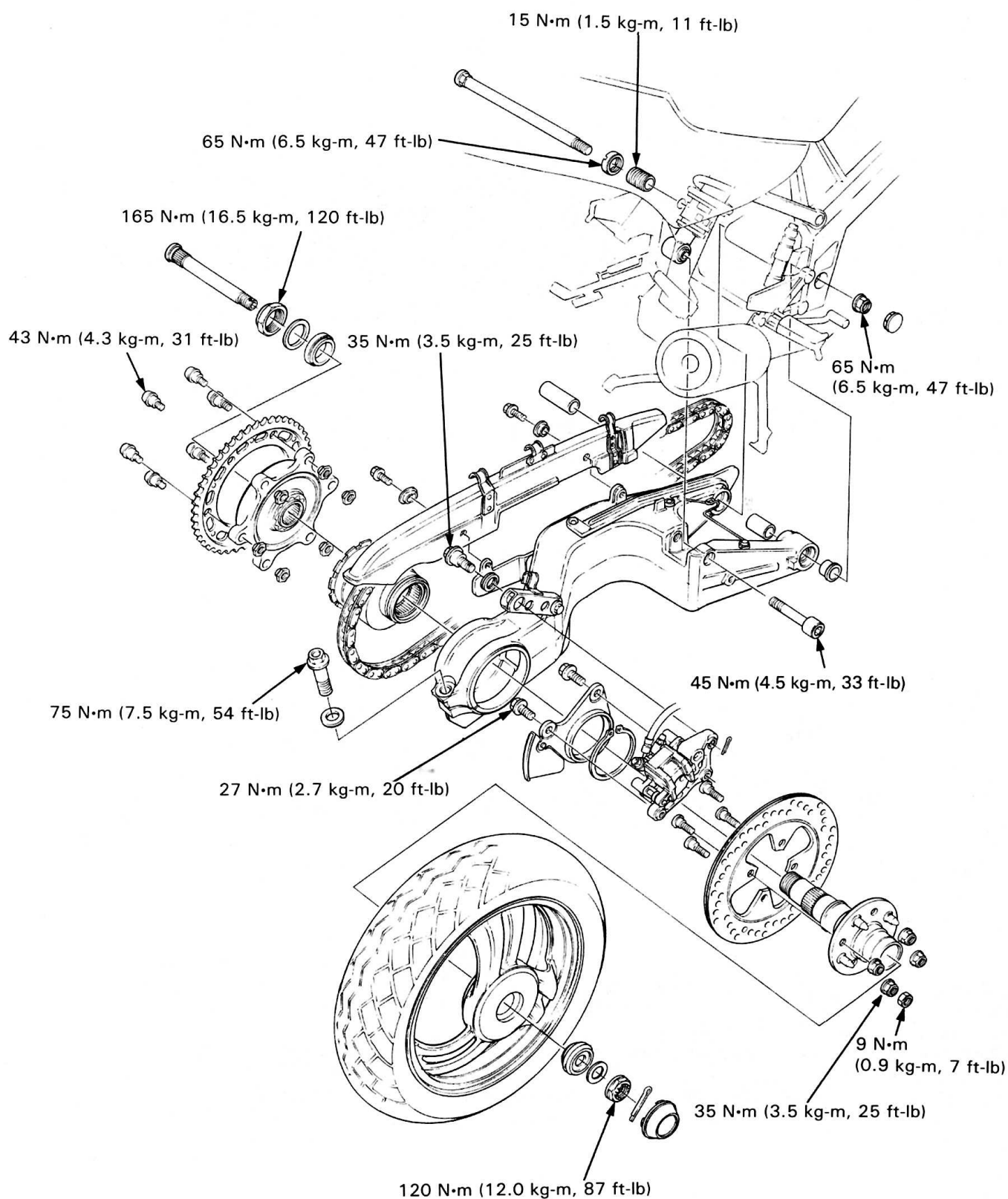


## REAR WHEEL/SUSPENSION



# 13. REAR WHEEL/SUSPENSION

SERVICE INFORMATION	13-1	ECCENTRIC BEARING CARRIER INSTALLATION	13-12
TROUBLESHOOTING	13-2	SHOCK ABSORBER	13-14
REAR WHEEL	13-3	SWINGARM	13-19
SPROCKET	13-6	MUFFLER/EXHAUST PIPE	13-24
ECCENTRIC BEARING CARRIER REMOVAL	13-6	SEAT	13-25
BEARING REPLACEMENT	13-9	REAR COWLING	13-25
SPINDLE	13-11		

## SERVICE INFORMATION

### GENERAL

- Never ride on the rim.
- When using a lock nut wrench, use a 20 inch long deflecting beam type torque wrench. The lock nut wrench increases the torque wrench's leverage, so the torque wrench reading will be less than the torque actually applied to the lock nut.

### ⚠ WARNING

- *A contaminated brake disc or pad reduces stopping power. Discard contaminated pads and clean a contaminated disc with a high quality brake degreasing agent.*
- *Inhaled asbestos fibers have been found to cause respiratory disease and cancer. Never use an air hose or dry brush to clean brake assemblies. Use an OSHA-approved vacuum cleaner or alternate method approved by OSHA designed to minimize the hazard caused by airborne asbestos fibers.*
- *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 13-16).*

13

## SPECIFICATIONS

Unit: mm (in)

ITEM		STANDARD	SERVICE LIMIT
Rear wheel rim runout	Radial	—	2.0 (0.08)
	Axial	—	2.0 (0.08)
Shock absorber spring free length		—	148.3 (5.84)
Shock absorber spring preload adjuster position		3	—
Compression force at 10 mm (0.4 in) compressed		15—20 kg (33.1—44.1 lb)	14.9 kg (32.8 lb)

