

Service Information.....	12 – 1	Rear cushion.....	12 – 10
Troubleshooting.....	12 – 2	Cushion linkage.....	12 – 13
Rear wheel.....	12 – 3	Swing arm.....	12 - 18

◆ Service Information

• General



- A contaminated brake disc or pad reduces braking performance. Replace contaminated pads and clean a contaminated disc with brake degreasing agent.
- A damper unit contains pressurised Nitrogen gas. It is essential to follow the instructions below:
 - Do not heat or disassemble the damper unit as it may explode or spill oil.
 - Bleed gas when disposing the damper unit. Bleed hole position → 12-11.
 - Do not bleed gas unless the unit is to be disposed.

- Support the bottom part of the engine when servicing the rear wheel or the suspension.
- Use genuine bolts/nuts for rear cushion mounting.
- Refer to Sec. 13 for brake system service.
- Do not step on spokes or overstress the wheel. Do not damage the wheel.
- When mounting/dismounting the tyre from/to the rim, use exclusive “tyre lever” and “rim protector” to avoid damaging the rim.

• Specification

Item				Standard	Service Limit	
Rear wheel	Axle runout			-	0.2mm	
	Rim runout	Axial		-	2.0mm	
		Radial		-	2.0mm	
	Tyre	Tread depth			-	3.0mm
		Pressure	Driver only	Normal	150kPa (1.50kgf/cm ²)	-
				High speed	150kPa (1.50kgf/cm ²)	-
Driver and Passenger			Normal	150kPa (1.50kgf/cm ²)	-	
Drive chain	Slack			25 – 35mm	-	
	Size / link	RK		520MO9 / 100LE	-	
		DID		520VC5 / 100LE	-	
Drive chain slider thickness				-	Wear limit line	

• Torque Settings

Rear axle nut	93N.m (9.5kgf-m)	U-Nut
Driven sprocket nut	32N.m (3.3kgf-m)	U-Nut
Rear brake disc bolt	42N.m (4.3kgf-m)	Alloc bolt
Spoke nipple	7N.m (0.75kgf-m)	Alloc bolt
Rear brake hose guide screw	4N.m (0.43kgf-m)	Alloc bolt
Rear cushion bolt (upper)	44N.m (4.5kgf-m)	
nut (lower)	44N.m (4.5kgf-m)	U-Nut
Cushion connecting rod nut		
(cushion arm side)	44N.m (4.5kgf-m)	U-Nut
(frame side)	44N.m (4.5kgf-m)	U-Nut
Cushion arm nut (swing arm side)	68N.m (6.9kgf-m)	U-Nut
Swing arm pivot nut	68N.m (6.9kgf-m)	U-Nut
Chain slider screw	4N.m (0.42kgf-m)	Apply screw locker to the thread

• Special Tools

Needle bearing remover	07946-KA50000
Driver shaft	07946-MJ00100
Driver handle A	07749-0010000
Outer driver 37 x 40mm	07746-0010200
Outer driver 24 x 26mm	07946-0010700
Pilot 17mm	07746-0040400
Pilot 20mm	07746-0040500
Bearing remover shaft	07746-0050100
Bearing remover head 17mm	07746-0050500

• Troubleshooting

Rear wheel wobbling or vibration

- Wheel rim deformed
- Wheel bearing damaged
- Tyre worn / unbalanced
- Unbalanced wheel
- Inadequate rear axle tightening
- Low tyre pressure
- Swing arm pivot fault

Wheel rotation heavy

- Wheel bearing damaged
- Rear axle runout
- Brake dragged (Sec. 13)

Too soft rear suspension

- Cushion spring deformed
- Rear cushion damper fault
- Improper rear cushion spring installation length

Too hard rear suspension

- Rear cushion damper rod bent
- High tyre pressure
- Improper rear cushion spring installation length
- Swing arm pivot, rubbing area fault / lack of lubrication
- Cushion linkage bearing fault

Rear suspension noise

- Rear cushion touching other parts
- Loose rear suspension related bolts

◆ Rear Wheel

• Removal

Support the bottom part of the engine and lift the rear wheel.

Remove a rear axle nut and an adjust plate.

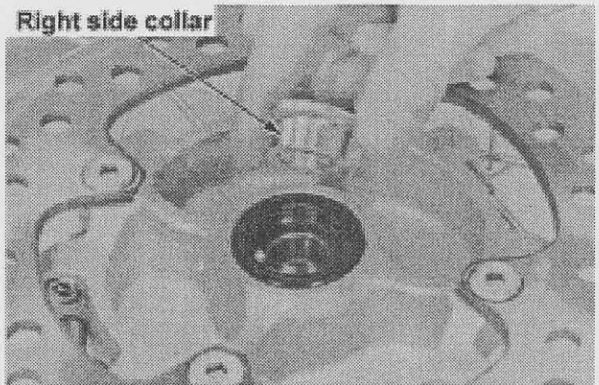
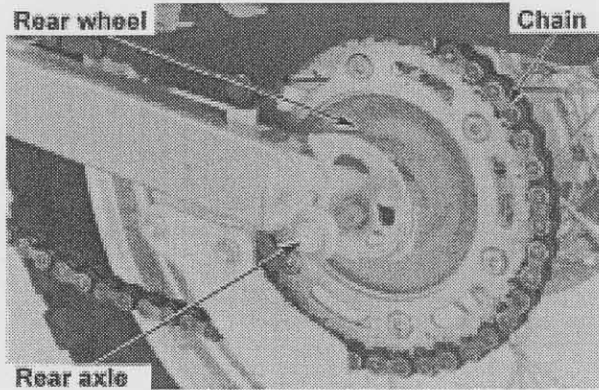
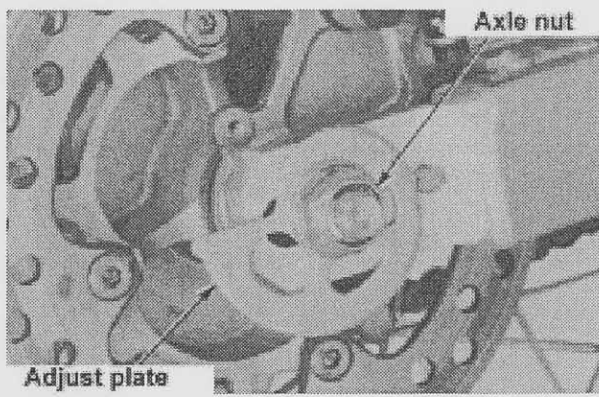
Move the rear wheel to the front to maximise the drive chain slack.

Detach the drive chain from the driven sprocket.

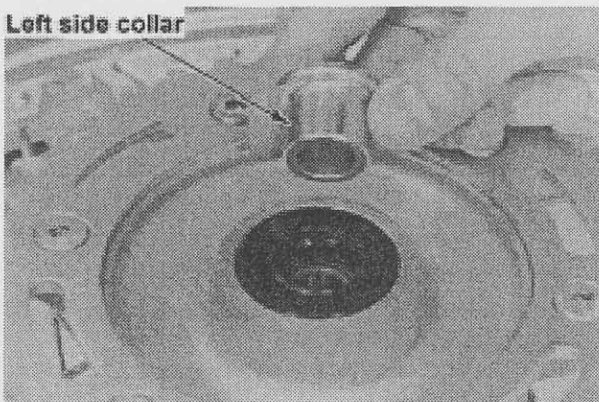
Pull out the rear axle and remove a rear wheel.

Notes:

- Do not operate a brake pedal after removing the rear wheel.
- Do not sling the brake caliper with a brake hose.



Remove a right side collar.



Remove a left side collar.

◆ Inspection

• Axle

Support the axle with Vee-blocks and measure its runout with a dial gauge.

Service limit: 0.2mm or above → replace

Take ½ of the measured value as the runout.

• Wheel rim

Slowly rotate the wheel and measure the wheel runout with a dial gauge.

Service limit:

Axial 2.0mm or above → replace

Radial 2.0mm or above → replace

Replace the rim if there is any local deformation.

Inspect spokes for loose fit, bent and damage.

• Wheel bearing

Rotate the bearing inner race with a finger and check for smooth operation. If it is not smooth, or if there is any loose fit or damage on the outer race and a hub, replace the bearing.

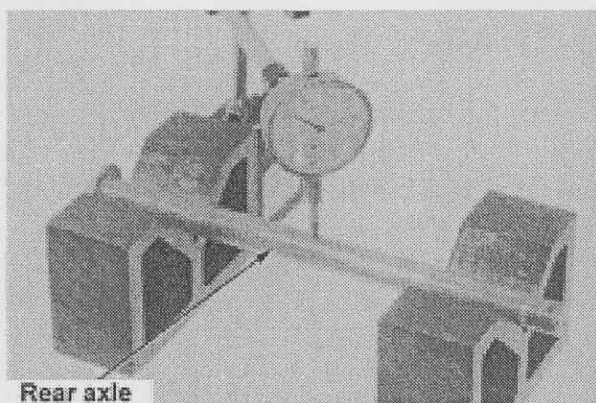
Note:
Replace both left/right bearings at the same time.

• Disassembly

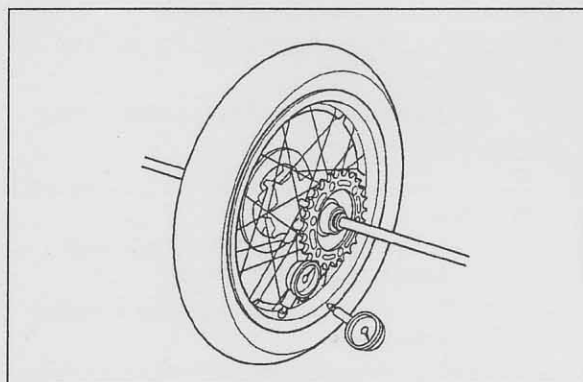
⚠ Warning

A contaminated brake disc or pad reduces braking performance. Replace contaminated pads and clean a contaminated disc with brake degreasing agent.

