European Aviation Safety Agency

EASA

TYPE-CERTIFICATE DATA SHEET

EASA. A.608

Vulcanair SF600

VULCANAIR S.p.A.
Via Giovanni Pascoli, 7
80026 - Casoria (Napoli)
ITALY

For models:

SF600
SF600A

Issue 02: 01 Aug 2013

CONTENT

SECTION A: SF600

A.I. General

1. Data Sheet No.: EASA.A.608	Date: 13 May 2013
2. a) Type:	**SF600**
b) Model:	SF600
c) Variant:	-
3. Airworthiness Category:	Normal Category Aeroplanes
4. Type Certificate Holder:	**VULCANAIR S.P.A.** Via Giovanni Pascoli, 7 80026 – Casoria (Napoli) Italy
5. Manufacturer:	**VULCANAIR S.P.A**. Via Giovanni Pascoli, 7 80026 – Casoria (Napoli) Italy
6. Certification Application Date:	17 December 1982
7. National Certifying Authority	Registro Aeronautico Italiano- RAI (nowadays ENAC)
8. National Authority Type Certificate Date:	05 June 1987 (RAI TC No. A 260; reissued as RAI TCDS SO/A 358 dated 14 July 1998)

A.II. EASA Certification Basis

1. Reference Date for determining the applicable requirements:	17 December 1982
2. Airworthiness Requirements:	FAR 23 effective 1 February 1965 including Amdt 1 through 28, plus § 23.2 at Amdt 32
3. Special Conditions:	§ 23.965 (Fuel tank tests)
3. Exemptions:	None
4. Deviations:	None
5. Equivalent Safety Findings:	None
6. Requirements elected to comply:	None

7. Environmental Standards:	Noise: ICAO Annex 16, Volume I, Ed. 1981 Fuel venting & engine emission: Not Applicable
8. (Reserved) Additional National Requirements:	N/A
9. (Reserved)	N/A

A.III. Technical Characteristics and Operational Limitations

1. Type Design Definition:	Master Drawing List No. F1-00450-801
2. Description:	Twin engine (turboprop), high wing monoplane with fixed tricycle landing gear
3. Equipment:	*(see Section C)*
4. Dimensions:	Length: 12,210 m (40,06 ft) Height: 4,302 m (14,11 ft) Width (Wing Span): 15,000 m (49,21 ft)
5. Engine:	
5.1.1 Model:	2 Turboprop Detroit Diesel Allison 250-B17C
5.1.2 Type Certificate:	FAA Type Certificate No. E10CE
5.1.3 Limitations:	At Take-Off and Max Continuous Power (420 SHP) - Propeller rpm: 2030 rpm - Turbine Outlet Temperature (T.O.T.): 810°C

6. Load factors:

	Flap UP	Flap DOWN (all settings)
Positive:	+3,5g	+2,0g
Negative:	-1,4g	0g

7. Propeller:	
7.1 Model:	2 Hartzell 3-blades metallic full feathering and reverse Model HC-B3TF-7A/T10173-11R Governors: 2 Woodward Model 8210-018 2 Overspeed Model 8210-011 Spinners: 2 Spinners Hartzell P/N 835-39
7.2 Type Certificate:	FAA Type Certificate No. P15EA
7.3 Number of blades:	3
7.4 Diameter:	2,295 m (90,35 in) – No reduction permitted
7.5 Sense of Rotation:	Clockwise
7.6 Propeller limits:	Pitch setting at station 0,762 m (30 in): Max + 86° ± 0,5° Min + 9,5° ± 0,5° Reverse - 11°± 0,5°

8. Fluids:

8.1 Fuel:	Kerosene Jet A1 conforming to ASTM D 1655 Anti-icing additive: if fuel is not pre-mixed with anti-icing additive, for operation with external temperature lower than +5°C, Ethylene Glycol Monomethyl Ether conforming to specification MIL-I-27686-E with concentration between 0,06% and 0,15% must be used
8.2 Oil:	Refer to Rolls Royce publication 11W2
8.3 Coolant:	Air

