

**Kawasaki**

**VULCAN 1600 NOMAD**

**VN1600 CLASSIC TOURER**



# **Motorcycle Assembly & Preparation Manual**

# Foreword

In order to ship Kawasaki vehicles as efficiently as possible, they are partially disassembled before crating. Since some of the most commonly removed parts have a direct bearing on a vehicle's reliability and safety, conscientious pre-sale assembly and preparation becomes extremely important. Good setup procedures can prevent needless warranty claims and give customers a greater sense of confidence in Kawasaki and their Kawasaki Dealers.

This Assembly and Preparation Manual explains step by step procedures of the following items for all Kawasaki motorcycles.

1. Uncrating
2. Assembly
3. Preparation

The selling dealer assumes sole responsibility for any unauthorized modifications prior to sale. Refer to your Service Binder for any Service Bulletins specifying Factory Directed Modifications (Special Claims) which must be performed before the vehicle is ready for sale.

Whenever you see the following symbols heed their instructions! Always follow safe operating and maintenance practices.

## **WARNING**

**This warning symbol identifies special instructions or procedures which, if not correctly followed, could result in personal injury, or less of life.**

## **CAUTION**

**This caution symbol identifies special instructions or procedures which, if not correctly followed, could result in damage to, or destruction of equipment.**

## **NOTE**

- *This note symbol indicates points of particular interest for more efficient and convenient operation.*

Kawasaki Heavy Industries, Ltd. accepts no liability for any inaccuracies or omissions in this publication, although every possible measure has been taken to make it as complete and accurate as possible. All procedures and specifications subject to change without notice.

# Table of Contents

<b>Uncrating</b> .....	3
Opening Crate .....	3
Parts Check .....	4
<b>Assembly</b> .....	8
Handlebar .....	8
Throttle Grip and Right Switch Housing .....	8
Front Brake Master Cylinder .....	9
Left Switch Housing .....	9
Clutch Master Cylinder .....	10
Wiring Clamps .....	10
Front Fender .....	11
Front Wheel Installation .....	12
Front Brake Hose Grommets .....	14
Front and Rear Shift Pedals .....	14
Front Footboard (Left) .....	15
Front Guards (Left and Right) .....	15
Helmet Locks .....	16
Rear Guards (Left and Right) .....	16
Backrest Pad .....	17
Horn .....	17
Choke Knob .....	18
Rear View Mirrors (Left and Right) .....	18
Windshield .....	19
License Plate Bracket .....	21
Rear Reflectors and License Plate Holder .....	21
Left Saddlebag .....	22
Brake Disc Cleaning .....	24
<b>Preparation</b> .....	24
Battery Service .....	24
Front Brake Fluid .....	30
Rear Brake Fluid .....	31
Clutch Fluid .....	32
Rear Shock Absorber .....	34
Tire Air Pressures .....	34
Fuel .....	34
Coolant .....	34
Engine Oil (4-stroke) .....	35
Final Gear Case Oil .....	36
Throttle Grip and Cable .....	37
Headlight Aim .....	38
Idle Speed Adjustment .....	38
Rear Brake Light Switch .....	38
Fastener Check .....	40
Standard Torque Table .....	42
Test Ride the Motorcycle .....	42
A & P Check List .....	42



# Uncrating

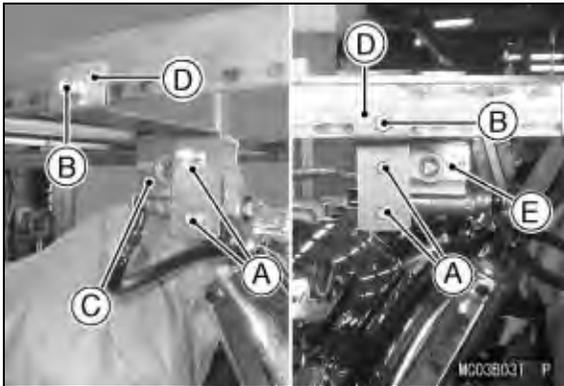
## Opening Crate

- Clear a space about 6 m (20 ft.) square to give yourself plenty of space to work.
- Place the crate upright on its base.
- Remove the cardboard cover.
- Remove the handlebar, front wheel, and the parts box.

### CAUTION

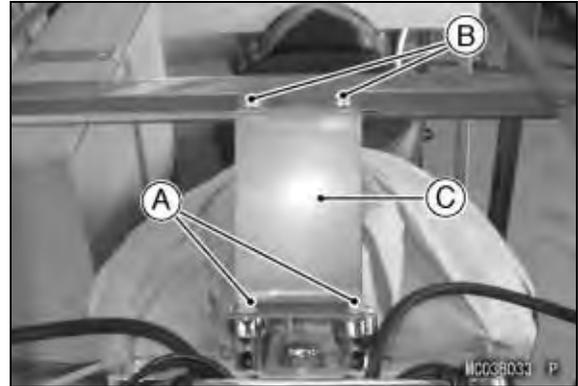
**When you remove the crate bracket from the motorcycle, be careful not to drop any parts and bracket onto the fuel tank and other components, and not to scratch the fuel tank by the crate bracket. This could damage the fuel tank or components.**

- Unscrew the four bolts to remove the front brake and clutch master cylinders.
- Remove the two bracket bolts and the crate bracket and discard them.



- A. Bolts**
- B. Bolt**
- C. Front Master Cylinder**
- D. Crate Bracket**
- E. Clutch Master Cylinder**

- Unscrew the two lower bolts, and then remove the two upper bolts and crate bracket. Discard the bolts and bracket.



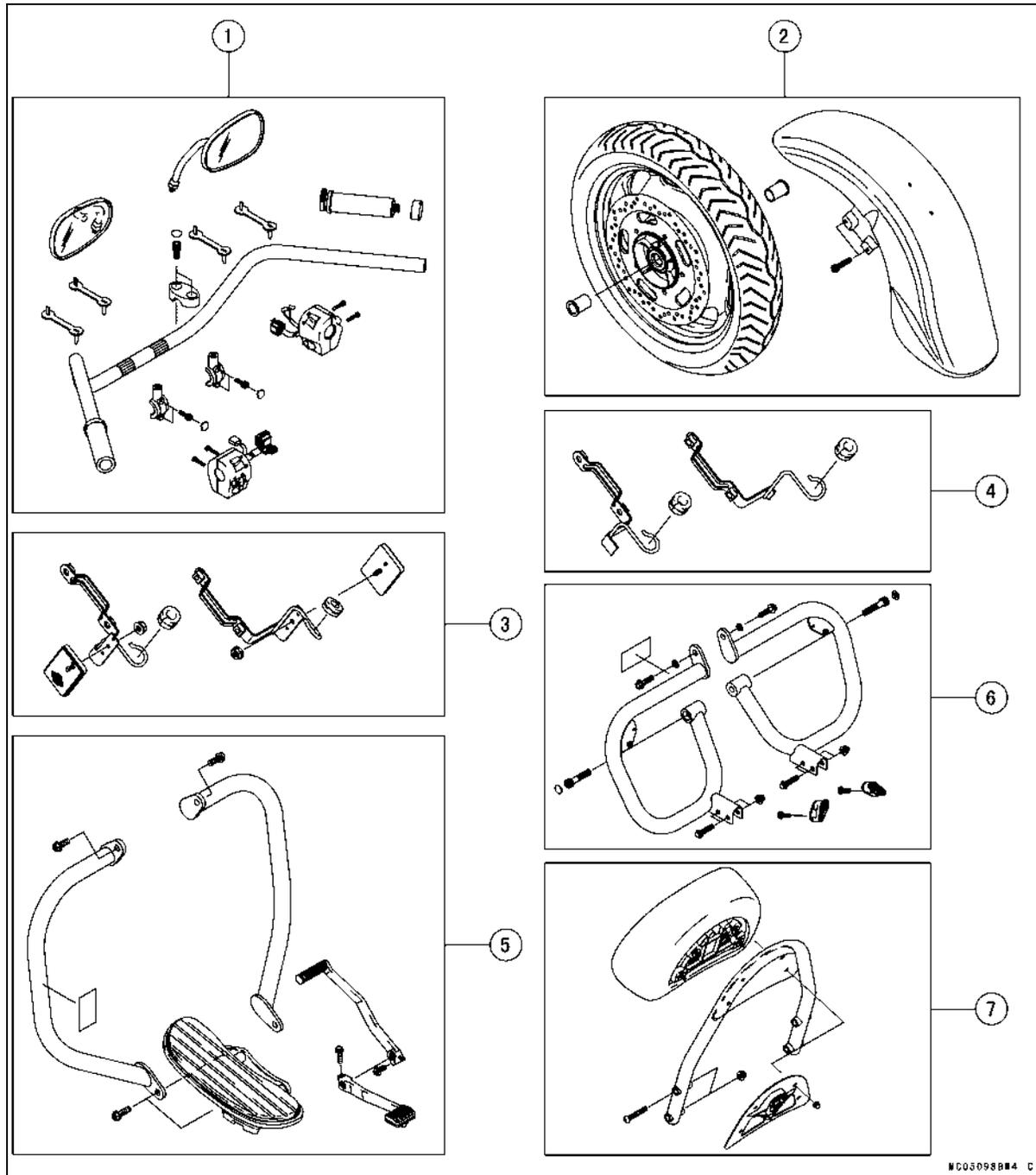
- A. Lower Bolts**
- B. Upper Bolts**
- C. Crate Bracket**

- Take out all the bolts and screws and remove the top and sides of the crate.

## 4 UNCRATING

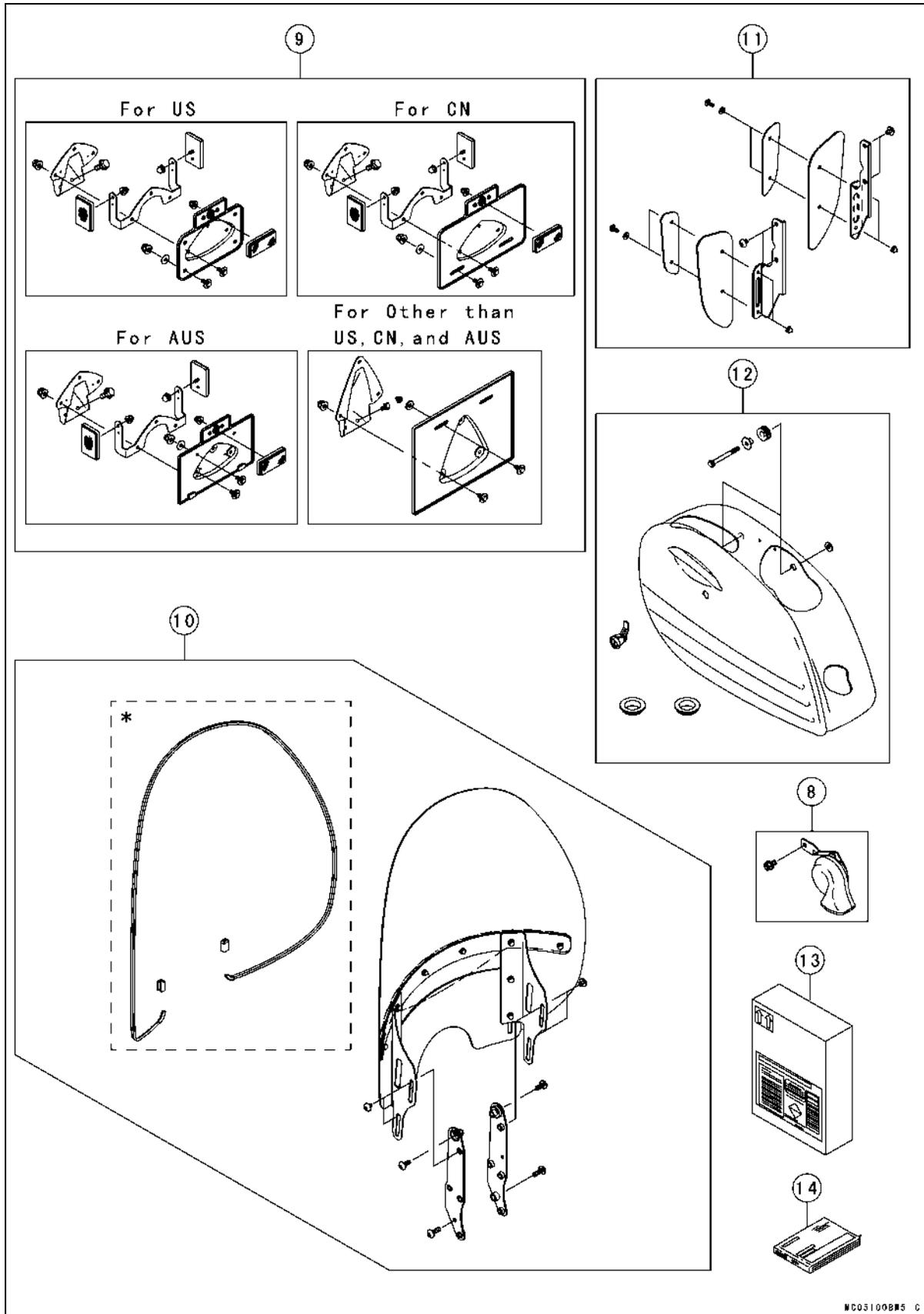
### Parts Check

- Open the parts box, and check the parts against the illustrations. There may be minor differences between these illustrations and the actual vehicle parts. In the following charts under Remarks, D = diameter in millimeters, L = length in millimeters, and T = Thickness in millimeters.



No.	Part Name	Qty	Remarks
1	Handlebar with Grip Handlebar Clamp Clamp Bolt, Socket Plastic Plug, Clamp Bolt Throttle Grip Clamp, Master Cylinder Clamp Bolt, Master Cylinder, Socket Plastic Plug, Clamp Bolt Plastic Clamp, Wiring and Hose Screw, Switch Housing, LH & RH Rear View Mirror, LH & RH	1 2 4 4 1 2 4 4 4 4 2	  D = 10, L = 23 Large   D = 6, L = 20 Small L = 88.5 D = 5, L = 25
2	Front Wheel Axle Collar, LH & RH Front Fender with Brace Socket Bolt, Front Fender	1 2 1 4	 L = 46.5  D = 8, L = 35
3	<b>For US and CN Models</b> Brake Hose Clamp, LH & RH Grommet, Brake Hose Front Reflector, LH & RH Flanged Nut, Reflector	2 2 2 2	   D = 5
4	<b>For other than US and CN Models</b> Brake Hose Clamp, LH & RH Grommet, Brake Hose	2 2	
5	Front Left Footboard Assembly Flanged Bolt, Front Footboard, LH Front Guard, LH & RH Flanged Bolt, Front Guard Warning Label, Front Left Guard Front Shift Pedal Rear Shift Pedal Flanged Bolt, Front and Rear Shift Pedals	1 2 2 2 1 1 1 2	 D = 10, L = 30  D = 10, L = 25 US and CN Models Only   D = 8, L = 25
6	Rear Guard, LH & RH Flanged Bolt with Washer, Rear Guard, Upper Socket Bolt, Rear Guard, Lower Plastic Plug, Socket Bolt, Rear Guard Flanged Bolt, Rear Guard Cap Nut, Rear Guard Helmet Lock Screw with Non-permanent locking agent, Helmet Lock Warning Label, Rear Left Guard	2 2 2 2 4 4 2 2 2 1	 D = 8, L = 30 D = 10, L = 50 Large D = 8, L = 35 D = 8 Located in the left side cover. D = 5, L = 12 US and CN Models Only
7	Backrest Pad Backrest Frame Cover with Mark, Backrest Cap Nut, Cover Bolt, Backrest Frame Nut, Backrest Frame	1 1 1 4 4 4	   D = 6 D = 8, L = 50 D = 8

# 6 UNCRATING



\* : European Models Only

No.	Part Name	Qty	Remarks
8	Horn with Bracket	1	
	Flanged Bolt, Horn	1	
9	License Plate Bracket	1	
	Bolt, Bracket, License Plate	2	D = 6, L = 12
	Bracket, Reflector	1	(US)(CN)(AUS) only
	Reflector	3	(US)(CN) only
	Reflector	1	(AUS) only
	Cap Nut, Reflector	3	D = 5, (US)(CN) only
	Cap Nut, Reflector	1	D = 5, (AUS) only
	Cap Nut, Black, License Plate	4	D = 6, (US) only
	Cap Nut, Black, License Plate	2	D = 6, (CN)(AUS)(EUR) only
	Flat Washer, Black, Holder, License Plate	4	D = 6.5 x 20 x 1.6, (US) only
	Flat Washer, Black, Holder, License Plate	2	D = 6.5 x 20 x 1.6, (CN) (AUS)(EUR) only
	Holder, License Plate	1	
	Bolt with Flat Washer	7	D = 6, L = 14 (US only)
	Bolt with Flat Washer	5	D = 6, L = 14, (CN)(AUS)(EUR) only
	Cap Nut, Holder, License Plate	3	D = 6
10	Windshield Assembly with	1	
	Center Plate, Outer & Inner	(2)	
	Damper, Center Plate, Outer & Inner	(2)	
	Socket Bolt with Washer, Center Plate	(4)	D = 6, L = 20
	Cap Nut	(10)	D = 6
	Vulcan Mark	(1)	(US)(CN)(AUS) only
	VN1600 Mark	(1)	(EUR) only
	Outer Plate, LH & RH	(2)	
	Inner Plate, LH & RH	(2)	
	Outer Damper, Outer Plate, LH & RH	(2)	
	Inner Damper, Inner Plate, LH & RH	(2)	
	Socket Bolt with Washer, Outer & Inner Plate	(6)	D = 6, L = 25
	Sub-windshield	(1)	
	Stay, Windshield, LH & RH	(2)	
	Trim, Windshield	1	L = 1 900, (EUR) only
	Clamp, Trim	2	(EUR) only
	Socket Bolt, Stay	4	D = 8, L = 10
	Bracket, Windshield, LH & RH	2	
	Socket Bolt, Bracket, Upper	2	D = 8, L = 20
	Socket Bolt, Bracket, Lower	2	D = 8, L = 25
11	Outer Plate, Deflector, LH & RH	2	
	Deflector, LH & RH	2	
	Stay, LH & RH	2	
	Socket Bolt with Washer	4	D = 6, L = 16
	Cap Nut	4	D = 6
	Socket Bolt, Stay	4	D = 6, L = 16
12	Saddlebag, LH	1	
	Lock, Saddlebag	1	Located in the left side cover.
	Damper, Bottom	2	Large
	Damper, Upper	2	D = 12
	Flanged Collar	2	D = 12, L = 13.1
	Flanged Bolt, Saddlebag	2	D = 8, L = 75
	Flat Washer, Saddlebag, Black	4	D = 8.5 x 20, T = 1.6
13	Battery Electrolyte, FTZ16-BS	1	
14	Owner's Manual	1	

AUS: Australian Model  
CN: CN Model

EUR: European Model  
US: United States Model

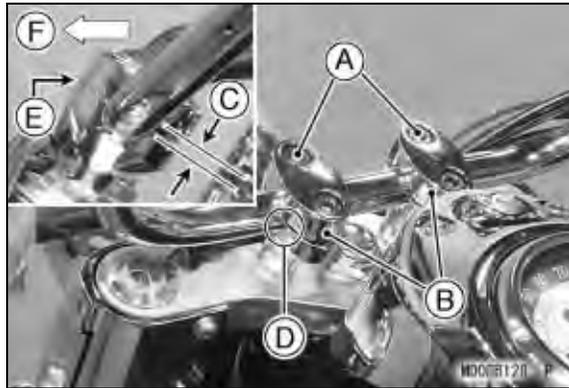
# Assembly

## Handlebar

### NOTE

○ Position the handlebar clamp on the handlebar with the slanted side facing rearward.

