
Type Acceptance Report

TAR 99/26

Piper PA-31-325

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Introduction

This report details the basis on which Type Acceptance Certificate number 99/26 was granted in the standard category in accordance with NZCAR Part 21 Subpart B.

Specifically the report aims to:

- (a) Record the airworthiness certification standard used for type acceptance of the applicable model in New Zealand;
- (b) Summarise any outstanding requirements which must be complied with for the issue of a NZ Airworthiness Certificate to any models covered by the Type Acceptance Certificate.

Foreign Type Certificate Details

Type Certificate: A20SO

Issued by: Department of Transportation, Federal Aviation Administration

Manufacturer: Piper Aircraft Corporation

Model: PA-31-325 (Navajo C/R)

Engines: Lycoming L/TIO-540-F2BD

Propellers: Hartzell HC-E3YR-2A(L)(T)F/F(J)C8468-6R or 7R

MCTOW 6,500 lb. (2948 kg.)

Noise Category: N/A

The certification basis of the PA-31-325 Navajo is CAR 3 effective May 15, 1956, through Amendment 3-8, effective december 18, 1962; plus FAR 23.205, 23.1545, 23.1563 and 23.1585 amended by Amendment 23-3, effective November 11, 1965; and FAR 23.75(a), 23.77, 23.145, 23.161, 23.175(a), 23.175(b), 23.175(c), 23.175(d), 23.1527, and 23.1557(c) as amended by Amendment 23-7, effective September 14, 1969. This is an acceptable certification basis in accordance with NZCAR Part 21B Para §21.41, as CAR 3 is the predecessor to FAR Part 23, which is the basic standard for Normal Category Airplanes called up under Appendix C. There are no non-compliances and no special conditions have been prescribed by the Director under §21.23.

Type Acceptance Application

The application for New Zealand type acceptance was from Northland Aviation dated 7 January 1999. The first-of-type example was a 1978 example s/n 31-7812129 registered as ZK-MHC. (The earlier [1975-77] serial number range of aircraft has been previously type accepted here. One aircraft, ZK-ECQ, was first registered in April 1995.)

Type Acceptance Certificate No.99/26 was granted on 20 January 1999.

The PA-31-325 is identical to the Turbo Navajo C except for the installation of 325 hp engines and counter-rotating propellers from the extended-fuselage Navajo Chieftain. The Turbo/Navajo C is a development of the original PA-31 with optional pilot entry door and extended nacelle baggage lockers.

The PA-31 Navajo was originally certificated under FAA type certificate A8EA, but was subsequently transferred to TC No. A20SO when the original TC was limited to the pressurised PA-31P and turbo-prop PA-31Tx versions. The aircraft dataplate in many cases still refers to the earlier type certificate number.

Type Data

The type data requirements of NZCAR Part 21B Para §21.43 have been satisfied by the following documents, copies of which were already held by the CAA:

- (1) Type certificate: FAA TCDS A20SO at Revision 8 dated April 8, 1998
- (2) Airworthiness design requirements: CAR 3, FAR Part 23
- (3) Certification compliance listing:
 - The CAA holds a range of PA-31 series type data, including:
 - Piper Report 1434 – Type Inspection Report (Flight) PA-31 at 6500 lb. AUW
 - Piper Report 1300 – PA-31 Substantiation in the Normal Category Parts 1 - 6
 - Piper Report 1370 – Parts List Breakdown
- (4) Illustrated Parts Catalogue: PA-31/300/325 Navajo Parts Catalog – 1753 703
- (5) Maintenance manual and service data for aircraft, engine and propeller:
 - PA-31/300/325 Navajo Series Service Manual – 1753 704

The applicant supplied the following type data per NZCAR Part 21B Para §21.43(a)(4):

- (1) Flight manual: PA-31-325 Navajo C/R Pilot's Operating Handbook and FAA Approved Airplane Flight Manual – Piper Report 1964
CAA Accepted as AIR 2648
- (2) Agreement from manufacturer to supply updates of data in (1):
 - Fax confirmation from New Piper dated 19 January 1999 that the CAA is on the list to receive a Revision Service for AFM 1964.

