
Type Acceptance Report

TAR 15/21B/16

Beech 400A

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Executive Summary

New Zealand Type Acceptance has been granted to the Beech 400A based on validation of FAA Type Certificate number A16SW. 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 §21.191, 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).

1. Introduction

This report details the basis on which Type Acceptance Certificate No. 15/21B/16 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. ICAO Type Certificate Details

TC Holder:	Beechcraft Corporation <i>(effective 12/4/2013)</i>
Manufacturer:	Hawker Beechcraft Corporation <i>(effective 26/03/07, serial numbers RK-485, 512, 513 and RK-515 through RK-604)</i>
	Raytheon Aircraft Corporation <i>(effective 15/4/96, serial numbers RK-98 through RK-514, except RK-99, 485, 512, 513)</i>
	Beech Aircraft Corporation <i>(serial numbers RK-1 through RK-97 and RK-99)</i>
Type Certificate:	A16SW
Issued by:	Federal Aviation Administration
Model:	400A

MCTOW 16,100 lb.
16,300 lb. (serial number RK-347 and after, and aircraft with Kit 128-5202-0001 Increased Gross Takeoff Weight.)

Max. No. of Seats: 11

Noise Standard: FAR Part 36 Amendment 36-17

Engine: Pratt & Whitney Canada JT15D-5 (s/n RK-1 through RK-507)
Pratt & Whitney Canada JT15D-5R (s/n RK-508 and after)
Type Certificate: E-11
Issued by: Transport Canada

3. Type Acceptance Details

The application for New Zealand type acceptance of the Beech 400A was from Nextant Aerospace L.L.C., dated 30 January 2015. The first-of-type example was serial number RK-210, registered ZK-NXJ. The Beech 400A is an all-metal twin-turbojet pressurised light business jet typically configured for eight passengers.

Type Acceptance Certificate Number 15/21B/16 was granted on 27 February 2015 to the Beech 400A based on validation of FAA Type Certificate A16SW, and includes the JT15D-5 engine based on validation of Transport Canada Type Certificate E-11. Specific applicability is limited to the coverage provided by the operating documentation supplied. There are no special requirements for import into New Zealand.

The “Beechjet” 400 originated in the MU300 Diamond jet designed and manufactured by Mitsubishi in Japan. Mitsubishi developed an improved Model MU300-10 Diamond II, which was approved under FAA type certificate A14SW. Eleven examples were produced before the program was taken over by Beech and the aircraft re-certificated as the Beech Model 400 under new FAA type certificate A16SW. All the MU300-10 were subsequently converted to the Model 400 under Beech Service Bulletin Number 2140. Production of the Model 400 comprised serial numbers RJ-12 through RJ-65. The Model 400A, serial number RK-1 and on, was a further development. The primary change was the introduction of the Rockwell Collins Proline IV EFIS system, plus other improvements including greater cabin volume, increased max takeoff weight and higher operating ceiling. (From 2003 and serial number RK-354 the aircraft was marketed as the Hawker 400XP.) Production ceased in 2010 with serial number RK-604.

The JT15D is a small twin spool front fan jet engine with a full length annular bypass duct, and a centrifugal flow high pressure compressor. The first version was the D-1 of 2200 lb takeoff thrust used on the Cessna Citation 1. This was developed into the D-4 of 2500 lb for the Citation II and Mitsubishi Diamond 1. The D-5 of 2965 lb take-off rating was subsequently produced for the Diamond II/Beech 400A. The JT15D-5R is a later development, identical in all respects except for changes to the fuel and oil systems associated with the elimination of the Fuel System Icing Inhibitor (FSII) additive.

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:

FAA Type Certificate Number A16SW

FAA Type Certificate Data Sheet no. A16SW at Revision 28 dated April 12, 2013
– Model 400A approved June 20, 1990

Transport Canada Type Certificate Number E-11

TC Type Certificate Data Sheet number E-11 at Revision 23 dated August 4, 2006
– Model JT15D-5 approved December 16, 1983
– Model JT15D-5R approved August 4, 2006

(2) Airworthiness design requirements:

(i) *Airworthiness Design Standards:*

The certification basis of the Beech 400A is FAR Part 25, as amended by 25-1 through 25-40, plus additional paragraphs at later Amendment dates as noted on the TCDS, plus SFAR 27, as amended by 27-1 through 27-5. This is an acceptable certification basis in accordance with NZCAR Part 21B Para §21.41, as FAR 25 is the basic standard for Transport Category Airplanes 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.

