



# Service Manual Outline

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## Notice

Throughout this publication, “Dangers”, “Warnings” and “Cautions” (accompanied by the International HAZARD Symbol ) are used to alert the mechanic to special instructions concerning a particular service or operation that may be hazardous if performed incorrectly or carelessly. **OBSERVE THEM CAREFULLY!**

These “Safety Alerts” alone cannot eliminate the hazards that they signal. Strict compliance to these special instructions when performing the service, plus “Common Sense” operation, are major accident prevention measures.

### **DANGER**

**DANGER - Immediate hazards which WILL result in severe personal injury or death.**

### **WARNING**

**WARNING - Hazards or unsafe practices which COULD result in severe personal injury or death.**

### **CAUTION**

**Hazards or unsafe practices which could result in minor personal injury or product or property damage.**

## Notice to Users of This Manual

This service manual has been written and published by the Service Department of Mercury Marine to aid our dealers’ mechanics and company service personnel when servicing the products described herein.

It is assumed that these personnel are familiar with the servicing procedures of these products, or like or similar products manufactured and marketed by Mercury Marine, that they have been trained in the recommended servicing procedures of these products which includes the use of mechanics’ common hand tools and the special Mercury Marine or recommended tools from other suppliers.

We could not possibly know of and advise the service trade of all conceivable procedures by which a service might be performed and of the possible hazards and/or results of each method. We have not undertaken any such wide evaluation. Therefore, anyone who uses a service procedure and/or tool, which is not recommended by the manufacturer, first must completely satisfy himself that neither his nor the products safety will be endangered by the service procedure selected.

All information, illustrations and specifications contained in this manual are based on the latest product information available at the time of publication. As required, revisions to this manual will be sent to all dealers contracted by us to sell and/or service these products.

It should be kept in mind, while working on the product, that the electrical system and ignition system are capable of violent and damaging short circuits or severe electrical shocks. When performing any work where electrical terminals could possibly be grounded or touched by the mechanic, the battery cables should be disconnected at the battery.

Any time the intake or exhaust openings are exposed during service they should be covered to protect against accidental entrance of foreign material which could enter the cylinders and cause extensive internal damage when the engine is started.



It is important to note, during any maintenance procedure replacement fasteners must have the same measurements and strength as those removed. Numbers on the heads of the metric bolts and on the surfaces of metric nuts indicate their strength. American bolts use radial lines for this purpose, while most American nuts do not have strength markings. Mismatched or incorrect fasteners can result in damage or malfunction, or possibly personal injury. Therefore, fasteners removed should be saved for reuse in the same locations whenever possible. Where the fasteners are not satisfactory for re-use, care should be taken to select a replacement that matches the original.

## Cleanliness and Care of Mercury Jet Unit

A marine power product is a combination of many machined, honed, polished and lapped surfaces with tolerances that are measured in the ten thousands of an inch/mm. When any product component is serviced, care and cleanliness are important. Throughout this manual, it should be understood that proper cleaning, and protection of machined surfaces and friction areas is a part of the repair procedure. This is considered standard shop practice even if not specifically stated.

Whenever components are removed for service, they should be retained in order. At the time of installation, they should be installed in the same locations and with the same mating surfaces as when removed.

Personnel should not work on or under a powerhead which is suspended. Powerheads should be attached to work stands, or lowered to ground as soon as possible.

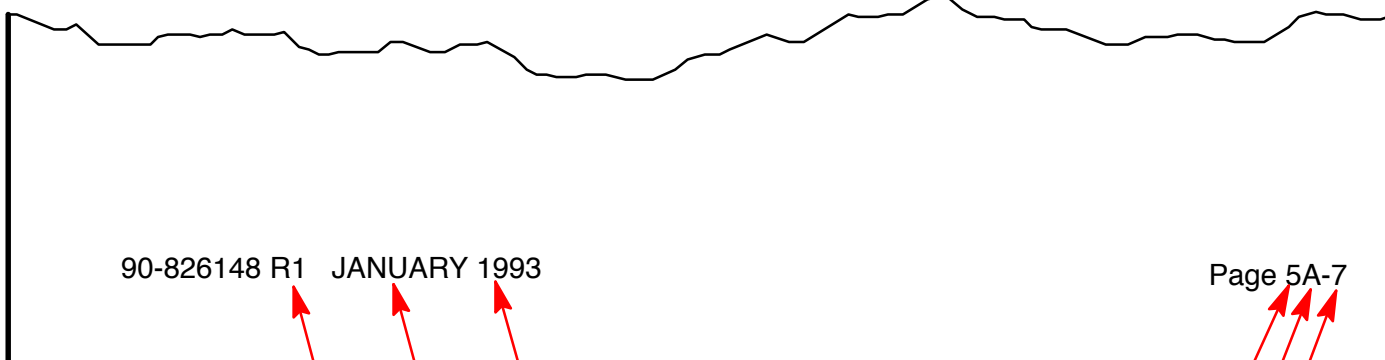
We reserve the right to make changes to this manual without prior notification.

Refer to dealer service bulletins for other pertinent information concerning the products described in this manual.

