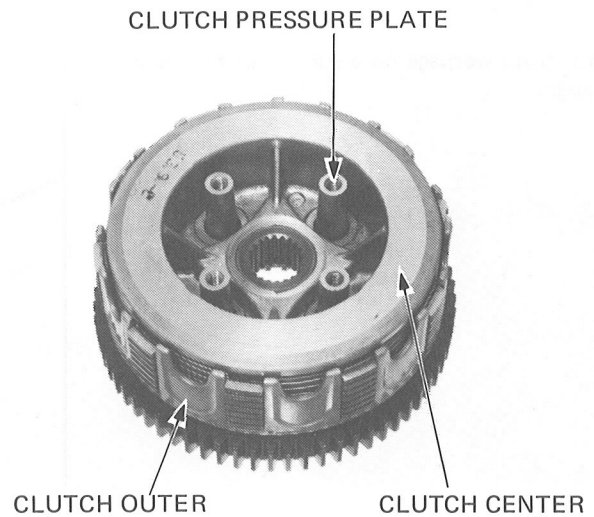


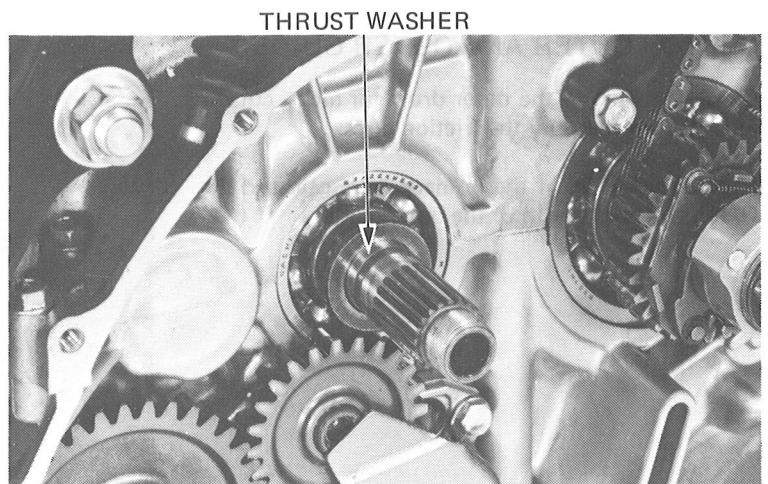


CLUTCH/OIL PUMP

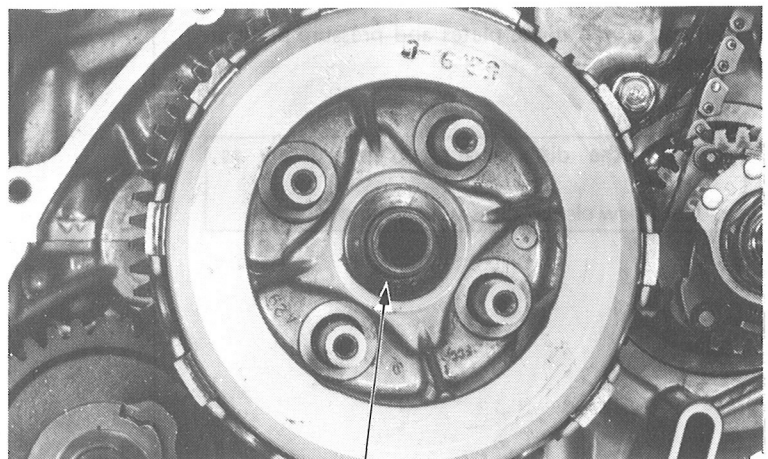
Install the clutch center by rotating it to align the splines.



Slide the thrust washer and clutch outer guide over the main shaft.
Install the clutch.



Install the lock washer with the mark "out side" facing out.
Install the clutch center holder with two clutch bolts.





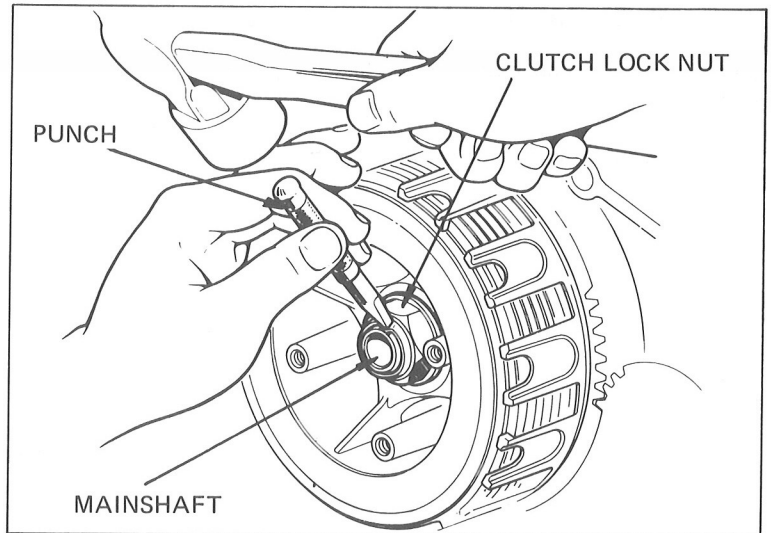
Install a new lock nut.
Tighten the lock nut to the specified torque.
TORQUE: 45–60 N·m (4.5–6.0 kg·m, 33–43 ft·lb)

Remove the clutch center holder and lock the nut with a punch.
Stake the end of the lock nut into the groove of the mainshaft with a punch.
Install the clutch springs, lifter plate and lifter plate bolt.

NOTE

Tighten the bolts in a crisscross pattern in two or more steps.

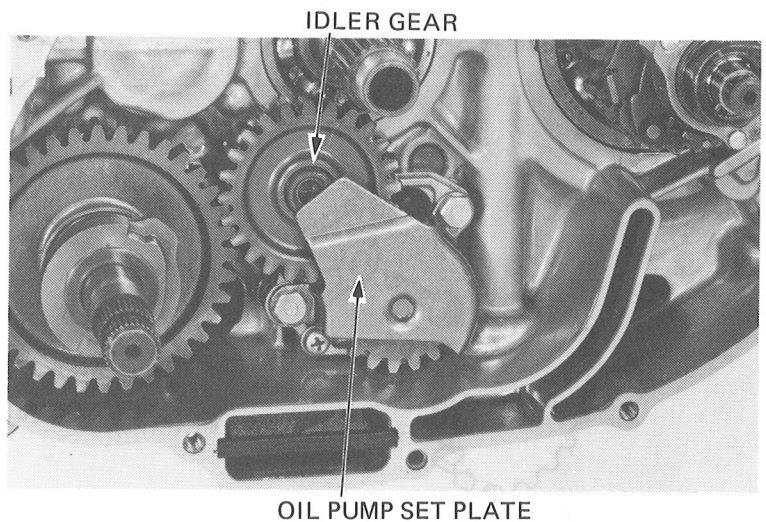
Install the lifter rod and bearing.



OIL PUMP

OIL PUMP REMOVAL

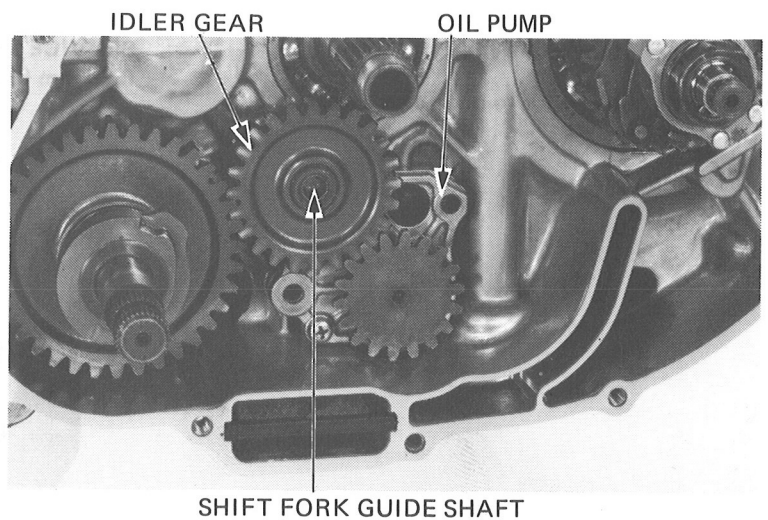
Remove the clutch (Page 8–5).
Remove the oil pump set plate.



Remove the starter idler gear.
Remove the oil pump.

NOTE

Do not remove the fork guide shaft from the engine case.



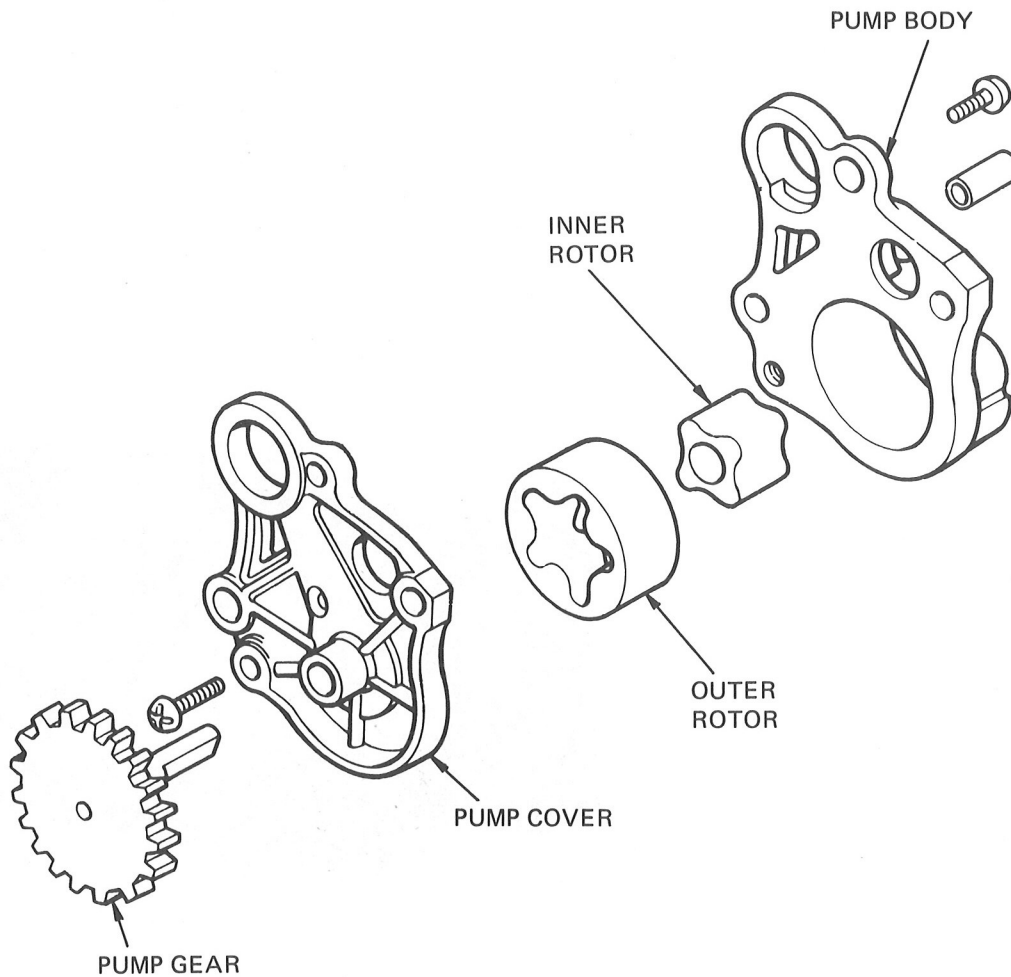


CLUTCH/OIL PUMP

OIL PUMP DISASSEMBLY

Remove the oil pump body screws, and the pump gear and cover.

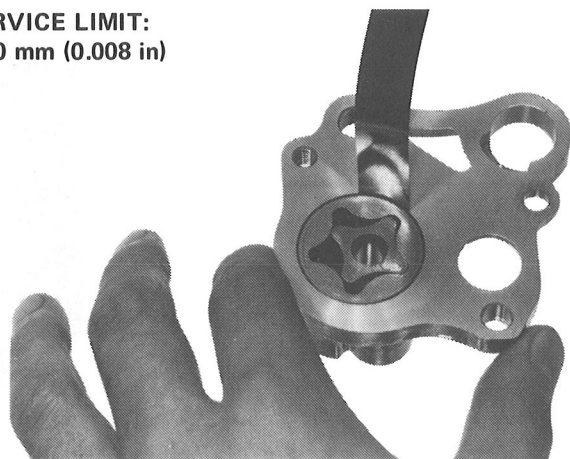
Remove the inner and outer rotors from the pump body.



OIL PUMP INSPECTION

Measure the outer rotor-to-body clearance.

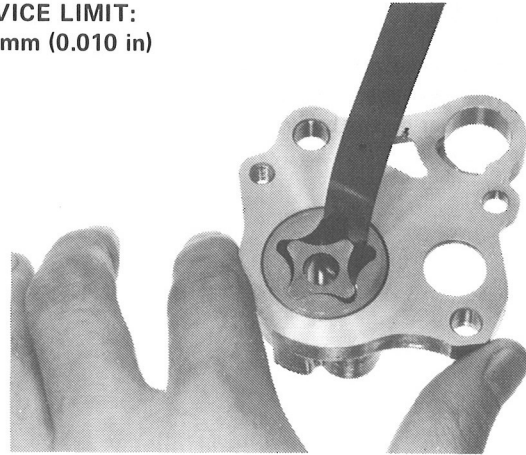
SERVICE LIMIT:
0.20 mm (0.008 in)





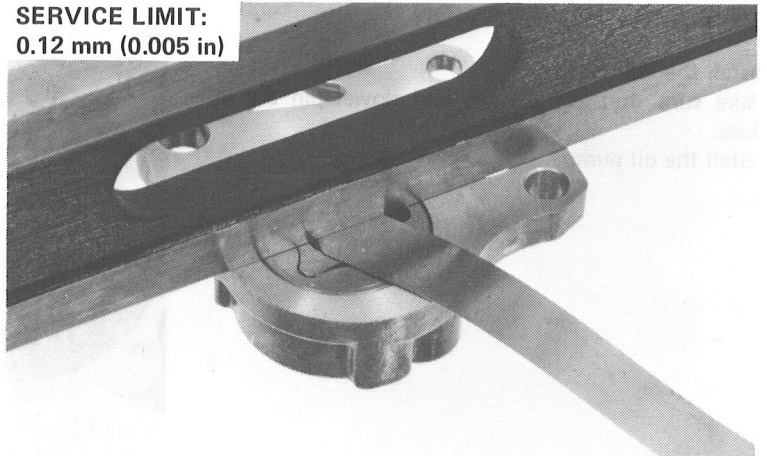
Measure the inner rotor clearance.

SERVICE LIMIT:
0.25 mm (0.010 in)



Measure the pump end clearance

SERVICE LIMIT:
0.12 mm (0.005 in)



STARTER IDLER GEAR INSPECTION

Inspect the idler gear for wear and measure the I.D.

SERVICE LIMIT:
15.10 mm (0.595 in)

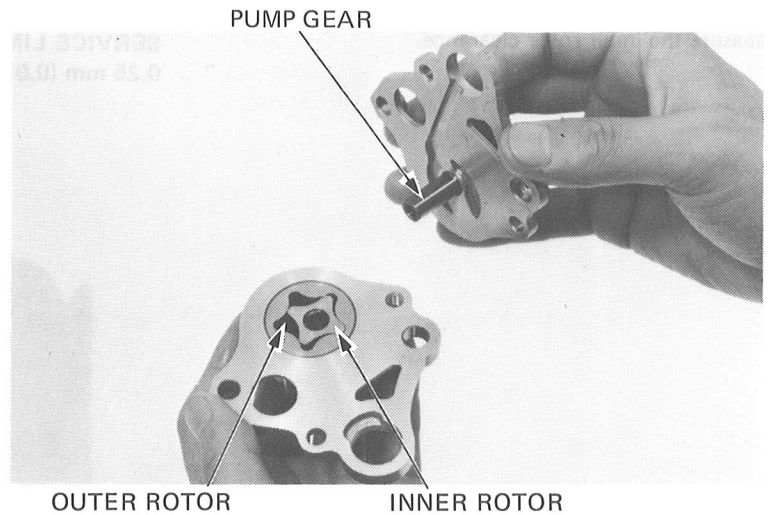




CLUTCH/OIL PUMP

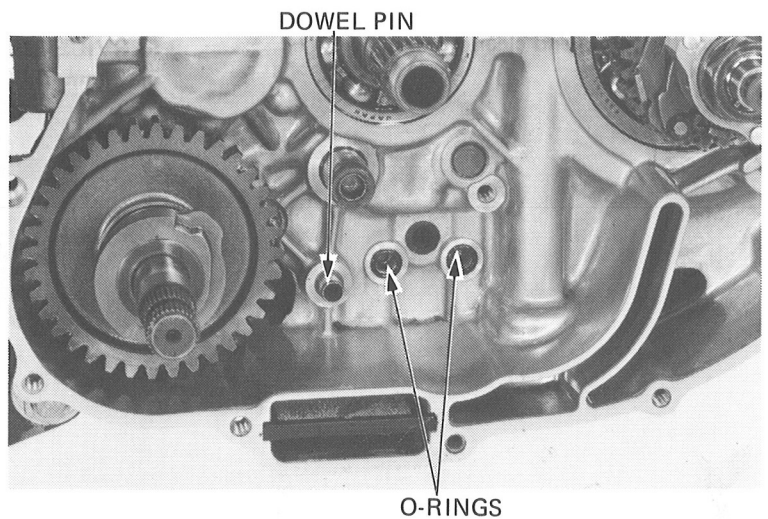
OIL PUMP ASSEMBLY

Install the inner and outer rotors in the pump body.
Slide the pump drive gear shaft through the pump cover and install the cover on the body.
Tighten the cover screws.



OIL PUMP INSTALLATION

Install the idle gear.
Make sure that the O-rings and dowel pin are in place.
Install the oil pump.

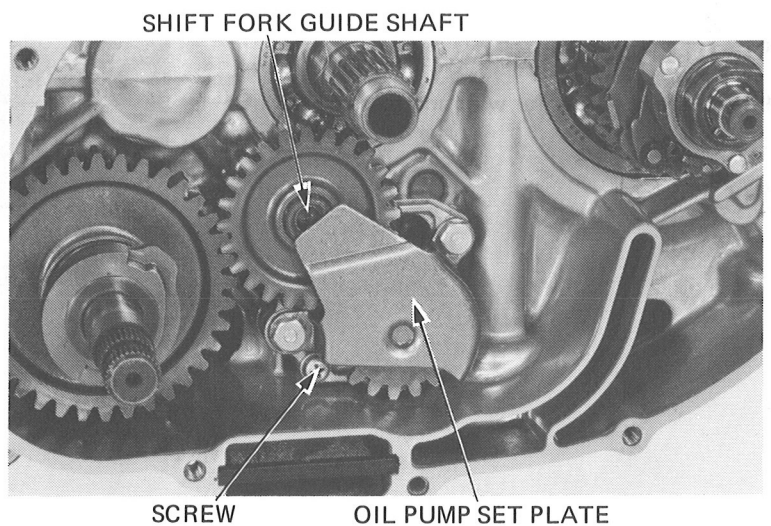


Install the oil pump set plate.

CAUTION:

Align the oil pump set plate with the shift fork cut-out, seat it flush against the shaft end so there is no clearance. If the shaft rotates, the lubrication passage will be blocked causing transmission damage.

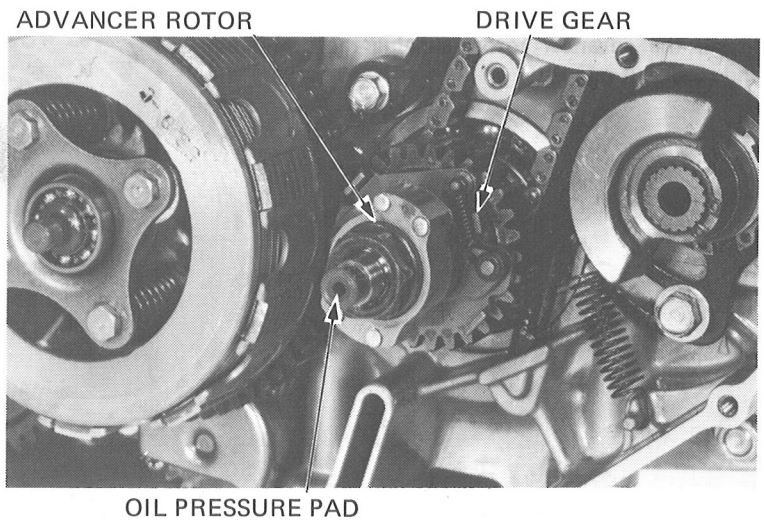
Tighten the set plate bolts and the oil pump screw.





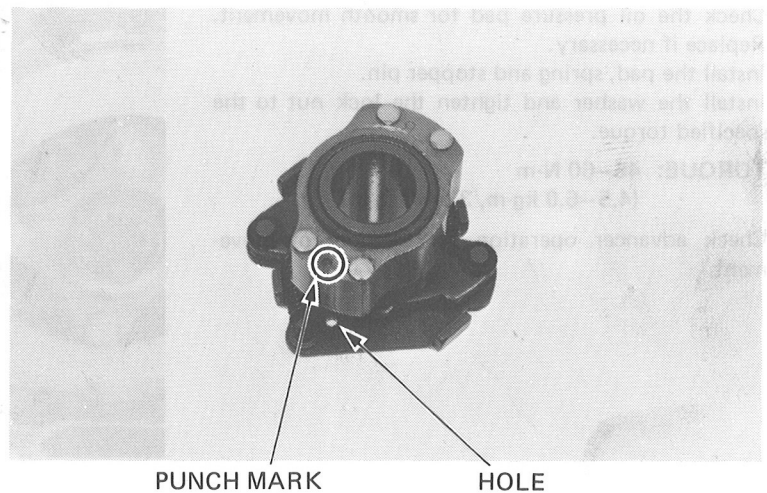
DRIVE GEAR REMOVAL

Remove the 14 mm lock nut.
Remove the washer, advancer rotor and drive gear.
Remove the oil pressure pad stopper pin, pad and spring.



