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# **Type Acceptance Report**

**TAR 3/21B/30 – Revision 1**

**Beech 33/35/36 Bonanza Series**



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## Executive Summary

New Zealand Type Acceptance has been granted to the Beech 33/35/36 Bonanza Series based on validation of FAA Type Certificate number 3A15. 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. 3/21B/30 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.

The report also notes the status of all models included under the foreign type certificate which have been granted type acceptance in New Zealand. Models covered by the type acceptance certificate issued under Part 21B are listed in Section 2 of this report. Models which were accepted prior to that under NZCAR Section B.9 are listed in Appendix 1.

## 2. ICAO Type Certificate Details

|                    |  |
|--------------------|--|
| Manufacturer:      | Beech Aircraft Corporation   |
| Type Certificate:  | 3A15   |
| Issued by:         | Federal Aviation Administration  |
| Model(s):          | F33A and F33C  |
| MCTOW:             | 3400 lb. (Utility Category)  |
| Max. No. of Seats: | 5 or 6   |
| Noise Standard:    | FAR Part 36 through Amendment 36-10<br>(F33A s/n CE-891 and after and F33C s/n CJ-156 and after) |

**Engine:** Continental IO-520-B or -BA or -BB  
Type Certificate: E5CE  
Issued by: Federal Aviation Administration

**Propeller:** McCauley 2A36C23/84B-0 or 3A32C76/82NB-2  
Type Certificate: P-880  
Issued by: Federal Aviation Administration

Hartzell PHC-A3VF-4/V8433-2R or PHC-C3YF-1RF/F8468A-6R  
Type Certificate: P6EA  
Issued by: Federal Aviation Administration

**Model(s):** 36 and A36

**MCTOW:** 3600 lb. (s/n E-1 thru E-2110 except E-1946 and E-2104 [1968-1983])  
3650 lb. (s/n E-2104, E-2111 thru E-3635, except E-3630 [1984-2005])

**Max. No. of Seats:** 6

**Noise Standard:** FAR Part 36 through Amendment 36-10  
(s/n E-1609 through E-2581)  
FAR Part 36 through Amendment 36-18  
(s/n E-2581 through E-3635, except E-3630)

**Engine:** Continental IO-520-B or -BA or -BB (up to 1983)  
Continental IO-550-B (1984 onwards)  
Type Certificate: E5CE  
Issued by: Federal Aviation Administration

**Propeller:** McCauley 2A36C23/84B-0 or 3A32C76/82NB-2  
Type Certificate: P-880  
Issued by: Federal Aviation Administration

### 3. Type Acceptance Details

The application for New Zealand type acceptance of the Beech Models F33A/C was from the importer, Dr Ralph Saxe dated 14 March 2003. The first-of-type example was serial number CE-956, registered ZK-EDS. The Beech Bonanza Series is a retractable low-wing six-cylinder piston-engine powered all-metal light aeroplane with 4-6 seats.

Type Acceptance Certificate No.3/21B/30 was granted on 30 May 2003 to the Beech Models F33A and F33C Bonanza based on validation of FAA Type Certificate 3A15. There are no special requirements for import into New Zealand.

The Model 35 Bonanza was first introduced in 1947 a high performance business aircraft with a six-cylinder engine and retractable undercarriage. Its most distinctive feature was a unique V-tail empennage arrangement. Another unusual feature was that the control wheel and rudder pedals are interconnected by a system of bungee cords that assist in keeping the airplane in coordinated flight during turns. The Bonanza was subsequently developed with a series of minor improvements and power increases in the versions A35 through to V35 (not all letters were used), with the final production variant being the V35B which was phased out in 1982. An extra side window had been fitted to the Model F35 onwards. In 1968 Beech introduced the Model A36 Bonanza, which was a Model E33A with 10-inch fuselage stretch and fourth side window. This version remained in continuous production, until superseded by the G36 variant with Garmin G1000 EFIS in 2006.

In 1959 Beech had introduced the Model 35-33 Debonair, which was essentially the Bonanza with a conventional tail, but with a more utilitarian interior aimed at a lower price-bracket. This was also similarly developed in a succession of variants through to the 35-C33, and then subsequently Model D33 through F33. Over the years the standard of equipment and trim was raised to match that of the Model 35, and it was re-branded to use the Bonanza name. The F33A/C introduced for the 1970 Model year were identical to the previous Model 35-C33A except for minor changes to the instrument sub-panel, glareshield, interior upholstery, and rear window shape. Electroluminescent lighting was adopted and gross weight increased 100 lb. The F33C is the version certificated for aerobatic flight, with a stronger tail, jettisonable cabin door and positive-pressure fuel pump. The F33 became the definitive version which was manufactured up to 1994.

There has been one previous example of the Model 35-C33A Debonair on the NZ register, ZK-MEC, and nine examples of the other straight-tail Bonanza, the Model A36.

This report was raised to Revision 1 to include the later A36 serial number range. The opportunity was taken to update to the latest format. The first-of-type example was serial number E-2490, registered ZK-PVA. Type Acceptance was granted on 10 December 2014.

