

March 1, 2010

Subject: **DS 450 Brake System Service Procedure**
(Europe only)

No. **2010-7**

YEAR	MODEL	MODEL NUMBER	SERIAL NUMBER
2009	DS 450 (CE version)	All	All
2010			

PROBLEM

The procedure to servicing the brake system on European models of DS 450 is not included in the *2008 DS 450 SHOP MANUAL* (P/N 219 100 264).

SOLUTION

Use the procedures described in this bulletin in conjunction with the *2008 DS 450 SHOP MANUAL* (P/N 219 100 264) to properly maintain and repair the vehicles.

PROCEDURES

Parking Brake

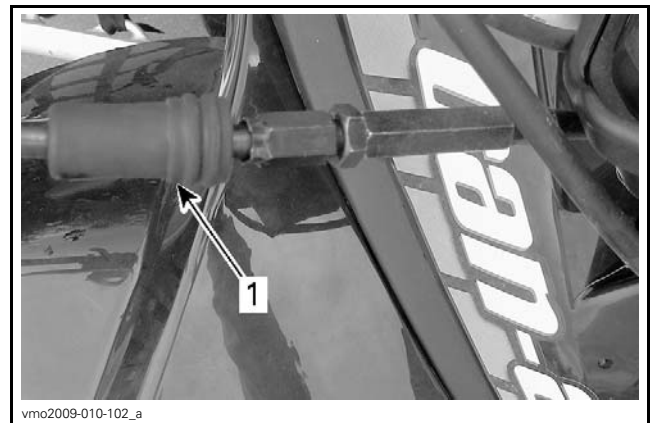
Parking Brake Adjustment

⚠ WARNING

Vehicle must be on a level surface to perform parking brake adjustment.

Make sure the rear brake components are in good condition and that the system operates properly, then adjust parking brake as follows:

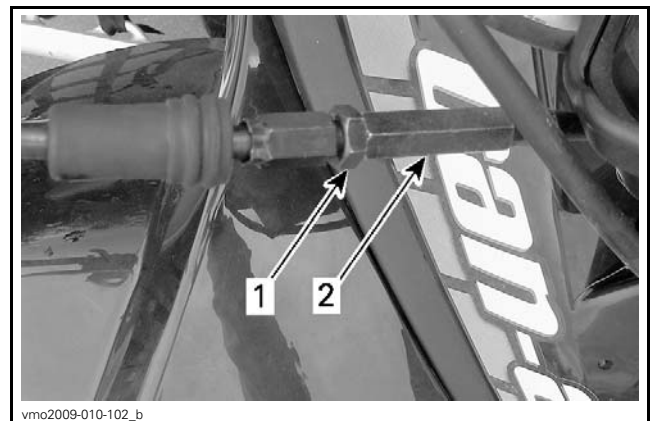
1. Apply parking brake.
2. Set transmission to neutral.
3. Slide cable adjuster protector to expose adjuster.



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1. Protector

4. Hold adjuster with an open wrench and loosen lock nut.



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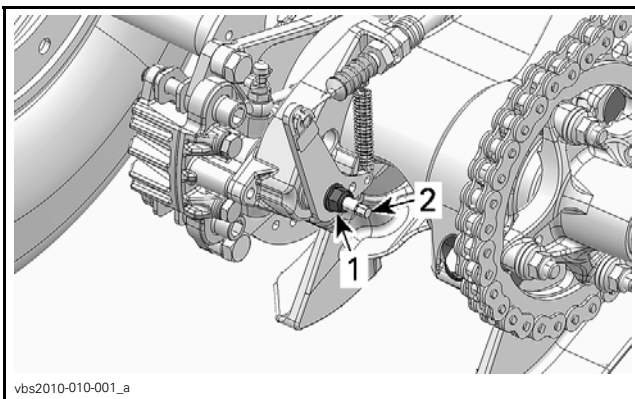
1. Lock nut
2. Adjuster

5. Turn adjuster until a resistance is felt.
6. Firmly move vehicle back and forth. The rear brake has to be "locked" keeping the rear axle from turning. If rear axle turns, tighten adjuster one turn at a time until rear brake "locks".

