长安汽车
CHANGAN

CS35 Workshop Manual

Body Electrical System

CS35RM2J21

4.3 Body Electrical System

2012 CS35

Table of Contents PAGE

4.3.5 Information and Entertainment

4.3.6 Lighting System

4.3.7 Wipers and Washers

4.3.8 Power Rearview Mirror

4.3.9 Central Lock and Theft-Deter

4.3.10 Power Window

4.3.11 Defroster

4.3.12 Sunroof

4.3.13 Parking Aid System

4.3.14 Body Control System

4.3.15 On-Board Network System

Specification

General Specifications

Item	Rated Voltage	Rated Power
Illumination adjusting switch lamp	12 V (DV)	-
Automatic transmission illumination	12 V (DV)	-
Audio main unit lamp	12 V (DV)	-
Driver side window switch lamp	12 V (DV)	-
Passenger side window switch illumination	12 V (DV)	-
Left rear window switch lamp	12 V (DV)	-
Right rear window switch lamp	12 V (DV)	-
Instrument illumination	12 V (DV)	-
A/C control panel illumination	12 V (DV)	-
Cup holder lighting	12 V (DV)	-

Description and Operation

System Overview

Fix the luminance of the Instrument and panel illustration. When the lighting combination switch turns to the position where the position lamp or the headlamp is on, the Instrument and panel illumination begins to work.

The Instrument and panel illumination use LED and bulbs. The following components have the ability of panel illumination:

- Illumination adjusting switch
- Automatic transmission
- Audio main unit
- Driver side window switch
- Passenger side window switch
- Left rear window switch
- Right rear window switch
- Cup holder lighting
- Instrument
- A/C control panel

Symptom Diagnosis and Test

General Equipment

Digital Multimeter

Inspection and Verification

1. Verify the customer concern.
2. Visually inspect for obvious signs of mechanical or electrical damage and the deformation due to collision.

Visual Inspection Chart

Mechanical	Electric
• Instrument panel • Instrument • Lighting combination switch • Accessory equipment installation	• Fuse • Circuit • Switch

3. Inspect the obvious and visible system circuits.
4. If an obvious cause for an observed or reported concern is found, correct the cause before proceeding to the next step.
5. If the cause is not visually evident, verify the symptom and refer to the Symptom Chart.

Symptom Chart

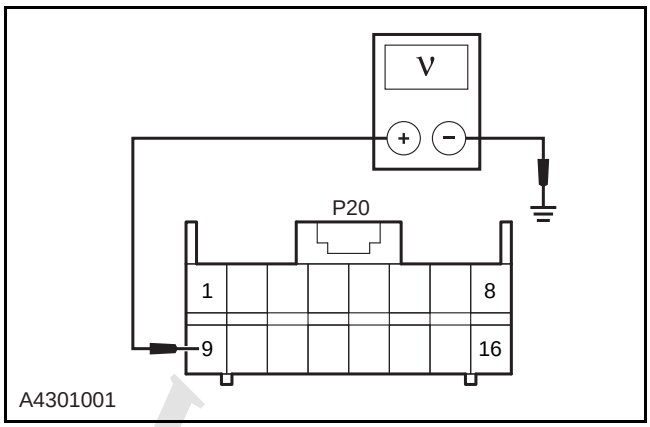
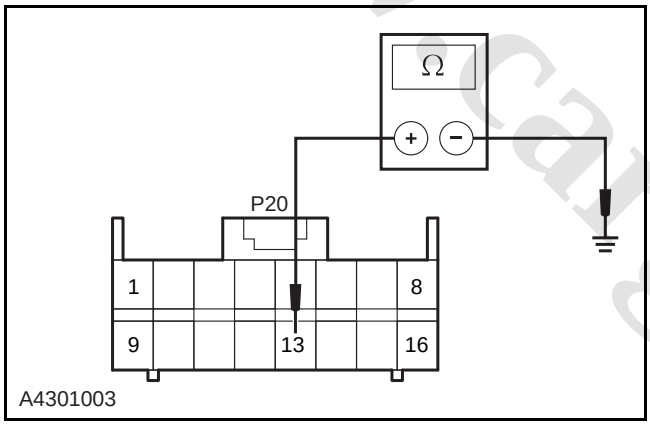
If there is a symptom but no diagnosis trouble code (DTC) is stored in control module and can not confirm the symptom reasons in basic inspect, it is necessary to diagnosis and eliminate the symptoms in the following chart.