## TORQUE VALUES

Sprocket mounting bolt	43 N•m (4.3 kg-m, 31 ft-lb)
Brake disc retaining bolt	35 N•m (3.5 kg-m, 25 ft-lb)
Brake disc retaining bolt lock nut	9 N•m (0.9 kg-m, 7 ft-lb)
Rear wheel nut	120 N•m (12.0 kg-m, 87 ft-lb)
Eccentric bearing carrier pinch bolt	75 N•m (7.5 kg-m, 54 ft-lb)
Shock absorber mounting bolt: upper side	65 N•m (6.5 kg-m, 47 ft-lb)
Shock absorber mounting bolt: lower side	45 N•m (4.5 kg-m, 33 ft-lb)
Damper rod lock nut	62 N•m (6.2 kg-m, 45 ft-lb) Apply a locking agent to the threads
Swingarm pivot nut	65 N•m (6.5 kg-m, 47 ft-lb)
Swingarm pivot lock nut	65 N•m (6.5 kg-m, 47 ft-lb)
Swingarm pivot adjusting bolt	15 N•m (1.5 kg-m, 11 ft-lb)
Brake torque rod bolts	35 N•m (3.5 kg-m, 25 ft-lb)
Sub-frame mounting bolts	40 N•m (4.0 kg-m, 29 ft-lb)
Fuel filter base mounting bolt	22 N•m (2.2 kg-m, 16 ft-lb)
Eccentric bearing carrier lock nut	165 N•m (16.5 kg-m, 120 ft-lb) Staked nut

## REAR WHEEL/SUSPENSION

---

### TOOLS

#### Special

Snap ring pliers	07914—323000—Equivalent commercially available in U.S.A.
Shock absorber compressor attachment	07967—KE10000
Driver shaft	07946—MJ00100
Bearing remover set	07946—MJ00000
— Driver head	07946—MJ00200
Spherical bearing driver	07946—KA30200 Not available in U.S.A.
Lock nut wrench	07908—ME90000
Oil seal driver	07965—KE80100

#### Common

Driver	07749—0010000
Attachment, 24 x 26 mm	07746—0010700
Attachment, 32 x 35 mm	07746—0010100
Attachment, 42 x 47 mm	07746—0010300
Attachment, 52 x 55 mm	07746—0010400
Attachment, 62 x 68 mm	07746—0010500
Pilot, 15 mm	07746—0040300
Pilot, 17 mm	07746—0040400
Pilot, 20 mm	07746—0040500
Pilot, 22 mm	07746—0041000
Pilot, 35 mm	07746—0040800
Pilot, 40 mm	07746—0040900
Driver handle	07949—3710001

## TROUBLESHOOTING

#### Wobble or vibration in motorcycle

- Bent rim
- Loose wheel hub bearing(s)
- Damaged tire
- Axle not tightened properly
- Swingarm pivot bearing worn
- Bent frame or swingarm
- Damaged drive pin and pin hole

#### Soft suspension

- Weak spring
- Improper shock absorber spring preload
- Leaking damper

#### 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

# REAR WHEEL

## REMOVAL

### ⚠ WARNING

- *Do not service the rear wheel (removal/installation) while exhaust system is hot.*

### CAUTION

- *Cover the left rim edge, spindle edge and brake caliper with tape to avoid damaging the wheel.*

### NOTE

- The sprocket and driven flange dampers can be removed without removing the wheel (see page 13-6).

Place the motorcycle on its center stand.

Remove the center cap and cotter pin. Loosen the wheel nut, but do not remove it.

Loosen the eccentric bearing carrier pinch bolt and turn the carrier counterclockwise until it stops to obtain maximum chain slack.

Remove the chain from the rear sprocket and place it on the outside of the sprocket.

Rotate the eccentric bearing carrier to its rearward most (maximum chain slack) position.

Remove the wheel nut, shim and axle center collar.

Tap the axle with soft hammer and push the axle in until it clears the wheel.

Attach tape to the wheel rim, edge of the spindle and brake caliper to avoid damaging the wheel.

Remove the wheel from the drive pins, then angle it to the right and pull it backward to go between the brake disc and muffler.

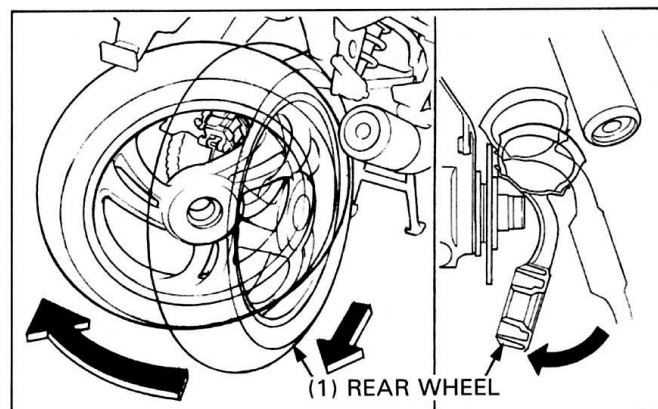
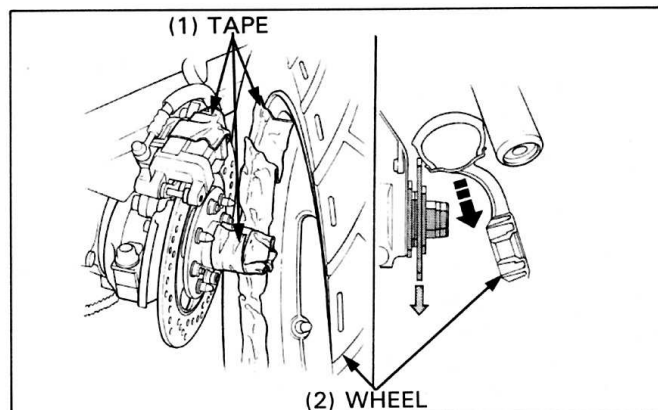
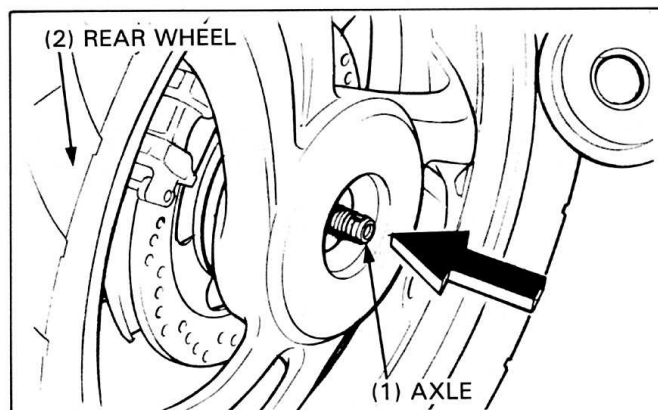
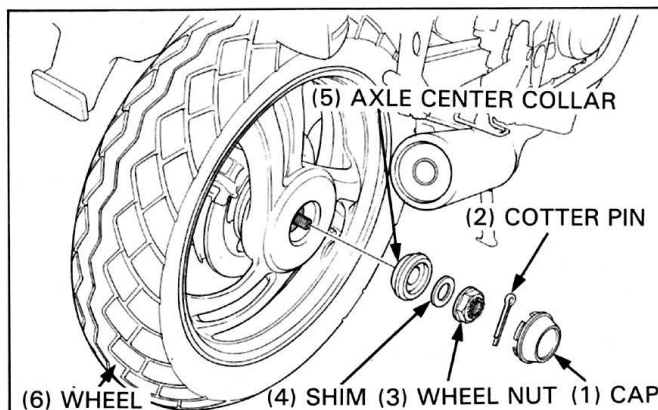
### CAUTION

