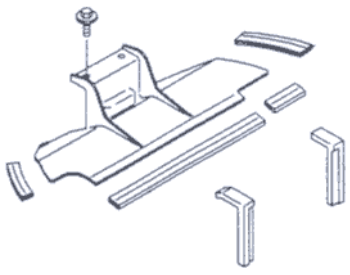
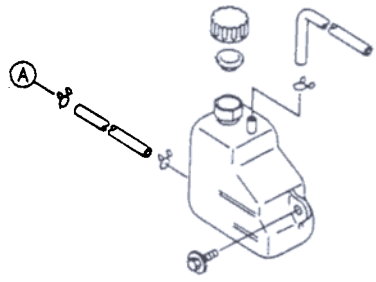
Cooling System

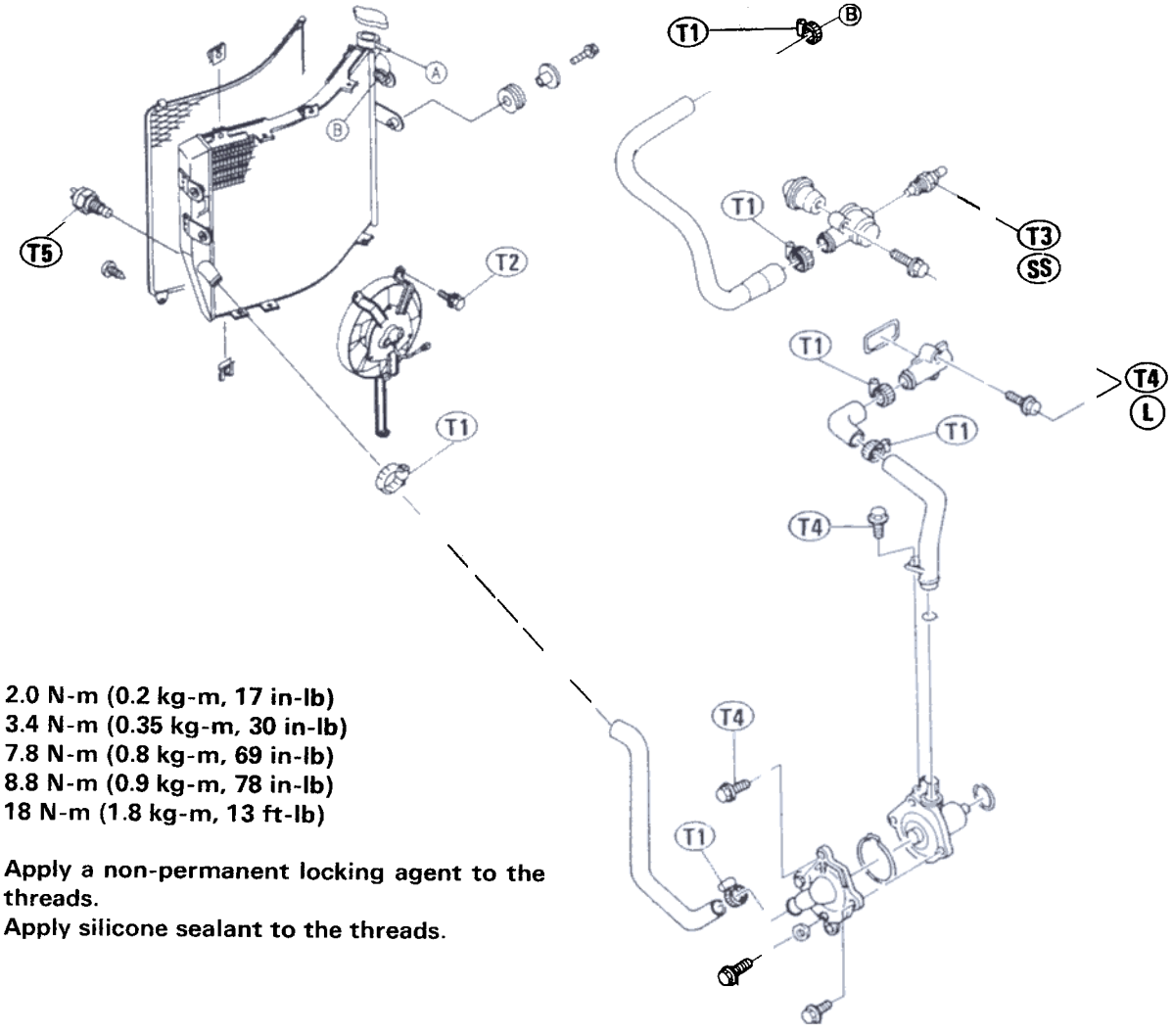
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Exploded View







