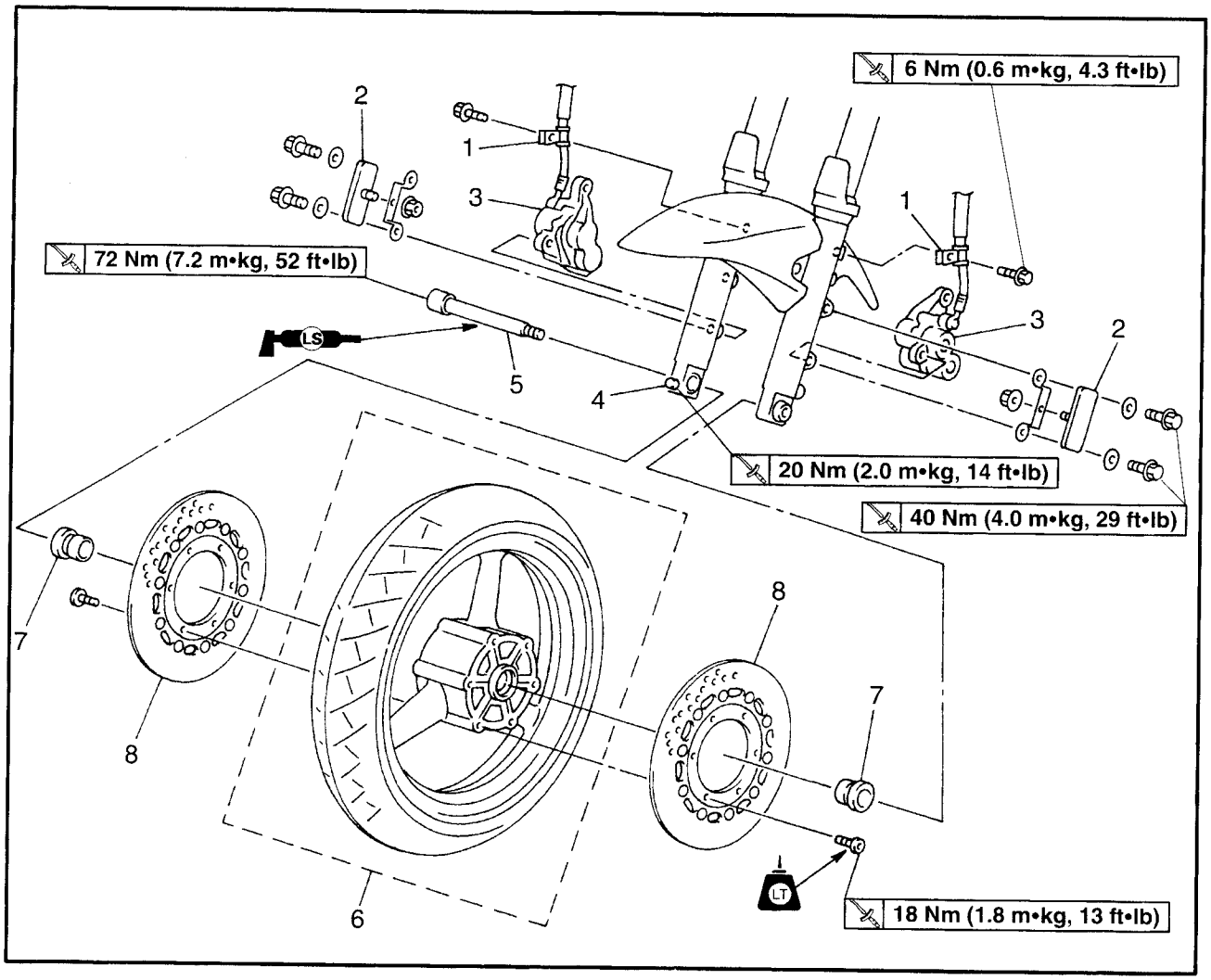
CHAPTER 7.
CHASSIS

EAS00514

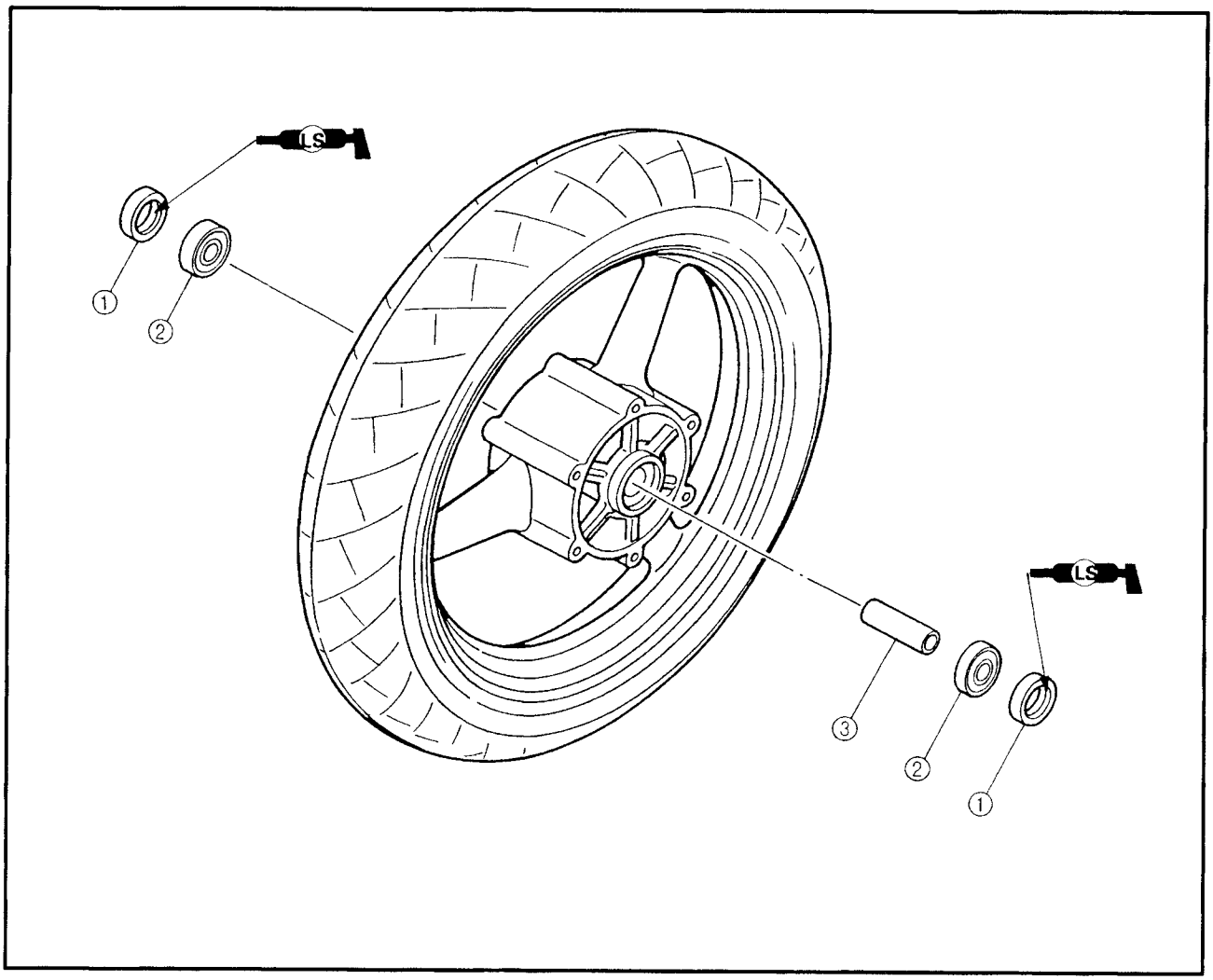
CHASSIS

FRONT WHEEL AND BRAKE DISCS



Order	Job/Part	Q'ty	Remarks
	Removing the front wheel and brake discs		Remove the parts in the order listed. **NOTE:** Place the motorcycle on a suitable stand so that the front wheel is elevated.
1	Brake hose holders (left and right)	2	Refer to "REMOVING/INSTALLING THE FRONT WHEEL".
2	Front reflectors (left and right)	2	
3	Brake calipers (left and right)	2	
4	Wheel axle pinch bolt	1	Loosen
5	Front wheel axle	1	Refer to "REMOVING/INSTALLING THE FRONT WHEEL".
6	Front wheel	1	
7	Collars (left and right)	2	
8	Brake discs (left and right)	2	
			For installation, reverse the removal procedure.

EAS00518



Order	Job/Part	Q'ty	Remarks
	Disassembling the front wheel		Remove the parts in the order listed.
①	Oil seals (left and right)	2	
②	Wheel bearings (left and right)	2	
③	Spacer	1	
			For assembly, reverse the disassembly procedure.

EAS00521
REMOVING THE FRONT WHEEL

1. Stand the motorcycle on a level surface.

⚠ WARNING

Securely support the motorcycle so that there is no danger of it falling over.

NOTE:

Place the motorcycle on a suitable stand so that the front wheel is elevated.

2. Remove:
   - Brake hose holders
   - front reflectors
   - left brake caliper
   - right brake caliper
   - wheel axle

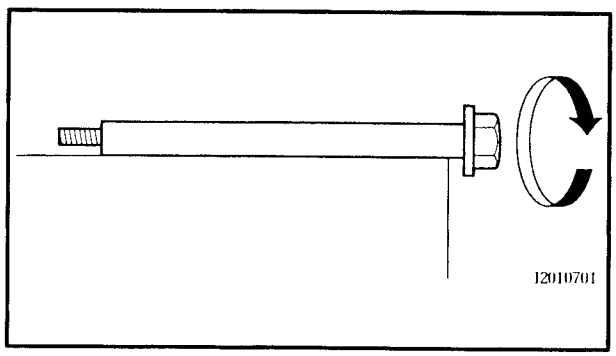
NOTE:

Do not squeeze the brake lever when removing the brake calipers.

3. Elevate:
   - front wheel

NOTE:

Place the motorcycle on a suitable stand so that the front wheel is elevated.



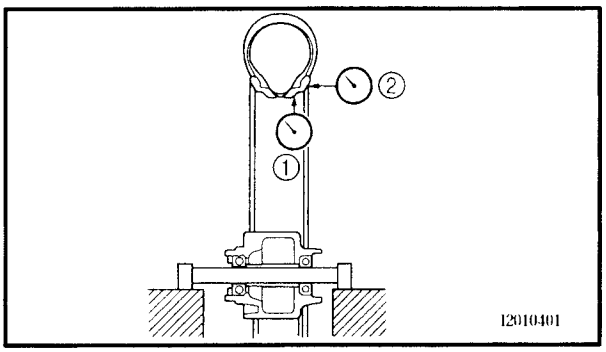
EAS00525
CHECKING THE FRONT WHEEL

1. Check:
   - wheel axle
     Roll the wheel axle on a flat surface.
     Bends → Replace.

⚠ WARNING

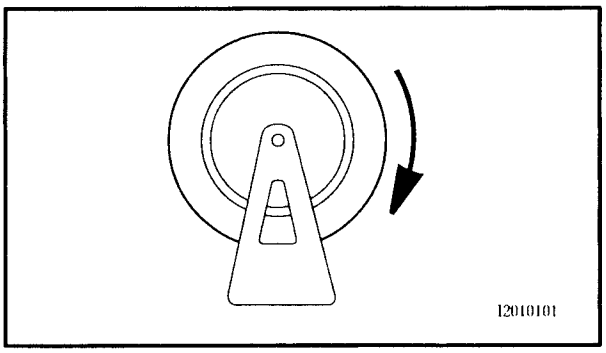
Do not attempt to straighten a bent wheel axle.

2. Check:
   - tire
   - front wheel
     Damage/wear → Replace.
     Refer to "CHECKING THE TIRES" and "CHECKING THE WHEELS" in chapter 3.

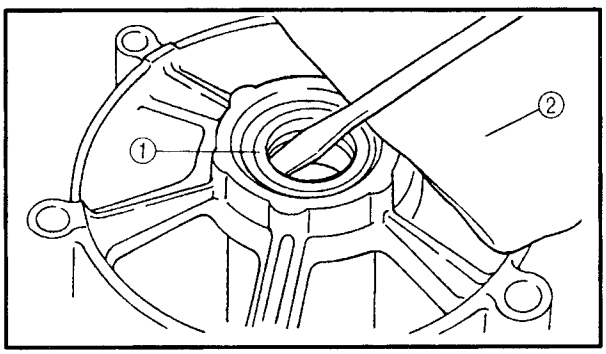


3. Measure:
   • radial wheel runout ①
   • lateral wheel runout ②
   Over the specified limits → Replace.

Front radial wheel runout
1.0 mm (0.04 in)
Front lateral wheel runout
0.5 mm (0.02 in)



4. Check:
   • wheel bearings
   Front wheel turns roughly or is loose → Replace the wheel bearings.
   • oil seals
   Damage/wear → Replace.



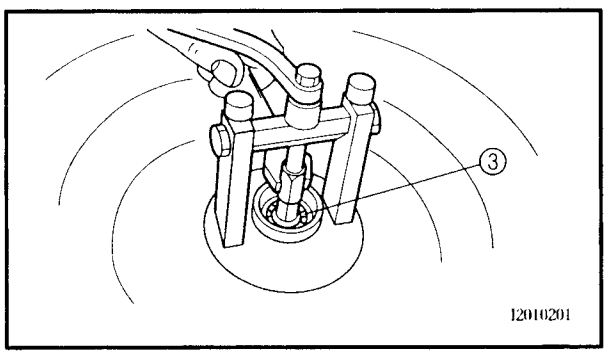
5. Replace:
   • wheel bearings New
   • oil seals New

▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼

a. Clean the outside of the front wheel hub.
b. Remove the oil seals ① with a flat-head screwdriver.

NOTE:

To prevent damaging the wheel, place a rag ② between the screwdriver and the wheel surface.



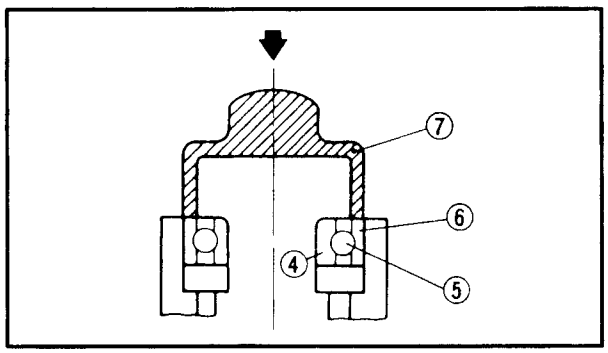
c. Remove the wheel bearings ③ with a general bearing puller.
d. Install the new wheel bearings and oil seals in the reverse order of disassembly.

CAUTION:

Do not contact the wheel bearing center race ④ or balls ⑤. Contact should be made only with the outer race ⑥

NOTE:

Use a socket ⑦ that matches the diameter of the wheel bearing outer race and oil seal.



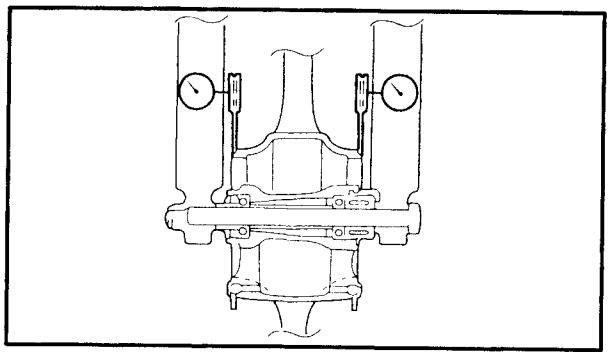
▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲

EAS00533

CHECKING THE BRAKE DISCS

The following procedure applies to both of the brake discs.

1. Check:
   • brake disc
   Damage/galling → Replace.
2. Measure:
   • brake disc deflection
   Out of specification → Correct the brake disc deflection or replace the brake disc.

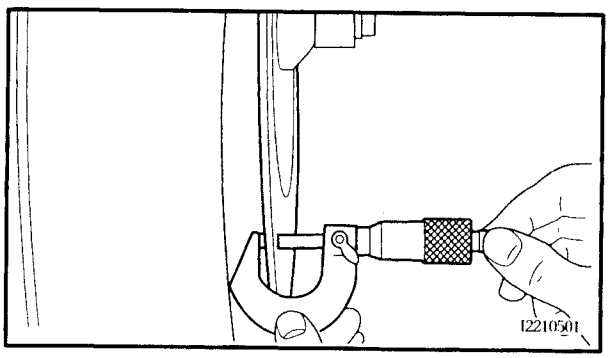


Max. brake disc deflection
Front: 0.1 mm (0.0039 in)
Rear: 0.1 mm (0.0039 in)

▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼

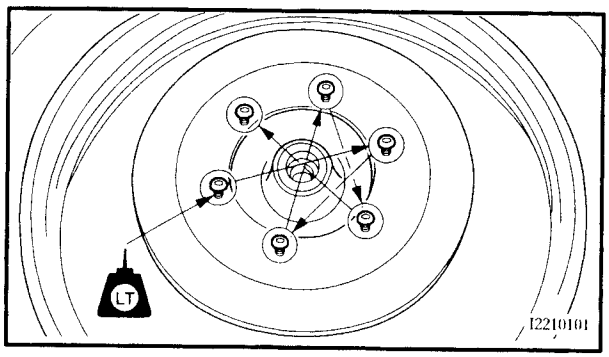
a. Place the motorcycle on a suitable stand so that the wheel is elevated.
b. Before measuring the front brake disc deflection, turn the handlebars to the left or right to ensure that the front wheel is stationary.
c. Remove the brake caliper.
d. Hold the dial gauge at a right angle against the brake disc surface.
e. Measure the deflection 1.5 mm (0.06 in) below the edge of the brake disc.

▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲



3. Measure:
   • brake disc thickness
   Measure the brake disc thickness at a few different locations.
   Out of specification → Replace.

Min. brake disc thickness
Front: 4.5 mm (0.18 in)
Rear: 4.5 mm (0.18 in)



4. Adjust:
   • brake disc deflection

▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼

a. Remove the brake disc.
b. Rotate the brake disc by one bolt hole.
c. Install the brake disc.

NOTE:

Tighten the brake disc bolts in stages and in a crisscross pattern.

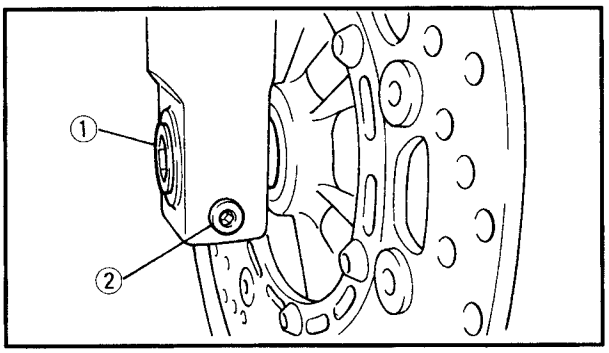
Brake disc bolt
18 Nm (1.8 m•kg, 13 ft•lb)
LOCTITE®

d. Measure the brake disc deflection.
e. If out of specification, repeat the adjustment steps until the brake disc deflection is within specification.
f. If the brake disc deflection cannot be brought within specification, replace the brake disc.

EAS00545
INSTALLING THE FRONT WHEEL

1. Lubricate:
   - wheel axle
   - oil seal lips

Recommended lubricant
Lithium soap base grease



2. Tighten:
   - wheel axle ① **72 Nm (7.2 m•kg, 52 ft•lb)**
   - wheel axle pinch bolt ② **20 Nm (2.0 m•kg, 14 ft•lb)**

CAUTION:

Before tightening the wheel axle nut, push down hard on the handlebars several times and check if the front fork rebounds smoothly.

3. Install:
   - brake calipers **40 Nm (4.0 m•kg, 29 ft•lb)**
   - front reflectors
   - brake hose holders

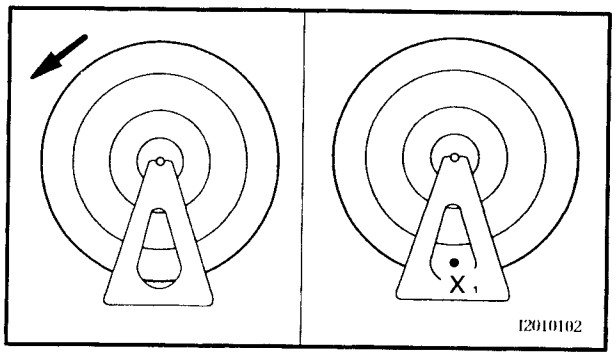
WARNING

Make sure that the brake hose is routed properly.

EAS00549
ADJUSTING THE FRONT WHEEL STATIC BALANCE

NOTE:

- After replacing the tire, wheel or both, the front wheel static balance should be adjusted.
- Adjust the front wheel static balance with the brake discs installed.

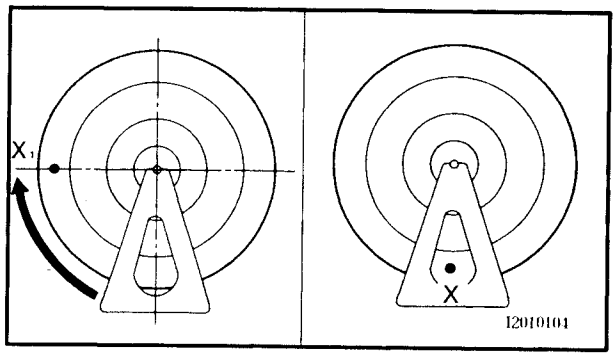


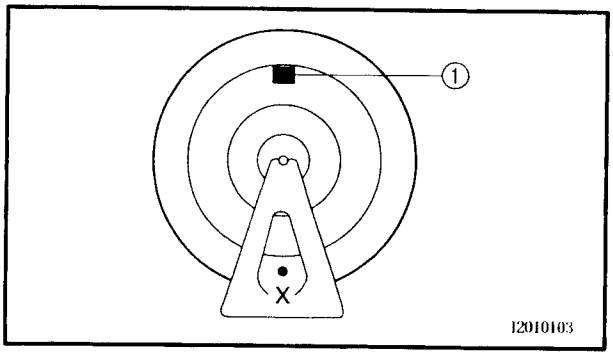
1. Remove:
   • balancing weight(-s)
2. Find:
   • front wheel's heavy spot

▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼

a. Place the front wheel on a suitable balancing stand.
b. Spin the front wheel.
c. When the front wheel stops, put an "X_1" mark at the bottom of the wheel.
d. Turn the front wheel 90° so that the "X_1" mark is positioned as shown.
e. Release the front wheel.
f. When the front wheel stops, put an "X_2" mark at the bottom of the wheel.
g. Repeat steps (a) through (d) several times until all the marks come to rest at the same spot.
h. The spot where all the marks come to rest is the front wheel's heavy spot "X".

▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲





3. Adjust:
   • front wheel static balance

▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼

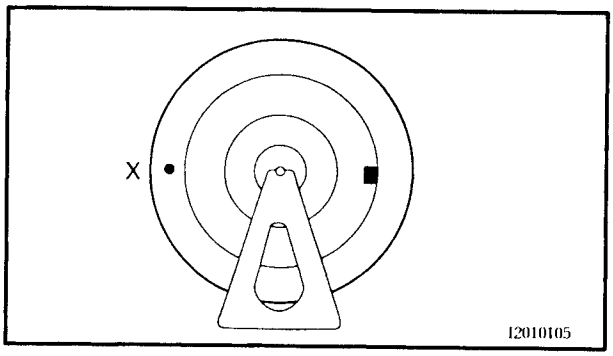
a. Install a balancing weight ① onto the rim exactly opposite the heavy spot "X".

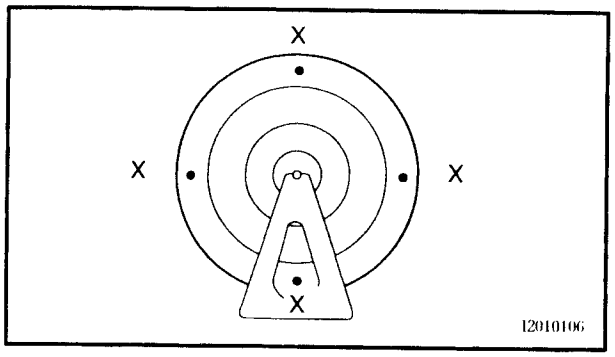
NOTE:

Start with the lightest weight.

b. Turn the front wheel 90° so that the heavy spot is positioned as shown.
c. If the heavy spot does not stay in that position, install a heavier weight.
d. Repeat steps (b) and (c) until the front wheel is balanced.

▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲





4. Check:
   • front wheel static balance

▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼

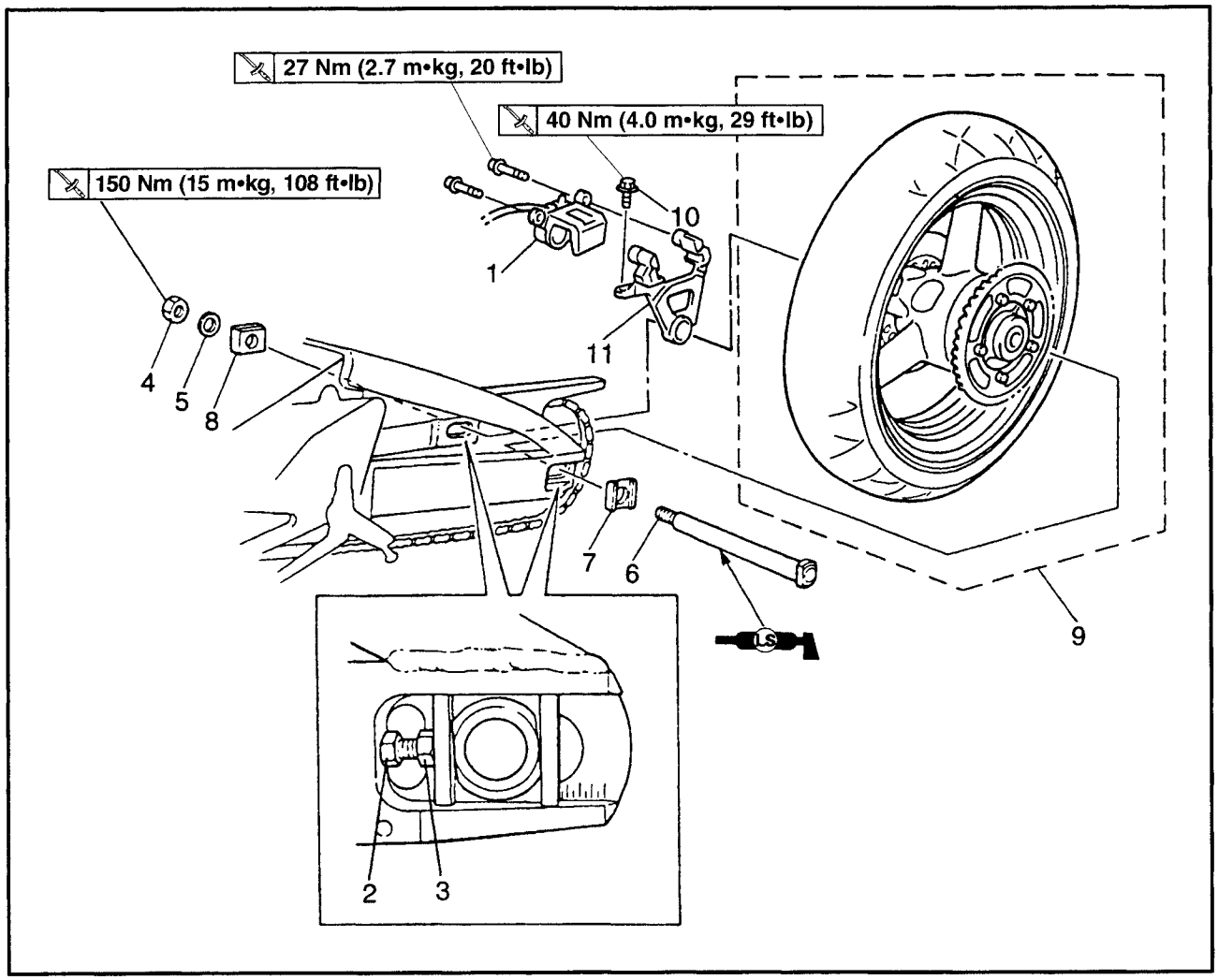
a. Turn the front wheel and make sure that it stays at each position shown.
b. If the front wheel does not remain stationary at all of the positions, rebalance it.

▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲

EAS00550

REAR WHEEL, BRAKE DISC, AND REAR WHEEL SPROCKET

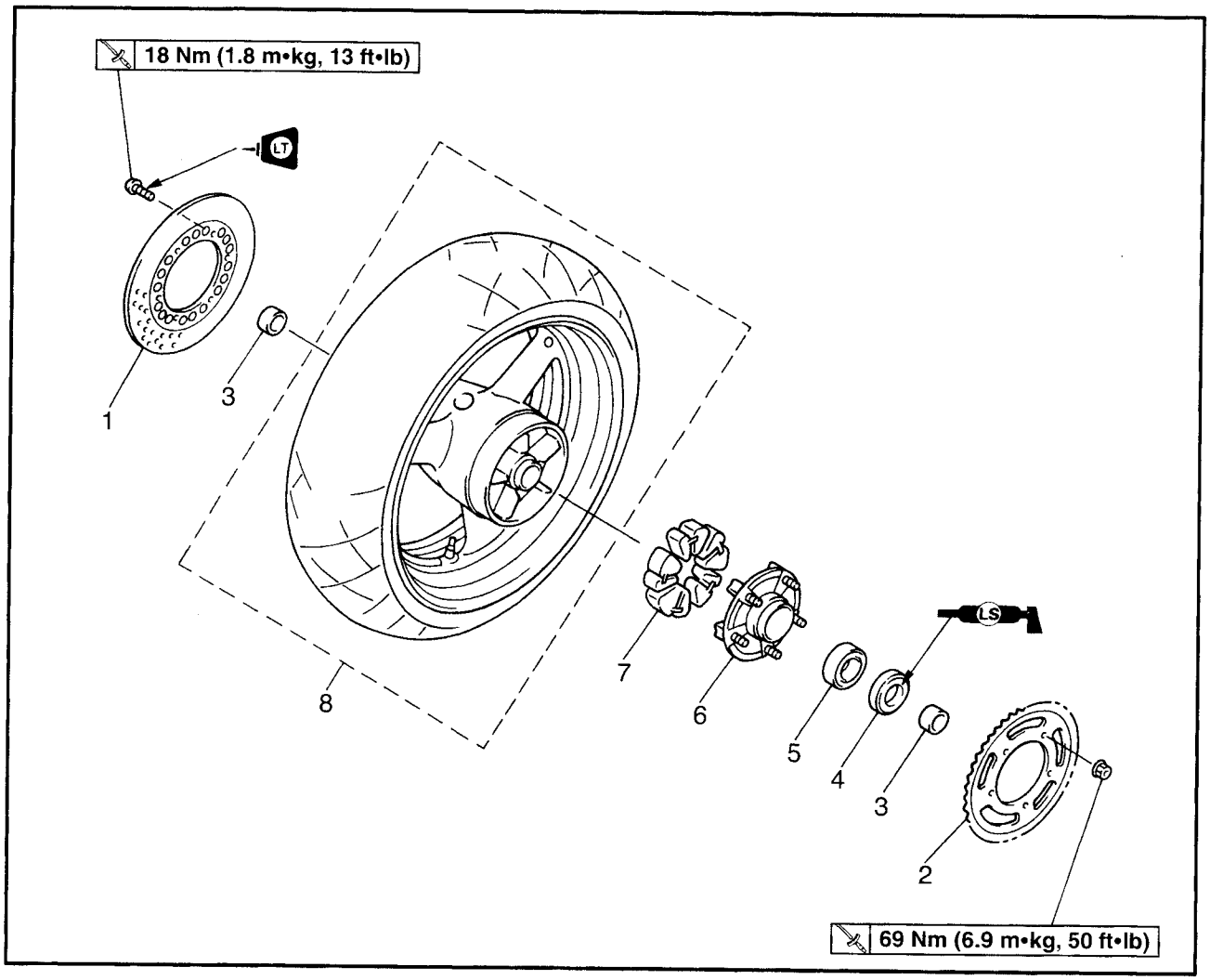
REAR WHEEL



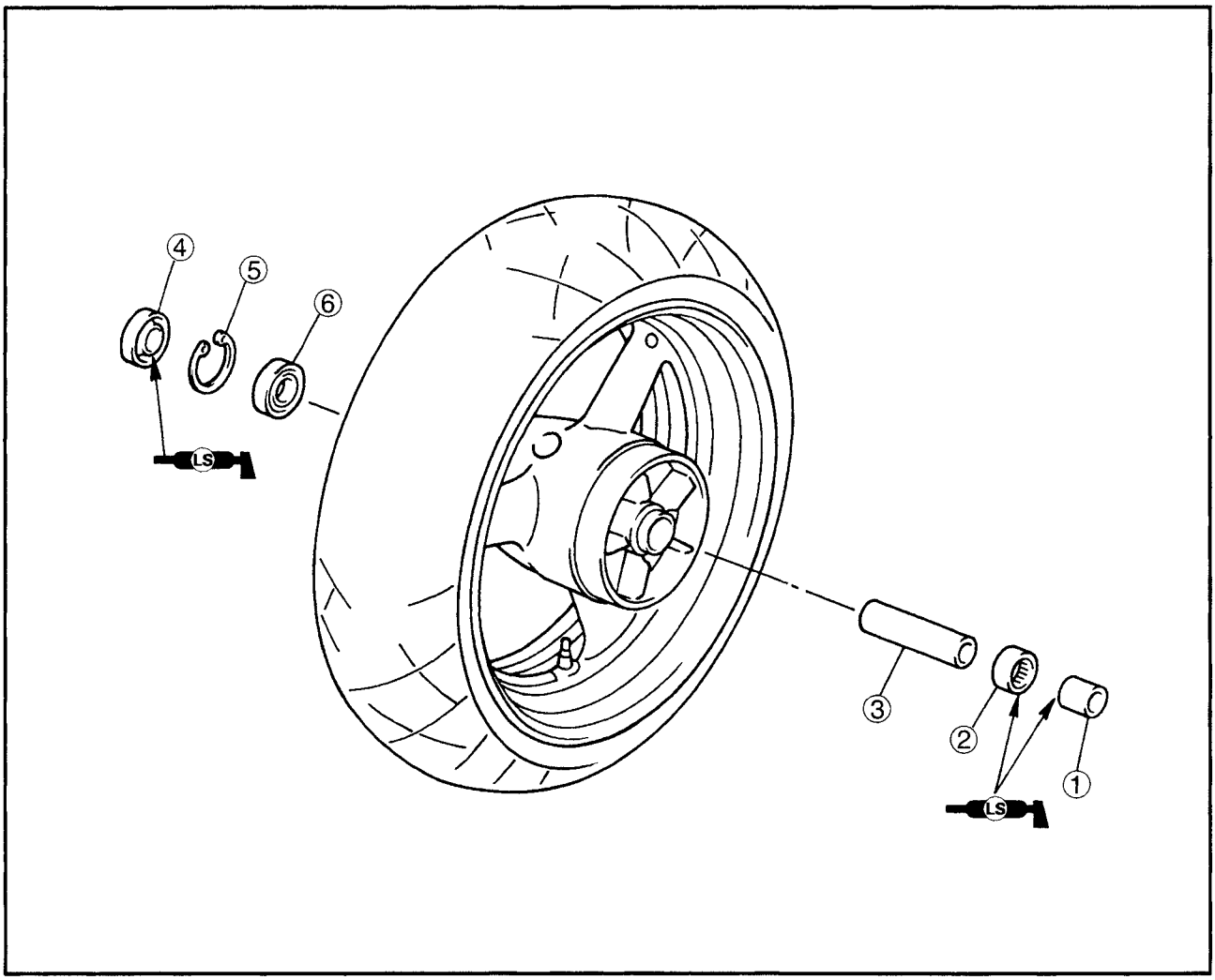
Order	Job/Part	Q'ty	Remarks
	Removing the rear wheel		Remove the parts in the order listed. **NOTE:** Place the motorcycle on a suitable stand so that the rear wheel is elevated.
1	Brake caliper	1	
2	Locknuts (left and right)	2	Loosen.
3	Adjusting bolts (left and right)	2	Loosen.
4	Wheel axle nut	1	
5	Washer	1	
6	Rear wheel axle	1	
7	Left adjusting block	1	
8	Right adjusting block	1	**NOTE:** Make sure that the tapered side of the right adjusting block faces the wheel.
9	Rear wheel	1	
10	Brake caliper bracket bolt	1	
11	Brake caliper bracket	1	For installation, reverse the removal procedure.

EAS00556

BRAKE DISC AND REAR WHEEL SPROCKET



Order	Job/Part	Q'ty	Remarks
	Removing the brake disc and rear wheel sprocket		Remove the parts in the order listed.
1	Brake disc	1	
2	Rear wheel sprocket	1	
3	Spacers (left and right)	2	
4	Oil seal	1	
5	Bearing	1	
6	Rear wheel drive hub	1	
7	Rear wheel drive hub dampers	5	
8	Rear wheel	1	
			For installation, reverse the removal procedure.



Order	Job/Part	Q'ty	Remarks
	Disassembling the rear wheel		Disassemble the parts in the order listed.
①	Spacer	1	
②	Bearing	1	
③	Spacer	1	
④	Oil seal	1	
⑤	Circlip	1	
⑥	Bearing	1	
			For assembly, reverse the disassembly procedure.

EAS00561

REMOVING THE REAR WHEEL

1. Stand the motorcycle on a level surface.

⚠ WARNING

Securely support the motorcycle so that there is no danger of it falling over.

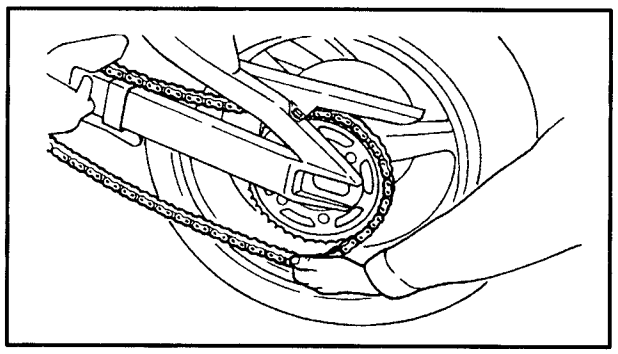
NOTE:

Place the motorcycle on a suitable stand so that the rear wheel is elevated.

2. Remove:
   - brake caliper

NOTE:

Do not depress the brake pedal when removing the brake caliper.



3. Remove:
   - wheel axle nut
   - washer
   - wheel axle
   - adjusting blocks
   - brake caliper bracket.
   - rear wheel

NOTE:

Push the rear wheel forward and remove the drive chain from the rear wheel sprocket.

EAS00565

CHECKING THE REAR WHEEL

1. Check:
   - wheel axle
   - rear wheel
   - wheel bearings
   - oil seals
   - brake disc

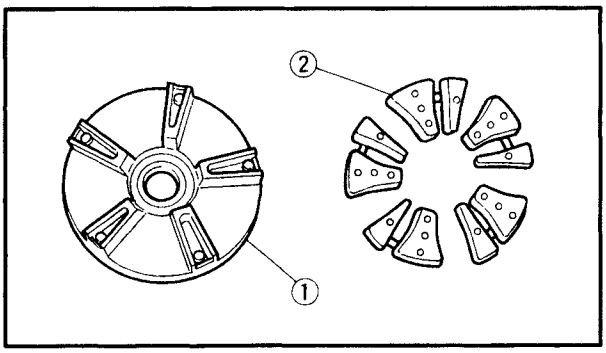
   Refer to "BRAKE DISC AND REAR WHEEL SPROKET".
2. Check:
   - tire
   - rear wheel

   Damage/wear → Replace.

   Refer to "CHECKING THE TIRES" and "CHECKING THE WHEELS" in chapter 3.

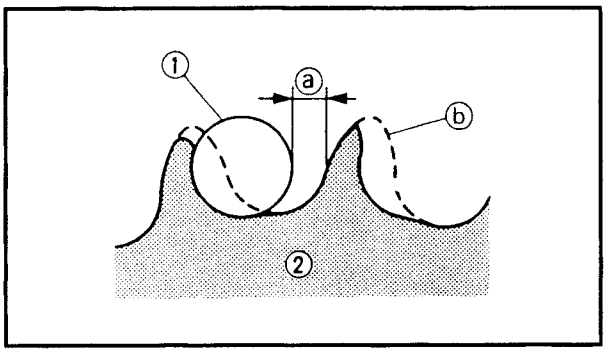
3. Measure:
   • radial wheel runout
   • lateral wheel runout
   Refer to "FRONT WHEEL".
   Over the specified limits → Replace.

Max. radial wheel runout
1.0 mm (0.04 in)
Max. lateral wheel runout
0.5 mm (0.02 in)



EAS00567
CHECKING THE REAR WHEEL DRIVE HUB

1. Check:
   • rear wheel drive hub ①
   Cracks/damage → Replace.
   • rear wheel drive hub dampers ②
   Damage/wear → Replace.



EAS00568
CHECKING AND REPLACING THE REAR WHEEL SPROCKET

1. Check:
   • rear wheel sprocket
   More than 1/4 tooth ⓐ wear → Replace the rear wheel sprocket.
   Bent teeth → Replace the rear wheel sprocket.

ⓑ Correct
① Drive chain roller
② Rear wheel sprocket

2. Replace:
   • rear wheel sprocket

▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼

a. Remove the self-locking nuts and the rear wheel sprocket.
b. Clean the rear wheel drive hub with a clean cloth, especially the surfaces that contact the sprocket.
c. Install the new rear wheel sprocket.

Rear wheel sprocket self-locking nut
69 Nm (6.9 m•kg, 50 ft•lb)

NOTE:
Tighten the self-locking nuts in stages and in a crisscross pattern.

▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲

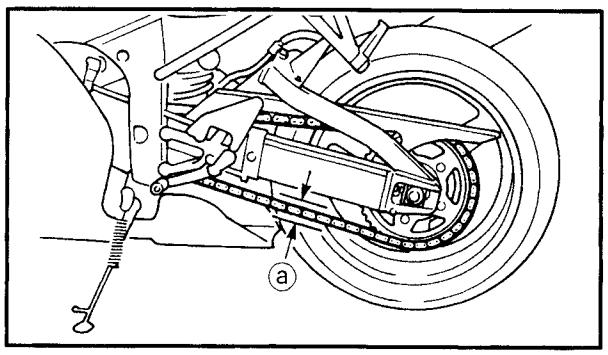
EAS00571

INSTALLING THE REAR WHEEL

1. Lubricate:
   - wheel axle
   - wheel bearings
   - oil seal lips

	Recommended lubricant **Lithium soap base grease**

2. Install:
   - rear wheel
   - brake caliper bracket
   - adjusting blocks
   - wheel axle
   - washer
   - wheel axle nut
   - brake caliper



3. Adjust:
   - drive chain slack ⓐ

	Drive chain slack **40 ~ 50 mm (1.57 ~ 1.97 in)**

   Refer to "ADJUSTING THE DRIVE CHAIN SLACK" in chapter 3.
4. Tighten:
   - wheel axle nut **150 Nm (15.0 m•kg, 108 ft•lb)**
   - brake caliper bolts **27 Nm (2.7 m•kg, 20 ft•lb)**
   - brake caliper bracket bolt **40 Nm (4.0 m•kg, 29 ft•lb)**

⚠ WARNING

Make sure that the brake hose is routed properly.

EAS00575

ADJUSTING THE REAR WHEEL STATIC BALANCE

NOTE:

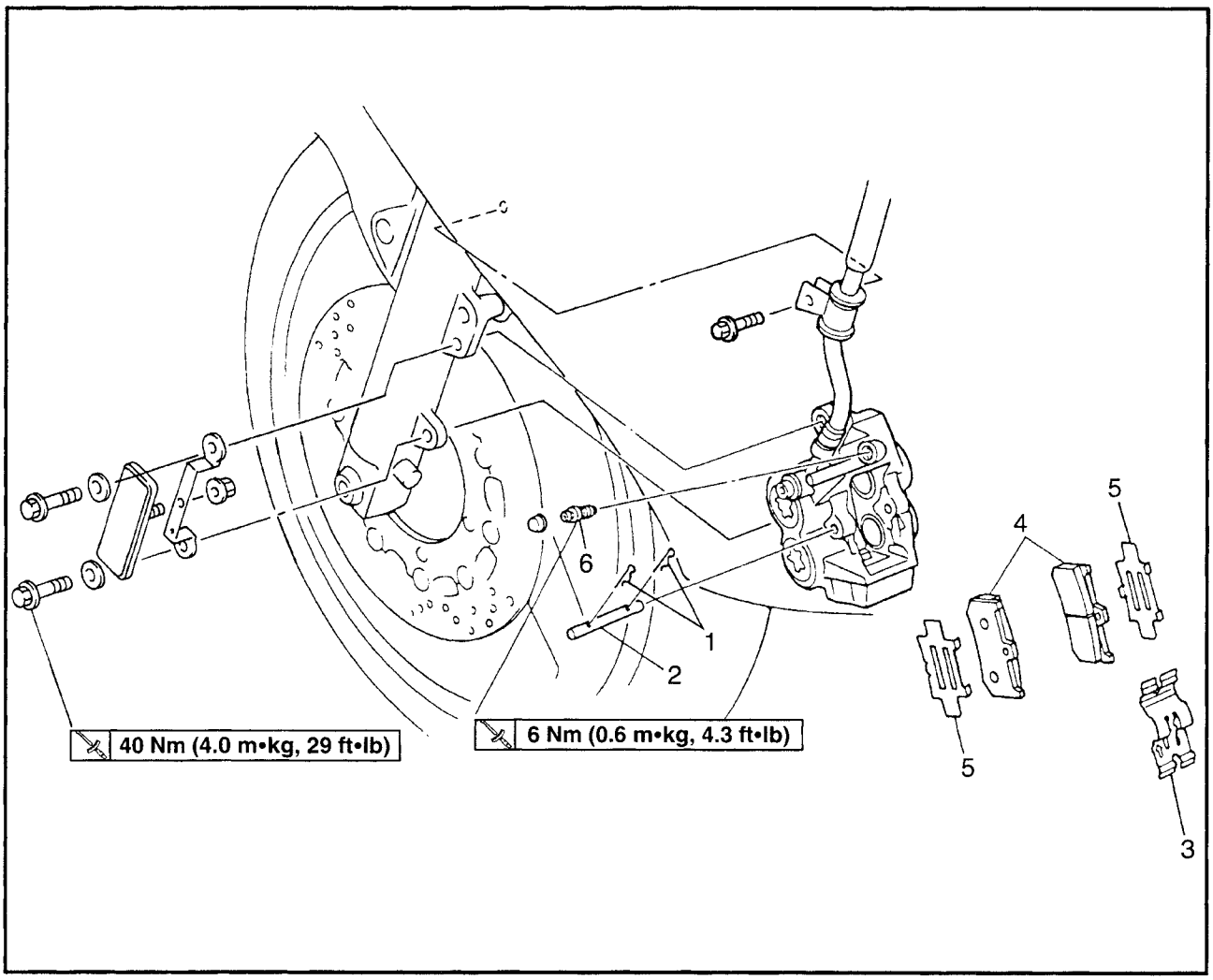
- After replacing the tire, wheel or both, the rear wheel static balance should be adjusted.
- Adjust the rear wheel static balance with the brake disc and rear wheel drive hub installed.

1. Adjust:
   - rear wheel static balance
   Refer to "FRONT WHEEL".

EAS00577

FRONT AND REAR BRAKES

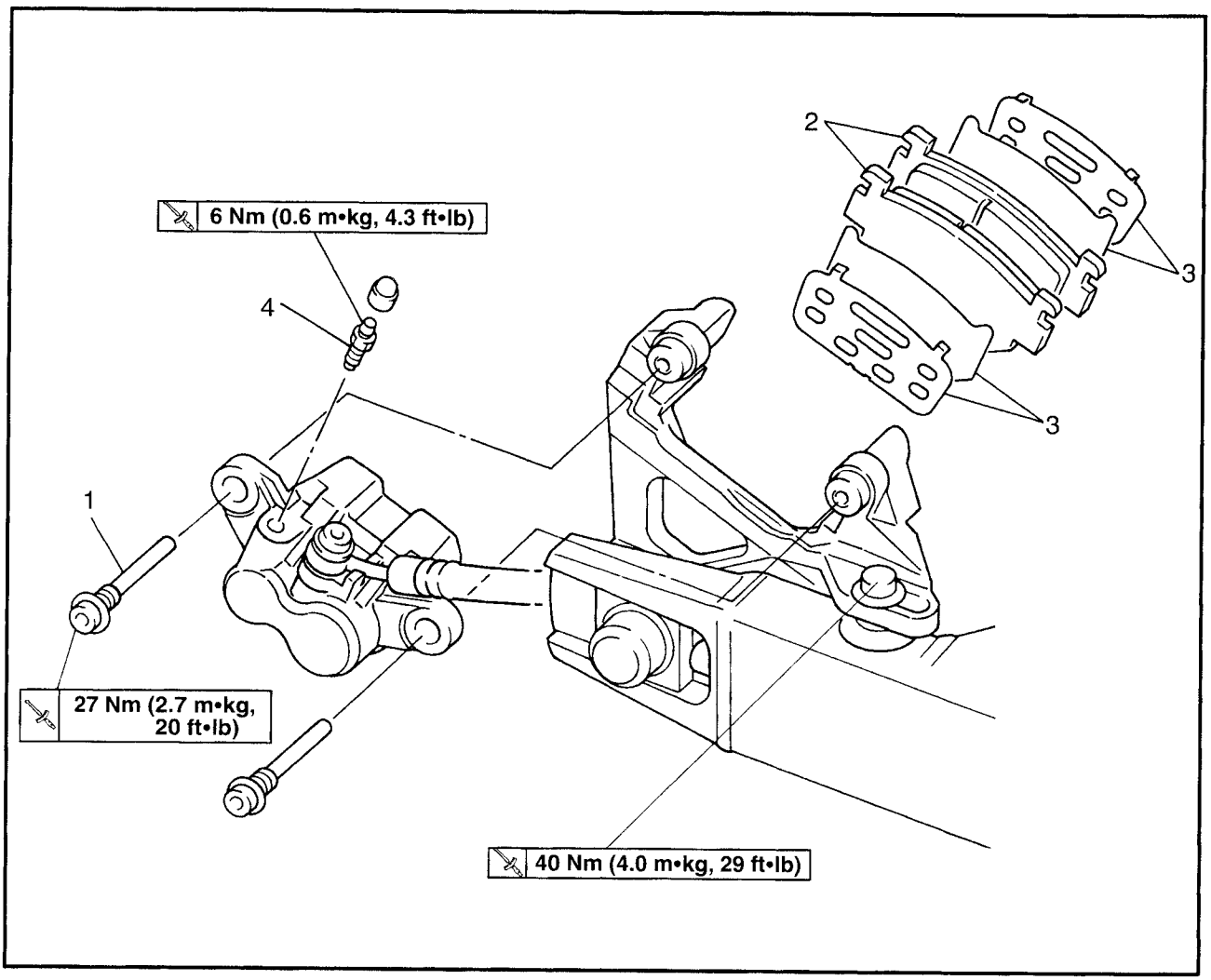
FRONT BRAKE PADS



Order	Job/Part	Q'ty	Remarks
	Removing the front brake pads		Remove the parts in the order listed. The following procedure applies to both of the front brake calipers.
1	Brake pad clips	2	
2	Brake pad pin	1	
3	Brake pad spring	1	Refer to "REPLACING THE FRONT BRAKE PADS".
4	Brake pads	2	
5	Brake pad shims	2	
6	Bleed screw	1	
			For installation, reverse the removal procedure.

EAS00578

REAR BRAKE PADS



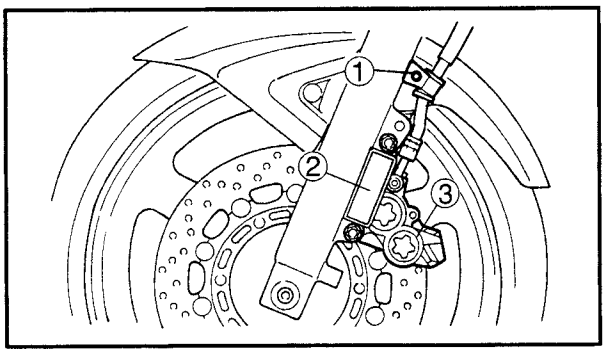
Order	Job/Part	Q'ty	Remarks
	Removing the rear brake pads		Remove the parts in the order listed.
1	Brake caliper bolts	2	Refer to "REPLACING THE REAR BRAKE PADS".
2	Brake pads	2	
3	Brake pad shims	4	
4	Bleed screw	1	
			For installation, reverse the removal procedure.

EAS00579

CAUTION:

Disc brake components rarely require disassembly.
Therefore, always follow these preventive measures:
- **Never disassemble brake components unless absolutely necessary.**
- **If any connection on the hydraulic brake system is disconnected, the entire brake system must be disassembled, drained, cleaned, properly filled, and bled after reassembly.**
- **Never use solvents on internal brake components.**
- **Use only clean or new brake fluid for cleaning brake components.**
- **Brake fluid may damage painted surfaces and plastic parts. Therefore, always clean up any spilt brake fluid immediately.**
- **Avoid brake fluid coming into contact with the eyes as it can cause serious injury.**

First aid for brake fluid entering the eyes:
- **Flush with water for 15 minutes and get immediate medical attention.**



EAS00582

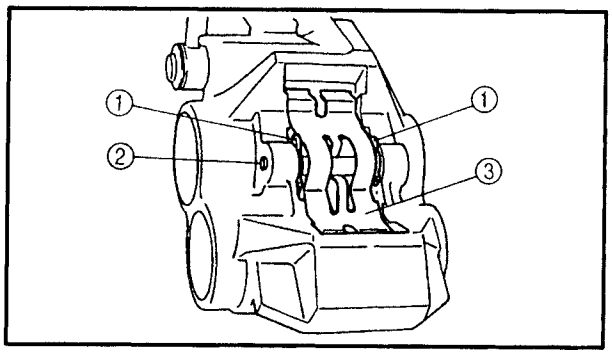
REPLACING THE FRONT BRAKE PADS

The following procedure applies to both brake calipers.

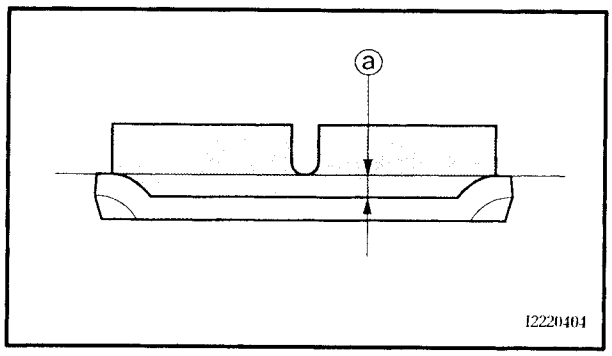
NOTE:

When replacing the brake pads, it is not necessary to disconnect the brake hose or disassemble the brake caliper.

1. Remove:
   - brake hose holder bolt ①
   - front refrector ②
   - brake caliper ③



2. Remove:
   - brake pad clips ①
   - brake pad pins ②
   - brake pad spring ③
   - brake pads
     (along with the brake pad shims)



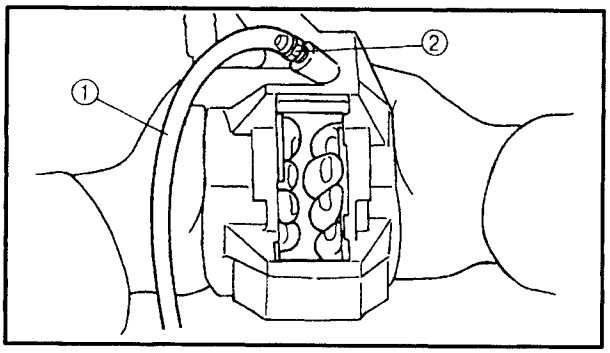
3. Measure:
   - brake pad wear limit ⓐ
     Out of specification → Replace the brake pads as a set.

Brake pad wear limit
0.5 mm (0.02 in)

4. Install:
   - brake pad shims
     (onto the brake pads)
   - brake pads
   - brake pad spring

NOTE:

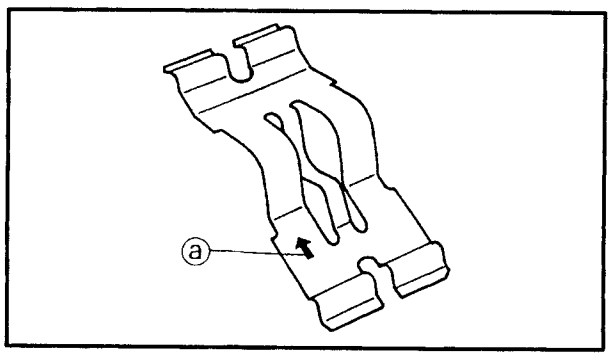
Always install new brake pads, brake pad shims, and a brake pad spring as a set.



▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼

a. Connect a clear plastic hose ① tightly to the bleed screw ②. Put the other end of the hose into an open container.
b. Loosen the bleed screw and push the brake caliper pistons into the brake caliper with your finger.
c. Tighten the bleed screw.

Bleed screw
6 Nm (0.6 m•kg, 4.3 ft•lb)



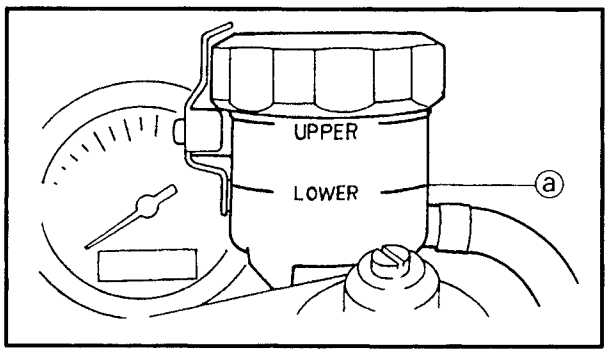
d. Install a new brake pad shim onto each new brake pads.
e. Install new brake pads and a new brake pad spring.

NOTE:

The arrow ⓐ on the brake pad spring must point in the direction of disc rotation.

