4. LUBRICATION

SERVICE INFORMATION

GENERAL

⚠ WARNING

- *Used engine oil may cause skin cancer if repeatedly left in contact with the skin for prolonged periods. Although this is unlikely unless you handle used oil on a daily basis, it is still advisable to throughly wash your hands with soap and water as soon as possible after handling used oil.*

SPECIFICATIONS

ITEM		SPECIFICATIONS	SERVICE LIMIT
Engine oil capacity	at draining	1.3 liter (1.37 US qt, 1.14 Imp qt)	———
	at disassembly	1.7 liter (1.79 US qt, 1.50 Imp qt)	———
	at oil filter change	1.4 liter (1.47 US qt, 1.23 Imp qt)	———
Recommended engine oil		API service Classification: SF or SG Viscosity: SAE 10W – 40 or 20W – 50	———
Oil pump rotor	Tip clearance	0.15 mm (0.006 in)	0.20 mm (0.008 in)
	Body clearance	0.15 – 0.22 mm (0.006 – 0.009 in)	0.25 mm (0.010 in)
	End clearance	0.02 – 0.09 mm (0.001 – 0.004 in)	0.12 mm (0.005 in)

TORQUE VALUES

Crankcase oil drain bolt	25 N·m (2.5 kgf·m, 18 lbf·ft)
Down tube oil drain bolt	39 N·m (4.0 kgf·m, 29 lbf·ft)
Down tube oil strainer	54 N·m (5.5 kgf·m, 40 lbf·ft)
Oil pipe bolt (12 mm)	37 N·m (3.8 kgf·m, 27 lbf·ft)
Oil pass pipe joint bolt (7 mm)	12 N·m (1.2 kgf·m, 9 lbf·ft)
(8 mm)	12 N·m (1.2 kgf·m, 9 lbf·ft)

TROUBLESHOOTING

Engine oil level too low – high oil consumption
- External oil leaks
- Worn piston rings
- Oil not changed often enough
- Faulty head gasket

Engine oil contamination
- Oil not changed often enough
- Head gasket faulty
- Worn piston rings

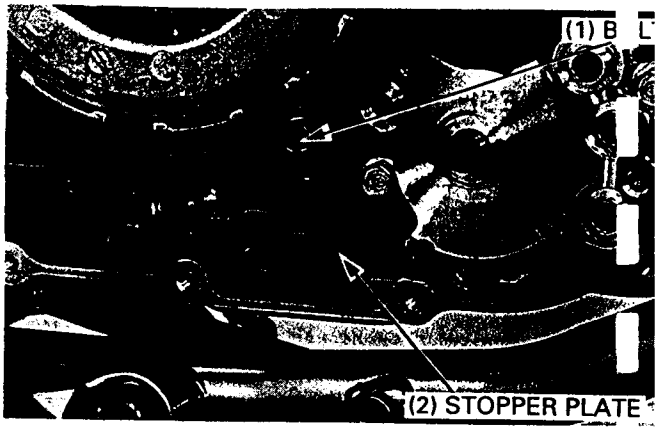
Colino, Filtro

OIL STRAINER SCREEN CLEANING

At inside of right crankcase cover
Remove the right crankcase cover (page 9-3).

Remove the oil pump driven gear and O-ring (page 4-3).

Remove the bolt and stopper plate.



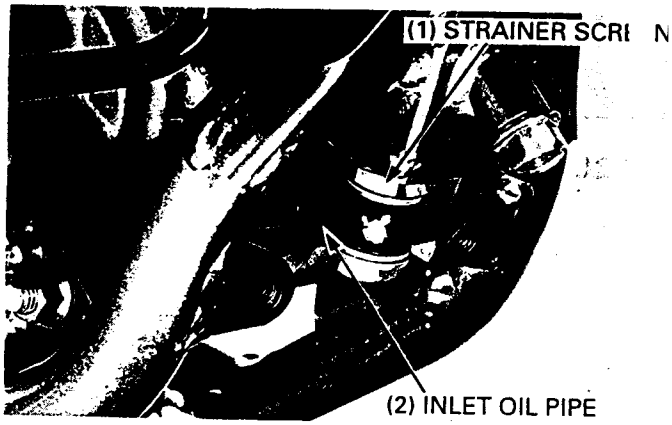
Remove the oil strainer screen and clean it.
Install the oil strainer screen.

Install the right crankcase cover.

At inside of down tube
NOTE

- Always clean the strainer screen at inside of down tube before adding engine oil.

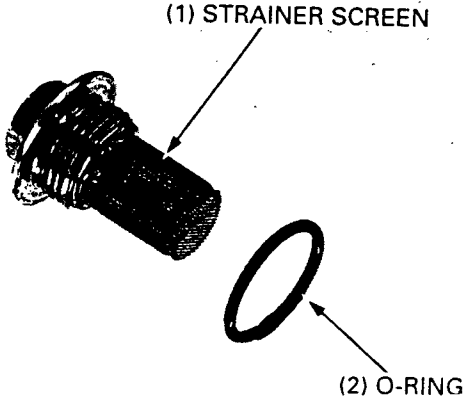
Remove the inlet oil pipe (page 4-9).
Remove the oil strainer screen and clean it.



Check the O-ring for damage, and replace if necessary.
Install the oil strainer screen and tighten it to the specified torque.

TORQUE: 54 N·m (5.5 kgf·m, 40 lbf·ft)

Install the oil inlet pipe (page 4-11).

