

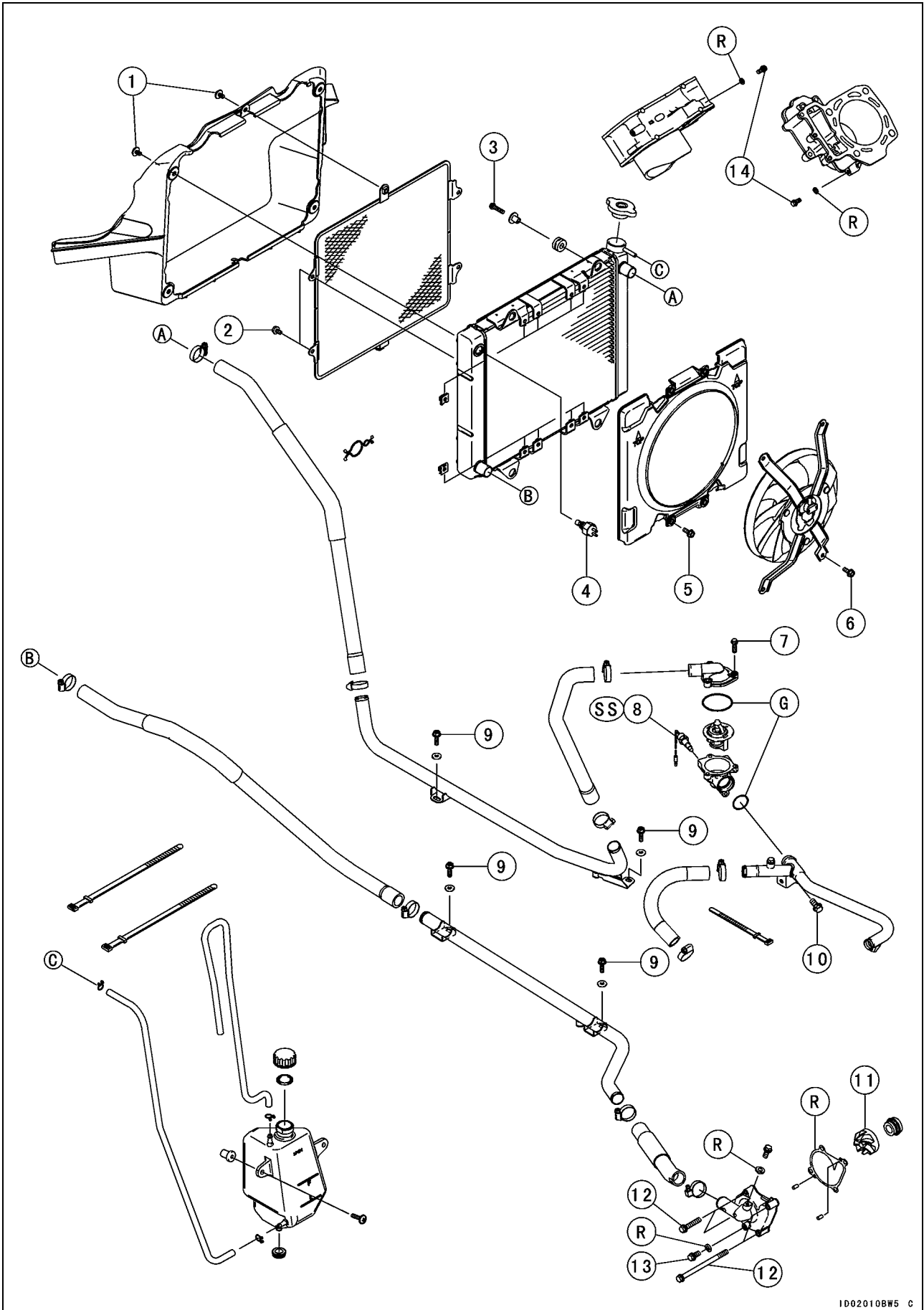
Cooling System

Table of Contents

Exploded View.....	4-2
Coolant Flow Chart.....	4-4
Specifications	4-6
Special Tools & Sealant.....	4-7
Coolant	4-8
Coolant Deterioration Inspection.....	4-8
Coolant Level Inspection.....	4-8
Coolant Draining	4-8
Coolant Filling	4-8
Pressure Testing	4-9
Water Pump.....	4-10
Water Pump Cover Removal	4-10
Water Pump Cover Installation	4-10
Water Pump Impeller Removal	4-10
Water Pump Impeller Installation	4-10
Water Pump Impeller Inspection	4-11
Water Pump Leakage Inspection.....	4-11
Mechanical Seal Replacement	4-11
Radiator	4-13
Radiator Removal	4-13
Radiator Installation	4-14
Radiator Fan Removal.....	4-14
Radiator Fan Installation.....	4-15
Radiator Inspection	4-15
Radiator Cleaning	4-15
Radiator Cap Inspection	4-15
Thermostat	4-17
Thermostat Removal.....	4-17
Thermostat Installation.....	4-17
Thermostat Inspection	4-17
Radiator Fan Switch	4-18
Radiator Fan Switch Removal	4-18
Radiator Fan Switch Installation	4-18
Radiator Fan Switch Inspection	4-18
Water Temperature Switch	4-19
Water Temperature Switch Removal	4-19
Water Temperature Switch Installation	4-19
Water Temperature Switch Inspection	4-19

4-2 COOLING SYSTEM

Exploded View



Exploded View

No.	Fastener	Torque			Remarks
		N·m	kgf·m	ft·lb	
1	Shroud Mounting Screws	4.0	0.40	35 in·lb	
2	Radiator Screen Mounting Bolts	8.8	0.90	78 in·lb	
3	Radiator Mounting Bolts	8.8	0.90	78 in·lb	
4	Radiator Fan Switch	18	1.8	13	
5	Radiator Cover Bolts	8.3	0.85	73 in·lb	
6	Radiator Fan Assembly Bolts	8.3	0.85	73 in·lb	
7	Thermostat Housing Cover Bolts	8.8	0.90	78 in·lb	
8	Water Temperature Switch	7.8	0.80	69 in·lb	SS
9	Water Pipe Mounting Bolts, L = 20 mm (0.79 in.)	8.8	0.90	78 in·lb	
10	Water Pipe Mounting Bolts, L = 12 mm (0.47 in.)	8.8	0.90	78 in·lb	
11	Water Pump Impeller	7.8	0.80	69 in·lb	
12	Water Pump Cover Bolts	8.8	0.90	78 in·lb	
13	Coolant Drain Plug (Water Pump)	8.8	0.90	78 in·lb	
14	Coolant Drain Plug (Cylinder)	8.8	0.90	78 in·lb	

G: Apply grease.

