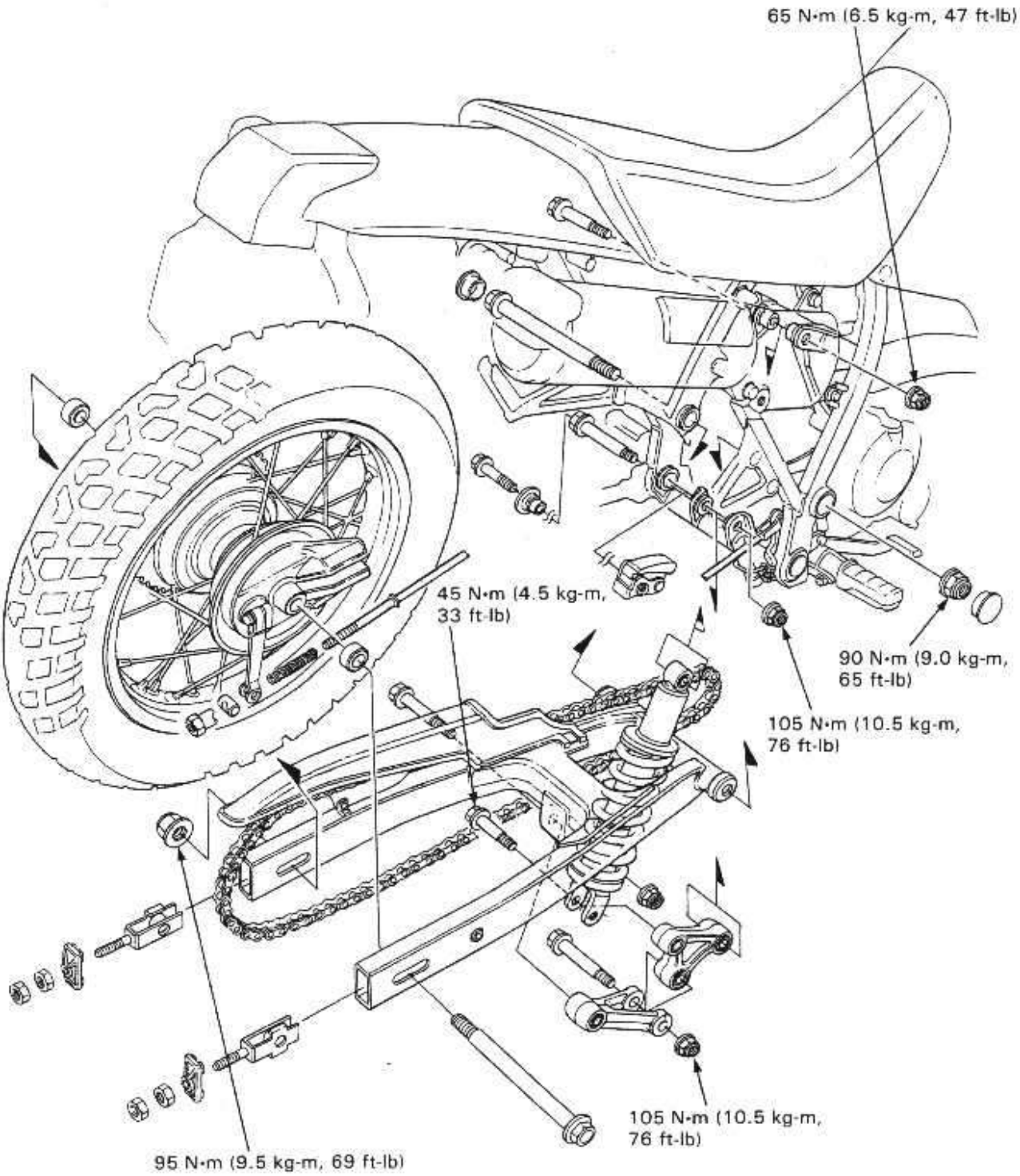
13

REAR WHEEL/BRAKE/ SUSPENSION

ROUE ARRIERE/FREIN/SUSPENSIO SUSPENSION

HINTERRAD/BREMSE/AUFHÄNGUNG


65 N·m (6.5 kg-m, 47 ft-lb)
45 N·m (4.5 kg-m, 33 ft-lb)
90 N·m (9.0 kg-m, 65 ft-lb)
105 N·m (10.5 kg-m, 76 ft-lb)
105 N·m (10.5 kg-m, 76 ft-lb)
95 N·m (9.5 kg-m, 69 ft-lb)

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SERVICE INFORMATION

GENERAL

- Support the motorcycle using a hoist or a jack under the engine.
- Use only genuine Honda replacement fasteners for the rear suspension. Note the installation direction of the bolts.

⚠WARNING

- *The rear shock absorber contains nitrogen under high pressure. Do not allow fire or heat near the shock absorber.*
- *Inhaled asbestos fibers have been found to cause respiratory disease and cancer. Never use an air hose or dry brush to clean brake assemblies.*

SPECIFICATIONS

ITEM		STANDARD	SERVIE LIMIT
Rear wheel runout	Radial	—	2.0 mm (0.08 in)
	Axial	—	2.0 mm (0.08 in)
Rear axle ruout		—	0.2 mm (0.01 in)
Rear brake drum I.D.		110 mm (4.33 in)	111 mm (4.37 in)
Rear brake lining thickness		4.0 mm (0.16 in)	2.0 mm (0.08 in)
Shock absorber spring free length		186.8 mm (7.35 in)	184.9 mm (7.28 in)
Rear suspension damper compression		21.5 kg (47.39 lbs)	16.5 kg (36.38 lbs)

TORQUE VALUES

Rear axle	95 N·m (9.5 kg-m, 69 ft-lb)
Shock absorber mounting bolt (Lower)	45 N·m (4.5 kg-m, 33 ft-lb)
(Upper)	65 N·m (6.5 kg-m, 47 ft-lb)
Swingarm pivot bolt	90 N·m (9.0 kg-m, 65 ft-lb)
Shock link-to-swingarm bolt	105 N·m (10.5 kg-m, 76 ft-lb)
Shock link-to-shock arm bolt	105 N·m (10.5 kg-m, 76 ft-lb)
Shock link-to-frame bolt	105 N·m (10.5 kg-m, 76 ft-lb)

TOOLS

Special

Shock absorber compressor attachment	07959—MB10000
Remover shaft	07946—MJ00100
Needle bearing remover	07931—MA70000

Common

Driver	07749—0010000
Attachment, 32 x 35 mm	07746—0010100
Pilot, 20 mm	07746—0040500
Attachment, 24 x 26 mm	07746—0010700
Pilot, 17 mm	07746—0040400
Shock absorber compressor	07GME—0010000
— screw assembly	07GME—0010100
Attachment, 42 x 47 mm	07746—0010300
Attachment, 37 x 40 mm	07746—0010200
Retainer wrench body	07710—0010401
Retainer wrench B	07710—0010200
Bearing remover head, 17 mm	07746—0050500
Bearing remover shaft	07746—0050100
Pilot, 22 mm	07746—0041000
Pilot, 15 mm	07746—0040300

TROUBLESHOOTING

Wobble or vibration in motorcycle
- Bent rim
- Loose wheel bearing(s)
- Loose or bent spokes
- Damaged tire
- Axle not tightened properly
- Swingarm pivot bearing worn
- Chain adjusters not adjusted equally
- Bent frame or siwngarm

Soft suspension
- Weak spring

Hard suspension
- Bent shock absorber rod
- Swingarm pivot bearings damaged
- Bent frame or swingarm

Suspension noise
- Faulty rear damper
- Loose fasteners

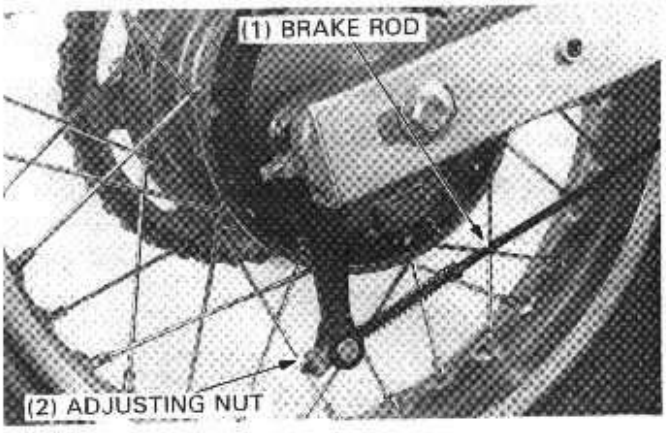
Poor brake performance
- Improper brake adjustment
- Worn brake shoes
- Brake linings oily, greasy or dirty
- Worn brake cam
- Worn brake drum
- Brake arm serrations improperly engaged
- Brake shoes worn at cam contact area

REAR WHEEL

REMOVAL

Raise the rear wheel off the ground using a hoist or other adjustable support.

Remove the adjusting nut from the brake rod and disconnect the brake rod from the brake arm.

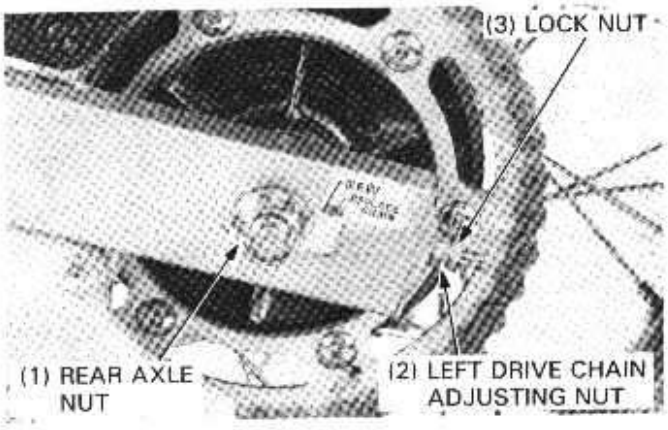


Loosen the rear axle nut.

Loosen the right and left drive chain adjusting nuts and lock nuts.

Move the rear wheel forward and derail the drive chain from the drive sprocket.

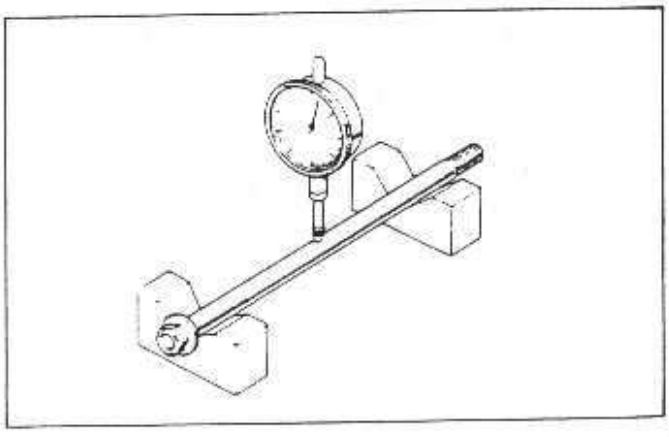
Remove the rear axle and the wheel, then remove the brake pedal.



INSPECTION

• AXLE
Set the axle in V blocks and read the axle runout with a dial indicator.

SERVICE LIMIT: 0.2 mm (0.01 in)

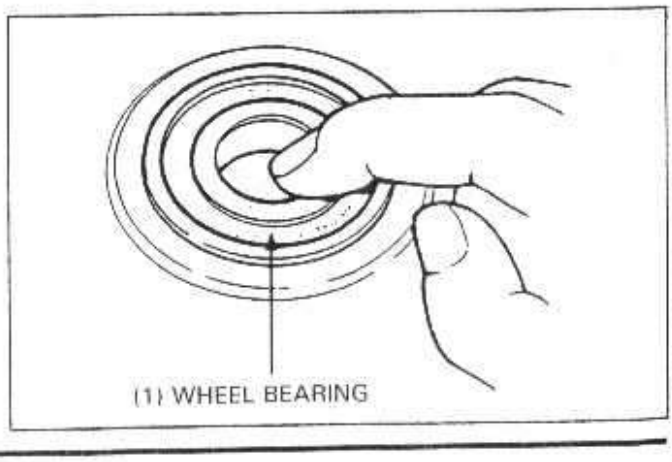


• WHEEL BEARING
Turn the inner race of each bearing with your finger. The bearing should turn smoothly and quietly. Also check that the outer race of, each bearing fits tightly in the hub.

