

# Maintenance Manual of BENNI-MINI

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## Description and Operation (Continued)

The electric wire of electric appliance shall be ensured not to be intercepted or damaged when the automobile is hoisted.

Ensure that the electrician be trained in first aid.

If electrically shocked:

- Cut off the power source before touching the electric shocker.
- If the power source can not be cut off, use the dry and non conducting materials to push away the sufferer or draw the sufferer away the power source.
- Perform the cardio-pulmonary resuscitation immediately.
- Seek the medical help.

### Engine Oil

Please see Section Lubricating Oil and Grease.

### Waste Gas

The waste gas includes the noxious, harmful and smothering chemical materials, such as carbon monoxide, nitrogen monoxide, acetaldehyde, aromatic hydrocarbon and lead containing gas, etc. The engine can only be started after the waste gas is discharged or in the places of air circulation.

### Gasoline Engine

The gasoline engine has no symptom before generating the noxious and harmful gas. The harm of the noxious and harmful gas can be immediate and also can be latent.

### Acoustic Insulation Fiber

See Section Dust.

The acoustic insulation fiber is used for insulating the sound and the noise.

The cellulose and the cutting scrap will cause the skin stimulation. This is often the physical effect but not the chemical reaction.

The working practice guide must be complied, and the gloves must be worn to avoid the substance contacting with the skin for a long time.

### Fire Prevention

See Welding, Foam and Legal Affairs.

Most of the substances related to the automobile maintenance are the inflammable substances. The noxious or harmful gas can be released when some of them are burnt.

When the inflammable substances or the melting agents are stored or used, especially when welding or being close to the electrical equipment, the fire safety shall be strictly noted.

Before using the welding device or the heating device is used, ensure that there are no combustibles around, and place the extinguisher nearby.

### First Aid

Besides meeting the legal requirements, the maintenance workshop must be equipped with the personnel who have been trained for first aid.

After any substance is sprayed in eyes, the eyes must be washed for at least ten minutes with clean water.

After polluted by the chemical substance, the skin shall be washed with water and the toilet soap.

Wash and cool with cold water immediately after burnt by some substances.

If inhale the dust, go to the places with fresh air immediately. If this method does not take effect, please send to the hospital immediately.

If drink some liquid for carelessness, please go to hospital immediately and say the name and composition of the liquid. Do not try to vomit unless there has special instruction on the label.

### Foam - polyurethane

See Section Fire Prevention.

The foam is used for isolating the sound and the noise. There are also foams in the seat and the shock absorber.

Operate by strictly following the instruction book of the manufacturer.

The unreacted components have irritability and will cause damage to skin and eyes. Please wear gloves and the protective glasses.

The person suffering from the chronical respiratory system diseases, asthma and bronchitis or person

## Disassembly and Installation

### Rear shock absorber assembly

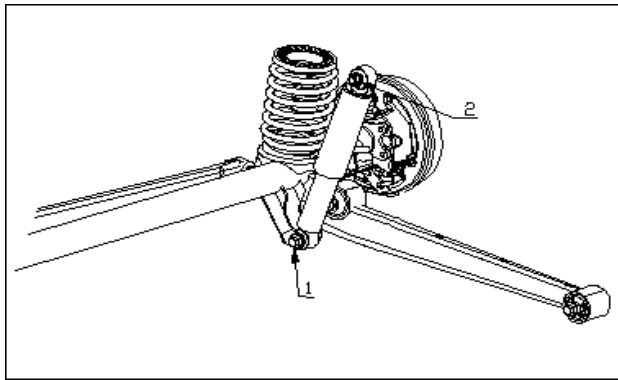
#### Disassembly

1. Hoist the automobile. See section 100-01 for relevant information.

2. Use a jack to support the rear axle.

3. Disassembly the fixing bolts of the rear shock absorber assembly.

1. Disassembly the lower nuts
2. Disassembly the upper nuts.



4. Remove the rear shock absorber assembly.

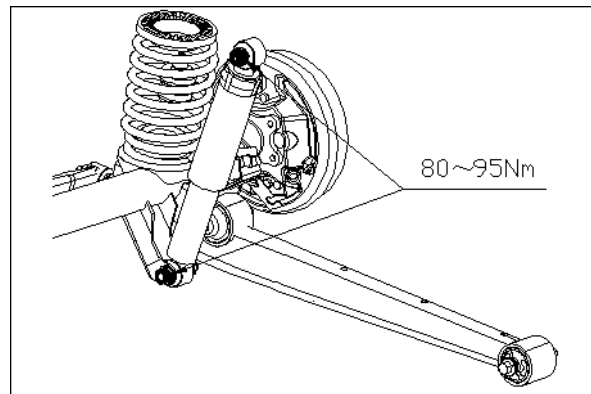
2. Remove the jack from the rear axle.

