DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

A15EU
Revision 11
Viking Air Limited
SC-7 Series 2
SC-7 Series 3

July 16, 2019

TYPE CERTIFICATE DATA SHEET NO. A15EU

This Data Sheet, which is a part of Type Certificate No. A15EU, prescribes conditions and limitations under which the product for which the type certificate was issued meets the airworthiness requirements of the Federal Aviation Regulations.

Type Certificate Holder	Viking Air Limited 1959 de Havilland Way Sidney, British Columbia V8L 5V5
Type Certificate Holder Record	Shorts Brothers & Harland Ltd. transferred TC A15EU to Viking Air Limited on June 28, 2019. (See Note 14)

I - Model SC-7 Skyvan Series 2, Variant 200, 20 PCLM (Normal Category), Approved 1 June 1967

Engine

2 Turbomeca Astazou XII Model H-1 (Propeller Turbine)

Fuel

Specifications, latest issue, (See NOTE 6)

American		British
JP-1 (MIL-F-5616)	or	D.Eng.RD.2482 and 2494
JP-4 (MIL-J-5624)	or	D.Eng.RD.2486
JP-5 (MIL-J-5524)	or	D.Eng. RD.2488
JP-5 (MIL-J-5624)	or	D.Eng.RD.2498

To prevent icing of fuel system components, all fuel in the tanks before takeoff must contain anti-icing additives in accordance with the limitations of NOTE 6, when route forecast air temperatures are less than 6°C.

Engine limits

Static Ratings

The static ratings for the Astazou XII H-1 engine are specified under the following test conditions:

International Standard Atmospheric Conditions at Sea Level.
All optional air bleeds closed.
Aircraft service accessory drives unloaded.
100% = 42574 rpm

Conditions	SHP (Min.)	Jet Thrust (lb.)	Thermic Load (Power)	RPM (Max.) %	Jet Pipe Temp. (JPT) (°C)
Takeoff and Maximum Cont.	630	97	100%	101.0	520

See ARB-Approved Flight Manual, Document SBH.2.4 for additional engine operating limitations.

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I - Model SC-7 Skyvan Series 2, Variant 200 (cont'd)

Propeller and propeller limits

2 Ratier-Forest Type FH 76-2-07 B reversible propellers.

Blades : 3 Type 207
Diameter : 8 ft. - 2.4 ins.

Pitch setting at 0.7 radius stations:

Ground fine	- 5°
Flight fine	+ 7 1/2°
Feathered	84°
Full Reverse	- 11°

Airspeed limits (IAS)

Vne (Never exceed)	200 Kt.
Max. Structural Cruising	178 Kt.
Va (Maneuvering)	144 Kt.
Vfo (Flap Operation)	
Takeoff	130 Kt.
Landing	100 Kt.
Vfe (Flaps Extended)	
Takeoff	130 Kt.
Landing	115 Kt.
Vmc (Min. Control Speed) (See NOTE 8(a))	67 Kt.

Maximum weights

Takeoff 12,300 lbs.
Landing 12,300 lbs.
(See NOTE 7 for short range fuel tanks)

Maximum baggage

Baggage and/or cargo must be loaded in accordance with the Weight and Balance Supplement of the ARB-approved Flight Manual.

Fuel capacity

283 U.S. Gals total in 2 tanks
276 U.S. Gals usable
(See Note 1 (b) for data on system fuel) (See Note 7 for short range fuel tanks).

Oil capacity

2.25 U.S. Gals/tank on each engine.
0.8 U.S. Gals/tank usable
Total capacity 4.5 U.S. Gals
Total usable = 1.6 U.S. Gals (5.3 pints/Engine)
(See NOTE 1 (b) for data on system oil)

Other operating

Aircraft shall be operated in compliance with the Operating limitations
Limitations specified in the ARB-Approved Aircraft Flight Manual Doc. No. SBH/2.4.

