

# BRAKE

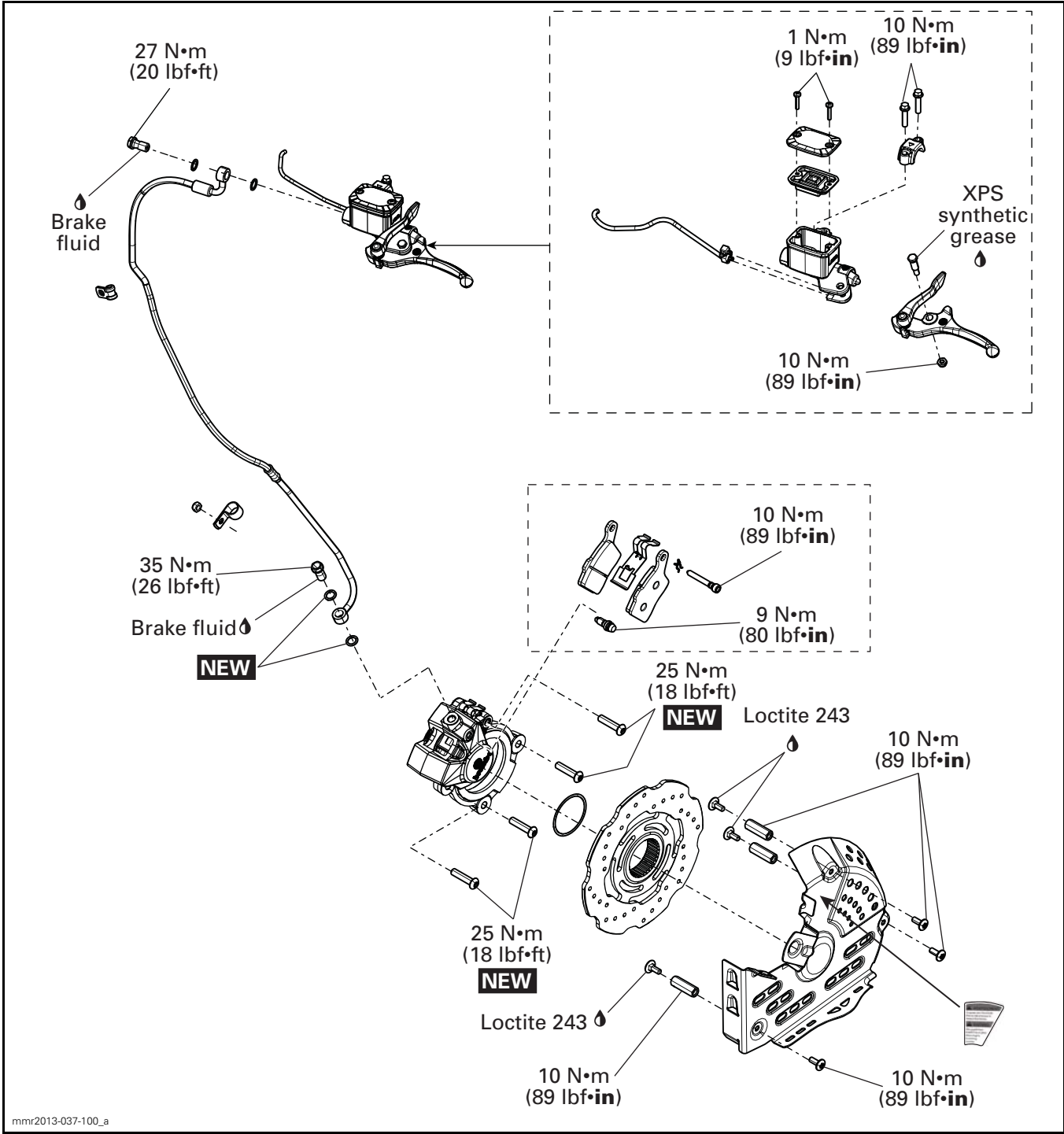
## SERVICE TOOLS

Description	Part Number	Page
CALIPER PULLER .....	529 036 145 .....	6
PROTECTIVE CAP .....	529 036 150 .....	6

## SERVICE PRODUCTS

Description	Part Number	Page
LOCTITE 767 (ANTISEIZE LUBRICANT) .....	293 800 070 .....	7
XPS SYNTHETIC GREASE.....	293 550 010 .....	10

Subsection XX (BRAKE)



## GENERAL

During assembly/installation, use torque values and service products as in the exploded view.

Clean threads before applying a threadlocker. Refer to *SELF-LOCKING FASTENERS* and *LOCTITE APPLICATION* at the beginning of this manual for complete procedure.

### **⚠ WARNING**

Torque wrench tightening specifications must be strictly adhered to. Locking devices must be replaced with new ones when removed (e.g.: locking tabs, elastic stop nuts, cotter pins, etc.).

Hoses or cables removed or disconnected must be installed and routed as per factory specifications.

**NOTICE** Locking ties removed must be replaced as per factory specifications.

### **⚠ WARNING**

Never apply any product to brake fittings. The use of thread sealant or Teflon tape could cause brake system failure.

### **⚠ WARNING**

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

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

**NOTICE** Wipe up any brake fluid spillage.

**NOTICE** To avoid serious damage to the brake system, use only DOT 4 brake fluid from a sealed container. Do not use brake fluid taken from an old or already opened containers, or mix different fluids for topping up the system.

**NOTICE** Sealing washers must be discarded and replaced with NEW ones every time a Banjo fitting is unscrewed.

Dispose of brake fluid as per your local environmental regulation.

