Body Electrical and Body Machinery

Body Electrical

SC Starting and Charging System
Charging System
AC Air Conditioning System
SRS Safety Airbag System
Electronic Time Alarm Control System
Power Window (PW)
SR Power Sunroof
CSW Combination Switch
LT-Lighting System
PM power Rear View Mirror
HORN
Cigar Lighter
Combination Instrument
AV Audio System
PTS – Parking Aid System
WW Wiper and Washer System

Body Structure

Front door
Rear door
Trunk lid
EI Interior & Exterior Trims
A-Pillar Garnish
Emblem
SE Seats
IP Instrument Panel
Body Dimension Data

Catalogued by Engineer Izadi
2020.05

- Check whether or not corrosion exists. Please clean it using clean hot water.

② Battery Wiring Harness

- Check whether or not wear or damage exists. Please replace if any.

5) Installation

Installation is the reverse order of removal.

Caution:

- The positive terminal of battery shall be firstly connected, during connection.
- Coat mineral oil on respective terminals, after installation.

Starting System

1. System Description

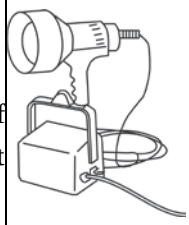
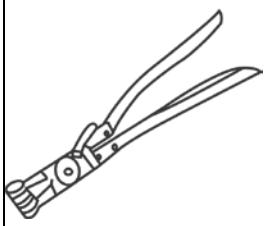
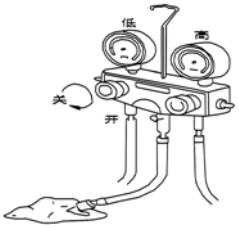
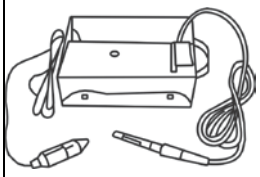
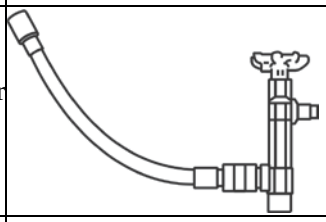
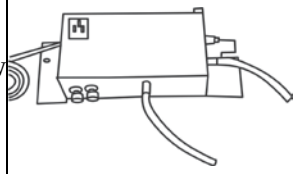
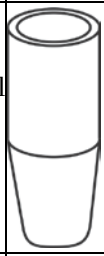
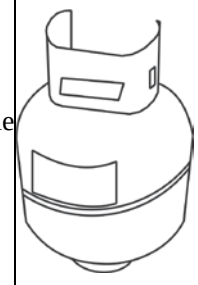
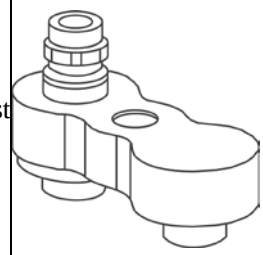
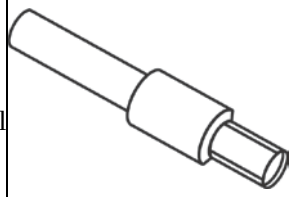
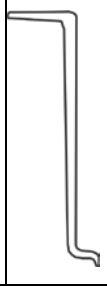
Turn the ignition switch to "START" position, to supply power to antitheft relay through ignition switch. Under anomalous condition, ETACS supplies high level to antitheft relay, for antitheft relay to supply power to attracting coil, this for starting relay to be attracted, to supply power to starter electromagnetic switch through starting relay, for electromagnetic switch to be attracted, and at this point the battery supplies power to starter, for the starter to be internally connected with ground, thus to actuate the rotation of starter, to drive the rotation of flywheel through its gear connection, for operation of engine to be actuated. If antitheft relay is triggered, ETACS will supply low level to antitheft relay which will be attracted, and will not be able to supply power to the attracting coil the starting relay, while the starting relay will fail to be attracted, fail to supply power to electromagnetic switch of starter, and the starter will fail to work.

