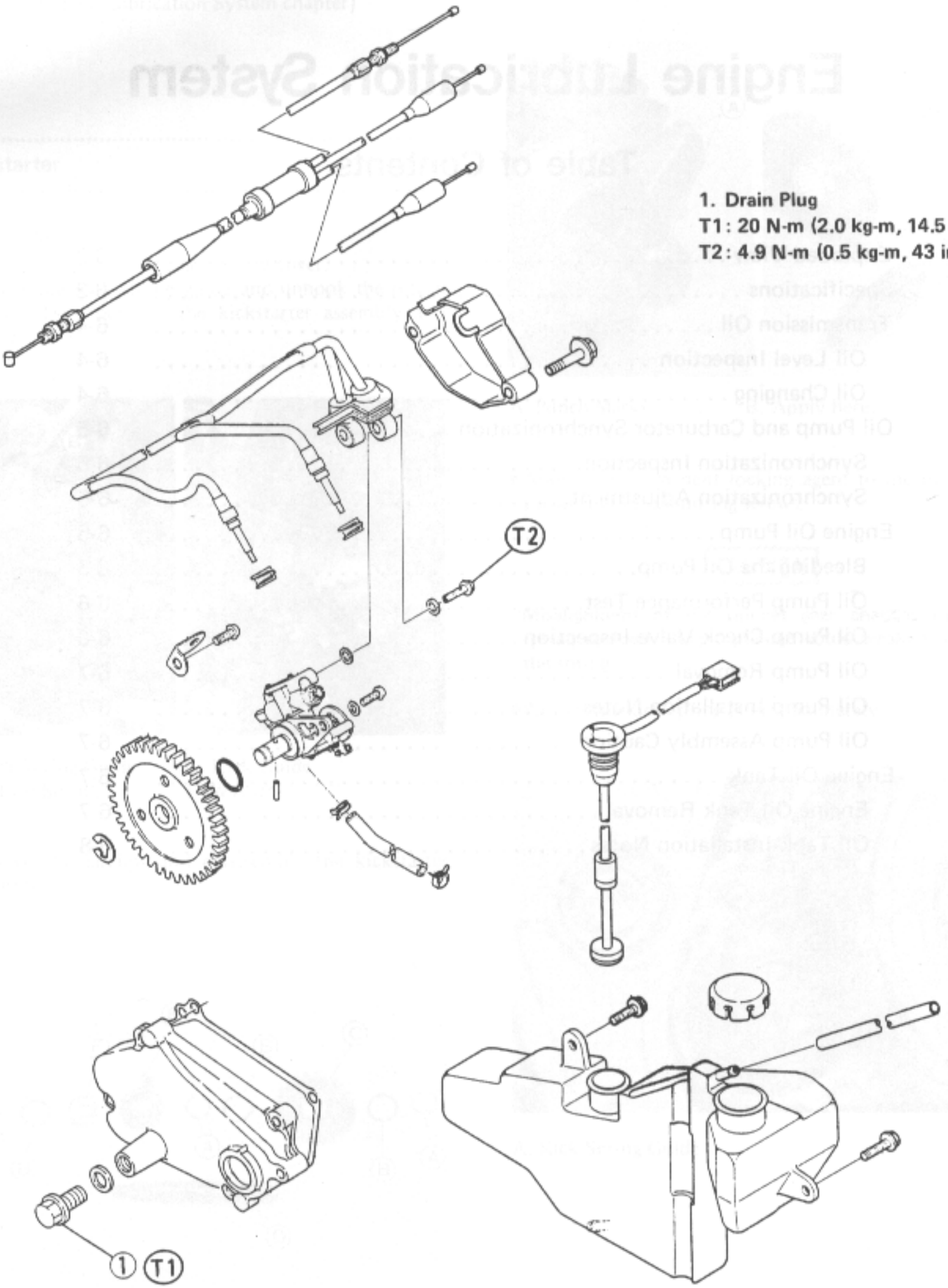
Engine Lubrication System

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Exploded View



1. Drain Plug
T1 : 20 N-m (2.0 kg-m, 14.5 ft-lb)
T2 : 4.9 N-m (0.5 kg-m, 43 in-lb)

Specifications

Item		Standard	Service Limit
Engine Lubrication System:			
Transmission oil:	Grade	SE class	
	Viscosity	SAE 10W30 or 10W40	
	Amount	0.85 L	
Engine oil pump:	Oil pump output @2,000 r/min (rpm), 3 min.	3.0 – 3.7 mL (per one outlet)	– – –

Transmission Oil

In order for the transmission and clutch to function properly, always maintain the transmission oil at the proper level and change the oil periodically.