- Set the handlebar to match its punched mark to the rear portion of the lower clamp mating face and install the upper clamps and bolts (D = 10, L = 23).



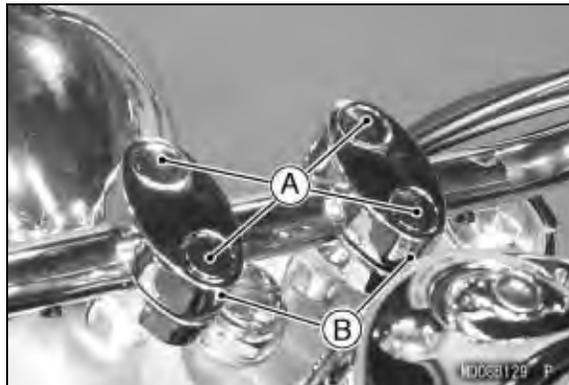
- A. Front Bolts
- B. Slanted Side
- C. Gap
- D. Punched Mark
- E. No Gap
- F. Forward

### Handlebar Clamp Bolt Tightening

- Tighten the front clamp bolts first, and then the rear clamp bolts to the specified torque. There will be a gap at the rear part of the clamp after tightening.

**Torque: 34 N·m (3.5 kgf·m, 25 ft·lb)**

- Push the large plastic plugs (4) into the handlebar clamp bolts.

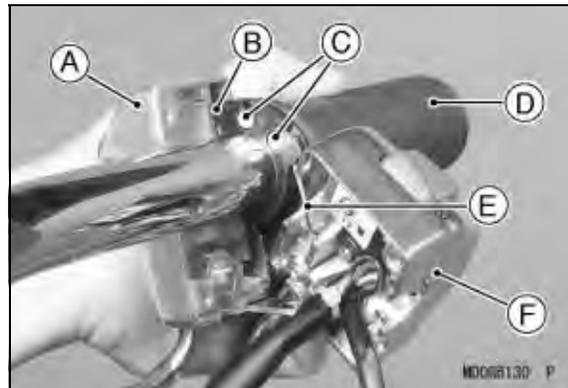


- A. Plastic Plugs
- B. Handlebar Clamps

## Throttle Grip and Right Switch Housing

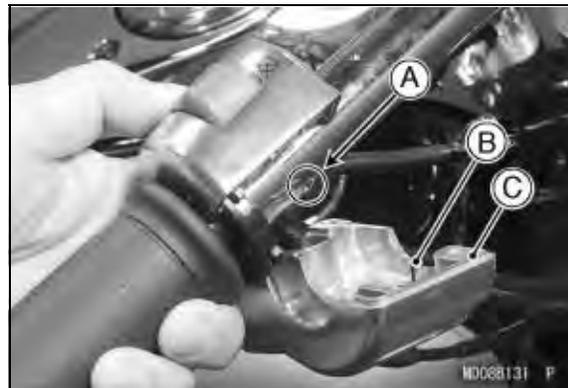
### Alignment Pin Type

- Apply a light coat of grease on the exposed portion of the throttle inner cables.
- Fit both throttle cable tips into the nearest socket in the throttle grip.



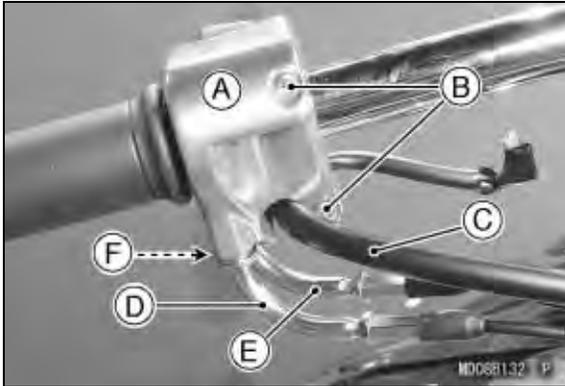
- A. Front Half (Right Switch Housing)
- B. Throttle Cable (Accelerator)
- C. Cable Tips: Apply Grease.
- D. Throttle Grip
- E. Throttle Cable (Decelerator)
- F. Rear Half (Right Switch Housing)

- Fit the two halves of the right switch housing so that the pin on the front half fits into the hole in the handlebar.



- A. Hole
- B. Pin
- C. Front Half

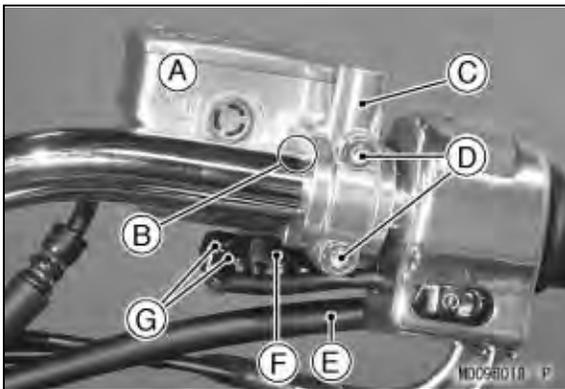
- Insert the two screws (D = 5, L = 25) and tighten them.
- Tighten the holder screw.
- Check that the throttle grip moves smoothly from full open to close, and the throttle closes quickly and completely.



- A. Right Switch Housing
- B. Screws (L = 25)
- C. Harness
- D. Throttle Cable (Accelerator)
- E. Throttle Cable (Decelerator)
- F. Holder Screw

### Front Brake Master Cylinder

- Connect the right switch housing lead connectors to the front brake light switch terminals on the front brake master cylinder.
- Apply silicone grease or PBC grease to the master cylinder clamp bolts.
- Install the front master cylinder with its clamp and the two socket bolts (D = 6, L = 20).

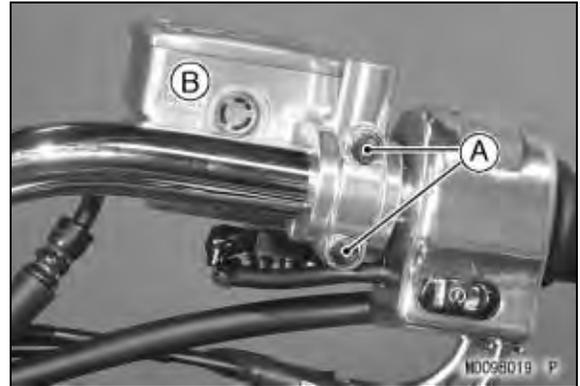


- A. Front Master Cylinder
- B. Punched Mark
- C. Clamp
- D. Socket Bolts
- E. Harness
- F. Front Brake Light Switch
- G. Connectors and Dust Covers

- Position the master cylinder so that the gap between the front and rear master cylinder clamps aligns with the punched mark on the handlebar.
- Tighten the upper clamp bolt first and then the lower bolt to the specified torque.

**Torque: 8.8 N·m (0.90 kgf·m, 78 in·lb)**

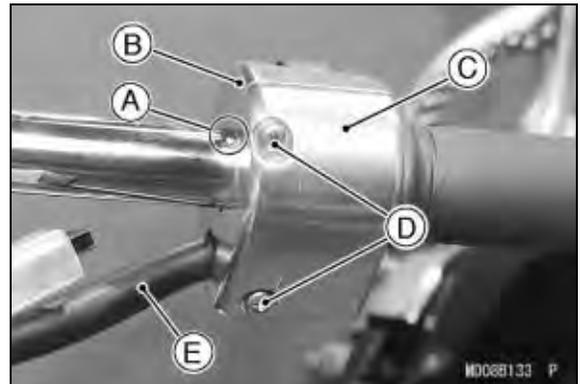
- Push the small plastic plugs (2) into the master cylinder clamp bolts.



- A. Plastic Plugs
- B. Master Cylinder

### Left Switch Housing

- Fit the two halves of the left switch housing together so that the vertical parting line of the front and rear halves align with the punched mark on the handlebar.

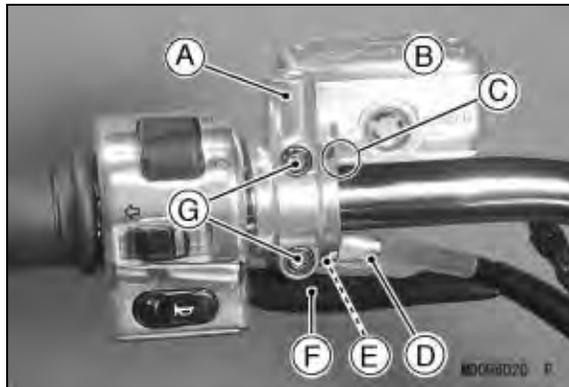


- A. Punched Mark
- B. Rear Half (Left Switch Housing)
- C. Front Half
- D. Screws (L = 25)
- E. Harness

- Insert the two screws (D = 5, L = 25) and tighten them securely.

## Clutch Master Cylinder

- Apply silicone grease or PBC grease to the master cylinder clamp bolts.
- Install the clutch master cylinder with its clamp and the two socket bolts (D = 6, L = 20).
- Position the master cylinder so that the gap between the front and rear master cylinder clamps aligns with the punched mark on the handlebar.



- A. Clamp
- B. Clutch Master Cylinder
- C. Punched Mark
- D. Connector and Dust Cover
- E. Starter Lock-out Switch
- F. Harness
- G. Socket Bolts

- Connect the connector of the left switch housing to the starter lock-out switch on the master cylinder.
- Tighten the upper clamp bolt first and then the lower bolt to the specified torque.

**Torque: 11 N·m (1.1 kgf·m, 97 in·lb)**

- Push the small plastic plugs (2) into the clutch master cylinder clamp bolts.



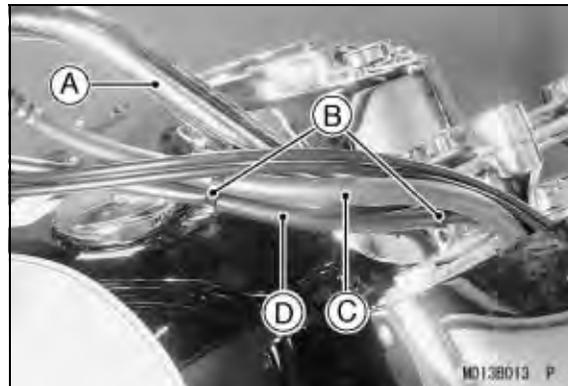
- A. Plastic Plugs
- B. Clutch Master Cylinder

## Wiring Clamps

- Fasten the front brake hose and the right switch housing harness to the right side of the handlebar with two plastic clamps.

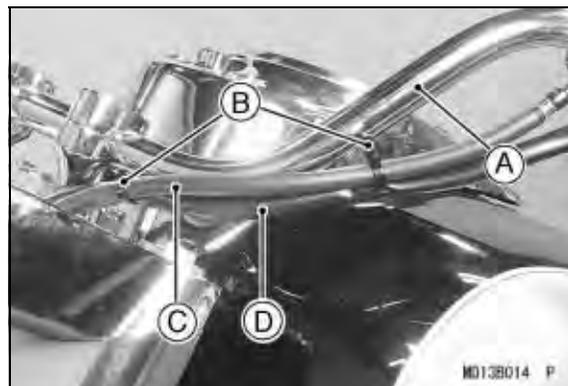
### NOTE

- The plastic clamp at the inside fastens the right switch harness only.

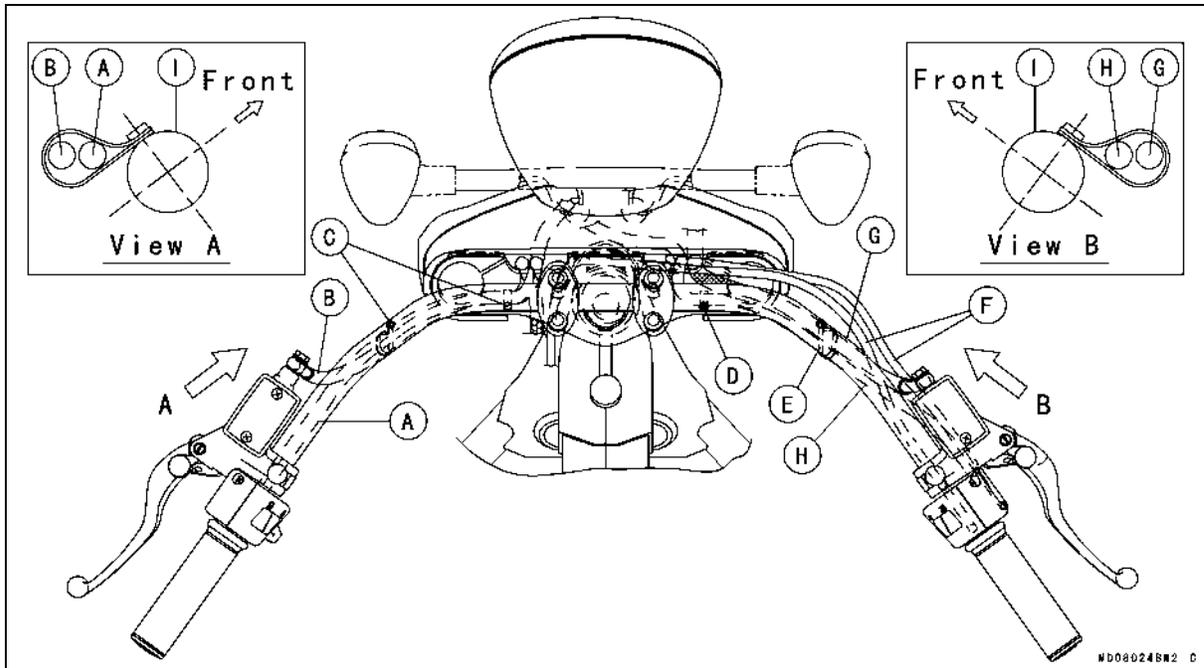


- A. Handlebar (Right Side)
- B. Plastic Clamps
- C. Front Brake Hose
- D. Right Switch Harness

- Fasten the clutch hose and the left switch housing harness to the left side of the handlebar with two plastic clamps.



- A. Handlebar (Left Side)
- B. Plastic Clamps
- C. Clutch Hose
- D. Left Switch Harness

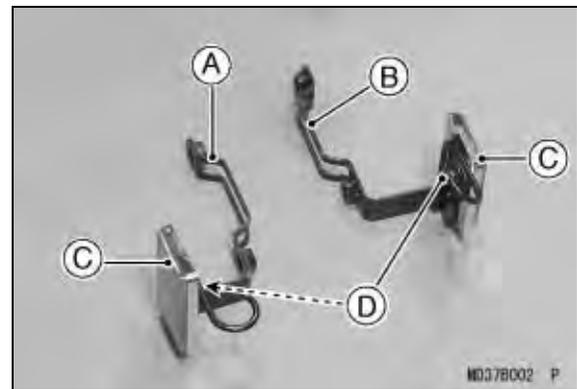


- A. Left Switch Lead
- B. Clutch Hose
- C. Fasten the left switch lead and the clutch hose with two plastic clamps.
- D. Fasten the right switch lead with the plastic clamp.
- E. Fasten the right switch lead and the brake hose with the plastic clamp.
- F. Throttle Cables
- G. Brake Hose
- H. Right Switch Lead
- I. Handlebar

### Front Fender

*Front Reflectors (for US and CN Models only)*

- Assemble the front left and right reflectors and the brake hose clamps with the nut (D = 5) on each.

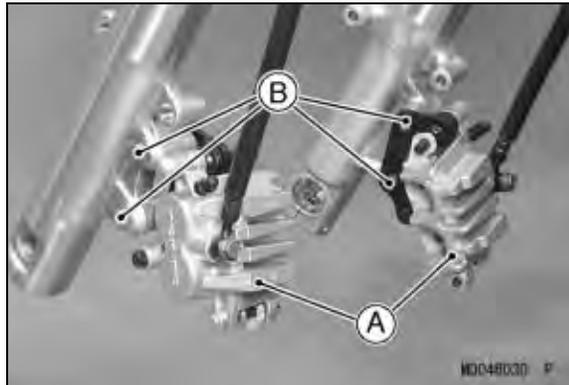


- A. Front Brake Hose Clamp (Left)
- B. Front Brake Hose Clamp (Right)
- C. Front Reflectors
- D. Nuts

## 12 ASSEMBLY

### Front Fender Installation

- Lift the motorcycle off the crate base and support the motorcycle with a suitable stand or jack.
- Loosen the axle clamp bolts on the right fork leg and remove the front axle.
- Loosen the two flanged bolts (D = 10, L = 47) to remove each front brake caliper.

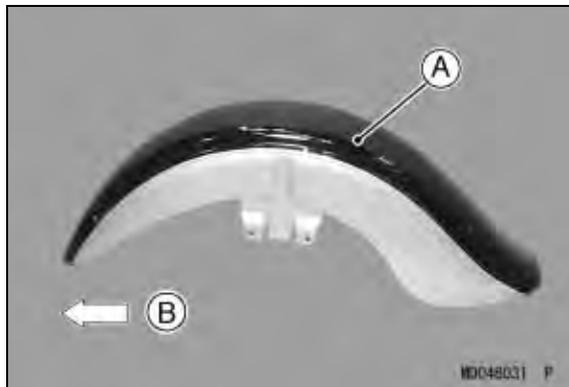


- A. Front Brake Calipers
- B. Flanged Bolts (D = 10, L = 47)

### CAUTION

Do not leave the calipers hanging by the brake hoses. After removing the calipers, secure them to the frame using a suitable band.

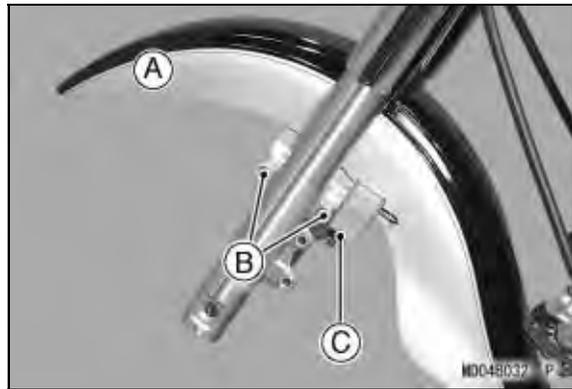
- Install the front fender with its more rounded end facing forward.



