mercruiser HI-PERFORMANCE SERIES

# service bulletin

TO: SERVICE MANAGER ☐ MECHANICS ☐
PARTS MANAGER ☐

REVISED 12-94

No. 92-6

# H.P. 800SC (572 cid) Specifications

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

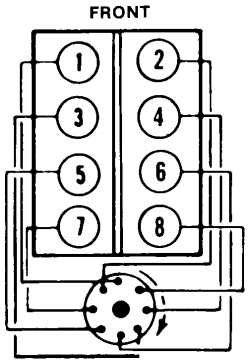
### A. TUNE-UP SPECIFICATIONS

| | |
|---|---|
| Horsepower (Kilowatts) | 750 (560) |
| Displacement (Liters) | 572 CID (9.4L) |
| Engine Type and Number of Cylinders | V-8 |
| Bore | 4.50 in. (114.4mm) |
| Stroke | 4.50 in. (114.4mm) |
| Compression Ratio | 7.5:1 |
| Compression Pressure | 135-150 psi (931-1034 kPa) |
| Ignition | Thunderbolt IV |
| Spark Plug Type | AC-MR41T |
| Spark Plug Gap | .035 in. (0.9mm) |
| Timing at Idle RPM | 8° BTDC |
| Maximum Advance @ 5000 RPM | 28° BTDC |
| Maximum RPM at Wide-Open-Throttle | 4600-5000 |
| Idle RPM in Forward Gear | 800-850 |
| Firing Order | 1-8-4-3-6-5-7-2 |
| Fuel Required | 92 Octane {(R+M)÷2} or 98 RON |
| Fuel Pump Pressure | 5-7 psi (34-48 kPa) |
| Electrical System | 12-Volt Negative Ground |

*NOTE:* **Without alcohol whenever possible.

| | |
|---|---|
| Alternator Rating | 55 Amperes |
| Recommended Battery Rating | Min. 450 Amps Cold Cranking Amperage |
| Crankcase Oil Capacity with New Filter* | 9 Qts. (8.5Liters) |
| Oil Pressure at 2000 RPM | 30-70 psi (207-483 kPa) |
| Thermostat | 143° F (62° C) |
| Cooling System Capacity | 20 U.S. Qts. (19.3L) |
| *Stern Drive Unit Oil Capacity (Approx.) | VI SSM - 20 U.S. Qts. (19L)<br>III SSM 9.5 Qts. (8.9L)<br>V SSM 6.75 Qts. (6.4L0 |
| *Transmission Oil Type F Capacity (Approx.) | 2.5 Qts. (2.4 Liters) |

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




Firing Order
1-8-4-3-6-5-7-2

**Figure 1. L.H. Rotation**

## B. ELECTRICAL SPECIFICATIONS

### Coil Specifications

| | |
|---|---|
| Spark Plug Type | AC-MR41T<br>Champion V4C |
| Spark Plug Gap<br>Timing | .035” (.9 mm)<br>8° BTDC |
| Coil | Part No.<br>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

| | | | | |
|---|---|---|---|---|
| **Mercury Marine Part Number** | | | 50-17251A-2 | |
| **Delco Remy Part Number** | | | 10455603 | |
| **Brush Spring Tension** | | | 56-105 OZ<br>(1588-2976 g) | |
| **No Load Test** | | | | |
| **Volts** | **Amps. (Min.)** | **Amps. (Max.)** | **RPM (Min.)** | **RPM (max.)** |
| 10.6 | 70 | 120 | 5400 | 10,800 |

## C. CARBURETOR SPECIFICATIONS

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

| | |
|---|---|
| Make (Model) | Holley (4150) |
| Part No.<br>Mercury (Holley) | 3312-821030A11( rear)<br>3312-821030A12(front)<br>(80427) |
| Float Adjustment | Bottom of Sight<br>Plug Hole ± 1/32”<br>(.8 mm) |
| Primary Jets | No. 78 |
| Secondary Jets | No. 88 |
| Accelerator Pump | .015” (.4 mm) |
| Choke Setting | Index Marks Aligned |
| Idle Mixture Screw<br>Preliminary Setting | 1 turn out |

## D. INTERNAL ENGINE SPECIFICATIONS

**UNIT OF MEASUREMENT**
**in. (mm)**

### Cylinder Bore:

| | | |
|---|---|---|
| Diameter | | 4.500 (114.3) |
| Out of Round | Production | .0005 (0.013) Max. |
| | Service | .001 (0.025) Max. |
| Taper | Production | .0005 (0.013) |
| | Service | .001 (0.025) Max. |

