

3. Install:
 - Water pump seal ①
 - Use Water Pump Seal Installer (YM-04058-1 ②, YM-33221③).
 - Apply Sealant (Quick Gasket®) to crankcase cover @ before installing seal.

- A** PRESS
- APPLY SEALANT (QUICK GASKET®)

4. Remove:
 - Seal No. 2 ①
 - From impeller.
 - Pry out with a small screwdriver.

NOTE: _____
 Be careful not to scratch or bend the impeller shaft.

② Damper rubber

5. Apply:
 - Water or coolant
 - To outer surface of damper rubber ② and impeller hub.

CAUTION: _____
 Never apply oil or grease to water pump seal surfaces.

6. Assemble:
 - Seal No. 2/Damper rubber ②
 - To impeller hub.

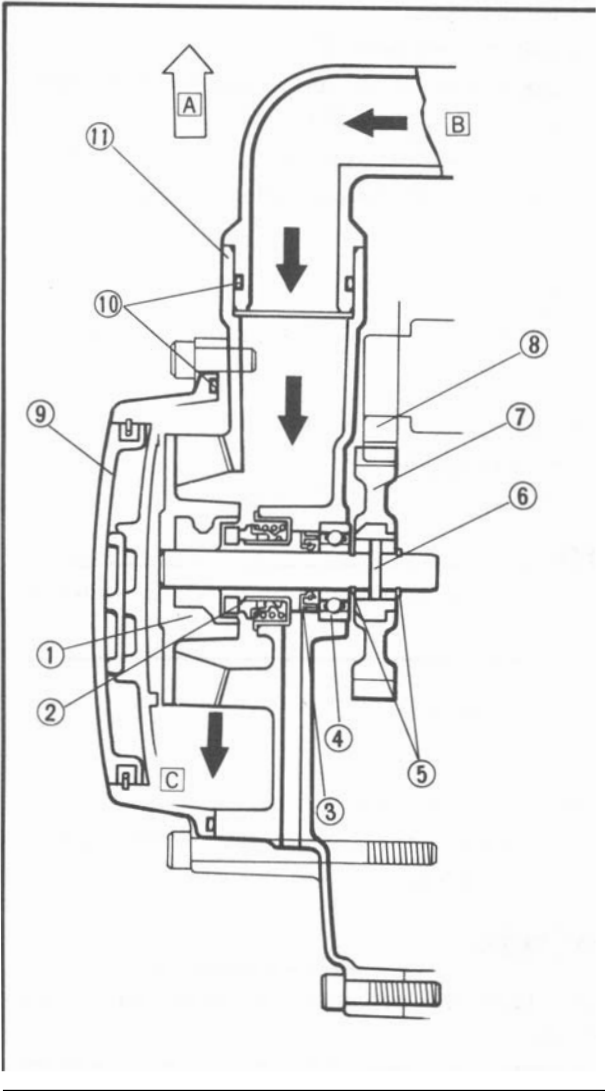
- ① Slip ring
- ③ Impeller
- A** APPLICATION OF WATER OR COOLANT

7. Measure:
 - *Tilt
 - Out of specification → Repeat the above steps "4 ~ 6".

NOTE: _____
 Be sure seal No. 2 fits squarely.

Tilt Limit: 0.15 mm (0.006 in)

- ① Straight edge
- ② Seal NO. 2
- ③ Impeller



ASSEMBLY

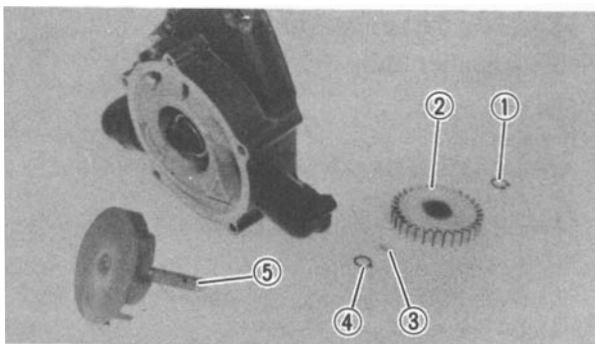
- ① Impeller
- ② Mechanical seal
- ③ Oil seat
- ④ Bearing
- ⑤ Circlip
- ⑥ Gear stopper pin
- ⑦ Drivengear
- ⑧ Drive gear
- ⑨ Water pump cover
- ⑩ O-ring
- ⑪ Crankcase cover
- A FRONT
- B FROM RADIATOR
- C TO CYLINDER

