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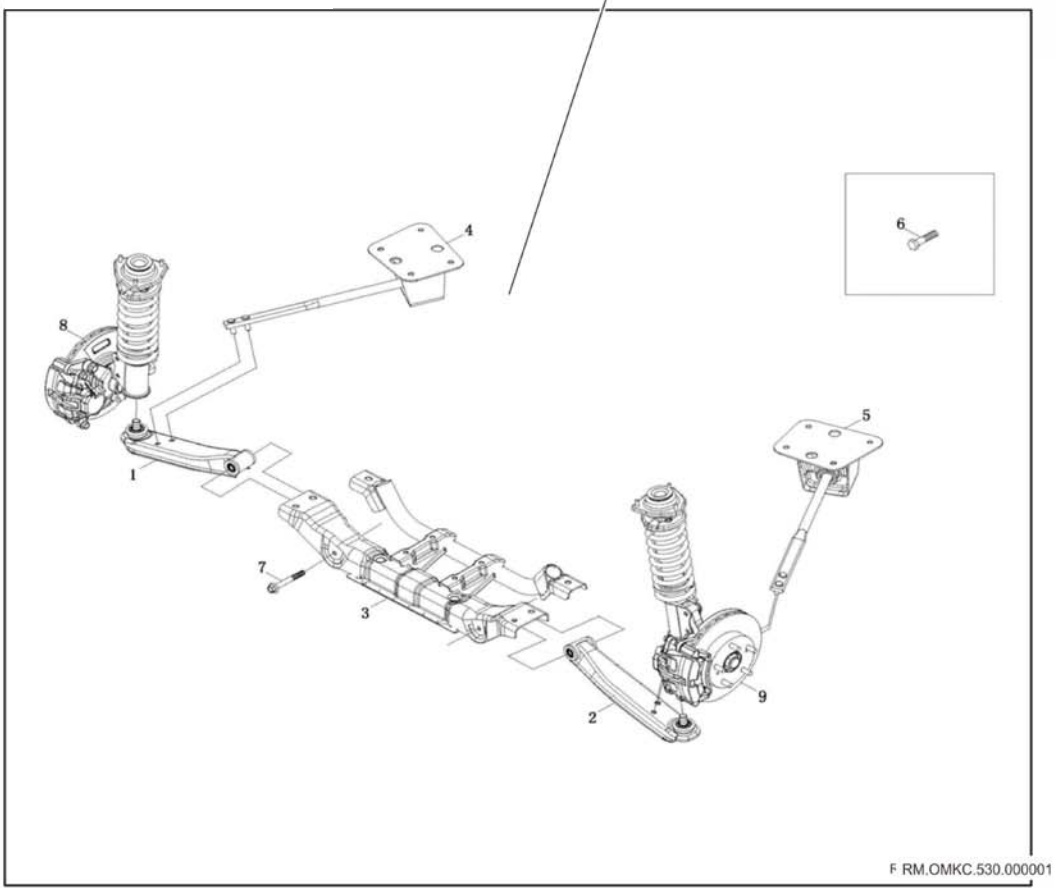
Electric system ..... EL

Example:

IN

Assembling relationalship

Part diagram



1	Left lower wing arm assembly	6	Pivot
2	Right lower wing arm assembly	7	Lower swing arm pin
3	Subframe assembly	8	Left front traveler assembly with brake
4	Left thrust bar assembly	9	Right front traveler assembly with brake
5	Right pull rod assembly		

Part name list

RM.TM1.IN.000001

c. If the installation procedure opposite to the removal, only describe the key parts.

d. Repair procedures in this Manual only describe the important parts and illustrate the operation objects and operation contents with the illustrations. Details and standard values of operating

Diagnostic tester application

1. Reading fault code

Caution

- **The fault is detected by engine control system and stored in engine control module (ECM), system fault can be a current or historical fault.**
- **If the battery voltage is too low and ECM detection code can't be outputted normally, the battery voltage must be detected first before inspection, the voltage is about 24V.**
- **The fault code stored in ECM will be cleared when the battery or the ECM connector is disconnected.**
- **Special detection tool shall be used to read engine fault code.**
- **Before the connection or disconnection of the diagnostic tester, it must be confirmed that ignition switch is in "LOCK" position.**

ECM has fault self-diagnosis function, once it detects the fault of electronic fuel injection system, it will produces corresponding fault code and stores it in memory, and automatically goes to different failure protection strategy according to the severity level of the fault. In most cases, failure protection strategy can still keep the engine working by reducing the power. When dealing with a small number of extremely serious fault, failure protection strategy will stop injection and stop the engine work.

Fault code can be read via special diagnostic tester:

a. Turn the ignition switch to "ON", if the fault indicator lamp illuminates, it shows the system has fault.

b. Connect the connector of special fault diagnostic tester with diagnostic interface.

c. Read the fault code in diagnostic tester, that is the "fault code" displayed on diagnostic tester.

d. According to the corresponding fault cause to the fault code, check and maintain the harness associated with corresponding part or replace the relevant part.

e. After the troubleshooting, perform the step of read fault code again after fault diagnostic tester clear the original fault code, confirm that there is no fault code and then deliver to use.

2. Clearing fault code

Fault code shall be cleared before confirming some accidental faults. If there is fault in system, the fault code will exist until the fault is removed.

