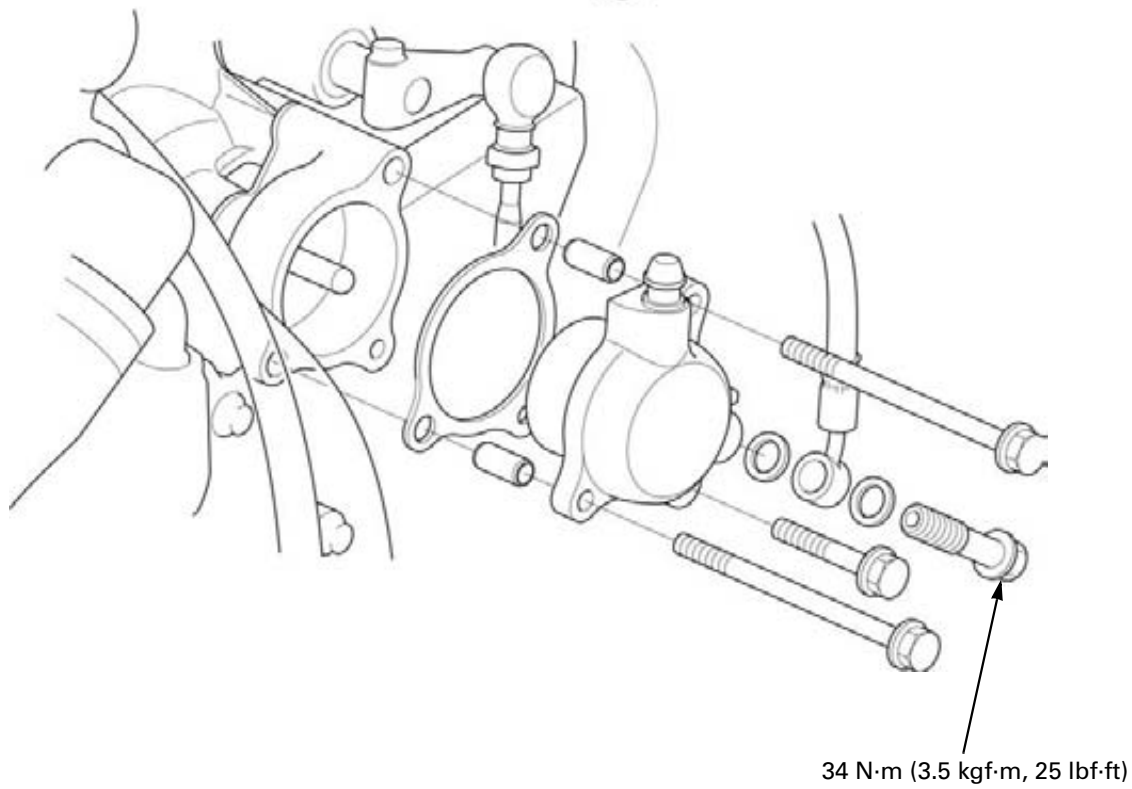
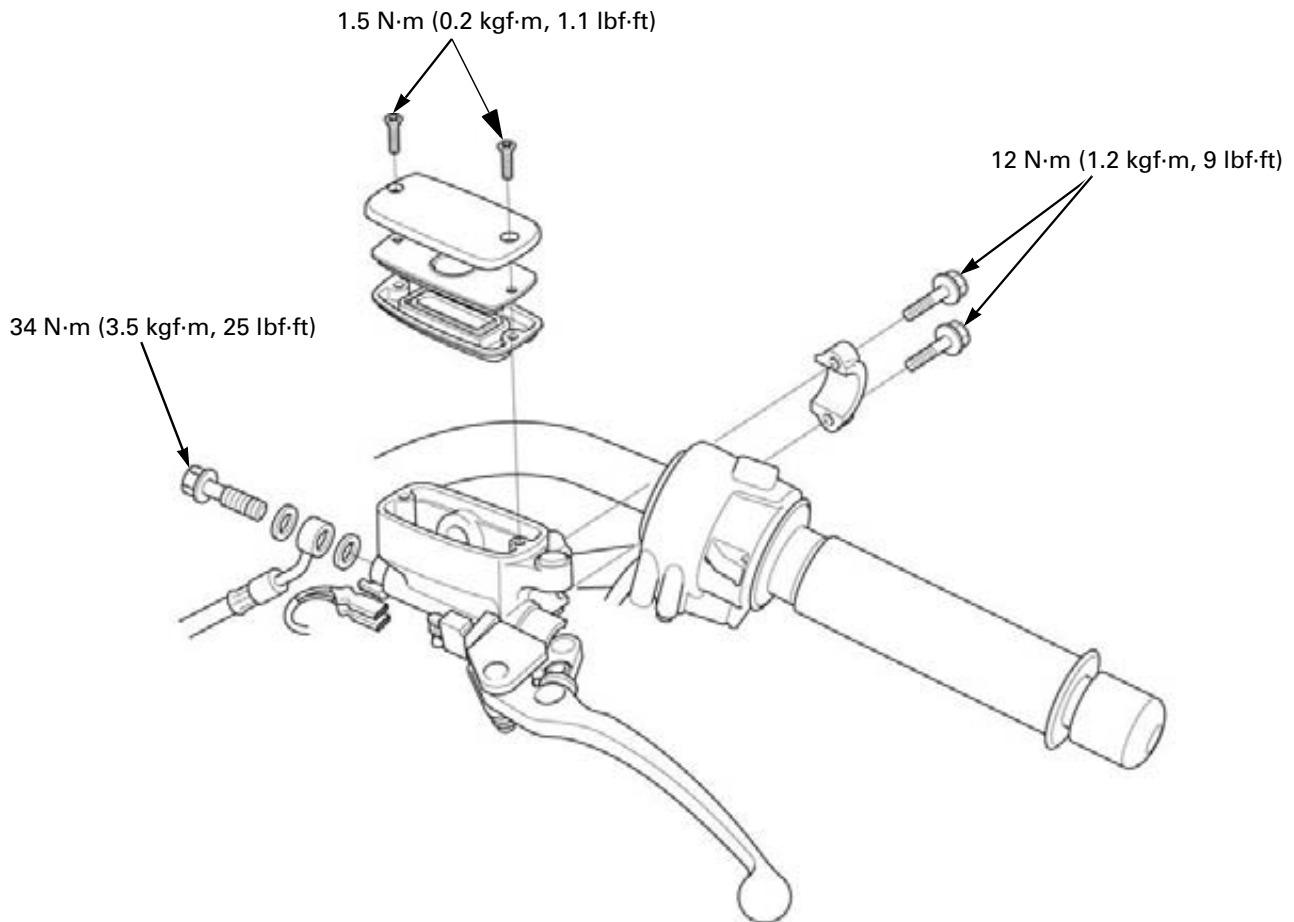


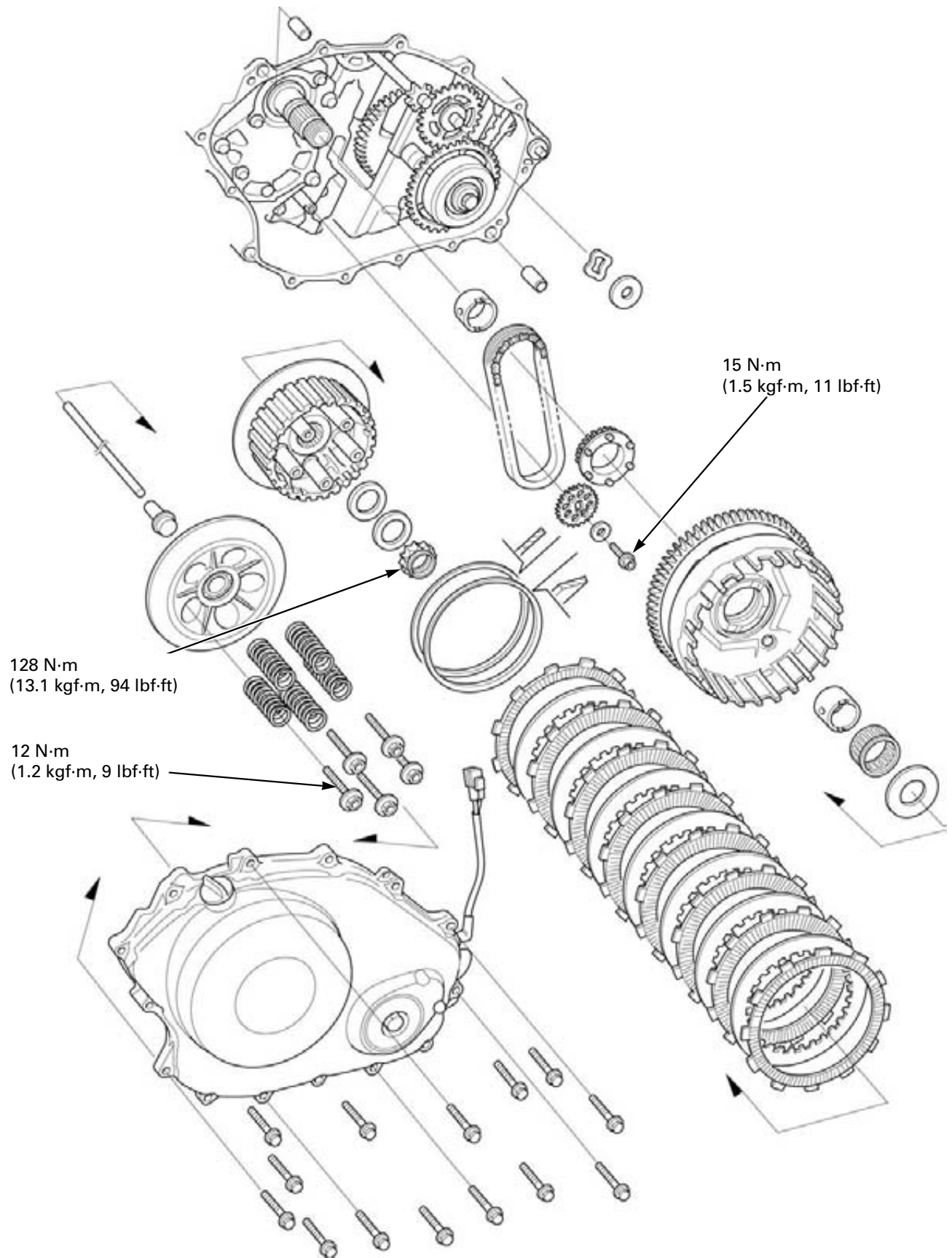
10. CLUTCH/STARTER CLUTCH

COMPONENT LOCATION	10-2	CLUTCH SLAVE CYLINDER.....	10-13
SERVICE INFORMATION	10-4	RIGHT CRANKCASE COVER REMOVAL	10-15
TROUBLESHOOTING	10-5	CLUTCH	10-17
CLUTCH FLUID REPLACEMENT/ AIR BLEEDING	10-6	STARTER CLUTCH	10-28
CLUTCH MASTER CYLINDER.....	10-8	RIGHT CRANKCASE COVER INSTALLATION	10-33

CLUTCH/STARTER CLUTCH

COMPONENT LOCATION





CLUTCH/STARTER CLUTCH

SERVICE INFORMATION

GENERAL

NOTICE

Spilled fluid will severely damage instrument lenses and painted surfaces, It is also harmful to some rubber parts. Be careful whenever you remove the reservoir cap; make sure the reservoir is horizontal first.

- This section covers service of the clutch and starter clutch. All service can be done with the engine installed in the frame.
- Transmission oil viscosity and level have an effect on clutch disengagement. When the clutch does not disengage or the motorcycle creeps with clutch disengaged, inspect the transmission oil level before servicing the clutch system.