9. Fluid capacities:

9.1 Fuel:	Total: 1024 Lt (270,5 U.S.Gal) [4 wing tanks: 2 inboard tanks of 274 Lt (72,4 U.S.Gal) each; 2 outboard tanks of 238 Lt (62,9 U.S.Gal) each; all at 5,650 m (222,44 in) from datum] Unusable: 26 Lt (6,8 U.S.Gal) [of which 22 Lt (5,8 U.S.Gal) in inboard tanks and 4 Lt (1 U.S.Gal) in outboard tanks; all at 5,650 m (222,44 in) from datum]
9.2 Oil:	Total: 14 Lt (14,8 U.S. qt) [7 Lt (7,4 U.S. qt) in each engine at 4,480 m (176,38 in) from datum] Undrainable: 0 kg (0 lb)
9.3 Coolant system capacity:	N/A

10. Air Speeds:

Max Operating Speed V_{MO}:	165 KCAS
Design Manoeuvring Speed V_A :	145 KCAS at 3400 kg (7495 lb) 129 KCAS at 2600 kg (5732 lb) with linear variation for intermediate weights [2 KCAS reduction every 100 kg (220 lb) less]
Flap Extended Speed V_{FE}:	
Flaps full extended 30°:	124 KCAS
Minimum Control Speed (Single Engine) V_{MC} :	77 KCAS
Max Cargo Door Opening Speed :	110 KCAS
Max Operating Speed with cargo door open (in all flap setting configuration):	110 KCAS
Max Operating Speed with front side windows open :	130 KCAS

11. Maximum Operating Altitude: 20.000 ft

12. Allweather Operations Capability: Day/Night-VFR, IFR

13. Maximum Weights:

Ramp:	3400 kg (7495 lb)
Take-Off :	3400 kg (7495 lb)
Landing:	3180 kg (7010 lb)
Zero Fuel:	3275 kg (7220 lb)

14. Centre of Gravity

Range: Mean Aerodynamic Chord is 1,600 m (62,99 in) and its forward end is coincident with wing leading edge

Rearward Limits: + 5,560 m (218,90 in) aft of datum (35% MAC) at weight 3400 kg (7495 lb)

Forward Limits: + 5,320 m (209,45 in) aft of datum (20% MAC) at 3400 kg (7495 lb)
+ 5,208 m (205,04 in) aft of datum (13% MAC) at 2600 kg (5732 lb) or less
with linear variation for intermediate weights

15. Datum: 5,00 m (196,85 in) forward of wing leading edge

16. Control surface deflections:

Wing Flaps:	Down: 30° ± 1°	
Ailerons:	Up: 25° ± 1°	Down: 15° ± 1°
Aileron Tab (LH aileron): (with respect to aileron chord)	Up: 20° ± 1°	Down: 20° ± 1°
Elevator:	Up: 24° ± 1°	Down: 15° ± 1°
Elevator Tab: (with respect to elevator chord)	Up: 26°30' ± 1°	Down: 27°30' ± 1°
Rudder:	Right: 23° ± 1°	Left: 23° ± 1°
Rudder tab: (with rudder in neutral position)	Right: 14° ± 1°	Left: 14° ± 1°

17. Levelling Means:

Longitudinal and lateral: 3 red marked support points into the aft cabin area, chained to the passengers seat rails

18. Minimum Flight Crew: 1 (Pilot)

19. Maximum Passenger Seating Capacity: Total 11 *(see Section C – Note 3)*
(For loading information, refer to Aircraft Flight Manual)

20. Baggage/Cargo Compartments:

Max Allowable Load: 250 kg (550 lb)

Location: + 8,322 m (327,64 in)
See the limitations described in the approved Flight Manual for loads (different from passengers) located

within several cabin load areas

21. Wheels and Tyres:	Nose Wheel Tyre Size:	6.00-6, Type III
	Main Wheel Tyres Size:	7.00-6, Type III
22. (Reserved):	N/A	

A.IV. Operating and Service Instructions

1. Flight Manual:	Document p/n SF600-1 Refer to doc. p/n NOR10.763-2 “SF600 Variants, Index of Technical Publications” for latest applicable revision
2. Technical Manual:	− Airplane Maintenance Manual (AMM) document p/n SF600-2 and all applicable Supplements Refer to doc. p/n NOR10.763-2 “SF600 Variants, Index of Technical Publications” for latest applicable revision − Service Bulletins, Instructions and Letters Refer to doc. p/n NOR10.777-3 “SF600 Variants, Index of Service Bulletins, Service Letters and Service Instructions”
3. Spare Parts Catalogue (IPC):	Document p/n SF600-4 Refer to doc. p/n NOR10.763-2 “SF600 Variants, Index of Technical Publications” for latest applicable revision
4. Instruments and aggregates:	Refer to AMM doc. p/n SF600-2

