Type Acceptance Report

TAR 95/01 – Revision 2

ATR 42 and ATR 72 Series

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Executive Summary

New Zealand Type Acceptance has been granted to the ATR 42 and ATR 72 Series based on validation of EASA Type Certificate number A.084. There are no special requirements for import.

Applicability is currently limited to the Models and/or serial numbers detailed in Section 2, which are now eligible for the issue of an Airworthiness Certificate in the Standard Category in accordance with NZCAR §21.191, 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).

NOTE: The information in this report was correct as at the date of issue. The report is generally only updated when an application is received to revise the Type Acceptance Certificate. For details on the current type certificate holder and any specific technical data, refer to the latest revision of the State-of-Design Type Certificate Data Sheet referenced herein.

1. Introduction

This report details the basis on which Type Acceptance Certificate No.95/01 was granted 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(s) in New Zealand; and

(b) Identify any special conditions for import applicable to any model(s) 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.

The report notes the status of all models included under the State-of-Design type certificate which have been granted type acceptance in New Zealand, which are listed in Section 2. The history of the ATR 42 and ATR 72 Series type acceptance in New Zealand under type certificate EASA.A.084 is listed in Appendix 1.

2. Aircraft Certification Details

(a) State-of-Design Type and Production Certificates:

Manufacturer:	ATR – GIE Avions de Transport Régional
	Aerospatiale – Alenia (until 01 June 2001)
Type Certificate:	A.084
Issued by:	European Union Aviation Safety Agency
Production Approval:	FR.21G.0054 (See EASA TCDS for Production Certificate history)

(b) Models Covered by the Part 21B Type Acceptance Certificate:

(i) **Model:** ATR 42-500

MCTOW: 18,600 kg (41,006 lb)

Max. No. of Seats: 60

Noise Standard: ICAO Annex 16 Volume 1 – Chapter 4/FAR Part 36 Stage 4

Engine: Pratt & Whitney Canada PW 127M or PW 127E
Pratt & Whitney Canada PW 127E (with SB PW No.21589)
Pratt & Whitney Canada PW 127F (with SB PW No.21667)
Pratt & Whitney Canada PW 127XT-M [Mod.10016 or 10302]

Type Certificate: E-19
Issued by: Transport Canada

Propeller: Hamilton-Sundstrand 568F-1

Type Certificate: P8BO
Issued by: Federal Aviation Administration

(i) **Model:** ATR 72-212, ATR 72-212A

MCTOW: 21,500 kg (47,353 lb) [ATR 72-212]
22,000 kg (48,501 lb) [after Mod.3651 + Mod.2055]

22,000 kg (48,501 lb) [ATR 72-212A]
22,500 kg (49,604 lb) [after Mod.4671 or Mod.5213]
22,800 kg (50,265 lb) [after Mod.5555]
23,000 kg (50,706 lb) [after Mod.6219]

Max. No. of Seats: 74

Noise Standard: ICAO Annex 16 Volume 1 – Chapter 4/FAR Part 36 Stage 4

Engine: Pratt & Whitney Canada PW 127 [ATR 72-212] or
Pratt & Whitney Canada PW 127F (with SB PW No.21591)
Pratt & Whitney Canada PW 127M or PW 127F [ATR 72-212A]
Pratt & Whitney Canada PW 127XT-M [Mod.10016 or 10302]

Type Certificate: E-19
Issued by: Transport Canada

Propeller: Hamilton-Standard 247 F-1 or F-1E [ATR 72-212]
Type Certificate: P1BO
Issued by: Federal Aviation Administration

Hamilton-Standard 14 SFL-11 [ATR 72-212 with Mod.3560]
Type Certificate: P7NE
Issued by: Federal Aviation Administration

Hamilton-Standard 568F-1 [ATR 72-212A]
Type Certificate: P8BO
Issued by: Federal Aviation Administration

3. Application Details and Background Information

The application for New Zealand type acceptance of the ATR 72-212 was from the Type Certificate holder, Aerospatiale, dated July 5th 1995, which was forwarded through the DGAC. Mount Cook Airline had initially ordered seven aircraft to replace their HS.748 fleet. The first-of-type example ATR72-212 was MSN 453 registered as ZK-MCQ. The ATR 42/72 Series are high-wing twin-turboprop pressurised Transport Category airliners with typically 48 or 66 passengers seating configuration.

Type Acceptance Certificate Number 95/01 was granted on 10 November 1995 to the Model ATR 72-212 based on validation of DGAC Type Certificate 176. Specific applicability is limited to the coverage provided by the operating documentation supplied. There are no special requirements for import into New Zealand.

The application for type acceptance of the ATR 72-212A (marketed as the ATR "72-500") was from the joint manufacturer, Aerospatiale, received on 3 May 1999. This variant has been ordered by Mount Cook Airline to replace their existing fleet of ATR 72-212 aircraft. Type Acceptance Certificate No. 99/24 was granted on 18 October 1999, and includes the 568F-1 propeller based on FAA Type Certificate P8BO.

This report was raised to Revision 1 to add the ATR 42-500 aircraft and the ATR 42/72 "Variant 600", after application by the manufacturer ATR. The opportunity was taken to combine the two previous reports, and note the change in State-of-Design responsibility to EASA. Type acceptance was granted on 7 September 2012. The first-of-type example was MSN 1051, registered ZK-MVA. As part of Type Acceptance a team from the CAA Aircraft Certification Unit visited ATR for a validation visit.

