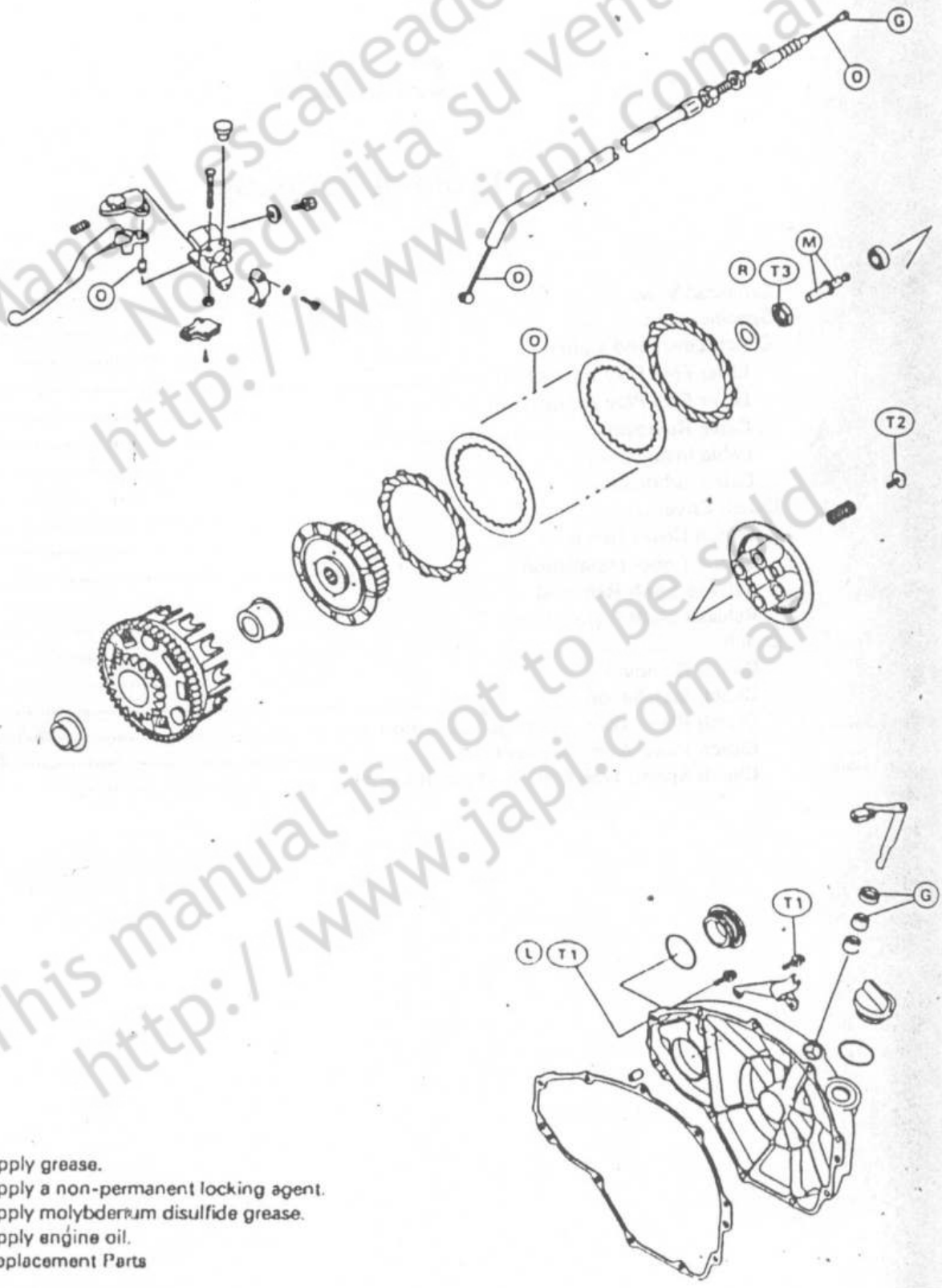
Clutch

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Exploded View



G: Apply grease.
L: Apply a non-permanent locking agent.
M: Apply molybdenum disulfide grease.
O: Apply engine oil.
R: Replacement Parts

T1: 11 N-m (1.1 kg-m)
T2: 8.8 N-m (0.90 kg-m)
T3: 130 N-m (13.5 kg-m)

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Specifications

Item	Standard	Service Limit
Clutch Lever:		
Clutch lever free play	2 ~ 3 mm	- - -
Clutch:		
Friction plate thickness	2.7 ~ 2.9 mm	2.5 mm
Friction and steel plate warp	0.2 mm or less	0.3 mm
Clutch spring free length:	33.6 mm	32.6 mm

Special Tools – **Clutch Holder: 57001-1243**
Pressure Cable Luber: K56019-021

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

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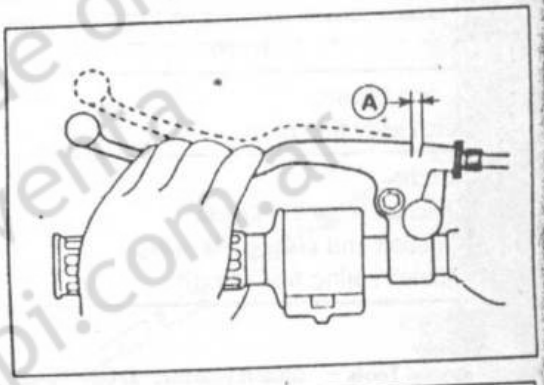
Clutch Lever and Cable

Lever Free Play Inspection

- Pull the clutch lever just enough to take up the free play [A].
- Measure the gap between the lever and the lever holder.

★If the gap is too wide, the clutch may not release fully. If the gap is too narrow, the clutch may not engage fully. In either case, adjust it.