### Piston: See Note

| | | |
|---|---|---|
| Clearance | Production & Service | .0045-.0065 (0.114-0.165) |

*NOTE: Measure piston 1/2" (.12 mm) up from piston skirt bottom*

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

| | | | | |
|---|---|---|---|---|
| Compression | Groove Side Clearance | Production | Top | .001-.002 (0.025-0.051) |
| | | | 2nd | .001-.002 (0.025-0.051) |
| | | Service | | .0015 - .0025 (0.038 - 0.064) Max. |
| | Gap | Production | Top | .028 - .030 (0.711 - 0.762) |
| | | | 2nd | .026 - .028 (0.660 -0.711 ) |
| | | Service | | .028-.032 (0.711-0.813) |
| Oil | Groove Side Clearance | Production | | .001-.002 (0.025-0.051) |
| | | Service | | .001-.003 (0.025-0.075) |
| | Gap | Production | | .015-.055 (0.381-1.397) |
| | | Service | | .015-.055 (0.381-1.397) |

### Piston Pin:

| | | |
|---|---|---|
| Diameter | | .9898-.990 (0.0251) |
| Clearance | Production | .0008-.001 (0.020-0.025) |
| | Service | .001-.0012 (0.025-0.304) |
| Fit in Rod | Production | .0008 - .001 (0.020 - 0.025) |
| | Service | .001 - .0015 (0.025 - 0.038) |

### Crankshaft:

| | | | |
|---|---|---|---|
| Main Journal | Diameter | No. 1, 2, 3, 4 | 2.7481-2.7490 (69.802-69.825) |
| | | No. 5 | 2.7476-2.7486 (69.789-69.814) |
| | Taper & Out of Round | Production | .0002 (0.005) |
| | | Service | .0002 - .0004 (0.005 - 0.01) |
| Main Bearing Clearance | Production | No. 1, 2, 3, 4 | .0025-.003 (0.064-0.076) |
| | | No. 5 | .0035-.004 (0.089-0.102) |
| | Service | No. 1, 2, 3, 4 | .0025-.0035 (0.064-0.089) |
| | | No. 5 | .0035-.0045 (0.089-0.114) |
| Crankshaft End Play | | | .007-.010 (0.178 - 0.254) |

| | | | |
|---|---|---|---|
| Connecting Rod Journal | Diameter | | 2.1980-2.1990 (55.829-55.855) |
| | Taper & Out of Round | Production | .0002 (0.005) |
| | | Service | .0004 (0.010) max. |
| Rod Bearing Clearance | | Production | .0025-.003 (0.064-0.076) |
| | | Service | .0025-.0035 (0.064-0.089) |
| Rod Side Clearance | | | .020-.026 (0.503-0.660) |
| Crankshaft Runout @ #3 Main | | | .0005 - .001 (0.013 - 0.025) |

**Camshaft and Drive:**

| | | |
|---|---|---|
| Lobe Lift ± .002 (0.051 mm) | Intake | .329 (8.36) |
| | Exhaust | .329 (8.36) |
| Journal Diameter | | 1.9482-1.9492 (49.484-49.510) |
| Journal Out-of-Round | | .0005 - .001 (0.013 - 0.025) |
| Camshaft Run-Out | | .0005 - .001 (0.013 - 0.025) |
| Timing Chain Deflection | | .500 (12.7) |

**Valve System:**

| | |
|---|---|
| Lifter Type | Hydraulic |
| Rocker Arm Ratio | 1.7:1 |
| Valve Lash (Intake & Exhaust) | 1/2-3/4 Turns Down from Zero Lash |
| Face Angle (Intake & Exhaust) | 45° |
| Seat Angle (Intake & Exhaust) | 45° |
| Seat Runout (Intake & Exhaust) | .001-.002 (0.025-0.051) |

| | | | |
|---|---|---|---|
| Seat Width | | Intake | .080 (2.0) |
| | | Exhaust | .080 (2.0) |
| Stem Clearance | Production | Intake | .0010-.0025 (0.025-0.064) |
| | | Exhaust | .0012-.0025 (0.030-0.064) |
| | Service | Intake | .0010-.003 (0.025-0.076) |
| | | Exhaust | .0010-.003 (0.025-0.076) |
| Valve Spring | Free Length | | 2.20 (55.88) |
| | Pressure Lbs.@ In (NOTE) | Closed @ 1.950 (49.5) | 130 lbs. ft. (176 N.m.) |
| | | Open @ 1.370 (34.7) | 360 lbs. ft. (486 N.m.) |
| | Installed Height | | 1.875 (47.6) |

