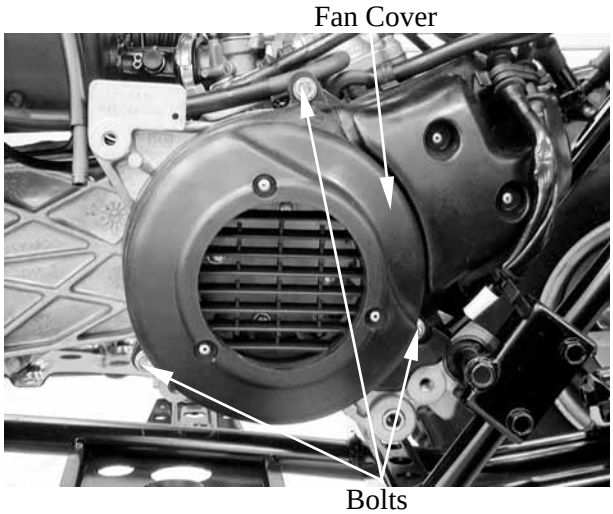
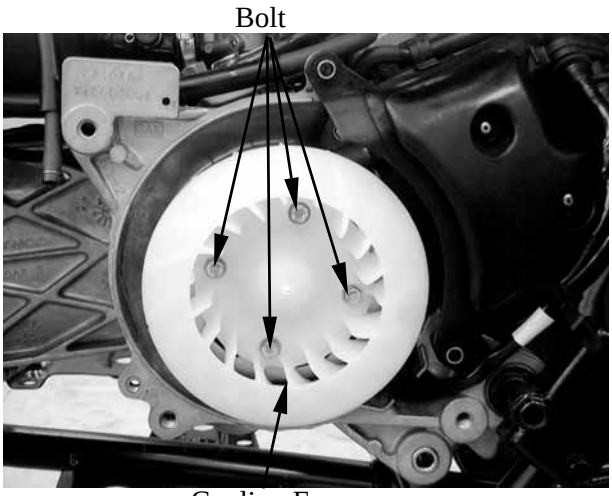
8. A.C. GENERATOR

A.C. GENERATOR REMOVAL

Remove the three bolts attaching the fan cover to remove the fan cover.

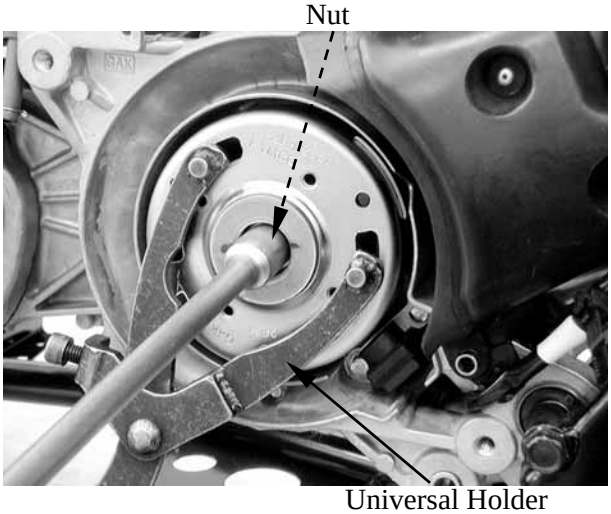


Remove the cooling fan by removing the four bolts.



Hold the flywheel with an universal holder and then remove the flywheel nut.

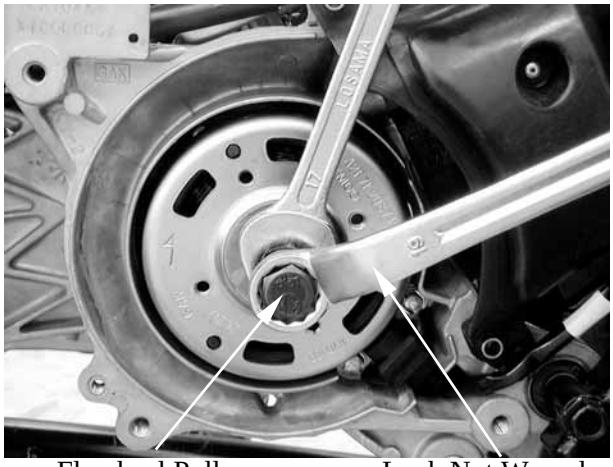
Special tool:
Universal holder A120E00017



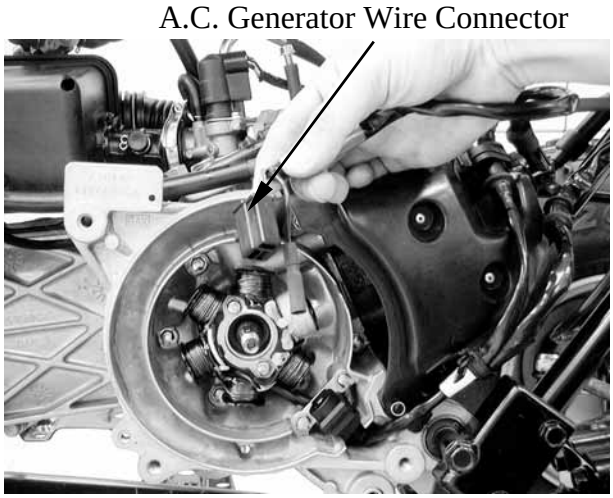
8. A.C. GENERATOR

Remove the A.C. generator flywheel using the flywheel puller.

Special tool:
Flywheel puller A120E00001

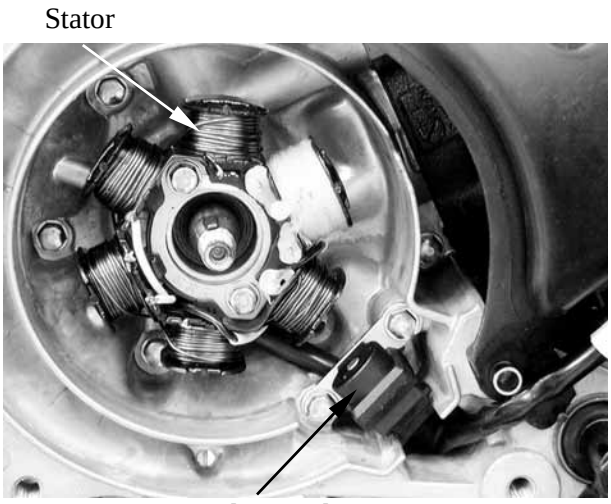


Remove the A.C. generator wire connector.



Remove the two pulser coil bolts and pulser coil from the right crankcase.
Remove the two bolts attaching the A.C. generator stator.

✳ Be careful not to damage the disconnected wire.



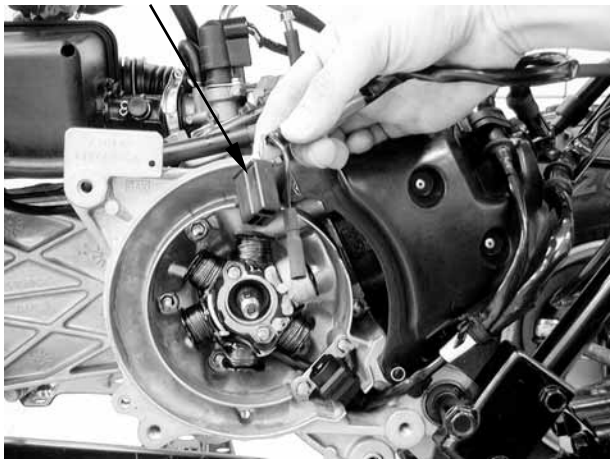
A.C. GENERATOR INSTALLATION

Install the A.C. generator stator and pulser coil wire clamp onto the right crankcase, and then install the pulser coil.

8. A.C. GENERATOR

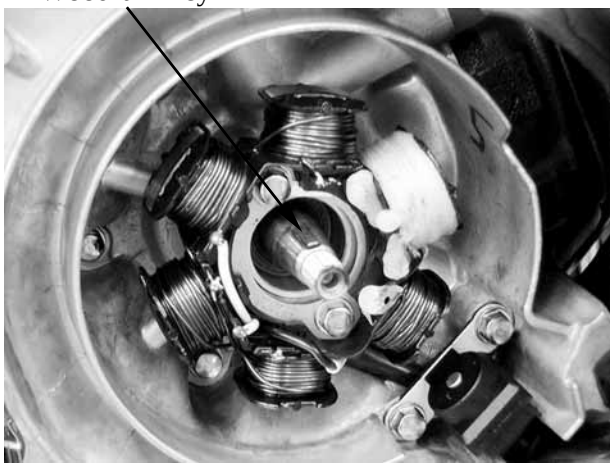
Connect the A.C. generator wire connector.

A.C. Generator Wire Connector



Clean the taper hole in the flywheel off any burrs and dirt.
Install the woodruff key in the crankshaft key way.

Woodruff Key

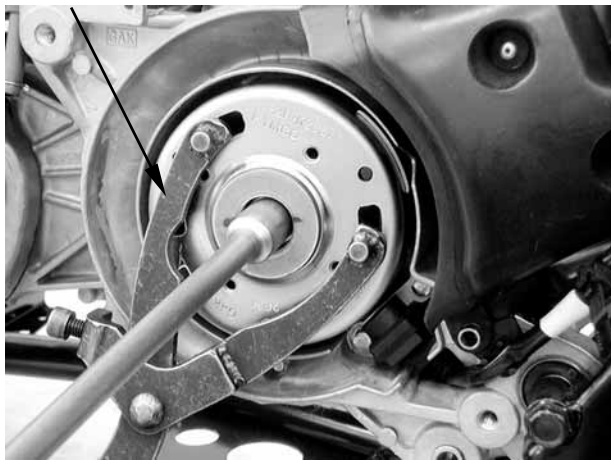


Install the flywheel onto the crankshaft with the flywheel groove aligned with the crankshaft woodruff key.
Hold the flywheel with the universal holder and install the 10 mm (0.4 in) flywheel flange nut.

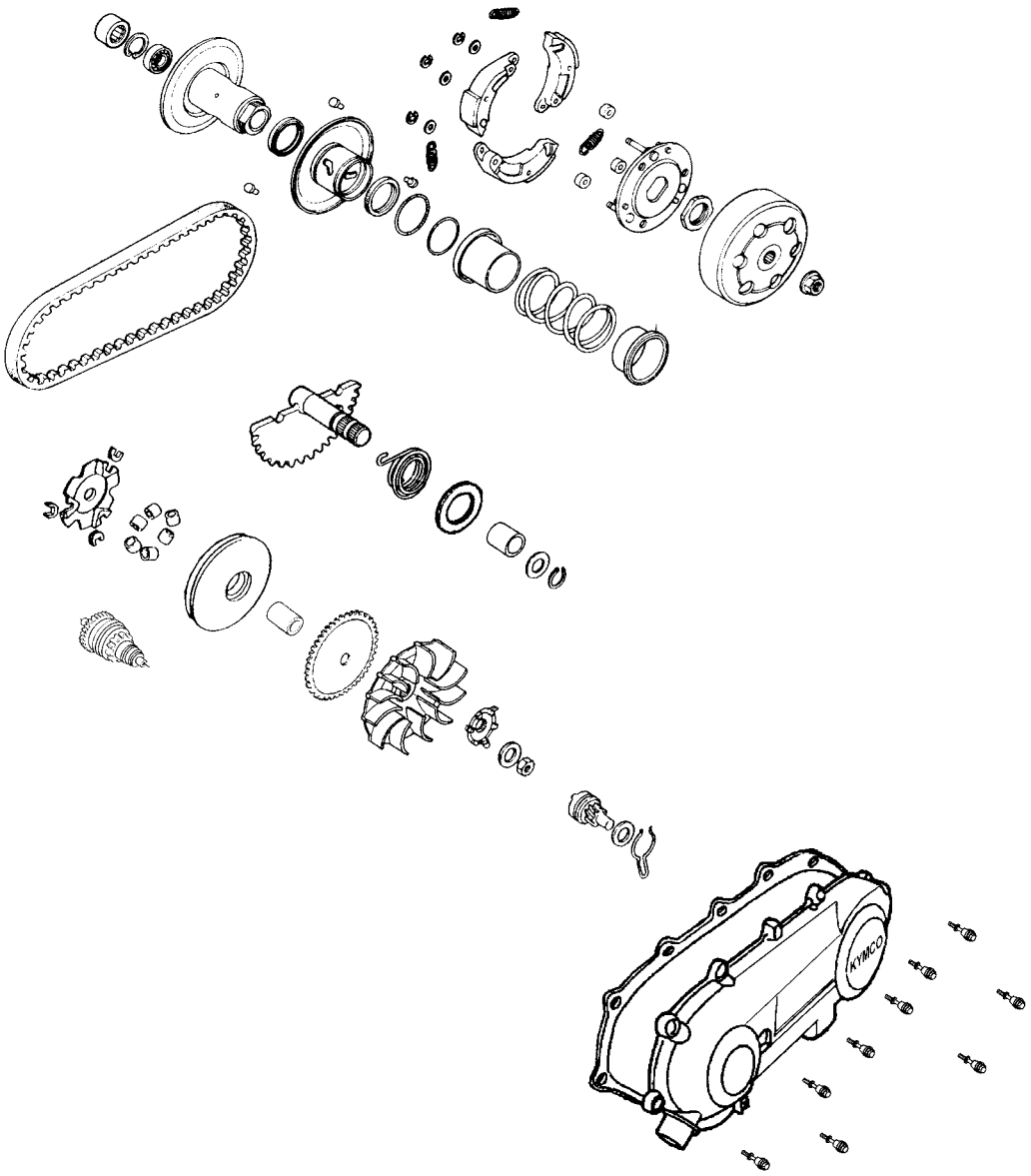
Torque: 3.8 kgf-m (38 N-m, 27.4 lbf-ft)

Start the engine and check the ignition timing. (⇨3-7)
Install other removed parts in the reserve order of removal.

Universal Holder



KICK STARTER/DRIVE PULLEY/ CLUTCH/DRIVEN PULLEY



SERVICE INFORMATION

GENERAL INSTRUCTIONS

- Avoid getting grease and oil on the drive belt and pulley faces.

SPECIFICATIONS

Unit: mm (in)

Item	Standard	Service Limit
Drive pulley collar O.D.	20.01 (0.8004)～20.025 (0.801)	19.97 (0.7988)
Movable drive face I.D.	20.035 (0.8014)～20.085 (0.8034)	20.24 (0.8096)
Weight roller O.D.	13 (0.52)	12.4 (0.496)
Clutch outer I.D.	107 (4.28)～107.2 (4.288)	107.5 (4.3)
Driven face spring free length	98.1 (3.924)	92.8 (3.712)
Driven face O.D.	33.965 (1.3586)～33.985 (1.3594)	33.94 (1.3576)
Movable driven face I.D.	34 (1.36)～34.25 (1.37)	34.4 (1.376)
Drive belt width	17.5 (0.7)	16.5 (0.66)

TORQUE VALUES

Drive face nut	3.8 kgf-m (38 N-m, 27.4 lbf-ft)
Clutch outer nut	3.8 kgf-m (38 N-m, 27.4 lbf-ft)
Clutch drive plate nut	5.5 kgf-m (55 N-m, 39.6 lbf-ft)

SPECIAL TOOLS

Universal holder	A120E00017
Clutch spring compressor	A120E00034
Bearing outer driver	A120E00037
Bearing driver pilot	A120E00014

TROUBLESHOOTING

Engine starts but motorcycle won‘t move

- Worn drive belt
- Broken ramp plate
- Worn or damaged clutch lining

Engine stalls or motorcycle creeps

- Broken clutch weight spring

Poor performance at high speed or lack of power

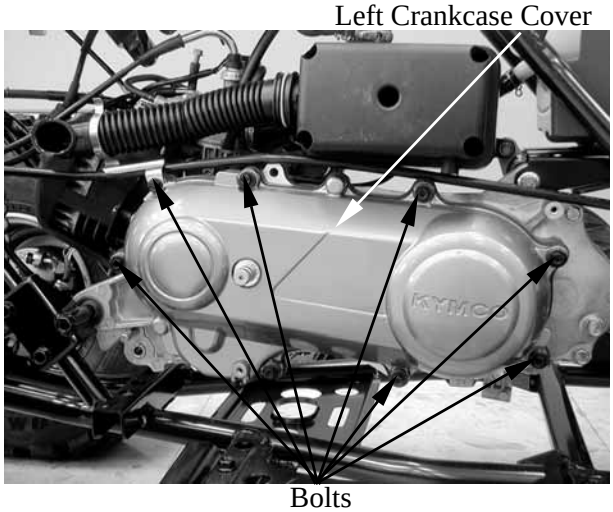
- Worn drive belt
- Weak driven face spring
- Worn weight roller
- Faulty driven face

KICK STARTER

LEFT CRANKCASE COVER REMOVAL

Remove the left crankcase cover bolts, left crankcase cover and dowel pins.

Inspect the left crankcase cover seal rubber for damage or deterioration.

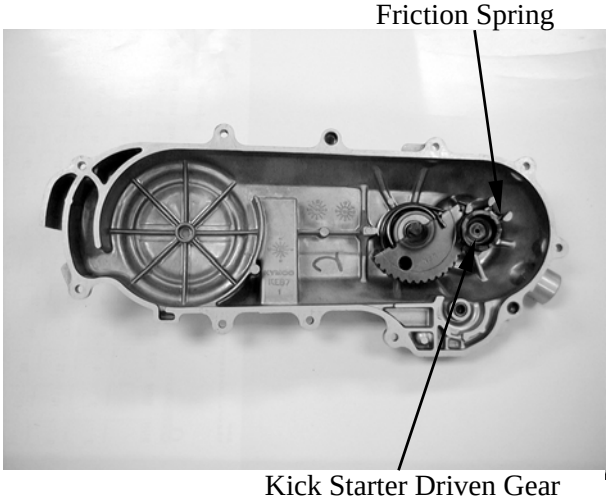


KICK STARTER SPINDLE REMOVAL

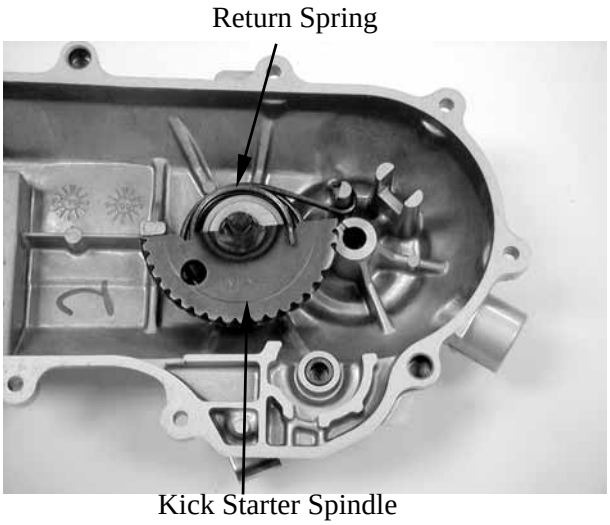
Remove the kick lever from the kick starter spindle.

Remove the snap ring and washer from the kick starter spindle.

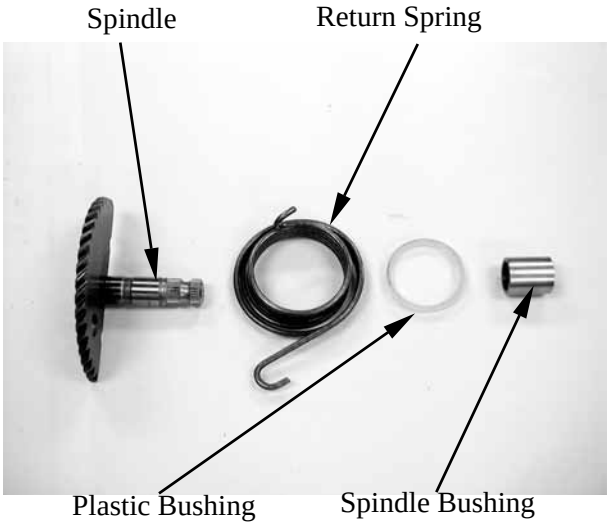
Slightly rotate the kick starter spindle to remove the kick starter driven gear together with the friction spring.



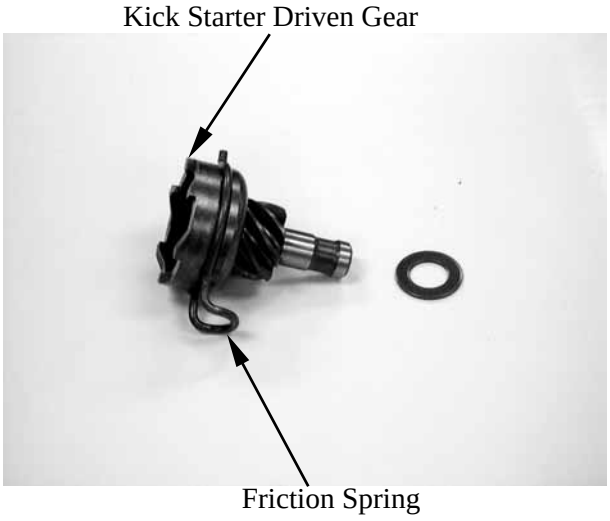
Remove the kick starter spindle and return spring from the left crankcase cover.
Remove the kick starter spindle bushing.



KICK STARTER SPINDLE INSPECTION
Inspect the kick starter spindle and gear for wear or damage.
Inspect the return spring for weakness or damage.
Inspect the kick starter spindle bushing for wear or damage.

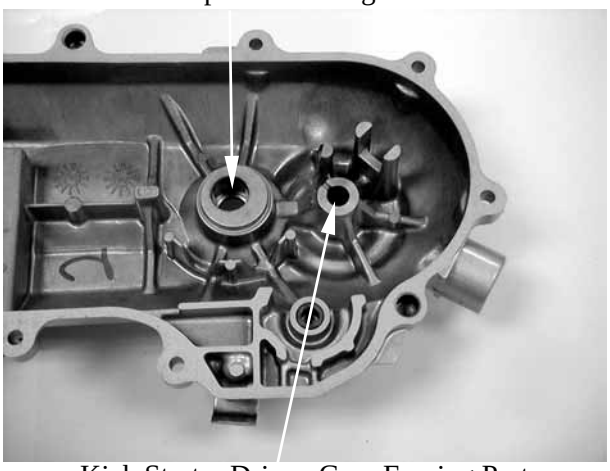


Check the kick starter driven gear for wear or damage.
Check the friction spring for wear or damage.



Inspect the kick starter spindle and driven gear forcing parts for wear or damage.

Kick Starter Spindle Forcing Part



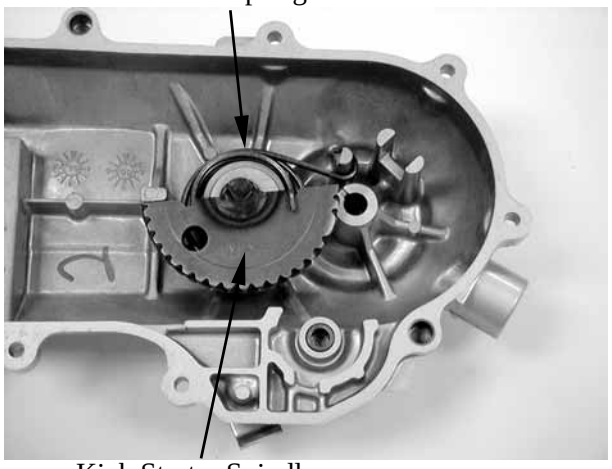
Kick Starter Driven Gear Forcing Part

KICK STARTER INSTALLATION

Install the kick starter spindle bushing and return spring onto the left crankcase cover.

* If the hooks of the return spring can not be installed properly, use a screw driver to press them into their locations respectively.

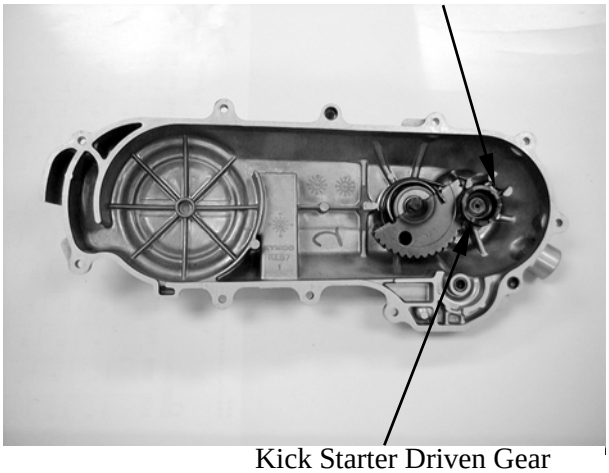
Friction Spring



Kick Starter Spindle

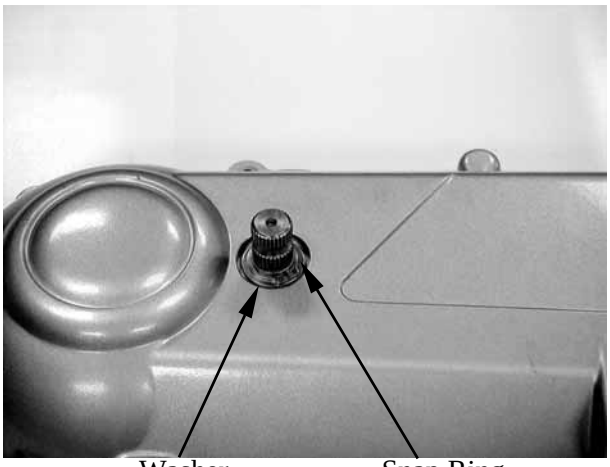
Properly install the kick starter driven gear and friction spring as the figure shown.

Friction Spring



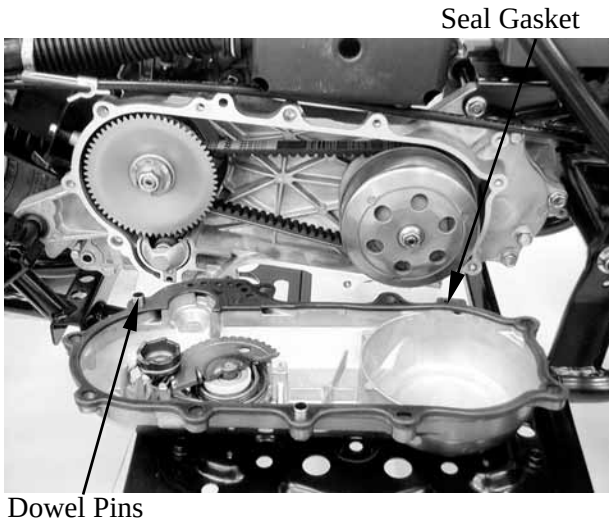
Kick Starter Driven Gear

First install the washer and then the snap ring onto the kick starter spindle.
Install the kick lever.



LEFT CRANKCASE COVER INSTALLATION

First install the dowel pins and then the seal gasket.



Install the left crankcase cover and tighten the ten bolts diagonally.

* For drum brake, note the location of the brake cable clamp and install the rear brake cable in place with the clamp.

DRIVE BELT

Remove the left crankcase cover.

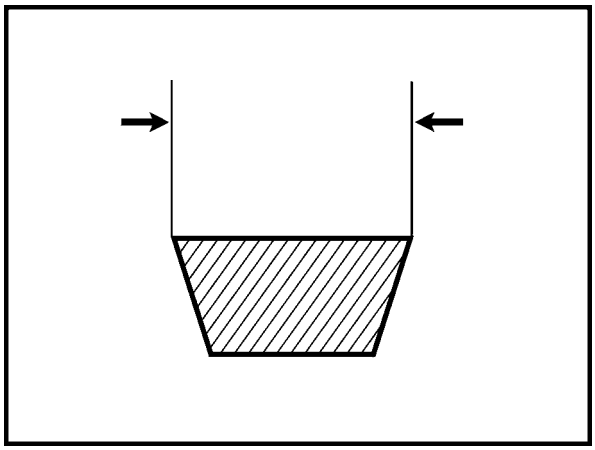
INSPECTION

Check the drive belt for cracks, separation or abnormal or excessive wear.

Measure the drive belt width.

Service Limit:

16.5 mm (0.66 in) replace if below



* Use specified genuine parts for replacement.

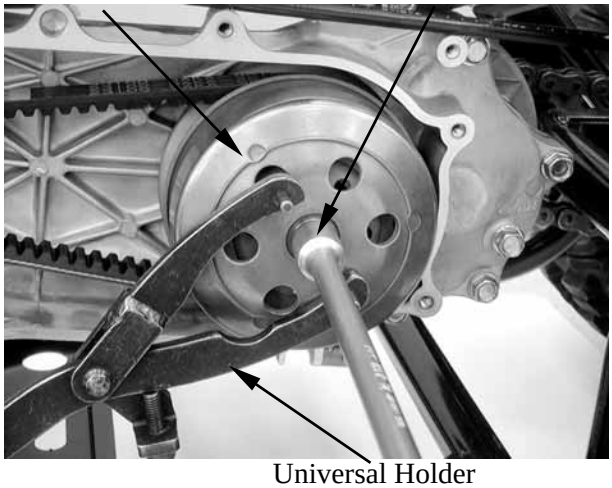
REPLACEMENT

Remove the left crankcase cover bolts and left crankcase cover. (⇨9-3)

Hold the clutch outer with the universal holder and remove the clutch outer nut and clutch outer.

Special tool:

Universal holder A120E00017

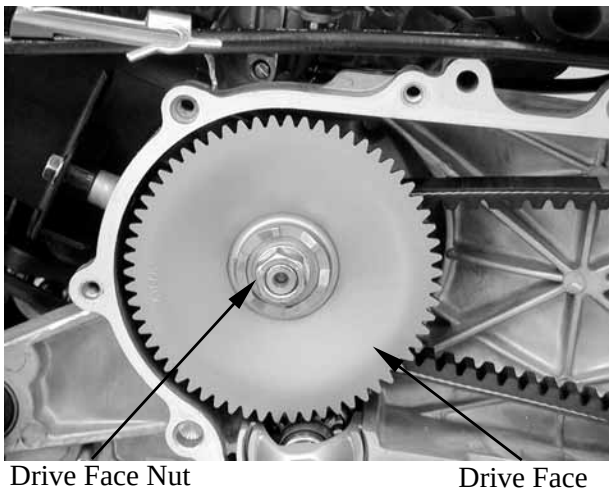


Hold the flywheel with the universal holder (see page 8-3) and remove the drive face nut and washer.

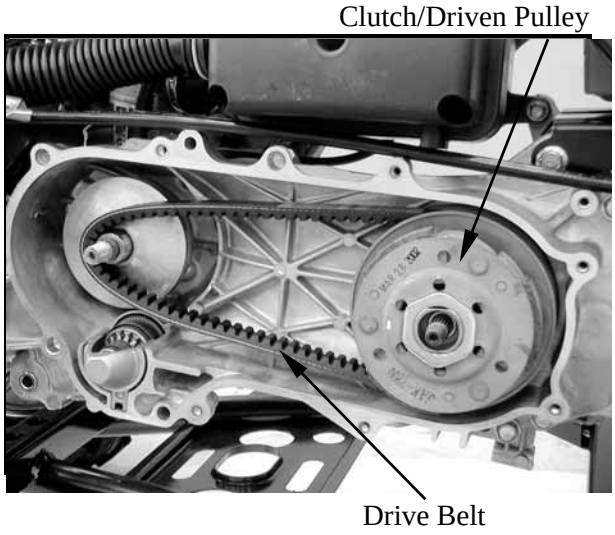
Remove the drive pulley face.

Special tool:

Universal holder A120E00017



Remove the drive belt from the clutch/driven pulley.



DRIVE BELT INSTALLATION

Turn the driven pulley clockwise and lift it up to expand the drive belt groove and then install a new drive belt.

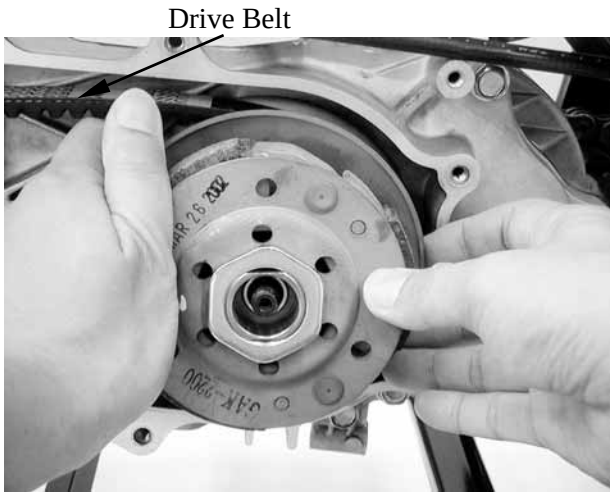
Install the clutch outer.

Hold the clutch outer with the universal holder and tighten the clutch outer nut to the specified torque.

Torque: 3.8 kgf-m (38 N-m, 27.4 lbf-ft)

Special tool:

Universal holder A120E00017

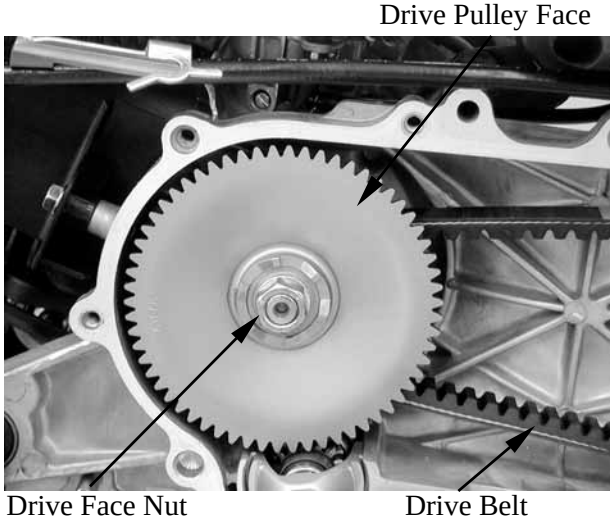


Set the drive belt on the drive pulley.
Install the drive pulley face and washer, then hold the flywheel with the universal holder (see page 8-3) and tighten the drive face nut to the specified torque.

Torque: 3.8 kgf-m (38 N-m, 27.4 lbf-ft)

Special tool:

Universal holder A120E00017



DRIVE PULLEY

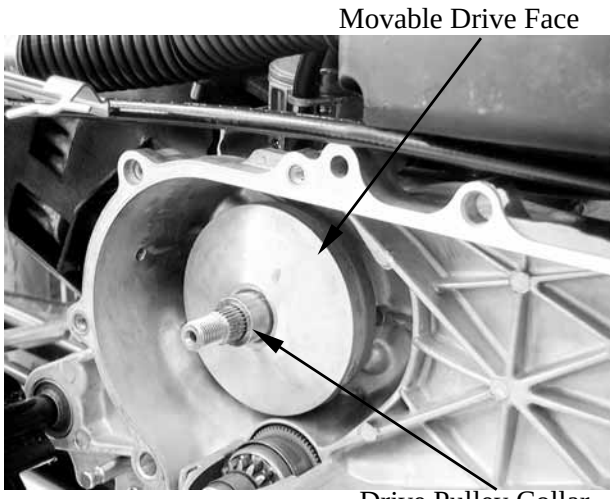
REMOVAL

Hold the flywheel with the universal holder (see page 8-3) and remove the drive face nut and washer.
Remove the drive pulley face.

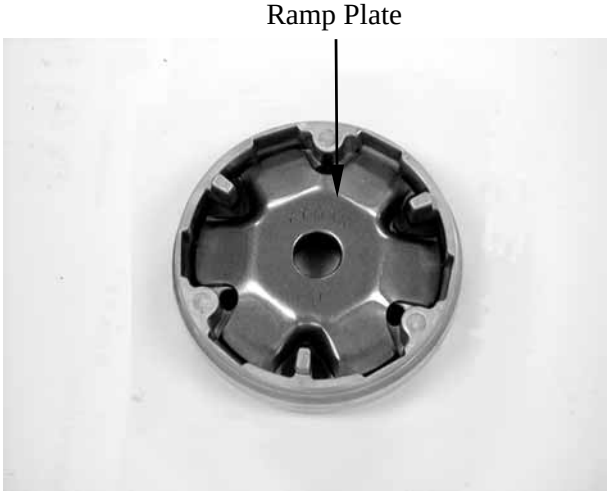
Special tool:
Universal holder A120E00017

MOVABLE DRIVE FACE DISASSEMBLY

Remove the movable drive face and drive pulley collar from the crankshaft.

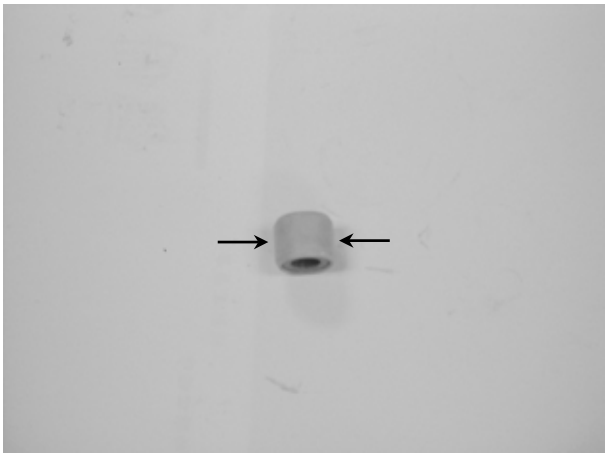


Remove the ramp plate.

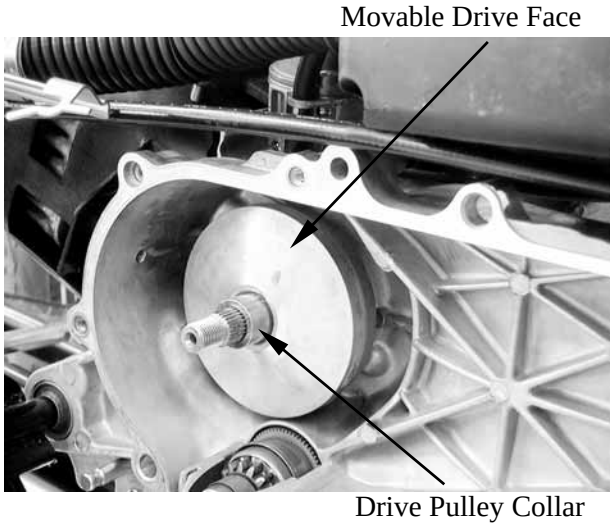


Remove the weight rollers.

Remove the weight rollers.
Check each weight roller for wear or damage.
Measure each roller O.D.
Service Limit:
12.4 mm (0.496 in) replace if below



DRIVE PULLEY INSTALLATION
Install the drive pulley collar and movable drive face onto the crankshaft.