SPECIFICATIONS

Unit: mm (in)

ITEM		STANDARD	SERVICE LIMIT
Specified clutch fluid		DOT 4 brake fluid	–
Clutch master cylinder	Master cylinder I.D.	12.700 – 12.743 (0.5000 – 0.5017)	12.755 (0.5022)
	Master piston O.D.	12.657 – 12.684 (0.4983 – 0.4994)	12.645 (0.4978)
Clutch	Spring free length	58.2 (2.29)	55.7 (2.19)
	Disc A thickness	3.72 – 3.88 (0.146 – 0.153)	3.4 (0.13)
	Disc B thickness	3.22 – 3.38 (0.127 – 0.133)	2.9 (0.11)
	Plate warpage	–	0.30 (0.012)
Clutch outer guide A (Without ID mark)	I.D.	27.993 – 28.003 (1.1021 – 1.1025)	28.012 (1.1028)
	O.D.	35.004 – 35.012 (1.3781 – 1.3784)	34.994 (1.3777)
Clutch outer guide B (With ID mark)	I.D.	27.993 – 28.003 (1.1021 – 1.1025)	28.012 (1.1028)
	O.D.	34.996 – 35.004 (1.3778 – 1.3781)	34.986 (1.3774)
Primary driven gear I.D.	A	41.008 – 41.016 (1.6145 – 1.6148)	41.026 (1.6152)
	B	41.000 – 41.008 (1.6142 – 1.6145)	41.018 (1.6149)
Oil pump drive sprocket guide	I.D.	28.000 – 28.021 (1.1024 – 1.1032)	28.030 (1.1035)
	O.D.	34.975 – 34.991 (1.3770 – 1.3776)	34.965 (1.3766)
Oil pump drive sprocket I.D.		35.025 – 35.145 (1.3789 – 1.3837)	35.155 (1.3841)
Mainshaft O.D. at clutch outer guide		27.980 – 27.990 (1.1016 – 1.1020)	27.96 (1.101)
Mainshaft O.D. at oil pump drive sprocket guide		27.980 – 27.990 (1.1016 – 1.1020)	27.96 (1.101)
Starter idle gear	Gear I.D.	10.013 – 10.035 (0.3942 – 0.3951)	10.05 (0.396)
	Shaft O.D.	9.991 – 10.000 (0.3933 – 0.3937)	9.98 (0.393)
Starter driven gear boss O.D.		45.657 – 45.673 (1.7975 – 1.7981)	45.642 (1.7969)

TORQUE VALUES

Clutch center lock nut	128 N·m (13.1 kgf·m, 94 lbf·ft)	Apply oil to the threads and seating surface. Stake the nut.
Clutch spring bolt	12 N·m (1.2 kgf·m, 9 lbf·ft)	
Oil pump driven sprocket bolt	15 N·m (1.5 kgf·m, 11 lbf·ft)	Apply a locking agent to the threads.
Right crankcase cover rubber plate bolt	12 N·m (1.2 kgf·m, 9 lbf·ft)	Apply a locking agent to the threads. CT bolt
Starter clutch outer mounting bolt	83 N·m (8.5 kgf·m, 61 lbf·ft)	Apply oil to the threads and seating surface.
Clutch lever pivot bolt	1 N·m (0.1 kgf·m, 0.7 lbf·ft)	Apply silicone grease to the sliding surface.
Clutch lever pivot nut	5.9 N·m (0.6 kgf·m, 4.4 lbf·ft)	
Clutch master cylinder holder bolt	12 N·m (1.2 kgf·m, 9 lbf·ft)	
Clutch master cylinder reservoir cap screw	1.5 N·m (0.2 kgf·m, 1.1 lbf·ft)	
Clutch switch mounting screw	1.2 N·m (0.1 kgf·m, 0.9 lbf·ft)	
Clutch hose oil bolt	34 N·m (3.5 kgf·m, 25 lbf·ft)	

TOOLS

<p>Snap ring pliers 07914-SA50001</p> 	<p>Clutch center holder 07724-0050002</p>  <p>or equivalent commercially available.</p>	<p>Gear holder, M2.5 07724-0010100</p> 
---	---	--

TROUBLESHOOTING

Clutch lever soft or spongy

- Air in hydraulic system
- Low fluid level
- Hydraulic system leaking

Clutch lever too hard to pull in

- Sticking master cylinder piston
- Sticking slave cylinder
- Clogged hydraulic system
- Damaged clutch lifter mechanism
- Faulty clutch lifter bearing
- Clutch lifter piece installed improperly

Clutch slips when accelerating

- Hydraulic system sticking
- Worn clutch disc
- Weak clutch springs
- Transmission oil mixed with molybdenum or graphite additive

Clutch will not disengage or motorcycle creeps with clutch disengaged

- Air in hydraulic system
- Low fluid level
- Hydraulic system leaking or clogged
- Clutch plate warped
- Loose clutch lock nut
- Oil level too high
- Improper oil viscosity
- Damaged clutch lifter mechanism
- Clutch lifter piece installed improperly

Hard to shift

- Improper clutch operation
- Improper oil viscosity

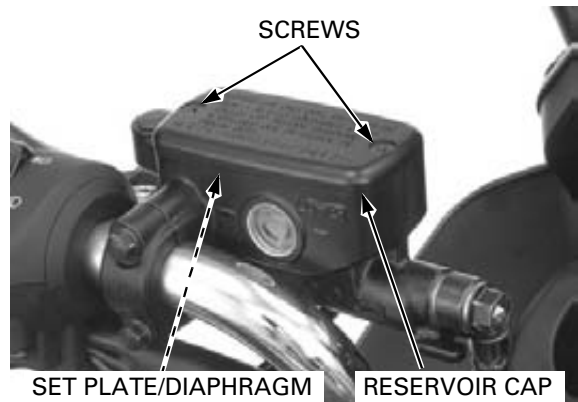
CLUTCH/STARTER CLUTCH

CLUTCH FLUID REPLACEMENT/AIR BLEEDING

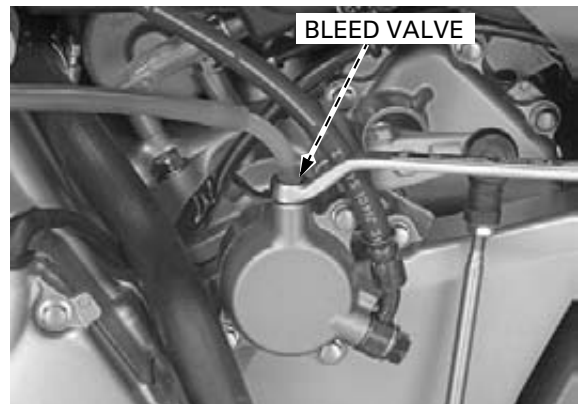
CLUTCH FLUID DRAINING

Turn the handlebar to the right until the reservoir is parallel to the ground, before removing the reservoir cap.

Remove the screws, reservoir cap, set plate and diaphragm.



Connect a bleed hose to the bleed valve of the clutch slave cylinder. Loosen the bleed valve and pump the clutch lever until fluid stops flowing out of the bleed valve.



CLUTCH FLUID FILLING/AIR BLEEDING

Fill the reservoir with DOT 4 brake fluid from a sealed container.

Connect a commercially available brake bleeder to the bleed valve.

Operate the brake bleeder and loosen the bleed valve.

Add brake fluid when the fluid level in the reservoir is low.

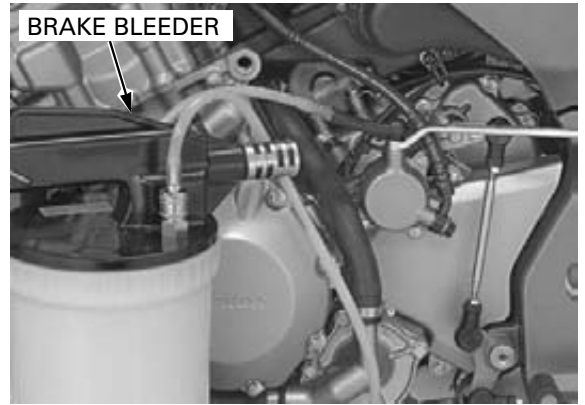
- Check the fluid level often while bleeding the clutch to prevent air from being pumped into the system.
- When using a brake bleeding tool, follow the manufacturer's operating instruction.



If air is entering the bleeder from around the bleed valve threads, seal the threads with teflon tape.

Repeat the above procedures until new fluid flows out of the bleed valve and air bubbles do not appear in the plastic hose.

Close the bleed valve and operate the clutch lever. If it is still spongy, bleed the system again.



If a brake bleeder is not available, use the following procedure.

Pump the clutch lever until lever resistance is felt.

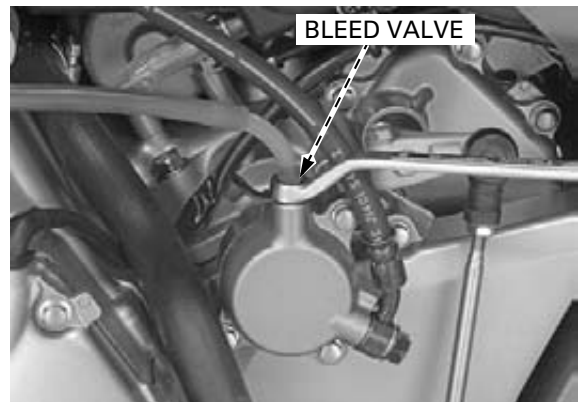
Connect a bleed hose to the bleed valve and bleed the system as follows:

1. Squeeze the clutch lever, open the bleed valve 1/4 of a turn and then close it. Do not release the clutch lever until the bleed valve has been closed.
2. Release the clutch lever slowly and wait several seconds after it reaches the end of its travel.



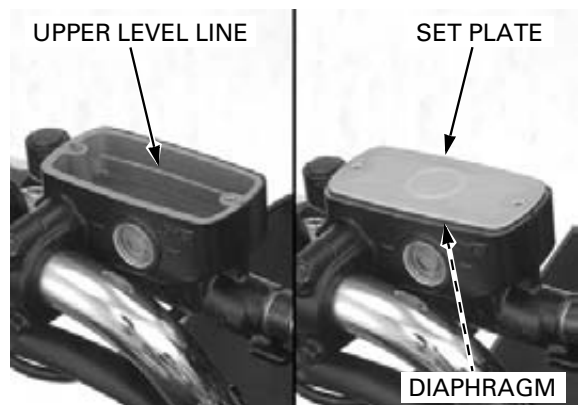
Repeat steps 1. and 2. until air bubbles do not appear in the bleed hose.

Tighten the bleed valve securely.



Fill the reservoir to the upper level line with DOT 4 brake fluid from a sealed container.

Install the diaphragm and set plate.

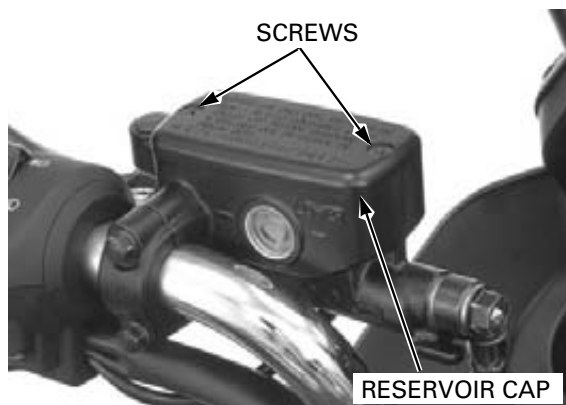


CLUTCH/STARTER CLUTCH

Install the reservoir cap and tighten the screws to the specified torque.

TORQUE: 1.5 N·m (0.2 kgf·m, 1.1 lbf·ft)

Check the clutch operation (page 4-28).



CLUTCH MASTER CYLINDER

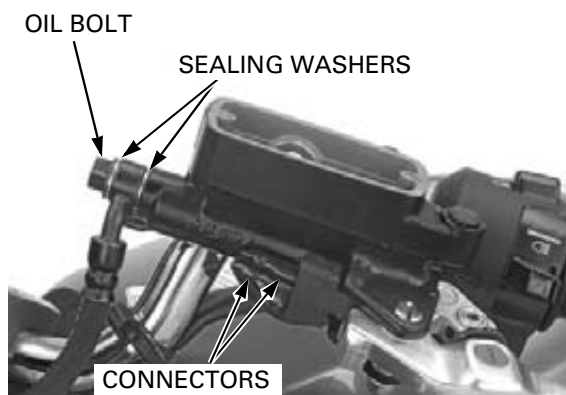
REMOVAL

NOTICE

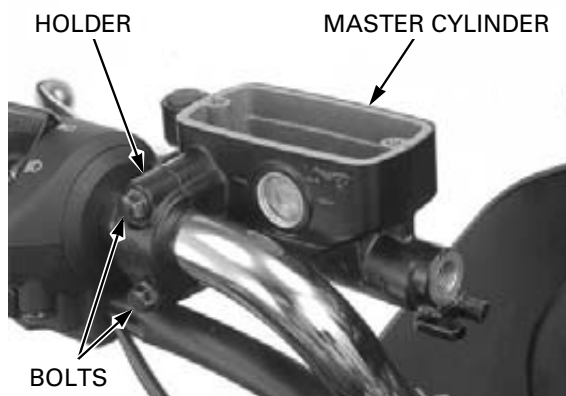
Spilled fluid can damage painted, plastic, or rubber parts. Place a rag over these parts whenever the system is serviced.

Drain the clutch hydraulic system (page 10-6).

Disconnect the clutch switch wire connectors. Remove the clutch hose oil bolt, sealing washers and clutch hose eyelet.

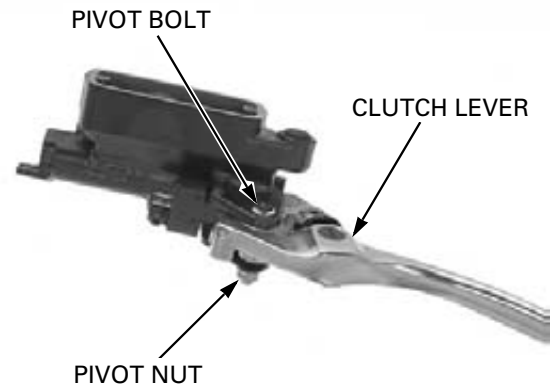


Remove the bolts, master cylinder and holder.

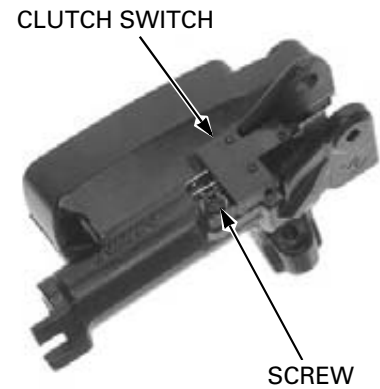


DISASSEMBLY

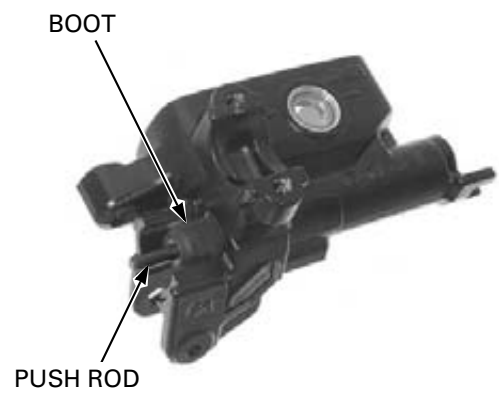
Remove the nut, pivot bolt and clutch lever assembly.



