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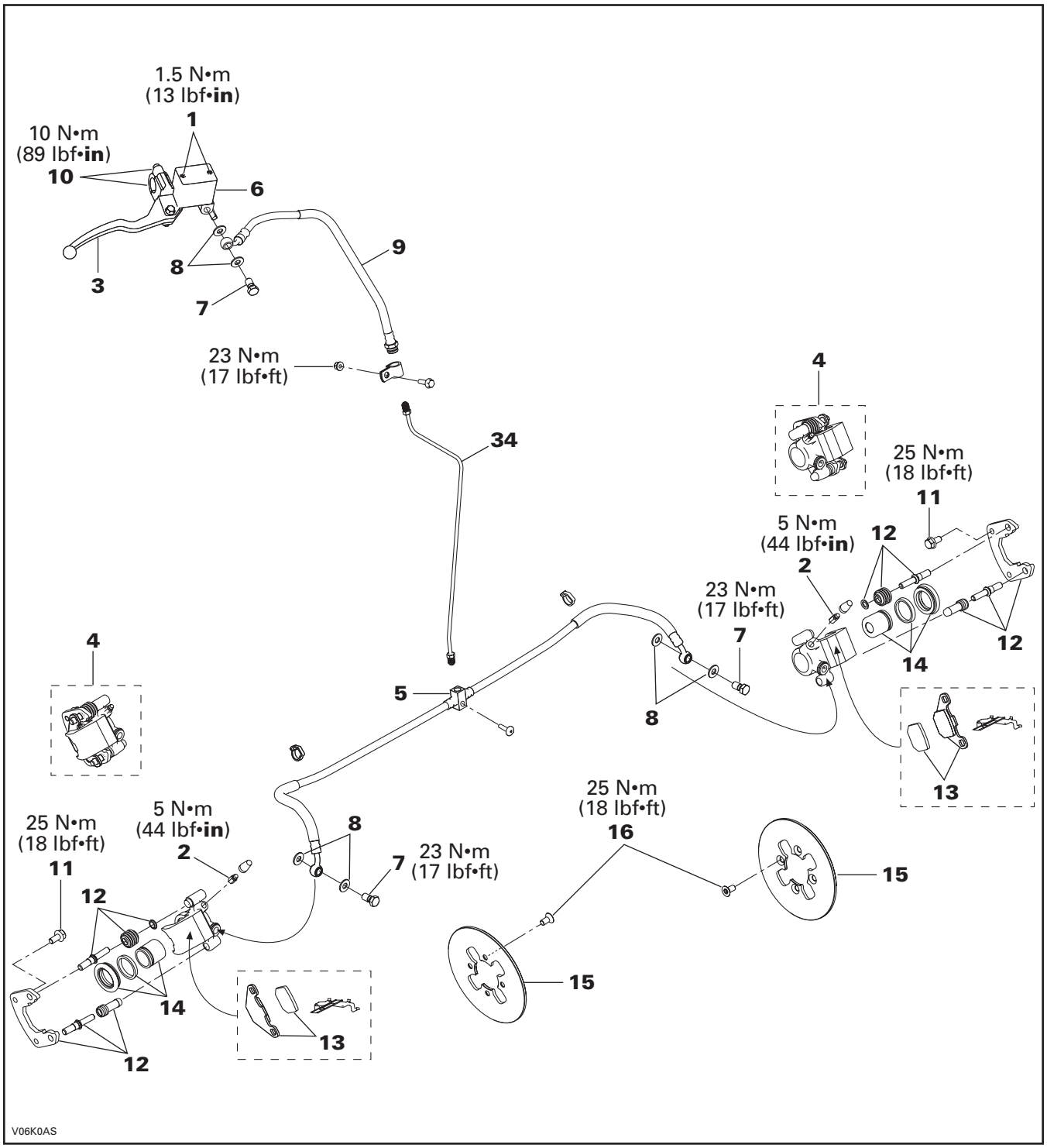
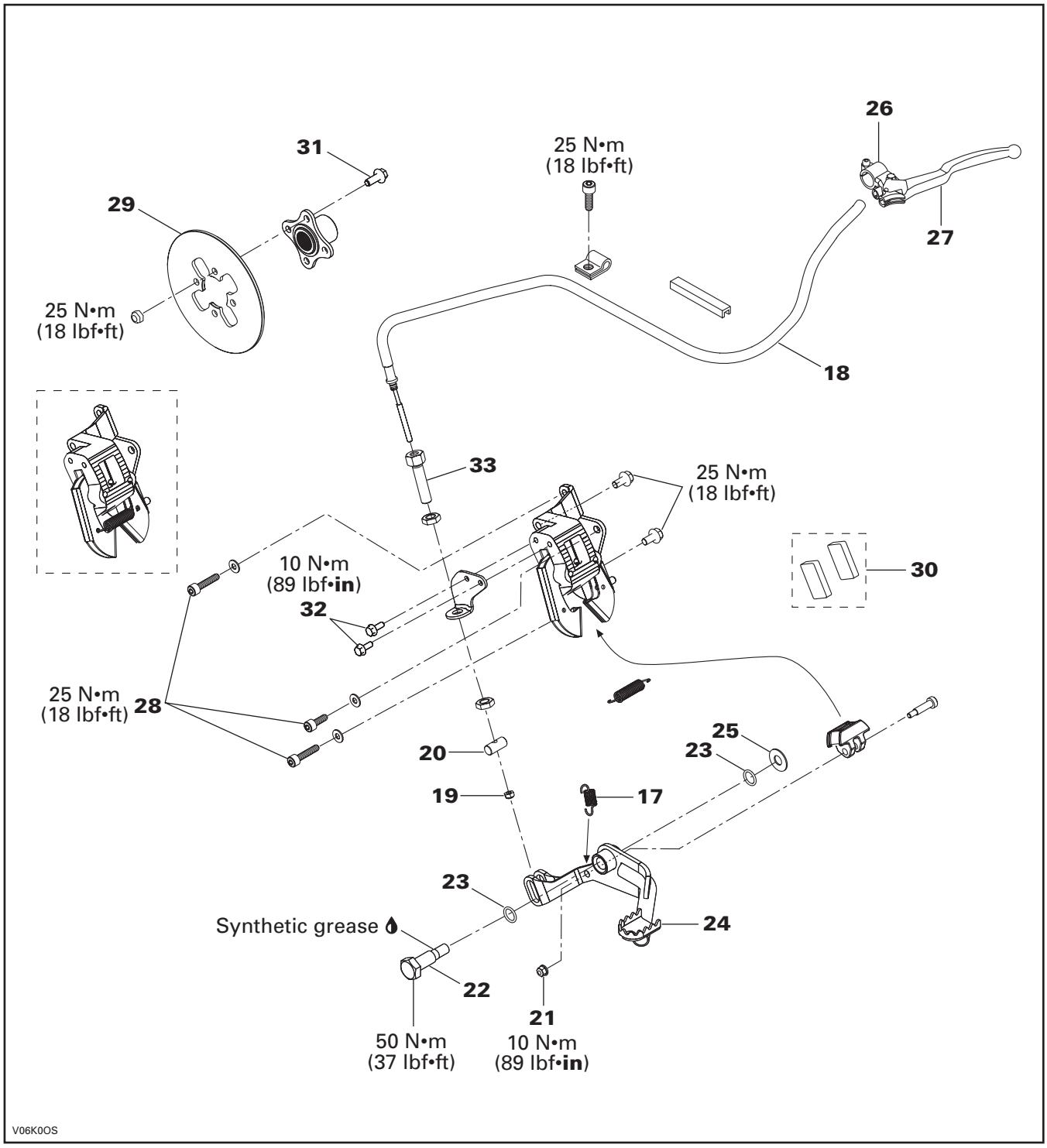
HYDRAULIC BRAKES