T1 : 2.0 N-m (0.2 kg-m, 17 in-lb)
T2 : 3.4 N-m (0.35 kg-m, 30 in-lb)
T3 : 7.8 N-m (0.8 kg-m, 69 in-lb)
T4 : 8.8 N-m (0.9 kg-m, 78 in-lb)
T5 : 18 N-m (1.8 kg-m, 13 ft-lb)

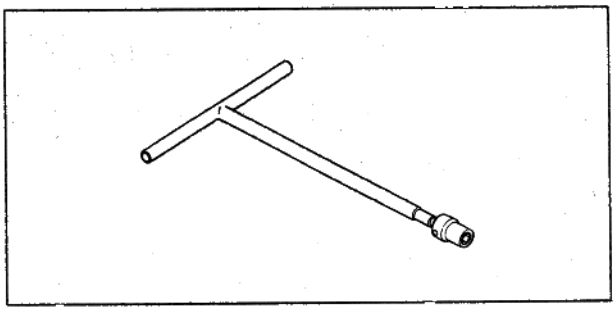
L : Apply a non-permanent locking agent to the threads.
SS : Apply silicone sealant to the threads.

Specifications

Items	Standard
Coolant:	
Type	Permanent type of antifreeze for aluminum engines and radiators
Color	Green
Mixed ratio	Soft water 50%, coolant 50%
Freezing point	−35°C (−31°F)
Total amount	2.3 L (reservoir tank full level)
Radiator:	
Cap relief pressure	93 ~ 123 kPa (0.95 ~ 1.25 kg/cm², 14 ~ 18 psi)
Thermostat:	
Valve opening temperature	80.0 ~ 84.0°C (176 ~ 183°F)
Valve full opening lift	Not less than 6 mm @95°C (203°F)