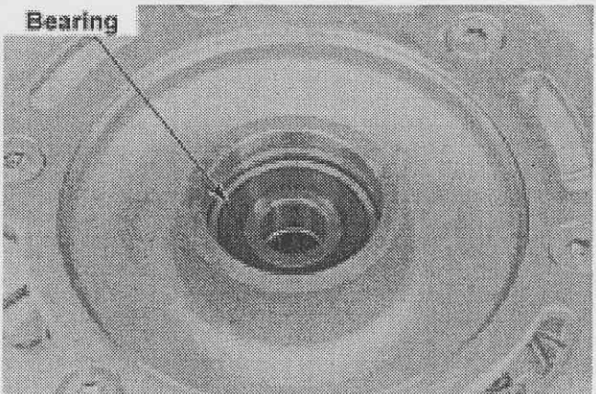
Remove a right dust seal.



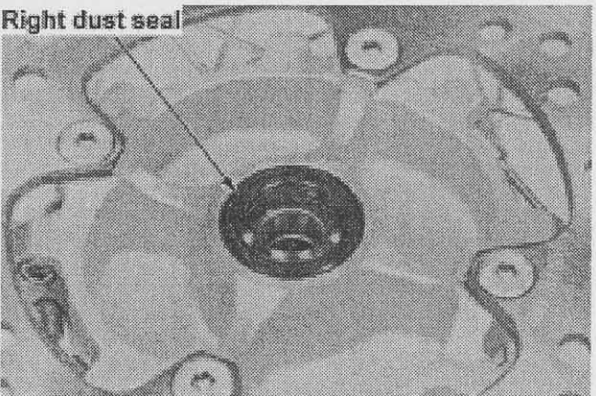
Rear axle



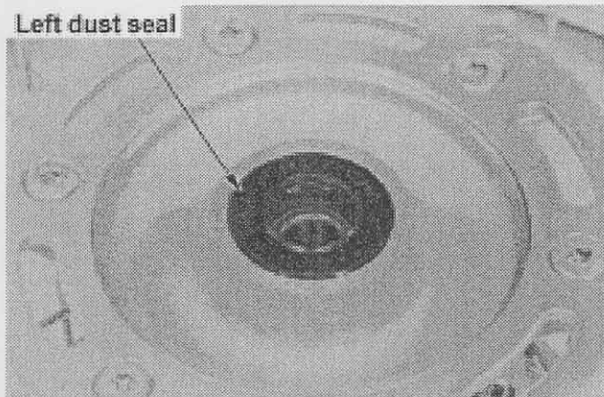
Bearing



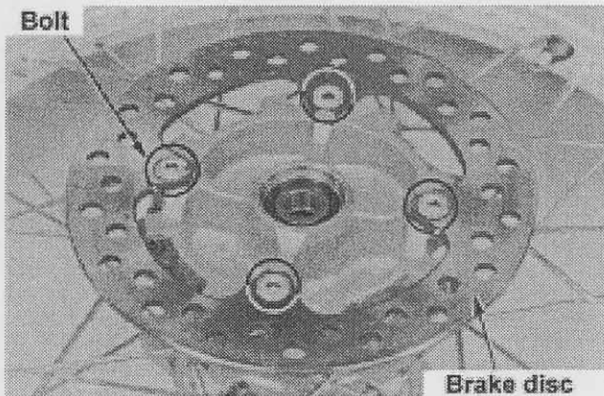
Right dust seal



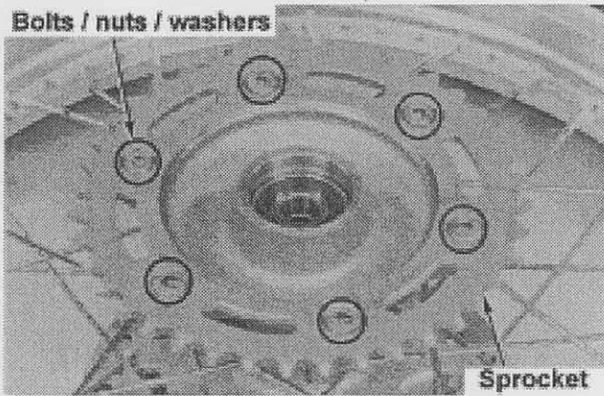
Remove a left dust seal.



Unscrew bolts to remove the brake disc.



Unscrew nuts/washers and remove the driven sprocket and bolts.

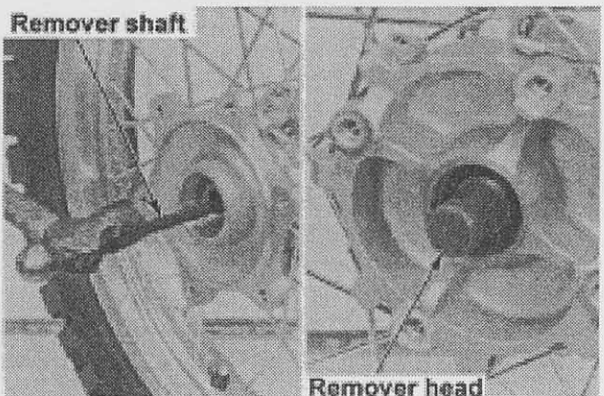


Remove bearings and a distance collar with the following tools:

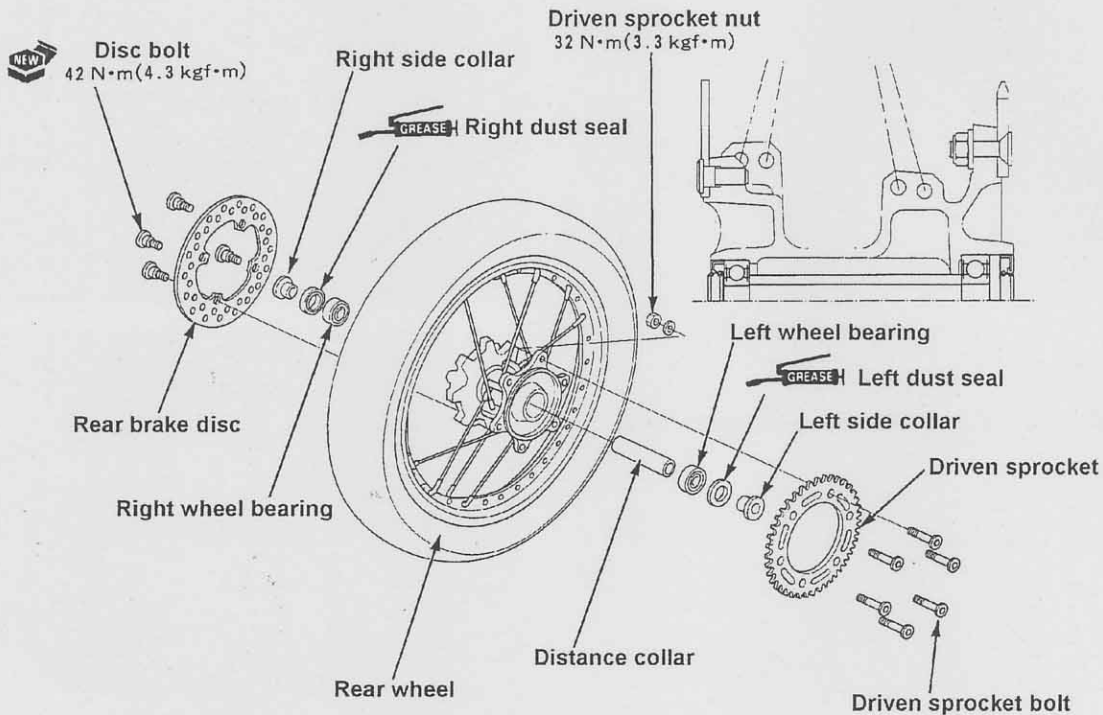
Special tools:

- Bearing remover shaft 07746-050100
- Bearing remover head 17mm 07746-0050500

Note:
Replace both left and right bearings at the same time and do not re-use the removed bearings.



• Assembly



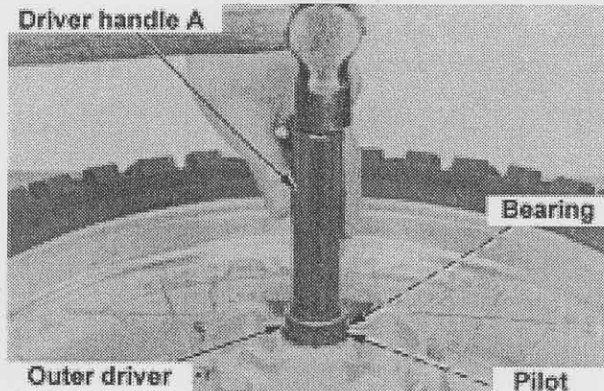
By using the following tools, install new wheel bearings to the left side of the wheel hub until it touches the hub.

Special tools:

Driver handle A	07749-0010000
Outer driver 37 x 40mm	07746-0010200
Pilot 17mm	07746-0040400

Notes:

- Sealed surface of the bearing should face outward.
- Let the bearing on the left side touch the hub.
- Do not tilt the bearing when installing.



Install a distance collar.
Install new wheel bearings to the right side in the same manner.

Special tools:

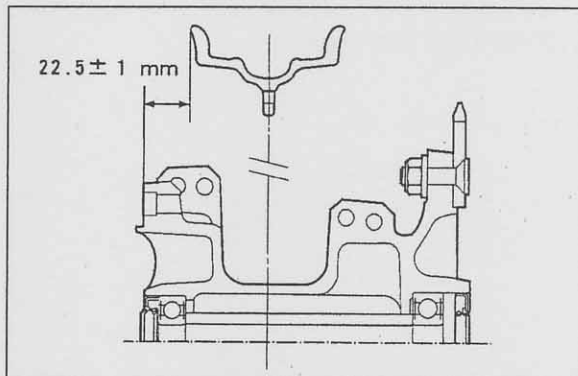
Driver handle A	07749-0010000
Outer driver 37 x 40mm	07746-0010200
Pilot 17mm	07746-0040400

If the wheel was disassembled, assemble in the following manner.

Clean the thread at spoke nipples.

