



TYPE-CERTIFICATE DATA SHEET

NO. EASA.IM.A.666

**for
SC-7
(See NOTE 18)**

Type Certificate Holder
Viking Air Limited

1959 de Havilland Way
Sidney, B.C.
V8L 5V5 Canada

For models:
SC-7 Series 2
SC-7 Series 3



Intentionally left blank



SECTION A: SC-7 SERIES 2	5
SECTION B: SC-7 SERIES 3	6
B.I. General	6
1. Type/ Model/ Variant	6
2. Airworthiness Category	6
3. Manufacturer	6
4. EASA Certification Application Date	6
5. State of Design Authority.....	6
6. State of Design Authority Type Certificate Date.....	6
7. EASA Type Certification Date.....	6
B.II. EASA Certification Basis	7
1. Reference Date for determining the applicable requirements	7
2. Airworthiness Requirements	7
3. Special Conditions Refer to Deviations.....	7
4. Exemptions Refer to Deviations	7
5. Deviations	8
6. Equivalent Safety Findings Refer to Deviations.....	9
7. Environmental Protection.....	9
B.III. Technical Characteristics and Operational Limitations	10
1. Type Design Definition.....	10
2. Description.....	10
3. Equipment - SC-7 Series 3 Equipment Summary SC-7 /EGW/13.....	10
4. Dimensions	10
5. Engine	10
6. Load factors	10
7. Propeller	10
8. Fluids.....	10
9. Fluid capacities.....	11
10. Air Speeds (IAS).....	11
11. Maximum Operating Altitude	12
12. Approved Operations Capability.....	12
13. Maximum Masses.....	12
14. Centre of Gravity Range (See NOTE 7).....	12
15. Datum	12
16. Control surface deflections (See NOTE 7).....	12
17. Levelling Means	13
18. Minimum Flight Crew (See NOTE 6)	13
19. Maximum Passenger Seating Capacity (See NOTE 10).....	13
20. Baggage/ Cargo Compartments (See NOTE 13).....	13
21. Wheels and Tyres.....	14
22. (Reserved).....	14
B.IV. Operating and Service Instructions	15
1. Flight Manual	15
2. Maintenance Manual.....	15
3. Structural Repair Manual.....	15
4. Weight and Balance Manual.....	15
5. Illustrated Parts Catalogue	15
B.V. Notes	16
SECTION ADMINISTRATIVE	20
I. Acronyms & Abbreviations	20



II. Type Certificate Holder Record 20
III. Change Record 20



SECTION A: SC-7 SERIES 2

At the date of initial issue of this TCDS there are no SC-7 Series 2 aircraft remaining in operational use.

Note: Historical type certification reference data pertaining to the SC-7 Series 2 aircraft is retained in Transport Canada Type Certificate Data Sheet A-94.



SECTION B: SC-7 SERIES 3

B.I. General

1. Type/ Model/ Variant

- 1.1 SC-7
- 1.2 Series 3
- 1.3 Variant 100

2. Airworthiness Category

Commuter Category (originally)

Normal Category, Level 4, Low Speed (post CS-23 Amendment 5)

3. Manufacturer

Short Brothers PLC (formerly Short Brothers & Harland Limited)

Airport Road

Belfast

BT3 9DZ

Northern Ireland

4. EASA Certification Application Date

Not applicable; refer to B.I.6 below.

This initial EASA TCDS has been created to recognise the transfer of State of Design responsibility to TCCA 28-06-2019.

5. State of Design Authority

Transport Canada Civil Aviation (TCCA)

6. State of Design Authority Type Certificate Date

The original State of Design Authority was the UK Air Registration Board (ARB). No formal Type Certificate was issued by the UK Air Registration Board but initial Type Approval of the Series 3 Variant 100 as a type eligible for certification in the Transport category (Passenger) is indicated in Airworthiness Approval Note (AAN) 9877 Addendum 1 issued 11th July 1968. Note: The State of Design Authority became the UK Civil Aviation Authority (CAA) until this aircraft type was accepted as a grandfathered product when State of Design responsibility transferred to EASA on 28th September 2003 when the EU Regulations came into force.

7. EASA Type Certification Date

Not applicable; refer to B.I.6 above.