The ATR 42 was an all-new design launched in October 1981 by Avions de Transport Regional, which was a consortium between Aerospatiale and Aeritalia. The prototype flew in 1984 and entered airline service in December 1985. The initial ATR42-300 was the standard production version until 1996 and features greater payload-range and a higher takeoff weight than the ATR42-200 prototypes. The ATR42-320 was fitted with more powerful PW121 engines for better hot and high performance,

The ATR 72 is a stretched version of the ATR 42 and was originally built in two basic versions: the -100/200 series, which differ only in operating weights; and the -210 series, which is the "hot and high" version with the more powerful PW127 engine. Both series were available in two separate models which differed only in the type of doors, emergency exits and their distribution. For the ATR 72-210 series these were :

- ATR 72-211 which has a forward plug-type passenger door and no cargo door; and
- ATR 72-212 which has an aft pax door and forward cargo door. (Both hinged type)

Few aircraft were ordered with the forward pax door, and this option was dropped.

The ATR 42-500 version was a development of the earlier ATR 42 model using the new six-blade Hamilton Standard 568F propellers. Other improvements include an increase in MCTOW; an aileron spring tab and aerodynamic changes to improve low and high-speed performance; and modifications to improve noise and vibration including a revised cabin interior with noise reduction measures (active phase

control system; and passive treatment of the structure and cabin interior, involving stiffened frames with dynamic vibration absorbers in the propeller plane area, skin damping material and acoustic treatment on interior panels), TRU, and propeller controls (PEC [propeller electronic control] and PVM [propeller valve module] for optimum synchro-phasing).

The ATR "72-500" (officially the ATR 72-212A) is a development of the ATR72–212 with the same basic improvements pioneered on the ATR 42-500. These two models became the standard production versions of the ATR42 and ATR72 from 1996.

The latest ATR "42/72-600" is not an official model, but is the commercial name for the ATR 42-500 and ATR 72-212A incorporating the "New Avionics Suite" (NAS) embodied under Major Modification 5948. The "ATR72-600" was approved first in May 2011, with the "ATR42-600" following in June 2012. The new "glass cockpit" features five Integrated Avionics Displays (IAD); Two Core Avionics Cabinets (CAC); improved communication, navigation and monitoring systems; new Standby Instrument IESI; new Automatic Flight Control System (AFCS) with ILS instrument approach CAT II capability; Integration with NAS of existing ACSS's T^2CAS installation providing TCAS and TAWS capabilities with provisions for steep slope approach capability; new Air Data Computer and reference platform; and updated GPS and flight management system (FMS). In conjunction with Mod 5948 there are also a number of other associated design changes:

- ATR Mod 6164 – Enhanced MPC (Multi-Purpose Computer);
- ATR Mod 6298 – Mechanical quadrant for aileron flight surfaces;
- ATR Mod 6368 – Cockpit integrated LED lighting system (CILLS);
- ATR Mod. 5977 (ATR72) or Mod. 6233 (ATR42) FCU (Fuel Control Unit) – Fuel Gauging System in kilograms;
- ATR Mod 6230 – Activation of "Glass Cockpit" avionics suite on ATR42-500;
- ATR Mod 6521 – New Avionics Suite software upgrade "L2B2".

Revision 2 of this report was issued to include acceptance of the FAA Equivalent Level of Safety Finding associated with the CVR independent power supply requirement of FAR §121.359, plus add the latest PW127XT-M engine option which is fitted under MOD 10016 (Install PW127XT-M) or MOD 10302 (Provide Capability for PW127XT-M or PW127M Engine Installation). For the PW127XT-M engine XT means eXtended Time on wing, while –M means it has the same engine control and thus the same mechanical and thermal power ratings and limits as the PW127M. The applicant was the aircraft manufacturer and type acceptance was granted on 27 August 2024.

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, or were already held by the CAA:

(1) State-of-Design Type certificate:

EASA Type Certificate Number A.084

EASA Type Certificate Data Sheet number A.084 at Issue 12 dated 7 Sept 2023
- Model ATR 42-500 approved 28 July 1995
- Model ATR 72-212 approved 15 December 1992
- Model ATR 72-212A approved 14 Janvier 1997

EASA Major Change Approval 10040137 New Avionics Suite "Glass Cockpit" in ATR42-500 and ATR 72-212A aircraft – Date of Issue 14.06.2012
Modification Approval Sheet No. 5948 Issue 7 dated 8 June 2012
Modification Approval Sheet No. 6230 Issue 1 dated 7 June 2012

EASA TC Supersedes:

DGAC Certificate de Navigabilite de Type Numéro : N 176
DGAC Type Certificate Data Sheet No 176 Issue No. 13 August 1998

(2) Airworthiness design requirements:

(i) Airworthiness Design Standards:
The certification basis of the ATR 42-200/-300/-320 models was JAR 25, including the French National Variants Change 8 and Amendment 81/2, plus various Special Conditions as noted on the TCDS. (See also Document GATR/C 0001/82.) For the first ATR 72-100/-200/-210 Series this was updated to JAR 25, Change 11 dated March 7th 1986, including French national variants, plus various paragraphs amended by orange paper, plus various Special Conditions as noted on the TCDS. (See also Document No.GATR/C-No.0001/87).