Starter Specification

Item	Specification
Type	Planetary Gear Reduction Drive
Rated Output Power kW/V	1.4/12
Number of Teeth	8

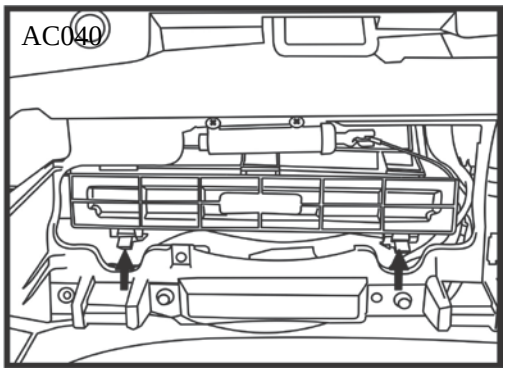
Maintenance Specification

Item	Standard Value	Operating Limit
Pinion Clearance mm	0.5-2.0	-
Overhang of Steering Gear mm	0.05	0.1
Diameter of Steering Gear mm	29.4	28.8

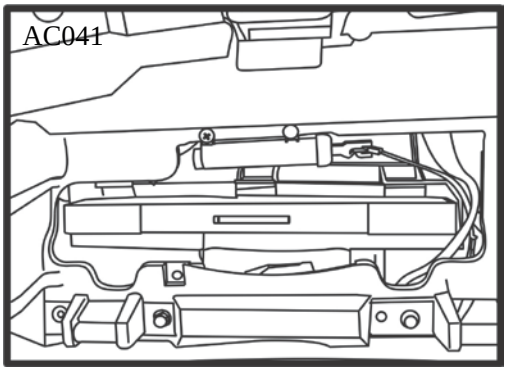
Name of Tool	Picture of Tool	Name of Tool	Picture of Tool
Digital Multimeter		High-Strength Lamp of Invisible Light	
Ripping Pincers		R-134A Manifold Measuring Apparatus	
Halogen Leakage Detector		Tracing Color Injector	
R134A Tracing Paint		Microthermo meter	
Positive Flow Control Valve		Shaft Seal Protection Device	
50lb Refillable Recovery Tank		Pressure Test Adapter	
Air Conditioning System Lip Seal Detaching Tool		“O”-Ring Detaching Tool	

3) Replacement Steps

① Hold down the two sides of storage box and remove it downwards.


AC040

② Lift up the air conditioning filter cover, and remove it.


AC041

③ Hold the handle of air conditioning filter and pull out the air conditioning filter.

④ The air conditioning filter installation is the reverse order of the above mentioned.

Caution:

- The arrow direction indicated on the front end shall face the side of core body, and it is not allowed for it to be limply assembled, during replacement of filter.

Summary of Safety Airbag System

The safety airbag is composed of the main safety airbag, aux. safety airbag, timer-spring, safety airbag module, explosive released pretensioner of driver-sided safety belt and passenger-sided safety belt, safety airbag switch of passenger-sided. The co-pilot's safety airbag can be turned off temporally by the switch of passenger-sided safety airbag, which will turn on the PAB (passenger-sided Safety airbag) warning light on the dashboard. Provided the driver has not fastened the safety belt and the safety belt is not switched on, ETACS will activate the safety belt alarm light on the dashboard after receipt of signal. If the driver fastens the safety belt, the alarm light of safety belt will turn off.

When the ignition switch shifts on the level 2, the safety airbag system will start up, ECU performs the self-diagnosis according to preset program. If the indicator lights up about 4s, and goes out, it means it passes through the self-diagnosis and the system in normal operation. Then, ECU will enter into monitor mode； In case where the indicator flashes on and off or remain in constant On, it indicates it fails to pass through the self-diagnosis and the system in abnormal operation. During the normal process of driving (incl. all road cases and interferences), ECU does not give the ignition order, the airbag plays no roll； In case of severe forward car collision, ECU will issue in time the incentive ignition, exciting the airbag component to open the airbag and absorbing the partial impact energy from the driver and front row passenger, alleviating the possible damage of passenger. At the meantime, the safety belt pretensioner at the driver- and passenger sides will be activated with the safety belts forcibly retracted, playing its protective roll by drawing back on seat the passenger far away from the seat to prevent from the impact.

	replaced.		
3	Whether the failure is eliminated after the Timer-spring replaced.		To step 4
4	Whether the failure is eliminated after the driver's safety airbag replaced.		To step 5
5	Replace the ECU of safety airbag.		

