Type Acceptance Report

TAR 3/21B/18 – Revision 1

AIRBUS A318/A319/A320/A321

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Executive Summary

New Zealand Type Acceptance has been granted to the Airbus A318/A319/A320/A321 series based on validation of EASA Type Certificate number A.064. There are no special requirements for import.

Applicability is currently limited to the Models and/or serial numbers detailed in Appendix 1, which are now eligible for the issue of an Airworthiness Certificate in the Standard Category in accordance with NZCAR §21.177, subject to any outstanding New Zealand operational requirements being met. (See Section 5 of this report for a review of compliance of the basic type design with the operating Rules.) Additional variants or serial numbers approved under the foreign type certificate can become type accepted after supply of the applicable documentation, in accordance with the provisions of NZCAR §21.43(c).

1. Introduction

This report details the basis on which Type Acceptance Certificate No.3/21B/18 was granted in the Standard Category in accordance with NZCAR Part 21 Subpart B.

Specifically the report aims to:

(a) Specify the foreign type certificate and associated airworthiness design standard used for type acceptance of the model in New Zealand; and

(b) Identify any special conditions for import applicable to any model covered by the Type Acceptance Certificate; and

(c) Identify any additional requirements which must be complied with prior to the issue of a NZ Airworthiness Certificate or for any subsequent operations.

2. ICAO Type Certificate Details

Manufacturer: Airbus

Type Certificate: A.064
Issued by: European Aviation Safety Agency

(Note: This TC replaced DGAC France TC No 180 on 21 December 2005. The DGAC TC remains a valid reference for aircraft produced prior to 21 December 2005.)

Model(s): A320-232

Engine: IAE V2527-A5 (Mod 23008) [26,500 lb. thrust]

Type Certificate: E40NE
Issued by: Federal Aviation Administration

MCTOW 73,500 kg (Basic)
71,500 kg (Variant 013 [Mod 31132])
73,500 kg (Variants 008 [Mod 23900], 014 [Mod 31385])
75,500 kg (Variants 003, 009 [Mod 22269], 011 [Mod 30307])
77,000 kg. (Variants 007, 010 [Mod 23264], 012 [Mod 30479])

Additional Models:

Model [1]	**Engines**	**Thrust (TO)**	**MTOW** [2]
A320-231	V2500-A1	24,800 lb	78,000 kg (015)
A320-214	CFM 56-5B4, B4/P, B4/2P, B4/P1, B4/2P1, B4/3, B4-3B1	27,000 lb	78,000 kg (015)
A320-233	V2527E-A5	24,800 lb	78,000 kg (015)
A320-215	CFM 56-5B5/P, B5/3	22,000 lb	75,500 kg (011)
A320-216	CFM 56-5B6/P, B6/3	23,500 lb	75,500 kg (011)
A321-131	V2530-A5	29,900 lb	89,000 kg (008)
A321-112	CFM 56-5B2, B2/P, B2/3	31,000 lb	89,000 kg (008)
A321-111	CFM 56-5B1/P, B1/2P, B1/3	30,000 lb	89,000 kg (008)
A321-211	CFM 56-5B3/P, B3/2P, B3/3, B3/P1, B3/2P1, B3/3B1	32,000 lb	93,500 kg (011)
A321-231	V2533-A5	31,600 lb	93,500 kg (011)
A321-212	CFM 56-5B1/P, B1/2P, B1/3	30,000 lb	93,500 kg (011)
A321-213	CFM 56-5B2, B2/P, B2/3	31,000 lb	93,500 kg (011)
A321-232	V2530-A5	29,900 lb	93,500 kg (011)
A319-111	CFM 56-5B5/P, B5/3	22,000 lb	75,500 kg (007) [3]
A319-112	CFM 56-5B6/P, B6/2P, B6/3	23,500 lb	75,500 kg (007) [3]
A319-131	V2522-A5	23,040 lb	75,500 kg (007) [3]
A319-132	V2524-A5	24,480 lb	75,500 kg (007) [3]
A319-115	CFM 56-5B7, B7/P, B7/3	27,000 lb	75,500 kg (007) [3]
A319-133	V2527M-A5	24,800 lb	75,500 kg (007) [3]
A318-111	CFM 56-5B8/P, B8/3	21,600 lb	68,000 kg (005)
A318-112	CFM 56-5B9/P, B9/3	23,300 lb	68,000 kg (005)

Notes:

1. Airbus model designation convention is:

   A3xx-xxx
   - x – first number is basic series, -100 or -200
   - x – second number is Engine type (1 = CFM, 2= P/W, 3 = IAE)
   - x – last number is Engine Thrust Rating

2. There are numerous weight variants for each model. The maximum weight and associated variant are listed. See TCDS A.064 for details of all variants.
3. 76,500 kg is available for the A319 in Corporate Jet configuration.

Noise Category:

Model	Noise Certification basis and category
A321	ICAO Annex 16 Vol.I Part II Chapter 3 (-131, -231, -213, -232 models are compliant with Chapter 4 when modification 36521 embodied.)
A320	ICAO Annex 16 Vol.I Part II Chapter 3 (All models are compliant with Chapter 4 when modification 36521 embodied.)
A319	ICAO Annex 16 Vol.I Part II Chapter 3 (All models are compliant with Chapter 4 when modification 36521 embodied.)
A318	ICAO Annex 16 Vol.I Part II Chapter 3 (-111 and -112 models are compliant with Chapter 4 when modification 36521 embodied.)

See EASA Noise Type Certificate A.064 Issue 14 dated 21 December 2012
Volume 1 for A318, Issue 1 dated 13 July 2012
Volume 2 for A319, Issue 1 dated 13 July 2012
Volume 3 for A320, Issue 4 dated 21 December 2012
Volume 4 for A321, Issue 1 dated 13 July 2012

ETOPS – All A318, A319, A320, and A321 models are certificated for 180 minutes ETOPS operations.

Engine: CFM56-5B Series

Type Certificate: E37NE
Issued by: Federal Aviation Administration

Type Certificate: E.003
Issued by: European Aviation Safety Agency

3. Type Acceptance Details

The initial application for New Zealand type acceptance of the A320-232 was from the manufacturer, dated 14 November 2002. The first-of-type example was MSN 2085, registered ZK-OJA. The A320 is a narrow-body twin turbofan short-to-medium range airliner approved for up to 180 passengers.

Type Acceptance Certificate No. 3/21B/18 was granted on 1 September 2003 to the Airbus A320-232 based on validation of DGAC Type Certificate No.180, and included the V2500 Series engine based on validation of FAA Type Certificate E40NE. Specific applicability was limited to the coverage provided by the operating documentation supplied.

Revision 1 was raised to add additional models and variants of the Airbus single-aisle family that have the certification basis as detailed in this report, except the PW6000 powered A318-121 and A318-122 models and all models powered by the CFM56-5A series engine, and change the applicable type certificate to the EASA.A.064. For all Airbus models, there are no special requirements for import into New Zealand.

Note: Because it is not practical to provide copies of all the operating documentation for all models and variants, and Airbus provides CAA access to the AirbusWorld website for all operators and aircraft serial numbers on the NZ Register, Type Acceptance has been granted to the Airbus single-aisle aircraft family covered by this report (See Section 2 and Appendix 1), subject to provision of access to the applicable operating documentation.