For the ATR 42-500 the certification basis was further updated to add various paragraphs at JAR 25 Change 13 including amendments 90/1, 91/1 and 93/1, plus additional Special Conditions and DGAC Notice Proposal Amendment as detailed on the TCDS and in CRI A01. For the ATR "72-500" (ATR 72-212A) the certification basis is essentially the same except that JAR 25 Subparts B and E were assessed at change 14 dated May 27, 1994, plus two JAR 25 paragraphs at change 15 on an elect to comply basis.. (See DGAC ATR72-210A CRI A01)

For Major Modification 5948, which produced the "Version 600", the certification basis was CS25 at Amendment 3 for applicable paragraphs (reversion to JAR 25 Change 13 for structure); plus CS AWO Subpart2 for CAT II demonstrations; plus a List of CRI covering various Acceptable Means of Compliance (AMC) and Interpretative Material (IM) submitted by EASA (See CRI A-1001 ATR 42-500/72-212A Major Change Number 5948 Avionics Suite Upgrade "Glass Cockpit" – Determination of Certification Basis – Issue 4.)

These are acceptable certification basis in accordance with NZCAR Part 21B Para §21.41 and Appendix C, because JAR25 and CS25 are alternative standards to FAR25 for Transport Category Airplanes under Advisory Circular 21-1A. There are no non-compliances and no additional special conditions have been prescribed by the Director under §21.23.

(ii) Special Conditions:

ATR 42-500, ATR 72-212 and ATR 72-212A:

B5: Stick Pusher – Specified technical requirements for System Design (arming and disarming, failures and malfunctions, indicating and warning devices); Handling Characteristics; System Tolerances and the Airplane Flight Manual.

B7: Stall and Stall Warning Speeds and Manoeuvre Capability – This accepted an equivalent level of safety to JAR 25 Subpart B with the use of a new definition of stall speed based on 1-g stall speed as the basis for scheduled speeds, with some adjustment of multiplying factors.

D7: Lightning Protection Indirect Effects – Specified lightning strike models to be used for critical system justification for both Severe Strike (first return stroke) and Multiple Stroke Flash (cloud to ground strikes).

F2: Low Altitude Automatic Pilot Engagement After Takeoff – Based on JAR AWO Paper 13 this specified how to determine the min. engagement height if greater than 100 ft., when system malfunction was not shown as extremely improbable, plus some associated handling limits.

F3: Effect of External Radiations Upon Aircraft Systems – This specified the threat levels from HIRF to be evaluated for critical aircraft systems functionality testing.

O1: Demonstration of Endurance – Specified interpretations of "reasonable assurance" and "reliability" which must be demonstrated by flight test as part of the certification program.

ATR 42-500 and ATR 72-212A:

B10: Clever Stall Warning/Stick Pusher – Because the MFC allows for adjustment of the stall warning sticker shaker (SWSS) and sticker pusher (SP) settings, according to engine torque and Icing AOA election, additional tests were prescribed to ensure appropriate operational margins.

Requirements related to general aircraft experience and applied by the DGAC as an improvement of safety levels:

NPA 25F-219: Flight Characteristics in Icing Conditions – Provided guidance for the flight test review of performance and handling qualities, including: Conditions to be Considered (Types of artificial ice, Ice accumulation, Protected parts with operative systems/following failure); Demonstration of Compliance; Flight Testing; and Flight Manual.

NPA 25DF-179: Operation Without Normal Electrical Power – Adds some changes to JAR 25.1351(d) plus completely replaces the associated interpretative material under specified ACJ. Requires provision of alternate (or emergency) electrical supplies to those services vital for continued safe flight, descent and landing (such as fly-by-wire) in the event of loss of normal generated power. Includes provision for time-limited dispatch.

NPA 25DF-191: Miscellaneous Electrical Requirements – Added a range of additional provisions for: inter-deck communication; galley equipment; electric overheat protection equipment; power source disconnection systems; external power; over-temperature warning devices; electrical cable/wire installations and insulation fire protection; electrical supplies for emergency conditions.

NPA 25D-181: Resistance to Fire Terminology – Revises the definitions of "fireproof" and "fire-resistant" for certain cases where the original use was inappropriate or over severe, based on equivalence to the resistance to fire capability of certain materials.

NPA 25D-206: Emergency Exit Marking – Provides that the red arrow indicating direction of the unlocking motion may reflect the actual movement type, which may be linear and non-rotary.

NPA 25D-227: Compartment Interiors (cabin fire protection) – Revised JAR paragraph 25.853(f) to require self-contained removable ashtrays both inside and outside the toilet, with associated placards.

ATR 72-212:

B6: Flight in Icing Conditions : Handling Characteristics & Performance Aspects – This provided Interpretative Material on the effects of ice accumulation on the flight surfaces during continuous and intermittent icing conditions which must be demonstrated.

XX: Propeller – All Composite Blades – GATR/CNo.0001/87: This calls up requirements for bird strike, lightning protection, fatigue evaluation and material qualification.

Major Modification 5948:

CRI F-018 "HIRF" Protection – The aeroplane electrical and electronic systems, equipment, and installations must be designed and installed so the failure of any function that would prevent continued safe flight and landing of the aircraft is not adversely affected when exposed to the certification HIRF environment. (Per interim policy INT/POL/25/2 Issue 2.)