Connect the diagnostic tester and clear the fault code that stored in current control unit.

3. Reading data flow

By reading the data flow displayed on diagnostic tester, the data value of parts including switch, sensor, actuator and so on can be inspected without removing any parts. As the first step of troubleshooting, reading data flow is a method of shortening the time for diagnosis.

4. Action test

Action test is a self-learning process of components, it performs test for components including relay, actuator and other learnings of special operation.

Precautions

1. Causes to abnormal operation of the reversing radar system:

a. The reversing radar probe is covered by mud, snow or other foreign matters (the normal operation is restored after the sensor is cleaned).

b. The reversing radar probe is frozen (the normal operation is restored after the sensor is cleaned).

c. The reversing radar probe is blocked.

2. The detection range may be restricted under following conditions:

a. The reversing radar probe is covered by mud, snow or other foreign matters.

b. The vehicle operates in the extremely hot or cold area.

3. The reversing radar probe may detect incorrect information under following conditions, for example:

a. The vehicle operates on the rugged road surface or unpaved road or in the high grass.

b. The horn sound from another vehicle, the motorcycle engine noise, the noise generated from the air brake of the large-sized vehicle or the ultrasonic wave from the sonar of another vehicle is being transmitted in the vicinity of the vehicle.

c. The vehicles moves in heavy rain or the reversing radar probe comes into contact with water.

d. The vehicle is tilted heavily.

e. The vehicle is equipped with any additional protection rod or wireless unit antenna.

f. The reversing radar probe is covered by mud, snow or other foreign matters.

g. The vehicle is moving toward the edge or corner of any object.

4. The reversing radar probe encounters any object which can't be detected by it, for example:

a. Wire, rope or other thin objects.

b. Cotton, snow or other materials which can absorb the ultrasonic wave.

c. Sharp objects.

d. Short and small objects.

5. Other precautions:

a. The reversing radar probe can't detect any object located right beneath the bumper.

b. The reversing radar probe can't detect any obstacle which is too close.

c. The reversing radar probe may not detect the obstacle when it is detached or is violently impacted.

Table of malfunction symptoms

Use the following table to help you to find out the reasons of faults. Serial number represents the order of possibility of fault reasons. Check each part as per this order and replace as the case may be.

Malfunction symptom		Possible cause	Troubleshooting
Headlamp	Working failure of both high beam and low beam	1. Fuse (Burnout)	Replace the same type of fuse.
		2. Lighting combination switch (damaged)	Replace the light switch cluster
		3. Lamplet switch (damaged)	Replace the lamplet switch
		4. Harness (open-circuit or short-circuit)	Repair or change wiring harness.
		5. Earthing point (looseness, corrosion)	Check the earthing point
Low beam	Low beams on both sides are out	1. Bulb (damaged)	Replace the bulb
		2. Fuse (Burnout)	Replace the same type of fuse.
		3. Low beam lamp relay (damaged)	Replace the low beam lamp relay
		4. Harness (open-circuit or short-circuit)	Repair or change wiring harness.
		5. Lighting combination switch (damaged)	Replace the light switch cluster
	Only one side of low beam is out	1. Bulb (damaged)	Replace the bulb
		2. Fuse (Burnout)	Replace the same type of fuse.
		3. Harness (open-circuit or short-circuit)	Repair or change wiring harness.
	Low beams on both sides are normally on	1. Harness (open-circuit or short-circuit)	Repair or change wiring harness.
		2. Lighting combination switch (damaged)	Replace the light switch cluster
		3. Low beam lamp relay (damaged)	Replace the low beam lamp relay
	The height of low beam lamp can't be regulated	1. Harness (open-circuit or short-circuit)	Repair or change wiring harness.
		2. Headlamp control switch (damaged)	Replace headlamp adjustment switch
High beam	High beams on both sides are out	1. Bulb (damaged)	Replace the bulb
		2. Fuse (Burnout)	Replace the same type of fuse.
		3. High beam relay (damaged)	Replace the high beam lamp relay
		4. Harness (open-circuit or short-circuit)	Repair or change wiring harness.

Diagnosis steps

1. Replace the coolant temperature sensor for inspection

a. Replace the coolant temperature sensor, and start another inspection.

Check if results are normal?

Yes> Replace coolant temperature sensor.

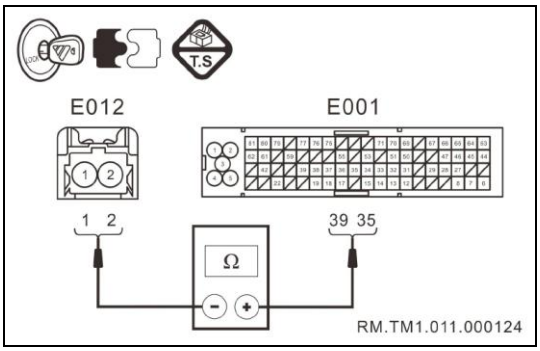
No> Go to step 2

2. Check the circuit between the coolant temperature sensor and ECU

a. Ignition switch: LOCK.

b. Disconnect the coolant temperature sensor connector E012.

c. Disconnect the ECU connector E001.



d. Turn the multi-meter to the resistance mode, and measure the resistance between the No.1 and No.2 terminals of the coolant temperature sensor connector E012 and the No.39 and No.35 terminals of the ECU connector E001.