3. Lower the vehicle.

4. Tighten the nuts and the lower bolts on the rear shock absorber assembly to the stated torque.



The spareparts of the rear suspension must be last fastening when the vehicle is lowered completely and unloaded.



#### Installation

1. Install it according to the procedures adverse to the disassembly sequence.



Don't fastening the nuts and the bolts.

## DISASSEMBLY AND ASSEMBLY (continued)

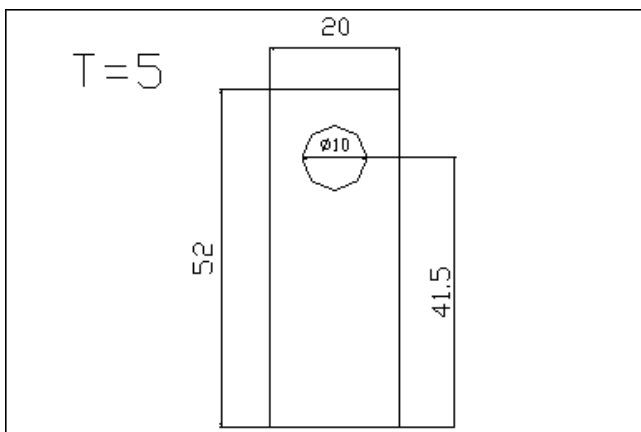
3. Notes: make sure that the ball cage, housing, rolling ball and frame are free from the grease and engine oil.

**Inspect the wear of the motion surface.**

### Assembly

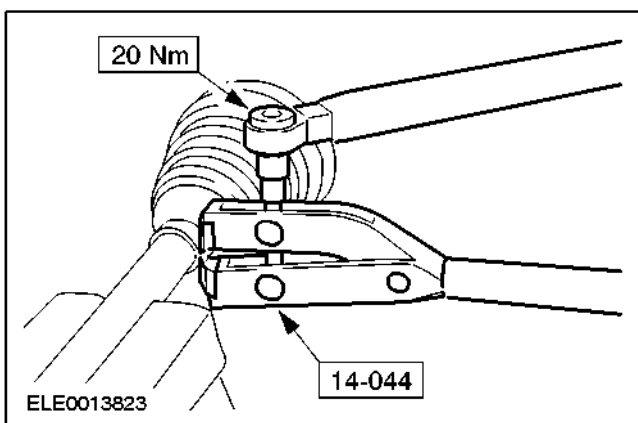
#### 1. Configure a nip for the special tool 14-044.

- Material: aluminum plate or steel plate



2. Notes: the fixing torque of the 0.8mm nip is 12Nm and the fixing torque of the 1.1mm nip is 20Nm.

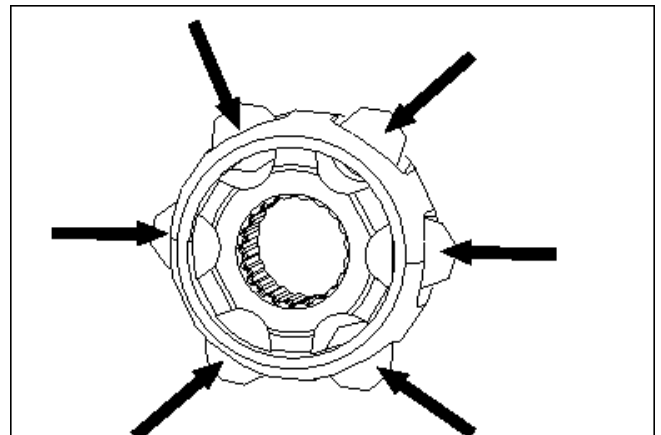
**Place the nip in the groove of the dust shield, and fix with the special tool.**



#### 3. Install the ball cage.

1. Install the ball cage on the ball-cage frame.

2. Install the ball cage and the ball-cage frame in the housing.



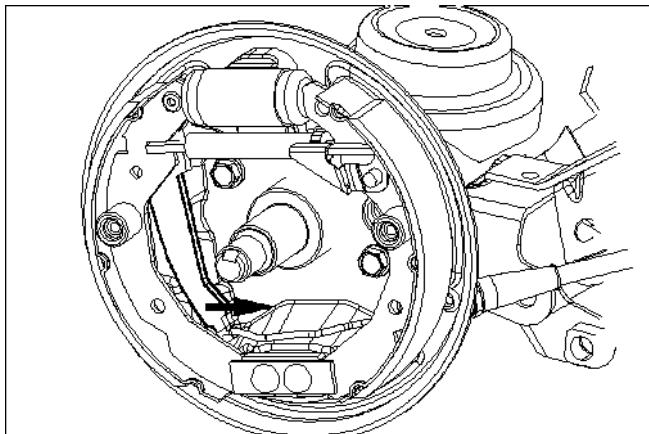
3. Rotate the ball cage and the ball-cage frame.

