

## TOOLS

### Special

|                       |               |
|-----------------------|---------------|
| Needle bearing driver | 07946-KA50000 |
| Driver shaft          | 07946-MJ00100 |

### Common

|                             |               |
|-----------------------------|---------------|
| Pin spanner                 | 89201-KA4-811 |
|                             | 89202-KA4-811 |
| Bearing remover shaft       | 07746-0050100 |
| Bearing remover head, 17 mm | 07746-0050500 |
| Driver                      | 07749-0010000 |
| Attachment, 37 x 40 mm      | 07746-0010200 |
| Attachment, 42 x 47 mm      | 07746-0010300 |
| Attachment, 32 x 35 mm      | 07746-0010100 |
| Pilot, 17 mm                | 07746-0040400 |
| Attachment, 24 x 26 mm      | 07746-0010700 |

## TROUBLESHOOTING

### Wobble or vibration in motorcycle

- Bent rim
- Loose wheel bearing(s)
- Loose or bent spokes
- Damaged tire
- Axle nut tightened properly
- Swingarm pivot bearing worn
- Chain adjusters not adjusted equally
- Bent frame or swingarm

### Soft suspension

- Weak spring
- Improper shock absorber spring preload

### Hard suspension

- Improper shock absorber spring preload
- Bent shock absorber rod
- Swingarm pivot bearings damaged
- Bent frame or swingarm

### Suspension noise

- Faulty rear damper
- Loose fasteners
- Worn shock linkage pivot bushing(s)

### 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 by placing a box or workstand under the engine.

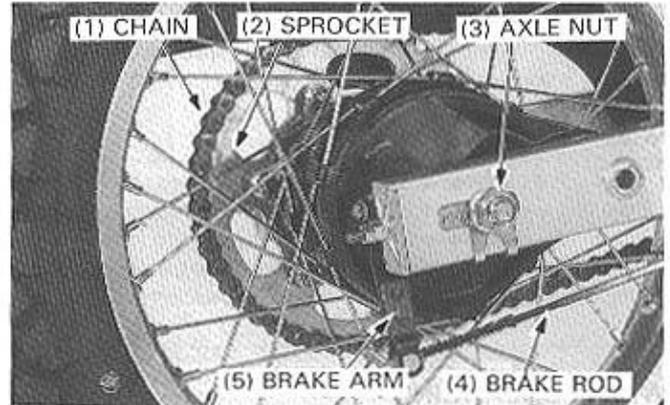
### CAUTION

- Do not support the motorcycle by placing a jack or other support under the oil filter.

Loosen the chain adjuster on each side.

Remove the following components:

- Brake rod from the brake arm.
- Axle nut and axle.
- Chain from the sprocket.
- Rear wheel.

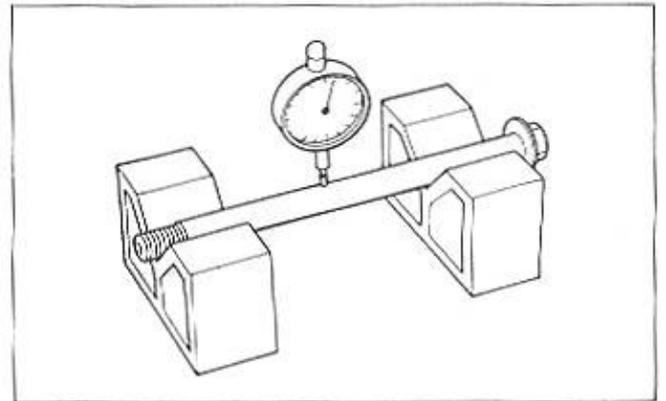


### INSPECTION

#### ● AXLE

Set the axle on V blocks and measure the runout. The actual runout is 1/2 of the total indicator reading.

**SERVICE LIMIT: 0.2 mm (0.01 in)**



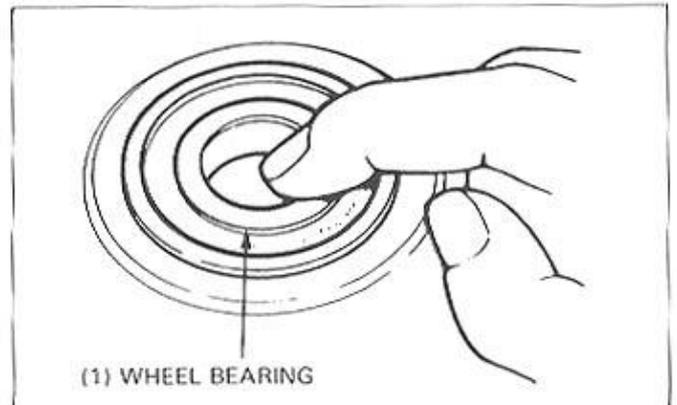
#### ● WHEEL BEARING

Remove the driven flange (page 14-4). Turn the inner race of each bearing with your finger. The bearings should turn smoothly and quietly. Also check that the bearing outer race fits tightly in the hub and flange. Remove and discard the bearings if the races do not turn smoothly, quietly, or if they fit loosely in the hub and flange.

### NOTE

- Replace wheel bearings as a set.

For bearing replacement, see pages 14-4 and 14-5.



#### ● WHEEL

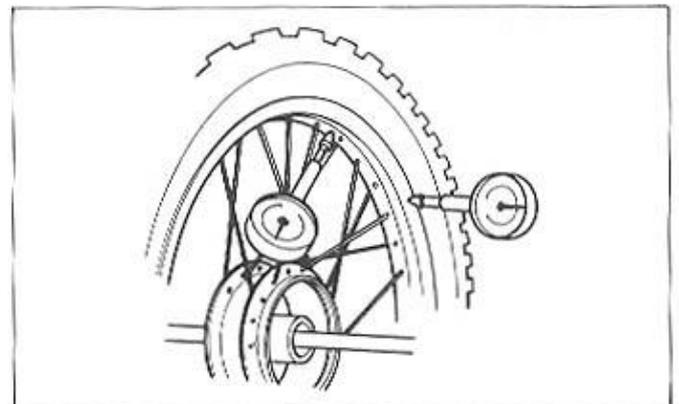
Check the spokes and tighten any that are loose.

**TORQUE: 3.8 N·m (0.38 kg·m, 2.7 ft·lb)**

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)**



Drive out the wheel bearings and the distance collar.

**NOTE**

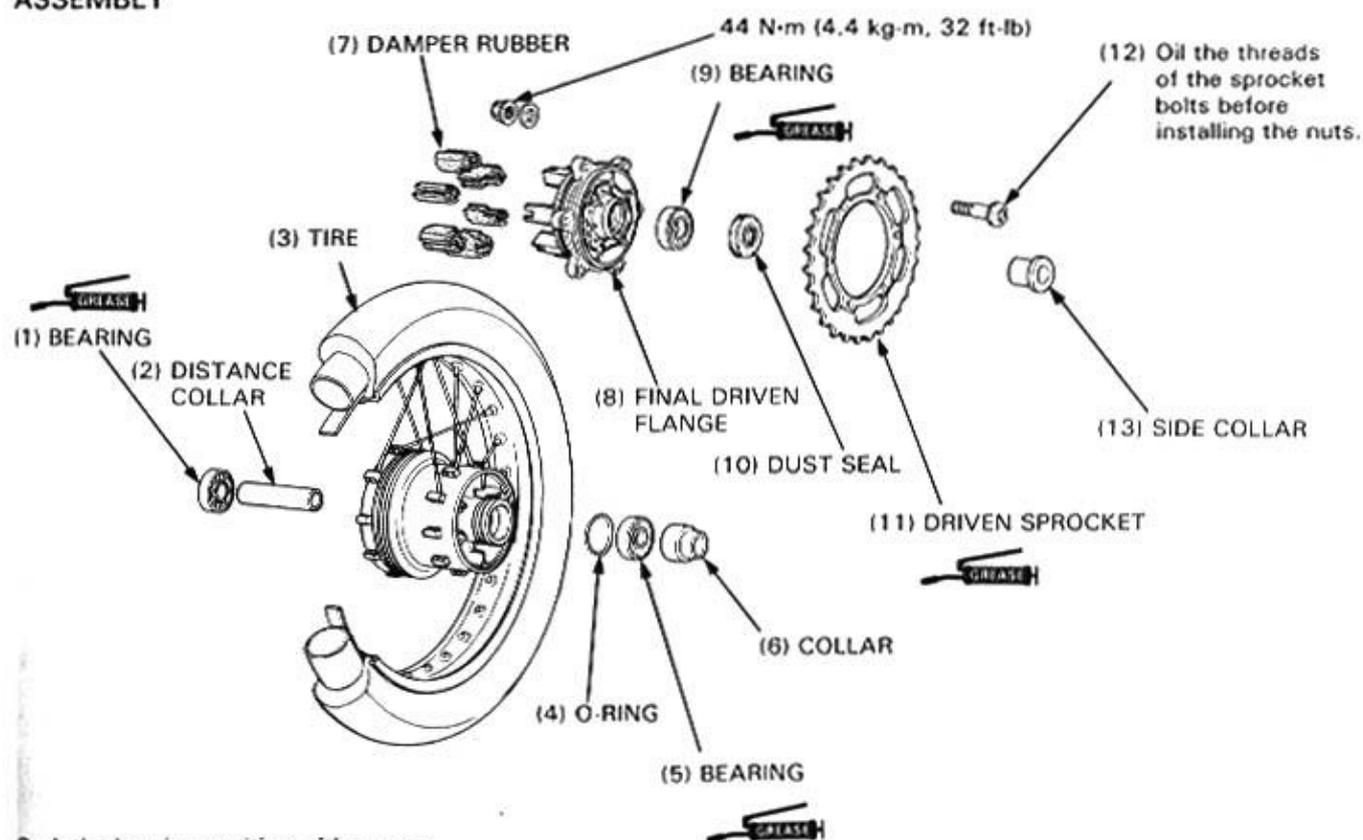
- Whenever the bearings are removed, they should be replaced with new ones.