SECTION B: SF600A

Same as SF600 except for:

a. Increased MTOW, MLW and MZFW
b. New powerplant system
c. Wing aerodynamic modifications
d. Main landing gear supporting structure modifications

B.I. General

1. Data Sheet No.: EASA.A.608	Date: 13 May 2013
2. a) Type:	**SF600**
b) Model:	SF600A
c) Variant:	-
3. Airworthiness Category:	Normal Category Aeroplanes
4. Type Certificate Holder:	**VULCANAIR S.P.A.** Via Giovanni Pascoli, 7 80026 – Casoria (Napoli) Italy
5. Manufacturer:	**VULCANAIR S.P.A**. Via Giovanni Pascoli, 7 80026 – Casoria (Napoli) Italy
6. Certification Application Date:	17 November 1989
7. National Certifying Authority	Registro Aeronautico Italiano- RAI (nowadays ENAC)
8. National Authority Type Certificate Date:	31 October 1991 (RAI TC No. A 260; reissued as RAI TCDS SO/A 358 dated 14 July 1998)

B.II. EASA Certification Basis

1. Reference Date for determining the applicable requirements:	17 November 1989
2. Airworthiness Requirements:	FAR 23 effective 1 February 1965 including Amdt 1 through 35
3. Special Conditions:	§ 23.965 (Fuel tank tests)
3. Exemptions:	None
4. Deviations:	None
5. Equivalent Safety Findings:	None

6. Requirements elected to comply:	§§ 23.2 and 23.1413 at Amdt 36 § 23.951 at Amdt 40 §§ 23.67, 23.75, 23.161, 23.331, 23.351, 23.421, 23.423, 23.425, 23.427, 23.441, 23.443, 23.455, 23.677, 23.701, 23.939, 23.1323 and 23.1325 at Amdt 42
7. Environmental Standards:	Noise : ICAO Annex 16, Volume I, Chapter 10 Fuel venting & engine emission: Not Applicable
8. (Reserved) Additional National Requirements:	N/A
9. (Reserved)	N/A

B.III. Technical Characteristics and Operational Limitations

1. Type Design Definition:	Master Drawing List No. F1-00450-803
2. Description:	Twin engine (turboprop), high wing monoplane with fixed tricycle landing gear
3. Equipment:	*(see Section C)*
4. Dimensions:	Length: 12,210 m (40,06 ft) Height: 4,302 m (14,11 ft) Width (Wing Span): 15,000 m (49,21 ft)
5. Engine:	
5.1.1 Model:	2 Turboprop Detroit Diesel Allison 250-B17F/1
5.1.2 Type Certificate:	FAA Type Certificate No. E10CE
5.1.3 Limitations:	At Take-Off and Max Continuous Power (450 SHP) - Propeller rpm: 2030 rpm - Turbine Outlet Temperature (T.O.T.): 810°C

6. Load factors:

	Flap UP	Flap DOWN (all settings)
Positive:	+3,4g	+2,0g
Negative:	-1,4g	0g

7. Propeller:	
7.1 Model:	2 Hartzell 3-blades metallic full feathering and reverse Model HC-B3TF-7A/T10173-11R Governors: 2 Woodward Model 8210-018 2 Overspeed Model 8210-011 Spinners : 2 Spinners Hartzell P/N 835-39
7.2 Type Certificate:	FAA Type Certificate No. P15EA
7.3 Number of blades:	3

7.4 Diameter:	2,295 m (90,35 in) – No reduction permitted
7.5 Sense of Rotation:	Clockwise
7.6 Propeller limits:	Pitch setting at station 0,762 m (30 in): Max + 86° ± 0,5° Min + 9,5° ± 0,5° Reverse - 11°± 0,5°

8. Fluids:

8.1 Fuel:	Kerosene Jet A1 conforming to ASTM D 1655 Anti-icing additive: if fuel is not pre-mixed with anti-icing additive, for operation with external temperature lower than +5°C, Ethylene Glycol Monomethyl Ether conforming to specification MIL-I-27686-E with concentration between 0,06% and 0,15% must be used
8.2 Oil:	Refer to Rolls Royce publication 11W2
8.3 Coolant:	Air

