
TYPE-CERTIFICATE DATA SHEET

UK.TC.P.00003

For Propeller

R390 Series Propellers

Type Certificate Holder

Dowty Propellers
Gloucester Business Park
4100 Hurricane Road
Gloucester
GL3 4AQ

Model(s): R390/4-123-F/27

Issue: 01

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Section 1: Type R390/4-123-F/27

I. General

1. Type / Variant or Model

R390/4-123-F/27

2. Type Certificate Holder

Dowty Propellers
Gloucester Business Park
4100 Hurricane Road
Gloucester
GL3 4AQ

Design Organisation Approval No.: UK.21J.0008

3. Manufacturer

Dowty Propellers, a GE Aerospace Company

4. Certification Application Date

Not Recorded

5. Certification Date

12 May 1992

The original certification was granted by CAA-UK, reference Propeller Type Certificate Number 113.

II. Certification Basis

1. BCAR Section A Issue 24 Chapter A3-2 (Grey paper No A44 3 June 1980).
Section C issue 12 Chapter C1-1, C1-2 and sub-section C5, together with the installation requirements of JAR 25 Paragraphs 33, 901(c), 905, 907, 933(c), 937 and 1337

2. Special Conditions:

As detailed in CAA letter ref. 9/216/11 dated 5 June 1981.

3. Deviations:

None

4. Equivalent Safety Findings (ESF):

None

5. Environmental Requirements:

None

III. **Technical Characteristics**

1. **Type Design Definition**

Specified in DIS No 66071000c Column M (or latest issue).

General Arrangement Drawing No	660710125
Installation Drawing No	660710025
Blade Assembly Drawing No	660714214-6
Design Specification	84DS0428

2. **Description**

Variable pitch, constant speeding, feathering, using hydraulic control and counter-weights with 4 composite blades. Beta control provides manual pitch selection for aircraft braking and ground manoeuvring. Beta control provides manual pitch selection for aircraft braking and ground manoeuvring. The R390/4-123-F/27 is approved for operation on the Saab SF340A & Saab 340B aircraft.

3. **Equipment**

The standard of the associated equipment approved for use with this propeller type is defined by the propeller equipment set drawing and published in AMM maintenance manual 1082 as follows:

Equipment Set	Dowty 660000082
Spinner	Dowty Type (c) (SB 25/4/1)
Propeller Pitch Control Unit	Woodward Type 663006008, 663006009 or 663006010
Overspeed Governor	Woodward Type 661001001 or 661001002
Feathering Pump	Dowty (c) RFP 34
Blade De-icing	Dowty 660000929 (see note VI.2)
Synchrophasing Equipment Type	660713241

4. **Diameter**

132 inches (3.5 meters).

5. **Weight**

Complete with spinner – 98 kg (216 lb) approximately (for Reference only).

6. **Hub / Blade – Combinations**

Hub Part No:	660714200 or later part numbers
Blade Part No:	660714214 or later part numbers

7. **Control System**

The Propeller Pitch Control Unit is hydraulic: Woodward Type 663006008, 663006009 or 663006010

8. **Adaptation to Engine**

Special flange with 12 bolts and two dowels, all at 5.125 inches PCD.

9. Sense of Rotation

Rotation is right hand tractor (clockwise when viewed in the direction of flight).

IV. Operating Limitations

Operation of the propeller system outside of the limitations stated below is prohibited unless permitted by revision of the aircraft flight manual.

1. Propeller Speed / Torque

The following propeller speed information applies to the R390/4-123-F/27 propeller variant:

Take-off Propeller Speed (100%) 1384 rpm

Ground Operation Limitations:

- (1) Under static ground running conditions torque levels in accordance with Table 1, are permitted.

Propeller RPM	Continuous	5 min Maximum Duration	12 secs Maximum Duration
	Nm (lbf ft)	Nm (lbf ft)	Nm (lbf ft)
1400 to 1467	Not permitted	Not permitted	644 (475)
1375 to 1400	576 (425)	615 (454)	644 (475)
1300 to 1375	560 (413)	560 (413)	587 (433)
1200 to 1300	461 (340)	461 (340)	488 360

Table 1 Ground Maximum Torques

- (2) Continuous overspeeds in excess of 1467 RPM require the propeller to be feathered immediately. However, overspeeds between 1467 and 1572 RPM not exceeding fifteen seconds, may be considered as transients and are permitted.
- (3) Propeller operation in excess of 1572 RPM is not permitted under any circumstances.
- (4) Continuous operation of the propeller on the ground between 1070 and 1220 RPM, except for maintenance purposes is to be avoided.
- (5) Static held take-offs in downwind speeds in excess of 12 knots are not permitted.
- (6) Rolling take-offs in downwind speeds in excess of 15 knots are not permitted.

