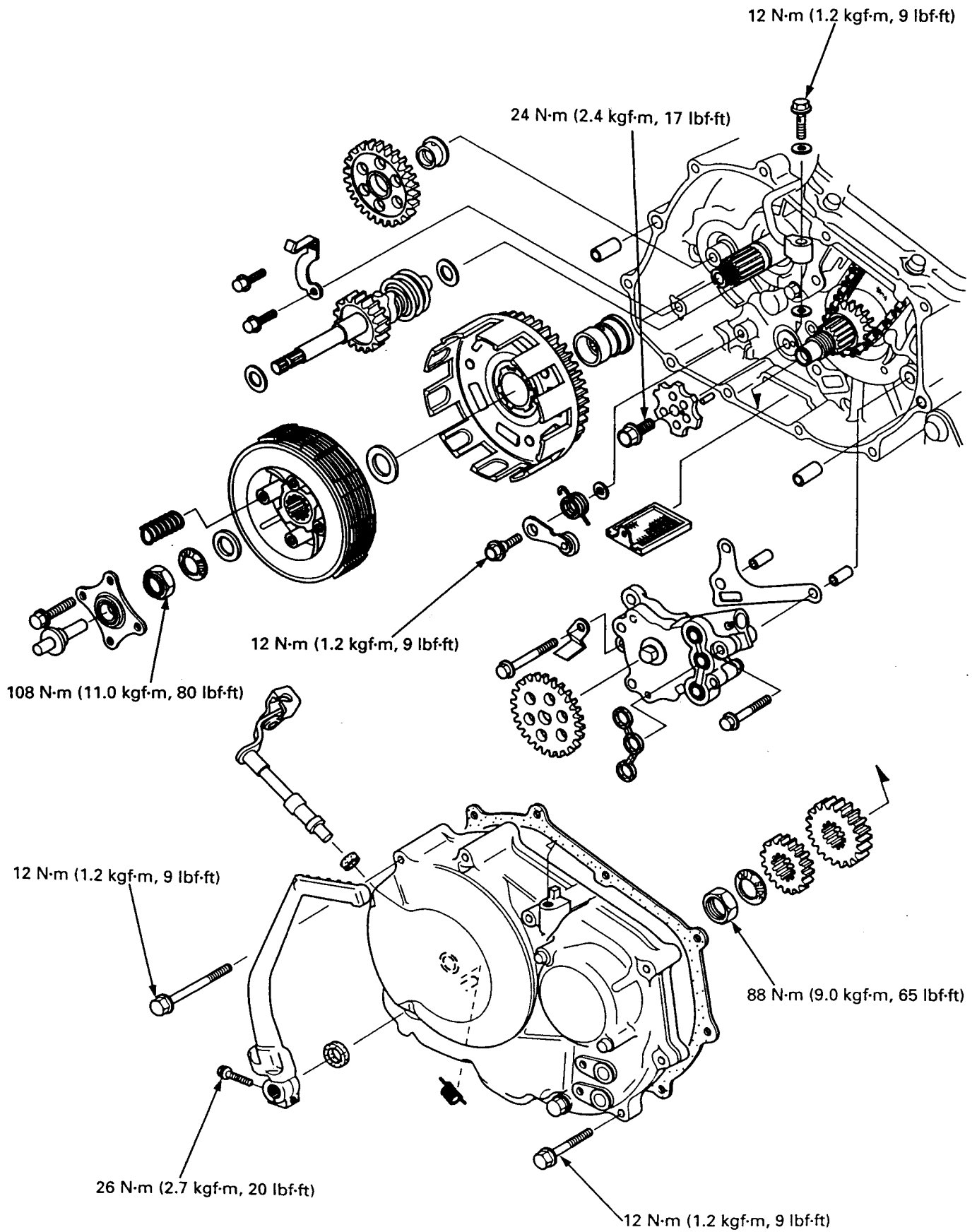


CLUTCH/KICKSTARTER/GEARSHIFT LINKAGE



9. CLUTCH/KICKSTARTER/GEARSHIFT LINKAGE

SERVICE INFORMATION	9-1	KICKSTARTER REMOVAL/ DISASSEMBLY	9-12
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CLUTCH REMOVAL	9-5	RIGHT CRANKCASE COVER INSTALLATION	9-17
PRIMARY DRIVE GEAR	9-8		
CLUTCH INSTALLATION	9-10		

SERVICE INFORMATION

GENERAL

- This section covers maintenance of the clutch, kickstarter, gearshift linkage and right crankcase cover. These services can be done with the engine installed in the frame.
- When the existing clutch discs are replaced, coat the new discs with engine oil prior to assembly.

SPECIFICATIONS

Unit: mm (in)

ITEM			STANDARD	SERVICE LIMIT
Clutch	Lever free play		10 – 20 (3/8 – 3/4)	—
	Spring free length		37.2 (1.46)	33.5 (1.32)
	Disc thickness		2.92 – 3.08 (0.115 – 0.121)	2.69 (0.106)
	Plate warpage		—	0.30 (0.012)
	Clutch outer I.D.		25.000 – 25.021 (0.9843 – 0.9851)	25.04 (0.986)
	Outer guide	I.D.	19.990 – 20.010 (0.7870 – 0.7878)	20.03 (0.789)
		O.D.	24.959 – 24.980 (0.9826 – 0.9835)	24.17 (0.952)
	Mainshaft O.D. at clutch outer guide		19.959 – 19.980 (0.7858 – 0.7866)	19.91 (0.784)
Kickstarter	Starter idle gear I.D.		19.010 – 19.034 (0.7484 – 0.7494)	19.13 (0.753)
	Starter idle gear bushing	I.D.	15.000 – 15.018 (0.5906 – 0.5913)	15.04 (0.592)
		O.D.	18.959 – 18.980 (0.7464 – 0.7472)	18.92 (0.745)
	Kickstarter gear I.D.		25.020 – 25.041 (0.9850 – 0.9859)	25.12 (0.989)
	Kickstarter gear bushing	I.D.	22.000 – 22.021 (0.8661 – 0.8670)	22.10 (0.870)
		O.D.	24.979 – 25.000 (0.9834 – 0.9843)	24.90 (0.980)
	Kickstarter spindle O.D.		21.959 – 21.980 (0.8645 – 0.8654)	21.91 (0.863)
Countershaft O.D. at starter idle gear		14.966 – 14.984 (0.5892 – 0.5899)	14.91 (0.587)	

CLUTCH/KICKSTARTER/GEARSHIFT LINKAGE

TORQUE VALUES

Right crankcase cover bolt	12 N·m (1.2 kgf·m, 9 lbf·ft)
Stopper arm pivot bolt	12 N·m (1.2 kgf·m, 9 lbf·ft)
Gearshift cam bolt	24 N·m (2.4 kgf·m, 17 lbf·ft) Apply a locking agent to the threads.
Clutch center lock nut	108 N·m (11.0 kgf·m, 80 lbf·ft) Stake and apply oil to the threads and flange surface.
Primary drive gear lock nut	88 N·m (9.0 kgf·m, 65 lbf·ft) Apply oil to the threads and flange surface
Kickstarter pedal bolt	26 N·m (2.7 kgf·m, 20 lbf·ft)

TOOLS

Special

Clutch center holder 07923 – KE10000

Common

Gear holder 07724 – 0010100

TROUBLESHOOTING

- Faulty clutch operation can usually be corrected by adjusting the clutch lever free play.

Clutch slips when accelerating

- No free play
- Discs worn
- Springs weak

Clutch will not disengage

- Too much free play
- Plates warped

Motorcycle creeps with clutch disengaged

- Too much free play
- Plates warped

Excessive lever pressure

- Clutch cable kinked, damaged or dirty
- Lifter mechanism damaged

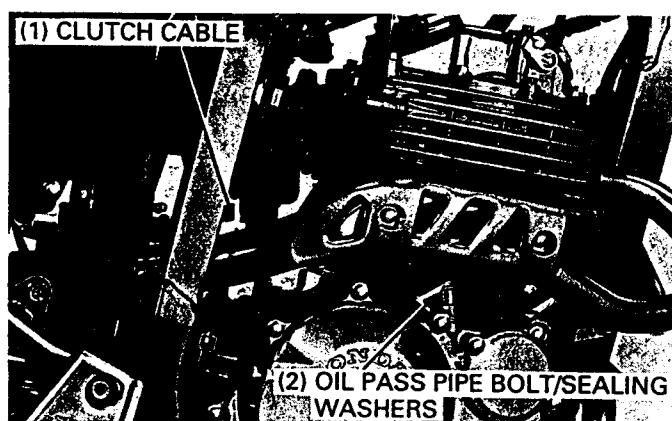
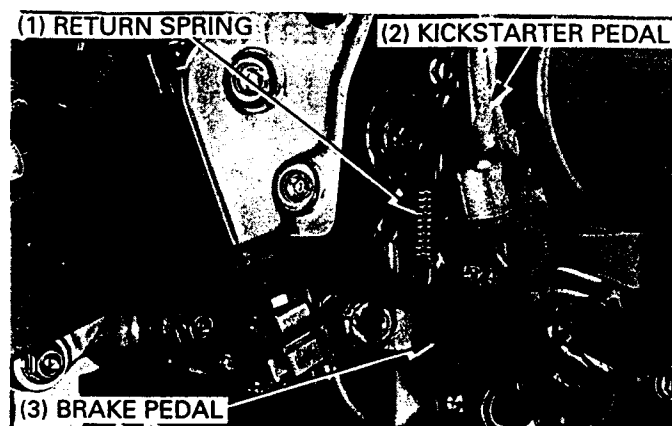
Clutch operation feels rough