Remove the screw and clutch switch.

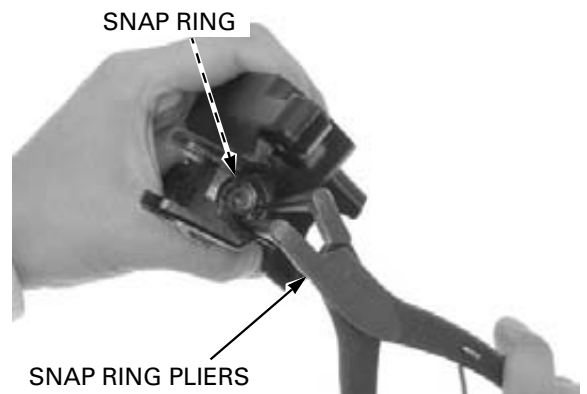


Remove the boot and push rod.



Remove the snap ring from the master cylinder body using the special tool as shown.

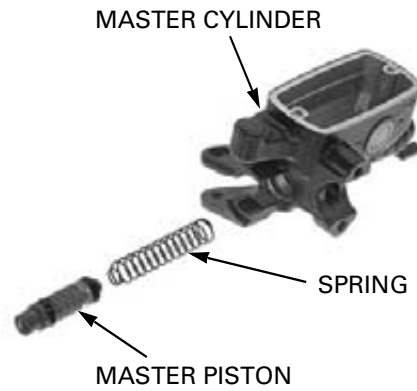
TOOL:
Snap ring pliers **07914-SA50001**



CLUTCH/STARTER CLUTCH

Remove the master piston assembly and spring.

Clean the inside of the master cylinder with brake fluid.



INSPECTION

Check the piston boot, primary cup and secondary cup for fatigue or damage.
Check the master cylinder and piston for abnormal scratches.

Measure the master cylinder I.D.

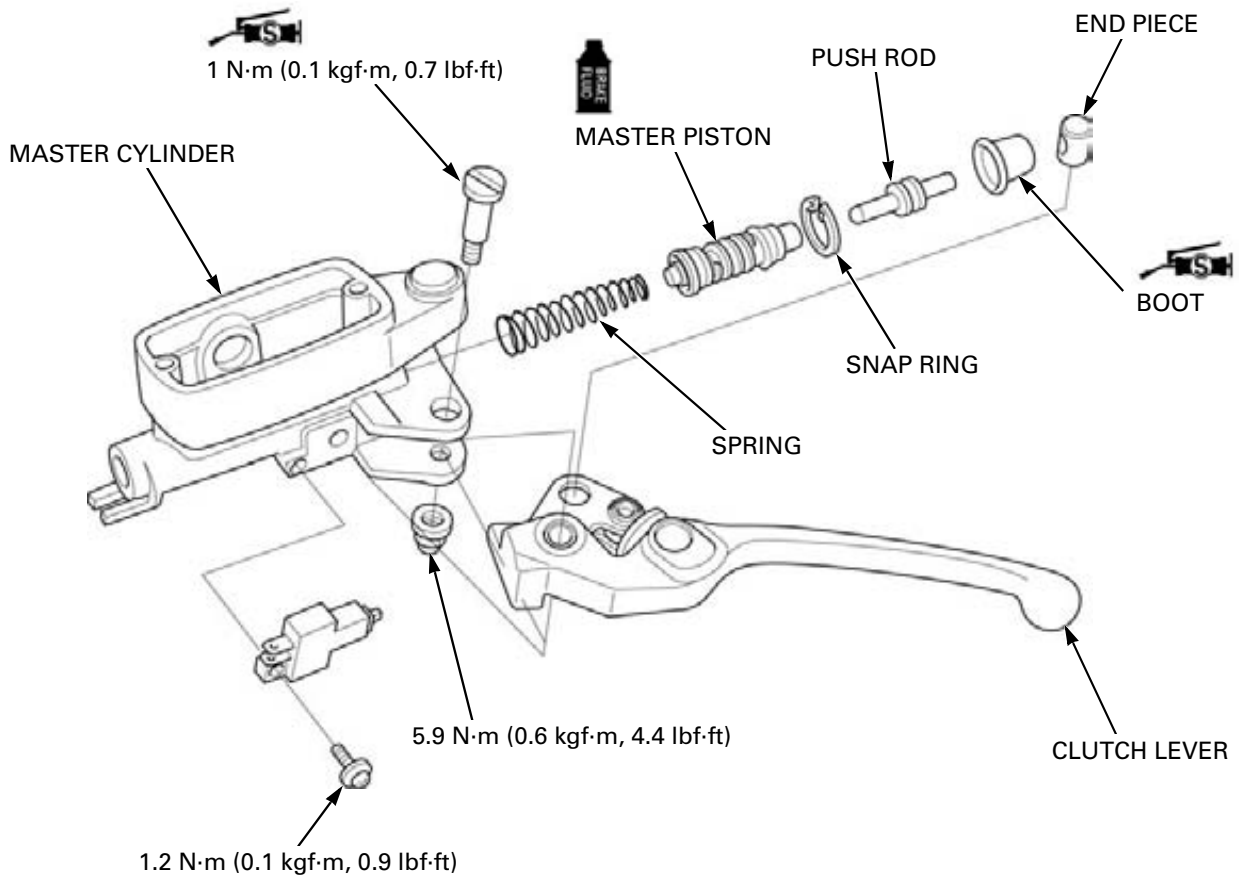
SERVICE LIMIT: 12.755 mm (0.5022 in)

Measure the master piston O.D.

SERVICE LIMIT: 12.645 mm (0.4978 in)



ASSEMBLY

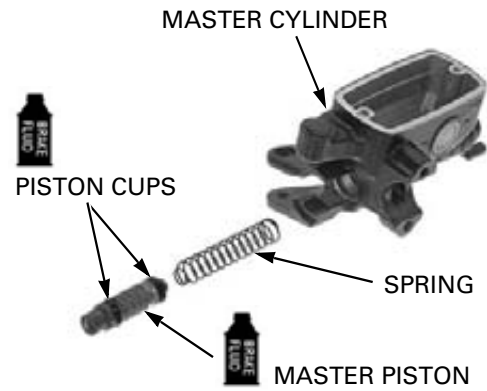


CLUTCH/STARTER CLUTCH

Coat all parts with clean brake fluid before assembly.
Dip the master piston in brake fluid.
Install the primary and secondary cups onto the master piston.

When installing the cups, do not allow the lips to turn inside out.

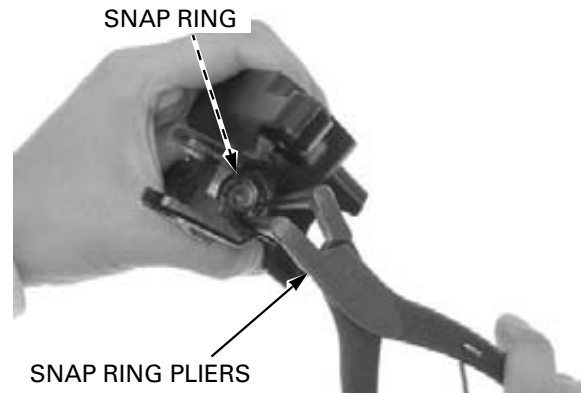
Install the spring and master piston assembly into the master cylinder.



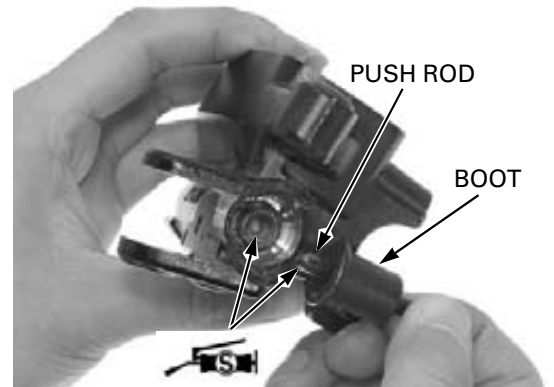
Be certain the snap ring is firmly seated in the groove.

Install the snap ring using the special tool.

TOOL:
Snap ring pliers **07914-SA50001**

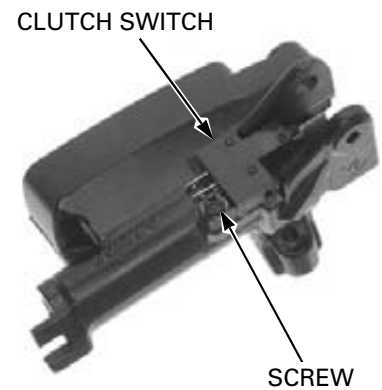


Apply silicone grease to the boot inside and tip of the push rod.



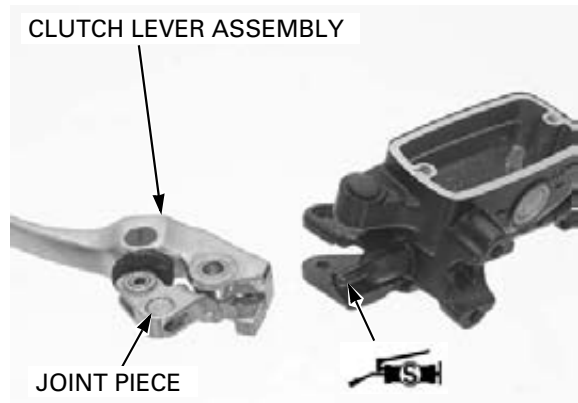
Install the clutch switch and tighten the screw to the specified torque.

TORQUE: 1.2 N·m (0.1 kgf·m, 0.9 lbf·ft)



CLUTCH/STARTER CLUTCH

Set the push rod in the joint piece hole. Apply silicone grease to the tip of the push rod, then install the joint piece and clutch lever assembly.



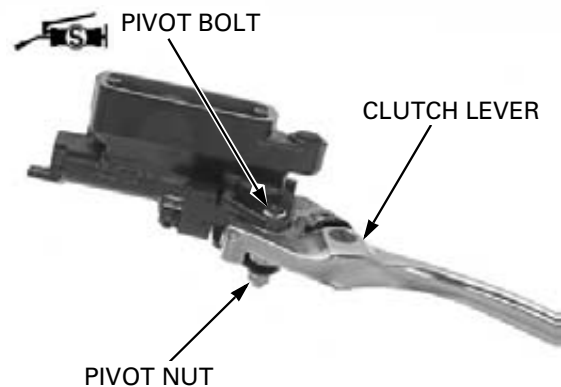
Apply silicone grease to the clutch lever pivot bolt sliding surface.

Install and tighten the pivot bolt to the specified torque.

TORQUE: 1 N-m (0.1 kgf-m, 0.7 lbf-ft)

Hold the pivot bolt and tighten the nut to the specified torque.

TORQUE: 5.9 N-m (0.6 kgf-m, 4.4 lbf-ft)



INSTALLATION

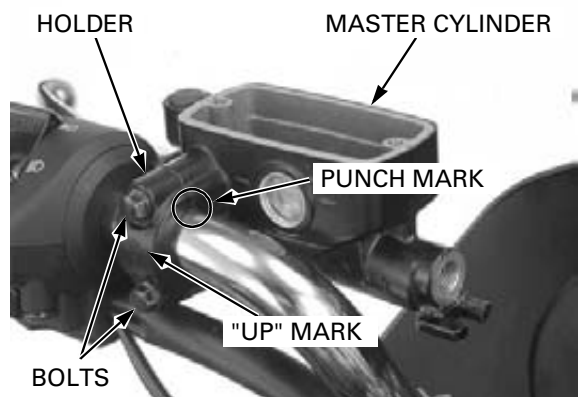
Install the master cylinder holder with the "UP" mark facing up.

Place the master cylinder assembly onto the handlebar and install the holder and bolts.

Align the end of the master cylinder with the punch mark on the handlebar.

Tighten the upper bolt first, then the lower bolt.

TORQUE: 12 N-m (1.2 kgf-m, 9 lbf-ft)



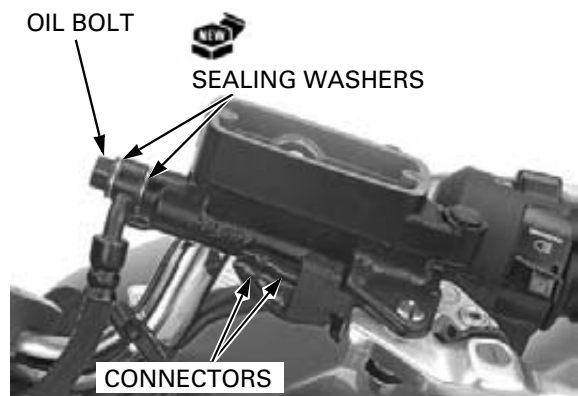
Install the clutch hose eyelet with the oil bolt and new sealing washers.

While pushing the clutch hose against the stopper, tighten the oil bolt to the specified torque.

TORQUE: 34 N-m (3.5 kgf-m, 25 lbf-ft)

Connect the clutch switch connectors.

Fill the reservoir to the upper level and bleed the hydraulic system (page 10-6).



