

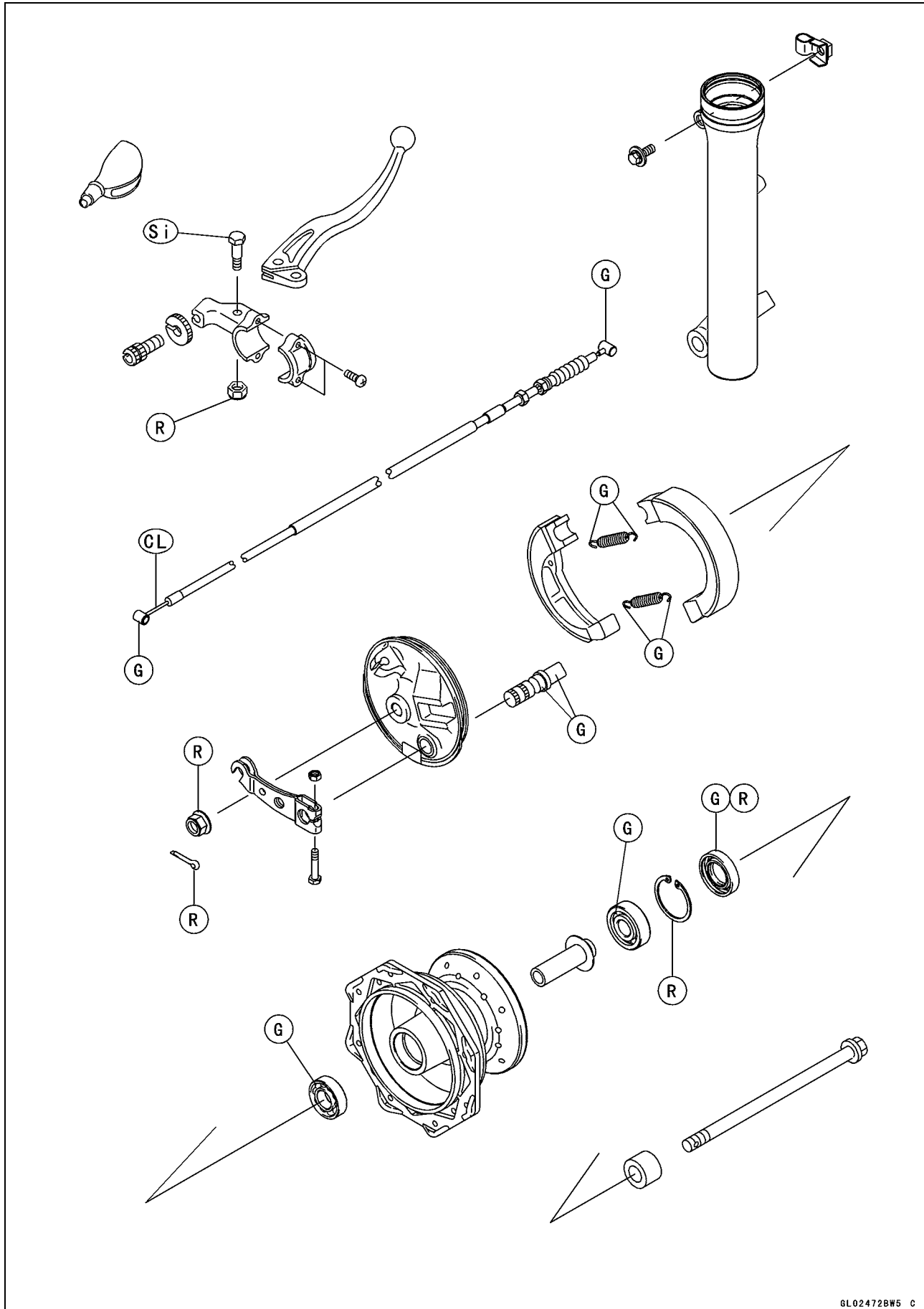
Brakes

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11-2 BRAKES

Exploded View



Exploded View

CL: Apply cable lubricant.

