GROUP 7

COOLING SYSTEM

CONTENTS

DATA AND SPECIFICATIONS

Model	SC-1, SC-2	SC-3, SY-1	SC-2—C-300H
Capacity			
With Heater	17 qts.	17 qts.	17 qts.
Without Heater	16 qts.	16 qts.	16 qts.
Radiator Type	Tube & Spacer	Tube & Spacer	Tube & Spacer
Transmission Oil Cooler			
Type	Concentric Tube	Concentric Tube	Concentric Tube
Location	Rad. Bottom Tank	Rad. Bottom Tank	Rad. Bottom Tank
Radiator Pressure Cap			
Type	Pressure Vent	Pressure Vent	Pressure Vent
Pressure Setting	14 psi std.— 16 psi A.C.	14 psi std.— 16 psi A.C.	14 psi std.— 16 psi A.C.

DATA AND SPECIFICATIONS—CONT'D.

Model	SC-1, SC-2	SC-3, SY-1	SC-2—C-300H
Fan			
Standard	4 Blade, 18″ Dia.	4 Blade, 18″ Dia.	7 Blade, 18″ Dia.
Air Conditioning	7 Blade, 18″ Dia.	7 Blade, 18½″ Dia.	7 Blade, 18″ Dia.
Fluid Fan Drive Type	Silicone Fluid Filled, Speed Modulating (A.C. only)	Silicone Fluid Filled, Speed Modulating (A.C. only)	Silicone Fluid Filled, Speed Modulating
Thermostat			
Type	Pellet	Pellet	Pellet
Setting	180° F.	180° F.	180° F.
Water Pump Type	Centrifugal, Ball Bearing	Centrifugal, Ball Bearing	Centrifugal, Ball Bearing
Radiator to Fan Clearance		½ in. to 1¼ in.	
Fan Shroud Type (with air conditioning)	Box	Box	Box

TIGHTENING REFERENCE

	Foot-Pounds Torque
Water Pump Bolts	30
Fan Attaching Bolts	16-18
Thermostat Housing Bolts	30

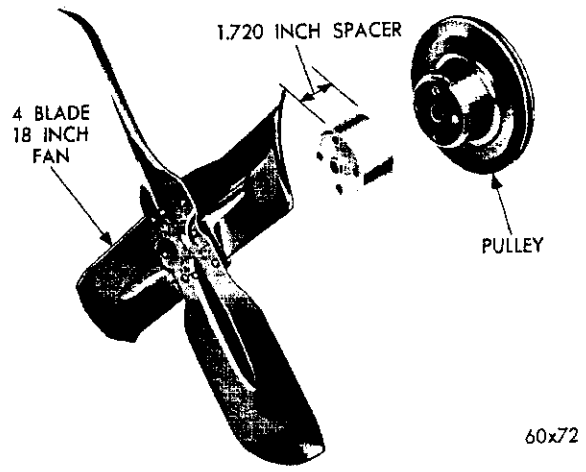


Fig. 1—Standard Fan Drive (Disassembled View)

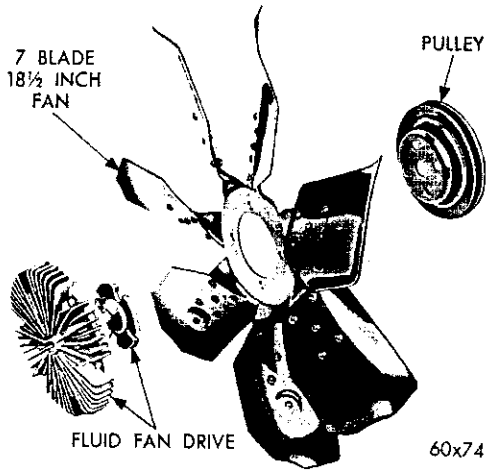


Fig. 2—Silent Flite Fan Drive (Air Conditioning) and C-300H) Disassembled View

GROUP 7

COOLING SYSTEM

The cooling system incorporates a tube and spacer type full flow radiator, and a centrifugal water pump with an 180°F. thermostat. On cars equipped with an air conditioning-heater unit, there is a 16 psi radiator pressure cap, and should be equipped with sufficient permanent type anti-freeze to insure the engine coolant 15°F. in the summer and greater strength of anti-freeze in the winter according to the prevailing temperatures. Models with standard equipment have a 4 blade, 18 inch fan, as shown in Figure 1, models equipped with air conditioning have 7 blade, 18½ inch fan, on the SC3 and SY1, 18 inch fan on the SC1 and SC2, as shown in Figure 2. All C-300H models have a 7 blade 18 inch diameter fan.

SERVICE PROCEDURES

SILENT FLITE FAN DRIVE (Fig. 2)

(All Models with Air Conditioning)

The fan drive consists of a rotor driven by the shaft which is secured to the water pump flange. The rotor is enclosed by the housing to which the fan is bolted. This housing is mounted on the shaft through permanently sealed bearings.

A nominal clearance space is maintained between the housing and rotor. The housing is partially filled with a silicone fluid and the shear resistance of the fluid between the housing and rotor provides the driving force rotating the fan.

The power required to rotate any fan increases very greatly with speed. The fan drive has been designed to provide the necessary driving force to maintain cooling at low speeds and to limit the top speed of the fan at higher engine speeds, thus making more power available to the wheels and eliminating the fan noise generally encountered at higher engine speeds.