Remove and discard the bearings if the races do not turn smoothly, quietly, or if they fit loosely in the hub (page 13-4).

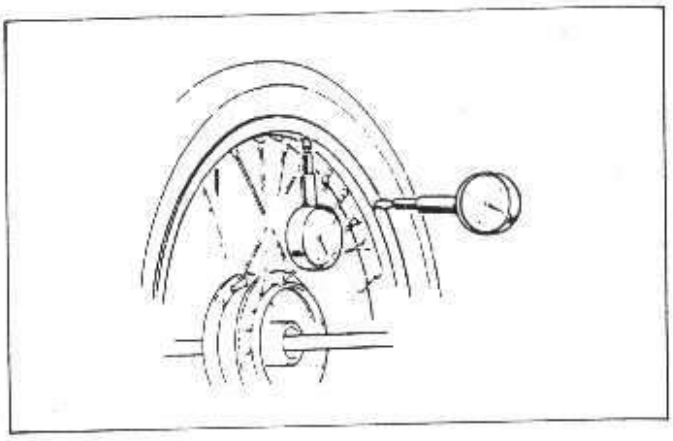
NOTE

- Replace hub bearings in pairs.



● RIM RUNOUT
Check the rim runout by placing the wheel on a truing stand. Turn the wheel by hand and measure the runout using a dial indicator.

SERVICE LIMITS:
Radial: 2.0 mm (0.08 in)
Axial: 2.0 mm (0.08 in)

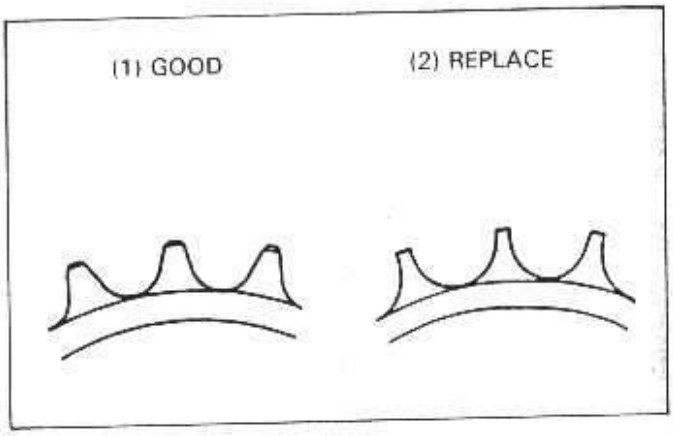


● DRIVEN SPROCKET
Check the condition of the final driven sprocket teeth.

Replace the sprocket if it is worn or damaged.

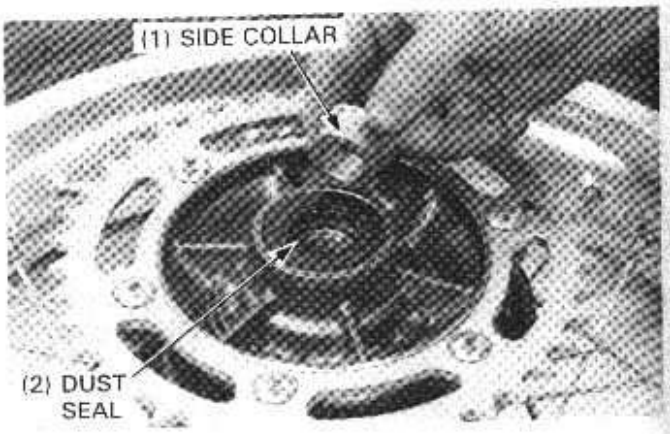
NOTE

- If the driven sprocket is worn or damaged, the drive chain and drive sprocket must be inspected.



BEARING REPLACEMENT

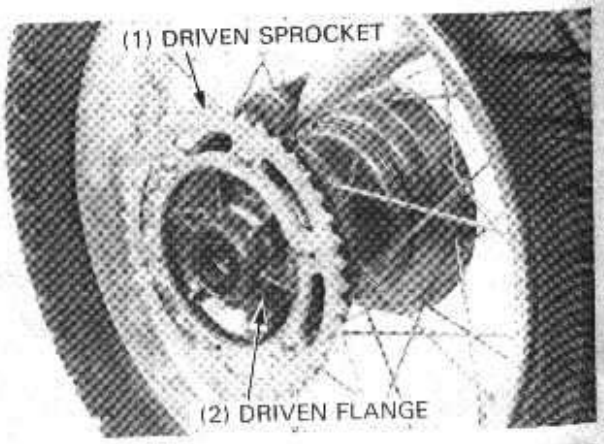
Remove the side collar and dust seal.



Remove the driven sprocket and driven flange together.

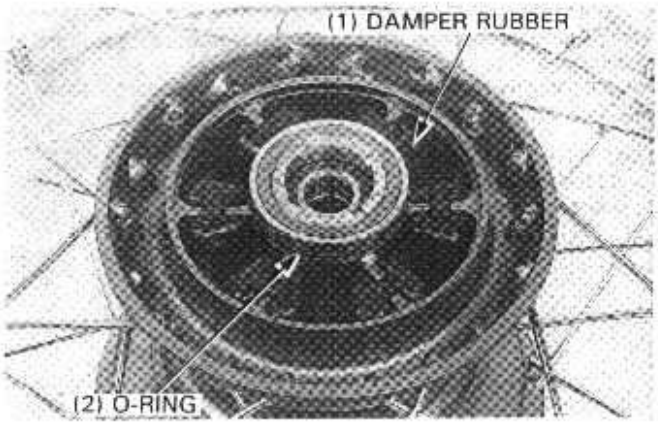
NOTE

- Do not separate the sprocket and flange unless one of them needs to be replaced.



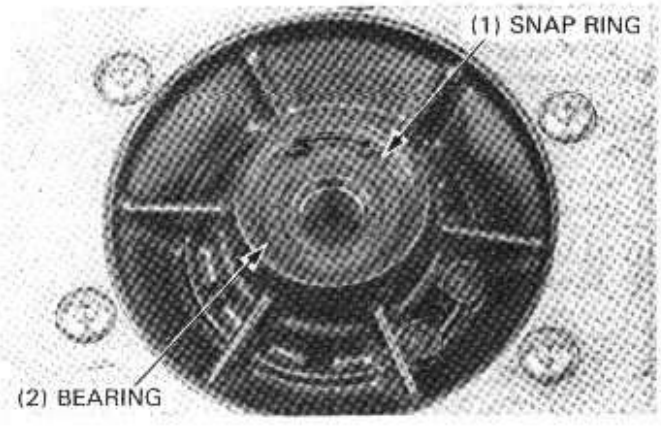
Replace the damper rubbers if they are damaged or deteriorated.

Remove the O-ring and the damper rubbers.



Remove the snap ring from the driven flange.

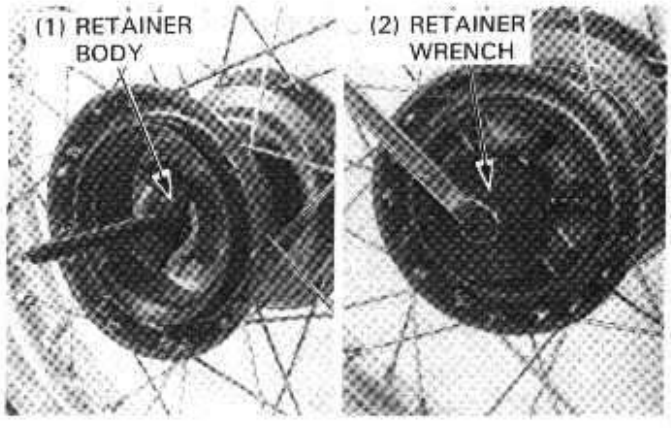
Remove the collar and bearing (page 13-7).



Install the retainer wrench and remove the retainer.

TOOLS:

Retainer wrench body	**07710—0010401**
Retainer wrench B	**07710—0010200**



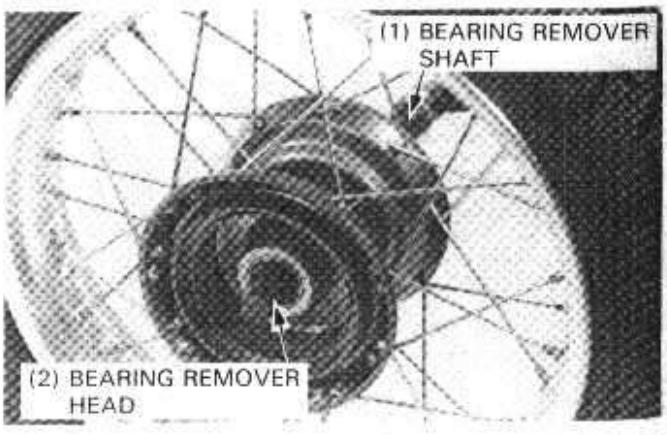
Drive out the wheel bearings and the collar.

NOTE

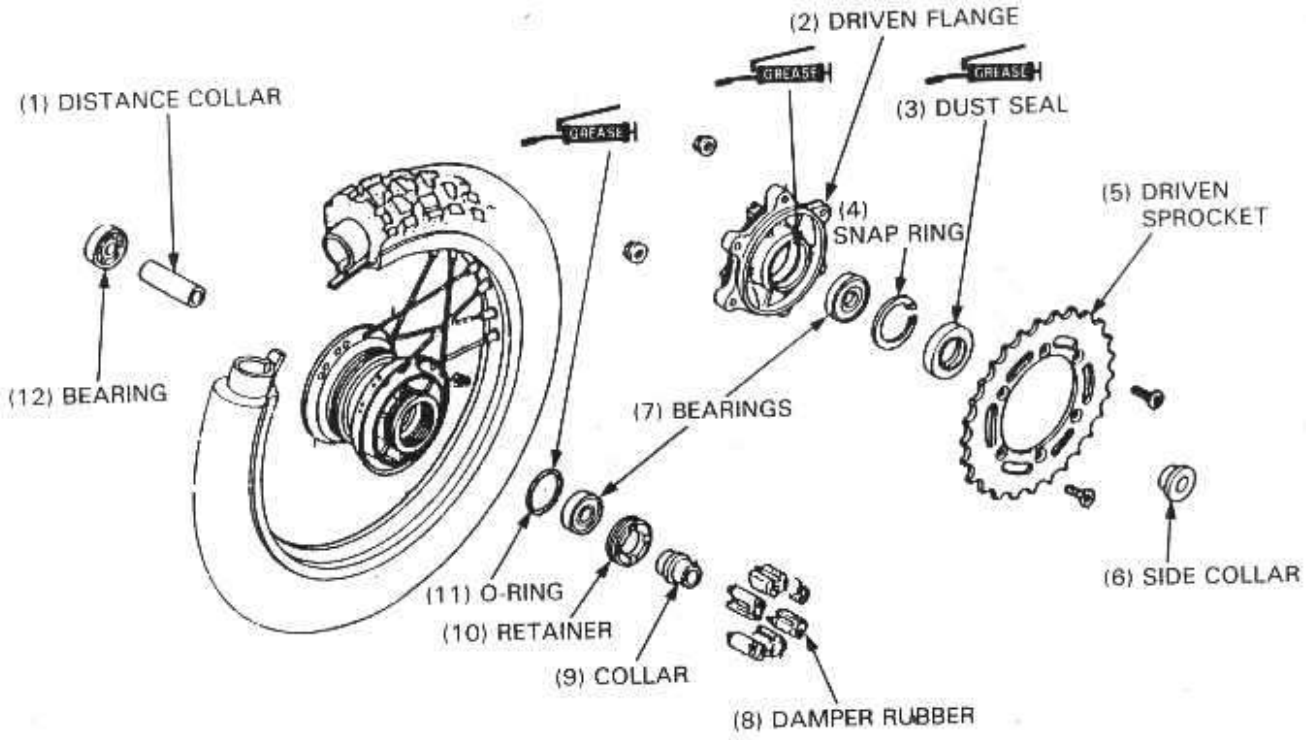
- If the bearings are removed, they must be replaced with new ones.

