

TO: SERVICE MANAGER  MECHANICS   
PARTS MANAGER

**REVISED**  
**12-21-92**

**No. 91-6**

## H.P. 600SC 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

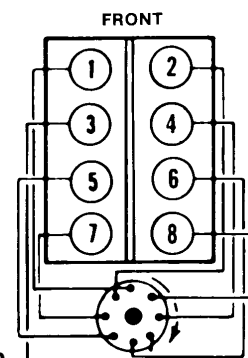
Horsepower (Kilowatts)	600 (447)
Displacement (Liters)	502 CID (8.2)
Engine Type and Number of Cylinders	V-8
Bore	4.468 in. (113.48mm)
Stroke	4.00 in. (101.6mm)
Compression Ratio	7.5:1
Compression Pressure	135-150 psi (931-1034 kPa)
Ignition	Thunderbolt IV
Spark Plug Type	AC-MR41T
Spark Plug Gap	.035 in. (0.9mm)
Timing at Idle RPM	13° BTDC
Maximum Advance @ 5000 RPM	33° BTDC
Maximum RPM at Wide-Open-Throttle	4800-5200
Idle RPM in Forward Gear	800-850
Firing Order	1-8-4-3-6-5-7-2
Fuel Required	92 Octane Minimum (Average Octane Rating)
Fuel Pump Pressure	3-7 psi (10-48 kPa)
Electrical System	12-Volt Negative Ground

Alternator Rating	55 Amperes
Recommended Battery Rating	Min. 450 Amps Cold Cranking Amperage
Crankcase Oil Capacity with New Filter*	8 Qts. (7.5Liters)
Oil Pressure at 2000 RPM	30-70 psi (207-483 kPa)
Valve Lash	1/4 to 5/8 Turns Down from Zero Lash
Thermostat	143° F (62° C)
Cooling System Capacity	20 U.S. Qts. (19.3L)
*Stern Drive Unit Oil Capacity (Approx.)	III SSM 9.5 Qts. (8.9L) V SSM 6.75 Qts.(6.4L) <b>WITH SPACERS</b> 1in.(25mm)-7.5Qts.(7.1L) 2in.(51mm)-8.25Qts.(7.8L) 3in.(76mm)-9Qts.(8.5L) VI SSM - 20 U.S. Qts.(19L) <b>WITH SPACERS</b> 1/2in.(13mm)-20.5 Qts.(19.5L) 1in.(25mm)-21Qts.(20L) 1-1/2in.(38mm)-22Qts.(20.5L) 2 in.(51mm)-23Qts.(21.75L) 2-1/2in.(64mm)-23.5Qts.(22L) 3 in.(76mm)-24Qts.(23L) 5-3/4in.(146mm)-29 Qts.(27.5L)
*Transmission Oil Capacity (Approx.)	III-V SSM - 2.1 Qts. (2 L) VI SSM - 2.5 Qts. (2.4 L)

\*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 Champion V4C
Spark Plug Gap Timing	.035" (.9 mm) 13° BTDC
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	
50-17251A-2 (Delco-Remy) 10455603	10.6	70	120	5400	10,800	56-105 oz. (1588-2976 g)

## C. CARBURETOR SPECIFICATIONS

All measurements are  $\pm 1/64$  in. (0.4mm).

Make (Model)	Holley (4150)
Part No. Mercury (Holley)	3312-821030A15 (rear) 3312-821030A16(front) (80427)
Float Adjustment	Bottom of Sight Plug Hole $\pm 1/32$ " (.8 mm)
Primary Jets	No. 74
Secondary Jets	No. 84
Accelerator Pump	.015" (.4 mm)
Choke Setting	Index Marks Aligned
Idle Mixture Screw Preliminary Setting	1 - turn

## D. INTERNAL ENGINE SPECIFICATIONS

<b>UNIT OF MEASUREMENT</b> <b>in. (mm)</b>
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### Cylinder Bore:

Diameter		4.467 (113.46)
Out of Round	Production	.0005 (0.013) Max.
	Service	.001 (0.025) Max.
Taper	Production	Thrust Side .0005 (0.0127) Max.
		Relief Side .001 (0.025) Max.
	Service	.001 (0.025)Max.