Symptom	Possible Sources	Action
Instrument illumination failure	• Fuse • Circuit fault • Instrument	**Refer to: When the Position Lamp Is ON, the Scale Panel Lamp Is Not ON Diagnosis (4.3.2 Instrument, Symptom Diagnosis and Testing).**
The A/C control panel illumination failure	• Fuse • Circuit fault • A/C control module	**Refer to: A/C Control Panel Illumination Failure Diagnosis (4.3.1 Instrument and Panel Illumination, Symptom Diagnosis and Testing).**
Audio main unit illumination failure	• Fuse • Circuit fault • Audio main unit	**Refer to: Main DVD Illumination Failure Diagnosis (4.3.1 Instrument and Panel Illumination, Symptom Diagnosis and Testing).**
Transmission gear switch illumination failure	• Fuse • Circuit fault • Transmission gear switch	**Refer to: Transmission Gear Switch Illumination Failure Diagnosis (4.3.1 Instrument and Panel Illumination, Symptom Diagnosis and Testing).**
Abnormal backlight (partial working or background illumination failure)	• Fuse • Circuit fault • Position lamp does not work	**Refer to: Abnormal Backlight (Partial Working or Background Illumination Failure) Diagnosis (4.3.1 Instrument and Panel Illumination, Symptom Diagnosis and Testing).**
Driver side window switch illumination failure	• Fuse • Circuit fault • Driver side window switch	• Replace the fuse • Inspect and repair the circuit • Replace the driver side window switch
Passenger side window switch illumination failure	• Fuse • Circuit fault • Passenger side window switch	• Replace the fuse • Inspect and repair the circuit • Replace the passenger side window switch
Left rear window switch illumination failure	• Fuse • Circuit fault • Left rear window switch	• Replace the fuse • Inspect and repair the circuit • Replace the left rear window switch

Symptom	Possible Sources	Action
Right rear window switch failure	• Fuse • Circuit fault • Right rear window switch	• Replace the fuse • Inspect and repair the circuit • Replace the right rear window switch
Illumination adjusting switch	• Fuse • Circuit fault • Illumination adjusting switch	• Replace the fuse • Inspect and repair the circuit • Replace the lightning adjusting switch
Cup holder illumination fault	• Fuse • Circuit fault • Cup holder illuminating light	• Replace the fuse • Inspect and repair the circuit • Replace the cup holder illuminating light

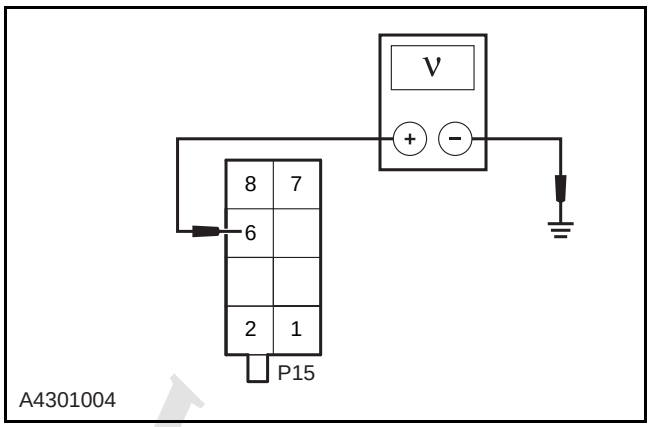
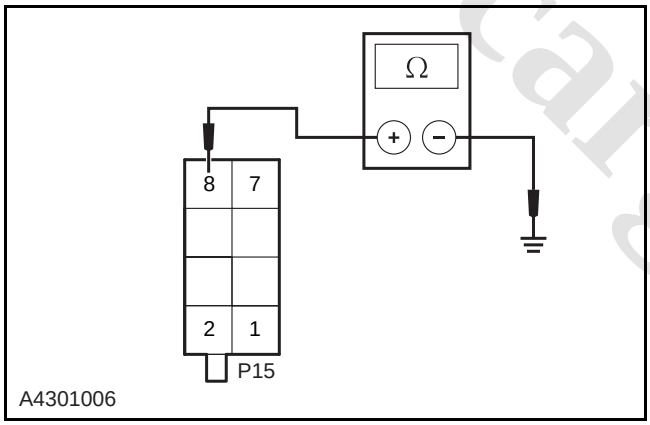
A/C Control Panel Illumination Failure Diagnosis

