

# **15. REAR WHEEL/AXLE/SUSPENSION**

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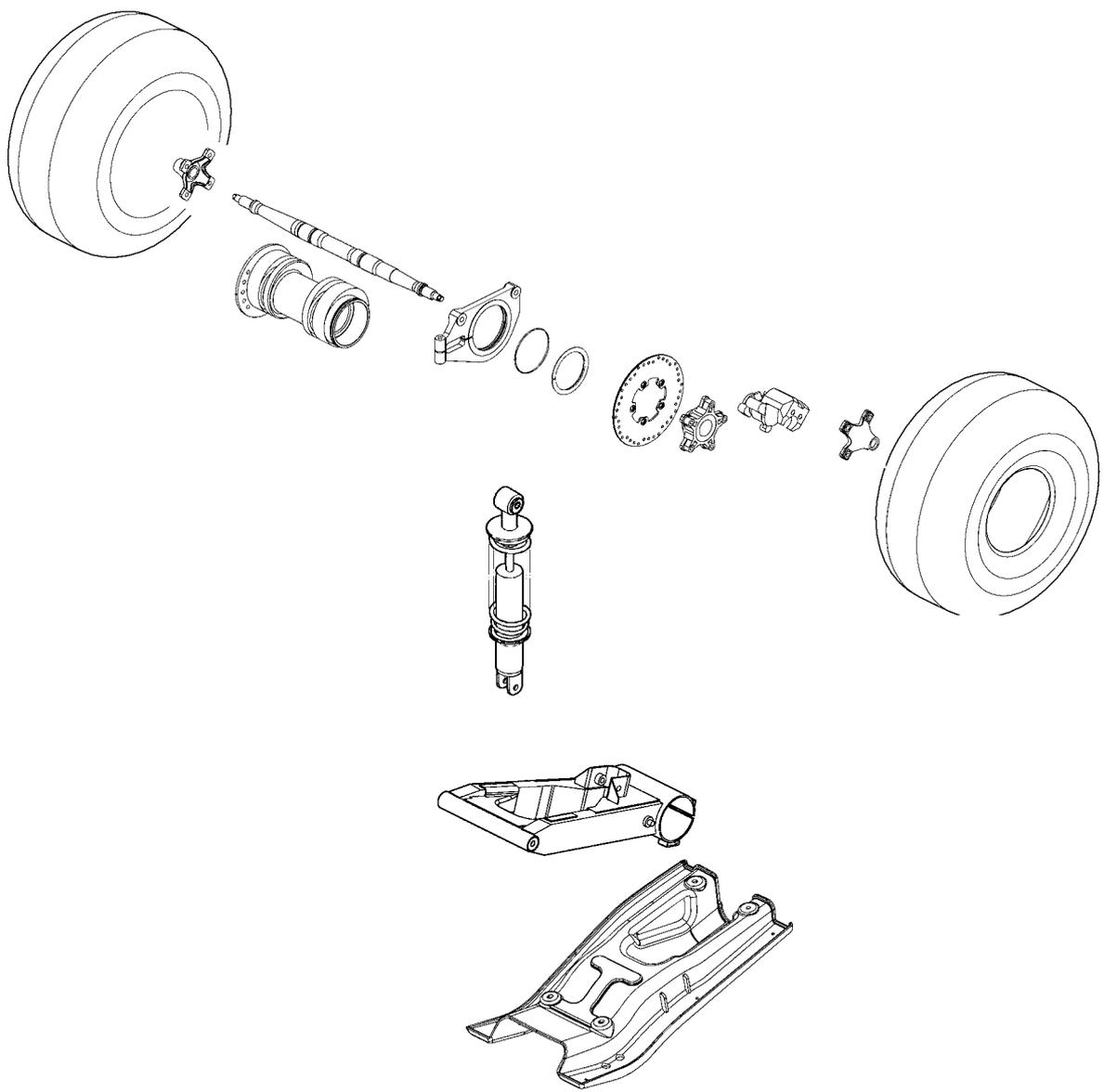
**15**

## **REAR WHEEL/AXLE/SUSPENSION**

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SERVICE INFORMATION-----	15- 2
TROUBLESHOOTING-----	15- 3
REAR WHEEL/AXLE/AXLE HUB -----	15- 3
REAR SHOCK ABSORBER / REAR FORK -----	15- 13

**15. REAR WHEEL/AXLE/SUSPENSION**



# 15. REAR WHEEL/AXLE/SUSPENSION

## SERVICE INFORMATION

### GENERAL INSTRUCTIONS

- 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 disk
- Inspect the brake system before riding.