Overheating

If the fan drive operates below its minimum design speed, engine overheating may result at low car speeds. Test as follows:

(1) The cooling system must be at room temperature for testing.

(2) Mark the fan blade with white or yellow chalk or crayon.

(3) Attach a timing light to the engine. Set engine speed to 1700 rpm and then adjust engine speed until fan blade mark appears stopped by timing light.

(4) The drive should be replaced if the engine speed at which the fan appears stopped is below 1600 rpm for SC-3 or SY-1 air conditioned models or below 1550 rpm for SC-1 or SC-2 air conditioned models. **DO NOT ATTEMPT TO SERVICE THIS ASSEMBLY.**

Excessive Fan Noise

If the fan drive fails to properly limit the top fan speed, excessive fan noise may result. Check as follows:

(1) Observe the engine speed at which the timing light appears to stop the fan as in "Overheating."

(2) The drive should be replaced if the engine speed at which the fan appears stopped is above 1850 rpm for SC-3 or SY-1 air conditioned models or above 1800 rpm for SC-1 and SC-2 air conditioned models. **DO NOT ATTEMPT TO SERVICE THIS ASSEMBLY.**

WATER PUMP

a. Removal from Vehicle (Fig. 3)

(1) Drain the cooling system. (Remove the upper half of fan shroud on Air Conditioning models only.)

(2) Loosen the power steering pump, idler pulley and alternator and remove all belts.

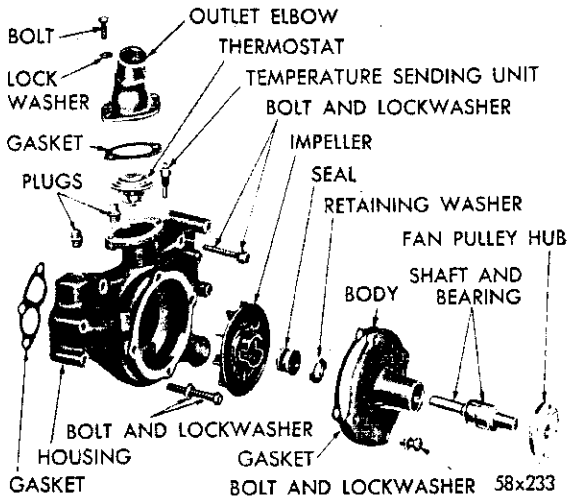


Fig. 3—Water Pump Assembly (Disassembled View)

(3) Remove the fan, spacer and pulley. On Air Conditioning models, remove the pulley from the water pump fan hub. Loosen all nuts from the fan to remove the fan drive.

(4) Remove the bolts holding the water pump body to the housing and remove the water pump.

b. Disassembly (Fig. 3)

(1) Support the pump body on the hub and remove the impeller by breaking the plastic away from the metal inserts, as shown in Figure 4.

(2) Remove the impeller metal insert using Tool C-3476.

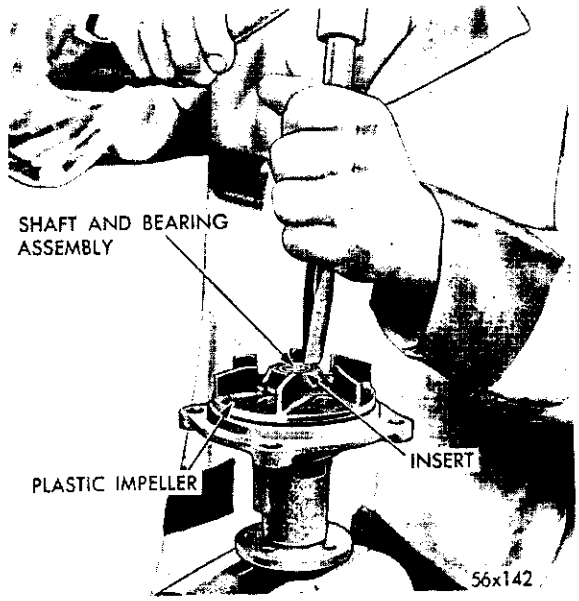


Fig. 4—Removing the Plastic Impeller

NOTE: The shaft and bearing assembly do not have to be removed to service a leaking pump.

(3) The shaft and bearing assembly should be very carefully inspected to be sure the pump leak has not damaged the bearing.

(4) In removing the impeller and seal, support the pump assembly so that pressure is applied to the shaft. The bearing and shaft will be damaged if pressure is applied to the pump body.

(5) Support the body on the fan hub end and press out the shaft and bearing assembly.

CAUTION

The shaft and bearing assembly can be removed only in the direction described. If an attempt is made to remove the shaft in the opposite direction, damage to the water pump body will result.

NOTE: The bearing and hub assemblies removed from water pumps for any reason should not be used again because damage to bearings and hub usually results during removal.

(6) Clean all parts thoroughly. Inspect the condition of the seal seat and recondition, if necessary, using refacing Tool C-551.

c. Assembly (Fig. 3)

(1) Support the pump body as close to the center bore as possible in an arbor press. DO NOT SUPPORT THE BODY ON ATTACHING FACE, OR ON SEAL SEAT.