SS: Apply silicone sealant (Kawasaki Bond: 56019-120).

R: Replacement Parts

4-4 COOLING SYSTEM

Coolant Flow Chart

Permanent type antifreeze is used as a coolant to protect the cooling system from rust and corrosion. When the engine starts, the water pump (coupled with the oil pump) turns and the coolant circulates.

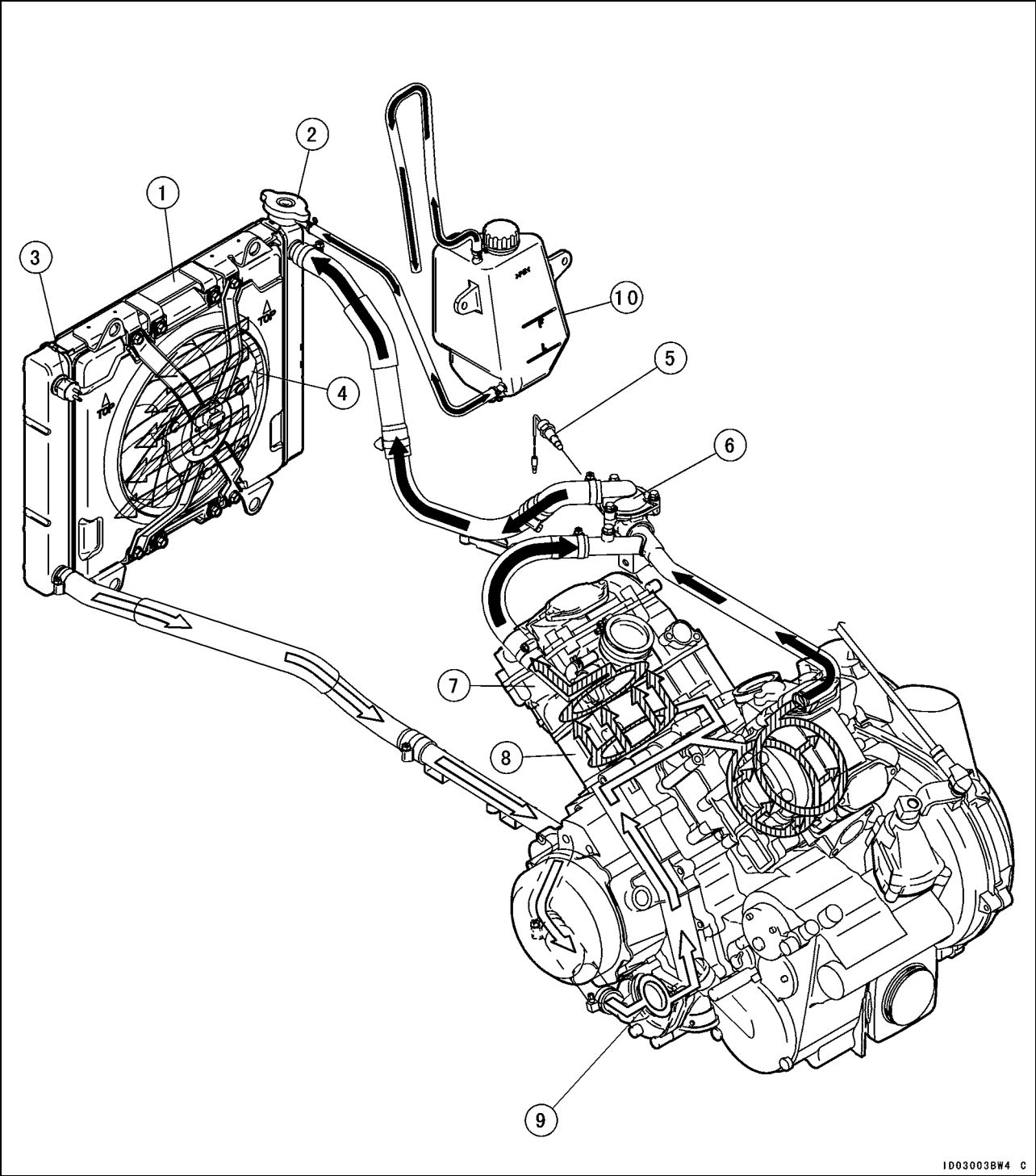
The thermostat is a wax pellet type which opens or closes with coolant temperature changes. The thermostat continuously changes its valve opening to keep the coolant temperature at the proper level. When coolant temperature is below 67°C (153°F), the thermostat closes so that the coolant flow is restricted through the air bleeder hole, causing the engine to warm up more quickly. When coolant temperature is more than 69.5 ~ 72.5°C (157 ~ 162°F), the thermostat opens and the coolant flows. When the coolant temperature goes up beyond 96 ~ 100°C (205 ~ 212°F), the radiator fan switch conducts to operate the radiator fan. The radiator fan draws air through the radiator core when there is not sufficient air flow such as at low speeds. This increases up the cooling action of the radiator. When the temperature is below 91 ~ 95°C (195 ~ 203°F), the fan switch opens and the radiator fan stops.

In this way, this system controls the engine temperature within narrow limits where the engine operates most efficiently even if the engine load varies.

The system is pressurized by the radiator cap to suppress boiling and the resultant air bubbles which can cause engine overheating. As the engine warms up, the coolant in the radiator and the water jacket expands. The excess coolant flows through the radiator cap and hose to the reserve tank to be stored there temporarily. Conversely, as the engine cools down, the coolant in the radiator and the water jacket contract, and the stored coolant flows back to the radiator from the reserve tank.