Install the drive belt on the crankshaft.
Install the drive pulley face and washer, then hold the flywheel with the universal holder (see page 8-3) and tighten the drive face nut to the specified torque.

Torque: 3.8 kgf-m (38 N-m, 27.4 lbf-ft)

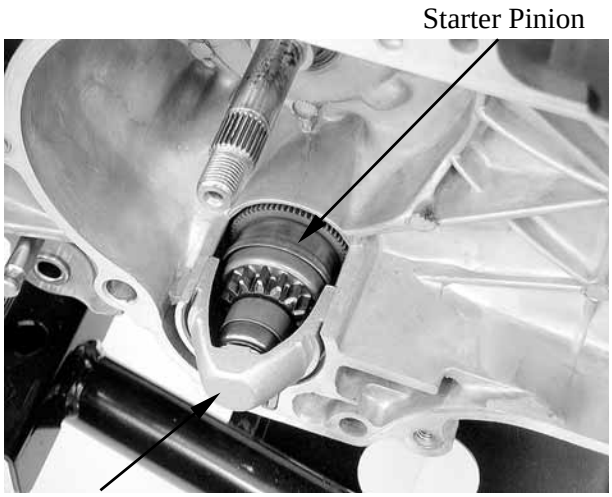
Special tool:
Universal holder E017

* Keep grease or oil off the drive belt and drive pulley faces.

STARTER PINION

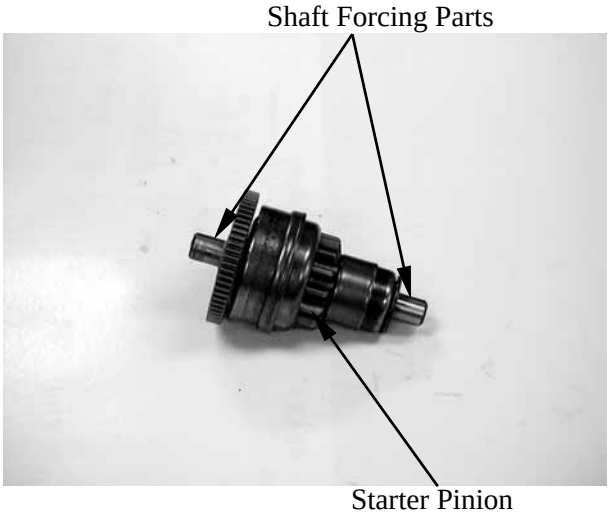
REMOVAL

Remove the left crankcase cover. (⇨9-3)
Remove the drive pulley. (⇨9-9)
Remove the starter pinion cover.
Remove the starter pinion.



INSPECTION

Inspect the starter pinion seat for wear.
Inspect the starter pinion for smooth operation.
Inspect the starter pinion shaft forcing parts for wear and damage.



INSTALLATION

Apply a small amount of grease to the starter pinion teeth.
Install the starter pinion in the reverse order of removal.

CLUTCH/DRIVEN PULLEY

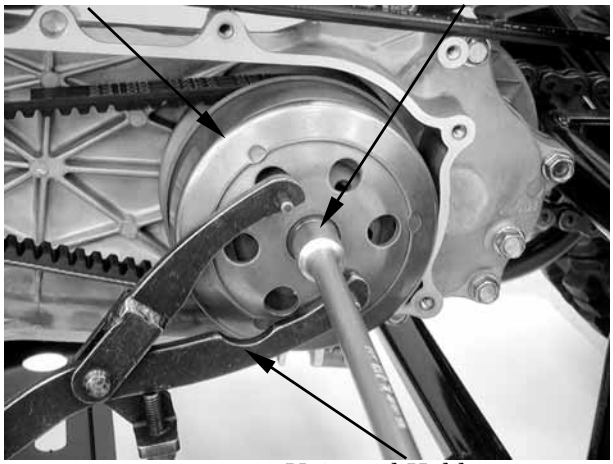
CLUTCH/DRIVEN PULLEY REMOVAL

Remove the drive pulley. (⇨9-9)

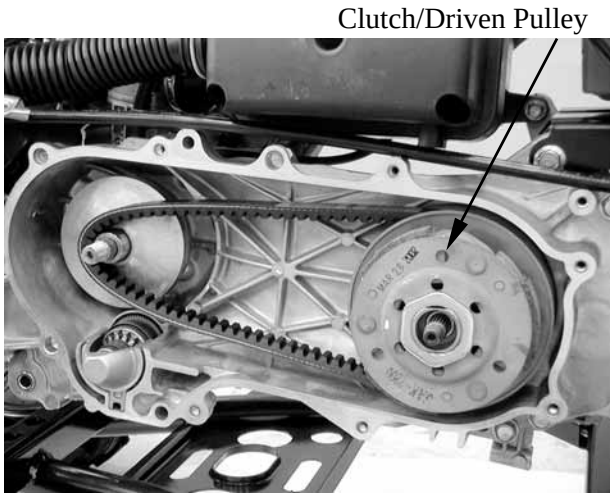
Hold the clutch outer with the universal holder and remove the clutch outer nut

Remove the clutch outer.

Special tool:
Universal holder A120E00017



Remove the clutch/driven pulley.
Remove the drive belt from the clutch/driven pulley.

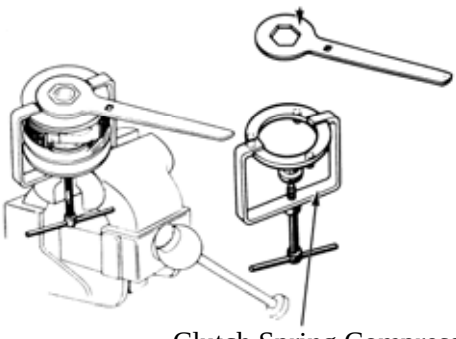


CLUTCH/DRIVEN PULLEY DIS-ASSEMBLY

Compress the clutch/driven pulley spring with the clutch spring compressor and remove the 39 mm (1.56 in) drive plate nut.

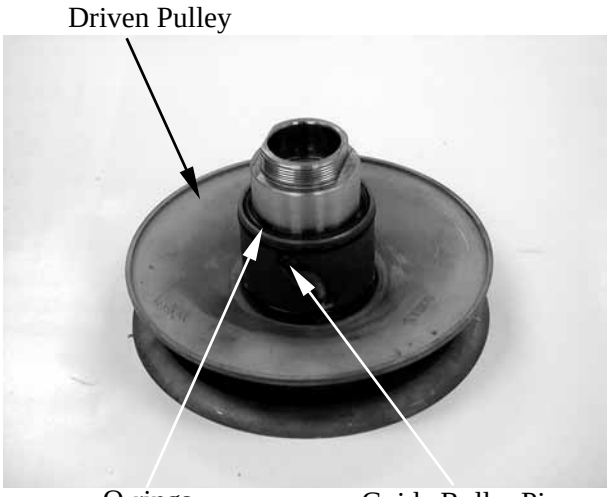
Remove the driven face spring.

Special tool:
Clutch spring compressor A120E00034



Remove the seal collar.

Pull out the guide roller pins from the driven pulley and then remove the O-rings and oil seal from the driven pulley.



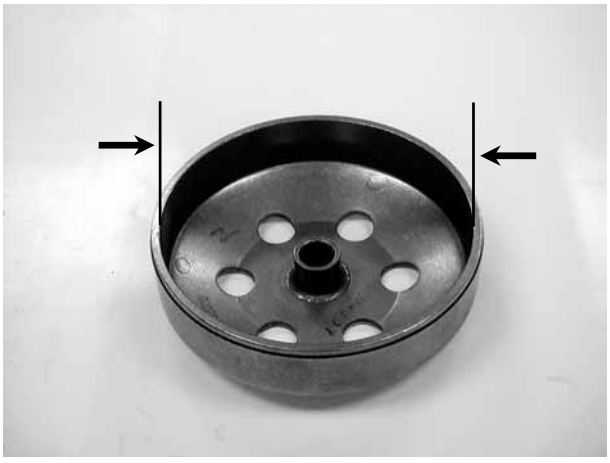
CLUTCH/DRIVEN PULLEY INSPECTION

Inspect the clutch outer for wear or damage.

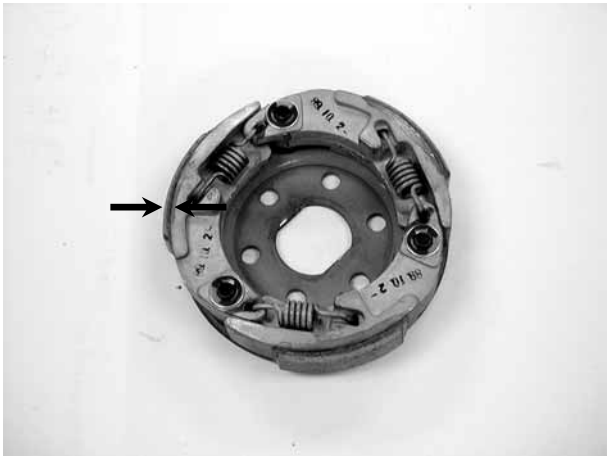
Measure the clutch outer I.D.

Service Limit:

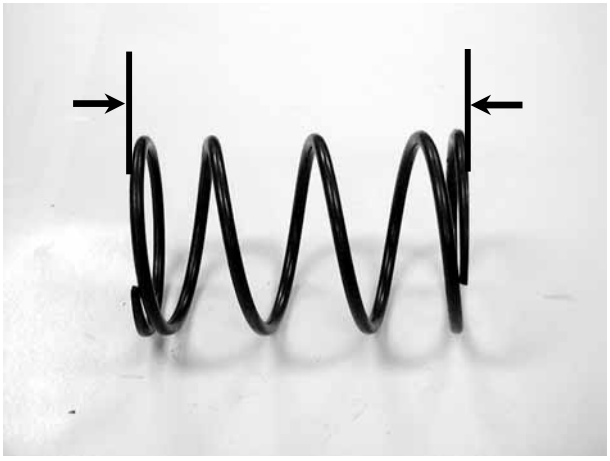
107.5 mm (4.3 in) replace if over



Check the clutch shoes for wear or damage.
Measure the clutch lining thickness.
Service Limit:
2 mm (0.08 in) replace if below



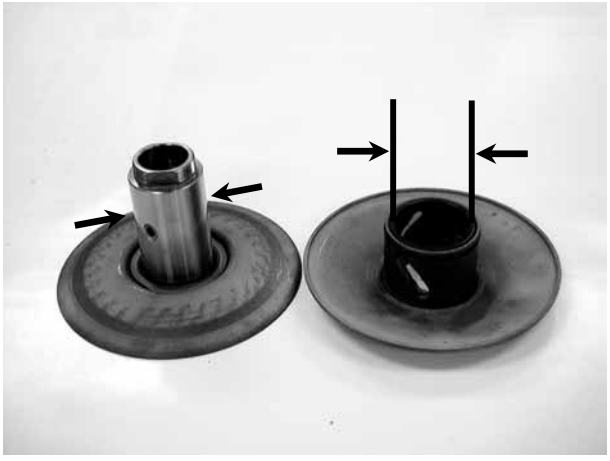
Measure the driven face spring free length.
Service Limit:
92.8 mm (3.712) replace if below



Check the driven face assembly for wear or damage.
Measure the driven face O.D.
Service Limit:
33.94 mm (1.3576 in) replace if below

Check the movable driven face for wear or damage.

Measure the movable driven face I.D.
Service Limit:
34.4 mm (1.376 in) replace if over



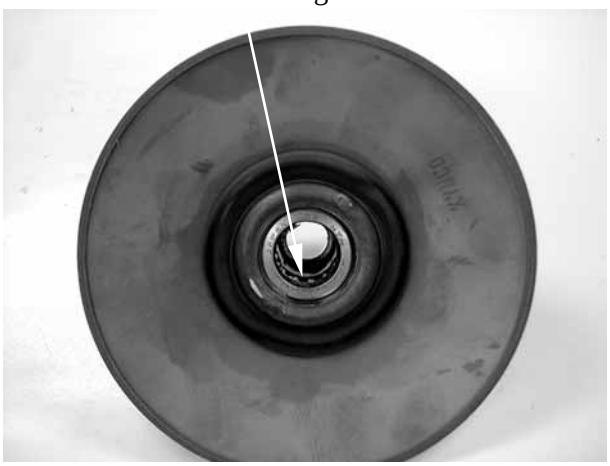
Check the guide roller pins for stepped wear.

DRIVEN PULLEY FACE BEARING REPLACEMENT

Check the needle bearings in the driven face and replace them if they have excessive play, damage or abnormal noise.

Drive the inner bearing out of the driven pulley face.

Inner Bearing



Remove the snap ring and drive the outer bearing out of the driven face.

Outer Bearing

Drive a new outer bearing into the driven face with the sealed end facing up.

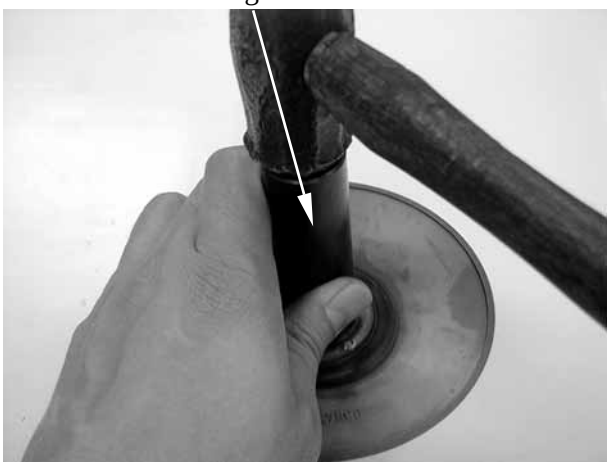
Seat the snap ring in its groove.

* Pack all bearing cavities with 6 g (0.02 lb) grease.
Specified grease:
230℃ Heat-resistant grease

Bearing Outer Driver

Drive in a new needle bearing into the driven face with the mark facing up

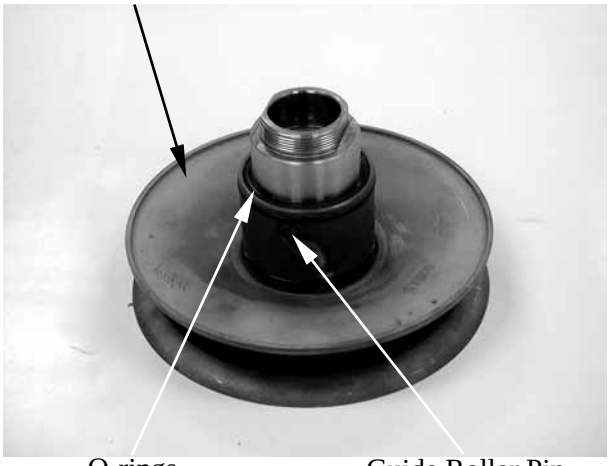
Bearing Driver Pilot



CLUTCH/DRIVEN PULLEY ASSEMBLY

First install the movable driven face onto the driven face. Then, install the guide roller pins, O-rings and a new oil seal.

Driven Pulley



O-rings

Guide Roller Pin

Install the seal collar.

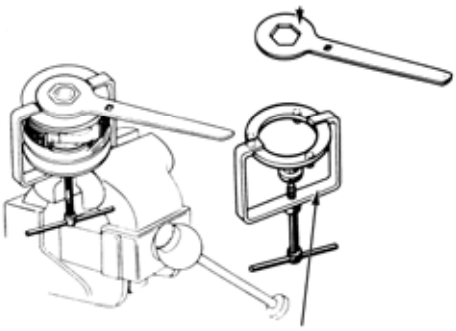
Seal Collar

Set the driven pulley, driven face spring and clutch assembly onto the clutch spring compressor. Compress the tool and install the 39 mm (1.56 in) drive plate nut.

Tighten the 39 mm (1.56 in) nut to the specified torque.

Torque: 5.5 kgf-m (55 N-m, 39.6 lbf-ft)

Special tool:
Clutch spring compressor A120E00034

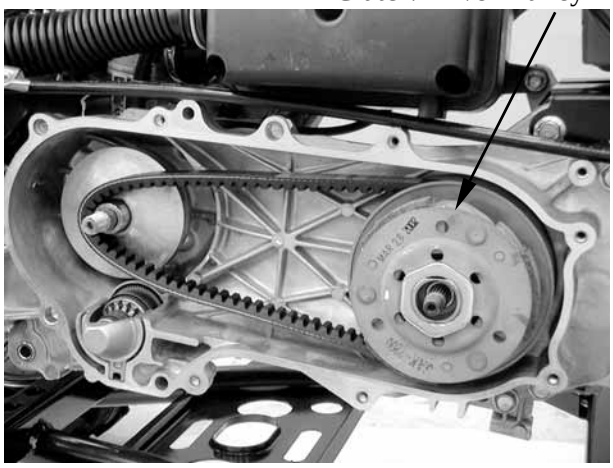


Clutch Spring Compressor

CLUTCH/DRIVEN PULLEY INSTALLATION

Install the drive belt on the clutch/driven pulley and then install the clutch/driven pulley onto the drive shaft.

Clutch/Driven Pulley



Install the clutch outer.

Hold the clutch outer with the universal holder.

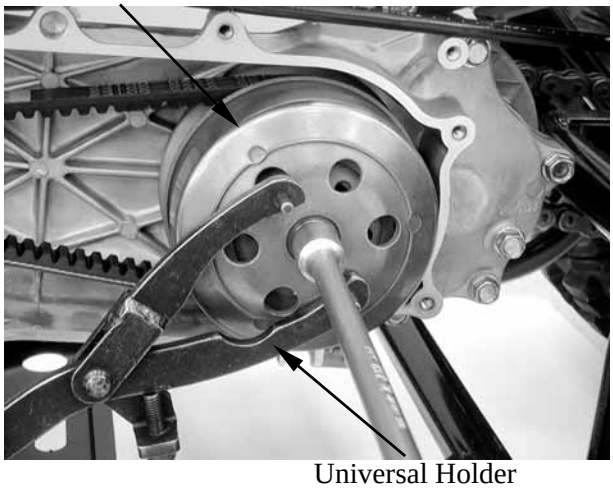
Install and tighten the clutch outer nut.

Torque: 3.8 kg-m (38 N-m, 27.4 lbf-ft)

Special tool:
Universal holder A120E00017

Install the left crankcase cover. (⇨9-6)

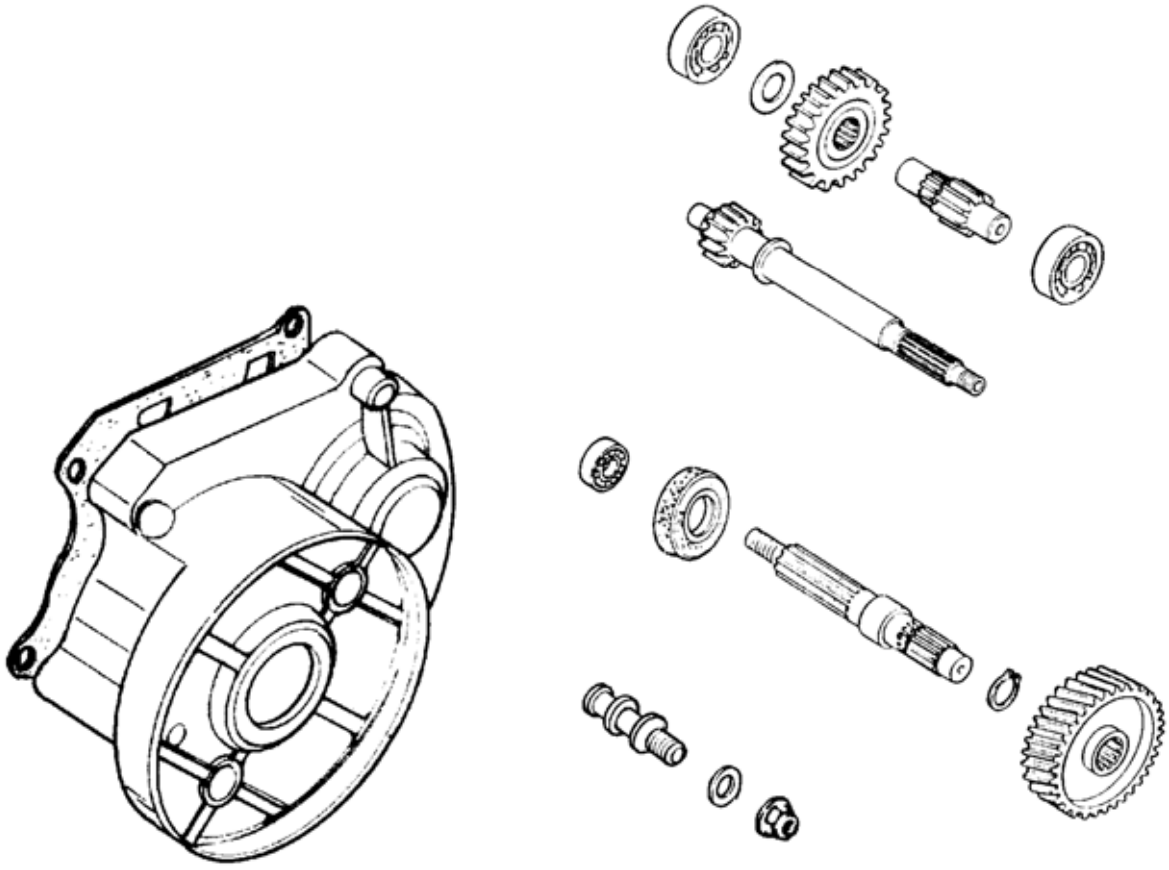
Clutch Outer



Universal Holder

FINAL REDUCTION (MXU 50/MX'ER 50)

10. FINAL REDUCTION (MXU 50/MX'ER 50)



SERVICE INFORMATION

Specified Oil: SAE90#
At disassembly: 0.12 liter (0.11 lmp qt, 0.13 Us qt)
At change: 0.09 liter (0.08 lmp qt, 0.1 Us qt)

SPECIAL TOOLS

Oil seal and bearing installer	A120E00014
Bearing puller	A120E00037

TROUBLESHOOTING

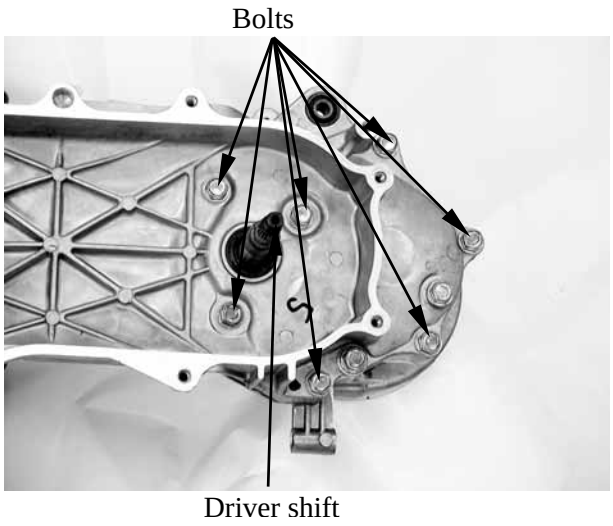
Engine starts but motorcycle won't move
- Damaged transmission
- Seized or burnt transmission

Abnormal noise
- Worn, seized or chipped gears
- Worn bearing

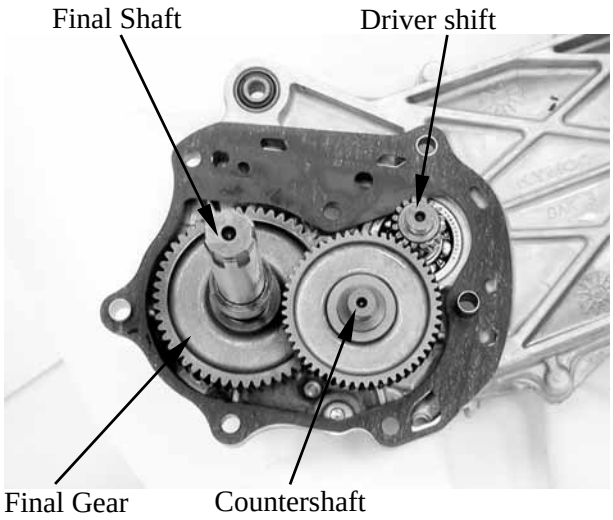
Oil leaks
- Oil level too high
- Worn or damaged oil seal

FINAL REDUCTION DISASSEMBLY

Remove the left crankcase cover. (⇨9-3)
Remove the clutch/driven pulley. (⇨9-12)
Drain the transmission gear oil into a clean container. (⇨3-8)
Remove the transmission case cover attaching bolts.
Remove the transmission case cover.
Remove the gasket and dowel pins.



Remove the final gear and countershaft.



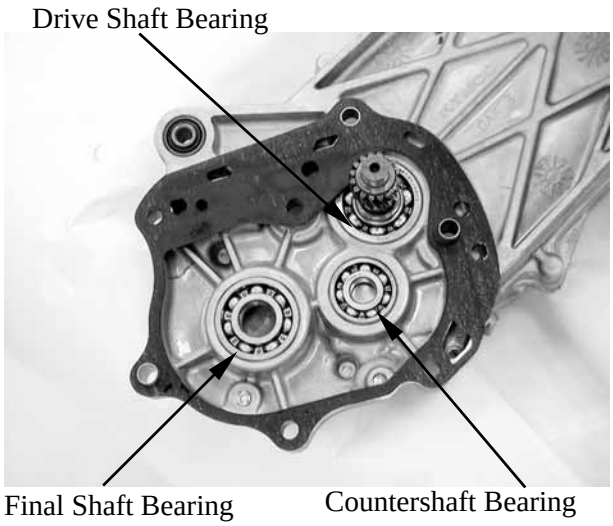
FINAL REDUCTION INSPECTION

Inspect the countershaft and gear for wear or damage.

10. FINAL REDUCTION (MXU 50/MX'ER 50)

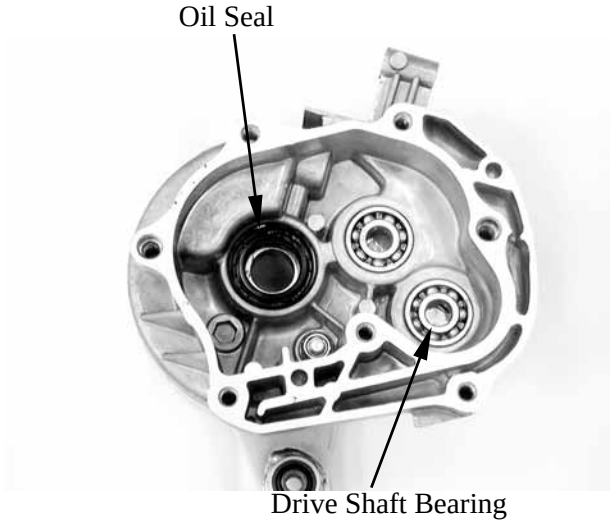
Inspect the final gear and final shaft for wear, damage or seizure.

Check the left crankcase bearings for excessive play and inspect the oil seal for wear or damage.



Inspect the drive shaft and gear for wear or damage.
Check the transmission case cover bearings for excessive play and inspect the final shaft bearing oil seal for wear or damage.

* Do not remove the transmission case cover except for necessary part replacement. When replacing the drive shaft, also replace the bearing and oil seal.



BEARING REPLACEMENT (Transmission Case Cover)

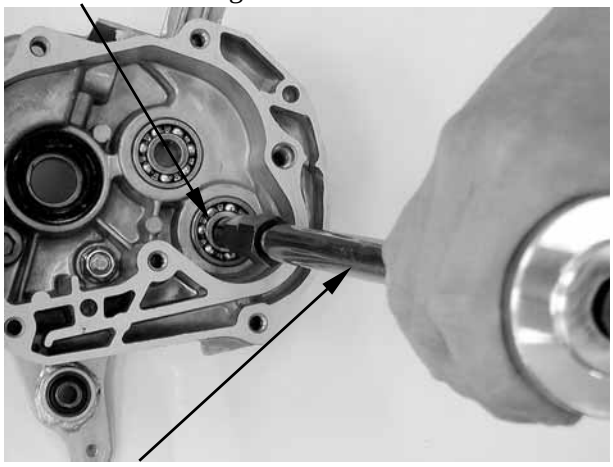
Remove the transmission case cover bearings using the bearing remover.

Remove the final shaft oil seal.

Special tool:

Bearing puller A120E00037

Drive Shaft Bearing



Bearing Remover Set

Drive new bearings into the transmission case cover.

Special tool:

Oil seal and bearing installer A120E00014

Bearing Outer Driver Handle

BEARING REPLACEMENT (Left Crankcase Cover)

Remove the drive shaft.

Remove the drive shaft oil seal.

Remove the left crankcase bearings using the bearing remover.

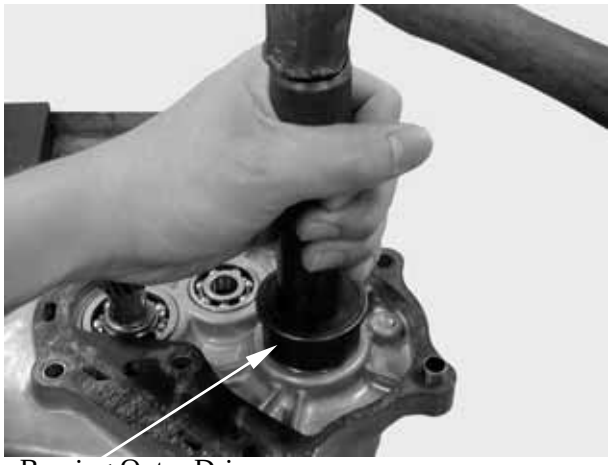
Special tool:

Bearing puller A120E00037

Bearing Remover Set, 15mm

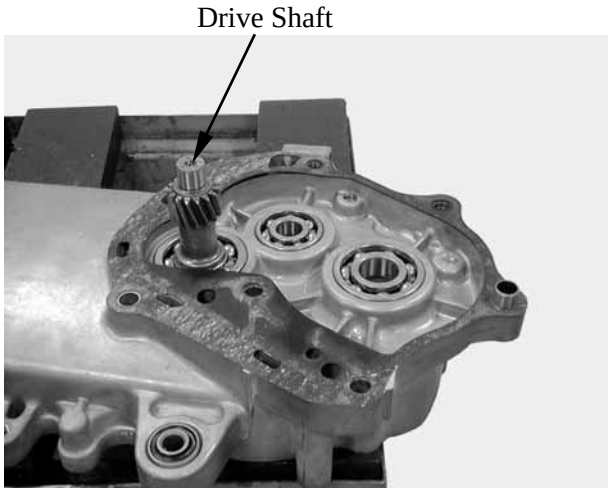
Drive new bearings into the left crankcase.
Install a new drive shaft oil seal.

Special tool:
Oil seal and bearing installer A120E00014

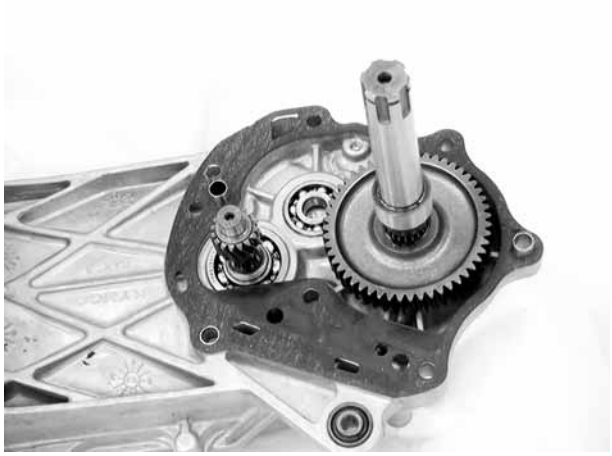

Bearing Outer Driver

FINAL REDUCTION ASSEMBLY

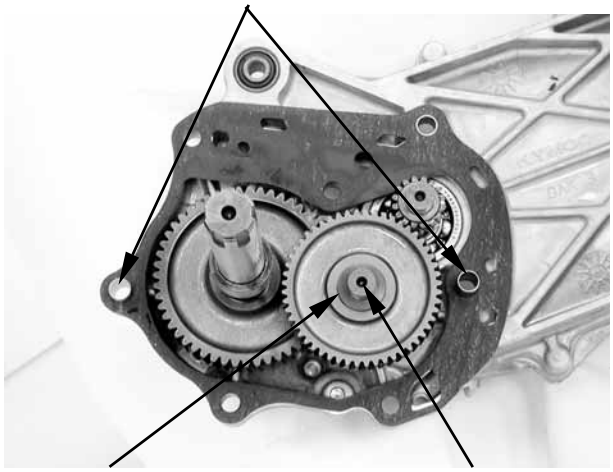
Install the drive shaft into the left crankcase.



Install the final gear and final shaft into the left crankcase.

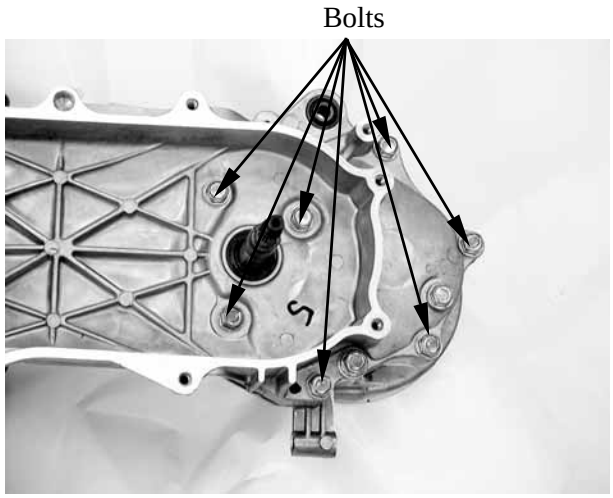


Install the countershaft and gear into the left crankcase.
Install the resin washer onto the counter-shaft.
Install the dowel pins and a new gasket.



Install the transmission case cover.

Install and tighten the transmission case cover bolts.
Install the clutch/driven pulley. (⇨9-17)
Install other removed parts in the reverse order of removal.



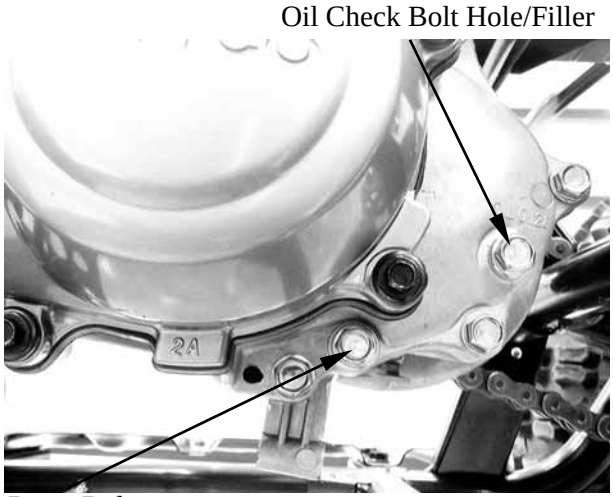
After installation, fill the transmission case with the specified oil.

- Place the motorcycle on its main stand on level ground.
- Check the sealing washer for wear or damage.

Specified Gear Oil: SAE90#
Oil Capacity:
at disassembly:
0.12 liter (0.11 lmp qt, 0.13 Us qt)
at change:
0.09 liter (0.08 lmp qt, 0.1 Us qt)

Install and tighten the oil check bolt.
Torque: 1.3 kg-m (13 N-m, 9.4 lbf-ft)

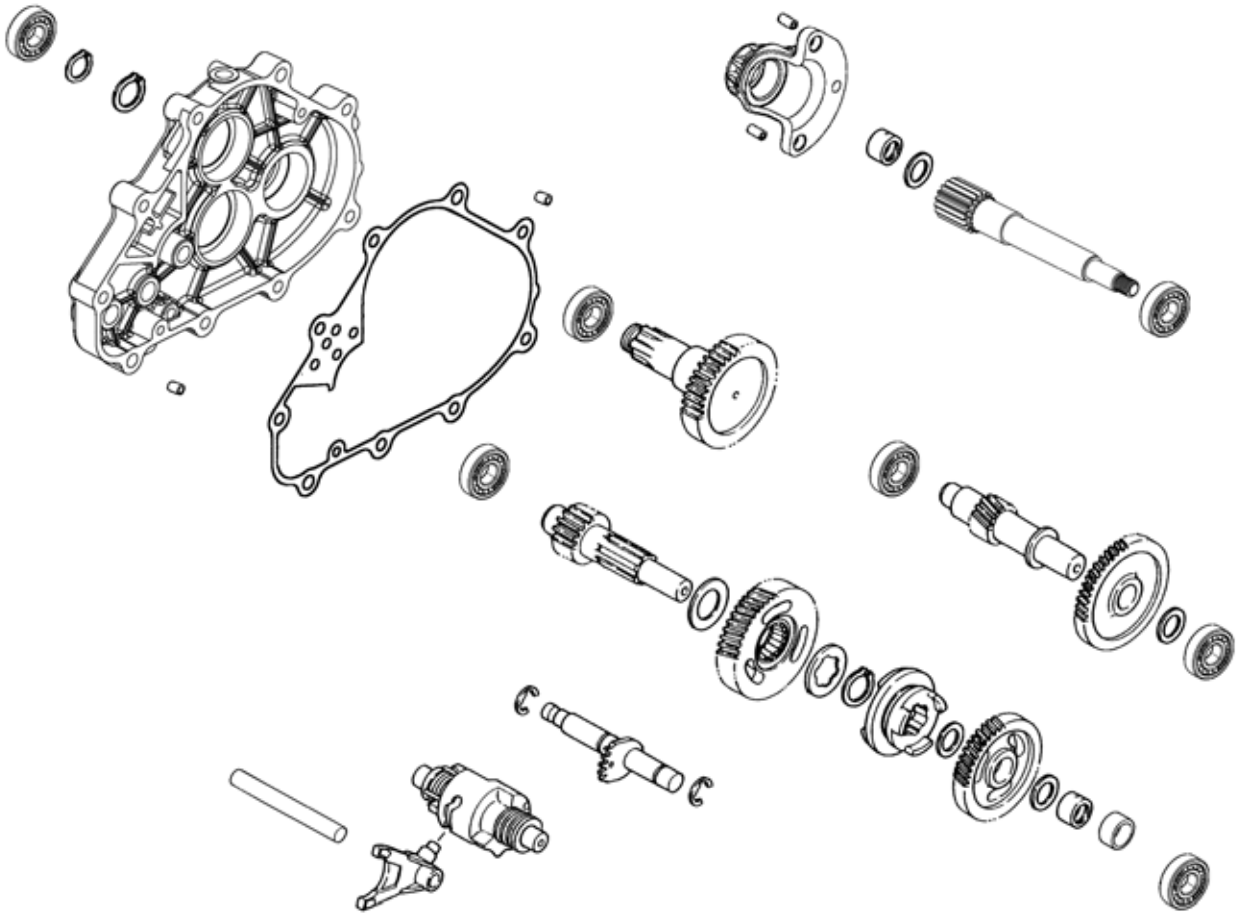
Start the engine and check for oil leaks. Check the oil level from the oil check bolt hole and add the specified oil to the proper level if the oil level is low.