9. Fluid capacities:

9.1 Fuel:	Total: 1024 Lt (270,5 U.S.Gal) [4 wing tanks: 2 inboard tanks of 274 Lt (72,4 U.S.Gal) each; 2 outboard tanks of 238 Lt (62,9 U.S.Gal) each; all at 5,650 m (222,44 in) from datum] Unusable: 26 Lt (6,8 U.S.Gal) [of which 22 Lt (5,8 U.S.Gal) in inboard tanks and 4 Lt (1 U.S.Gal) in outboard tanks; all at 5,650 m (222,44 in) from datum]
9.2 Oil:	Total: 18,5 Lt (19,5 U.S. qt) [9,25 Lt (9,8 U.S. qt) in each engine at 4,480 m (176,38 in) from datum] Undrainable: 0 kg (0 lb)
9.3 Coolant system capacity:	N/A

10. Air Speeds:

Max Operating Speed V_{MO}:	165 KCAS
Design Manoeuvring Speed V_A :	152 KCAS at 3605 kg (7947 lb) 129 KCAS at 2600 kg (5732 lb) with linear variation for intermediate weights [2 KCAS reduction every 100 kg (220 lb) less]
Flap Extended Speed V_{FE}:	
Flaps full extended 30°:	125 KCAS
Minimum Control Speed (Single Engine) V_{MC} :	88 KCAS
Max Cargo Door Opening Speed :	110 KCAS
Max Operating Speed with cargo door open (in all flap setting configuration):	110 KCAS
Max Operating Speed with front side windows open :	130 KCAS

11. Maximum Operating Altitude: 20.000 ft

12. Allweather Operations Capability: Day/Night-VFR, IFR

13. Maximum Weights:

Ramp:	3625 kg (7991 lb)
Take-Off :	3605 kg (7947 lb)
Landing:	3400 kg (7495 lb)
Zero Fuel:	3350 kg (7385 lb)

14. Centre of Gravity Range: Mean Aerodynamic Chord is 1,600 m (62,99 in) and its forward end is coincident with wing leading edge

Rearward Limits:	+ 5,560 m (218,90 in) aft of datum (35% MAC) at weight 3605 kg (7947 lb)
Forward Limits:	+ 5,349 m (210,59 in) aft of datum (21,8% MAC) at 3605 kg (7947 lb) + 5,208 m (205,04 in) aft of datum (13% MAC) at 2600 kg (5732 lb) or less with linear variation for intermediate weights

15. Datum: 5,00 m (196,85 in) forward of wing leading edge

16. Control surface deflections:

Wing Flaps:	Down: 30° ± 1°	
Ailerons:	Up: 25° ± 1°	Down: 15° ± 1°
Aileron Tab (LH aileron): (with respect to aileron chord)	Up: 20° ± 1°	Down: 20° ± 1°
Elevator:	Up: 24° ± 1°	Down: 15° ± 1°
Elevator Tab: (with respect to elevator chord)	Up: 26°30’ ± 1°	Down: 27°30’ ± 1°
Rudder:	Right: 19°± 1°	Left: 19°± 1°
Rudder tab: (with rudder in neutral position)	Right: 24° ± 1°	Left: 24° ± 1°

17. Levelling Means:
    Longitudinal and lateral: 3 red marked support points into the aft cabin area, chained to the passengers seat rails
18. Minimum Flight Crew: 1 (Pilot)
19. Maximum Passenger Seating Capacity: Total 11 *(see Section C – Note 3)*
    (For loading information, refer to Aircraft Flight Manual)
20. Baggage/Cargo Compartments:
    Max Allowable Load: 250 kg (550 lb) at + 8,322 m (327,64 in)
    Location: See the limitations described in the approved Flight Manual for loads (different from passengers) located within several cabin load areas
21. Wheels and Tyres: Nose Wheel Tyre Size: 6.00-6, Type III
    Main Wheel Tyres Size: 7.00-6, Type III
22. (Reserved): N/A