The radiator cap has two valves. One is a pressure valve which holds the pressure in the system when the engine is running. When the pressure exceeds 93 ~ 123 kPa (0.95 ~ 1.25 kgf/cm², 14 ~ 18 psi), the pressure valve opens and releases the pressure to the reserve tank. As soon as pressure escapes, the valve closes, and keeps the pressure at 93 ~ 123 kPa (0.95 ~ 1.25 kgf/cm², 14 ~ 18 psi). When the engine cools down, another small valve (vacuum valve) in the cap opens. As the coolant cools, the coolant contracts to form a vacuum in the system. The vacuum valve opens and allows the coolant from the reserve tank to enter the radiator.

Coolant Flow Chart



ID03003BW4 C

- 1. Radiator
- 2. Radiator Cap
- 3. Radiator Fan Switch
- 4. Radiator Fan
- 5. Water Temperature Switch
- 6. Thermostat
- 7. Cylinder Head
- 8. Cylinder
- 9. Water Pump
- 10. Reserve Tank

Black Painted Arrow: Hot Coolant
White Painted Arrow: Cold Coolant

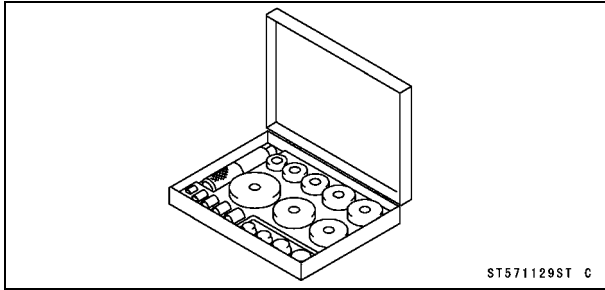
4-6 COOLING SYSTEM

Specifications

Item	Standard	Service Limit
Coolant Provided when Shipping		
Type	Permanent type of antifreeze (soft water and ethylene glycol plus corrosion and rust inhibitor chemicals for aluminum engines and radiators)	---
Color	Green	---
Mixed Ratio	Soft water 50%, coolant 50%	---
Freezing Point	-35°C (-31°F)	---
Total Amount	3.1 L (3.3 US qt) (reserve tank full level including radiator and engine)	---
Radiator Cap		
Relief Pressure	93 ~123 kPa (0.95 ~ 1.25 kgf/cm ² , 14 ~ 18 psi)	---
Thermostat		
Valve Opening Temperature	69.5 ~ 72.5°C (157 ~ 162°F)	---
Valve Full Opening Lift	8 mm (0.31 in.) or more @85°C (185°F)	---

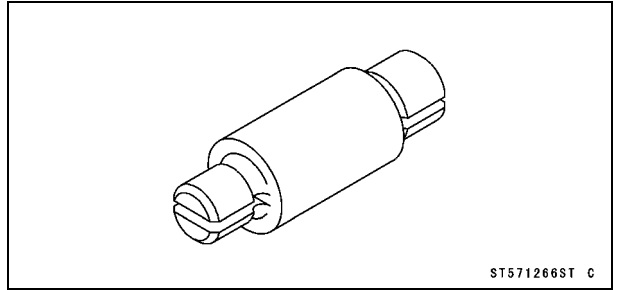
Special Tools & Sealant

**Bearing Driver Set:
57001-1129**



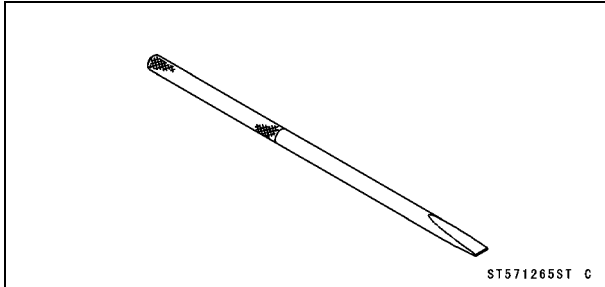
ST571129ST C

**Bearing Remover Head, $\phi 10 \times \phi 12$:
57001-1266**



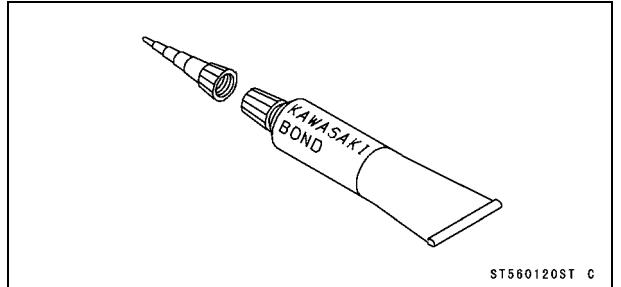
ST571266ST C

**Bearing Remover Shaft, $\phi 9$:
57001-1265**



ST571265ST C

**Kawasaki Bond (Silicone Sealant):
56019-120**



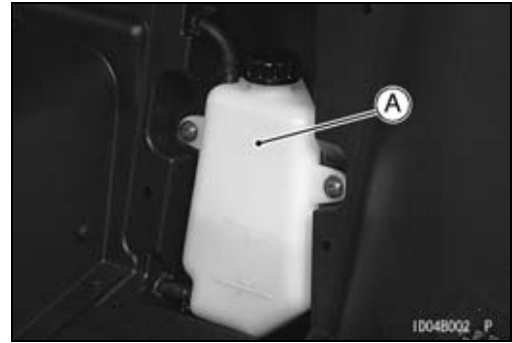
ST560120ST C

4-8 COOLING SYSTEM

Coolant

Coolant Deterioration Inspection

- Visually inspect the coolant in the reserve tank [A].
- ★ If whitish cotton-like wafts are observed, aluminum parts in the cooling system are corroded. If the coolant is brown, iron or steel parts are rusting. In either case, flush the cooling system.
- ★ If the coolant gives off an abnormal smell, check for cooling system leak. It may be caused by exhaust gas leaking into the cooling system.

