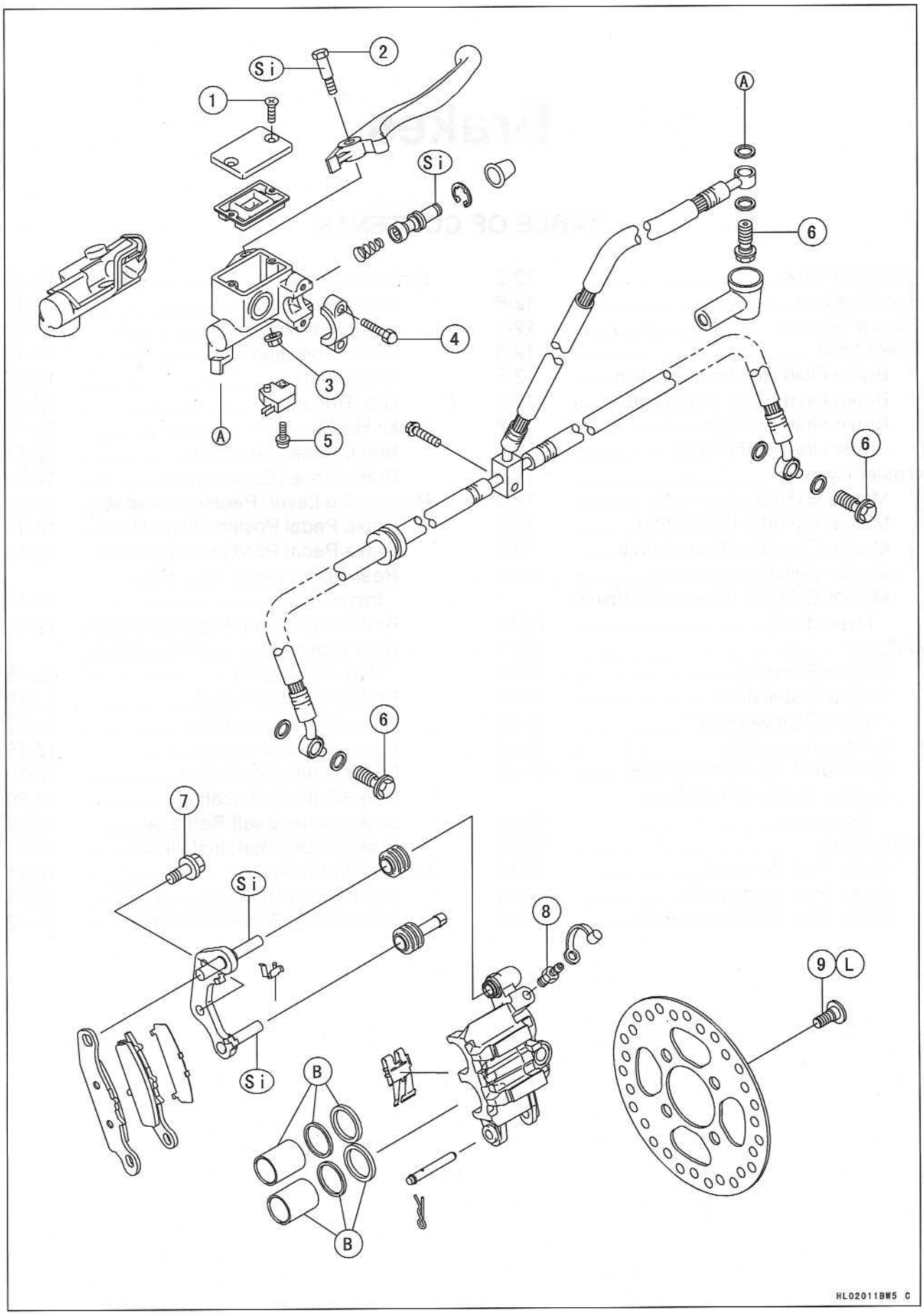
Brakes

TABLE OF CONTENTS

Exploded View

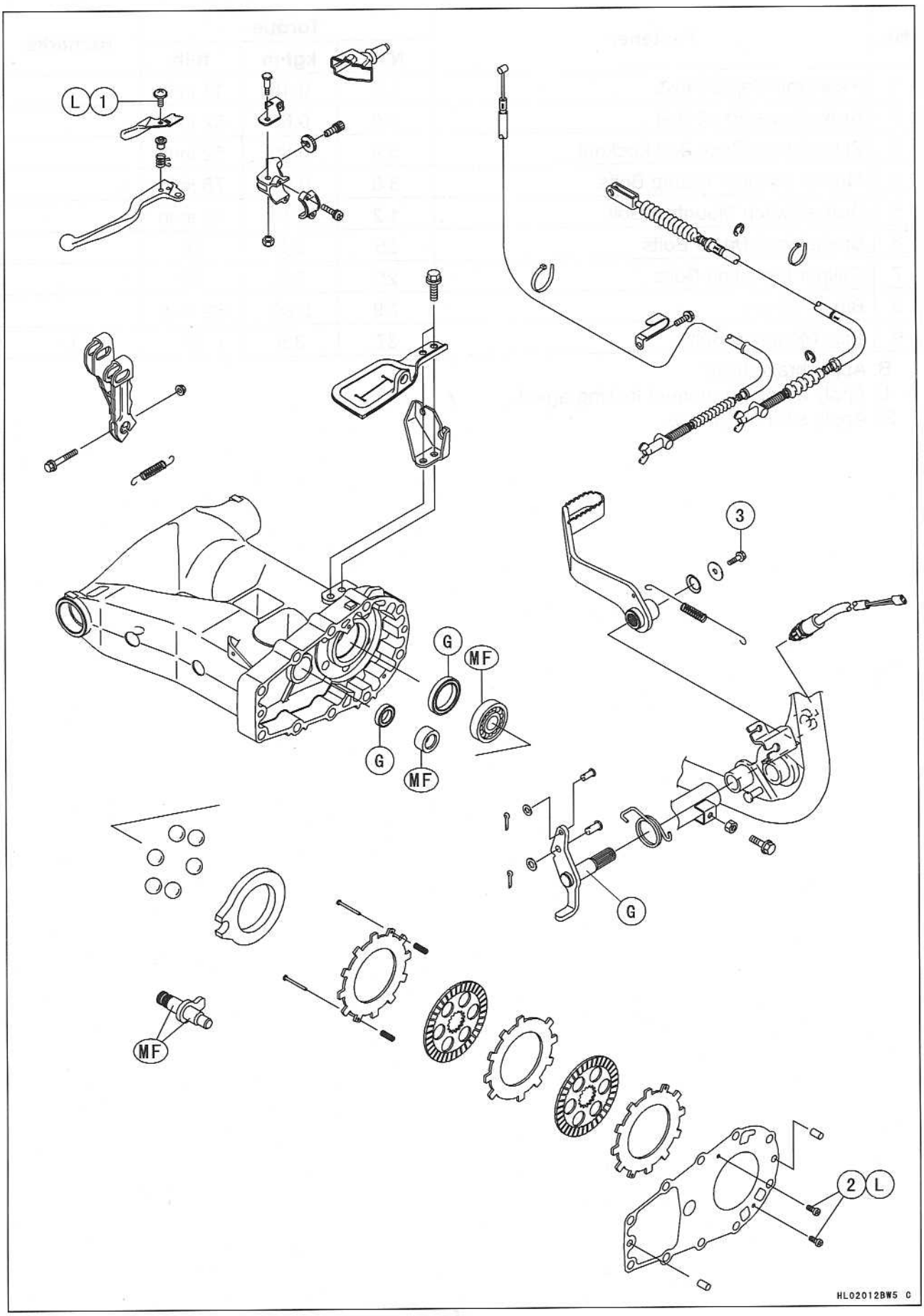


Exploded View

No.	Fastener	Torque			Remarks
		N·m	kgf·m	ft·lb	
1	Reservoir Cap Screws	1.5	0.15	13 in·lb	
2	Brake Lever Pivot Bolt	5.9	0.60	52 in·lb	
3	Brake Lever Pivot Bolt Locknut	5.9	0.60	52 in·lb	
4	Master Cylinder Clamp Bolts	8.8	0.90	78 in·lb	
5	Brake Switch Mounting Bolt	1.2	0.12	10 in·lb	
6	Brake Hose Banjo Bolts	25	2.5	18	
7	Caliper Mounting Bolts	25	2.5	18	
8	Bleed Valves	7.9	0.80	69 in·lb	
9	Disc Mounting Bolts	37	3.8	27	L

B: Apply brake fluid.
L: Apply a non-permanent locking agent.
Si: Apply silicone grease.

Exploded View



Exploded View

No.	Fastener	Torque			Remarks
		N·m	kgf·m	ft·lb	
1	Parking Brake Lever Screw	–	–	–	L
2	Gasket Screws	–	–	–	L
3	Brake Pedal Bolt	8.8	0.90	78 in·lb	

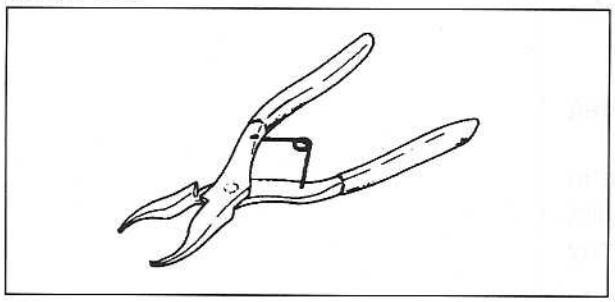
G: Apply grease.
L: Apply a non-permanent locking agent.
MF: Apply MOBIL FLUID 424 or equivalent oil.

Specifications

Item	Standard	Service Limit
Brake Fluid:		
Type	DOT 3 or DOT 4	– – –
Front Disc Brake:		
Pad lining thickness	4.0 mm (0.16 in.)	1 mm (0.04 in.)
Disc thickness	3.3 ~ 3.7 mm (0.130 ~ 0.146 in.)	3 mm (0.12 in.)
Disc runout	TIR 0.2 mm (0.008 in.) or less	TIR 0.3 mm (0.012 in.)
Rear Brake Lever, Pedal and Cables:		
Rear brake pedal position	35 ~ 40 mm (1.38 ~ 1.57 in.) above footboad	– – –
Rear brake lever free play	1 ~ 2 mm (0.04 ~ 0.08 in.)	– – –
Rear brake pedal free play	15 ~ 25 mm (0.6 ~ 1.0 in.)	– – –

Special Tool

Inside Circlip Pliers :
57001–143



Brake Fluid

⚠ WARNING

When working with the disc brake, observe the precautions listed below.

1. Never reuse old brake fluid.
2. Do not use fluid from a container that has been left unsealed or that has been open for a long time.
3. Do not mix two types and brands of fluid for use in the brake. This lowers the brake fluid boiling point and could cause the brake to be ineffective. It may also cause the rubber brake parts to deteriorate.
4. Don't leave the reservoir cap off for any length of time to avoid moisture contamination of the fluid.
5. Don't change the fluid in the rain or when a strong wind is blowing.
6. Except for the disc pads and disc, use only disc brake fluid, isopropyl alcohol, or ethyl alcohol for cleaning brake parts. Do not use any other fluid for cleaning of these parts. Gasoline, engine oil, or any other petroleum distillate will cause deterioration of the rubber parts. Oil spilled on any part will be difficult to wash off completely and will eventually deteriorate the rubber used in the disc brake.
7. When handling the disc pads or disc, be careful that no disc brake fluid or any oil gets on them. Clean off any fluid or oil that inadvertently gets on the pads or disc with a high flash-point solvent. Do not use one which will leave an oily residue. Replace the pads with new ones if they cannot be cleaned satisfactorily.
8. Brake fluid quickly ruins painted surfaces; any spilled fluid should be completely washed away immediately.
9. If any of the brake line fittings or the bleed valve is opened at any time, the **AIR MUST BE BLED FROM THE BRAKE LINE.**

Brake Fluid Recommendation

Use extra heavy-duty brake fluid only from a container marked DOT3 or DOT4.

Recommended Disc Brake Fluid
Type : DOT 3 or DOT 4

Brake Fluid Level Inspection

- Refer to the Brakes in the Periodic Maintenance chapter.

Brake Fluid Change

- Refer to the Brakes in the Periodic Maintenance chapter.

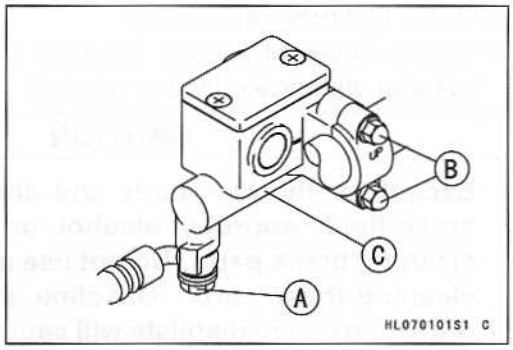
Brake Line Air Bleeding

- Refer to the Brakes in the Periodic Maintenance chapter.

Master Cylinder

Master Cylinder Removal

- Remove:
  Brake Hose Banjo Bolt [A]
  Master Cylinder Clamp Bolts [B]
  Master Cylinder [C]



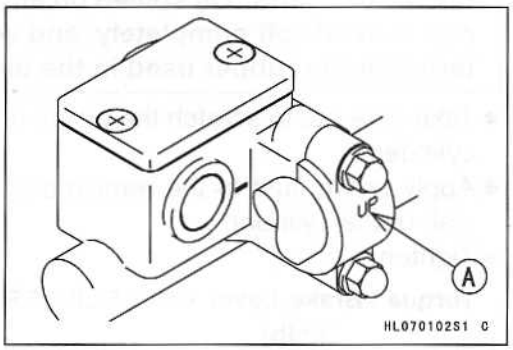
CAUTION

Brake fluid quickly ruins painted surface; any spilled fluid should be completely washed away immediately.

Master Cylinder Installation

- The master cylinder clamp must be installed with the "UP" mark [A] upwards.
- Tighten the upper clamp bolt first, and then the lower clamp bolt. There will be a gap at the lower part of the clamp after tightening.

Torque - Master Cylinder Clamp Bolts: 8.8 N·m (0.90 kgf·m, 78 in·lb)



- Use a new flat washer on each side of the brake hose fitting, and tighten the banjo bolt.

Torque - Brake Hose Banjo Bolt: 25 N·m (2.5 kgf·m, 18 ft·lb)

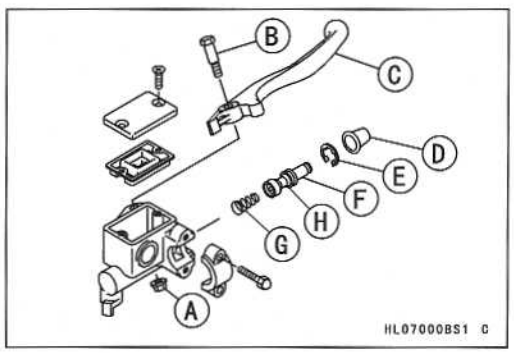
- Bleed the brake line after master cylinder installation (see Brakes in the Periodic Maintenance chapter).
- Check the brake for good braking power, no braking brag, and no fluid leakage.

⚠ WARNING

Do not attempt to drive the vehicle until a firm brake lever can be obtained by pumping the brake lever until the pads are against each disc. The brakes will not function on the first application of the lever if this is not done.

Master Cylinder Disassembly

- Remove:
  Master Cylinder (see Master Cylinder Removal)
  Brake Lever Pivot Nut [A]
  Brake Lever Pivot Bolt [B]
  Brake Lever [C]
  Dust Cover [D]
  Circlip [E]
  Piston [F]
  Spring [G]



Special Tool - Inside Circlip Pliers: 57001–143

CAUTION

Do not remove the secondary cup [H] from the piston since removal will damage it.

Master Cylinder

Master Cylinder Assembly

- Before assembly, clean all parts including the master cylinder with brake fluid or alcohol.

CAUTION

Except for the disc pads and disc, use only disc brake fluid, isopropyl alcohol, or ethyl alcohol for cleaning brake parts. Do not use any other fluid for cleaning these parts. Gasoline, engine oil, or any other petroleum distillate will cause deterioration of the rubber parts. Oil spilled on any part will be difficult to wash off completely, and will eventually deteriorate the rubber used in the disc brake.

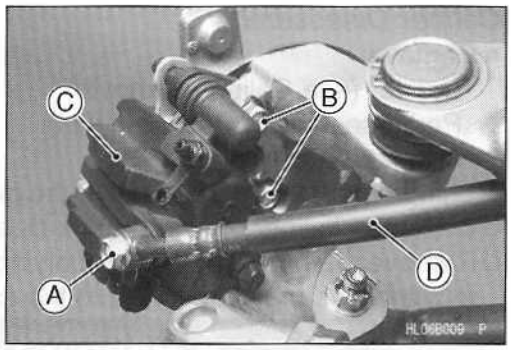
- Take care not to scratch the piston or the inner wall of the cylinder.
- Apply brake fluid to the removed parts and to the inner wall of the cylinder.
- Tighten:

Torque - Brake Lever Pivot Bolt: 5.9 N·m (0.60 kgf·m, 52 in·lb)
Brake Lever Pivot Bolt Locknut: 5.9 N·m (0.60 kgf·m, 52 in·lb)

Master Cylinder Inspection (Visual Inspection)

- Refer to the Brakes in the Periodic Maintenance chapter.

Calipers



Caliper Removal

- Remove the front wheel (see Wheels/Tires chapter).
- Loosen the banjo bolt [A] at the brake hose lower end, and tighten it loosely.
- Unscrew the caliper mounting bolts [B].
- Detach the caliper [C] from the disc.
- Unscrew the banjo bolt and remove the brake hose [D] from the caliper.

