
Type Acceptance Report

TAR 7/21B/27

Slingsby T67 Series

TABLE OF CONTENTS

EXECUTIVE SUMMARY	1
1. INTRODUCTION	1
2. FOREIGN TYPE CERTIFICATE DETAILS	1
3. TYPE ACCEPTANCE CERTIFICATE	2
4. TYPE DATA	3
5. ADDITIONAL NEW ZEALAND REQUIREMENTS	5
ATTACHMENTS	6
APPENDIX 1	6

Executive Summary

New Zealand Type Acceptance has been granted to the Slingsby T67 Firefly Series based on validation of EASA Type Certificate number BA17. 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 §21.177, 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 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(b).

1. Introduction

This report details the basis on which Type Acceptance Certificate No.7/21B/27 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. Foreign Type Certificate Details

Manufacturer:	Slingsby Aviation Limited
Type Certificate:	BA17
Issued by:	European Aviation Safety Agency (under a “grandfathering” agreement in accordance with European Commission Regulations (EC) 1592/2002 and 1702/2003)
Model:	T67M200
MCTOW	2150 lb [975 kg] 2250 lb [1020 kg] – Post Mod. M358 or Mod. M914
Max. No. of Seats:	2

Noise Standard: BCAR Section N Issue 4 Chapter N3-4.2 (equivalent to ICAO Annex 16 Chapter 6 Volume 1 First Edition – 1981)

Engine: Lycoming AEIO-360-A1E
Type Certificate: 1E10
Issued by: Federal Aviation Administration

Propeller: Hoffmann HO-V-123K-V/180R
Hoffmann HO-V-123K-V/180DT – Post Mod. M333
Hoffmann HO-V-123-K-KV/180DT M200 – Post Mod. M822
Type Certificate: LBA 32.130/17
Issued by: Luftfahrt Bundesamt

3. Type Acceptance Certificate

The application for New Zealand type acceptance of the T67M200 was from the importer, Mr J H Smith, dated 11 January 2007. The first-of-type example was serial number 2050, registered ZK-TZX. The Slingsby T67 Firefly is a two-seat all-composite low-wing single-piston-engine training aircraft with fixed undercarriage.

Type Acceptance Certificate Number 7/21B/27 was granted on 2 April 2007 to the Slingsby T67M200 based on validation of UK CAA Type Certificate BA 17. Specific applicability is limited to the coverage provided by the operating documentation supplied. There are no special requirements for import into New Zealand.

The first Model T67A Firefly was a license-built version of the Fournier RF6B and was of all-wood construction. Slingsby then developed an all-composite construction version, and all subsequent examples of the fully-aerobatic aircraft were manufactured in this material. The initial variant was the T67M with 160 hp engine, intended for military customers, while the first civil model was the 115hp T67B. Later developments, like the T67M200, were essentially identical except for uprated engine power and increased weights.

4. Type Data

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 Type Certificate Data Sheet number BA 17 at Issue 8 dated January 2004
 - Model T67B approved 18 September 1984
 - Model T67M200 approved 19 June 1987

(2) Airworthiness design requirements:

(i) *Airworthiness Design Standards:*

The certification basis of the T67B, T67C, T67M, T67M Mark II and T67M200 is FAR Part 23 at Amendment 23-27, and BCAR Section K, Chapters 2-2 to 2-5, plus CAA requirements for certification of composite structures. This is an acceptable certification basis in accordance with NZCAR Part 21B Para §21.41 and Advisory Circular 21-1A, as FAR 23 is the basic standard for Normal 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.

(ii) *Special Conditions:*

UK CAA Letter to Slingsby Aviation Ltd Ref. 9/30/GSL2408 dated 2nd December 1982 “Slingsby T67B and T67M Bases of Certification” – This includes Special Condition: Composite Material Construction

(iii) *Equivalent Level of Safety Findings:*

Nil on TCDS for T67M200

(iv) *Airworthiness Limitations:*

See MM Section 2.8.2 for Limitations, and Section 2.8.3 for Recommended TBO

(3) Environmental Certification:

UK CAA Noise Type Certificate No. 43 – T67A, T67M, T67B, T67C

UK CAA Noise Type Certificate No. 112 – T67F(M200), T67M200

(4) Certification Compliance Listing:

AAN 17437 – Type Certification and Approval for Issue of a Certificate of Airworthiness in the Transport Category – Slingsby T67B c/n 2005 G-BUIZ

AAN 18898 Issue 4 – Type Certification and the Issue of a Certificate of Airworthiness in the Transport Category – Slingsby T67M-200 c/n 2030 G-BMBH

Slingsby T67M200 Compliance Check List

(5) Flight Manual:

The Slingsby T67M200 Pilot’s Notes – Incorporating the UK CAA Approved Flight Manual – Doc.No. TP.T67M200/FM – CAA Accepted as AIR 2998

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

(i) *Maintenance Manual:*

Slingsby Model T67M200 Firefly Maintenance Manual (incorporates Maintenance Schedule as Part of Section 2)

Slingsby Repair Manual T67 (GRP) Aircraft – 4th Edition May 2003

(ii) *Current service Information:*

Slingsby T 67 Series Modification Bulletins (Book 1 and Book 2 [567 onwards])