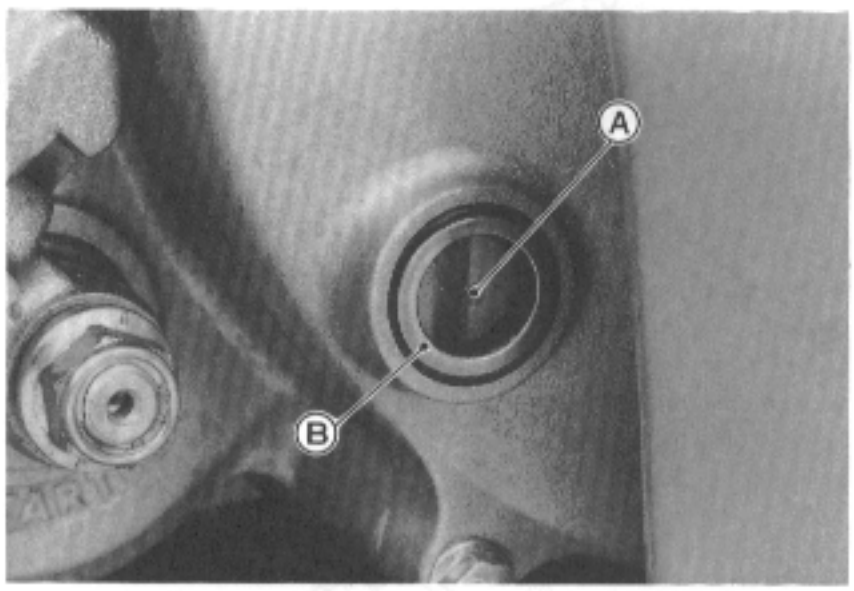
WARNING

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

Oil Level Inspection

- If the motorcycle has just been used, wait several minutes for all the oil to drain down.
- If the oil has been poured in since the motorcycle was last used, kick the engine over 3 or 4 times with the ignition switch left in the OFF position. This ensures that the oil "settle."
- Situate the motorcycle so that it is perpendicular to the ground.
- Check the oil level through the oil level gauge.

★The oil level should come up above the mark.



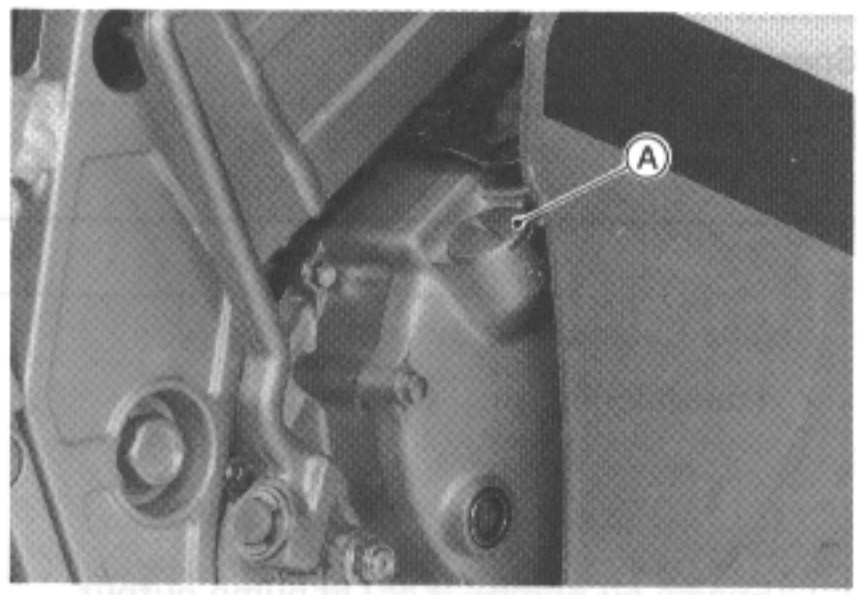
A. Mark B. Oil Level Gauge

★If the oil level is too high, remove the excess oil, using a syringe or some other suitable device.

★If the oil level is too low, add oil through the oil filler opening. Use the same type and brand of oil that is already in the engine.