(2) Press the shaft and bearing assembly into the body, using Tool C-3468, as shown in Figure 5.

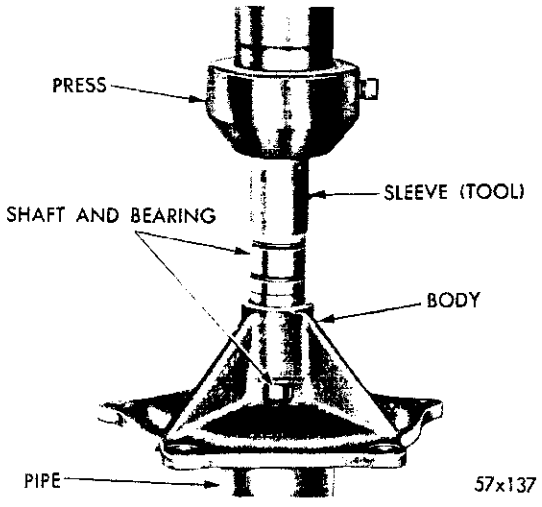


Fig. 5—Installing Shaft and Bearing Assembly Using Tool C-3468

NOTE: The .090 inch dimension must be maintained when installing a new shaft and bearing assembly, as shown in Figure 5. The undercut on the tool does not control the .090 inch dimension.

(3) Install the new seal assembly into the impeller with the ears of the retaining washer engaged in the slots of the impeller.

(4) Support the pump body on the shaft in an arbor press and press the impeller on the shaft with sleeve Tool C-3468 (.625 inch I.D.) and (.750 inch O.D.) that will apply pressure on the metal insert only.

CAUTION

When pressing on the impeller, support the pump body so that pressure is applied to the shaft and not the pump body. If pressure is applied to the pump body, damage to bearings will result. Press the impeller on evenly to prevent breakage.

(5) Install the fan hub while supporting the pump body on the impeller and on the shaft, as this will apply pressure to the end of shaft, and not to the body. Maintain .330 inch dimension, as shown in Figure 6.

d. Installation on Vehicle

(1) Install the water pump body on the housing, using a new gasket.

(2) Tighten the bolts to 30 foot-pounds torque. Install the pulley, spacer and fan. (On Air Conditioning models, assemble the fan to the fan drive and pulley, and attach the assembly to the water pump).

(3) Tighten the nuts to 15 foot-pounds torque. Install the upper half of fan shroud, run the engine, and check for leaks.

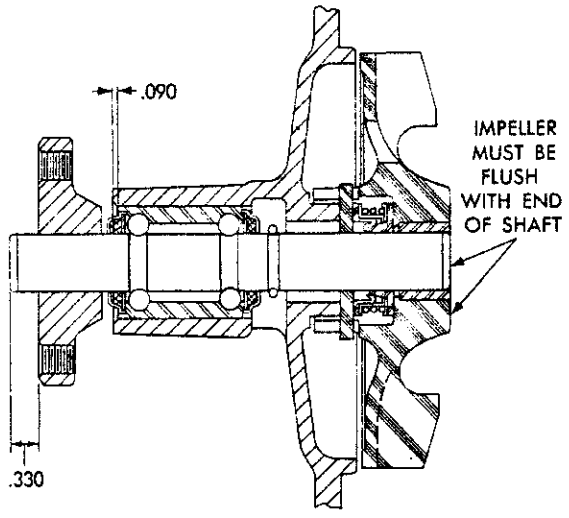


Fig. 6—Water Pump (Schematic Drawing)

RADIATOR

The transmission oil cooler is located in the bottom of the pan in the radiator tank, which is an integral part of the radiator. The bottom of the radiator tank, therefore, acts in the capacity of a heat exchanger in that the oil flowing from the torque converter is directed through a tube into the bottom of the radiator pan, coming out on the opposite side of the radiator to be returned to the torque converter.

a. Removal

(1) Drain the cooling system.

(2) Remove the two oil cooler connections at the bottom of the radiator (if so equipped).

(3) Drain the oil from the transmission oil cooler.

4) Remove the radiator hoses, fan shroud (on Air Conditioning models only) and radiator support bolts.

(5) Remove the radiator.

b. Cleaning

(1) Drain the cooling system and refill with clean SOFT water and add the contents of one can (No. 1 top-compartment) of MoPar Cooling System Cleaner.

(2) Operate the engine at a fast idle for ½ to ¾ hour.

(3) Drain the cooling system and refill with clean water.

(4) Pour the conditioner (No. 2 bottom-compartment) into the radiator and run engine for ten minutes.

5) Flush the entire cooling system until water runs clean.

(6) Refill the radiator with clean SOFT water.

(7) Use MoPar Radiator Rust Inhibitor during the summer months.

c. Installation

(1) Attach the radiator to the radiator support bolts and reconnect the two oil cooler connections.

(2) Install the fan shroud (if so equipped), connect the hoses and refill the cooling system. Check for leaks.

(3) Add sufficient oil to the transmission to refill the system.

NOTE: Clearance from the outside edge of fan blade to radiator core should be ½ inch to 1¼ inch.

TRANSMISSION OIL COOLER

In case of leak, engine coolant may become mixed with the transmisson fluid, also, the transmission fluid may enter the cooling system. Both the cooling system and the transmission should be checked in case the cooler is leaking.

a. Testing Oil Cooler for Leaks

(1) Disconnect both oil cooler lines at the radiator.