CAUTION

Immediately wash away any brake fluid that spills.

NOTE

o *If the caliper is to be disassembled after removal and if compressed air is not available, disassemble the caliper before the brake hose is removed (see Caliper Disassembly).*

Caliper Installation

- Install the caliper and brake hose lower end.

o Replace the washers that are on each side of hose fitting with new ones.

- Tighten:

Torque - Caliper Mounting Bolts: 25 N·m (2.5 kgf·m, 18 ft·lb)
Brake Hose Banjo Bolt: 25 N·m (2.5 kgf·m, 18 ft·lb)

- Check the fluid level in the brake reservoir.
- Bleed the brake line (see Brakes in the Periodic Maintenance chapter).
- Check the brake for good braking power, no brake drag, and no fluid leakage.

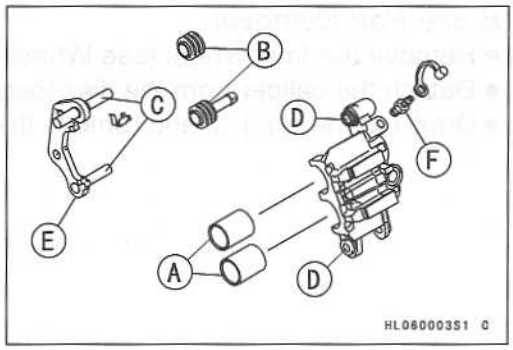
⚠ WARNING

Do not attempt to drive the vehicle until a firm brake lever can be obtained by pumping the brake lever until the pads are against each disc. The brakes will not function on the first application of the lever if this is not done.

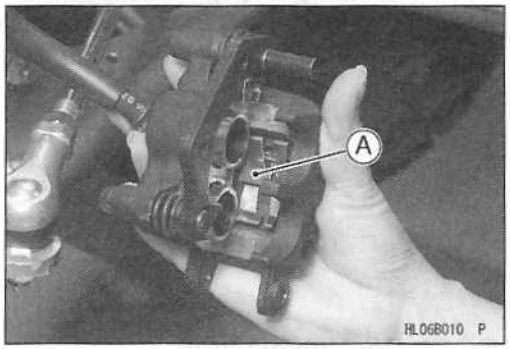
Calipers

- Apply brake fluid to the outside of the pistons [A], and push them into the cylinder by hand. Take care that neither the cylinder nor the piston skirt gets scratched.
- Replace the rubber boots [B] if they are damaged.
- Apply a thin coat of silicone grease to the caliper holder shafts [C] and holder holes [D] (Silicone grease is a special high temperature, water-resistant grease).
- Install:
  Caliper Holder [E]
  Bleed Valve [F] and Rubber Cap

Torque - Bleed Valve: 7.9 N·m (0.80 kgf·m, 69 in·lb)



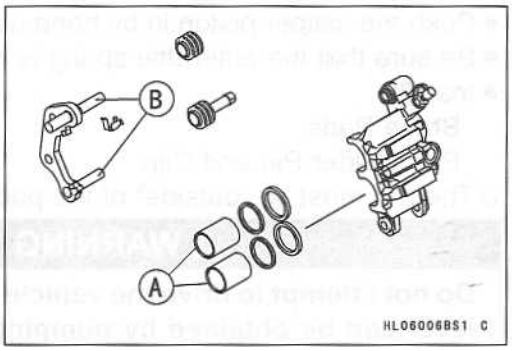
- Install the anti-rattle spring [A] in the caliper as shown.
- Install the pads (see Brake Pad Installation).



Piston and Cylinder Damage

- Visually inspect the pistons [A] and cylinder surfaces.

★Replace the caliper if the cylinder and piston are badly scored or rusty.



Caliper Holder Shaft Wear Inspection

The caliper body must slide smoothly on the caliper holder shafts [B]. If the body does not slide smoothly, one pad will wear more than the other, pad wear will increase, and constant drag on the disc will raise brake and brake fluid temperature.

- Check to see that the caliper holder shafts are not badly worn or stepped, and that the rubber friction boots are not damaged.

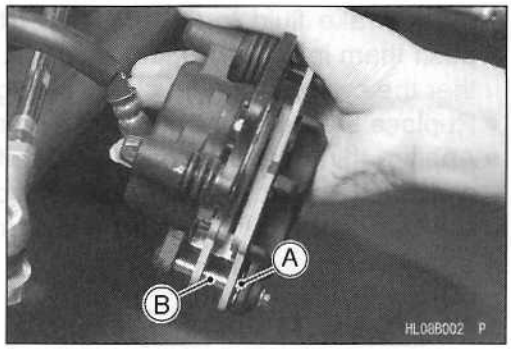
★If the rubber friction boot is damaged, replace the rubber friction boot.

★If caliper holder shaft is damaged, replace the caliper holder shaft and rubber friction boot as a unit.

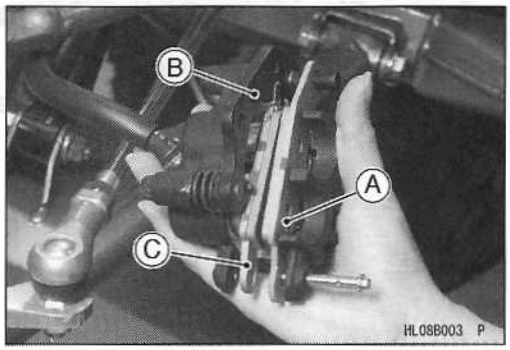
Brake Pads

Brake Pad Removal

- Remove the front wheel (see Wheels/Tires chapter).
- Detach the caliper from the disc (see Caliper Removal).
- Draw out the clip [A], and remove the pad holder pin [B].



- Remove the pad [A] on the outside.
- Push the holder [B] towards the piston, and remove the pad [C] on the piston side.



Brake Pad Installation

- Push the caliper piston in by hand as far as it will go.
- Be sure that the anti-rattle spring is in place.
- Install:
  Brake Pads
  Pad Holder Pin and Clip

o The clip must be "outside" of the pads.

⚠ WARNING

Do not attempt to drive the vehicle until a firm brake lever can be obtained by pumping the brake lever until the pads are against each disc. The brake will not function on the first application if this is not done.

Brake Pad Wear Inspection

- Refer to the Brakes in the Periodic Maintenance chapter.

Brake Discs

Disc Cleaning

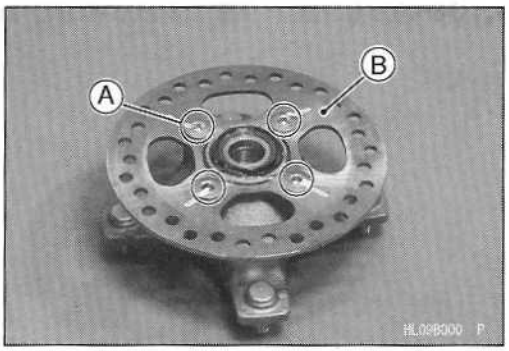
Poor braking can be caused by oil on a disc. Oil on a disc must be cleaned off with an oilless cleaning fluid such as trichloroethylene or acetone.

⚠ WARNING

These cleaning fluids are usually highly flammable and harmful if breathed for prolonged periods. Be sure to heed the fluid manufacturer's warnings.

Disc Removal

- Remove:
  Front Hub (see Wheels/Tires chapter)
  Brake Disc Mounting Bolts [A]
  Brake Disc [B]

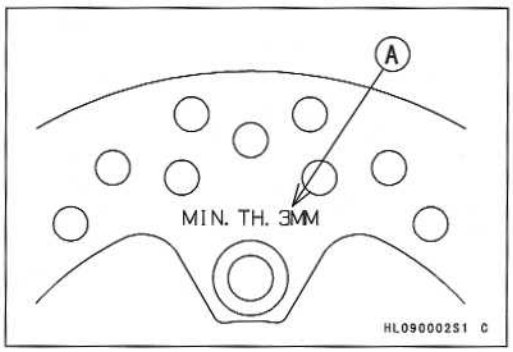


Disc Installation

- The disc must be installed with the marked side [A] facing toward the steering knuckle.
- Apply a non-permanent locking agent:
  Disc Mounting Bolts
- Tighten:

Torque - Disc Mounting Bolts: 37 N·m (3.8 kgf·m, 27 ft·lb)

- After installing the discs, check the disc runout. Completely clean off any grease that has gotten on either side of the disc with a high flash-point solvent. Do not use one which will leave an oily residue.



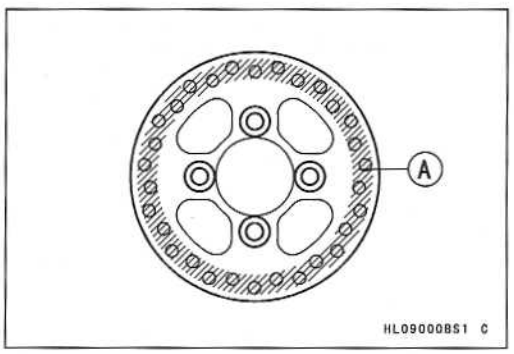
Disc Wear

- Measure the thickness of each disc at the point [A] where it has worn the most.

★Replace the disc if it has worn past the service limit.

Disc Thickness

Standard:	**3.3 ~ 3.7 mm (0.130 ~ 0.146 in.)**
Service Limit:	**3 mm (0.12 in.)**

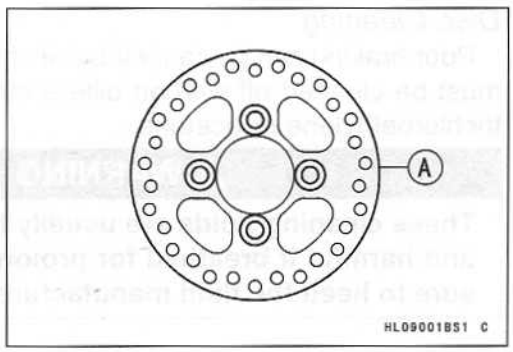


Brake Discs

Disc Runout

- Jack up the vehicle so that the wheels are off the ground.
- Remove the front wheels and turn the handlebar fully to one side.
- Set up a dial gauge against the disc [A], and measure the disc runout.

★If the runout exceeds the service limit, replace the disc.



Disc Runout

Standard:	**TIR 0.2 mm (0.008 in.) or less**
Service Limit:	**TIR 0.3 mm (0.012 in.)**

Brake Hoses

Brake Hose Inspection

- Refer to the Brakes in the Periodic Maintenance chapter.

Brake Hose Replacement

- Refer to the Brakes in the Periodic Maintenance chapter.

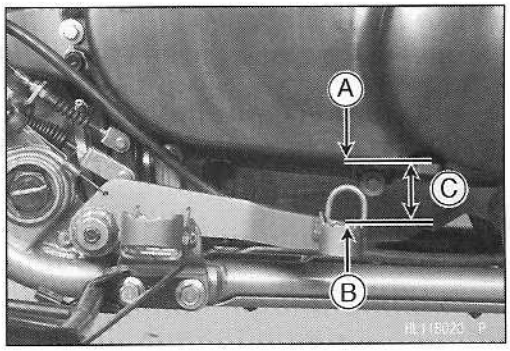
Rear Brake Lever, Pedal and Cables

Brake Pedal Position Inspection

- Check that the brake pedal [B] is in the correct position as shown.
  [A] Converter Cover

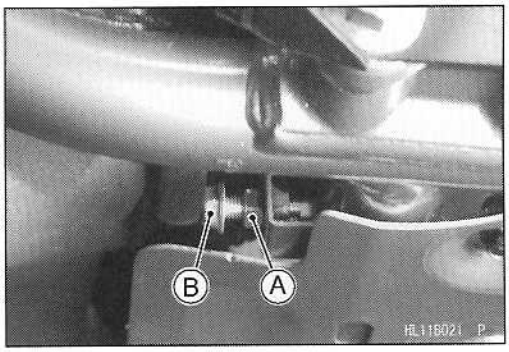
Pedal Position [C]
Standard: 35 ~ 40 mm (1.38 ~ 1.57 in.)

★If it is incorrect, adjust the brake pedal position.



Brake Pedal Position Adjustment

- Loosen the locknut [A], and turn the adjusting bolt [B] until the brake pedal is correctly positioned.
- Tighten the locknut.
- Check the brake pedal free play (see Brakes in the Periodic Maintenance chapter).



Rear Brake Lever Free Play Inspection

- Refer to the Brakes in the Periodic Maintenance chapter.

Brake Pedal Free Play Inspection

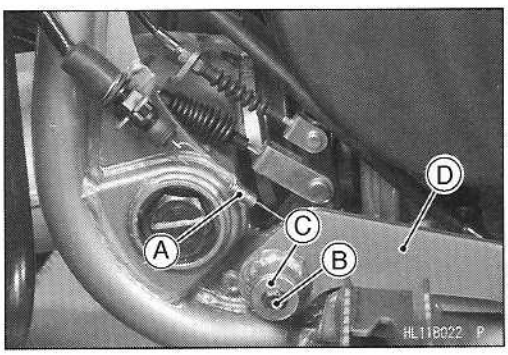
- Refer to the Brakes in the Periodic Maintenance chapter.

Rear Brake Lever and Pedal Free Play Adjustment

- Refer to the Brakes in the Periodic Maintenance chapter.

Brake Pedal Removal

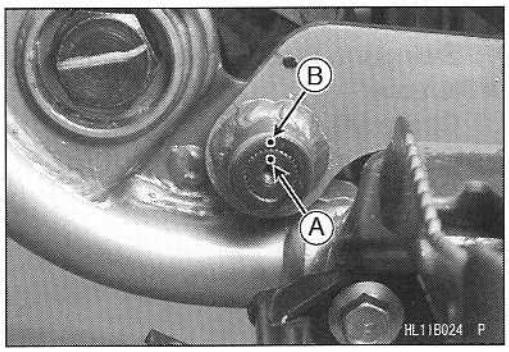
- Remove:
  Right Foot (see Frame chapter)
- Loosen the locknut and the adjusting bolt.
- Remove the brake switch spring [A].
- Loosen the brake pedal bolt [B].
- Remove:
  Washers [C]
  Brake Pedal [D]



Rear Brake Lever, Pedal and Cables

Brake Pedal Installation

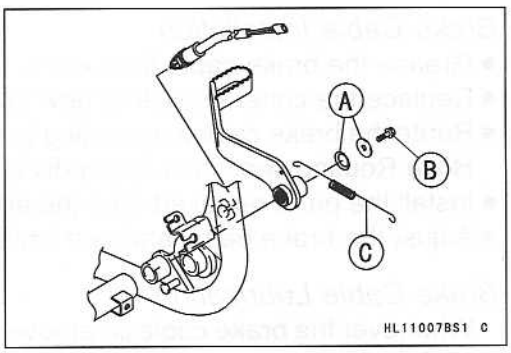
- Apply grease to the tip of the brake pedal shaft.
- Install the brake pedal.
- Align the punch mark [A] on the brake pedal shaft with the punch mark [B] on the brake pedal.



- Install the washers [A].
- Tighten:

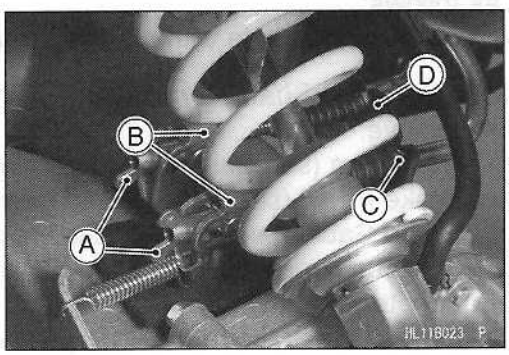
Torque - Brake Pedal Bolt [B]: 8.8 N·m (0.90 kgf·m, 78 in·lb)

- Install the brake switch spring [C].
- Adjust the brake pedal position (see Brake Pedal Position).

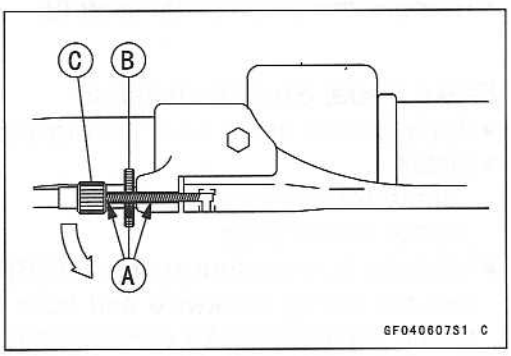


Brake Cable Removal

- Remove:
  Right Foot Guard (see Frame chapter)
- Unscrew the adjusters [A] at the rear ends of the cables, and pull the cables out of the joints [B].
- Remove the circlip [C] and pull the cables out of the cable mount [D].

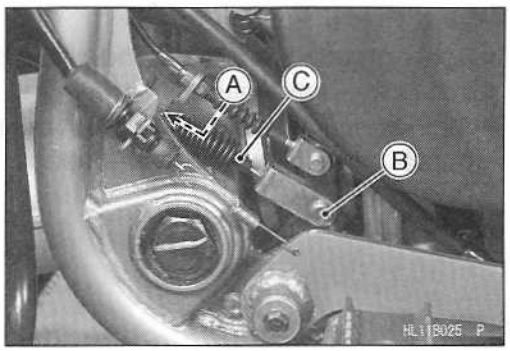


- Loosen the knurled locknut [B] at the rear brake lever and screw in the adjuster [C].
- Line up the slots [A] in the brake lever, knurled locknut, and adjuster, and then free the cable from the lever.
- Remove the brake lever cable from the frame.



