

**COMANDO DA AERONÁUTICA
DEPARTAMENTO DE PESQUISAS E DESENVOLVIMENTO
CENTRO TÉCNICO AEROESPACIAL**

TYPE CERTIFICATE DATA SHEET N° EH-9406

Type Certificate Holder:

HAMILTON SUNDSTRAND DIVISION
One Hamilton Road
Windsor Locks, CT 06096-1010
USA

EH-9406-01

Sheet 01

HAMILTON
SUNDSTRAND

14SF-5, 14SF-7, 14SF-11,
14SF-15, 14SF-23,
14SF-11E, 14SFL-11

June 2005

Propellers of models described herein conforming with this data sheet, which is part of Type Certificate No. 9406, meet the minimum standards for use in certificated aircraft in accordance with pertinent aircraft data sheets and applicable portions of the Brazilian Aeronautical Regulations provided they are installed, operated, and maintained as prescribed by the approved manufacturer's manuals and other instructions.

TYPE Constant speed; hydraulic (See Notes 3 and 4).

ENGINE FLANGE Flanged: 171.45 mm (6.75 in) bolt circle.

HUB MATERIAL Aluminum.

BLADE MATERIAL Fiberglass covered aluminum spar.

NUMBER OF BLADES 4

HUB ELIGIBLE 14SF-5, 14SF-7, 14SF-11, 14SF-15, 14SF-23, 14SF-11E, 14SFL-11

Blade Eligible		Max. Continuous Power hp (rpm)	Takeoff power hp (rpm)	Diameter Limits m (ft)	Approx. Max. Weight Compl. kg (lb)
HIGHT	LEFT				
SFA13E1-OA	SFA13E2-OA	1 950 (1 212)	2 150 (1 212)	3.96 (13)	137.5 (303)
SFA13F1-OA	SFA13F2-OA	1 950 (1 212)	2 150 (1 212)	3.96 (13)	137.5 (303)
SFA13G1-OA	SFA13G2-OA	1 950 (1 212)	2 150 (1 212)	3.96 (13)	138 (304)
SFA13L1-OA	SFA13L2-OA	1 950 (1 212)	2 150 (1 212)	3.96 (13)	138 (304)
SFA13E1-OB	SFA13E2-OB	1 950 (1 212)	2 150 (1 212)	3.96 (13)	137 (302)
SFA13M1-OA	SFA13M2-OA	1 950 (1 212)	2 150 (1 212)	3.96 (13)	138 (304)
SFA13F1-OB	SFA13F2-OB	1 950 (1 212)	2 150 (1 212)	3.96 (13)	137 (302)
SFA13G1-OB	SFA13G2-OB	1 950 (1 212)	2 150 (1 212)	3.96 (13)	137.5 (303)
SFA13J1-OA	SFA13J2-OA	2 308 (1 212)	2 618 (1 212)	3.96 (13)	142 (314)
SFA13J1-OB	SFA13J2-OB	2 308 (1 212)	2 618 (1 212)	3.96 (13)	142 (314)
SFA13K1-OA	SFA13K2-OA	2 308 (1 212)	2 618 (1 212)	3.96 (13)	142 (314)
SFA13K1-OB	SFA13K2-OB	2 308 (1 212)	2 618 (1 212)	3.96 (13)	142 (314)
SFA13N1-OA	SFA13N2-OA	2 308 (1 212)	2 618 (1 212)	3.96 (13)	142 (314)
SFA13P1-OA	SFA13P2-OA	2 308 (1 212)	2 618 (1 212)	3.96 (13)	142 (314)
SFA13R1-OA	SFA13R2-OA	2 308 (1 212)	2 618 (1 212)	3.96 (13)	142 (314)
SFA13N1LOA		2 500 (1 212)	2 750 (1 212)	3.96 (13)	142 (314)
SFA13U1-OA	SFA13U2-OA	1 950 (1 212)	2 150 (1 212)	3.96 (13)	138 (304)
SFA13S1-OA	SFA13S2-OA	2 308 (1 212)	2 618 (1 212)	3.96 (13)	142 (314)
SFA13T1-OA	SFA13T2-OA	2 308 (1 212)	2 618 (1 212)	3.96 (13)	142 (314)

CERTIFICATION BASIS Brazilian Type Certificate No. 9604 based on the RBHA 35 (Brazilian Requirements for Aeronautical Certification), which endorses the FAR 35, amendment 35-1 through 35-6 of 23 September 1988, and Federal Register Cocket No. 94ANE-50.

TYPE CERTIFICATION	<u>Model</u>	<u>Application</u>	<u>Issued TC</u>
	14SF-5, -7, -11, -15, -23	13 December 1993	8 June 1994
	14SF-11E, -SFL11	30 March 2005	29 April 2005

IMPORT REQUIREMENTS Each propeller imported separately and/or spare parts must be accompanied by an Airworthiness Certificate for Export and/or an Airworthiness Approval Tag, respectively, issued by FAA, attesting that the particular propeller and/or parts were submitted to the governmental quality control before delivery and are in conformity with the CTA approved type design.

