



**WELLINGTON NEW ZEALAND**

**PURSUANT** to Section 28 of the Civil Aviation Act 1990

**I, JENNIFER MARY SHIPLEY**, Minister of Transport,

**HEREBY MAKE** the following ordinary rules.

**SIGNED AT** Wellington

This *tenth* day of *February* 1997

by **JENNIFER MARY SHIPLEY**

Minister of Transport

**Civil Aviation Rules**

**Part 121, Amendment No.2**

**Air Transport Operations — Large Aeroplanes**

*Docket Nr. 1041*

**Civil Aviation Rules**  
**Part 121, Amendment No.2**

**Air Transport Operations — Large Aeroplanes**

## **RULE OBJECTIVE, EXTENT OF CONSULTATION AND COMMENCEMENT**

The objective of Amendment No.2 to Part 121 is to prescribe rules for air transport operations performed by aeroplanes having a passenger seating configuration of more than 30 seats, or a payload capacity of more than 3410 kg.

In May 1990 the Air Transport Division of the Ministry of Transport published a notice of intention to carry out a complete review of the aviation regulatory system. This notice, in Civil Aviation Information Circular Air 3, listed the areas in which rules would be made and invited interested parties to register their wish to be part of the consultative process. The Register was identified as the Regulatory Review Consultative Group.

A draft of Amendment No.2 to Part 121 was developed by the rules rewrite team in consultation with members of the consultative group. An informal draft was published and distributed and a period of informal consultation followed from 10 July 1995 to 15 September 1995. This culminated in the issue of Notice of Proposed Rulemaking under Docket 1041 on December 1995.

The publication of this notice was advertised in the daily newspapers in the five main provincial centres on 6 December 1995. The notice was mailed to members of the Regulatory Review Consultative Group and to other parties, including overseas Aviation Authorities and organisations, who were considered likely to have an interest in the proposal.

A period of 90 days was allowed for comment on the proposed rule.

The submissions and verbal comments were considered and where appropriate the proposed rules amended to take account of the comments made.

The rules as amended were then referred to and signed by the Minister of Transport.

Amendment No.2 to Part 121 comes into force on 1 April 1997.

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## Part 121 Amendments

### List of Rules

Part 121 is amended by revoking the list of rules.

### New Subpart A — J

Part 121 is amended by revoking Subpart A, and inserting before Subpart K, the following:

#### “Subpart A — General

##### **121.1** *Applicability*

This Part prescribes rules, in addition to those prescribed in any other Part, governing the operation of aeroplanes having a passenger seating configuration of more than 30 seats, excluding any required crew member seat, or a payload capacity of more than 3410 kg, performing air transport operations.

##### **121.3** *Definitions*

In this Part—

**Consolidation** means the process by which a person, through practice and practical experience, increases proficiency in newly-acquired knowledge and skills:

**Curriculum** means a portion of an Advanced Qualification Programme that covers at least one of the following programme areas—

- (1) indoctrination; or
- (2) qualification that addresses the required training and qualification activities for a specific make, model, and series or variant of aeroplane and for a specific duty position; or
- (3) continuing qualification that addresses the required training and qualification activities for a specific make, model, and series of aeroplane or variant and for a specific duty position:

**Exposition**, unless used with reference to another source, means a record of the information required by 119.81 or 119.125:

**Evaluator** means a qualified flight examiner or person who has completed training and evaluation that qualifies the person to evaluate the performance of crew members, instructors, other evaluators, and other operations personnel, in an AQP:

**Line-operating flight time** means flight time performed in air transport operations to which this Part applies:

**Net take-off flight path, take-off flight path, take-off distance, and take-off run** have the same meaning as prescribed in the rules under which the aeroplane was certificated:

**Threshold** means that point where a 5% obstacle-free approach surface intersects the runway surface.

### **121.5    *Laws, regulations, and procedures***

Each holder of an air operator certificate issued under Part 119 shall ensure that all persons employed, engaged, or contracted, by the certificate holder are familiar with the appropriate sections of the Act, Civil Aviation Rules, and procedures specified in the certificate holder's exposition.

### **121.7    *Procedure compliance***

Each person performing an air transport operation shall conform with the applicable procedures specified in the exposition of the holder of an air operator certificate that authorises the operation.

### **121.9    *Crew member grace provisions***

If a crew member who is required by Subparts H, I, or J, to take a test or a flight check or be assessed completes the test or flight check within one calendar month of the day on which it is required, that crew member shall be deemed to have completed the test or check on the date it is required to be completed.

### **121.11    *Flight simulator and other training device approval***

(a) Each holder of an air operator certificate shall ensure that each flight simulator, or training device, on which flight credits may be accrued is specifically approved for—

- (1) use by the certificate holder; and
- (2) the aeroplane type and, if applicable, the particular variant within that type, for which the training or check is being conducted; and
- (3) the particular manoeuvre, procedure, or crew member function involved.

(b) The certificate holder shall ensure that each flight simulator or any training device where flight credits may be accrued—

- (1) maintains the performance, functional, and other characteristics that are required for approval; and

- (2) is modified to conform with any modification to the aeroplane being simulated that results in changes to performance, functional, or other characteristics required for approval; and
  - (3) is given a daily functional pre-flight check before being used and any discrepancy is logged by the appropriate flight crew supervisor or instructor at the end of each training or check flight.
- (c) An approved flight simulator or training device may be used by more than one certificate holder provided it is specifically approved for use by each certificate holder.

### **121.13 Carriage of firearms**

(a) Except as provided in paragraph (b), each person performing an air transport operation shall ensure that no person carries a firearm in an aeroplane unless the firearm is—

- (1) disabled; and
- (2) where possible, stowed in a place that is inaccessible to any person other than a crew member.

(b) Any person lawfully entitled to carry firearms on their person in the course of their duties may be in possession of a firearm in an aeroplane if that person—

- (1) is in the course of their lawful duties; and
- (2) holds an authorisation issued by the Director in accordance with 19.301.

### **121.15 Exemptions**

The Director may exempt the holder of an air operator certificate from any requirement in this Part in accordance with the procedures in Part 11 and with section 37 of the Act.

## Subpart B — Flight Operations

### **121.51** *Applicability*

This Subpart prescribes the rules governing air transport operations under this Part.

### **121.53** *Aeroplane airworthiness*

Each holder of an air operator certificate shall ensure that each aeroplane operated by the holder has a current standard category airworthiness certificate.

### **121.55** *Common language*

Each holder of an air operator certificate shall ensure that—

- (1) all crew members can communicate in a common language with at least flight crew members 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.

### **121.57** *Aeroplane proving flights*

(a) Each holder of an air operator certificate that intends to introduce a new aeroplane type shall, prior to that aeroplane type being used in air transport operations, ensure that a programme of proving flights is conducted, in addition to the aeroplane certification tests, when proving flights acceptable to the Director have not been previously conducted in accordance with the requirements of the State of certification.

(b) The programme required by paragraph (a) shall consist of at least 100 hours of proving flights, including a representative number of flights into en-route aerodromes, and at least 10 hours night flight.

(c) Each holder of an air operator certificate that intends to introduce into its operation an aeroplane type that has been materially altered in design since the last proving flights shall, prior to that aeroplane type being used in air transport operations, ensure that a programme comprising at least 50 hours of proving flight is conducted.

(d) For the purpose of paragraph (c), an aeroplane type is considered to be materially altered in design if the alterations include—

- (1) the installation of powerplants of a type dissimilar to those installed at initial certification; or

- (2) alterations to the aeroplane or its components that materially affect flight characteristics.
- (e) Each holder of an air operator certificate that carries out an aeroplane proving flight shall restrict the carriage of personnel during the flight to necessary crew members and to personnel who are—
- (1) receiving familiarisation or training; or
  - (2) gaining line operating flight time; or
  - (3) authorised to represent the Director.

### **121.59 Flight preparation**

- (a) Each holder of an air operator certificate shall ensure for each air transport operation that sufficient information is available to the pilot-in-command to complete the preparation for the intended operation.
- (b) The certificate holder shall ensure that an operational flight plan is prepared for each air transport operation and, if not prepared by the pilot-in-command, the pilot-in-command is advised of its contents before the intended operation.
- (c) Where operations personnel prepare an operational flight plan, the certificate holder shall ensure that the personnel—
- (1) are trained and competent to perform the task; and
  - (2) are 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) The certificate holder shall ensure that a flight plan is submitted to an appropriate ATS prior to each air transport operation.
- (f) Notwithstanding 91.407(a)(1) and 91.307(a), the certificate holder may, instead of the pilot-in-command, submit the flight plan to an appropriate ATS.

### **121.61 Operational flight plans**

- (a) When establishing the operational flight plan on which a flight schedule is to be based, each holder of an air operator certificate shall ensure that—
- (1) the aeroplane operating cycle is calculated using data for that aeroplane that is contained in, or derived from, the manufacturer's

manuals and that conforms to the parameters contained in the aeroplane's type certificate; and

- (2) the prevailing en-route winds are considered; and
- (3) enough time is allowed for the proper servicing of each aeroplane at intermediate stops.

(b) The certificate holder shall ensure that during any 365 day period at least 80% of its air transport operations arrive at the planned destination within the parameters of the operational flight plan used to establish the schedule.

### **121.63 Search and rescue information**

Each holder of an air operator certificate shall, for each aeroplane it operates, ensure that all relevant information concerning the search and rescue services in the area over which the aeroplane will be flown is available on board.

### **121.65 Emergency and survival equipment information**

(a) Each holder of an air operator certificate shall have available, for immediate communication to rescue co-ordination centres, information on the emergency and survival equipment carried on board each of its aeroplanes.

(b) For extended over-water operations the information required by paragraph (a) shall 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.

### **121.67 Ditching certificate**

Each holder of an air operator certificate shall ensure that aeroplanes used on extended over-water operations have been certified for ditching.

### **121.69 Minimum height for VFR flights**

Rule 91.311(c) shall not apply to a pilot-in-command operating under this Part.

### **121.71 Use of aerodromes**

(a) Each holder of an air operator certificate shall ensure that any aerodrome to be used in its operations has physical characteristics, obstacle limitation surfaces, and visual aids that meet the requirements of—

- (1) the characteristics of the aeroplane being used; and

(2) the lowest meteorological minima to be used.

(b) The certificate holder shall ensure that any aerodrome to be used in its operations has—

- (1) rescue fire equipment appropriate to the aeroplane type that is acceptable to the Director; and
- (2) a visual approach slope indicator system for turbojet and turbofan powered aeroplanes.

(c) The certificate holder shall ensure that only aerodromes specified, individually or by groupings, in its exposition are authorised for use in its operations.

(d) The certificate holder shall specify the—

- (1) route or segment of a route; and
- (2) necessary level of flight crew training; and
- (3) minimum flight crew experience; and
- (4) flight crew pairing restrictions; and
- (5) type of authorised flight operations—

relating to each aerodrome or grouping of aerodromes.

(e) Subject to paragraph (f)(1), each aerodrome specified under paragraph (c), that is to be used as an alternate aerodrome by an aeroplane that has a certificated seating capacity of more than 30 passengers and is engaged on domestic air transport operations, may be a non-certificated aerodrome.

(f) Each aerodrome specified under paragraph (c), that is to be used by an aeroplane that has a certificated seating capacity of more than 30 passengers and is engaged on a regular air transport passenger service, shall be an aerodrome that—

- (1) for New Zealand aerodromes, is associated with a Part 139 certificate; or
- (2) for aerodromes outside New Zealand, is associated with a certificate issued by an ICAO contracting State and is of a standard equivalent to Part 139.

(g) The certificate holder shall maintain a register, as part of the route guide, of aerodromes that are to be used in accordance with paragraph (e) or (f), containing—

- (1) the aerodrome data; and



- (2) procedures for ensuring that the condition of the aerodrome is safe for that operation; and
  - (3) procedures for ensuring that the condition of any required equipment, including safety equipment, is safe for that operation; and
  - (4) any limitations on the use of the aerodrome.
- (h) The certificate holder shall ensure that any aeroplane does not use a runway for the purpose of landing at or taking-off from unless—
- (1) the runway width is at least that width determined by reference to the aeroplane code number in Table 2 of Appendix C; and
  - (2) the minimum runway strip width for the runway used is determined by reference to Table 3 of Appendix C.
- (i) Notwithstanding paragraph (h) the certificate holder may use a lesser minimum runway width than that prescribed in paragraph (h) for an aeroplane type if—
- (1) a lesser minimum runway width is established by certificated flight testing and is prescribed in the aeroplane's flight manual; or
  - (2) a lesser minimum runway width was prescribed in the certificate holder's air service certificate, issued under regulation 136 of the Civil Aviation Regulations 1953, before 6 January 1993 for the aeroplane.

### **121.73 Night operations**

A person shall not perform an operation at night under VFR.

### **121.75 Fuel**

- (a) Each holder of an air operator certificate shall establish a fuel policy for the purpose of flight planning, and inflight replanning, to ensure that each aeroplane carries sufficient fuel for the planned operation, including reserves to cover deviations from the planned flight.
- (b) The fuel policy shall ensure that the planning of fuel requirements is based upon—
- (1) procedures, tables, and graphs, that are contained in, or derived from, the manufacturer's manuals and that conform to the parameters contained in the aeroplane's type certificate; and
  - (2) the operating conditions under which the flight is to be conducted, including—

- (i) normal aeroplane 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) Except as provided in paragraph (d) the certificate holder shall ensure that the calculation of usable fuel required for an operation takes into account the following factors—

- (1) taxi fuel; and
- (2) trip fuel; and
- (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 certificate holder may vary the factors required to be taken into account in paragraph (c) to accommodate the en-route re-planning procedure if the variation is provided for in the certificate holder's exposition.

### **121.77 Flight check system**

(a) Each holder of an air operator certificate shall ensure that flight crew members have available for use a flight check system that includes—

- (1) instructions and guidelines for the safe and efficient management of the flight deck; and
- (2) methods used to conduct the flight safely.

(b) The certificate holder shall ensure that the system enables safe real-time decision making and aeroplane management by conforming with the principles—

- (1) contained in the aeroplane flight manual; and
- (2) contained in the manufacturers technical and safety instructions; and

- (3) of crew resource management; and
  - (4) of human factors and psychology; and
  - (5) of ergonomics.
- (c) The certificate holder shall ensure that the system includes—
- (1) an expanded checklist in the operations manual; and
  - (2) scan checks; and
  - (3) a quick reference handbook; and
  - (4) a checklist for normal, non-normal, and emergency actions.
- (d) The certificate holder shall ensure that the system contains procedures, available for use at each flight crew member's duty station, to be followed by them—
- (1) prior to and during take-off; and
  - (2) in flight; and
  - (3) on landing; and
  - (4) during normal, non-normal, and emergency situations.

**121.79 Emergency light operation.**

Each person performing an air transport operation shall ensure that each emergency light system required by Part 26 Appendix D is armed or turned on during taxiing, takeoff, and landing.

**121.81 Passengers safety**

Each person performing an air transport operation shall ensure that—

- (1) passengers are seated where, in the event of an emergency evacuation, they will not hinder evacuation from the aeroplane; and
- (2) 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 aeroplane or its occupants is likely to be endangered, is refused embarkation or, where appropriate, removed from the aeroplane; and
- (3) disabled passengers are appropriately cared for, including allocation of appropriate seating positions and handling assistance in the event of an emergency; and

- (4) children under the age of 15 years, and adults with an infant, are not seated in any seat row next to an emergency exit; and
- (5) escorted passengers do not constitute a safety hazard to other passengers or to the aeroplane, and that prior arrangements for their carriage have been made in accordance with procedures specified in the certificate holder's exposition; and
- (6) the senior flight attendant, or the pilot-in-command, is notified when a disabled or escorted person is to be carried on board the aeroplane.

### **121.83 Passenger information**

- (a) Each person performing an air transport operation shall ensure that the *Fasten Seat Belt* sign is turned on—
  - (1) while the aeroplane is moving on the ground; and
  - (2) for each takeoff; and
  - (3) for each landing; and
  - (4) at any other time considered necessary by the pilot-in-command.
- (b) Each person performing an air transport operation shall ensure that passengers are informed, either by illuminated *No Smoking* signs or by approved *No Smoking* placards, when smoking is prohibited in the aeroplane.
- (c) If illuminated *No Smoking* signs are installed in an aeroplane, they must be lit when smoking is prohibited.

### **121.85 Flight compartment admission**

- (a) Each holder of an air operator certificate shall ensure at least one forward-facing observer's seat is available in the flight compartment, on each aeroplane used under this Part, that is suitable for use while conducting en-route inspections.
- (b) Each person performing an air transport operation shall ensure that no person, other than the flight crew members assigned to the flight, is admitted to, or carried in, the flight compartment, or occupies a pilot seat, unless that person is permitted by the pilot-in-command, and is—
  - (1) a crew member; or
  - (2) an authorised representative of the Director; or
  - (3) permitted by the holder of the air operator certificate in accordance with procedures specified in the certificate holder's exposition.

(c) Each person performing an air transport operation shall ensure that all persons admitted to the flight compartment or occupying a pilot seat are familiarised with the appropriate safety procedures specified in the certificate holder's exposition.

#### **121.87 Manipulation of controls**

(a) Each holder of an air operator certificate shall ensure that no person is permitted to *manipulate the flight controls* of its aeroplanes that are performing air transport operations, unless the person is—

- (1) a flight crew member qualified in accordance with 121.505 and authorised by the certificate holder; or
- (2) an authorised representative of the Director, qualified in accordance with 121.505, who—
  - (i) has the permission of the certificate holder and the pilot-in-command; and
  - (ii) is performing a required duty.

(b) No person shall manipulate the controls of an aeroplane performing an air transport operation, unless the person is authorised in accordance with paragraph (a)(1) or (2).

#### **121.89 Flight recorder requirements**

(a) Each flight crew member shall ensure that—

- (1) the **cockpit-voice recorder** required by 121.371 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 aeroplane is equipped to record the uninterrupted audio signals received from a boom or a mask microphone, the boom microphone is 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) Each flight crew member shall ensure that—

- (1) the **flight data recorder** required by 121.373 is operated continuously from the instant the aeroplane begins the take-off until it has completed the landing; and

- (2) all recorded data is kept until the aeroplane has been operated for at least 25 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.

### **121.91 Refuelling and defuelling operations**

(a) Each holder of an air operator certificate shall ensure that no aeroplane is refuelled or defuelled with Class 3(a) fuel when passengers are embarking, on board, or disembarking the aeroplane, or when one or more propulsion engines are running.

(b) Each person performing an air transport operation may permit an aeroplane to be refuelled or defuelled with Class 3(b) fuel when passengers are embarking, on board, or disembarking the aeroplane, provided the person ensures that safety and aeroplane evacuation precautions are taken in accordance with procedures specified in the certificate holder's exposition.

(c) Each person performing an air transport operation may permit an aeroplane to be refuelled or defuelled with Class 3(b) fuel with one or more propulsion engines running, provided that—

- (1) all passengers are disembarked under supervision and clear of the immediate area prior to fuelling commencing; and
- (2) the pilot-in-command is responsible for all aspects of the fuelling operation.

(d) Each holder of an air operator certificate shall ensure that fuelling does not take place when any fuel-venting outlet or external fuel hose on the aeroplane or refuelling equipment, is within 15 metres of any third party or the property of a third party, or where undue risk or hazard exists for any third party.

### **121.93 Fuel spillage**

(a) Each person performing an air transport operation shall ensure that, where fuel is spilled onto an impermeable surface while fuelling an aeroplane—

- (1) 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; and
- (3) the aeroplane is then moved clear of the contaminated area before any engine is started.

**121.95 Emergency situation action plans**

(a) Each holder of an air operator certificate shall ensure action plans are developed for handling in-air and on-ground emergency situations and minimising risk of injury to persons.

(b) The certificate holder's emergency situation action plan shall be based upon data including but not restricted to—

- (1) type and length of routes over which operations are carried out; and
- (2) aerodrome ground facilities; and
- (3) local emergency services; and
- (4) ATC facilities; and
- (5) type, seating configuration, and payload of the aeroplane likely to be involved.

(c) The certificate holder's in-air emergency plan shall include the following—

- (1) if management personnel become aware of an emergency situation arising on an aeroplane during flight that requires immediate decision and action, procedures to be followed by those personnel to ensure that—
  - (i) the pilot-in-command is advised of the emergency; and
  - (ii) the decision of the pilot-in-command is ascertained; and
  - (iii) the decision is recorded.
- (2) If management personnel are unable to communicate with the pilot-in-command in accordance with paragraph (c)(1), procedures to be followed by those personnel to ensure that—
  - (i) an emergency is declared; and
  - (ii) any action considered necessary under the circumstances is taken.

(d) The certificate holder shall ensure appropriate staff are trained and competent to perform during emergencies in accordance with the emergency situation action plan.

**121.97 Restriction or suspension of operations**

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



## Subpart C — Operating Limitations and Weather Requirements

### **121.151 Applicability**

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

### **121.153 Meteorological information**

(a) Each person performing an air transport operation shall plan, perform, and control flights using meteorological information provided for aviation purposes by—

- (1) subject to paragraph (b), for each flight sector originating within New Zealand, the holder of an aviation meteorological service organisation certificate issued under Part 174; or
- (2) for each sector originating from an aerodrome outside New Zealand, an aviation meteorological service organisation that—
  - (i) meets a standard equivalent to that specified by Part 174; and
  - (ii) is authorised by an ICAO contracting State.

(b) A pilot-in-command may, for each flight sector that originates and terminates within New Zealand, use a basic weather report that is provided in accordance with 174.6 to perform an approach and landing.

### **121.155 Meteorological conditions – VFR flight**

(a) Each person performing an air transport operation shall ensure a VFR flight is not commenced unless current meteorological reports, or a combination of current reports and forecasts, indicate VFR minima prescribed in Part 91 and in paragraph (d) can be complied with along the route, or that part of the route to be flown under VFR.

(b) A person shall not perform an extended over-water operation under VFR.

(c) A pilot-in-command performing VFR air transport operations outside controlled airspace shall fly—

- (1) in meteorological conditions of not less than a ceiling of 1000 feet and a flight visibility of 5 kilometres; and
- (2) beneath the ceiling, remaining clear of cloud, and in continuous sight of the ground or water; and
- (3) above not more than scattered cloud.

(d) A pilot-in-command shall not carry out an air transport operation under VFR in a multi-engined aeroplane above more than scattered cloud unless—

- (1) the aeroplane is authorised for IFR flight and the required minimum flight crew for IFR operation, holding current instrument rating qualifications, is at the controls; and
- (2) the instruments and equipment, including radio navigation equipment, required for IFR flight are operative; and
- (3) the aeroplane is capable, with one engine inoperative, of maintaining a net flight path that has a positive slope at 1000 feet above the cloud; and
- (4) the aeroplane 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
- (5) the aeroplane carries sufficient fuel and fuel reserves to proceed by IFR to an aerodrome where an instrument approach procedure may be carried out for landing.

#### **121.157 Meteorological conditions – IFR flight**

(a) Each pilot-in-command performing an air transport operation shall ensure an IFR flight is not commenced unless current meteorological reports, or a combination of current reports and forecasts, indicate that conditions will—

- (1) at the estimated time of arrival at the applicable destination aerodrome, be at or above the minimum prescribed under Part 97 for the instrument procedure likely to be used at that aerodrome; or
- (2) at the estimated time of use, at—
  - (i) one alternate aerodrome, meet the ceiling and visibility that is required by 91.405(a)(2); or
  - (ii) two alternate aerodromes, meet the ceiling and visibility that is required by 91.405(b).

(b) The pilot-in-command shall make provision for at least one alternate aerodrome that meets the ceiling and visibility that is required by 91.405(b), if—

- (1) the departure or destination aerodrome for the operation is outside New Zealand; and
- (2) the destination aerodrome has less than two separate runways suitable for use by the aeroplane being used.

(c) Each person performing ETOPS shall ensure that before the aeroplane is further than one hour from an adequate aerodrome each aerodrome designated as an en-route alternate aerodrome will, at the possible time of use, be at or above the approved weather minima specified in the certificate holder's exposition.

*[Until Part 97 comes into force, instrument approach procedures are prescribed under Part 19]*

### **121.159 Aerodrome operating minima – IFR flight**

(a) A pilot-in-command shall not continue an instrument approach to an aerodrome past the final approach fix or, where a final approach fix is not used, the final approach segment of the instrument approach procedure if, prior to passing the final approach fix or the final approach segment, current meteorological information indicates the visibility at the aerodrome is less than the visibility prescribed under Part 97 for the instrument approach procedure being used.