#### 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 3A15

FAA Type Certificate Data Sheet number 3A15 at Revision 96 dated May 12, 2014

- Model V35 approved 22 October, 1965
- Model 35-C33A approved 20 January 1966
- Model V35B approved 24 October 1969
- Model A36 approved 24 October 1969
- Models F33A and F33C approved 24 October 1969

(2) Airworthiness design requirements:

(i) *Airworthiness Design Standards:*

The certification basis of the Beech Model 35/33/36 Series is Part 3 of the Civil Air Regulations as amended to May 15, 1956, and Amendment 3-8. This is an acceptable certification basis in accordance with NZCAR Part 21B Para §21.41, because CAR 3 is the predecessor of FAR 23, which is the basic standard for Normal Category Airplanes called up under Part 21 Appendix C and Advisory Circular 21-1A. There are no non-compliances and no additional special conditions have been prescribed by the Director under §21.23.

(ii) *Special Conditions:*

Nil.

(iii) *Equivalent Level of Safety Findings:*

FAA Letter Equivalent Safety Finding CAR 3.663 and 3.757 – The ASI is marked in indicated in lieu of calibrated airspeed. The AFM must present both values and placards which present airspeeds to meet certification requirements must be consistent with the ASI markings.

FAA Letter Equivalent Safety Finding CAR 3.387 – The LHS window intrudes into the 19" x 26" ellipse slightly in 4 places. This was accepted because the opening area is still the same; the aircraft has no more than six seats; there have been no in-service problems reported from 18,000 airplanes, and timed egress from a compliant-size RHS window by 2 persons showed no difference.

(iv) *Airworthiness Limitations:*

Nil.

(3) Aircraft Noise and Engine Emission Standards:

(i) *Environmental Standard:*

The Model 33/35/36 produced versions after 1980 have been certificated for noise under FAR Part 36, with the Amendment status depending on the model.

(ii) *Compliance Listing:*

From Flight Manual Flyover Noise level for Model F33 s/n CE-891 and CJ-156 on:  
2-blade propeller using MNOP – 76.6 dB(A)  
3-blade propeller – 77.3 dB(A)



From Flight Manual Flyover Noise level for Model A36 s/n E-1609 on:  
2-blade propeller using MNOP – 77.4 dB(A)  
3-blade propeller – 78.2 dB(A)

From Flight Manual Flyover Noise level for Model A36 s/n E-1946 on: 76.7 dB(A)

(4) Certification Compliance Listing:

Beech DOA Statement of Compliance – Models F33, F33A, F33C, V35B and A36  
Beech Letter Ref. 901-199 dated 21 January 1969 – 1970 Model Changes  
Beech Drawing 33-000015 – Aircraft General Assembly Model F33A

Structural Analysis Report 82-1 – Basic Loads and Stress Analysis Model 36  
Beechcraft Structural Analysis Report 82-3 – General Summary for Models 36/A36  
Beechcraft Structural Test Report 82-900 – Static Test of the Model 36

(5) Flight Manual:

Pilot's Operating Handbook and FAA Approved Airplane Flight Manual  
– Bonanza F33A (s/n CE-674 and after) and F33C Acrobatic (s/n CJ-129  
and after) – P/N 33-590009-13 – CAA Accepted as AIR 2830

Pilot's Operating Handbook and FAA Approved Flight Manual – Bonanza  
A36 (Serials E-1946, E-2104, E-2111 thru E-3629 and E-3631 thru E-3635)  
– P/N 36-590002-37 – CAA Accepted as AIR 3299

(6) Operating Data for Aircraft, Engine and Propeller:

(i) *Maintenance Manual:*

P/N 35-590096 Model 35 Shop Manual

P/N 36-590001-3 36 Series Shop Manual (G36; A36; A36TC)

P/N 36-590001-9 Bonanza MM (V35B; F33A/C; A36; A36TC; B36TC; G36)

P/N 33-590011-1 33 Series Shop Manual

P/N 35-590102-9 Beech Bonanza Series (28V) Wiring Diagram Manual

P/N 58-590001-11 Structural Inspection and Repair Manual

(ii) *Current service Information:*

Service Bulletins and Service Letters available on the website

(iii) *Illustrated Parts Catalogue:*

P/N 33-590010-7 Beech Bonanza F33, G33, F33A & F33C Aircraft IPC

P/N36-590001-1 36 Series Illustrated Parts Catalog (s/n E-1, EA-1 and after)

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

Letter from Raytheon Aircraft Company Director, Airworthiness and Certification  
dated April 22, 2003 – Reference 940-2003-04-401

Beech provides access through the Global Support portal at [www.beechcraft.com](http://www.beechcraft.com)

