



COOLING SYSTEM

GENERAL	4-2
Service Standard	2
Lubricants	2
Tightening Torque	2
Specifications	2
Troubleshooting	3
On-vehicle Service	3
COOLING SYSTEM	6
Drive Belt	6
Water Pump	7
Thermostat	8
Water Temperature Gauge Unit	8
RADIATOR	9

MARSHAL S. ABDOL RAHIM.

GENERAL

Checking for Coolant Leaks

Run the engine until coolant has warmed up enough so that the thermostat valve opens, and then stop the engine.

Confirm that the coolant level is up to the filler neck.

Install a radiator cap tester and apply 1.6 kg/cm^2 pressure, and then check for leakage from the radiator, hose or connections.

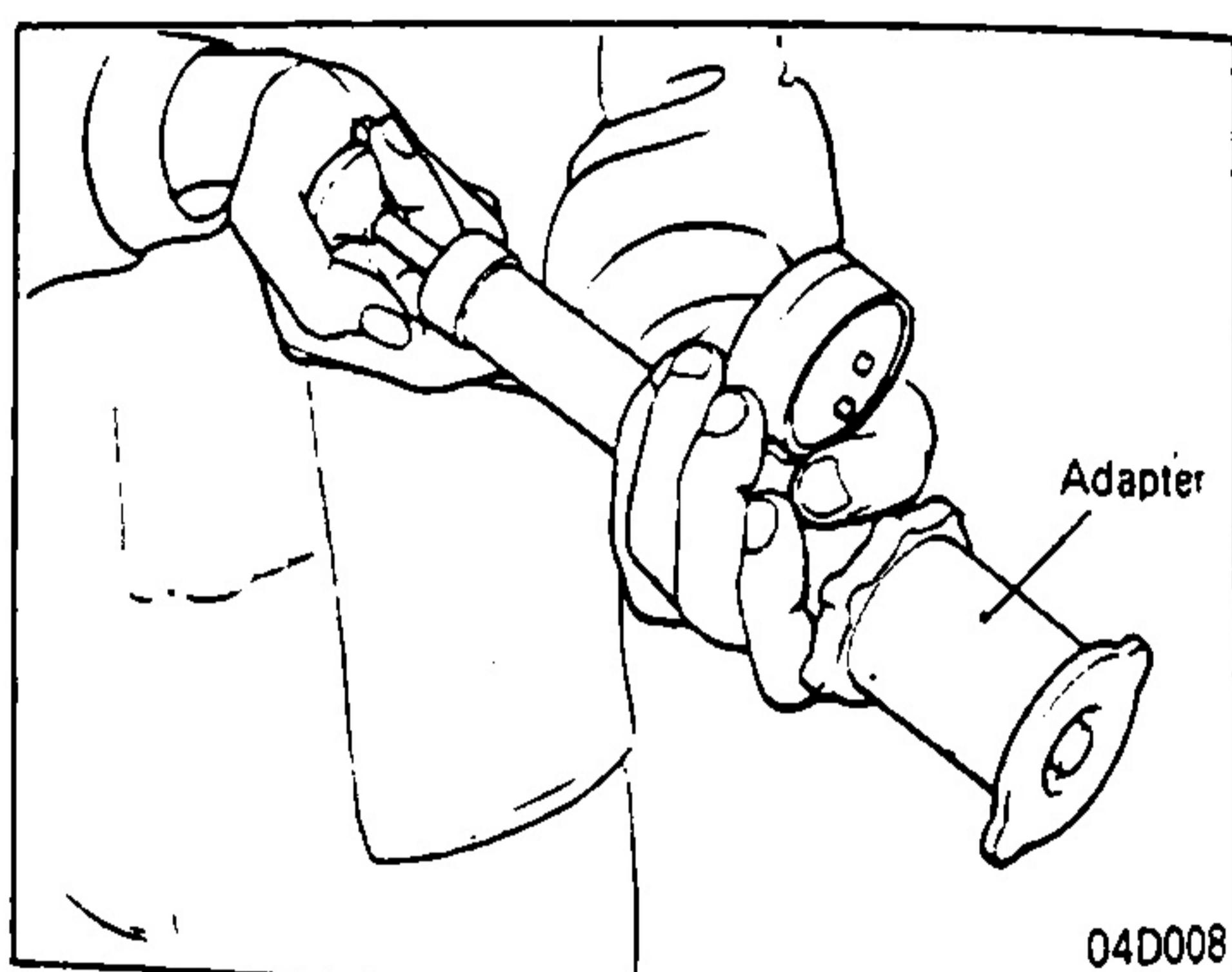
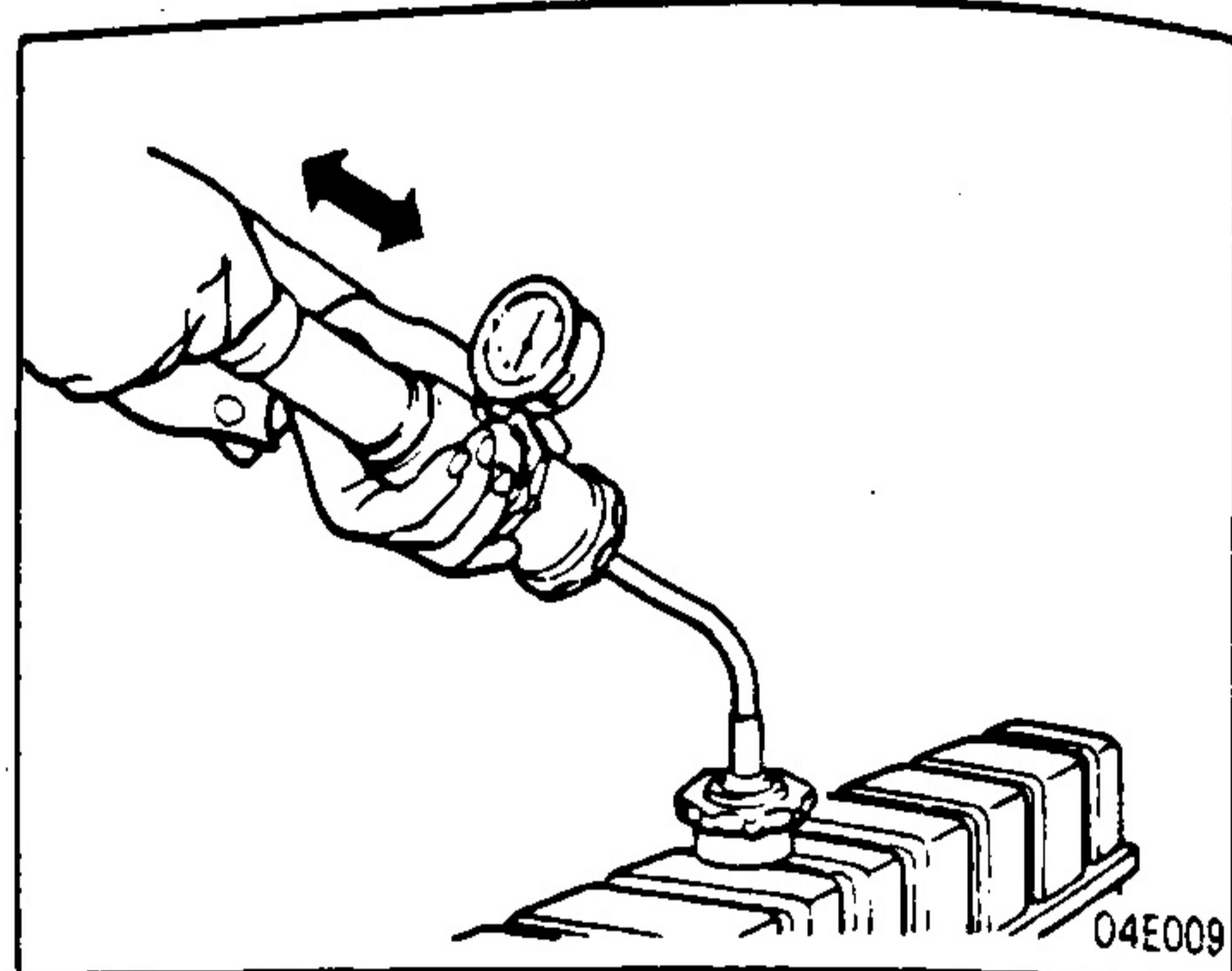
Caution

Be sure to completely clean away any moisture from the places checked.