Control surface movements

Elevator	Up	35°	Down	12°
Elevator Trim Tab	Up	11-3/4°	Down	16°
Rudder	Right	30°	Left	30°
Rudder Trim Tab	Right	21°	Left	24 1/4°
Aileron	Up	30°	Down	15°
Aileron Trim Tab	Up	44-3/4°	Down	28-3/4°
Flaps Inner and Outer			Down Landing	45°
			Down Take Off	18°

(See NOTE 8 (b))

II - Model SC-7 Skyvan Series 3, Variant 200, 20 PCLM (Normal Category), Approved June 7, 1968

(The Series 3 is similar to the Series 2 except for powerplant installation and increased fuel capacity.)

Engine

2 Garrett AiResearch Model TPE 331-2-201A (Propeller Turbine)

Fuel

Specifications, latest issue, (See NOTE 6)

American	British	Canadian
MIL-F-5616-1, Grade JP-1	D.Eng.RD.2482	Arctic Diesel
MIL-T-5624G-1, Grade JP-4	D.Eng.RD.2486	CPW-46 Rev. A
MIL-T-5624G-1, Grade JP-5	D.Eng.RD.2494	(equivalent to
MIL-F-46005A (MR)-1, Types I and II		AiResearch Mfg. Co., of Arizona-Spec. EMS 53100)
ASTM D1655-68T, Types Jet A and Jet A-1		
ASTM D1655-68T, Type Jet B		

Engine limits

Static Ratings

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% = 41730 rpm

Conditions	ESHP (Min.)	SHP (Min.)	Net Thrust lb. (Min.)	Prop Shaft RPM	Compensated Measured Exhaust Gas Temp.°C (Max)
Takeoff (5 min.) and Max. Cont.	755	715	102	2000	578

See ARB-Approved Flight Manual, Document SBH.2.5 for additional engine operating limitations.

Propeller and propeller limits

2 Hartzell HC-B3TN-5C reversible propellers

Blades : 3 Type T 10282 HB
Diameter : 8 ft. - 6 ins.

Pitch setting at 30 in. radius stations:

Ground fine	- 2 1/2°
Flight fine	+ 9 1/4°
Feathered	85°
Full Reverse	- 6°

Airspeed limits (IAS)

Vne (Never exceed)	200 Kt. (Pre.Mod.1019 only)
Vno (Normal Operating)	173 Kt. (Pre.Mod.1019 only)
Vmo (Maximum Operating)	173 Kt. (Post Mod.1019, See NOTE 12)
Va (Maneuvering)	140 Kt.
Vfo (Flap Operation)	
Takeoff	128 Kt.
Landing	98 Kt.
Vfe (Flaps Extended)	
Takeoff	128 Kt.
Landing	110 Kt.
Vmc (Min. Control Speed)	65 Kt.

Maximum weights

Takeoff	12,500
Landing	12,500 lbs.

II - Model SC-7 Skyvan Series 3, Variant 200 (cont'd)

Maximum baggage	Baggage and/or cargo must be loaded in accordance with the Weight and Balance Supplement of the ARB-approved Flight Manual.
Fuel capacity	354 U.S. Gals total in 2 tanks 348 U.S. Gals usable (See NOTE 1 (b) for data on system fuel)
Oil capacity	1.75 U.S. Gals/tank on each engine. 0.3 U.S. Gals/tank usable Total capacity 3.5 U.S. Gals Total usable 0.6 U.S. Gals (See NOTE 1 (b) for data on system oil)
Other operating limitations	Aircraft shall be operated in compliance with the Operating Limitations specified in the ARB-Approved Aircraft Flight Manual Document No. SBH/2.5.

Control surface movements

Elevator	Up	35°	Down	12°
Elevator Trim Tab	Up	4°	Down	5°
Rudder	Right	30°	Left	30°
Rudder Trim Tab	Right	17°	Left	21°
Aileron	Up	30°	Down	15°
Aileron Trim Tab	Up	44-3/4°	Down	28-3/4°
Flaps	Inner and Outer		Down Landing	50°
			Down Take Off	18°

DATA PERTINENT TO ALL MODELS

C.G. Limits (See NOTE 10.)

