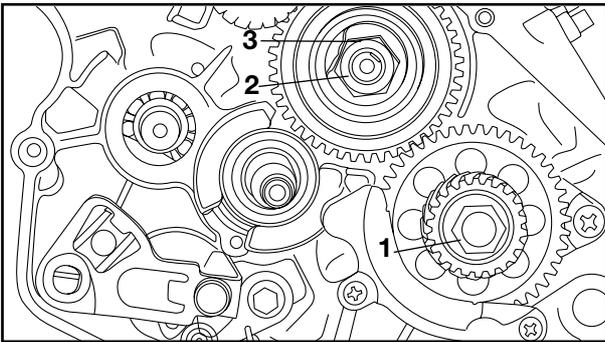




### **WARNING**

Always use a new lock washer



5. Tighten:

- Nut (Primary drive gear) ①
- Nut (Balancer driven gear) ②



**Nut (Primary drive gear):**  
80 Nm (8.0 m•kg; 58 ft•lb)  
**Nut (Balancer driven gear):**  
55 Nm (5.5 m•kg; 40 ft•lb)

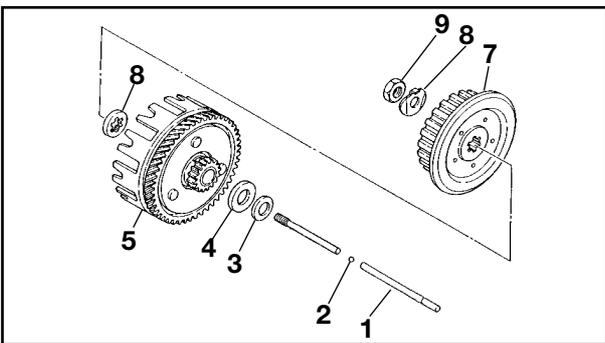
### **NOTE:**

Hold the rotor to tighten the nut (Primary drive gear) ① and nut (Balancer driven gear) ② by the Universal Rotor Holder



**Universal Rotor Holder:**  
90890-01235

6. Bend the lock washer tab ③ along the nuts flats.

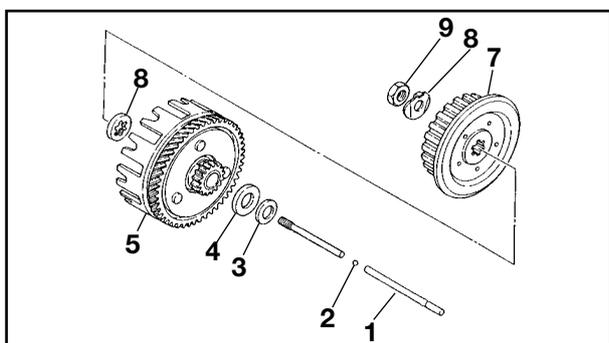


7. Lubricate:

- Push rod #2
- Ball ②



**Lithium Soap Base Grease**



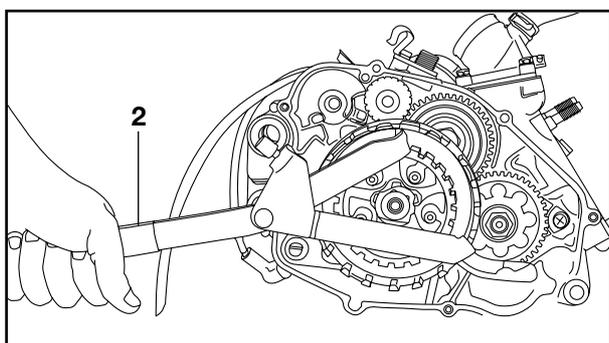
8. Install:
- Push rod #2
  - Ball (2)
  - Conical spring washer (3)
  - Thrust plate (4)
  - Clutch housing (5)
  - Thrust washer (6)
  - Clutch boss (7)
  - Lock washer (8)
  - Nut (Clutch boss) (9)

**⚠ WARNING**

Always use a new lock washer

**NOTE:**

- Be careful to install the conical spring washer (3) in proper position as shown.
- Install the lock washer tab (8) onto the indentation of the clutch boss.