When the tester is taken out, be careful not to spill any coolant from it.

Be careful, when installing and removing the tester and when testing, not to deform the filler neck of the radiator.

If there is leakage, repair or replace the appropriate part.



Checking of the Radiator Cap Valve-opening Pressure

Attach an adapter (which fits the cap) to the tester.

Increase the pressure until the indicator of the gauge stops moving.

Check that the pressure level is maintained at or above the limit for 5–6 seconds.

Replace the radiator cap if the reading does not remain at or above the limit.

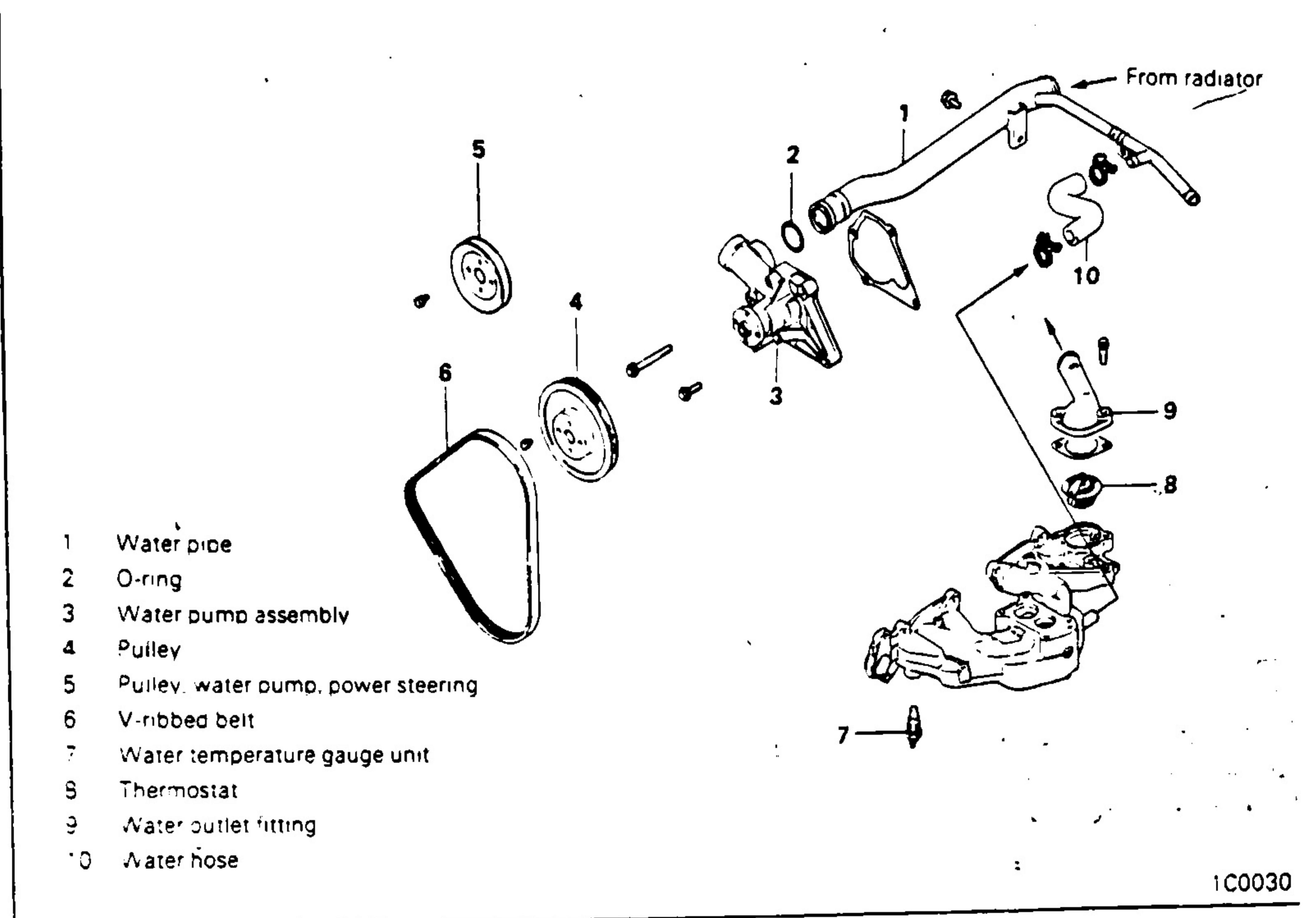
NOTE

Be sure that the cap is clean before testing because rust or other foreign material adhered to the cap will cause the measurement to be incorrect.