NOTE

○*If the oil must be refilled but the type and brand of the oil that already is in the engine are unidentified, change the oil in the engine completely.*

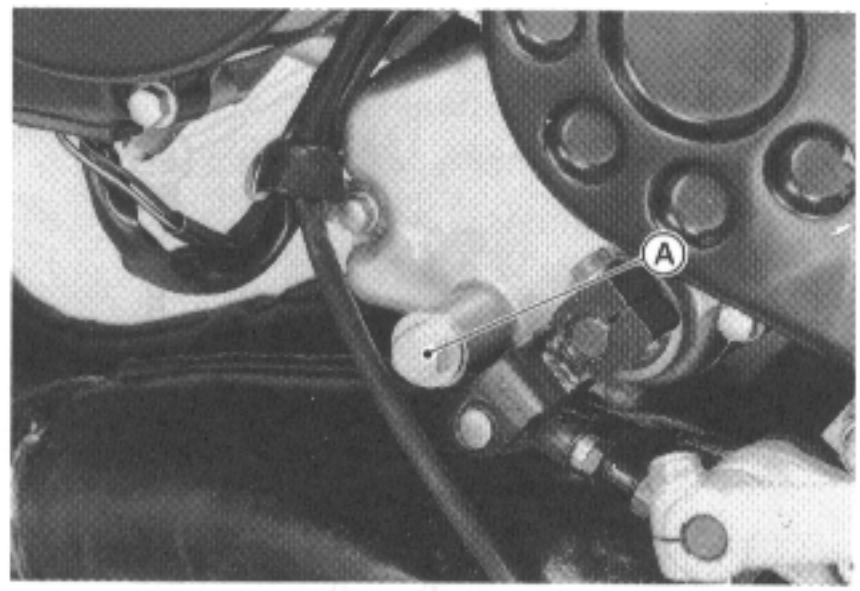


A. Oil Filler Opening Plug

- Install the oil filler opening plug.

Oil Changing

- Warm up the engine thoroughly so that the oil will pick up any sediment and drain easily. Then stop the engine.
- Place an oil pan beneath the engine.
- Remove the transmission drain plug.



A. Transmission Oil Drain Plug

- With the motorcycle perpendicular to the ground, let the oil completely drain.
- After the oil has completely drained, install the drain plug with its gasket.

NOTE

○*Replace the damaged gasket with a new one.*

- Fill the engine up to the proper level with a transmission oil specified in the table.
- Check the oil level.

