COOLING

CONTENTS

GENERAL INFORMATION

In order to provide satisfactory protection for the wide variety of corporation models the cooling system of each must be tailored to specific needs. To do this effectively the Corporation offers five basic systems:

(1) Standard
(2) Air Conditioning
(3) High Capacity Fan
(4) Maximum Cooling
(5) Trailer Towing

The standard system consists of a tube and spacer type radiator, 16 psi radiator pressure cap, centrifugal water pump, 195°F. thermostat,* and a seven blade fan. See specifications for application.

The cooling system for air conditioned equipped vehicles generally requires a greater capacity radiator along with a fan shroud, special centrifugal water pump and drive ratio, larger fan, and thermostatically controlled fan drive (in some installations). See specifications for applications.

An optional high capacity fan to protect against overheating for unusual operating conditions is available.

The maximum cooling system consisting of a larger radiator and on some models radiator shrouds and/or hood-to-yoke seals and bumper to yoke are used to provide protection against overheating for unusually severe operation requirements.

The trailer towing package is a combination of the maximum cooling package and the high capacity fan, as necessary to provide protection against overheating when towing trailers.

For internal cooling system protection each cooling system is factory equipped with sufficient permanent type anti-freeze for —20°F. protection. It is recommended that the coolant be changed annually to insure adequate anti-freeze and corrosion protection. Air conditioned cars require year round protection with permanent type anti-freeze with a minimum of +15°F. protection for summer operation and additional antifreeze in the winter according to the prevailing temperatures.

*440 H.P. Engines have a 190° thermostat.

SERVICE DIAGNOSIS

Condition	Possible Cause	Correction
EXTERNAL LEAKAGE	(a) Loose hose clamp.	(a) Replace the hose clamp.
	(b) Hose leaking.	(b) Replace the hose.
	(c) Leaking radiator.	(c) Repair or replace the radiator as necessary.
	(d) Water pump leaking through vent hole.	(d) Replace the water pump.
	(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 correct 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.

Condition	Possible Cause	Correction
	(j) Leak at water pump attaching bolt.	(j) Tighten the water pump attaching bolts to 30 foot-pounds.
	(k) Leak at exhaust manifold stud.	(k) Seal and re-drive the stud.
	(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.
	(s) Faulty pressure cap.	(s) Replace pressure cap.
	(t) Loose or stripped oil cooler fittings.	(t) Tighten or replace as necessary.
INTERNAL LEAKAGE	(a) Faulty head gasket.	(a) Install a new head gasket.
	(b) Refer to causes (f), (g), (p), (q), (r) and (t) listed under External Leakage.	(b) Refer to corrections (f), (g), (p), (q), (r) and (t) 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.
	(g) Leaking oil cooler.	(g) Repair or replace the oil cooler.
POOR CIRCULATION	(a) Low coolant level.	(a) Fill radiator to correct level.
	(b) Collapsed radiator hose. (A bottom hose with faulty spring may collapse only at medium or high engine speeds.)	(b) Replace the hose and spring.
	(c) Fan belt loose, glazed, or oil soaked.	(c) Tighten or replace the fan belt as necessary.
	(d) Air leak through bottom hose.	(d) Reposition hose clamps or replace the hose. Check radiator outlets for dents or out-of-rounds.
	(e) Faulty thermostat.	(e) Replace the thermostat.
	(f) Water pump impeller broken or loose on shaft.	(f) Replace the water pump.
	(g) Restricted radiator core water passages.	(g) Flush the radiator thoroughly or rod out if necessary.
	(h) Restricted engine water jacket.	(h) Flush the engine cooling system thoroughly.
OVERHEATING (refer to Causes and Corrections listed under "Poor Circulation")	(a) Blocked radiator air passages.	(a) Clean out the radiator air passages.
	(b) Incorrect ignition timing.	(b) Time the engine ignition system.
	(c) Low engine oil level.	(c) Add engine oil to the correct level.
	(d) Incorrect valve timing.	(d) Correct the engine valve timing.
	(e) Inaccurate temperature gauge.	(e) Replace the temperature gauge.
	(f) Restricted overflow tube.	(f) Remove restriction from overflow tube.
	(g) Faulty radiator pressure cap or seat.	(g) Replace the radiator cap. Clean or replace seat.
	(h) Frozen heat control valve.	(h) Free up manifold heat control valve.
	(i) Dragging brakes.	(i) Adjust the brakes.
	(j) Excessive engine idling.	(j) Increase idle R.P.M. or stop engine.
	(k) Frozen coolant.	(k) Thaw out cooling system, add antifreeze as required.
	(l) Faulty fan drive unit.	(l) Replace the fan drive unit.
	(m) Faulty temperature sending unit.	(m) Replace the sending unit.
OVERFLOW LOSS (Also refer to Causes and Corrections listed under	(a) Overfilling.	(a) Adjust coolant to the correct level.
	(b) Coolant foaming due to insufficient corrosion inhibitor.	(b) Flush the radiator and add antifreeze as required.