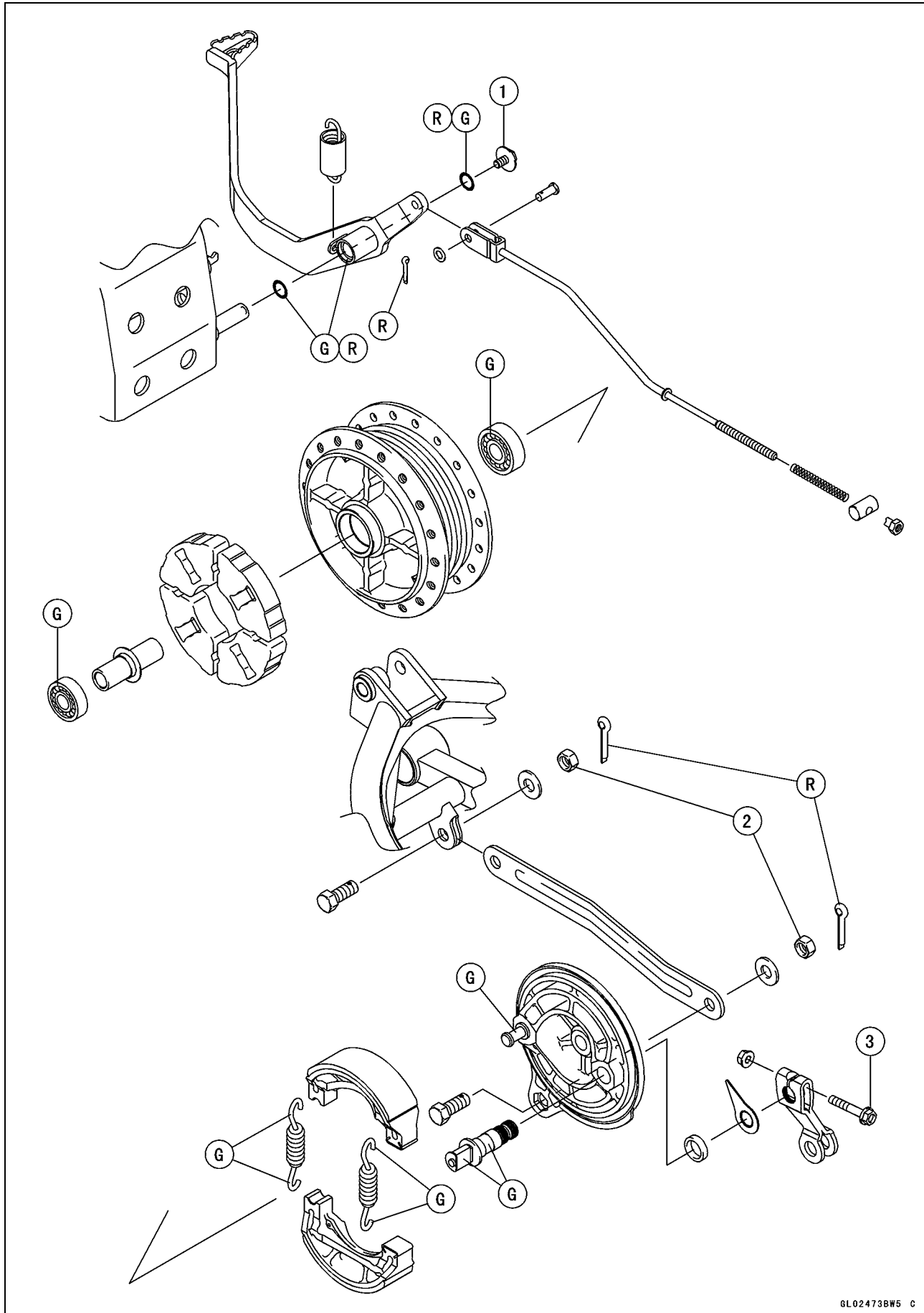
G: Apply grease.

R: Replacement Parts

Si: Apply silicone grease.

11-4 BRAKES

Exploded View



Exploded View

No.	Fastener	Torque			Remarks
		N·m	kgf·m	ft·lb	
1	Brake Pedal Bolt	8.8	0.90	78 in·lb	
2	Torque Link Nuts	25	2.5	18	
3	Brake Cam Lever Bolt	7.0	0.71	62 in·lb	

G: Apply grease.

R: Replacement Parts

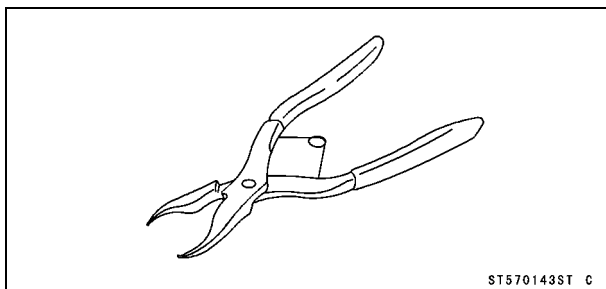
11-6 BRAKES

Specifications

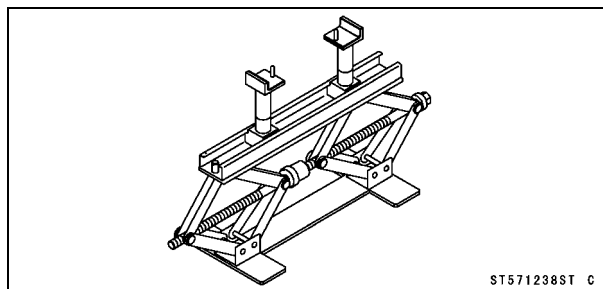
Item	Standard	Service Limit
Brake Lever and Pedal		
Brake Lever Free Play	4 ~ 5 mm (0.16 ~ 0.20 in.)	— — —
Brake Pedal Free Play	20 ~ 30 mm (0.79 ~ 1.18 in.)	— — —
Brake Drum, Brake Shoes		
Shoe Lining Thickness:		
Front	2.10 ~ 3.00 mm (0.08 ~ 0.12 in.)	1.2 mm (0.05 in.)
Rear	3.85 ~ 4.15 mm (0.152 ~ 0.163 in.)	2.0 mm (0.08 in.)
Shoe Spring Free Length:		
Front	30.8 ~ 31.2 mm (1.21 ~ 1.23 in.)	32.6 mm (1.28 in.)
Rear	32.5 mm (1.28 in.)	34.1 mm (1.34 in.)
Drum Inside Diameter:		
Front	90.000 ~ 90.087 mm (3.543 ~ 3.547 in.)	90.75 mm (3.57 in.)
Rear	110.000 ~ 110.087 mm (4.331 ~ 4.334 in.)	110.75 mm (4.36 in.)
Camshaft Diameter:		
Front	11.957 ~ 11.984 mm (0.471 ~ 0.472 in.)	11.88 mm (0.47 in.)
Rear	14.957 ~ 14.984 mm (0.589 ~ 0.590 in.)	14.88 mm (0.59 in.)
Camshaft Hole Inside Diameter:		
Front	12.000 ~ 12.027 mm (0.472 ~ 0.474 in.)	12.15 mm (0.478 in.)
Rear	15.000 ~ 15.027 mm (0.591 ~ 0.592 in.)	15.15 mm (0.596 in.)
Cam Lever Angle	80° ~ 90°	— — —

Special Tools

Inside Circlip Pliers:
57001-143



Jack:
57001-1238



11-8 BRAKES

Brake Lever and Cable

Brake Lever Free Play Inspection

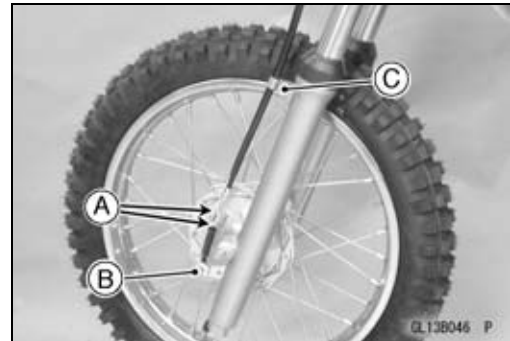
- Refer to the Brake Lever Free Play Inspection in the Periodic Maintenance chapter.

Brake Lever Free Play Adjustment

- Refer to the Brake Lever Free Play Adjustment in the Periodic Maintenance chapter.

Brake Cable Removal

- Free the brake cable from the lever.
- Loosen:
 - Front Brake Adjusting Nuts [A]
- Remove:
 - Brake Cable Lower End [B]
 - Bolt [C]
- Pull the brake cable out of the frame.



Brake Cable Installation

- Installation is the reverse of the removal.
- Run the brake cable according to the Cable, Wire, and Hose Routing section in the Appendix chapter.
- Adjust the brake lever free play (see Brake Lever Free Play Adjustment in the Periodic Maintenance chapter).

Brake Cable Lubrication

- Whenever the brake cable is removed or in accordance with the Periodic Maintenance Chart, lubricate the cable. Refer to the Lubrication in the Periodic Maintenance chapter.

Brake Pedal and Rod

Brake Pedal Free Play Inspection

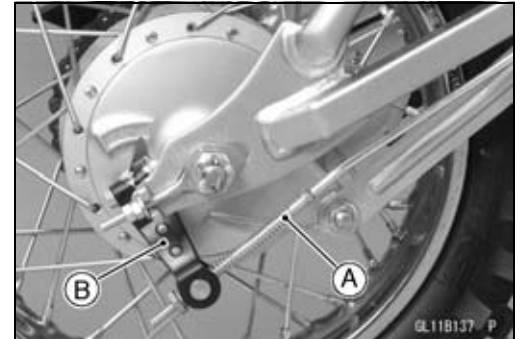
- Refer to Brake Pedal Free Play Inspection in the Periodic Maintenance chapter.

Brake Pedal Free Play Adjustment

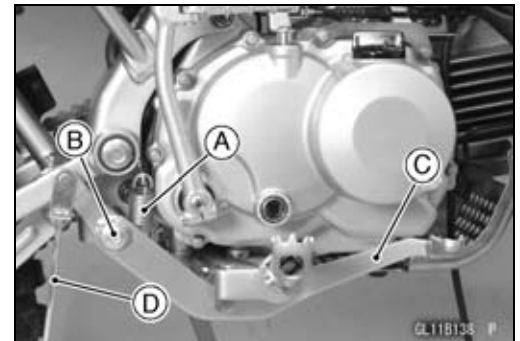
- Refer to Brake Pedal Free Play Adjustment in the Periodic Maintenance chapter.

Brake Pedal and Rod Removal

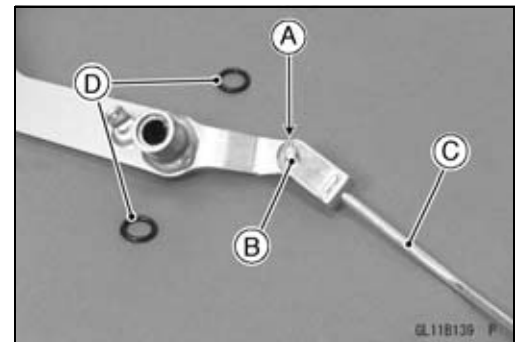
- Remove the brake rod [A] end from the brake cam lever [B] (see Rear Wheel Removal in the Wheels/Tires chapter).



- Remove:
 - Brake Pedal Return Spring [A]
 - Brake Pedal Mounting Bolt [B]
 - Brake Pedal [C] with Rod [D]

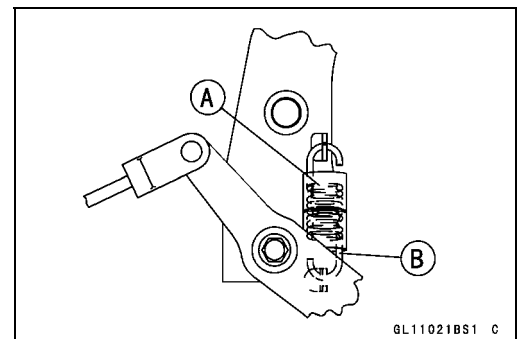


- Remove:
 - Cotter Pin [A]
 - Washer
 - Pin [B]
 - Brake Rod [C]
 - O-rings [D]



Brake Pedal and Rod Installation

- Installation is the reverse of removal.
- Replace the cotter pin and O-rings with new ones.
- Apply multi purpose grease to the pedal pivot and O-rings.
- Before installing the brake pedal, set in the return spring each end to the brake pedal.
- Install the return spring [A] so that its long hook portion [B] faces downward.
- Tighten:
 - Torque - Brake Pedal Mounting Bolt: 8.8 N·m (0.90 kgf·m, 78 in·lb)**
- Adjust the brake pedal free play (see Brake Pedal Free Play Adjustment in the Periodic Maintenance chapter).



11-10 BRAKES

Brake Panel and Drum

Brake Lining Wear Inspection

- Refer to Brake Lining Wear Inspection in the Periodic Maintenance chapter.

Cam Lever Angle Inspection

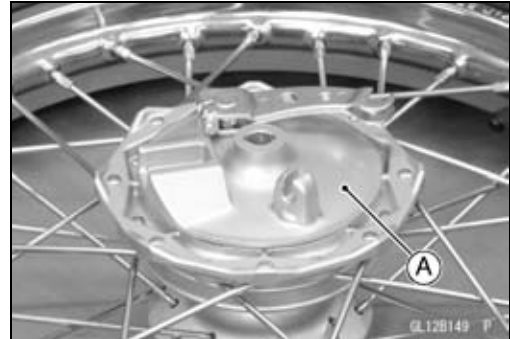
- Refer to Cam Lever Angle Inspection in the Periodic Maintenance chapter.

Cam Lever Angle Adjustment

- Refer to Cam Lever Angle Adjustment in the Periodic Maintenance chapter.

Brake Panel Removal

- Remove the front or rear wheel (see Front/Rear Wheel Removal in the Wheels/Tires chapter).
- Separate the brake panel [A] from the wheel.



Brake Panel Installation

- Place the brake panel in the drum and install the front or rear wheel (see Front/Rear Wheel Installation in the Wheels/Tires chapter).
- Adjust the brake lever and pedal free play (see Brake Lever/Pedal Free Play Adjustment in the Periodic Maintenance chapter).

Brake Panel Disassembly

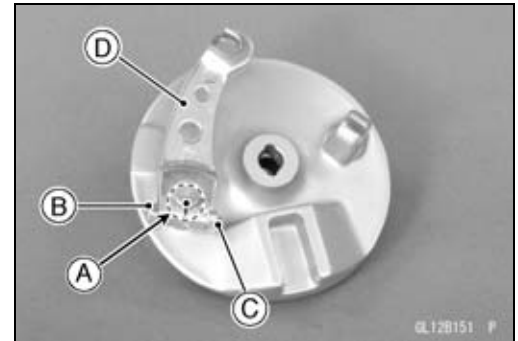
Front Brake Panel:

- Remove:
 - Front Wheel (see Front Wheel Removal in the Wheels/Tires chapter)
 - Brake Panel (see Brake Panel Removal)
- Using a clean cloth around the linings to prevent grease or oil from getting on them, remove and install the brake shoes [A] by pulling up on the center of the linings.



Brake Panel and Drum

- Mark the position [A] of the cam lever before removal so that it can be installed later in the same position.
- Remove the brake cam lever bolt [B] and nut [C], and then pull out the brake cam lever [D] from the brake camshaft.
- Pull out the brake camshaft from the brake panel inside.

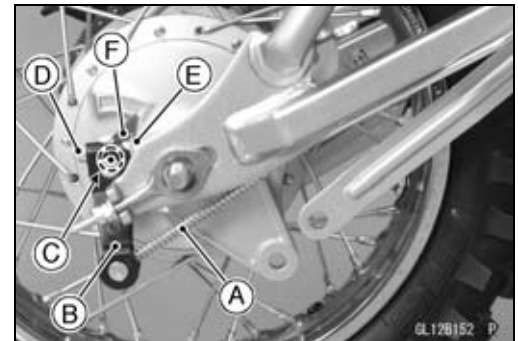


Rear Brake Panel:

NOTICE

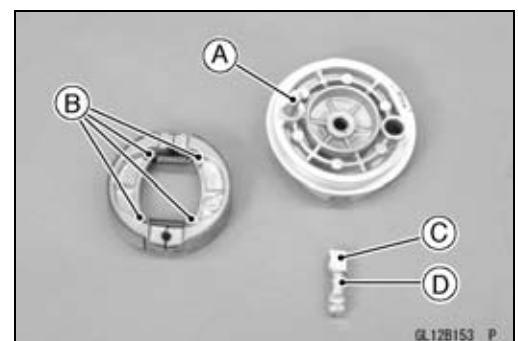
Do not depress the brake pedal deeply in order to separate the brake rod from the brake cam lever joint, this may extend the brake spring beyond its allowable spring extension. Rotate the rear brake panel clockwise as far as it will go with the brake rod inserted into the brake cam lever joint, then depress the brake pedal lightly, the brake rod will be separated from the brake cam lever joint.