### Piston: See Note (1)

Clearance	Production	.0045-.0065 (.114-.165)
	Service	.005- .007 (.127-.178) Max.

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

Compression	Groove Side Clearance	Production	Top	.001-.002 (.025-.051)
			2nd	.001-.002 (.025-.051)
		Service	.0015 - .0025 (.038 - .064) Max.	
	Gap	Production	Top	.028 - .030 (.711 - .762)
			2nd	.026 - .028(.660 -.711)
		Service	.028-.032 (.711-.813)	

### Piston Pin:

Diameter		.9898-.990(.0251)
Clearance	Production	.0008-.001 (0.020-0.025)
	Service	.001-.0012 (0.025-0.030)
Fit in Rod		.0013-.0015 (0.033-0.038) Interference

### Crankshaft:

Main Journal	Diameter	No. 1	2.7481-2.7490 (69.802-69.825)
		No. 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 (0.0050)
		Service	.0002 - .0004 (.005-.01)
Main Bearing Clearance	Production	No. 1	.0025-.003 (0.064-0.076)
		No. 2, 3, 4	.0025-.003 (0.064-0.076)
		No. 5	.0035-.004 (0.089-0.102)
	Service	No. 1	.0025-.0035 (0.064-0.089)
		No. 2, 3, 4	.0025-.0035 (0.064-0.089)
		No. 5	.0035-.0045 (0.089-0.114)
Crankshaft End Play		.006-.010 (0.152-0.254)	

Connecting Rod Journal	Diameter		2.1990-2.2000 (55.855-55.880)
	Taper	Production	.0005 (0.0127)
		Service	.001 (0.025)
	Out of Round	Production	.0005 (0.0127)
Service		.001 (0.025)	
Rod Bearing Clearance		Production	.0025-.0032 (0.064-0.081)
		Service	.0025-.0035 (0.064-0.089)
Rod Side Clearance			.010-.020 (0.254-0.51)
Crankshaft Runout			.003 (0.076)

**NOTES:**

- (1) Measure piston diameter .5" (12.7 mm) up from bottom of piston skirt and 90° from piston pin.

**Camshaft and Drive:**

Lobe Lift ± .002 (0.051 mm)	Intake	.329 (8.36)
	Exhaust	.329 (8.36)
Journal Diameter		1.948-1.949 (49.48-49.51)
Journal Out-of-Round		.0005-.001 (.013-.025)
Camshaft Run-Out		.0005-.001 (.013-.025)
Timing Chain Deflection		.500 (12.7)

**Valve System:**

Lifter Type	Hydraulic
Rocker Arm Ratio	1.7:1
Valve Lash (Intake & Exhaust)	1/2-5/8 Turns Down from Zero Lash
Face Angle (Intake & Exhaust)	45°
Seat Angle (Intake & Exhaust)	45°
Seat Runout (Intake & Exhaust)	.002 (0.050) max.

Seat Width			.080 (2.032) .080 (2.032)
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 lb. (578 N)
		Open @ 1.370 (34.7)	350 lb. (1601 N)
	Installed Height		1.875 (47.6)

NOTE: Test springs as a complete assembly with dampner.

**Cylinder Head:**

Gasket Surface Flatness	.002-.003 (0.51-.076) Overall Max.
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**Flywheel:**

Runout	.005 (0.127) (Face Area)
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## E. TORQUE SPECIFICATIONS

Camshaft Sprocket/Gear (NOTE 1)	25 lb.ft. (34 N.m)
Conn. Rod Cap (NOTE2)	65 lb. ft. (88 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.

