct PC2WE flights in a rotorcraft must provide the information required by each section of this Division.

21.27 Reliability and sudden power loss

(1) Subject to subsection (4), for section 21.26, the information to be provided must be the information mentioned in subsection (2) or (3).

(2) The information is the following to the extent that it exists, namely, that:

(a) an assessment has been made of the incidence of sudden power loss in rotorcraft of the relevant type and in engines of the relevant type; and

(b) as a result of the assessment, rotorcraft of the relevant type, with engines of the relevant type, has been approved in writing to conduct a PC2WE flight by:

(i) CASA under regulation 138.045, or otherwise by CASA for the purposes of this subparagraph; or

(ii) CASA for the purposes of a requirement in the Part 133 Manual of Standards that is for subregulation 133.320 (2) of CASR; or

(iii) either:

(A) the national aviation authority of a recognised foreign State under Appendix 1 to JAR-OPS 3.517 (a); or

(B) EASA Regulation (EU) No 965/2012 Annex IV (Part-CAT) Subpart C: Aircraft Performance and Operating Limits CAT.POL.H.305(a).

(3) The information is the following to the extent that it exists, namely, power plant reliability statistics for the rotorcraft of the relevant type, and engines of the relevant type, which demonstrate that:

(a) the current incidence of sudden power loss over the 5-year period relevant to the application does not exceed 1 for 100 000 engine hours; or

(b) the current incidence of sudden power loss over the 5-year period relevant to the application does not exceed 3 for 100 000 engine hours, and the incidence is trending downwards.

(4) This section only applies if the information mentioned in subsection (2) or subsection (3) exists.

Note If the information mentioned in subsection (2) or (3) does not exist, CASA will conduct a risk assessment of the power plant reliability of the rotorcraft and its engines for the purpose of considering the application for approval to conduct PC2WE flights in a rotorcraft.

21.28 Type certificate holder's modification standard

(1) For section 21.26, the information to be provided must be the information mentioned in subsection (2) or (3).

(2) The information is a statement from the holder of the rotorcraft's type certificate, or the holders of the type certificates for the rotorcraft and its engines, of the modification standard designated by the holder or holders to enhance the reliability of the rotorcraft and its engines during an operation.

(3) The information is a statement from the holder of the rotorcraft's type certificate, or the holders of the type certificates for the rotorcraft and its engines, that no modification standard has been designated to enhance the reliability of the rotorcraft and its engines during an operation.

(4) If the information mentioned in subsection (2) is provided, the applicant must also provide information demonstrating that the rotorcraft, or the rotorcraft and its engines, conform to the designated modification standard.

21.29 Preventative maintenance

For section 21.26, the information to be provided must be:

(a) details of the preventative maintenance actions recommended for the rotorcraft and its engines by the holder of the rotorcraft's type certificate, or the holders of the type certificates for the rotorcraft and its engines; and

(b) information demonstrating that details of the preventative maintenance actions are included in the rotorcraft's approved system of maintenance.

21.30 Risk assessment

(1) For section 21.26, the information to be provided must be a statement of the operator about the following:

(a) risk assessment procedures for PC2WE flight risks relevant to the rotorcraft;

(b) the operational measures used to mitigate the identified risks;

(c) the airworthiness measures used to mitigate the identified risks.

(2) For paragraph (1) (b), the information about the measures must include information about the following:

(a) appropriate PC2WE flight procedures;

(b) flight crew training and competency checking.

(3) For paragraph (1) (c), the information about the measures must include information about the following:

(a) compliance with the rotorcraft manufacturer's safety modifications;

(b) compliance with the operator's incident reporting procedures;

(c) implementation of the operator's usage monitoring system.

21.31 Usage monitoring system

For section 21.26, the information to be provided must be the following:

(a) details of the operator's usage monitoring system, which records and stores data related to the rotorcraft's engines and transmission systems;

(b) information demonstrating that the usage monitoring system is, and is likely to remain, a reliable, accurate, comprehensive and continuously-operating system unless modified to enhance it.

21.32 Flight manual and operator's operations manual

(1) For section 21.26, the information to be provided must be:

(a) a copy of the rotorcraft's flight manual, containing procedures for a PC2WE flight with the rotorcraft; and

(b) relevant excerpts from the operator's operations manual in which the procedures mentioned in paragraph (a) are clearly referenced.

(2) However, if procedures for a PC2WE flight with the rotorcraft are not contained in the rotorcraft's flight manual, the information to be provided must be relevant excerpts from the operator's operations manual in which the procedures are contained.

21.33 Flight crew training and checking

(1) For section 21.26, the information to be provided must be details of the procedures of the operator, or a Part 142 operator engaged by the operator, for the mandatory training and competency checking of each FCM who performs, or is likely to perform, a PC2WE flight with the rotorcraft.

(2) For subsection (1), the training and competency checking must include training in, and competency checking of, flight crew techniques required to minimise risks when conducting PC2WE flights.

21.34 Incident reporting

(1) For section 21.26, the information to be provided must be details of the operator's mandatory procedures for reporting to the holder of the rotorcraft's type certificate, or the holders of the type certificates for the rotorcraft and its engines, any of the following arising during a PC2WE flight with the rotorcraft:

(a) loss of power control;

(b) engine shutdown, including a precautionary shutdown;

(c) power unit failure for any cause, but excluding simulation of power unit failure during training.

(2) The information mentioned in subsection (1) must demonstrate that the procedures are, and are likely to remain, reliable, accurate, comprehensive and continuous, unless modified to enhance them.

Division 8 Flight in performance class 3

21.35 Performance class 3, over populous areas

(1) For subregulation 138.445 (2), the requirements for the flight of a rotorcraft in performance class 3 over a populous area are set out in this Division.

(2) The flight must conform to the performance class 3 requirements set out in Division 9 of this Chapter.

(3) The pre-flight requirements set out in Division 10 must be complied with.

