



PURSUANT to Section 28 of the Civil Aviation Act 1990

I, HARRY JAMES DUYNHOVEN, Minister for Transport Safety,

HEREBY MAKE the following ordinary rules.

SIGNED AT Wellington

This *16th* day of *May* 2006

by **HARRY JAMES DUYNHOVEN**

A handwritten signature in black ink, appearing to read 'Harry James Duynhoven', is written over the printed name. The signature is fluid and cursive, with a large, stylized initial 'H' and a distinctive flourish at the end.

Minister for Transport Safety

Civil Aviation Rules

Part 125, Amendment 8

Air Operations – Medium Aeroplanes

Docket 3/CAR/4

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Rule objective

The objective of Amendment 8 to Part 125 is to make editorial and minor technical changes as part of a general rule fix up project and to update some of the specifications in Appendix B regarding flight data recorders.

Extent of consultation

A Notice of Proposed Rulemaking, NPRM 05-07, containing the proposed changes to Part 125 was issued for public consultation under Docket 3/CAR/4 on 23 June 2005.

The publication of this NPRM was notified in the *Gazette* on 23 June 2005 and advertised in the daily newspapers in the five main provincial centres on 25 June 2005. The NPRM was published on the CAA web site and mailed to identified stakeholders including representative organisations who were considered likely to have an interest in the proposal.

A period of 37 days was allowed for comment on the proposed rule.

New Zealand Transport Strategy

The development of the NPRM and the proposed rule changes takes into account the objectives of the New Zealand Transport Strategy (NZTS) and the provisions of the Civil Aviation Amendment Act (No 2) 2004.

Summary of submissions

Nine written submissions were received on the NPRM. Three submissions were received on the proposed amendments to Part 125.

Air New Zealand commented on the changes to Flight Data Recorder parameters with their submission supported by the Aviation Industry Association and the Board of Airline Representatives New Zealand Incorporated. The Air New Zealand submission was supportive of the amendments to harmonize New Zealand Flight Data Recorder (FDR) parameters with those of the United States Federal Aviation Administration (FAA). However they were concerned that the FAA is currently reviewing Flight Data Recorder parameters and has published a NPRM detailing these changes, the New Zealand rules may become different to the FAA regulations.

Following contact with the FAA, who recommend proceeding with the proposed Omnibus changes, and internal CAA discussion, the CAA has proceeded with the changes proposed in the Omnibus NPRM to harmonise with the current FAA regulations.

The Air New Zealand submission also noted that some FDR parameters in the proposed rules did not align fully with the FAA parameters or contained wording errors. The CAA has amended these parameters as required.

These changes were notified in the Summary of Public Submissions which was published on the CAA web site on 25 October 2005.

The rule as amended was then referred to Parliament's Regulations Review Committee before being signed by the Minister for Transport Safety.

Examination of submissions

Submissions may be examined by application to the Docket Clerk at the Civil Aviation Authority between 8:30 am and 4:30 pm on weekdays, except statutory holidays.

Insertion of Amendments

The amendments to the rules in this Part are reflected by the revocation of the existing rule and the substitution of the new rule.

Effective date of rule

Amendment 8 to Part 125 comes into force on 22 June 2006.

Availability of rules

Civil Aviation Rules are available from–

CAA web site: <http://www.caa.govt.nz/>

Freephone: 0800 GET RULES (0800 438 785)

Part 125 Air Operations — Medium Aeroplanes

Subpart E — Weight and Balance

Rule 125.307 is revoked and the following new rule is substituted:

125.307 Load manifest

A holder of an air operator certificate must ensure that —

- (1) a load manifest is completed before every air operation; and
- (2) the load manifest is certified by the pilot-in-command; and
- (3) the following details are accurately recorded on the load manifest:
 - (i) the name of the pilot-in-command, except where this is recorded by the certificate holder in another document:
 - (ii) the date of the operation:
 - (iii) the aeroplane type and registration mark:
 - (iv) the name or identification of the departure and destination aerodromes:
 - (v) the flight number or estimated time of departure:
 - (vi) the surname and initial of every crew member and passenger, except where these details are recorded by the certificate holder in another document:
 - (vii) the total of, the aeroplane's empty weight, the weight of any removable equipment, the weight of consumables, and the weight of crew members:
 - (viii) the total weight of passengers and their carry-on baggage, the total weight of goods, the total weight of checked baggage, and the total weight of usable fuel:
 - (ix) the take-off weight of the aeroplane:

- (x) evidence that the centre of gravity of the aeroplane is within the limits specified in the flight manual except where this is recorded by the certificate holder in another document:
- (xi) the maximum allowable weight for the operation including zero fuel weight, take-off weight, and landing weight:
- (xii) the total of any weight adjustments made under rule 125.303(f).

Subpart F – Instruments and Equipment

Rule 125.365 is revoked and the following new rule is substituted:

125.365 Public address and crew-member intercom systems

A holder of an air operator certificate must ensure that each of the certificate holder's aeroplanes having a certificated seating capacity, excluding any pilot seat, of 10 seats or more is equipped with—

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

Rule 125.367 is revoked and the following new rule is substituted:

125.367 Cockpit-voice recorder

A holder of an air operator certificate must ensure that each of the certificate holder's aeroplanes is equipped with a cockpit voice recorder if the aeroplane's flight manual requires 2 or more flight crew members.

Rule 125.369 is revoked and the following new rule is substituted:

125.369 Flight data recorder

(a) Except as provided in paragraph (b), a holder of an air operator certificate must ensure that each of the certificate holder's multi-engine turbine powered aeroplanes is equipped with a flight data recorder in accordance with B.4 of Appendix B.

(b) Paragraph (a) does not apply to the holder of an air operator certificate in respect of the following:

- (1) de Havilland DHC 6 aeroplanes:
- (2) aeroplanes registered on or before 31 March 1997 with a MCTOW of less than 5 700 kg.

Subpart G — Maintenance

Rule 125.403 is revoked and the following new rule is substituted:

125.403 Responsibility for airworthiness

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

(b) A holder of an air operator certificate must have a maintenance programme for each aeroplane, aircraft engine, propeller, rotor, appliance, emergency equipment item, and part.

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

(d) A holder of an air operator certificate must ensure that maintenance performed on the certificate holder's aeroplanes is performed—

- (1) in accordance with the maintenance programme required by paragraph (b); and
- (2) by a maintenance organisation certificated in accordance with Part 145; or
- (3) for maintenance performed in another State under a technical arrangement with the State, by a maintenance organisation that is appropriately certificated and authorised by the State.

Subpart K — Fatigue of Flight Crew

Rule 125.803 is revoked and the following new rule is substituted:

125.803 Operator responsibilities

(a) The operator of an aeroplane must not cause or permit an air operation to be performed with the aeroplane unless—

- (1) a scheme has been established for the regulation of flight and duty times for every person flying as a flight crew member in the aeroplane; and
- (2) the scheme addresses the following factors if appropriate to the operator's type of operation:
 - (i) rest periods before flight:
 - (ii) acclimatisation:
 - (iii) time zones:
 - (iv) night operations:
 - (v) maximum number of sectors:
 - (vi) single pilot operations:
 - (vii) two pilot operations:
 - (viii) two pilots plus additional flight crew members:
 - (ix) flight crew members' qualifications:
 - (x) mixed duties:
 - (xi) dead-head transportation:
 - (xii) reserve or standby period:
 - (xiii) flight duty period:
 - (xiv) in-flight relief:

- (xv) type of operation:
- (xvi) cumulative duty time:
- (xvii) cumulative flight time:
- (xviii) discretionary increases in flight time limitations or flight duty limitations or both:
- (xix) circadian rhythm:
- (xx) days off:
- (xxi) record-keeping; and

(3) the scheme is acceptable to the Director.

(b) The operator of an aeroplane performing an air operation must not cause or permit any person to fly in the aeroplane as a flight crew member if the operator knows or has reason to believe that the person is suffering from, or, having regard to the circumstances of the flight to be undertaken, is likely to suffer from, such fatigue while the person is flying as may endanger the safety of the aeroplane or its occupants.