The Type Acceptance certificate now includes the CFM56-5B series of engines. Type Acceptance of the IAE V2500 series of engines has been separated out and is now covered by Type Acceptance certificate No 11/21B/16.

The A320 was a completely “clean-sheet” design by Airbus which incorporated a number of very advanced technology features with extensive use of electronics. These included the use of fly-by-wire flight controls with side-stick controllers and artificial envelope protection, electronic autothrottle and digital pilot’s instrument displays. This resulted in a very complicated certification basis with multiple special conditions being agreed by the JAA and FAA, to take account of the novel design solutions. There are two basic variants of the A320, the Series 100 and the Series 200. The latter has a wing centre-section fuel tank and higher operating weights. The A320 prototype flew in 1984.

The A321 was the next member of the Airbus single-aisle family, entering service in 1994. It has been stretched 6.94m over the A320 and is certificated for up to 220 passengers.

The A319 was the third member of the single-aisle family, entering service in 1996, but is the second most popular model in terms of numbers in service. It has been reduced in length by 3.73m from the A320 and is certificated for up to 145 passengers (or 160 passengers when fitted with two extra overwing emergency exits).

The A318 is the smallest member of the Airbus single aisle family, being 2.39m shorter than the A319 and certificated for a maximum of 136 passengers. It entered service in 2003 and is also certificated for steep approaches. The V2500 engine series is not available on the A318, the second engine option being the Pratt & Whitney PW6000 series. However

this engine option has only been selected by one operator and A318 models with this engine are not included under this Type Acceptance certificate.

The Airbus single-aisle family share a common type rating.

The CFM56 is a high-bypass turbofan engine developed as a joint venture between General Electric Aviation of the USA and SNECMA of France, with GE developing the high pressure compressor, combustor and high pressure turbine, and SNECMA developing the fan, low pressure compressor and low pressure turbine. The engine first ran in 1974 and initial applications were retrofitting of older turbojet powered transports.

The CFM56-5A was developed specifically for the Airbus A320 and was certificated in 1987. The CFM56-5B was developed specifically for the A321 but with a thrust range of 22,000 to 33,000 it can power all models in the Airbus range and has superseded the CFM-5A series. In 2004 CFM launched the improved “Tech Insertion” variants of the engine offering improved economy and reduced emissions.

GE Aviation and SNECMA both manufacture the engines under their own type certificate under licence from the type certificate holder, CFM International, who is responsible for type certification and customer support.

4. NZCAR §21.43 Data Requirements

The type data requirements of NZCAR Part 21B Para §21.43 have been satisfied by supply of the following documents:

(1) ICAO Type certificate:

EASA Type Certificate A.064 issued 21 December 2005 (replacing DGAC Type Certificate No 180 originally issued February 26, 1988)

EASA Type Certificate Data Sheet A.064 Issue 10 dated 21 December 2012

Model A320-231 approved April 20, 1989
Model A320-232 approved September 28, 1993
Model A320-214 approved March 10, 1995
Model A320-233 approved June 12, 1996
Model A320-215 approved June 22, 2006
Model A320-216 approved June 14, 2006
Model A321-131 approved December 17, 1993
Model A321-112 approved February 15, 1994
Model A321-111 approved May 27, 1994
Model A321-211 approved March 20, 1997
Model A321-231 approved March 20, 1997
Model A321-212 approved August 31, 2001
Model A321-213 approved August 31, 2001
Model A321-232 approved August 31, 2001
Model A319-111 approved April 10, 1996
Model A319-112 approved April 10, 1996
Model A319-131 approved December 18, 1996
Model A319-132 approved December 18, 1996
Model A319-115 approved July 30, 1999
Model A319-133 approved July 30, 1999
Model A318-111 approved May 23, 2003
Model A318-112 approved May 23, 2003
Major Change 160500 (Sharklets) Iss 1 (A320, CFM56) approved 30-11-12
Major Change 160500 (Sharklets) Iss 2 (A320, V2500) approved 21-12-12

EASA Type Certificate E.003 (replacing DGAC Type Certificate No M15)

EASA Type Certificate Data Sheet E.003 Issue 03 dated 17 December 2012

Model CFM56-5B2 approved 28 May 1993
Model CFM56-5B4 approved 2 February 1994
Model CFM56-5B1/P, -5B2/P, -5B4/P, -5B5/P, -5B6/P, -5B1/2P, -5B3/2P, -5B4/2P, -5B6/2P approved 30 June 1996
Model CFM56-5B3/P approved 10 September 1996
Model CFM56-5B7 approved 7 June 1999
Model CFM56-5B7/P approved 29 October 1999
Model CFM56-5B8/P, -5B9/P approved 25 July 2002
Model CFM56-5B3/P1, -5B3/2P1, -5B4/P1, -5B4/2P1 appr. 27 Oct 2004
Model CFM56-5B1/3, -5B2/3, -5B3/3, -5B3/3B1, -5B4/3, -5B4/3B1, -5B5/3, -5B6/3, -5B7/3, -5B8/3, -5B9/3 approved 15 September 2006

FAA Type Certificate E37NE issued 31 December 1991

FAA Type Certificate Data Sheet E37NE Rev 12 dated April 13, 2012

Model CFM56-5B2 approved 28 May 1993
Model CFM56-5B4 approved 2 February 1994
Model CFM56-5B1/P, -5B2/P, -5B4/P, -5B5/P, -5B6/P, -5B1/2P, -5B3/2P, -5B4/2P, -5B6/2P approved 20 June 1996
Model CFM56-5B3/P approved 10 September 1996
Model CFM56-5B7 approved 7 June 1999
Model CFM56-5B7/P approved 3 November 1999
Model CFM56-5B8/P, -5B9/P approved 25 July 2002
Model CFM56-5B3/P1, -5B3/2P1, -5B4/P1, -5B4/2P1 appr. 25 Oct 2004
Model CFM56-5B1/3, -5B2/3, -5B3/3, -5B3/3B1, -5B4/3, -5B4/3B1, -5B5/3, -5B6/3, -5B7/3, -5B8/3, -5B9/3 approved 15 September 2006

(2) Airworthiness design requirements:

(i) Airworthiness Design Standards:

A320 - The original certification basis of the Airbus A320 Series is JAR 25 Change 11 (except paragraph 25.207 which remains at Change 10) as elected by the Manufacturer, plus A320 Special Conditions (raised to cover novel or unusual features not addressed by the JAR), Experience Related Conditions (raised to record an agreed text for the A320 Joint Certification Basis when evolution of JAR was in progress under the NPA procedure) and Harmonization Conditions (to record, for the purpose of the A320 Joint Certification Basis, a common understanding with respect to National variant. This should not be confused with the FAA/JAA harmonised regulations). Five Equivalent Safety Findings were granted. These have all been reviewed and accepted by the CAA.

The certification basis of the A320 has been subsequently updated. For weight variants 007 and subsequent and for all new models from and including A320-232, the JAR 25 paragraphs defined above are modified following the elect-to-comply to OP 91/1 (NPA 25C205) by Airbus (DGAC letter 60667/SFACT/N.AT). (See TCDS for affected JAR paragraphs.) This also resulted in deletion of three Special Conditions and Interpretive Materials.