The certification basis of the Pratt and Whitney Canada JT15D-5 Series is FAR Part 33 Amendments 1 to 9 inclusive, effective October 14, 1980, with the exception of 33-77, 33-88 and 33-92. The exceptions are addressed by compliance with Advisory Circulars AC33.1B and 33.3.

(ii) *Special Conditions:*

Model 400A:

25-ANM-32 High Altitude Operation at 45,000 Feet – For certification above FL410 the FAA imposed additional rules to ensure integrity of the pressure vessel, including: crack propagation and damage tolerance analysis for structural security; ventilation, air conditioning and pressurisation (cabin time-altitude history) requirements; plus additional provisions for oxygen equipment supply.

25-ANM-33 Lightning and Radio Frequency Energy Protection – This Special Condition required that electrical and electronic systems which perform critical functions must be designed and installed to ensure their operation and capability is not adversely affected due to the direct and indirect effects of lightning and HIRF, including specified threat envelopes.

(iii) *Equivalent Level of Safety Findings:*

FAR §25.255 Out-of-Trim Characteristics – The original MU300 could not demonstrate manoeuvring stability over the required flight load conditions when mistrimmed because it is elevator limited. This was accepted because it has excellent static and manoeuvring stability gradients; exhibits a high degree of pitch damping; and positive roll control is available at all speeds down to stall. These compensating factors were also found applicable to the 400A.

FAR §25.773(b)(2) Pilot Compartment View – No openable window is provided because the 400A has independent anti-ice and de-fog systems on both sides; two independent windshield wiper systems; the side window is heated to prevent frost or moisture; and demonstrations have shown adverse weather protection and landing without visibility through the front windshield.

FAR §25.813(e) Passenger Compartment Door (RJ-39 and after) – The door separating the aft lavatory, that contains a seat which can be occupied during takeoff and landing, from the passenger cabin was permitted on the grounds that it is clearly placarded to be secured open during takeoff and landing; the means to secure it are simple, reliable, and can withstand crash loads; and the frangibility of the door panel in case of jamming has been shown by a successful egress test.

FAR §25.811(d)(1) and (2) Emergency Exit Marking – The 400A has only a single sign to serve as the exit locator and marker, instead of having a second one perpendicular to the aisle. This was accepted based on the size of the aircraft cabin and the conspicuity of the single exit sign.

(iv) *Airworthiness Limitations:*

TCDS refers to: Section 4 of Maintenance Manual, Part Number 128-590001-9 and Structural Repair Manual, Part Number 128-590001-17. These refer to:

Airworthiness Limitations Manual-Model 400/400A P/N 128-590001-305

Pratt and Whitney Canada SB 7002 (Rotor Component Service Lives)

Pratt and Whitney Canada SB 7003 (TBO Limits, and sampling and escalation)

(3) Aircraft Noise and Engine Emission Standards:

(i) *Environmental Standard:*

The Model 400A has been certificated for noise under FAR Part 36, including Amendments 36-1 through 36-17. (Stage 3)

(ii) *Compliance Listing:*

Flight Manual Section 5 Performance – Acoustic Levels

Noise Level Condition	16,300 lbs	16,100 lbs
Takeoff, Flaps 10°	89.12 EPNdB	88.99 EPNdB
Sideline, Flaps 10°	93.65 EPNdB	93.70 EPNdB
Approach, Flaps 30, 15,700 lbs	91.72 EPNdB	91.72 EPNdB

Note: The noise level for Take-off Flaps 10° at 16,300 lb exceeds the noise limit but the 400A is still in compliance with Stage 3 per 14 CFR Part 36 Section C36.5 (C) (b) Tradeoffs.

