



CHAPTER 7. CHASSIS

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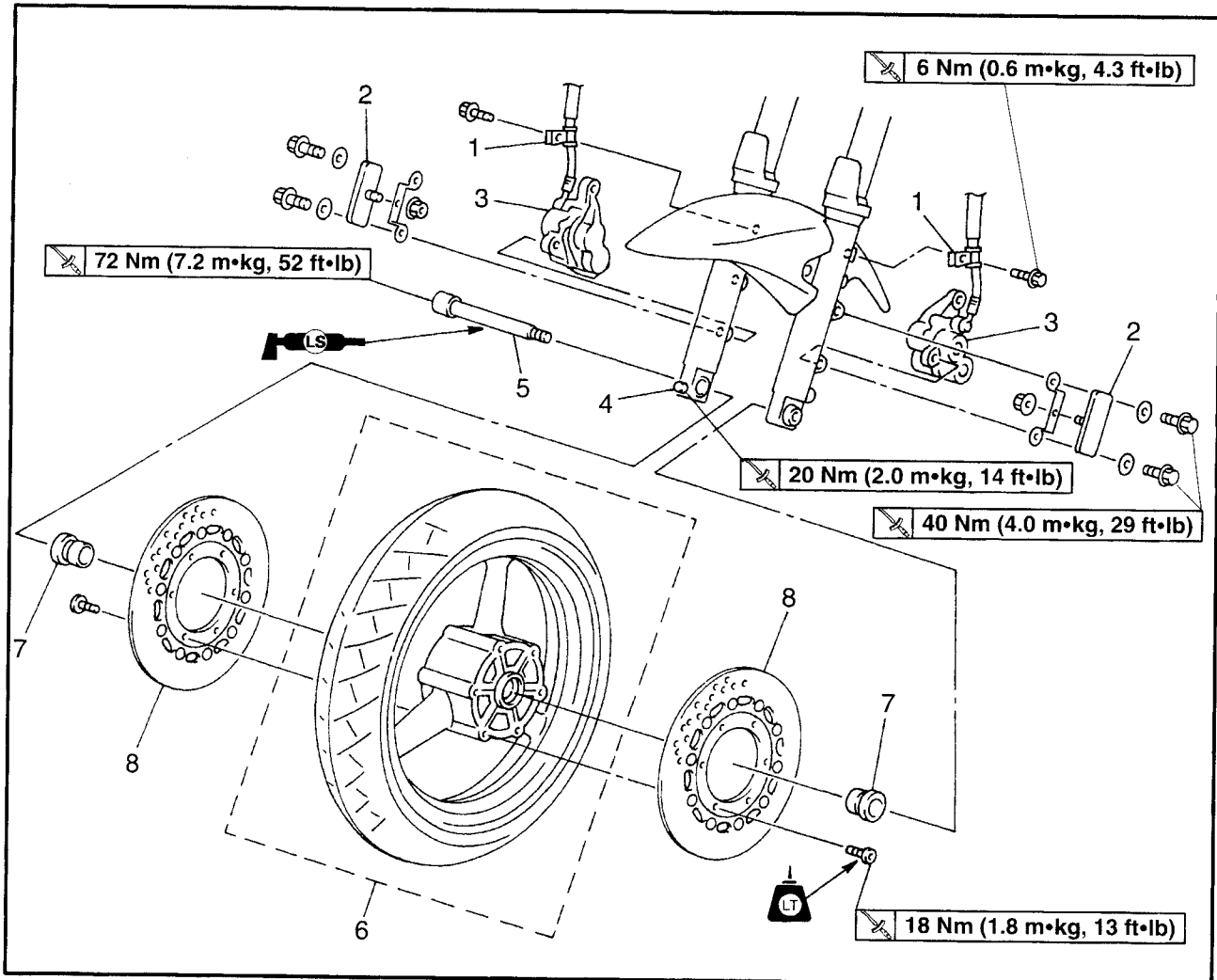


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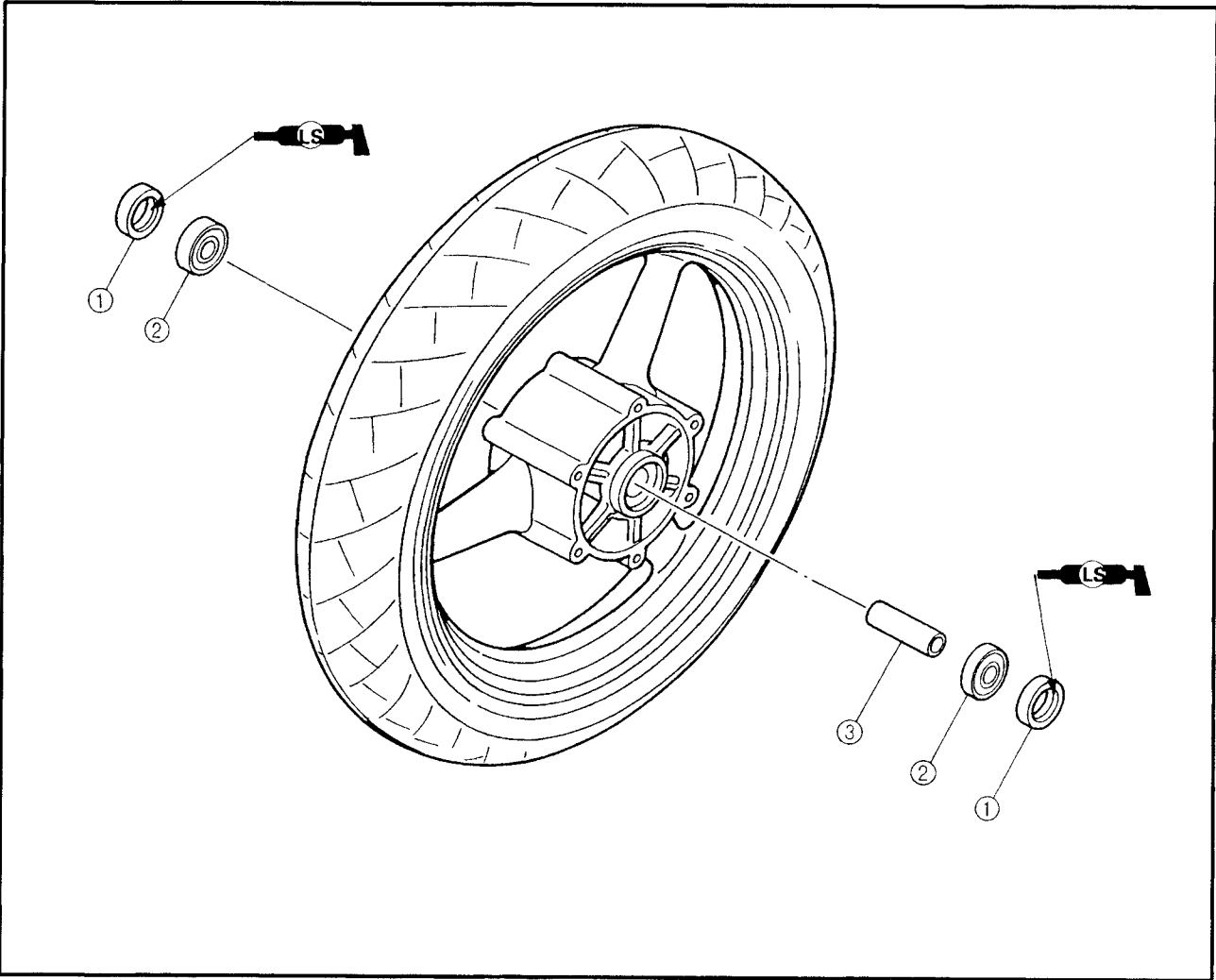
FRONT WHEEL AND BRAKE DISCS



| 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 |
|-------|--------------------------------------|------|---|
| ① | Disassembling the front wheel | | |
| ② | Oil seals (left and right) | 2 | Remove the parts in the order listed. For assembly, reverse the disassembly procedure. |
| ③ | Wheel bearings (left and right) | 2 | |
| | Spacer | 1 | |



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:

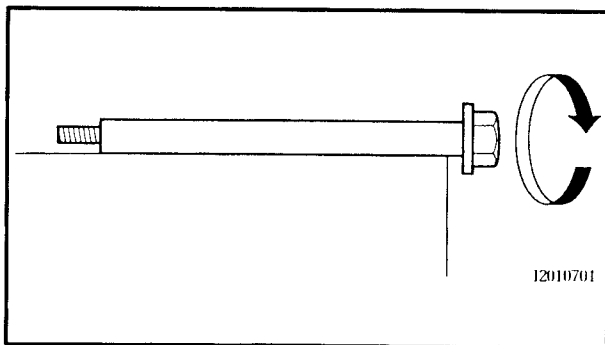
Do not squeeze the brake lever when removing the brake calipers.

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:

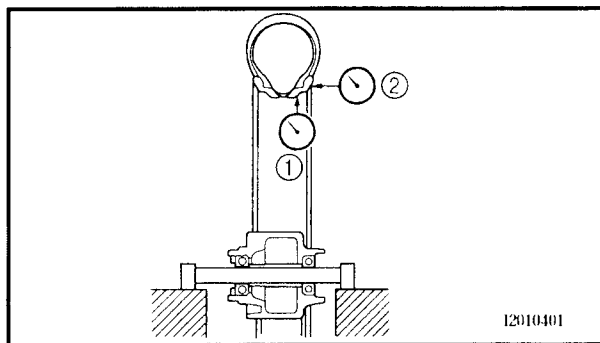
- wheel axle
- Roll the wheel axle on a flat surface.
Bends → Replace.

⚠ 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:

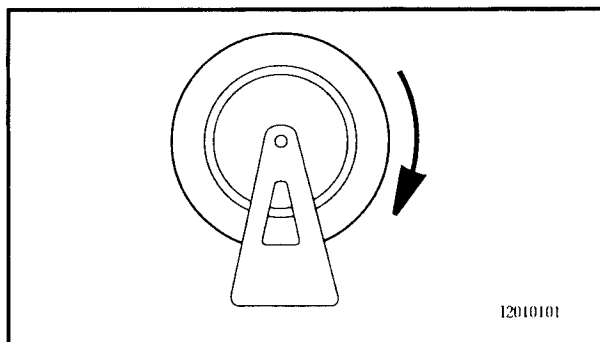
- radial wheel runout ①
- lateral wheel runout ②

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)



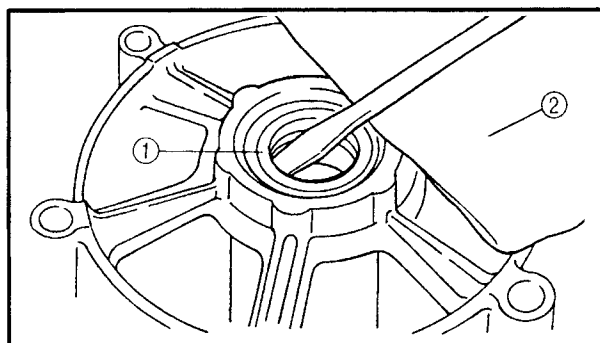
4. Check:

- wheel bearings

Front wheel turns roughly or is loose → Replace the wheel bearings.

- oil seals

Damage/wear → Replace.



5. Replace:

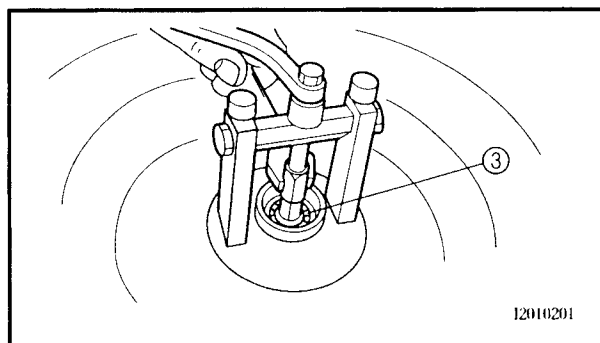
- wheel bearings **New**
- oil seals **New**

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.

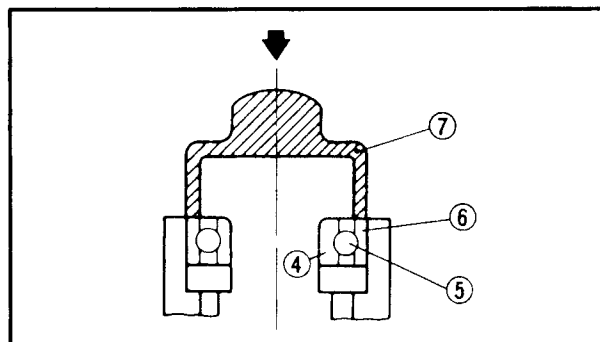
d. Install the new wheel bearings and oil seals in the reverse order of disassembly.

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:

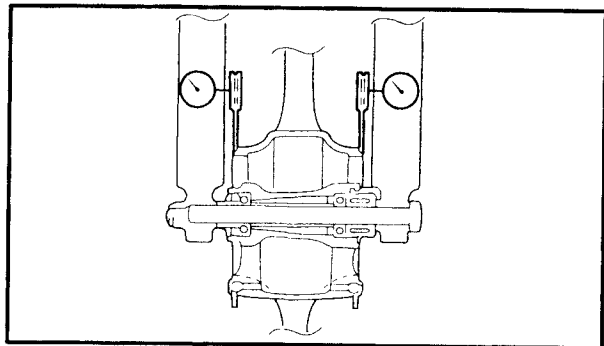
- brake disc

Damage/galling → Replace.

2. Measure:

- brake disc deflection

Out of specification → Correct the brake disc deflection or replace the brake disc.

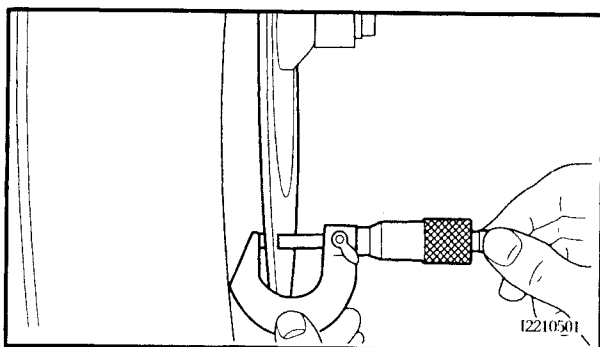


Max. brake disc deflection

Front: 0.1 mm (0.0039 in)

Rear: 0.1 mm (0.0039 in)

- Place the motorcycle on a suitable stand so that the wheel is elevated.
- Before measuring the front brake disc deflection, turn the handlebars to the left or right to ensure that the front wheel is stationary.
- Remove the brake caliper.
- Hold the dial gauge at a right angle against the brake disc surface.
- 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.

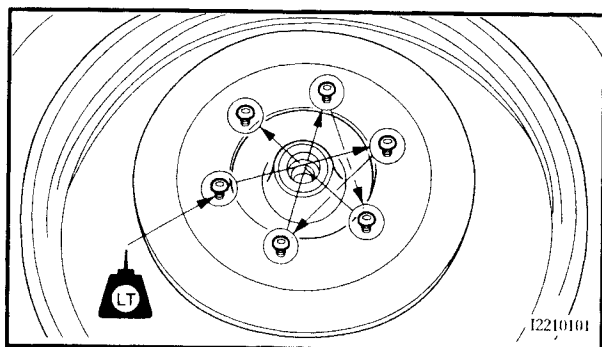
Out of specification → Replace.



Min. brake disc thickness

Front: 4.5 mm (0.18 in)

Rear: 4.5 mm (0.18 in)



4. Adjust:

- brake disc deflection

- Remove the brake disc.
- Rotate the brake disc by one bolt hole.
- Install the brake disc.

NOTE:

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





- 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

1. Lubricate:
 - wheel axle
 - oil seal lips



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)

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
 - front reflectors
 - brake hose holders
-  **40 Nm (4.0 m•kg, 29 ft•lb)**

Make sure that the brake hose is routed properly.

EAS00549

NOTE:

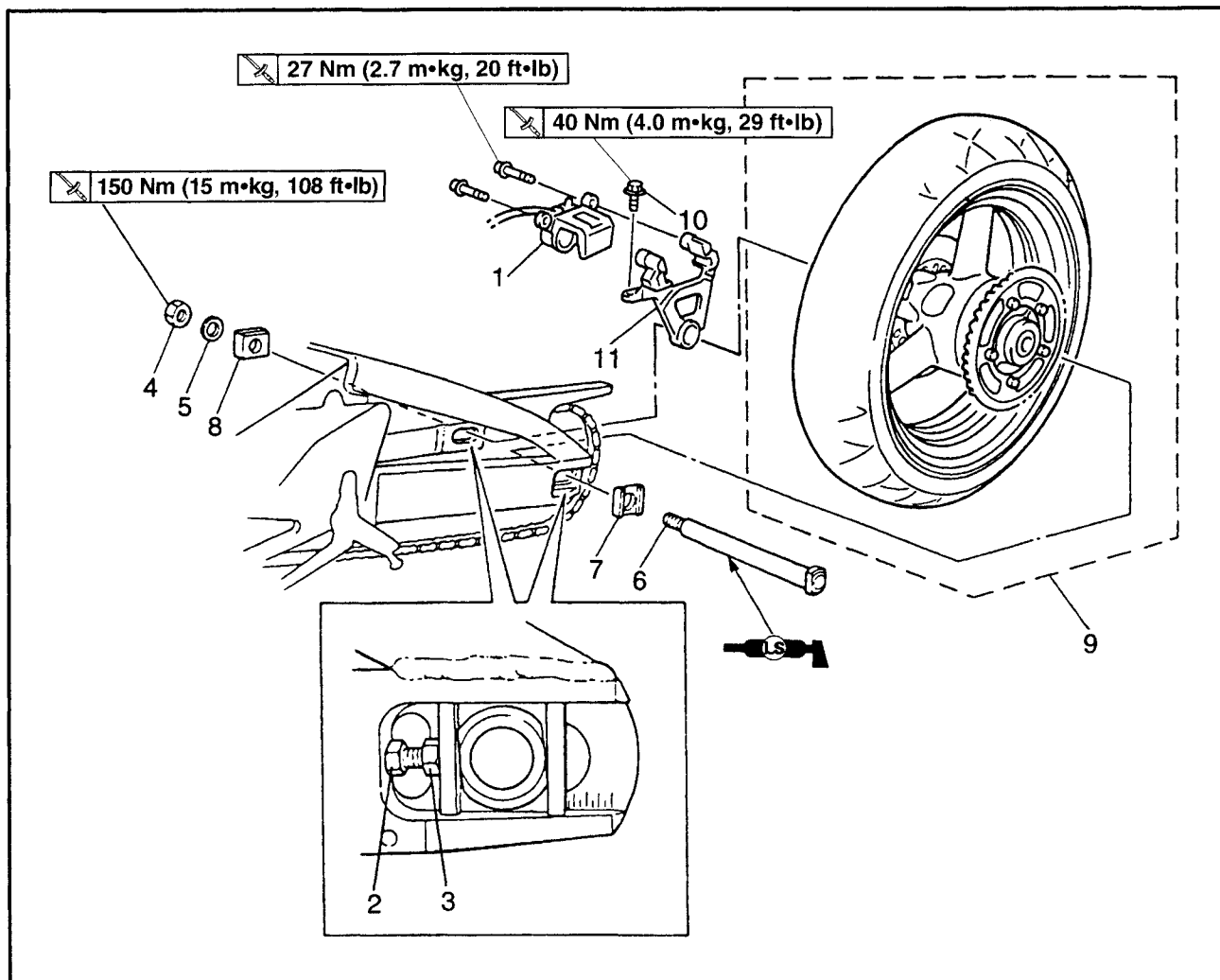
- After replacing the tire, wheel or both, the front wheel static balance should be adjusted.
- Adjust the front wheel static balance with the brake discs installed.