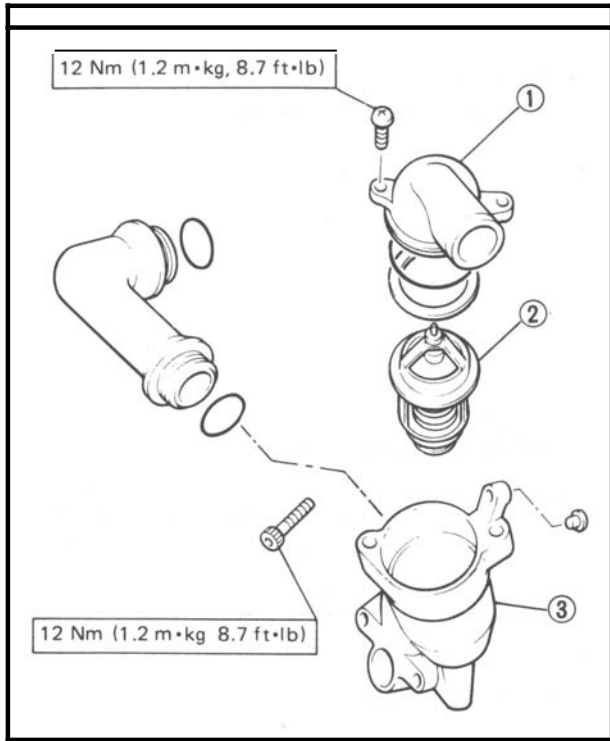
1. Install:

- Impeller shaft ⑤
- Circlip ④
- Gear stopper pin ③
- Drive gear ②
- Circlip ①

CAUTION:

- Be sure not to scratch the water pump mechanical seal while installing.
- Replace any scratched seal.



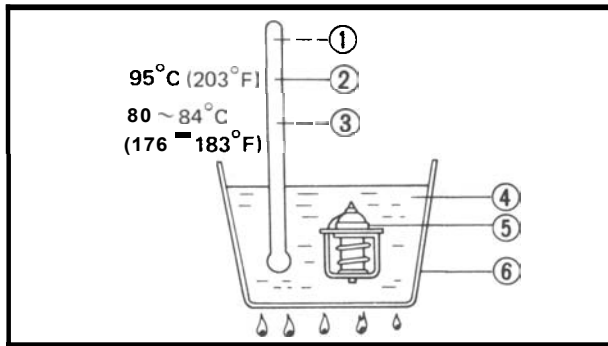


THERMOSTATIC VALVE

REMOVAL

1. Remove:
 - Thermostat cover ①
 - Thermostatic valve ②

③ Thermostat housing

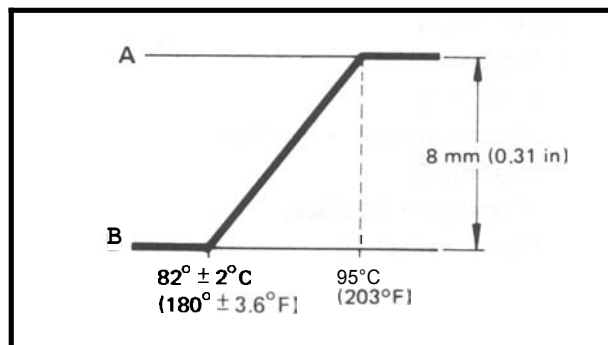


INSPECTION AND ASSEMBLY

1. Inspect:
 - Thermostatic valve
 - Valve does not open at **80 ~ 84°C (176 ~ 183°F)** → Replace.
 - By the following inspection steps.