CRI F-035 Flight Recorder/Data Link Recording – The Flight Recorder (CVR or FDR) must record Data Link communications related to Air Traffic Services communications to or from the aircraft, in compliance with the latest ICAO Annex 6 Chapter 6.3.1.8, (Type 1a FDR).

CRI E-010 Fuel Quantity Indicating System – To address recent in-service experience from several accidents caused by all engine flame-out due to fuel exhaustion this SC requires a FQIS that provides for adequate fuel system information and alerting to the crew, including a specific low fuel level warning, to provide early notice of abnormal situations that may result in fuel starvation.

EASA CRI-H01 ICA for EWIS – This requires development of Instructions for Continued Airworthiness (ICA) derived from the Enhanced Zonal Analysis Procedure (EZAP) for the aircraft's Electronic Wiring Interconnection System (EWIS) in accordance with CS25 at amendment 5 Appendix H paragraph H25.5 and associated AMC.

NPA 25BDF-244: Accelerate-Stop Distances and Related Performance Matters – This introduced changes to the definition of Take-off Decision Speed and Screen Height plus various associated changes to the Rule and interpretive material. The purpose was to implement changes recommended by the joint industry/authorities task force and to harmonise with the FARs.

The following Special Conditions have subsequently been applied for particular specialised operations:

EASA CRI-B9 Steep Slope Approach – This provides requirements for landing at an approach angle up to 4.5° (7.9%). Additional provisions were added for Performance; Safe Operational and Flight Characteristics; Icing Conditions; Automatic Pilot System; Systems; Flight Manual; and Structure.

EASA CRI-C01 Operations on Unpaved Runways – In lieu of specific requirements in the Rules ATR proposed criteria using MIL8862 for static justification (vertical load factor) and a fatigue spectrum based on operation at a combination of representative and most damaging unpaved runways. Some additional protection measures for the airframe and the undercarriage shock absorber were also required.

EASA CRI-B11 Operation on Narrow Runways – In the absence of specific mention under JAR25 requirements were defined to determine the minimum runway width (based on maximum lateral deviation demonstrated); minimum control speed on the ground V_{MCG}; directional and lateral control; Take-off performance; Flight Manual data; and Master MEL implications.

Equivalent Level of Safety Findings:

ATR 42-500, ATR 72-212 and ATR 72-212A:

JAR 25.103, 107, 119, 125, 143 and 207 – Stall and stall warning speeds and manoeuvre capability «lg stall speeds» (ref SC B7) – For the ATR72 fitted with a stick pusher the JAR Subpart B stall speeds were re-defined as the 1-g stall speed according to JAR 25.103(c) in lieu of the minimum speed in the stall manoeuvre V_S.

JAR 25.853(f) – No Smoking Placard (ref DGAC letter n' 953117 dated 21/07/95) Pictograms are used in lieu of required placards stating “no smoking” or “no smoking in lavatory”, as a pictogram was felt to be more self-explanatory because not all passengers on an aircraft may speak English.

JAR 25.811(e)(3) – Type III Exit Handle (ref DGAC letter n' 953117 dated 21/07/95) The handles are not self illuminated as required, but are painted with a self-electro-luminescent paint (Modification 4407) and conspicuously located so that they are well illuminated by the exit signs.

ATR 72-212 and ATR 72-212A:

JAR 25.785(h) – Flight Attendant Seat – The requirement for a restraint system with single-point release and a direct view of the cabin area was accepted by visual inspection.

Major Modification 5948:

CRI F-017 New Harmonised CS 25.1329 for Flight Guidance System – This specified compliance with CS25 Amendment 4, which addresses integration of new functionality and technology and expands the scope past autopilot systems to include guidance for manual control.

CRI F-025 Integrated Modular Avionics (IMA) – Compliance with Requirements for Individual Circuit Protection – To address airworthiness concerns for Modular Avionics Systems requirements were established to ensure electrical power source diversity was provided for every card/module on the CAC, and they have their own individual circuit breaker protection.

General:

EASA ESF D1 – Reinforced Security Cockpit Door – ATR elected to comply with the latest rules under FAR 25 Amendment 106 (which introduced technical standards for resistance to bullet penetration and unauthorised intrusion), which was accepted as equivalent safety to JAR 25.772.

CVR Independent Backup Power Supply: FAA ELOS Memo SP0778IB-T-SE-101 – §25.1457(d)(5) Amendment 124 – Under FAR §121.359 for aircraft manufactured after 7 April 2010 the requirement is for the CVR to have a 10±1 minute independent power source with automatic switching after power interruption. ATR interpreted this as installation of a Recorder Independent Power Supply (RIPS) described by ARINC Characteristic 777. ATR demonstrated with defined Solid State CVR electrical architecture and "start/stop" recording logic it is possible to guarantee recording 10 minutes in flight with loss of both engines without use of an RIPS. CVR main battery wiring is considered to have a very low probability supported by the ATR in-service fleet experience of 17 million flight hours without failure. (This ELOS has also been accepted by Transport Canada. See their Issue Paper AV-01.)