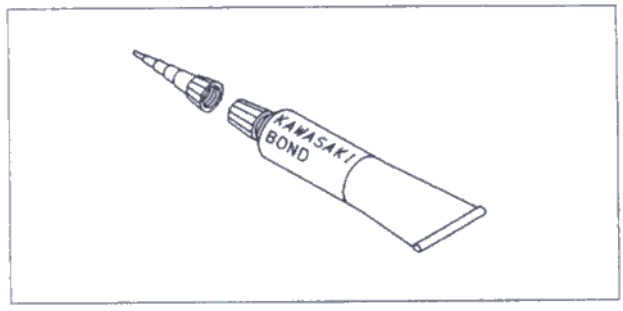
Special Tool

Socket Wrench, Hex 8: 57001-1268



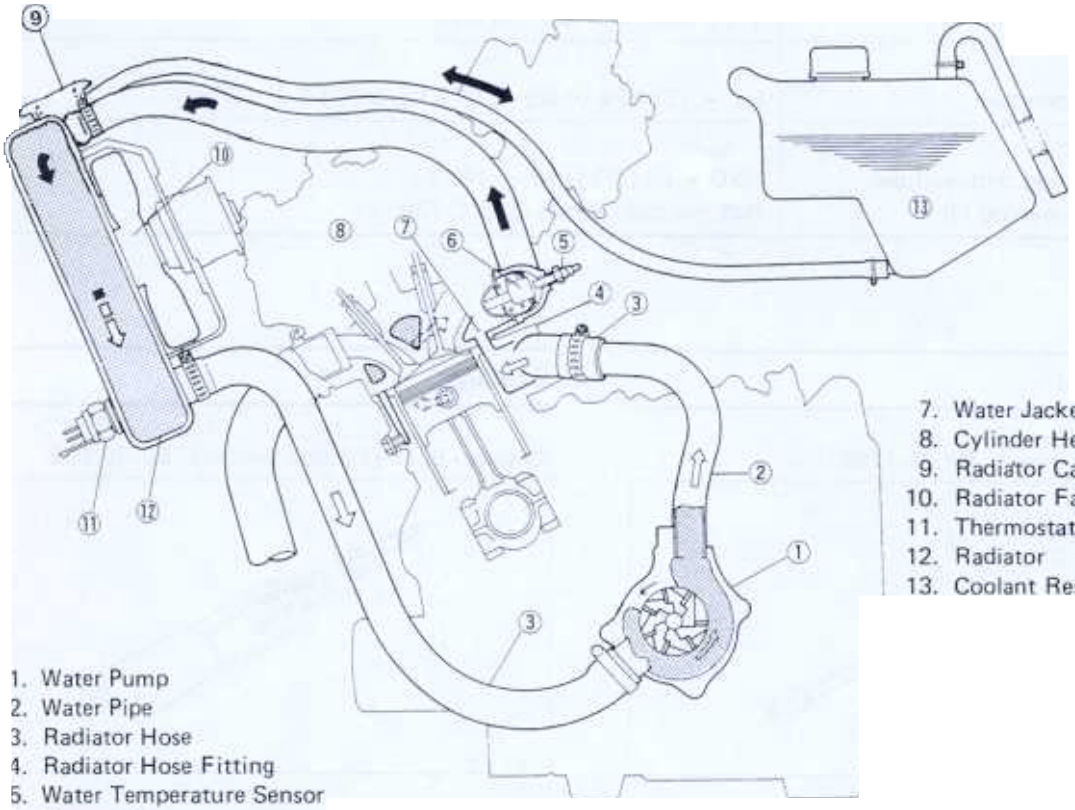
Sealant

Kawasaki Bond (Silicone Sealant): 56019-120



Coolant Flow Chart

When the engine is cold, the thermostat is closed so that the coolant flow is restricted through the small hole (air hole) on the thermostat, causing the engine to warm up more quickly.



1. Water Pump
2. Water Pipe
3. Radiator Hose
4. Radiator Hose Fitting
5. Water Temperature Sensor
6. Thermostat
7. Water Jacket
8. Cylinder Head
9. Radiator Cap
10. Radiator Fan
11. Thermostatic Fan Switch
12. Radiator
13. Coolant Reservoir Tank

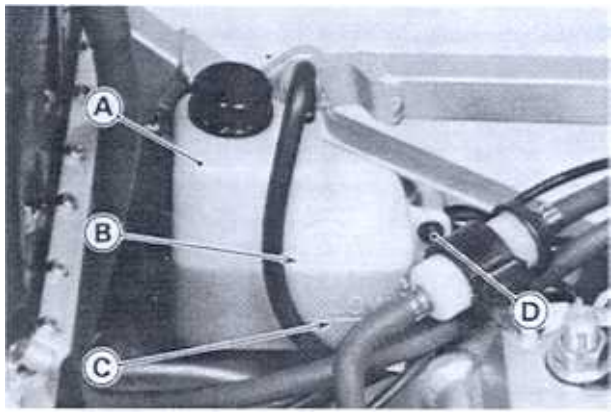
Coolant

Coolant Level Inspection

NOTE

○*Check the level when the engine is cold (room or ambient temperature).*

●Check the coolant level in the reservoir tank with the motorcycle held perpendicularly.
●Check the coolant level from between the fuel tank and the flame at the left side.
★If the coolant level is lower than the lower level line, add coolant to the upper level line.



A. Reservoir Tank
B. Upper Level
C. Lower Level
D. Mounting Bolt

CAUTION

For refilling, add the specified mixture of coolant and soft water. Adding water alone dilutes the coolant and degrades its anticorrosion properties.
The diluted coolant can attack the aluminum engine parts. In an emergency, soft water can be added. But the diluted coolant must be returned to the correct mixture ratio within a few days.
If coolant must be added often, or the reservoir tank has run completely dry; there is probably leakage in the cooling system. Check the system for leaks.

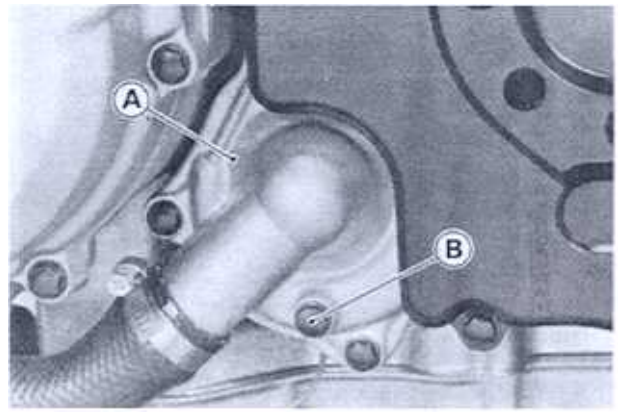
●To remove the reservoir tank, remove the fuel tank.