Thermostatic valve inspection steps:

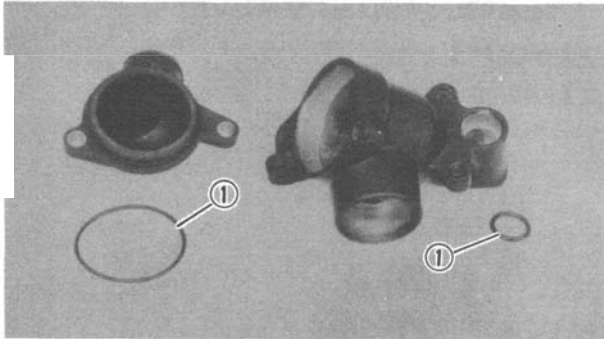
- Suspend thermostatic valve in a vessel or water.
- Place reliable thermometer in water.
- Heat water slowly.
- Observe thermometer, while stirring water continually



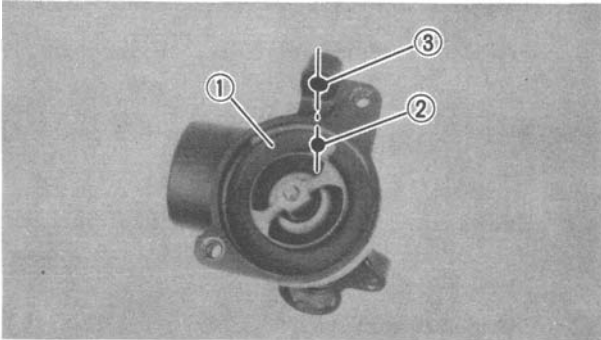
- | | |
|---------------------------|----------------------|
| ① Thermometer | ④ Water |
| ② Full open | ⑤ Thermostatic valve |
| ③ Opening sequence begins | ⑥ Vessel |
| A OPEN | B CLOSE |

NOTE:

Thermostat is sealed and its setting is specialized work. If its accuracy is in doubt, always replace it. A faulty unit could cause serious overheating or overcooling.



2. Inspect:
- O-ring ①
Wear/Damage → Replace.



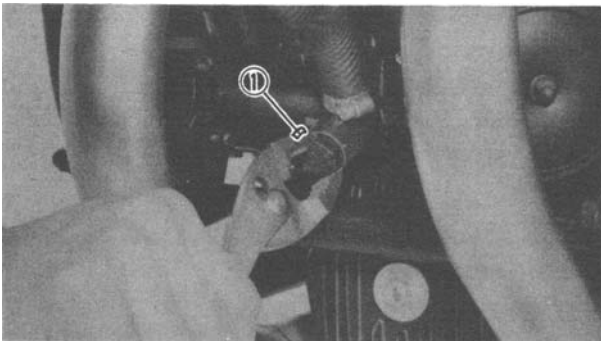
3. Install:
. Thermostatic valve ①

NOTE: _____
Line up the valve breather hole ② with the housing projection ③ .