- Remove the brake rod [A] end from the brake cam lever [B] (see Rear Wheel Removal in the Wheels/Tires chapter).
- Mark the position [C] of the cam lever before removal so that it can be installed later in the same position.
- Remove the brake cam lever bolt [D] and nut [E], and then pull out the brake cam lever from the brake camshaft.
- Remove the indicator [F].
- Remove:
 - Rear Wheel (see Rear Wheel Removal in the Wheels/Tires chapter)
 - Brake Panel (see Brake Panel Removal)
- Remove and install the brake shoes by referring to the front brake panel disassembly.
- Pull out the brake camshaft from the brake panel inside.



Brake Panel Assembly

- Wipe off any oil grease from the various areas of the brake panel.
- Apply thin coat of grease:
 - Anchor Pin [A]
 - Shoe Spring (both ends) [B]
 - Camshaft cam face [C]
 - Camshaft shaft portion [D]
- Do not allow grease to come in contact with the lining of the brake shoes.
- Wipe off any excess grease.



11-12 BRAKES

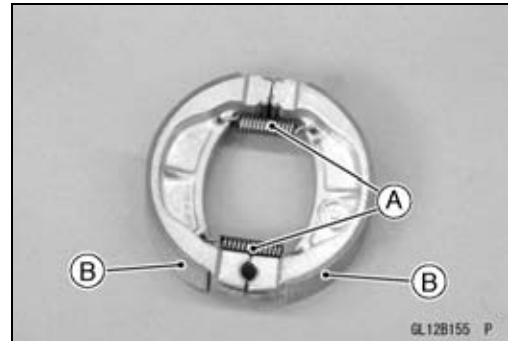
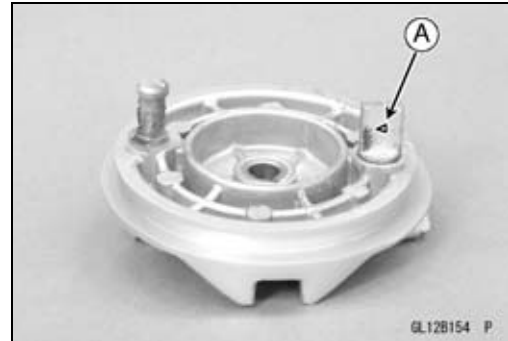
Brake Panel and Drum

- Face the triangle mark [A] on the cam surface towards the center of the panel and install the camshaft in the panel.

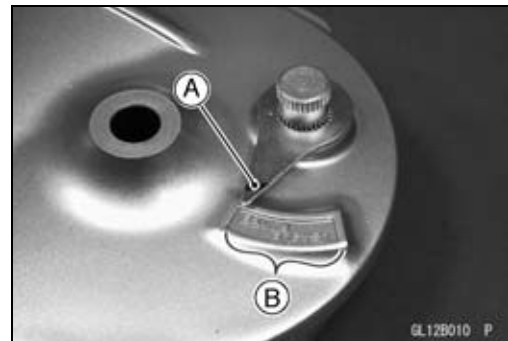
⚠ WARNING

Ineffective brakes can cause a serious accident resulting in serious injury death. Improper installation will cause ineffective braking. Be sure the brake components are properly installed.

- Install the shoe springs [A] as shown.
- Install the brake shoes, making sure that grease does not come in contact with the lining [B].

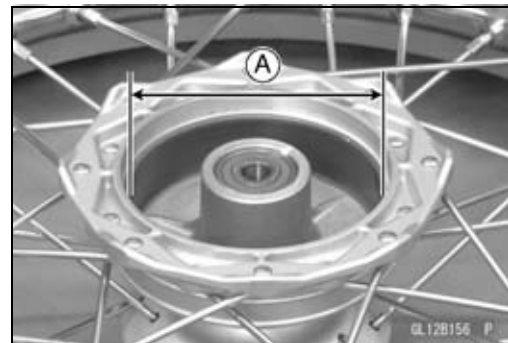


- Install the O-ring and fit the indicator [A] on the serration so that it points to the extreme right of the USABLE RANGE [B] (rear brake panel only).
- Install the cam lever in its original position by aligning it with the mark.
- Tighten:
Torque - Brake Cam Lever Bolt: 7.0 N·m (0.71 kgf·m, 62 in·lb) (rear brake panel only)
- Install the removed parts (see appropriate chapters).