Test Conditions	Details/Results/Actions
1. General inspection	
	A. Inspect the wiring harness of the A/C control module for damage, poor contact, aging, or loose. Is it normal? **Y** Go to step 2. **N** Repair the fault.
2. Inspect the working state of the position lamp	
	A. Turn the ignition switch to "ON" position, rotate the combination switch to position lamp. Is the position lamp normal? **Y** Go to step 3. **N** Inspect and repair the position lamp fault. **Refer to: Position Lamp Failure (4.3.6 Lighting System, Symptom Diagnosis and Testing).**
3. Inspect other background lighting lamps	
	A. Inspect the lamps of the audio main unit and the power window switch. Are they normal? **Y** Go to step 4. **N** **Refer to: Symptom Chart (4.3.1 Instrument and Panel Illumination, Symptom Diagnosis and Testing).**

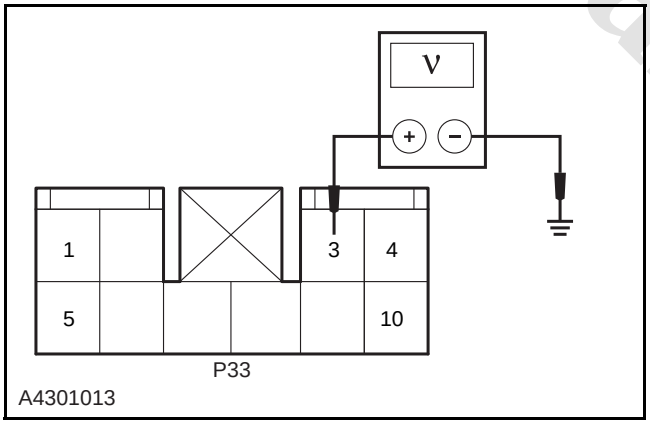
Test Conditions	Details/Results/Actions
4. Inspect the power supply circuit of the A/C control panel lamp	
	A. Turn the ignition switch to position "LOCK". B. Disconnect the A/C control panel lamp wiring harness connector P20. C. Turn the ignition switch to "ON" position, rotate the combination switch to position lamp. D. Measure the voltage between the terminal 9 of the air conditioning control module wiring harness connector P20 and the reliable ground. **Standard Voltage Value: 11 ~ 14 V** Is the circuit normal? **Y** Go to step 5. **N** Inspect and repair the open circuit between the A/C control module wiring harness connector P20 terminal 9 and the relay IR10 terminal 5.
5. Inspect the A/C control panel lamp ground circuit	
	A. Turn the ignition switch to "LOCK" position. B. Disconnect the A/C control panel lamp wiring harness connector P20. C. Measure the resistance between the A/C control panel wiring harness connector P20 terminal 13 and the reliable ground with a multimeter. **Standard Resistance Value: less than 5 Ω** Is the circuit normal? **Y** Go to step 6. **N** Inspect and repair the open circuit between the A/C control panel lamp wiring harness connector P20 terminal 13 and the ground point.
6. Replace the air conditioning control module	
	A. Turn the ignition switch to "LOCK" position and disconnect the battery negative cable. B. Replace the air conditioning control module. **Refer to: A/C Control Module (4.1.1 Heating, Ventilation and Air Conditioning, Removal and Installation).** Verify the system is normal.

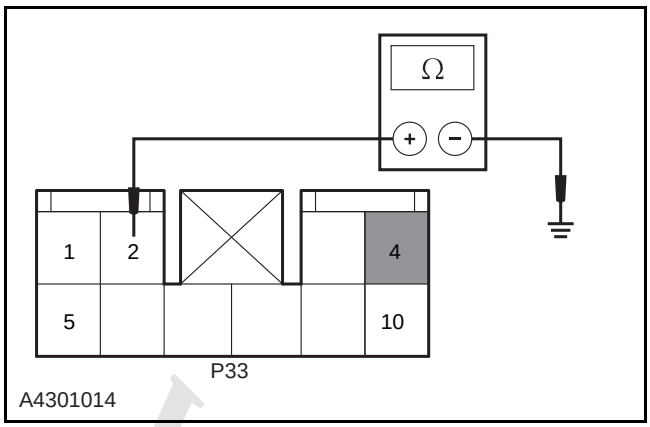
Audio Main Unit Illumination Failure Diagnosis

Test Conditions	Details/Results/Actions
1. General inspection	
	A. Inspect the wiring harness of audio system wiring harness connector for damage, poor contact, aging, or loose. Is it normal? **Y** Go to step 2. **N** Repair the fault.
2. Inspect the working state of the position lamp	
	A. Turn the ignition switch to "ON" position and turn the lighting combination switch to position gear. Is the position lamp normal? **Y** Go to step 3. **N** Inspect and repair the position lamp fault. **Refer to: Position Lamp Failure (4.3.6 Lighting System, Symptom Diagnosis and Testing).**
3. Inspect other background lighting lamps	
	A. Inspect the lamps of the cigarette lighter and the power window switch. Are they normal? **Y** Go to step 4. **N** **Refer to: Symptom Chart (4.3.1 Instrument and Panel Illumination, Symptom Diagnosis and Testing).**

Test Conditions	Details/Results/Actions
4. Inspect the audio main unit lamp power supply circuit	
 A4301004	A. Turn the ignition switch to "LOCK" position and disconnect the battery negative cable. B. Disconnect the audio main unit wiring harness connector P15. C. Connect the battery negative cable and turn the ignition switch to "ON" position and the combination switch to the position gear. D. Inspect the voltage between the terminal 6 of the audio main unit wiring harness connector P15 and the reliable ground. **Standard Voltage Value: 11 ~ 14 V** Is the voltage normal? **Y** Go to step 5. **N** Inspect and repair the open circuit fault from the audio main unit wiring harness connector P15 terminal 6 to the relay IR10 terminal 5.
5. Inspect the audio main unit lamp ground circuit	
 A4301006	A. Turn the ignition switch to "LOCK" position and disconnect the battery negative cable. B. Disconnect the audio main unit wiring harness connector P15. C. Measure the resistance between the audio main unit wiring harness connector P15 terminal 8 and the reliable ground. **Standard Resistance Value: less than 5 Ω** Is the resistance normal? **Y** Go to step 6. **N** Inspect and repair the open circuit between the audio main unit wiring harness connector P15 terminal 8 and the ground point.
6. Replace the audio main unit	
	A. Turn the ignition switch to "LOCK" position and disconnect the battery negative cable. B. Replace the audio system. **Refer to: CD Player/Radio Player Assembly (4.3.5 Information and Entertainment System, Removal and Installation).** Verify the system is normal.

Transmission Gear Switch Illumination Failure Diagnosis

Test Conditions	Details/Results/Actions
1. General inspection	
	A. Inspect the wiring harness of the transmission gear sensor for damage, poor contact, aging, or loose. Is it normal? **Y** Go to step 2. **N** Repair the fault.
2. Inspect the fuse	
	A.Inspect the transmission gear switch fuse IF06. **Fuse Rated Capacity: 10 A** Is the fuse normal? **Y** Go to step 3. **N** Inspect and repair the fuse circuit, replace the fuse in rated capacity.
3. Inspect the transmission gear switch power supply circuit	
 A4301013	A. Turn the ignition switch to position "LOCK". B. Disconnect the gear switch wiring harness connector P33. C. Turn the ignition switch to position "ON" and measure the voltage of the terminal 3 of the transmission gear switch wiring harness connector P33. **Standard Voltage Value: 11 ~ 14 V** Is the voltage normal? **Y** Go to step 4. **N** Repair the gearshift handle power supply circuit.

Test Conditions	Details/Results/Actions
4. Inspect the ground circuit of the transmission gear switch illumination	
	A. Turn the ignition switch to "LOCK" position and disconnect the battery negative cable. B. Disconnect the transmission gear switch wiring harness connector P33. C. Measure the resistance between the transmission gear switch wiring harness connector P33 terminal 2 and 4 and the reliable ground. **Standard Resistance Value: less than 5 Ω** Is the resistance normal? **Y** Go to step 5. **N** Inspect and repair the open circuit between the transmission gear switch wiring harness connector P20 terminal 2 & 4 and the reliable ground.
5. Replace the gearshift handle control mechanism	
	A. Turn the ignition switch to position "LOCK" and disconnect the battery negative cable. B. Replace the gearshift handle. **Refer to: Gearshift Mechanism (3.2.2 Automatic Transmission/Transaxle - External Control, Removal and Installation).** Verify the system is normal.