- *Be careful not to damage the wheel rim and brake disc when removing the wheel.*

Then, as the wheel reaches the hub, angle it to the left and pull it out backward as shown.

### CAUTION

- *Be careful not to damage the wheel rim and brake caliper when removing the wheel.*



## REAR WHEEL/SUSPENSION

### INSPECTION

#### Wheel rim runout

Check the rim runout by placing the wheel in a truing stand. Spin the wheel slowly and read the runout using a dial indicator.

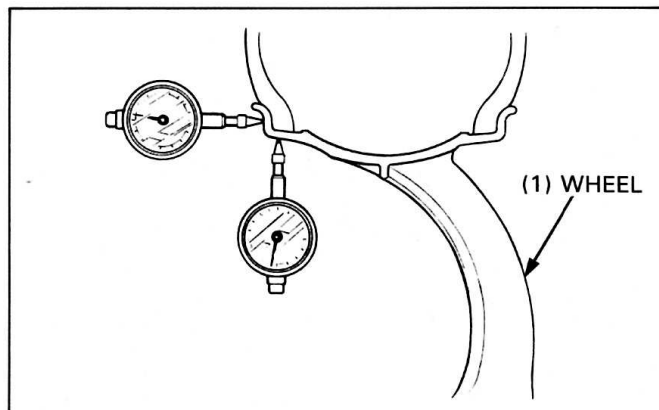
#### SERVICE LIMITS:

**RADIAL RUNOUT:** 2.0 mm (0.08 in)

**AXIAL RUNOUT:** 2.0 mm (0.08 in)

#### NOTE

- The wheel cannot be repaired and must be replaced with a new one if the service limits are exceeded.



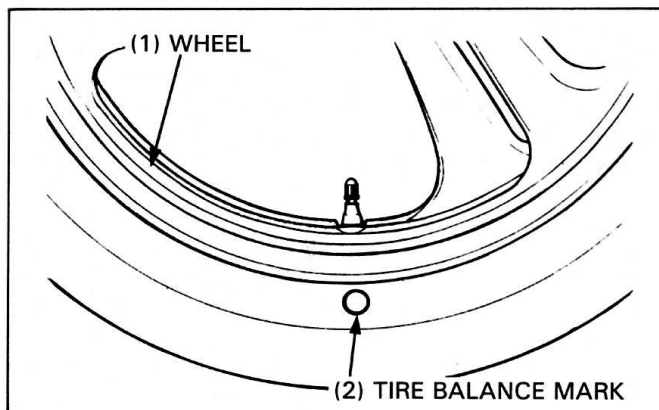
#### Wheel Balance

#### CAUTION

- *Wheel balance directly affects the stability, handling and overall safety of the motorcycle. Always check balance when the tire has been removed from the rim.*

#### NOTE

- For optimum balance, the tire balance mark (a paint dot on the side wall) must be located next to the valve stem. Remount the tire if necessary.



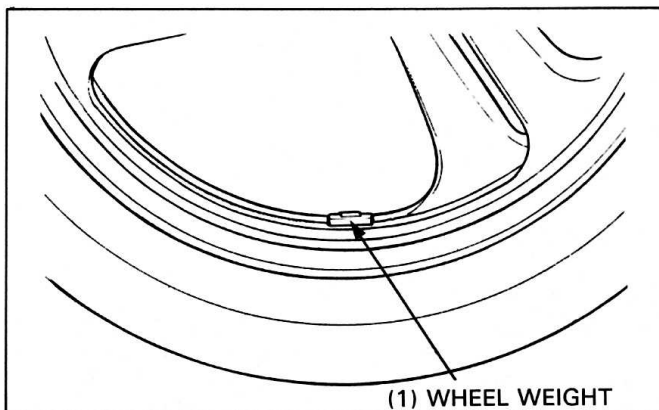
Remove the dust seal from the wheel.

Mount the wheel and tire assembly in an inspection stand. Spin the wheel, allow it to stop, and mark the lowest (heaviest) part of the wheel with chalk.

Do this two or three times to verify the heaviest area. If the wheel is balanced, it will not stop consistently in the same position.

To balance the wheel, install wheel weights on the highest side of the rim, the side opposite the chalk marks. Add just enough weight so the wheel will no longer stop in the same position when it's spun.

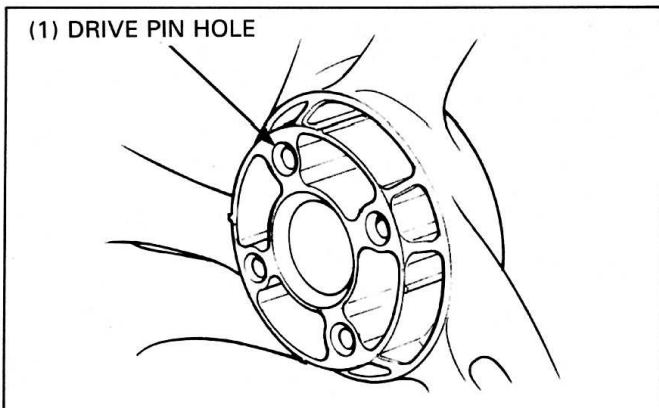
Do not add more than 60 grams to the rear wheel.