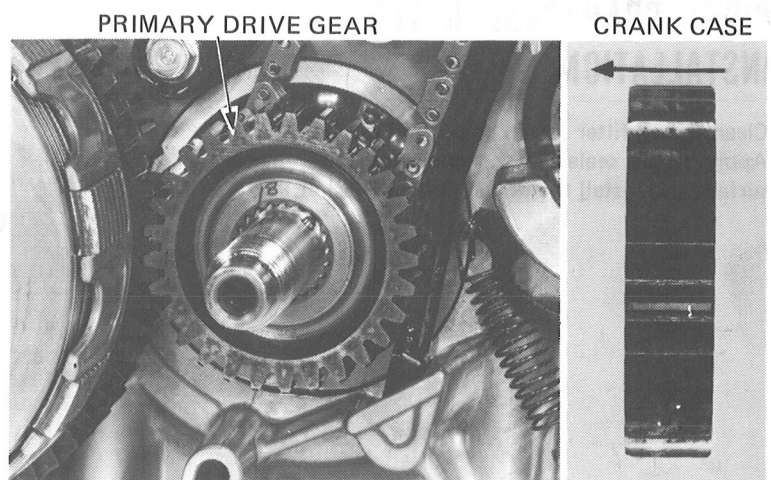
ADVANCER ROTOR INSPECTION

Align the rotor punch mark with the advancer hole and assemble.
Check the rotor for wear and free operation.

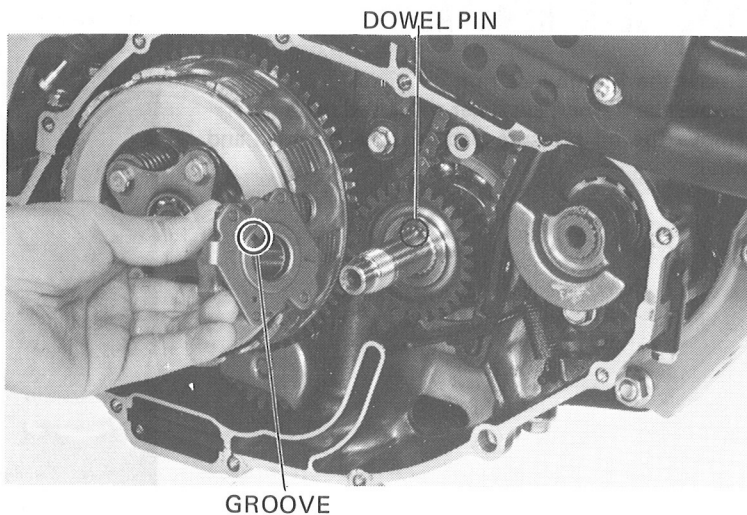


DRIVE GEAR INSTALLATION

Install the drive gear with the heavily chamfered teeth facing the crankcase.
Align the dowel pin with the groove in the gear.



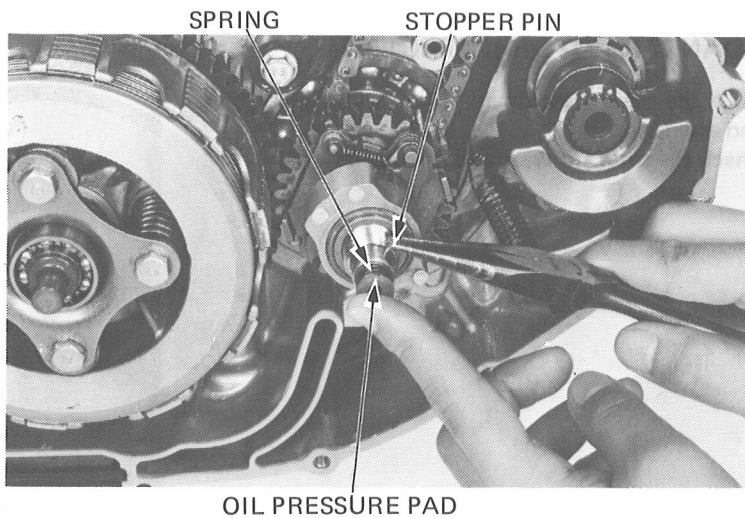
Install the advancer rotor, aligning the dowel pin and rotor cut-out.



Check the oil pressure pad for smooth movement. Replace if necessary. Install the pad, spring and stopper pin. Install the washer and tighten the lock nut to the specified torque.

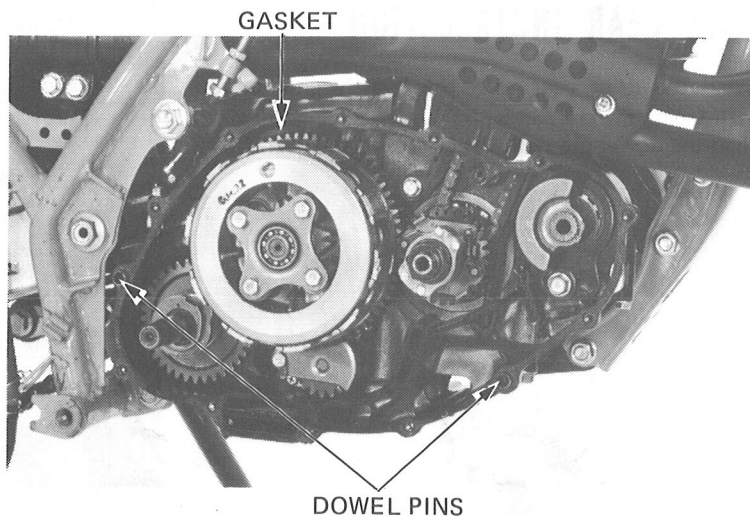
TORQUE: 45–60 N·m
(4.5–6.0 kg·m, 32–43 ft·lb)

Check advancer operation for freedom of movement.



RIGHT CRANKCASE COVER INSTALLATION

Clean the oil filter screen and install it. Apply liquid sealer to the crankcase cover mating surface and install the dowel pins and gasket.





Assemble the right crankcase cover components in the cover. (page 8-3, 8-4)
Install the right crankcase cover while holding the cam follower lever up.

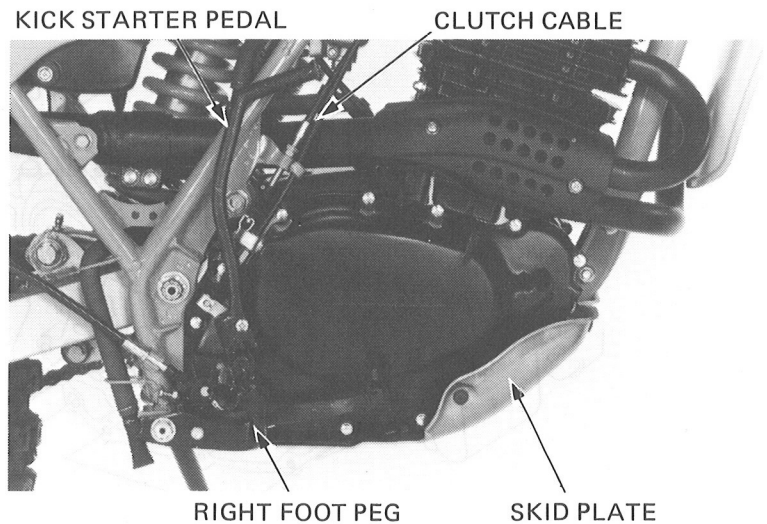
NOTE

Check operation of the decompressor and clutch levers after installing the cover.

Tighten the right crankcase cover bolts.

TORQUE: 8–12 N·m (0.8–1.2 kg·m, 6–9 ft·lb)

Connect the decompressor cable.
Install the kick starter pedal.

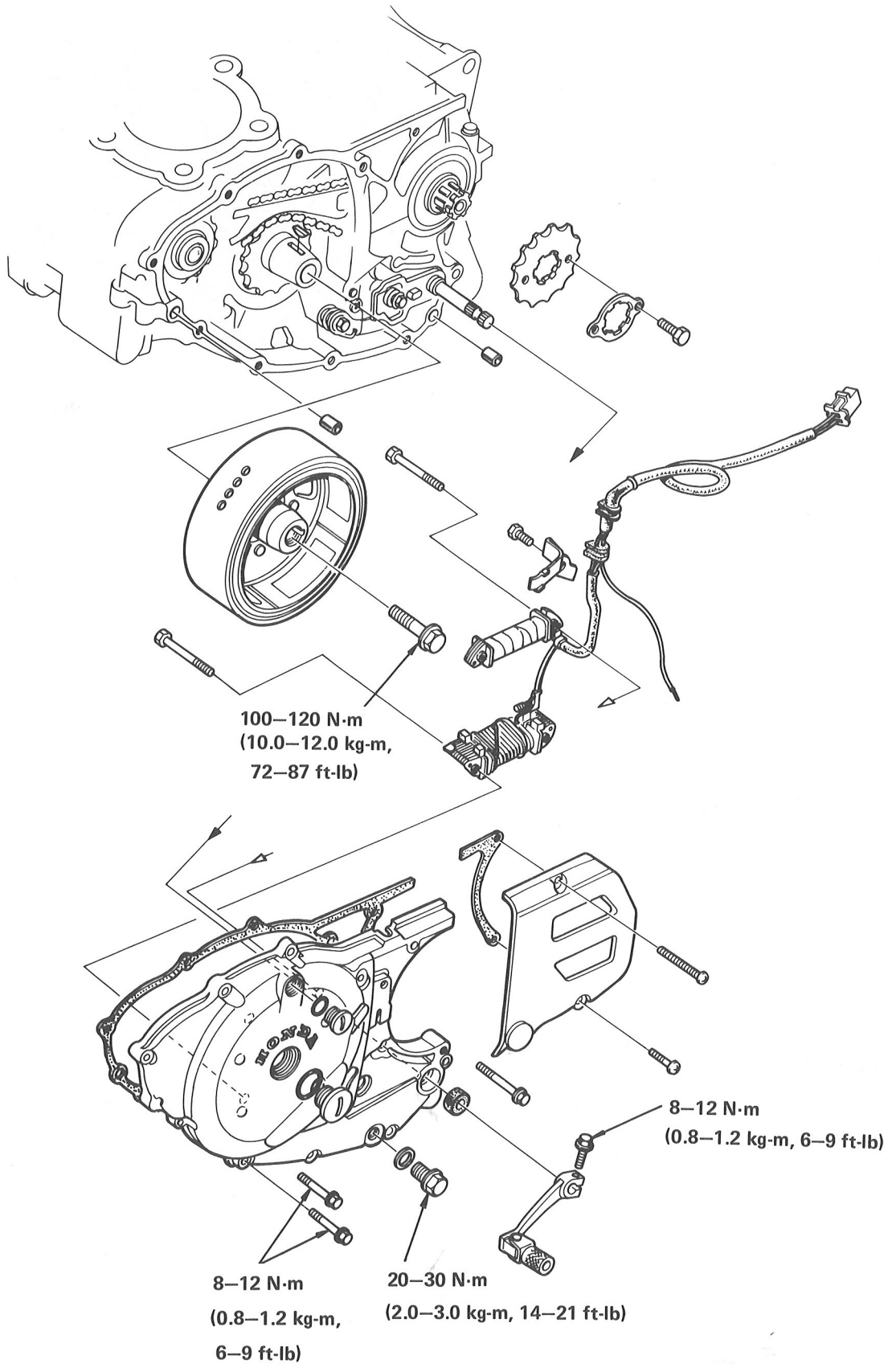


Connect the clutch cable and the rear brake cable.
Install the right foot peg and the skid plate.

Connect the pulse generator wire.
Install the fuel tank and seat.

Fill the crankcase with recommended oil up to the proper level.

Adjust the starter decompressor (Page 3-9).
Adjust the clutch free play (Page 3-18).





SERVICE INFORMATION	9-1
LEFT CRANKCASE COVER REMOVAL	9-2
AC GENERATOR ROTOR REMOVAL	9-2
AC GENERATOR ROTOR INSTALLATION	9-3
LEFT CRANKCASE COVER INSTALLATION	9-3

SERVICE INFORMATION

GENERAL INSTRUCTIONS

- This section pertains to removal and installation of the AC generator. These operations can be accomplished with the engine in the frame after removing the left crankcase cover.
- For AC generator inspection, refer to section 16.

TOOLS

COMMON

- | | | |
|------------------|---------------|--|
| Universal Holder | 07725-0030000 | (commercially available) or Band Strap wrench (commercially available in U.S.A.) |
| Rotor Puller | 07733-0020001 | (or 07933-3290001) |

TORQUE VALUES

- | | |
|----------------------|---|
| AC generator | 100-120 N·m (10.0-12.0 kg-m, 72-87 ft-lb) |
| Left crankcase cover | 8- 12 N·m (0.8-1.2 kg-m, 6-9 ft-lb) |
| Gearshift pedal | 8- 12 N·m (0.8-1.2 kg-m, 6-9 ft-lb) |
| Drain plug | 20- 30 N·m (2.0-3.0 kg-m, 14-21 ft-lb) |

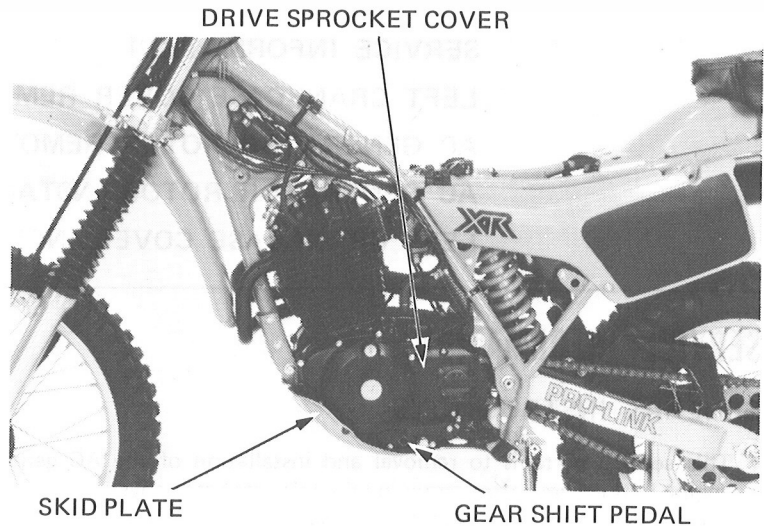


AC GENERATOR

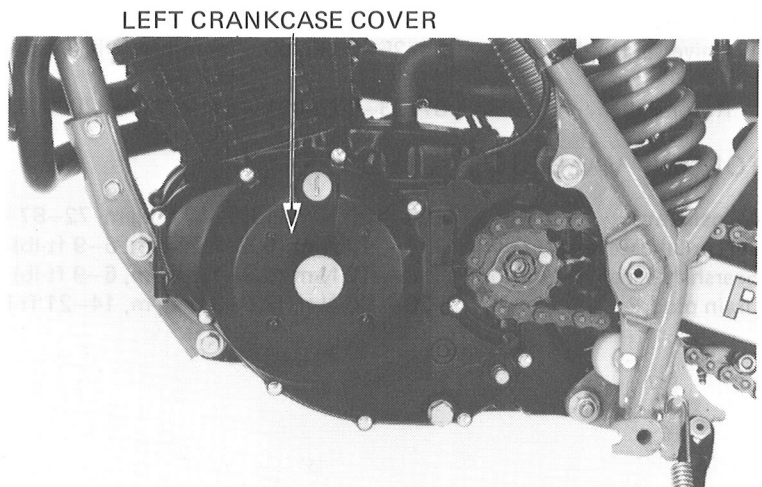
LEFT CRANKCASE COVER REMOVAL

Remove the seat and fuel tank.
Remove the AC generator wire bands and disconnect the wire.
Remove the wire harness bands.

Remove the skid plate, drive sprocket cover and gearshift pedal.

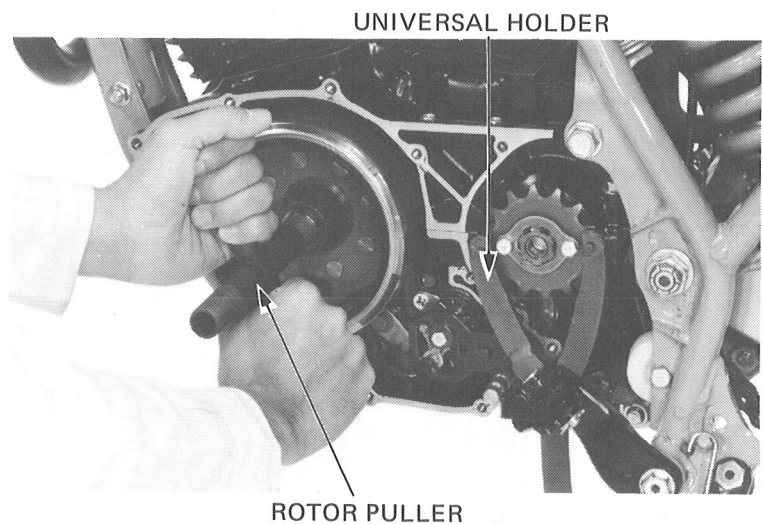


Drain the engine oil.
Remove the chain.
Remove the left crankcase cover.



AC GENERATOR ROTOR REMOVAL

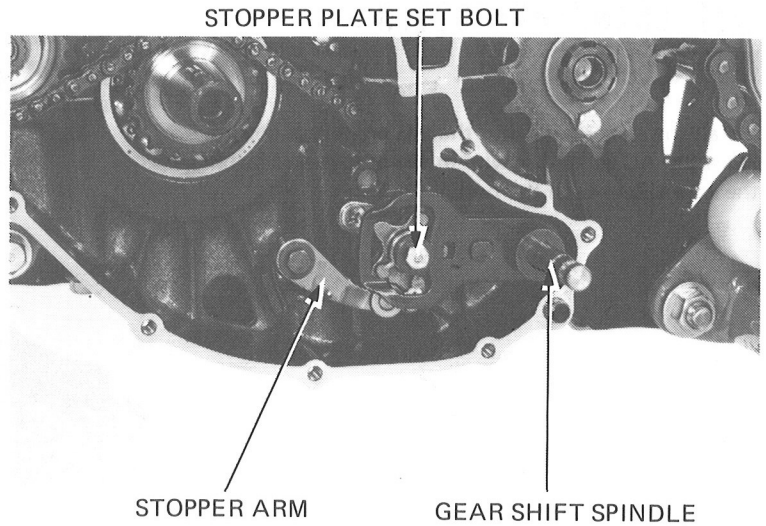
Shift the transmission into top gear.
Hold the drive sprocket with a universal holder, or hold the flywheel with a band strap wrench.
Remove the rotor bolt and remove the rotor using the puller.



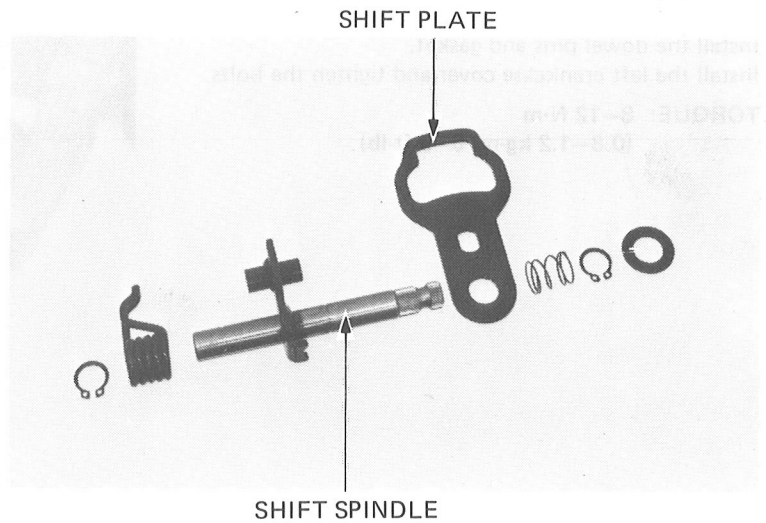


GEARSHIFT LINKAGE DISASSEMBLY

Loosen the stopper plate set bolt.
Remove the gearshift spindle.
Remove the shift stopper arm and spring.



Remove the circlip, spring and shift plate.
Remove the thrust washer, circlip and return spring.



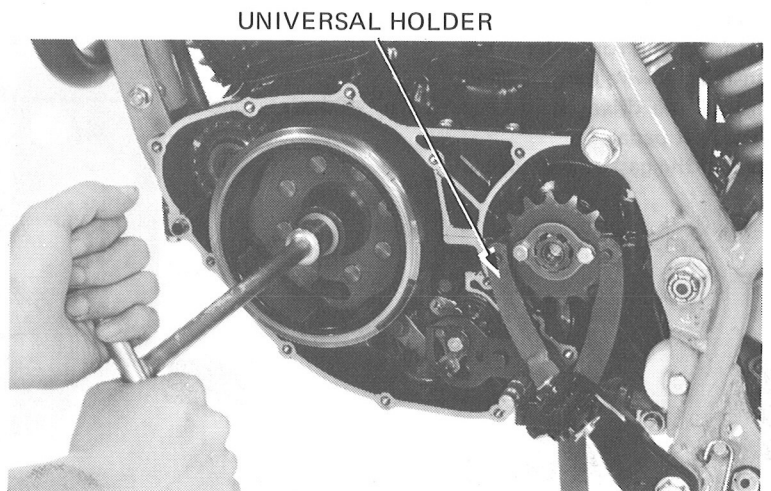
AC GENERATOR ROTOR INSTALLATION

Install the gearshift linkage.