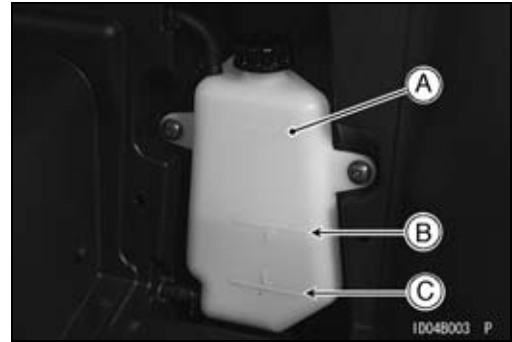


Coolant Level Inspection

NOTE

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

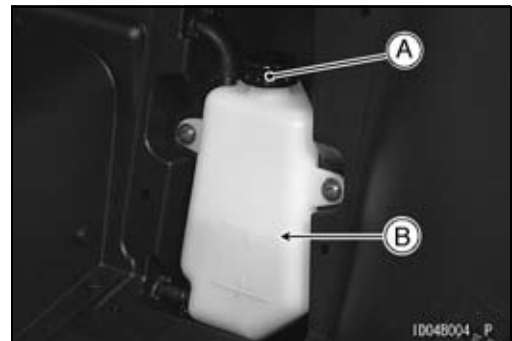
- Check the coolant level in the reserve tank with the vehicle held perpendicularly.
Reserve Tank [A]
F (full) Mark [B]
L (low) Mark [C]



- ★ If the coolant level is lower than the L mark, remove the reserve tank cap [A], then add coolant to the F mark [B].

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 reserve tank has run completely dry; there is probably leakage in the cooling system. Check the system for leaks.



Coolant Draining

- Refer to the Coolant Change in the Periodic Maintenance chapter.

Coolant Filling

- Refer to the Coolant Change in the Periodic Maintenance chapter.

Coolant

Pressure Testing

- Lift and hold the front fender (see Front Fender Removal in the Frame chapter).
- Remove the radiator cap, and install a cooling system pressure tester [A] on the radiator filler neck.

NOTE

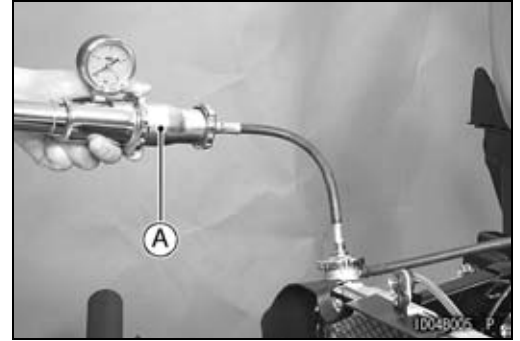
○ *Wet the cap sealing surfaces with water or coolant to prevent pressure leakage.*

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

- Watch the gauge for at least 6 seconds.
- ★ If the pressure holds steady, the system is alright.
- ★ If the pressure drops soon, check for leaks.

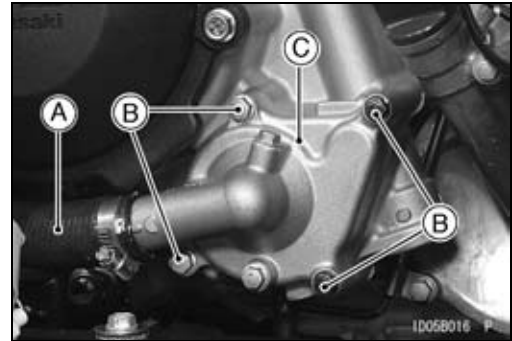


4-10 COOLING SYSTEM

Water Pump

Water Pump Cover Removal

- Drain the coolant (see Coolant Change in the Periodic Maintenance chapter).
- Remove:
 - Left Cover (see Left Cover Removal in the Frame chapter)
 - Water Hose [A]
 - Water Pump Cover Bolts [B]
 - Water Pump Cover [C]



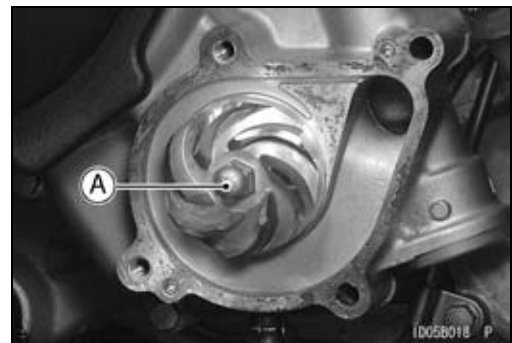
Water Pump Cover Installation

- Install:
 - Knock Pins [A]
 - New Gasket [B]
- Tighten:
 - Torque - Water Pump Cover Bolts: 8.8 N·m (0.90 kgf·m, 78 in·lb)**



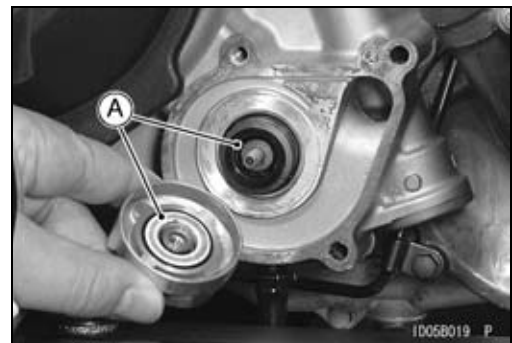
Water Pump Impeller Removal

- Drain the coolant (see Coolant Draining).
- Remove:
 - Water Pump Cover (see Water Pump Cover Removal)
- Loosen the water pump impeller [A] counterclockwise.