(iii) Airworthiness Limitations:

ATR42-400/-500 Time Limits Document – Ref. DT/CA-2302/12
ATR72 Time Limits Document – Ref. DO/TC-2922/11

(3) Aircraft Noise and Engine Emission Standards:

(i) Environmental Standard:

The ATR42/72 have been certificated under ICAO Annex 16 Volume II and FAR Part 34 for exhaust emissions, and ICAO Annex 16 Volume 1 Chapter 4** and FAR Part 36 Stage 4 for noise. ** since December 2010

(ii) Compliance Listing:

EASA Type-Certificate Data Sheet for Noise – Issue 19 dated 4 October 2023

ATR42-500 at MCTOW 18,600 kg with Mod.4540 (Deletion of the flap vanes):
Lateral: 80.6 EPNL Flyover: 76.6 EPNL Approach: 92.4 EPNL

ATR42-500 at MCTOW 18,600 kg with PW127XT-M:
Lateral: 80.9 EPNL Flyover: 77.8 EPNL Approach: 94.2 EPNL

ATR72-212 at MCTOW 23,000 kg with PW127/247F-1(-E):
Lateral: 84.7 EPNL Flyover: 82.3 EPNL Approach: 92.4 EPNL

ATR72-212A at MCTOW 23,000 kg with PW127/568F:
Lateral: 82.5 EPNL Flyover: 80.5 EPNL Approach: 92.2 EPNL

ATR72-212A at MCTOW 23,000 kg with PW127XT-M:
Lateral: 83.7 EPNL Flyover: 82.2 EPNL Approach: 93.0 EPNL

(4) Certification Compliance Listing:

Document GATR/C No. 422.269/89 "ATR 72 Compliance Checklist Model 102/202", Edition P du 15-12-1989.

Document GATR/C No. 422.004/92 – Issue 2: ATR 72-210 – Compliance Checklist with DGAC Certification Basis.

ATR 72-210A Compliance Record (JAR 25) – Report A/RT/C 425.0770/96 Issue 1 – January 13th, 1997

CR A 01 Issue 5 – 27/02/98 – Type Certification Basis – Aerospatiale application to the DGAC was dated 15 February 1996. The agreed standard was JAR 25 at Change 14 dated May 27, 1994 for subparts B and E, and JAR 25 at Change 11 dated March 17, 1986, plus some additional paragraphs at a later Amendment status.

Doc. A/RT/C 425.0377/95 Issue 2 July 95 – ATR 42-500 Compliance Record

DO/TY-302/09 Certification Plan for New Avionics Suite (NAS) Installation on ATR 72-212A – Project No. 5948 – Edition 06 dated 30-May-2011.

DT/Y-340/12 Certification Plan for Adaptation of New Avionics Suite (NAS) on ATR 42-500 – Project NAS on ATR42-500 – Edition 03 dated 7-June-2012.

ATR Ref.: EYPP-2517/19 – Type Design Change Certification Programme: Type Design Change n°: 10016: Install a PW127XT-M Engine ATR Aircraft: ATR42-500, ATR72-212A – Issue: 10, Date: 26 September 2023

(5) Flight Manual:

EASA-Approved Airplane Flight Manual ATR 72 Models 101 - 201 - 102 - 202 - 211 - 212 - 212 – CAA Accepted as AIR 2542

EASA-Approved Airplane Flight Manual ATR 72 Model 212A – CAA Accepted as AIR 2665

EASA-Approved Airplane Flight Manual ATR 42 Models 400 - 500 – CAA Accepted as AIR 3218

Notes: The Flight Manual is provided as an "Envelope" document to an airline customer, with individual pages specific to Fleet or Modification configuration.

"-600" version dedicated content is identified through Mod. 5948.

(6) Operating Data for Aircraft:

(i) Maintenance Manual:

ATR Maintenance Documentation *:

AC – Aircraft Characteristics
CCC – Crash Crew Charts
CLM – Component Location Manual
MPD – Maintenance Planning Document
MRB – Maintenance Review Board Report
NDTM – Non Destructive Testing Manual
QEC – Quick Engine Change
SRKM – Structural Repair Kit Manual
SRM – Structural Repair Manual

ATR Maintenance Documentation (Customised Air New Zealand) *:

ASM – Aircraft Schematic Manual
AWL – Aircraft Wiring List
AWM – Aircraft Wiring Manual
DO – Aircraft Maintenance Manual/Description Operation
JIC – Aircraft Maintenance Manual/Job Instruction Cards
TSM – Trouble Shooting Manual

(ii) Current service Information:
ATR 42/72 Service Bulletins *

(iii) Illustrated Parts Catalogue:
IPC (Customised) – Air New Zealand ATR 72 *

(7) Agreement from manufacturer to supply updates of data in (4), (5) (6) and (8):

CAA 2171 form from ATR Type Certification Manager dated 24 Sept. 99

* Documentation now provided to CAA through the www.atrdoc.com website

(8) Other information:

Operational Documentation *:

FCOM – Flight Crew Operating Manual ATR 72-212A
WMB – Weight and Balance Manual ATR 72-212A
FCOM – Flight Crew Operating Manual ATR 72-212A "Version 600"
MMEL – Master Minimum Equipment List

Technical Specification ATR 72-210 With Front Cargo Door – Document ATR 497 210/91 dated June 1991.

ATR 72-500 Technical Specification – DC/E 323/98 July 1998
List of SCNs/Options agreed by the Customer Air New Zealand

Technical Specification ATR 72-600 – Document DO/T 3864/07, May 2008
ATR List DC/AC-691/11 Indice A: ATR 72 600 – Definition Air New Zealand (Annex 1 lists Options and SCNs additional to the Technical Specification.)