## Disassembly and Installation (continued)

### 5. Dismount the brake shoe from the connection supporting frame

### 6. Dismount the parking braking dragline.

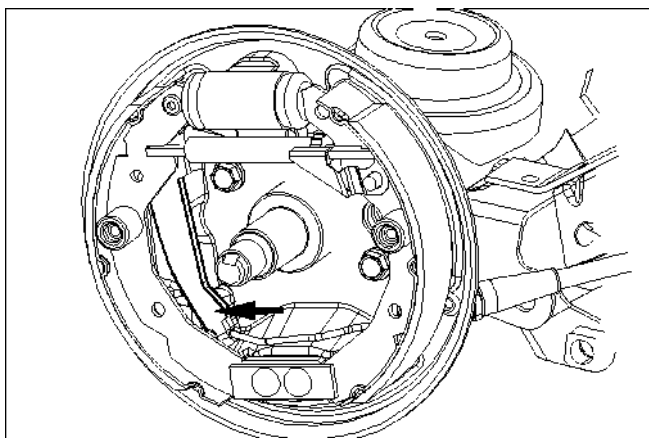
1. Push the trailing shoe backwards.
2. Dismount the dragline from the trailing shoe.



## Installation

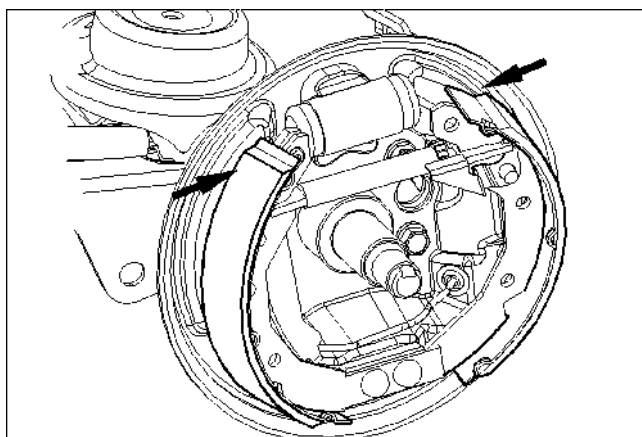
### 1. Install the parking braking dragline.

1. Connect the parking braking dragline.
2. Push the trailing shoe pushing rod forwards.



3.  **Cautions: Do not damage the dust shield of the brake distributing pump.**

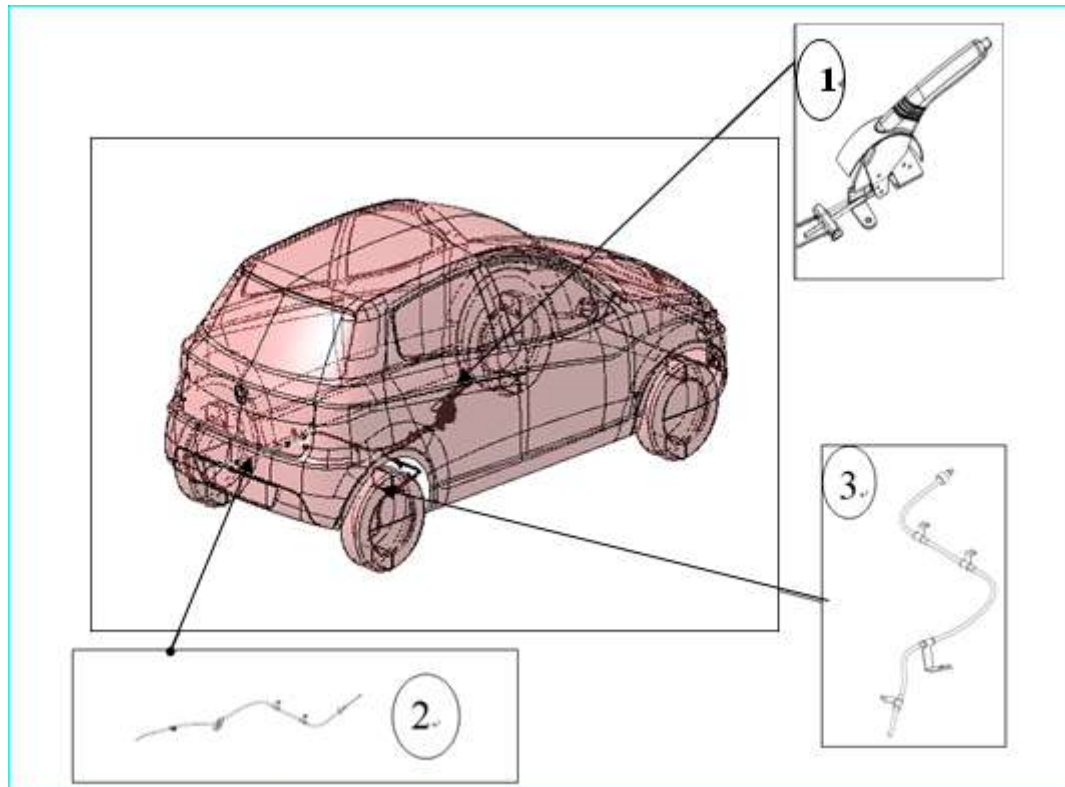
**Install the brake shoe to the brake distributing pump.**