### SPECIFICATIONS

Unit: mm (in)

Item		Standard	Service Limit
Rear wheel	Rim run out	Radial	—
		Axial	—
			2 (0.08)
			2 (0.08)

### TORQUE VALUES

Rear wheel nut	4.5 kgf-m (45 Nm, 32 lbf-ft)
Rear shock absorber upper mount bolt	4 kgf-m (40 Nm, 29 lbf-ft)
Rear shock absorber lower mount bolt	4 kgf-m (40 Nm, 29 lbf-ft)
Rear fork axle	7 kgf-m (70 Nm, 52 lbf-ft)
Rear wheel hub nut	10 kgf-m (100 Nm, 72 lbf-ft)
Rear wheel shaft nut	12 kgf-m (120 Nm, 86 lbf-ft)
Caliper holder bolt	2.2 kgf-m (22 Nm, 16 lbf-ft)

### SPECIAL TOOLS

Nut wrench F010

## TROUBLESHOOTING

### Rear wheel wobbling

- Bent rim
- Faulty tire
- Axle not tightened properly

### Soft rear shock absorber

- Weak shock absorber spring
- Faulty damper

# 15. REAR WHEEL/AXLE/SUSPENSION

## REAR WHEEL/AXLE/AXLE HUB

### REMOVAL AND INSPECTION

Place the machine on a level place.  
 Remove the rear caliper. (Refer to the “REAR BRAKE CALIPER REMOVAL” section in chapter 13)

Use the nut wrench to loosen two rear axle nuts (inner and outer) of the rear axle.

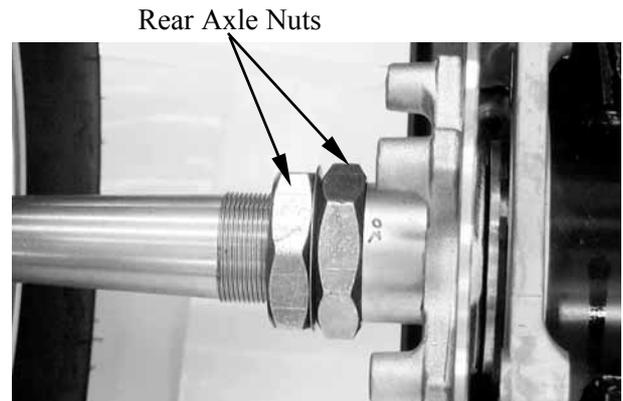
★ Note that the rear axle nuts are left threaded.

Special

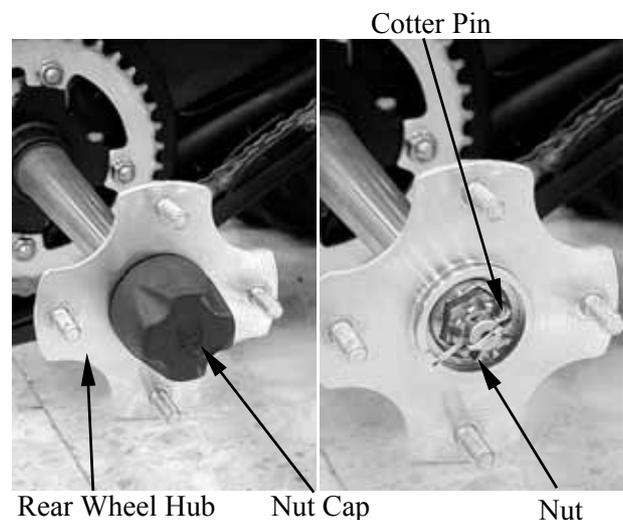
Nut wrench F010

Remove four nuts attaching the rear wheel hub of the both rear wheels, then remove 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 the nut cap.  
 Remove the cotter pin and then remove nut.  
 Remove the rear wheel hub.



# 15. REAR WHEEL/AXLE/SUSPENSION

Inspect the rear wheel hub.  
Cracks/damage → Replace.

Inspect the rear wheel hub splines.  
Wear/damage → Replace.



Splines

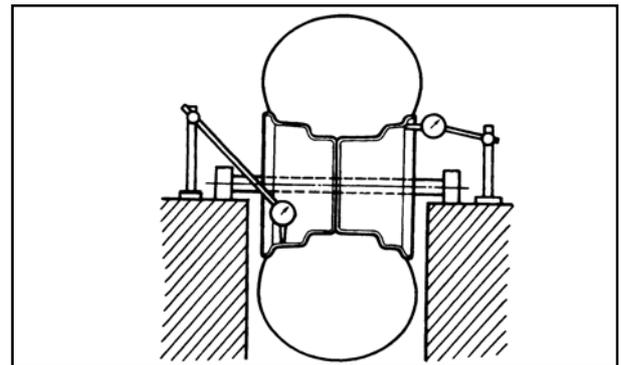
Measure the wheel runout.

**Service Limit:**

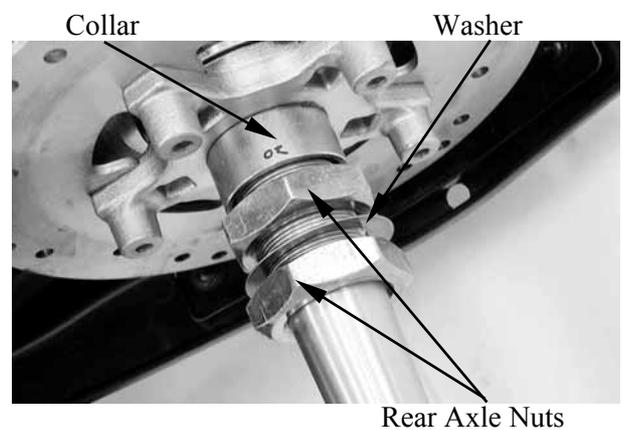
Vertical: 2 mm (0.08 in)

Lateral: 2 mm (0.08 in)

Out of specification → Replace wheel.

