Civil Aviation Rules

Notice of Proposed Rule Making
NPRM 16-34
1 December 2016

Part 136
Air Operator - Helicopters

Docket CAR/16/136/01
2016-2017 Rules Review

Background to the Civil Aviation Rules

The Civil Aviation Rules establish the minimum regulatory safety boundary for participants to gain entry into, operate within, and exit the Papua New Guinea civil aviation system. The Rules as structured in a manner similar to the Civil Aviation Rules of New Zealand and the Federal Aviation Regulations of the USA. Where practicable the Rules also align with the regulatory code of the Civil Aviation Safety Authority of Australia.

Rules are divided into Parts and each Part contains a series of individual rules which relate to a particular aviation activity. Advisory Circulars accompany many rule Parts and contain information about standards, practices and procedures that the Director has established to be an Acceptable Means of Compliance (AMC) with the associated rule. An Advisory Circular may also contain guidance material (GM) to facilitate compliance with the rule requirements.

The objective of the Civil Aviation Rules system is to strike a balance of responsibility between, on the one hand, the State and regulatory authority, the Civil Aviation Safety Authority of PNG (CASA PNG) and, on the other hand those who provide services and exercise privileges in the civil aviation system. This balance must enable the State and regulatory authority to set standards for, and monitor performance of aviation participants whilst providing the maximum flexibility for the participants to develop their own means of compliance within the safety boundary.

Section 45 of the Civil Aviation Act 2000 prescribes general requirements for participants in the civil aviation system and requires, amongst other things, participants to carry out their activities safely and in accordance with the relevant prescribed safety standards and practices.

Section 69 of the Act allows the Minister to make ordinary rules for any of the following purposes:

- The implementation of Papua New Guinea’s obligations under the Convention
- To provide for safe, sustainable, effective and efficient aviation services
- To provision of aviation metrological services, search and rescue services and civil aviation security programs and services
- Assisting aviation safety and security, including but not limited to personal security
- Assisting economic development
- Ensuring environmental sustainability

1. Purpose of this NPRM

The purpose of this Notice of Proposed Rulemaking (NPRM) is to put forward for consideration the proposed amendments to Part 136 of the Civil Aviation Rules (CAR).

2. Background to the Proposal

Part 136 was first amended on 1 April 2015. A few minor editorial changes to FDR requirements to remove the date "01 January 2016" to avoid confusion with CAR Part 20 transition rule date of 01 April 2017.

Editorial amendments for the Airworthiness requirements included changes to Appendix A 2 to provide more clarity for the FDR requirements and Appendix A, Figure 1 – provides clarity for the requirements for FDR. Figure 1 is added with more clarity with the identification of the parameter requirements.

3. Costs associated with this NPRM

There is no cost associated with this amendment.

4. Summary of changes

New Rule 136.159 inserted to include the requirements for Aerodrome Operating Minima - IFR flight.

Rule 136.515 delete the date 01 January 2016 for consistency with CAR Part 20 transition date of 01 April 2017.

Appendix A 2 includes more information for the FDR requirements and Appendix A ,Figure 1 is amended for clarity in the requirements for FDR.

5. Legislative Analysis

The Minister may make ordinary rules under sections 69, 70, 71 and 72 of the Civil Aviation Act 2000, for various purposes including implementing Papua New Guinea's obligations under the Convention on International Civil Aviation, assisting aviation safety and security, and any matter contemplated under the Act.

These proposed rules are made pursuant to:

(a) Section 69(1)(a) which provides for the Minister to make rules for the implementation of Papua New Guinea's obligations under the Convention;

(b) Section 72(a) which provides for the Minister to make rule for the designation, classification and certification of-

(1) Air services:

(2) Aerodrome operators:

(3) Aviation security providers:

(4) Aviation training organizations"

(5) Aircraft design, manufacture, maintenance and supply organizations:

(6) Air traffic services;

(7) Aviation meteorological services:

(8) Aeronautical communication services:

(9) Aeronautical procedures.

The proposed amendment of Part 47 complies with the requirements of the Civil Aviation Act and does not contravene the Constitution, the Aerodrome (Business Concession) Act, Civil Aviation (Air Craft Operator Liability) Act, Civil Aviation (Aircraft Charges) Act, Airport Departure Tax Act, the Explosive Act, Firearms Act, Customs Act, Plant and Disease Control Act and the Environmental Act.

The proposed Rule has been checked for language and compliance with the legal conventions of Papua New Guinea.

6. Submissions on the NPRM

6.1 Submissions are invited

Interested persons are invited to participate in the making of the proposed rule amendment by submitting written data, views, or comments. All submissions will be considered before final action on the proposed rule amendment is taken. If there is a need to make any significant change to the rule requirements in the proposal as a result of the submissions received, then interested persons may be invited to make further submissions.

6.2 Examination of submissions

All submissions will be available in the rules docket for examination by interested persons both before and after the closing date for submissions. A consultation summary will be published with final rule.

Submissions may be examined by application to the Docket Clerk at the Civil Aviation Safety Authority between 8:30 am and 3:30 pm, on weekdays, except statutory holidays.

6.3 Disclosure

Submitters should note that any information attached to submissions will become part of the docket file and will be available to the public for examination at the Civil Aviation Safety

Authority offices.

Submitters should state clearly if there is any information in their submission that is commercially sensitive or for some other reason the submitter does not want the information to be released to other interested parties.

6.4 How to make submission

Submissions may be sent by the following methods:

By Mail:
Docket Clerk (NPRM 16-34)
Civil Aviation Safety Authority
PO Box 1941
BOROKO
National Capital District

Delivered:
Docket Clerk (NPRM 16-34)
Civil Aviation Safety Authority
Morea-Tobo Road
Six Mile, Jacksons Airport
Port Moresby NCD

By Fax:
Docket Clerk (NPRM 16-34)
3251789 / 325 1919

By Email:
Docket Clerk (NPRM 16-34)
rules@casapng.gov.pg

6.5 Final date for submissions

Comments must be received before **4:00pm, Friday 31st of March 2017.**

6.6. Further information

For further information contact:

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Manager - Legal
CASA PNG
anambau@casapng.gov.pg

Ph: 325 7320 **Mob: 769 80173**

Subpart A — General

136.1 Purpose

This Part prescribes rules governing air operations using helicopters.

136.3 Definitions and Abbreviations

In this Part—

Operational ground support means any ground based activity directly associated with the preparation, refuelling, loading and dispatch and arrival of a helicopter.

136.5 Laws, regulations, and procedures

A holder of an air operator certificate must take reasonable care to ensure that all persons employed, engaged, or contracted by the holder of an air operator certificate to perform aviation activities, are familiar with the appropriate sections of the Act, Civil Aviation Rules, and procedures specified in the certificate holder's exposition.

Subpart B — Operating rules

136.51 Purpose

This Subpart prescribes operating rules governing air operations.

136.53 Helicopter airworthiness

A holder of an air operator certificate must ensure that each helicopter the air operator ~~it~~ uses on air operations has—

(1) a current standard category airworthiness certificate; or

(2) a current restricted category airworthiness certificate provided that the helicopter flight manual allows such an operation.

136.55 Common language

A holder of an air operator certificate must ensure that—

(1) all crew members can communicate in a common language with at least one flight crew member being able to communicate in the English language; and

(2) all operations personnel are able to understand the language in which the applicable parts of the certificate holder's exposition are written.

136.57 Authorisation and control of flight operations

A holder of an air operator certificate must establish procedures for the authorisation and control of air operations including initiation, continuation and termination of an air operation or series of air operations.

136.59 Flight preparation and flight planning

(a) The holder of an air operator certificate must ensure that for each air operation conducted under the authority of that certificate, appropriate information is available to the pilot-in- command to complete the preparation for the intended operation.

(b) The holder of an air operator certificate must ensure that prior to each air operation conducted under the authority of that certificate, a flight plan meeting the requirements of 91.307 or 91.407 as appropriate for the type of operation is prepared and if the flight plan is not prepared by the pilot-in-command, the pilot-in-command is informed of the contents of the flight plan before the intended operation.

(c) Where a person other than the pilot-in-command prepares a flight plan, the holder of the air operator certificate must ensure that the person—

(1) is trained and competent to perform the task; and

(2) is notified as soon as practicable of each change in equipment and operating procedure or facilities.

(d) For the purpose of paragraph (c)(2), notifiable changes include changes to the use of navigation aids, aerodromes, ATC procedures and regulations, local aerodrome traffic control rules, and known hazards to flight including potentially hazardous meteorological conditions and irregularities in ground and navigation facilities.

(e) Notwithstanding 91.307(a), the holder of the air operator certificate must ensure that prior to any air operation the flight plan required by paragraph (b) is submitted to an appropriate ATS.

(f) Notwithstanding 91.307(a) and 91.407(a), the flight plan required to be submitted to an ATS unit under paragraph (e) may be submitted by the holder of the air operator certificate, in which case the pilot-in-command must be informed of the contents of the flight plan and that the flight plan has been submitted to ATS., is not required to submit a flight plan where the certificate holder has submitted the flight plan and advised the pilot-in- command of its contents.

136.61 Emergency and survival equipment information

(a) A holder of an air operator certificate must have available, for immediate communication to rescue coordination centres, information on the emergency and survival equipment carried on board each of the air operator's helicopters.

(b) For flights in excess of 10 nm from shore the information required by paragraph (a) must, if applicable, include—

(1) the number, colour, and type of life rafts; and

(2) whether pyrotechnics are carried; and

(3) details of emergency medical supplies and water supplies; and

(4) the type and operating frequencies of any emergency portable radio equipment.

136.63 Fuel

(a) A holder of an air operator certificate must establish a fuel policy for the purpose of flight planning, and en-route re-planning, to ensure that each helicopter carries sufficient fuel for the planned flight meeting the applicable requirements of Part 91, including reserves to cover deviations from the planned flight.

(b) The fuel policy must ensure that the planning of fuel requirements is based upon—

(1) fuel consumption—

(i) procedures, tables, and graphs, that are contained in, or derived from, the manufacturer's manuals and that conform to the parameters contained in the helicopter's type certificate; or

(ii) procedures derived from actual fuel consumption data compiled by the certificate holder that is acceptable to the Director; and

(2) the operating conditions under which the planned flight is to be conducted, including—

(i) normal helicopter fuel consumption data; and

(ii) anticipated weights; and

(iii) expected meteorological conditions; and

(iv) ATS requirements and restrictions; and

(v) the geographic location of the destination aerodrome; and

(vi) the effect on fuel consumption of identified contingencies.

(c) The holder of an air operator certificate must ensure that the calculation of useable fuel required for a flight takes into account the following factors:

(1) taxi fuel;

(2) trip fuel;

(3) reserve fuel, consisting of—

(i) contingency fuel; and

(ii) alternate fuel, if an alternate aerodrome is required; and

(iii) final reserve fuel; and

(iv) additional fuel, if required by the type of operation:

(d) The person flight planning or en-route re-planning an air operation must comply with the fuel policy required by paragraph (a).

136.65 Cockpit check

The holder of an air operator certificate must ensure that flight crew members—

(1) have available for use a cockpit checklist covering the procedures, including emergency procedures; and

(2) use an appropriate practice for cockpit checks covering the procedures, including emergency procedures, for the operation of the helicopter in accordance—

(i) with the helicopter flight manual; or

(ii) procedures established by the certificate holder that are acceptable to the Director.