(4) Certification Compliance Listing:

Beechcraft Engineering Compliance Report – Certification Compliance Checklist – Model 400A – Project No. CE-115W-1074 – Report No. 400E484 Revision B

JT15D-5 Index of Compliance (Substantiation to FAR 33 Amendment 4)

Pratt & Whitney Canada Engineering Report 6066 – JT15D-5R Engine – Civil Certification Compliance Plan – February 2006

- (5) Flight Manual: FAA Approved Flight Manual for Model 400A (2-Tube)
P/N 128-590001-91 (RK-1 thru RK-23 (without Kit 128-8001-1 or 128-5025-3 installed)) – CAA Accepted as AIR 3301
- FAA Approved Flight Manual for Model 400A (3/4-Tube)
P/N 128-590001-95 (RK-1 thru RK-23 (without Kit 128-8001-1 or 128-5025-3 installed)) – CAA Accepted as AIR 3302
- FAA Approved Flight Manual for the Model 400A (2-Tube) P/N
128-590001-107 (RK-1, RK-4, RK-5, RK-13 (with Kit 128-8001-1 Installed; without Kit 128-5025-3 installed) RK-24, RK-27, RK-28, RK-45 (without Kit 128-5025-1 or 128-5025-3 installed) – CAA Accepted as AIR 3303
- FAA Approved Flight Manual for the Model 400A (3/4-Tube) P/N
128-590001-109 (RK-1 thru RK-23 (with Kit 128-8001-1 installed; without Kit 128-5025-3 installed) RK-24 thru RK-92 (without Kit 128-5025-1 or 128-5025-3 installed)) – CAA Accepted as AIR 3304
- FAA Approved Flight Manual for the Model 400A/400XP P/N
128-590001-167B (RK-1 thru RK-23 when modified by Kits 128-8001-1 and 128-5025-3; RK-24 thru RK-44 and RK-46 thru RK-48 when modified by Kit 128-5025-3; RK-45, RK-49 thru RK-92 when modified by Kit 128-5025-1; RK-93 and after) – CAA Accepted as AIR 3305
- FAA Approved Flight Manual for the Model 400A P/N
128-590001-169 (RK-1, RK-4, RK-5, RK-13 (with Kits 128-8001-1 and 128-5025-3 installed) RK-24, RK-27, RK-28 (with Kit 128-5025-3 installed) and RK-48 (with Kit 128-5025-1 installed)) – CAA Accepted as AIR 3306

(6) Operating Data for Aircraft and Engine:

(i) *Maintenance Manual:*

Maintenance Manual (400/400A s/n RJ-1, RK-1 and after) P/N 128-590001-9

Component Maintenance Manual (MU-300 s/n A003SA and after); Beechjet 400/400A (s/n RJ-1 and after); (s/n RK-1 thru RK-353); Hawker 400XP (s/n RK-354 and after) P/N 128-590001-81

Structural Repair Manual (s/n RJ-1 and after, RK-1 and after) P/N 128-590001-17

Beechjet 400 Wiring Diagram Manual (RJ-1 and after) P/N 128-590001-19

Model 400A WDM (s/n RK-1 thru RK-48, except RK-45) P/N 128-590001-79

Model 400A Electrical Wiring Diagram Manual (s/n RK-45, RK-49 thru RK-353, RK-354 and after) P/N 128-590001-147

Fault Isolation Manual (s/n RJ-1, RK-1 and after) P/N 128-590001-211

JT15D-5/5R Maintenance Manual– Part Number 3033442

JT15D-5/5R Overhaul Manual – Part Number 3033443

(ii) *Current service Information:*

Beech Service Bulletins and Service Letters

Pratt and Whitney Canada JT15D-5/5R Service Bulletins

(iii) *Illustrated Parts Catalogue:*

Illustrated Parts Catalog (s/n RJ-1 and after, RK-1 and after) P/N 128-590001-11

JT15D-5/5R Illustrated Parts Catalog – Part Number 3033444

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

Publications are available on the website at <http://www.beechcraft.com/>

Publications are available on the website at <https://eportal.pwc.ca>

(8) Other information:

Beechjet (Model 400A) (*RK-118, RK-140 thru RK-353*), Hawker 400XP (Model 400A) (*RK-354 and After*) Pilot's Operating Manual for Airplanes Equipped with Collins Dual AMS-5000 Avionics Management System and Dual Collins APS-4000 Flight Director Autopilot System – P/N 128-590001-205

PWC Engineering Report No.3870 – Installation Manual JT15D-5, -5R Turbofan

5. Additional New Zealand Requirements

Compliance with the retrospective airworthiness requirements of NZCAR Part 26 has been assessed as they are a prerequisite for the grant of an airworthiness certificate.