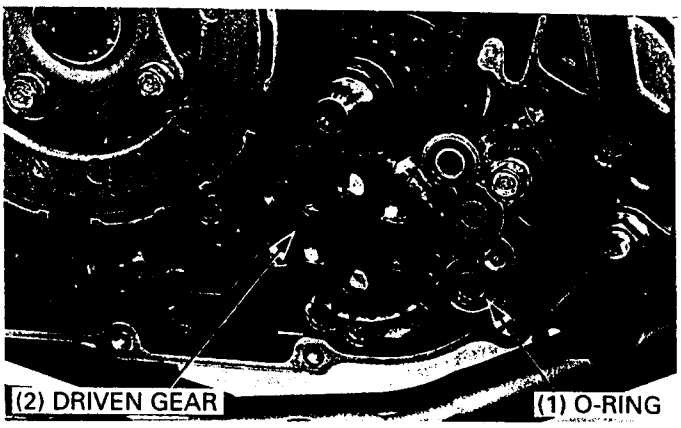


OIL PUMP

REMOVAL

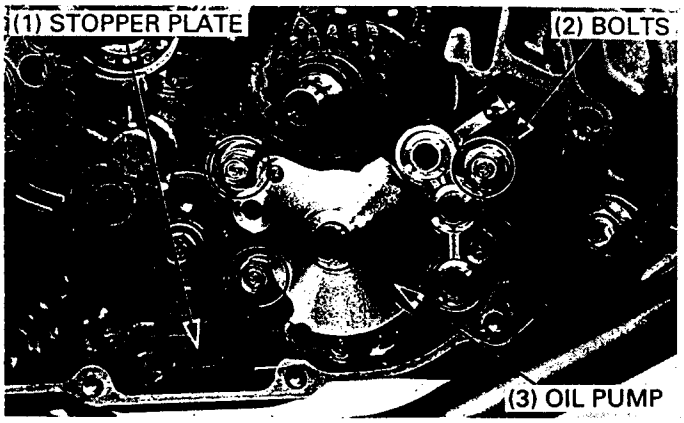
Remove the right crankcase cover (page 9-3).

Remove the O-ring.
Remove the oil pump driven gear.

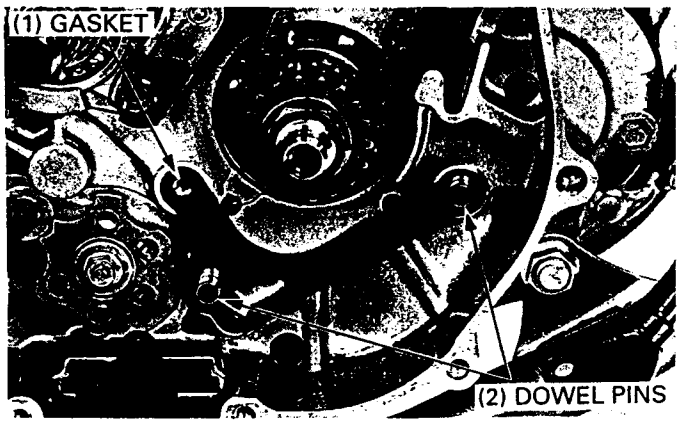


Remove the clutch (page 9-5).

Remove the oil pump bolts.
Remove the stopper plate and oil pump.

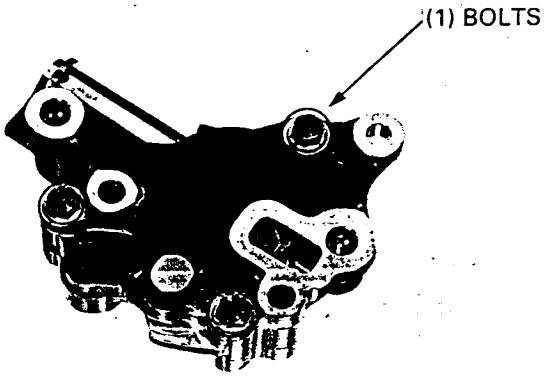


Remove the gasket and dowel pins.



DISASSEMBLY

Remove the bolts.



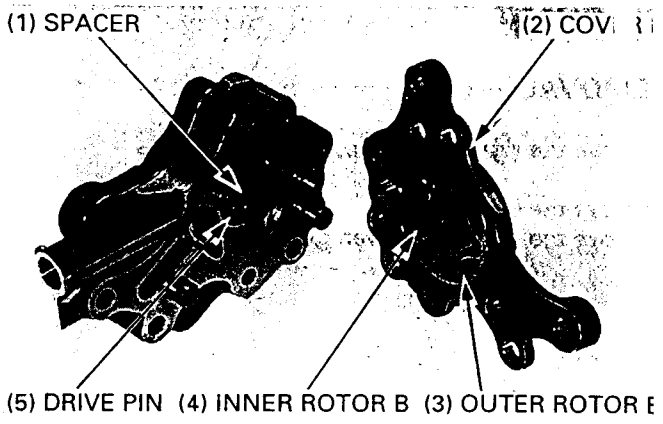
LUBRICATION

Remove the following:

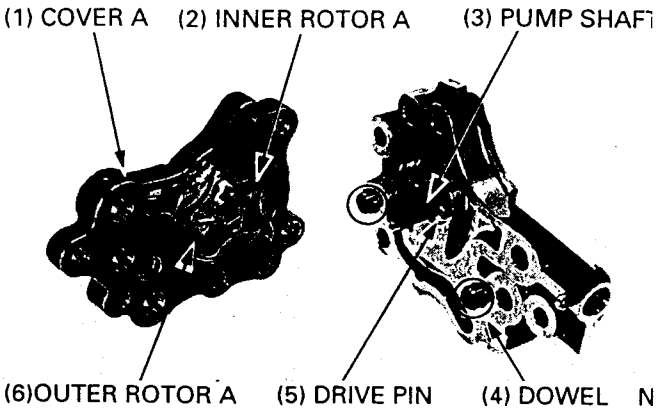
NOTE

- Note the location of all parts during disassembly so you can reinstall the parts in their same positions.

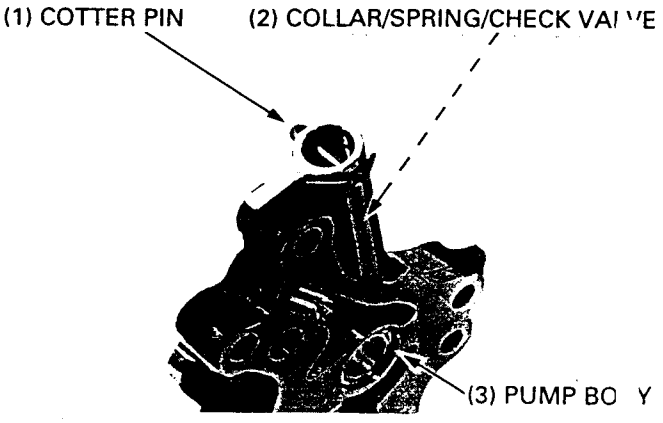
— Pump cover B
— Drive pin
— Spacer
— Outer rotor B
— Inner rotor B



— Pump cover A
— Outer rotor A
— Inner rotor A
— Drive pin
— Dowel pins
— Pump shaft