9. Tighten:
- Nut (Clutch boss)



**Nut (Clutch boss):**  
70 Nm (7.0 m•kg; 50 ft•lb)

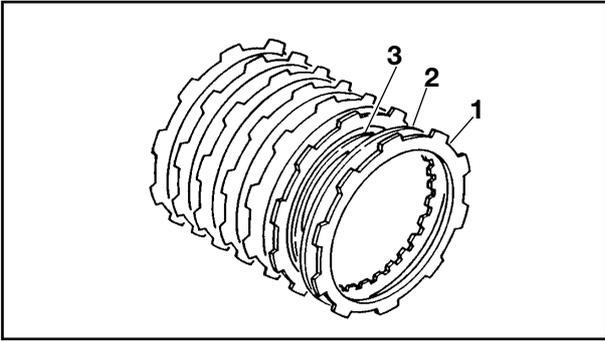
**NOTE:**

Hold the clutch boss to tighten the nut (1) (clutch boss) by the Universal Clutch Holder (2)



**Universal Clutch Holder:**  
90890-04086

10. Bend the lock washer tab along the nut flats.



11. Install:
- Friction plates ①
  - Clutch plates ②
  - Clutch damper ③



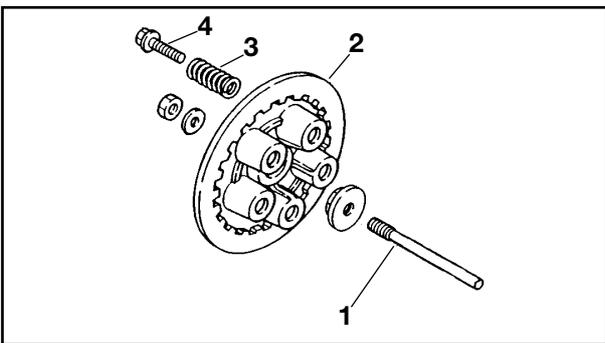
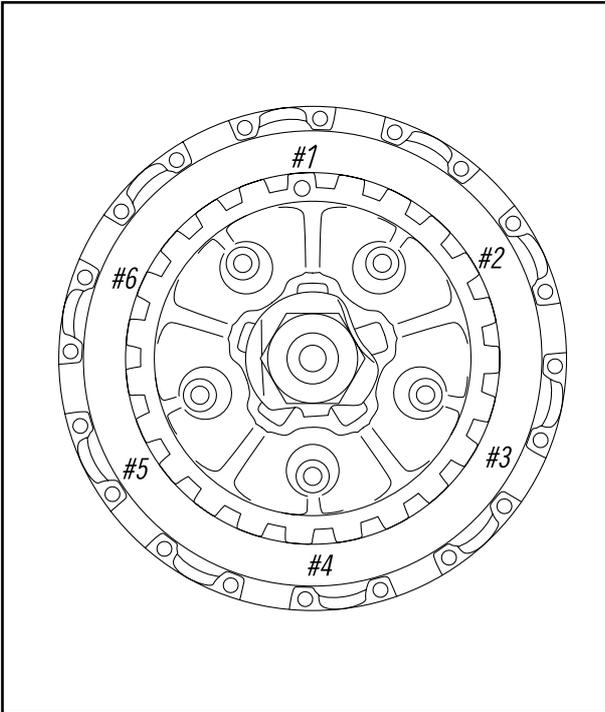
**Installation steps**

- Install the friction plate onto the clutch boss.
- Install the clutch plate so as to locate the projection ④ at #1.
- Install the friction plate with the larger inside diameter onto the clutch boss.
- Install the clutch damper onto the clutch plate.
- Install the remaining clutch plates and friction plates alternately on the clutch boss.
- Be sure to install a clutch plate with projection offset approximately 60° from previous plate projection.  
Continue this procedure in a clockwise direction until all clutch plates are installed.