**TOOLS:**

- Bearing remover shaft 07746-0050100
- Bearing remover head, 17 mm 07746-0050500



**ASSEMBLY**



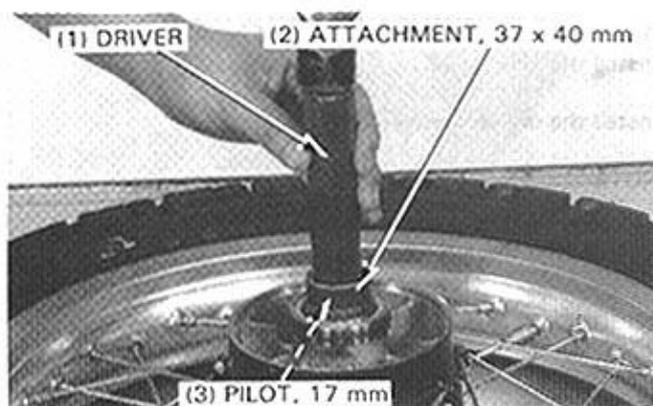
Pack the bearing cavities with grease.  
 Drive in the right bearing with the sealed side of the bearing facing out.  
 Be careful not to tilt the bearing while driving it into the hub and make sure that it is fully seated.  
 Install the distance collar into the hub, then drive in the left bearing with its sealed side facing out.

**WARNING**

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

**TOOLS:**

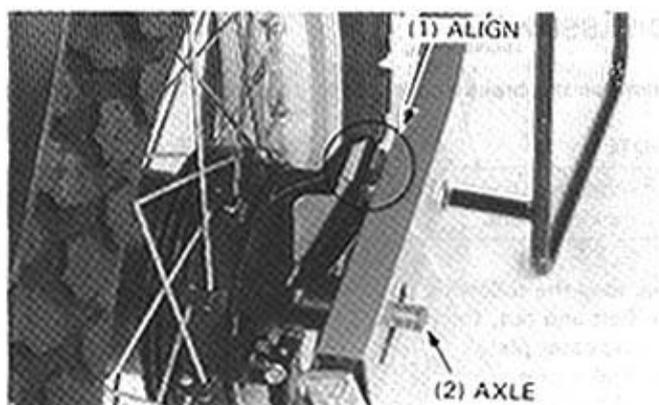
- Driver 07749-0010000
- Attachment, 37 x 40 mm 07746-0010200
- Pilot, 17 mm 07746-0040400



**INSTALLATION**

Install the brake panel to the wheel hub.  
Place the rear wheel between the swingarm and rail the drive chain over the driven sprocket.

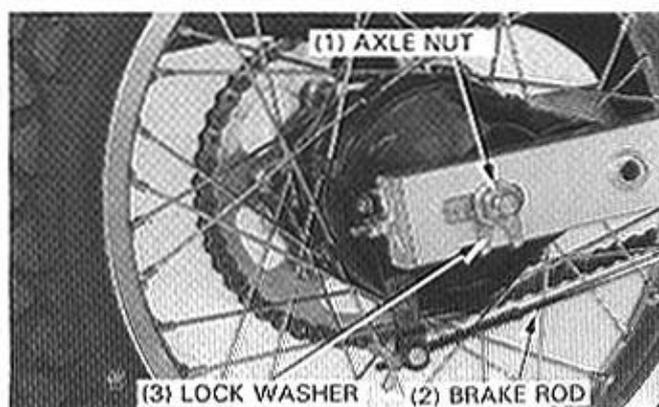
Lift the rear wheel and set the boss on the swingarm in the slot in the brake panel, then insert the rear axle from the left side through the swingarm.



Loosely install the lock washer and axle nut.  
Adjust the drive chain (page 3-11).  
Tighten the rear axle nut.

**TORQUE: 95 N·m (9.5 kg-m, 69 ft-lb)**

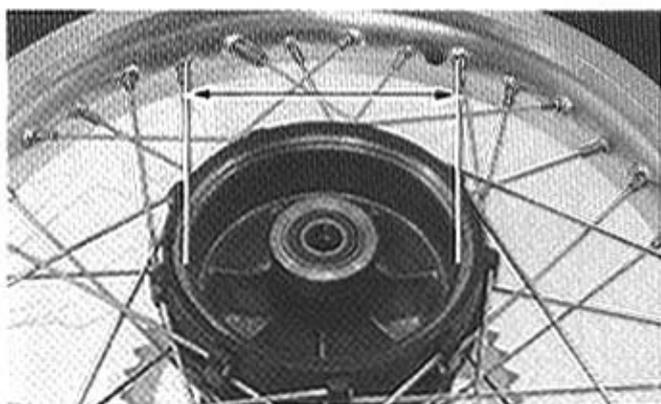
Connect the brake rod to the brake arm.  
Adjust the rear brake pedal free play (page 3-14).

**REAR BRAKE****INSPECTION**

Remove the rear wheel (page 14-3).

Remove the brake panel.  
Measure the rear brake drum I.D.

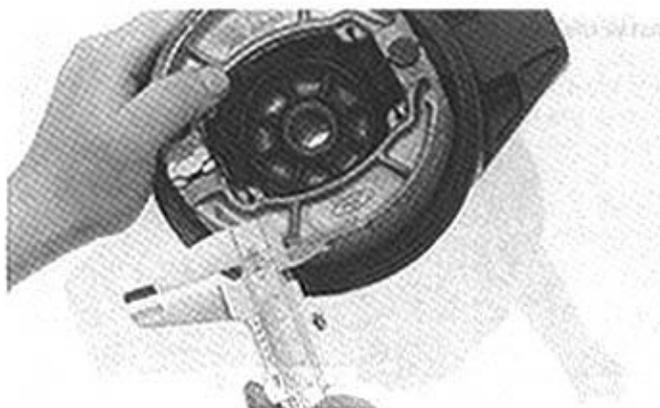
**SERVICE LIMIT: 131 mm (5.2 in)**



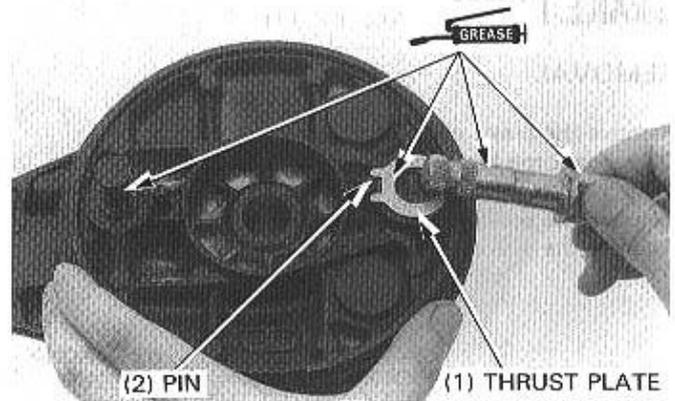
Measure the rear brake lining thickness.

**SERVICE LIMIT: 2.0 mm (0.08 in)**

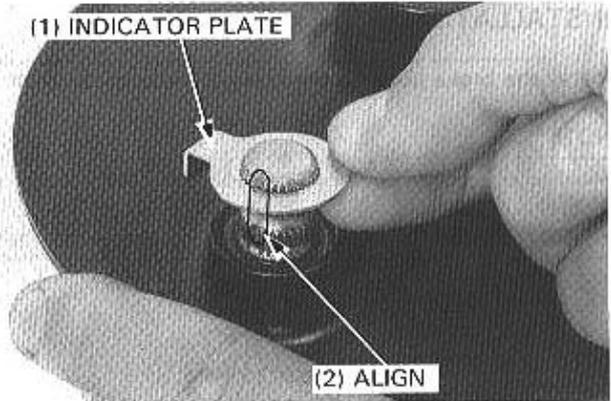
Replace the brake shoes if they are worn beyond the service limit.



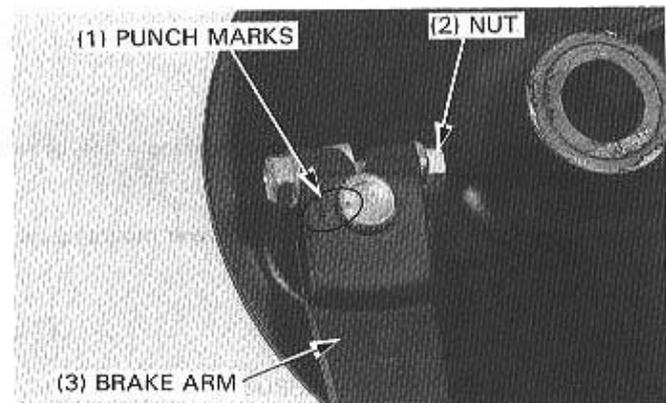
Apply grease to the thrust plate and install it by aligning the groove with the pin on the brake panel.  
 Apply grease to the brake cam and install it.  
 Apply grease to the brake anchor pin.



Install the indicator plate onto the brake cam, aligning its tab with cut-out on the brake cam.



Install the brake arm by aligning the punch marks.  
 Install the bolt and tighten the nut securely.

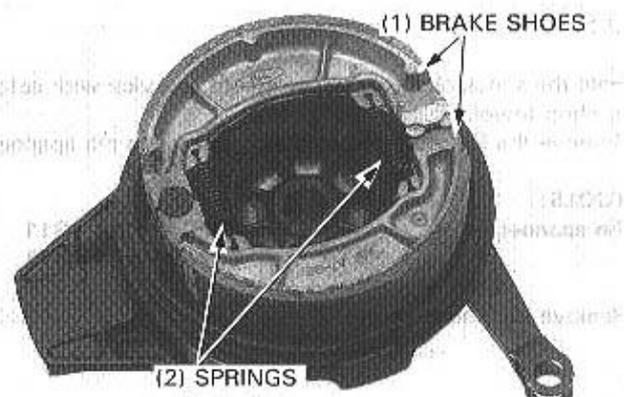


Position the brake shoes in their original locations and install the springs.

**WARNING**

- Grease on the brake linings will reduce stopping power. Keep grease off of the brake linings. Wipe excess grease off the cam and anchor pin.