## PROCEDURES

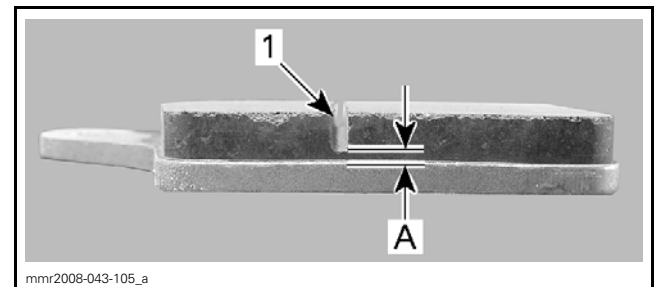
### BRAKE PADS

#### Brake Pad Inspection

1. Measure brake pad lining thickness.

SERVICE LIMIT	
Brake pad thickness	1 mm (1/32 in)

**NOTICE** Brake pads must always be replaced in pairs.



1. Groove on pad lining

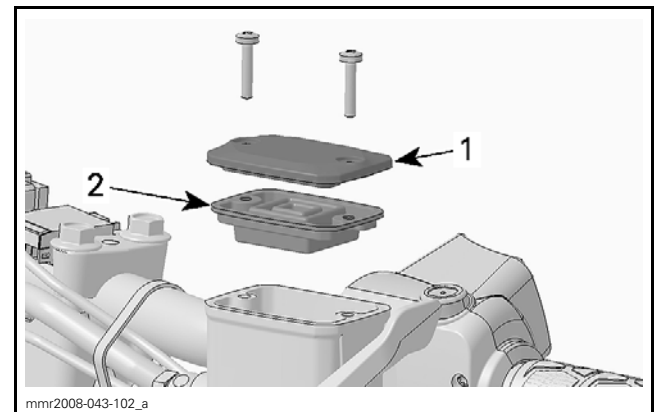
A. Brake pad minimum thickness 1 mm (1/32 in)

2. Also inspect the brake disc, refer to *BRAKE DISC INSPECTION* in this subsection.

### Brake Pad Replacement

#### Brake Pad Removal

1. Place the vehicle on a level surface.
2. Cover the plastic parts under and near master cylinder in the event that brake fluid would be spilled.
3. Remove reservoir cover with its diaphragm seal.

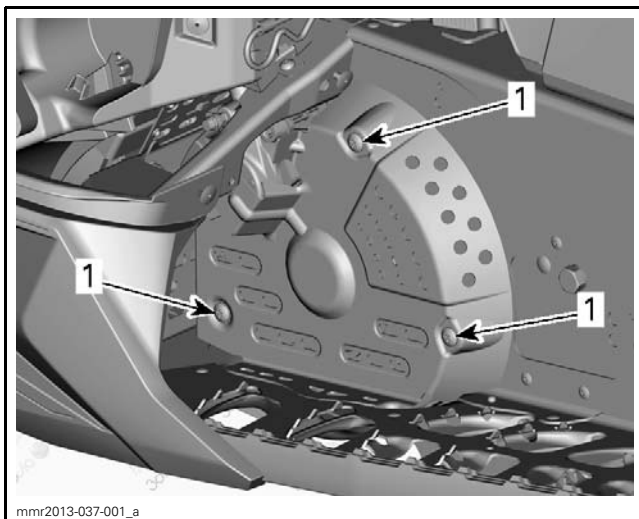


1. Reservoir cover

2. Diaphragm

4. Remove the disc brake protective cover.

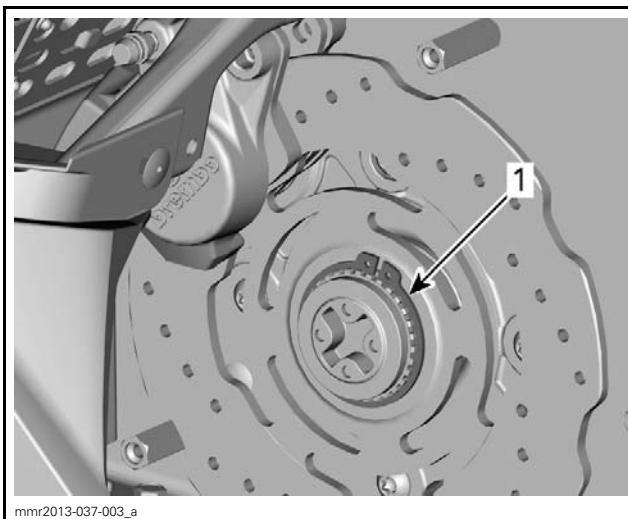
## Subsection XX (BRAKE)



1. Retaining screws

5. Remove the clip securing brake pad pin.

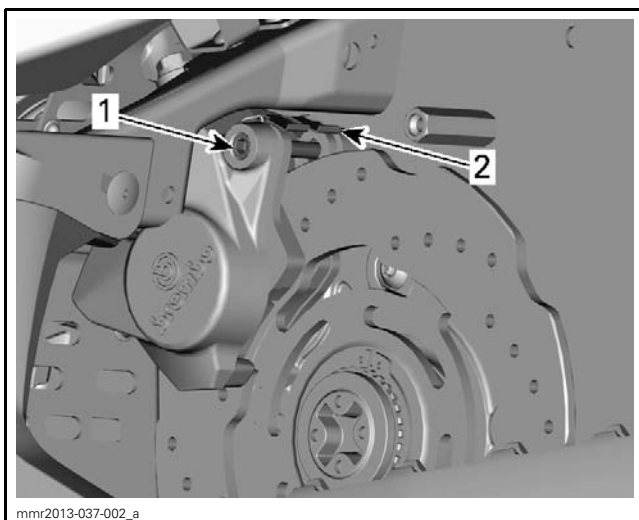
6. Unscrew and remove the brake pad pin.