21.36 When a rotorcraft is flown in performance class 3

A rotorcraft is flown in ***performance class 3***, during the stage of flight mentioned in column 1 of an item in the following table if the rotorcraft is flown, during the stage, in accordance with the requirements stated in the provision mentioned in column 2 of the item.

Table 21.36 **— Performance class 3 requirements**

Item	**Column 1**	**Column 2**
	Stage of flight	**Provision**
1	Take-off	section 21.39
2	Take-off and initial climb	section 21.40
3	En route	section 21.41
4	Approach and landing, or baulked landing	section 21.42

21.37 Flight in performance class 3 over populous areas

(1) Subject to subsection (2), for the flight of a rotorcraft in performance class 3 over a populous area:

(a) the rotorcraft must not be flown in a way that may create a hazard to a person or property on the ground or water under the rotorcraft's flight path; and

(b) taking into account the particular route for the flight — the rotorcraft must be flown so as to minimise flight time over the populous area during which a suitable forced landing area is not available; and

(c) the rotorcraft must be equipped with:

(i) a particle detection system that monitors the aircraft's transmission system; and

(ii) but only with effect from 25 March 2023 — a related flight deck caution indicator; and

Note It is recommended that rotorcraft be fitted with a flight deck warning light or other caution indicator sooner where this is feasible.

(d) the operator's operations manual must include:

(i) risk assessment, and risk management, procedures for flights over populous areas; and

(ii) details of training for the operator's pilots in conducting autorotative descents to locations with limited access to suitable forced landing areas for a flight of the rotorcraft.

(2) If a requirement prescribed by subsection (2) cannot be met for a stage of a flight of a rotorcraft in performance class 3 over a populous area, the pilot in command must ensure that a suitable forced landing area is available to the rotorcraft.

Division 9 Rotorcraft performance class 3 — requirements

21.38 Performance class requirements

The requirements set out in this Division are:

(a) requirements for the purposes of Table 21.36; and

(b) prescribed requirements for the relevant performance class for a flight of a rotorcraft for the purposes of subregulation 138.445 (2).

21.39 Performance class 3 — take-off

(1) For item 1 of Table 21.36, the requirements for the take-off stage of a flight of a rotorcraft are the requirements stated in this section.

(2) The take-off weight of the rotorcraft must not exceed the maximum weight, mentioned in the rotorcraft's flight manual, required:

(a) for the type of take-off procedure to be used; and

(b) to:

(i) hover in ground effect, with the rotorcraft's engines operating at the power required for hover in ground effect, in the meteorological conditions existing at the time of take-off; or

(ii) if the rotorcraft cannot hover in ground effect due to the location of, or the terrain at, the departure aerodrome for the flight — hover out of ground effect, with the rotorcraft's engines operating at the power required for hover out of ground effect, in the meteorological conditions existing at the time of take-off; and

(c) to have sufficient additional power available for the type of take-off procedure to be used while hovering in ground effect or out of ground effect.

(3) The rotorcraft must:

(a) remain outside the rotorcraft's avoid area of the HV curve; or

(b) if it is necessary for the rotorcraft to enter the avoid area of the HV curve to avoid an accident, incident or obstacle — not remain inside the avoid area of the HC curve for longer than the minimum period necessary to avoid the accident, incident or obstacle.

21.40 Performance class 3 — take-off and initial climb

(1) For item 2 of Table 21.36, the requirements for the take-off and initial climb stage of a flight of a rotorcraft are the requirements stated in this section.

(2) The rotorcraft must clear an obstacle, if any, under the take-off flight path by at least the adequate vertical margin, for the rotorcraft, for the take-off and initial climb stage of the flight.

(3) The rotorcraft must:

(a) remain outside the rotorcraft's avoid area of the HC curve; or

(b) if it is necessary for the rotorcraft to enter the avoid area of the HV curve to avoid an accident, incident or obstacle — not remain inside the avoid area of the HV curve for longer than the minimum period necessary to avoid the accident, incident or obstacle.

21.41 Performance class 3 — en route

For item 3 of Table 21.36, the requirements for the en route stage of a flight of a rotorcraft are the following:

(a) the weight of the rotorcraft must allow the rotorcraft, with all engines operating, to achieve the minimum flight altitude for each point in the en route stage of the flight;

(b) the rotorcraft must be flown in a way that minimises the time during the en route stage of the flight in which a suitable forced landing area, for the flight, is not available.

21.42 Performance class 3 — approach and landing, or baulked landing

(1) For item 4 of Table 21.36, the requirement for the approach and landing, or baulked landing, stage of a flight of a rotorcraft is that the landing weight of the rotorcraft must not exceed the maximum weight, mentioned in the rotorcraft's flight manual, allowed:

(a) for the type of approach procedure to be used; and

(b) to achieve:

(i) a hover in ground effect, with the rotorcraft's engines operating at the power required for landing; or

(ii) if the rotorcraft cannot achieve a hover in ground effect due to the location of, or the terrain at, the aerodrome — a hover out of ground effect, with all engines operating; and

(c) to achieve a baulked landing, with all the rotorcraft's engines operating, at any point of the flight path for the approach and landing; and

(d) to clear an obstacle, if any, by at least the adequate vertical margin, for the rotorcraft, for the approach and landing, or baulked landing, stage of the flight.

(2) The rotorcraft must:

(a) remain outside the rotorcraft's avoid area of the HV curve; or

(b) if it is necessary for the rotorcraft to enter the avoid area of the HC curve to avoid an accident, incident or obstacle — not remain inside the avoid area of the HC curve for longer than the minimum period necessary to avoid the accident, incident or obstacle.

Division 10 Pre-flight requirements before flight in a performance class

21.43 Pre-flight requirements before a rotorcraft is flown in a performance class

This Division sets out the pre-flight requirements that must be complied with before a rotorcraft is flown in a performance class.