Coolant Draining

⚠WARNING

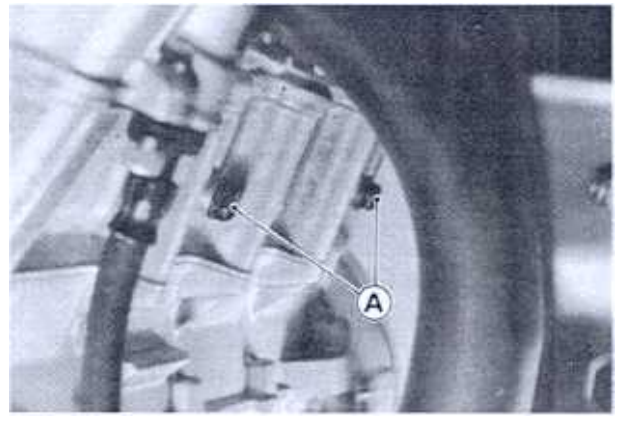
To avoid burns, do not remove the radiator cap or try to change the coolant when the engine is still hot. Wait until it cools down.
Coolant on tires will make them slippery and can cause an accident and injury. Immediately wipe up or wash away any coolant that spills on the frame, engine, or wheels.
Since coolant is harmful to the human body, do not use for drinking.

●Remove the fairings.
●Place a container under the engine.
●Remove the drain plug.



A. Water Pump
B. Drain Plug

●Remove the following.
Radiator Cap
Cylinder Drain Plugs

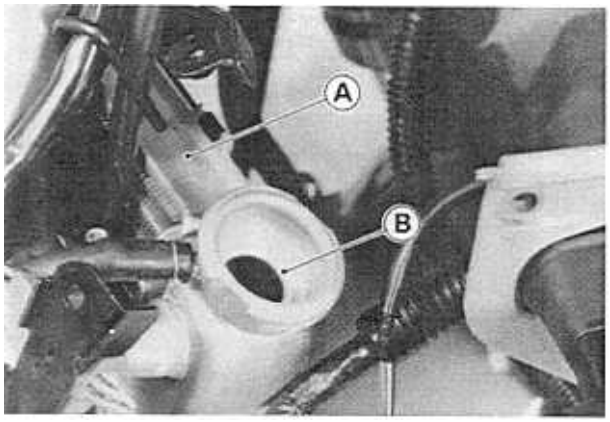


A. Cylinder Drain Plugs

●The coolant will drain from the radiator and engine.

Coolant Filling

●Tighten the drain plugs to the specified torque (see Exploded View).
●Fill the radiator up to the thermostat housing filler neck with coolant.



A. Radiator B. Filler Neck

○Fill the reservoir tank up to the upper level line with coolant.

NOTE

○*Pour in the coolant slowly so that it can expel the air from the engine and radiator.*

CAUTION

Soft or distilled water must be used with the antifreeze (see Specifications in this chapter) in the cooling system.
If hard water is used in the system, it causes scales accumulation in the water passages, and considerably reduces the efficiency of the cooling system.

Water and Coolant Mixture Ratio (Recommended)

Soft Water	:	**50%**
Coolant	:	**50%**
Freezing Point	:	**−35°C (−31°F)**
Total Amount	:	**2.3 L**

NOTE

○*Choose a suitable mixture ratio by referring to the coolant manufacturer's directions.*

○Start the engine with the radiator cap removed and run it until no more air bubbles can be seen in the coolant.
○Tap the radiator hoses to force any air bubbles caught inside.
○Stop the engine and add coolant up to the radiator filler neck.
●Install the radiator cap.
●Fill the reservoir tank up to the upper level line with coolant and install the cap.

CAUTION

Do not add more coolant above the upper level line.

Pressure Testing

●Remove the radiator cap, and install a cooling system pressure tester on the radiator filler neck.