**NOTE:** \_\_\_\_\_

Before installing friction and clutch plates, sink them into transmission oil almost 3 hours before mounting

\_\_\_\_\_

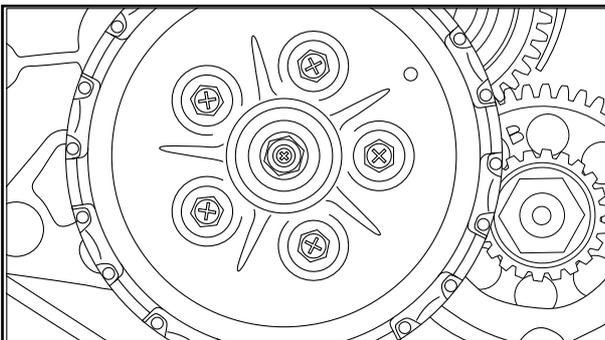


12. Install:
- Push rod #1 ①
  - Pressure plate ②
  - Clutch springs ③
  - Bolts (Pressure plate) ④

**NOTE:** \_\_\_\_\_

Align the punched mark ⑤ on the clutch boss with the punched mark ⑥ on the clutch pressure plate.

\_\_\_\_\_



13. Tighten:
- Bolts (Pressure plate)

	<p><b>Bolt (Pressure plate):</b> 6 Nm (0.6 m•kg; 4.8 ft•lb)</p>
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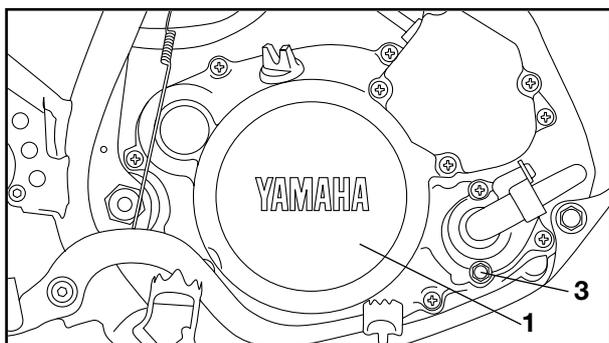


**NOTE:**

Tighten the bolts (pressure plate) in stage, using a crisscross pattern

14. Adjust:

- Clutch mechanism free play  
Refer to the “CLUTCH MECHANISM ADJUSTMENT” section in chapter 3.



15. Install:

- Gasket (Crankcase cover)
- Dowel pins
- Crankcase cover (Right) ①
- Drain plug (Transmission oil) ②
- Drain plug (Coolant) ③

**NOTE:**

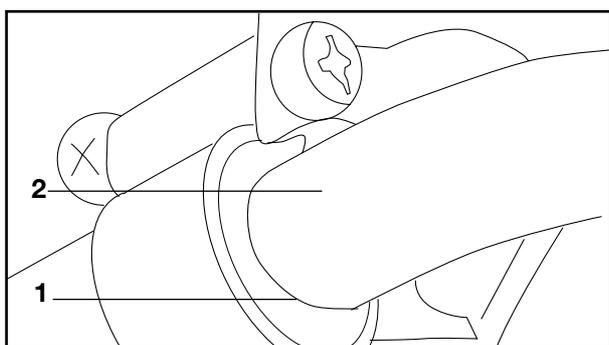
Tighten the screws (Crankcase cover) in stage using a crisscross pattern

**⚠ WARNING**

Always use a new gasket



**Screw (Crankcase cover):**  
8 Nm (0.8 m•kg; 5.8 ft•lb)  
**Drain plug (Transmission Oil):**  
15Nm (1.5 m•kg; 11 ft•lb)  
**Drain plug (Coolant):**  
10Nm (1.0 m•kg; 7.2 ft•lb)