EAS00550

REAR WHEEL, BRAKE DISC, AND REAR WHEEL SPROCKET

REAR WHEEL

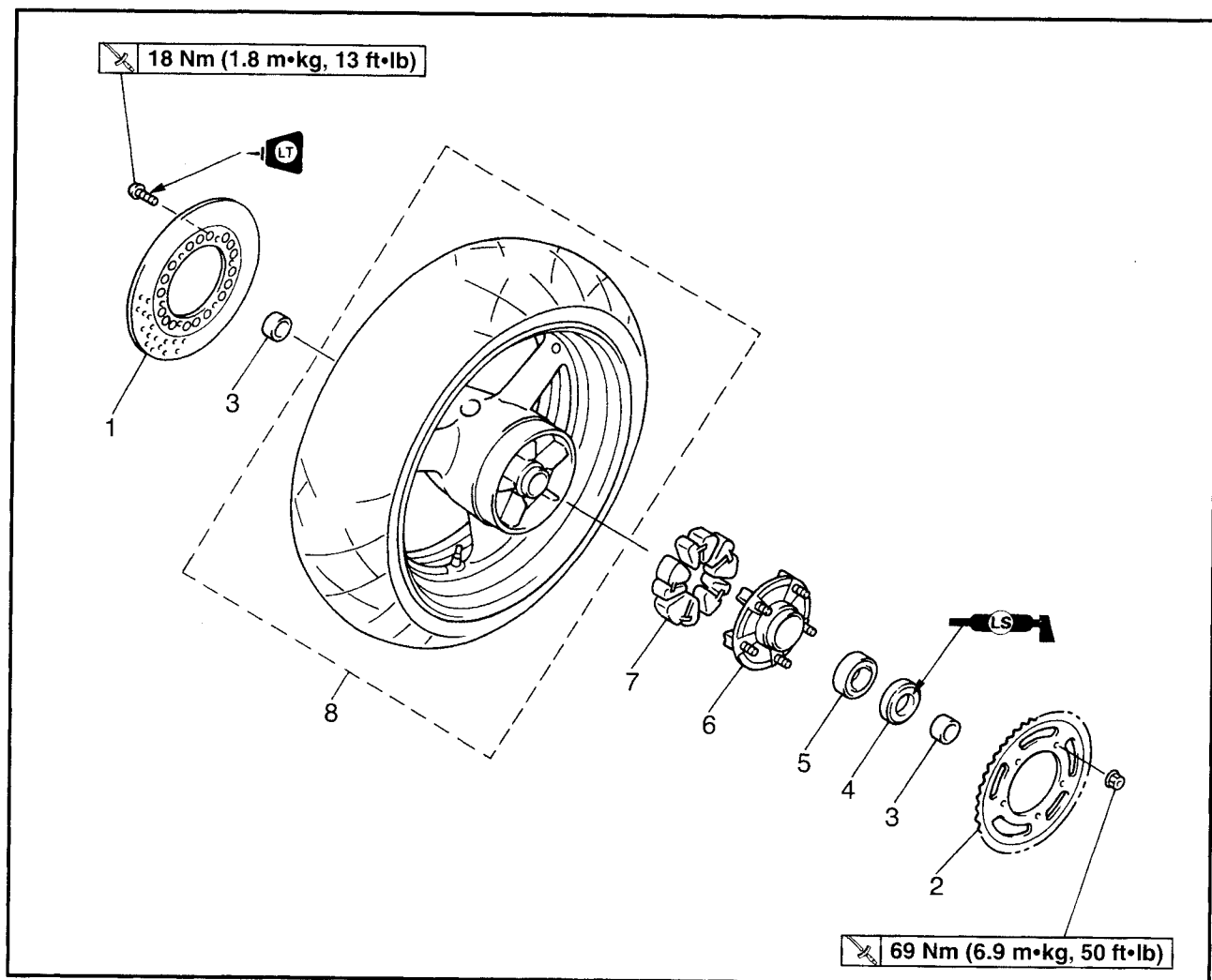


| Order | Job/Part | Q'ty | Remarks |
|-------|----------------------------------|------|---|
| | Removing the rear wheel | | Remove the parts in the order listed. NOTE: _____ Place the motorcycle on a suitable stand so that the rear wheel is elevated. |
| 1 | Brake caliper | 1 | |
| 2 | Locknuts (left 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 | |
| 9 | Rear wheel | 1 | NOTE: _____ Make sure that the tapered side of the right adjusting block faces the wheel. |
| 10 | Brake caliper bracket bolt | 1 | |
| 11 | Brake caliper bracket | 1 | For installation, reverse the removal procedure. |

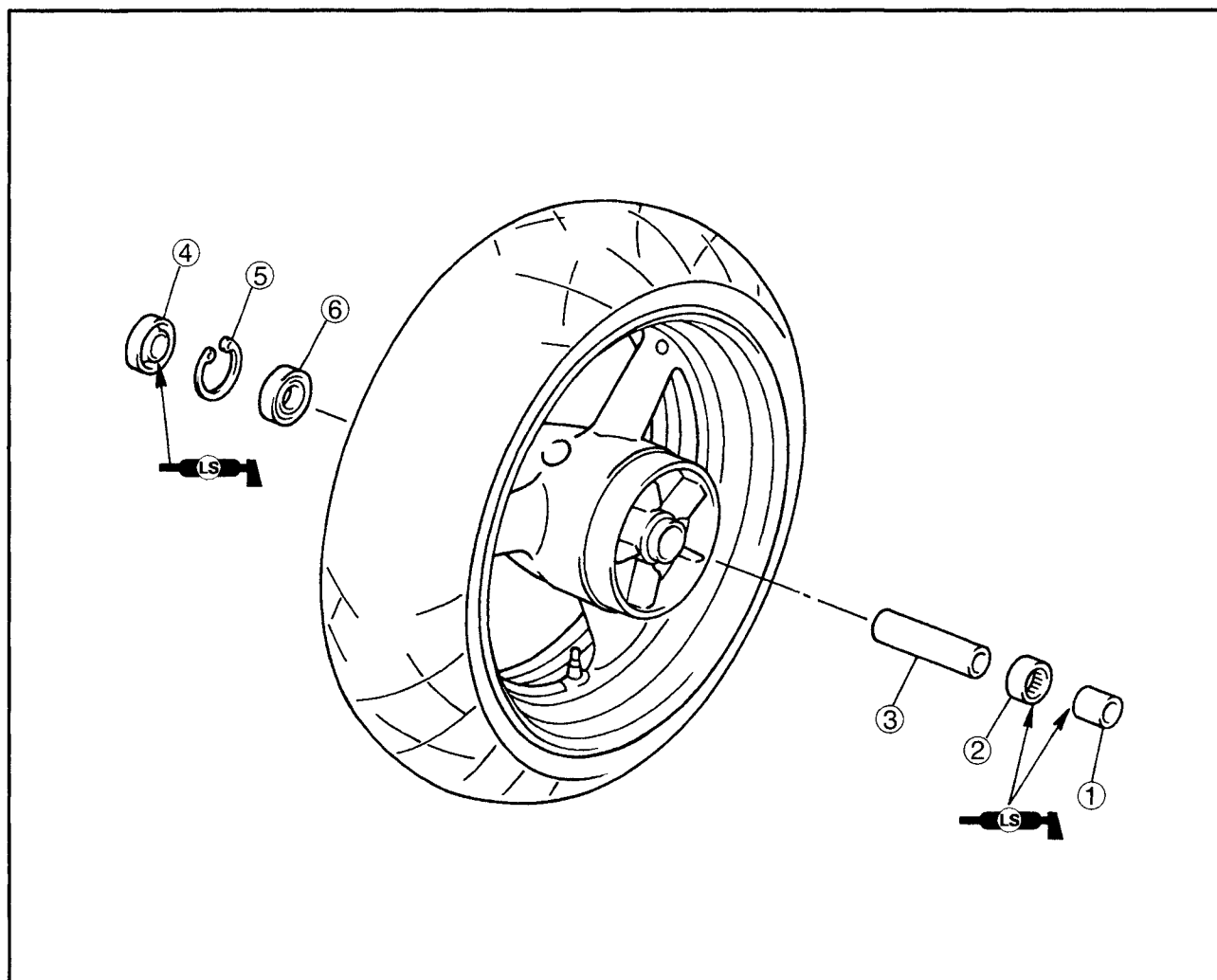


EAS00556

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 | | |
| ① | Spacer | 1 | Disassemble the parts in the order listed. |
| 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:

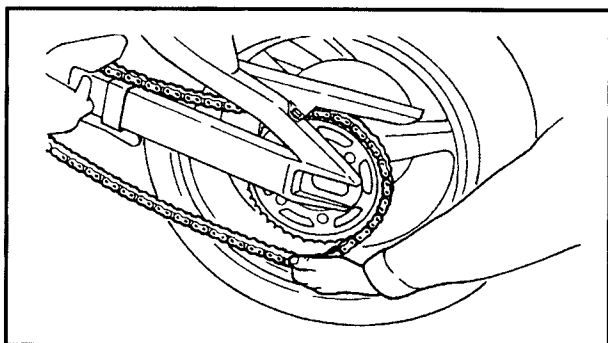
Place the motorcycle on a suitable stand so that the rear wheel is elevated.

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 SPROCKET".

2. Check:

- tire
- rear wheel

Damage/wear → Replace.

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



EAS00571

INSTALLING THE REAR WHEEL

1. Lubricate:

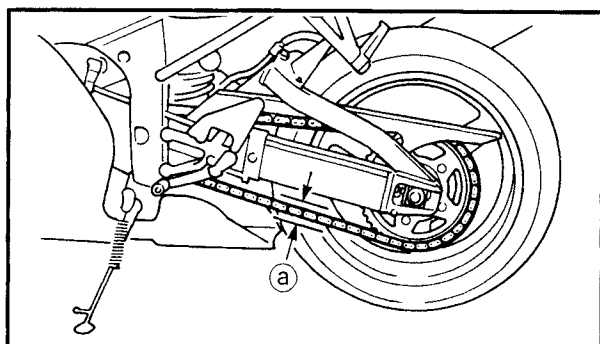
- wheel axle
- wheel bearings
- oil seal lips



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 (a)



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

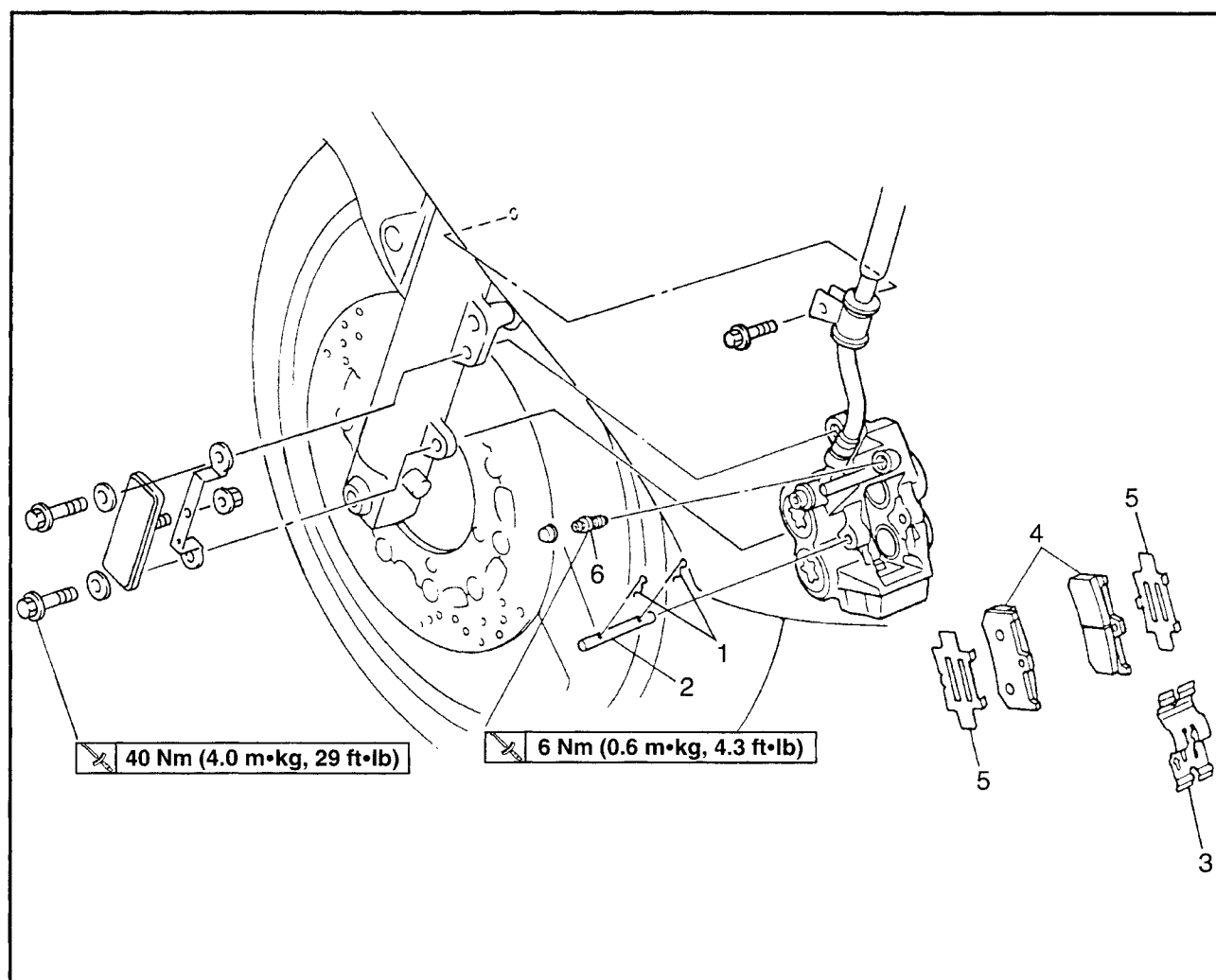
NOTE:

- 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”.

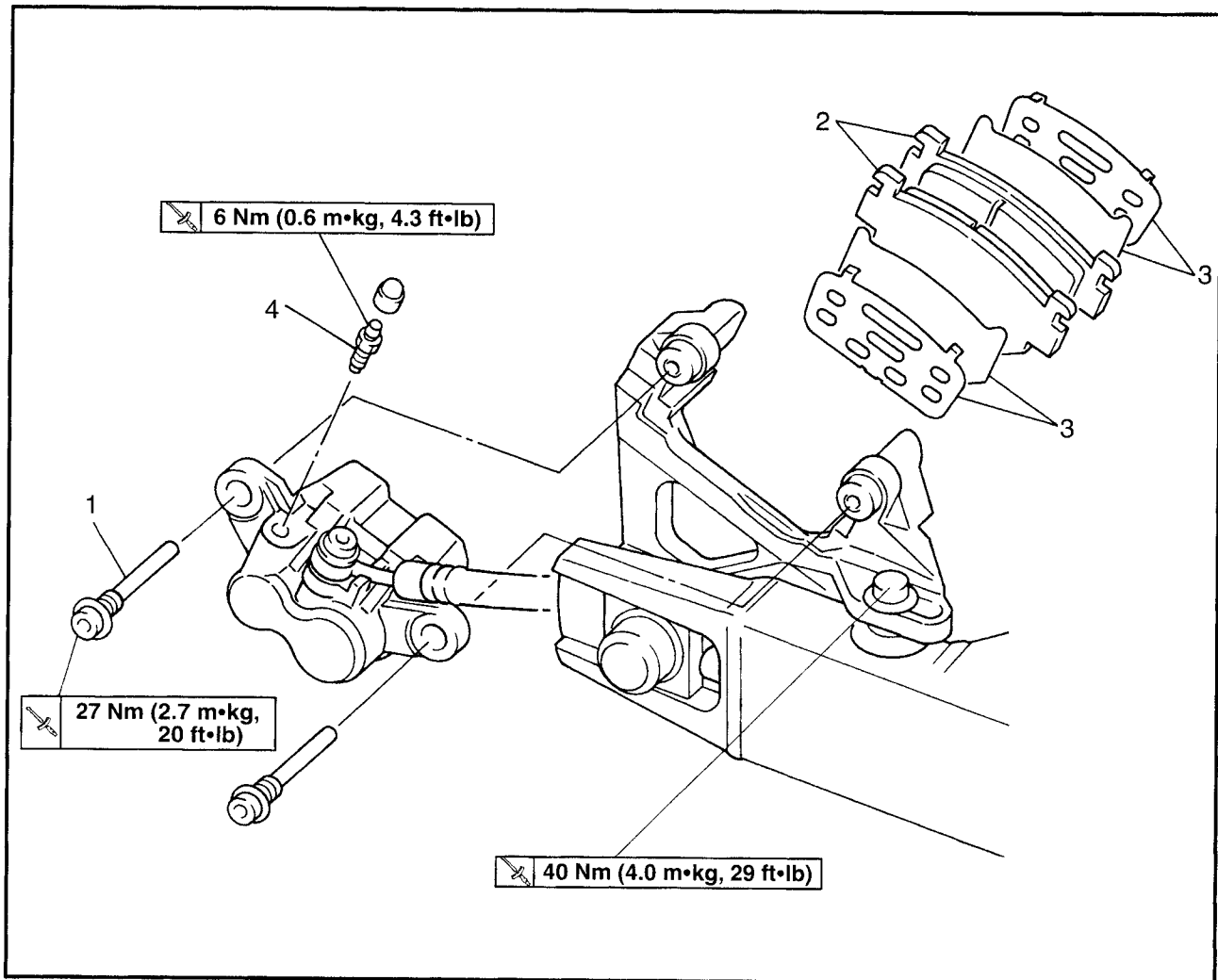
EAS00577

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 | Refer to "REPLACING THE FRONT BRAKE PADS". |
| 2 | Brake pad pin | 1 | |
| 3 | Brake pad spring | 1 | |
| 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 | | |
| 1 | Brake caliper bolts | 2 | Remove the parts in the order listed. |
| 2 | Brake pads | 2 | |
| 3 | Brake pad shims | 4 | Refer to "REPLACING THE REAR BRAKE PADS". |
| 4 | Bleed screw | 1 | |
| | | | For installation, reverse the removal procedure. |



EAS00579

CAUTION:

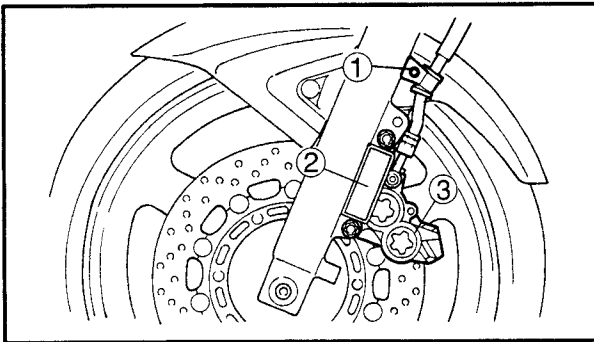
Disc brake components rarely require disassembly.

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 reflector ②
- brake caliper ③



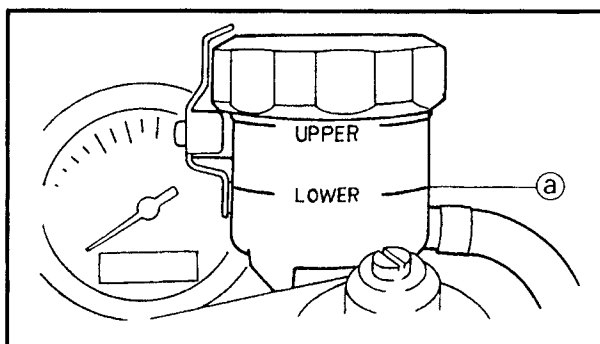
5. Install:

- 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)

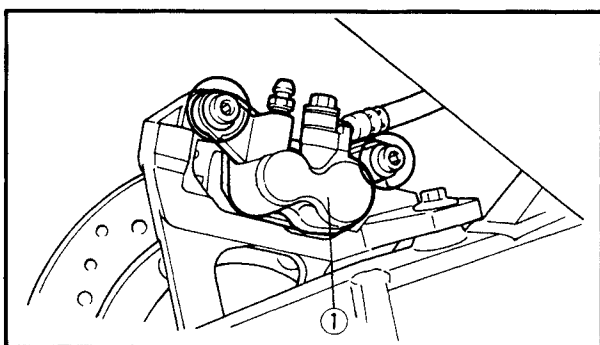


6. Check:

- brake fluid level
Below the minimum level mark (a) → 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

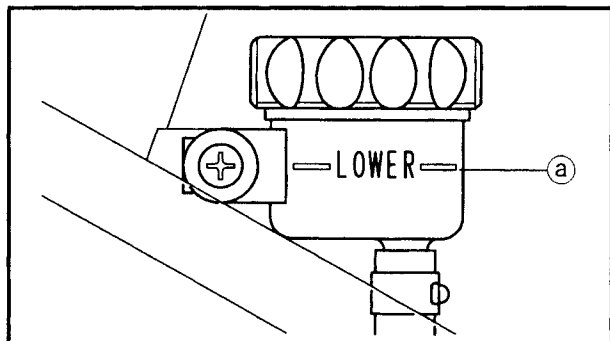
2. Remove:

- brake pads
(along with the brake pad shims)



5. Install:
 - brake caliper bolts

27 Nm (2.7 m•kg, 20 ft•lb)



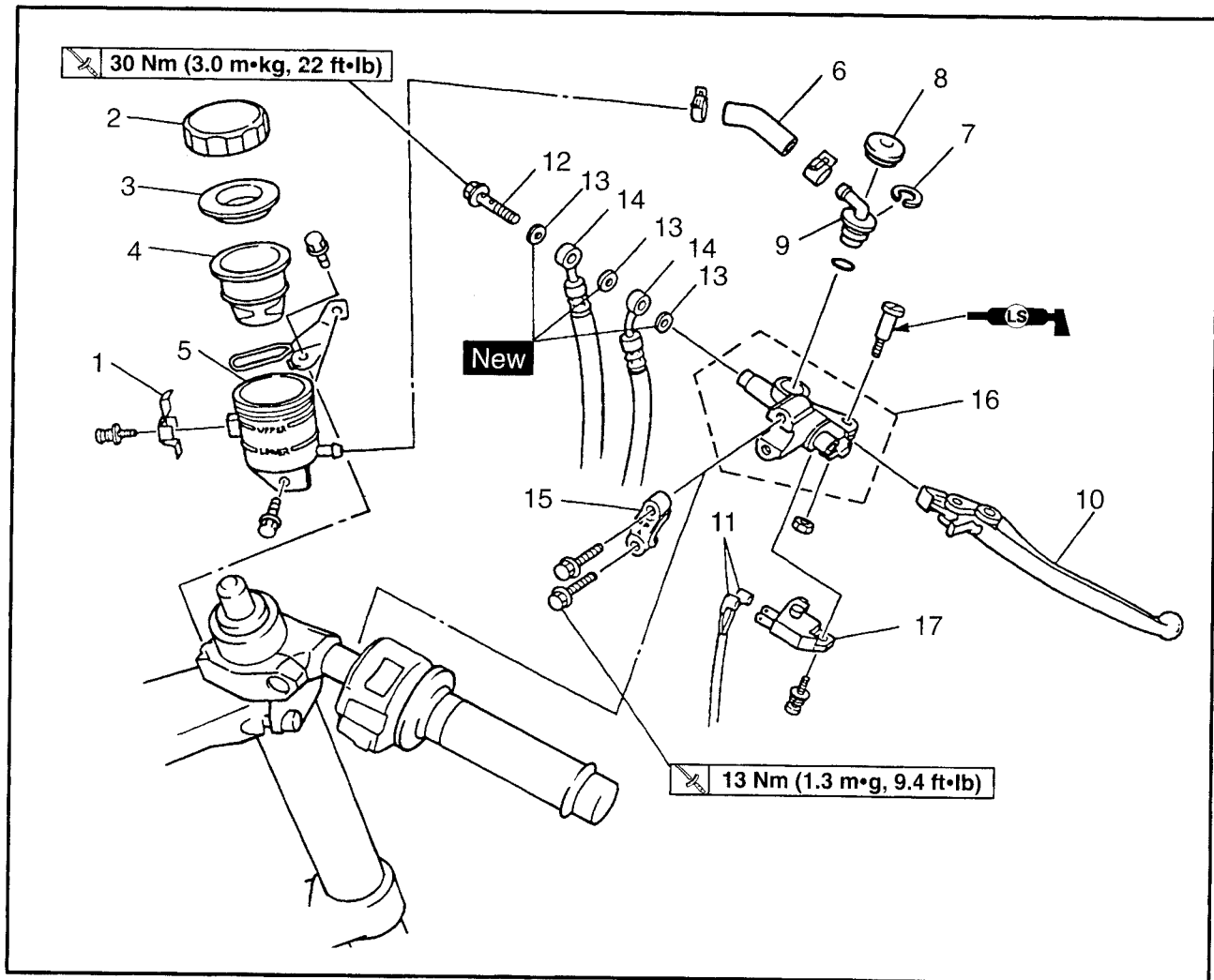
6. Check:
 - brake fluid level
Below the minimum level mark (a) → Add the recommended brake fluid to the proper level.
Refer to “CHECKING THE BRAKE FLUID LEVEL” in chapter 3.

