

DEPARTMENT OF TRANSPORTATION  
FEDERAL AVIATION ADMINISTRATION

E-310  
Revision 12  
(Small Engine Div)  
Gipsy Queen  
70-4  
70 MK2  
70 MK3  
March 22, 2007

TYPE CERTIFICATE DATA SHEET NO. E-310

Engines of models described herein conforming with this data sheet (which is a part of type certificate No. 310) and other approved data on file with the Federal Aviation Administration meet the minimum standards for use in certificated aircraft in accordance with pertinent aircraft data sheets and applicable portions of the Civil Air Regulations provided they are installed, operated and maintained as prescribed by the approved manufacturer's manuals and other approved instructions.

Type Certificate Holder                      Rolls-Royce Ltd. (Small Engine Division)  
Leavesden, Hartfordshire, England

Model	Gipsy Queen	70-4	70 MK2	70 MK3
Type	6LIA			
Ratings				
Max. cont., hp., rpm, in.Hg. at:				
Rated pressure alt. (ft.)		330-2600-40.0-5000	355-2700-42.0-4250	361-2800-42.0-5250
Sea level pressure alt. (ft.)		315-2600-40.0-S.L.	342-2700-42.0-S.L.	346-2800-42.0-S.L.
Takeoff (5 min.), hp., rpm, in.Hg. at:		340-2800-42.0-S.L.	380-3000-45.0-S.L.	400-3000-47.0-S.L.
Fuel (min. grade aviation gasoline)		100/130	- -	- -
Lubricating oil		D.Eng. RD 2472 A/O, B/O; D.E.D. 2479/0; Canadian Government Specification Board 3-GP-55A. DeHavilland DNE 227 Aeroshell W.80, W.100 or W.120	- -	- -
Bore and stroke, in.		4.725 X 5.905	- -	- -
Displacement, cu. in.		621.0	- -	- -
Supercharging (drive gear ratio)		11.206:1	- -	- -
Compression ratio		6.5:1	- -	- -
Weight (dry), lb.		690	698	- -
C.G. location (dry)				
Aft of front mounting trunnion, in.		6.15	6.20	- -
Below crankshaft C.L., in.		4.35	5.35	- -
Propeller shaft		SBAC No. 2	- -	- -
Carburetion		Hobson injection type DH/G1 or DH/G4 when Mod. 1360 embodied or DH/G6 when Mod. 1773 embodied.	Hobson injection type DH/G.7 or DH/G.8 when Mod. G.2025 embodied.	Hobson injection type DH/G.8
Ignition, dual magnetos		B.T.H. type C.G.D. or C.G.D/1	B.T.H. C.G.D., C.G.D/1 or C.G.D/C	B.T.H. type C.G. D/C.1
Timing, °B.T.C.		30	- -	28°
Spark plugs		K.L.G. type K.A. 1, K.H.1, R.C. 5/4 or R.C. 9/2R or Lodge type L.H.1, R.S.9/1R or R.S.5/7R or Champion REL37B (see Note 5) or AC Type SR74P (see Note 6)	- -	K.L.G. type K.A.1 or Lodge type R.S. 9/1R or Champion REL37B (see Note 5) or AC Type SR74P (see Note 6)
Lubrication		Dry sump	- -	- -

"- -" indicates "same as preceding model."

Page No.	1	2
Rev. No.	12	12

Certification basis CAR 10. Type Certificate No. 310, issued September 21, 1959; reissued to Bristol Siddeley October 25, 1962. Date of Application for Type Certificate October 28, 1948.

The aviation authority for the United Kingdom, the UK Civil Aviation Authority (CAA), originally type certificated this engine. The FAA validated this product under U.S. Type Certificate Number E-310. Effective September 28, 2003, the European Aviation Safety Agency (EASA) began oversight of this product on behalf of the UK.

Import requirements To be considered eligible for installation on U.S. registered aircraft, each new engine to be exported to the United States with UK CAA or EASA airworthiness approval shall have a Joint Aviation Authorities (JAA) or EASA Form 1, Authorized Release Certificate. The JAA or EASA Form 1 should state that the engine conforms to the type design approved under the U.S. Type Certificate E-310, is in a condition for safe operation and has undergone a final operational check.

NOTE 1. Maximum permissible cylinder head temperatures (measured with shoe type thermocouple, Weston 11A):  
500°F with DED 2479/0 or Canadian Government Specification Board 3-GP-55A oil  
554° with D.Eng. R.D. 2472 A/O, B/O; deHavilland D.H.E. 227, Aeroshell W.80, W.100 or W.120 oil

Maximum permissible oil inlet temperature:

D.E.D. 2470/0 or C.G.S.B. 3-GP-55A	167°F
D.Eng. R.D. 2472 A/O	195°F
D.Eng. R.D. 2472 B/O	212°F
DeHavilland DHE 227	220°F

NOTE 2. Pressure limits - normal operation:

	<u>Max.</u>	<u>Min.</u>
Fuel pressure, psi	29	25
Oil pressure, psi 70-4 engine	60	40
70 MK2, 70 MK3 engines	55	40

NOTE 3. The following accessories are approved for use with the engine:

Accessory	Direction of Rotation*	Speed**	Max. Torque (in.-lb.)		Maximum Overhang Moment (in.-lb.)
			Cont.	Static	
Starter (and Feathering Pump), Rotax C4602	CC	1:1	—	5640	93
Generator, Rotax 750 Watt B2001, or Rotax 100 Watt B2003, or Newton 1200 Watt RX2	CC	2.096:1	60	500	65
Vacuum pump, Plessey B3X MK. II	C	1.294:1	33	320	17
Air compressor, Hymatic Type 3H6/7C or hydraulic pump, Lockheed MK. V or MK. VI	C	0.549:1	112	750	8
Tachometer flexible drive	C	0.250:1	1:5	245	—
Constant speed unit	CC	0.902:1	57	1380	Mounted vertically

\*C - Clockwise; CC - Counter Clockwise, facing engine pad.

\*\*Speed - times crankshaft rpm

NOTE 4. Deleted March 1, 1961.

NOTE 5. To accommodate British thread size on ignition harness, special conversion elbow and grommet (Cooperative Industries, Inc. Part Nos. 54190 and 7269, respectively, with Champion sleeve Part No. AS681, or equivalents, are required to accomplish thread conversion for use of Champion type REL37B spark plugs.

NOTE 6. To accommodate British thread size on ignition harness, special conversion elbow and grommet (Cooperative Industries, Inc. Part Nos. 54190 and 7269, respectively, with AC Spark Plug sleeve Part No. AVT-CS or equivalents) are required to accomplish thread conversion for use of AC Type SR47P spark plugs.

NOTE 7. 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 United Kingdom Civil Aviation Authority. Any such documents including those approved under a delegated authority, are accepted by the FAA and are considered FAA approved.

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

These approvals pertain to the type design only.

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