B0025 Power short-circuit of driver's safety airbag

Steps	Measures	Yes	No
1	Visually observe if the ECU of safety airbag is in normal connection with the driver's safety airbag harness.	To step 3	To step 2
2	Whether the failure is eliminated after the harness replaced.		To step 3
3	Whether the failure is eliminated after the Timer-spring replaced		To step 4
4	Whether the failure is eliminated after the driver's safety airbag replaced.		To step 5
5	Replace the ECU of safety airbag		

B0017 Too high resistance value of co-pilot's safety airbag

Steps	Measures	Yes	No
1	Visually observe if the ECU of safety airbag is in normal connection with the co-pilot's safety airbag harness.	To step 3	To step 2
2	Whether the failure is eliminated after the harness replaced.		To step 3
3	Whether the failure is eliminated after the co-pilot safety airbag replaced.		To step 4
4	Replace the ECU of safety airbag		

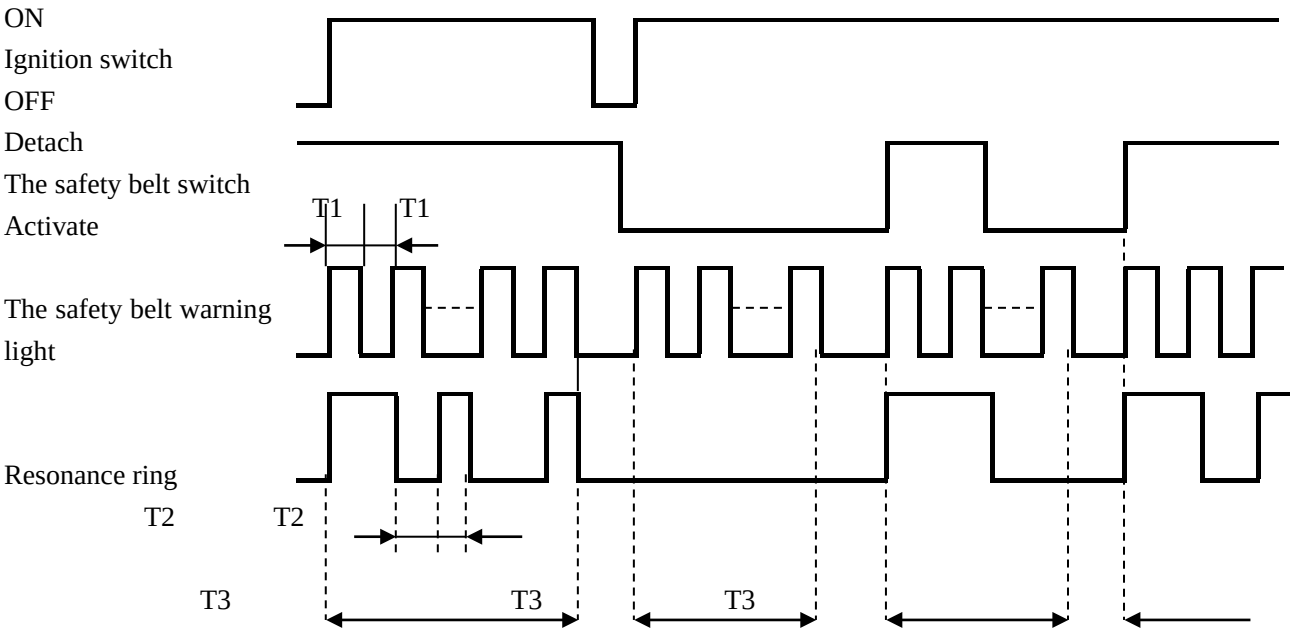
B0016 Too low resistance value of co-pilot's safety airbag

Steps	Measures	Yes	No
1	Visually observe if the ECU of safety airbag is in normal connection with the co-pilot's safety airbag harness.	To step 3	To step 2
2	Whether the failure is eliminated after the harness replaced.		To step 3
3	Whether the failure is eliminated after the co-pilot safety airbag replaced.		To step 4
4	Replace the ECU of safety airbag		