Condition	Possible Cause	Correction
"Poor Circulation and Overheating")	(c) Blown head gasket. (d) Broken or shifted lower hose spring.	(c) Replace the head gasket. (d) Replace lower hose.
CORROSION	(a) Use of water containing large concentration of lime and minerals. (b) Insufficient corrosion inhibitor. (c) Use of antifreeze for extended length of time.	(a) Use only clean soft water with antifreeze. (b) Use antifreeze or rust inhibitor as required. (c) Drain cooling system and replace with new antifreeze.
TEMPERATURE TOO LOW—SLOW ENGINE WARM-UP	(a) Faulty thermostat. (b) Inaccurate temperature gauge. (c) Faulty temperature sending unit.	(a) Replace the thermostat. (b) Replace the temperature gauge. (c) Replace the sending unit.
WATER PUMP NOISY	(a) Seal noisy. (b) Bearing corroded.	(a) Add Water Pump Lube. (b) Replace water pump.

ACCESSORY DRIVE BELTS

INSUFFICIENT ACCESSORY OUTPUT	(a) Belt too loose. (b) Belt excessively glazed or worn.	(a) Adjust belt tension. (b) Replace and tighten as specified.
BELT SQUEAL WHEN ACCELERATING ENGINE	(a) Belts too loose. (b) Belts glazed.	(a) Adjust belt tension. (b) Replace belts.
BELT SQUEAK AT IDLE	(a) Belt too loose. (b) Dirt and paint imbedded in belt. (c) Non-uniform belt. (d) Non-uniform groove or eccentric pulley.	(a) Adjust belt tension. (b) Replace belt. (c) Replace belt. (d) Replace pulley.
BELT ROLLED OVER IN GROOVE OR JUMPS OFF	(a) Broken cord in belt. (b) Belts not matched (A/C). (c) Belt is not Chrysler approved part. (d) Belt too loose. (e) Severely misaligned pulleys.	(a) Replace belt. (b) Install matched belts. (c) Install Chrysler belt. (d) Adjust belt tension. (e) Align accessories.

SERVICE PROCEDURES

FAN

There are no repairs to be made to the fan. If the fan is bent or damaged it should be replaced.

Removal

(1) Remove shroud attaching screws, separate shroud from radiator, position shroud rearward on engine. Fan attaching screws can now be removed.

(2) On models equipped with fluid fan drive, remove fan drive attaching screws. The fan and fluid fan drive are removed as a unit.

Installation

Use correct fan spacer, if required, so clearance between fan blades and radiator is 3/4 to 1-1/4 inches. No fan spacer permitted with fluid fan drive regardless of fan blades to radiator clearance. Install one piece shroud on vehicles so equipped. Tighten fan belt as outlined in "Accessory Belt Drives".

FLUID FAN DRIVE

CAUTION: To prevent silicone fluid from draining into fan drive bearing and ruining the grease, do not place drive unit with shaft pointing downward.

Torque Control Drive

The Torque Control Drive (Fig. 1) is a silicone

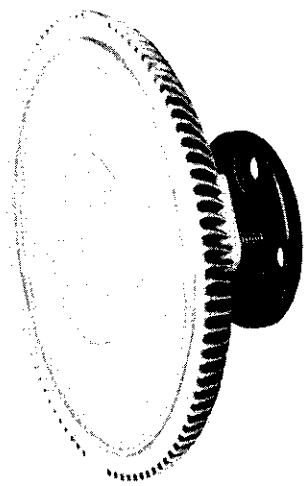

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Fig. 1—Torque Control Fan Drive

fluid filled coupling connecting the fan to the fan pulley. The unit allows fan to be driven in normal manner at low engine speeds while limiting the top speed of the fan to a pre-determined level at higher engine speeds.