FINAL REDUCTION/TRANSMISSION SYSTEM (MXU 50 REVERSE)

11

MXU 50 REVERSE



SERVICE INFORMATION

GENERAL INSTRUCTIONS

- The MXU 50 REVERSE transmission system can be serviced with the engine installed in the frame.

SPECIFICATIONS

Specified Oil: GEAR OIL SAE 90#

Oil Capacity:	At change	: 0.25 liter (0.22 lmp qt, 0.26 US qt)
	At disassembly	: 0.3 liter (0.26 lmp qt, 0.32 US qt)

TORQUE VALUES

Transmission case cover bolt	2.7 kgf-m (27 Nm, 20 lbf-ft)

SPECIAL TOOLS

Oil seal & bearing driver	A120E00014
Bearing puller	A120E00037

TROUBLESHOOTING

Engine starts but motorcycle won‘t move

- Damaged transmission
- Seized or burnt transmission

Oil leaks

- Oil too rich
- Worn or damaged oil seal

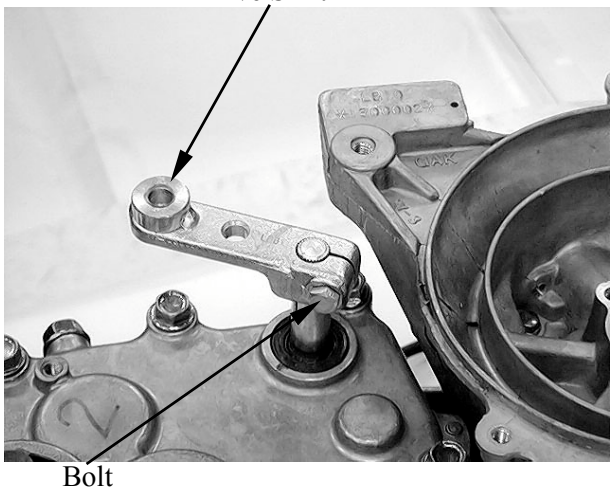
TRANSMISSION CASE COVER

REMOVAL

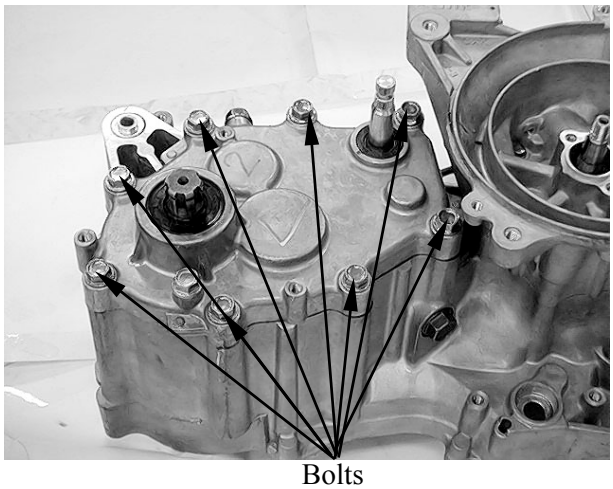
Drain transmission gear oil into a clean container. (Refer to the "TRANSMISSION OIL REPLACEMENT" section in the chapter 3)

Remove the three bolts and then remove the drive sprocket cover (see page 6-4).
Remove the two bolts and then remove the washer and drive sprocket (see page 6-4).

Remove the bolt and then disconnect the drive shift arm from the shift shaft.

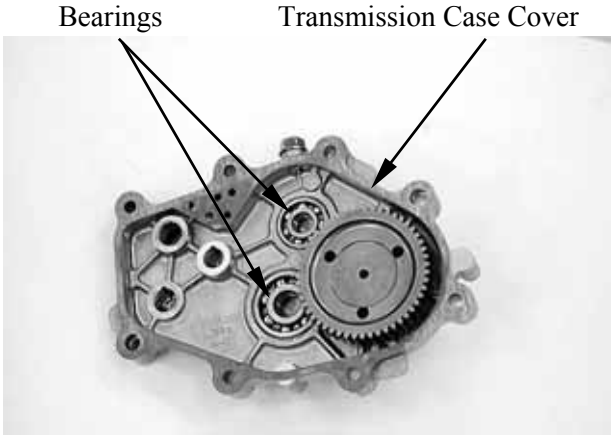


Remove eight bolts from transmission case cover.



Remove the transmission case cover, dowel pins and gasket.

Inspect the bearings for allow play in the transmission case cover or the bearings turn roughly.
If any defects are found, replace the bearing with a new one.



Remove the transmission case cover bearings using the special tool.

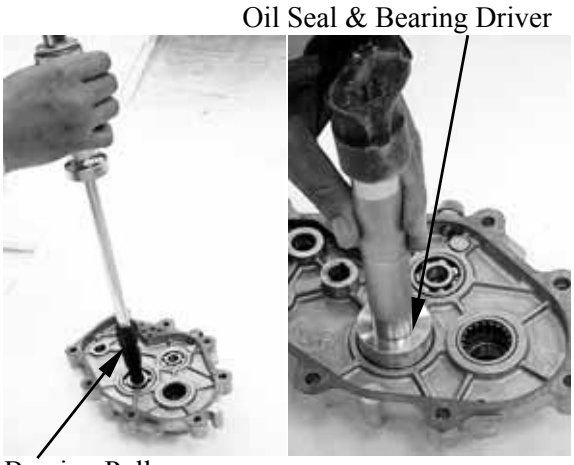
Special tools:

Bearing puller A120E00037

Install the new bearings using the special tool.

Special tool:

Oil seal & bearing driver A120E00014



TRANSMISSION CASE COVER DISASSEMBLY

Inspect the oil seal for wear or damage.

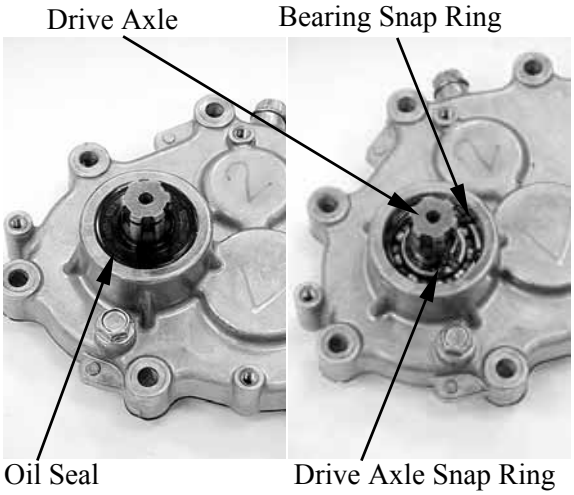
If any defects are found, replace the oil seal with a new one.

Remove the oil seal.

Remove the drive axle snap ring.

Remove the drive axle from the transmission case cover.

Remove the bearing snap ring for remove the bearing.



Inspect the bearing and needle bearing for allow play in the transmission case cover or the bearing turns roughly.

If any defects are found, replace the bearing with a new one.

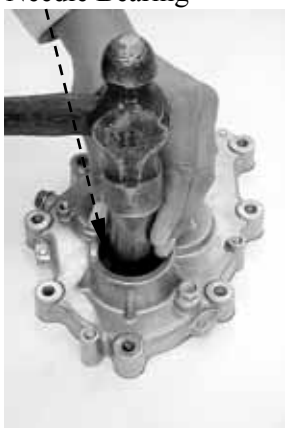
Inspect the drive axle gear teeth for wear or damage.

Remove the bearing from transmission case cover.

Remove the needle bearing from transmission case cover.

Bearing

Needle Bearing



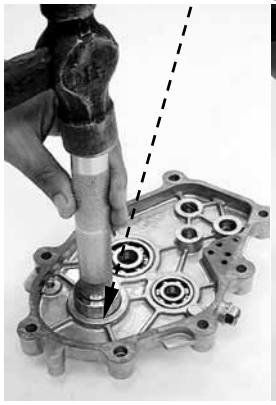
ASSEMBLY
Install a new needle bearing using the special tool.

Special tool:
Oil seal & bearing driver A120E00014

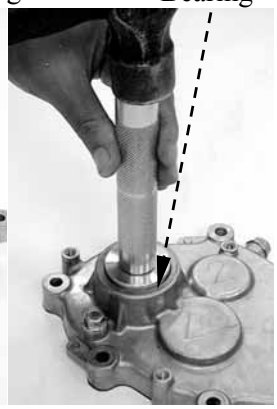
Install a new bearing using the special tool.

Special tool:
Oil seal & bearing driver A120E00014

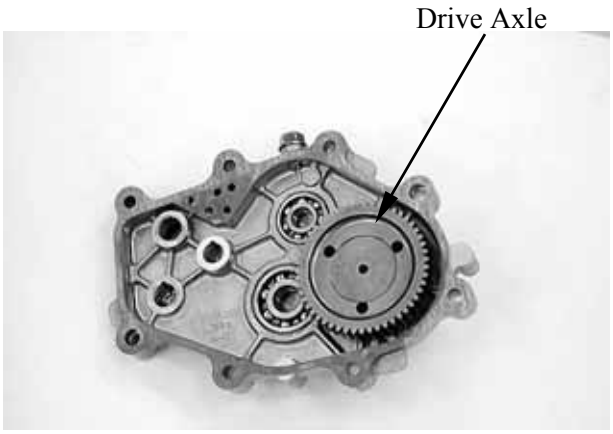
Needle Bearing



Bearing

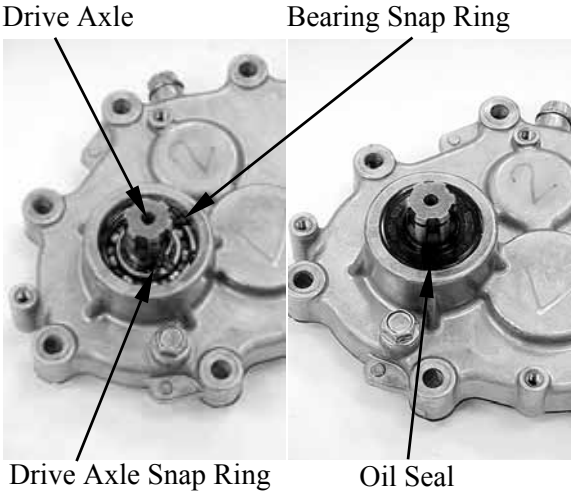


Install the drive axle.



Install the drive axle snap ring.
Install the bearing snap ring.
Install a new oil seal using the special tool.

Special tool:
Oil seal & bearing driver A120E00014

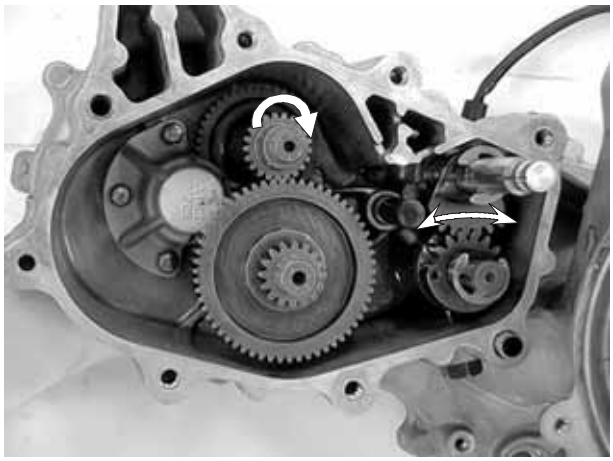


TRANSMISSION

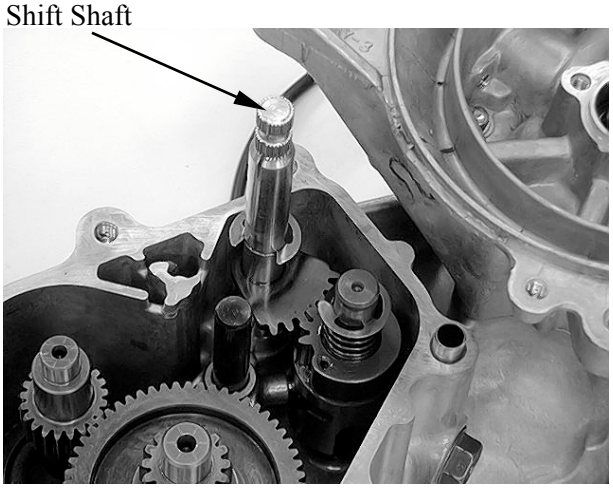
REMOVAL

Remove the transmission cover. (Refer to the "TRANSMISSION CASE COVER REMOVAL" in the chapter 11)

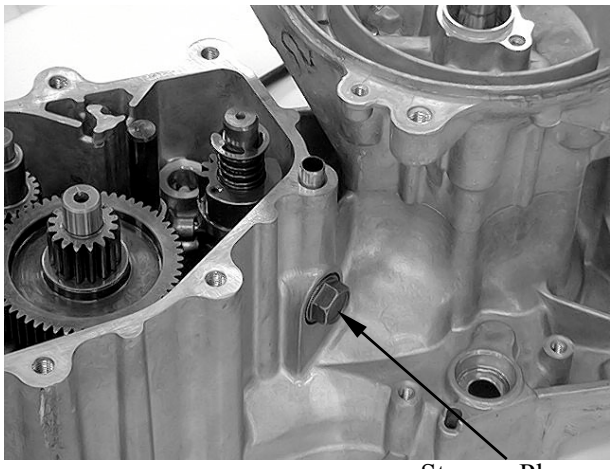
Check the transmission operation.
Unsmooth operation → Repair.



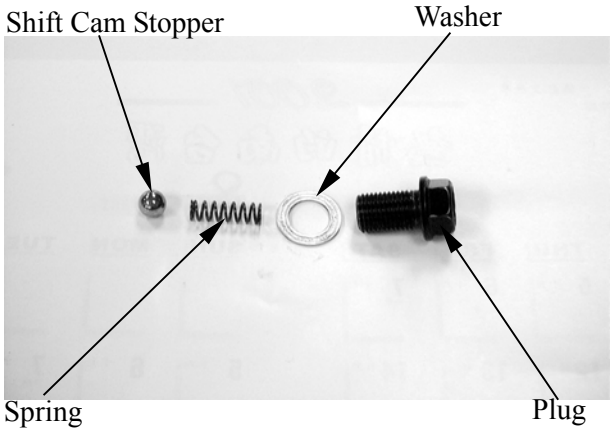
Remove the shift shaft.



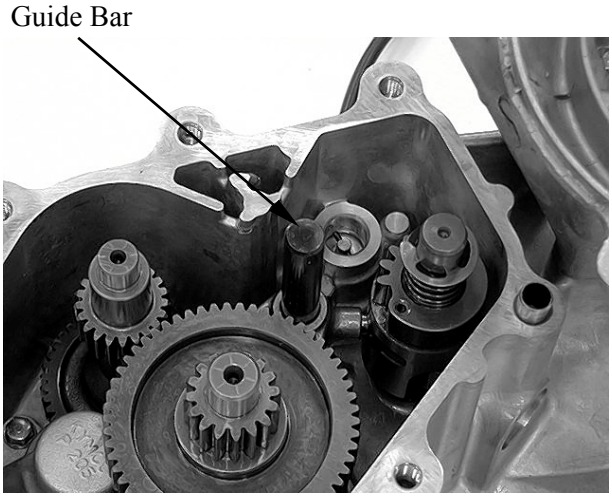
Remove the stopper plug.



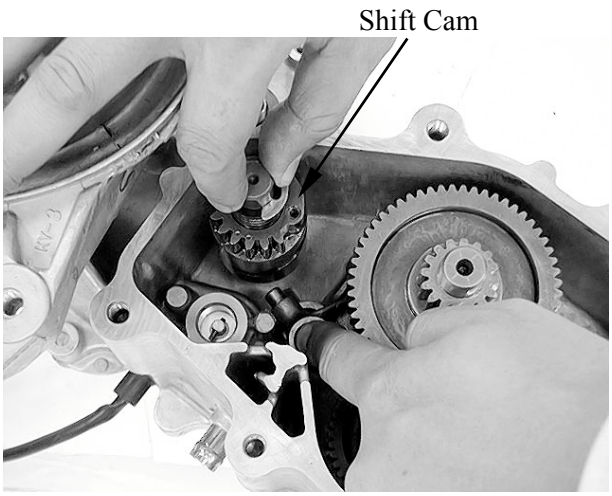
Remove spring, washer and shift cam stopper.



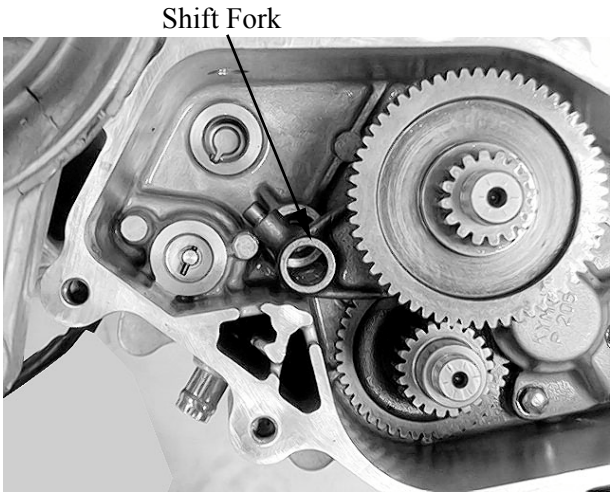
Remove the transmission guide bar.



Remove shift cam.

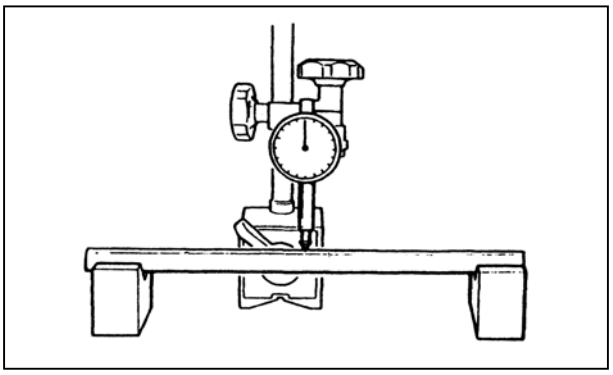


Remove the shift fork.



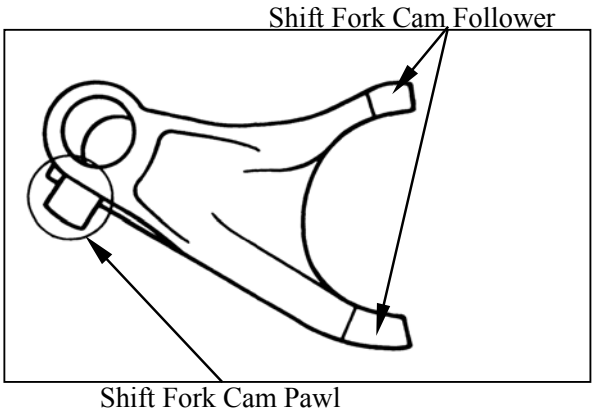
Measure the guide bar runout.
Out of specification → Replace.

Service Limit:
Less than 0.03 mm (0.0012 in)

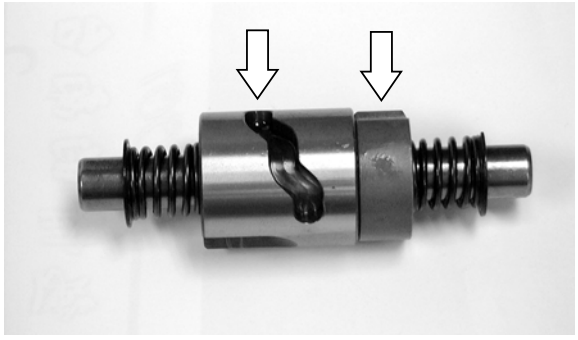


* Do not attempt to straighten a bent guide bar.

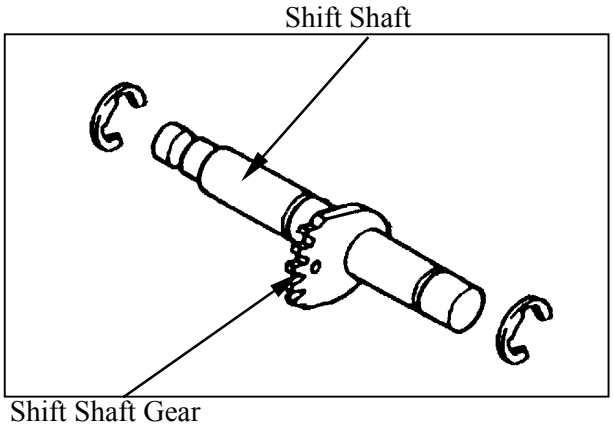
Inspect the shift fork cam follower and shift fork pawl.
Scoring/beads/wear → Replace.



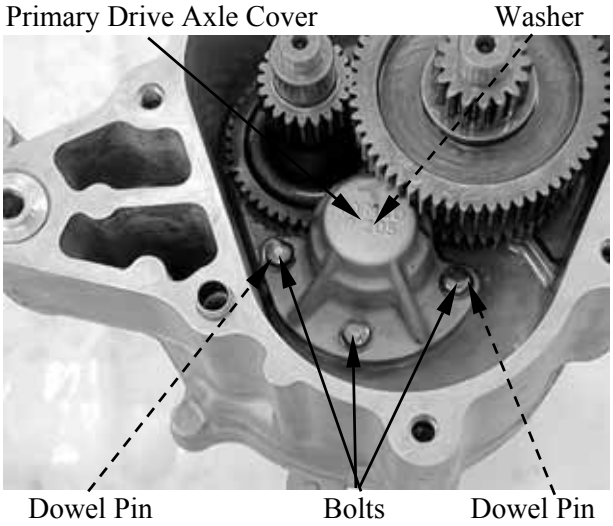
Check the shift cam groove and shift cam gear.
Wear or damage → Replace.



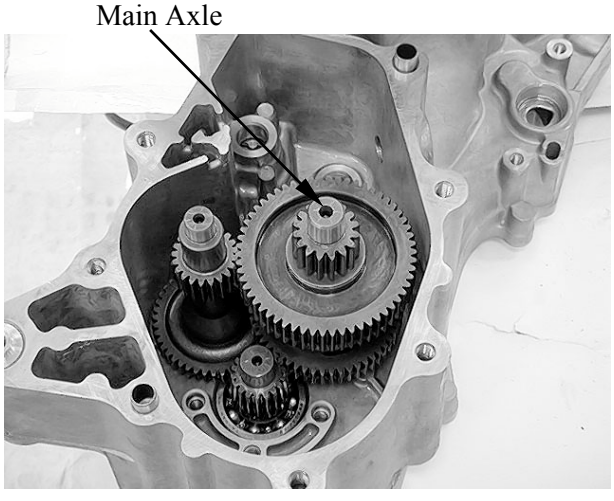
Inspect shift shaft gear.
Damage → Replace.
Inspect shift shaft.
Damage/bends/wear → Replace.



Remove three bolts from primary drive axle cover.
Remove the primary drive axle cover, dowel pins and washer.

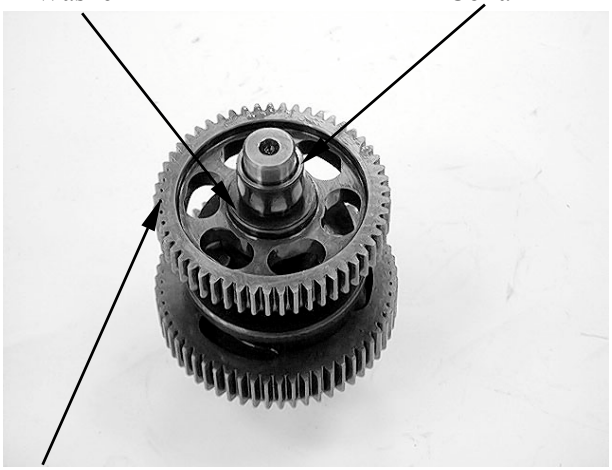


Remove the main axle.

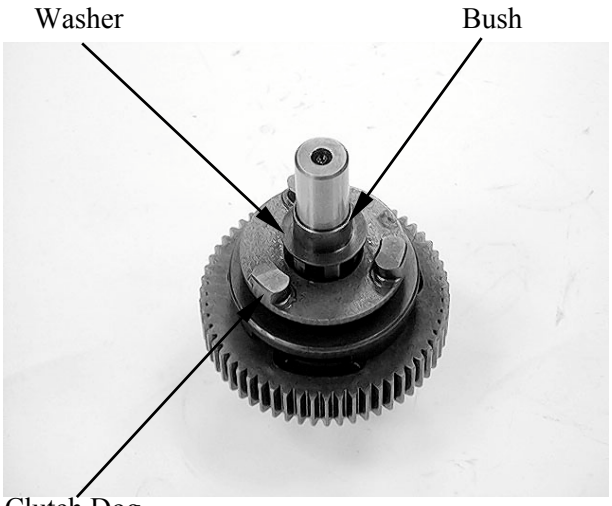


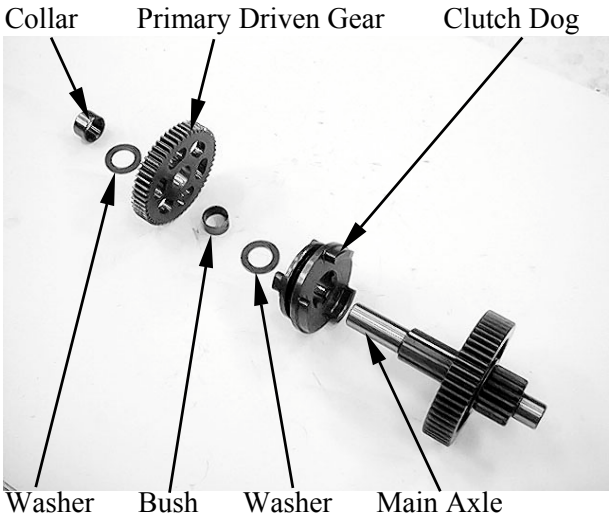
MAIN AXLE DISASSEMBLY

Remove the collar, washers, primary driven gear.

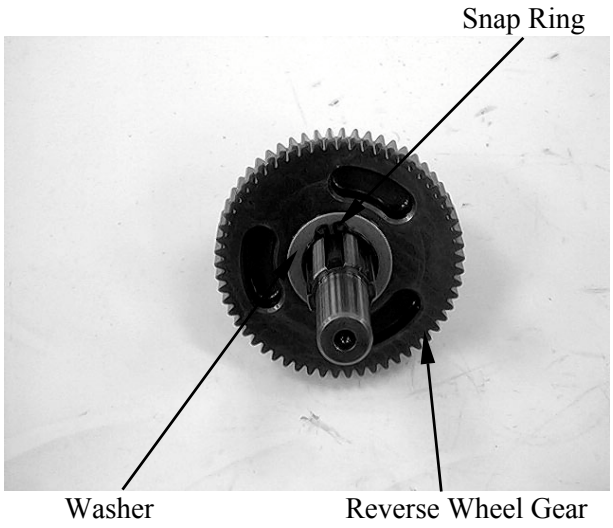


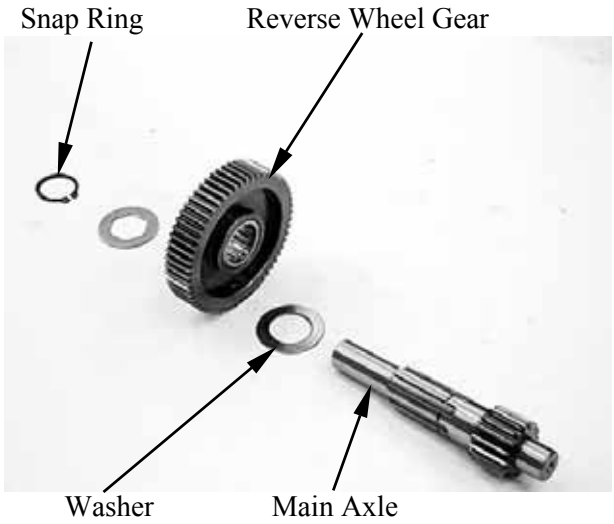
Remove the bush, washer and clutch dog.





Remove the snap ring and then remove the washers, reverse wheel gear.

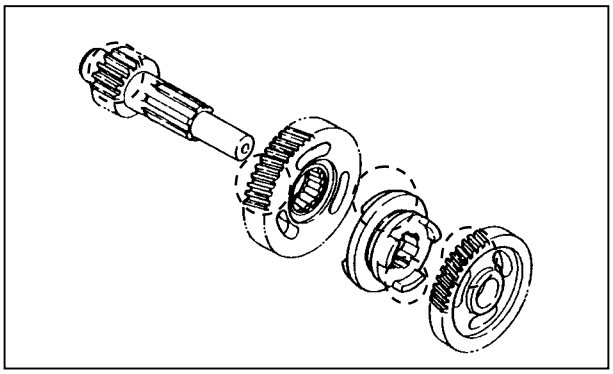




Inspect the gear teeth.
Blue discoloration/pitting/wear → Replace.

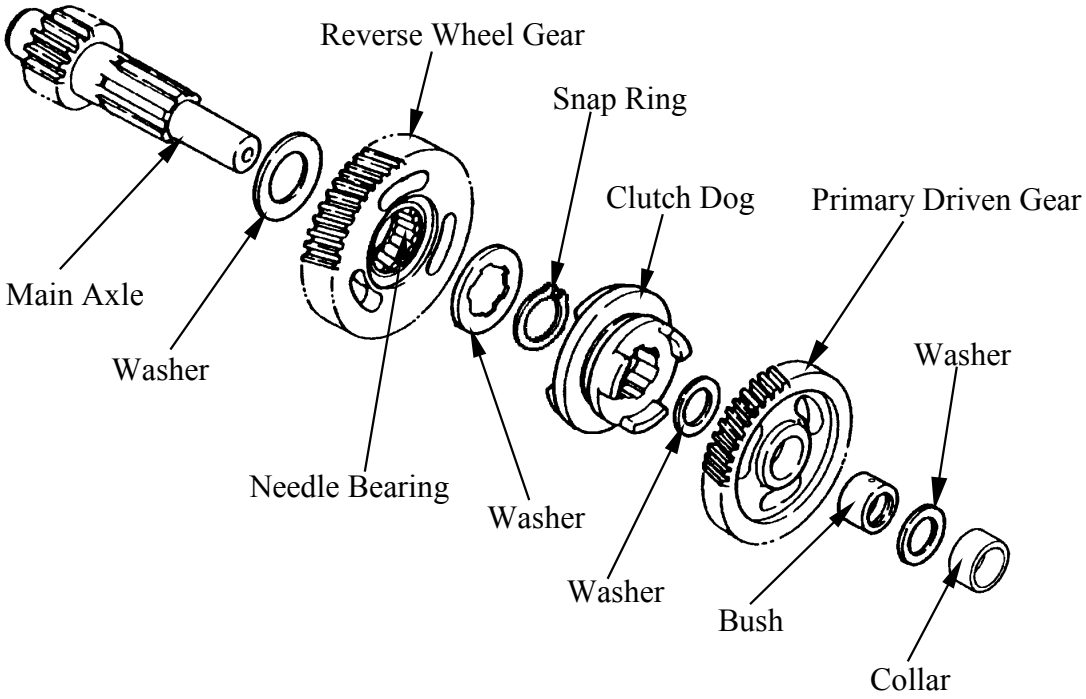
Inspect the mated dogs.
Rounded edges/cracks/missing portions → Replace.

Inspect the needle bearing for allow play in the reverse wheel gear or the bearing turns roughly.
If any defects are found, replace the bearing with a new one.

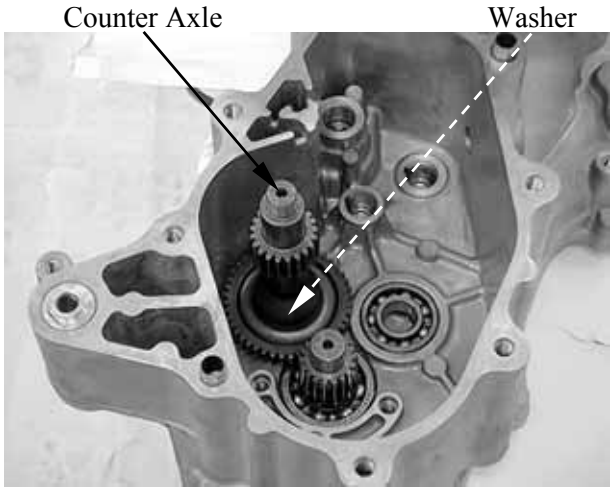


MAIN AXLE ASSEMBLY

Reverse the "MAIN AXLE DISASSEMBLY" procedures.



Remove the counter axle and washer.



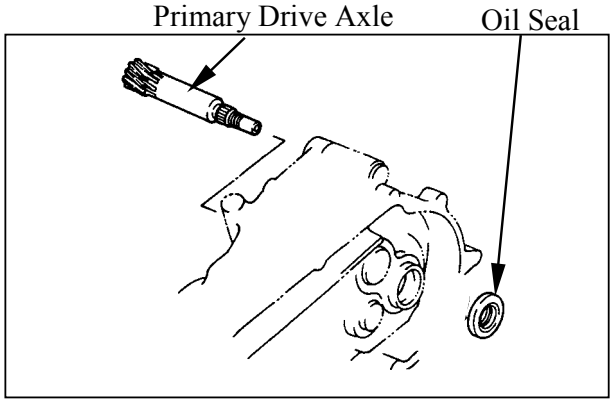
Inspect the gear teeth.
Blue discoloration/pitting/wear → Replace.

PRIMARY DRIVE AXLE REMOVAL

Remove the clutch/driven pulley. (Refer to the chapter 9)

Remove the oil seal.

Remove the primary drive axle.



Inspect the bearings for allow play in the transmission case or the bearing turns roughly.
If any defects are found, replace the bearing with a new one.

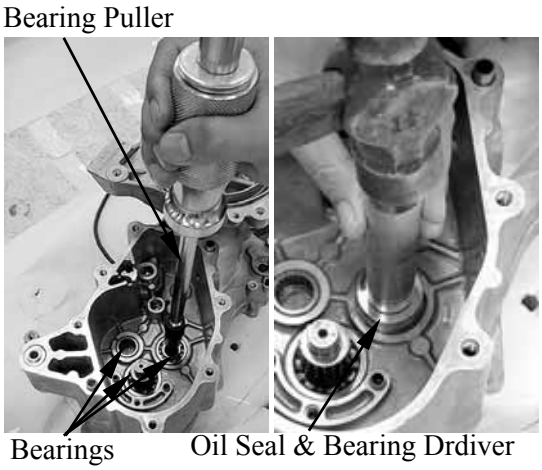
Remove the transmission case cover bearings using the special tool.

Special tools:

Bearing puller A120E00037

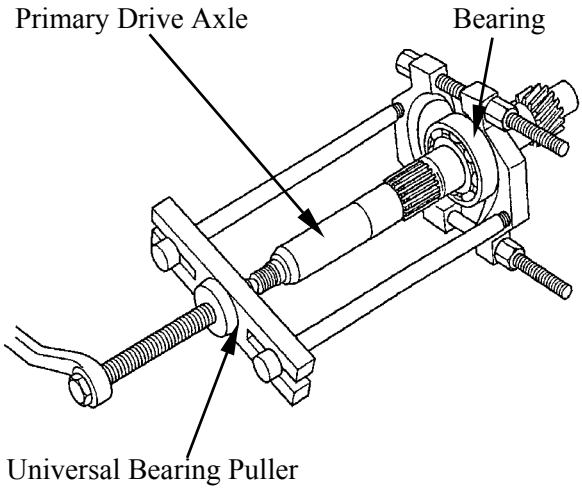
Install the new bearings using the special tool.

Special tool:
Oil seal & bearing driver A120E00014

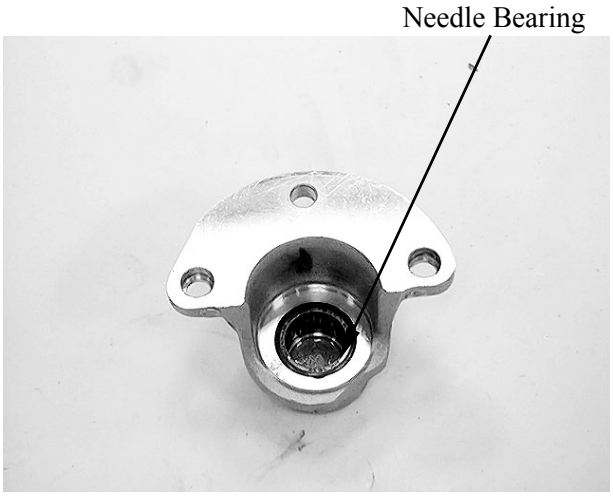


If the bearing is left on the drive axle, remove it with the special tool.

Special tool:
Universal bearing puller A120E00030



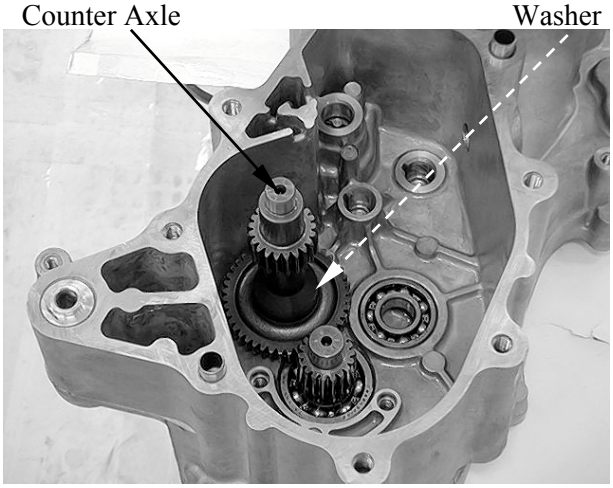
Inspect the needle bearing for allow play in the transmission case or the bearing turns roughly.
If any defects are found, replace the bearing with a new one.



