Service Manual Outline

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Section 7 - Attachments/Control Linkage

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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.

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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 Outboard Motor

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.

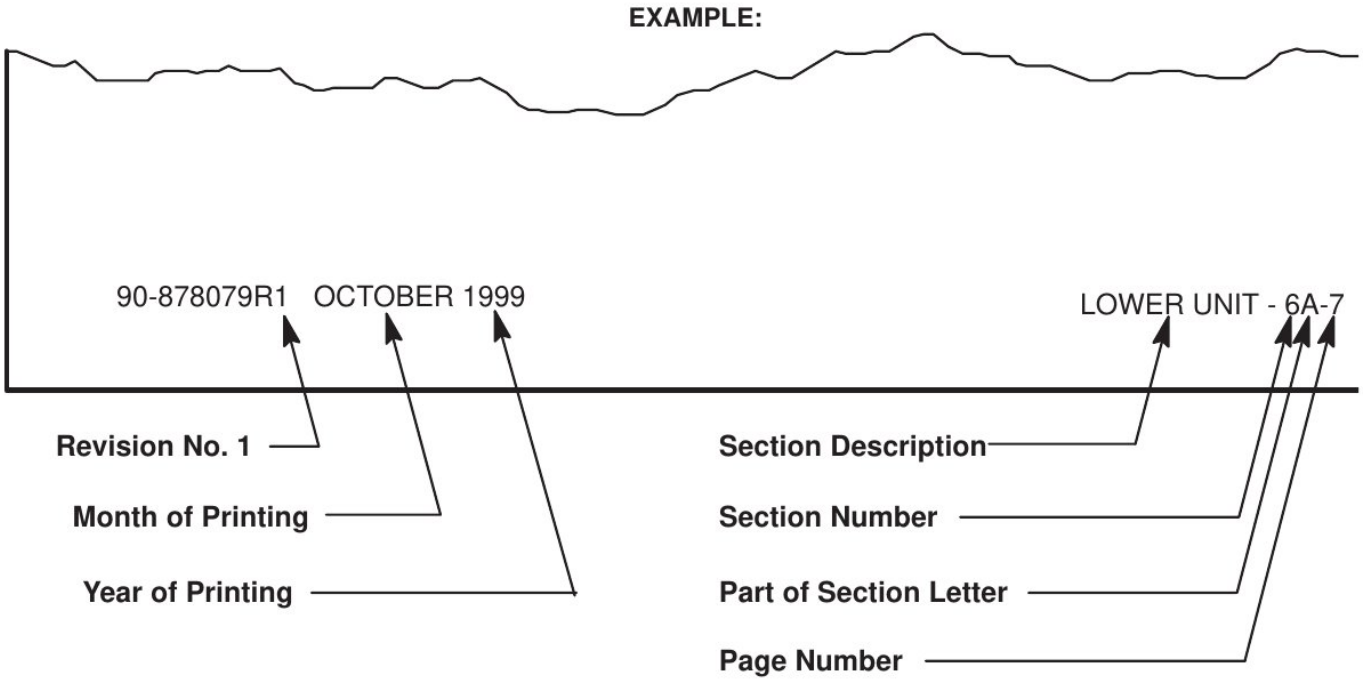
Personnel should not work on or under an outboard which is suspended. Outboards should be attached to work stands, or lowered to ground as soon as possible.

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.