(b) For the purpose of this rule, the final approach segment begins—

- (1) at the final approach fix or facility prescribed in the instrument approach procedure; or
- (2) when a final approach fix is not prescribed for a procedure that includes a procedure turn, at the point where the procedure turn is completed and the aeroplane is established on the final approach course within the distance prescribed in the procedure.

*[Until Part 97 comes into force, instrument approach procedures are prescribed under Part 19]*

### **121.161 IFR departure limitations**

(a) Each person performing an air transport operation shall ensure an IFR flight from an aerodrome is not commenced when weather conditions are at or below minima prescribed under 91.407 and are below authorised IFR landing minima, unless there is an appropriate aerodrome—

- (1) for a two engined aeroplane, within a maximum of 1 hour flying time, in still air at one engine inoperative cruising speed, of the aerodrome of departure; or
- (2) for an aeroplane having three or more engines, within a maximum of 2 hours flying time, in still air at one engine inoperative cruising speed, of the aerodrome of departure.

**121.163 Reduced take-off minima**

- (a) Each holder of an air operator certificate may operate an aircraft at lower take-off minima than that prescribed in 91.413(g) provided the certificate holder ensures that the operation is conducted in accordance with the reduced minima take-off procedure specified in the certificate holder's exposition.
- (b) The reduced take-off minima procedure shall ensure that—
- (1) the pilot-in-command and the second-in-command are qualified for reduced minima take-offs in accordance with 121.515; and
  - (2) the runway to be used has centre-line marking or centre-line lighting; and
  - (3) Part 97 authorises reduced take-off minima on the runway to be used; and
  - (4) if the aeroplane is a two-engine propeller-driven aeroplane, the aeroplane is equipped with an operative auto-feather or auto-course system; and
  - (5) the runway visibility is established using RVR; and
  - (6) the method for observing and confirming that the required visibility exists for that take-off is acceptable to the Director.

*[Until Part 97 comes into force, instrument approach procedures are prescribed under Part 19]*

**121.165 En-route limitations**

- (a) Each holder of an air operator certificate shall ensure that no aeroplane operates further than 1 hour flying time, in still air at one-engine-inoperative cruising speed, from an adequate aerodrome unless—
- (1) the aeroplane is turbine powered with three or more engines; or
  - (2) the operation is conducted in accordance with procedures for ETOPS required by 121.167(2).
- (b) For the purpose of paragraph (a), an adequate aerodrome means an aerodrome that—
- (1) is associated with a Part 139 certificate or meets safety requirements equivalent to such an aerodrome; and
  - (2) has suitable facilities and services available, for the aeroplane type concerned, that includes—
    - (i) ATC or an aerodrome flight information service; and

- (ii) a meteorological reporting service; and
- (iii) at least one let down aid; and
- (iv) a visual approach slope indicator system for turbojet and turbofan powered aeroplanes; and
- (v) sufficient lighting.

### **121.167 ETOPS limitations**

Each holder of an air operator certificate shall ensure that ETOPS is not commenced unless—

- (1) ETOPS is permitted in the certificate holder's operations specifications; and
- (2) procedures for ETOPS are specified in the certificate holder's exposition; and
- (3) the operation will be within the limitations placed by the character of the terrain, the kind of operation, and the performance of the aeroplane used; and
- (4) each en-route alternate aerodrome required by the procedures in subparagraph (2) will be available during the possible period of use; and
- (5) the meteorological requirements of Subpart C can be met.

### **121.169 IFR procedures**

(a) Each pilot-in-command shall conduct IFR air transport operations 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 the appropriate 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, each pilot-in-command shall comply with any IFR departure and approach procedures prescribed under Part 97 for the appropriate aerodrome.

(c) In uncontrolled airspace each pilot-in-command shall comply with any IFR departure and approach procedures prescribed under Part 97 for the appropriate aerodrome.

*[Until Part 97 comes into force, instrument approach procedures are prescribed under Part 19]*

## Subpart D — Performance

### 121.201 *Applicability*

(a) This Subpart prescribes aeroplane performance operating limitations applicable to—

- (1) aeroplanes used in operations performed under this Part; and
- (2) aeroplanes, used in operations performed under Part 135, certificated to FAR Part 25 airworthiness standards, or equivalent airworthiness standards, that are—
  - (i) propeller-powered aeroplanes with a seating configuration of 20 seats or more; or
  - (ii) multi-engine turbojet or turbofan powered aeroplanes.

(b) Aeroplanes that cannot fully comply with the requirements of this Subpart may be approved to operate under alternative performance operating limitations.

### 121.203 *[Reserved]*

### 121.205 *General performance*

Each holder of an air operator certificate shall ensure that, for each aeroplane it operates—

- (1) the take-off weight at the start of its take-off is not greater than the weight permitted under this Subpart for the flight to be undertaken allowing for—
  - (i) expected reductions in weight as the flight proceeds; and
  - (ii) such fuel jettisoning as is provided for under this Subpart; and
- (2) the performance data used to determine compliance with the performance requirements of this Subpart is—
  - (i) contained in the aeroplane flight manual; or
  - (ii) in the case of contaminated landing distance data, provided by the aeroplane manufacturer and acceptable to the Director.

**121.207 Take-off distance**

(a) Each holder of an air operator certificate shall ensure that, for each aeroplane it operates, the take-off weight does not exceed the maximum take-off weight specified in the aeroplane flight manual.

(b) When calculating the maximum take-off weight to determine compliance with paragraph (a), the certificate holder shall, assuming that the critical engine fails at  $V_{EF}$  and using a single  $V_1$ , ensure that—

- (1) the accelerate-stop distance required does not exceed the accelerate-stop distance available; and
- (2) the take-off distance required does not exceed the take-off distance available; and
- (3) any clearway forming part of the take-off distance available shall not exceed half the length of the take-off run available; and
- (4) in the case of a wet or contaminated runway, the take-off distance is calculated to the point at which the aircraft reaches a height of 15 feet above the take-off surface using a reduced  $V_1$ ; and
- (5) the take-off run required does not exceed the take-off run available using  $V_1$  for the rejected and continued take-off; and
- (6) on a wet or contaminated runway, the take-off weight does not exceed that permitted for a take-off on a dry runway under the same conditions.

(c) When calculating the maximum take-off weight in accordance with paragraph (b), the certificate holder shall take account of—

- (1) aerodrome elevation; and
- (2) the pressure altitude of the aerodrome when the atmospheric pressure varies by more than 1% from the International Standard Atmosphere; and
- (3) ambient temperature at the aerodrome; and
- (4) the type of runway surface and the runway surface condition ; and
- (5) the runway slope in the direction of take-off; and
- (6) not more than 50% of the reported headwind component or not less than 150% of the reported tailwind component.



**121.209 Runway surface correction factors**

Each holder of an air operator certificate shall ensure that, unless performance data is available, the take-off distance calculated for a runway surface type under 121.207(c)(4) and the landing distance calculated under 121.221(c)(3), are corrected for use of other runway surface types by applying the factors in Table 1.

**Table 1**

Surface Type	Take-off Distance Factor	Accelerate Stop Distance Factor	Landing Distance Factor
Paved	x 1.00	x 1.00	x 1.00
Coral	x 1.00	x 1.03	x 1.05
Metal	x 1.05	x 1.06	x 1.08
Rolled earth	x 1.08	x 1.14	x 1.16
Grass	x 1.14	x 1.20	x 1.18

**121.211 Net take-off flight path**

(a) Each holder of an air operator certificate shall ensure that, for each aeroplane it operates, assuming the critical engine is inoperative, all obstacles within the net take-off flight path are cleared vertically by at least—

- (1) 35 feet in the case of a take-off performed by an aeroplane that is intended to use a bank angle not exceeding 15°; and
- (2) 15 feet in the case of a take-off that is—
  - (i) performed by an aeroplane that is intended to use a bank angle not exceeding 15°; and
  - (ii) conducted in compliance with 121.207(b)(4); and
- (3) 50 feet in the case of a take-off performed by an aeroplane that is intended to use a bank angle exceeding 15°; and
- (4) 30 feet in the case of a take-off that is—
  - (i) performed by an aeroplane that is intended to use a bank angle exceeding 15°; and
  - (ii) conducted in compliance with 121.207(b)(4).

(b) For the purpose of paragraph (a), an obstacle shall be deemed to be within the net take-off flight path if the lateral distance from the obstacle to the intended line of flight does not exceed—

- (1) where the intended flight path does not require a track change exceeding  $15^\circ$ —
  - (i) 75 m plus  $0.125D$ , to a maximum of 600 m or, if the certificate holder has established visual or radio navigation track guidance procedures for the pilot, to a maximum of 300 m; or
  - (ii) for day operations in VMC by aeroplanes not exceeding 22 700 kg MCTOW, 45 m plus  $0.125D$ , to a maximum of 600 m or, if the certificate holder has established visual or radio navigation track guidance procedures for the pilot, to a maximum of 300 m; or
- (2) where the intended flight path requires a track change exceeding  $15^\circ$ —
  - (i) 75 m plus  $0.125D$ , to a maximum of 900 m or, if the certificate holder has established visual or radio navigation track guidance procedures for the pilot, to a maximum of 600 m;
  - (ii) for day operations in VMC by aeroplanes not exceeding 22 700 kg MCTOW, 45 m plus  $0.125D$ , to a maximum of 900 m or, if the certificate holder has established visual or radio navigation track guidance procedures for the pilot, to a maximum of 600 m.

(c) For the purpose of paragraph (b),  $D$  is the horizontal distance the aeroplane will travel from the end of the take-off distance available.

(d) When calculating the net take-off flight path in accordance with paragraph (a), the certificate holder shall ensure that—

- (1) the following factors are taken into account—
  - (i) take-off weight at the commencement of the take-off run; and
  - (ii) aerodrome elevation; and
  - (iii) pressure altitude at the aerodrome when the atmospheric pressure varies by more than 1% from the International Standard Atmosphere; and

- (iv) ambient temperature at the aerodrome; and
  - (v) not more than 50% of the reported head-wind component or not less than 150% of the reported tail-wind component; and
- (2) a track change exceeding 15° is not made before a height of 50 feet above the take-off surface has been achieved; and
- (3) unless otherwise authorised by the Director—
- (i) a bank angle exceeding 15° is not made before a height of 50 feet above the take-off surface has been achieved; and
  - (ii) the bank angle up to and including a height of 400 feet above the take-off surface does not exceed 20°; and
  - (iii) the bank angle above a height of 400 feet above the take-off surface does not exceed 25°; and
- (4) allowance is made for—
- (i) the effect of the bank angle on operating speeds and flight path; and
  - (ii) distance increments resulting from increased operating speeds; and
  - (iii) retention of stall margin and loss of climb gradient in accordance with 121.213.
- (e) The certificate holder shall establish contingency procedures to—
- (1) satisfy the requirements of this Part; and
  - (2) provide a safe route avoiding obstacles; and
  - (3) enable the aeroplane to land safely at the aerodrome of departure, or at an alternate aerodrome required by 121.161.

**121.213 Engine inoperative – gradient and stall corrections**

Each holder of an air operator certificate shall, unless performance data is available, for compliance with 121.211(d)(4)(iii), retain stall margin and calculate loss of climb gradient by applying the factors in table 2.

**Table 2**

Bank angle	Speed correction	Gradient correction
15° to 19°	$V_2$	1 x Aeroplane flight manual 15° gradient loss

20° to 24°	$V_2 + 5$ knots	2 x Aeroplane flight manual 15° gradient loss
25°	$V_2 + 19$ knots	3 x Aeroplane flight manual 15° gradient loss

**121.215 En-route critical engine inoperative**

(a) Each holder of an air operator certificate shall ensure that, for each aeroplane it operates, using the one engine inoperative en-route net flight path data—

- (1) the flight path has a positive slope at an altitude of at least 1000 feet above all terrain and obstructions within, except as otherwise provided in paragraph (b), 10 nm of the intended track to be flown and at 1500 feet above the aerodrome where the landing is assumed to be made after engine failure; and
- (2) the net flight path clears all terrain and obstructions within, except as otherwise provided in paragraph (b), 10 nm of the intended track by at least 2000 feet vertically; and
- (3) the net flight path permits the aeroplane to continue flight from the cruising altitude to an aerodrome where a landing can be made in accordance with 121.221 or 121.223 as appropriate, taking account of—
  - (i) engine failure at the most critical point along the route; and
  - (ii) the effect of the icing protection systems if the meteorological conditions require their operation; and
  - (iii) the forecast ambient temperature; and
  - (iv) the effects of forecast wind on the flight path; and
  - (v) fuel jettisoning to an extent consistent with reaching the aerodrome with the required fuel reserves; and
- (4) the aerodrome where the aeroplane is assumed to land after engine failure meets the following criteria—
  - (i) the performance requirements at the expected landing weight are met; and
  - (ii) weather reports and forecasts, or any combination thereof, and aerodrome condition reports indicate that a safe landing can be accomplished at the time of the intended landing.

(b) If the pilot is able, by the use of radio navigation aids, to maintain the intended track by a margin of 5 nm the distance of 10 nm required by paragraphs (a)(1) and (2) may be reduced to 5 nm.

**121.217 En-route – 90 minute limitation**

(a) Except as provided in paragraph (b), each holder of an air operator certificate shall ensure that each aeroplane it operates with three or more engines is not more than 90 minutes away from an aerodrome at which the performance requirements specified in the aeroplane flight manual applicable at the expected landing weight are met.

(b) The certificate holder may operate an aircraft with three or more engines more than 90 minutes away from an aerodrome at which the performance requirements specified in the aeroplane flight manual applicable at the expected landing weight are met, provided that—

- (1) the two engine inoperative en-route flight path data permits the aeroplane to continue the flight, in the expected meteorological conditions, from the point where two engines are assumed to fail simultaneously, to an aerodrome at which it is possible to land using the prescribed procedure for a landing with two engines inoperative; and
- (2) the net flight path, taking into account the effect of icing protection systems if the meteorological conditions require their operation has a positive slope clearing at an altitude of at least 2000 feet above all terrain and obstructions within, except as provided in paragraph (c), 10 nm of the intended track to be flown; and
- (3) the net flight path has a positive slope at an altitude of 1500 feet above the aerodrome where the landing is assumed to be made after the failure of two engines; and
- (4) the expected weight of the aeroplane at the point where the two engines are assumed to fail shall be not less than that which would include sufficient fuel to proceed to an aerodrome where the landing is assumed to be made, and to arrive there at an altitude of at least 1500 feet directly over the aerodrome and thereafter to fly level for at least 15 minutes.

(c) If the pilot is able, by the use of radio navigation aids, to maintain the intended track by a margin of 5 nm the distance of 10 nm required by paragraph (b)(2) may be reduced to 5 nm.

(d) When calculating compliance with paragraph (b), the certificate holder shall assume the two engines fail at the most critical point of that portion of the route where the aeroplane is more than 90 minutes, at the all-engines long-range cruising speed at standard temperature and still air, away from an aerodrome at which the performance requirements applicable at the calculated landing weight are met.

**121.219 Landing-climb – destination and alternate aerodromes**

Each holder of an air operator certificate shall ensure that, for each aeroplane it operates—

- (1) the landing weight of the aeroplane does not exceed the maximum approach and landing-climb weight, taking into account the altitude and the ambient temperature expected for the estimated time of landing at a destination and alternate aerodrome; and
- (2) for instrument approaches with decision heights below 200 feet, the approach weight of the aeroplane, taking into account the take-off weight and the fuel expected to be consumed in flight, allows a missed approach net-climb-gradient assuming that the critical engine is inoperative in the approach configuration of—
  - (i) at least 2.5%; or
  - (ii) at least the net-climb gradient required to clear any obstacles in the missed approach flight path in accordance with 121.211.

**121.221 Landing distance – dry runways**

(a) Each holder of an air operator certificate shall ensure that, for each aeroplane it operates, the landing weight for the estimated time of landing will not exceed the landing weight specified in the aeroplane flight manual.

(b) Each holder of an air operator certificate shall ensure that, for each aeroplane it operates, the landing weight for the estimated time of landing at the destination aerodrome and at any alternate aerodrome allows a full stop landing on a dry runway from a point 50 feet above the threshold within—

- (1) 60% of the landing distance available at the destination and at any alternate aerodrome for a turbojet or turbofan powered aeroplane; and
- (2) 70% of the landing distance available at the destination aerodrome and at any alternate aerodrome for a propeller powered aeroplane; and

(c) When calculating the landing weight in accordance with paragraph (b), the certificate holder shall take account of—

- (1) aerodrome elevation; and
- (2) ambient temperature at the aerodrome; and
- (3) the type of runway surface and the runway surface condition; and
- (4) the runway slope in the direction of landing; and

- (5) not more than 50% of the reported headwind component or not less than 150% of the reported tailwind component.
- (d) For dispatch of an aeroplane to land in accordance with paragraphs (b) and (c), it shall be assumed that the aeroplane will land on the most favourable runway taking into account—
- (1) the forecast meteorological conditions; and
  - (2) surrounding terrain; and
  - (3) approach and landing aids; and
  - (4) critical obstacles within the missed approach flight path.
- (e) If the certificate holder is unable to comply with paragraph (d) for the destination aerodrome, the aeroplane may be dispatched if an alternate aerodrome is designated that permits compliance with paragraphs (a), (b), and (c).

#### **121.223 Landing distance – wet and contaminated runways**

(a) Each holder of an air operator certificate shall ensure that, for each aeroplane it operates—

- (1) when the appropriate weather reports or forecasts, or a combination thereof, indicate that the runway at the estimated time of arrival may be wet, the landing distance available is at least 115% of the landing distance required by 121.221; and
- (2) when the appropriate weather reports or forecasts, or a combination thereof, indicate that the runway at the estimated time of arrival may be contaminated, the landing distance available is at least—
  - (i) 115% of the landing distance required by 121.221; or
  - (ii) the landing distance determined in accordance with contaminated-landing-distance data.

(b) A landing distance on a wet runway shorter than that required by paragraph (a), but not less than that required by 121.221, may be used if performance data allows a shorter landing distance on wet runways.

#### **121.225 Steep approach and short landing techniques**

Each holder of an air operator certificate may perform steep approach procedures using approach slope angles of 4.5°, or more, and with screen heights of less than 50 feet but not less than 35 feet, providing—

- (1) the aeroplane flight manual states the maximum approved approach slope angle, any other limitations, normal, abnormal, or emergency

- procedures for the steep approach, as well as amendments for the field length data when using steep approach criteria; and
- (2) for IFR operations, an approach slope indicator system comprising of at least a visual approach slope indicating system is available at each aerodrome at which steep approach procedures are to be conducted; and
  - (3) for IFR operations, weather minima are specified and approved for each runway to be used with a steep approach; and
  - (4) for IFR operations, consideration is given to—
    - (i) critical obstacles; and
    - (ii) the type of approach slope indicator reference and runway guidance such as visual aids, MLS, 3D-NAV, GPS, ILS, LLZ, VOR, or NDB; and
    - (iii) the minimum visual reference to be required at DH and MDA; and
    - (iv) usable airborne equipment; and
    - (v) pilot qualification and special aerodrome familiarisation; and
    - (vi) aeroplane flight manual limitation and procedures; and
    - (vii) missed approach criteria.



## Subpart E — Weight and Balance

### **121.301 Applicability**

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

### **121.303 Goods, passenger, and baggage weights**

(a) Each holder of an air operator certificate shall establish the weights of goods and passengers and their carry-on and checked baggage.

(b) The certificate holder shall establish the actual weights of goods and checked baggage.

(c) The certificate holder shall establish the weights of passengers and their carry-on baggage, by using their—

- (1) actual weights; or
- (2) standard weights established in accordance with a programme specified in the certificate holder's exposition—

except that the use of actual weights and the use of standard weights, in accordance with paragraph (c), shall not occur on the same air transport operation.

### **121.305 Aeroplane load limitations**

Each holder of an air operator certificate shall ensure that—

- (1) the limitations contained in the aeroplane flight manual, or other approved document, relating to the weight and balance of an aeroplane are complied with; and
- (2) maximum allowable weights are not exceeded for zero fuel, manoeuvre, takeoff, and landing; and
- (3) the aeroplane's centre of gravity is within the limits referred to in subparagraph (1) at departure, and will remain within those limits throughout the operating cycle.

### **121.307 Load manifest**

Each holder of an air operator certificate shall ensure that—

- (1) a load manifest has been completed prior to each air transport operation; and
- (2) the load manifest is certified by the pilot-in-command; and
- (3) the following details are recorded on the load manifest—

- (i) name of pilot-in-command, except where this is recorded by the certificate holder in another document; and
- (ii) date of the operation; and
- (iii) aeroplane type and registration; and
- (iv) aerodromes of departure and destination; and
- (v) flight number or estimated time of departure; and
- (vi) surnames and initial of all crew and passengers, except where this is recorded by the certificate holder in another document; and
- (vii) the total of the aeroplane empty weight, the weight of any removable equipment, consumables, unusable oil, unusable fuel, and the weight of crew; and
- (viii) the weights of passengers, goods, baggage, usable oil, and usable fuel; and
- (ix) loaded aeroplane weight; and
- (x) evidence that the centre of gravity is within the specified limits, except where this is recorded by the certificate holder in another document; and
- (xi) the maximum allowable weights for the operation, including zero fuel weight, take-off weight, and landing weight for the operation.

## Subpart F — Instruments and Equipment

### 121.351 *Applicability*

This Subpart prescribes the instruments and equipment required.

### 121.353 *General*

Each holder of an air operator certificate shall ensure that an air transport operation does not commence unless—

- (1) the aeroplane 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 aeroplane comply with the specifications and airworthiness design standards listed in—
  - (i) Appendix B to this Part; or
  - (ii) Appendix C 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 aeroplane 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 aeroplane, the instruments and equipment installed in the aeroplane are in operable condition.

### 121.355 *Additional instruments*

Each holder of an air operator certificate shall ensure that each of its aeroplanes is equipped with—

- (1) the powerplant instruments required by the airworthiness design standards in paragraph (a)(1)(ii) of Appendix C of Part 21; and

- (2) a means of indicating for each reversible propeller, actuated by the propeller blade angle or be directly responsive to it, that the propeller is in beta range or reverse pitch.

### **121.357 Additional equipment**

Each holder of an air operator certificate shall ensure that each of its aeroplanes is equipped with—

- (1) a windshield wiper or equivalent for each pilot station; and
- (2) a door between the passenger and flight crew compartments, with a means of locking that prevents passengers from opening it without the flight crew's permission; and
- (3) for each door that separates a passenger compartment from another compartment that has emergency exit provisions—
  - (i) a key, readily available for each crew member; and
  - (ii) a placard that indicates the door must be open during takeoff and landing.

### **121.359 Night flight**

Each holder of an air operator certificate shall ensure that each of its aeroplanes operated at night is equipped with—

- (1) a landing light; and
- (2) a light in each passenger compartment.

### **121.361 Instrument flight rules**

(a) Each holder of an air operator certificate shall ensure that each of its aeroplanes operated under IFR flight is equipped with—

- (1) additional, and independent, means of indicating—
  - (i) airspeed, calibrated in knots, with a means of preventing malfunctioning due to either condensation or icing; and
  - (ii) sensitive pressure altitude, calibrated in feet; and
- (2) spare bulbs for flight compartment instrument illumination; and
- (3) spare fuses.

(b) Notwithstanding paragraph (a)(1)(i), the certificate holder may fit an additional attitude indicator powered by a separate power source.

**121.363 Flights over-water**

Each holder of an air operator certificate shall ensure that each of its aeroplanes operated on extended over-water operations is equipped with sufficient liferafts with buoyancy and rated capacity to accommodate all occupants of the aeroplane in the event of a loss of one raft of the largest rated capacity.

**121.365 Emergency equipment**

(a) Each holder of an air operator certificate shall ensure that—

- (1) notwithstanding the seat breaks in 91.523(a) and (b), each of its aeroplanes is equipped with the emergency equipment referred to in 91.523; and
- (2) the requirements in 91.523(d) and (e) are met for the equipment required by paragraph (a)(1).

(b) Each holder of an air operator certificate shall ensure that each of its aeroplanes operated on flights of more than 120 minutes duration is equipped with an emergency medical kit, suitable for use by qualified medical personnel, that contains items that provide for the treatment of injuries and medical emergencies.