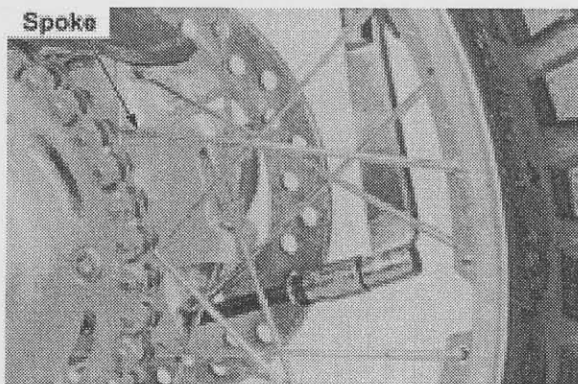
Equally tighten the spoke nipples and adjust the distance between the hub right bearing housing and the rim crossing surface. Adjust the rim runout at the same time.

Rim – hub standard distance:	22.5± 1mm
Rim runout Axial	2.0mm
Radial	2.0mm



Equally tighten the spoke nipples in 2 ~ 3 times.

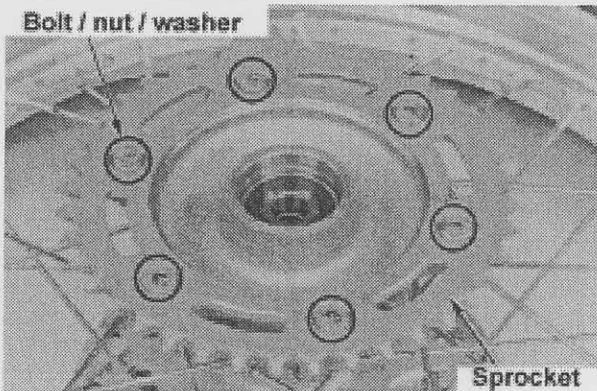
Torque: 7N.m (0.75kgf-m)



Install the driven sprocket and driven sprocket bolts.

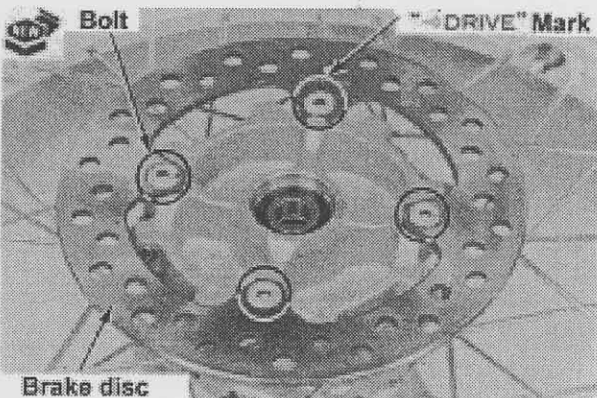
Set washers / nuts and tighten the nuts.

Torque: 32N.m (3.3kgf-m)



Install the rear brake disc.

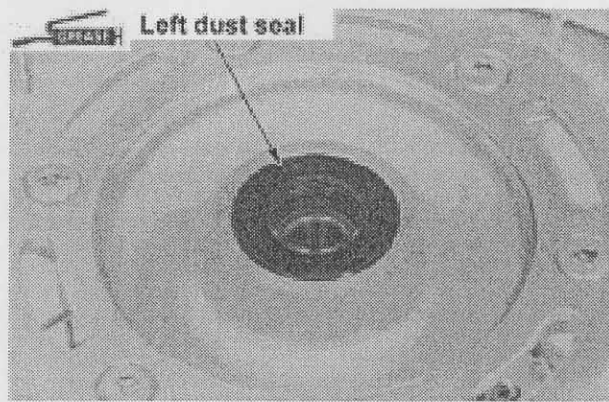
Note:
The "DRIVE" mark on the disc should face outwards.



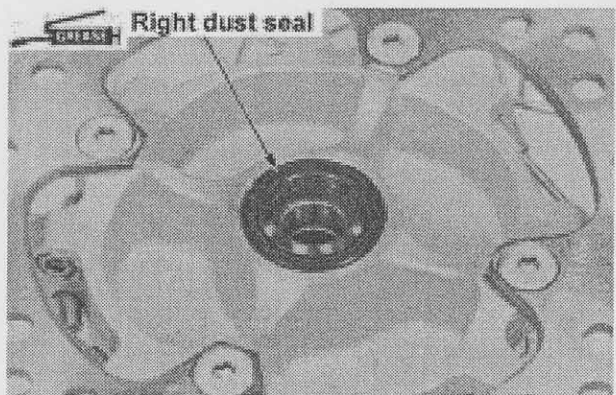
Install the new rear brake disc bolts.

Torque: 42N.m (4.3kgf-m)

Apply grease to the left dust seal lip and install the dust seal.

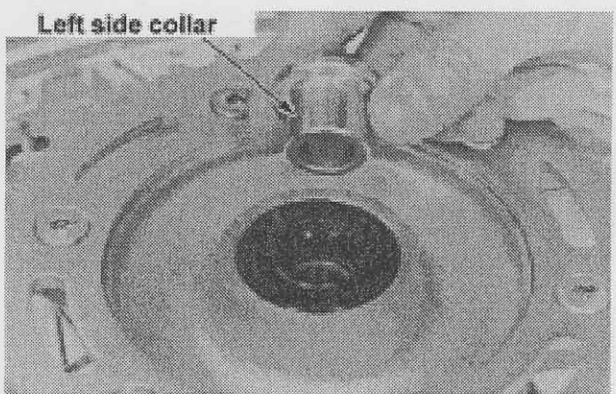


Apply grease to the right dust seal lip and install the dust seal.

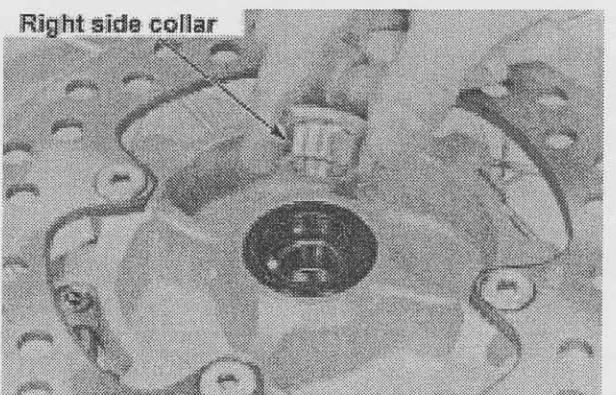


- **Installation**

Install the left side collar.



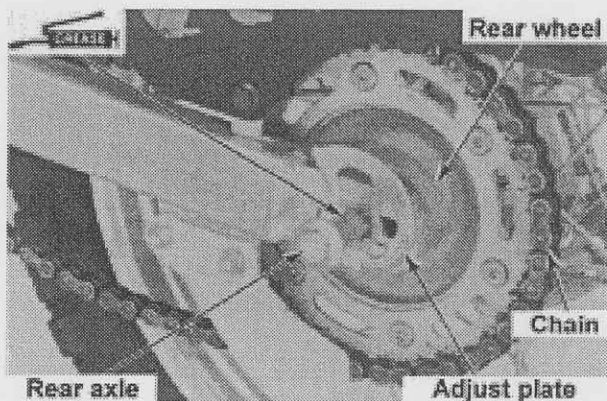
Install the right side collar.



Align the rear caliper bracket to the slide rail on the swing arm.



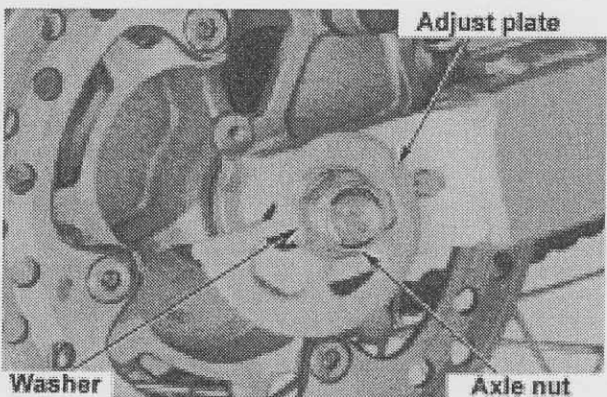
Set the brake disc between the brake pads and set the rear wheel to the swing arm. Install the rear axle and the adjust plate.



Note:
Install the adjust plate in the direction shown in the figure.

Set the drive chain to the driven sprocket.

Install the adjust plate, the washer and the rear axle nut.



Note:
Install the adjust plate in the direction shown in the figure.

Adjust the slack of the drive chain (3-10). Tighten the rear axle nut.

Torque: 93N.m (9.5kgf-m)

• Rear cushion

Notes:

A damper unit contains pressurised Nitrogen gas. It is essential to follow the instructions below:

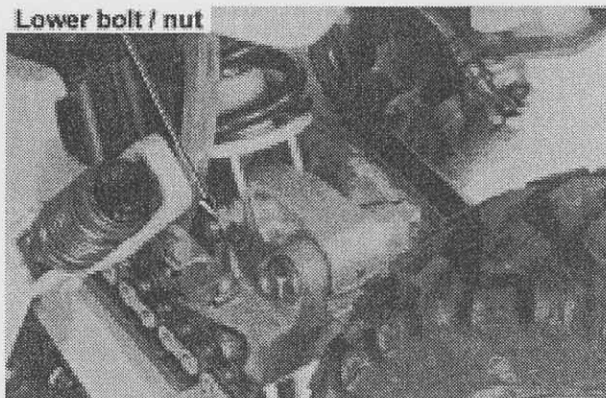
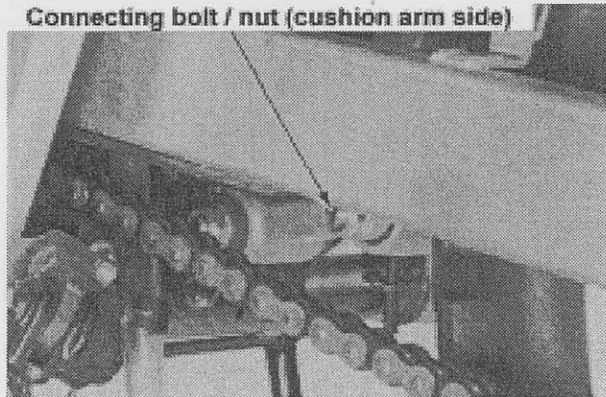
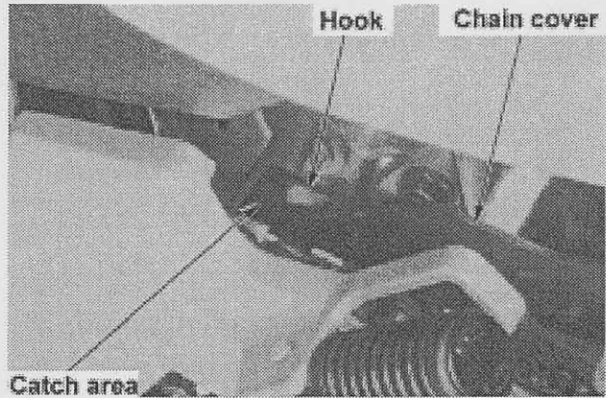
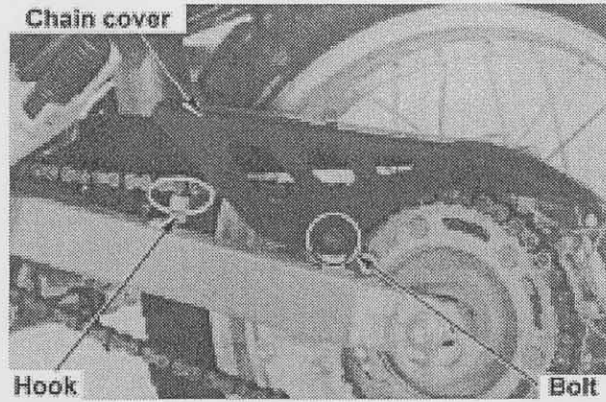
- Do not heat or disassemble the damper unit as it may explode or spill oil.
- Bleed gas when disposing of the damper unit. Bleed-hole position is described in 12-11.
- Do not bleed gas unless the unit is to be disposed.