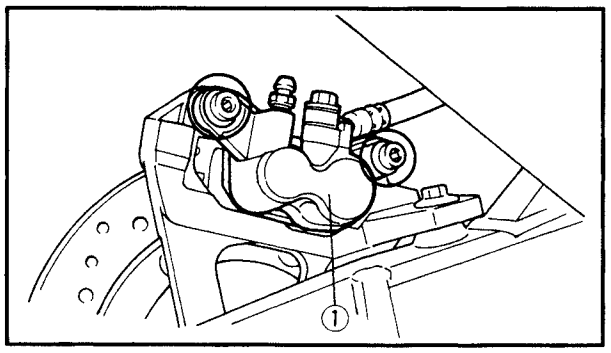
▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲

5. Install:
   • brake pad pins
   • brake pad clips
   • brake caliper bolts
     40 Nm (4.0 m•kg, 29 ft•lb)
   • brake hose holder bolt
     6 Nm (0.6 m•kg, 4.3 ft•lb)



6. Check:
   • brake fluid level
   Below the minimum level mark ⓐ → Add the recommended brake fluid to the proper level.
   Refer to "CHECKING THE BRAKE FLUID LEVEL" in chapter 3.

7. Check:
   • brake lever operation
   Soft or spongy feeling → Bleed the brake system.
   Refer to "BLEEDING THE HYDRAULIC BRAKE SYSTEM" in chapter 3.

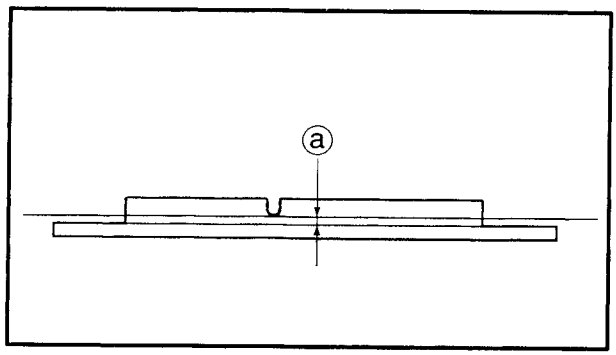


EAS00583
REPLACING THE REAR BRAKE PADS

NOTE:
When replacing the brake pads, it is not necessary to disconnect the brake hose or disassemble the brake caliper.

1. Remove:
   • brake caliper ①

2. Remove:
   • brake pads
   (along with the brake pad shims)



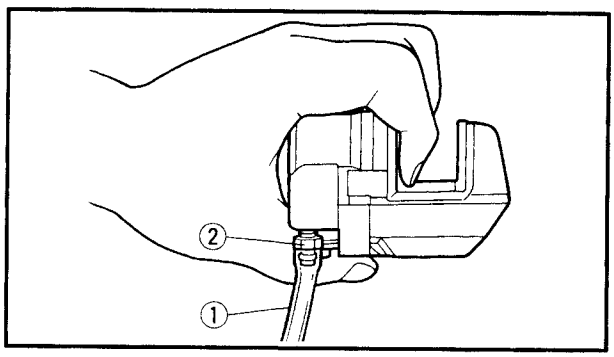
3. Measure:
   • brake pad wear limit ⓐ
   Out of specification → Replace the brake pads as a set.

Brake pad wear limit
0.8 mm (0.03 in)

4. Install:
   • brake pad shims
   (onto the brake pads)
   • brake pads

NOTE:

Always install new brake pads, brake pad shims, and a brake pad spring as a set.

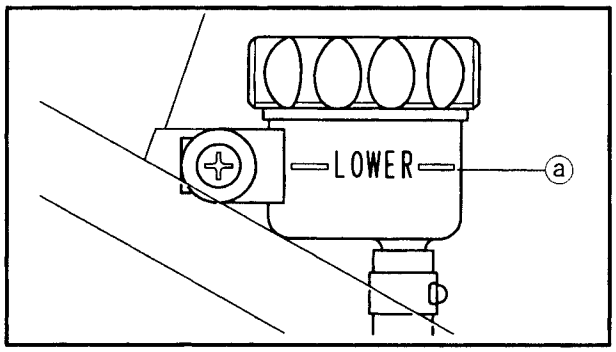


a. Connect a clear plastic hose ① tightly to the bleed screw ②. Put the other end of the hose into an open container.
b. Loosen the bleed screw and push the brake caliper pistons into the brake caliper with your finger.
c. Tighten the bleed screw.

Bleed screw
6 Nm (0.6 m•kg, 4.3 ft•lb)

d. Install a new brake pa shim onto each new brake pad.

5. Install:
   • brake caliper bolts
   27 Nm (2.7 m•kg, 20 ft•lb)

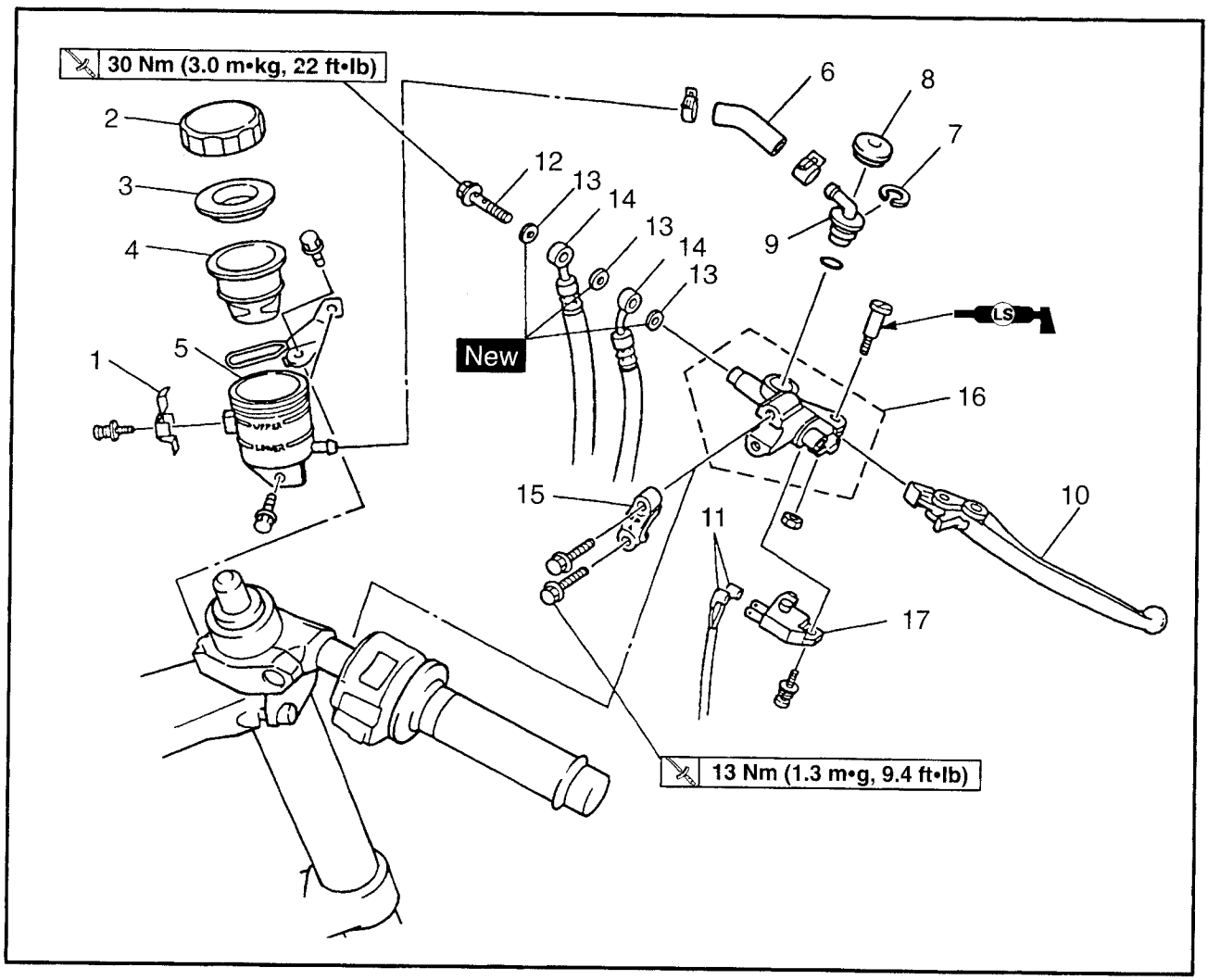


6. Check:
   • brake fluid level
   Below the minimum level mark ⓐ → Add the recommended brake fluid to the proper level.
   Refer to "CHECKING THE BRAKE FLUID LEVEL" in chapter 3.

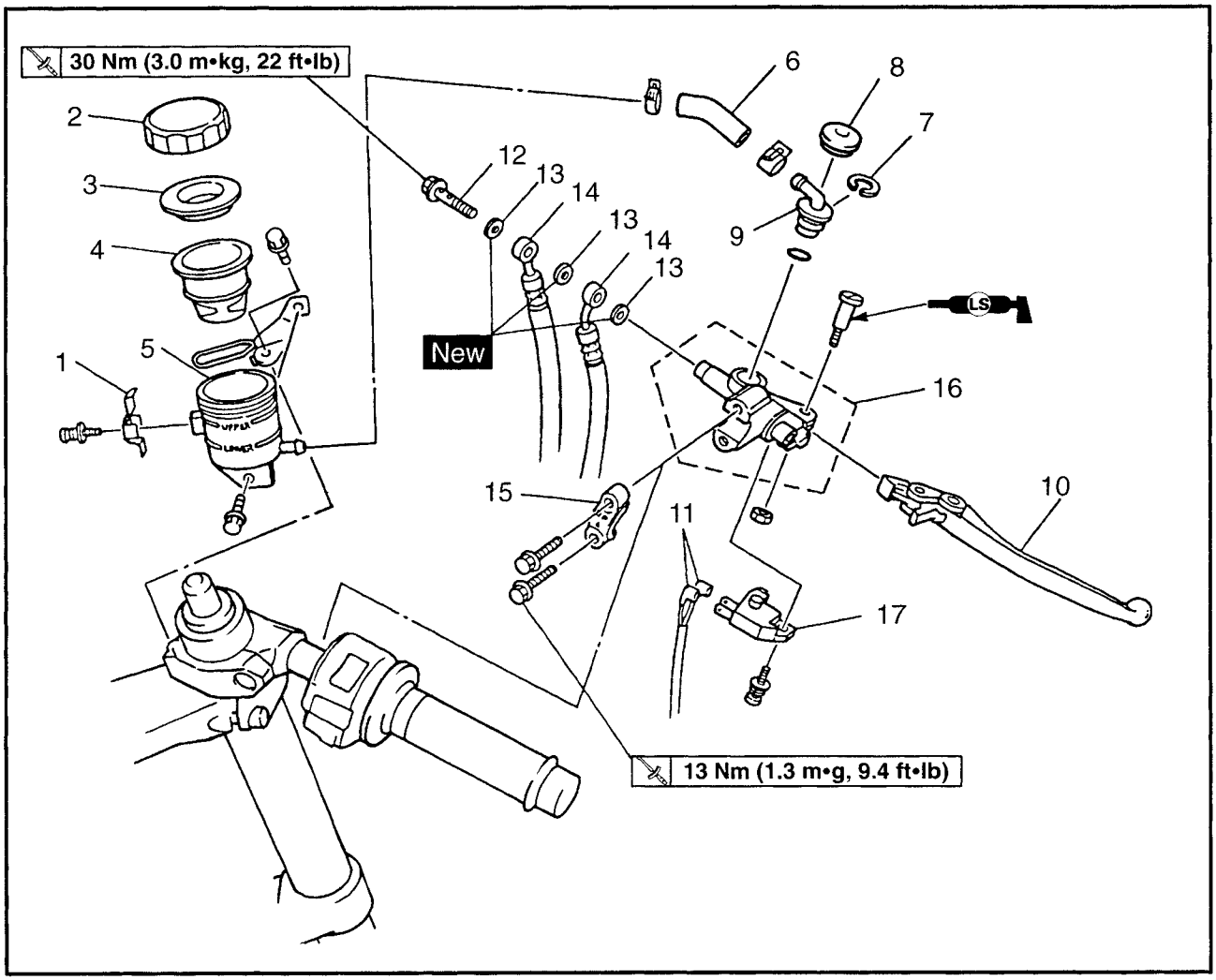
7. Check:
   • brake pedal operation
   Soft or spongy feeling → Bleed the brake system.
   Refer to "BLEEDING THE HYDRAULIC BRAKE SYSTEM" in chapter 3.

EAS00584

FRONT BRAKE MASTER CYLINDER AND BRAKE FLUID RESERVOIR

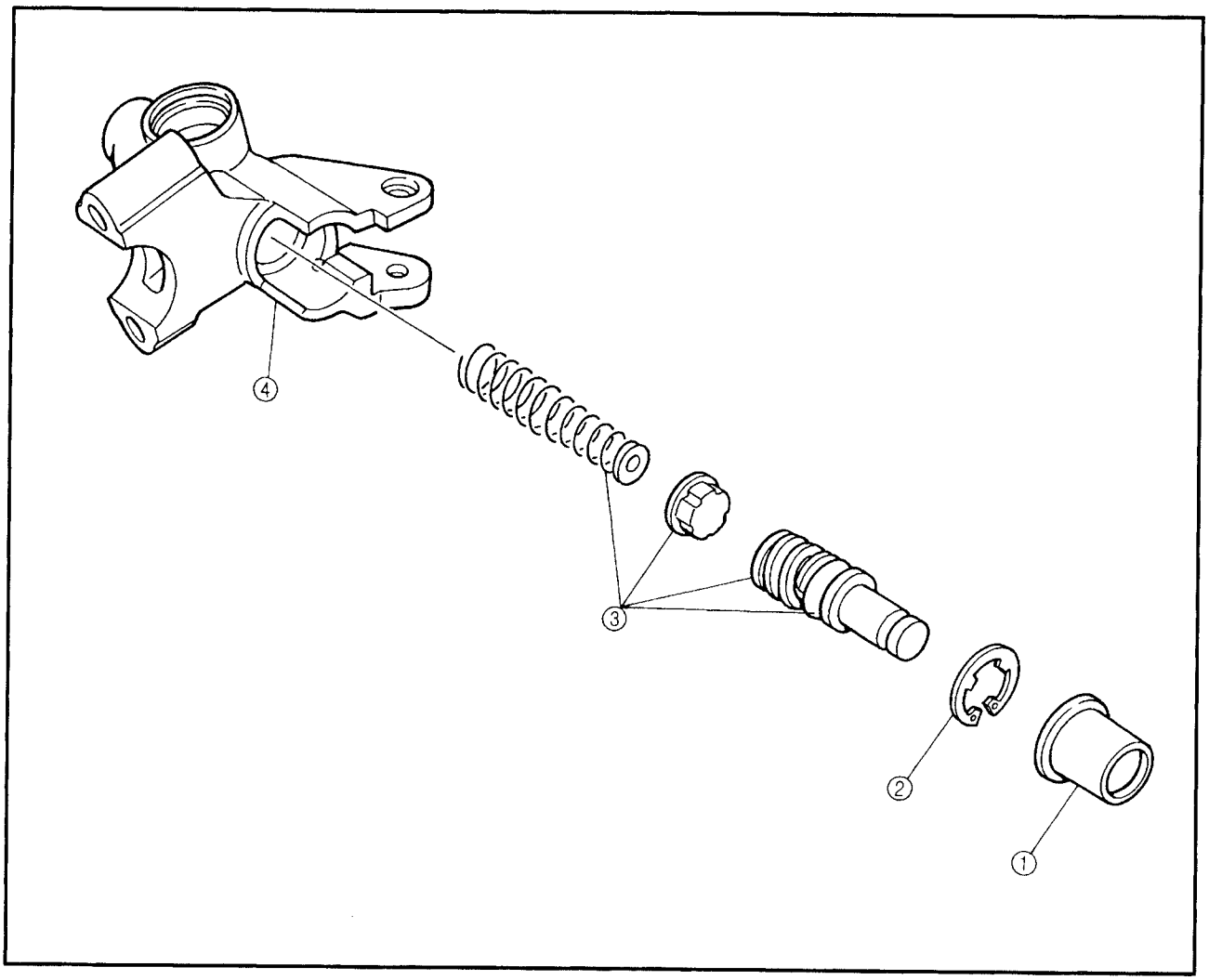


Order	Job/Part	Q'ty	Remarks
	Removing the front brake master cylinder and brake fluid reservoir		Remove the parts in the order listed.
	Brake fluid		Drain.
1	Brake fluid reservoir cap stopper	1	
2	Brake fluid reservoir cap	1	
3	Brake fluid reservoir diaphragm holder	1	
4	Brake fluid reservoir diaphragm	1	
5	Brake fluid reservoir	1	
6	Brake fluid reservoir hose	1	
7	Circlip	1	
8	Dust cover	1	
9	Hose joint	1	
10	Brake lever	1	
11	Front brake switch connector	2	Disconnect.
12	Union bolt	1	Refer to "INSTALLING THE FRONT BRAKE MASTER CYLINDER".
13	Copper washer	3	



Order	Job/Part	Q'ty	Remarks
14	Brake hose	2	Refer to "INSTALLING THE FRONT BRAKE MASTER SYLINDER".
15	Brake master cylinder holder	1	
16	Brake master cylinder	1	
17	Front brake switch	1	
			For installation, reverse the removal procedure.

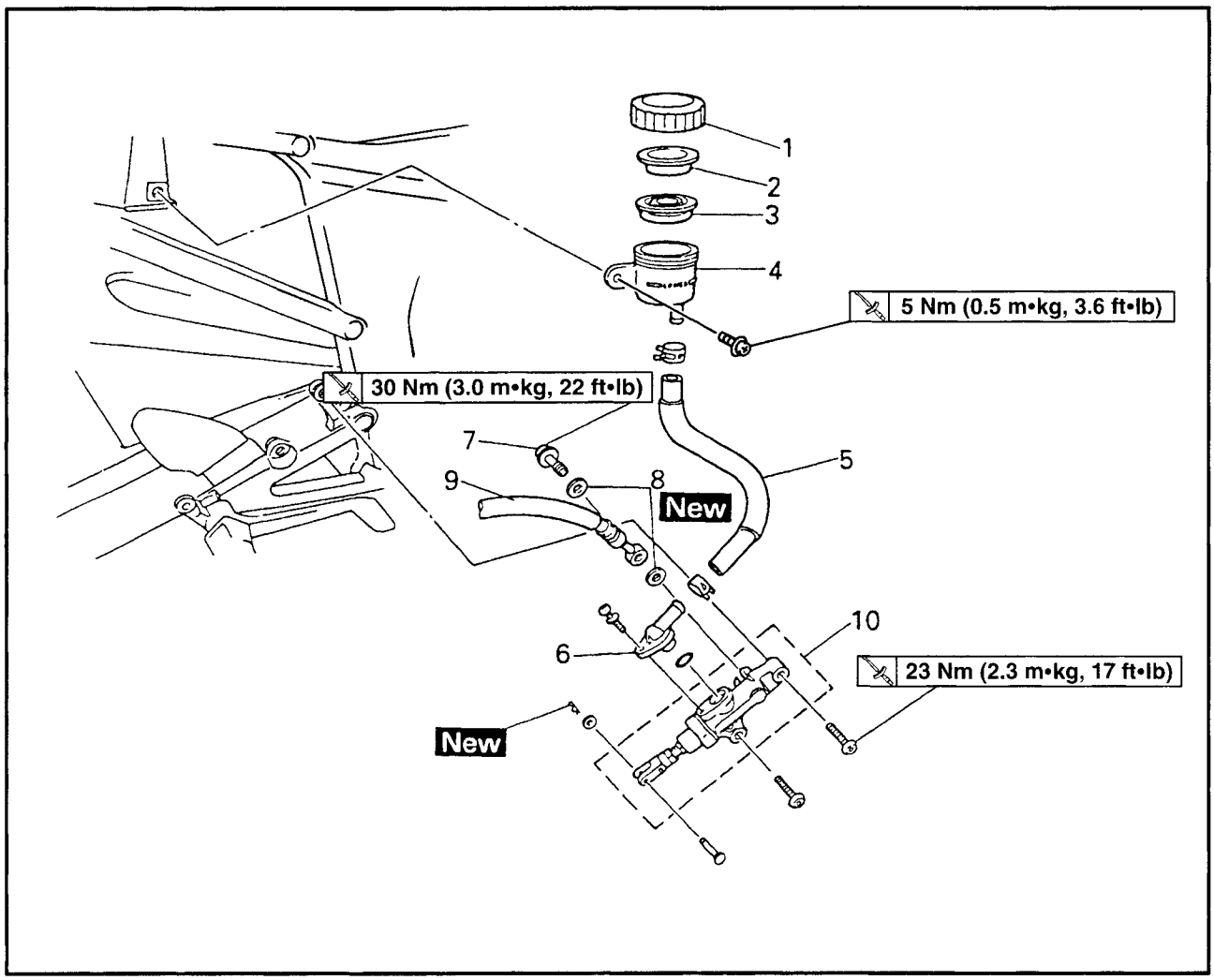
EAS00585



Order	Job/Part	Q'ty	Remarks
	Disassembling the front brake master cylinder		Remove the parts in the order listed.
①	Dust boot	1	
②	Circlip	1	
③	Brake master cylinder kit	1	
④	Brake master cylinder	1	
			For assembly, reverse the disassembly procedure.

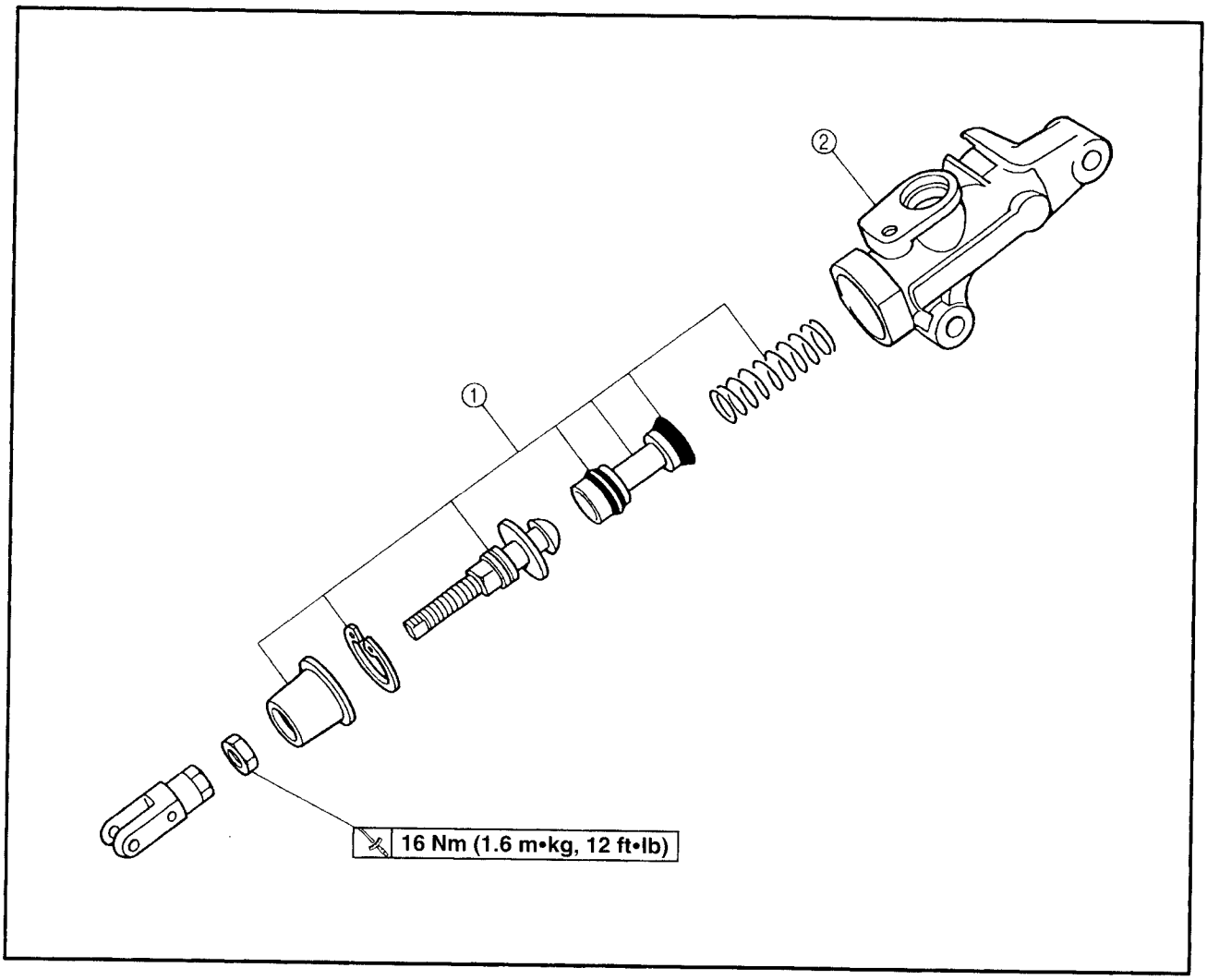
EAS00586

REAR BRAKE MASTER CYLINDER AND BRAKE FLUID RESERVOIR

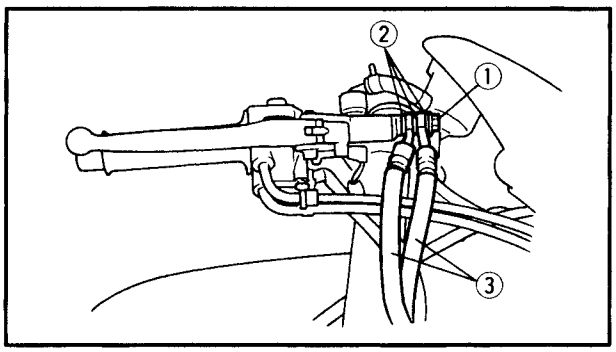


Order	Job/Part	Q'ty	Remarks
	Removing the rear brake master cylinder and brake fluid reservoir		Remove the parts in the order listed.
	Brake fluid		Drain.
1	Brake fluid reservoir cap	1	
2	Brake fluid reservoir diaphragm holder	1	
3	Brake fluid reservoir diaphragm	1	
4	Brake fluid reservoir	1	
5	Brake fluid reservoir hose	1	
6	Hose joint	1	
7	Union bolt	1	
8	Copper washer	2	Refer to "INSTALLING THE REAR BRAKE MASTER SYLINDER".
9	Brake hose	1	
10	Brake master cylinder	1	
			For installation, reverse the removal procedure.

EAS00587



Order	Job/Part	Q'ty	Remarks
	Disassembling the rear brake master cylinder		Remove the parts in the order listed.
①	Brake master cylinder kit	1	
②	Brake master cylinder	1	
			For assembly, reverse the disassembly procedure.



EAS00588

REMOVING THE FRONT BRAKE MASTER CYLINDER

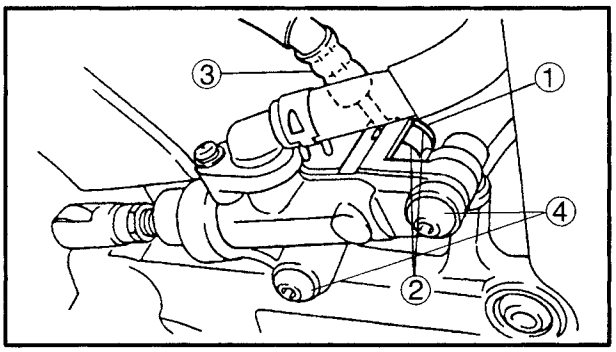
NOTE:

Before disassembling the front brake master cylinder, drain the brake fluid from the entire brake system.

1. Remove:
   - union bolt ①
   - copper washers ②
   - brake hoses ③
   - master cylinder holder ④

NOTE:

To collect any remaining brake fluid, place a container under the master cylinder and the end of the brake hose.



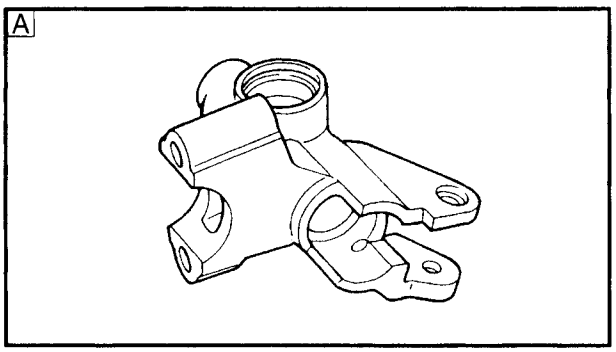
EAS00589

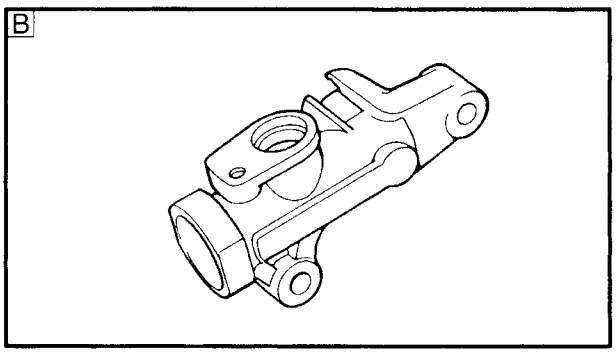
REMOVING THE REAR BRAKE MASTER CYLINDER

1. Remove:
   - union bolt ①
   - copper washers ②
   - brake hose ③
   - button head bolts ④

NOTE:

To collect any remaining brake fluid, place a container under the master cylinder and the end of the brake hose.





