mercruiser STERN DRIVES & INBOARDS

service bulletin

NUMBER: 85-21

# MCM 185MR/205MR (262 CID V-6) SPECIFICATIONS

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



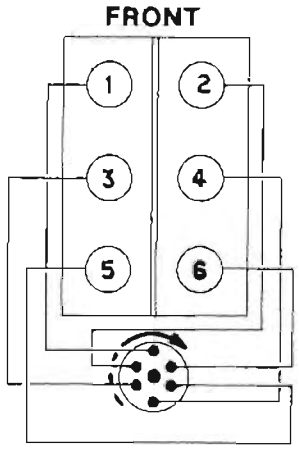
## A. TUNE-UP SPECIFICATIONS

| Model | 185MR | 205MR |
|---|---|---|
| Horsepower (Kilowatts) | 185 (138kw) | 205 (153kw) |
| Cu. In. Displacement | 262 CID (4.3 Litre) | |
| No. of Cyls. | V-6 | |
| Bore | 4.000" (101.6mm) | |
| Stroke | 3.480" (88.4mm) | |
| Compression Ratio | 9.3:1 | |
| Compression Pressure | 180 PSI (1241 kPa) | |
| Ignition | Thunderbolt IV (HEI) | |
| Fuel Required | 86 Octane Min. (Average Octane Rating) | |
| Spark Plug Type | AC-MR43T or Champion RV8C | |
| Plug Gap | .035" (9mm) | |
| Timing @ Idle RPM | 8° BTDC (Note 1) | |
| Max. RPM @ W.O.T. | 4400-4800 RPM | |
| Idle RPM (In Gear) | 650-700 RPM | |
| Firing Order | 1-6-5-4-3-2 | |
| Fuel Pump Pressure | 3-7 PSI (21-48 kPa) | |
| Electrical System | 12-Volt Neg. Ground | |
| Battery Rating | Min. 400 Amps - Cold Cranking Amperage | |
| Oil Pressure @ 2000 RPM | 30-55 PSI (207-379 kPa) | |

| Model | 185MR | 205MR |
|---|---|---|
| Oil Pan Capacity w/Filter (*Approx.) | 4-1/2 Qts. (4.3 Litres) | |
| Alternator Rating | 55 Amps | |
| Closed Cooling System Capacity (*Approx.) | 15 Qts. (14 Litres) | |
| Closed System Cap Pressure | 14 PSI (97 kPa) | |
| Thermostat | 143°F (62°C) | |
| Stern Drive Unit Oil Capacity (*Approx.) | 32 Oz. (.95 Litre) | |
| Stern Drive Unit Gear Ratio | 1.84:1 (1.65:1 Opt.) | 1.65:1 (1.50:1 Opt.) |

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

*NOTE 1: Ignition Amplifier on V-6 has different advance curve than V-8. Do not interchange.*




**Firing Order**
**1-6-5-4-3-2**
**Left-Hand Rotation Engine Firing Order**

## B. ELECTRICAL SPECIFICATIONS

### IGNITION SPECIFICATIONS

| Engine Model | 185MR | 205MR |
|---|---|---|
| Spark Plug Type<br>Spark Plug Gap<br>Timing | Refer to "Tune-Up Specifications" | |

| Engine Model | 185MR | 205MR |
|---|---|---|
| Coil | 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

| Identification Number | No Load Test | | | | | Brush Spring Tension |
|---|---|---|---|---|---|---|
| | Volts | Min. Amps | Max. Amps | Min. RPM | Max. RPM | |
| 50-12121A2 (Delco-Remy) 1998513 1998568 | 10.6 | 60 | 100 | 5300 | 10,600 | 56-105 Oz. (1588-2976 g) |

## C. CARBURETOR SPECIFICATIONS

**All Measurements are ± 1/64" (.4mm)**

| Model | 185MR | 205MR |
|---|---|---|
| Make (Model) | MerCarb (35mm) | Rochester (4MV) |
| Part No. Mercury (Rochester) | 3304-9353 | 3304-9354 (17084516) |
| Float Level | 5/8" (Note 1) (15.8mm) | 15/64" (5.9mm) |
| Float Drop (NOTE 2) | 1-3/4" (44.5mm) | |
| Pump Rod | 1-5/32" (29mm) | |
| Pump Rod Hole Location | | Inner |
| Accelerator Pump (NOTE 3) | | 23/64" (9.1mm) |
| Air Valve Dash Pot (Air Valve Rod) | | .025" (.64mm) |
| Vacuum Break | | .080" [5/64" (2.0mm)] |
| Air Valve Spring Wind Up | | 1/4 Turn (40-50 g) |
| Choke Setting | Index Marks Aligned | (NOTE 4) |