Install the brake panel into the wheel hub and install the rear wheel (page 14-7).



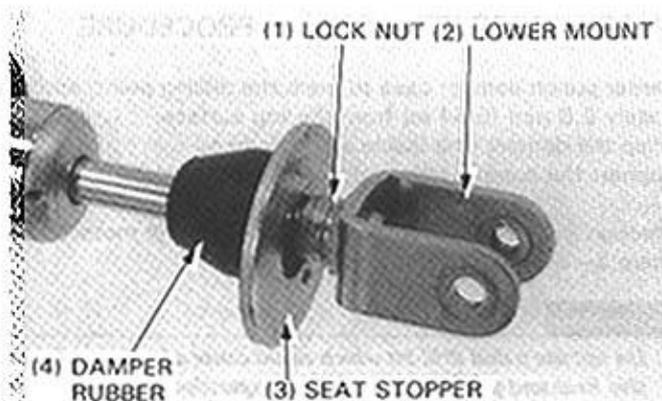
Loosen the lock nut.

Remove the lower mount, seat stopper, spring guide, spring seat and damper rubber.

Clean the locking agent off the damper rod and lower mount lock nut threads.

**WARNING**

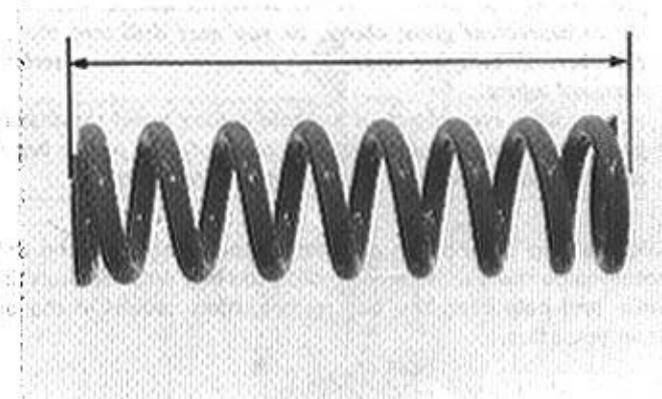
- The damper unit is filled with nitrogen gas under high pressure, do not try to disassemble.



**INSPECTION**

Measure the spring free length.

**SERVICE LIMIT: 263 mm (10.35 in)**



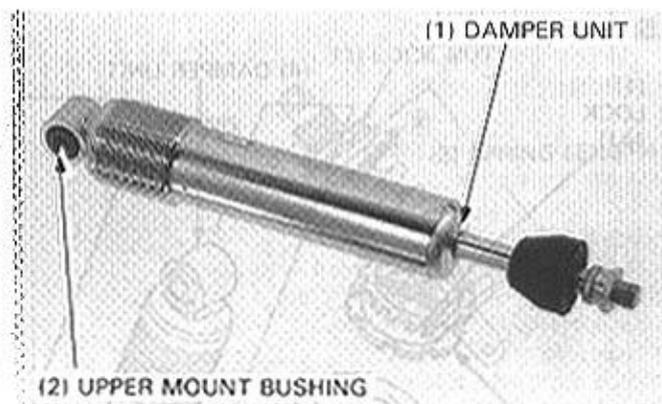
**WARNING**

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

Check the damper unit for oil leaks or other damage and the damper rod for trueness.

Check the spring seat, and spring guide, damper rubber and spring seat stopper for wear or damage.

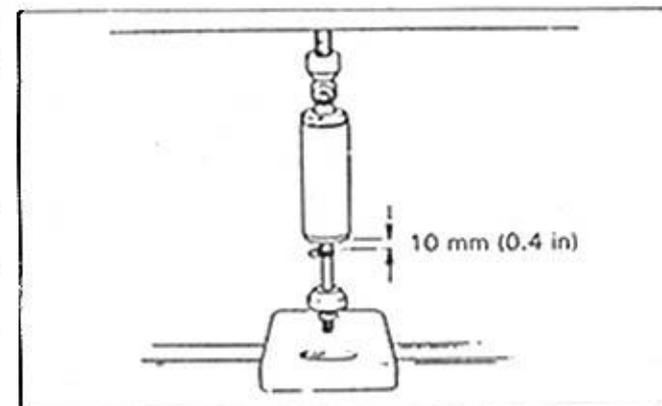
Check the upper mount bushing for wear or damage.



Mark the 10 mm position as shown of the damper rod. Place the damper rod on a scale and measure the force required to compress the damper until 10 mm (0.4 in).

**COMPRESSION FORCE: 33 kg (72.75 lb)**

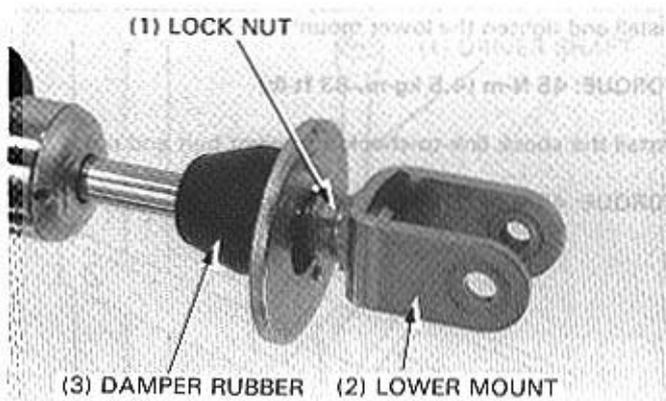
If the force required is less than 23.5 kg (51.81 lb), gas is leaking. Examine the damper rod and replace the damper unit if it is bent or scored.



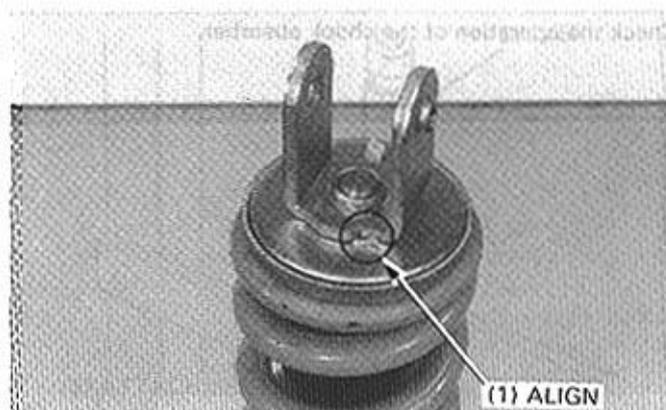
Install the spring seat, damper rubber spring guide and spring seat stopper.

Apply a locking agent to the rod threads and install the lock nut. Screw the lock nut on fully. Screw the lower mount onto the damper rod fully, hold it and tighten the lock nut.

**TORQUE: 68 N·m (6.8 kg·m, 49 ft·lb)**



Align the lower mount cut-out with the locating pin on the spring seat stopper as shown. Install the spring.



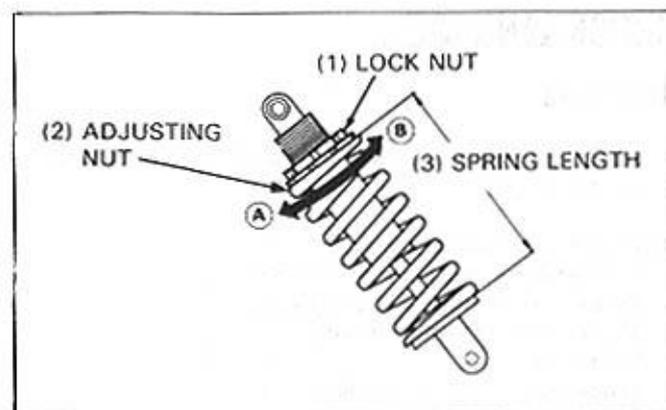
Install the spring adjusting nut and lock nut. Turn the spring adjusting nut until the spring length is as specified.

- A: DECREASE THE SPRING LENGTH
- B: INCREASE THE SPRING LENGTH

**STANDARD SPRING LENGTH: 264.9 mm (10.43 in)**  
**MAXIMUM LENGTH: 267.5 mm (10.53 in)**  
**MINIMUM LENGTH: 258.0 mm (10.16 in)**

**NOTE**

- One turn of the adjusting nut changes the spring length by 1.5 mm.



Tighten the lock nut.

**TORQUE: 90 N·m (9.0 kg·m, 65 ft·lb)**

Install the breather tube.

**INSTALLATION**

Install the shock absorber with the drain tube toward the front.

Install and tighten the upper mounting bolt and nut.

**TORQUE: 45 N·m (4.5 kg·m, 33 ft·lb)**



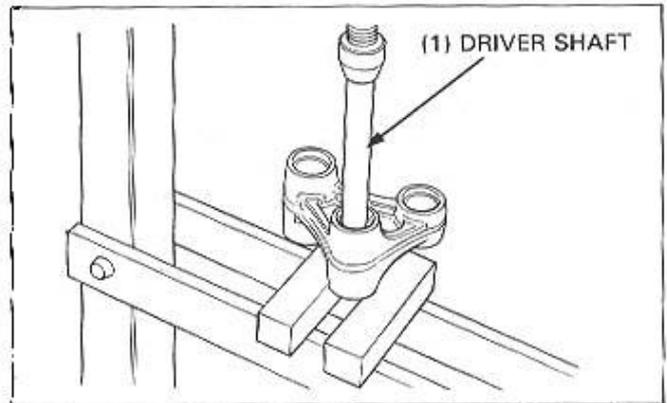
**PIVOT BEARING REPLACEMENT**

**Shock arm**

Press the needle bearings out of the shock arm.