COOLING SYSTEM



COMPONENTS



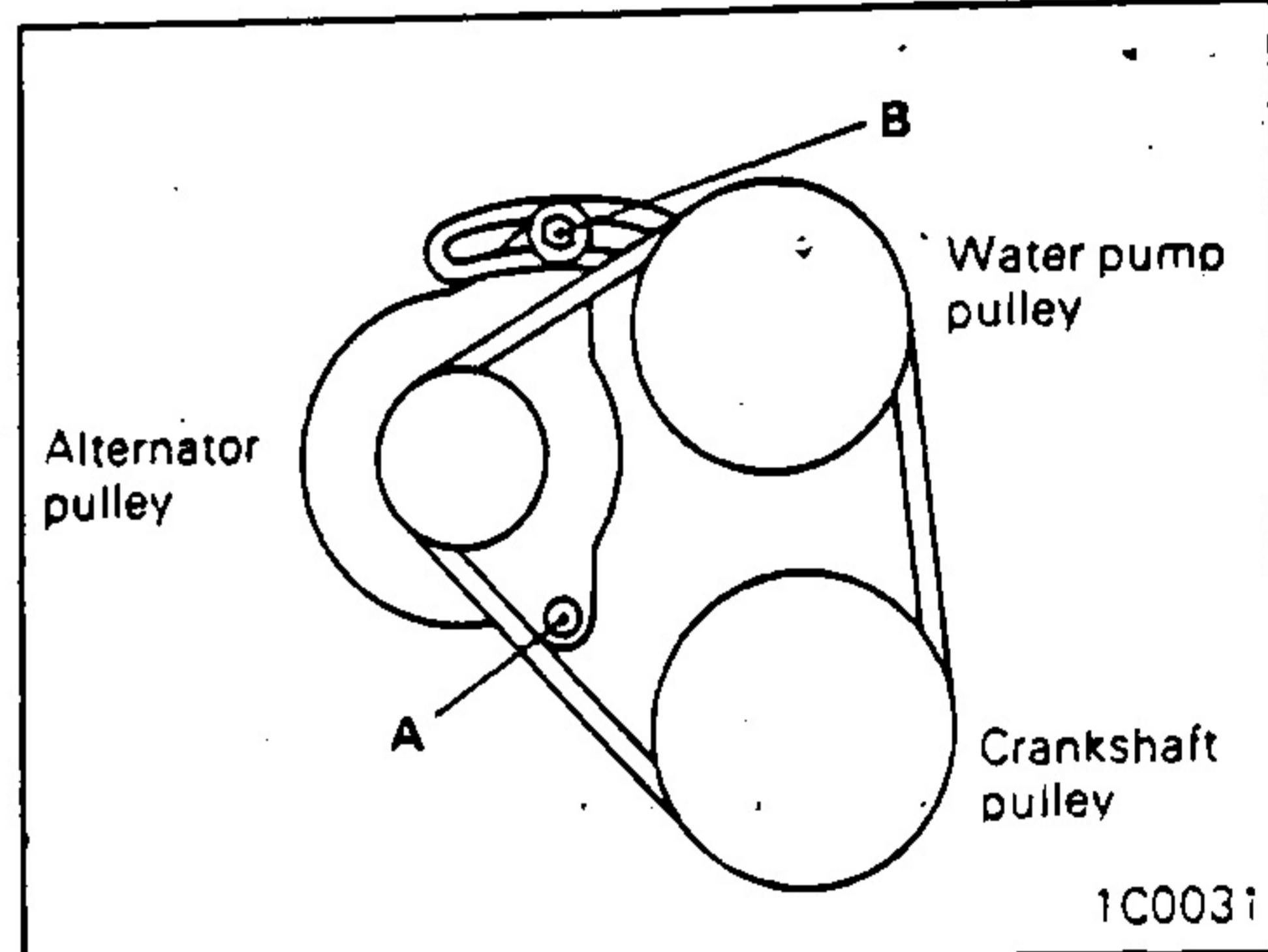
DRIVE BELT

Removal

Loosen alternator support bolt "A" and alternator brace bolt "B".

Push the brace side of alternator to relieve belt tension and remove the belt.

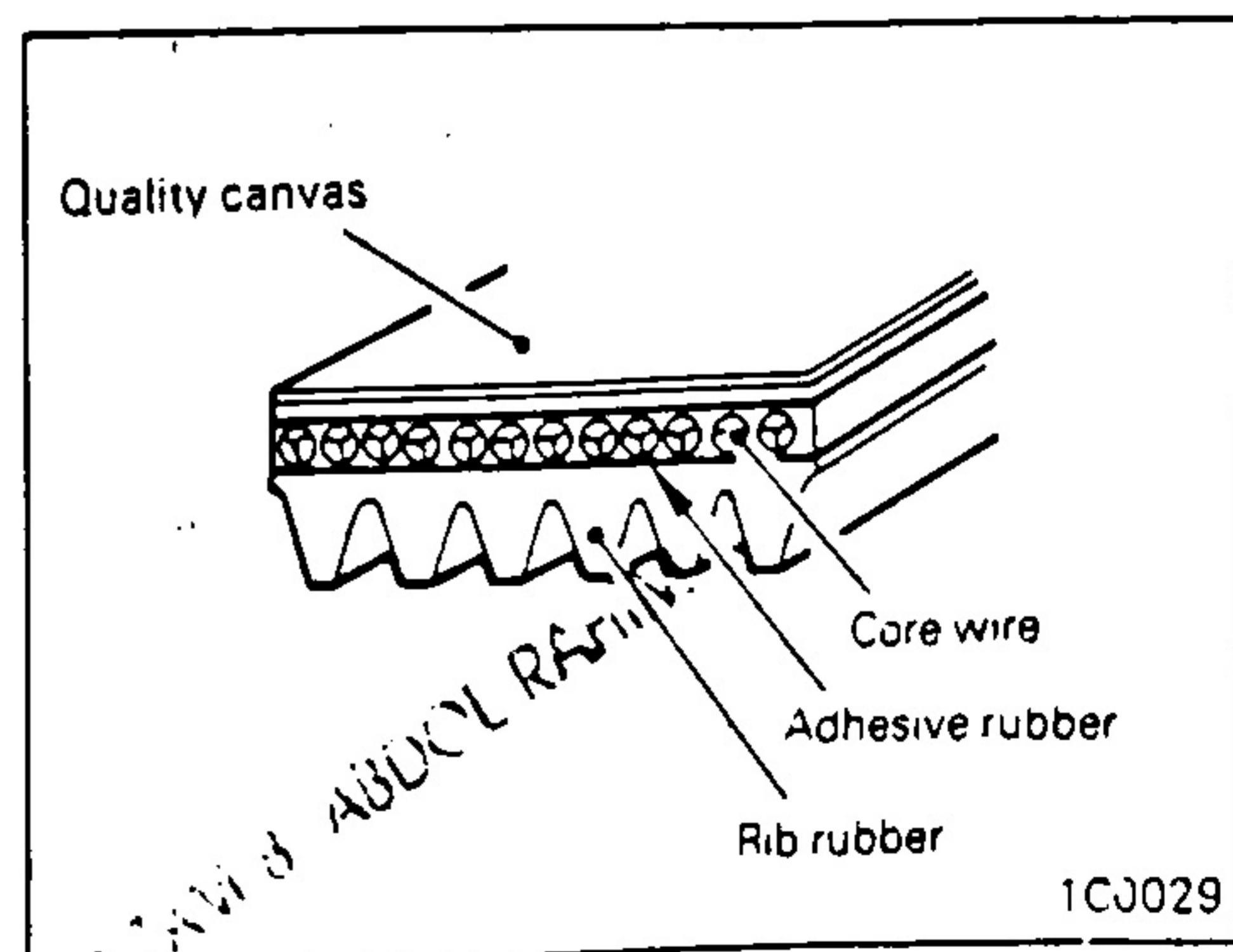
Remove the water pump pulley bolts and remove the water pump pulley.



Inspection

Check following items and replace if defective.

- (1) Check the surface for damage, peeling or cracks.
- (2) Check the belt surface for oil or grease.
- (3) Check the rubber for worn or hardened.
- (4) Check the surface of pulley for cracks or damage.