| Model | 185MR | 205MR |
|---|---|---|
| Choke Unloader | .080" [5/64" (2.0mm)] | |
| Main Jet | 1.65mm | .066" |
| Power Valve | .74mm | |
| Metering Rod (Primary) | | .036" |
| Metering Rod (Secondary) | | DH |
| Idle Mixture Screw, Preliminary 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) *Float Drop Measured From Air Horn (With Gasket In Place) to Toe of Float. THIS IS DIFFERENT THAN OLD METHOD.*
3) *Accelerator Pump Measurement Taken From Flame Arrestor Mounting Surface to Pump Stem With Throttle Plates Fully Closed.*
4) *Choke Coil Rod Adjustment Performed With Choke Valve Completely Closed, Choke Rod In Bottom of Choke Lever Slot and Choke Coil Rod Pushed Down to End of Travel.*

## D. INTERNAL ENGINE SPECIFICATIONS

**Cylinder Bore:**

| | | | |
|---|---|---|---|
| Diameter | | | 3.9995"-4.0025" (101.5873-101.6635mm) |
| Out of Round | Production | | .001" (.025mm) Max. |
| | Service | | .002" (.051mm) Max. |
| Taper | Production | Thrust Side | .0005" (.0127mm) Max. |
| | | Relief Side | .001" (.025mm) Max. |
| | Service | | .001" (.025mm) Max. |

**Piston:**

| | | |
|---|---|---|
| Clearance | Production | .0007" - .0017" (.0178-.0432mm) |
| | Service | .0027" (.0686mm) Max. |

**Piston Ring: (1) HI Production Limit**

| | | | | |
|---|---|---|---|---|
| Compression | Groove Side Clearance | Production | Top | .0012" - .0032" (.0305 - .0813mm) |
| | | | 2nd | .0012" - .0032" (.0305 - .0813mm) |
| | | Service | | (1) +.001" (.025mm) |
| | Gap | Production | Top | .010" - .020" (.254 - .508mm) |
| | | | 2nd | .010" - .025" (.254 - .635mm) |
| | | Service | | (1) +.010" (.254mm) |
| Oil | Groove Side Clearance | Production | | .002" - .007" (.051 - .178mm) |
| | | Service | | (1) +.001" (.025mm) |
| | Gap | Production | | .015" - .055" (.381 - 1.397mm) |
| | | Service | | (1) +.010" (.254mm) |

**Piston Pin:**

| | | |
|---|---|---|
| Diameter | | .9270" - .9273" (23.5458 - 23.5534mm) |
| Clearance | Production | .00025" - .00035" (.00635 - .00889mm) |
| | Service | .001" (.025mm) Max. |
| Fit in Rod | | .0008" - .0016" (.0203 - .0406mm) Interference |

**Crankshaft:**

| | | | |
|---|---|---|---|
| Main Journal | Diameter | No. 1 | 2.4484" - 2.4493" (62.1894 - 62.2122mm) |
| | | No. 2, 3 | 2.4481" - 2.4490" (62.1817 - 62.2046mm) |
| | | No. 4 | 2.4479" - 2.4488" (62.1767 - 62.1995mm) |
| | Taper | Production | .0002" (.0051mm) Max. |
| | | Service | .001" (.025mm) Max. |
| | Out of Round | Production | .0002" (.0051mm) Max. |
| | | Service | .001" (.025mm) Max. |
| Main Bearing Clearance | Production | No. 1 | .0008" - .0020" (.0203 - .0508mm) |
| | | No. 2, 3 | .0011" - .0023" (.0279 - .0584mm) |
| | | No. 4 | .0017" - .0032" (.0432 - .0813mm) |
| | Service | No. 1 | .001" - .0015" (.0254 - .0381mm) |
| | | No. 2, 3 | .001" - .0025" (.0254 - .0635mm) |
| | | No. 4 | .0025" - .0035" (.0635 - .0889mm) |
| Crankshaft End Play | | | .002" - .006" (.051 - .152mm) |
| Connecting Rod Journal | Diameter | | 2.0986" - 2.0998" (53.3095 - 53.3349mm) |
| | Taper | Production | .0005" (.0127mm) Max. |
| | | Service | .001" (.025mm) Max. |
| | Out of Round | Production | .0005" (.0127mm) Max. |
| | | Service | .001" (.025mm) Max. |
| Rod Bearing Clearance | | Production | .0013" - .0035" (.0330 - .0889mm) |
| | | Service | .003" (.0762mm) Max. |
| Rod Side Clearance | | | .006" - .014" (.152 - .356mm) |
| Crankshaft Runout | | | .0015" (.0381mm) Max. |