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

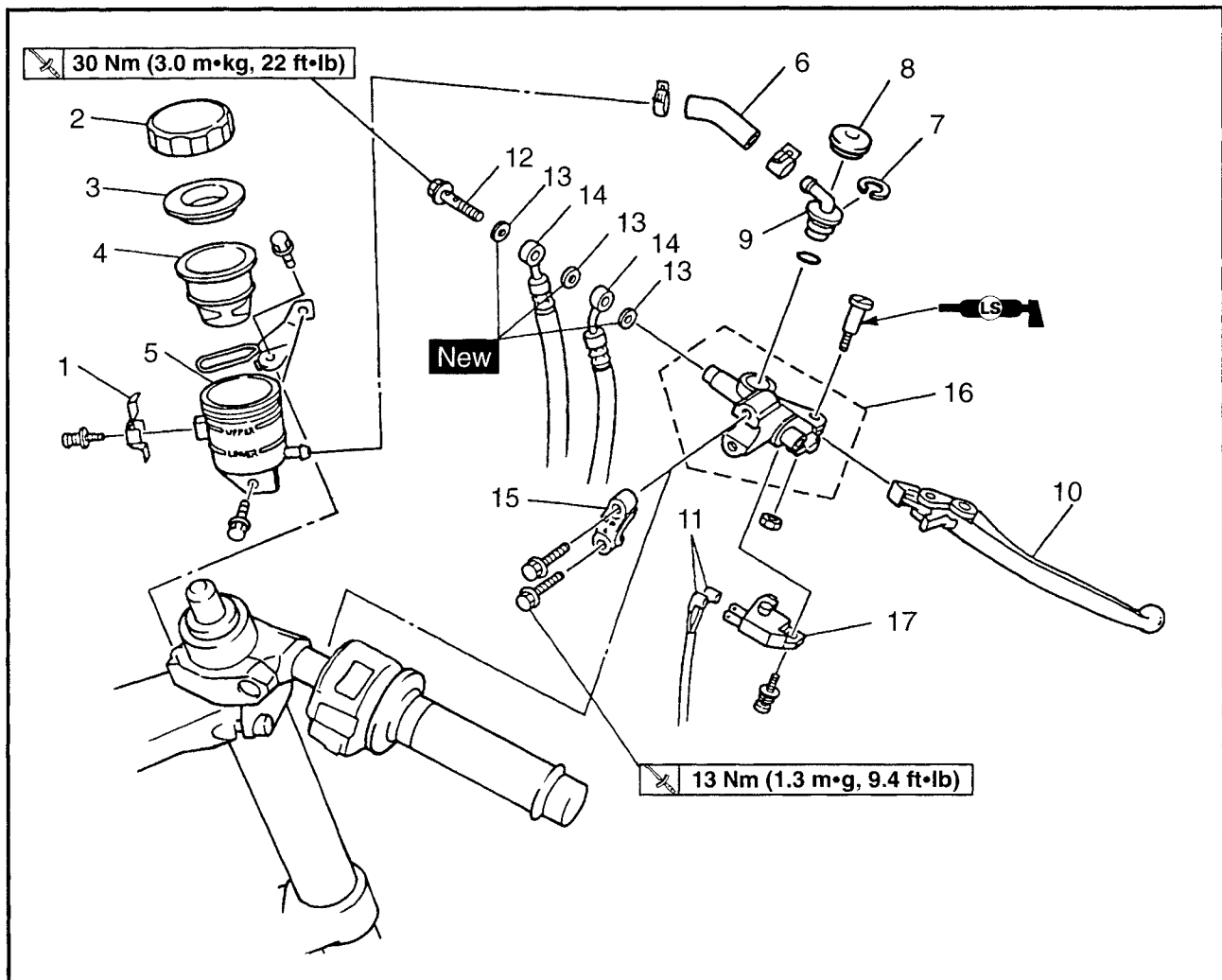


EAS00584

FRONT BRAKE MASTER CYLINDER AND BRAKE FLUID RESERVOIR

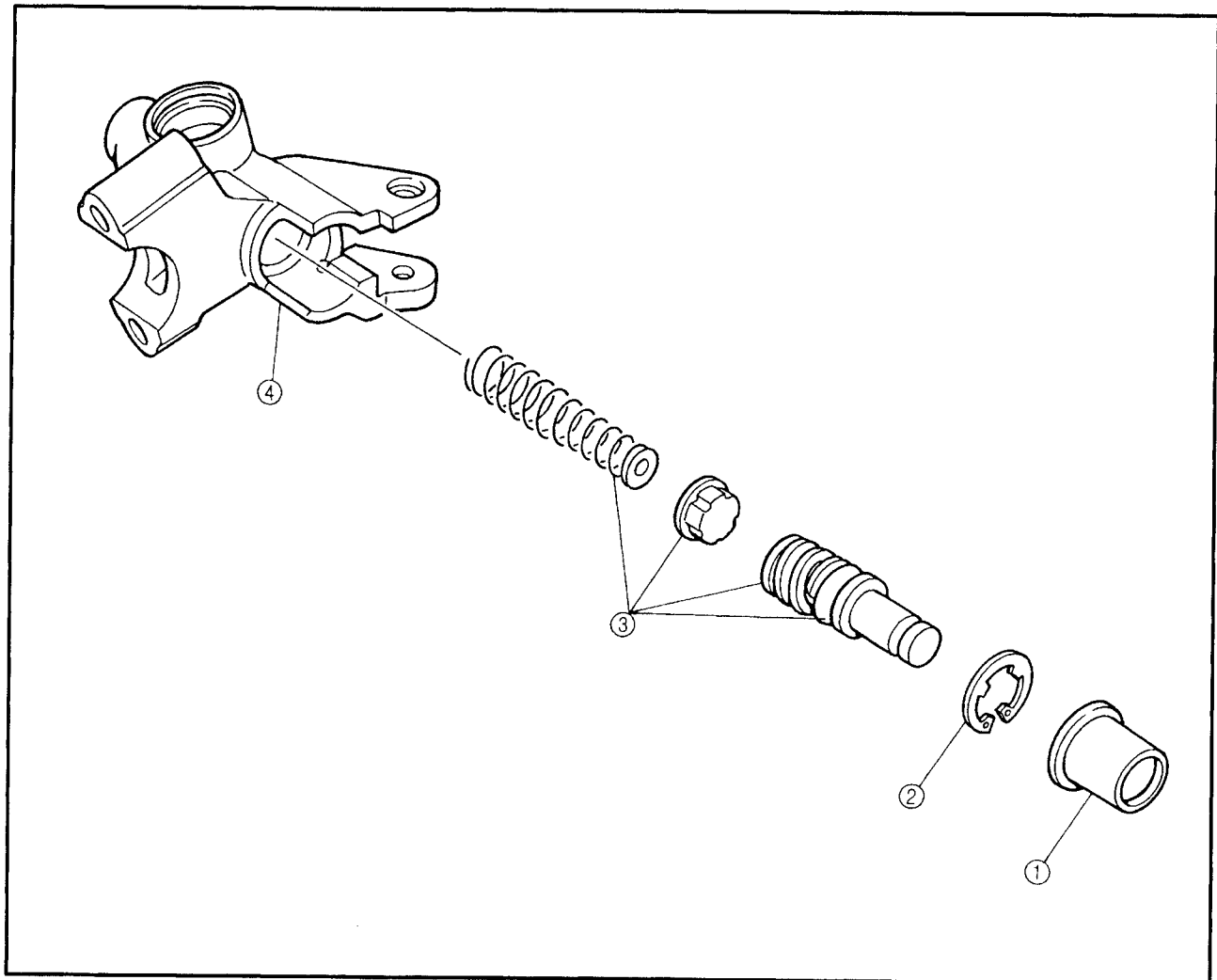


| Order | Job/Part | Q'ty | Remarks |
|-------|---|------|--|
| | Removing the front brake master cylinder and brake fluid reservoir | | Remove the parts in the order listed. |
| | Brake fluid | | Drain. |
| 1 | Brake fluid reservoir cap stopper | 1 | |
| 2 | Brake fluid reservoir cap | 1 | |
| 3 | Brake 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

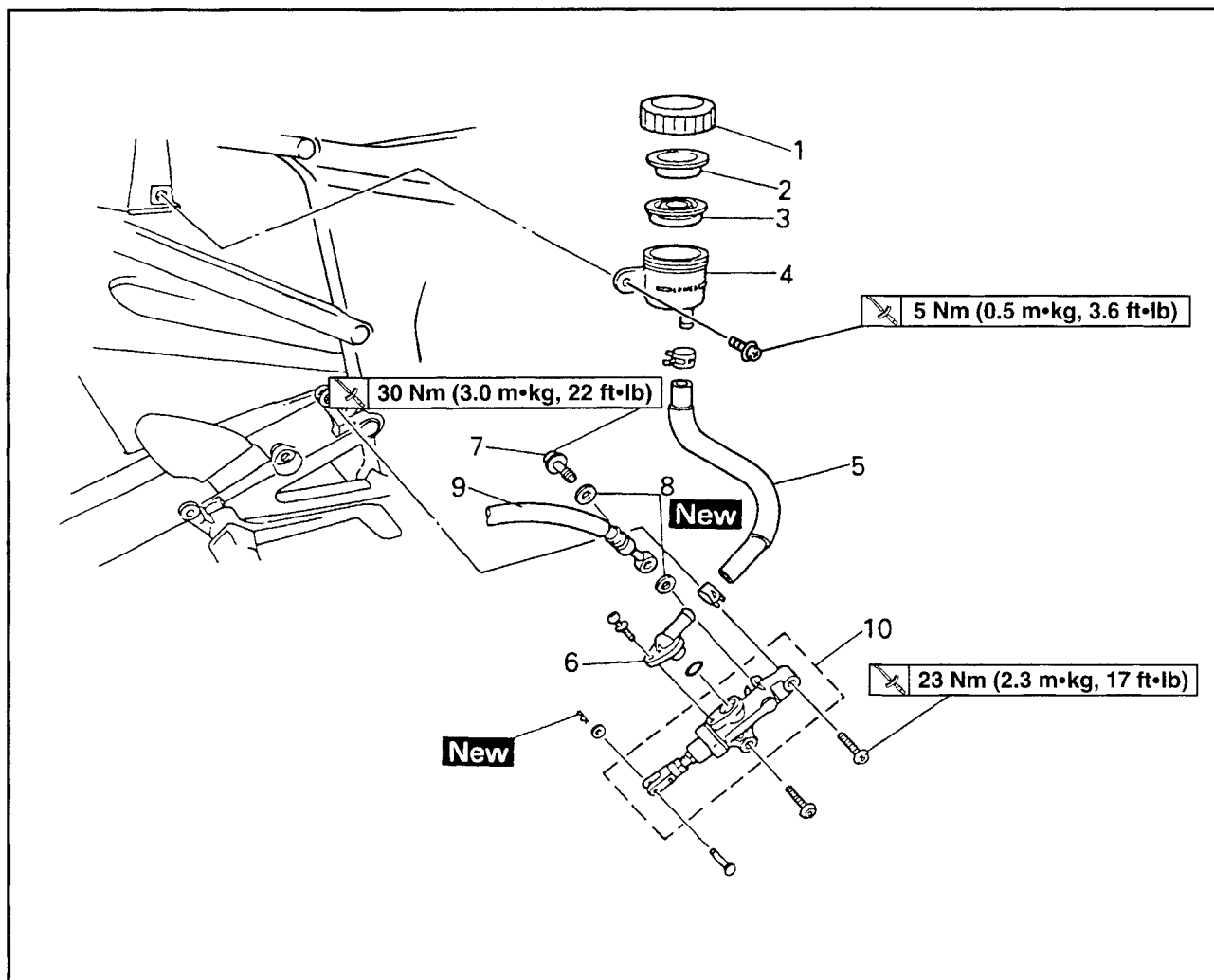


| Order | Job/Part | Q'ty | Remarks |
|-------|--|------|--|
| | Disassembling the front brake master cylinder | | Remove the parts in the order listed. |
| ① | Dust boot | 1 | |
| ② | Circlip | 1 | |
| ③ | Brake master cylinder kit | 1 | |
| ④ | Brake master cylinder | 1 | |
| | | | For assembly, reverse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



EAS00596

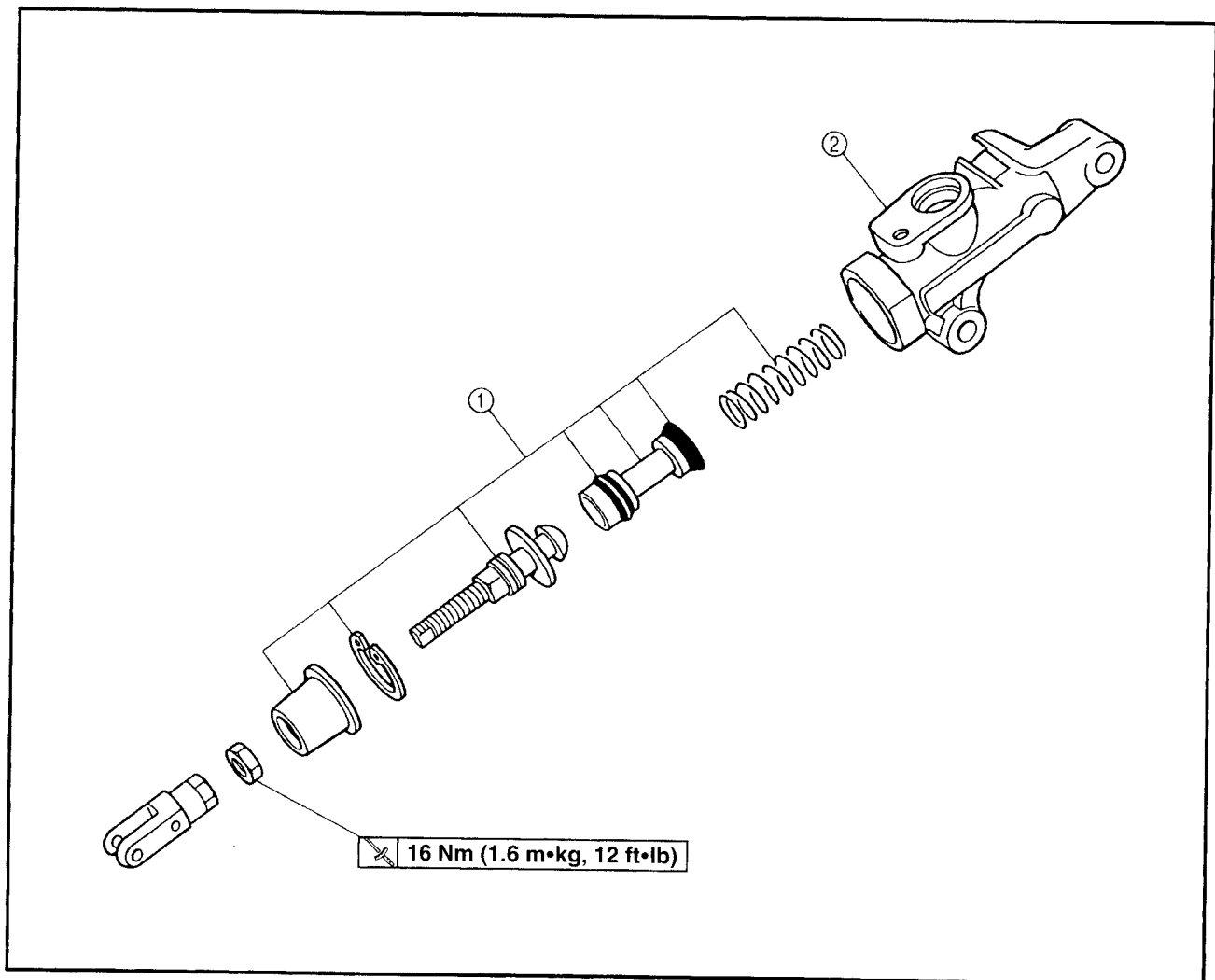
REAR BRAKE MASTER CYLINDER AND BRAKE FLUID RESERVOIR



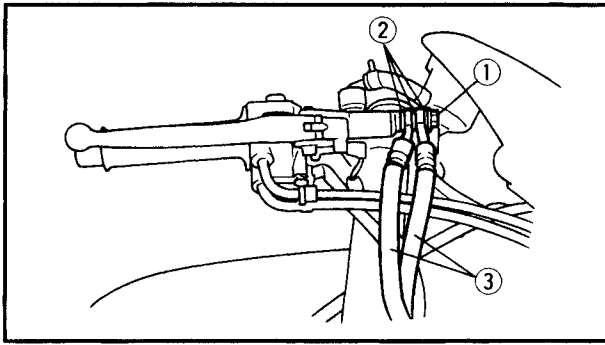
| Order | Job/Part | Q'ty | Remarks |
|-------|--|------|---|
| | Removing the rear brake master cylinder and brake fluid reservoir | | Remove the parts in the order listed. |
| | Brake fluid | | Drain. |
| 1 | Brake fluid reservoir cap | 1 | |
| 2 | Brake fluid reservoir diaphragm holder | 1 | |
| 3 | 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 |
|-------|---|------|--|
| ① | Disassembling the rear brake master cylinder | | |
| | Brake master cylinder kit | 1 | Remove the parts in the order listed. |
| ② | Brake master cylinder | 1 | For assembly, reverse the disassembly procedure. |



EAS00588

REMOVING THE FRONT BRAKE MASTER CYLINDER

NOTE:

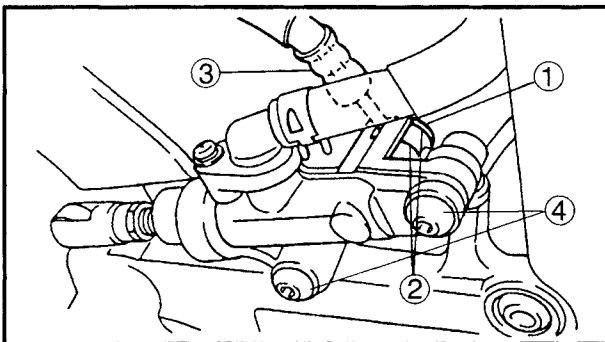
Before disassembling the front brake master cylinder, drain the brake fluid from the entire brake system.

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

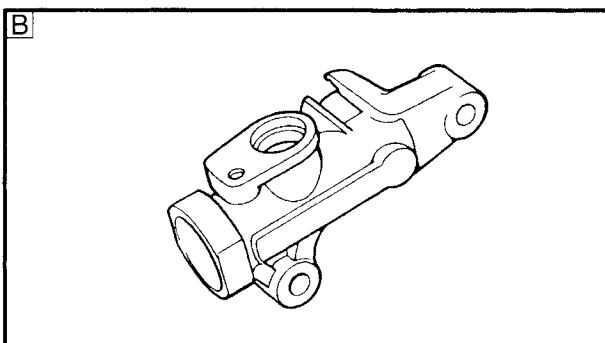
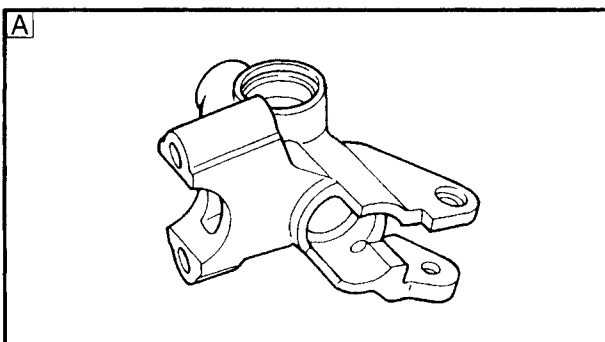
REMOVING THE REAR BRAKE MASTER CYLINDER

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

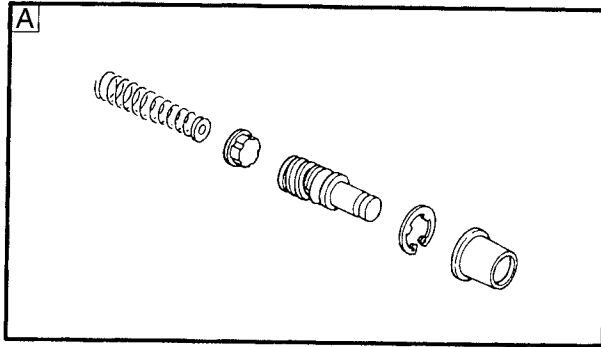
The following procedure applies to both of the brake master cylinders.