(2) Connect a pressure gauge to one cooler connection and a shut off valve to the other. Close the valve.

(3) Connect a source of air pressure to the valve.

(4) Coat all fittings with oil.

(5) Open valve and apply (up to 100 psi) air pressure. Oil bubbles will identify any fitting joint leaks. Repair all joint leaks.

(6) Close the valve. Gauge reading will then drop if cooler is leaking.

b. Repairing Oil Cooler in the Radiator

(1) Remove the radiator from the vehicle.

(2) Remove the radiator lower tank.

(3) Fill the lower tank with water and test the cooler. The leak may be in such position that it can be repaired (use silver solder) without removing the cooler from the tank. If repair is made, remove the excess solder and neutralize the flux. Blow the water out of cooler **thoroughly.**

c. Replacing Oil Cooler on Radiator

(1) Melt the soft solder holding cooler to the tank.

(2) Remove the spring washers holding the cooler connectors to the tank and remove the cooler.

(3) Position the new cooler in the tank and apply the spring washers on the connectors.

(4) Use soft solder to hold the cooler in the tank.

(5) Test for leaks.

(6) Remove excess solder and neutralize the flux.

(7) Attach the lower tank (soft solder).

(8) Install the radiator, connect oil lines to the cooler.

(9) Fill the cooling system.

If the transmission operates properly after repairing the leak, drain the transmission and torque converter while hot, remove the transmission oil pan and inspect for sludge, rust, dirty or plugged inlet screen. If none of these conditions are found, reconditioning may not be necessary. Reassemble, using Transmission Fluid Type "A", Suffix "A".

REVERSE FLUSHING THE COOLING SYSTEM

Reverse flushing of the cooling system is the forcing of water through the cooling system, using air pressure, in a direction opposite to that of the normal flow of water.

a. Flushing Cylinder Block

(1) Drain the radiator and remove the hoses at the radiator.

(2) Remove the thermostat and reinstall the thermostat housing.

(3) Install flushing gun Tool C-311, or other suitable flushing gun to the inlet hose.

(4) Connect the water hose of the gun to a pressure water source and the air hose of gun to a pressure air source.

(5) Turn on the water, and when the cylinder block is filled, turn on the air in short blasts.

(6) Allow the cylinder block to fill between the blasts of air.

(7) Continue this procedure until the water runs clean. Check the thermostat and if satisfactory, reinstall; otherwise, replace.

(8) Use a new thermostat housing gasket. Refill the cooling system and check for leaks.

b. Reverse Flushing Radiator

(1) Drain the cooling system and remove the hoses from the engine.

(2) Install a flushing gun Tool C-311, or other suitable flushing gun in the radiator lower outlet neck.

(3) Fill the radiator and turn on the air in short blasts.

NOTE: Do not apply more than 15 psi pressure when pressure flushing radiator, as damage to the radiator may result.

(4) Continue this procedure until the water runs clean. Refill the cooling system.

(5) Run the engine and check for leaks.

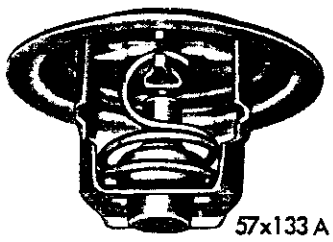


Fig. 7—Thermostat Assembly

THERMOSTAT

Removal

(1) Drain the cooling system down to the thermostat level or below.

(2) Remove the upper hose from the thermostat housing using pliers Tool C-3250.

(3) Remove the thermostat housing bolts and remove the thermostat and housing.

Thermostat Testing

(1) Visually inspect the thermostat (Figure 7) to make sure the valve closes tightly. If the valve does not close completely due to dirt, sand, or other foreign material, clean the valve and seat. If the valve does not close tightly when clean, install a new thermostat.

(2) Open the valve by hand or by heating in water and insert a ⅛" wide strip of .003" feeler stock into the opening and allow the valve to close. If the feeler stock will not hold in place, discard the thermostat.

(3) Suspend the thermostat, by the feeler stock strip, in a container of water. Make sure the thermostat does not touch the sides or bottom of the container.

(4) Heat the water (stir it coninuously to insure uniform temperature) and note the water temperature at which the thermostat falls off the feeler strip. Do not touch the sides or bottom of the container with the thermometer. The thermostat should drop off at a water temperature of approximately 170° to 185°. If it is outside of this range discard the thermostat.

(5) Continue heating the water to approximately 200° F. The thermostat valve should be open wide at this temperature, if it does not, discard it.

Installation

(1) Using a new gasket, position the thermostat so the pellet end is toward the engine and attach with bolts through the thermostatic housing.

(2) Fill the cooling system to 1¼ inches below filler neck with water and rust resistor or water and anti-freeze as required.

RADIATOR PRESSURE CAP

Radiators are equipped with a 14 psi cap, as standard equipment and 16 psi with air conditioning, as shown in Figure 8. Always note the identification number on the cap when replacing.

WARNING

When removing the pressure cap, turn counterclockwise to the stop, permitting the built-up pressure to escape through the overflow tube. This will prevent the hot water from spraying out of the radiator filler opening.