CLUTCH SLAVE CYLINDER

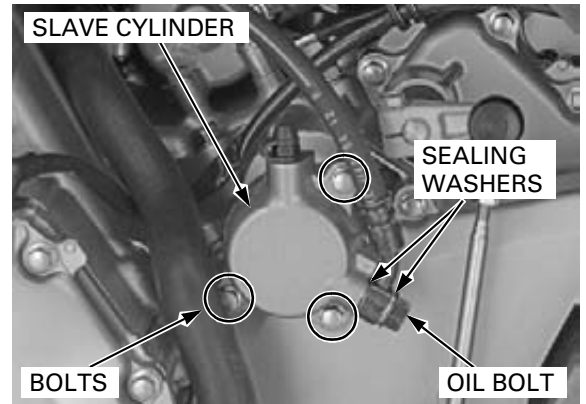
REMOVAL

Drain the clutch hydraulic system (page 10-6).

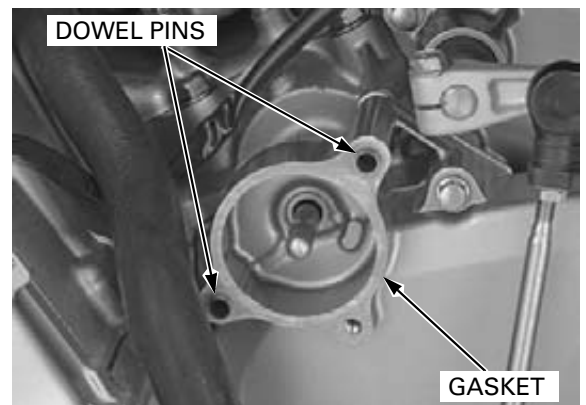
Avoid spilling fluid on painted, plastic, or rubber parts. Place a rag over these parts whenever the system is serviced.

Remove the clutch hose oil bolt, sealing washers and clutch hose eyelet.

Remove the bolts and clutch slave cylinder assembly.



Remove the gasket and dowel pins.



DISASSEMBLY

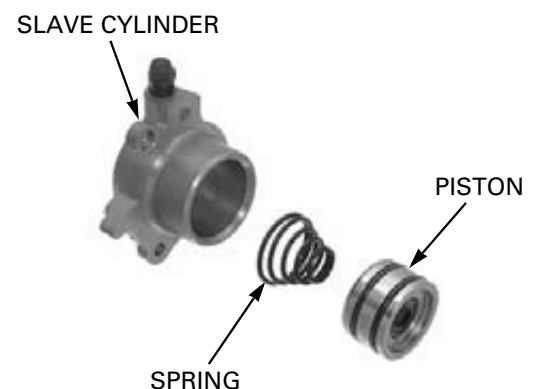
Place a shop towel over the piston to cushion the piston when it is expelled, and position the cylinder with the piston down.

Do not use high pressure air or bring the nozzle too close to the inlet.

Apply small squirts of air pressure to the fluid inlet to remove the piston.



Remove the piston and spring from the slave cylinder.



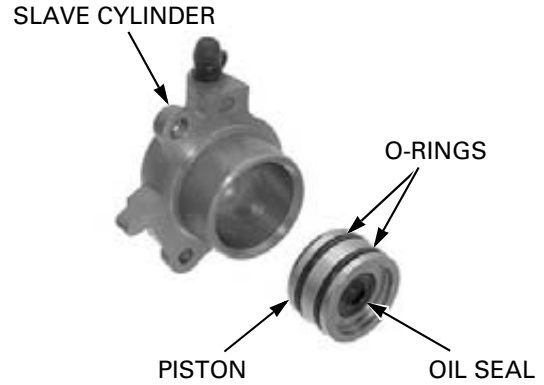
CLUTCH/STARTER CLUTCH

INSPECTION

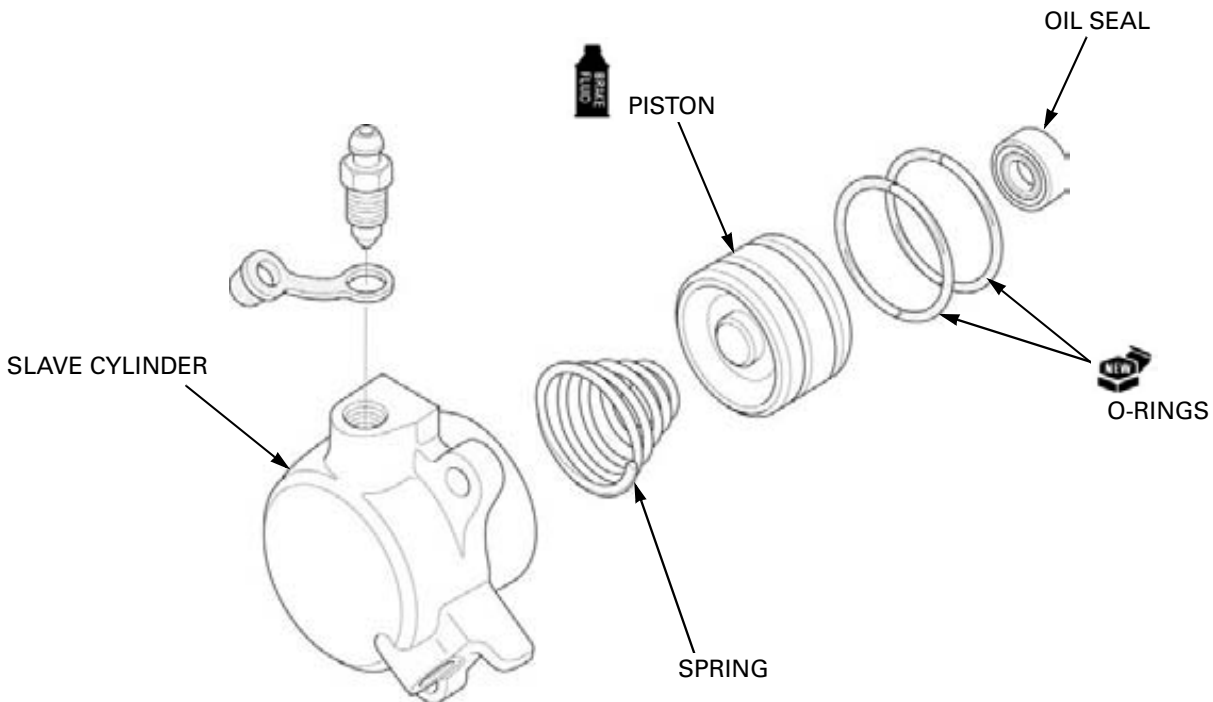
Check the piston spring for weakness or damage.
Inspect the oil seal and O-rings for damage or deterioration, replace if necessary.
Clean the O-ring grooves with clean brake fluid.

Check the slave cylinder for scoring or other damage.

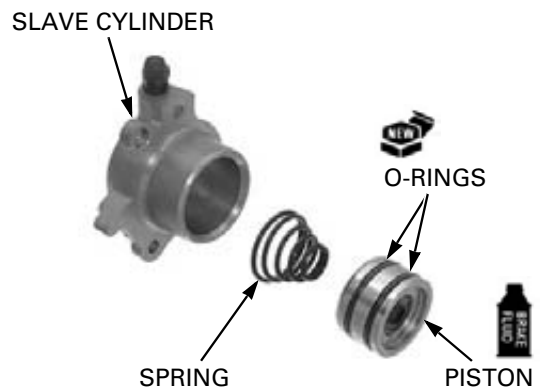
Check the piston for scratches, scoring or other damage.



ASSEMBLY

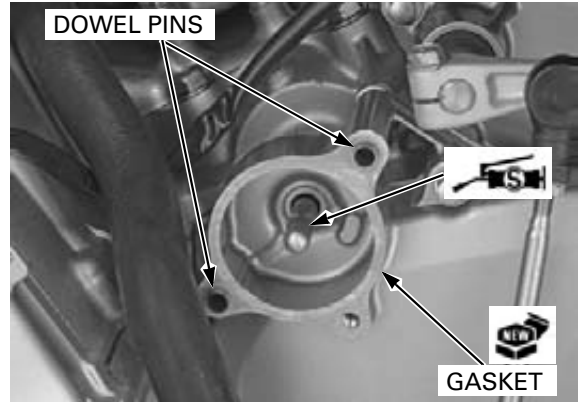


Lubricate the piston with clean brake fluid.
Apply grease (included in the slave cylinder O-ring set) to new O-rings and install them to the slave cylinder piston grooves.
Install the spring into the boss of the piston.
Install the spring and piston into the slave cylinder.



INSTALLATION

Install the dowel pins and new gasket.
 Apply silicone grease to the tip of the push rod.
 Install the slave cylinder onto the left crankcase rear cover.



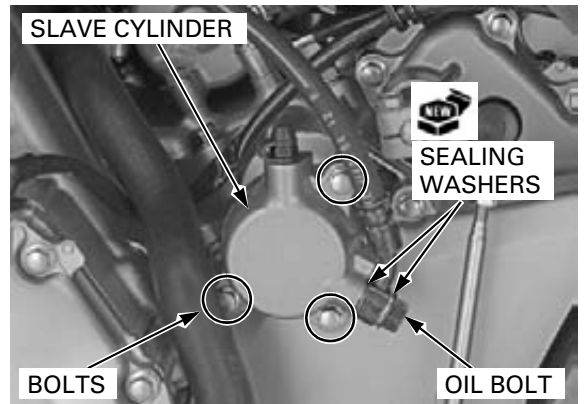
Install and tighten the bolts.

Install the clutch hose eyelet with the oil bolt and new sealing washers.

While pushing the clutch hose against the stopper, tighten the oil bolt to the specified torque.

TORQUE: 34 N·m (3.5 kgf·m, 25 lbf·ft)

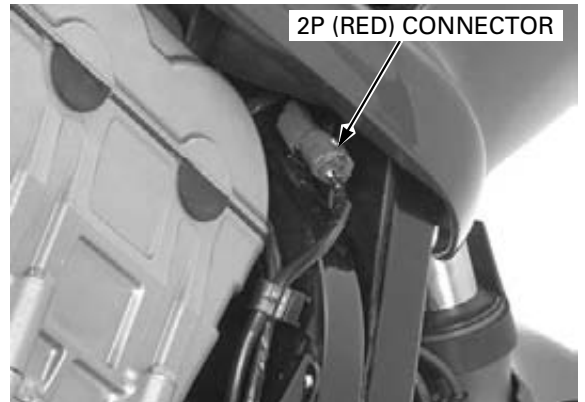
Fill the reservoir to the upper level and bleed the hydraulic system (page 10-6).



RIGHT CRANKCASE COVER REMOVAL

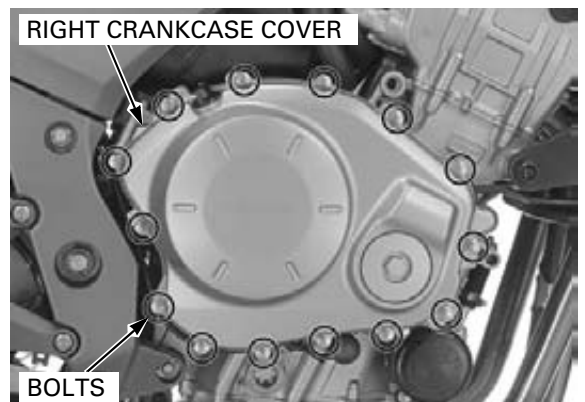
Drain the engine oil (page 4-16).

Disconnect the CKP sensor 2P (Red) connector.



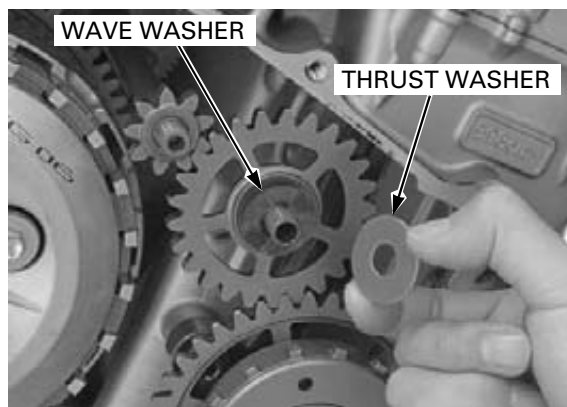
Be careful not to drop the thrust and wave washers into the crankcase.

Remove the bolts and right crankcase cover.



CLUTCH/STARTER CLUTCH

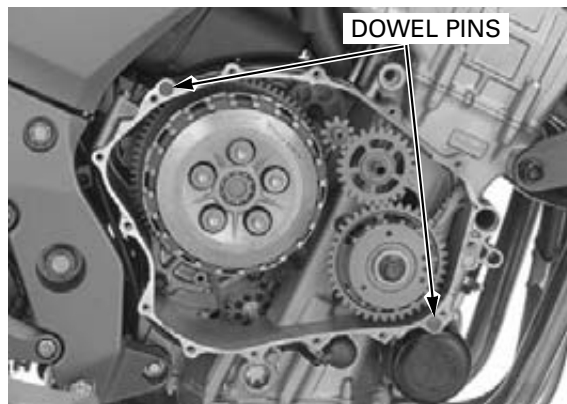
Remove the thrust washer and wave washer from the starter idle gear shaft.



Do not turn the crankshaft counterclockwise after removing the right crankcase cover to prevent the starter reduction gear from damage.