• Removal

df
Remove the seat (2-2).
Remove the mudguard (2-5).
Remove the battery case (14-6).
Unscrew bolts to remove the chain cover, by disconnecting the front part of the chain cover from the hook on the swing arm.
Support the bottom part of the engine and lift the rear wheel.

Remove the cushion connecting rod bolt/nut on the cushion arm side.

Remove the rear cushion lower bolt/nut.

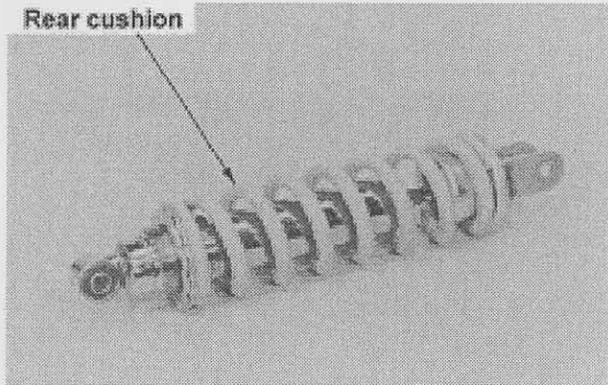
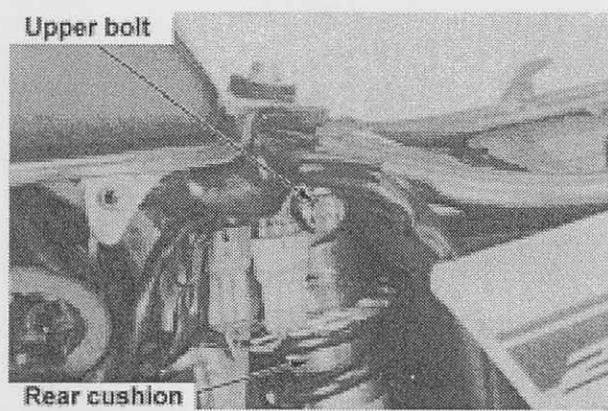


Remove the rear cushion upper bolt and remove the rear cushion.

• Inspection

Damper case deformed, oil leak, rod bent
→ replace.

Stopper rubber worn/damaged → replace.



Damper unit gas drain

The damper unit contains compressed Nitrogen gas.

Strictly follow the following "Warning" instructions.



- Do not heat or disassemble the unit.
- Bleed the gas in the following manner before disposing of the unit.

Mark the drilling position as shown in the figure.

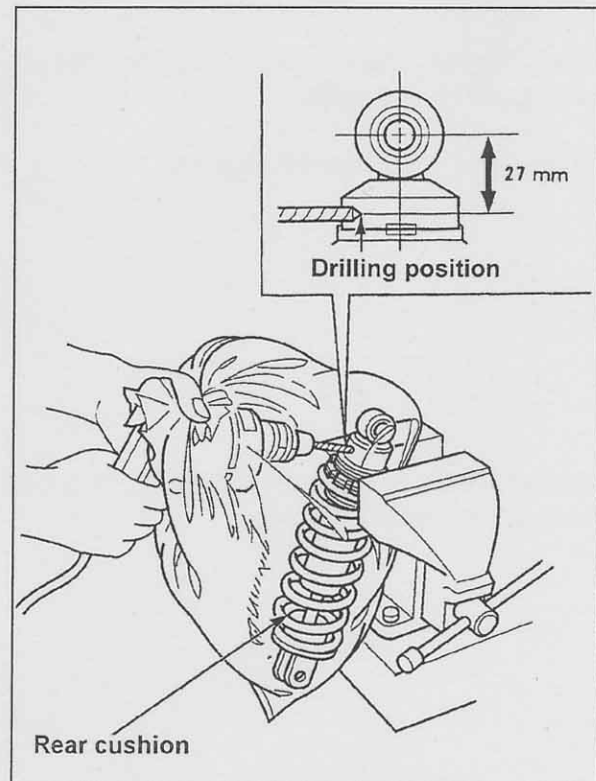
Wrap the rear cushion with a plastic bag, and fix with a vice in straight up position.

Inflate the bag with drill cooling air to prevent the bag catching the drill blade, and adjust the inflation by momentarily letting the air out.

Drill 3mm diameter hole to bleed gas.



- Wear protective goggles as debris comes out with the gas when the hole goes through.
- Oil may spill if the hole is drilled other than in the designated position.

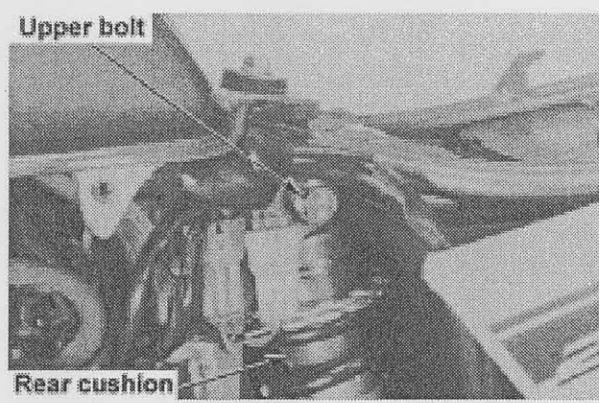


- **Installation**

Note:
Use genuine cushion linkage bolt/nut.

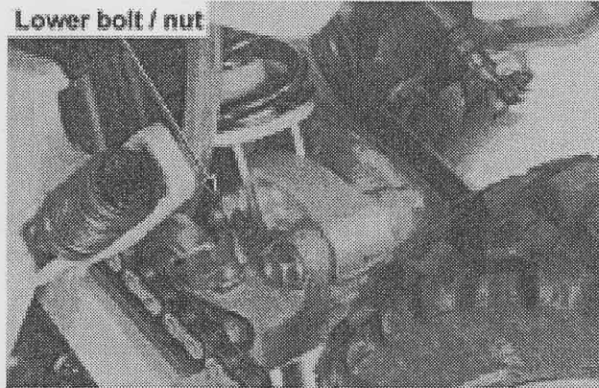
Install the rear cushion.
Tighten the rear cushion upper bolt.

Torque: 44N.m (4.5kgf-m)



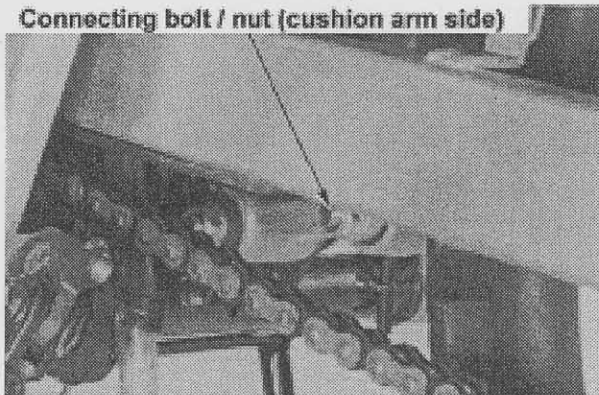
Install/tighten the rear cushion lower bolt/nut.

Torque: 44N.m (4.5kgf-m)



Install/tighten the connection rod bolt/nut on the cushion arm side.

Torque: 44N.m (4.5kgf-m)



Install the chain cover by setting its front part to the hook on the frame.



Align the chain cover to the hook on a swing arm.

Tighten the bolt.

Install the battery case (14-6)

Install the mudguard (2-5)

Install the seat (2-2)

- **Cushion linkage**

- **Removal**

Remove a mudguard (2-5)

Remove a drive chain cover (12-10)

Support the bottom of the engine to lift the rear wheel.

Unscrew the cushion connecting rod bolt/nut on the cushion arm side.

Unscrew the cushion connecting rod bolt/nut on the frame side to remove the cushion connecting rod.

Unscrew rear cushion lower bolt/nut.