**Camshaft and Drive:**

| | | |
|---|---|---|
| Lobe Lift ±.002" (.051mm) | Intake | .273" (6.9342mm) |
| | Exhaust | .273" (6.9342mm) |
| Journal Diameter | | 1.8682" - 1.8692" (47.452 - 47.478mm) |
| Journal Out-of-Round | | .001" (.025mm) Max. |
| Camshaft End Play | | .004" - .012" (.102 - .304mm) |
| Timing Chain Deflection | | 3/8" (9.5mm) From Taut Position [3/4" (19.1mm) Total] |

**Valve System:**

| | | | |
|---|---|---|---|
| Lifter Type | | | Hydraulic |
| Rocker Arm Ratio | | | 1.50 to 1 |
| Valve Lash (Intake & Exhaust) | | | 1 Turn Down from Zero Lash |
| Face Angle (Intake & Exhaust) | | | 45° |
| Seat Angle (Intake & Exhaust) | | | 46° |
| Seat Runout (Intake & Exhaust) | | | .002" (.051mm) Max. |
| Seat Width | Intake | | 1/32" - 1/16" (.79 - 1.59mm) |
| | Exhaust | | 1/16" - 3/32" (1.59 - 2.38mm) |
| Stem Clearance | Production | Intake | .0010" - .0027" (.0254 - .0686mm) |
| | | Exhaust | .0010" - .0027" (.0254 - .0686mm) |
| | Service | Intake | .0037" (.0940mm) |
| | | Exhaust | .0047" (.1194mm) |
| Valve Spring | Free Length | | 2.03" (51.6mm) |
| | Pressure Lbs. @ In. (NOTE 1) | Closed @ 1.70" (43.16) | 76 - 84 Lbs. (34.5 - 38.1kg) |
| | | Open @ 1.25" (31.75mm) | 194 - 206 Lbs. (88.1 - 93.5kg) |
| | Installed Height | | 1-23/32" (43.7mm) |
| Damper | Free Length | | 1.86" (47.24mm) |
| | Approximate No. of Coils | | 4 |