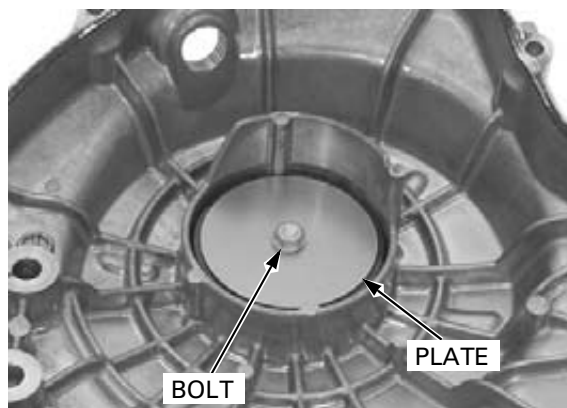
Remove the dowel pins.

Clean off any sealant from the right crankcase cover mating surfaces.



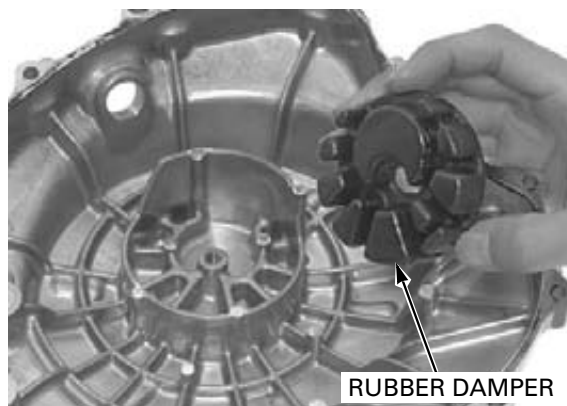
RUBBER DAMPER REMOVAL/INSTALLATION

Remove the bolt and set plate.



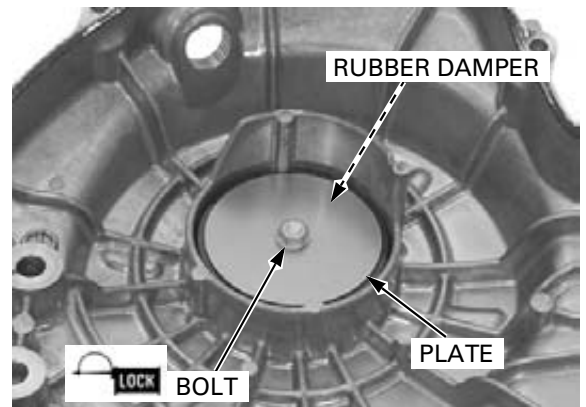
Remove the rubber damper.

Check the rubber damper for fatigue or damage, replace it if necessary.



Install the rubber damper into the right crankcase cover and install the set plate.
Apply a locking agent to the set plate bolt threads and install the set plate bolt.
Tighten the bolt to the specified torque.

TORQUE: 12 N·m (1.2 kgf·m, 9 lbf·ft)

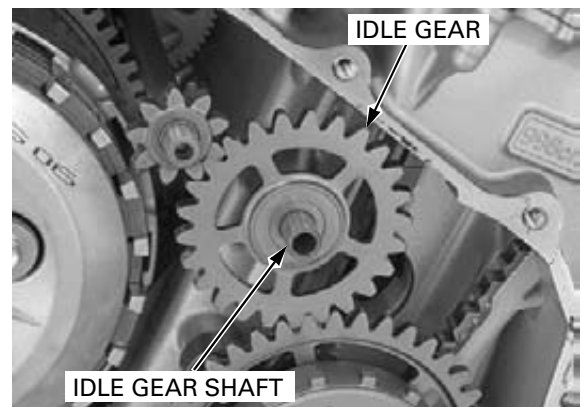


CLUTCH

REMOVAL

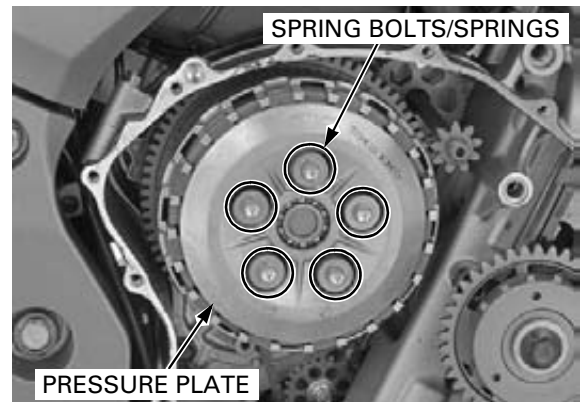
Remove the right crankcase cover (page 10-15).

To prevent damaging the starter reduction gear shaft, remove the starter idle gear and shaft from the crankcase.

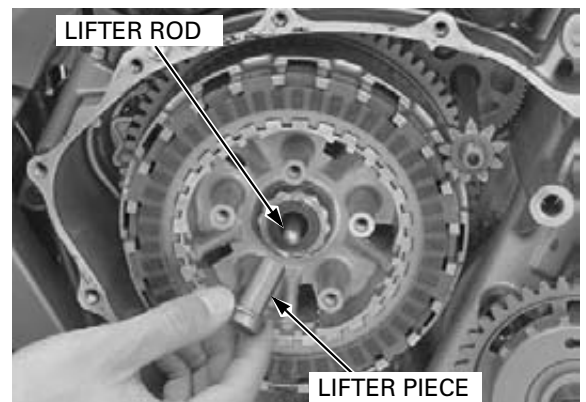


Loosen the clutch spring bolts in a crisscross pattern in two to three steps, then remove the clutch spring bolts and clutch springs.

Remove the pressure plate.



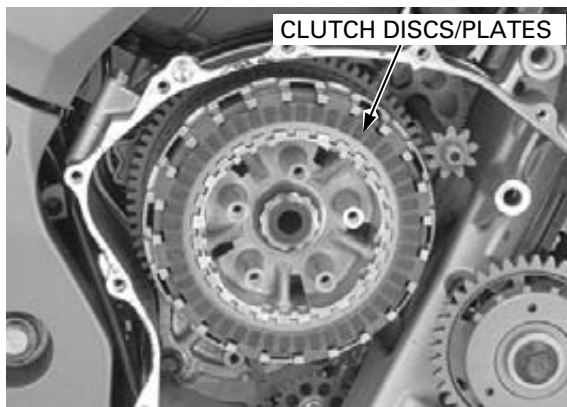
Remove the clutch lifter piece and lifter rod.



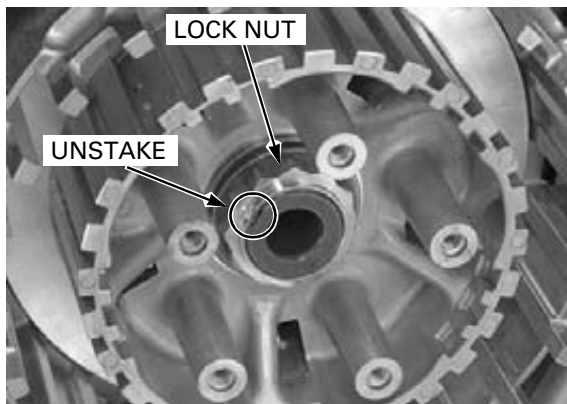
CLUTCH/STARTER CLUTCH

Remove the following:

- Two clutch disc A
- Six clutch disc B
- Seven clutch plates
- Friction spring
- Spring seat



Unstake the clutch center lock nut.



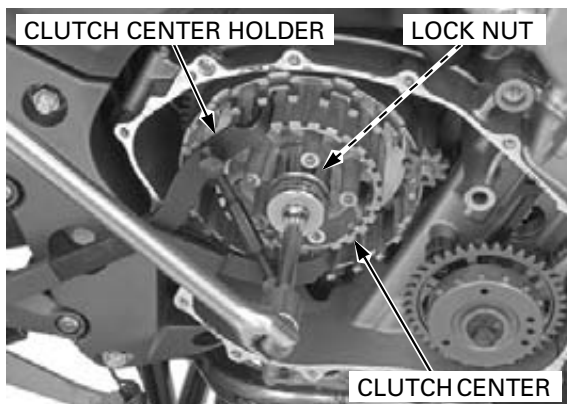
Hold the clutch center with the special tool and remove the clutch center lock nut.

TOOL:

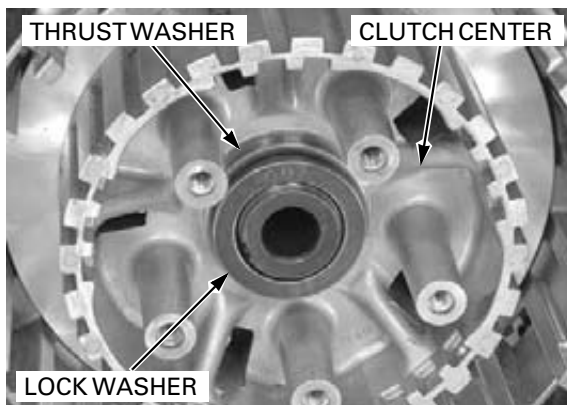
Clutch center holder

**07724-0050002 or
equivalent commercially
available**

Discard the lock nut.



Remove the lock washer, thrust washer and clutch center.

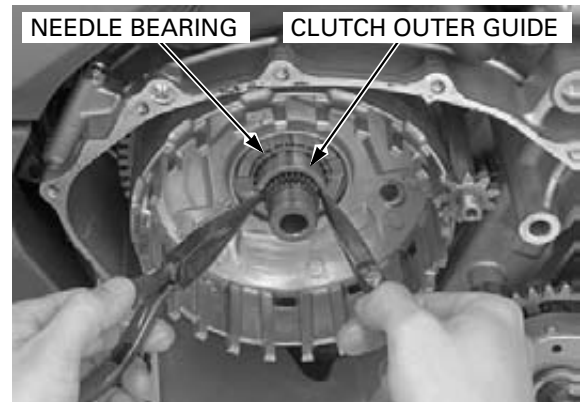


CLUTCH/STARTER CLUTCH

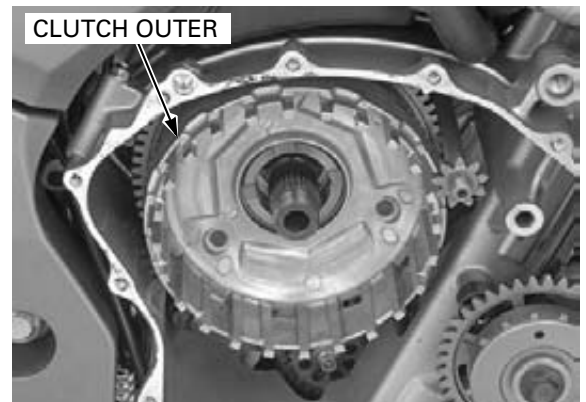
Remove the thrust washer.



Pull out the clutch outer guide, then remove the needle bearing.



Remove the clutch outer.

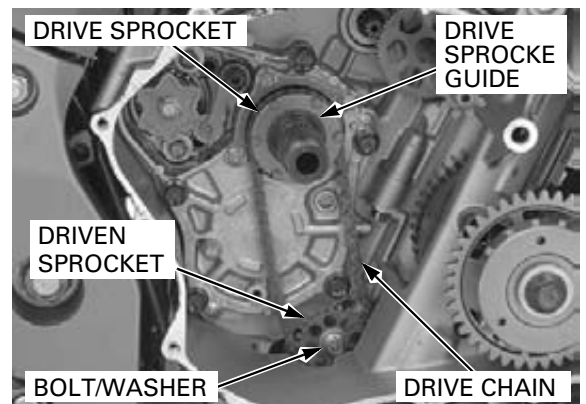


Be careful not to drop the sprocket bolt/washer in the crankcase.

Remove the oil pump driven sprocket bolt/washer.

Remove the oil pump drive and driven sprocket with the drive chain.

Remove the oil pump drive sprocket guide from the mainshaft.



CLUTCH/STARTER CLUTCH

INSPECTION

Clutch lifter bearing

Turn the inner race of the lifter bearing with your finger.
The bearing should turn smoothly and freely without excessive play.
If necessary, replace the bearing.

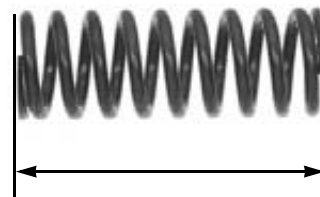


Clutch spring

Replace the clutch springs as a set.

Measure the clutch spring free length.

SERVICE LIMIT: 55.7 mm (2.19 in)



Clutch center

Check the grooves of the clutch center for damage or wear caused by the clutch plates.
Replace it if necessary.



Clutch lifter piece

Check the clutch lifter piece for damage or abnormal wear.



Clutch lifter rod

Check the clutch rod for bend or other damage.



Clutch disc

Replace the clutch discs and plates as a set.

Replace the clutch discs if they show signs of scoring or discoloration.

Measure the disc thickness of each disc.

SERVICE LIMIT:

A (larger I.D.): 3.4 mm (0.13 in)

B: 2.9 mm (0.11 in)



Clutch plate

Replace the clutch discs and plates as a set.

Check the plates for discoloration.

Check the plate warpage on a surface plate using a feeler gauge.