TOOLS:

Bearing remover head, 17 mm	**07746—0050500**
Bearing remover shaft	**07746—0050100**



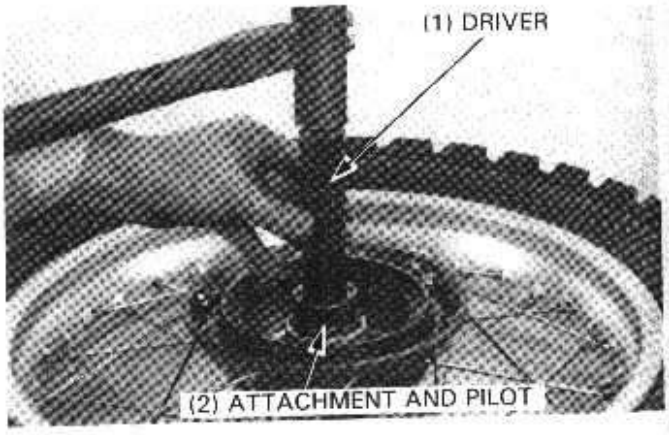
ASSEMBLY



Pack the bearing cavities with grease.
Drive in a new left bearing with the sealed side of the bearing facing out.

TOOLS:

Driver	**07749–0010000**
Attachment, 37 x 40 mm	**07746–0010200**
Pilot, 17 mm	**07746–0040400**



Be careful not to tilt the bearing while driving it into the hub and make sure that it is fully seated.
Install the distance collar in the hub, then drive in a new right bearing with it's sealed side facing out.

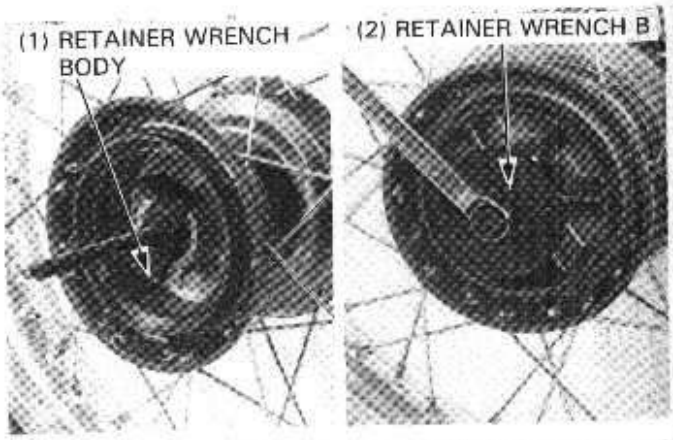
⚠WARNING

- ***Grease on the brake drum reduces stopping power. Keep grease off the brake drum.***

Grease and install the bearing retainer with the retainer wrench and body.

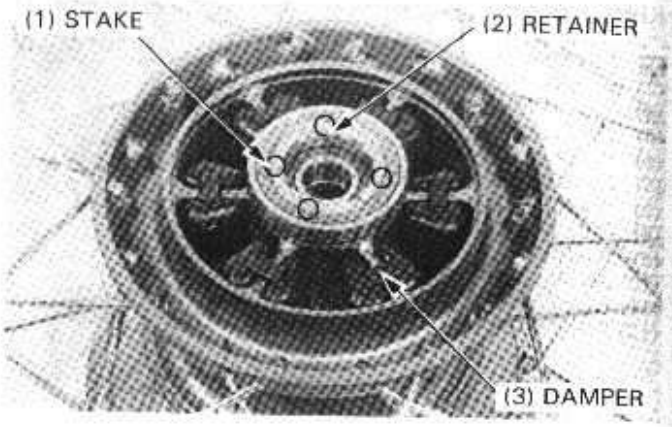
TOOLS:

Retainer wrench body	**07710–0010401**
Retainer wrench B	**07710–0010200**



Stake the retainer as shown.

Install the dampers.



Flange bearing removal
Remove the following:
– hub bearing sleeve

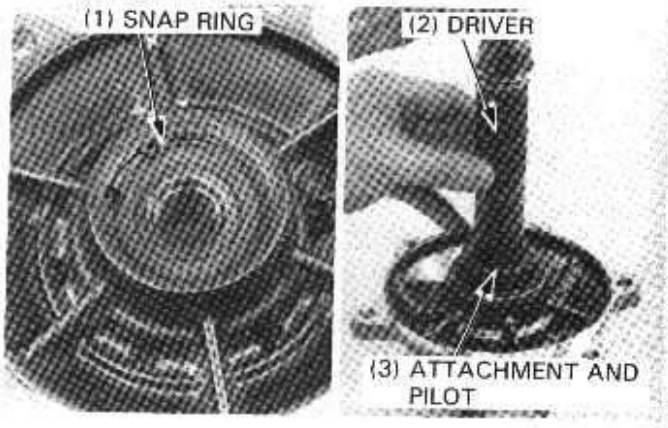
TOOLS:

Driver	**07749–0010000**
Pilot, 20 mm	**07746–0040500**

– bearing

TOOLS:

Driver	**07749–0010000**
Attachment, 32 x 35 mm	**07746–0010100**

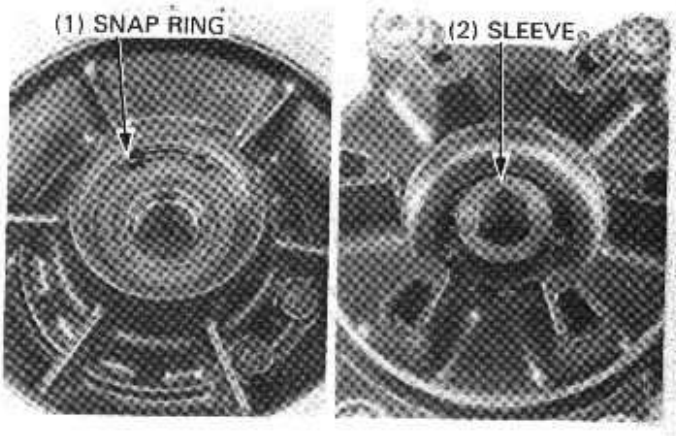


Grease the flange bearing and drive it into the flange hub.

TOOLS:

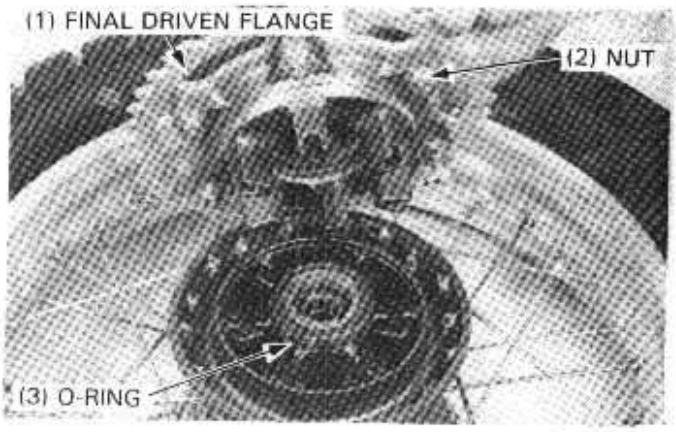
Driver	**07749–0010000**
Attachment, 42 x 47 mm	**07746–0010300**
Pilot, 17 mm	**07746–0040400**

Install the snap ring and sleeve.

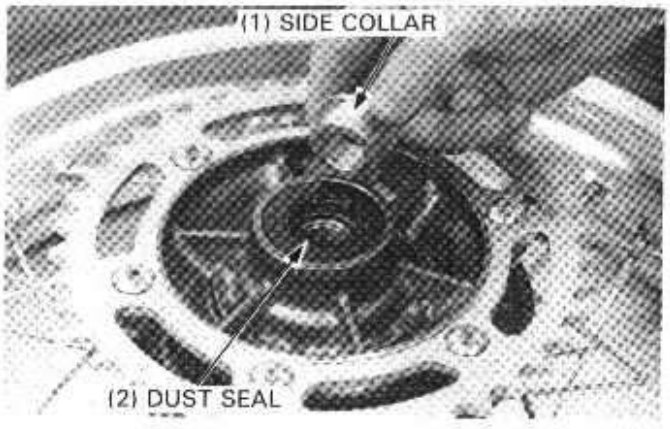


Install the driven sprocket to the flange hub.
Tighten the hub nuts.

Apply grease to the new O-ring and install it, then install the final driven flange.



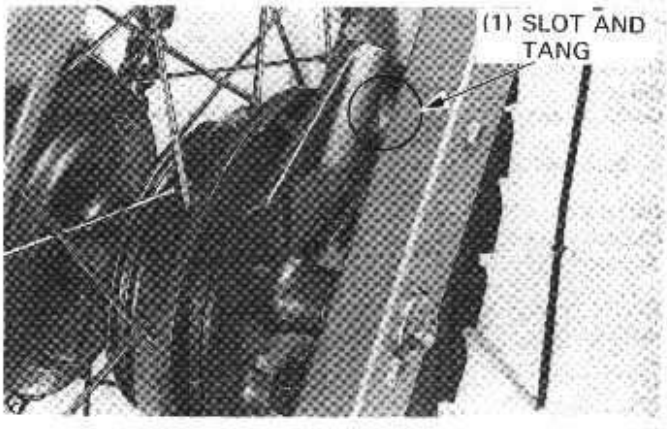
Apply a grease to the dust seal lips and install the dust seal in the hub.
Install the side collar.
Install the brake panel.



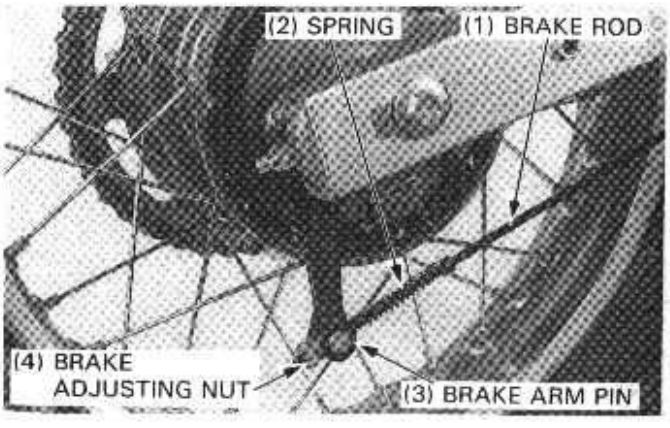
INSTALLATION

Place the slot on the brake panel over the tang on the swingarm.

Install the drive chain over the drive sprocket.



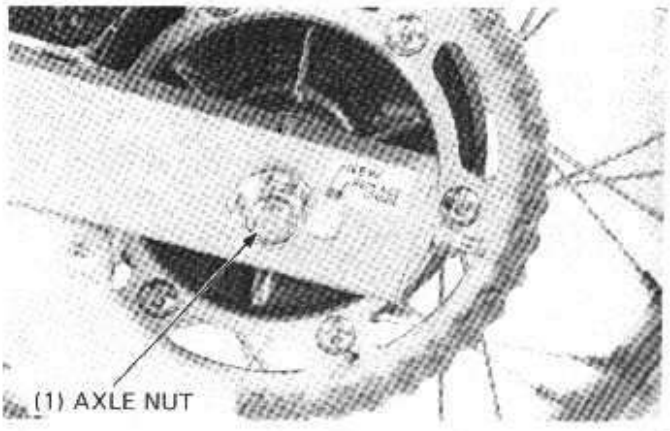
Install the rear axle and axle nut. Lightly tighten the nut.
Install the brake rod to the brake arm with spring, brake arm pin and adjusting nut.