Install the rotor by aligning the woodruff key with the rotor keyway.

Shift the transmission into top gear.
Hold the drive sprocket with a universal holder, or hold the flywheel with a band strap wrench.
Tighten the rotor bolt.

TORQUE: 100–120 N·m
(10.0–12.0 kg·m, 72–87 ft·lb)

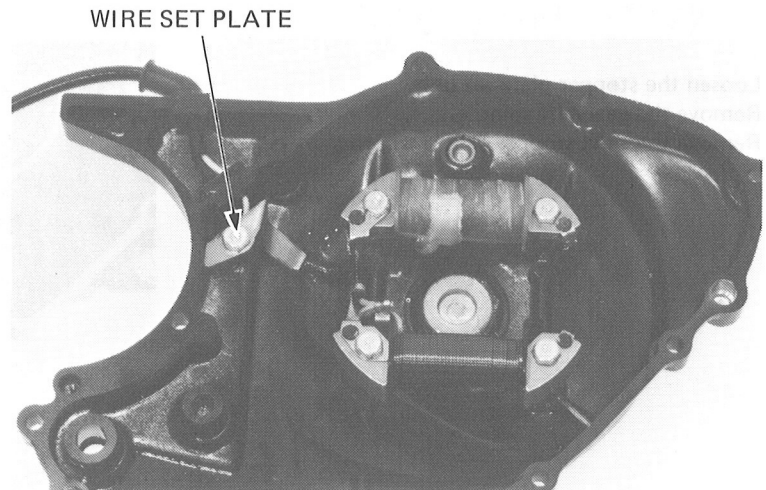




AC GENERATOR

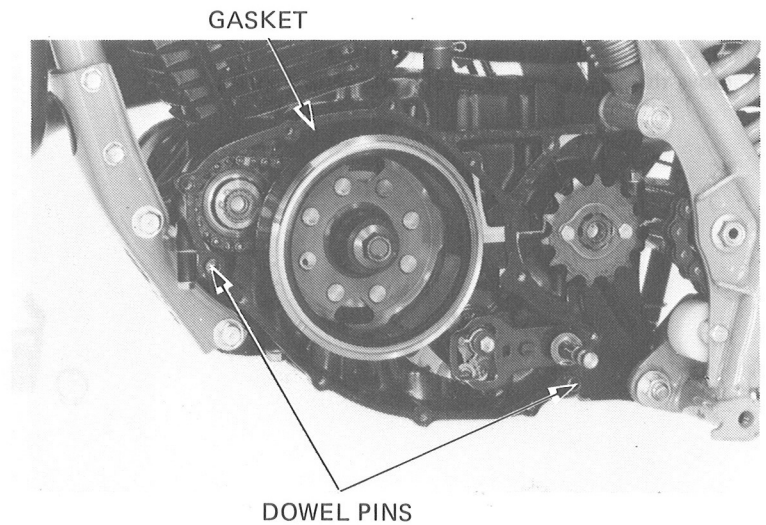
**LEFT CRANKCASE COVER
INSTALLATION**

Install the stator coils into the left crankcase cover.
Place the AC generator wire in the groove and install
the wire clamp with the bolt.

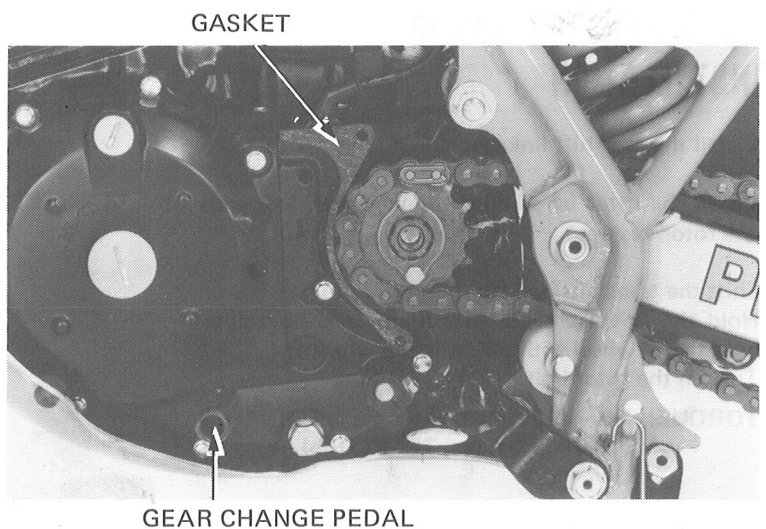


Install the dowel pins and gasket.
Install the left crankcase cover and tighten the bolts.

TORQUE: 8–12 N·m
(0.8–1.2 kg-m, 6–9 ft-lb)



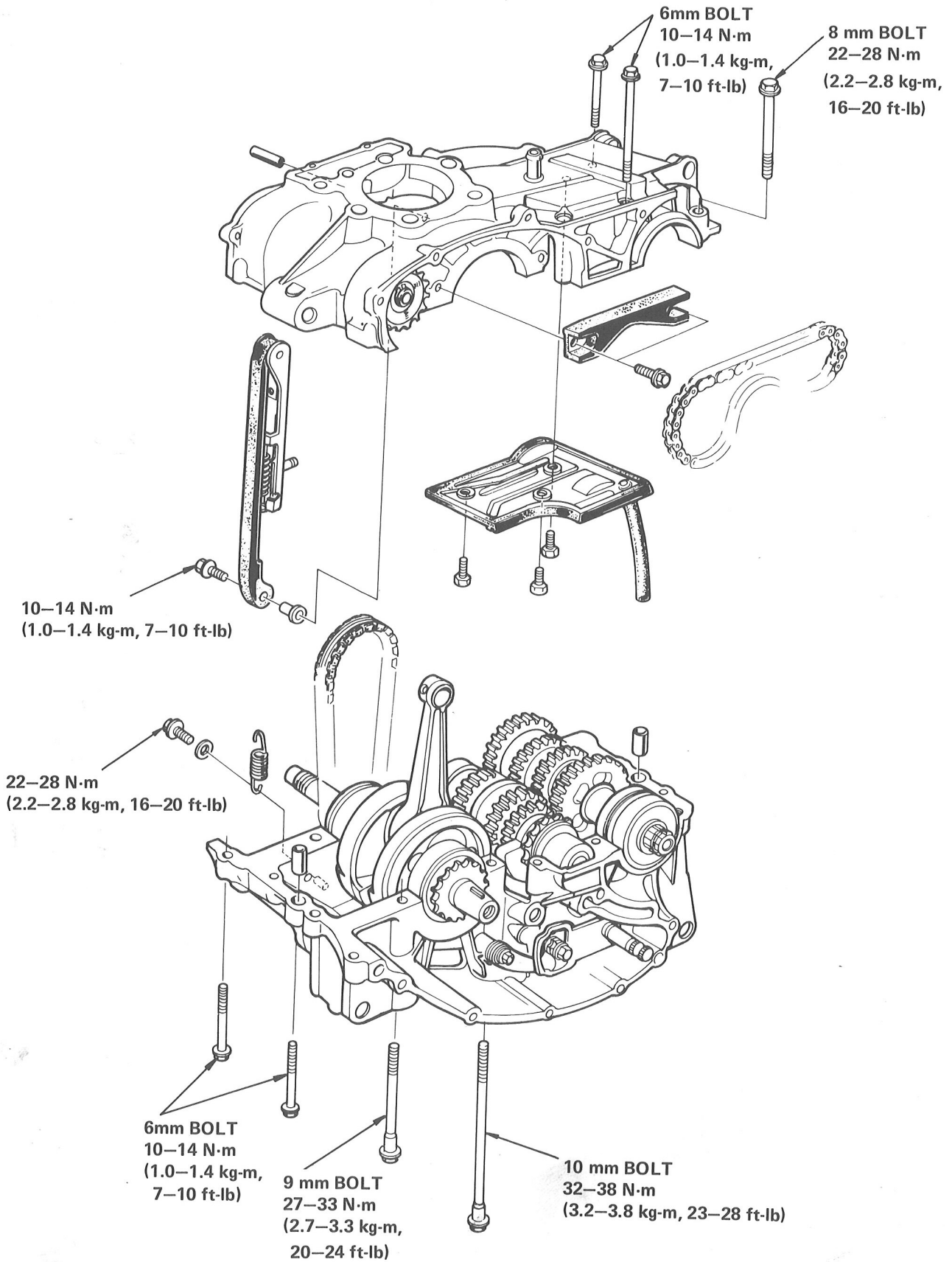
Connect and route the wires.
Install the wire harness band.
Install the drive chain (Page 3-15), skid plate and
gearshift pedal.
Install the gasket and cover.





HONDA
XR500R

MEMO





SERVICE INFORMATION	10-1
CRANKCASE SEPARATION	10-2
CRANKCASE ASSEMBLY	10-4

SERVICE INFORMATION

GENERAL INSTRUCTIONS

- The crankcase must be separated to repair the crankshaft, connecting rod, kick starter, spindle and spring, transmission and balancer.
- Remove the following parts before separating the crankcase.
 - ENGINE REMOVAL Section 5
 - CYLINDER HEAD Section 6
 - CYLINDER/PISTON Section 7
 - CLUTCH/OIL PUMP Section 8
 - AC GENERATOR Section 9

TORQUE VALUES

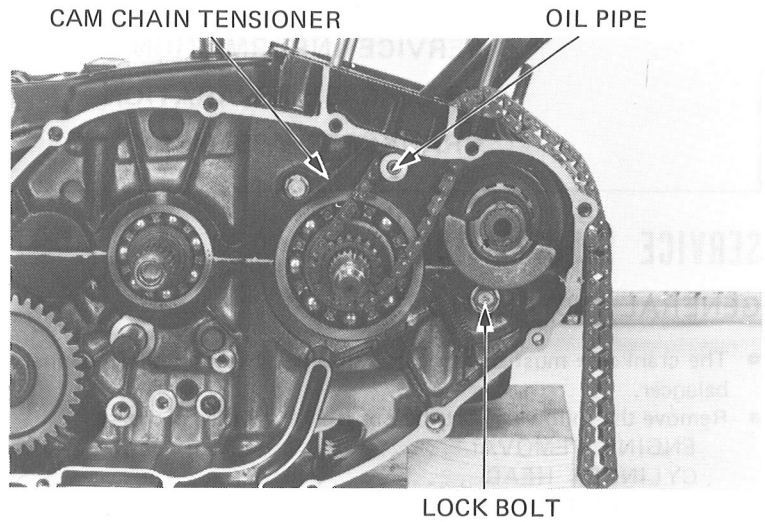
Upper crankcase	6 mm bolt	10-14 N·m (1.0-1.4 kg-m, 7-10 ft-lb)
	8 mm bolt	22-28 N·m (2.2-2.8 kg-m, 16-20 ft-lb)
Lower crankcase	6 mm bolt	10-14 N·m (1.0-1.4 kg-m, 7-10 ft-lb)
	9 mm bolt	27-33 N·m (2.7-3.3 kg-m, 20-24 ft-lb)
	10 mm bolt	32-38 N·m (3.2-3.8 kg-m, 23-28 ft-lb)
Balancer lock bolt		22-28 N·m (2.2-2.8 kg-m, 16-20 ft-lb)
Cam chain tensioner		10-14 N·m (1.0-1.4 kg-m, 7-10 ft-lb)



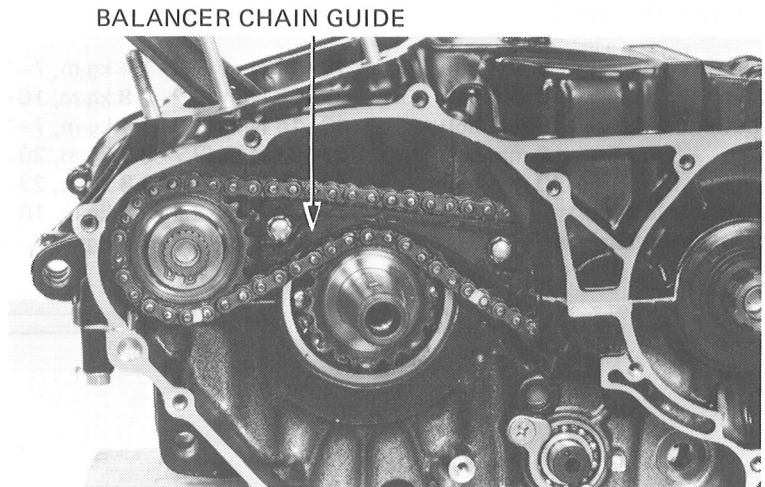
CRANKCASE

CRANKCASE SEPARATION

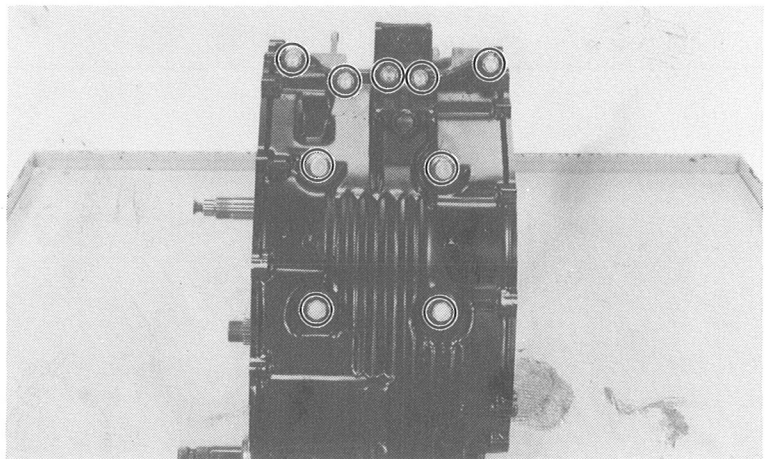
Remove the balancer holder lock bolt and spring.
Remove the cam chain tensioner.
Remove the oil pipe.
Remove the cam chain.



Remove the chain guide.

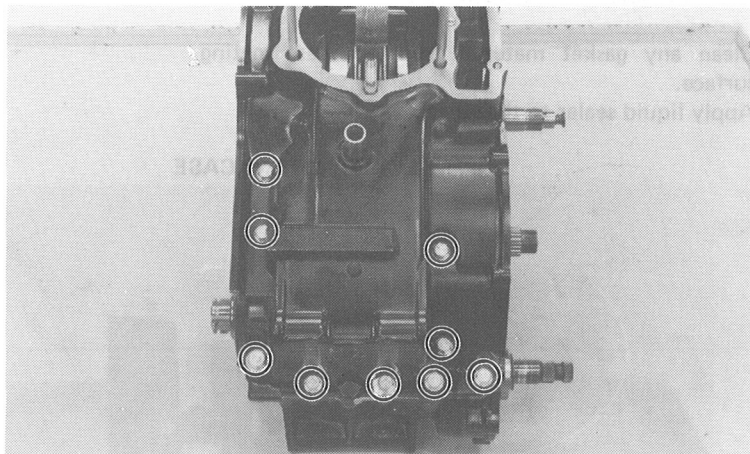


Turn the engine upside down and remove the bottom crankcase bolts.





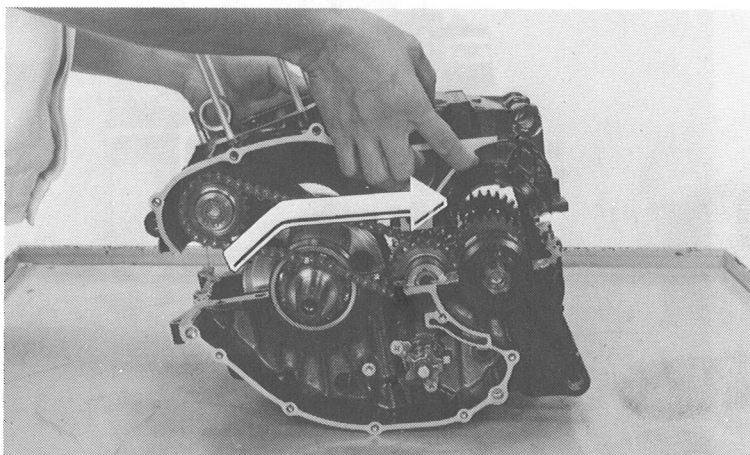
Turn the engine right side up and remove the upper crankcase bolts.



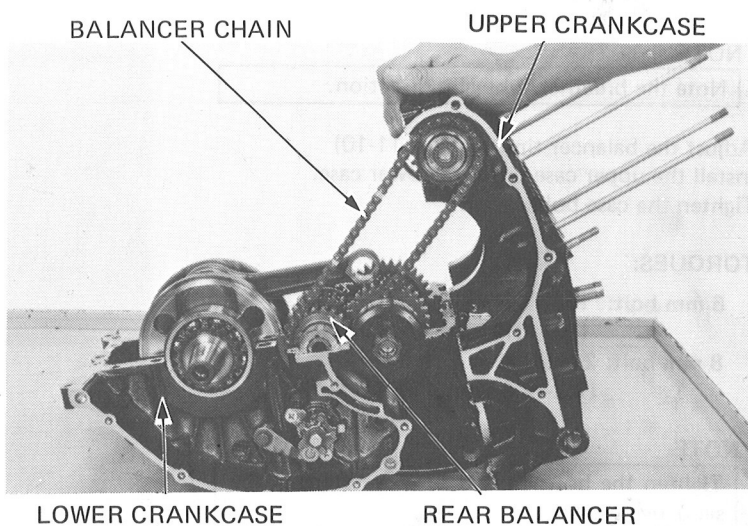
Separate the crankcase.

CAUTION:

Do not pry between the upper and lower cases. Lift the upper case away and back from the lower case.



Remove the balancer chain from the rear balancer.





CRANKCASE

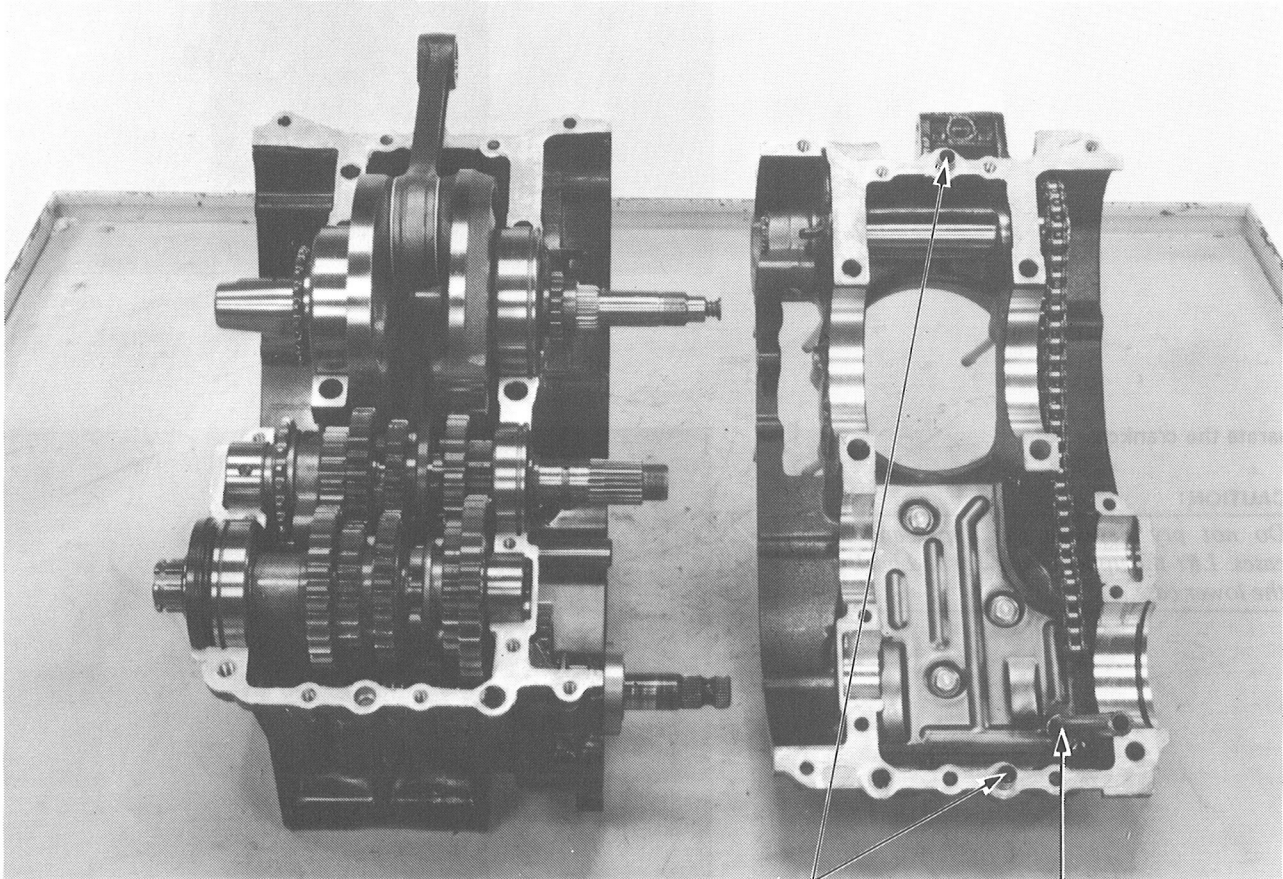
CRANKCASE ASSEMBLY

Clean any gasket material from the case mating surface.

Apply liquid sealer to the surfaces.

LOWER CRANKCASE

UPPER CRANKCASE



DOWEL PINS BREATHER TUBE CLIP

NOTE

Note the breather tube clip direction.

Adjust the balancer timing (Page 11-10)
Install the upper case onto the lower case.
Tighten the case bolts.