NOTE

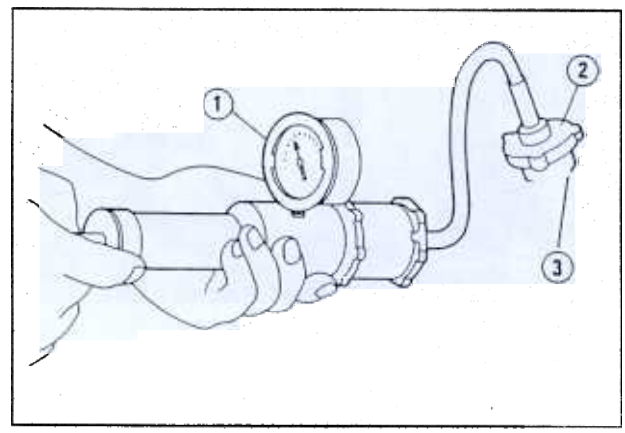
○*Wet the cap sealing surfaces with water or coolant to prevent pressure leaks.*

●Build up pressure in the system carefully until the pressure reaches 123 kPa (1.25 kg/cm², 18 psi).

CAUTION

During pressure testing, do not exceed the pressure for which the system is designed. The maximum pressure is 123 kPa (1.25 kg/cm², 18 psi).

●Watch the gauge for at least 6 seconds.
★If the pressure holds steady, the system is all right.



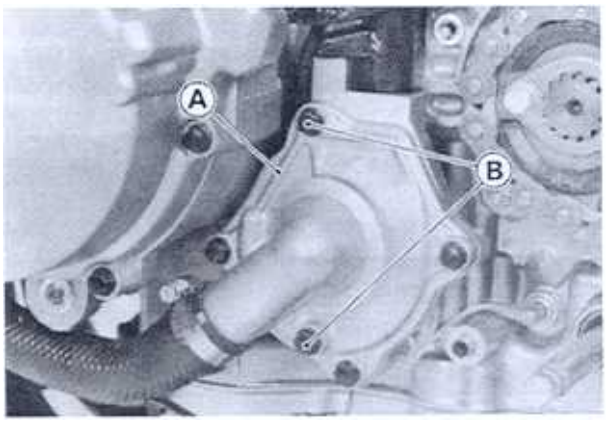
1. Pressure Tester 3. Radiator Filler Neck
2. Adapter

★If the pressure drops soon, check for leaks.

Water Pump

Removal

- Remove the fairings.
- Drain the coolant by removing the water pump drain plug.
- Remove the following.
  - Shift Lever
  - Engine Sprocket Cover
  - Radiator Hose Clamp on Water Pump
  - Water Pipe
  - Water Pump Mounting Bolts(2)

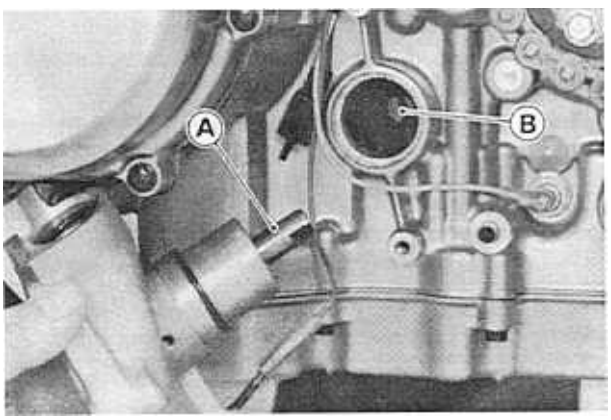


A. Water Pump B. Mounting Bolts

- Pull the water pump out of the crankcase and the radiator hose.

Installation

- Install the water pump with the water pump cover removed.
- Turn the water pump impeller so that the water pump shaft slot fits the oil pump shaft projection.