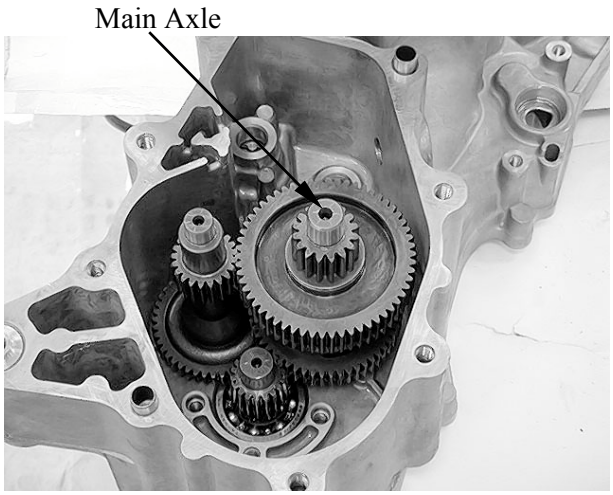
INSTALLATION

Reverse the "TRANSMISSION REVOVAL" section procedures.
Install the main drive axle. (Reverse the "MAIN DRIVE AXLE" procedures.)

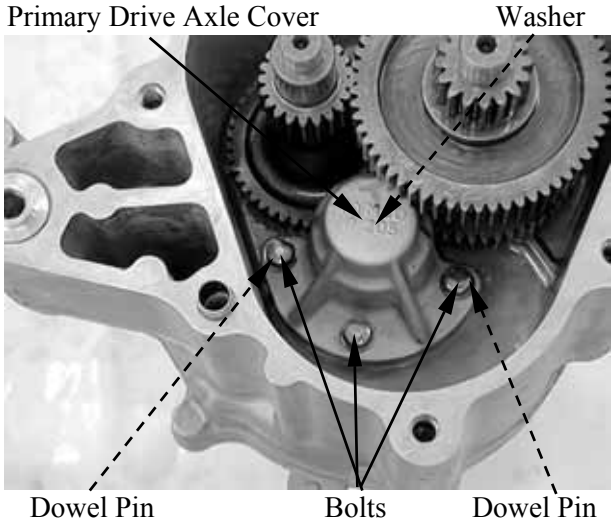
Install the washer and counter axle.
Install the main axle washer.



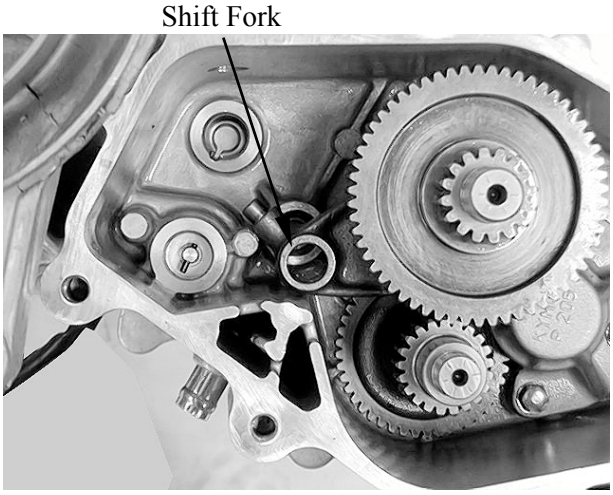
Install the main axle.



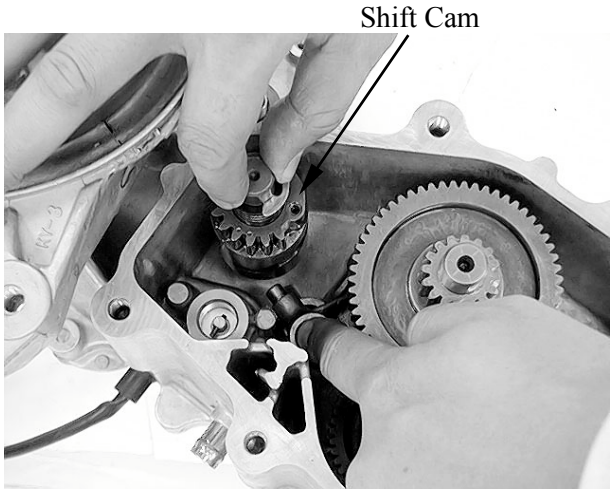
Install the two dowel pins.
Install the washer onto the primary drive axle.
Install the primary drive axle cover.
Install and tighten the three bolts securely.



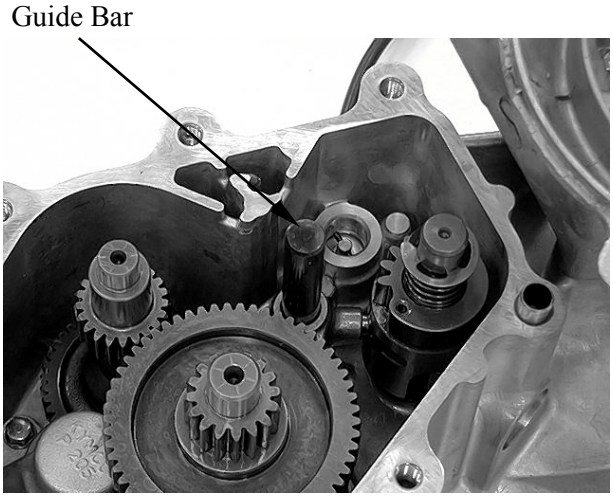
Install the shift fork.



Install the shift cam.

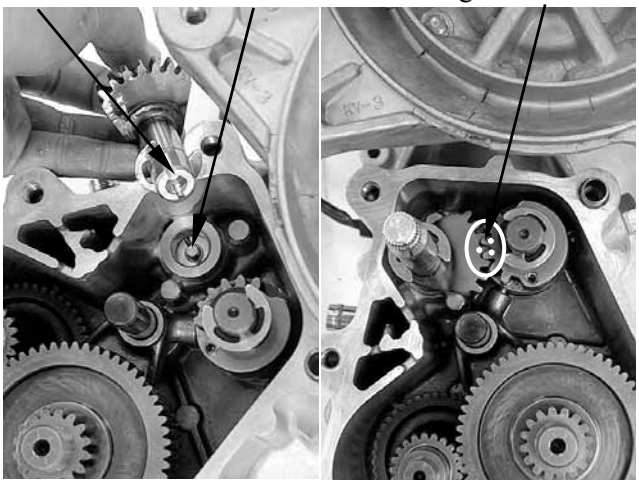


Install the guide bar.



Install the shift shaft.

* Make sure that the lever on the gear change switch correctly engages with the locating slot on the shift shaft.
Align the mark on the shift shaft gear with the mark on the shift cam gear.

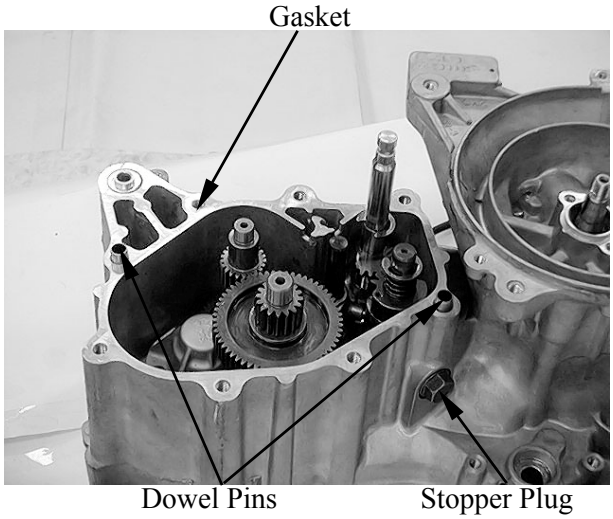


Install the shift cam stopper and tighten the plug.

Torque: 4.8 kgf-m (48 Nm, 35 lbf-ft)

Check the transmission operation (see page 11-6).

Install the dowel pins and a new gasket onto the transmission case.

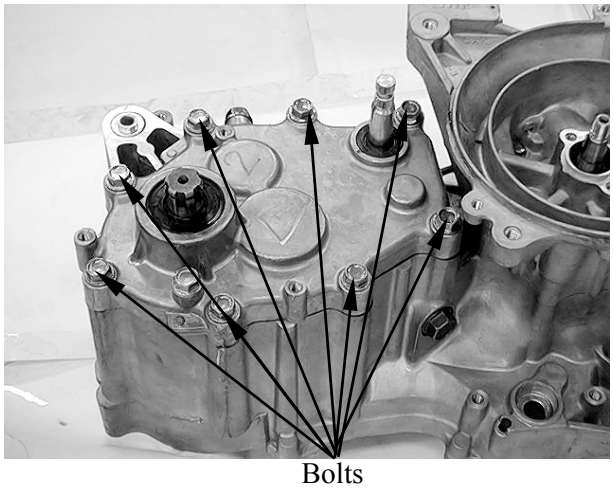


Install the transmission case cover and tighten the transmission case cover bolts.

Torque: 2.7 kgf-m (27 Nm, 20 lbf-ft)

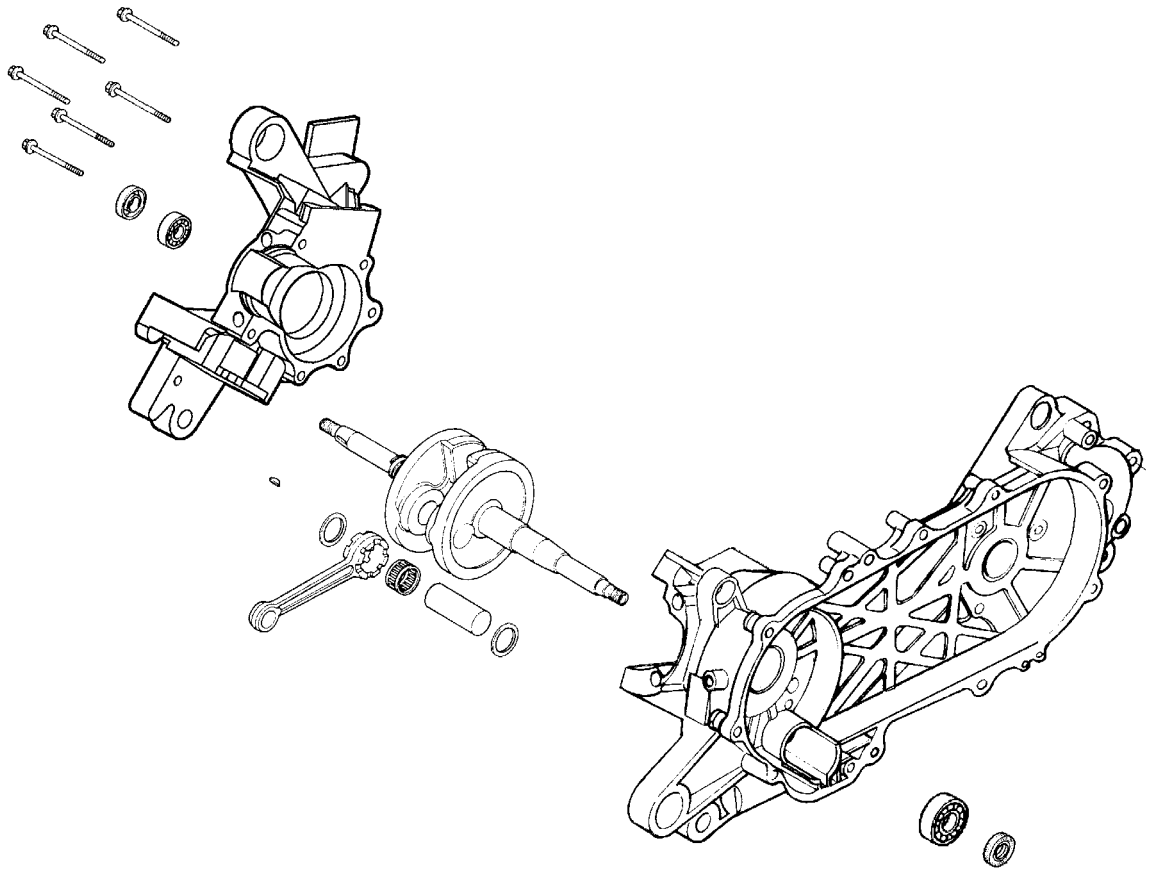
Fill the engine with oil and install the oil filler bolt. (Refer to the "TRANSMISSION OIL REPLACEMENT" section in the chapter 3)

Specified Gear Oil:
KYMCO SIGMA GEAR OIL 90#
Oil Capacity:
At disassembly:
0.3 liter (0.26 lmp qt, 0.32 US qt)
At change:
0.25 liter (0.22 lmp qt, 0.26 US qt)



CRANKCASE/CRANKSHAFT

12. CRANKCASE/CRANKSHAFT



SERVICE INFORMATION

GENERAL INSTRUCTIONS

- This section covers crankcase separation to service the crankshaft.
- The following parts must be removed before separating the crankcase.

  Engine (⇨Section 6) — Driven pulley (⇨Section 9)
  Carburetor (⇨Section 5) — A.C. generator (⇨Section 8)
  Oil pump (⇨Section 4) — Cylinder head/cylinder (⇨Section 7)
  Reed valve (⇨Section 5)
- When the left crankcase must be replaced, remove the following part in addition to the above.

  Final reduction removal
- Special tools must be used for crankshaft and crankcase assembly. When separating the crankcase, the bearing will remain in the crankcase and it should be removed. When, assembling, drive a new bearing into the crankcase and install a new oil seal.

SPECIFICATIONS

mm (in)

Item	Standard	Service Limit
Connecting rod big end side clearance	—	0.6 (0.024)
Connecting rod big end radial clearance	—	0.04 (0.0016)
Crankshaft runout A/B	—	0.15 (0.006)/0.1 (0.004)

SPECIAL TOOLS

Crankcase puller	A120E00026
Universal bearing puller	A120E00030
Crankcase assembly tool (left crankcase)	A120E00024
Crankcase assembly tool (right crankcase)	A120E00016
Oil seal & bearing driver	A120E00014

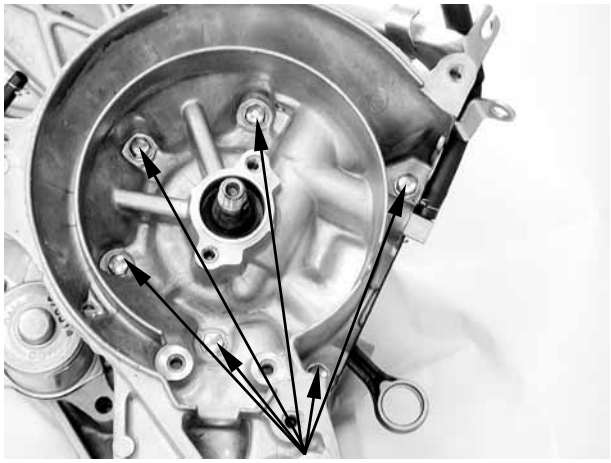
TROUBLESHOOTING

Abnormal engine noise

- Excessive crank journal bearing play
- Excessive crankpin bearing play
- Excessive transmission bearing play

CRANKCASE SEPARATION

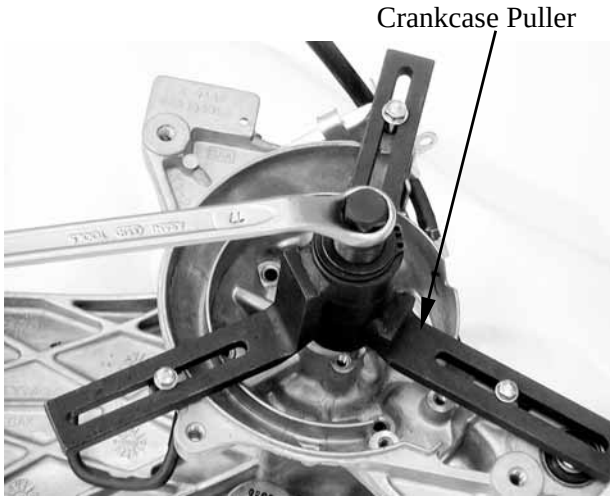
Remove the crankcase attaching bolts.



Bolt

Attach the crankcase puller on the right crankcase and remove the right crankcase from the left crankcase.

Special tool:
Crankcase puller A120E00026



CRANKSHAFT REMOVAL

Attach the crankcase puller on the left crankcase and remove the crankshaft from the left crankcase.

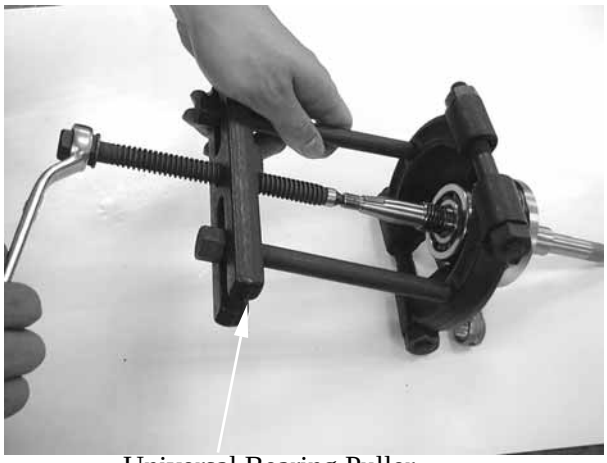
✳ When removing the crankshaft, do it slowly and gently.

Special tool:
Crankcase puller A120E00026

Remove the remaining bearing on the crankshaft side using the universal bearing puller.

✳ When separating the crankcase, the oil seals must be removed. Replace the oil seals with new ones.

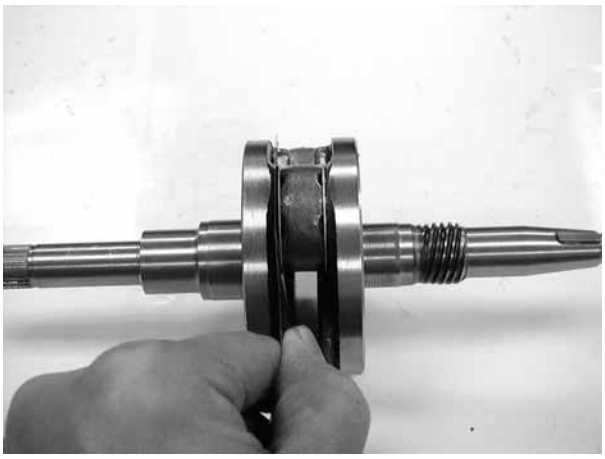
Special tool:
Universal bearing puller A120E00030


Universal Bearing Puller

CRANKSHAFT INSPECTION

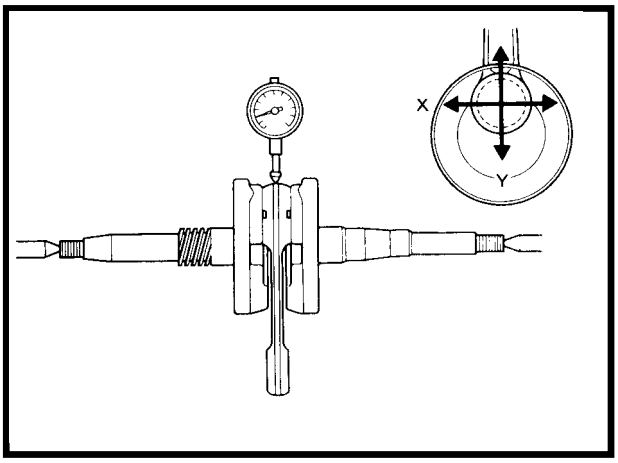
Measure the connecting rod big end side clearance.

Service Limit:
0.6 mm (0.024 in) replace if over



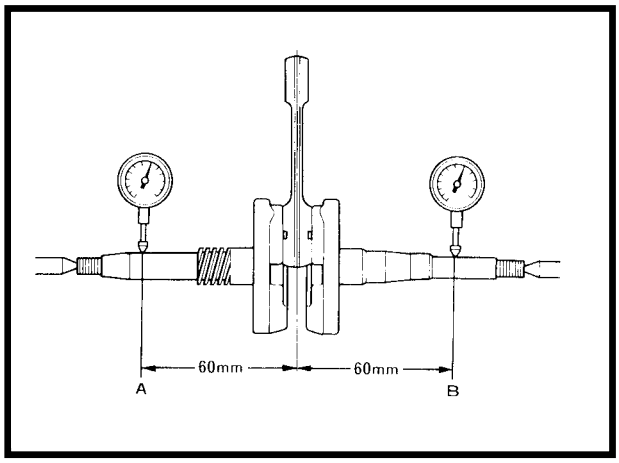
Measure the connecting rod big end radial clearance at two points in the X and Y directions.

Service Limit:
0.04 mm (0.0016 in) replace if over

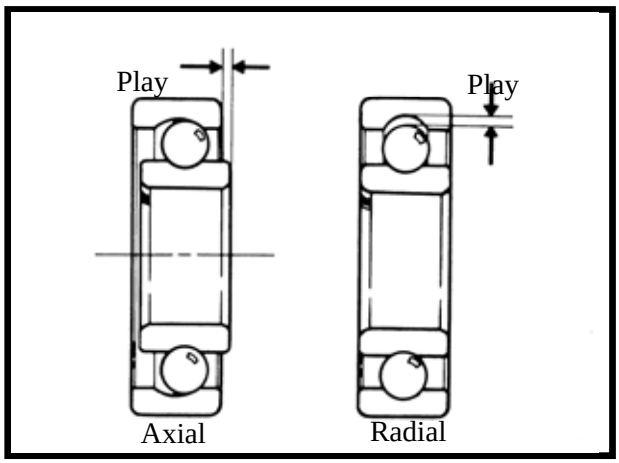


Measure the crankshaft runout.

Service Limit	
A	B
0.15 mm (0.006 in) replace if over	0.1 mm (0.004 in) replace if over



Check the crankshaft bearings for excessive play. The bearings must be replaced if they are noisy or have excessive play.



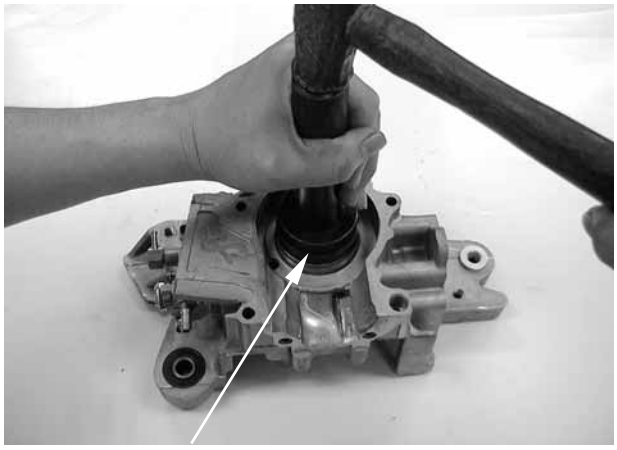
CRANKSHAFT INSTALLATION

Wash the crankshaft in cleaning solvent and then check for cracks or other faults.

✳
- After check, apply clean engine oil to all moving and sliding parts.
- Remove all gasket material from the crankcase mating surfaces. Dress any roughness or irregularities with an oil stone.

Drive a new crankshaft bearing into the right crankcase.

Special tool:
Oil seal & bearing driver A120E00014


Oil Seal & Bearing Driver

Drive a new crankshaft bearing into the left crankcase.

Special tool:
Oil seal & bearing driver A120E00014


Oil Seal & Bearing Driver

Install the crankshaft into the left crankcase.

✳
- Apply KYMCO ULTRA motor oil or molybdenum disulfide to the crankshaft bearings and connecting rod big end.
- Apply grease to the lip of the oil seal and then install it.

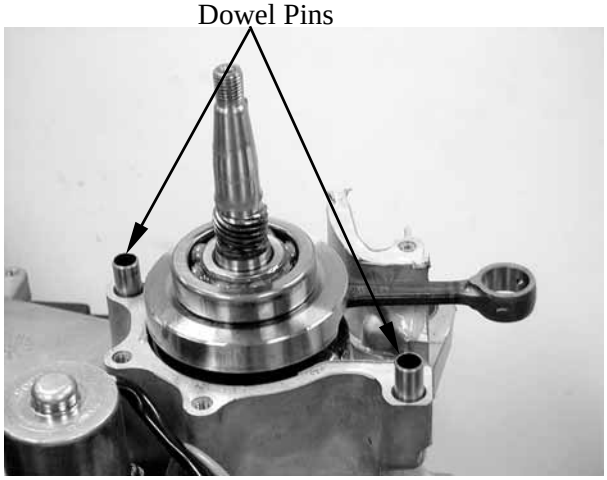
Special tool:
Crankcase assembly tool (left crankcase)
A120E00024


Crankcase Assembly Tool

CRANKCASE ASSEMBLY

Install the dowel pins and a new gasket to the crankcase mating surface.

Dowel Pins



Assemble the crankcase halves.

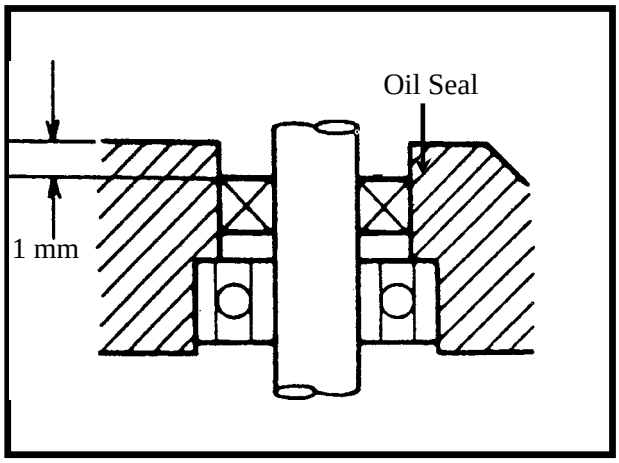
Special tool:
Crankcase assembly tool
(Right crankcase) A120E00016

Crankcase Assembly Tool

The distance between the right crankcase oil seal and crankcase surface is about 12.5±0.5 mm (0.5±0.02 in).

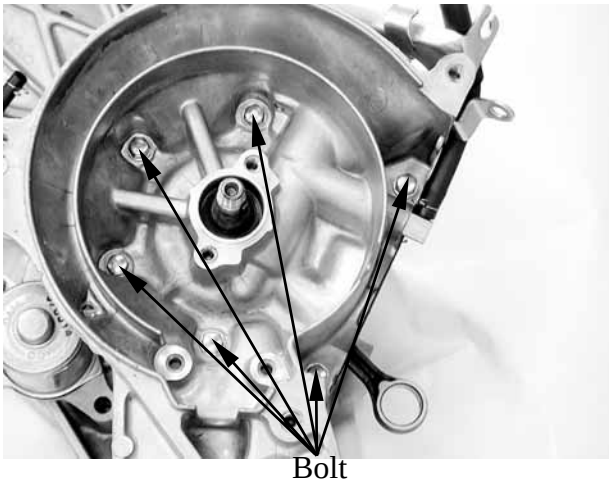
✳ When installing the oil seal, be careful to press it with even force.

The distance between the left crankcase oil seal and crankcase surface is about 1 mm (0.04 in).



Install and tighten the crankcase attaching bolts.

✳ After assembly, check the crankshaft for smooth operation.



FRONT WHEEL/FRONT BRAKE/ FRONT SUSPENSION\STEERING SYSTEM

SERVICE INFORMATION

GENERAL INSTRUCTIONS

- Remove the machine frame covers before removing the front wheel. Jack the machine front wheel off the ground and be careful to prevent the machine from falling down.
- During servicing, keep oil or grease off the brake drum and brake linings.
- Inspect the brake system before riding.

SPECIFICATIONS

mm (in)

Item		Standard	Service Limit
Front wheel rim run out	Radial	—	2 (0.08)
	Axial	—	2 (0.08)
Front brake drum I.D		110 (4.4)	111 (4.44)
Front brake lining thickness		4 (0.16)	1.5 (0.06)
Tie rod length		266.5 (10.66)	—
Rod-end (tie rod) angle		180°	—

TORQUE VALUES

Steering stem nut	7 kgf-m (70 N-m, 50 lbf-ft)
Swing arm nut	4.5 kgf-m (45 N-m, 32 lbf-ft)
Front wheel nut	4.5 kgf-m (45 N-m, 32 lbf-ft)
Front wheel hub nut	7 kgf-m (70 N-m, 50 lbf-ft)
Front shock absorber upper mount bolt	4 kgf-m (40 N-m, 29 lbf-ft)
Front shock absorber lower mount bolt	4 kgf-m (40 N-m, 29 lbf-ft)

SPECIAL TOOLS

Oil seal and bearing install A120E00014

TROUBLESHOOTING

Hard steering (heavy)
- Insufficient tire pressure

Steers to one side or does not track straight
- Uneven front shock absorbers
- Bent front arm
- Bent steering knuckle

Poor brake performance
- Incorrectly adjusted brake
- Worn brake linings
- Contaminated brake lining surface
- Worn brake shoes at cam contacting area
- Worn brake drum
- Poorly connected brake arm

Front wheel wobbling
- Bent rim
- Excessive wheel bearing play
- Bent spoke plate
- Faulty tire
- Improperly tightened axle nut

Soft front shock absorber
- Weak shock springs
- Insufficient damper oil

Front shock absorber noise
- Slider bending
- Loose arm fasteners
- Lack of lubrication

FRONT WHEEL

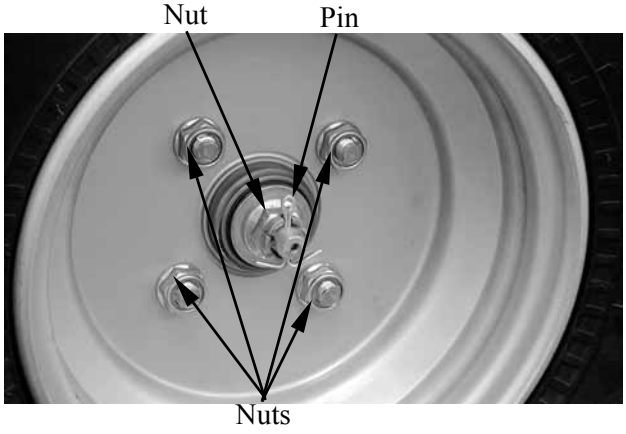
REMOVAL

Place the machine on a level place.

Remove four nuts attaching the wheel panel and front wheel.

Elevate the front wheels by placing a suitable stand under the frame.

* Support the machine securely so there is no danger of it falling over.

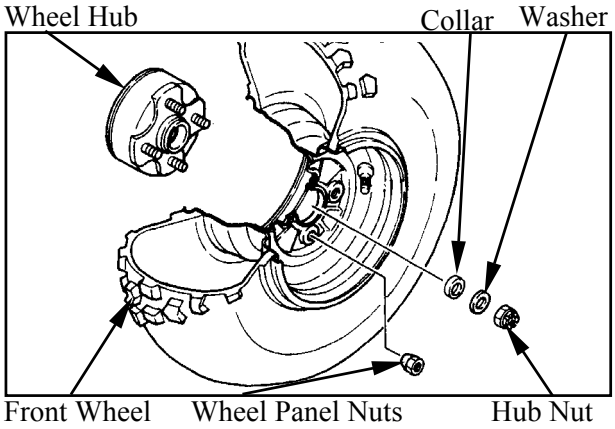


Remove the nut cap (MXU 50 REVERSE/MXU 50)

Remove the cotter pin.

Remove nut attaching the wheel hub and washer.

Remove the collar and wheel hub.

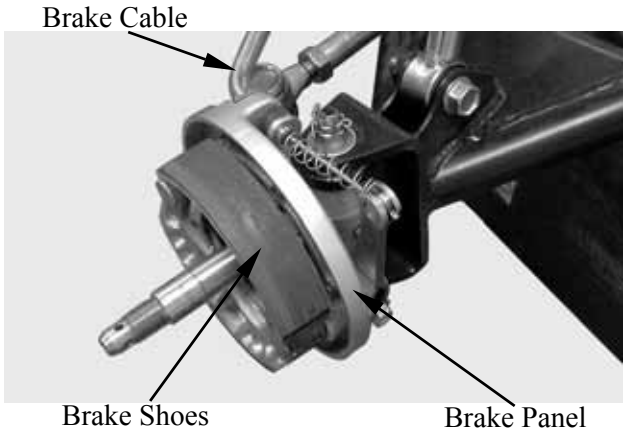


FRONT BRAKE DISASSEMBLY

Loosen the lock nut and tighten the adjuster nut at brake lever. (Refer to the "FRONT BRAKE ADJUSTMENT" section in the CHAPTER 3.).

Disconnect the front brake cable from brake cam lever and remove the brake panel.

Remove the brake shoes.

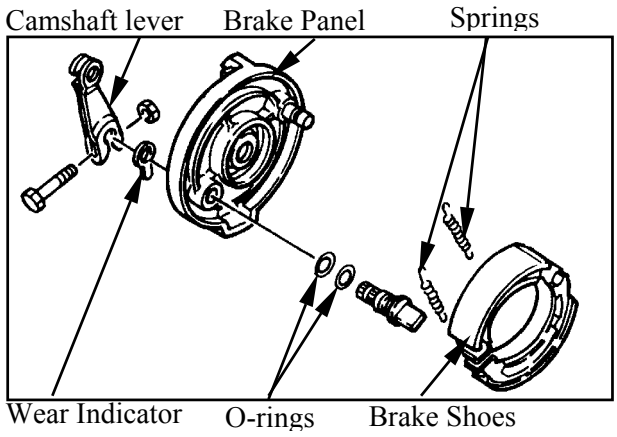


REMOVE

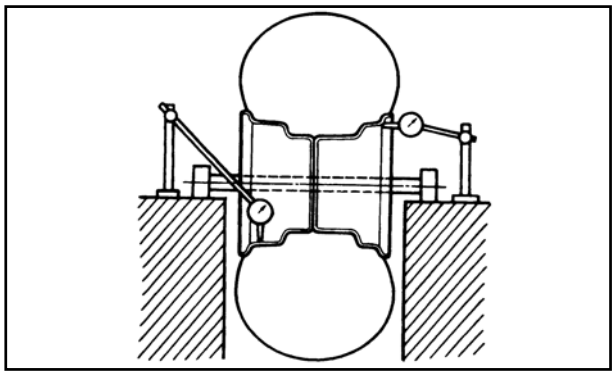
Remove brake shoes and springs.

Remove the bolt attaching camshaft lever and remove camshaft lever.

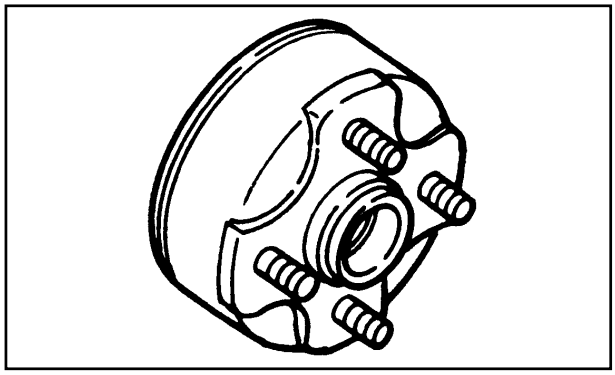
Remove the wear indicator, camshaft and O-rings



Measure the wheel run out.
Replace wheel or check bearing play if out of specification
Rim run out limits:
Vertical: 2 mm (0.08 in)
Lateral: 2 mm (0.08 in)

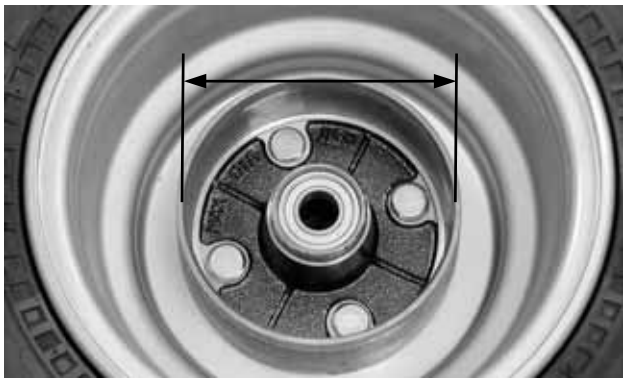


Inspect the front wheel hub.
Replace if cracks or damage.



Inspect the front brake drum.
Measure the front brake drum I.D.
Service limits: 111 mm (4.44 in)

* Keep oil or grease off the brake drum.

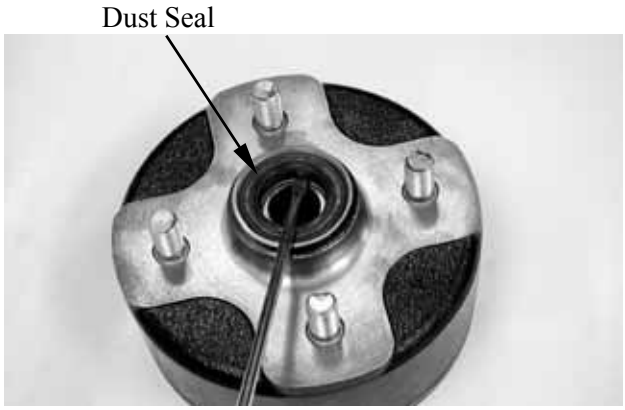


FRONT WHEEL BEARING

Remove the side collar.

Remove the dust seal.

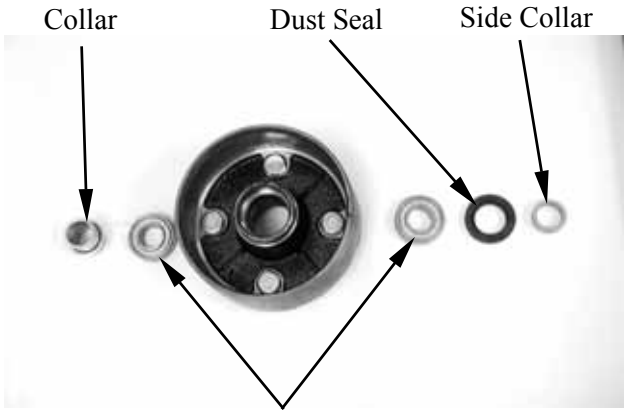
Turn the inner race of each bearing with your finger to see if they turn smoothly and quietly. Also check if the outer race fits tightly in the hub.



BEARING REPLACEMENT

Remove the front wheel bearings and distance collar.

Replace the bearings if the races do not turn smoothly, quietly, or if they fit loosely in the hub.
Apply grease to a new dust seal lip and install the dust seal.



Pack all bearing cavities with grease.
Drive in the left bearing.
Install the distance collar.
Drive in the right bearing.

* • Do not allow the bearings to tilt while driving them in.
  • Drive in the bearing squarely with the sealed end facing out.