FRONT BRAKES



REAR BRAKE


26
31
25 N•m
(18 lbf•ft)
29
27
25 N•m
(18 lbf•ft)
18
33
25 N•m
(18 lbf•ft)
30
10 N•m
(89 lbf•in)
32
25 N•m
(18 lbf•ft)
28
25
23
20
19
17
23
24
Synthetic grease
22
21
50 N•m
(37 lbf•ft)
10 N•m
(89 lbf•in)
V06K0OS

GENERAL

For installation, use the torque values and Loctite products from exploded views. Clean threads before using Loctite product when installing screws.

⚠ WARNING

Torque wrench tightening specifications must strictly be adhered to.

Locking devices (ex.: locking tabs, elastic stop nuts, self-locking fasteners, etc.) must be installed or replaced with new ones where specified. If the efficiency of a locking device is impaired, it must be renewed.

Hydraulic Brakes System

The brake system consists of master cylinder and reservoir. Only front brake is hydraulic brake.

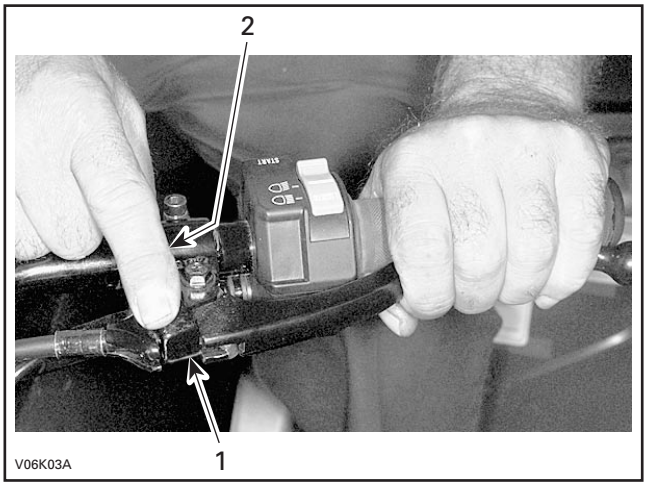
Both front and rear brakes are disc type.

⚠ WARNING

Periodically check the brake hoses for damages or leaks. Repair any damage before operating the vehicle.

Parking Brake

The parking brake operates the rear brake only. It is activated by a locking mechanism on LH brake lever.



1. Brake lever lock
2. Press to apply parking brake

BRAKE FLUID

Recommended Fluid

Always use brake fluid meeting the specification DOT 4 only.

CAUTION: To avoid serious damage to the braking system, do not use fluids other than the recommended one, nor mix different fluids for topping up.

Fluid Level

With vehicle on a level surface, check brake fluid in reservoir for proper level. It should be above MIN. mark.

Add fluid as required. **Do not overfill.**

Clean filler cap before removing.