In addition, for all models of A320-200 series, the JAR 25 paragraphs were modified following the elect-to-comply with the new discrete gust requirements of JAR 25 Change 14 as amended by NPA 25C-282, by application of the major change titled "Flight Controls - deletion of LAF features from A320", modifications 26334/26335.

For the A320-233 and all A320-200 with OCTOPUS AFM (computerised performance data – see CRI F2013), the JAR 25 certification basis is further modified following the elect-to-comply with SC-F11 and SC-S79. This results in the deletion of five JAR 25 Change 11 paragraphs and three harmonisation special conditions, plus seven JAR 25 paragraphs are upgraded to Change 13 and amended by two other special conditions.

A321 – The certification basis of the A321 is JAR 25 change 11, with selected paragraphs as identified on the TCDS at change 13 effective November 30, 1989 with selected paragraphs at change 11 as identified on the TCDS deleted at change 13; JAR 25 paragraphs at change 13 as identified on the TCDS and amended by NPA 25C205 (Unified Discrete Gust Requirements introduced by Orange Paper 91/1); JAR 25 paragraphs at change 13 as identified on the TCDS and amended by NPA 25 BDG 244 (Accelerate Stop Distance and Associated Performance); JAR AWO 1 for autoland and low visibility operations; and AMC 20-6 for ETOPS operations.

A large number of A320 Special Conditions, as identified on the TCDS, were retained. Seventeen A320 Special Conditions were deleted by the changed certification basis or new A321 Special Condition. Eighteen new Special Conditions were adopted, plus one additional Special Condition for operations at high altitude airports. Three Equivalent Safety Findings were made, plus one additional ESF post-certification.

A319 – The certification basis of the A319 is JAR 25 change 11, except for Subpart BB and all National Variants, and except for selected paragraphs as identified on the TCDS which are upgraded at change 13 and amended by Orange papers 90/1 or 91/1, and except for selected paragraphs as identified on the TCDS which are upgraded at Change 13 and amended by SC-F11 and SC-S79; JAR AWO 1 for autoland and low visibility operations; and AMC 20-6 for ETOPS operations.

For A319 weight variant 002 and any further certification after Aug 10, 1998 JAR 25.493(d) at change 14. For A319-115 and -133 variants, JAR 25 selected paragraphs as identified on the TCDS which are upgraded at change 14 and amended by Orange paper 96/1.

Twenty-four A320 Special Conditions, as identified on the TCDS, were retained, three A321 Special Conditions and three new A319 Special Conditions were adopted, plus one additional Special Condition for operations at high altitude airports. Three Equivalent Safety Findings were made, plus one additional ESF post-certification.

A318 - The certification basis of the A318 is JAR 25 change 11, except for Subpart BB and all National Variants, and except for selected paragraphs as identified on the TCDS which are upgraded at changes 13, 14 and 15, with some additionally amended by Orange paper 96/1; JAR AWO 1 for autoland and low visibility operations; and AMC 20-6 for ETOPS operations.

Twenty-two A320 Special Conditions, as identified on the TCDS, were retained, five A319 Special Conditions and six new A318 Special Conditions were adopted. Eight Equivalent Safety Findings were made, plus one additional ESF post-certification.

All single-aisle models – For all models, four additional Special Conditions have been developed post-certification.

These are an acceptable certification basis in accordance with NZCAR Part 21B Para §21.41 and Advisory Circular 21-1A, as JAR 25 and CS 25 are equivalent to FAR 25, which is the basic standard for Transport Category aircraft called up under Part 21 Appendix C. There are no non-compliances and no additional special conditions have been prescribed by the Director under §21.23.

CFM56-5B – For initial CFM56-5B models the certification basis was JAR-E Change 7, plus NPA-E-5, NPA-E-7, NPA-E-10 and Blue paper C830. For later CFM56-5B variants, selected paragraphs of JAR-E at Change 10, Change 11, and CS-E have been added. See TCDS E.003 for full details. There were two Special Conditions.

These are acceptable certification bases in accordance with NZCAR Part 21B Para §21.41 and Advisory Circular 21-1A, as JAR E is equivalent to FAR 33, which is the basic standard for Aircraft Engines called up under Part 21 Appendix C. There are no non-compliances and no additional special conditions have been prescribed by the Director under §21.23.

(ii) Special Conditions:

EC-G11 (All models) – General Definitions – JAR 1 maximum take-off power and/or thrust, which includes 5 minutes max. continuous period, was extended to 10 minutes in the case of engine failure.

(DGAC-F) SC-G17 (All models) – Operational proving flights – (CRI G1001) Airbus were required to carry out an intensive flying program under airline type conditions to show the aircraft, components and equipment was safe for airline operations. (FAA and DGAC require 300 hours of flight testing by a production standard aircraft.) Another 100 hours is required plus 50 hours airline route proving.

(CAA-UK) SC-G17 (All models) – Operational flight before certification – The UK CAA required 200 hours of route proving plus some additional specific requirements as detailed in Appendix 1.

SC-A1 (A318, A319, A321) – Interaction of Systems and Structure. (25.301(10), 25.302, 25.305(f), 25.629(d)(9), 25.629(d)(10)) – Airbus was required to account for any systems failure or malfunction which could affect structural performance.

SC-A2 (A318, A319, A321) – Stalling Speed for Structural Design – As the stall protection system controls elevator motion as the aircraft approaches the stall speed, to ensure that conventional levels of design speed are used in the structural justification, $0.94V_{S1g}$ is used in place of V_{S1}.

IM-A3 (A321) – Rapid Decompression – CRI A3003 – Adds additional interpretive material for compliance with the rapid decompression requirements of JAR 25.365(e).

IM-A4 (A321) – Fuel Tank Crashworthiness – CRI A3004 – Replaces the A320 IM 4/7 requirements for fuel tank crashworthiness with JAR 25.963(d) ACJ at change 12.

SC-A5003 (A318) – Design Dive Speed V_D – Revises the JAR 25.335(b) definition of V_D to account for the aircraft's operating conditions.

SC-F1 (A319, A320, A321) – Stalling and scheduled operating speeds – Because of the low speed stall protection, which cannot be overridden by the pilot, there is no possibility to demonstrate minimum speeds below V_{Slg}. Strict interpretation of this would result in performance

penalties. Therefore a compensating formula was accepted, recognising the value of the stall protection safety system.

SC-F3 (all models) – Cockpit control - motion and effect of cockpit control – JAR 25.143(c) forces are not appropriate for a side-stick controller. Suitable loads from simulator studies were agreed.

SC-F4 (A329, A320, A321) – Static longitudinal stability – The longitudinal control laws used for the A320 provide neutral stability within the normal flight envelope, which is not in strict literal compliance. The control laws have been written to provide positive static longitudinal stability outside the normal flight envelope, to ensure a tendency to return within that envelope.

SC-F6 (All models) – Static directional and lateral stability – (CRI F1001) Because of the A320 roll axis design feature in which aileron force commands roll rate, the stabilised portion of constant heading sideslips may result in zero aileron force. However this was accepted because the requirement is for non-negative yaw and roll stability and JAR 25.177(c) allows some discretion in the proportionality between aileron force (or movement) and sideslip.