#### Drive pin hole

Check the drive pin holes for the damage.

Inspection and replacement of the drive pin: turn to page 13-11.



## INSTALLATION

### ⚠ WARNING

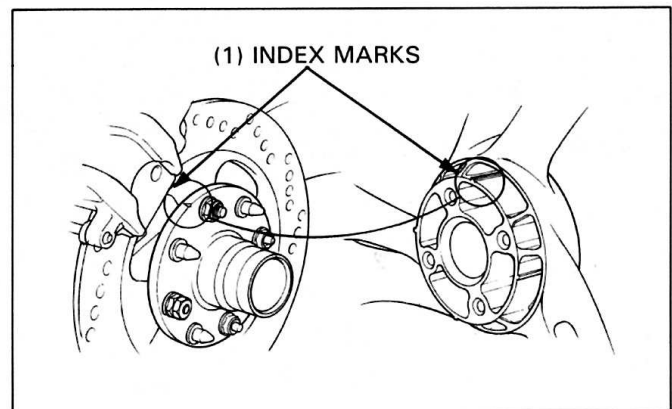
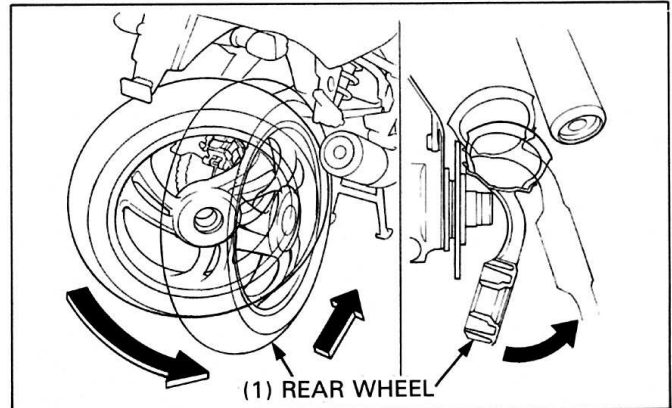
- *Do not service the rear wheel (removal/installation) while exhaust system is hot.*

### CAUTION

- *Cover the left rim edge, spindle edge and brake caliper with tape to avoid damaging the wheel.*
- *Use care not to damage the wheel rim and brake disc when removing the wheel.*

Install the rear wheel in the reverse order of removal.

Clean the wheel and spindle mating surface.  
Align the index marks and install the wheel hub over the drive pins.



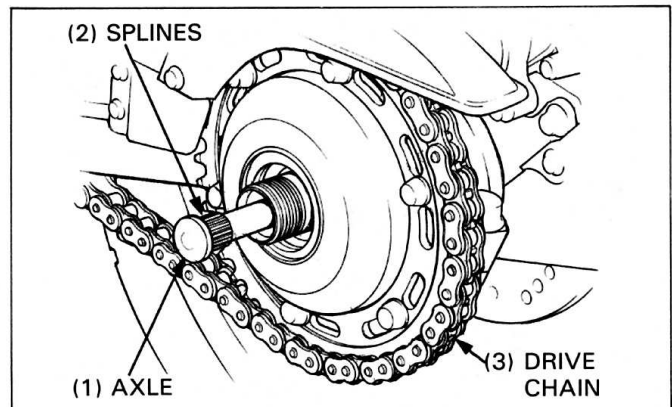
Insert the axle in the wheel hub, making sure the splines are correctly aligned.

Tap the axle with soft hammer to seat the axle securely.

Turn the eccentric bearing carrier counterclockwise until it stops.

Install the drive chain onto the rear sprocket.

Clean and apply clean grease to the axle threads.



### CAUTION

- *Make sure that the axle threads are applied clean grease to obtain the specified torque.*

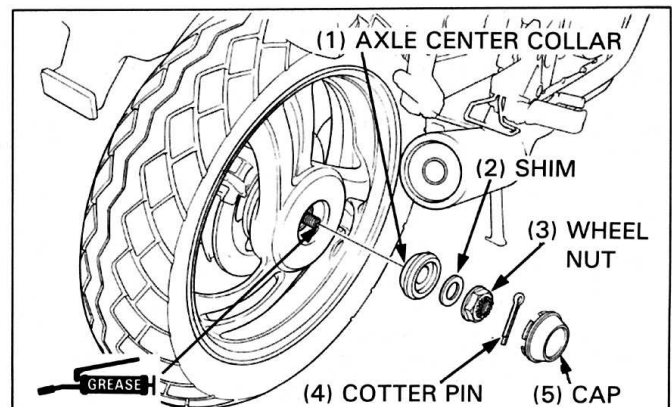
Install the axle center collar, shim and wheel nut.  
Tighten the wheel nut to the specified torque.

**TORQUE: 120 N·m (12.0 kg-m, 87 ft-lb)**

Install a new cotter pin and cap securely.

Apply the rear brake several times and check for free wheel rotation when released.

Adjust the drive chain slack (page 3-12).



### SPROCKET

#### REMOVAL

Turn the eccentric bearing carrier to loose the drive chain, then remove the chain from the sprocket.

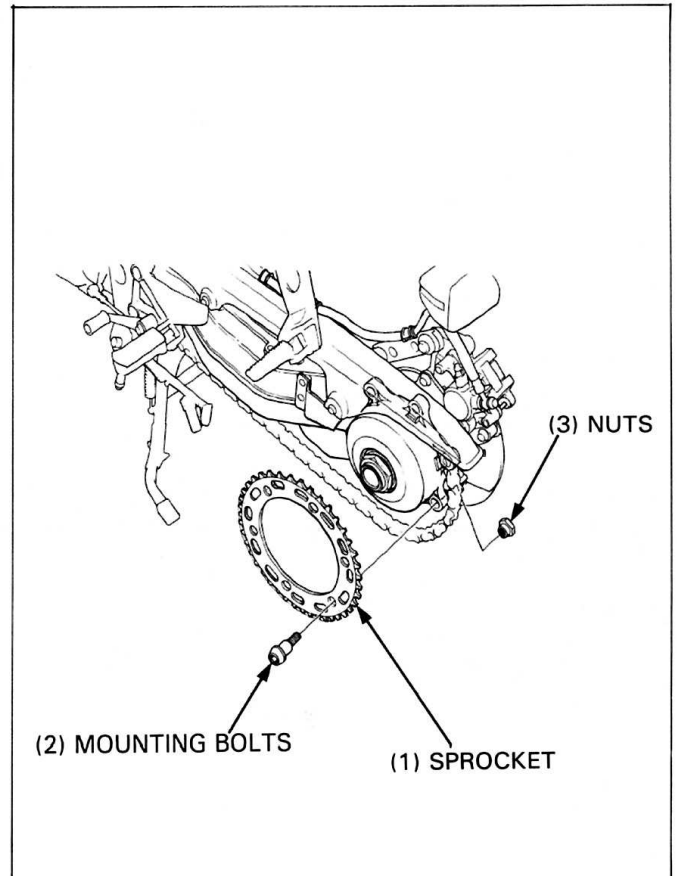
Remove the sprocket mounting bolts and the sprocket.

