
Type Acceptance Report

TAR 1/21B/6

Robin DR400 Series

TABLE OF CONTENTS

EXECUTIVE SUMMARY	1
1. INTRODUCTION	1
2. FOREIGN TYPE CERTIFICATE DETAILS	1
3. TYPE ACCEPTANCE APPLICATION	2
4. TYPE DATA	3
5. ADDITIONAL NEW ZEALAND REQUIREMENTS	4
ATTACHMENTS	5

Executive Summary

New Zealand type acceptance has been granted to the Robin Aviation DR400 Series based on validation of DGAC Type Certificate no.45. There are no special requirements for import.

Applicability is currently limited to the Models DR400/180 and DR400/500, which are now eligible for the issue of an Airworthiness Certificate in the Standard Category in accordance with CAR §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 DR400 models and/or serial number ranges will become type accepted after supply of the applicable Flight Manual, in accordance with the provisions of CAR §21.43(2).

1. Introduction

This report details the basis on which Type Acceptance Certificate No.1/21B/6 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(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.

2. Foreign Type Certificate Details

Type Certificate: Certificat de Navigabilite de Type Numéro 45

Issued by: Direction Generale de L'Aviation Civile – Republique Francaise

Manufacturer: Avions Pierre Robin
Constructions Aéronautiques de Bourgogne (since 1.9.96)

TC Holder: Société Avions Robin
Robin Aviation (since at least Nov 1999)
Apex Aircraft (since at least July 2001)

Models: DR400/180
DR400/500

Engines: Lycoming O-360-A3A
Lycoming IO-360-A1B6

Propellers:	Sensenich 76-EM8-S5-0-64 Hartzell HC-C2YK-1BF/F7666A-2
MCTOW	1100 kg (2425 lb.) Normal Category [DR400 Series] 950 kg (2095 lb.) Utility Category [DR400 Series] 1150 kg (2535 lb.) [DR400/500]
Noise Category:	ICAO Annexe 16, Ch.6, app.3 [DR400/180 “Standard” 73.1 dB(A)] ICAO Chap.10, app. 6 [DR400/500 2-bladed prop 78.8 dB(A)]

The certification basis of the Robin DR400 Series is AIR 2052A, updated on June 6, 1966. Complimentary technical conditions applied were Amendment 7 of FAR Part 23 plus Emergency Canopy Jettisoning. This is an acceptable certification basis in accordance with NZCAR Part 21B Para §21.41, as AIR 2052 has previously been accepted as equivalent to FAR 23, which is the basic standard for Normal Category Airplanes called up under Part 21 Appendix C. There are no non-compliances and no special conditions have been prescribed by the Director under §21.23.

3. Type Acceptance Application

The application for New Zealand type acceptance was from the importer, Izard Pacific Aviation, dated 20th September 2000. A Certification Application was also received from the manufacturer dated 29th August 2000, which was confirmed by a letter from the Aircraft Division, General Aviation Airworthiness Office of the DGAC-SFACT, ref. 2000/5488. The first of type example was serial number 29, registered ZK-TZA.

Type Acceptance Certificate No. 1/21B/6 was granted on 24 October 2000 to the Robin DR400 Series based on validation of DGAC Type Certificate 45. Specific applicability is limited to the coverage provided by the operating documentation supplied, in this case the Flight Manual. There are no special requirements for import into New Zealand.

This report was raised to Revision 1 to include the earlier serial number range of DR400/180 aircraft, after application by Izard Pacific Aviation Ltd under CAA Work Request 4/21B/15. Type acceptance of these aircraft was granted on 22 December 2003. The first-of-type example was serial number 1043 registered ZK-TZB.