136.67 Passenger safety

(a) The holder of an air operator certificate must ensure that—

(1) any passenger who appears to be under the influence of alcohol or drugs or exhibits behavioural characteristics, to the extent where the safety of the helicopter or its occupants is likely to be endangered, is refused embarkation or, where appropriate, removed from the helicopter; and

(2) disabled passengers are appropriately cared for, including allocation of appropriate seating positions and handling assistance in the event of an emergency; and

(3) escorted passengers do not constitute a safety hazard to other passengers or to the helicopter, and that prior arrangement for their carriage have been made in accordance with procedures in the certificate holder's exposition.

(b) Notwithstanding paragraph (a)(1), where an operation is conducted for the purpose of search and rescue or is an air ambulance operation, passengers may be carried who are under the influence of alcohol or drugs or exhibit behavioural characteristics to the extent where the safety of the helicopter or its occupants is likely to be endangered, provided that reasonable action is taken by the operator to minimise the risk to the helicopter and its occupants from such passengers.

136.69 Manipulation of controls

(a) Except as provided in paragraph (b), a person must not manipulate the controls of ~~an~~ a helicopter performing an air operation.

(b) A holder of an air operator certificate must take reasonable care to ensure that a person does not manipulate the flight controls of an helicopter performing an air operation under the authority of the certificate, unless the person is—

(1) a flight crew member; or

(2) an authorised representative of the Director who—

(i) has the permission of the certificate holder and the pilot-in-command; and

(ii) is performing a required duty.

136.71 Flight recorder requirements

(a) Flight crew members must ensure that, when a cockpit-voice recorder is required by 136.513—

(1) it is operated continuously from the start of the checklist commenced before engine start until the completion of the final checklist at the termination of flight; and

(2) if the helicopter is equipped to record the uninterrupted audio signals received from a boom or a mask microphone, boom microphones are used below 10 000 feet altitude; and

(3) if an erasure feature is used in the cockpit-voice recorder, only information recorded more than 30 minutes earlier than the last record is erased or otherwise obliterated.

(b) Flight crew members must ensure that, when a flight data recorder is required by 136.515—

(1) the flight data recorder is operated continuously from the instant the helicopter begins the take-off until it has completed the landing; and

(2) all recorded data is kept until the helicopter has been operated for at least 10 hours after each operating cycle; and

(3) no more than 1 hour of recorded data is erased for the purpose of testing the flight recorder or the flight recorder system; and

(4) any erasure made in accordance with paragraph (b)(3) is—

(i) of the oldest recorded data accumulated at the time of testing; and

(ii) recorded in the appropriate maintenance documentation.

136.73 Refuelling and de-fuelling operations

(a) Despite the requirements of rule 91.15(3), a person operating an helicopter under the authority of an air operator certificate may refuel or defuel the helicopter with a Class 3.1C or a Class 3.1D flammable liquid (aviation turbine grade fuel) when a person is embarking, on board, or disembarking the helicopter, if the person operating the helicopter ensures that safety and helicopter evacuation precautions are taken in accordance with procedures specified in the certificate holder's exposition.

(b) A person operating an helicopter under the authority of an air operator certificate may refuel or defuel the helicopter with a Class 3.1C or a Class 3.1D flammable liquid (aviation turbine grade fuel) with one or more propulsion engines running, if—

(1) the person ensures that safety and helicopter evacuation precautions are taken in accordance with procedures specified in the certificate holder's exposition; and

(2) the pilot-in-command is responsible for every aspect of the fuelling operation.

136.75 Fuel spillage

A holder of an air operator certificate must ensure that while refuelling or d e -fuelling, where fuel is spilled onto an impermeable surface and is likely to endanger persons or property—

(1) refuelling or de-fuelling is stopped; and

(2) immediate action is taken to cover the fuel with sand, sawdust, dry earth, or an agent such as foam or dry chemical extinguisher powder, to reduce the fire hazard.

136.77 Use of heliports

A holder of an air operator certificate must ensure that any heliport to be used in the certificate holder's operations meets the requirements of 91.127.

136.81 Restriction or suspension of operations

A holder of an air operator certificate must, on becoming aware of any condition that is a hazard to safe operations, restrict or suspend operations as necessary until the hazard is removed.

136.83 Minimum height for VFR flights

(a) Notwithstanding 91.311(c), a pilot-in-command if necessary for the proper accomplishment of the operation, conduct approaches, departures, and manoeuvres below a height of 500 feet above the surface within the horizontal radius of 150 metres of any person, vessel, vehicle, or structure if the pilot-in-command—

(1) prepares a plan for the operation in conjunction with every person and organisation involved in the operation; and

(2) in addition to the requirements of 91.311(c), ensures that every passenger receives additional briefing or training in safety and emergency procedures appropriate to the characteristics of the operation; and

(3) briefs every person and organisations involved in the operation on the plan required by paragraph (b)(1).

(4) takes reasonable care to conduct the operation without creating a hazard to any person or property.

136.85 Flights over water

(a) A person performing an air operation must not operate over water more than 50 nm from shore unless the helicopter used for the operation is a multi-engine performance class 1 helicopter.

(b) Each person performing an air operation over water beyond 100 nm from shore must conduct the flight under IFR.

136.87 Reserved

136.89 Operations over congested areas

(a) Notwithstanding 91.311(a)(2), a pilot-in-command of a helicopter may perform an air operation over a congested area of a city, town, or settlement at a height less than 1000 feet above the highest obstacle and within a horizontal radius from the helicopter of less than 600 metres provided that—

(1) a plan for the operation is prepared containing—

(i) a chart depicting flight areas and altitudes; and

(ii) procedures to ensure that reasonable care is taken to conduct the operation without creating a hazard to any person or property; and

(iii) details of any coordination necessary with any air traffic control service; and

(iv) a copy of the prior written notification given to the appropriate territorial authority and the requirements of that territorial authority that must be complied with; and

(2) only persons performing an essential function associated with the purpose of the flight are carried; and

(3) all personnel and organisations involved in the operation are briefed on the plan required by paragraph (1); and

(4) the plan required by paragraph (1) is retained for a period of at least 12 months from the date of the operation.

(b) Each pilot-in-command performing an air operation in accordance with paragraph (a) must comply with the applicable plan required by paragraph (a)(1).

136.91 External load operations

A pilot-in-command must conduct external load operations in accordance with the requirements of Subpart H.

Subpart C — Operating Limitations and Meteorological Requirements

136.151 Purpose

This Subpart prescribes the rules governing VFR and IFR operations, and associated weather requirements.

136.153 Meteorological information

(a) The holder of an air operator certificate must ensure that, if available, a flight conducted under VFR is planned, flown, and controlled using meteorological information provided by the holder of an aviation meteorological service organisation issued under Part 174 or otherwise from a reliable and accurate source.

(b) The holder of an air operator certificate must ensure that flight conducted under IFR is planned, flown, and controlled using, if available, meteorological information provided for aviation purposes by the holder of an aviation meteorological service organisation certificate issued under Part 174.

(c) A pilot-in-command may, for each IFR flight that originates and terminates within Papua New Guinea, if available, use a basic weather report that is provided in accordance with 174.6 to perform an instrument approach procedure and landing.

136.155 Meteorological conditions – VFR flight

(a) The pilot–in-command must ensure a flight under VFR is not commenced unless, if available, current meteorological information indicates VFR minima prescribed in rule 91.301 can be complied with along the route, or that part of the route to be flown under VFR.

(b) A pilot-in-command must not conduct a flight under VFR in an helicopter above more than broken cloud unless—

(1) the helicopter is authorised for IFR flight and the required minimum flight crew for IFR operation, holding current instrument rating qualifications, is performing the operation; and

(2) the instruments and equipment, including radio navigation equipment, required for IFR flight are operative; and

(3) the helicopter carries radio navigation equipment enabling it to be navigated by IFR to an aerodrome where an instrument approach procedure may be carried out for landing; and

(4) if the pilot-in-command cannot determine that the meteorological conditions at the destination aerodrome are suitable for an approach and landing under VFR, the helicopter carries sufficient fuel and fuel reserves to proceed under IFR to an aerodrome where an instrument approach procedure may be carried out for landing.

136.157 [Reserved]

136.159 ~~[Reserved]~~ Aerodrome operating minima – IFR Flight

(a) A pilot-in-command of an aircraft must not continue an instrument approach to an aerodrome past the final approach fix or, if a final approach fix is not used, must not commence the final approach segment of the instrument approach procedure if, before passing the final approach fix or before commencing the final approach segment, current meteorological information indicates that the visibility at the aerodrome is less than the visibility published in the applicable AIP for the instrument approach procedure being used.

(b) For the purpose of paragraph (a), the final approach segment begins—

(1) at the final approach fix or facility specified in the instrument approach procedure; or

(2) if a final approach fix is not specified in the instrument approach procedure and the procedure includes a procedure turn, at the point where the procedure turn is completed and the aircraft is established on the final approach course within the distance specified in the instrument approach procedure.

136.161 IFR departure limitations

The pilot-in-command must not commence a flight under IFR when meteorological conditions at the aerodrome of departure are below the authorised minimum altitude prescribed under Part 95 for the instrument approach procedure likely to be used at the aerodrome of departure, unless there is an aerodrome meeting the requirements of 136.77 within a maximum of one hour flying time, in still air at one engine inoperative cruising speed, of the aerodrome of departure.

136.163 Reduced take-off minima

(a) A holder of an air operator certificate may operate ~~an~~ a helicopter at lower take-off minima than that prescribed in 91.413(a) provided they ensure that the operation is conducted in accordance with the reduced minima take-off procedure specified in their exposition.

(b) The reduced take-off minima procedure must ensure that, in addition to 91.413(b)—

(1) each flight crew member is qualified for reduced minima take-offs; and

(2) the runway visibility is established using RVR; and

(3) the method for observing and confirming that the required visibility exists for that take-off is acceptable to the Director.

136.165 IFR procedures

(a) The pilot-in-command must conduct flights under IFR on routes prescribed under Part 95 except when—

(1) it is necessary to avoid potentially hazardous conditions; or

(2) operating under radar control from an ATS; or

(3) operating under an off-route clearance obtained from an ATC unit; or

(4) otherwise specified in the exposition of the holder of the air operator certificate that authorises the operation.

(b) Unless a clearance has been obtained from the appropriate ATC unit, in controlled airspace, the pilot-in-command must comply with any IFR departure and approach procedures prescribed under Part 95 for the appropriate aerodrome.

(c) In uncontrolled airspace the pilot-in-command must comply with any IFR departure and approach procedures prescribed under Part 95 for the appropriate aerodrome.

Subpart D — Performance — General

136.201 Purpose

This Subpart prescribes general helicopter performance operating limitations.