### 2. Disassemble the rubber belt.

## Instruction and Operation

### Parking Brake



NO	NAME
1	Parking Braking Rod Assembly
2	Parking Brake Dragline Assembly (Left)
3	Parking Brake Dragline Assembly (Right)

## Diagnosis and Test

### The External Controlling Mechanism

Because the vehicle failure repair and the failure diagnosis are carried out simultaneously, it is advised to adopt the following steps.

1. Confirm the failure related by the customer and reset the failure when necessary.
2. If the failure related by the customer can not be discovered, the road test or visual inspection according to the following table shall be carried out:

#### Failure Phenomenon

Phenomenon	Possible Reasons	Procedures
• The gear-shifting mechanism motion is difficult.	• The connection of the external gear shifting mechanism distorts.	• Adjustment according to Section 301-03.
	• The gear-shifting rod is damaged.	• Turn to fixed point inspection A
	• The gear-shifting and position-changing dragline is damaged.	• Turn to fixed point inspection A

#### Fixed Point Inspection

**Fixed Point Inspection A: The gear-shifting mechanism motion is difficult.**

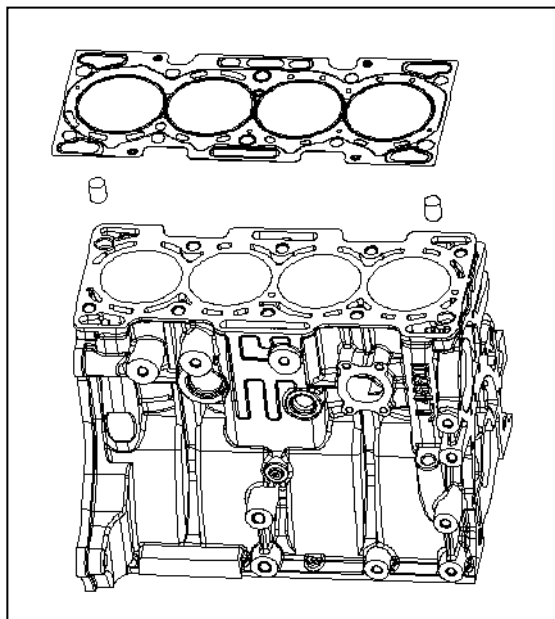
Inspection Items	Concrete Procedures/Results/Measures
<b>A1: Check the gear-shifting rod.</b>	
	<b>1</b> Separate the gear-selecting rod from the transmission gear.  • Is the external gear shifting mechanism motion difficult? <b>Yes</b> Dismantle the gear-shifting rod and research failure components, referring to section 205-01. <b>No</b> Turn to A2
<b>A2: Check the Gear-shifting and Position-changing Dragline.</b>	
	<b>1</b> Dismantle the gear-shifting and position-changing dragline from the transmission gear.  • Is the gear-shifting and position-changing dragline damaged? <b>Yes</b> Search the failure and replace. <b>No</b> For the transmission gear failure, see Section 301-01.

Mechanical Components
– Obviously damaged or abraded components
– Loosened or lost nuts or bolts

3. If the failure can be easily discovered, after repair, check whether the system works normally?
4. If the failure can not be easily discovered, accurate inspection shall be carried out according to the following Failure Phenomenon Table.