TESTING RADIATOR CAP

Select the short neoprene seal and metal adapter from the kit, Tool C-3499. Slip the seal on the tube

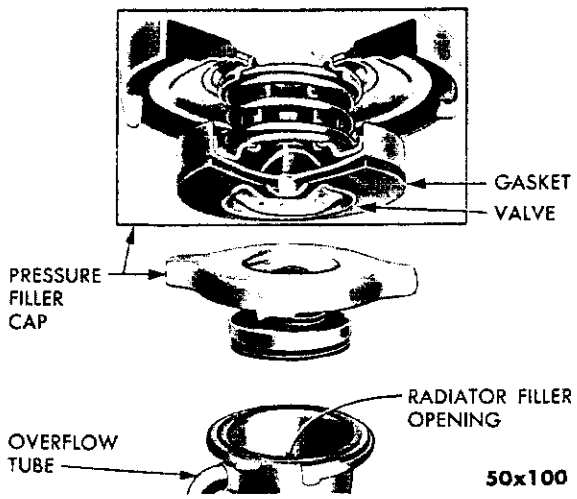


Fig. 8—Radiator Pressure Cap

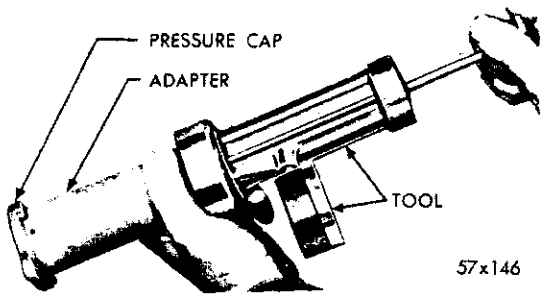


Fig. 9—Checking the Pressure Cap

at the bottom of the instrument. Then attach either end of the short adapter to the instrument. Dip the pressure cap in water and apply cap to end of adapter. Working the plunger, as shown in Figure 9, bring the pressure to 14 pounds on the gauge. If the pressure cap fails to hold the pressure within a range of 12-15 pounds, replace the cap with a new tested cap. If the vehicle is equipped with air conditioning, the cap should test between 15-16 psi.

The brass vent valve at the bottom of the cap should hang freely. If the rubber gasket has swollen and prevents the valve from hanging loosely, replace the cap.

PRESSURE TESTING THE COOLING SYSTEM

(1) Wipe the radiator filler neck sealing seat clean. The water level should be ½ inch below neck of the radiator.

(2) Attach the Tester Tool C-3499 to the radiator, as shown in Figure 10 and apply 15 pounds pressure. If the pressure drops inspect all points for external leaks.

WARNING

Pressure builds up fast. Any excessive amount of pressure built up by continuous engine operation, must be released to a safe pressure point. NEVER PERMIT PRESSURE TO EXCEED 15 Lbs.

(3) If there are no external leaks, after the gauge dial shows a drop in pressure, detach the tester and run the engine to operating temperature in order to open the thermostat and allow the coolant to expand. Reattach the tester and pump to 7 lbs. pressure while the engine is running. Race the engine, and if the needle on the dial fluctuates it indicates a combustion leak, usually a head gasket.

(4) Remove the wires from the spark plugs on one band and operate the engine on the opposite cates a leak on the bank still in operation. If the bank. If the needle continues to fluctuate, it indi-

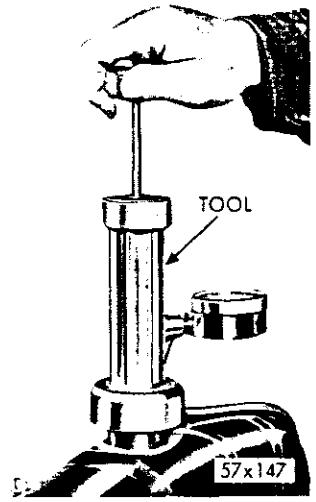


Fig. 10—Checking the Cooling System for Leaks

cates a leak on the bank still in operation. If the needle ceases to fluctuate, the leak is in the bank, the combustion has been released from.

(5) If the needle on the dial does not fluctuate, race the engine a few times and if an abnormal amount of water emits from the exhaust system at the tail pipe, it may indicate a leak that can be a faulty head gasket, cracked engine block, or the cylinder head near the exhaust ports.

(6) If the above pressure test of the cooling system holds the pressure as outlined above, then there is no leak, however, there may be internal leaks which can be determined by removing the oil dipstick and if water globules appear intermixed with the oil it will indicate a serious internal leak in the engine. If there is an internal leak, the engine must be disassembled, the leak located and necessary new parts installed.

ENGINE WATER TEMPERATURE GAUGE

For removal, Installation and Testing procedures of the water temperature sending and receiving units, refer to "Electrical" Group 8 "Gauges".

SERVICE DIAGNOSIS

Condition	Possible Causes	Correction
External Leakage	(a) Loose hose clamp. (b) Hose leaking. (c) Leaking radiator.	(a) Replace the hose clamp. (b) Replace the hose. (c) Repair or replace the radiator as necessary.

SERVICE DIAGNOSIS—CONT'D.