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IMPORTANT INFORMATION

Section 1A - Specifications

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Specifications

Model 135/XR6/MAGIII/200/150XRI/175XRI/200XRI		
HORSEPOWER (KW)	**Model 135** **Model 150XRI** **Model XR6/MAGIII** **Model 175XRI** **Model 200/200XRI**	135 (100.6) 150 (111.8) 150 (111.8) 175 (130.5) 200 (149.1)
OUTBOARD WEIGHT	**Model 135** **Model XR6/MAGIII/200** **Model 150XRI/175XRI/200XRI**	413.0 lbs. (188.0 kg) 406.0 lb (184.0 kg) 416.0 lb (189.0 kg)
CYLINDER BLOCK	**Model 135** **Type** **Displacement** **Thermostat** **Model XR6/MAGIII/200 150XRI/175XRI/200XRI** **Type** **Displacement** **Thermostat**	 V–6 Cylinder, Two Cycle, Loop Charged 121.9 cu. in. (1998cc) 143°F (61.7°C) V–6 Cylinder, Two Cycle, Loop Charged 153.0 cu. in. (2507cc) 143°F (61.7°C)
STROKE	**Length (All Models)**	2.650 in. (67.31 mm)
CYLINDER BORE	**Diameter (Std)** **– Models 135** **– Models XR6/MAGIII/200 150XRI/175XRI/200XRI** **Taper/Out of Round/Maximum Wear** **Bore Type**	 3.125 in. (79.375 mm) 3.501 in. (88.925 mm) 0.003 in. (0.076 mm) Cast Iron
CRANKSHAFT	**Maximum Runout**	0.006 (0.152 mm)

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PISTON	**Piston Type** **Models 135** **Standard** **0.015 in. (0.381 mm) Oversize** **0.030 in. (0.762 mm) Oversize** **Models XR6/MAGIII/200** **150XRI/175XRI/200XRI** **Standard** **0.015 in. (0.381 mm) Oversize**	Aluminum 3.115 in. ± 0.002 in. (79.121 mm ± 0.051 mm) 3.130 in. ± 0.002 in. (79.502 mm ± 0.051 mm) 3.145 in. ± 0.002 in. (79.883 mm ± 0.051 mm) 3.494 in. ± 0.001 in. (88.748 mm ± 0.025 mm) 3.509 in. ± 0.001 in. (89.129 mm ± 0.025 mm)
COMPRESSION	**All Models – Using a fully charged battery, throttle shutters wide open and cylinder block warm**	110 – 135 psi (753.3 – 924.5 kPa) Variance between cylinders should not exceed 15 psi (102.7 kPa)
REEDS	**Model 135** **Model XR6/MAGIII/200** **Model 150XRI/175XRI/200XRI** **Reed Type** **Reed Stand 0pen (Max.)** **Reed Stop (Max.)**	 Steel 0.020 in. (0.50 mm) Not Adjustable
MID SECTION	**Power Trim (Total Tilt Range)** **Power Trim (Tilt Range)** **Maximum Allowable Leak down in 24 hrs.** **Tilt Pin Adjustment Positions** **Steering Pivot Range** **Allowable Transom Thickness**	75° 20° 1 in. (25.4 mm) 5 60° 2-3/8 in. (6.03 cm) Maximum
FUEL SYSTEM	**Fuel** **Recommended Gasoline** **Model 135** **Model XR6/MAGIII/200** **Model 150XRI/175XRI/200XRI** **Recommended Oil** **Model 135** **Model XR6/MAGIII/200** **Model 150XRI/175XRI/200XRI** **Gasoline/Oil Ratio** **Fuel Pressure Pulse Driven Pump** **– @ Idle** **– @ WOT**	Gasoline with Oil Injection Unleaded 87 Octane Minimum TC-W3 2 Cycle Outboard Oil Only 50:1 (25:1 Break-In) 1 – 3 psi (6.8 – 20.5 kPa) 12 psi (82.1 kPa) Minimum
STARTING SYSTEM	**Manual Start – All Models** **Electric Start – All Models** **Starter Draw (Under Load)** **Starter Load (No Load)** **Battery Rating**	Emergency Start Rope 175 Amperes 40 Amperes Min. 630 Marine Cranking Amps (MCA) or 490 Cold Cranking Amps (CCA)

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IGNITION SYSTEM	**Type** **Spark Plug Type** **Spark Plug Gap** **Firing Order**	Capacitor Discharge NGK BPZ8HS-10 0.040 in. (1.0 mm) 1-2-3-4-5-6
CHARGING SYSTEM	**Alternator Output (Regulated)** **Voltage Regulator Draw with Ignition Key in the Off Position**	40 Amperes @ 5000 rpm 0 – 4 Milliamperes Each (0 – 8 Milliamperes total system draw)