Rear Brake Lever, Pedal and Cables

- Remove:
  Swingarm (see Suspension chapter)
- Remove:
  Circlip [A]
  Cotter Pin, Washer and Pin [B]
  Brake Pedal Cable [C]



Brake Cable Installation

- Grease the brake cable front ends.
- Replace the cotter pin with a new one.
- Route the brake cables according to the Cable, Wire, and Hose Routing section in Appendix chapter.
- Install the parts removed (see the appropriate chapter).
- Adjust the brake pedal and rear brake lever.

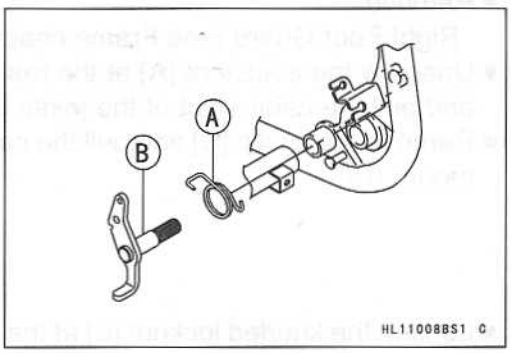
Brake Cable Lubrication

Whenever the brake cable is removed, lubricate the cable as follows:

- Lubricate the cable with a penetrating rust inhibitor.

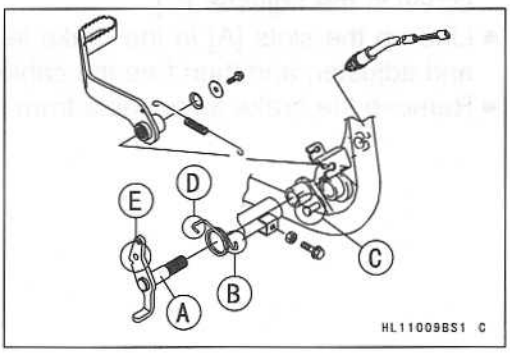
Brake Pedal Shaft Removal

- Remove:
  Swingarm (see Suspension chapter)
  Brake Pedal (see Brake Pedal Removal)
  Brake Cable (see Brake Cable Removal)
  Reverse Lock Cable (see Crankcase/Transmission chapter)
- Remove the brake return spring [A] with pliers.
- Remove the brake pedal shaft [B].



Brake Pedal Shaft Installation

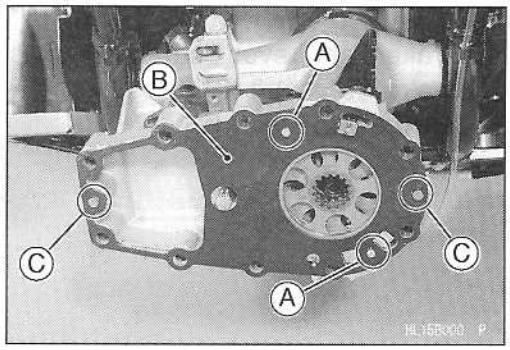
- Apply grease to the tip of the brake pedal shaft [A].
- Install:
  Brake Return Spring
  Brake Pedal Shaft
- Hook the brake return spring end [B] to the projection [C], turn the spring clockwise and hook the other end of the spring [D] to the brake pedal shaft [E] with pliers.
- Install:
  Brake Cable (see Brake Cable Installation)
  Reverse Lock Cable (see Crankcase/Transmission chapter)
  Brake Pedal (see Brake Pedal Installation)
  Swingarm (see Suspension chapter)



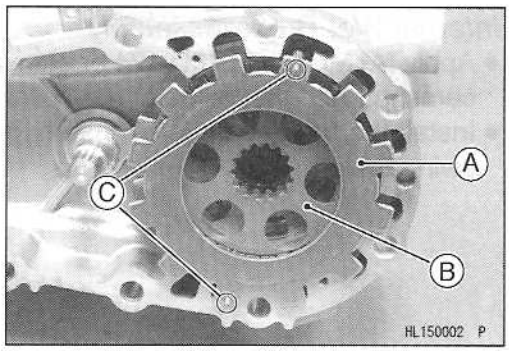
Internal Wet Brake

Internal Wet Brake Disassembly

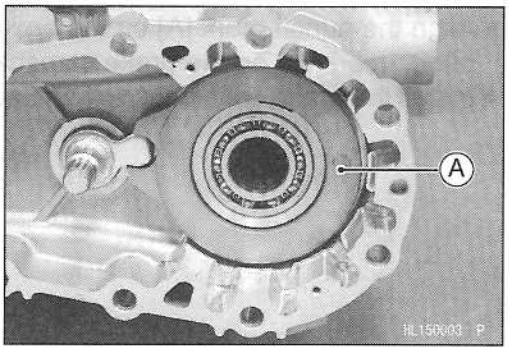
- Remove:
  Rear Final Gear Case (see Final Drive chapter)
  Gasket Screws [A]
  Gasket [B]
  Dowel Pins [C]



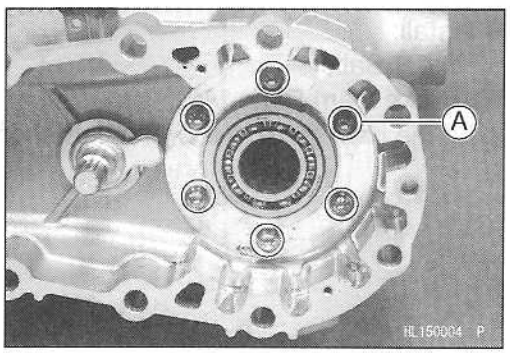
- Remove:
  Steel Pressure Plates [A] and Steel Plates
  Friction Plates [B]
  Pins [C] and Springs



- Remove:
  Brake Cam Plate [A]

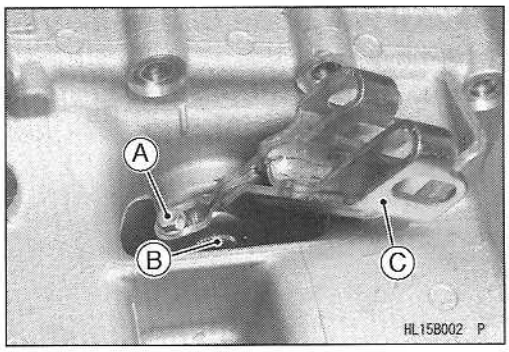


- Remove:
  Steel Balls [A]



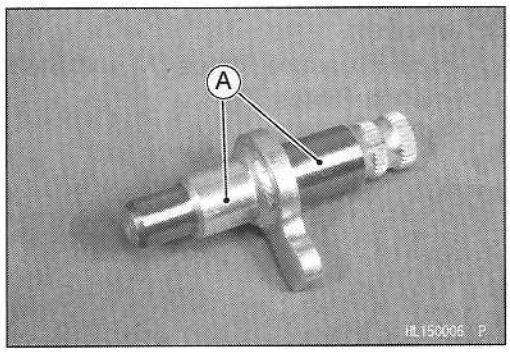
Internal Wet Brake

- Remove:
  Brake Cam Lever Bolt and Nut [A]
  Brake Camshaft [B]
  Brake Cam Lever [C]

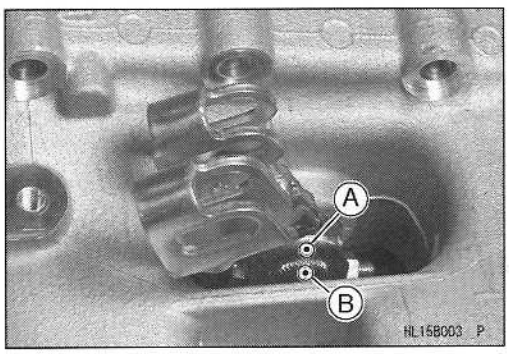


Internal Wet Brake Assembly

- Apply [A] MOBIL FLUID 424 or equivalent oil to the brake camshaft and the inside of the collar.
- Install the brake cam lever inserting the camshaft in the swingarm.

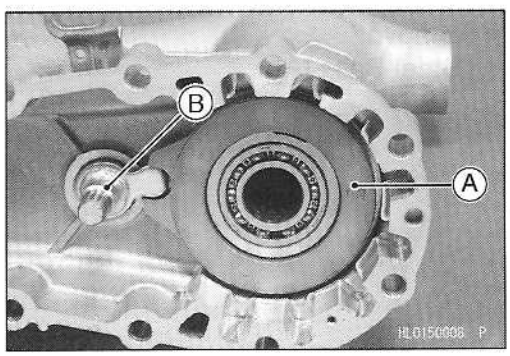


- Align the punch mark [A] on the brake cam lever with the punch mark [B] on the brake camshaft.
- Install the brake cam lever bolt and nut, and tighten them.



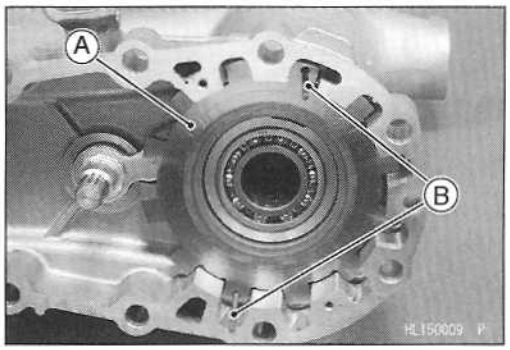
- Install:
  Steel Balls
  Brake Cam Plate [A]

○ Fit the cam plate and brake camshaft [B] as shown.

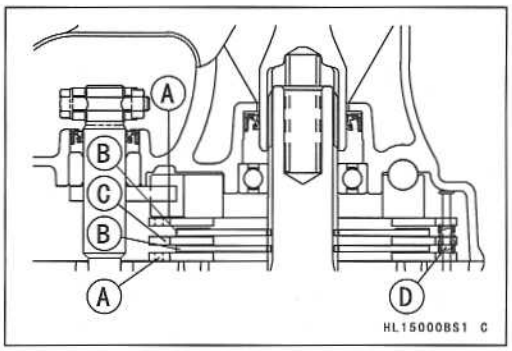


Internal Wet Brake

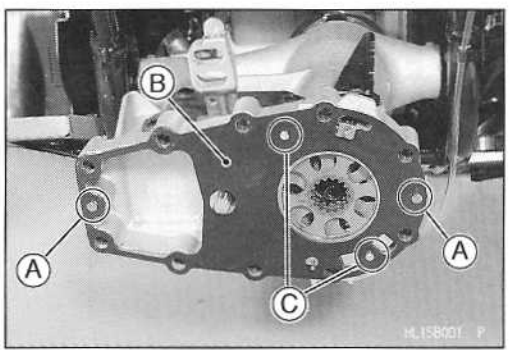
- Install:
  Steel Pressure Plate [A] and Pins [B] (as shown)



- Install:
  Steel Pressure Plates [A]
  Friction Plates [B]
  Steel Plate [C]
  Springs [D]



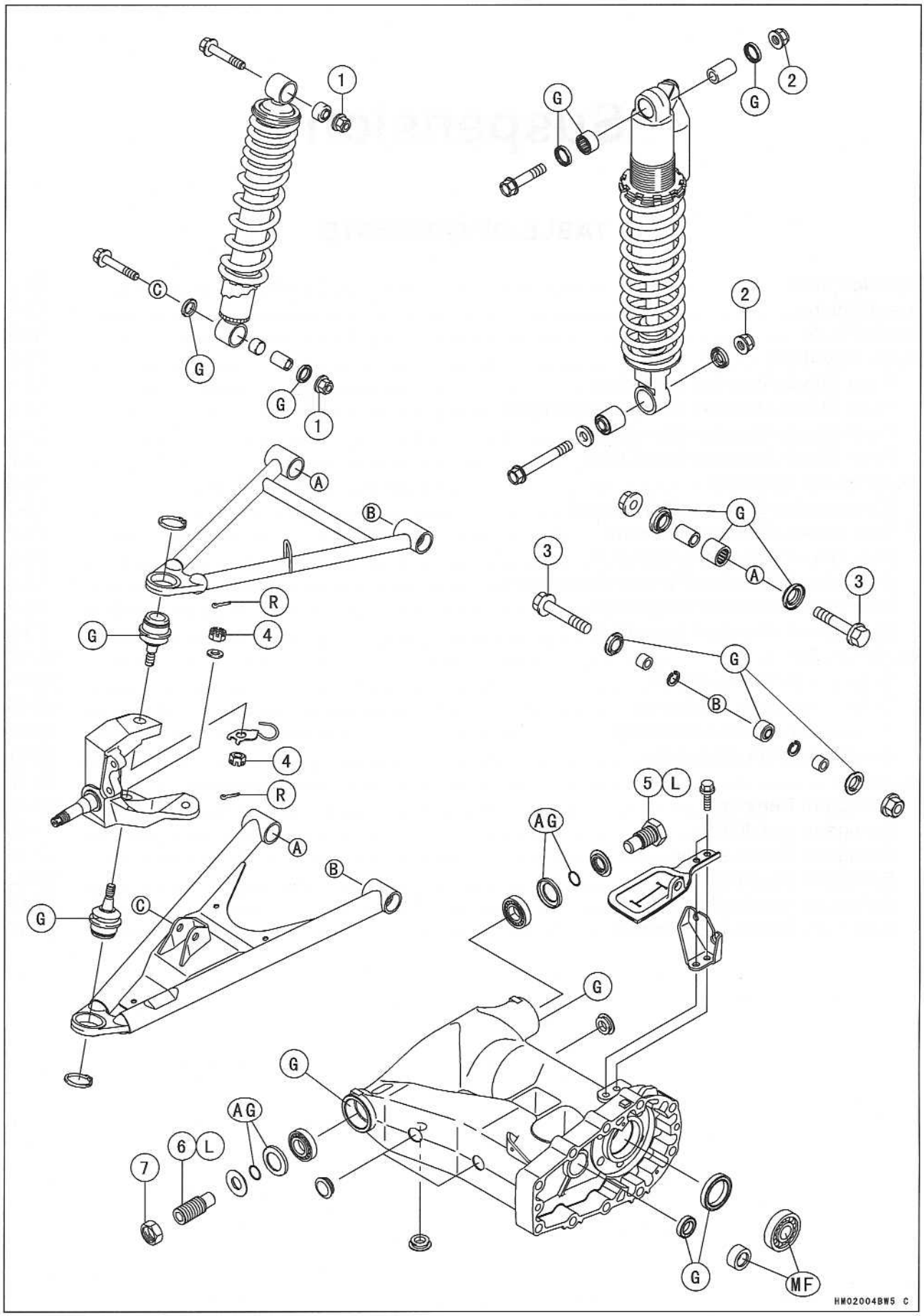
- Install:
  Dowel Pins [A]
  New Gasket [B]
- Apply a non-permanent locking agent to the gasket screws [C], and tighten them.
- Install:
  Rear Final Gear Case (see Final Drive chapter)



Suspension

TABLE OF CONTENTS

Exploded View



Exploded View

No.	Fastener	Torque			Remarks
		N·m	kgf·m	ft·lb	
1	Front Shock Absorber Mounting Nuts	42	4.3	31	
2	Rear Shock Absorber Mounting Nuts	62	6.3	46	
3	Suspension Arm Pivot Bolts	42	4.3	31	
4	Steering Knuckle Joint Nuts	29	3.0	21	
5	Swingarm Pivot Right Shaft	152	15.5	112	L
6	Swingarm Pivot Left Shaft	20	2.0	14	L
7	Swingarm Pivot Left Nut	152	15.5	112	

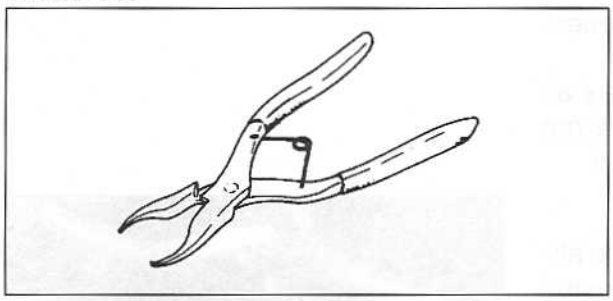
G: Apply grease.
L: Apply a non-permanent locking agent.
AG: Apply grease (Amoco rykon premium grease No. 2 EP Green).
MF: Apply MOBIL FLUID 424 or equivalent oil.
R: Replacement parts

Specifications

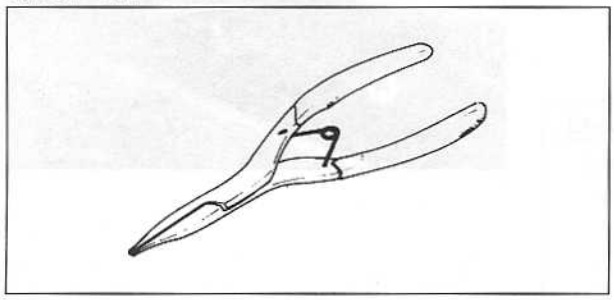
Item	Standard	Service Limit
Front Shock Absorbers:		**(Usable Range)**
Spring preload setting position	No. 2	1 ~ 5
Rear Shock Absorber:		
Spring preload adjustment		
(Adjusting nut position from the center		**(Adjustable Range)**
of the mounting hole upper)	94.2 mm (3.71 in.)	93.2 ~ 104.3 mm
		(3.67 ~ 4.11 in.)
Gas Reservoir:		
Compression damping Adjustment		
(from the seated position adjuster		**(Adjust Range)**
tuned fully clockwise)	14 clicks counter-clockwise	19 clicks
Gas pressure	980 kPa (10 kgf/cm², 142 psi)	– – –