B0018 Ground short-circuit or line contact of co-pilot safety airbag

Steps	Measures	Yes	No
1	Visually observe if the ECU of safety airbag is in normal connection with the co-pilot's safety airbag harness.	To step 3	To step 2

7. Sound and light control of safety belt

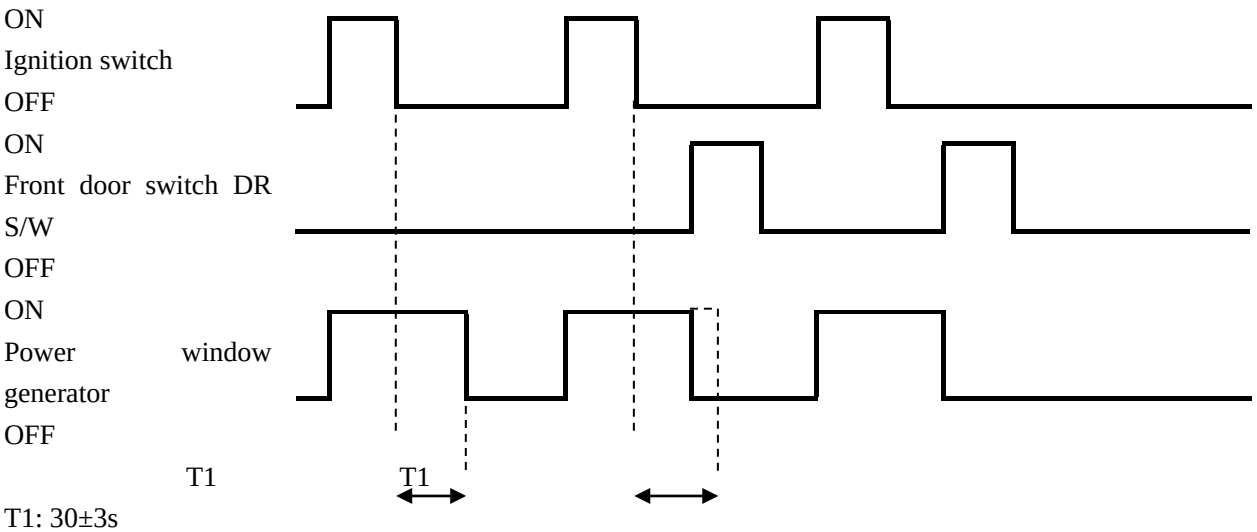


T1: 0.3±0.1s T2: 0.45±0.1s T3: 6±1s

When the ignition switch is on the position "ON" and driver with the safety belt unfastened, the safety belt warning light flashes at 50% space ratio in T1 (0.3±0.1s), the door bell buzzs at the interval T2 (0.45±0.1s) with T3 (6±1s) as one cycle; when the driver fastens the safety belt, the warning light will flash for a cycle without sound alert; When the safety belt is unfastened, the warning light will flash and sound alert, the beeps stop with the safety belt refastened. With the safety belt unfastened, the indicator will shine permanently after one cycle; on the contrary, it will go out after one cycle.

8. Power window time control

When the ignition switch is on the position "ON" and the front doors closed, the power window is operable. When the ignition switch is on the position LOCK or ACC, the power window is operable within T1 (30±3s); if the front door opens within T1 (30±3s), the power window is inoperable.



T1: 30±3s

Power Window (PW)

Summary

1. By operating the PW system on each trim panel, the PW system can rise or lower the corresponding window glass.
2. The main switch on the driver-sided trim panel enables the driver to lift or lower each occupant-sided window glass and lock up all independent switches on the doors.
3. The PW system can accept the battery voltage through the circuit breaker in the junction box only when the ignition switch is on the position “ON”.
4. The PW system includes the PW switch and ETACS control module on every trim panel and PW motor inside each door.
5. The PW motor and window glass regulator is an assembly. If necessary to renew the PW motor, then the window glass regulator should be replaced.