EAS00593

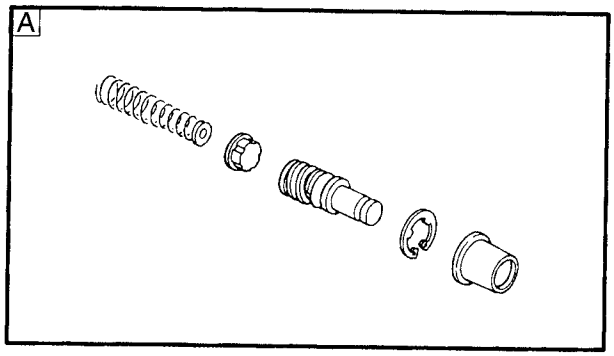
CHECKING THE FRONT AND REAR BRAKE MASTER CYLINDERS

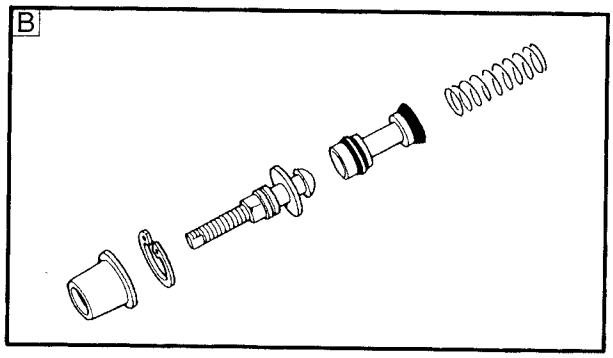
The following procedure applies to both of the brake master cylinders.

1. Check:
   - brake master cylinder
     Damage/scratches/wear → Replace.
   - brake fluid delivery passages
     (brake master cylinder body)
     Obstruction → Blow out with compressed air.

A Front

B Rear

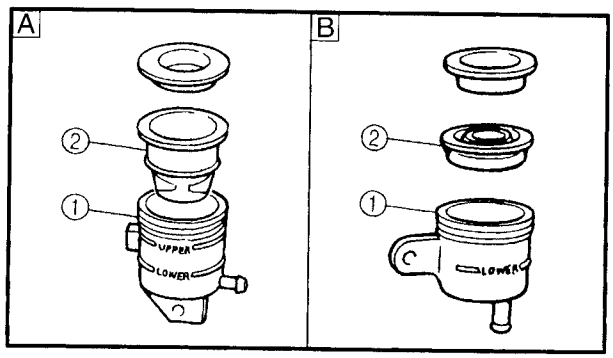




2. Check:
   • brake master cylinder kit
   Damage/scratches/wear → Replace.

A Front

B Rear



3. Check:
   • brake fluid reservoir ①
   Cracks/damage → Replace.
   • brake fluid reservoir diaphragm ②
   Cracks/damage → Replace.
4. Check:
   • brake hoses
   Cracks/damage/wear → Replace.

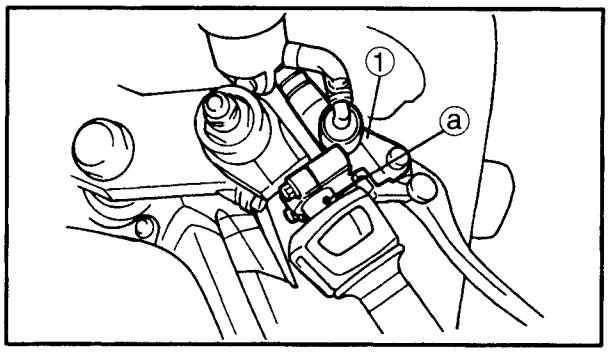
EAS00607

INSTALLING THE FRONT BRAKE MASTER CYLINDER

⚠ WARNING

• Before installation, all internal brake components should be cleaned and lubricated with clean or new brake fluid.
• Never use solvents on internal brake components.

	Recommended brake fluid **DOT 4**



1. Install:
   • brake master cylinder ①
     13 Nm (1.3 m•kg, 9.4 ft•lb)
   • brake master cylinder holder

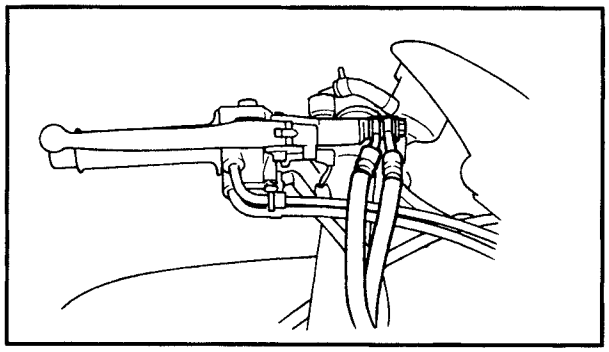
NOTE:

- Install the brake master cylinder holder with the "UP" mark facing up.
- Align the end of the brake master cylinder holder with the punch mark ⓐ in the right handlebar.
- First, tighten the upper bolt, then the lower bolt.

2. Install:
   • copper washers New
   • brake hose
   • union bolt 30 Nm (3.0 m•kg, 22 ft•lb)

⚠ WARNING

Proper brake hose routing is essential to insure safe motorcycle operation. Refer to "CABLE ROUTING".



NOTE:

- While holding the brake hose, tighten the union bolt as shown.
- Turn the handlebars to the left and to the right to make sure that the brake hose does not touch other parts (e.g., wire harness, cables, leads). Correct if necessary.

3. Fill:
   • brake fluid reservoir
     (with the specified amount of the recommended brake fluid)

	Recommended brake fluid **DOT 4**

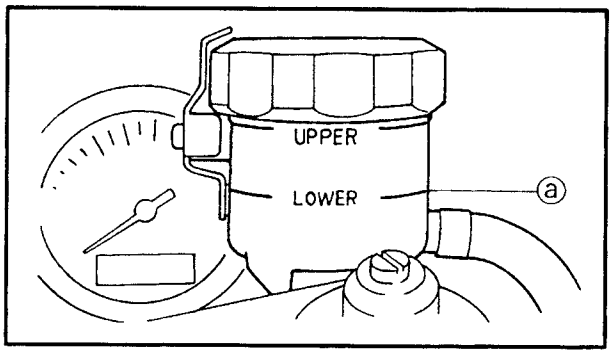
⚠ WARNING

- **Use only the designated brake fluid. Other brake fluids may cause the rubber seals to deteriorate, causing leakage and poor brake performance.**
- **Refill with the same type of brake fluid that is already in the system. Mixing brake fluids may result in a harmful chemical reaction, leading to poor brake performance.**
- **When refilling, be careful that water does not enter the brake fluid reservoir. Water will significantly lower the boiling point of the brake fluid and could cause vapor lock.**

CAUTION:

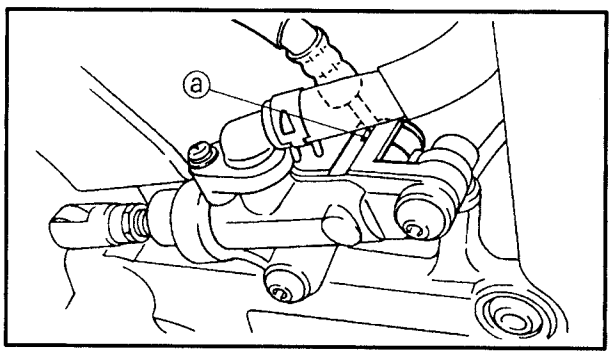
Brake fluid may damage painted surfaces and plastic parts. Therefore, always clean up any spilt brake fluid immediately.

4. Bleed:
   • brake system
   Refer to "BLEEDING THE HYDRAULIC BRAKE SYSTEM" in chapter 3.



5. Check:
   • brake fluid level
   Below the minimum level mark ⓐ → Add the recommended brake fluid to the proper level.
   Refer to "CHECKING THE BRAKE FLUID LEVEL" in chapter 3.

6. Check:
   • brake lever operation
   Soft or spongy feeling → Bleed the brake system.
   Refer to "BLEEDING THE HYDRAULIC BRAKE SYSTEM" in chapter 3.



EAS00608

INSTALLING THE REAR BRAKE MASTER CYLINDER

1. Install:
   • copper washers **New**
   • brake hoses
   • union bolt **30 Nm (3.0 m•kg, 22 ft•lb)**
   • button head bolts

⚠ WARNING

Proper brake hose routing is essential to insure safe motorcycle operation. Refer to "CABLE ROUTING".

CAUTION:

When installing the brake hose onto the brake master cylinder, make sure that the brake pipe touches the projection ⓐ as shown.

2. Fill:
   • brake fluid reservoir

	Recommended brake fluid **DOT 4**

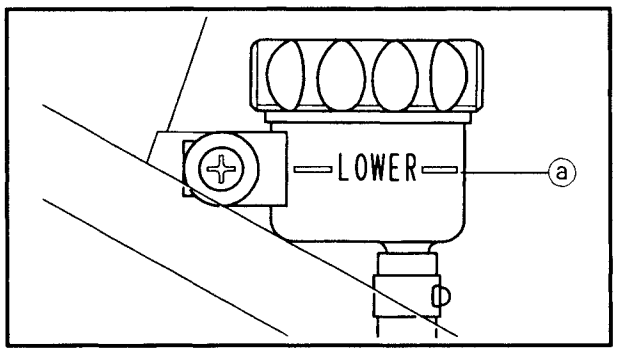
⚠ WARNING

- **Use only the designated brake fluid. Other brake fluids may cause the rubber seals to deteriorate, causing leakage and poor brake performance.**
- **Refill with the same type of brake fluid that is already in the system. Mixing brake fluids may result in a harmful chemical reaction, leading to poor brake performance.**
- **When refilling, be careful that water does not enter the reservoir. Water will significantly lower the boiling point of the brake fluid and could cause vapor lock.**

CAUTION:

Brake fluid may damage painted surfaces and plastic parts. Therefore, always clean up any spilt brake fluid immediately.

3. Bleed:
   • brake system
   Refer to "BLEEDING THE HYDRAULIC BRAKE SYSTEM" in chapter 3.
4. Check:
   • brake fluid level
   Below the minimum level mark ⓐ → Add the recommended brake fluid to the proper level.
   Refer to "CHECKING THE BRAKE FLUID LEVEL" in chapter 3.
5. Adjust:
   • brake pedal position
   Refer to "ADJUSTING THE REAR BRAKE" in chapter 3.

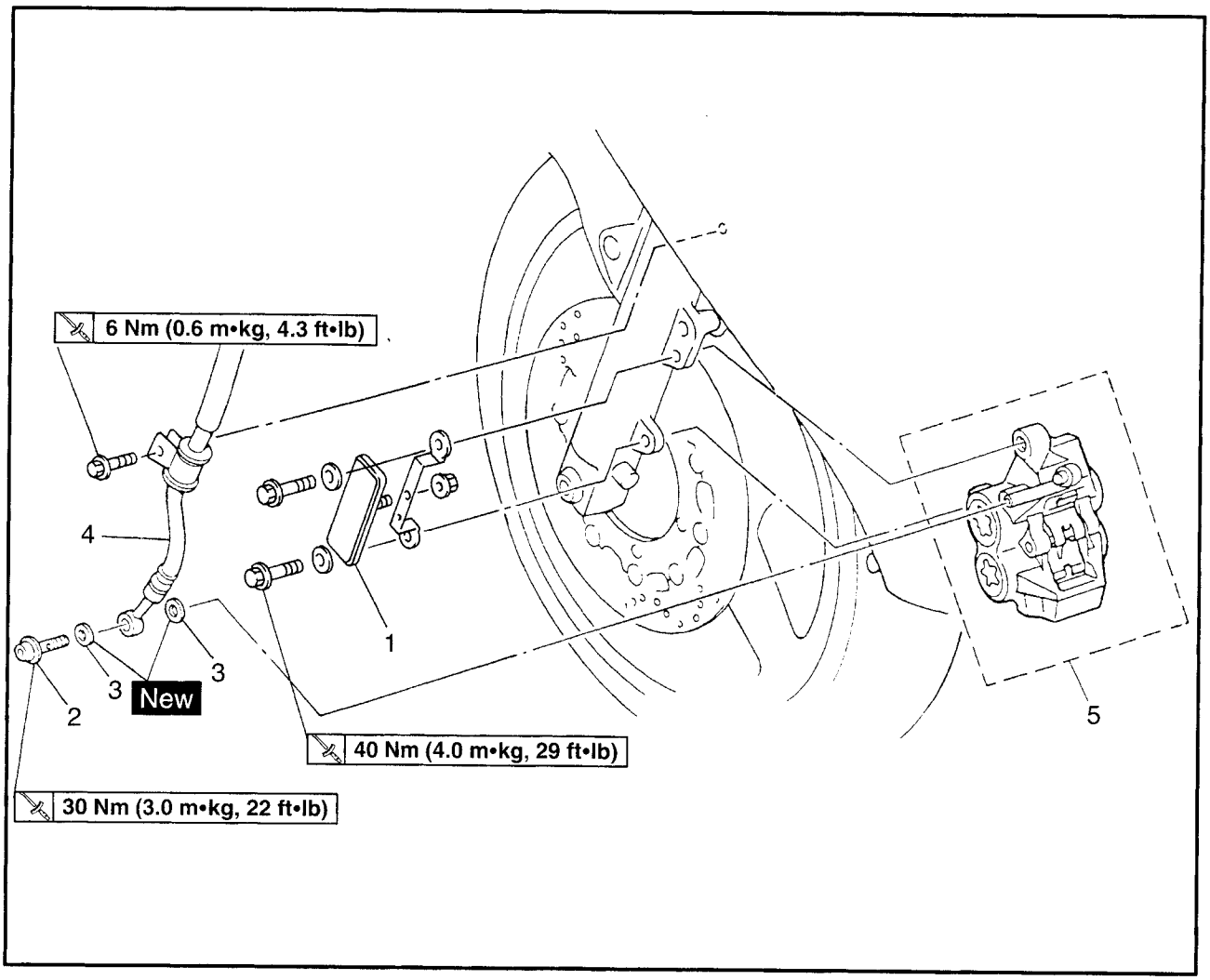


	Brake pedal position (from the top of the brake pedal to the bottom of the rider footrest bracket bolt center) **4.3 ~ 9.3 mm (0.17 ~ 0.37 in)**

6. Adjust:
   • rear brake light operation timing
   Refer to "ADJUSTING THE REAR BRAKE LIGHT SWITCH" in chapter 3.

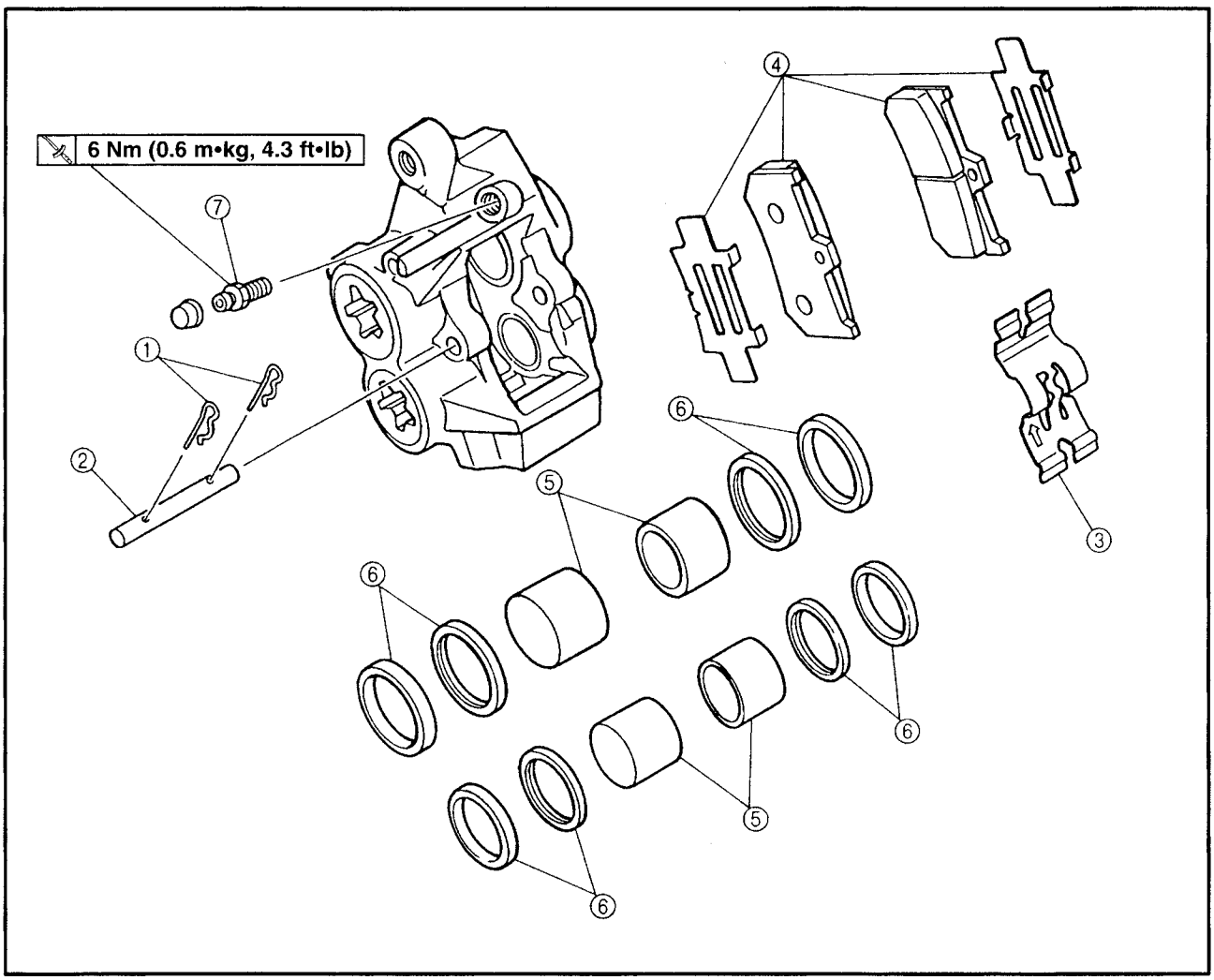
EAS00613

FRONT BRAKE CALIPERS



Order	Job/Part	Q'ty	Remarks
	Removing the front brake calipers		Remove the parts in the order listed. The following procedure applies to both of the front brake calipers.
	Brake fluid		Drain.
1	Front refrector	1	
2	Union bolt	1	
3	Copper washer	2	Refer to "INSTALLING THE FRONT BRAKE CALIPERS".
4	Brake hose	1	
5	Brake caliper	1	
			For installation, reverse the removal procedure.

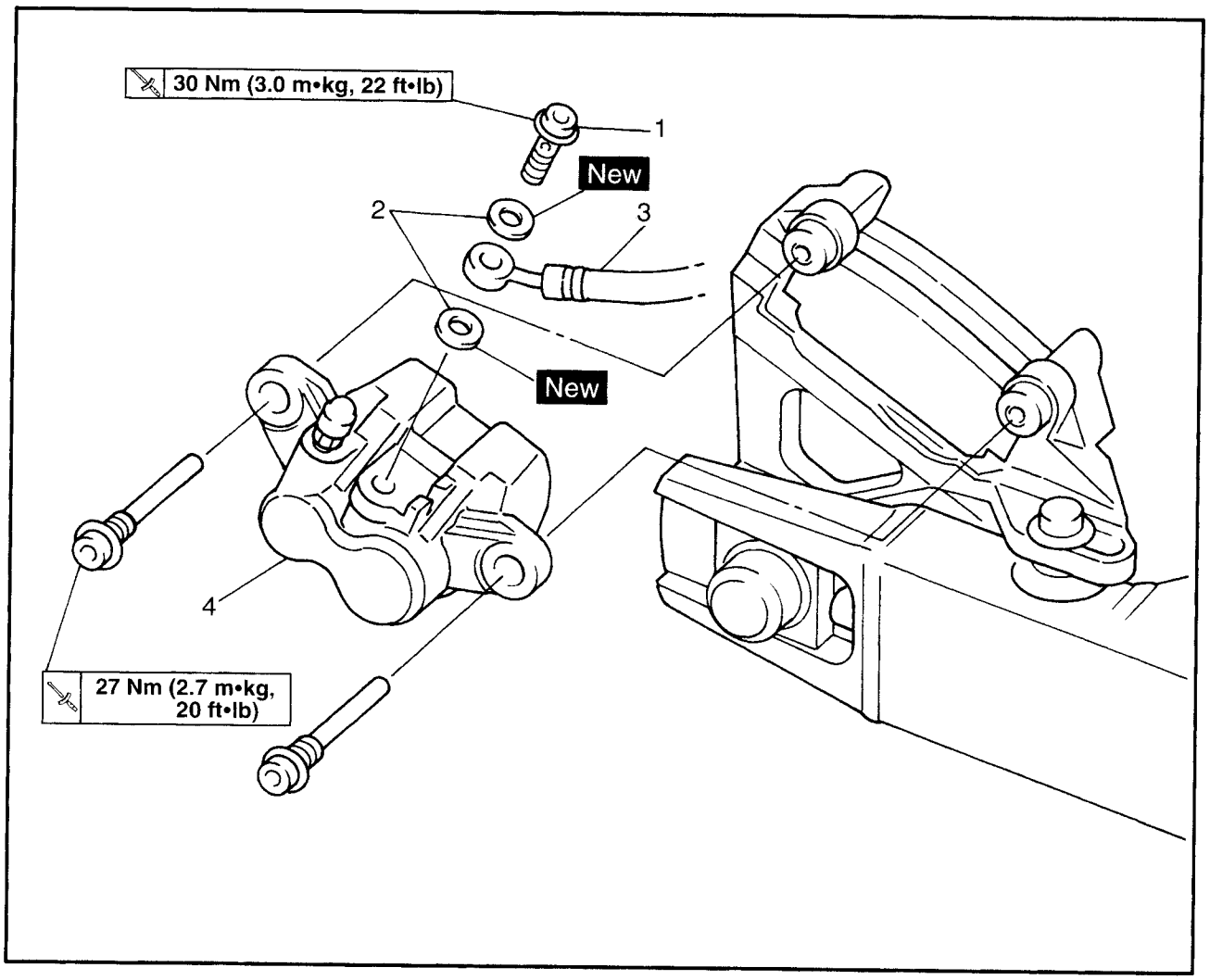
EAS00615



Order	Job/Part	Q'ty	Remarks
	Disassembling the front brake calipers		Disassemble the parts in the order listed. The following procedure applies to both of the front brake calipers.
①	Brake pad clip	2	
②	Brake pad pin	1	
③	Brake pad spring	1	
④	Brake pad	2	
⑤	Brake caliper piston	4	Refer to "REMOVING THE FRONT BRAKE CALIPERS".
⑥	Brake caliper piston seal	8	
⑦	Bleed screw	1	
			For assembly, reverse the disassembly procedure.

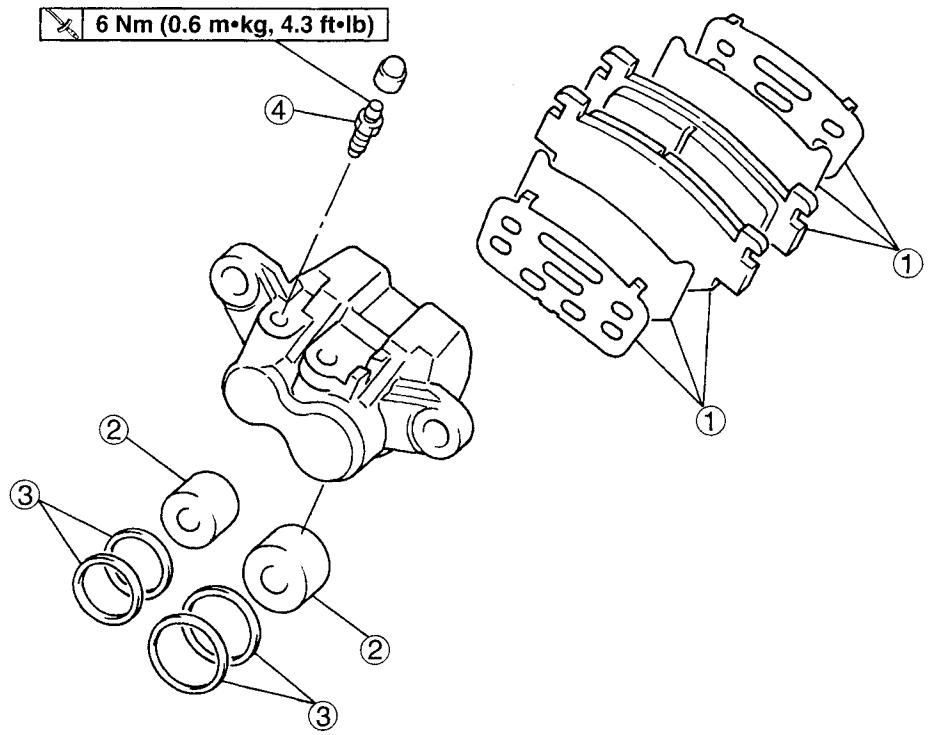
EAS00616

REAR BRAKE CALIPER



Order	Job/Part	Q'ty	Remarks
	Removing the rear brake caliper		Remove the parts in the order listed.
	Brake fluid		Drain.
1	Union bolt	1	
2	Copper washer	2	Refer to "INSTALLING THE REAR BRAKE CALIPERS".
3	Brake hose	1	
4	Brake caliper	1	
			For installation, reverse the removal procedure.

EAS00617



Order	Job/Part	Q'ty	Remarks
	Disassembling the rear brake caliper		Disassemble the parts in the order listed.
①	Brake pad	2	
②	Brake caliper piston	2	Refer to "REMOVING THE REAR BRAKE CALIPERS".
③	Brake caliper piston seal	4	
④	Bleed screw	1	
			For assembly, reverse the disassembly procedure.

EAS00625

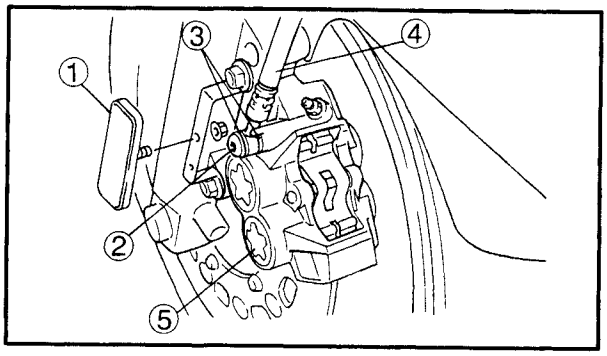
REMOVING THE FRONT BRAKE CALIPERS

The following procedure applies to both of the brake calipers.

NOTE:

Before removing either brake caliper, drain the brake fluid from the entire brake system.

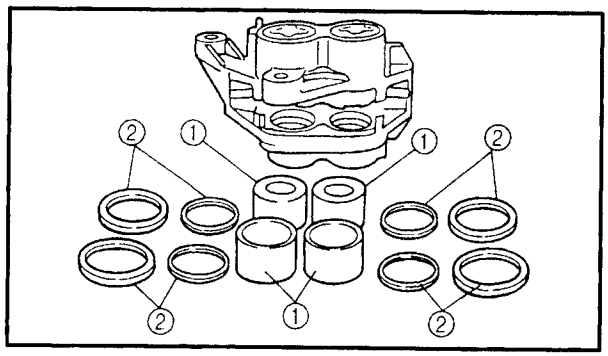
1. Remove:
   - front refrector ①
   - union bolt ②
   - copper washers ③
   - brake hose ④
   - brake caliper ⑤



NOTE:

Put the end of the brake hose into a container and pump out the brake fluid carefully.

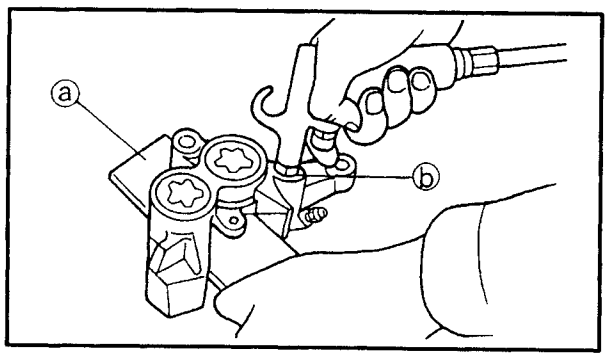
2. Remove:
   - brake caliper pistons ①
   - brake caliper piston seals ②



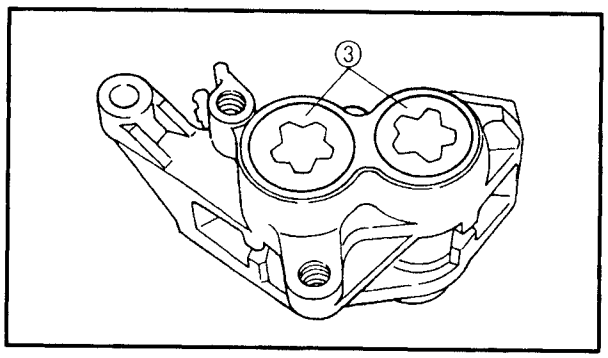
a. Secure the right side brake caliper pistons with a piece of wood ⓐ.
b. Blow compressed air into the brake hose joint opening ⓑ to force out the pistons from the brake caliper.