16. Apply the grease to the O-ring

17. Install:

- O-ring ①  
(to water outlet pipe ②)
- Water outlet pipe ②

**⚠ WARNING**

Always use a new O-ring

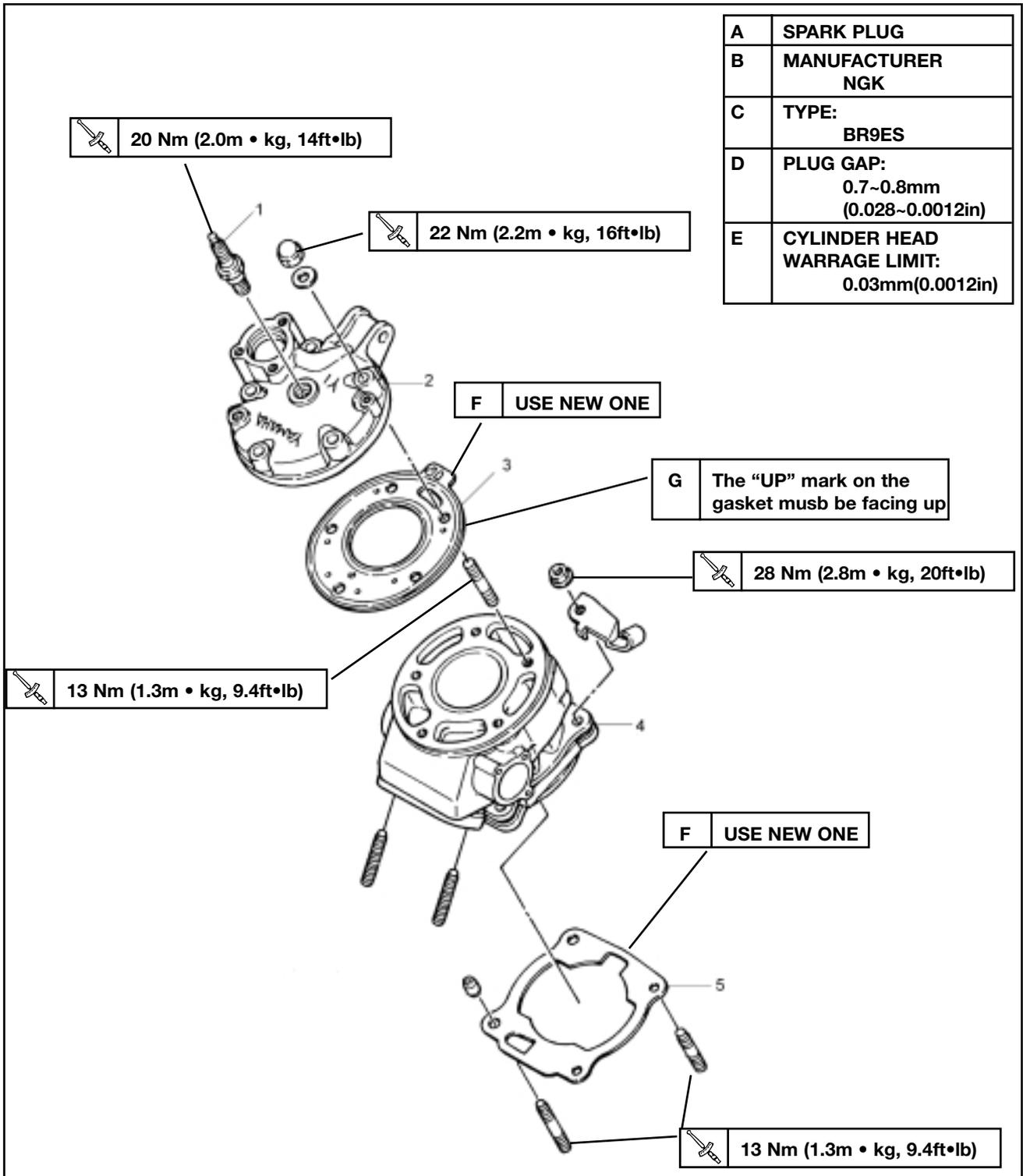


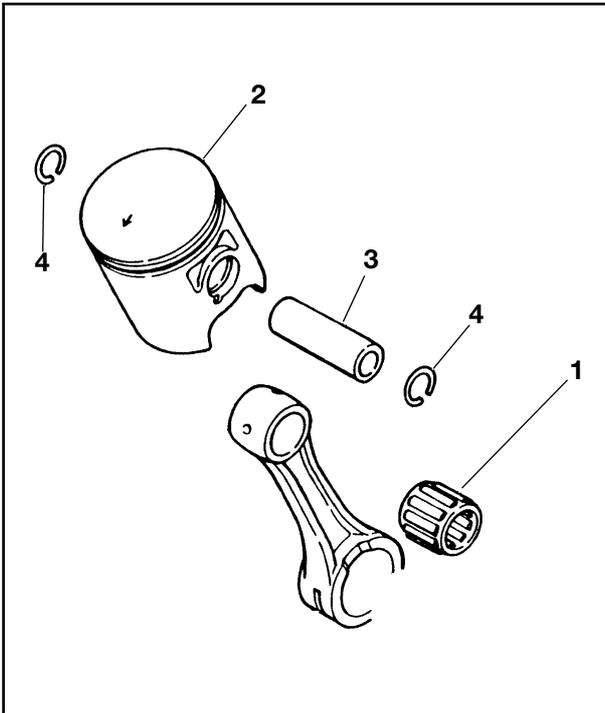
**Screw (Water Outlet Pipe):**  
8 Nm (0.8 m•kg; 5.8 ft•lb)



## CYLINDER HEAD AND CYLINDER

- ① Spark plug
- ② Cylinder head
- ③ Cylinder head gasket
- ④ Cylinder
- ⑤ Cylinder gasket