Forward Limit		Aft Limit	
Aft of Datum (In.)	% SMC	Aft of Datum (In.)	% SMC
10	14.30	22.4	32.0

Datum	Located on center line of aircraft vertically below leading edge of wing, which is at Sta. 152. Horizontal moment arms to the rear of the datum are positive.
Standard mean chord (SMC)	70.0 ins. Leading edge of SMC is coincident with wing leading edge. Standard Mean Chord is defined by the wing area divided by wing span, where the wing area includes that area of the fuselage enclosed by the leading and trailing edges of the wing projected to the center line of the airplane.
Leveling means	Internal datum plates are fitted, 2 on front spar frame and 1 on rear spar frame.
Minimum crew	1 pilot unless otherwise specified by operating rules.
Maximum passengers	20
Maximum operating altitude	20,000 ft. when supplemental oxygen is provided for the crew and passengers in accordance with the applicable operating rules.
Serial Nos. eligible	The United Kingdom Certificate of Airworthiness for Export, endorsed as noted below under Import Requirements, must be submitted for each individual aircraft for which application for FAA Airworthiness Certification is made.

Certification basis

FAR 21.29. FAR Part 23 effective February 1, 1965 including Amendments 23-1, 23-2, 23-3, plus Special Conditions notified by the U.S. Government to the Government of the United Kingdom and Northern Ireland in FAA letters of April 1, 1966 and October 19, 1966.

Type Certificate A15EU issued June 1, 1967.
Date of Application for Type Certificate: February 17, 1966.

The Series 3 airplane type design with the following modifications incorporated was approved in accordance with Special Federal Aviation Regulation No. 23 on 26 June 1970.

1. Mod. 970 or 971 : Addition of Rear Passenger Doors (2).
2. Mod. 1019 : Revised A.S.I. marking for Vmo.
3. Mod. 1042 : Alternate Static Source in S2 Static System.
4. ARB Approved Flight Manual Doc. No. SBH.2.5, Amdts. G/5, G/6, and G/7.

The United Kingdom Civil Aviation Authority originally type certificated this aircraft under its type certificate. The FAA validated this product under U.S. Type Certificate Number A15EU. Effective September 28, 2003, the European Aviation Safety Agency (EASA) began oversight of this product on behalf of the United Kingdom. Currently there is not an EASA TCDS number for this airplane.

Import requirements

The FAA can issue a U.S. airworthiness certificate based on an NAA Export Certificate of Airworthiness (Export C of A) signed by a representative of the United Kingdom Civil Aviation Authority on behalf of the European Community. The Export C of A should contain the following statement: 'The aircraft covered by this certificate has been examined, tested, and found to comply with U.S. airworthiness regulations 14 CFR Federal Aviation Regulations Part 23, effective February 1, 1965 including Amendments 23-1, 23-2 and 23-3 plus Special Conditions notified by the U.S. Government to the Government of the United Kingdom and Northern Ireland in their letters April 1, 1966 and October 19, 1966 under U.S. Type Certificate No. A15EU and to be in a condition for safe operation.'

Service Information

Each of the documents listed below must state that it is approved by the European Aviation Safety Agency (EASA) or – for approvals made before September 28, 2003 – by the Air Registration Board Through the manufacturers ARB Approval, Ref: AD/1023/45, or the United Kingdom Civil Aviation Authority.

- Service bulletins,
- Structural repair manuals,
- Vendor manuals,
- Aircraft flight manuals, and
- Overhaul and maintenance manuals.

The FAA accepts such documents and considers them FAA-approved for type design data only unless one of the following conditions exists:

- The documents change the limitations, performance, or procedures of the FAA approved manuals; or

- The documents make an acoustical or emissions changes to this product's U.S. type certificate as defined in 14 CFR § 21.93.