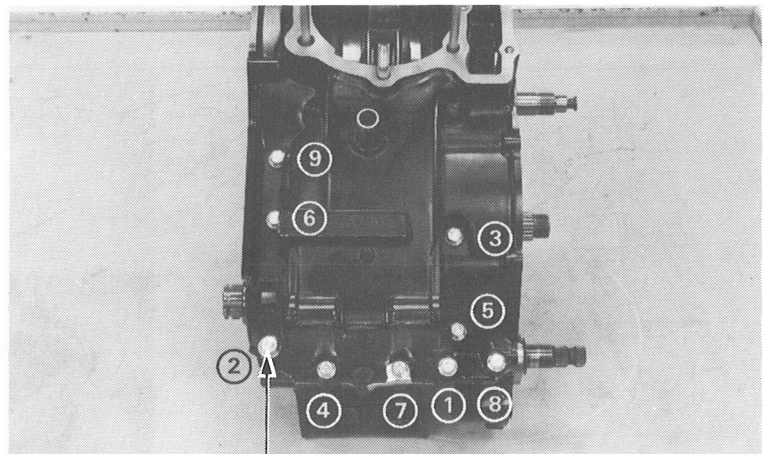
TORQUES:

6 mm bolt: 10–14 N·m
(1.0–1.4 kg·m, 7–10 ft·lb)

8 mm bolt: 22–28 N·m
(2.2–2.8 kg·m, 16–20 ft·lb)

NOTE

Tighten the bolts in two or more steps in the sequence shown.



8 mm BOLT



Turn the crankcase upside down and tighten the remaining case bolts.

TORQUES:

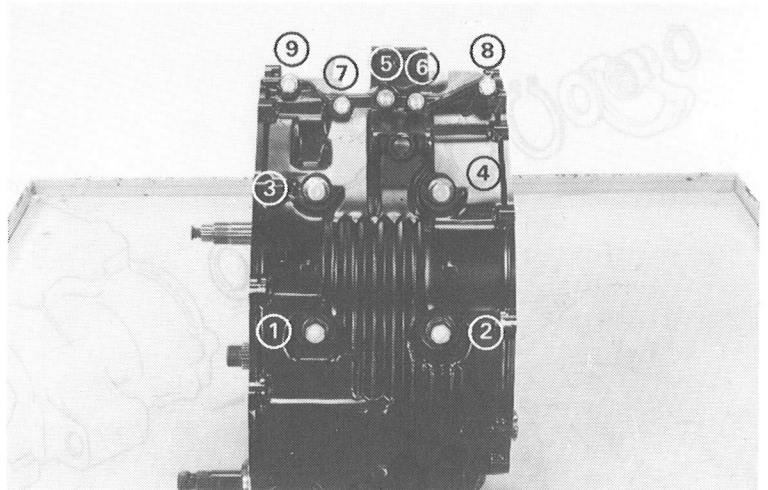
6 mm bolt: 10–14 N·m
(1.0–1.4 kg·m, 7–10 ft·lb)

9 mm bolt: 27–32 N·m
(2.7–3.2 kg·m, 20–23 ft·lb)

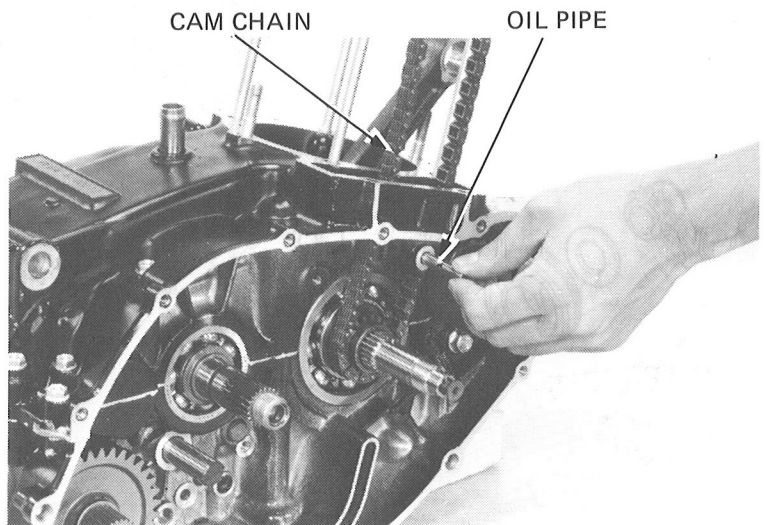
10 mm bolt: 33–37 N·m
(3.3–3.7 kg·m, 24–27 ft·lb)

NOTE

Tighten the bolts in two or more steps in the sequence shown.



Install the cam chain and oil pipe.



Install the chain tensioner and tighten the bolt.

TORQUE: 10–14 N·m (1.0–1.4 kg·m, 7–10 ft·lb)

NOTE

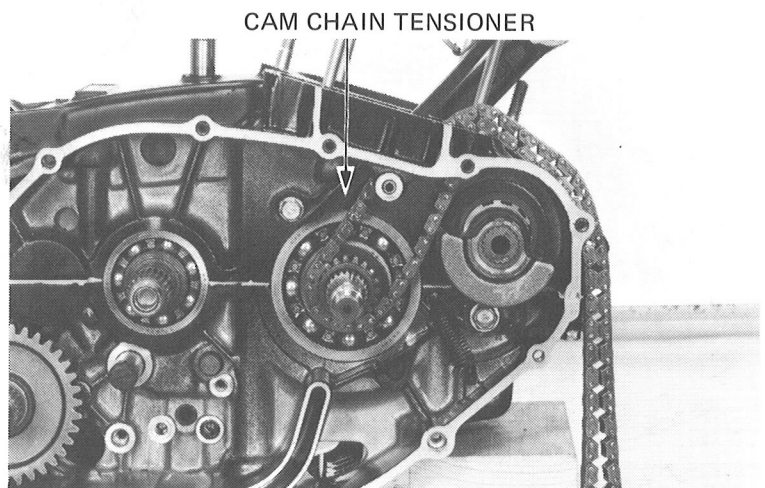
Note the direction of the collar.

Install the balance spring and tighten the balancer holder lock bolt.

TORQUE: 22–28 N·m
(2.2–2.8 kg·m, 16–20 ft·lb)

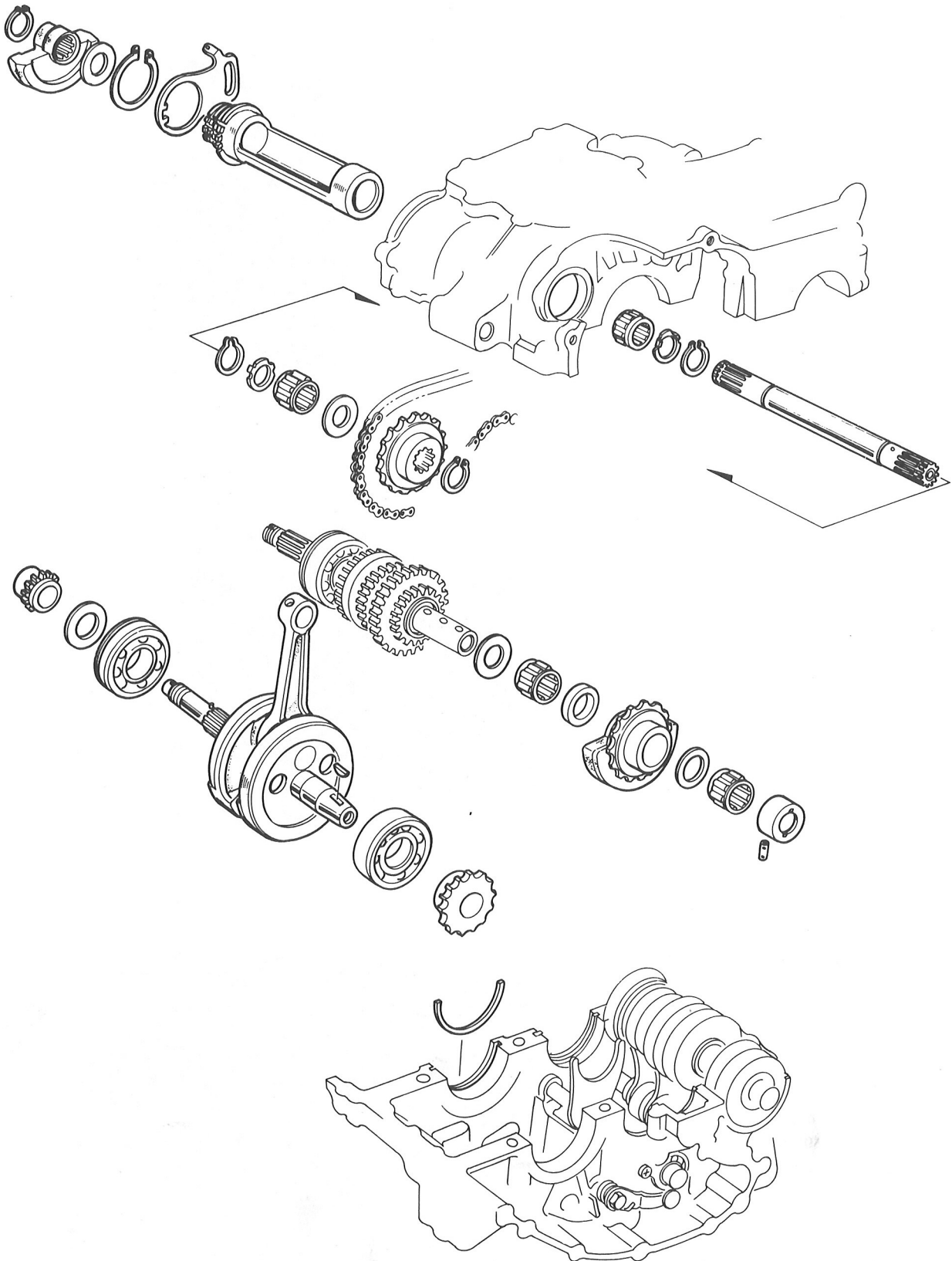
Install the AC generator (Section 9).
Install the clutch/oil pump (Section 8).

Install the cylinder/piston (Section 7).
Install the cylinder head (Section 6).
Install the engine into the frame.





CRANKSHAFT/BALANCER





SERVICE INFORMATION	11-1
TROUBLESHOOTING	11-1
FRONT BALANCER REMOVAL	11-2
REAR BALANCER REMOVAL	11-3
CRANKSHAFT REMOVAL	11-3
CAMSHAFT TIMING SPROCKET REPLACEMENT	11-5
BALANCER TIMING SPROCKET REPLACEMENT	11-6
CRANKSHAFT INSTALLATION	11-6
REAR BALANCER INSTALLATION	11-6
FRONT BALANCER INSTALLATION	11-7
BALANCER TIMING	11-8
BALANCER TIMING INSPECTION	11-10

SERVICE INFORMATION

GENERAL INSTRUCTIONS

- To service the crankshaft and rear balancer, it is necessary to separate the crankcase. The front balancer can be serviced without crankcase separation.
- After installing the balancer, check balancer timing and adjust chain tension.

SPECIFICATIONS

ITEM		STANDARD	SERVICE LIMIT
Crankshaft	Connecting rod big end side clearance	0.050–0.650 mm (0.0020–0.0256 in)	0.80 mm (0.031 in)
	Connecting rod big end radial clearance	0.006–0.018 mm (0.0002–0.0007 in)	0.05 mm (0.002 in)
	Connecting rod small end I.D.	21.020–21.041 mm (0.8276–0.8284 in)	21.07 mm (0.830 in)
	Crankshaft runout	—————	0.1 mm (0.004 in)
Balancer	Shaft holder O.D.	39.964–39.980 mm (1.5734–1.5740 in)	39.91 mm (1.571 in)
	Shaft holder I.D.	26.007–26.020 mm (1.0239–1.0244 in)	26.05 mm (1.026 in)
	Rear balancer I.D.	26.007–26.020 mm (1.0239–1.0244 in)	26.05 mm (1.026 in)
Crankshaft bearing play	Radial	—————	0.10 mm (0.004 in)
	Axial	—————	0.05 mm (0.002 in)

TROUBLESHOOTING

Excessive Noise

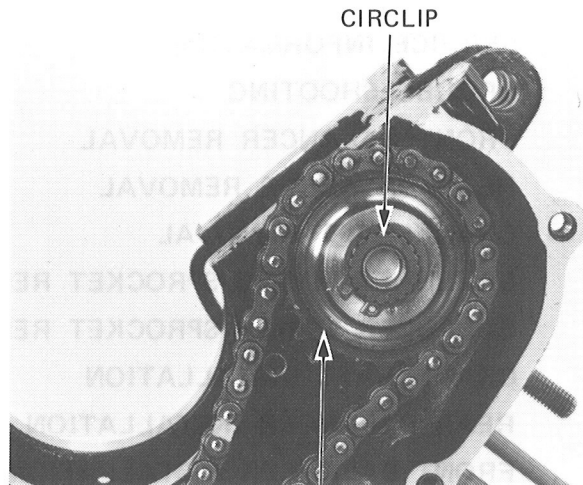
- | | |
|--|--|
| <p>1. Crankshaft</p> <ul style="list-style-type: none"> – Worn connecting rod small and big end bearings. – Bent connecting rod. – Worn crankshaft bearing. | <p>2. Balancer</p> <ul style="list-style-type: none"> – Improper timing adjustment. – Improper chain adjustment. – Damaged chain. |
|--|--|



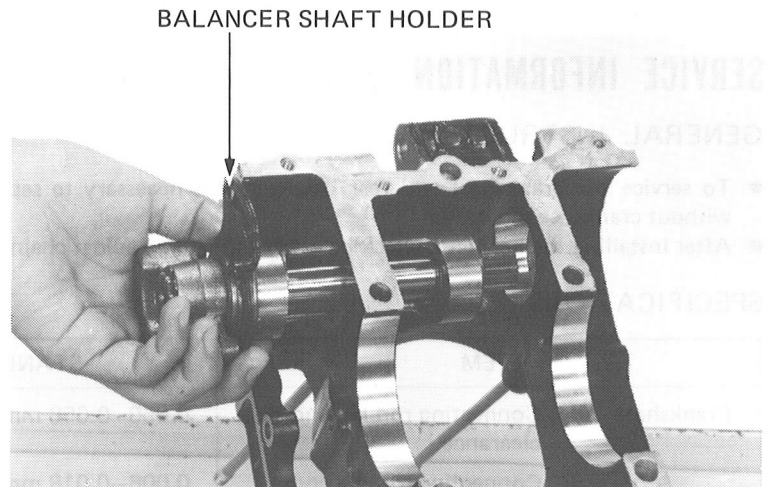
CRANKSHAFT/BALANCER

FRONT BALANCER REMOVAL

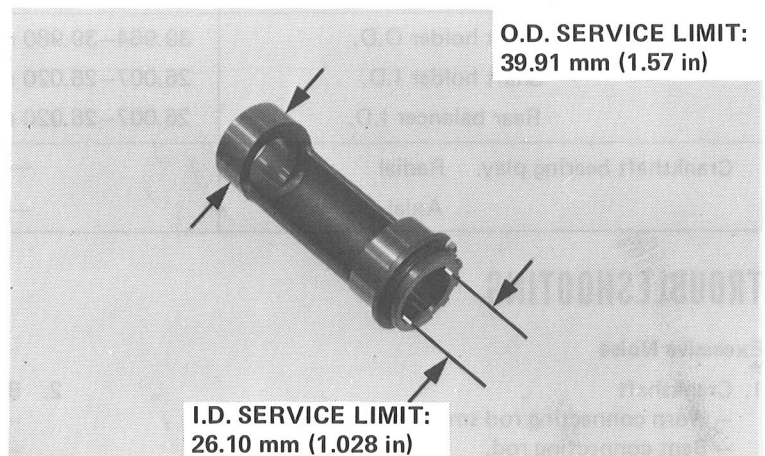
Separate the crankcase (Page 10-2).
Remove the balance chain from the rear balancer.
Remove the 20 mm circlip and the balancer sprocket.



Remove the balancer shaft and shaft holder.
Remove the shaft holder circlip and remove the shaft holder from the shaft.



Measure the shaft hole I.D. and O.D



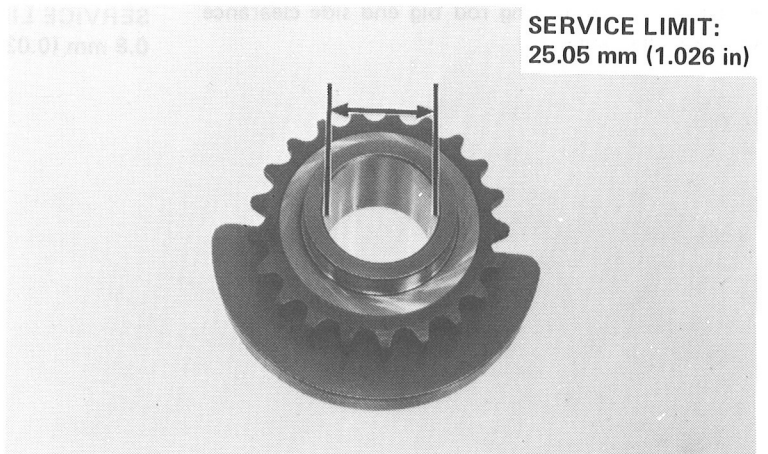


REAR BALANCER REMOVAL

Remove the needle bearing and thrust washer from the mainshaft.
Remove the rear balancer, thrust washer and needle roller bearing.

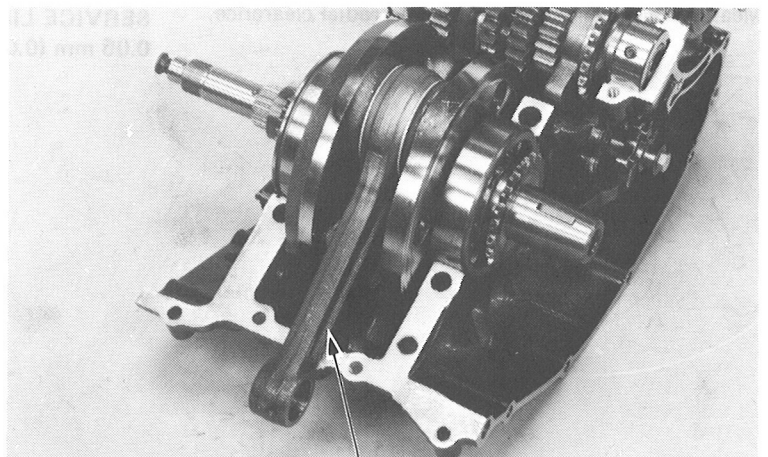


Measure the balancer I.D.



CRANKSHAFT REMOVAL

Separate the crankcase (Page 10-2).
Remove the crankshaft.



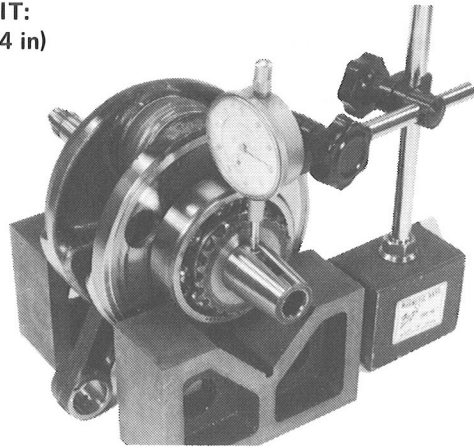


CRANKSHAFT/BALANCER

CRANKSHAFT INSPECTION

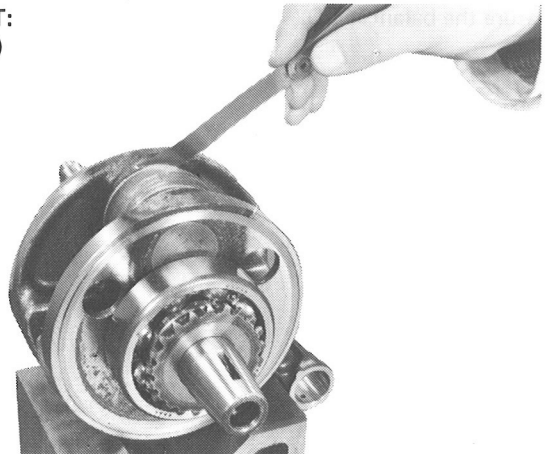
Set the crankshaft on a truing stand or V blocks and measure the runout using a dial indicator.

SERVICE LIMIT:
0.10 mm (0.004 in)



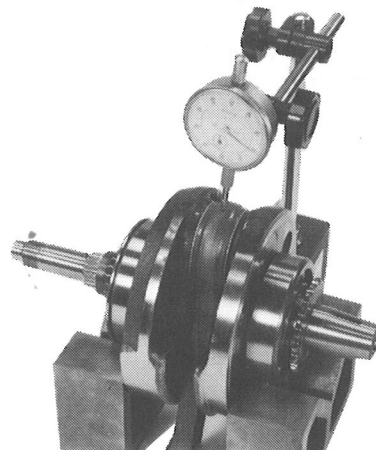
Measure the connecting rod big end side clearance with a feeler gauge.

SERVICE LIMIT:
0.8 mm (0.03 in)



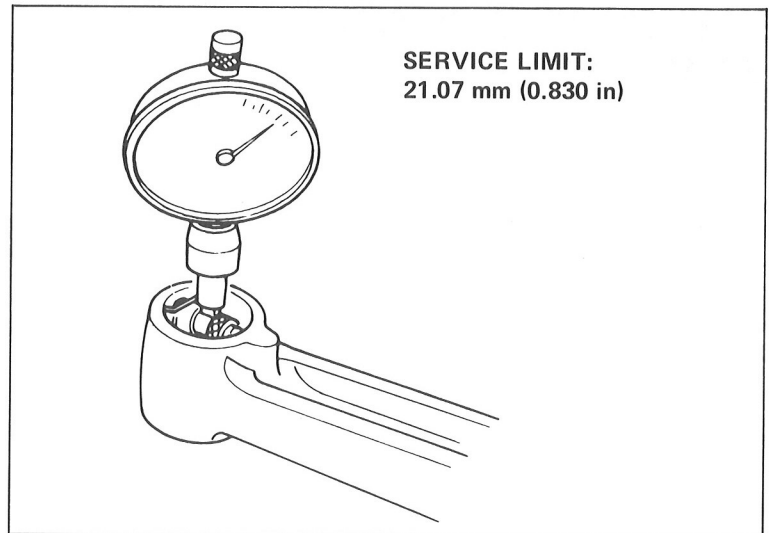
Measure the connecting rod big end radial clearance.

