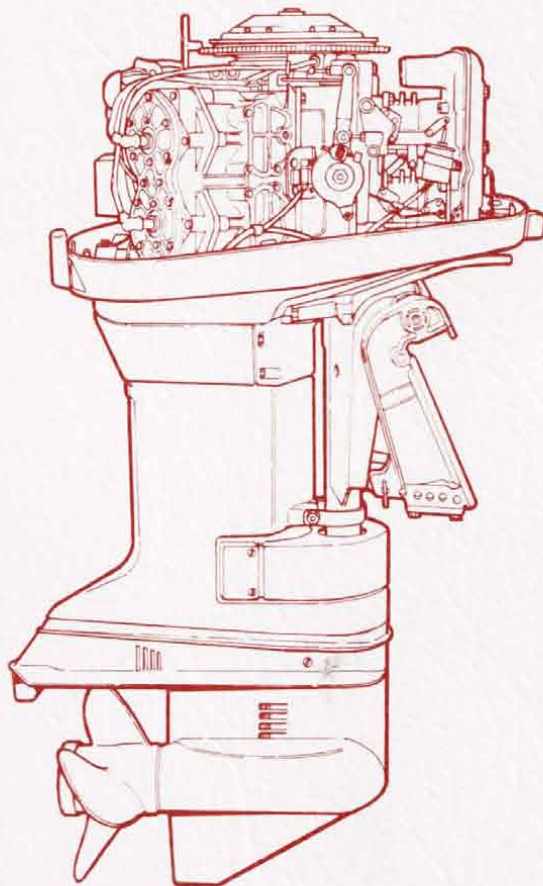


1970

# Johnson

OUTBOARD MOTOR

## SERVICE MANUAL



MODEL  
85E SL 70

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**85 HP**

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**JOHNSON MOTORS, Waukegan, Illinois, U.S.A.**

Service Manual, in many cases in actual use. Refer to the Special Service Tool Catalog for a description and ordering instructions for these tools.

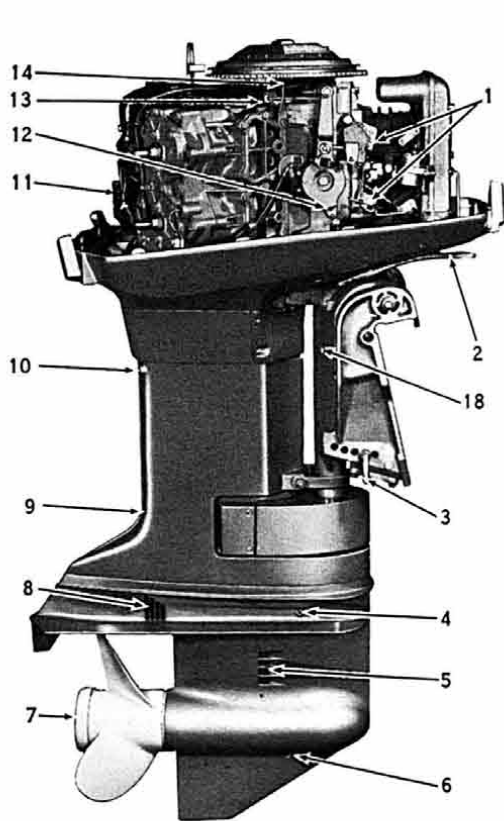
## OUTBOARD MOTOR NOMENCLATURE

Sometimes the words "right" and "left" are very confusing when referring to the sides of an outboard motor. Therefore, the sides are referred to as STARBOARD or PORT sides. STARBOARD means on the right hand while facing the bow (FRONT) of the boat; PORT means left hand. See Figures 1-1 and 1-2.

Service required for the 85 HP motors is generally one of three kinds . .

1. **NORMAL CARE AND MAINTENANCE**, which includes putting a new motor into operation, storing motors, lubrication, and care under special operating conditions such as salt water and cold weather.
2. **OPERATING MALFUNCTIONS** due to improper motor mounting, propeller condition or size, boat condition, or the malfunction of some part of the motor. This includes motor tune-up procedures to keep the motor in prime operating condition.
3. **COMPLETE DISASSEMBLY** and overhaul, such as inspecting a motor that has been submerged or rebuilding trade-in units.