Condition	Possible Causes	Correction
	(d) Worn or damaged water pump seal.	(d) Replace the water pump seal.
	(e) Loose core hole plug.	(e) Install new core hole plug.
	(f) Damaged gasket, or dry gasket, if engine has been stored.	(f) Replace gaskets as necessary.
	(g) Cylinder head bolts loose, or tightened unevenly.	(g) Replace the cylinder head gasket and torque head in proper sequence.
	(h) Leak at heater connection.	(h) Clean the heater connections and replace the hoses and clamps if necessary.
	(i) Leak at water temperature sending unit.	(i) Tighten the water temperature sending unit.
	(j) Leak at water pump attaching bolt.	(j) Tighten the water pump attaching bolts 30 foot-pounds torque.
	(k) Leak at exhaust manifold stud.	(k) Tighten the exhaust manifold stud nuts 30 foot-pounds torque.
	(l) Cracked thermostat housing.	(l) Replace the thermostat housing.
	(m) Dented radiator inlet or outlet tube.	(m) Straighten the radiator inlet or outlet tube as necessary.
	(n) Leaking heater core.	(n) Repair or replace the heater core.
	(o) Cracked or porous water pump housing.	(o) Replace the water pump assembly.
	(p) Warped or cracked cylinder head.	(p) Replace the cylinder head.
	(q) Cracked cylinder block.	(q) Replace the cylinder block.
	(r) Sand holes or porous condition in block or head.	(r) Replace the cylinder block or cylinder head as necessary.
Internal Leakage	(a) Faulty head gasket.	(a) Install a new head gasket.
	(b) Refer to causes (f) to (j) listed under External Leakage.	(b) Refer to corrections (f) to (j) listed under External Leakage.
	(c) Crack in head into valve compartment.	(c) Pressure test cooling system, replace the cylinder head.
	(d) Cracked valve port.	(d) Pressure test cooling system, replace the cylinder head.
	(e) Crack in block into push rod compartment.	(e) Pressure test cooling system, replace the cylinder block.
	(f) Cracked cylinder wall.	(f) Pressure test cooling system, replace the cylinder block.
Poor Circulation	(a) Low coolant level.	(a) Fill radiator to correct level.
	(b) Collapsed radiator hose. (A bottom hose with defective spring may collapse only at high engine speeds.)	(b) Replace the hose and spring as necessary.
	(c) Fan belt glazed, oil soaked, or loose.	(c) Tighten or replace the fan belt as necessary.
	(d) Air leak through loose or faulty bottom hose.	(d) Replace the hose.
	(e) Faulty thermostat.	(e) Replace the thermostat.
	(f) Water pump impeller broken or loose on shaft.	(f) Replace the water pump, internal parts.

SERVICE DIAGNOSIS—CONT'D.

Condition	Possible Causes	Correction
	(g) Restricted radiator core water passages.	(g) Flush the radiator thoroughly.
	(h) Restricted engine water jacket.	(h) Flush the engine cooling system thoroughly.
Overheating or Apparent Overheating (Refer to Causes Listed under "Poor Circulation")	(a) Low coolant level.	(a) Fill radiator to proper level.
	(b) Blocked radiator air passages.	(b) Blow out the radiator air passages.
	(c) Incorrect ignition timing.	(c) Time the engine ignition system.
	(d) Low engine oil level.	(d) Add engine oil to the correct level.
	(e) Incorrect valve timing.	(e) Correct the engine valve timing.
	(f) Inaccurate temperature gauge.	(f) Replace the temperature gauge.
	(g) Restricted overflow tube.	(g) Remove restriction from the overflow tube.
	(h) Faulty radiator pressure cap or seat.	(h) Replace the radiator cap.
	(i) Frozen heat control valve.	(i) Free up the manifold heat control valve.
	(j) Dragging brakes.	(j) Adjust the brakes.
	(k) Excessive engine idling.	(k) Stop engine.
	(l) Frozen coolant.	(l) Thaw out cooling system, add anti-freeze as required.
	(m) Faulty fluid fan drive.	(m) Replace the fluid fan drive assembly.
Overflow Loss	(a) Refer to causes listed under "Poor Circulation and Overheating."	(a) Refer to corrections under 'Poor Circulation and Overheating."
	(b) Overfilling.	(b) Adjust coolant to the correct level.
	(c) Coolant foaming due to insufficient corrosion inhibitor.	(c) Flush the radiator and add MoPar anti-freeze or rust inhibitor as required.
Corrosion	(a) Leak at lower radiator hose.	(a) Tighten or install a new hose.
	(b) Use of water containing large concentration of lime and minerals.	(b) Use only clean soft water.
	(c) Low coolant level.	(c) Fill the cooling system to the correct level.
	(d) Insufficient corrosion inhibitor.	(d) Use MoPar anti-freeze or rust inhibitor as required.
	(e) Use of anti-freeze for extended length of time.	(e) Drain cooling system and replace with new anti-freeze.
	(f) Failure to use corrosion inhibitor in summer.	(f) Flush radiator and refill with clean soft water and rust inhibitor.
Temperature Too Low—Slow Engine Warm Up	(a) Faulty thermostat.	(a) Replace the thermostat.
	(b) Inaccurate temperature gauge.	(b) Replace the temperature gauge.