SERVICE LIMIT:
0.05 mm (0.002 in)

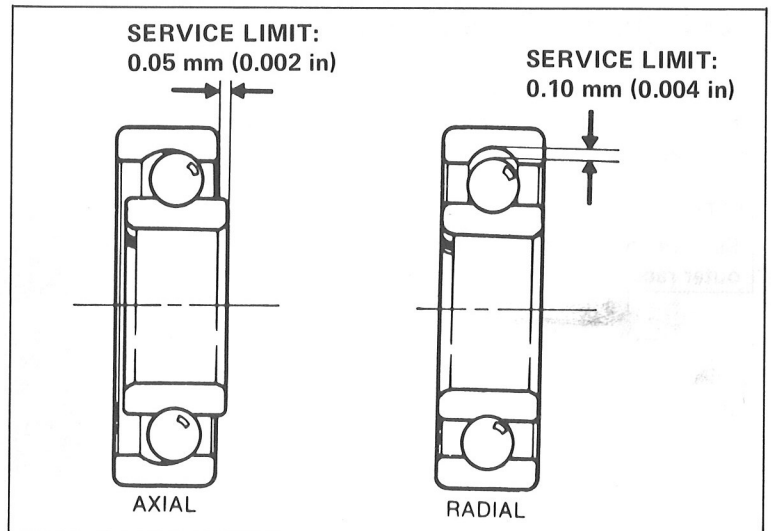




Measure the connecting rod small end I.D.



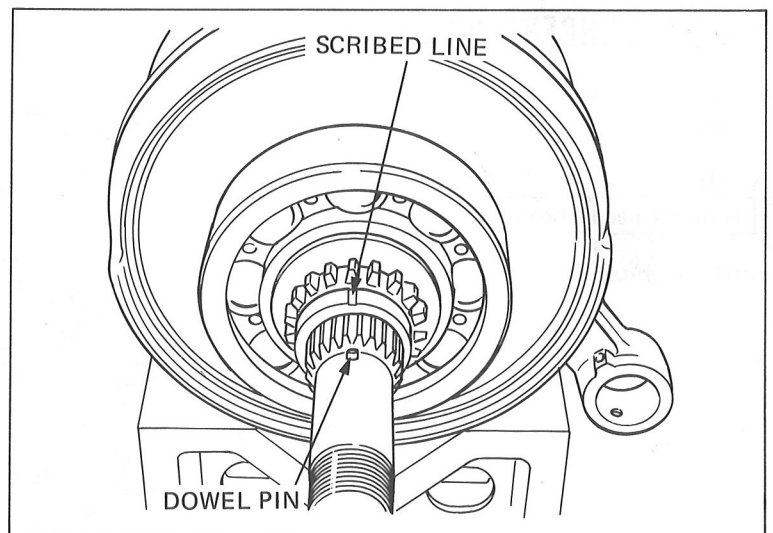
Spin the crankshaft bearing by hand and check for play.
The bearing must be replaced if it is noisy or has excessive play.



CAMSHAFT TIMING SPROCKET REPLACEMENT

Before installing a new sprocket, scribe a line from a tooth center over the gear boss in the axial direction.

Install the sprocket, aligning the scribed line with the dowel pin hole in the sprocket shaft.

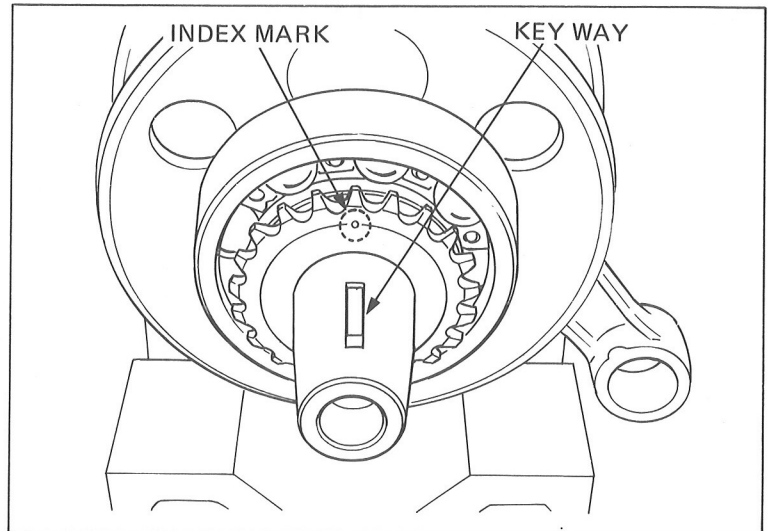




CRANKSHAFT/BALANCER

BALANCER TIMING SPROCKET REPLACEMENT

Remove the balancer timing sprocket from the crankshaft.
Install a new sprocket on the shaft with the punch mark aligned with the shaft keyway.

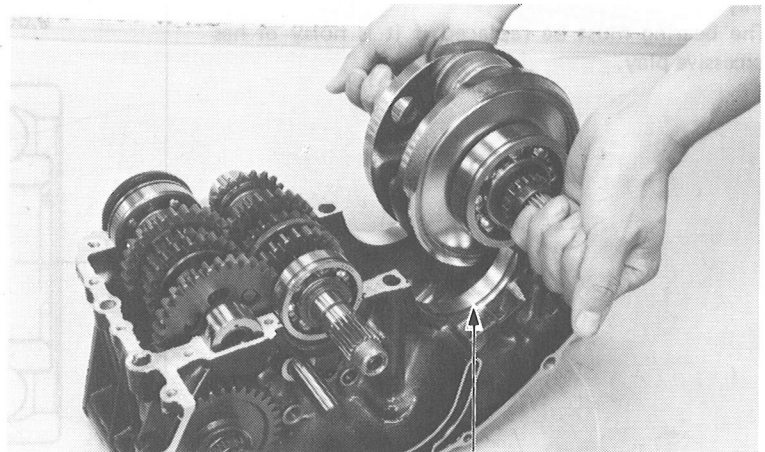


CRANKSHAFT INSTALLATION

Place the set ring in the lower crankcase.
Install the crankshaft and rod assembly in the lower crankcase.

NOTE

Be sure the set ring fits in the main bearing outer race.



SET RING

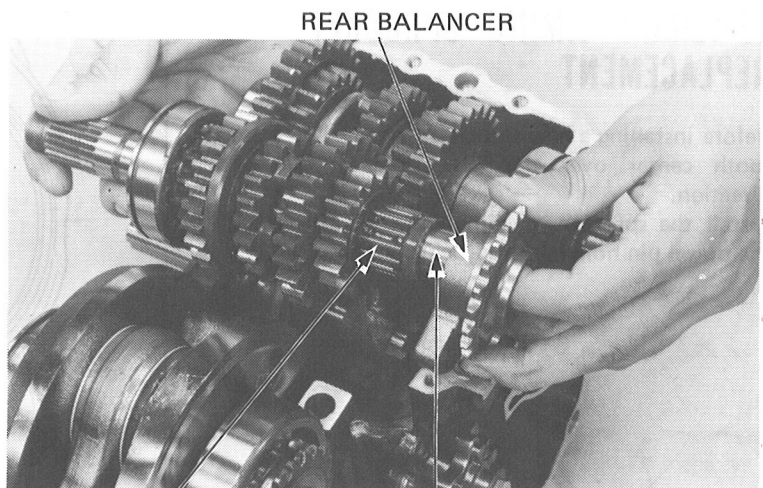
REAR BALANCER INSTALLATION

Install the rear balancer, thrust washer, spacer and needle bearing.

NOTE

Note the needle bearing location.

Install the thrust washer and needle bearing.



NEEDLE BEARING

COLLAR



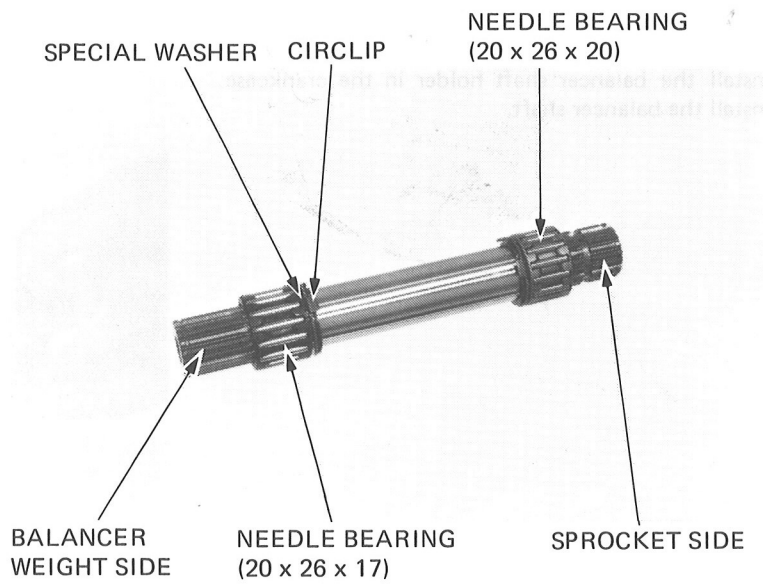
FRONT BALANCER INSTALLATION

Set the circlips in the balancer shaft with the sharp edges toward the outside.

Install the special washers and needle bearings.

NOTE

- Align the washer tabs with the circlips.
- Apply grease to the inner side of the washer to hold it in place during installation.

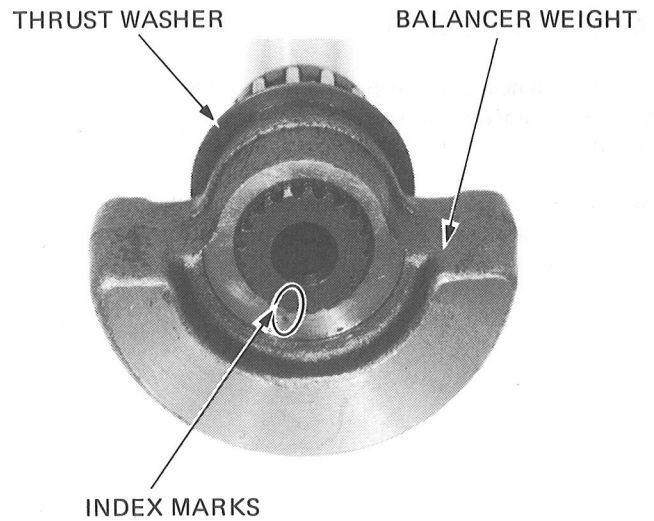


Install the thrust washer and balancer weight.

NOTE

- Align the index mark on the balancer shaft with the index mark on the balancer weight.

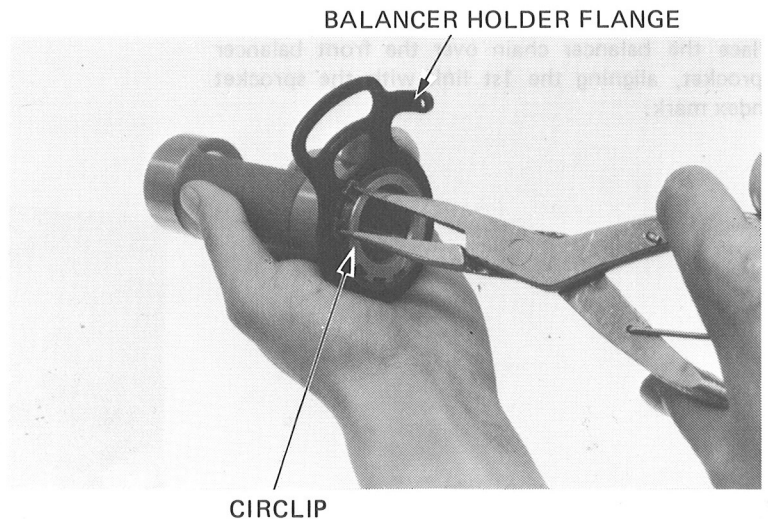
Install the circlip with the sharp edge on the outside.



Install the flange on the balancer holder and secure with the circlip.

NOTE

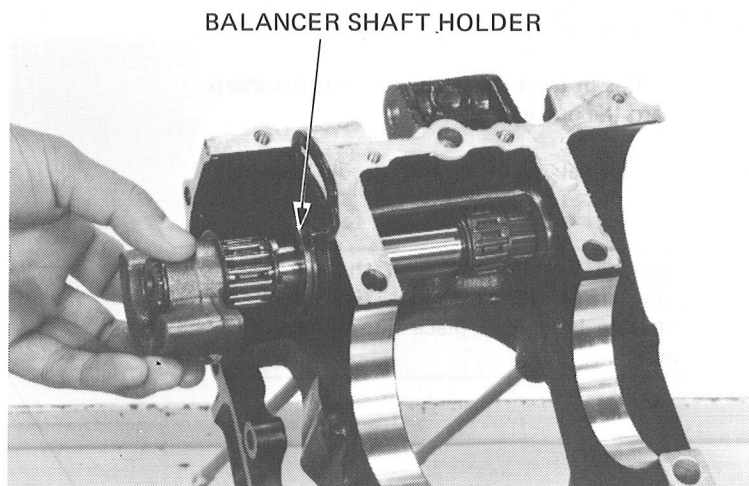
- Note the direction of the flange.
- Install the circlip with the sharp edge towards the outside.





CRANKSHAFT/BALANCER

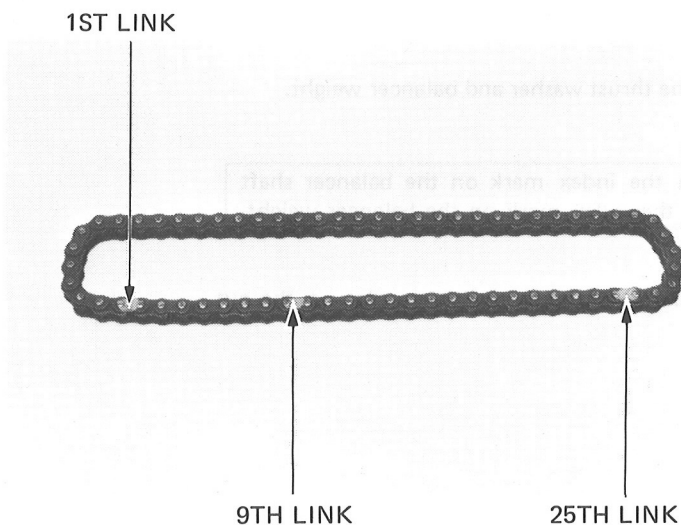
Install the balancer shaft holder in the crankcase.
Install the balancer shaft.



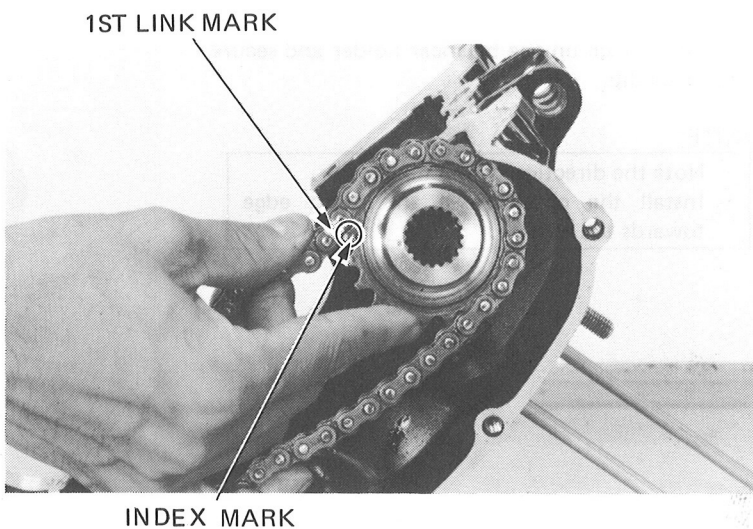
BALANCER TIMING

Mark the balancer chain at three points, 1st, 9th and 25th links, starting at any link toward the right along the lower length of the chain as shown.

The 1st link is for the front balancer, the 9th link is for the crankshaft and the 25th link is for the rear balancer.

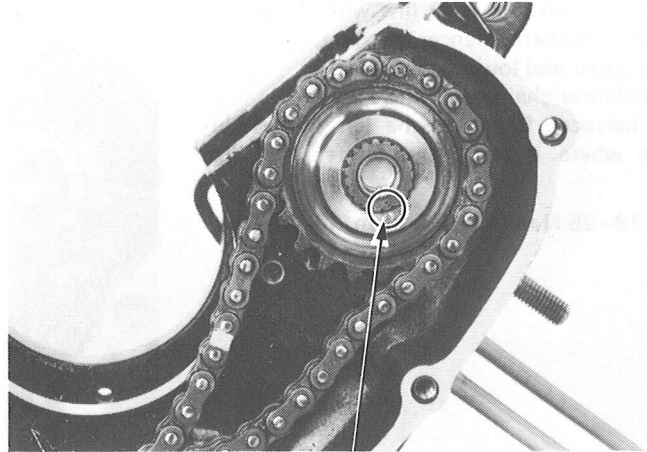


Place the balancer chain over the front balancer sprocket, aligning the 1st link with the sprocket index mark.





Install the thrust washer. Align the sprocket and balancer shaft index marks and install the sprocket on the shaft.
Secure with the circlip.

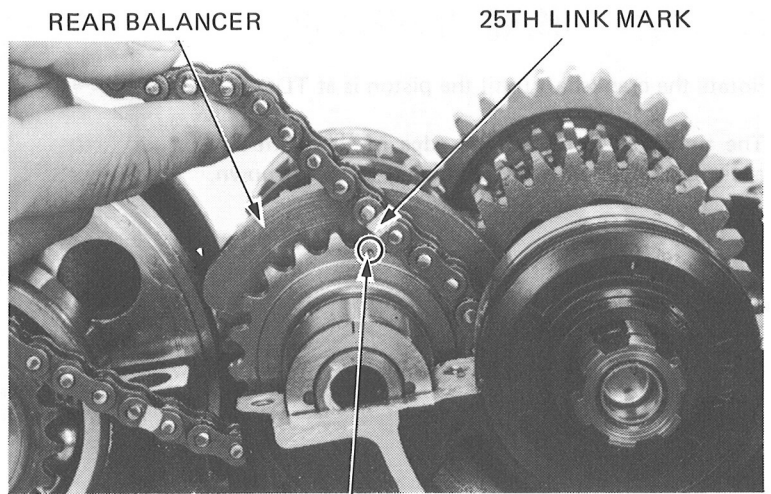


INDEX MARK

Place the balancer chain on the rear balancer sprocket, aligning the 25th link with the index mark.

NOTE

Check that the 1st link is aligned with the index mark on the front balancer sprocket.

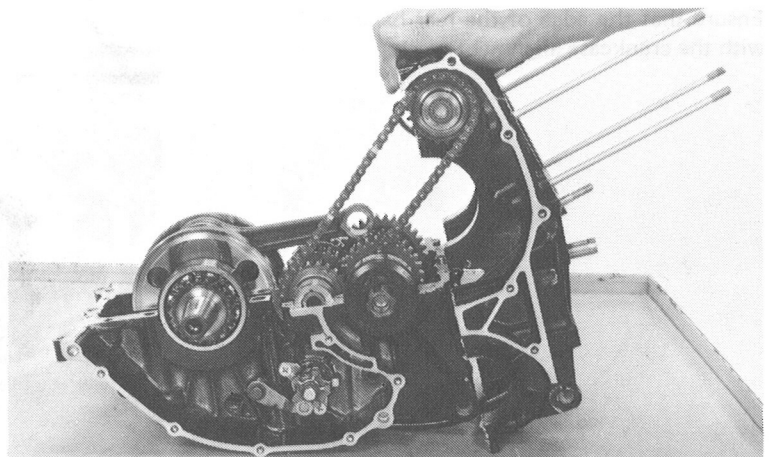


INDEX MARK

Install the upper crankcase onto the lower crankcase.

NOTE

Keep the balancer chain engaged with the sprocket mark.

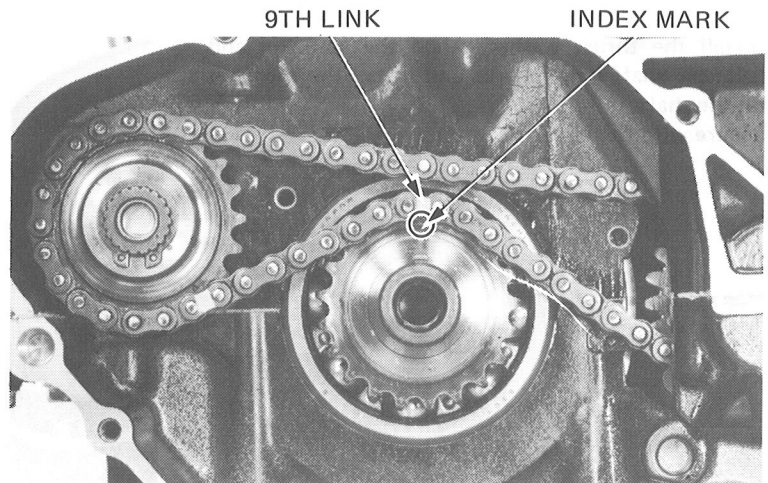




CRANKSHAFT/BALANCER

Ensure that the 9th link is in line with the punch mark on the crankshaft balancer sprocket.
Tighten the upper and lower case bolts.
Install the balancer chain guide and spring.
Move the balancer flange to the left one graduation from where it rests, and tighten the lock nut.