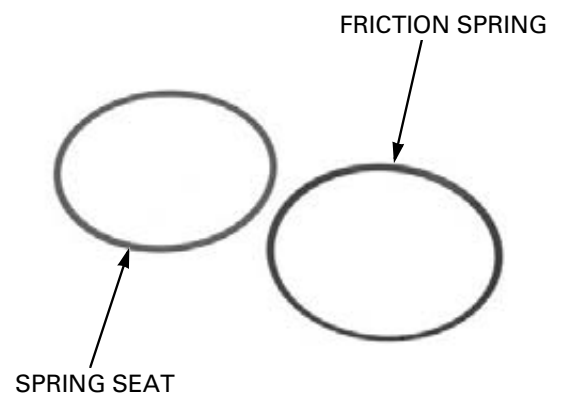
SERVICE LIMIT: 0.30 mm (0.012 in)



Friction spring/spring seat

Check the friction spring and spring seat for deformation, warpage or damage; replace as necessary.

- A damaged or warped spring seat will cause the friction spring to be pressed unevenly.
- A damaged friction spring also causes the weak contact between the discs and plates or uneven disc/plate contact.



CLUTCH/STARTER CLUTCH

Clutch outer/primary driven gear

Check the slots of the clutch outer for damage or wear caused by the clutch discs.

Check the primary driven gear for abnormal wear or damage.

Measure the I.D. of the primary driven gear.

SERVICE LIMITS:

A: 41.026 mm (1.6152 in)

B: 41.018 mm (1.6149 in)

Replace the clutch outer assembly if necessary.

When the clutch outer assembly is replaced, be sure to select the needle bearing according to the selective fit table (page 10-23).

Clutch outer guide/needle bearing

Measure the O.D. and I.D. of the clutch outer guide.

– I.D. mark indication of guide A or B (page 10-23)

SERVICE LIMITS:

A (without ID mark):

O.D.: 34.994 mm (1.3777 in)

I.D.: 28.012 mm (1.1028 in)

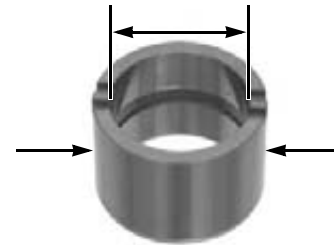
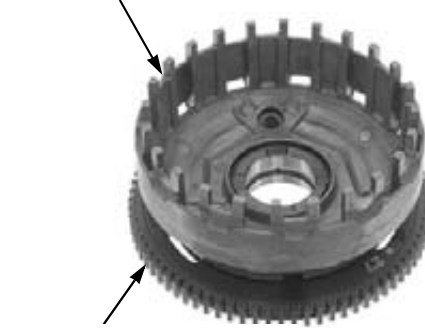
B (with ID mark):

O.D.: 34.986 mm (1.3774 in)

I.D.: 28.012 mm (1.1028 in)

CLUTCH OUTER

PRIMARY DRIVEN GEAR



Check the needle bearing for wear or damage.
Replace the bearing if necessary.

When the clutch outer guide and/or needle bearing is replaced, be sure to select the needle bearing according to the selective fit table (page 10-23).

NEEDLE BEARING



Oil pump drive sprocket/sprocket guide

Measure the O.D. and I.D. of the oil pump drive sprocket guide.

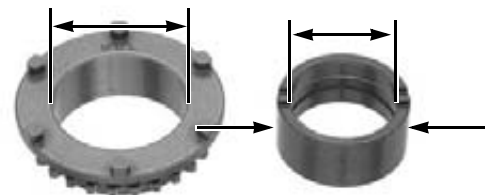
SERVICE LIMITS:

O.D.: 34.965 mm (1.3766 in)

I.D.: 28.030 mm (1.1035 in)

Measure the I.D. of the oil pump drive sprocket.

SERVICE LIMIT: 35.155 mm (1.3841 in)



Mainshaft

Measure the mainshaft O.D. at clutch outer guide and oil pump drive sprocket guide sliding surfaces.

SERVICE LIMITS:

- Oil pump drive sprocket guide position: 27.96 mm (1.101 in)**
- Clutch outer guide position: 27.96 mm (1.101 in)**



NEEDLE BEARING SELECTION

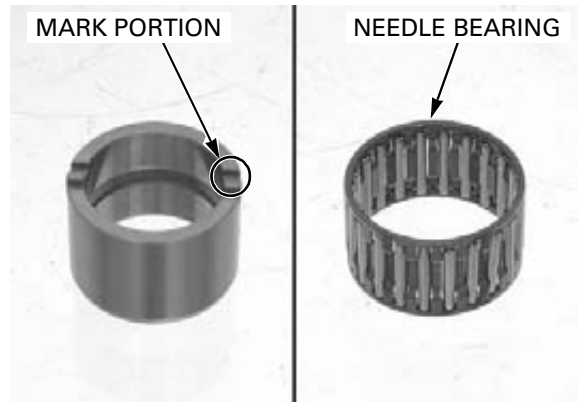
The primary driven gear has I.D. code letter as shown.



The clutch outer guide A has no identification mark and outer guide B has identification mark (2 mm hole).

Cross-reference the primary driven gear and clutch outer guide codes to determine the replacement needle bearing.

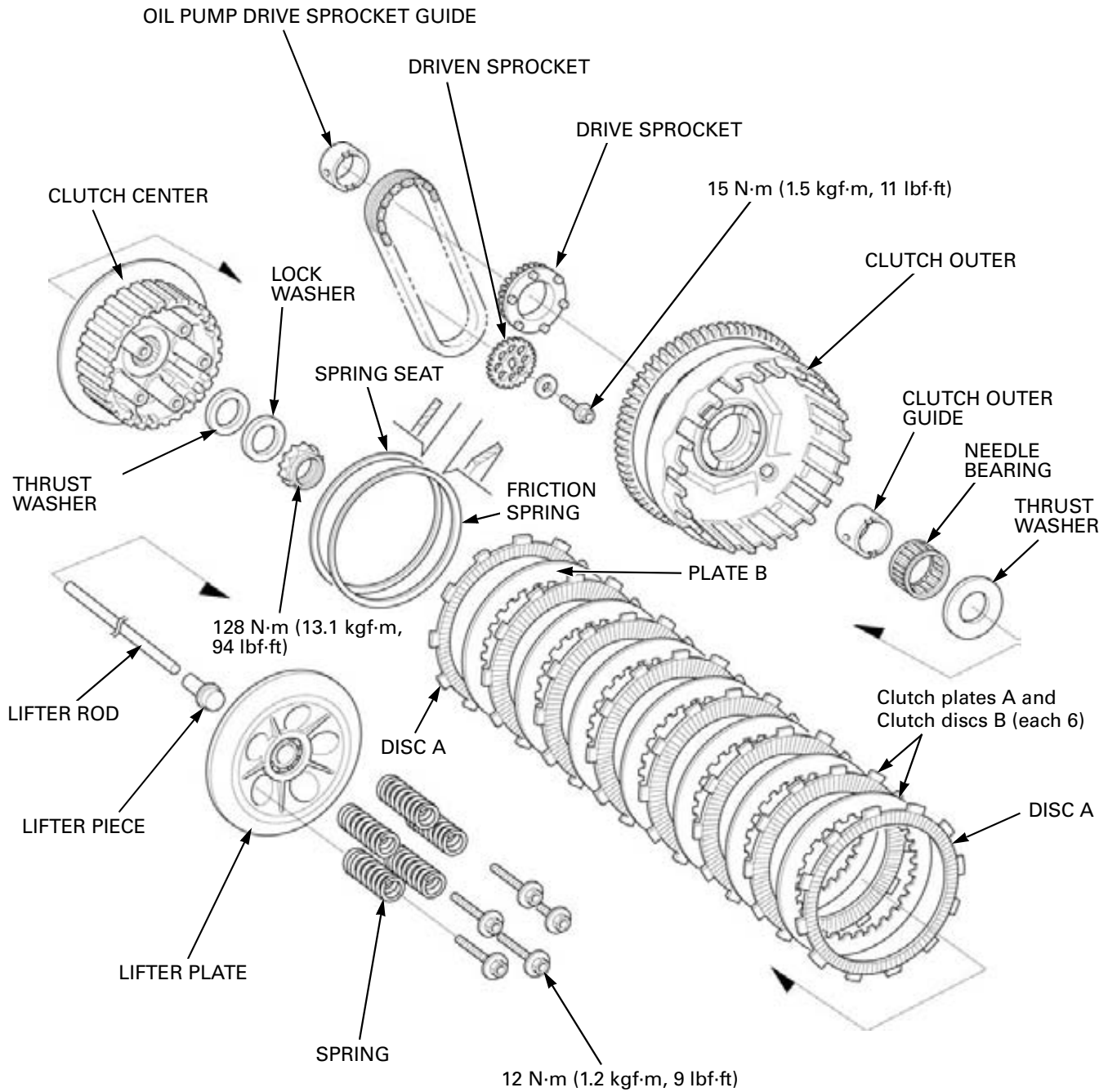
Refer to the selection table below for bearing selection.



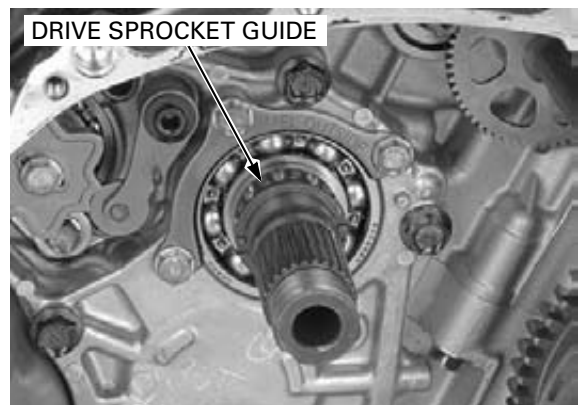
NEEDLE BEARING SELECTION TABLE:

			CLUTCH OUTER GUIDE ID MARK	
			GUIDE A (Without ID mark)	GUIDE B (With ID mark)
			35.004 – 35.012 mm (1.3781 – 1.3784 in)	34.996 – 35.004 mm (1.3778 – 1.3781 in)
PRIMARY DRIVEN GEAR I.D. MARK	A	41.008 – 41.016 mm (1.6145 – 1.6148 in)	NEEDLE BEARING B	NEEDLE BEARING A
	B	41.000 – 41.008 mm (1.6142 – 1.6145 in)	NEEDLE BEARING C	NEEDLE BEARING B

CLUTCH/STARTER CLUTCH INSTALLATION



Install the oil pump drive sprocket guide.



CLUTCH/STARTER CLUTCH

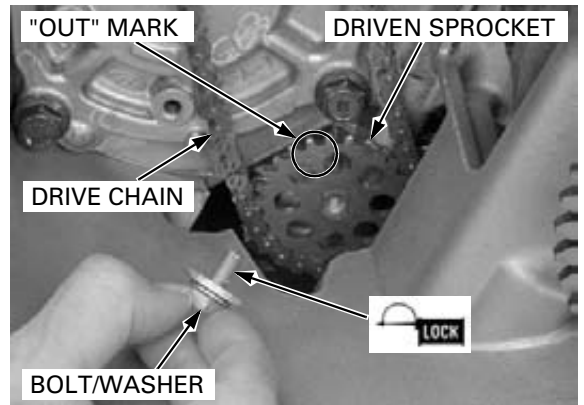
Install the oil pump driven sprocket with its "OUT" mark facing out.

Install the oil pump drive and driven sprocket with the drive chain.

Apply a locking agent to the threads of the oil pump driven sprocket bolt.

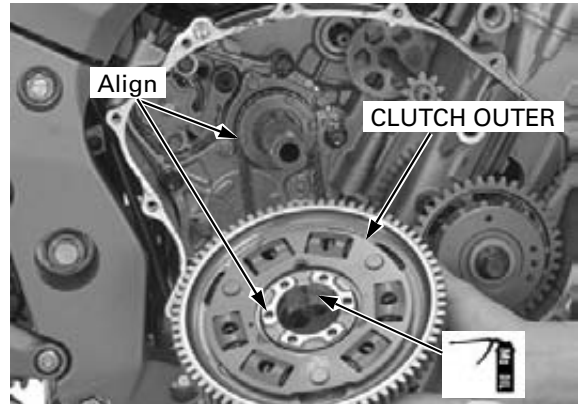
Install the oil pump driven sprocket bolt/washer and tighten the bolt to the specified torque.

TORQUE: 15 N·m (1.5 kgf·m, 11 lbf·ft)



Apply molybdenum oil solution to the clutch outer sliding surface.

Install the clutch outer while aligning the bosses on the oil pump drive sprocket with holes in the clutch outer.

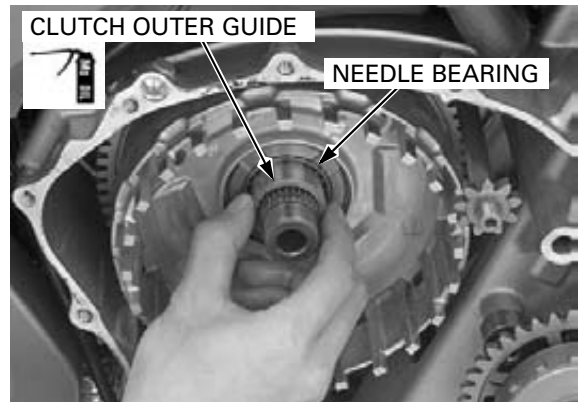


Apply molybdenum oil solution to the clutch outer guide sliding surface.