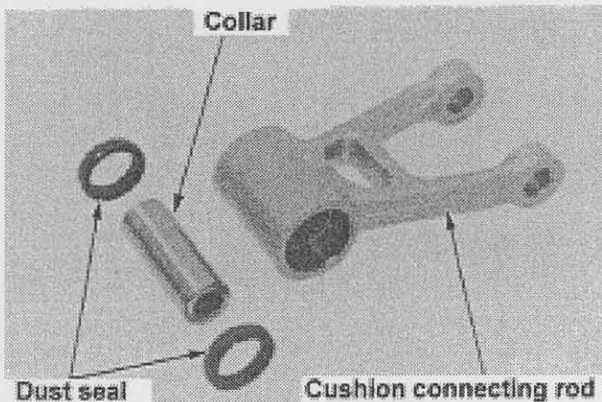
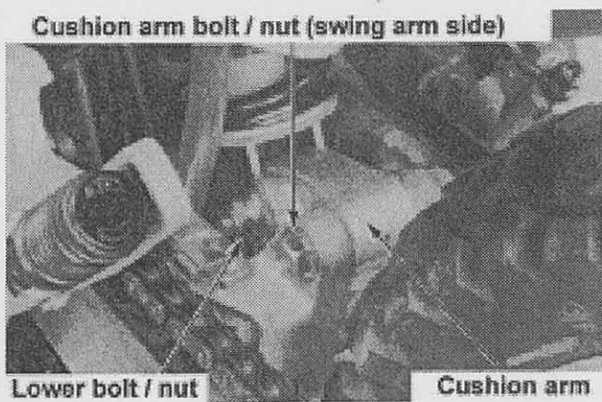
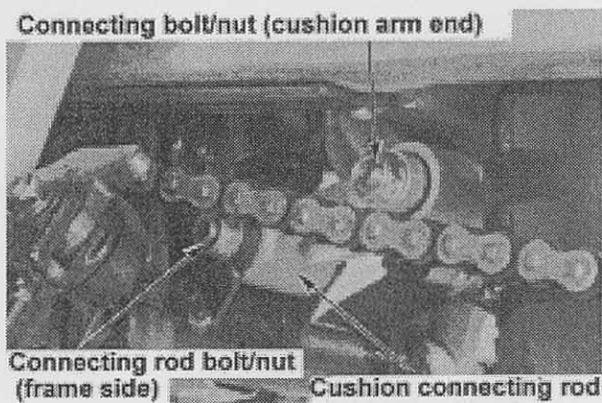
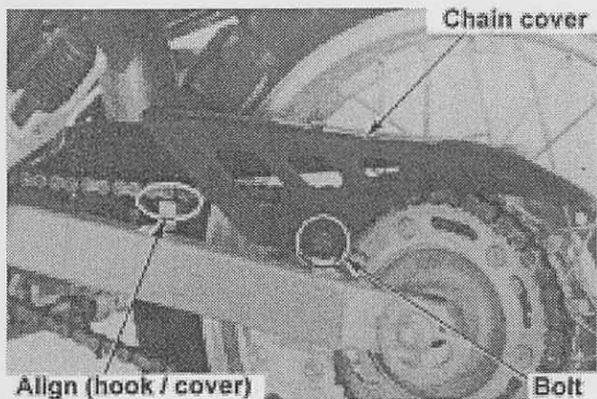
Unscrew the cushion arm bolt/nut on the swing arm side to remove the cushion arm.

- **Disassembly**

- **Cushion connecting rod**

Remove the following parts:

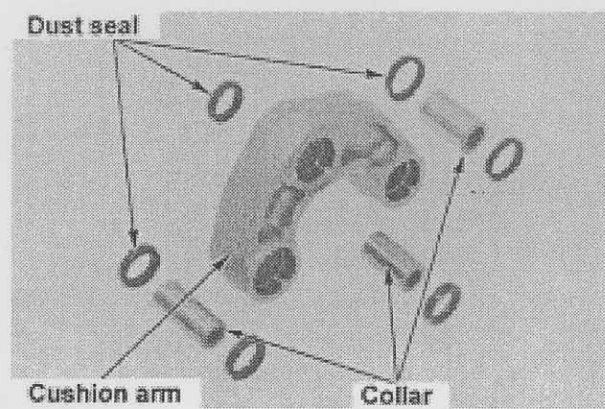
- Dust seal
- Collar
- Cushion connecting rod



- **Cushion arm**

Remove the following parts:

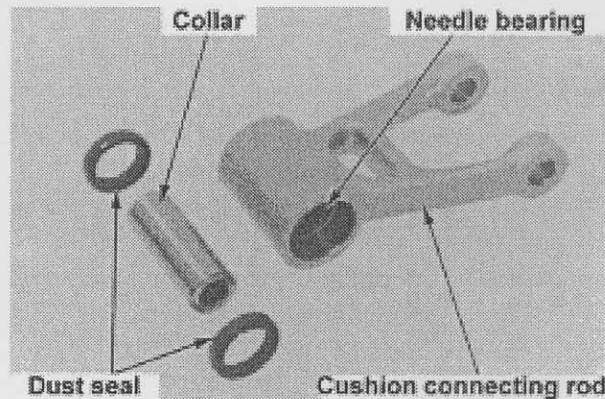
- Dust seal
- Collar
- Cushion arm



- **Inspection**

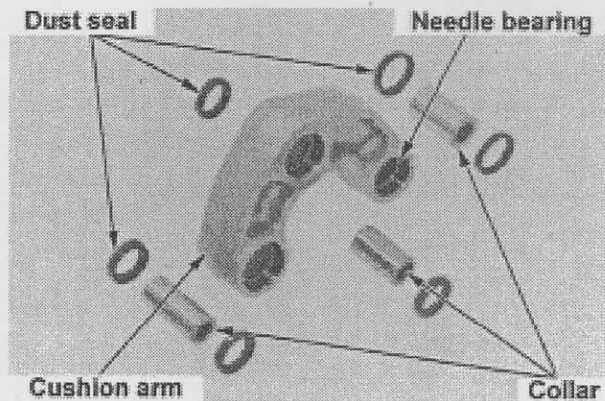
- **Cushion connecting rod**

- Cushion connecting rod crack/damage → replace
- Dust seal worn/damaged → replace
- Collar damaged → replace
- Needle bearing damaged → replace



- **Cushion arm**

- Cushion arm crack/damage → replace
- Dust seal worn/damaged → replace
- Collar damaged → replace
- Needle bearing damaged → replace



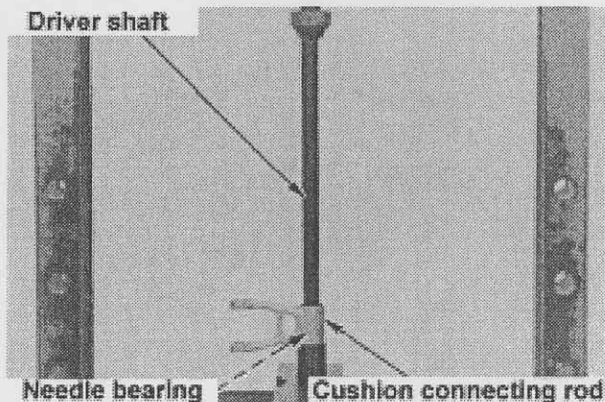
- **Needle bearing replacement**

- **Cushion connecting rod**

By using the following tool and a press machine, remove the needle bearing from the cushion connecting rod.

Special tool

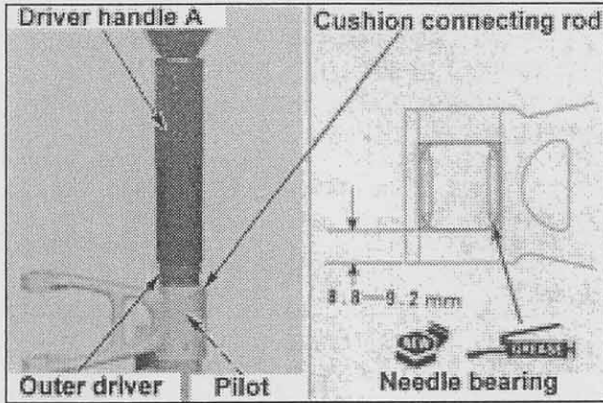
Driver shaft 07946-MJ00100



Apply grease to the new needle bearing.
By using the following tools and a press machine, install the needle bearing to the cushion connecting rod.

Special tools:

Driver handle A	07749-0010000
Outer driver 24 x 26mm	07746-0010700
Pilot 17mm	07746-0040400



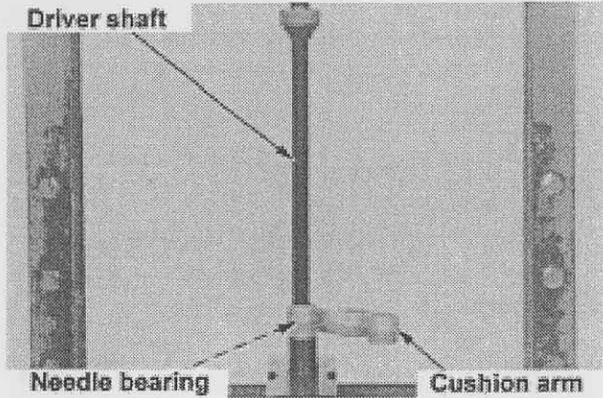
Notes:

- Press the labeled side of the bearing.
- Insert the bearing to designated depth.

• **Cushion arm**

- Cushion connecting rod side.

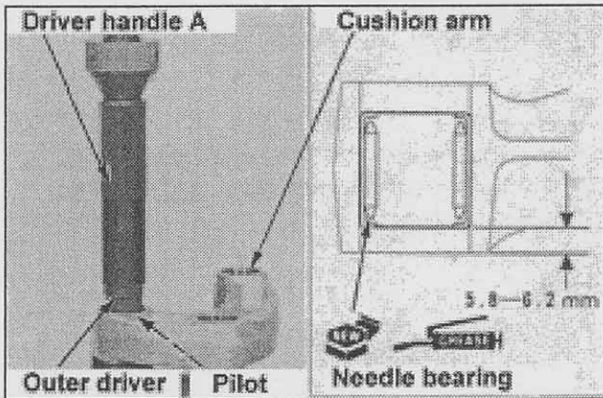
By using the following tools and a press machine, remove the needle bearing from the cushion arm.



Apply grease to the new needle bearing.
By using the following tools and a press machine, install the needle bearing to the cushion arm.

Special tools:

Driver handle A	07749-0010000
Outer driver 24 x 26mm	07746-0010700
Pilot 17mm	07746-0040400



Notes:

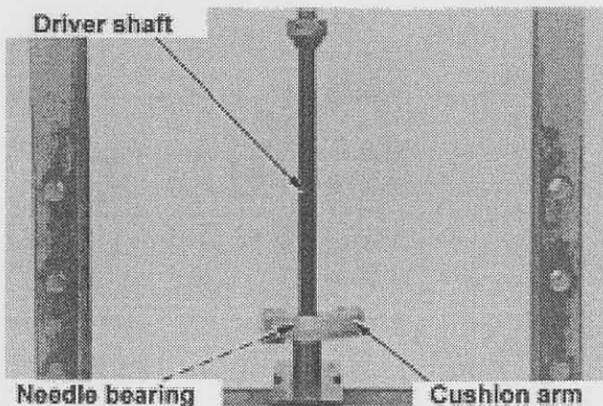
- Press the labeled side of the bearing.
- Insert the bearing to designated depth.