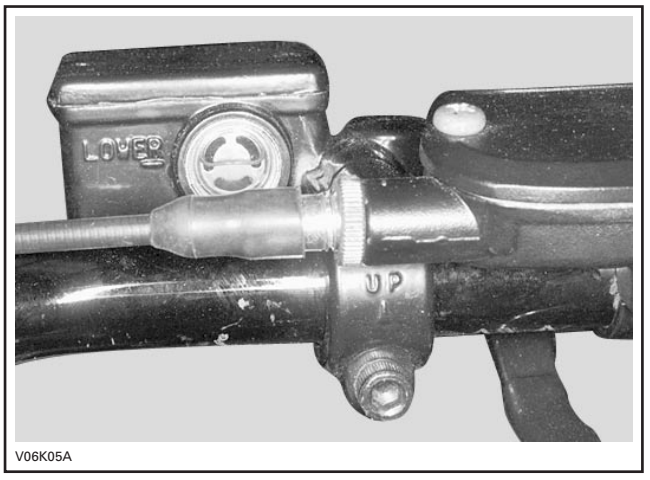
CAUTION: Use only DOT 4 brake fluid from a sealed container. Do not use brake fluid taken from old or already opened containers.

NOTE: A low level may indicate leaks or worn brake pads.

Front Brake Fluid Reservoir

Turn steering in the straight-ahead position to ensure reservoir is level. Check the brake fluid level, the reservoir is full when the fluid reaches the top of window.

Visually inspect lever boot condition. Check for cracks, tears, etc. Replace if damaged.



Fluid Replacement

⚠ WARNING

A contaminated brake disc or pad reduces stopping power. Discard contaminated pads and clean a contaminated disc with a high quality brake degreasing agent.

CAUTION: Avoid spilling brake fluid on plastic, rubber or painted parts. Protect these parts with a rag when servicing brake system.

Brake Fluid Draining

Remove reservoir cover **no. 1**.

Connect bleed hose to bleed valve **no. 2**.

Loosen bleed valve and pump brake lever **no. 3** until no more fluid flows out of bleed valve.

Brake Fluid Filling and Bleeding

Close bleed valve.

Fill reservoir with DOT 4 brake fluid.

CAUTION: To avoid serious damage to the braking system, do not use fluids other than the recommended one, nor mix different fluids for topping up.

CAUTION: Use only DOT 4 brake fluid from a sealed container. Do not use brake fluid taken from old or already opened containers.

Install the vacuum pump (P/N 529 021 800) to bleed valve. See the manufacturer's operating instructions.

Pump vacuum pump and loosen bleed valve. Close bleed valve and refill reservoir when the fluid level is low.

NOTE: Check fluid level often to prevent air from being pumped into the system.

Repeat the procedures until air bubbles don't appear in bleed hose.

NOTE: For the front brake system, switch to LH and RH caliper **no. 4**. Turn handlebar to full RH side when bleeding right caliper and turn to the LH side for the left caliper. This helps the bleeder to reach air in the caliper.

Close bleed valve and operate brake lever **no. 3**. If it still feels spongy, bleed system again.

Repeat the procedures until air bubbles don't appear in tube and lever is stiff.

Fill reservoir to the upper level with DOT 4 brake fluid.

Install cover on reservoir.

If vacuum pump is not available, use the following procedure.

Install a tube to bleed valve.

Open bleeder. Fill reservoir and pump brake lever until fluid freely flows out of the tube.

Close bleed valve.

Pump up system pressure with brake lever until lever resistance is felt.

Squeeze brake lever, open bleed valve and then close it.

NOTE: Do not release brake lever until bleed valve has been closed. For the front brake system, switch to LH and RH caliper. Turn handlebar to full RH side when bleeding right caliper and turn to the LH side for the left caliper. This helps to reach air in the caliper.

Release brake lever slowly.

Repeat the procedures until air bubbles do not appear in tube and lever is stiff.

MASTER CYLINDER

Removal

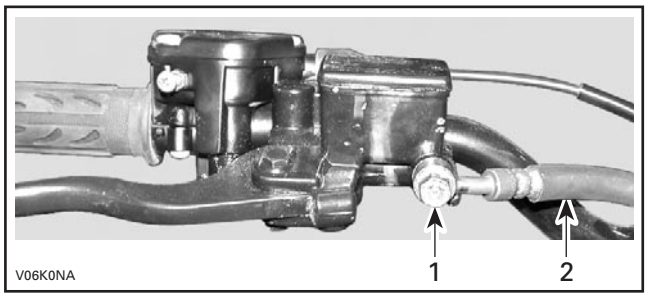
Remove reservoir cover **no. 1** and drain brake fluid from master cylinder **no. 6**.

CAUTION: Avoid spilling brake fluid on plastic, rubber or painted parts. Protect these parts with a rag when servicing brake system.

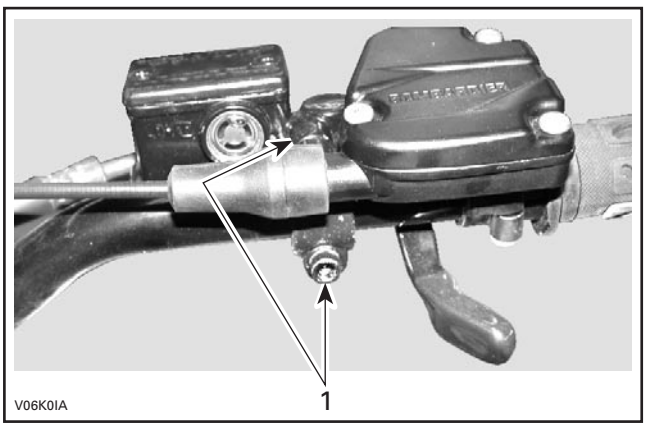
Remove Banjo bolt **no. 7** and sealing washers **no. 8** retaining brake hose **no. 9** to master cylinder **no. 6**.