TIMING	**Idle Speed/Pickup Timing** **– 135 Carb Models** **– XR6/MAG III** **– 200 Carb** **– 150XRI/175 XRI Models** **– 200 XRI Model**	 0° – 9° ATDC
	Maximum BTDC **– Model 135** **@ Cranking Speed** **@ WOT RPM**	 25° BTDC 19° BTDC
	– XR6/MAG III Carb/175 XRI **@ Cranking Speed** **@ WOT RPM**	 26° BTDC 20° BTDC
	– Model 150 XRI **@ Cranking Speed** **@ WOT RPM**	 22° BTDC 16° BTDC
	– Model 200 Carb **@ Cranking Speed** **@ WOT RPM**	 24° BTDC 18° BTDC
	– Model 200XRI **@ Cranking Speed** **@ WOT RPM**	 24° BTDC 18° BTDC

***NOTE:** Timing specifications listed are for 2000 model year engines. Refer to timing decal on engine for previous model year timing specifications.*

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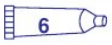
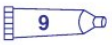
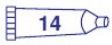
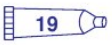
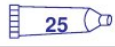
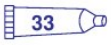
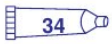
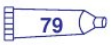
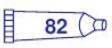
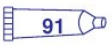
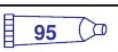
GEAR HOUSING	**Gear Ratio**	
	– Models 135	2.00:1 (14/28 teeth)
	– Models XR6/MAGIII/150XRI	1.87:1 (15/28 teeth)
	– Models 200/175XRI/200XRI	1.87:1 (15/28 teeth)
	Gear Ratio – High Altitude	
	– Models 135	2.30:1 (13/30 teeth)
	– Models XR6/MAGIII/175/200 150XRI/175XRI/200XRI	2.00:1 (14/28 teeth)
	Gearcase Capacity	
	– 1.87:1/2.00:1/2.30:1	22.5 fl oz (665.4 ml)
	Pinion Height	
	– All Models	0.025 in. (0.64 mm)
	Forward Gear Backlash	
	– 1.87:1 Ratio	0.018 in. – 0.027 in. (0.460 mm – 0.686 mm)
	– 2.00:1 Ratio	0.015 in. – 0.022 in. (0.381 mm – 0.558 mm)
	– 2.30:1 Ratio	0.018 in. – 0.023 in. (0.460 mm – 0.584 mm)
	Water Pressure @ rpm	12 psi Minimum @ 5500 rpm
OIL INJECTION	**Recommended Oil**	TC-W3
	Oil Tank Capacity	3 gal. (11.4 Liter)
	Approx. Time	
	– Model 135	8.7 hrs. Approx.
	– Model XR6/MAGIII/175/200	6.6 hrs. Approx.
	– Model 150XRI/175XRI/200XRI	6.6 hrs. Approx.
	Reserve Capacity/Approx. Time	.94 qt. (0.89 Liter) 30 – 35 min.
	Output @ 1000 RPM for 3 Minutes with Pump @ Full Open	
	– Model 135	12cc @ 1000 rpm
	– Model XR6/MAG III/200	15cc @ 1000 rpm
	– Model 150XRI/175XRI/200XRI	15cc @ 1000 rpm
FUEL INJECTION	**Idle RPM**	
	– All Models	650 ± 50
	Wide Open Throttle (WOT) RPM	
	– Model 150XRI/175XRI	5000 – 5600
	– Model 200XRI	5000 – 5800
	Float Adjustment (Vapor Separator)	
	Float Level	Preset @ Factory
	Injectors	
	– All Models (Quantity)	6
	– CDM # Controls:	
	– #1 Primary Circuit	#3 and #4 Injectors
	– #3 Primary Circuit	#5 and #6 Injectors
	– #5 Primary Circuit	#1 and #2 Injectors
	Line Pressure @ Injectors	34 psi – 36 psi (234 kPa – 248 kPa)

