Hi-Performance MARINER OUTBOARDS
MERCURY PERFORMANCE OUTBOARDS

service bulletin

No. 98-7

1999 2.5 EFI / Short Shaft / Offshore Specifications - S/N 0G857020 and Above

Powerhead Specifications

General Specifications	
Propshaft Horsepower	280
Cylinder Block Type	V-6 Cylinder, Two Cycle, Loop Charged
Induction	EFI
ECM - (Electronic Control Module)	P/N 856496-7
Firing Order	1-2-3-4-5-6
Idle RPM	900 In Gear
Idle Timing	(Non-Adjustable)
Maximum W.O.T. RPM	7500
Piston Type	Aluminum
Reed Type	Single Petal, Composite
Flywheel	Light Weight Steel
Oil Recommendation	Mercury Marine Performance Blend P/N 92-813743A2
Outboard Weight	15” Short Shaft (complete) 375 lbs. 20” EFI/Offshore (complete) 400 lbs.
Cylinder Block and Head Specifications	
Cylinder Block Displacement	153 CID (2507 cc)
Main Bearing Bore	2.3177 - 2.3214 in. (58.87 - 58.96mm)
Cylinder Bore (Diameter Standard)	3.5” (88.9 mm)

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Powerhead Specifications (Continued)

Cylinder Block and Head Specifications (Continued)	
Cylinder Bore (Taper/Out of Round Max.)	0.003 in. (0.076 mm)
Cylinder Bore Type	Ni-Com ® Plated
Compression Pressure	140 psi. (965 kPa)
Stroke	2.65” (67.3 mm)
(Clearances) Piston to Cylinder Wall	.008 in. max. (.203mm)
Cylinder Head Warpage	.002 in. (.05mm) over length of head
Water Pressure @ RPM	12 PSI Minimum @ 5500 RPM
Piston and Connecting Rod Specifications	
Piston (Standard Diameter)	3.495 in. ± .001 in. (88.77mm ± .025 mm)
Piston Ring End Gap (Measured in Cylinder)	.012 in. - .018 in. (0.30mm - 0.46mm)
Piston to Wrist Pin	.0015 in. max. (.038mm)
Piston Stake Pin (Height)	.010 in. - .030 in. (.254mm - .762mm)
Connecting Rods (Rod Big End Out of Round)	.0015 in. max. (.038mm)

Electrical Specifications

Starting System	
Starter Draw (Under Load)	175 Amperes
Starter Draw (No Load)	40 Amperes
Battery Rating	Min. Reserve Capacity - 100 Min. Min. Cold Cranking Capacity - 350 Amps.
Ignition System	
Ignition Type	Inductive
Spark Plug Type	CHAMPION - QL77CC P/N 33-941
Spark Plug Gap	(Gap .035)
Charging System	
Alternator Output	Max. Output 60 Amp (847 Watts)

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Fuel System Specifications

Fuel Recommendation	92 Min. Posted Octane (R+M)/2 or (98 RON) - Unleaded
Oil Mixture	40:1
Fuel Pressure	38 - 40 psi (262 - 276 kPa)

Mid Section Specifications

Transom Height	Standard = 15” (381mm) Long = 20” (508mm)
Full Trim / Tilt Range (EFI/Offshore)	78°
Full Trim / Tilt Range (Short Shaft)	72°
Steering Pivot Range	15” Offshore 52° 20” Offshore 60°
Allowable Transom Thickness	2-3/8 in. (6.03cm) Maximum

Gear Housing Specifications

Gearcase Rotation (Sportmaster)	Left or Right Hand
Gear Housing Ratio	1.87:1
Lower Unit Capacity	22.5 oz.
Gear Shift	F - N - R
Pinion Height	0.025 in. (0.64mm)
Forward Gear Backlash 1.87:1 Ratio	.021 in. - .026 in. (.53mm - .66mm)
Recommended Gear Lube	Mercury Marine Hi-Performance Gear Lube P/N 92-816026A4

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Powerhead Torque and Lube Specifications

QTY.	DESCRIPTION	TORQUE			LUBRICANTS
		lb. in.	lb. ft.	N·m	
1	**Flywheel Locknut**		150	203	
4	**Upper End Cap Bolts**		20	27	#271 Loctite
4	**Lower End Cap Bolts**	100		11	#271 Loctite
6	**Spark Plugs**		20	27	
168	**Reed Attaching Screws**	25		2.8	
12	**Reed Block Mounting Bolts**	120		14	#271 Loctite
6	**Injector Hold Down Nuts**	60		7	
2	**Crankcase Cover Bolts (Top 2 Bolts)**		45	61	*Light Oil
4	**Crankcase Cover Bolts (Middle 4 Bolts)**		40	54	*Light Oil
2	**Crankcase Cover Bolts (Bottom 2 Bolts)**		35	47	*Light Oil
10	**Crankcase Cover Bolts (Outer 10 Bolts)**		30	41	*Light Oil & #271 Loctite
20	**Exhaust Divider Plate Bolts**		20	27	#271 Loctite
24	**Cylinder Head Bolts**		40	54	*Light Oil
12	**Piston Rod Bolts**		40	54	#271 Loctite
6	**Reed Plate to Crankcase Housing Bolts**	120		14	#271 Loctite
4	**EFI Air Inlet Housing (1/4 in. Bolt)**	120		14	#271 Loctite
6	**EFI Air Inlet Housing (5/16 in. Bolt)**		20	27	#271 Loctite

* Place oil on underside of bolt head only (not on threads).

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Electrical System Troubleshooting

NOTE: *For troubleshooting powerhead electrical system use DDT (Digital Diagnostic Terminal) tester. Order systems diagnostic cartridge P/N 91-822608-5. Also (included) with cartridge is technician reference manual P/N 90-825159-3. To complete the connection between tester and engine use adapter cables P/N 84-822560A5.*

The DDT has LED failure indicators below the display. These indicators illuminate when a fault exists in the following electrical functions.

1. Ignition
2. Injector
3. Pump
4. Sensors
5. Switches
6. Miscellaneous - Lamp, Horn
7. Limiter
8. Break In

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