(c) The operator of an aeroplane performing air operations must—

- (1) keep an accurate record of the flight time and duty time of each flight crew member flying in the aeroplane; and
- (2) retain the flight time and duty time record required by paragraph (c)(1) for a period of 12 months from the date on which it was made.

(d) Notwithstanding rule 125.805(c), the flight and duty time scheme limitations do not apply if the flight is one which ought to be made in the interests of safety or health of any person, in such cases it is the responsibility of the pilot-in-command to be satisfied that the safety of the flight is not endangered by reason of any flight crew member exceeding the applicable flight time limitations.

Appendix B – Instruments and Equipment Airworthiness Design Standards

Table 2 is revoked and the following new table is substituted:

Table 2. Part 125 - Flight Data Recorder Parameter Specifications

This table refers to the FDR requirements of 125.369.

Parameters	Range	Sensor input accuracy ¹	Seconds per sampling interval	Resolution	Remarks
Time or Relative time counts	8 hours minimum 24 hours 0 to 4095	±0.125% per hour	1 4	1s	UTC time preferred when available. Counter increments each four seconds of system operation
Pressure Altitude	-1000' to maximum certificated altitude -1000' to maximum certificated altitude -1000' to maximum certificated altitude +5000'	±100' to ±700' (refer TSO C124a, C51a)	1	25' to 150' 5' to 35'	Data should be obtained from the air data computer when practicable
Indicated airspeed or Calibrated airspeed	V _{so} to V _D (KIAS) 50 KIAS or minimum value to Max V _{so} , and V _{so} to 1.2V _D	±5% or ±10kts whichever is the greater. Resolution 2kts below 175KIAS ±5% and ±3%	1	1% 1kt	Data should be obtained from the air data computer when practicable

Table 2. Part 125 - Flight Data Recorder Parameter Specifications

This table refers to the FDR requirements of 125.369.

Parameters	Range	Sensor input accuracy ¹	Seconds per sampling interval	Resolution	Remarks
Heading (primary flight crew reference)	360° 0 - 360° and discrete 'true' or 'mag'	±5° ±2°	1	1° 0.5°	When true or magnetic heading can be selected as the primary heading reference, a discrete indicating selection must be recorded
Normal acceleration (vertical)	-3g to +6g	±0.2g in addition to ±0.3g maximum datum ±1% maximum range excluding datum error of ±5%	0.25 0.125	0.03g 0.004g	
Pitch attitude	100% of usable ±75°	±2°	1 or 0.25 for aeroplanes manufactured after 2002	0.8° 0.5°	A sampling rate of 0.25 is recommended
Roll attitude	±60° or 100% of usable range, whichever is the greater ±180°	±2°	1 or 0.5 for aeroplanes manufactured after 2002	0.8° 0.5°	A sampling rate of 0.5 is recommended

Table 2. Part 125 - Flight Data Recorder Parameter Specifications

This table refers to the FDR requirements of 125.369.

Parameters	Range	Sensor input accuracy ¹	Seconds per sampling interval	Resolution	Remarks
Manual radio transmitter keying or CVR/DFDR synchronisation reference	Discrete - 'on' or 'off'		1		Preferably each crew member but one discrete acceptable for all transmission provided the CVR/DFDR system complies with TSO C124a CVR synchronisation requirements
Fan N ₁ speed or EPR or cockpit indications used for aircraft certification or Propeller speed and torque (sample once/sec as close together as practicable) Thrust/power on each engine (primary flight crew reference)	Maximum range Full range forward	±5% ±2%	1 per engine	1% 0.3% of full range	Sufficient parameters (e.g. EPR, N ₁ or Torque, N _P) as appropriate to the particular engine be recorded to determine power in forward and reverse thrust, including potential overspeed conditions
Autopilot engagement	Discrete - 'on' or 'off'		1		
Longitudinal acceleration	±1g	±1.5% maximum range excluding datum error of ±5%	0.25	0.004g	

Table 2. Part 125 - Flight Data Recorder Parameter Specifications

This table refers to the FDR requirements of 125.369.