Clutch Lever Free Play
Standard: 2 ~ 3 mm



Lever Free Play Adjustment

⚠WARNING

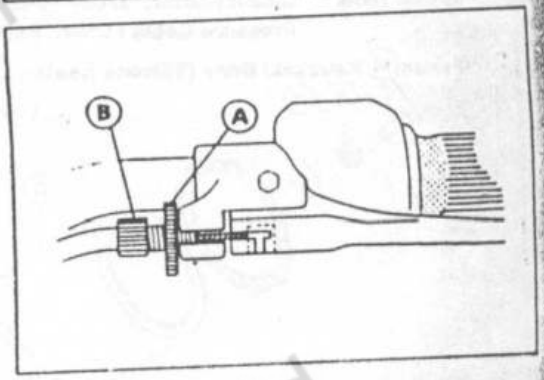
To avoid a serious burn, never touch the engine or exhaust pipe during clutch adjustment.

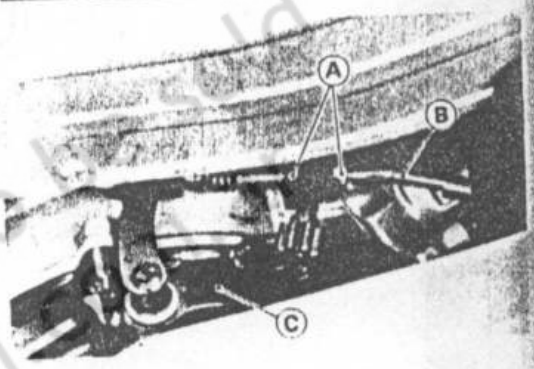
- Loosen the locknut [A] at the clutch lever.
- Turn the adjuster [B] until the proper amount of clutch lever free play is obtained.
- Tighten the locknut securely.

★If it cannot be done, use the adjusting nuts at the lower end of the cable.

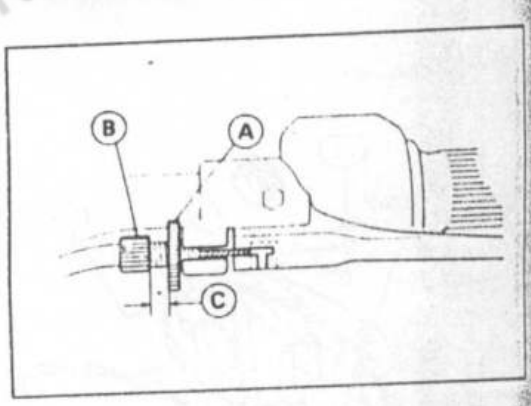
- Slide the dust cover at the clutch cable lower end out of place.
- Loosen both adjusting nuts [A] at the clutch cable [B] as far as they will go.

[C] Clutch Cover





- Loosen the locknut [A] at the clutch lever.
- Turn the adjuster [B] so that 5 ~ 6 mm [C] of threads are visible.
- Pull the clutch outer cable tight and tighten the adjusting nuts against the bracket.
- Slip the rubber dust cover back onto place.
- Turn the adjuster at the clutch lever until the free play is correct.
- Tighten the locknut at the clutch lever.

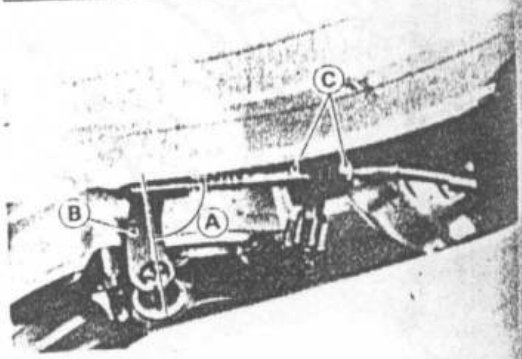


- Push the release lever [B] toward the front of the motorcycle until it becomes hard to turn.

○At this time, the release lever should have the proper angle 80 ~ 90° [A].

★If the angle is wrong, check the clutch and release parts for wear.

[C] Adjusting Nuts

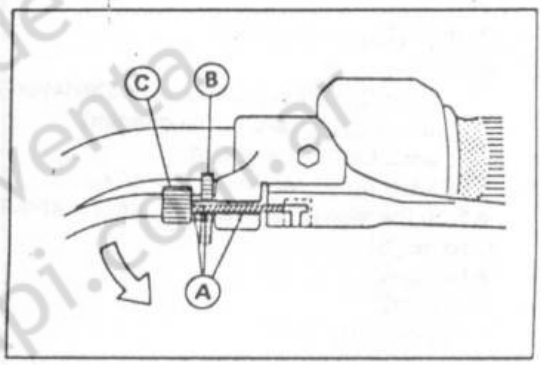


⚠WARNING

Be sure that the outer cable end at the clutch lever is fully seated in the adjuster at the clutch lever, or it could slip into place later, creating enough cable play to prevent clutch disengagement.

Cable Removal

- Remove the lower fairing (see Frame chapter).
- Slide the dust cover at the clutch cable lower end out of place.
- Loosen the nuts, and slide the lower end of the clutch cable to give the cable plenty of play.
- Push the lever forward and turn the adjuster to align the Number 5 with the triangular mark on the lever holder.
- Loosen the locknut at the clutch lever, and screw in the adjuster.
- Line up the slots [A] in the clutch lever, locknut [B], and adjuster [C], and then free the cable from the lever.
- Free the clutch inner cable tip from the clutch release lever.
- Push the release lever toward the front of the motorcycle and tape the release lever to the clutch cover to prevent the release shaft from falling out.
- Pull the clutch cable out of the frame.



Cable Installation

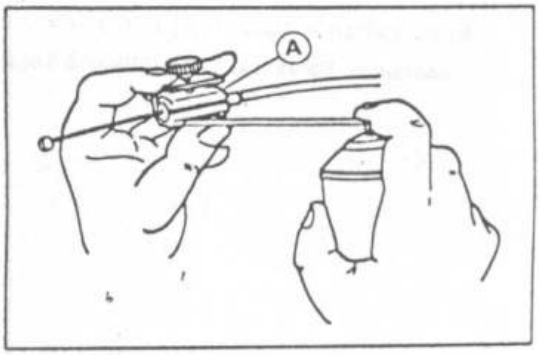
- Run the clutch cable correctly (see General Information chapter).
- Adjust the clutch cable (see Lever Free Play Adjustment).

Cable Lubrication

Whenever the clutch cable is removed, lubricate the clutch cable as follows.

- Apply a thin coating of grease to the cable upper and lower ends.
- Lubricate the cable with a penetrating rust inhibitor.