Water Pump Impeller Installation

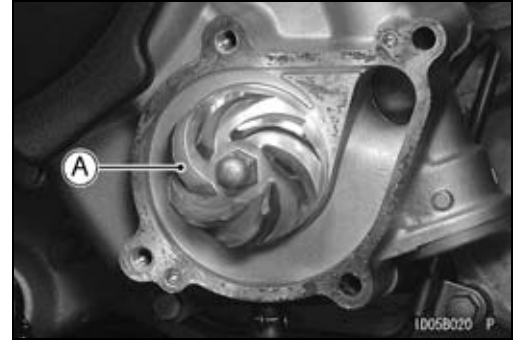
- Apply a small amount of coolant on the sliding surface [A] of the mechanical seal and the sealing seat.
- Install the impeller on the water pump shaft and tighten the impeller.
- Torque - Water Pump Impeller: 7.8 N·m (0.80 kgf·m, 69 in·lb)**



Water Pump

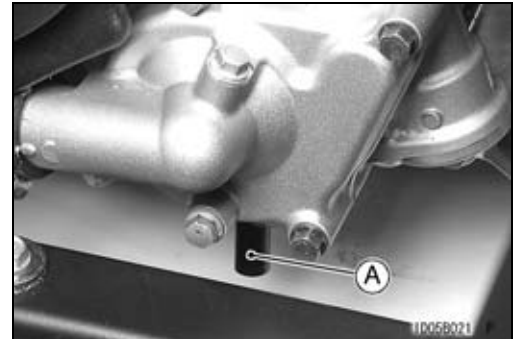
Water Pump Impeller Inspection

- Visually inspect the impeller [A].
- ★ If the surface is corroded or the blades are damaged, replace the impeller.



Water Pump Leakage Inspection

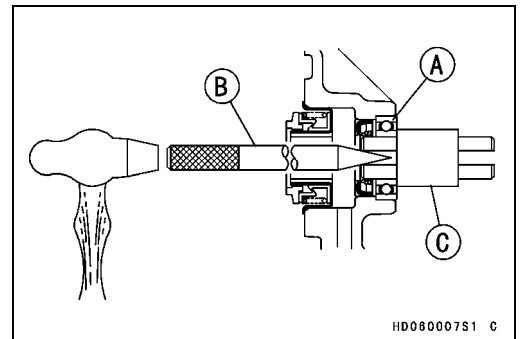
- Check the drainage tube [A] at the bottom of the water pump body for coolant leakage.
- ★ If there is a coolant leak, the mechanical seal in the pump could be damaged. Replace the mechanical seal with a new one (see Mechanical Seal Replacement).



Mechanical Seal Replacement

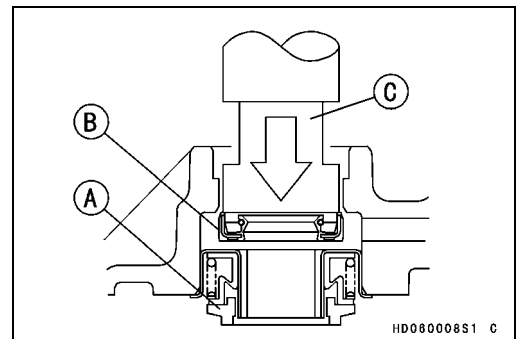
- Remove:
 - Water Pump Impeller (see Water Pump Impeller Removal)
 - Alternator Cover (see Alternator Cover Removal in the Electrical System chapter)
- Take the bearing [A] out of the alternator cover, using the bearing remover.

Special Tools - Bearing Remover Shaft, $\phi 9$ [B]: 57001-1265
Bearing Remover Head, $\phi 10 \times \phi 12$ [C]: 57001-1266



- Press out the mechanical seal [A] and oil seal [B] from the inside of the alternator cover with the bearing driver set [C].

Special Tool - Bearing Driver Set: 57001-1129



CAUTION

If either the mechanical seal, oil seal, or the ball bearing is removed, make sure to replace all of them simultaneously with a new one.

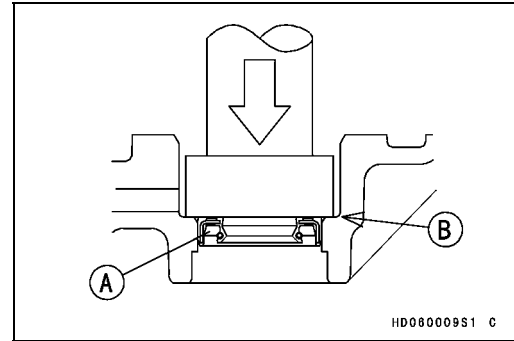
Be careful not to block the inspection hole with the oil seal. If the inspection hole is blocked, the coolant may pass through the oil seal and flow into the crankcase.

4-12 COOLING SYSTEM

Water Pump

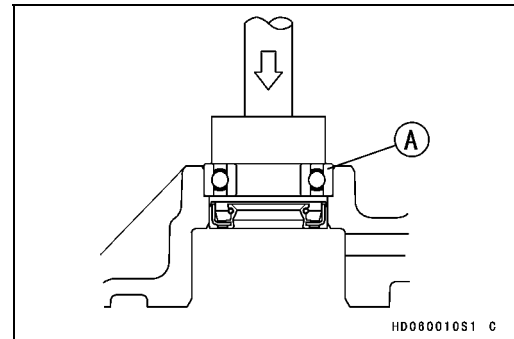
- Apply heat-resistance grease on the oil seal lip.
- From outside the alternator cover, press and insert the oil seal [A] so that its surface is flush with the step portion of the cover as shown [B].

Special Tool - Bearing Driver Set: 57001-1129



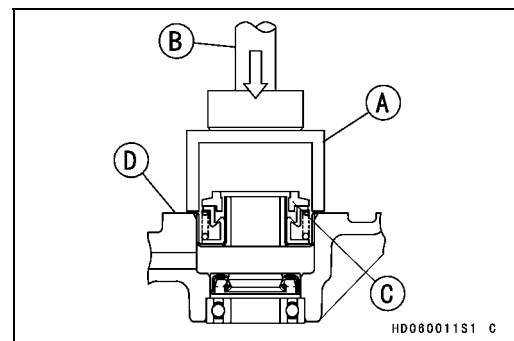
- From inside the alternator cover, press and insert the ball bearing [A] until it is bottomed.