Special Tools

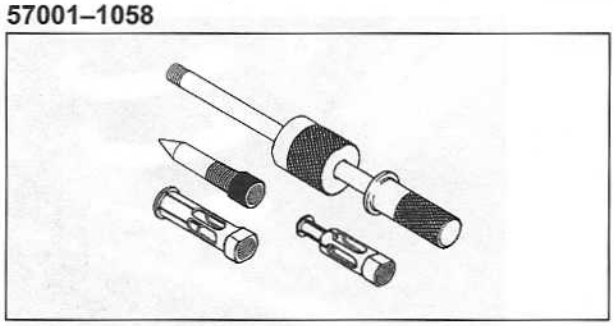
Inside Circlip Pliers :
57001–143



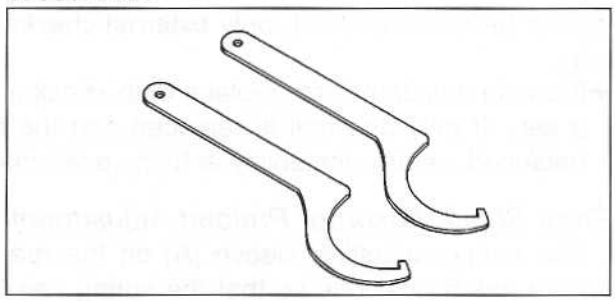
Outside Circlip Pliers :
57001–144



Oil Seal & Bearing Remover :
57001–1058

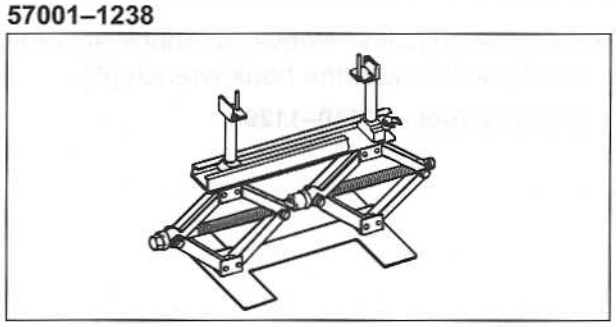


Hook Wrench :
57001–1101



Bearing Driver Set :
57001–1129

Jack :
57001–1238



Shock Absorbers

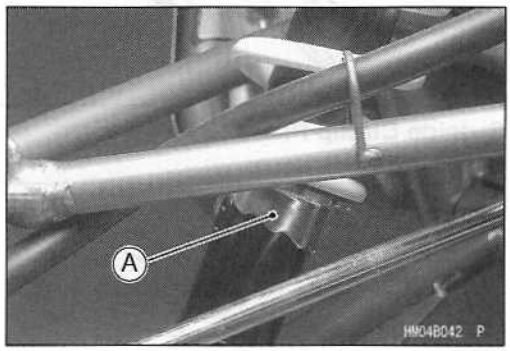
Front Shock Absorber Inspection

Since the front shock absorbers are sealed units which cannot be disassembled, only external checks are necessary.

★If one unit is damaged, replace both shock absorbers as a set. If only one unit is replaced and the two are not balanced, vehicle instability at high speed may result.

Front Shock Absorber Preload Adjustment

The spring adjusting sleeve [A] on the rear shock absorber has 5 positions so that the spring can be adjusted for different terrain and loading conditions. If the spring action feels too soft or too stiff, adjust it in accordance with the following table.

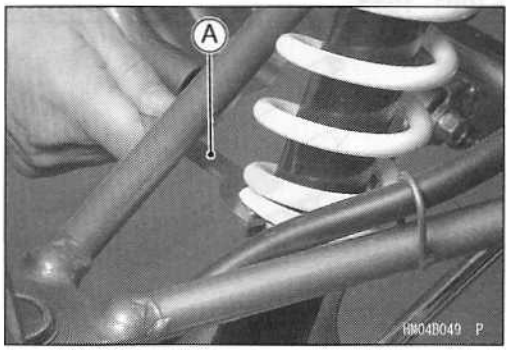


Spring Action

Position	Spring	Setting	Load	Terrain	Speed
1	Force	Soft	Light	Smooth	Low
2 (STD)		↑	↑	↑	↑
3					
4	↓	↓	↓	↓	↓
5	Stronger	Hard	Heavy	Rough	High

- Turn the adjusting sleeve on shock absorber to the desired position with the hook wrench [A].

  Owner's Tool - 92110–1129

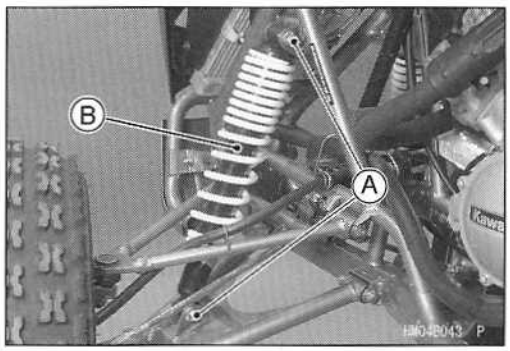


Front Shock Absorber Removal

- Support the vehicle on a stand or a jack so that the rear wheels are off the ground.

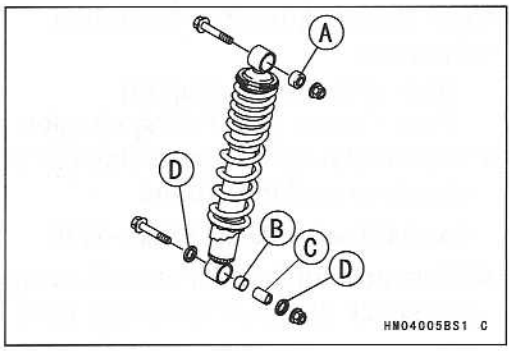
  Special Tool - Jack: 57001–1238

- While holding the rear wheels, remove the lower and upper shock absorber mounting bolts [A], nuts, and washers.
- Remove the front shock absorber [B].



Shock Absorbers

Front Shock Absorber Installation



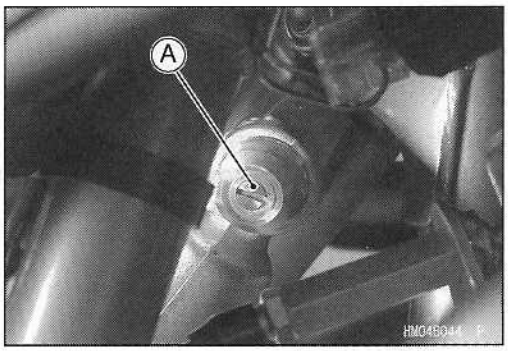
- Apply plenty of grease to the inside of the bushing, sleeve and oil seals.
- Install:
  Rubber Bushing [A]
  Bushing [B]
  Sleeve [C]
  Oil Seals [D]
- Tighten:

Torque - Front Shock Absorber Mounting Nuts: 42 N·m (4.3 kgf·m, 31 ft·lb)

Rear Shock Absorber:

To suit to various riding conditions, the spring preload of the shock absorber can be adjusted or the spring can be replaced. Also the damping force can be adjusted easily so changing oil viscosity unnecessary.

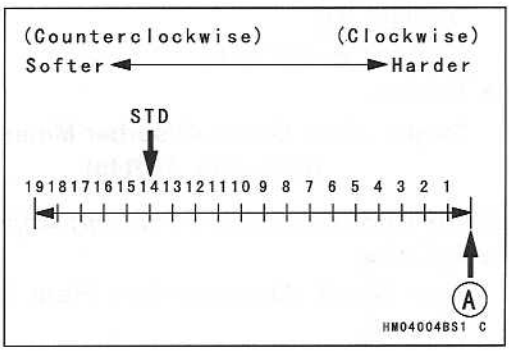
Compression Damping Adjustment



- Turn the compression damping adjuster [A] on the rear shock absorber gas reservoir with a flat-bead screwdriver.

★If the damping feels too soft or too stiff, adjust it in accordance with the following table.

Seated position : adjuster turned fully clockwise [A].



Compression Damping
Standard: 14 clicks

NOTE

○ *Always make any damping adjustments in small steps and test their effects before using them in competition.*

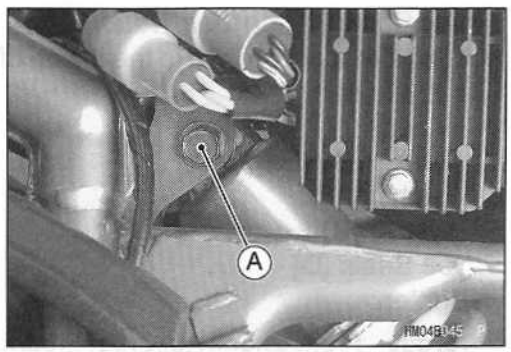
Shock Absorbers

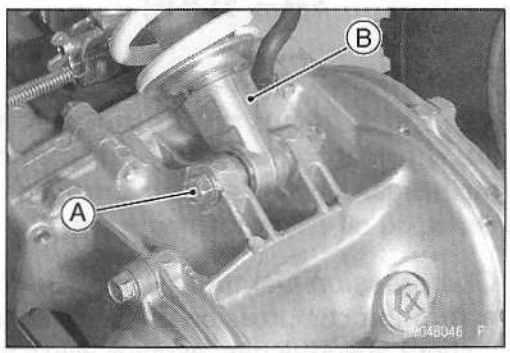
Rear Shock Absorber Removal

- Remove:
  Seat (see Frame chapter)
  Rear Fender (see Frame chapter)
- Support the vehicle on a stand or a jack so that the rear wheels are off the ground.

Special Tool - Jack: 57001–1238

- While holding the rear wheels, remove the lower and upper shock absorber mounting bolts [A], nuts, and washers.
- Remove the rear shock absorber [B].

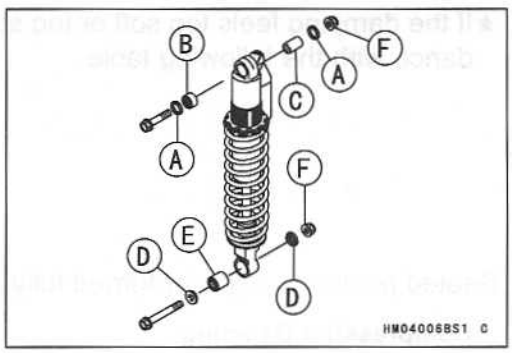




Rear Shock Absorber Installation

- Apply plenty of grease to the inside of the needle bearing, sleeve and oil seals.
- Install:
  Oil seals [A]
  Needle Bearing [B]
  Sleeve [C]
  Collars [D]
  Rubber Bushing [E]
- Tighten:

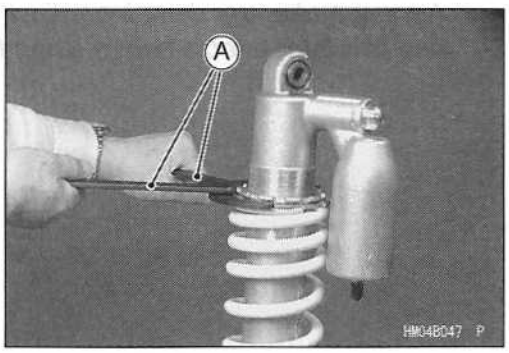
Torque - Rear Shock Absorber Mounting Nuts [F]: 62 N·m (6.3 kgf·m, 46 ft·lb)



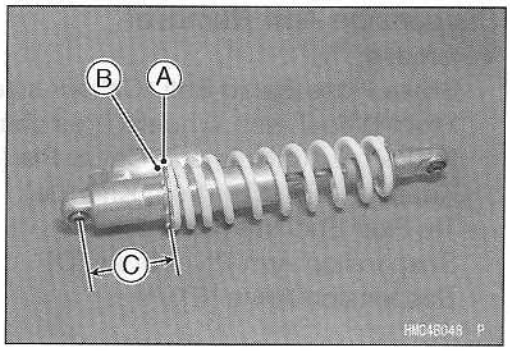
Rear Shock Absorber Preload Adjustment

- Remove:
  Rear Shock Absorber (see Rear Shock Absorber Removal)
- Loosen the locknut and turn out the adjusting nut to free the spring.

Special Tools - Hook Wrench [A]: 57001–1101



Shock Absorbers



- Measure the spring free length.
- To adjust the spring preload, turn in the adjusting nut [A] to the desired position and tighten the locknut [B].
  Adjusting nut position [C]

Spring Preload Setting Position

Standard:	**94.2 mm (3.71 in.)**
Usable Range:	**93.2 mm (3.67 in.) to 104.3 mm (4.11 in.)**

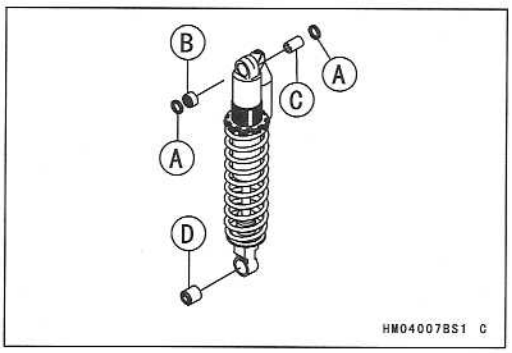
Torque - Rear Shock Absorber Spring Locknut: 30 N·m (3.1 kgf·m, 22 ft·lb)

★If the spring action feels too soft or too stiff, adjust it in accordance with the following table.

Spring Action

Position	Spring Force	Setting	Load	Terrain	Speed
94.2 mm (3.71 in.)	Weak	Soft	Light	Smooth	Low
↑ ↓	↑	↑	↑	↑	↑
104.3 mm (4.11 in.)	↓ Stronger	↓ Hard	↓ Heavy	↓ Rough	↓ High

Rear Shock Absorber Inspection



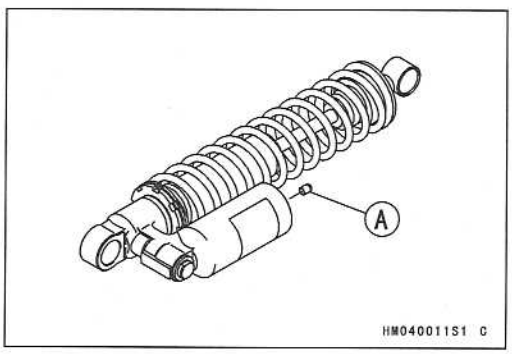
- Check the upper pivot.

★If the sleeve, needle bearing and oil seals is damaged, replace them.
  Oil Seal [A]
  Needle Bearing [B]
  Sleeve [C]
  Rubber Bushing [D]

- Check the lower pivot.

★If bushing are worn, cracked, hardened, or otherwise damaged, replace them.

Rear Shock Absorber Scrapping



⚠ WARNING

Since the reservoir tank of the rear shock absorber contains nitrogen gas, do not incinerate the reservoir tank without first releasing the gas or it may explode.

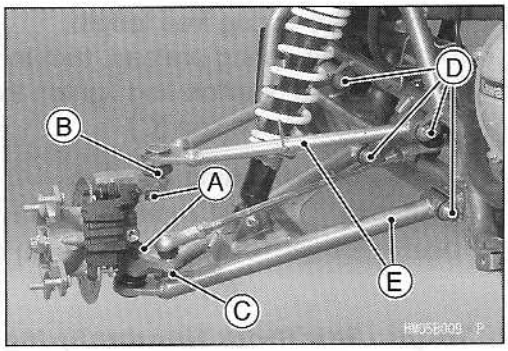
- Remove the shock absorber (see Rear Shock Absorber Removal).
- Remove the valve cap [A] and release the nitrogen gas completely from the gas reservoir.
- Remove the valve.

⚠ WARNING

Since the high pressure gas is dangerous, do not point the valve toward your face or body.