21.44 Pre-flight determination of performance

(1) Before a rotorcraft begins a take-off or landing at an aerodrome, the pilot in command must be satisfied that the take-off or landing of the rotorcraft can be carried out safely, having regard to the factors mentioned in subsection (2) and

the calculations mentioned in subsection (4), relating to the take-off and landing performance of the rotorcraft at the aerodrome.

(2) For subsection (1), the factors are all of the following for the aerodrome:

(a) pressure altitude;

(b) temperature, according to an authorised meteorological report;

(c) wind speed and wind direction in accordance with subsection (3).

(3) For paragraph (2) (c), the details of the wind speed and wind direction must be from an authorised meteorological report provided by an entity mentioned in subparagraph (i), (ii) or (iii) of paragraph (a) of the definition of ***authorised meteorological report.***

(4) For subsection (1), using the details mentioned in subsection (3), the pilot in command must

(a) if the headwind is more than 5 knots — calculate a headwind component of not more than 50% of the headwind; and

(b) if a tailwind component is permitted in the rotorcraft's flight manual for take-off or landing — calculate a tailwind component of at least 150% of the tailwind.

21.45 Pre-flight identification of relevant obstacles

(1) This section applies to a rotorcraft that is flown in an aerial work operation in performance class 1 or 2, or performance class 2 with exposure.

(2) However, this section does not apply to a rotorcraft that:

(a) is taking off from, or landing at, a certified aerodrome or registered aerodrome; and

(b) while taking off or landing at the aerodrome, is flying within the aerodrome's obstacle-protected-environment, as determined under the Manual of Standards made under regulation 139.005 CASR, and as in force from time to time.

(3) In determining whether an obstacle is ***relevant*** to the take-off stage of a flight, or the baulked landing component of the approach and landing or baulked landing, stage of a flight, either subsection (4) or (6) must be applied.

Note An obstacle is not relevant to the stage of the flight if the obstacle's position is outside the relevant area determined under subsection (3) or (5).

(4) An obstacle is ***relevant*** to the take-off stage of a flight, or the baulked landing component of the approach and landing, or baulked landing, stage of a flight, if:

(a) during the stage of the flight, the flight is of the kind mentioned in column 1 of an item in Table 21.45 (4) (a); and

(b) the shortest distance between the obstacle and a point on the ground or water below the intended flight path for the flight is not more than the distance calculated in accordance with column 2 of the item; and

(c) at a particular stage of the flight, the obstacle is not less limiting to the flight than another obstacle along the planned flight path at that stage of the flight.

(5) When considering whether an obstacle is ***relevant*** to the baulked landing component of the approach and landing, or baulked landing, stage of a flight, the divergence of the area, as determined under paragraph (4) (b), for the destination

aerodrome for the flight only applies after the end of the TODAR at the aerodrome.

Table 21.45 **(4) (a) — Relevant obstacles — distance requirements**

Item	Column 1 Kind of flight	Column 2 Distance
1	A VFR flight by day	The sum of: (a) either: (i) if the rotorcraft's flight manual defines the final approach and take-off area for the rotorcraft — 0.5 of the minimum width of the final approach and take-off area; or (ii) if subparagraph (i) does not apply — 0.75 x D, for the rotorcraft; and (b) the greater of the following: (i) 0.25 x D, for the rotorcraft; or (ii) 3 m; and (c) 0.10 x S, for the point
2	A VFR flight at night	The sum of: (a) either: (i) if the rotorcraft's flight manual defines the final approach and take-off area for the rotorcraft — 0.5 of the minimum width of the final approach and take-off area; or (ii) if subparagraph (i) does not apply — 0.75 x D, for the rotorcraft; and (b) the greater of the following: (i) 0.25 x D, for the rotorcraft; or (ii) 3 m; and (c) 0.15 x S, for the point
3	An IFR flight using precision instrument navigation guidance	The sum of: (a) the greater of the following: (i) 1.5 x D, for the rotorcraft; or (ii) 30 m; and (b) 0.10 x S, for the point
4	An IFR flight using non-precision instrument navigation guidance	The sum of: (a) the greater of the following: (i) 1.5 x D, for the rotorcraft; or (ii) 30 m; and (b) 0.15 x S, for the point

Item	Column 1 Kind of flight	Column 2 Distance
5	An IFR flight not mentioned in item 3 or 4	The sum of: (a) the greater of the following: (i) 1.5 x D, for the rotorcraft; or (ii) 30 m; and (b) 0.30 x S, for the rotorcraft
6	A flight in VMC up to the transition point for the flight	Either: (a) for a VFR flight by day — the distance calculated in accordance with item 1; or (b) for a VFR flight at night — the distance calculated in accordance with item 2
7	A flight in IMC after the transition point for the flight	Whichever of the following is applicable: (a) for an IFR flight using precision instrument navigation guidance — the distance calculated in accordance with item 3; (b) for an IFR flight using non-precision instrument navigation guidance — the distance calculated in accordance with item 4; (c) for an IFR flight not mentioned in paragraph (a) or (b) — the distance calculated in accordance with item 5
8	For a flight involving a backup take-off procedure, or with a lateral transition take-off procedure — the backup take-off procedure, or lateral transition take-off procedure, part of the flight	The sum of: (a) either: (i) if the rotorcraft's flight manual defines the final approach and take-off area for the rotorcraft — 0.5 of the minimum width of the final approach and take-off area; or (ii) if subparagraph (i) does not apply — 0.75 x D, for the rotorcraft; and (b) the greater of the following: (i) 0.25 x D, for the rotorcraft; or (ii) 3 m; and (c) either: (i) for a VFR flight by day — 0.10 of the distance travelled from the back of the final approach and take-off area to the take-off decision point for the flight; or (ii) for a VFR flight at night or the visual departure phase of an IFR flight — 0.15 of the distance travelled from the back of the final approach and take-off area to the take-off decision point for the flight

(6) An obstacle is ***relevant*** to the take-off stage of a flight, or the baulked landing component of the approach and landing, or baulked landing, stage of a flight, if the shortest distance between the obstacle and a point on the ground or water below the intended flight path for the flight, as determined by the pilot in command of the rotorcraft, is not more than:

(a) for a flight by day in which navigational accuracy can be achieved by reference to visual cues during the climb or landing of the rotorcraft — 7 x R, for the rotorcraft; or

(b) for a flight at night in which navigational accuracy can be achieved by reference to visual cues during the climb or landing of the rotorcraft — 10 x R, for the rotorcraft; or

(c) for a flight in which navigational accuracy can be achieved by using a navigation system — 300 m; or

(d) for any other flight — 900 m.