The DR400 family can trace its ancestry back to the Jodel DR100 Ambassadeur and is essentially a larger more powerful and refined development of the 4-seat Jodel all-wood cranked-wing concept, with a forward sliding canopy replacing the traditional doors. This was developed from the original D11 in 1958 in collaboration with Jean Delemontez by Pierre Robin, who set up Centre Est Aéronautique to produce the aircraft. The DR400/180 “Regent” is the 180 hp version, and has been produced in several series according to the IPC. The “93” models produced since January 1993 have new engine cowlings, modified instrument panel and windows, and tilt-forward engine mount. The DR400/500 Nouvelle Generation is a development of the Regent with 200 hp injected engine, wider fuselage, electric flaps and higher MAUW. In 1969 Centre Est was renamed Avions Pierre Robin, and on 20th October 1999 changed to Robin Aviation. The latter organization is the type certificate holder, which has now become Apex Aircraft. The aircraft are manufactured by a separate JAR 21 approved company called Constructions Aéronautiques de Bourgne.

4. Type Data

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

- (1) Type certificate: DGAC Airworthiness Type Certificate Number 45
(DR400/180 approved 10/5/72 and DR400/500 approved 10/5/98)
Fiche de Navigabilite No.121 associee au Certificat de Navigabilite de Type No.45 DR300/DR400 - Edition No.18, Novembre 1999
Translation – Data Sheet No.121 Associated to TC No.45

Noise Limitation Type Certificate No. N45
(DR400/180 approved 6/3/80 and DR400/500 approved 23/7/98)
Data Sheet No. N121 associated to Noise Limitation Type No. N45
- (2) Airworthiness design requirements: Already held by the CAA
- (3) Certification compliance listing:

There is no compliance checklist available for the DR400 series. The first version was the DR 400/125, which was added to the DR 300 type certificate on 10 May 1972. Robin Aviation supplied a list of DR400/500 Certification Reports, and undertook to provide copies of any particular report on request, with the summary and conclusion translated in English.

Note as a certification condition applicable to the forward sliding canopy of the DR400 there must be a means to jettison the canopy on the ground if for any reason the forward sliding canopy system has been jammed due to, for example, the engine cowling.
- (4) Flight manual: DGAC-Approved DR400/180 Flight Manual – Edition 12 May 1990, Revision 3 October 1997 – CAA Accepted as AIR 2703
“This Edition is applicable from S/N 2216 included”.
(Copy of the French language Manuel de Vol also supplied.)

SGAC-Approved Flight Manual DR400-180 Regent – Issue No.11
Dated 7 July 1980 – CAA Accepted as AIR 2848

DGAC-Approved DR400/500 Flight Manual – Edition 1 March 1998,
Revision 2 January 2000 – CAA Accepted as AIR 2704
(Copy of the French language Manuel de Vol also supplied.)
- (5) Illustrated Parts Catalogue: Robin DR400 IPC Edition IV/Revision 1
- (6) Maintenance manual and service data for aircraft:

Robin DR400 Maintenance Manual – 3rd Edition July 1995
Robin DR400/500 Service Manual – 1st Edition July 1999
Robin DR400 Maintenance Schedule – Issue 3 September 1998
Service Bulletins Collection
Service Letters Collection
- (7) Maintenance manual and service data for engine and propeller: Already held by CAA
- (8) Agreement from manufacturer to supply updates of data in (4), (5) and (6):

CAA 2171 form from HOD Robin Aviation dated 22 September 2000

- (9) Other information: Electrical Diagram Parts List DR500 – Dwg. No.62-88-01
 Schema Electrique DR400/160/180 Cv – Dwg. No. 62-18-29

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	<i>To be determined on an individual aircraft basis</i>
B.2	Crew Protection Requirements - CAM 8 Appdx. B # .35	Agricultural Aircraft – <i>Not Applicable</i>

Compliance with the following additional NZ operating 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 91