SC-F7 (All models) – Flight envelope protection – It was agreed that the JAR 25.399 paragraph on dual control systems is not appropriate to the A320 flight control system with dual side-stick controllers.

SC-F8 (All models) – Normal load factor limiting – Because of the high speed protection function limiting increases by decreasing pilot nose-down control authority and providing a progressive nose-up command, V_D was determined by a specified upset manoeuvre, plus atmospheric variations.

SC-F9 (All models) – Dual control system – Reserved for possible issues.

SC-F10 (A321) – Accelerate Stop Distances – Revised various definitions in JAR 1 and JAR 25, including Take-off decision speed; Decision height; Accelerate-stop distance; and adds worn brakes.

SC-F11 (A320-233, A318, A319) – Accelerate Stop Distances – Amendments to Accelerate-Stop distance and related matters to permit the use of advanced versions of NPA 25,B,D,G-244 but taking into account wet runway braking agreements reached during the development of the final Rule.

IM-F12 (A321) – Computerised AFM – CRI F3004 – Proposes the same AFM as the A330/340 series using a computer data base and program for a PC, using AMJ 25.1581 guidance material.

IM-F13 (A321) – Landing Distance Extrapolation – CRI F3005 – Proposes the use of NPA 25B-242 for extrapolation of landing distances for altitudes above that tested.

AMC F-14 (A321) – Flight in Icing Conditions – CRI F3006 – Proposes the means of compliance for flight in icing conditions, largely based on NPA 25B-219 Iss 2 with amendments proposed by Airbus.

HC-F103 (A320 up to -233) – Accelerate Stop Distance, Take-Off Distance and Take-Off Run on a Wet Runway – Wet runway performance will be established in accordance with the rules specified in the appendix. Subject to satisfactory demonstration of reliability and controllability credit may be taken for the use of reverse thrust in an accelerate-stop on a wet runway.

HC-F114 (A320) – Approach and Target Threshold Speeds – Airbus was required to accept the UK National Variant which introduces additional conditions to the steady gliding approach speed.

SC-F5001 (A318) – Stalling and Scheduled Operating Speeds – Introduces changes to definitions of minimum speeds and operating speeds to account for the effect of the High Incidence Protection System and the Alpha-Floor system.

SC-F5004 (A318) – Static Longitudinal Stability and Low energy Awareness – As the aircraft flight control laws provide neutral longitudinal stability below normal operating speeds there must be adequate awareness for the pilot of a low energy state.

SC-A.2.1.1 (A320) – Certification Criteria of Aircraft Designed with Systems Interacting with Structural Performance – (CRI A1001) There is a need to provide warnings of the existence of failure conditions which can affect the structural capability of the aircraft, and for which the associated reduction in airworthiness can be reduced by suitable operational limitations.

SC-A.2.2.2 (A318, A319, A320) – Design manoeuvre requirement – The existing requirements need a special interpretation in cases when relevant flight control laws (due to fly-by-wire) are implemented.

SC-A.2.2.3 (A319, A320) – Design dive speed – The introduction of High Speed Protection raised the problem of application of the manoeuvre in JAR 25.335(b)(1) in order to determine V_D.

EC-A.3.6.1 (A320) – High Lift Devices – The existing JAR 25.345 requirement needed clarifying, especially for the phases of flight definitions of en-route, procedure flight, approach etc.

(CAA-UK) SC-A.4.3 (A320) – Tuned Gust Loads – The existing British NV special condition needed some interpretation (tuning law) to be used for vertical gust calculations.

HC-A.4.4 (A320) – Manoeuvre Loads – High lift devices deployed – UK CAA required a checked manoeuvre to be considered in conjunction with high lift devices deployed. However it was subsequently accepted it was not a limiting case for the A320.

HC-A.4.5 (A319, A320, A321) – Braked roll conditions – (CRI A7) This is equivalent to JAR 25.493(d) at Change 13 for dynamic braking. For Project J1W002 (A319 Weight Variant 002 [Mod. 27112]) and all further A320 family variants Airbus elected to comply with Change 14 plus amendment 25/96/1.

HC-A.4.6 (All models) – Speed control device – Clarification of UK CAA National Variant for JAR 25.373 was needed.

SC-S11 (All models) – Limit pilot forces and torques – JAR 25.397(c) is based on a stick and not a wrist-applied side-stick. Simulator investigation established an acceptable level of limit pilot forces.

HC-S23 (All models) – Standby gyroscopic horizon – The French National Variant was used for JAR 25.1303(b)(4), which is consistent with the FAR and requires a third attitude instrument usable through 360° of pitch and roll. (Gyro precession is not prohibited but should not occur at a pitch attitude closer to the horizontal than 70° and should be completed within an attitude change of 15°.)

HC-S24 (All models) – V_{MO}/M_{MO} Warning (setting) – The French NV (and FAR) limit V_{MO}/M_{MO} warning to +6.0 kt and +0.01 was adopted, inclusive of equipment and adjustment tolerances.

EC-S30 (All models) – Autoflight system – Criteria was needed to cover the highly integrated Flight Management System and the delayed flap approach function.

SC-S33 (All models) – Autothrust system – Certification criteria was required to be established for autothrottle synchronisation. See also CRI F2001, which added it must be shown by test or analysis that adequate cues are provided to the crew to monitor thrust changes during autothrottle operation.

SC-S52 (All models) – Operation without normal electrical power – The JAR was amended to take into account all possible electrical power sources when those dependent on the engines are lost.

EC-S54 (All models) – Circuit protective devices – Only fuses which are essential for the safety of flight are replaceable, based on the probability that all CBs or fuses will be blown is low.

HC-S61 (A320 up to -233) – Design Landing Brakes Kinetic Energy – JAR does provide for alternative means of retardation other than wheel brakes, but this option is deleted by the French National Variant.

HC-S62 (A320 up to -233) – Rejected Take-Off Brakes Kinetic Energy – French NV deletion of retardation other than wheel brakes provides a higher margin of safety than residual temperature before taxiing.

HC-S72 (All models) – Flight recorder – UK NV requires a validity check of data. It was agreed to accept an aural or visual means of pre-flight checking that a recording has been properly done.

SC-S74 (All models) – Abnormal attitudes – (CRI F2009) The electronic flight control system fitted to the A320 introduces changes to typical aircraft handling, pilot techniques, and man-machine interface, and a list of issues was developed in an Appendix. These were subsequently covered in other papers.

SC-S75 (All models) – Lightning protection indirect effects – (CRI S4) Special assessment of the effects of lightning on digital signals for essential systems was required, including partial tests on equipment, global tests on one aircraft, and extrapolation of the results to the "limit case".

SC-S76 (All models) – Effect of external radiations up on aircraft systems – (CRI SE2001) Each essential system must be designed and installed to ensure the aircraft operation is unaffected by exposure to external radiations. Threat frequency bands and average and peak levels were defined.

SC-S77 (All models) – Integrity of control signal – (CRI SM2006) A new criteria was required to ensure the integrity of electrical digital control signal transmission to the flight control surfaces.