Alenia Engineering Note No.52S92028 Electrical Load Analysis ATR 72-210
Alenia Engineering Note No.52S95015 Electrical Load Analysis ATR 42-500
Alenia Engineering Note No.52S95030 ELA for ATR 72 MOUNT COOK Airplane
DO/TY-1536/11 Certification ELA ATR 72-212A Integrating New Avionic Suite
DO/TY-3572/10 New Avionic Suite – ATR72-212A Emergency ELA
DT/Y-1031/12 Certification ELA of ATR 42-500 Integrating New Avionic Suite
DT/Y-1163/12 New Avionic Suite – ATR42-500 – Emergency ELA

ATR 72-210 Compliance Check List to Civil Aviation Safety Order Nr 11.
542.2104/99 ATR 42 and ATR 72 – Oxygen System Justification ATA35
Compliance with NZCAR Requirements – ATR Note 540.0590/99 Issue 1

ATR 72-212 Type Modifications List

Modification Approval Sheet No.4406 Operation on Narrow Runways – Ed. 3 covers validation for ATR 72-212A model. (approved by similarity with -212)
Document 542.5037/97 ATR 72-210A – Handling qualities on narrow runways
542.5042/97 ATR 72-210A Operation on narrow runways – V_{MCG} determination

5. New Zealand Operational Rule Compliance

Compliance with the NZ requirements below has been reviewed (for the ATR72-500, except as individually specified) and was found to be covered by either the original certification design requirements or the basic build standard of the aircraft, except as noted:

CAR 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 §25.811(a)
B.2	Crew Protection Requirements - CAM 8 Appendix. B # .35	Agricultural Aircraft – ***Not Applicable***

Appendix C – Air Transport Aircraft – More than 9 Pax

PARA:	REQUIREMENT:	MEANS OF COMPLIANCE:
C.1	Doors and Exits	JAR §25.809(b) and JAR §25.809(d)
C.2.1	Additional Emergency Exits - per FAR 23 in effect 10.5.93	Meets JAR 25 Change 11 exit certification requirements
C.2.2	Emergency Exit Evacuation Equipment – Descent means	JAR §25.809(f)
C.2.3	Emergency Exit Interior Marking - Size/self-illuminating	JAR §25.811(e) and JAR §25.812(b)
C.3.1	Landing Gear Aural Warning - Automatic Flap Linking	JAR §25.729(e) subparagraphs (2) through (4)

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 §25.807(c)
D.1.2	Floor Level Exits – Definition	JAR §25.807(a)
D.2.1	Additional Emergency Exits - Must meet requirements	All exits comply with JAR 25 – There are no ventral exits
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	JAR §25.813(a) – See Detailed Specification Fig. 25-20A for JAR §25.813(b) standard cabin layout JAR §25.813(c) – Forward fuselage exits are Type III JAR §25.813(f) – Only internal door is to fwd baggage bay
D.2.3	Emergency Exit Operating Handles - Markings/Lighting	JAR §25.811(e)
D.2.4	Emergency Exit Evacuation Equipment – Descent means	JAR §25.809(f)
D.2.5	Emergency Exit Escape Route - Must be slip resistant	Meets JAR 25 Change 11 exit certification requirements
D.2.6	Emergency Lighting (a) Switch Provisions; Uninterrupted Power; Last 10 min. (b) Descent Illumination - Automatic and Independent	 JAR §25.812(f) and JAR §25.812(i) JAR §25.812(h)
D.2.7	Emergency Interior Lighting - independent supply; min. illumination; incl. floor proximity escape path markings	JAR §25.812(c) JAR §25.812(e)
D.2.8	Emergency Exterior Lighting - in effect 30.04.72 or later	Meets JAR 25 Change 11 exit certification requirements
D.2.9	Emergency Exit Interior Marking – (a) identity and location clearly visible across cabin (b) exit locations shall be visible approaching along aisles (c) aircraft shall meet certification requirements at 30-4-72 (d) Aircraft certificated after 1-5-72 shall meet requirements in force at the time (e) Each emergency exit marking and sign shall have a minimum brightness of 250 microlamberts	(a) JAR §25.811(b) (b) JAR §25.811(d) (c/d) Meets JAR 25 at Change 11 exit requirements (e) Meets JAR §25.811(e)(2)(ii) – Aerospatiale advise they "anticipate" compliance by reason of illumination measurements in the areas around the exits show a lighting intensity in the range 917 to 1360 microlamberts – see Note 540.0590/99 and 417.0126/95-A
D.2.10	Emergency Exit Exterior Markings - 2" contrasting band; opening instructions in red or bright chrome yellow;	JAR §25..811(f)(1) and (2) JAR §25..811(f)(3)
D.3	Lavatory Fire Protection – Shall be conspicuously marked with No Smoking/No Cigarette Disposal"; Exterior ashtray; Waste Bin - Sealed door; built-in fire extinguisher; smoke detector system with external warning	JAR §25.853(e) and (f) and NPA 25D-227 – *See Detailed Specification §26-24-02* – equivalent safety finding was made against §25.853(f) permitting the use of pictograms in lieu of wording
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	ATR 72-212A complies with FAR 25.853(d) at Amendment 25-83. (requires compliance with FAR 25 Appendix IV [heat-release rate] and Appendix V [smoke emission] Test Methods.) – See Note 540.0590/99 JAR §25.853(c) at Amendment 86/1 – *See DS §25-21-07*
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	JAR §25.855(a)(1)(i) N/A – Front and rear cargo compartments are designed as category B – *See Detailed Specification §25-50-05* JAR §25.855(a)(1)