COOLING SYSTEM

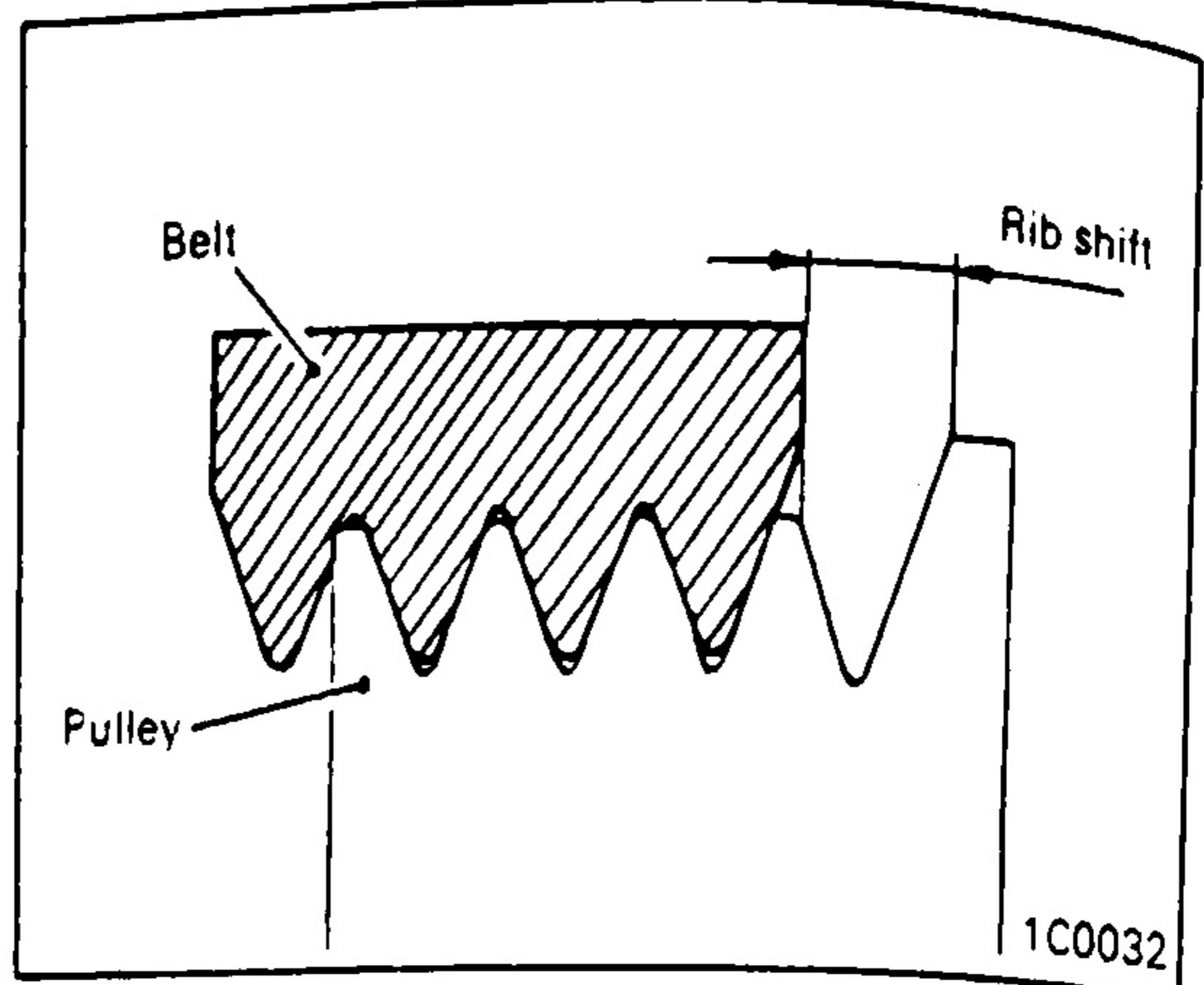
Installation

Install the water pump pulley to the water pump pulley bracket and tighten the bolts firmly.

After installing belt, adjust the belt tension. Refer to P.4-3.

Caution

When installing the V-ribbed belt, use care to prevent the belt rib from shifting in position relative to the pulley groove.



WATER PUMP

Removal

Drain the cooling system

Remove the drive belt and water pump pulley. See "Drive Belt and Pulley".

Remove the timing belt covers and the timing belt tensioner. See GROUP 1 for detailed procedure.

Remove the water pump mounting bolts and remove the alternator brace

Remove the water pump assembly from the cylinder block

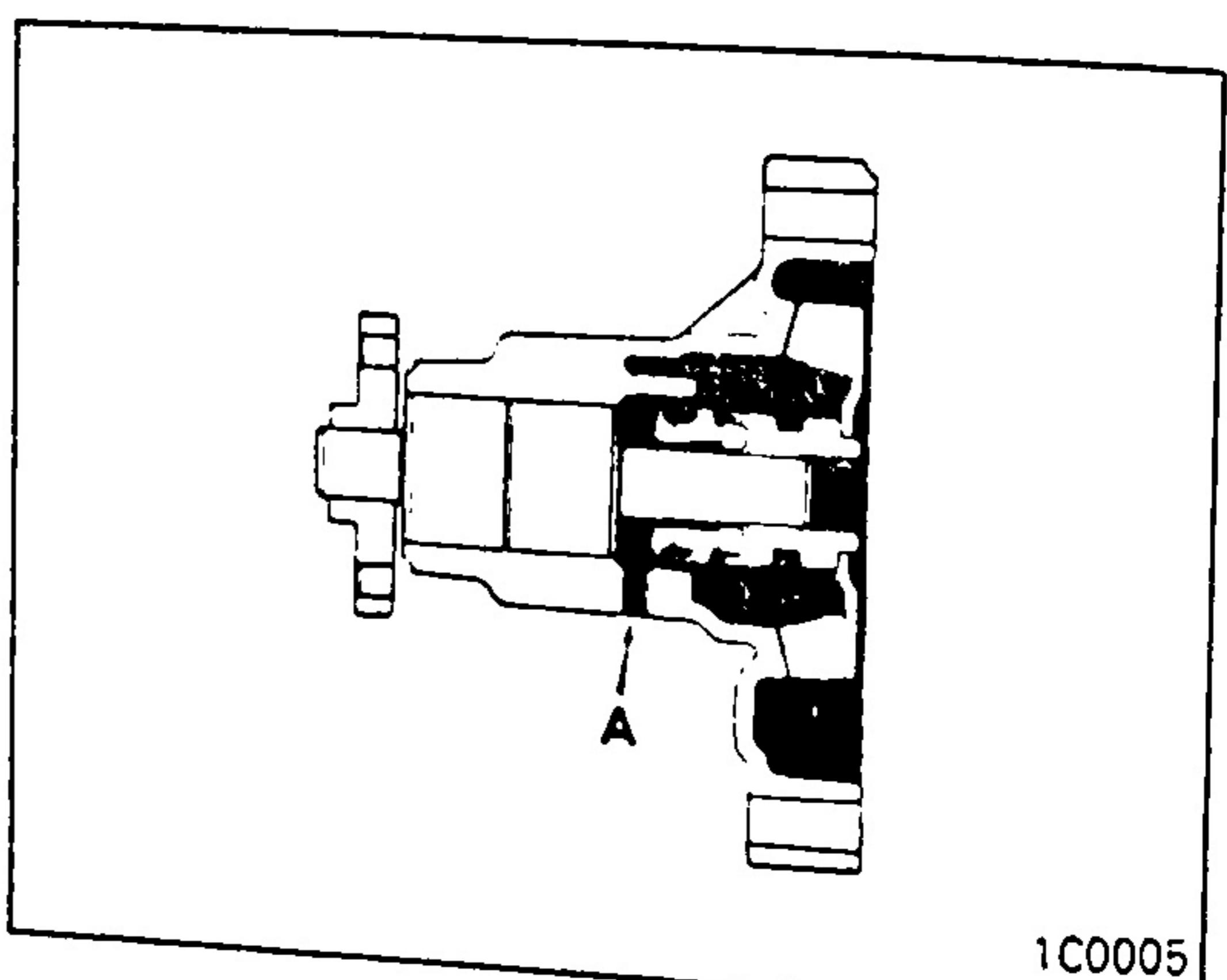
Inspection

Check the each part for cracks, damage or wear, and replace the water pump assembly if necessary

Check the bearing for damage, abnormal noise and sluggish rotation, and replace the water pump assembly if necessary

Check the seal unit for leaks, and replace the water pump assembly if necessary.