Thermal Control Drive

Air conditioned vehicles only the Thermal Control Drive (Fig. 2) is essentially the same as the Torque unit except for a thermostatic spring on the drive face. This thermostat senses temperature from the radiator and engages the drive for higher fan speed if temperature from the radiator rises above a certain point.

In case of engine overheating during slow car speed or idle operation, increase engine speed to approximately 1000 rpm in neutral gear. If condition is not corrected by increasing engine speed, replace fan drive unit with a unit known to be operating properly and test by operating vehicle under same conditions. Replace original drive unit assembly if trouble was corrected with test unit.

WATER PUMP

Note: The water pump is serviced only as an assembly. When replacing the water pump do not install a standard water pump on any air conditioned vehicle or vice versa. See specifications for proper pump.

Removal

(1) Drain the cooling system. (Remove fan shroud if so equipped and set back on engine).

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

(3) Remove fan, spacer (or fluid drive) and pulley. **CAUTION: To prevent silicone fluid from draining into fan drive bearing and ruining the grease, do not place drive unit with shaft pointing downward.**

(4) Remove the bolts attaching the water pump body to the housing. Remove the water pump and discard gasket.

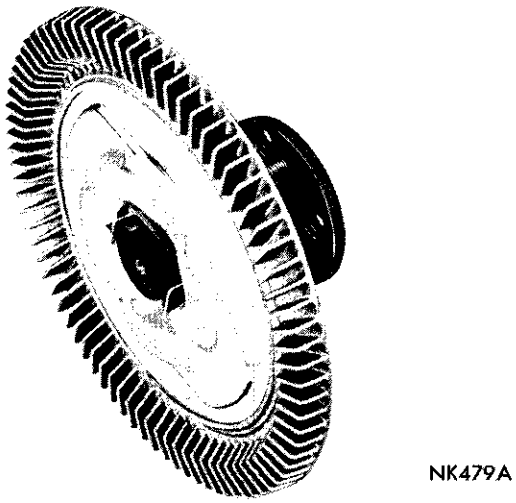

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Fig. 2—Thermal Control Fan Drive

Installation

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

(2) Tighten bolts to 30 foot-pounds. Rotate pump shaft by hand to be sure it rotates freely. Install pulley, spacer (or fluid drive) and fan.

(3) Tighten nuts to 15 foot-pounds. Install one piece shroud if so equipped. Fill the cooling system and test for leaks. Tighten belts as outlined in "Accessory Belt Drives".

RADIATOR

Removal

(1) Drain cooling system.

(2) On vehicles with automatic transmission, disconnect oil cooler lines at radiator bottom tank.

(3) Remove upper and lower radiator hoses (using pliers C-3250).

(4) Remove shroud attaching screws, separate shroud from radiator, position shroud rearward on engine for maximum clearance.

(5) Remove radiator attaching screws.

(6) Radiator can now be lifted free from engine compartment. **Care should be taken not to damage radiator cooling fins or water tubes during removal. Fan damage should always be avoided.**

Installation

(1) Slide radiator down into position behind radiator support and install attaching screws.

(2) Install fan shroud (if so equipped), connect hoses, and connect transmission oil cooler lines, if so equipped.

(3) Fill cooling system to 1-1/4" below filler neck seat with water and anti-freeze, as required. After warm-up, re-check coolant level.

(4) On vehicles with automatic transmission, measure transmission oil level after warm-up and add oil as required.

Cleaning

(1) Drain cooling system and refill with clean **soft** water and a reliable cooling system cleaner.

(2) Operate engine according to directions on Cleaner label.

(3) After cleaning operation, flush entire cooling system until water runs clean.

(4) Regardless of climate, the cooling system should be refilled with sufficient permanent type anti-freeze for —20°F protection. To insure adequate corrosion protection.

(5) If vehicle is equipped with **air conditioning** the cooling system must contain anti-freeze all year

round. This is necessary because in the reheat-cycle system used on all vehicles, cold refrigerated air passes through the heater core. Anti-freeze is necessary to prevent the heater core from freezing in hot weather when the air conditioner is being used.