Slingsby T67 Series Service Bulletins & Service Bulletin Index

Slingsby T67 Series Information Bulletins & Information Bulletins Index

(iii) *Illustrated Parts Catalogue:*

Firefly T67 Illustrated Parts Catalogue – Models T67C, T67M-MkII, and T67M200

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

See email from SAL Airworthiness Co-ordinator dated 14 March 2007

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 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	Seating and Restraints – Safety belt/Shoulder Harness	5-point harness fitted as standard – See Flight Manual §6.4.5
91.507	Pax Information Signs - Smoking, safety belts fastened	Not Applicable – Less than 10 passenger seats
91.509 Min. VFR	(1) ASI FAR §23.1303(a) – Fitted as Standard – See FM §6.6.3 N/A – No mach limitations (2) Machmeter FAR §23.1303(b) – Fitted as Standard – See 6.6.3 (3) Altimeter FAR §23.1303(c) – See §6.6.7 (4) Magnetic Compass FAR §23.1305(a) – See §6.2.3 (5) Fuel Contents FAR §23.1305(e) – See §6.1.5 (6) Engine RPM FAR §23.1305(b) (7) Oil Pressure	(8) Coolant Temp N/A – air-cooled engine (9) Oil Temperature FAR §23.1305(c) (10) Manifold Pressure FAR §23.1305(h) – Fitted as Standard – See FM §6.1.6 (11) Cylinder Head Temp. FAR §23.1305(f) (12) Flap Position FAR §23.699(a)(2) – None fitted (flap position visible) (13) U/C Position N/A – fixed undercarriage (14) Ammeter/Voltmeter FAR §23.1351(d)
91.511 Night	(1) Turn and Slip Fitted as std – See §6.6.8 (2) Position Lights FAR §23.1385 – Fitted as Standard – See FM §6.4.6	(3) Anti-collision Lights FAR §23.1401 – Fitted as Standard – See FM §6.4.6 (4) Instrument Lighting FAR §23.1381 – See §6.4.7
91.513	VFR Communication Equipment	<i>Operating Rule – Compliance as applicable</i>
91.517 IFR	(1) Gyroscopic AH Fitted as Std – See FM §6.6.5 (2) Gyroscopic DI Fitted as Std – See FM §6.6.5 (3) Gyro Power Supply Suction gauge fitted as Std (4) Sensitive Altimeter 3-needle ASI fitted as Standard	(5) OAT Fitted as Std – See FM §6.6.9 (6) Time in hr/min/sec Fitted as Std – See FM §6.6.9 (7) ASI/Heated Pitot Fitted as Std – See FM §6.6.2 (8) Rate of Climb/Descent Fitted as Std – See FM §6.6.3
91.519	IFR Communication and Navigation Equipment	<i>Operating Rule – Compliance as applicable</i>
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	(See Flight Manual Section 6.4.1 for standard equipment.) Not Applicable – Less than 9 passengers Not Applicable – Less than 9 passengers Not Applicable – Less than 19 passengers Not Applicable – Less than 61 passengers
91.529	ELT - TSO C91a or C126 after 1/4/97 (or replacement)	<i>To be determined on an individual aircraft basis</i>
91.531	Oxygen Indicators - Volume/Pressure/Delivery	<i>Operating Rule – Compliance as applicable</i>
91.533	Oxygen for Non-Pressurised Aircraft >30 min above FL100 - Supplemental for crew, 10% Pax - Therapeutic for 3% of Pax Above FL100 - Supplemental for all Crew, Pax - Therapeutic for 1% of Pax - 120l PBE for each crew member	Not fitted as Standard (Maximum permissible operating altitude is 12,000 ft without oxygen equipment being fitted.) See Flight Manual Section 2.7.1
91.541	SSR Transponder and Altitude Reporting Equipment	<i>Operating Rule – Compliance as applicable</i>
91.543	Altitude Alerting Device - Turbojet or Turbofan	Not Applicable – Not turbojet or turbofan powered
91.545	Assigned Altitude Indicator	<i>Operating Rule – 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 and Restraints – Shoulder harness flight-crew seats	FAR §23.785
135.357	Additional Instruments (Powerplant and Propeller)	FAR §23.1305
135.359	Night Flight	Landing light, Pax compartment
135.361	IFR Operations	Speed, Alt, spare bulbs/fuses
135.363	Emergency Equipment (Part 91.523 (a) and (b))	<i>Operating Rule – Compliance as applicable</i>
135.367	Cockpit Voice Recorder	Not Applicable – Single pilot fixed wing
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 T67M200 s/n 2050 ZK-TZX
 Three-view drawing Slingsby Model T67M200 Firefly
 Copy of UK CAA Type Certificate Data Sheet Number BA 17

Sign off

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 David Gill
 Team Leader Airworthiness

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 Checked – AWE Chris Thomson
 Date: 4 April 2007

Appendix 1

List of Type Accepted Variants:

<i>Model:</i>	<i>Applicant:</i>	<i>CAA Work Request:</i>	<i>Date Granted:</i>
T67B	AC 21-1.2/NZCAR Part 21 Appendix A(c)		
T67M200	J H Smith	7/21B/27	4 April 2007