B.IV. Operating and Service Instructions

1. Flight Manual: Document p/n SF600A-1 (600-00-38-03)
   Refer to doc. p/n NOR10.763-2 “SF600 Variants, Index of Technical Publications” for latest applicable revision
2. Technical Manual:
   - Airplane Maintenance Manual (AMM) document p/n SF600A-2 and all applicable Supplements
     Refer to doc. p/n NOR10.763-2 “SF600 Variants, Index of Technical Publications” for latest applicable revision
   - Service Bulletins, Instructions and Letters
     Refer to doc. p/n NOR10.777-3 “SF600 Variants, Index of Service Bulletins, Service Letters and Service Instructions”
3. Spare Parts Catalogue (IPC): Document p/n SF600A-4
   Refer to doc. p/n NOR10.763-2 “SF600 Variants, Index of Technical Publications” for latest applicable revision
4. Instruments and aggregates: Refer to AMM doc. p/n SF600A-2

SECTION C: DATA PERTINENT TO ALL MODELS

C.I. Common data

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

In addition, the following items are required:

a. Stall warning detector, Safe Flight, p/n 799-6 (SF600A)

b. Flight Manual with RAI approval:

- No. 231.129/T dated 05 June 1987 (SF600)
- No. 93/2766/MAE dated 27 September 1993 (SF600A) or subsequent approved revisions

C.II. Notes:

NOTE 1: Current weight and balance report including list of equipment in certificated empty weight, and loading instructions, must be provided for each aircraft at the time of original certification.

The certificated empty weight and corresponding centre of gravity location must include:

Unusable Fuel in internal tanks (total):	17,8 kg (39 lb) at 5,65 m (222,44 in)
Unusable Fuel in external tanks (total):	3,2 kg (7 lb) at 5,65 m (222,44 in)
Engine Lubricant (total):	12 kg (26,5 lb) at 4,48 m (176,38 in) [SF600] 15,85 kg (35 lb) at 4,48m (176,38 in) [SF600A]

NOTE 2: The following placard must be displayed in full view of pilot:

"THE MARKINGS AND PLACARDS INSTALLED IN THIS AIRPLANE CONTAIN OPERATING LIMITATIONS WHICH MUST BE COMPLIED WITH WHEN OPERATING THIS AIRPLANE IN THE NORMAL CATEGORY.
OTHER OPERATING LIMITATIONS WHICH MUST BE COMPLIED WITH WHEN OPERATING THIS AIRPLANE IN THIS CATEGORY ARE CONTAINED IN THE AIRPLANE FLIGHT MANUAL"

In addition, all the other placards required in the approved Airplane Flight Manual must be installed in the appropriate locations.

NOTE 3: The maximum number of passengers is limited to 9 (nine).
See placard on copilot seat.

ADMINISTRATIVE SECTION

I. Acronyms

ENAC – Ente Nazionale per l'Aviazione Civile
EASA – European Aviation Safety Agency
FAA – Federal Aviation Administration
FAR – Federal Aviation Regulations
ICAO – International Civil Aviation Organization
IFR – Instrument Flight Rules
IPC – Illustrated Part Catalogue
KCAS – Knots Calibrated Air Speed
MAC – Mean Aerodynamic Chord
MIL – Military Standard
MLW – Maximum Landing Weight
MTOW – Maximum Take-Off Weight
MZFW – Maximum Zero Fuel Weight
TC – Type Certificate
TCDS – Type Certificate Data Sheet
VFR – Visual Flight Rules

II. Type Certificate Holder Record

TC No.	Issued by	Date	TC Holder
A 260	RAI	05 June 1987	SIAI MARCHETTI S.P.A. Via Indipendenza, 2 21018 Sesto Calende (VA) Italy
A 260	RAI	11 April 1990	AGUSTA S.P.A. Via Giovanni Agusta, 520 21017 Cascina Costa di Samarate (VA) Italy
A 358	RAI	14 July 1998	VULCANAIR S.P.A. Via Giovanni Pascoli, 7 80026 Casoria (NA) Italy
EASA A.608	EASA	13 May 2013	VULCANAIR S.P.A. Via Giovanni Pascoli, 7 80026 Casoria (NA) Italy

III. Change Record

Issue	Date	Changes	TC Issue No. & Date
1	13 May 2013	First issue	Is. 1 13 May 2013
2	01 Aug 2013	Typo: missing indication of aircraft type in the heading	Is. 2 01 Aug 2013