(7) For a flight of a rotorcraft in performance class 2, or performance class 2 with exposure, the pre-flight identification of relevant obstacles may be carried out by a pilot survey using an operator's risk-based obstacle survey process.

(8) The process mentioned in subsection (7) must include the risk control measures for operations beyond the defined point after take-off for the rotorcraft that ensure the following:

(a) for an IFR flight — that no entry into IMC is planned below LSALT, unless flying in IMC can be carried out safely, using the operator's risk-assessed procedures for obstacle avoidance stated in the operator's operations manual, until the rotorcraft reaches the minimum flight altitude for a point on the route for the flight;

(b) unless the flight is conducted using an NVIS — that the flight can only be flown at night if the survey for the location was, or has been previously, completed by day;

(c) that maps or visual observations are used to identify the climb track that provides the shallowest obstacle-free gradient from the final approach and take-off area, for the relevant aerodrome, and from the defined point after take-off for the rotorcraft;

(d) that maps or visual observations are used to identify the critical obstacle for the climb;

(e) if a turn is needed to align with the best 1-engine-inoperative departure track — that a turn is permitted once at 200 ft above obstacles by day in VMC or at night using an NVIS, or 500 ft above obstacles at night, provided the pilot in command of the rotorcraft is satisfied the rotorcraft can clear further terrain as necessary to reach LSALT.

CHAPTER 22 WEIGHT AND BALANCE

22.01 Procedures for loading aircraft — document carriage

(1) For paragraph 138.455 (b), this section prescribes the procedures that an aerial work certificate holder's operations manual must include in relation to the availability and carriage of weight and balance documents for a relevant aircraft.

(2) The operations manual must contain procedures which ensure that, before the flight of a relevant aircraft, the operator has made available, and the aircraft is carrying, completed weight and balance documents.

Note The expression, "weight and balance documents" is defined in the CASR Dictionary.

(3) In this section:

relevant aircraft means an aircraft with a MTOW exceeding 5 700 kg, but not an aircraft which, for design reasons, is demonstrably impossible to load in a manner that ensures that its centre of gravity would fall outside the approved range for dispensing operations after all limitations on compartment loads are met.

22.02 Weight and balance documents

(1) For subregulation 138.460 (1), this section prescribes:

(a) the weight and balance documents that are required for a relevant aircraft involved in aerial work operations; and

(b) requirements in relation to those documents.

(2) For paragraph (1) (a), a load sheet, or other weight and balance document is required.

(3) For paragraph (1) (b), the load sheet or other weight and balance document must be:

(a) as described in the operator's operations manual; and

(b) suitable to perform the function of a load sheet for the operations.

(4) In this section:

load sheet means a form for recording:

(a) the weight and disposition of the disposable load on the relevant aircraft; and

(b) other loading information relevant for the operation.

relevant aircraft means an aircraft with a MTOW exceeding 5 700 kg, but not an aircraft which, for design reasons, is demonstrably impossible to load in a manner that ensures that its centre of gravity would fall outside the approved range for dispensing operations after all limitations on compartment loads are met.

CHAPTER 23 INSTRUMENTS, INDICATORS, EQUIPMENT AND SYSTEMS

Division 23.1 General

23.01 Purpose

(1) This Chapter contains prescriptions for the purposes of subregulation 138.465 (1).

(2) This Chapter applies, according to its terms, to the operations of the following operators:

(a) an aerial work certificate holder; and

(b) a limited aerial work operator.

23.02 Instruments, indicators, equipment and systems

(1) Subject to any additional requirements of this Chapter, for subregulation 138.465 (1), for an aerial work operation:

(a) the instruments, indicators, items of equipment or systems that must be fitted to, or carried on, an aircraft for a flight involving an aerial work operation in the circumstances prescribed by subsection (2); and

(b) the instruments, indicators, items of equipment or systems that must not be fitted to, or carried on, an aircraft for a flight involving an aerial work operation in circumstances prescribed by subsection (2); and

(c) the requirements in relation to an instrument, indicator, item of equipment or system that is fitted to, or carried on, an aircraft for a flight involving an aerial work operation in circumstances prescribed by subsection (2) (whether or not the instrument, indicator, item of equipment or system is required by the Regulations to be fitted to, or carried on, the aircraft):

are those mentioned in Chapter 30 of the Part 91 MOS that are applicable to:

(d) the category of aircraft (aeroplane or rotorcraft) in which the aerial work operation is conducted; and

(e) the flight rules category of operation (VFR flight by day, VFR flight by night or IFR flight) which the aerial work operation involves.

(2) For subsection (1), the circumstances mentioned in paragraphs (a), (b) and (c) are a flight involving an aerial work operation in the category of aircraft, and in the category of operation, that the aerial work operation involves.

CHAPTER 23 INSTRUMENTS, INDICATORS, EQUIPMENT AND SYSTEMS

Division 23.2 Flight with inoperative instruments, indicators, equipment or systems

23.03 Prescribed circumstances for flight with inoperative instruments, indicators or systems

(1) Subject to subsection (2), for regulation 138.470, an aircraft may begin a flight with an instrument, indicator, item of equipment or system inoperative, despite a requirement under this Chapter that the instrument, indicator, item of equipment or system be fitted to, or carried on, the aircraft for the flight.