NOTE: Discard sealing washers.

Remove screws **no. 10** from master cylinder holder and remove master cylinder from handlebar.



1. Banjo bolt
2. Brake hose



1. Screws

Inspection and Lubrication

Discard any remaining fluid inside reservoir.

Check hoses and fittings for damages or leaks.

Clean reservoir, pistons and master cylinders thoroughly with clean brake fluid.

Check:

– boots for crack
– piston cups for wear, deterioration or damage
– master cylinders and pistons for scoring, scratches or other damage.

Change part(s) if necessary.

NOTE: If master cylinder is damaged or leaking, replace as an assembly.

Assembly

Coat piston and piston cups with clean brake fluid.

Install:

– spring onto master piston
– piston into cylinder
– snap ring into groove in the cylinder
– boot into cylinder and the groove in piston.

Apply silicone grease to the brake lever contacting surface of the piston.

Install brake lever and locking mechanism.

NOTE: Apply silicone grease on lever pivot bolt.

Installation

For the installation, reverse the removal procedure, pay attention to the following details.

Position cylinder holding bracket with the UP mark upward.

Install bolts and tighten loosely.

With the handlebar in straight ahead position, position cylinder reservoir parallel to the ground. Tighten upper bolt first.

Connect brake hose to master cylinder with bolt and new sealing washers.

Bleed front brake system.

Check for leaks and make sure the brakes operate normally before driving.

FRONT BRAKE CALIPERS

Removal

Loosen wheel nuts.

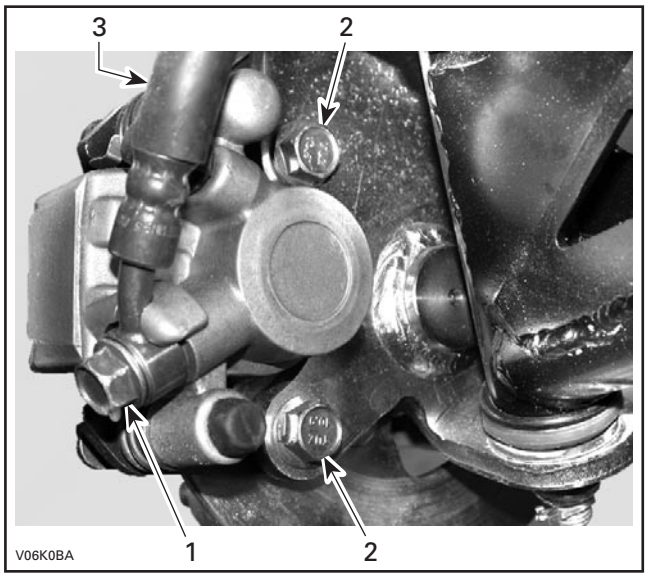
Raise vehicle and support it securely.

Remove wheel(s).

Remove Banjo bolt **no. 7** with sealing washers **no. 8** and detach brake hose from caliper.

Catch spilled fluid with a rag. Attach the brake hose in a position to prevent the fluid from flowing out.

Unscrew bolts **no. 11** retaining caliper to knuckle and remove caliper.



1. Remove Banjo bolt and washers
2. Unscrew bolts
3. Brake hose

Disassembly

Remove brake pads, see the following section.

Remove boot kit **no. 12** and pad spring.

Place rag over piston.

Place caliper body with piston down and apply small squirts of air pressure to the fluid inlet to remove piston.

⚠ WARNING

Do not use high pressure air or bring nozzle too close to inlet.

Remove piston seal.

CAUTION: Be careful not to damage piston sliding surface.

Clean piston grooves, caliper cylinder and piston with clean brake fluid.

Clean slide pins with brake cleaner and a rag.

Inspection

If boots **no. 3** are deteriorated or hard, replace with new ones.

Check caliper cylinder for scratches, rust or other damage. If so, replace caliper.

Check piston for scratches, rust or other damage. If so, replace piston.

Assembly

Coat piston seal with clean brake fluid and install it into piston grooves in caliper.

Coat piston with clean brake fluid and install into cylinder with the closed end toward caliper body.

Apply silicone grease into sliding bores and install slide pins.

NOTE: Make sure that rubber boots are correctly installed in slide pins grooves.

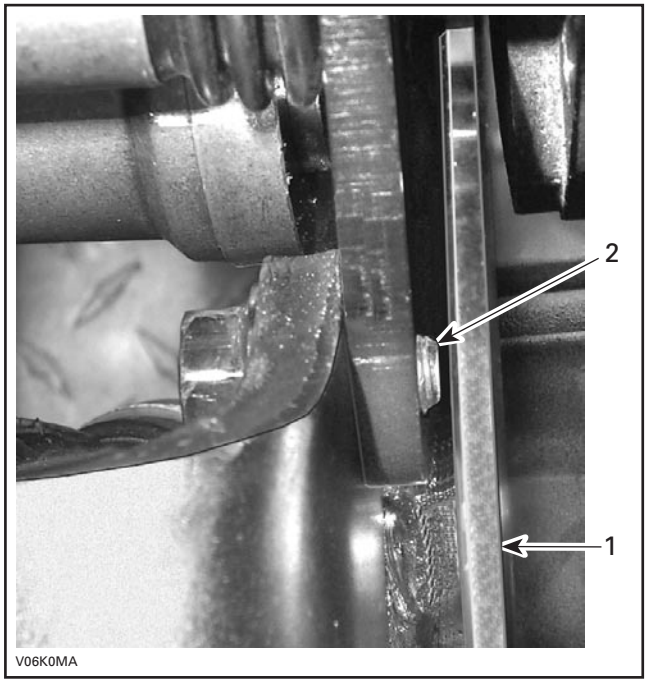
Install pad spring, caliper bracket and pads.