7. Release parking brake.
8. Move vehicle back and forth. Vehicle has to move freely.
9. Keep adjuster from turning and tighten the lock nut.
10. Slide protector over the adjuster. The adjustment is completed.

If the recommended adjustment is unattainable, do the following

1. Fully tighten the cable adjuster located on parking brake cable.
2. On rear caliper, loosen lock nut on adjusting rod.
3. Turn adjusting rod until it touches the caliper piston.



1. Lock nut
2. Adjusting rod

4. Hold the adjusting rod while tightening the lock nut.
5. Apply parking brake and try to move vehicle. If a minor adjustment is required, use the adjuster on parking brake cable.

Brake Circuit Bleeding

Recommended Brake Fluid

Always use brake fluid meeting the specification DOT 4 only.

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

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

Manual Bleeding Procedure:

BLEEDING SEQUENCE
<ul style="list-style-type: none"> - Front calipers, using the brake lever - Brake circuit splitter, using the brake pedal - Rear caliper, using the brake pedal.

Proceed as follow:

1. Place vehicle on a level surface.
 2. Fill master cylinder reservoir to the appropriate level, using recommended brake fluid only. Do not overfill.
- NOTE:** Master cylinder reservoir must be kept full to prevent air from being pumped into the system. If a lack of fluid occurs, start the procedure again.
3. Install a clear hose to bleeder.
 4. Place the other end of the hose in a small container partially filled with clean brake fluid.
 5. Carefully pump the brake lever or the brake pedal few times and hold it while opening the bleeder.

NOTE: When bleeder is opened, brake fluid flows out of caliper and the brake lever moves toward the handlebar or the brake pedal moves down.

6. Retighten the bleeder, then release brake lever or brake pedal gradually.
7. Repeat the procedures until no air bubbles appear in hose and lever or pedal is stiff.

NOTE: 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 the bleeder to reach air into the caliper.

8. Top up the master cylinder reservoir to the appropriate level, using recommended brake fluid only.
9. Install diaphragm and cover on reservoir.
10. Check brakes operation carefully before riding the vehicle.

Bleeding Procedure Using a Vacuum Pump:

BLEEDING SEQUENCE
<ul style="list-style-type: none"> - Rear caliper, verify the brake pedal - Front calipers, verify the brake lever.

Proceed as follow:

1. Place vehicle on a level surface.
2. Fill master cylinder reservoir to the appropriate level, using recommended brake fluid only. Do not overfill.

NOTE: Master cylinder reservoir must be kept full to prevent air from being pumped into the system. If a lack of fluid occurs, start the procedure again.

3. Install the VACUUM/PRESSURE PUMP (P/N 529 021 800) to bleeder. See the manufacturer's operating instructions.



4. Pump vacuum pump and loosen bleeder.
5. Pump until air bubbles do not appear in clear hose.

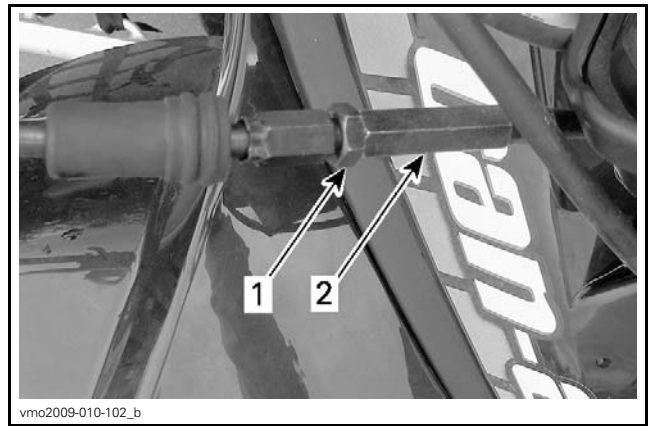
NOTE: For the front brake system, switch to LH and RH caliper. Turn handle bar to full RH side when bleeding right caliper and turn to the LH side for the left caliper. This helps the bleeder to reach air into the caliper.