*NOTE 1: Test spring pressure with damper removed.*

**Cylinder Head:**

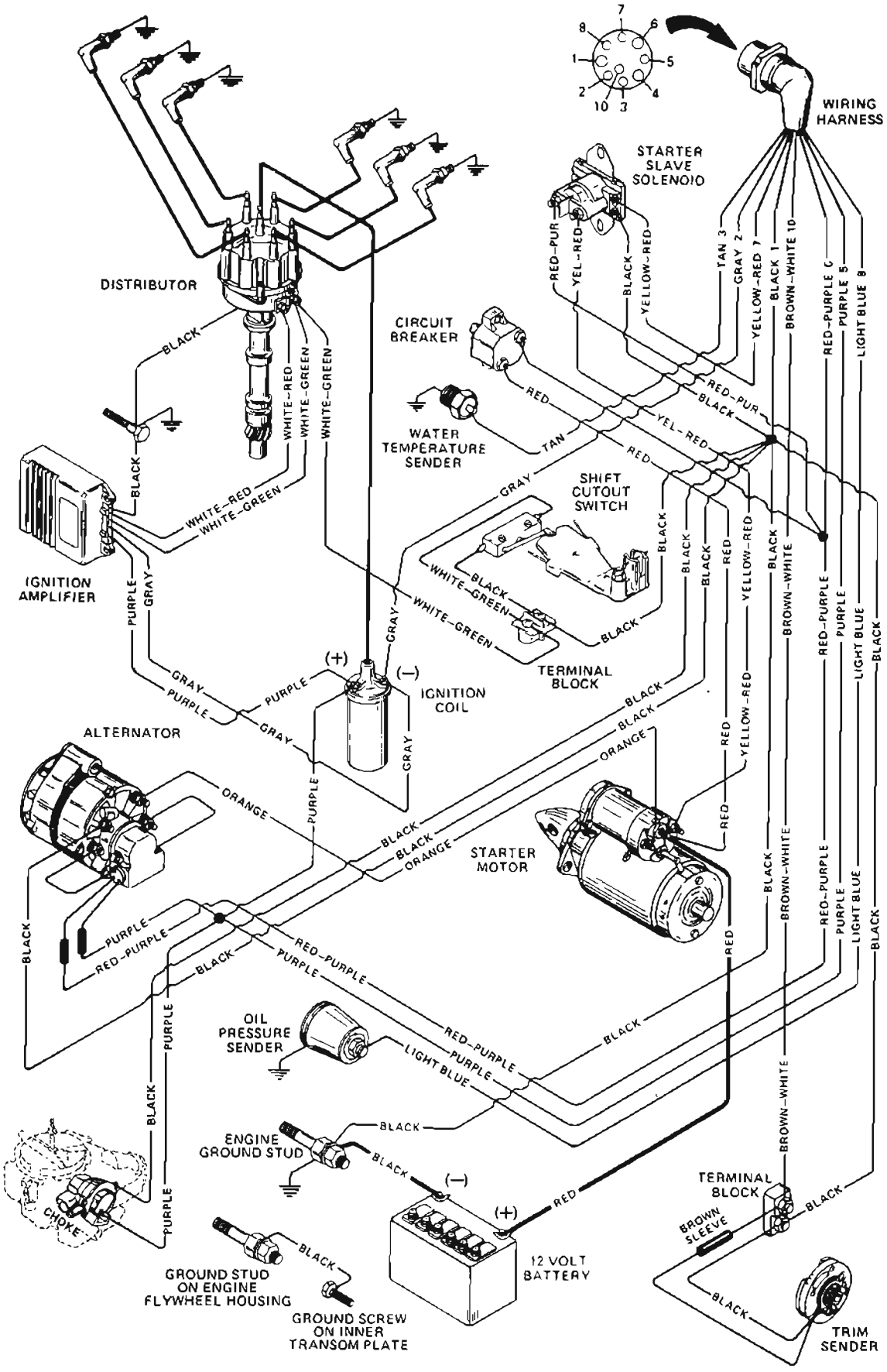
| | |
|---|---|
| Gasket Surface Flatness | .003" (.076mm) in 6" (15.24cm) .007" (.178mm) Overall Maximum |