NOTES:

- NOTE 1** Hub model Designation 1 4 S F - 7 E, where:
- 1 = Major model type.
 - 4 = Number of blades.
 - S = Blade shank size.
 - F = F denotes flange mounting.
 - = Special notation – See Note 13.
 - 7 = Indicate a specific model designation which defines a complete propeller assembly, including spinner.
 - E = Indicates an Electronic Propeller Control (optional)

NOTE 2 Blade Model Designation S F A 13 E 1 - O A

S = Hamilton Sundstrand shank.

F = Denotes fiberglass blade.

A = Major aerodynamic characteristics.

13 = Basic diameter feet. (Diameter limit show is normal diameter of assembled propeller and does not include the +1/4 inch -3/16 inch manufacturing tolerance permissible.)

E = Structural and operational features (May indicate particular deicing assembly)

1 = Direction of rotation and tip configuration

- = Special notation – See Note 14

O = Normal reduction from basic diameter in inches.

A = Blade spinner interface

NOTE 3 Pitch Control: Propeller control specified on approved model parts list.

NOTE 4 (a) Feathering: Full feathering with propeller control specified on approved model parts list.

(b) Reversing: Full reversing with propeller control specified on approved model parts list.

NOTE 5 Left-Hand models: The left-hand version of an approved propeller model has the same rating and diameter limitations as listed for the right-hand model

NOTE 6 Interchangeable blades: Blades listed are aerodynamically similar. Only blades listed under the same type are structurally similar. A higher type number implies a higher strength.

The following defines the degree to which these blades may be used interchangeably without a flight performance test and without a vibration survey:

Type 2 blades may replace Type 1 blades, but not vice-versa.

Reference should always be made to the ratings of the blades. The blades with different model numbers cannot be incorporated in the same propeller unless the aircraft specification specifically permits this.

Type 1

SFA13E1-OA, SFA13E1-OB

SFA13F1-OA, SFA13F1-OB

SFA13G1-OA, SFA13G1-OB

SFA13L1-OA, SFA13M1-OA

SFA13U1-OA

Type 2

SFA13J1-OA, SFA13J1-OB

SFA13K1-OA, SFA13K1-OB

SFA13N1-OA, SFA13S1-OA

SFA13N1LOA, SFA13T1-OA

NOTE 7 Accessories:

(a) Propeller deicing: Electrical deicing system specified on approved model parts list and installed in accordance with the propeller manufacturer's instructions.

(b) Propeller spinner: Spinner specified on approved model parts list.

NOTE 8 Shank Fairings: Not Applicable.

- NOTE 9** Special Limits: Airworthiness limitations, if any, are specified in System Maintenance Manual P5188 for the 14SF-5; P5185 for the 14SF-7; P5196 for the 14SF-11 and 14SFL-11; P5197 for the **14SF-15** and 14SF-23 and P5207 for the 14SF-11E
Operating limitations for the Model 14SFL11 on the ATR72-210 aircraft:
- 1) Do not exceed 1 100 Propeller RPM at airspeed below 30 kias with the exception of item 3.
 - 2) Do not exceed 1 331 m-kg (9 630 ft-lb) torque at airspeed below 30 kias with the exception of item 3.
 - 3) Permissible to operate to 1 498 m-kg (10 832 ft-lb) propellers torque under the following conditions; at the start of takeoff run, each duration to be less than 20 seconds.; Brief service checks or tests when necessary, each duration to be less than 2 minutes.
 - 4) Operation on the ground, except during taxi, should be into the wind.
 - 5) Avoid static operation between 500 and 780 propeller RPM.
 - 6) Avoid operation in feather above 690 m-kg (5 000 ft-lb) propeller torque.
- NOTE 10** Special Notes: Aircraft installations must be approved as part of the aircraft type certificate and demonstrate compliance with the applicable aircraft airworthiness requirements.
- NOTE 11** Life Limited Parts: See Note 9
- NOTE 12** Alternate Rpm: For normal takeoff and max. Continuous operation, an 1 100 to 1 212 alternate rpm is approved for all unlimited life propellers for the approved installations and Model Numbers listed on page 1.
- NOTE 13** Special Notation: This position of the hub model designation normally consists of a hyphen. This hyphen is replaced by a letter to designate a safety related characteristic. The meaning of these letters is identified below.
“L” is for LIFE LIMITED parts. See Note 9.
- NOTE 14** Special Notation: This position of the blade model designation normally consists of a hyphen. This hyphen is replaced by a letter to designate a special characteristic. The meaning of these letters is identified below.
“L” is for LIFE LIMITED parts. See Note 9.
“P” is issued to identify a blade that “as procedure or manufactured” met specific requirements.
“R” is used to identify a blade that has been reworked to meet specific requirements.

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