(2) Subsection (1) only applies if the aircraft is operated:

(a) in accordance with the MEL for the aircraft, for the flight, in accordance with regulation 91.935 of CASR; or

(b) if the instrument, indicator, item of equipment or system is inoperative because of a defect that has been approved as a permissible unserviceability for the aircraft, for the flight, in accordance with regulation 21.007 of CASR — in accordance with the permissible unserviceability.

CHAPTER 23 INSTRUMENTS, INDICATORS, EQUIPMENT AND SYSTEMS

Division 23.3 Marine pilot transfer

23.04 Marine pilot transfers — usage monitoring system for single-engine rotorcraft

(1) For subregulation 138.465 (1), this section sets out the requirements for a usage monitoring system for the flight of a single-engine rotorcraft involving an aerial work operation that is the transfer of a marine pilot:

(2) With effect from the beginning of 1 December 2023, the rotorcraft must be fitted with a usage monitoring system which:

(a) is continuously operating when the rotorcraft is operational; and

(b) records and stores data related to the rotorcraft's time-in-service, engines, transmission and rotor systems.

Note It is recommended that rotorcraft be fitted with a usage monitoring system sooner where this is feasible.

(3) For subsection (2), the usage monitoring system must reliably, accurately and comprehensively record data which when downloaded will show the following:

(a) time-in-service;

(b) operational parameters for the critical engine, and the transmission and rotor systems;

(c) all exceedances of the operational parameters mentioned in paragraph (b).

(4) The usage monitoring system must have a capability to retain all of the recorded data mentioned in subsection (3), whether for a single flight or a series of flights, until the data can be downloaded and safely stored by the operator for use, as necessary, in managing the aircraft's continuing airworthiness requirements.

Division 23.4 Aircraft lighting system requirements

23.05 Searchlight for aerial work operations at night

(1) For subregulation 138.465 (1), the requirements for a searchlight for a flight of a rotorcraft involving an aerial work operation that is an SAR operation at night are as set out in this section.

(2) For a winch and rappelling operation at night, the rotorcraft must be equipped with the following:

(a) at least 1 searchlight (the ***main searchlight***) that may be operated, and trained in azimuth and elevation, by the pilot in command while his or her hands remain on the flying controls;

(b) at least 1 additional searchlight that may be safely operated, and would provide adequate hover reference, if the main searchlight becomes unserviceable;

(c) an intercommunication system, approved by CASA, that permits continuous communication between all crew members.

(3) At least one of the searchlights mentioned in subsection (2) must be a visible-spectrum light.

(4) If infrared technology is fitted as one of the searchlights mentioned in subsection (2) — the rotorcraft landing light must be positioned to provide hover cues in the event that the visible-spectrum searchlight becomes unserviceable.

CHAPTER 23 INSTRUMENTS, INDICATORS, EQUIPMENT AND SYSTEMS

Division 23.5 Survival equipment

23.06 Carriage of survival equipment etc.

(1) Before an aircraft begins an aerial work operation, the aerial work operator must ensure that the aircraft complies with subsection (2).

(2) The aircraft must carry such serviceable survival and signalling equipment as is reasonably appropriate for the person onboard the aircraft, in the event of a forced landing, to survive the ground conditions of any area over which the operation will be conducted.

(3) Subsection (1) does not apply if:

(a) throughout the operation, the pilot in command is able to maintain continuous radio contact with:

(i) ATS; or

(ii) the aircraft operator, or the operator's representative; or

(b) the aircraft's position is continuously monitored on the ground through an automatic continuous tracking system fitted to the aircraft.

CHAPTER 24 FLIGHT CREW UNDER A TRAINING AND CHECKING ORGANISATION

24.01 Application of Chapter

For subregulation 138.475 (3), this Chapter sets out the training and checking requirements for an FCM of an aerial work certificate holder to whom subregulation 138.125 (1) applies.

Note Under subregulation 138.125 (1), certain aerial work certificate holders must have a formal training and checking organisation for the FCM.

24.02 Training and proficiency checks for the flight crew of an aerial work operation

(1) For subregulation 138.475 (3), the requirements for FCM training and proficiency checks for FCM's competence in carrying out normal, abnormal and emergency procedures in an aircraft for a flight involving an aerial work operation, must be as set out in the operator's operations manual.

(2) Before commencing duty in aerial work operations, an FCM must complete training (as determined by the operator in accordance with regulations 138.520 and 138.525, as applicable) and an initial proficiency check to demonstrate competence in:

(a) carrying out the aerial work certificate holder's standard operating procedures; and

(b) carrying out the duties associated with the aerial work operation to which the FCM is assigned; and

(c) operating the relevant aircraft to be used in the conduct of the assigned aerial work operation.

(3) An FCM must complete recurrent proficiency checks subsequent to the initial proficiency check, in accordance with section 24.03.

(4) For recurrent proficiency checks, an FCM must demonstrate continuing competency in the matters mentioned in subsection (2).

Note An FCM who fails to demonstrate competency, or continuing competency, in the matters mentioned in subsections 24.02 (1) and (2) must not be reassigned to duty in aerial work operations until he or she has completed the operator's remedial training program as set out in the operations manual, and demonstrated competency in a proficiency check.

24.03 Recurrent proficiency check requirements

(1) For subsection 24.02 (3):

(a) for an FCM who conducts VFR flights by day only, proficiency checks must be completed:

(i) between 5 and 7 months after first commencing unsupervised line operations for an aerial work certificate holder; and

(ii) at intervals of not more than 12 months after the previous proficiency check; and

(b) for any other FCM — at intervals of not more than 6 months after each previous operator proficiency check.

(2) A proficiency check conducted within 30 days before or after its due date is taken to meet the requirements of subsection (1) as if it had been conducted on the due date.

Note Thus the annual or 6-monthly due date does not alter.