Standard resistance:

Multimeter terminal block	Standard value
B012(1)-E001(39)	About 0Ω
B012(2)-E001(35)	About 0Ω

Check if results are normal?

Yes > to step 3.

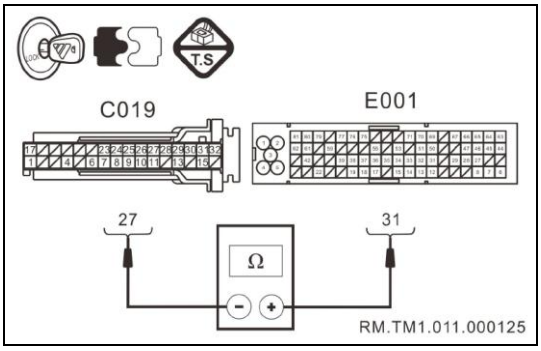
No > Repair or replace the circuit between the coolant temperature sensor and ECU.

3. Check the circuit between the instrument cluster and ECU

a. Ignition switch: LOCK.

b. Disconnect the connector C019 of combination instrument.

c. Disconnect the ECU connector E001.



d. Turn the multi-meter to the resistance mode, and measure the resistance between the No.27 terminal of the instrument cluster connector C019 and the No.31 terminal of ECU connector E001.

Standard resistance:

Multimeter terminal block	Standard value
C019(27)-E001(31)	About 0Ω

Check if results are normal?

Yes > to step 4.

No > Repair or replace the circuit between the instrument cluster and ECU.

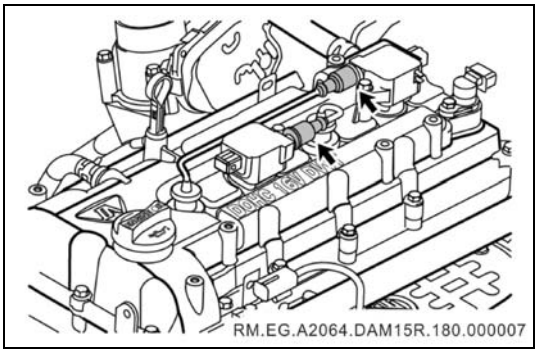
Table of malfunction symptoms

Malfunction symptom	Malfunction cause	Troubleshooting
Engine will not start	Low battery voltage	Check the battery and replace it as necessary
	Looseness and corrosion of battery cable	Clean the battery and fasten the connection
	Starter failure	Check the starter and replace it as necessary
	Ignition coil fault	Check the ignition coil and if necessary, replace it
	Spark plug cable fault	Check the spark plug cable, and if necessary, replace it
	The spark gap of the spark plug is too large	Replace spark plug
	The fuel filter is blocked and the fuel system has too much impurities.	Clean the fuel system and replace the fuel filter
	Fuel pump fault	Check the fuel pump, and if necessary, replace it
	Slippage of synchronizing chain	Refit or replace the synchronizing chain
	Other related electrical parts does not work properly	Check related electrical parts and replace them as necessary
Insufficient engine power	The spark electrode gap of the spark plug is too large	Replace spark plug
	The fuel filter is blocked and the fuel system has too much impurities.	Clean the fuel system and replace the fuel filter
	Valve timing is incorrect	Refit the synchronizing chain and adjust the timing mechanism
	Air leakage of cylinder head gasket	Replace the cylinder gasket.
	Cylinder pressure value is too low	Measure cylinder pressure. If necessary, overhaul it
	Valve seal is not strict	Check the valve and valve seat, and replace if necessary.
	Three-way catalytic converter is blocked	Replace good quality fuel, replace three-way catalytic converter
	The resistance of the spark plug cable is too high	Check the resistance of the spark plug cable, and if necessary, replace the cable
	Ignition coil fault	Test the ignition coil, and if necessary, replace it
	Bad atomizing of injector	Replace fuel filter, clean fuel injector, and replace when necessary
	The exhaust system does not work smoothly	Check the exhaust system
	The air suction of air intake system is not sufficient	Check air intake system

High-voltage cable

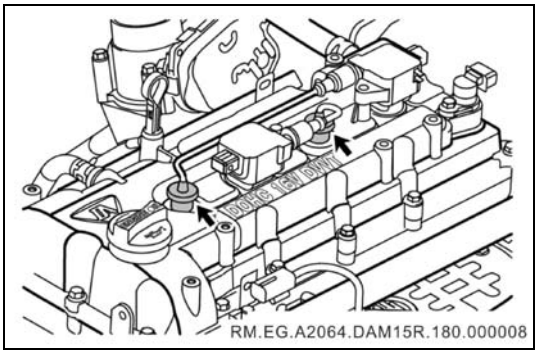
Check and repair

1. **Turn off the ignition switch.**
2. **Turn over the driver seat.**
3. **Disconnect from negative cable of battery**



4. **Remove the high-voltage damping wire.**

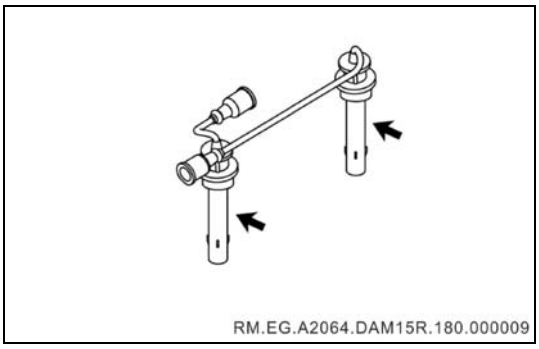
a. Disconnect the high-voltage damping wire from the ignition coil.



b. Lightly rotate the high-voltage damping wire and pull it out.