136.203 Definitions and Abbreviations

Category A helicopter means a multi-engine helicopter designed with engine and system isolation features specified in FAR Parts 27 and 29 or equivalent flight manual performance information based on a critical engine failure concept that assures adequate designated surface area and adequate performance capability for continued safe flight in the event of an engine failure:

Category B helicopter means a single or multi-engine helicopter that does not fully meet all Category A helicopter standards. A category B helicopter has no guaranteed stay- up ability in the event of an engine failure and an unscheduled landing is assumed:

Defined point after take-off means the point, within the take-off and initial climb phase, before which the helicopter's ability to continue the flight safely, with one engine inoperative, is not assured and a forced landing may be required:

Defined point before landing means the point, within the approach and landing phase, after which the helicopter's ability to continue the flight safely, with one engine inoperative, is not assured and a forced landing may be required:

Distance DR is the horizontal distance that the helicopter has travelled from the end of the take- off distance available:

Elevated heliport means a heliport located on a raised structure on land that is 3m or more above the surrounding surface:

Final approach and take-off area means a defined area over which the final phase of the

approach manoeuvre to hover or landing is completed and from which the take-off manoeuvre is commenced. Where it is used by performance class 1 helicopters, the defined

area includes the rejected take-off area available:

Helideck means a heliport located on a floating or fixed off-shore structure:

Heliport means any defined area of land or water, and any defined area on a structure, intended to be used either wholly or partly for the landing, departure, and surface movement of helicopters:

Landing decision point means the point used in determining landing performance from which, an engine failure occurring at this point, the landing may be safely continued or a baulked landing initiated:

Landing distance available means the length of the final approach and take-off area plus additional area declared available and suitable for helicopters to complete a landing manoeuvre from a defined height:

Landing distance required means the horizontal distance required to land and come to a full stop from a point 35 feet above the landing surface:

Performance class 1 helicopter means a helicopter with performance such that, in case of critical engine failure, it is able to land on the rejected take-off area or safely continue the flight to an appropriate landing area, depending on when the failure occurs:

Performance class 2 helicopter means a helicopter with performance such that, in case of critical engine failure, it is able to safely continue the flight, except when the failure occurs prior to a defined point after take-off or after a defined point before landing, in which case a forced landing may be required:

Performance class 3 helicopter means a helicopter with performance such that, in case of engine failure at any point in the flight profile, a forced landing must be performed:

Rejected take-off distance required means the horizontal distance required from the start of the take-off to the point where a helicopter comes to a full stop following an engine failure and rejection of the take-off at the take-off decision point:

Safe forced landing means an unavoidable landing or ditching with a reasonable expectation of no injuries to persons in the helicopter or on the ground:

Take-off decision point means the point used in determining take-off performance from which, an engine failure occurring at this point, either a rejected take-off may be made or a take-off safely continued:

Take-off distance available means the final approach and take-off area plus the length of helicopter clearway, if provided, declared available and suitable for a helicopter to complete the taker-off:

Take-off distance required means the horizontal distance required from the start of the take-off to the point at which V_{toss}, a height of 35 feet above the take-off surface, and a positive climb gradient are achieved, following failure of the critical engine at take-off decision point, the remaining engines operating within approved operating limits:

Take-off flight path means that part of the flight from the start of the take-off to 1000 feet

above the heliport elevation, if the flight is planned to exceed this height, or to the end of the climb in other cases:

DR means distance DR;

FATO means the final approach and take-off area:

LDAH means landing distance available;

LDP means landing decision point;**LDRH**

means landing distance required;

RTODR means rejected take-off distance required;

TDP means take-off decision point;

TODAH means take-off distance available;

TODRH means take-off distance required: **OEI** means one engine inoperative;

R means main rotor radius;

Vtoss means take-off safety speed;

Vy means best rate of climb speed.

136.205 General

(a) The holder of an air operator certificate must ensure that any helicopter the certificate holder operates that has a seating configuration, excluding any required crew seat, of—

(1) 20 or more is operated in accordance with Subpart E (Performance class 1 helicopter); and

(2) 19 or less but more than 9 is operated in accordance with Subpart F (Performance class 1 or 2 helicopter); and

(3) 9 or less is operated in accordance with Subpart G (Performance class 1, 2 or 3 helicopter).

(b) Notwithstanding paragraph (a)(1), where it is not possible, due to terrain constraints, to provide sufficient rejected take-off distance or landing distance at a heliport for compliance with the take-off and landing requirements of Subpart E, a holder of an air operator certificate may operate a Category A helicopter for the purpose of take-off and landing in accordance with Subpart F.

136.207 Certification requirements

The holder of an air operator certificate must ensure that any helicopter it operates that is required to be operated in compliance with—

(1) performance class 1 or 2 helicopter requirements, is certificated as a

Category A helicopter; and

(2) performance class 3 helicopter requirements, is certificated as a Category A or B helicopter.

136.209 Weight limitations

The holder of an air operator certificate must ensure that, for a helicopter the certificate holder operates—

(1) the all up weight is not greater than the weight, allowing for expected reductions in weight due to—

(i) fuel used as the flight proceeds; and,

(ii) except for take-off and climb, any fuel jettisoning capability providing the remaining fuel meets the applicable fuel requirements prescribed under Part 91; and

(iii) any external load jettisoning capability—

that will ensure compliance with the requirements of Subparts E, F or G whichever is appropriate; and

(2) the performance data used to determine compliance with the appropriate Subpart is that—

(i) contained in the helicopter flight manual; or

(ii) some other source that is acceptable to the Director.

136.211 Significant factors

For the purpose of Subparts E, F and G, in calculating the prescribed helicopter performance account must be taken of—

(1) pressure altitude; and

(2) ambient temperature; and

(3) not more than 50% of the reported head-wind component or not less than 150% of the reported tail-wind component except that, if the wind is measured by reliable and accurate equipment, the head-wind component may be factored at 80%; and

(4) operating techniques.

136.213 Obstacles

For the purpose of Subparts E, F and G;

(1) an obstacle must be deemed to be within a flight path if the lateral distance from the obstacle to the intended flight path does not exceed—

(i) 30 m or 1.5 times the overall length of the helicopter, whichever is the greater, plus

(ii) 0.15 distance DR for flight under VFR; or

(iii) 0.30 distance DR for flight under IFR; and

(2) an obstacle need not to taken into account if the lateral distance from the obstacle to the intended flight path is more than—

(i) 7 times the rotor radius for daytime operations in VMC; or

(ii) 10 times the rotor radius for night operations in VMC; or

(iii) 300 m if navigational accuracy can be achieved by use of navigation aids; or

(v) 900 m in all other cases.

Subpart E — Performance Class 1 Helicopter

136.220 Purpose

This Subpart prescribes performance class 1 helicopter operating limitations.

136.223 Take-off limitations

(a) The holder of an air operator certificate must ensure that for a performance class 1 helicopter the certificate holder operates the take-off weight—

(1) at a surface level heliport is such that the—

(i) rejected take-off distance required does not exceed the rejected take-off distance available; and

(ii) take-off distance required does not exceed the take-off distance available; and

(2) at an elevated heliport or helideck is such that the helicopter is capable of, if a critical engine failure is recognised—

(i) prior to or at the take-off decision point, rejecting the take-off and landing on the FATO; and

(ii) at or after the take-off decision point, continuing the take-off during which the flight path may descend below the height of the heliport to achieve Vtoss, then clearing the elevated heliport or helideck and any obstacles on them by a distance of at least 15 feet, and then clearing any obstacles in the subsequent flight path by a vertical distance of at least 35 feet.

(b) Notwithstanding paragraph (a)(1)(i), a holder of an air operator certificate may ignore the rejected take-off distance required if the take-off weight is such that, assuming that the critical engine is inoperative at the take-off decision point, the helicopter is capable of continuing take-off clearing all obstacles between the end of the take-off distance available and the point when it becomes established in a climb at Vtoss by a vertical distance of at least 35 feet.

(c) The holder of an air operator certificate must ensure that for a performance class 1 helicopter the certificate holder operates that part of the take-off prior to or at the specified take- off decision point is conducted in sight of the surface such that a rejected take-off can be carried out.

136.225 Take-off flight path

(a) The holder of an air operator certificate must ensure that for a performance class 1 helicopter the certificate holder operates, assuming that the critical engine is inoperative, the take- off weight is such that the helicopter is capable of clearing all obstacles in the take-off flight path by a vertical distance of at least 35 feet for flight under VFR and at least 35feet plus 0.01 distance DR for flight under IFR.

(b) Where the intended flight path requires a change of direction of more than 15º—

(1) the obstacle clearance requirements under paragraph (a) shall be increased by at least 15 feet from the point at which a change in direction occurs; and

(2) a change in direction shall not be made at a height of less than 100 feet above the take-off surface.

136.227 En-route critical engine inoperative

The holder of an air operator certificate must ensure that for a performance class 1 helicopter the certificate holder operates, assuming that the critical engine is inoperative, the take-off weight is such that the helicopter is capable of—

(1) if the flight is under IFR, at least 1% climb gradient at the minimum altitudes prescribed under 91.417; and

(2) if the flight is under VFR, maintaining at least 1000 feet above the surface using, if applicable, drift down techniques to meet this requirement; and

(3) in both cases, landing at a heliport or helideck in compliance with 136.229.

136.229 Landing

(a) The holder of an air operator certificate must ensure that for a performance class 1 helicopter it operates, assuming that the critical engine is inoperative, the landing weight is such that—

(1) the landing distance required does not exceed the landing distance available; and

(2) in the case of a critical engine failure occurring at any point at or after the landing decision point, it is possible to land within the landing distance

available; and

(3) in the case of a critical engine failure occurring at any point before the landing decision point, it is possible to land and stop on the FATO or perform a baulked landing and clear all obstacles in the flight path by a vertical height of at least 35 feet for flight under VFR plus and additional 0.01 of distance DR for flight under IFR.

(b) In case of a baulked landing at an elevated heliport or a helideck, the helicopter flight path may descend below the height of the landing surface in order to achieve Vtoss if—

(1) the helicopter is then capable of clearing all obstacles on the elevated heliport or helideck by a distance of at least 15 feet; and

(2) all other obstacles in accordance with paragraph (a)(3).

Subpart F — Performance Class 2 Helicopter

136.251 Purpose

This Subpart prescribes performance class 2 helicopter operating limitations.

136.253 Take-off limitations

(a) The holder of an air operator certificate must ensure that for a performance class 2 helicopter it operates the take-off weight is such that a forced landing can be achieved in the event of an engine failure prior to reaching the defined point after take-off.

(b) In the case of a take-off from an elevated heliport or helideck and a failure of the critical engine occurring before Vy is attained, the helicopter may descend to achieve Vy if—

(1) the helicopter is then capable of clearing all obstacles on the elevated heliport or helideck by a vertical distance of at least 15 feet; and

(2) all other obstacles in accordance with 136.255.

136.255 Take-off flight path

(a) The holder of an air operator certificate must ensure that for a performance class 2 helicopter it operates, assuming that the critical engine becomes inoperative at the defined point after take-off, the take-off weight is such that the helicopter is capable of clearing all obstacles in the take-off flight path by a vertical distance of at least 35 feet for flight under VFR and at least 35 feet plus 0.01 distance DR for flight under IFR.

(b) Where the intended flight path requires a change of direction of more than 15º—

(1) the obstacle clearance requirements under paragraph (a) shall be increased by at least 15 feet from the point at which a change in direction occurs; and

(2) a change in direction shall not be made at a height of less than 100 feet above the take-off surface.

136.257 En-route critical engine inoperative

The holder of an air operator certificate must ensure that for a performance class 2 helicopter it operates, assuming that the critical engine is inoperative, the take-off weight is such that the helicopter is capable of—

(1) if the flight is under IFR, at least 1% climb gradient at the minimum altitudes prescribed under 91.417; and

(2) if the flight is under VFR, maintaining at least 500 feet above the surface using, if applicable, drift down techniques to meet this requirement; and

(3) in both cases, landing at a heliport or helideck in compliance with 136.259.

136.259 Landing

(a) The holder of an air operator certificate must ensure that for a performance class 2 helicopter it operates, the landing weight is such that—

(1) a safe forced landing can be achieved in the event of an engine failure after reaching the defined point before landing; and

(2) the helicopter is capable to perform a baulked landing, all engines operating, at any point of the flight path and clear all obstacles in the flight path by a vertical height of at least

(i) 35 feet for flight under VFR; and

(ii) 35 feet plus 0.01 of distance DR for flight under IFR.

(3) the helicopter is capable, in the event of an engine failure before the defined point before landing, either land and stop within the available landing area, or to overshoot and clear all obstructions by a vertical height of at least 35 feet.