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

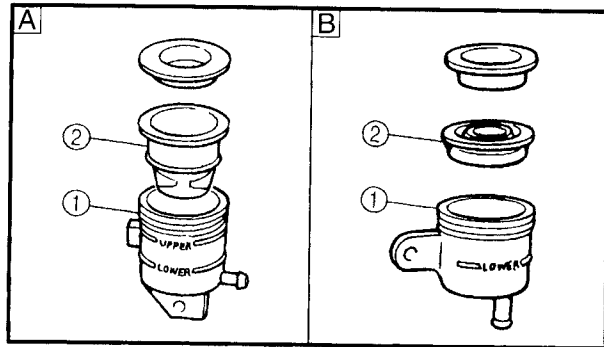
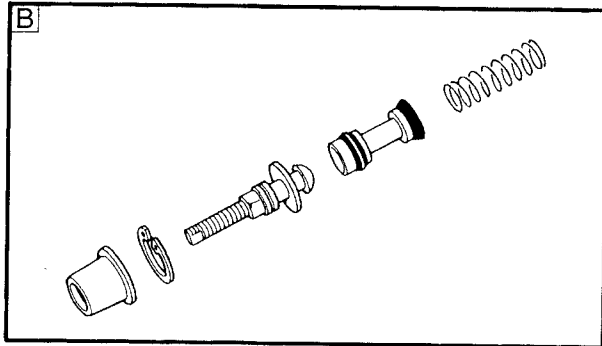


2. Check:

- 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

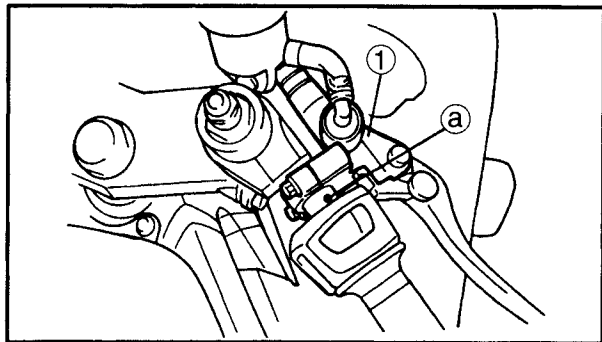
INSTALLING THE FRONT BRAKE MASTER CYLINDER

⚠ 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 ① in the right handlebar.
- First, tighten the upper bolt, then the lower bolt.

2. Install:

- copper washers **New**

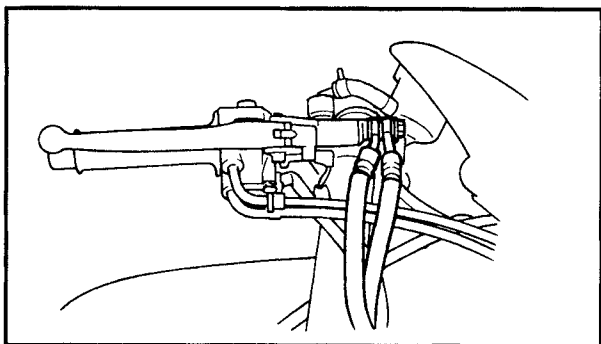
- brake hose

- 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

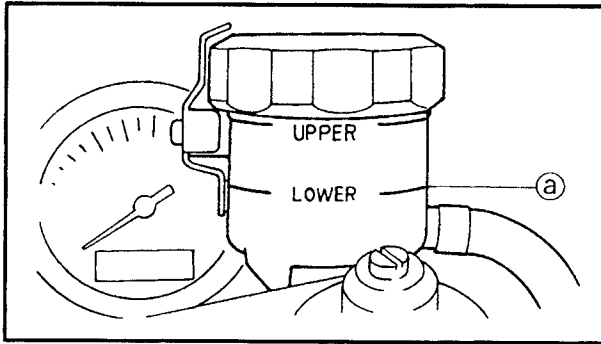
! WARNING

- 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

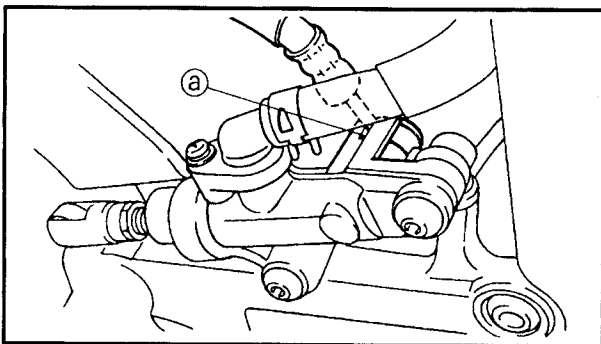
Below the minimum level mark (a) → Add the recommended brake fluid to the proper level. Refer to "CHECKING THE BRAKE FLUID LEVEL" in chapter 3.

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
- button head bolts

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 master cylinder, make sure that the brake pipe touches the projection (a) as shown.



2. Fill:
- brake fluid reservoir



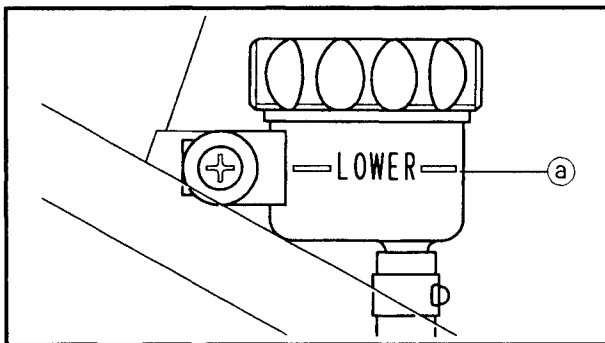
**Recommended brake fluid
DOT 4**

⚠ 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 (a) → 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)

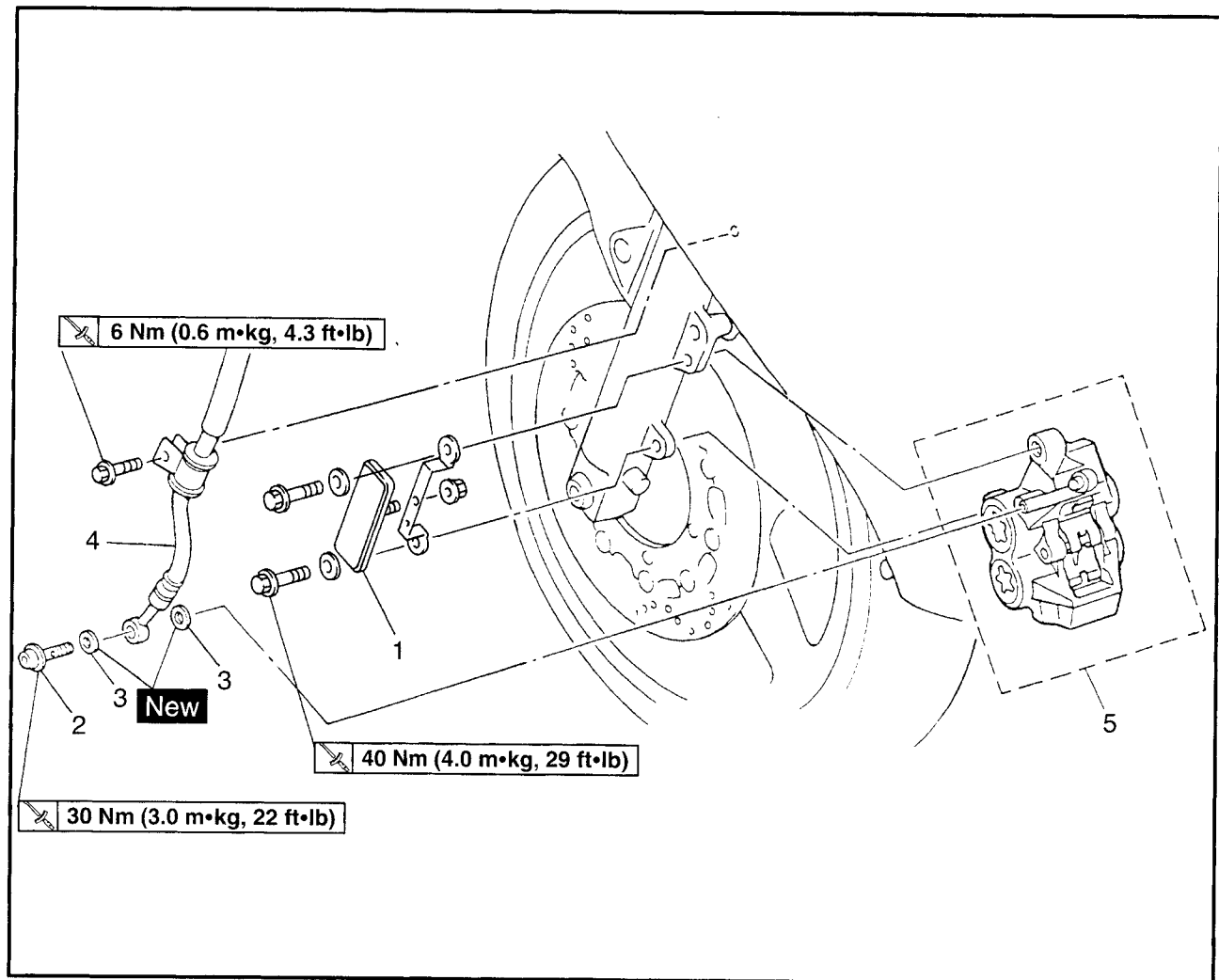
4.3 ~ 9.3 mm (0.17 ~ 0.37 in)

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



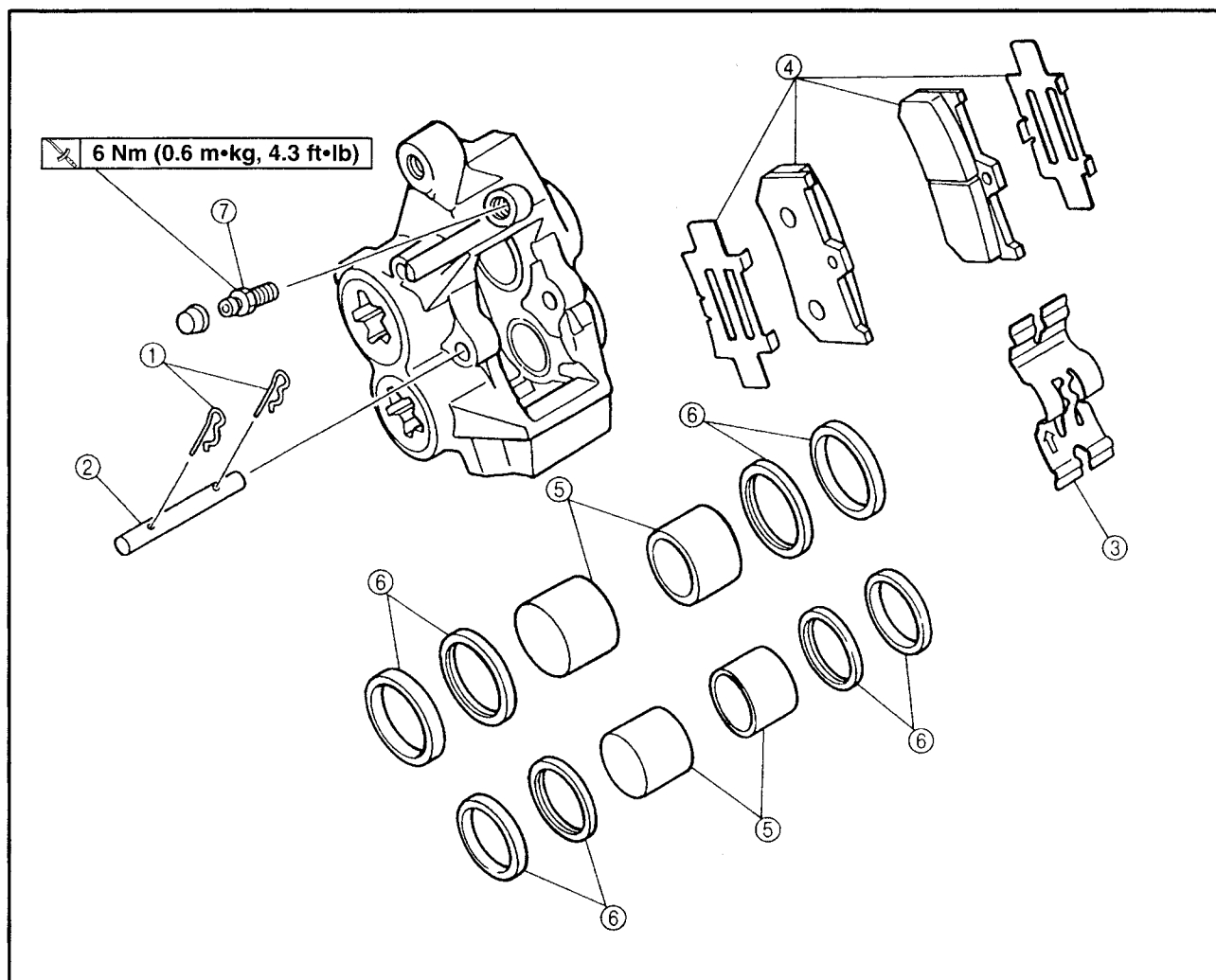
EAS00613

FRONT BRAKE CALIPERS



| Order | Job/Part | Q'ty | Remarks |
|-------|--|------|--|
| | Removing the front brake calipers | | |
| | Brake fluid | | Remove the parts in the order listed. |
| 1 | Front refector | 1 | The following procedure applies to both of the front brake calipers. |
| 2 | Union bolt | 1 | Drain. |
| 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

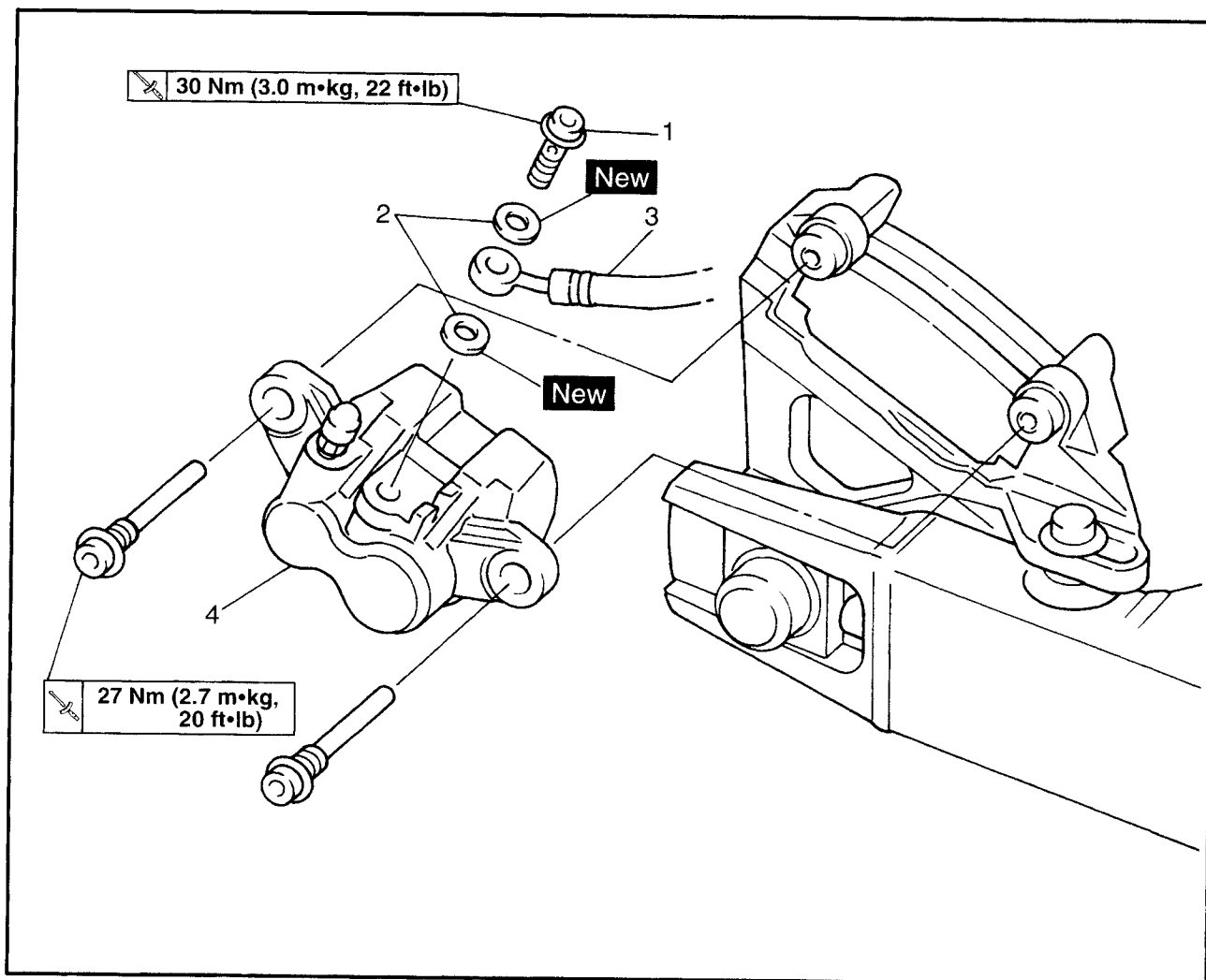


| Order | Job/Part | Q'ty | Remarks |
|-------|---|------|---|
| | Disassembling the front brake calipers | | Disassemble the parts in the order listed. |
| ① | Brake pad clip | 2 | The following procedure applies to both of the front brake calipers. Refer to "REMOVING THE FRONT BRAKE CALIPERS". |
|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



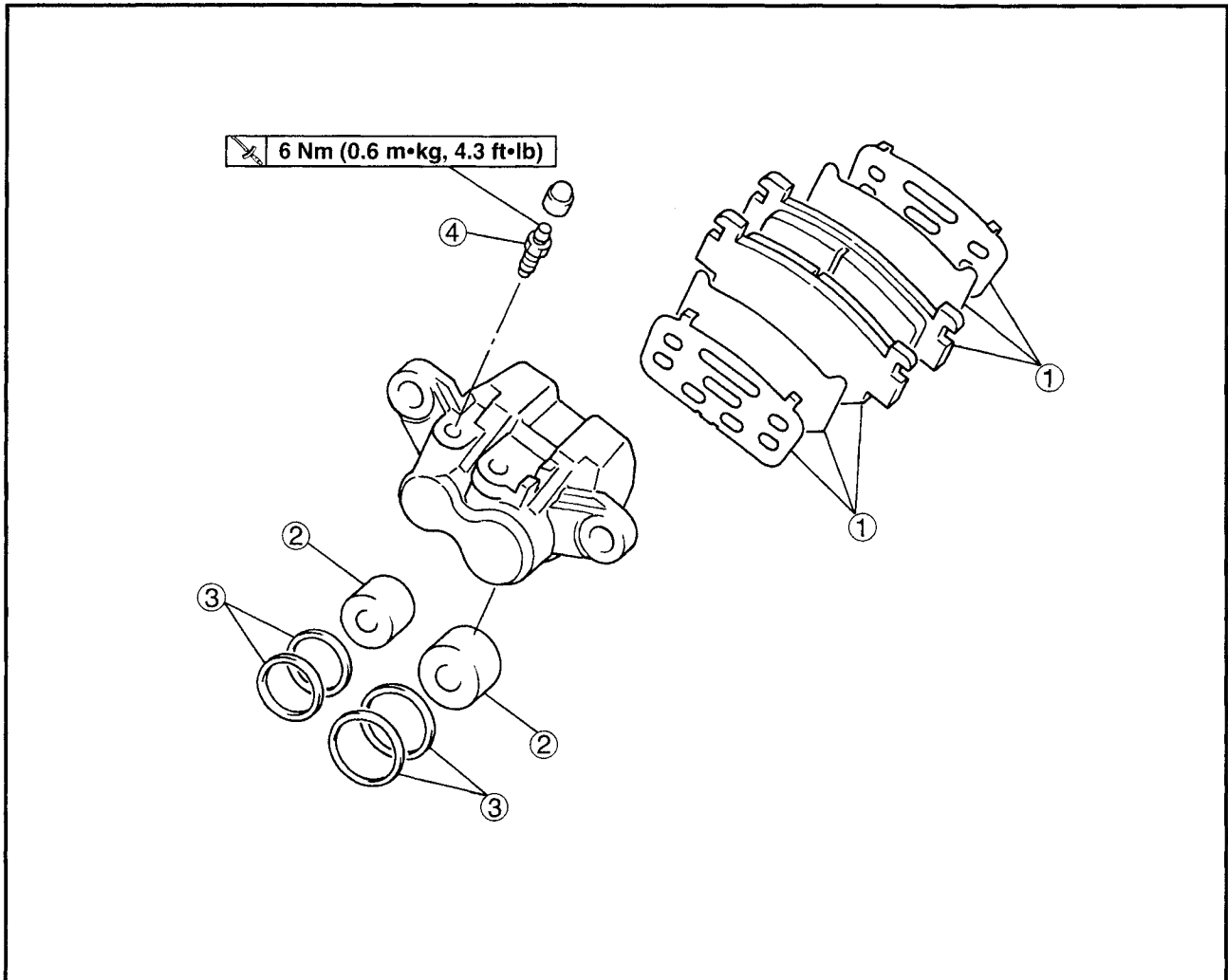
EAS00616

REAR BRAKE CALIPER



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

EAS00617



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

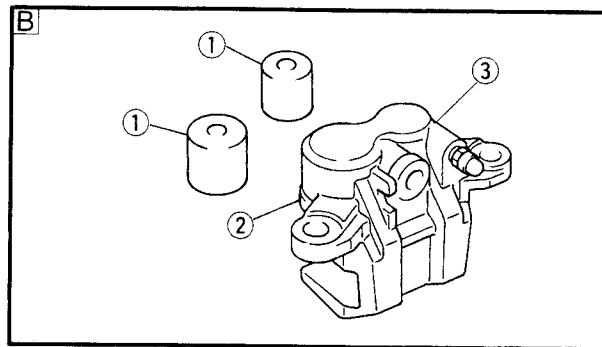
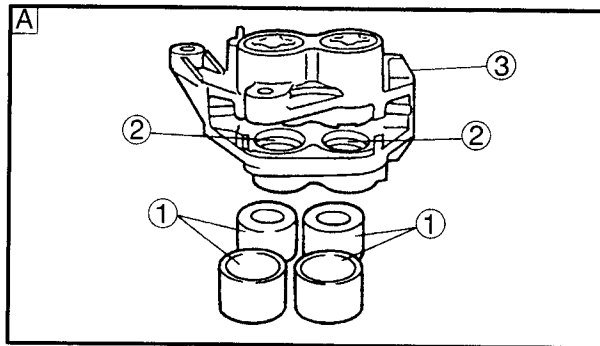