• **Rear cushion side**

By using the following tools and a press machine, install the needle bearing to the cushion arm.

Special tool:

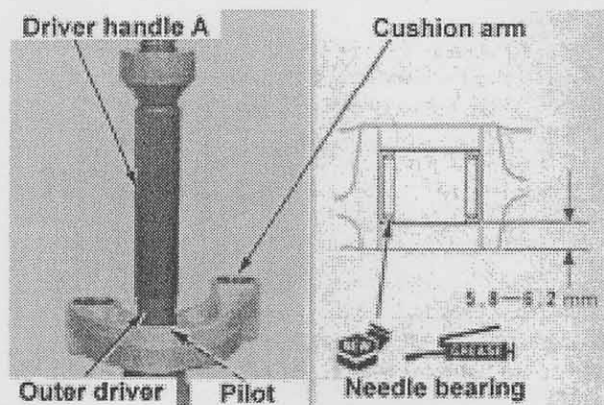
Driver shaft	07946-MJ00100
--------------	---------------



Apply grease to the new needle bearing.
By using the following tools and a press machine, install the needle bearing to the cushion arm.

Special tools:

- Driver handle A 07749-0010000
- Outer driver 24 x 26mm 07746-0010700
- Pilot 17mm 07746-0040400



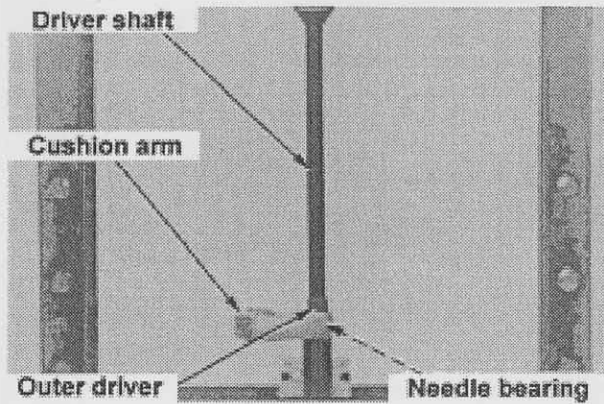
- Notes:**
- Press the labeled side of the bearing.
 - Insert the bearing to designated depth.

- Swing arm side

By using the following tools and a press machine, install the needle bearing to the cushion arm.

Special tools:

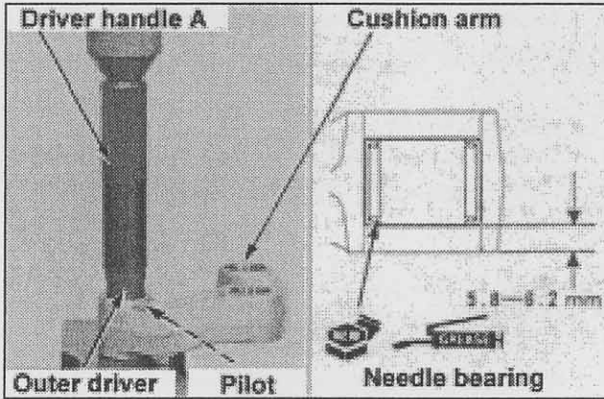
- Driver handle A 07749-0010000
- Outer driver 24 x 26mm 07746-0010700



Apply grease to a new needle bearing.
By using the following tools and a press machine, install the needle bearing to the cushion arm.

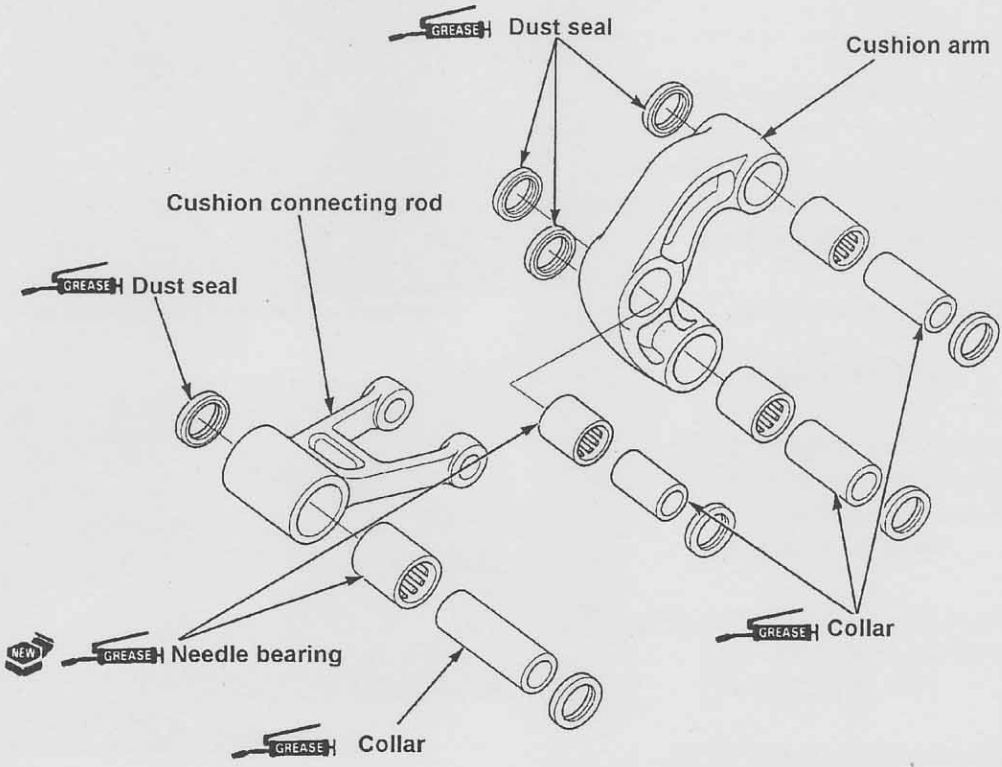
Special tools:

- Driver handle A 07749-0010000
- Outer driver 24 x 26mm 07746-0010700
- Pilot 17mm 07746-0040400



- Notes:**
- Press the labeled side of the bearing.
 - Insert the bearing to designated depth.

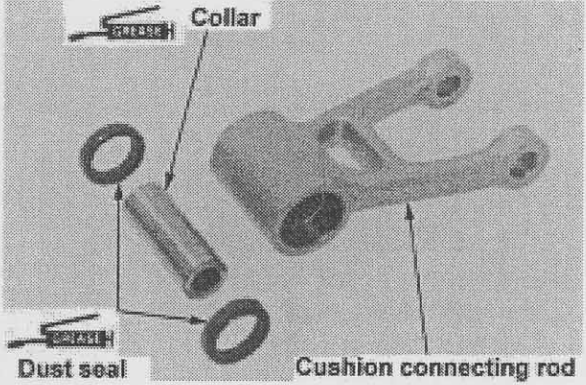
- Assembly



- Cushion connecting rod

Apply grease to the collar-contact area and dust seal lips.

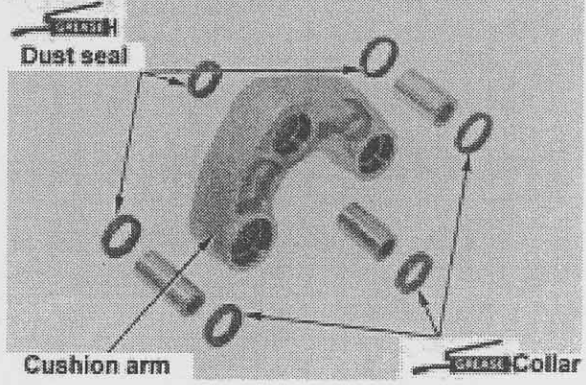
- Install the following parts:
- Cushion connecting rod
 - Collar
 - Dust seal



- Cushion arm

Apply grease to the collar-contact area and dust seal lips.

- Install the following parts:
- Cushion arm
 - Collar
 - Dust seal



- **Installation**

Note:
Use genuine cushion linkage bolts/nuts.

Install the cushion arm and tighten the cushion arm bolt/nut on the swing arm side.

Torque: 68N.m (6.9kgf-m)

Install/tighten the rear cushion lower bolt/nut.

Torque: 44N.m (4.5kgf-m)

Install the cushion connecting rod. Install/tighten the cushion connecting rod bolt/nut on the frame side.

Torque: 44N.m (4.5kgf-m)

Install/tighten the cushion connecting rod bolt/nut on the cushion arm side.