Special Tool – Pressure Cable Luber: K56019-021 [A]

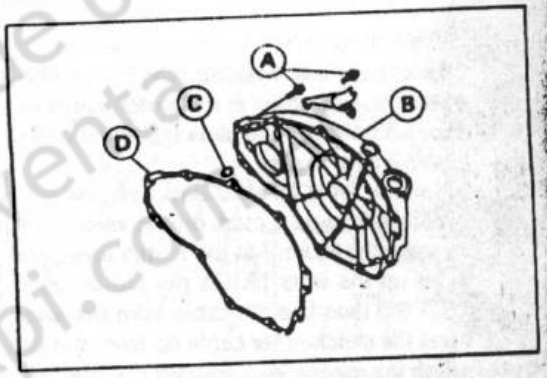


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Clutch Cover

Clutch Cover Removal

- Remove:
  Engine Oil (drain, see Engine Lubrication System chapter)
  Lower Fairing (see Frame chapter)
  Clutch Cable Lower End
  Clutch Cover Mounting Bolts [A]
- Turn the release lever toward the rear about 90°, and remove the clutch cover [B].
- Remove:
  Pin [C]
  Gasket [D]



Clutch Cover Installation

- Apply silicone sealant to the area [A] where the mating surface of the crankcase touches the clutch cover gasket.

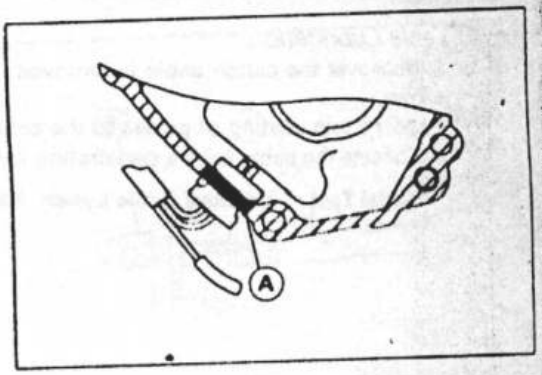
  Sealant – Kawasaki Bond (Silicone Sealant): 56019-120

- Replace the cover gasket with a new one.



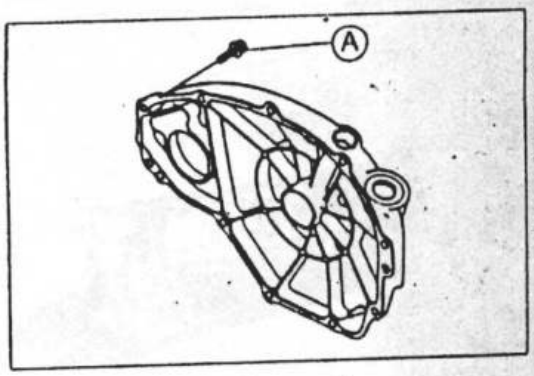
- Apply silicone sealant [A] to the grommet of the pickup coil lead.

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



- Apply a non-permanent locking agent to the threads of a front upper clutch cover bolt [A].
- Tighten the cover bolts.

  Torque – Clutch Cover Bolts : 11 N-m (1.1 kg-m)



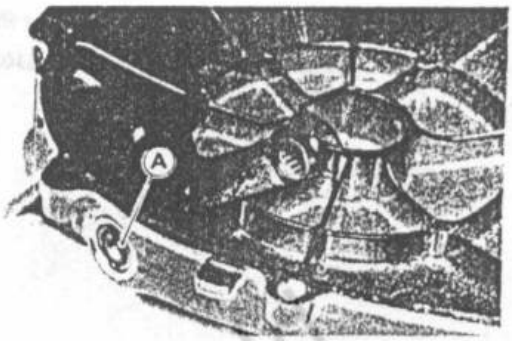
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Release Shaft Removal

CAUTION
Do not remove the clutch release lever and shaft assembly unless it is absolutely necessary. If removed, the oil seal replacement may be required.

- Remove the clutch cover (see Clutch Cover Removal).
- Pull the lever and shaft assembly out of the clutch cover.

Release Shaft Installation



- Visually inspect the oil seal [A].
- If the oil seal is damaged replace it with a new one.
- Apply high-temperature grease to the oil seal lips on the upper ridge of the clutch cover.
- Apply oil to the bearing in the hole of the clutch cover.
- Insert the release shaft straight into the upper hole of the clutch cover.

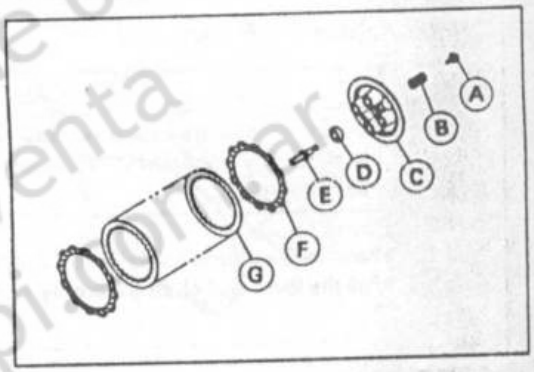
CAUTION
When inserting the release shaft, be careful not to remove the spring of the oil seal.

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Clutch

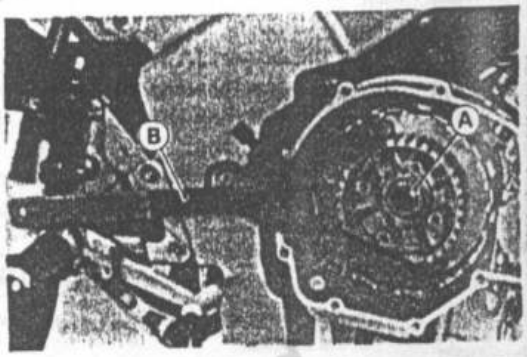
Clutch Removal

● Remove:
Engine Oil (drain, see Engine Lubrication System chapter)
Lower Fairing (see Frame chapter)
Clutch Cover (see Clutch Cover Removal)
Clutch Spring Bolts [A]
Clutch Springs [B]
Clutch Spring Plate [C]
Thrust Bearing [D]
Push Rod [E]
Friction Plates [F]
Steel Plates [G]



● Holding the clutch hub, remove the clutch hub nut [A].