**121.367 Protective breathing equipment**

Each holder of an air operator certificate shall ensure that each of its aeroplanes is equipped with protective breathing equipment that—

- (1) is conveniently located and easily accessible to each—
  - (i) flight crew member at their normally seated position; and
  - (ii) crew member for immediate use; and
- (2) is installed—
  - (i) in each Class A, B, and E cargo compartment; and
  - (ii) on the flight deck; and
  - (iii) in each passenger compartment within 1 m of each required hand held fire extinguisher or other such approved distance; and
  - (iv) in galleys that contain hand held fire extinguishers.

**121.369 Public address and crew member intercom systems**

Each holder of an air operator certificate shall ensure that each of its aeroplanes is equipped with—

- (1) a public address system; and
- (2) a crew member intercom system.

**121.371 Cockpit voice recorder**

Each holder of an air operator certificate shall ensure that each of its aeroplanes is equipped with a cockpit voice recorder.

**121.373 Flight data recorder**

Each holder of an air operator certificate shall ensure that each of its aeroplanes is equipped with a flight data recorder.

**121.375 Additional attitude indicator**

Each holder of an air operator certificate shall ensure that each of its turbojet or turbofan powered aeroplanes is equipped with a third presentation of attitude.

**121.377 Weather radar**

Each holder of an air operator certificate shall ensure that each of its turbine powered aeroplanes operating under IFR is equipped with a weather radar.

**121.379 Ground proximity warning system**

(a) Each holder of an air operator certificate shall ensure that each of its turbine powered aeroplanes is equipped with a GPWS if that aircraft has—

- (1) a MCTOW in excess of 15 000 kg; or
- (2) a certificated seating capacity, excluding any pilot seat, of 30 seats or more.

(b) Each holder of an air operator certificate shall ensure that each of its turbine powered aircraft operating under IFR is equipped with a GPWS no later than 1 January 1999.

## Subpart G — Maintenance

### **121.401 Applicability**

(a) This Subpart prescribes rules for aeroplane maintenance for each holder of an air operator certificate.

### **121.403 Responsibility for airworthiness**

(a) Each holder of an air operator certificate is responsible for the airworthiness of its aeroplanes, including airframes, aircraft engines, propellers, appliances, emergency equipment, and parts.

(b) The certificate holder shall have a maintenance programme for each aeroplane, aircraft engine, propeller, appliance, emergency equipment item, and part.

(c) The maintenance programme required by paragraph (b) shall contain standards at least equivalent to Part 91, Subpart G and the manufacturer's recommended maintenance programme.

(d) The certificate holder shall ensure that any maintenance that is performed by the certificate holder, or by any other organisation with whom the certificate holder arranges for the performance of that maintenance, is performed in accordance with its maintenance programme.

### **121.405 Condition monitored maintenance**

Each holder of an air operator certificate utilising condition monitored maintenance in its maintenance programme shall provide the Director with a maintenance reliability report each calendar month that contains details of—

- (1) aircraft utilisation; and
- (2) pilot reports; and
- (3) aircraft mechanical delays and cancellations; and
- (4) engine unscheduled shutdowns; and
- (5) engine unscheduled removals; and
- (6) component unscheduled removals; and
- (7) component confirmed failures; and
- (8) incidents; and
- (9) MEL usage.

**121.407 Maintenance organisation**

Each holder of an air operator certificate shall—

- (1) be certificated under Part 145 and perform the maintenance of its aeroplanes, including airframe, aircraft engines, propellers, appliances, emergency equipment items, and parts, in accordance with its exposition and this Part; or
- (2) contract with another organisation certificated under Part 145 for the performance of maintenance.

**121.409 Training and information programme**

Each holder of an air operator certificate that performs any of its own maintenance, and each other organisation with whom each certificate holder arranges for the performance of that maintenance, shall have a training and information programme that ensures each person who certifies a release to service—

- (1) is fully informed about procedures, techniques, and new equipment in use; and
- (2) is competent to perform that certification.

**121.411 Persons certifying maintenance**

(a) The holder of an air operator certificate shall only use a person appropriately trained, qualified, and authorised to certify a release to service.

**121.413 Supervising personnel**

Each holder of an air operator certificate that performs any of its own maintenance, and each other organisation with whom each certificate holder arranges for the performance of that maintenance, shall ensure that each person who is supervising maintenance, or making decisions on rectification action, is authorised by the maintenance organisation certificate holder in accordance with its exposition required by Part 145.

**121.415 Maintenance personnel duty time limitations**

Each holder of an air operator certificate that performs any of its own maintenance, and each other organisation with whom each certificate holder arranges for the performance of that maintenance, shall relieve each person certifying releases to service from duty for—

- (1) if the person certifying the release to service is scheduled for more than 16 hours of duty in 24 consecutive hours, a period of at least 8 hours at or before the end of the 16 hours of duty; and



- (2) a period of at least 24 consecutive hours during any seven consecutive days or the equivalent thereof within any one calendar month.

#### **121.417 Maintenance review**

- (a) Each holder of an air operator certificate shall ensure that—
  - (1) it does not operate an aeroplane unless a maintenance review of the aeroplane has been carried out within the previous 12 months; and
  - (2) each maintenance review that is carried out is certified as having been carried out.
- (b) The certificate holder shall, before certifying that a maintenance review for an aeroplane has been carried out, ensure that—
  - (1) all maintenance specified in the maintenance programme for the aeroplane has been completed within the time periods specified; and
  - (2) all applicable airworthiness directives have been complied with; and
  - (3) all defects entered in the maintenance records required by Part 43 have been rectified or properly deferred in accordance with the procedures in the certificate holder's exposition; and
  - (4) all certifications of release to service required by Part 43.103 have been made in accordance with Part 43.
- (c) The certificate holder may certify a maintenance review on the basis of continuing compliance with an internal quality assurance programme acceptable to the Director provided—
  - (1) the programme samples all the requirements of paragraph (b) during the review period; and
  - (2) the maintenance review is individually certified for each of the certificate holder's aeroplanes.
- (d) The certificate holder shall ensure that the maintenance review—
  - (1) is certified by an authorised person with experience in respect of that type of aeroplane, that is at least equal to the experience required for the grant of an aircraft maintenance engineer licence rating; and
  - (2) contains the certifying person's signature, authorisation number, and the date of entry; and

- (3) contains the following statement:

*The maintenance review of this aircraft and such of its equipment as is necessary for its continued airworthiness has been carried out in accordance with the requirements of the Civil Aviation Rules for the time being in force.*

## Subpart H — Crew Member Requirements

### **121.501 Applicability**

This Subpart prescribes the rules governing the use of flight crew members, flight attendants, and other crew members.

### **121.503 General**

- (a) Each holder of an air operator certificate shall ensure that each crew member involved in an air transport operation is currently qualified in accordance with the requirements of Subpart I or Subpart M
- (b) The certificate holder shall, for each aeroplane type operated, assign in writing, to all operating crew members, the operational and safety functions they are to perform.
- (c) The certificate holder shall not require any crew member to perform any duties during critical phases of flight except those duties required for the safe operation of the aeroplane.
- (d) The critical phases of flight referred to in paragraph (c) include—
  - (1) for flight crew members, all operations involving push back, taxi, take-off, approach and landing, and all other air transport operations conducted below 10 000 feet, except in cruise flight; and
  - (2) for crew members, all ground operations after leaving the apron area to join a main taxiway, take-off until passing 1000 feet on climb, and all flight below 5000 feet on the landing approach phase of the flight.

### **121.505 Flight crew duty assignment**

- (a) Each holder of an air operator certificate shall ensure that any person carrying out functions as a flight crew member on an air transport operation under this Part—
  - (1) holds a current licence and rating that are appropriate to the task assigned; and
  - (2) meets all requirements for the assigned flight-crew duty; and
  - (3) meets all route and aerodrome qualification requirements for the operation intended.
- (b) The certificate holder shall designate, for each period of an air transport operation—

- (1) a pilot-in-command; and
- (2) a second-in-command when more than two pilots are required; and
- (3) any other flight crew member that may be required by the type of operation to be performed to augment the minimum crew specified in the aeroplane flight manual.

#### **121.507 Pilot-in-command experience requirements**

Each holder of an air operator certificate shall ensure that each person designated as pilot-in-command of an aeroplane has acquired, prior to commencing the training specified in Subpart I or Subpart M for pilot-in-command, at least—

- (1) 1500 hours of flight time as a pilot, including—
  - (i) 500 hours in the type of operations to which this Part applies; and
  - (ii) 100 hours of instrument time at least 50 hours of which is acquired in actual flight; and
- (2) 100 hours of night-flight time for operations to be conducted by the person at night.

#### **121.509 Second-in-command experience**

Each holder of an air operator certificate shall ensure that any person designated as second-in-command of an in air transport operation—

- (1) is suitably trained and qualified on the aeroplane type; and
- (2) is capable, in the event of the pilot-in-command being incapacitated—
  - (i) of operating the aeroplane safely under the prevailing and anticipated forecast weather conditions; and
  - (ii) of deputising for the pilot-in-command; and
  - (iii) of landing the aeroplane at the intended destination or a suitable alternate.

#### **121.511 Pilot experience**

The certificate holder shall ensure that each person acting as a pilot, other than as pilot-in-command, of an aeroplane, prior to commencing the training specified in Subpart I or Subpart M—

- (1) has acquired at least 500 hours of flight time as a pilot, including at least 100 hours of flight time in air transport operations; and
- (2) has acquired at least 25 hours of night flight experience; and
- (3) holds a current instrument rating.

**121.513 Pilot operating limitations**

(a) Each holder of an air operator certificate shall ensure that, subject to paragraph (b), the pilot-in-command conducts each take-off and each landing.

(b) A second-in-command of an aeroplane performing an air transport operation may conduct the take-off and landing if—

- (1) the pilot-in-command meets the appropriate requirements of 121.583, 121.585, or 121.587; or
- (2) the second-in-command has completed the requirements of 121.571 and then accumulated at least 100 hours of flight time, or 75 operating cycles, in operations under this Part, in the aeroplane type being flown; or
- (3) the certificate holder has nominated the aerodrome as a general-category aerodrome in its exposition, and the appropriate take-off or landing report provided to the flight crew indicates that—
  - (i) the prevailing ceiling or visibility is better than the ceiling and visibility minima for that aerodrome when considered as an alternate; and
  - (ii) the runway to be used is clear of water, snow, slush, rubber accumulation, or similar conditions, that could adversely affect aeroplane performance; and
  - (iii) the crosswind component for the runway to be used is less than 50% of the demonstrated flight manual limit; and
  - (iv) windshear has not been reported in the vicinity of the aerodrome.

**121.515 Category II or III approaches and reduced take-off minima experience**

(a) Each holder of an air operator certificate shall ensure that Category II or III approaches, and departures with reduced take-off minima, are conducted with both the pilot-in-command and second-in-command qualified for such approaches and departures.

(b) For the purpose of paragraph (a)—

- (1) where the pilot-in-command is qualified only as the pilot flying, the pilot-in-command shall conduct all category II and III approaches and departures as the pilot flying; and
- (2) where the second-in-command is qualified only as the pilot non-flying, the pilot-in-command shall conduct all category II and III approaches and departures as the pilot flying.

#### **121.517 *Flight crew member pairing limitations***

(a) Each holder of an air operator certificate shall, after the applicable training requirements of Subpart I or Subpart M are completed, ensure that for each air transport operation no more than one member of an operating flight crew has, in the aeroplane type used—

- (1) accumulated less than an additional 75 hours in the type of operations to which this Part applies; or
- (2) completed less than 75 operating cycles in the type of operations to which this Part applies.

(b) The Director may, upon application by the certificate holder, authorise deviations from the requirements of paragraph (a), by an appropriate amendment to the operations specifications, in any of the following circumstances—

- (1) a newly certificated certificate holder does not employ any pilots who meet the minimum requirements prescribed in paragraph (a); or
- (2) an existing certificate holder acquires a aeroplane type not before proven for use in its operations; or
- (3) an existing certificate holder establishes a new domicile to which it assigns pilots who will be required to become qualified on the aeroplanes operated from that domicile.

#### **121.519 *Flight attendants duty assignment***

(a) Each holder of an air operator certificate shall ensure its aeroplanes are operated with at least the minimum number of flight attendants carried as crew members—

- (1) specified by the manufacturer's recommended emergency evacuation procedures for the aeroplane configuration being used; and
- (2) specified by the certified design criteria for the aeroplane; and

- (3) that will ensure at least one flight attendant is present in each occupied compartment; and
- (4) in accordance with the minimum number specified in Table 1.

**Table 1. Required flight attendants**

Aeroplane Passenger Capacity:	Flight Attendants required
15 through 50	1
51 through 100	2
101 through 150	3
151 through 200	4
201 through 250	6
251 through 300	7
301 through 350	9
351 through 400	10
401 through 450	11
451 through 500	12
for each further 50 passengers	1

(b) The certificate holder shall designate—

- (1) for each air transport operation requiring two or more flight attendants, a senior flight-attendant responsible to the pilot-in-command for the operational and safety functions of each flight attendant; and
- (2) for each air transport operation requiring six or more flight attendants, a deputy senior flight-attendant.

(c) Notwithstanding the requirements of paragraph (a)(4), one less flight attendant than that specified in table 1 may be carried to allow the continuation of an air transport operation in the event a required flight attendant becomes unfit because of sickness or injury during their duty period, provided—

- (1) the requirements of paragraphs (a)(1), (2), and (3) can be met; and
- (2) the remaining flight attendants are trained and competent to operate safely with the reduced number of flight attendants in accordance with the procedures specified in the certificate holder's exposition; and
- (3) numbers are restored to comply with the requirements of paragraph (a)(4) at the first aerodrome of landing where a replacement would normally be expected to be available.

## Subpart I — Training

### **121.551 Applicability**

This Subpart prescribes rules governing the establishment and operation of a training programme for crew members.

### **121.553 General**

(a) Each holder of an air operator certificate shall establish a training programme in accordance with this Subpart to qualify each of its crew members not participating in an advanced qualification programme under Subpart M.

(b) The certificate holder shall establish a training programme to ensure that each assigned crew member is trained and competent to perform their assigned duties.

(c) The certificate holder shall ensure that the training programme is conducted safely and without unacceptable risk to the equipment and personnel, or third parties.

(d) The certificate holder shall ensure the training programme contains segments for—

- (1) introduction training; and
- (2) transition training; and
- (3) upgrade training; and
- (4) recurrent training.

(e) The certificate holder shall ensure that each segment required by paragraph (d) includes a syllabus that is acceptable to the Director.

(f) The certificate holder shall ensure that its syllabus provides for consolidation in accordance with 121.567.

(g) The certificate holder shall ensure that the person responsible for its training programme holds a flight examiner rating.

(h) The certificate holder shall ensure that its training programme is controlled by the certificate holder.

(i) The certificate holder 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 New Zealand, contract with an organisation that meets an equivalent standard specified by Part 141.

(j) The certificate holder shall record each separate crew member qualification and inform the crew member involved in writing of the qualification gained.

### **121.555 Training equipment**

(a) Each holder of an air operators certificate shall ensure that the crew member training programme for flight crew includes both ground and flight instruction using—

- (1) training devices; and
- (2) a flight simulator in accordance with paragraph (d).

(b) The certificate holder shall ensure that each flight simulator and each training device that is used in its training programme is specified in the certificate holder's exposition.

(c) When conducting training that requires equipment or resources that are not used solely for training, the certificate holder shall ensure that sufficient access is available to the equipment or resources to enable the training to be completed—

- (1) without unplanned interruption; and
- (2) in an environment that is conducive to the objective and safety of the task.

(d) The certificate holder shall ensure that for each aeroplane type operated by it, a flight simulator for that type is used in the training programme required by 121.553 or 121.903 for flight crew.

### **121.557 Crew member training programme**

(a) Each holder of an air operator certificate shall establish a crew member training programme.

(b) The certificate holder shall ensure that each crew member programme segment includes training applicable to—

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

- (2) the routes and aerodromes appropriate to the intended operation; and
  - (3) crew member assignments, functions, and responsibilities; and
  - (4) location and operation of emergency equipment available for use by crew members; and
  - (5) location and use of oxygen equipment; and
  - (6) location and use of all normal and emergency exits, including evacuation slides and escape ropes; and
  - (7) the certificate holders policies and procedures appropriate to its air transport operations.
- (c) The certificate holder may include in the crew member training programme for flight crew, the use of an aeroplane for manoeuvres and training that are acceptable to the Director.
- (d) If the certificate holder is unable to present or sustain the aircraft flight or systems operations functions of the training programme to comply with 121.553(c) the Director shall require the holder to use a flight simulator for all or part of the training programme.

#### **121.559 Crew member introduction segment**

- (a) Each holder of an air operator certificate shall ensure that each crew member who is not qualified and currently serving as a crew member in an operation authorised by the certificate holders certificate, completes the introduction segment of its training programme—
- (1) in a structured and realistic manner; and
  - (2) in accordance with the syllabus required by 121.553(e).
- (b) The certificate holder may vary the syllabus required by 121.553(e) for individual crew members if—
- (1) the varied training 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.

#### **121.561 Crew member transition segment**

- (a) Each holder of an air operator certificate shall ensure that personnel already qualified and serving as crew members on an air transport operation authorised by the certificate holders certificate, completes the transition

segment of its training programme in accordance with the syllabus required by 121.553(e) if—

- (1) the crew member is changing from one aeroplane type or variant to another type or variant; or
  - (2) new procedures or equipment are introduced on an existing aeroplane type or variant.
- (b) The transition segment shall address—
- (1) the use of all safety and emergency equipment and procedures applicable to the aeroplane type or variant; and
  - (2) new procedures or equipment introduced on the existing aeroplane type or variant.

### **121.563 Crew member upgrade segment**

(a) Each holder of an air operator certificate shall ensure that each of its crew members completes the upgrade segment of its training programme in accordance with the syllabus required by 121.553(e), if the crew member is changing from one crew position to a more responsible crew position on the same aeroplane type or variant.

(b) The certificate holder shall ensure its upgrade segment addresses the use of all safety and emergency equipment and procedures applicable to the crew position on the aeroplane for which the upgrade is sought and shall—

- (1) include training on human factors, and crew resource management, with particular emphasis on the changes brought about by the different crew position; and
- (2) include training in supervisory skills.

### **121.565 Crew member recurrent segment**

(a) Each holder of an air operator certificate shall ensure that each of its crew members are adequately trained, current, and proficient for each aeroplane, crew member position, and type of operation, in which the crew member serves.

(b) Each holder of an air operator certificate shall ensure that each crew member completes the recurrent segment of its training programme—

- (1) in a structured and realistic manner; and
- (2) in accordance with the syllabus required by 121.553(e).

**121.567 Consolidation**

Each holder of an air operator certificate shall ensure, after each crew member completes an introduction, transition, or upgrade, segment of its training programme the crew member undergoes consolidation by acquiring—

- (1) the appropriate operating experience—
  - (i) for a pilot, required by 121.569; and
  - (ii) for a flight attendant, required by 121.577; and
- (2) the appropriate line-operating flight time—
  - (i) for a pilot, required by 121.571; and
  - (ii) for a flight engineer, required by 121.573.

**121.569 Pilot operating experience**

(a) Each holder of an air operator certificate shall ensure that each person performing the functions of a pilot holds the licences and ratings required to be held under Part 61 and has completed, on the make and basic model aeroplane and in the crew member position that the person will serve in, the following operating experience as applicable:

- (1) for the introduction segment—
  - (i) for multi-engine, turbine powered aeroplanes – 20 hours and 10 takeoffs and landings; and
  - (ii) for turbojet and turbofan powered aeroplanes – 25 hours and 10 takeoffs and landings; and
  - (iii) for all aeroplanes, including those referred to in paragraphs (a)(1)(i) and (ii) – 4 operating cycles of which at least 2 must be as the pilot flying;
- (2) for the transition or upgrade segment—
  - (i) for multi-engine, turbine powered aeroplanes – 12 hours and 8 takeoffs and landings; and
  - (ii) for turbojet and turbofan powered aeroplanes – 20 hours and 10 takeoffs and landings for pilot-in-command, or 10 hours and 8 takeoffs and landings for second-in-command; and
  - (iii) for all aeroplanes, including those referred to in paragraphs (a)(2)(i) and (ii) – 4 operating cycles of which at least 2 must be as the pilot flying.

(b) The operating experience required by paragraph (a) shall be acquired on the appropriate aeroplane type as follows—

- (1) after satisfactory completion of the appropriate ground and flight training for the aeroplane type and crew member position in accordance with Part 61; and
- (2) under the supervision of an instructor who meets the requirements in 121.585; and
- (3) under air transport operations—
  - (i) simulated in a flight simulator for the aeroplane type; or
  - (ii) conducted under this Part in the aeroplane type.

(c) Any time accrued in a flight simulator under paragraph (b)(3)(i) may be multiplied by 1.30 for the purpose of calculating the total time required to satisfy paragraph (a), provided that—

- (1) any procedures and manoeuvres not approved for completion in the simulator have been conducted in the appropriate aeroplane; and
- (2) the pilot has demonstrated proficiency in all normal, non-normal, and emergency procedures, and manoeuvres specified by the training programme; and
- (3) the pilot has satisfactorily completed the appropriate training phases for that aeroplane and crew member position.

(d) For the purpose of paragraph (b)(3)(ii) the instructor shall—

- (1) act as pilot-in-command at all times; and
- (2) occupy a pilot station when supervising a pilot acquiring the experience necessary for a pilot-in-command position, until the qualifying pilot has—
  - (i) made at least 2 take-offs and landings in the aeroplane type for which the pilot-in-command qualification is required; and
  - (ii) demonstrated to the instructor the ability to perform the duties of a pilot-in-command for that aeroplane type; and
  - (iii) if the qualifying pilot-in-command is completing introduction or upgrade training, demonstrated to a flight examiner the ability to satisfactorily perform the prescribed duties during at least one complete operating cycle.

(e) The instructor may occupy the observer's seat upon the requirements of paragraph (d)(2) being met.

### **121.571 Pilot line-operating flight time**

(a) Each holder of an air operator certificate shall ensure that after each pilot completes an introduction or transition segment of its training programme, the pilot completes the line-operating flight time required by paragraph (b) under the supervision of an airline instructor who meets the requirements in 121.587.

(b) The combined total of line-operating flight time and the operating experience required by 121.567 shall be—

- (1) at least 100 hours of flight time, or 75 operating cycles, for consolidation; and
- (2) completed within 120 days from completing the introduction or transition segment, with a maximum extension of 30 days if the pilot—
  - (i) continues to meet all other requirements of the training programme; and
  - (ii) satisfactorily completes and passes either a refresher course acceptable to the Director, or a supervised line-operating flight, conducted by an instructor or flight examiner, on or before the 120th day.

(c) The pilot shall operate exclusively on the appropriate aeroplane type while completing line-operating flight time experience unless refresher training that is acceptable to the Director is provided and satisfactorily passed.

*[Until Part 61 amendment 2 comes into force, to incorporate the requirement of an airline instructor, the holder of a category A, B, or D instructor rating may exercise the privileges of an airline instructor]*

### **121.573 Flight engineer line-operating flight time**

Each holder of an air operator certificate shall ensure that each person performing the functions of a cadet flight engineer, flight engineer, flight engineer instructor, or flight engineer examiner— holds the licences and ratings required to be held under Part 63.

(b) The certificate holder shall ensure that, within 120 days of a cadet flight engineer being rated, for consolidation, that flight engineer completes at least 100 hours of flight time or 75 operating cycles performing the functions of a flight engineer.

(c) The consolidation required by paragraph (b) may be extended by 30 days if the flight engineer satisfactorily completes and passes either a refresher

course acceptable to the Director, or a supervised line-operating flight, conducted by an flight engineer instructor or flight engineer examiner, on or before the 120th day.

(d) The flight engineer shall operate exclusively on the appropriate aeroplane type while completing line-operating flight time experience unless refresher training that is acceptable to the Director is provided and satisfactorily passed.

#### **121.575 Flight attendant training**

(a) Each holder of an air operator certificate shall ensure that each person performing the functions of a flight attendant on an air transport operation under this Part has satisfactorily completed the appropriate ground and flight training for the aeroplane type and crew member position.