Special Tool - Bearing Driver Set: 57001-1129



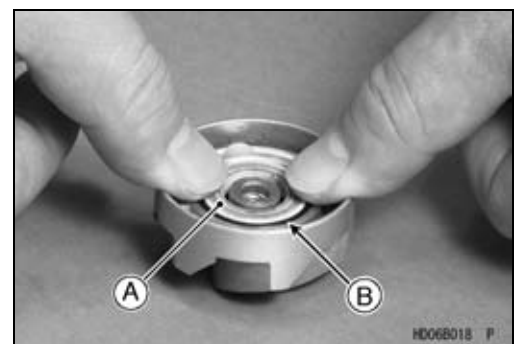
- Using a suitable socket [A] and the bearing driver [B], press and insert a new mechanical seal [C] until its flange stops at the step [D] of the hole.

Special Tool - Bearing Driver Set: 57001-1129



- Clean the sliding surface of a new mechanical seal with a high flash-point solvent, and apply a little coolant to the sliding surface to give the mechanical seal initial lubrication.
- Apply coolant to the surfaces of the rubber seal and sealing seat [A], and press the rubber seal [B] and sealing seat into the impeller by hand until the seat bottoms out.
- Tighten the water pump impeller by turning the bolt clockwise.

Torque - Water Pump Impeller: 7.8 N·m (0.80 kgf·m, 69 in·lb)



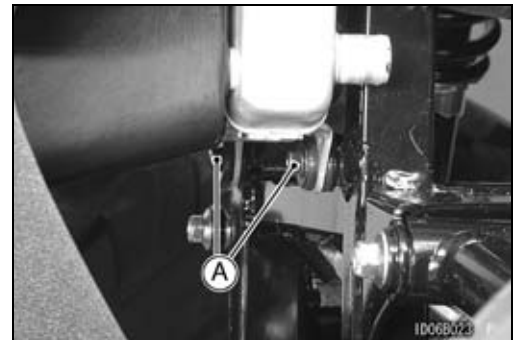
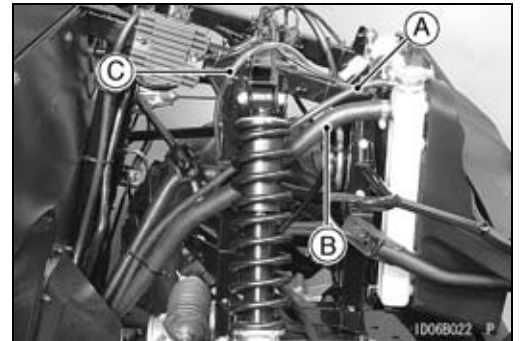
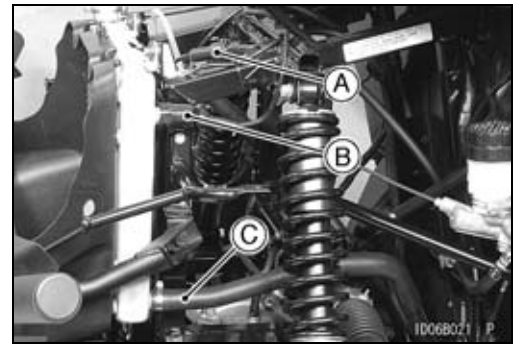
Radiator

Radiator 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.**

- Drain the coolant (see Coolant Change in the Periodic Maintenance chapter).
- Lift and hold the front fender (see Front Fender Removal in the Frame chapter).
- Remove:
 - Front Guard Cover (see Front Guard Cover Removal in the Frame chapter)
 - Radiator Fan Motor Lead Connector [A]
 - Radiator Fan Switch Lead Connectors [B]
 - Water Hose [C]
- Remove:
 - Reserve Tank Hose [A]
 - Water Hose [B]
 - Fan Motor Breather Hose [C]
- Remove:
 - Radiator Bolts [A]



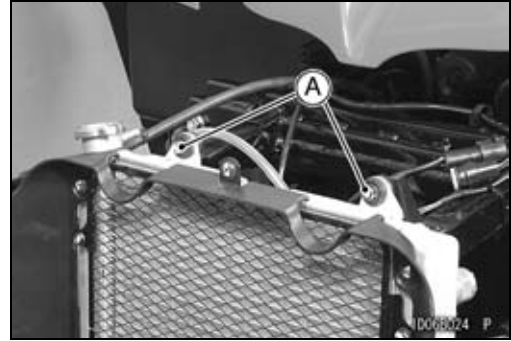
4-14 COOLING SYSTEM

Radiator

- Remove:
 - Radiator Bolt [A]
 - Radiator

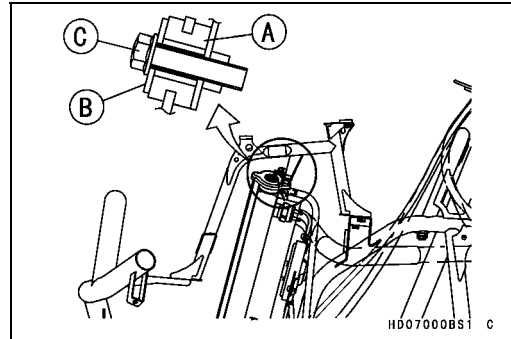
CAUTION

Do not touch the radiator core. This could damage the radiator fins, resulting in loss of cooling efficiency.



Radiator Installation

- Install:
 - Dampers [A]
 - Collars [B]
- Tighten:
 - Torque - Radiator Mounting Bolts [C]: 8.8 N·m (0.90 kgf·m, 78 in·lb)



- Connect:
 - Radiator Fan Motor Lead Connector
- Install the fan motor breather hose.

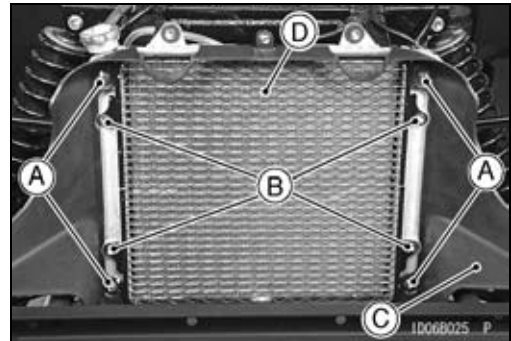
NOTE

○Do not apply lubricant at fitting hose region.