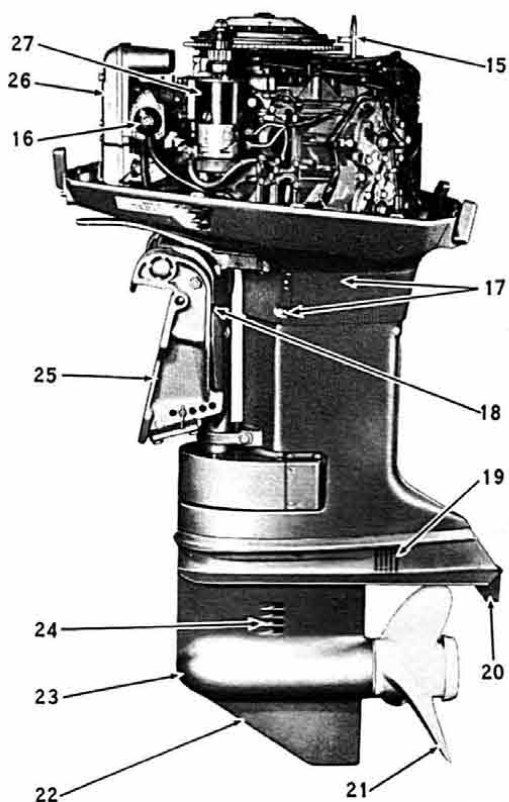
It is important to you as the service man to determine before disassembly just what the trouble is, and how to correct it quickly and with minimum expense to the owner. This section of the manual is designed to help you diagnose motor malfunctions and correct them.



91176

Figure 1-1. Starboard View Less M/C

1. Carburetors
2. Steering bracket
3. Tilt adjustment rod
4. Oil level plug
5. Water intake
6. Oil drain and fill plug
7. Exhaust outlet
8. Water outlet
9. Exhaust housing
10. Exhaust relief
11. Amplifier
12. Throttle lever
13. Distributor
14. Alternator
15. Lift bracket
16. Fuel pump and filter
17. Exhaust covers
18. Tilt lock lever
19. Water outlet
20. Trim tab
21. Propeller
22. Skeg
23. Gearcase
24. Water intake
25. Stern bracket
26. Air silencer
27. Electric starter



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Figure 1-2. Port Side View Less M/C

## SPECIFICATIONS

Model Numbers . . . . .	85ESL70 (20" transom)	
*Horsepower (B.I.A.-certified) . . . . .	85 hp at 5000 rpm	
Full throttle operating range . . . . .	4500 to 5500 rpm	
Tank test with test wheel . . . . .	4800 rpm	
Engine type . . . . .	90° V-type, 4-cylinder, 2 cycle	
Bore and stroke . . . . .	3.375" bore x 2.588" stroke	
Piston displacement . . . . .	92.6 cubic inches	
Piston ring sets (3 per set) standard . . . . .	Part Number 382825	
.020" oversize . . . . .	Part Number 382826	
.040" oversize . . . . .	Part Number 382827	
Diameter of ring . . . . .	3.375 in. (standard)	
Width of ring . . . . .	.093 in.	
Piston ring lbs. compression recommended when compressed . . . . .	9.7 to 14.5 lbs.	
Piston less rings		
Standard . . . . .	Part Number 383674	
.020" oversize . . . . .	Part Number 383697	
.040" oversize . . . . .	Part Number 383698	
Crankshaft size		
Top journal . . . . .	1.4980 - 1.4975 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, manual lever and remote control choke	
Float level setting . . . . .	Remove float bowl, turn carburetor upside down so weight of float closes needle; float should now be parallel to gasket surface.	
Carburetor orifice plug . . . . .	Part Number 315321 Hole size .056	
Inlet needle seat . . . . .	.065 - .062 Use a #52 drill as gage	
Cooling system . . . . .	Thermostatically controlled recirculating system	
Propeller gear ratio . . . . .	13:26	
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	
	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	
	Bronze 3 blade, 13" dia. x 19" 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	
Speed control . . . . .	Remote control - synchronized throttle and spark	
Gear shift control . . . . .	Hydro-Electric - forward neutral, reverse - remote control	
Shift solenoids . . . . .	5-6 ohms (10 ohms scale)	
Weight (without fuel tank). . . . .	252 lbs. (Fuel tank weight 11 lbs. net)	
Fuel capacity . . . . .	6 gallons	
Starter . . . . .	Electric and emergency rope	
Electrical system . . . . .	9 amp flywheel alternator	
Starter amp draw when cranking . . . . .	185 amperes maximum	
Ignition (CD with breaker points) . . . . .	Battery - Power Pulse	
Spark plug . . . . .	AC V4OFF or Champion L-19V	
Spark plug torque . . . . .	17-1/2 - 20-1/2 foot-pounds	
Breaker point gap . . . . .	.010 in.	
Breaker point spring tension . . . . .	28 - 32 oz.	
Part No. 580740 Coil Test Specifications - New Stevens Tester Model No. M.A. - 75   **Use Model CD-1 Adapter		
Switch	Coil	Index Adjustment
**A - - - - -	580740 - - - - -	20