Installation

For the installation, reverse the removal procedure, pay attention to the following details.

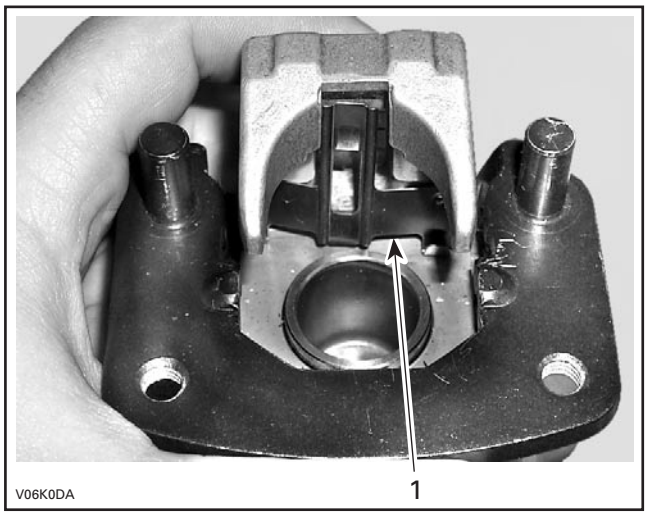
Use new sealing washers when installing Banjo bolt retaining brake hose to caliper.

CAUTION: In case of replacing the bolts no. 11, replace it with the same length bolts only. Installing longer bolts can damage brake disc and front brake assembly.



1. Brake disc
2. Bolt

Make sure that the pad spring is installed in the right position.



1. Pad spring

Install caliper to knuckle.

If hose was disconnected, bleed the brakes.

Check for leaks and make sure the brakes operate normally before driving.

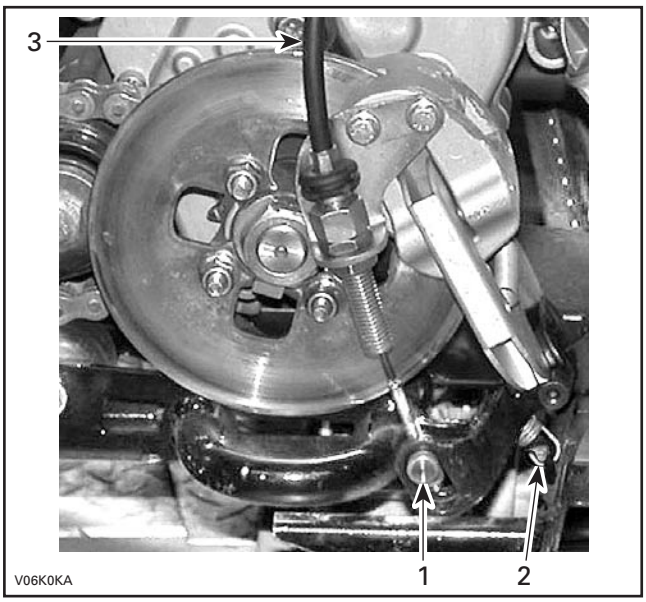
REAR BRAKE CALIPER

Removal

Remove RH side footwell. Refer to **BODY** for removal procedure.

Remove bolts **no. 32** to detach brake cable from rear brake caliper.

Remove bolts **no. 28** and pull out the rear brake caliper from rear brake disc.

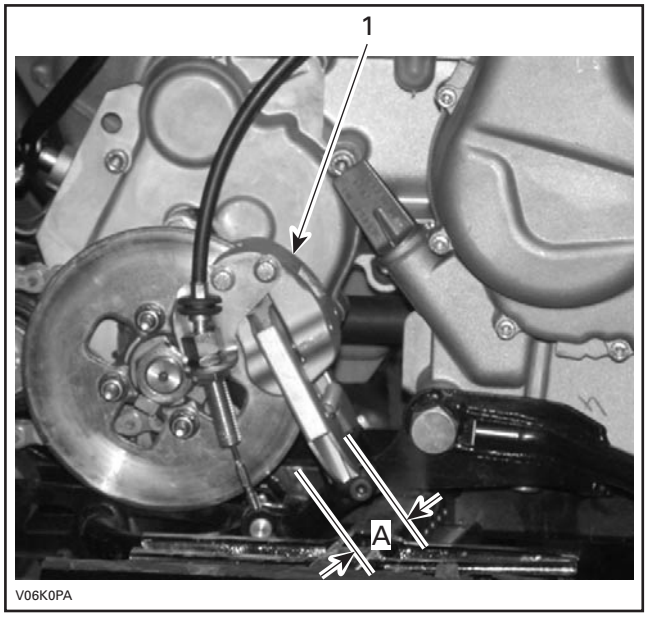


1. Stop nut
2. Pedal spring
3. Bolt

Inspection

Measure play on levers, see the following illustration.