— Cotter pin
— Collar
— Spring
— Oil check valve
— Pump body



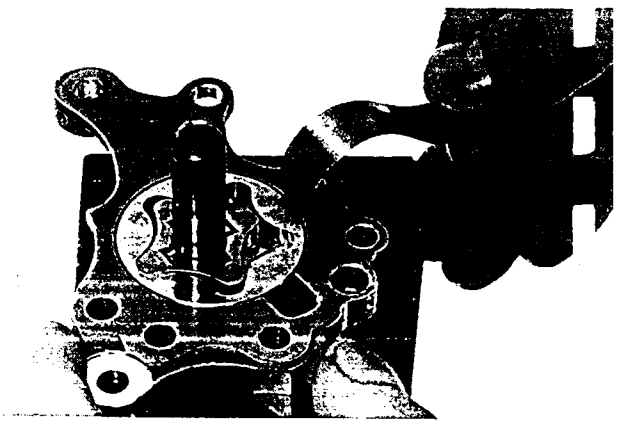
INSPECTION

NOTE

- Measure at several places and use the largest reading to compare to the service limit.
- If any portion of the oil pump is worn beyond the specified service limits, replace the oil pump as an assembly.

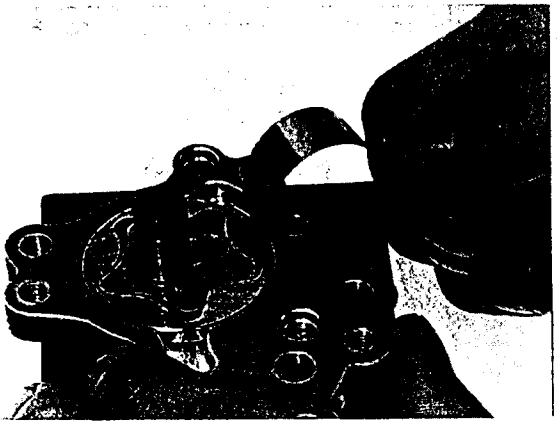
Pump A
Install the inner rotor A and outer rotor A into the pump cover A.
Install the pump shaft securely.
Measure the body clearance.

SERVICE LIMIT: 0.25 mm (0.010 in)



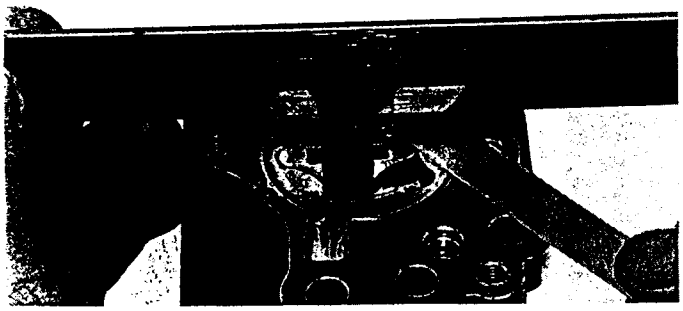
Install the inner rotor A and outer rotor A into the pump cover A.
Install the pump shaft securely.
Measure the tip clearance.

SERVICE LIMIT: 0.20 mm (0.008 in)



Install the inner rotor A and outer rotor A into the pump cover A.
Install the pump shaft securely.
Measure the end clearance.

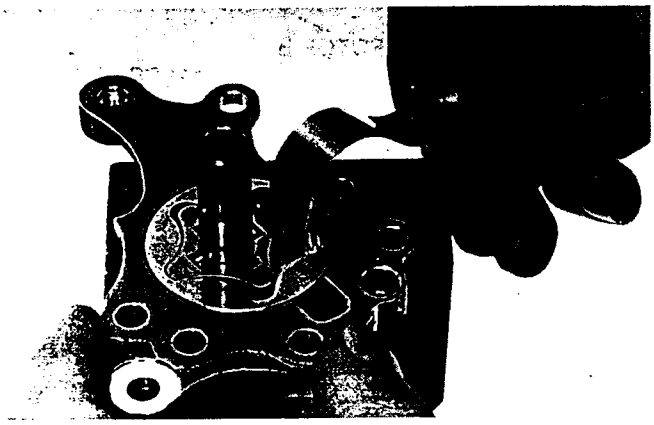
SERVICE LIMIT: 0.12 mm (0.005 in)



Pump B

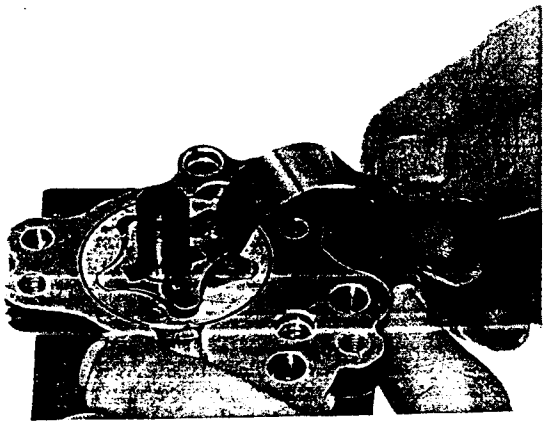
Install the inner rotor B and outer rotor B into the pump cover B.
Install the pump shaft securely.
Measure the body clearance.

SERVICE LIMIT: 0.25 mm (0.010 in)



Install the inner rotor B and outer rotor B into the pump cover B.
Install the pump shaft securely.
Measure the tip clearance.