(b) Each holder of an air operator certificate shall ensure that the crew member training for flight attendants addresses, as appropriate—

- (1) the authority structure of the aeroplane crew; and
- (2) normal, non-normal, and emergency passenger handling, including procedures to be followed in dealing with special classes of passengers as described in the certificate holder's exposition; and
- (3) briefing of passengers; and
- (4) proper use of cabin equipment and controls; and
- (5) Civil Aviation Rules and supporting documentation; and
- (6) the certificate holder's documentation and procedures.

#### **121.577 Flight attendant operating experience**

(a) Each holder of an air operator certificate shall ensure that each person performing the functions of a flight attendant—

- (1) has completed the crew member training for flight attendants required by 121.575; and
- (2) has completed, on the make and basic model aeroplane, and in the crew member position that the person will serve in, for the introduction or transition training segment of its training programme, 5 hours line-operating flight time including at least 2 operating cycles.

(b) For the purpose of paragraph (a)(2), up to 2.5 hours of the required line-operating flight time may be conducted in a full scale, type-specific, cabin training device.

(c) The operating experience required by paragraph (a) shall be acquired—

- (1) after satisfactory completion of the appropriate ground training for the aeroplane and crew member position in accordance with a syllabus acceptable to the Director; and
- (2) under the supervision of an appropriately qualified trainer of flight attendants who has experience acceptable to the Director.

#### **121.579 Manoeuvres requiring a flight simulator**

Each holder of an air operator certificate shall ensure a flight simulator is used where a non-normal or emergency manoeuvre is to be conducted during training, practice, or a competency check that—

- (1) if mishandled, would create an unacceptable risk to the aeroplane, crew members, or third parties; or
- (2) is carried out in close proximity to the ground or water; or
- (3) involves the need to fail any system for training that cannot be readily failed in the aeroplane without an unacceptable risk to the aeroplane, crew members, or third parties; or
- (4) involves actions necessary to complete any procedures required by 121.77(d)(4) that cannot be realistically carried out in an aeroplane.

#### **121.581 Crew members training records**

Each holder of an air operator certificate shall maintain records of all required training and consolidation undertaken by its crew members.

#### **121.583 Pilot flight examiner experience requirements**

Each holder of an air operator certificate shall ensure that each person performing the functions of an aeroplane or simulator flight-examiner, for an aeroplane type, in an operational competency assessment programme that is established under this Part—

- (1) has satisfactorily completed the appropriate competency checks required to serve as pilot-in-command in operations under this Part in the aeroplane type; and
- (2) holds a current airline instructor rating; and
- (3) holds a current airline flight examiner rating; and
- (4) has acquired—
  - (i) 200 hours exercising the privileges of an airline instructor for the particular aeroplane type involved; or



- (ii) 100 hours exercising the privileges of an airline flight examiner rating on another aeroplane type to which this Part applies; and
- (5) completes introduction and recurrent training requirements under this Subpart, or indoctrination and continuing qualification requirements under Subpart M, applicable to the testing to be carried out.

#### **121.585 Pilot instructor experience requirements**

Each holder of an air operator certificate shall ensure that each person performing the functions of an aeroplane or simulator instructor in a pilot training programme that is established under this Part—

- (1) has satisfactorily completed the appropriate training required to serve as pilot-in-command in operations under this Part in the aeroplane type; and
- (2) holds a current airline instructor rating; and
- (3) has acquired at least 3000 hours of flight time as a pilot, including—
  - (i) 500 hours line-operating flight time experience for the particular aeroplane type involved; or
  - (ii) 100 hours exercising the privileges of an airline instructor rating instructing pilots on another aeroplane type to which this Subpart applies; and
- (4) completes introduction and recurrent training requirements under this Subpart, or indoctrination and continuing qualification requirements under Subpart M, applicable to the instruction to be carried out.

#### **121.587 Pilot instructor supervisor experience requirements**

(a) Each holder of an air operator certificate shall ensure that supervisory functions in a pilot training programme established under this Part are performed by an aeroplane or simulator instructor.

(b) The certificate holder shall ensure that each instructor performing supervisory functions —

- (1) has satisfactorily completed the appropriate training required to serve as pilot-in-command in operations under this Part; and
- (2) has acquired at least 2000 hours of flight time as a pilot including—

- (i) 200 hours line-operating flight time experience for the particular aeroplane type involved; or
  - (ii) 100 hours exercising the privileges of an airline instructor rating supervising pilots on another aeroplane type under this Subpart or Subpart M; and
- (3) holds a current airline instructor rating; and
  - (4) completes introduction and recurrent training requirements under this Subpart, or indoctrination and continuing qualification requirements under Subpart M, applicable to the instruction to be carried out.

### **121.589 Simulator instructor and examiner requirements**

(a) Each holder of an air operator certificate shall ensure that, where instruction or competency checks are carried out in a flight simulator, the person performing the functions of an instructor, or flight examiner—

- (1) meets the appropriate requirements of 121.583 or 121.585; and
- (2) continues to demonstrate competency as pilot-in-command in the simulator to the standard and frequency required by Subpart J; and
- (3) has received proficiency training in the operation of the training equipment.

(b) Where an instructor or flight examiner does not hold a current medical certificate, airline instructor rating, or flight examiner rating the requirements under paragraph 121.583 (4) or 121.585(3) may be met in a flight simulator by—

- (1) acting as a crew member—
  - (i) during simulated line operating flight time in a flight simulator for the aeroplane type; or
  - (ii) for flight crew members under training who are undertaking the programmes required by 121.553(c); and
- (2) completing the training requirements which would have been necessary to maintain the currency of, or be issued with, an airline instructor rating, or flight examiner rating, under Part 61 or Part 63, and Part 121.

*[Until Part 61 amendment 2 comes into force, to incorporate the requirement of an airline instructor, the holder of a category A, B, or D instructor rating may exercise the privileges of an airline instructor]*

## Subpart J — Crew Member Competency Requirements

### **121.601 Applicability**

This Subpart prescribes the rules governing the operational competency assessment of flight crew members, flight attendants, and other crew members, who are trained under the provisions of Subpart I.

### **121.603 General**

- (a) Each holder of an air operator certificate shall establish an operational competency assessment programme in accordance with this Subpart that is—
- (1) acceptable to the Director; and
  - (2) controlled by the certificate holder.
- (b) The certificate holder may—
- (1) conduct the operational competency assessment programme; or
  - (2) contract with the holder of an aviation training organisation certificate issued under Part 141, to conduct the operational competency assessment programme where the Part 141 certificate authorises the holder to conduct that training; or
  - (3) for a operational competency assessment programme conducted outside New Zealand, contract with an organisation that meets an equivalent standard specified by Part 141.
- (c) The certificate holder shall ensure that the person responsible for its operational competency assessment programme holds a flight examiner rating.

### **121.605 Operational competency assessment programme responsibilities**

- (a) Each holder of an air operator certificate shall be ultimately responsible for its operational competency assessment programme.
- (b) The certificate holder shall ensure that each crew member that is subject to an operational competency assessment is assessed in accordance with the programme.
- (c) The certificate holder shall ensure that each crew member released to conduct an air transport operation under this Part is properly trained and competent to perform the operation.

### **121.607 Flight crew competency checks**

Each holder of an air operator certificate shall ensure—

- (1) **for each pilot acting as pilot-in-command**, within the immediately preceding 12 months, the pilot has passed a check of route and aerodrome proficiency, administered by a flight examiner, 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 operations appropriate to this Part; and
- (2) **for each pilot conducting VFR operations**, within the immediately preceding 12 months, the pilot has successfully completed a competency check, administered by a flight examiner, that shall cover normal, non-normal, and emergency procedures, of the pilot's flying skill in an aeroplane type normally used by the pilot in the operation; and
- (3) **for each pilot conducting IFR operations**, within the immediately preceding 6 months, the pilot, if acting as a flight crew member of an aeroplane under IFR, has passed a check, administered by a flight examiner, that—
  - (i) covers normal, non-normal, and emergency procedures appropriate to the equipment fitted to the aeroplane and to the type of operations to which the pilot is assigned by the certificate holder; and
  - (ii) is conducted in the same aeroplane type used by the pilot in the operation or a flight simulator of the same aeroplane type; and
- (4) **for each pilot**, within the immediately preceding 12 months, the pilot has successfully completed a written or oral test of the pilot's knowledge in—
  - (i) the provisions of the appropriate Civil Aviation Rules and the certificate holder's operations specifications and exposition; and
  - (ii) for each aeroplane type normally flown by the pilot, the aeroplane systems, performance, and operating procedures, and the content of the approved flight manual; and
  - (iii) navigation, ATC, and meteorology; and

- (iv) special flight operations as appropriate to the type of operation normally conducted by the pilot; and
  - (v) new equipment, procedures, and techniques; and
- (5) **for each flight engineer**, within the immediately preceding 12 months, the flight engineer has passed a check, administered by a flight engineer examiner, that—
- (i) covers normal, non-normal, and emergency procedures appropriate to the equipment fitted to the aeroplane and to the type of operations to which the flight engineer is assigned by the certificate holder; and
  - (ii) is conducted in the same aeroplane type, or a flight simulator of the same aeroplane type, used by the flight engineer in the operation; and
- (6) **for each flight engineer**, within the immediately preceding 12 months, the flight engineer has successfully completed a written or oral test of the flight engineer's knowledge in—
- (i) the provisions of the appropriate Civil Aviation Rules, the certificate holder's operations specifications and exposition; and
  - (ii) for each aeroplane type normally flown by the flight engineer, the aeroplane systems, performance, and operating procedures, and the content of the approved flight manual; and
  - (iii) special flight operations as appropriate to the type of operation normally conducted by the flight engineer; and
  - (iv) new equipment, procedures, and techniques; and
- (7) an entry is made, and certified, by—
- (i) for the checks and tests under subparagraphs (1), (2), (3), and (4), the flight examiner in the pilot training record for each check carried out, whether satisfactorily or otherwise; and
  - (ii) for the checks and tests under subparagraphs (5) and (6), the flight engineer examiner in the flight engineer training record for each check carried out, whether satisfactorily or otherwise.

**121.609 Flight-instructor competency checks**

Each holder of an air operator certificate shall ensure that each supervisory instructor or flight examiner receives instruction and maintains proficiency as appropriate in—

- (1) the methods of imparting instruction on how to operate, and how to ensure the safe operation of, a particular make and series aeroplane, or variant; and
- (2) the methods of recovery from mishandled, non-normal, and emergency manoeuvres; and
- (3) the operation of the aeroplane, equipment, or flight simulator used and, in operational flight, procedures and manoeuvres under normal, non-normal, and emergency conditions.

**121.611 Flight attendant crew member competency requirement**

A holder of an air operator certificate shall not use a flight attendant, and a person shall not serve as a flight attendant unless, within the immediately preceding 12 months, the certificate holder has determined by appropriate introduction and recurrent assessment and flight check that the person has adequate knowledge and is competent in the following areas as appropriate to assigned duties and responsibilities—

- (1) authority of the pilot-in-command; and
- (2) passenger handling, including procedures to be followed in handling persons whose conduct might jeopardise safety; and
- (3) crew member assignments, functions, and responsibilities during emergencies, including evacuation of persons who may need assistance; and
- (4) briefing of passengers; and
- (5) use of cabin equipment and controls; and
- (6) location and operation of items of emergency equipment; and
- (7) location and operation of oxygen equipment; and
- (8) location and operation of all normal and emergency exits, including evacuation chutes and escape ropes; and
- (9) seating of persons who may need assistance; and
- (10) first aid; and

- (11) for senior flight attendants and their deputies, ability to supervise other flight attendants carrying out their duties.

**121.613 Competency and testing records**

Each holder of an air operator certificate shall maintain records of all competency assessments and testing of its crew members.”.

**Subpart K Amendment**

121.805(b) is amended by revoking the reference to “121.903” and substituting it with a reference to “121.803”.

## **New Subparts L and M and Appendices A, B, and C**

Part 121 is amended by inserting after Subpart K, the following:

### **“Subpart L — Manuals, Logs, and Records**

#### ***121.851 Applicability***

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

#### ***121.853 Operating information***

(a) Each holder of an air operator certificate shall ensure that the parts of the certificate holder's exposition relevant to the duties of a crew member are current and are accessible to the crew member for pre-flight planning, and in-flight.

(b) The certificate holder shall ensure that information provided for the compliance of its operations personnel, in place of the AIP, has been reproduced accurately and is current.

(c) Each holder of an air operator certificate that elects to use non-State charts and similar in-flight documentation shall ensure that this non-State material is identical in substance to the applicable State documentation.

(d) Each person performing an air transport operation shall ensure that any amendments issued to them are properly actioned and documents remain current.

#### ***121.855 Documents to be carried***

(a) Each holder of an air operator certificate shall ensure that the following documents are carried on each individual air transport operation—

- (1) details of the operational flight plan; and
- (2) NOTAM and aeronautical information service briefing documentation appropriate to the operation; and
- (3) meteorological information appropriate to the operation; and
- (4) the load manifest; and
- (5) notification of dangerous goods; and
- (6) copies of the relevant flight guide charts and plates; and
- (7) in the case of a regular air transport service, a route guide covering each route flown and alternate aerodromes that may be used.



(b) The certificate holder shall ensure that separate copies of the documents referred to in paragraph (a)(7) are available for each operating pilot.

**121.857 Operation record**

(a) Each holder of an air operator certificate shall for each air transport operation that it conducts, record—

- (1) the planned aspects of the operation; and
- (2) the actual accomplishment of the operation.

(b) The record shall be of a permanent nature.

**121.859 Retention period**

(a) Each holder of an air operator certificate shall ensure that the following information is retained for 12 months from the date it was completed:

- (1) operational records;
- (2) load manifest;
- (3) notification of dangerous goods:

(b) The certificate holder shall ensure that its flight crew records of flight and duty time is retained for 12 months from the date of entry of the record.

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

## **Subpart M — Advance Qualification Programme**

### **121.901 Applicability**

(a) This Subpart prescribes rules governing the establishment and operation of an advanced qualification programme for qualifying, training, certifying, and otherwise ensuring competency of crew members and other personnel.

### **121.903 General**

(a) Each holder of an air operator certificate shall establish an advanced qualification programme under this Subpart, or a training programme in accordance with Subpart I.

(b) The certificate holder shall, when establishing a programme under this Subpart, include a proposed plan for transition from its present training to the advanced qualification programme.

(c) The certificate holder shall ensure that the programme is conducted safely and without unacceptable risk to the equipment and personnel, or third parties.

(d) The certificate holder shall ensure that the person responsible for its programme holds a flight examiner rating.

(e) The certificate holder shall ensure that its programme is controlled by the certificate holder.

(f) The certificate holder shall ensure that each person to whom this Subpart applies complies with all requirements of the programme.

(g) The certificate holder shall ensure that the advanced qualification programme covers all positions for—

- (1) flight crew members; and
- (2) instructors; and
- (3) flight examiners; and
- (4) evaluators.

(h) The certificate holder shall ensure that, when categories not referred to in paragraph (g), such as flight attendants and other operations personnel, are included within an advanced qualification programme, all positions of that category are covered by the programme.

### **121.905 Programme revisions**

(a) Each holder of an air operator certificate that establishes or revises an advanced qualification curriculum, shall comply with Subpart H, Subpart I, and Subpart J until the curriculum is acceptable to the Director.

- (b) If the Director finds that a certificate holder is not conforming to its programme the Director may require the certificate holder to—
- (1) revise its programme in a manner acceptable to the Director; or
  - (2) replace its advanced qualification programme with a training programme that complies with Subpart I and Subpart J.
- (c) If the provisions of paragraph (b) are exercised, the Director may require the certificate holder to provide a plan, acceptable to the Director, to enable transition from its advanced qualification programme to its replacement programme.

#### **121.907 Programme curriculum**

- (a) Each holder of an air operator certificate that establishes an advanced qualification programme shall ensure that the programme contains curricula—
- (1) required by this Subpart; and
  - (2) that are acceptable to the Director.
- (b) The certificate holder shall ensure that each curriculum in the programme—
- (1) indicates the requirements in Part 61 or Part 121 Subpart I and Subpart J, as applicable, that would be replaced by the curriculum; and
  - (2) shows how the curriculum will provide an equivalent level of safety for each requirement of Part 61, or Part 121 Subpart I and Subpart J, that would be replaced by the curriculum; and
  - (3) includes each applicable requirement of Part 61, or Part 121 Subpart I and Subpart J, that is not specifically addressed in the curriculum; and
  - (4) specifies—
    - (i) the make, model, and aeroplane type, or variant; and
    - (ii) each crew member position, and other positions, to be covered by the curriculum.

#### **121.909 Required curricula**

- (a) Each holder of an air operator certificate shall ensure that its advanced qualification programme has separate curricula for indoctrination, for qualification, and for continuing qualification.

(b) The indoctrination curriculum shall be designed to ensure that each person who is not qualified and currently serving in a position authorised by the certificate holder's certificate is indoctrinated in—

- (1) the policies and operating practices of the certificate holder; and
- (2) general operational knowledge; and
- (3) any specific general information or general aeronautical knowledge necessary for the position the person will occupy.

(c) The qualification curriculum shall be designed to ensure that each person not qualified and currently serving in a position authorised by the certificate holder's certificate receives the technical training, evaluation, and certification necessary to perform assigned duties to the required standard.

(d) The continuing qualification curriculum shall be based on a qualification cycle designed to ensure that each person already qualified and currently serving in a position authorised by the certificate holder's certificate receives regular training for their position, and continues to perform any assigned duties to the required standard.

#### **121.911 *Indoctrination curriculum***

Each holder of an air operator certificate shall ensure that each indoctrination curriculum includes—

- (1) for each person participating in this part of the programme, certificate holder policies, operating practices, and general operational knowledge; and
- (2) for each flight crew member and operations personnel participating in this part of the programme, in addition to subparagraph (1), general aeronautical knowledge; and
- (3) for each instructor participating in this part of the programme, in addition to subparagraph (1), the—
  - (i) fundamental principles of the teaching and learning process; and
  - (ii) methods and theories of instruction; and
  - (iii) knowledge necessary to use aeroplanes, flight training devices, flight simulators, and other training equipment in advanced qualification curricula; and
- (4) for each flight examiner and evaluator participating in this part of the programme, in addition to subparagraph (1), the—

- (i) evaluation requirements specified in each approved curriculum; and
- (ii) methods of evaluating crew members and operations personnel; and
- (iii) policies and practices used to conduct the kinds of evaluations particular to an advanced qualification programme curriculum.

**121.913 Qualification curriculum**

(a) Each holder of an air operator certificate shall ensure that each qualification curriculum includes—

- (1) for each person participating in this part of the programme—
  - (i) the certificate holder's planned hours of training, evaluation, and supervised operating experience; and
  - (ii) a list of the training, qualification, and certification activities, as applicable to each person's specific position; and
  - (iii) text describing the training, qualification, and certification activities, as applicable to each person's specific position; and
- (2) for each crew member, and other operations personnel, participating in this part of the programme, in addition to paragraph (a)(1), the certificate holder shall list and describe in detail—
  - (i) training, evaluation, and certification activities that are aeroplane and equipment specific to qualify the person for a particular duty position on, or duties related to, the operation of a specific make, model, and series aeroplane or variant; and
  - (ii) the knowledge requirements, subject materials, job skills, and each manoeuvre and procedure to be trained and evaluated; and
  - (iii) the practical test requirements in addition to, or in place of, the requirements of Part 61, and a list of, and text describing, supervised operating experience; and
- (3) for each instructor participating in this part of the programme, in addition to paragraph (a)(1), the certificate holder shall list and describe in detail the training and evaluation used to qualify the person to impart instruction on how to operate, and on how to

ensure the safe operation of, a particular make, model, and series aeroplane or variant; and

- (4) for each flight examiner and evaluator participating in this part of the programme, in addition to paragraph (a)(1), the certificate holder shall list and describe in detail the training, evaluation, and certification activities that are aeroplane and equipment specific to qualify the person to evaluate the performance of personnel who operate, or who ensure the safe operation of, a particular make, model, and series aeroplane or variant.

### **121.915 Continuing qualification curriculum**

#### **Qualification cycles**

- (a) Each holder of an air operator certificate shall ensure that each continuing qualification curriculum is based on a qualification cycle that ensures—
  - (1) during each cycle, each person participating in this part of the programme will receive a balanced mix of training and evaluation on all events and subjects necessary for original qualification; and
  - (2) each person participating in this part of the programme maintains the minimum proficiency, level of knowledge, skills, and attitudes required for original qualification; and
  - (3) each flight crew member participating in this part of the programme complies with the recent experience requirements prescribed in 61.37.
- (b) The certificate holder shall ensure that the duration of the continuing qualification cycle, does not initially exceed 26 calendar months, thereafter, if acceptable to the Director, the continuing qualification cycle may be extended if—
  - (1) the certificate holder demonstrates that an extension is warranted; and
  - (2) extensions do not exceed increments of 3 calendar months; and
  - (3) the continuing qualification cycle does not exceed a maximum of 39 calendar months.
- (c) The certificate holder shall ensure that each continuing qualification curriculum includes requirements for requalifying a crew member, an aeroplane dispatcher, or any other operations personnel, who have not maintained continuing qualification.

### **Continuing qualification evaluation period**

(d) The certificate holder shall ensure that each continuing qualification cycle includes an evaluation period, during which each person qualified under an advanced qualification programme will receive at least one training session and a proficiency evaluation at a training facility.

(e) The certificate holder shall ensure that the duration of the evaluation period required by paragraph (d) does not initially exceed 13 calendar months, thereafter, if acceptable to the Director, the continuing qualification cycle may be extended if—

- (1) the certificate holder demonstrates that an extension is warranted; and
- (2) extensions do not exceed increments of 3 calendar months; and
- (3) the evaluation period does not exceed a maximum of 26 calendar months.

### **Evaluation period training session**

(f) The certificate holder shall ensure that each evaluation period required by paragraph (d) includes training sessions, the number and frequency of which, must be acceptable to the Director.

(g) A training session, including any proficiency evaluation completed at that session, that occurs any time during the two calendar months before the last date for completion of an evaluation period can be considered by the certificate holder to be completed in the last calendar month.

(h) The certificate holder shall ensure that during each training session each person participating in this part of the programme receives—

- (1) for pilots-in-command, seconds-in-command, flight engineers, instructors, and evaluators, training in all events and major subjects required for original qualification that includes—
  - (i) ground training including a general review of knowledge and skills covered in qualification training; and
  - (ii) updated information on newly developed procedures, and safety information; and
- (2) for crew members, aeroplane dispatchers, instructors, evaluators, and other operation personnel who conduct their duties in flight, training in all events and major subjects required for original qualification that includes proficiency training in an aeroplane, a

flight training device, or a flight simulator on normal, non-normal, and emergency flight procedures and manoeuvres; and

- (3) for instructors and evaluators, who are limited to conducting their duties in flight simulators, training in all events and major subjects required for original qualification that includes—
  - (i) proficiency training in a flight simulator regarding operation of the training equipment; and
  - (ii) in operational flight, procedures and manoeuvres under normal, non-normal, and emergency conditions; and
- (4) for instructors and evaluators who are limited to conducting their duties in flight training devices, training in all events and major subjects required for original qualification that includes—
  - (i) proficiency training in a flight training device regarding operation of the training equipment; and
  - (ii) in operational flight, procedures and manoeuvres under normal, non-normal, and emergency conditions.

#### ***Evaluation period proficiency evaluation sessions***

- (i) The certificate holder shall ensure that each evaluation period includes a proficiency evaluation conducted during each training session that each person participating in this part of the programme shall successfully complete.
- (j) The certificate holder shall ensure that each training session includes—
  - (1) for each person participating in this part of the programme, proficiency evaluation in all events and major subjects required for original qualification; and
  - (2) for each pilot-in-command and other eligible flight crew member participating in this part of the programme, line-operating flight time evaluations.
- (k) The certificate holder shall ensure each proficiency evaluation is conducted—
  - (1) for each pilot-in-command, second-in-command, and flight engineer, participating in this part of the programme, in an aeroplane, flight simulator, or flight training device, or any combination of these, in accordance with the certificate holder's curriculum; and



- (2) for any other persons participating in this part of the programme, a means to evaluate their proficiency in the performance of their duties in their assigned tasks in an operational setting.