⚠ WARNING

- **Never try to pry out the brake caliper pistons.**
- **Do not loosen the bolts ③.**



c. Remove the brake caliper piston seals.
d. Repeat the previous steps to force out the right side pistons from the brake caliper.

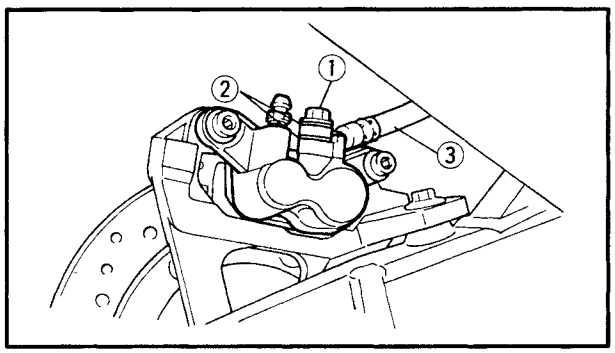


EAS00628

REMOVING THE REAR BRAKE CALIPER

NOTE:

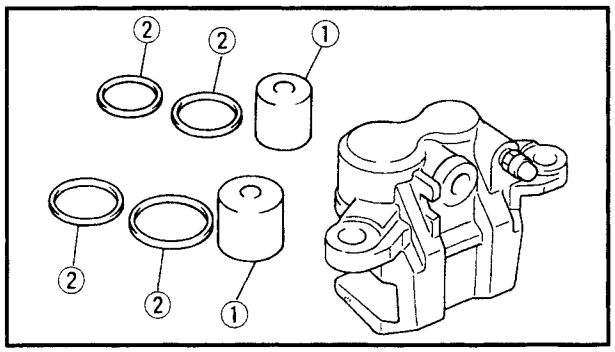
Before removing the brake caliper, drain the brake fluid from the entire brake system.



1. Remove:
   - union bolt ①
   - copper washers ②
   - brake hose ③

NOTE:

Put the end of the brake hose into a container and pump out the brake fluid carefully.



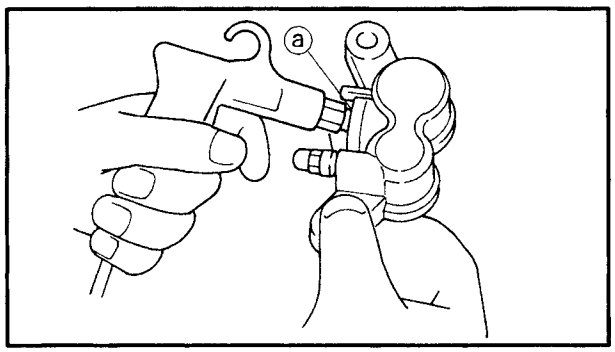
2. Remove:
   - brake caliper pistons ①
   - brake caliper piston seals ②

▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼

a. Blow compressed air into the brake hose joint opening ⓐ to force out the pistons from the brake caliper.
   Be careful not to get injured when the pistons are expelled from the brake caliper..

⚠ WARNING

- **Cover the brake caliper piston with a rag.**
- **Never try to pry out the brake caliper pistons.**



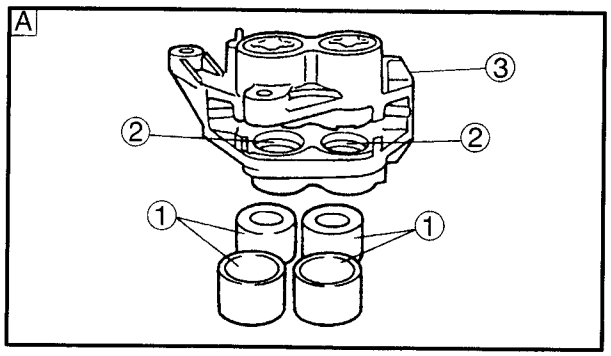
b. Remove the brake caliper piston seals.

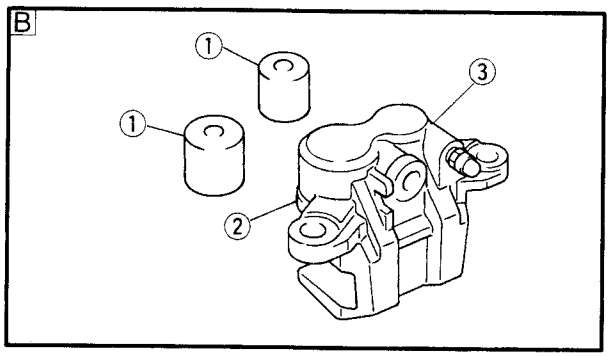
▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲

EAS00633

CHECKING THE FRONT AND REAR BRAKE CALIPERS

Recommended brake component replacement schedule	
Brake pads	If necessary
Piston seals	Every two years
Brake hoses	Every four years
Brake fluid	Every two years and whenever the brake is disassembled



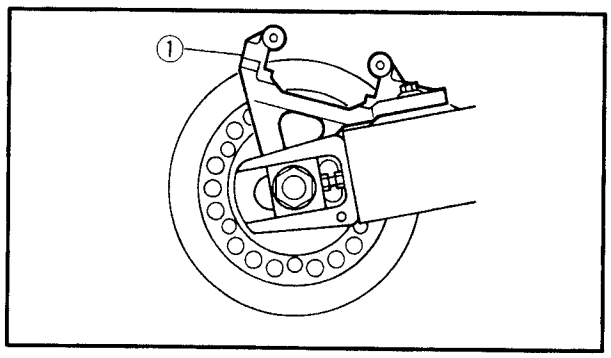


1. Check:
   - brake caliper pistons ①
     Rust/scratches/wear → Replace the brake caliper.
   - brake caliper cylinders ②
     Scratches/wear → Replace the brake caliper.
   - brake calipers ③
     Cracks/damage → Replace.
   - brake fluid delivery passages (brake caliper body)
     Obstruction → Blow out with compressed air.

⚠ WARNING

Whenever a brake caliper is disassembled, replace the brake caliper piston seals.

A Front
B Rear



2. Check:
   - rear brake caliper bracket ①
     Cracks/damage → Replace.

EAS00640

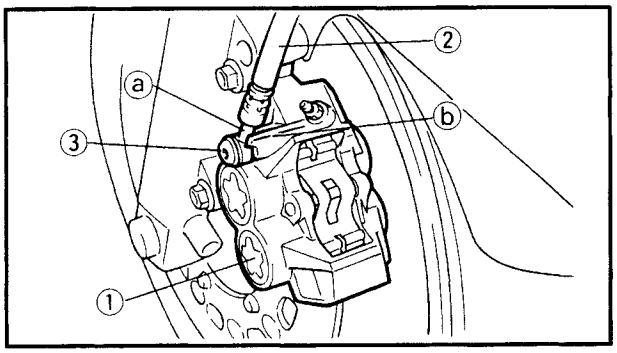
INSTALLING THE FRONT BRAKE CALIPERS

The following procedure applies to both of the brake calipers.

⚠ WARNING

- **Before installation, all internal brake components should be cleaned and lubricated with clean or new brake fluid.**
- **Never use solvents on internal brake components as they will cause the piston seals to swell and distort.**
- **Whenever a brake caliper is disassembled, replace the brake caliper piston seals.**

Recommended brake fluid
DOT 4



1. Install:
   - brake caliper ① (temporarily)
   - copper washers New
   - brake hose ②
   - union bolt ③ **30 Nm (3.0 m•kg, 22 ft•lb)**

⚠ WARNING

Proper brake hose routing is essential to insure safe motorcycle operation. Refer to "CABLE ROUTING".

CAUTION:

When installing the brake hose onto the brake caliper ①, make sure that the brake pipe ⓐ touches the projection ⓑ on the brake caliper.

2. Remove:
   - brake caliper
3. Install:
   - brake pads
   - brake pad spring
   - brake caliper **40 Nm (4.0 m•kg, 29 ft•lb)**
   - front refrector
   - brake hose holder **6 Nm (0.6 m•kg, 4.3 ft•lb)**

   Refer to "REPLACING THE FRONT BRAKE PADS".

4. Fill:
   • brake fluid reservoir
   (with the specified amount of the recommended brake fluid)

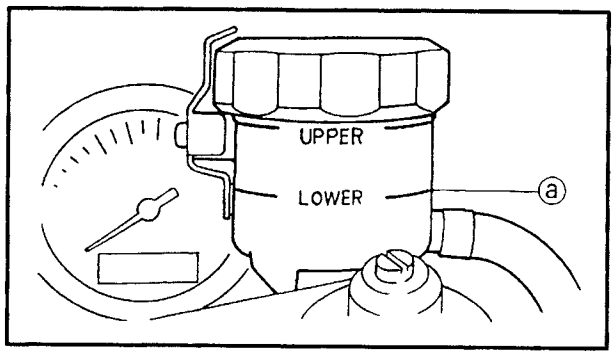
	Recommended brake fluid **DOT 4**

⚠ WARNING

- **Use only the designated brake fluid. Other brake fluids may cause the rubber seals to deteriorate, causing leakage and poor brake performance.**
- **Refill with the same type of brake fluid that is already in the system. Mixing brake fluids may result in a harmful chemical reaction, leading to poor brake performance.**
- **When refilling, be careful that water does not enter the brake fluid reservoir. Water will significantly lower the boiling point of the brake fluid and could cause vapor lock.**

CAUTION:

Brake fluid may damage painted surfaces and plastic parts. Therefore, always clean up any spilt brake fluid immediately.



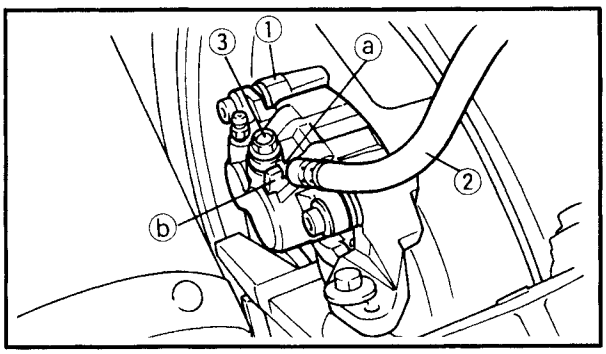
5. Bleed:
   • brake system
   Refer to "BLEEDING THE HYDRAULIC BRAKE SYSTEM" in chapter 3.
6. Check:
   • brake fluid level
   Below the minimum level mark ⓐ → Add the recommended brake fluid to the proper level.
   Refer to "CHECKING THE BRAKE FLUID LEVEL" in chapter 3.
7. Check;
   • brake lever operation
   Soft or spongy feeling → Bleed the brake system.
   Refer to "BLEEDING THE HYDRAULIC BRAKE SYSTEM" in chapter 3.

EAS00642
INSTALLING THE REAR BRAKE CALIPER

⚠ WARNING

- **Before installation, all internal brake components should be cleaned and lubricated with clean or new brake fluid.**
- **Never use solvents on internal brake components as they will cause the piston seals to swell and distort.**
- **Whenever a brake caliper is disassembled, replace the brake caliper piston seals.**

Recommended brake fluid
DOT 4



1. Install:
   - brake pads
   - brake caliper ①
   - copper washers New
   - brake hose ②
   - union bolt ③ **30 Nm (3.0 m•kg, 22 ft•lb)**

⚠ WARNING

Proper brake hose routing is essential to insure safe motorcycle operation. Refer to "CABLE ROUTING".

CAUTION:

When installing the brake hose onto the brake caliper ①, make sure that the brake pipe ⓐ touches the projection ⓑ on the brake caliper.

2. Fill:
   • brake fluid reservoir
   (with the specified amount of the recommended brake fluid)

	Recommended brake fluid **DOT 4**

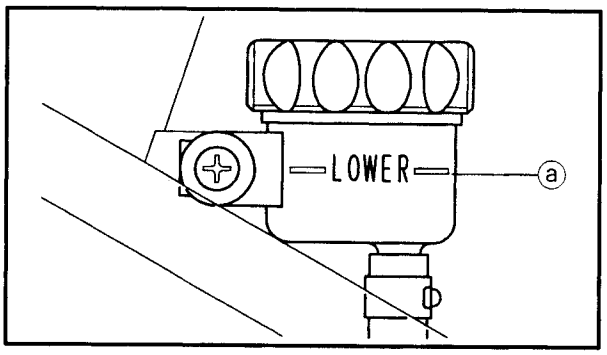
⚠ WARNING

- **Use only the designated brake fluid. Other brake fluids may cause the rubber seals to deteriorate, causing leakage and poor brake performance.**
- **Refill with the same type of brake fluid that is already in the system. Mixing brake fluids may result in a harmful chemical reaction, leading to poor brake performance.**
- **When refilling, be careful that water does not enter the brake fluid reservoir. Water will significantly lower the boiling point of the brake fluid and could cause vapor lock.**

CAUTION:

Brake fluid may damage painted surfaces and plastic parts. Therefore, always clean up any spilt brake fluid immediately.

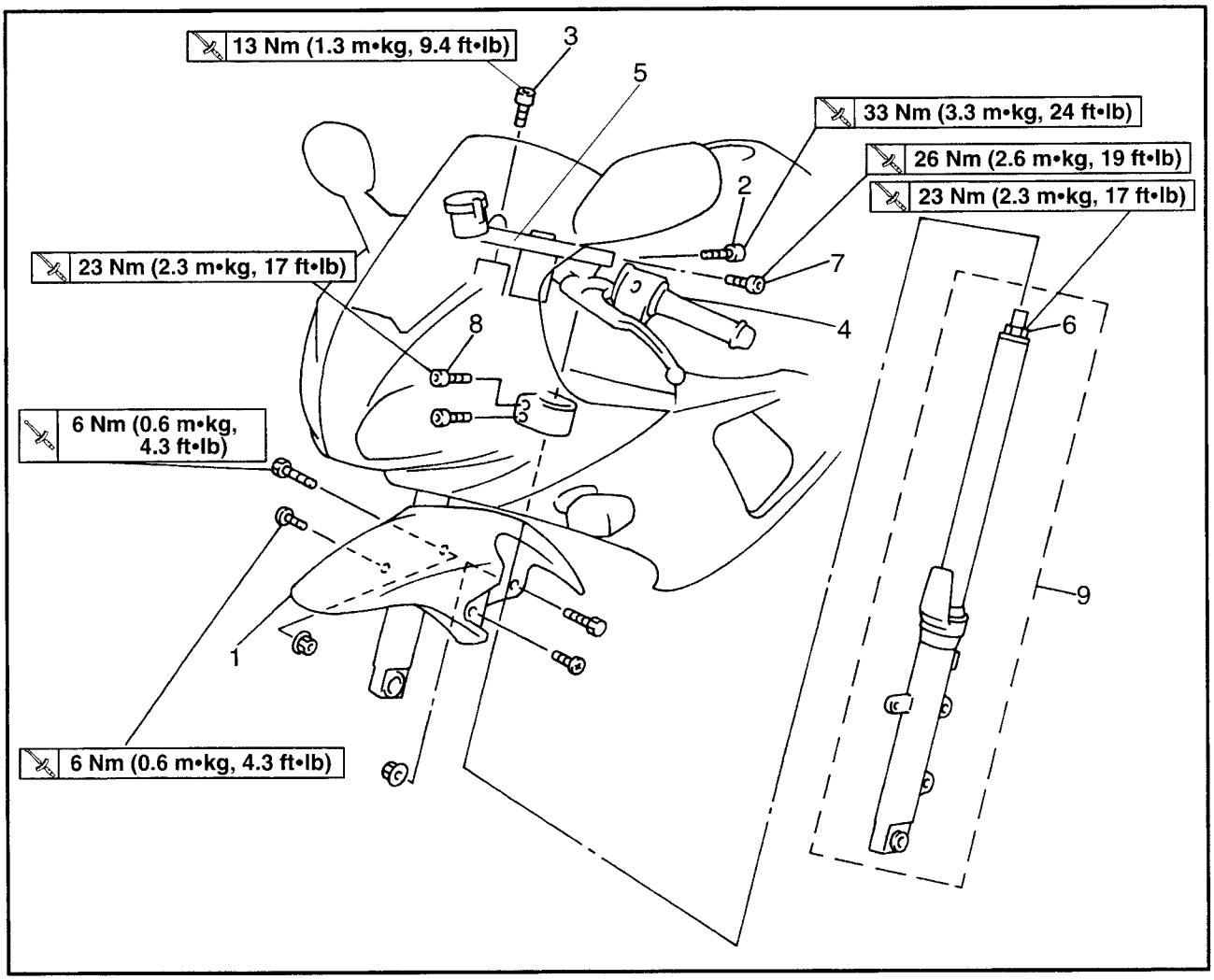
3. Bleed:
   • brake system
   Refer to "BLEEDING THE HYDRAULIC BRAKE SYSTEM" in chapter 3.
4. Check:
   • brake fluid level
   Below the minimum level mark ⓐ → Add the recommended brake fluid to the proper level.
   Refer to "CHECKING THE BRAKE FLUID LEVEL" in chapter 3.



5. Check:
   • brake pedal operation
   Soft or spongy feeling → Bleed the brake system.
   Refer to "BLEEDING THE HYDRAULIC BRAKE SYSTEM" in chapter 3.

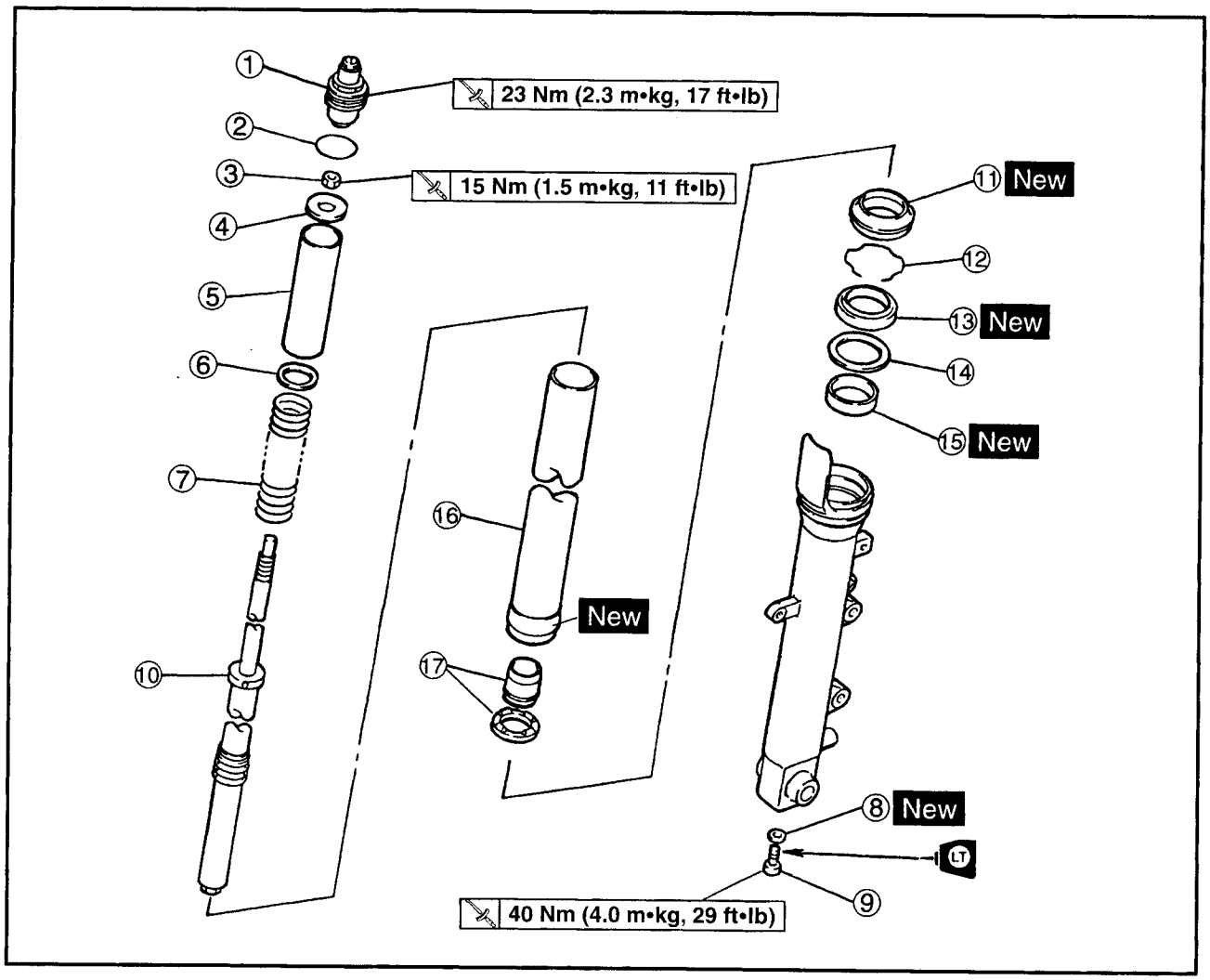
FRONT FORK

EAS00647

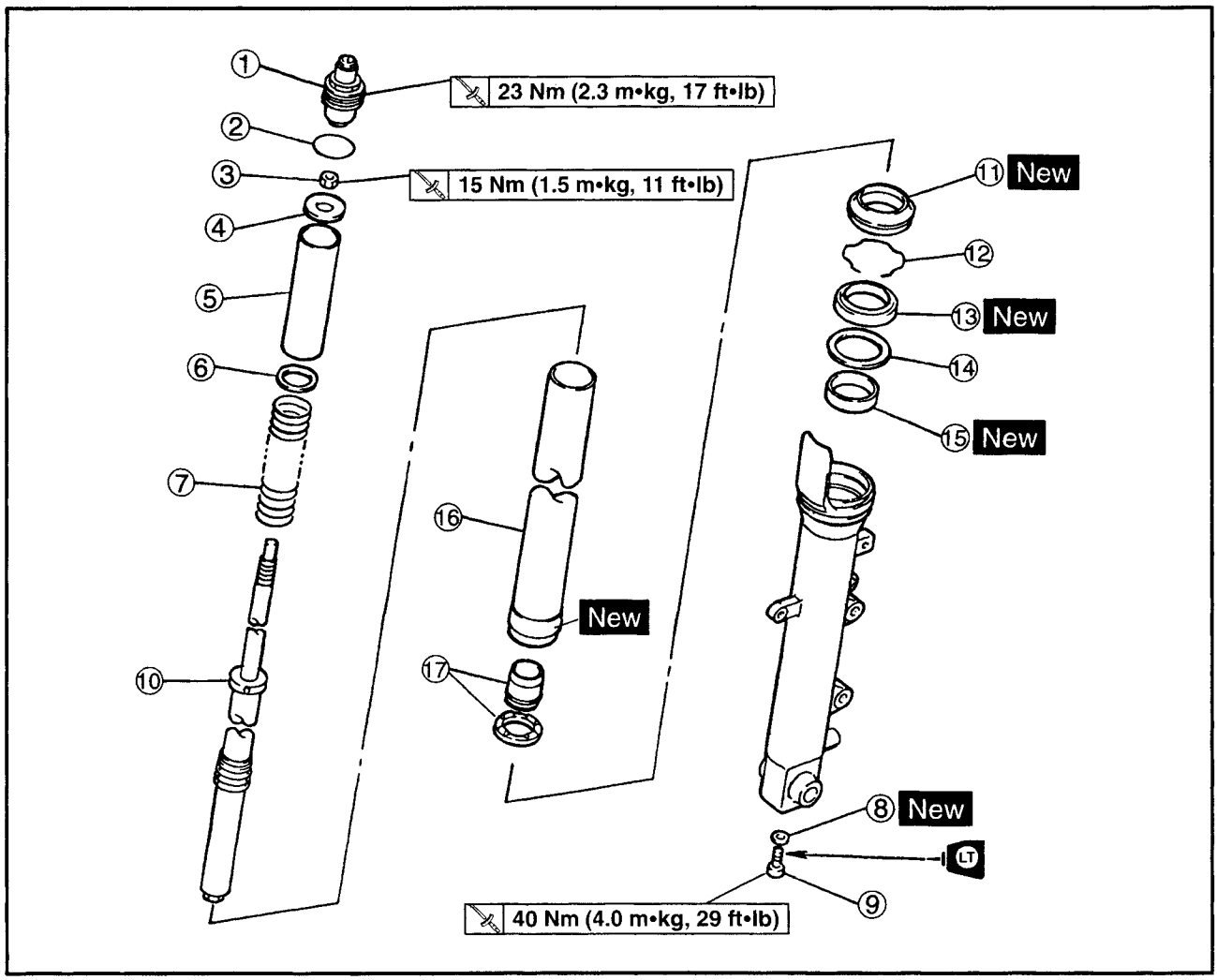


Order	Job/Part	Q'ty	Remarks
	Removing the front fork legs		Remove the parts in the order listed.
	Front brake calipers		The following procedure applies to both of the front fork legs.
	Front wheel		Refer to "FRONT WHEEL AND BRAKE DISCS".
	Front cowling inner panel		Refer to "COWLINGS" in chapter 3.
1	Front fender	1	
2	Handlebar pinch bolt	2	Loosen
3	Upper bracket bolt	2	
4	Handlebar (left)	1	
5	Handlebar (right)	1	
6	Cap bolts	2	Loosen
7	Upper bracket pinch bolts	2	Loosen
8	Lower bracket pinch bolts	4	Loosen
9	Front fork legs	2	
			For installation, reverse the removal procedure.

EB703002



Order	Job/Part	Q'ty	Remarks
	Disassembling the front fork legs		Remove the parts in the order listed. The following procedure applies to both of the front fork legs.
①	Cap bolt	1	
②	O-ring	1	
③	Nut	1	
④	Washer	1	
⑤	Spacer	1	Refer to "DISASSEMBLING/ ASSEMBLING THE FRONT FORK LEGS".
⑥	Washer	1	
⑦	Fork spring	1	
⑧	Copper washer	1	
⑨	Damper rod assembly bolt	1	
⑩	Damper rod assembly	1	



Order	Job/Part	Q'ty	Remarks
⑪	Dust seal	1	
⑫	Oil seal clip	1	
⑬	Oil seal	1	Refer to "DISASSEMBLING/ ASSEMBLING THE FRONT FORK LEGS".
⑭	Washer	1	
⑮	Outer tube bushing	1	
⑯	Inner tube	1	
⑰	Oil lock piece	1	
			For assembly, reverse the disassembly procedure.

EAS00649

REMOVING THE FRONT FORK LEGS

The following procedure applies to both of the front fork legs.

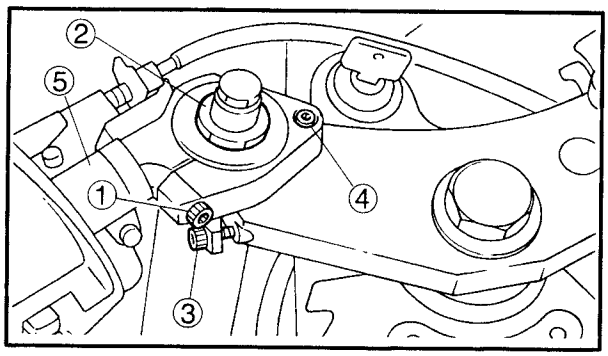
1. Stand the motorcycle on a level surface.

⚠ WARNING

Securely support the motorcycle so that there is no danger of it falling over.

NOTE:

Place the motorcycle on a suitable stand so that the front wheel is elevated.

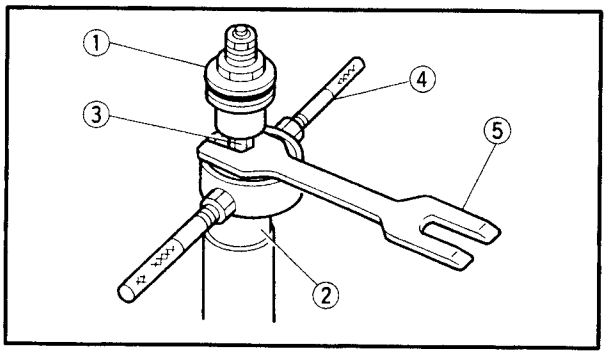


2. Loosen:
   - upper bracket pinch bolt ③
   - cap bolt ②
   - handlebar pinch bolt ①
   - lower bracket pinch bolt
   - upper bracket bolt ④
   - handlebar ⑤

⚠ WARNING

Before loosening the upper and lower bracket pinch bolts and handlebar pinch bolt, support the front fork leg.

3. Remove:
   - front fork leg



EAS00655

DISASSEMBLING THE FRONT FORK LEGS

The following procedure applies to both of the front fork legs.

1. Remove:
   - cap bolt ①
     (from the damper adjusting rod)
   - spacer ②
   - nut ③

▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼

a. Press down on the spacer with the fork spring compressor ④.
b. Install the rod holder ⑤ between the nut ③ and the spacer ②.

Fork spring compressor
90890-01441
Rod holder
90890-01434

NOTE:

Use the side of the rod holder that is marked "B".