24.04 General emergency competency

(1) For subregulation 138.475 (3), before commencing duty in aerial work operations in an aircraft, an FCM must complete general emergency training and a general emergency competency check for the aircraft, that includes the following:

(a) general emergency and survival procedures;

(b) aircraft evacuation procedures;

(c) procedures for dealing with emergency situations;

(d) aerial work passenger briefing and safety demonstrations (if aerial work passengers are to be carried);

(e) procedures for the location, removal, and use of the safety equipment on the aircraft;

(f) procedures for the use of life jackets and life rafts (if used by the operator in the operations).

Note Paragraphs 138.475(2) (d) and (e) also require certain mandatory training every 3 years in (as each case requires), the use of life rafts or the use of life jackets as part of a ditching or underwater escape training.

(2) An FCM must complete recurrent checks for general emergency competency subsequent to the initial check.

(3) The recurrent checks mentioned in subsection (2) must:

(a) be completed at intervals of not more than 12 months after the previous general emergency competency check; and

(b) demonstrate continuing competency in the relevant matters mentioned in subsection (1).

(4) A general emergency competency check conducted within 30 days before or after its due date is taken to meet the requirements of subsection (3) as if it had been conducted on the due date.

Note Thus the annual due date does not alter.

24.05 Qualifications and experience for pilot in command in an aerial work operation

(1) For paragraph 138.500 (1) (c), the following additional qualifications and experience are prescribed for a pilot to qualify as a pilot in command of an aircraft operation of an aerial work certificate holder.

(2) For an external load operation that involves a Class D external load in the form of a person suspended from a belly hook, the pilot in command must have at least the following:

(a) 1 000 hours total rotorcraft flight time;

(b) 50 hours on the particular rotorcraft type to be used in the operation;

(c) 100 hours in vertical reference operations;

(d) successfully completed an approved training program for proficiency in sling load operations requiring the carriage of persons (***relevant proficiency***);

(e) a certificate of relevant proficiency issued by an approved person.

(3) For subsection (2):

approved person means a training and check pilot in accordance with section 24.07.

24.06 Marine pilot transfer operations — qualifications and experience for pilot in command

(1) For paragraph 138.500 (1) (c), the following additional qualifications and experience are prescribed for a pilot to qualify as the pilot in command of a task specialist operation that is a marine pilot transfer.

(2) The pilot in command must have at least the training and experience elements mentioned in subsection (3) (the ***elements***):

(a) to the extent specified in the operator's operations manual; and

(b) additional to such elements as might be required for other purposes.

(3) For subsection (2), the elements are the following:

(a) the relevant supervised day and night training;

(b) the relevant minimum number of supervised day and night transfers;

(c) the relevant minimum number of supervised day and night shipboard landings and take-offs;

(d) the relevant recent aeronautical experience in marine pilot transfer operations.

24.07 Who is to conduct training and checking

(1) For paragraph 138.020 (b) and subparagraph 138.515 (2) (a) (ii), the training and checking undertaken by an FCM for an aerial work certificate holder's aerial work operation must be conducted by:

(a) an individual (the ***individual***) who meets the requirements set out in subsection (2); or

(b) a Part 142 operator with whom the operator has a contract for the provision of training and checking, provided the requirements in subsection (3) are complied with.

(2) For paragraph (1) (a), the individual must have:

(a) met the minimum experience and entry control requirements for a training pilot, a check pilot, or a training and check pilot (as the case may be, hereafter ***training and check pilot***), as set out in the operator's operations manual;

(b) completed the training program for a training and check pilot, as set out in the operator's operations manual;

(c) met the relevant recency requirements for the aerial work operation that is the subject of the training and checking, as set out in the operator's operations manual;

(d) met the proficiency requirements set out in this Chapter for the aerial work operation that is the subject of the training and checking;

(e) been nominated in writing by the operator to be a training and check pilot for the operator's training and checking system;

(f) for any training or checking of an FCM that is relied upon by the FCM for the issue or revalidation of a qualification under Part 61 of CASR:

(i) be the holder of the same qualification under Part 61 of CASR; and

(ii) met any additional requirements prescribed in Part 61 for the issue or revalidation.

(3) For paragraph (1) (b), the training and checking section of the aerial work certificate holder's operations manual must set out the following:

(a) the training and checking that the operator requires to be carried out for its training and checking system;

(b) details of the Part 142 operator who is to carry out the training and checking;

(c) details of the contract with the Part 142 operator for the provision of training and checking;

(d) the procedures that the operator is to follow to ensure that training and checking is carried out by the Part 142 operator in accordance with the training and checking system.

(4) For subsection (2) (e), the nomination must:

(a) be in:

(i) an operations manual entry; or

(ii) some other document that is provided to CASA; and

(b) state that the individual meets the requirements set out in paragraphs (2) (a), (b), (c) and (d), and (f) (if applicable).

(5) CASA may:

(a) assess the competency of an individual nominated by an operator for the role of training pilot, check pilot, or training and check pilot; and

(b) require the individual, as a result of the assessment, to do further training before commencing or continuing in the role.

CHAPTER 25 FLIGHT CREW NOT UNDER A TRAINING AND CHECKING ORGANISATION

25.01 Application of Chapter

Unless otherwise stated, for subregulation 138.475 (3), this Chapter sets out the training and checking (***training and competency assessing***) requirements for an FCM of an aerial work certificate holder to whom subregulation 138.125 (1) does not apply.

Note Under subregulation 138.125 (1), certain aerial work certificate holders must have a formal training and checking organisation for the FCM. This Chapter deals with aerial work certificate holders who are not required to have a formal training and checking organisation for the FCM. In this case they must conduct training and checking in the form of ***training and competency assessing*** in accordance with this Chapter.

25.02 Training and competency assessment for the flight crew of an aerial work operation

(1) The aerial work certificate holder's operations manual must set out the requirements for FCM training and an initial FCM competency assessment to assess the FCM's competence in carrying out normal, abnormal and emergency procedures in an aircraft for a flight involving an aerial work operation.