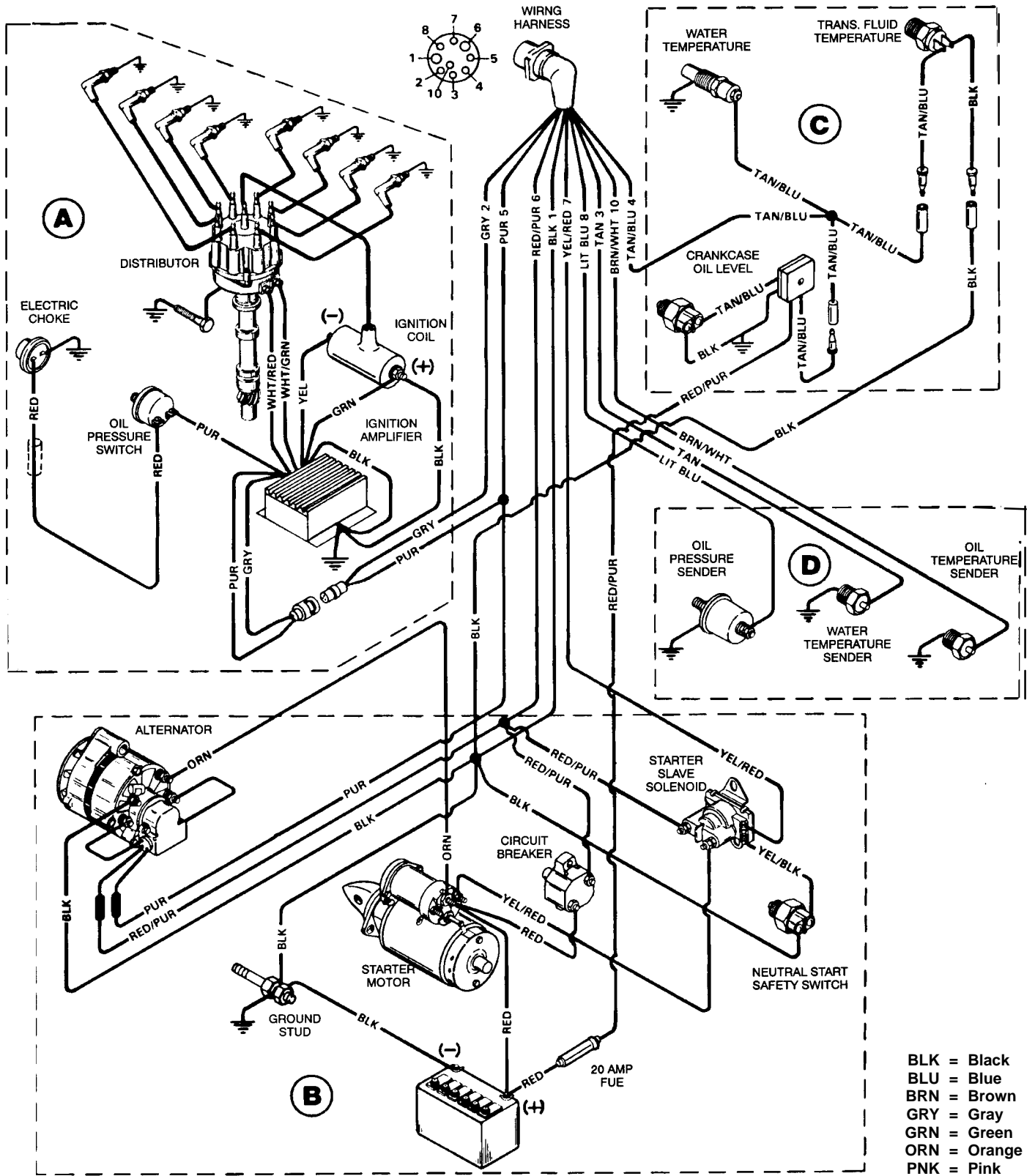
NOTE 2: Apply engine oil to stud threads and contacting surface of nut.