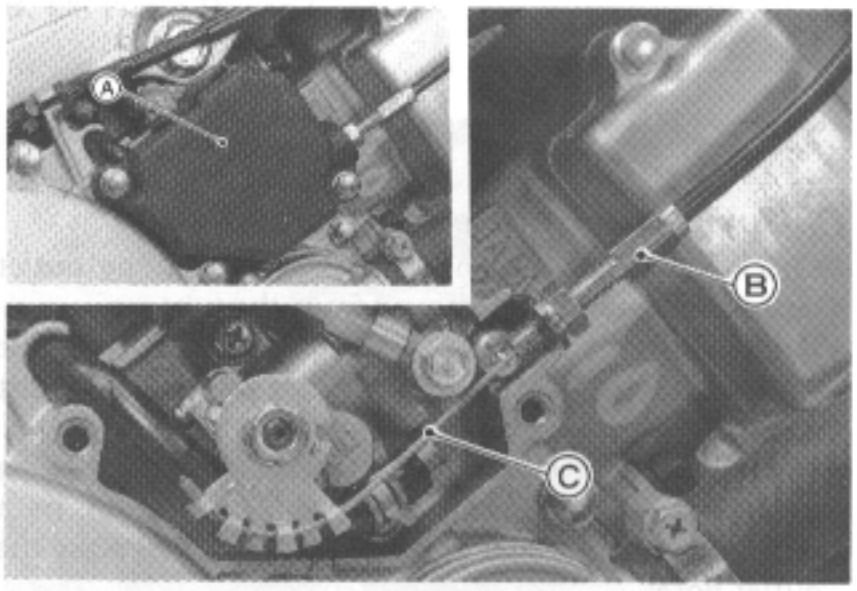
Transmission Oil

Grade:	**SE class**
Viscosity:	**SAE 10W30 or 10W40**
Capacity:	**0.85 L**

Oil Pump and Carburetor Synchronization

Synchronization Inspection

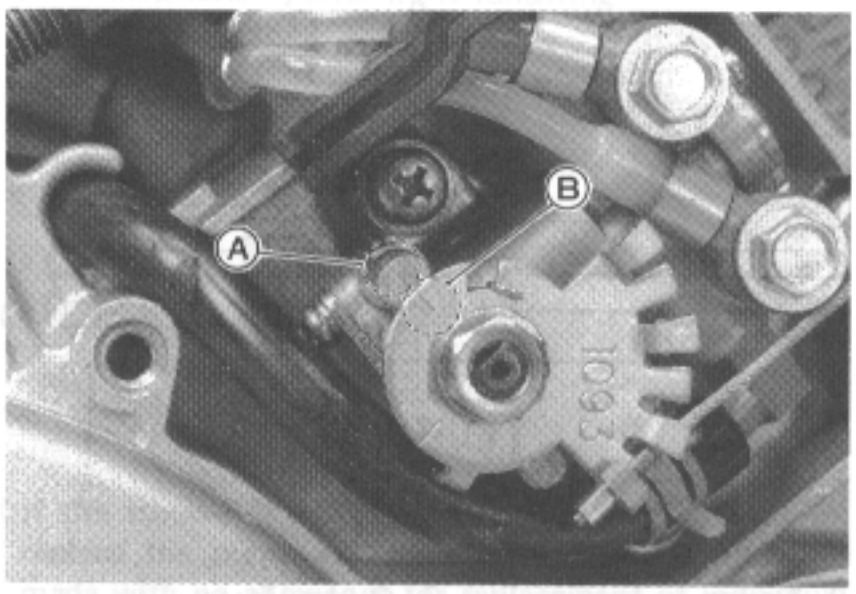
- Check the throttle grip play (see Fuel System chapter).
- Remove the fairings.
- Remove the oil pump cover.
- Check to see that the outer cable end of the oil pump is fully seated in the cable adjuster.



A. Oil Pump Cover
B. Outer Housing
C. Inner Cable

- Make sure the tab on the oil pump lever is bent to hold the oil pump inner cable securely.
- Turn the throttle grip fully, and check to see if the synchronization mark on the pump lever aligns with the mark on the lever stopper.

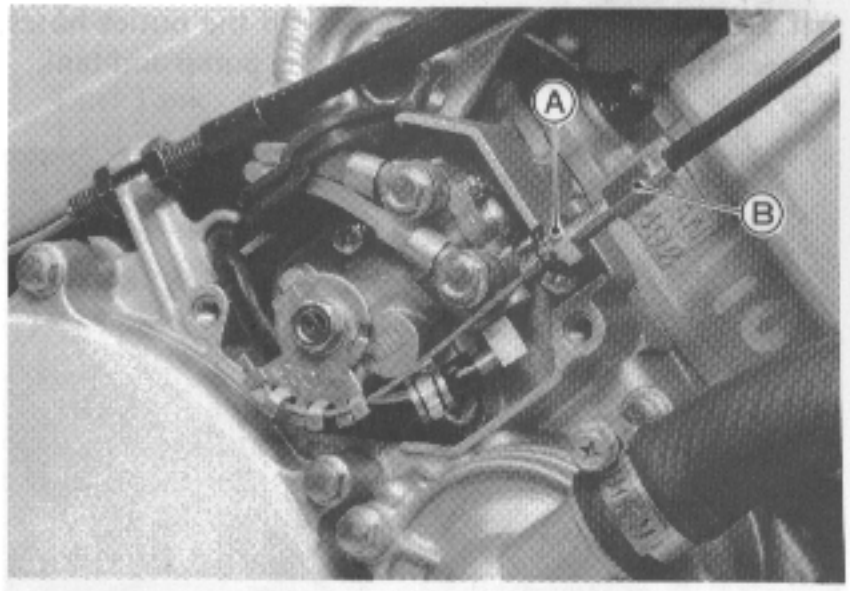
★If they do not line up, adjust the oil pump cable.



A. Mark on Stopper
B. Mark on Pump Lever

Synchronization Adjustment

- Loosen the oil pump cable adjuster locknut, and turn the adjuster to synchronize the pump with the carburetor.