Adjust the drive chain slack (page 3-11) and tighten the axle nut.

TORQUE: Rear axle nut: 95 N·m (9.5 kg-m, 69 ft-lb)

Adjust the rear brake pedal free play (page 3-13).



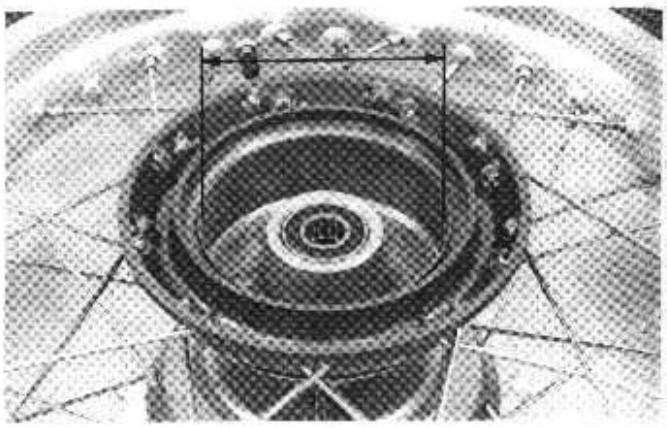
REAR BRAKE

REMOVAL/INSPECTION

Remove the rear wheel (page 13-3).
Remove the rear brake panel.

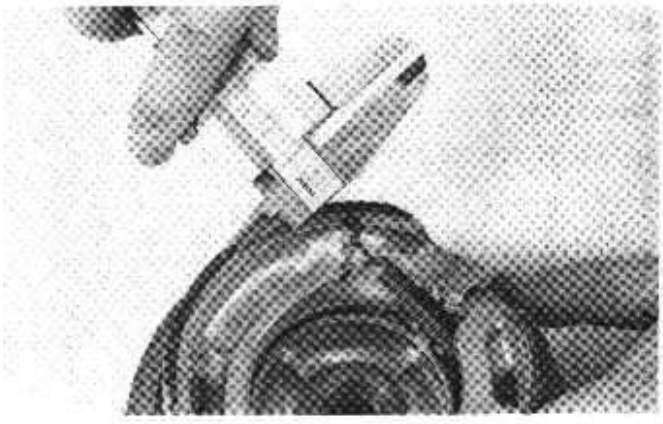
⚠ WARNING

- *Inhaled asbestos fibers have been found to cause respiratory disease and cancer. Never use an air hose or dry brush to clean brake assemblies.*



● BRAKE DRUM
Measure the drum I.D.

SERVICE LIMIT: 111 mm (4.37 in)

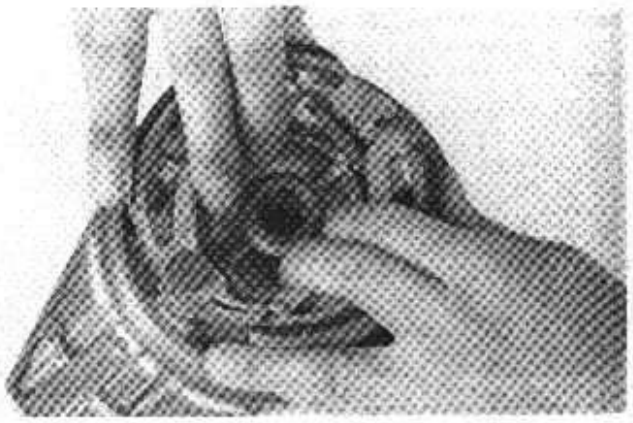


● BRAKE LINING
Check the brake shoe springs for fatigue or damage and check the brake cam for wear or cracks.
Measure the brake lining thickness.

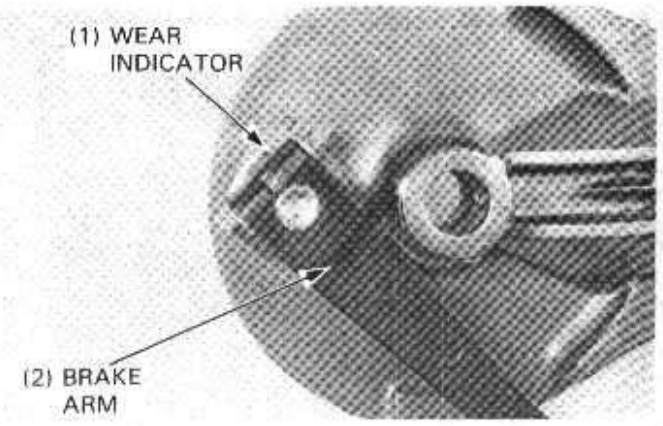
SERVICE LIMIT: 2.0 mm (0.08 in)

DISASSEMBLY

Force the brake shoes out and remove them by hand.



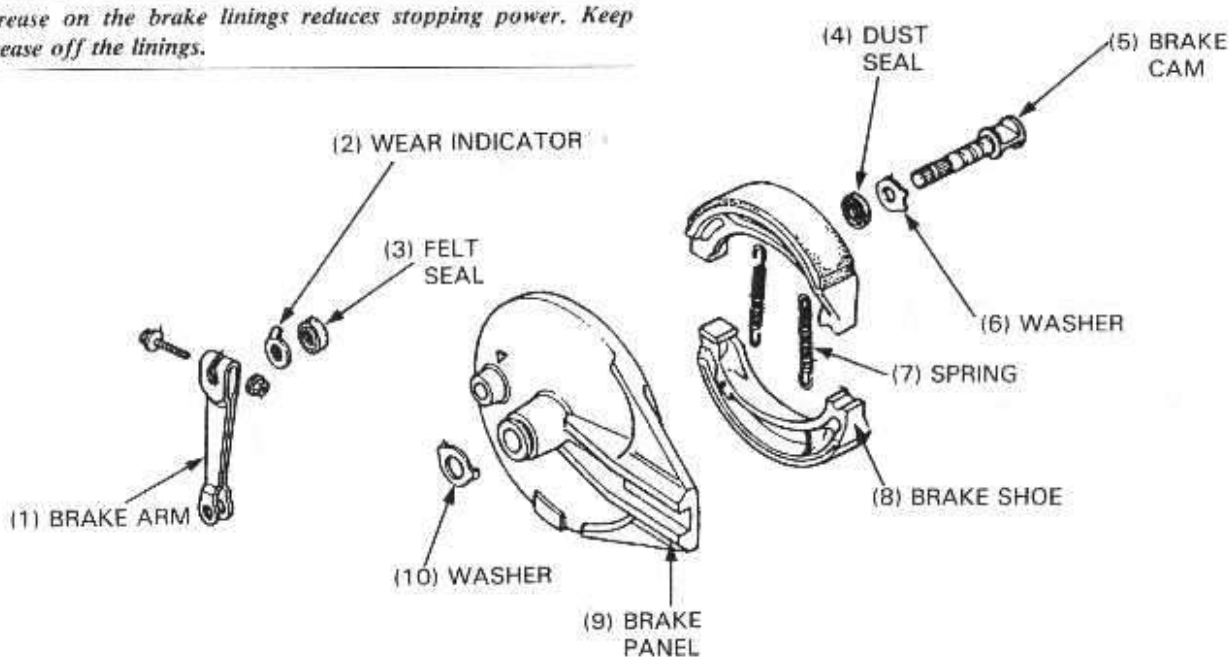
Remove the brake arm bolt, brake arm and wear indicator.



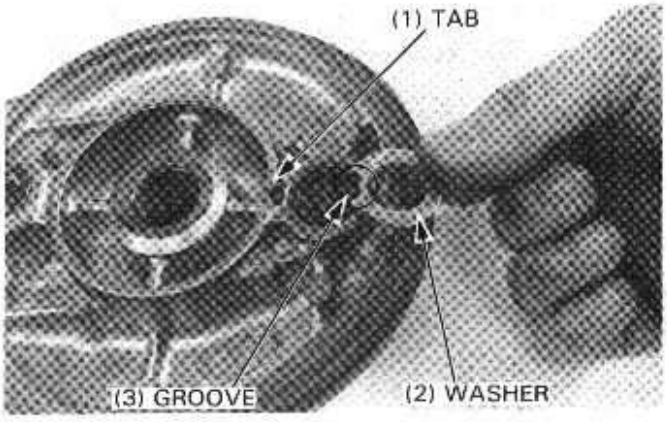
ASSEMBLY

⚠ WARNING

- *Grease on the brake linings reduces stopping power. Keep grease off the linings.*



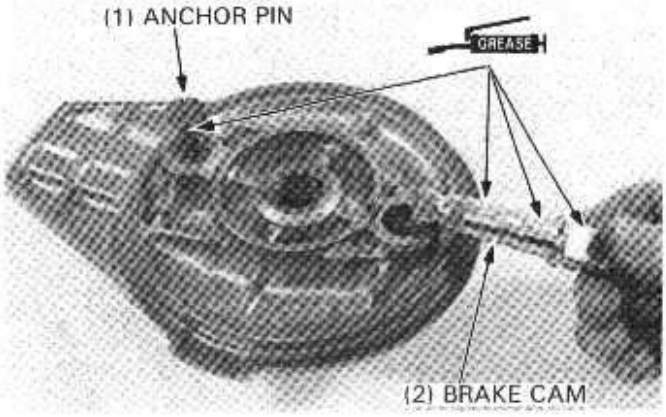
Install the washer onto the brake panel by aligning the groove with the boss of the brake panel.



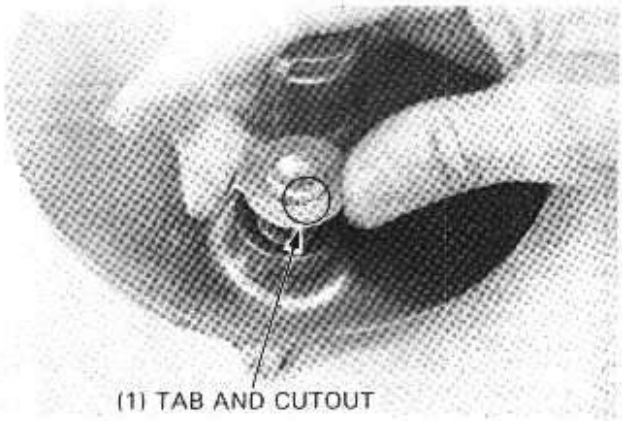
Apply a small amount of grease to the brake cam and anchor pin and install the cam in the brake panel.

⚠ WARNING

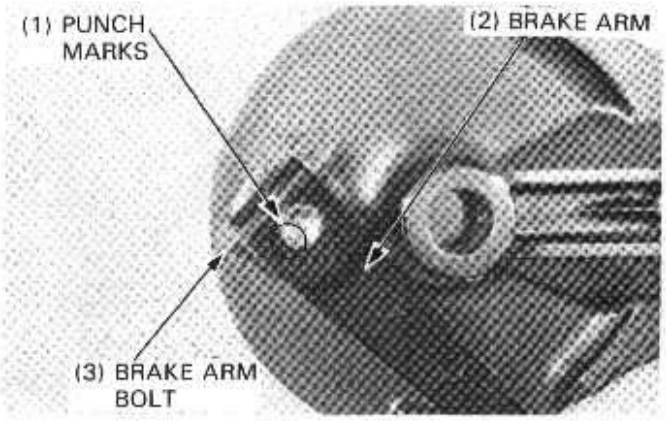
- *Contaminated brake linings reduce stopping power. Keep grease off the brake linings. Wipe excess grease off the brake cam.*



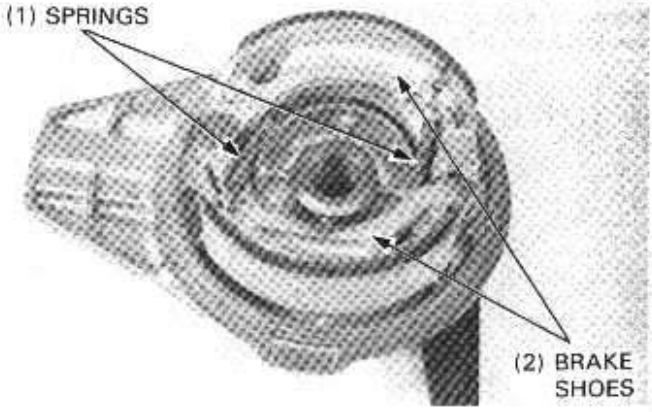
Install the felt seal.
Install the wear indicator, aligning the indicator inner tab with the brake cam cutout.