Suspension Arms

Suspension Arm Removal



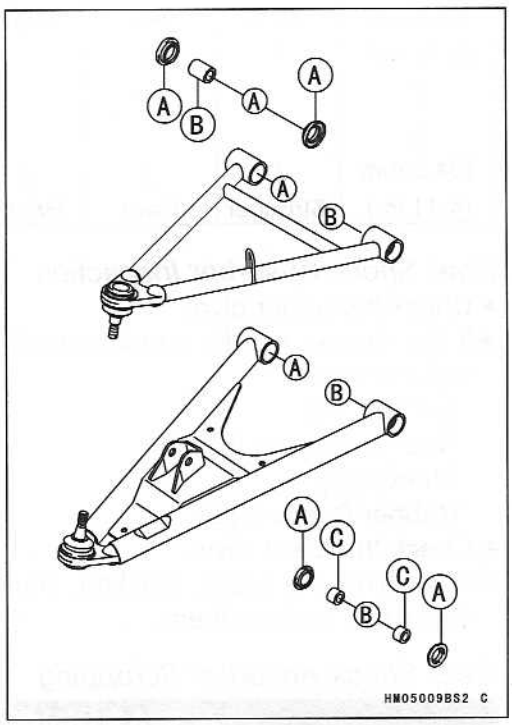
- Remove:
  - Brake Hose Banjo Bolt (Caliper side)
  - Front Wheel (see Wheels/Tires chapter)
  - Knuckle Joint Nuts and Cotter Pin [A]
  - Knuckle Joints [B] (from Knuckle)
  - Tie-Rod End Nut [C]
  - Suspension Arm Pivot Bolts [D]
  - Suspension Arms [E]

Suspension Arm Installation

- Tighten:

Torque - Suspension Arm Pivot Bolts: 42 N·m (4.3 kgf·m, 31 ft·lb)
Knuckle Joint Nuts: 29 N·m (3.0 kgf·m, 21 ft·lb)
Tie-Rod End Nut: 42 N·m (4.3 kgf·m, 31 ft·lb)

Suspension Arm Disassembly

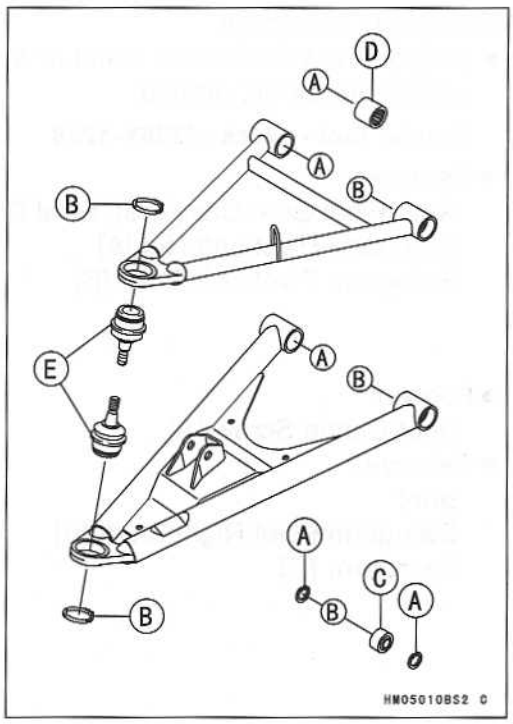


- Remove:
  - Oil Seals [A]
  - Sleeve [B]
  - Collars [C]

Suspension Arms

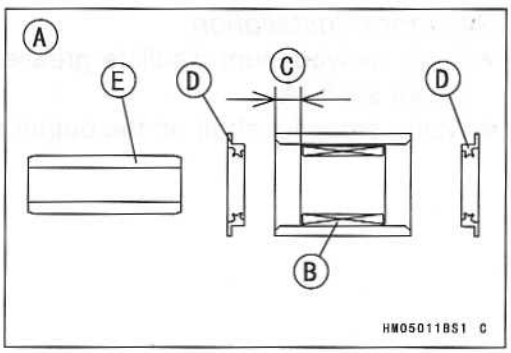
- Remove:
  Circlip [A]
  Snap Ring [B]
- Press out the ball joint bearing [C] and needle bearing [D].
  Knuckle joint [E]

Special Tools - Inside Circlip Pliers: 57001–143
Outside Circlip Pliers: 57001–144



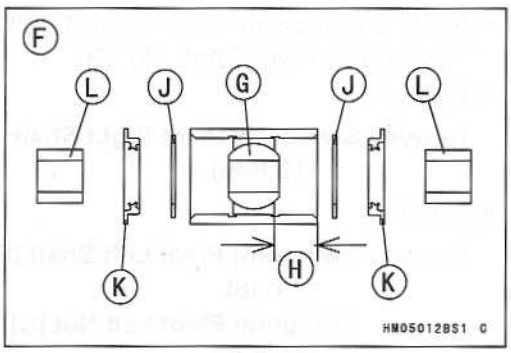
Suspension Arm Assembly

- Install the following parts as shown.
  Front Side [A]
  Needle Bearing [B]
  [C] = 7.5 ± 0.1 mm (0.295 ± 0.004 in.)
  Oil seals [D]
  Sleeve [E]



Rear Side [F]
Ball Joint Bearing [G]
[H] = 13.5 ± 0.1 mm (0.531 ± 0.004 in.)
Circlips [J]
Oil seals [K]

- Apply grease to oil seals.
  Collars [L]



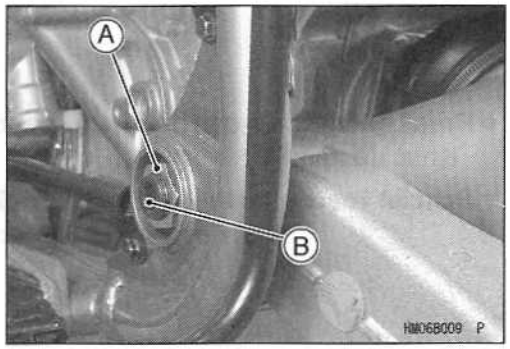
Swingarm

Swingarm Removal

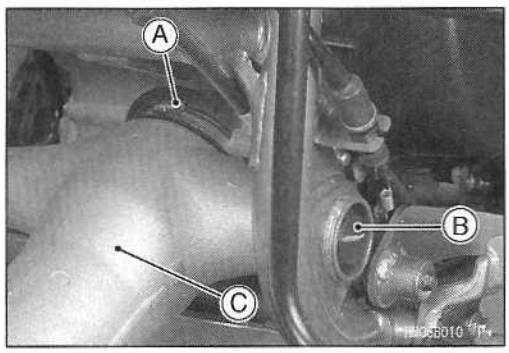
- Support the vehicle on a stand or a jack so that the rear wheels are off the ground.

Special Tool - Jack: 57001–1238

- Remove:
  Rear Final Gear Case (see Final Drive chapter)
  Swingarm Pivot Left Nut [A]
  Swingarm Pivot Left Shaft [B]

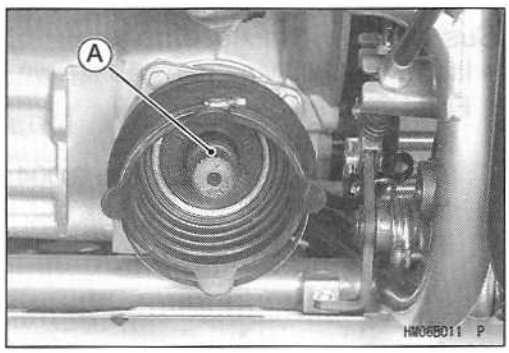


- Loosen:
  Boot Clamp Screw [A]
- Remove:
  Boot
  Swingarm Pivot Right Shaft [B]
  Swingarm [C]



Swingarm Installation

- Apply molybdenum disulfide grease to the spline of the output shaft [A].
- Fit the propeller shaft on the output shaft.



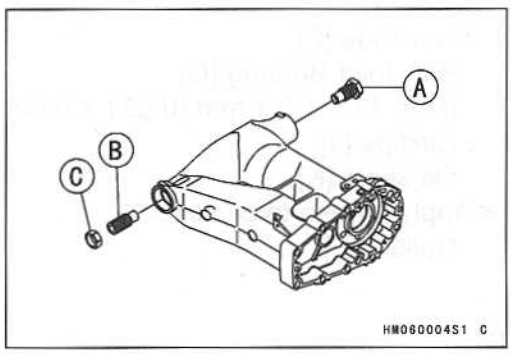
- Apply a non-permanent locking agent:
  Swingarm Pivot Shaft [A], [B]
- Tighten:

Torque - Swingarm Pivot Right Shaft: 152 N·m (15.5 kgf·m, 112 ft·lb)

- Tighten:

Torque - Swingarm Pivot Left Shaft [B]: 20 N·m (2.0 kgf·m, 14 ft·lb)
Swingarm Pivot Left Nut [C]: 152 N·m (15.5 kgf·m, 112 ft·lb)

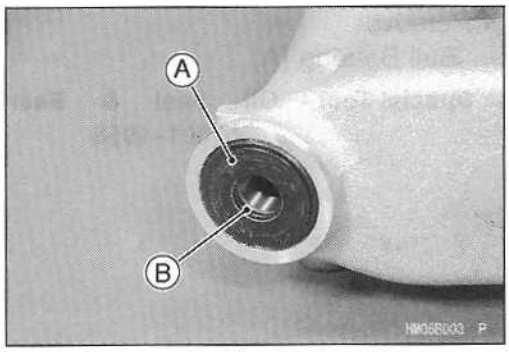
- Fit the boot on the swingarm, and tighten the clamp screw.



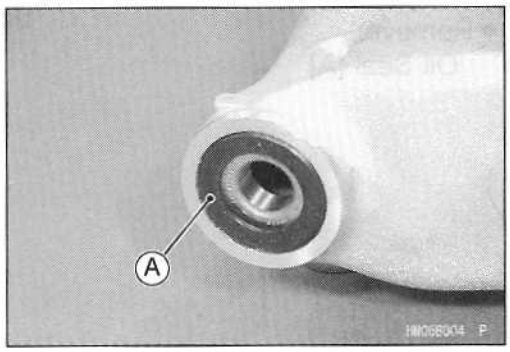
Swingarm

Swingarm Disassembly

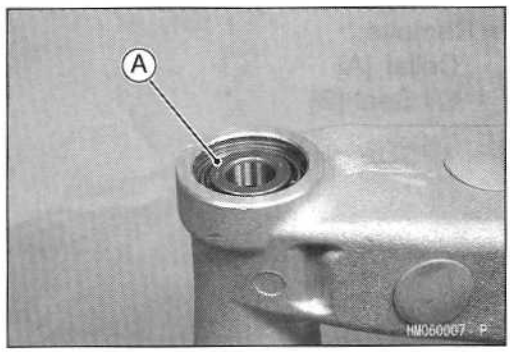
- Remove:
  Collars [A]
  O-ring [B]



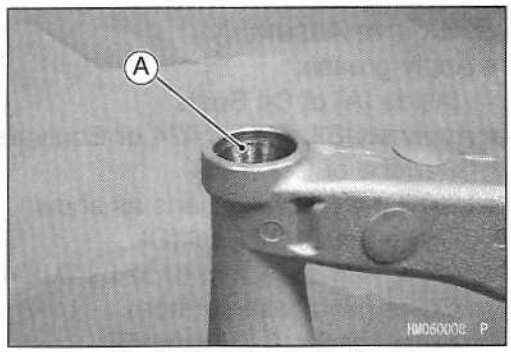
- Remove:
  Oil Seal [A]



- Remove:
  Tapered Roller Bearing [A]



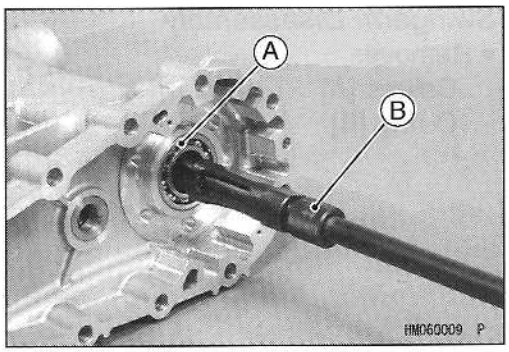
- Remove:
  Outer Race [A]



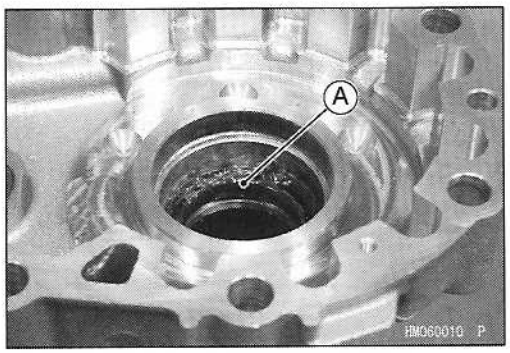
Swingarm

- Remove:
  Ball Bearing [A]

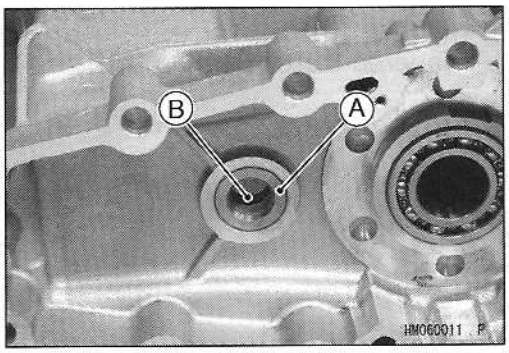
Special Tool - Oil Seal & Bearing Remover [B]: 57001–1058



- Remove:
  Oil Seal [A]

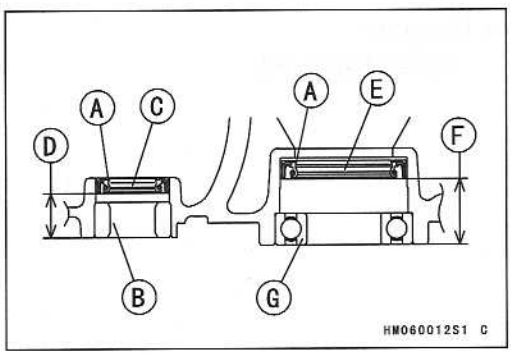


- Remove:
  Collar [A]
  Oil Seal [B]



Swingarm Assembly

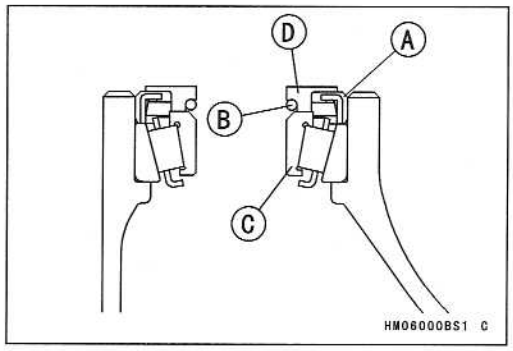
- Apply grease:
  Inside [A] of Oil Seals
- Apply MOBIL FLUID 424 or Equivalent:
  Surface of Collar [B]
- Install the following parts as shown.
  Brake Lever Oil Seal [C]
  [D] = 14.5 ± 0.1 mm (0.571 ± 0.004 mm)
  Collar (level with surface)
  Propeller Shaft Oil Seal [E]
  [F] = 25 ± 0.1 mm (0.984 ± 0.004 mm)
  Ball Bearing [G] (level with surface)



Swingarm

- Apply Amoco Rykon Premium Grease No.2 EP Green:
  Inside of Oil Seals [A]
  O-rings [B]
- Install the following parts as shown.
  Tapered Roller Bearing [C]
  Oil Seal (level with surface)
  O-ring
  Collar [D]

Special Tool - Bearing Driver Set: 57001-1129



Swingarm Bearing Inspection

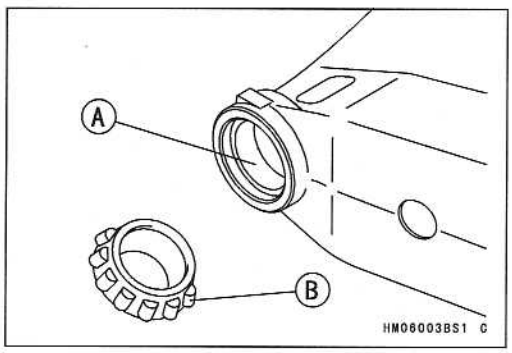
- Remove the final gear case (see Final Drive chapter).
- Move the swingarm up and down to check for abnormal friction, and push and pull it back and forth to check for bearing play.

★If abnormal friction is felt, the bearings are damaged. Replace the oil seals and both left and right bearings.

- The play developed during use may indicate bearing damage. In this case, remove the swingarm and inspect the bearings. Replace both left and right bearings, if either of the bearings is damaged.

Swingarm Bearing Lubrication

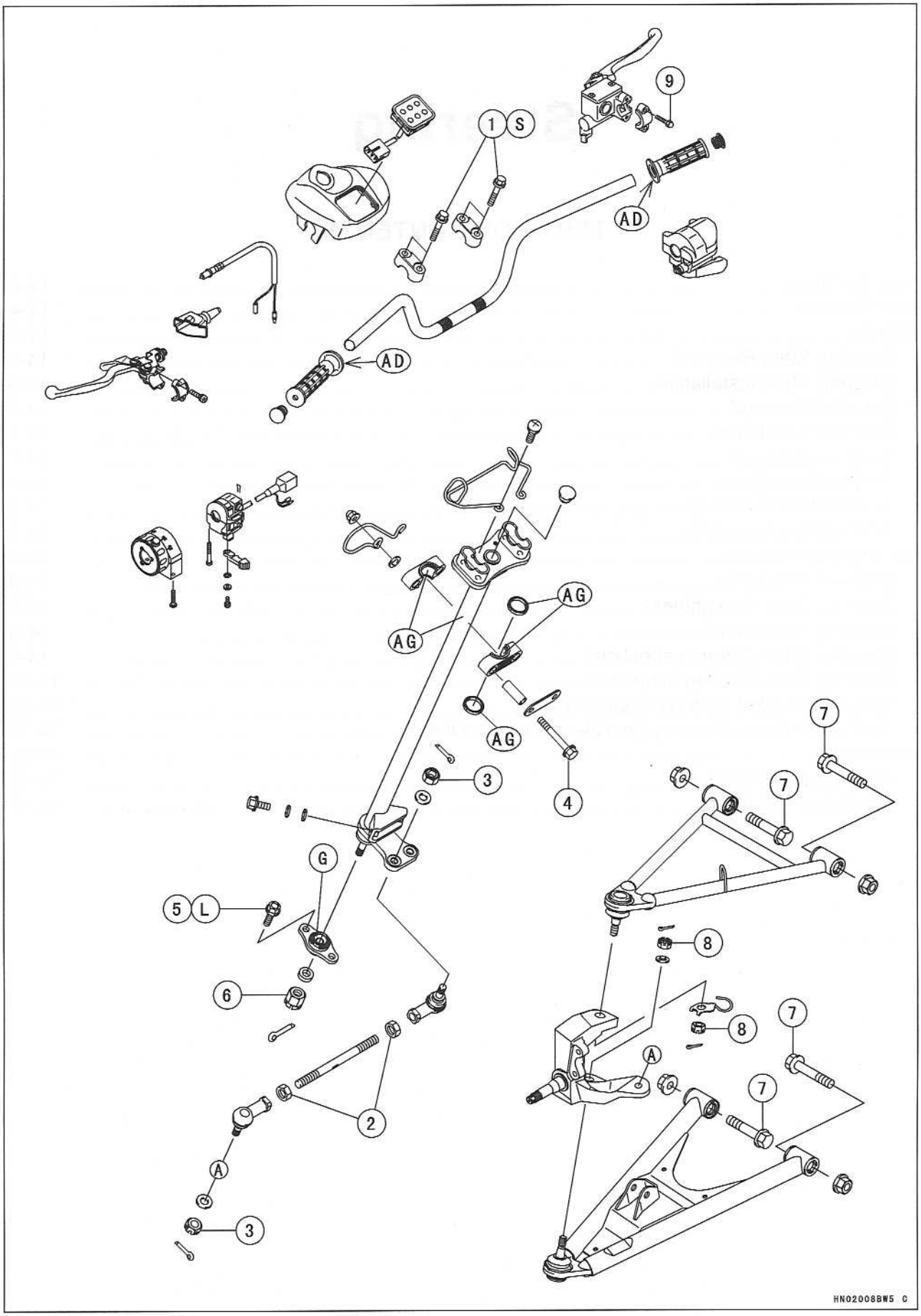
- Remove the swingarm.
- Using a high flash-point solvent, wash the bearings clean of grease, and dry them.
- Inspect the bearings and oil seals for abrasion, color change, or other damage.
- Apply grease to the outer races [A], and pack the tapered roller bearings [B] with the same grease.
- Apply Amoco Rykon Premium Grease No. 2 EP (green) to the inside of the oil seals.
- Install the swingarm (see Swingarm Installation).