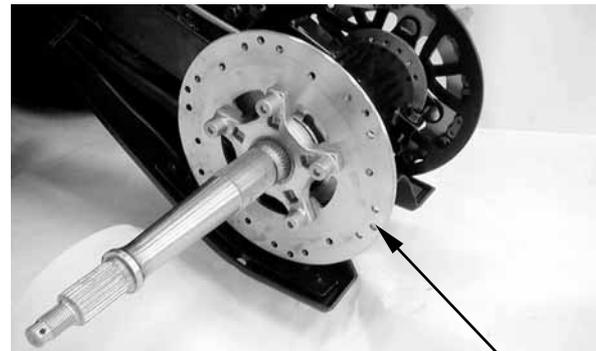


Remove the two rear axle nuts (outer and inner), washer and collar.



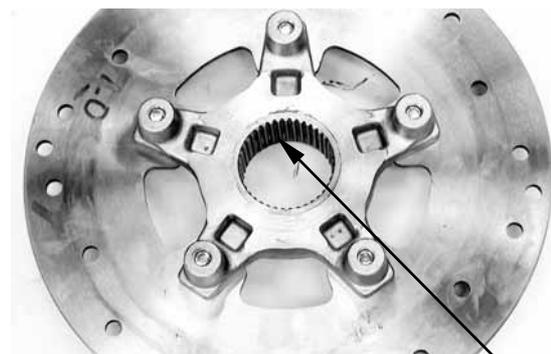
## 15. REAR WHEEL/AXLE/SUSPENSION

Remove the rear brake disk.



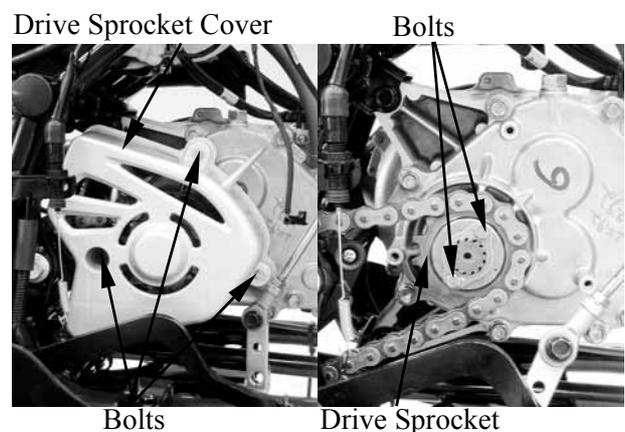
Rear Brake Disk

Inspect the brake disk  
Cracks/damage → Replace.  
Inspect the brake disk splines.  
Wear/damage → Replace.



Splines

Loosen the driven chain (refer to the “DRIVE CHAIN SLACK ADJUSTMENT” section in the chapter 3) and remove the two bolts at the drive sprocket (refer to the chapter 6), then disconnect the drive chain from the driven sprocket.



Drive Sprocket Cover

Bolts

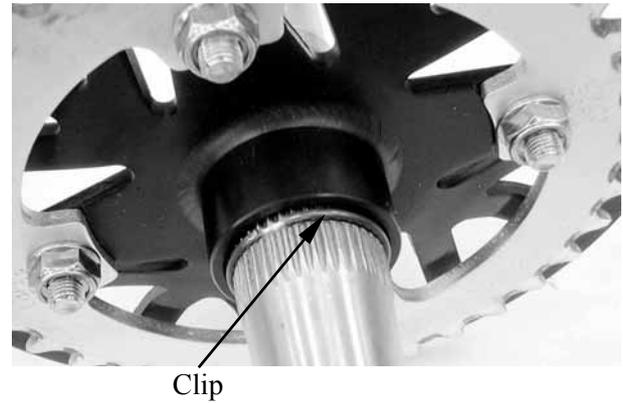
Bolts

Drive Sprocket

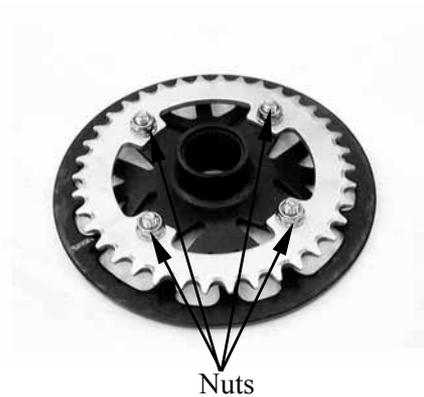


# 15. REAR WHEEL/AXLE/SUSPENSION

Remove the driven sprocket clip at the rear axle and then remove the driven sprocket.