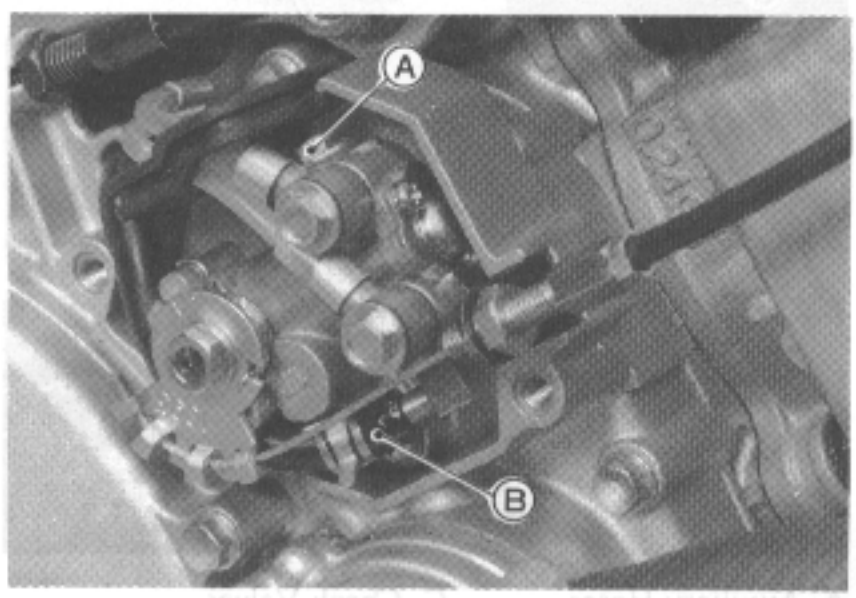
A. Locknut
B. Cable Adjuster

- Tighten the locknut, and check the pump synchronization. Re-adjust if necessary.
- Install the oil pump cover.

Engine Oil Pump

Bleeding the Oil Pump

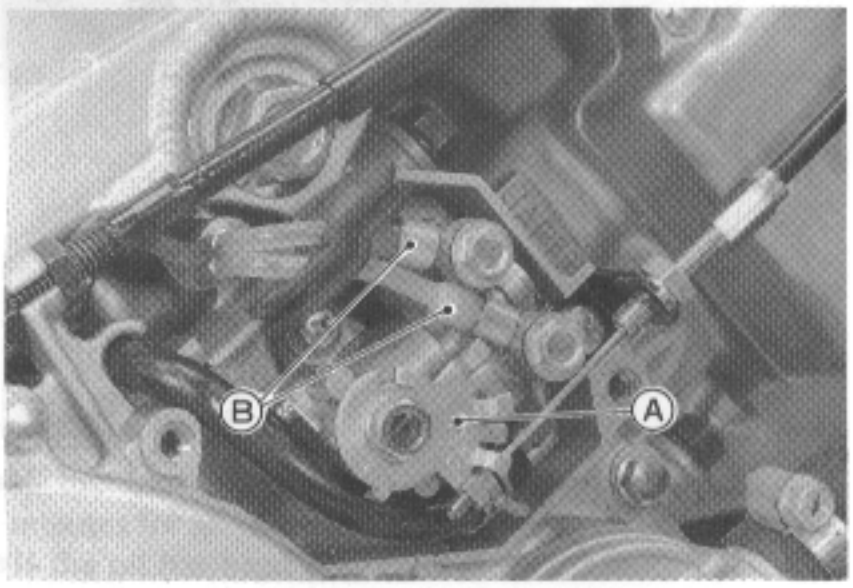
- First check that there is plenty of engine oil in the oil tank.
- Remove the oil pump cover.
- Bleed the air from the oil pump inlet hose and oil pump body by backing out the bleeder bolt on the oil pump body a couple of turns. Leave it until the oil flows out of the bleeder bolt, and tighten the bolt securely.



A. Bleeder Bolt
B. Inlet Hose

- Bleed the air from the outlet hoses with the engine idling (below **2,000 rpm**), and with the oil pump lever opened fully to maximize the pump output by pulling the oil pump cable outer tube.
- Keep the engine idling until the air is completely pumped out.

★If air bubbles continue to appear in the outlet hoses, check the oil hose connections at the pump and tank.



A. Oil Pump Lever. opened fully. B. Outlet Hose

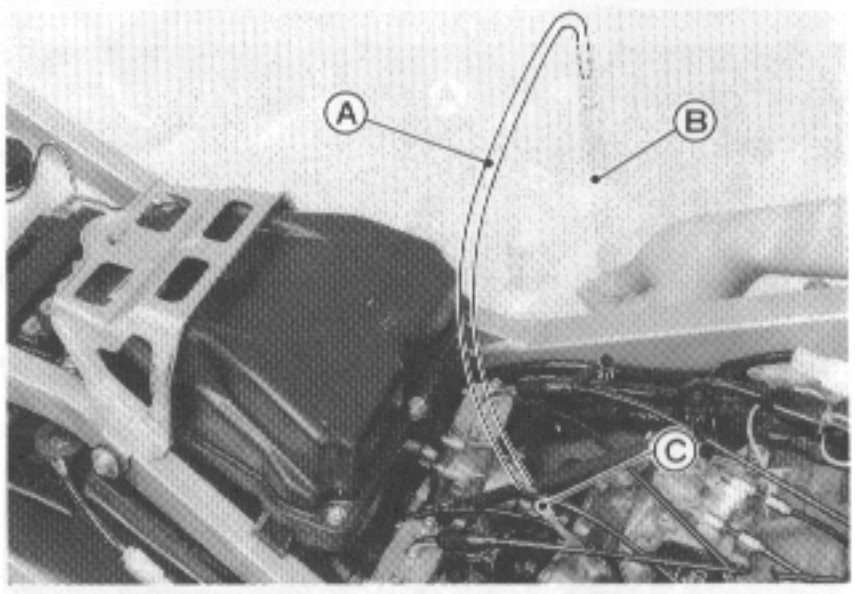
Oil Pump Performance Test

CAUTION

○**Use a 30:1 mixture of gasoline to oil in the fuel tank or the optional fuel tank in place of the gasoline normally used.**