#### INSTALLATION

Install the sprocket by using the bolts and nuts.

**TORQUE: 43 N·m (4.3 kg-m, 31 ft-lb)**

Reinstall the drive chain and adjust the slack (page 3-12).

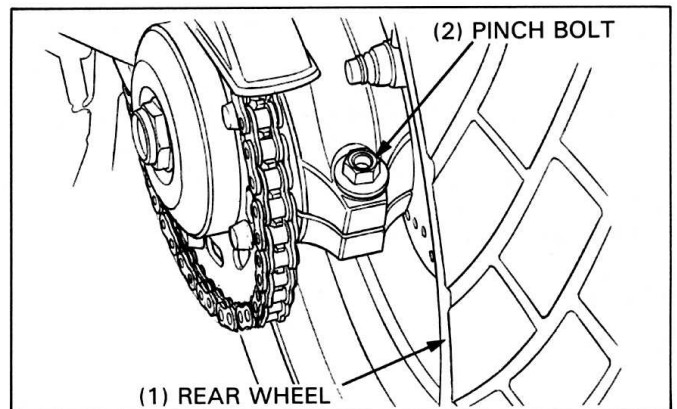


### ECCENTRIC BEARING CARRIER

#### REMOVAL

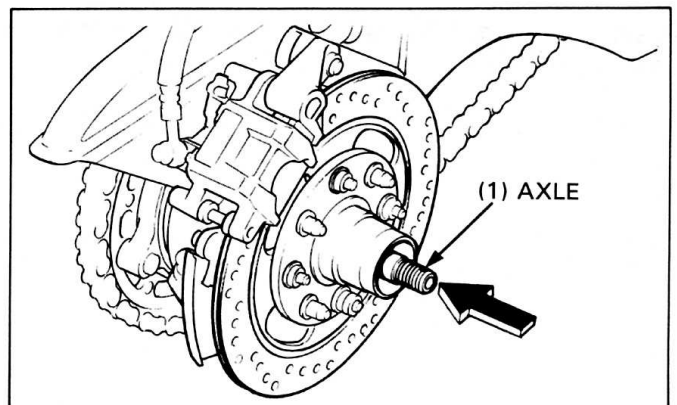
Remove the rear wheel (page 13-3).

Loosen the eccentric bearing carrier pinch bolt and turn the carrier to loosen the drive chain.



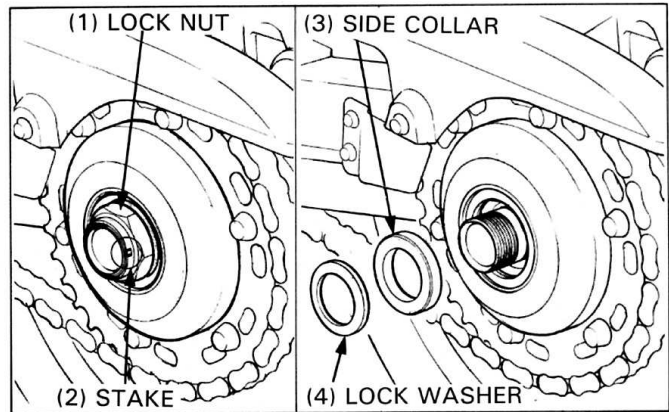
Tap the axle with a soft hammer until the splines clear the driven flange cover.

Remove the axle to the left side.

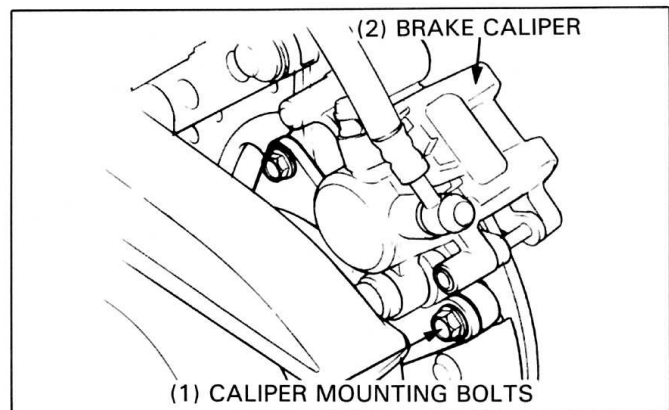




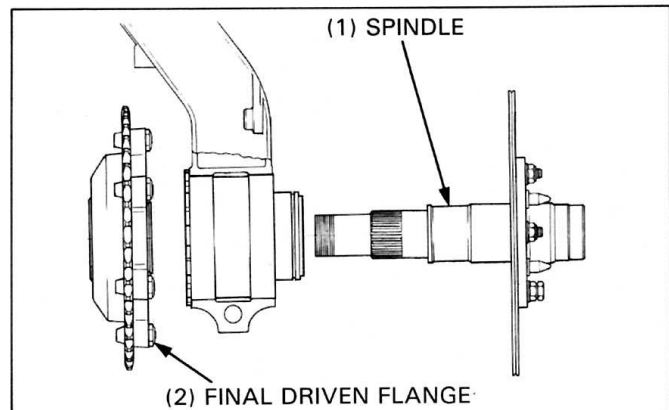
Unstake the eccentric bearing carrier lock nut and remove the nut.  
Remove the lock washer and side collar.