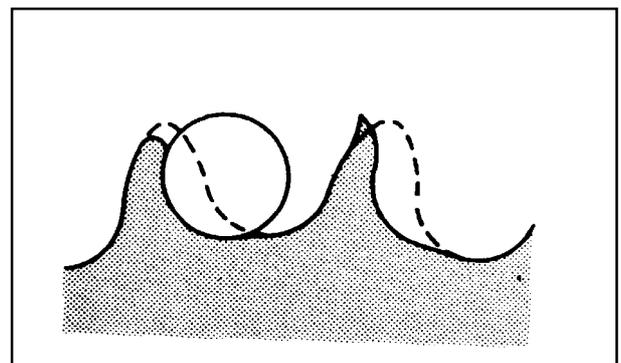
Remove the four nuts attaching the driven sprocket holder at the driven sprocket and then remove driven sprocket.



Inspect the drive sprocket and driven sprocket.

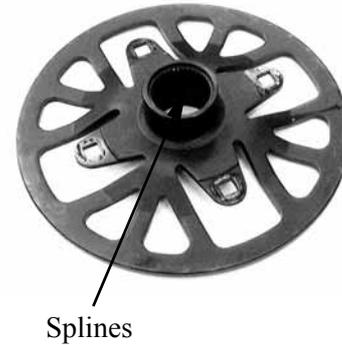
More than 1/4 teeth wear → Replace.

Bent teeth → Replace.



# 15. REAR WHEEL/AXLE/SUSPENSION

Inspect the driven sprocket holder splines.  
Wear/damage → Replace.



Inspect the rear axle.  
Scratched (excessively)/damage → Replace.  
Inspect the splines and threads of the rear axle  
Wear/damage → Replace.



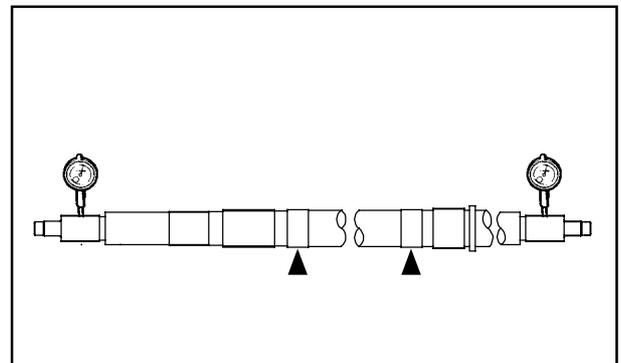
Measure the rear axle run out.  
**Service limit:** less than 1.5 mm (0.06 in)  
Out of specification → Replace.

\* Do not attempt to straighten a bent axle.

### REAR AXLE ASSEMBLY

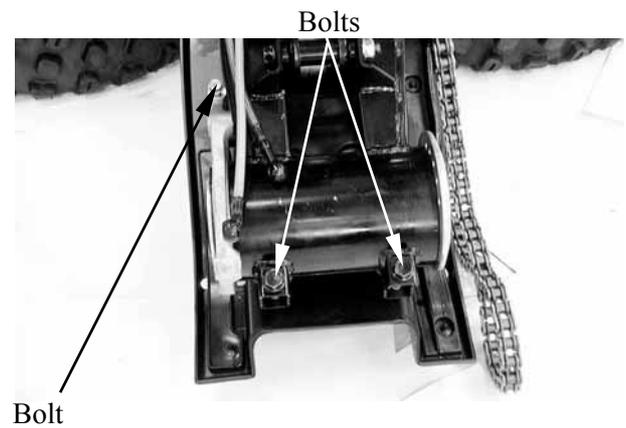
Reverse the “REAR AXLE DISASSEMBLY” procedures.

\* Apply grease onto the rear axle splines.

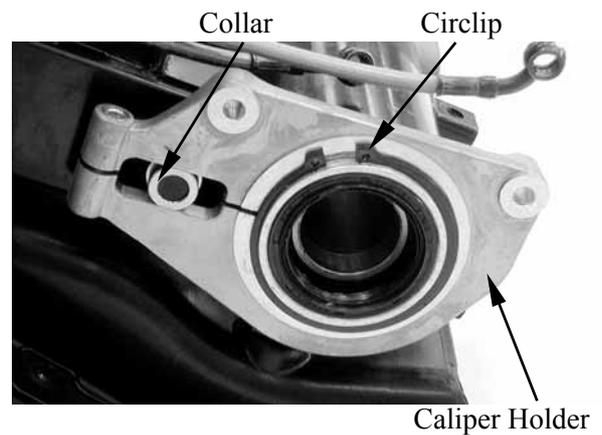


## **15. REAR WHEEL/AXLE/SUSPENSION**

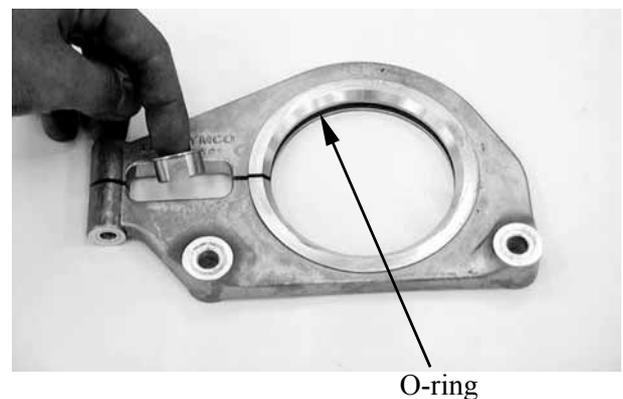
Remove the bolt at the rear caliper holder.  
Remove the two bolts attaching the rear axle hub at the rear fork.