Special Tool – Clutch Holder: 57001-1243 [B]



● Remove:
Washer
Clutch Hub
Bushing
Clutch Housing
Spacer

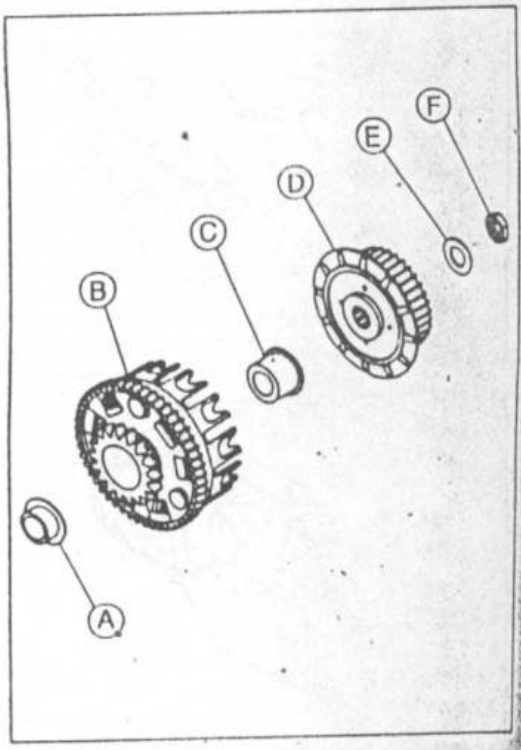
Clutch Installation

● Install the following parts on the drive shaft.
[A] Spacer
[B] Clutch Housing
[C] Bushing
[D] Clutch Hub
[E] Washer
[F] Nut

○ Replace the clutch hub nut with a new one.
○ Holding the clutch hub, tighten the clutch hub nut.

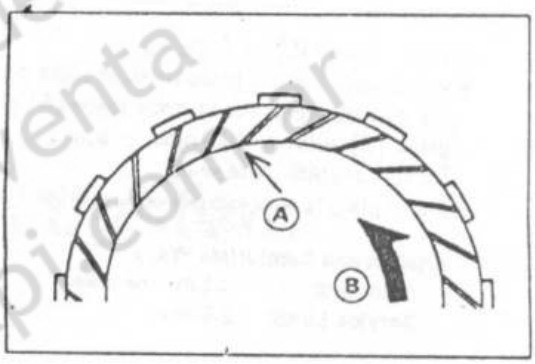
Special Tool – Clutch Holder: 57001-1243

Torque – Clutch Hub Nut : 130 N-m (13.5 kg-m)



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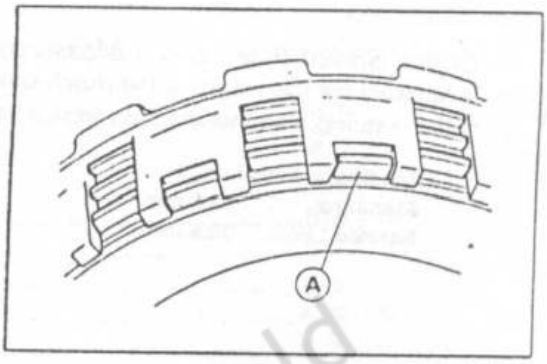
●When installing the friction plate, be sure that the directions of the oil grooves [A] in it and the rotation [B] of the clutch housing are positioned as shown in the figure.
●Install the friction plates and steel plates; starting with a friction plate, a thick steel plate and a thin steel plate, and alternating them.



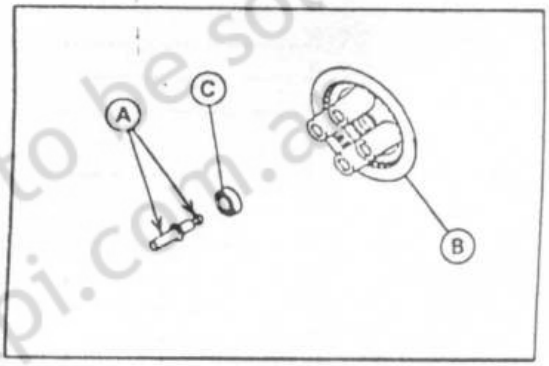
CAUTION

If new dry friction plates and steel plates are installed, apply engine oil to the surfaces of each plate to avoid clutch plate seizure.

○Install the last friction plate [A] fitting the tangs in the grooves in the housing as shown.



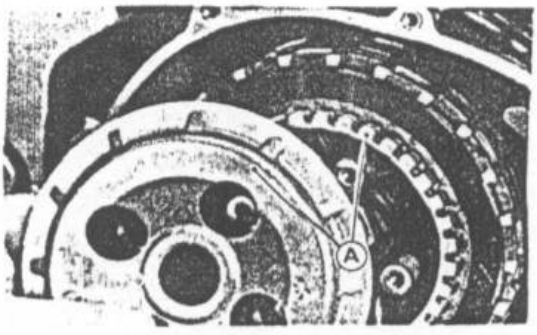
●Apply molybdenum disulfide grease to the push rod [A] and install it.
●Install the clutch spring plate [B] with the thrust bearing [C].



○Be sure to install the spring plate so that the marks [A] on it and the clutch hub align.
●Install the clutch spring, and tighten the clutch spring bolts.

Torque – Clutch Spring Bolts : 8.8 N-m (0.90 kg-m)

●Install the clutch cover.

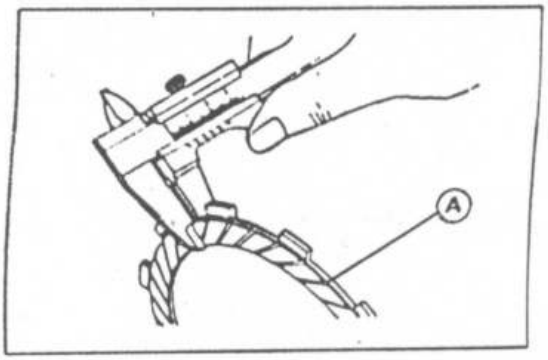


Clutch Plate, Wear, Damage Inspection

●Visually inspect the friction and steel plates for signs of seizure, overheating (discoloration), or uneven wear.
●Measure the thickness of the friction plate [A] at several points.
★If any plates show signs of damage, or if they have worn past the service limit, replace them with new ones.