1. Brake disc circlip

9. Remove brake pads.

9.1 Remove the external pad first.

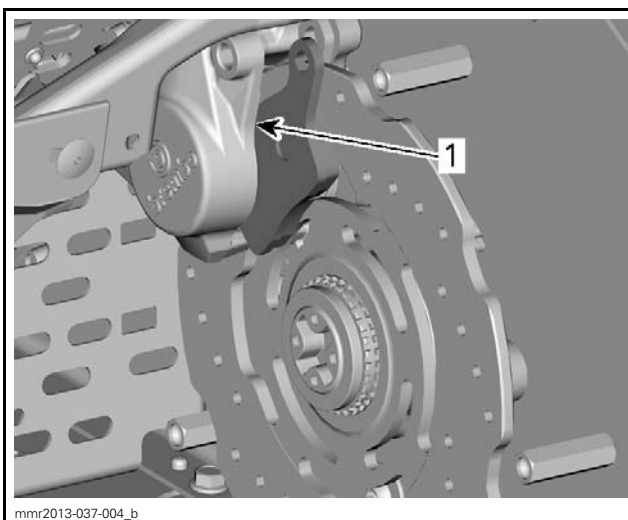


1. Clip  
2. Brake pad pin

7. Using a flat screwdriver, depress caliper pistons into their bores.

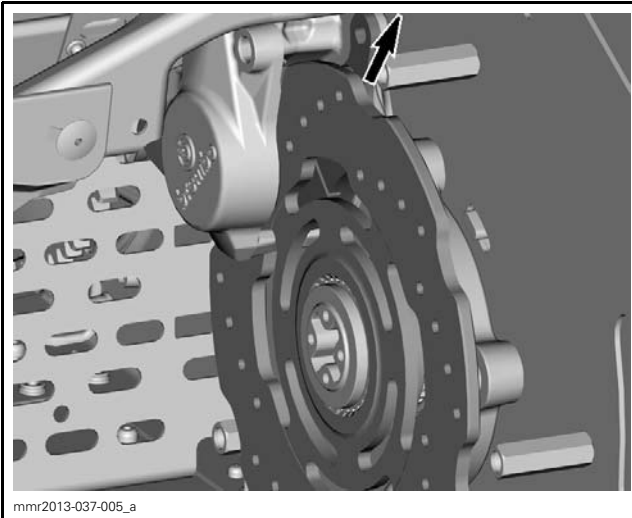
**NOTICE** Pay attention to avoid scratching brake disc.

8. Remove the circlip securing brake disc to drive axle.



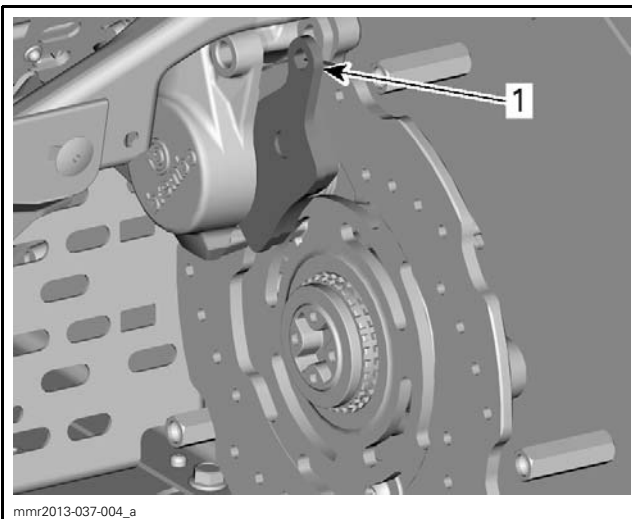
1. External pad

9.2 Pull the brake disc outward and remove the internal pad.



### Brake Pad Installation

1. Install **NEW** brake pads with tabs facing upward.



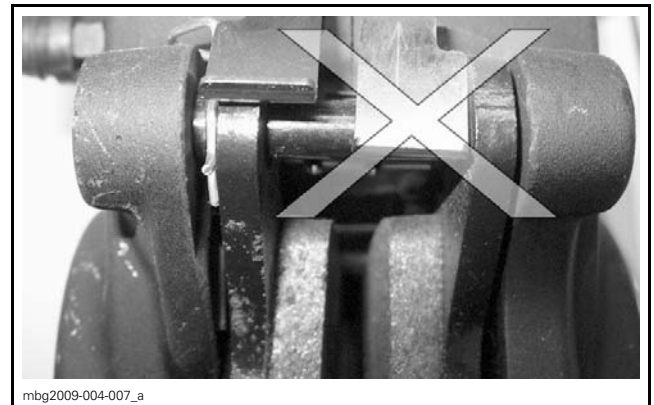
1. Brake pad tab

2. Install brake pad pin.
3. Torque brake pad pin to 10 N•m (89 lbf•in).
4. Install spring clip on brake pad pin. If the clip seems loose, replace it with a new one.

**NOTE:** Make sure spring ends on brake pads pins are correctly installed as per following pictures.



**CORRECT**



**INCORRECT (ON RIGHT SIDE)**

5. Operate the brake lever several times to bring the brake pads into contact with the disc brake.
6. Check brake fluid level in master cylinder and refill if necessary.
7. Install the diaphragm and the reservoir cover.
8. Install the disc brake protective cover.
9. Ride the vehicle a few minutes to make sure the repair is successful.

## CALIPER

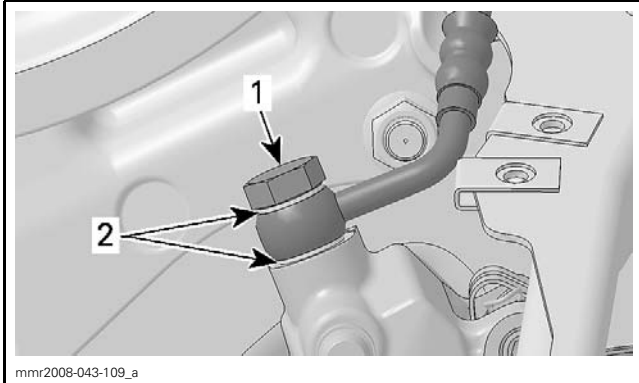
### Caliper Removal

1. Open the RH side panel.
2. Refer to *CHAINCASE* subsection and carry the following steps.
  - 2.1 Remove chaincase cover.
  - 2.2 Loosen drive chain.
  - 2.3 Remove lower sprocket.
3. Open LH side panel.
4. Remove drive belt guard support. Refer to *DRIVE BELT* subsection.

**NOTE:** If the caliper is not replaced, omit steps 5 and 6 concerning the brake system draining and brake hose removal.

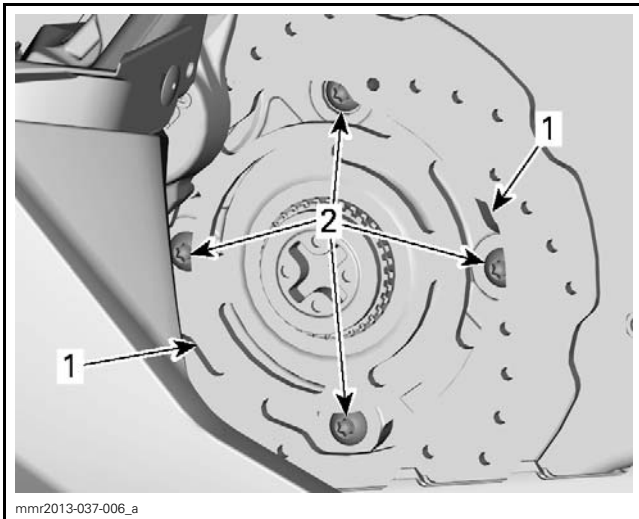
## Subsection XX (BRAKE)

5. Drain the brake system, refer to *BRAKE FLUID* in *MAINTENANCE* subsection.
6. Remove the Banjo fitting and discard the sealing washers.



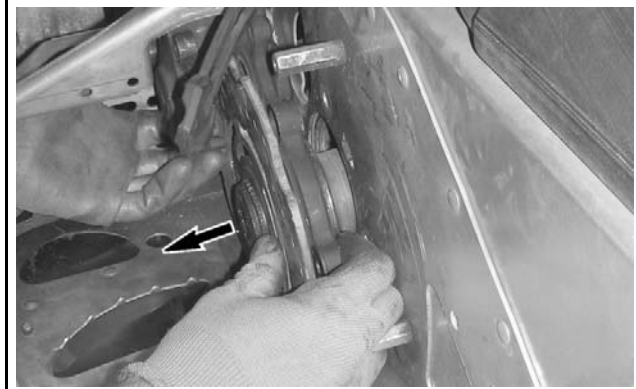
1. Banjo fitting
2. Sealing washers

7. Remove the *BRAKE PADS*, see procedure in this subsection.
8. Lift the rear of vehicle and release track tension completely.
9. Turn driven pulley to align brake disc slots with caliper bracket screws.
10. Remove caliper screws (4) behind brake disc.



1. Brake disc slots
2. Caliper screws behind brake disc

11. Pull the bearing housing assembly (brake disc, caliper and bearing) from LH side.



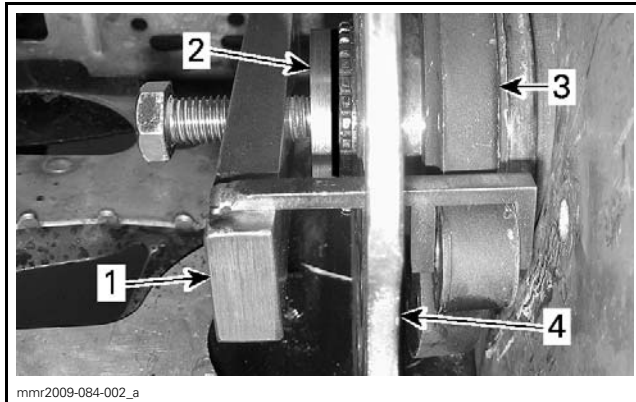
TYPICAL - PULL

12. Install the CALIPER PULLER (P/N 529 036 145) on the brake caliper through brake disc slots.

**NOTE:** Make sure puller tabs are correctly engaged on caliper.



13. Install the PROTECTIVE CAP (P/N 529 036 150) between caliper puller bolt and plastic cap in drive axle end.



TYPICAL

1. Caliper puller
2. Protective cap
3. Caliper bracket
4. Brake disc

14. Tighten caliper puller bolt to separate caliper from drive axle bearing.

**NOTICE** Never use an impact tool to operate caliper puller. The caliper or the puller could break.

15. When brake disc is out of splines, remove it.
16. Remove caliper.

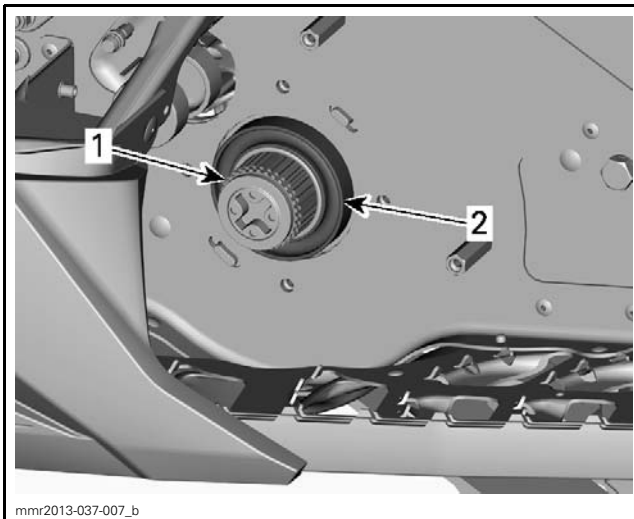
**NOTICE** Do not let caliper hang by the hose and do not stretch or twist the hose.

### Caliper Inspection

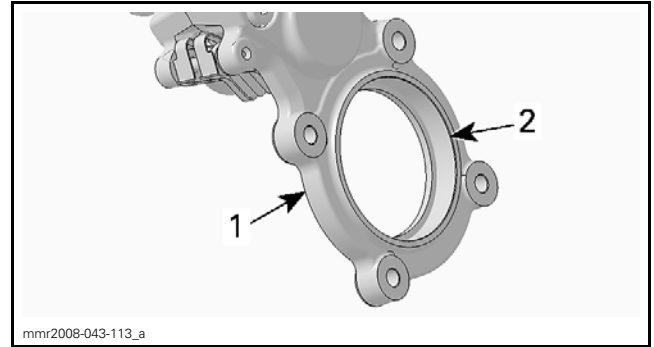
1. Check caliper pistons for:
  - Proper operation
  - Rust
  - Scratches
  - Leaks.
2. Check caliper bracket for:
  - Cracks
  - Rust on bearing shoulder (clean with a steel wood).
3. Replace caliper if required.

### Caliper Installation

1. Using your fingers or a small piece of wood, push both pistons into their bores.
2. Clean brake caliper bearing shoulder with fine steel wool.
3. Apply LOCTITE 767 (ANTISEIZE LUBRICANT) (P/N 293 800 070) on drive axle splines and on bearing shoulder of caliper bracket.



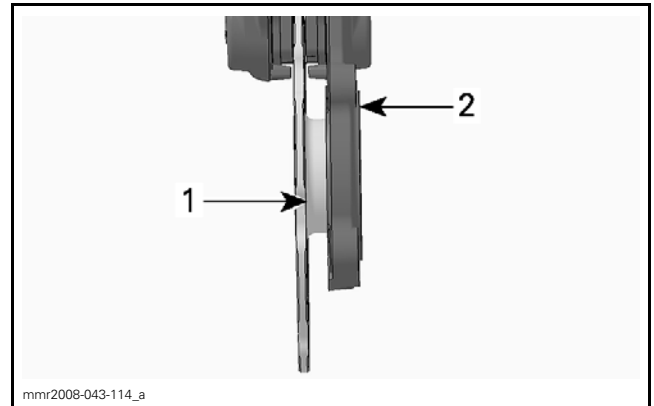
1. Drive axle splines
2. Drive axle bearing



#### TYPICAL

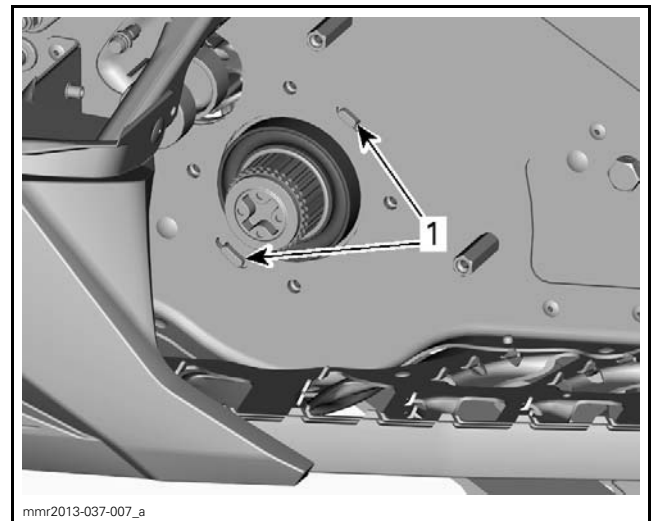
1. Caliper bracket
2. Bearing shoulder

4. Insert brake disc in the caliper. The brake disc collar must be inserted in the caliper bracket.



1. Brake disc collar
2. Caliper bracket

5. Ensure bearing flange is properly locked in the frame. Tabs must be properly inserted in frame slots.



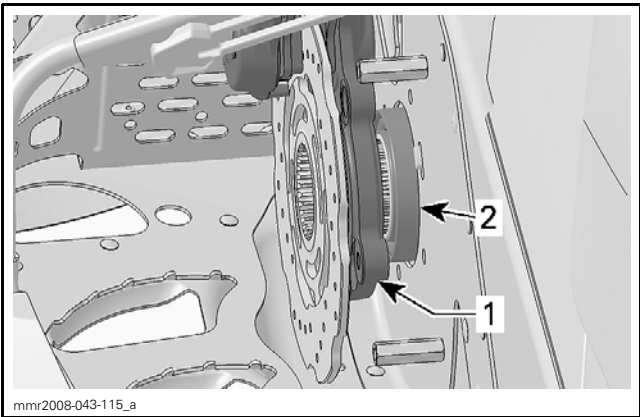
#### VIEW FROM OUTSIDE FRAME

1. Bearing flange locking tabs

6. Align brake disc splines with drive axle splines and push brake disc onto drive axle.

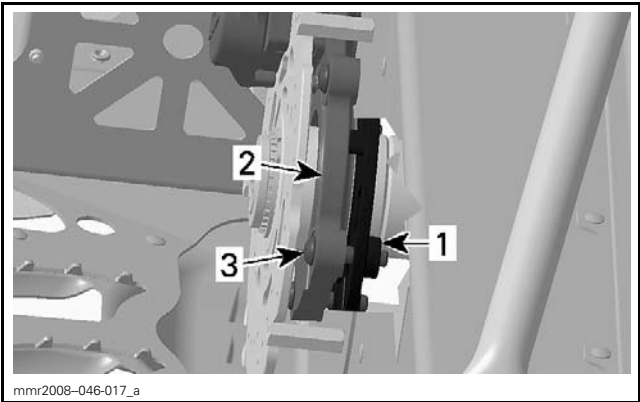
Subsection XX (BRAKE)

- 7. Push the caliper bracket over the drive axle bearing.



TYPICAL  
1. Caliper bracket  
2. Drive axle bearing

- 8. Align caliper bracket holes with bearing flange holes and install caliper screws.



TYPICAL  
1. Bearing flange (inside frame)  
2. Caliper bracket  
3. Caliper screws

- 9. **HAND TIGHTEN** each caliper bracket screw evenly in a criss-cross pattern until bracket is correctly positioned against frame.

**NOTICE** Never use an air tool to tighten caliper screws. The caliper bracket could crack.

- 10. Install *BRAKE PADS*, see procedure in this subsection.
- 11. Install brake disc circlip.
- 12. Torque brake caliper screws to 25 N•m (18 lbf•ft).
- 13. Apply brake fluid on Banjo fitting threads.
- 14. Install the Banjo fitting with two **NEW** sealing washers.
- 15. Torque Banjo fitting to 35 N•m (26 lbf•ft).

- 16. Fill and bleed the brake system. Refer to *BRAKE FLUID* in *MAINTENANCE* subsection.
- 17. Install all other removed parts.
- 18. Check the operation of the brake carefully before riding the snowmobile.

BRAKE DISC

Brake Disc Inspection (Not Removed)

- 1. Remove the disc brake protective cover.
- 2. Check for scoring, cracking or bending, replace as required.
- 3. Measure brake disc thickness. If the brake disc is out of specification, replace it with a new one.

**NOTICE** Brake disc should never be machined.

BRAKE DISC SPECIFICATION	
Minimum thickness	4.5 mm (.177 in)

Brake Disc Inspection (Removed)

- 1. Check brake disc splines and drive axle splines for wear or other damages. Replace defective parts.

Brake Disc Removal and Installation

Follow procedures for caliper removal and installation.

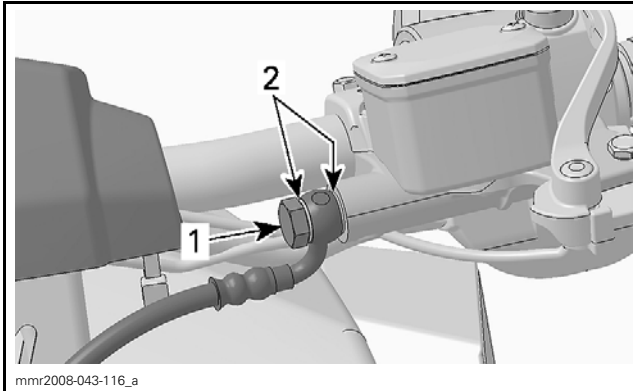
MASTER CYLINDER

Master Cylinder Removal

**NOTE:** If the master cylinder is not replaced, omit the steps concerning brake system draining and brake hose removal.

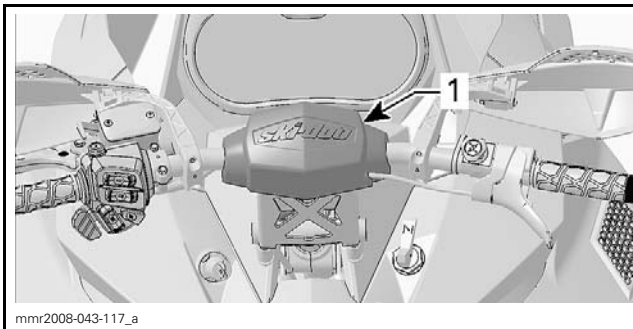
- 1. Drain brake system, refer to *BRAKE FLUID* in *PERIODIC MAINTENANCE PROCEDURES* subsection.
- 2. Remove the Banjo fitting and discard the sealing washers.





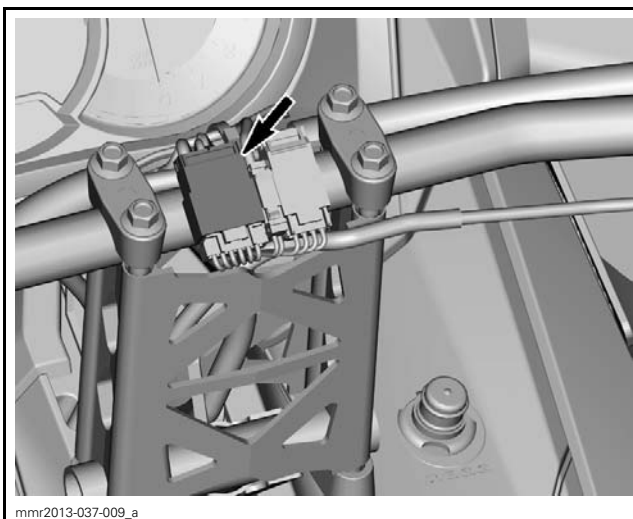
1. Banjo fitting
2. Sealing washers

3. Remove steering pad.



- TYPICAL**
1. Steering pad

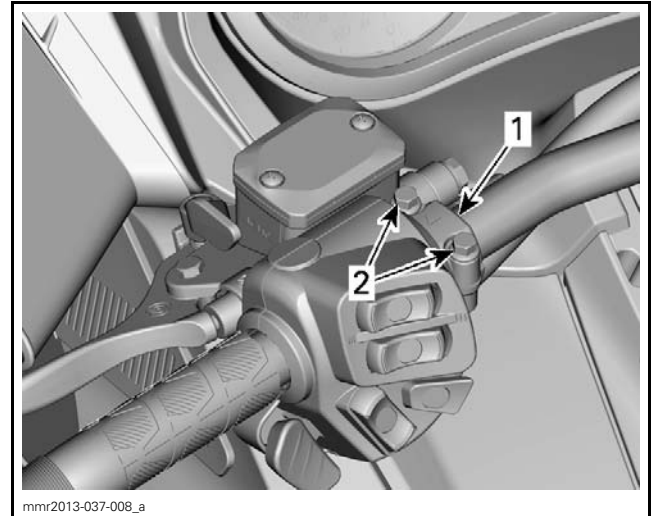
4. Disconnect the LH steering connector.



**TYPICAL**

5. Cut locking tie securing brake light switch wiring to handlebar.

6. Remove screws and clamp securing master cylinder to handlebar.



1. Master cylinder clamp
2. Master cylinder clamp screws

7. Remove master cylinder.

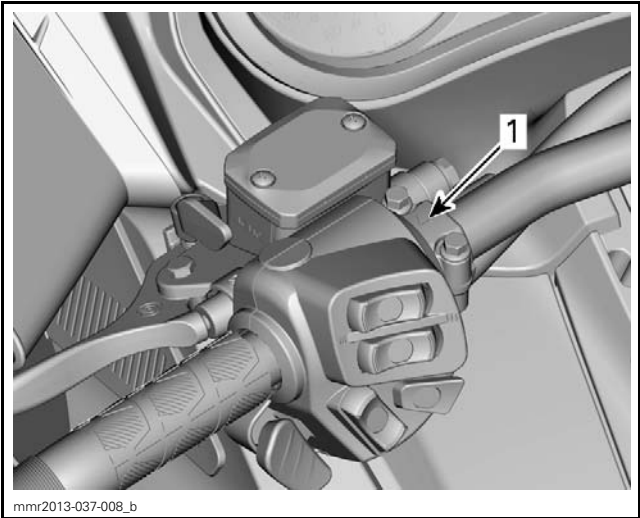
**NOTICE** Do not let master cylinder hang by the hose and do not stretch or twist the hose.

### Master Cylinder Inspection

1. Discard all remaining fluid inside master cylinder reservoir.
2. Check if the reservoir cap seal is brittle, hard or damaged. Replace as necessary.
3. If the reservoir is damaged or leaking, replace master cylinder.
4. Check if brake lever is bent, cracked or otherwise damaged. Replace brake lever if required.

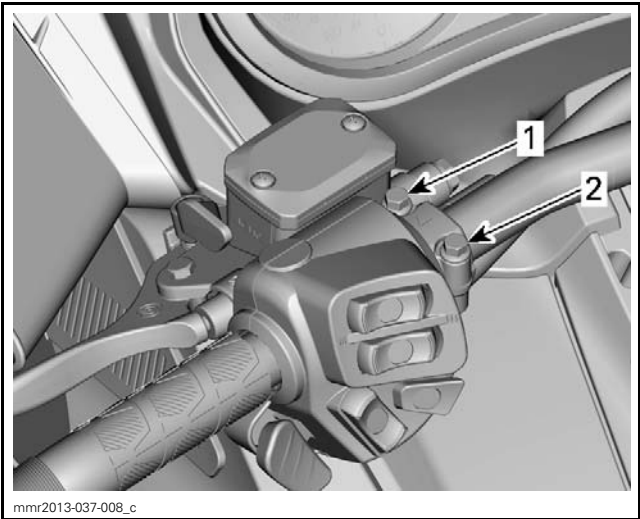
### Master Cylinder Installation

1. Place the master cylinder on the handlebar.
2. Install master cylinder retaining clamp with its arrow pointing toward the front of vehicle.



1. Arrow on clamp

3. Install master cylinder clamp screws and tighten loosely.
4. With the handlebar in the straight ahead position, place the reservoir parallel to the ground.
5. Torque master cylinder clamp screws to  $10\text{ N}\cdot\text{m}$  ( $89\text{ lbf}\cdot\text{in}$ ) in the sequence shown in the next illustration.



**TYPICAL**  
Step 1: Torque this screw first  
Step 2: Torque this screw last

6. Install the Banjo fitting with two **NEW** sealing washers.
7. Torque Banjo fitting to specification.

TIGHTENING TORQUE	
27 N•m (20 lbf•ft)	

8. Fill and bleed the brake system. Refer to *BRAKE FLUID* in *PERIODIC MAINTENANCE PROCEDURES* subsection.
9. Connect brake light switch connector.
10. Install steering cover.

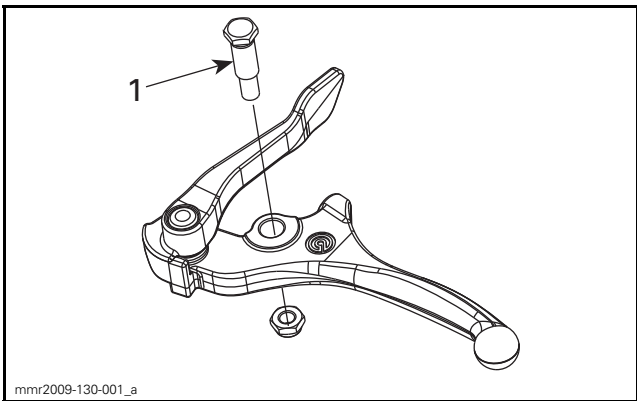
**BRAKE LEVER**

**Brake Lever Lubrication**

After using brake cleaner in the brake lever area or after adding brake oil in reservoir, check brake lever pivot lubrication. Add XPS SYNTHETIC GREASE (P/N 293 550 010) on brake lever pivot as necessary.