CAR Part 91 – Subpart F – Instrument and Equipment Requirements

PARA:	REQUIREMENT:		MEANS OF COMPLIANCE:	
91.505	Shoulder Harness if Aerobatic; >10 pax; Flight Training		JAR §25.785	
91.507	Pax Information Signs - Smoking, safety belts fastened		JAR §25.791	
91.509 Min. VFR	(1) ASI (2) Machmeter (3) Altimeter (4) Magnetic Compass (5) Fuel Contents (6) Engine RPM	JAR §25.1303(b)(1) – *See Detailed Spec.§34-12-03* JAR §25.1303(c)(2) JAR §25.1303(b)(2) – *See Detailed Spec. §34-12-02* JAR §25.1303(a)(3) – *See Detailed Spec. §34-20-09* JAR §25.1305(a)(2) JAR §25.1305(c)(3) – *See Detailed Spec. §77-01-05*	(7) Oil Pressure (8) Coolant Temp (9) Oil Temperature (10) Manifold Pressure (11) Cylinder Head Temp. (12) Flap Position (13) U/c Position (14) Ammeter/Voltmeter	JAR §25.1305(a)(4) – *See Detailed Spec. §77-01-07* N/A – Not air-cooled JAR §25.1305(a)(6) – *See Detailed Spec. §77-01-07* N/A – Turbine powered N/A – Turbine powered JAR §25.699 JAR §25.729(c) *DS §32-60-00* JAR §25.1351(b)(6)
91511 Night	(1)Turn and Slip (2) Position Lights	JAR §25.1303(F)(4)(France) JAR §25.1385	(3) Anti-collision Lights (4) Instrument Lighting	JAR §25.1401 JAR §25.1381
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) JAR §25.1303(a)(2) *See Detailed Spec. §30-30-01* JAR §25.1303(b)(3)
91.519	IFR Communication and Navigation Equipment	JAR §25.1307(d) JAR §25.1307(e)	Dual VHF Transceivers fitted as standard (Collins or King) – *See Detailed Specification §23-21-00 (ATR 497 210/91)* Single ADF fitted as standard – *See Detailed Spec. §34-50-30* Dual VOR fitted as standard – *See Detailed Spec. §34-55-01*	
	Air NZ ATR72-500 aircraft have optional second ADF and DME and dual Honeywell/Trimble HT 1000 GNSS installations The NAS on the Variant 600 comprises the Collins Proline 21 navigation suite, Thales GPS (2nd GPS optional) and two Thales FMS. The aircraft is capable of EASA AMC20-4 BRNAV +/-5nm, JAA TGL10 Rev 1 PRNAV +/-1nm and EASA AMC20-27 RNP Approach (excluding APV BARO VNAV) operations. The aircraft is not approved for RNP AR or ADS-B Out. Note this is just the aircraft technical capability and specific approvals must be granted for navigation operations.			
91.523	Emergency Equipment: (a) More Than 10 pax – First Aid Kits per Table 7 – Fire Extinguishers per Table 8 Required: – 1 in each Class B cargo compartment – 1 on flight deck, 3 in pax. cabin (b) More than 20 pax – Axe readily acceptable to crew (c) More than 61 pax – Portable Megaphones per Table 9		Fitted as standard - *See Detailed Specification §25-63-07* JAR §25.851(a)(5) ***Note: Fire Extinguishers not fitted in cargo compartments*** ***Compliance to be determined on an individual basis*** Fitted as standard – *See Detailed Specification §25-62-07* Fitted as standard – *See Detailed Specification §25-63-08*	
91.529	ELT – TSO C91a after 1/4/97 (or replacement)		SOCATA ELT97 (TSO C91A and C126) can be fitted in accordance with ATR optional modification nº. 4265. Mod. 5786 installs an ADT-406-S or ADT-406-AF 406Hz TSO C126 as BFE in accordance with CS 25.1415	
91.531	Oxygen Indicators - Volume/Pressure/Delivery		JAR §25.1439, JAR §25.1441, 1443, 1445, 1447	
91.535	Oxygen for Pressurised Aircraft: (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 Above FL300 - Total Outlets Exceed Pax by 10%		Each crew member supplied with EROS quick-donning mask In combination with smoke goggles, meet TSO C99 PBE std A Portable O_2 bottle is fitted at each of the two Flight Attendant seats, plus 3 sets of TSO C116 PBE in the cabin. ATR 72-212A complies with recent JAR-OPS 1.770 & 1.780 §91.535(6)(i) applies: 2 "new look" configurations possible (100% pax supply, or 25% pax supply.) Mount Cook has 77.1 cu.ft. supply (25%) – FCOM provides compliance data N/A – Maximum operating altitude is 25,000 ft.	
91.541	SSR Transponder and Altitude Reporting Equipment		Fitted as standard – *See Detailed Specification §34-50-20*	
91.543	Altitude Alerting Device - Turbojet or Turbofan		Fitted as standard – *See Detailed Specification §34-50-22*	
91.545	Assigned Altitude Indicator		N/A – see above	
A.15	ELT Installation Requirements		***To be determined on an individual aircraft basis***	