TRANSMISSION OIL COOLER

The transmission oil cooler is located in the bottom radiator tank (water cooled), which is an integral part of the radiator.

Some models are equipped with an auxiliary oil cooler (air cooled) mounted ahead of the radiator and is connected in series with the standard transmission oil cooler (Fig. 3).

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

Testing Oil Cooler for Leaks

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

Repairing Oil Cooler

(1) Remove radiator from vehicle.

(2) Remove radiator bottom tank.

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

(4) Remove the stamped retainer nuts holding the cooler fittings to the bottom tank and remove the cooler.

(5) Install a new cooler or repair the old cooler with **silver solder** and reinstall as follows:

(6) Position oil cooler in bottom tank and install the stamped retainer nuts on oil cooler fittings.

(7) Use soft solder to secure the cooler in the tank.

(8) Attach bottom tank to radiator using soft solder.

(9) Install radiator as described in Paragraph "Radiator".

(10) Fill cooling system and test for leaks.

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

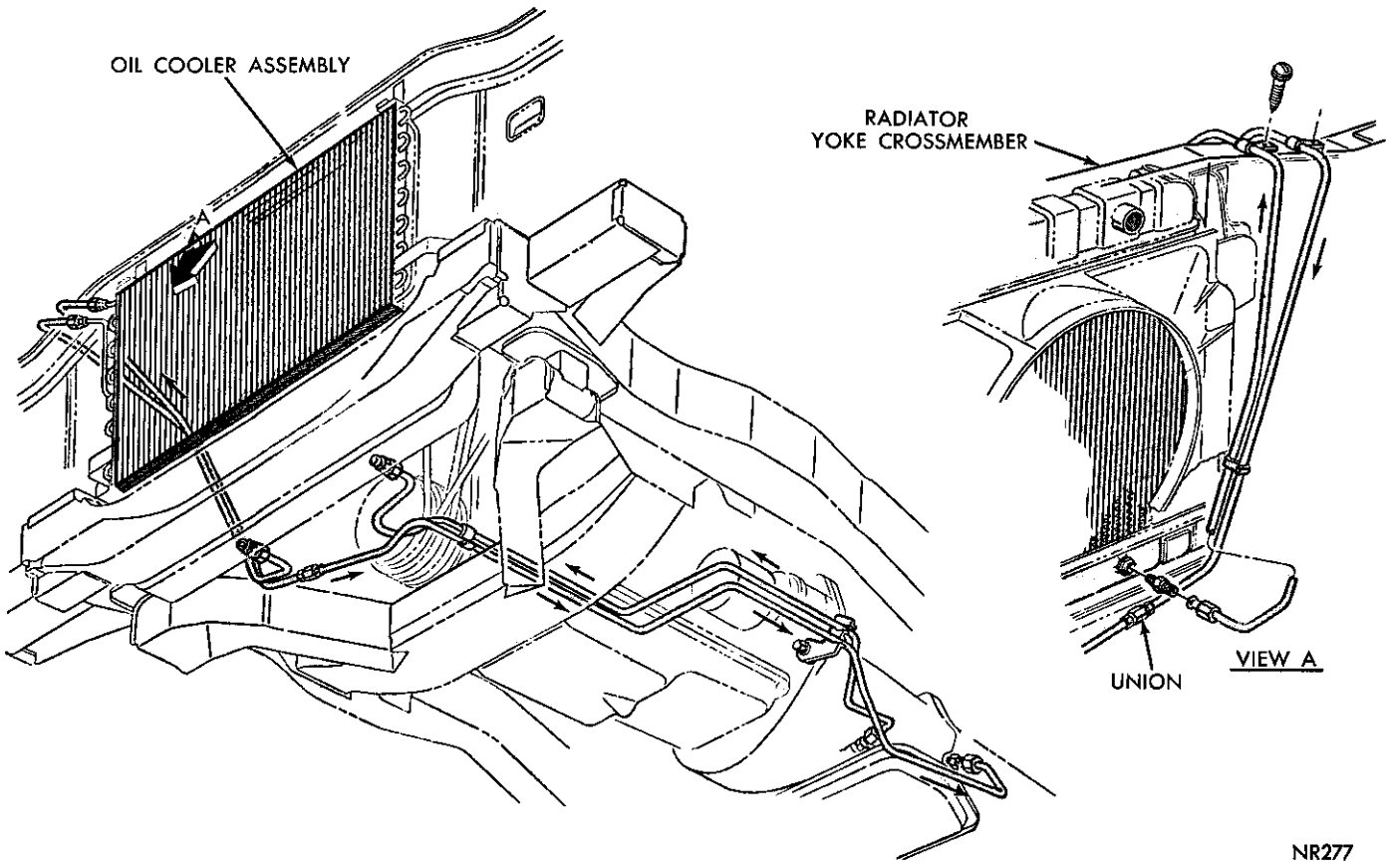

Fig. 3—Oil Flow—Transmission Coolers with Trailer Tow—Imperial and Chrysler 383—4 BBL.

filter. If none of these conditions are found, reconditioning may not be necessary. Reassemble, using Dexron "Automatic Transmission Fluid or Chrysler Automatic Transmission Fluid AQ-ATF-2848A available under Part Number 1843314.

The transmission auxiliary oil cooler being all aluminum can be repaired by a local reliable radiator service having the equipment for alumibrazing or heliarc.

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.

Flushing Cylinder Block

(1) Drain radiator and remove hoses at radiator.

(2) Remove thermostat and reinstall thermostat housing.

(3) Install Tool C-3514, or other suitable flushing gun to inlet hose.

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

(5) Turn on water, and when cylinder block is filled, turn on air (up to 20 psi) in short blasts.

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

(7) Continue this procedure until water runs clean. Test thermostat and if satisfactory, reinstall: otherwise, replace using a new housing gasket.

(8) Fill cooling system to 1-1/4 inches below filler neck, using **soft** water and anti-freeze, depending on season or if equipped with air conditioning.

(9) Engine should be operated until temperature gauge indicates normal operating temperature, then, continue an additional five minutes to release any air trapped in system.

(10) Check for leaks and coolant level; correct as necessary.

