mercruiser STERN DRIVES & INBOARDS

service bulletin

TO: SERVICE MANAGER ☐ MECHANICS ☐
PARTS MANAGER ☐

No. 91-17

MCM 4.3L, 4.3LX Alpha GM Generation II Engine Specifications

NOTE: These engines have an electric fuel pump because there is no pad on block for mechanical pump.

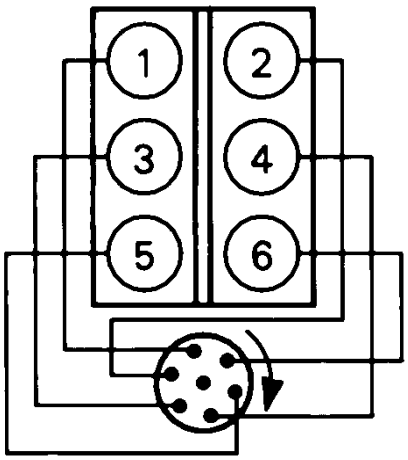
A. Tune-up Specifications
B. Electrical Specifications
C. Carburetor Specifications
D. Internal Engine Specifications
E. Torque Specifications
F. Wiring Diagram (Engine)
G. Water Flow Diagram

A. TUNE-UP SPECIFICATIONS

Model	4.3L	4.3LX
Propshaft Horsepower (Kilowatts)	155 (115)	175 (130)
Displacement	262 CID (4.3L)	
Engine Type and Number of Cylinders	V6	
Bore	4.00 in. (101.6mm)	
Stroke	3.48 in. (88.39mm)	
Compression Ratio	9.3:1	
Compression Pressure	180 psi (1241 kPa)	
Ignition	Thunderbolt IV HEI	
Spark Plug Type	AC-MR43T or Champion RV8C	
Spark Plug Gap	.035 in. (0.9mm)	
Timing at Idle RPM	8° BTDC	
Maximum RPM at Wide-Open-Throttle	4400-4800	
Idle RPM in Forward Gear	650-700	
Firing Order	1-6-5-4-3-2	
Fuel Required	87 Octane Minimum (Average Octane Rating)	
Fuel Pump Pressure	3-7 psi (21-48 kPa)	

Model	4.3L	4.3LX
Electrical System	12V Negative (-) Ground	
Alternator Rating	55 Amps	
Minimum Battery Rating Required	450 CCA or 90 Ah	
Crankcase Oil Capacity with New Filter*	Approx. 4.5 U.S. Qts. (4.3L)	
Oil Pressure at 2000 RPM	30-55 psi (207-379 kPa)	
Minimum Oil Pressure @ Idle	4 psi (28 kPa)	
Valve Lash	Not Adjustable	
Thermostat	143° F (62° C)	
Cooling System Capacity	15 U.S. Qts. (14.2L)	
Closed Cooling System Capacity	20 U.S. Qts. (18.9 L)	
Alpha Stern Drive Oil Capacity (Approx.)	39 Fl. Oz. (1160 ml)	

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



Firing Order
1-6-5-4-3-2

Figure 1. L.H. Rotation

B. ELECTRICAL SPECIFICATIONS

Coil Specifications

Coil	Part No. 392-7803A4
Coil Primary Resistance (Ohms) Minimum	.60
Coil Primary Resistance (Ohms) Maximum	.80
Coil Secondary Resistance (Ohms)	9.400-11.700

Starter Motor Specifications

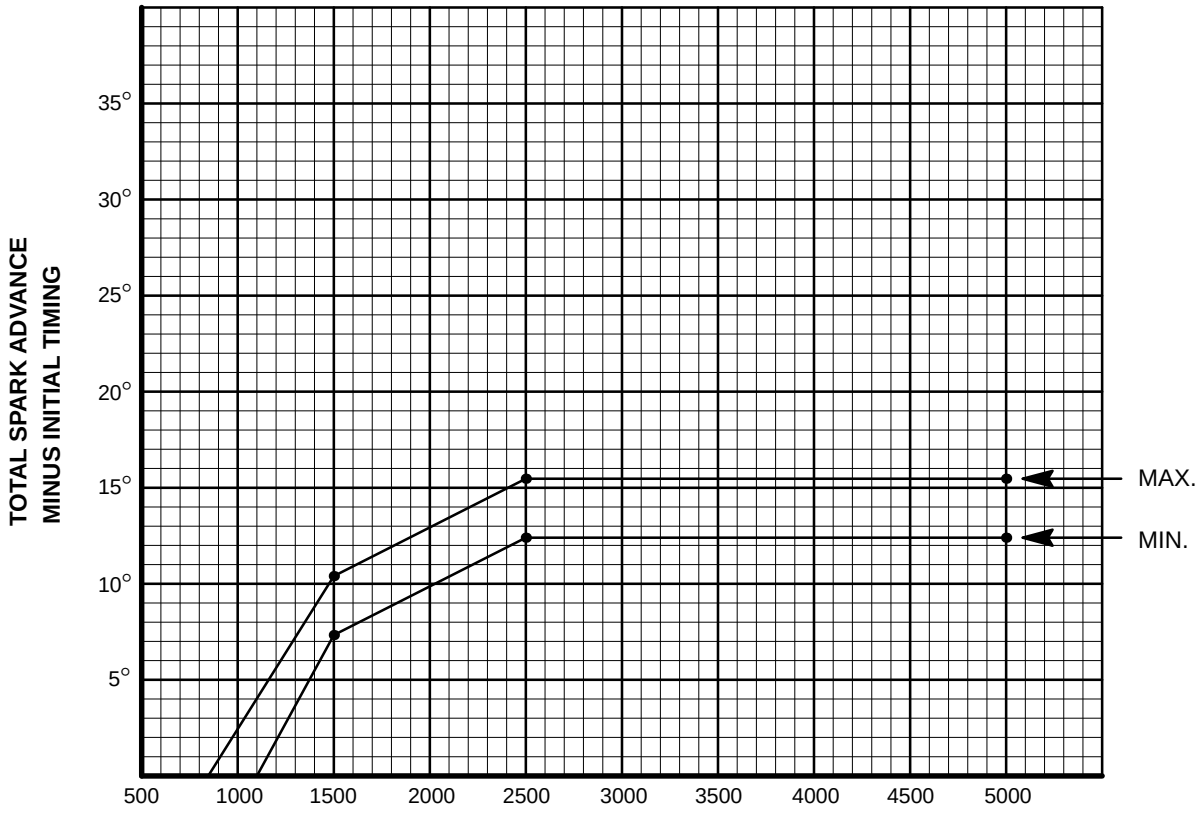
Part Number (Delco-Remy Number)	No Load Test					Brush Spring Tension
	Volts	Min. Amps	Max. Amps	Min. RPM	Max. RPM	
50-812428A_ (9000762) 50-812604A_ (9000768)	10.6	60	90	3,000	3,300	83-104 oz. (2353-2948 g)

IGNITION MODULE SPECIFICATIONS

Part Number: 15247A1
Identification Mark: V6-14
Module Advance: 14°
Initial Timing: 8° BTDC
Total Advance: 22°

Advance Curve

IMPORTANT: Advance curve chart does not include initial engine timing. Initial engine timing must be added to curve for total advance curve.



70808-7

C. CARBURETOR SPECIFICATIONS

All measurements are ± 1/64 in. (0.4mm).

Model 4.3L Alpha

Part Number	3304-9565A6
Float Drop	1-3/32 in. (27mm) (NOTE 1)
Float Level	3/8 in. (10mm) (NOTE 2)
Pump Rod	1-5/32 in. (29mm)
Choke Setting	Index Marks
Choke Unloader	.080 [5/64 in.] (0.2mm)
Main Jet	(1.60mm)
Power Valve	(0.75mm)
Float Weight	9 grams
Idle Mixture Screw (Preliminary)	1-1/4 Turn

NOTE 1: Float drop measured from air horn (with gasket in place) to toe of float.

NOTE 2: Carburetor uses solid needle.

Model 4.3LX Alpha

Part Number (Weber)	3310-818660A1 (9600)
Float Drop	2 in. (51mm)
Float Level	1-9/32 in. (33mm)
Pump Rod Hole Location	#3 from End
Accelerator Pump	7/16 in. (11mm) NOTE 1
Choke Pull Off	1/8 in. (3.3mm)
Choke Coil Rod	Top of Rod to be Even with Bottom of Lever Hole (NOTE 2)
Primary Jet	.089 in.
Metering Rod (Number)	16-6857
Secondary Jet	.095 in.
Idle Mixture Screw (Preliminary)	2 Turns

NOTE 1: Measured from Top of Carburetor to the bottom of “S” link.

NOTE 2: Remove choke rod from lever hole. Choke held closed and choke rod pushed down next to lever.

D. INTERNAL ENGINE SPECIFICATIONS

UNIT OF MEASUREMENT in. (mm)

Cylinder Bore:

Model			4.3L	4.3LX
Diameter			4.0007-4.0017 (101.6178-101.6431)	
Out of Round	Production		.001 (0.025) Max.	
	Service		.002 (0.05) Max.	
Taper	Production	Thrust Side	.0005 (0.0127) Max.	
		Relief Side	.001 (0.025) Max.	
	Service		.001 (0.02)Max.	

Piston:

Clearance	Production	.0007-.0017 (0.0178-0.0431)
	Service	.0027 (0.07) Max.

Piston Ring: (1)HI Production Limit

Compression	Groove Side Clearance	Production	Top	.0012-.0032 (0.0305-0.0813)
			2nd	.0012-.0032 (0.0305-0.0813)
		Service		(1) + .001 (0.02)
	Gap	Production	Top	.010-.020 (0.254-0.508)
			2nd	.010-.025 (0.254-0.635)
		Service		(1) + .010 (0.25)
Oil	Groove Side Clearance	Production		.002-.007 (0.050-0.177)
		Service		(1) + .001 (0.02)
	Gap	Production		.015-.055 (0.381-1.397)
		Service		(1) + .010 (0.25)

Piston Pin:

Diameter		.9270-.9273 (23.5458-23.5534)
Clearance	Production	.0002-.0007 (0.0051-0.0177)
	Service	.001 (0.02) Max.
Fit in Rod		.0008-.0016 (0.0203-0.0406) Interference

Crankshaft:

Main Journal	Diameter	No. 1	2.4484-2.4493 (62.1894-62.2122)
		No. 2, 3	2.4481-2.4490 (62.1817-62.2046)
		No. 4	2.4479-2.4488 (62.1767-62.1995)
	Taper	Production	.0002 (0.005) Max.
		Service	.001 (0.02) Max.
	Out of Round	Production	.0002 (0.005) Max.
		Service	.001 (0.02) Max.
Main Bearing Clearance	Production	No. 1	.0008-.0020 (0.0203-0.0508)
		No. 2, 3	.0011-.0023 (0.0279-0.0584)
		No. 4	.0017-.0032 (0.0432-0.0813)
	Service	No. 1	.001-.0015 (0.03)
		No. 2, 3	.001-.0025 (0.03-0.06)
		No. 4	.0025-.0035 (0.07-0.08)
Crankshaft End Play			.002-.006 (0.05-0.15)

Connecting Rod Journal	Diameter		2.2487-2.2497 (57.1170-57.1423)
	Taper	Production	.0005 (0.0127) Max.
		Service	.001 (0.02) Max.
	Out of Round	Production	.0005 (0.0127) Max.
		Service	.001 (0.02) Max.
Rod Bearing Clearance		Production	.0013-.0035 (0.0330-0.0889)
		Service	.003 (0.07) Max.
Rod Side Clearance			.006-.014 (0.15-0.35)
Crankshaft Runout			.0015 (0.0381) Max.

Camshaft and Drive:

Model		**4.3L**	**4.3LX**
Lobe Lift ± .002 (0.051)	Intake	.234 (5.9436)	
	Exhaust	.257 (6.5278)	
Journal Diameter		1.8682-1.8692 (47.452-47.478)	
Journal Out-of-Round		.001 (0.025) Max.	
Camshaft Run-Out		.002 (0.051) Max.	
Camshaft End Play		.004-.012 (0.11-0.30)	
Timing Chain Deflection		3/8 (10mm) from Taut Position 3/4 (19mm) Total	

Valve System:

Model			4.3L	4.3LX
Lifter Type			Hydraulic	
Rocker Arm Ratio			1.5:1	
Valve Lash (Intake & Exhaust			Fixed Lash	
Face Angle (Intake & Exhaust			45°	
Seat Angle (Intake & Exhaust			46°	
Seat Runout (Intake & Exhaust			.002 (0.051) Max.	
Seat Width		Intake	1/32-1/16 (0.8-1.6)	
		Exhaust	1/16-3/32 (1.6-2.3)	
Stem Clearance	Production	Intake	.001-.0027 (0.0254-0.0686)	
		Exhaust	.001-.0027 (0.0254-0.0686)	
	Service	Intake	.0037 (0.09)	
		Exhaust	.0047 (0.11)	

	Free Length		2.03 [2-1/32] (51.67)
Valve Spring	Pressure (NOTE 1)	Closed @ 1.70 [1-45/64] (43.18)	76-84 lbs. ft. (103-114 N·m)
		Open @ 1.25 [1-1/4] (31.75)	194-206 lbs. ft. (263-279 N·m)
	Installed Height		1.718 [1-23/32] (43.7)

NOTE 1: Test spring pressure with damper removed.

Cylinder Head:

Gasket Surface Flatness	.003 (0.07) in 6 (152) .007 (0.17) Overall Maximum

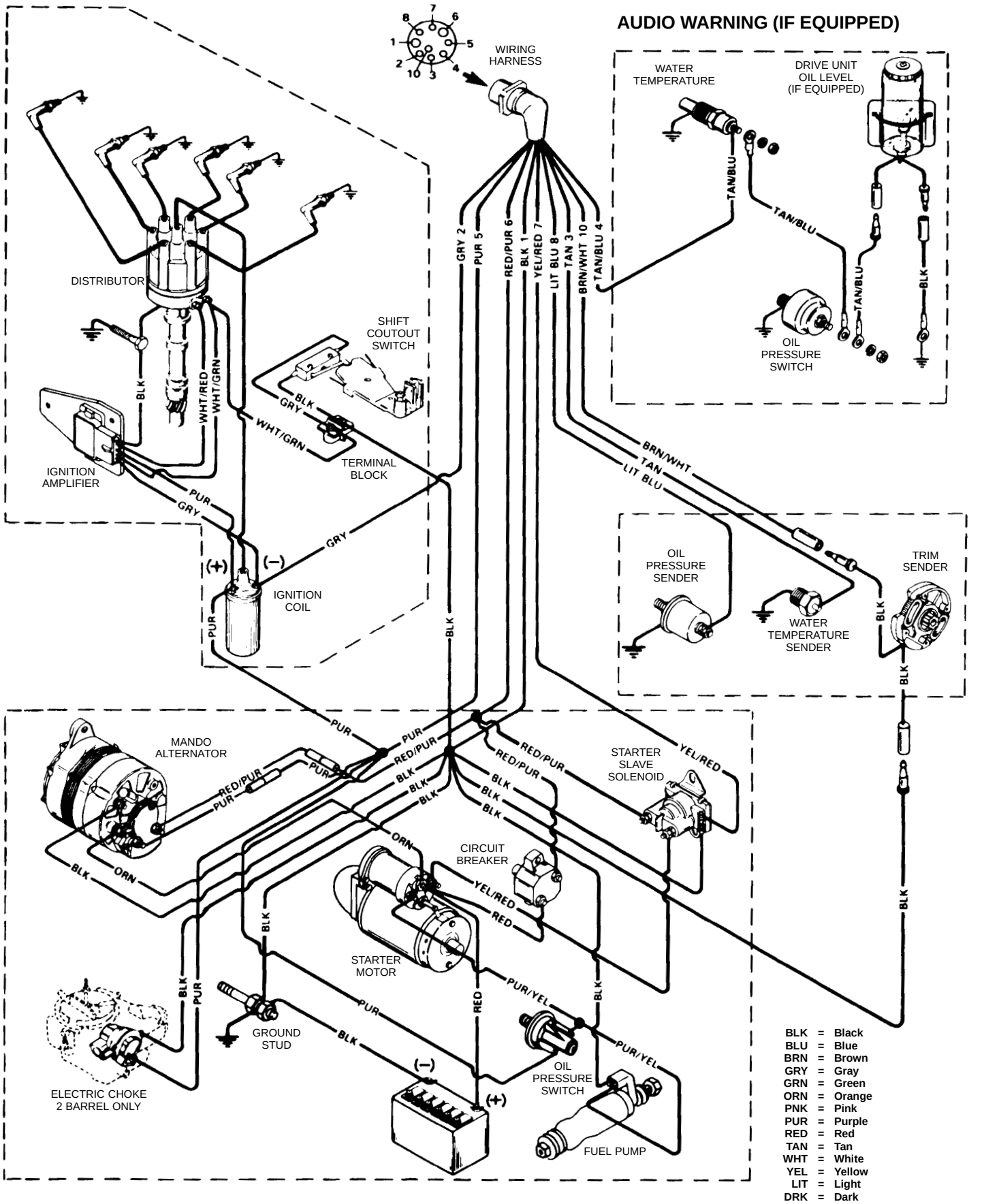
Flywheel:

Runout	.008 (0.203) Max.

E. TORQUE SPECIFICATIONS

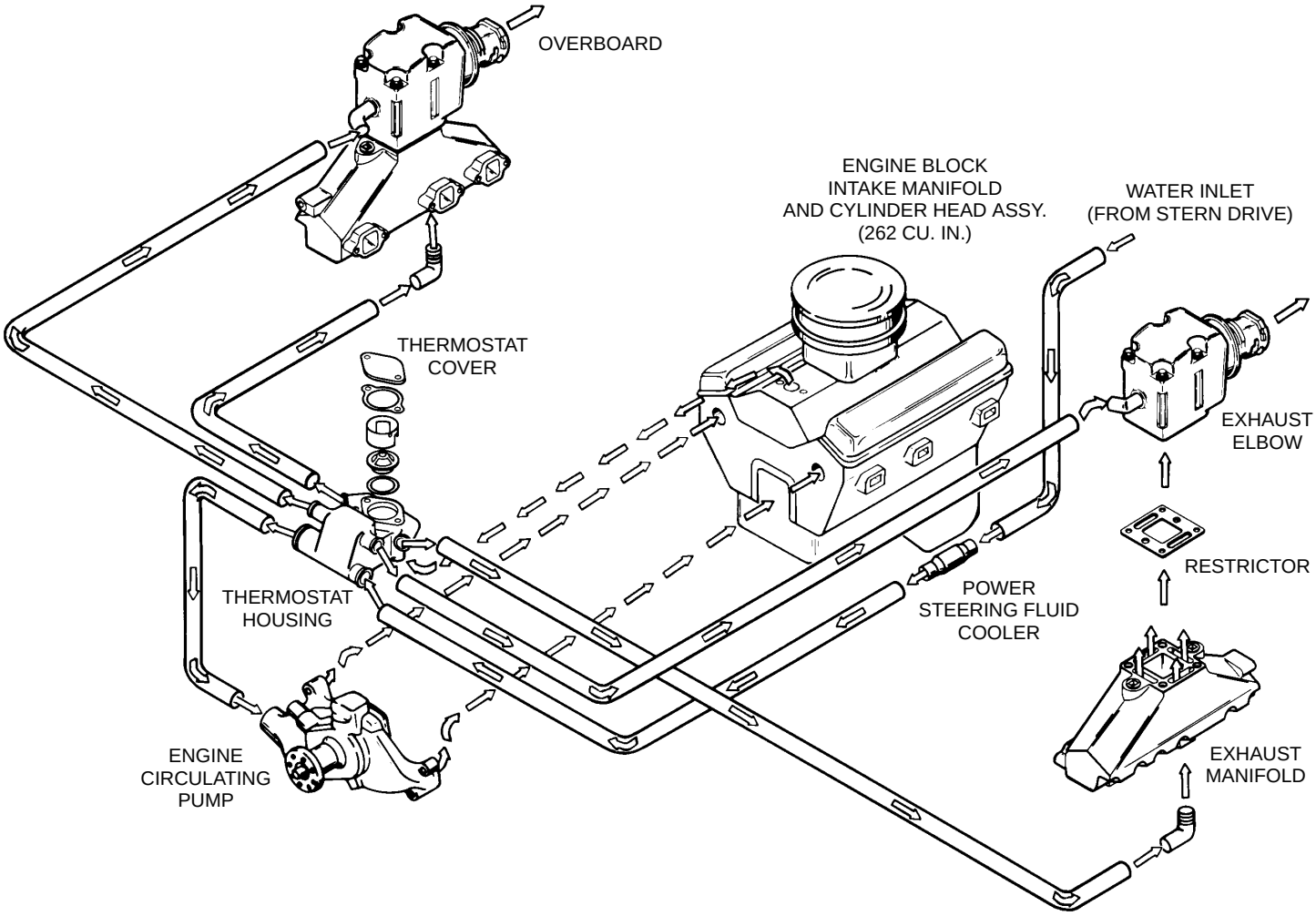
Camshaft Sprocket	20 lb.ft. (27 N·m)
Camshaft Thrust Plate	106 lb. in. (12 N·m)
Conn. Rod Cap	45 lb. ft. (61 N·m)
Crankcase Front Cover	124 lb. in. (14 N·m)
Cylinder Head	65 lb. ft. (88 N·m)
Distributor Clamp	25 lb. ft. (34 N·m)
Flywheel	75 lb. ft. (100 N·m)
Coupler or Drive Plate	35 lb. ft. (48 N·m)
Flywheel Housing	30 lb. ft. (41 N·m)
Hydraulic Lifter Restrictor Retainer Bolts	12 lb. ft. (16 N·m)
Intake Manifold	35 lb. ft. (48 N·m)
Main Bearing Cap	75 lb. ft. (100 N·m)
Oil Filter By-Pass Valve	80 lb. in. (9 N·m)
Oil Pan to Crankcase	165 lb. in. (19 N·m)
Oil Pan Nuts	17 lb. ft. (23 N·m)
Oil Pan Bolts	97 lb. in. (11 N·m)
Oil Pan Drain Plug	20 lb. ft. (27 N·m)
Oil Pump	65 lb. ft. (88 N·m)
Oil Pump Cover	80 lb. in. (9 N·m)
Rocker Arm Bolts	45 lb. ft. (61 N·m)
Rear Crankshaft Oil Seal Retainer Screws/Nuts	133 lb. in. (15 N·m)
Rocker Arm Cover	50 lb. in. (5.5 N·m)
Spark Plug	180 lb. in. (20 N·m)
Torsional Damper	70 lb. ft. (95 N·m)
Water Pump	30 lb. ft. (41 N·m)

F. ENGINE WIRING DIAGRAM (MCM 4.3L, 4.3LX ALPHA)

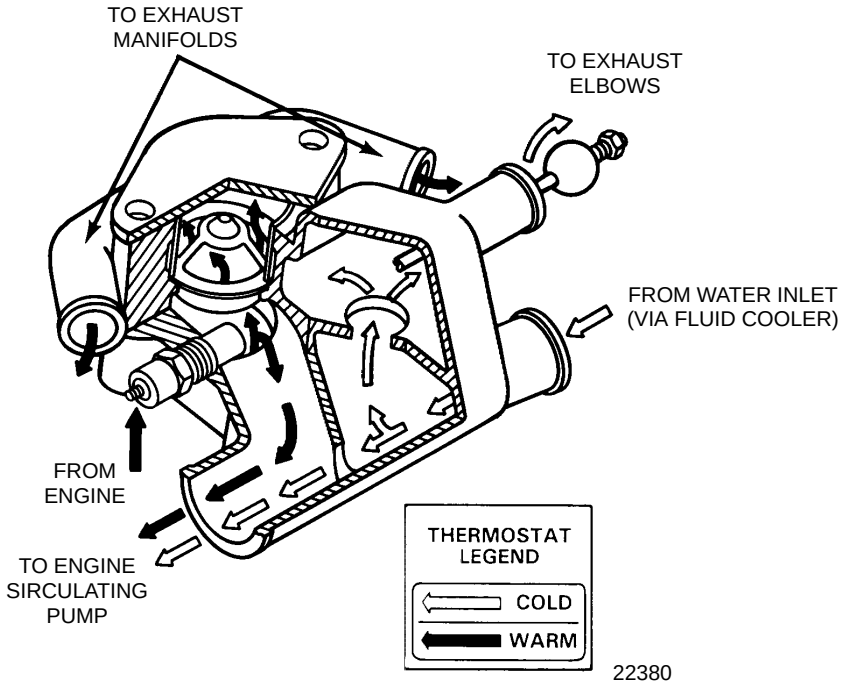


71088

G. WATER FLOW DIAGRAM (MCM 4.3L, 4.3LX ALPHA)



22381



22380