Special tool:

Oil seal and bearing install A120E00014

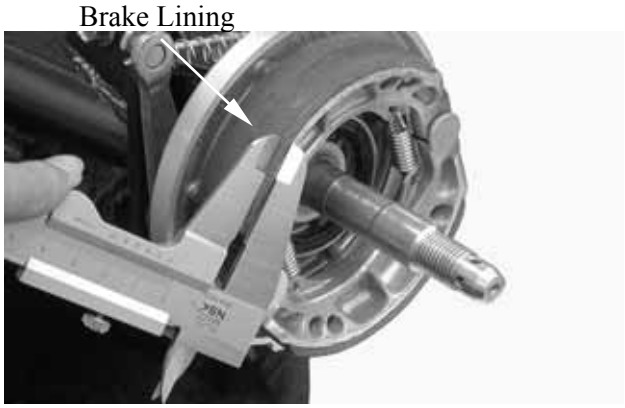
FRONT BRAKE

FRONT BRAKE LINING INSPECTION

Measure the front brake lining thickness.

Service limit: 2 mm (0.08 in) replace if below

* Keep oil or grease off the brake linings.



REMOVAL

Inspect the shoe springs, O-rings, camshaft lever and wear indicator.

Replace if damage.

Inspect the brake shoe plate.

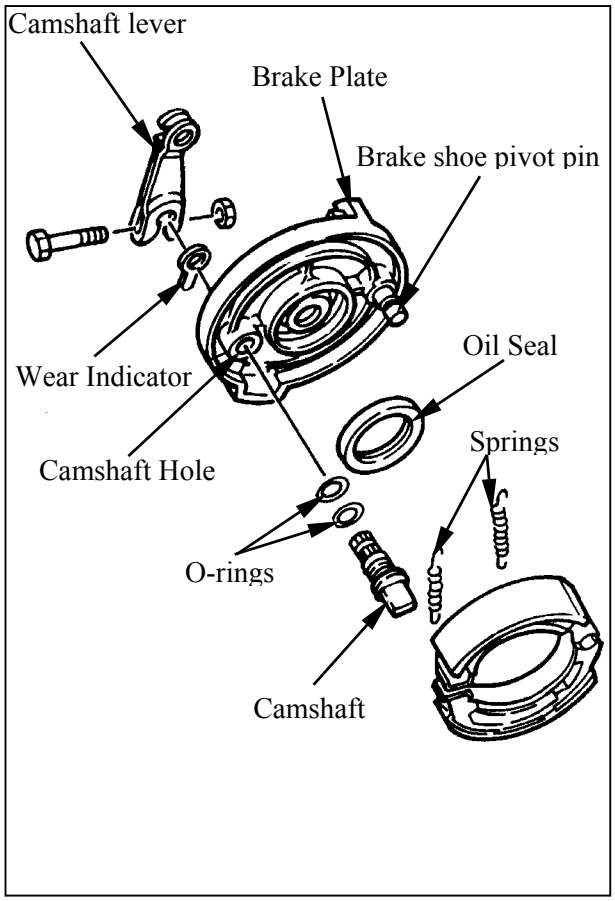
Replace if cracks or damage.

Inspect the brake shoe pivot pin.

Replace if wear or damage.

Inspect the camshaft hole and camshaft.

Replace if scratches or excessive wear.



INSTALLATION

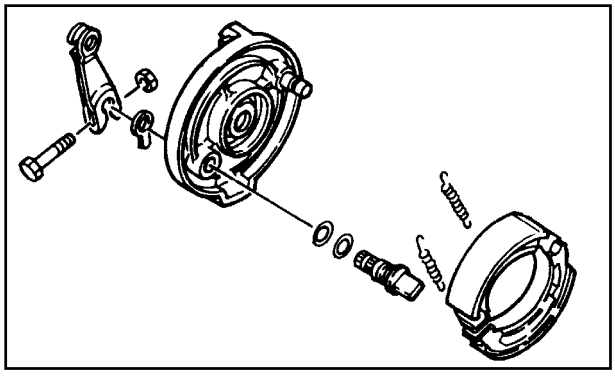
Reverse the "REMOVAL" procedures.

* • Install the camshaft to the brake shoe plate with the slot of the camshaft placing at bass line of the wear indicator scale.
  • Align the projection with the slot of the camshaft when installing the wear indicator to the camshaft.
  • Align the cut-out of the camshaft lever with the slot of the camshaft when installing the camshaft lever to the camshaft.

Tighten the bolt for camshaft lever.

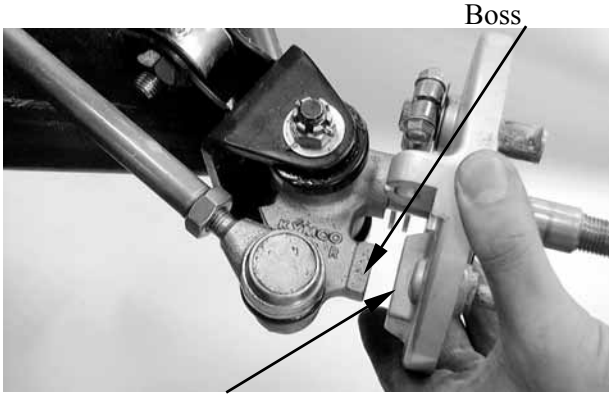
Torque: 2.2 kgf-m (22 N-m, 16 lbf-ft)

* Apply the grease onto the o-ring, oil seal lips, pivot pin of brake shoe and camshaft.

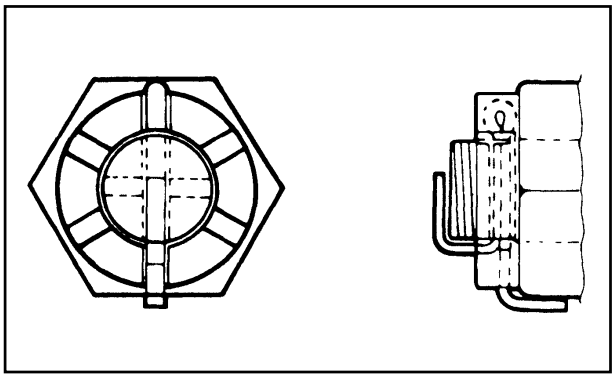


Install the brake shoe plate.

* Make sure that the boss on the knuckle correctly engages with the locating slot on the brake shoe plate.



Apply the grease onto the bearings and oil seal lips of the wheel hub.
Install wheel hub, plate washer and tight the nut (wheel hub).
Torque: 7 kgf-m (70 N-m, 50 lbf-ft)
Install cotter pins.



* Always use a new cotter pin.

* Do not loosen the axle nut after torque tightening. If the axle nut groove id not aligned with the cotter pin hole, align groove with the hole by tightening ut on the axle nut.

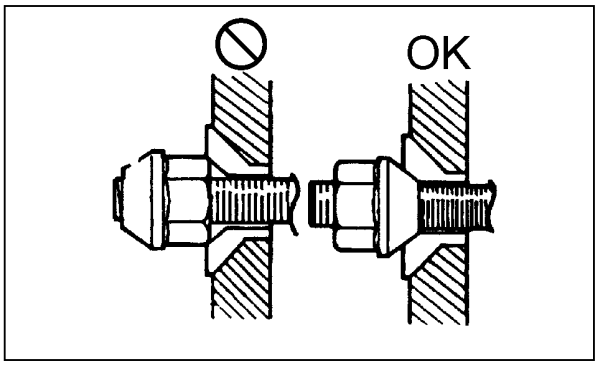
Install the front wheel and tighten the nuts (wheel).

Torque: 4.5 kgf-m (45 N-m, 32 lbf-ft)

*

MXU 50 REVERSE/MXU 50:

- Tapered wheel nuts are used for front wheels.
- Install the nuts with its tapered side towards the wheel.



Adjust the front brake cable free play.

Refer to the "FRONT BRAKE ADJUSTMENT" section in the CHAPTER 3.

Brake lever free play:

10～20 mm (0.4～0.8 in) at lever end.

FRONT SUSPENSION

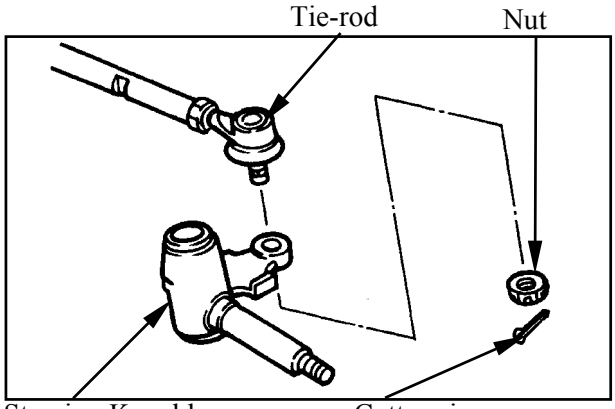
REMOVAL

Elevate the front wheels by placing a suitable stand under the frame.

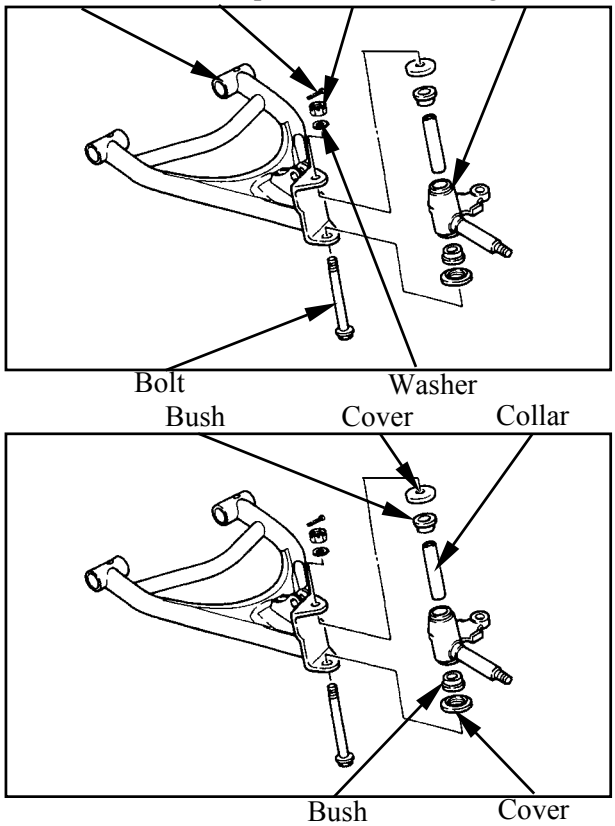
* Support the machine securely so there is no danger of it falling over.

Remove the front wheel, wheel hub, brake shoe plate.
Remove the upper and lower bolt, then remove the shock absorber.

Remove the cotter pin and nut, then remove tie-rod from steering knuckle.



Remove cotter pin, nut, washer and bolt, then remove the steering knuckle, covers, collar and bush from the front arm.



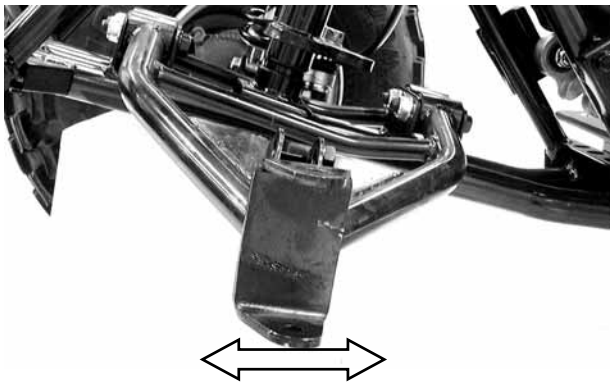
INSPECTION

Check the front arm brackets of the frame.

If bent, cracked or damaged, repair or replace the frame.

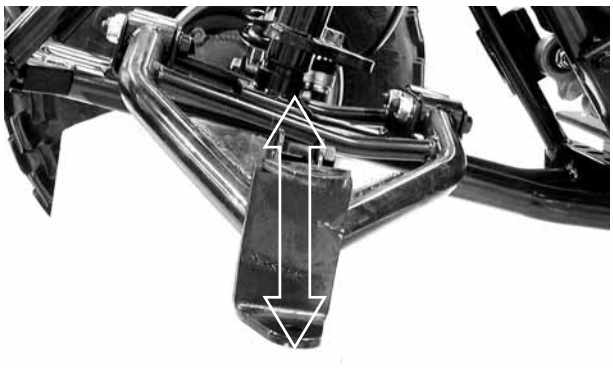
Check the tightening torque of the front arms securing nuts.

Torque: 4.5 kgf-m (45 N-m, 32 lbf-ft)



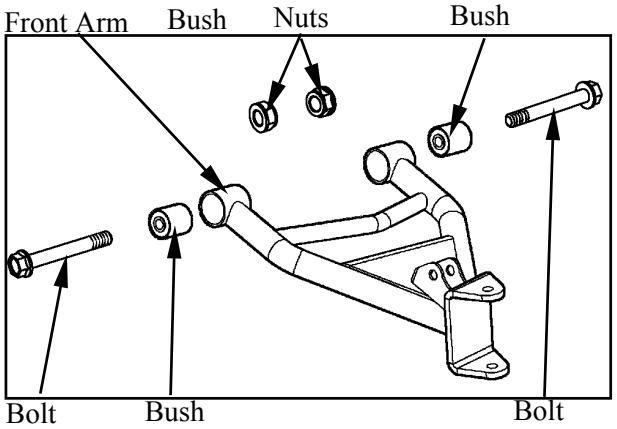
Check the front arm side play by moving it from side to side.

If side play noticeable, replace the inner collar, bushings and thrust covers as a set.



Check the front arm vertical movement by moving it up and down.
If vertical movement is tight, binding or rough, replace the inner collar, bushings and thrust covers as a set.

Remove the two nut and two bolt attaching the front arm, then remove the front arm.



INSPECTION

Inspect the shock absorber rod.

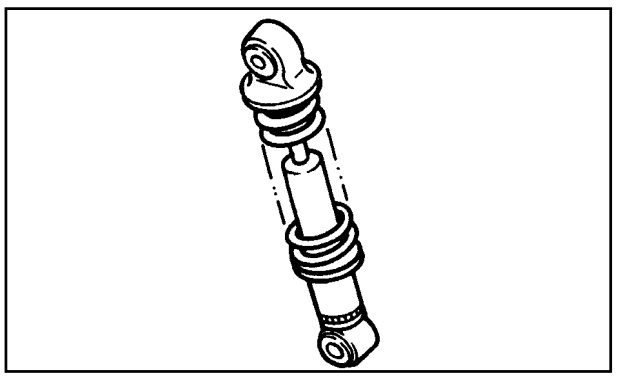
Replace the shock absorber assembly if bends or damage.

Inspect the shock absorber.

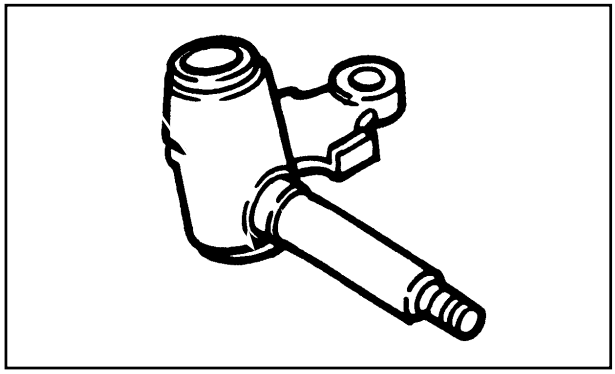
Replace the shock absorber assembly if oil leakes.

Inspect the spring of the shock absorber by move the spring up and down.

Replace the shock absorber assembly if fatigue.



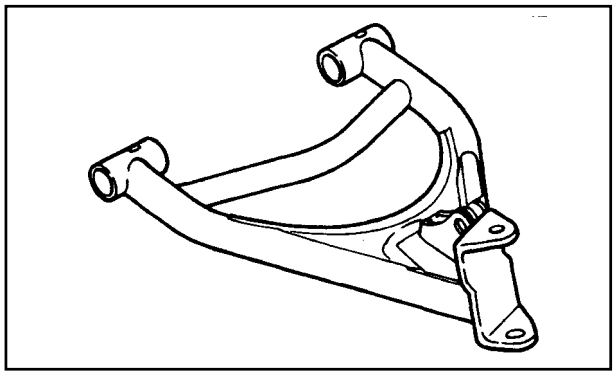
Inspect the steering knuckle.
Replace if cracks, pitting or damage.



.

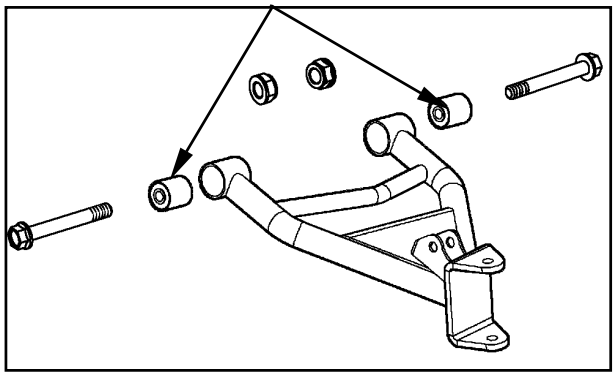
Inspect the front arm.
Replace if cracks, bends or damage.

* Do not attempt to straighten a bent arm, this may dangerously weaken the arm.



Bushes

Inspect bushes.
Replace if wear or damage.



INSTALLATION
Reverse the "REMOVAL" procedures.

* Apply the grease onto the bushes, collars and covers.

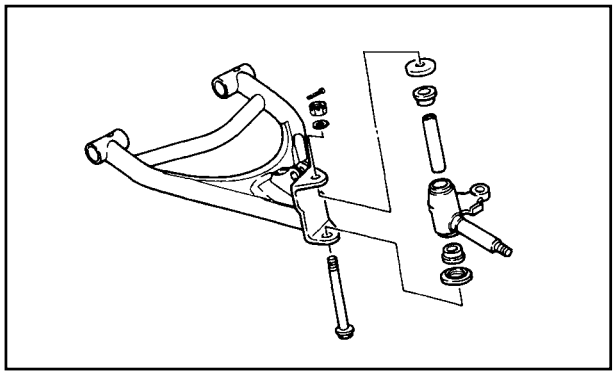
Install the front arm nut onto the frame and tighten the nuts.
Torque: 4.5 kgf-m (45 N-m, 32 lbf-ft)

Apply the grease onto the bush, collars and covers, then install the steering knuckle onto the front arm and tighten the nut.

Torque: 4.5 kgf-m (45 N-m, 32 lbf-ft)

Install the cotter pin and band ends of cotter pin.

* Always use a new cotter pin.

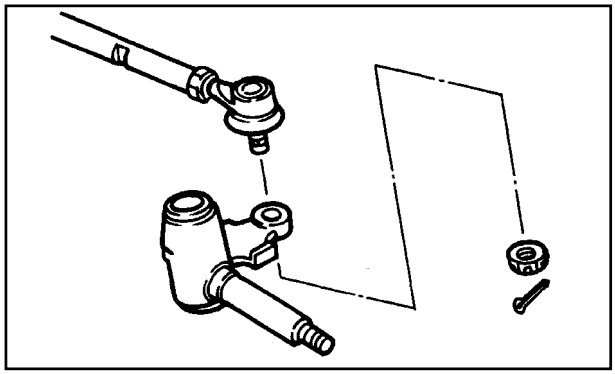


Install the tie-rod onto the steering knuckle and tighten the nut.

Torque: 3 kgf-m (30 N-m, 22 lbf-ft)

Install the cotter pin and band ends of cotter pin.

* Always use a new cotter pin.



Install the shock absorber and tighten the upper and lower bolts.

Torque: 4 kgf-m (40 N-m, 29 lbf-ft)

Install the brake shoe plate, wheel hub and front wheel.

Refer to the "FRONT WHEEL INSTALLATION" section.

STEERING SYSTEM

REMOVAL

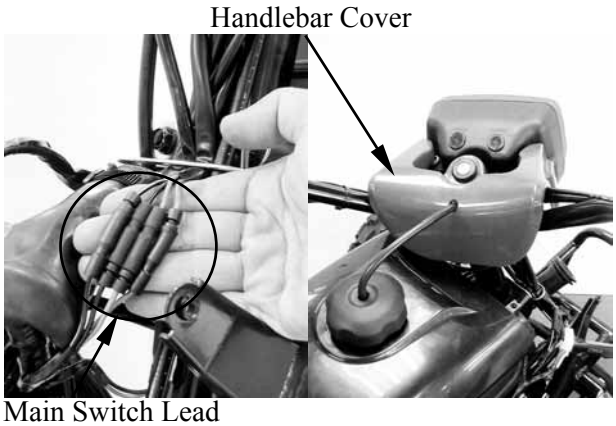
Remove the following parts:

Seat, Front cover, Center cover and Front fender

Refer to the "FENDERS" section in the CHAPTER 2

Disconnect the main switch lead (MX'ER 50).

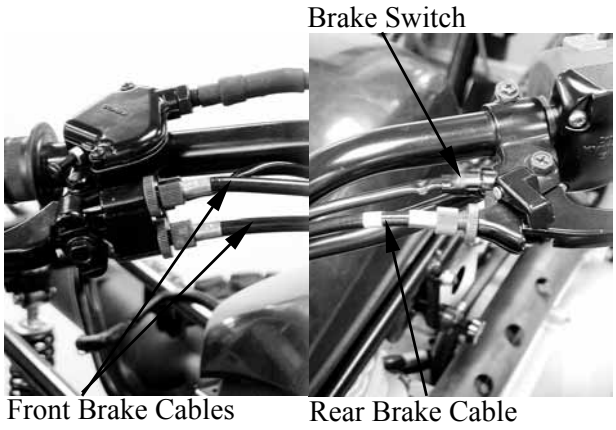
Remove the handlebar cover with main switch (MX'ER 50).



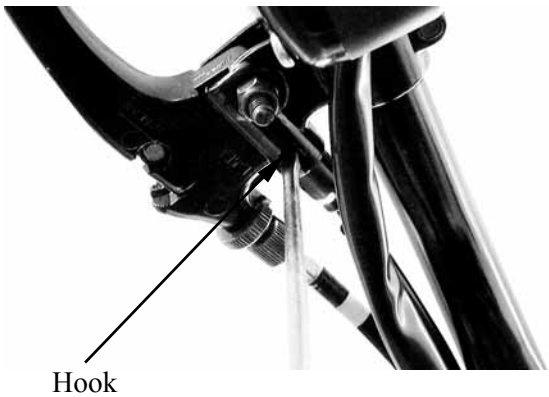
Disconnect the front brake cables from the brake lever.

Remove the rear brake cable from the brake lever and brake switch from the bracket of the brake lever (drum brake).

Remove the master cylinder (see page 14-20) (hydraulic brake).

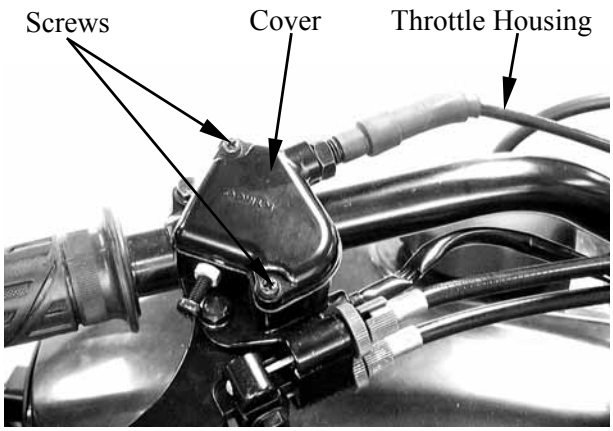


* Disconnect the brake switch from the bracket of the brake lever while pushing the hook of the brake switch with a driver.

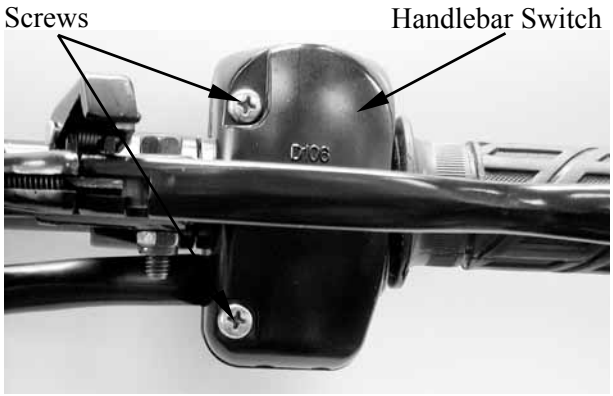


Remove the two screws to remove the cover of the throttle housing.

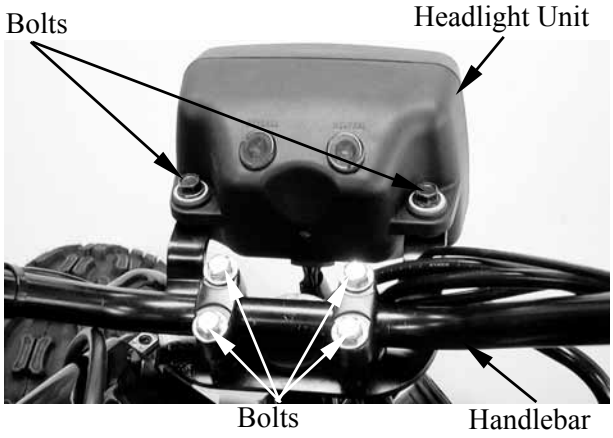
Disconnect the throttle cable from the lever.



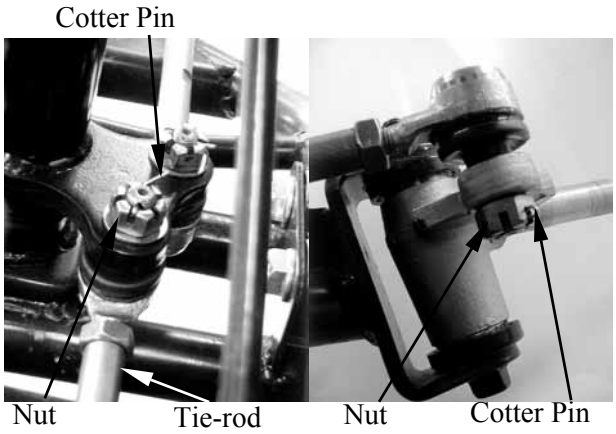
Remove the two screws and remove the handlebar switch.



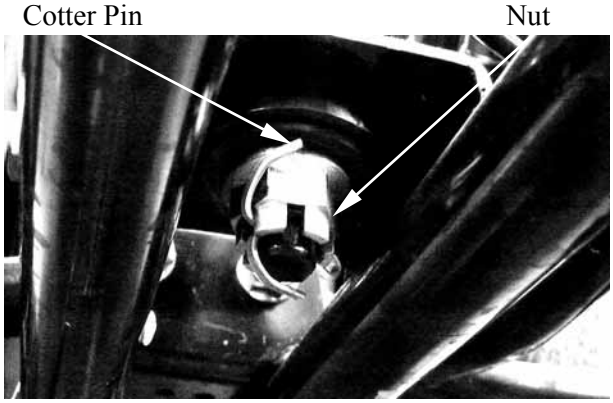
Remove the two bolts and remove headlight unit (MX'ER 50).
Remove the four handlebar holder bolts and remove the handlebar.



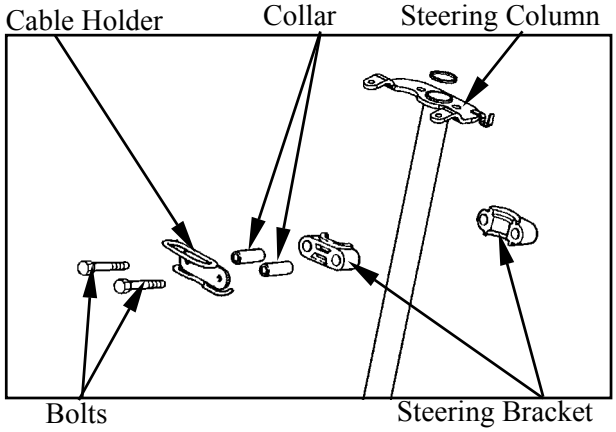
Remove the cotter pins and nuts attaching the tie-rods, then remove tie-rods.



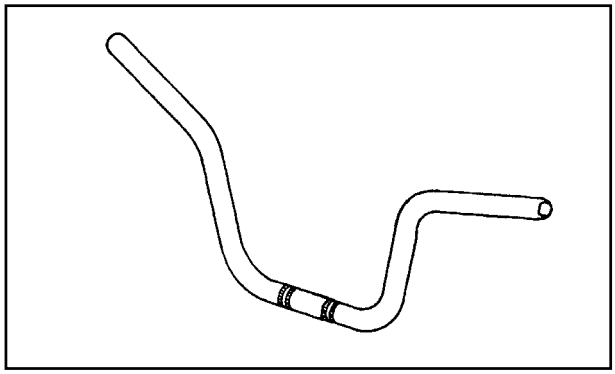
Remove the cotter pin and nut attaching the steering column, then remove steering column and collar.



Remove the two bolts to remove the cable holder, steering bracket, collars and steering column.

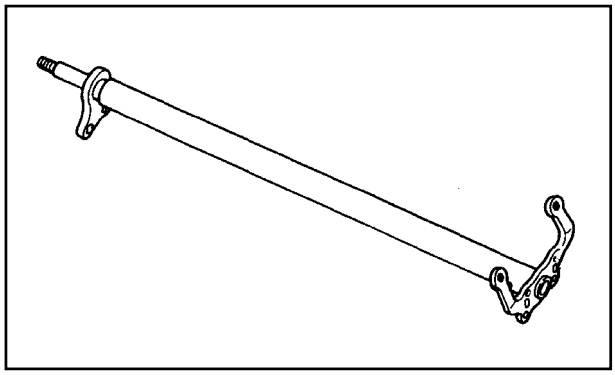


INSPECTION
Inspect the handlebar.
Replace if cracks, bends or damage.

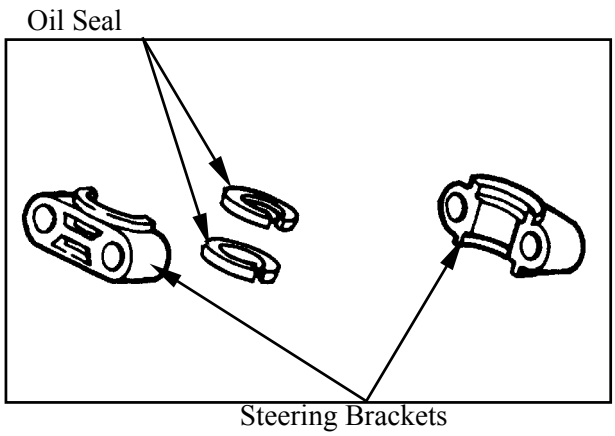


Inspect the steering column.
Replace if bends or damage.

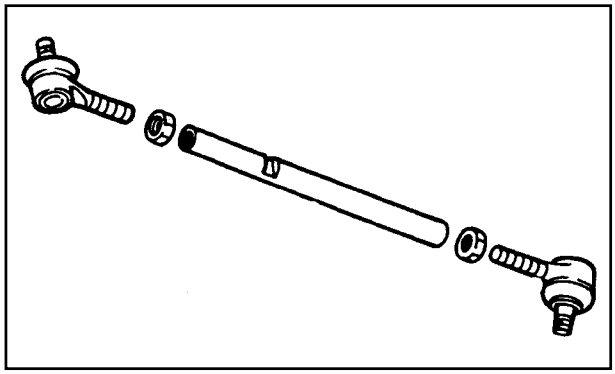
* Do not attempt to straighten a bent shaft, this may dangerously weaken the shaft.



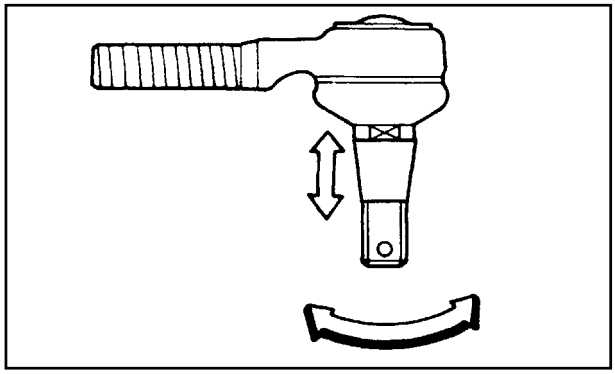
Inspect the steering brackets and oil seal.
Replace if wear or damage.



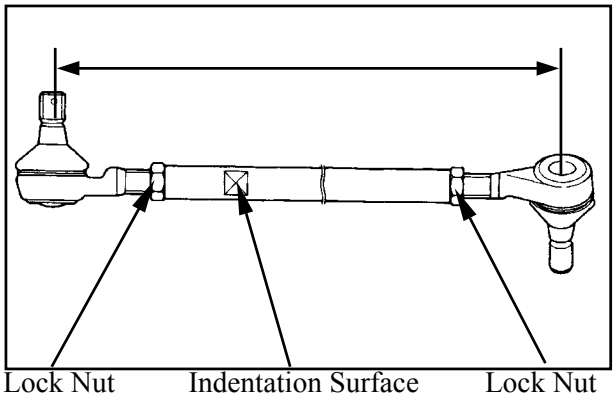
Inspect the tie-rod.
Replace if bend or damage.



Check the tie-rod end movement.
Replace if the tie-rod end exists free play or turns roughly.
Check the tapered surface of the tie-rod end.
Replace if pitting, wear or damage.

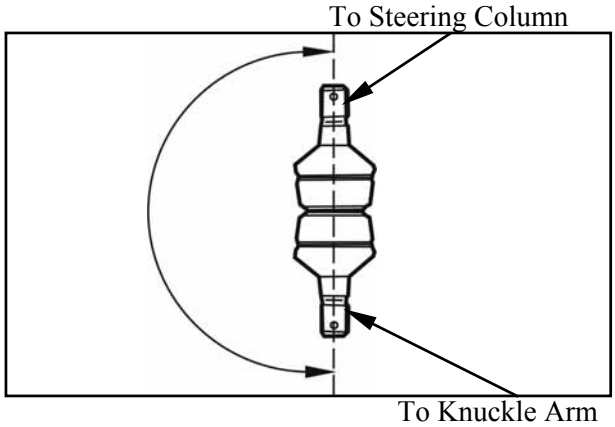


Adjust the tie-rod length.
Adjustment steps:
(The following procedures are done on both tie-rods, right and left.)
Loosen the lock nuts.
Adjust the tie-rod length by tuning both tie-rod ends.
Tie rod length: 266.5 mm (10.66 in)



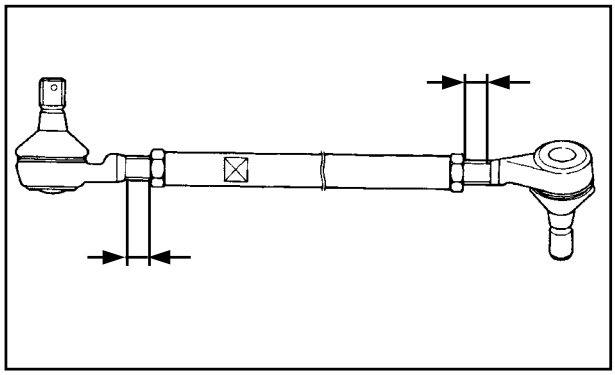
Set the rod-end (steering column side) in an angle where the indentation surface of the tie-rod is parallel to the rod-end shaft, and then tighten the lock nut.
Torque: 3 kgf-m (30 N-m, 22 lbf-ft)

Set the other rod-end (knuckle arm side) in an angle as shown (right-hand tie-rod and left-had tie-rod), and then tighten the lock nut.
Rod-end (tie rod) angle: 180°
Torque: 3 kgf-m (30 N-m, 22 lbf-ft)

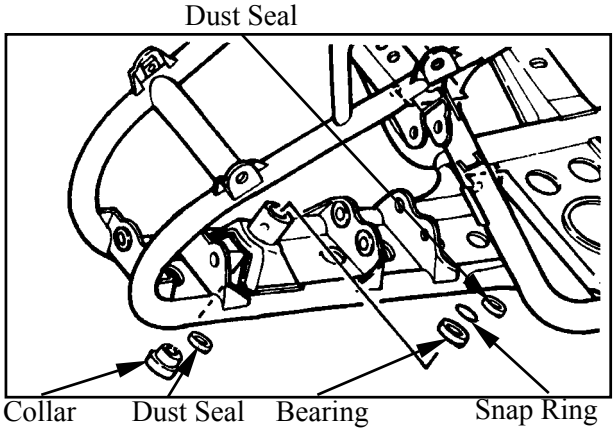


* After making adjustment on both tie rods be sure to mark them R and L for identification.

* The threads on both rod-end must be of the same length.



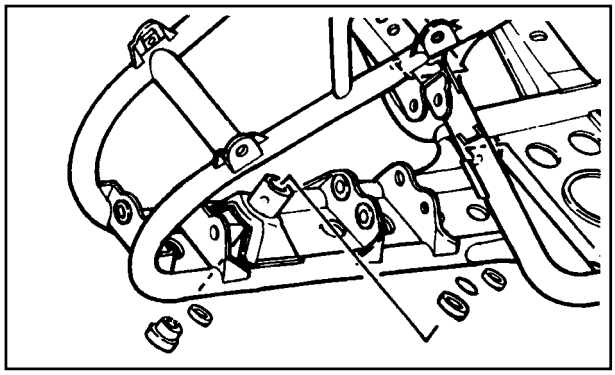
Inspect the collar, duty seal, snap ring and bearing.
Replace if wear or damage.



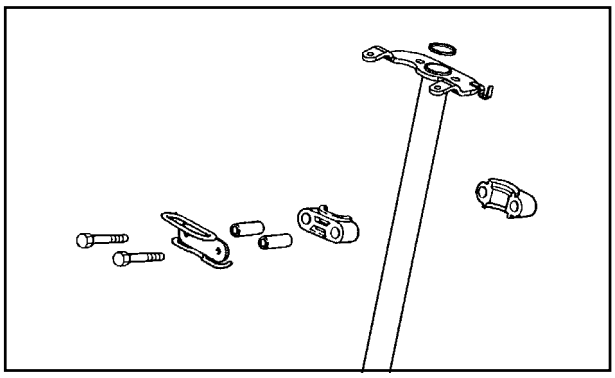
INSTALLATION

Reverse the "REMOVAL" procedures.

* Apply the grease onto the collar, duty seal, and bearing.