Steering

TABLE OF CONTENTS

Exploded View



Exploded View

No.	Fastener	Torque			Remarks
		N·m	kgf·m	ft·lb	
1	Handlebar Holder Bolts	29	3.0	22	S
2	Tie-Rod Adjusting Locknuts	22	2.2	16	
3	Tie-Rod End Nuts	42	4.3	31	
4	Steering Stem Clamp Bolts	25	2.5	18	
5	Steering Stem Bearing Joint Bolts	21	2.1	15	L
6	Steering Stem Bottom End Nut	40	4.1	30	
7	Suspension Arm Pivot Bolts	42	4.3	31	
8	Knuckle Joint Nuts	29	3.0	22	
9	Master Cylinder Clamp Bolts	8.8	0.90	78 in·lb	

L: Apply a non-permanent locking agent.
G: Apply grease for oil seal and O-ring.
AD: Apply adhesive agent.
AG: Apply grease (Amoco rykon premium grease No. 2 EP Green).
S: Follow the specific tightening sequence.

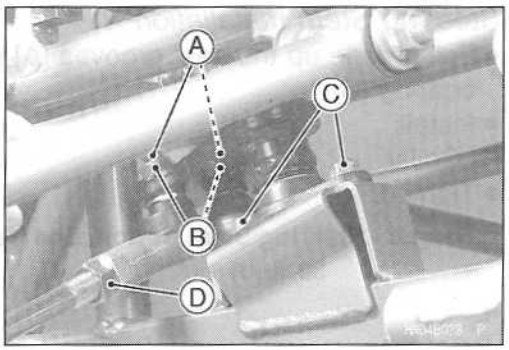
Specifications

Item	Standard	Service Limit
Tie-Rods:		
Tie-rod length	387.4 ± 1.5 mm (15.3 ± 0.06 in.)	– – –

Steering

Steering Stem Removal

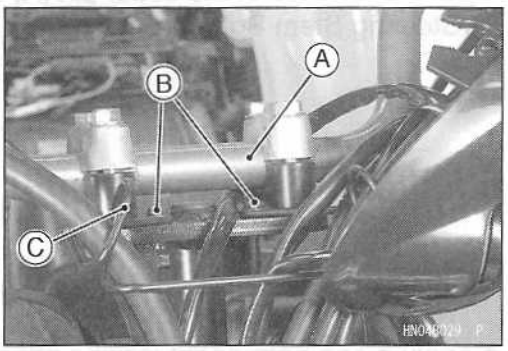
- Remove:
  Front Fender (see Frame chapter)
  Front Wheels (see Wheels/Tires chapter)
  Cotter Pins [A]
  Tie-Rod End Nuts [B] and Tie-Rod End
  Steering Stem Bearing Housing Bolts [C] (right and left)



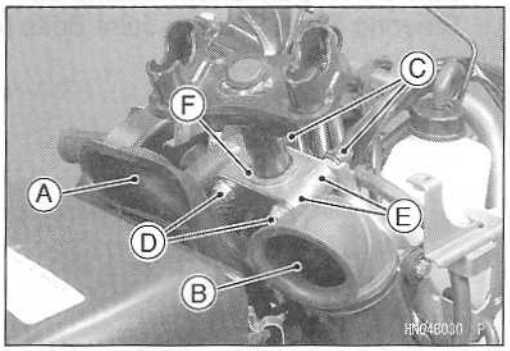
CAUTION

Do not loosen the tie-rod adjusting locknuts [D], or the toe-in of the front wheels will be changed.

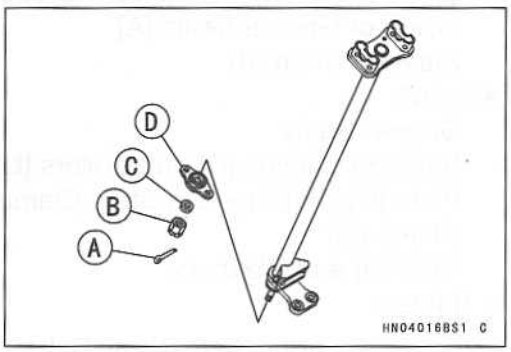
Handlebar Assembly [A] (see Handlebar Removal)
Screws [B]
Clamp [C]



- Remove:
  Air Cleaner Duct [A]
  Converter Intake Duct [B]
  Nuts [C] and Clamp
  Steering Clamp Bolts [D], and Plate
  Steering Clamps [E] and Collars
  Grease Seals [F] (upper and lower)



- Pull the steering stem out of the frame.
- Remove:
  Cotter Pin [A]
  Steering Stem Bottom End Nut [B]
  Collar [C]
  Steering Stem Bearing [D]

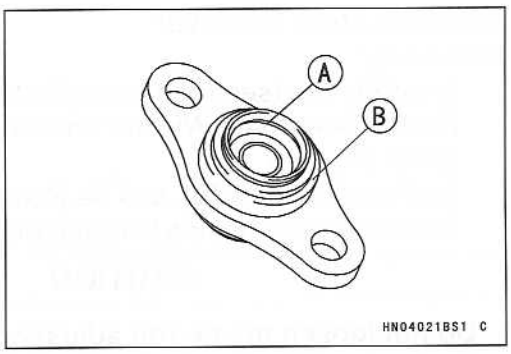


Steering

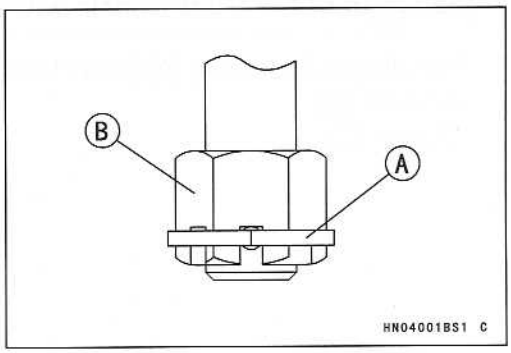
Steering Stem Installation

- Full grease up the seal grooves [A] in the steering stem bearing [B].
- Install:
  Collar
- Tighten:

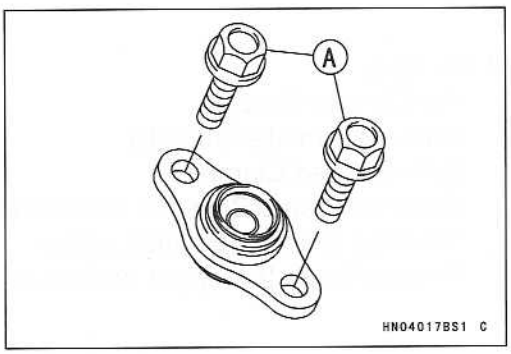
Torque - Steering Stem Bottom End Nut: 40 N·m (4.1 kgf·m, 30 ft·lb)



- Bend both ends of the cotter pin [A] as shown.
  Steering Stem Bottom End Nut [B]



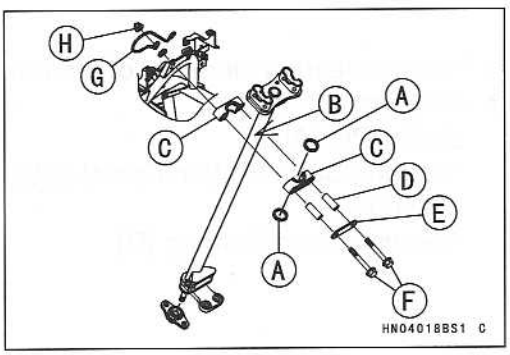
- Apply a non-permanent locking agent:
  Steering Stem Bearing Joint Bolts [A]



- Apply Amoco Rykon Premium Grease No.2 EP (Green):
  Inside of Grease Seals [A]
  Steering Stem [B]
- Install:
  Grease Seals
  Steering Clamps [C] and Collars [D]
  Plate [E], and Steering Stem Clamp Bolts [F]
  Clamp [G]
  Nuts [H] and Washers
- Tighten:

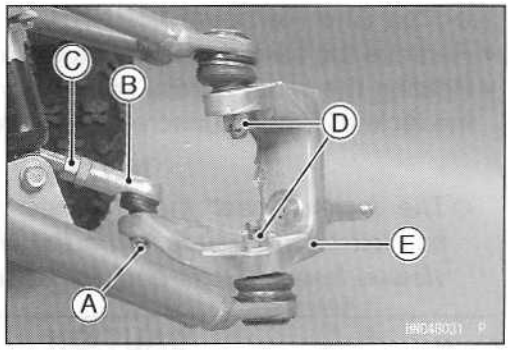
Torque - Steering Stem Clamp Bolts: 25 N·m (2.5 kgf·m, 18 ft·lb)
Tie-Rod End Nuts: 42 N·m (4.3 kgf·m, 31 ft·lb)

- Inspect the toe-in (see Wheels/Tires chapter).



Steering

Knuckle Removal



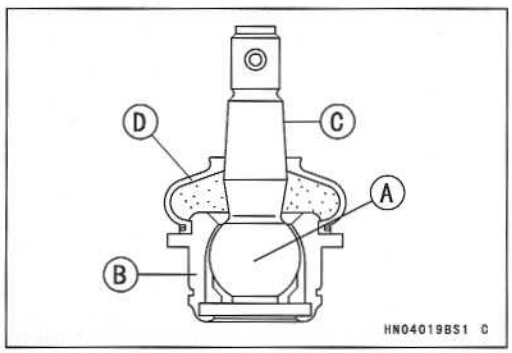
- Remove:
  Front Wheel and Hub (see Wheels/Tires chapter)
  Brake Caliper (see Brakes chapter)
  Cotter Pin and [A]
  Tie-Rod End [B]

CAUTION

Do not loosen the tie-rod adjusting locknuts [C], or the toe-in of the front wheels will be changed.

- Remove:
  Cotter Pins and Knuckle Joint Nuts [D]
  Brake Hose Clamp (upper knuckle joint)
- Remove the knuckle [E] from the suspension arms.

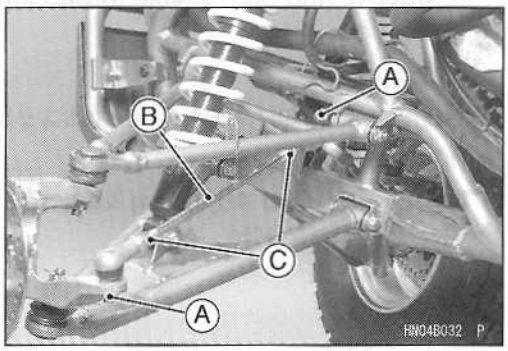
Knuckle Installation



- Inspect the spherical bearing [A].
- ★If roughness, excessive play, or seizure is found, replace the knuckle joint [B].
- Clean the shanks [C] of the knuckle joint.
- Check that the joint boot [D] is not torn, worn, deteriorated, or is leaking grease.
- Install the knuckle.
- Tighten:

Torque - Knuckle Joint Nut: 29 N·m (3.0 kgf·m, 22 ft·lb)
Tie-Rod End Nut: 42 N·m (4.3 kgf·m, 31 ft·lb)

Tie-Rod Removal



- Remove:
  Front Wheel (see Wheels/Tires chapter)
  Cotter Pins and Tie-Rod End Nuts [A]
  Tie-Rod [B]

CAUTION

When removing the tie-rod, be careful not to bend it. Do not loosen the tie-rod adjusting locknuts [C], or the toe-in of the front wheels will be changed.

Tie-Rod Installation

- The right and left tie-rods are identical.
- Tighten:

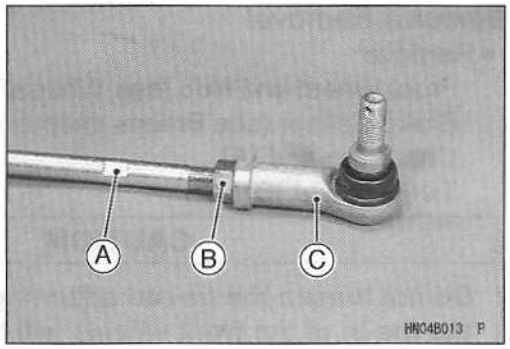
Torque - Tie-Rod End Nuts: 42 N·m (4.3 kgf·m, 31 ft·lb)
Wheel Nuts: 52 N·m (5.3 kgf·m, 38 ft·lb)

- Inspect the toe-in (see Wheels/Tires chapter).

Steering

Tie-Rod End Removal

- Remove the tie-rod (see Tie-Rod Removal).
- Holding the width across flats [A] on the tie-rod, loosen the locknut [B] and unscrew the tie-rod end [C].



NOTE

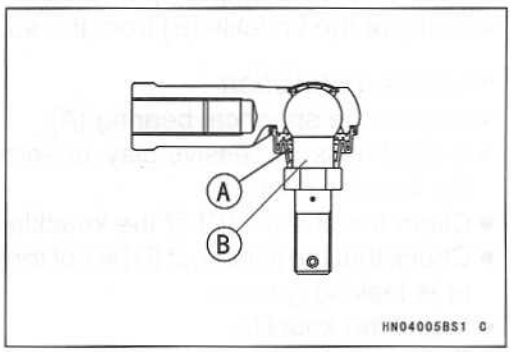
o *The locknut near the flattened area on the tie-rod has left-hand threads. Turn the wrench clockwise (as viewed from the joint end) for loosening.*

CAUTION

Do not remove the grease seal. It is packed with grease.

Tie-Rod End Installation

- Check that the seal lip [A] is on the shank [B].

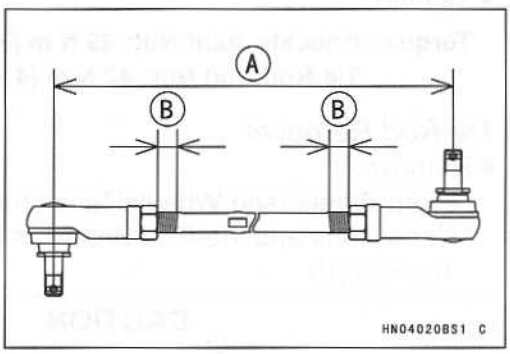


- Install the tie-rod ends so that width across flats on the tie-rod face to the knuckle arm, the tie-rod has the correct length [A], and both visible thread lengths [B] are approximately equal.

Tie-Rod Length
Standard: 387.4 ± 1.5 mm (15.3 ± 0.06 in.)

- Tighten:

Torque - Tie-Rod Adjusting Locknuts: 22 N·m (2.2 kgf·m, 16 ft·lb)



Steering Maintenance

Steering Inspection

- Refer to the Steering in the Periodic Maintenance chapter.

Steering Stem Straightness

- Remove the steering stem (see Steering Stem Removal).
- Check the steering stem for straightness.

o Use a straightedge along the stem.

★If the steering stem is bent, replace the steering stem.

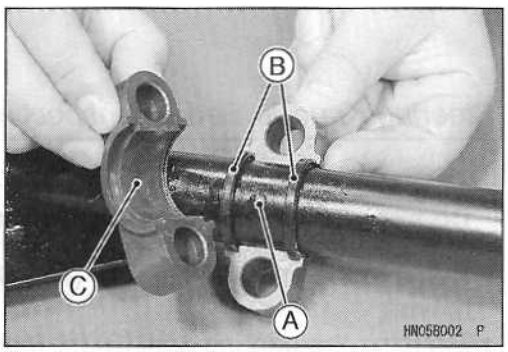
Steering Lubrication

- Lubricate the steering stem clamps.

o Remove the steering stem (see Steering Stem Removal).

o Wipe all the old grease off the steering stem, bearing sleeves, and out of the grease seals.

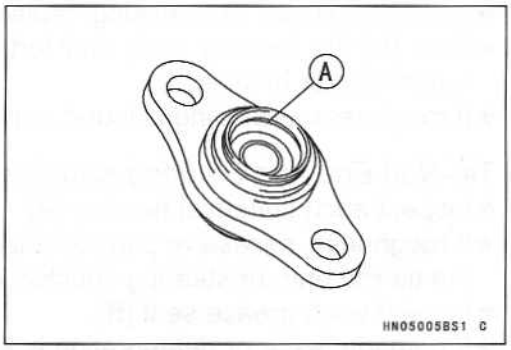
o Apply Amoco Rykon Premium Grease No. 2 EP (Green) to the steering stem [A], grease seals [B], and mating surface [C] of the clamp.



- Lubricate the steering stem bearing [A].

o Remove the steering stem bearing.