Caution

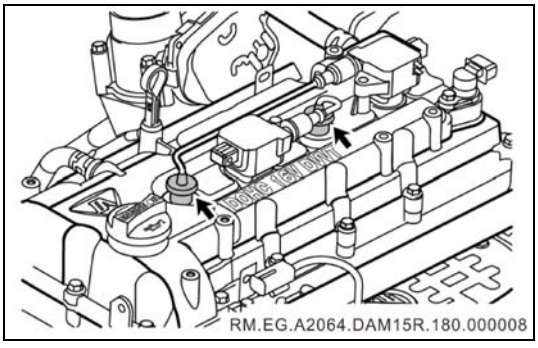
Before pulling out the high-voltage damping wire, make sure that the high-voltage damping wire of each cylinder is located at the corresponding position on the ignition coil and is properly marked.



c. Take down the high-voltage damping wire.

5. **Check the high-voltage damping wire.**

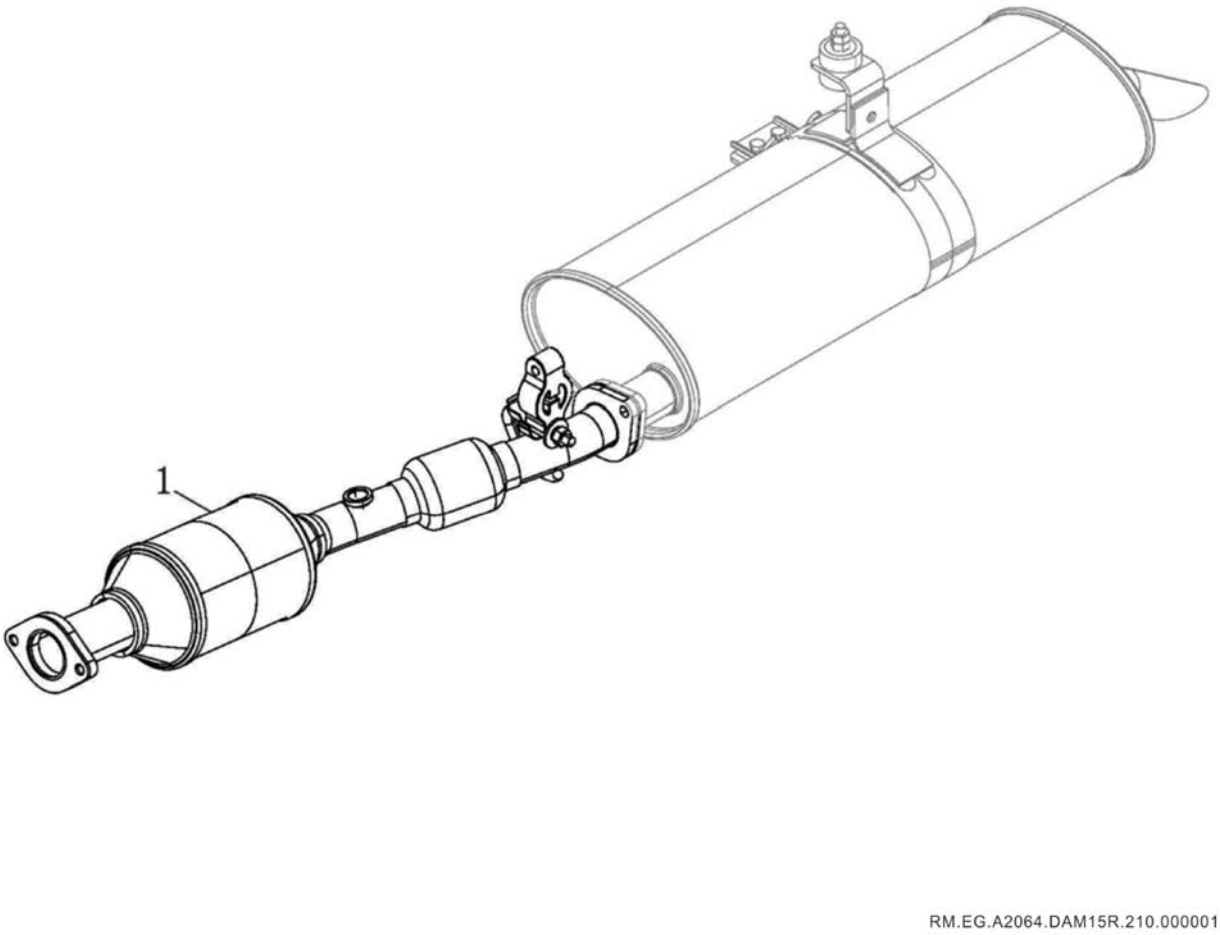
a. Check the high-voltage damping wire for breakdown signs, and in the case of breakdown, replace the wire.



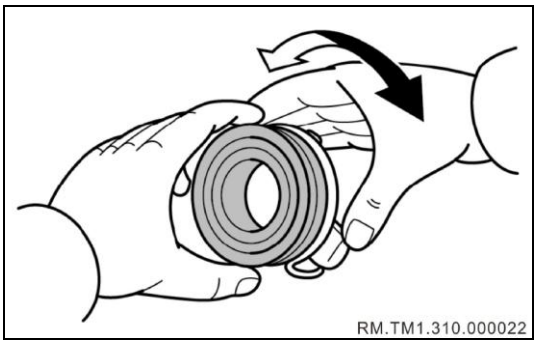
6. **Refit the high-voltage damping wire.**

a. Refit the high-voltage damping wire onto the cylinder block.

Part Diagram



1	2-way catalytic reactor assy

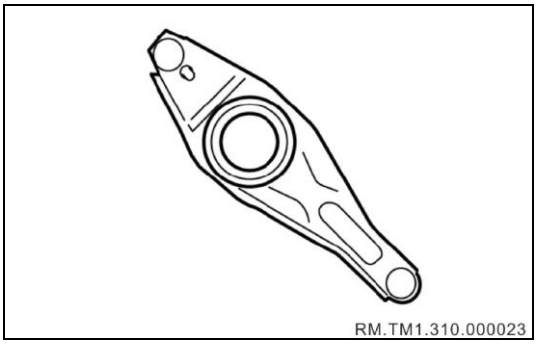


3. Check the clutch release bearing.

a. Check the bearing for seizure, damage, noise or abnormal rotation. Check the bearing surface in contact with clutch diaphragm spring for damage.

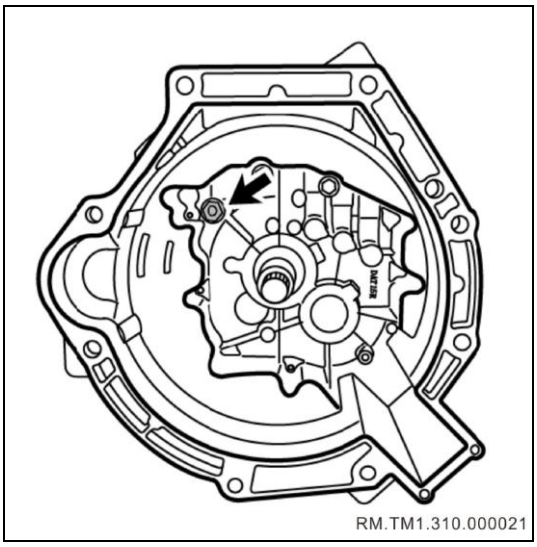
Caution

- **Before installation, check the interior and exterior surfaces of bearing; in case of deformation or damage, replace the bearing.**
- **If the contact surfaces of release bearing and release support arm are worn, check the release support arm and release bearing, and renew the release support arm and release bearing when necessary.**
- **The bearing is lubricated permanently and does not need cleaning or lubricating.**



4. Check the clutch release support arm.

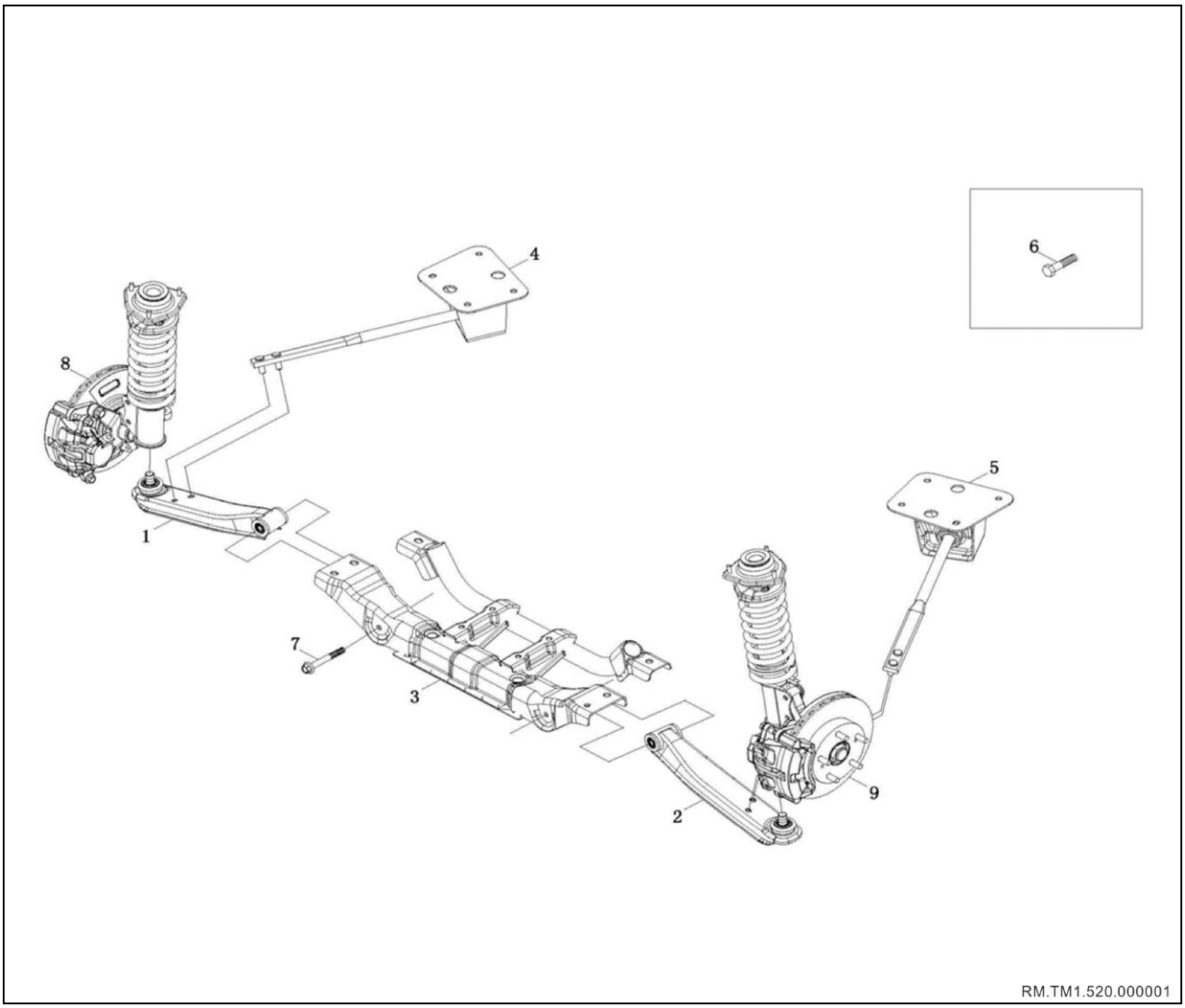
a. Check the release support arm for deformation, breakage or crack, check the release support arm surface in contact with the release bearing for damage, and replace the release support arm when necessary.