- A. Front Fender
- B. Forward

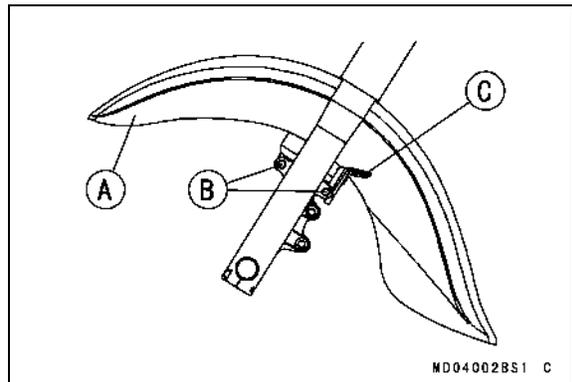
- Install the front fender on the fork legs, and install the front left and right brake hose clamps on the inside of the fender with the four bolts (D = 8, L = 35) and tighten them.

### US and CN Models



- A. Front Fender
- B. Bolts (D = 8, L = 35)
- C. Brake Hose Clamp (Left)

### Other than US and CN Models



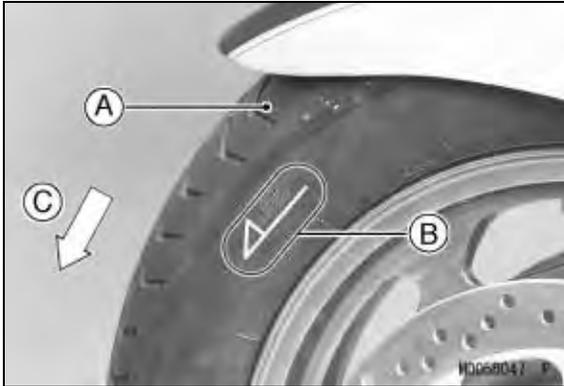
- A. Front Fender
- B. Bolts (D = 8, L = 35)
- C. Brake Hose Clamp (Left)

### Front Wheel Installation

- Check the wheel rotation mark on the front tire.

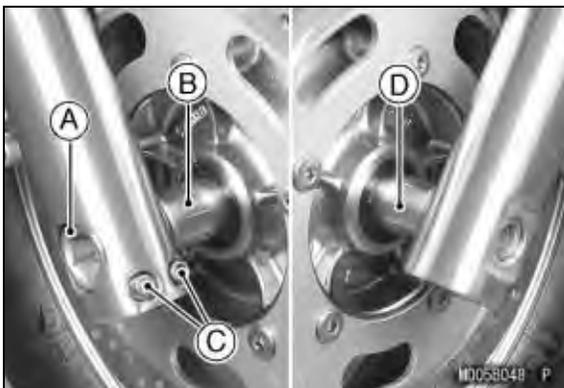
### NOTE

- The direction of the wheel rotation is shown by an arrow on the front tire. Install the wheel so that the rotation mark coincides with wheel rotational direction.



**A. Front Tire**  
**B. Arrow**  
**C. Rotation**

- Fit the axle collars on both sides of the front wheel hub. The collars are identical.
- Put the front wheel assembly between the fork legs.
- Insert the front axle from the right side of the wheel and push it completely through.

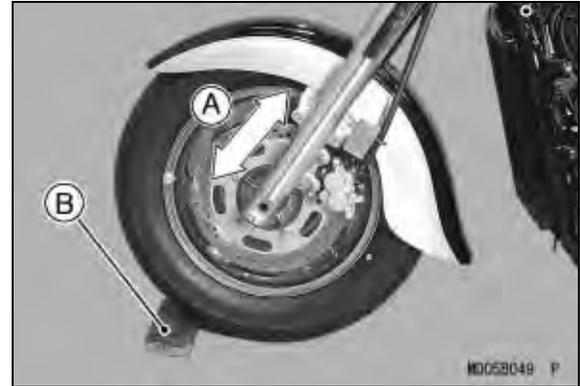


**A. Front Axle**  
**B. Collar (Right)**  
**C. Axle Clamp Bolts (Right)**  
**D. Collar (Left)**

- Tighten the front axle to the specified torque.  
**Torque : 108 N·m (11.0 kgf·m, 80 ft·lb)**
- Temporary install the front brake calipers.
- Before tightening the axle clamp bolts on the right fork leg, pump the front fork up and down 4 or 5 times to align the right front fork leg and to seat the front axle. Do not pull the brake lever when pumping the fork.

**NOTE**

○ Do not apply the front brake during this process to stop the motorcycle from rolling forward. Put a block in front of the front wheel to prevent movement.

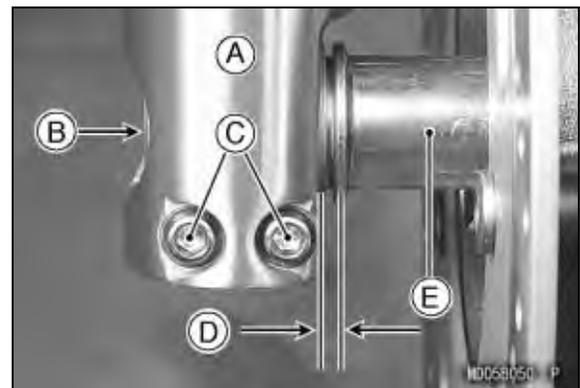


**A. Pump the fork up and down.**  
**B. Block**

- Tighten the axle clamp bolts on the right fork leg to the specified torque.  
**Torque : 29 N·m (3.0 kgf·m, 21 ft·lb)**

**NOTE**

- Tighten the two front axle clamp bolts alternately two times to ensure even tightening torque.
- Check the clearance between the right fork leg and the axle collar with a thickness gauge. There should be **about 2.0 mm (0.08 in.)** of clearance. The clearance between **1.05 ~ 3.19 mm (0.04 ~ 0.13 in.)** is acceptable.

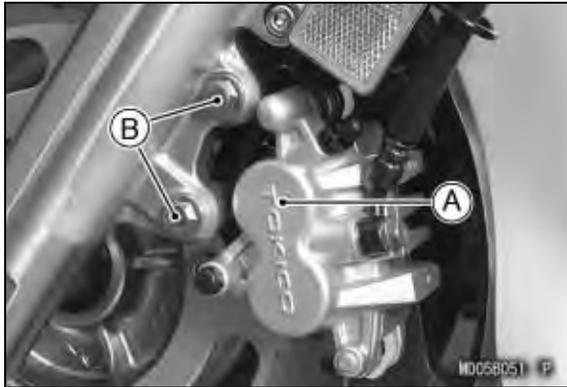


**A. Right Fork Leg**  
**B. Front Axle**  
**C. Axle Clamp Bolts**  
**D. About 2.0 mm (0.08 in.)**  
**E. Collar (Right)**

- If the clearance is out of this range, remove the front wheel and check the axle, wheel hub and other related parts for damage.
- Tighten both front brake caliper mounting bolts (D = 10, L = 47) to the specified torque.  
**Torque : 34 N·m (3.5 kgf·m, 25 ft·lb)**

## 14 ASSEMBLY

- Check the front brake.



- A. Front Brake Caliper (Left)
- B. Bolts (D = 10, L = 47)

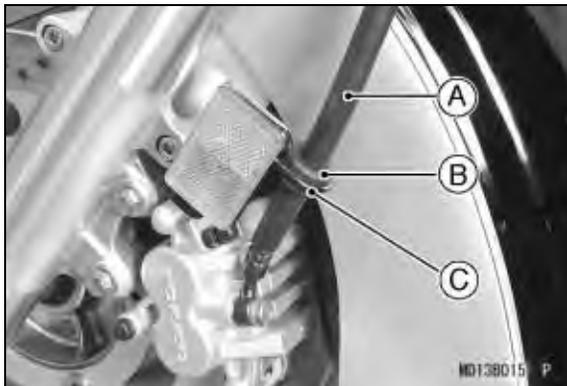
### WARNING

Do not attempt to ride the motorcycle until a full brake lever is obtained by pumping the brake lever until the pads are against the disc. The brake will not function on the first application of the lever if this is not done.

### Front Brake Hose Grommets

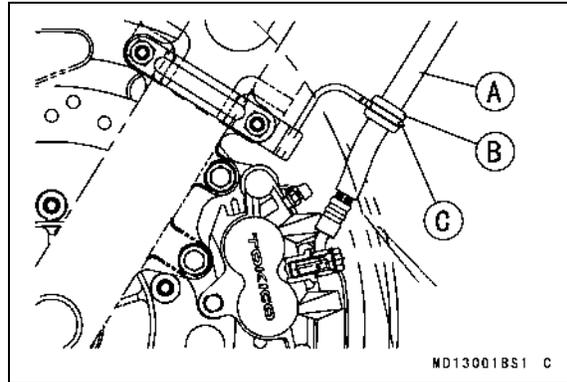
- Fit the grommet onto each front left and right brake hose, and install it in the clamp.

#### US and CN Models



- A. Front Brake Hose (Left)
- B. Grommet
- C. Brake Hose Clamp (Left)

### Other than US and CN Models



- A. Front Brake Hose (Left)
- B. Grommet
- C. Brake Hose Clamp (Left)

### Front and Rear Shift Pedals

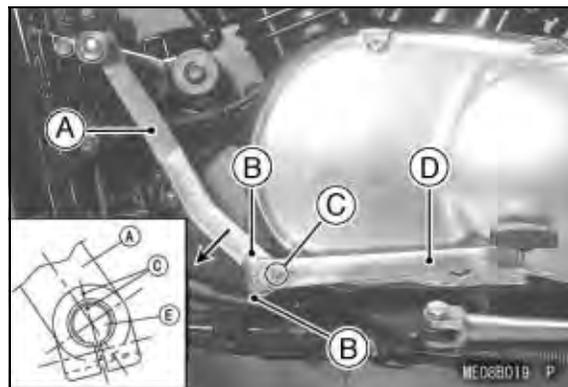
#### NOTE

○ Install the front and rear shift pedals after the "Clutch Fluid" section in the Preparation chapter.

- Install the front shift pedal on the shift shaft aligning the punched marks on the pedal and the shaft.
- Install the pedal bolt (D = 8, L = 25) and tighten it to the specified torque.

**Torque : 30 N·m (3.1 kgf·m, 22 ft·lb)**

- Install the rear shift pedal with the bolt (D = 8, L = 25) in the same way as the front shift pedal.



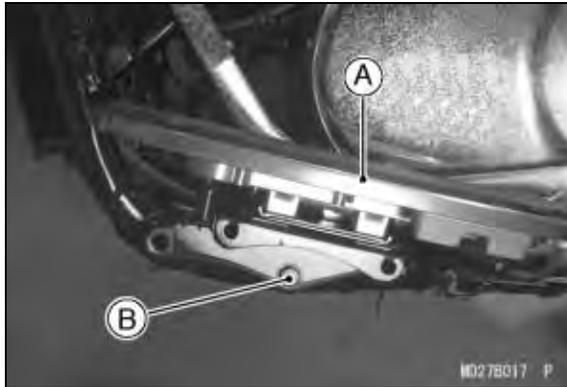
- A. Front Shift Pedal
- B. Bolt (D = 8, L = 25)
- C. Align the Punched Marks.
- D. Rear Shift Pedal
- E. Shift Shaft

## Front Footboard (Left)

### NOTE

○ Install the left footboard after the "Clutch Fluid" section in the Preparation chapter.

- Install the left footboard assembly on the frame with one bolt (D = 10, L = 30) at the rear and tighten it.



A. Front Footboard (Left)  
B. Bolt (Rear)

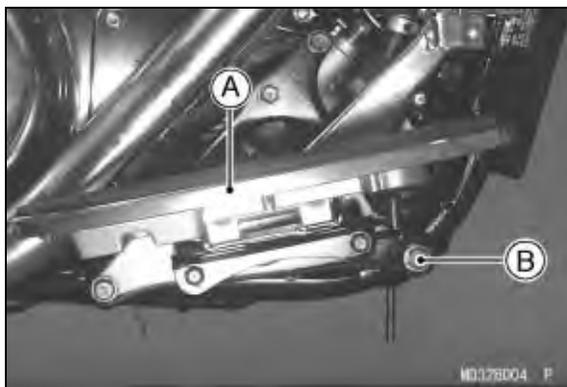
### NOTE

- The bolt in front is for tightening the footboard and the front guard together.
- Tighten the front footboard mounting bolts after installing the front guards to the specified torque.

## Front Guards (Left and Right)

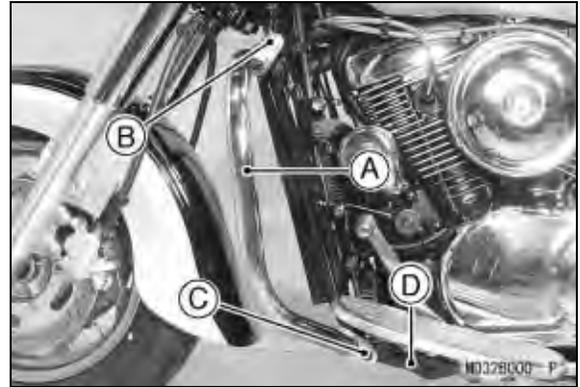
### Front Guards Installation

- Remove the front side mounting bolt from the front right footboard.



A. Front Footboard (Right)  
B. Bolt

- Install both front left and right guards on the frame with the upper mounting bolts (D = 10, L = 25), and on the front footboard brackets with the lower mounting bolts (D = 10, L = 30).



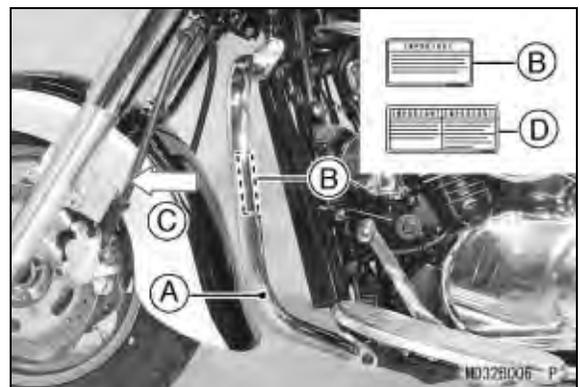
A. Front Guard (Left)  
B. Bolt (D = 10, L = 25)  
C. Bolt (D = 10, L = 30)  
D. Footboard Bracket

- Tighten the front footboard and the guard mounting bolts to the specified torque.

Torque : 34 N·m (3.5 kgf·m, 25 ft·lb)

### Label Installation (for US and CN Models only)

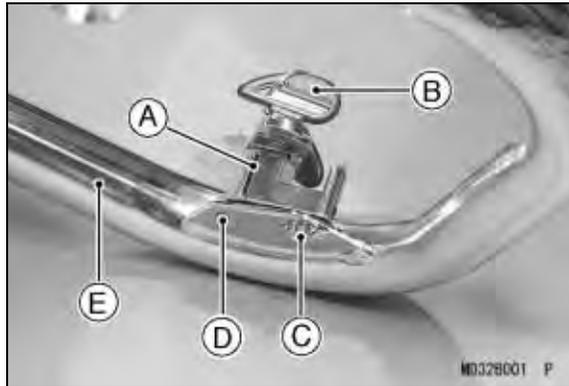
- Wipe any oil or grease from the application area.
- Peel the warning label off the backing sheet and stick it on the center of the front left guard.



A. Front Guard (Left)  
B. Label For US Models (56070-1285)  
C. Label Top  
D. Label For CN Models (56070-1180)

## Helmet Locks

- Unlock the helmet lock with the key and fit the small projection of the lock into the hole in the bracket of each rear guard and fasten it with the screw (D = 5, L = 12) having a non-permanent locking agent.
- Lock the helmet lock.

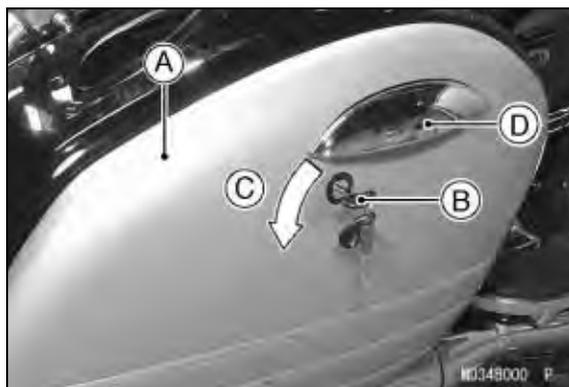


- A. Helmet Lock
- B. Ignition Key
- C. Projection
- D. Screw
- E. Rear Guard (Left)

## Rear Guards (Left and Right)

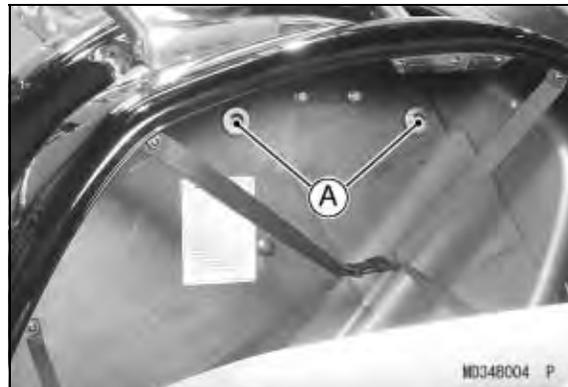
### Rear Guards Installation

- Remove the right saddlebag.
- Insert the ignition key into the lock and turn the key counterclockwise and pull the knob outward to open the lid.



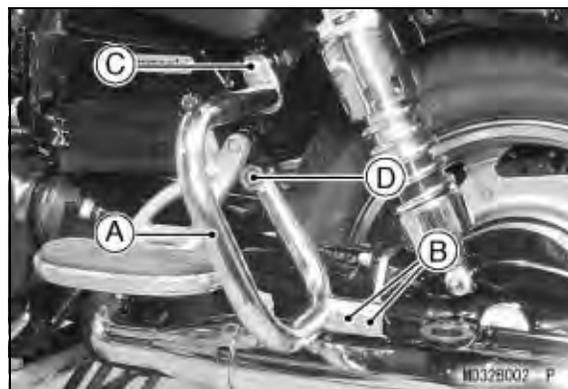
- A. Saddlebag (Right)
- B. Ignition Key
- C. Counterclockwise
- D. Knob

- Open the saddlebag lid and remove the bolts (D = 8, L = 75) inside the saddlebag, and then pull it up.



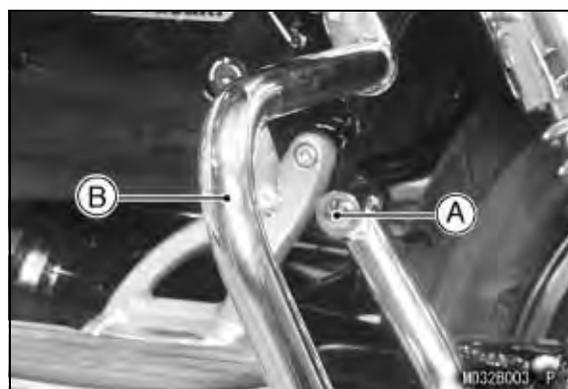
### A. Bolts (D = 8, L = 75)

- Join the rear left guard end and the left saddlebag/muffler bracket with the bolts (D = 8, L = 35)(2) and cap nuts (2) and tighten them.
- Install the guard on the brackets with the upper bolt (D = 10, L = 30) and the lower socket bolt (D = 10, L = 50) and tighten them.