## Cylinder gasket installation



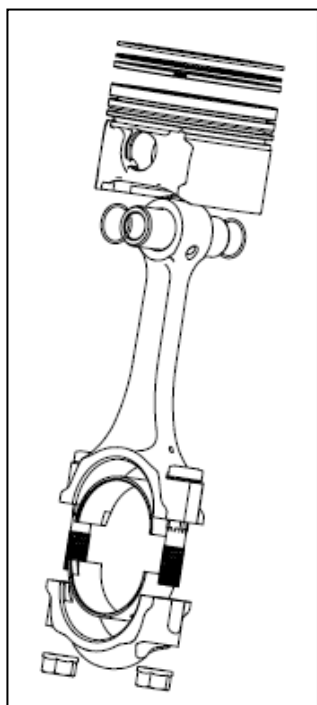
Remove the old cylinder gasket and apply oil on the matching surface, then install a new cylinder washer as shown in the figure (the TOP sign on the spacer should be upturned and put the two main oil path holes of the cylinder washer and body on the same line.)

The cylinder head bolts must be tightened gradually according to the following methods.

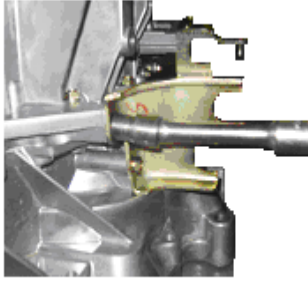
- 1) All bolts must be tightened to 45 N. m from the middle to the ends;
- 2) Tighten to  $67 \pm 2$  N.m according to method 1;
- 3) Installation should be performed according to the reversed procedures of the disassembly.
- 4) The clearances of the intake and the exhaust valve should be adjusted as stated previously.
- 5) Check and confirm all removed components have been put on the original places. Reinstall all components which are not installed.
- 6) Refill the coolant, and discharge the air in the system.
- 7) Install a storage battery, and connect its conducting wire.
- 8) Check each connection for fuel leakage, coolant leakage and exhaust gases leakage.
- 9) Verify the ignition timing is within the specified scope.
- 10) Install a gear-shifting controller and connect the gear-shifting controlling dragline to the gear-shifting controlling rod.
- 11) Pay attention to the check and adjustment of parking braking, and adjust the parking braking.

## Piston, Piston Ring, Connecting Rod and Cylinder

### Disassembly



- 1) Remove the cylinder head from the cylinder body as stated previously.
- 2) Discharge the engine oil.
- 3) Remove the oil pan and the suction filter of the oil pump as stated previously.
- 4) Mark cylinder number on all pistons, connecting rods and connecting rod bearing covers with a pencil or quick drying paint.
- 5) Remove the connecting rod bearing cover.
- 6) Install a rubber protecting sleeve on the bolt thread of the connecting rod for fear that the axle journal bearing and the bolt thread of the connecting rod is damaged when being removed from the connecting rod.
- 7) Remove carbon deposits on the cylinder before the



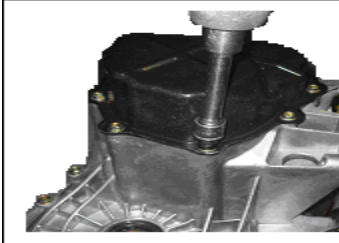
Use a ratchet wrench to remove the bolts of cable support.

3.1.3 Remove the junction bolts on the clutch side



3.1.4 Remove the bolts of left case

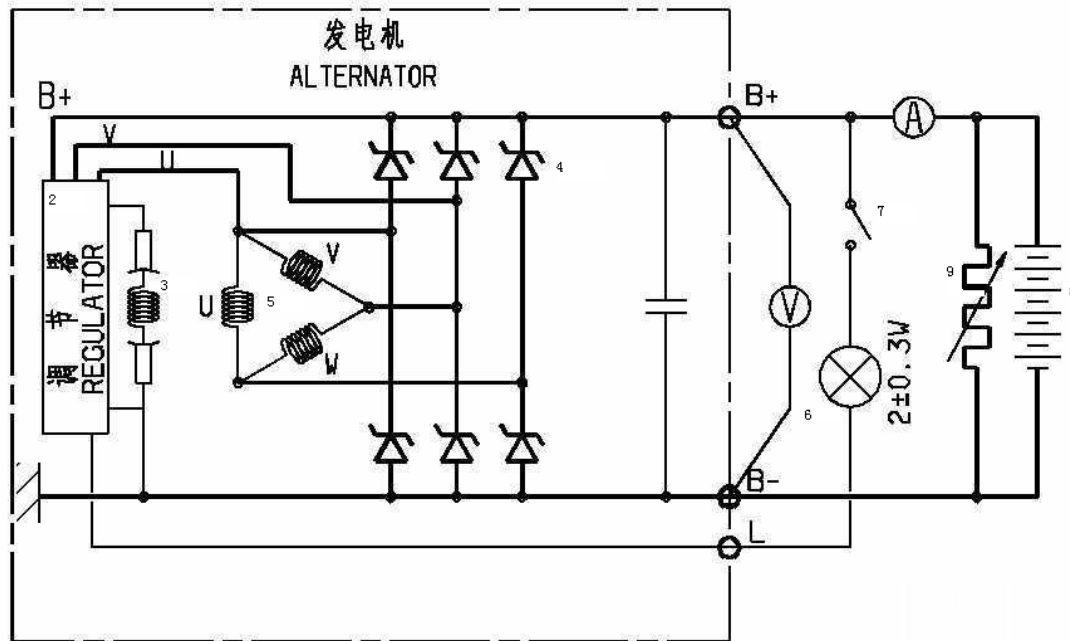
Use a ratchet wrench to remove the bolts of left case and take out the countershaft 5<sup>th</sup> gear and input shaft 5<sup>th</sup> gear