Component description

1. PW switch

The PW are controlled by the PW switches on each front trim panel. The driver-sided PW switch enables the driver to control all PWs. All occupant-sided windows are powered and grounded by the battery through the PW switch circuit. When the lock-up switch of driver-sided PW switch is on the position “Lock Up”, the battery power supply on other door PW switches are interrupted except the driver-sided PW switch.

2. PW motor

The reversible permanent magnet motor drives the window glass regulator through the incorporated gear box mechanism. The positive and negative poles of battery are connected to two motor terminals, driving in same direction. The motor may rotate in reverse driven by the reverse current from two of the same junctions. In addition, all PW motors are equipped with the incorporated self-reset circuit breaker so as to prevent the excessive motor load.

Function description

1. PW rise and drop

PW operation modes include: Manual Up and Down, Auto-Down (only applicable to the driver-sided PW switch).

Manual Up: By pressing the button Window-Up, the corresponding window will automatically rise and stop rising by button release.

Manual Down: By pressing the button Window-Down, the corresponding window will automatically lower and stop lowering by button release.

Auto-Down: By pressing the driver-sided Window-Down button till the end, the driver-sided window will lower down to the end or until the Window-Down button is

Steps	Measures	Yes	No
8	Check if the terminal No.1 of PW switch plug D04 on the front door LH is conductive with the terminal No.6 of PW switch plug D18-1 on the front door RH.	To step 10	To step 9
9	Repair or replace the PW switch plug on the front door LH And PW switch plug connecting cable on the rear door RH to see if the failure has been eliminated.		To step 10
10	Change the PW switch on the front door LH.		

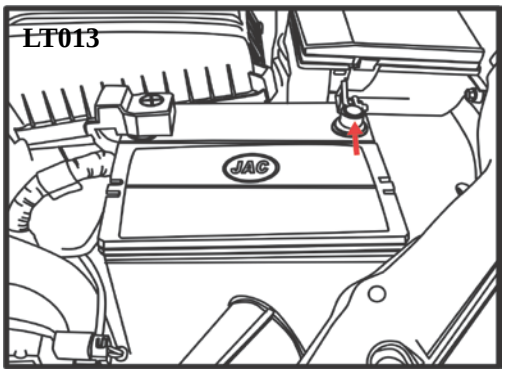
6) PW lock-up switch ineffective

Steps	Measures	Yes	No
1	Replace the PW switch on the front door LH and check its normal operation. If the PW lockup is operable?	To step 2	To step 3
2	Change the PW switch on the front door LH.		
3	Check the harness and connectors.		

7) PW Auto-Down on the front door LH ineffective

Steps	Measures	Yes	No
1	Replace the PW switch on the front door LH and check its normal operation. If the Auto-Down is operable?	To step 2	
2	Change the PW switch on the front door LH.		

2. Replacement of high mounted brake light



1) Removal procedure:

① Disconnect battery negative.

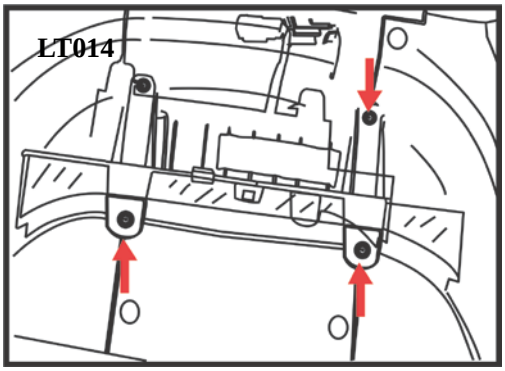
② Remove the rear seat. Refer to the “Removal and Installation of Rear Seats”.

③ Remove the coat rack. Refer to the “Removal and Installation of Coat Rack in the Part of Body Structure”.

④ Disconnect the connection wiring harness for high-position brake lamp.

⑤ Remove the screws for high-position brake lamp.