Reverse Flushing Radiator

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

(2) Install Tool C-3514, or other suitable flushing gun in radiator lower outlet.

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

CAUTION: Internal radiator pressure must not exceed 20 psi, as damage to radiator may result.

(4) Continue this procedure until water runs clean.

It is a good policy to reverse flush heater cores any time the radiator is reverse flushed.

(5) Fill cooling system to 1-1/4 inches below filler neck, using **soft** water and anti-freeze, depending on season or if equipped with air conditioning.

(6) Engine should be operated until temperature gauge indicates normal operating temperature, then, continue an additional five minutes to release any air trapped in system.

(7) Check for leaks and coolant level; correct as necessary.

THERMOSTAT

The thermostat is actuated by a pellet containing a copper-impregnated wax, as shown in (Fig. 4). As the temperature of the pellet increases, the wax expands and opens the valve. A 195° thermostat is standard equipment.* **The use of a 160° thermostat or alcohol type anti-freeze is not recommended.**

If the thermostat does not close completely when cold, the engine will warm up slowly or not at all, and heater performance will also be impaired. Poor heater performance may also be due to valve opening at too low a temperature. Too high a valve opening temperature or a valve that will not open can cause overheating.

*440 H.P. Engines have a 190° thermostat.

Removal

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

(2) Remove upper radiator hose from thermostat housing.

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

Testing Thermostat

(1) Visually inspect thermostat to make sure valve closes tightly. If valve does not close completely due to dirt, sand or other foreign material, carefully clean the sealing edge making sure the sealing edge is not damaged. If valve does not close tightly when clean, install a new thermostat.

(2) Immerse thermostat in a container of warm water so that pellet of thermostat is completely covered. The pellet must not touch bottom or sides of container.

(3) Heat the water and stir it continuously (to insure uniform temperature) and check water temperature with a thermometer at the point when a .001"

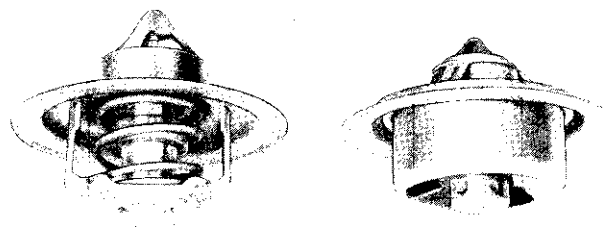

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Fig. 4—Thermostats

feeler gauge can be inserted into valve opening. The feeler gauge should pass freely into the valve opening at a water temperature of 187° to 194°F for a 190° thermostat and a water temperature of 192° to 199° for a 195° thermostat. If outside of this range, replace thermostat.