Additional New Zealand Certification requirements

Compliance with the following additional NZ requirements has been reviewed 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 26

Subpart B - Additional Airworthiness Requirements

Appendix B - All Aircraft

PARA:	REQUIREMENT:	MEANS OF COMPLIANCE:
B.1	Marking of Doors and Emergency Exits	<i>To be determined on an individual aircraft basis</i>
B.2	Crew Protection Requirements - Agricultural Aircraft	CAM 8 Appendix B Section .35 – Not Applicable

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	N/A – Less than 10 passenger seats
91.507	Pax Information Signs - Smoking, safety belts fastened	N/A – Less than 10 passenger seats
91.509 Min. VFR	(1) ASI (2) Machmeter (3) Altimeter (4) Magnetic Compass (5) Fuel Contents (6) Engine RPM (7) Oil Pressure	FAR §23.1303(a) N/A FAR §23.1303(b) FAR §23.1303(c) FAR §23.1305(a) FAR §23.1305(d) FAR §23.1305(b)
91511 Night	(1) Turn and Slip (2) Position Lights	Fitted as Std – see FM §7.23 FAR §23.1385
91.513	VFR Communication Equipment	<i>To be determined on an individual aircraft basis</i>
91.517 IFR	(1) Gyroscopic AH (2) Gyroscopic DI (3) Gyro Power Supply (4) Sensitive Altimeter	Fitted as Std – see FM §7.23 Fitted as Std – see FM §7.23 FAR §23.1331(a)(3) Fitted as Std – see FM §7.23
91.519	IFR Communication and Navigation Equipment	<i>To be determined on an individual aircraft basis</i>
91.517	(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	N/A – Less than 10 passenger seats N/A – Less than 10 passenger seats N/A – Less than 20 passenger seats N/A – Less than 61 passenger seats
91.529	ELT - TSO C91a after 1/4/97 (or replacement)	<i>To be determined on an individual aircraft basis</i>
91.531	Oxygen Indicators - Volume/Pressure/Delivery	Oxygen supply gauge and regulator part of optional Scott system – See Flight Manual §7.45
91.533	>30 min above FL100 - Supplemental for crew, 10% Pax - Therapeutic for 3% of Pax Above FL100 - Supplemental for all Crew, Pax - Therapeutic for 1% of Pax - 120l PBE for each crew member	<i>To be complied with as required</i>
91.543	Altitude Alerting Device - Turbojet or Turbofan	N/A – Not turbojet or turbofan
91.545	Assigned Altitude Indicator	<i>To be determined on an individual aircraft basis</i>
A.15	ELT Installation Requirements	<i>To be determined on an individual aircraft basis</i>

Civil Aviation Rules Part 135

Subpart F - Instrument and Equipment Requirements

PARA:	REQUIREMENT:	MEANS OF COMPLIANCE:
135.355	Seating and Restraints	FAR §23.785
135.357	Additional Instruments (Powerplant and Propeller)	FAR §23.1305
135.359	Night Flight	Landing light, Pax compartment
135.361	IFR Operations	Speed, Alt, spare bulbs/fuses
135.363	Emergency Equipment (Part 91.523 (a) and (b))	<i>To be determined on an individual aircraft basis</i>
135.365	Public Address and Crew Member Intercom System	N/A – Less than 10 passenger seats
135.367	Cockpit Voice Recorder	N/A – Less than 10 passenger seats
135.369	Flight Data Recorder	N/A – Less than 10 passenger seats
135.371	Additional Attitude Indicator	N/A – Not turbo jet powered
135.373	Weather Radar	N/A – MCTOW less than 5700 kg.
135.375	Ground Proximity Warning System	N/A – Less than 10 pax seats and MCTOW under 5700 kg.

Summary

Type Acceptance Certificate No. 99/26 has been granted to the PA-31-325 Navajo and serial numbers 31-7712001 through 31-7912124 are now eligible for the issue of a NZ airworthiness certificate in the Standard Category in accordance with NZCAR §21.177, subject to any outstanding operational requirements noted above being met.

Attachments

The following documents form attachments to this report:

Three-view drawing Piper PA-31-325 Navajo C/R
FAA Type Certificate Data Sheet A20SO

Sign off

David Gill
Airworthiness Engineer

Date: 21 January 1999