Align the punch mark on the brake arm with the punch mark on the brake cam.
Tighten the brake arm bolt.



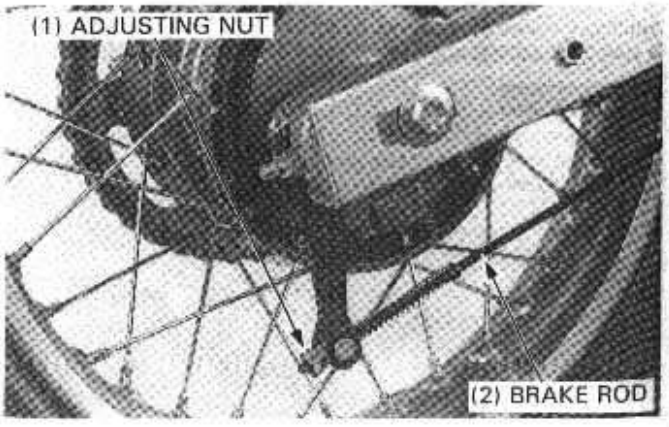
Install the new brake shoes on the brake panel.
Place the brake panel assembly in the wheel.
Install the rear wheel (page 13-8).



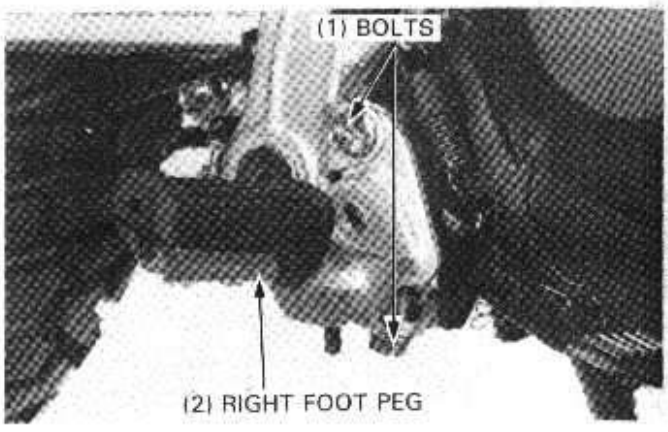
BRAKE PEDAL

REMOVAL/INSTALLATION

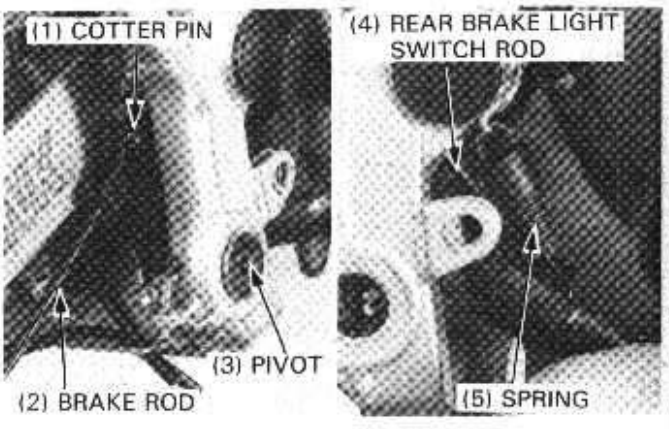
Remove the brake adjusting nut and disengage the brake rod from the brake arm.



Remove the right foot peg by removing two mounting bolts.

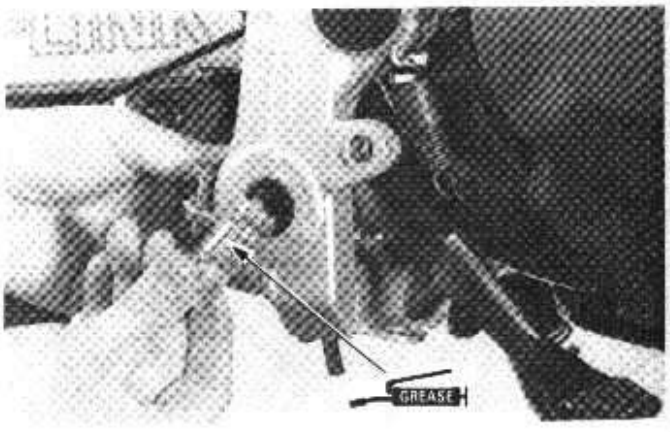


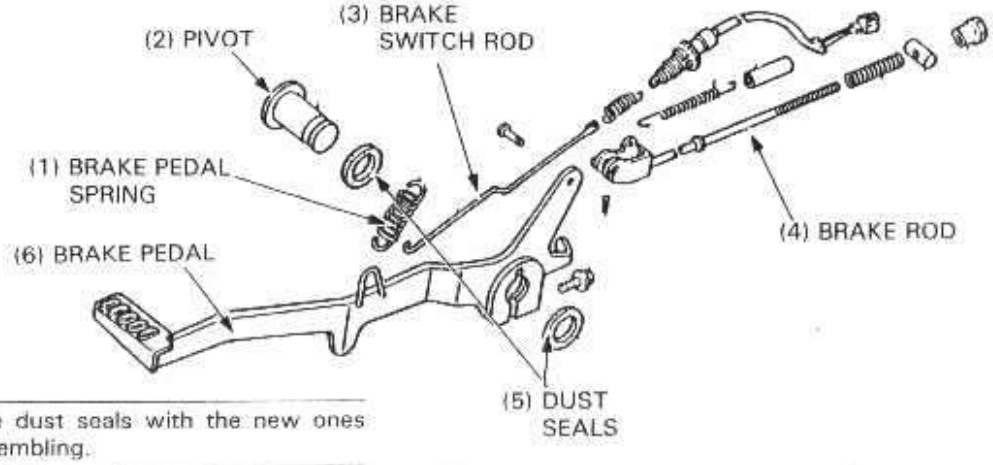
Remove the brake pedal pinch bolt, then remove the pivot.
Remove the cotter pin and disconnect the brake rod from the brake pedal.
Disconnect the rear brake light switch rod and spring.



Apply grease to the pivot and install the removed parts in the reverse order of removal.

Adjust the brake pedal free play (page 3-13).





NOTE

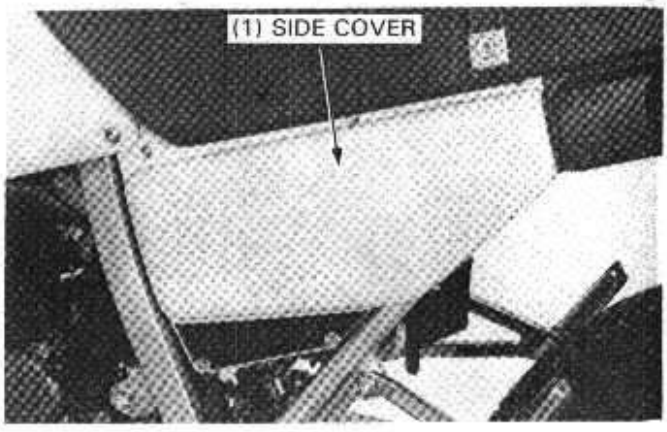
- Replace the dust seals with the new ones when reassembling.

SHOCK ABSORBER

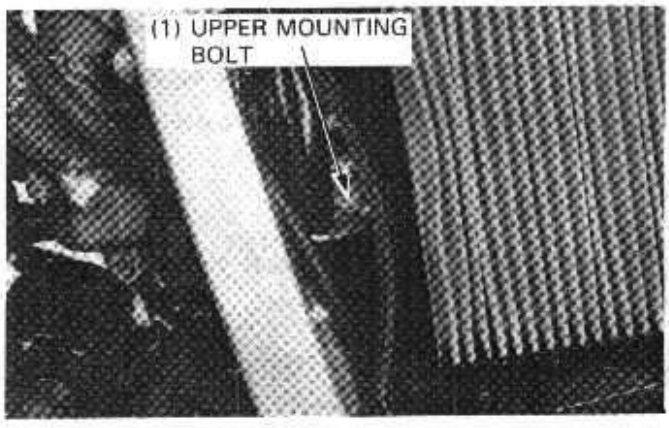
⚠ WARNING

- *The shock absorber contains nitrogen gas under high pressure. Do not allow fire or heat near the shock absorber.*

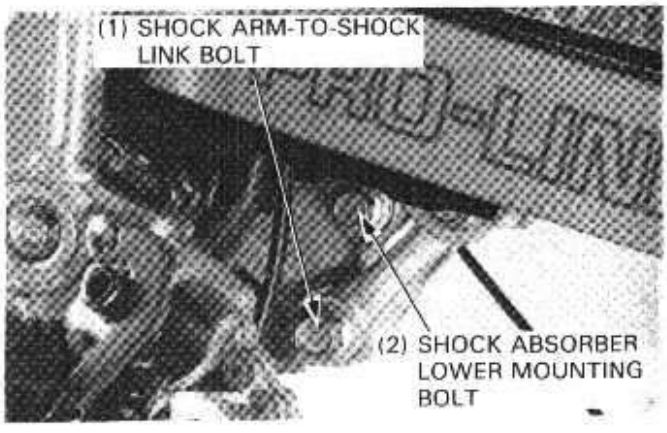
Support the motorcycle in an upright position and raise the rear wheel off the ground.
Remove the seat and side covers (page 15-2).



Remove the shock absorber upper mounting bolt.



Remove the shock link-to-shock arm bolt.
Remove the shock absorber lower mounting bolt.



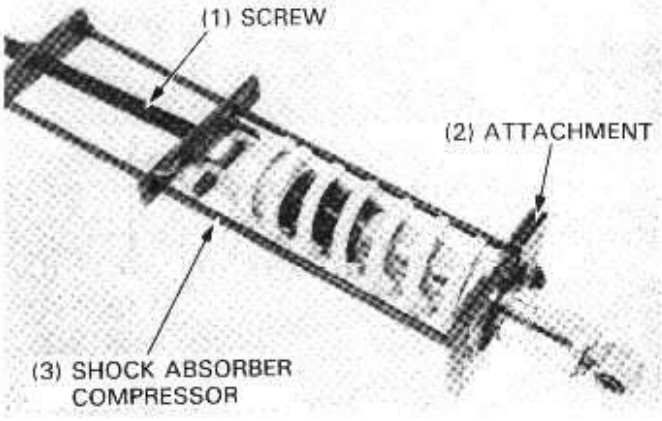
Unhook the shock absorber drain tube, then remove the shock absorber.

DISASSEMBLY

⚠ WARNING

- ***The damper unit is filled with nitrogen gas under high pressure, do not try to disassemble it.***

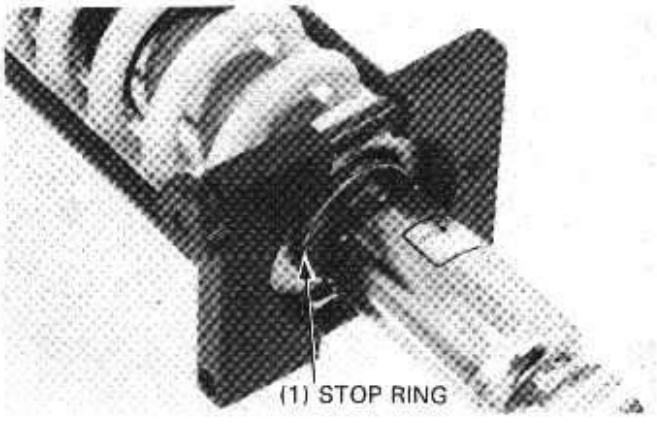
Install the attachment onto the shock absorber compressor. Set the shock absorber in the compressor as shown and compress the spring approximately 15 mm (0.6 in).