○**Make sure the work area is well ventilated.**

- Remove the oil pump cover.
- Remove the oil pump outlet hoses from the carburetor holders. Fit the holes with suitable bolts instead of the outlet hoses.
- Using the auxiliary hoses, lead the pump output into containers.



A. Auxiliary Hoses
B. Containers
C. Check Valves

- Start the engine, and keep it at **2,000 rpm**.
- Opening the oil pump lever fully, collect the oil that is, being pumped for **3 minutes**. If the each quantity of oil collected corresponds with the table, the oil pump is operating properly.

Oil Pump Output

Standard:	**3.0 – 3.7 mL per one outlet hose**

†3 minutes measurement at 2,000 rpm of engine speed, oil pump lever fully opened.

★If the oil pump output is subnormal, inspect the oil pump, the inlet and outlet tubes for oil leaks.

★If any oil leaks is not found, replace the oil pump.

Oil Pump Check Valve Inspection

○Check valves are assembled at the end of the outlet hoses and can not be removed from the tube.

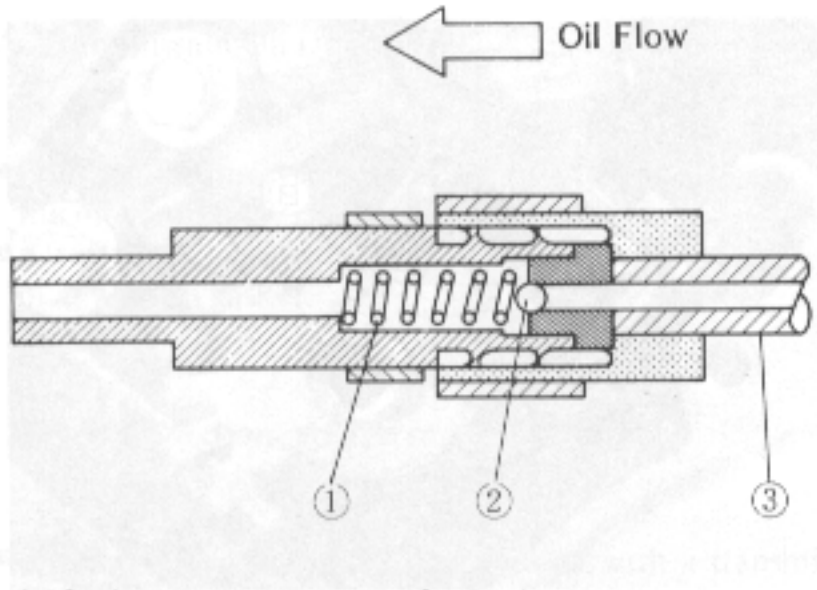
★If oil will not pass through the check valve, clean the valve out by using a high flash point solvent in a squirt gun or syringe.

★If the check valve does not work properly after being cleaned out, whether allowing oil to pass in both directions or not allowing oil to pass at all, replace the outlet hoses.

CAUTION

○**Do not use compressed air on the valve since doing so would damage the valve spring.**