5. Install the release bearing and release support arm.

a. Install the front stud of support arm.

Part diagram

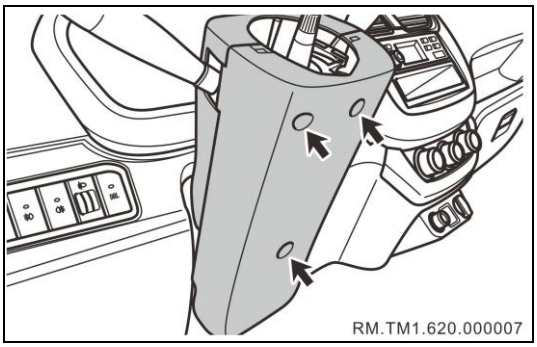


1	Left lower wing arm assembly
2	Right lower wing arm assembly
3	Subframe assembly
4	Left thrust bar assembly
5	Right pull rod assembly

6	Pivot
7	Lower swing arm pin
8	Left front traveler assembly with brake
9	Right front traveler assembly with brake

Steering motor controller

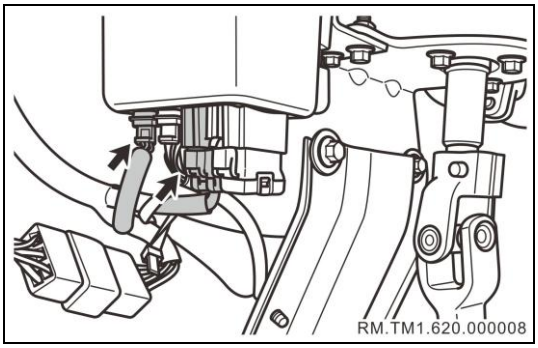
Checking and repair



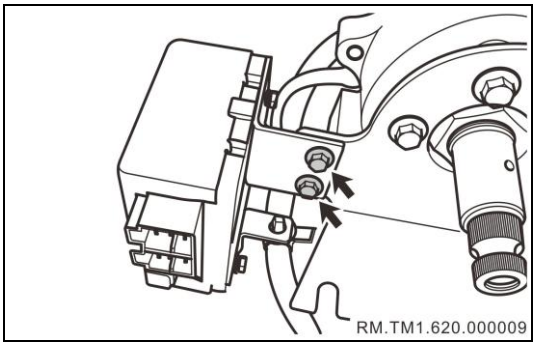
1. Disassemble the steering motor controller.

a. Disassemble the steering wheel. (Refer to Chapter ST Steering System - Steering Mechanism - Steering Wheel, Replacement)

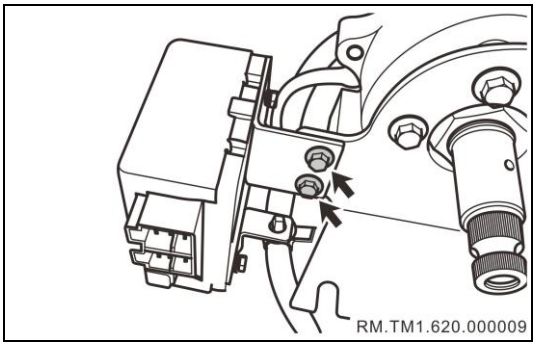
b. Disassemble the fastening screws of steering column shields and take out the steering column shields.



c. Disconnect the steering motor controller connector.