Parameters	Range	Sensor input accuracy ¹	Seconds per sampling interval	Resolution	Remarks
Stabiliser trim position or Pitch control(s) position (non fly-by-wire systems) ²	Full range	±3% unless higher uniquely required ±2°	1 1 0.5 or 0.25 for aeroplanes manufactured after 2002	1% 0.5% of full range	For aeroplanes that have a flight control break away capability that allows either pilot to operate the controls independently, record both control inputs. The control inputs may be sampled alternately once per second to produce the sampling interval of 0.5 or 0.25, as applicable
Pitch control(s) position (fly-by-wire systems)	Full range	±2°	1 0.5 or 0.25 for aeroplanes manufactured after 2002	0.2% of full range	

Table 2. Part 125 - Flight Data Recorder Parameter Specifications

This table refers to the FDR requirements of 125.369.

Parameters	Range	Sensor input accuracy ¹	Seconds per sampling interval	Resolution	Remarks
Lateral control(s) position (non fly-by-wire systems) ²	Full range	±2°	1 0.5 or 0.25 for aeroplanes manufactured after 2002	0.2% of full range	For aeroplanes that have a flight control break away capability that allows either pilot to operate the controls independently, record both control inputs. The control inputs may be sampled alternately once per second to produce the sampling interval of 0.5 or 0.25, as applicable
Lateral control(s) position (fly-by-wire systems)	Full range	±2°	1 0.5 or 0.25 for aeroplanes manufactured after 2002	0.2% of full range	

Table 2. Part 125 - Flight Data Recorder Parameter Specifications

This table refers to the FDR requirements of 125.369.

Parameters	Range	Sensor input accuracy ¹	Seconds per sampling interval	Resolution	Remarks
Yaw control(s) position (non fly-by-wire systems) ²	Full range	±2°	1 0.5	0.3% of full range	For aeroplanes that have a flight control break away capability that allows either pilot to operate the controls independently, record both control inputs. The control inputs may be sampled alternately once per second to produce the sampling interval of 0.5
Yaw control(s) position (fly-by-wire systems)	Full range	±2°	1 0.5	0.2% of full range	

Table 2. Part 125 - Flight Data Recorder Parameter Specifications

This table refers to the FDR requirements of 125.369.

Parameters	Range	Sensor input accuracy ¹	Seconds per sampling interval	Resolution	Remarks
Pitch control surface(s) position ²	Full range	±2°	1 0.5 or 0.25 for aeroplanes manufactured after 2002	0.2% of full range	For aeroplanes fitted with multiple or split surfaces, a suitable combination of inputs is acceptable in lieu of recording each surface separately. The control surfaces may be sampled alternately to produce the sampling interval of 0.5 or 0.25
Lateral control surface(s) position ²	Full range	±2°	1 0.5 or 0.25 for aeroplanes manufactured after 2002	0.3% of full range	A suitable combination of surface position sensors is acceptable in lieu of recording each surface separately. The control surfaces may be sampled alternately to produce the sampling interval of 0.5 or 0.25

Table 2. Part 125 - Flight Data Recorder Parameter Specifications

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Parameters	Range	Sensor input accuracy ¹	Seconds per sampling interval	Resolution	Remarks
Yaw control surface(s) position ²	Full range	±2°	1 0.5	0.2% of full range	A suitable combination of surface position sensors is acceptable in lieu of recording each surface separately. The control surfaces may be sampled alternately to produce the sampling interval of 0.5
Lateral acceleration	±1g	±1.5% maximum range excluding datum error of ±5%	0.25	0.004g	Twin engine aircraft only
Pitch trim surface position	Full range	±3%	1	0.6% of full range	
Trailing edge flap or cockpit control position	Full range or discrete each position	±3° ±3° or pilot's indicator	1 2	1% 0.5% of full range	Flap position and cockpit control may each be sampled alternately at four second intervals, to give a data point every two seconds

Table 2. Part 125 - Flight Data Recorder Parameter Specifications

This table refers to the FDR requirements of 125.369.