SC-S79 (A318, A319, A320 from -233, A321) – Brakes Requirements, Qualifications and Testing – Amendments to brake requirements, qualifications and related matters to permit the use of advanced versions of NPA 25,B,D,G-244 but taking into account wet runway braking agreements reached during the development of the final Rule.

SC-SE5002 (A318) – AFM RVR Limits – Revises JAR-AWO so RVR limits are to be set by the responsible national authority in accordance with the applicable operating requirements.

SC-P01 (All models) – Full Authority Engine Control System (FADEC) – A guide was produced to cover certification of engines with electronic computers and the integration of such engines on the airframe. This included consideration of significant failures from common problems.

IM-P2 (A321) – Nacelle Cowling Fire Resistance – CRI P3003 – Clarifies cowling fire resistant requirements, taking into account external airflow ventilation to ensure fire in one zone cannot propagate to another zone.

SC-E1 (A319, A321) – Resistance to Fire Terminology – Revision to definitions under 25.853(d), 25.863(b)(4) and 25.867(a).

AMC-E2 (A321) – Emergency Evacuation Demonstration

SC-E3 (A321) – Exit Configuration – Under 25.807(c) the use of oversized Type I exits to cover a passenger increase greater than 45 must be demonstrated by tests. The passenger assist means under 25.809(f) must erect within 10 seconds.

IM-E4 (A321) – Reclassification of Doors – CRI E3002 – Provides requirements to classify doors 2 and 3 to Type III to allow a revised seating arrangement around the exits.

SC-E10 (A319, A320) – High Altitude Airport Operations – Provides additional requirements not included in existing regulations to allow operations at airports up to 14,100 ft pressure altitude.

Post-Type Certification Special Conditions:

SC-H01 (All models) – ICA on EWIS – CRI H-01 – Adds the requirements of CS25 Amdt 5 Appendix H para H25.5 (equivalent to FAR 26.11) to provide ICA (Instructions for Continued Airworthiness) for EWIS (Electrical wiring interconnection system).

SC-E34 (All models) – Seats with Inflatable Restraints – CRI E-34 – Provides requirements and interpretative for when inflatable lap-belts are installed.

SC-D0306 (All models) – Seat Material Heat Release and Smoke Density – CRI D-0306 – Adds the requirements of CS 25 Appendix F Parts IV and V, heat release and smoke emission, for seats that incorporate large non-traditional non-metallic panels.

SC-P27 (All models) – Flammability Reduction System – CRI P-27 – Provides requirements for a fuel-tank inerting system for aircraft manufactured after January 2012 and fitted with a centre wing fuel tank.

Major Design Change Special Conditions:

SC-F16 (160500 – Sharklets) – Static Directional and Lateral Stability – As the flight control system provides neutral stability, removes 25.177(b) and provides an alternative 25.177(c) to ensure the curve of lateral surface deflection against sideslip is conventional and proportional to control input.

Engine Special Conditions:

SC No 1 (All CFM56 models) – Birds Ingestion: Medium Bird

SC No 2 (All CFM56 models) – Water and Hail ingestion (AIA "Advisory proposal" PC 338-1)

(iii) Equivalent Level of Safety Findings:

CRI SM2005 – ESF JAR 25.783(e) (A320) – Inspection of the cargo door locking mechanism is by the position of the handle and vent positions rather than directly, on the basis it can only be operated when the door is fully closed and the vent door can only be closed when all the locks are secured.

CRI SM2007 – ESF JAR 25.783(f) (All models) – No means to prevent pressurisation is incorporated in the A320 bulk door on the basis that when it is open there is sufficient gap between the door and the aircraft structure (at the bottom and sides) to prevent overpressure, and when it is nearly closed it will be forced closed by cabin pressure so there is also no unsafe pressurisation level.

CRI E 2105 – ESF JAR 25.813(c) (A320) – Because of the positioning of the sill height to meet the step down requirements of JAR 25.80(a)(3) and preclude the need for an external supplementary step the outboard seat cushion encroaches on the exit outline. This was accepted on the basis the exit is larger than the minimum, the encroachment will not interfere with the effective opening of the hatch and the cushion can be compressed to the exit outline level. (It is restricted to 18.8" height.)

CRI E2107 – ESF JAR 25.807 (A318, A319, A320) – Maximum permitted seating capacity of A320 based on exit types would be 179 passengers. This was extended to 180 on the basis that the front and rear doors are oversize Type I for which tests have shown a capacity of 55 passengers is appropriate.

CRI E4105 – ESF JAR 25.813(c)(1) (A318, A319) – The Type III emergency exit sill height is designed to preclude the need for an external supplementary step, but the seat cushion now protrudes into the exit area. Airbus showed by test that a minimum exit aisle width of 10" combined with an oversized exit was satisfactory.

CRI E5006 – ESF JAR 25.831(a) (A318) – On certain operations such as take-off the air-conditioning packs are off-operation, and there is no direct ventilation to the cockpit. Airbus showed that the crew is advised of off-operation by EICAM, the ventilation system provides an acceptable environment, and the flight manual has specific procedures for turning the packs on and off.

CRI P1002 – ESF JAR 25.933(a) (All models) – For the A320 the thrust reverser restow is automatically activated by the FADEC upon detection of an unlocked or deployed condition, and the in-flight restow function is deleted. This was accepted on the basis that inadvertent in-flight deployment is extremely improbable plus deletion improves protection against it, safety assessments do not depend on the in-flight restow function and failure on the ground will be covered or alerted to the crew.

CRI SE 5005 – ESF JAR AWO.236 (A318) – Excess Deviation Alerts – The A318 design inhibits excess localiser deviation alerts under all autoland operations. Airbus showed by simulation that a pilot decision to disconnect autopilot and manually land was safer than a go-around.

CRI SE 4005 – ESF JAR AWO.313 (A318, A319) – Minimum Approach Break-off Height – The MABH of JAR-AWO is replaced by the concept of providing go-around height loss guidance in the AFM plus a demonstration that a go-around can be accomplished from any point up to touchdown.

CRI SE 5002 – ESF NPA AWO.10 (A318) – AFM RVR Limits – Established to avoid conflict between JAR.OPS and JAR-AWO, by removing the RVR limitations from the AFM.

Post-Type Certification Equivalent Safety Decisions:

ESF 25.856(b) (All models) – Improved Flammability Requirements for Thermal/Acoustic Insulation Materials – CRI E-28 – Airbus "elects to comply" with FAR 25.856(b) at Amendment 25-111 for aircraft manufactured after September 2009.

Major Design Change Equivalent Safety Decisions:

ESF F-19 – 25.1419(c) (160500 – Sharklets) – Flight in Icing Conditions – The sharklet has no icing protection and Airbus showed it needs no protection. The demonstration by simulation and flight test used artificial ice shapes rather than natural ice.

(iv) Airworthiness Limitations:

Safe Life Airworthiness Limitation Items are detailed in A318/A319/A320/A321 Airworthiness Limitations Section (ALS) sub-parts 1-2 and 1-3.

Damage Tolerant Airworthiness Limitation Items are detailed in the A318/A319/A320/A321 Airworthiness Limitations Items document (ALS) Part 2.