Maximum allowable play is 5 mm (.197 in). If play exceeds specification, replace the caliper.



1. Rear caliper
A. 5 mm (.197 in)

Installation

For installation, reverse the removal procedure.

BRAKE PADS

Removal

Front Brake Pads

Raise vehicle and support it securely.

Remove wheels.

Drain brake system.

Remove Banjo bolts **no. 7**.

Remove caliper from knuckle.

Push pad pins then remove pads **no. 13**.

CAUTION: Don't let the caliper hang by the hose and don't stretch or twist the hose.

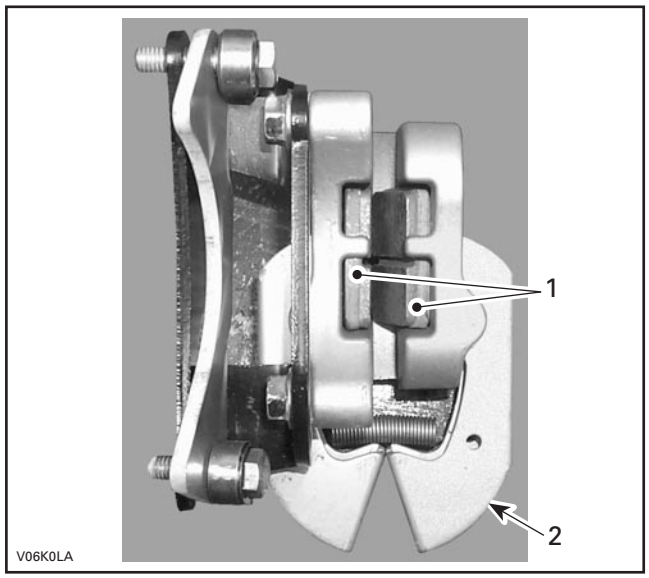
Push piston all the way in to allow installation of new pads.

NOTE: It's very important to clean remaining O.D. of piston out from caliper with brake fluid before pushing the piston back in. Make sure the piston is free of any contaminant and is shiny.

Rear Brake Pads

Remove rear brake calipers, see REAR BRAKE CALIPER for removal procedure.

Remove rear brake pads **no. 30** from the caliper.



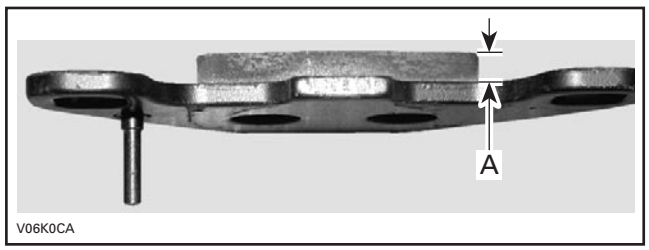
1. Rear brake pads
2. Caliper

Inspection

CAUTION: Do not clean brake pads in petroleum based solvent. Use brake system cleaner only. Soiled brake pads must be replaced with new ones.

Measure brake pad lining thickness.

Brake pads must be replaced when lining is 1 mm (1/32 in) thick or less.



A. 1 mm (1/32 in) minimum

BRAKE PAD MINIMUM THICKNESS	1 mm (1/32 in)

⚠ WARNING

Avoid getting oil or grease on brake pads. Contaminated brake pads can affect stopping capacities.

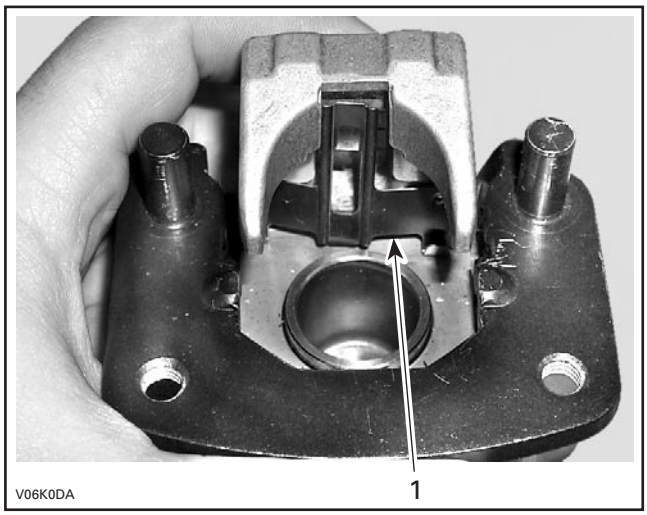
CAUTION: Brake pads must always be replaced in pairs.

Installation

Front Brake Pads

Push caliper pistons inward before installing brake pads.

Make sure that pad spring is in position.



1. Pad spring

Install new brake pads.

Install pad pins by pushing in the pads against pad spring to align pad slots in the pads and caliper body.

Install brake caliper so the disc is positioned between pads.

NOTE: Be careful not to damage pads and that pads are correctly inserted in their location.

After the job is completed, firmly depress the brake lever a few times to bring the pads in contact with the disc.

Check for leaks and make sure the brakes operate normally before driving. The pads must rest flat on the disk.

Rear Brake Pads

Installation procedure is reverse of the removal.

Adjust brake cable.

BRAKE DISC

Front Brake Disc Inspection

Front brake discs **no. 15** can be inspected without removing from the vehicle.

Raise vehicle and support it securely. Remove wheels.