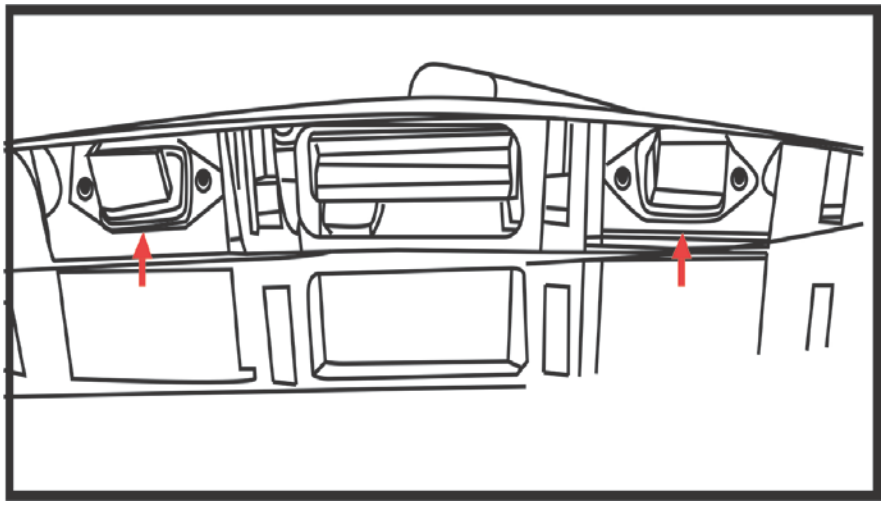
⑥ Take off the high-position brake lamp.



2) Installation is the reverse order of removal.

