

DEPARTMENT OF TRANSPORTATION  
FEDERAL AVIATION ADMINISTRATION

E-104  
Revision 3  
WARNER ENGINE COMPANY

WARNER SUPER SCARAB  
SERIES 40, 50 (R-500-2),  
50A (R500-4, -6)

September 27, 2000

TYPE CERTIFICATE DATA SHEET NO. E-104

Engine of models described herein conforming with this data sheet (which is a part of type certificate No. E-104) 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 Federal Aviation Regulations provided they are installed, operated and maintained as prescribed by the approved manufacturer's manuals and other approved instructions.

Type Certificate Holder                      Warner Engine Company, LLC.  
P.O. Box 9  
Palmer Lake, Colorado 80133

This TC was transferred from Duncan and Company, PO Box 21, Palmer Lake, Colorado 80133 to Warner Engine Company September 27, 2000.

This TC was transferred from George Olson Company, 969 Stonewall Road, Lexington, Kentucky 40504-3127 to Duncan and Company, PO Box 21, Palmer Lake, Colorado 80133 October 20, 1998.

This TC was transferred to George Olson Company on May 4, 1995.

Models - Super Scarab	40 & 50
Type	7 RA
Rating, standard atmosphere	
Max. continuous hp., r.p.m., at sea level pressure altitude	145-2050
Takeoff hp., 5 min., r.p.m., full throttle, at sea level pressure altitude	145-2050
Fuel (min. grade aviation gasoline)	73
Bore and stroke, in.	4.625 x 4.25
Displacement, cu. in.	500
Compression ratio	5.2:1
Weight (dry), lbs.	306 (magneto ignition) 310 (battery ignition)
C.G. location (dry)	
Forward of mounting lug face, in.	4.5
Propeller shaft, SAE No.	1 Taper
Carburetor	Stromberg NA-R5A carburetor with 1-7/8 in venturi or Holley 419 carburetor with 1-5/8 in. venturi
Ignition, dual	Scintilla MN7D, VMN7D magnetos, or Bosch 7617 or Auto-Lite 7773 battery ignition units
Timing, degrees BTC	28
Spark plugs	AC-N; BG-5B2, 317-S, Champion C-26, S C-27, S, M-4, S; Simmonds-Benton 3B5,S; K.L.G. V27/5-RL or R-V 17/5; Firestone MA-3; Auto-Lite 18A-1, SH-2K

Certification Basis

Type Certificate No. 104

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## NOTES:

NOTE 1. Maximum permissible cylinder head, barrel and oil inlet temperatures 525 degrees F., 300 degrees F., and 200 degrees F., respectively.

NOTE 2. The following accessory provisions and typical engine accessories are eligible at the indicated weight increases:

Starter	Weight
Eclipse type 396, model 2, style A (old designation Y-150)	18
When generator not used, initial adapter 7430, jaw 7431	2
When generator used, install drive assembly 7568 and 7565-1 tachometer adapter	7
Generator	
Auto-Lite EO-4547 (weight already included for battery ignition)	12
Bosch LE70-12-5B (weight already included for battery ignition)	11
Eclipse type 309, model 1, style A (15 volt - 25 amps)	22
Fuel Pump	
Titan model 200, type L2X3-10 or -12 or M2X3-13 (clockwise rotation - square drive)	3
For engines with serial number lower than SS850, fuel pump drives can be provided by using oil pump assembly 5067A instead of 7199A.	
Miscellaneous	
Magneto impulse coupling - Apollo No. 8248 (denoted by engine serial number suffix "E")	1

NOTE 3: Engine serial number suffix letters as indicated below should be added to the engine nameplate to denote when the following modifications have been incorporated.

Suffix "A" to denote 3/8 in. cylinder base studs and 0 type cylinder base oil seals.

Suffix "E" to denote austenitic type exhaust valves.

Suffix "L" to denote Series 50A engine with 1 in. longer crankshaft.

Suffix "M" to denote exhaust valves P/N 11549 with increased stem diameter.

Suffix "F" to denote cylinder bores chrome plated by Spartan Eng. Company.

NOTE 4: Military models R-500-2, -4, and -6 are the same as Super Scarab Series 50 and 50A. When these engines are installed in certificated aircraft, the engine nameplate should be revised to include the corresponding civil model designation and Type Certificate number. The R-500-2 and -4 engines are equipped with Stromberg NAR-5A carburetor with float mechanism adjusted for normal gravity feed of 1-1/2 lbs. per square inch. The R-500-6 is equipped with a Holley 419 carburetor which should be modified to the extent of installing the standard 7/32 inch diameter float needle seat when installed for use with gravity fuel feed in certificated aircraft.

NOTE 5: Approval expired 9/7/50. No engines of these models manufactured after this date are eligible for use in certificated aircraft.

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