(2) Before commencing duty in aerial work operations for an aerial work certificate holder, an FCM must complete any training required by the operator, and an initial competency assessment to demonstrate competence in:

(a) carrying out the operator's standard operating procedures; and

(b) carrying out the duties associated with the aerial work operation to which the FCM is assigned; and

(c) operating the relevant aircraft to be used in the conduct of the assigned aerial work operation.

(3) Recurrent competency assessment must be conducted in accordance with section 25.03, and during such assessments an FCM must demonstrate continuing competency in the matters mentioned in subsection (2).

Note An FCM who fails to demonstrate competency, or continuing competency, in the matters mentioned in subsections 25.02 (1) and (2) must not be reassigned to duty in aerial work operations until he or she has completed the operator's remedial training program as set out in the operations manual, and demonstrated competency in a competency assessment.

(4) An FCM must not conduct an aerial work operation for an aerial work certificate holder unless the FCM has completed competency assessment in accordance with section 25.03.

25.03 Recurrent competency assessment requirements

(1) For subsection 25.02 (3), competency assessment must be completed at intervals of not more than every 12 months after the initial competency assessment.

(2) A competency assessment conducted within 30 days before or after its due date is taken to meet the requirements of subsection (1) as if it had been conducted on the due date.

(3) The aerial work certificate holder's operations manual must require that an FCM who does not comply with the requirements of subsection (1) (subject to subsection (2) must not conduct an aerial work operation until the FCM has completed an initial competency assessment.

25.04 General emergency competency

(1) Before commencing duty in aerial work operations for an aerial work certificate holder, an FCM must complete general emergency training and a general emergency competency check for the aircraft, that includes so much of the following as are relevant to the nature, size and complexity of the operations:

(a) general emergency and survival procedures;

(b) aircraft evacuation procedures;

(c) procedures for dealing with emergency situations;

(d) aerial work passenger briefing and safety demonstrations (if aerial work passengers are to be carried);

(e) procedures for the location, removal, and use of the safety equipment on the aircraft;

(f) procedures for the use of life jackets and life rafts (if used by the operator in the operations).

Note Paragraphs 138.475(2) (d) and (e) also require certain mandatory training every 3 years in (as each case requires), the use of life rafts or the use of life jackets as part of a ditching or underwater escape training.

(2) An FCM must complete recurrent checks for general emergency competency subsequent to the initial check.

(3) The recurrent checks mentioned in subsection (2) must:

(a) be completed at intervals of not more than 12 months after the previous general emergency competency check; and

(b) demonstrate continuing competency in the relevant matters mentioned in subsection (1).

(4) A general emergency competency check conducted within 30 days before or after its due date is taken to meet the requirements of subsection (3) as if it had been conducted on the due date.

Note Thus the annual due date does not alter.

25.05 Qualifications and experience for pilot in command in an aerial work operation

(1) This section applies, according to its terms, to the operations of an aerial work certificate holder.

(2) For paragraph 138.500 (1) (c), the qualifications and experience set out in this section are prescribed for a pilot to qualify as a pilot in command of an aircraft for an aerial work operation mentioned in subsection (3).

(3) For an external load operation that involves a Class D external load in the form of a person suspended from a belly hook, the pilot in command must have at least the following:

(a) 1 000 hours total rotorcraft flight time;

(b) 50 hours on the particular rotorcraft type to be used in the operation; and

(c) 100 hours in vertical reference operations;

(d) successfully completed an approved training program for proficiency in sling load operations requiring the carriage of persons.

(4) For subsection (3), and without affecting section 25.06:

approved person means:

(a) the operator's Head of Operations or another pilot, provided he or she has satisfactorily demonstrated to CASA his or her proficiency in imparting sling load operation training for picking up, carrying and releasing persons; or

(c) the holder of a helicopter flight instructor rating who has satisfactorily demonstrated to CASA his or her competency in imparting sling load operation training for picking up, carrying and releasing persons.

25.06 Who is to conduct training and competency assessment

(1) For paragraph 138.020 (b), the training and competency assessment undertaken by an FCM for an aerial work certificate holder's aerial work operation must be conducted by:

(a) the operator's head of operations provided that:

(i) he or she meets the requirements set out in the operations manual for the training and competency assessment required to perform the training and competency assessment role; and

(ii) the requirement in subsection (3) is complied with; or

(b) an individual who meets the requirement set out in subsection (2) (the ***individual***); or

Note This may include the Head of Operations.

(c) a Part 141 operator or a Part 142 operator nominated for the provision of training and competency assessment, provided the requirement in subsection (3) is complied with.

(2) For paragraph (1) (b), the requirement is that, for any training or competency assessment of an FCM that is to be relied upon by that FCM for the issue or revalidation of a qualification under Part 61 of CASR, the individual must:

(a) be the holder of the same qualification under Part 61; and

(b) meet any additional requirements prescribed in Part 61 for the issue or the revalidation.

(3) For paragraphs (1) (b) and (c), the requirement is that training and competency assessment section of the aerial work certificate holder's operations manual must set out the following:

(a) the training and competency assessment that the operator requires the Part 141 or Part 142 operator, or the head of operations, to carry out for the training and competency assessment of the FCM;

(b) the procedures that the aerial work certificate holder is to follow to ensure that training and competency assessment is carried out in accordance with the training and competency assessment required under the operations manual.

CHAPTER 26 AIR CREW

26.01 Application of Chapter

(1) This Chapter sets out the training and checking requirements for an air crew member of an aerial work certificate holder to whom subregulation 138.125 (1) applies.

Note Under subregulation 138.125 (1), certain aerial work certificate holders must have a formal training and checking organisation.

26.02 Requirements for proficiency checks

For subregulation 138.555 (1), there must be set out in the operator's operations manual such requirements for a proficiency check of an air crew member's competence in carrying out normal, abnormal and emergency procedures as are relevant to the nature, size and complexity of the operation and the aircraft.