### ***Evaluation period line-operating flight time evaluation sessions***

- (l) The certificate holder shall ensure that each pilot-in-command participating in this part of the programme successfully completes a line-operating flight time evaluation once during each evaluation period that—
  - (1) is conducted in an aeroplane performing air transport operations under this Part, or ferry flights or proving flights in an aeroplane used to perform operations under this Part; and
  - (2) is completed in the calendar month that includes the midpoint of the evaluation period; and
  - (3) is satisfactorily completed on the due date; and
- (m) The certificate holder shall ensure that during line operating flight time evaluations each person performing duties as a pilot-in-command, second-in-command, or flight engineer for that flight, is individually evaluated to determine whether the person—
  - (1) remains adequately trained and currently proficient with respect to the particular aeroplane, crew position, and type of operation in which the person serves; and
  - (2) has sufficient knowledge and skills to operate effectively as part of a crew.
- (n) For the purpose of paragraph (l)(3), a line operating flight time evaluation completed within one calendar month of the day on which it is required shall be deemed to be completed on the due date.
- (o) The certificate holder shall ensure each pilot-in-command and second-in-command, and, if the certificate holder elects, and flight engineer, meets the recent experience requirements prescribed in 61.37 or 63.157 as appropriate.

### ***121.917 Crew resource management requirements***

- (a) Each holder of an air operator certificate shall ensure each indoctrination, qualification, and continuing qualification curriculum includes—
  - (1) crew resource management training applicable to each position for which training is provided; and
  - (2) training in the use of each crew member's crew resource management skills, and evaluation of the skills and proficiency of each person being trained; and

- (3) training and evaluation of each flight crew member's piloting, or other technical skills, in actual or simulated line-operating flight time.
- (b) For flight crew members this training and evaluation shall be conducted in a flight training device or flight simulator.

#### **121.919 Data collection requirements**

Each holder of an air operator certificate shall ensure information is collected from its crew members, instructors, and evaluators, that will enable the Authority to determine whether the training and evaluations are working to accomplish the overall objectives of the programme.

#### **121.921 Certification**

A person enrolled in a programme is eligible to receive a commercial or airline transport pilot, flight engineer, or appropriate rating, based on the successful completion of training and evaluation events accomplished under the programme, if—

- (1) training and evaluation of required knowledge and skills under the programme meets minimum certification and rating criteria established in Part 61 or Part 63; and
- (2) the applicant satisfactorily completes the appropriate qualification curriculum; and
- (3) the applicant shows competence in exercises that test both the required technical knowledge and skills, and crew resource management knowledge and skills, together; and
- (4) the applicant is otherwise eligible under the applicable requirements of Part 61 or Part 63.

#### **121.923 Approval of a person providing training by arrangement**

(a) Each holder of an air operator certificate may contract with the holder of an aviation training organisation certificate issued under Part 141, where the Part 141 certificate authorises the holder to conduct advanced qualification programme training, qualification, or evaluation functions, to carry out those functions provided the programme meets the requirements of this Subpart.

(b) The holder of an air operator certificate that elects to contract a Part 141 certificated organisation in accordance with paragraph (a) shall ensure that—

- (1) each instructor or evaluator, used by the Part 141 certificated organisation, meets all of the qualification and continuing qualification requirements that apply to employees of the holder of

an air operator certificate that has arranged for the training, including knowledge of the certificate holder's operations; and

- (2) each contracted Part 141 certificated organisation establishes and maintains records in sufficient detail of the training, qualification, and certification, of each person qualified under an advanced qualification programme in accordance with the training, qualification, and certification requirements of this Subpart.

## Appendix A — Transitional Arrangements

(a) The commencement of the rules contained in 121.371 and 121.373 are *suspended until they are applied by notice in the Gazette, such application being no sooner than a period of 2 years from the date that Part 121 comes into force.*

(b) Subject to paragraphs (c) and (d), the rules contained in 121.555(d), and 121.579 shall not come into force until 1 January 2005.

(c) Each certificate holder shall use a flight simulator for an aeroplane type in its training programme if the certificate holder is—

- (1) subject to paragraph (e), currently using a flight simulator in its training programme for that aeroplane type; or
- (2) introducing that aeroplane type to its operations; or
- (3) training to qualify flight crew on the aeroplane type, in which case the certificate holder shall use a flight simulator for—
  - (i) training under 121.553(d)(1) or (2); or
  - (ii) gaining experience for consolidation under 121.569(a)(1) or (2)—

but is not required to use a simulator for both.

(d) Each certificate holder that is using a flight simulator for any aeroplane type in its training programme shall conduct the manoeuvres referred to in 121.579 in the flight simulator.

(e) A certificate holder that is using a flight simulator for any aeroplane type in its training programme at the time this rule comes into effect may change from simulator to aeroplane based training for that aeroplane type if the certificate holder submits a plan that is acceptable to the Director and that—

- (1) outlines the requirement for the change from simulator to aeroplane based training; and
- (2) details how the transition between simulator based training and aeroplane based training will be accomplished; and
- (3) complies with 121.555(d) and 121.579 by 1 January 2005.

## Appendix B - Instruments and Equipment Airworthiness Design Standards

Instruments and equipment required by Subpart F shall meet the following specifications and requirements:

### **B.1 Protective breathing equipment**

(a) Protective breathing equipment shall—

- (1) meet the requirements of the TSO C99 series or the TSO C116 series; and
- (2) provide a breathing gas system that is free from hazards in—
  - (i) itself; and
  - (ii) its method of operation; and
  - (iii) its effect upon other components; and
- (3) provide protection for the eyes without unduly restricting vision; and
- (4) allow any crew member to—
  - (i) determine during flight the quantity of breathing gas available in each source of supply unless the gas system uses chemical oxygen generators; and
  - (ii) use corrective glasses without undue impairment of vision, or loss of protection; and
  - (iii) communicate using the crew member intercom system; and
- (5) allow the flight crew members to communicate using the aeroplane radios; and
- (6) supply breathing gas for 15 minutes at a pressure altitude of 8 000 feet.

(b) Protective breathing equipment may also be used to meet the supplemental oxygen requirements of Part 91 provided it meets the oxygen equipment standards.

### **B.2 Emergency medical kit**

Emergency medical kits shall—

- (1) be located and secured such that—

- (i) the possibility of damage or loss as the result of an accident is minimised; and
  - (ii) there is no danger to the occupants of the aeroplane; and
- (2) have its location marked on the outside of any compartment containing the kit; and
  - (3) be marked for use by qualified medical personnel only; and
  - (4) when containing narcotics, be installed in an aeroplane that—
    - (i) meets the requirements of the Misuse of Drugs Regulations 1977; and
    - (ii) when not in use can be locked, or placed in a lockable hangar, or have the first aid kit containing narcotics removed to a safe and secure location.

### **B.3 Public address system**

- (a) A public address system shall—
  - (1) except for handsets, headsets, microphones, selector switches, and signalling devices, be capable of operation independent of the crew member intercom system required by 121.369(2); and
  - (2) be accessible for immediate use from each of two flight crew member stations in the flight crew compartment; and
  - (3) for each required floor-level passenger emergency exit that has an adjacent flight attendant seat, have a microphone which is readily accessible to the seated flight attendant; and
  - (4) be capable of operation within 10 seconds by a flight attendant at each of those stations in the passenger compartment from which its use is accessible; and
  - (5) be understandably audible at all times at all passenger seats, lavatories, flight attendant seats, and work stations.
- (b) For the purposes of paragraph (a)(3) one microphone may serve more than one exit, provided the proximity of the exits allows unassisted verbal communication between seated flight attendants.

### **B.4 Crew member intercom system**

- A crew-member intercom system shall—

- (1) except for handsets, headsets, microphones, selector switches, and signalling devices, be capable of operation independent of the public address system required by 121.369(1); and
- (2) provide a means of two-way communication between all members of the flight crew; and
- (3) provide a means of two-way communication between the flight crew compartment and each passenger compartment; and
- (4) be accessible for immediate use from each of two flight crew member stations in the flight crew compartment; and
- (5) be accessible for use from at least one normal flight-attendant station in each passenger compartment; and
- (6) be capable of operation within 10 seconds by a flight attendant at each of those stations in each passenger compartment from which its use is accessible.
- (7) be accessible for use at enough flight attendant stations so that all floor-level emergency exits in each passenger compartment are observable from a station so equipped; and
- (8) have an alerting system that—
  - (i) incorporates aural or visual signals for use by any crew member; and
  - (ii) has a means for the recipient of a call to determine whether it is a normal call or an emergency call; and
- (9) provide a means of two-way communication between ground personnel and any two flight crew members in the flight crew compartment—
  - (i) when the aeroplane is on the ground; and
  - (ii) from a location that avoids visible detection from within the aeroplane during the operation of the ground personnel intercom system station.

### **B.5 Cockpit voice recorder**

Cockpit voice recorders shall—

- (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 30 minutes continuous recording time before any erasure.

#### **B.6 Flight data recorder**

Flight data recorders shall—

- (1) meet the requirements of the TSO C124 series; and
- (2) be fitted with an underwater locating device that meets the requirements of the TSO C121 series; and
- (3) be of a non-ejectable type and capable of recording and storing 25 hours of data in a digital form; and
- (4) record the parameters as detailed in Figure 1 and Table 1 of Appendix B.

#### **B.7 Additional attitude indicator**

The third presentation of attitude shall be—

- (1) operated independently of any other attitude indicating system; and
- (2) powered from a source independent of the electrical generating system; and
- (3) capable of continuous reliable operation for 30 minutes after total failure of the electrical generating system; and
- (4) operative without selection after total failure of the electrical generating system; and
- (5) appropriately lighted during all phases of operation.

#### **B.8 Weather radar**

Weather radar shall meet the requirements of the TSO C63 series.

#### **B.9 Ground proximity warning system**

GPWS shall meet the requirements of the TSO C92 series.



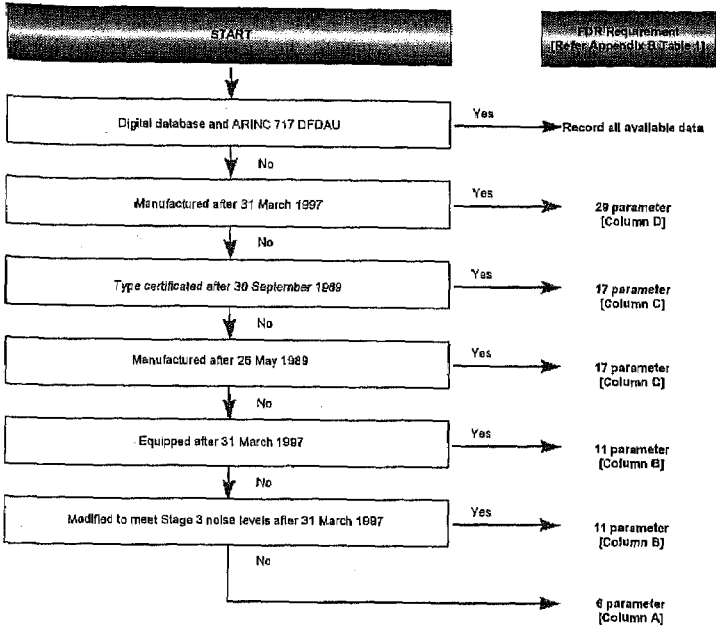


Figure 1. Flight Data Recorder Decision Chart

**Table 1. Flight Data Recorder Parameters**

	(A)	(B)	(C)	(D)
Parameter	6 Parameter	11 Parameter	17 Parameter	29 Parameter
1	Time	Time	Time	Time (GMT)
2	Altitude	Altitude	Altitude	Altitude
3	Airspeed	Airspeed	Airspeed	Airspeed
4	Vertical acceleration	Vertical acceleration	Vertical acceleration	Heading Vertical acceleration
5	Heading	Heading	Heading	Vertical acceleration Heading
6	Time of radio transmission to/from ATC	Time of radio transmission to/from ATC	Time of radio transmission to/from ATC	Pitch attitude
7		Pitch attitude	Pitch attitude	Roll attitude
8		Roll attitude	Roll attitude	Radio transmitter keying
9		Longitudinal acceleration	Longitudinal acceleration	Thrust/power on each engine
10		Control column OR pitch control surface position	Pitch trim position	Trailing edge flap OR cockpit control selection
11		Thrust of each engine	Control column OR pitch control surface position	Leading edge flap OR cockpit control selection

	(A)	(B)	(C)	(D)
Parameter	6 Parameter	11 Parameter	17 Parameter	29 Parameter
12			Control wheel OR lateral control surface position	Thrust reverser Position
13			Rudder pedal OR yaw control surface position	Ground spoiler position/speed brake selection
14			Thrust of each engine	Marker beacon passage
15			Position of each thrust reverser	Autopilot engagement
16			Trailing edge flap OR cockpit flap control position	Longitudinal acceleration
17			Leading edge flap OR cockpit flap control position	Pilot input and/or surface position - <i>primary controls</i>
18				Lateral acceleration
19				Pitch trim position

	(A)	(B)	(C)	(D)
Parameter	6 Parameter	11 Parameter	17 Parameter	29 Parameter
20				Glideslope deviation
21				Localiser deviation
22				AFCS mode and engagement status
23				Radio altitude
24				Master warning
25				Main gear squat switch status
26				Angle of attack
27				Outside air temperature OR total air temperature.
28				Hydraulics, each system, low pressure
29				Groundspeed

	(A)	(B)	(C)	(D)
Parameter	6 Parameter	11 Parameter	17 Parameter	29 Parameter

If additional recording capacity is available, recording of the following parameters is recommended. The parameters are listed in order of significance.

30				Drift angle
31				Wind speed and direction
32				Latitude and longitude
33				Brake pressure/pedal position
34				Additional engine parameters: EPR, N <sub>1</sub> , N <sub>2</sub>
35				Exhaust Gas Temperature
36				Throttle lever position
37				Fuel flow
38				TCAS - TA
39				TCAS - RA
40				TCAS - Sensitivity level

	(A)	(B)	(C)	(D)
Parameter	6 Parameter	11 Parameter	17 Parameter	29 Parameter
41				Ground Proximity Warning System
42				Landing gear or gear selector position
43				DME 1 and 2 distance
44				Nav 1 and 2 frequency selection

## Appendix C — Runways

This Appendix is referred to in 121.71.

### C.1 *Minimum runway widths*

To determine the minimum runway width it is necessary to ascertain the aerodrome reference code (ARC) appropriate to the aeroplane type by using Table 1. The code is composed of two elements which are related to the aeroplane performance, characteristics, and dimensions. Element 1 is a number based on the aeroplane reference field length (ARFL) and element 2 is a letter based on the aeroplane wing span and outer main gear wheel span.

#### C.1.1 *Determining the ARC using Table 1*

- (a) **Firstly:** Determine the ARFL of the aeroplane to be operated. The ARFL is the minimum field length for take-off at maximum certificated take-off weight, at sea level, in standard atmospheric conditions, in still air, and with zero runway slope, as derived from the aircraft flight manual;
- (b) **Secondly:** Determine the code number for element 1 applying the aeroplane's aerodrome reference field length; and
- (c) **Thirdly:** Determine the code letter of element 2 corresponding to the dimensions of the aeroplane's wing and outer main gear span. The code letter for element 2 is the code letter which corresponds to the wing span, or the outer main gear span, whichever gives the most demanding code letter. For instance, if code letter C corresponds to the aeroplane's wing span and code letter D corresponds to the aeroplane's outer main gear span, the code letter selected would be D for that aeroplane type.

Table 1

## Aerodrome Reference Code (ARC)

Code Element 1		Code Element 2		
Code Number	Aeroplane Reference Field Length	Code Letter	Wing Span	Outer Main Gear Wheel span
1	Less than 800 m	A	Up to but not including 15 m	Up to but not including 4.5 m
2	800 m up to but not including 1200 m	B	15 m up to but not including 24 m	4.5 m up to but not including 6 m
3	1200 m up to but not including 1800 m	C	24 m up to but not including 36 m	6 m up to but not including 9 m
4	1800 m and over	D	36 m up to but not including 52 m	9 m up to but not including 14 m
		E	52 m up to but not including 65 m	9 m up to but not including 14 m



**C.1.2 Determining the minimum runway width using Table 2**

Having determined the aeroplane's ARC the runway widths are determined by entering at the applicable code number and then moving across to the value under the applicable code letter. For instance if the aeroplane ARC is 2C, the required runway width is 30 m.

Table 2. Runway widths

Code Number	Code Letter				
	A	B	C	D	E
1	18 m	18 m	23 m	-	-
2	23 m	23 m	30 m	-	-
3	30 m	30 m	30 m	45 m	-
4	-	-	45 m	45 m	45 m

**C.1.3 Determining Minimum runway strip widths**

The minimum runway strip width for a particular aeroplane type should be determined by reference to Table 3 below.

<b>Table 3 Minimum Runway Strip Width</b>		
<b>Code Number</b>	<b>Runway Type</b>	<b>Strip Width</b>
3 or 4	Precision instrument approach runway at an International aerodrome	300 m
3 or 4	Precision instrument approach runway	220 m
1 or 2	Precision instrument approach runway	150 m
3 and 4	Non-precision instrument approach or non-instrument approach runway	150 m
3 and 4	Non-instrument approach day only applicable to aircraft at or below 22700 kg MCTOW	90 m
1 and 2	Non-precision instrument approach runway	150 m
2	Non-instrument approach runway	80 m
1	Non-instrument approach runway	60 m

## **Appendix 1 and 2 Amendments**

Appendix 1 of Part 121 is amended by revoking the heading of Appendix 1 and substituting it with the following:

“Appendix 1 — Transitional Rules for Subpart K”.

## CONSULTATION DETAILS

(This statement does not form part of the rules contained in Part 121. It provides details of the consultation undertaken in making the rules.)

### Background to the Rules

In April 1988 the Swedavia-McGregor Report on civil aviation regulation in New Zealand was completed. Following the recommendations contained in that report, the Civil Aviation Authority (CAA) (formerly the Air Transport Division of the Ministry of Transport) commenced a complete review of all existing civil aviation legislation. The existing legislation that is still appropriate is being rewritten into the new *Rules* format. New legislation is being generated where necessary for the areas not presently covered.

Considerable research was carried out to determine the format for the new legislation. It was decided that the legislative framework should incorporate the advantages of the regulatory system of the Federal Aviation Administration (FAA) of United States of America and the system being developed by the European Joint Aviation Authority's and published as Joint Aviation Requirements (JAR).

The new rules are structured in a manner similar to the Federal Aviation Regulations (FAR) of the FAA, and aim to achieve maximum harmonisation whilst allowing for national variations. Close co-operation is also being maintained with the Civil Aviation Safety Authority of Australia to ensure maximum harmonisation with their regulatory code.

New Zealand's revised legislation is published as Civil Aviation Rules (CAR) which is divided into Parts. Each Part contains a series of individual rules which relate to a particular aviation activity.

Accompanying most Parts have been at least one associated Advisory Circular (AC) which will expand, in an informative way, specific requirements of the Part and acceptable means of compliance. For instance an AC may contain examples of acceptable practices or procedures which would meet the requirements of a particular rule.

The CAR numbering system is based on the FAR system. As a general principle the subject matter of a rule Part have been the same or similar to the FAR although the title may differ to suit New Zealand terminology. Where a CAR Part does not readily equate with a FAR number code, a number has been selected that does not conflict with any existing FAR Part.

The objective of the new rules system is to strike a balance of responsibility between the State authority and those who provide services and exercise privileges in the civil aviation system. This balance must enable the State

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.

Section 12 of the Civil Aviation Act 1990 requires participants in the aviation system to carry out their activities safely and in accordance with the relevant prescribed safety standards and practices. Section 28 of the Act allows the Minister to make ordinary rules.

### **Notice of Proposed Rule Making**

To provide public notice of, and opportunity for comment on the proposed new rules, the Authority issued Notice of Proposed Rule Making 95-14 under Docket Number 1041 and Docket Number 1048 for maintenance, on 13 December 1995. This Notice proposed the introduction of Civil Aviation Rules Part 121 to provide a regulatory safety boundary for Air Transport Operations — Large Aeroplanes. The Authority issued Notice of Proposed Rule Making 96-5 under Docket Number 1042 on 22 May 1996. This Notice proposed the introduction of Civil Aviation Rules Part 121 Subpart D — Performance.

### **Supplementary Information**

All comments made on the Notice of Proposed Rule Making are available in the rules docket for examination by interested persons. A report summarising each substantive contact with the Civil Aviation Authority contact person concerning this rule making has been filed in the docket.

### **Availability of the Document**

Any person may view a copy of these rules at Aviation House, 1 Market Grove, Lower Hutt. Copies may be obtained from Publishing Solutions Ltd, PO Box 983, Wellington 6015, Telephone 0800 800 359.

### **Summary of Comments on Docket Numbers 1041 and 1048 NPRM**

#### **General comments on the NPRM**

Part 121 NPRM contained 138 rules including 2 Appendices. The 22 commenters made a total of 175 submissions on 63 of these rules. No comments were made about 53 rules and one Appendix while 16 rules attracted one comment and a further 21 received 2 comments each. The maintenance duty time limits received submissions from 8 commenters and 2 rules received 7 comments while another 2 attracted 6 comments.

The lack of a Performance Subpart was cited by 3 commenters who overlooked that an NPRM on performance had been published separately. A group of engineers developed a combined submission on 3 rules and 55 engineers submitted identical copies of their form letter. Various requests were made to

make the wording of some rules clearer. In general rules which included a number of issues attracted this comment. Each rule was analysed, and where necessary restructured, or the layout simplified to reduce the possibility of confusion although the rule requirement remained the same. This has resulted in some rules being separated into two or more rules, others have been combined, and the order of some Subparts changed. Some titles were also changed to better reflect the subject material contained in the text of the rule.

From the nine submissions received on Subpart F one general issue was raised. This is discussed as follows:

**1.1** Two commenters suggested improved wording, structure, and other corrections to general errors in the NPRM document.

**CAA response:** The Authority agrees and has incorporated all the recommended changes to the structure.

From the 13, submissions received on the rest of the document, 2 general issues were raised. These are discussed as follows:

**1.2** Two commenters stated that the rule was difficult to interpret without the accompanying Advisory Circulars to clarify the direction of the rule.

**CAA response:** All the acceptable methods of compliance expanded via an Advisory Circular already exist in current documents (examples are the ETOPs, and Simulator requirements) and no changes to existing practice is required by an Advisory Circular unless the change is specified in the rule itself. Advisory Circulars may be desirable but were not necessary for an understanding of the NPRM.

**1.3** One commenter was concerned about what appeared to them to be the wholesale incorporation of FAR requirements in Subpart H - Crew Training. They felt that New Zealand experience of many years was being ignored.

**CAA response:** Subpart H has addressed some of the safety issues which overseas experience and research has identified. By examining New Zealand's record it is apparent that the causes of accidents, including numerous CFITs, is little different to that experienced overseas. World-wide the training requirements around which airline training programmes are constructed are being modernised and the Authority agrees with the way the FAA has commenced to address this issue.

## **2. Specific comments on the NPRM**

Specific comments received from the 22 submissions are discussed as follows:

### 121.1 Applicability

One commenter was concerned that piston engine aircraft requirements were not specifically mentioned in the applicability.

**CAA response:** All aircraft that meet the applicability, however they are powered, must comply with this Part. There are no large Part 121 piston-powered aeroplanes presently operating in air transport operations within New Zealand. The Authority has therefore not provided the opportunity for *grand-fathering*, which would enable the use of older piston aeroplanes that are unable to comply with modern certification and safety standards.

### 121.3 Definitions

One commenter considered that Final Reserve Fuel should be *planned* to be remaining on board, on completion of a flight because *normally required* is not easily defined.

**CAA response:** The Authority agrees that *normally required* is not easily defined and the definition for final reserve fuel has been rewritten in the final 121 and 135 rules to incorporate the wording currently used in *paragraph 1.2 of CAIC 101/89 fixed final reserve* although the title has not been carried into the new rules.

One commenter offered alternative wording for Line-operating flight time.

**CAA response:** The intent of this definition has been improved by adding the words *air transport* before the words *operations under this Part*.

Commenters requested changes to a number of rules which required changes or additions to 121.3 Definitions.

**CAA response:** The changes made have been summarised as follows:

The definition of an *adequate aerodrome* has been included; the definition of an *evaluator* has been restricted to use in an AQP; *extended over-water operations* have been more clearly defined; as has *extended-range twin-engine operations*; a new definition for *regular air transport service* has been added.

### 121.7(b) Compliance with procedures

One commenter submitted that operators flying to a foreign state should be required to comply with that State's Act, Rules or Regulations.