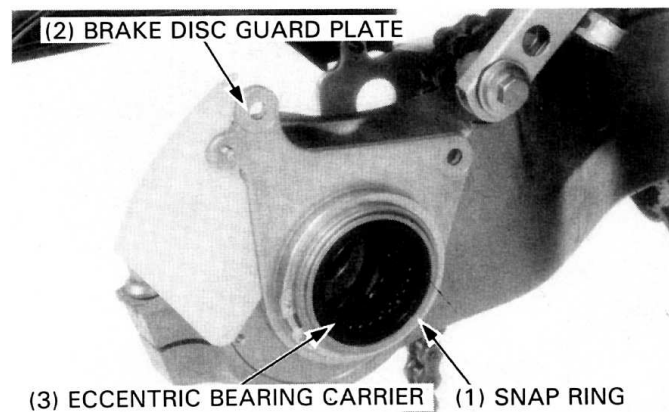
Remove the brake caliper mounting bolts.  
Swing the brake caliper from the brake disc while holding it with a piece of wire or something suitable.



Remove the spindle.  
Remove the final driven flange assembly and remove the drive chain from the sprocket.



Remove the snap ring and brake disc guard plate.  
Remove the eccentric bearing carrier from the swingarm.





## REAR WHEEL/SUSPENSION

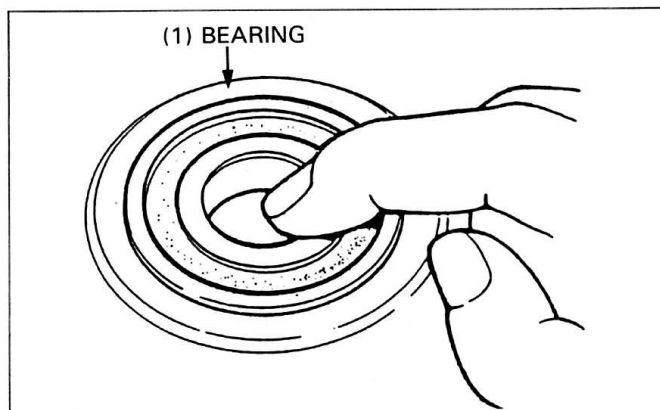
### INSPECTION

#### Bearing

Turn the inner races of the ball bearings with your finger. The bearing should turn smoothly and quietly.

Also check that the bearing outer races fits tightly in the eccentric bearing carrier. Check the right bearing needle rollers for obvious signs of wear.

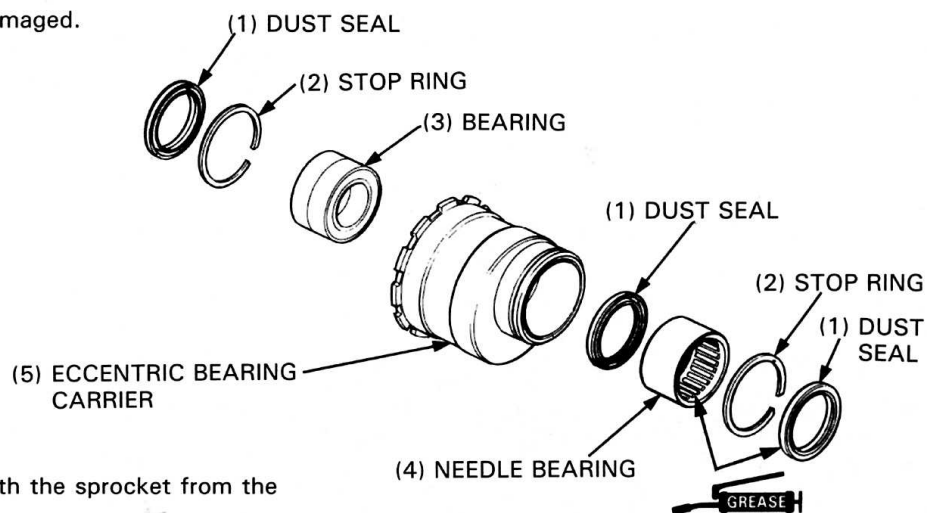
Remove and discard the ball bearings if they do not turn smoothly, quietly, or if they fit loosely in the eccentric bearing carrier (page 13-9).



#### NOTE

- Replace the bearings in pairs.

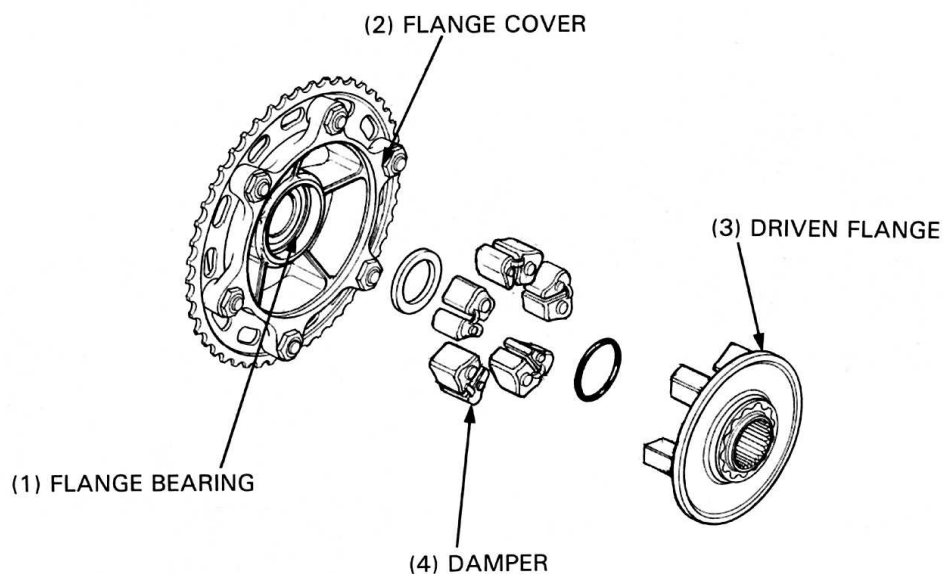
Replace the needle bearing if it is damaged.



#### Damper

Separate the driven flange cover with the sprocket from the flange.