### PISTON, CYLINDER AND CYLINDER HEAD

1. Install:

- Bearing ①
- Piston ②
- Piston pin ③
- Piston pin clips ④

**NOTE:**

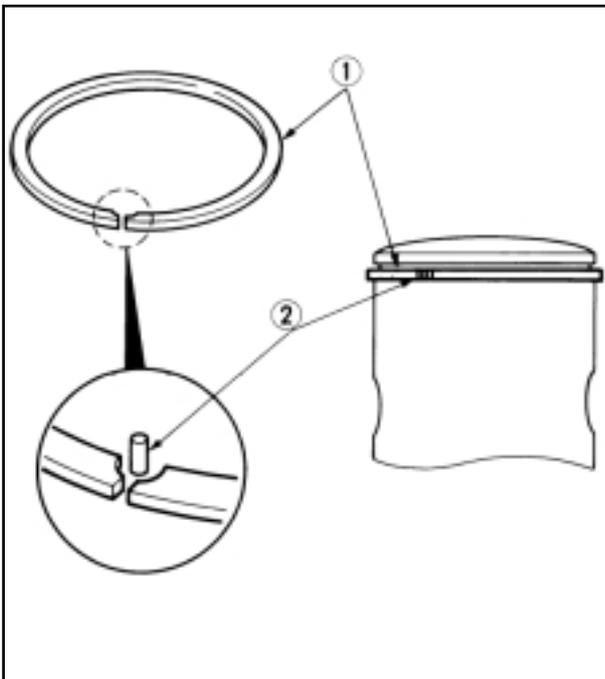
- Apply engineoil tothe piston pin, bearings and piston skirts areas.
- Make sure the arrow mark on the piston points towards the exhaust side of the cylinder.
- Before installing the piston pin clip, cover the crankcase opening with a clean rag to prevent the clip from falling into the crankcase.