**Brake Lever Replacement**

Lubricate brake lever pivot using XPS SYNTHETIC GREASE (P/N 293 550 010).



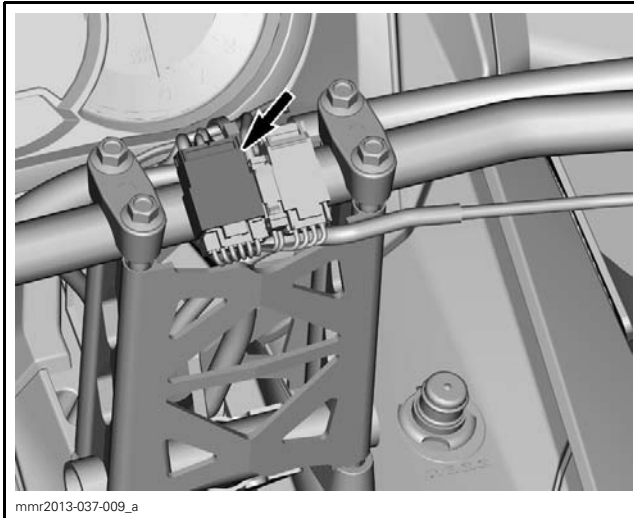
**TYPICAL**  
1. Lubricate brake lever pivot

Torque pivot nut of brake lever to  $6\text{ N}\cdot\text{m}$  ( $53\text{ lbf}\cdot\text{in}$ ).

**BRAKE LIGHT SWITCH**

**Brake Light Switch Resistance Test**

1. Remove steering cover and disconnect the LH steering connector.



TYPICAL

2. Validate switch operation with an ohmmeter as follows.

STANDARD STEERING HARNESS AND RACING TYPE SWITCH		
SWITCH	WIRE	RESISTANCE
Released	Pin 4 and pin 5	Infinite (OL)
Squeezed and held		Close to 0 $\Omega$

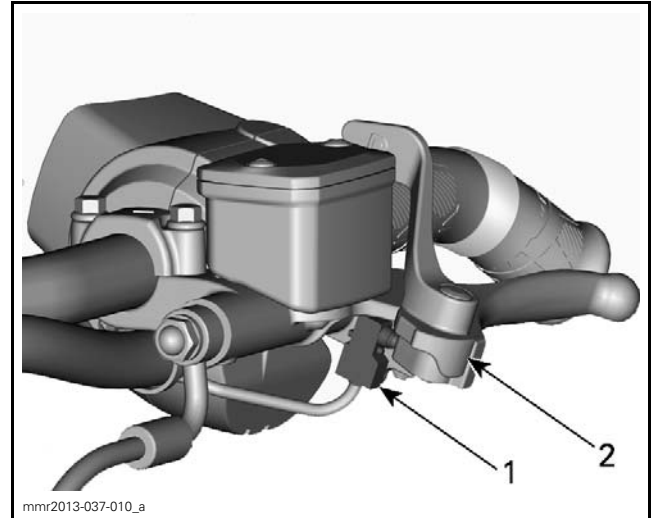
PREMIUM STEERING HARNESS		
SWITCH	WIRE	RESISTANCE
Released	Pin 3 and pin 4	Infinite (OL)
Squeezed and held		Close to 0 $\Omega$

If readings do not correspond to the above specifications, replace switch.

If readings correspond to the above specifications, check fuse, wiring and connectors going to switch. Repair or replace defective part(s).

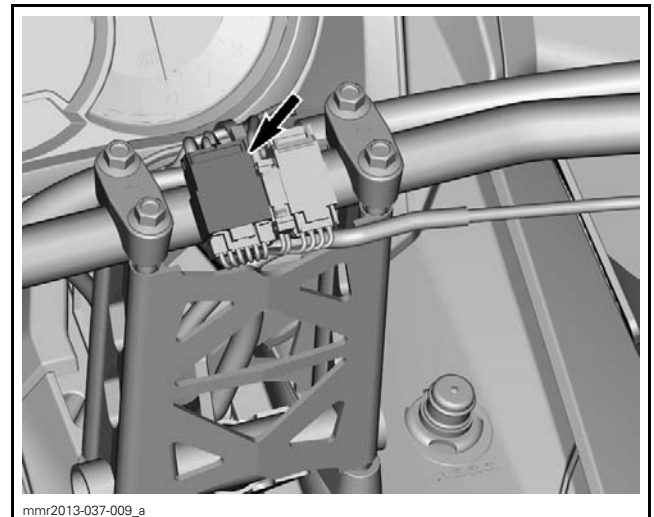
### Brake Light Switch Removal

1. Slip a small screwdriver between brake light switch and brake lever and separate them.



1. Brake light switch
2. Brake lever

2. Remove the steering cover and unplug the LH connector.



3. Cut all locking ties securing switch wires.
  4. Remove switch wires from connector.
- NOTE:** Check wires location for reinstallation.

### Brake Light Switch Installation

1. Plug switch wires into connector as per following tables.

STANDARD STEERING HARNESS AND RACING TYPE SWITCH	
WIRE	CONNECTOR
GRAY	Pin 4
BROWN	Pin 5

Subsection XX (BRAKE)

PREMIUM STEERING HARNESS	
WIRE	CONNECTOR
GRAY	Pin 4
BROWN	Pin 3

2. Squeeze brake lever.
3. Insert the both tabs of switch into brake lever body.
4. Plug the connector.
5. Check if switch is working properly.
6. Install new locking ties and the steering cover.