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# **Type Acceptance Report**

**TAR 95/09**

**BEECH D17S**



## Table of Contents

<b>Introduction .....</b>	<b>1</b>
<b>Foreign Type Certificate Details .....</b>	<b>1</b>
<b>Type Acceptance Application .....</b>	<b>1</b>
<b>Type Data .....</b>	<b>2</b>
<b>Additional New Zealand Certification requirements .....</b>	<b>2</b>
<b>Summary .....</b>	<b>4</b>
<b>Attachments .....</b>	<b>4</b>



## Introduction

This report details the basis on which Type Acceptance Certificate No.95/09 was issued in accordance with NZCAR Part 21B.

Specifically the report aims to:

- (a) Record the airworthiness certification standard used for type acceptance of the applicable model(s) 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: CAA Type Certificate No. A-649  
Issued by: US Civil Aeronautics Administration  
Manufacturer: **Beech Aircraft Corporation**  
Model: **D17S**  
Engines: Pratt & Whitney Wasp Jr (or military equivalent)  
Propellers: Hamilton Standard 2D30  
MCTOW 4250 lb. (1928 kg.)  
Noise Category: N/A

The certification basis of the Beech D17S is listed as “Type Certificate No.649 (Aero. Bulletin 7A requirements).” This is the pre-war predecessor to CAR 3. (The model D17S was approved on September 1, 1937.) The aircraft has been type accepted on the basis it is eligible for a standard category airworthiness certificate in the US and Canada, and came with an Export C of A stating conformity with its type certificate. There are no non-compliances and no special conditions have been prescribed by the Director under para 21.23.

## Type Acceptance Application

The application for New Zealand type acceptance was from the importer of the first example, Mr Robin Campbell, by CAA 24021/2 dated 17 September 1995.

There has been one previous example of the Staggerwing in NZ, a C17L s/n 107 with the Auckland Aero Club as ZK-AEU. After being impressed with the RNZAF during the war it subsequently became ZK-AJS before being exported to Australia in 1954.

A temporary Restricted Category airworthiness certificate was issued on 8 December 1995 pending supply of type data and determination of the flight manual to be adopted. Standard Category Type Acceptance Certificate No.95/09 was granted on 6 June 1996.

## 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: Aircraft Specification No. A-649 dated May 23, 1949
- (2) Airworthiness design requirements: Copy of US Dept. of Commerce, Bureau of Air Commerce - Aeronautics Bulletin No. 7-A - Effective as amended October 1, 1934 already held by the CAA.
- (3) Certification compliance listing: The applicant was requested to provide a list of the type design drawings and a copy of the "Margins of Safety", both of which are required by Aero Bulletin 7A. The Staggerwing Club/Museum now holds all Model 17 drawings. A fax from the secretary stated copies of any drawing would be provided on request to proven owners, such as Mr Campbell. Subsequently Beech provided a list of type data held by the FAA on microfilm rolls and stated they would permit the FAA to release copies to the CAA on request, on a confidential basis.
- (4) Flight manual: "Beechcraft Model D17S Operations Manual"  
CAA Approved as AIR 2554 - See discussion below.
- (5) Maintenance manual and service data:  
Beechcraft Model D17 Service and Operation Data - Publication D170039 - (The only factory Model 17 technical publication currently available.)
 

Handbook of Erection and Maintenance Instructions C-43 Series - TO 01-90CAA-2 dated Nov 25, 1942	)	
Erection and Maintenance Instructions for Army Model UC-43 and Navy Model GB-2 Airplanes AN 01-90CC-2 dated 10 February 1944, revised 20 June 1945	}	Poor photocopies bound into a single volume
Handbook of Operation, Inspection and Maintenance for the Models C-43A,B,C,D & F - TO 01-90-1 dated Oct 1, 1942	)	

## 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, as noted:

### Flight Manual

No flight manual is required under the original certification standard for the Beech 17, which was the pre-war Aero Bulletin 7A. (There are just no Flight Manual type requirements.) Four options for possible flight manuals to be used in NZ were available:

- a) A "Beechcraft Model D17S Operations Manual", which was the manual used by the previous owner of the aircraft who operated it on the Canadian register. There is no date on this manual, no List of Effective Pages to define the document or anything to confirm the actual source of the manual.
- b) The military PFOI for the [military equivalent] Army Model UC-43/Navy Model GB-2 - AN01-90CC-1 dated 10 July 1944 revised 20 November 1944.
- c) A CAA 2146 extended airworthiness certificate form, a version of which was used as the Flight Manual associated with the temporary restricted category certificate issued.

d) A new Flight Manual specially prepared by the CAA in the old AIR 100 series.