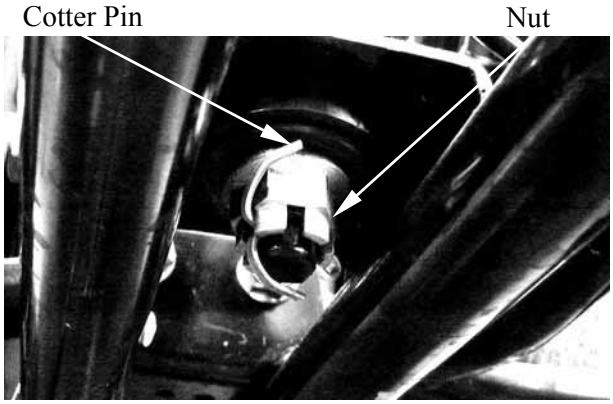


Assembly the steering column and tighten the two bolts.
Torque: 2.2 kgf-m (22 N-m, 15.8 lbf-ft)
Band the lock washer tabs.



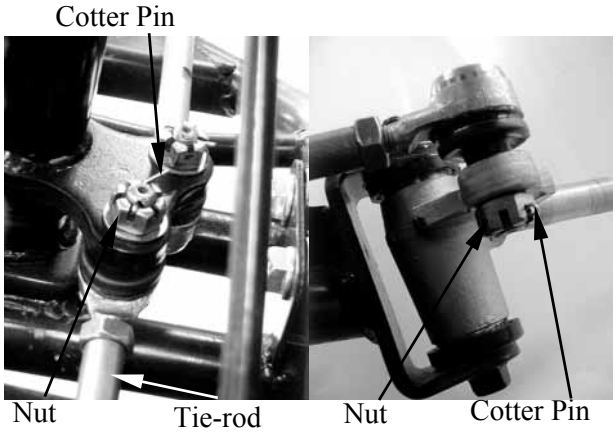
Install the steering column and collar, then tighten the nut.
Torque: 7 kgf-m (70 N-m, 50 lbf-ft)
Install the cotter pin and band ends of cotter pin.

* Always use a new cotter pin.

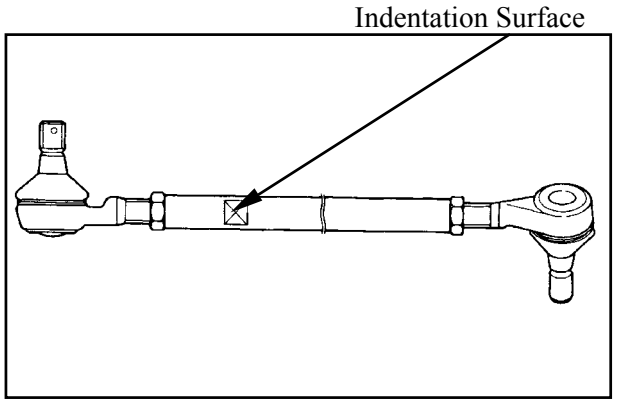


Install the tie rods and tighten the nut.
Torque: 4.5 kgf-m (45 N-m, 32 lbf-ft)
Install the cotter pin and band ends of cotter pin.

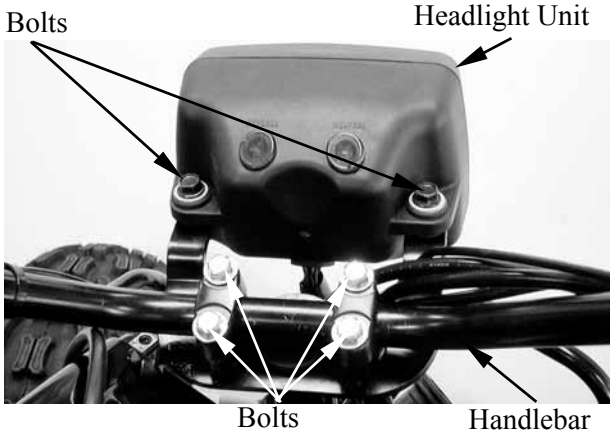
* Always use a new cotter pin.



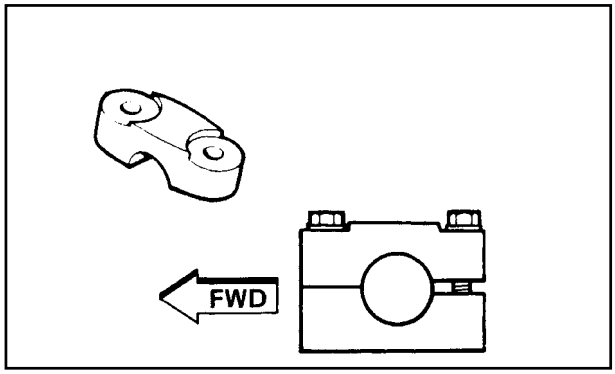
* Be sure that the rod-end on the indentation surface side is connected to the steering column.



Install handlebar and handlebar holder, then tighten the four bolts.
Torque: 2.2 kgf-m (22 N-m, 15.8 lbf-ft)



* • Be sure the upper handlebar holder mark face to front.
  • Fist tighten the bolts on the front side of the handlebar holder, and then tighten the bolts on the rear side.



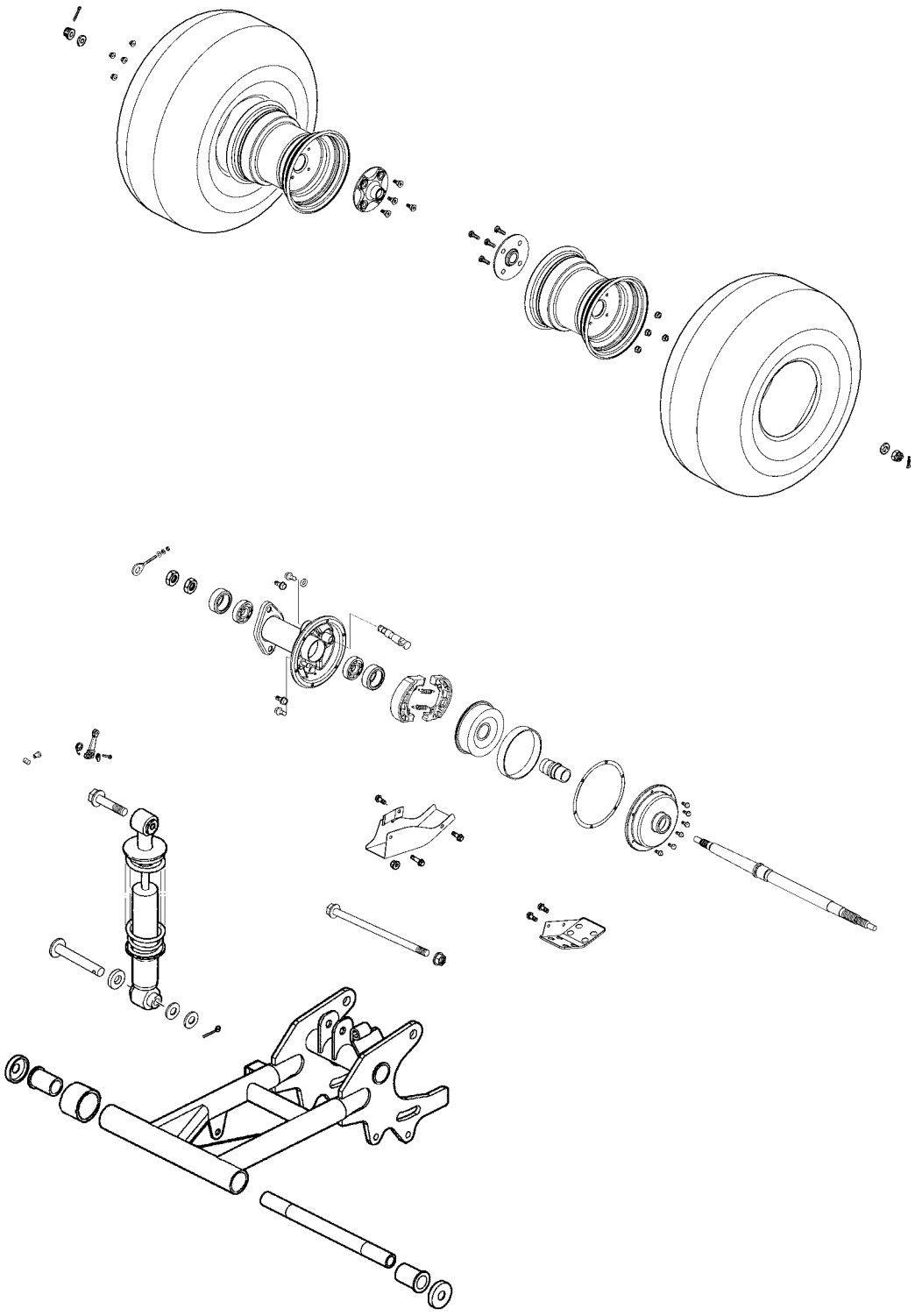
Apply the grease onto the end of the throttle cable and end of the brake cable.

Refer to the “TOE-IN ADJUSTMENT” section in the CHAPTER 3 to adjust toe-in.

Refer to the “FRONT BRAKE ADJUSTMENT” section in the CHAPTER 3 to adjust front brake.

Refer to the “REAR BRAKE ADJUSTMENT” section in the CHAPTER 3 to adjust rear brake.

REAR WHEEL/SWING ARM/ HYDRAULIC BRAKE



SERVICE INFORMATION

GENERAL INSTRUCTIONS

- During servicing, keep oil or grease off the brake drum and brake linings.
- Drain the brake fluid from the hydraulic brake system before disassembly.
- Contaminated brake disk or brake pads reduce stopping power. Clean the contaminated brake disk with high-performance brake degreaser and replace the brake pads.
- Do not use brake fluid for cleaning.
- Bleed air from the brake system if the brake system is removed or the brake is soft.
- Do not allow any foreign matters entering the brake reservoir when filling the brake reservoir with brake fluid.
- Brake fluid will damage painted, coated surfaces and plastic parts. When working with brake fluid, use shop towels to cover and protect painted, rubber and plastic parts. Wipe off any splash of brake fluid with a clean towel. Do not wipe the motorcycle with a towel contaminated by brake fluid.
- Make sure to use recommended brake fluid. Use of other unspecified brake fluids may cause brake failure.
- Inspect the brake operation before riding.

SPECIFICATIONS

mm (in)

Item			Standard	Service Limit
Rear wheel	Rim run out	Radial	—	2 (0.08)
		Axial	—	2 (0.08)
	Rear brake drum I.D		130 (5.2)	131 (5.24)
Rear brake lining thickness			4.5 (0.18)	2 (0.08)

mm (in)

Item	Standard Limit	Service Limit
Brake disk thickness	3.7 (0.148)	3 (0.03)
Brake disk runout	0.15 (0.006)	0.3 (0.003)
Brake master cylinder I.D.	12.7 (0.508)～12.743 (0.5097)	12.75 (0.51)
Brake master cylinder piston	12.657 (0.5063)～12.684 (0.5074)	12.64 (0.5056)
Brake caliper piston I.D.	33.95 (1.358)～33.99 (1.3596)	34.05 (1.362)
Brake caliper cylinder O.D.	33.88 (1.3552)～33.92 (1.3568)	33.85 (1.354)

TORQUE VALUES

Rear wheel nut	4.5 kgf-m (45 N-m, 32 lbf-ft)
Rear shock absorber upper/lower mount bolt	4 kgf-m (40 N-m, 29 lbf-ft)
Rear swing arm axle	7 kgf-m (70 N-m, 50 lbf-ft)
Rear wheel hub nut	7 kgf-m (70 N-m, 50 lbf-ft)
Rear wheel shaft nut	12 kgf-m (120 N-m, 86 lbf-ft)
Brake arm bolt	2.2 kgf-m (22 N-m, 16 lbf-ft)
Caliper holder bolt	2.7 kgf-m (27 N-m, 19 lbf-ft)
Brake fluid tube bolt	3 kgf-m (30 N-m, 22 lbf-ft)
Caliper bleed valve	0.6 kgf-m (6 N-m, 4 lbf-ft)
Master cylinder bolt	1.2 kgf-m (12 N-m, 9 lbf-ft)

SPECIAL TOOLS
Nut wrench A120F00010

TROUBLESHOOTING

Rear wheel wobbling
- Bent rim
- Faulty tire
- Axle not tightened properly

Soft rear shock absorber
- Weak shock absorber spring
- Faulty damper

Loose brake lever
- Air in hydraulic brake system
- Brake fluid level too low
- Hydraulic brake system leakage

Hard braking
- Seized hydraulic brake system
- Seized piston

Brake noise
- Contaminated brake pad surface
- Excessive brake disk run out
- Incorrectly installed caliper
- Brake disk or wheel not aligned

Poor brake performance (Disk Brake)
- Air in brake system
- Deteriorated brake fluid
- Contaminated brake pads and brake disk
- Worn brake pads
- Worn brake master cylinder piston oil seal
- Clogged brake fluid line
- Deformed brake disk
- Unevenly worn brake caliper

Poor brake performance
- Brake not adjusted properly
- Worn brake linings
- Worn brake shoes at cam contacting area
- Worn brake cam
- Worn brake drum

Tight brake lever
- Seized piston
- Clogged hydraulic brake system
- Smooth or worn brake pad

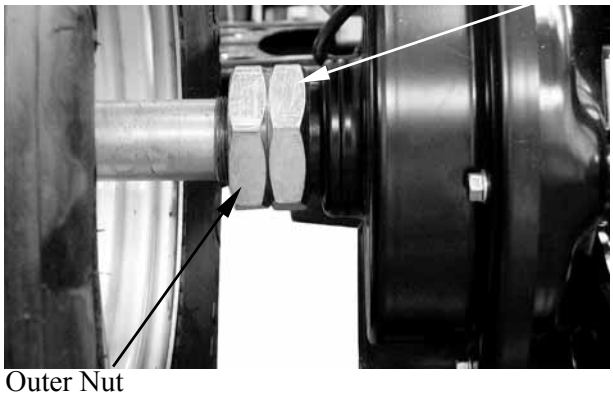
Poor brake performance
Contaminated brake pad surface

REAR WHEEL

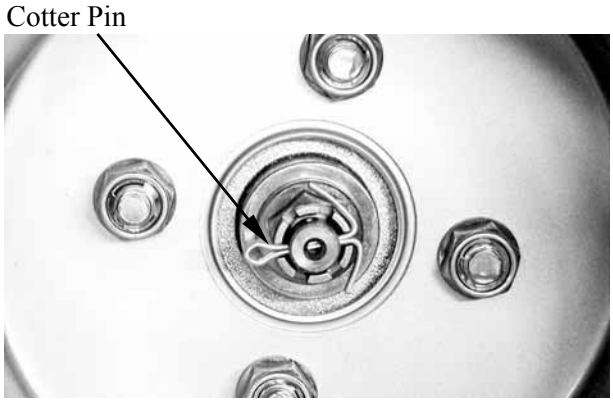
REMOVAL

Place the machine on a level place.
Use the nut wrench to loosen two nuts (inner and outer) of the rear axle.

Special tool
Nut wrench A120F00010

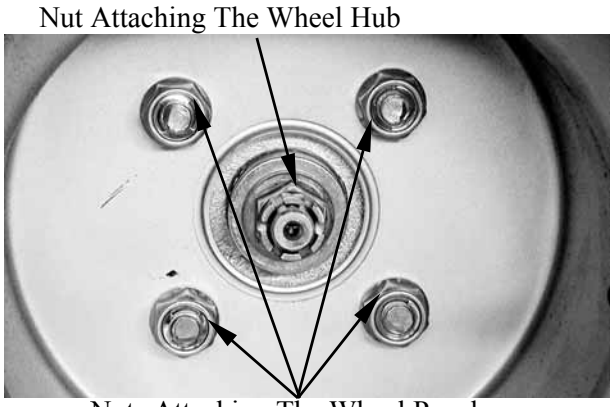


Remove the cotter pin.



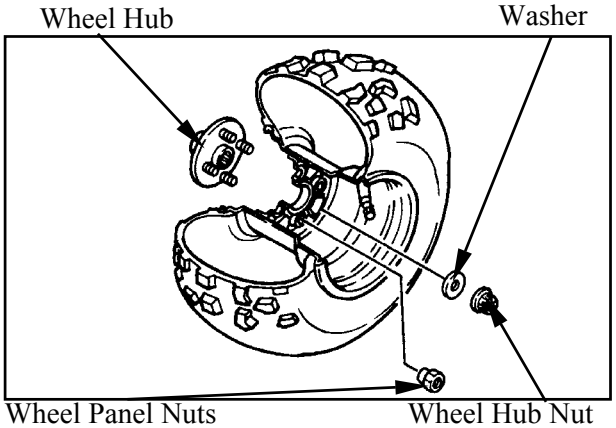
Remove four nuts attaching the wheel panel of the both rear wheels.
Loosen nut attaching the wheel hub of the both rear wheels.

* Elevate the rear wheels by placing a suitable stand under the rear of frame. Support the machine securely so there is no danger of it falling over.



Remove

Remove four nuts attaching the wheel panel and rear wheel.
Remove nut attaching the wheel hub and washer.
Remove the wheel hub.



Inspection

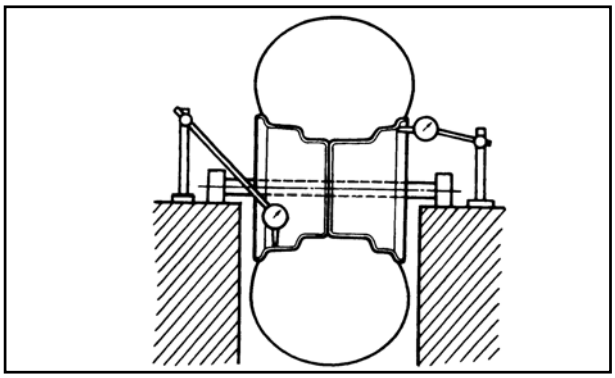
Measure the wheel runout.

Service Limit:

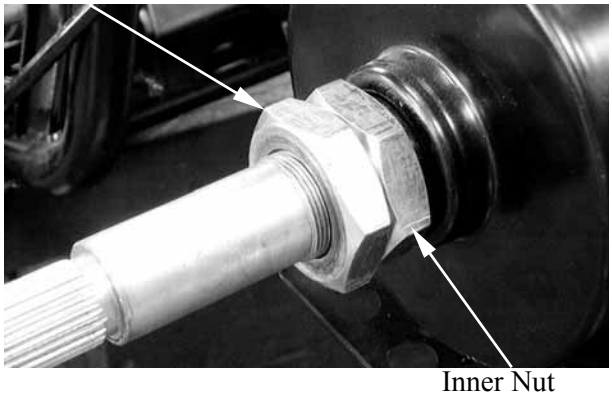
Vertical: 2 mm (0.08 in)

Lateral: 2 mm (0.08 in)

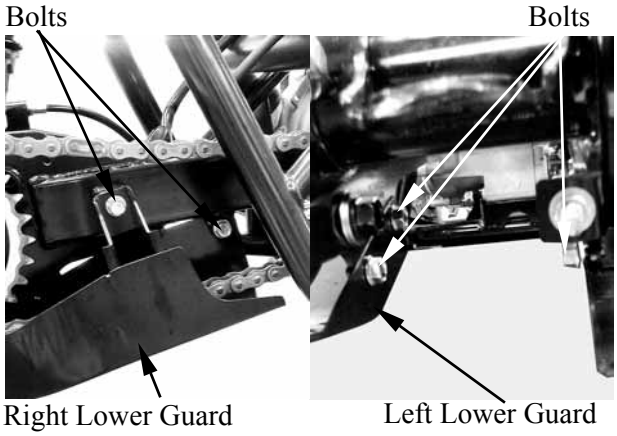
Replace wheel or check bearing play if out of specification.



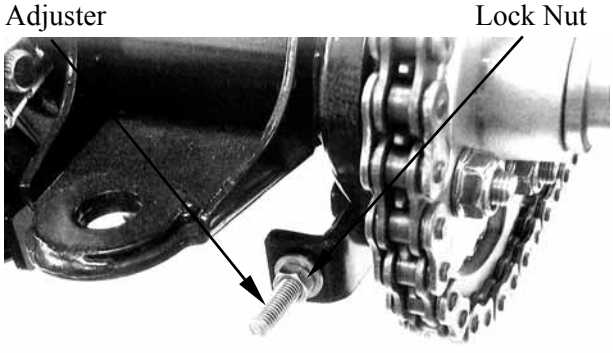
Remove two nuts of the rear axle (outer and inner).



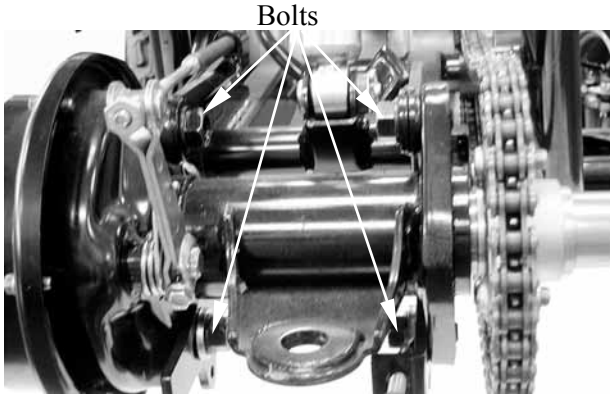
Remove five bolts attaching left and right lower guard.



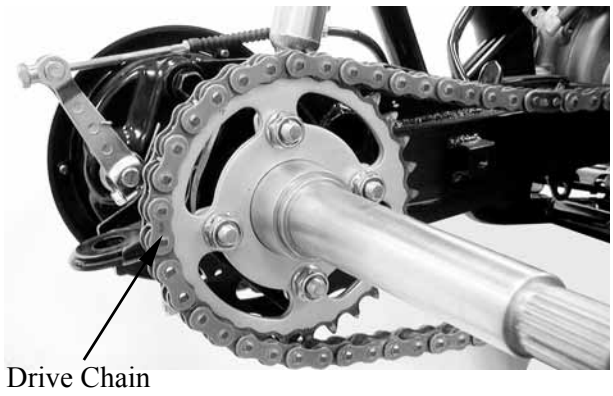
Loosen the lock nut for the adjuster of the drive chain slack.



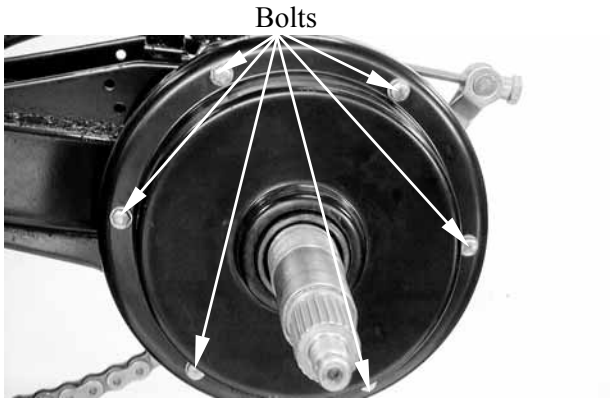
Loosen four bolts attaching rear axle hub.



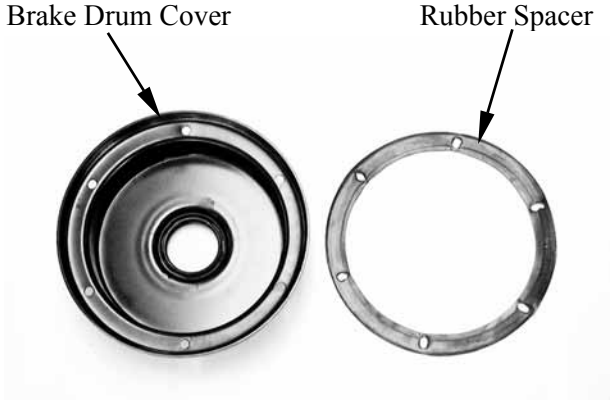
Remove the drive chain from driven sprocket.



Remove six bolts attaching brake drum cover.



Remove brake drum cover and rubber spacer.



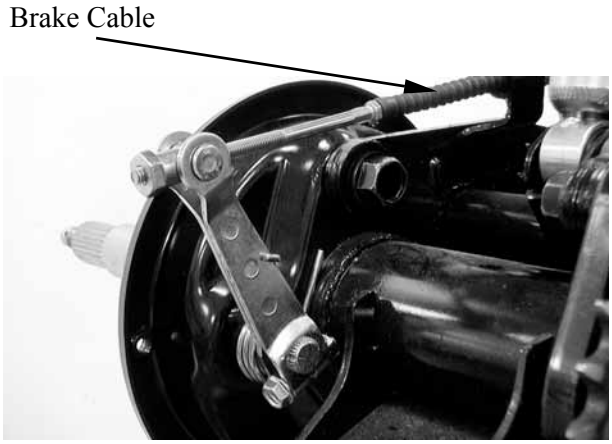
Inspection
Inspect the inner surface of the brake drum is scratches, polish brake drum lightly and evenly with emery cloth.

Measure the inside diameter of the brake drum.

Service limit: 131 mm (5.24 in)

Replace if it is out of specification.

Disconnect the rear brake cable from the camshaft lever.



Remove the brake shoes.

INSPECTION

Measure lining thickness of the brake shoes.

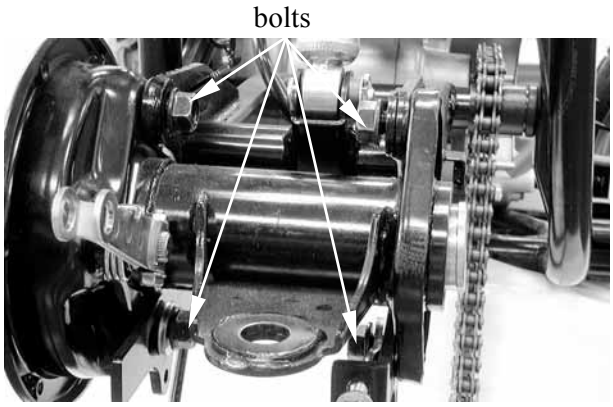
Service limit: 2 mm (0.08 in)

Replace if it is out of specification.

Remove the rear axle from left side.

* Tap the axle and with a rubber hammer, this will avoid damage the axle thread.

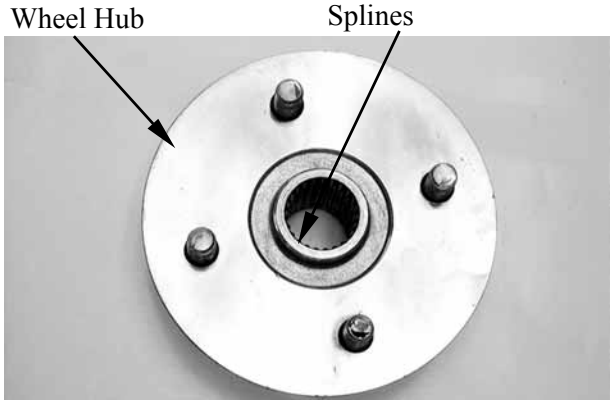
Remove four bolts and the rear axle hub.



INSPECTION

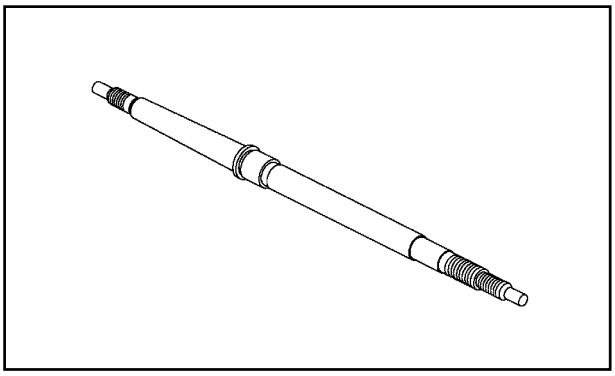
Replace if the wheel hub is cracks or damage.

Replace if splines of the wheel hub is wear or damage.



Replace if the rear axle is scratched (excessively) or damage.

Replace if splines and threads of the rear axle is wear or damage.

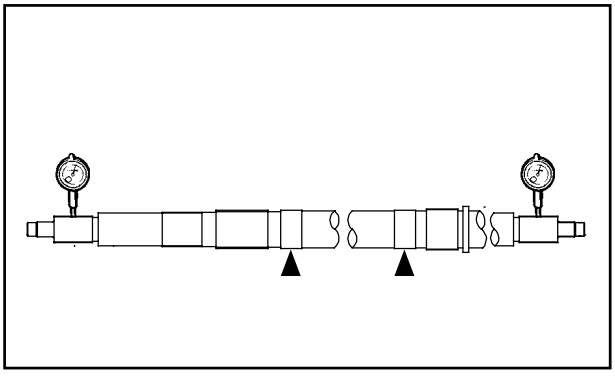


Measure the rear axle run out.

Service limit: less than 1.5 mm (0.06 in)

Replace if it is out of specification.

* Do not attempt to straighten a bent axle.



DRIVE CHAIN INSPECTION

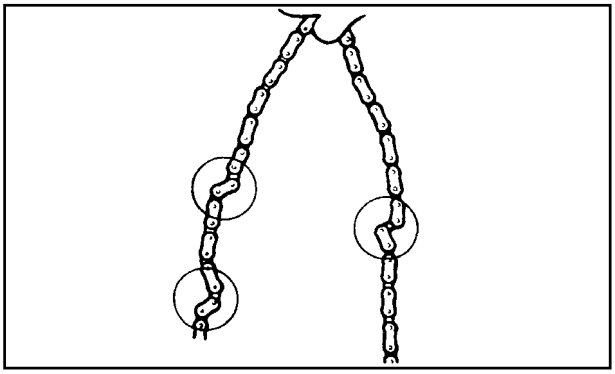
Remove rear wheels, rear hub (with rear axle) and swing arm.

Refer to the "REAR WHEEL — REMOVAL" and "SWING ARM REMOVAL" section.

Remove right foot board.

Remove the drive sprocket.

Remove the drive chain.

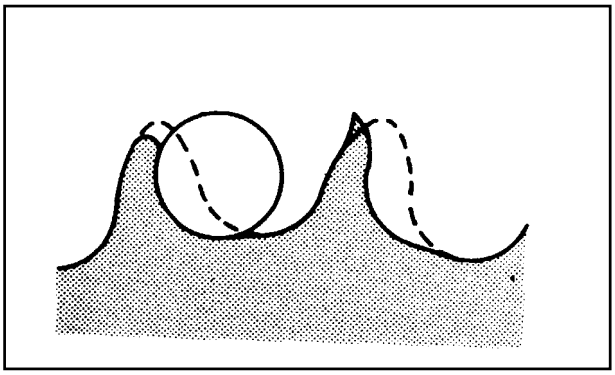


Inspect the drive chain stiffness.

Clean and lubricate or replace if stiff.

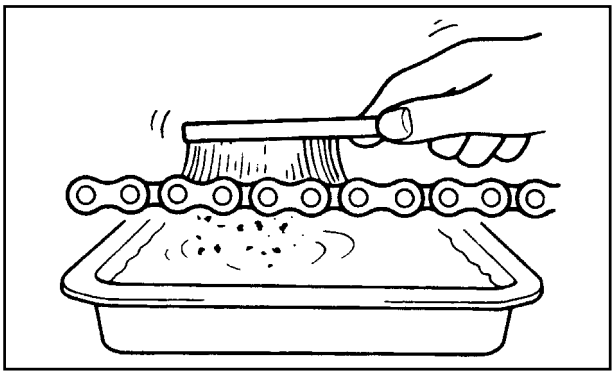
Inspect the drive sprocket and the driven sprocket.

Replace sprocket if more than 1/4 teeth wear or bent teeth.



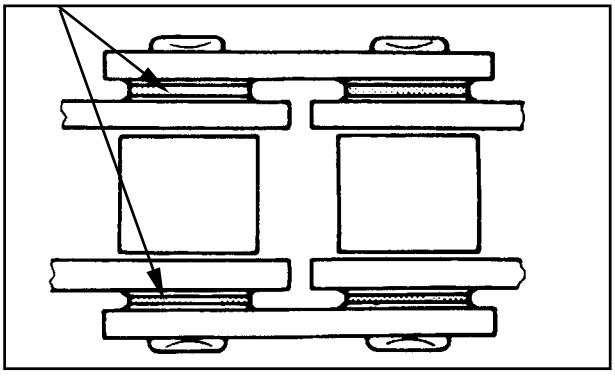
CLEAN

Place it in kerosene, and brush off as much dirt as possible. Then remove the chain from the kerosene and dry the chain.



* This machine has a drive chain with small rubber O-rings between the chain plates. Steam cleaning, high-pressure washes, and certain solvent can damage these O-rings. Use only kerosene to clean the drive chain.

O-ring



Inspect rear axle hub.

Replace if bearings allow play in the axle hub or the bearing turns roughly.

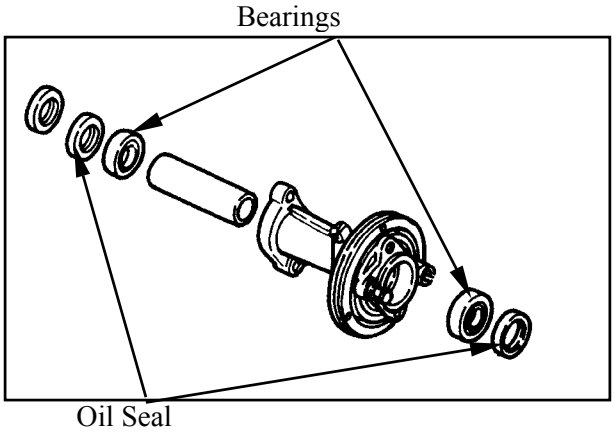
Replace if oil seals is wear or damage.

Replace if rear axle hub is cracks, bend or damage.

Bearing and oil seal replacement steps:

Clean the outside of the rear axle.

Remove the oil seal by a flat-head screw driver.



* Place a wood block against the outer edge to protect this edge.

Remove the bearing by a general bearing puller.

Install the new bearings and oils seal by reversing the previous steps.

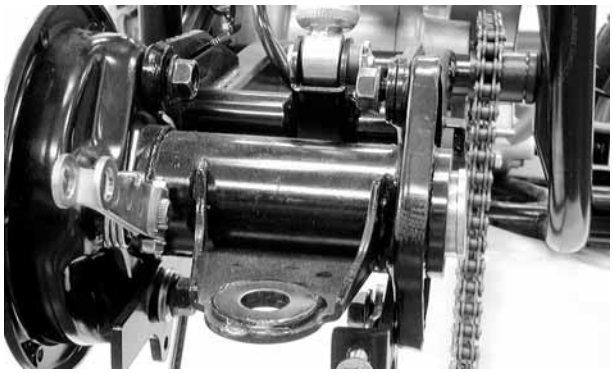
* Do not strike the center race or balls of the bearing.
  Contact should be made only with the outer race.

INSTALLATION

Reverse the "REMOVAL" procedures.

* Apply grease onto the oil seal lips, bearings and bushes.

Install the rear axle hub.

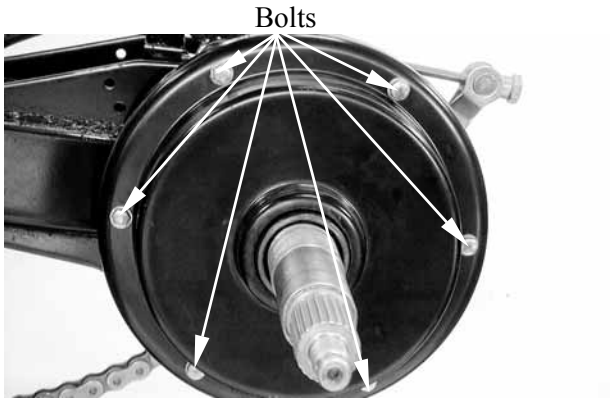


* At this time, the rear axle hub should not be tightened completely.
  Final tightening is done after the chain slack adjustment.

Install the rear axle.

* Tap the axle and with a rubber hammer, this will avoid damage the axle thread.

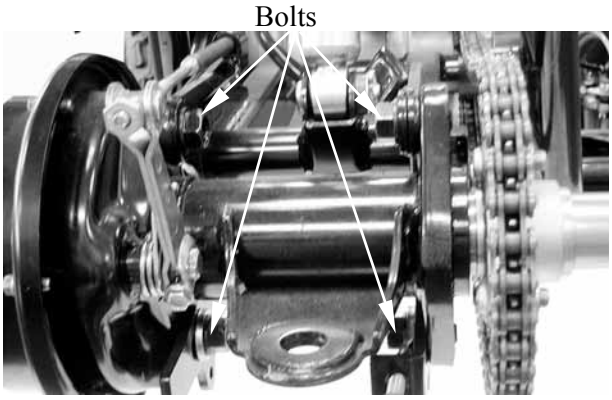
Install the brake drum.
Install the rubber spacer and brake drum cover.
Torque: 1 kgf-m (10 N-m, 7.2 lbf-ft)



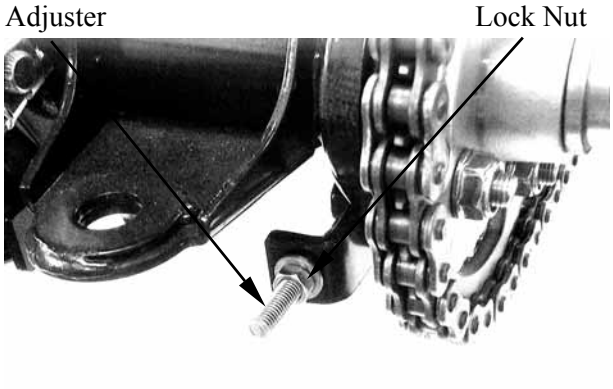
Adjust drive chain slack (see chapter 3).

Drive chain slack: 10-20 mm (0.4 – 0.8 in)

Tighten the bolts.
Torque: 7 kgf-m (70 N-m, 50 lbf-ft)
Torque: 7 kgf-m (70 N-m, 50 lbf-ft)



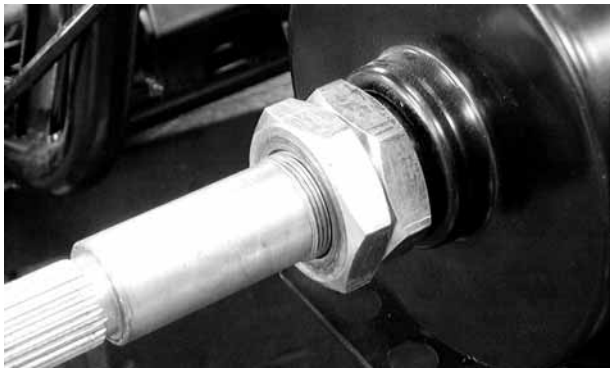
Tighten the lock nut.
Torque: 2.2 kgf-m (22 N-m, 16 lbf-ft)



Tighten the two nuts with the nut wrench.