## Page Numbering

Two number groups appear at the bottom of each page. The example below is self-explanatory.

**EXAMPLE:**



Revision No. 1

Month of Printing

Year of Printing

Section Number

Part of Section Letter

Page Number



# IMPORTANT INFORMATION

## Section 1A - Specifications



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# Master Specifications

Model 210/240 M <sup>2</sup> Jet Drive		
<b>HORSEPOWER (KW)</b>		210 (156.6) 240 (178.9)
<b>M<sup>2</sup> JET DRIVE WEIGHT</b>	<b>210 HP</b> <b>Powerhead Pump Unit</b>	218 lb. (99 kg) 110 lb. (49 kg)
	<b>240 HP</b> <b>Powerhead Pump Unit</b>	231 lb. (105 kg) 110 lb. (49 kg)
<b>CYLINDER BLOCK</b>	<b>Type Displacement</b>	V-6 Cylinder, Two Cycle, Loop Charged 153.0 cu. in. (2507cc)
<b>STROKE</b>	<b>Length (All Models)</b>	2.650 in. (67.31mm)
<b>CYLINDER BORE</b>	<b>Diameter (Std) Taper/Out of Round/Maximum Wear Bore Type</b>	3.501 in. (88.925mm) 0.003 in. (0.076mm) Cast Iron
<b>PISTON</b>	<b>Piston Type</b>	Aluminum
	<b>Standard</b>  <b>0.015 in. (0.381 mm) Oversize</b>	3.494 in. ± 0.001 in. (88.748mm ± 0.025mm) 3.509 in. ± 0.001 in. (89.129mm ± 0.025mm)
<b>REEDS</b>	<b>210 HP</b> <b>Reed Type Reed Stand Open (Max.) Reed Stop (Max.)</b>	Steel 0.020 in. (0.50mm) Not Adjustable
	<b>240 HP</b> <b>Reed Type Reed Stop (Max.)</b>	2 Stage Plastic No Stop
<b>FUEL SYSTEM</b>	<b>Fuel Recommended Gasoline</b>	Gasoline w/Oil Injection 210 HP - Unleaded 87 Octane Minimum 240 HP - Unleaded 89 Octane Minimum
	<b>Gasoline/Oil Ratio Fuel Pressure – @ Idle – @ WOT</b>	50:1 (25:1 Break-In) 2 PSI 8 PSI
<b>STARTING SYSTEM</b>	<b>Electric Start – All Models Starter Draw (Under Load) Starter Load (No Load)</b>	175 Amperes 40 Amperes
	<b>Battery Rating</b>	670 Marine Cranking Amps (MCA) or 520 Cold Cranking Amps (CCA)
<b>IGNITION SYSTEM</b>	<b>210 HP</b> <b>Type Spark Plug Type Spark Plug Gap</b>	Capacitor Discharge NGK BU8H or BUZ8H Surface Gap
	<b>240 HP</b> <b>Type Spark Plug Type Spark Plug Gap</b>	Capacitor Discharge NGK BPZ8HS10 .040 in. (1.0mm)
<b>CHARGING SYSTEM</b>	<b>210 HP Alternator Output (Regulated)</b>	15 Amperes @ 3000 RPM
	<b>240 HP Alternator Output (Regulated)</b>	40 Amperes @ 5000 RPM



<b>210/240 HP M<sup>2</sup> Jet Drive (Continued)</b>																						
<b>210 HP Carburetor</b>	<b>Idle RPM</b> <b>Wide Open Throttle (WOT) RPM</b> <b>Idle Mixture Screw Adjustment (Preset - Turns Out)</b> – All Carbs  <b>Float Setting</b>  <b>Main Jet</b> –Top Carb –Middle Carb –Bottom Carb  <b>Idle Air Jet</b> –Top Carb –Middle Carb –Bottom Carb  <b>Vent Jet</b> –Top Carb –Middle Carb –Bottom Carb	1000 - 1100 RPM 5250 - 5750  1-1/2 turns out from a lightly seated position  Set parallel to body flange  <table> <tr> <td><b>Port Carb Bore</b></td> <td><b>Stbd Carb Bore</b></td> </tr> <tr> <td>.082 (#1 cyl.)</td> <td>.080 (#2 cyl.)</td> </tr> <tr> <td>.084 (#3 cyl.)</td> <td>.086 (#4 cyl.)</td> </tr> <tr> <td>.082 (#5 cyl.)</td> <td>.082 (#6 cyl.)</td> </tr> </table> <table> <tr> <td>.054 (#1 cyl.)</td> <td>.044 (#2 cyl.)</td> </tr> <tr> <td>.048 (#3 cyl.)</td> <td>.048 (#4 cyl.)</td> </tr> <tr> <td>.054 (#5 cyl.)</td> <td>.048 (#6 cyl.)</td> </tr> </table> <table> <tr> <td>–Top Carb</td> <td>.080</td> </tr> <tr> <td>–Middle Carb</td> <td>.080</td> </tr> <tr> <td>–Bottom Carb</td> <td>.080</td> </tr> </table>	<b>Port Carb Bore</b>	<b>Stbd Carb Bore</b>	.082 (#1 cyl.)	.080 (#2 cyl.)	.084 (#3 cyl.)	.086 (#4 cyl.)	.082 (#5 cyl.)	.082 (#6 cyl.)	.054 (#1 cyl.)	.044 (#2 cyl.)	.048 (#3 cyl.)	.048 (#4 cyl.)	.054 (#5 cyl.)	.048 (#6 cyl.)	–Top Carb	.080	–Middle Carb	.080	–Bottom Carb	.080
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<b>240 HP Fuel Injection</b>	<b>Idle RPM</b> <b>Wide Open Throttle (WOT) RPM</b>  <b>Float Adjustment (Vapor Separator)</b> <b>Float Level</b>  <b>Injectors</b> <b>Quantity</b>  <b>Ignition Controller Uses the Trigger Signal as an Injector Timing Signal as Follows:</b> #1 Trigger Circuit #3 Trigger Circuit #5 Trigger Circuit <b>Line Pressure @ Injectors</b>	1000 - 1100 RPM 5750 - 6250  Preset @ Factory  6  #3 and #4 Injectors #5 and #6 Injectors #1 and #2 Injectors 34 - 36 PSI (234 - 248 kPa)																				
<b>210 HP Timing</b>	<b>Maximum Timing BTDC</b> @ Cranking Speed @ 5000 RPM  <b>Idle Timing</b> <b>BTDC</b>  <b>Firing Order</b>	24° BTDC 22° BTDC  6° ± 2° @ 1000 - 1100 RPM  1-2-3-4-5-6																				
<b>240 HP Timing</b>	<b>Maximum Timing BTDC</b> @ Cranking Speed @ 5750 RPM  <b>Idle Timing</b> <b>BTDC</b>  <b>Firing Order</b>	26° BTDC 20° BTDC  6° ± 2° @ 1000 - 1100 RPM  1-2-3-4-5-6																				