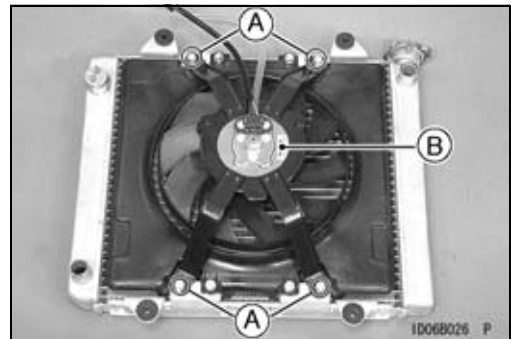
- Install:
 - Water Hoses
 - Reserve Tank Hose
- Run the hoses according to the Cable, Wire, and Hose Routing section in the Appendix chapter.

Radiator Fan Removal

- Remove:
 - Front Guard Cover (see Front Guard Removal in the Frame chapter)
 - Shroud Mounting Screws [A]
 - Radiator Screen Mounting Bolts [B]
 - Shroud [C] and Radiator Screen [D]



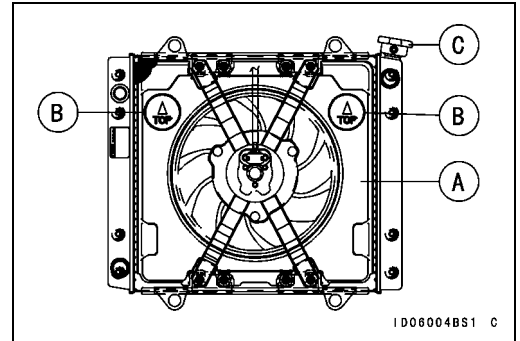
- Remove:
 - Radiator (see Radiator Removal)
 - Radiator Fan Assembly Bolts [A]
 - Fan Assembly [B]



Radiator

Radiator Fan Installation

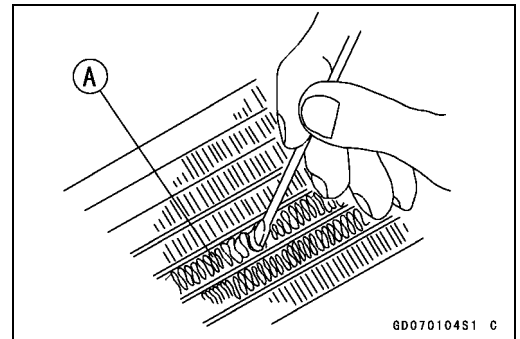
- When installing the radiator cover [A], face the TOP marks [B] to radiator cap [C] side.
- Tighten:
Torque - Radiator Cover Bolts: 8.3 N·m (0.85 kgf·m, 73 in·lb)



- Install:
 Radiator Fan Assembly
- Tighten:
Torque - Radiator Fan Assembly Bolts: 8.3 N·m (0.85 kgf·m, 73 in·lb)

Radiator Inspection

- Check the radiator core.
- ★ If there are obstructions to air flow, remove the radiator and remove obstructions.
- ★ If the corrugated fins [A] 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.

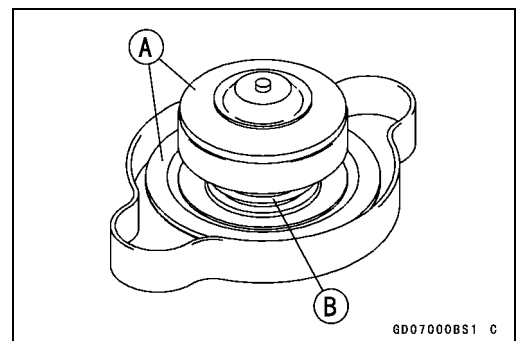


Radiator Cleaning

- Refer to the Radiator Cleaning in the Periodic Maintenance chapter.

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.
 Top and Bottom Valve Seals [A]
 Valve Spring [B]



4-16 COOLING SYSTEM

Radiator

- Install the cap [A] on a cooling system pressure tester [B].

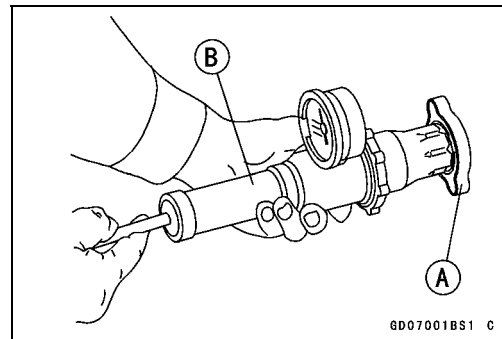
NOTE

- *Wet the cap sealing surfaces with water or coolant to prevent pressure leakage.*
- Watching the pressure gauge, slowly pump the pressure tester to build up the pressure. The relief valve opens, indicated by the gauge hand flicks downward.
- The relief valve must open within the relief pressure range in the table below and the gauge hand must remain within the specified range at least 6 second.

Radiator Cap Relief Pressure

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

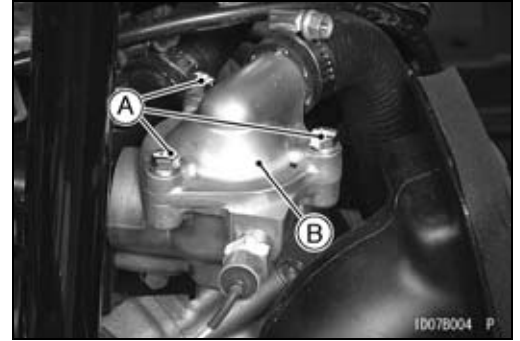
- ★ If the cap cannot hold the specified pressure, or if it holds too much pressure, replace it with a new one.