- A. Rear Guard (Left)
- B. Bolts (D = 8, L = 35) and Cap Nuts
- C. Bolt (D = 10, L = 30)
- D. Socket Bolt (D = 10, L = 50)

- Push the large plastic plug into the top of the socket bolt.

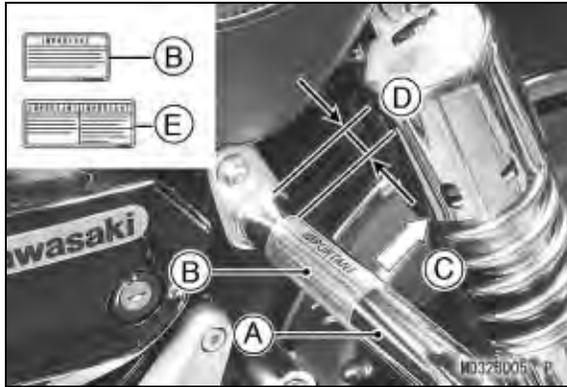


- A. Plastic Plug
- B. Rear Guard (Left)

- Install the right guard in the same manner as the left guard.

*Label Installation (for US and CN Models only)*

- Wipe off any oil or grease from the application area.
- Peel the warning label off the backing sheet and stick it on the rear left guard.



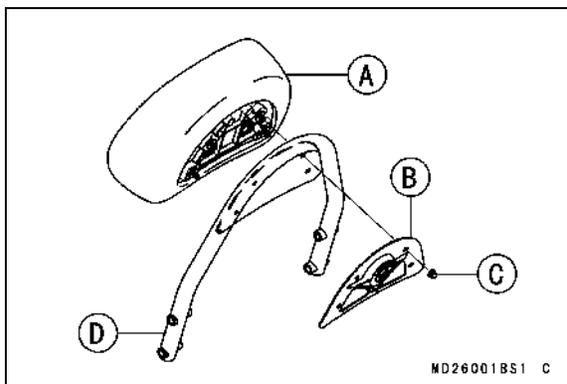
- A. Rear Guard (Left)
- B. Label For US Models (56070-1285)
- C. Label Top
- D. 20 mm (0.8 in.)
- E. Label For CN Models (56070-1180)

**NOTE**

○ Reinstall the right saddlebag after the “Rear Brake Fluid” and “Rear Shock Absorber” sections in the Preparation chapter. When installing the right saddlebag, see “Left Saddlebag” section in the Assembly chapter.

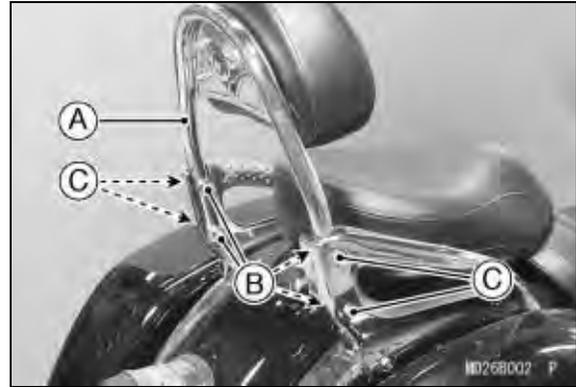
**Backrest Pad**

- Assemble the backrest pad, frame, and cover with the cap nuts (D = 6)(4).



- A. Backrest Pad
- B. Cover
- C. Cap Nut (D = 6)
- D. Frame

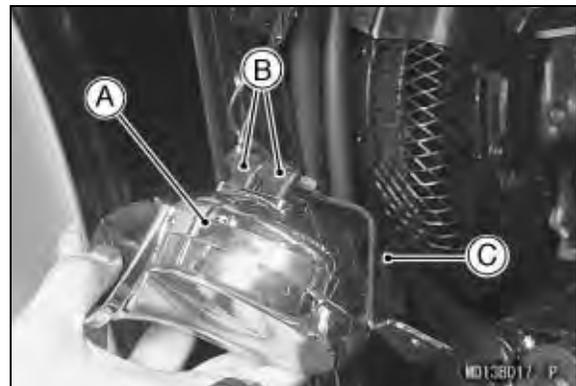
- Install the backrest between the brackets with the flanged bolts (D = 8, L = 50)(4) and the cap nuts (D = 8).
- Tighten all the bolts and nuts securely.



- A. Backrest
- B. Cap Nuts (D = 8)
- C. Bolts (D = 8, L = 50)

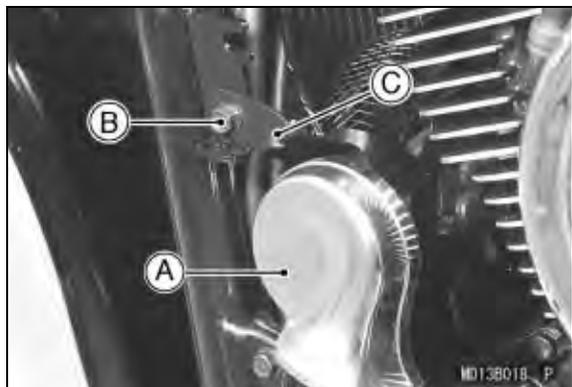
**Horn**

- Connect the horn lead connectors (BK, BK) of the harness to the horn terminals at the left side of the radiator.



- A. Horn
- B. Connectors (BK, BK)
- C. Bracket

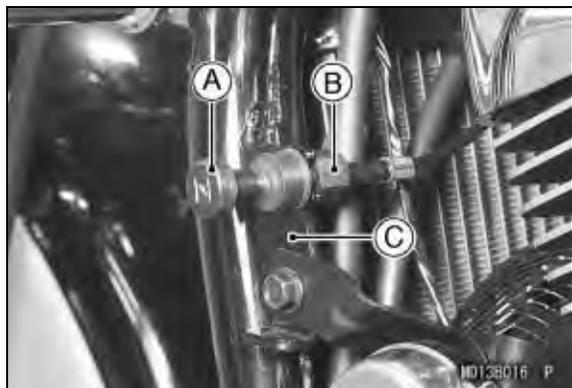
- Install the horn with bracket to the frame with the bolt (D = 8, L = 12) and tighten it.



A. Horn  
 B. Bolt (D = 8, L = 12)  
 C. Bracket

### Choke Knob

- Loosen the locknut and fasten the choke knob to the bracket with locknut.

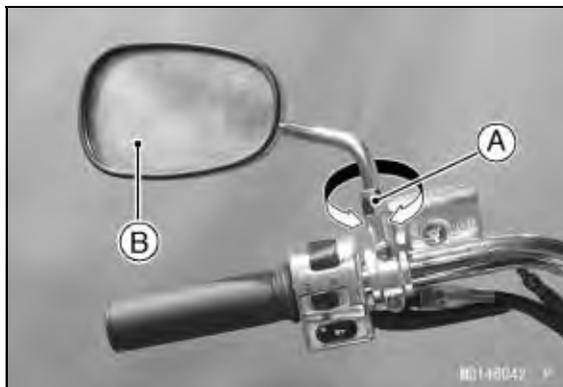


A. Choke Knob  
 B. Locknut  
 C. Bracket

### Rear View Mirrors (Left and Right)

#### Conventional Type (Single Nut)

- Loosen the locknut completely.
- Screw the rear view mirror in completely, and then back it two turns out.
- Turn the mirror stay to assure visibility to the rear with the operator sitting on the motorcycle and tighten the locknut securely.
- Adjust the rear view mirror by slightly moving only the mirror portion of the assembly.

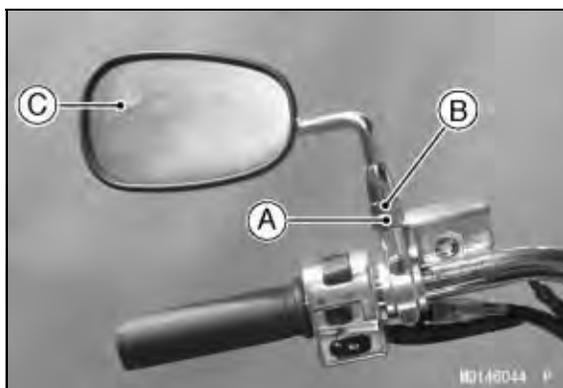


A. Locknut  
 B. Rear View Mirror (Left)

- Installation and adjustment of the right side mirror is common with the left side. Follow the procedure specified for the left side.

#### Turning Stay Type

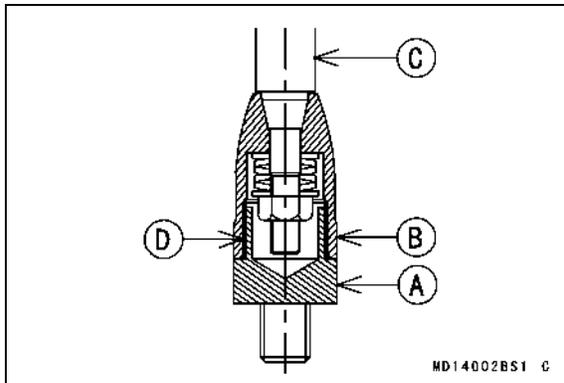
- Screw the mounting area of the left rear view mirror into the holder all the way, and tighten the lower hexagonal area securely.



A. Lower Hexagonal Area for Tightening  
 B. Upper Hexagonal Area (Adapter)  
 C. Rear View Mirror (Left)

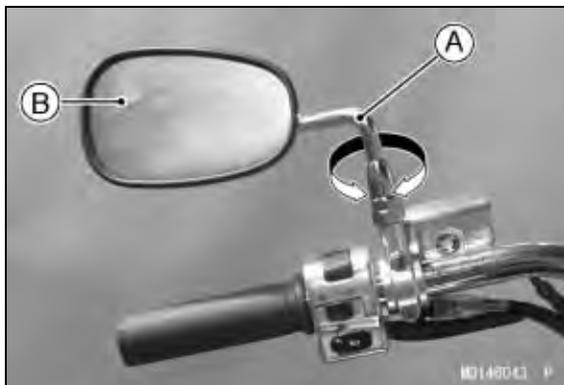
#### CAUTION

Do not force to tighten and/or loosen the upper hexagonal area (adapter) with a spanner or wrench. Disassembly of this area is not possible. Non-permanent locking agent is already applied to the threads of this inner area. Forcible loosening may damage the adapter and/or the turning mechanism of the stay.



- A. Lower Hexagonal Area for Tightening**
- B. Upper Hexagonal Area (Adapter)**
- C. Stay**
- D. Non-permanent Locking Agent applied.**

- Turn the stay to assure visibility to the rear with the operator sitting on the motorcycle.
- Adjust the rear view mirror by slightly moving only the mirror portion of the assembly.



- A. Stay**
- B. Mirror**

- Installation and adjustment of the right side mirror is common with the left side. Follow the procedure specified for the left side.

## Windshield

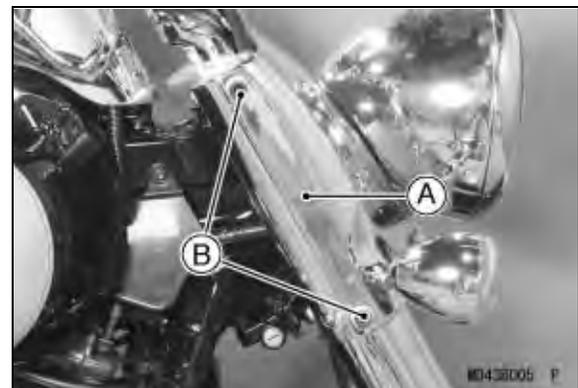
### CAUTION

Be sure not to damage the surface of the windshield when installing or handling.



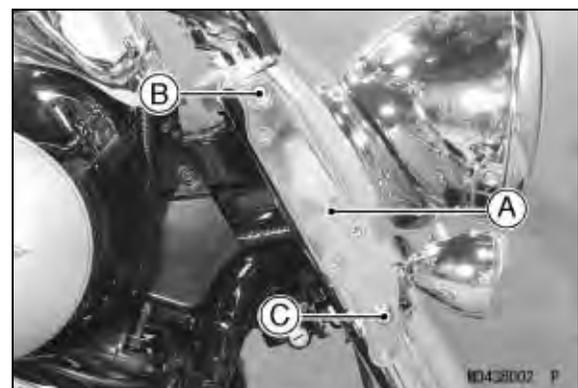
### A. Windshield Assembly

- Remove the dummy bolts on the fork cover and discard them.



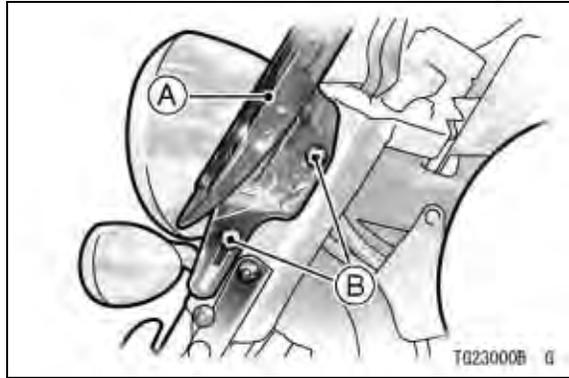
- A. Fork Cover**
- B. Dummy Bolts (Right Side)**

- Install the left and right mounting brackets on the fork cover with the socket bolts (D = 8, L = 20)(D = 8, L = 25).



- A. Mounting Bracket (Right)**
- B. Socket Bolt (D = 8, L = 20)**
- C. Socket Bolt (D = 8, L = 25)**

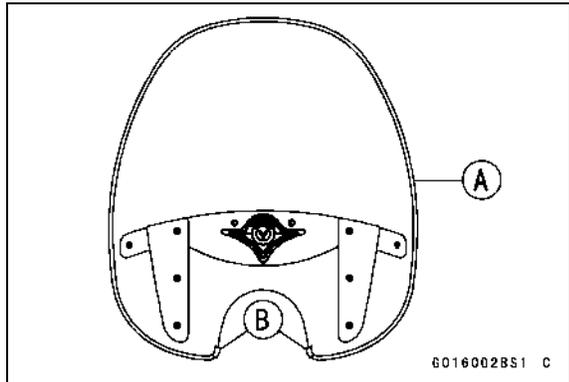
- Install the windshield assembly on the mounting brackets with the socket bolts (D = 8, L = 10)(4).
- Set the windshield all the way down and tighten the bolts securely.



**A. Windshield Assembly**  
**B. Socket Bolts (D = 8, L = 10)**

*Trim Installation [EUR Models Only]*

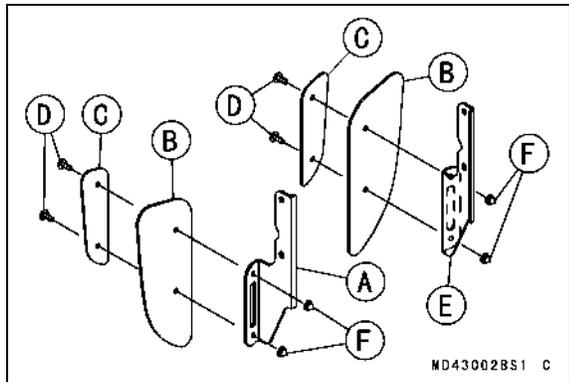
- Fit the windshield trim onto the edge of the windshield starting from each lower edge.
- Fix the trim ends with the clamps (2).



**A. Trim**  
**B. Clamps**

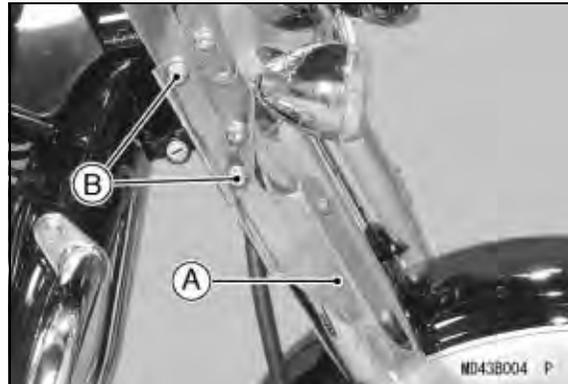
*Deflectors (Left and Right) Installation*

- Assemble the left and right stays, deflectors, and outer plates with the socket bolts (D = 6, L = 16)(4) and cap nuts (D = 6)(4).



**A. Stay (Left)**  
**B. Deflector**  
**C. Outer Plate**  
**D. Socket Bolts (D = 6, L = 16)**  
**E. Stay (Right)**  
**F. Cap Nuts**

- Install each deflector on the bracket with the socket bolts (D = 8, L = 10)(2) for each side and tighten them.

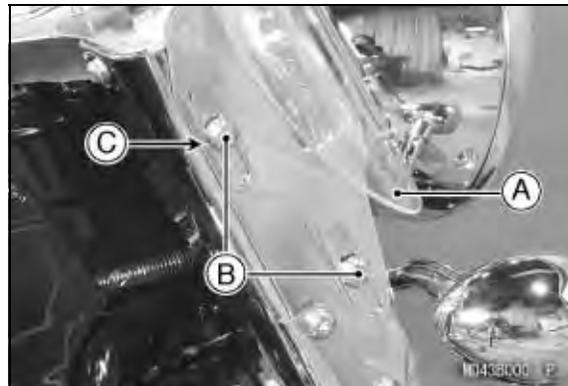


**A. Deflector (Right)**  
**B. Socket Bolts (D = 8, L = 10)**

*Windshield Height Adjustment*

The windshield can be adjusted 50 mm (2 in.) in height to suit the rider's preference.

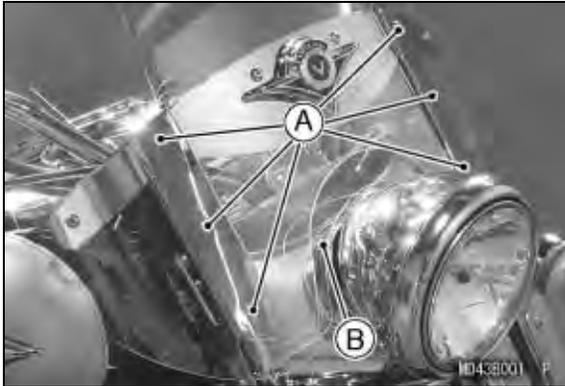
- Loosen both the upper and lower bolts on each lower side of the windshield and move it up or down.
- Align both the left and right windshield stays.
- Tighten the bolts securely.



**A. Windshield**  
**B. Bolts**  
**C. Positioning Marks**

*Sub-windshield Adjustment*

- Loosen the windshield bolts on the left and right vertical outer plates and move the sub-windshield up or down. The distance should be 10 mm (0.04 in.) between the lower edge of the sub-windshield and the headlight body.
- Tighten the windshield bolts.



- A. Bolts
- B. Sub-windshield

### License Plate Bracket

#### License Plate Bracket Installation

- Install the license plate bracket onto the rear fender with the bolts (D = 6, L = 12)(2).