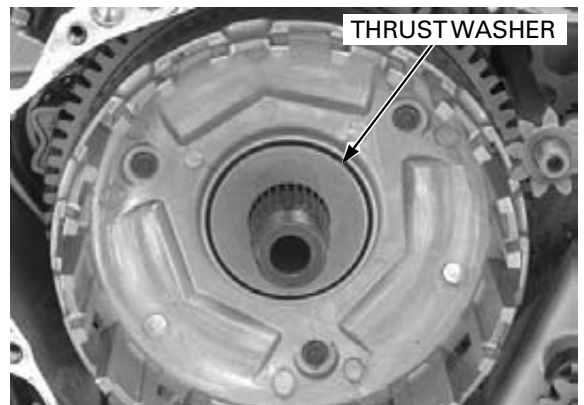
Install the clutch outer guide with its grooves facing out.

Install the clutch outer guide and needle bearing onto the mainshaft

Refer to the needle bearing selection (page 10-23).



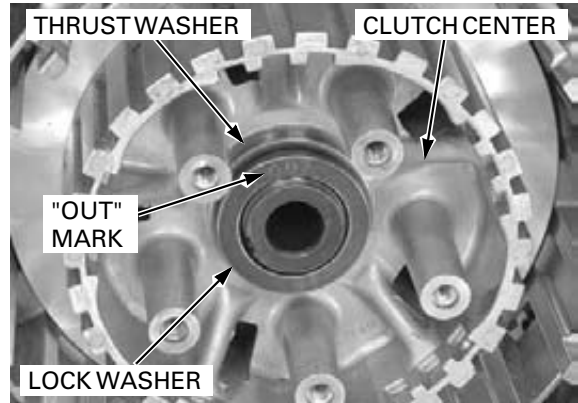
Install the thrust washer.



CLUTCH/STARTER CLUTCH

Install the clutch center and thrust washer.

Install the lock washer with its "OUT" mark facing out.



Apply oil to the threads and seating surface of a new clutch center lock nut, then install it onto the mainshaft.

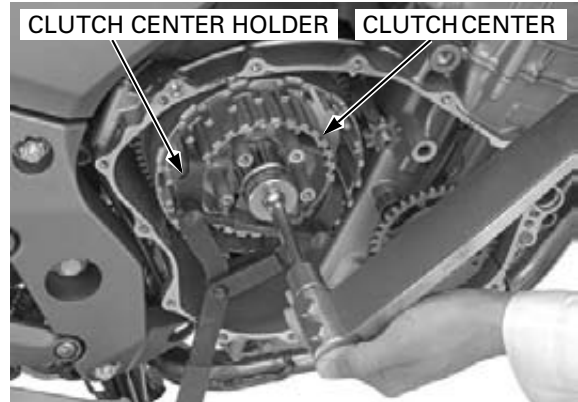
Hold the clutch center with the special tool and tighten the lock nut to the specified torque.

TOOL:

Clutch center holder

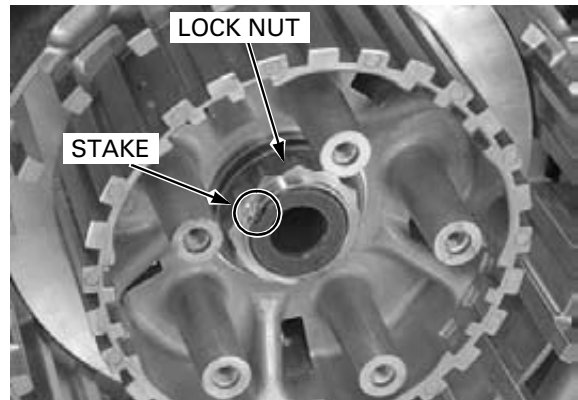
07724-0050002 or equivalent commercially available

TORQUE: 128 N·m (13.1 kgf·m, 94 lbf·ft)



Be careful not to damage the mainshaft threads.

Stake the lock nut into the mainshaft groove with a punch.



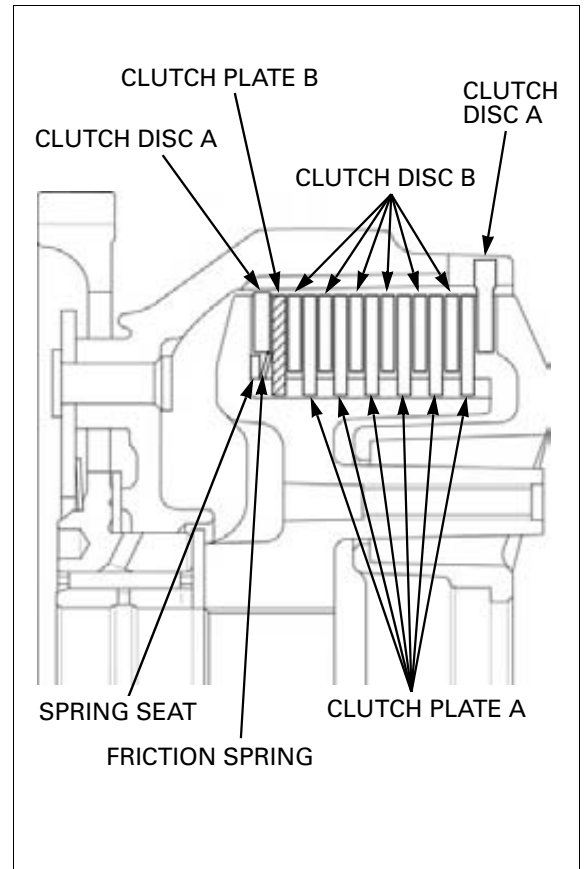
CLUTCH/STARTER CLUTCH

Install the spring seat and friction spring onto the clutch center as shown.

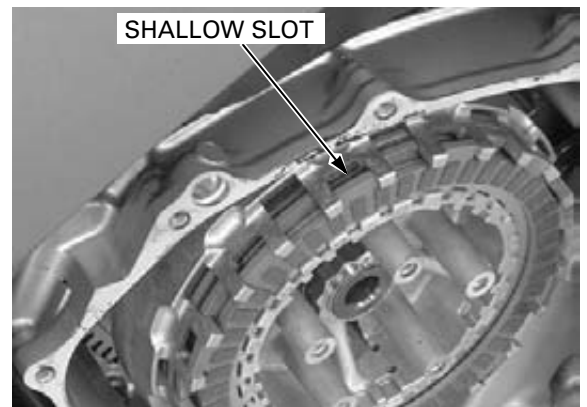
Coat the clutch discs and plates with clean engine oil.

Surface treatment of clutch plate B is different from that of plate A.

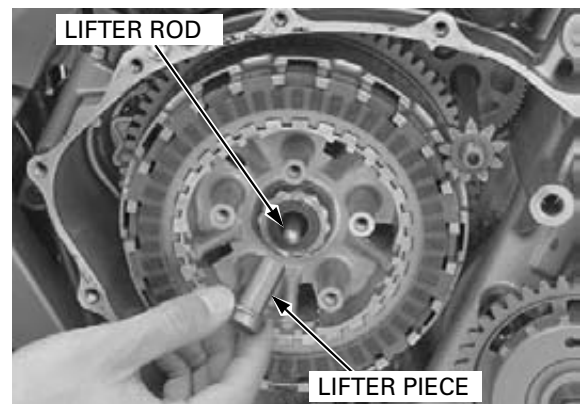
First install the clutch disc A (larger I.D. disc) onto the clutch center, and then install the clutch plate B. Stack the six clutch discs (B) and plates (A) alternately.



Install the tabs of outside clutch disc A (larger I.D. disc) into the shallow slots of the clutch outer.



Install the lifter rod and clutch lifter piece into the mainshaft.

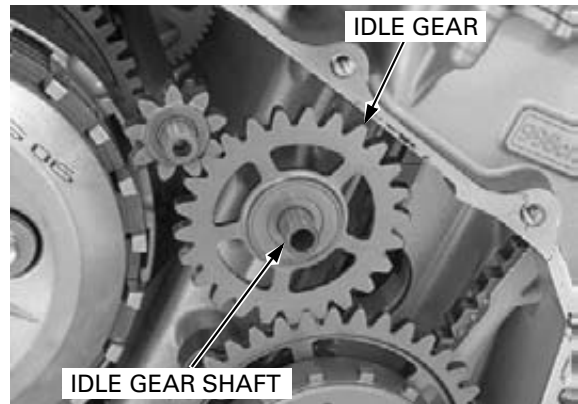
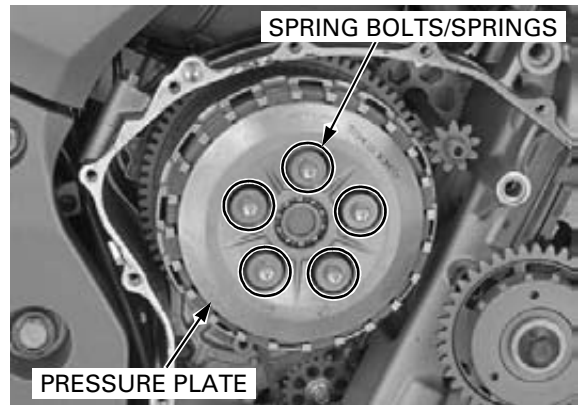


CLUTCH/STARTER CLUTCH

Install the pressure plate.
Install the clutch springs and spring bolts.
Tighten the bolts in a crisscross pattern in two to three steps, then torque them in specified value.

TORQUE: 12 N·m (1.2 kgf·m, 9 lbf·ft)

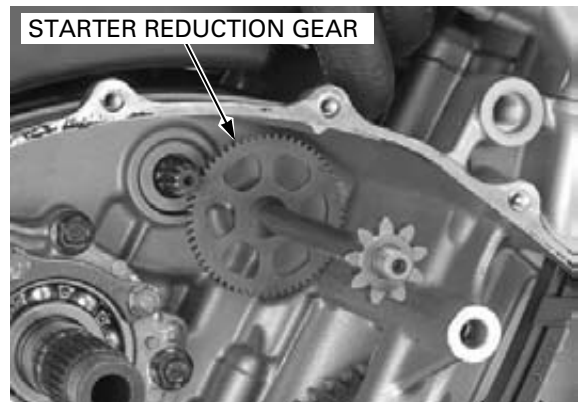
Install the shaft and starter idle gear.
Install the right crankcase cover (page 10-33).



STARTER CLUTCH

REMOVAL

Remove the clutch (page 10-17).
Remove the starter reduction gear from the crankcase.



Temporarily install the following:

- Oil pump drive sprocket outer guide
- Oil pump drive sprocket
- Clutch outer
- Clutch outer guide
- Needle bearing

Insert the gear holder between the primary drive and driven gear as shown.

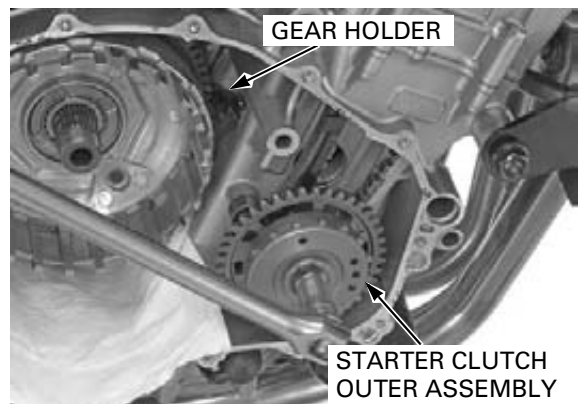
TOOL:

Gear holder, M2.5 07724-0010100

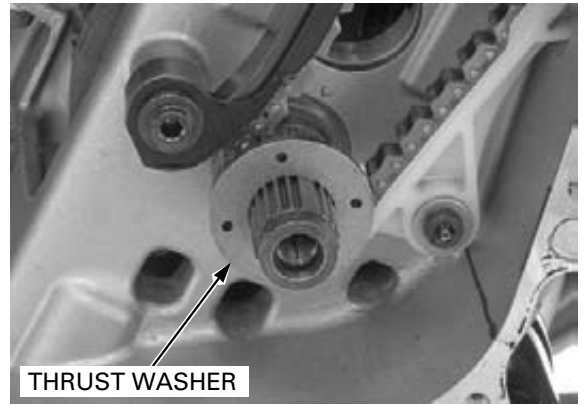
Remove the starter clutch outer special bolt and washer.

Remove the temporarily installed parts.

Remove the starter clutch outer assembly.



Remove the thrust washer.



INSPECTION

Check the operation of the one-way clutch by turning the driven gear. You should be able to turn the driven gear clockwise smoothly, but the gear should not turn counterclockwise.

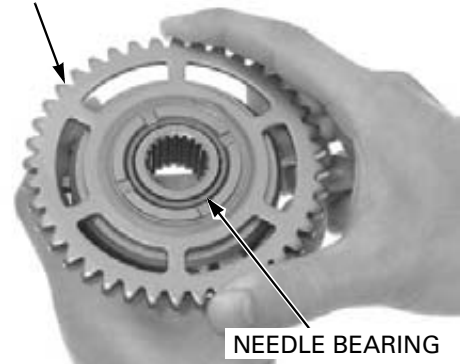


DISASSEMBLY

Remove the starter driven gear while turning it clockwise.

Remove the needle bearing.

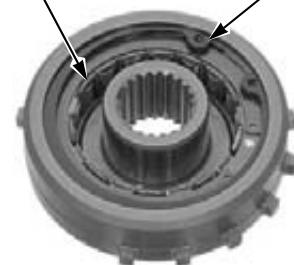
STARTER DRIVEN GEAR



Remove the snap ring and one-way clutch.

ONE-WAY CLUTCH

SNAP RING



CLUTCH/STARTER CLUTCH

Check the starter clutch outer inner surface and one-way clutch for abnormal wear or damage, and replace them if necessary.