### **⚠ WARNING**

**Always use a new piston pin clip**

### **CAUTION**

**Do not allow the clip open ends to meet the piston pin slot**

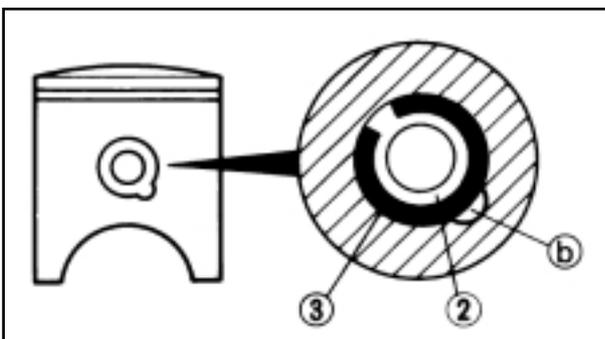


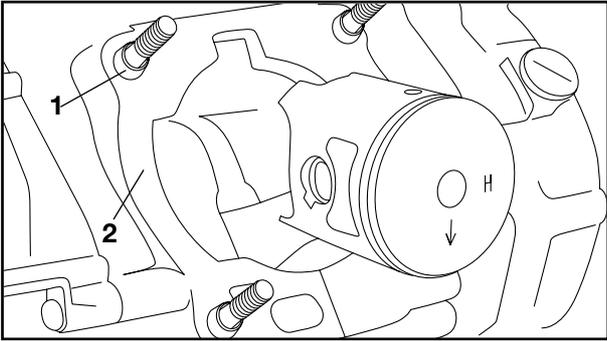
2. Check:

- Piston ring position

### **CAUTION**

- **Make sure ring ends are properly fitted around ring locating pins in piston grooves.**
- **Be sure to check te manufacture's marks or numbers stamped on the rings are on the top side of the rings.**

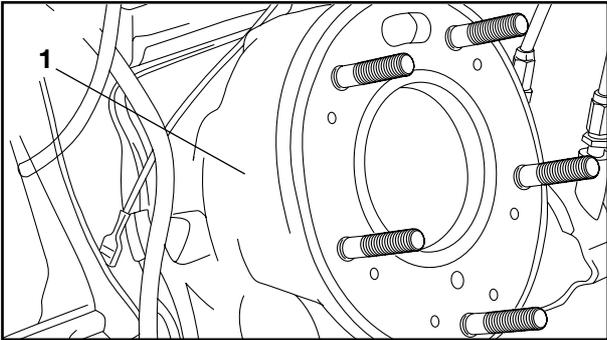




3. Install:
  - Dowel pins ①
  - Gasket **NEW** (Cylinder) ②

**⚠ WARNING**

**Always use a new gasket**



4. Install:
  - Cylinder ①
  - Clutch cable guide

**NOTE:**

Install the cylinder with one hand while compressing the piston rings with the other hand

5. Tighten:
  - Nuts (cylinder)



**Nut (Cylinder):**  
**28 Nm (2.8 m•kg, 20 ft•lb)**

**NOTE:**

Tighten the nuts ins stage using a crisscross pattern.

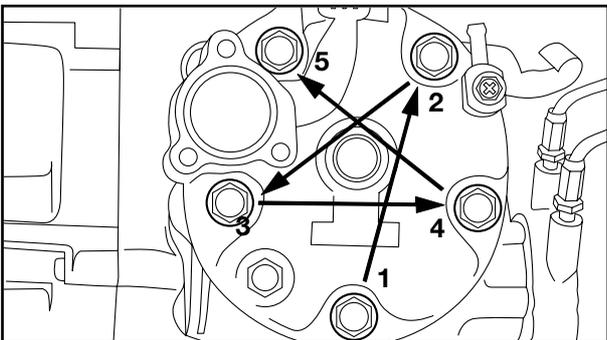
6. Install:
  - Gasket (Cylinder head)
  - Cylinder head