The FAA uses the post type validation procedures to approve these documents. The FAA may delegate on case-by-case to EASA to approve on behalf of the FAA for the U.S. type certificate. If this is the case it will be noted on the document.

Equipment

The basic required equipment as prescribed in the applicable airworthiness regulations (see Certification Basis) must be installed in the aircraft for certification.

For Series 2 aircraft: See SBH publication reference SC/-SVE-1 details.

For Series 3 aircraft: See SBH publication reference SC7-EAS/1 details.

In addition the following items of equipment are required:-

(a) Stall Warning Indicator (Safe Flight Ltd. Type No. 165).
(b) ARB Approved Flight Manual Doc. No. SBH.2.4 (for Series 2 aircraft).
(c) ARB Approved Flight Manual Doc. No. SBH.2.5 (for Series 3 aircraft).

NOTES:

NOTE 1. (a) 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).

(b) "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 as defined in FAR. 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 (@ 6.5 lb./U.S. Gal.)	Unusable Fuel (@ 6.5 lb/U.S. Gal.)
Series 2 aircraft:	
1794 lb	24 lb (This excludes 14 lb undrainable fuel plus 6 lb. for zeroing fuel gauges.
1359 lb (with short range fuel tanks Mod. 136)	
Series 3 aircraft:	
2262 lb	20 lb (This 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 specification include only usable oil. Dipstick readings indicate the amount of usable oil.

NOTE 2. All placards required in the Limitations Section of ARB-approved Airplane Flight Manual must be installed in the appropriate location.

NOTE 3. The service life limits for aircraft structural parts which are fatigue critical are listed in the Approved Airplane Maintenance Manuals S.B. & H. Publication SC-7-AMM-1 for Series 2 aircraft and S.B. & H. Publication SC-7-AMM-3 for Series 3 aircraft.

NOTE 4. Each individual Airplane must be fitted with a placard which specifies approved types of operation (such as VFR, IFR, Day or Night) to which the airplane is limited by the equipment installed.

NOTE 5. No load shall be placed on the rear door.

NOTE 6. Fuel Additives

Only the following additives may be used with the specified fuels:

Series 2 aircraft:-

Anti-icing additives to MIL-L-2768D (or D.Eng. R.D.2451) provided that the concentration does not exceed 0.15% by volume.

Anti-static additive Shell ASA 3 in concentrations not exceeding 0.75 ppm in kerosene or 0.60 ppm in wide cut fuel.

The following anti-icing additives comply with approved specifications:

Phillips PFA 55MB
Hoffman - Taff Inc. PRIST fuel additive.
Shell - Max and BP Limited fuel additive MG 98/2A

Concentration by volume of fuel in aircraft tanks will be within the following limits:
Minimum 0.035% Maximum 0.15%

Series 3 aircraft:-
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 7. For Series 2 aircraft with Modification 136 "Introduction of short range fuel tank" embodied, the following apply:-

Maximum Weights:	Take-off	12,020 lb
	Landing	12,020 lb
Fuel Capacity:		216 U.S. Gals. total in 2 tanks
		209 U.S. Gals. usable

NOTE 8. For Series 2 aircraft with incorporation of:

Modification 196 - Introduction of drooped leading edge inboard of engine nacelle

Modification 251 & 252 Introduction of airframe fluid de-icing system

Modification 336 Increase maximum flap angle to 50° the following apply:

(a) Airspeed Limits

Vfo (Flap Operation)	Landing	99 kt.
Vfe (Flap extended)	Landing	112 kt.
Vmc (Minimum Control Speed)		71 kt.

(b) Control Surface Movement Flaps inner and outer 50° down landing.