**TOOL:**

Driver shaft 07946-MJ00100

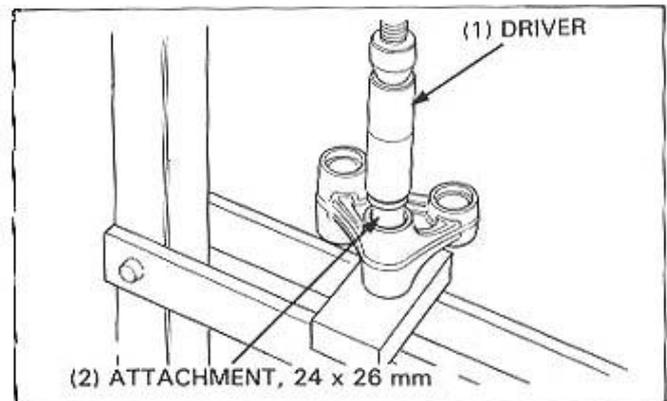


Press a new needle bearing into the shock arm with the markings facing out.

**TOOLS:**

Driver 07749-0010000

Attachment, 24 x 26 mm 07746-0010700

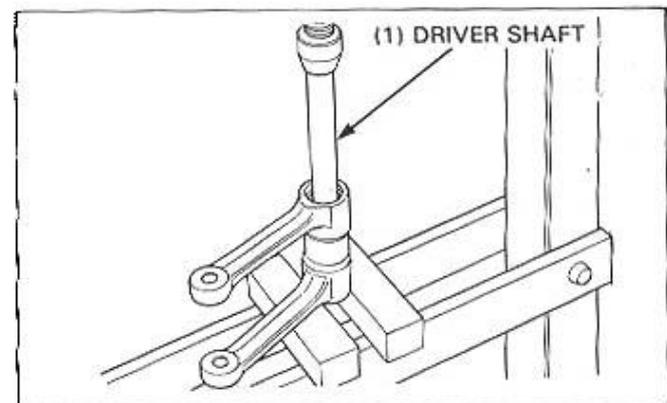


**Shock link**

Press the needle bearings out of the shock link.

**TOOL:**

Driver shaft 07946-MJ00100

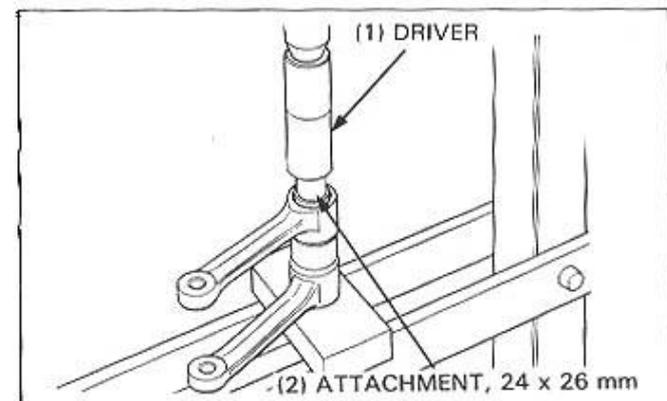


Press a new needle bearing into the shock link with the markings facing out.

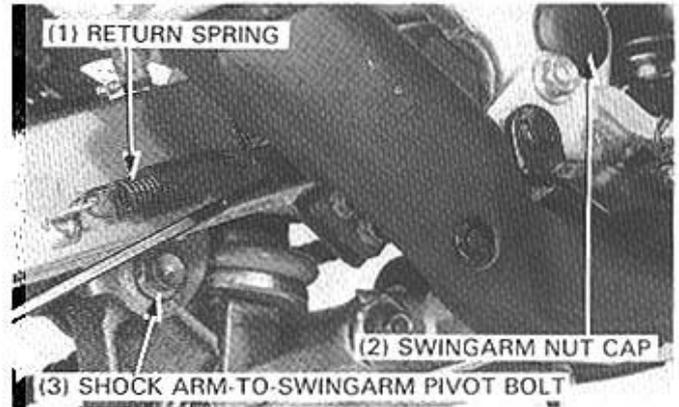
**TOOLS:**

Driver 07749-0010000

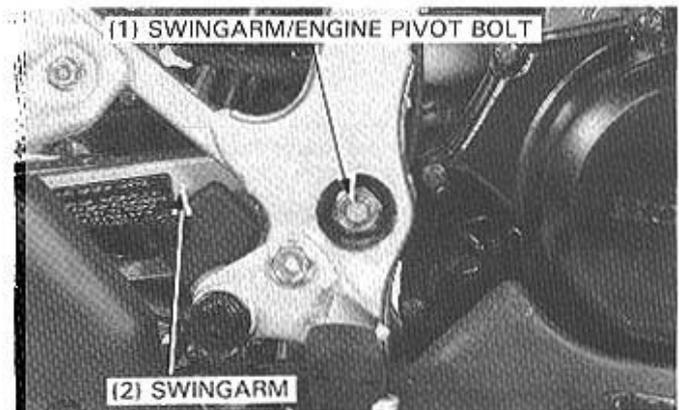
Attachment, 24 x 26 mm 07746-0010700



Remove the brake pedal return spring.  
 Remove the shock arm-to-swingarm pivot bolt.  
 Remove the swing arm nut cap.

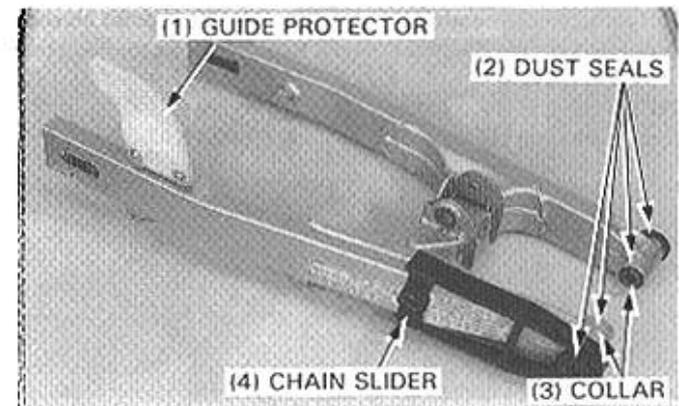


Remove the swingarm/engine pivot bolt and swingarm.



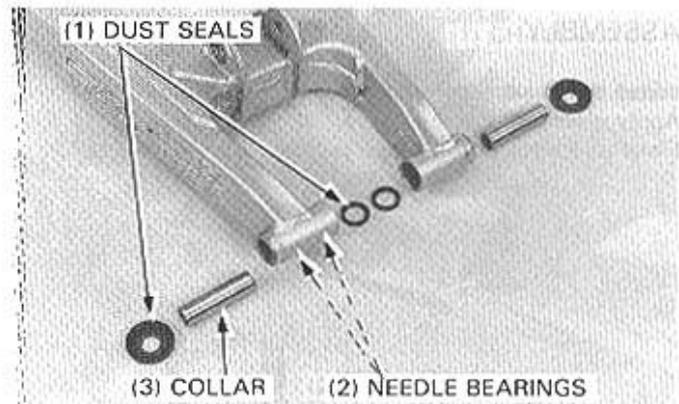
**DISASSEMBLY**

Remove the chain slider and chain guide protector.  
 Remove the dust seals and pivot collars.



**INSPECTION**

Inspect the swingarm for deformation or cracks.  
 Check the needle bearings, collars and dust seals for wear or damage.



**INSTALLATION**

Install the swingarm to the frame.

Install the swingarm/engine pivot bolt and nut, and tighten the nut to the specified torque.

**TORQUE: 110 N-m (11.0 kg-m, 80 ft-lb)**

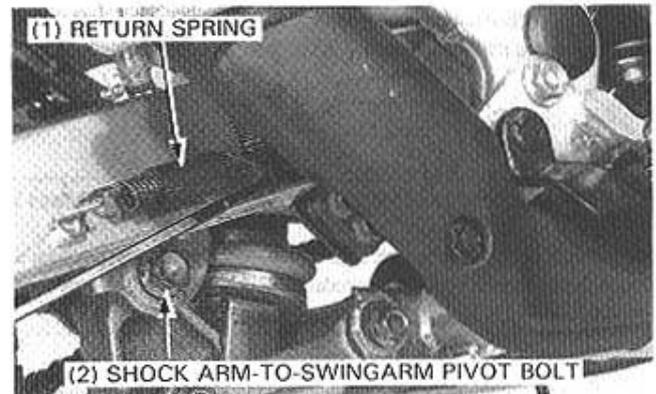
Install the swingarm nut cap securely.



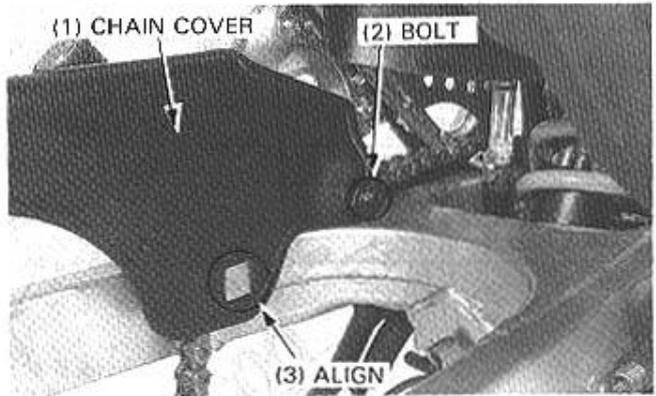
Install the brake pedal return spring.

Install the shock arm-to-swingarm pivot bolt and nut, and tighten the nut.

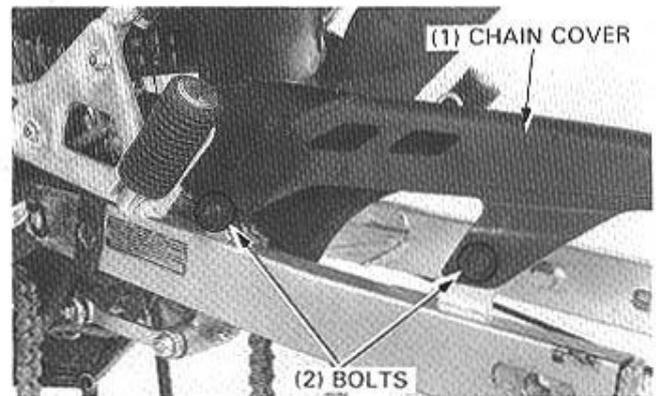
**TORQUE: 105 N-m (10.5 kg-m, 76 ft-lb)**



Install the chain cover onto the swingarm aligning the bosses of the swingarm with the grooves of the chain cover. Install the chain cover bolt.