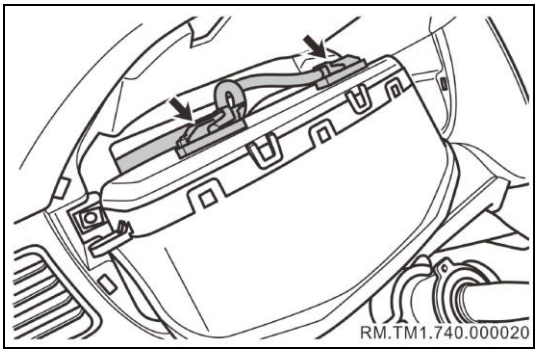
d. Disassemble the fastening bolts of steering motor controller and take out the steering motor controller.



2. Install the steering motor controller.

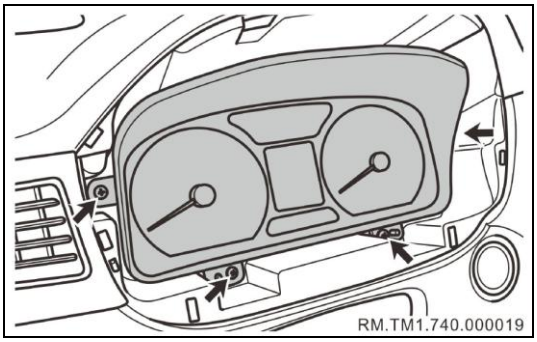
a. Install steering motor controller to installation position.

b. Install and tighten the fastening bolts of steering motor controller.

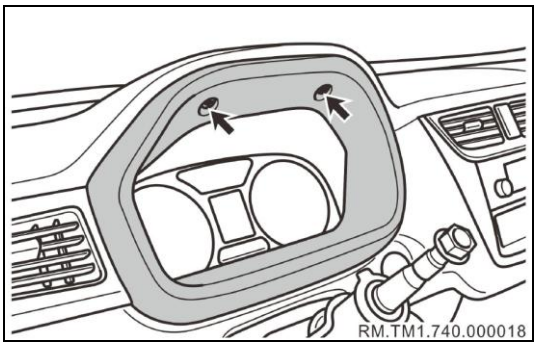


2. Install the combination instrument.

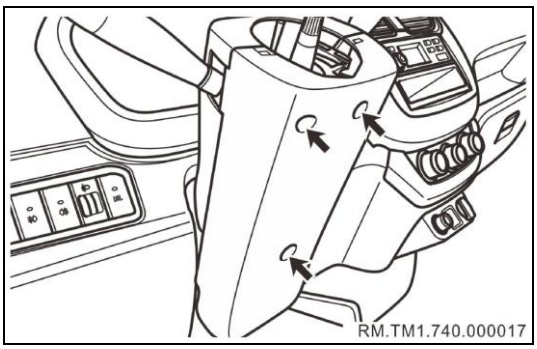
a. Install the combination instrument connector.



b. Install the fixing screws of combination instrument.



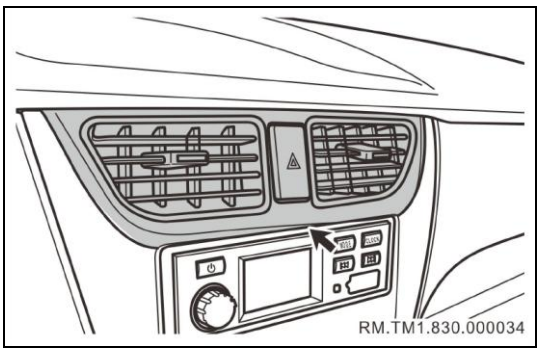
c. Install two fastening screws of combination instrument shield.



d. Install the upper and lower shields of steering column, completely align their side gaps, and install and tighten the fastening screws.

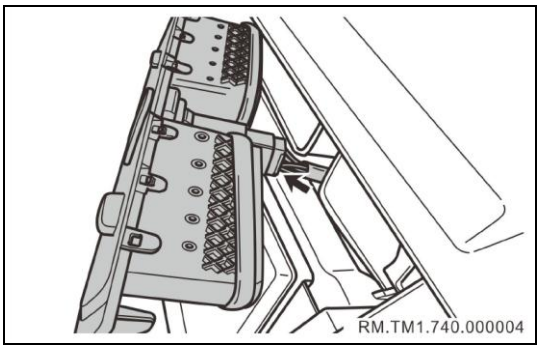
Hazard warning lamp switch

Replacement

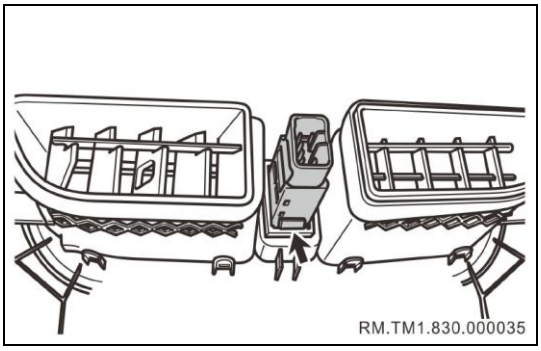


1. Disassemble the hazard warning lamp switch.

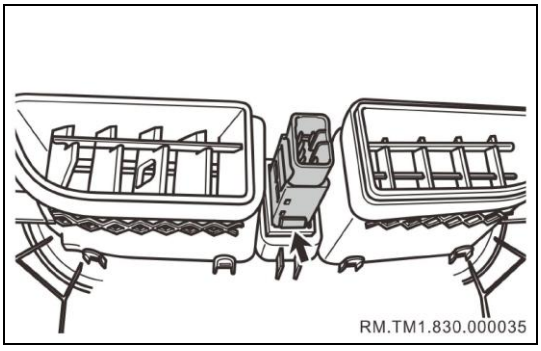
a. Pry open the A/C middle air vent by an interior trim crow plate.



b. Disconnect the connector of hazard warning lamp switch and take out the A/C middle air vent.



c. Push out the hazard warning lamp switch from the rear side of the A/C middle air vent.