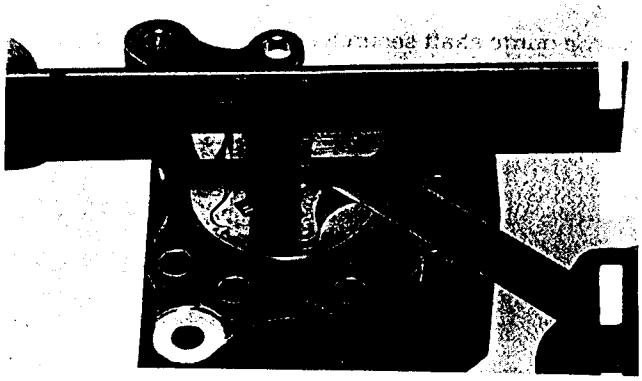
SERVICE LIMIT: 0.20 mm (0.008 in)



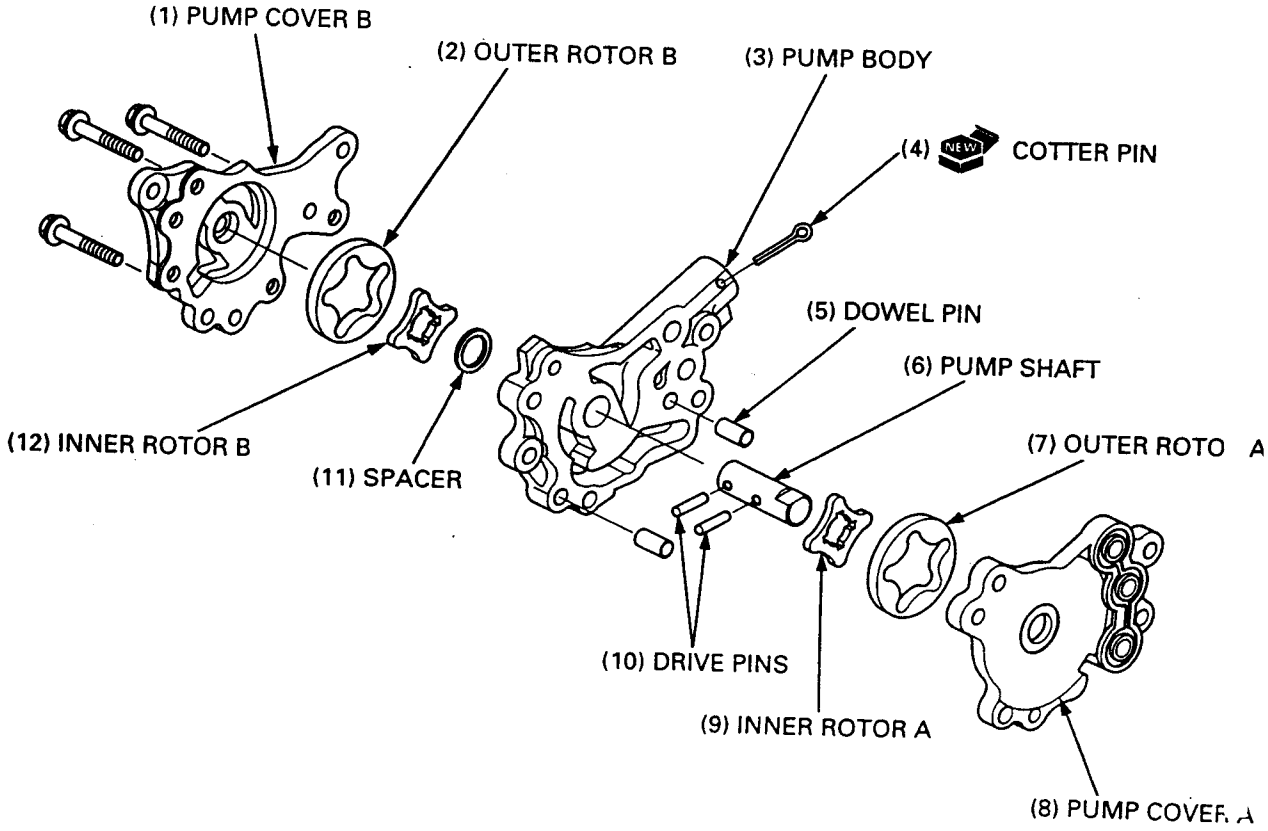
LUBRICATION

Install the inner rotor B and outer rotor B into the pump cover B.
Install the pump shaft securely.
Measure the end clearance.

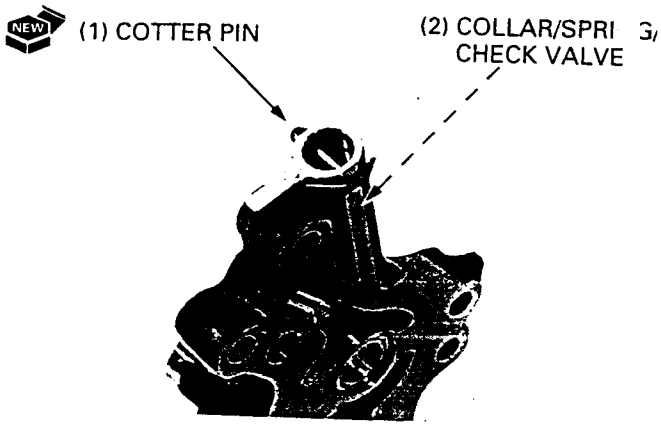
SERVICE LIMIT: 0.12 mm (0.005 in)



ASSEMBLY



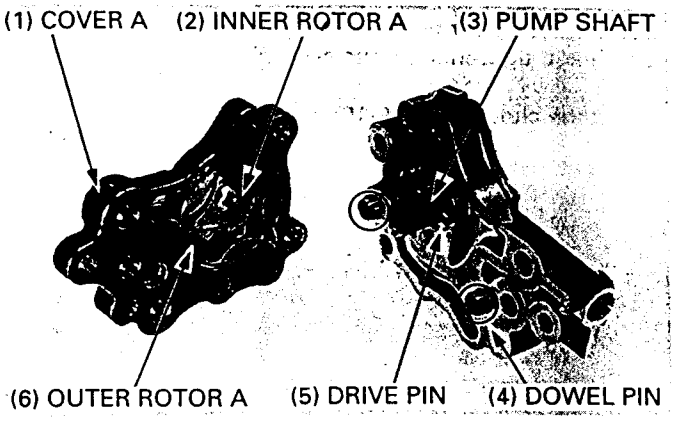
Install the following to the pump body.
— Oil check valve
— Spring
— Collar
— New cotter pin



Install the following. Reinstall the parts in the same positions they were in.
— Pump shaft

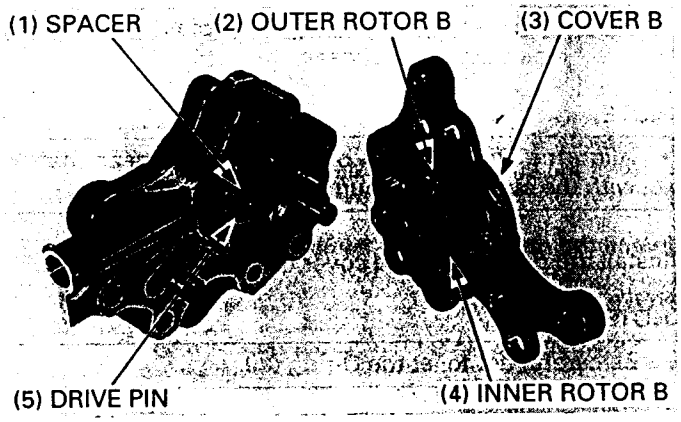
NOTE

- Install the pump shaft with the cutout side toward pump cover A.