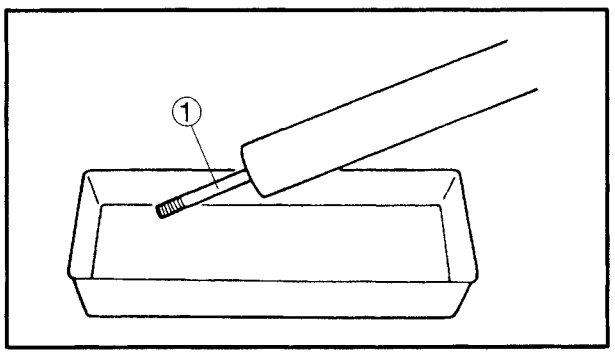
c. Loosen the nut.
d. Remove the cap bolt.
e. Remove the rod holder and fork spring compressor.

⚠ WARNING

The fork spring is compressed.

f. Remove the spacer and nut.
g. Remove the fork spring.

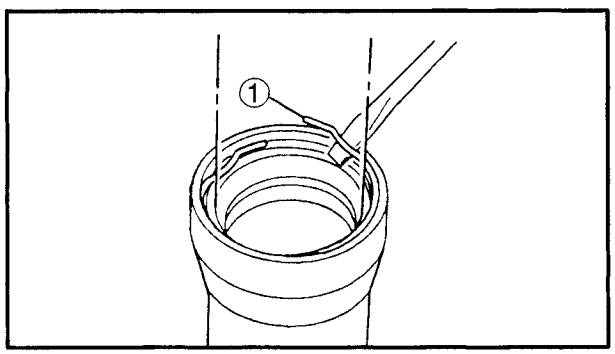
▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲



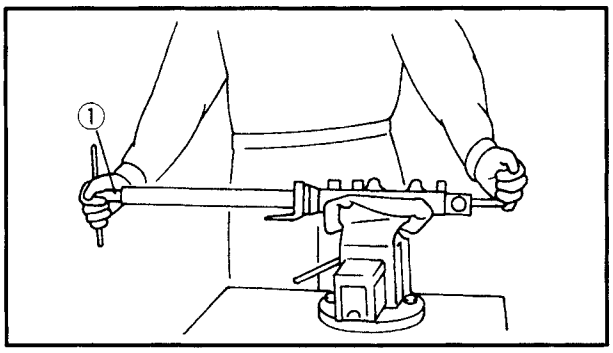
2. Drain:
   • fork oil

NOTE:

Stroke the damper rod ① several times while draining the fork oil.



3. Remove:
   • dust seal
   • oil seal clip ①
   • oil seal
   • washer
   (with a flat-head screwdriver)
   • Slide metal

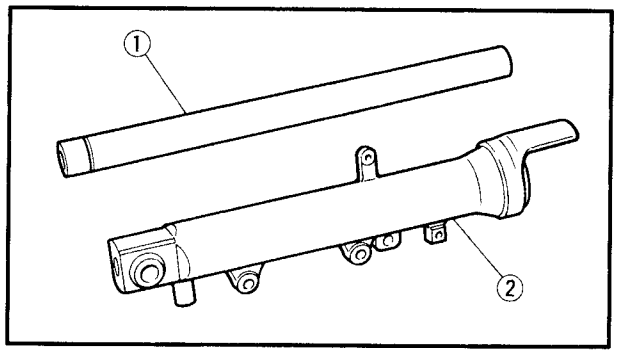


4. Remove:
   • damper rod assembly bolt
   • copper washer

NOTE:

While holding the damper rod with the damper rod holder ①, loosen the damper rod assembly bolt.

Damper rod holder
90890-01425, YM-01425



EAS00657

CHECKING THE FRONT FORK LEGS

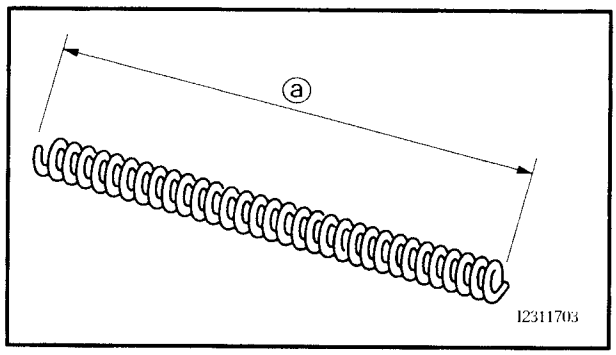
The following procedure applies to both of the front fork legs.

1. Check:
   - inner tube ①
   - outer tube ②

   Bends/damage/scratches → Replace.

⚠ WARNING

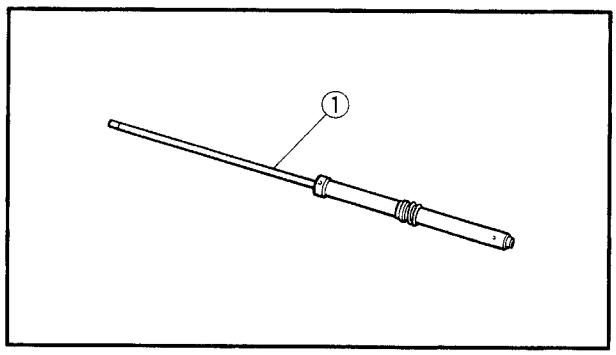
Do not attempt to straighten a bent inner tube as this may dangerously weaken it.



2. Measure:
   - spring free length ⓐ

   Out of specification → Replace.

Spring free length limit
251.8 mm (9.91 in)
<Limit>: 246 mm (9.69 in)

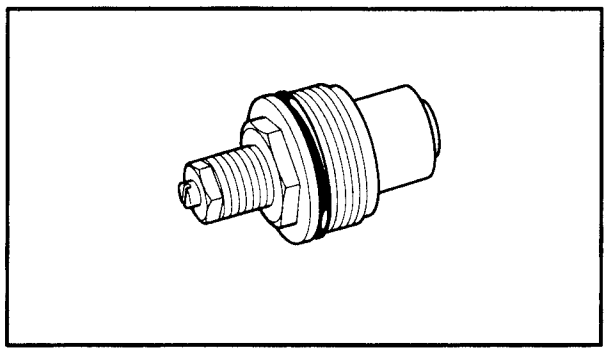


3. Check:
   - damper rod ①

   Damage/wear → Replace.
   Obstruction → Blow out all of the oil passages with compressed air.

CAUTION:

- **The front fork leg has a built-in damper adjusting rod and a very sophisticated internal construction, which are particularly sensitive to foreign material.**
- **When disassembling and assembling the front fork leg, do not allow any foreign material to enter the front fork.**



4. Check:
   • cap bolt O-ring
     Damage/wear → Replace.

EAS00661

ASSEMBLING THE FRONT FORK LEGS

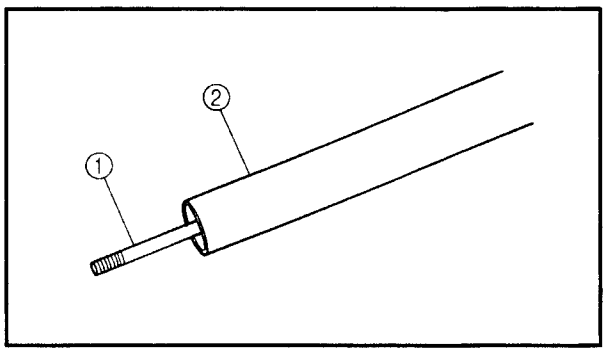
The following procedure applies to both of the front fork legs.

⚠ WARNING

• Make sure that the oil levels in both front fork legs are equal.
• Uneven oil levels can result in poor handling and a loss of stability.

NOTE:

- When assembling the front fork leg, be sure to replace the following parts:
  - inner tube bushing
  - outer tube bushing
  - oil seal
  - dust seal
- Before assembling the front fork leg, make sure that all of the components are clean.



1. Install:
   • oil lock piece
   • inner tube ②
   • damper rod assembly ①

⚠ WARNING

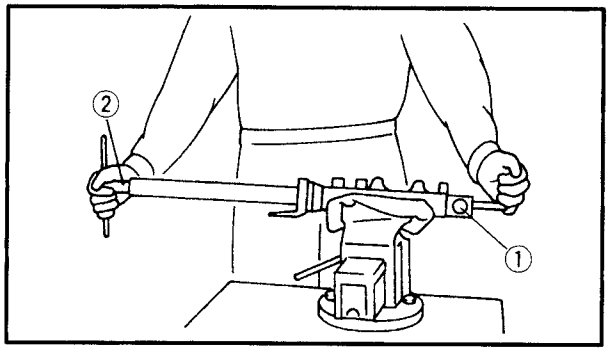
Always use new copper washers.

CAUTION:

Allow the damper rod assembly to slide slowly down the inner tube ② until it protrudes from the bottom of the inner tube. Be careful not to damage the inner tube.

2. Lubricate:
   • inner tube's outer surface

Recommended lubricant
Yamaha fork and suspension oil 01 or equivalent



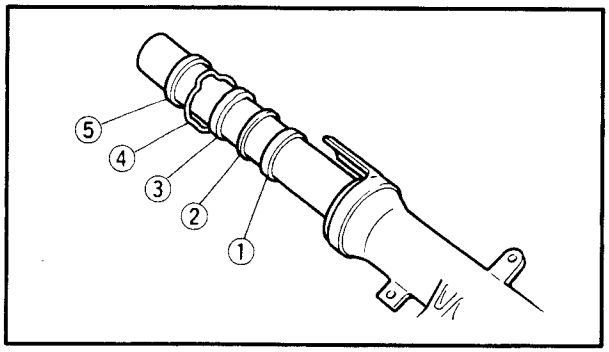
3. Tighten:
   • damper rod assembly bolt ①

40 Nm (4.0 m•kg, 29 ft•lb)

NOTE:

While holding the damper rod with the damper rod holder ②, tighten the damper rod assembly bolt.

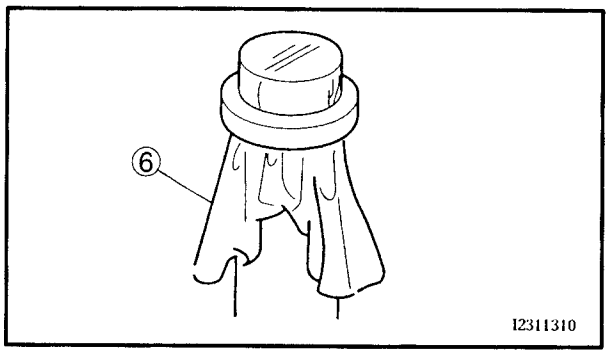
Damper rod holder **90890-01425, YM-01425**



4. Install:
   • outer tube bushing ①
   • washer ②
   • oil seal ③
   • oil seal clip ④
   • dust seal ⑤

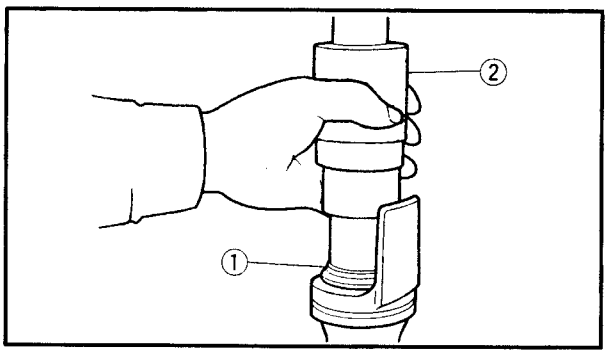
CAUTION:

Make sure that the numbered side of the oil seal faces up.



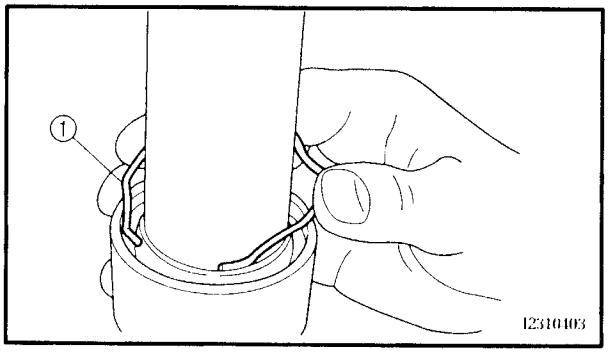
NOTE:

- Before installing the oil seal, lubricate its lips with lithium soap base grease.
- Lubricate the outer surface of the inner tube with fork oil.
- Before installing the oil seal, cover the top of the front fork leg with a plastic bag ⑥ to protect the oil seal during installation.



5. Install:
   • washer
   • oil seal ①
     (with the fork seal driver ②)

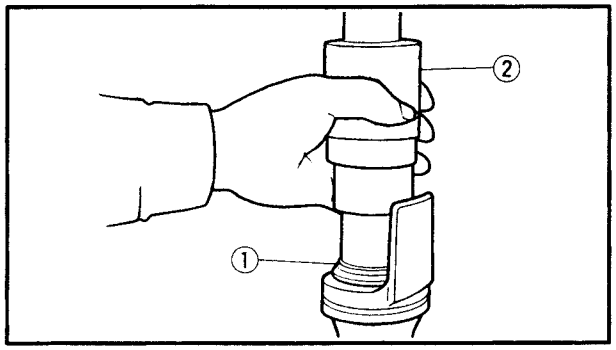
Fork seal driver weight **90890-01367, YM-33963** **Fork seal driver attachment** **90890-01374, YM-8020**



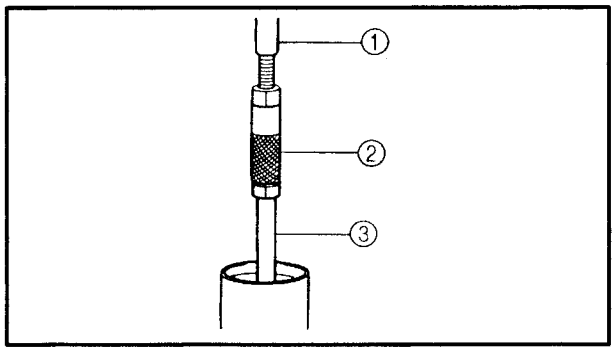
6. Install:
   • oil seal clip ①

NOTE:

Adjust the oil seal clip so that it fits into the outer tube's groove.



7. Install:
   • dust seal ①
   (with the fork seal driver ②)



8. Install:
   • rod puller ①
   • adapter ②
   (onto the damper rod ③)

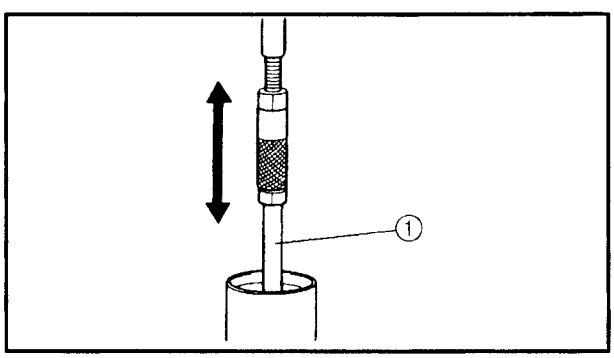
Rod puller
90890-01437, YM-01437
Adapter
90890-01436

9. Fully compress the front fork leg.
10. Fill:
    • front fork leg
    (with the specified amount of the recommended fork oil)

Quantity (each front fork leg)
476 cm³ (16.09356 US oz)
Recommended oil
Yamaha fork and suspension oil 01
or equivalent

CAUTION:

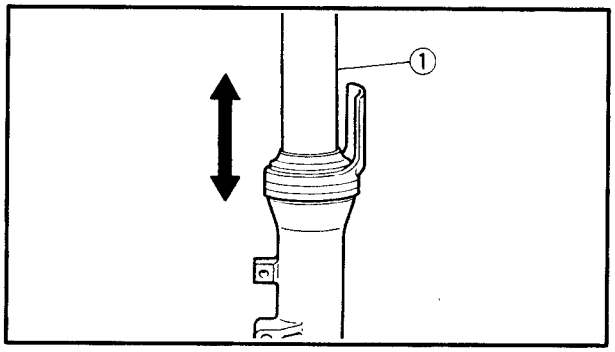
- **Be sure to use the recommended fork oil. Other oils may have an adverse effect on front fork performance.**
- **When disassembling and assembling the front fork leg, do not allow any foreign material to enter the front fork.**



11. After filling the front fork leg, slowly stroke the damper rod ① up and down (at least ten times) to distribute the fork oil.

NOTE:

Be sure to stroke the damper rod slowly because the fork oil may spurt out.



12. Slowly stroke the inner tube ① up and down to distribute the fork oil once more (1 stroke = about 100 mm (3.94 in)).

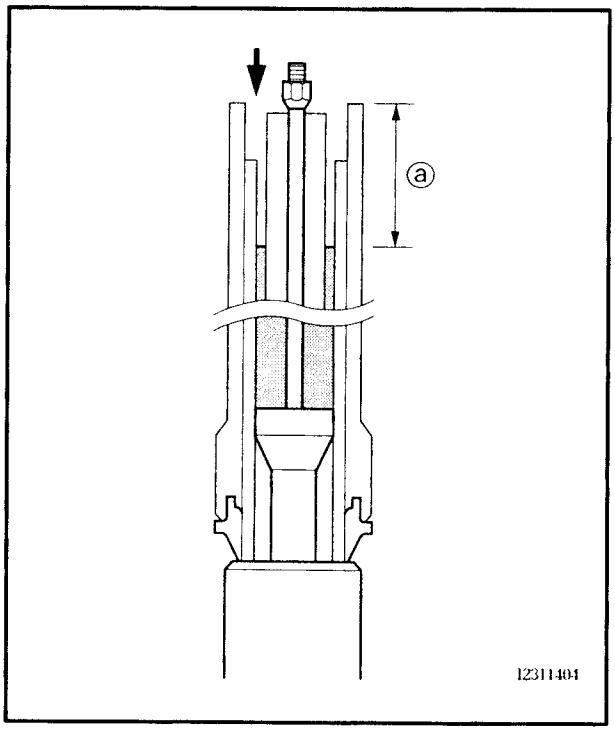
NOTE:

Be careful not to stroke the inner tube over 100 mm (3.94 in) as this will cause air to enter. If the inner tube is stroked more than 100 mm (3.94 in), repeat steps (12) and (13).

13. Before measuring the fork oil level, wait ten minutes until the oil has settled and the air bubbles have dispersed.

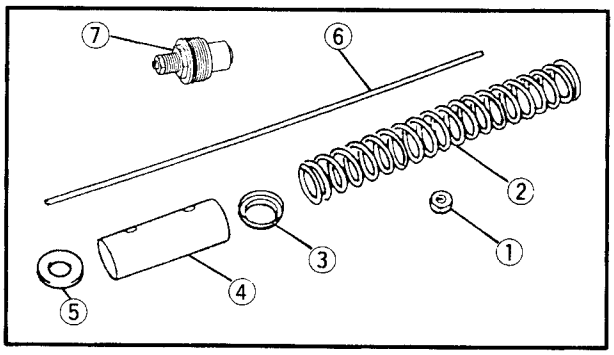
NOTE:

Be sure to bleed the front fork leg of any residual air.



14. Measure:
- front fork leg oil level ⓐ
  Out of specification → Correct.

Front fork leg oil level (from the top of the inner tube, with the inner tube fully compressed, and without the spring)
107 mm (4.21 in)



15. Install:
- nut ①
- fork spring ②
- washer ③
- spacer ④
- washer ⑤
- damper adjusting rod ⑥
- cap bolt ⑦

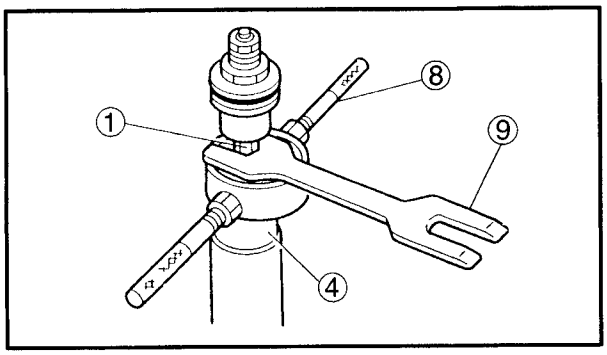
▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼

a. Remove the rod puller and adapter.
b. Install the nut.

c. Install the rod puller and adapter onto the damper rod.

Rod puller
90890-01437, YM-01437
Adapter
90890-01436

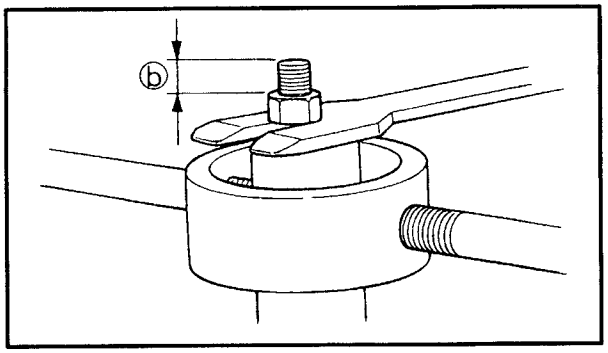
d. Install the fork spring, washers and spacer.
e. Press down on the spacer with the fork spring compressor ⑧.
f. Pull up the rod puller and install the rod holder ⑨ between the nut ① and the spacer ④.



NOTE:
Use the side of the rod holder that is marked "B".

Fork spring compressor
90890-01441
Rod holder
90890-01434

g. Remove the rod puller and adapter.
h. Install the nut ① and position it as specified ⓑ.



Distance ⓑ
25 mm (0.98 in)

i. Install the damper adjusting rod and cap bolt, and then finger tighten the cap bolt.
j. Hold the cap bolt and tighten the nut to specification.

Nut:
15 Nm (1.5 m•kg, 11 ft•lb)

k. Remove the rod holder and fork spring compressor.

⚠ WARNING

- **The fork spring is compressed.**
- **Always use a new cap bolt O-ring.**

▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲

16. Install:
- cap bolt
  (onto the inner tube)

NOTE:

Temporarily tighten the cap bolt.

EAS00662

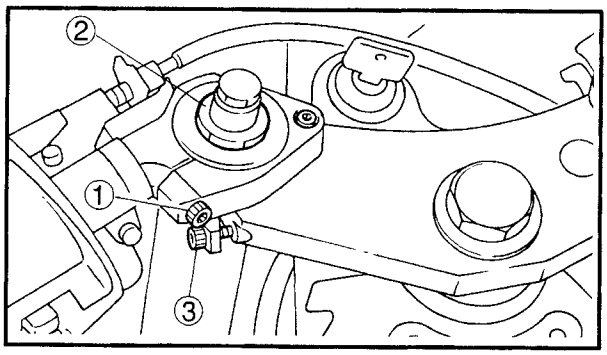
INSTALLING THE FRONT FORK LEGS

The following procedure applies to both of the front fork legs.

1. Install:
- front fork leg
  Temporarily tighten the upper and lower bracket pinch bolts.

NOTE:

Make sure that the inner fork tube is flush with the top of the handlebar.



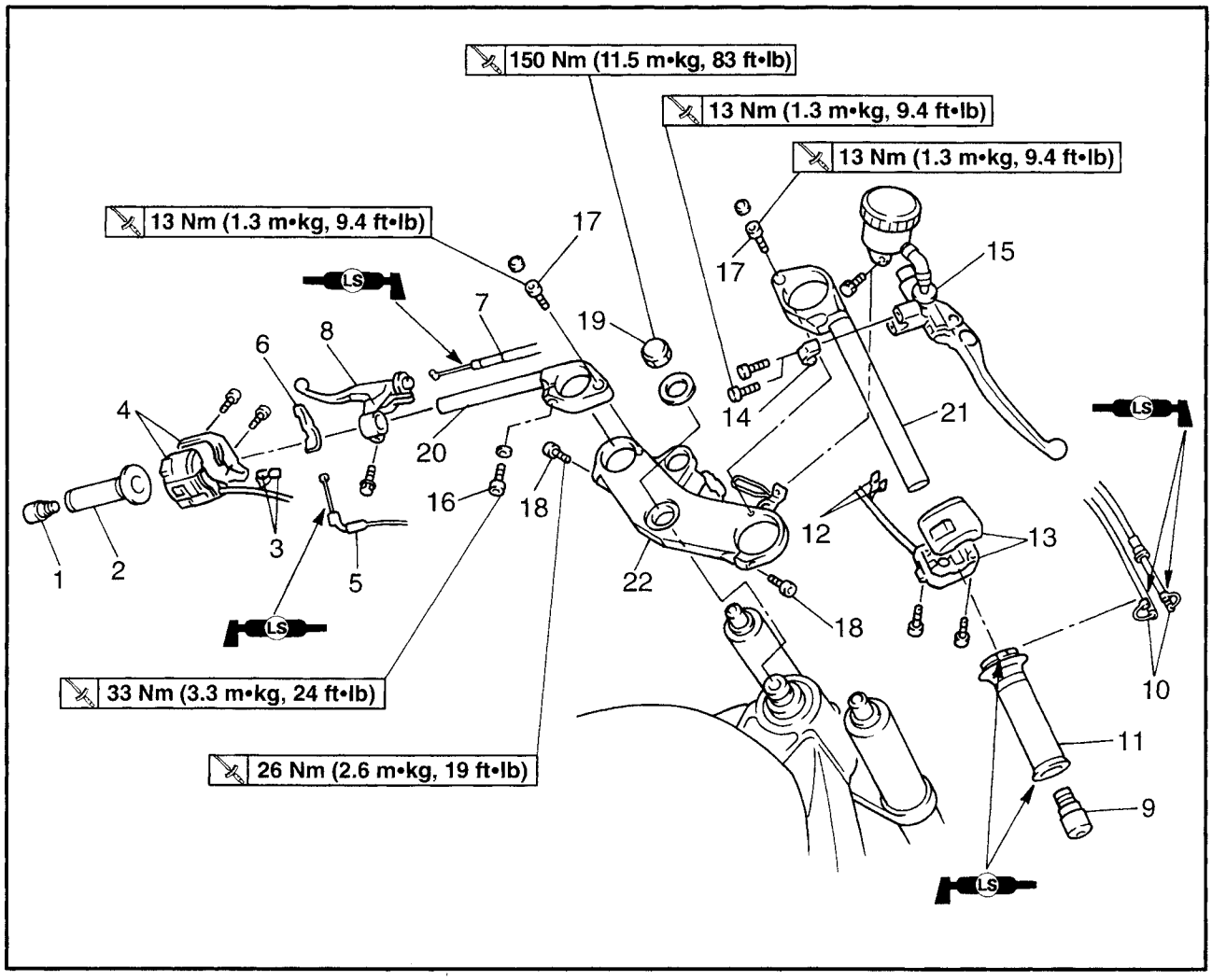
2. Tighten:
- lower bracket pinch bolt
  23 Nm (2.3 m•kg, 17 ft•lb)
- handlebar pinch bolt ①
  33 Nm (3.0 m•kg, 24 ft•lb)
- cap bolt ②
  23 Nm (2.3 m•kg, 17 ft•lb)
- upper bracket pinch bolt ③
  26 Nm (2.6 m•kg, 19 ft•lb)

⚠ WARNING

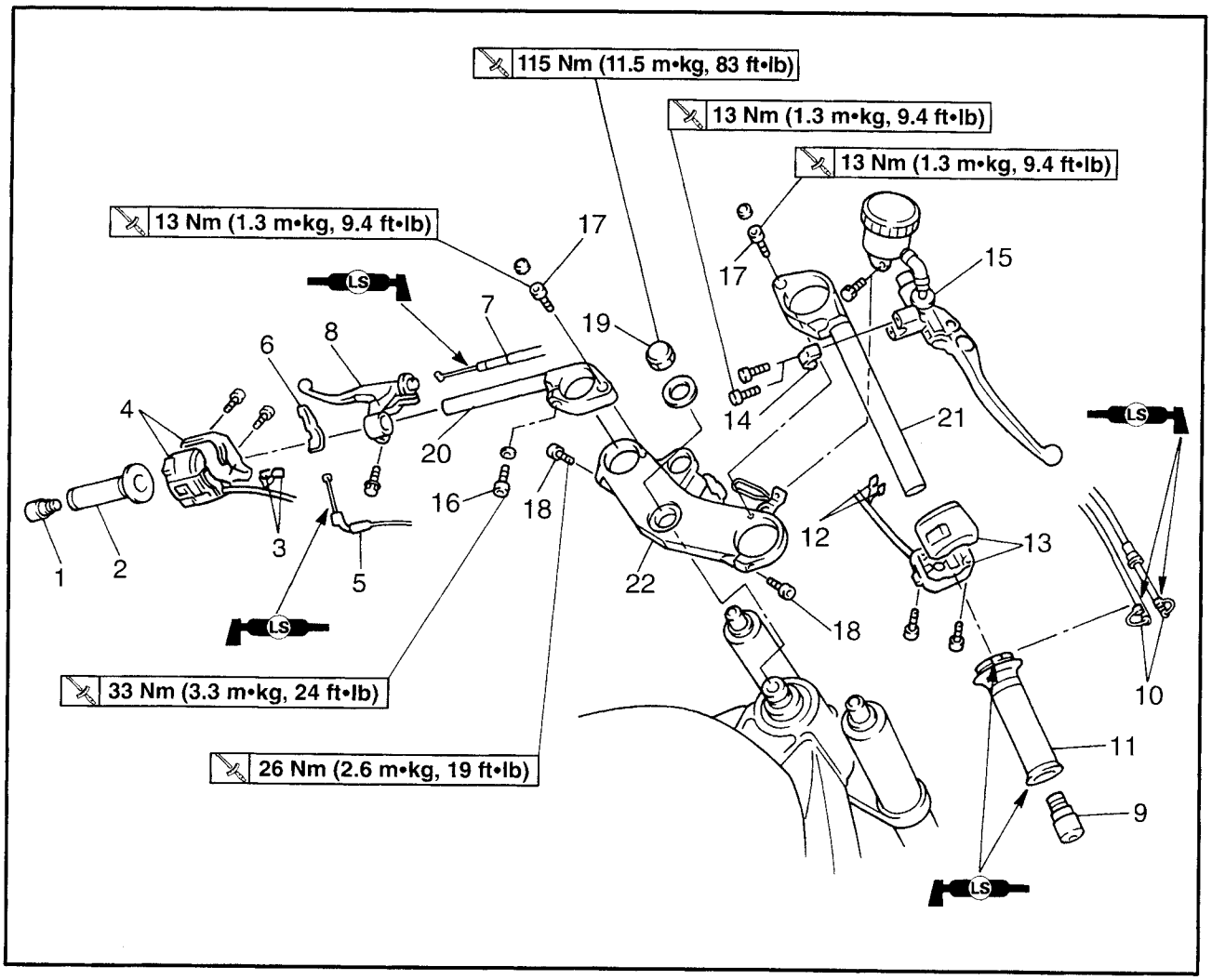
Make sure that the brake hoses are routed properly.