CAR Part 121 – Subpart F – Instrument and Equipment Requirements

PARA:	REQUIREMENT:		MEANS OF COMPLIANCE:
121.355	Additional Instruments (Powerplant)		JAR Part 25 is equivalent to a Part 21 Appendix C standard
121.357	Additional Eqpt – Windshield Wiper, Door, Key, Placard		JAR §25.1307(f) and JAR §25.772(a)
121.359	Night Flight - Landing Light, Light in each pax cabin		JAR §25.1383
121.361	IFR Operations	Speed, Alt, spare bulbs/fuses	Fitted as std – *See Detailed Spec. §30-30-01 and §34-12-08*
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 (PBE)	TSO C99 cockpit equipment TSO C115 cabin equipment	Cockpit PBE fitted in accordance with ATR Optional Modification nº.3234. (Eros MC10/MXP210 combination) Fitted as std – *See Detailed Spec. §35-32-04 and Fig. 25-10* Type is Puritan Bennett P/N 119003 – (see e-mail 21-9-99)
121.369	Pax Address, Intercom	Meets FAR § 121.318 and 319.	Fitted as std – *See Detailed Spec. §23-30-00 and §23-41-00*
121.371	Cockpit Voice Recorder – Appendix B.5 requires: TSO C123 and 2 hours recording/TSO C121 ULD; After 10 May 2020 independent alternate power source meeting standard 6.3.2.4.1 of ICAO Annex 6		JAR §25.1457 – Loral A200-5 solid state fitted to ARINC 557 standard – See Detailed Specification §23-70-00 Note: See ELOS for compliance with FAR 121.359, equivalent to ICAO paragraph 6.3.2.4.1
121.373	Flight Data Recorder Appendix B.6 requires TSO C124		JAR §25.1459 – Fairchild Type F-800 fitted to ARINC 573 specification – *See Detailed Specification §31-22-02* Air NZ has SCN/Option NM 31-1056 meeting FAR 121.344 Mod.5957 Indicating/recording system ATR72-600 complies with FAR 121.344 – See DT/CC/T-1417/12 (88 parameters)
121.375	Additional Attitude Indicator		Fitted as standard – *See Detailed Specification §34-20-07*
121.377	Weather Radar - Appendix B.8 requires TSO C63		Sperry Primus 800 fitted as std – *See Detailed Spec. §34-40-01*
121.379	Ground Proximity Warning System Appendix B.9 requires TSCO C92		Sundstrand MARK II GPWS meeting ARINC 594 specification fitted as standard – *See Detailed Spec. §34-40-03*
121.381	Terrain Awareness and Warning System (TAWS) Appendix B.10 requires TSO C151a or b		The New Avionics Suite installed under Mod. 5948 includes ACSS T²CAS as standard, which combines the functions of TCAS and ACAS. Note Mod. 6521 introduces the NAS software upgrade "L2B2".
121.383	Airborne Collision Avoidance System (ACAS II) Appendix B.11 requires TSO C119b		

** For confirmation of Airworthiness Standard applicability see Document GATR/C-No 0001/87 ATR 72 Airworthiness Requirements*

NOTES: 1. A Design Rule reference in the Means of Compliance column indicates the Design Rule was directly equivalent to the CAR requirement, and compliance is achieved for the basic aircraft type design by certification against the original Design Rule.

2. The CAR Compliance Tables above were correct at the time of issue of the Type Acceptance Report. The Rules may have changed since that date and should be checked individually.

3. Some means of compliance above are specific to a particular model/configuration. Compliance with Part 91/119 operating requirements should be checked in each case, particularly oxygen system capacity and emergency equipment.

Certification Issues

Narrow Runway Approval

Mount Cook Airline required approval for the ATR72 to operate on narrow runways. (14.3m) This was done via an agreed Special Condition, flight test programme and issued in the form of a Production Option (04-1020) and Flight Manual Supplement.

DCA/GEN/35A

Air New Zealand ATR72-600 aircraft will be delivered with the Harmony interior and Option 25-3173 GEVEN Prestige passenger seats, approved under Modifications 6593 and 6594. The certification basis included an elect to comply: CS25 at Amendment 5 for §25.562 dynamic landing conditions compliance, plus EASA CRI C-010 'Improved seats in Air Carrier Transport Category Airplanes (CS 25.562)' and EASA CRI D-016 'Heat release and smoke density requirements to seat materials (JAR 25.853)'.

Attachments

The following documents form attachments to this report:

Copy of EASA Type Certificate Data Sheet Number A.084

Sign off

……..
David Gill
Team Leader Aircraft Inspection

……..
Checked – Colin Winterburn
Team Leader Product Certification

Appendix 1

List of Type Accepted Variants:

Model:	*Applicant:*	*CAA Work Request:*	*Date Granted:*
ATR 72-212	Aerospatiale	95/21B/01	10 November 1995
ATR 72-212A	Aerospatiale	99/21B/24	18 October 1999
ATR 42-500	ATR – GIE	12/21B/12	7 September 2012
ATR 42-500 “Version 600”	ATR – GIE	12/21B/12	7 September 2012
ATR 72-212A “Version 600”	ATR – GIE	12/21B/12	7 September 2012
ELOS SP0778B-T-SE-101 (CVR)	ATR – GIE	24/21B/3	27 August 2024

Appendix 2

Three-view drawing ATR 72-212A: