mercruiser STERN DRIVES & INBOARDS

service bulletin

TO: SERVICE MANAGER ☐ TECHNICIANS ☐
PARTS MANAGER ☐

Revised June 1997

No. 97-14

Engine Specification
Model: 1998 MCM 5.0L Alpha and Bravo.

Engine	
Propshaft Power	220 hp (164 Kw)
Displacement	305 cid (5.0L)
Engine Type / Rotation	V8 Gen+ / LH
Bore x Stroke	3.74 in. x 3.48 in. (95 mm x 88.4 mm)
Compression Ratio	9.4:1
Compression Pressure	Minimum 100 psi (690 kPa)
Oil Pressure @ 2000 RPM	Minimum 30 psi (207 kPa)
Oil Pressure @ idle RPM	Minimum 4 psi (30 kPa)
Valve Adjustment/Lifter	1 Turn Down From ’0’ Lash / Roller
Thermostat	160° F (71° C)
Ignition	
Type of Ignition System	Thunderbolt V
Firing Order	1-8-4-3-6-5-7-2
Spark Plug Type	Original: AC-MR43LTS Others: NGK BPR6EFS, Champion RS12YC
Spark Plug Gap	.045 in. (1.1 mm)
Initial Ignition Timing	10° BTDC at Idle RPM
Electrical	
Alternator	55 amps
Battery Required	Minimum 375 cca or 475 mca (90 Ah), 12v Negative (-) Ground
Fuel	
Type of Fuel System	MerCarb 2 bbl Carburetor with Electric Fuel Pump
Fuel Required	Minimum 87 Octane [R+M/2] / (90 RON)
Fuel Pressure	3-7 psi (21-48 kPa)
RPM	
Idle RPM	650 RPM in Neutral Gear
Full Throttle RPM	4400-4800 RPM
Carburetor	
Preliminary Idle Mixture	1-1/4 Turns
Float Level	11/32 in. (9 mm)
Float Drop	15/16 in. (24 mm)
Choke Unloader/Pull-Off	5/64 in. [.080 in.] (2 mm)
Choke Setting	2 Marks Clockwise
Capacities	
Oil Change with Filter	Approx. 5-1/2 US Qts. (5.2L)
Closed Cooling System	14-1/2 US Qts. (13.7L)
Sterndrive Gear Lube	Same as Before
MIE Transmission	N/A
MCM BlackTrac	N/A
Torques	
Exhaust Manifold or Elbow	25 lb. ft. (34 N·m)
Intake Manifold	132 lb. in. (15 N·m)
Cylinder Head	Same as 5.7L, See Service Manual #17
Flywheel	75 lb. ft. (100 N·m)
Flywheel Coupler/Driveplate	35 lb. ft. (48 N·m)

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Engine Specification

Model: 1998 MCM 5.0L EFI Alpha and Bravo.

Engine	
Propshaft Power	240 hp (178 Kw)
Displacement	305 cid (5.0L)
Engine Type / Rotation	V8 Gen+ / LH
Bore x Stroke	3.74 in. x 3.48 in. (95 mm x 88.4 mm)
Compression Ratio	9.4:1
Compression Pressure	Minimum 100 psi (690 kPa)
Oil Pressure @ 2000 RPM	Minimum 30 psi (207 kPa)
Oil Pressure @ idle RPM	Minimum 4 psi (30 kPa)
Valve Adjustment/Lifter	1 Turn Down From '0' Lash / Roller
Thermostat	160° F (71° C)
Ignition	
Type of Ignition System	Delco EST
Firing Order	1-8-4-3-6-5-7-2
Spark Plug Type	Original: AC-MR43LTS Others: NGK BPR6EFS, Champion RS12YC
Spark Plug Gap	.045 in. (1.1 mm)
Initial Ignition Timing	8° BTDC at Idle RPM
Electrical	
Alternator	65 amps
Battery Required	Minimum 550 cca or 700 mca (120 Ah), 12v Negative (-) Ground
Fuel	
Type of Fuel System	Throttle Body with Electric Fuel Pump
Fuel Required	Minimum 87 Octane [R+M/2] / (90 RON)
Fuel Pressure	30 psi (207 kPa)
RPM	
Idle RPM	600 RPM
Full Throttle RPM	4400-4800 RPM
Carburetor	
Preliminary Idle Mixture	N/A
Float Level	N/A
Float Drop	N/A
Choke Unloader/Pull-Off	N/A
Choke Setting	N/A
Capacities	
Oil Change with Filter	Approx. 5-1/2 US Qts. (5.2L)
Closed Cooling System	14-1/2 US Qts. (13.7L)
Sterndrive Gear Lube	Same as Before
MIE Transmission	N/A
MCM BlackTrac	N/A
Torques	
Exhaust Manifold or Elbow	25 lb. ft. (34 N·m)
Intake Manifold	132 lb. in. (15 N·m)
Cylinder Head	Same as 5.7L, See Service Manual #17
Flywheel	75 lb. ft. (100 N·m)
Flywheel Coupler/Driveplate	35 lb. ft. (48 N·m)

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Engine Specification

Models: 1998 MCM 5.7L Alpha and Bravo, MIE 5.7L Ski, MIE 5.7L Inboard.

Engine	
Propshaft Power	MCM 250 hp (186 Kw), MIE 260 hp (194Kw)
Displacement	350 cid (5.7L)
Engine Type / Rotation	V8 Gen+ / LH
Bore x Stroke	4.00 in. x 3.48 in. (101.6 mm x 88.4 mm)
Compression Ratio	9.4:1
Compression Pressure	Minimum 100 psi (690 kPa)
Oil Pressure @ 2000 RPM	Minimum 30 psi (207 kPa)
Oil Pressure @ idle RPM	Minimum 4 psi (30 kPa)
Valve Adjustment/Lifter	1 Turn Down From ’0’ Lash / Roller
Thermostat	160° F (71° C)
Ignition	
Type of Ignition System	Thunderbolt V
Firing Order	1-8-4-3-6-5-7-2
Spark Plug Type	Original: AC-MR43LTS Others: NGK BPR6EFS, Champion RS12YC
Spark Plug Gap	.045 in. (1.1 mm)
Initial Ignition Timing	10° BTDC at Idle RPM
Electrical	
Alternator	55 amps
Battery Required	Minimum 375 cca or 475 mca (90 Ah), 12v Negative (-) Ground
Fuel	
Type of Fuel System	MerCarb 2 bbl Carburetor with Electric Fuel Pump
Fuel Required	Minimum 87 Octane [R+M/2] / (90 RON)
Fuel Pressure	3-7 psi (21-48 kPa)
RPM	
Idle RPM	650 RPM in Neutral Gear
Full Throttle RPM	Alpha, Bravo, Ski: 4400-4800 RPM, Inboard: 4200-4600 RPM
Carburetor	
Preliminary Idle Mixture	1-1/4 Turns
Float Level	11/32 in. (9 mm)
Float Drop	15/16 in. (24 mm)
Choke Unloader/Pull-Off	5/64 in. [.080 in.] (2 mm)
Choke Setting	2 Marks Clockwise
Capacities	
Oil Change with Filter	Approx. 5-1/2 US Qts. (5.2L)
Closed Cooling System	14-1/2 US Qts. (13.7L)
Sterndrive Gear Lube	Same as Before
MIE Transmission	Same as Before
MCM BlackTrac	N/A
Torques	
Exhaust Manifold or Elbow	25 lb. ft. (34 N·m)
Intake Manifold	132 lb. in. (15 N·m)
Cylinder Head	See Service Manual #17
Flywheel	75 lb. ft. (100 N·m)
Flywheel Coupler/Driveplate	35 lb. ft. (48 N·m)

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Engine Specification

Models: 1998 MCM 350 Mag MPI Alpha and Bravo, MIE 350 Mag MPI Ski, MIE 350 Mag MPI Inboard.

Engine	
Propshaft Power	300 hp (224 Kw)
Displacement	350 cid (5.7L)
Engine Type / Rotation	V8 Gen+ / LH
Bore x Stroke	4.00 in. x 3.48 in. (101.6 mm x 88.4 mm)
Compression Ratio	9.4:1
Compression Pressure	Minimum 100 psi (690 kPa)
Oil Pressure @ 2000 RPM	Minimum 30 psi (207 kPa)
Oil Pressure @ idle RPM	Minimum 4 psi (30 kPa)
Valve Adjustment/Lifter	1 Turn Down From '0' Lash / Roller
Thermostat	160° F (71° C)
Ignition	
Type of Ignition System	Delco EST
Firing Order	1-8-4-3-6-5-7-2
Spark Plug Type	Original: AC-MR43LTS Others: NGK BPR6EFS, Champion RS12YC
Spark Plug Gap	.045 in. (1.1 mm)
Initial Ignition Timing	8° BTDC at Idle RPM
Electrical	
Alternator	65 amps
Battery Required	Minimum 550 cca or 700 mca (120 Ah), 12v Negative (-) Ground
Fuel	
Type of Fuel System	Multi Port Fuel Injection with Electric Fuel Pump
Fuel Required	Minimum 87 Octane [R+M/2] / (90 RON)
Fuel Pressure	30 psi (207 kPa)
RPM	
Idle RPM	600 RPM
Full Throttle RPM	Alpha, Bravo, Ski: 4600-5000 RPM, Inboard: 4400-4800 RPM
Carburetor	
Preliminary Idle Mixture	N/A
Float Level	N/A
Float Drop	N/A
Choke Unloader/Pull-Off	N/A
Choke Setting	N/A
Capacities	
Oil Change with Filter	Approx. 5-1/2 US Qts. (5.2L)
Closed Cooling System	14-1/2 US Qts. (13.7L)
Sterndrive Gear Lube	Same as Before
MIE Transmission	Same as Before
MCM BlackTrac	Approx. 2 US Qts. (1.9L)
Torques	
Exhaust Manifold or Elbow	25 lb. ft. (34 N·m)
Intake Manifold	132 lb. in. (15 N·m)
Cylinder Head	See Service Manual #17
Flywheel	75 lb. ft. (100 N·m)
Flywheel Coupler/Driveplate	35 lb. ft. (48 N·m)

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Engine Specification

Models: 1998 MCM 7.4L MPI Bravo, MIE 7.4L MPI Inboard.

Engine	
Propshaft Power	310 hp (231 Kw)
Displacement	454 cid (7.4L)
Engine Type / Rotation	V8 L29 / LH
Bore x Stroke	4.25 in. x 4.00 in. (108 mm x 101.6 mm)
Compression Ratio	8.0:1
Compression Pressure	Minimum 100 psi (690 kPa)
Oil Pressure @ 2000 RPM	Minimum 30 psi (207 kPa)
Oil Pressure @ idle RPM	Minimum 4 psi (28 kPa)
Valve Adjustment/Lifter	Not Adjustable, Torque to 45 lb. ft. (61 N·m) / Roller
Thermostat	160° F (71° C)
Ignition	
Type of Ignition System	Delco EST
Firing Order	1-8-4-3-6-5-7-2
Spark Plug Type	Original: AC-MR43LTS Others: NGK BPR6EFS, Champion RS12YC
Spark Plug Gap	.045 in. (1.1 mm)
Initial Ignition Timing	8° BTDC at Idle RPM
Electrical	
Alternator	65 amps
Battery Required	Minimum 650 cca or 825 mca (150 Ah), 12v Negative (-) Ground
Fuel	
Type of Fuel System	Multi Port Fuel Injection with Electric Fuel Pump
Fuel Required	Minimum 87 Octane [R+M/2] / (90 RON)
Fuel Pressure	36 psi (248 kPa)
RPM	
Idle RPM	600 RPM
Full Throttle RPM	Bravo 4200-4600 RPM, Inboard: 4000-4400 RPM
Carburetor	
Preliminary Idle Mixture	N/A
Float Level	N/A
Float Drop	N/A
Choke Unloader/Pull-Off	N/A
Choke Setting	N/A
Capacities	
Oil Change with Filter	Approx. 7 US Qts. (6.6L)
Closed Cooling System	18 US Qts. (17L)
Sterndrive Gear Lube	Same as Before
MIE Transmission	Same as Before
MCM BlackTrac	Approx. 2 US Qts. (1.9L)
Torques	
Exhaust Manifold or Elbow	25 lb. ft. (34 N·m)
Intake Manifold	Lower Bolts: 30 lb. ft. (40 N·m) Upper Bolts: 124 lb. in. (14 N·m)
Cylinder Head	85 lb. ft. (115 N·m)
Flywheel	65 lb. ft. (90 N·m)
Flywheel Coupler/Driveplate	35 lb. ft. (48 N·m)

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Engine Specification

Model: 1998 MIE 454 Mag MPI Horizon Inboard.

Engine	
Propshaft Power	380 hp (283 Kw)
Displacement	454 cid (7.4L)
Engine Type / Rotation	V8 Gen VI / LH
Bore x Stroke	4.25 in. x 4.00 in. (108 mm x 101.6 mm)
Compression Ratio	8.6:1
Compression Pressure	Minimum 100 psi (690 kPa)
Oil Pressure @ 2000 RPM	Minimum 30 psi (207 kPa)
Oil Pressure @ idle RPM	Minimum 4 psi (28 kPa)
Valve Adjustment/Lifter	Non Adjustable, Torque to 45 lb. ft. (61 N·m) / Roller
Thermostat	160° F (71° C)
Ignition	
Type of Ignition System	Delco EST
Firing Order	1-8-4-3-6-5-7-2
Spark Plug Type	Original: NGK BR6FVX Platinum Others: AC-MR43T, NGK BP6FS
Spark Plug Gap	NGK: .035 in. (0.9 mm) AC: .040 in. (1 mm)
Initial Ignition Timing	8° BTDC at Idle RPM
Electrical	
Alternator	65 amps
Battery Required	Minimum 650 cca or 825 mca (150 Ah), 12v Negative (-) Ground
Fuel	
Type of Fuel System	Multi Port Fuel Injection with Electric Fuel Pump
Fuel Required	Minimum 87 Octane [R+M/2] / (90 RON)
Fuel Pressure	36 psi (248 kPa)
RPM	
Idle RPM	600 RPM
Full Throttle RPM	4400-4800 RPM
Carburetor	
Preliminary Idle Mixture	N/A
Float Level	N/A
Float Drop	N/A
Choke Unloader/Pull-Off	N/A
Choke Setting	N/A
Capacities	
Oil Change with Filter	Approx. 7 US Qts. (6.6L)
Closed Cooling System	18 US Qts. (17L)
Sterndrive Gear Lube	N/A
MIE Transmission	Same as Before
MCM BlackTrac	N/A
Torques	
Exhaust Manifold or Elbow	25 lb. ft. (34 N·m)
Intake Manifold	30 lb. ft. (41 N·m)
Cylinder Head	85 lb. ft. (115 N·m)
Flywheel	70 lb. ft. (95 N·m)
Flywheel Coupler/Driveplate	35 lb. ft. (48 N·m)

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