Torque: 44N.m (4.5kgf-m)

Install the drive chain cover (12-12)
Install the mudguard (2-5)

- **Swing Arm**

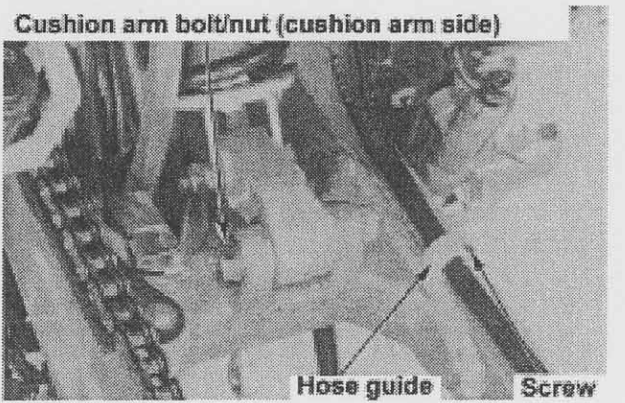
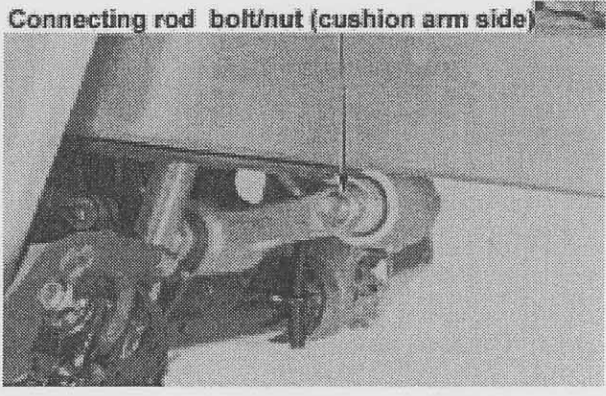
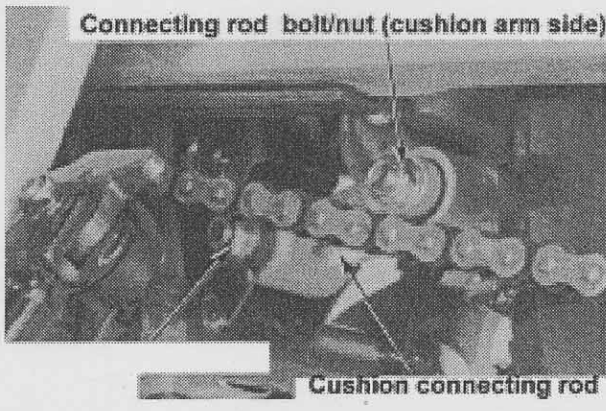
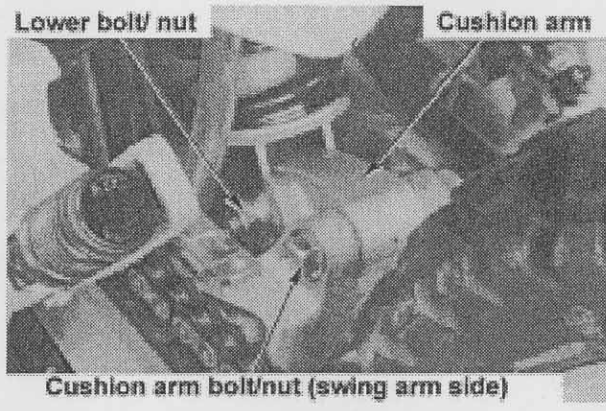
- **Removal**

Remove the mudguard (2-5)
Remove the rear wheel (12-3)
Remove the drive chain cover (12-10)

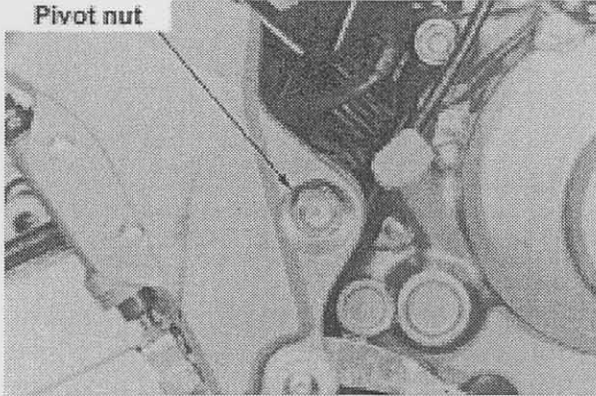
Remove cushion connecting rod bolt/nut on the cushion arm side.

Remove cushion arm bolt/nut on the swing arm side.

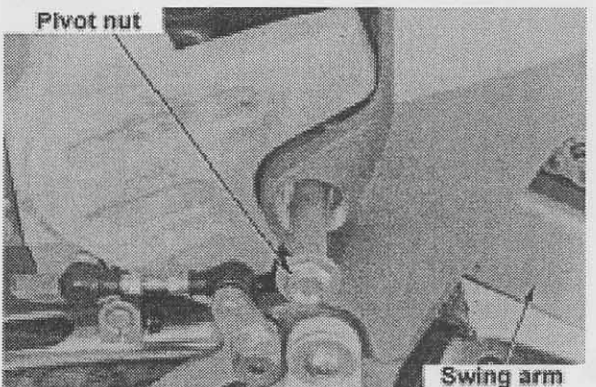
Unscrew to remove a brake hose guide.



Remove the swing arm pivot nut.

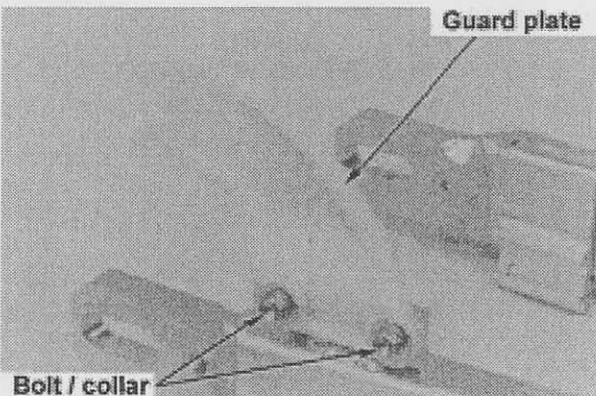


Remove the swing arm pivot bolt to remove the swing arm.



• **Disassembly**

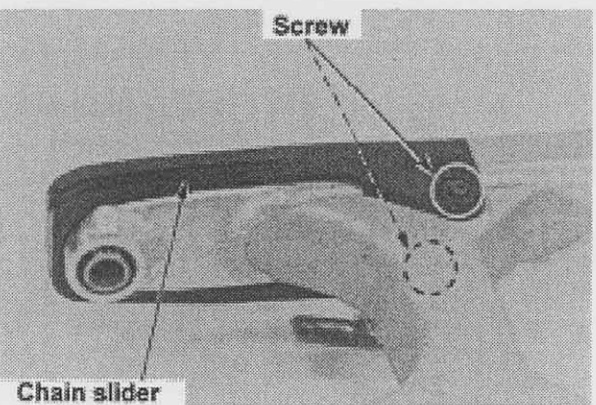
Remove bolts/collars to remove the driven sprocket guard plate.



Unscrew to remove the chain slider.

Note:
The chain slider screw may be very hard to unscrew, due to the screw locker.

Replace the slider if it is worn/damaged.



Remove the following parts:

- Side collar
- Outer dust seal
- Inner dust seal
- Collar

• **Inspection**

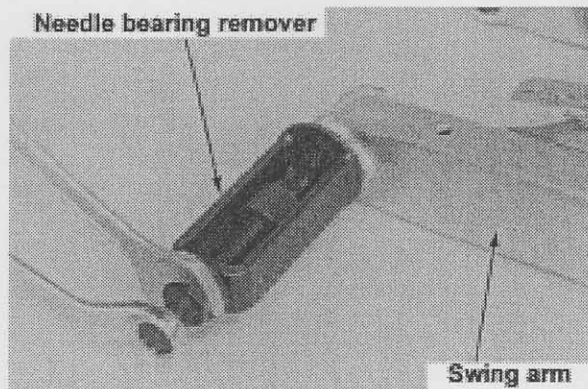
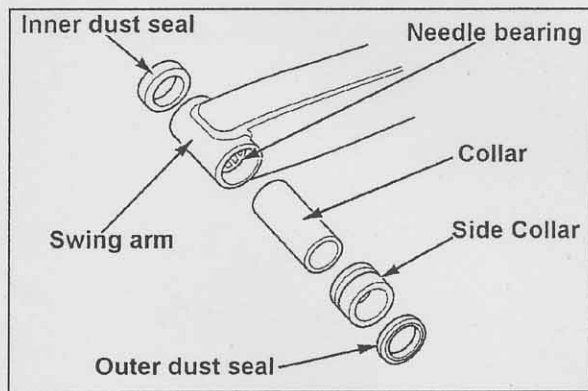
- Dust seal worn/damaged → replace
- Side collar and collar damaged → replace
- Needle bearing damaged → replace
- Swing arm damaged → replace

• **Needle bearing replacement**

Remove the needle bearing by using the following tool:

Special tool:

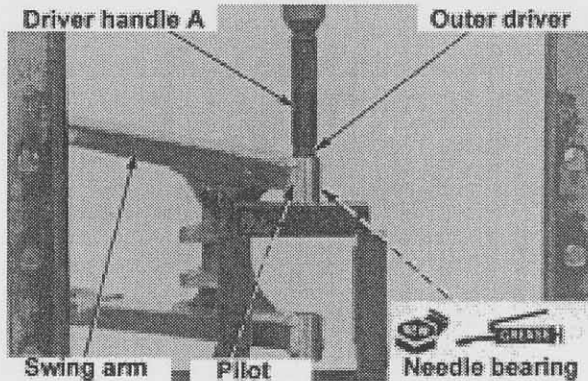
Needle bearing remover 07946-KA50000



Apply grease to the new needle bearing. By using the following tools and a press machine, install the needle bearing to the swing arm.

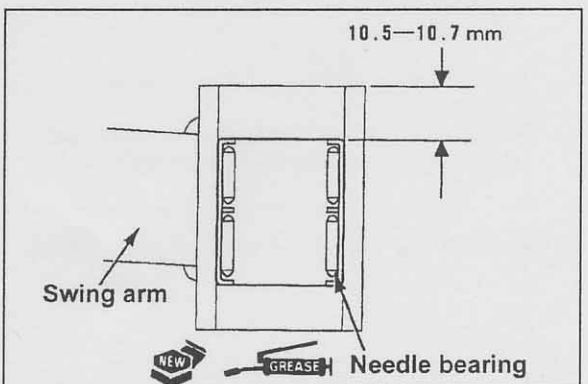
Special tools:

Driver handle A 07749-0010000
 Outer driver 24 x 26mm 07746-0010700
 Pilot 20mm 07746-0040500