NOTE: *Test springs as a complete assembly with dampner.*

**Cylinder Head:**

| | |
|---|---|
| Gasket Surface Flatness | .002 - .003 (0.051 - 0.076) Overall Max. |

**Flywheel:**

| | |
|---|---|
| Runout | .005 (0.127) (Face Area) |

**E. TORQUE SPECIFICATIONS**

| | |
|---|---|
| Camshaft Sprocket/Gear (NOTE 1) | 25 lb.ft. (34 N·m) |
| Conn. Rod Cap (NOTE 2) | 90 lb. ft. (122 N·m) |
| Crankcase Front Cover | 80 lb. in. (9 N·m) |
| Cylinder Head (NOTE 3) | 70 lb. ft. (95 N·m) |
| Distributor Clamp | 15 lb. ft. (20 N·m) |
| Exhaust Manifold (Bolts) | 25 lb. ft. (34 N·m) |
| Flywheel (NOTE 1) | 80 lb. ft. (109 N·m) |
| Flywheel Drive Plate (NOTE 1) | 35 lb. ft. (48 N·m) |
| Flywheel Housing | 30 lb. ft. (41 N·m) |
| Intake Manifold (NOTE 4) | 30 lb. ft. (41 N·m) |
| Main Bearing Cap | 110 lb. ft. (149 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 (NOTE 1) | 70 lb. ft. (95 N·m) |
| Oil Pump Cover | 80 lb. in. (9 N·m) |
| Rocker Arm Stud (NOTE 1) | 70 lb. ft. (95 N·m) |
| Rocker Arm Cover | 72 lb. in. (8.1 N·m) |
| Spark Plug | 15 lb. ft. (20 N·m) |
| Torsional Damper | 105 lb. ft. (142 N·m) |
| Water Pump | 30 lb. ft. (41 N·m) |
| Supercharger to Intake Manifold (Important) | 15 lb. ft. (20 N·m) |

*NOTE 1: Use Loctite 271 (P/N 92-32609-1) on threads.*

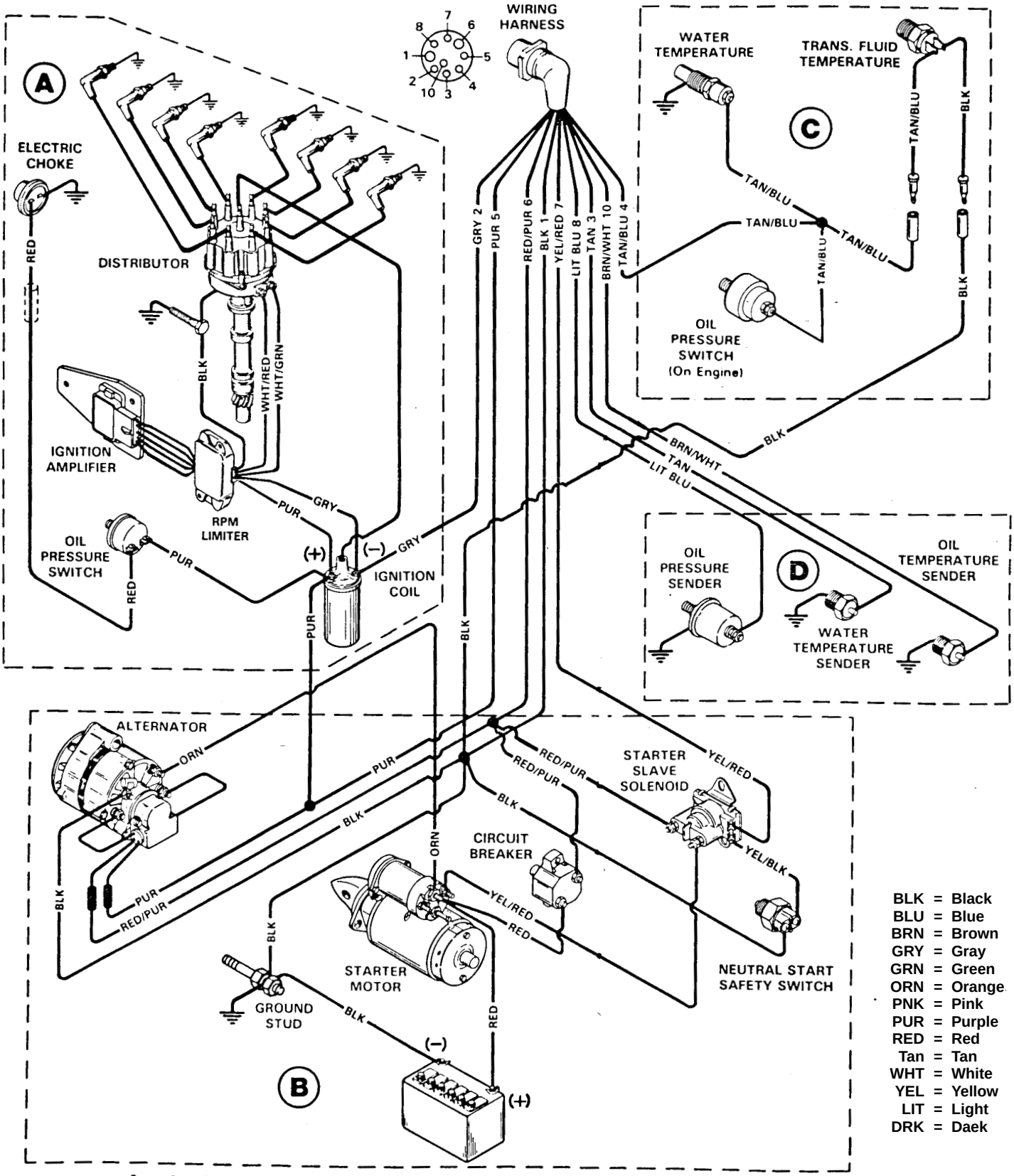
*NOTE 2: Apply moly lube on washer and under bolt head as well as on the threads.*