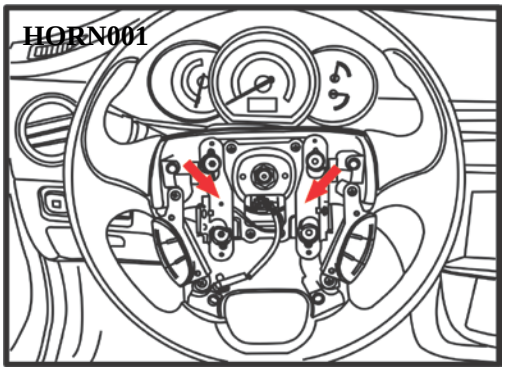
License plate light

1. Layout of Components

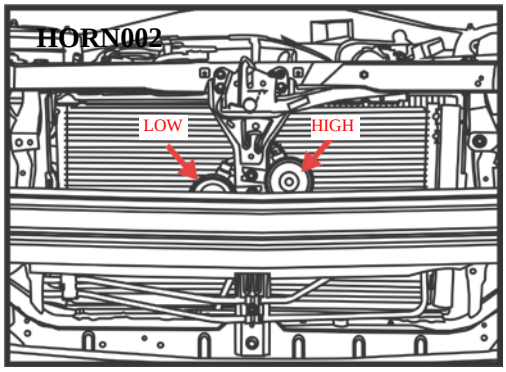


HORN

Component position

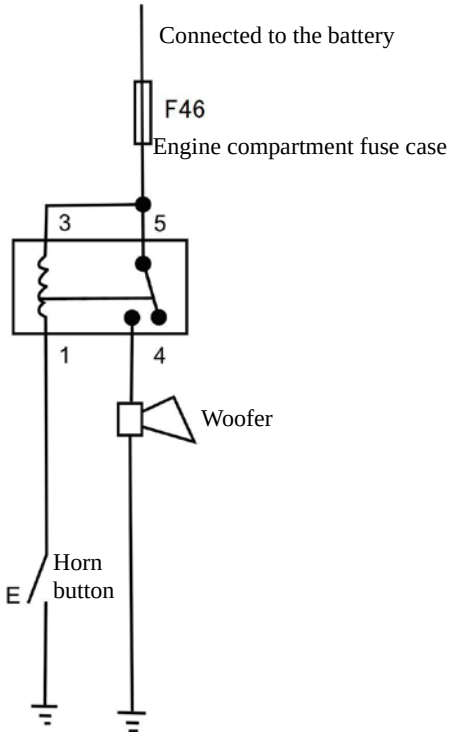


1.Horn buttons



2. Horns

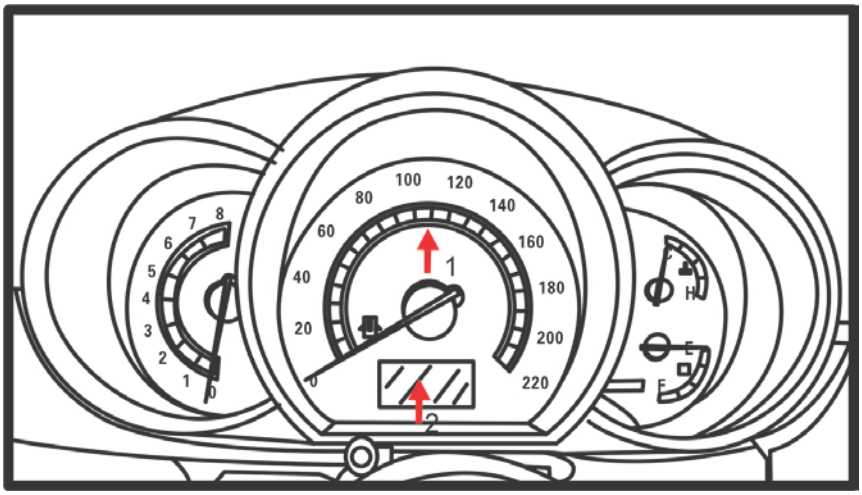
Schematic



Horn system Schematic

Speedometer and odometer

1. Principle



Speed meter and odometer

1 - Speedometer 2 - odometer

The cross coil speedometer and odometer indicate travelling speed and accumulated mileage of this model with digital odometer optional. Speed measurement is conducted by a magnetic mechanism with measurement-recording devices controlled by multifunctional LED display.

The pointer should indicate 0 when speedometer does not work. During driving, gear in transmission rotates to cut magnetic contour of permanent magnet in speed hall sensor which results in a pulse signal to move pointer of speedometer and provides speed signal to multifunctional LED display.

2. Inspection

1) Test:

① Adjust tire pressure to the specified value.

② Stop vehicle on speed test stand.

③ Make sure that parking brake functions properly.

④ Secure vehicle onto stand to prevent lateral moving.

⑤ Fasten rear end of vehicle with chain or steel cable to prevent longitudinal moving of vehicle. Fix end of chain or cable tightly.

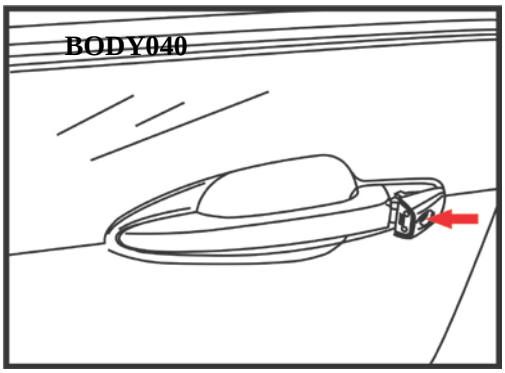
⑥ Check for correct indication range of speedometer.

■ The system will operate sometimes when reversing in narrow lane. It is normal.