Friction Plate Thickness

Standard: 2.7 ~ 2.9 mm
Service Limit: 2.5 mm



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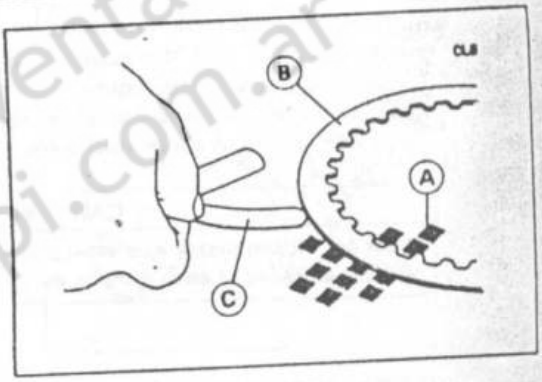
Clutch Plate Warp Inspection

● Place each friction plate or steel plate on a surface plate and measure the gap between the surface plate [A] and each friction plate or steel plate [B] with a thickness gauge [C]. The gap is the amount of friction or steel plate warp.

★If any plate is warped over the service limit, replace it with a new one.

Friction and Steel Plate Warp

Standard:	**0.2 mm or less**
Service Limit:	**0.3 mm**



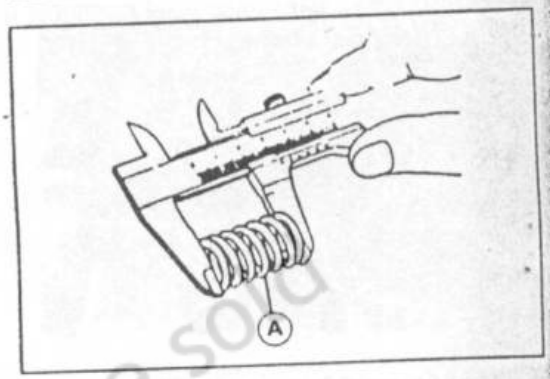
Clutch Spring Free Length Measurement

● Measure the free length of the clutch springs [A].

★If any spring is shorter than the service limit, it must be replaced.

Clutch Spring Free Length

Standard:	**33.8 mm**
Service Limit:	**32.5 mm**



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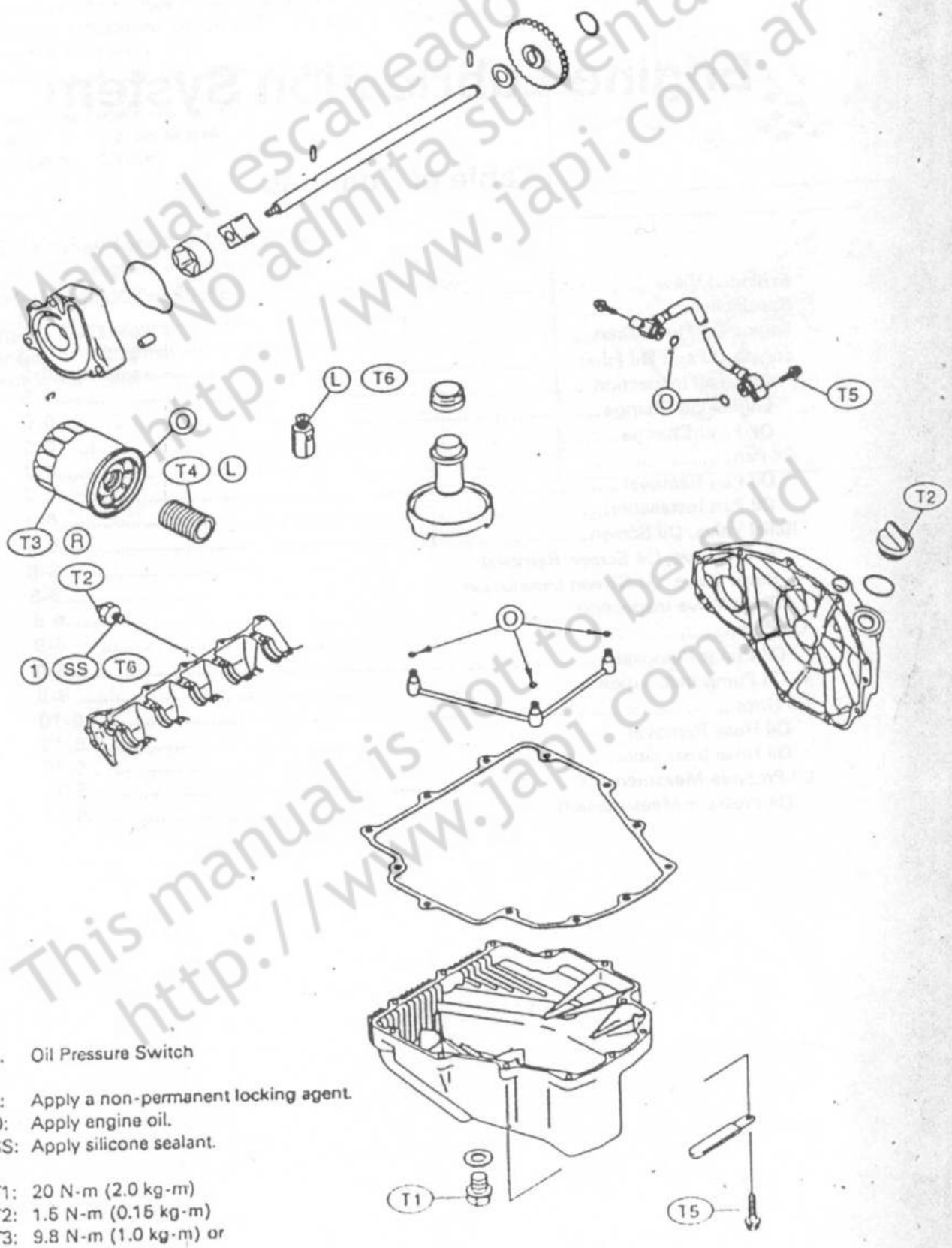
Engine Lubrication System

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Exploded View



1. Oil Pressure Switch

L: Apply a non-permanent locking agent.
O: Apply engine oil.
SS: Apply silicone sealant.