- Outer drum slots rough
- Dirty clutch cable

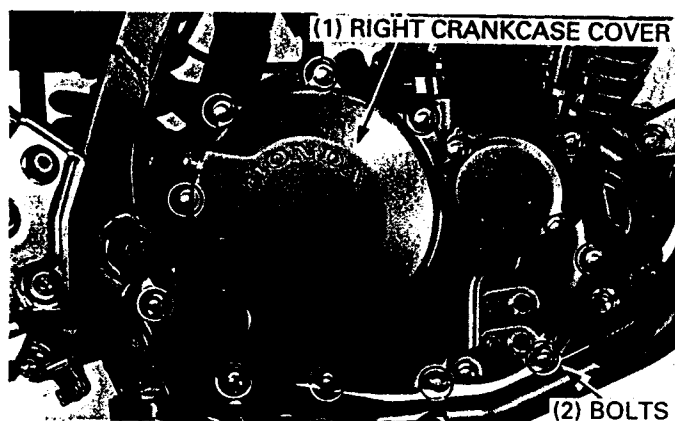
RIGHT CRANKCASE COVER REMOVAL

Drain the engine oil (page 3-10).
 Remove the under guard (page 2-3).
 Remove the oil pipes (page 4-9).
 Remove the kickstarter pedal.
 Remove the brake pedal return spring and brake pedal (page 15-26).
 Remove the exhaust pipe (page 2-3).
 Loosen the oil pass pipe joint bolt.
 Remove the oil pass pipe joint bolt (right crankcase cover side) and sealing washers.

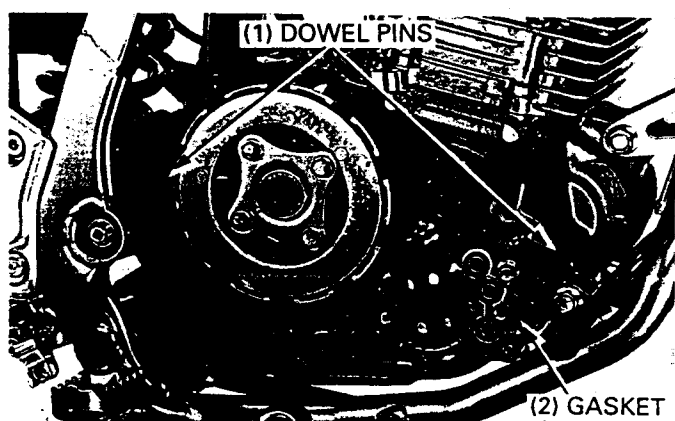
Loosen the clutch cable lock nut and adjusting nut.
 Remove the clutch cable from the clutch arm.



Remove the bolts and right crankcase cover.



Remove the gasket and dowel pins.

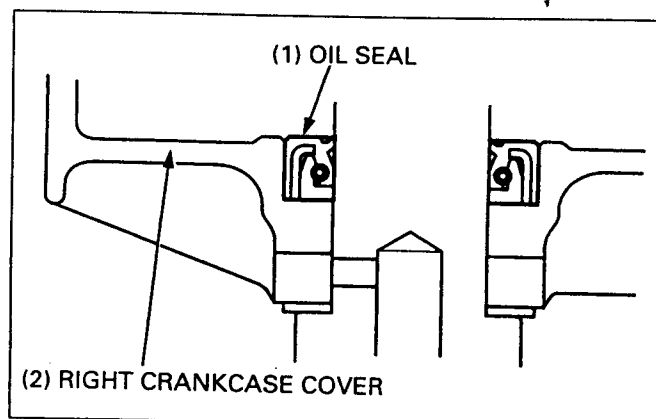
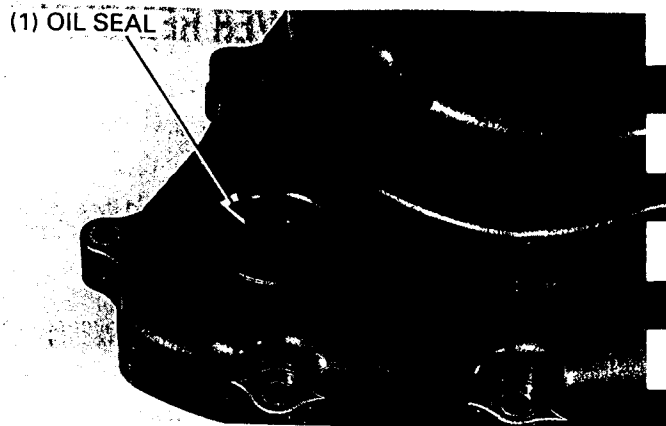


CLUTCH/KICKSTARTER/GEARSHIFT LINKAGE

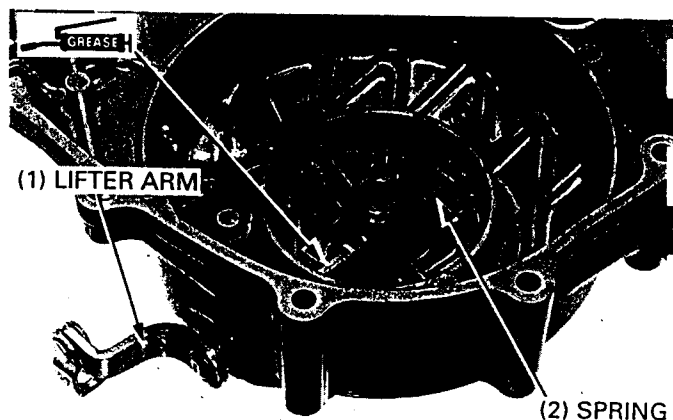
RIGHT CRANKCASE COVER INSPECTION

Inspect the oil seal and replace if necessary.

Install the new oil seal with the mark facing out.
Press the oil seal into the crankcase even with the case surface as shown.

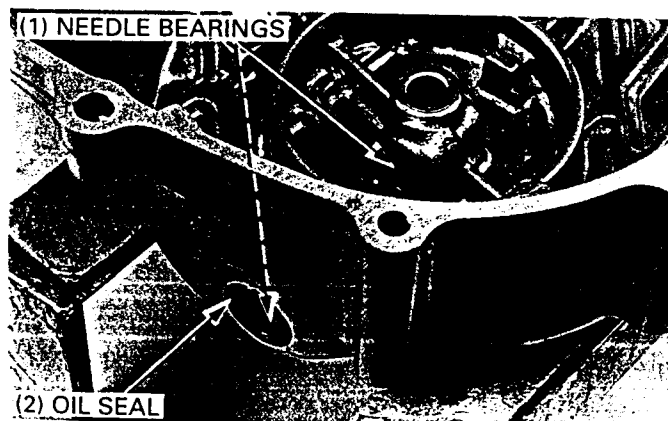


Remove the spring and clutch lifter arm.
Inspect the lifter arm and replace if worn or damaged.
Apply grease to the clutch lifter arm sliding surface.



Inspect the oil seal and replace if worn or damaged.
Inspect the needle bearing and replace if worn or damaged.

Press the oil seal into the crankcase even with the case surface.

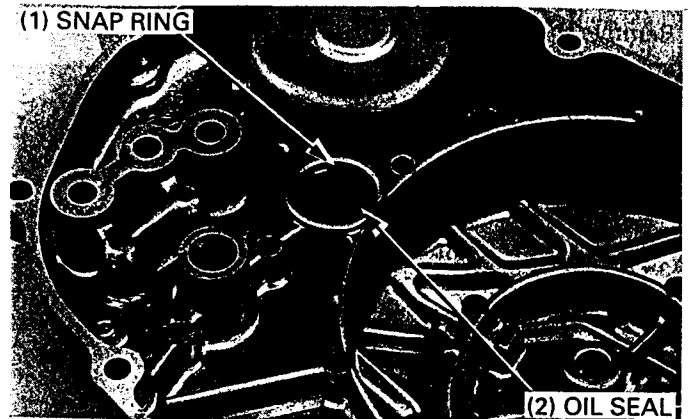


CLUTCH/KICKSTARTER/GEARSHIFT LINKAGE

Remove the snap ring and oil seal.
Inspect the oil seal and replace if worn or damaged.

Press the oil seal into the crankcase below the snap ring groove.

Install the snap ring.