(b) In case of a baulked landing at an elevated heliport or a helideck, the helicopter flight path may descend below the height of the landing surface in order to achieve Vy if—

(1) the helicopter is then capable of clearing all obstacles on the elevated heliport or helideck by a distance of at least 15 feet; and

(2) all other obstacles in accordance with paragraph 136.229(a)(3).

Subpart G — Performance Class 3 Helicopter

136.271 Purpose

This Subpart prescribes performance class 3 helicopter operating limitations.

136.273 Take-off flight path

The holder of an air operator certificate must ensure that, for a performance class 3 helicopter it operates, the take off weight is such that the helicopter is capable of—

(1) hovering within ground effect with all engines operating taking account of the pressure altitude and ambient temperature of the heliport being used; and

(2) clearing all obstacles within the take-off flight path by a distance of not less than 15 feet.

136.275 En-route

The holder of an air operator certificate must ensure that, for a performance class 3 helicopter it operates, the take off weight is such that the helicopter is capable of flying en-route at or above the appropriate minimum altitudes prescribed under Part 91.

136.277 Landing

The holder of an air operator certificate must ensure that, for a performance class 3 helicopter it operates, the take off weight is such that, at the heliport or helideck of intended landing, the helicopter is capable of—

(1) hovering in ground effect with all engines operating taking account of the pressure altitude and ambient temperature of the heliport or helideck; and

(2) conducting a baulked landing clearing all obstacles within the flight path by a vertical distance of at least 15 feet.

Subpart H — External Load Operations

136.301 Purpose

This Part prescribes rules that are additions to, or exceptions from, the general operating and flight rules contained in Part 91, for persons performing a helicopter external load operation.

136.303 Definitions

Helicopter external load operation means—

(1) a helicopter sling load operation; or

(2) a helicopter winching operation; or

(3) a helicopter rappelling operation.

Helicopter sling load operation means the external carriage, lowering, or picking up, of a load or cargo, by a helicopter by means of a bucket, net, harness or sling suspended beneath the helicopter:

Helicopter winching operation means the external carriage, lowering, or picking up, of a load, cargo or persons by a helicopter by means of a winch or hoist fitted to the helicopter:

Helicopter rappelling operation means—

(1) the lowering of a load, cargo or persons from a helicopter by means of a static line attached to the helicopter; or

(2) a person coming down from, or going up to, a helicopter by means of a flexible ladder attached to the helicopter:

OGE means out of ground effect.

136.305 Pilot licence requirements

(a) A pilot-in-command performing a helicopter external load operation must hold a current commercial pilot licence (helicopter) issued under Part 61.

(b) Notwithstanding paragraph (a), the holder of a current private pilot licence (helicopter) may act as a pilot-in-command of a helicopter on a helicopter sling load operation if that pilot's licence authorises the holder to conduct helicopter sling load operations.

136.307 Minimum safe height

A pilot-in-command performing a helicopter external load operation must ensure that the flight is conducted at an altitude, and on a route, that will allow a jettisonable external load to be released and the helicopter to be landed, in an emergency, without hazard to persons or property on the surface.

136.309 Carriage of persons

(a) A pilot-in-command must not carry a person inside the helicopter during a n external load operation who is not performing a function essential to that helicopter external load operation.

(b) Notwithstanding paragraph (a), a pilot-in-command may carry a person inside the helicopter on a sling load operation, who is not performing a function essential to the operation, if—

(1) the person to be carried inside the helicopter is necessary to accomplish the on-site work activity directly associated with the sling load; and

(2) the person is on board the helicopter when the sling load to which the person is associated with is being carried; and

(3) the helicopter is operated with not less than a 10% power margin from maximum power available at the point of departure and landing.

136.311 Third party risk

(a) A pilot-in-command must not carry a load suspended beneath a helicopter—

(1) in such a manner that causes danger to any person or to any person's property unless the consent of that person has been obtained; or

(2) over an open air assembly of people.

(b) Except as provided in paragraph (c), a pilot-in-command of a helicopter engaged in

an external load operation that is hovering must ensure that no person is in the area in which the helicopter is hovering unless the person's presence is essential to the operation and they have been briefed, as appropriate, on—

(1) normal external load procedures; and

(2) the procedures to be followed by all personnel in the event of an emergency; and

(3) the nature of the load and any special handling requirements; and

(4) the lifting capability of the helicopter; and

(5) hand or radio signals appropriate to the operation.

(c) Compliance with paragraph (b) is not required in the case where assistance is being delivered to injured persons on the ground.

136.313 Weight limitations

A pilot-in-command of a helicopter performing a helicopter external load operation must ensure that the weight of the load to be carried does not exceed the weight limitations of the cargo hook or device required by 136.516(1).

136.315 VFR

A pilot-in-command of a helicopter performing a helicopter external load operation must ensure that the operation is performed under VFR.

136.317 Night operations

A pilot-in-command must not perform a helicopter external load operation at night when the flight attitude, height, and position of the helicopter cannot be maintained by reference to external objects adequately illuminated by the helicopter, ground, or celestial lighting.

136.319 Carriage of loads

A pilot-in-command performing a helicopter sling load operation must ensure that the external load is carried on a hook or device required by 136.516(1).

136.321 Dangerous goods

(a) A pilot-in-command may accept Class 1 dangerous goods for carriage as a helicopter sling load operation without complying with Part 92, if—

(1) approval is obtained from the Director; and

(2) safety and emergency procedures are established for the carriage of the goods; and

(3) the goods are—

(i) in a proper condition for carriage by air; and

(ii) stowed and secured for safe carriage; and

(4) the operation is performed clear of any congested area of a city, town, or settlement.

(b) A pilot-in-command may accept Class 2 to Class 9 dangerous goods for carriage as a helicopter sling load operation without complying with Part 92 if—

(1) the carriage of the dangerous goods are not forbidden by the Technical Instructions; and

(2) safety and emergency procedures have been established for the carriage of the goods; and

(3) each item of dangerous goods is identified; and

(4) the pilot-in command is informed of the hazardous nature of the goods; and

(5) the dangerous goods are—

(i) in a proper condition for carriage by air; and

(ii) segregated if they are likely to react dangerously together; and

(iii) stowed, secured, and, if necessary, packed, to prevent leakage or damage in flight.

136.323 Flight characteristics

A pilot-in-command of a helicopter performing a helicopter external load operation must —

(1) ensure that the load is adequately rigged and settled before the helicopter leaves the loading zone; and

(2) fly in conditions and in such a manner as to maintain adequate control of the helicopter and the load.

136.325 Operations over congested areas

A pilot-in-command of a helicopter performing a helicopter external load operation over or adjacent to a congested area of a city, town, or settlement must —

(1) prepare a plan of the operation, in conjunction with, and for the briefing of, all personnel and organisations involved in the operation, containing—

(i) a chart depicting flight routes and altitudes; and

(ii) a means of avoiding obstructions to flight; and

(iii) the emergency landing capabilities of the helicopter to be used; and

(iv) the measures taken to ensure no exposure to danger of persons or property on the ground at all times including when the load is

intentionally released during emergencies and when the load is inadvertently released; and

(v) any co-ordination necessary with any air traffic control service; and

(2) keep the plan, referred to in paragraph (1), for a period of at least 6 months from the date the operation is performed; and

(3) give prior written notification to the appropriate territorial authority; and

(4) comply with any requirements made by the territorial authority; and

(5) give prior public notice of the operation by an effective means.

136.327 Helicopter winching and rappelling operations

(a) Except as provided in paragraph (b), a pilot-in-command performing a helicopter winching or rappelling operation involving the suspension of a person beneath a helicopter must ensure that—

(1) the helicopter is certified as a Class A helicopter and is capable of hovering OGE with one engine inoperative predicated on—

(i) 50% of the forecast wind speed, or 80% of the actual measured wind speed, up to a maximum calculated percentage value of 20 knots; or

(ii) if a forecast or measured wind speed is not available, nil wind; and

(2) the distance the person is suspended beneath the helicopter is the minimum distance necessary to achieve the objective of the operation; and

(3) the helicopter is operated in a safe manoeuvring area that has—

(i) a diameter of at least 30 meters or twice the overall length of the helicopter, whichever is longer; and

(ii) no obstructions higher than 3 meters; and

(iii) at it's centre, a zone with a diameter of at least 5 meters free of any obstruction or other hazard.

(b) Paragraph (a) shall not apply to a pilot-in-command if the helicopter winching or rappelling operation is—

(1) an emergency operation for the protection of life or property; or

(2) a training operation involving emergency personnel, police or Defence Force personnel; and

(3) conducted in an area that is clear of an obstruction—

(i) that is likely to foul the equipment being used; and

(ii) that is likely to endanger any person being suspended from the helicopter.

(c) A pilot-in-command of a helicopter must ensure that, where a person is raised or lowered by winch beneath the helicopter—

(1) the person to be lowered is attached to the cable before being released from the seat harness; and

(2) the person who has been raised is secured by means of a safety strap or seat belt before being released from the cable; and

(3) the person has been briefed, by a crew member of the helicopter, on normal and emergency procedures appropriate to the operation.

(d) A pilot-in-command of a helicopter must ensure that, when a helicopter rappelling operation is performed, the person to be rappelled—

(1) has successfully completed a course of training appropriate to the rappelling operation being conducted; and

(2) has been adequately briefed by a crew member on normal and emergency procedures appropriate to the operation; and

(3) is attached to the static line before being released from the seat harness.

136.329 Supplementary crew member

(a) A pilot-in-command of a helicopter performing a helicopter external load operation must ensure that a supplementary crew member—

(1) is carried when the pilot-in-command is unable to—

(i) operate the winch; or

(ii) observe the load; or

(iii) release the load; or

(iv) observe clearances; or

(v) emplane and deplane persons; and

(2) has been fully briefed on the operation, and specific tasks to be carried out, prior to take-off; and

(3) is secured by a harness that can readily be released in the event of an emergency but that cannot be inadvertently released; and

(4) is provided with a system that enables two way communication with the pilot.

136.331 Ground supervision of sling load operations

(a) A holder of an air operator certificate must ensure that at every base where helicopter sling load operations are conducted, ground based operational activity is supervised and controlled by a loadmaster meeting the training requirements of rule 136.951

and the competency requirements of rule 136.955.

(b) A holder of an air operator certificate who conducts helicopter sling load operations must include in the exposition required by rule 119.75 procedures for the preparation, rigging and slinging of loads, management of safety, responses to emergencies, and inspection and maintenance of rigging and slinging equipment.

(c) A loadmaster supervising a helicopter sling load operation in accordance with paragraph (a) must ensure that every person involved with the preparation, rigging, slinging and dispatch of the load is familiar with the air operator's documented procedures for sling load operations and is competent to perform the duties assigned to the person.

Subpart I — Weight and Balance

136.401 Purpose

This Subpart prescribes the rules governing the control of loading and weight and balance on an helicopter.

136.403 Goods, passenger, and baggage weights

(a) Subject to paragraphs (b), (c), and (d), a holder of an air operator certificate must ensure that for every air operation conducted under the authority of the certificate the weights of the following items that are carried on the helicopter are established:

(1) the total weight of passengers;

(2) the total weight of crew members;

(3) the total weight of goods and baggage.

(b) The total weight of passengers, (excluding their carry-on baggage) must be established by using only 1 of the following:

(1) the actual weight of every passenger;

(2) a standard weight for every passenger that is established by the certificate holder and detailed in the certificate holder's exposition;

(3) the following applicable standard weight for every passenger:

(i) 15 kg for a child under 2 years of age;

(ii) 46 kg for a child of the age of 2 years and under the age of 13 years:

(iii) 86 kg for a person of or over the age of 13 years.