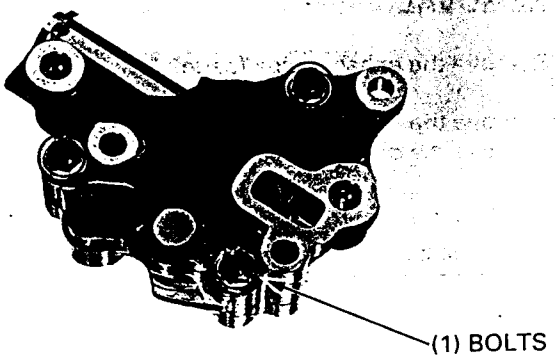


— Dowel pins
— Drive pin
— Inner rotor A
— Outer rotor A

— Inner rotor B
— Outer rotor B
— Spacer
— Drive pin
— Pump cover B

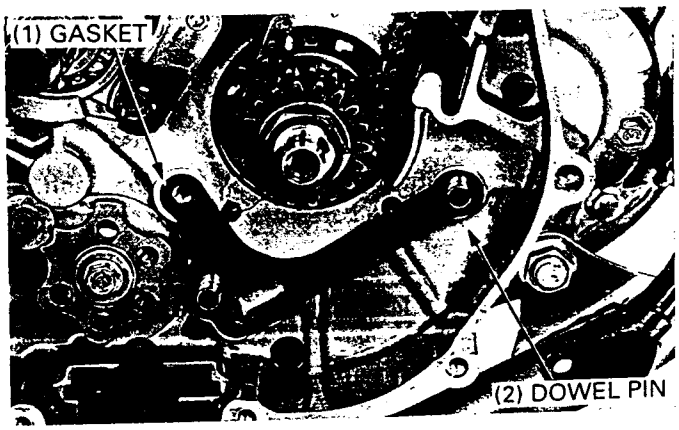


Tighten the bolts securely.



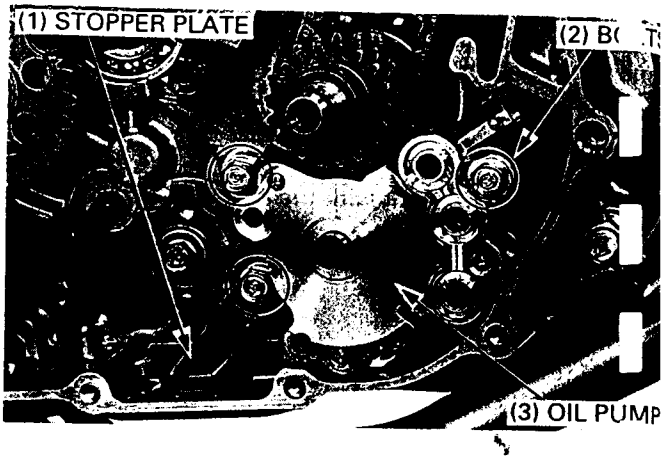
INSTALLATION

Install the gasket and dowel pins.



Install the stopper plate and oil pump.
Install and tighten the bolts securely.

Install the clutch (page 9-10).



Apply engine oil to a new O-ring and install it.
Install the oil pump driven gear.

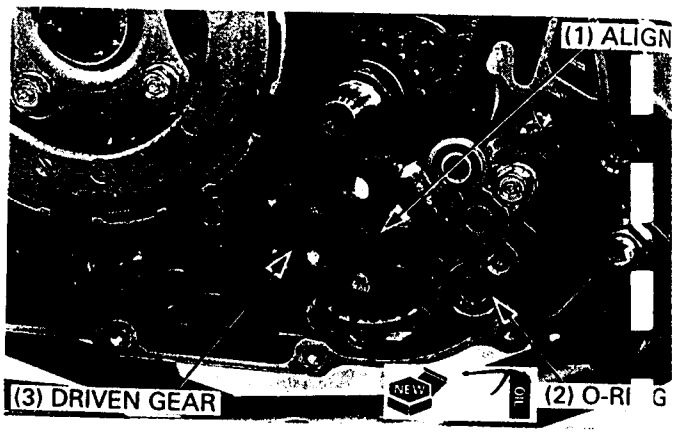
NOTE

- Align the cutout of the oil pump driven gear shaft hole with the cutout of the pump shaft.

Install the right crankcase cover (page 9-17).

NOTE

- Be careful not to let the O-ring fall.



OIL PASS PIPE

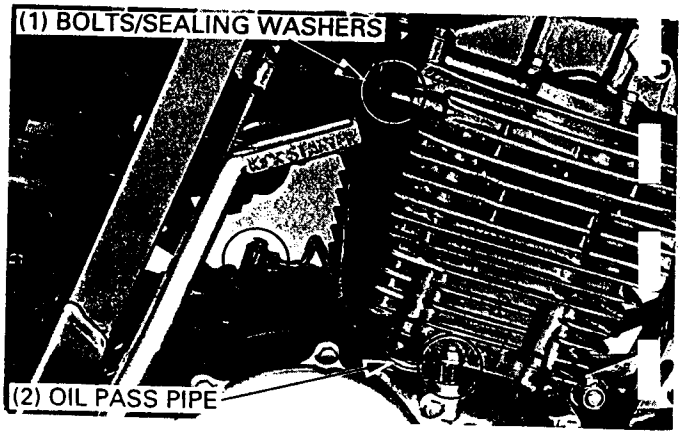
REMOVAL

Remove the exhaust pipe (page2-3).

Remove the oil pass pipe bolts and sealing washers.
Remove the oil pass pipe.

NOTE

- Do not bend the oil pass pipe.