It was decided to adopt the manual supplied [(a) above], as although it could not be determined to be an official Beech publication it did contain all the information that would be in either (c) or (d) and the air force AN was not considered appropriate as it largely covered the military configuration. Therefore the document supplied was reviewed for accuracy against the TCDS limitations, and a supplement raised to cover any corrections and the addition of NZ performance data. (PGR rating). Some placards illustrated in the AN were also called up as they were felt to convey operating instructions that would have been originally also provided for the civil version. This manual satisfies the requirement of CAR Part 21 Appendix A para (c)(1).

### NZCAR Section C4

PARA:	REQUIREMENT:	MEANS OF COMPLIANCE:
2.13(a)	ASI shall be marked in knots  [Regulation 104(p)]	Concession No. AC 26/96 issued to allow the ASI to be marked in mph, which is how speeds are quoted in the FM. It also permitted non fitment of a flap position indicator.
2.1.3(b)	Altimeter main scale to be calibrated in feet	Standard for US-certificated aircraft
2.1.3(c)	Altimeter barometric scale in millibars or hectopascals	Superseded by DCA/INST/8
2.1.4(a)	Counter/pointer altimeters	Sensitive altimeter fitted as standard - See D170039 Page 46
3.1	Seats, Safety Belts and Harnesses	Complies by certification basis - See Aero Bulletin 7A Sec.60 Special Requirements (A) Seats and Safety Belts

### NZCAR Volume 2

Only one FAA AD has been issued for the Model 17 series.

### CASO 4

The D17S is classified as a Group E aeroplane under CASO 4. PGR Assigned is four.

### Outstanding Requirements

The following additional NZ requirements are not covered by the original certification requirements or the basic build standard of the aircraft and require compliance with before issue of an airworthiness certificate:

### NZCAR Section C4

PARA:	REQUIREMENT:	MEANS OF COMPLIANCE:
2.1.6	Magnetic compass residual deviation as per NZCAR F.8	* To be determined for individual aircraft
3.2	Axe	* To be determined for individual aircraft
3.3	Fire extinguisher requirements	* To be determined for individual aircraft
3.4	First aid kits as prescribed in Appendix A	* To be determined for individual aircraft
4.1	Independent radio antenna	* To be determined for individual aircraft
4.2	Emergency locator beacon	* To be determined for individual aircraft
6(d)	Red anti-collision light	* To be determined for individual aircraft
7.1	Flight manual container	* To be determined for individual aircraft
8.2	Fireproof ID plate	* To be determined for individual aircraft
8.3	Passenger smoking notices	* To be determined for individual aircraft
8.9	Nationality and registration marks	* To be determined for individual aircraft

### Placards

A series of placards, taken from either the TCDS or the military UC-43 Pilot's Flight Operating Instructions were required to be fitted, as follows:

Near the fuel tank selectors:

USE FUSELAGE TANK FOR TAKE-OFF AND LANDING  
 FILL FUSELAGE TANK(S) BEFORE FILLING WING TANKS  
 USE WING TANK(S) BEFORE USING FUSELAGE TANK(S)  
 FILL LOWER WING TANKS BEFORE FILLING UPPER WING TANKS

USE UPPER WING TANKS BEFORE USING LOWER WING TANKS

Above the parking brake handle:

SET PARKING BRAKE WHILE FOOT BRAKES ARE APPLIED

Beside the landing gear retraction lever:

RED LIGHT ON - LANDING GEAR FULLY RETRACTED  
GREEN LIGHT ON - LANDING GEAR FULLY EXTENDED  
NEITHER LIGHT ON - LANDING GEAR IN INTERMEDIATE POSITION  
IF THROTTLE CANNOT BE CLOSED FULLY - LANDING GEAR IS NOT FULLY DOWN  
IF THROTTLE CANNOT BE CLOSED OR GREEN LIGHT DOES NOT COME ON AFTER  
POSITION CONTROL IS MOVED TO DOWN POSITION - CHECK GEAR WITH HAND  
CRANK

Above the landing gear emergency hand crank:

TO ENGAGE - PULL OUT CRANK - TO LOCK LANDING GEAR IN DOWN POSITION -  
TURN CRANK AS FAR AS POSSIBLE ⇒ TO LOCK LANDING GEAR IN THE UP POSITION -  
TURN CRANK AS FAR AS POSSIBLE ⇐

## Summary

The Beech D17S has been issued with Type Acceptance Certificate No.95/09 and is eligible for a NZ Airworthiness Certificate in the Standard Category in accordance with CAR 21.177, subject to the outstanding requirements noted above being met:

## Attachments

The following documents form attachments to this report:

Three-view drawing Beech model D17S  
Photographs First-of-Type example Serial No.203 ZK-AMU  
Copy of Aircraft Specification No. A-649 (Extracts)

## Sign off

D G Gill  
Airworthiness Engineer

Date: 6 June 1996