TOOLS:

Attachment	**07959—MB10000**
Shock absorber compressor	**07GME—0010000**
— screw assembly	**07GME—0010100**

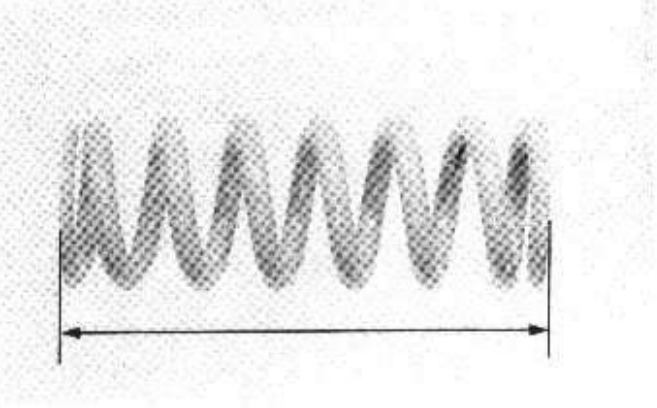
Remove the stop ring then loosen the compressor screw and remove the shock absorber upper spring seat, spring, dust seal, lower spring seat and spring guide.



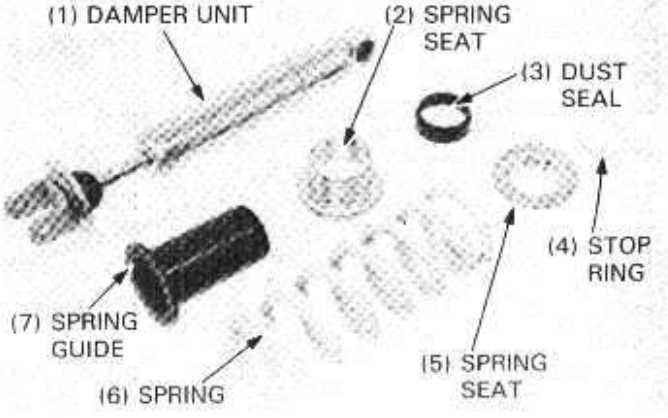
INSPECTION

Measure the spring free length.

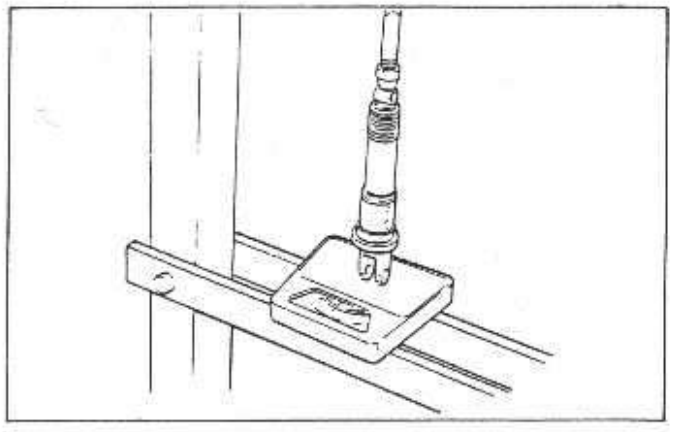
SERVICE LIMIT: 184.9 mm (7.28 in)



Check the spring guide, lower spring seat, dust seal, spring and upper spring seat for wear or damage.

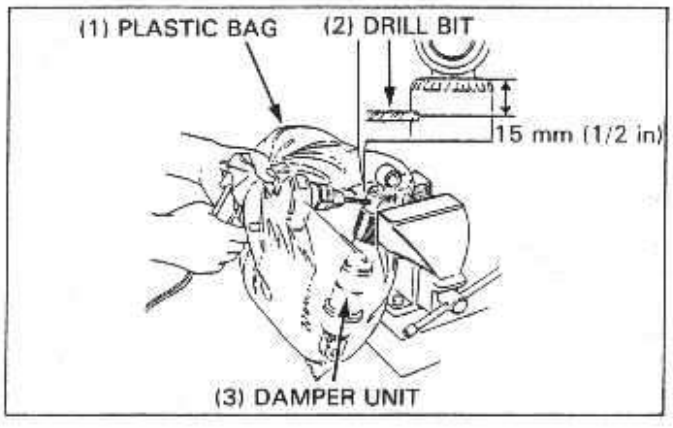


Visually inspect the damper unit for dents, oil leaks or other faults. Replace the damper unit if necessary.
Place the damper rod on a scale and measure the force required to compress the damper 10 mm (0.4 in).
Calculate the compression force by subtracting the weight of the shock absorber from the value obtained. If the force required is less than 16.5 kg (61 lbs), gas is leaking. Examine the damper rod and replace the damper unit if it is bent or scored.



SHOCK ABSORBER DISPOSAL PROCEDURE

Center punch the damper case to mark the drilling point, approximately 15 mm (1/2 in) from the top surface. Wrap the damper unit inside a plastic bag. Support the damper unit upright in a vise as shown. Through the open end of the bag, insert a drill motor with a sharp 2—3 mm (5/64—1/8 in) drill bit.



⚠WARNING

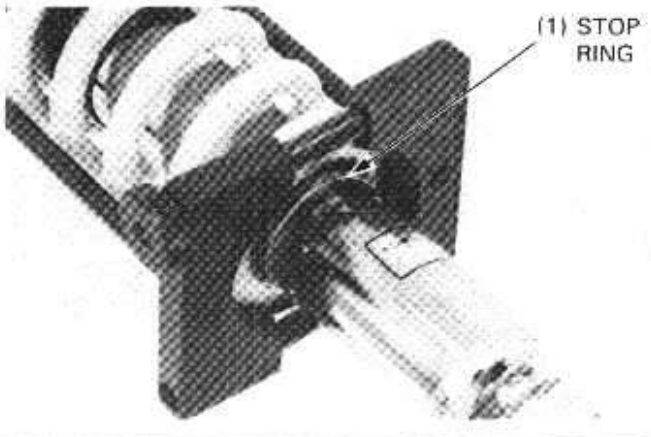
- ***Do not use a dull drill bit which could cause a build-up of excessive heat and pressure inside the damper, leading to explosion and severe personal injury.***
- ***The shock absorber contains nitrogen gas and oil under high pressure. Do not drill any farther down the damper case than the measurement given above, or you may drill into the oil chamber; oil escaping under high pressure may cause serious personal injury.***
- ***Always wear eye protection to avoid getting metal shavings in your eyes when the gas pressure is released. The plastic bag is only intended to shield you from the escaping gas.***

Hold the bag around the drill motor and briefly run the drill motor inside the bag; this will inflate the bag with air from the motor and help keep the bag from getting caught in the bit when you start.

ASSEMBLY

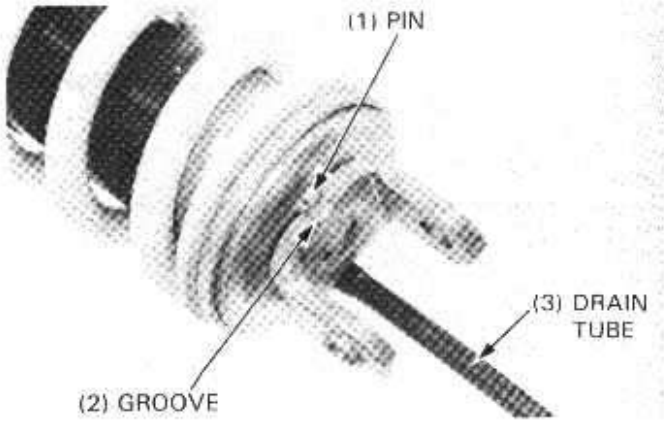
Install the spring guide, lower spring seat, dust seal, spring and upper spring seat on the damper.
Compress the spring with the compressor.

Install the stop ring securely into the groove in the damper.



Loosen the compressor gradually and align the lower joint groove with the location pin on the spring seat as shown.

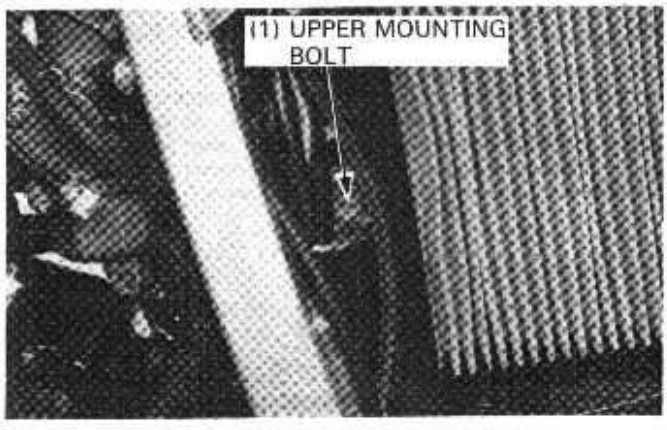
Remove the compressor and install the drain tube.



INSTALLATION

Raise the rear wheel fully and insert the shock absorber from the bottom.
Align the upper mount with the frame bracket and install the upper mounting bolt and nut.
Tighten the upper mounting bolt.

TORQUE: 65 N·m (6.5 kg-m, 47 ft-lb)

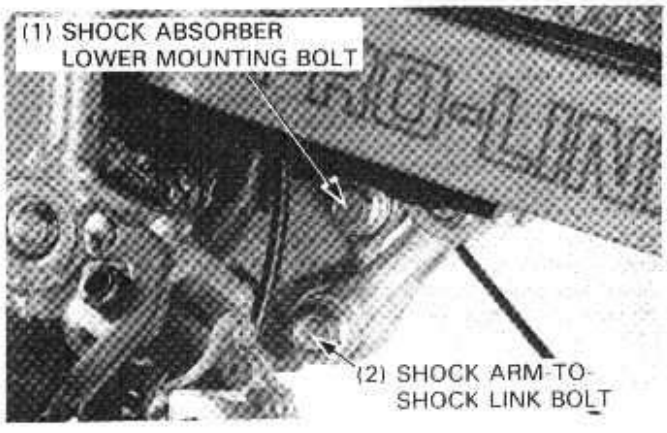


Align the lower mount with the shock arm and tighten the lower mounting bolt.

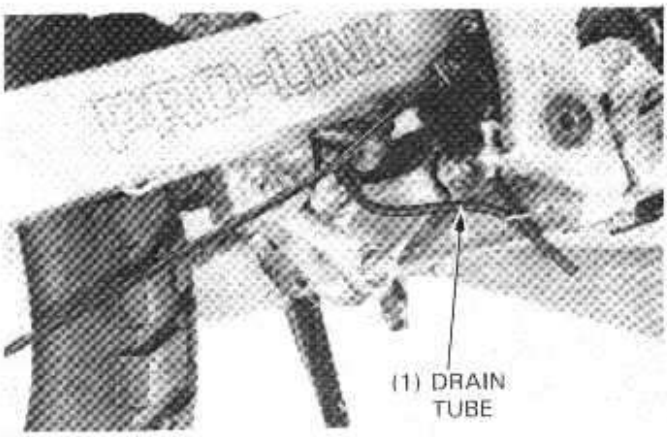
TORQUE: 45 N·m (4.5 kg-m, 33 ft-lb)

Connect the shock arm-to-shock link and tighten the bolt.

TORQUE: 105 N·m (10.5 kg-m, 76 ft-lb)



Install the shock absorber drain tube as shown.