3.1.5 Remove the locking nuts of countershaft



3.1.6 Remove the bolts of 5<sup>th</sup> synchronizer shift fork

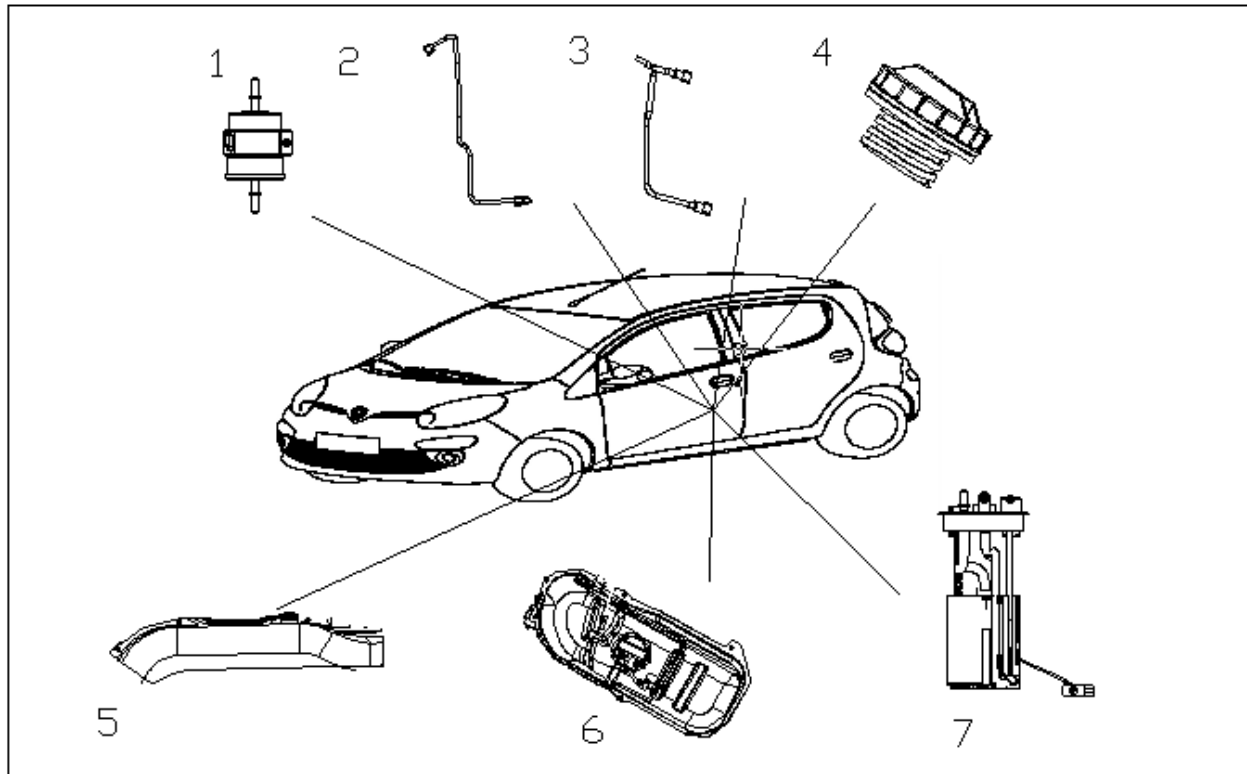


- |  |                            |
|--|----------------------------|
| 1、Generator provided with an adjuster assembly | 6、Charging indicating lamp |
| 2、Integrated circuit regulator                 | 7、Ignition switch          |
| 3、Stator coil                                  | 8、Battery                  |
| 4、Rectifying diode                             | 9、Load                     |
| 5、Magnet exciting coil (rotor coil)            |                            |