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CARBURETOR	**Idle RPM**	
	– Model 135/200	650 ± 50
	– Model XR6/MAGIII	675 ± 50
	Wide Open Throttle (WOT) RPM	
	– Model 135/200	5000 – 5500
	– Model XR6/MAGIII	5000 – 5500
	Idle Mixture Screw Adjustment (Preset - Turns Out)	
	– Carburetor Model 135	1-1/2 ± 1/8
	– Carburetor Models 150/200	1-1/4 ± 1/8
	– All EFI Models	Not Adjustable
	Float Adjustment	
	Float Level	Float Even with Bowl Edge with Bowl Inverted
CARBURETOR	**WMV Carburetor Jets**	
	– Model 135 (WMV 15)	
	– Main Jet	.072 (all cylinders)
	– Idle Air Jet	Cyl. 2,4 – .040 Cyl. 1 – .036 Cyl. 3 - .030 Cyl. 6 - .048 Cyl. 5 - .038
	– Vent Jet	.086 (all cylinders)
	– Model XR6/MAGIII (WMV 16)	
	– Main Jet	.074 (all cylinders)
	– Idle Air Jet	Cyl. 1,2,3,4,5 – .044 Cyl. 6 – .048
	– Vent Jet	.082 (all cylinders)
	– Model 200 (WMV 18)	
	– Main Jet	Cyl 2,3 – .082 Cyl. 1,4 – .080 Cyl. 5 – .084 Cyl. 6 – .078
	– Idle Air Jet	Cyl. 2 – .038 Cyl. 1 – .042 Cyl. 3,4,5,6 – .028
	– Vent Jet	.086 (all cylinders)

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Mercury/Quicksilver Lubricants and Sealants

Tube Ref. #	Description	Container Size	Mercury Part Number	Quicksilver Part Number
	Needle Bearing Assy. Lubricant	8 oz (226.8 g) tube	92-802868A1	N/A
	Dielectric Grease	8 oz (226.8 g) can	92-823506-1	92-823506-1
	Loctite 271 – Thread Locker	10 ml tube	92-809819	92-809819
	Loctite 567 PST Pipe Sealant	50 ml tube	92-809822	92-809822
	Loctite Master Gasket Kit		92-12564-2	92-12564-2
	2 Cycle Premium Outboard Oil	1 US qt (0.94 L)	92-802813A1	92-802813Q1
	Perfect Seal	16 oz (0.45 kg) can	92-34227-1	92-34227-1
	Liquid Neoprene	8 oz (226.8 g) can	92-25711-3	92-25711-3
	Bellows Adhesive	1.5 oz (42.5 g) tube	N/A	92-86166Q1
	Loctite 680 Retaining Compound	10 ml tube	92-809833	92-809833
	Special Lubricant 101	8 oz (226.8 g) tube	92-802865A1	92-802865Q1
	U-Joint and Gimbal Bearing Grease		92-802870A1	92-802870Q1
	Loctite 222 Thread Locker	10 ml tube	92-809818	92-809818
	Loctite 242 Thread Locker	10 ml tube	92-809821	92-809821
	4 Cycle 25W40 Engine Oil		92-802837A1	92-802837Q1
	Premium Gear Lubricant	1 US qt (0.94 L)	92-802846A1	92-802846Q1
	High Performance Gear Lube	1 US qt (0.94 L)	92-802854A1	92-802854Q1
	Engine Coupler Spline Grease	14 oz (0.39 kg) car-tridge	92-802869A1	92-802869Q1
	Anti-Corrosion Grease	8 oz (226.8 g) tube	92-802867A1	92-802867Q1
	2-4-C with Teflon	8 oz (226.8 g) tube	92-802859A1	92-802859Q1
	4 Stroke 10W30 Outboard Oil	1 US qt (0.94 L)	92-802833A1	92-802833Q1
	Power Trim & Steering Fluid	8 oz (226.8 g)	92-802880A1	92-802880Q1

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