- Thermostat cover
- Thermostat housing

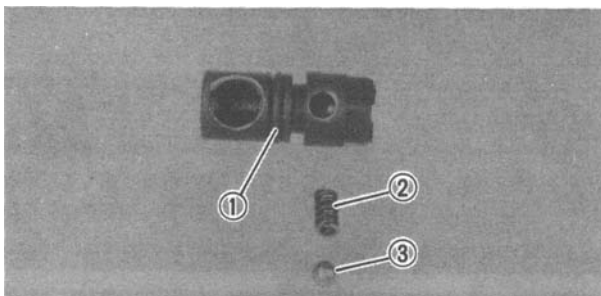
COOLANT DRAIN VALVE

DISASSEMBLY



1. Remove:
- . Retaining screw ①
 - Valve assembly

INSPECTION



1. Inspect:
- O-ring ①
Wear/Damage → Replace.
 - Spring ②
Damage → Replace.
 - . Stopper ball ③
Wear/Damage → Replace.

ASSEMBLY

1. Install:
- Valve assembly
Be sure stopper ball falls into body cavity.
2. Secure valve assembly with retaining screw.

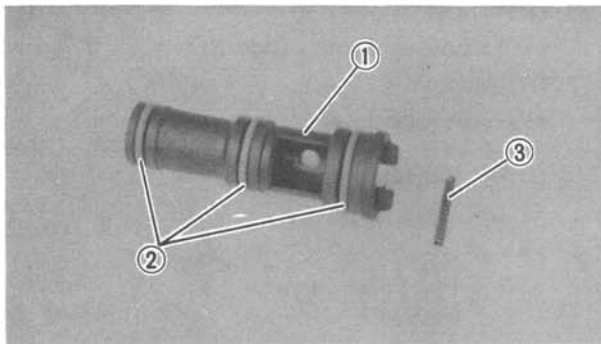
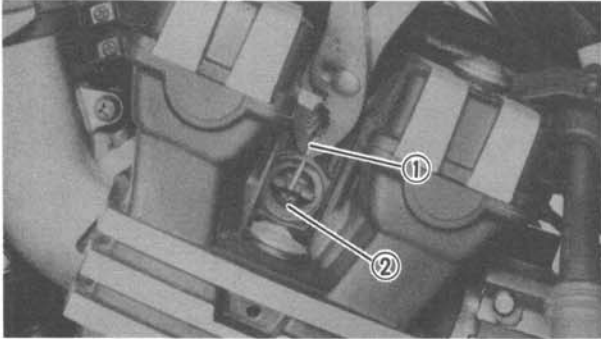
CYLINDER HEAD WATER JACKET JOINT

CAUTION:

- Be sure to drain the coolant before you disassemble the water jacket joints otherwise the coolant will flow into the crankcase.
- Do not remove the water jacket joints unless absolutely essential; e.g., when overhauling the engine.

REMOVAL

1. Remove:
 - Stopper pins ①
 - Water jacket joints ②

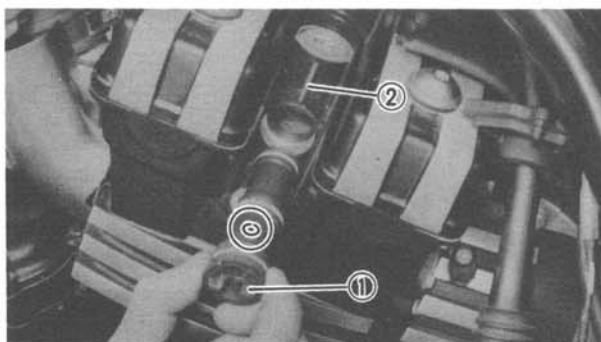


INSPECTION

1. Inspect:
 - Water jacket joint ①
Clogging → Clean.
 - O-rings ②
Wear/Damage → Replace.
 - Stopper pin ③
Wear/Bends → Replace.

ASSEMBLY

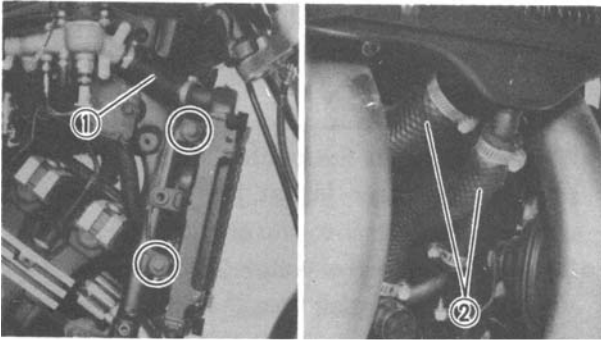
1. Install:
 - Water jacket joints ①
 - Stopper pins ②