(c) The total weight of crew members (excluding their carry-on baggage) must be established by using only 1 of the following:

(1) the actual weight of every crew member:

(2) a standard weight for every crew member that is established by the certificate holder and detailed in the certificate holder's exposition:

(3) a standard weight of 86 kg for every crew member.

(d) The weight of goods and baggage must be established by using—

(1) the actual weight of the goods and baggage; or

(2) for operations from a remote aerodrome where it is not practicable to establish the actual weight of goods and baggage, the certificate holder must establish procedures to enable the pilot-in-command to assess the weight of goods and baggage.

(e) A certificate holder who intends to establish a standard weight to be detailed in the certificate holder's exposition for use under paragraphs (b)(2) or (c)(2) must establish the respective standard weight in accordance with a survey programme that is acceptable to the Director.

(f) A certificate holder who intends to use a standard weight for passengers under paragraphs (b)(2) or (b)(3), or for crew members under paragraphs (c)(2) or (c)(3) must establish procedures that are acceptable to the Director to ensure that, if the weight of a passenger or crew member with their carry-on baggage is clearly greater than the applicable standard weight being used, a weight that is more representative of the actual weight of the person and their carry-on baggage is used.

136.405 Helicopter load limitations

(a) A holder of an air operator certificate must ensure that—

(1) the limitations contained in the helicopter flight manual, or other approved document, relating to the weight and balance of an helicopter are complied with; and

(2) maximum allowable weights are not exceeded for zero fuel, manoeuvre, take-off, and landing; and

(3) the helicopter's centre of gravity is within the limits referred to in paragraph (a)(1) at departure, and will remain within those limits throughout the air operation.

(b) A pilot-in-command of an helicopter must, before taking-off on an air operation, assess the information required under rules 136.1007(b)(11) to (b)(15) to ensure that the helicopter will remain within the weight and balance limitations specified in the flight manual for the duration of the flight.

Subpart J — Instruments and Equipment

136.501 Purpose

This Subpart prescribes the instruments and equipment required for helicopter.

136.503 General

A holder of an air operator certificate must ensure that an air operation does not commence unless—

(1) the helicopter is equipped—

(i) with the type of instruments and equipment required by Part 91 and this Subpart; and

(ii) with the number of instruments and equipment to ensure that the failure of any independent system required for either communication or navigation purposes, or both, will not result in the inability to communicate and navigate safely as required for the route being flown; and

(2) the instruments and equipment installed in the helicopter comply with the specifications and airworthiness design standards listed in—

(i) Appendix A to this Part; or

(ii) Appendix B to Part 21; or

(iii) Part 26; or

(iv) alternative specifications or standards acceptable to the Director; and

(3) the instruments and equipment have been installed in accordance with the helicopter manufacturer's instructions or other instructions acceptable to the Director; and

(4) except as may be provided by a MEL approved under 91.539 for use for that helicopter, the instruments and equipment installed in the helicopter are in operable condition.

136.505 Night flight

A holder of an air operator certificate must ensure that every helicopter that is operated at night is equipped with—

(1) two landing lights or a single landing light unit with two independent filaments; and

(2) a light providing general illumination in each passenger compartment.

136.507 Instrument flight rules

(a) Except as provided in paragraph (b) a holder of an air operator certificate must ensure that every helicopter that is operated under IFR under the authority of the certificate is equipped with—

(1) the following that must be in addition to, and independent of, the instruments and equipment required under Subpart F of Part 91:

(i) a means of indicating airspeed, calibrated in knots, with a means of preventing malfunctioning due to either condensation or icing; or

(ii) a means of indicating sensitive pressure altitude, calibrated in feet; and

(2) spare bulbs for flight compartment instrument illumination if these bulbs can be changed in flight; and

(3) spare fuses if the helicopter is fitted with fuses that can be changed in flight.

(b) An additional means of indicating helicopter attitude, powered by a power source that is separate from the power source for the attitude indication required under Subpart F of Part 91, may be installed in lieu of the additional means of indicating airspeed required by paragraph (a)(1)(i).

136.509 Flights Over Water

A holder of an air operator certificate performing an air operation in a single engine helicopter must not operate over water more than 10 nm beyond autorotational distance from shore unless the helicopter is equipped with an operable flotation device.

136.511 Restraints

An operator must ensure that every helicopter is equipped with a safety belt and single diagonal shoulder strap or safety harness meeting the specifications in Part 91 Appendix A.4 paragraph (b) or (c) respectively for each passenger seat that can be occupied for takeoff and landing.

136.513 Cockpit-voice recorder

A holder of an air operator certificate must ensure that every turbine powered helicopter with a MCTOW of greater than 5700 kg is equipped with a cockpit voice recorder in accordance with A.1 of Appendix A

136.515 Flight data recorder

(a) A holder of an air operator certificate must ensure that every helicopter with a MCTOW of greater than 3180 kg is equipped with a flight data recorder in accordance with A.2 of Appendix A ~~by 1 January 2016~~.

(b) A holder of an air operator certificate must ensure that every helicopter with MCTOW greater than 7000 kg or having a certificated passenger seating of more than nineteen seat is equipped with a flight data recorder in accordance with A.2 of Appendix A.

136.517 External load equipment

An operator performing a helicopter external load operation must ensure that the helicopter is equipped with –

(1) a cargo hook, or similar device, approved by the helicopter's manufacturer for use on the helicopter, or approved and installed in accordance with a design change under Subpart C of Part 21; and

(2) external load equipment that –

(i) is appropriate and of a standard that prevents breakage to it or damage to the helicopter; and

(ii) when a person is carried using the equipment, can withstand a loading of 3.75 times the weight of the load.

136.519 Quick release devices

(a) An operator performing a helicopter external load operations shall ensure the helicopter has –

(1) an electrical quick release device; and

(2) a mechanical or independent electrical quick release device

(b) The operator shall ensure that the quick release devices required by paragraph (a) functions properly with all external loads up to and including the helicopter's maximum external load.

(c) The operator shall ensure that the quick release system –

(1) has a primary control –

(i) installed on one of the pilot's primary flight controls; and

(ii) designed and located so that it may be operated by the pilot without limiting the pilot's ability to control the helicopter during an emergency situation; and

(2) has a secondary control readily accessible to a crew member.

Subpart K — Airworthiness and Maintenance Control

136.601 Purpose

This Subpart prescribes rules for airworthiness and maintenance control of helicopter operated under this Part.

136.603 Responsibility for airworthiness

(a) A holder of an air operator certificate is responsible for the airworthiness of—

(1) every helicopter that is operated under the authority of the certificate; and

(2) any equipment installed or attached to the helicopter.

(b) A holder of an air operator certificate must ensure that—

(1) every helicopter that is operated under the authority of the certificate is maintained in accordance with the maintenance programme required under rule 119.63; and

(2) the maintenance is performed by—

(i) a maintenance organisation certificated in accordance with Part 145; or

(ii) for maintenance that is performed in another State that is party to a technical arrangement, a maintenance organisation that is certificated or appropriately authorised by the State to perform maintenance on the helicopter type in accordance with the conditions specified in the technical arrangement.

136.605 Condition monitored maintenance programmes

The holder of an air operator certificate who utilises condition monitoring as part of a maintenance programme for a helicopter must provide the Director, each month, with a maintenance reliability report that contains details of—

(1) helicopter utilisation; and

(2) pilot reports regarding helicopter airworthiness; and

(3) helicopter mechanical delay~~s~~ and flight cancellation~~s~~; and

(4) unscheduled engine shutdown; and

(5) unscheduled engine removal; and

(6) unscheduled component removal; and

(7) confirmed component failure; and

(8) incidents regarding helicopter airworthiness; and

(9) MEL usage.

136.607 External load equipment

(a) If the manufacturer of an item of external load equipment does not specify a mandatory replacement time, inspection intervals, and related procedures in a maintenance manual or instructions for continued airworthiness, the holder of an air operator certificate must ensure the maintenance programme required by rule 119.61 requires the item of load equipment to be—

(1) visually inspected for signs of distress, prior to ~~it's~~ its use on the first operation of each day; and

(2) proof loaded to 1.25 times its rated strength within the preceding 12 months or 500 hours time in service, whichever is the sooner.

(b) As an alternative to paragraph (a), an operator may maintain external load equipment in accordance with –

(1) the mandatory replacement times, inspection intervals and related procedures specified in the manufacturer's maintenance manual or instructions for continued airworthiness; or

(2) a maintenance programme approved under Part 91 or 119

136.609 Aircraft Airworthiness review

(a) A certificate holder of an air operator certificate must ensure that—

(1) a helicopter is not operated under the authority of the certificate unless an airworthiness review for the helicopter has been carried out within the previous 12 months; and

(2) each airworthiness review that is carried out is certified in accordance with paragraph (d).

(b) Except as provided in paragraph (c), the holder of an air operator certificate must ensure that an airworthiness review for a helicopter is not certified as having been carried out unless, since the last airworthiness review—

(1) due maintenance specified in the applicable maintenance programme for the helicopter has been completed within the time periods specified; and

(2) every modification or repair has been certified for conformance with approved technical data; and

(3) every applicable airworthiness directive has been complied with in accordance with the requirements prescribed in Part 39; and

(4) every defect entered in the maintenance records has been rectified or properly deferred in accordance with the procedures in the certificate holder's exposition; and

(5) every applicable certification for release-to-service has been made in accordance with Subpart C of Part 43.

(c) A certificate holder may certify an airworthiness review for an helicopter on the basis of continuing compliance with an internal quality assurance programme acceptable to the Director if—

(1) the programme samples every requirements of paragraph (b) during the review period; and

(2) the airworthiness review is individually certified for each of the certificate holder's helicopters.

(d) A certificate holder must ensure that the person who carries out an airworthiness

review for a helicopter—

(1) is authorised by the certificate holder and has experience, that is at least equivalent to the experience required for the grant of an appropriate helicopter maintenance engineer licence rating, for the type of helicopter; and

(2) carries out the review in accordance with the applicable paragraph (b) or (c); and

(3) certifies that the airworthiness review has been carried out by entering the following statement in the appropriate maintenance logbook with the person's signature, authorisation number, and the date of entry:

The airworthiness review for this helicopter and such of the helicopters equipment as is necessary for its continued airworthiness has been carried out in accordance with the requirements of Civil Aviation Rule 136.609.

Subpart L — Flight Crew Requirements

136.701 Purpose

This Subpart prescribes the rules governing the use of flight crew.

136.703 Assignment of flight crew duties

(a) A holder of an air operator certificate must ensure that every person assigned as a flight crew member, on an air operation conducted under the authority of the certificate,

(1) holds a current pilot licence and rating appropriate to the category of helicopter and to the tasks assigned; and

(2) holds a current class 1 medical certificate appropriate to the task assigned; and

(3) meets all the experience, training, and competency requirements for the task assigned; and

(4) meets all route and aerodrome qualification requirements for the intended operation.

(b) A holder of an air operator certificate must designate, for each period of an air operation conducted under the authority of the certificate—

(1) a pilot-in-command; and

(2) a second-in-command when two pilots or more pilots are assigned for the operation; and

(3) any other flight crew member that may be required for the type of operation to be performed.