## 210/240 HP M<sup>2</sup> Jet Drive (Continued)

<b>OIL INJECTION</b>	<b>Recommended Oil</b>	Mercury Precision or Quicksilver Premium Plus NMMA Certified TC-W3
	<b>Oil Tank Capacity</b>	3 Gallons (11.4 Litres)
	<b>Approximate Time</b>	6.6 Hours
	<b>Reserve Capacity/Approximate Time</b>	.94 qt. (.89 Litre) / 30-35 minutes
	<b>Output @ 1000 RPM for 3 Minutes with Pump @ Full Open</b>	15cc @ 1000RPM

## Torque Chart

### PUMP UNIT

Special Items	Torque
Impeller Nut	150 lb. ft. (203 N·m)
Impeller Gear Nut	90 lb. ft. (122 N·m)
Pinion Shaft Housing Screw	180 lb. in. (20 N·m)
Drive Housing Cover Nuts	35 lb. ft. (47.5 N·m)
Stator Bolts	35 lb. ft. (47.5 N·m)
Nozzle to Stator Bolts	35 lb. ft. (47.5 N·m)
Rudder Pivot Bolt	50 lb. ft. (68 N·m)
Reverse Gate Pivot Bolt	50 lb. ft. (68 N·m)
Steering Lever Screw	180 lb. in. (20.2 N·m)
Reverse Gate Stop Screw	120 lb. in. (13.6 N·m)
Inlet Screen Screw (6 mm)	75 lb. in. (8.5 N·m)
Inlet Screen Screw (8 mm)	200 lb. in. (23 N·m)
Ride Plate Screw	75 lb. in. (8.5 N·m)
Impeller Shaft Cover Screw	180 lb. in. (20 N·m)

### POWERHEAD

Special Items	Torque
Adaptor Plate to Powerhead	35 lb. ft. (47.5 N·m)
Powerhead to Drive Housing Nuts	35 lb. ft. (47.5 N·m)
Cylinder Head	225 lb. in. (25.4 N·m) Then Turn Additional 90
Flywheel Nut	120 lb. ft. (162.7 N·m)
Main Bearing Bolts	270 lb. in. (30.4 N·m)
Connecting Rod Screws	120 lb. in. (13.6 N·m) Then Turn Additional 90
Transfer Port Cover	80 lb. in. (9.03 N·m)
Exhaust Manifold	180 lb. in. (20 N·m)
Expansion Chamber Nuts	35 lb. ft. (47.5 N·m)



## Standard Hardware

Screw or Nut Size	Torque
6 - 32	9 lb. in. (1.0 N·m)
8 - 32	20 lb. in. (2.3 N·m)
10 - 24	30 lb. in. (3.4 N·m)
10 - 32	35 lb. in. (3.9 N·m)
12 - 24	45 lb. in. (5.0 N·m)
1/4 - 20	70 lb. in. (7.8 N·m)
5/16 - 18	160 lb. in. (18.1 N·m)
3/8 - 16	270 lb. in. (30.4 N·m)

## Metric Hardware

A	B	Torque Specification		
		lb. in.	lb. ft.	N·m
8 mm	M5	36	3	4
10 mm	M6	70	6	8
12 mm	M8	156	13	18
14 mm	M10	312	26	36
17 mm	M12	372	31	42