EAS00633

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:

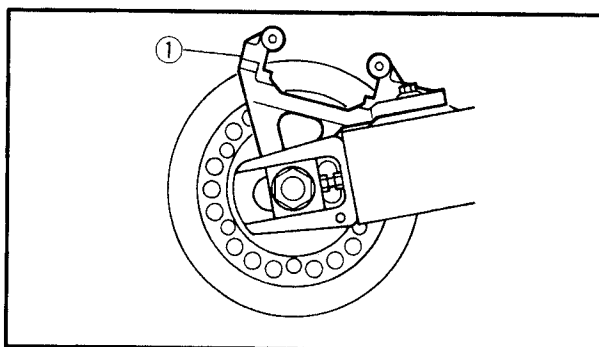
- brake caliper pistons (1)
Rust/scratches/wear → Replace the brake caliper.
- brake caliper cylinders (2)
Scratches/wear → Replace the brake caliper.
- brake calipers (3)
Cracks/damage → Replace.
- brake fluid delivery passages (brake caliper body)
Obstruction → Blow out with compressed air.

⚠ 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

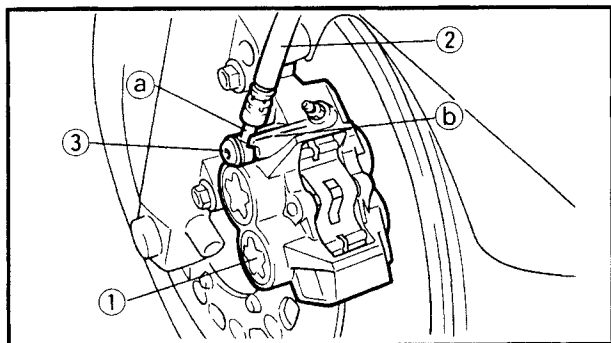
The following procedure applies to both of the brake calipers.

⚠ 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 ① touches the projection ② on the brake caliper.

2. Remove:

- brake caliper

3. Install:

- brake pads
- brake pad spring
- brake caliper
- front refrector
- brake hose holder

40 Nm (4.0 m•kg, 29 ft•lb)

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)



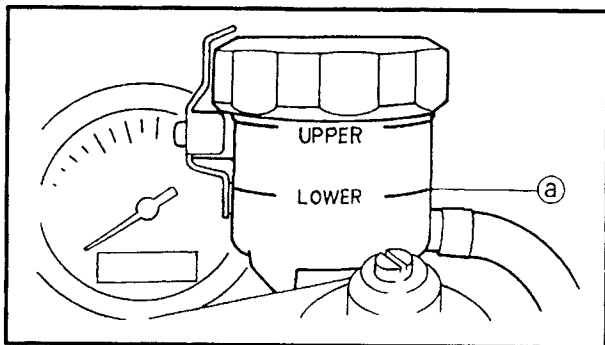
Recommended brake fluid
DOT 4

⚠ 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 ① → 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

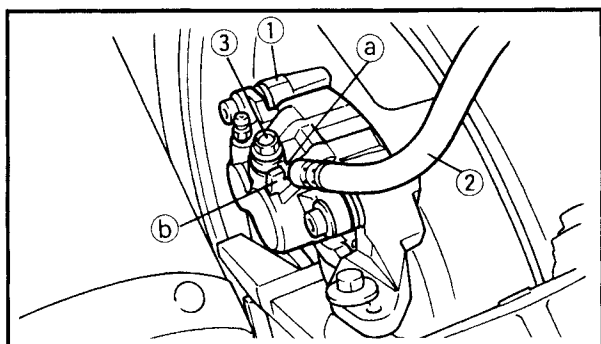
INSTALLING THE REAR BRAKE CALIPER

⚠ 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 ① touches the projection ② on the brake caliper.



2. Fill:

- brake fluid reservoir
(with the specified amount of the recommended brake fluid)



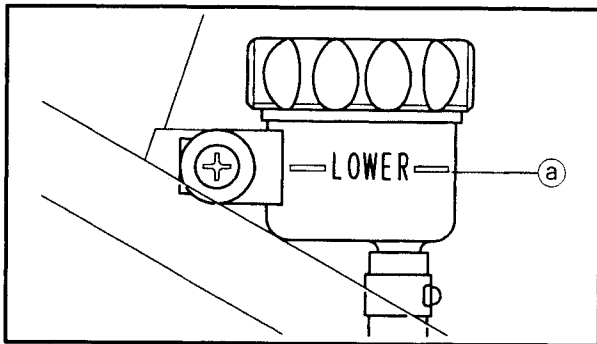
**Recommended brake fluid
DOT 4**

⚠ 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 (a) → Add the recommended brake fluid to the proper level. Refer to "CHECKING THE BRAKE FLUID LEVEL" in chapter 3.

5. Check:

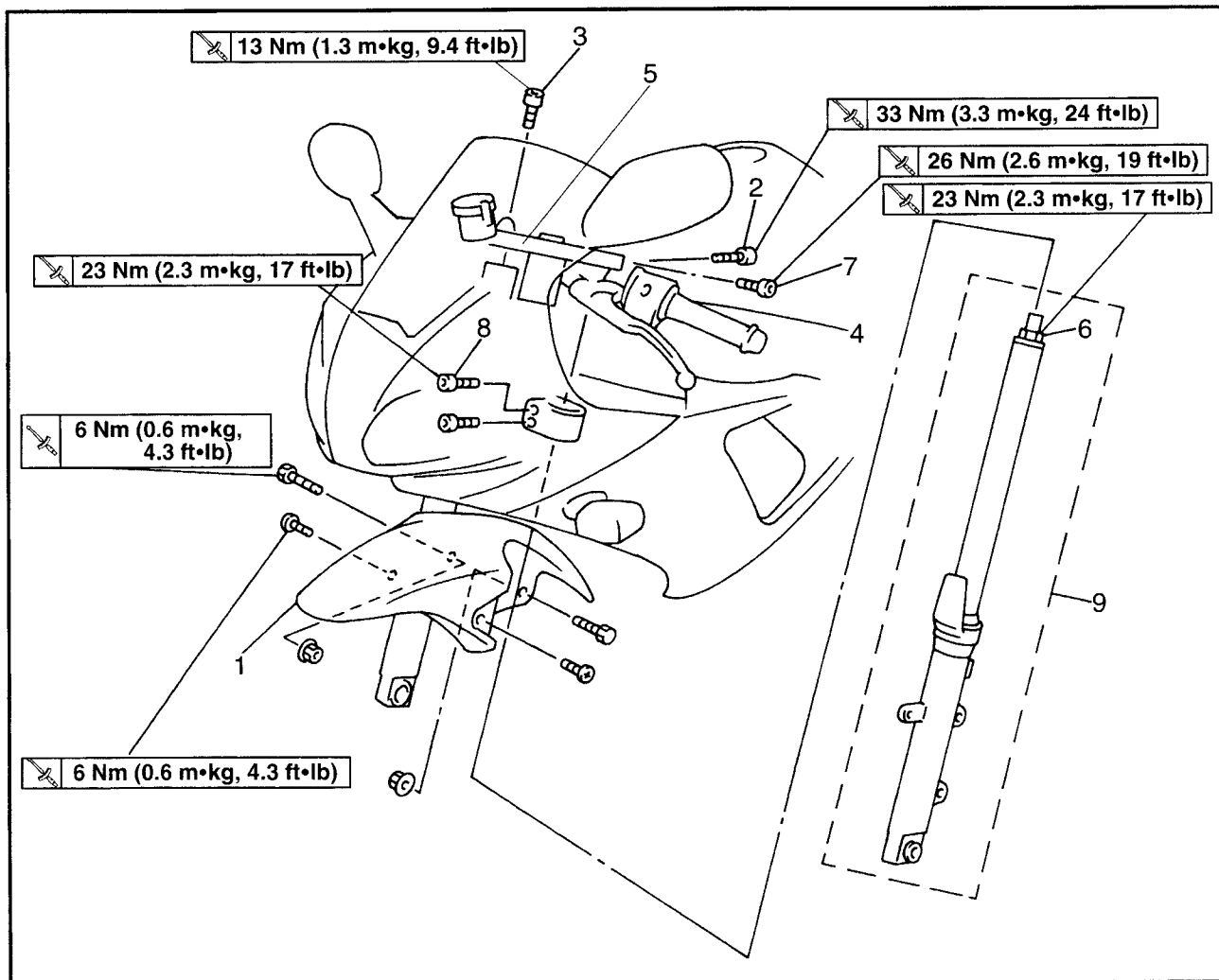
- brake pedal operation

Soft or spongy feeling → Bleed the brake system.

Refer to "BLEEDING THE HYDRAULIC BRAKE SYSTEM" in chapter 3.

FRONT FORK

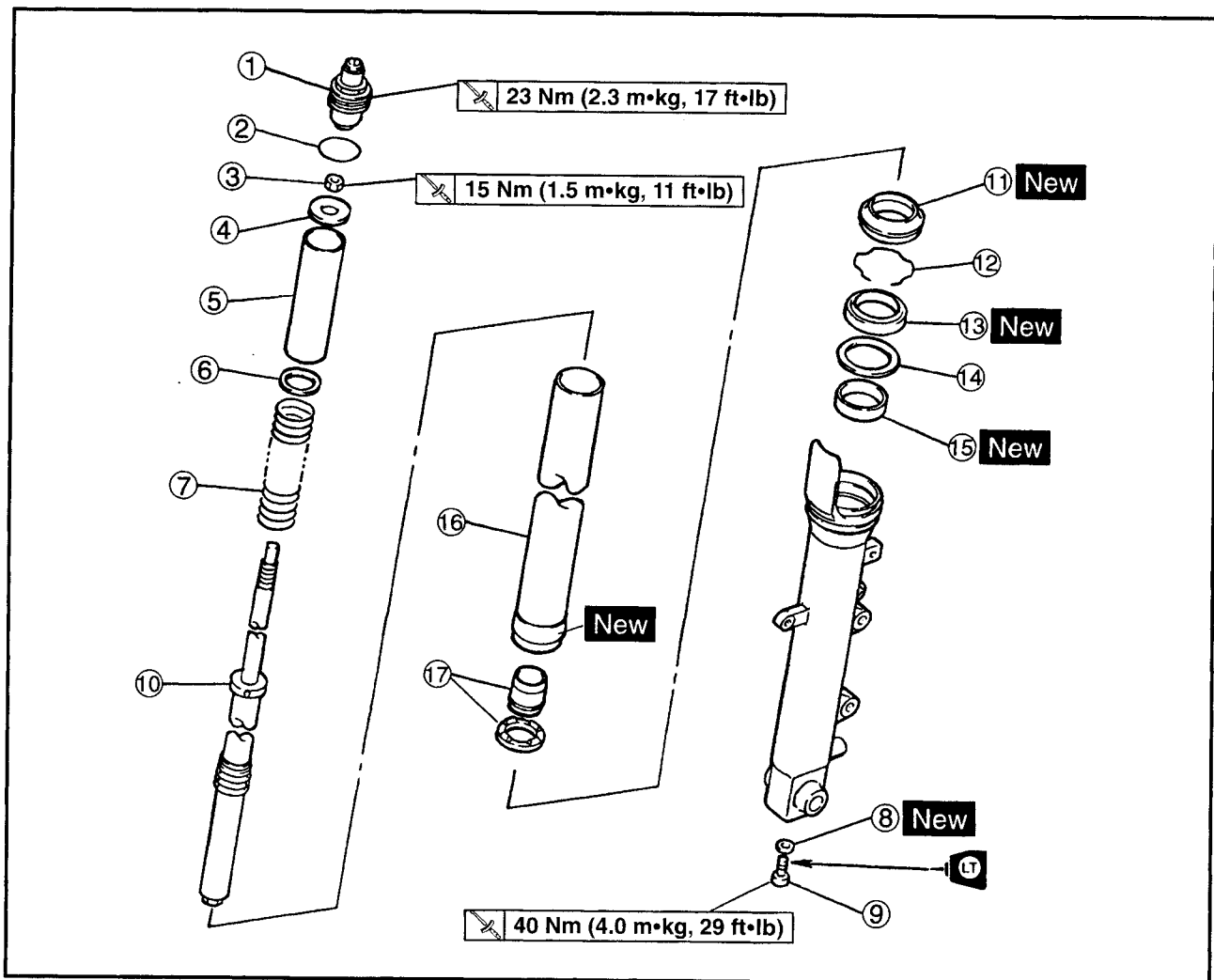
EAS00647



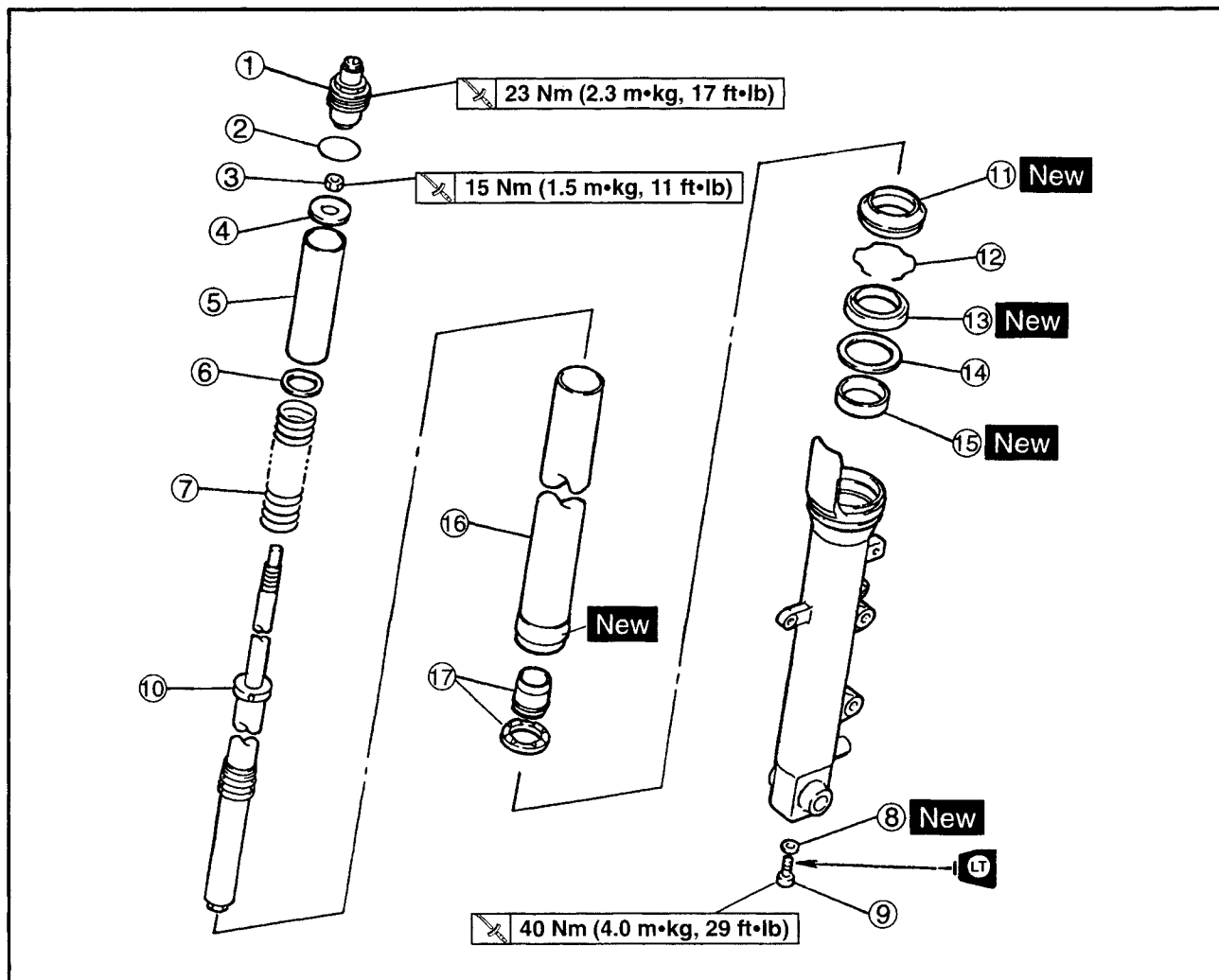
| Order | Job/Part | Q'ty | Remarks |
|-------|-------------------------------------|------|---|
| | Removing the front fork legs | | Remove the parts in the order listed. |
| | Front brake calipers | | The following procedure applies to both of the front fork legs. |
| | Front wheel | | Refer to "FRONT 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 | | |
| ① | Cap bolt | 1 | Remove the parts in the order listed. The following procedure applies to both of the front fork legs. |
| 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 | Refer to "DISASSEMBLING/ ASSEMBLING THE FRONT FORK LEGS". |
| ⑫ | Oil seal clip | 1 | |
| ⑬ | Oil seal | 1 | |
| 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.

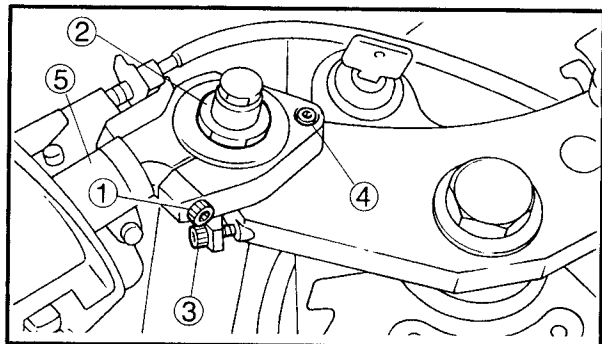
1. Stand the motorcycle on a level surface.

⚠ 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.

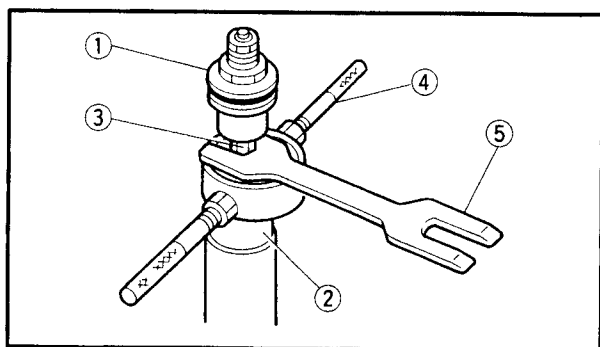


- upper bracket pinch bolt ③
- cap bolt ②
- handlebar pinch bolt ①
- lower bracket pinch bolt
- upper bracket bolt ④
- handlebar ⑤

⚠ WARNING

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

3. Remove:
- front fork leg



FAS00655

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

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



Fork spring compressor
90890-01441

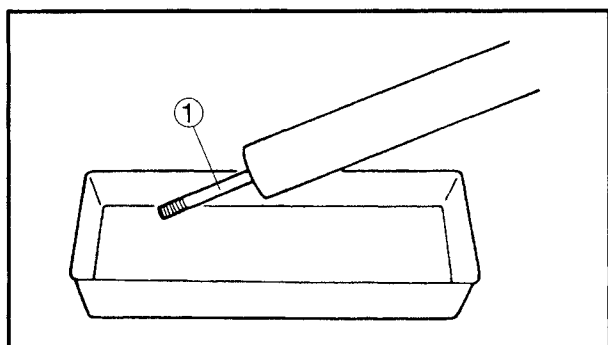
Rod holder
90890-01434

Use the side of the rod holder that is marked “B”.