**CAA response:** The requirement when operating internationally is to comply with ICAO Annex 2 and 6. Part 1 and is covered by the Act. Therefore the responsibility of the Certificate Holder to comply with the rules of a foreign State need not be reiterated and this clause has been removed from the rule. The name has been changed to conform with Part 135.

### 121.9 Crew member grace provisions

Some commenters misunderstood the provision.

**CAA response:** The provision has been better defined.

### 121.53 Common language [Final rule 121.55]

One commenter to the identical clause in Part 135 believed that all crew should be able to communicate in the same language and in NZ that language should be English.

**CAA response:** The Authority agrees that for large aeroplanes at least the flight crew must be proficient in the English language. This is necessary to ensure all flight crew are kept *in the loop* with clearances and radio communications. This response differs from the decision reached for Part 135 because of the increased risk associated with the larger aeroplanes and the increased likelihood of foreign crew operating a Part 121 operation in New Zealand. Recent experience with foreign crews operating in New Zealand has demonstrated that language difficulties can contribute to airspace infringements.

### 121.55 Operational schedules [Final rule 121.61]

One commenter considered that the aeroplane flight manual is not the only source of aeroplane cruising speed and referred to 121.69 as an example.

**CAA response:** The rule has been reworded to show data from manufacturer's manuals is acceptable provided that data conforms to the parameters contained in the aeroplane's type certificate. This does not preclude the use of a manufacture prepared aeroplane operations manual or Flight Crew Operating Manual (FCOM) provided a quality assurance programme is in place to ensure its accuracy. Generally this data is prepared by a manufacturer to assist operators in producing their own Operations Manuals. To ensure conformity the words *or current aeroplane-specific data* have been deleted from 121.69 (b)(1)

Four commenters asked for paragraph (a) to be deleted.

**CAA response:** Initially the Authority agreed with this opinion however further investigation indicated that the rule should be rewritten using more specific terms and retained. Its purpose is to ensure that realistic aeroplane data is used to plan a route and that the quality assurance loop between the planning and operational parameters of a route exists. It does not control however, what an operator may choose to publish in the public timetable for commercial reasons. The requirement has been established as paragraph (b) in 121.61 however it may ultimately be reworded and placed in subpart K of 121.



**121.59 Aeroplane proving tests [Final rule 121.57]**

Five commenters considered that the purpose of the rule was unsatisfactory and the division between aircraft and operator proving requirements was unclear. One commenter pointed out the mistake in (d) (1) where dissimilar had been typed as similar.

Another commenter stated, *This requirement is illogical. The concept of proving flights to various destinations for ground training is well understood by us. However, to require an arbitrary 50 hours is unnecessary. It appears the rule is confusing aircraft proving versus crew training. The aircraft has no idea if it is day or night. To require a fixed number of hours would, if you consider a Saab 2000 operating AKL-NSN-CHC to meet the requirements of this rule, require approximately 17 return flights to be flown.*

*The Rule needs to be re-written clearly portraying what it is trying to achieve. It is either proving the aircraft or training the crew. If it is training the crew it is inappropriate in this sub-section and should be in Sub-Part I.*

**CAA response:** Both requirements are consistent with the FAR and JAR, and with current New Zealand requirements. Placement in 121.57 Subpart A conforms with the placement of the FAR equivalent and completes the extra certification requirements needed before an aircraft can be used on air transport operations. The Authority agrees however that the practice of combining both requirements in one rule could be confusing and accepts that the intent of operational proving flights is achieved by the requirements established for operating experience in Subpart I.

The aircraft proving tests requirements have been separated and retained in Subpart A. This requirement is only enforceable when proving flights have not already been carried out in accordance with the requirements of the state of certification.

The operational proving flights were intended to prove that an operator had carried out all the flight crew and ground support training to a satisfactory standard and, although the principle is considered reasonable by the Authority, operational proving flights have been removed from the rule on the basis that the consolidation requirements in Subpart I have the effect of achieving this assurance.

**121.61 Flight preparation [Final rule 121.59 (f)]**

**CAA comment:** This rule in its original format required the Pilot-in-Command to submit the flight plan to an air traffic control unit. Current legislation allow a certificate holder to submit flight plans. The Authority considers that the final rule can be changed to allow this practice to continue.

**121.69 Minimum height for VFR flights [Final rule]**

**CAA comment:** The minimum altitude above the surface, for a flight under this Part, remains at 500 feet as prescribed in the Regulations and 121.69 in the final rule merely applies this condition. In other words there is no change to current practice and all but 91.311(c) will apply.

**121.67 Routes and use of aerodromes [Final rule 121.67, 121.71, 121.165, & 121.167]**

One commenter recommended that (a)(1) should refer to ETOPS Advisory Circular.

One commenter recommended that (f)(2) should be changed by substituting *international* with the words *outside New Zealand*. While another commenter commented that the meaning was unclear.

One commenter requested definitions be included for the following terms: Adequate airport, ETOPS, and extended over water operations.

**CAA response:** This rule has been split into separate rules containing requirements for: use of aerodromes, en-route limitations, and ETOPS Limitations. The above submissions have been incorporated into the final rule.

One commenter considered that freight operations should be exempt from the ETOPS requirement.

**CAA response:** The requirement for ETOPS applies to all air transport operations who cannot meet the alternate requirements contained in 121.67 (a). The Act does not make any distinction between freight or passengers for air transport operations and the aerial work category operation will cease to exist when the new rules come into effect.

Two commenters noted their concerns with the requirement for aircraft used on extended over-water operations to have a ditching certificate. One was not convinced that a ditching certificate is a FAA requirement for extended over-water operations and both were concerned that some older aircraft did not meet the requirements. The other commenter raised the *grand-father* rights given to some older aircraft in the FAR.

**CAA response:** The Authority does not agree. Ditching certificates have been required by most Aviation Authority's including Australia for some time. The FAR requirement was strengthened in 1980 and again in 1995 with a time limit being established after which the *grand-father* provisions would expire. The additional aircraft in the 10 to 19 seat category which have been added to FAR part 121 applicability have until December 20, 2010 to comply with this requirement. The Convair 580 *grand-father* right may be a special case and further investigation will be needed by operators of Convair aeroplanes wishing

to justify the validity of not having a ditching certificate for extended over-water operations. The Authority does not intend to grant automatic grand-father rights to large aeroplanes not already operating in New Zealand

One commenter considered 121.67 (f) to be unclear and queried the difference with 139.305 (5).

**CAA response:** The Authority agrees that the wording could be improved and has rewritten this section. The difference between 139.305 and 121.67 is because 121 incorporates an exception which was granted after Part 139 came into effect. The exception allowed the use of non-certified aerodromes as an alternate for domestic operations only final rule 121.71(b), (g),(h) and Appendix C are transferred from previously existing requirements including the Advisory Circular 139-01, Aerodrome Design.

### **121.69 Fuel [Final rule 121.75]**

One commenter expressed the need to agree on the wording for the definition for final reserve fuel and another was unclear what was meant by *geographic location*.

**CAA response:** The definition has reverted to the current wording from CAIC (see also 121.3 Definitions in submission page 4). Geographic location should be considered when the aerodrome is isolated or remote, or has other features that may effect a safe arrival. The geographic location of the destination aerodrome also needs to be factored in the fuel calculation if factors such as altitude or surrounding terrain need to be considered.

### **121.73 Carriage of passengers [Final rule 121.81]**

Two commenters questioned the need to inform the pilot-in-command, one pointed out that a more appropriate person to inform in this size aeroplane may be the Flight Service Director. One of these commenters also requested definitions for: *Physically disabled*, *Escorted Passenger*, and *Escorted*.

**CAA response:** The Authority agrees and has changed the wording to allow the notification to be given to the Senior Flight Attendant, or equivalent position. Definitions for: *Disabled Passenger*, and *Escorted Passenger* have been added to the rule and terms used in the rule adjusted to reflect these definitions. The name of this rule has been changed to *Passenger safety* in the final rule to more correctly reflect the subject.

### **121.77 Admission to the flight deck [Final rule 121.85]**

One commenter was concerned that the ability of the pilot-in-command to invite passengers to visit the flight deck had been removed.

**CAA response:** The pilot-in-command has complete control over flight deck access and can decline visitors at any time. The pilot-in-command may also permit visitors provided it is in compliance with policy published in the certificate holders exposition.

The change in title from flight deck to flight compartment was made to better reflect the subject matter and the order of the title changed to conform with Part 135.

### **121.77 Flight check system [Final rule]**

**CAA comment:** The Authority became aware that this requirement presently prescribed in the Regulations should have been included in the NPRM. The requirements are based on the ICAO standards which have been adopted by most States. As there is no change to the present requirements prescribed in various documents and the regulations, the Authority considers that this rule can be included as a final rule in Part 121.

### **121.79 Manipulation of controls [Final rule 121.87]**

One commenter considered *Pilot* was too restrictive and requested the words be changed to *flight crew member*.

**CAA response:** The Authority agrees and this change has been implemented for the final rule.

One commenter asked if a student pilot could manipulate the controls and requested a definition.

**CAA response:** A definition is not considered necessary as 121.79 (1) requires the certificate holder to authorise any pilot. The requirements for this approval is contained in 121.505 of Subpart H. To ensure this interpretation is not possible the wording of the rule has been strengthened by adding the reference in the final rule.

### **121.81 Use of flight recorders [Final rule 121.89]**

Two commenters considered that the use of boom microphones below 10 000 feet to be unnecessary.

**CAA response:** The Authority has conformed with FAA requirements for flight recorders to ensure consistency with FAR Part 21 and 121. The boom mike provides a separate channel for each crew position and eliminates uncertainty of identification during play back. Experience in New Zealand and elsewhere has shown a central microphone to be inadequate during accident investigations.

One commenter suggested that MEL/DDPG provisions are desirable for cockpit voice recorder and was concerned about the erasure protection feature.

**CAA response:** The MEL provisions are contained in Part 91. Any cockpit voice recorder equipment will be required to meet the current Technical Standard Order and should already meet the erasure protection feature. The transition period will provide time in which to upgrade equipment to the current Technical Standard Order.

### **121.83 Refuelling and defuelling operations [Final rule 121.91]**

One commenter recommended that the operator ensure a suitable qualified person to have responsibility for refuelling as the pilot-in-command is not appropriate for a large aeroplane.

**CAA response:** The Authority points out that (c) (2) only places the pilot-in-command in charge when any propulsion engine is running. This requirement is correct in this circumstances.

One commenter noted that (d) does not define which part of the aeroplane must be 15 meters from any third party.

**CAA response:** The final rule has been reworded. The present regulations in the CASO require the complete aeroplane to be at least 15 meters from third parties. This is considered to be very restrictive where parking is limited. The largest risk of fire during refuelling is from fuel vapour and the final rule has been worded to ensure that the safety intent of the current rule is met by ensuring any source of fuel vapour is at least 15 meters from third parties.

### **121.89 Flight following and emergency procedures [Final rule 121.95]**

One commenter was unsure when flight following was required and believed that air traffic control was responsible for declaring an emergency.

**CAA response:** Flight following requirements have been removed from Part 121.

The pilot-in-command is normally responsible for the declaration of emergencies, not air traffic control. The procedures required by this rule have been incorporated into final rule 121.95 Emergency situation action plans. The rule formalises the requirement for operators to include procedures in their *Emergency situation action plans* which detail how to make an emergency declaration on behalf of the pilot-in-command in certain situations. The final rule also clarifies the requirement to ensure the action plans are understood and that staff receive training in how to carry out the procedures contained in the certificate holders exposition.

### 121.153 Meteorological information

One commenter was concerned that the wording allowed the use of non-certificated organisations for a wider group of operations than intended.

**CAA response:** The rule has been clarified in the final rule.

One commenter considered that basic weather reports could be disallowed by this rule and requested a provision for this type of report.

**CAA response:** Company issued basic weather reports are only to assist flight crew in the arrival procedures and are not intended for use as an official planning tool. It is not acceptable to use a basic report to establish whether suitable weather exists to commence an air transport operation in accordance with 121.157 of the final rule however the basic report could be used by a pilot to select the most appropriate instrument approach for his arrival. This policy does not preclude the operator from establishing a quality procedure for recording and using basic weather reports. These reports could also be used to justify an improved service from a certified Part 174 provider.

### 121.155 Meteorological conditions – VFR flight

Opposing views were expressed by two commenters, one stated the conditions in (c) were ridiculously high while another felt flight in met minima this low was unrealistic for a large aeroplane.

**CAA response:** The conditions exist in current regulations and remain unchanged in the final rule. A prudent operator is free to increase the minima in his exposition to achieve a more acceptable margin of safety should that be considered desirable.

One commenter recommended that the word *commence* (121.155 (d)) should be changed to *conduct*.

**CAA response:** The Authority disagrees, paragraph (a) covers *commence* while the requirement to *conduct* is covered in (b) and (c).

The current restriction from the CASO requiring extended over water operations to be conducted under IFR rules has been removed from Part 91 and although this restriction was not in the Part 121 NPRM the Authority considers that this rule can be included in the final rule as Part 121.155(b) because the requirement conforms with current legislation.

### 121.157 Meteorological conditions – IFR flight

One commenter noted one mistake and one omission from the text. In (a) (2) aerodrome *operating* minima should read aerodrome *alternate* minima and in (3) *operators* should be inserted before the last word to read *operator's exposition*.

**CAA response:** This rule contained a cut and past error established when the rule was transferred from Part 135. This had the effect of making Part 135 more restrictive than Part 121. The AIA airline group disagreed with the correction to Part 121 and submitted that the status-quo should prevail although there had been no adverse comments to the restriction contained in Part 135. This in effect required the retention of some alternate requirements which had been relaxed in the NPRM on the basis that safety was a factor of the total package. An equivalent level of safety was achieved in the NPRM by adopting the FAR requirement for the destination to be forecast open at ETA at the flights departure time while the provision for in-flight re-planning procedures in the exposition contained 121.75(d) allowed flexibility.

The AIA view created some difficulties because of the different approaches used internationally to cope with the risk associated with loss of the destination airport due to weather or runway contamination and the difference between what current New Zealand legislation actually requires and how the regulations are applied by airlines, and also applied in airline operations specifications by the Authority.

The Authority has therefore considered the issue and rewritten this rule to reflect the *minimum safe standard* it will accept when considering both, the shorter sectors which prevail in domestic operations and the longer sectors necessary for international operations. The lack of multi-runway aerodromes available for large aeroplanes has also been taken into account.

One commenter noted that paragraph (b) really has no meaning.

**CAA response:** Paragraph (b) in the NPRM has been removed and (a)(3) has been restructured as a separate paragraph to more correctly reflect the subject. It therefore becomes a new paragraph (b).

#### **121.159 Aerodrome operating minima – IFR flight**

Five commenters recommended that paragraph (b) be modified, by reducing the experience from 200 hours to 100 hours (One commenter) or deleted in full (Four commenters).

**CAA response:** The Authority has considered this requirement and agrees to delete paragraph (b) entirely on the basis that 121.569 and 571 in the final rule ensures the necessary experience is obtained.

#### **121.161 IFR departure limitations**

One commenter recommended that the word *lower* be removed from (a) (2)

**CAA response:** The Authority agrees.

One commenter recommended that (b) (1) and (b) (2) maximum flying time to an alternate be increased in both cases by one hour.

**CAA response:** The Authority is required to conform with ICAO and other major authorities. The paragraph (1) requirement has never been longer than 1 hour and in some cases has been as low as :30 minutes. A one hundred percent increase to a two hour requirement is not acceptable. Paragraph (2) likewise is not acceptable for safety reasons.

One commenter recommended that the rule be modified to allow reduced Visibility take-offs.

**CAA response:** Reduced Visibility take-off requirements are contained in Part 91 with the procedures to be included in the holders exposition see 121.161(a) (2). The requirements have been clarified in a new rule

#### **121.163 Reduced minima take-off [Final rule]**

**CAA comment:** The Authority agrees with the commenter recommending a rule controlling requirements for a reduced visibility take-off. The rules contained in the NPRMs for Part 91 and Part 121 do not adequately cover the requirements as presently prescribed in the CASO. These requirements are based on the ICAO standards which have been adopted by most States. As there is no change to the present requirements prescribed in various documents and the regulations, the Authority considers that this rule can be included as a final rule in Part 121.

#### **121.165 En-route limitations [Final rule]**

**CAA comment:** The Authority has split these requirements from 121.67 in accordance with comments on that rule and corrected the wording to reflect IACO and Part 139 requirements for a visual approach indicator.

#### **121.167 ETOPS limitations [Final rule]**

**CAA comment:** The Authority has split these requirements from 121.67 in accordance with comments on that rule.

#### **121.163 IFR procedures [Final rule 121.169]**

One commenter asked for company specific IFR departure and approach procedures to be recognised for uncontrolled airspace under (c) and also suggested that allowance be made for GPS. The question was also asked, *who is the aviation authority.*

**CAA response:** The Authority is the Aviation Authority that approves New Zealand documents in this context, however the wording has been changed to conform with the words used in other Parts to identify the Aviation Authority.



Accepted practice is for any IFR procedure to be designed for public use and published in the NZAIP. It is not the Authority's practice to make provision for unpublished or company designed private procedures. GPS is under development separately and any changes necessary to the rules will be consulted during GPS development in the normal manner.

## **This Subpart Summarises Comments on Docket Number 1042 NPRM**

### **General comments on the NPRM**

From the nine submissions received, three commenters indicated agreement and made no other comment.

A number of the commenters commented on the values of net take-off flight path, take-off flight path, take-off distance, and take-off run in this subpart.

**CAA response:** CAA reviewed the use of these terms in the equivalent FAR Part 121 and found that those rules state that these terms have the same meaning as prescribed in the rules under which the aeroplane is certificated. FAR Part 25 Airworthiness standards: Transport category aircraft specifies the likes of take-off distance and net take-off flight path in detail. Consequently, in prescribing the operational performance requirements in Part 121, there is no further specification in terms of the likes that take-off distance is to 35 feet or that the net take-off flight path extends to 1500 feet above the aerodrome surface. As CAR Part 21 incorporates CAR Part 25 by reference, CAA concludes that this subpart should adopt the FAR system and has deleted the values associated with these terms in this subpart and has adopted the FAR 121 definition for these terms.

### **Specific comments on the NPRM**

Specific comments received from the four submissions are discussed as follows:

#### **121.203 Definitions**

One commenter asked that if it is necessary to define "clearway", is it appropriate to define "stopway"?

**CAA response:** The definition of *clearway* is included as the term is used in this Subpart. The term *stopway* is not used in the Subpart and therefore not defined. The term *stopway* and other aerodrome design terms relevant to aeroplane performance are contained in Advisory Circular 139-06A.

One commenter stated that one of the major problems continuously encountered is the understanding of the take-off performance is the definition of  $V_1$  and the current definition would only add to this confusion. The definition of  $V_1$  should be changed to align with the certification rules being " $V_1$  means the take-off decision speed at which the pilot recognises and reacts to the engine

failure, as indicated by the pilot's application of the first retarding means during accelerate stop". The commenter also suggested that rather than define  $V_1$ , it could be stated that " $V_1$  and net flight path shall have the same meaning as the rules under which the aircraft was certificated".

**CAA response:** The definition of  $V_1$  is correct as it equates to the  $V_1$  value contained in the aeroplane flight manual which is required to be complied with in determining the performance requirements and operating the aeroplane. The true value of  $V_1$  can be ascertained by reference to the airworthiness standards. For aeroplanes operating under CAR Part 121 the airworthiness standards is FAR Part 25 being incorporated by reference under CAR Part 21. FAR Part 25 rule 25.107 prescribes the value for  $V_1$  in relation to  $V_{EF}$  and in terms of calibrated speed and includes the factors in the definition provided by this commenter. The  $V_1$  value specified in the flight manual is therefore the value specified in FAR Part 25 and it is not necessary to include those values in the definition.

One commenter recommended that the definitions of net flight paths be added to specify the degradation factors of the actual flight path for net flight path values.

**CAA response:** As previously stated the airworthiness standards applicable to aeroplanes being operated under Part 121 are contained in FAR Part 25. The airworthiness standards require the actual flight paths to be degraded by the factors suggested by this commenter and therefore the flight path data in the aeroplane flight manual represent the net flight path values.

One commenter stated that the definition of threshold quotes a 5% obstacle free approach but should be 2%.

**CAA response:** The CAA does not agree as the threshold for the purpose of performance is based on a 1:20 obstacle free approach surface which equates to 5%.

### 121.205 General performance

One commenter stated that paragraph (2) is based on the false assumption that contaminated runway data is contained in the aeroplane flight manual and know of no certification rules that require data for contaminated runways. In the case of the FAA, the rules require the carrier to take account of wet or contaminated runway and an advisory circular provides guidance for compliance. For Boeing aeroplanes, the airline has the choice of contaminated data, which takes account of engine failure, and data that assumes all engines. In summary, contaminated runway data is not certificated and not supplied by FAA approved aeroplane manual and contaminated runway data is manufacturer supplied.

**CAA response:** The CAA agrees and has amended the rule to, in the case of contaminated landing distance data, use data provided by the aeroplane manufacturer and acceptable to the Director.

### 121.207 Take-off distance

One commenter recommended that the rule be titled "Take-off runway requirements".

**CAA response:** The CAA does not agree as this rule is written in terms of distance required and the runway is only one factor to be considered.

One commenter considered that paragraph (2)(iii) needs modification since the 15 foot screen  $V_1$  reduction/weight reduction data is derived from the British CAR requirements. The commenter recommended that the paragraph be amended to say "in the case of a wet runway the 35 foot screen may be reduced to 15 feet in accordance with wet runway performance data within the aircraft flight manual or equivalent data approved by NZCAA".

**CAA response:** The CAA agrees with the suggestion about the use of a reduced screen of 15 feet in the case of a wet runway and has amended the rule accordingly.

One commenter recommended that a new rule be added titled "Take-off climb requirements" to say "each holder of an Air Operating Certificate shall ensure that, for each aeroplane it operates, the take-off weight does not exceed the take-off climb limits specified within the aeroplane flight manual".

The commenter also recommended that a new paragraph be added to say "the take-off speeds comply with the aeroplane flight manual inclusive of any tyre speed, or maximum energy requirements".

**CAA response:** The CAA does not agree to add a new rule or a new paragraph as suggested by the commenter. Part 91 requires compliance with any operating limitations in the aeroplane flight manual that would include the limitations referred to by the commenter.

One commenter considered that a rule is required to specify that "the take-off climb limits shall be based on the certification requirement, but should not be inconsistent with the following—

(i) first take-off climb segment at the weight existing at the time gear retraction is started—

- positive for two engines
- 0.3% for three engine aeroplane
- 0.5% for four engine aeroplane

(ii) Second take-off climb segment at the weight existing at the time gear retraction is started—

- 2.4% for two engine aeroplane
- 2.7% for three engine aeroplane
- 3.0% for four engine aeroplane

(iii) Final take-off climb segment from 400 feet to end of take-off pattern—

- 1.2% for two engine aeroplane
- 1.5% for three engine aeroplane
- 1.7% for four engine aeroplane

The commenter believes that the NZCARs without the equivalent FAR Part 25 require the certification gradients quoted as who knows what non-western aircraft are certificated to.

**CAA response:** As stated previously FAR Part 25 is incorporated by reference as the airworthiness standards applicable to New Zealand aeroplane types to be operated under CAR Part 121. FAR Part 25 specifies the minimum gradients of climb capability for the take-off climb segments and therefore a further specification is not required in this rule.

One commenter stated the wording in paragraph (b)(2) of *with a clearway distance* is hard to understand.

**CAA response:** CAA agrees and has amended this paragraph based on the equivalent rule in FAR Part 121.

One commenter asked if in paragraph (b)(iii) if the 1% being 10hPa is too much for no corrections to be made.

**CAA response:** The value of 1% was added to this rule in response to comments made to the informal draft. The commenter recommended the use of 1% on the basis that within this margin the effect on performance is negligible for turbine powered aeroplanes. Without such a margin the operator would be required to conduct meaningless calculations for each take-off.

#### **121.209 Runway surface and slope correction factors**

One commenter stated that the rule does not provide a means for the Director to approve values for other runway surface correction factors. The commenter suggested the table should be in an AC as an acceptable means of compliance to a basic rule which requires allowance to be made for surfaces other than paved.