3. Adjust:
- spring preload
- rebound damping
- compression damping
  Refer to "ADJUSTING THE FRONT FORK LEGS" in chapter 3.

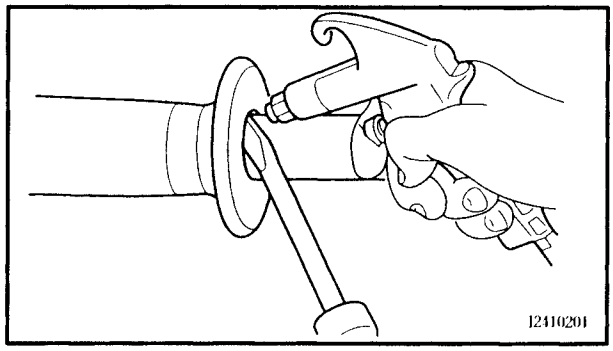
EAS00665
HANDLEBARS



Order	Job/Part	Q'ty	Remarks
	Removing the handlebars		Remove the parts in the order listed.
1	Left grip end	1	Refer to "REMOVING/INSTALLING THE HANDLEBARS".
2	Handlebar grip	1	
3	Clutch switch connector	2	Disconnect.
4	Left handlebar switch	1	Refer to "INSTALLING THE HANDLEBARS".
5	Starter cable	1	Disconnect.
6	Starter lever	1	
7	Clutch cable	1	Disconnect.
8	Clutch lever holder	1	
9	Right grip end	1	Refer to "INSTALLING THE HANDLEBARS".
10	Throttle cable	2	
11	Throttle grip	1	



Order	Job/Part	Q'ty	Remarks
12	Front brake switch connector	2	Disconnect.
13	Right handlebar switch	1	Refer tp "INSTALLING THE HANDLEBARS".
14	Brake master cylinder holder	1	
15	Brake master cylinder	1	
16	Handlebar pinch bolt	2	
17	Upper bracket bolt	2	
18	Upper bracket pinch bolt	2	
19	Steering stem nut	1	
20	Left handlebar	1	
21	Right handlebar	1	
22	Upper bracket	1	
			For installation, reverse the removal procedure.



EAS00667

REMOVING THE HANDLEBARS

1. Stand the motorcycle on a level surface.

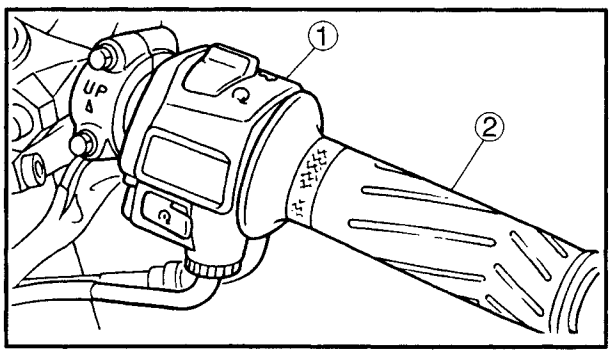
⚠ WARNING

Securely support the motorcycle so that there is no danger of it falling over.

2. Remove:
   - grip end
   - handlebar grip
   - left handlebar switch
   - clutch lever holder

NOTE:

Blow compressed air between the left handlebar and the handlebar grip, and gradually push the grip off the handlebar.



3. Remove:
   - grip end
   - right handle switch ①
   - throttle grip ②
   - right handlebar switch
   - brake master cylinder holder

EAS00669

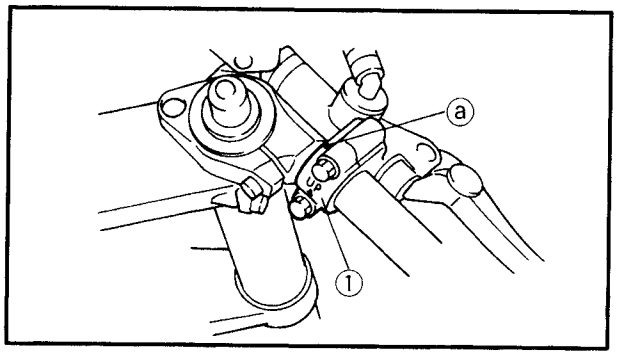
CHECKING THE HANDLEBARS

1. Check:
   - left handlebar
   - right handlebar

   Bends/cracks/damage → Replace.

⚠ WARNING

Do not attempt to straighten bent handlebars as this may dangerously weaken them.



EAS00674

INSTALLING THE HANDLEBARS

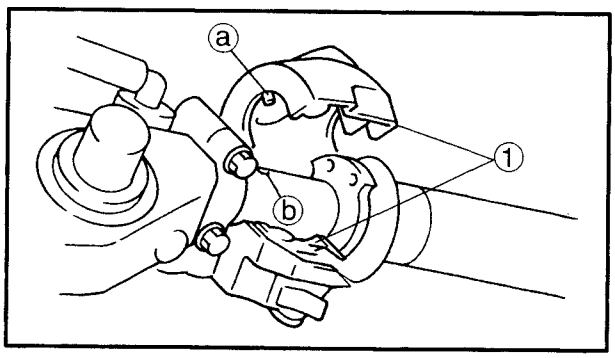
1. Install:
   - brake master cylinder holder ①

CAUTION:

- **Install the brake master cylinder holder with the "UP" mark facing up.**
- **First, tighten the upper bolt, then the lower bolt.**

NOTE:

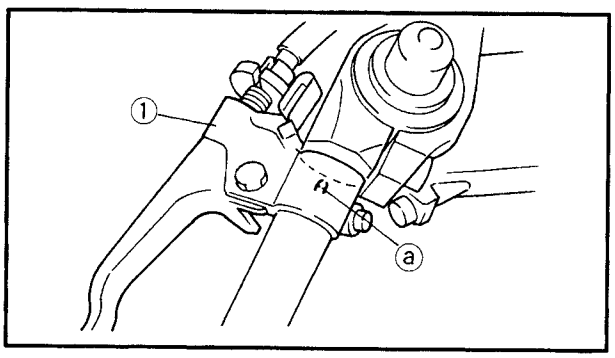
- Align the mating surfaces of the brake master cylinder holder with the punch mark ⓐ in the right handlebar.
- There should be 2 mm of clearance between the right handlebar switch and the brake master cylinder holder.



2. Install:
   - right handlebar switch ①
   - throttle cables
   - grip end

NOTE:

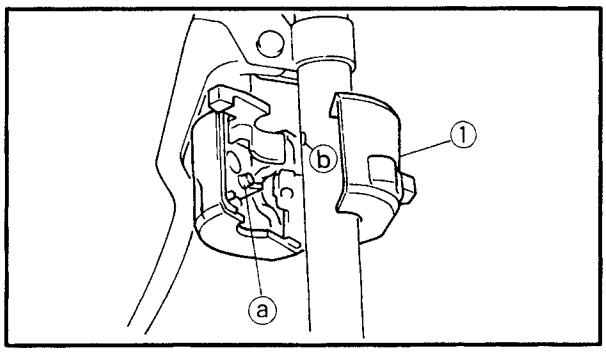
Align the projection ⓐ on the throttle cable housing with the hole ⓑ in the right handlebar.



3. Install:
   - clutch lever holder ①

NOTE:

Align the slit in the clutch lever holder with the punch mark ⓐ in the left handlebar.



4. Install:
   • left handlebar switch ①

NOTE:

Align the projection ⓐ on the left handlebar switch with the hole ⓑ in the left handlebar.

5. Install:
   • handlebar grip
   • grip end

▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼

a. Apply a thin coat of rubber adhesive onto the end of the left handlebar.
b. Slide the handlebar grip over the end of the left handlebar.
c. Wipe off any excess rubber adhesive with a clean rag.

⚠ WARNING

Do not touch the handlebar grip until the rubber adhesive has fully dried.

▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲

6. Adjust:
   • clutch cable free play
   Refer to "ADJUSTING THE CLUTCH CABLE FREE PLAY" in chapter 3.

Clutch cable free play (at the end of the clutch lever)
10 ~ 15 mm (0.39 ~ 0.59 in)

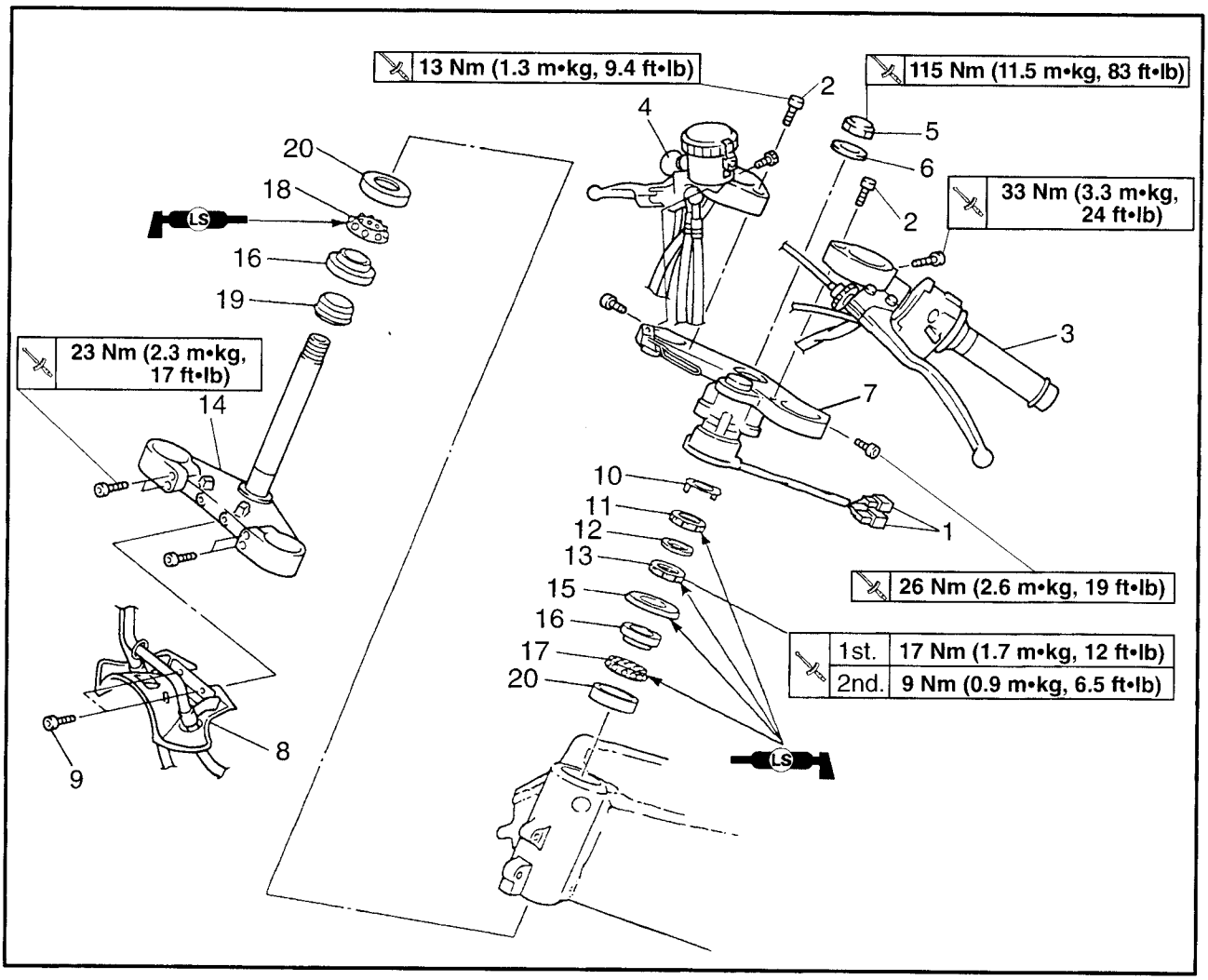
7. Adjust:
   • throttle cable free play
   Refer to "ADJUSTING THE THROTTLE CABLE FREE PLAY" in chapter 3.

Throttle cable free play (at the flange of the throttle grip)
6 ~ 8 mm (0.24 ~ 0.31 in)

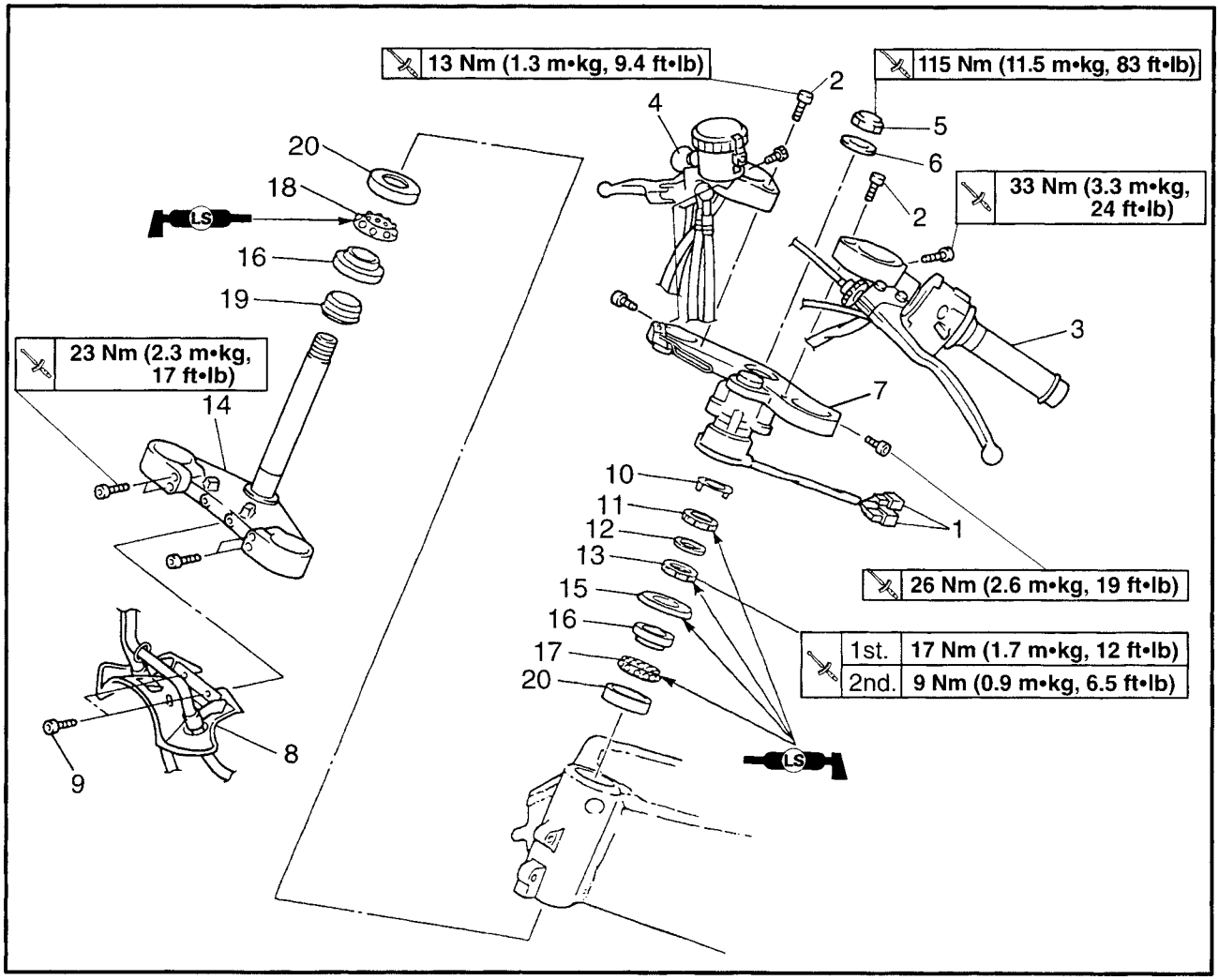
EAS00676

STEERING HEAD

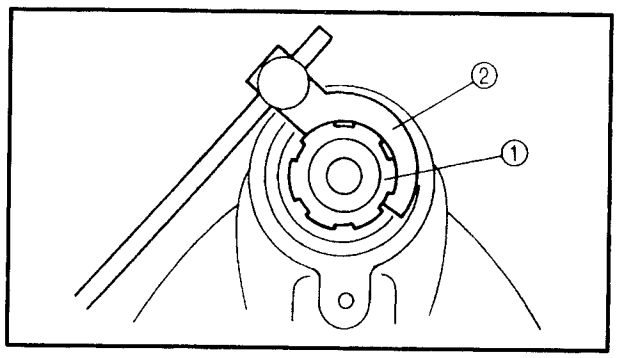
LOWER BRACKET



Order	Job/Part	Q'ty	Remarks
	Removing the lower bracket		Remove the parts in the order listed.
	Front wheel		Refer to "FRONT WHEEL AND BRAKE DISCS".
	Front fork legs		Refer to "FRONT FORK".
1	Main switch coupler	2	Disconnect.
2	Upper bracket bolt	2	
3	Left handlebar assembly	1	
4	Right handlebar assembly	1	
5	Steering stem nut	1	
6	Washer	1	
7	Upper bracket	1	
8	Lower bracket panel	1	
9	Brake hose holder bolt	2	
10	Lock washer	1	Refer to "CHECK AND ADJUSTING THE STEERING HEAD" in chapter 3.
11	Upper ring nut	1	
12	Rubber washer	1	



Order	Job/Part	Q'ty	Remarks
13	Lower ring nut	1	Refer to "CHECK AND ADJUSTING THE STEERING HEAD" in chapter 3.
14	Lower bracket	1	
15	Bearing cover	1	
16	Bearing inner race	2	
17	Upper bearing	1	
18	Lower bearing	1	
19	Dust seal	1	
20	Bearing outer race	2	
			For installation, reverse the removal procedure.



EAS00677

REMOVING THE LOWER BRACKET

1. Stand the motorcycle on a level surface.

⚠ WARNING

Securely support the motorcycle so that there is no danger of it falling over.

2. Remove:
   - front fork legs
   - steering stem nut
   - upper bracket
   - ring nuts ①

   (with the special tool ②)

	Ring nut wrench **90890-01403, YU-33975**

⚠ WARNING

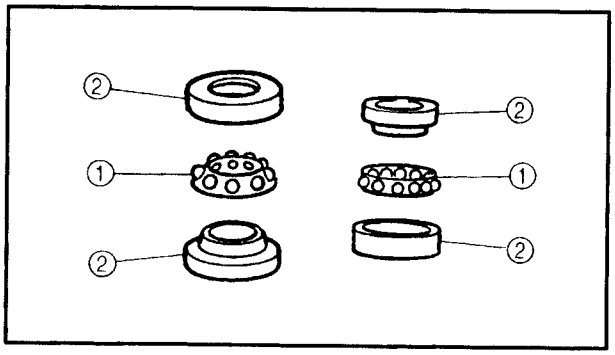
Securely support the lower bracket so that there is no danger of it falling.

EAS00682

CHECKING THE STEERING HEAD

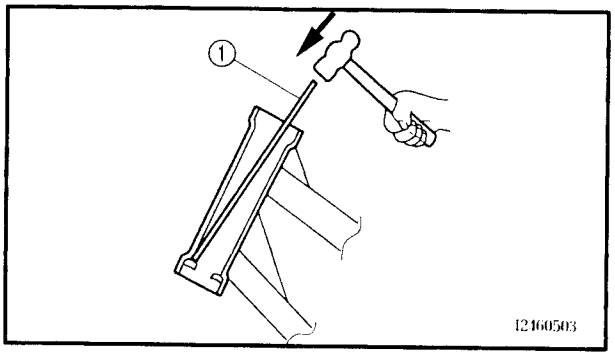
1. Wash:
   - bearing balls
   - bearing races

	Recommended cleaning solvent **Kerosine**



2. Check:
   - bearing balls ①
   - bearing races ②

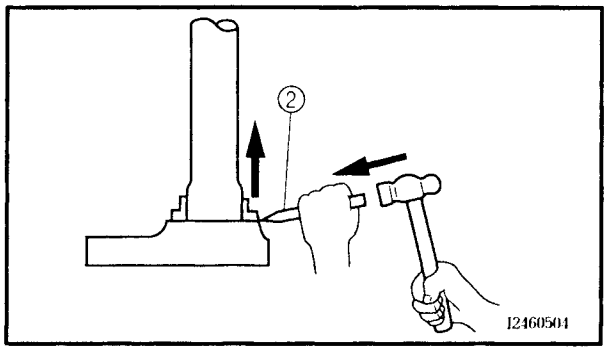
   Damage/pitting → Replace.



3. Replace:
   - bearing balls
   - bearing races

▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼

a. Remove the bearing races from the steering head pipe with a long rod ① and hammer.



b. Remove the bearing race from the lower bracket with a floor chisel ② and hammer.
c. Install a new dust seal and new bearing races.

CAUTION:

If the bearing race is not installed properly, the steering head pipe could be damaged.

NOTE:

- Always replace the bearing balls and bearing races as a set.
- Whenever the steering head is disassembled, replace the dust seal.

▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲

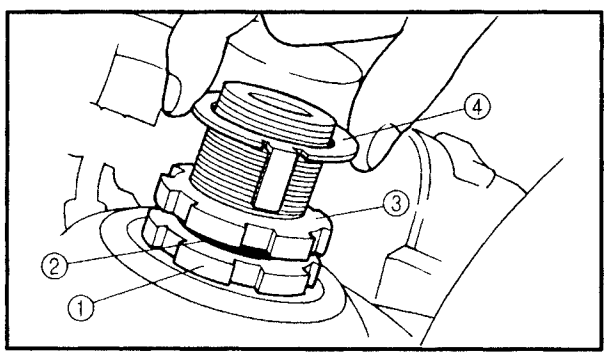
4. Check:
   - upper bracket
   - lower bracket
   (along with the steering stem)
   Bends/cracks/damage → Replace.

EAS00683

INSTALLING THE STEERING HEAD

1. Lubricate:
   - upper bearing
   - lower bearing
   - bearing races

	Recommended lubricant **Lithium soap base grease**



2. Install:
   - bearing
   - bearing cover
   - lower ring nut ①
   - rubber washer ②
   - upper ring nut ③
   - lock washer ④
   Refer to "CHECKING AND ADJUSTING THE STEERING HEAD" in chapter 3.

3. Install:
   - upper bracket
   - steering stem nut

NOTE:

Temporarily tighten the steering stem nut.

4. Install:
   - front fork legs
     Refer to "FRONT FORK".

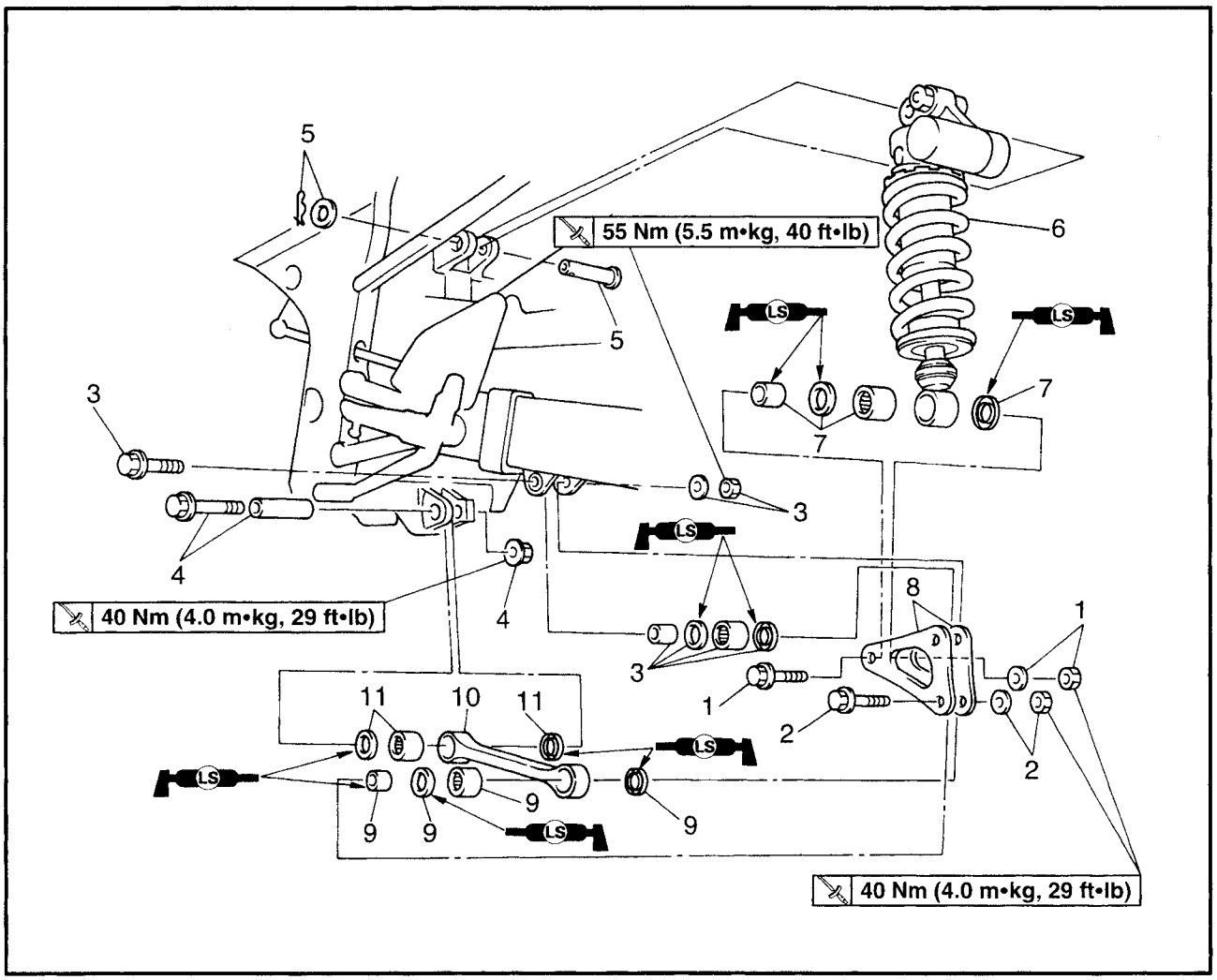
NOTE:

Temporarily tighten the upper and lower bracket pinch bolts, and handlebar pinch bolts.

5. Tighten:
   - steering stem nut
     115 Nm (11.5 m•kg, 83 ft•lb)
   - lower bracket pinch bolt
     23 Nm (2.3 m•kg, 17 ft•lb)
   - upper bracket pinch bolt
     26 Nm (2.6 m•kg, 19 ft•lb)
   - upper bracket bolt
     13 Nm (1.3 m•kg, 9.4 ft•lb)
   - handlebar pinch bolt
     33 Nm (3.3 m•kg, 24 ft•lb)

EAS00685

REAR SHOCK ABSORBER ASSEMBLY



Order	Job/Part	Q'ty	Remarks
	Removing the rear shock absorber assembly		Remove the parts in the order listed.
	Rear wheel		Refer to "REMOVING THE REAR WHEEL".
1	Self-locking nut/bolt	1/1	
2	Self-locking nut/bolt	1/1	
3	Self-locking nut/bolt/coller	1/1/1	Refer to "REMOVING THE REAR SHOCK ABSORBER ASSEMBLY".
4	Self-locking nut/bolt	1/1	
5	Pin/clip/washer	1/1/1	
6	Rear shock absorber assembly	1	
7	Coller/oil seal/bearing	1/2/1	
8	Relay arm	2	
9	Coller/oil seal/bearing	1/2/1	
10	Connecting arm	1	
11	Coller/oil seal/bearing	1/2/1	
			For installation, reverse the removal procedure.

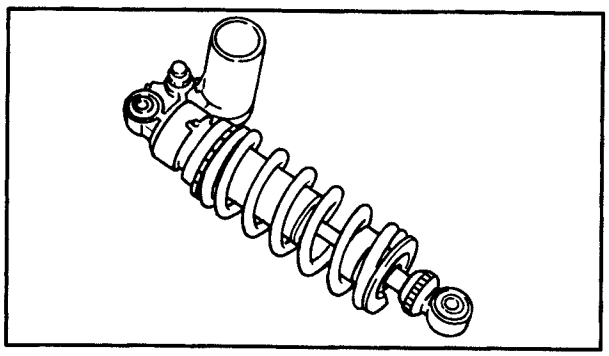
EAS00687

HANDLING THE REAR SHOCK ABSORBER AND GAS CYLINDER

⚠ WARNING

This rear shock absorber and gas cylinder contain highly compressed nitrogen gas. Before handling the rear shock absorber or gas cylinder, read and make sure you understand the following information. The manufacturer cannot be held responsible for property damage or personal injury that may result from improper handling of the rear shock absorber and gas cylinder.