Note Before commencing line operations with an aerial work certificate holder, an air crew member who is assigned by the operator to occupy a control seat of a rotorcraft equipped with fully or partially functioning dual controls must have completed a Certificate IV in Aviation (Aircrewman), or a CASA-approved equivalent, conducted by a registered training organisation (RTO): see CASA 132/16 and successor instruments.

26.03 Who is to conduct training and checking

(1) For paragraph 138.550 (2) (b), the training and checking undertaken by an air crew member for an aerial work certificate holder's aerial work operation must be conducted by an individual who meets the requirements set out in subsection (2).

(2) For subsection (1), the individual must have done the following:

(a) met the minimum experience and entry control requirements for a training air crew member, a check air crew member, or a training and check air crew member (***air crew trainer and/or checker, as the case may be***) as set out in the operator's operations manual;

(b) completed the training program for an air crew trainer and/or checker, as the case may be, as set out in the operator's operations manual;

(c) met the relevant recency requirements for the aerial work operation that is the subject of the training and checking, as specified in the operator's operations manual;

(d) met the relevant proficiency requirements for carrying out normal, abnormal and emergency procedures for the aerial work operation and the aircraft that are the subject of the training and checking, as specified in the operator's operations manual;

(e) been nominated in writing by the operator to be an air crew trainer and/or checker, as the case may be for the operator's training and checking system.

(3) For paragraph (2) (e), the nomination must:

(a) be in:

(i) an operations manual entry; or

(ii) some other document that is provided to CASA; and

(b) state that the individual meets the requirements set out in paragraphs (2) (a), (b), (c) and (d).

(4) CASA may from time to time:

(a) assess the competency of an individual nominated to, or performing the role of, air crew trainer and/or checker, as the case may be; and

(b) require the individual, as a result of the assessment, to do further training before commencing or continuing in the role.

CHAPTER 27 TASK SPECIALISTS

Division 1 Application

27.01 Application of Chapter

(1) This Chapter sets out:

(a) the training and checking requirements for task specialists; and

(b) certain operations manual requirements for aerial work certificate holders using task specialists.

Division 2 Aerial work certificate holders

27.02 Requirements for competency checks for task specialists

(1) This section applies to an aerial work certificate holder whether or not subregulation 138.125 (1) applies to the holder.

Note Under subregulation 138.125 (1), certain aerial work certificate holders must have a formal training and checking organisation.

(2) For paragraph 138.595 (1) (b), there must be set out in the operator's operations manual such requirements for a proficiency check of a task specialist's competence in carrying out normal, abnormal and emergency procedures as are relevant to the nature, size and complexity of the operation and the aircraft.

27.03 Conduct of training and checking under a training and checking organisation

(1) This section applies to an aerial work certificate holder to whom subregulation 138.125 (1) applies.

Note Under subregulation 138.125 (1), certain aerial work certificate holders must have a formal training and checking organisation.

(2) For paragraph 138.590 (2) (b), the training and checking undertaken by a task specialist for an aerial work operation must be conducted by an individual who meets the requirements set out in subsection (3).

(3) For subsection (2), the individual must have done the following:

(a) met the minimum experience and entry control requirements for a task specialist trainer, or a task specialist checker, or a task specialist trainer and checker (***task specialist trainer and/or checker, as the case may be***), as set out in the operator's operations manual;

(b) completed the training program for a task specialist trainer and/or checker, as the case may be, as set out in the operator's operations manual;

(c) met the relevant recency requirements for a task specialist trainer and/or checker, as the case may be, for the aerial work operation that is the subject of the training and checking, as specified in the operator's operations manual;

(d) met the relevant competency requirements for carrying out normal, abnormal and emergency procedures for the aerial work operation and the aircraft that are the subject of the training and checking, as specified in the operator's operations manual;

(e) been nominated in writing by the operator to be a task specialist for the operator's training and checking system.

(3) For paragraph (2) (e), the nomination must:

(a) be in:

(i) an operations manual entry; or

(ii) some other document that is provided to CASA; and

(b) state that the individual meets the requirements set out in paragraphs (2) (a), (b), (c) and (d).

(4) CASA may from time to time:

(a) assess the competency of an individual nominated to, or performing the role of, task specialist trainer and/or checker, as the case may be; and

(b) require the individual, as a result of the assessment, to do further training before commencing or continuing in the role.

27.04 Conduct of training and checking not under a training and checking organisation

(1) This section applies to an aerial work certificate holder to whom subregulation 138.125 (1) does not apply.

(2) For paragraph 138.590 (2) (b), the training and checking undertaken by a task specialist for an aerial work operation must be conducted by an individual who meets the requirements set out in subsection (3).

(3) For subsection (2), the individual must be a person who:

(a) meets the training, recency and proficiency standards set out in the operator's operations manual for the conduct of the relevant task specialist training; and

(b) is either:

(i) the operator's head of operations; or

(ii) has been assessed in writing by the operator's head of operations as competent to conduct the training.

Division 3 Certain operations manual requirements for aerial work certificate holders using a task specialist

27.05 Operations manual

The operations manual must contain procedures and requirements for the following

(a) the pre-fight briefing;

(a) communications between the pilot in command and the task specialist;

(b) communication failures;

(c) the normal, abnormal and emergency operation of the aircraft;

(d) any special equipment needed and any particular operational and safety considerations for the flight;

(e) identifying the area of operations and positioning the flight.

Division 4 Limited aerial work operators using a task specialist

27.06 Requirements for competency checks for task specialists

(1) This section applies to a limited aerial work operator.

(2) For paragraph 138.595 (1) (b), the operator must ensure that a task specialist is competent in carrying out normal, abnormal and emergency procedures in a relevant aircraft for a flight involving a relevant aerial work operation.

(3) For subsection (2), the training and checking for the task specialist may be in the form of a pre-flight briefing by the pilot in command of the aircraft for the operation, covering normal, abnormal and emergency procedures in the aircraft.