CLUTCH REMOVAL

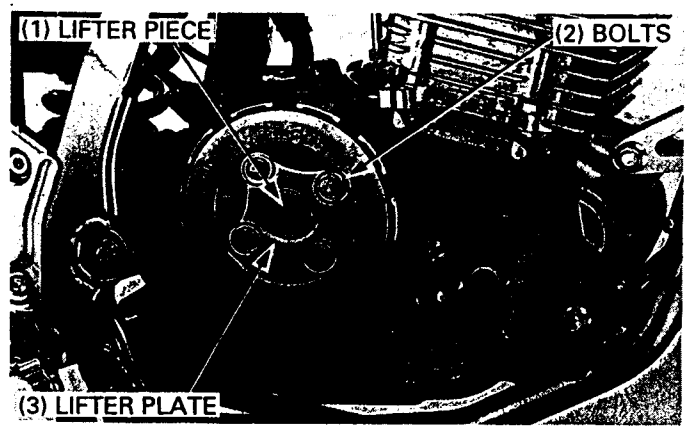
Remove the right crankcase cover (page 9-3).

Remove the clutch lifter piece.

Remove the clutch lifter plate bolts, clutch lifter plate, lifter bearing and clutch springs.

NOTE

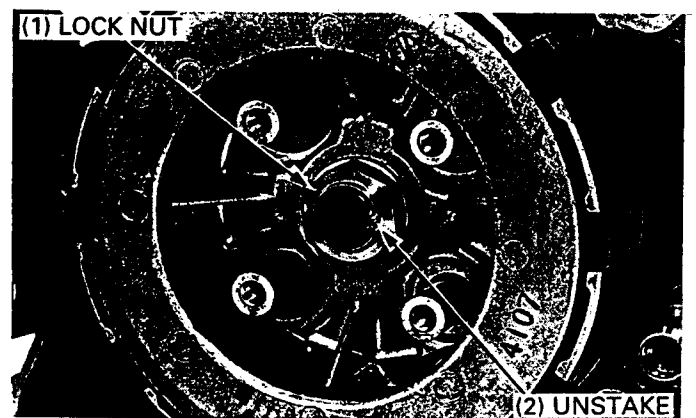
- Loosen the bolts in a crisscross pattern in 2-3 steps.



Unstake the lock nut with a drill or grinder.

NOTE

- Be careful that the threads on the main shaft are not damaged.
- Clean any metal sharings.

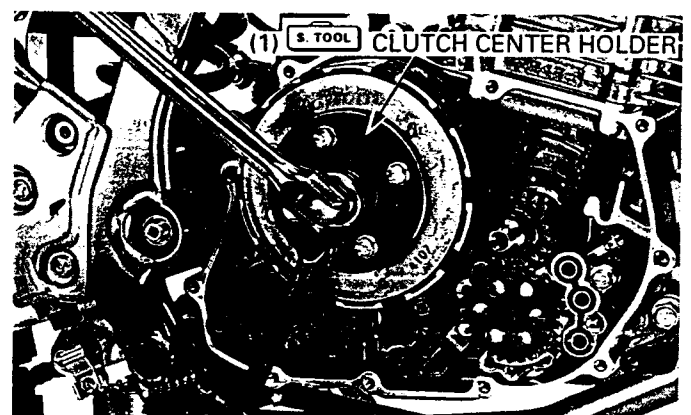


Attach the clutch center holder to the pressure plate with four clutch bolts and remove the lock nut, lock washer and thrust washer.

TOOL:

Clutch center holder

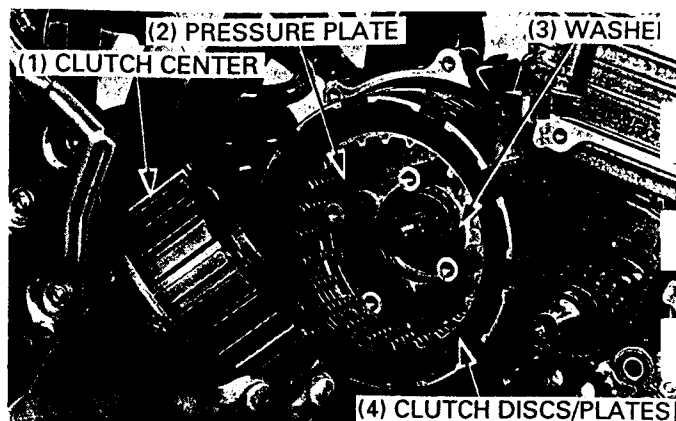
07923 - KE10000



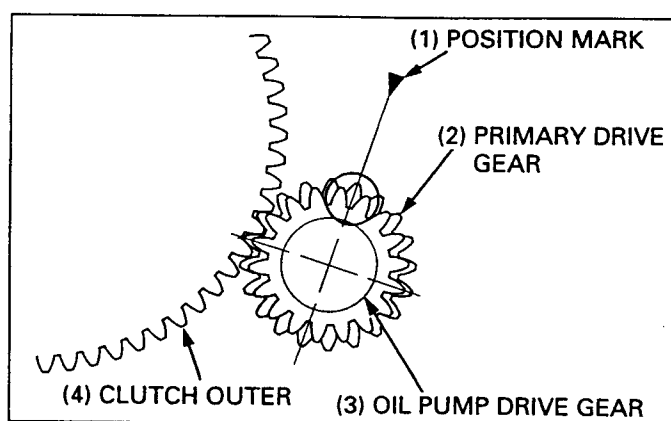
CLUTCH/KICKSTARTER/GEARSHIFT LINKAGE

Remove the following:

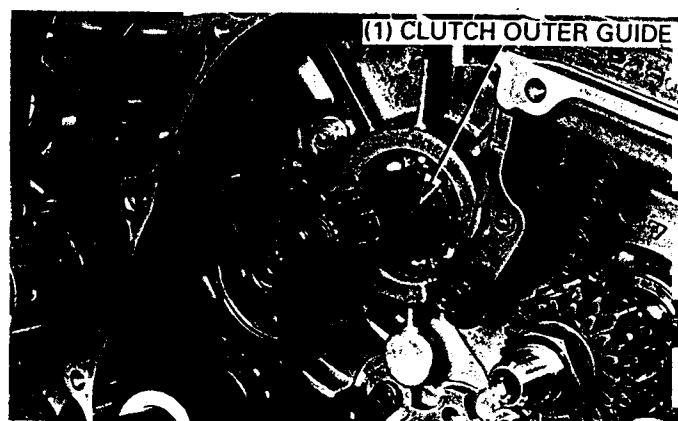
- Clutch center
- Washer
- Six clutch plates
- Five friction discs
- Pressure plate



Align the oil pump drive gear teeth and primary drive gear teeth with the position mark on the crankcase as shown. Remove the clutch outer.



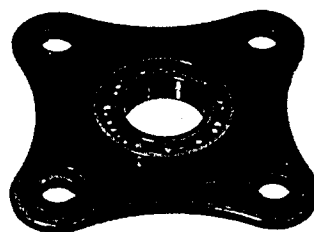
Remove the clutch outer guide.



CLUTCH INSPECTION

Lifter plate bearing inspection

Check the bearing for wear, excessive play or damage and replace it if necessary.



CLUTCH/KICKSTARTER/GEARSHIFT LINKAGE

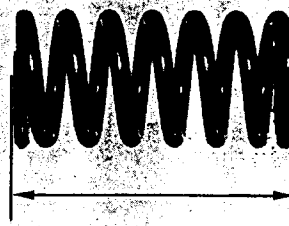
Clutch spring inspection

Measure the free length of each spring.

SERVICE LIMIT: 33.5 mm (1.32 in)

NOTE

- Clutch springs should be replaced as a set if one or more is below the service limit.



Clutch disc inspection

Replace the discs if they show signs of scoring or discoloration. Measure the disc thickness.

SERVICE LIMIT: 2.69 mm (0.106 in)

NOTE

- Clutch discs should be replaced as a set if one or more is less than the service limit.



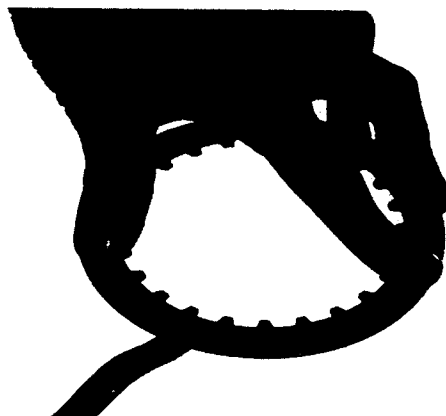
Friction plate inspection

Check for plate warpage on a surface plate, using a feeler gauge.

SERVICE LIMIT: 0.30 mm (0.012 in)

NOTE

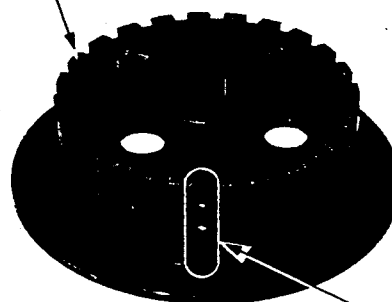
- Warped friction plates prevents the clutch from disengaging properly.



Clutch center inspection

Check the slots of the clutch center for wear, damage or cracks.

(1) CLUTCH CENTER



(2) SLOTS

CLUTCH/KICKSTARTER/GEARSHIFT LINKAGE

Clutch outer and outer guide inspection

Check the slots in the outer drum for nicks, cuts or indentations made by the clutch discs.