Remove the circlip at the caliper holder and then remove the caliper holder and collar.

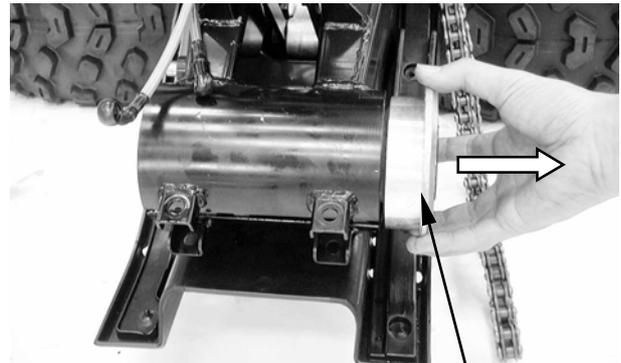


Inspect the O-ring for damage.  
Apply grease to the O-ring before the caliper holder is installed.



# 15. REAR WHEEL/AXLE/SUSPENSION

Remove the rear axle hub from right side.



Rear Axle Hub

Inspect rear axle hub.

Bearings allow play in the axle hub or the bearing turns roughly → Replace.

Dust seals is wear/damage → Replace.

Axle hub is cracks/bend/damage →  
Replace.



## **REAR AXLE HUB DISASSEMBLY**

Bearing and dust seal replacement steps:

Clean the outside of the rear axle hub.

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

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

Remove the bearing by a general bearing puller.



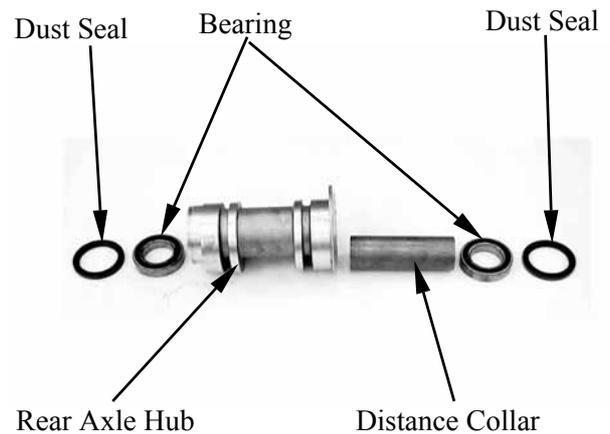
# 15. REAR WHEEL/AXLE/SUSPENSION

## REAR AXLE HUB ASSEMBLY

Install the new bearing and dust 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.  
 Make sure install the distance collar into the rear axle hub



## INSTALLATION

Reverse the “REAR WHEEL/AXLE/AXLE HUB REMOVAL AND INSPECTION” procedures.

★

Apply grease onto the dust seal lips and bearings.

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.

Connect the drive chain.

Install the rear brake disk, collar inner nut, washer and outer nut.

★

At this time, the nuts should not be tightened completely.

# 15. REAR WHEEL/AXLE/SUSPENSION

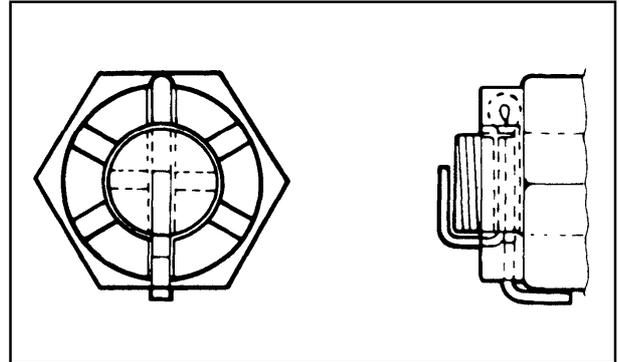
Install the rear wheel hub and tighten the nut.

**Torque:** 10 kgf-m (100 Nm, 72 lbf-ft)

Install cotter pin (new)

★

Do not loosen the wheel hub nut after torque tightening. If the wheel hub nut groove is not aligned with the cotter pin hole, align groove with the hole by tightening up on the wheel hub nut. Always use a new cotter pin.