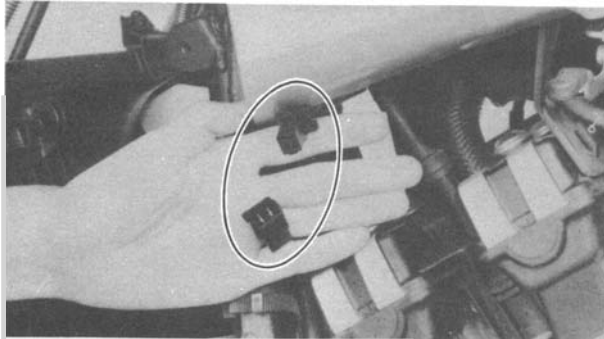
RADIATOR AND CONDUIT

DISASSEMBLY

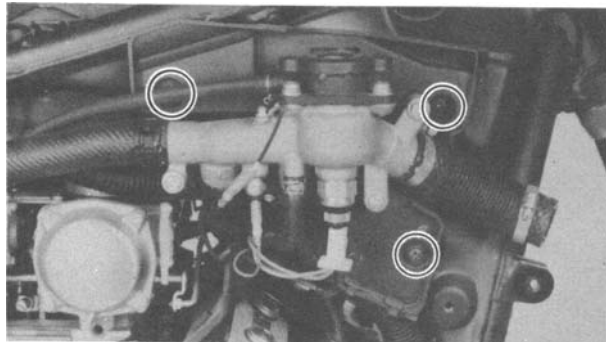
1. Drain:
 - Coolant (completely)
Refer to "COOLANT REPLACEMENT" section.



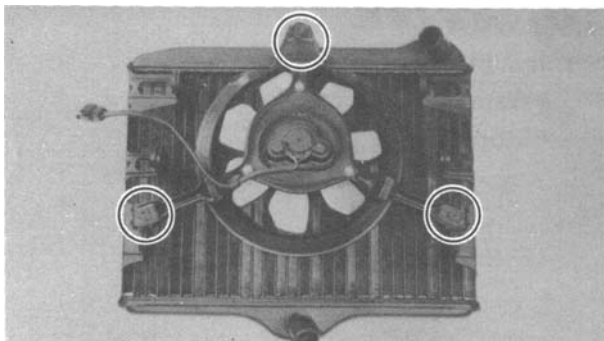
2. Remove:
 - Bolts (radiator)
3. Disconnect:
 - Upper hose ①
 - Lower hoses ②



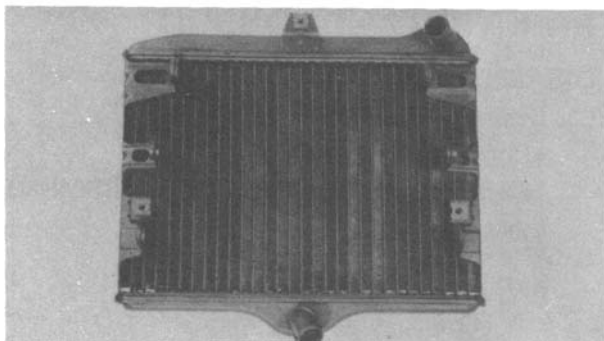
4. Disconnect:
 - Fan motor coupler
5. Remove:
 - Radiator assembly



6. Disconnect:
 - All hoses and leads (conduit)
7. Remove:
 - Screws (conduit)



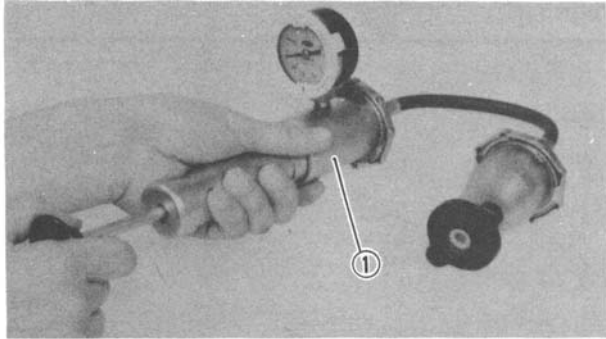
8. Remove:
 - Fan motor assembly



INSPECTION

1. Inspect:
 - Radiator
 - Obstruction → Blow out with compressed air through rear of radiator.
 - Flattened fins → Repair.
 - Coolant hoses
 - Cracks/Damage → Replace.