Certification Maintenance Requirements are detailed in A318/A319/A320/A321 Airworthiness Limitations Section (ALS) Part 3.

Ageing Systems Maintenance (ASM) limitations are detailed in the A318/A319/A320/A321 Airworthiness Limitations Section (ALS) Part 4.

Fuel Airworthiness Limitations are provided in A318/A319/A320/A321 Fuel Airworthiness Limitations document (ALS) Part 5.

(3) Aircraft Noise and Engine Emission Standards:

(i) Environmental Standard:
ICAO Annex 16 Vol I Part II – Noise Requirements.

ICAO Annex 16 Vol II Part II – Fuel Venting.

ICAO Annex 16 Vol 1 Part III Chapter 2 – Emissions.

Compliance Listing:

See the applicable model Certification Compliance Checklist, or EASA Noise Certificate A.064.

(4) Certification Compliance Listing:

Airbus A318-111	Compliance Checklist	D03008035
Airbus A318-112	Compliance Checklist	D03008036
Airbus A319-111, -112	Compliance Checklist	AI/EA-S 413.716/96
Airbus A319-115	Compliance Checklist	AI/EA-S 413.1409/99
Airbus A319-131, -132	Compliance Checklist	AI/EA-S 413.3249/99
Airbus A319-133	Compliance Checklist	AI/EA-S 413.1410/99
Airbus A320-214	Compliance Checklist	415.364/95
Airbus A320-231	Compliance Checklist	Program TCR30032
Airbus A320-232	Compliance Checklist	414.630/93
Airbus A320-233	Compliance Checklist	AI/EA-S 413.1478/96
Airbus A321-111	Compliance Checklist	413.106/94
Airbus A321-112	Compliance Checklist	413.119/94
Airbus A321-131	Compliance Checklist	414.876/93
Airbus A321-212	Compliance Checklist	Project E2-212
Airbus A321-213	Compliance Checklist	Project E2-213
Airbus A321-211, -231	Compliance Checklist	AI-EA-S 413.0533/97
Airbus A321-232	Compliance Checklist	Project E2-232

CFM56-5B/3 Certification CCL. CR-2000A/3 August 2006

(5) Flight Manual: EASA approved Flight Manual for the Airbus A320-232 (Air New Zealand) – CAA Accepted as AIR 2836

Notes: 1. Airbus produces an envelope Flight manual for each model which includes all approved documentation units. From this is prepared an operator Flight Manual for each operator. AIR 2836 is the operator Flight Manual for the A320-232 operated by Air New Zealand, and includes data covering all configurations.

2. Models other than the A320-232 using AIR 2836 will need to have a new AIR number assigned. Consult the CAA for details of any flight manuals issued after the date of this Type Acceptance Report.

(6) Operating Data for Aircraft and Engines:

(i) Maintenance Manual:
Airbus A318/319/320/321 Airplane Maintenance Manual (AMM)
CFM56-5B Engine Shop Manual – SM.9

(ii) Current service Information:

Airbus A318/319/320/321 Service Bulletins (SB) *
Airbus A318/319/320/321 Service Information Letters (SIL) *
Airbus A318/319/320/321 Service Bulletin Information Telex (SBIT) *
Airbus A318/319/320/321 Operator Information Telex (OIT) *
Airbus A318/319/320/321 Flight Operations Telex (FOT) *
Airbus A318/319/320/321 All Operator Telex (OIT) *
Airbus A318/319/320/321 Technical Follow-up (TFU) *
CFM56-5B Service Bulletins
CFM56-5B Standard Practices Manual – SP.2
CFM56-5B Consumable Products Manual – CP.3
CFM56-5B Illustrated Tools & Equipment Manual – TE.10
CFM56-5B Non-Destructive Test Manual – NT.11

(iii) Illustrated Parts Catalogue:

Airbus A318/319/320/321 Illustrated Parts Catalog (AIPC) *
CFM56-5B Illustrated Parts Catalog – PC.12

(7) Agreement from manufacturer to supply updates of data in (5), and (6):

CAA 2171 form J Blazey, CFM International DER/CVE dated 18/1/2011

* Access provided to all Airbus publications through w3.airbus.com
Like the flight manual, other technical publications are customised to the operator.

(8) Other information:

Airbus A318/319/320/321 Flight Crew Operating Manual (FCOM)
Airbus A318/319/320/321 Master Minimum Equipment List (MMEL)
Airbus A318/319/320/321 Quick Reference Handbook (QRH)
Airbus A318/319/320/321 Cabin Crew Operating Manual (CCOM)
Airbus A318/319/320/321 Maintenance Review Board (MRB)
Airbus A318/319/320/321 Trouble Shooting Manual (TSM)
Airbus A318/319/320/321 Aircraft Schematic Manual (ASM)
Airbus A318/319/320/321 Aircraft Wiring Manual (AWM)
Airbus A318/319/320/321 Aircraft Wiring List (AWL)
Airbus A318/319/320/321 Electrical Standard Practices Manual (ESPM)

5. Additional New Zealand Requirements

Compliance with the retrospective airworthiness requirements of NZCAR Part 26 is a prerequisite for the grant of a type acceptance certificate.

Civil Aviation Rules Part 26

Subpart B - Additional Airworthiness Requirements

Appendix B - All Aircraft

PARA:	REQUIREMENT:	MEANS OF COMPLIANCE:
B.1	Marking of Doors and Emergency Exits	JAR §25.0811
B.2	Crew Protection Requirements - CAM 8 Appdx. B # .35	Not Applicable – Agricultural Aircraft only

Appendix C - Air Transport Aircraft - More than 9 Pax

PARA:	REQUIREMENT:	MEANS OF COMPLIANCE:
C.1	Doors and Exits	JAR Part 25 §25.0809(b) and (d)
C.2.1	Additional Emergency Exits - per FAR 23.807(b) @ 10.5.93	Meets JAR Part 25 Certification requirements (The A320 is also certificated to FAR Part 25 with minimal differences)
C.2.2	Emergency Exit Evacuation Equipment – Descent means	JAR Part 25 §25.0809(f)
C.2.3	Emergency Exit Interior Marking - Size/self-illuminating	JAR Part 25 §25.0811(e) and JAR Part 25 §25.0812(b)
C.3.1	Landing Gear Aural Warning - Automatic Flap Linking	JAR Part 25 §25.0729(e)