Install the two chain cover bolts.  
Install the rear wheel (page 14-7).

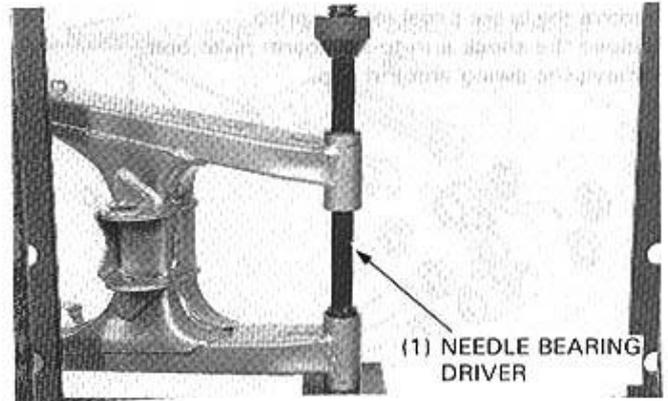


## REAR WHEEL/BRAKE/SUSPENSION

### PIVOT BEARING REPLACEMENT

Drive the bushing out of the swingarm.  
Press the needle bearing out with the special tool.

**TOOL:**  
Needle bearing driver 07946—KA50000

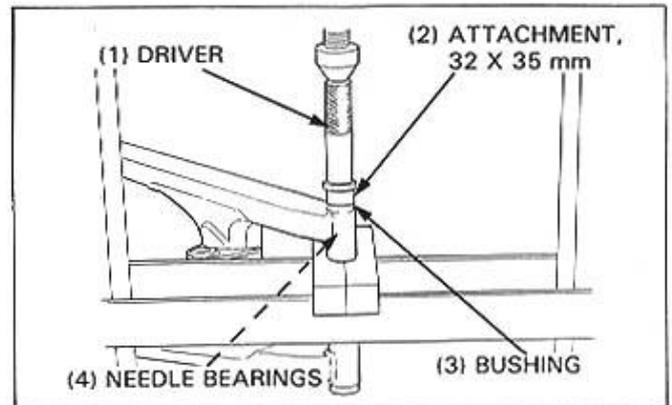


Carefully press the outer needle bearing with the bushing into the swingarm pivot.

#### NOTE

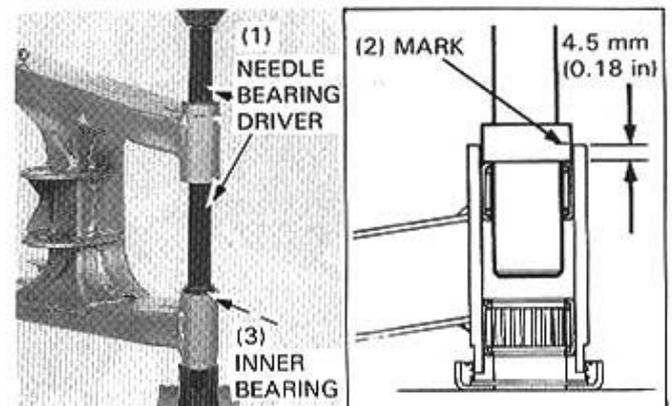
- Install the bearing with the marks facing out.

**TOOLS:**  
Driver 07749—0010000  
Attachment, 32 x 35 mm 07746—0010100



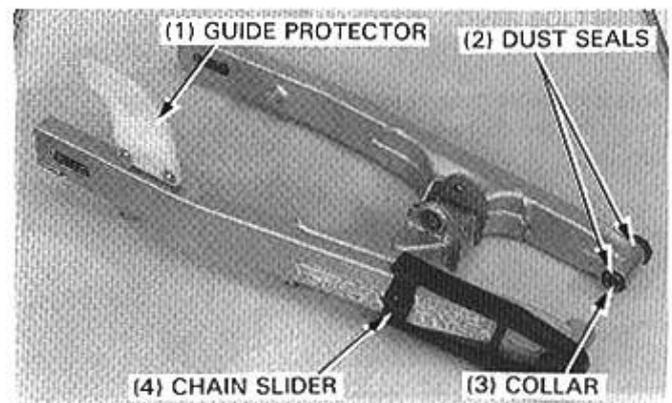
Mark the needle bearing driver on the specified point as shown and press in the new inner needle bearing to the marking point.

**TOOL:**  
Needle bearing driver 07946—KA50000



### ASSEMBLY

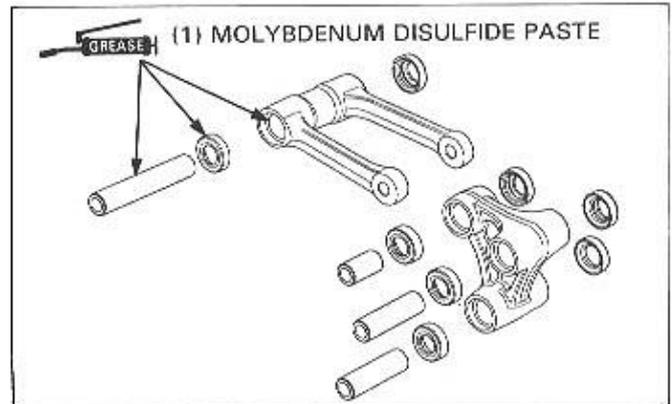
Install the chain slider and chain guide protector.  
Apply grease to the dust seal lips.  
Install the pivot collars, then dust seals.



## REAR WHEEL/BRAKE/SUSPENSION

### INSTALLATION

Apply molybdenum disulfide paste grease to the pivot collars, insides of the needle bearings and the dust seal lips. Install the pivot collars and dust seals properly.



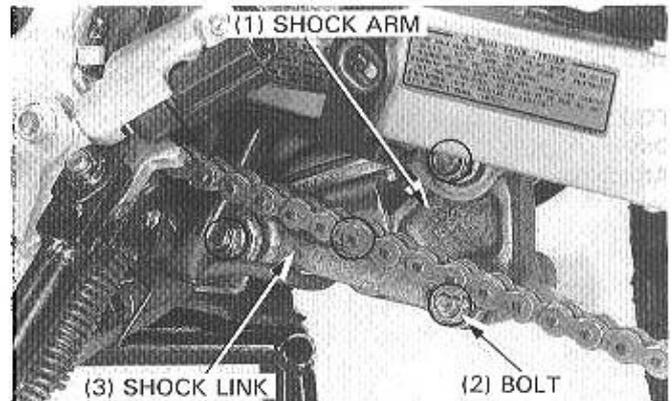
Install the shock arm and shock link, and loosely install each bolt and nut.

Tighten the each nut to the specified torque.

#### TORQUE:

- Shock arm-to-swingarm nut:  
105 N·m (10.5 kg-m, 76 ft-lb)
- Shock absorber lower mount bolt:  
45 N·m (4.5 kg-m, 33 ft-lb)
- Shock link-to-shock arm nut:  
65 N·m (6.5 kg-m, 47 ft-lb)
- Shock link-to-frame nut:  
65 N·m (6.5 kg-m, 47 ft-lb)

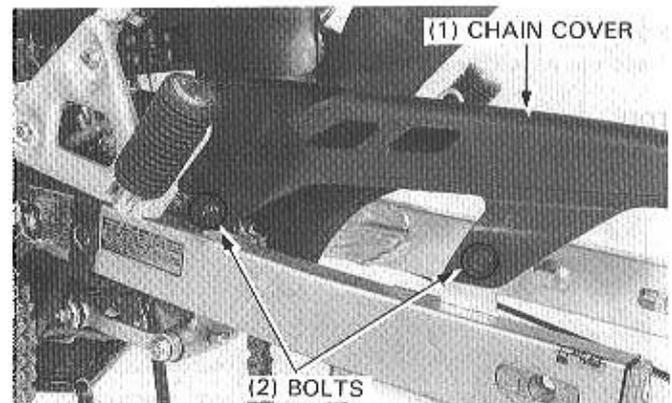
Install the exhaust pipes/muffler (page 12-4).



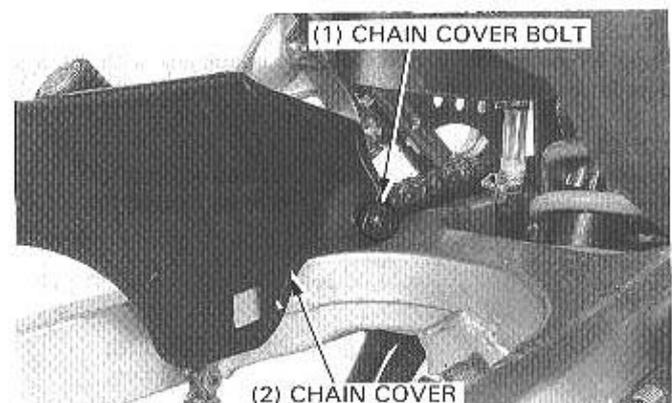
## SWINGARM

### REMOVAL

Remove the rear wheel (page 14-3).  
Remove the two chain cover bolts.



Remove the chain cover bolt and chain cover.



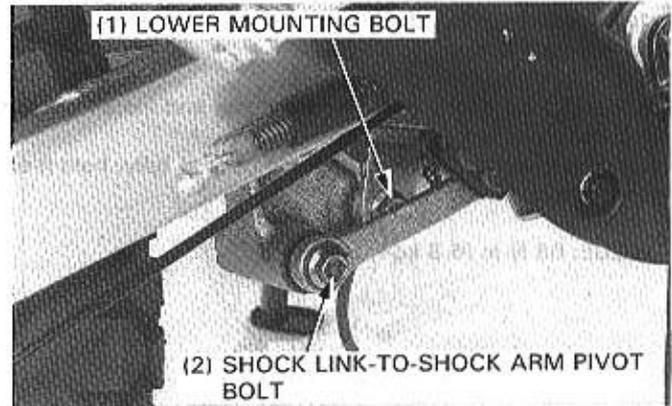
## REAR WHEEL/BRAKE/SUSPENSION

Install and tighten the lower mounting bolt.