Parameters	Range	Sensor input accuracy ¹	Seconds per sampling interval	Resolution	Remarks
Leading edge flap or cockpit control position	Full range or discrete each position	$\pm 3^\circ$ $\pm 3^\circ$ or pilot's indicator	1 2	1% 0.5% of full range	Left and right sides, or flap position and cockpit control may each be sampled at four second intervals, so as to give a data point each two seconds
Each thrust reverser position or equivalent for propeller aeroplane	Discrete - 'stowed' or 'full reverse' Discrete - 'stowed', 'in transit', 'reverse'		1 per engine		Turbo-jet - two discretes enable the three states to be determined Turbo-prop - one discrete
Ground spoiler position or speed brake position	Full range or discrete each position	$\pm 2^\circ$	1 or 0.5 for aeroplanes manufactured after 2002	0.5% of full range	
Outside air temperature or total air temperature	-50°C to +90°C	$\pm 2^\circ \text{ C}$	2	0.3° C	
Autopilot/autothrottle/AFCS mode and engagement status	Discretes - suitable combination		1		Discretes should show which systems are engaged and which primary modes are controlling the flight path and speed of the aircraft

Table 2. Part 125 - Flight Data Recorder Parameter Specifications

This table refers to the FDR requirements of 125.369.

Parameters	Range	Sensor input accuracy ¹	Seconds per sampling interval	Resolution	Remarks
Altitude rate Radio altitude	±8000 fpm -20' to +2 500'	±10%. Resolution 250fom below 12,000ft indicated ±2' or ±3% whichever is the greater below 500' and ±5% above 500'	1	250fpm below 12,000ft 1' ±5% above 500'	For autoland/ category III operations, each radio altimeter should be recorded, but arranged so that at least one is recorded each second.
Localiser deviation, MLS azimuth, or GPS latitude deviation.	±400 microamps or available sensor range as installed ±62°	As installed - ±3% recommended	1	0.3% of full range	For autoland/ category III operations, each radio altimeter should be recorded, but arranged so that at least one is recorded each second. It is not necessary to record ILS and MLS at the same time, only the approach aid in use need be recorded

Table 2. Part 125 - Flight Data Recorder Parameter Specifications

This table refers to the FDR requirements of 125.369.

Parameters	Range	Sensor input accuracy ¹	Seconds per sampling interval	Resolution	Remarks
Glideslope deviation, MLS elevation, or GPS vertical deviation.	±400 microamps or available sensor range as installed +0.9° to +30°	As installed - ±3% recommended	1	0.3% of full range	For autoland/category III operations, each radio altimeter should be recorded, but arranged so that at least one is recorded each second. It is not necessary to record ILS and MLS at the same time, only the approach aid in use need be recorded
Marker beacon passage	Discrete - 'on' or 'off'		1		A single discrete is acceptable for all markers
Master warning	Discrete		1		Record the master warning and record each 'red' warning that cannot be determined from other parameters or from the cockpit voice recorder

Table 2. Part 125 - Flight Data Recorder Parameter Specifications

This table refers to the FDR requirements of 125.369.

Parameters	Range	Sensor input accuracy ¹	Seconds per sampling interval	Resolution	Remarks
Air/ground sensor (primary aeroplane sensor, nose or main gear)	Discrete - 'air' or 'ground'		1 (0.25 recommended)		
Angle of attack (need depends on altitude resolution) ³ Angle of attack (if measure directly) ³	-20° to 40° or of usable range As installed	±2° As installed	1 2 or 0.5 for aeroplanes manufactured after 2002	0.8% 0.3% of full range	If left and right sensors are available, each may be recorded at four second intervals so as to give a data point each 0.5 second
Hydraulic pressure low, each system	Discrete - 'low' or 'normal' or available sensor range	±5%	2	0.5% of full range	
Groundspeed	As installed	Most accurate system installed	1	0.2% of full range	
GPWS	Discrete - 'warning' or 'off'		1		A suitable combination of discretises unless recorder capacity is limited in which case a single discrete for all modes is acceptable
Landing gear position or landing gear cockpit control selection	Discrete		4		A suitable combination of discretises should be recorded
Drift angle	As installed	As installed	4	0.1°	
Wind speed and direction	As installed	As installed	4	1kt and 1°	