Appendix D - Air Transport Aircraft - More than 19 Pax

PARA:	REQUIREMENT:	MEANS OF COMPLIANCE:
D.1.1	Exit Types - Shall be per FAR 25.807 @ 29.03.93	JAR Part 25 §25.0807
D.1.2	Floor Level Exits – Definition	JAR Part 25 §25.0807(a)
D.2.1	Additional Emergency Exits - Must meet requirements	Not Applicable – No ventral exits fitted
D.2.2	Emergency Exit Access - All Required Exits must have: Passageway unobstructed 500m wide between areas and leading to a Type I or II Exit; Crew assist space; Access to Type III or IV Exit is unobstructed Internal doors must be able to be latched open – placarded Except for curtains each passageway between pax. cabins must be unobstructed; No door may be installed.	 JAR Part 25 §25.0813(a) JAR Part 25 §25.0813(b) JAR Part 25 §25.0813(c) JAR Part 25 §25.0813(d) JAR Part 25 §25.0813(f) JAR Part 25 §25.0813(e)
D.2.3	Emergency Exit Operating Handles - Markings/Lighting	JAR Part 25 §25.0811(e)
D.2.4	Emergency Exit Evacuation Equipment – Descent means	JAR Part 25 §25.0809(f)
D.2.5	Emergency Exit Escape Route - Must be slip resistant	JAR Part 25 §25.0803(e)
D.2.6	Emergency Lightning (a) Switch Provisions; Uninterrupted Power; Last 10 min. (b) Descent Illumination - Automatic and Independent	 JAR Part 25 §25.0812(e) JAR Part 25 §25.0812(g)
	NOTE: See CRI E8 for special conditions applied to photoluminescent EEPMS (Emergency Escape Path Marking System)	
D.2.7	Emergency Interior Lighting - independent supply; min. illumination; incl. floor proximity escape path markings	JAR Part 25 §25.0812(c) JAR Part 25 §25.0811(c)
D.2.8	Emergency Exterior Lighting - in effect 30.04.72 or later	JAR Part 25 §25.0812
D.2.9	Emergency Exit Interior Marking - Clear; instructions Location signs above routes, by exits, on bulkheads - Meets provisions in effect 30 April 1972, or later Minimum brightness 250 microlamberts	JAR Part 25 §25.0811(b) and (d) ** JAR Part 25 §25.0812(b)(1)(i)
D.2.10	Emergency Exit Exterior Markings - 2" contrasting band; opening instructions in red or bright chrome yellow;	JAR Part 25 §25.0811(f)
D.3	Lavatory Fire Protection - Placards; Exterior ashtray; Waste Bin - Sealed door; built-in fire extinguisher; smoke detector system with external warning	AD DCA/GEN/7A (FAA AD 74-08-09R2); DCA/GEN/16 JAR Part 25 §25.0791(d) JAR Part 25 §25.0853(d) and (e)
D.4	Materials for Compartment Interiors - T/C after 1.01.58: (b) Manufactured 20/8/88 - 20/8/90 - Meet heat release requirements of FAR 25 at 20.08.86 increased to 100/100 Manufactured after 20/8/90 - Meet heat release rate and smoke tests of FAR Part 25 in effect 26.09.88 (c) Seat cushions (except flightdeck) must be fireblocked	DCA/GEN/15 [FAR 25 §25.853(c) Amdt 59 Eff 26/11/84]; DCA/GEN/21 [FAR §121.312(a) Amdt 121-198 Eff 26/9/88] Airbus advise all aircraft with complete interiors installed by the factory will meet these requirements.
D.5	Cargo and Baggage Compartments - T/C after 1.01.58: (a) Each C or D compartment greater than 200 cu ft shall have liners of GFRS or meet FAR 25 in effect 29.03.93 (c) Liners shall be separate from the aircraft structure	DCA/GEN/22 [FAR Part 25.§855 Amdt 25-32 Eff May 1, 1972 & Part §121.314 Amdt 121-202 Eff Mar 20, 1989] See CRI E2005 – Cargo compartments are all Class C. All cargo hold panels are constructed of glass fibre satisfying FAR 25 Amdt 60 and UK CAA AN 80.

** Airbus has requested and CAANZ has granted an Equivalent Level of Safety decision covering the use of green pictogram emergency exit identifiers in place of the red/white signs required by the applicable requirements. See CRI C-1 dated 13 January 2011.

Compliance with the following additional NZ operating requirements has been reviewed for the production initial series of A320-232 delivered to Air New Zealand starting in 2003, and were found to be covered by either the original certification requirements or the basic build standard of the aircraft, except as noted:

Civil Aviation Rules Part 91

Subpart F - Instrument and Equipment Requirements

PARA:	REQUIREMENT:		MEANS OF COMPLIANCE:	
91.505	Shoulder Harness if Aerobatic; >10 pax; Flight Training		JAR Part 25 §25.0785(g) – *See SS Section 25-10.11.07*	
91.507	Pax Information Signs - Smoking, safety belts fastened		JAR Part 25 §25.0791 Amdt 25-51 Eff Mar 6, 1980	
91.509 Min. VFR	(1) ASI (2) Machmeter (3) Altimeter (4) Magnetic Compass (5) Fuel Contents (6) Engine RPM (7) Oil Pressure	JAR §25.1303(b)(1) - *§34-13.11.00* JAR §25.1303(c)(2) - *§34-13.11.00* JAR §25.1303(b)(2) - *§34-13.10.00* JAR §25.1303(a)(3)) - *§34-22.00.00* JAR §25.1305(a)(2) - *§28-42.00.00* JAR §25.1305(c)(3) - *§77-00.01* JAR §25.1305(a)(4) - *§77-00.02*	(8) Coolant Temp (9) Oil Temperature (10) Manifold Pressure (11) Cylinder Head Temp. (12) Flap Position (13) U/c Position (14) Ammeter/Voltmeter	N/A – Turbojet JAR §25.1305(a)(6) *§77-00.02* N/A – Turbojet N/A – Turbojet JAR §25.0699 - *§27-85.00.00* JAR §25.0729(e) - *§32-60.00.00* JAR §25.1351 (b)(6) *§24-04.03.00*
91.511 Night	(1)Turn and Slip (2) Position Lights	See HC-S23 JAR §25.1389 - *§33-41.00.00*	(3) Anti-collision Lights (4) Instrument Lighting	JAR §25.1401 - *§33-48.00.00* JAR §25.1381 - *§33-13.00.00*
91.517 IFR	(1) Gyroscopic AH (2) Gyroscopic DI (3) Gyro Power Supply (4) Sensitive Altimeter	JAR §25.1303(b)(5) JAR §25.1303(b)(6) JAR §25.1331(a) JAR §25.1303(b)(2)	(5) OAT (6) Time in hr/min/sec (7) ASI/Heated Pitot (8) Rate of Climb/Descent	JAR §25.1303(a)(1) *§34-13.12.00* JAR §25.1303(a)(2) *§31-21.00.00* JAR §25.1323(e) *§30-31.01.00* JAR §25.1303(b)(3) *§34-13.13.00*
91.519	IFR Communication and Navigation Equipment	JAR Part 25 §25.1307(d) and (e) *See Standard Specification (SS) for further details:*	Dual Collins HF900 installed by Mod.s 25618/9 *§23-12.01.00 Aircraft shall have 3x VHF Data Radio System* *§34-10.00.00 Triplicated Air Data/IRS system iaw ARINC 738* *§34-51.00.00 2x DME interrogators fitted iaw ARINC 709* *§34-53.00.00 ADF Receiver fitted generally iaw ARINC 712* *§34-55.00.00 2x VOR Receiver fitted iaw ARINC 711*	
91.523 Emrgcy Eqpmt.	(a) More Than 10 pax - First Aid Kits per Table 7 - Fire Extinguishers per Table 8 (b) More than 20 pax - Axe readily acceptable to crew (c) More than 61 pax - Portable Megaphones per Table 9		Three first aid kits fitted under Cabin Mod. 33063 JAR Part 25 §25.851(a) – 6 fire extinguishers fitted per Mod. 33063 (1 in cockpit, 5 in cabin [3x halon, 2x water]) Fitted as standard – *See Standard. Spec. Section 25-61.01.01* 2 Megaphones fitted under Cabin Mod. 33063	
91.529	ELT - TSO C91a after 1/4/97 (or replacement)		RESCU 406AF P/N 115268-1 installed by Mod. 32015	
91.531	Oxygen Indicators - Volume/Pressure/Delivery		JAR Part 25 §25.1441 through §25.1450	
91.535 Press. A/c	(1) Flight Crew Member On-Demand Mask; 15 min PBE (2) 1 Set of Portable 15 min PBE (3) Crew Member - Pax Oxygen Mask; Portable PBE 120l (4) Spare Oxygen Masks/PBE (5) Min Quantity Supplement Oxygen (6) Required Supplemental/Therapeutic Oxygen Above FL250 - Quick-Donning Crew On-Demand Mask - Supplemental O_2 Masks for all Pax/Crew - Supplemental Mask in Washroom/Toilet Above FL300 - Total Outlets Exceed Pax by 10% - Extra Units Uniformly Distributed - Automatically Presented Above FL140 - Manual Means of Deploying Pax Masks		EROS quick-donning full-face masks fitted by Mod. 31458/9 Second set of Portable PBE fitted in cockpit by Mod. 33065 9 Scott Aviation portable O_2 bottles are installed by Cabin Mod. 33063, on quick release attachments, for use by FA. 115 cu. ft (3256 litre) Scott cylinder fitted by Mod. 31112. Provides >120 min for cockpit crew; designed for following flight profile after de-pressurization – 1 min at FL398, 4 min to descend to FL180, 7 min at FL180 and 1 min to descend to FL100. (See D03013732) Cabin Mod. 33063 installs a total of 216 masks in the cabin. TC Maximum Altitude is 39,100 feet (pressure altitude) Mod. 30748 extends this to 39,800 ft. (Standard on ANZ01) Masks deploy automatically when cabin altitude exceeds 14,000 ft. There is a manual override button in the cockpit.	
91.541	SSR Transponder and Altitude Reporting Equipment		Dual Gables ATC/TCAS control panel fitted per Mod. 26670 *§34-52.00.00 2x Mode S Transponders fitted iaw ARINC 718*	
91.543	Altitude Alerting Device - Turbojet or Turbofan		Installed as part of Central Warning System (CWS) – Auto call-outs covered by Mod.33061 – *See SS Section 34-13.20.00*	
91.545	Assigned Altitude Indicator		Not applicable when altitude alerter fitted	
A.15	ELT Installation Requirements	Airbus confirms Honeywell ELT RESCU 406AF P/N 1152682-1, capable to send a distress signal on 121.5, 243 and 406 MHz frequencies and installed by Mod 32015 on ANZ fleet, is compliant with applicable requirements from NZCAR 91 Appendix A.15 (See email 21.08.03)		

