TYPE-CERTIFICATE DATA SHEET

No. P.012

for Propeller
FH385/FH386 series

Type Certificate Holder
RATIER-FIGEAC

Avenue Ratier – B.P. N° 2
46101 Figeac Cedex
France

For Models:
FH385
FH386

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I. General

1. Type / Models
FH385, FH386

2. Type Certificate Holder
RATIER-FIGEAC
Avenue Ratier – B.P. N° 2
46101 Figeac Cedex
France

Design Organisation Approval No.: EASA.21J.217

3. Manufacturer
RATIER-FIGEAC

4. Date of Application
FH385, FH386: 09 December 2003

5. EASA Type Certification Date
FH385, FH386: 22 March 2012

II. Certification Basis

1. Reference Date for determining the applicable airworthiness requirements
22 March 2009

2. EASA Certification Basis

2.1. Airworthiness Standards
CS-P Amendment 01, dated 16 November 2006

2.2. Special Conditions (SC)
SC1: Spinner Bird Impact Assessment

2.3. Equivalent Safety Findings (ESF)
None

2.4. Deviations
None

III. Technical Characteristics

1. Type Design Definition

The FH385 and FH386 propeller models are defined by a propeller system part number and an associated parts list:

	Propeller System Part Number	Parts List	Propeller Part Number (*)
FH385	FH385000003	NDDFH385000	FH395000004 FH395000005 FH395000006
FH386	FH386000003	NDDFH386000	FH396000004 FH396000005 FH396000006

(*) Or later approved revision.

2. Description

Variable pitch tractor propeller with feathering and reversing capability. The hub is made of steel, the eight blades have a steel shank bonded to a graphite spar and an aramid fiber enveloppe. The blade leading edge is protected by an electrical deicer boot and a nickel sheath.
The propeller hydromechanical blade pitch actuator is controlled by a propeller control module which is connected to the engine FADEC.
The FH385 propeller rotates counter-clockwise and the FH 386 propeller rotates clockwise (viewed from Aft Looking Forward - ALF).

3. Equipment

The following equipment is part of the propeller Type Certificate:

	Part Number (*)
Propeller Control Module (PCM)	FH392000002, FH392000004, FH392000005, FH392003000, FH392010000
External pipe	FH386012000, FH386026000
Propeller Main Pump	FH391000003
Propeller Auxiliary Pump	FH397000002, FH397000003, FH397010000
Transfer tube	FH393000001, FH393000002
Pitchlock tube	1006242-1
NP/Beta Sensor Set	FH398010004, FH398010006
Brushblock	FH390000002, FH390000003
De-icer Stationary Control Unit (SCU)	FH394000005, FH394000006
De-icer Rotating Control Unit (RCU)	FH404000003
Front Spinner Assembly	FH403010005, FH403010007, FH403010008
Rear Cover Assembly	FH403013003, FH403069000

(*) Or later approved revision.

4. Dimensions
Propeller diameter: 5.334 m

5. Weight
Maximum: 683 kg

6. Hub / Blade Combinations

	Hub Part Number	Blade Part Number
FH385	FH401000004, FH401100000	FH405000006 (*), FH405500000 (*)
FH386	FH401000004, FH401100000	FH406000006 (*), FH406500000 (*)

(*) Because of the difference in mass, installation of blades is authorized by pairs of opposite blades.

7. Control System
The propeller pitch control is performed by the Propeller Control Module which is connected to the aircraft and to the engine Full Authority Digital Engine Control (FADEC).

8. Adaptation to Engine
24 X 25.065 mm diameter dowel bolts equally spaced on a circle of 338.33 mm.

9. Direction of Rotation
FH385: Counterclockwise, ALF
FH386: Clockwise, ALF

IV. Operating Limitations

1. Approved Installations

Engine	EPI Europrop International GmbH TP400-D6 turbo-propeller engine (TC EASA E.033)	With Engine Control Unit application software P/N EPI5F23S7FCS110, or later approved revision. With Engine Protection and Monitoring Unit protection software P/N EPI5A23S2FCS110, or later approved revision.
Aircraft	AMSL A400M large aeroplane	In accordance with the instructions and limitations provided in the Propeller Installation Manual RF00607 V00 and Propeller Operation Manual RF00608 V00, or later approved revisions.

2. Maximum Take Off Power, Speed, and Torque
Take Off Power: 8251 kW (11065 shp)
Take Off Speed: 860 rpm
Take Off Torque: 91618 N.m

3. Maximum Continuous Power, Speed, and Torque
Maximum Continuous Power: 7971 kW (10690 shp)
Maximum Continuous Speed: 842 rpm
Maximum Continuous Torque: 90407 N.m

4. Inadvertent Maximum Overspeed and Overtorque:
Inadvertent Maximum Overspeed: 948 rpm
Inadvertent Maximum Overtorque:

- 122876 N.m if propeller is equipped with at least one blade P/N FH405000006 or FH406000006
- 153692 N.m for other propellers

Inadvertent Maximum Overtorque in Feather: 54365 N.m

5. Propeller Pitch Angle
From -21.7° up to +83° measured at 75% blade radius

V. Operating and Service Instructions

Manuals	
Propeller Installation Manual (PIM)	RF00607
Propeller Operation Manual (POM)	RF00608

Instructions for Continued Airworthiness (ICA)	
Propeller Data Modules from Aircraft Maintenance Manual	PMC-AJ-844BB-10000-01
Component Maintenance Manual (CMM) – Propeller System	61-10-63
Component Maintenance Manual (CMM) – Left Hand Blade – Right Hand Blade	61-11-02
Other Component Maintenance Manuals (CMM)	as published by RATIER-FIGEAC
Service Bulletins	as published by RATIER-FIGEAC

VI. Notes

1. The EASA approved Airworthiness Limitations Section of the Instructions for Continued Airworthiness is published in the applicable Data Module Codes AJ-A-05-10-00-61AAA-030A-D entitled "Time Limits (FH385/FH386 Propeller) - Technical Data (Airworthiness Limitations (Life Limits) & Recommended Life)" and AJ-A-05-20-61-00AAA-030A-D entitled "Scheduled Maintenance Checks List (FH385/FH386 Propeller) - Technical Data (Airworthiness Limitations (Mandatory Inspections) & Recommended Inspections)". The same Data Module Codes contain the recommended replacement or maintenance intervals.

2. Compliance with CS-P 360 was demonstrated for a 1.8 kg bird.

SECTION: ADMINISTRATIVE

I. Acronyms and Abbreviations

n/a

II. Type Certificate Holder Record

n/a

III. Change Record

Issue	Date	Changes	TC issue
Issue 01	22 March 2012	Initial Issue	Initial Issue, 22 March 2012
Issue 02	18 November 2013	Several Major Changes	
Issue 03	28 October 2014	Major Change Approval 10049271	
Issue 04	15 December 2015	Editorial Changes	

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