Measure the I.D. of the clutch outer.

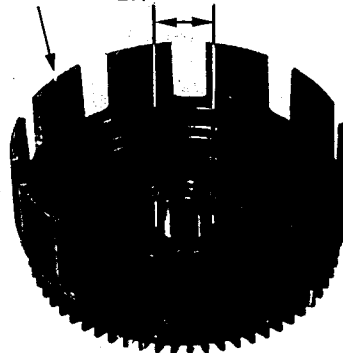
SERVICE LIMIT: 25.04 mm (0.986 in)

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

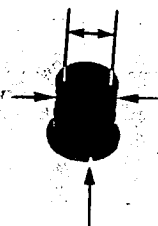
SERVICE LIMIT: I.D.: 20.03 mm (0.789 in)

O.D.: 24.17 mm (0.952 in)

(1) CLUTCH OUTER



(2) CLUTCH OUTER GUIDE

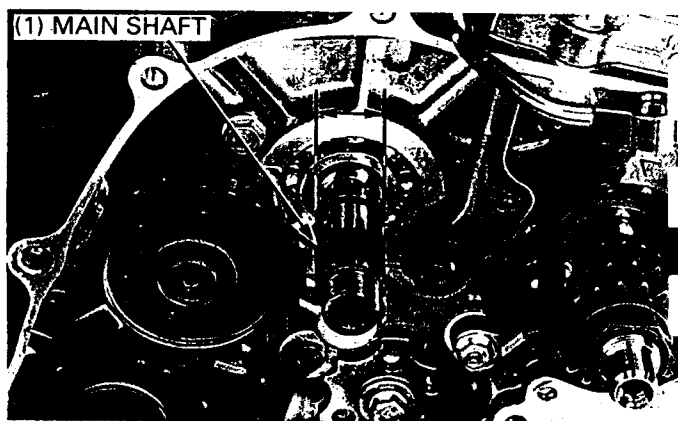


Mainshaft inspection

Measure the mainshaft O.D. at the clutch outer guide area.

SERVICE LIMIT: 19.91 mm (0.784 in)

(1) MAIN SHAFT



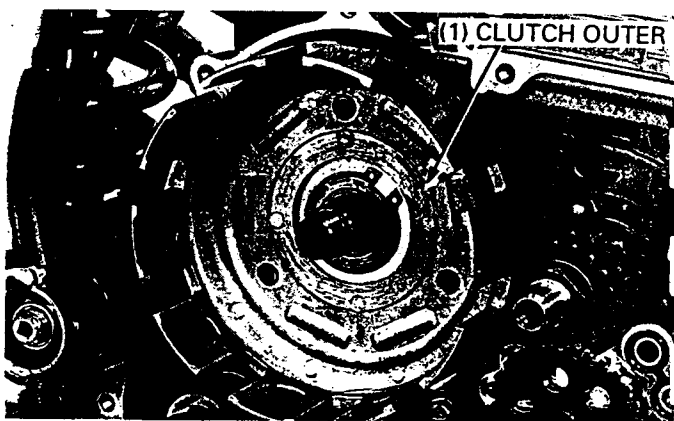
PRIMARY DRIVE GEAR

REMOVAL

Remove the clutch (page 9-5).

Remove the oil pump (page 4-3).

Install the clutch outer guide and clutch outer to the mainshaft.



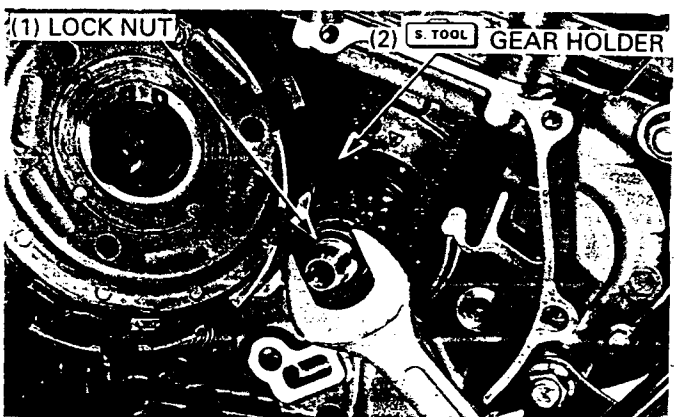
Place the gear holder between the primary drive gear and driven gear.

Remove the primary drive gear lock nut.

TOOL:

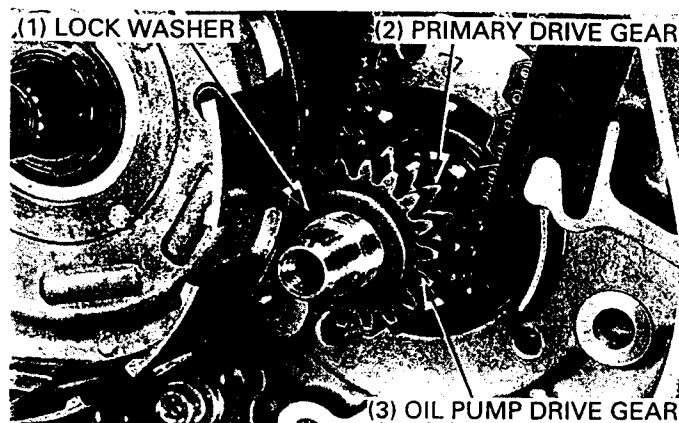
Gear holder

07724 - 0010100



CLUTCH/KICKSTARTER/GEARSHIFT LINKAGE

Remove the lock washer.
Remove the gear holder, clutch outer and outer guide.
Remove the oil pump drive gear and primary drive gear.



INSTALLATION

Install the primary drive gear.

NOTE

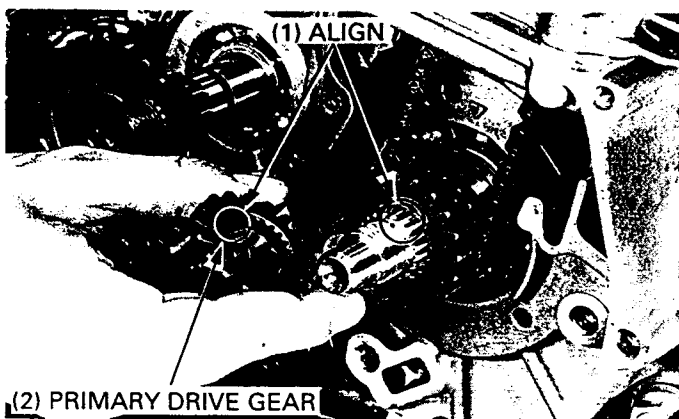
- Install the drive gear aligning the wide cutout with the crankshaft spindle.



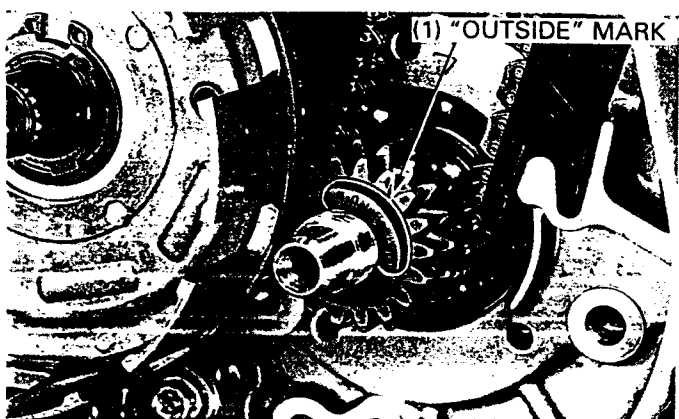
Install the oil pump drive gear.

NOTE

- Install the drive gear aligning the wide cut-out with the crankshaft spindle.



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



CLUTCH/KICKSTARTER/GEARSHIFT LINKAGE

Install the clutch outer guide and clutch outer (page 9-10).
Place the gear holder between the drive gear and driven gear.

TOOL:

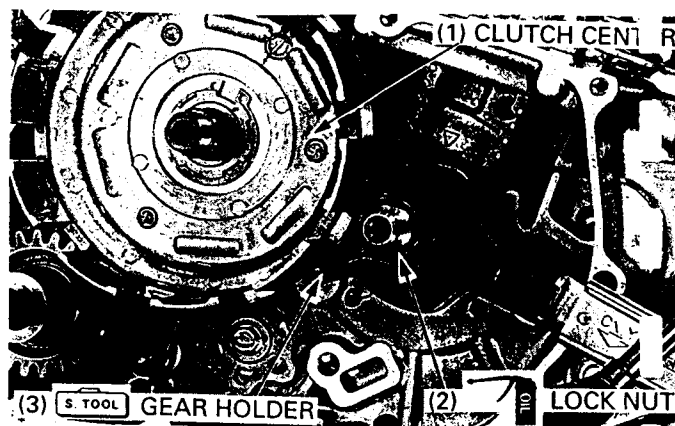
Gear holder

07724 - 0010100

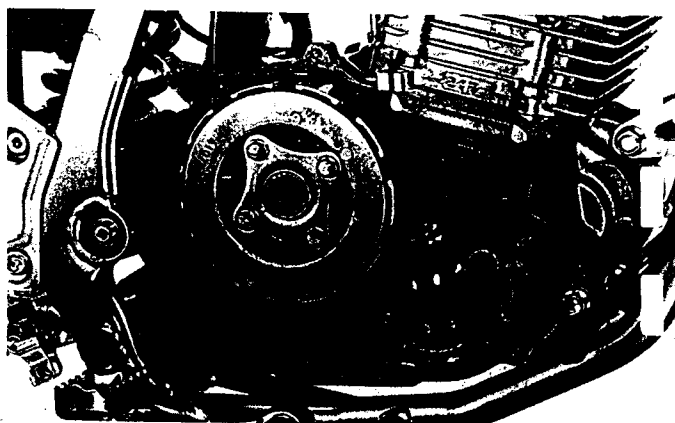
Apply engine oil to the primary lock nut threads and seating surface.