Check for water leakage. If water leaks from hole "A" seal unit is defective. Replace as an assembly.



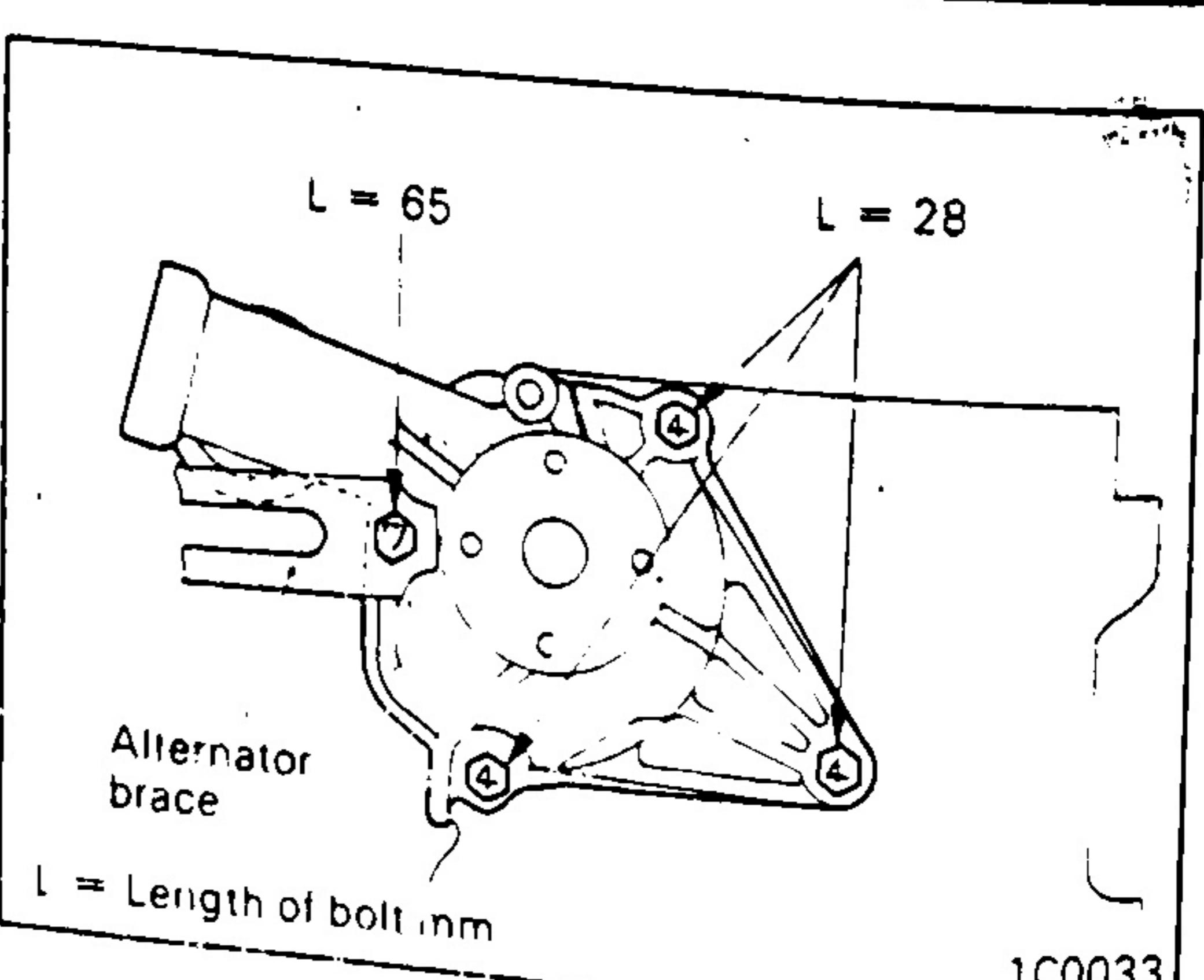
Installation

Clean gasket surfaces of water pump body and cylinder block.

Install the new O-ring onto the groove on the front end of the water pipe then wet the O-ring with water. Do not apply oil or grease.

Install new water pump gasket and water pump assembly and tighten the bolts to specified torque.

Install the timing belt tensioner and timing belt, and adjust the timing belt tension. Then install the timing belt covers. See GROUP 1, for detailed procedure.



COOLING SYSTEM



Install the water pump pulley and drive belt, and then adjust the belt tension.

Refill cooling system.

Run the engine and check for leaks.

THERMOSTAT

Removal

Drain cooling system down to thermostat level or below.

Remove outlet fitting and gasket.

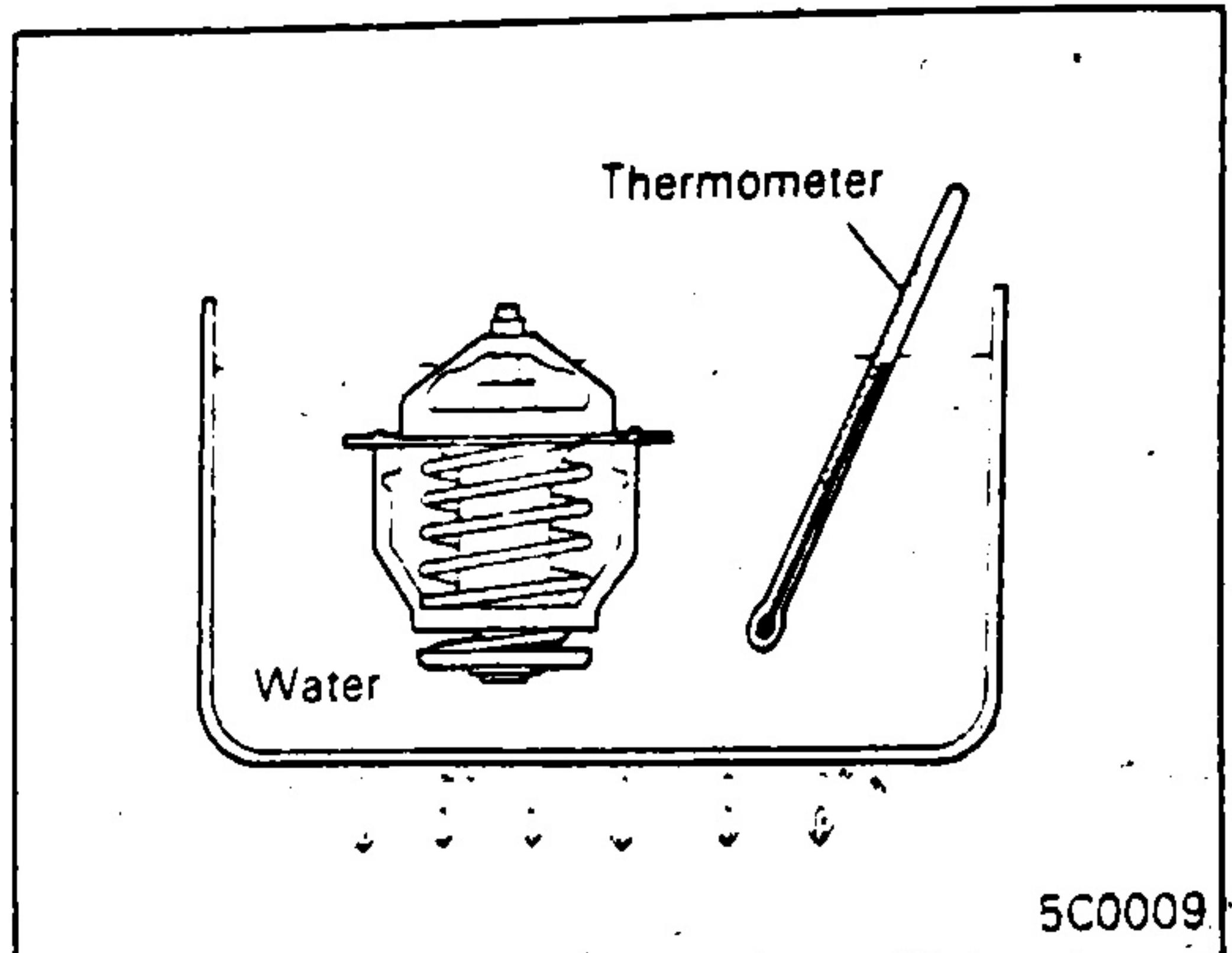
Remove thermostat.