**Flywheel:**

| | |
|---|---|
| Runout | .008" (.203mm) Max. |

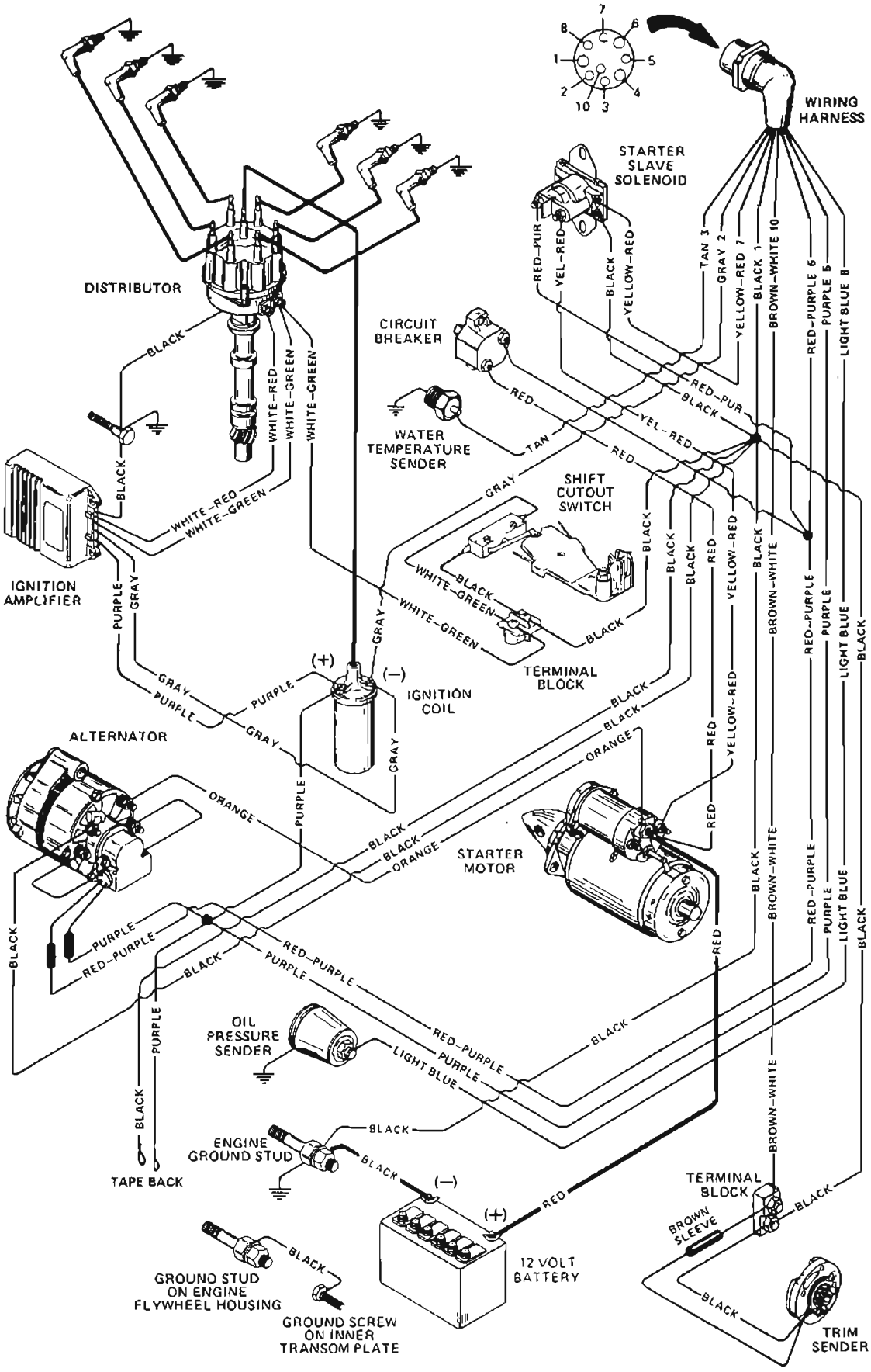
## E. TORQUE SPECIFICATIONS

| | |
|---|---|
| Camshaft Sprocket | 20 LB. FT. (27 N.m) |
| Conn. Rod Cap | 45 LB. FT. (61 N.m) |
| Crankcase Front Cover | 80 LB. IN. (9 N.m) |
| Cylinder Head | 75 LB. FT. (102 N.m) |
| Distributor Clamp | 20 LB. FT. (27 N.m) |
| Exhaust Manifold | 20 LB. FT. (27 N.m) |
| Flywheel/Coupler | 40 LB. FT. (54 N.m) |
| Flywheel Housing | 30 LB. FT. (41 N.m) |
| Intake Manifold | 40 LB. FT. (54 N.m) |
| Main Bearing Cap | 85 LB. FT. (115 N.m) |
| Oil Filter | 25 LB. FT. (34 N.m) |
| Oil Filter By-Pass Valve | 80 LB. IN. (9 N.m) |
| Oil Pan to Crankcase (5/16-18) | 165 LB. IN. (19 N.m) |
| Oil Pan to Crankcase (1/4-20) | 80 LB. IN. (9 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 Cover | 60 LB. IN. (7 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) |