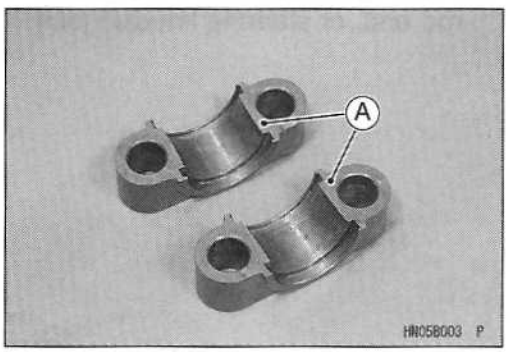
o Pack the grease seal lips with grease.



Steering Stem Clamp Inspection

- Inspect the steering stem clamps [A].

★If roughness, excessive play, or seizure is found, replace both clamps.



Steering Maintenance

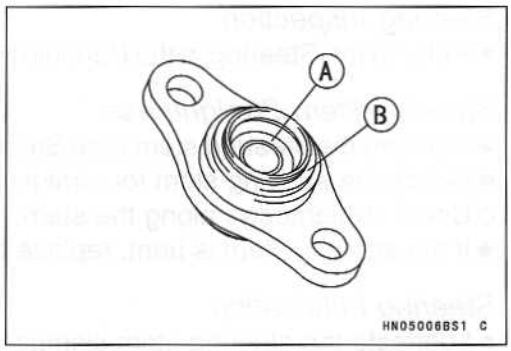
Steering Stem Bearing Inspection

- Inspect the spherical bearing [A].

★If roughness, excessive play, or seizure is found, replace the steering stem bearing.

- Inspect the upper and lower grease seals [B].

★If damage, wear or deterioration is found, replace the steering stem bearing.



Steering Knuckle Bearing Inspection

CAUTION

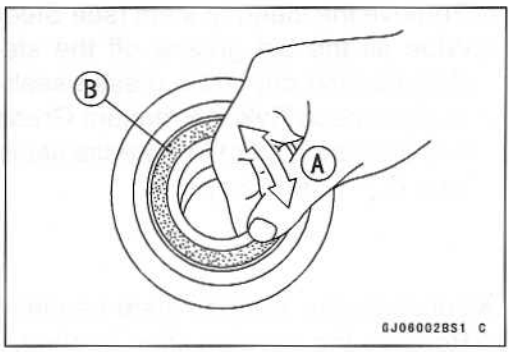
Do not remove any bearings for inspection.

- Remove the steering knuckle (see Steering Knuckle Removal).
- Examine the bearing seal [B] for tears or leakage.

★If the seal is torn or is leaking, replace the bearing.

- Turn [A] the bearing back and forth while checking for roughness or binding.

★If roughness or binding is found, replace the bearing.



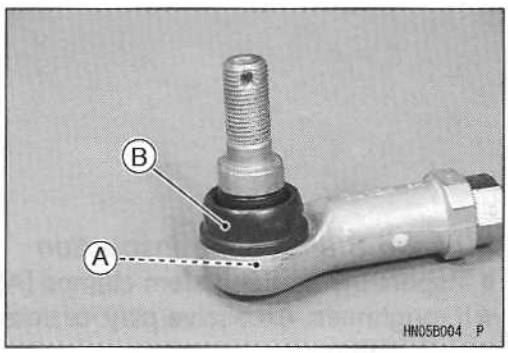
Tie-Rod End and Steering Knuckle Joint Inspection

- Inspect each spherical bearing [A].

★If roughness, excessive play, or seizure is found, replace the tie-rod end, or steering knuckle joint.

- Inspect each grease seal [B].

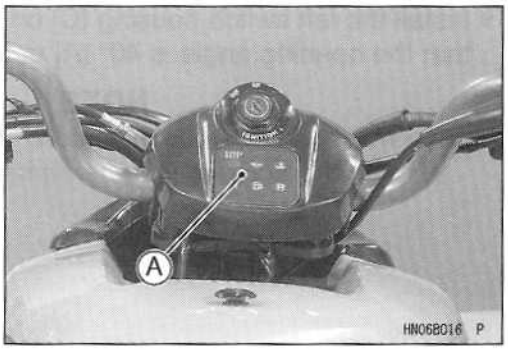
★If damage, wear or deterioration is found, replace the tie -rod end, or steering knuckle joint.



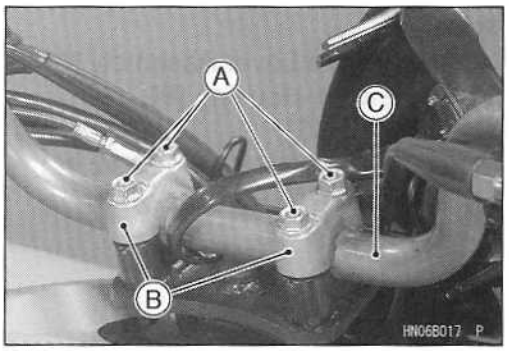
Handlebar

Handlebar Removal

- Remove:
  Throttle Case
  Front Brake Master Cylinder
  Left-hand Switch Housing
  Rear Brake Lever Assembly
  Handlebar Cover and Indicator Unit [A] as a set

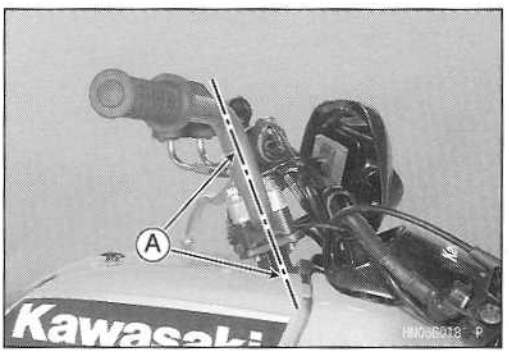


Handlebar Holder Bolts [A]
Handlebar Holders [B]
Handlebar [C]



Handlebar Installation

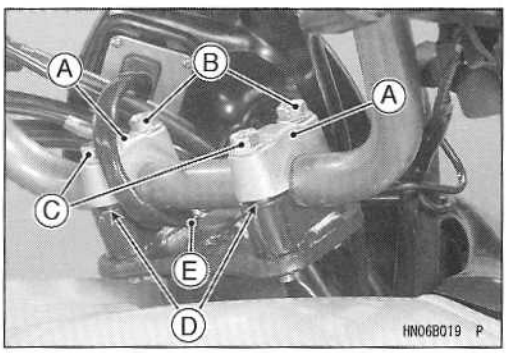
- Install the handlebar so that the angle of the handlebar matches the angle of the steering stem as shown.
  [A] : Parallel



- Install the handlebar holder [A].
- Tighten the holder front bolts [B] first and then the rear bolts [C].

Torque - Handlebar Holder Bolts: 29 N·m (3.0 kgf·m, 22 ft·lb)

- If the holder is correctly installed, there will be no gap at the front and an even gaps [D] at the rear after tightening.
- Be sure the indicator unit lead place under the handlebar [E].

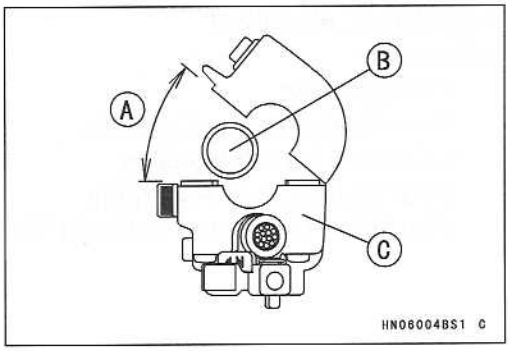


Handlebar

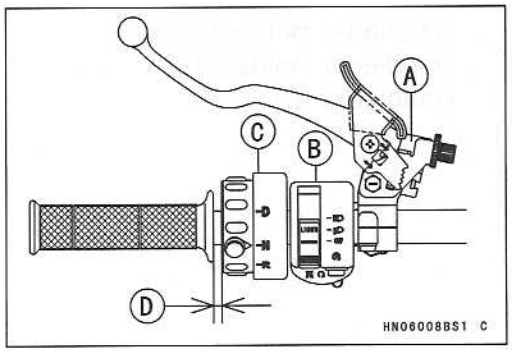
- Install the left switch housing [C] on the handlebar [B] so that the opening angle is 40° [A] or less.

NOTE

o *Do not open the housing more than 40°, the built-in parts in the housing may be damaged.*



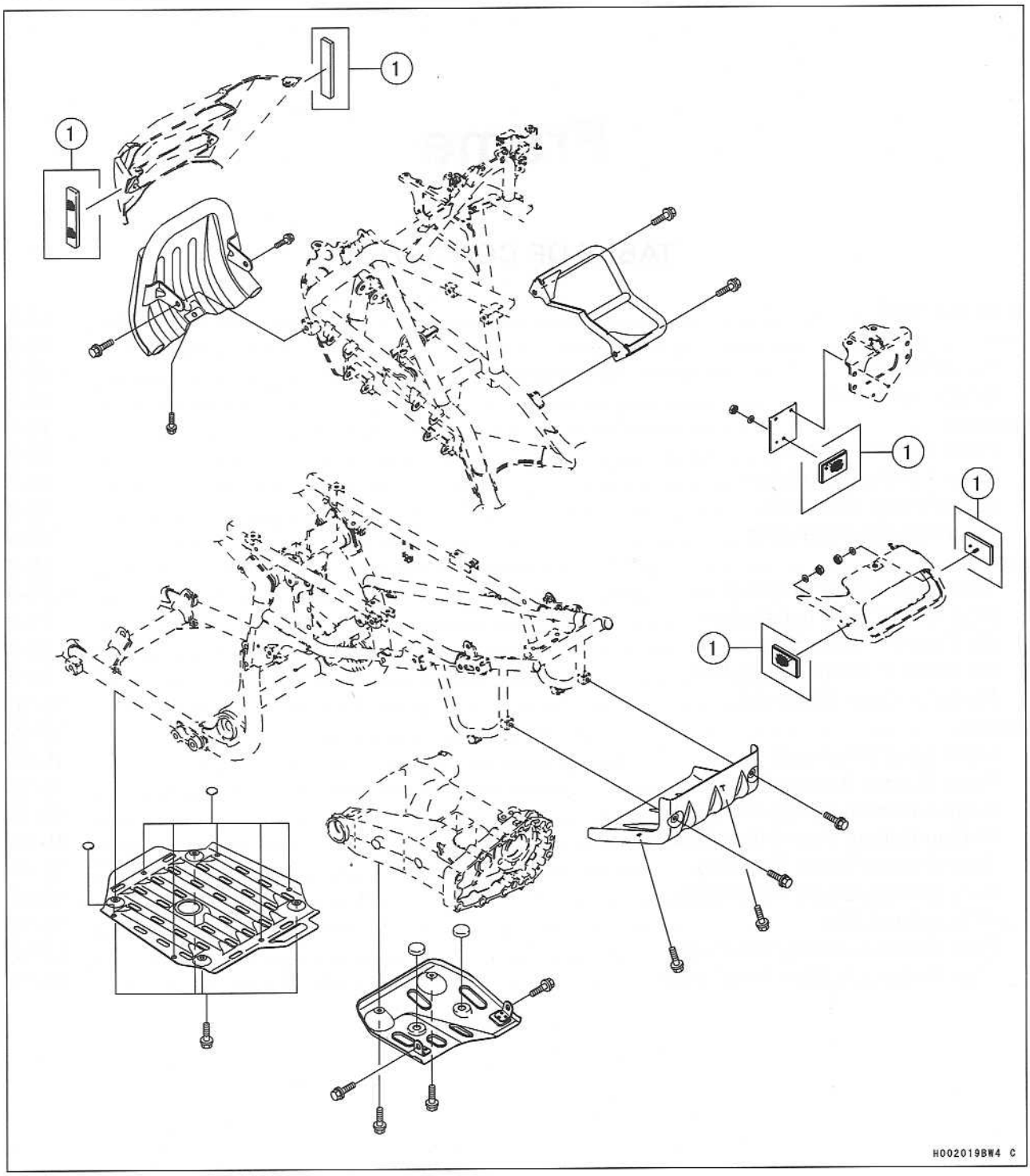
- Install:
  Rear Brake Lever Assembly [A]
  Left Switch Housing [B]
  Shift Grip [C]
  [D] = 2 ~ 3 mm (0.08 ~ 0.12 in.)



Frame

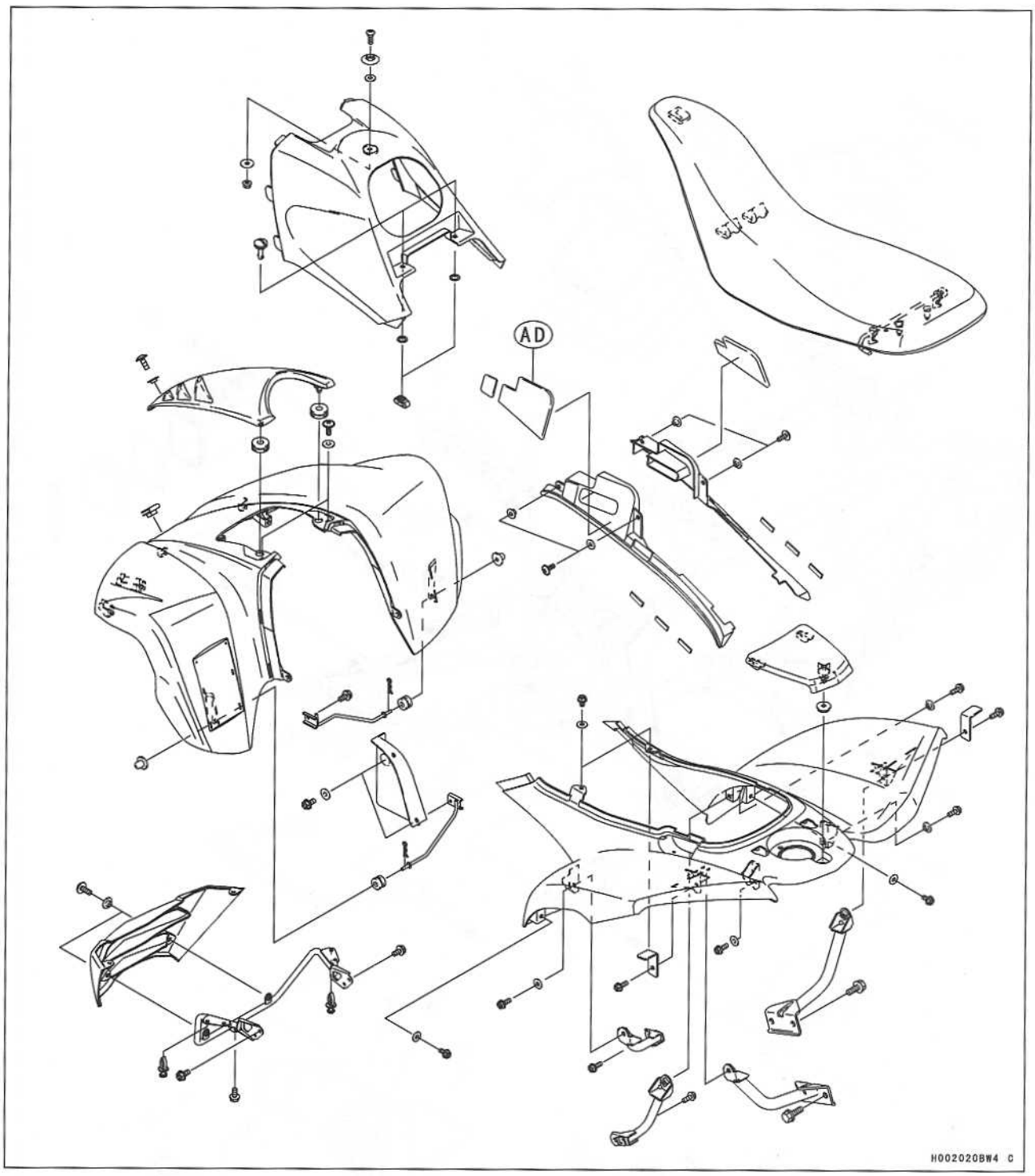
TABLE OF CONTENTS

Exploded View



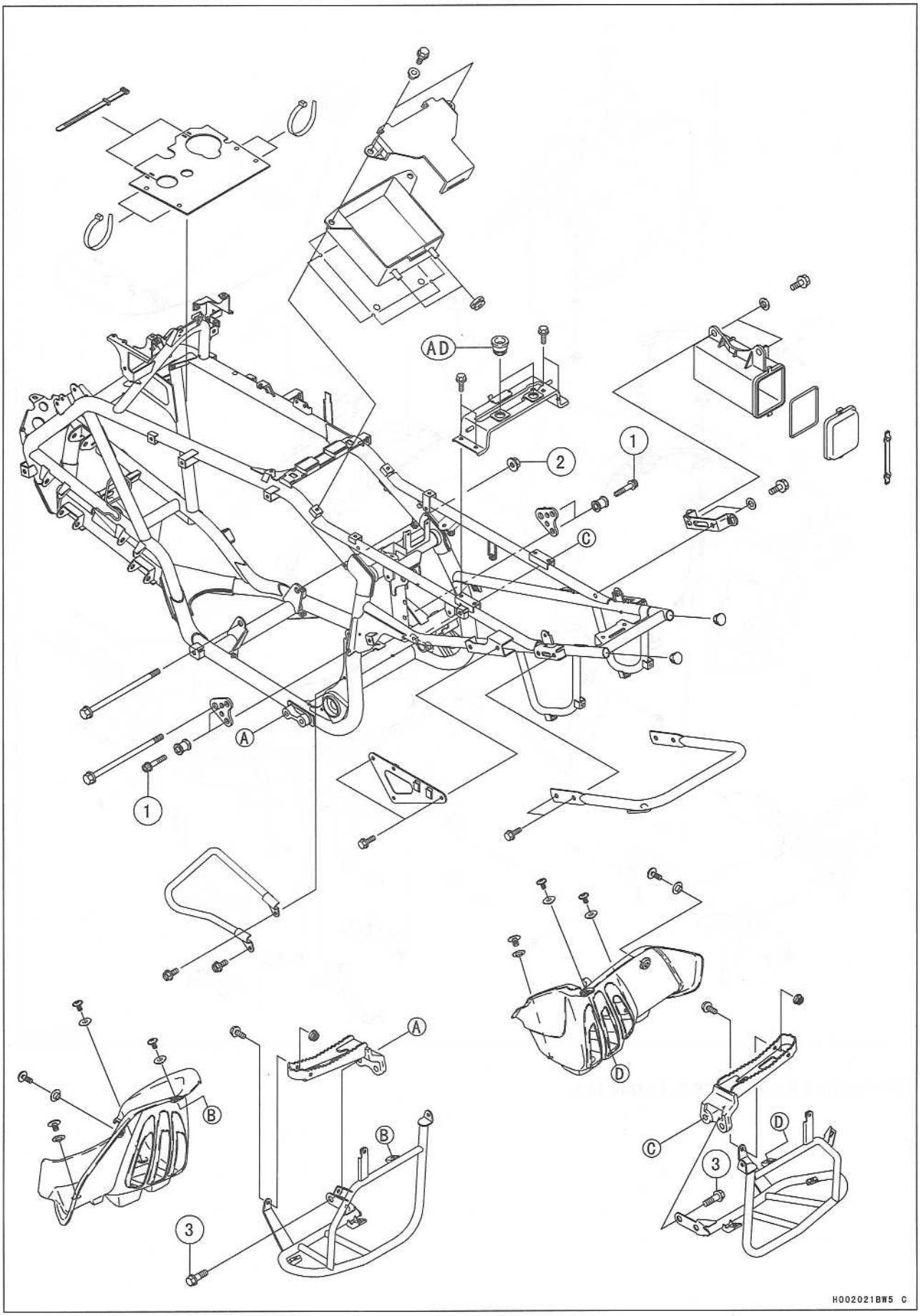
1. Canada Model

Exploded View



AD: Apply adhesive agent to outside.