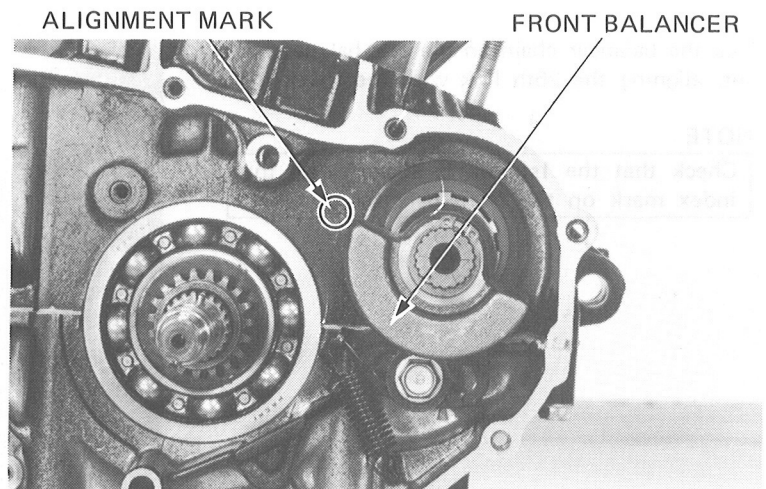
TORQUE: 18–25 N·m (1.8–2.5 kg·m, 13–18 ft·lb)



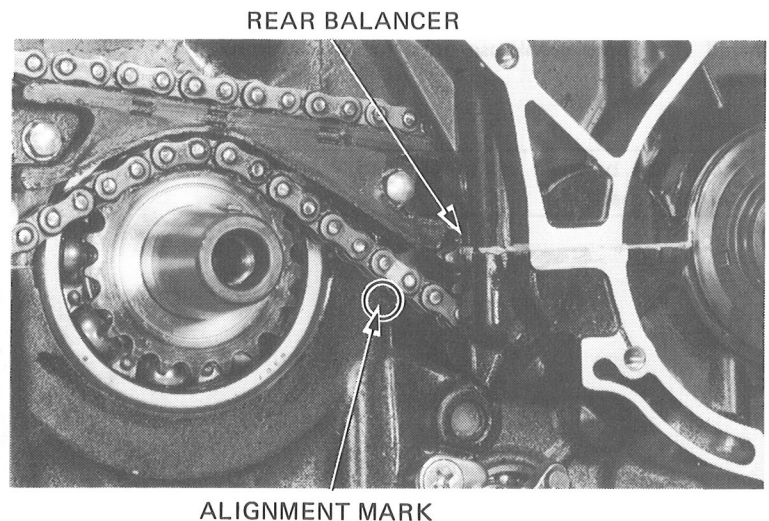
BALANCER TIMING INSPECTION

Rotate the crankshaft until the piston is at TDC.

The timing is correct if the edge of the front balancer is aligned with the alignment mark as shown.



Ensure that the edge of the rear balancer is aligned with the crankcase alignment mark.



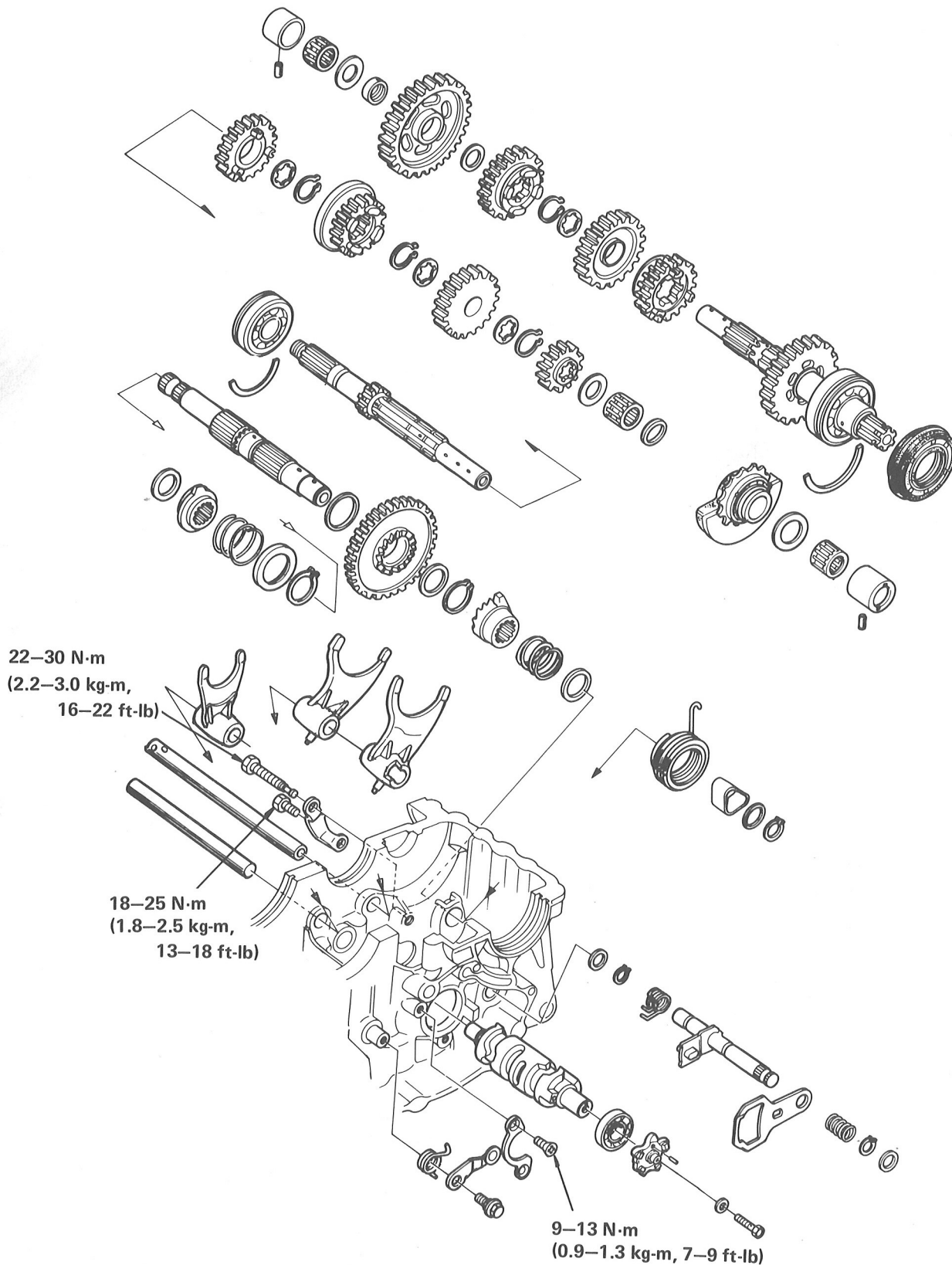


HONDA
XR500R

MEMO



TRANSMISSION





SERVICE INFORMATION	12-1
TROUBLESHOOTING	12-2
TRANSMISSION DISASSEMBLY	12-3
KICK STARTER DISASSEMBLY	12-8
KICK STARTER ASSEMBLY	12-9
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SERVICE INFORMATION

GENERAL INSTRUCTIONS

- The crankcase must be separated to service the transmission and kick starter.

SPECIFICATIONS

ITEM		STANDARD	SERVICE LIMIT	
Gear backlash	Low, 2nd	0.044–0.133 mm (0.0017–0.0052 in)	0.2 mm (0.01 in)	
	3rd, 4th, top	0.046–0.140 mm (0.0018–0.0055 in)	0.2 mm (0.01 in)	
Gear side clearance	M 4th	0.06–0.41 mm (0.002–0.016 in)	0.50 mm (0.020 in)	
	M Top	0.05–0.58 mm (0.002–0.023 in)	0.65 mm (0.026 in)	
	C Low	0.05–0.22 mm (0.002–0.009 in)	0.30 mm (0.012 in)	
	C 3rd	0.06–0.41 mm (0.002–0.016 in)	0.50 mm (0.020 in)	
Gear dog clearance (neutral)		_____	0.3 mm (0.01 in)	
Shaft-to-gear clearance	M 4, M top	0.040–0.082 mm (0.0016–0.0032 in)	0.15 mm (0.006 in)	
	C 2nd, C 3rd	0.040–0.082 mm (0.0016–0.0032 in)	0.15 mm (0.006 in)	
Shaft-to-C Low gear bushing clearance		0.020–0.054 mm (0.0008–0.0021 in)	0.10 mm (0.004 in)	
Bushing-to-C Low gear clearance		0.015–0.057 mm (0.0006–0.0022 in)	0.10 mm (0.004 in)	
Gear I.D.	C 3rd, C Top	25.020–25.041 mm (0.9850–0.9859 in)	25.10 mm (0.988 in)	
	M 4th, M Top	25.020–25.041 mm (0.9850–0.9859 in)	25.10 mm (0.988 in)	
C Low gear bushing	I.D.	20.020–20.041 mm (0.7882–0.7890 in)	20.10 mm (0.791 in)	
	O.D.	25.005–25.016 mm (0.9844–0.9849 in)	24.95 mm (0.982 in)	
Mainshaft	O.D.	24.959–24.980 mm (0.9826–0.9835 in)	24.91 mm (0.981 in)	
		19.987–20.000 mm (0.7869–0.7874 in)	19.95 mm (0.785 in)	
Countershaft	O.D.	19.987–20.000 mm (0.7869–0.7874 in)	19.95 mm (0.785 in)	
		24.959–24.980 mm (0.9826–0.9835 in)	24.91 mm (0.981 in)	
		26.959–26.980 mm (1.0614–1.0622 in)	26.91 mm (1.059 in)	
		19.987–20.000 mm (0.7869–0.7874 in)	19.95 mm (0.785 in)	
Shift fork	Shift fork I.D. Center fork	12.000–12.021 mm (0.4724–0.4733 in)	12.05 mm (0.474 in)	
		R/L forks	15.000–15.021 mm (0.5906–0.5914 in)	15.05 mm (0.593 in)
	Fork claw thickness		4.93–5.00 mm (0.194–0.197 in)	4.5 mm (0.18 in)
	Guide shaft O.D. Center shaft		11.966–11.984 mm (0.4711–0.4718 in)	11.91 mm (0.469 in)
R/L shafts		14.966–14.984 mm (0.5892–0.5899 in)	14.91 mm (0.587 in)	
Shift drum	Drum O.D.	11.966–11.984 mm (0.4711–0.4718 in)	11.91 mm (0.469 in)	
Lower case	Case I.D.	12.000–12.027 mm (0.4724–0.4735 in)	12.10 mm (0.476 in)	
Kick starter	Starter pinion I.D.	22.000–22.021 mm (0.8661–0.8670 in)	22.10 mm (0.870 in)	
	Starter spindle O.D.	21.959–21.980 mm (0.8645–0.8654 in)	21.91 mm (0.863 in)	



TRANSMISSION

TORQUE VALUES

Gearshift drum bearing set plate	9–13 N·m (0.9–1.3 kg-m, 7– 9 ft-lb)
Spring hook pin bolt	22–28 N·m (2.2–2.8 kg-m, 16–20 ft-lb)
Kick starter stopper plate	18–25 N·m (1.8–2.5 kg-m, 13–18 ft-lb)

TROUBLESHOOTING

Hard to Shift

1. Improper clutch adjustment; too much free play
2. Shift forks bent
3. Shift shaft bent
4. Shift fork claw bent
5. Shift drum cam groove damaged

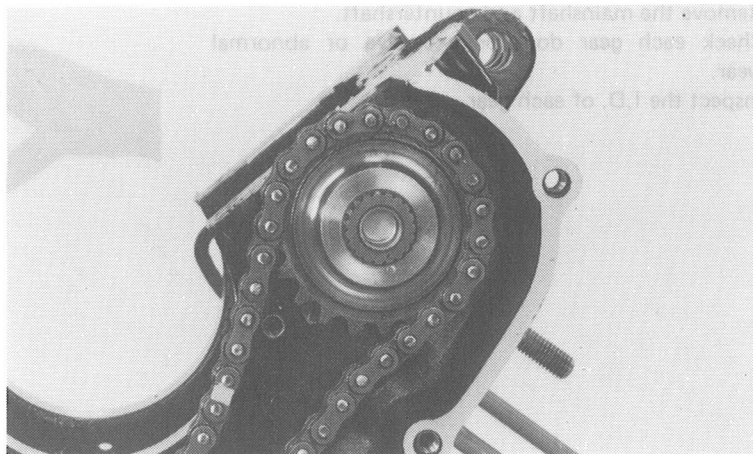
Transmission Jumps Out Of Gear

1. Gear dogs worn
2. Shift shaft bent
3. Shift drum stopper broken
4. Shift forks bent



TRANSMISSION DISASSEMBLY

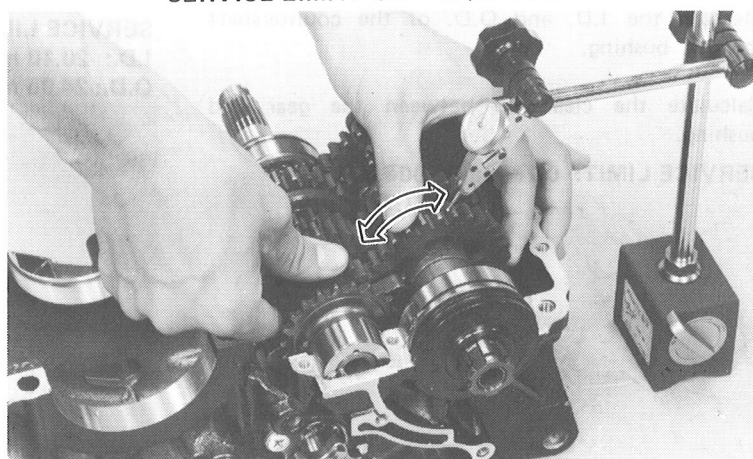
Separate the crankcase (Section 10).
Remove the balancer chain from the rear balancer.



TRANSMISSION GEAR INSPECTION

Inspect each gear for backlash.

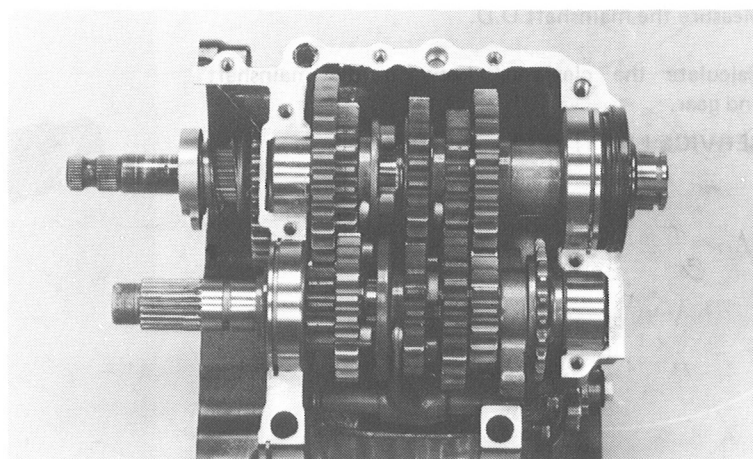
SERVICE LIMIT: 0.2 mm (0.01 in)



Place the gears in neutral, and check each gear dog for minimum end clearance.

SERVICE LIMIT: 0.30 mm (0.012 in)

If the clearance exceeds the service limit, inspect the thrust washers, gears, shift forks and shift drum, replacing the parts which show excessive wear.





TRANSMISSION

Remove the mainshaft and countershaft.
Check each gear dog for excessive or abnormal wear.
Inspect the I.D. of each gear.

SERVICE LIMITS:
C3RD, C TOP : 25.10 mm (0.988 in)
C4TH, M TOP : 25.10 mm (0.988 in)

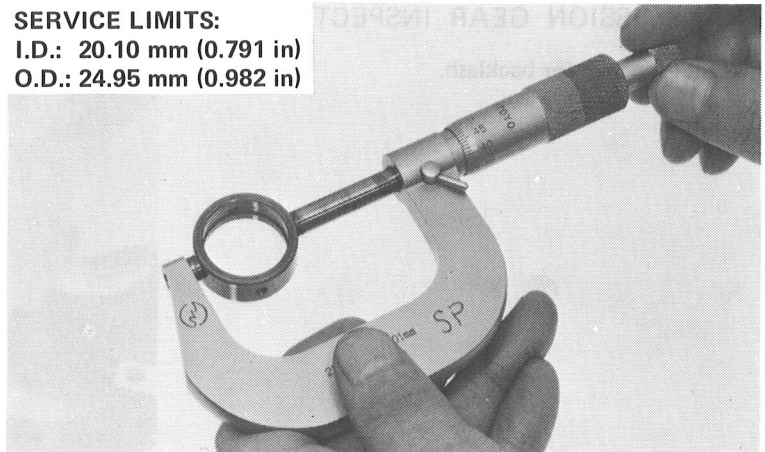


Measure the I.D. and O.D. of the countershaft low gear bushing.

Calculate the clearance between the gear and bushing.

SERVICE LIMIT: 0.10 mm (0.004 in)

SERVICE LIMITS:
I.D.: 20.10 mm (0.791 in)
O.D.: 24.95 mm (0.982 in)

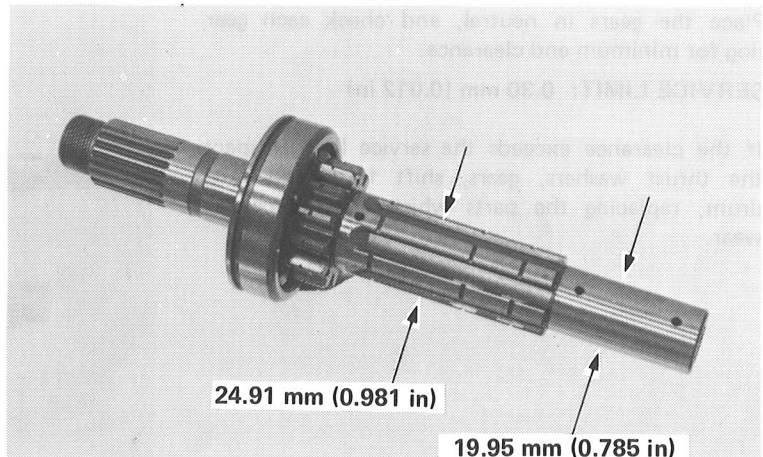


Measure the mainshaft O.D.

Calculate the clearance between the mainshaft and gear.

SERVICE LIMIT: 0.15 mm (0.006 in)

SERVICE LIMITS:



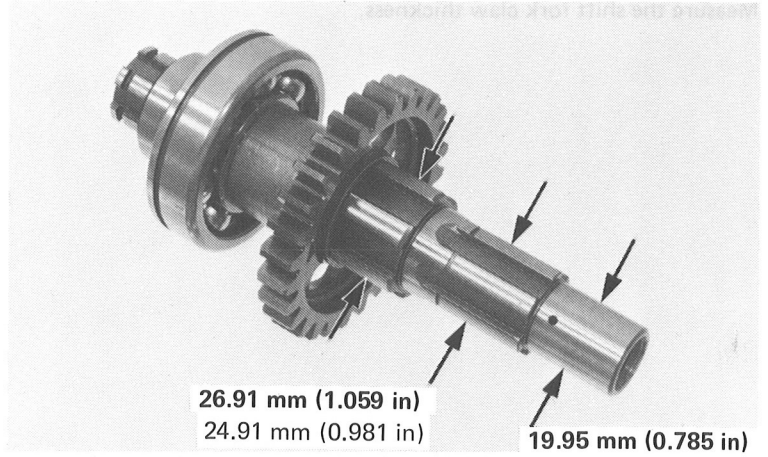


Measure the countershaft O.D.

Calculate the clearance between the gear and countershaft.

SERVICE LIMIT: 0.15 mm (0.006 in)

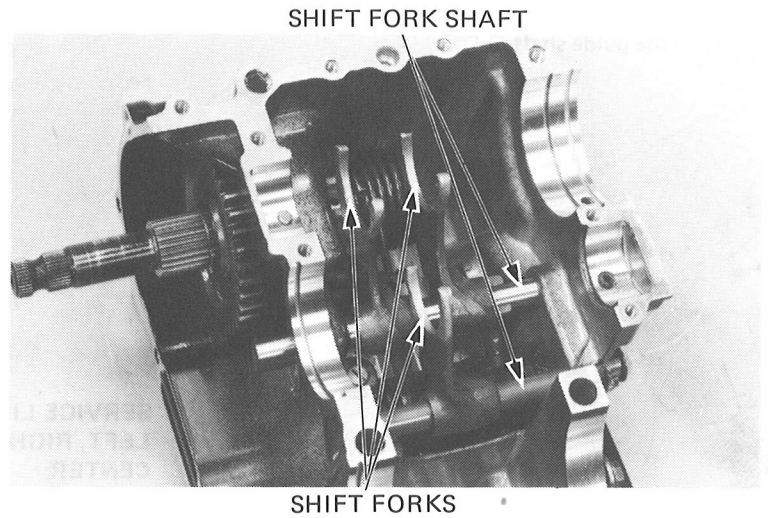
SERVICE LIMITS:



Remove the shift fork shafts and shift forks.
Mark the fork to ensure correct assembly.

NOTE

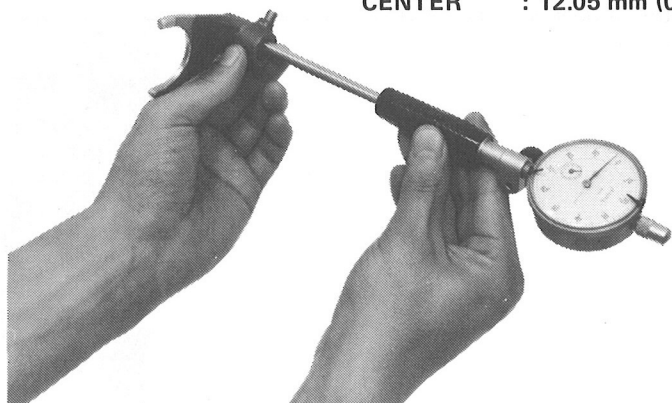
See page 12-12 for shift fork identification marks.