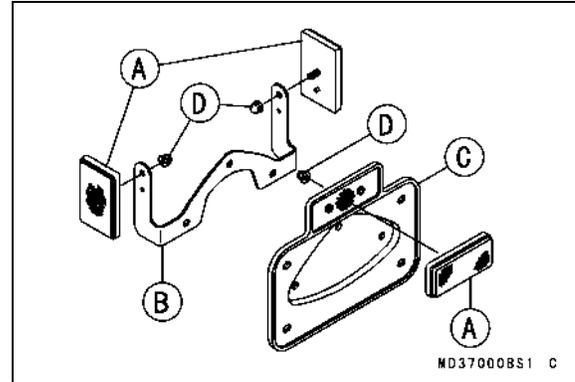


- A. Rear Fender
- B. License Plate Bracket
- C. Bolts (D = 6, L = 12)

### Rear Reflectors and License Plate Holder

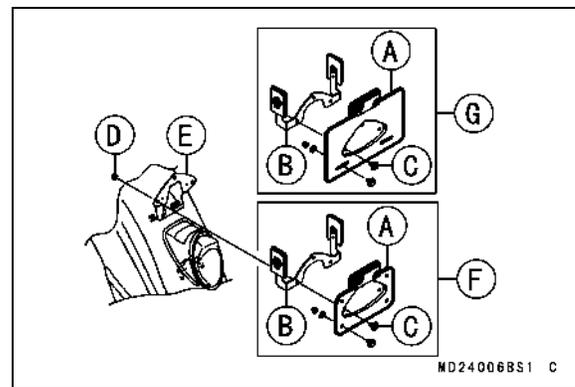
#### US and CN Models only

- Assemble the rear reflectors, bracket, and license plate holder with the cap nut (D = 5) on each.



- A. Reflectors
- B. Reflector Bracket
- C. License Plate Holder
- D. Cap Nuts (D = 5)

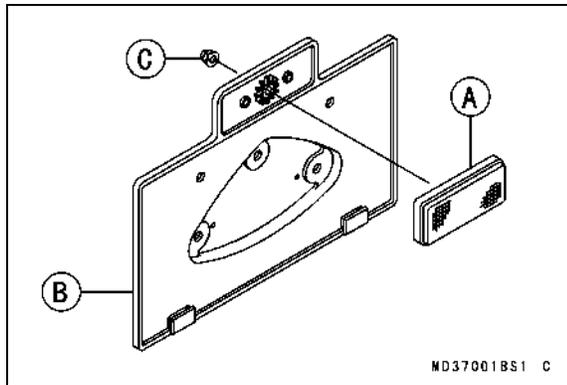
- Install the license plate holder and the rear reflector bracket on the license plate bracket with the bolts (D = 6, L = 14)(3) and plated cap nuts (3) and tighten them. The remaining fasteners are used for the license plate.



- A. License Plate Holder
- B. Reflector Bracket
- C. Bolt (D = 6, L = 14)
- D. Cap Nut
- E. License Plate Bracket
- F. For US Models
- G. For CN Models

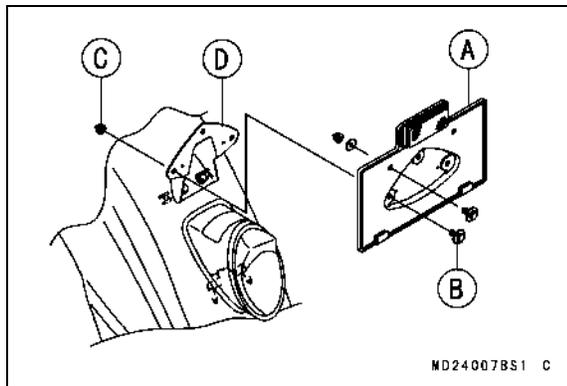
#### AUS Models only

- Install the rear reflector on the license plate holder with the cap nut (D = 5) and tighten it.



- A. Reflector
- B. License Plate Holder
- C. Cap Nut (D = 5)

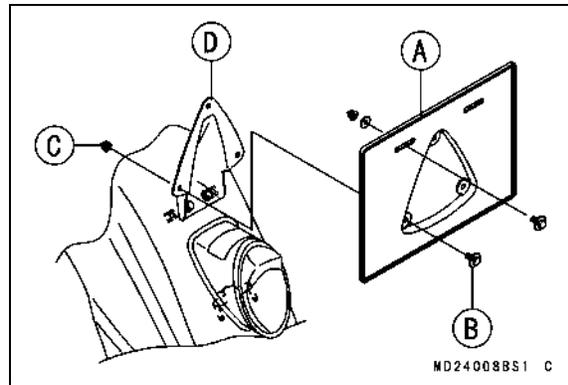
- Install the license plate holder on the license plate bracket with the bolts (D = 6, L = 14)(3) and plated cap nuts (3) and tighten them. The remaining fasteners are used for the license plate.



- A. License Plate Holder
- B. Bolt (D = 6, L = 14)
- C. Cap Nut
- D. License Plate Bracket

**Other than US, CN, and AUS Models only**

- Install the license plate holder on the license plate bracket with the bolts (D = 6, L = 14)(3) and plated cap nuts (3) and tighten them. The remaining fasteners are used for the license plate.



- A. License Plate Holder
- B. Bolt (D = 6, L = 14)
- C. Cap Nut
- D. License Plate Bracket

**Left Saddlebag**

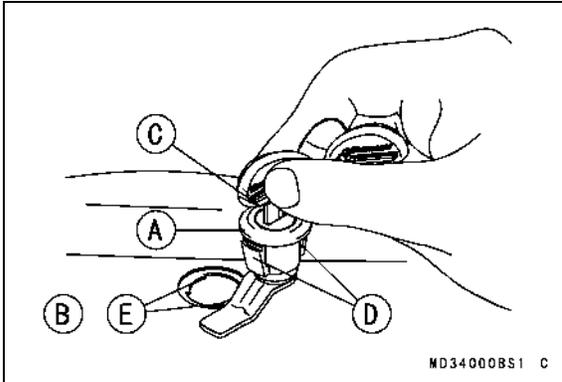
**NOTE**

- Install the saddlebags after the "Final Gear Case Oil", "Rear Brake Fluid", and "Rear Shock Absorber" sections in the Preparation chapter.

**Left Saddlebag Lid Lock Installation**

**NOTE**

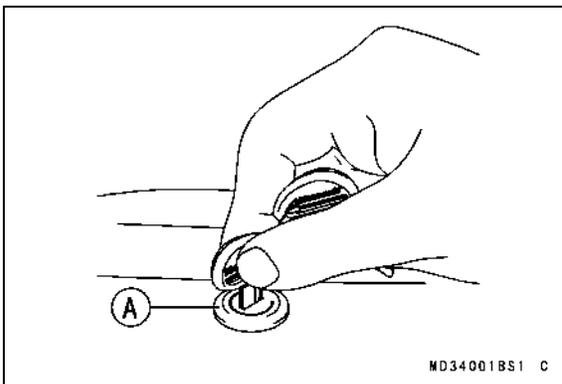
- After the saddlebag is installed, you can install the left saddlebag lid lock.
- Inspect the saddlebags for damage.
- Insert the ignition key into the lock, and turn the key counterclockwise to the unlocked position (hook faces left).
- With the locked-position mark on the lock facing up (toward the handle), insert the hook of the lock, then the lock into the hole in the left saddlebag lid, and push it straight ahead so that the projections on the lock fit into the notches



- A. Lock
- B. Left Saddlebag
- C. Locked-position Mark
- D. Projections
- E. Notches

**NOTE**

○ Push the lid lock all the way into the hole in the lid so that the projection ends are inserted into it.

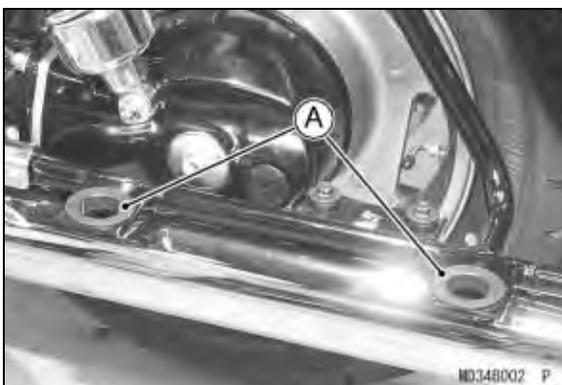


- A. Lock

- Turn the key clockwise and counterclockwise, to check the saddlebag lid lock operation.

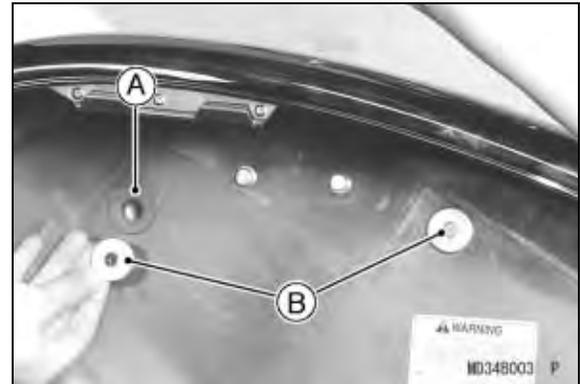
**Left Saddlebag Dampers Installation**

- Insert the large dampers (2) so that the grooves fit into the holes in the lower brackets of the left saddlebag/muffler bracket.



- A. Dampers

- Open the saddlebag lid, and insert the upper dampers (2) into the holes in the saddlebag.
- Push the flanged collars (2) into the damper.



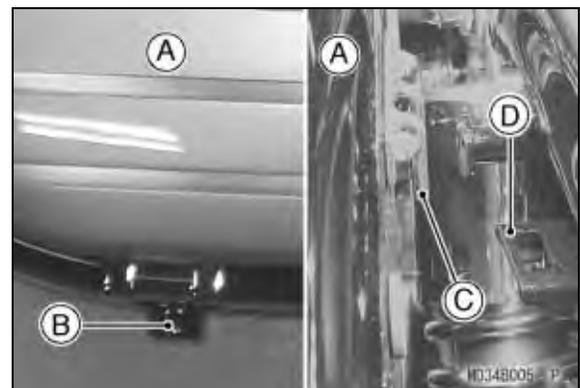
- A. Upper Damper
- B. Collars

**Left Saddlebag Installation**

**NOTE**

○ Only use the flat washers ( $T = 1.6 \text{ mm}$ ) (4) to adjust the clearance [1.0 mm (0.04 in.) or more] between the saddlebag upper dampers and the bracket, as needed.

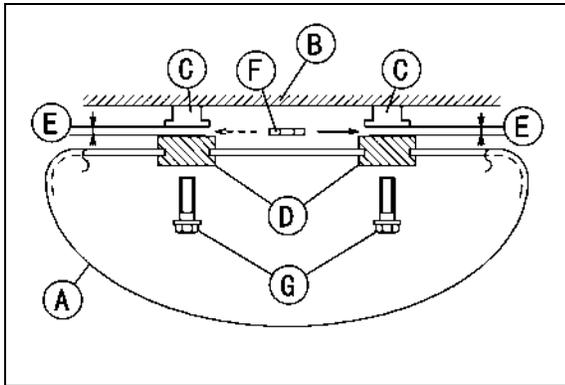
- While aligning the protrusions on the bottom of the saddlebag with the holes in the lower bracket, engage the hook on the back of the saddlebag with the upper bracket, then push it down.



- A. Saddlebag
- B. Protrusion
- C. Hook
- D. Upper Bracket

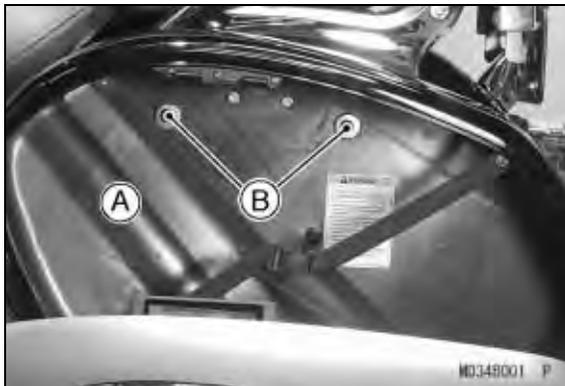
## 24 PREPARATION

- Measure the clearances between both the front and rear upper dampers and the upper mounting bracket with the saddlebag lightly pushed by hand against the mounting bracket.
- If the clearance is 1.0 mm (0.04 in.) or more at the front and/or rear, adjust it. Insert one or two flat washer(s) between the upper damper and the mounting bracket until it is less than 1.0 mm (0.04 in.) at the front and/or rear.



- A. Saddlebag
- B. Top Stay
- C. Upper Bracket
- D. Upper Dampers
- E. Clearance
- F. Flat Washer
- G. Bolts

- If the clearance is less than 1.0 mm (0.04 in.) at the front and/or rear, the flat washer is unnecessary.
- Open the saddlebag lid and install the flanged bolts (D = 8, L = 75)(2), (through the flat washer(s) if necessary) and tighten them securely.



- A. Left Saddlebag
- B. Bolts (D = 8, L = 75)

- After the saddlebag is installed, open and close the lid several times, and check for smooth movement of the lid handle and lid lock operation. If they operate improperly, remove the bolts and readjust the clearance.
- Install the right saddlebag in the same manner as the left saddlebag.

## Brake Disc Cleaning

- Clean the front and rear brake discs using oilless solvent.

### ⚠ WARNING

If not removed, the anticorrosive treatment applied to the brake disc surface will interfere with brake action, and an unsafe riding condition could result.



## Preparation

### Battery Service

The battery used in this motorcycle is a sealed type and never needs to be refilled. Follow the procedure for activating a new battery to ensure the best possible battery performance.

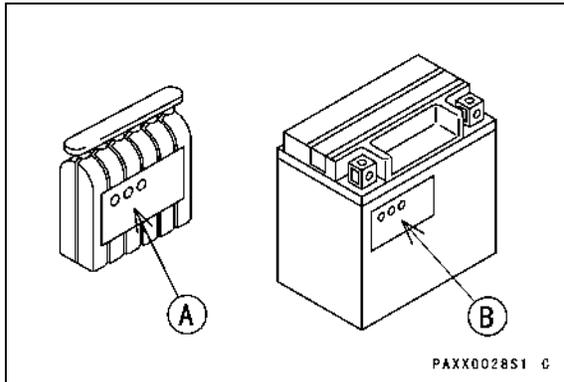
Activating the battery requires two steps, filling the battery with electrolyte, and charging. Read the electrolyte safety label and the following procedures carefully before battery activation.

### CAUTION

Incorrect Battery Activation will reduce battery performance and service life. Be sure to strictly follow the Battery Service instructions in this Manual.

- Make sure to use the electrolyte packed in the crate with the unit.
- Make sure that the model name of the electrolyte container matches the model name of the battery. These names must be the same.

**Battery Model Name for  
VN1600-D1: FTZ16-BS**



- A. Model Name of the Electrolyte**
- B. Model Name of the Battery**

**CAUTION**

Sealed battery electrolyte has a higher concentration of sulfuric acid. Each container contains the proper amount of electrolyte for its specific battery. Insufficient or incorrect electrolyte will reduce battery performance and service life. Electrolyte over capacity can lead to battery cracking or leaking and result in corrosion damage to the vehicle.

*Riders Seat Removal*

- Remove the bolt (D = 6, L = 14) and pull the passenger's seat rearward.



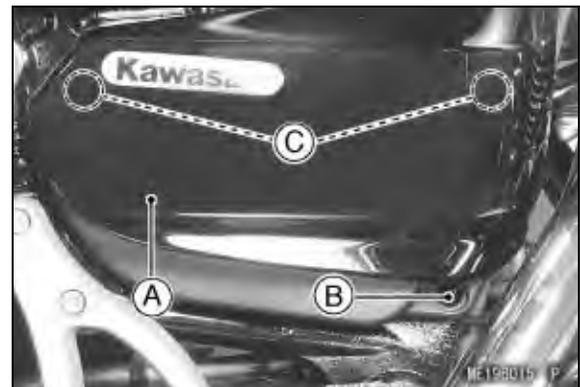
- A. Bolt (D = 6, L = 14)**
- B. Passenger's Seat**

- Remove the bolt (D = 6, L = 14) and pull the rider's seat rearward.



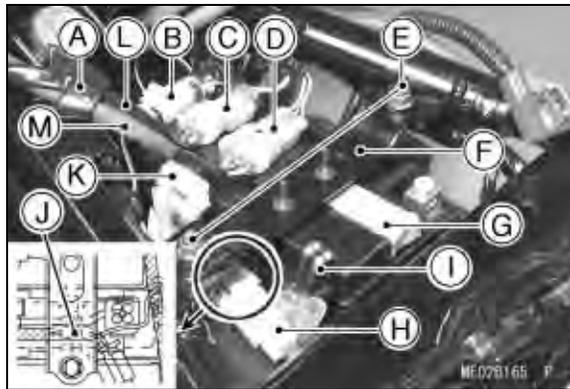
- A. Rider's Seat**
- B. Bolt (D = 6, L = 14)**

- Remove the screw (D = 6, L = 14) and pull the right side cover outward to clear the projections.



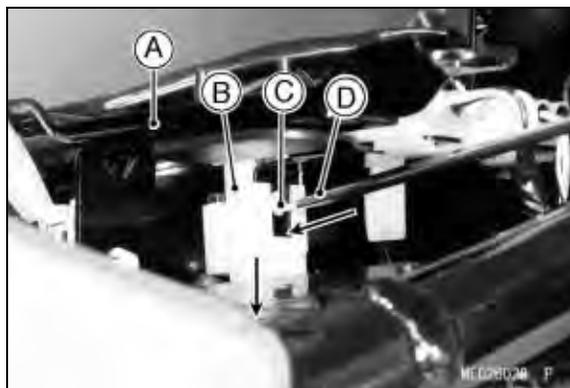
- A. Right Side Cover**
- B. Screw (D = 6, L = 14)**
- C. Projections**

- Unfasten the wiring clamp.
- Remove the two battery holder nuts, and disconnect the white 1 P (Pin), 2 P, and the 3 P connectors.
- Disconnect the 6 P connector and remove the black diagnosis 4 P connector from the holder, and then unfasten the plastic clamp on the bottom of the battery holder while lifting the holder.



- A. Wiring Clamp
- B. 1 P Connector (Negative Lead)
- C. 2 P Connector
- D. 3 P Connector
- E. Battery Holder Nuts
- F. Battery Holder
- G. Battery
- H. 6 P Connector (Rear Harness)
- I. 4 P Connector (Diagnosis)
- J. Plastic Clamp
- K. 15 A Fuse Holder
- L. Harness (Fuel Pump)
- M. Harness (Fuel Gauge)

- Remove the 15 A fuse holder from the battery holder, then remove the battery holder.



- A. Battery Holder
- B. 15 A Fuse Holder
- C. Projection
- D. Screwdriver

- Take the battery out of the battery case.
- Clean the terminals.

**Battery Specifications**

Make	Furukawa
Battery Type	FTZ16-BS
Battery Capacity	12 V 18 Ah
Electrolyte Capacity	0.82 L
Battery/Electrolyte Set P/No.	26012-1371

**Battery Activation**

*Filling the Battery with Electrolyte*

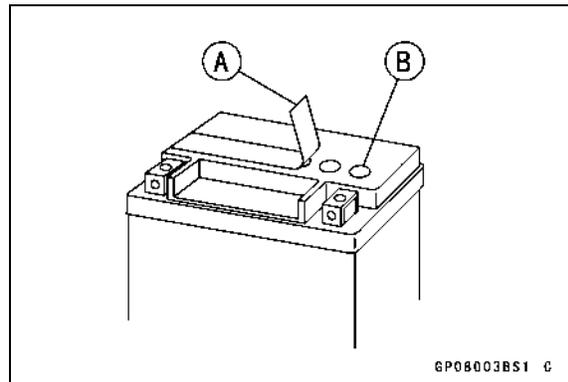
**CAUTION**

Do not remove the aluminum sealing sheet [A] from the filler ports [B] until just prior to use. Be sure to use the dedicated electrolyte container for correct electrolyte volume.