Table 2. Part 125 - Flight Data Recorder Parameter Specifications

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Parameters	Range	Sensor input accuracy ¹	Seconds per sampling interval	Resolution	Remarks
Latitude and longitude	As installed	As installed	4	0.002°	Provided by the Primary Navigation System Reference. Where capacity permits latitude/longitude resolution should be 0.0002°
Stick shaker and pusher activation	Discrete - 'on' or 'off'		1		A suitable combination of discretes to determine activation
Windshear detection	Discrete - 'warning' or 'off'		1		
Throttle/power lever position	Full range	±2%	1 per lever	2% of full range	For aeroplanes with non-mechanically linked cockpit engine controls
Additional engine parameters	As installed	As installed	Each engine each second	2% of full range	Where capacity permits, the preferred priority is - indicated vibration level, N ₂ , EGT, Fuel Flow, Fuel Cut-off lever position, and N ₃ , unless the engine manufacturer recommends otherwise

Table 2. Part 125 - Flight Data Recorder Parameter Specifications

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Parameters	Range	Sensor input accuracy ¹	Seconds per sampling interval	Resolution	Remarks
TCAS	Discretes	As installed	1		A suitable combination of discretes should be recorded to determine the status of - Combined Control, Vertical Control, Up Advisory, and Down Advisory. (refer ARINC Characteristic 735 - Attachment 6E, TCAS VERTICAL RA DATA OUTPUT WORD)
DME 1 and 2 distances	0 - 200nm	As installed	4	1nm	1 mile
Nav 1 and 2 selected frequency	Full range	As installed	4		Sufficient to determine selected frequency
Selected barometric setting	Full range	±5%	1 per 64 seconds	0.2% of full range	
Selected altitude	Full range	±5%	1	100'	
Selected speed	Full range	±5%	1	1kt	
Selected Mach	Full range	±5%	1	0.01	
Selected vertical speed	Full range	±5%	1	100ft/min	
Selected heading	Full range	±5%	1	1°	
Selected flight path	Full range	±5%	1	1°	

Table 2. Part 125 - Flight Data Recorder Parameter Specifications

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Parameters	Range	Sensor input accuracy ¹	Seconds per sampling interval	Resolution	Remarks
Selected decision height	Full range	±5%	64	1'	
EFIS display format	Discretes		4		Discretes should show the display system status (off, normal, fail, composite, sector, plan, navigation aids, weather radar, range, copy)
Multi-function/engine alerts display format	Discretes		4		Discretes should show the display system status (off, normal, fail) and the identity of display pages for emergency procedures need not be recorded
Thrust command	Full range	±2%	2	2% of full range	
Thrust target	Full range	±2%	4	2% of full range	
Fuel quantity in CG trim tank	Full range	±5%	1 per 64 seconds	1% of full range	
Primary navigation system reference	Discretes - 'GPS', 'INS', 'VOR/DME', 'MLS', 'Loran C', 'Omega', 'Localiser Glideslope'		4		A suitable combination of discretes to determine the Primary Navigation System reference
Ice detection	Discrete - 'ice' or 'no ice'		4		

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Parameters	Range	Sensor input accuracy ¹	Seconds per sampling interval	Resolution	Remarks
Engine warning each engine - vibration	Discrete		1		
Engine warning each engine - over temp	Discrete		1		
Engine warning each engine - oil pressure low	Discrete		1		
Engine warning each engine - over speed	Discrete		1		
Yaw trim surface position	Full range	±3%	2	0.3% of full range	
Roll trim surface position	Full range	±3%	2	0.3% of full range	
Brake pressure - left and right	As installed	±5%	1		To determine braking effort applied by pilots or by autobrakes
Brake pedal application - left and right	Discrete or analogue - 'applied' or 'off'	±5%	1		To determine braking applied by pilots
Yaw and side-slip angle	Full range	±5%	1	0.5°	
Engine bleed valve position	Discrete - 'open' or 'closed'		4		
De-icing or anti-icing system selection	Discrete - 'on' or 'off'		4		
Computed centre of gravity	Full range	±5%	1 per 64 seconds	1% of full range	
AC electrical bus status	Discrete - 'power' or 'off'		4		Each bus