Exploded View



Exploded View

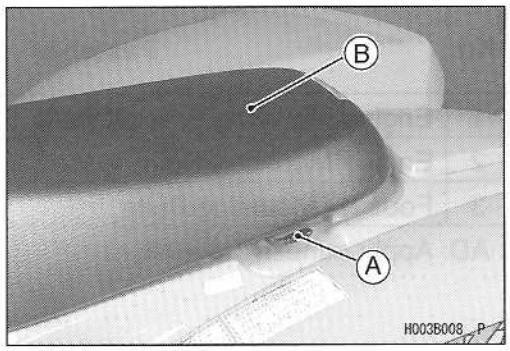
No.	Fastener	Torque			Remarks
		N·m	kgf·m	ft·lb	
1	Engine Mounting Bracket Bolts	52	5.3	38	
2	Engine Mounting Nut	62	6.3	46	
3	Footrest Mounting Bolts	44	4.5	33	

AD: Apply adhesive agent.

Seat

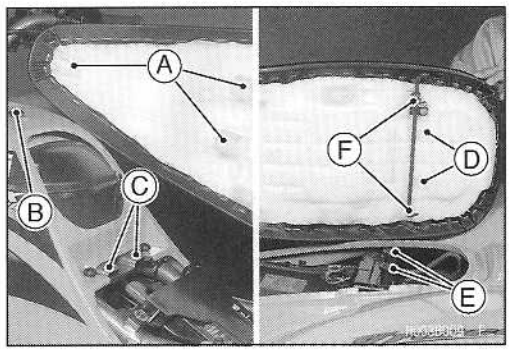
Seat Removal

- Push down the seat latch [A], and then remove the seat [B] by pulling it up to the rear.



Seat Installation

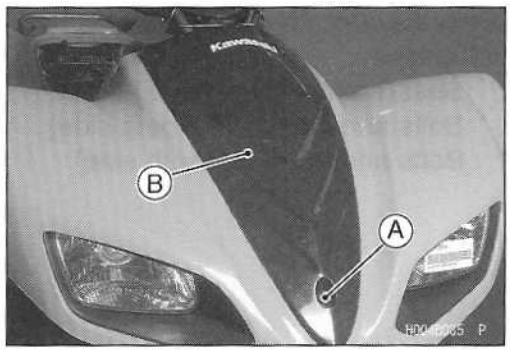
- Slip the front seat hooks [A] into the button [B] on the air cleaner cover and the brace [C] on the frame.
- Put the stoppers [D] into the holes [E] in the frame.
- Push down the rear part of the seat until the lock [F] clicks.



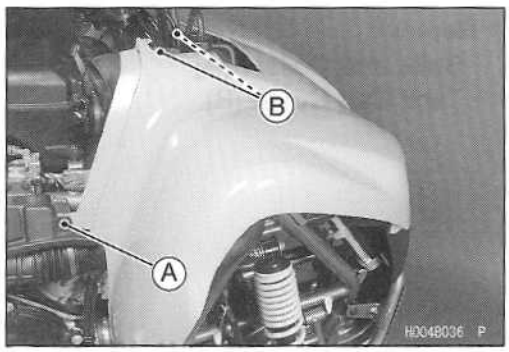
Fenders

Front Fender Removal

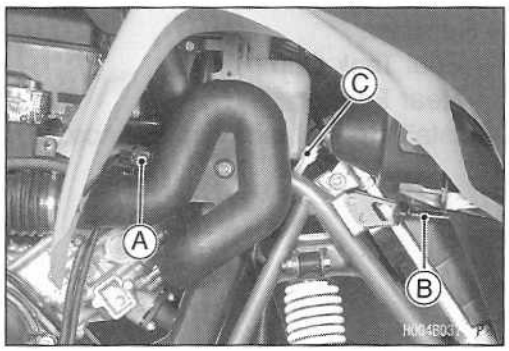
- Remove:
  Seat (see Seat Removal)
  Air Cleaner Cover (see Air Cleaner Cover Removal)
  Screw and Collar [A]
  Upper Front Cover [B]



- Remove:
  Screws and Collars [A] (both side)
  Screws and Collars [B]

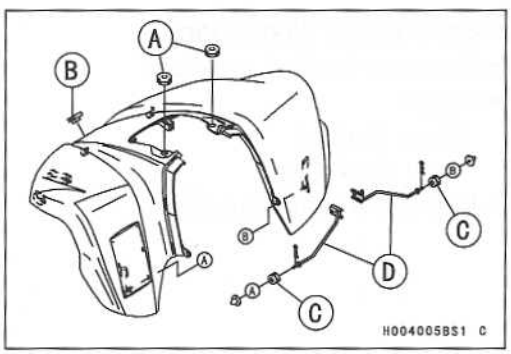


- Remove
  Bolts [A] (both side)
  Screws and Collar [B] (both side)
  Headlight Connector [C] (both side)
  Front Fender



Front Fender Installation

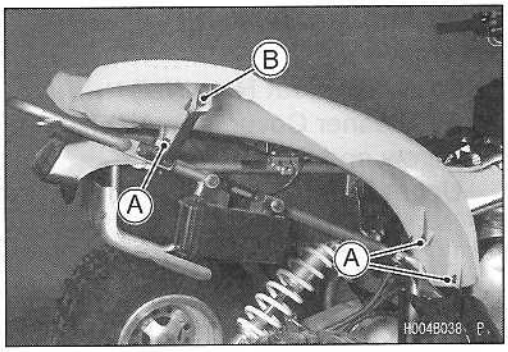
- Install:
  Grommets [A]
  Clamp Nut [B]
  Damper [C]
  Stay [D]
  Front Fender
  Upper Front Cover
  Air Cleaner Cover (see Air Cleaner Cover Installation)
  Seat (see Seat Installation)



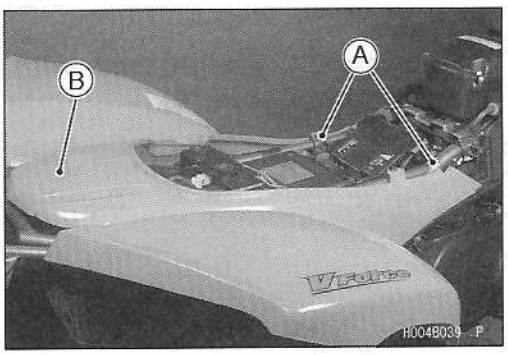
Fenders

Rear Fender Removal

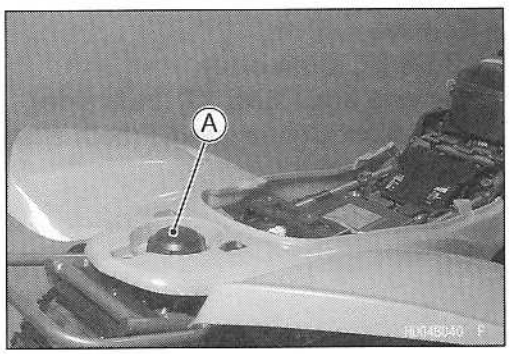
- Remove:
  Seat (see Seat Removal)
  Bolts and Collars [A] (both side)
  Bolts and Plats [B] (both side)



- Remove:
  Bolts and Collars [A]
  Tank Cap Cover [B]



- Remove:
  Fuel Tank Cap [A]
  Rear Fender
- Install the fuel tank cap at once.



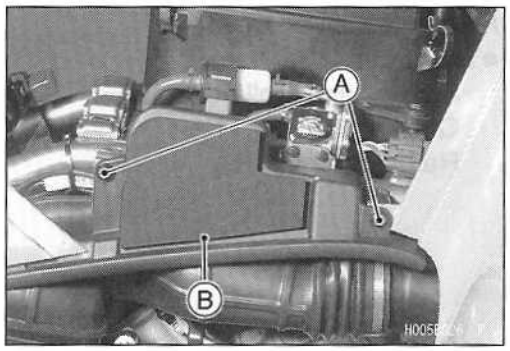
Rear Fender Installation

- Remove the fuel tank cap.
- Install:
  Rear Fender
  Fuel Tank Cap
- Install the removed parts.

Covers

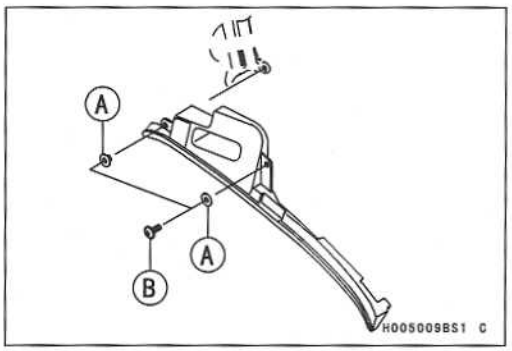
Side Inner Cover Removal

- Remove:
  Air Cleaner Cover (see Air Cleaner Cover Removal)
  Screws and Collars [A]
  Side Inner Cover [B]



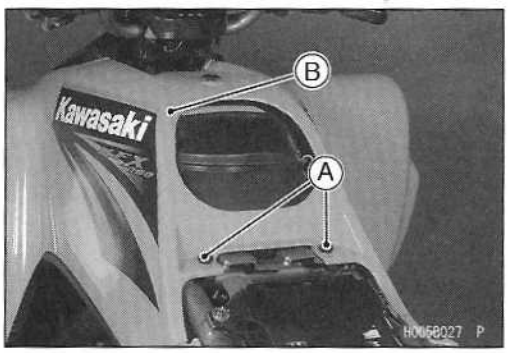
Side Inner Cover Installation

- Install:
  Collars [A]
  Screws [B]
  Air Cleaner Cover (see Air Cleaner Cover Installation)



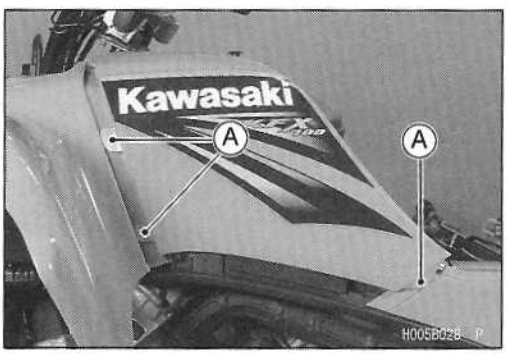
Air Cleaner Cover Removal

- Remove:
  Seat (see Seat Removal)
  Knobs [A]
  Air Cleaner Cover [B]



Air Cleaner Cover Installation

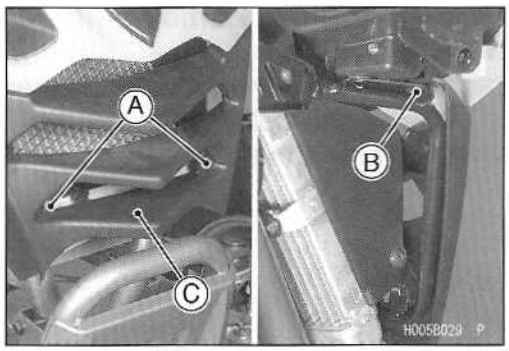
- Insert the tabs [A] of the cover into the recesses (both sides).
- Install the removed parts.



Covers

Radiator Cover Removal

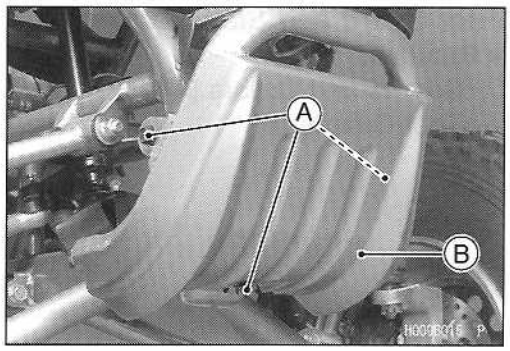
- Remove:
  Screws and Collars [A]
  Quick Rivet [B]
  Radiator Cover [C]



Guards

Front Guard Removal

- Remove:
  Front Guard Bolts [A]
  Front Guard [B]

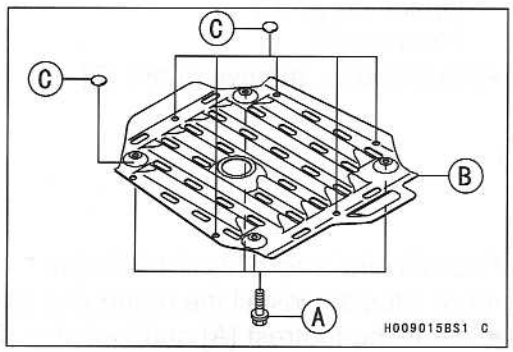


Front Guards Installation

- Install the front guard.
- Tighten the front guard bolts.

Engine Bottom Guard Removal

- Remove:
  Bolts [A]
  Engine Bottom Guard [B]

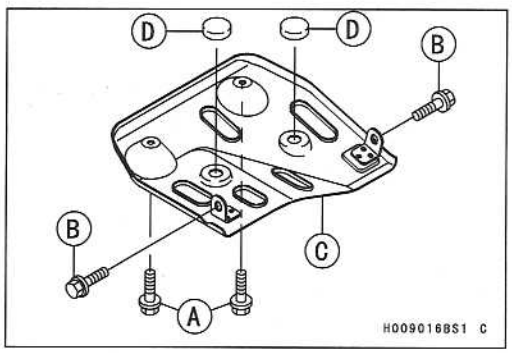


Engine Bottom Guard Installation

- Confirm:
  Damper [C]
- Install:
  Engine Bottom Guard
  Bolts

Rear Bottom Guard Removal

- Remove:
  Bolts (M6) [A]
  Bolts (M8) [B]
  Rear Bottom Guard [C]



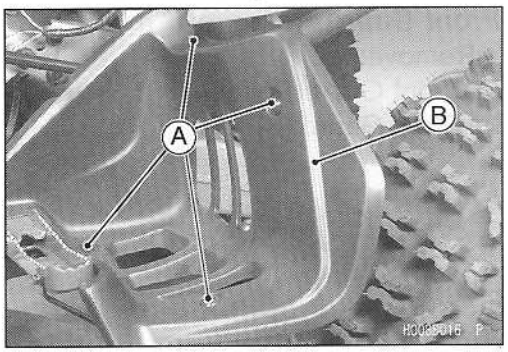
Rear Bottom Guard Installation

- Confirm:
  Dampers [D]
- Install:
  Rear Bottom Guard
  Bolts (M8)
  Bolts (M6)

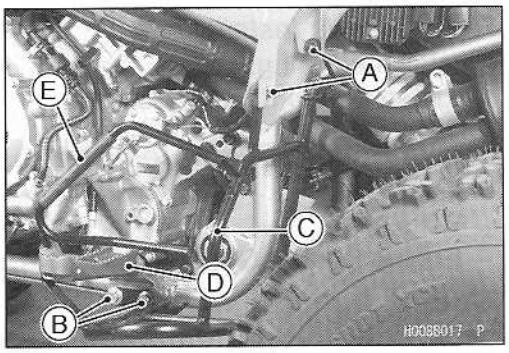
Foot Guard and Stay

Foot Guard and Stay Removal

- Remove:
  Screws and Collars [A]
  Foot Guards [B]



- Remove:
  Bolt and Nut [A]
  Bolts [B]
  Guard Stays [C]
  Footrest [D]
- For left side, remove guard [E].



Foot Guard and Stay Installation

- For left side, install the guard and tighten it.
- Install the footrest [A] and foot stay [B].
- Tighten the footrest mounting bolt [C] and the bolts [D].

Torque - Footrest Mounting Bolt : 44 N·m (4.5 kgf·m, 33 ft·lb)

- Install the foot guard [E] and tighten the screws [F].