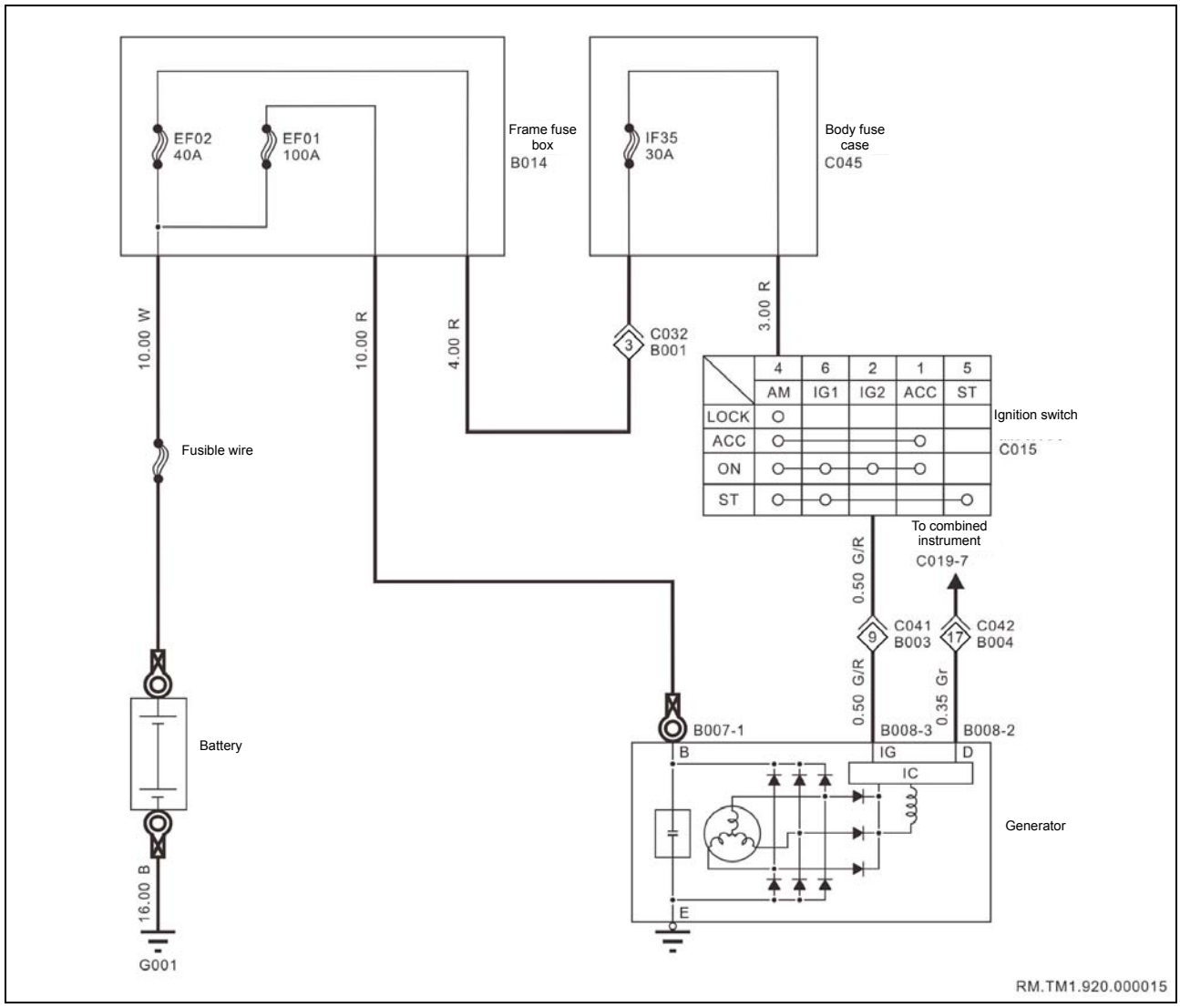


2. Install the hazard warning lamp switch.

a. Install the hazard warning lamp switch to the A/C middle air vent.

Charging system

Circuit diagram



System description:

When the ignition switch is at ON position, the current is supplied via pin 2 of ignition switch C015 to pin 3(L) of alternator B008 and to the alternator so that the current is supplied to the alternator excitation winding via its internal voltage regulator and the excitation winding is energized to generate a magnetic field.

While the alternator is rotating, the stator coil cuts the magnetic lines of force to generate three-phase induced electromotive force, which is converted by rectifier composed of diodes to DC and then is outputted from pin B of alternator via fuse EF01 in frame fuse case and fusible wire to charge the battery and power on other electric devices.

Service tips:

- Generator

  IG - Ground: When the alternator rated speed is 6,000r/min, the outputted rated voltage of alternator is 12V.

EL