Subpart F - Instrument and Equipment Requirements

PARA:	REQUIREMENT:	MEANS OF COMPLIANCE:
91.505	Shoulder Harness if Aerobatic; >10 pax; Flight Training	<i>N/A – Not aerobatic</i>
91.507	Pax Information Signs - Smoking, safety belts fastened	<i>N/A – Less than 10 passengers</i>
91.509 Min. VFR	(1) ASI (2) Machmeter (3) Altimeter (4) Magnetic Compass (5) Fuel Contents (6) Engine RPM (7) Oil Pressure (8) Coolant Temp	Fitted as Std – See FM 1.10 #1 N/A Fitted as Std – See FM 1.10 #3 Fitted as Std - See FM Page 1.10 Fitted as Std - See FM Page 1.10 Fitted as Std - See FM Page 1.10 Fitted as Std - See FM Page 1.10 N/A – Air cooled engine fitted
(9) Oil Temperature (10) Manifold Pressure (11) Cylinder Head Temp. (12) Flap Position (13) U/C Position (14) Ammeter/Voltmeter	Fitted as Std - See FM Page 1.10 N/A – Fixed-pitch (DR400/180) Fitted as Std – See FM 1.10 #19 Fitted as Std - See FM 1.10 #24 N/A – Less than 250 hp (DR500) Fitted as Std - See FM Page 1.10 N/A – Fixed Undercarriage Fitted as Std - See FM Page 1.10	
91.511 Night	(1) Turn and Slip (2) Position Lights (3) Anti-collision Lights	Available as optional equipment Available as optional equipment Available as optional equipment
	Note: See Flight Manual Supplement 2 “Night VFR” for mandatory equipment for Night VFR in non-icing conditions	(4) Instrument Lighting Instrument Panel lighting system is optional fit by implementation of Major Modification No.56
91.513	VFR Communication Equipment	<i>Operational Requirement – to be fitted as required</i>
91.517 IFR	(1) Gyroscopic AH (2) Gyroscopic DI (3) Gyro Power Supply (4) Sensitive Altimeter	Available as optional equipment Available as optional equipment Vacuum gauge optional Fitted as std (P/N 76 22 12 000)
(5) OAT (6) Time in hr/min/sec (7) ASI/Heated Pitot (8) Rate of Climb/Descent	<i>To be fitted as required</i> <i>To be fitted as required</i> Available as optional equipment Available as optional equipment	
91.519	IFR Communication and Navigation Equipment	<i>Operational Requirement – to be fitted as required</i> GPS is available as optional equipment for VFR flight only See Flight Manual Supplement 5 for DR400/180 and FM Supplements 3 and 5 (Garmin 155XL) for DR400/500
91.523 Emrgcy Eqpmt.	(a) More Than 10 pax - First Aid Kits/Fire Extinguishers (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
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	Not fitted as standard
91.533 Unpress. A/c	>30 min above FL100 - Supplemental for crew, 10% Pax - Therapeutic for 3% of Pax Above FL100 - Supplemental for all Crew, Pax	Not fitted as standard
91.541	SSR Transponder and Altitude Reporting Equipment	<i>Operational Requirement – to be fitted as required</i>
91.543	Altitude Alerting Device - Turbojet or Turbofan	N/A – piston powered
91.545	Assigned Altitude Indicator	<i>Operational Requirement – to be fitted as required</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	Shoulder harness fitted as standard – See IPC §404
135.357	Additional Instruments (Powerplant and Propeller)	Fitted as standard with instruments required by FAR §23.1305
135.359	Night Flight	<i>Operational Requirement – to be fitted as required</i>
	Landing light, Pax compartment	
135.361	IFR Operations	<i>To be determined on an individual aircraft basis</i>
	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>
135.367	Cockpit Voice Recorder	N/A – Helicopters only
135.369	Flight Data Recorder	N/A – Helicopters with more than 10 passenger seats
135.371	Additional Attitude Indicator	N/A – Not turbo jet powered

Attachments

The following documents form attachments to this report:

Photographs First-of-Type example DR400/500 President serial number 29
 Three-view drawings Robin Aviation Models DR400/180 and DR400/500
 Copy of DGAC Type Certificate No.45/Type Certificate Data Sheet No.121

Sign off

David Gill
 Team Leader Airworthiness

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