Brake Drum Wear Inspection

- ★ If the drum is worn unevenly or if it is scored, turn the drum down on a brake drum lathe or replace the hub with a new one (Do not turn it down to the service limit, and do not turn it down if any diameter measurement exceeds the service limit).
- Measure the inside diameter [A] of the brake drum. Since uneven drum wear will decrease braking effectiveness, take measurement at a minimum of two places.
- ★ If any diameter measurement exceeds the service limit, replace the hub with a new one.



Brake Drum Inside Diameter

Standard:

Front	90.000 ~ 90.087 mm (3.543 ~ 3.547 in.)
Rear	110.000 ~ 110.087 mm (4.331 ~ 4.334 in.)

Service Limit:

Front	90.75 mm (3.57 in.)
Rear	110.75 mm (4.36 in.)

Brake Shoe Lining Wear Inspection

- Refer to the Brake Shoe Lining Wear Inspection in the Periodic Maintenance Chart.

Brake Panel and Drum

Camshaft Wear Inspection

- Measure the shaft diameter [A].
- ★ If it is worn down to less than the service limit, replace the shaft.
- Measure the inside diameter [B] of the camshaft hole.
- ★ If it is worn past the service limit, replace the brake panel.

Camshaft Diameter

Standard:

Front	11.957 ~ 11.984 mm (0.471 ~ 0.472 in.)
Rear	14.957 ~ 14.984 mm (0.589 ~ 0.590 in.)

Service Limit:

Front	11.88 mm (0.47 in.)
Rear	14.88 mm (0.59 in.)

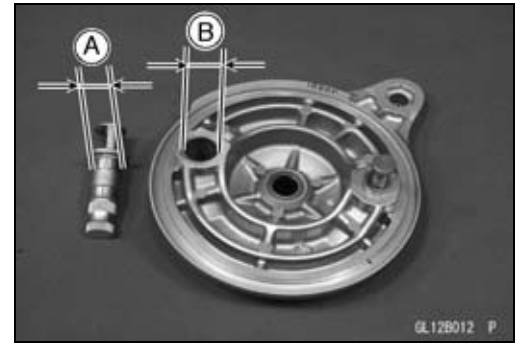
Camshaft Hole Inside Diameter

Standard:

Front	12.000 ~ 12.027 mm (0.472 ~ 0.474 in.)
Rear	15.000 ~ 15.027 mm (0.591 ~ 0.592 in.)

Service Limit:

Front	12.15 mm (0.478 in.)
Rear	15.15 mm (0.596 in.)



Brake Shoe Springs Inspection

- Visually inspect the brake shoe springs for breaks or distortion.
- ★ If the springs are damaged in any way, replace them.
- Measure the free length [A] of the brake shoe springs.
- ★ If either is stretched beyond the service limit, replace both springs.

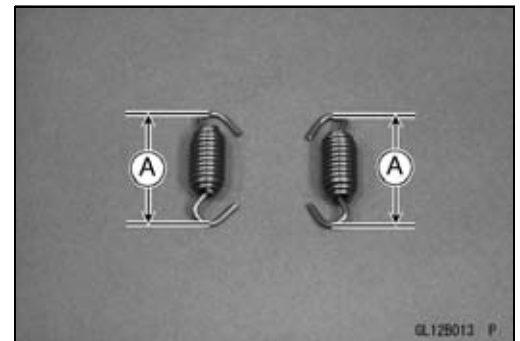
Brake Shoe Springs Inspection

Standard:

Front	30.8 ~ 31.2 mm (1.21 ~ 1.23 in.)
Rear	32.5 mm (1.28 in.)

Service Limit:

Front	32.6 mm (1.28 in.)
Rear	34.1 mm (1.34 in.)



Brake Panel Lubrication

- Refer to Brake Panel Lubrication in the Periodic Maintenance chapter.