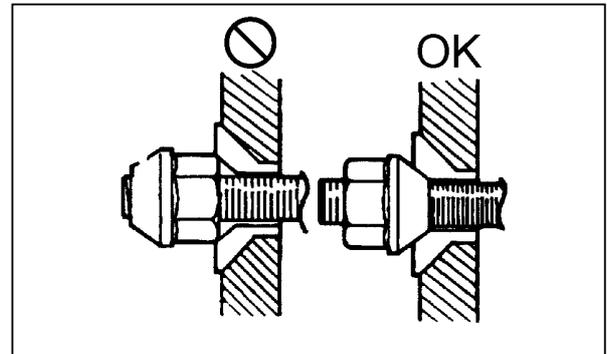


Install the rear wheel and tighten the four nuts.

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

★

Be sure the tapered side of the wheel nuts face the wheel rim.



Tighten the two rear axle nuts (inner and outer).

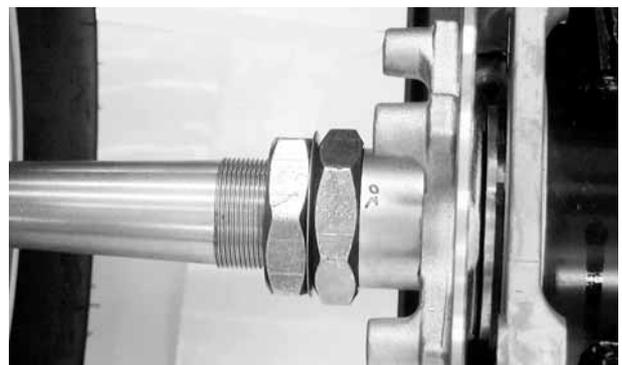
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Note that the rear axle nuts are left threaded.

Special

Nut wrench F010

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



Adjust drive chain slack. (Refer to the “DRIVE CHAIN SLACK ADJUSTMENT” section in the CHAPTER 3.)

**Drive chain slack:** 30 ~ 40mm

# 15. REAR WHEEL/AXLE/SUSPENSION

## REAR SHOCK ABSORBER / REAR FORK

### REMOVAL AND INSPECTION

Place the machine on a level place.

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

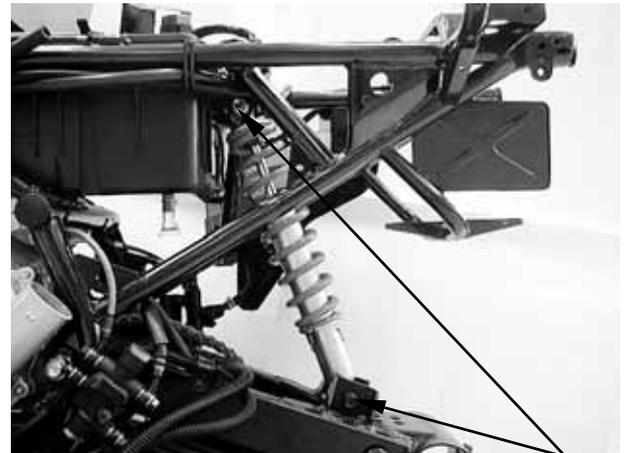
★

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

Remove the rear wheels, rear axle and rear hub.

Refer to the “REAR WHEEL/AXLE/AXLE HUB REMOVAL AND INSPECTION” section in chapter 15.

Remove the upper and lower mount bolts/nuts, then remove rear shock absorber



Bolts/Nuts

Inspect the shock absorber rod.

Bends/damage → Replace the shock absorber assembly.

Inspect the shock absorber.

Oil leaks → Replace the shock absorber assembly.

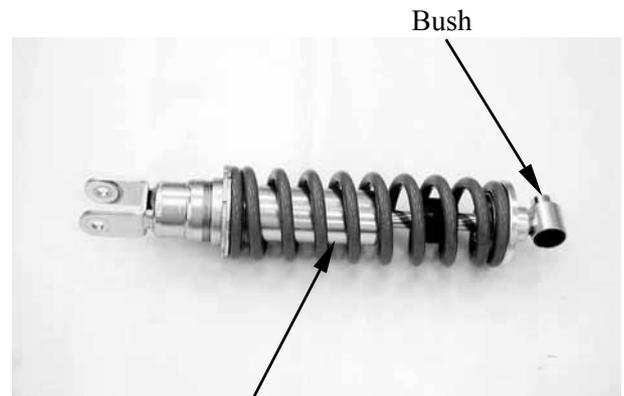
Inspect the spring.

Move the spring up and down.

Fatigue → Replace the shock absorber assembly.

Inspect the bush.

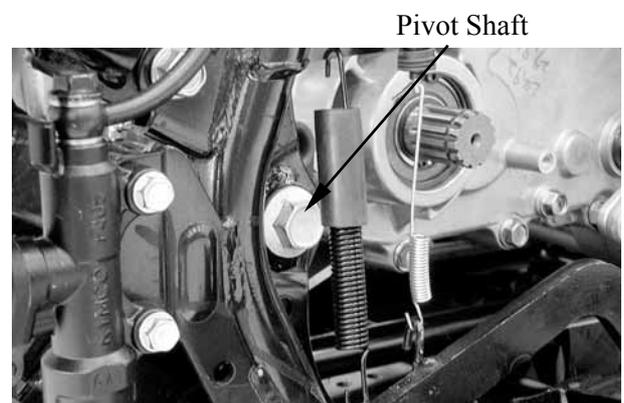
Wear/damage → Replace.