**CAA response:** CAA does not agree as these factors were developed for CASO 4 corrections by flight test and study of overseas factors. CAA considers that the factors are still valid and therefore properly in the rule. CAA is not able to identify any other runway surfaces which might require correction factors as suggested by this commenter. If an operator encounters a different runway surface, it can be equated to one of the surfaces in this rule and that factor applied.

One commenter suggested that the term "required" should be inserted before the terms "take-off distances" and "landing distances".

**CAA response:** The CAA does not agree as reference to the rules for take-off distance and landing distance mandates the requirement and the insertion of the term in this rule would be superfluous.

### 121.211 Net take-off flight path

One commenter stated that in paragraph (b)(2), the 50 foot obstacle clearance requirements only apply to heading changes greater than 15°. The paragraph should read "track changes of more than 15° are not to be made before a height of 50 feet above the take-off surface has been achieved and this clearance shall be maintained throughout the turn.

**CAA response:** CAA agrees with the comment that track changes of more than 15° are not to be made before a height of 50 feet has been achieved and the rule is so amended. The requirement to maintain a 50 foot obstacle clearance at bank angles in excess of 15° is implicit in paragraph (a)(1) and it is not therefore necessary to repeat the requirement in paragraph (b)(2).

One commenter said that paragraphs (a)(1) to (4) should be alternatives not additional requirements with the word *and* at the end of the paragraphs replaced by *or*.

**CAA response:** CAA reviewed this rule in light of this comment and after further discussion with the commenters has restructured the rule. The restructured rule clarifies the requirements by stating the vertical clearance requirements in paragraph (a). The lateral dimensions to describe the area within which obstacles have to be taken into account are in a separate paragraph to avoid any confusion on the use of these dimensions.

One commenter asked, with reference to paragraphs (c)(2) and (d)(2), what is the required navigational accuracy?

**CAA response:** In response to this question, the rule is amended by replacing this requirement with a requirement for the certificate holder to establish visual or radio navigation track guidance for use of the reduced distance.

One commenter considered that the reduced criteria in paragraph (a)(4) should only apply to operations in VMC as the ability to visually see the obstructions is the basis for the reduction.

**CAA response:** CAA agrees and the term VMC is inserted in this provision.

#### **121.213 Engine inoperative – gradient and stall corrections**

Two commenters said they had difficulty understanding the table. One commenter suggested that the bank angle figures are not restrictive enough and the angles of bank should be stated as the range of angles within which the corrections are required.

**CAA response:** CAA agrees with the suggestion of restructuring the table in terms of bank angle limitations and this should simplify the interpretation of the rule.

#### **121.215 En route – critical engine inoperative**

One commenter considered that this rule should be titled *two engine aircraft*.

**CAA response:** CAA does not agree as this rule applies to all aircraft powered with more than one engine.

One commenter assumes that the 5% gross-net gradient in paragraph (b)(2) should be 0.5% though it is not too clear where this 0.5% has come from. Whatever number is used it must stand scrutiny against cost benefit criteria in absolute terms, and not just on the basis it may be less than what we have under CASO 4. Thus if FAR Part 135, for example, does not have an equivalent gross-net reduction then neither should the proposed rule unless it can be justified in a proper cost benefit analysis.

One commenter considered that the net gradient of 5% in paragraph (2)(ii) is too restrictive. The CASO4 values of 1.1% for two engine aircraft, 1.3% for three engine aircraft and 1.4% for four engine aircraft should be retained unless the FARs or JARs have accepted lesser values.

One commenter said that they did not understand the term “gross gradient minus 5%” used in paragraph (2)(ii). If it is intended to define a net factor to be applied to the gross gradient, then 5% is excessive. The net flight path clearance is already clearly defined in the preceding paragraph. This same comment applies to 121.217.

One commenter said that the FAR only require 1.1% reduction for two engine aircraft from gross to net asking why this is 5% as most aircraft could not comply with it.

**CAA response:** The CAA has reviewed this requirement and as a result has amended the rule by deleting the requirement to degrade the en-route gross

gradient performance. Under the airworthiness standards FAR Part 25 the en-route performance found by flight test is degraded by certain factors so that the flight manual data in effect represent net gradients. On this basis the operational performance in this rule does not need to be further degraded and to do so would be a case of double dipping.

One commenter considered that the 10 nm requirement in paragraph (a)(2)(ii) seems excessive and asks should it be 5 nm either side of track. The same comment applies to 121.217(a)(2)(ii).

**CAA response:** CAA reviewed the requirement and found that some states and JAR-Ops1 make provision for a reduction of the distance to 5 nm if the navigational accuracy can be maintained. A similar provision is now included in this rule.

One commenter asked why the clearance is 2000 feet as this is normally applicable to mountainous terrain only.

**CAA response:** The 2000 foot criteria for performance purposes is the requirement in FAR Part 121 and by most other states. It is a performance capability and should not be confused with the prescribed minimum safe heights applicable to the route being flown.

One commenter suggested that a new paragraph should be added to say "fuel consumption calculated in accordance with one engine inoperative data included in the aeroplane flight manual".

**CAA response:** CAA does not agree as rule 121.205 General performance requires use of aeroplane flight manual data for these calculations and there is no need to repeat it in this rule.

#### **121.217 En route – aeroplanes with three or more engines: two engines inoperative**

One commenter considered that the gross net value of 5% in paragraph (2)(ii) is too restrictive. The CASO4 values for three and four engine aircraft should be retained unless the Fares or JARs have accepted lesser values.

**CAA response:** CAA agrees and has deleted this requirement. As previously explained FAR Part 23 incorporated by reference under Part 21 degrades these net values and therefore further degradation in this rule is not needed.

One commenter suggested that a new paragraph should be added to say "fuel consumption calculated in accordance with one engine inoperative data included in the aeroplane flight manual".

**CAA response:** 121.205 General performance requires the performance data contained in the aeroplane flight manual to determine compliance with this

Subpart and therefore it is unnecessary to repeat the requirement in each individual rule.

#### **121.219 Landing-climb – destination and alternate aerodromes**

One commenter disagrees with this requirement as the gradient to be achieved for a missed approach climb is solely dependent on the instrument approach design. In order to achieve obstacle clearance a lesser value may be acceptable or in some circumstances a steeper gradient may be necessary. This rule should be deleted as it is unnecessary.

**CAA response:** CAA does not agree that this is not necessary but accepts that the presence of obstacles or lack of them need to be taken into consideration. The rule is amended by adding an alternative requirement based on obstacle clearance.

#### **121.221 Landing distance – dry runway**

One commenter considered that the 60% and 70% factors appear to be used in an inconsistent way.

**CAA response:** The use of a 60% factor for turbo jet and turbo fan powered aeroplanes and 70% for propeller powered aeroplanes is consistent with FAR Part 121 and the European JAR requirements.

One commenter stated that the use of the term *turbojet* in paragraph (a)(1) is incorrect as it should also apply to turboprop powered aircraft.

**CAA response:** CAA agrees and whenever this term *turbojet* is used in this or any other rule the term *or turboprop* has been added.

#### **121.223 Landing distance – wet and contaminated runways**

One commenter stated that the factor of 115% appears to be “new” for Part 121.

**CAA response:** The factor of 115% is not new and is based on FAR Part 121 requirements, is a requirement of other countries and in the European Joint Aviation requirements.

One commenter suggested that for clarity, the rule should read “the wet distance available is at least 115% of the required dry landing distance...”.

**CAA response:** CAA does not agree as *wet* is a condition and the term *landing distance available* is defined and referred to throughout the rules and in the aeroplane flight manuals.

One commenter stated that these requirements are incorrect as aeroplane flight manual data for contaminated runways does not require a factor as it has been



measured. A redraft is suggested by deleting paragraphs (a)(1) and (b) renumbering paragraph (a)(2) to (a)(1) to read:

- (i) the required distance available is at least 115% of the landing distance required under 121.221; or
- (ii) the landing distance determined in accordance with the contaminated landing distance contained in the aeroplane flight manual; or
- (iii) the distance determined from data and information approved by the Director.

**CAA response:** CAA agrees and has amended the rule as suggested in (i). The data to be used is prescribed in 121.205 General performance and it is unnecessary to repeat the requirement in this rule as suggested in (ii) and (iii).

#### **121.225 Steep approach and short landing techniques**

One commenter suggested that for simplicity the word "situation" be deleted from paragraph (3)(i).

**CAA response:** CAA agrees and has amended the rule.

One commenter considered that paragraphs (1) and (2) are superfluous as the aeroplane flight manual will detail procedures, requirements and limitations and these obviously will require compliance. It is not correct to promulgate the requirements in the rule as they may not be applicable to an aircraft type. If necessary to be promulgated then the correct place would be an advisory circular as a means of compliance.

**CAA response:** The CAA does not agree as the aeroplane flight manual does not specify the operational limitations or specify the required ground based equipment. This rule is based on the requirements prescribed by other States which have developed the requirements and have experience with this type of approach and the CAA has no justification to require lesser requirements for New Zealand operations.

One commenter considered that the words *for IFR operations* should be included in paragraphs (2) and (3).

**CAA response:** CAA agrees and has included these words in these paragraphs and paragraph (4).

#### **121.227 Special conditions – Wellington International Airport**

One commenter stated that this rule should be deleted in its entirety for the following reasons–

- specific requirements for any airport should not be in this rule:

- the zero head-wind for runway 34 is not required as though there are obstacles, so there are at many other runways to a greater or lesser extent. Runway 34 has no special topographical reason to require this rule:
- the “reference altitude-harbour circuit” is a procedure developed by a particular operator and should not be a rule as the rule does not cover all the variables such as cross-wind at Mount Kaukau, bank angle and the like:
- all such procedures such as this one should be developed by each operator to comply with the performance rules and to mention some of the requirements could be hazardous:

**CAA response:** The CAA agrees that this rule should be deleted for the reasons given by the commenter. In circumstances such as those addressed in the special conditions Wellington International Airport, operators must establish procedures for compliance with obstacle clearance in the take-off climb flight path. The procedures required are dependant on each aircraft type’s performance capabilities and may require establishing alternate flight paths or a visual departure procedures. An Advisory Circular will be available providing guidance for the construction of procedures for compliance with the performance requirements and will include circumstances such as those at Wellington International Airport.

One commenter considered that this requires a cost benefit analysis to continue the use of a nil head-wind credit to 11 600 m from runway 34 threshold.

One commenter stated that this procedure should not be limited to two engine aircraft and should be available to all multi-engine aircraft that can comply with the limitations.

One commenter stated that as the actual flight path to be used does not necessarily consider and engine failure at  $V_1$ , consider greater explanation of the flight path is necessary. To this end replace paragraph (b)(1) with:

(1) the engine failed net flight shall be planned from a point on the centreline of the take-off flight path abeam the Mount Victoria mast and originate at a defined altitude from which the aeroplane can with the critical engine failed continue straight ahead and achieve the required obstacle clearance.

**CAA response:** The CAA has agreed to delete this rule and therefore these comments are not now relevant.

### **121.303 Passenger and baggage weights**

One commenter expressed concern about the requirement to either weigh each passenger or carry out a survey to ensure that a realistic passenger weight is used. The reasons expressed were: Weighing is not an option because time is

limited, the public would resist weighing, modern weighing systems are not designed to allow passenger access. Any survey is more appropriately carried out by the certifying authority and the findings properly justified. General categories of Business, Leisure and Tourist would be more appropriate than a Carrier specific sample.

Two commenters made no written comment but have commenced either the preliminary survey, or begun preparations to carry out a survey using the JAR OPS procedures. One commenter was unable to comment without the Advisory Circular but has now also begun preparations to carry out a survey using the JAR OPS procedures.

**CAA response:** The Authority has considered the actual experience of the FAA and British CAA in using these procedures and noted that the proposed JAR OPS has included similar requirements. The public regularly takes part in a myriad of surveys and is well used to the concept, therefore a survey conforming with an Advisory Circular based on the JAR should produce little difficulty. Existing baggage weighing systems do not have passenger access, however, passive automatic weighing systems exist that are reasonable moveable, require no contact with the passenger, and could be installed at each departure gate should the weighing of all passengers be the system chosen. The British CAA have considerably increased the standard weights which airlines under their jurisdiction are required to use as an alternative to surveyed standard weights and the JAR are also recommending similar high figures for non-surveyed standard weights. The evidence is therefore in favour of retaining the requirement for airlines to control their own survey process in the final rule. Many operators will need to survey some routes separately to ensure proper results, for example Pacific routes compared to Japanese routes.

The Civil Aviation Authority wishes to emphasise that regardless of the method used to establish standard weights, there use is only a concession in the interests of airline convenience. It is not a license to exceed load limitations. Under legal convention ignorance of a fact has never been a defence, and the requirement under 121.305 to ensure the load limitations are not exceeded is unequivocal. Therefore if a standard weight is used in such a way as to overload the aeroplane the standard weight in itself should not be considered a defence.

### **121.307 Load manifest**

One commenter submitted that ACARS uplinks should be sufficient without certification by the pilot-in-command.

**CAA response:** The Authority disagrees that certification by the pilot-in-command is unnecessary, however the technology used is not an issue. It is the

operators responsibility to ensure procedures in the exposition meet the requirements of the pilot-in-command certification.

#### **121.253 General [Final rule 121.353]**

One commenter suggested that the Subpart have a rule worded to allow the Director to provide for different instruments for turbine powered aircraft, similar to the wording in the FAR.

**CAA response:** The Authority agrees but considers the exemption process to be appropriate if an operator wishes to change the requirements.

#### **121.255 Location of instruments and equipment**

**CAA comment:** This requirement has been moved to Part 91.

#### **121.257 Seating and restraints [Final rule removed to Part 91]**

One commenter suggested that not all aircraft have a shoulder harness in all seats. The commenter suggested that some jump seats would not meet the requirement.

**CAA response:** The Authority requires shoulder harnesses for all crew seats. In the case of a jump seat, the requirements of Part 91 apply for a seat being used for flight training. If the seat is to be used as a regular flight crew member station the shoulder harness is required.

One commenter suggested that some occasions require crew to be seated in passenger seats and these seats do not meet the requirement to have a shoulder harness for each crew seat.

**CAA response:** The Authority points out that the requirement for a shoulder harness applies to crew seats and not passenger seats. A seat occupied by a crew member is not necessarily a crew seat. Crew seats are required for all crew required by the type of operation being conducted.

**CAA comment:** The Authority considers the requirements for seating and restraints are covered by Part 91 and has removed the rule.

#### **121.259 Additional instruments [Final rule 121.355]**

One commenter suggested that the rule did not look at new technology, only old technology.

**CAA response:** The Civil Aviation Rules are required to be responsive to new technologies and will endeavour to be so. The rules are written to require a means to indicate rather than a particular instrument and therefore allow for new types of instruments.

Four commenters suggested that fuel pressure was not available for turbine engines.

**CAA response:** The Authority agrees and has amended the rule.

One commenter suggested that the rule should refer to beta range and not reverse pitch.

**CAA response:** The CAA notes that beta range and reverse pitch are different blade angles but either are acceptable to meet the requirement. The rule has been amended to require either range to be indicated.

#### **121.261 Additional equipment [Final rule 121.357]**

One commenter questioned what would be equivalent to a windshield wiper and suggested that the wording be removed.

**CAA response:** The Authority disagrees as the rule allows for appropriate rain repellent systems.

One commenter suggested that the provision of door requirements belonged in certification.

**CAA response:** The Authority disagrees and considers these particular requirements to correctly be in the operating rule as they are not required for all operations an aircraft may be engaged in.

One commenter suggested that the rule was providing means of compliance rather than stipulating requirements. The means of compliance should be in the advisory circular.

**CAA response:** The Authority disagrees and considers the rule to correctly state an equipment requirement.

#### **121.263 Engine air induction system ice prevention [Removed from rule]**

**CAA comment:** This requirement has been removed as it forms part of the aircraft design requirements.

#### **121.267 Instrument flight rules [Final rule 121.361]**

One commenter couldn't see the need for this rule.

**CAA response:** The Authority disagrees as the rule states equipment, additional to Part 91, considered necessary for an air transport operator to proceed IFR.

#### **121.269 Flights over water [Final rule 121.363]**

One commenter suggested that the raft should also state slide-raft.

**CAA response:** The Authority agrees but considers that the term liferafts includes the various types of rafts available.

Two commenters suggested sufficient liferafts for the occupants was all that was required. The commenters considered the rule assumed two compounding emergencies.

**CAA response:** The Authority disagrees. The requirements are equivalent to the FAR and consider the loss of one raft or the failure of one raft to operate. The Authority considers this to be a reasonable occurrence to be provided for by an air transport operator.

One commenter suggested the extra raft is difficult to carry on smaller aircraft and should apply only to extended over-water operations.

**CAA response:** The Authority agrees and has amended the rule.

One commenter suggested that this should address overload capacity also.

**CAA response:** The Authority considers any overloading situation to be a special occurrence. The equipment requirements are based upon normal operation and any special operation would have individual requirements.

One commenter suggested that flights over water needed a better definition as some flights within New Zealand could be greater than 50 nm from shore.

**CAA response:** The Authority considers 50 nm to be an appropriate break for extended over-water operations. The use of the term over-water has been addressed elsewhere in the operating rules.

### **121.271 Flights in icing conditions**

**CAA comment:** The Authority has removed this rule and considers it to be suitable covered by the aircraft certification requirements.

### **121.273 Emergency equipment [Final rule 121.365]**

One commenter suggested that a fire extinguisher was not required in Class E cargo compartments as there was no access to use the extinguisher.

**CAA response:** The Authority disagrees. The classification of a Class E cargo compartment does not mention inaccessible areas. A cargo compartment with no access should be a Class C compartment.

One commenter suggested that access to external resources was not applicable to the provision of a first aid kit.

**CAA response:** The Authority agrees and has amended the rule. The first aid kit requirements have been moved to Part 91 for ease of reference.

One commenter suggested uniformly distributed was difficult to achieve.

**CAA response:** The Authority agrees and has amended the rule.

**CAA comment:** The Authority has moved the general emergency equipment requirements to Part 91 in response to the comments received in the proposed rules published in the NPRMs to Parts 26, 91, and 135.

#### **121.275 Protective breathing equipment [Final rule 121.367]**

One commenter suggested other distances should be provided for in the location of the equipment.

**CAA response:** The Authority agrees and has amended the rule.

One commenter suggested wording for paragraph (a)(2)(iii) similar to the requirements of Part 91 and referring to the required fire extinguisher.

**CAA response:** The Authority agrees and has amended the rule.

One commenter suggested that the locations were inappropriate and that they should only need to be readily accessible somewhere on the aircraft.

**CAA response:** The Authority disagrees and considers the locations to be important to provide for the likely uses the protective breathing equipment will be put to.

One commenter suggested that the likely use of the protective breathing equipment was not required to be stated.

**CAA response:** The Authority agrees and has amended the rule.

#### **121.277 Public address and crew member interphone system [Final rule 121.369]**

One commenter requested a provision for exemption through the use of a minimum equipment list.

**CAA response:** The Authority has provided for the inclusion of any equipment in this part in a minimum equipment list approved under 91.529. The minimum equipment list will state appropriate conditions when the equipment is inoperative.

#### **121.279 Cockpit voice recorder [Final rule 121.371]**

One commenter suggested that piston engine aircraft should also be included.

**CAA response:** The Authority agrees and has made no distinction between aircraft types.

One commenter requested a provision for exemption through the use of a minimum equipment list.

**CAA response:** The Authority has provided for the inclusion of any equipment in this part in a minimum equipment list approved under 91.529. The minimum equipment list will state appropriate conditions when the equipment is inoperative.

#### **121.281 Flight data recorder [Final rule 121.373]**

One commenter suggested that piston engine aircraft should also be included.

**CAA response:** The Authority agrees and has made no distinction between aircraft types.

One commenter requested a provision for exemption through the use of a minimum equipment list.

**CAA response:** The Authority has provided for the inclusion of any equipment in this part in a minimum equipment list approved under 91.529. The minimum equipment list will state appropriate conditions when the equipment is inoperative.

#### **121.461 Applicability [Final rule 121.401]**

One commenter stated that the rule should simply say 'in accordance with Part 145 organisation'.

**CAA response:** The Authority disagrees as this wording would change the emphasis on maintenance responsibility from the operator back to the maintenance organisation.

#### **121.465 Supervising personnel [Final rule 121.413]**

One commenter stated that supervision and what it entailed should be explained.

**CAA response:** The Authority agrees. The issue of the supervision of maintenance is to be examined for the inclusion in an advisory circular associated with Part 43.

One commenter suggested that the wording should be state 'licensed' rather than authorised. The commenter also suggested that the licensed person should be appropriately rated.

Fifty five form letters were received supporting the above commenter's submission.

**CAA response:** The Authority disagrees. The Part 121 operator is required to use a certificated maintenance organisation and the personnel in that maintenance organisation are required to be authorised to carry out their duties. The Authority considers this to be appropriately covered in Part 66 and Part 145.



**121.467 Maintenance personnel duty time [Final rule 121.415]**

Two commenters agreed with the requirement and suggested improvements to better reflect the intent. The commenter suggested that the time should be stated on a daily basis such as 16 hours maximum duty time and 9 hours minimum rest time. One commenter also suggested that pilot duty times should be used as a comparison.

**CAA response:** The Authority agrees with the commenters. The NPRM wording is the same as the FAR requirements but the Authority considers that the daily limits proposed by the commenters are also appropriate. The rule has been amended and is closely based on FAR requirements for personnel such as dispatchers.

One commenter suggested it should be deleted as it would cause significant problems to those smaller firms carrying out work seven days a week.

**CAA response:** The Authority disagrees. The relief from duty requirements are applicable regardless of the size or work programme of the organisation.

Two commenters suggested it should be deleted as it was an employment issue.

**CAA response:** The Authority disagrees. The rule addresses the rest periods required to assure the ability of maintenance personnel to safely and effectively carry out their tasks. The requirements are strictly safety related.

One commenter suggested that the wording of the rule could allow 27 consecutive days to be worked. The commenter considered this was excessive.

**CAA response:** The Authority agrees and has amended the rule to reflect a daily duty time. The daily duty time requirements ensure that the maintenance personnel are relieved sufficiently on an ongoing basis.

One commenter suggested the rule should read eight hours rest after each 24 hours consecutive duty, or the equivalent rest period after 72 hours consecutive duty.

Fifty five form letters were received supporting the above commenter's submission.

**CAA response:** The Authority examined this as an option to the final wording. The Authority considers that these requirements were too stringent and that the revised rule better reflects the minimum requirements.

**121.469 Maintenance review [Final rule 121.417]**

One commenter suggested aligning the wording with 43.153 better.

**CAA response:** The Authority agrees and has ensured that the two rules are worded accordingly.

Two commenters suggested that an aircraft maintenance engineer licence holder was required to sign this.

Fifty five form letters were received supporting the above commenter's submission.

**CAA response:** The Authority disagrees. The maintenance review process is part of a larger system of monitoring the maintenance of an air transport aircraft. The Authority considers that the requirement to be properly authorised and have the necessary experience as stated in the rule to be appropriate.

### **121.503 General**

Four commenters commented on the criteria for critical flight and requested that the altitude on decent should be lower than 10 000 feet for flight crew members and lowered to 2,000 feet for crew members. Various duties were cited as being acceptable for one reason or another within the critical phases of flight.

**CAA response:** The Authority disagrees and considers this to be a safety issue. The demarcations were chosen on the basis of workload and ease of identification while allowing latitude for the crew member to decide to complete any inadvertently delayed task based on the work load existing at the time. This requirement also conforms with other major authorities. Some have much stronger legislation and require, for example, a mandatory discontinue of the approach if all cabin tasks are not completed by the required altitude or fix.

### **121.507 Pilot operating limitations and pairing requirements [Final rule 121.513 Pilot operating limitations 121.517 Flight crew member pairing limitations]**

Five commenters made comments about this rule. Three minor issues emerged, the issue of an acceptable crosswind limit for second-in-command pilots with limited experience on that aircraft type, the need for a standard dispensation for the introduction of new aeroplane into a fleet, the use of the term crew pairing, and the placement of the rule in this subpart.

Four commenters questioned the validity of 15 knot cross-wind with one suggestion that a type rating should not be issued until a pilot was proficient at the flight manual limits.