## 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 | Not Applicable – Agricultural aircraft only             |

Compliance with the following additional NZ operating requirements has been reviewed for the Models F33A/C 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  | Shoulder harnesses fitted as standard equipment – *   |
| 91.507                     | Pax Information Signs - Smoking, safety belts fastened   | Not Applicable – Less than ten passenger seats  |
| 91.509<br>Min.<br>VFR      | (1) ASI<br>(2) Machmeter<br>(3) Altimeter<br>(4) Magnetic Compass<br>(5) Fuel Contents<br>(6) Engine RPM<br>(7) Oil Pressure   | CAR §3.655(a)(1) – *<br>N/A – No mach limitations<br>CAR §3.655(a)(2) – *<br>CAR §3.655(a)(3) – *<br>CAR §3.655(b)(1)(i) – *<br>CAR §3.655(b)(1)(v) – *<br>CAR §3.655(b)(1)(ii) – *   |
| 91.511<br>Night<br>VFR     | (1) Turn and Slip<br>(2) Position Lights   | Fitted as Standard – *<br>Fitted as Standard – *  |
| 91.513                     | VFR Communication Equipment  | <i>Operational requirement – Compliance as applicable</i>   |
| 91.517<br>IFR              | (1) Gyroscopic AH<br>(2) Gyroscopic DI<br>(3) Gyro Power Supply<br>(4) Sensitive Altimeter   | Fitted as Standard – *<br>Fitted as Standard – *<br><i>Compliance as applicable</i><br><i>Compliance as applicable</i>  |
|                            | * Standard Equipment Fit – See POH/AFM Section VII – Systems Description   | (5) OAT<br>(6) Time in hr/min/sec<br>(7) ASI/Heated Pitot<br>(8) Rate of Climb/Descent  |
| 91.519                     | IFR Communication and Navigation Equipment   | <i>Operational requirement – Compliance as applicable</i>   |
| 91.523<br>Emrgcy<br>Eqpmt. | (a) More Than 10 pax - First Aid Kits per Table 7<br>- Fire Extinguishers per Table 8<br>(b) More than 20 pax - Axe readily acceptable to crew<br>(c) More than 61 pax - Portable Megaphones per Table 9                               | Not Applicable – Less than 10 passenger seats<br>Not Applicable – Less than 10 passenger seats<br>Not Applicable – Less than 20 passenger seats<br>Not Applicable – 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   | A pressure gauge indicates the supply of oxygen available.  |
| 91.533                     | Oxygen for Non-Pressurised Aircraft<br>>30 min above FL100 –<br>Supplemental for crew, 10% Pax, - Therapeutic for 3% Pax<br>Above FL100 - Supplemental for all crew, Pax, -<br>Therapeutic for 1% Pax, - 120l PBE for each crew member | A 49-cu-ft oxygen cylinder is located beneath a cover under the front seats, with 4 or 5 outlets.<br>1850 psig is nominal pressure for full supply.<br>The system regulator is altitude-compensated to provide auto flow from 0.5 l/min @ 5,000 ft to 2.8 l/min at 25,000 ft. |
| 91.541                     | SSR Transponder and Altitude Reporting Equipment   | <i>Operational requirement – Compliance as applicable</i>   |
| 91.543                     | Altitude Alerting Device - Turbojet or Turbofan  | Not Applicable – Reciprocating engine   |
| 91.545                     | Assigned Altitude Indicator  | <i>Operational requirement – Compliance as applicable</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 & Restraints -Shoulder harness for flight-crew seats | Shoulder harnesses fitted as std equipment – See POH §VII          |
| 135.357 | Additional Instruments (Powerplant and Propeller)            | Has all instruments required by FAR §23.1305                       |
| 135.359 | Night Flight   | Landing Light and Cabin Light fitted as standard                   |
| 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>            |
| 135.367 | Cockpit Voice Recorder                                       | <i>Only applicable to 2-crew helicopters with more than 10 pax</i> |
| 135.369 | Flight Data Recorder   | Not Applicable – Less than 10 passenger seats                      |
| 135.371 | Additional Attitude Indicator                                | Not Applicable – Not turbo jet or turbofan powered                 |

## Attachments

The following documents form attachments to this report:

Photographs first-of-type example F33A serial number CE-956 ZK-EDS  
 Beech Drawing 33-001004 – Three View – Model F33A Bonanza  
 Copy of FAA Type Certificate Data Sheet Number 3A15

## Sign off

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 David Gill  
 Team Leader Airworthiness

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 Checked – Andrea Wadsworth  
 Airworthiness Engineer

## Appendix 1

### List of Type Accepted Variants:

| <i>Model:</i>        | <i>Applicant:</i>                     | <i>CAA Work Request:</i> | <i>Date Granted:</i> |
|----------------------|---------------------------------------|--------------------------|----------------------|
| V35/V35B (1966-1976) | AC 21-1.2/NZCAR Part 21 Appendix A(c) |                          |                      |
| 35-C33A              | AC 21-1.2/NZCAR Part 21 Appendix A(c) |                          |                      |
| A36 (1977-1983)      | AC 21-1.2/NZCAR Part 21 Appendix A(c) |                          |                      |
| F33A/C (1970-1976)   | Chipleigh Trust                       | 3/21B/30                 | 30 May 2003          |
| A36 (1984-2005)      | P M Van Ammers                        | 15/21B/13                | 10 December 2014     |