136.705 Pilot-in-command consolidation of operating experience on t y p e

(a) A holder of an air operator certificate must ensure that before designating a pilot to

act as a pilot-in-command of an helicopter on an air operation conducted under the authority of the certificate, the pilot has completed the following consolidation of operating experience, on the make and basic model of helicopter:

(1) for a single engine helicopter, 5 hours flight time and 5 take-offs and landings:

(2) for a multi-engine helicopter, 10 hours flight time and 10 ~~8~~ take-offs and landings:

(3) for single pilot air operations under IFR or VFR at night, —

(i) 40 hours flight time on the helicopter type; or

(ii) for subsequent helicopter types of the same category, other than the initial helicopter type flown single pilot on air operations under IFR, or flown single pilot on air operations under VFR at night, the applicable flight time required by paragraphs (a)(1), or (a)(2).

(b) Subject to paragraphs (c) and (d), after the pilot has completed helicopter type rating training, initial training required under rule 136.807 or transition training required under rule 136.809, and the competency check required under rule 136.907, the consolidation of operating experience required by paragraph (a) must be acquired as follows:

(1) in flight during air operations performed; and

(2) for an helicopter not previously used to perform an air operation under the authority of the holder's air operator certificate, operating experience acquired in the helicopter type, during proving flights or ferry flights may be used to meet this requirement.

(3) while performing the duties of a pilot-in-command under the supervision of a designated pilot-in-command who must—

(i) be authorised in writing by the certificate holder to supervise a pilot undergoing consolidation of operating experience on the helicopter type; and

(ii) occupy a flight crew member seat while supervising; and

(4) for paragraph (a)(4)(i), the 40 hours flight time must include —

(i) for air operations under IFR, a minimum of 10 hours flight time on air operations conducted under IFR; or

(ii) for air operations under VFR at night, a minimum of 10 take-offs and landings at night; and

(5) the consolidation of operating experience required by paragraph (a) must be completed within 180 days from the successful completion of the competency check; and

(6) if the pilot fails to complete the applicable consolidation of operating experience on or before the 180th day as required in paragraph (5), the pilot

must complete a competency check before recommencing the required consolidation of operating experience.

(c) For the purpose of the pilot acquiring the operating experience required under paragraph (a)—

(1) the flight time and take-off and landing experience required in paragraphs (a)(1), (a)(2), and (a)(3) may be accrued in a flight simulator approved by the Director for the purpose; and

(2) if the time required by paragraph (a) is conducted in a single-pilot helicopter, the flight time must be entered as *pilot-in-command under supervision* in the pilot's logbook and certified by the designated pilot-in-command who supervised the pilot performing the consolidation of operating experience.

136.707 Experience requirements for IFR pilots

A holder of an air operator certificate must not designate a person as pilot-in-command of an helicopter performing an air operation under IFR under the authority of the certificate, unless the person—

(1) has at least 750 hours of flight time as a pilot, including 150 hours of cross-country flight time which must include at least 50 hours cross-country flight time conducted under an IFR flight plan; and

(2) 50 hours of actual or simulated instrument time of which 25 hours may be in a flight simulator approved for this purpose; and

(3) for night operations, 25 hours of night flight time.

136.709 Minimum flight crew

(a) A holder of an air operator certificate must not operate an helicopter on an air operation under IFR under the authority of the certificate with one pilot unless —

(1) the flight manual for the helicopter permits the helicopter to be operated by one pilot under IFR: and

(2) the helicopter is equipped with an operative autopilot or stabilisation system capable of operating the helicopter controls to maintain flight and manoeuvre the helicopter about the roll and pitch axes with an automatic heading and altitude hold; and

(3) the helicopter is fitted with a headset that includes a boom microphone and facility for control column transmit-receive switching at the pilot-in-command station; and

(4) the pilot-in-command has met the other applicable requirements of this Part.

(b) A holder of an air operator certificate must not operate an helicopter on an air operation with 2 pilots unless the functions of each pilot relating to the operation and

safety of the air operation are assigned in writing by the certificate holder, and the

helicopter is equipped with —

(1) two pilot stations that allow either pilot to have an unobstructed view of every primary flight and engine instrument and control display; and

(2) a crew-member intercom system; and

(3) either —

(i) fully functioning dual controls; or

(ii) pitch, roll, yaw, and engine power controls that can be operated at either pilot station.

Subpart M — Crew Member Training

136.801 Purpose

This Subpart prescribes rules governing the establishment and operation of a training programme for crew members and operational ground c r e w .

136.803 Training programme

(a) A holder of an air operator must—

(1) establish a training programme to ensure that each of the certificate holder's crew members are trained and competent to perform their assigned duties; and

(2) ensure that each crew member is trained in accordance with the training programme; and

(3) ensure that the training programme is conducted safely and without unacceptable risk to the equipment, personnel or third parties.

(b) A holder of an air operator certificate must ensure the training programme required under paragraph (a)(1) contains segments for—

(1) introduction training; and

(2) transition training; and

(3) recurrent training.

(c) A holder of an air operator certificate must ensure a syllabus acceptable to the Director is contained in the air operator's exposition for each segment required under paragraph (b).

(d) A holder of an air operator certificate must—

(1) ensure that the person responsible for the air operator's training programme

meets the requirements of 136.811; and

(2) maintain control of the training programme.

(e) A holder of an air operator certificate may—

(1) conduct the training programme; or

(2) contract with the holder of an aviation training organisation certificate issued under Part 141 to conduct the training programme where the Part 141 certificate authorises the holder to conduct that training; or

(3) for a training programme conducted outside Papua New Guinea, contract with an organisation that meets an equivalent standard specified by Part 141.

136.805 Initial training for crew members

(a) A holder of an air operator certificate must ensure that every crew members who has not qualified and served as a crew member on an helicopter operated under the authority of the certificate, completes initial training conducted—

(1) in a structured manner; and

(2) in accordance with a syllabus that includes training applicable to—

(i) the helicopter type to be used, including special equipment fitted for the intended operation; and

(ii) the routes and aerodromes appropriate to the intended operation; and

(iii) crew member assignments, functions, and responsibilities; and

(iv) location and operation of emergency equipment available for use by crew members; and

(v) if equipped, location and use of oxygen equipment; and

(vi) location and use of every normal and emergency exits, including any evacuation slide and escape rope; and

(vii) the certificate holder's policies and procedures appropriate to the certificate holder's air operations.

(b) A holder of an air operator certificate may vary the syllabus for an individual crew members if—

(1) the variation is recorded in the crew member's record of training; and

(2) the certificate holder certifies the variation made and the reasons for the variation in the crew member's record of training.

136.807 Transition training for crew members

(a) The certificate holder must ensure that each of the certificate holder's crew

members already qualified and serving as a crew member, completes appropriate transition training if—

(1) the crew member is changing from one helicopter type or variant to another type or variant; or

(2) new procedures or equipment are introduced on an existing helicopter type or variant.

(b) The transition training must address—

(1) the use of all safety and emergency equipment and procedures applicable to the helicopter type or variant; and

(2) new procedures or equipment introduced on the existing helicopter type or variant.

136.809 Flight crew training requirements

(a) A holder of an air operator certificate must ensure that each segment of the flight crew training programme required under rule 136.803 includes training applicable to the following:

(1) the helicopter type to be used, including special equipment fitted for the intended operation;

(2) the routes and aerodromes appropriate to the intended operation;

(3) crew member assignments, functions, and responsibilities, including crew resource management;

(4) location and operation of emergency equipment available for use by crew members;

(5) location and use of oxygen equipment;

(6) location and use of all normal and emergency exits;

(7) the certificate holder's policies and procedures appropriate to the certificate holder’s air operations.

(b) The training programme must include, where appropriate, both ground and flight instruction utilising helicopters or an approved flight simulator.

136.811 Flight instructor qualifications

The certificate holder must ensure that a person carrying out functions as an instructor in the certificate holder’s flight crew member training programme established under this Part—

(1) has satisfactorily completed the training required by this Subpart to serve as pilot-in- command in operations; and

(2) is—

(i) the holder an appropriate and current flight instructor rating; or

(ii) a person approved for that purpose; and

(3) completes initial and recurrent training requirements applicable to the instruction carried out.

136.813 Training records

A holder of an air operator certificate must maintain accurate records of all required training undertaken by the certificate holder's its crew members.

136.815 Manoeuvres not authorised while carrying passengers

(a) A holder of an air operator certificate must ensure an abnormal, unusual, or emergency training manoeuvre is not performed during an air operation conducted under the authority of the certificate while carrying passengers.

(b) An abnormal, unusual or emergency manoeuvre referred to in paragraph (a) includes, but is not limited to the following:

(1) simulated engine failure where engine power is reduced or stopped to simulate loss of engine power;

(2) any simulated helicopter system failure that activates a visual or oral warning system that can be seen or overheard by passengers;

(3) any other simulated system failure that can compromise the safe operation of the flight.

136.817 Training flights

A pilot-in-command of a helicopter performing an external load operation training flight must ensure that the flight is not performed over, or immediately adjacent to, a city, town, or settlement.

Subpart N — Crew Member Competency Requirements

136.901 Purpose

This Subpart prescribes the rules governing the operational competency assessment of flight crew members and crew members.

136.903 General

(a) Each holder of an air operator certificate must establish and control an operational competency assessment programme in accordance with this Subpart.

(1) contract with an organisation that holds a certificate issued under Part 141, to provide the operational competency assessment and recurrent training programme where the certificate authorises the holder to conduct that programme; or

(2) use an external competency assessment and currency training programme acceptable to the Director that is carried out by an appropriately qualified holder of a flight examiner authorisation; or

(3) for an operational competency assessment and recurrent training programme conducted outside Papua New Guinea, contract with an organisation that meets an equivalent standard specified by Part 141 to provide the operational competency assessment and recurrent training programme.

136.905 Authorised flight examiner qualifications

(a) Except as provided in paragraph (b), the certificate holder must ensure that each person performing the functions of an authorised flight examiner in its operational competency assessment programme established under this Part—

(1) is type rated in the helicopter used to conduct the operation; and

(2) is familiar with the types of operations conducted by the certificate holder; and

(3) is—

(i) the holder of an appropriate and current flight examiner authorisation; or

(ii) a person approved for that purpose; and

(4) completes initial and recurrent training requirements applicable to the testing carried out.

(b) Where the operational competency assessment referred to in paragraph (a) is carried out in a flight simulator, the person who is performing the functions of an authorised flight examiner must—

(1) have satisfactorily completed a competency check as pilot-in-command in a type of operation to which this Part applies; and

(2) be—

(i) the holder an appropriate and current flight examiner authorisation; or

(ii) a person approved for that purpose; and

(3) complete initial and recurrent training requirements applicable to the testing carried out.

136.907 Flight crew competency checks

(a) A holder of an air operator certificate must ensure that—

(1) **each pilot acting as pilot-in-command has**, within the immediately preceding 12 months, passed a check of route and aerodrome proficiency that is administered by a flight examiner and that—

(i) consists of at least one flight over one route segment and one or more landings at aerodromes representative of the operations to be flown; and

(ii) establishes that the pilot can satisfactorily perform the duties and responsibilities of a pilot-in-command in air operations appropriate to this Part; and

(2) **each pilot conducting VFR operations has**, within the immediately preceding 12 months, successfully completed a competency check, that is administered by a flight examiner and that covers procedures, including emergency procedures, of the pilot's flying skill in an helicopter type normally used by the pilot in the operation; and

(3) **each pilot acting as a flight crew member of an helicopter operating under IFR has**, within the immediately preceding 6 months, passed a check that is administered by a flight examiner and that—

(i) covers procedures, including emergency procedures, appropriate to the equipment fitted to the helicopter and to the type of air operations to which the pilot is assigned by the certificate holder; and

(ii) is conducted on rotation each 6-month period in each helicopter type used by the pilot in the operation; and

(4) **each pilot has**, within the immediately preceding 12 months, successfully completed a written or oral test of the pilot's knowledge of the following:

(i) the relevant Civil Aviation Rules and the certificate holder's operations specifications and exposition;

(ii) the helicopter systems, performance, and operating procedures, and the content of the flight manual for each helicopter type normally flown by the pilot;

(iii) navigation, ATS, and meteorology:

(iv) special flight operations as appropriate to the type of operation normally conducted by the pilot;

(v) new equipment, procedures, and techniques;

(vi) location and operation of the emergency equipment fitted to a helicopter of the type normally flown by the pilot.