(4) Continue heating water to approximately 210°F for a 190° thermostat and 215° temperature for a 195° thermostat. The thermostat valve should be fully open at this temperature. If it is not, replace thermostat.

Installation

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

(2) If removed, reinstall or replace the upper hose.

(3) Fill cooling system to 1-1/4 inches below filler neck with water and rust resistor or water and anti-freeze.

RADIATOR HOSES

The hoses are removed and installed using hose clamp pliers C-3250.

A hardened, cracked, swollen or restricted hose should be replaced.

The reinforcement spring inside the lower hose is necessary to prevent collapsing of the hose due to suction at medium or high engine speeds. If this spring is misplaced in hose, it should be repositioned. If this spring is deformed hose must be replaced.

RADIATOR PRESSURE CAP

Radiators are equipped with a 16 psi cap, as standard equipment (Fig. 5).

WARNING: When removing pressure cap, turn counterclockwise to stop, without downward pressure on cap, permitting built-up pressure to escape through overflow tube. This will prevent hot water from spraying out of radiator filler opening. To complete removal apply downward pressure and turn counterclockwise.

PRESSURE TESTING RADIATOR CAP

Select the short neoprene seal and metal adapter from the kit, Tool C-4080. Slip the seal on the tube at

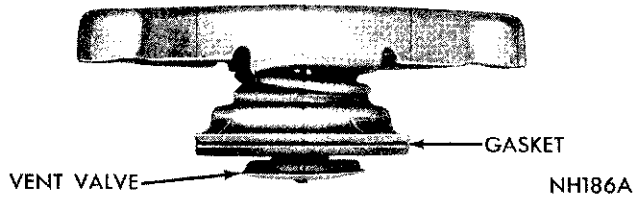


Fig. 5—Radiator Pressure Cap

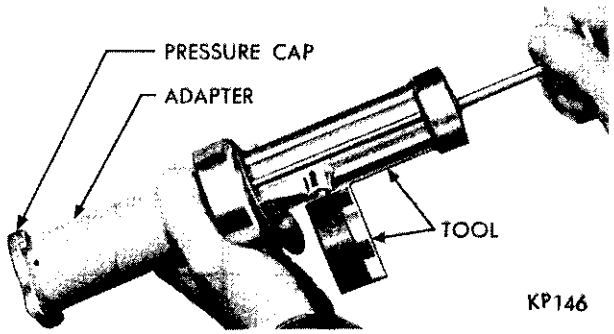


Fig. 6—Testing Pressure Cap

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 (Fig. 6) bring the pressure to 16 pounds on the gauge. If the pressure cap fails to hold the pressure within a range of 14-17 pounds, replace the cap with a **new tested** cap.

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. **Do not use a replacement cap without this vent valve.**

PRESSURE TESTING COOLING SYSTEM

(1) With engine not running, wipe the radiator filler neck sealing seat clean. The water level should be 1/2 inch below neck of radiator.

(2) Attach the Tester Tool C-4080 to the radiator, as shown in (Fig. 7) and apply 15 pounds pressure. If the pressure drops inspect all points for external leaks.

(3) If there are no external leaks, after the gauge dial shows a drop in pressure, detach the tester, start engine and run the engine to operating temperature in order to open the thermostat and allow the coolant

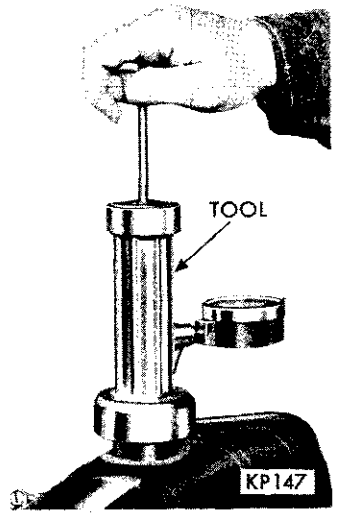


Fig. 7—Pressure Testing Cooling System

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.