Thermostat

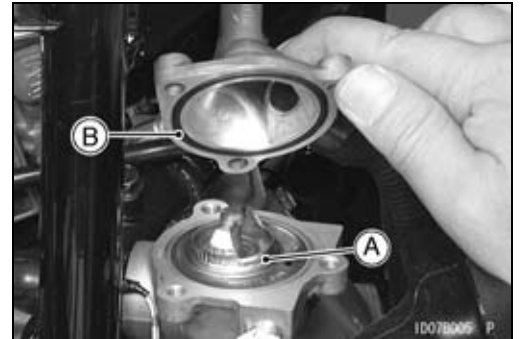
Thermostat Removal

- Drain the coolant (see Coolant Change in the Periodic Maintenance chapter).
- Remove:
 - Engine Upper Cover (see Engine Upper Cover Removal in the Frame chapter)
 - Thermostat Housing Cover Bolts [A]
 - Thermostat Housing Cover [B]
 - Thermostat



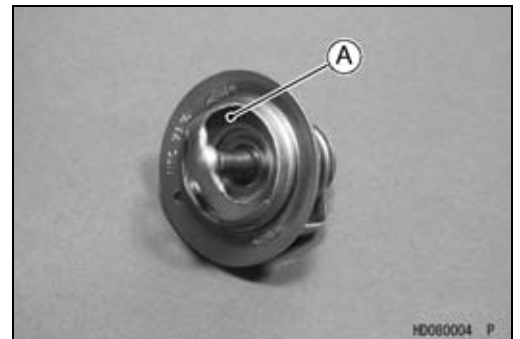
Thermostat Installation

- Install:
 - Thermostat [A]
- Be sure to install the O-ring [B] on the housing cover.
- Tighten:
 - Torque - Thermostat Housing Cover Bolts: 8.8 N·m (0.90 kgf·m, 78 in·lb)**
- Add coolant (see Coolant Change in the Periodic Maintenance chapter).



Thermostat Inspection

- Remove the thermostat, and inspect the thermostat valve [A] at room temperature.
- ★ If the valve is open, replace the valve with a new one.



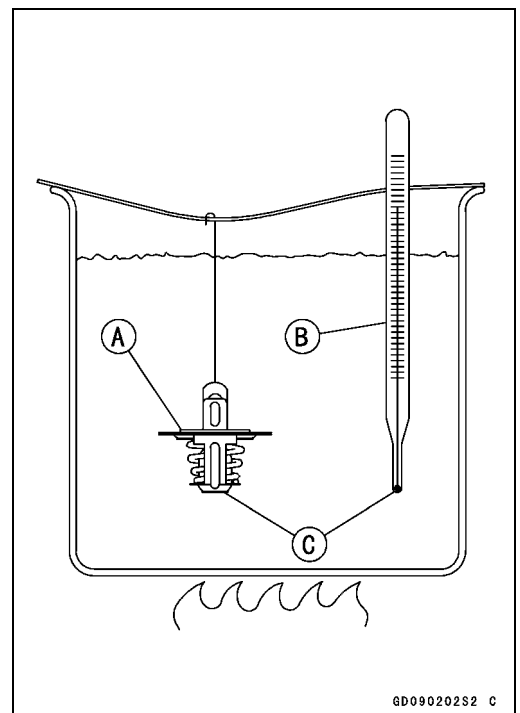
- To check valve opening temperature, suspend the thermostat [A] and an accurate thermometer [B] in a container of water with the heat-sensitive portions [C] in almost the same depth.

NOTE

○ *The thermostat must be completely submerged and the thermostat and thermometer must not touch the container sides or bottom.*

- Gradually raise the temperature of the water while stirring the water gently for even temperature.
- ★ If the measurement is out of the specified range, replace the thermostat.

Thermostat Valve Opening Temperature
 69.5 ~ 72.5°C (157 ~ 162°F)



4-18 COOLING SYSTEM

Radiator Fan Switch

Radiator Fan Switch Removal

CAUTION

<p>The fan switch should never be allowed to fall on a hard surface. Such a shock to the part can damage it.</p>
--

- Drain the coolant (see Coolant Change in the Periodic Maintenance chapter).
- Lift and hold the front fender (see Front Fender Removal in the Frame chapter).
- Disconnect the fan switch leads.
- Remove the radiator fan switch [A].

Radiator Fan Switch Installation

- Tighten:
 - Torque - Radiator Fan Switch: 18 N·m (1.8 kgf·m, 13 ft·lb)
- Fill the coolant (see Coolant Change in the Periodic Maintenance chapter).

Radiator Fan Switch Inspection

- Refer to the Radiator Fan Switch Inspection in the Electrical System chapter.



Water Temperature Switch

Water Temperature Switch Removal

CAUTION

<p>The water temperature switch should never be allowed to fall on a hard surface. Such a shock to the part can damage it.</p>
--

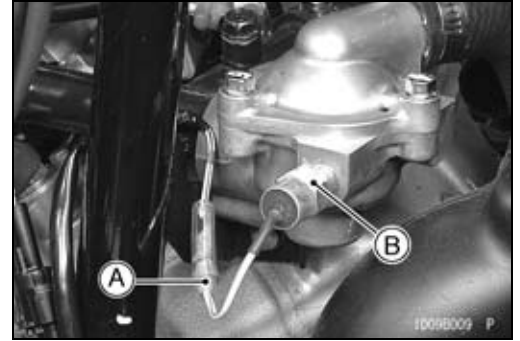
- Drain the coolant (see Coolant Change in the Periodic Maintenance chapter).
- Remove:
 - Engine Upper Cover (see Engine Upper Cover Removal in the Frame chapter)
- Disconnect the switch lead connector [A].
- Remove the switch [B].

Water Temperature Switch Installation

- Apply silicone sealant to the threads of the switch and tighten it.
 - Sealant - Kawasaki Bond (Silicone Sealant): 56019-120
 - Torque - Water Temperature Switch: 7.8 N·m (0.80 kgf·m, 69 in·lb)
- Fill the coolant (see Coolant Change in the Periodic Maintenance chapter).

Water Temperature Switch Inspection

- Refer to the Water Temperature Switch Inspection in the Electrical System chapter.



**2008 KAWASAKI TERYX 750 4x4
Repair Service Manual KVF750 PDF**

Download Full Service Manual



**Click Link below
or Copy-paste to your browser**

<https://bit.ly/TeryxServiceManual>

OR here

<https://www.downloadservicemanuals.com/product/2008-kawasaki-teryx-750-4x4-repair-service-manual-kvf750-pdf-download/>