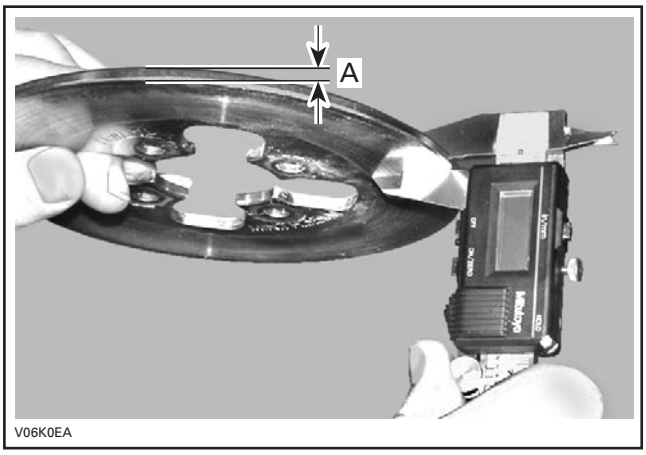
Rear Brake Disc Inspection

NOTE: Rear brake disc **no. 29** can be inspected without removing from vehicle.

Remove RH side footwell. Refer to **BODY** for removal procedure.

Visually inspect disc surfaces for scratches or grooves. Make sure to check both sides of disc.

Measure thickness of the disc. Minimum thickness is 3.5 mm (.13 in).



A. 3.5 mm (.13 in) minimum

Replace disc if not within specifications.

CAUTION: Brake discs should never be machined.

Turn the disc by hand and check run out.

DISC MINIMUM THICKNESS	3.5 mm (.13 in)
DISC RUN OUT (max.)	0.5 mm (.02 in)

Removal

Front Brake Disc

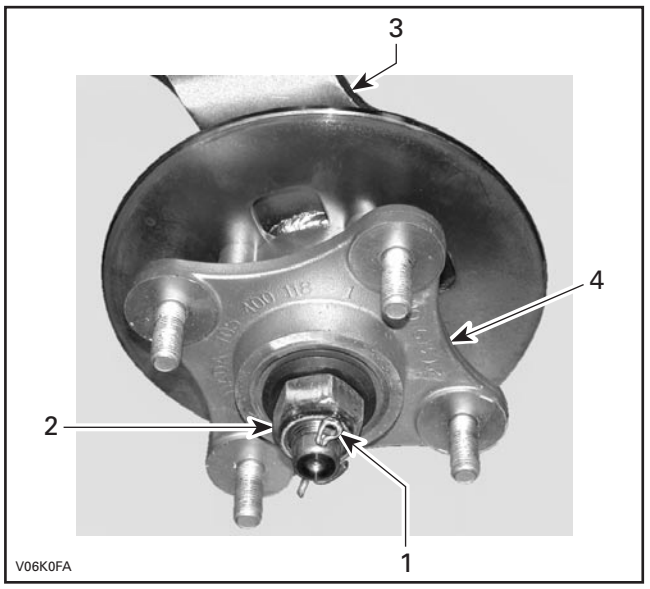
Remove front caliper as described previously.

After removing the caliper, suspend it out of the way.

CAUTION: Don't let the caliper hang by the hose and don't stretch or twist the hose.

NOTE: Wheel hub has to be removed from vehicle to replace brake disc **no.15**.

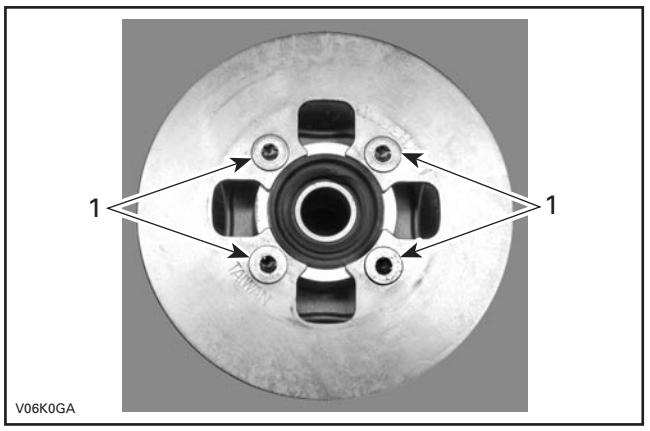
Remove cotter pin and unscrew nut.



1. Cotter pin
2. Nut
3. Knuckle
4. wheel hub

Using hub puller (P/N 529 035 612), pull out wheel hub with disc.

Remove screws **no. 16** retaining brake disc **no. 15** to wheel hub.



1. Screws

NOTE: If necessary, heat up disc around screws to facilitate removal.

Rear Brake Disc

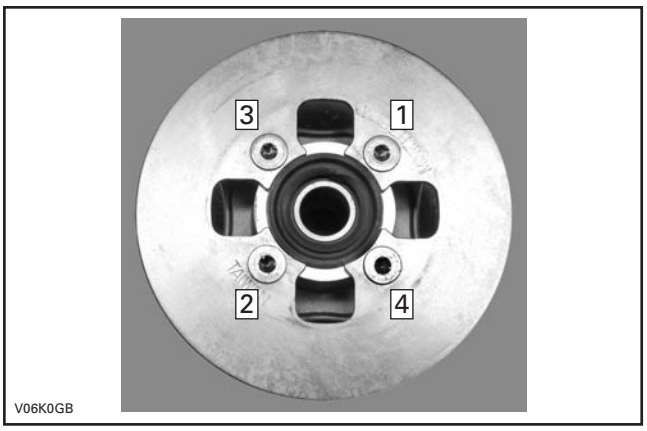
Remove rear caliper as described previously.