Civil Aviation Rules Part 121

Subpart F - Instrument and Equipment Requirements

PARA:	REQUIREMENT:		MEANS OF COMPLIANCE:
121.355	Additional Instruments (Powerplant and propeller)		JAR Part 25 is equivalent to a Part 21 Appendix C standard
121.357	Additional Eqpt - Windscreen Wiper, Door, Key, Placard		JAR §25.1307(f); Air NZ aircraft have a reinforced cockpit door fitted in accordance with Mod. 32088
121.359	Night Flight - Landing Light, Light in each pax cabin		JAR §25.1385 – *See SS Sections 33-25.00.00, 33-42.00.00*
121.361	IFR Operations	Speed, Alt, spare bulbs/fuses	JAR §25.1357(f)
121.363	Flights over water	Liferafts	***Operating Rule – Compliance to be determined by Operator***
121.365	Emergency Equipment	Per §91.523 and EROPS kit	***Operating Rule – Compliance to be determined by Operator***
121.367	Protective Breathing Equipment	JAR §25.1439 – EROS MF20-534 full-face masks fitted per Mod. 31458/9 meet TSO C99 2x Essex MR100 PBE fitted per Mod. 28706 and 33065 meet TSO C116	
121.369	Pax Address, Intercom	Meets FAR § 121.318 and 319.	Cabin Intercommunication Data System incorporating crew intercom and pa installed in accordance with Mod. 33069
121.371 (App B.5)	Cockpit Voice Recorder	JAR §25.1457 – Honeywell SSCVR P/N 980-6022-001 installed in accordance with Mod. 30308 meets TSO C123 – *§23-71.01.00 Solid State CVR iaw ARINC 757 shall be installed*	
121.373 (App B.6)	Flight Data Recorder	JAR §25.1459 – Honeywell SSFDR P/N 980-4700-042 installed in accordance with Mod. 26701 meets TSO C124 (Upgraded to 88-parameter per Mod.31335 – equivalent to compliance with FAR 121.344(f) effective August 19, 2002) – *A mandatory recording system consisting of FDIU, SSDFDR and LA (linear accelerator) shall be installed meeting ARINC 747*	
	NOTE: FAR 121 Appendix M accepted as an alternative spec. to NZCAR 121 Appendix B Table 2 (See DW1057045)		
121.375	Additional Attitude Indicator	Air NZ aircraft have the single Thales Integrated Standby Instrument System (ISIS) fitted in accordance with Mod. 27620	
121.377 (App B.8)	Weather Radar	Collins P/N 622-5132-623 X-band Weather Radar with Doppler mode (turbulence detection) fitted per Mod.32740 meets TSO C63c - *§34-41.00.00 Single X-band weather radar system generally in accordance with ARINC 708 shall be fitted*	
121.379 (App B.9)	Ground Proximity Warning System	Allied Signal P/N 965-1676-001 EGPWS fitted per Mod.31374 meets TSO C92c and C151a – Peaks, Geometric Altitude, and Obstacle functions are activated respectively by Mod.s 31367, 31426 and 31375 - *§34-48.00.00 Enhanced GPWS generally iaw ARINC 723 shall be installed*	

Attachments

The following documents form attachments to this report:

Photographs first-of-type example A320-232 MSN 2085 ZK-OJA
Three-view drawing Airbus Industries Model A320-200 Series
Copy of EASA Type Certificate Data Sheet Number A.064

Sign off

…….. ……..

Peter Gill
Airworthiness Engineer

Checked – David Gill
Team Leader Airworthiness

Appendix 1

List of Type Accepted Variants:

Model:	*Applicant:*	*CAA Work Request:*	*Date Granted:*
A320-232	Airbus	3/21B/18	1 September 2003
*A318-111, -112	Airbus	10/21B/30	6 June 2013
*A319-111, -112, -115, -131, -132, -133		10/21B/30	6 June 2013
*A320-214, -215, -216, -231, -233		10/21B/30	6 June 2013
*A321-111, -112, -131, -211, -212, -213, -231, -232		10/21B/30	6 June 2013

* Note: Type Acceptance has been granted to all the Airbus single-aisle aircraft models and variants listed above, subject to the CAA being provided with access to the applicable operating documentation prior to entering service on the NZ register.