6. Close bleeder and operate brake lever or brake pedal. If it still feels spongy, bleed system again.
7. Top up the master cylinder reservoir to the appropriate level, using recommended brake fluid only.
8. Install diaphragm and cover on reservoir.
9. Check brakes operation carefully before riding the vehicle.

Brake Pads

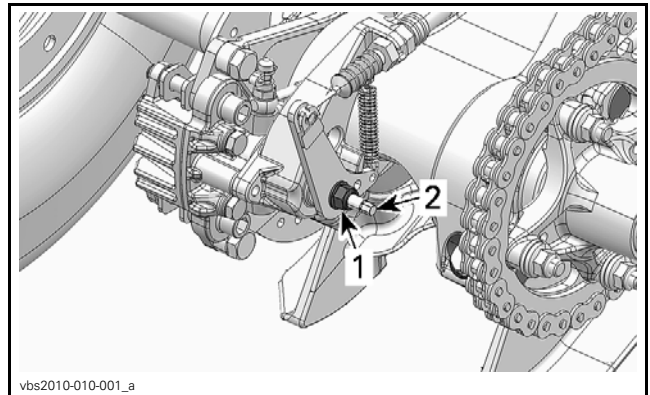
Rear Brake Pads Replacement

1. Fully tighten the parking brake cable adjuster located on parking brake cable.



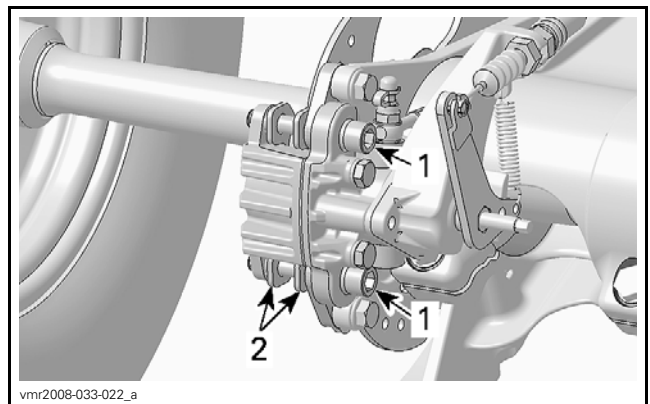
1. Lock nut
2. Adjuster

2. On rear caliper, loosen lock nut on adjusting rod.
3. Unscrew the adjusting rod.



1. Lock nut
2. Adjusting rod

4. Remove brake pad pins.
5. Remove brake pads.



1. Brake pad pins
2. Brake pads

6. Depress piston into its bore.

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

7. Install **NEW** brake pads.
8. Install brake pad pins.
9. Tighten pins to 32 N•m (24 lbf•ft).
10. After the job is completed, firmly depress the brake pedal or brake lever a few times to bring the pads in contact with the disc.
11. Adjust the parking brake cable. See the procedure in *PARKING BRAKE*.
12. Check for leaks and make sure the brakes operate normally before driving. The pads must rest flat on the disc.

Front Master Cylinder

Master Cylinder Replacement

When replacing the front master cylinder, follow the procedure described in the shop manual but begin the procedure by removing the parking brake lever from the master cylinder.