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	FAR Part 25 §25.811(a) Amdt 25-32 Eff May 1, 1972
B.2	Crew Protection Requirements – CAM 8 Appdx. B # .35	Not Applicable – Agricultural Aircraft only

Compliance with the following additional NZ operating requirements has been reviewed for the Nextant “400XT” configuration and were found to be covered by either the original certification requirements or the basic build standard of the aircraft, except as noted:

CAR Part 91 – Subpart F – Instrument and Equipment Requirements

PARA:	REQUIREMENT:	MEANS OF COMPLIANCE:
91.505	Seating and Restraints – Safety belt/Shoulder Harness	FAR Part 25 §25.785 Amdt 25-32 Eff May 1, 1972
91.507	Pax Information Signs – Smoking, safety belts fastened	FAR Part 25 §25.791 Amdt 25-32 Eff May 1, 1972
91.509	Minimum Instruments and Equipment	
	(1) ASI (2) Machmeter (3) Altimeter (4) Magnetic Compass (5) Fuel Contents (6) Engine RPM (7) Oil Pressure	FAR §25.1303(b)(1) FAR §25.1303(b)(1) FAR §25.1303(b)(2) FAR §25.1303(a)(3) FAR §25.1305(a)(2) FAR §25.1305(c)(3) FAR §25.1305(a)(4)
		(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 – Turbofan FAR §25.1305(a)(6) Not Applicable – Turbofan Not Applicable – Turbofan FAR §25.699(a) FAR §25.729(e) FAR §25.1351(6)
91.511	Night VFR Instruments and Equipment	
	(1) Turn and Slip (2) Position Lights	FAR §25.1303(b)(4) FAR §25.1389
		(3) Anti-collision Lights (4) Instrument Lighting
		FAR §25.1401 FAR §25.1381
91.513	VFR Communication Equipment	Operating Rule – Compliance to be determined by Operator
91.517	IFR Instruments and Equipment	
	(1) Gyroscopic AH (2) Gyroscopic DI (3) Gyro Power Supply (4) Sensitive Altimeter	FAR 25.1303(b)(5) FAR 25.1303(b)(6) FAR 25.1331(a)(1) FAR 25.1303(b)(2)
		(5) OAT (6) Time in hr/min/sec (7) ASI/Heated Pitot (8) Rate of Climb/Descent
		FAR §25.1303(a)(1) FAR §25.1303(a)(2) FAR §25.1323(h)(1) FAR §25.1303(b)(3)
91.519	IFR Communication and Navigation Equipment	Operating Rule – Compliance to be determined by Operator
	The 400A is fitted as standard with the Collins Pro Line 4 avionics system. This includes the Collins FCS-850 digital flight control system, Collins FMS-850 flight management system, EFIS (EFD-871), Collins MFD-871 (single multifunction display), WXR-840 Weather Radar and Collins ALT-55B radio altimeter and Rosemount air data system.	
91.523	Emergency Equipment	
	(a) More Than 9 pax – First Aid Kits per Table 7 – Fire Extinguishers per Table 8 (b) More than 20 pax – Axe readily accessible to crew (c) More than 61 pax – Portable Megaphones per Table 9	Not Applicable – Less than 10 passenger seats Not Applicable – Less than 10 passenger seats Not Applicable – Less than 20 passenger seats Not Applicable – Less than 61 passenger seats
91.529	ELT – TSO C126 406 MHz after 22/11/2007	Operating Rule – Compliance to be determined by Operator
91.531	Oxygen Indicators – Volume/Pressure/Delivery	FAR Part 25 §25.1441 through 25.1450
91.535	Supplemental Oxygen for Pressurised Aircraft	
	(1) Flight Crew Member On-Demand Mask; (2) Pax mask, Portable oxygen equipment (3) Crew Member – Pax Oxygen Mask and Portable (4) Minimal Supplemental Oxygen Quantity (5) Specified Supplemental/Therapeutic Oxygen Quantity Above FL250 (1) Quick-Donning Crew On-Demand Mask (2) Supplemental O ₂ Masks for all Pax/Crew and Toilets (3) 15 Minutes Therapeutic Supply Above FL300 (1) Total Outlets Exceed Pax Seats by 10% (2) Extra Units Uniformly Distributed throughout Aircraft (3) Automatically Presented if Cabin Altitude ≥ 14000 ft. (4) Manual Means of Deploying Pax Masks Available	Beech 400A Oxygen System includes as standard: 77 cu-ft Oxygen Regulator Cylinder (Standard pressure is 1850 psi, based on 3.7 LMP flow) – See AFM Emergency Procedures for Oxygen Duration data and calculations Quick-donning Crew Masks BE Aerospace “Sweep-on Crew Mask” P/N 174262-12 fitted as standard (TSO C78/89) Eleven Passenger Masks are fitted as standard: Two in the lavatory; and one adjacent to each passenger seat; One spare mask is stored centrally. CABIN PRESSURE LO annunciator illuminates if cabin altitude exceeds 10,000 ft. Masks are automatically presented when the cabin pressure altitude exceeds 12,500 feet. Manual deployment is available by selection of the PAS OXYGEN push-pull control.
91.541	SSR Transponder and Altitude Reporting Equipment	Operating Rule – Compliance to be determined by Operator
91.543	Altitude Alerting Device - Turbojet or Turbofan	Operating Rule – Compliance to be determined by Operator
91.545	Assigned Altitude Indicator	Operating Rule – Compliance to be determined by Operator
A.15	ELT Installation Requirements	To be determined on an individual aircraft basis