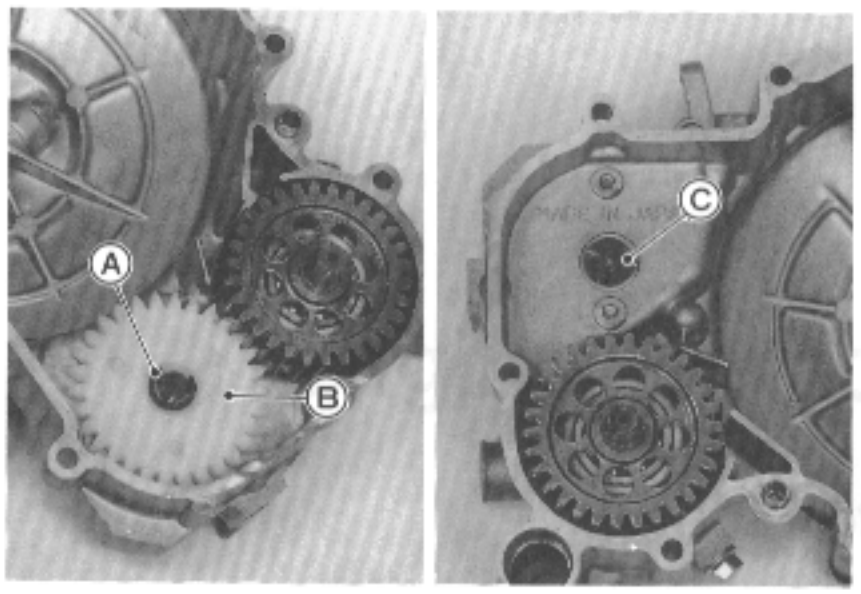
Check Valve



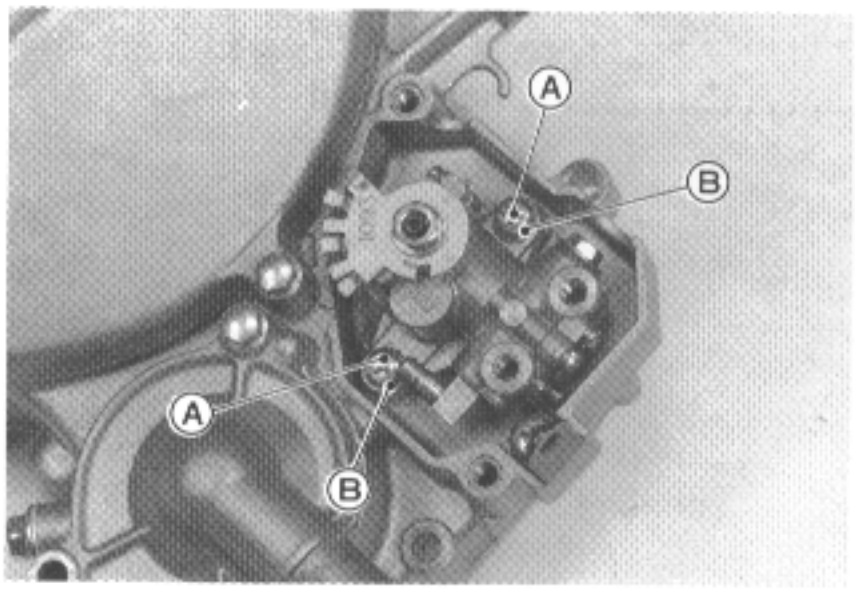
1. Spring
2. Steel Ball
3. Outlet Hose

Oil Pump Removal

● Remove the engine right cover (see Engine Right Side chapter) and remove the following.



A. E-ring
B. Oil Pump Driven Gear
C. Pin



A. Mounting Screws
B. Washers

Oil Pump Installation Notes

● After installation perform the following.
Oil Pump Bleeding
Oil Pump and Carburetor Synchronization

Oil Pump Assembly Caution

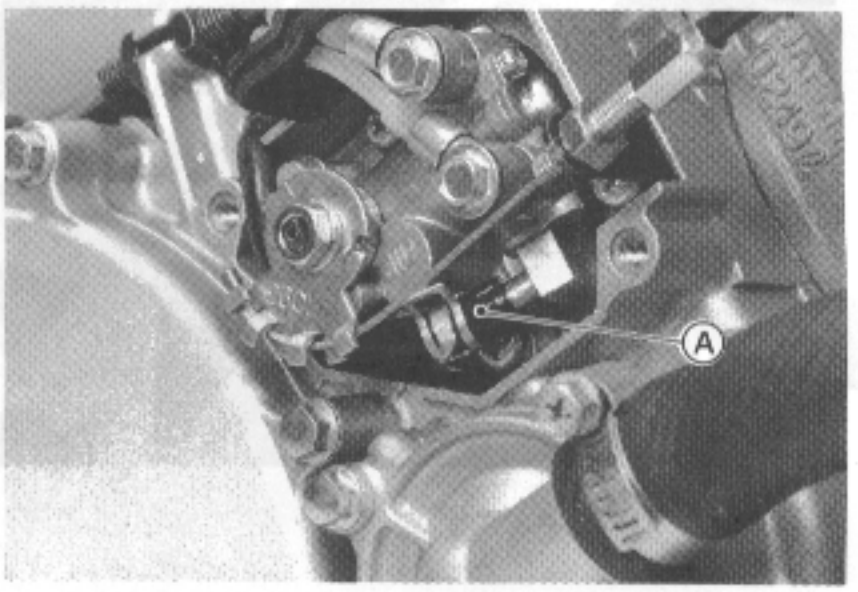
CAUTION

○ **If the trouble is with internal parts of the oil pump, replace the pump as a unit. The pump is precision made with no allowance for replacement of individual parts.**