(5) the flight examiner who administered the check or test required under paragraphs (1), (2), (3) and (4),

(i) certifies in the training record for the pilot that the check or test has been completed and certifies the result of the check or test; and

(ii) if the check or test was completed satisfactorily, certifies in the pilot logbook in accordance with rule 61.29(a)(3) satisfactory completion of the check or test; and

(6) flight crew competency checks are carried out in a helicopter or flight simulator approved for the purpose.

(b) A holder of an air operator certificate must, prior to conducting an external load operation, ensure that in respect of each pilot involved in the operation—

(1) the VFR competency check required by paragraph (a)(2) included normal and emergency procedures covering all possible situations which might arise during the external operation; or

(2) a competency check is completed, that is administered by a flight examiner and that covers procedures, including emergency procedures, of the pilot's flying skill in conducting external load operations.

(c) The check referred to in paragraph (b)(2) must be completed within the immediately preceding 6 months prior to the pilot conducting the external load operation.

136.909 Crew member competency

(a) A holder of an air operator certificate must, prior to conducting an external load operation, ensure that every crew member involved in the operation who is not a flight crew member has successfully completed a competency assessment appropriate to the role of the crew member in the external load operation.

(b) The competency assessment required by paragraph (a) must include procedures for every normal and emergency situation that might arise in the operation and must include—

(1) preparation for the operation; and

(2) crew management; and

(3) target identification and positioning; and

(4) communications failure; and

(5) power loss; and

(6) electrical failure.

136.911 Crew member grace provisions

If a crew member who is required by Subparts L, M, or N, to take a test, a flight check, or be assessed completes the test, flight check or assessment within three calendar months before the date on which the test, flight check or assessment is required, the crew member is deemed to have completed the test, flight check or assessment on the date that it is required to be completed.

136.913 Competency and testing records

The holder of an air operator certificate must maintain accurate records of all competency assessments and testing of its crew members.

Subpart O — Ground Crew Training and Competency

136.951 Loadmaster training

The holder of an air operator certificate must ensure that every person carrying out the functions of a loadmaster as required by rule 136.331(a)—

(1) has completed a competency assessment in accordance with 136.955; and

(2) holds a Dangerous Goods Acceptance certificate issued by a Part 141 organisation or a Dangerous Goods Awareness Certificate; and

(3) has satisfactorily completed an initial course of training which includes the following:

(i) helicopter safety;

(ii) helipad safety;

(iii) helicopter refuelling;

(iv) fire fighting;

(v) communications;

(vi) helicopter marshalling;

(vii) helicopter loading and dispatch;

(viii) first aid;

(ix) helicopter role equipment;

(x) supervisory techniques.

136.953 Ground crew member training

The holder of an air operator certificate must ensure that every person providing operational ground support to a helicopter operation has satisfactorily completed an initial course of training which includes the following:

(1) helicopter safety;

(2) helipad safety;

(3) helicopter refuelling;

(4) fire fighting;

(5) communications;

(6) helicopter marshalling;

(7) helicopter loading and dispatch;

(8) preparation of loads;

(9) use of rigging and slinging equipment;

(10) removal and installation of helicopter role equipment;

(11) dangerous goods awareness.

136.955 Competency assessment

A holder of an air operator certificate must establish and control an operational competency assessment programme that ensures that within the preceding 24 months every loadmaster and operational ground crew member satisfactorily has completed a competency assessment administered by the senior loadmaster.

Subpart P — Fatigue of Flight Crew

136.981 Flight and duty time limitations

The certificate holder must not assign a person for duty as a crew member, nor must a person undertake duties as a crew member, unless that person can do so in compliance with the fatigue risk management system or the flight and duty time limitations prescribed under Part 122.

Subpart Q — Manuals, Logs, and Records

136.1001 Purpose

This Subpart prescribes the rules governing the use and retention of the manuals, logs, and records required for air operations performed.

136.1003 Operating information

The certificate holder must ensure that the parts of its exposition relevant to the duties of each crew member are current and are accessible to the crew member.

136.1005 Documents to be carried

The certificate holder must ensure that the following documents where appropriate are carried on each individual flight—

(1) if available NOTAM and aeronautical information service briefing documentation appropriate to the operation; and

(2) meteorological information appropriate to the operation; and

(3) notification of dangerous goods; and

(4) copies of the relevant flight guide charts and plates.

136.1007 Daily flight record

(a) A holder of an air operator certificate must keep accurate daily flight records for every helicopter, unless the information is recorded in another document in a manner that enables the daily flight record details for every flight to be constructed.

(b) Daily flight records must contain the following details for every flight:

(1) the date of the flight;

(2) the name of the operator;

(3) the name of the pilot-in-command;

(4) the registration markings of the helicopter;

(5) the total flight time;

(6) the number of passengers;

(7) the type of air operation;

(8) the name or identification of the departure and destination aerodromes;

(9) the flight number or estimated time of departure;

(10) the total of, the empty weight of the helicopter, the weight of any removable equipment, the weight of consumables, and the weight of crewmembers;

(11) the total weight of—

(i) passengers; and

(ii) goods; and

(iii) baggage.

(12) the total weight of usable fuel;

(13) the take-off weight;

(14) evidence that the centre of gravity is within the specified limits;

(15) the maximum allowable weights for the operation, including zero fuel weight, take-off weight, and landing weight for the operation;

(16) an indication of the occasions when a more indicative weight is used under rule 136.403(f).

(c) Before every air operation the holder of an air operator certificate must ensure that

the information required in paragraphs (b)(11) to (b)(15) is made available to the pilot-in-command in a timely manner to enable the pilot to make the assessment required by rule 136.405(b) regarding the weight and balance of the helicopter.

136.1009 Retention period

(a) The certificate holder must ensure that the following information is retained for 12 months from the day it was completed—

(1) notification of dangerous goods; and

(2) daily flight record.

(b) The certificate holder must ensure that its records of training, checking, and qualifications of each crew member is retained until 12 months after the crew member has left the certificate holder's employment.

Subpart R — Reserved Transition Provisions

136.1051 Transition

Transition provisions detailed in Part 20 apply to this Part.

Appendix A — Instruments and Equipment Airworthiness Design Standards

A.1 Cockpit voice recorder

Cockpit voice recorders must —

(1) meet the requirements of the TSO C84 series or the TSO C123 series; and

(2) be fitted with an underwater locating device that meets the requirements of the TSO C121 series; and

(3) have a minimum capacity of 2 hours continuous recording time before any erasure.

A.2 Flight data recorder

Flight data recorders must —

~~(1)~~ meet the requirements of the TSO C124 series; ~~and~~ or

~~(2) be fitted with an underwater locating device that meets the requirements of the TSO C121 series; and~~

(2)be one that meets a standard equivalent to TSO C 124 that has been approved by an ICAO Contracting State acceptable to the Director

~~(3) be of a non-ejectable type and capable of recording and storing 10 hours of data in a digital form; and~~

(3)for aircraft below7000kg; an audio/video recorder that has been determined to meet the standards for Papua New Guinea operating conditions and

(4) be fitted with an underwater locating device that meets the requirements of TSO C 121 series or

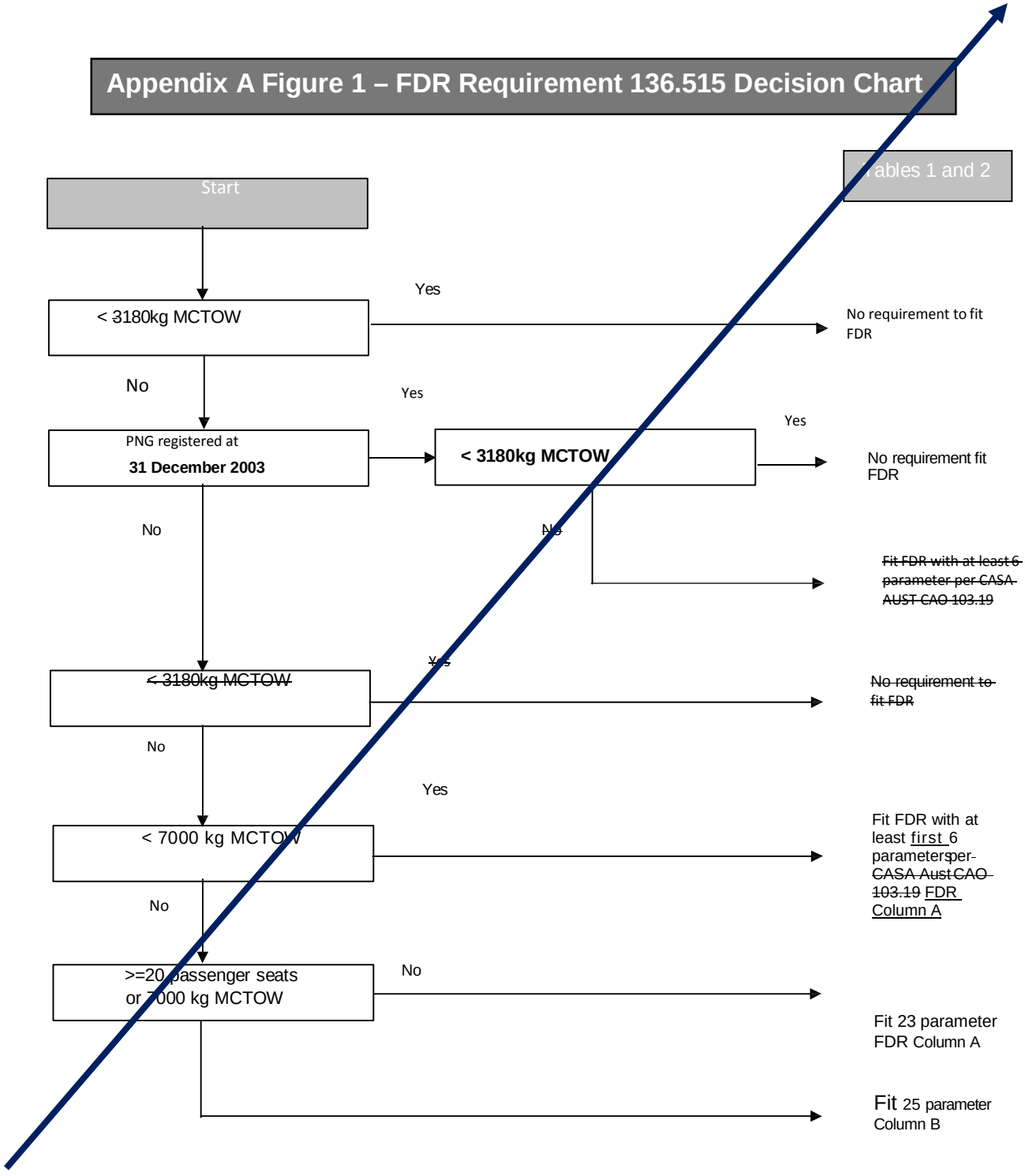
(5) have in place a flight tracking system that permits the operator to accurately track the helicopter's location at all times; and

(6) be of a non –ejectbale type capable of recording and storing 10 hours of data in a digital form; and