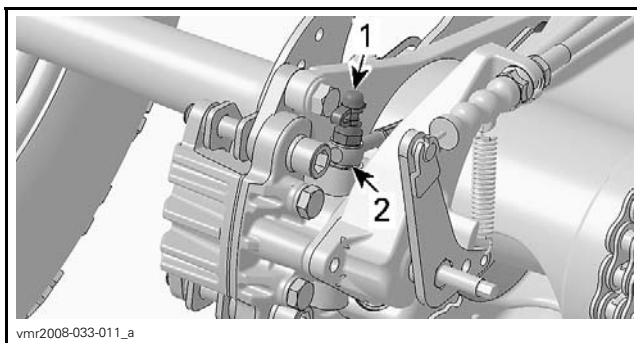
Rear Caliper

Rear Caliper Removal

1. Park the vehicle on a firm level surface.

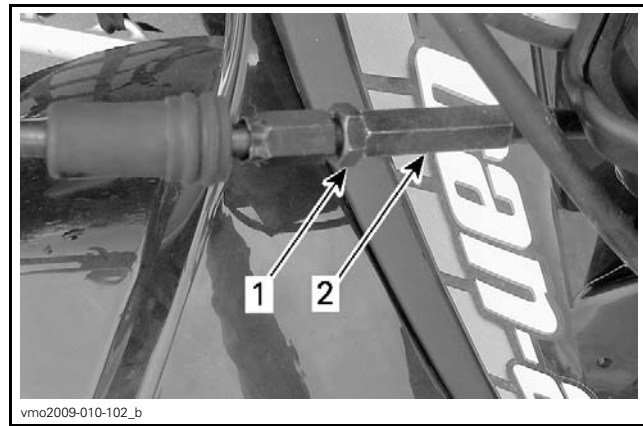
NOTE: If the caliper is not replaced, go directly to step 7.

2. Drain brake fluid from brake system. Refer to *BRAKE FLUID DRAINING* in the *BRAKES* subsection of the *2008 DS 450 SHOP MANUAL*.
3. Remove the bleeder and discard the sealing washers.
4. Detach brake hose from caliper and catch spilled fluid with a rag.



1. Bleeder
2. Brake hose

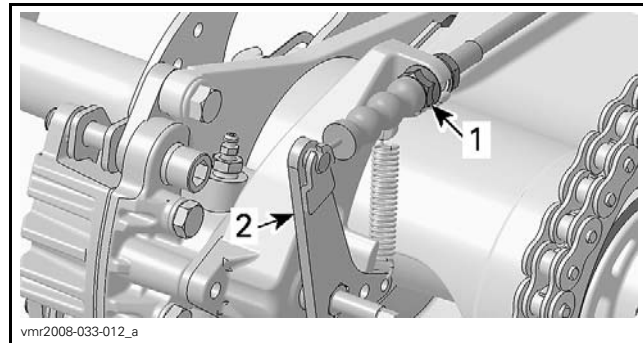
5. Fully tighten the parking brake cable adjuster located on the parking brake cable.



1. Lock nut
2. Adjuster

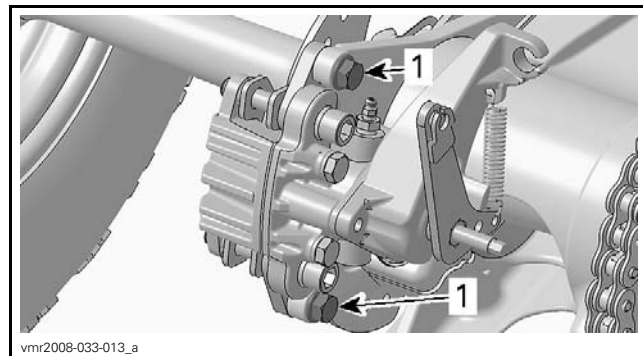
6. Loosen parking brake cable lock nut.

7. Detach parking brake cable from the caliper brake lever.



1. Parking brake cable lock nut
2. Caliper brake cable lever

8. Unscrew caliper screws.



1. Caliper screws

Rear Caliper Inspection

Check pistons for:

- Rust
- Scratches
- Leaks.

Repair or replace as required.

Check caliper support for:

- Cracks
- Wear.

Replace caliper support if required.

Rear Caliper Installation

The installation is the reverse of the removal procedure. However, pay attention to the following.

Secure the caliper using **NEW** bolts. Tighten them to 28 N•m (21 lbf•ft).

Install bleeder screw with two **NEW** sealing washers.

Torque the bleeder screw to 28 N•m (21 lbf•ft).