T1: 20 N-m (2.0 kg-m)
T2: 1.5 N-m (0.15 kg-m)
T3: 9.8 N-m (1.0 kg-m) or Hand-Tight
T4: 34 N-m (3.5 kg-m)
T5: 11 N-m (1.1 kg-m)
T6: 15 N-m (1.5 kg-m)

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Specifications

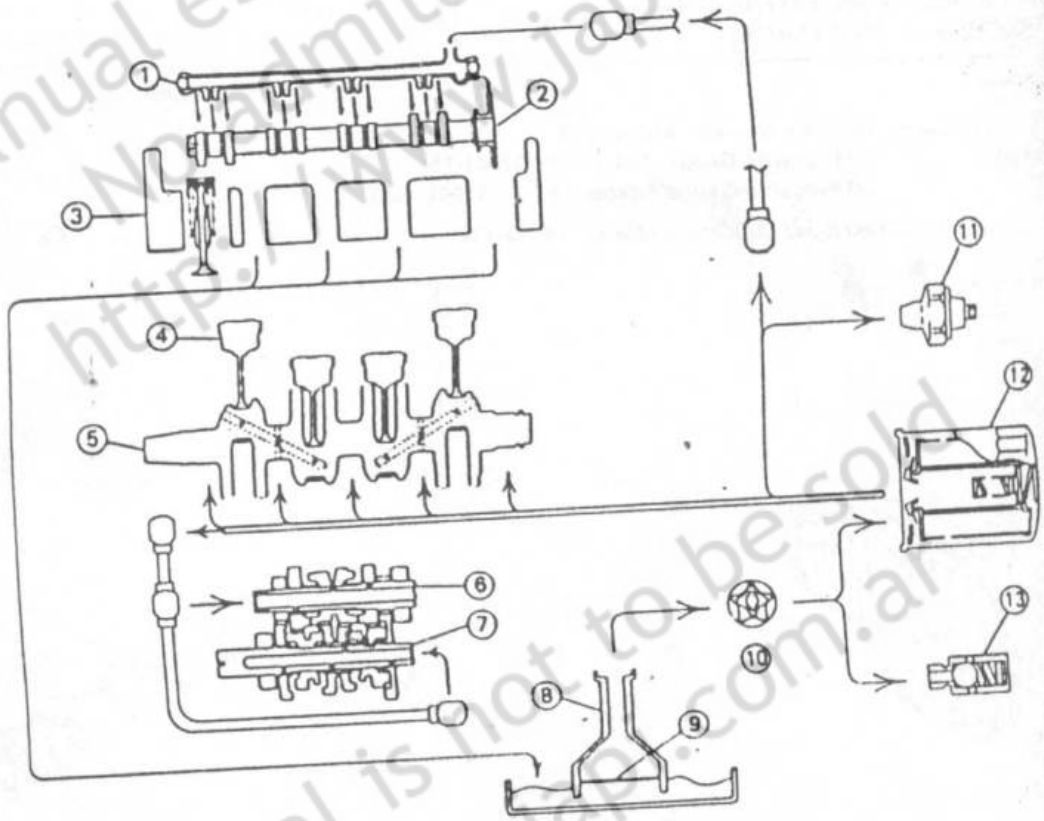
Item	Standard
Engine Oil:	
Grade	SE, SF, or SG class
Viscosity	SAE 10W-40, 10W-50, 20W-40, or 20W-50
Capacity	2.1L (when filter is not removed) 2.55 L (when filter is removed) 2.6 L (when engine is completely dry)
Level	Between upper and lower level lines
Oil Pressure Measurement:	
Oil pressure @4,000 r/min(rpm), oil temp. 90°C (194°F)	294 ~ 392 kPa (3.0 ~ 4.0 kg/cm², 43 ~ 57 psi)

Special Tools – **Oil Filter Wrench: 57001-1249**
Oil Pressure Gauge, 10 kg/cm²: 57001-164
Oil Pressure Gauge Adapter, PT ⅛: 57001-1033

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

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Engine Oil Flow Chart



1. Camshaft Cap
2. Camshaft
3. Cylinder Head
4. Piston
5. Crankshaft
6. Drive Shaft
7. Output Shaft
8. Oil Screen
9. Screen
10. Oil Pump
11. Oil Pressure Switch
12. Oil Filter
13. Relief Valve

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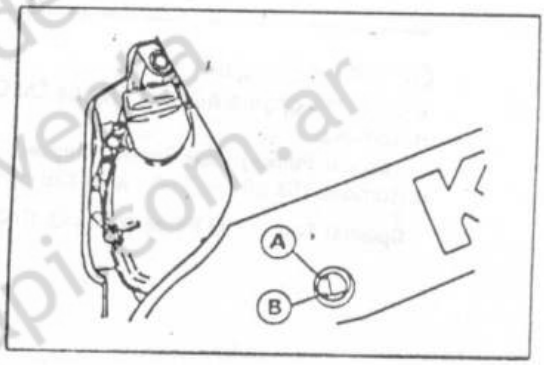
Engine Oil and Oil Filter

⚠WARNING

Motorcycle operation with insufficient, deteriorated, or contaminated engine oil will cause accelerated wear and may result in engine or transmission seizure, accident, and injury.

Oil Level Inspection

● Check that the engine oil level is between the upper [A] and lower [B] levels in the gauge.



NOTE

○ *Situate the motorcycle so that it is perpendicular to the ground.*
○ *If the motorcycle has just been used, wait several minutes for all the oil to drain down.*
○ *If the oil has just been changed, start the engine and run it for several minutes at idle speed. This fills the oil filter with oil. Stop the engine, then wait several minutes until the oil settles.*

CAUTION

Racing the engine before the oil reaches every part can cause engine seizure.