Table 2. Part 125 - Flight Data Recorder Parameter Specifications

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Parameters	Range	Sensor input accuracy ¹	Seconds per sampling interval	Resolution	Remarks
DC electrical bus status	Discrete - 'power' or 'off'		4		Each bus
APU bleed valve position	Discrete - 'open' or 'closed'		4		
Hydraulic pressure each system	Full range	±5%	2	100psi	
Loss of cabin pressure	Discrete - 'loss' or 'normal'		1		
Computer failure - critical flight and engine control systems	Discrete - 'fail' or 'normal'		4		
HUD	Discrete - 'on' or 'off'		4		
Para-visual display	Discrete - 'on' or 'off'		1		
Cockpit trim control input position - pitch	Full range	±5%	1	0.2% of full range	Where mechanical means for control inputs are not available, cockpit display trim positions should be recorded.
Cockpit trim control input position - roll	Full range	±5%	1	0.7% of full range	Where mechanical means for control inputs are not available, cockpit display trim positions should be recorded.

Table 2. Part 125 - Flight Data Recorder Parameter Specifications

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Parameters	Range	Sensor input accuracy ¹	Seconds per sampling interval	Resolution	Remarks
Cockpit trim control input position - yaw	Full range	±5%	1	0.3% of full range	Where mechanical means for control inputs are not available, cockpit display trim positions should be recorded.
Trailing edge flap and cockpit flap control position	Full range or discrete each position	±5%	2	0.5% of full range	Trailing edge flaps and cockpit flap control position may each be sampled alternately at four second intervals to provide a sample each 0.5 second
Leading edge flap and cockpit flap control position	Full range or discrete each position	±5%	1	0.5% of full range	
Ground spoiler position and speed brake selection	Full range or discrete each position	±5%	0.5	0.3% of full range	
All cockpit flight control input forces - control wheel, control column, rudder pedal	Full range – control wheel- ±70lbs, control column ±85lbs, rudder pedals, ±165lbs.	±5%	1	0.3% of full range	For fly-by-wire flight control systems, where flight control surface position is a function of the displacement of the control input device only, it is not necessary to

Table 2. Part 125 - Flight Data Recorder Parameter Specifications

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Parameters	Range	Sensor input accuracy ¹	Seconds per sampling interval	Resolution	Remarks
					record this parameter

Notes:

1. When data sources are aircraft instruments (except altimeters) of acceptable quality to fly the aircraft the recording system excluding these sensors (but including all other characteristics of the recording system) must contribute no more than half of the values in this column.
2. For aeroplanes that can demonstrate the capability of deriving either the control input or control movement (one from the other) for all modes of operation and flight regimes only the surface position OR the control position need be sensed. For aeroplanes with non-mechanical control systems (fly-by-wire) both surface and control position must be recorded.
3. If data from the altitude encoding altimeter (100' resolution) is used then either of these parameters should also be recorded. If however, altitude is recorded at a minimum of 25' resolution then these two parameters may be omitted.

Consultation Details

(This statement does not form part of the rules contained in Part 125. It provides details of the consultation undertaken in making the rules.)

Comments arising from the NPRM

The rule amendment was developed under docket 3/CAR/4 and published as NPRM 05-07. The consultation details relating to docket 3/CAR/4 are detailed in each affected rule.

Nine written submissions were received on the NPRM and three commented on the proposed amendments to Part 125.

The Aviation Industry Association (AIA) submitted that they support the concept of an Omnibus Rule. The AIA note that an Omnibus Rule should not address matters of substance but aim to propose administrative rule changes or remove the requirement for an exemption.