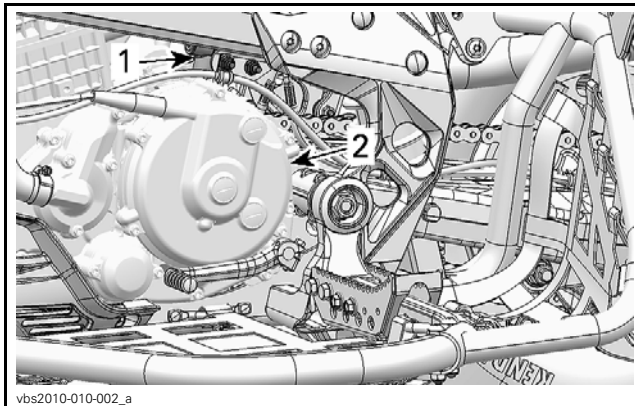
Install the parking brake cable and adjust it. Refer to *PARKING BRAKE*, at the beginning of this bulletin.

Fill and bleed the brake system. Refer to the *BRAKE CIRCUIT BLEEDING* procedure described in this bulletin.

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

Brake Circuit Splitter

The brake circuit splitter is located on the LH side of the vehicle, above the clutch cover.

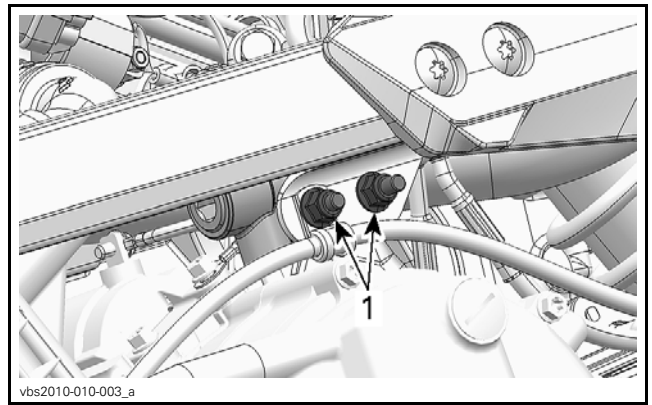


LH SIDE OF THE VEHICLE
1. Brake circuit splitter
2. Clutch cover

Brake Circuit Splitter Removal

Drain brake fluid. Refer to *BRAKE FLUID DRAINING* in the *BRAKES* subsection of the *2008 DS 450 SHOP MANUAL*.

Unscrew splitter retaining nuts.



1. Retaining nuts

Remove all brake hoses from the splitter and discard the sealing washers.

NOTICE When hoses are disconnected, cleanliness must be observed. Clean all parts before disassembly.

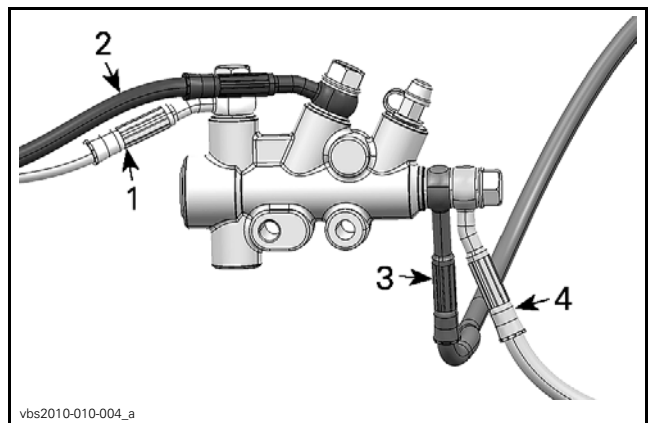
Pull the splitter out of the vehicle.

Wipe brake fluid spillages.

Brake Circuit Splitter Installation

The installation is the reverse of the removal procedure. However, pay attention to the following.

Using **NEW** sealing washers, connect brake hoses. Use the next illustration to position hoses correctly.



1. Toward front calipers
2. From front master cylinder
3. From rear master cylinder
4. Toward rear caliper

Tighten all Banjo bolts to 28 N•m (21 lbf•ft).

Install splitter and tighten nuts to 10 N•m (89 lbf•in).

Fill and bleed the brake system. Refer to the *BRAKE CIRCUIT BLEEDING* procedure described in this bulletin.

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