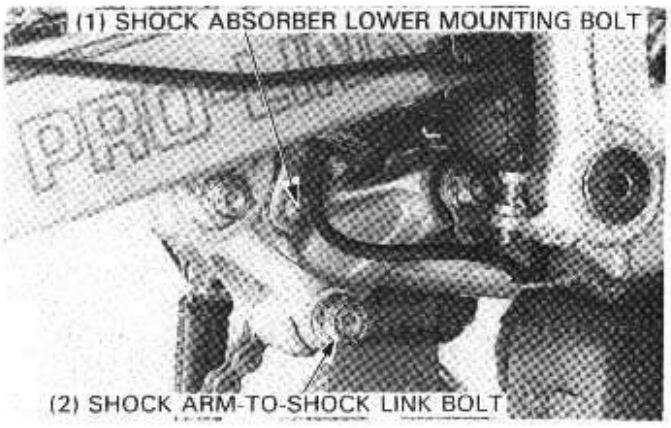


SHOCK LINKAGE

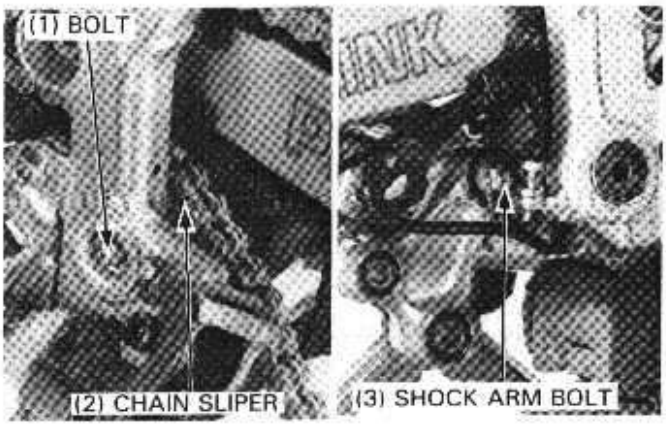
REMOVAL

Raise the rear wheel off the ground with a workstand or box under the engine.

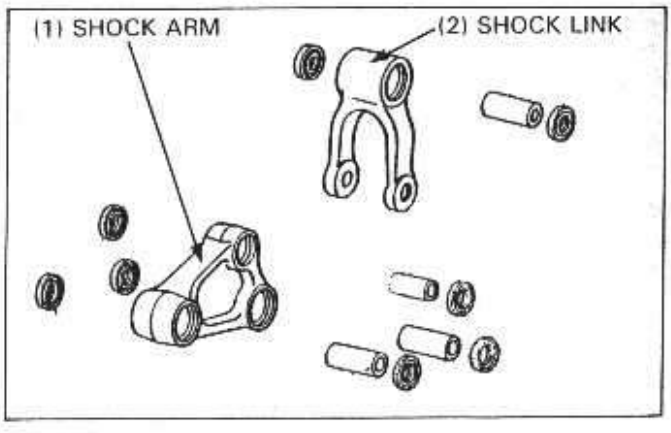
Remove the following:
- shock arm-to-shock link bolt and nut.
- rear shock absorber lower mounting bolt.
- shock link from the swingarm.



- chain sliper mounting bolt and chain sliper.
- shock arm bolt, nut, and remove the shock arm from the frame.



Check the shock arm, shock link dust seals and pivot collars for wear or damage.

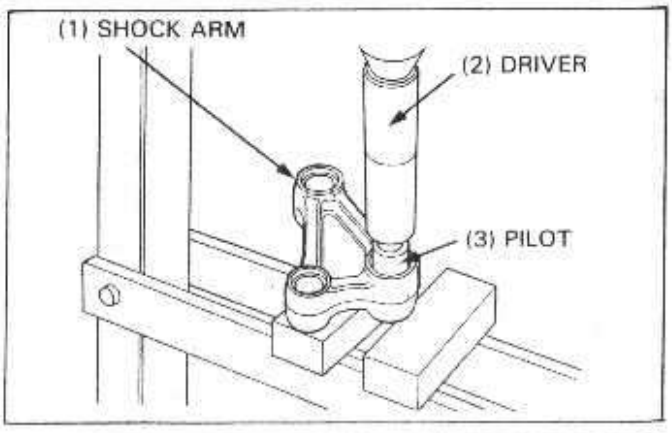


BEARING REPLACEMENT

- **Shock arm**

Press out the shock arm bearings using the following tools.

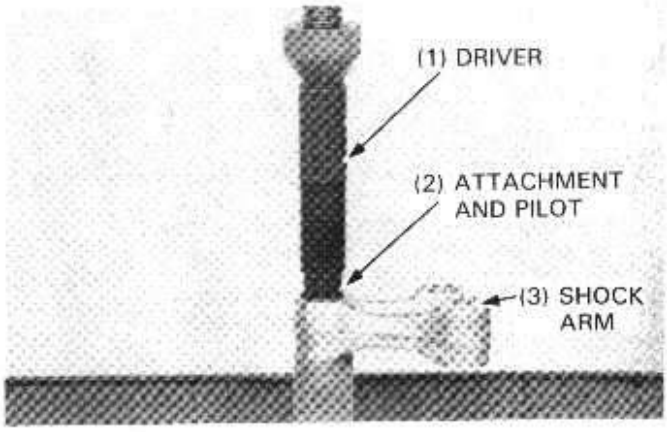
TOOLS:	
Driver	07749—0010000
Pilot, 20 mm	07746—0040500
Pilot, 22 mm	07746—0041000



Pack new needle bearings with grease.
Carefully press the needle bearing into the shock arm with the identification marks facing out.

TOOLS:

Driver	**07749–0010000**
Attachment, 24 x 26 mm	**07746–0010700**
Pilot, 17 mm	**07746–0040400**
Pilot, 15 mm	**07746–0040300**



- **Shock link bearing**

Removal:

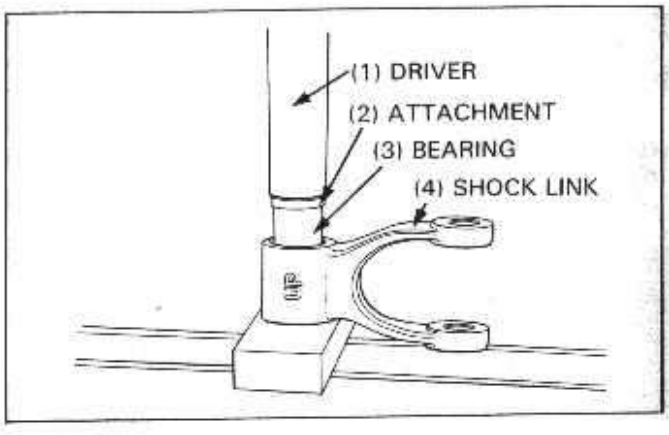
TOOLS:

Driver	**07749–0010000**
Pilot, 22 mm	**07746–0041000**

Installation:

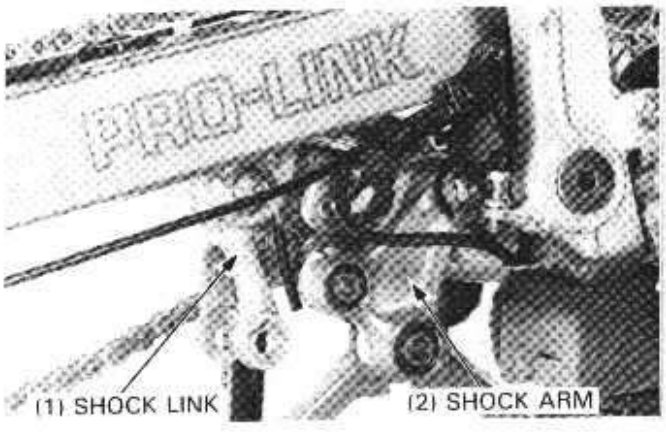
TOOLS:

Driver	**07749–0010000**
Attachment, 24 x 26 mm	**07746–0010700**
Pilot, 17 mm	**07746–0040400**



INSTALLATION

Install the shock link with the pivot collar onto the swingarm.
Install the shock arm onto the frame.



Tighten the shock link-to-swingarm bolt.

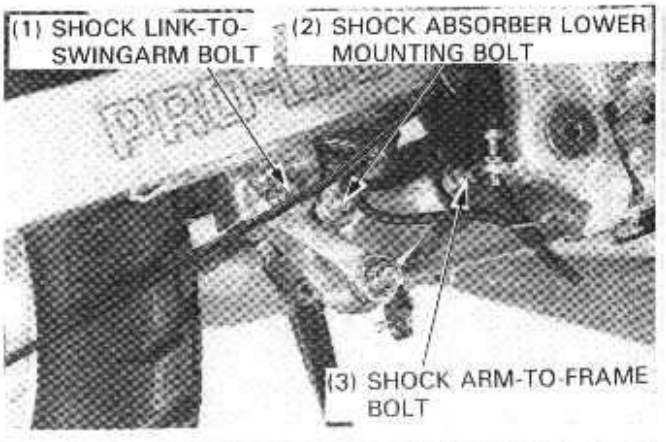
TORQUE: 105 N·m (10.5 kg-m, 76 ft-lb)

Tighten the shock arm-to-frame bolt.

TORQUE: 105 N·m (10.5 kg-m, 76 ft-lb)

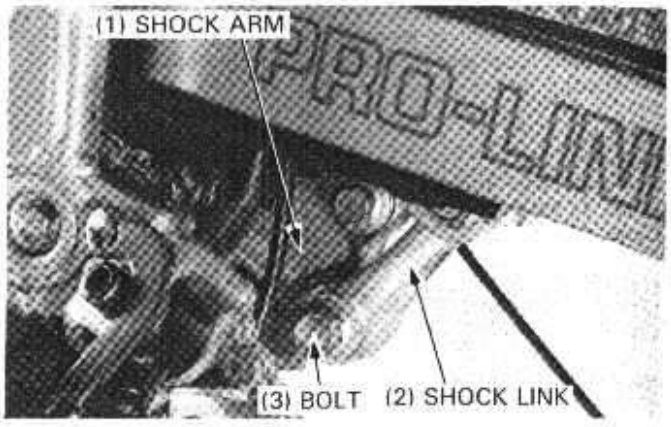
Tighten the shock absorber lower mounting bolt.

TORQUE: 45 N·m (4.5 kg-m, 33 ft-lb)



Connect the shock link-to-shock arm and tighten the bolt.

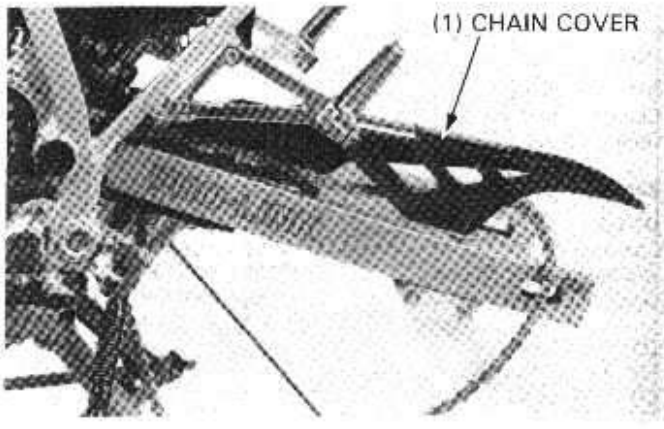
TORQUE: 105 N·m (10.5 kg-m, 76 ft-lb)



SWINGARM

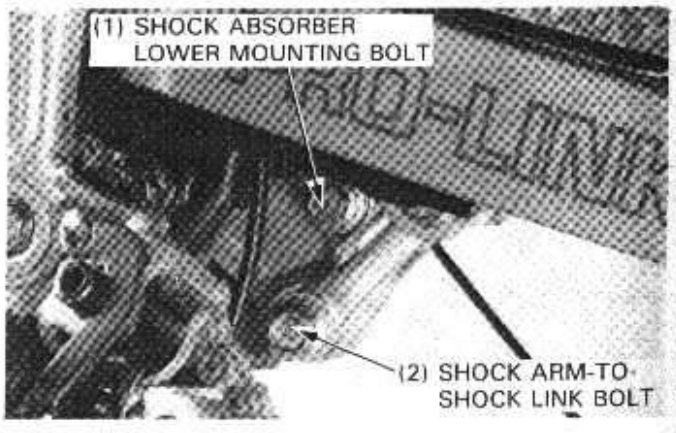
REMOVAL

Remove the following:
- rear wheel (page 13-3).
- drive chain cover.