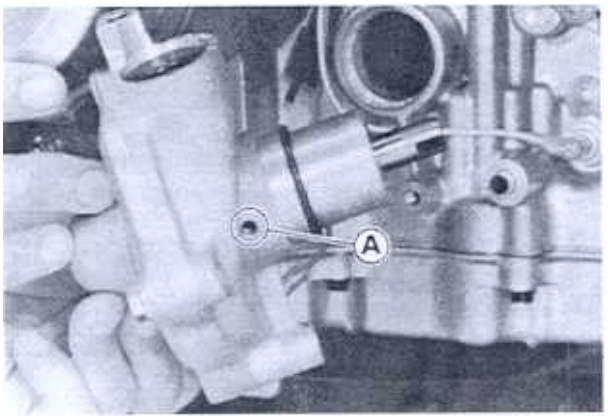
A. Water Pump Shaft B. Oil Pump Shaft

- Install the water pipe.
- Tighten the following bolts to the specified torque (see Exploded View).
  - Water Pump Mounting Bolts
  - Water Pump Pipe Mounting Bolt
  - Radiator Hose Clamp Bolt
- Apply a non-permanent locking agent to the engine sprocket cover bolt (one bolt only – see Final Drive chapter).
- Install the water pump cover.
- Fill the coolant (see Coolant Filling).

Water Pump Inspection

- Check the drainage outlet passage at the bottom of the water pump body for coolant leaks.

★If the mechanical seal is damaged, the coolant leaks through the seal and drains through the passage. Replace the water pump unit.



A. Drainage Outlet Passage
(at the bottom of the pump body)

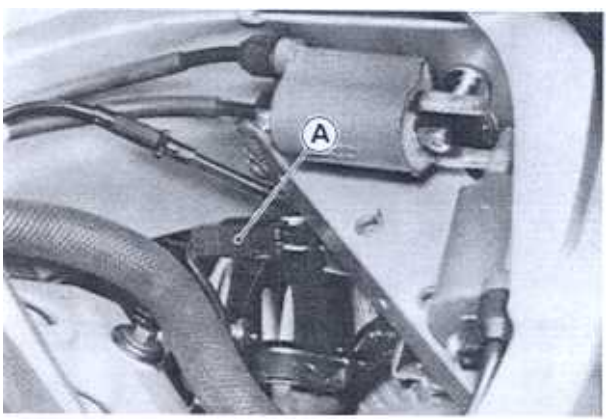
Radiator and Radiator Fan

Removal

⚠WARNING

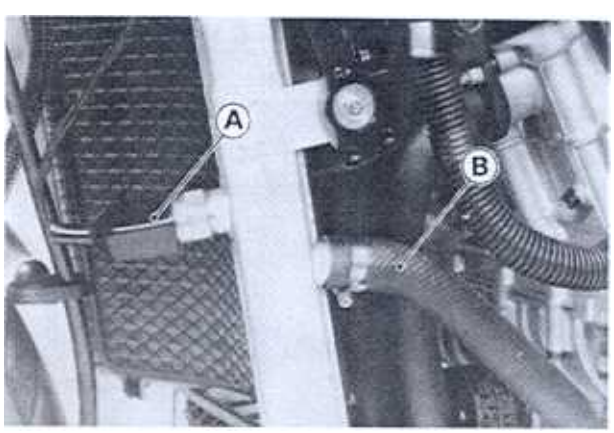
The radiator fan is connected directly to the battery. The radiator fan may start even if the ignition switch is off. NEVER TOUCH THE RADIATOR FAN UNTIL THE RADIATOR FAN CONNECTOR IS DISCONNECTED. TOUCHING THE FAN BEFORE THE CONNECTOR IS DISCONNECTED COULD CAUSE INJURY FROM THE FAN BLADES.

● Remove the following.
Fairings
Fuel Tank (see Fuel System chapter)
Coolant (drain: see Water Pump Removal)
Baffle Plate
Radiator Fan Connector