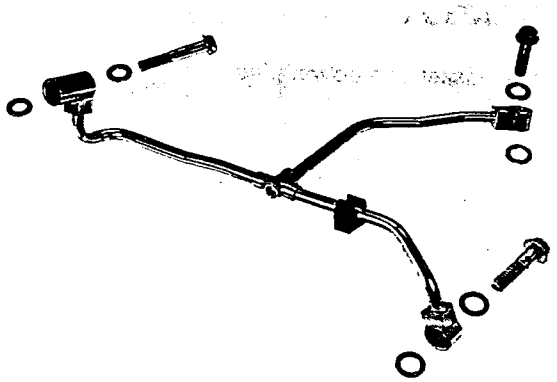
INSPECTION

Check the oil pass pipe and pipe bolts for damage or bends and replace if necessary.

If clogged, clean with non-flammable or high flash point solvent.

⚠ WARNING

- *Never use gasoline or low flash point solvents for cleaning the oil pass pipe. A fire or explosion could result.*

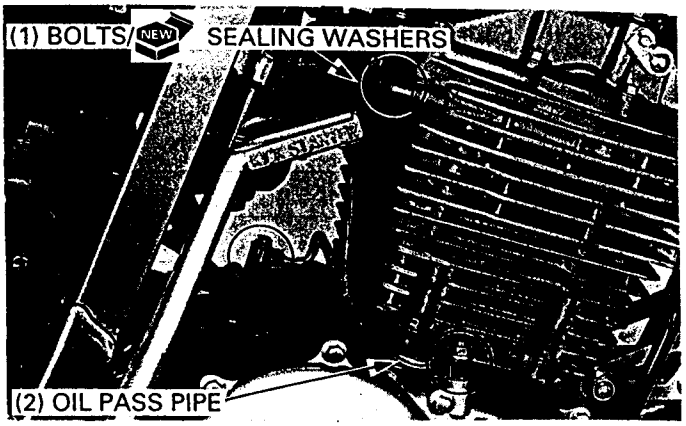


NSTALLATION

Install the oil pass pipe.
nstall new sealing washers and the oil pass pipe bolts.
ighten the bolts to the specified torque.

ORQUE: 12 N·m (1.2 kgf·m, 9 lbf·ft)

nstall the exhaust pipe (page 2-4).



OIL PIPES

EMOVAL

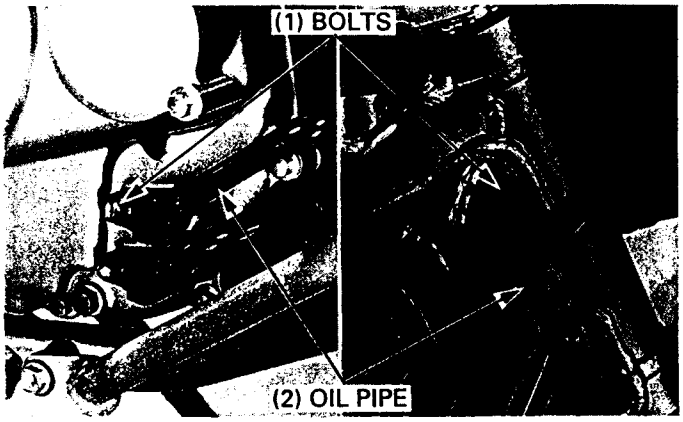
Outlet pipe

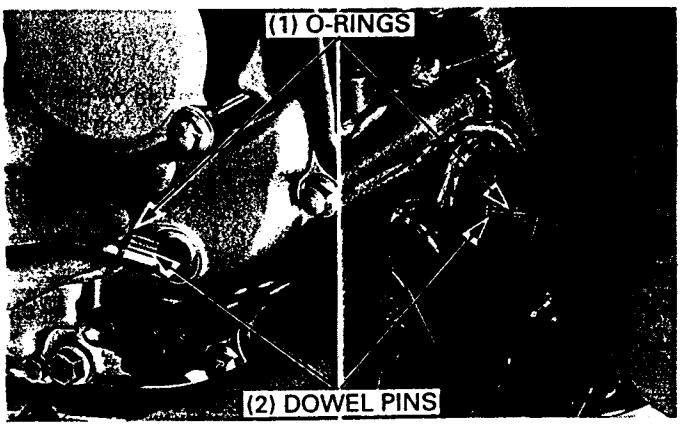
emove the oil outlet pipe bolts and oil pass pipe.

NOTE

- Do not bend the oil outlet pipe.

emove the dowel pins and O-rings.





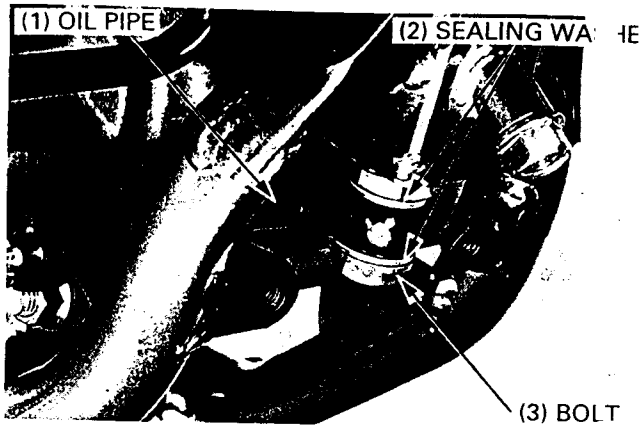
Inlet pipe
Remove the under guard (page 2-3).

Remove the oil inlet pipe bolt at the engine.

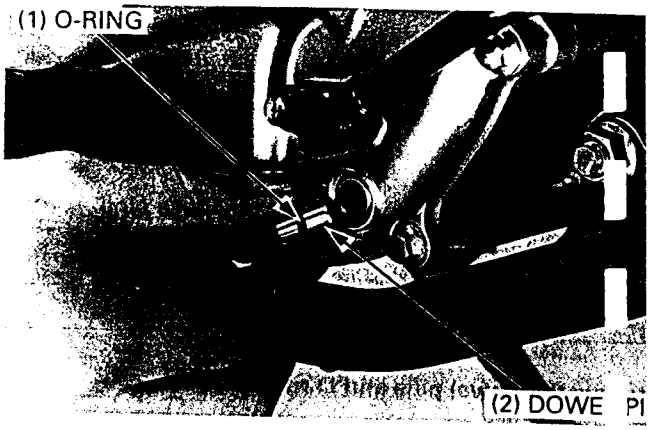
Remove the oil inlet pipe bolt and sealing washers at the frame.
Remove the oil inlet pipe.