This initial EASA TCDS has been created to recognise the transfer of State of Design responsibility to TCCA 28-06-2019.



B.II. EASA Certification Basis

1. Reference Date for determining the applicable requirements

UK Air Registration Board Type Approval of the Series 3 Variant 100 is indicated in Airworthiness Approval Note (AAN) 9877 Addendum 1 issued 11th July 1968.

2. Airworthiness Requirements

The Series 3 is of a design which complies with the British Civil Airworthiness Requirements of Section D to February 1966 and of Section J to September 1966 with the exceptions as noted in Deviations below.

3. Special Conditions

Refer to Deviations.

4. Exemptions

Refer to Deviations



5. Deviations

Refer to embedded list of exceptions to the Airworthiness Requirements specified above, as were notified to and agreed by the UK Air Registration Board at the time of initial Type Approval.

ISSUE	1			
DATE	20-2-71			

SHORT BROTHERS & HARLAND SC7 (SERIES 3)	TYPE RECORD	SECTION SHEET
<u>LIST OF EXCEPTIONS</u>		
<u>SECTION D</u>		
<u>Chapter D6-1</u>	Equipment Installations - The design of the aircraft complies with Chapter K6.1.	
<u>Sub Section D5</u>	Power Plant Installations - The design of the aircraft complies with Sub Section K5.	
<u>Chapter D4-2</u>	Flight-Crew Compartment - The design of the aircraft complies with Chapter K4.2	
<u>SECTION J</u>		
<u>J2-3 Para 4.3.2.</u>		
<u>Electrical Installation - Control Circuit & Protection</u>		
The requirement is for protective devices associated with Class I circuits to be capable of being reset at least once in flight.		
On Skyvan bolted fuses are used which are not changeable in flight. This is in agreement with the A.R.B. see latter ref. ASH.1707 of 18th May, 1966 from Mr. R.J. Wraith to Short Brothers & Harland Limited.		
<u>J3-3 Para 6.1</u>		
<u>Electrical Installation - Crash Fire Precautions</u>		
The requirement that in a crash certain electrical circuits be isolated automatically is acceptable to the A.R.B. as a manual operation.		
This exception was covered at a meeting with the A.R.B. on April 16th and 17th 1962 as reported in Visit Report No.63 ref. JRL/JX/523.		
COMPONENT TITLE :-		



6. Equivalent Safety Findings
Refer to Deviations.

7. Environmental Protection

Environmental protection design standards were not applicable at the date of original Type Approval.



B.III. Technical Characteristics and Operational Limitations

1. Type Design Definition

GA Drawing of Basic Series 3 Aircraft SC-7 -00-5000.

Refer to the Illustrated Parts Catalogue for the drawings which define the Series 3.

2. Description

The SC-7 Series 3 is a twin engine, unpressurised, light commuter category aircraft designed and manufactured by Short Brothers PLC, Belfast, Northern Ireland.

The SC-7 Series 3 is a strut-braced, high wing aeroplane, incorporating a tailplane with twin fins and rudders and a fixed tricycle (nosewheel) undercarriage.

The aircraft, as originally type approved by the UK Air Registration Board, has a maximum take-off weight of 5,443 kg (12,500 lbs) and is powered by two Garrett TPE 331-2-201A turbo-prop engines.

The fuselage incorporates a rear door loading capability and has cabin configurations for the carriage of passengers or freight. The aircraft is approved for a maximum of 18 passengers.

The Series 3 and 3A are the civil variants, adaptable for use in a variety of roles including passenger and freight transport, sport parachuting and aerial work.

3. Equipment - SC-7 Series 3

Equipment Summary SC-7 /EGW/13

4. Dimensions

Overall Length: 12.22 m (40 feet, 1 inch)

Overall Span: 19.79 m (64 feet, 11 inches)

Overall Height: 4.6 m (15 feet, 1 inch)

5. Engine

5.1. Model - Garrett Airesearch TPE 331-2-201A

5.2 Type Certificate - FAA Type Certificate E3WE (Honeywell International Inc)

5.3 Limitations - Refer to Engine Type Certificate Data Sheet E3WE

6. Load factors

Operation is limited to normal flying manoeuvres. The maximum positive normal accelerations (load factors) which the structure has been designed to withstand without permanent deformation is +3.167G (with flaps retracted) and 2.0G (with flaps extended).