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

NOTE 4: 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 600SC

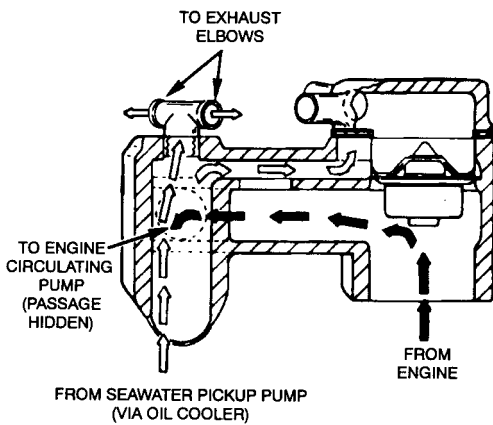
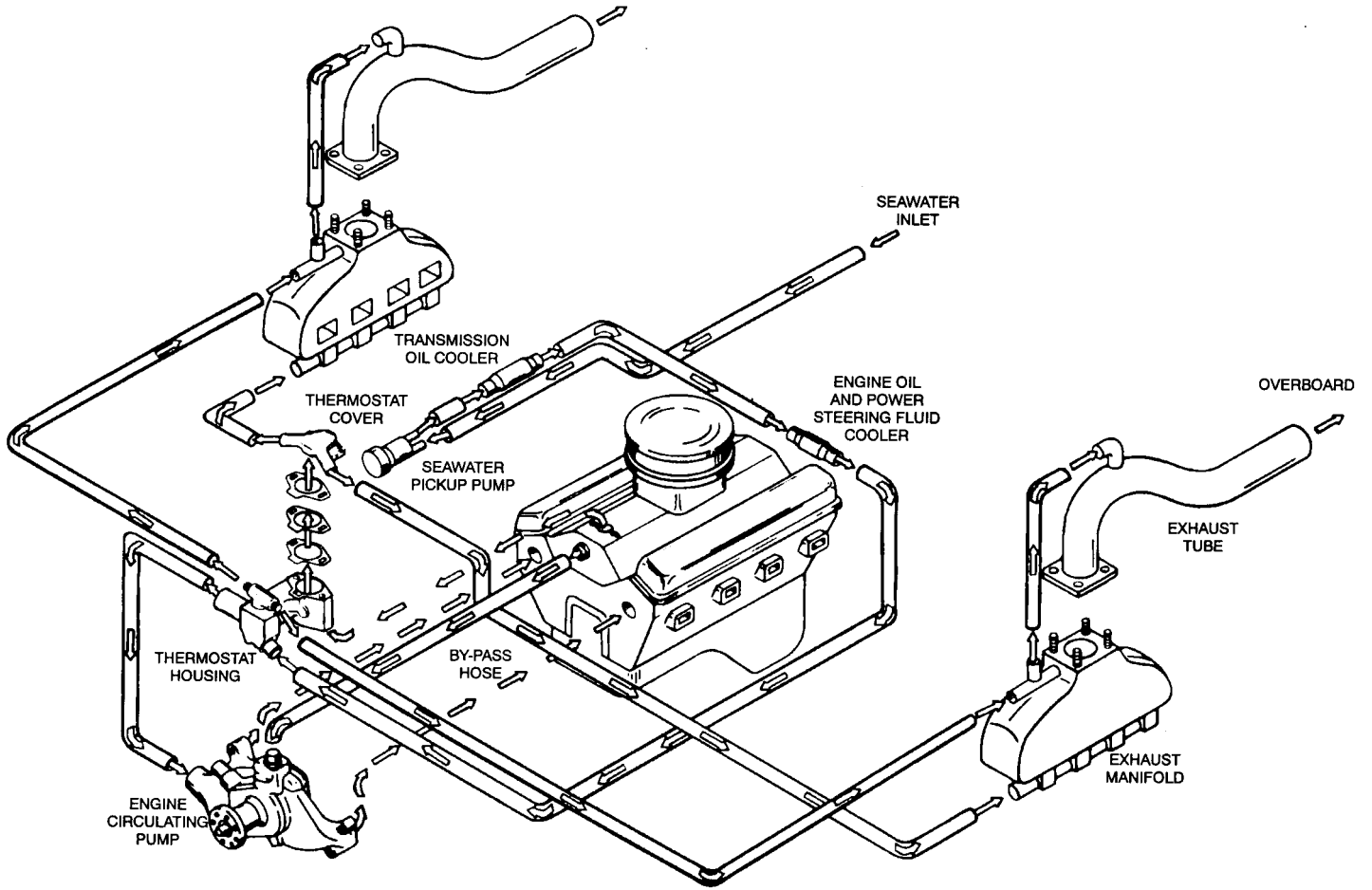