Engine Oil Tank

Engine Oil Tank Removal

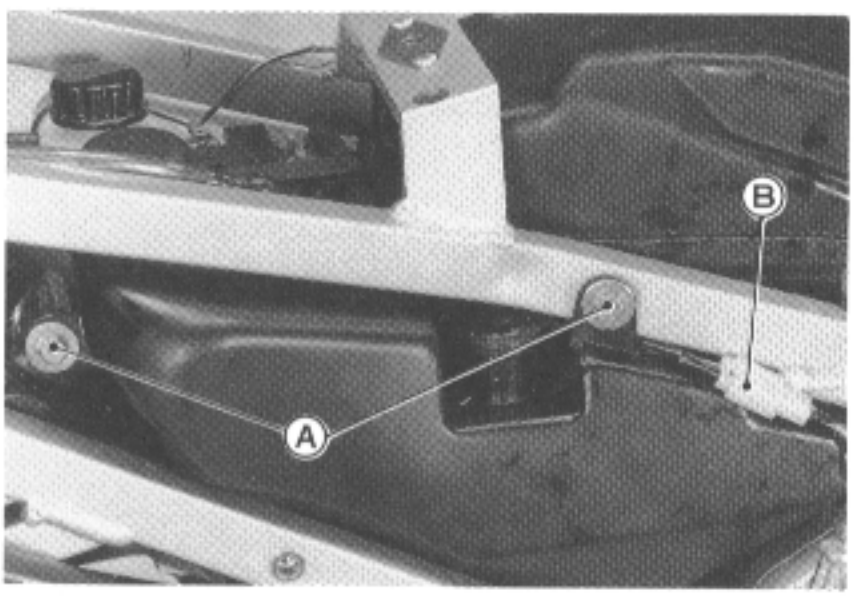
● Remove the following.
Seat
Side Covers
Fuel Tank
Fairings
Carburetor (see Fuel System chapter)
Air Cleaner Housing (see Fuel System chapter)
Oil Pump Cover



A. Oil Pump Inlet Hose End

NOTE

○ *When disconnecting the inlet hose, screw a suitable bolt into the oil pump inlet hose to keep the oil from flowing out. Then keep the end of the hose upward.*



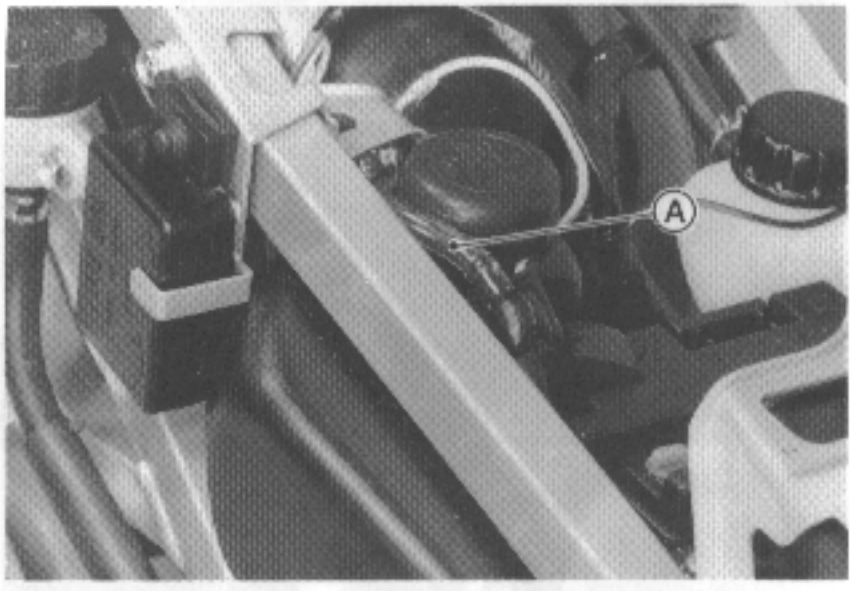
A. Mounting Bolts
B. Oil Level Warning Light Lead Connector

● Remove the engine oil tank.

Oil Tank Installation Notes

CAUTION

○**Always keep the oil tank breather tube free of obstruction, and make sure it does not get pinched, crimped, bent sharply, or melted by the exhaust pipe. If the breather is obstructed, engine oil flow to the oil pump will be hindered and serious engine damage will occur.**



A. Breather Tube

★If any air has gotten trapped in the oil pump inlet hose, bleed the oil pump (see Oil Pump Bleeding).

CAUTION

○**To avoid serious engine damage, air in the oil pump line must be removed by bleeding.**