Inspection

Heat thermostat as shown in illustration.

Check to see if valve operates properly.

Check to determine temperature at which valve begins to open.



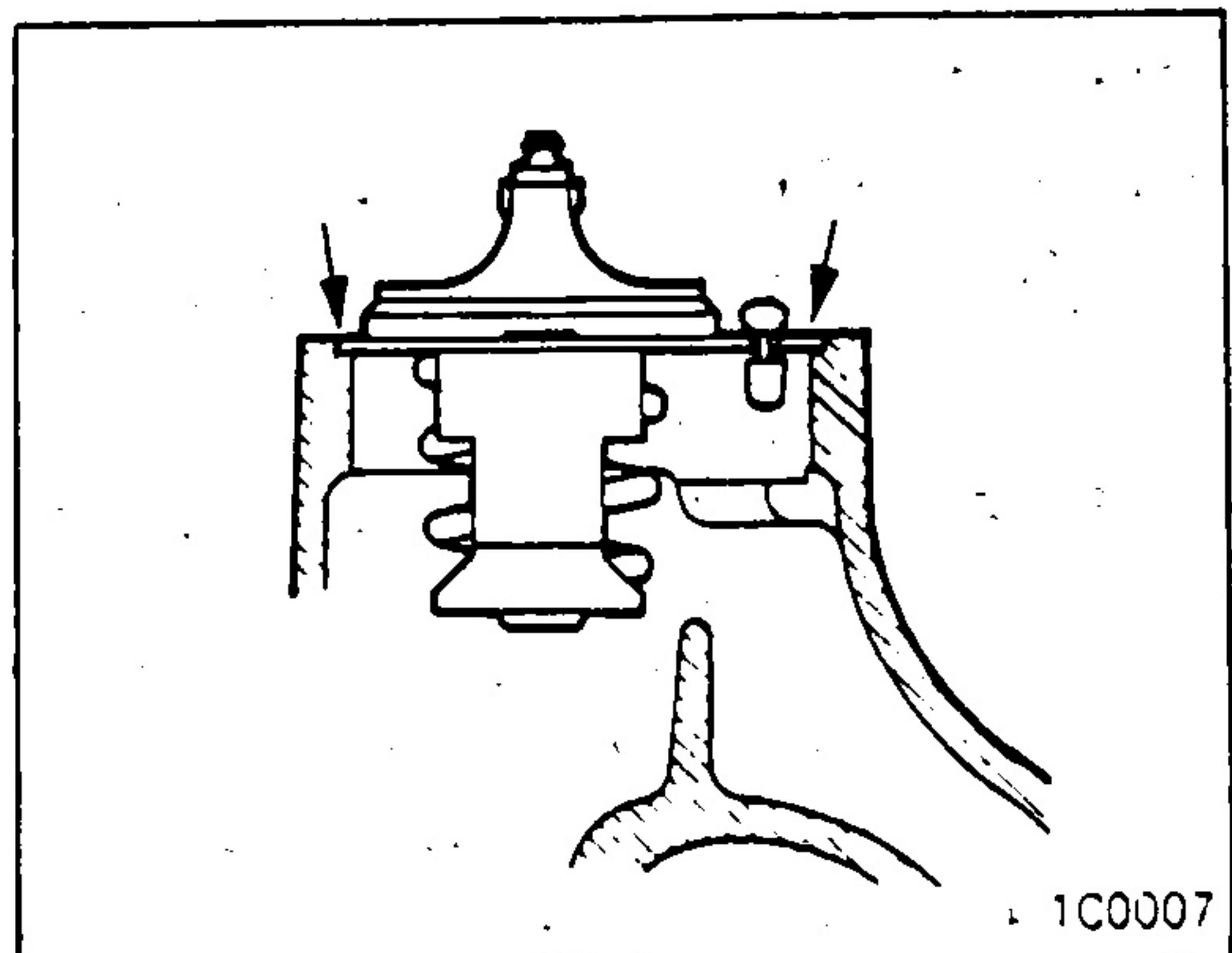
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Installation

Check to ensure that flange of thermostat is correctly seated in socket of thermostat housing. If thermostat is installed in wrong direction, bottom of thermostat will touch rib inside intake manifold, making it impossible to seat flange in position.

Install new gasket and water outlet fitting.

Refill cooling system.



WATER TEMPERATURE GAUGE UNIT

Removal

Drain cooling system down to gauge unit level or below.

Disconnect the battery ground cable and disconnect harness from the gauge unit.

Remove the water temperature gauge unit.