- Place the battery on a level surface.
- Check to see that the sealing sheet [A] has no peeling, tears, or holes in it.
- Remove the sealing sheet [A].

**NOTE**

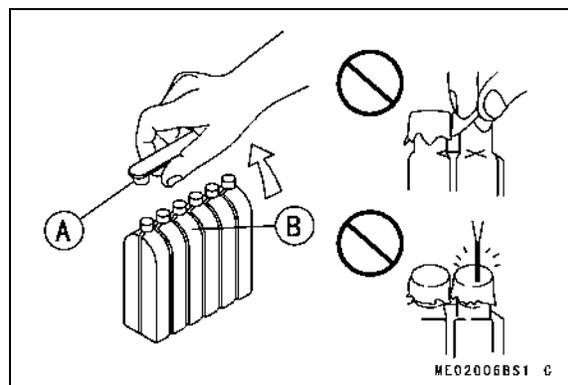
- The battery is vacuum sealed. If the sealing sheet has leaked air into the battery, it may require a longer initial charge.



- Remove the electrolyte container from the vinyl bag.
- Detach the strip of caps [A] from the container and set aside, these will be used later to seal the battery.

**NOTE**

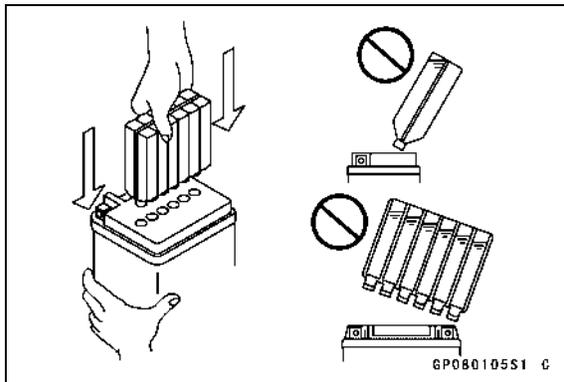
- Do not pierce or otherwise open the sealed cells [B] of the electrolyte container. Do not attempt to separate individual cells.



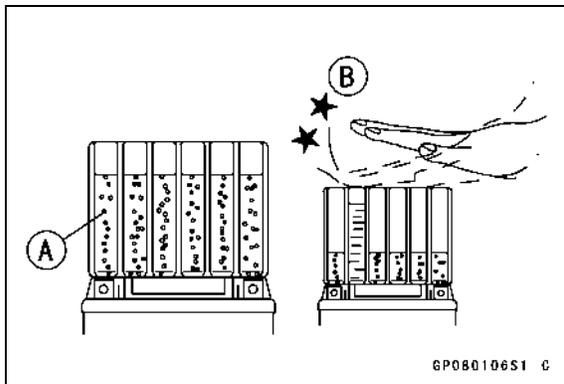
- Place the electrolyte container upside down with the six sealed cells into the filler ports of the battery. Hold the container level, push down to break the seals of all six cells. You will see air bubbles rising into each cell as the ports fill.

**NOTE**

- Do not tilt the electrolyte container.



- Check the electrolyte flow.
- If no air bubbles [A] are coming up from the filler ports, or if the container cells have not emptied completely, tap the container [B] a few times.



- Keep the container in place for **20 minutes** or more. Don't remove the container from the battery until it's empty, the battery requires all the electrolyte from the container for proper operation.

**CAUTION**

**Removal of the container before it is completely empty can shorten the service life of the battery. Do not remove the electrolyte container until it is completely empty and 20 minutes have elapsed.**

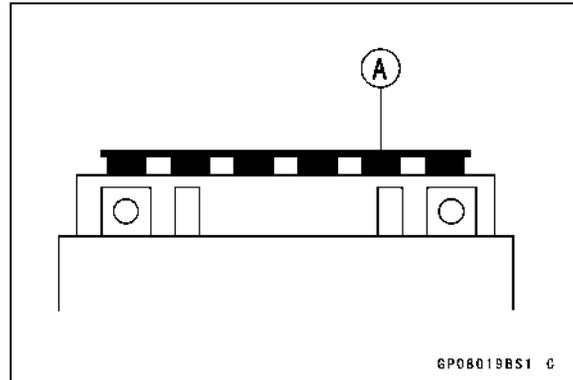
- Gently remove the container from the battery.
- Let the battery sit for **60 minutes** prior to charging to allow the electrolyte to permeate into the plates for optimum performance.

**NOTE**

- *Charging the battery immediately after filling can shorten service life. Let the battery sit for at least **60 minutes** after filling.*

**Initial Charge**

- Place the strip of caps loosely over the filler ports.



**A. Strip**

- Newly activated sealed batteries require an initial charge.

**Standard Charge 1.8 A x 5 ~ 10 hours**

- If using a recommended battery charger, follow the charger's instructions for newly activated sealed battery.

**Kawasaki-recommended chargers:**

**Optimate III**

**Yuasa 1.5 Amp Automatic Charger**

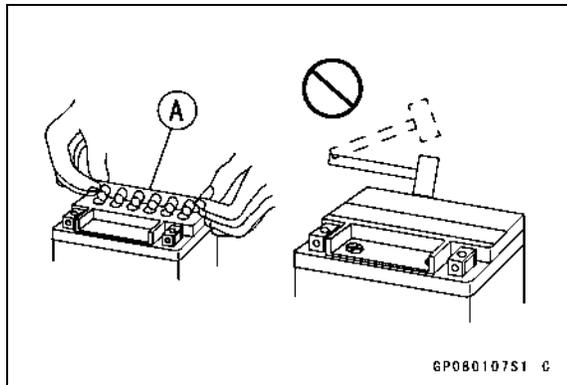
**Battery Mate 150-9**

- If the above chargers are not available, use equivalent one.

**NOTE**

- *Charging rates will vary depending on how long the battery has been stored, temperature, and the type of charger used. Let battery sit 60 minutes after initial charge, then check voltage using a voltmeter. If it is not at least 12.6 volts, repeat charging cycle.*

- After charging is completed, press down firmly with both hands to seat the strip of caps [A] into the battery (don't pound or hammer). When properly installed, the strip of caps will be level with the top of the battery.



**CAUTION**

Once the strip of caps [A] is installed onto the battery, never remove the caps, nor add water or electrolyte to the battery.

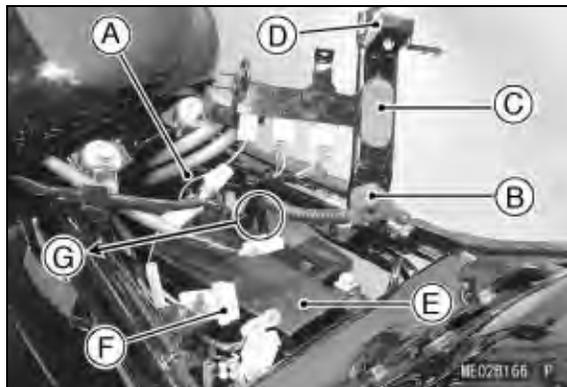
**NOTE**

○ To ensure maximum battery life and customer satisfaction, it is recommended the battery be load tested at three times its amp-hour rating for 15 seconds.

Re-check voltage and if less than 12.6 volts repeat the charging cycle and load test. If still below 12.6 volts the battery is defective.

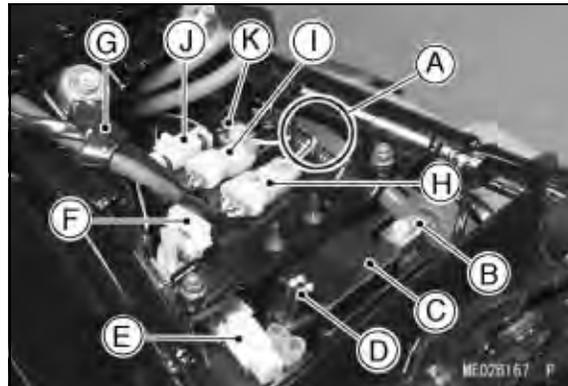
**Battery Installation**

- Turn the ignition switch OFF.
- Place the battery into the battery case.



- A. Negative Cable (-)
- B. Positive Cable (+)
- C. Battery Holder
- D. Plastic Clamp
- E. Battery
- F. 15 A Fuse Holder
- G. Run the positive cable (+) through the guide in the right side of the battery case.

- Pull the battery positive cable (+) downward and through the guide in the right side of the battery case, and then route the cable as shown.
- Reinstall the 15 A fuse holder and the battery holder, and then install the black diagnosis 4 P connector on the holder and connect the 6 P connector, and fasten the harness with the plastic clamp.



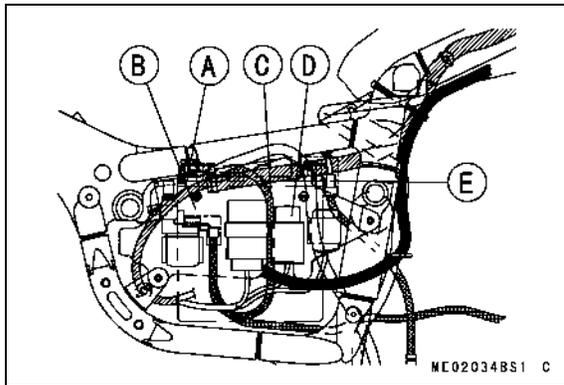
- A. Pull the Positive Cable (+) downward.
- B. Positive Cable (+)
- C. Battery
- D. 4 P Connector (Diagnosis)
- E. 6 P Connector (Rear Harness)
- F. 15 A Fuse Holder
- G. Wiring Clamp
- H. 3 P Connector
- I. 2 P Connector
- J. 1 P Connector (Negative Lead)
- K. Negative Cable (-)

- Connect the 1 P, 2 P, and 3 P connectors, and fasten the harness of the 2 P and 3 P connectors with the wiring clamp.
- First connect the red capped positive cable (+) to the positive terminal, and then connect the negative cable (-) to the negative terminal.
- Put a light coat of grease on the terminals to prevent corrosion.
- Cover the (+) terminal with its protective cap, and install the battery holder nuts and tighten them.

**NOTE**

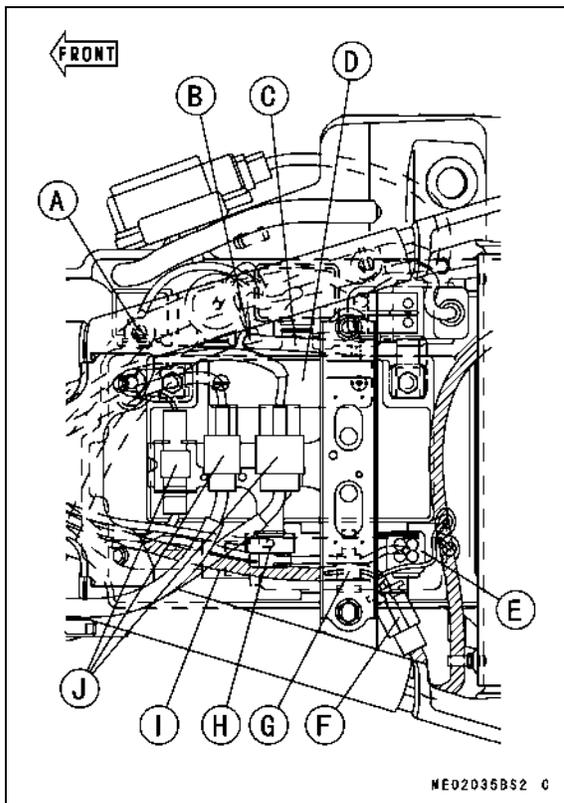
○ Install the right side cover after the "Coolant" section in the Preparation chapter.

**Viewed from Right**



- A. Positive Terminal (+)
- B. Battery
- C. Positive Cable (+)
- D. ECU Relay
- E. Negative Cable (-)

**Viewed from Top**



- A. Negative Cable (-)
- B. Run the Positive Cable (+) through the Guide in the Battery Case.
- C. Positive Cable (+)
- D. Battery
- E. 4 P Connector (Diagnosis)
- F. 6 P Connector (Rear Harness)
- G. Plastic Clamp
- H. 15 A Fuse Holder
- I. ECU Connector
- J. 3 Connectors (1 P, 2 P, 3 P)

**Rider's Seat Installation**

- Insert the projection at the front of the rider's seat into the receptacle on the frame.



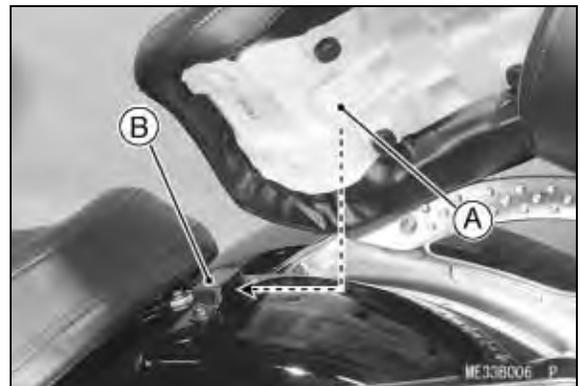
- A. Projection
- B. Receptacle

- Install the bolt (D = 6, L = 14) and tighten it.



- A. Rider's Seat
- B. Bolt (D = 6, L = 14)

- Insert the projection at the front of the passenger's seat into the receptacle on the frame.

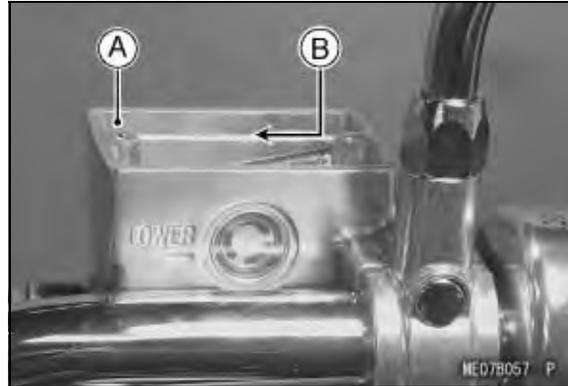


- A. Receptacle
- B. Projection

- Install the bolt (D = 6, L = 14) and tighten it.



A. Bolt (D = 6, L = 14)  
B. Passenger's Seat

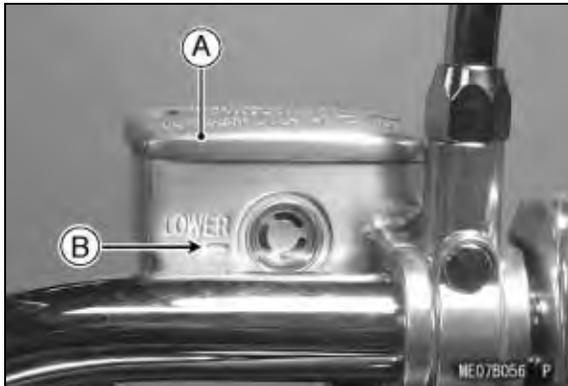


A. Front Brake Fluid Reservoir  
B. Upper Level Line

## Front Brake Fluid

### Front Brake Fluid Level Inspection

- With the front brake fluid reservoir held horizontal, check that the fluid level is above the lower level line.



A. Front Brake Fluid Reservoir  
B. Lower Level Line

- If the fluid level in the reservoir is lower than the lower level line, check for fluid leaks in the front brake lines and fill the reservoir.
- Loosen the screws to remove the front brake fluid reservoir cap and diaphragm.
- Fill the reservoir to the upper level line with DOT4 brake fluid. Inside the front brake reservoir is a stepped line showing the upper level line.

## ⚠ WARNING

Never reuse old brake fluid.  
Do not use fluid from a container that has been left unsealed or that has been open for a long time.  
Do not mix two types of fluid for use in the brakes. This lowers the brake fluid boiling point and could reduce brake effectiveness. It may also cause the rubber brake parts to deteriorate.  
Don't leave the reservoir cap off for any length of time to prevent moisture contamination of the fluid.  
Don't add or change brake fluid in the rain or during conditions of blowing dust or debris.

## CAUTION

Brake fluid quickly ruins painted surfaces. Wipe up any spilled fluid immediately.

- Operate the brake lever several times.
- If it feels spongy, there might be air in the brake line.
- If necessary, bleed the air in the front brake lines.
- Also check for fluid leakage around the fittings.

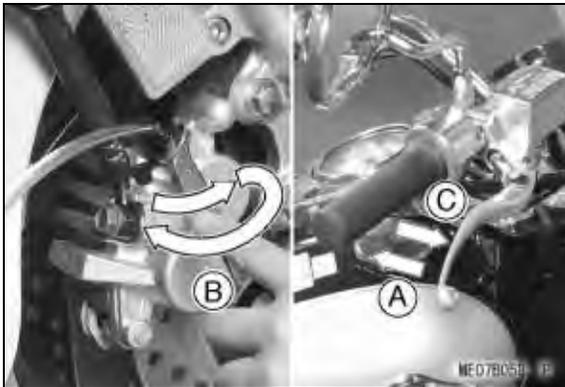
### Front Brake Line Air Bleeding

- Remove the reservoir cap and diaphragm, and check that there is plenty of fluid in the reservoir.

## NOTE

- The fluid level must be checked several times, during the bleeding operation and replenished as necessary. If the fluid in the reservoir runs completely out any time during bleeding, the bleeding operation must be repeated from the beginning since air will have entered the line.

- Attach a clear plastic hose to the bleed valve on each front brake caliper and run the other end of the hose into a container.
- With the reservoir cap off, slowly pump the brake lever several times until no air bubbles can be seen rising up through the fluid from the holes at the bottom of the reservoir. This bleeds the air from the brake master cylinder end of the line.
- Pump the brake lever a few times until it becomes hard and then, holding the lever squeezed, quickly open (turn counterclockwise) and close the bleed valve. Then release the lever. Repeat this operation until no more air can be seen coming out into the plastic hose.



- A. Hold the brake lever applied.**
- B. Quickly open and close the bleed valve.**
- C. Release the brake lever.**

- Repeat the previous step one more time for the other front disc brake.
- When air bleeding is finished, check that the fluid level is between the upper and lower level lines.
- Install the diaphragm and reservoir cap.
- Tighten the bleed valve(s) to the specified torque.

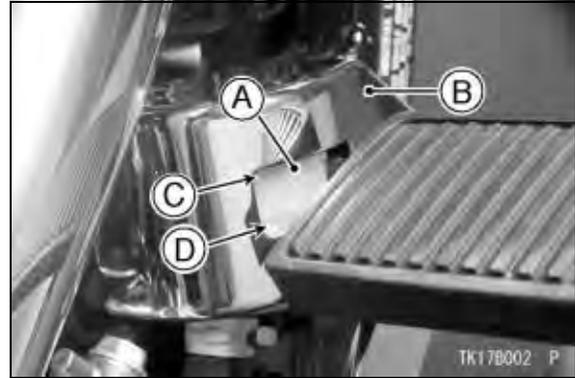
**Torque: 7.8 N·m (0.80 kgf·m, 69 in·lb)**

- Apply the brake forcefully for a few seconds, and check for fluid leakage around the fittings.