*NOTE 3: Apply moly lube under bolt head, and teflon pipe thread sealant (like Loctite sealant #592) on threads.*

*NOTE4: Use only Mercury gasket P/N 27-818188*

**IMPORTANT: Torque bolts in 6 increments, after torquing rolling resistance of supercharger should not exceed 20 lb. in. (2.3 N·m).**

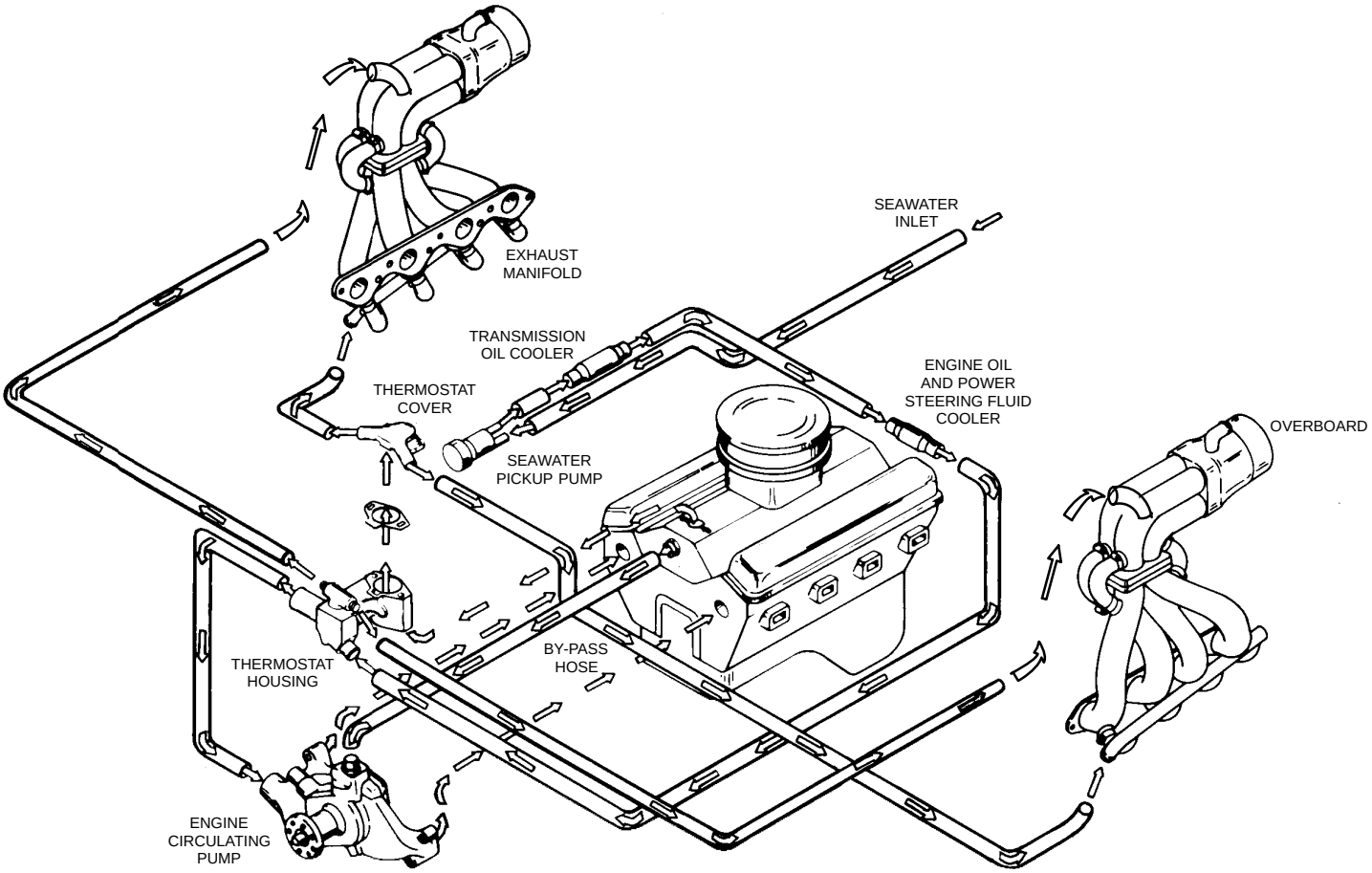
## F. ENGINE WIRING DIAGRAM - HP 800SC

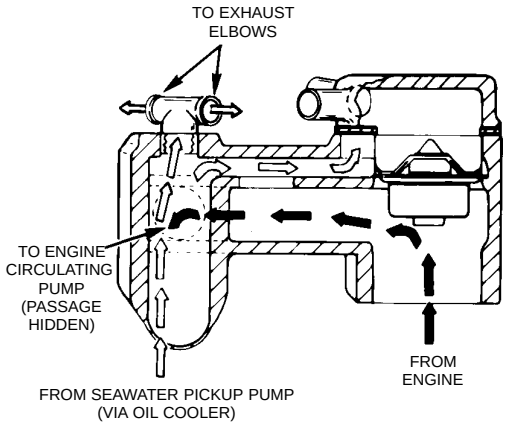



BLK = Black
BLU = Blue
BRN = Brown
GRY = Gray
GRN = Green
ORN = Orange
PNK = Pink