Install and tighten the primary drive gear lock nut.

TORQUE: 88 N·m (9.0 kgf-m, 65 lbf-ft)



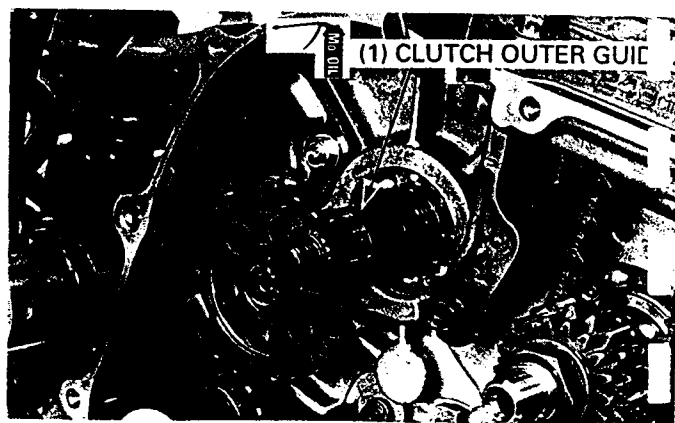
Remove the gear holder, clutch outer and outer guide.
Install the oil pump (page 4-7).
Install the clutch (page 9-10).
Install the right crankcase cover (page 9-17).



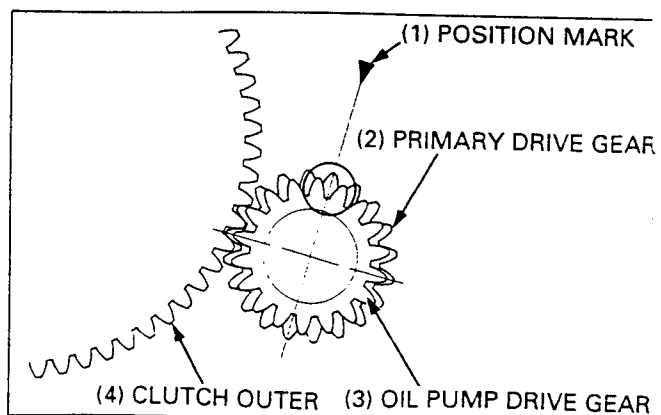
CLUTCH INSTALLATION

Apply molybdenum disulfide oil to the outer surface of the clutch outer guide.

Install the clutch outer guide to the mainshaft.

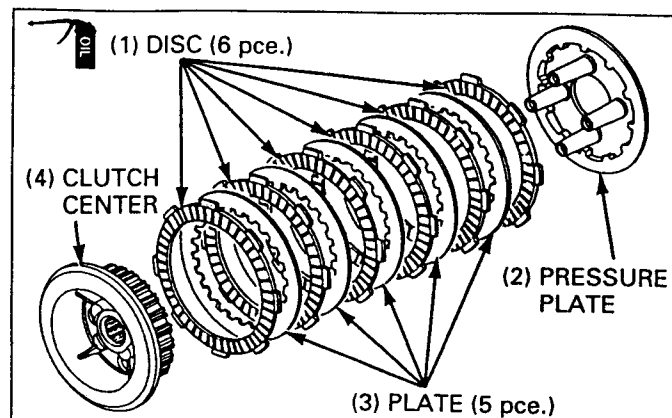


Align the oil pump drive gear teeth and primary drive gear teeth with the position mark on the crankcase as shown.
Install the clutch outer.



CLUTCH/KICKSTARTER/GEARSHIFT LINKAGE

Install the thrust washer.
Coat the clutch discs with engine oil.
Install the pressure plate in the clutch outer.
Install the six friction discs and five clutch plates alternately.
Install the discs and plates alternately, starting with a disc.
Install the clutch center.

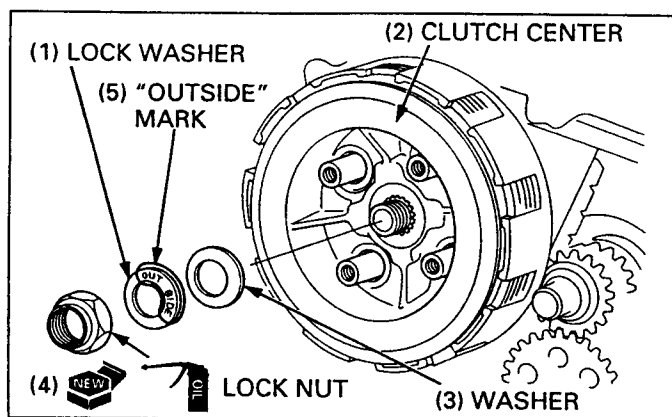


Install the thrust washer and lock washer.

NOTE

- Install the lock washer with the "OUT SIDE" marks facing out side.

Apply engine oil to the new clutch center lock nut threads and seating surface and install it.



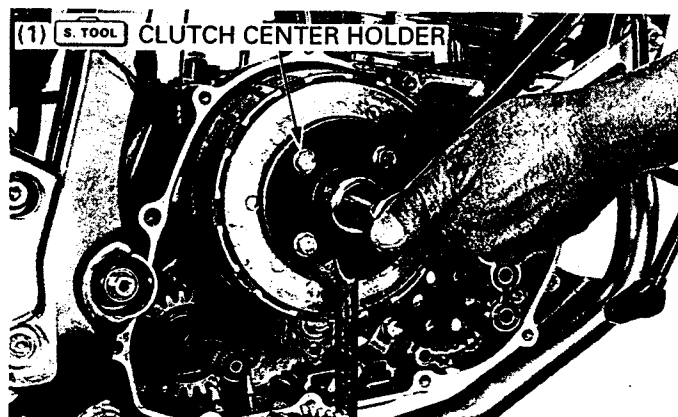
Install the clutch center holder to the clutch center.

TOOL:

Clutch center holder 07923 - KE10000

Tighten the clutch center lock nut to the specified torque.

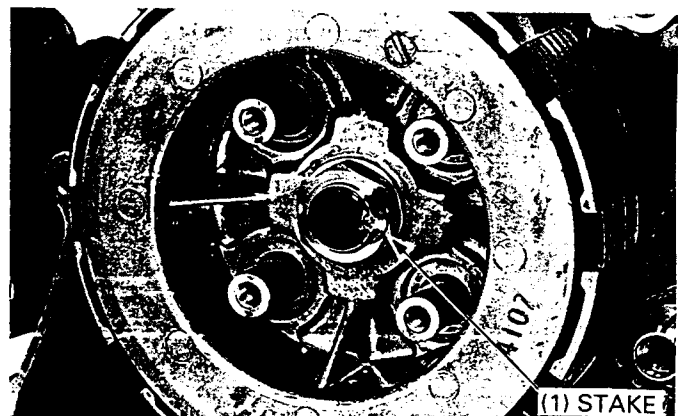
TORQUE: 108 N-m (11.0 kgf-m, 80 lbf-ft)



Remove the clutch center holder and stake the lock nut.

NOTE

- Be careful that the threads on the mainshaft are not damaged.



CLUTCH/KICKSTARTER/GEARSHIFT LINKAGE

Install the following:

- Clutch springs
- Clutch lifter plate
- Clutch lifter plate bolts

NOTE

- Tighten the bolts in a crisscross pattern in 2-3 steps.

- Clutch lifter piece

NOTE

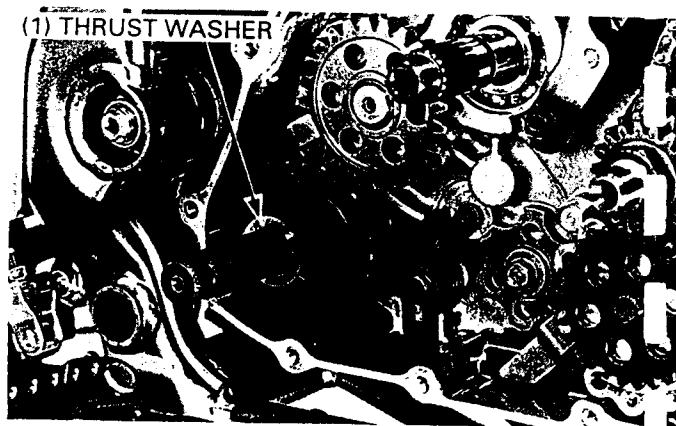
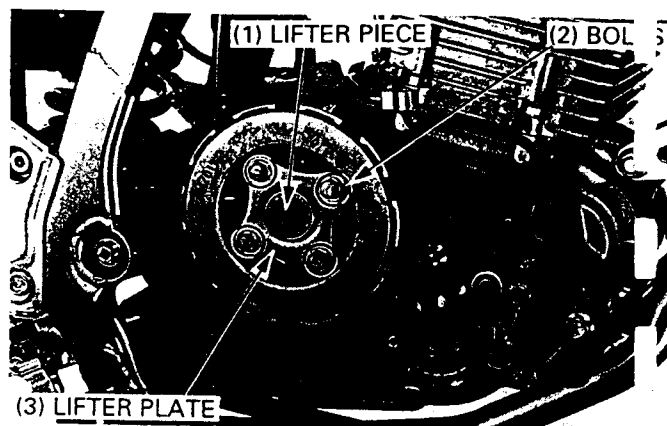
- After installation, check that the clutch lifter piece turns freely.

