

# **Johnson** **OUTBOARDS**

## **SERVICE MANUAL**



**2 HP model**

**2R78**

**INTRODUCTION**

**GENERAL  
SERVICE  
INFORMATION**

**FUEL  
SYSTEM**

**IGNITION  
SYSTEM**

**POWER  
HEAD**

**LOWER  
UNIT**

**MANUAL  
STARTER**

**1**

**2**

**3**

**4**

**5**

**6**

**7**

**SPECIFICATIONS**

Model Number . . . . . 2R78  
 \*Horsepower (B.I.A.-certified) . . . . . 2 HP at 4500 rpm  
 Full throttle operating range . . . . . 4200 to 4800 rpm  
 Test tank with test wheel . . . . . 3900 rpm  
 Test wheel . . . . . Part Number 316021  
 Engine type . . . . . Single cylinder, 2 cycle  
 Bore and stroke . . . . . 1-9/16" bore x 1-3/8" stroke (39.69 x 34.93 mm)  
 Piston displacement . . . . . 2.64 cubic inches (43 cm<sup>3</sup>)  
 Piston ring sets (2 per set)  
     Standard . . . . . Part Number 383920  
     .030" (0.76 mm) oversize . . . . . Part Number 384312  
 Diameter of ring . . . . . 1.563 in. (standard) (39.70 mm)  
 Width of ring . . . . . .0625 - .0615 in. (1.588 - 1.562 mm)  
 Piston assembly - standard . . . . . Part Number 384651  
     .030" (0.76 mm) oversize piston less rings . . . . . Part Number 384666  
 Crankshaft size  
     Top journal . . . . . .7502 - .7497 in. (19.055 - 19.042 mm)  
     Bottom journal . . . . . .7502 - .7497 in. (19.055 - 19.042 mm)  
 Connecting rod crank pin . . . . . .6690 - .6685 in. (16.993 - 16.980 mm)  
 Carburetion . . . . . Single barrel float feed, with high and low speed adjustments  
 Float level setting . . . . . Flush with casting  
 Inlet needle seat. . . . . .050 - .053 (1.27 - 1.35 mm) Use a #55 drill as gage  
 Cooling system . . . . . Vari-volume pump  
 Propeller gear ratio . . . . . 12:25  
 Propeller drive pin . . . . . Part Number 316558  
 Propeller . . . . . 7-1/4 x 4-1/2  
 Speed control . . . . . Single lever, synchronized throttle and spark  
 Weight . . . . . 24 lbs. (10.9 kg)  
 Fuel capacity . . . . . Gravity feed integral tank 1 qt. (.95 litre)  
 Starter . . . . . Manual self rewinding  
 Ignition . . . . . Flywheel magneto  
 Spark plug . . . . . AC-M44C, Champion J6J - 14 mm  
 Spark plug gap . . . . . .030 inch (0.8 mm)  
 Spark plug torque . . . . . 17-1/2 - 20-1/2 foot-pounds (24-27 N·m)  
 Breaker point gap . . . . . .020 inch (0.5 mm)  
 Condenser . . . . . Part Number 580321  
     Capacity . . . . . .18 to .22 Mfd.  
 Coil . . . . . Part Number 580971

**COIL TEST SPECIFICATIONS**

Stevens Tester Model ST-75

Normal Polarity (Switch Setting Standard)	2.2
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Stevens Tester Model No. M.A. -75 or 80

Switch	Index Adjustment
B	22

Merc-O-Tronic

Operating Amperage	Primary Resistance		Secondary Continuity	
	Min.	Max.	Min.	Max.
1.6	.5	.7	35	45

Graham Tester Model 51

Maximum Secondary	Maximum Primary	Coil Index	Minimum Coil Test	Max. Gap Index
5500	1.2	75	33	75

\* Horsepower established at sea level. Allow 2% reduction per 1000' (300 m) above sea level.