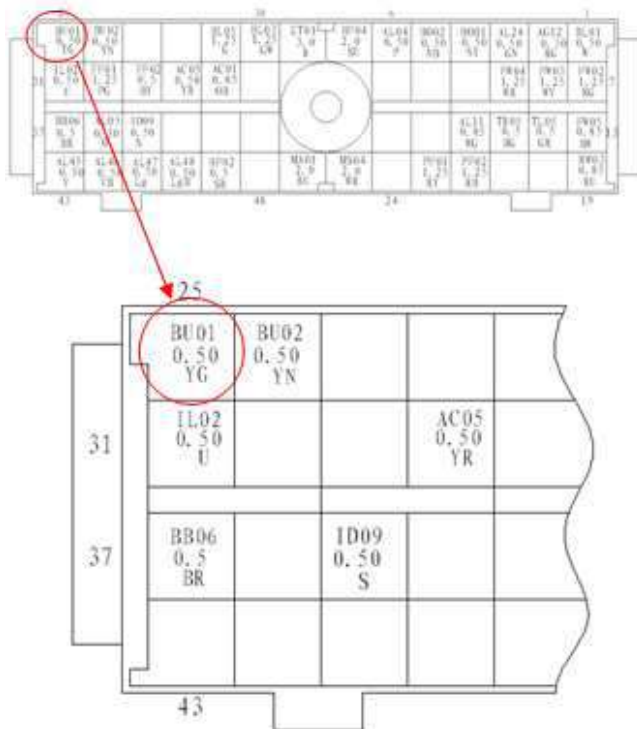
Figure 2 Generator performance test circle

## Instruction and Operation

### Fuel Tank and Fuel Pipeline



Serial Number	Parts Number	Names
1		Gasoline filter and its bracket
2		Fuel pipe of the fuel tank
3		Oil returning pipe of the fuel tank
4		Safety valve
5		Heat isolating plate of the fuel tank
6		Fuel tank assembly
7		Fuel pump and fuel amount sensor assembly



**2** Disconnect the pin BU01 at the end socket connector of the instrument panel wiring harness

**3** Measure the voltage between the pin BU01 at the end socket connector of the instrument panel wiring harness (in the red circle) and the grounding position of the vehicle body.

• Is the voltage display equal to the battery voltage?

. Yes

Switch to G3.

. No

Find and repair the circuit between the safety fuse f16 and the pin BU01 at the end socket connector of the instrument panel wiring harness. Test and operate the system to see if it is normal.

#### G4: Inspecting the power source supply of the reversing lamp switch

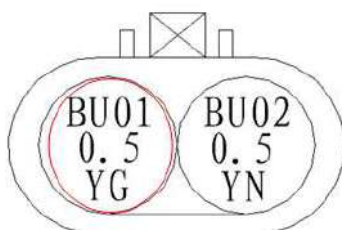
**1** Turn the ignition switch at the OFF position

**2** Disconnect the inserting pin BU01 of the wiring harness end socket connector abutted with the reversing lamp switch

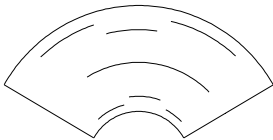

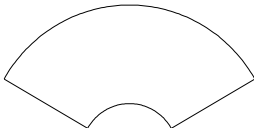

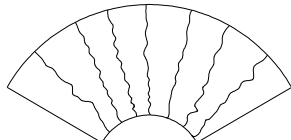
**3** Turn the ignition switch at the ON position

**4** Adjust to the reversing gear position

**5** Measure the voltage between the inserting pin BU01 of the wiring harness end socket connector abutted with the reversing lamp switch and the grounding position of the vehicle body.



• Is the voltage display equal to the battery voltage?

5			A continuous line trace with the width of less than 1 mm exists in 2/4 area of the wiping center and six continuous line traces with the maximum width of 1 mm exist in the upper and lower 1/4 area
Wiping cleanliness which does not suit the requirements	4		Relatively many continuous stripes
	3		Continuous foggy phenomena
	2		Insufficient wiping
	1		Shaking

Scrubbing part:

Failure phenomenon:

Phenomenon 1: The front water spraying is not in the right position.

Solution: use pins or other tools to adjust the nozzle to be at the proper position so as to ensure that the water spraying area covers 60% of the wiping area of the wiper.