7. Propeller

7.1 Model - Hartzell HC-B3TN-5 or Hartzell HC-B4TN-5

7.2 Type Certificate – EASA.IM.P.126 (FAA Type Certificate P15EA for HC-B3TN-5 and EASA.IM.P.127 (FAA Type Certificate P40EA) for HC-B4TN-5

7.3 Number of blades – 3 (Type T 10282HB) or 4 (Type T 10282HB)

7.4 Diameter – 259.08 cm (8 feet, 6 inches)

7.5 Sense of Rotation – Anti-clockwise (looking aft)

8. Fluids

8.1 Fuel

The approved fuels are to the latest issue of the following specifications (See NOTE 5):



American

MIL-F-5616-1, Grade JP-1
 MIL-T-5624G-1, Grade JP-4
 MIL-T-5624G-1, Grade JP-5

MIL-F-46005A (MR)-1,
 Types I and II

ASTM D1655-68T,
 Types Jet A and Jet A-1

ASTM D1655-68T,
 Type Jet B

British

D.Eng.RD.2482
 D.Eng.RD.2486
 D.Eng.RD.2494
 AiResearch Mfg. Co.,
 of Arizona-Spec.
 EMS 53100)

Canadian

Arctic Diesel
 CPW-46 Rev. A
 (equivalent to

8.2 Oil

The approved engine oils are to the latest issue of the following specifications (See NOTE 1):

Type I – to US Spec MIL-L-7808
 Type II - to US Spec MIL-L-23699

8.3 Coolant

Not applicable

9. Fluid capacities**9.1 Fuel**

295 Imperial Gallons (354 U.S. Gallons) Total in 2 tanks
 290 Imperial Gallons (348 U.S. Gallons) Usable Fuel
 (See NOTE 2 for data on system fuel)

9.2 Oil

1.46 Imperial Gallons (1.75 U.S. Gallons) per tank on each engine
 0.25 Imperial Gallons (0.3 U.S. Gallons) per tank is usable
 Total Capacity 2.92 Imperial Gallons (3.5 U.S. Gallons).
 Total Usable 0.5 Imperial Gallons (0.6 U.S. Gallons).
 (See NOTE 2 for data on system oil)

9.3 Coolant system capacity

Not applicable

10. Air Speeds (IAS)

V _{NE} (Never Exceed)	200 Kt. (Pre Mod. 1019 only)
V _{NO} (Normal Operating)	173 Kt. (Pre Mod. 1019 only)
V _{MO} (Maximum Operating)	173 Kt. (Post Mod. 1019 only; See NOTE 3)
V _A (Manoeuvring)	140 Kt.
V _{FO} (Flaps Operation; Take-Off)	128 Kt.
V _{FO} (Flaps Operation; Landing)	98 Kt.
V _{FE} (Flaps Extended; Take-Off)	128 Kt.
V _{FE} (Flaps Extended; Landing)	110 Kt.



V_{MC} (Minimum Control) 65 Kt.

11. Maximum Operating Altitude

20,000 feet (when supplemental oxygen and equipment is provided for the crew and passengers in accordance with the applicable operating rules).

12. Approved Operations Capability

The aeroplane may be used for the following kinds of operation only:

- VFR
- IFR day and night (when the required equipment required by the applicable operating regulations is installed and serviceable)

The aeroplane may be flown into known or forecast icing conditions provided that the required powerplant and airframe ice protection equipment is installed and the systems are serviceable. See NOTE 8.

13. Maximum Masses

Series 3 (See NOTE 4)

Maximum Take-off Weight 5670 kg (12,499 lb)

Maximum Landing Weight 5670 kg (12,499 lb)

Series 3A (See NOTE 6)

Maximum Take-off Weight 6220 kg (13,700 lb)

Maximum Landing Weight 6080 kg (13,400 lb)

14. Centre of Gravity Range (See NOTE 7)

+10.0 inches (14.3% SMC) to +22.4 inches (32.0% SMC)

15. Datum

Located on centre line of aircraft vertically below leading edge of wing which is at Station 152.

The position of this datum is marked on a plate on the centre line of the aeroplane on the underside of the fuselage.