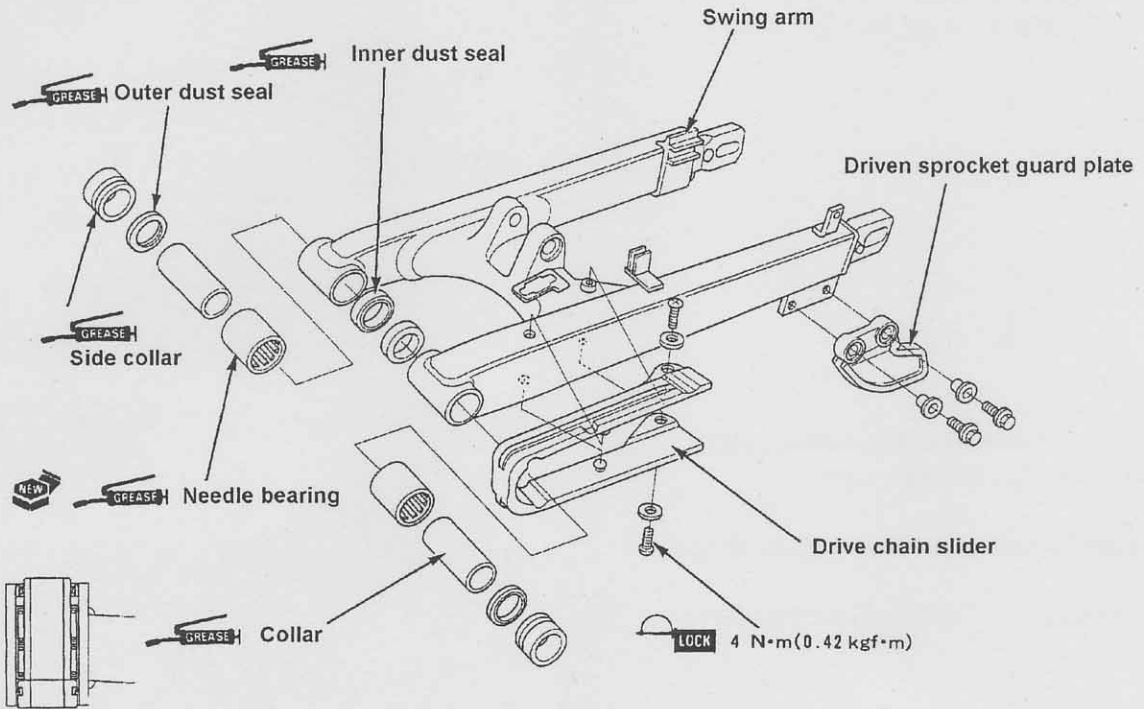


Notes:

- Press the labeled side of the needle bearing.
- Insert the bearing to designated depth.



• Assembly



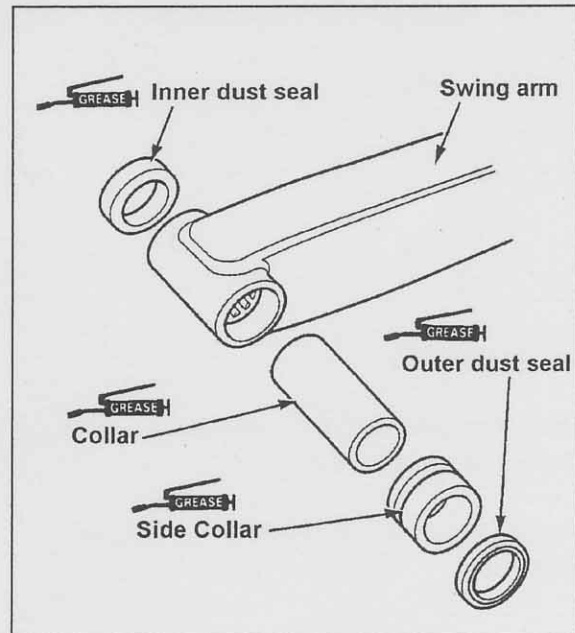
Apply grease to the needle bearings, collars, and side collars' contact areas.

Install following parts:

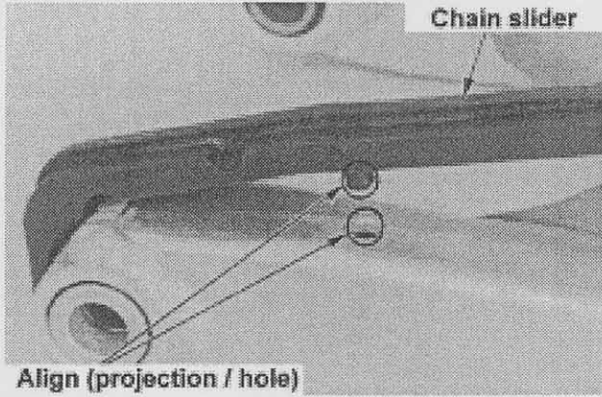
- Collar
- Inner dust seal
- Side collar / outer dust seal

Notes:

- Apply grease to the inner dust seal lip and install the seal.
- Apply grease to the outer dust seal lip and install the seal to the groove on the side collar.



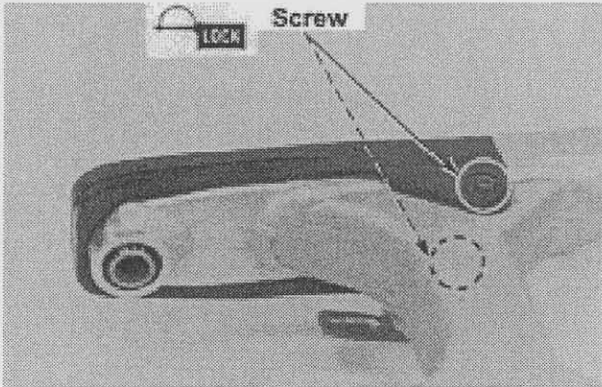
Set the projection on a chain slider to the hole on the swing arm to install it.



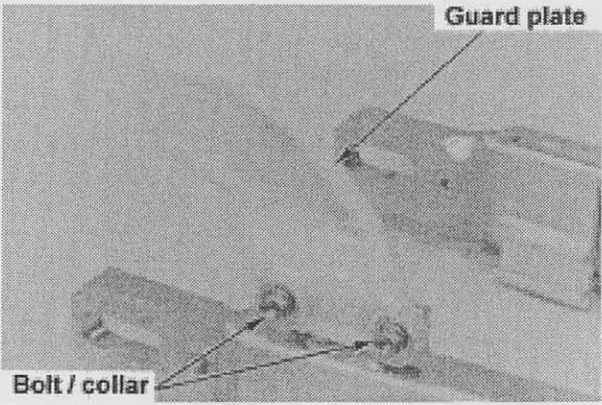
Clean the thread if the chain slider screw and apply screw locker.

Install/tighten the chain slider screw.

Torque: 4N.m (0.42kgf-m)



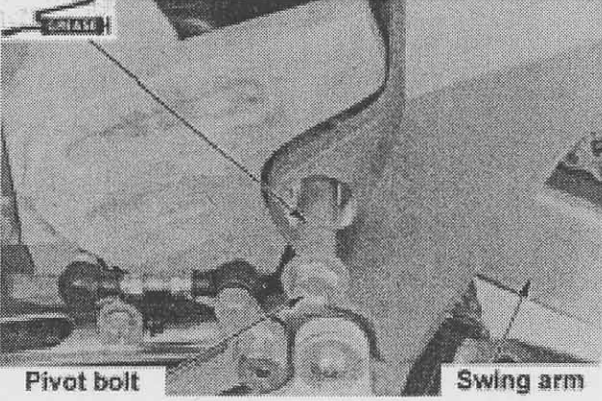
Install the driven sprocket guard plate and collars.
Tighten bolts.



• Installation

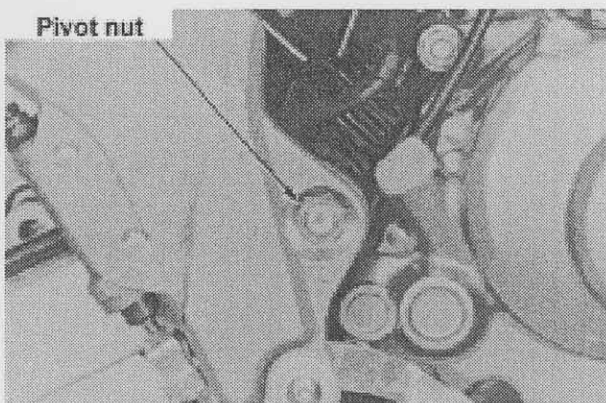
Apply grease to the contact area of the swing arm pivot bolt.

Install the swing arm and the swing arm pivot bolt.



Install/tighten the swing arm pivot nut.

Torque: 68N.m (6.9kgf-m)

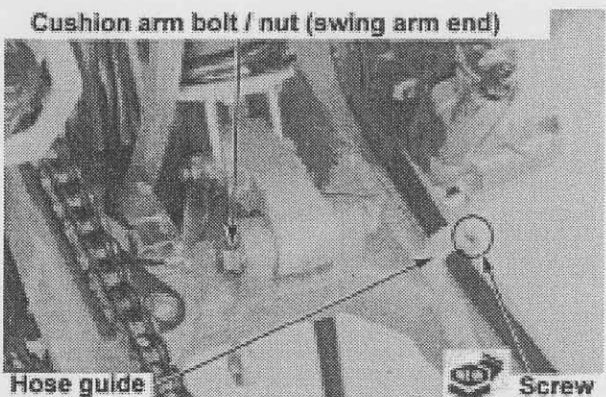


Install the new brake hose guide and tighten a new screw.

Torque: 4N.m (0.43kgf-m)

Install/tighten the cushion arm bolt/nut on the swing arm side.

Torque: 68N.m (6.9kgf-m)



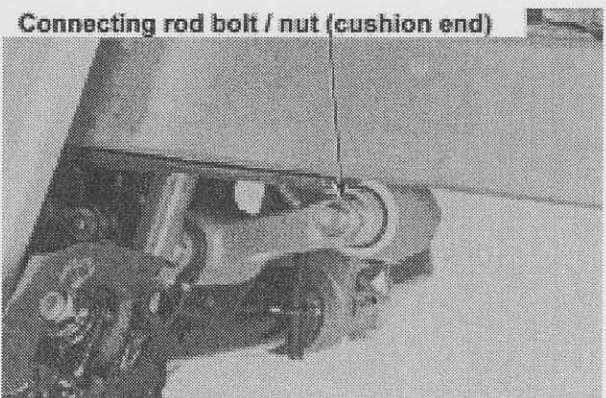
Install/tighten the cushion connecting rod bolt/nut on the cushion arm side.

Torque: 44N.m (4.5kgf-m)

Install the rear wheel (12-8)

Install the drive chain cover (12-12)

Install the mudguard (2-5)



DTA.