- Right crankcase cover (page 9-17).

KICKSTARTER REMOVAL/DISASSEMBLY

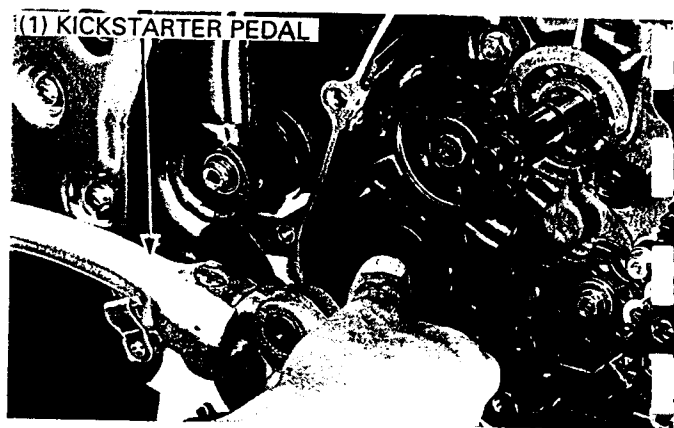
Remove the clutch (page 9-5).

Remove the thrust washer from the kickstarter spindle.



Install the kickstarter pedal to the kickstarter spindle. Pull the pedal out while rotating it counterclockwise until the tab on the kickstarter ratchet is released from behind the stopper plate. Turn the spindle clockwise until it will no longer go.

Release the hook end of the return spring from the crankcase groove; remove the kickstarter spindle.

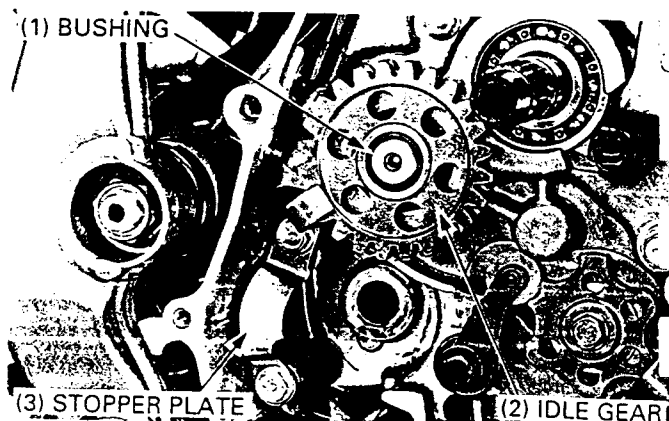


Remove the washer.

Remove the kickstarter pedal.

Remove the following from the countershaft:

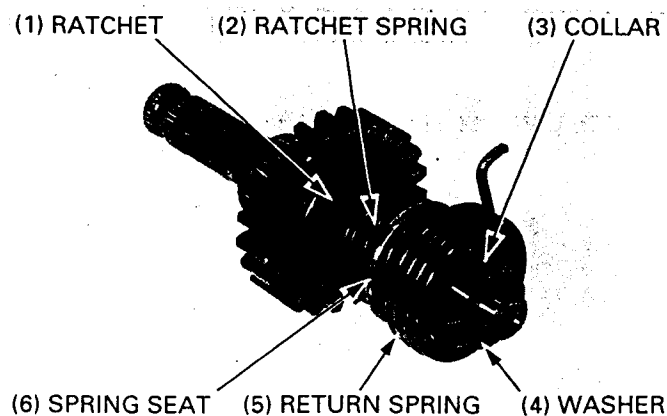
- Stopper plate
- Starter idle gear
- Idle gear bushing



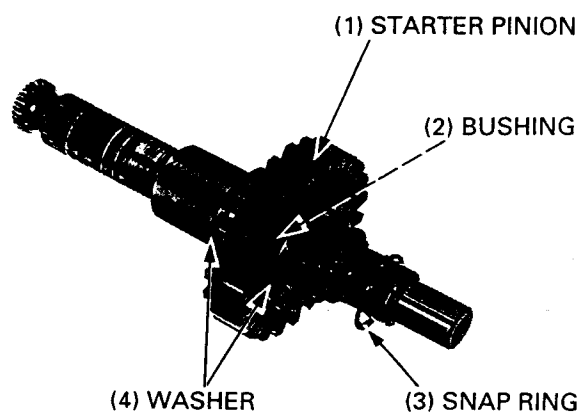
CLUTCH/KICKSTARTER/GEARSHIFT LINKAGE

Remove the following from the spindle:

- Thrust washer
- Spring collar
- Return spring
- Spring seat
- Ratchet spring
- Starter ratchet



Remove the snap ring, washer and starter pinion and bushing from the spindle.



KICKSTARTER INSPECTION

Measure the starter pinion gear I.D..

SERVICE LIMIT: 25.12 mm (0.989 in)

Measure the pinion bushing I.D. and O.D..

SERVICE LIMITS: I.D.: 22.10 mm (0.870 in)
O.D.: 24.90 mm (0.980 in)

Measure the kickstarter spindle O.D..

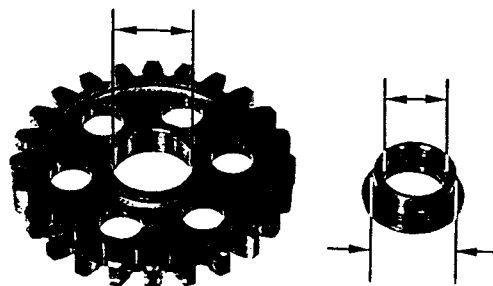
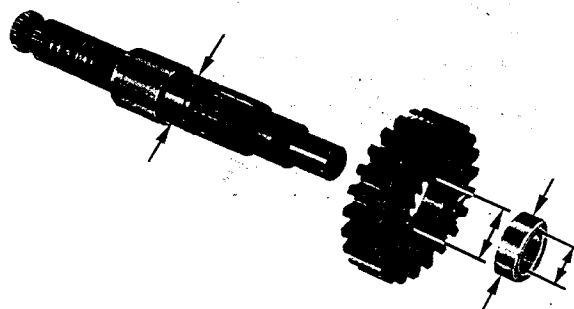
SERVICE LIMIT: 21.91 mm (0.863 in)

Measure the starter idle gear I.D..

SERVICE LIMIT: 19.13 mm (0.753 in)

Measure the idle gear bushing I.D. and O.D..

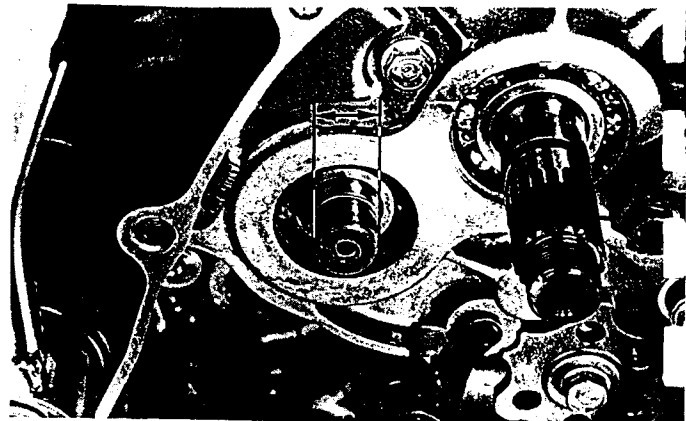
SERVICE LIMITS: I.D.: 15.04 mm (0.592 in)
O.D.: 18.92 mm (0.745 in)