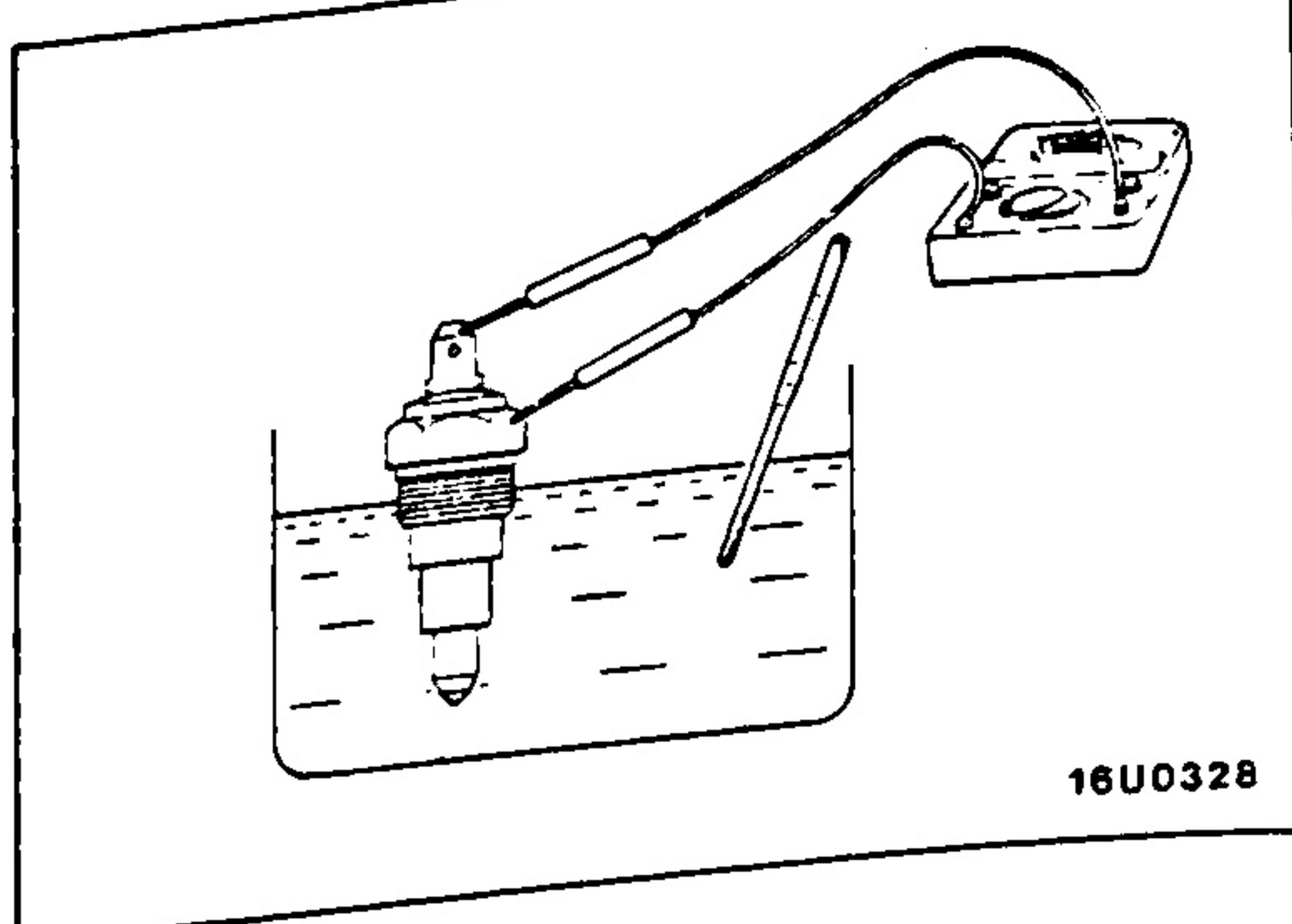
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COOLING SYSTEM / RADIATOR

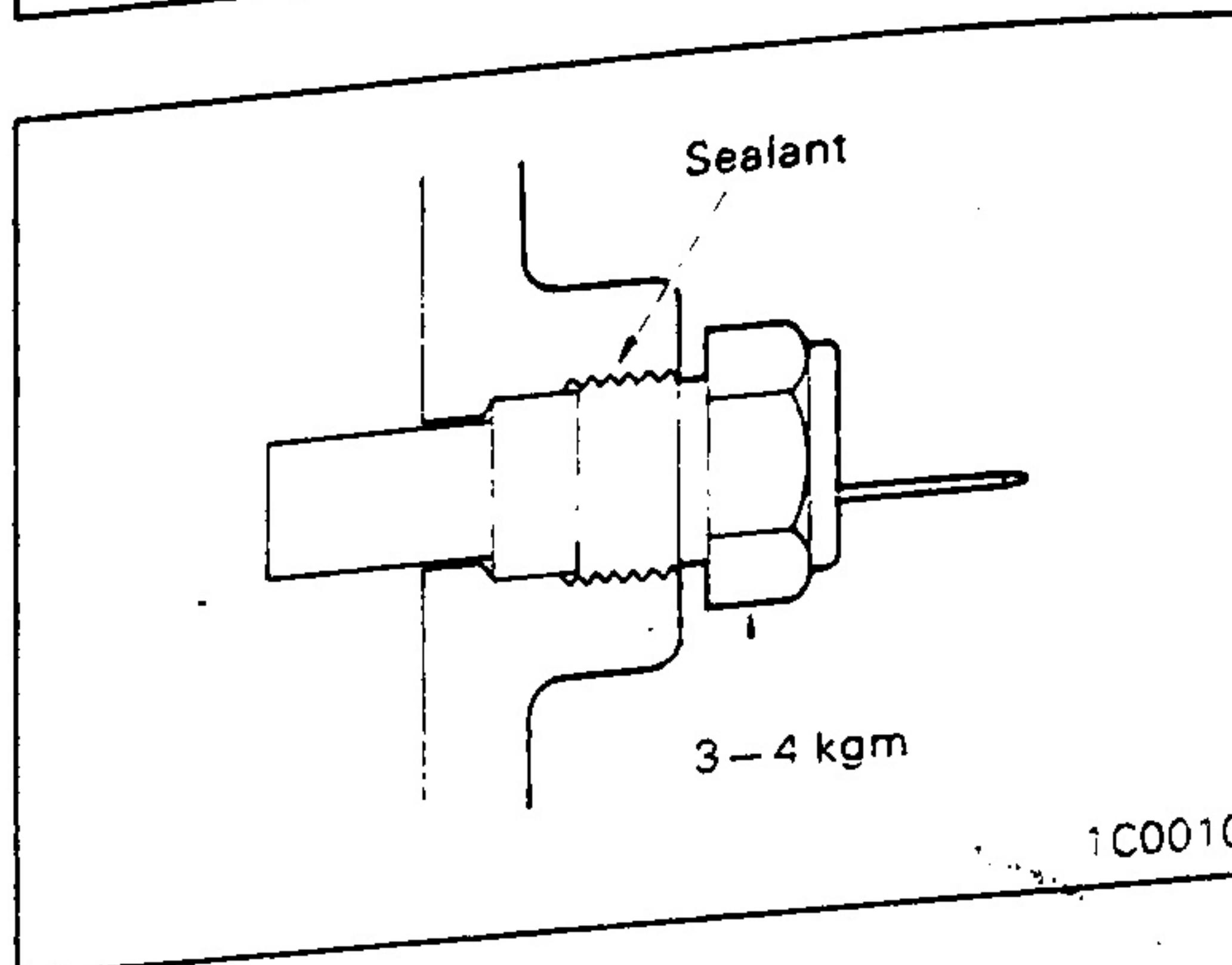
Inspection

Heat sensor by holding it under water.
Check to see that resistance falls within the specified range.