- **Do not tamper or attempt to open the rear shock absorber or gas cylinder.**
- **Do not subject the rear shock absorber or gas cylinder to an open flame or any other source of high heat. High heat can cause an explosion due to excessive gas pressure.**
- **Do not deform or damage the rear shock absorber or gas cylinder in any way. If the rear shock absorber, gas cylinder or both are damaged, damping performance will suffer.**



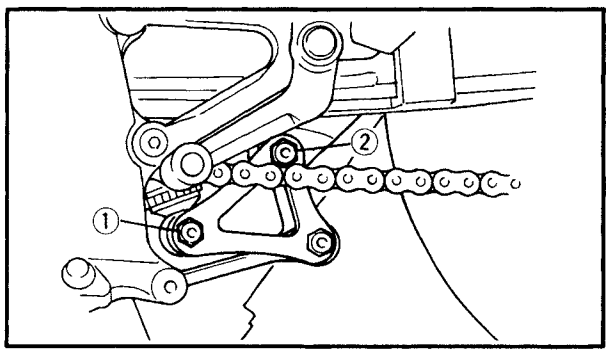
EAS00689

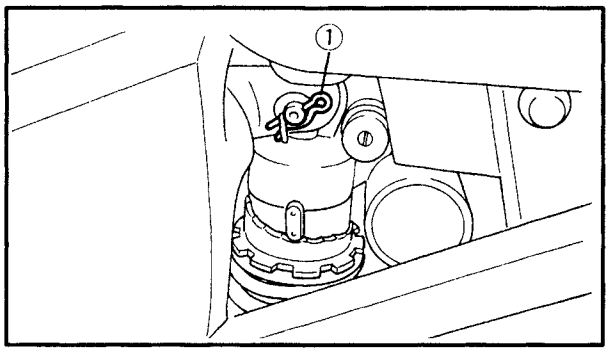
DISPOSING OF A REAR SHOCK ABSORBER AND GAS CYLINDER

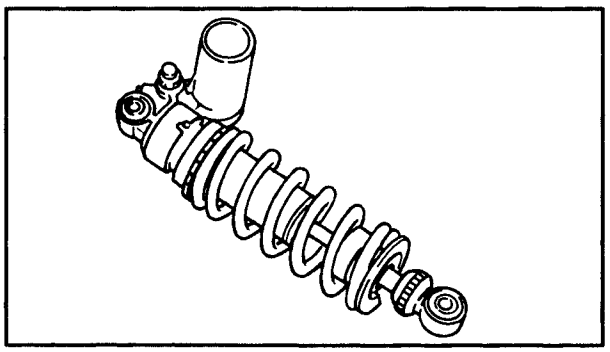
Gas pressure must be released before disposing of a rear shock absorber and gas cylinder. To release the gas pressure, press on the gas valve needle with a suitable tool as shown, until all of the gas is released (the hissing has stopped).

⚠ WARNING

Wear eye protection to prevent eye damage from released gas or metal chips.







EAS00694

REMOVING THE REAR SHOCK ABSORBER ASSEMBLY

1. Stand the motorcycle on a level surface.

⚠ WARNING

Securely support the motorcycle so that there is no danger of it falling over.

NOTE:

Place the motorcycle on a suitable stand so that the rear wheel is elevated.

2. Remove:
   - rear wheel
   - rear shock absorber assembly lower bolt ①
   - relay-arm-to-swingarm bolt ②

NOTE:

While removing the rear shock absorber assembly lower bolt, hold the swingarm so that it does not drop down.

3. Remove:
   - rear shock absorber assembly upper bin ①
   - rear shock absorber assembly

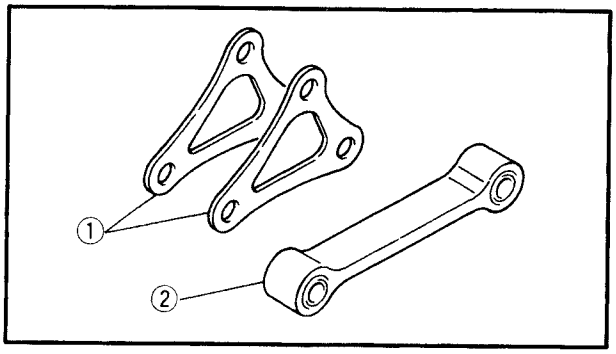
NOTE:

Raise the swingarm and then remove the rear shock absorber assembly from between the swingarm.

EAS00696

CHECKING THE REAR SHOCK ABSORBER ASSEMBLY AND GAS CYLINDER

1. Check:
   - rear shock absorber rod
     Bends/damage → Replace the rear shock absorber assembly.
   - rear shock absorber
     Gas leaks/oil leaks → Replace the rear shock absorber assembly.
   - spring
     Damage/wear → Replace the rear shock absorber assembly.
   - gas cylinder
     Damage/gas leaks → Replace.
   - bushings
     Damage/wear → Replace.
   - dust seals
     Damage/wear → Replace.
   - bolts
     Bends/damage/wear → Replace.



CHECKING THE RELAY ARM AND CONNECTING ARM

1. Check:
   - relay arm ①
   - connecting arm ②

   Damage/wear → Replace.
   - bearings
   - oil seals

   Damage/pitting → Replace.
   - spacers

   Damage/scratches → Replace.

EAS00698

INSTALLING THE REAR SHOCK ABSORBER ASSEMBLY

1. Lubricate:
   - bearings
   - oil seals
   - spacers

	Recommended lubricant **Lithium soap base grease**

2. Install:
   - connecting arm
   - relay arm
   - rear shock absorber assembly

NOTE:

When installing the rear shock absorber assembly, lift up the swingarm.

3. Tighten:
   - connecting-arm-to-frame nut

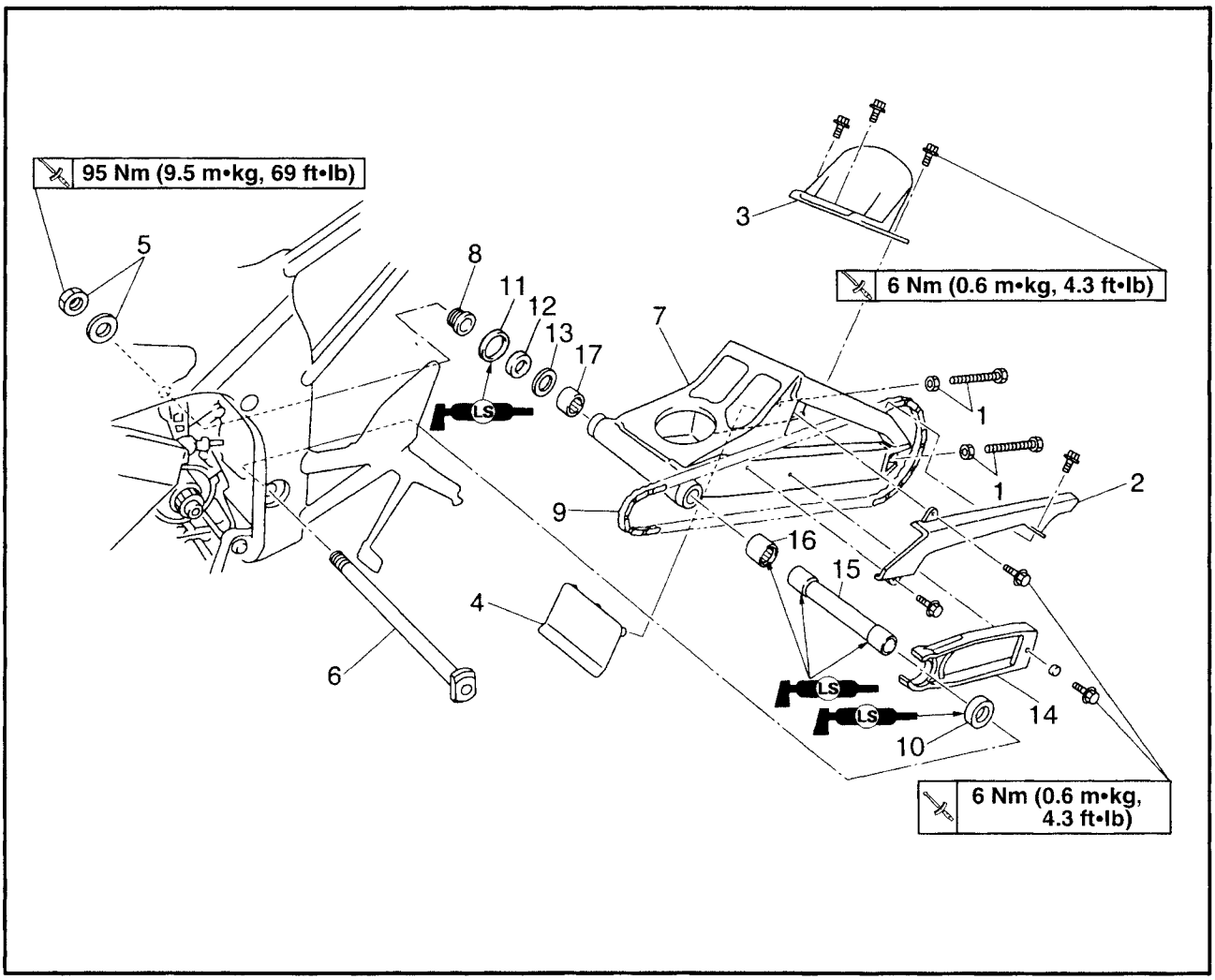
     40 Nm (4.0 m•kg, 29 ft•lb)
   - relay-arm-to-connecting-arm nut

     40 Nm (4.0 m•kg, 29 ft•lb)
   - relay-arm-to-swingarm nut

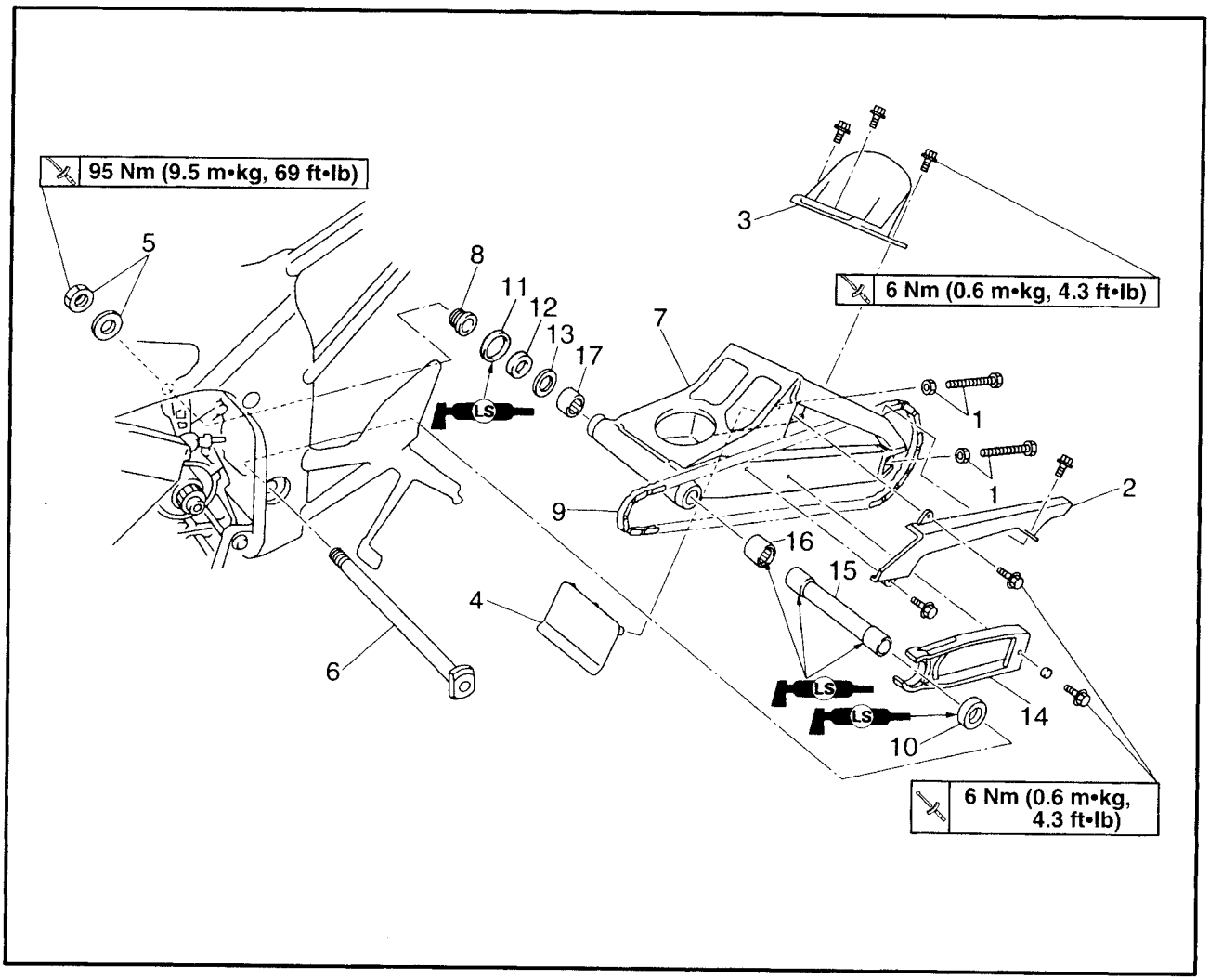
     40 Nm (4.0 m•kg, 29 ft•lb)
   - rear shock absorber assembly lower nut

     55 Nm (5.5 m•kg, 40 ft•lb)

EAS00700
SWINGARM AND DRIVE CHAIN



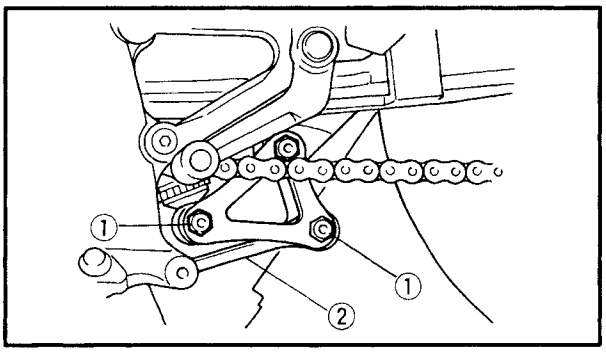
Order	Job/Part	Q'ty	Remarks
	Removing the swingarm and drive chain		Remove the parts in the order listed.
	Drive sprocket		Refer to "ENGINE" in chapter 4.
	Rear wheel		Refer to "REAR WHEEL, BRAKE DISC, AND REAR WHEEL SPROCKET".
	Rear shock absorber assembly		Refer to "REAR SHOCK ABSORBER ASSEMBLY".
1	Adjusting bolt/locknut	2/2	
2	Drive chain guard	1	
3	Rear fender	1	
4	Flap	1	
5	Pivot shaft nut/washer	1/1	
6	Pivot shaft	1	
7	Swingarm	1	



Order	Job/Part	Q'ty	Remarks
8	Pivot shaft adjust bolt	2	Refer to "REMOVING/INSTALLING THE SWINGARM".
9	Drive chain	1	
10	Dust cover	1	
11	Oil seal	1	
12	Bush	1	
13	Shim	1	
14	Drive chain guide	1	
15	Bush	1	
16	Left bearing	1	
17	Right bearing	1	
			For installation, reverse the removal procedure.

NOTE:

Before removing the drive sprocket, drive chain, and rear wheel, measure the drive chain slack and the length of a tenlink section of the drive chain.



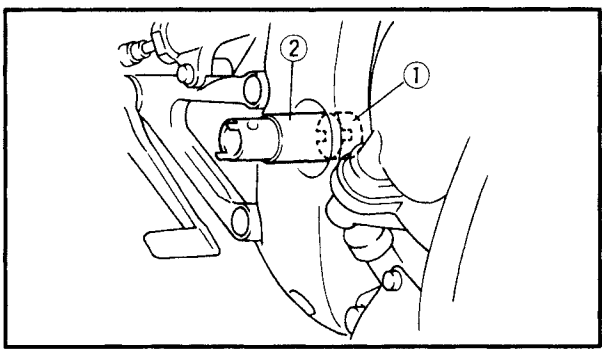
EC573000

REMOVING THE SWINGARM

1. Remove:
   - Bolt (connecting rod) ①
   - Connecting rod ②

NOTE:

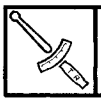
Remove the bolt while holding the swingarm.



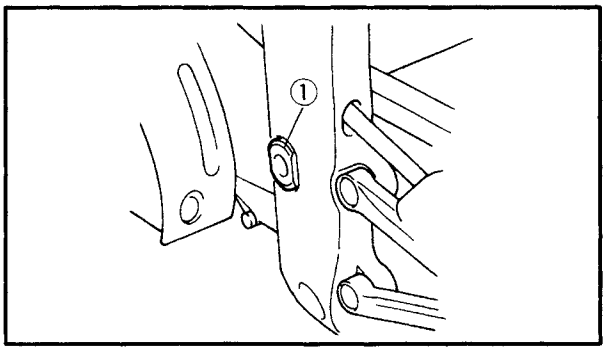
2. Loosen:
   - Pivot shaft adjust bolt ①

NOTE:

Loosen the pivot shaft adjust bolt using a pivot shaft wrench ②



Pivot shaft wrench:
90890-01471, YM-01471



3. Remove:
   - Pivot shaft ①
   - Swingarm

EAS00704

REMOVING THE DRIVE CHAIN

1. Remove:
   - drive chain

NOTE:

When replacing the swingarm, the drive chain is cut.

EAS00703

CHECKING THE SWINGARM

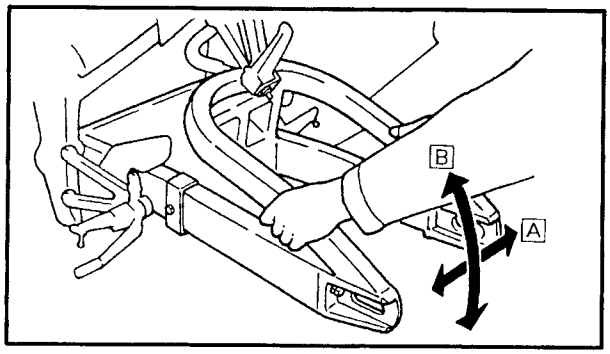
1. Stand the motorcycle on a level surface.

⚠ WARNING

Securely support the motorcycle so that there is no danger of it falling over.

NOTE:

Place the motorcycle on a suitable stand so that the rear wheel is elevated.



2. Measure:
   - swingarm side play
   - swingarm vertical movement

▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼

a. Measure the tightening torque of the pivot shaft nut.

	Pivot shaft nut **95 Nm (9.5 m•kg, 69 ft•lb)**

b. Measure the swingarm side play [A] by moving the swingarm from side to side.

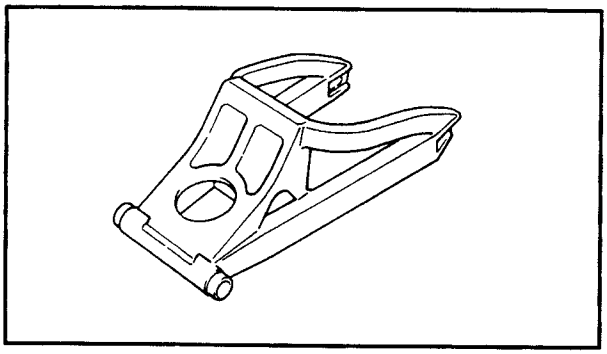
c. If the swingarm side play is out of specification, check the spacers, bearings, washers, and dust covers.

	Swingarm side play (at the end of the swingarm) **1.0 mm (0.04 in)**

d. Check the swingarm vertical movement [B] by moving the swingarm up and down.

If swingarm vertical movement is not smooth or if there is binding, check the spacers, bearings, washers, and bust covers.

▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲

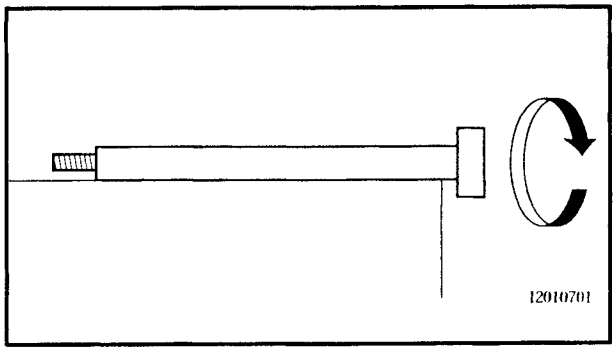


3. Check:
   - swingarm

   Bends/cracks/damage → Replace.

NOTE:

If the swingarm must be replaced, the drive chain must be cut with a drive chain cutter.



4. Check:
   • pivot shaft
   Roll the pivot shaft on a flat surface.
   Bends → Replace.

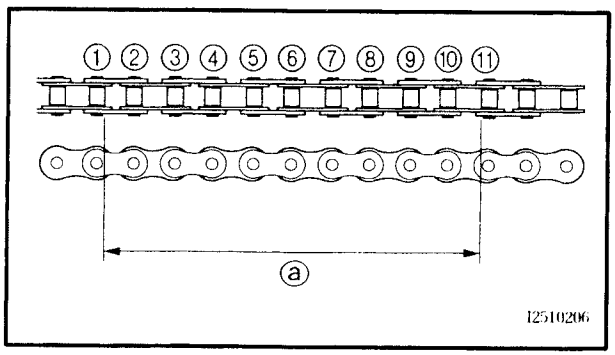
⚠ WARNING

Do not attempt to straighten a bent pivot shaft.

5. Wash:
   • pivot shaft
   • pivot shaft adjust bolt
   • dust covers
   • spacer
   • bearings

Recommended cleaning solvent
Kerosine

6. Check:
   • dust covers
   • spacer
   • oil seals
   Damage/wear → Replace.
   • bearings
   Damage/pitting → Replace.



EAS00709

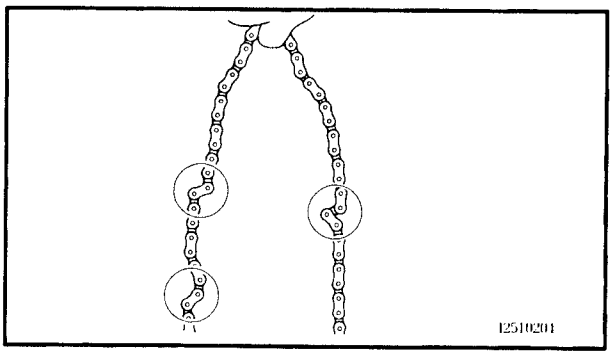
CHECKING THE DRIVE CHAIN

1. Measure:
   • ten-link section ⓐ of the drive chain
   Out of specification → Replace the drive chain.

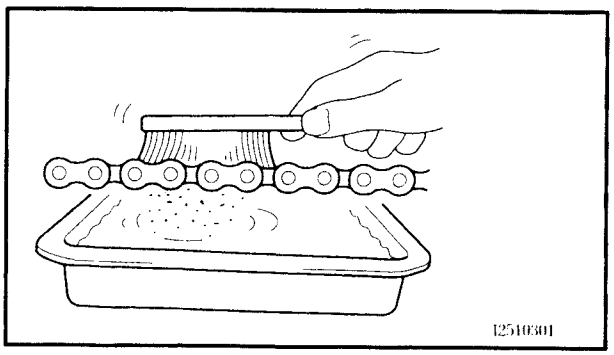
Max. ten-link drive chain section
149 mm (5.87 in)

NOTE:

- While measuring the ten-link section, push down on the drive chain to increase its tension.
- Measure the length between drive chain roller ① and ⑪ as shown.
- Perform this measurement at two or three different places.



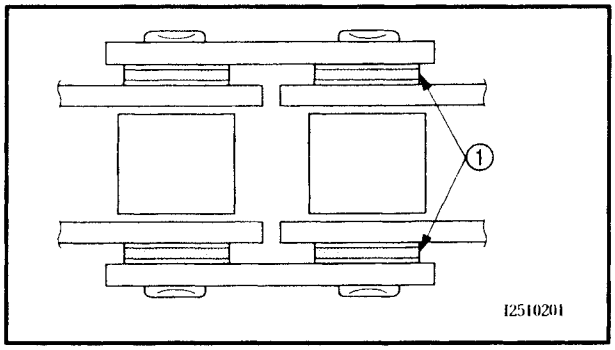
2. Check:
   • drive chain
   Stiffness → Clean and lubricate or replace.



3. Clean:
   • drive chain

▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼

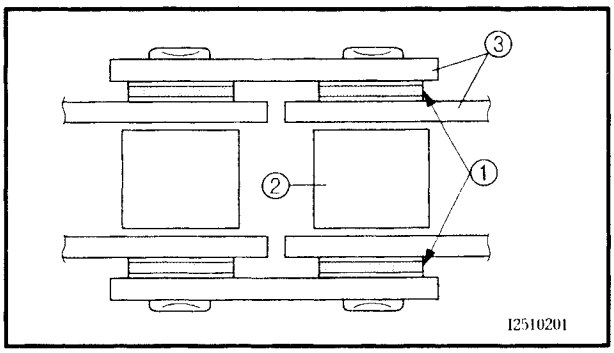
a. Wipe the drive chain with a clean cloth.
b. Put the drive chain in kerosine and remove any remaining dirt.



c. Remove the drive chain from the kerosine and completely dry it.

CAUTION:

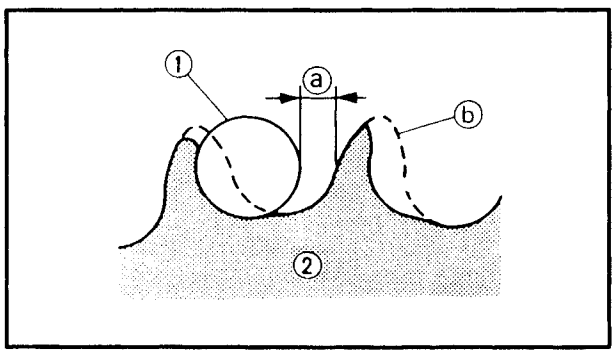
This motorcycle has a drive chain with small rubber O-rings ① between the drive chain side plates. Never use high-pressure water or air, steam, gasoline, certain solvents (e.g., benzine), or a coarse brush to clean the drive chain.
High-pressure methods could force dirt or water into the drive chain's internals, and solvents will deteriorate the O-rings. A coarse brush can also damage the O-rings. Therefore, use only kerosine to clean the drive chain.
Don't soak drive drain in kerosine more them ten minutes. O-ring is damage by kerosine.



4. Check:
   - O-rings ①
     Damage → Replace the drive chain.
   - drive chain rollers ②
     Damage/wear → Replace the drive chain.
   - drive chain side plates ③
     Cracks/damage/wear → Replace the drive chain.

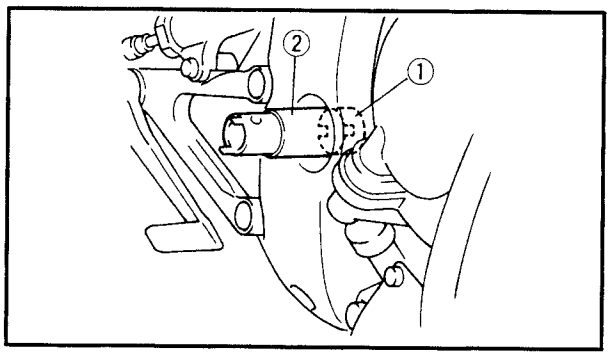
5. Lubricate:
   - drive chain

Recommended lubricant
Engine oil or chain lubricant suitable for O-ring chains



6 Check:
   - drive sprocket
   - rear wheel sprocket
     More than 1/4 tooth ⓐ wear → Replace the drive chain sprockets as a set.
     Bent teeth → Replace the drive chain sprockets as a set.

ⓑ Correct
① Drive chain roller
② Drive chain sprocket



EAS00711
INSTALLING THE SWINGARM

1. Lubricate:
   - bearings
   - spacers
   - dust covers
   - pivot shaft

Recommended lubricant
Lithium soap base grease

2. Install:
   - swingarm
   - pivot shaft
   - washer
   - pivot shaft adjust bolt ①
   - pivot shaft nut **95 Nm (9.5 m•kg, 69 ft•lb)**

NOTE:

Use the pivot shaft wrench ② to tighten the pivot adjust bolt to finger tightness.

Pivot shaft wrench:
90890-01471, YM-01471

3. Install:
   - rear shock absorber assembly
   - rear wheel

   Refer to "REAR SHOCK ABSORBER ASSEMBLY" and "REAR WHEEL".
4. Adjust:
   - drive chain slack

   Refer to "ADJUSTING THE DRIVE CHAIN SLACK" in chapter 3.

Drive chain slack
40 ~ 50 mm (1.5 ~ 1.97 in)

EAS00713
INSTALLING THE DRIVE CHAIN

1. Lubricate:
   - drive chain
2. Install:
   - drive chain

   (with the drive chain riveter)