**A: Ignition and Choke System**  
**B: Starting and Charging System**

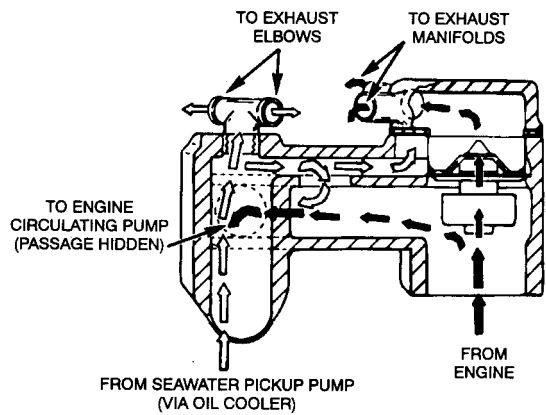
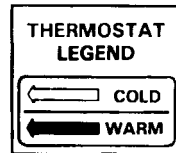
**C: Audio Warning System**  
**D: Instrumentation System**

- 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

**G. COOLING SYSTEM WATER FLOW DIAGRAM - HP 600SC  
(STANDARD EXHAUST)**

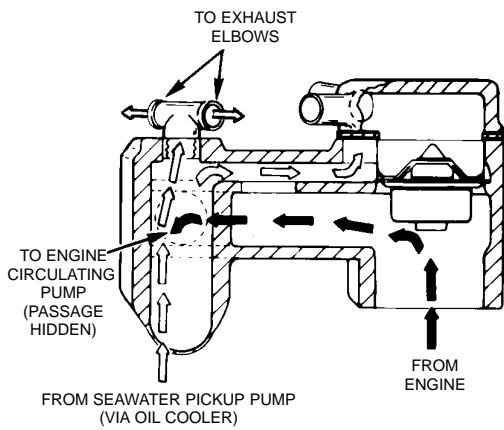
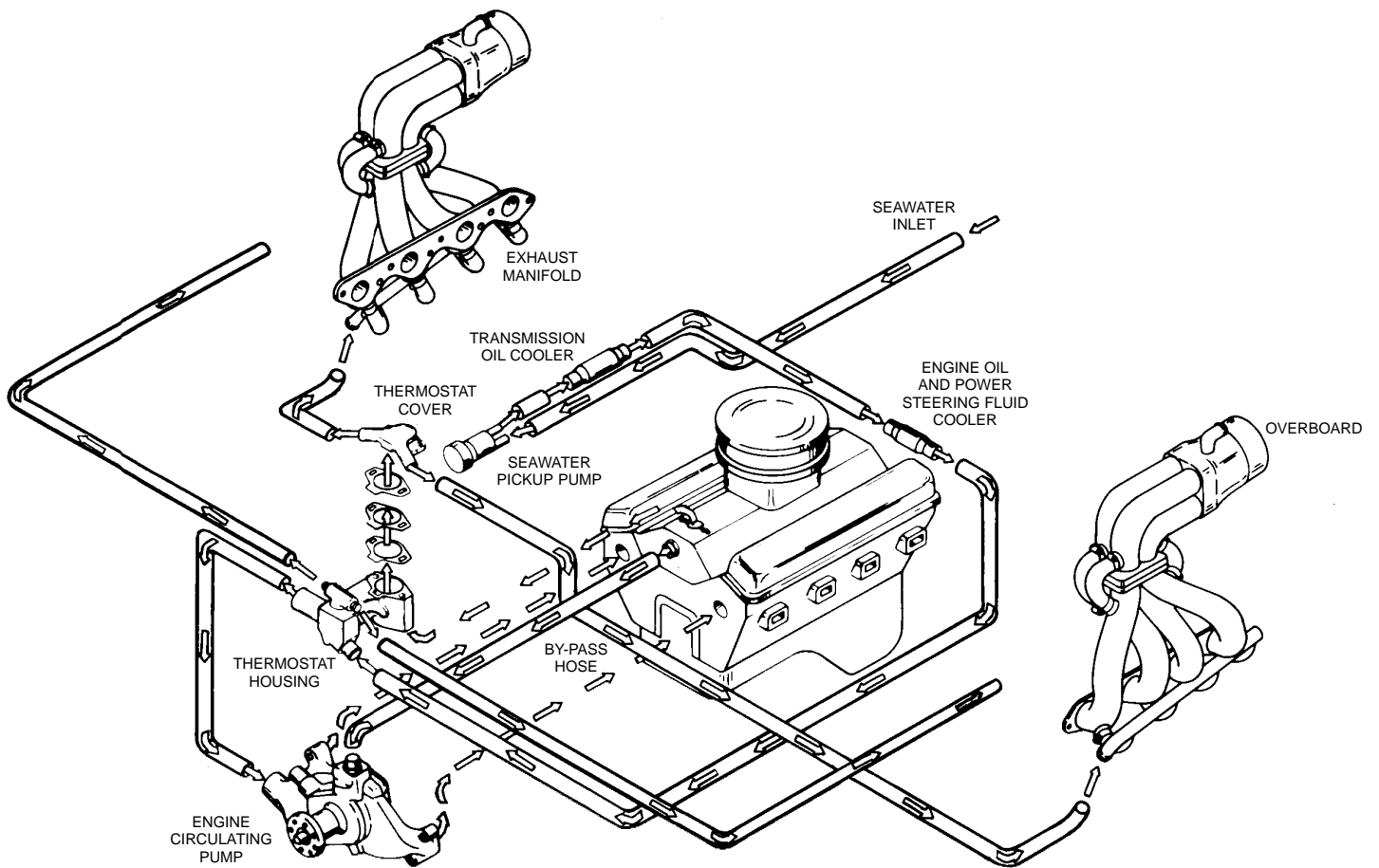