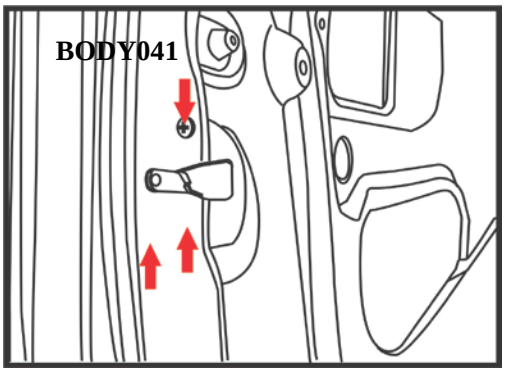
4. Table of fault and solution

SN	Symptom	Cause	Solution and tip	Remark
1	System does not work	1. Bad connection between harness and main power source 2. Improperly connected socket	1. Check for correct connection harness and main power source 2. Repeat connection of all sockets	
2	System does not work with power indicated lit up	Incorrect position of socket resulting in malfunction of sensor	Repeat connection of socket of all sensors	
3	Continuous buzzing with same indication on display when there is no obstacle behind vehicle.	1. Vehicle body or ground surface is detected by the system 2. Incorrect installed or dropped sensor 3. Damaged sensor 4. Damaged wire of sensor	1. Install sensors correctly according to Instruction. Refer to qualified technician as necessary 2. Change damaged sensor timely 3. Check for possible damage in harness	
4	Distance of obstacle can not be indicated properly	1. Check for correct voltage of battery 2. Incorrect position of sockets 3. Interference of sensor harness	1. Check for correct voltage of battery 2. Turn off parking aid system. Properly plug all sockets again 3. Check for contact of sensor wires with exhaust pipe and silencer	
5	No starting alarm No alarm with other portion operates normally	1. Improper connection of buzzer 2. Damaged buzzer	1. Check wiring and connection of buzzer. Connect buzzer properly again 2. Replace buzzer	

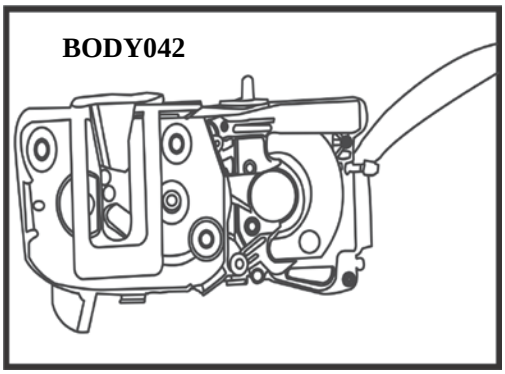
⑦ Disconnect fastener on door outside handle, and take out lock cylinder.



⑧ Remove bolts securing lock body assembly.



⑨ Take out lock body assembly.



2) Installation

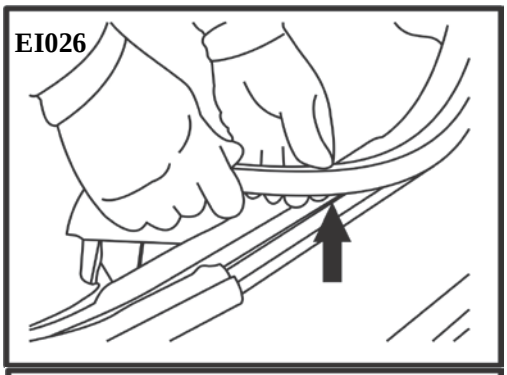
Installation is the reverse order of removal.

Caution:

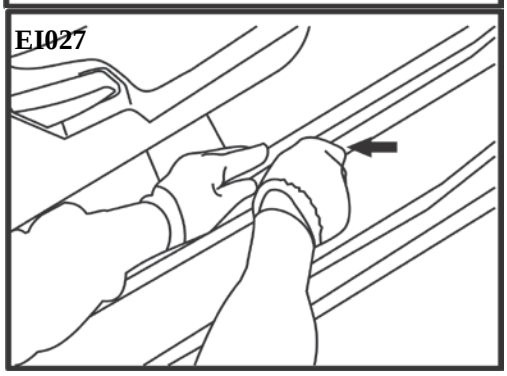
- When installing, be sure to follow the original position.
- After installing, check door for normal opening and closing and door lock for secure locking. If abnormal or insecure, reinstall or readjust.

1) Removal

① Remove rear door side molding.



② Remove clip securing rear door welcome pedal.



③ Remove rear door welcome pedal.

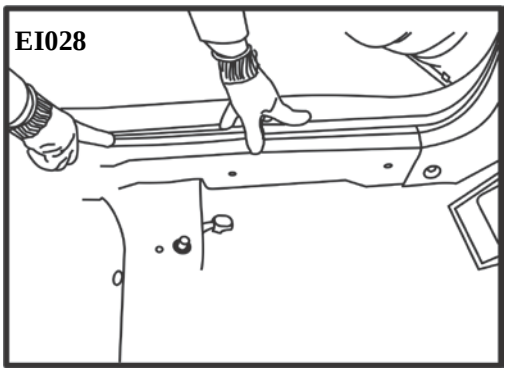
2) Installation

When installing, align pedal clip with hole site and then press it in hard to lock.

B-pillar Garnish

1) Removal

① Remove front door side molding.



② Adjust front seat to an appropriate position.