Horizontal Moment Arms to the rear of the datum are positive.

16. Control surface deflections (See NOTE 7)

Elevator	35° Up	12° Down
Elevator Trim Tab	4° Up	5° Down
Rudder 30° Right	30° Left	
Rudder Trim Tab	17° Right	21° Left
Aileron 30° Up	15° Down	
Aileron Trim Tab	44 3/4° Up	28 3/4° Down
Flaps (Inner & Outer) (See NOTE 9)	50° Down - Landing 18° Down - Take-off	



17. Levelling Means

Internal datum plates are fitted: 2 on front spar frame and 1 on rear spar frame or on the top surface of the port stub wing.

18. Minimum Flight Crew (See NOTE 6)

1 pilot unless otherwise specified by operating rules.

19. Maximum Passenger Seating Capacity (See NOTE 10)

Series 3

Shall not exceed 18 (Pre-Mod 919)

Shall not exceed 20 (Post-Mod 919)

Series 3A

Shall not exceed 17 (Pre-Mod 919)

Shall not exceed 19 (Post-Mod 919)

20. Baggage/ Cargo Compartments (See NOTE 13)

For the SC-7 Series 3, the maximum design payload in the main cabin area is 4,600 lbs.

For the SC-7 Series 3A, the maximum design payload in the main cabin area is 5,200 lbs.

Baggage and/or cargo must be loaded in compliance with the load distribution limitations specified in Section 2 of the applicable approved Flight Manual, supplemented by the Weight and Balance Report for the specific aircraft (see NOTE 11).

See Flight Manual Doc. No: SBH 2.6 for Series 3.

See Flight Manual Doc. No: SBH 2.8 for Series 3A.



21. Wheels and Tyres

The approved wheels and tyres are specified in the Illustrated Part catalogue, Section 32-40. Servicing and Maintenance is to be accomplished in accordance with the applicable Dunlop Component Maintenance Manuals.

22. (Reserved)



B.IV. Operating and Service Instructions

1. Flight Manual

For EU operators, the following are the EASA recognised approved Flight Manual publications:

Doc. No: SBH 2.6 for Series 3.

Doc. No: SBH 2.8 for Series 3A.

Note: These AFM publications contain information at the top of each page denoting that the content is approved either by the UK Air Registration Board (ARB) or by the CAA (UK).

2. Maintenance Manual

SC-7 Series 3 Maintenance Manual (no document reference applies)

SC-7 Series 3 Maintenance Programme (no document reference applies)

Note: The above publications were created in accordance with the applicable requirements of BCAR, Section A, Chapter A6-7 and Chapter A6-2 respectively and the technical content was originally verified and approved under the Design Approval Authority of Short Brothers and Harland Limited. Subsequent amendments to these publications have been approved under the Design Approval Authority of Short Brothers PLC or by EASA as will have been recorded on the Amendment List published with each revision.

3. Structural Repair Manual

SC-7 Series 3 Series 3 Repair Manual (no document reference applies)

Note: The above publication was created in accordance with the applicable requirements of BCAR, Section A, Chapter A6-2 and the technical content was originally verified and approved under the Design Approval Authority of Short Brothers and Harland Limited.

Subsequent amendments to this publication have been approved under the Design Approval Authority of Short Brothers PLC as will have been recorded on the Amendment List published with each revision.

4. Weight and Balance Manual

Weight and Balance data is specified in the SC-7 Series 3 Maintenance Manual, Chapter 6.

At time of initial delivery, a Weight and Balance Report for the specific aircraft serial number will have been issued by the manufacturer, Short Brothers and Harland Limited.

5. Illustrated Parts Catalogue

SC-7 Series 3 Illustrated Part Catalogue (no document reference applies)

Note: The above publication was created and the technical content verified by Short Brothers and Harland Limited. Subsequent amendments have been approved under the Design Approval Authority of Short Brothers PLC.



B.V. Notes

NOTE 1.

Engine Oil - Refer to Section 2 of the AFM for approved oil brands.

The mixing of oils is not permitted.

The use of Type I oils is not permitted when the OAT exceeds or is likely to exceed +5°C.

Refer to Section 2 of the AFM for oil temperature limitations.

NOTE 2.