(7) except as provided in an MEL , record the parameters as detailed in

- Figure 1; and
- as applicable, Table 1 and Table 2; or
- as determined as satisfactory by the Director

Appendix A Figure 1 – FDR Requirement 136.515 Decision Chart



Appendix A, Figure 1 – R136.515 FDR Requirement Decision Chart

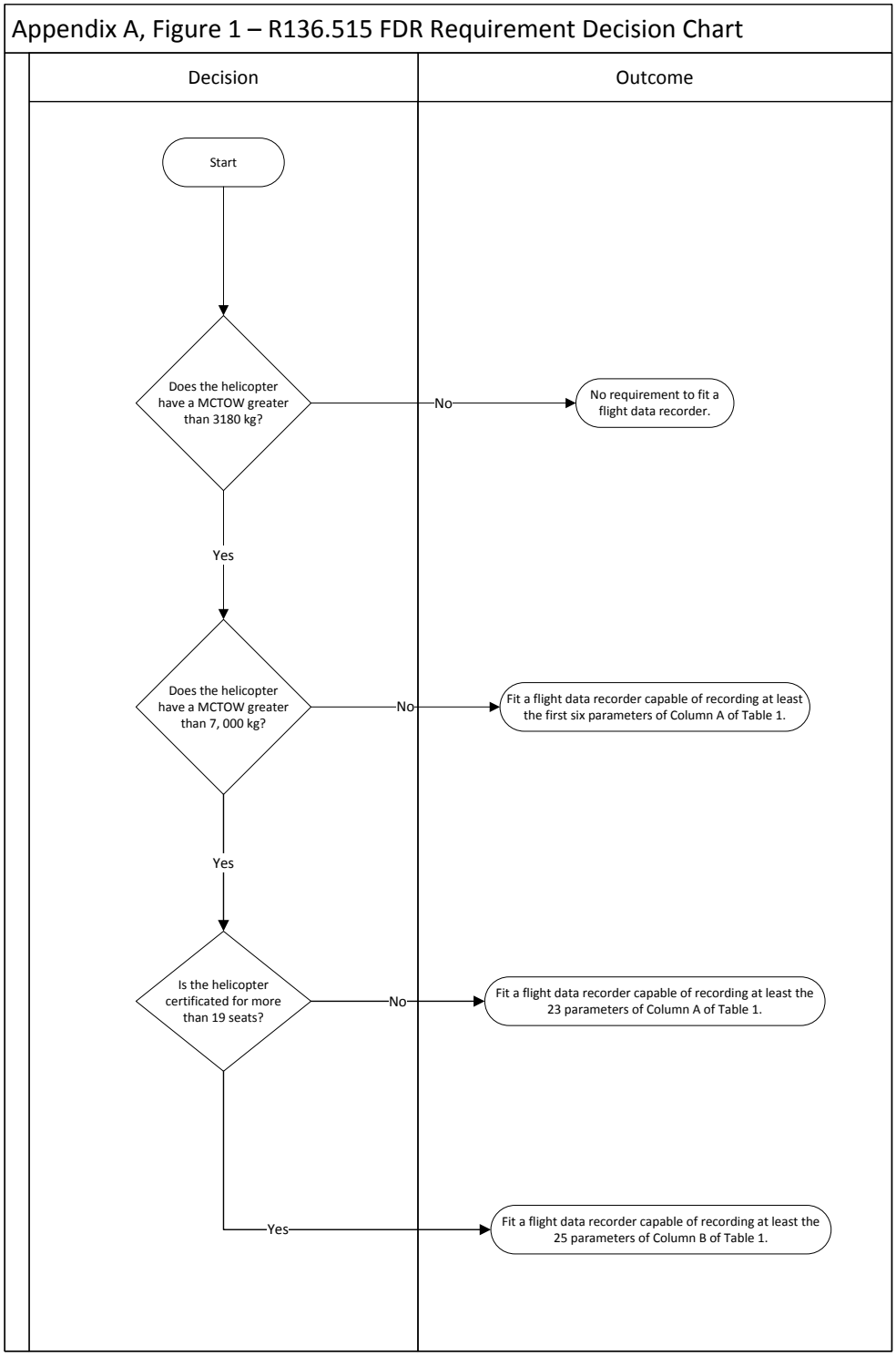


Table 1. Part 136 - Flight Data Recorder Parameter Requirements

When reading the parameter specifications from Table 2 the corresponding shaded specification should be chosen for each parameter. This table refers to the FDR requirements of 136.515.

	(A)	(B)
Parameter * if sensor installed	**23 Parameter Helicopter**	**25 Parameter Helicopter**
1	Time	Time
2	Airspeed	Airspeed
3	Altitude	Altitude
4	Heading	Heading
5	Vertical acceleration	Vertical acceleration
6	Longitudinal acceleration	Pitch attitude
7	Pitch attitude	Roll attitude
8	Roll altitude	Radio transmitter keying
9	Altitude rate	Power in each engine: Freepower turbine speed and engine torque
10	Mainrotor speed	Mainrotor speed
11	Free or power turbine for each engine	Altitude rate
12	Engine torque for each engine	Pilot input – primary controls
13	Primary hydraulic pressure	Flight control hydraulic pressure low
14	Secondary hydraulic pressure (if available)	Flight control hydraulic pressure selector switch position, 1st and 2nd stage
15	Radio transmitter keying	AFCS mode and engagement status
16	Autopilot engaged	SAS status – engaged
17	SAS fault - engaged	SAS fault status
18	SAS fault status	Main gearbox temperature low
19	Collective	Main gearbox temperature high
20	Pedal position	Controllable stabilator position
21	Lateral cyclic	Longitudinal position
22	Longitudinal cyslic	Lateral acceleration
23	Controllable stabliator position	Master warning
24		Nav 1 and Nav 2 frequency selection
25		Outside air temperature

Table 1. Part 136 – Flight Data Recorder Parameter Requirements

When reading the parameter specifications from the Table 2 the corresponding shaded specification should be chosen for each parameter. This table refers to FDR requirements of 136.515.

	A	**B**
Parameter *if sensor installed	**23 Parameter Helicopter**	**25 Parameter Helicopter**
1	Time	Time
2	Airspeed	Airspeed
3	Altitude	Altitude
4	Heading	Heading
5	Vertical acceleration	Vertical acceleration
6	Pitch altitude	Pitch altitude
7	Roll altitude	Roll altitude
8	Altitude rate	Altitude rate
9	Main rotor speed	Main rotor speed
10	Radio transmitter keying	Radio transmitter keying
11	SAS fault-engaged	SAS fault-engaged
12	SAS fault status	SAS fault status
13	Controllable stabliator position	Controllable stabliator position
14	Longitudinal acceleration	Power in each engine: free power turbine speed and engine torque
15	Free or power turbine for each engine	Pilot input – primary controls
16	Engine torque for each engine	Flight control hydraulic pressure low
17	Primary hydraulic pressure	Flight control hydraulic pressure selector switch position, 1st and 2nd stage
18	Secondary hydraulic pressure (if available)	AFCS mode and engagement status
19	Autopilot engaged	Main gearbox temperature low
20	Collective	Main gearbox temperature high
21	Pedal position	Longitudinal position
22	Lateral cyclic	Lateral acceleration
23	Longitudinal cyclic	Master warning
24		Nav 1 and Nav 2 frequency selection
25		Outside air temperature

Table 2. Part 136 - Flight Data Recorder Parameter Specifications

This table refers to the FDR requirements of 136.515.

Parameters	Range	Installed system minimum accuracy (to recovered data) [1]	Sampling interval (per second)	Resolution read out [2]
Relative time (from recorded on prior to takeoff)	25 hr minimum 24 hours	±0.125% per hour	1 0.25	1 sec
Indicated airspeed	V_{min} to V_D (KIAS) (minimum airspeed signal attainable with installed pitot/static system) As the installed measuring system	±5% or ±10 knots, whichever is greater ±3%	1	1 kt.
Altitude	-1,000 ft to 20,000 ft pressure altitude -1,000 ft to max certificated altitude of helicopter	±100 to ±700 ft (see Table 1, TSO C51-a)	1	25 to 150 ft 5' to 30'
Magnetic heading	360°	±5° ±2°	1	1° 0.5°
Vertical acceleration	-3 g to +6 g	±0.2 g in addition to ±0.3 g maximum datum ±1% of max range excluding datum error of ±5%	4 (or 1 per second where peaks, ref. to 1 g are recorded) 8	0.05 g 0.01g
Longitudinal acceleration	±1.0 g	±1.5% max. range excluding datum error of ±5%	2 4	0.03 g 0.01g
Lateral Acceleration	±1.0 g	±1.5% max. range excluding datum error of ±5%	4	0.01g
Pitch attitude	100% of usable range ±75°	±2°	1 2	0.8° 0.5°
Roll attitude	±60° or 100% of usable range, whichever is greater ±180°	±2°	1 2	0.8° 0.5°
Altitude rate	±8,000 fpm ±6,000 fpm	±10% Resolution 250 fpm below 12,000 ft indicated As installed	1 2	250 fpm below 12,000 0.2%

Table 2. Part 136 - Flight Data Recorder Parameter Specifications

This table refers to the FDR requirements of 136.515.

Parameters	Range	Installed system minimum accuracy (to recovered data) [1]	Sampling interval (per second)	Resolution read out [2]
Engine power each engine				
Main rotor speed	Maximum range 0-130%	±5% ±2%	1 2	1% of full range 0.3% of full range
Free or power turbine	Maximum range 0-130% (power Turbine Speed)	±5% ±2%	1 (per engine)	1% of full range 0.2% to 0.4% of full range
Engine torque	Maximum range	±5% ±2%	1 (per engine)	1% of full range 0.2% to 0.4% of full range
Flight Control - Hydraulic Pressure				
Hydraulic Pressure Low	Discrete, each circuit		1	
Hydraulic Pressure Selector Switch Position, 1st and 2nd Stage	Discrete		1	
Primary (discrete)	High/low		1	
Secondary - if applicable (discrete)	High/low		1	
Avionics				
Radio transmitter keying (discrete)	On/off		1	
Autopilot engaged (discrete)	Engaged or disengage		1	
AFCS Mode and Engagement	Discrete (5 bits necessary)		1	
SAS status - engaged (discrete)	Engaged/disengaged		1	
SAS fault status (discrete)	Fault/OK		1 0.25	
Flight Controls				
Collective	Full range	±3%	2	1% of full range 0.5% of full range
Pedal position	Full range	±3%	2	1% of full range 0.5% of full range
Lateral cyclic	Full range	±3%	2	1% of full range 0.5% of full range
Longitudinal cyclic	Full range	±3%	2	1% of full range 0.5% of full range

Table 2. Part 136 - Flight Data Recorder Parameter Specifications

This table refers to the FDR requirements of 136.515.

Parameters	Range	Installed system minimum accuracy (to recovered data) [1]	Sampling interval (per second)	Resolution read out [2]
Controllable stabilator position	Full range	±3%	2	1% of full range 0.4% of full range
Main Gearbox Temperature Low	As installed	As installed	0.25	0.5% of full range
Main Gearbox Temperature High	As installed	As installed	0.5	0.5% of full range
Master Warning	Discrete		1	
Nav 1 and Nav 2 Frequency Selection	Full range	As installed	0.25	
Outside Ai	-50°C to +90°C	±2°C	0.5	0.3°C

Notes:

1. When data sources are helicopter instruments (except altimeters) of acceptable quality to fly the helicopter the recording system excluding these sensors (but including all other characteristics of the recording system) shall contribute no more than half of the values in this column.

2. This column applies to helicopter manufactured after October 11, 1991.