Special tool
Nut wrench A120F00010

Torque: 12 kgf-m (120 N-m, 86 lbf-ft)

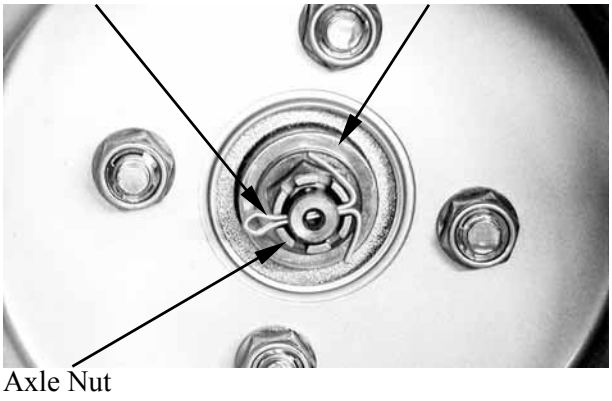


Install wheel hub, plate washer and nut (wheel hub).

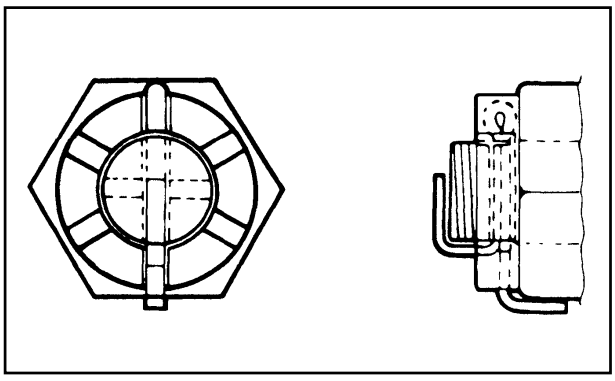
Torque: 7 kgf-m (70 N-m, 50 lbf-ft)

Install cotter pins.

* Always use a new cotter pin.



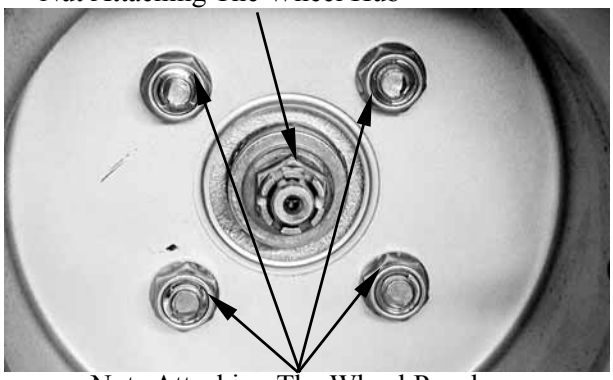
* Do not loosen the axle nut after torque tightening. If the axle nut groove id not aligned with the cotter pin hole, align groove with the hole by tightening ut on the axle nut.



Install the rear wheel and tighten the nuts (wheel).

Torque: 4.5 kgf-m (45 N-m, 32 lbf-ft)

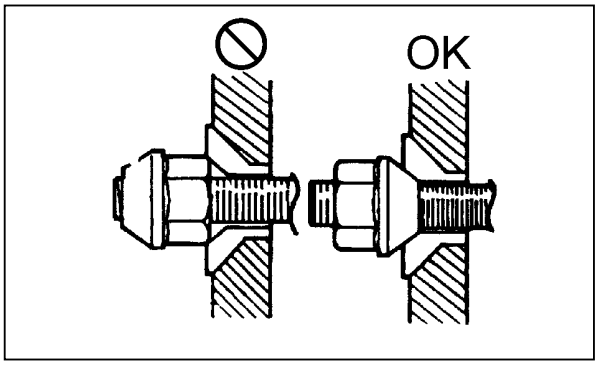
Nut Attaching The Wheel Hub



Nuts Attaching The Wheel Panel

* Tapered wheel nuts are used for rear wheels.
Install the nuts with its tapered side towards the wheel.

* MXU 50 REVERSE/MXU 50:
  - Tapered wheel nuts are used for front wheels.
  - Install the nuts with its tapered side towards the wheel.



SWING ARM

Place the machine on a level place.

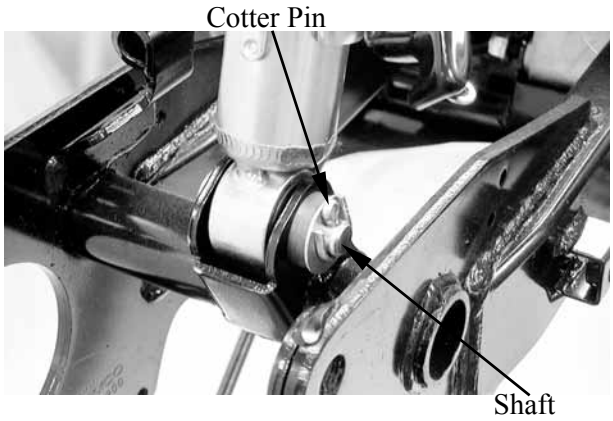
Elevate the rear wheels by placing a suitable stand under the rear of frame.

* Support the machine securely so there is no danger of it falling over.

Remove the rear wheels, rear hub with rear axle.

Refer to the "REAR WHEEL — REMOVAL" section

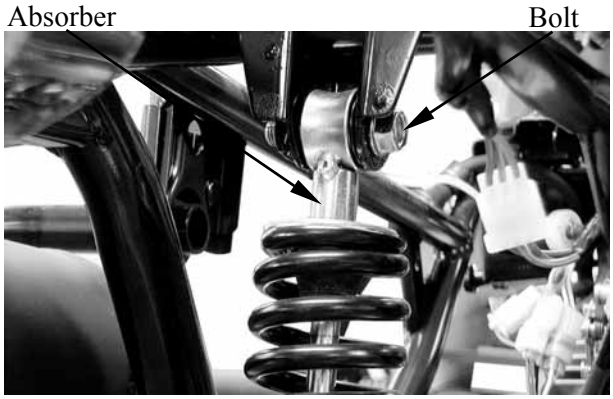
Remove the cotter pin, washer and shaft (MX'ER 50).



Remove the lower mounting bolt/nut (MXU 50 REVERSE/MXU 50).

* When removing the lower shaft, hold the swing arm so that it does not drop downwards when the shaft id removed.

Remove the upper mounting bolt/nut, then remove the shock absorber.

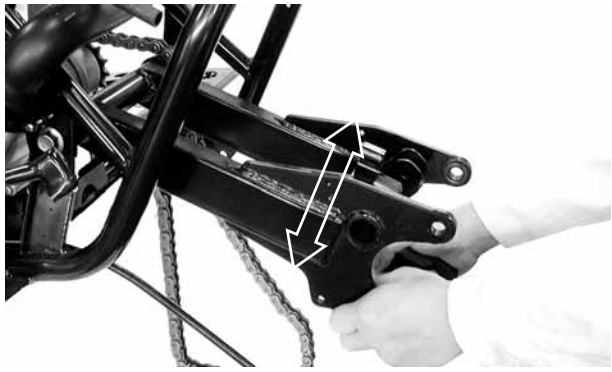


Check the tightening torque of the pivot shaft (swingarm) securing nut.

Torque: 7 kgf-m (70 N-m, 50 lbf-ft)

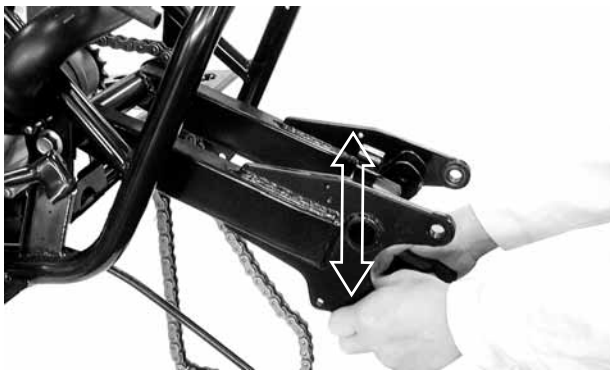
Check the swing arm side play by moving it from side to side.

If side play noticeable, check the inner collar, bearing, bushing and thrust cover, or adjust the shim.



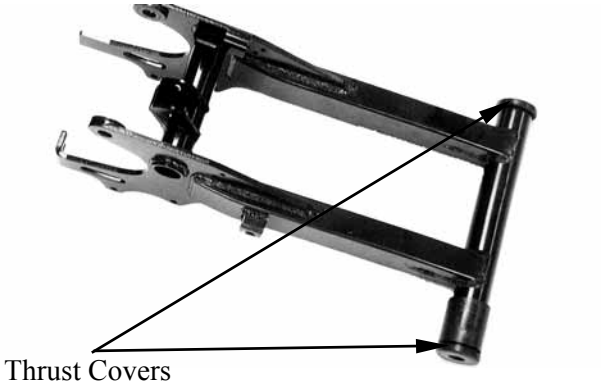
Check the swing arm vertical movement by moving it up and down.

If vertical movement is tight, binding or rough, check the inner collar, bearing, bushing and thrust cover, or adjust the shim.



Remove the nut and pivot shaft, then remove swing arm.

Remove the thrust covers.



INSPECTION

Inspect the shock absorber rod.

Replace the shock absorber assembly if bends or damage.

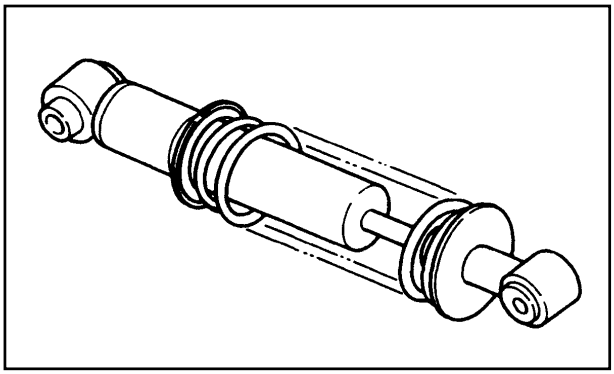
Inspect the shock absorber.

Replace the shock absorber assembly if oil leaks

Inspect the spring.

Replace the shock absorber assembly if fatigue.

Move the spring up and down.



Inspect the swing arm.

Replace if crack, bend or damage.

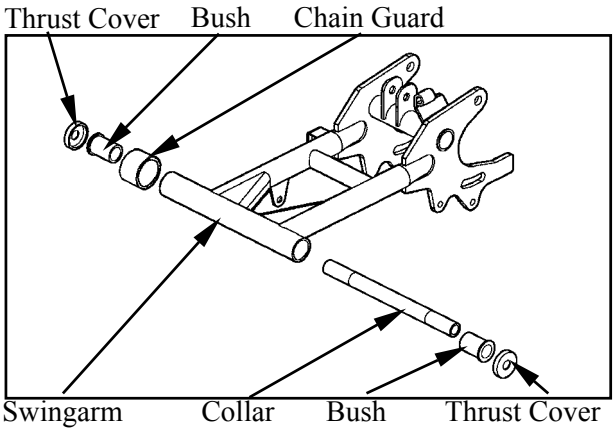
Roll the axle on a flat surface to inspect the pivot shaft.

Replace if bends.

* Do not attempt to straighten a bent axle.

Inspect the thrust cover, chain guard, collar and bush.

Replace if wear or damage.



INSTALLATION

Reverse the "REMOVAL" procedure.

Apply grease onto the collar, bush, pivot shaft and thrust cover.

Install the swing arm and tightening the nut.

Torque: 7 kgf-m (70 N-m, 50 lbf-ft)

Pivot Shaft

Install the shock absorber and tightening the upper mounting bolt/nut.

Torque: 4 kgf-m (40 N-m, 29 lbf-ft)

Install the shaft, washer and cotter pin (MX'ER 50).

* Always use a new cotter pin.

Install the lower mounting bolt/nut to specified torque (MXU 50 REVERSE/MXU 50).

Torque: 4 kgf-m (40 N-m, 29 lbf-ft)

Install the rear hub and rear wheels.

Refer to the "REAR WHEEL INSTALLATION" section.

Adjust the drive chain slack.

Refer to the "DRIVE CHAIN SLACK ADJUSTMENT" section in the CHAPTER 3.

Drive chain slack: 10-20 mm (0.4 – 0.8 in)

HYDRAULIC BRAKE

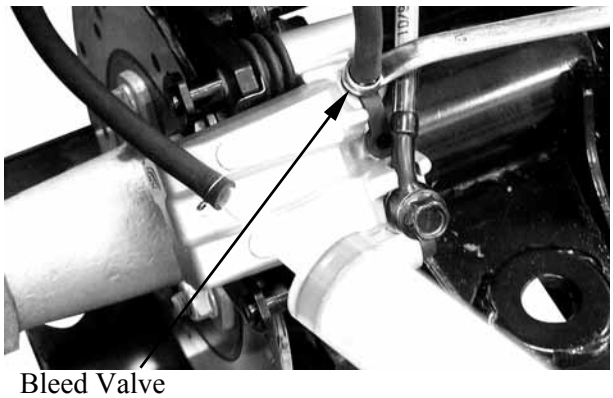
BRAKE FLUID CHANGE/AIR BLEED

Place the motorcycle on its main stand on level ground and set the handlebar upright.
Remove the two screws attaching the brake fluid reservoir cap.

✳ Use shop towels to cover plastic parts and coated surfaces to avoid damage caused by splash of brake fluid.

Screws

Connect a transparent hose to the brake caliper bleed valve and then loosen the bleed valve nut.
Use a syringe to draw the brake fluid out through the hose.

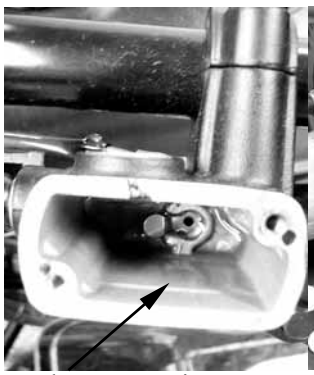


Bleed Valve

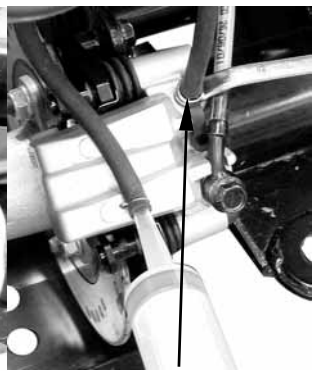
Brake fluid refilling

Connect a transparent hose and syringe to the brake caliper bleed valve and then loosen the bleed valve nut.
Fill the brake reservoir with brake fluid and use the syringe to draw brake fluid into it until there is no air bubbles in the hose.
Then, tighten the bleed valve nut.

Torque: 0.6 kgf-m (6 N-m, 4.3 lbf-ft)



Brake Reservoir



Bleed Valve

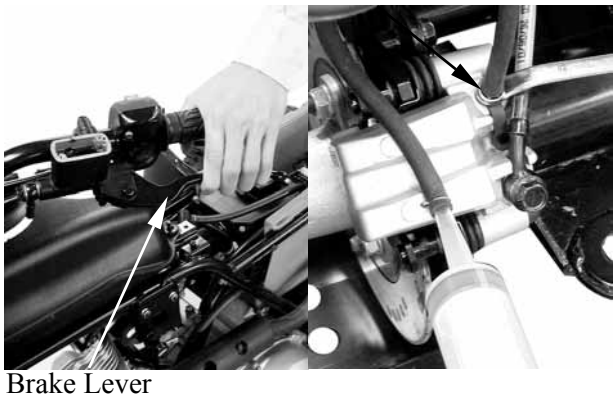
✳
- When drawing brake fluid with the syringe, the brake fluid level should be kept over 1/2 of the brake reservoir height.
- Use only the recommended brake fluid.

Recommended Brake Fluid: DOT-4

Brake system bleeding

Connect a transparent hose to the bleed valve and fully apply the brake lever after continuously pull it several times. Then, loosen the bleed valve nut to bleed air from the brake system. Repeat these steps until the brake system is free of air.

✳ When bleeding air from the brake system, the brake fluid level should be kept over 1/2 of the brake reservoir height.

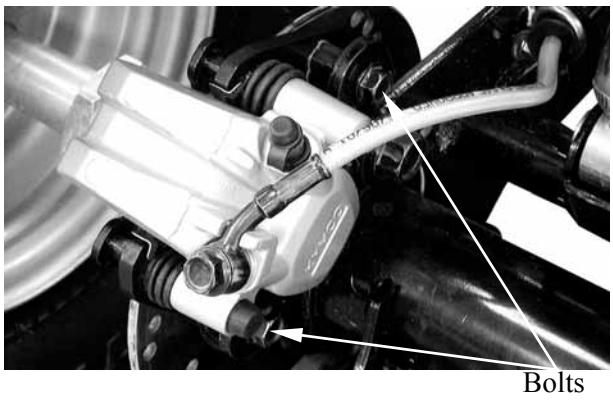


BRAKE PAD/DISK

Brake pad replacement

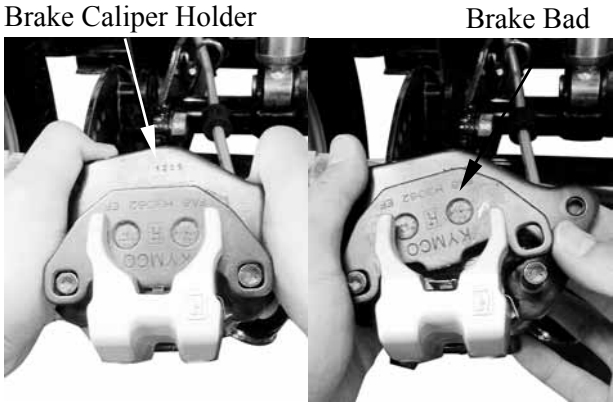
Remove the two bolts attaching the brake caliper holder.

✳ The brake pads can be replaced without removing the brake fluid tube.

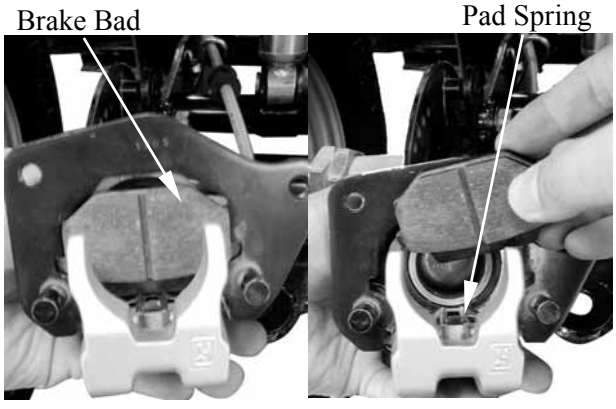


Remove the brake caliper.

Push the brake caliper holder and then remove brake pad.



Remove the other brake pad and pad springs.



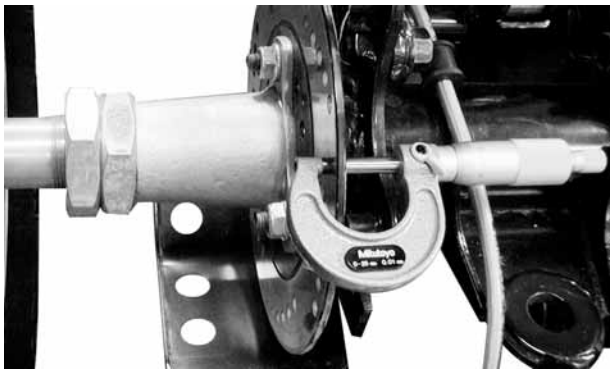
Assembly

Assemble the brake pads in the reverse order of removal.

Brake disk

Measure the brake disk thickness.
Service Limit: 3 mm (0.12 in)

Measure the brake disk run out.
Service Limit: 0.3 mm (0.012 in)



BRAKE MASTER CYLINDER

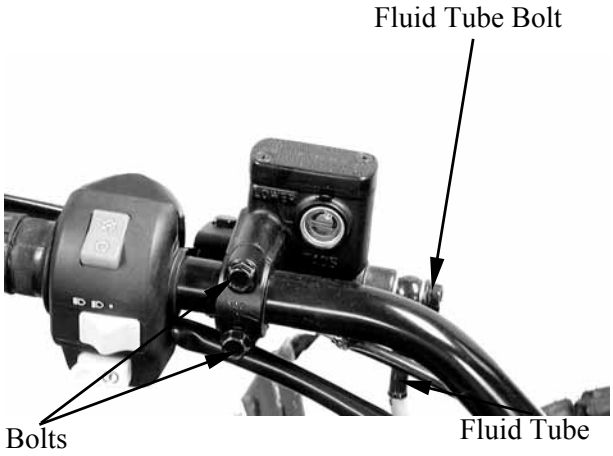
Removal

Drain the brake fluid from the hydraulic brake system.

✳ Do not splash brake fluid onto any rubber, plastic and coated parts. When working with brake fluid, use shop towels to cover these parts.

Remove the two master cylinder holder bolts and remove the master cylinder.

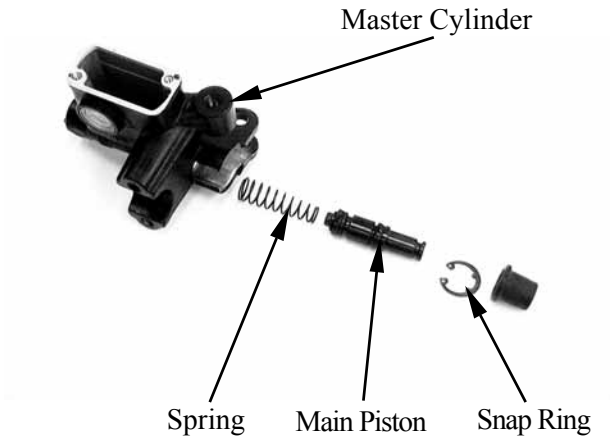
✳ When removing the brake fluid tube bolt, be sure to place towels under the tube and plug the tube end to avoid brake fluid leakage and contamination.



Disassembly

Remove the piston rubber cover and snap ring from the brake master cylinder.

Remove the washer, main piston and spring from the brake master cylinder.
Clean the inside of the master cylinder and brake reservoir with brake fluid.



Inspection

Measure the brake master cylinder I.D.
Inspect the master cylinder for scratches or cracks.

Service Limit:

12.75 mm (0.51 in) replace if over

Measure the brake master cylinder piston O.D.

Service Limit:

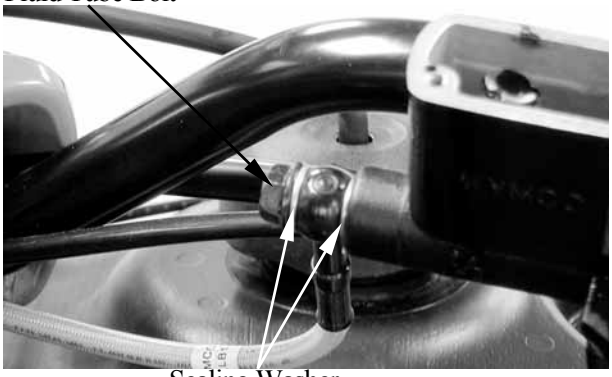
12.64 mm (0.5056 in)replace if below

Assembly

Before assembly, apply brake fluid to all removed parts.
Install the spring together with the 1st rubber cup.

- During assembly, the master cylinder, main piston and spring must be installed as a unit without exchange.
- When assembling the piston, soak the cups in brake fluid for a while.

Install the main piston and snap ring.
Install the rubber cover.
Install the brake lever.
Install the brake fluid tube with the bolt and two sealing washers. Then, install the rearview mirror.
Fill the brake reservoir with recommended brake fluid to the upper level.
Bleed air from the hydraulic brake system. (Refer to 14-18.)



Place the brake master cylinder on the handlebar and install the master cylinder holder with the “UP” mark facing up, aligning the tab on the holder with the hole in the handlebar.
First tighten the upper bolt and then tighten the lower bolt.

Torque: 1.2 kgf-m (12 N-m, 8.6 lbf-ft)

BRAKE CALIPER

Removal

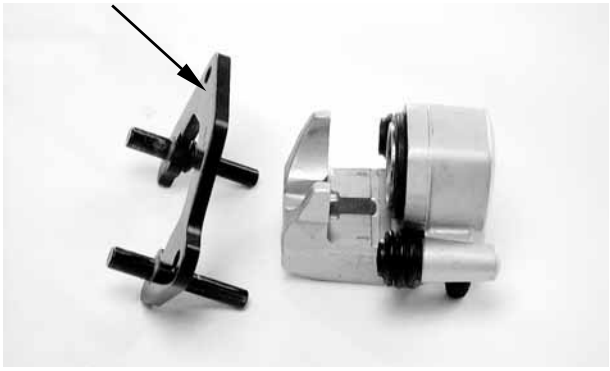
Remove the brake caliper, brake pads and pad spring.
Place a clean container under the brake caliper and disconnect the brake fluid tube from the brake caliper.

✳ Be careful not to splash brake fluid on any coated surfaces.

Disassembly

Remove the brake caliper holder from the brake caliper.

Brake Caliper Holder



Remove the pistons from the brake caliper. Use compressed air to press out the pistons through the brake fluid inlet opening and place a shop towel under the caliper to avoid contamination caused by the removed pistons.

Push the piston oil seals inward to remove them.
Clean each oil seal groove with brake fluid.

✳ Be careful not to damage the piston surface.

Piston Oil Seals

Inspection

Check the piston for scratches or wear.
Measure the piston O.D. with a micrometer gauge.

Service limit:

33.85 mm (1.354 in) replace if below

Check the caliper cylinder for scratches or wear and measure the caliper cylinder I.D.

Service limit:

34.05 mm (1.362 in) replace if over

Assembly

Clean all removed parts.
Apply silicon grease to the pistons and oil seals. Lubricate the brake caliper cylinder inside wall with brake fluid.
Install the oil seals and then install the brake caliper pistons with the grooved side facing out.

✳ Install the piston with its outer end protruding 3～5 mm (0.12～0.2 in) beyond the brake caliper.

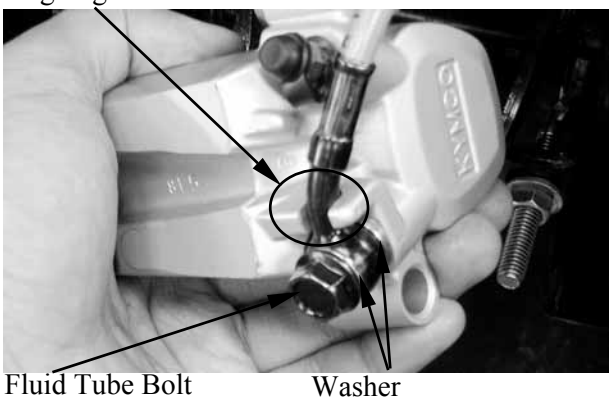
Wipe off excessive brake fluid with a clean shop towel. Apply silicon grease to the brake caliper holder pin and caliper inside.
Install the brake caliper holder.

Installation

Connect the brake fluid tube to the brake caliper, aligning the fluid tube with groove in the caliper and tighten the fluid tube bolt.

Torque: 3.2 kgf-m (32 N-m, 23 lbf-ft)

Aligning The Fluid Tube With Groove



Add the recommended brake fluid into the brake reservoir and bleed air from the brake system. (Refer to 14-18.)

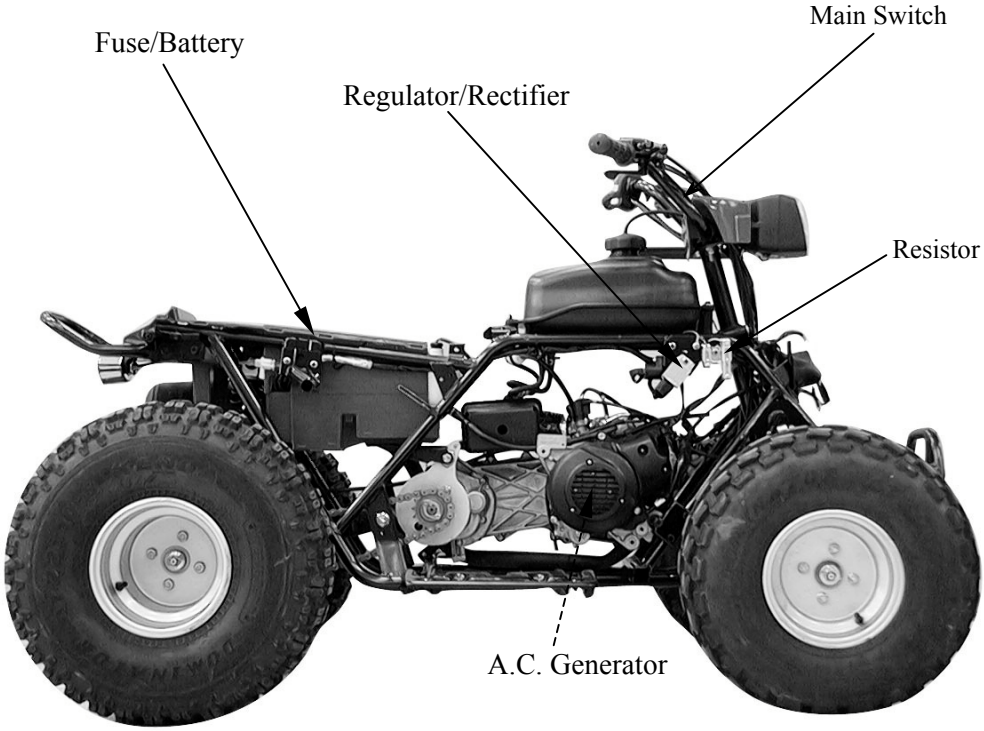
Install the brake caliper onto rear axle hub and tighten the bolts.

Torque: 2.7 kgf-m (27 N-m, 19 lbf-ft)

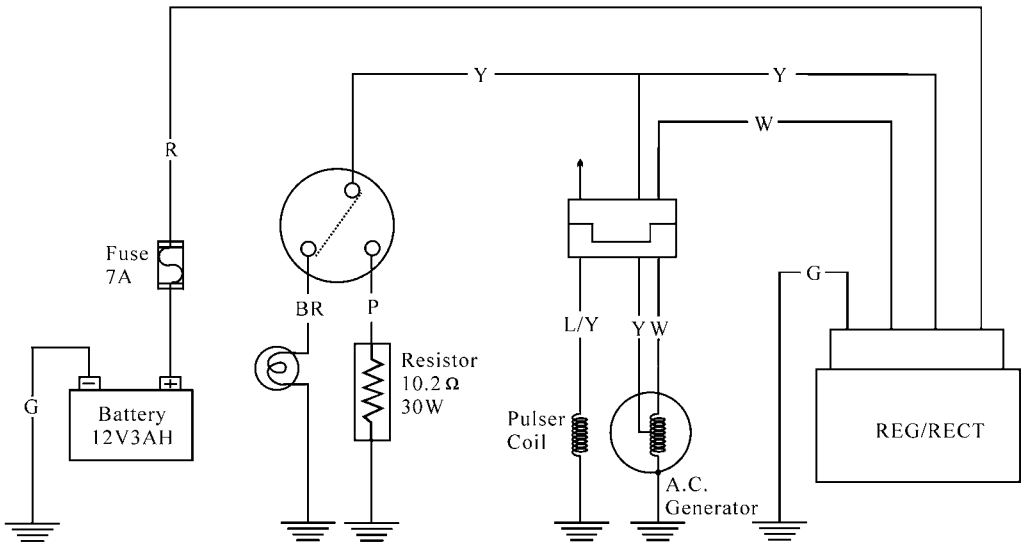
15

BATTER/CHARGING SYSTEM/ A.C. GENERATOR

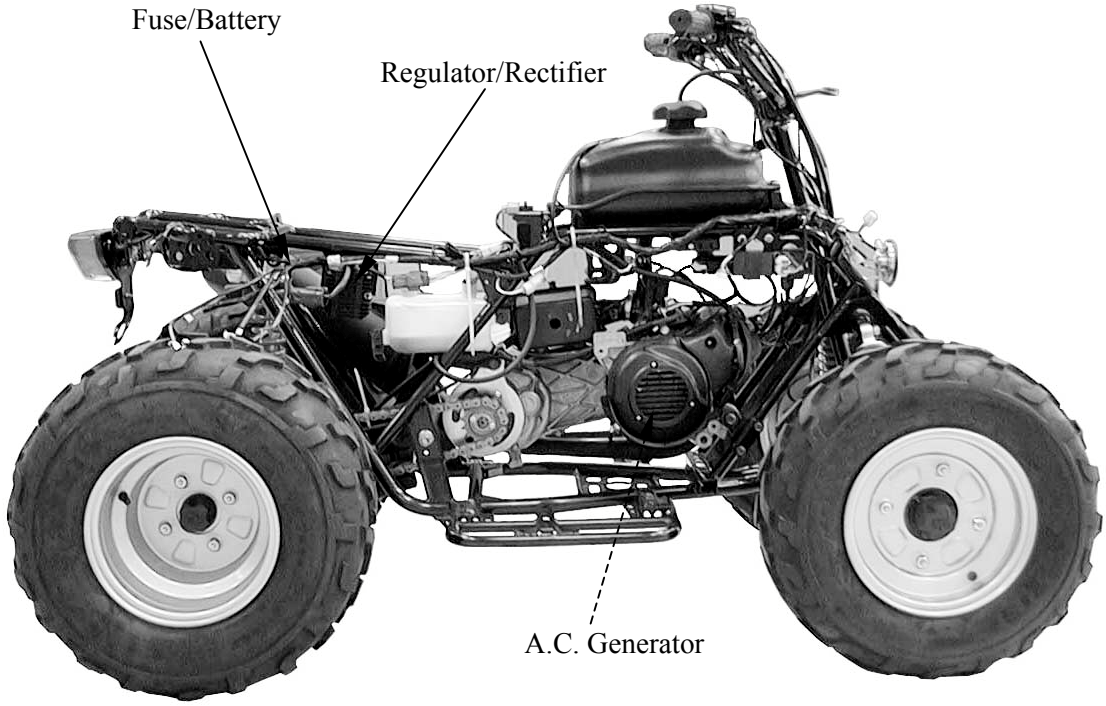
MX'ER 50



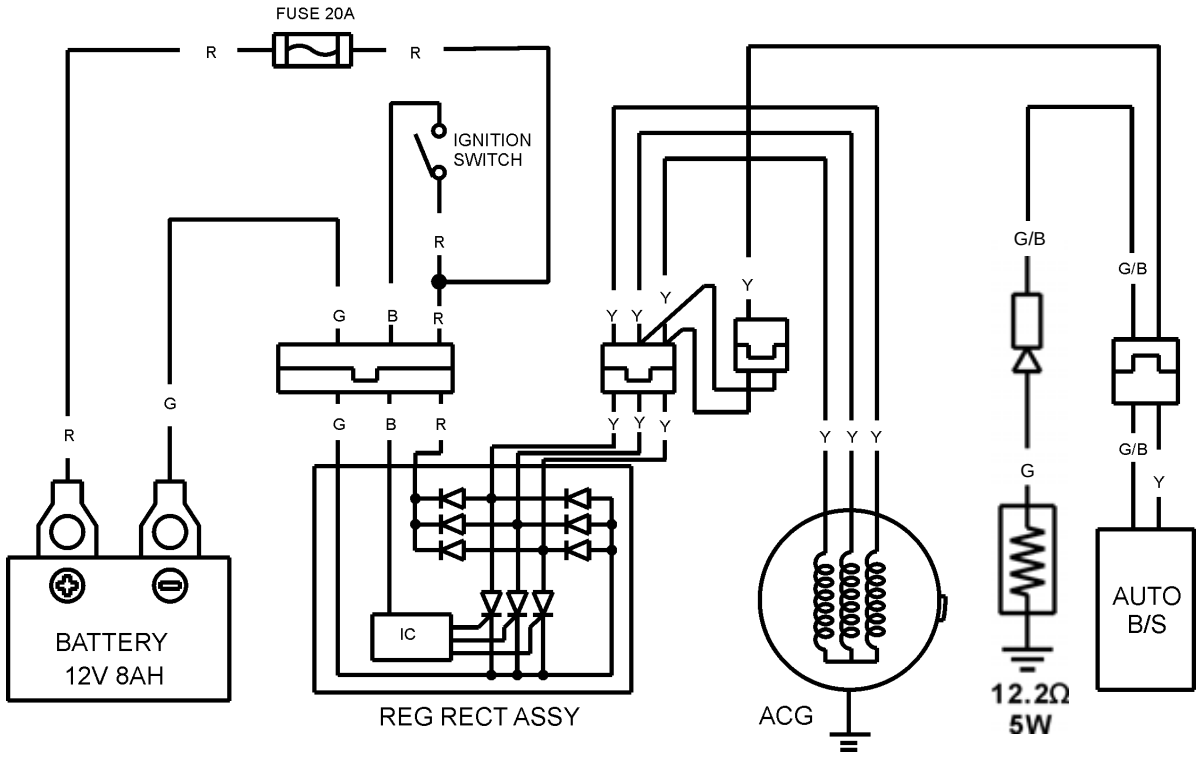
CHARGING CIRCUIT (MX'ER 50)



MXU 50 REVERSE/MXU 50



CHARGING CIRCUIT (MXU 50 REVERSE/MXU 50)



SERVICE INFORMATIONN

GENERAL INSTRUCTIONS

The battery electrolyte (sulfuric acid) is poisonous and may seriously damage the skin and eyes. Avoid contact with skin, eyes, or clothing. In case of contact, flush with water and get prompt medical attention

- The battery can be charged and discharged repeatedly. If a discharged battery is not used for a long time, its service life will be shortened. Generally, the capacity of a battery will decrease after it is used for 2～3 years. A capacity-decreased battery will resume its voltage after it is recharged but its voltage decreases suddenly and then increases when a load is added.
- When a battery is overcharged, some symptoms can be found. If there is a short circuit inside the battery, no voltage is produced on the battery terminals. If the rectifier won't operate, the voltage will become too high and shorten the battery service life.
- If a battery is not used for a long time, it will discharge by itself and should be recharged every 3 months.
- A new battery filled with electrolyte will generate voltage within a certain time and it should be recharged when the capacity is insufficient. Recharging a new battery will prolong its service life.
- Inspect the charging system according to the sequence specified in the Troubleshooting.
- Do not disconnect and soon reconnect the power of any electrical equipment because the electronic parts in the regulator/rectifier will be damaged. Turn off the ignition switch before operation.
- It is not necessary to check the MF battery electrolyte or fill with distilled water.
- Check the load of the whole charging system.
- Do not quick charge the battery. Quick charging should only be done in an emergency.
- Remove the battery from the motorcycle for charging.
- When replacing the battery, do not use a traditional battery.
- When charging, check the voltage with an voltmeter.