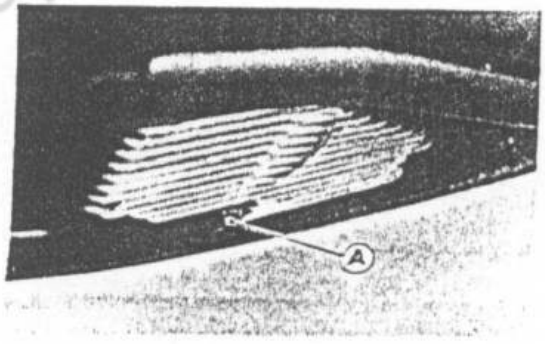
If the engine oil gets extremely low or if the oil pump or oil passages clog up or otherwise do not function properly, the oil pressure warning light will light. If this light stays on when the engine is running above idle speed, stop the engine immediately and find the cause.

Engine Oil Change

● Support the motorcycle perpendicular to the ground after warming up the engine.
● Remove the engine drain plug [A] to drain the oil.
○ The oil in the oil filter can be drained by removing the filter (see Oil Filter Change).
★ Replace the drain plug gasket with a new one if it is damaged.
● Tighten the drain plug.

Torque – Engine Drain Plug: 29 N·m (2.9 kg-m)

● **Pour in the specified type and amount of oil.**



Engine Oil

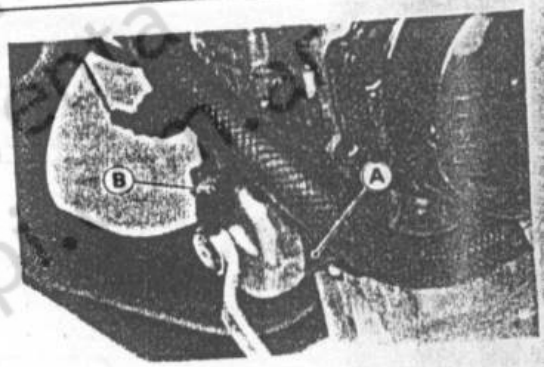
Grade:	**SE, SF or SG class**
Viscosity:	**SAE 10W40, 10W50, 20W40, or 20W50**
Amount:	**2.1 L (when filter is not removed)**
	2.55 L (when filter is removed)
	2.6 L (when engine is completely dry)

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Oil Filter Change

- Drain the engine oil (see Engine Oil Change).
- Remove:
  Lower Fairing (see Frame chapter)
- Remove the oil filter [A] with the oil filter wrench [B].

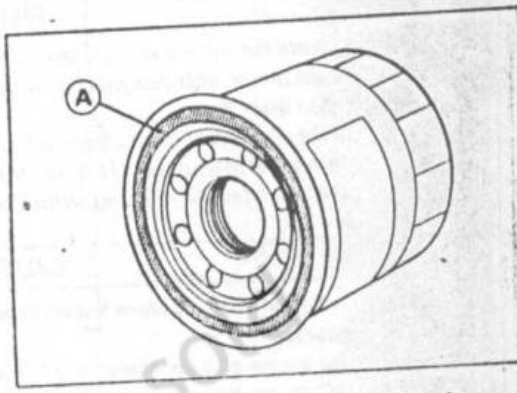
Special Tool – Oil Filter Wrench: 57001-1249



- Replace the filter with a new one.
- Apply engine oil to the gasket [A] before installation.
- Tighten the filter with the oil filter wrench or with hands about ¾ turns after the gasket contacts the mounting surface of the engine.

Torque – Oil Filter: 9.8 N-m (1.0 kg-m) or Hand-tight

- Pour in the specified type and amount of oil (see Engine Oil Change).



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Oil Pan

Oil Pan Removal

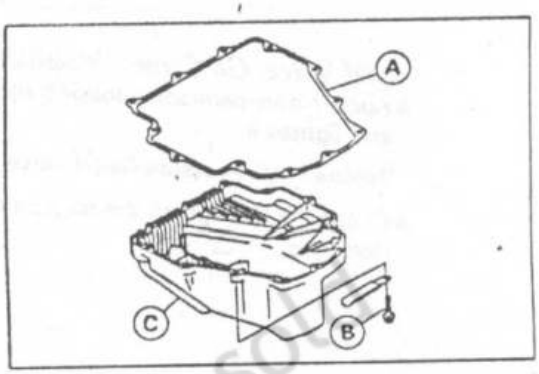
- Drain:
  - Engine Oil (see Engine Oil Change)
- Remove:
  - Muffler (see Engine Top End chapter)
  - Oil Pan Bolts
  - Oil Pan

Oil Pan Installation

- Replace the oil pan gasket [A] with a new one.
- Tighten the oil pan bolts [B].

Torque – Oil Pan Bolts: 11 N·m (1.1 kg-m)

[C] Oil Pan

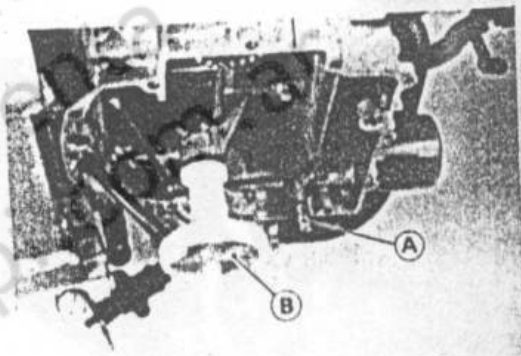


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Relief Valve, Oil Screen

Relief Valve, Oil Screen Removal

- Remove:
  Oil Pan (see Oil Pan Removal)
  Relief Valve [A]
  Oil Screen [B]
  Oil Pipe



Relief Valve, Oil Screen Installation

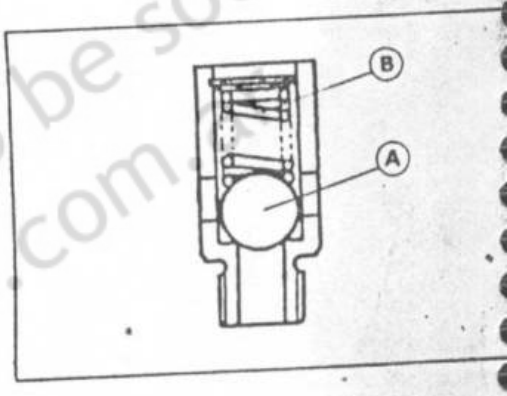
- Apply a non-permanent locking agent to the threads of the relief valve, and tighten it.