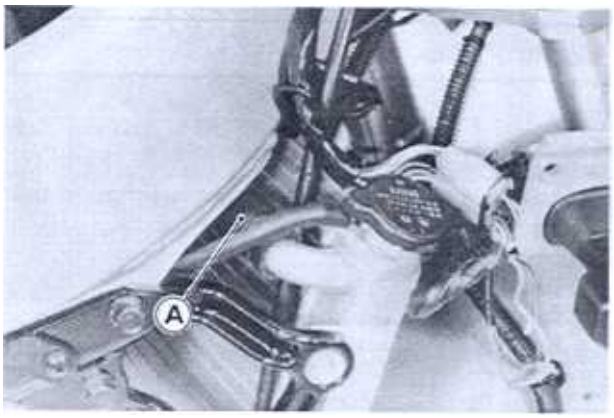


A. Radiator Fan Connector

Radiator Fan Switch Connector
Radiator Hoses

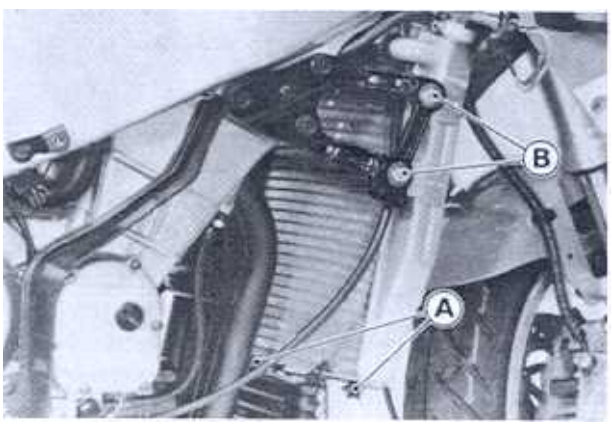


A. Radiator Fan Switch Connector B. Radiator Hose



A. Radiator Hose

Radiator Lower Mounting Bolts
Radiator Side Mounting Bolts



A. Lower Mounting Bolts
B. Side Mounting Bolts

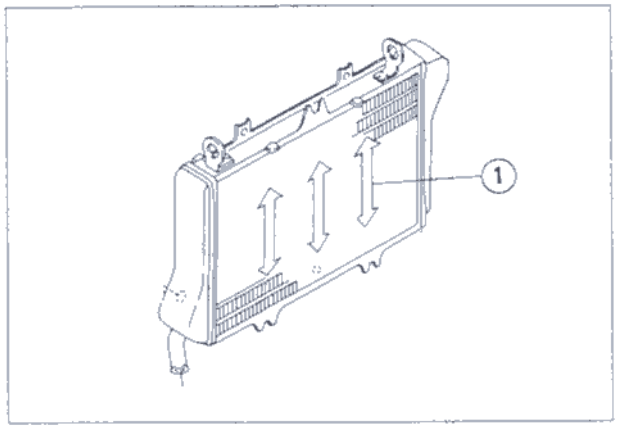
● Remove the radiator

Radiator Inspection

● Check the radiator core.
★ If there are obstructions to air flow, remove them.
★ If the corrugated fins are deformed, carefully straighten them.
★ If the air passages of the radiator core are blocked more than 20% by unremovable obstructions or irreparably deformed fins, replace the radiator with a new one.

CAUTION

When cleaning the radiator with steam cleaner, be careful of the following to prevent radiator damage.
Keep the steam gun away more than 0.5 m from the radiator core.
Hold the steam gun perpendicular to the core surface.
Run the steam gun following the core fin direction.

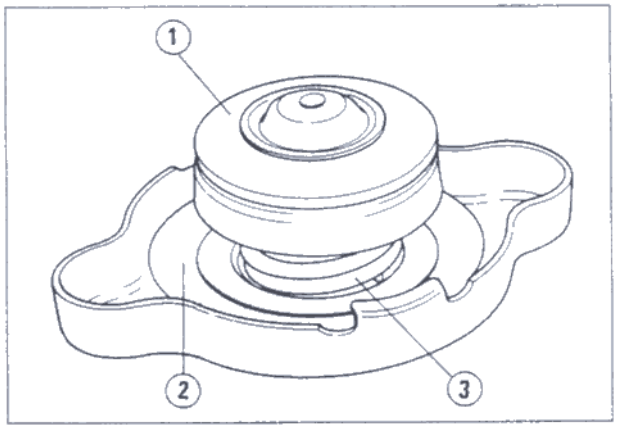


1. Steam Gun Running Direction

Radiator Cap Inspection

●Check the condition of the top and bottom valve seals of the radiator cap.

★If any one of them shows visible damage, replace the cap.

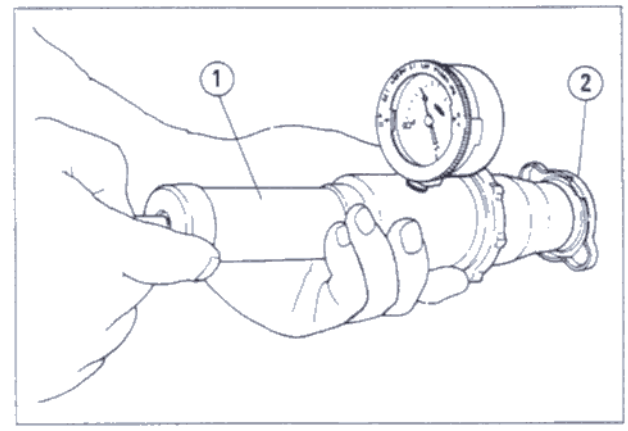


1. Bottom Valve Seal
2. Top Valve Seal
3. Valve Spring

●Install the cap on a cooling system pressure tester.