Remove bolts **no. 31** retaining brake disc **no. 29**.

Installation

Front Brake Disc

Install brake disc on wheel hub and tighten screws **no. 16** to 25 N•m (18 lbf•ft) in a criss-cross sequence.



TORQUE TO 25 N•m (18 lbf•ft)

Rear Brake Disc

Install brake disc on hub and tighten the screws **no. 31** to 25 N•m (18 lbf•ft) in a criss-cross sequence.

Install rear caliper as described previously.

Install RH side footwell. Refer to **BODY** for removal procedure.

FRONT BRAKE LEVER

Removal and Installation

Use the same procedure that the front master cylinder.

REAR BRAKE PEDAL

Removal

Remove RH footwell (Refer to **BODY**).

Unhook brake pedal spring **no. 17**.

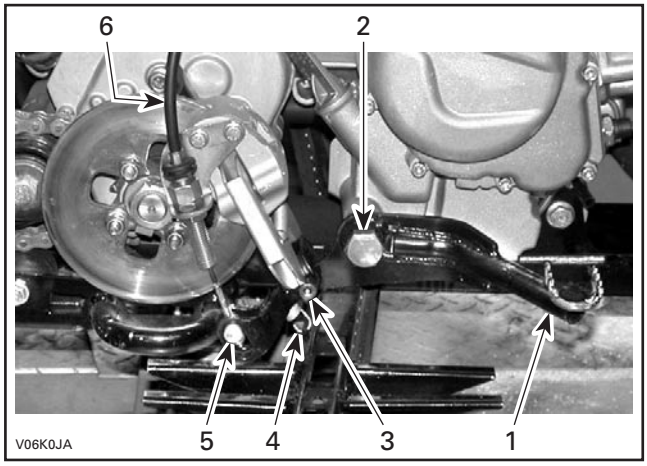
Remove stop nut **no. 19**.

Remove cable barrel **no. 20**.

Remove cable **no. 18** from the brake pedal **no. 24**.

Remove pedal nut **no. 21**.

Remove pivot bolt **no. 22**.



1. *Brake pedal*
2. *Pivot bolt*
3. *Pedal nut*
4. *Pedal spring*
5. *Stop nut*
6. *Brake cable*

Remove washer **no. 25** and outer O-ring **no. 23** then remove pedal **no. 24** from pivot.

Remove the inner O-ring **no. 23** on the pivot.

Inspection

Check brake pedal for cracks or distortion.

Check O-rings for damage, change if necessary.

Installation and Adjustment

For installation, reverse the removal procedure. Pay attention to the following details.

Apply synthetic grease (P/N 293 550 010) on O-rings.

Install brake cable with the stop nut to the brake pedal.

Install return spring **no. 17**.

Adjust brake cable, see **Brake Cable** for procedure.

REAR BRAKE CABLE

Lubrication

The brake cable must be lubricated with Bombardier cable lubricant (P/N 293 600 041) only.

Remove cable from hand lever. To ease this operation, apply a force on the brake pedal to loosen the cable.

Put the cable luber (P/N 529 035 738) on the cable.

Insert the needle of lubricant can on cable luber hole.

⚠ WARNING

Always wear eye protection and gloves when you lubricate a cable.

NOTE: Place a rag around cable luber to prevent lubricant splash.

Spray a small quantity of Bombardier cable lubricant (P/N 293 600 041) then press the brake pedal to move the brake cable. Repeat this procedure until the silicone lubricant exits the other end of the cable.

Readjust cable, see below.

Removal

NOTE: Before removing brake cable from vehicle, note cable routing for reinstallation.

NOTE: Brake cable can be removed without removing rear caliper and brake pedal.

Remove stop nut **no. 19.**

Remove cable barrel **no. 20** and disconnect brake cable **no. 18** from brake pedal.

Remove the screw retaining the cable clip to the engine.

Inspection

Inspect cable ends for wear or deterioration. Replace if necessary.

Check cable for free movement into the cable sheath. Lubricate or replace if necessary.

Installation and Adjustment

Installation is the reverse of the removal procedure.

Turn the adjustment screw **no. 33** until cable barrel **no. 20** comes in contact with the brake pedal lever.

BRAKE HOSES

Removal

NOTE: Before removing any hoses or tubes, drain brake system.

Front Flexible Brake Hose

Remove:

– console

– front luggage rack.

Refer to **BODY** for complete procedure.

Upper Hose

Disconnect brake handle hose **no. 9** from master cylinder and discard sealing washers.

Remove all locking tie retaining master cylinder hose to handlebar.

Unscrew brake handle hose **no. 9** from vertical brake tube **no. 34**.

Lower Hoses

Disconnect flexible hoses **no. 5** from front calipers and discard sealing washers **no. 8**.

Unscrew flexible hoses **no. 5** from vertical brake tube **no. 34**.

Inspection

Periodically inspect flexible brake hoses for cracks, leaks, blisters and any other damage.

If any sign of deterioration is found, replace the defective part with a new one.

Installation

To install hoses, attach it to the caliper or master cylinder first. Always use new washers on both sides of the fitting.

Make sure brake hoses are properly secured and that they do not come in contact with moving parts.

Bleed brake system.