STARTER CLUTCH OUTER



ONE-WAY CLUTCH



Check the starter driven gear for abnormal wear or damage.

Measure the starter driven gear boss O.D.

SERVICE LIMIT: 45.642 mm (1.7969 in)



Check the starter reduction gear for wear or damage, and replace it if necessary.

STARTER REDUCTION GEAR



Check the starter idle gear and shaft for wear or damage.

Measure the starter idle gear I.D. and shaft O.D.

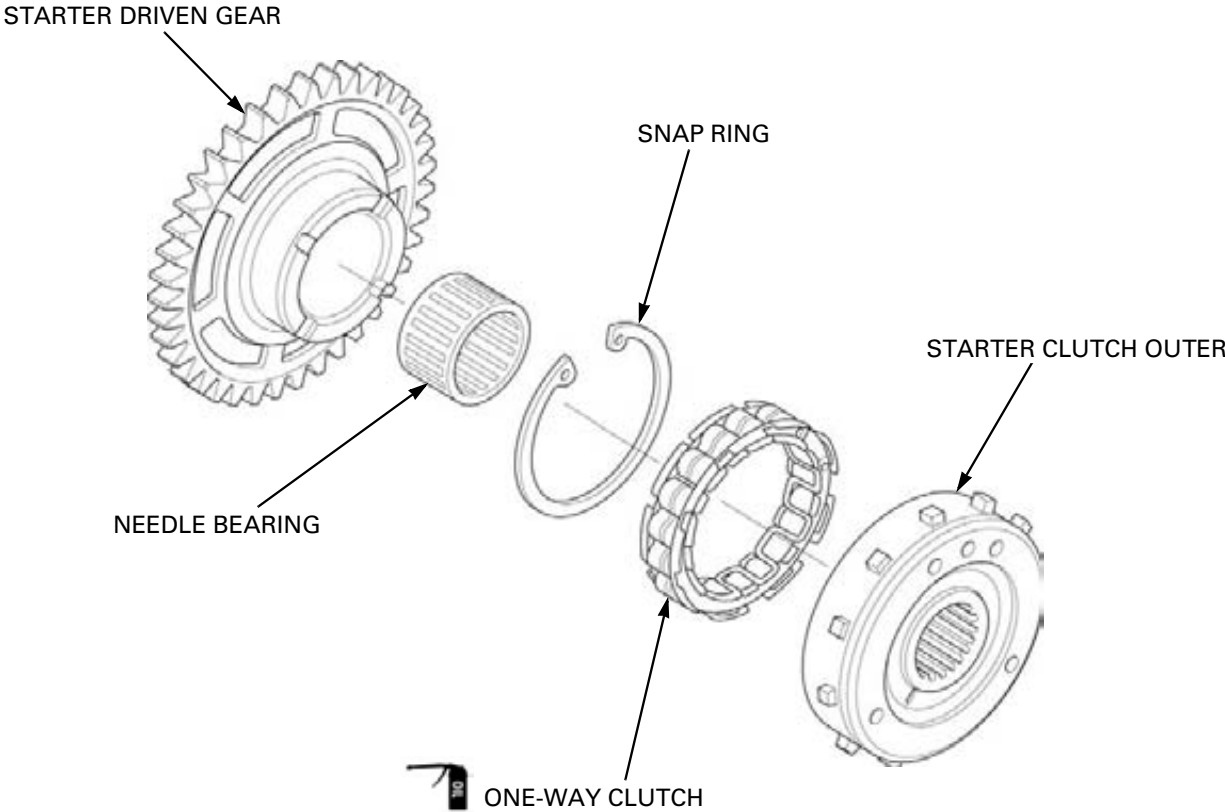
SERVICE LIMITS:

Shaft O.D.: 9.98 mm (0.393 in)

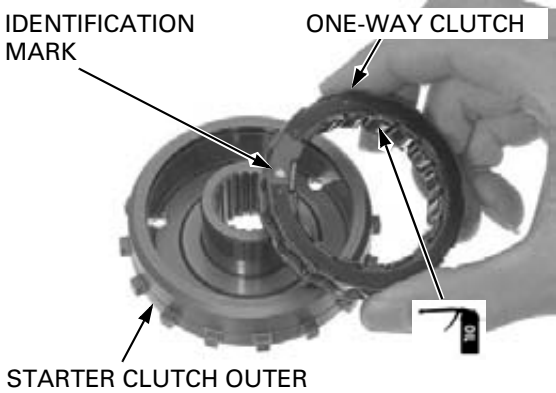
Gear I.D.: 10.05 mm (0.396 in)



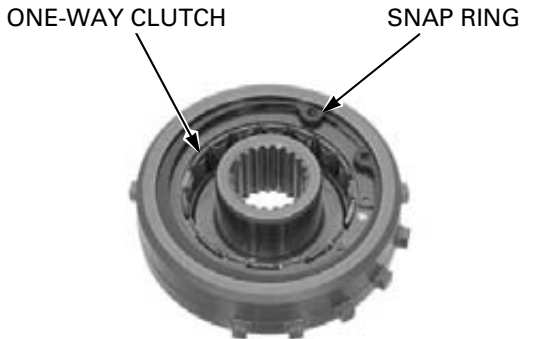
ASSEMBLY



Apply oil to the one-way clutch sliding surface. Install the one-way clutch into the starter clutch outer with its identification mark (white paint) facing out.



Install the snap ring into the starter clutch outer groove securely.



CLUTCH/STARTER CLUTCH

Install the needle bearing onto the starter clutch outer.

STARTER DRIVEN GEAR

NEEDLE BEARING

Install the starter driven gear into the starter clutch outer while turning the starter driven gear clockwise.

Recheck the one-way clutch operation (page 10-29).

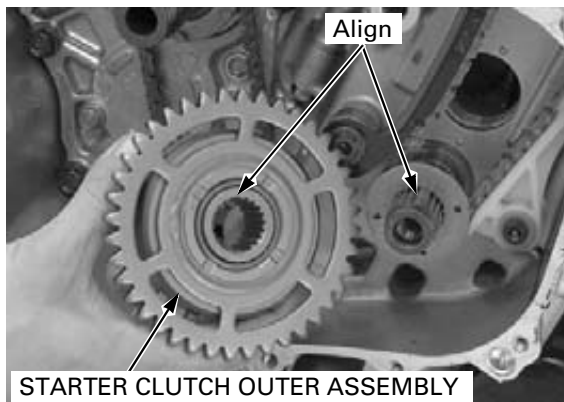
STARTER DRIVEN GEAR

INSTALLATION

Install the thrust washer onto the crankshaft.

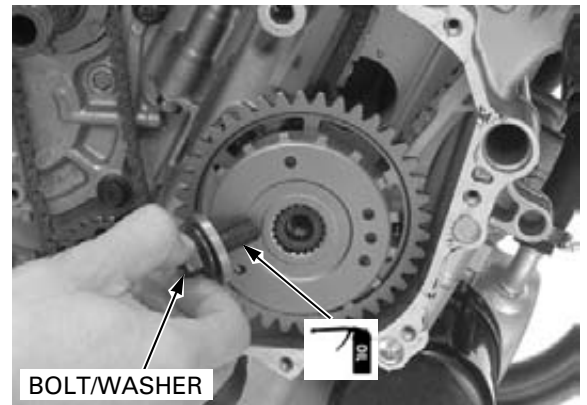


Install the starter clutch outer assembly onto the crankshaft while aligning its wide groove with the wide teeth of the crankshaft.



Apply oil to the starter clutch outer special bolt threads and seating surface.

Install the washer and starter clutch outer special bolt.



Temporarily install the following:

- Oil pump drive sprocket outer guide
- Oil pump drive sprocket
- Clutch outer
- Clutch outer guide
- Clutch outer needle bearing

Be careful not to drop the gear holder into the crankcase.

Attach the gear holder between the primary drive gear and driven gear.

TOOL:

Gear holder, M2.5 07724-0010100

Tighten the starter clutch special bolt to the specified torque.

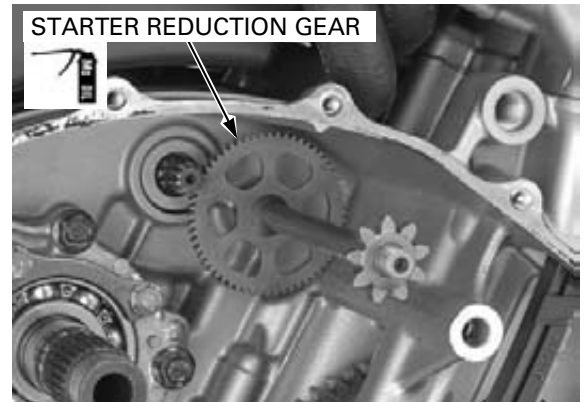
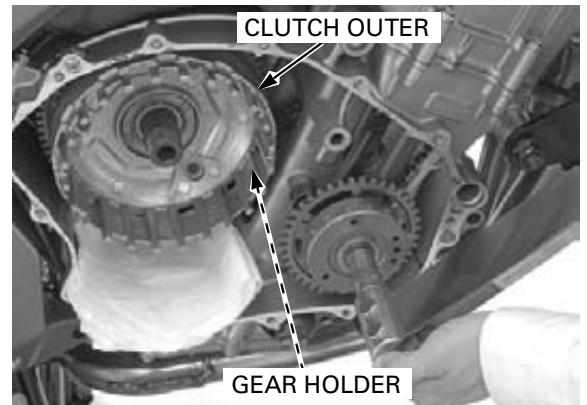
TORQUE: 83 N·m (8.5 kgf·m, 61 lbf·ft)

Remove the temporarily installed parts.

Apply molybdenum oil solution to the starter reduction gear sliding surface.

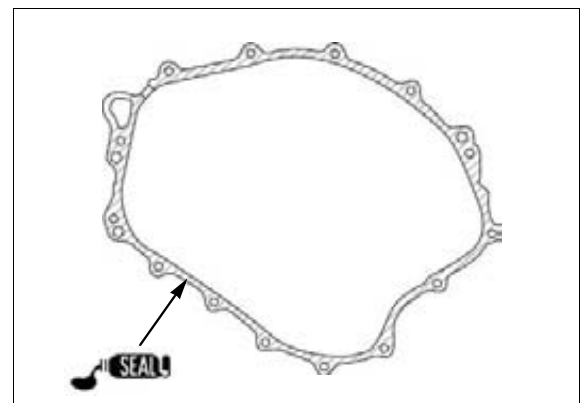
Install the starter reduction gear into the crankcase.

Install the clutch (page 10-24).



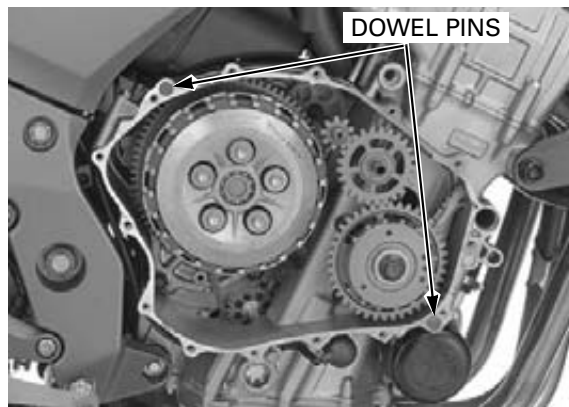
RIGHT CRANKCASE COVER INSTALLATION

Apply sealant (Three Bond 1207B) to the mating surface of the right crankcase cover.

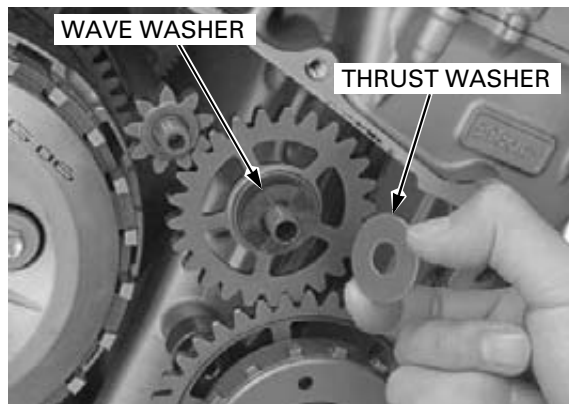


CLUTCH/STARTER CLUTCH

Install the two dowel pins.



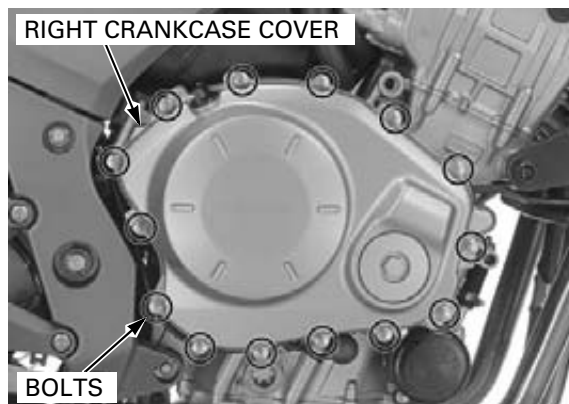
Install the wave washer and thrust washer onto the starter idle gear.



Install the right crankcase cover while aligning the starter idle gear shaft and reduction gear shaft with the holes in the right crankcase cover, then align the dowel pins with the cover holes.

Install the right crankcase cover bolts.

Tighten the right crankcase cover bolts in a criss-cross pattern in two to three steps.



Connect the CKP sensor 2P (Red) connector.

Add the recommended engine oil (page 4-16).

Check the clutch operation (page 4-28).