NOTE

○*Wet the cap sealing surfaces with water or coolant to prevent pressure leakage.*



1. Pressure Tester
2. Radiator Cap

●Watching the pressure gauge, pump the pressure tester to build up the pressure. The cap must open at the relief pressure (the gauge pointer flicks down). Also the cap must hold any pressure less than the relief pressure for at least 6 seconds.

Radiator Cap Relief Pressure

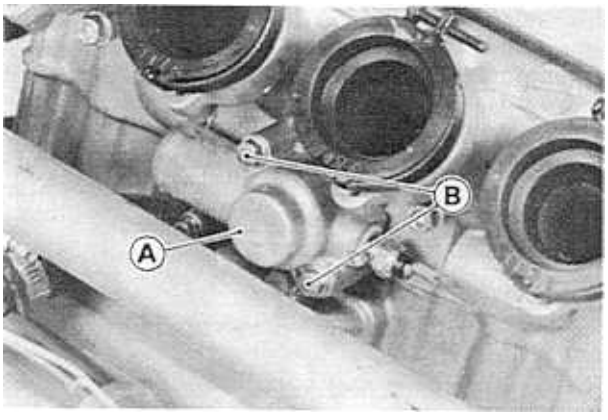
Standard: 93 ~ 123 kPa
(0.95 ~ 1.25 kg/cm², 14 ~ 18 psi)

★If the cap cannot hold the specified pressure, or if it holds too much pressure, replace it with a new one.

Thermostat

Removal

- Remove the fairing and the side cover assembly.
- Drain coolant (cylinder head, cylinder).
- Remove the following.
  - Carburetor (see Fuel System chapter)
  - Hose (Thermostat Housing)
  - Mounting Bolts
  - Water Temperature Sensor Connector
- Remove the thermostat housing on the cylinder.
- Remove the thermostat from the housing.



A. Housing B. Mounting Bolt

Installation

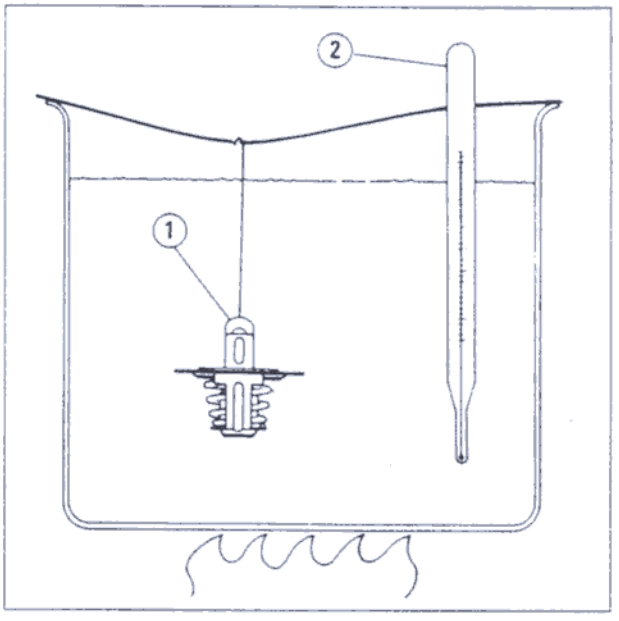
- Install the thermostat noting the following.
- Install the thermostat so that the stay faces outside.
- Be sure to install the O-ring on the housing.
- Add coolant (see Coolant Filling).

Inspection

- Remove the thermostat, and inspect the thermostat valve at room temperature.

★If the valve is open, replace the valve with a new one.

- To check valve opening temperature, suspend the thermostat in a container of water and raise the temperature of the water.



1. Thermostat 2. Thermometer

★If the measurement is out of the specified range, replace the thermostat.

Thermostat Valve Opening Temperature

80 ~ 84°C (176 ~ 183°F)