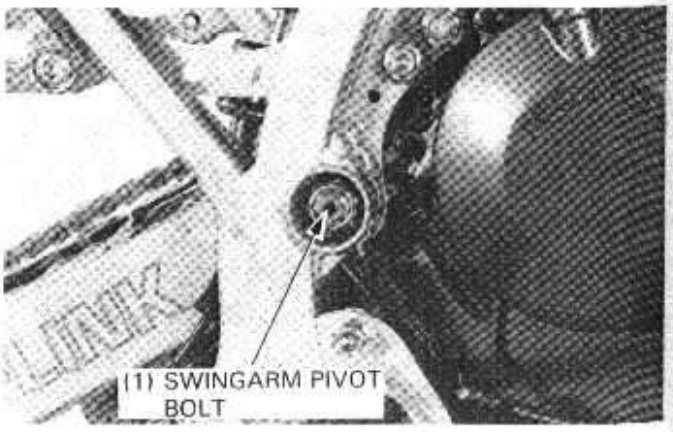


Remove the shock arm-to-shock link bolt.

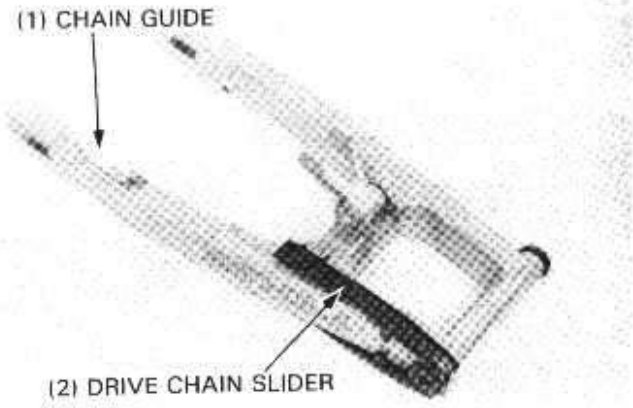
Remove the rear shock absorber lower mounting bolt.



Remove the swingarm pivot bolt caps.
Remove the right and left swingarm pivots, then remove the swingarm.

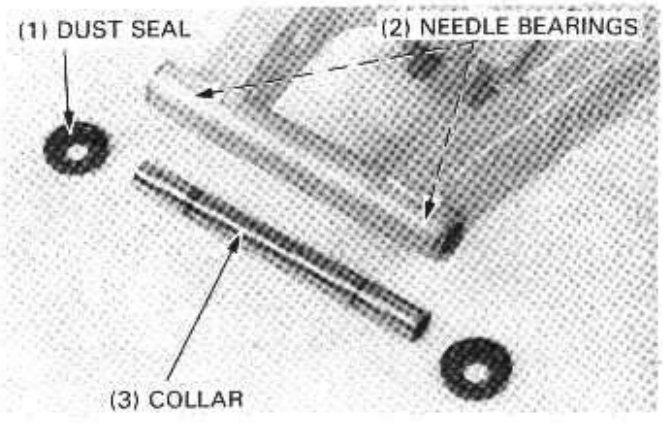


Remove the drive chain slider and chain guide.
Check the drive chain slider and chain guide for wear or damage and replace them if necessary.



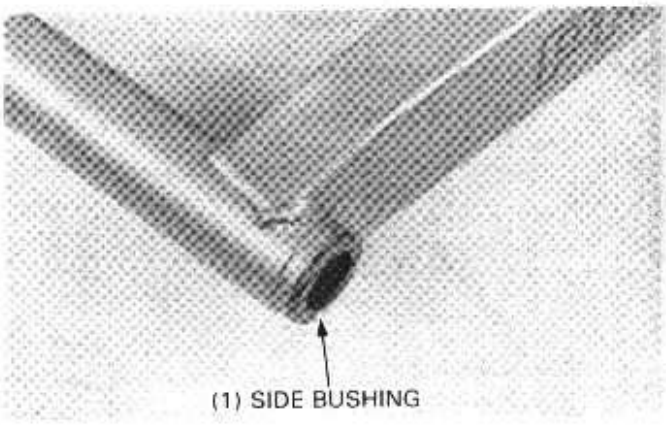
INSPECTION

Inspect the dust seals, needle bearings and collar.
Replace them if they have score marks, scratches, excessive or abnormal wear.



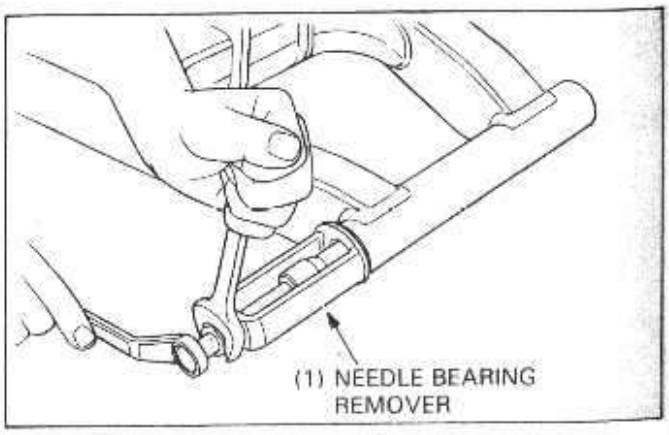
PIVOT BEARING REPLACEMENT

Remove the side bushings.

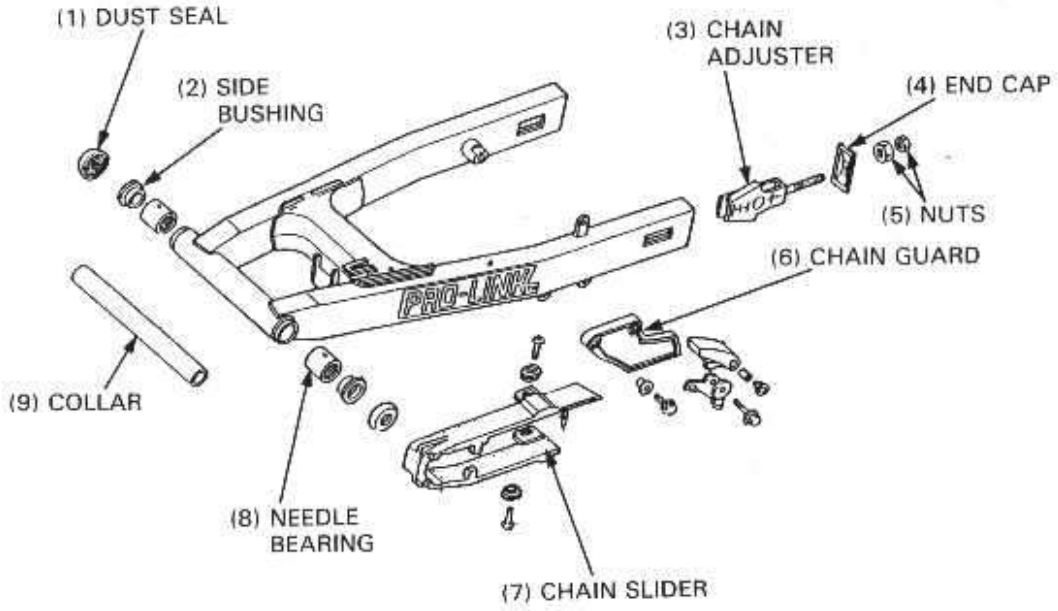


Remove the needle bearing with the needle bearing remover.

TOOLS:
Needle bearing remover **07931—MA70000**



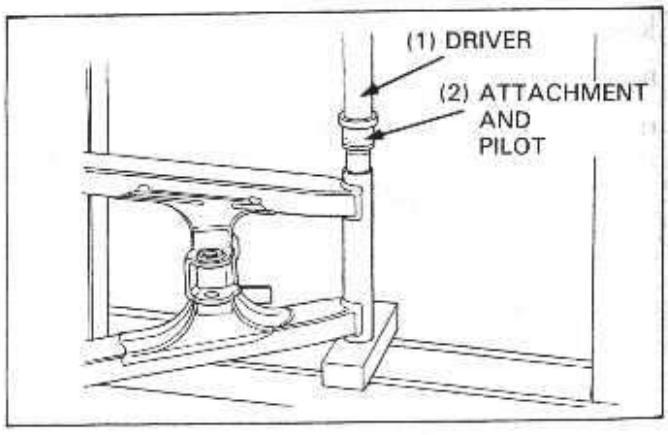
Apply grease to the needle bearings dust seal lips and collar.



Press each side's bearing and bushing into the swingarm together using hydraulic press.

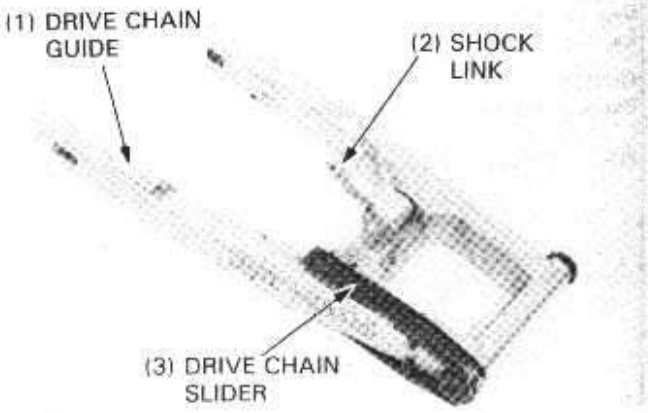
TOOLS:

Driver	**07749–0010000**
Attachment, 24 x 26 mm	**07746–0010700**
Pilot, 20 mm	**07746–0040500**



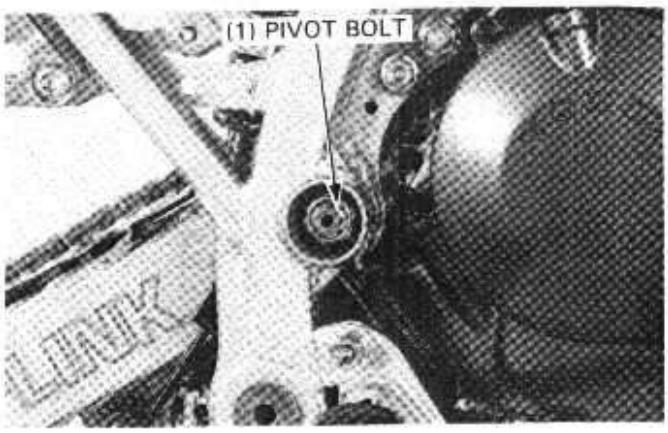
INSTALLATION

Install the drive chain slider and drive chain guide.
Install the shock link to the swingarm.



Set the swingarm in the frame and install and tighten the pivot bolt.

TORQUE: 90 N·m (9.0 kg-m, 65 ft-lb)

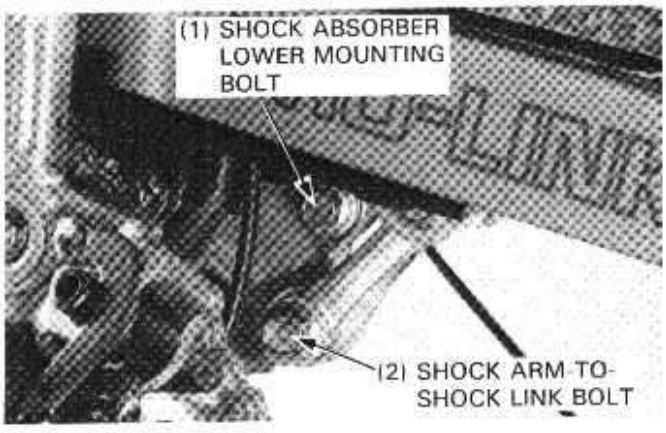


Align the shock arm with the shock absorber lower mount and tighten the lower mounting bolt.

TORQUE: 45 N·m (4.5 kg-m, 33 ft-lb)

Connect the shock arm-to-shock link and tighten the bolt.

TORQUE: 105 N·m (10.5 kg-m, 76 ft-lb)



Install the drive chain cover and chain guide.
Install the rear wheel (page 13-8).

Check the rear brake pedal free play (page 3-13).