SPECIFICATIONS

Model Numbers	50ES72 (standard length) 50ESL72 (5" longer) 50R72 (standard length) 50RL72 (5" longer)
*Horsepower (B.I.A.-certified)	50 hp at 5500 rpm
Full throttle operating range	5000 to 6000 rpm
Tank test with test wheel Part No. 384769	5300 rpm
Engine type	2 cycle, 2 cylinders in line
Bore and stroke	3.060 (3-1/16) bore x 2.820 (2-13/16 stroke
Piston displacement	41.5 cubic inches
Piston ring sets (2 per set) standard	Part Number 384315
.030" oversize	Part Number 384317
Diameter of ring	3.060 in. (standard)
Width of ring	
Upper, Part Number 316149	.0900 - .0895 in.
Lower, Part Number 316150	.0625 - .0615 in.
Piston ring lbs. compression recommended when compressed	
Upper	.5 to 2.5 lbs.
Lower	4 to 8 lbs.
Piston without rings	
Standard	Part Number 383977
.030" oversize	Part Number 384304
Crankshaft size	
Top journal	1.4979 - 1.4974 in.
Center journals	1.3752 - 1.3748 in.
Bottom journal	1.1815 - 1.1810 in.
Connecting rod crank pin	1.1828 - 1.1823 in.
Carburetion	2 carburetors - Float feed with low-speed adjustment. Automatic, thermo electric, manual lever and remove control choke (electric only)
Float level setting	Remove float bowl, turn it upside down so weight of float closes needle; float should now be parallel to and 1/16" above surface of gasket
Carburetor orifice plug	Part Number 308977 - Hole size .058"
Inlet needle seat	.065 - .062 Use a #52 drill as gage.
Cooling system	Thermostatically controlled recirculating system
Propeller gear ratio	12:32
Propeller supplied with motor	†(Aluminum) 3 blade, 13-1/4" dia. x 17" pitch
Alternate propellers	(Aluminum) 3 blade, 14" dia. x 9" pitch
	(Aluminum) 3 blade, 14" dia. x 11" pitch
	(Aluminum) 3 blade, 14" dia. x 13" pitch
Propeller supplied with motor	††(Aluminum) 3 blade, 13-3/4" dia. x 15" pitch
	(Aluminum) 3 blade, 13" dia. x 19" pitch
	(Aluminum) 3 blade, 12-3/4" dia. x 21" pitch
	(Aluminum) 3 blade, 12-3/4" dia. x 23" pitch
	(Bronze) 2 blade, 13-3/4" dia. x 21" pitch
	(Bronze) 2 blade cupped, 13-3/4" dia. x 21" pitch
	(Bronze) 2 blade cupped, 13-3/4" dia. x 23" pitch
	(Stainless Steel) 3 blade, 13" dia. x 19" pitch
	(Stainless Steel) 3 blade, 12-3/4" dia. x 21" pitch
	(Stainless Steel) 3 blade, 13-3/8" dia. x 17" pitch
Speed control	Steering handle, remote control - synchronized throttle and spark
Gear shift control	Manual or electric - hydraulic - forward, neutral, reverse - remote control
Weight (without fuel tank)	Model 50ES72 - 187 lbs., Model 50ESL72 - 187 lbs. Model 50R72 - 192 lbs., Model 50RL72 - 192 lbs. (Fuel tank weight 11 lbs. net)
Fuel capacity	6 gallons
Starter	Manual and Electric with emergency rope
Electrical system	6 amp alternating current generator (electric start) 50 Watt power take off 12 volt (manual start)
Starter amp draw when cranking	135 amperes maximum
Ignition (Magneto breakerless C.D.)	Magneto
Spark plug	AC VB40FFM or Champion UL-77V
Spark plug torque	17-1/2 - 20-1/2 foot-pounds
Shift solenoid resistance Lo ohms scale (electric shift models)	5-6 ohms
Sensor air gap	Fixed

Coil Test Specifications

Part No. 580821 - New Stevens Tester Model No. M.A. - 75 **Use Model CD-1 Adapter		
Switch	Coil	Index Adjustment
**A	580821	20

Merc-O-Tronic with Capacitor Discharge Adapter Model 55-980

Operating Amperage	Primary Resistance	Secondary Continuity
Min. - Max.	Min. - Max.	Min. - Max.
1.4		22 - 26

*Horsepower at sea level. Allow 2% reduction per 1000' above sea level.
†Early Production Models ††Later Production Models

Graham Tester Model 51	
Secondary Continuity	3000 ohms maximum
Primary Continuity	1.2 ohms maximum
Coil Index	60
Coil Test (Normal)	9 minimum
Coil Test (Amplified)	80 minimum
Gap Index	50 maximum

CLEARANCE CHART

Power head	
Piston and wrist pin	.0016 max - .0010 min.
Piston ring gap	.017 max. - .007 min.
Piston ring groove clearance	.0040 max. - .0015 min.
Cylinder and piston	.0065 max. - .0045 min.
Crankshaft bearings	
Upper	Roller type
Center	Roller type
Lower	Ball type
Crankshaft end play	.0165 max. - .0006 min.
Connecting rod bearings	
Piston end	Needle bearing
Crankshaft end	Roller type
Lower unit	
Gearcase head and propeller shaft	Roller type
Driveshaft to gearcase - upper	Roller type
Pinion to gearcase	Roller type
Propeller shaft to oil pump	Roller type
Front gear bushing to propeller shaft	.002 max. - .001 min.
Propeller on shaft	Spline

TORQUE CHART

Power head	
Flywheel nut	100-105 ft.-lbs.
Connecting rod screws	348-372 in.-lbs. (29-31 ft.-lbs.)
**Cylinder head screws	168-192 in.-lbs. (14-16 ft.-lbs.)
Crankcase to cylinder screws and nuts	
Upper	144-168 in.-lbs.
Center	144-168 in.-lbs.
Lower	144-168 in.-lbs.
Spark plugs	17-1/2-20-1/2 ft.-lbs.
Magneto charge coil and stator screws	48-60 in.-lbs.
Pinion nut, driveshaft	40-45 ft.lbs.
Starter through bolts	54-66 in.-lbs.
Starter drive assembly lock nut	25-30 ft.-lbs.

**Retorque to 16-18 ft. lbs. or 192-216 in. lbs. after motor test

NOTE

When tightening two or more screws on the same part, DO NOT tighten screws completely, one at a time. To avoid distortion of the part, first tighten all screws together to one-third of specified torque, then to two-thirds of specified torque, then torque down completely.

NOTE

Retorque cylinder head screws and spark plugs after motor has been run and has reached operating temperature, and has cooled comfortable to touch.