Shock Absorber

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

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

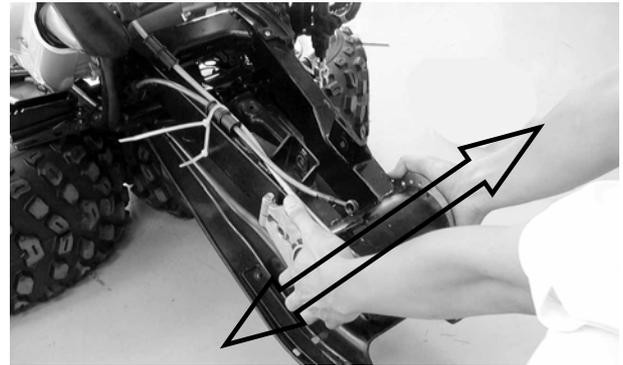


Pivot Shaft

## **15. REAR WHEEL/AXLE/SUSPENSION**

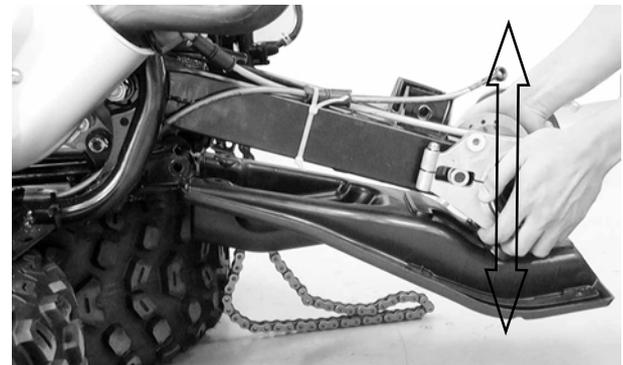
Check the rear fork side play by moving it from side to side.

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

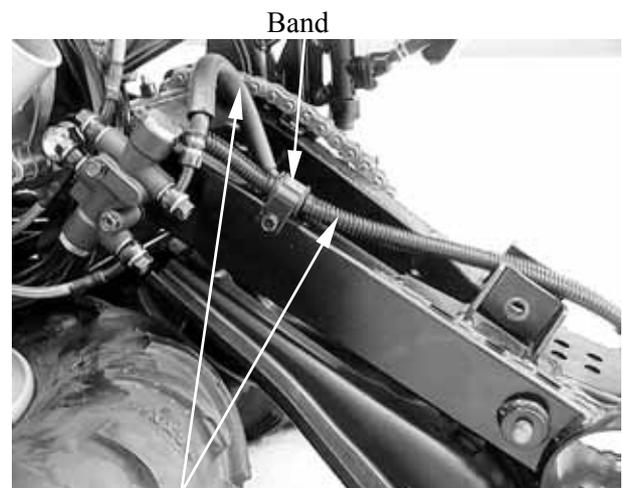


Check the rear fork vertical movement by moving it up and down.

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



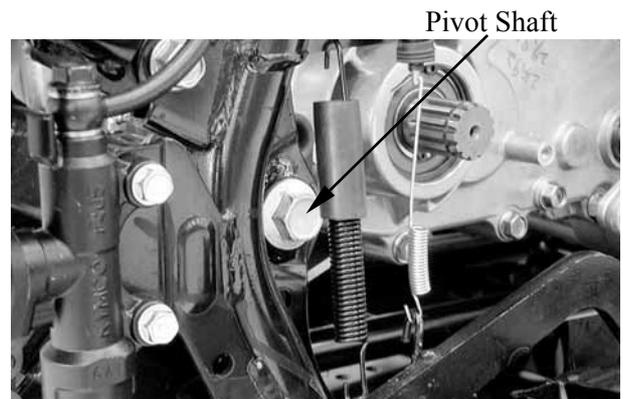
Remove the band and then disconnect the rear brake fluid tubes from the rear fork.