  Torque – Oil Pressure Relief Valve : 15 N-m (1.5 kg-m)

- Check the O-rings on the oil pipe and replace them with new ones if damaged.

Relief Valve Inspection

- Remove the relief valve.
- Check to see if the steel ball [A] inside the valve slides smoothly when pushing it in with a wooden or other soft rod, and see if it comes back to its seat by valve spring [B] pressure.



NOTE

○ *Inspect the valve in its assembled state. Disassembly and assembly may change the valve performance.*

★ If any rough spots are found during above inspection, wash the valve clean with a high-flash point solvent and blow out any foreign particles that may be in the valve with compressed air.

⚠WARNING

Clean the relief valve in a well-ventilated area, and take care that there is no spark or flame anywhere near the working area. Because of the danger of highly flammable liquids, do not use gasoline or low-flash point solvent.

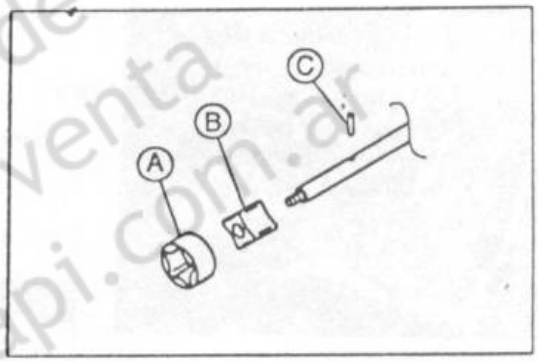
★ If cleaning does not solve the problem, replace the relief valve as an assembly. The relief valve is precision made with no allowance for replacement of individual parts.

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Oil Pump

Oil Pump Removal

- Drain:
  - Coolant (see Cooling System chapter)
  - Engine Oil (see Engine Oil Change)
- Remove:
  - Water Pump (see Cooling System chapter)
  - Outer Rotor [A]
  - Inner Rotor [B]
  - Rotor Pin [C]



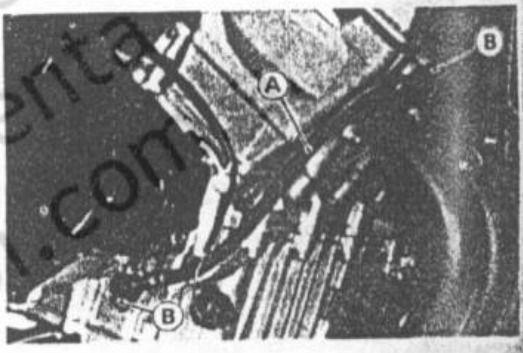
Oil Pump Installation

- Install:
  - Rotor Pin
  - Inner Rotor
  - Outer Rotor
  - Water Pump (see Cooling System chapter)

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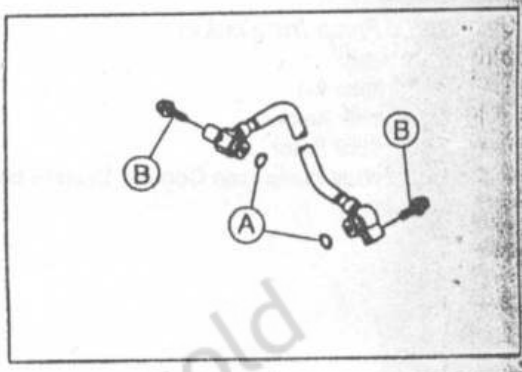
Oil Hose

Oil Hose Removal



- Remove:
  - Lower Fairing (see Frame chapter)
  - Engine Oil (drain)
  - Oil Hose Flange Bolts [B]
  - Oil Hose [A]

Oil Hose Installation



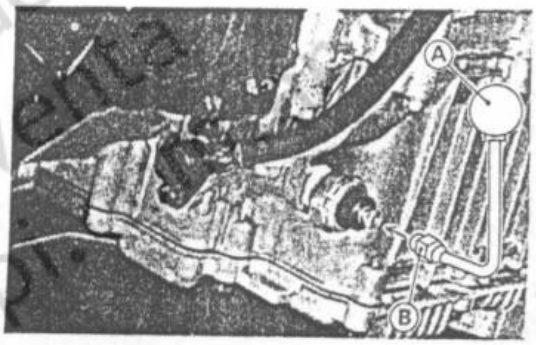
- Check the O-rings [A] and replace them with new ones if damaged.
- Apply engine oil to the O-rings, and tighten the flange bolts [B].

Torque – Oil Hose Flange Bolts : 11 N-m (1.1 kg-m)

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Oil Pressure Measurement

Oil Pressure Measurement



- Remove:
  Lower Fairing (see Frame chapter)
  Oil Pressure Switch
- Attach the oil pressure gauge [A] and adapter [B] to the oil pressure switch hole.

Special Tools – Oil Pressure Gauge, 10 kg/cm²: 57001-164
Oil Pressure Gauge Adapter, PT ⅛: 57001-1033

⚠WARNING

To prevent a fire, be sure to keep the oil pressure gauge hose away from the exhaust pipe.

- Start the engine and warm up the engine.
- Run the engine at the specified speed, and read the oil pressure gauge.

★If the oil pressure is much lower than the standard, check the oil pump, oil pump relief valve, and/or crankshaft bearing insert wear immediately.

★If the reading is much higher than the standard, check the oil passages for clogging.

Oil Pressure
Standard: 294 ~ 392 kPa (3.0 ~ 4.0 kg/cm², 43 ~ 57 psi @4000 r/min (rpm), oil temp. 90°C (194°F)

- Stop the engine.
- Remove the oil pressure gauge and adapter.

⚠WARNING

Take care against burns from hot engine oil that will drain through the oil passage when the plug is removed.

- Apply silicone sealant to the oil pressure switch, and tighten it.

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

Torque – Oil Pressure Switch: 15 N·m (1.5 kg-m)

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