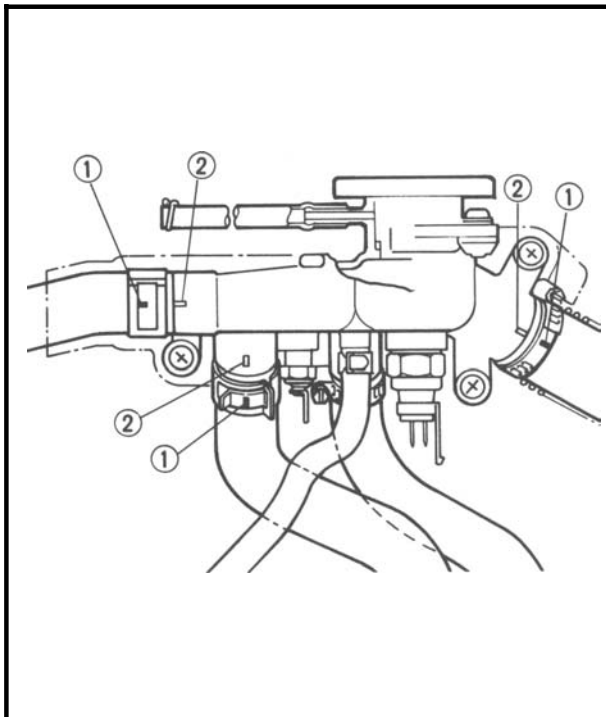
2. Inspect:
 - *Vacuum valve spring
Fatigue → Replace.
 - *Vacuum valve seating condition
Poor condition → Replace.
3. Measure:
 - *Valve opening pressure
By the following measurement steps.



Valve opening pressure measurement steps:

- Measure the radiator cap pressure using the Radiator Cap Tester ① (YU-24460).
Valve opens at pressure below specified valve or defective → Replace.


Valve Opening Pressure:
**73.6 ~ 103.0 kPa (0.75 ~ 1.05 kg/cm² ,
 10.7 ~ 14.9 lb/in²)**



ASSEMBLY

When installing the radiator and conduit, reverse the removal procedure. Note the following points.


1. Install:
 - Conduit

 Screws (Conduit):
7 Nm (0.7 m·kg, 5.1 ft·lb)

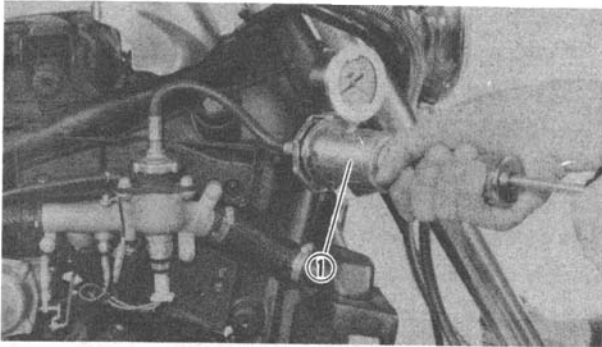
2. Connect:
 - All hoses and leads (conduit)

NOTE: _____
 Align the hose match marks ① with the match marks ② on the conduit.

3. Install:
 - Radiator assembly

 Bolts (Radiator):
7 Nm (0.7 m·kg, 5.1 ft·lb)

4. Fill:
 - *Cooling system
Refer to "COOLANT REPLACEMENT" section.

**5. Inspect**

***Cooling system**

By the following inspection steps.

Cooling system inspection steps:

- **Connect Radiator Cap Tester (YU-24460)**

① .

***Apply 1.0 kg/cm² (14 lb/in²) pressure.**

***Measure pressure with gauge.**

Decrease of pressure (leaks) → Repair at required.

CHAPTER 5. CARBURETION

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