**TORQUE: 45 N·m (4.5 kg-m, 33 ft-lb)**

Install the shock link-to-shock arm pivot bolt and nut.

**TORQUE: 45 N·m (4.5 kg-m, 33 ft-lb)**



Check the operation of the shock absorber.



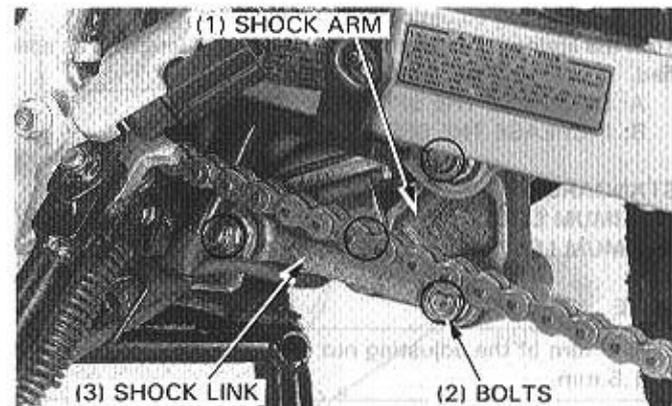
## SHOCK LINKAGE

### REMOVAL

Raise the rear wheel off the ground by placing a work stand or box under the engine.

Remove the following components:

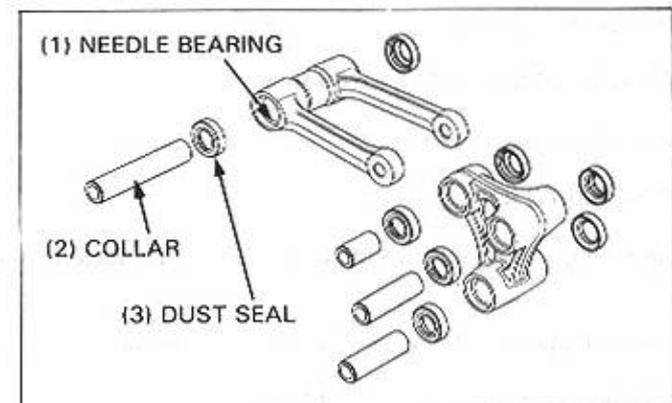
- Exhaust pipes/muffler (page 12-4).
- Shock link-to-shock arm pivot bolt.
- Shock link-to-frame pivot bolt.
- Shock link.
- Shock arm-to-swingarm pivot bolt.
- Shock absorber lower mounting bolt.
- Shock arm.



### INSPECTION

Remove the dust seals and pivot collars from the shock link and shock arm.

Check the dust seals, collars and needle bearings for wear or damage.



## REAR WHEEL/BRAKE/SUSPENSION

### SHOCK ABSORBER DISPOSAL PROCEDURE

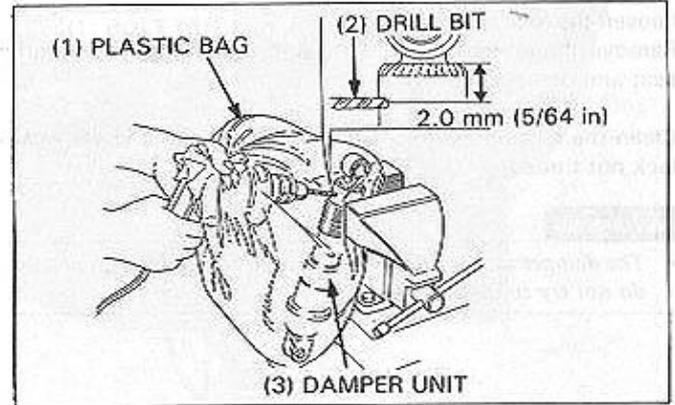
Center punch damper case to mark the drilling point, approximately 2.0 mm (5/64 in) from the top surface. Wrap the damper unit inside a plastic bag. Support the damper unit upright in a vise as shown.

Through the open end of the bag, insert a drill motor with a sharp 2–3 mm (5/64–1/8 in) drill bit.

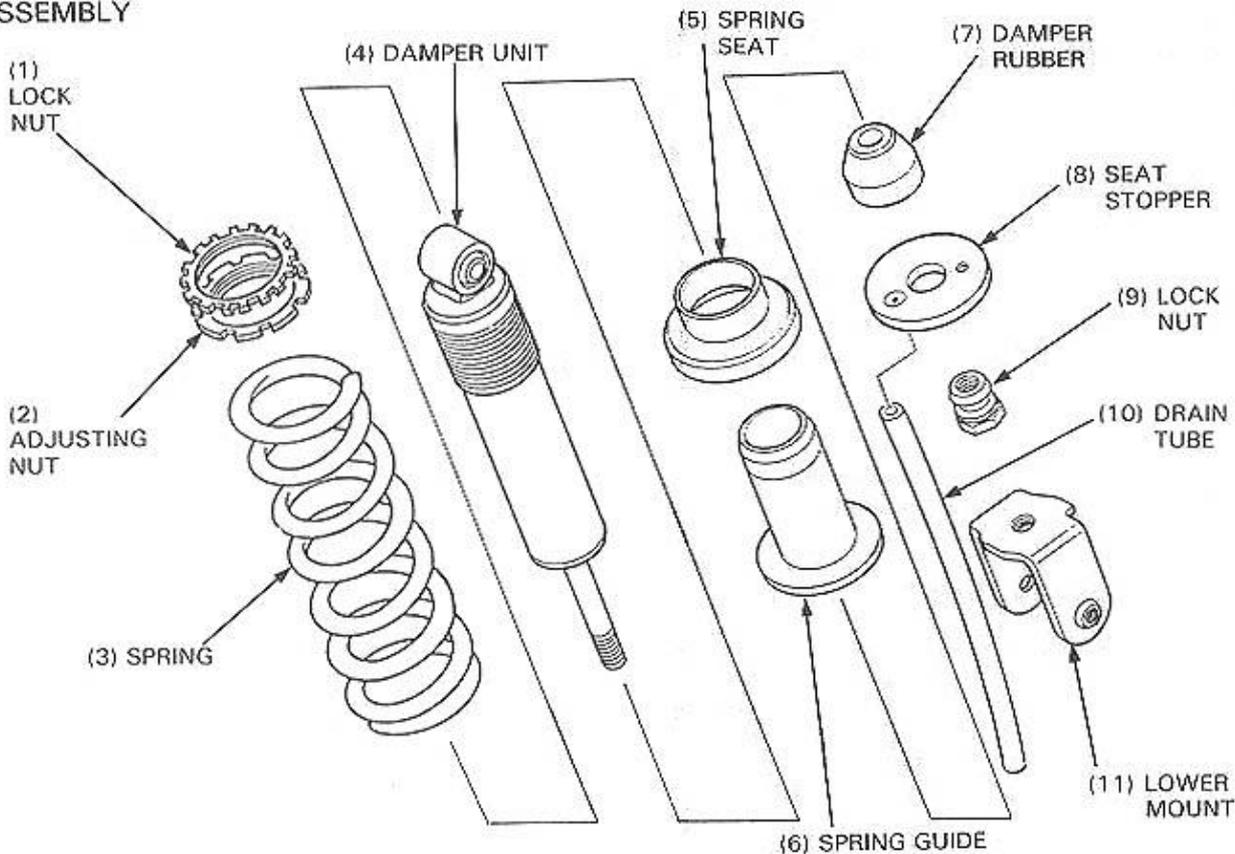
#### ▲WARNING

- Do not use a dull drill bit which could cause a built-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.



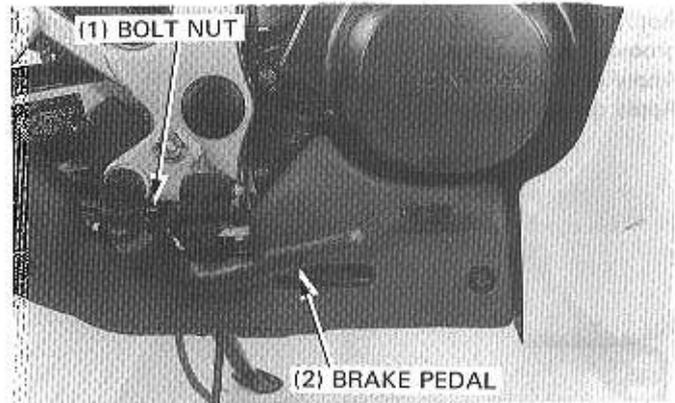
### ASSEMBLY



## BRAKE PEDAL

### REMOVAL

Remove the brake adjuster.  
Disconnect the brake pedal return spring and rear brake light switch return spring.  
Remove the brake pedal mounting bolt and nut.  
Remove the brake pedal and dust seals.

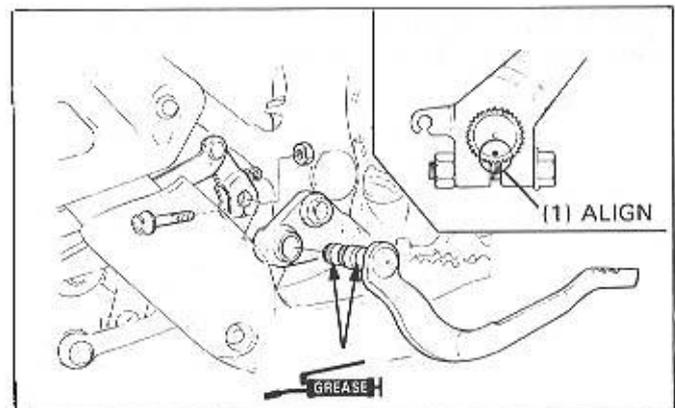


### INSTALLATION

Install the brake pedal in the reverse order of removal.