**COOLANT FLOW THROUGH THERMOSTAT HOUSING WITH THERMOSTAT CLOSED**

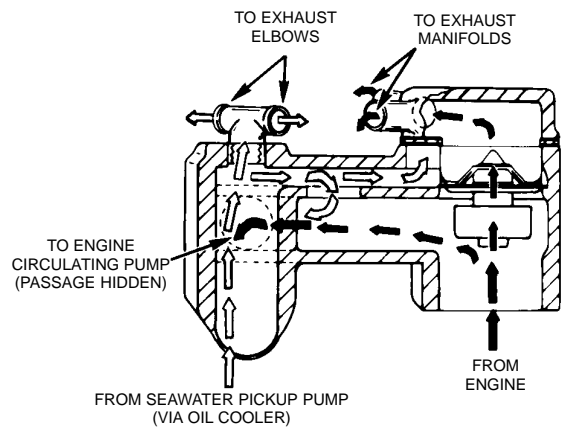
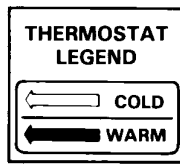


**COOLANT FLOW THROUGH THERMOSTAT HOUSING WITH THERMOSTAT OPEN**

**G. COOLING SYSTEM WATER FLOW DIAGRAM - HP 600SC  
(OPTIONAL EXHAUST)**



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



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