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 20 lbs.

(4) Remove the wires from the spark plugs on one bank and operate the engine on the opposite bank. If the needle continues to fluctuate, it indicates a leak on the bank still in operation. If the needle ceases to fluctuate, the leak is in the bank, from which combustion has been released.

(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 without fluctuation, then there is no leak, however, there may be internal leaks which can be determined by removing the oil dip-stick 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".

ACCESSORY BELT DRIVES

PROPER BELT TENSION

Satisfactory performance of belt driven accessories (Fig. 8) depends on the maintenance of proper belt tension. There are two methods by which belt tensions can be properly established. "The Torque Method" and "The Belt Deflection Method". If the specified tensions are not maintained, belt slippage may cause engine overheating, lack of power steering assist, loss in air conditioning capacity, reduced belt life. To avoid any such adverse effects, the following service procedure should be followed:

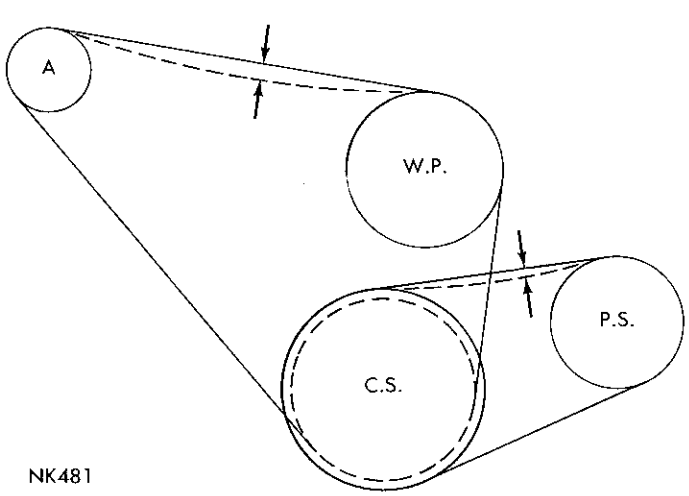
Adjust all belts to the specified "used belt" tension at new vehicle preparation. Any belt that has operated for a minimum for a half-hour is considered to be used. The new belt tension specification apply for all new belt replacements.

On **Chrysler Models** with 383 or 440 cubic inch engine with air conditioning, it may be necessary to remove the A/C clutch to install a new A/C belt set. With belts engaged in the crankshaft, alternator and the A/C clutch grooves, install A/C clutch on compressor. Adjust belts to proper tension. See Group 24 of this manual for A/C clutch Removal and Installation.

Torque Method

All belts can be adjusted to the specified tension by use of a torque wrench. The alternator belts are adjusted by using a special Tool C-3841 and torque wrench Tool C-3005.

The special tool should be hooked at the heavily-ribbed section of the alternator rectifier end shield. Other belts can also be tightened by torque wrench 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. (See Specifications.) Tighten all mounting bolts



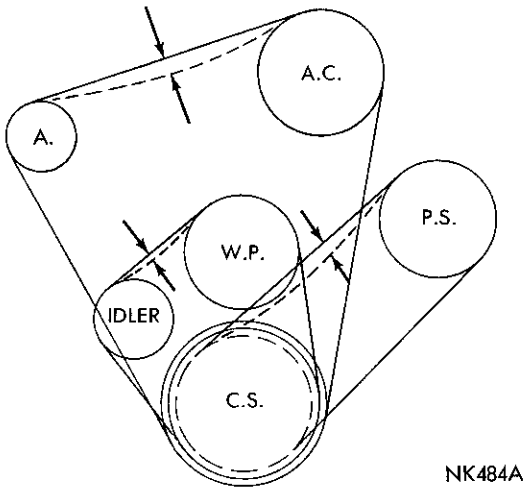


Fig. 8—Belt Deflection Location

while the torque is applied to the accessory. If it is not possible to use the torque wrench because of clearance, use an extension.

Belt Deflection Method

All belts can also be adjusted 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 8 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 adjust 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 1/2 inch square drive hinge handle can be used if the accessory has a square hole. Tighten the mounting bolts and test the deflection. (See Specifications.) It may be necessary to repeat this procedure several times to establish the correct tension.

