Type Acceptance Report

TAR 18/21B/20

DOWTY PROPELLERS R352 and R410

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Executive Summary

New Zealand Type Acceptance has been granted to the GE Aviation Systems, Trading as Dowty Propellers, R352 and R410 Series propellers based on validation of UK CAA Type Certificates number 105 and 110. There are no special requirements for import.

All the propeller models listed under the UK CAA type certificates have been type accepted in New Zealand.

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.18/21B/20 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 product in New Zealand; and

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

The report also notes the status of all models included under the State-of-Design type certificate which have been granted type acceptance in New Zealand. Models covered by the type acceptance certificate issued under Part 21B at Amendment 6 or later are listed in Section 2 of this report.

2. Product Certification Details

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

Manufacturer:	Dowty Aerospace propellers
Type Certificates:	Propeller Type Certificate Serial Numbers 105 and 110
Issued by:	United Kingdom Civil Aviation Authority
Production Approval:	UK.21G.2555

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

(i) **Models:** R352/6-123-F/1 and R352/6-123-F/2

R410/6-123-F/35 and R410/6-123-F/36

3. Application Details and Background Information

The application for New Zealand type acceptance of the R352 and R410 Series propellers was from manufacturer, GE Aviation Systems, Trading as Dowty Propellers, dated 26 October 2017. The R352/410 Series is a six-bladed, constant speed, hydraulically-actuated variable pitch propeller which can be feathered and used in reverse pitch.

Type Acceptance Certificate Number 18/21B/20 was granted on 18 December 2017 to the Dowty R352 and R410 Series based on validation of UK CAA Type Certificate numbers 105 and 110. There are no special requirements for import into New Zealand.

The R352 was an all-new six-bladed single-row carbon fibre stabilised blade root bearing design developed for the Fokker 50 airliner. In the model designation the "/6" signifies the number of blades; the "-123-" signifies the blade root size in mm; and the "F" signifies that the propeller is flange-mounted to the engine drive shaft. The only difference between the two series is that the R410 has a stronger aluminium rear hub half, to withstand the higher loads of the Fokker 60 version.

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) ICAO Type certificate:

UK CAA Propeller Type Certificate Serial Number 105
Dowty Rotol (c)R/352/6-123-F/1 approved 1 May 1987
Dowty Rotol (c)R/352/6-123-F/2 approved Dec. 1992

UK CAA Propeller Type Certificate Data Sheet no. 105 at Issue 6 dated Jan 1997

UK CAA Propeller Type Certificate Serial Number 110
Dowty Rotol (c)R410/6-123-F/35 and /36 approved 26 January 1998

UK CAA Propeller Type Certificate Data Sheet no. 110 at Issue 4 dated Jan 1997

(2) Airworthiness design requirements:

(i) Airworthiness Design Standards:
The certification basis of the R352 and R410 Series is BCAR Section A Issue 28 Chapter A3-2, and JAR-P change 6 together with the installation requirements of JAR 25 as specified on the TCDS, plus the Special Requirements details in CAA letter 9/216/PR7/11 dated 5 June 1981. This is an acceptable certification basis in accordance with NZCAR Part 21B Para §21.41 and Advisory Circular 21-1A, as JAR-P is an equivalent standard to FAR Part 35, which is the basic standard for Propellers 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:
UK CAA letter 9/216/PR7/11 specified additional testing requirements for lightning

(iii) Equivalent Level of Safety Findings:
Nil

(iv) Airworthiness Limitations:
See 61-10-01 Airworthiness Limitations

(3) Environmental Certification:

Not Applicable

(4) Certification Compliance Listing:

Dowty Miscellaneous Report Fo50-02308 – R/352/6-123-F/1, R/352/6-123-F/1, R/352/6-123-F/1, R410/6-123-F/35, R410/6-123-F/36 Propellers for Fokker F27 Mk 50, Mk 0502, & Mk 0604 Aircraft – Report for Validation of EASA/UK CAA Type Certificates in New Zealand

(5) Flight Manual: N/A

(6) Operating Data for Propeller:

(i) Maintenance Manual:
Fokker 50 & Fokker 60 – Propeller Maintenance Manual – Dowty Publication 1051
660715001 (Type (c) R352/6-123-F/1); 660715004 (Type (c) R352/6-123-F/2); 660715005 (Type (c) R410/6-123-F/35); 660715006 (Type (c) R410/6-123-F/36)

Propeller Equipment Set	61-00-03
Propeller	61-10-34
Spinner	61-10-35
Feathering Pump	61-20-30
Electric Motor Assembly	61-20-41
Beta Tube Assembly	61-20-34
Pitch Control Unit	61-20-31
Propeller Electronic Control Unit	61-20-35

(ii) Current service Information:
Service Bulletins

(iii) Illustrated Parts Catalogue:
The illustrated parts list is contained within the individual CMM.

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

CAA 2171 from Dowty Propellers Chief Engineer dated 26 October 2017

Attachments

The following documents form attachments to this report:

Copies of UK CAA Propeller Type Certificate Data Sheet Numbers 105 and 110

Sign off

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David Gill	Checked – Greg Baum
Team Leader Airworthiness	Airworthiness Engineer

Appendix 1

List of Type Accepted Variants:

Model:	*Applicant:*	*CAA Work Request:*	*Date Granted:*
(c)R352/6-123-F/1 and 2	GE Aviation Systems	18/21B/20	18 December 2017
(c)R410/6-123-F/35 and 36	GE Aviation Systems	18/21B/20	18 December 2017