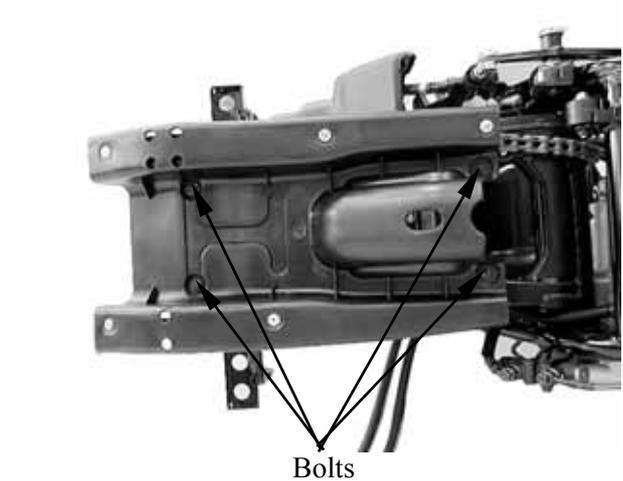
Rear Fluid Tube

# **15. REAR WHEEL/AXLE/SUSPENSION**

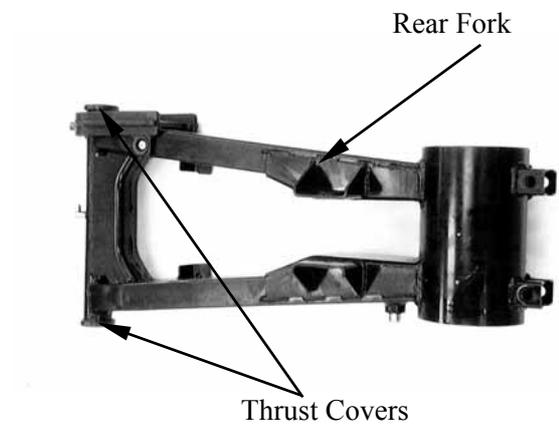
Remove the nut and pivot shaft, then remove rear fork and drive chain.



Remove the four bolts from the lower guard and then remove the lower guard.



Remove the thrust covers.



# 15. REAR WHEEL/AXLE/SUSPENSION

Inspect the rear fork.

Crack/bend/damage → Replace.

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

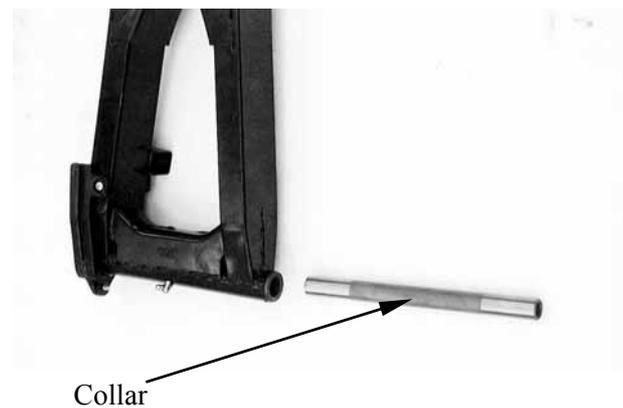
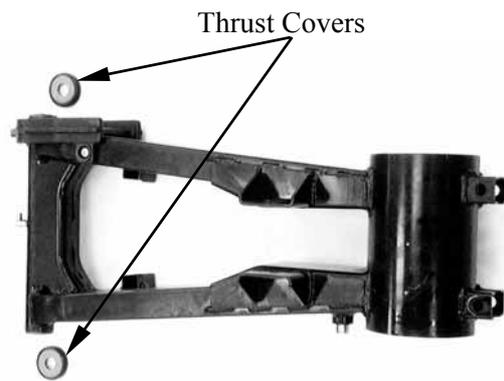
Bends → Replace.

**\***

Do not attempt to straighten a bent axle.

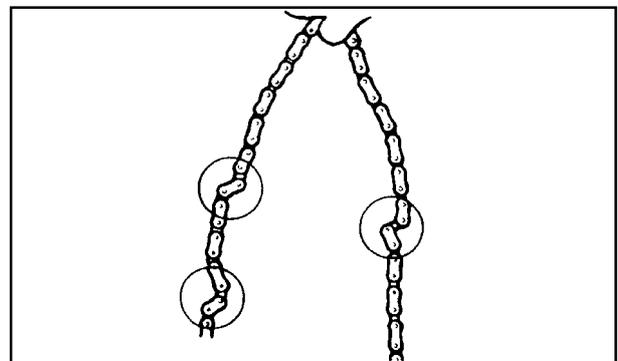
Inspect the thrust covers, collar and bushes.

Wear/damage → Replace.



Inspect the drive chain stiffness.

Stiff → Clean and lubricate or replace.



# 15. REAR WHEEL/AXLE/SUSPENSION

## INSTALLATION

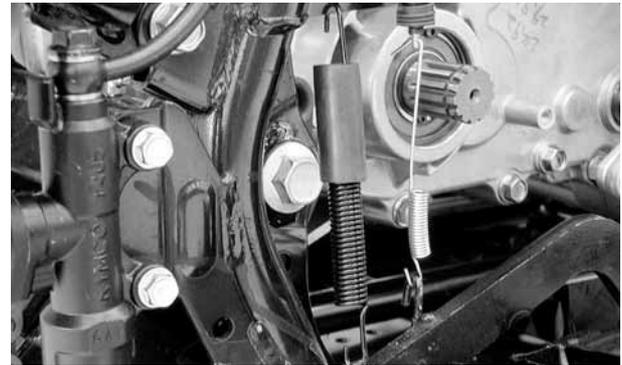
Reverse the “REAR FORK/SWIM ARM/SHOCK ABSORBER REMOVAL AND INSPECTION” procedure.

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



Install the rear fork and drive chain.  
Install the pivot shaft and tightening the nut and pivot shaft.

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



Install the shock absorber and tightening the bolts.

**Torque: 4 kgf-m (40 Nm, 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: 30 ~ 40mm**