SHIFT FORK/GUIDE SHAFT INSPECTION

Measure the shift fork I.D.

SERVICE LIMITS:
LEFT, RIGHT: 15.05 mm (0.593 in)
CENTER : 12.05 mm (0.474 in)

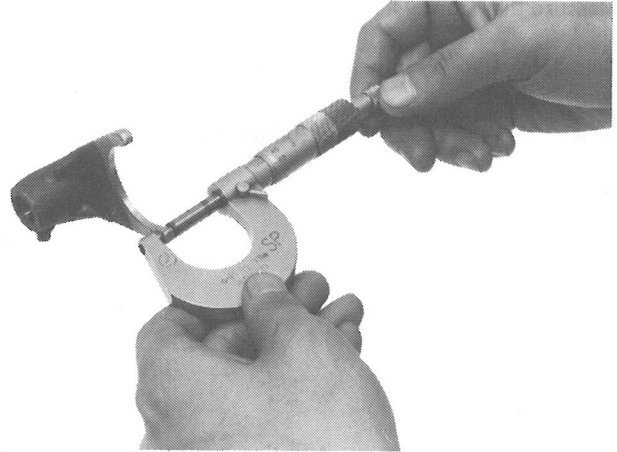




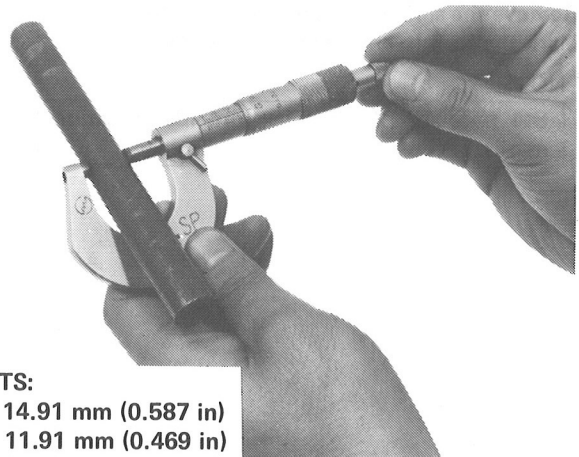
TRANSMISSION

Measure the shift fork claw thickness.

SERVICE LIMIT: 4.5 mm (0.18 in)



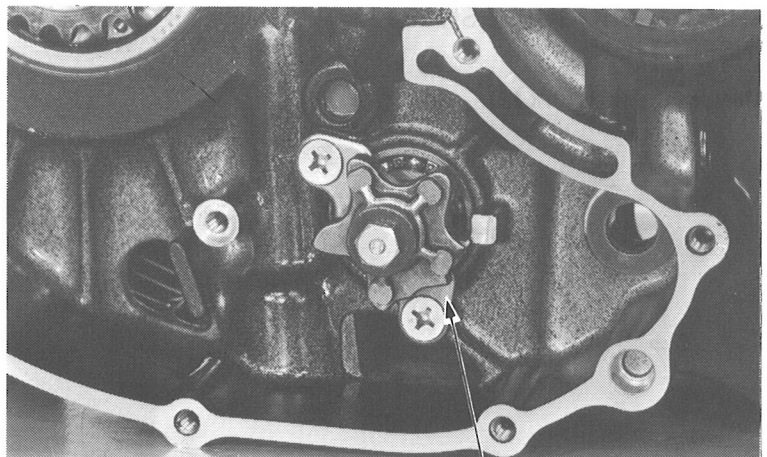
Measure the guide shaft O.D.



SERVICE LIMITS:
LEFT, RIGHT: 14.91 mm (0.587 in)
CENTER: 11.91 mm (0.469 in)

SHIFT DRUM DISASSEMBLY

Remove the stopper arm and bearing set plate.
Remove the shift drum.



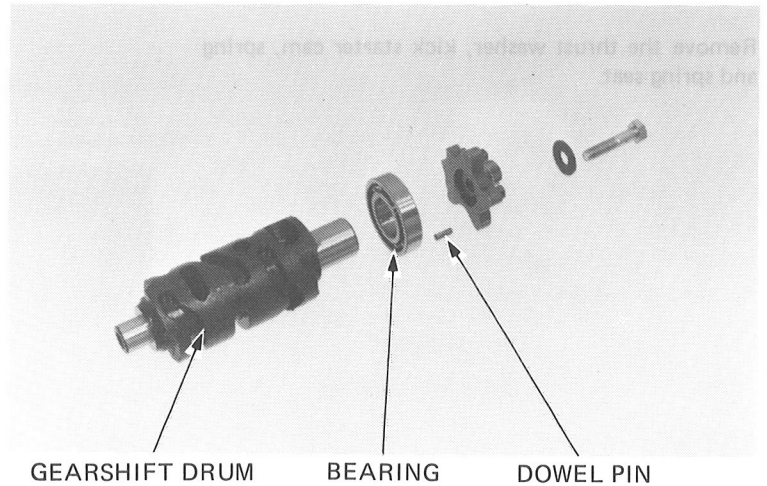
BEARING SET PLATE



Remove the stopper plate, dowel pin and bearing from the shift drum.

Check each part for wear or damage. Replace if necessary.

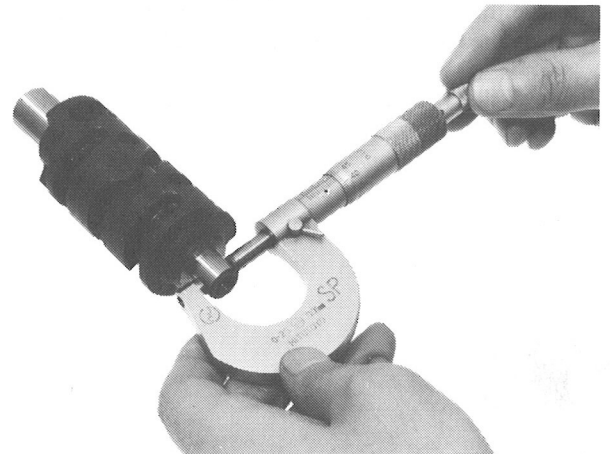
The bearing should be replaced with a new one if it is noisy or has excessive play.



GEARSHIFT DRUM INSPECTION

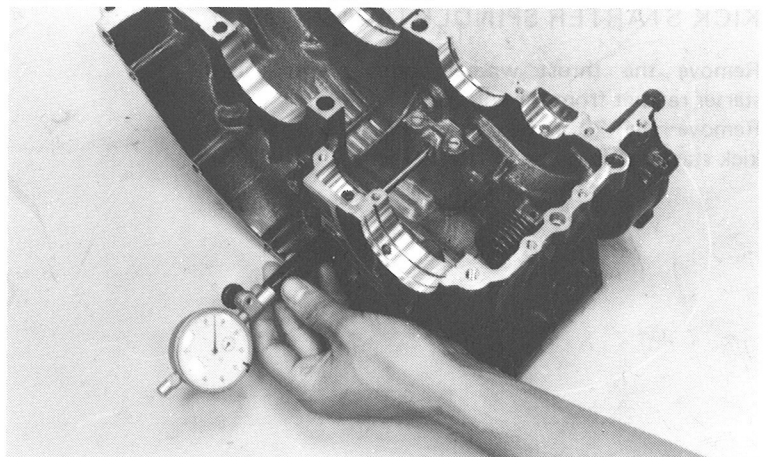
Measure the shift drum O.D.
Inspect the drum grooves and replace the drum if it is damaged or shows excessive wear.

SERVICE LIMIT: 11.91 mm (0.469 in)



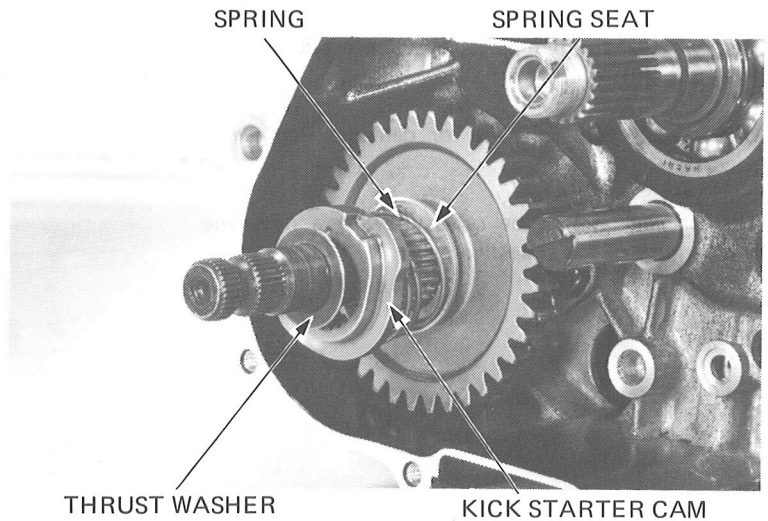
Measure the lower crankcase I.D.

SERVICE LIMIT: 12.10 mm (0.476 in)



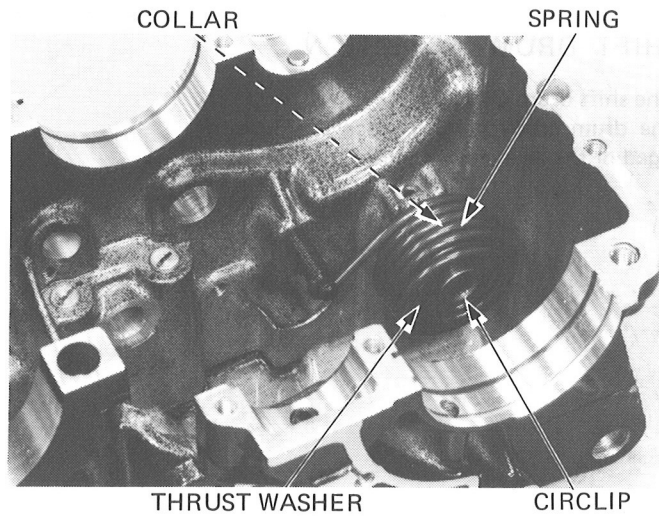
KICK STARTER DISASSMBLY

Remove the thrust washer, kick starter cam, spring and spring seat.



Remove the 16 mm circlip, thrust washer and collar. Remove the kick starter spring and spindle.

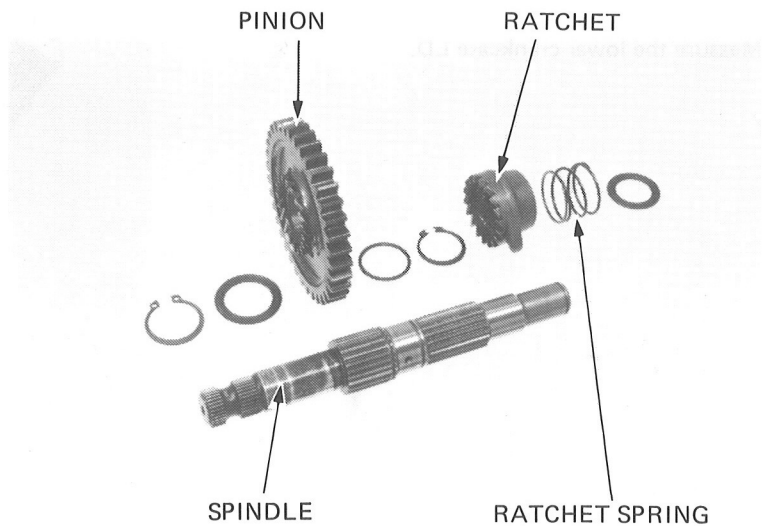
Remove the kick starter stopper plate and spring hook pin.



KICK STARTER SPINDLE DISASSEMBLY

Remove the thrust washer, ratchet spring and starter ratchet from the spindle.

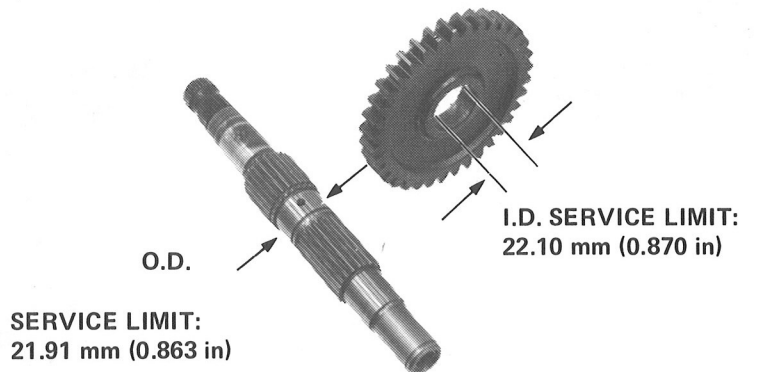
Remove the 22 mm circlip, thrust washer and kick starter pinion from the other end.





KICK STARTER INSPECTION

Measure the kick starter pinion I.D. and spindle O.D.



KICK STARTER ASSEMBLY

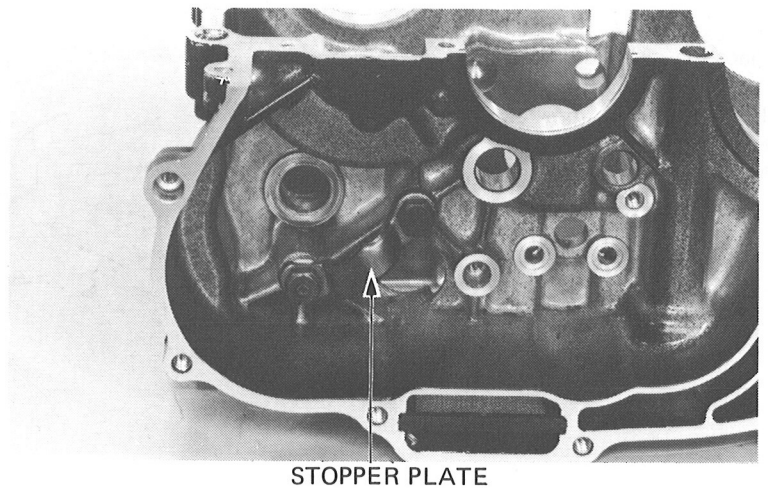
Install the kick starter stopper plate and tighten the bolt.

Upper bolt

TORQUE: 8–12 N·m (0.8–1.2 kg·m, 6–9 ft·lb)

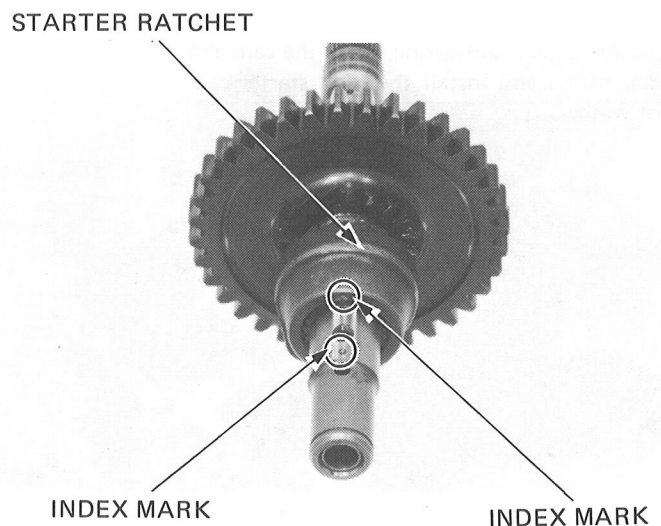
Lower bolt

TORQUE: 22–28 N·m (2.2–2.8 kg·m, 16–20 ft·lb)



Install the 24 mm circlip, thrust washer, starter pinion, thrust washer and 22 mm circlip.

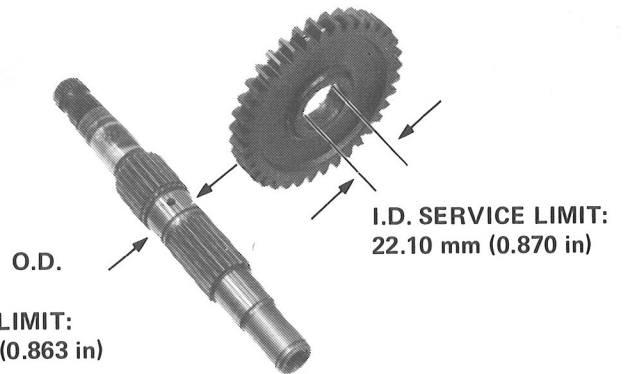
Align the ratchet and shaft index marks and install the starter ratchet, ratchet spring and thrust washer.





KICK STARTER INSPECTION

Measure the kick starter pinion I.D. and spindle O.D.



KICK STARTER ASSEMBLY

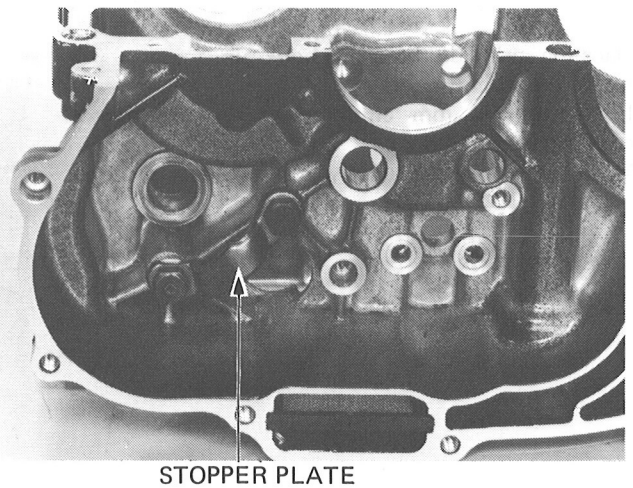
Install the kick starter stopper plate and tighten the bolt.

Upper bolt

TORQUE: 8–12 N·m (0.8–1.2 kg·m, 6–9 ft·lb)

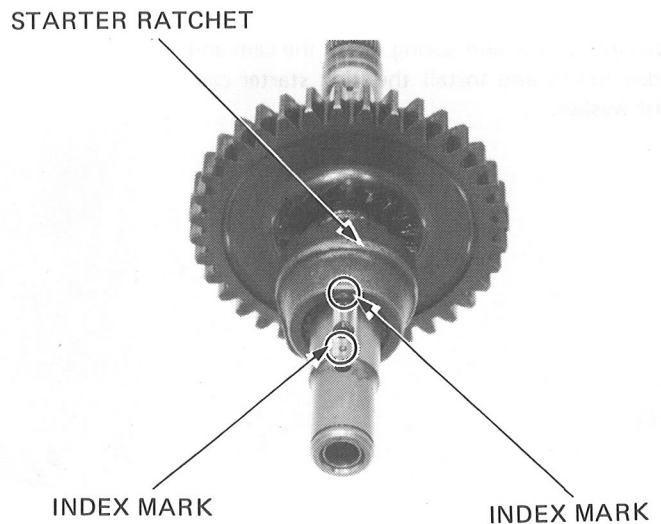
Lower bolt

TORQUE: 22–28 N·m (2.2–2.8 kg·m, 16–20 ft·lb)



Install the 24 mm circlip, thrust washer, starter pinion, thrust washer and 22 mm circlip.

Align the ratchet and shaft index marks and install the starter ratchet, ratchet spring and thrust washer.

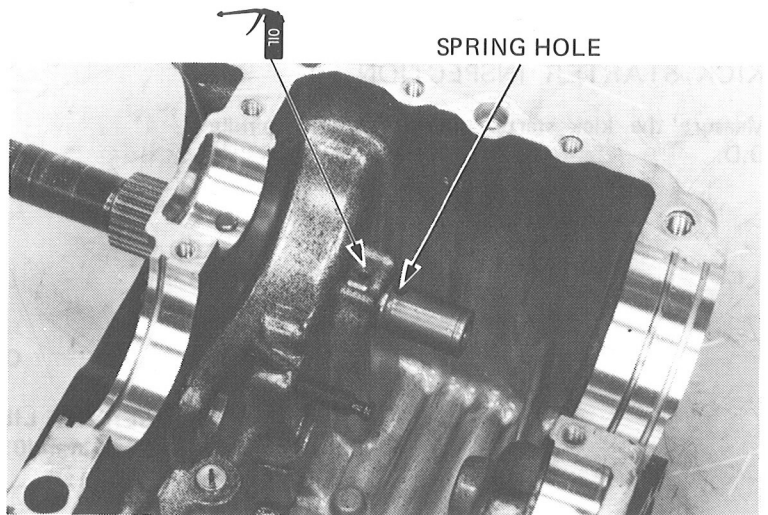




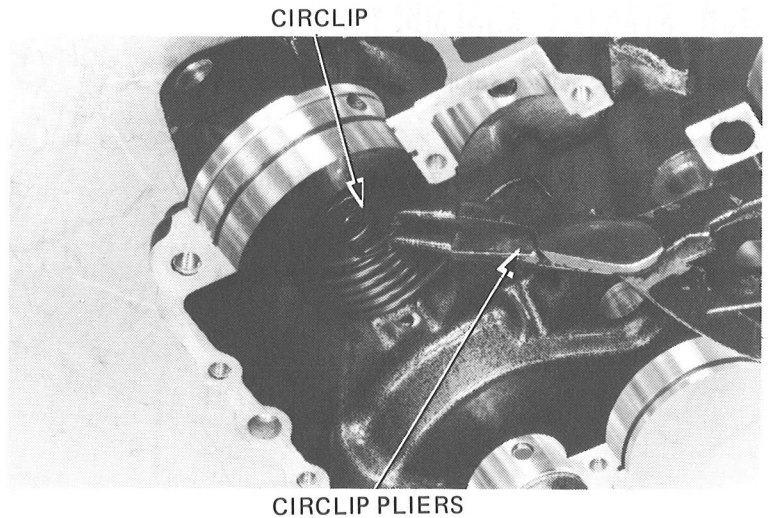
TRANSMISSION

Install the spindle in the crankcase with the spring hole facing up.