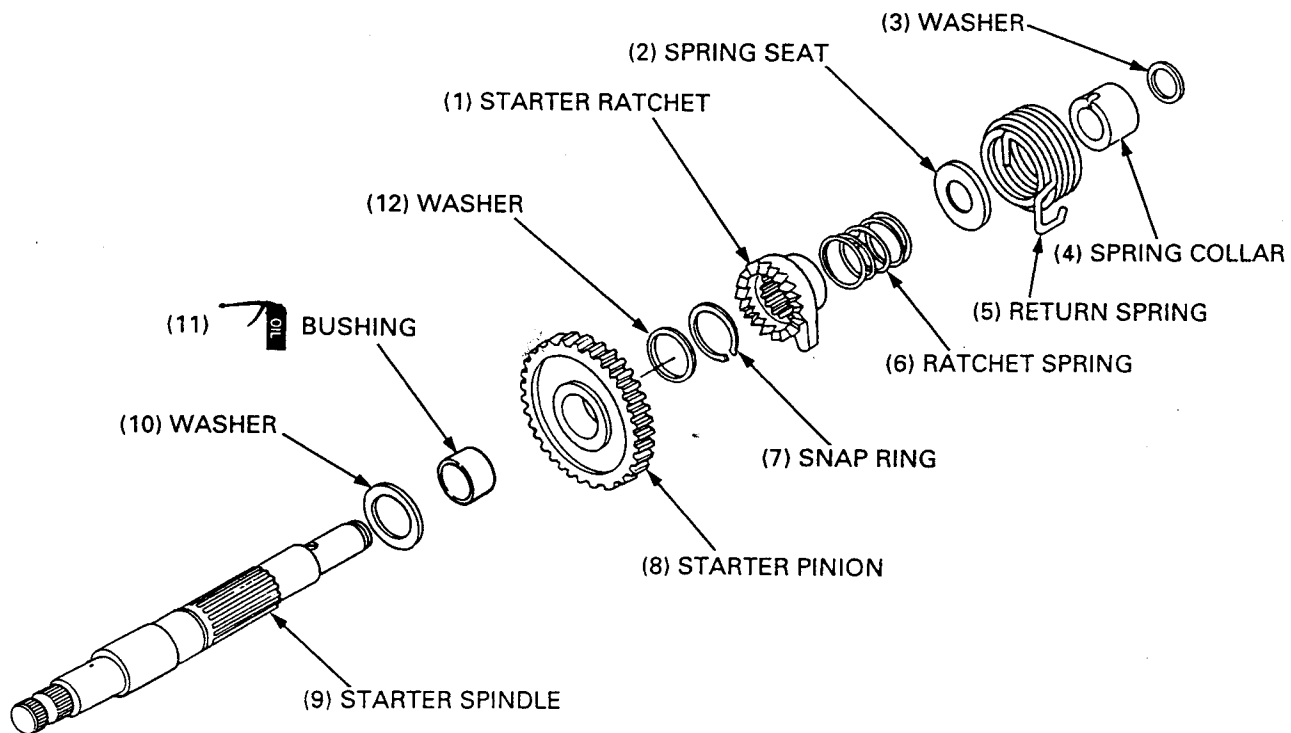
CLUTCH/KICKSTARTER/GEARSHIFT LINKAGE

Measure the countershaft O.D. at the idle gear bushing sliding surface.

SERVICE LIMIT: 14.91 mm (0.587 in)

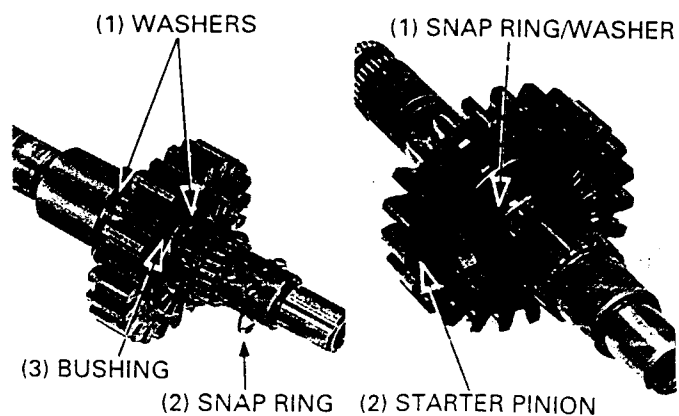


KICKSTARTER ASSEMBLY/INSTALLATION



Coat the engine oil to the starter spindle bushing.
Install the following to the starter spindle:

- Thrust washer
- Bushing
- Starter pinion
- Thrust washer
- Snap ring



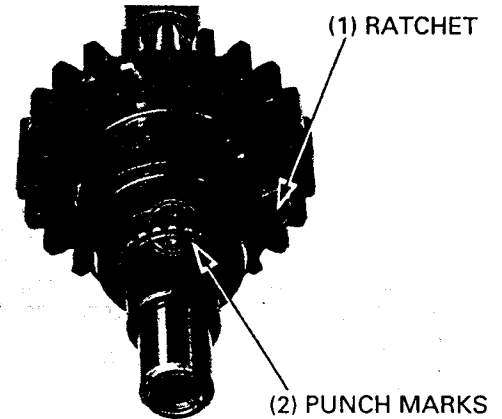
CLUTCH/KICKSTARTER/GEARSHIFT LINKAGE

Install the following:

- Starter ratchet

NOTE

- Align the punch marks on the spindle and ratchet.



- Ratchet spring
- Spring seat
- Return spring

NOTE

- Insert the spring end into the hole in the spindle.

- Spring collar

NOTE

- Align the cut-out on the collar with the spring end.

- Thrust washer

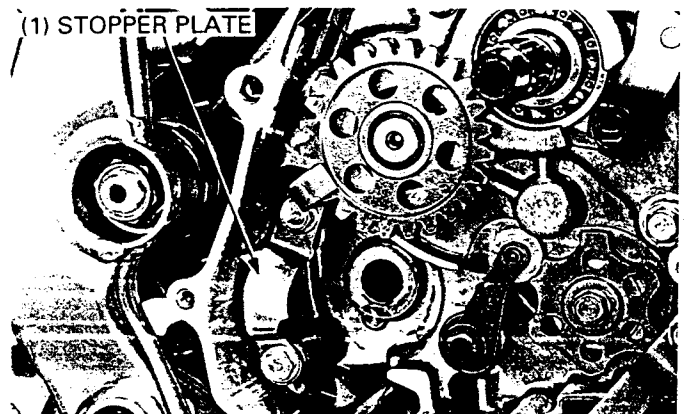
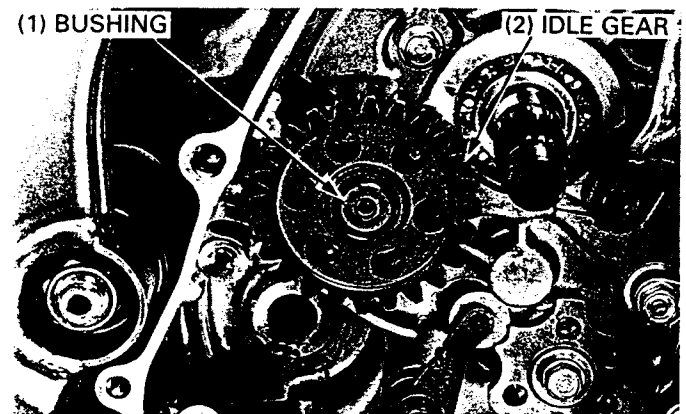
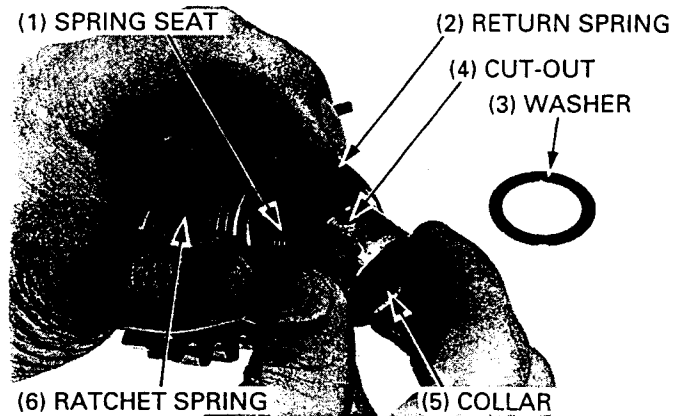
Install the following to the countershaft:

- Idle gear bushing
- Starter idle gear

NOTE

- Coat the bushing with engine oil and install it with the flange side facing toward the crankcase.

- Stopper plate



CLUTCH/KICKSTARTER/GEARSHIFT LINKAGE

Hook the kickstarter return spring on the crankcase. Temporarily install the kickstarter pedal on the starter spindle and rotate the spindle counterclockwise until the ratchet stub is clear of the stopper plate. Push the kickstarter assembly into the crankcase.

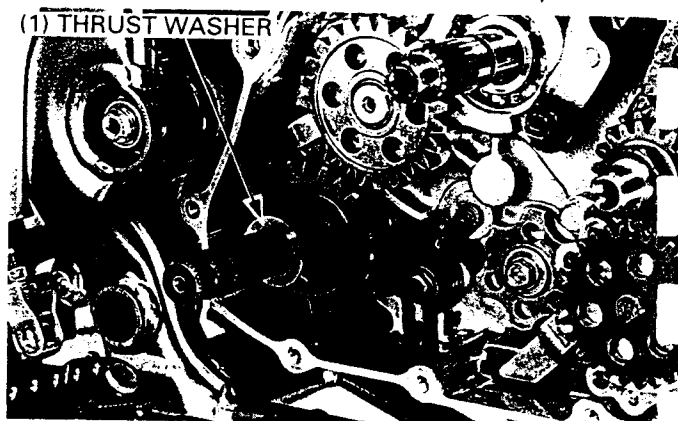
Remove the kickstarter pedal.