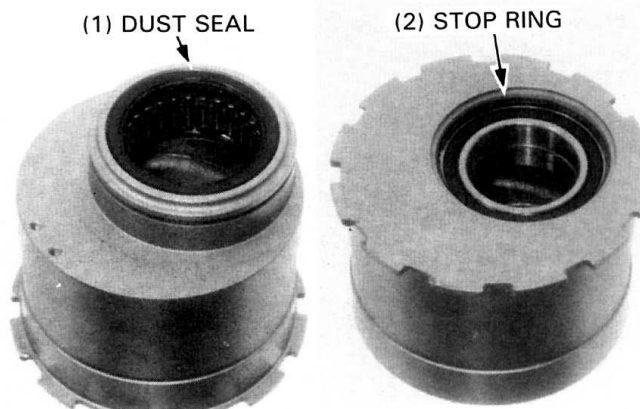
Check the driven flange damper for damage. Replace the dampers if necessary.



# BEARING REPLACEMENT

## Eccentric bearing carrier

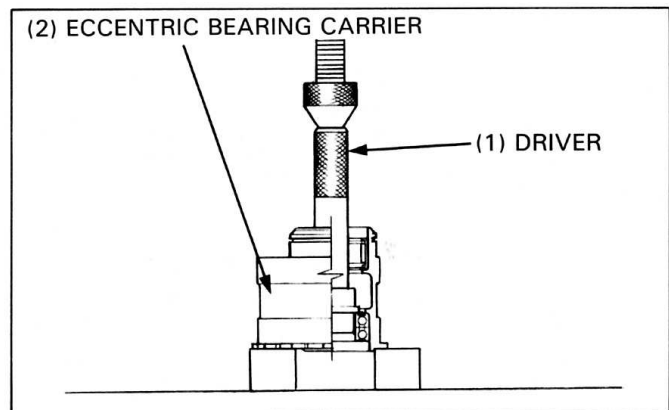
Remove the dust seals and bearing stop rings.



Press the ball bearings out of the carrier first with the special tools.

### TOOLS:

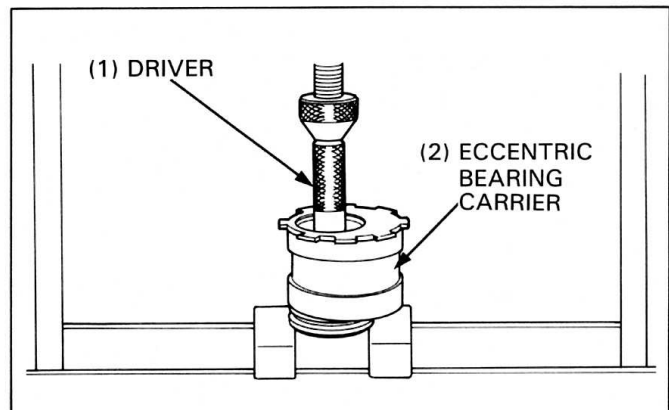
Driver	07749-0010000
Attachment, 42 x 47 mm	07746-0010300
Pilot 40 mm	07746-0040900



Press the needle bearing out of the carrier with the special tools.

### TOOLS:

Driver	07749-0010000
Attachment 52 x 55 mm	07746-0010400



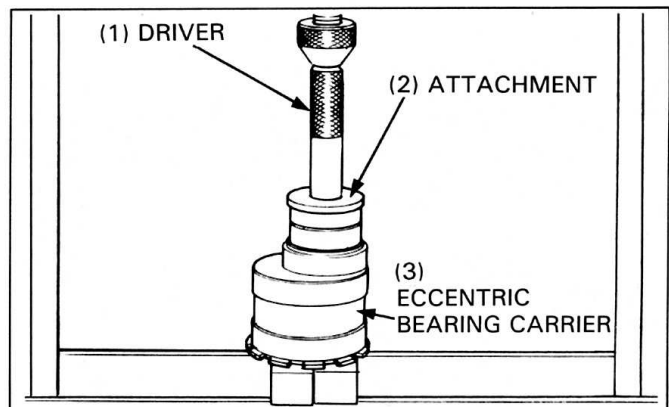
Install the inner dust seal in the carrier.  
Carefully press the new needle bearing into the carrier first with the special tools.

### NOTE

- Install the bearing with marks facing out.

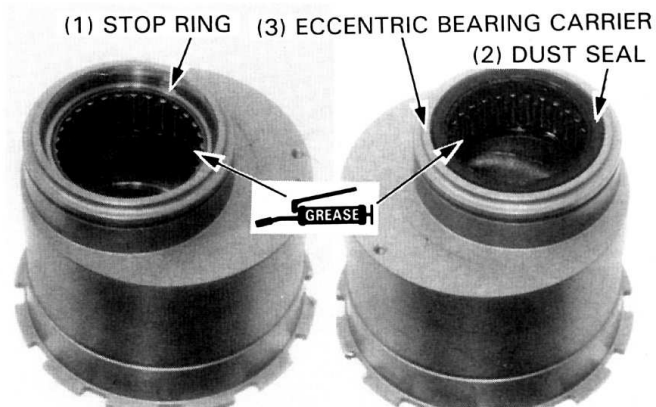
### TOOLS:

Driver	07749-0010000
Attachment 62 x 68 mm	07746-0010500



## REAR WHEEL/SUSPENSION

Apply clean grease to the dust seal lip.  
Install the bearing stop ring and dust seal securely.



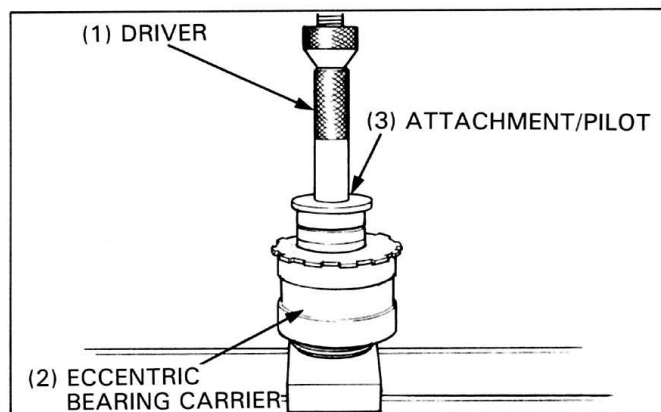
Carefully press the new ball bearings in with the special tools.