The AIA submit that the proposed changes to the Flight Data Recorder Parameter Specifications (FDR) in relation to Petition 3/PET/7 meet the scope for the Omnibus. The AIA is concerned that the remainder of the FDR changes are based on Federal Aviation Administration rules on FDR changes but the FAA FDR rules are in transition. The AIA believe it is inadvisable to propose changes to New Zealand rules without discussion with New Zealand registered operators and the FAA rules are not in their final state.

CAA comment: Refer to the CAA response to Air New Zealand below.

Air New Zealand submitted that the CAA should review the amendments to the Part 125 Flight Data Recorder parameters in Appendix B, Table 2. Air NZ is supportive of the intent to align the CAA rules with those of the FAA. NPRM 05-07 proposes to amend the CAA rules on Flight Data Recorder parameters with the current Federal Aviation Regulations (FARs) of the United States. However Air NZ note the FAA currently has a Notice of Proposed Rule Making proposing amendments to the current Federal Aviation Regulations on Flight Data Recorders. Air NZ also note that the FAA amendments proposed in NPRM FAA-2005-20245 have drawn a great deal of comment especially from Boeing, and if the FARs are amended in accordance with the FAA NPRM then the NZCAA rules will again not harmonise with the FARs.

Air NZ recommends all Flight Data Recorder parameters listed in FAA-2005-20245 are reviewed by the CAA against the Omnibus NPRM 05-07 proposed amendments for differences.

Air NZ supports proceeding with the amendments to the Flight Data Recorder Parameters 12b and 13b but recommend all other parameters changes be put on hold until FAA changes are finalised. The Air NZ concern it that changes made now may have to be amended if the FAA proposed amendments are finalised.

CAA comment: *The CAA is aware of the proposed FAA Flight Data Recorder amendments and has been in contact with the FAA in regard to the FAA NPRM. The CAA has reviewed all the proposed FAA amendments against current and proposed New Zealand rule changes. The CAA is mindful of the FAA NPRM and the proposed amendments but the FAA amendments are in the process of consultation not a final rule.*

As AIR NZ has noted much comment has been made on the proposed parameter amendments. This comment includes a Boeing submission that states the FAA proposed Flight Data Recorder changes not proceed, and the proposed FAA amendments be reissued for comment with appropriate background. The CAA agrees with the Boeing submission as there is no supporting data from the FAA on the changes especially in terms of a safety case.

Following contact with the FAA, who recommend proceeding with the proposed Omnibus changes, and internal CAA discussion the CAA has decided to proceed with the changes proposed in the Omnibus NPRM to harmonise with the current FAA regulations.

If the FAA makes legislative amendments in regard to Flight Data Recorders that return the parameters to the current CAANZ requirements, the CAA will address those changes a future rule project.

FAA Parameters 27 & 28. Localiser and Glideslope deviation. The FAA rules include an allowance for GPS deviation which is absent from the CAANZ rule.

CAA comment: *The CAA agrees. The final rule is amended to include under both the Localiser, and the Glideslope deviation parameters an allowance for GPS deviation under Part 121, and Part 125.*

FAA Parameter 88. All cockpit control input forces. There is a paragraph misalignment with the sensor input accuracy. The numbers +/-70lbs, +/-85lbs, +/- 165lbs relate to the Range column and not to the Sensor Input Accuracy column – refer to FAA-2005-20245 for the correct alignment.

CAA comment: *The CAA agrees and the final rule for All cockpit control input forces under Part 121, and Part 125 is amended to put this information under the correct column.*

FAA Parameter 88. All cockpit control input forces. Resolution is 0.2% existing CAANZ rule, changing to 0.3% NPRM 05-07, but changing back to 0.2% FAA-2005-20245, with Boeing comments contesting this change without due consultation.

CAA comment: *The CAA proposed amendment decreases the resolution requirement from 0.2% to 0.3% therefore relaxing the resolution requirement. An operator whose Flight Data Recorder is set at a resolution greater than that stated in the rules is exceeding the minimum standard required by the rule.*

The comments and all background material used in developing these rules are held on the docket. The docket is available for public inspection at Aviation House, 10 Hutt Road. Persons wishing to view the docket should contact the Docket Clerk on Phone 64-4-560-9603 and ask for docket 3/CAR/4.