SPECIFICATIONS

CHRYSLER AND IMPERIAL

ENGINE	383-2BBL	383-4BBL	440	IMPERIAL
CAPACITY (With Heater) Quarts—	14.5—22″	14.5—22″	15.5—22″	17.5—28″
Radiator Width	15-26″ A/C 16-26″ M/C	16—26″	17—26″ A/C 18-26″ M/C	
RADIATOR—Identification Number—Width				
Transmission Manual 230	2998963—22″	N/A	N/A	N/A
Automatic 727	2998963—22″	2998964—22″	2998969—22″	2998980—28″
A/C	2998965—26″	2998967—26″	2998970—26″	2998980—28″
Max. Cooling	2998968—26″	2998968—26″	2998968—26″	2998980—28″
Oil Cooler Size Standard	12″	12″	12″	12″
A/C	12″	12″	12″	12″
Max. Cooling	12″	12″**	12″	12″**
Shroud—Transmission Manual	None			
Automatic	None	None	Yes***	Yes
A/C & Max. Cooling	Yes	Yes	Yes	Yes
Seal				
Hood to Yoke	Yes	Yes	Yes	Yes
Bumper to Yoke Air Conditioning and Maximum Cooling	Yes	Yes	Yes	All
FAN				
Diameter—Number Blades—Width				
Standard	18—7—2	N/A	N/A	N/A
Automatic	18—7—2	18—7—2	18—7—2	18-1/2—7—2-1/2
A/C	18-1/2—7—2-1/2	18-1/2—7—2-1/2	18-1/2—7—2-1/2	18-1/2—7—2-1/2
High Capacity	18—7—2-1/8	18—7—2-1/8	18—7—2-1/8	N/A
Spacer				
Standard	1.60″	1.60″	1.60″	Thermal
A/C	Thermal	Thermal	Thermal	Thermal
High Capacity	1.60″	1.60″	1.60″	N/A
Ratio (Fan to Crankshaft)				
Standard	.95:1	.95:1	.95:1	.95:1
A/C	1.4:1	1.4:1	1.4:1	1.4:1
High Capacity	.95:1	.95:1	.95:1	N/A
WATER PUMP IMPELLER				
Diameter—Number Blades				
Standard	4.38″-8	4.38″-8	4.38″-8	4.38″-8
A/C	3.50″-6	3.50″-6	3.50″-6	3.50″-6

*Add 1-1/2 quarts for rear seat heater.

**Auxiliary 11″ x 26″ oil cooler (air cooled) in series with standard oil cooler with trailer tow.

***High Performance only.

A/C With air conditioning.

M/C With maximum cooling.

BELT TENSION SPECIFICATIONS

TORQUE METHOD

Torque (Ft. Lbs.) to be applied to components

ENGINE CUBIC INCH	USED BELT* 383 440	NEW BELT 383 440
Power Steering Bracket	70	120
Alternator		
With Air Conditioning	45	70
Imperial only	25	40
Without Air Conditioning	40	60
Imperial only	30	40
Fan Idler	40	65

BELT DEFLECTION METHOD

Deflection (Inches) to be Applied at Midpoint of Belt

Segment Under a 5 Pound Load (See Figure 8)

	ALL MODELS	
	USED BELT*	NEW BELT
Power Steering	5/32"	3/32"
Fan Belt—Idler	3/32"	1/16"
Alternator		
Without Air Conditioning	3/16"	3/32"
With Air Conditioning	9/32"	3/16"

*Any belt that has operated for a minimum of a half-hour is considered to be used.

CONVERSION TABLE

U. S. Quart	14.5	15.5	16	17	17.5	18.5	19
Imperial Quart	12	13	13.25	14.25	14.50	15.5	15.75

TIGHTENING REFERENCE

	Inch Pounds	Foot Pounds	Thread Size
Water Pump Bolts	—	30	—
Fan Attaching Bolts	—	15-18	—
Thermostat Housing Bolts	—	30	—
Shroud Mounting Bolts	12	—	8-32
	75	—	1/4-20
Radiator Mounting Bolts	95	—	1/4-20
Drain Cock	150	—	—
Oil Cooler Fittings—To Radiator	110	—	—
Lines to Fittings	85	—	—
Lines to Auxiliary Cooler	85	—	—
Lines to Connector	50	—	—