- ⚠ WARNING**

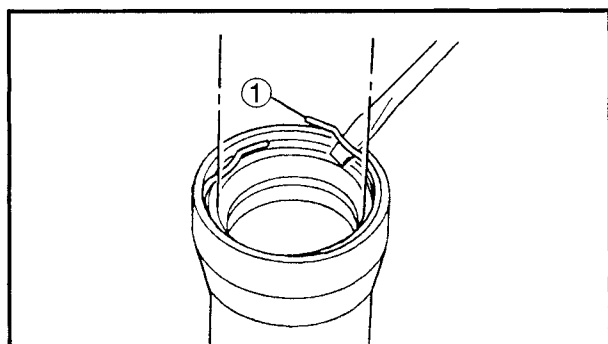
The fork spring is compressed.

- A**

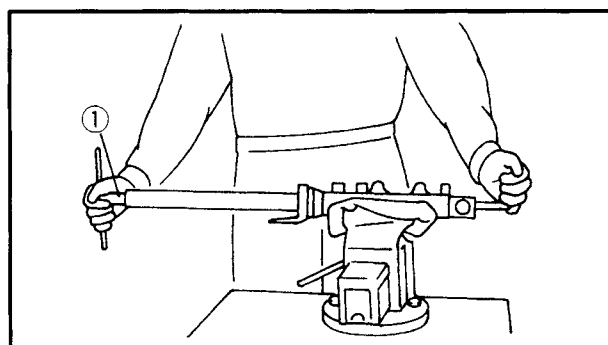


- NOTE:**

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



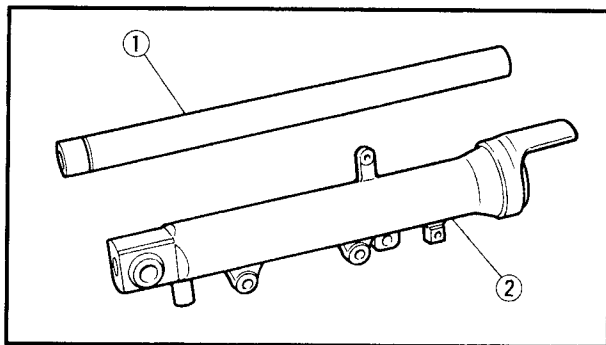
4. Remove:
 - damper rod assembly bolt
 - copper washer

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.

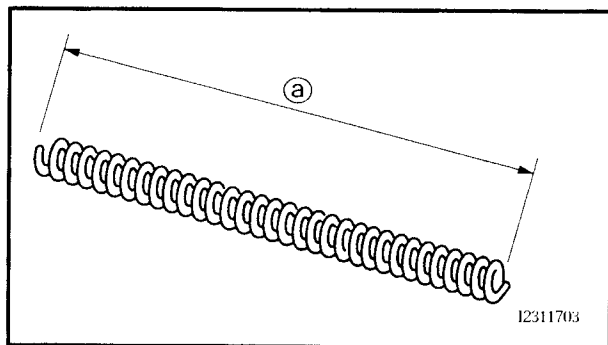
1. Check:

- 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 (a)

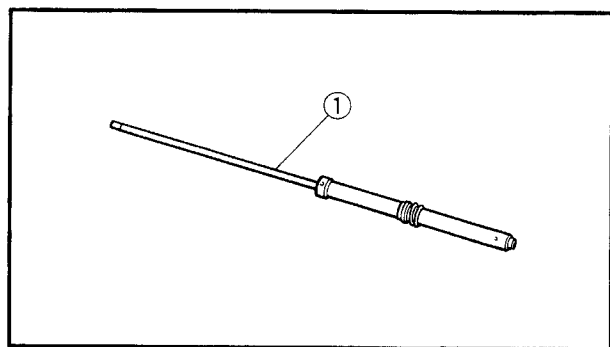
Out of specification → Replace.



Spring free length limit

251.8 mm (9.91 in)

<Limit>: 246 mm (9.69 in)



3. Check:

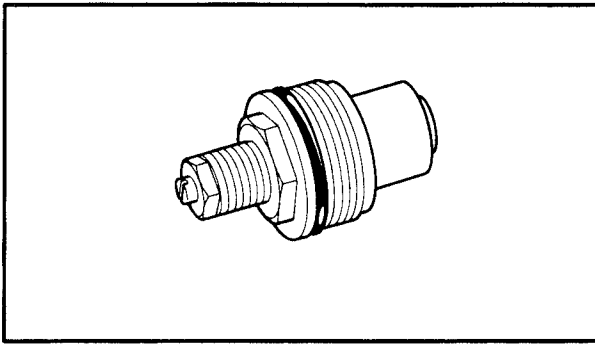
- damper rod ①

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

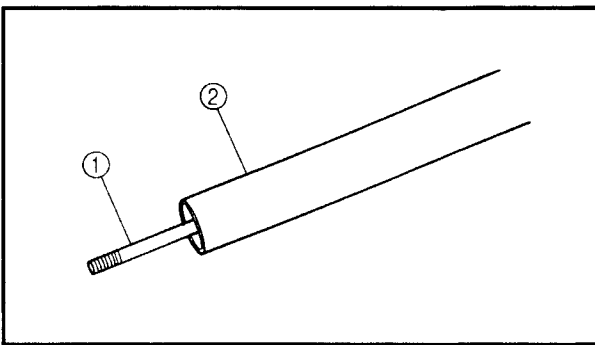
The following procedure applies to both of the front fork legs.

⚠ 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

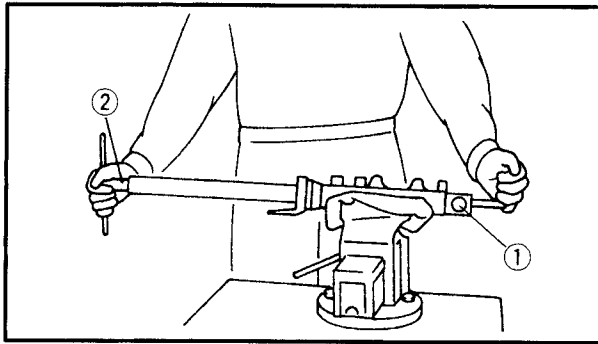
Always use new copper washers.

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)



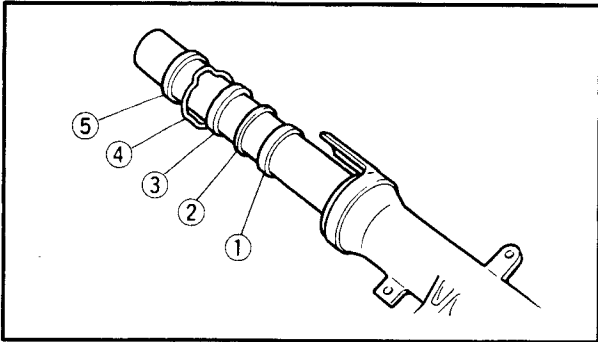
40 Nm (4.0 m•kg, 29 ft•lb)

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:

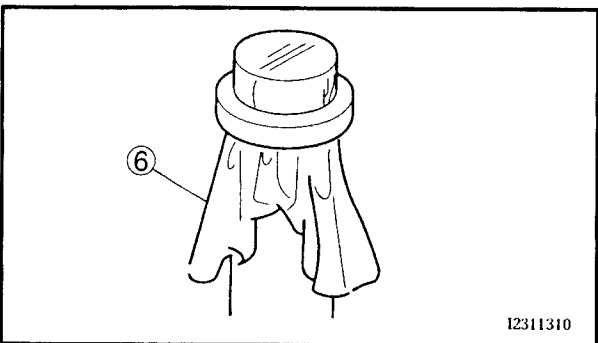
- outer tube bushing (1)
- washer (2)
- oil seal (3)
- oil seal clip (4)
- dust seal (5)

CAUTION:

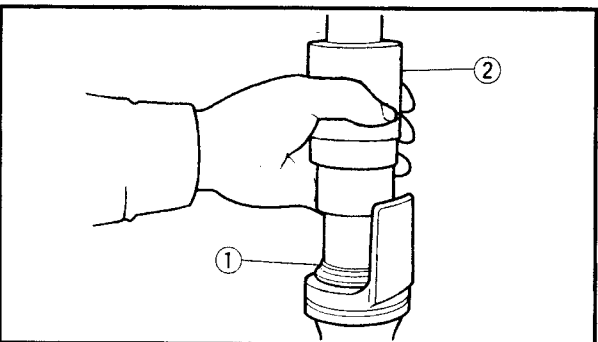
Make sure that the numbered side of the oil seal faces up.

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.



12311310

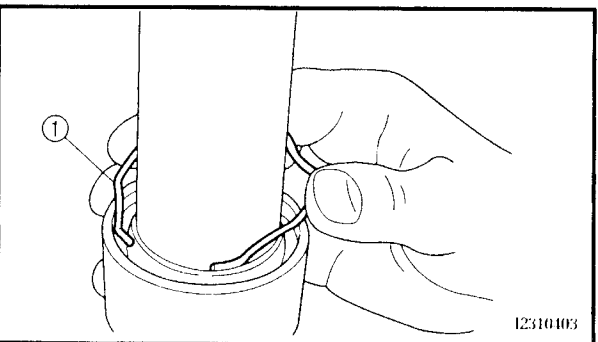


5. Install:

- 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



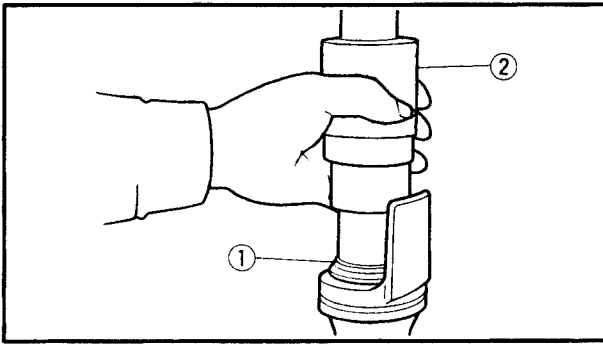
12310403

6. Install:

- oil seal clip (1)

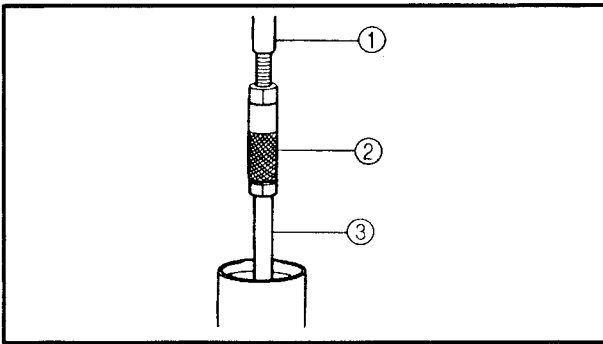
NOTE:

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)

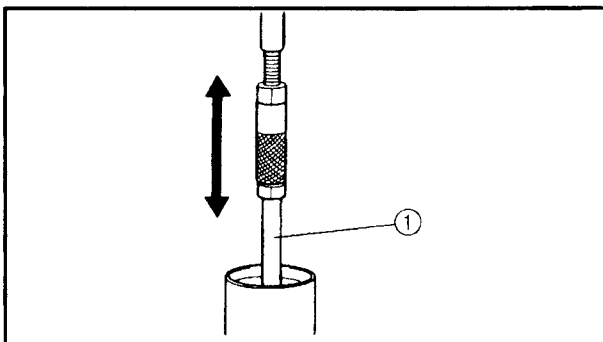
Recommended oil

Yamaha fork and suspension
oil 01

or equivalent

CAUTION:

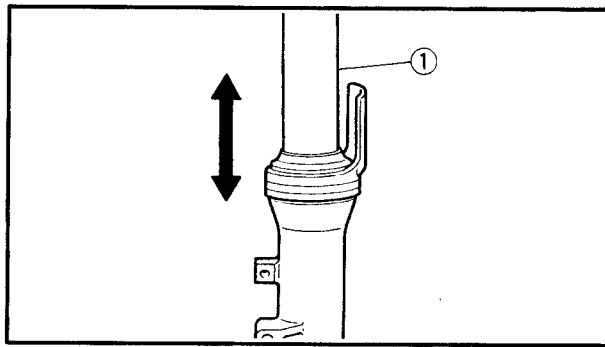
- Be sure to use the recommended fork oil. Other oils may have an adverse effect on front fork performance.
- When disassembling and assembling the front fork leg, do not allow any foreign material to enter the front fork.



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)).

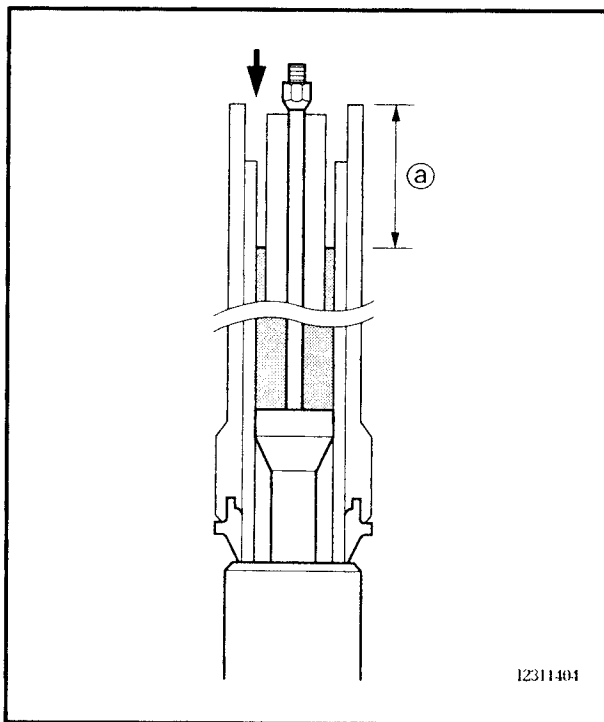
NOTE:

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.

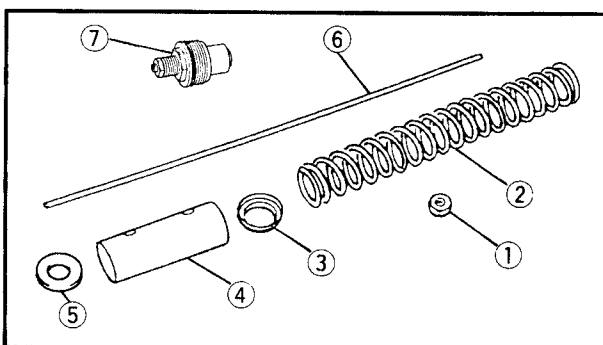


14. Measure:

- front fork leg oil level ①
- 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



- Remove the rod puller and adapter.
- 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 (b).



Distance (b)
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.

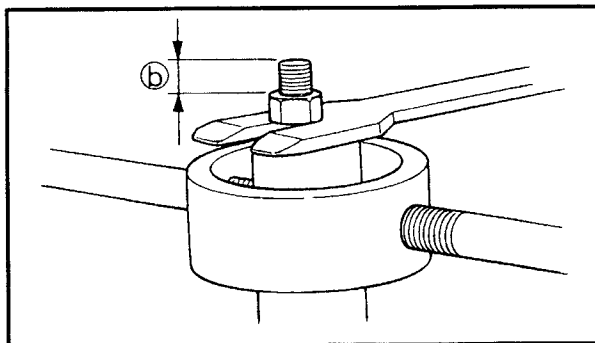
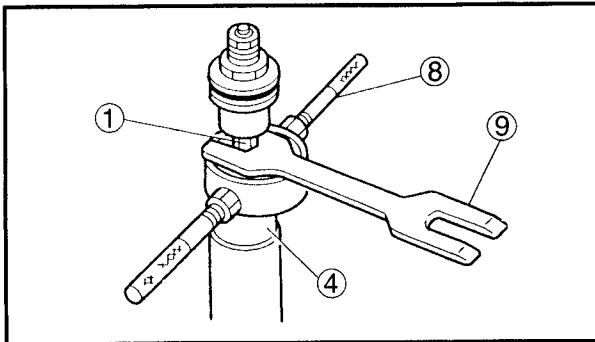


Nut:
15 Nm (1.5 m•kg, 11 ft•lb)

- 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

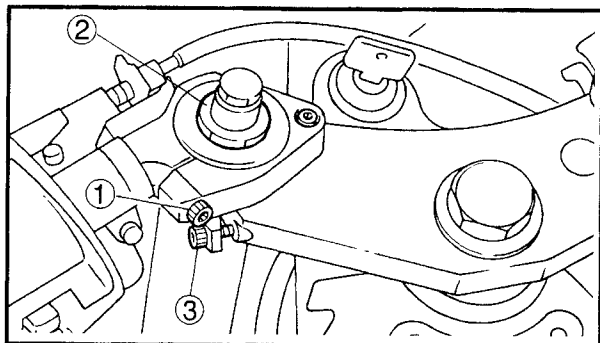
The following procedure applies to both of the front fork legs.

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.

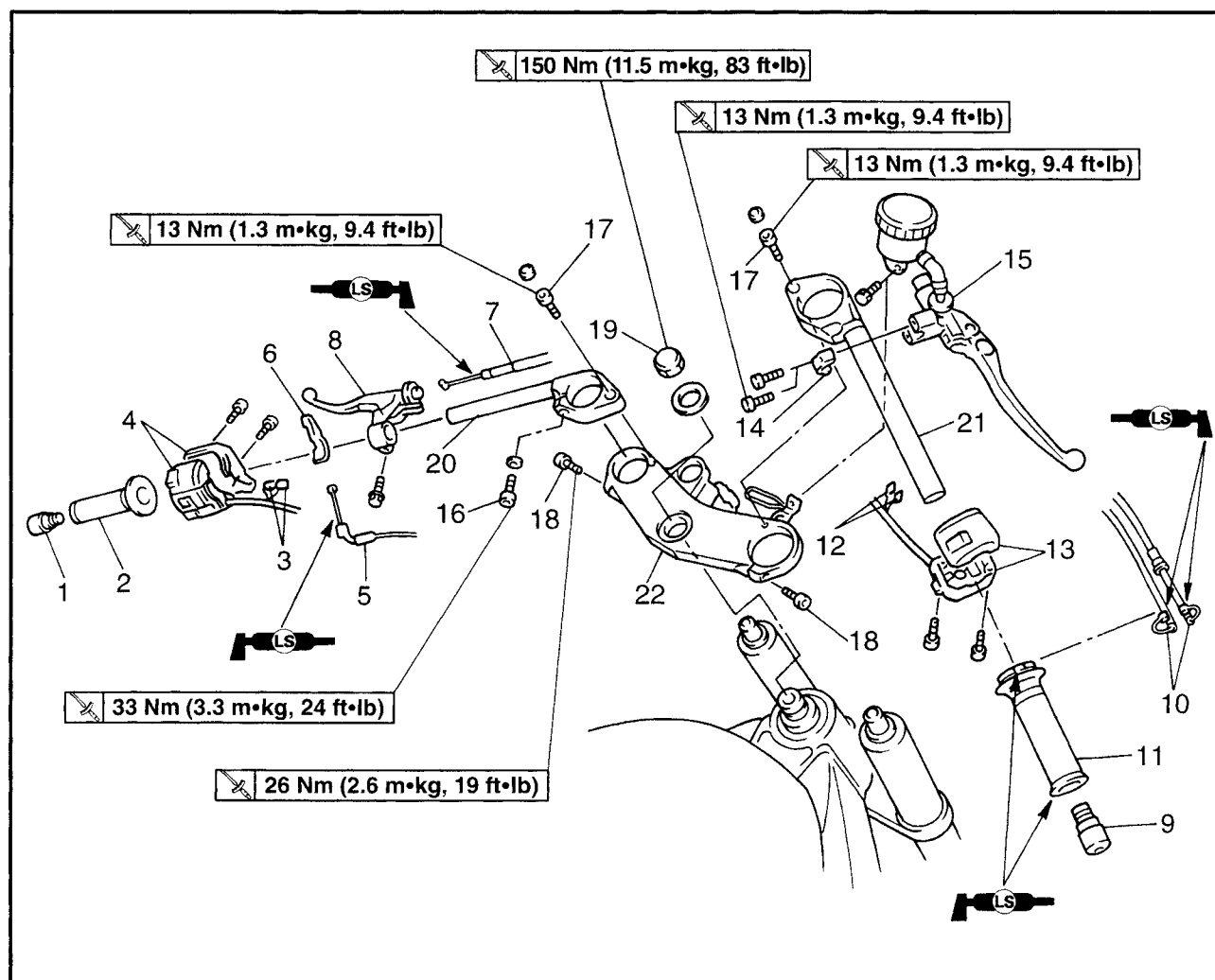
3. Adjust:

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

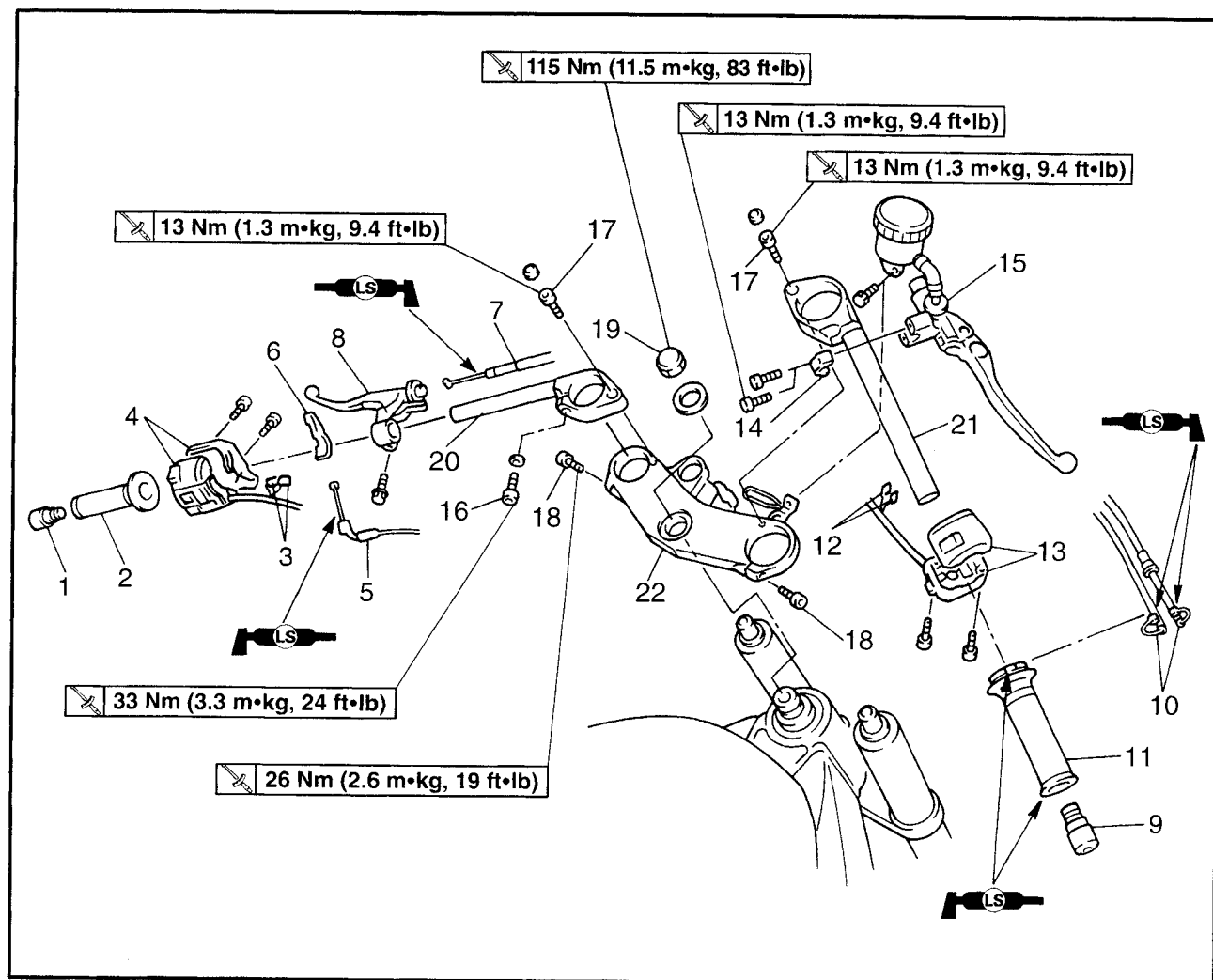


EAS00665

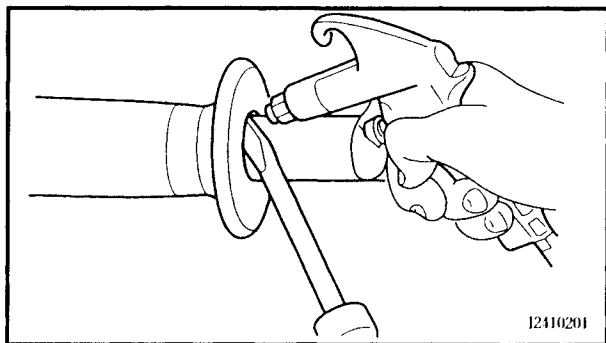
HANDLEBARS



| Order | Job/Part | Q'ty | Remarks |
|-------|--------------------------------|------|--|
| | Removing the handlebars | | |
| 1 | Left grip end | 1 | Remove the parts in the order listed. |
| 2 | Handlebar grip | 1 | Refer to "REMOVING/INSTALLING THE HANDLEBARS". |
| 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 to "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

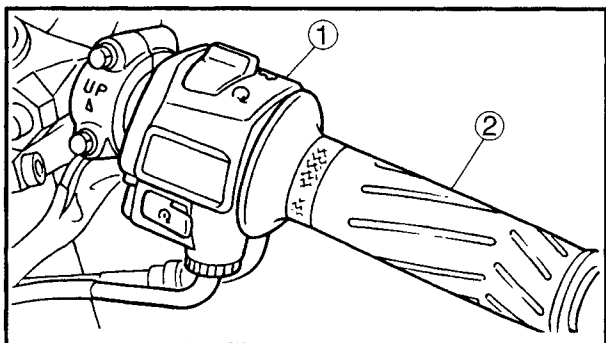
Securely support the motorcycle so that there is no danger of it falling over.

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

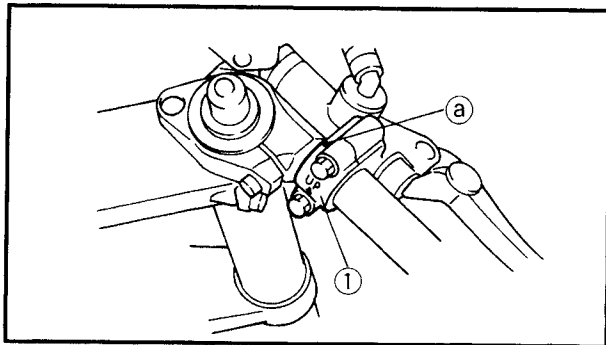
CHECKING THE HANDLEBARS

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:**

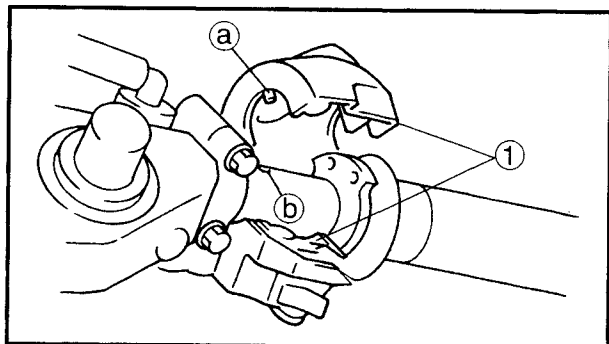
- brake master cylinder holder ①

CAUTION:

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

NOTE:

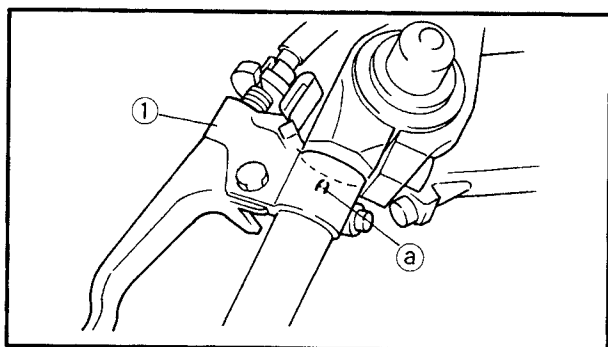
- Align the mating surfaces of the brake master cylinder holder with the punch mark (a) in the right handlebar.
- There should be 2 mm of clearance between the right handlebar switch and the brake master cylinder holder.

**2. Install:**

- right handlebar switch ①
- throttle cables
- grip end

NOTE:

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

**3. Install:**

- clutch lever holder ①

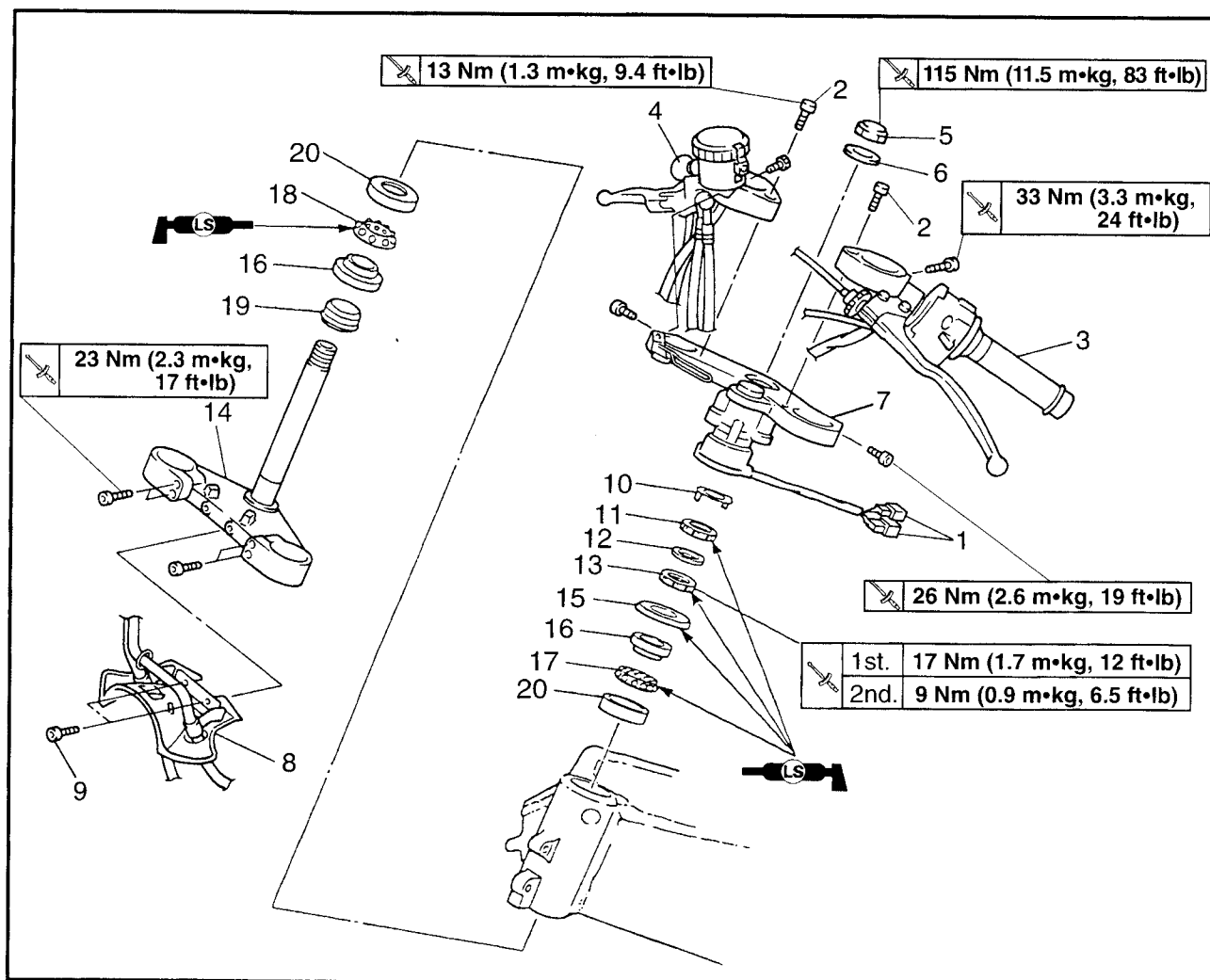
NOTE:

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

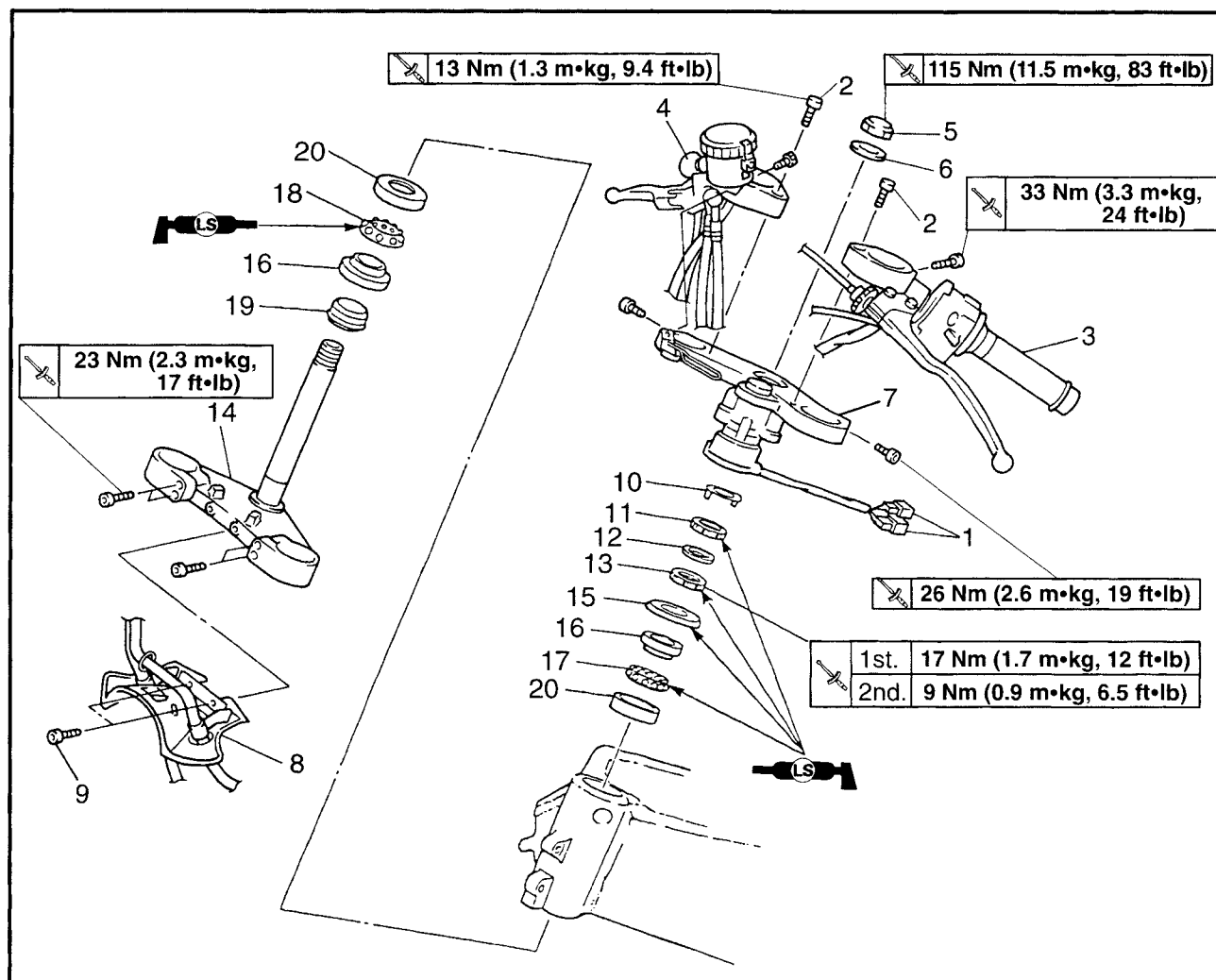


EAS00676

STEERING HEAD LOWER BRACKET



| Order | Job/Part | Q'ty | Remarks |
|-------|-----------------------------------|------|---|
| | Removing the lower bracket | | |
| | Front wheel | | Remove the parts in the order listed. 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 | |
| 11 | Upper ring nut | 1 | Refer to "CHECK AND ADJUSTING THE STEERING HEAD" in chapter 3. |
| 12 | Rubber washer | 1 | |



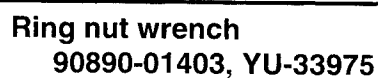
| Order | Job/Part | Q'ty | Remarks |
|-------|--------------------|------|--|
| 13 | Lower ring nut | 1 | Refer to "CHECK AND ADJUSTING THE STEERING HEAD" in chapter 3. |
| 14 | Lower bracket | 1 | |
| 15 | Bearing cover | 1 | |
| 16 | Bearing inner race | 2 | |
| 17 | Upper bearing | 1 | |
| 18 | Lower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



1. Stand the motorcycle on a level surface.

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)



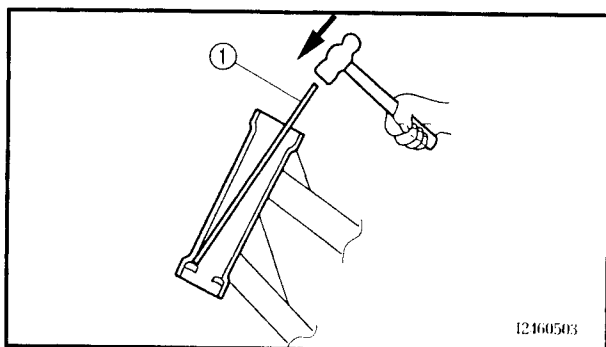
Securely support the lower bracket so that there is no danger of it falling.

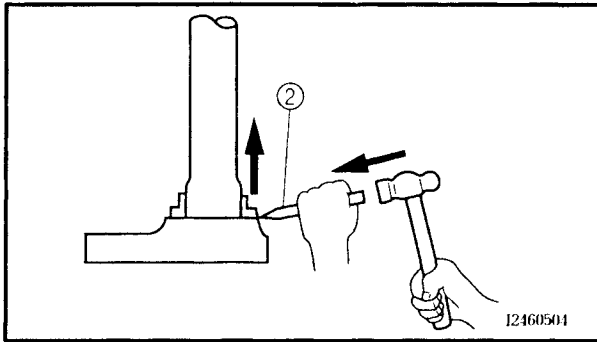
EAS00682

1. Wash:
 - bearing balls
 - bearing races



- bearing balls ①
 - bearing races ②
- Damage/pitting → Replace.





- 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.

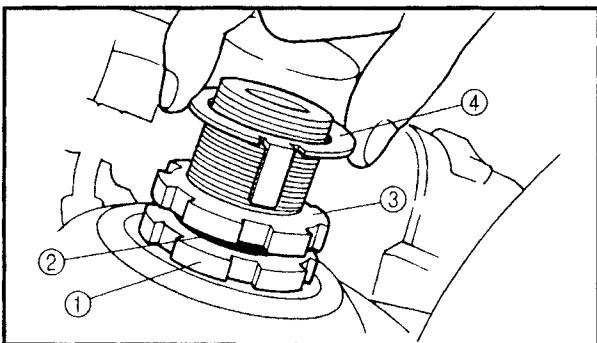
EAS00683

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

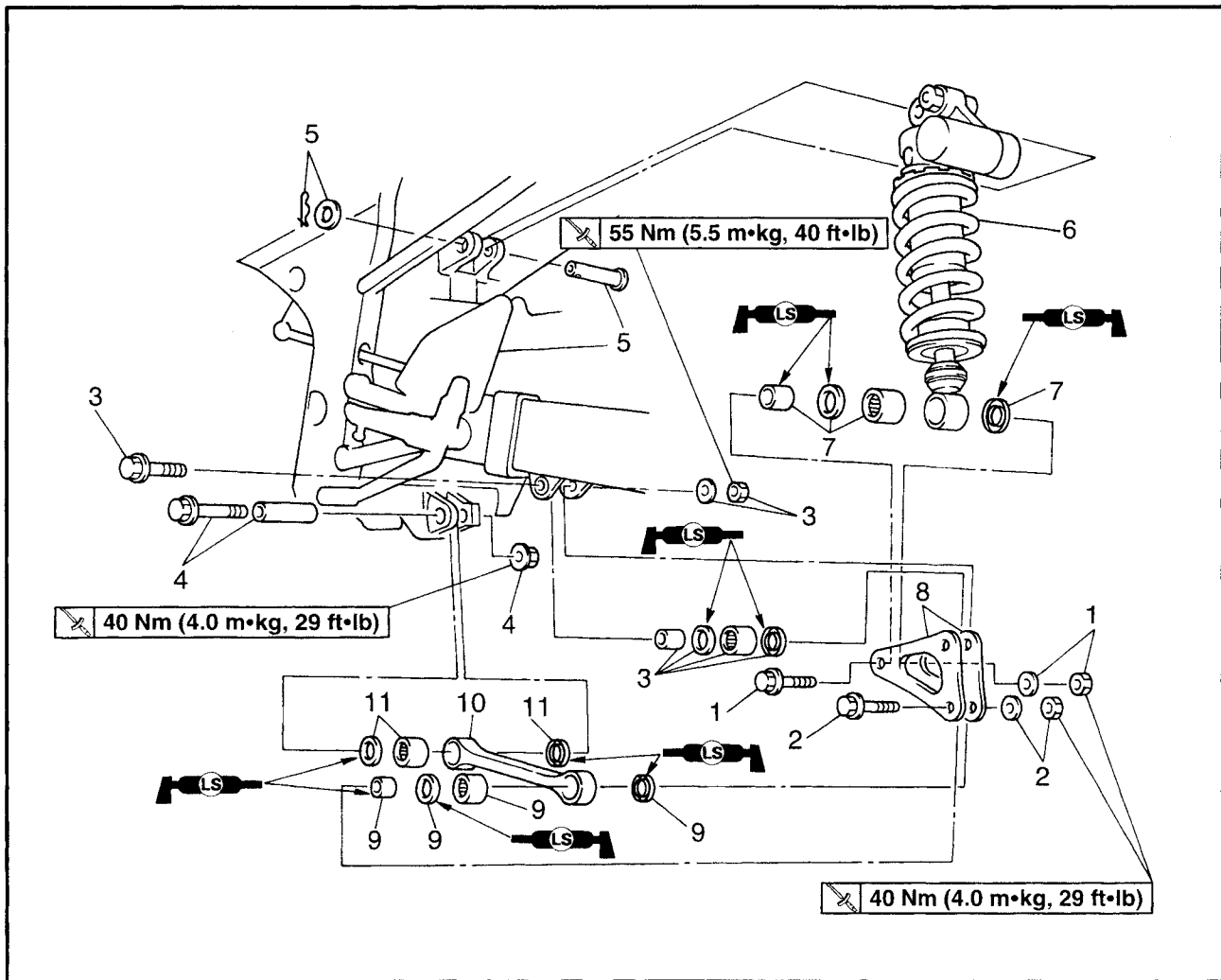
13 Nm (1.3 m•kg, 9.4 ft•lb)

- 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 | Refer to "REMOVING THE REAR SHOCK ABSORBER ASSEMBLY". |
| 2 | Self-locking nut/bolt | 1/1 | |
| 3 | Self-locking nut/bolt/coller | 1/1/1 | |
| 4 | Self-locking nut/bolt | 1/1 | |
| 5 | Pin/clip/washer | 1/1/1 | |
| 6 | Rear shock absorber assembly | 1 | |
| 7 | Collar/oil seal/bearing | 1/2/1 | |
| 8 | Relay arm | 2 | |
| 9 | Collar/oil seal/bearing | 1/2/1 | |
| 10 | Connecting arm | 1 | |
| 11 | Collar/oil seal/bearing | 1/2/1 | For installation, reverse the removal procedure. |

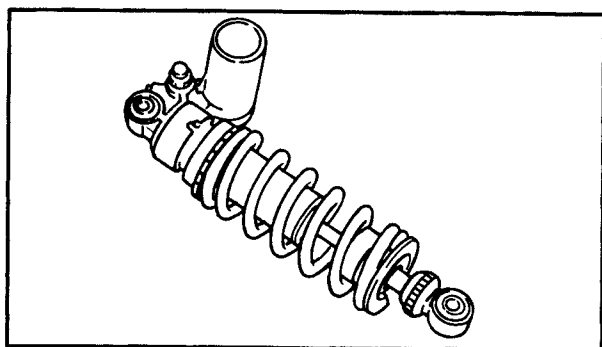
EAS00687

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

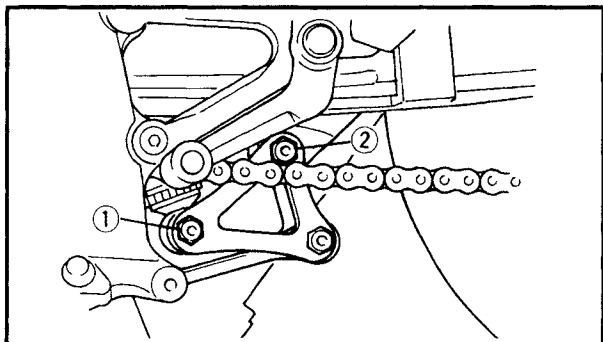
1. Stand the motorcycle on a level surface.