GROUP 7A

ACCESSORY BELT DRIVES

CONTENTS

DATA AND SPECIFICATIONS

TORQUE METHOD

Torque (Foot-Pounds) to be Applied to Components

ALL MODELS

Accessory		Belt in Use	New Belt
Power Steering Bracket		45	45
Alternator			
With Air Conditioning		40	60
Without Air Conditioning	SC1-SC2	40*	60*
	SC3-SY1	30*	40*
Fan Idler Bracket		35	50

*NOTE: The torque wrench assumes a different position according to the model, when adjusting the belt tension.

BELT DEFLECTION METHOD

Deflection (Inches) to be Applied at Midpoint of Belt Segment Under a 5 Pound Load. (See Figure 1.)

ALL MODELS

Accessory	Belt in Use	New Belt
Power Steering	3/16	3/16
Fan Belt—Idler	1/8	1/16
Alternator—Without A/C*	1/4	1/8
With A/C*	3/8	1/4

*A/C—Air Conditioning

GROUP 7A

ACCESSORY BELT DRIVES

SERVICE PROCEDURES

PROPER BELT TENSION

The satisfactory performance of the belt driven accessories (Fig. 1) depends on the maintenance of the proper belt tension. If the specified tensions are not maintained, belt slippage may cause engine overheating, lack of power steering assist, loss in air conditioning capacity, reduced alternator charging rates, and greatly reduced belt life. To avoid any such adverse effects, the following service procedure should be followed:

(1) Adjust all belts to the specified "belt in use" * tension at new car preparation.

(2) Readjust all belts as part of the "during warranty inspection."

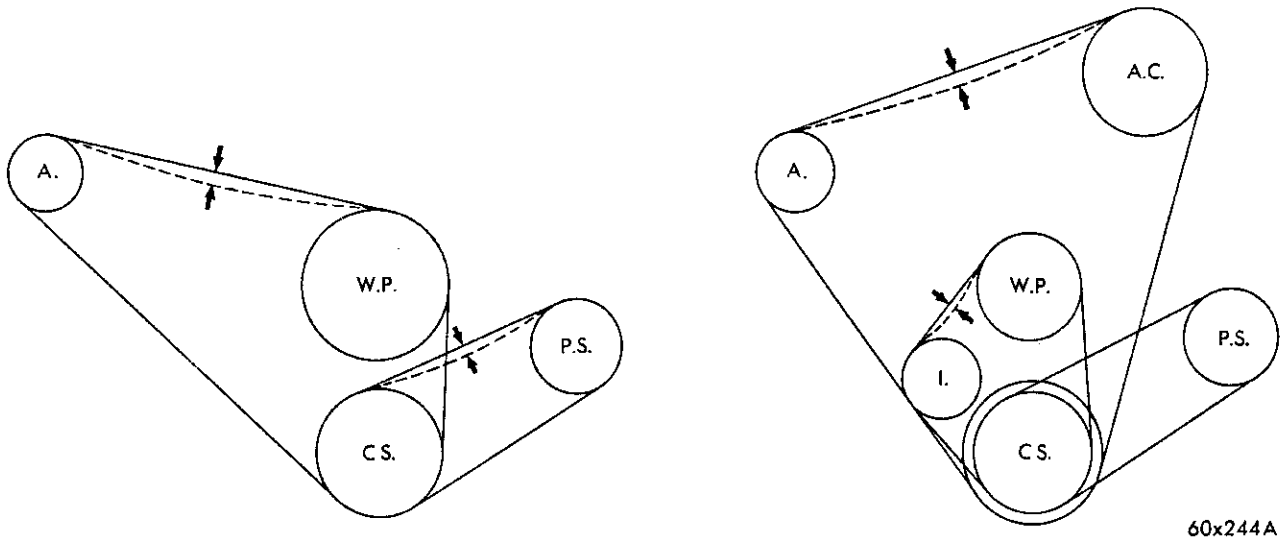
(3) Test all belt tensions by the deflection method at servicing and retighten if needed.

(4) The new belt tension specifications should be used on all belt replacements, and the above procedure followed thereafter.

There are two methods by which belt tensions can be properly established:

TORQUE METHOD

All alternator and power steering pump belts can be tightened to the specified tension (see Data and Specifications) by use of a torque wrench. The power steering belts are tightened by using Tool C-3832 and torque wrench Tool C-3005 (Fig. 2). The alternator belts are tensioned by using a special Tool C-3841 and torque wrench Tool C-3005 (Figs 3 and 4.) The special tool should be hooked at the heavily-ribbed section of the alternator rectifier end shield. Other belts can also be tightened by this method if the adjusting bracket has a square hole. To tighten belts by the torque method, loosen all mounting bolts and apply the specified torque to the accessory or idler. Tighten all mounting bolts while the torque is applied to the accessory. If it is not possible to use the torque wrench because of clearance, use an extension.