PUR = Purple
RED = Red
Tan = Tan
WHT = White
YEL = Yellow
LIT = Light
DRK = Daek

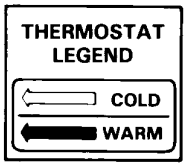
**A: Ignition and Choke System**
**B: Starting and Charging System**
**C: Audio Warning System**
**D: Instrumentation System**

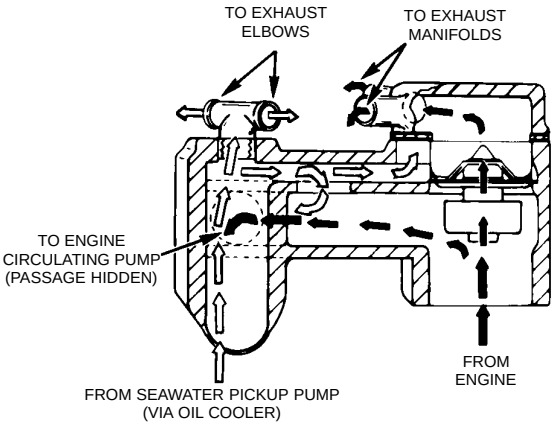
## G. COOLING SYSTEM WATER FLOW DIAGRAM - HP 800SC (STANDARD EXHAUST)




**COOLANT FLOW THROUGH THERMOSTAT HOUSING WITH THERMOSTAT CLOSED**




**COOLANT FLOW THROUGH THERMOSTAT HOUSING WITH THERMOSTAT OPEN**

2577-H