### LUBRICATION POINTS

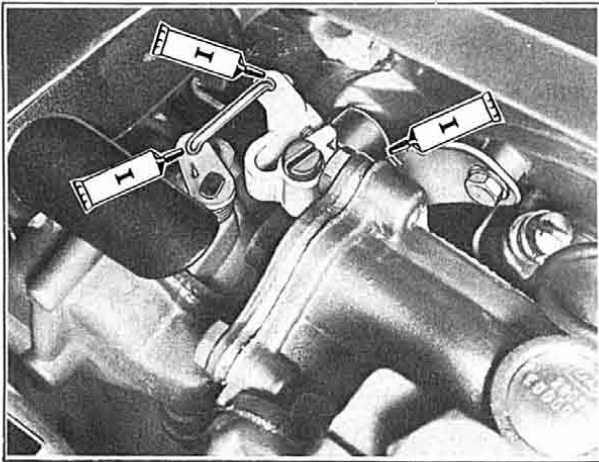
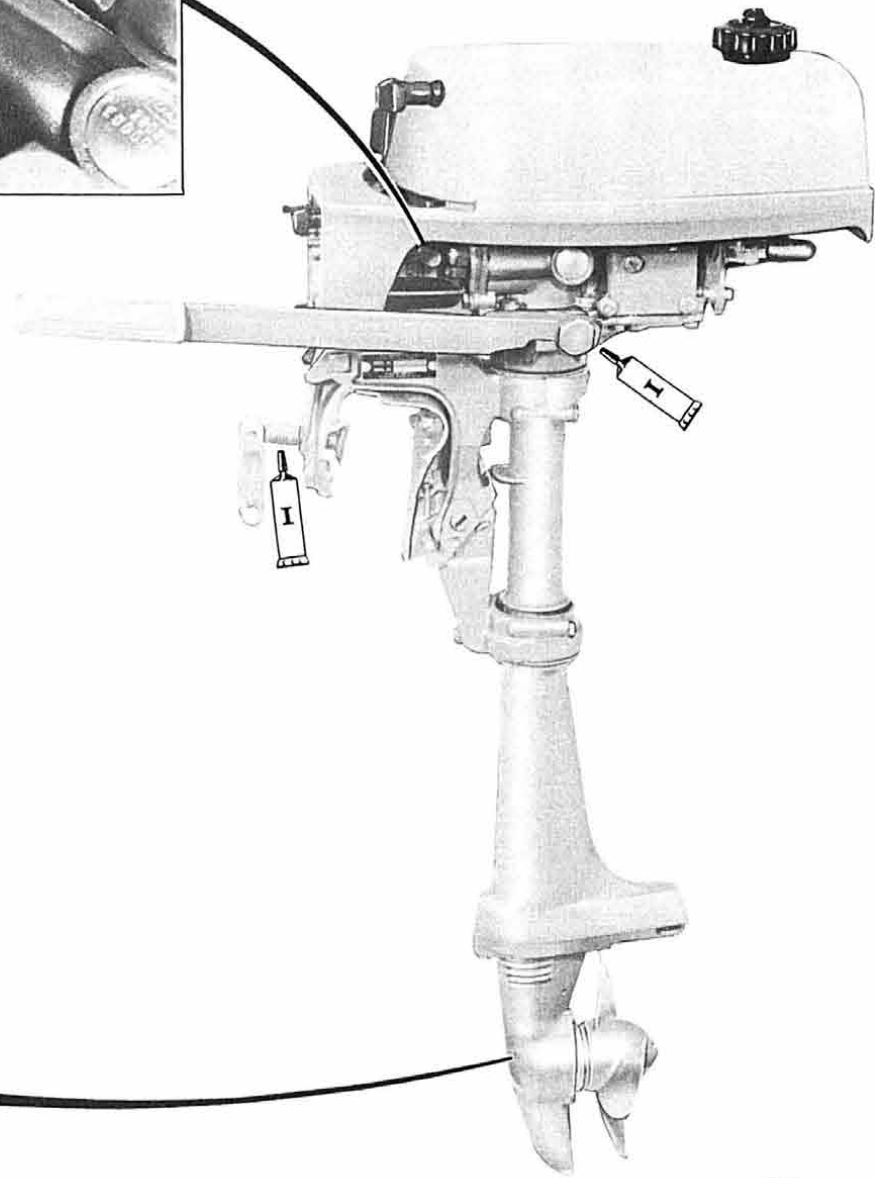


Figure 2-2. Throttle Cam and Carburetor Linkage Lubrication



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Figure 2-1. Steering Handle Pivot and Clamp Screw Lubrication

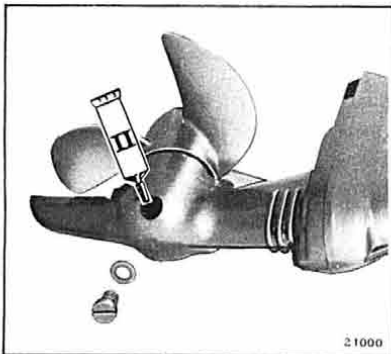


Figure 2-3. Gearcase Lubrication