NOTE

- Do not bend the oil inlet pipe.



Remove the dowel pin and O-ring.



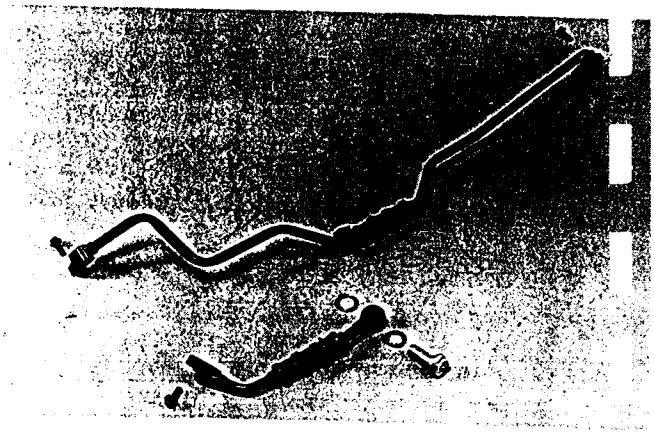
INSPECTION

Check the oil pipe and pipe bolts for damage or bends and replace if necessary.

If clogged, clean with non-flammable or high flash point solvent.

⚠ WARNING

- ***Never use gasoline or low flash point solvents for cleaning the oil pass pipe. A fire or explosion could result.***



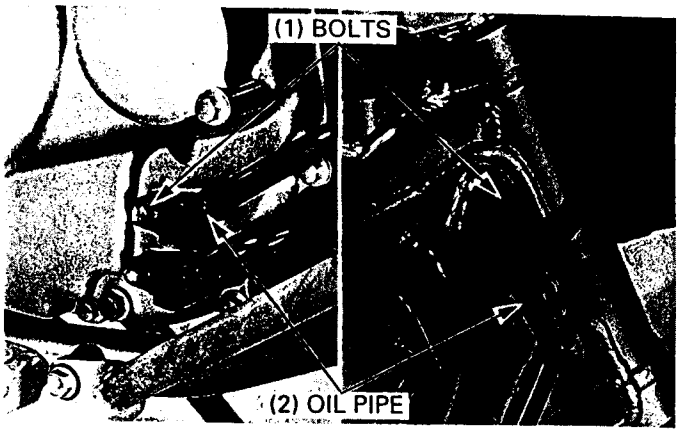
INSTALLATION

Outlet pipe
install the dowel pins and new O-rings.

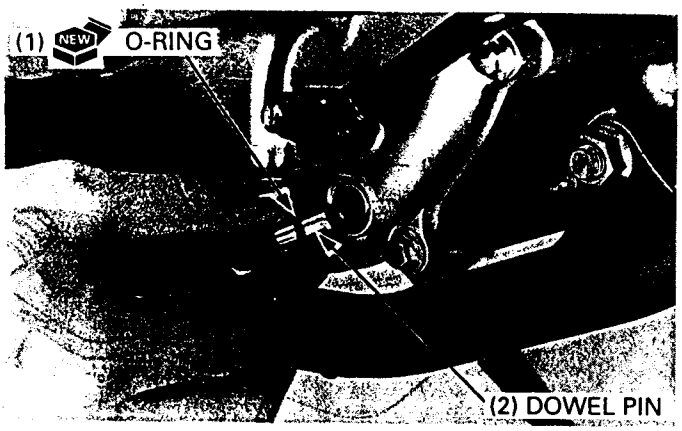
Install the oil outlet pipe and oil pipe bolts.
Tighten the bolts securely.

NOTE

- Do not bend the oil outlet pipe.



Inlet pipe
Install the dowel pin and a new O-ring.



Install the oil inlet pipe, new sealing washers and oil pipe bolts.
Tighten both bolts securely.