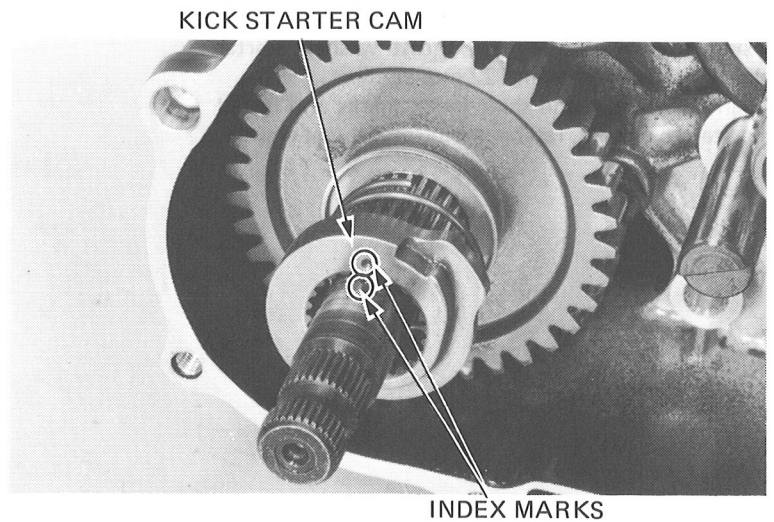
Pour engine oil into the oil hole.
Install the starter spring and collar.



Place the spring on the spring hook pin.
Install the plain washer.
Install the 14 mm circlip with the chamfered edge facing outward.
Make sure it fits properly in the shaft groove.



Install the spring seat and spring, align the cam and shaft index marks and install the kick starter cam and thrust washer.



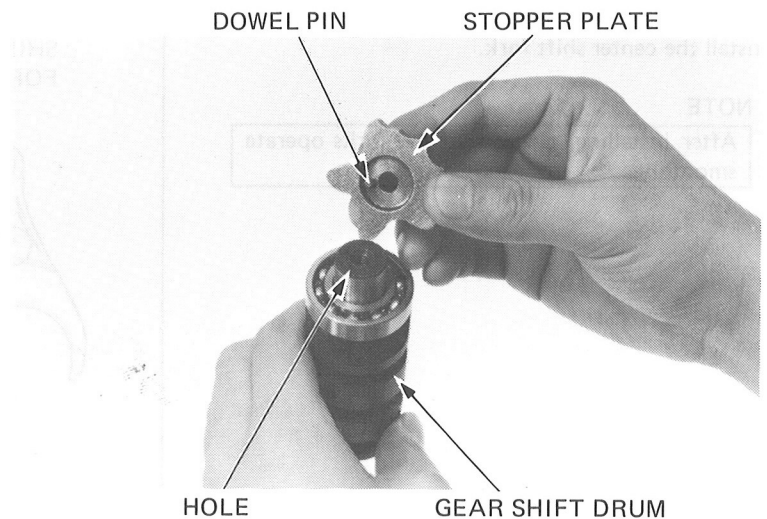


TRANSMISSION ASSEMBLY

SHIFT DRUM INSTALLATION

Install the bearing, stopper plate, dowel pin, and collar.

Install the washer and bolt loosely.

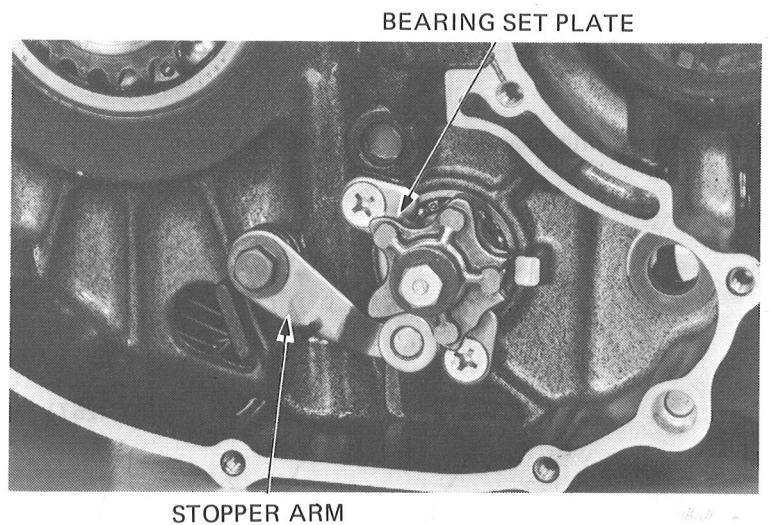


Install the shift drum and set plate.

NOTE

- Note the direction of the set plate.
- Check that the shift drum operates smoothly.

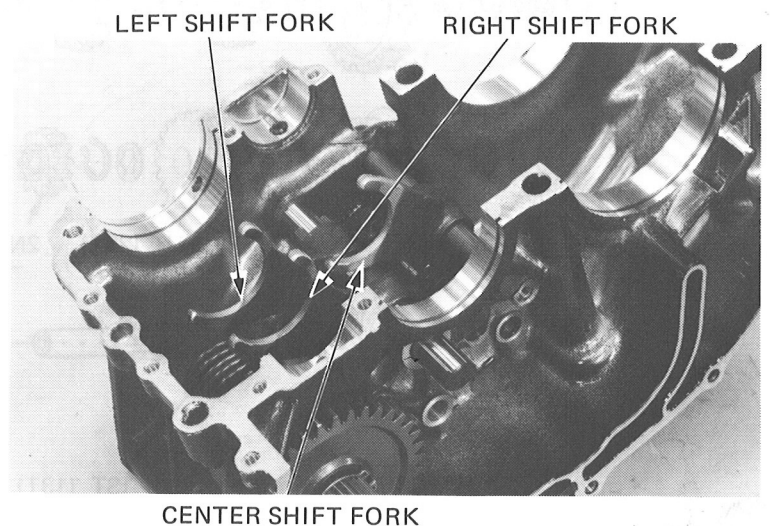
Install the drum stopper arm and spring.
Install the gearshift spindle.
Tighten the stopper plate set bolt.



Install the right and left shift forks.

NOTE

- Do not interchange the right and left shift forks.



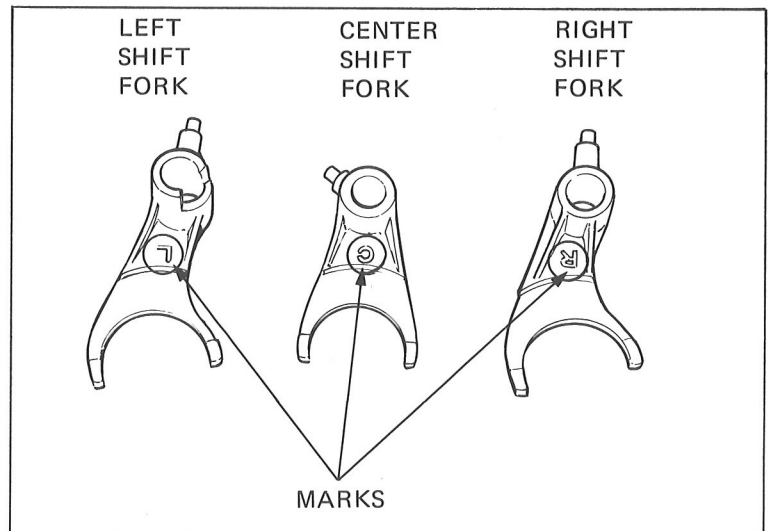


TRANSMISSION

Install the center shift fork.

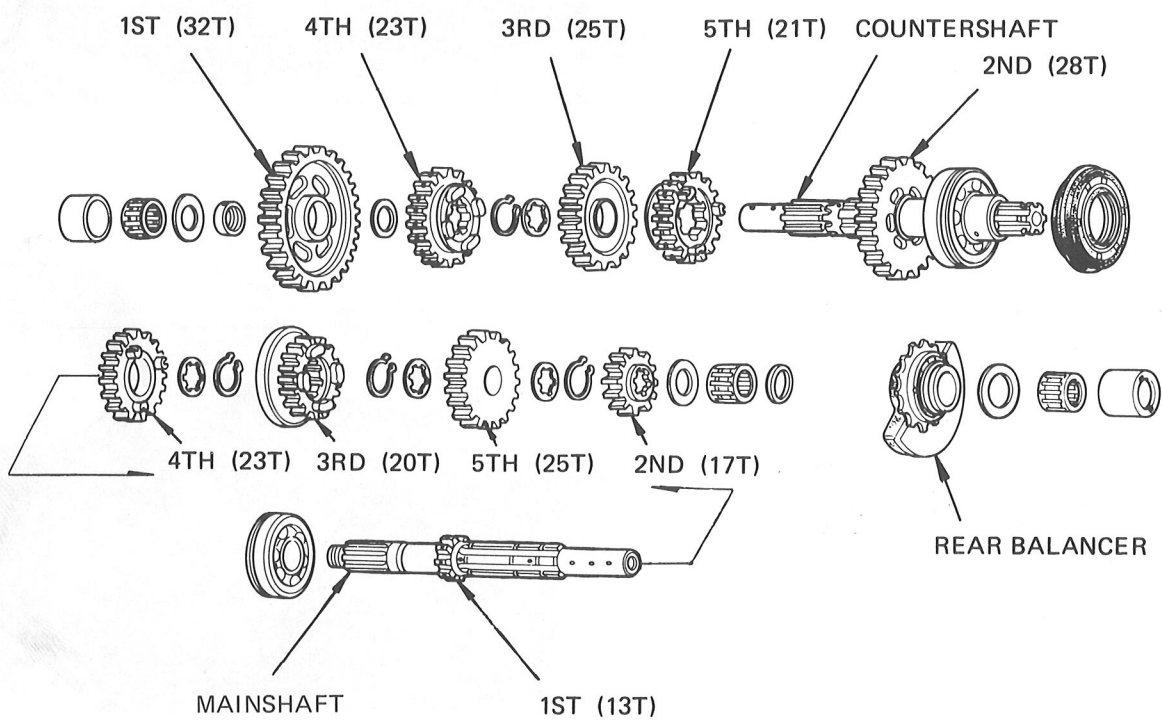
NOTE

After installing, check that the forks operate smoothly.



TRANSMISSION GEAR ASSEMBLY

Coat each gear with engine oil and install them as shown.



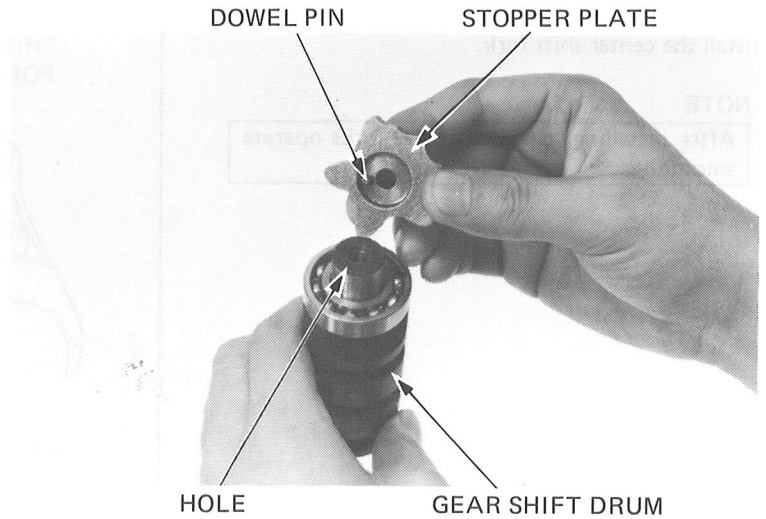


TRANSMISSION ASSEMBLY

SHIFT DRUM INSTALLATION

Install the bearing, stopper plate, dowel pin, and collar.

Install the washer and bolt loosely.

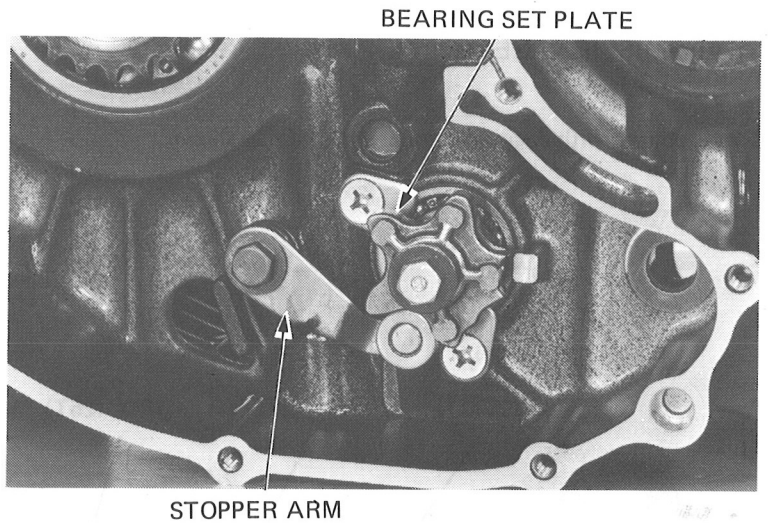


Install the shift drum and set plate.

NOTE

- Note the direction of the set plate.
- Check that the shift drum operates smoothly.

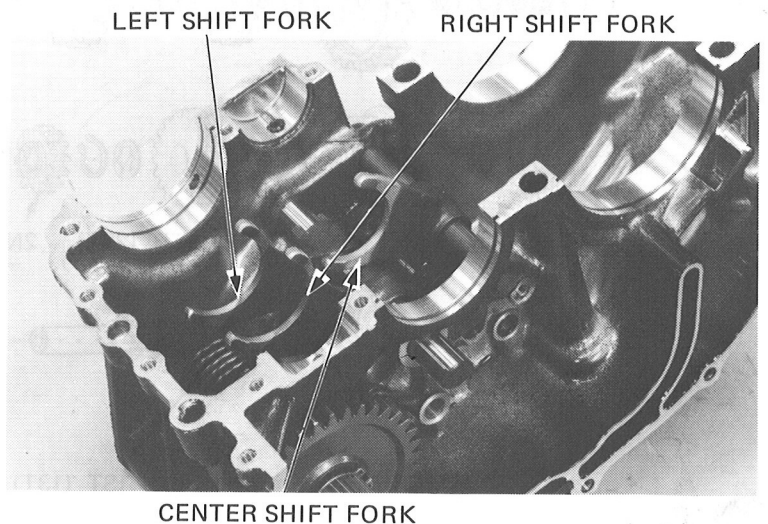
Install the drum stopper arm and spring.
Install the gearshift spindle.
Tighten the stopper plate set bolt.



Install the right and left shift forks.

NOTE

- Do not interchange the right and left shift forks.



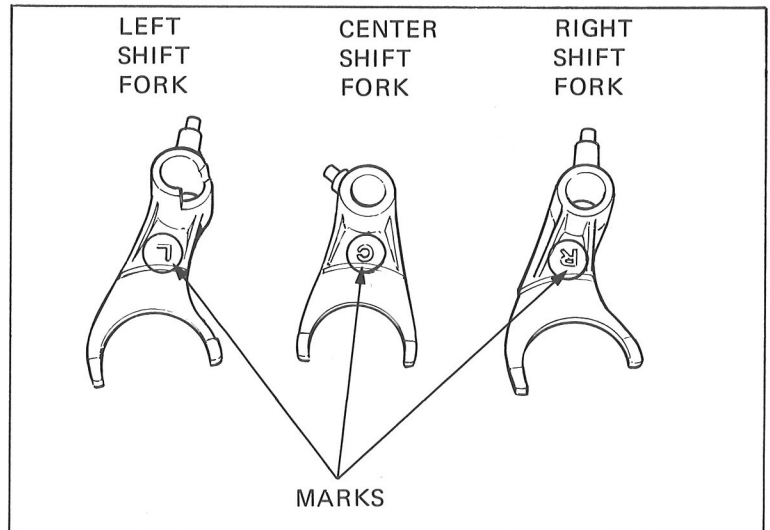


TRANSMISSION

Install the center shift fork.

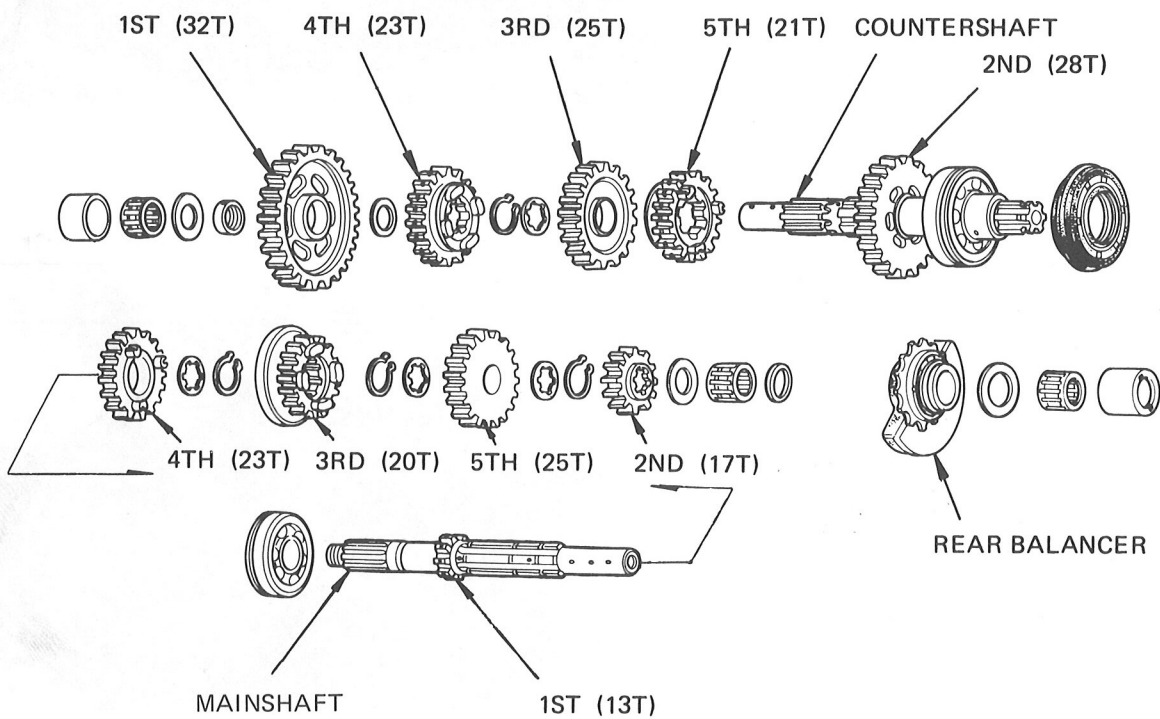
NOTE

After installing, check that the forks operate smoothly.



TRANSMISSION GEAR ASSEMBLY

Coat each gear with engine oil and install them as shown.



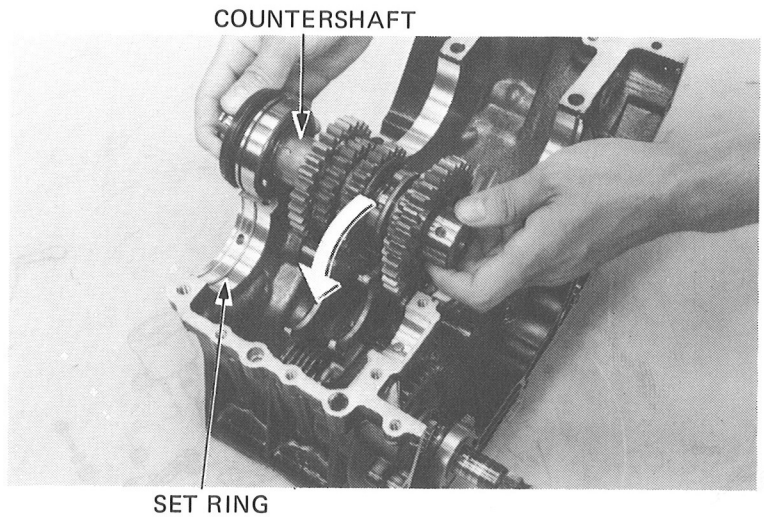


Install the bearing set pin and set rings in the lower case.

Place the countershaft assembly into the lower case.

NOTE

- Align the dowel pin with the roller bearing outer race.
- Fit the set ring in the ball bearing outer race groove.
- Make sure the oil seal is seated in the crankcase correctly.

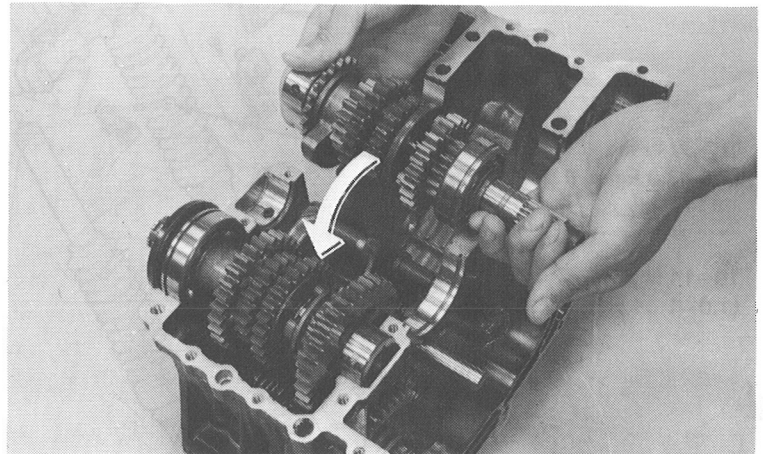


Install the mainshaft.

NOTE

- Align the dowel pin with the needle roller bearing outer race.
- Be sure the set ring fits in the bearing outer race correctly.

Assemble the crankcase (Pages 10-4 and 5).



FRONT WHEEL
BRAKE/SUSPENSION/STEERING



HONDA
XR500R