**CAA response:** The Authority accepts that this is in effect two requirements, and will make paragraph (a) a separate rule. The title will remain as **121.517 Flight crew member pairing limitations**. This term conforms with international usage, being used in this way by the JAA and the FAA. The paragraph has been reworded to reduce the possibility of the meaning being misinterpreted. A new paragraph allowing the Director to accept deviations from the requirements when an operator introduces a new aeroplane type has been added.

Paragraph (b) has been moved to **121.513 Pilot operating limitations** and the cross-wind limit has been established at 50% of the demonstrated flight manual limit. The ability to chose between completing 100 hours or 75 operating cycles has been added to the requirements. These requirement are less stringent than the Federal Aviation Administration 121 rule. It only applies to the second-in-command when first authorised to operate a new type aeroplane without a training captain. In some cases little actual experience landing in cross-winds will have been experienced on the type during training and some pilots effected will be operating their first large, swept wing, jet aeroplane. The slight inconvenience imposed on crews is considered acceptable and the cost to the airlines is nil.

### **121.509 Category II or III Approaches and reduced take-off minima [Final rule 121.515]**

Two commenters noted the omission of the word *departures*.

**CAA response:** The Authority agrees, and the word has been added. In addition the ability for an airline to qualify the second-in-command as a pilot non-flying and the conditions for doing so have been included.

### **121.511 Assignment of flight attendant duties [Final rule 121.519]**

One commenter supported the inclusion of 121.511 (a) and (c) and requested that Part 91.63 reflect the additional flight attendant numbers required by the table in (c).

Seven commenters submitted that the table depicting flight attendant numbers for 25 seats to 200 seats was in error and each segment should have the required numbers reduced by one flight attendant.

One commenter submitted that the words *second-in-command* in (b) (2) was not the correct designation for a flight attendant and offered the word *deputy* as more appropriate, while another submitted that this was an industrial issue and there was no safety requirement for establishment of a reporting protocol.

Two commenters submitted that (a) (4) should be deleted as it is covered in (a) (1). One commenter stated, *As written this is not relevant and the Company policies and procedures should be related to operational significance. Training in the Company policies for claiming of meal allowances to the maximum limits.*

**CAA response:** The Authority accepts that the table in the NPRM imposed a higher standard than acceptable to operators in rows 2 through 5 covering up to a capacity of 200 seats and these numbers have been reduced by one attendant in the final rule. Row one and row two have been combined to cover aeroplanes with a capacity of 15 through 50. The table now reads for 15 through 50 seats, 1 attendant; 50 through 100, 2 attendants; 101 through 150, 3

attendants; 151 through 200 attendants, 4 attendants. The rest of the table covering the capacities of 201 through to 500 remains unaltered from the NPRM.

The words *second-in-command* have been changed to deputy senior flight attendant and the requirement for the chain of command made clear by the addition of the words, *responsible to the pilot-in-command for the conduct of the aircraft's flight attendants for operational and safety functions* after Senior Flight Attendant in final rule 121.525 (b) (1). The Authority considers that establishing responsibilities and the chain of communication is a significant human factors safety issue and that, in addition, a knowledge of company procedures and the culture of a company is important to ensure correct actions are understood and carried out in an efficient manner.

Verbal requests for a change to allow the certificate holder to establish procedures by which flight attendant required by the table may be reduced by one when a flight attendant becomes unfit mid-duty. Stringent conditions are specified in the rule if this option is to be exercised, therefore the Authority considers this procedure acceptable, and a new paragraph has been added to the final rule

**121.513 Second-in-command experience requirements [Final rule  
121.509 Second-in-command experience and 121.511 Pilot experience]**

One commenter submitted the words *deputise for the* be substituted for *act in* (b).

**CAA response:** The Authority agrees with the use of the word *deputise* and has rewritten the requirements to include this meaning. Some changes have been developed to ensure a logical progression from the designation of crew members required by 121.505 Flight crew duty assignment through the experience required by various positions. NPRM 121.513 Second-in-command experience requirements has been divided into two rules for the final rule.

**121.515 Pilot-in-command experience requirements [Final rule  
121.507]**

One commenter submitted that operators should assume responsibility for their safety actions and that specifying flight hours was too simplistic – 500 hours flight time, without qualification, could have been gained in a tiger moth. Each operator should determine their own experience requirements and promulgate them in their exposition for approval by the Director.

**CAA response:** The Authority agrees that each operator should be responsible for establishing their own experience requirements and most operators will require a higher entry level than the minimum stated here. Experience, however has shown that commercial expediency can unduly

influence some operators into lowering these standards. The Authority has therefore followed the example of other major authorities and stated what experience level is considered to be the minimum safe experience for air transport operations.

The last four words used in the first line of (1) *cross-country flight time* were used incorrectly and the text has been corrected to read, *in air transport operations*. This change will ensure inappropriate experience is not utilised to obtain a position for which the pilot is not qualified.

**121.517 Flight crew supervisor experience requirements [Final rule  
121.587 Pilot instructor supervisor experience requirements ]**

Four commenters questioned the requirement to hold Category A, B, or D instructor ratings. One suggested the addition of an appropriate company approval as designated by the Director and others stated the ratings related to ab-initio training was irrelevant to airline operations.

One commenter stated that the term supervisor was a new term which conflicted with current Approval Code definitions.

One commenter requested relief from the requirements of (3) when introducing a new type into an existing fleet.

**CAA response:** The intention of the use of the term supervisor was to make the rule descriptive of a position rather than to name that position. This was to be consistent with the intention to enable airlines to use their own terms when naming any position. The wording has been adjusted to make this clear. This rule formalises the qualifications necessary before a pilot can supervise other pilots carrying out their duties as flight crew members. This position is lowest grade of instructor in an airline. Because the position requires the incumbent to be able to evaluate another person's performance and formally report that performance to the training department, specific training is considered necessary however it does not allow the supervising flight crew member to give formal type instruction.

When it was introduced, the D Category instructor rating was intended to allow airlines to qualify line pilots for in-house training including the issue of type ratings without first having at least a B Category instructor rating. Over time the rating was expanded into General Aviation to fill a need for Type Rating training to the extent that its original purpose has been almost forgotten. The use of the term D Category therefore also carried incorrect connotations. To rectify this difficulty the Authority will amend Part 61 to include an airline instructors rating. The development of this qualification will be consulted during the amendment process for Part 61 and will be designed to allow the development of a structured in-house airline training package. The reference to a Category A, B, or D, instructor qualification has been removed from the rule.

The NPRM only covered the initial experience required by a supervisor (121.517) or instructor (121.519) or flight examiner (121.521) and omitted to make provision for a person already qualified in that position on one aeroplane type to transfer to another aeroplane type after a reasonable level of experience in that position had been achieved. The final rules allow this horizontal movement.

The rules detailing requirements for instructors, including simulator instructors, have all been moved to the end of the training section in Subpart I and are numbered from 121.583 to 121.589. The order has also been changed to conform with other rules in which the higher qualification is listed first.

**121.519 Flight crew instructor experience requirements [Final rule  
121.585 Pilot instructor experience requirements]**

One commenter submitted that the 3000 hour was too high and 2000 hours should be sufficient. The requirement for 500 hours flight experience under this Part was also unreasonable as experience gained under the old regulations would not appear to be accepted toward this requirement.

One commenter rejected the need for an A, B, or D Category instructors rating.

Two commenters requested provision for new aeroplane introduction.

**CAA response:** The Authority has incorporated the 3000 hour requirement from the CASO and disagrees that it should be reduced to 2000 hours. Experience gained under the present regulations on aeroplane meeting the applicability of Part 121 may be credited toward the experience requirements.

The requirement to hold an airline instructor rating has already been covered and similar provisions as for 121.517 with appropriate experience has been included to allow an instructor to transfer from one aeroplane type to another once experience has been gained instructing flight crew members under this Part.

The title has been changed to include aeroplane or simulator.

**121.521 Flight examiner experience requirements aeroplane or simulator [Final rule 121.583 Pilot examiner experience requirements]**

Three commenters requested relief from the requirements of (4) when introducing a new type into an existing fleet.

One commenter stated, *This would require all our Check Captains to have first been 121.519 instructors. We strongly disagree with this concept. We believe that a flight instructor has a far more difficult job converting new people to a new type and bringing them up to standard than an examiner has in checking that standard (that is Reg. 76 or Instrument Rating Renewal), both of which*

*have clearly defined standards in our own Training Manual and for the Instrument Rating in AC 61.*

**CAA response:** Horizontal movement has been allowed for experienced flight examiners as per 121.517. This will remove the requirement for relief when introducing new types.

The Authority has examined the subject of line operations evaluation, training, and the task of flight examination. The Human Factors experts all agree that at least 75% of accidents are caused by human error in operational type decision making. The stick and rudder type training seems to have been very successful, while mistakes are still being made on the line. This points to a lack of evaluation and training in line operations. The Advanced Qualification Programme (AQP) is one method of addressing this problem but it is not the answer for all operators. The progression of a flight crew member through to flight examiner follows the logical progression which has been an accepted practice for most other advancers in aviation. The belief that this progression is not necessary for the task of Regulation 76 or Instrument Rating renewal is flawed. By virtue of more regular contact with line flight crew members the instructor who carries out these checks has more influence over company culture than the irregular contact of those who carry out type rating training.

The title has been changed to include aeroplane or simulator

### **121.523 Simulator instructor and examiner requirements**

Three commenters made submissions relating to the apparent restriction of instructors to current flight crew members. One commenter thought the collective of the provisions in rules 121.517-523 created confusion and conflicting requirements.

**CAA response:** The requirements for the approval of simulators and other training devices has been separated into rule 121.11, and 121.589 now contains the requirements for simulator instructors or flight examiners. A new paragraph (b) details the procedures for the instructor or flight examiner who has lost their medical.

#### **Subpart — Training**

**CAA comment:** The Authority considers that the number of comments indicating the concepts in this subpart needed explanation were sufficient to justify separating the rules based on each type of crew member rather than the method used in the NPRM of combining all types of crew under one requirement with subparagraphs for each of those effected. The final rule therefore has separated the requirements into a group of rules which describe the training programme and the equipment to be used, a group detailing requirements for all crew members, a group containing requirements for pilots,

followed by flight engineer requirements, and then flight attendant training requirements. The final rules deal with the flight examiner and instructor requirements which were relocated from Subpart H — Crew-Member Requirements. This move is justified because when acting as instructors, the person is acting as part of a training programme rather than a crew member of an air transport operation.

### 121.553 General

One commenter considered the rule should be modified to reflect that the training programme is administered by a flight crew member holding, *or having held*, a flight examiner's qualification.

**CAA response:** The Authority agrees. The words *flight crew member* have been removed and *Person* inserted. *This allows a lifetime licence holder who has a non-current medical to administer the programme.*

One commenter stated, A Flight Attendant training programme and revalidation system does not require a Pilot to administer it.

An exposition may require a suitably qualified person to administer its programme, but it should not be specified as a pilot.

**CAA response:** The Authority believes that in the same way as the flight attendant is under the authority of the pilot-in-command for all safety aspects during flight, so the flight attendant training programme should be under the control of the flight examiner when training to carry out the safety functions of that position.

One commenter was concerned that the ability of operators to use the services of a simulator provider was open to interpretation and requested that the rule be rewritten so that this ability was ensured.

**CAA response:** The Authority believes that it is acceptable to use an organisation outside New Zealand provided it meets the standards of a 141 certificate holder, this rule has been rewritten to make this option, and its requirements, clearer.

### 121.555 Approval of aeroplane simulators and other training devices [Final rule 121.11]

One commenter submitted that, *or any other training device where flight credits may be accrued*, should be added.

**CAA response:** The Authority agrees and the extra words have been added to (a), and (b) and the word *accredited* added before aeroplane in (a) and (b).

*One commenter stated, It is apparent from the wording of this sub-section that only aircraft Flight Simulators have been envisaged or in fact covered. No*



provision has been made for fixed base mock-ups, aircraft cabin mock-ups and flight procedures trainers.

All of the examples given above are valid training aids which may be of a generic nature and not necessarily specific to type and modification and yet under the proposed legislation would no longer be acceptable.

**CAA response:** The Authority considers that approval is only necessary were flight credits are being sort. There are no other restrictions on the use of training devices, however final rule 121.555 requires them to be listed in the exposition.

One commenter stated, *this subsection needs to be more specific in terms of fixed base training aids. Ideally Flight Simulators would form part (a) and other training aids under a new part (b), the requirements of which would be broad based and approval gained by an Operators exposition on the use and or requirements laid out in that document.*

**CAA response:** The changes made should make the position clear. The requirements contained in 121.555 and 121.559 which contain requirements dealing with training equipment or simulators have been separated into several rules dealing with the appropriate subject divisions. Rule 121.11 now specifies requirements for devices needing a flight credit. Rule 121.555 details the requirement to use simulators and list training devices and simulators in the certificate holders exposition. Transitional provisions for simulators are contained in Appendix A. and are discussed under 121.559

### **121.559 Flight training programme**

Seven commenters made comments or submissions about this rule.

One commenter stated their opposition to the requirement and submitted that the rule as written was confusing.

**CAA response:** The Authority accepts that the rule could be improved by subdividing the subject material into separate rules and has therefore rearranged this rule to only contain material detailing requirements for a flight training programme. Paragraphs (e) has been separated to form a new rule (121.579) and titled, **Manoeuvres requiring a flight simulators**. The wording of the example in (e) (1) has been removed.

One commenter submitted that where a simulator was not available for a particular aeroplane an operator should be able to train in the aeroplane.

Two commenters were supportive of the requirement to use simulators but one submitted that a period of grace in which to arrange for the use of a simulator was necessary, while the other suggested that the ability to use offshore facilities would be necessary for small operators.

**CAA response:** The Authority maintains its position that simulator training enhances safety by improving the quality of training in many areas including, human factors, system management, line operations, and manoeuvre proficiency. Some items mentioned in 121.559 (e) cannot be carried out in the aeroplane and others entail increased risk of accident when the aeroplane is used for that training. One commenter strongly supported this concept when commenting on another rule, using the following words; *Much of the aircraft systems training that can be demonstrated in a simulator cannot be done in the aircraft, other than by discussion, regardless of the number of hours flown.*

Subsequent submissions detailing the costs associated with acquiring simulators and other issues have been carefully considered by the Authority and a graded transition has been developed to accommodate operator requirements while achieving the Authorities safety objectives. The conditions delaying the requirement to use a simulator which are detailed in Appendix A are summarised below.

After the year 2005 the use of a simulator will be required by all operators for their training and competency programme.

After the rule comes into effect but prior to 2005 an operator will be allowed to conduct recurrent training without a simulator provided the aeroplane is part of its existing fleet and a high level of safety is achieved, however all new flight crew or flight crew being given a new aeroplane type rating must receive, at least, the operating experience required for consolidation or the aeroplane type rating in a flight simulator. Also any operator already using a simulator for its training and competency programme must continue to use a simulator unless the reason for the requested change to aeroplane based programme and the altered programme is acceptable to the Director.

Any operator introducing an aeroplane type not already specified in its certificate will be required to use a simulator.

A new requirement to conduct training safely has been added to 121.553(c) to ensure safety is maintained in those training programmes not using a simulator the Director has been granted powers to require the use of a simulator under final rule 121.557(d) if safety compliance is not met.

One commenter was concerned that there are more standards required under 121.561 for flight attendants than are required for flight crew members in 121.559(c).

**CAA response:** The Authority agrees and the general requirements from the flight attendant rule have been moved into 121.557(b) and now apply to all crew members.

One commenter was concerned that zero flight time simulators were not clearly approved and submitted that (f)'s reduction to flight time requirements was unclear.

**CAA response:** The Authority agrees and the words in 121.559 (f) (1) have been removed as the reduction in flight hours has nothing to do with the take-off and landing requirements *and the rest of paragraph (f) has been rewritten as 121.569(c) in the final rule*

One commenter also requested more information about the level of simulator required for the training given. Without this information a blanket exemption against flight time was not appropriate.

**CAA response:** The Authority considers the rule only allows the time reduction to be applied if the simulator is approved for the manoeuvres concerned. Simulator approval will be granted under 121.11 in the final rule.

### **121.561 Flight attendant training programme**

One commenter asked if a particular method of notifying completion of the course of training was acceptable.

**CAA response:** The Authority believes no change is necessary to the rule.

### **121.567 Upgrade training for crew members**

One commenter pointed out the contradiction in terms of using the words hierarchy and crew resource management in the same rule.

One commenter submitted that the required refreshment in areas where training for flight attendants did not require the teaching of that subject under 121.569.

**CAA response:** The Authority agrees with both comments and will remove the words, hierarchy and refresher from (b) (1).

### **121.569 Operating experience for crew members**

Six commenters made submissions on this rule. Three considered that the hours required were too high and should be reduced. One of these commenter suggested that circuit bashing to this extent was excessive.

One commenter submitted that this was an operator's responsibility and should be shown in the exposition.

One commenter pointed out that Fan-jet engine aeroplane were not covered and asked how the training could be accomplished if the pilot could not operate on the line as a crew member.

**CAA response:** This rule was arranged according to the order of training and included sections for various categories of crew members. The rule has been rewritten to establish separate rules for pilots, flight engineers, and flight attendants.

The operating experience described in this is not restricted to circuit operations apart from the requirement to carry out a minimum number of take-offs and landings. The main thrust is to ensure minimum operating experience is obtained after the type rating training required by Part 61 and before a crew member completes the line-operating flight time required for consolidation. This rule again addresses the area in which most human error occurs and which has been identified as requiring increased training by major safety bodies world wide. The expected result is greater emphasis on system skills and LOFT type training. The error in (b) (2) which implied the training must be conducted in operations under this part has been removed and the ability to use a full flight simulator or an aeroplane has been inserted as a replacement. Fan-jet engine aeroplane has been added to the Turbo jet category and new definitions are being developed to define the classes of engines used.

#### **121.571 Line-operating flight time [Final rules 121.571 and 121.573]**

One commenter recommended deletion of this part as it was an operator responsibility and could be shown in the exposition.

**CAA response:** The Authority disagrees with the submission that the requirement should be deleted. The rule conforms with the FAR rules and some JAR regulations are similar although they are less specific. The rule presents no differences to the ICAO Annex 6 Standards and Recommended Practices.

Two commenters submitted that the reference to crew member should in fact refer to flight crew member.

One commenter pointed out the incorrect reference in (b) where 121.571 should be 121.569.

**CAA response:** The Authority agrees and the final rule will have separate rules for pilots and flight engineers, Splitting these requirements has allowed the flight engineer to be more closely aligned with Part 63 and also eliminates the need for supervision during the consolidation period which is considered by the Authority to be necessary for pilots

One commenter submitted that the requirement should be reduced to 50 hours or 50 sectors or taken out of the rule and specified in the company training manuals.

**CAA response:** The Authority accepts that there are some grounds for reducing the number of sectors and the final rule requires 100 hours or 75 operating cycles,

One commenter asked that flight engineers be included in all requirements in subpart I and this subpart.

**CAA response:** The Authority agrees and additional rules have been added where appropriate.

### **121.603 General**

One commenter was concerned that this rule would preclude the use of offshore training establishments for simulator checks.

**CAA response:** The Authority agrees and the rule has been rewritten in conformance with 121.553 but will require the operator to accept more responsibility.

One commenter submitted that the rule should incorporate the words from 121.453 edited to reflect training requirements for flight crew members rather than airworthiness.

**CAA response:** The Authority agrees and the rule has been copied and rewritten as 121.605

### **121.605 Flight crew competency [Final rule 121.607]**

One commenter submitted that the rule should allow the use of simulators for competency checks.

**CAA response:** The Authority agrees and additional words have been added to (3) (ii) which will authorise a full flight simulator for this purpose.

One commenter asked what was meant by the same type of aeroplane and offered an example of the different marks of Boeing 737.

**CAA response:** The operator's responsibility is to ensure that any differences are evaluated and should request a decision from the Authority should there be doubt about the status of a new aeroplane which presents any significant differences regardless of its type status in relation to aeroplane already being operated by that certificate holder. A theoretical answer is not possible without the facts as differences such as conventional and glass cockpit avionics could (in some instances) be considered a different type, for the purposes of training and competency.

### **121.607 Flight instructor competency checks [Final rule 121.609]**

One commenter submitted that the scope of this rule is unclear.

One commenter submitted that the words, *flight training device* be changed to *equipment*.

**CAA response:** The rule applies to instructors carrying out supervision, instruction and flight examination. When the requirements for a flight examiner and airline instructor are developed in Part 61 these requirements may in fact be duplicated, but at this stage they will apply. The words have been changed to make this clear.

The Authority agrees and equipment has been added to the rule.

### **121.609 Flight-attendant crew member competency requirement [Final rule 121.611]**

One commenter submitted that (11) should be amended to read senior and deputy flight attendants.

One commenter pointed out the inconsistencies of using different words in different rules. The question quoted the words; assessment, test, and check which were used in 121.609 and 121.611.

**CAA response:** The Authority agrees and will change rule 121.609 to read *examination and flight check* instead of assessment in the third line. The words, *or be assessed* will also be inserted after *flight check* in the first line of 121.611.

The words in (1) will also be amended to read, *for senior flight attendants and their deputies, the ability to supervise other flight attendants carrying out their duties.*

### **121.853 Operating information**

One commenter submitted that *Each crew member who is issued operator documents must also be responsible for ensuring amendments are properly actioned.*

**CAA response:** The Authority agrees and the following suggestion has been inserted as paragraph (d)

(d) *Each person performing an air transport operation shall ensure that any amendments issued to them are properly actioned and documents remain current.*

### **121.855 Documents to be carried**

One commenter submitted that the requirement for a Route Guide in (8) was too specific.

**CAA response:** The Authority disagrees, a route guide for each route flown is required.

### 121.857 Operation record

One commenter stated, *We see no reason to keep an operational flight plan on record for 1 year.*

**CAA response:** The word *retain* in this rule has been changed in accordance with the change in Part 135 to *complete*. The twelve month retention of records has been considered with rule 121.859.

### 121.859 Retention of records

Four commenters submitted that the twelve month retention of records was too long and should be changed to six months.

**CAA response:** The Authority does not agree. We are moving into a full audit system and it is essential that records be kept for quite long periods. Good operators may not be audited as frequently in the future and these records are necessary if the Authority is to gain the required level of confidence in an operator. In comparison, the IRD requires that tax records are retained for ten years.

Operational flight plan in (1) has been deleted in both Part 121 and Part 135 as this requirement is also covered in (2) operational records.

### 121.901 - 925 Advanced qualification programme (AQP)

Three commenters found the concept of AQP a little difficult without an Advisory Circular.

**CAA response:** The Authority agrees, however the stated aim of this subpart is to conform completely with the FAA requirements for AQP. This information was provided to industry during the informal draft stage of the Part 121 writing process when the FAA Advisory Circular was presented as the reference document. It will be either; re-issued by the Authority in language which conforms with New Zealand terminology (for example the use of The Director) or incorporated by reference to the FAA Advisory Circular number. The current FAA AC120-54 is available for reference now, but a new document which incorporates all the improvements gained in the last six years experience is almost ready for publication according to the Federal Aviation Administration AQP Branch.

### Conclusion

The Authority concludes from this consultation that the majority of the aviation industry participants favour the direction of the new rules. Specific issues that were identified in the comments received from the consultative group have been addressed. The rules also meet New Zealand's international obligations under the applicable ICAO Annex. The comments and all the background material used in developing the rules are held on the docket file and are

available for public scrutiny. Persons wishing to view the docket file should call at Aviation House, 1 Market Grove, Lower Hutt and ask for docket files 1041, 1042, 1048.

### **Transitional arrangements**

Part 121 contains transition provisions in Appendix A. These transition provisions relate to the use of flight simulators and the requirement to equip CVRs and FDRs in aircraft. Part 121 will also be effected by the transition provisions in Part 119 which prescribes certification rules for air transport operations.

### **Regulatory activities**

Part 121 replaces numerous requirements from the Civil Aviation Regulations 1953, the Civil Aviation Safety Orders, and the New Zealand Airworthiness Requirements.

Section 14(2) of the Civil Aviation Amendment Act 1991 (as amended by section 34 of 1996 No. 91) deems the Civil Aviation Regulations 1953 that are continued in force by section 8 of that Act to be revoked on the close of 31 March 1997.

Section 14(3) states that any order, notice, requirement, circular, or other publication continued in force by section 8 shall expire on the close of 31 March 1997.



Members  
of the  
Technical Study Group 1976-

~~Neil Battell~~  
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