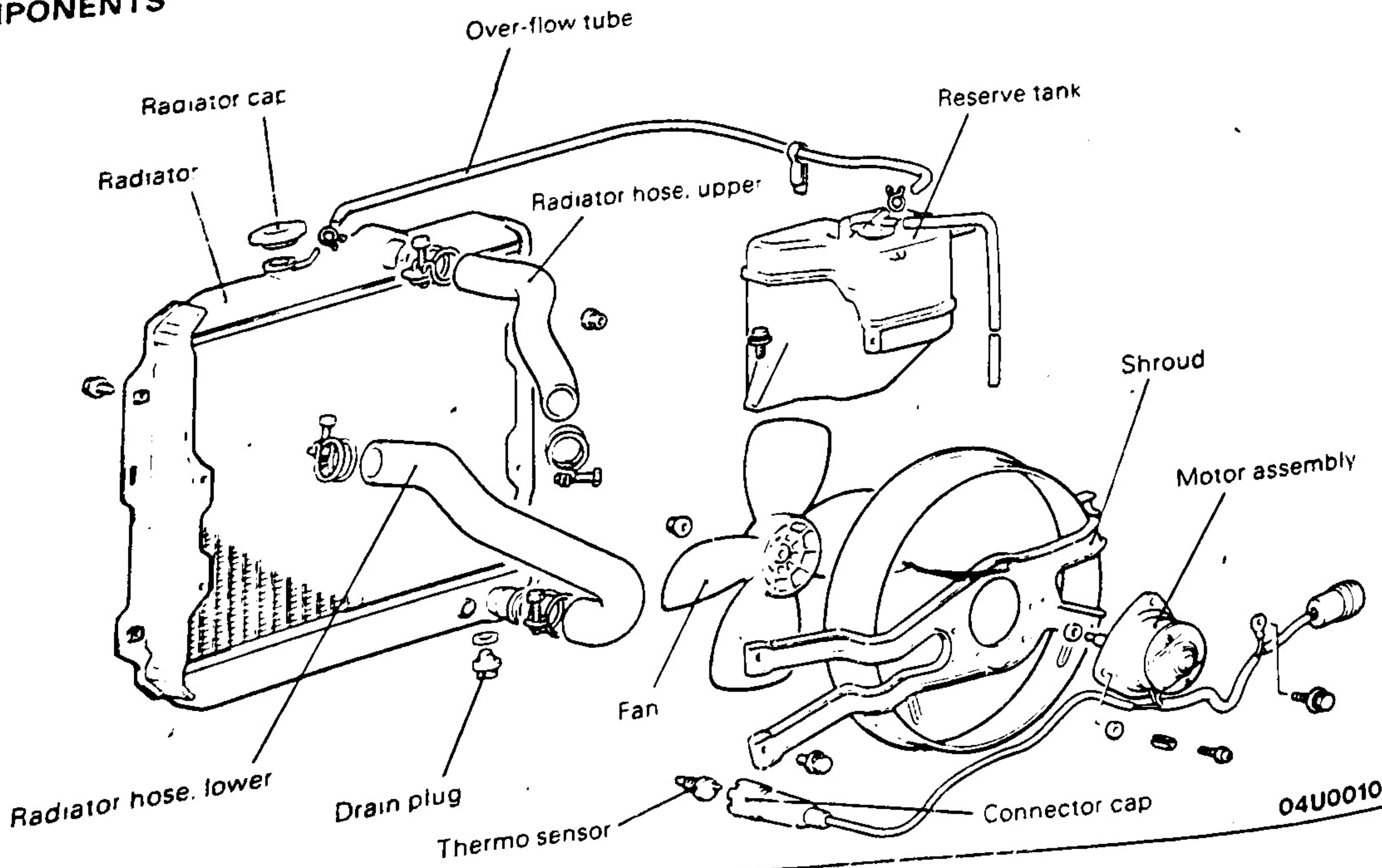


Installation

Apply sealant to threaded portion and tighten to specified torque.
Connect the harness to water temperature gauge unit.
Connect battery ground cable.
Refill cooling system.



RADIATOR COMPONENTS

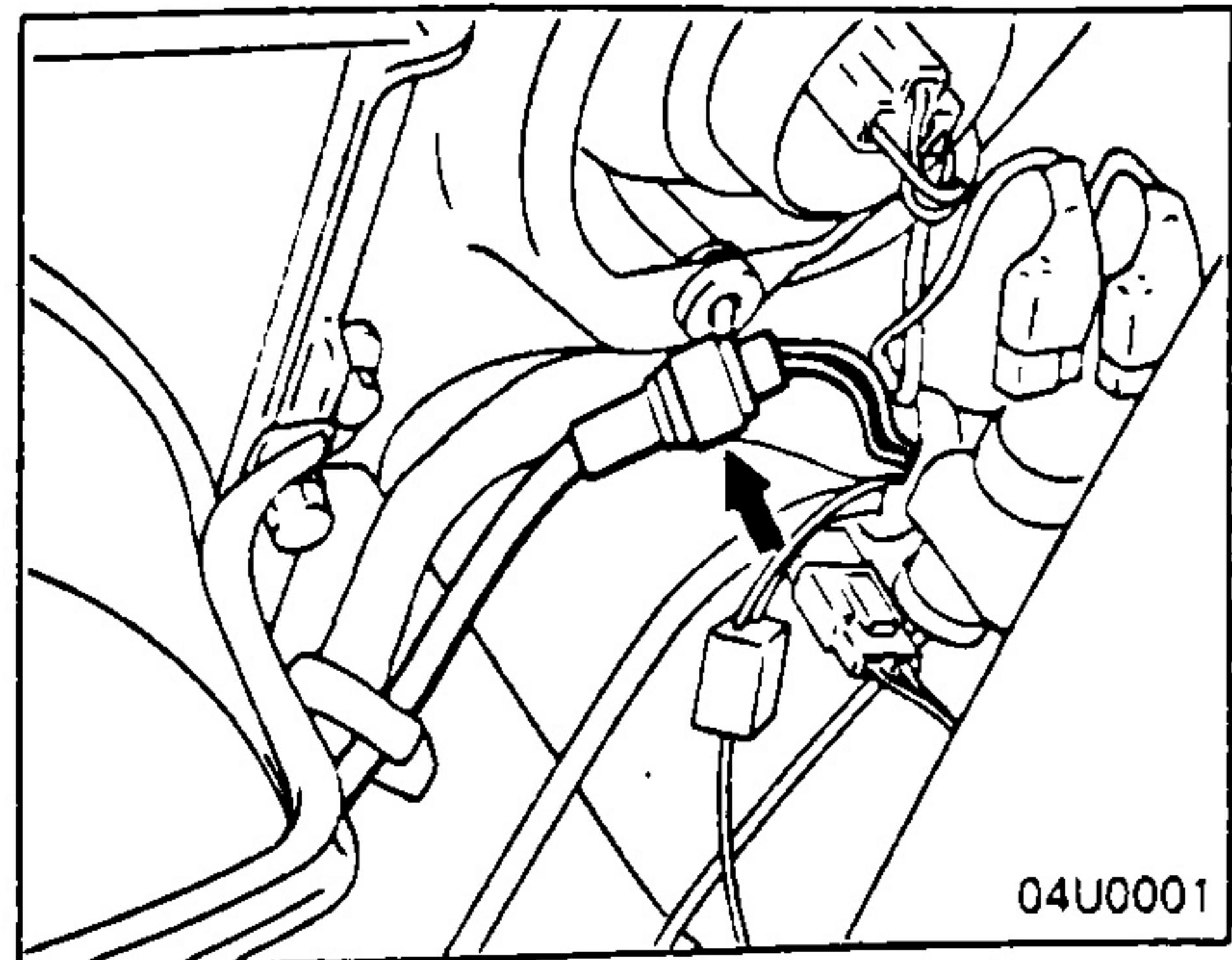


RADIATOR



REMOVAL

Disconnect the fan motor connector.
Set the warm water flow control lever to the hot position.
Loosen the radiator drain plug to drain coolant.
Disconnect the upper, lower hoses and overflow tube.
Remove the radiator mounting bolts.
Remove the radiator together with the fan motor.
Remove the fan motor from the radiator.



INSPECTION

- (1) Check for foreign material between radiator fins.
- (2) Check radiator fins for bend or damage.
- (3) Check radiator for corrosion, damage, rust or scale.
- (4) Check radiator hoses for cracks, damage or deterioration.
- (5) Check reserve tank for damage.

INSTALLATION

Replenish the coolant supply in the radiator and the reserve tank.

Run the engine until the coolant has warmed up enough so that the thermostat valve opens, and then stop the engine.

Remove the radiator cap, pour in the coolant until it is up to the filler neck of the radiator, and then fill the reserve tank to the specified level.

Check to be sure that there is no leakage from the radiator, hose or connections.

MARIZAM B. ABSUL RAHIM