## Rear Brake Fluid

### *Rear Brake Fluid Level Inspection*

- With the rear brake fluid reservoir held horizontal, check that the fluid level is between the upper and lower level lines.



- A. Rear Brake Fluid Reservoir**
- B. Cover**
- C. Upper Level Line**
- D. Lower Level Line**

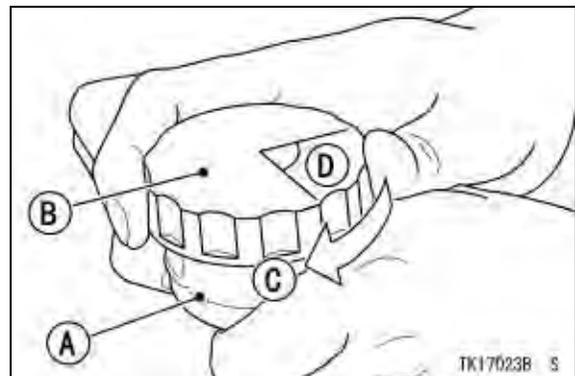
- If the fluid level in the reservoir is lower than the lower level line, check for fluid leaks in the brake line, and fill the reservoir.
- Loosen the bolt to remove the cover from the reservoir.
- Remove the reservoir cap and diaphragm, and fill the reservoir to the upper level line with DOT4 brake fluid.

### CAUTION

**Brake fluid quickly ruins painted surfaces. Wipe up any spilled fluid immediately.**

### NOTE

- *First, tighten the rear brake fluid reservoir cap clockwise by hand until slight resistance is felt indicating that the cap seated on the reservoir body, then tighten the cap an additional 1/6 turn while holding the brake fluid reservoir body.*



- A. Reservoir**
- B. Cap**
- C. Clockwise**
- D. 1/6 turn**

## 32 PREPARATION

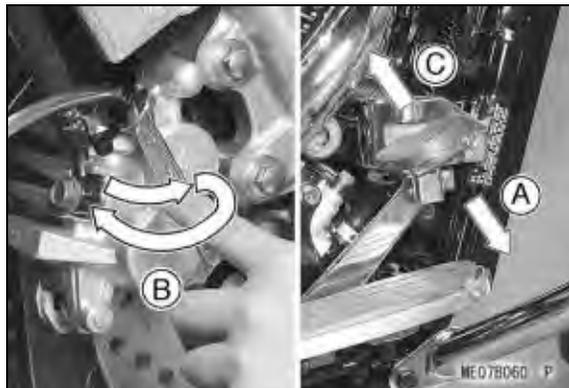
- Operate the brake lever several times.
- If it feels spongy, there might be air in the brake line.
- If necessary, bleed the air in the rear brake line.
- Also check for fluid leakage around the fittings.

### Rear Brake Line Air Bleeding

- Remove the rear brake reservoir cap and diaphragm, and check that there is plenty of fluid in the reservoir.

#### NOTE

- *The fluid level must be checked several times, during the bleeding operation and replenished as necessary. If the fluid in the reservoir runs completely out any time during bleeding, the bleeding operation must be repeated from the beginning since air will have entered the line.*
- Attach a clear plastic hose to the bleed valve on the rear brake caliper and run the other end of the hose into a container.
- With the reservoir cap off, slowly pump the brake pedal several times until no air bubbles can be seen rising up through the fluid from the holes at the bottom of the reservoir. This bleeds the air from the rear brake master cylinder end of the line.
- Pump the brake pedal a few times until it becomes hard and then, holding the pedal pushed down, quickly open (turn counter-clockwise) and close the bleed valve. Then release the pedal. Repeat this operation until no more air can be seen coming out into the plastic hose.



- A. Hold the brake pedal applied.**
- B. Quickly open and close the bleed valve.**
- C. Release the brake pedal.**

- When air bleeding is finished, check that the fluid level is between the upper and lower level lines.
- Tighten the bleed valve(s) to the specified torque.

**Torque: 7.8 N·m (0.80 kgf·m, 69 in·lb)**

- Install the diaphragm and reservoir cap.

#### NOTE

- *First, tighten the rear brake fluid reservoir cap clockwise by hand until slight resistance is felt indicating that the cap seated on the reservoir body, then tighten the cap an additional 1/6 turn while holding the brake fluid reservoir body.*
- Apply the brake forcefully for a few seconds, and check for fluid leakage around the fittings.
- Install the cover with the bolt.

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## Clutch Fluid

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### Clutch Fluid Level Inspection

- With the clutch reservoir held horizontal, check that the fluid level is above the lower level line.

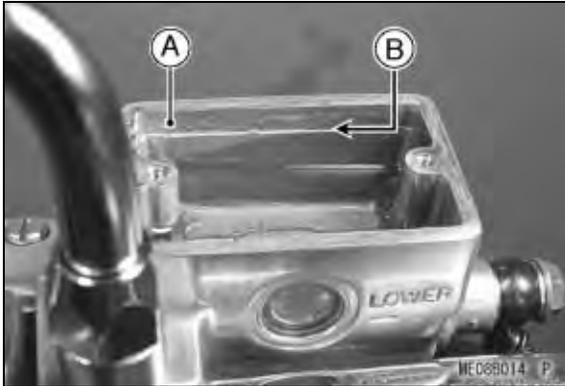


- A. Clutch Fluid Reservoir**
- B. Lower Level Line**

- If the fluid level in the reservoir is lower than the lower level line, check for fluid leaks in the clutch line and fill the reservoir.

#### NOTE

- *Since the clutch fluid is the same as the brake fluid, refer to the "Front or Rear Brake Fluid" section for further details.*
- Loosen the screws to remove the clutch fluid reservoir cap and diaphragm.
- Fill the reservoir to the upper level line with DOT4 clutch fluid. Inside the clutch reservoir is a stepped line showing the upper level line.

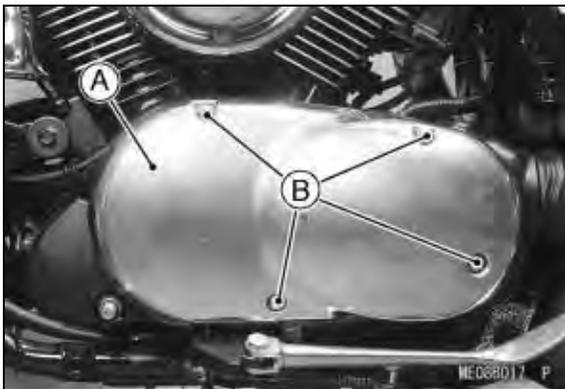


**A. Clutch Fluid Reservoir**  
**B. Upper Level Line**

- Operate the clutch lever several times.
- If it feels spongy, there might be air in the line.
- If necessary, bleed the air in the lines.
- Also check for fluid leakage around the fittings.

*Clutch Line Air Bleeding*

- Loosen the mounting bolts to remove the alternator outer cover.



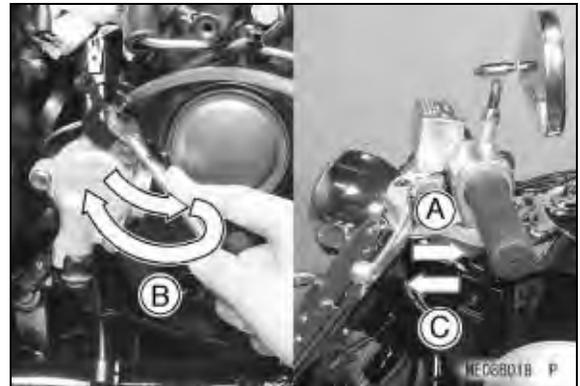
**A. Alternator Outer Cover**  
**B. Socket Bolts and Washers**

- Remove the reservoir cap and diaphragm, and check that there is plenty of fluid in the reservoir.

**NOTE**

- *The fluid level must be checked several times during the bleeding operation and replenished as necessary. If the fluid in the reservoir runs completely out any time during bleeding, the bleeding operation must be repeated from the beginning since air will have entered the line.*

- Attach a clear plastic hose to the bleed valve on the clutch slave cylinder and run the other end of the hose into a container.
- With the reservoir cap off, slowly pump the clutch lever several times until no air bubbles can be seen rising up through the fluid from the holes at the bottom of the reservoir. This bleeds the air from the clutch master cylinder end of the line.
- Pump the clutch lever a few times until it becomes hard and then, holding the lever squeezed, quickly open (turn counterclockwise) and close the bleed valve. Then release the lever. Repeat this operation until no more air can be seen coming out into the plastic hose.



**A. Hold the clutch lever applied.**  
**B. Quickly open and close the bleed valve.**  
**C. Release the clutch lever.**

- When air bleeding is finished, check that the fluid level is between the upper and lower level lines.
- Install the diaphragm and reservoir cap.
- Tighten the bleed valve to the specified torque.

**Torque: 7.8 N·m (0.80 kgf·m, 69 in·lb)**

- Apply the clutch forcefully for a few seconds, and check for fluid leakage around the fittings.
- Apply a soap and water solution or rubber lubricant to the body of the alternator cover bolts for easy installation.
- Reinstall the alternator outer cover with the bolts and washers and tighten the bolts to the specified torque.

**Torque: 6.9 N·m (0.70 kgf·m, 61 in·lb)**

- Reinstall the front and rear shift pedals. See "Shift Pedal" section in the Assembly chapter.
- Reinstall the left footboard assembly. See "Front Footboard (Left)" section in the Assembly chapter.

## Rear Shock Absorber

### Air Pressure Adjustment

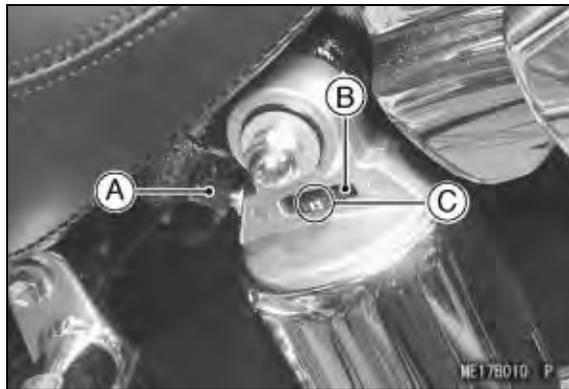
**STD Air pressure: Atmospheric**

### Rebound Damping Force Adjustment

- Check the position of the rebound damping force adjuster at the upper end of each rear shock absorber. It has four positions. The numbers on the adjuster show the setting position.

**STD Rebound Damping Force:**

**No. 2 position**



- A. Air Valve**
- B. Rebound Damping Force Adjuster**
- C. Number**

- Turn the rebound damping force adjuster to the No. 2 position.

## Tire Air Pressures

- To prevent flat-spotting during shipment, the tires are over-inflated before crating. Adjust the pressures to the specified values in the front and rear, and make sure to tighten the caps securely.

### Tire Air Pressure [when cold]:

**Front: 225 kPa (2.25 kgf/cm<sup>2</sup>, 32 psi)**  
**Rear: 280 kPa (2.80 kgf/cm<sup>2</sup>, 40 psi)**



**A. Tire Air Pressure Gauge**

## Fuel

### ⚠ WARNING

**Fill the tank in a well-ventilated area, and take ample care that there are no sparks or open flames anywhere near the work area.**

- Open the fuel tank cap, and check for debris in the fuel tank.
- Fill the fuel tank with one gallon or four liters of unleaded gasoline. Use a gasoline with a minimum Antiknock Index rating according to the recommendation of your country. Refer to the following table.

The antiknock index is an average of the Research Octane Number (RON) and the Motor Octane Number (MON), as shown in the table.

Octane Rating Method		Minimum Rating
Antiknock Index	$\frac{(\text{RON} + \text{MON})}{2}$	90
Research Octane Number (RON)		95

- Close the fuel tank cap, and check for any leaks.

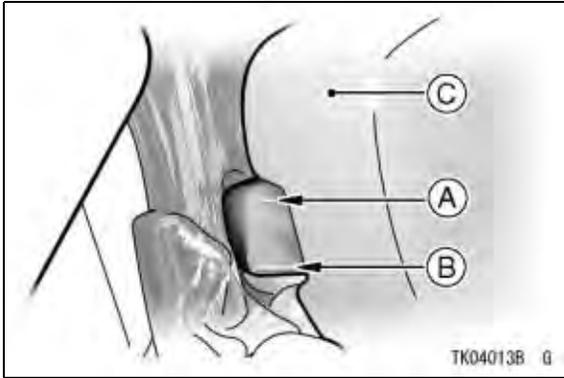
## Coolant

### Coolant Level Inspection

- Situate the motorcycle so that it is perpendicular to the ground.
- Check the coolant level through the coolant level gauge. The coolant level should be between the F (Full) and L (Low) marks.

### NOTE

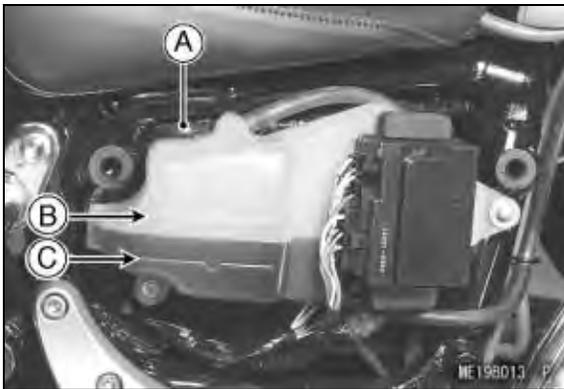
- Check the level when the engine is cold (room or atmospheric temperature).



- A. F (Full) Mark
- B. L (Low) Mark
- C. Right Side Cover

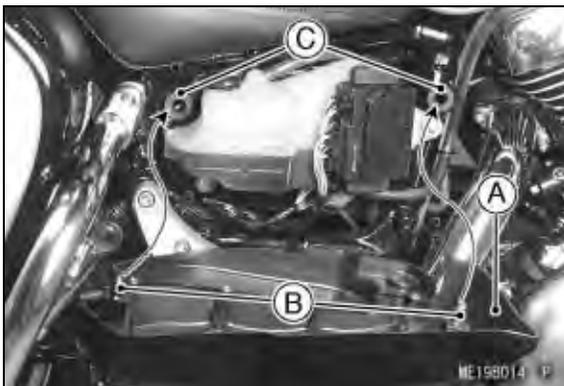
**Coolant Filling**

- If the amount of coolant is insufficient, remove the right side cover, pull open the cap from the reserve tank and add coolant through the filler opening to the F (Full) mark.



- A. Cap
- B. F (Full) Mark
- C. L (Low) Mark

- Install the cap.
- To install the right side cover, insert the projections into the grommets.
- Tighten the screw.



- A. Right Side Cover
- B. Projections
- C. Grommets

**NOTE**

- A permanent type of antifreeze is installed in the cooling system when shipped. It is colored green and contains ethylene glycol. It is mixed at 50 % and has the freezing point of  $-35^{\circ}\text{C}$  ( $-31^{\circ}\text{F}$ ).

**Engine Oil (4-stroke)**

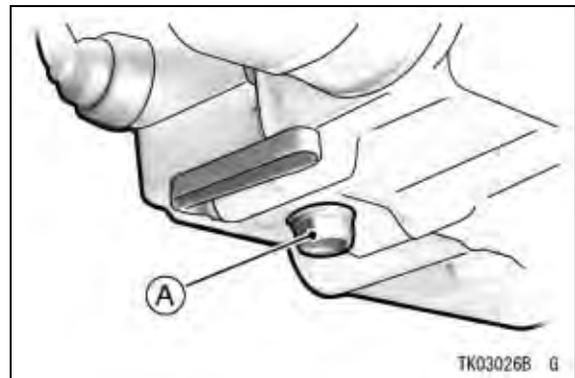
*Engine Oil Level Inspection*

**NOTE**

- This vehicle's engine is filled with 10W-40 oil from the factory. DO NOT DRAIN and refill the crankcase before use. Check oil level and drain plug tightness.

**Engine Oil Drain Plug Torque:**

**20 N·m (2.0 kgf·m, 14 ft·lb)**



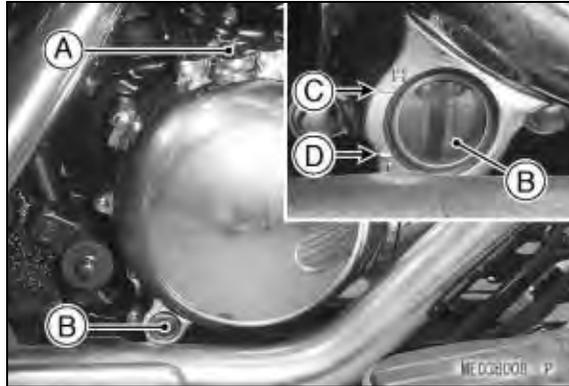
**A. Oil Drain Plug**

- Park the vehicle on level ground.
- Before starting the engine, check that the engine has oil.
- Check that the engine has oil through the oil level sight gauge in the lower right side of the engine.

**CAUTION**

**If the engine is run without oil, it will be severely damaged.**

- Start the engine and run it for several minutes at idle speed. Stop the engine, then wait several minutes until the oil settles.
- With the motorcycle held level, check the engine oil level through the oil level sight gauge. The oil level should come up between the H (High) and L (Low) level lines next to the gauge.



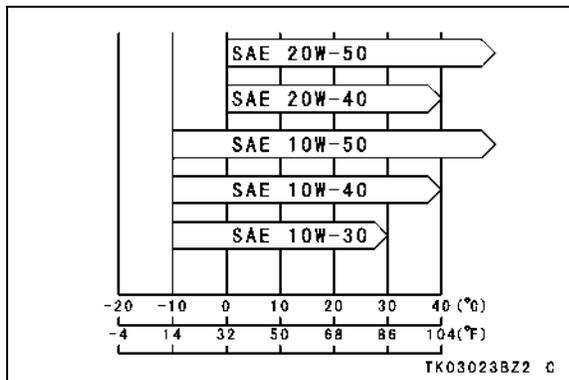
- A. Oil Filler Cap
- B. Oil Level Sight Gauge
- C. H (High) Level Line
- D. L (Low) Level Line

- If the oil level is too high, remove the excess oil through the oil filler opening, using a syringe or some other suitable device.
- If the oil level is too low, add oil to reach the correct level. Use the same type of oil that is already in the engine.
- When replacing the cap, be sure the O-ring is in place, and tighten the cap.