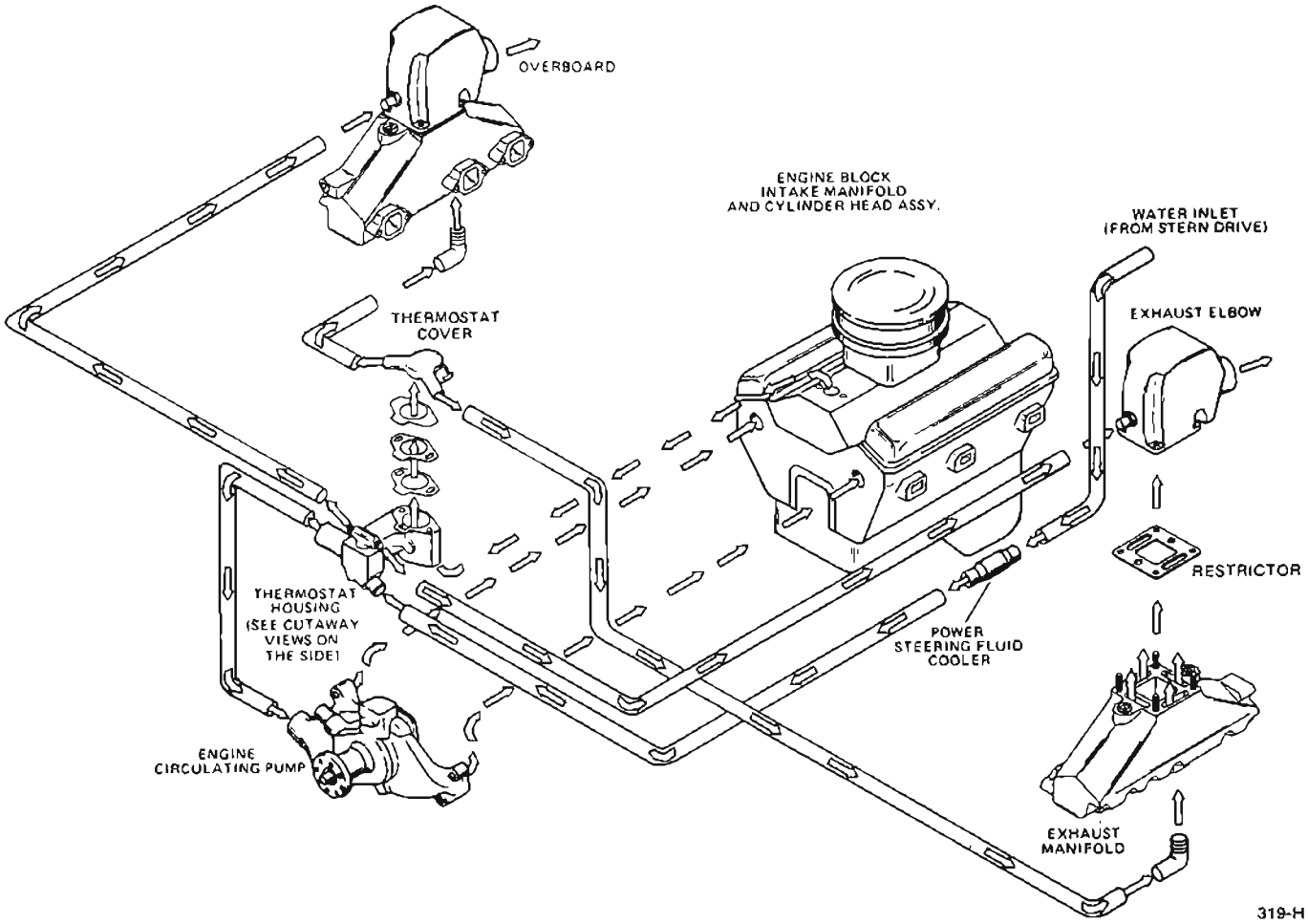

347-H2

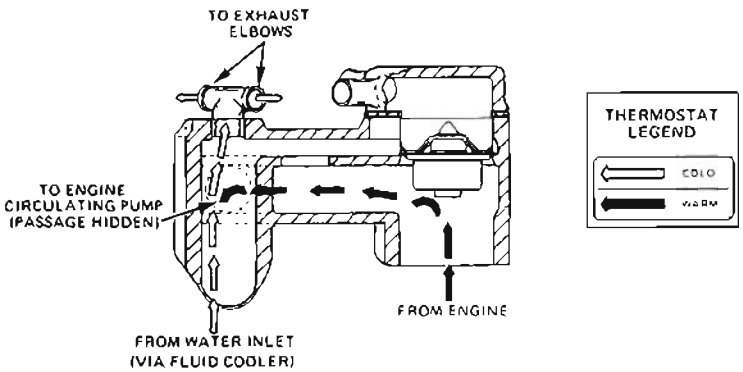
**F. MCM 185MR WIRING DIAGRAM**




347-H3

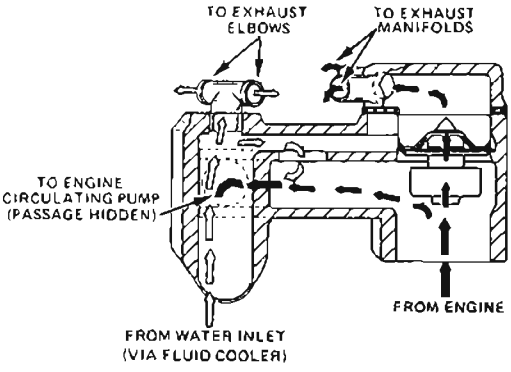
## G. MCM 205 WIRING DIAGRAM




COOLANT FLOW THROUGH THERMOSTAT
HOUSING WITH THERMOSTAT CLOSED




COOLANT FLOW THROUGH THERMOSTAT
HOUSING WITH THERMOSTAT OPEN

## H. MCM 185MR/205MR WATER FLOW DIAGRAM