Unusable Fuel and System Oil and all hydraulic fluid must be included in the certified empty weight.

Unusable fuel is that quantity of fuel in the system and in the tanks which is unavailable to the engine under critical flight conditions. This unusable fuel includes "system fuel" which is defined as the quantity required to fill the system and tanks to the tank outlet level when the airplane is in the ground level altitude. The fuel gauges are calibrated with the unusable fuel level as the zero datum.

The total amount of fuel is as follows:

Usable Fuel (@ 7.8 lb./Imp. Gal.) (@ 6.5 lb./U.S. Gal.)	Unusable Fuel (@ 7.8 lb./Imp. Gal.) (@ 6.5 lb./U.S. Gal.)
--	--

Series 3 aircraft:

2262 lb	20 lb (Excludes 14 lb undrainable fuel plus 6 lb for zeroing fuel gauges)
---------	---

System Oil is that amount of oil required to fill the oil systems and engine sumps up to the sump outlet to the engines. The oil capacities shown in this TCDS include only usable oil. Dipstick readings indicate the amount of usable oil.

NOTE 3.

Series 3 aircraft incorporating Modification 1019: Revised A.S.I. Color Markings the following applies:
Airspeed Limits:

V_{NE} (Never Exceed Speed) and V_{NO} (Normal Operating/Maximum Structural Cruising Speed) are replaced by V_{MO} (Maximum Operating Limit Speed) which is established as 173 knots (IAS).

NOTE 4.

Series 3 airplanes are approved in the United Kingdom at a maximum weight not to exceed 13,500 lbs subject to the following specific limitations:

(a) Cargo Only;

(b) Single Pilot Operation;

(c) For operations at weights below 12,500 lbs the aircraft shall be operated in accordance with the basic Flight Manual Doc. No. SBH.2.6.

For operations at weights between 12,500 lbs. and 13,500 lbs., the aircraft shall be operated in accordance with the basic Flight Manual Doc. No. SBH.2.6 when the performance and handling limitations are amended by the data contained in the CAA approved AFM Supplement 13, Issue 3, "Additional Limitations and Information to Comply with British Group C Performance Regulations at a Maximum Weight Exceeding 12,500 lbs".

(d) A placard containing the following information shall be installed in the cockpit and readily visible to the pilots:



"FOR OPERATIONS AT WEIGHTS IN EXCESS OF 12,499 LBS

(i) AIRCRAFT MUST BE OPERATED IN ACCORDANCE WITH FLIGHT MANUAL DOC. NO. SBH.2.6 SUPPLEMENT NO. 13;

(ii) PASSENGERS ARE PROHIBITED"

(e) At weights above 12,500 lb the aircraft does not comply with ICAO Annex 8 and is not eligible for international navigation.

NOTE 5.

Fuel Additives - Only the following additives may be used with the specified fuels:

(a) Anti-static additive Shell ASA 3 in concentrations not exceeding 1.0 ppm.

(b) MIL-I-27686D Inhibitor Fuel System Icing in amounts not to exceed 0.15% by volume.

NOTE 6.

Modification No.1071, originally approved by the UK Air Registration Board (AAN 10485 issued 14-Sept-70 refers) and Drawing SC-7-00-5698 defines the modified design standard for the Series 3A SC-7 Series 3 , Variant 100 aircraft for operation to BCAR Performance Group A requirements at an increased MTOW of 13,500 lb.

Modification No.1339, originally approved by the UK CAA (AAN 12506 issued 30-May-73 refers), increases the MTOW to 13,700 lb with a restricted Maximum Landing Weight of 13,400 lb.

Flight Manual Document SBH 2.8 is the applicable AFM.

Operation of a SC-7 Series 3A aeroplane for the purpose of public transport to BCAR Performance Group A requirements as specified in Section 5 of AFM SBH 2.8 at an increased MTOW of 13,500 lb requires a minimum of two pilots.

Note: A SKYLINER is a marketing designation for the passenger carrying upgraded version SC-7 Series 3 that was produced with a number of optional modifications; of specific note the Skyliner incorporates rear side entrance doors and the rear cargo door is replaced with a small rear baggage bay door.

NOTE 7.