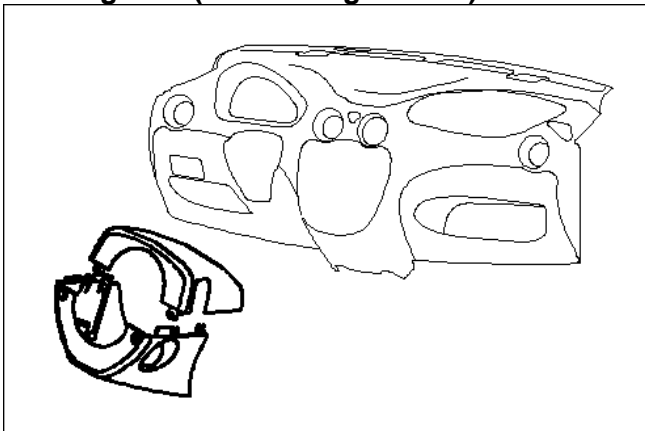
Phenomenon 2: No water is sprayed (in the front part or the rear part).

Solution procedures:

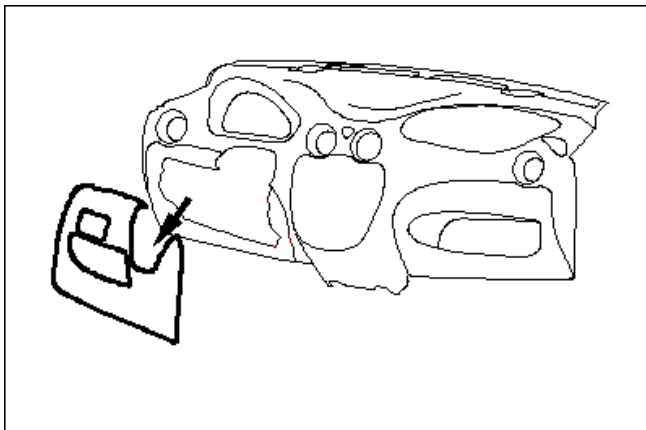
- Inspect whether the battery voltage is more than 9 V. If so, please enter the next step; otherwise, please inspect the battery;
- Inspect whether the central control box safety fuse F23 (10A) is broken. If so, please replace the safety fuse; otherwise, please enter the next step;
- Disassemble the port of the engine compartment wiring harness connected with the scrubbing tank motor and inspect whether the FW06 end or RW04 end of the front scrubbing motor is well grounded. If so, please enter the next step; otherwise, please inspect the grounding wire;
- In the state with the ON position, switch to the scrubbing position of the combined switch and inspect whether the voltage of the FW05 end or RW03 end of the wiring harness is 12 V. If so, please switch to f; otherwise, please enter the next step;
- Respectively inspect the wiring harness ends: inspect whether the connection from the end of the engine compartment wiring harness connected with the scrubbing tank motor to the wiping end (FW05 or RW03) of the combined switch connected with the instrument panel

**Disassemble and installation (continued)**

**4 Disassemble the up and down cover of steering lock (three fixing screws)**

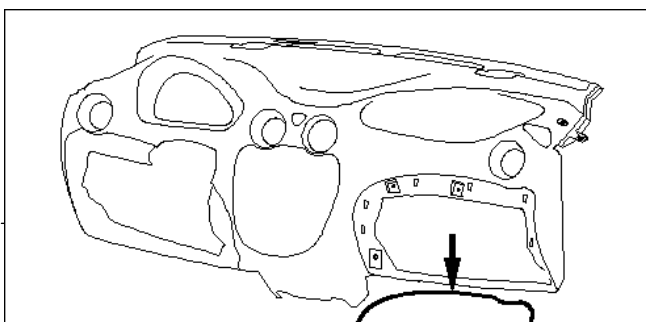


**5 Disassemble the kneel protest panel (two fixing screws), disconnect the connect switch of switch box installation assy**

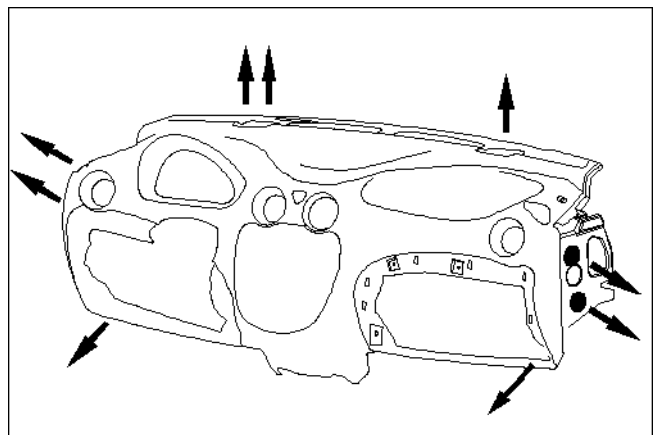


**6 Disassemble the steering column (refer to 204-03)**

**7 Disassemble the glove box (one fixing bolt, two bottom fixing screws)**



**8 Disconnect the back connect switch of emergence alarming lamp switch assy**

**Installation**

**1. The installation procedures are opposite to the disassembly procedures.**