NOTE 9. 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 10. For Series 3 aircraft with Modification No. 837 incorporated, which alters the elevator trim tab movement, the following apply:

Control Surface Movement	Elevator trim tab	7° up	5° down
C.G. Limits	(+10 in) to (+25 in)		

NOTE 11. For series 3 aircraft with incorporation of:-
Modification 269 : Strengthened rear fuselage longerons
Modification 295 : Alteration to door locking structure
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. 2 Issue 4, to Doc. No. SBH. 2.5.

NOTE 12. For Series 3 aircraft with incorporation of:-
Modification 1019 : Revised A.S.I. Color Markings the following applies:

Airspeed Limits.

Vne (Never Exceed Speed) and the Maximum Structural Cruising Speed are replaced by Vmo (Maximum Operating Limit Speed) which is established as 173 kts.

NOTE 13. SKYVAN 3 Series

VARIANT 100 (U.K.) CONVERSION TO VARIANT 200 (U.S.A.)

The following lists additions, deletions, and changes required to convert a Variant 100 Skyvan, to a Variant 200 Skyvan.

1) Flight Deck Entrance Door Barrier
Barriers to be fitted to Port and Starboard Flight Deck Doors, in accordance with DRG SC7-10-1743/4. (No service bulletin available.)

2) Mod 1638 Ditching Hatch
Ditching Hatch required in roof of flight deck. (No service bulletin available but Mod Covers Instructions for Retro-Fit).

3) Mod 993 A.S.I. Limitation Placard
Existing A.S.I. Limitation Placard on ID Panel to be replaced with A.S.I. Limitation Placard SC7-18-5409. (Service Bulletin 31-51 applies.)

4) Mod 1114 Operations Placard
Existing Operations Placard SC7-18-410 on ID panel to be replaced with Placard SC7-18-5771. (Service Bulletin 11-58 applies.)

5) Mod 1514 Engine Fuel Purge System
To conform with U.S.A. environmental protection agency fuel venting requirements (if applicable) embody Shorts Service Bulletin 73-50, also Airsearch Bulletin TPE 331-73-0035 will be required to be embodied concurrently.

6) Altimeter
Replace milibar scale with inches hg in accordance with one of the following modifications.
Mod 848 - Weston Type 22-374A-01-2
Mod 1439 - EDO Aire Type 22-374A-2
Mod 1671 - Aerosonic Type 10173-01467 (dual scale)

NOTE. *Altimeter panel cutouts and pipe ends may require alterations, refer to Drawing called for on Respective Modifications. (No Service Bulletins available.)*

7) 30° Flap Position (Mod 972)
Delete 30° flap position as follows:

Refer to Drawing SC7-45-3549

Remove flap gate	SC7-45-5079 (Item 2)
Remove label	SC7-18-5434 (Item 13)
Removel label	SC7-18-5433 (Item 14) or SC7-18-5642 (Item 15)
Fit flap gate	SC7-45-3507 (Item 1)
Fit label	SC7-45-3523 (Item 11)
Fit label	SC7-45-3522 (Item 12)

Refer to DRG SC7-80-5000 (Installation of IP Panel)
Delete 30° flap position mark introduced by Drg SC7-80-5298 (Item 26) from the flap indicator gauge.

Gauge now meets the requirements of DRG SC7-80-5298 (Item 22).

Flap Detent (18° Position)
It is not a requirement to reinstate the detent at the 18° flap position, which was deleted as part of Mod 972.

8) Registration Plate
Existing manufacturers plate SC7-18-5363 (B.C.A.R.) to be removed and replaced with plate conforming to the requirements of Drawing SC7-18-5354 (FAA).

9) Flight Manual
Existing flight manual to be returned when actions 1 to 8 are completed.

CAA to issue new flight manual (Doc SBH 2.5).

NOTE 14. The TC transfer from Shorts Brothers & Harland Limited (Shorts Brothers) to Viking Air Limited is also a state of design change from the European Aviation Safety Agency (EASA) to Transport Canada (TCCA).

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