CAR Part 125 – Subpart F – Instrument and Equipment Requirements

PARA:	REQUIREMENT:	MEANS OF COMPLIANCE:
125.355	Seating and Restraints	FAR §25.785
125.357	Additional Instruments (Powerplant and Propeller)	FAR §25.1305
125.359	Night Flight	Operating Rule – Compliance to be determined by Operator
	Landing light, Pax compartment	
125.361	IFR Operations	Operating Rule – Compliance to be determined by Operator
	Speed, Alt, spare bulbs/fuses	
125.361	SE IFR Requirements – If Applicable	Not applicable – Twin engine aircraft
125.363	Emergency Equipment (Part 91.523 (a) and (b))	Operating Rule – Compliance to be determined by Operator
125.364	Protective Breathing Equipment	Not Applicable – Less than 20 passenger seats
125.365	Public Address and Crew Member Intercom System	Not Applicable – Less than 10 passenger seats
125.367	CVR – Appendix B.3 requires TSO C84/C123	Fitted as Standard – See 128-590001-205 Section 3
125.369	Flight Data Recorder – Appdx. B.4 requires TSO C124	Not Applicable – Less than 10 passenger seats
125.371	Additional Attitude Indicator	Fitted as Standard – See 128-590001-205 Section 3
125.373	Weather Radar – Appendix B.6 requires TSO C63	Collins WXR-840 colour Wx fitted as standard with ProLine-IV
125.375	GPWS – Appendix B.7 requires TSO C92	Operating Rule – Compliance to be determined by Operator
125.377	AEDRS	Not Applicable – Not SEIFR
125.379	Terrain Awareness and Warning System (TAWS) Appendix B.9 requires TSO C151a or b	Operating Rule – Compliance to be determined by Operator
125.381	Airborne Collision Avoidance System (ACAS II) Appendix B.10 requires TSO C118/119a or C119b/c	

NOTES: 1. An FAR reference in the Means of Compliance column indicates the US rule was exactly equivalent to the CAR requirement, and compliance is achieved by the basic aircraft type design.

2. Some means of compliance above are specific to a particular model/configuration. Compliance with Part 91/125 operating requirements should be checked in each case, particularly oxygen system capacity and emergency equipment.

3. Beech 400A comes under CAR Part 125 for Air Transport operations because MCTOW over 5700 kg and Payload less than 3410 kg. (MCTOW = 16,300 lb, Typical Empty Weight = 10,700 lb.)

Attachments

The following documents form attachments to this report:

Three-view drawing Beech Model 400A

Copy of FAA Type Certificate Data Sheet Number A16SW

Sign off

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David Gill
Team Leader Airworthiness

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Checked – Greg Baum
Airworthiness Engineer

Appendix 1

List of Type Accepted Variants:

Model:	Applicant:	CAA Work Request:	Date Granted:
400A	Nextant Aerospace L.L.C.	15/21B/16	27 February 2015