### NOTE

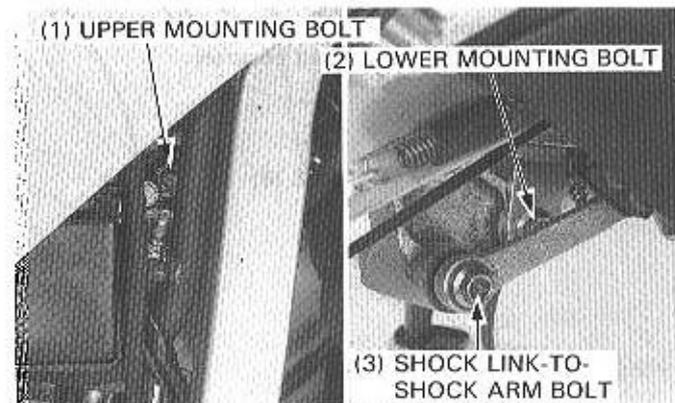
- Align the punch mark on the pedal shaft with the slot of the brake rod arm.
- Apply grease to the dust seals and brake pedal shaft.



## SHOCK ABSORBER

### REMOVAL

Raise the rear wheel off the ground by placing a box or work stand under the engine.  
Remove the shock link-to-shock arm bolt.  
Remove the shock absorber upper and lower mounting bolts, and remove the shock absorber.



### DISASSEMBLY

Hold the shock absorber upper mount in a vice with soft jaws or shop towel.  
Remove the lock nut and adjusting nut using pin spanners.

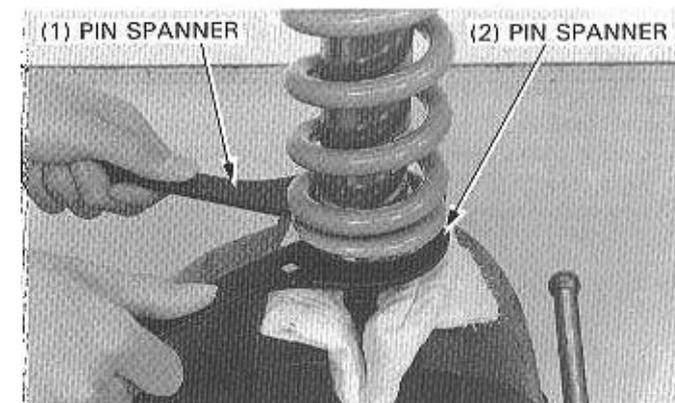
### TOOLS:

Pin spanner

89201-KA4-811

89202-KA4-811

Remove the shock spring.



## REAR WHEEL/BRAKE/SUSPENSION

### DISASSEMBLY

Remove the brake shoes and springs from the brake panel.

#### NOTE

- Mark the shoes to indicate their original positions before removing them.

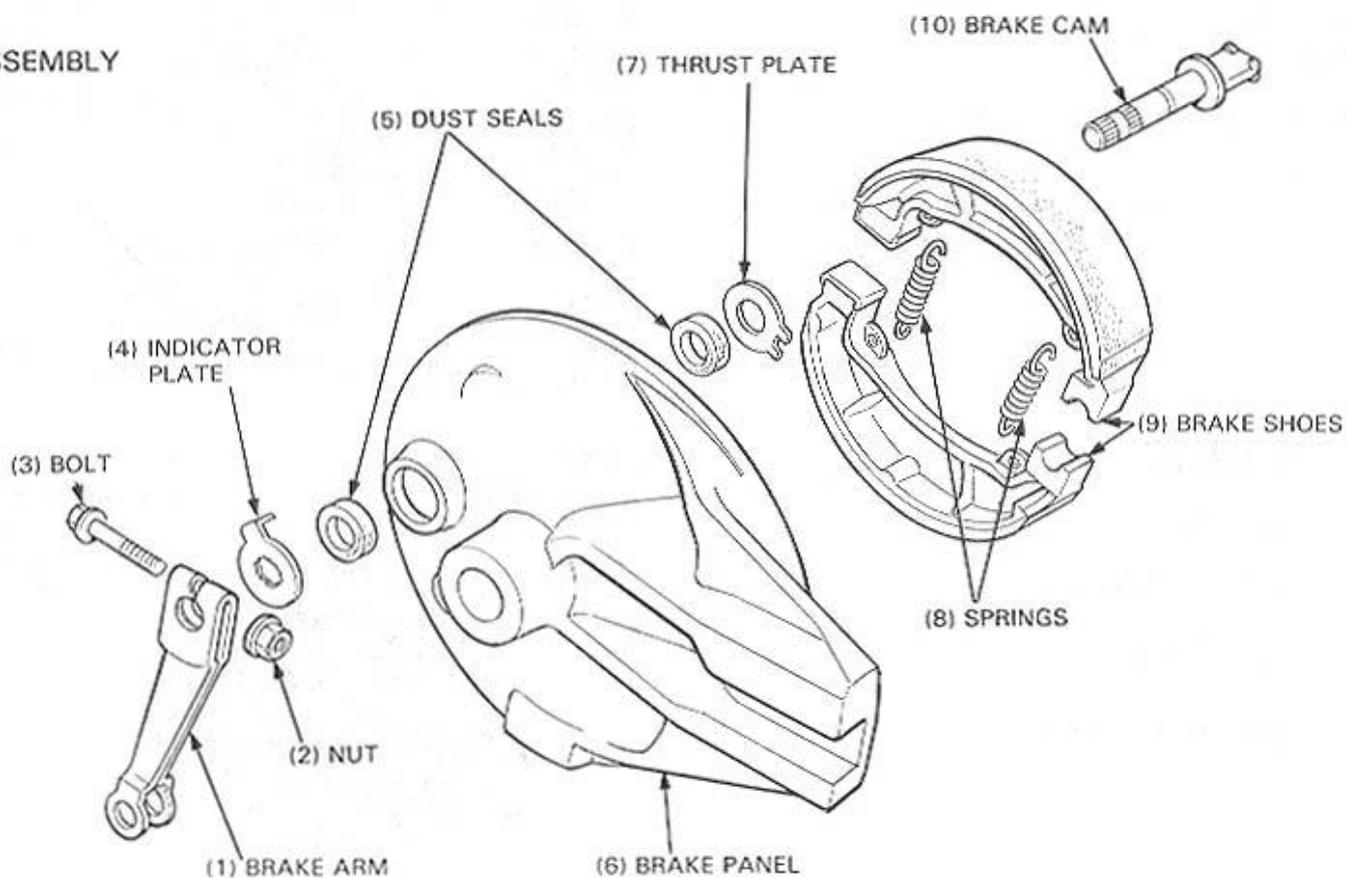
Remove the following parts from the brake panel:

- Bolt and nut, then brake arm
- Indicator plate
- Brake cam
- Thrust plate
- Dust seals

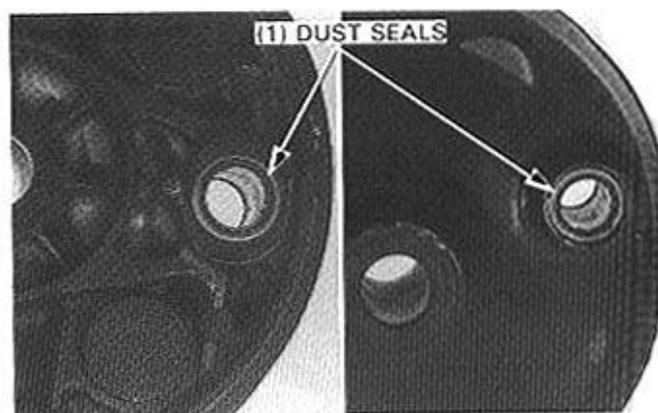
Clean all parts thoroughly.



### ASSEMBLY



Install the dust seals into the brake panel.



## REAR WHEEL/BRAKE/SUSPENSION

Pack the bearing cavities with grease.

Install the driven flange collar to a new flange bearing from the non-sealed side as shown.

### CAUTION

- Do not damage the bearing.

Drive in the driven flange bearing with its sealed end facing out.

### TOOLS:

|                        |               |
|------------------------|---------------|
| Driver                 | 07749-0010000 |
| Attachment, 42 x 47 mm | 07746-0010300 |
| Pilot, 17 mm           | 07746-0040400 |

Install the damper rubbers.

Apply grease to a new O-ring and install it onto the groove of the wheel hub.

Pack the inside of the driven flange with grease.

Install the driven flange.

Apply grease to the dust seal lip and install it.