**⚠ WARNING**

**Always use a new gasket**

**NOTE:**

The "UP" mark on the gasket must be facing up



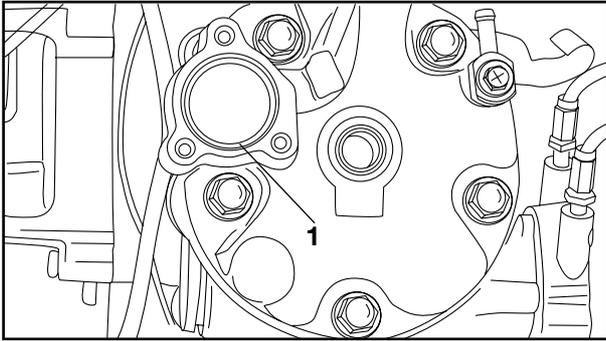
7. Tighten:
  - Nuts (Cylinder head)



**Nut (Cylinder Head):**  
**22 Nm (2.2 m•kg, 16 ft•lb)**

**NOTE:**

Tighten the nuts in stage, using a crisscross pattern



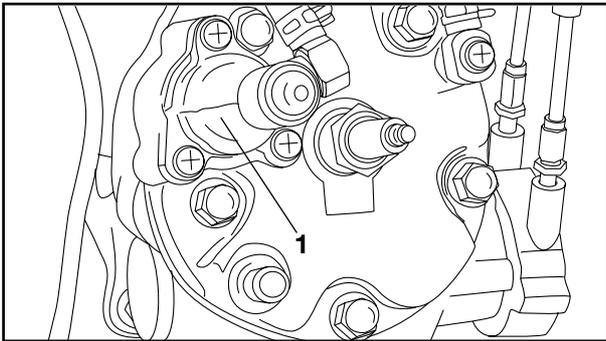
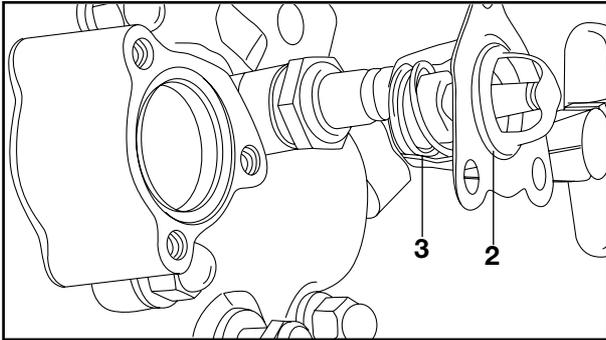
8. Install:
- O-ring ①
  - Thermostatic valve ②
  - Gasket ③

**NOTE:**

Apply the lithium soap base grease to the O-ring

**⚠ WARNING**

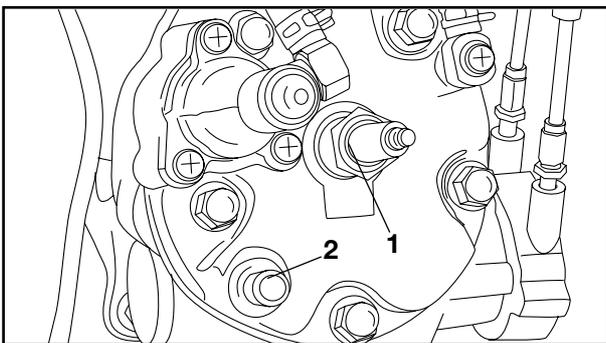
- Always use a new O-ring.
- Always use a new gasket.



9. Install:
- Cover (Thermostatic valve) ①



**Screw (Thermostatic Valve Cover):**  
8 Nm (0.8 m•kg, 5.8 ft•lb)



10. Install:
- Spark plug ①
  - Thermo unit ②



**Spark plug:**  
20 Nm (2.0 m•kg, 14 ft•lb)  
**Thermo unit:**  
15 Nm (1.5 m•kg, 11 ft•lb)

**⚠ WARNING**

Handle the thermo unit with special care. Never subject it too strong or allow it to be dropped. In case of being hited, replace it.