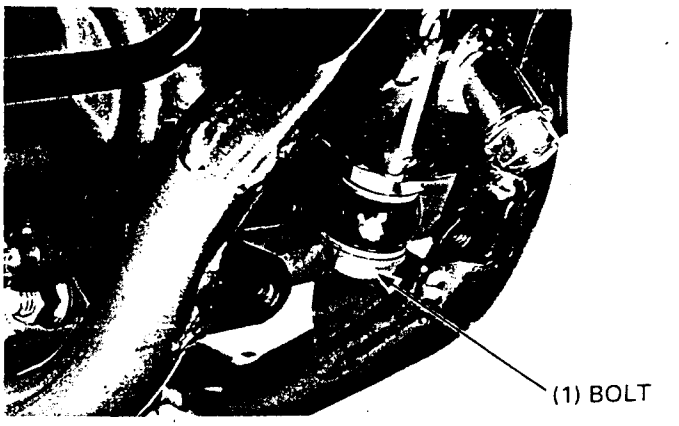
NOTE

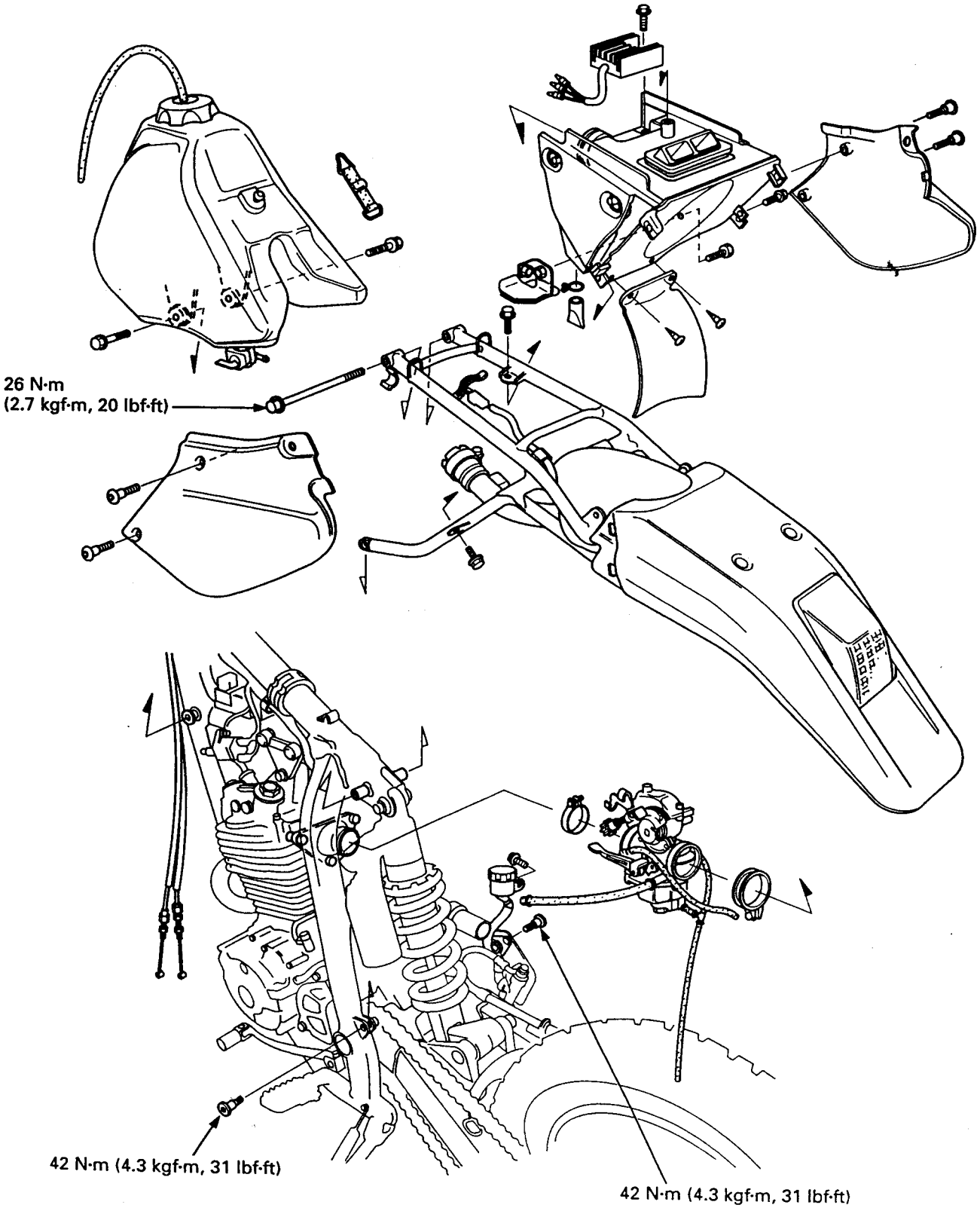
- Do not bend the oil inlet pipe.

Tighten the oil inlet pipe bolt at the frame to the specified torque.

TORQUE: 37 N·m (3.8 kgf·m, 27 lbf·ft)

Install the under guard (page 2-3).




26 N·m
(2.7 kgf·m, 20 lbf·ft)
42 N·m (4.3 kgf·m, 31 lbf·ft)
42 N·m (4.3 kgf·m, 31 lbf·ft)

5. FUEL SYSTEM

SERVICE INFORMATION

GENERAL

⚠ WARNING

- *Gasoline is extremely flammable and is explosive under certain conditions. KEEP OUT OF REACH CHILDREN.*
- *If the engine must be running to do some work, make sure the area is well ventilated. Never run the engine in an closed area. The exhaust contains poisonous carbon monoxide gas that can cause loss of consciousness and may lead to death. Run the engine in an open area or with an exhaust evacuation system in an enclosed area.*
- *Bending or twisting the control cables will impair smooth operation and could cause the cables to stick or bind, resulting in loss of vehicle control.*

- Work in a well ventilated area. Smoking or allowing flames or sparks in the work area or where gasoline is stored can cause a fire or explosion.

NOTE

- If the vehicle is to be stored more than one month, drain the float chamber. Fuel left in the float chamber may cause clogged jets, resulting in hard starting or poor driveability.

- Before disassembling the carburetor, place an approved gasoline container under the carburetor drain tube, loosen the screw and drain the carburetor.
- When disassembling the fuel system parts, note the locations of the O-rings. Replace them with new ones during reassembly.
- After removing the carburetor, wrap the intake port of the engine with a shop towel or cover it with a piece of tape to prevent any foreign material from dropping into the engine. Be sure to remove the cover when reinstalling the carburetor.

SPECIFICATIONS

ITEM		SPECIFICATIONS
Carburetor identification number	(ED, DK types)	PDG1A
	(U type)	PDG1B
Main jet	(ED, DK types)	#132
	(U type)	#75
Slow jet		#45
Jet needle clip position		3rd groove from top
Pilot screw initial opening		1-3/4 turns out
Float level		12.5 mm (0.49 in)
Idle speed		1,300 ± 100 min^{-1} (rpm)
Throttle grip free play		2 – 6 mm (1/12 – 1/4 in)

TORQUE VALUES

Rear frame upper mounting bolt **26 N·m (2.7 kgf·m, 20 lbf·ft)**
lower side mounting bolt **42 N·m (4.3 kgf·m, 31 lbf·ft)**

TOOL

Common
Float level gauge 07401 – 0010000

TROUBLESHOOTING

Engine cranks but won't start
- No fuel to carburetor
- Engine flooded with fuel
- No spark at plug (ignition system faulty)
- Clogged air cleaner
- Intake air leak
- Improper choke operation
- Improper throttle operation

Engine idles roughly, runs poorly or stalls
- Improper choke operation
- Ignition malfunction
- Fuel contaminated
- Intake air leak
- Incorrect idle speed
- Incorrect pilot screw adjustment
- Low cylinder compression
- Choke stuck open
- Rich mixture
- Lean mixture
- Clogged carburetor

Misfiring during acceleration
- Ignition system faulty
- Lean mixture

Afterburn during acceleration
- Ignition system faulty
- Lean mixture

Poor performance (driveability) and poor fuel economy
- Fuel system clogged
- Ignition system faulty
- Air cleaner clogged

Afterfiring
- Ignition system malfunction
- Carburetor malfunction
- Lean mixture
- Rich mixture

Lean mixture
- Clogged fuel jets
- Faulty float valve
- Float level too low
- Blocked fuel fill cap air vent hole
- Clogged fuel strainer screen
- Restricted fuel line
- Clogged air vent tube
- Intake air leak

Rich mixture
- Clogged air cleaner
- Worn jet needle or needle jet
- Faulty float valve
- Float level too high
- Choke stuck open

Incorrect fast idle speed
- Choke stuck open
- Worn piston rings