Flight Operation Limitations:

- (1) During flight the following torque limitations apply: refer to Table 2.

	Propeller RPM	Continuous Nm (lbf ft)	5 min Maximum Duration Nm (lbf ft)	12 secs Maximum Duration Nm (lbf ft)
Speed less than 50 knots	1400 to 1467	542 (400)	615 (454)	644 (475)
	1375 to 1400	576 (425)	615 (454)	644 (475)
	1300 to 1375	576 (425)	587 (433)	623 (460)
	1200 to 1300	560 (413)	560 (413)	585 (432)
Speed greater than 50 knots	1200 to 1400	576 (425)	615 (454)	644 (475)
	1400 to 1467	542 (400)	615 (454)	644 (475)

Table 2 Flight Maximum Torques

2. Driving Power

The following driving power information applies to the R390/4-123-F/27 propeller variant:

- General Electric CT7-5A2 Take-off Rating 1735 SHP at 1384 propeller rpm
- General Electric CT7-9B Take-off Rating 1750 SHP & with APR 1870 SHP at 1384 propeller rpm
- General Electric's CT7-5A3 Take-off Rating 1665 SHP & with APR 1785 SHP at 1384 propeller rpm

Power Limits : kW (SHP)

Take-off Power (100%)	1870 (2507)
Maximum Continuous Power (100%)	1870 (2507)

3. Propeller Blade Angle

The following propeller blade angles apply to the R390/4-123-F/27 propeller variant and are for blade angles stated at two thirds radius ('station J-J'):

Feather Angle	83 degrees 05 minutes to 83 degrees 25 minutes
Reverse Angle	- 17 degrees 54 minutes to - 24 degrees 33 minutes

4. Cross-Wind Limitations

The cross-wind ground and flight limitations are stated in the Propeller Operating Limitations, (as declared in PMM publication number 1082 for the R390/4-123-F/27), and stated in the applicable Aircraft Flight Manual.

V. Operating and Service Instructions

Instructions and information on unit Description, Operation, Fault Isolation, Servicing, Removal/Installation, Adjustment Test, Cleaning/Painting and Repairs are covered in Propeller Maintenance Manual (PMM) (publication number 1082 for the R390/4-123-F/27). Assembly / Disassembly are covered in the following Component Maintenance Manuals (CMM):

COMPONENT MAINTENANCE MANUALS	CMM CHAPTER NUMBERS
Propeller	61-10-39
Spinner	61-10-40
Overspeed Governor	61-20-28
Pitch Control Unit	61-20-27
Feathering Pump	61-20-26

VI. Notes

1. Propeller type (c) R390/4-123-F/27 supersedes propeller type (c) R375/4-123-F/21 and features a new hub assembly.
2. The propeller approval does not consider compliance with the aircraft de-icing requirements.
3. Component life limitations are specified in the approved Airworthiness Limitations Sections of the Maintenance Manual.
4. Mandatory Propeller inspections are specified in the Airworthiness Limitations Section of the Maintenance Manual.
5. The Propeller restoration time/calendar life is detailed in the Maintenance Manual.
6. The hydraulic fluids for use in the propeller and its control system are specified in the Airworthiness Limitations Section of the Maintenance Manual.
7. The propeller and its control system are approved with an overspeed “get-home” capability to cater for propeller control malfunctions. The Propeller Maintenance Manual 1082 operating limits define the overspeed limit.

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Section 2 Administrative

I. Acronyms and Abbreviations

Acronym / Abbreviation	Definition
CAA	Civil Aviation Authority
EASA	European Union Aviation Safety Agency
TC	Type Certificate
TCDS	Type Certificate Data Sheet
TCH	Type Certificate Holder

II. Type Certificate Holder Record

TCH Record	Period
Dowty Propellers Gloucester Business Park 4100 Hurricane Road Gloucester GL3 4AQ	Present. No changes.

III. Amendment Record

Issue	Date	Amendment	TC issue
Issue 01	31 October 2023	The content of the initial issue of this UK CAA TCDS was taken from UK TCDS No. P113 issue 1 dated May 1992. This has been changed to reflect; <ul style="list-style-type: none">- General update in format and content in line with the current UK PTCDS standard.- Change to TCDS removes reference to Saab 340 MTOW	31 October 2023