SPECIFICATIONS

Item			Standard
Battery	Capacity/Model	MX'ER 50	12V–4AH
		MXU 50 REVERSE/MXU 50	12V–8AH
	Voltage (20℃)	Fully charged	13.1V
		Undercharged	12.3V
	Charging current		STD: 0.4A Quick: 4A
	Charging time		STD: 5～10hr Quick: 30min
A.C. Generator	Capacity		150W
	Charging coil resistance (20℃)		0.2～1.5 Ω

TORQUE VALUES

Regulator/Rectifier lock nut	0.9 kgf-m (9 N-m, 6.5 lbf-ft)

TESTING INSTRUMENTS

Kowa electric tester
Sanwa electric tester

TROUBLESHOOTING

No power
- Dead battery
- Disconnected battery cable
- Fuse burned out
- Faulty ignition switch

Low power
- Weak battery
- Loose battery connection
- Charging system failure
- Faulty regulator/rectifier

Intermittent power
- Loose battery cable connection
- Loose charging system connection
- Loose connection or short circuit in lighting system

Charging system failure
- Loose, broken or shorted wire or connector
- Faulty regulator/rectifier
- Faulty A.C. generator

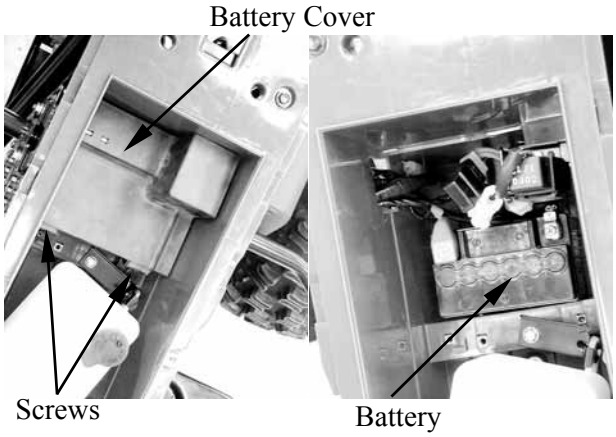
BATTERY

BATTERY REMOVAL

Open the seat (see page 2-3 or 2-8) and battery cover .
Disconnect the battery cables .

* First disconnect the battery negative (-) cable and then the positive (+) cable.

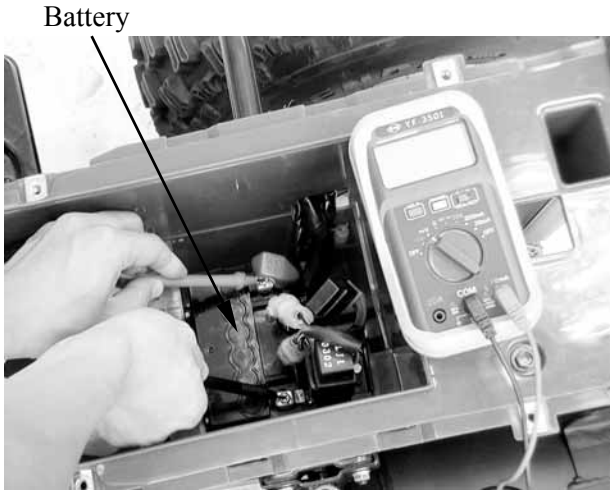
Remove the battery.
The installation sequence is the reverse of removal.



BATTERY CHARGING (OPEN CIRCUIT VOLTAGE) INSPECTION

Remove the battery cover and disconnect the battery cables.
Measure the voltage between the battery terminals.
Fully charged : 13.0V～13.2V
Undercharged : 12.3V max.

* Battery charging inspection must be performed with an electric tester.



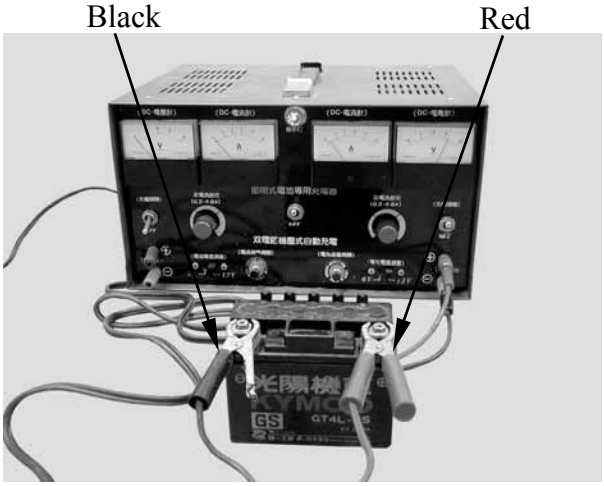
CHARGING METHOD

Connect the charger positive (+) cable to the battery positive (+) cable.
Connect the charger negative (-) cable to the battery negative (-) cable.

* • Keep flames and sparks away from a charging battery.
  • Turn power ON/OFF at the charger, not at the battery terminals to prevent sparks near the battery.
  • Charge the battery according to the current specified on the battery surface.

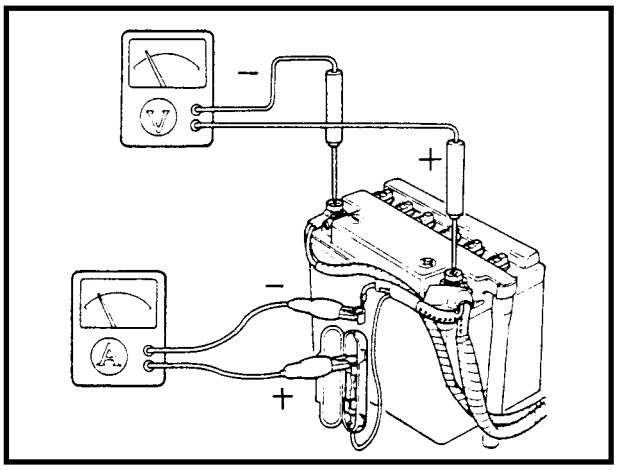
Charging current: Standard : 0.4A
Quick : 4A
Charging time : Standard : 5 hours
Quick : 0.5 HOUR
After charging: Open circuit voltage:
12.8V min.

* • Quick charging should only be done in an emergency.
  • During quick charging, the battery temperature should not exceed 45℃.
  • Measure the voltage 30 minutes after the battery is charged.



PERFORMANCE TEST

Warm up the engine.
Open the seat and battery cover.



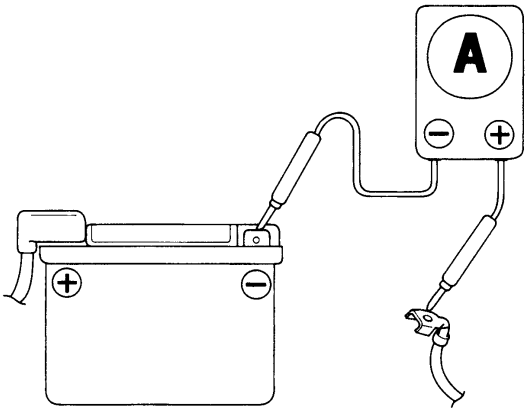
Stop the engine and open the fuse box. Disconnect the wire lead from the fuse terminal. Connect an ammeter between the wire lead and fuse terminal as shown. Connect the battery positive (+) terminal to the voltmeter positive (+) probe and battery negative (-) terminal to the voltmeter negative (-) probe.
Start the engine, gradually increase engine speed to test the output:

Position / RPM	Day	Night
2500	0.7A min.	0.5A min.
6000	1.3A min.	1.3A min.

Charging Limit Voltage: 14.5±0.5V/8000rpm
If the limit voltage is not within the specified range, check the regulator/ rectifier.

CURRENT LEAKAGE TEST

Remove the seat (see page 2-3 or 2-8).
Turn the ignition switch “OFF”, and disconnect the negative (-) cable from the battery.
Connect the ammeter (+) probe to the negative (-) cable and the ammeter (-) probe to the battery (-) terminal.
With the ignition switch “OFF”, check for current leakage.



* ● When measuring current using a tester, set it to a high range, and then bring the range down to an appropriate level. current flow higher than the range selected may blow out the fuse in the tester.
● While measuring current, do not turn the ignition switch “ON”.A sudden surge of current may blow out the fuse in the tester.

Specified current leakage: 1 maximum

If current leakage exceeds the specified value, a shorted circuit is likely.

Locate the short by disconnecting connections one by one and measuring the current.

A.C. GENERATOR INSPECTION (MX’ER 50)

* Inspect with the engine installed.

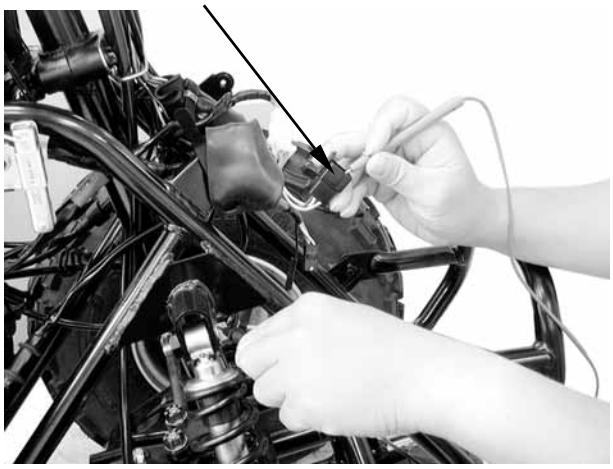
Disconnect the A.C. generator connector. Measure the resistances between the charging coil terminals (white−green) and lighting coil terminals (yellow−green).

Resistances:

Charging coil	White−green	0.2～1.2Ω
Lighting coil	Yellow−green	0.3～1.0Ω

Refer to 8-3 for A.C. generator removal.

A.C. Generator Connector



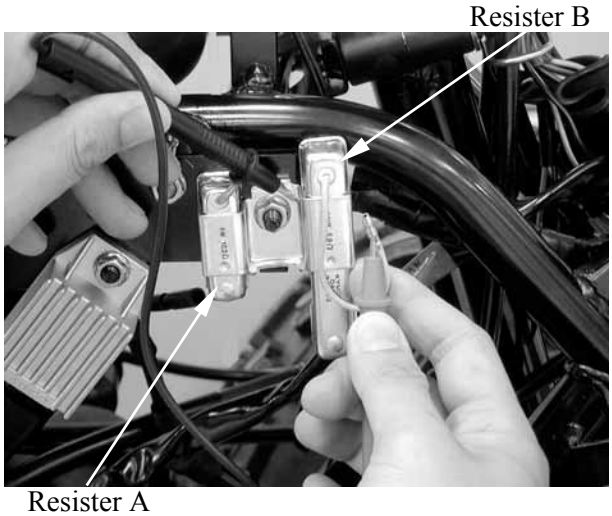
RESISTOR INSPECTION

Measure the resistance between the resistor B pink wire and ground.
Measure the resistance between the resistor A green/black wire and ground.

Resistances:

Resistor A:
MX'ER 50: 9.2～9.8Ω
MXU 50 REVERSE/MXU 50: 11.8～12.5Ω

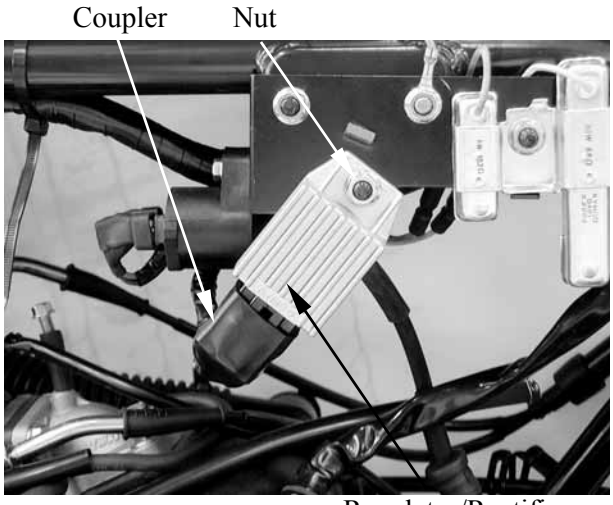
Resistor B:
MX'ER: 5.6～6.2Ω



* Faulty resistor is the cause of faulty operation of the auto bystarter.

REGULATOR/RECTIFIER INSPECTION (MX'ER 50)

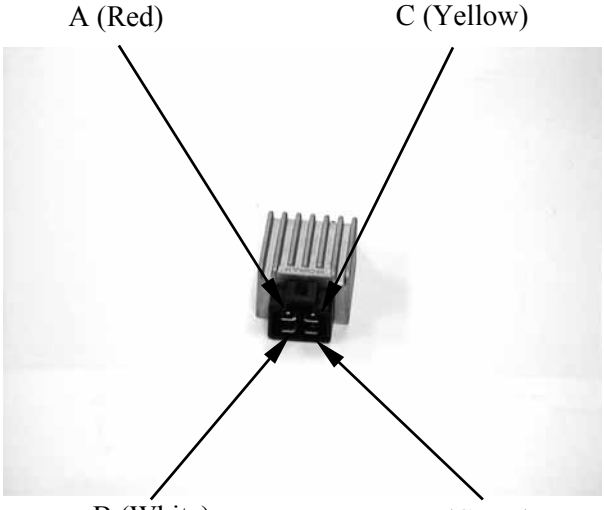
Disconnect the regulator/rectifier wire coupler and remove the nut to remove the regulator/rectifier.
Measure the resistances between the terminals.
Replace the regulator/rectifier if the readings are not within the specifications in the table below.



* Due to the semiconductor in circuit, it is necessary to use a specified tester for accurate testing. Use of an improper tester in an improper range may give false readings.

Model	Brand	Range
SP-10D	Sanwa	KΩ
TH-5H	Kowa	100Ω

Probe⊕ / Probe(-)	A (R)	B (W)	C (Y)	D (G)
A (R)		∞	∞	∞
B (W)	8-10KΩ		∞	∞
C (Y)	∞	∞		33-35KΩ
D (G)	∞	∞	33-35KΩ	



A.C.GENERATOR INSPECTION (MXU 50REVERSE/MXU 50)

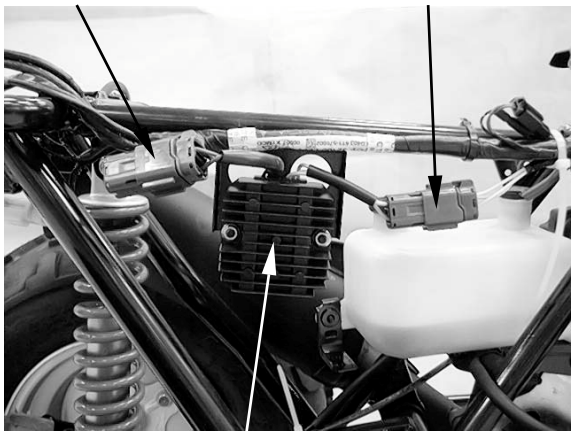
Disconnect the A.C.Generator connector.
Measure the resistance between the yellow wire terminals of the alternator side connector.

Standard: 0.1-1 Ω(20℃/68℉)

Check for continuity between each yellow wire terminal of the alternator side connector and ground.
There should be no continuity.

Replace the alternator stator if resistance is out of specification, or if any wire has continuity to ground.

REC/REG Connector A.C.G Connector



Rectifier/Regulator

REGULATOR/RECTIFIER

Wire harness inspection

Disconnect the regulator/rectifier connector.
Check the connector for loose contacts or corroded terminals.

Battery line
Measure the voltage between the red wire terminal and ground.
There should be battery voltage at all times.

Ground line
Check the continuity between the green wire terminal and ground.
There should be continuity at all times.

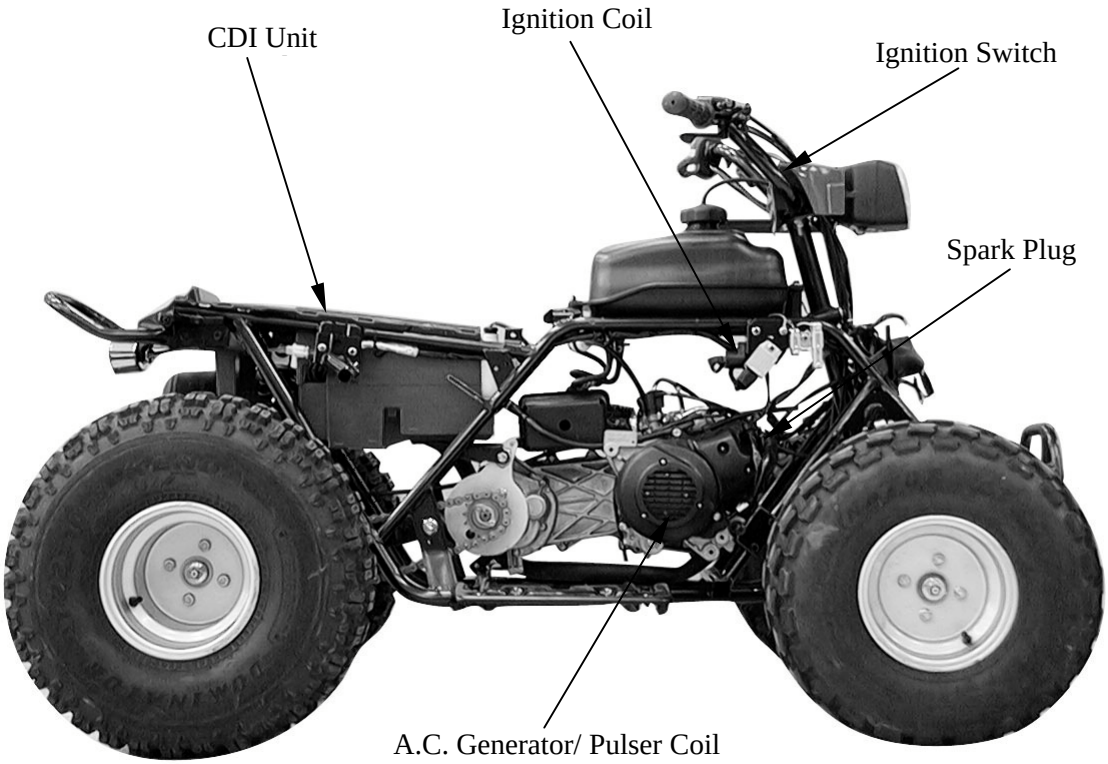
Voltage feedback line
Measure the voltage between the black wire terminal and ground.
There should be battery voltage with the ignition switch “ON” , and no voltage with the ignition switch “OFF”.

16

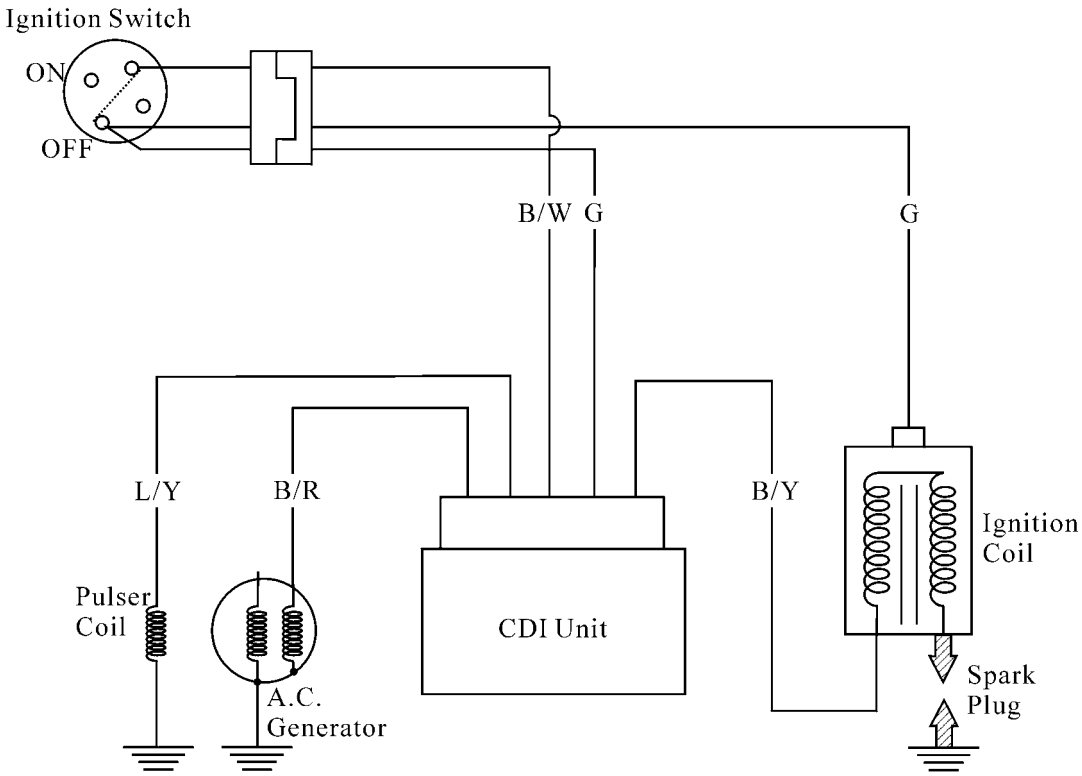
IGNITION SYSTEM

16. IGNITION SYSTEM

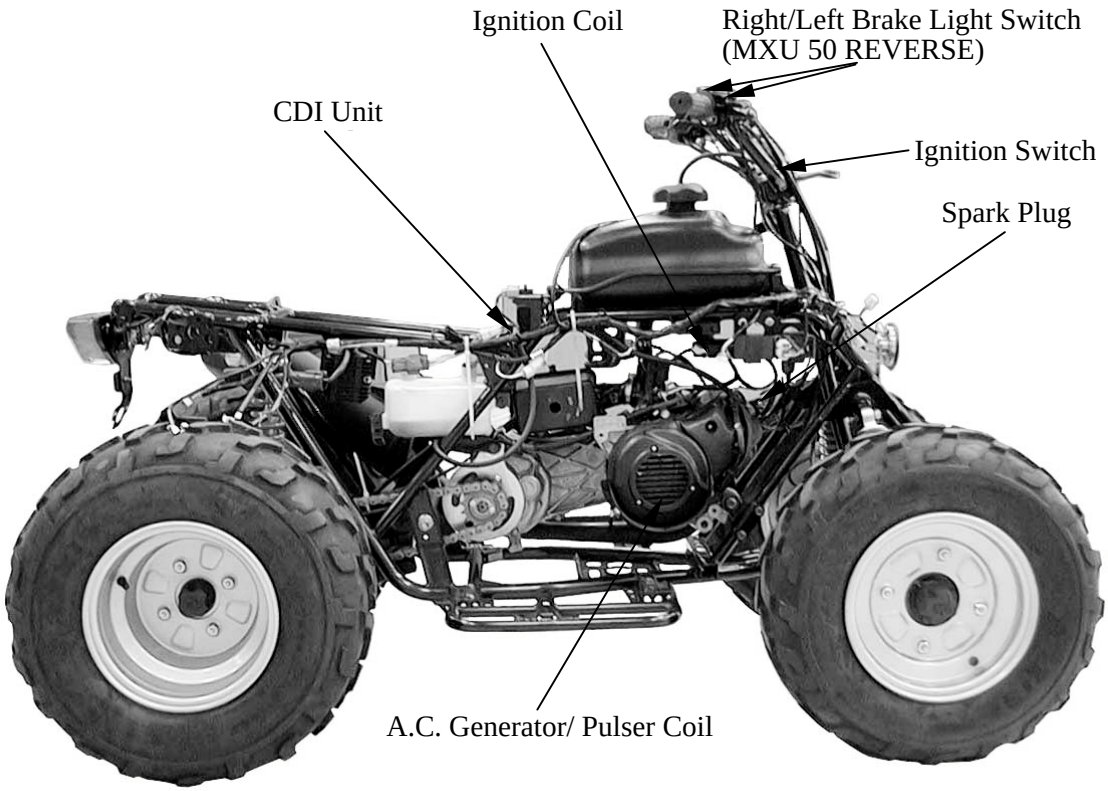
MX'ER 50



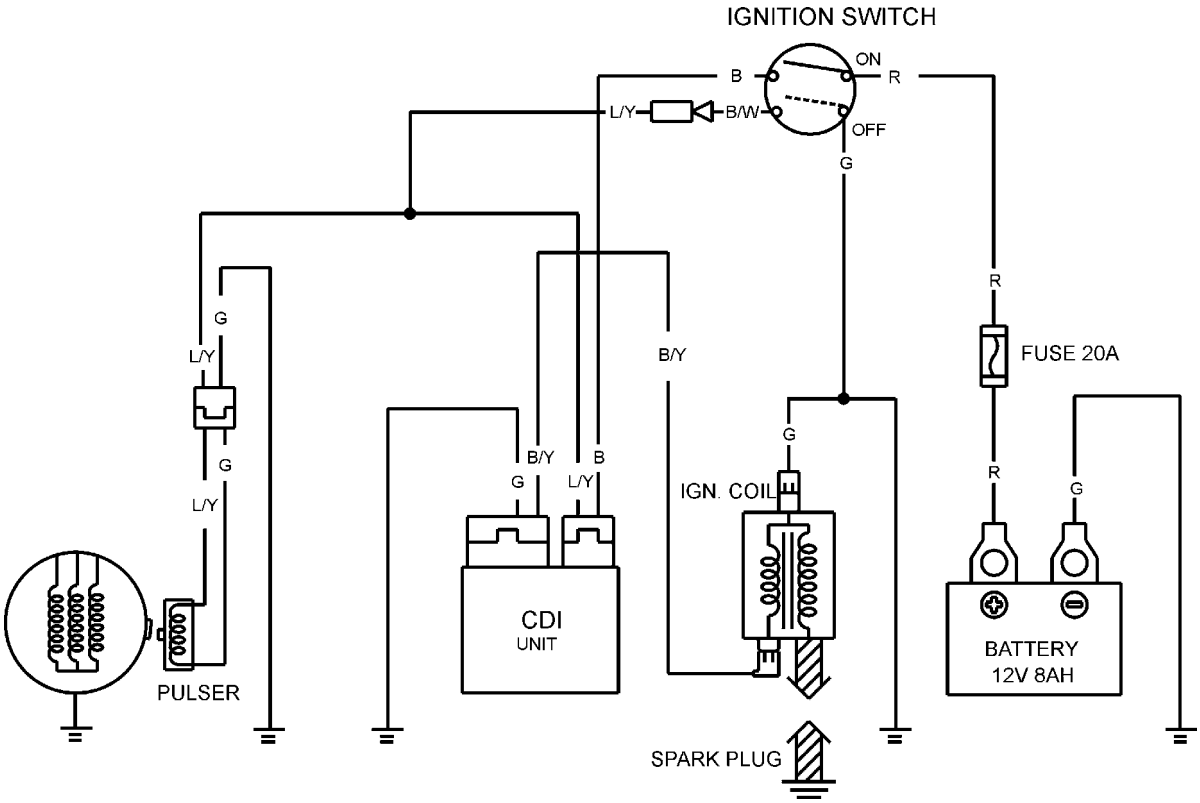
IGNITION CIRCUIT (MX'ER 50)



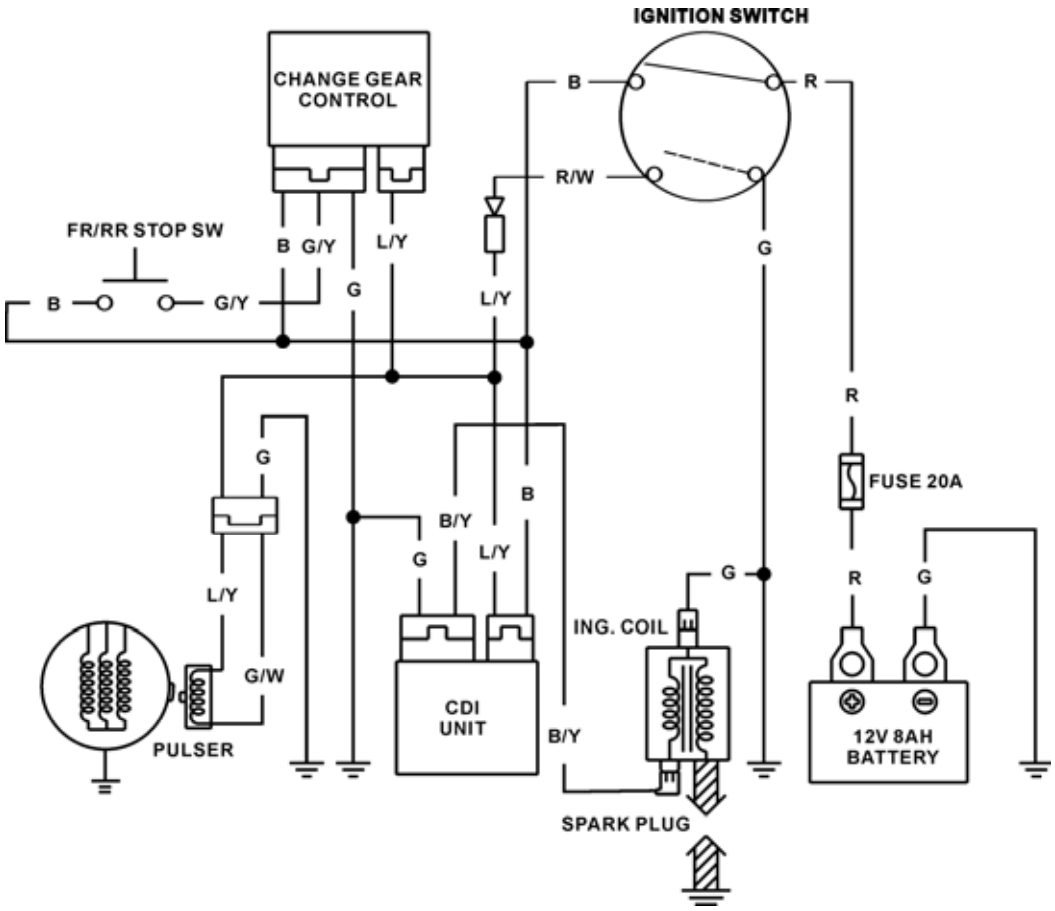
MXU 50 REVERSE/MXU 50



IGNITION CIRCUIT (MXU 50)



IGNITION CIRCUIT (MXU 50 REVERSE)



SERVICE INFORMATION

GENERAL INSTRUCTIONS

- Check the ignition system according to the sequence specified in the Troubleshooting.
- The ignition system adopts CDI unit , change gear control and the ignition timing cannot be adjusted.
- If the timing is incorrect, inspect the CDI unit, A.C. generator, change gear control and replace any faulty parts. Inspect the CDI unit with a CDI tester
- Loose connector and poor wire connection are the main causes of faulty ignition system. Check each connector before operation.
- Use of spark plug with improper heat range is the main cause of poor engine performance.
- The inspections in this section are focused on maximum voltage. The inspection of ignition coil resistance is also described in this section.
- Inspect the ignition switch according to the continuity table specified in page 18-6.
- Inspect the spark plug referring to Section 3.

SPECIFICATIONS

Item			Standard
Spark plug	Standard type		BR8HAS
	Hot type		
	Cold type		
Spark plug gap			0.6～0.7 mm (0.024～
Ignition timing	"F" mark Full advance	MXU 50/MX'ER 50	22ºBTDC/2000±100rpm
		MXU 50 REVERSE	13.5ºBTDC/1500±100rpm
Ignition coil resistance (20°C)	Primary coil		0.2～0.3Ω
	Secondary coil	with plug cap	8.0～9.3KΩ
		without plug cap	3.0～4.2KΩ

TROUBLESHOOTING

High voltage too low
- Weak battery or low engine speed
- Loose ignition system connection
- Faulty CDI unit
- Faulty ignition coil
- Faulty pulser coil

Normal high voltage but no spark at plug
- Faulty spark plug
- Electric leakage in ignition secondary circuit
- Faulty ignition coil

Good spark at plug but engine won't start
- Faulty CDI or incorrect ignition timing
- Faulty change gear control unit
- Improperly tightened A.C. generator flywheel

No high voltage
- Faulty ignition switch
- Faulty CDI unit
- Poorly connected or broken CDI ground wire
- Dead battery or faulty regulator/rectifier
- Faulty ignition coil connector
- Faulty pulser coil

IGNITION COIL INSPECTION

Continuity Test

* This test is to inspect the continuity of ignition coil.

Measure the resistance between the ignition coil primary coil terminals.

Resistance (20°C/68°F): 0.2～0.3Ω

Measure the secondary coil resistance between the spark plug cap and the primary coil terminal as Figure A shown.

Resistance (20°C/68°F) (with plug cap):
8.0～9.3KΩ

Figure A

Measure the secondary coil resistance between the ignition coil terminal and the primary coil terminal as Figure B shown.

Resistance (20°C/68°F) (without plug cap):
3.0～4.2KΩ

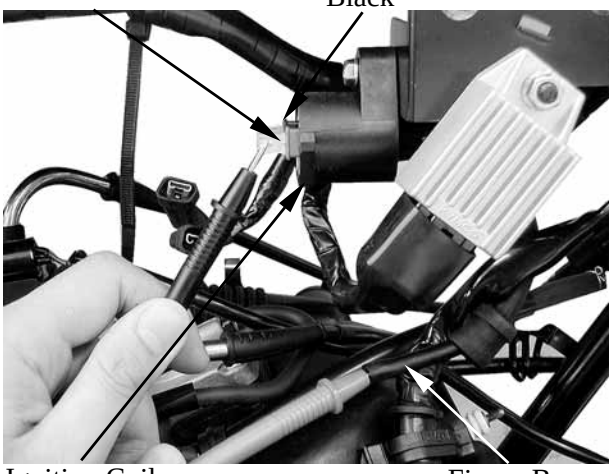
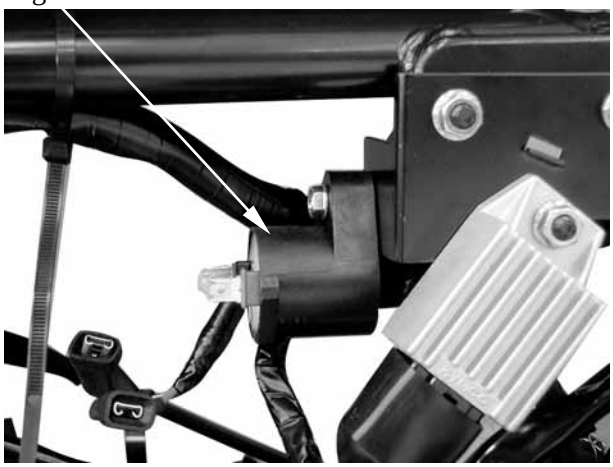


Figure B

Performance Test
Remove the ignition coil.

Ignition Coil



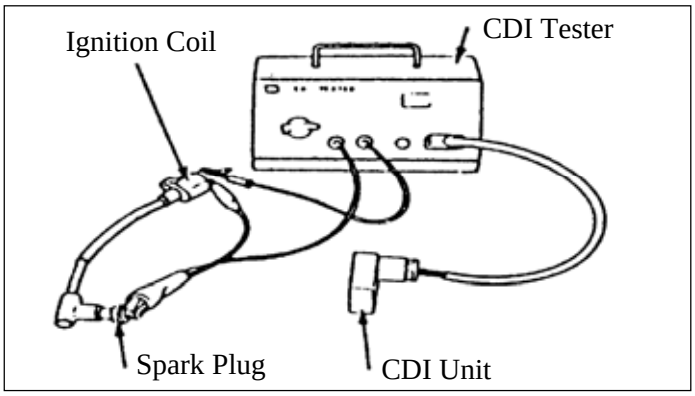
Inspect the ignition coil with an ignition coil tester.

* Follow the ignition coil tester manufacturer's instructions.

1. Turn the changeover switch to 12V and connect the ignition coil to the tester.
2. Turn the power switch ON and check the spark from the watch window.

- Good : Normal and continuous spark
- Faulty : Weak or intermittent spark

* The test is performed at both conditions that the ignition coil is cold and hot.

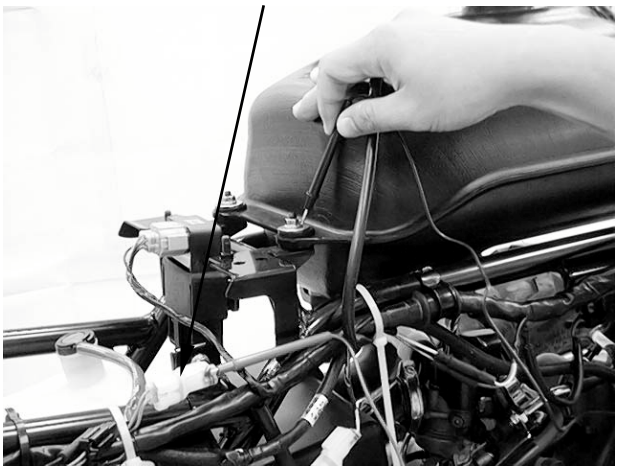


PULSER UNIT

WIRE HARNESS INSPECTION

Check the continuity between the Green wire terminal and ground.
There should be continuity at all times.

Pulser coil connector

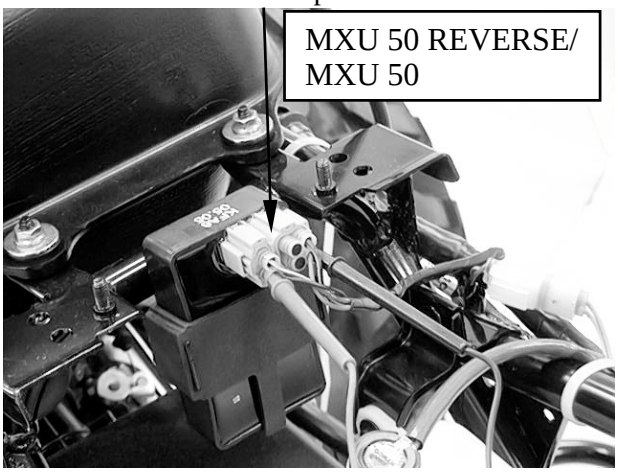


CDI UNIT

WIRE HARNESS INSPECTION

Measure the voltage between the black wire terminal and ground or between the black wire and green wire terminals.
There should be battery voltage with the ignition switch “ON”, and no voltage with the ignition switch “OFF”

CDI unit couple



CDI Unit