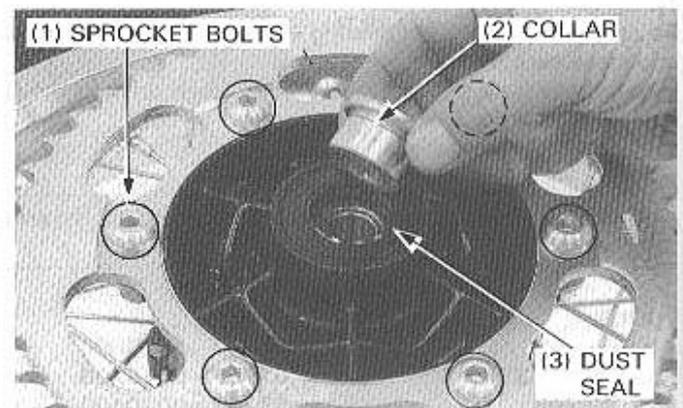
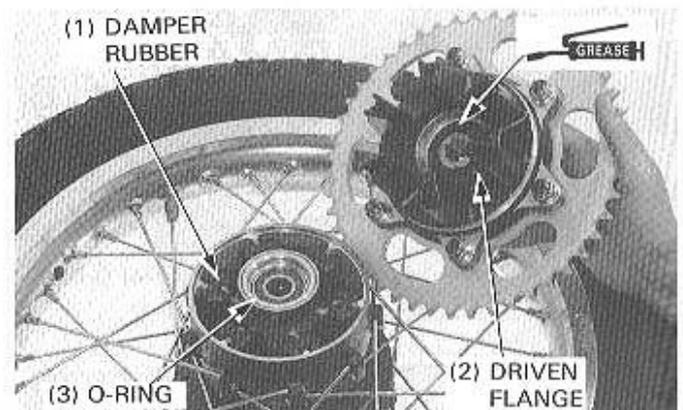
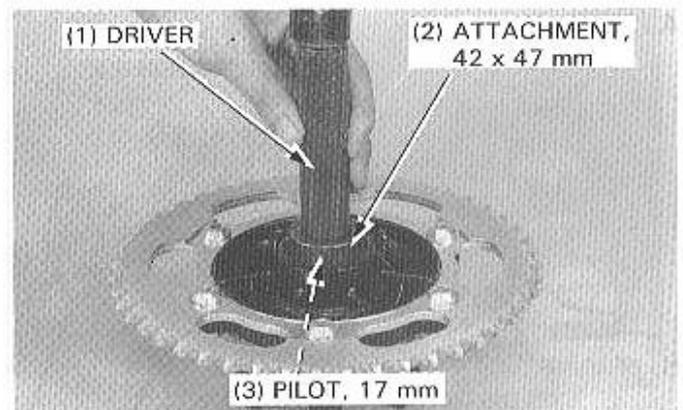
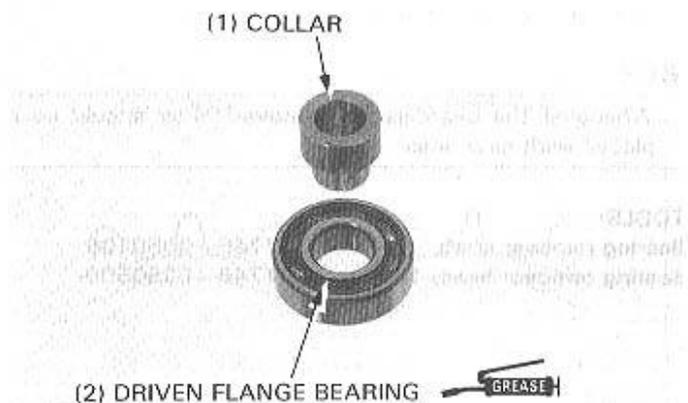
Install the side collar.

Install the driven sprocket if removed.

### NOTE

- When tightening the driven sprocket bolts and nuts, apply oil to the threads of the bolts.

**TORQUE: 44 N·m (4.4 kg·m, 32 ft·lb)**



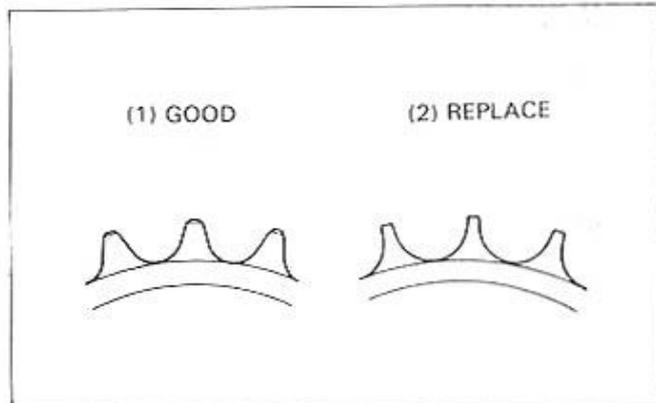
## REAR WHEEL/BRAKE/SUSPENSION

### ● FINAL DRIVEN SPROCKET

Check the condition of the final driven sprocket teeth. Replace a worn or damaged sprocket.

#### NOTE

- The drive chain and drive sprocket must also be inspected if the driven sprocket is worn or damaged. Never install a new drive chain on worn sprockets or a worn chain on new sprockets. Both chain and sprocket must be in good condition or a new replacement chain or sprockets will wear rapidly.



### WHEEL BALANCING

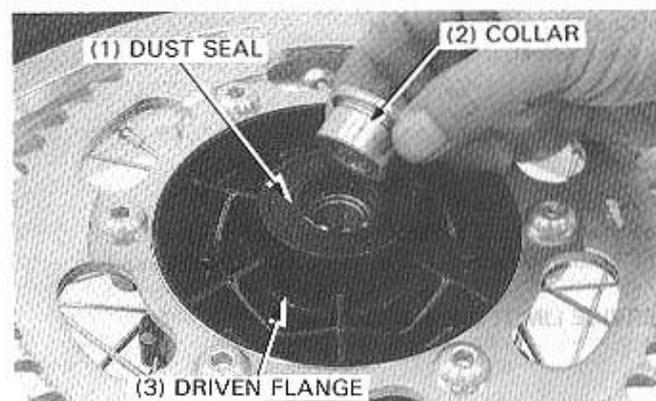
Refer to page 13-6.

### DISASSEMBLY

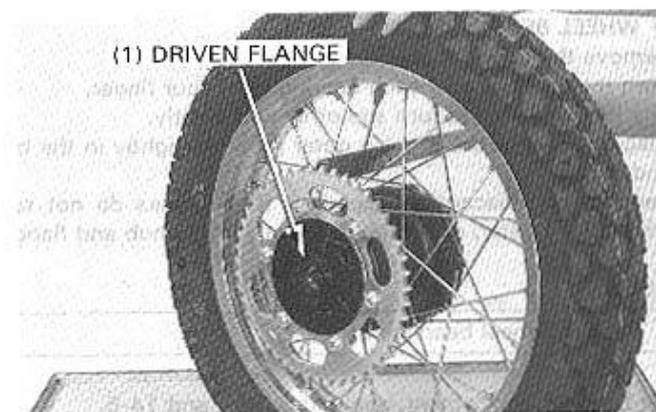
Remove the axle collar and dust seal.  
Remove the final driven flange and damper rubbers.

#### NOTE

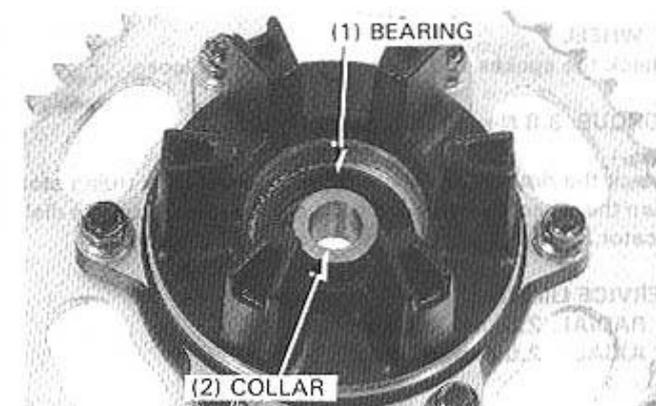
- When removing the driven sprocket, loosen the sprocket bolt with the driven flange installed.



If the driven flange fit tightly in the hub, drive it out by tapping several locations with wood block.



Drive out the driven flange bearing and collar, if necessary.



# 14. REAR WHEEL/BRAKE/SUSPENSION

|                     |      |                |       |
|---------------------|------|----------------|-------|
| SERVICE INFORMATION | 14-1 | BRAKE PEDAL    | 14-10 |
| TROUBLESHOOTING     | 14-2 | SHOCK ABSORBER | 14-10 |
| REAR WHEEL          | 14-3 | SHOCK LINKAGE  | 14-14 |
| REAR BRAKE          | 14-7 | SWINGARM       | 14-16 |

## SERVICE INFORMATION

### GENERAL

- A work stand or box is required to support the motorcycle.

### CAUTION

- Do not support motorcycle by placing jack or other support under the oil filter.

- Use only genuine Honda replacement fasteners for the rear suspension. Note the installation direction of the bolts.

### WARNING

- The shock absorber contains nitrogen gas under high pressure. Do not allow fire or heat near the shock absorber.
- Before disposal of the shock absorber, release the nitrogen (see page 14-12).
- Inhaled asbestos fibers have been found to cause respiratory disease and cancer. Never use an air hose or dry brush to clean brake assemblies. In the United States, use an OSHA-approved vacuum cleaner or alternate method approved by OSHA designed to minimize the hazard caused by airborne asbestos fibers.

### SPECIFICATION

| ITEM                               | STANDARD            | SERVICE LIMIT       |
|------------------------------------|---------------------|---------------------|
| Rear wheel runout                  | Radial              | 2.0 mm (0.08 in)    |
|                                    | Axial               | 2.0 mm (0.08 in)    |
| Rear axle runout                   | —                   | 0.2 mm (0.01 in)    |
| Rear brake drum I.D.               | 130.0 mm (5.12 in)  | 131 mm (5.2 in)     |
| Rear brake lining thickness        | 4.0 mm (0.16 in)    | 2.0 mm (0.08 in)    |
| Shock absorber spring free length  | 268.5 mm (10.57 in) | 263.0 mm (10.35 in) |
| Rear suspension damper compression | 33 kg (72.75 lb)    | 28 kg (61.73 lb)    |

### TORQUE VALVE

|  |                                |
|--|--------------------------------|
| Spokes                                     | 3.8 N·m (0.38 kg-m, 2.7 ft-lb) |
| Driven sprocket nut                        | 44 N·m (4.4 kg-m, 32 ft-lb)    |
| Rear axle nut                              | 95 N·m (9.5 kg-m, 69 ft-lb)    |
| Shock absorber lower mount lock nut        | 68 N·m (6.8 kg-m, 49 ft-lb)    |
| Shock absorber spring lock nut             | 90 N·m (9.0 kg-m, 65 ft-lb)    |
| Shock absorber mounting bolt (upper/lower) | 45 N·m (4.5 kg-m, 33 ft-lb)    |
| Shock arm-to-swingarm nut                  | 105 N·m (10.5 kg-m, 76 ft-lb)  |
| Shock link-to-shock arm nut                | 65 N·m (6.5 kg-m, 47 ft-lb)    |
| Shock link-to-frame nut                    | 65 N·m (6.5 kg-m, 47 ft-lb)    |
| Swingarm/engine pivot nut                  | 110 N·m (11.0 kg-m, 80 ft-lb)  |

**REAR WHEEL BRAKE/SUSPENSION**