**Recommended Engine Oil**

- Type: API SE, SF or SG  
API SH or SJ with JASO MA
- Viscosity: SAE 10W-40
- Capacity: 2.9 L (3.1 US qt)  
[when filter is not removed]  
3.1 L (3.3 US qt)  
[when filter is removed]

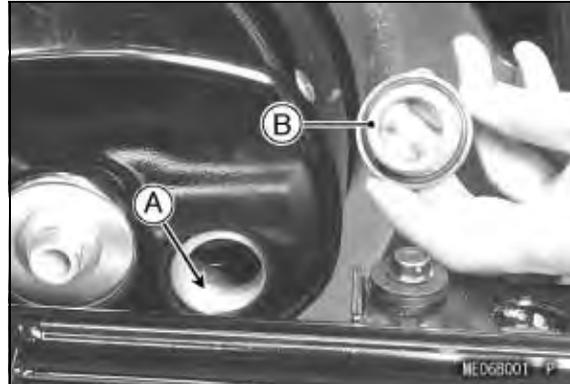
Although 10W-40 engine oil is the recommended oil for most conditions, the oil viscosity may need to be changed to accommodate atmospheric conditions in your riding area.



**Final Gear Case Oil**

*Final Gear Case Oil Level Inspection*

- Have a helper hold the motorcycle vertical on level ground.
- Remove the filler cap.
- Check the oil level. If it is low, add oil as necessary. The oil level should come to the bottom thread of the filler opening with the motorcycle held vertical on level ground.



- A. Bottom Thread
- B. Filler Cap

- If the oil level is too low, add the specified oil.
- If the oil level is too high, remove the excess oil, using a syringe or some other suitable device.

**⚠ WARNING**

Be careful that no oil gets on the tire, rim, and brake disc. Clean off any oil that inadvertently gets on them with oilless solvent.

**CAUTION**

Be careful not to allow any dirt or foreign materials to enter the gear case.

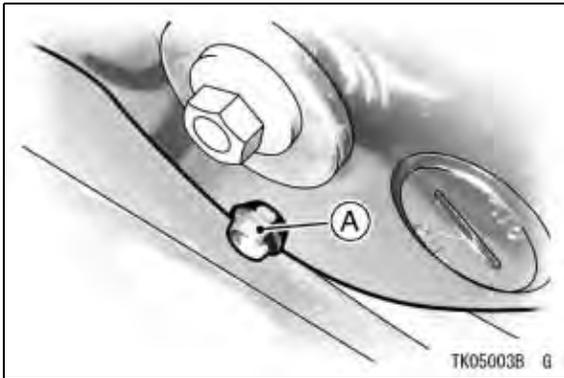
- NOTE**
- Use the same type of oil that is already in the final gear case.

- When replacing the filler cap, be sure the O-ring is in place, and install the cap.

**Final Gear Case Oil**

Type: **API "GL-5"**  
**Hypoid gear oil**  
 Viscosity: **SAE 90 [above 5°C (41°F)]**  
**SAE 80 [below 5°C (41°F)]**  
 Capacity: **0.2 L (0.21 US qt)**

**Final Gear Case Oil Drain Plug Torque:**  
**8.8 N·m (0.90 kgf·m, 78 in·lb)**



**A. Oil Drain Plug**

- Reinstall the saddlebags. See "Left Saddlebag" section in the Assembly chapter.

**Throttle Grip and Cable**

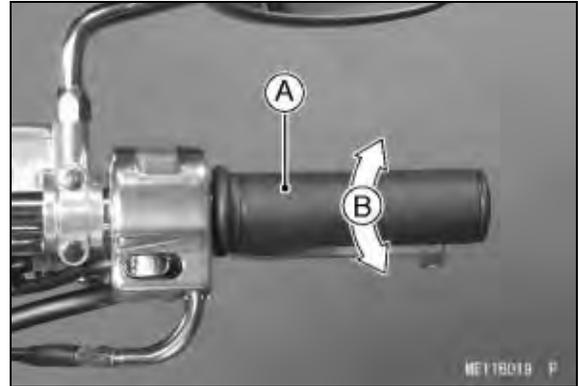
*Throttle Grip Free Play Inspection*

- Inspect the throttle grip free play. If the free play is incorrect, adjust the throttle cables.

**Throttle Grip Free Play:**

**2 ~ 3 mm (0.08 ~ 0.12 in.)**

- Check that the throttle grip moves smoothly from full open to close, and the throttle closes quickly and completely in all steering positions by the return spring. If the throttle grip does not return properly, check the throttle cable routing, grip free play, and for possible cable damage. Then lubricate the throttle cables.



**A. Throttle Grip**  
**B. 2 ~ 3 mm (0.08 ~ 0.12 in.)**

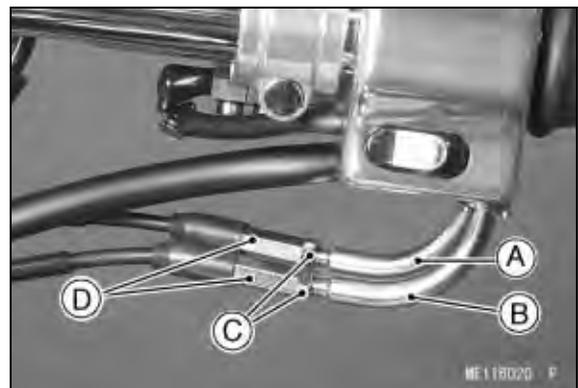
- Run the engine at idle speed, and turn the handlebar all the way to the right and left to ensure that the idle speed does not change. If the idle speed increases, check the throttle grip free play.

**⚠ WARNING**

**Operation with an improperly adjusted, incorrectly routed, or damaged cable could result in an unsafe riding condition.**

*Throttle Grip Free Play Adjustment*

- Loosen both locknuts of the throttle cables and turn both adjusters in completely to give the throttle grip plenty of play.
- Turn out the decelerator cable adjuster until there is no play when the throttle grip is completely closed. Tighten the locknut.



**A. Accelerator Cable**  
**B. Decelerator Cable**  
**C. Locknuts**  
**D. Adjusters**

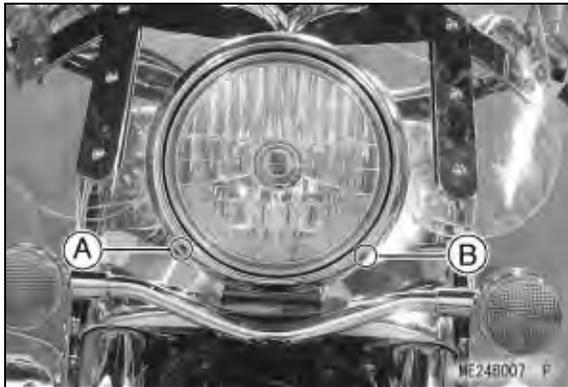
- Turn out the accelerator cable adjuster until the specified amount of play is obtained. Tighten the locknut.

## Headlight Aim

The headlight beam is adjustable both horizontally and vertically. Headlight aim must be correctly adjusted for safe riding as well as oncoming drivers. In most areas it is illegal to ride with an improperly adjusted headlight.

### Horizontal Adjustment

- Turn the horizontal adjusting screw on the headlight rim in or out until the beam points straight ahead.



**A. Horizontal Adjusting Screw**  
**B. Vertical Adjusting Screw**

### Vertical Adjustment

- Turn the vertical adjusting screw on the headlight rim in or out to adjust the headlight vertically.

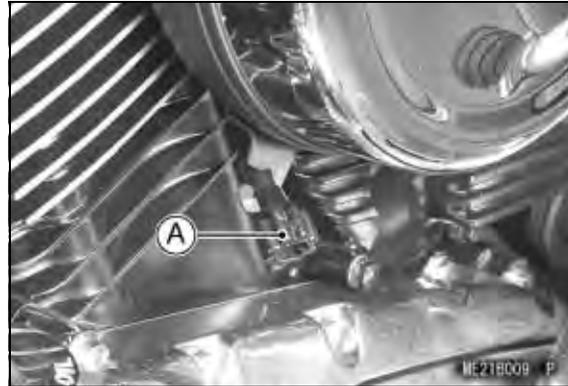
#### NOTE

- On high beam, the brightest point should be slightly below horizontal with the motorcycle on its wheels and the rider seated. Adjust the headlight to the proper angle according to local regulation.

## Idle Speed Adjustment

- Start the engine and warm it up thoroughly.
- Adjust the idle speed to 900 ~ 1 000 r/min (rpm) by turning the idle adjusting screw.

**Idle Speed: 900 ~ 1 000 r/min (rpm)**



**A. Idle Adjusting Screw**

- Open and close the throttle grip a few times to make sure that the idle speed does not change.
- With the engine idling, turn the handlebar to each side. If handlebar movement changes the idle speed, check the throttle cable routing and free play.

#### ⚠ WARNING

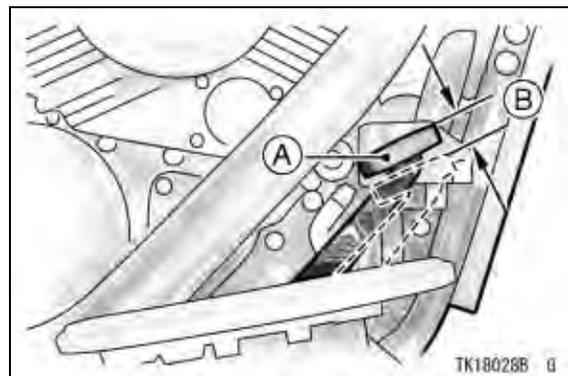
**Operation with improperly routed, or damaged throttle cables could result in an unsafe riding condition.**

- Check for any exhaust leaks and correct if necessary.

## Rear Brake Light Switch

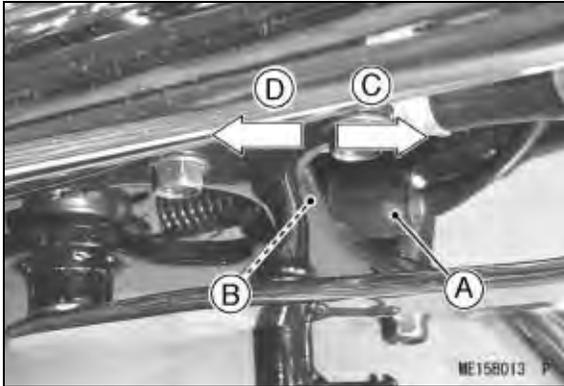
### Rear Brake Light Switch Adjustment

- Turn on the ignition switch. The brake light should illuminate when the brake pedal is depressed about 10 mm (0.4 in.)



**A. Brake Pedal**  
**B. 10 mm (0.4 in.)**

- If it does not, turn the adjusting nut at the rear brake light switch as required.



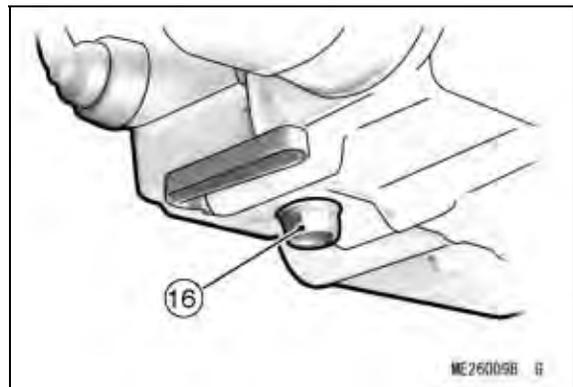
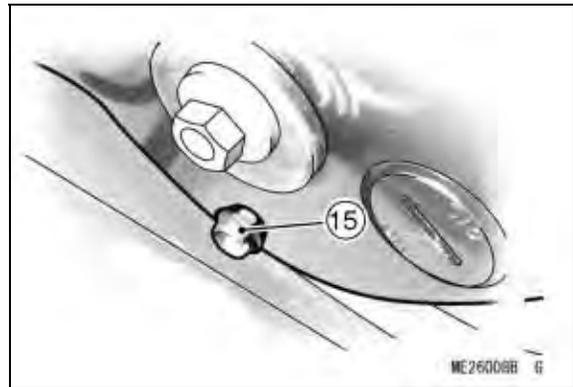
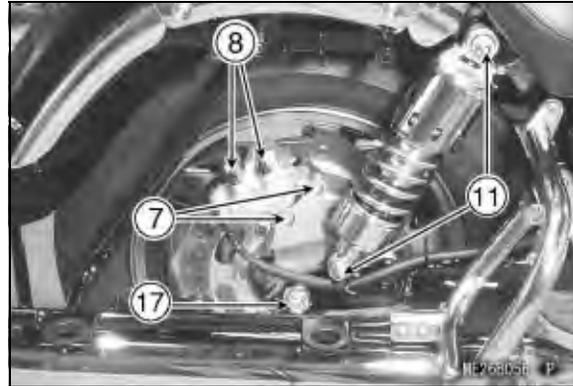
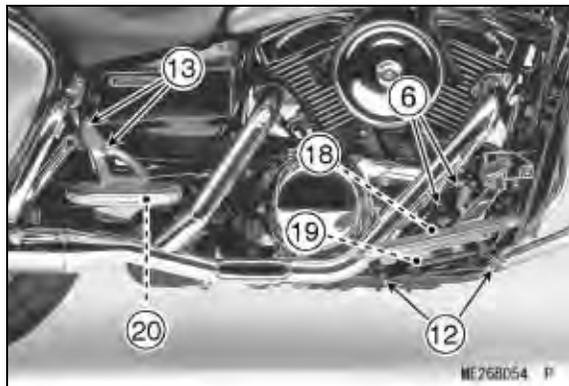
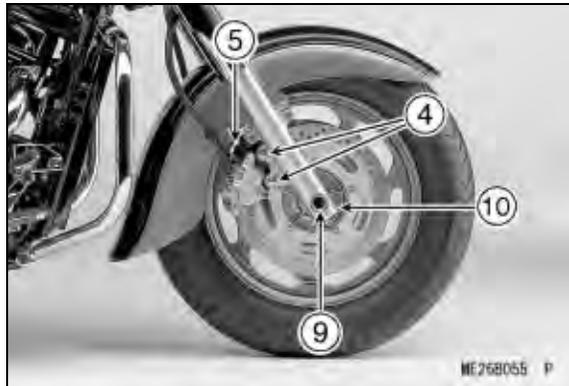
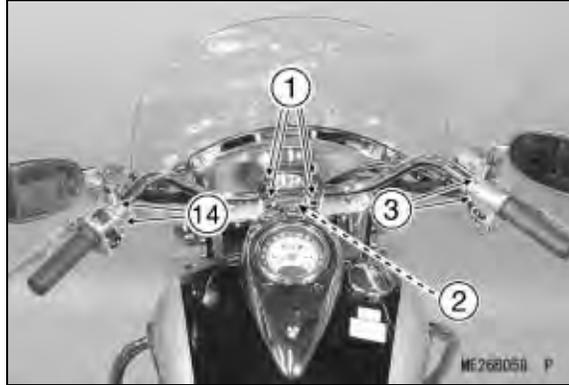
- A. Rear Brake Light Switch
- B. Adjusting Nut
- C. Lights sooner.
- D. Lights later.

**CAUTION**

To avoid damaging the electrical connections inside the switch, be sure that the switch body does not turn during adjustment.

### Fastener Check

- The torque values listed are for assembly and preparation items only, see the appropriate Service Manual for a more comprehensive list. Check tightness of all fasteners that are in the table before retail delivery. Also check to see that each cotter pin or circlip is in place.



No.	Fastener	Torque			Remarks
		N·m	kgf·m	ft·lb	
<b>Steering</b>					
1	Handlebar clamp bolts	34	3.5	25	
2	Steering stem head nut	88	9.0	65	
<b>Brake</b>					
3	Front master cylinder clamp bolts	8.8	0.90	78 in·lb	S
4	Front caliper mounting bolts (Left and Right)	34	3.5	25	
5	Front brake bleed valves (Left and Right)	7.8	0.80	69 in·lb	
6	Rear master cylinder mounting bolts	25	2.5	18	
7	Rear caliper mounting bolts	34	3.5	25	
8	Rear brake bleed valves	7.8	0.80	69 in·lb	
<b>Wheel</b>					
9	Front axle shaft	108	11.0	80	
10	Front axle clamp bolts (Right)	29	3.0	21	AL
<b>Suspension</b>					
11	Rear shock absorber mounting nuts (Left and Right)(Uper and Lower)	34	3.5	25	
<b>Others</b>					
12	Front footboard bracket bolts (Left and Right)	34	3.5	25	
13	Rear footboard bracket bolts (Left and Right)	25	2.5	18	
14	Clutch master cylinder clamp bolts	11	1.1	97 in·lb	
<b>Engine</b>					
<b>Engine Oil Drain Plugs:</b>					
15	Engine oil drain plug	20	2.0	15	
16	Final gear case drain plug	8.8	0.90	78 in·lb	
<b>Cotter Pin or Circlip</b>					
17	Rear axle nut cotter pin	–	–	–	
18	Rear master cylinder cotter pin	–	–	–	
19	Front footboard pin circlips (Left and Right)	–	–	–	
20	Rear footboard pin circlips (Left and Right)	–	–	–	

**AL: Tighten the two clamp bolts alternately two times to ensure even tightening torque.**

**S: Tighten the upper clamp bolt first, and then the lower clamp bolt.**

## Standard Torque Table

This table relating tightening torque to thread diameter, lists the basic torque for bolts and nuts. Use this table for only the bolts and nuts which do not require a specific torque value. All of the values are for use with dry solvent-cleaned threads.

### General Fasteners:

Threads dia. mm	Torque		
	N·m	kgf·m	ft·lb
5	3.4~4.9	0.35~0.50	30 ~ 43 in·lb
6	5.9~7.8	0.60~0.80	52 ~ 69 in·lb
8	14~19	1.4~1.9	10.0~13.5
10	25~34	2.6~3.5	19.0~25
12	44~61	4.5~6.2	33~45
14	73~98	7.4~10.0	54~72
16	115~155	11.5~16.0	83~115
18	165~225	17.0~23.0	125~165
20	225~325	23~33	165~240

## Test Ride the Motorcycle

- Complete the test ride checklist.

**Control Cables:** Throttle control cables must work without binding in any steering position.

**Steering:** Action is free from lock-to-lock.

**Suspension:** Check operation front and rear.

**Engine:** Electric starter works properly and engine starts promptly. Good throttle response and return.

**Transmission and Clutch:** Smooth operation.

**Brakes:** Adequate, smooth stopping power, No drag.

**Speedometer:** Check operation

### Electrical System:

Headlight - check high and low beams.

Taillight - check operation.

Brake Light - check operation

Turn Signal Lights - check operation.

Horn - check operation

Instrument Lights and Indicator Lights - Check operation.

**Engine Stop Switch Works:**

**Starter Interlock Switch Works:**

**No Unusual Noises:**

**No Fuel, Oil, Brake Fluid, Clutch Fluid, or Coolant Leaks:**

PREPARATION COMPLETE.

## WARNING

New tires are slippery and may cause loss of control and injury. A break-in period of 160 km (100 miles) is necessary to establish normal tire traction.

During break-in, avoid sudden and maximum braking and acceleration, and hard cornering.

## A & P Check List

- Complete the A & P Check List.



### MODEL APPLICATION

Year	Model	Name
2005	VN1600-D1	VULCAN 1600 NOMAD VN1600 CLASSIC TOURER



KAWASAKI HEAVY INDUSTRIES, LTD.  
Consumer Products & Machinery Company

**Part No. 99931-1445-01**