NOTE

- Be sure the rear thrust washer did not fall off the spindle during installation.



Install the thrust washer on the spindle. Install the clutch (page 9-10). Install the right crankcase cover (page 9-17).



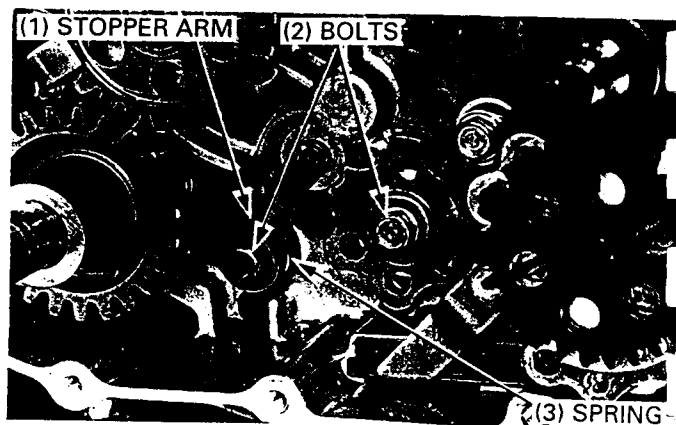
GEARSHIFT CAM

REMOVAL

Remove the clutch (page 9-5).

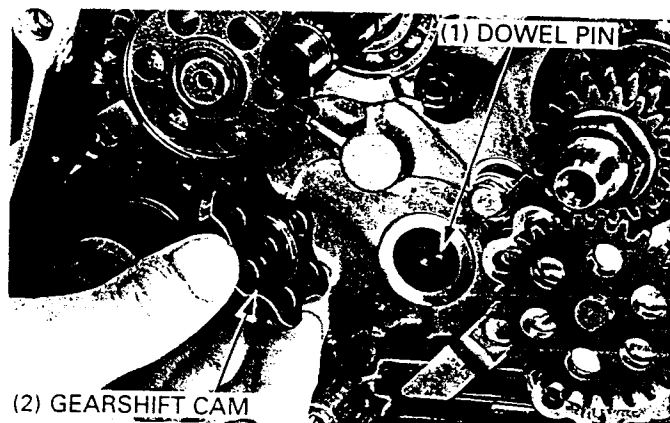
Remove the following:

- Center bolt
- Stopper arm pivot bolt
- Stopper arm
- Washer
- Spring



Gearshift

- Shift cam
- Dowel pin



INSTALLATION

Install the dowel pin into the gearshift drum.
Align the hole in the gearshift cam with the dowel pin on the gearshift drum and install the cam plate.

Apply the locking agent on the gearshift cam bolt threads,
 6.5 ± 1.0 mm (0.26 ± 0.04 in) from the tip.
Install and tighten the gearshift cam bolt.

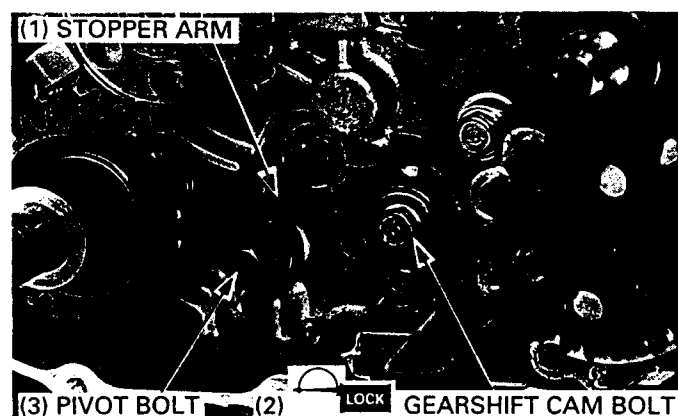
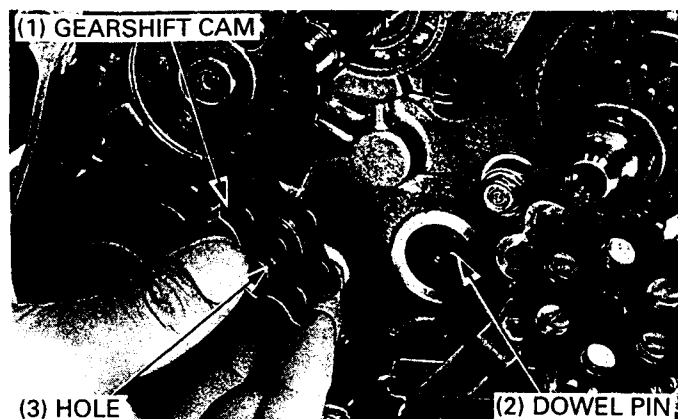
TORQUE: 24 N-m (2.4 kgf-m, 17 lbf-ft)

Install the spring, washer stopper arm and pivot bolt.
Tighten the pivot bolt to the specified torque.

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

Install the clutch (page 9-10).

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



RIGHT CRANKCASE COVER INSTALLATION

Install the gasket and dowel pins.

Install the right crankcase cover.

NOTE

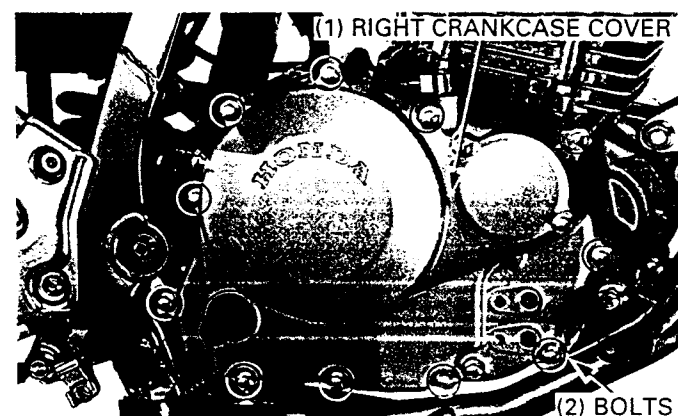
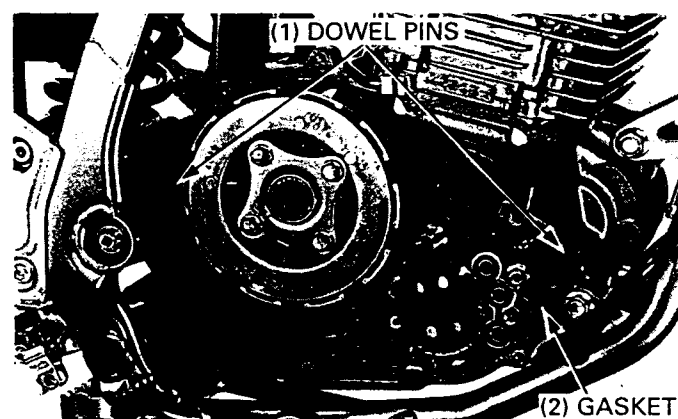
- Be careful not to damage the oil pass pipe when installing the cover.
- Be careful not to drop the oil pump O-ring when installing the cover.
- Be careful not to turn over the kickstarter spindle oil seal lip when installing the cover.

Install the right crankcase cover bolts.
Tighten the bolts to the specified torque.

NOTE

- Tighten the bolts in a crisscross pattern in 2-3 steps.

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

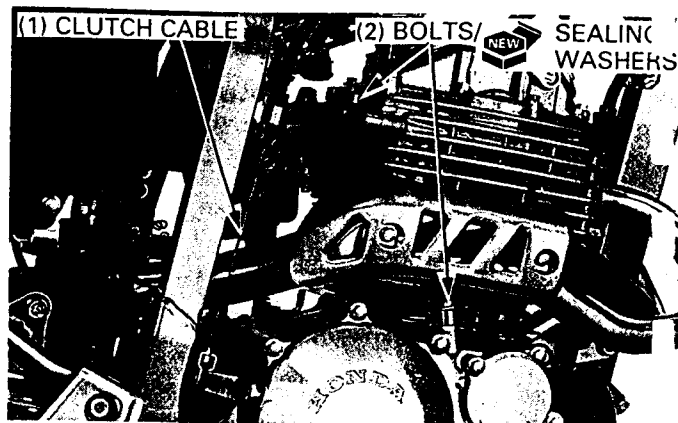


CLUTCH/KICKSTARTER/GEARSHIFT LINKAGE

Install the clutch cable to the clutch arm.
Install new sealing washers and the oil pass pipe bolt (right crankcase side).
Tighten the bolts to the specified torque.

TORQUE: 12 N·m (1.2 kgf·m, 9 lbf·ft)

Install the exhaust pipe (page 2-5).



Install the brake pedal and return spring (page 14-25).
Install the kickstarter pedal and bolt.
Tighten the bolt to the specified torque.

TORQUE: 26 N·m (2.7 kgf·m, 20 lbf·ft)

Install the oil pipes (page 4-10).
Install the under guard (page 2-3).
Fill the engine with the recommended engine oil (page 3-11).

Perform the following inspection and adjustments.

- Clutch lever free play (page 3-17)
- Brake pedal height (page 3-17)