AC—Air Conditioning
WP—Water Pump
CS—Crankshaft
PS—Power Steering
I—Idler
A—Alternator

Fig. 1—Belt Deflection Location

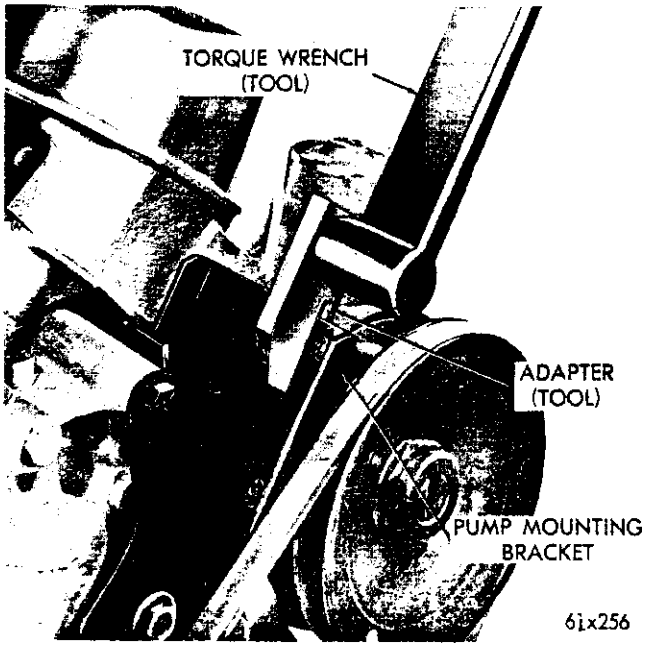


Fig. 2—Power Steering Pump Belt Adjustment

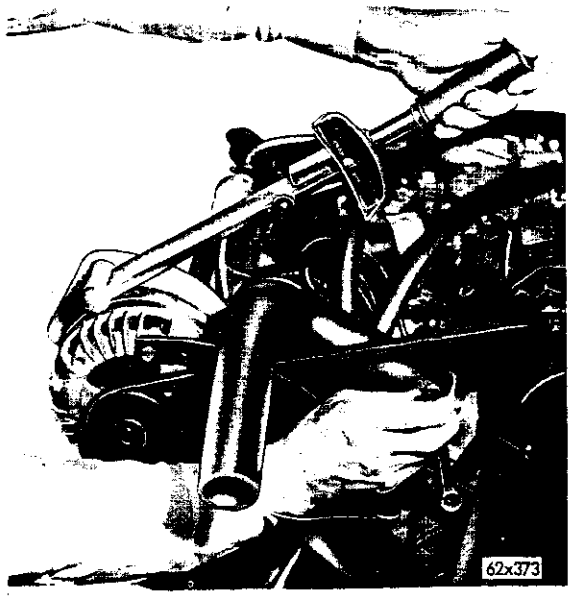


Fig. 3—Alternator Belt Adjustment, SC-1 SC-2

BELT DEFLECTION METHOD

All belts can also be tightened by measuring the deflection of the belt at the mid-point between two pulleys under a five-pound push or pull. A small spring scale can be used to establish the five-pound load. See Figure 1 for correct location at which to measure deflection.

This method should be used only when it is not possible to use the torque method. To tension the belts by the deflection method, loosen all mounting bolts and use a bar to apply tensions to the belts being careful not to damage the accessory. A ½ inch square drive hinge handle can be used if the accessory has a square hole. Tighten the mounting bolts and check the deflection. (See Data and Specifications.) It may be necessary to repeat this procedure several times to establish the correct tension.

* Any belt that has operated for a minimum of a half-hour is considered a "belt in use".

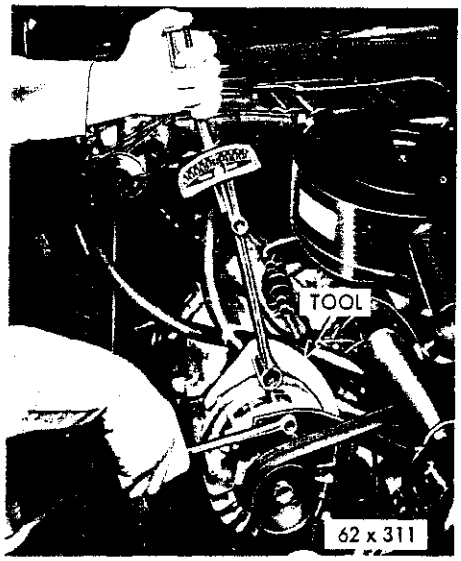


Fig. 4—Alternator Belt Adjustment SC-3, SY-1

SERVICE DIAGNOSIS

Condition	Possible Cause	Correction
Insufficient Accessory Output Due to Belt Slippage	(a) Belt too lose. (b) Belt excessively glazed or worn.	(a) Adjust belt tension. (b) Replace and tighten as specified.

SERVICE DIAGNOSIS—CONT'D.

Condition	Possible Cause	Correction
Belt Squeal when Accelerating Engine	(a) Belts too loose. (b) Belts glazed.	(a) Adjust belt tensions. (b) Replace belts.
Belt Squeak at Idle	(a) Belt too loose. (b) Dirt and paint imbedded in belt. (c) Non-uniform belt. (d) Misaligned pulleys. (e) Non-uniform groove or eccentric pulley.	(a) Adjust belt tension. (b) Replace belt. (c) Replace belt. (d) Align accessories (file brackets or use spacers as required). (e) Replace pulley.
Belt Rolled Over in Groove	(a) Broken cord in belt. (b) Belts not matched (A/C).	(a) Replace belt. (b) Install matched belts.
Belt Jumps Off	(a) Belt too loose. (b) Belts not matched (A/C). (c) Misaligned pulleys.	(a) Adjust belt tension. (b) Install matched belts. (c) Align accessories.