⚠ 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.

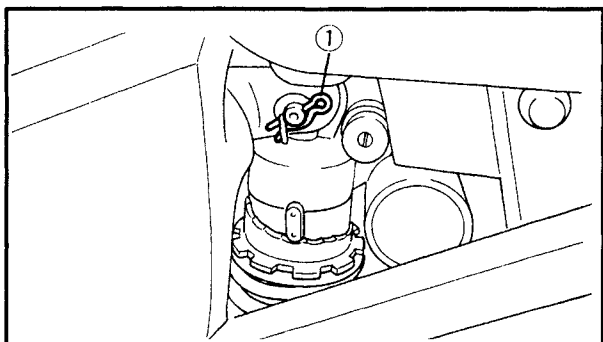


2. Remove:

- 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.

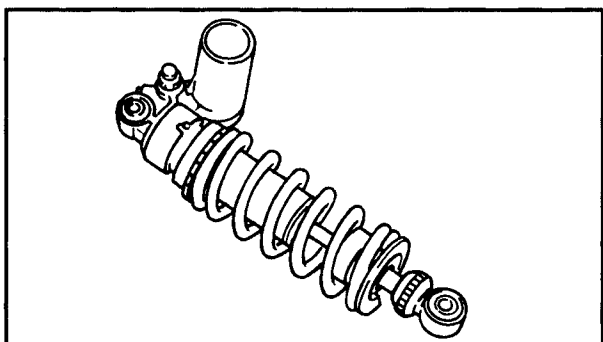


3. Remove:

- rear shock absorber assembly upper pin ①
- rear shock absorber assembly

NOTE:

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

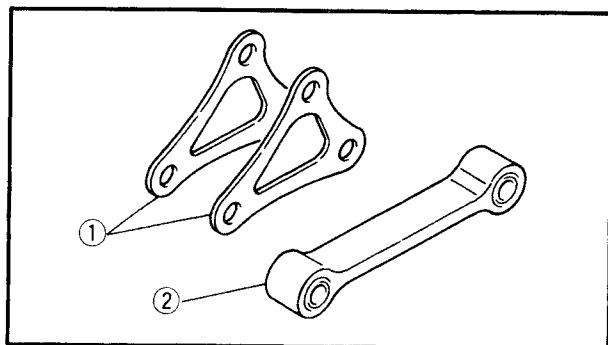


EAS00696

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:

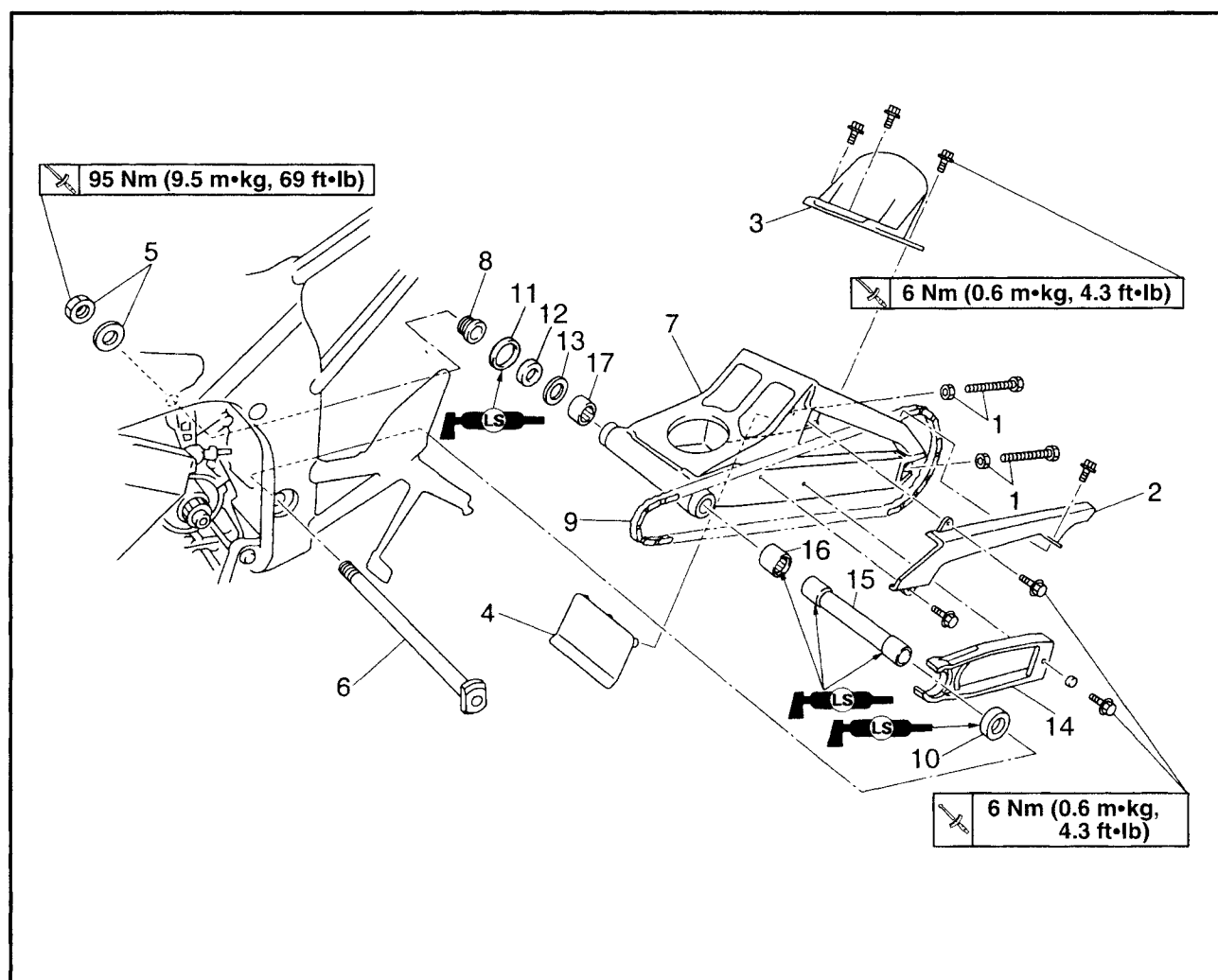
When installing the rear shock absorber assembly, lift up the swingarm.

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)

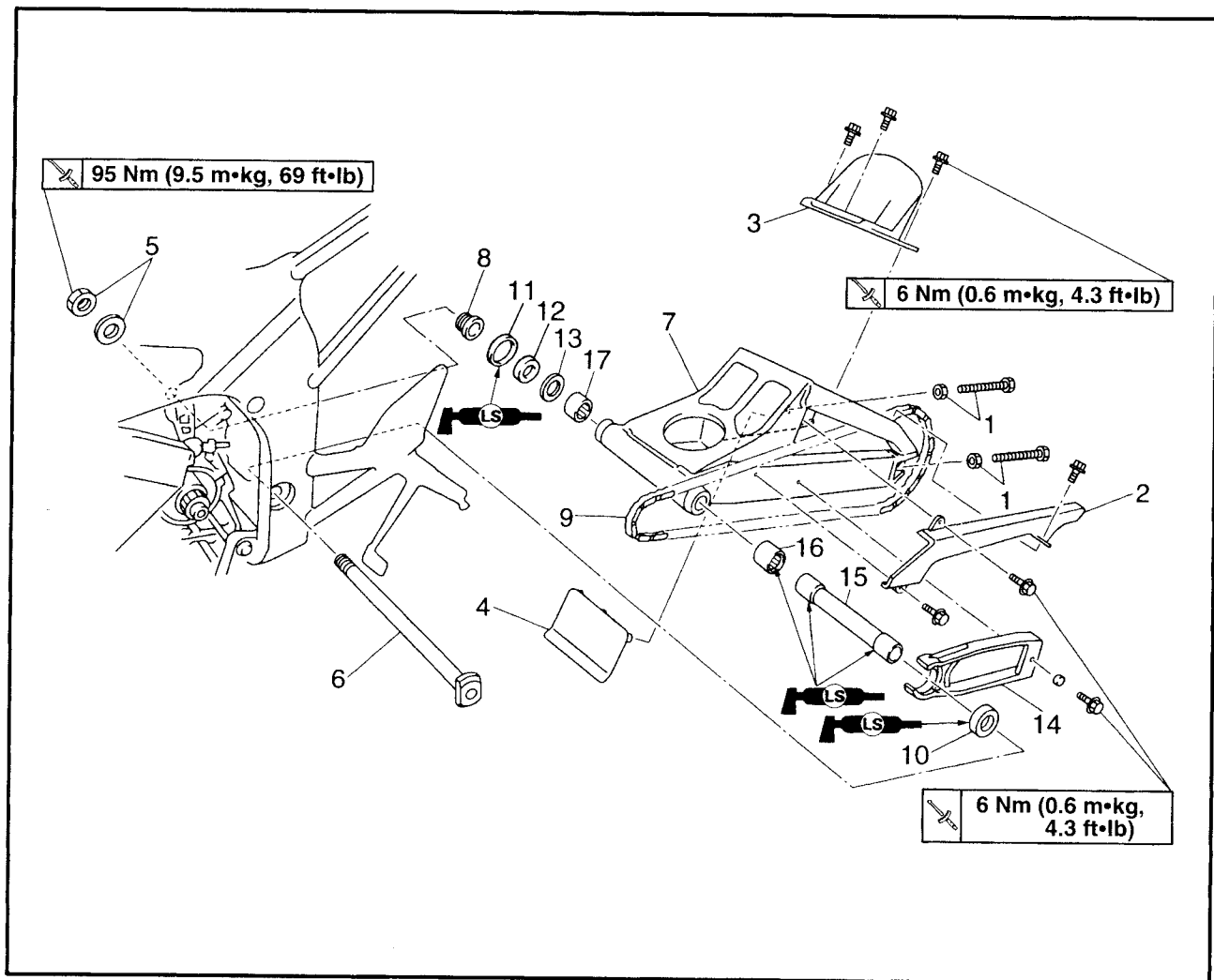


EAS00700

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 | |

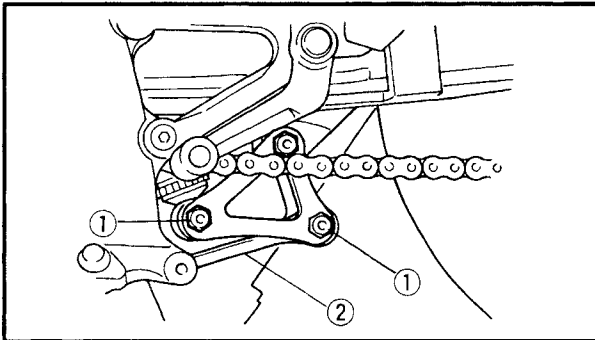


| Order | Job/Part | Q'ty | Remarks |
|-------|-------------------------|------|--|
| 8 | Pivot shaft adjust bolt | 2 | Refer to "REMOVING/INSTALLING THE SWINGARM". |
| 9 | Drive chain | 1 | |
| 10 | Dust cover | 1 | |
| 11 | Oil seal | 1 | |
| 12 | Bush | 1 | |
| 13 | Shim | 1 | |
| 14 | Drive chain 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

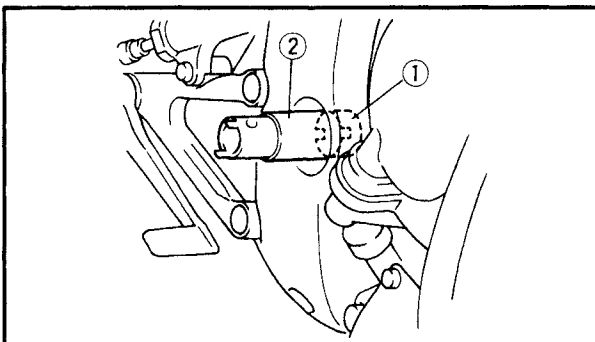
REMOVING THE SWINGARM

1. Remove:

- Bolt (connecting rod) ①
- Connecting rod ②

NOTE:

Remove the bolt while holding the swingarm.



2. Loosen:

- Pivot shaft adjust bolt ①

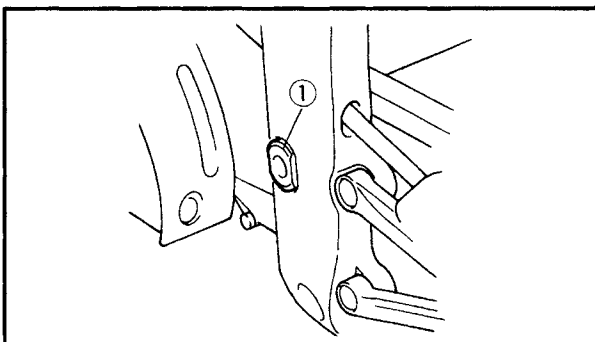
NOTE:

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

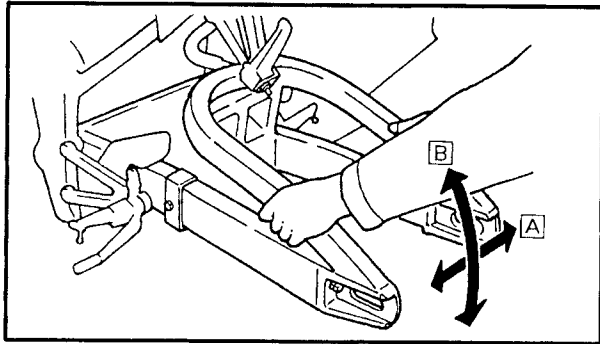
1. Stand the motorcycle on a level surface.

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)

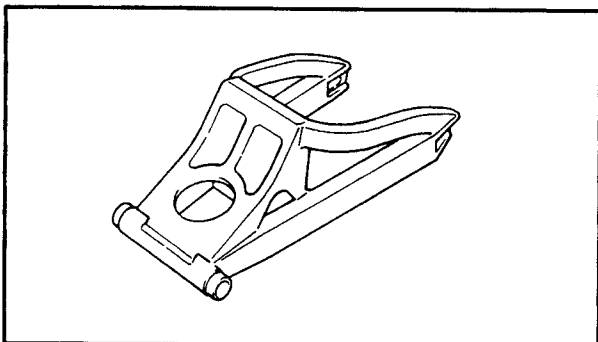
- b. Measure the swingarm side play **A** by moving the swingarm from side to side.
- c. If the swingarm side play is out of specification, check the spacers, bearings, washers, and dust covers.



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 dust covers.

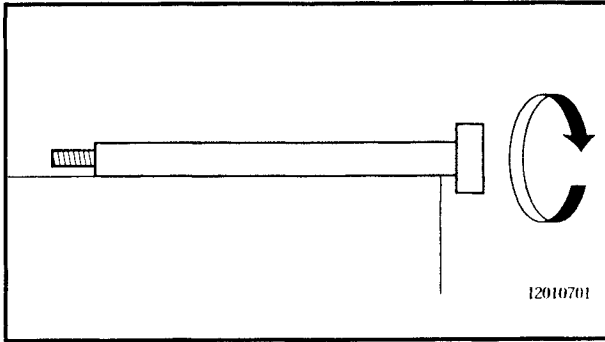


3. Check:

- 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

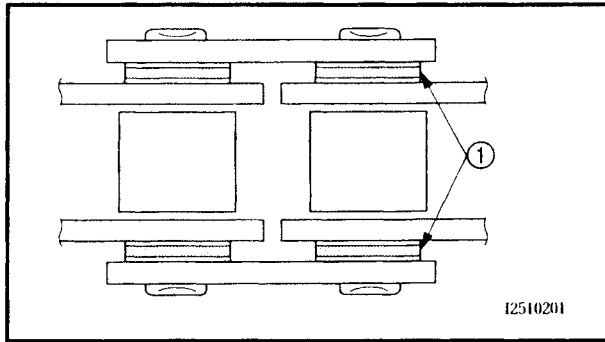
6. Check:

- dust covers
- spacer
- oil seals

Damage/wear → Replace.

- bearings

Damage/pitting → Replace.



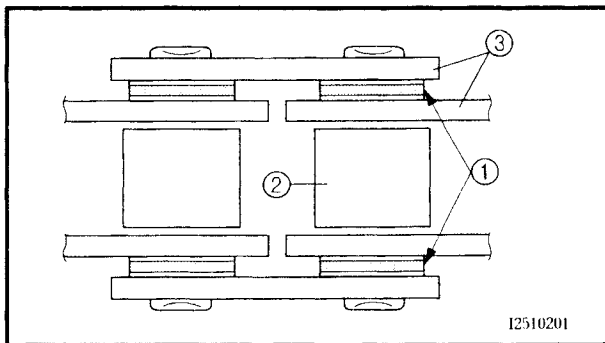
- c. Remove the drive chain from the kerosine and completely dry it.

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., benzene), 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 chain in kerosine more than ten minutes. O-ring is damaged by kerosine.

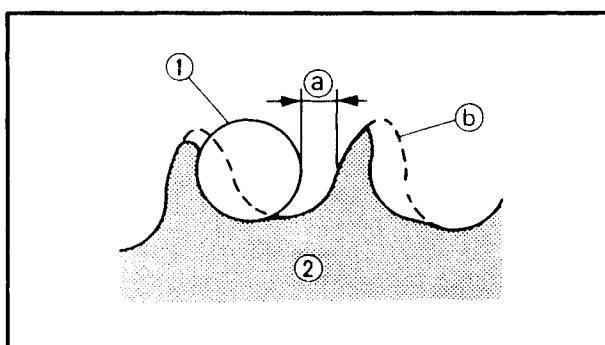


4. Check:
- O-rings ①
Damage → Replace the drive chain.
 - drive chain rollers ②
Damage/wear → Replace the drive chain.
 - drive chain side plates ③
Cracks/damage/wear → Replace the drive chain.

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 ① wear → Replace the drive chain sprockets as a set.
Bent teeth → Replace the drive chain sprockets as a set.
- ① Correct
- ① Drive chain roller
- ② Drive chain sprocket

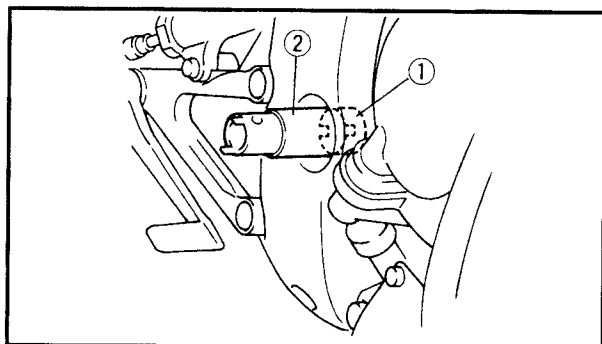


EAS00711

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)