### NOTE

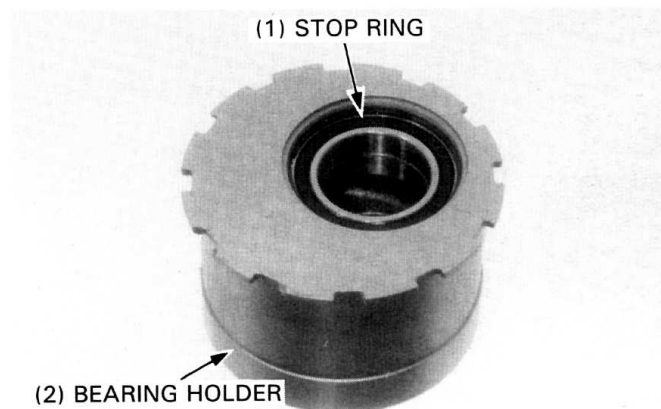
- Install the bearing with sealed end facing out.

### TOOLS:

Driver	07749-0010000
Attachment 62 x 68 mm	07746-0010500

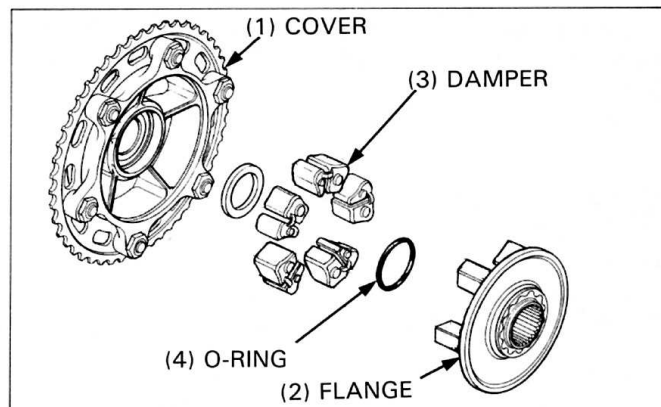


Apply clean grease to the dust seal lip.  
Install the bearing stop ring and dust seal securely.



### Driven flange

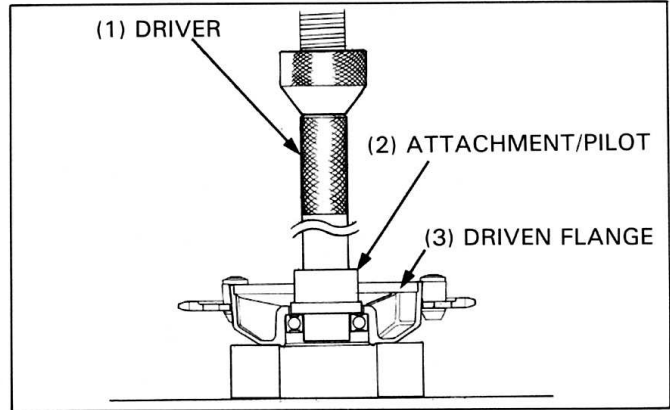
Separate the cover and the flange.  
Remove the dampers and the O-ring.



Press the bearing and dust seal out of the cover with the special tools.

**TOOLS:**

Driver	07749-0010000
Attachment 52 x 55 mm	07746-0010400
Pilot 35 mm	07746-0040800

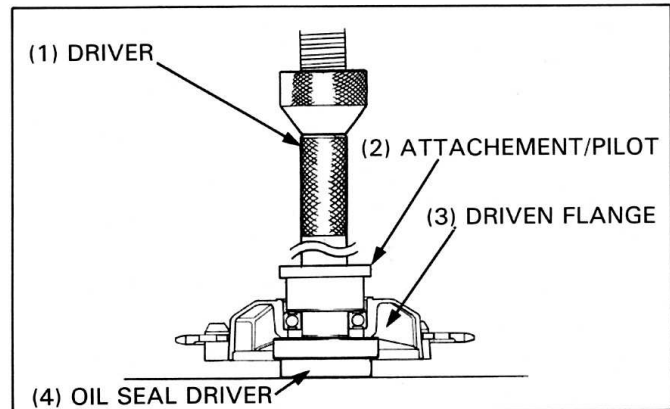


Carefully press the new bearing in with the special tools.

**TOOLS:**

Driver	07749-0010000
Attachment 62 x 68 mm	07746-0010500
Pilot 35 mm	07746-0040800
Oil seal driver	07965-KE80100

Install the dust seal securely.



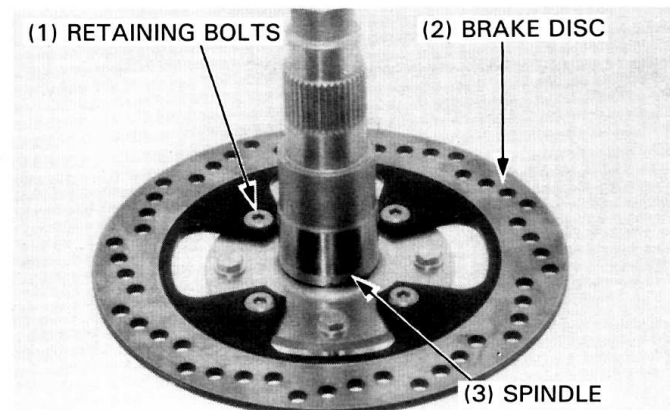
## SPINDLE

### INSPECTION

Check the following of the spindle:

- splines for damage
- drive pins for damage
- lock nut threads for damage

If necessary, remove the brake disc retaining bolts and nuts and lock nut, and separate the brake disc from the spindle.



Apply a locking agent to the drive pin bolt threads and tighten the drive pin bolts to the drive pin if replaced them.

**TORQUE: 15 N·m (1.5 kg-m, 11 ft-lb)**

Install the brake disc to the spindle and tighten the disc retaining bolts and nuts.

**TORQUE: 35 N·m (3.5 kg-m, 25 ft-lb)**

Install the disc retaining bolt lock nut onto the anywhere bolt.

**TORQUE: 9 N·m (0.9 kg-m, 7 ft-lb)**