For Series 3 aircraft with Modification No. 837 incorporated, which alters the elevator trim tab movement, the following apply:

Control Surface Movement of Elevator Trim Tab is 7° Up; 5° Down

C.G. Limits are +10.0 inches (14.3% SMC) to +25.0 inches (35.7% SMC)

NOTE 8

Compliance has been demonstrated for operation into known or predicted icing conditions for airplanes that have Goodrich de-icing boots or T.K.S. fluid de-icing system installed on the leading edges of the wing, stabilizer and fin.

NOTE 9.

Aeroplanes with Mod No. 972 incorporated have a gated 30° flap position which is required for short field take-off performance.

Flight Manual Document SBH 2.6 Supplement No. 9 applies.

Flight Manual Document SBH 2.8 Supplement No. 9 applies.



NOTE 10.

Aeroplanes incorporating Mod No. 919 (Introduction of emergency cabin lighting) are approved for an increase in the maximum number of occupants.

NOTE 11.

The current weight and balance report, including list of equipment included in certified empty weight, and loading instructions when necessary, must be in each aircraft at the time of original certification and at all times thereafter (except in the case of operators having an approved weight control system).

NOTE 12.

The service life limitations applicable to the airframe, specified structural parts with defined life limitations and specified system parts with life limitations are defined in the SC-7 Series 3 Maintenance Programme Chapter 1-2.

The Data Grouping in Chapter 1-2B is applicable to those SC-7 aircraft with specific life limitations associated with having been operated in specialised mission fatigue profiles.

The Data Grouping in Chapter 1-2A is applicable to all other SC-7 aircraft.

NOTE 13.

No load shall be placed on the rear door.

NOTE 14.

The static ratings for the Garrett TPE 331-2-201A engine are specified under the following test conditions:

U.S. Standard Atmospheric Conditions at Sea Level;

All optional air bleeds closed;

Aircraft service accessory drives unloaded;

100% = 41,730 r.p.m.



NOTE 15.

The following placards must be displayed in full view of the pilot(s):

(a) THIS AIRPLANE MUST BE OPERATED AS A NORMAL CATEGORY AIRPLANE WITH THE OPERATING LIMITATION STATED IN THE FORM OF PLACARDS, MARKINGS AND MANUALS.

(b) NO ACROBATIC MANOEUVRES INCLUDING SPINS APPROVED.

(c)

Airspeeds (IAS), Design	140 kt.
Manoeuvring Speed V_A	
Minimum Control Speed V_{MC}	65 kt
Demonstrated Crosswind	20 kt
Velocity	
Recommended Climb Speed	103 kt.
Best Angle of Climb	
Speed V_x	77 kt.
Approach Speeds	
Landing Flaps 9000 lb.	62 kt.
Landing Flaps 12000 lb.	72 kt.

All placards required by the applicable certification basis requirements must be installed in the appropriate location.

NOTE 16.

For series 3 aircraft with incorporation of:

Modification 1214 : To introduce a revised cargo door and floor sill arrangement

Modification 269 : Strengthened rear fuselage longerons

Modification 395 : To introduce additional stress pads at rear door locking pin and guide structure

Modification 396 : Reinforcement of the rear door uplock structure to permit flight with door open

Modification 1012 : Flight Limitations Placard/Rear freight door open or removed.

These aircraft are cleared for flight with the rear freight door opened or removed in accordance with the Limitations and Procedures contained in the relevant Flight Manual Supplement No. 14 Issue 1, to Doc. No. SBH. 2.6.

NOTE 17.

Modification Numbers up to 388 were originally defined for the SC-7 Series 2 aircraft but may be incorporated in the basic design of the SC-7 Series 3.

Modification Numbers from 389 and Sub are specific to Series 3 aircraft only.

NOTE 18

The Type SC-7 has a marketing name: "Skyvan".



SECTION ADMINISTRATIVE

I. Acronyms & Abbreviations

II. Type Certificate Holder Record

III. Change Record

Issue	Date	Changes	TC Issue No. & Date
Issue 01	28 June 2019	EASA validation of Transport Canada Civil Aviation (TCCA) Type Certificate A-94 Issue 6 (transfer from Short Brothers PLC to Viking Air Limited of BC Canada).	Initial Issue, 28 June 2019

-END-

