mercruiser
STERN DRIVES & INBOARDS

service bulletin

NUMBER: 83-5

CIRCULATE TO:
SERVICE MANAGER ☐
PARTS MANAGER ☐
MECHANICS ☐
"Place in a Service Bulletin Binder"

A. MCM 470 (S/N 6218037 and above), MCM 488 Tune-Up Specifications
B. MCM 470 (S/N 6218037 and above), MCM 488 Electrical Specifications
C. MCM 470 (S/N 6218037 and above), MCM 488 Carburetor Specifications
D. MCM 488 Internal Engine Specifications Camshaft

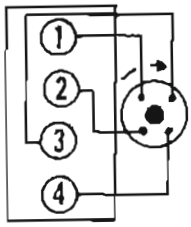
A. MCM 470 (S/N 6218037 and above), MCM 488 TUNE-UP SPECIFICATIONS

Model	470	488
Horsepower (Kilowatts)	170 (127kw)	188 (140kw)
Cu. In. Displacement	224 (3.7 liters)	
No. of Cyls.	4	
Bore	4.36" (11.07cm)	
Stroke	3.75" (9.53cm)	
Compression Ratio	8.8:1	
Compression Pressure	150 psi (1035 kPa)	
Point Gap	.022" (.56mm)	
Point Dwell	28° - 34°	
Point Spring Tension	19 - 23 oz. (538 - 652 g)	
Spark Plug Type	Champion RBL9Y or AC-R42TS	
Plug Gap	.035" (.89mm)	
Timing @ Idle RPM	8° BTDC	
Max. RPM @ W.O.T.	3800-4200	4400-4800
Idle RPM (In Gear)	650-700	
Firing Order	1-3-4-2	
Fuel Pump Pressure	3-6 psi (21 - 41 kPa)	
Electrical System	12-Volt Neg. Ground	

Model	470	488
Battery Rating	Min. 450 Amps - Cold Cranking Amperage	
Oil Pressure @ 2000 RPM	30 - 60 psi (207 - 414 kPa)	
Oil Pan Capacity w/Filter (*Approx.)	*5.5 Qts. (5.2 liters)	*6.5 Qts. (6.1 liters)
Alternator Rating	39 Amp @ 4200 RPM	
Closed Cooling System Capacity (Approx.)	11 Qts. (10.4 liters)	
Closed System Cap Pressure	14 psi (97 kPa)	
Thermostat	160°F (71°C)	
Stern Drive Unit Oil Capacity (Approx.)	32 Oz. (.95 liter)	
Stern Drive Unit Gear Ratio	1.84:1 1.65:1 (Optional)	

* *Approximately.*
ALWAYS use dipstick to determine exact quantity of oil required.

FRONT



Firing Order
1-3-4-2

Left-Hand Rotation Engine Firing Order

B. MCM 470 (S/N 6218037 and above), MCM 488 ELECTRICAL SPECIFICATIONS

IGNITION SPECIFICATIONS

Engine Model	470/488
Resistor Wire (Ohms)	1.8 - 2
Spark Plug Type Spark Plug Gap Point Dwell Point Spring Tension Timing	Refer to "Tune-Up Specifications"
Condenser	18 - .25 MFD

Engine Model	470/488
Coil	Coil Part No. 32193A2
Coil Primary Resistance (Ohms) Minimum	1.1
Coil Primary Resistance (Ohms) Maximum	1.5
Coil Secondary Resistance (Ohms)	9,500-15,000

STARTER MOTOR SPECIFICATIONS

Identification Number	No Load Test					Brush Spring Tension
	Volts	Min. Amps	Max. Amps	Min. RPM	Max. RPM	
50-97499A2 (Delco-Remy) 1998404	10.6	60	100	5300	10,600	56 - 105 Oz. (1588 - 2976 g)

ALTERNATOR SPECIFICATIONS

Identification Number	Ground	Rotation	Field Current		Output (Hot)
			Amps	Volts	
398-6231A6	Negative	Same as Engine	N.A.	N.A.	39 @ 4200 RPM
			Permanent Magnet		

C. MCM 470 (S/N 6218037 and above), MCM 488 CARBURETOR SPECIFICATIONS

All Measurements are ± 1/64" (0.4mm)

Model	470	488
Make (Model)	Rochester (2GV)	Rochester (4MV)
Part No. Mercury/Rochester	1376-5990/ 17057132	1347-8460/ 17081299
Float Level	11/16" (17.5mm) (NOTE 1)	1/4" (6.4mm) (NOTE 2)
Float Drop (NOTE 3)	1-3/4" (44.5mm) (NOTE 1)	N.A.
Pump Rod	1-5/32" (29.4mm)	N.A.
Pump Rod Hole Location	N.A.	Inner
Accelerator Pump (NOTE 4)	N.A.	23/64" (9.1mm)
Air Valve Dash Pot (Air Valve Rod)	N.A.	.025" (.64mm)
Vacuum Break	N.A.	.190" [3/16" (4.8mm)]
Air Valve Spring Wind Up	N.A.	1/4 Turn (40 - 50 g)
Choke Setting	Index Marks Aligned	

Model	470	488
Choke Unloader	.080" [5/64" (2.0mm)]	N.A.
Main Jet	.066" (16.8mm)	
Power Valve	.052" (13.2mm)	N.A.
Metering Rod (Primary)	N.A.	.036" (9.1mm)
Metering Rod (Secondary)	N.A.	D.E.
Idle Mixture Screw, Pre-liminary Setting	1-1/4 Turns	2 - 3 Turns

NOTES:

1) *Fuel Inlet Needle Is Spring Loaded. Before Checking Float Level, Raise Float and Allow It to Fall By Its Own. DO NOT FORCE FLOAT DOWNWARD BY HAND. Check and Adjust Float Level Using Existing Procedure.*
2) *Fuel Inlet Needle Is Spring Loaded. Float Lever Must Just Touch Inlet Needle Ball.* ***DO NOT PUSH DOWN*** *(Compress Spring)* ***ON BALL.***
3) *Float Drop Measured From Air Horn (With Gasket In Place) to Bottom - Most Part of Float. THIS IS DIFFERENT THAN OLD METHOD.*
4) *Accelerator Pump Measurement Taken From Flame Arrestor Mounting Surface to Pump Stem With Throttle Plates Fully Closed. THIS IS DIFFERENT THAN PREVIOUS METHOD.*

D. MCM 488 INTERNAL ENGINE SPECIFICATIONS

Camshaft

Lobe Lift (Max.)	Intake .287" (7.3mm) Exhaust .299" (7.6mm)
Color Code	Blue Paint (Near Dist. Gear)

Valves and Springs

Valve Clearance (with Lifter Collapsed)			.110" - .210" (2.794 - 5.334mm)
Valve Diameter			Intake 2.090" (53.1mm) Exhaust 1.661" (42.2mm)
Valve Face Angle			Intake 44° Exhaust 44°
Valve Spring (External Damper-Green Stripe)	Free Length		2.18 [2-3/16" (55.37mm)]
	Pressure Lbs. @ In. (NOTE 1)	Closed @ 1.86" (47.24mm)	90-100 Lbs. (40.8 - 45.3 kg)
		Open @ 1.36" (34.54mm)	255 - 275 (115.6 - 124.7 kg)
	Installed Height		1.86" [1-55/64" (47.2mm)]

NOTE 1: Test spring pressure with damper assembled.

Cylinder Head

Valve Seat Angle	Intake 45° Exhaust 45°
Valve Seat Width	Intake .060" - .080" Exhaust (1.5 - 2.0 mm)
Valve Seat Approach Angle	Intake 20° Exhaust 30°
Valve Seat Bottom Edge	Intake 60° Exhaust 60°

The rest of the internal engine specifications are the same as the 470/485