Abnormal Backlight (Partial Working or Backlight Failure) Diagnosis

Test Conditions	Details/Results/Actions
1. General inspection	
	A. Inspect the wiring harness with panel illumination for damage, poor contact, aging or loose. Is it normal? **Y** Go to step 2. **N** Repair the fault.
2. Verify the working state of each component backlight	
	A. Turn the ignition switch to "ON" position and turn the lighting combination switch to the position gear and the lighting adjusting switch. B. Verify the operation result. Are the partial backlights abnormal? **Y** Inspect and repair the individual abnormal backlight. **Refer to: Symptom Chart (4.3.1 Instrument and Panel Illumination, Symptom Diagnosis and Testing).** **N** All the interior lamps do not work, go to step 3.
3. Inspect the working state of the position lamp	
	A. Turn the ignition switch to "ON" position and turn the lighting combination switch to position gear. Does the position lamp work normal? **Y** The system is normal. **N** Inspect and repair the position lamp fault. **Refer to: Position Lamp Failure (4.3.6 Lighting System, Symptom Diagnosis and Testing).**

Specifications

General Specifications

Description	Rated Voltage	Maximum Current
Instrument cluster power supply	12 V (DC)	-

Torque Specifications

Description	Nm	lb-ft	lb-in
Instrument cluster retaining screw	6	-	53
Instrument cluster trim retaining screw	6	-	53

Description and Operation

System Overview

Located at the left side of the instrument panel and over the steering column, the instrument cluster provides the driver with the vehicle performance information with the instrument in it. When the ignition switch is at "ACC" or "ON" position, some functions of the instrument cluster will be tested to inspect. The following situations will occur during the test.

- The airbag indicator will be on for 4 s.
- ABS (Anti - lock Brake System) indicator will be on for a short while.
- EBD (Electronic Brake Distribution System) indicator will be on for a short while.
- EPS (Electronic Power System) warning indicator will be on for a short while.
- The automatic cruise indicator will be on for a short while.
- The seat belt indicator will be on for a short while.
- The brake fluid level indicator will be on for a short while.
- The charging system indicator will be on.
- The coolant temperature indicator will be on for a short while.
- The door ajar indicator will be on for a short while.
- The low fuel level indicator will be on for a short while.
- The oil pressure indicator will be on for a short while.
- The electronic immobilizer indicator will be on for a short while.
- The engine malfunction indicator will be on for a short while.
- The instrument beeps occurs.

The instrument cluster consists of the thermometer, fuel gauge, speedometer, tachometer, various indicators and LCD display (with odometer, hodometer, automatic transmission gear, outside temperature display and the door status display, etc.).

Speedometer / Odometer / Hodometer

The speedometer measures the vehicle speed in km/h. The vehicle speed sensor signal of the instrument cluster comes from the ABS. The odometer measures the accumulated vehicle mileage in "km". The odometer is used to measure the mileage of the vehicle after last zero. The hodometer can be turned to zero at any time, so the driver can record the mileage of the vehicle from any starting point.

Fuel Gauge

The instrument cluster panel of the fuel gauge is connected with the sensor in the fuel tank. The fuel gauge only indicates the volume of the fuel in the fuel tank, when the ignition switch is at "ON" or "ACC". When the ignition switch is at position "LOCK" or "START", the indicating pointer may point to any location.

Thermometer Gauge

The temperature gauge on the instrument cluster is connected with the ECT of the engine coolant. The temperature gauge indicates the temperature of the coolant. After long driving in hot weather or idling, the pointer of the temperature gauge may point beyond a mid - scale position. If the pointer is over the dial location of the red cap area, then the engine is overheating.

Instrument Indicator

The indicators of the instrument cluster are used to indicate the function or the possible malfunction of the specific system when driving. The indicators of the instrument cluster provide the users with warnings or instructions. The types of the indicators of the instrument cluster are as follows:

Lamp Symbol	Indicator	Color
	Oil pressure warning lamp	Red
	Charging indicator	Red
	Engine malfunction indicator	Yellow
	Main drive seat belt indicator	Red
	Airbag indicator	Red
	High - beam Indicator	Blue
	Low fuel level warning indicator	Yellow

Lamp Symbol	Indicator	Color
	High water temperature warning indicator	Red
	ABS indicator	Yellow
	Position lamp indicator	Green
	Parking brake / Brake fluid warning indicator	Red
	Left turn indicator	Green
	Right turn indicator	Green
	Immobilizer indicator	Red
	Low - beam indicator	Green
	Front fog lamp indicator	Green
	Door ajar indicator	Red
	Rear fog lamp indicator	Yellow
EPS	EPS indicator lamp	Yellow
	EBD indicator	Yellow
CURISE	CRUISE indicator	Green

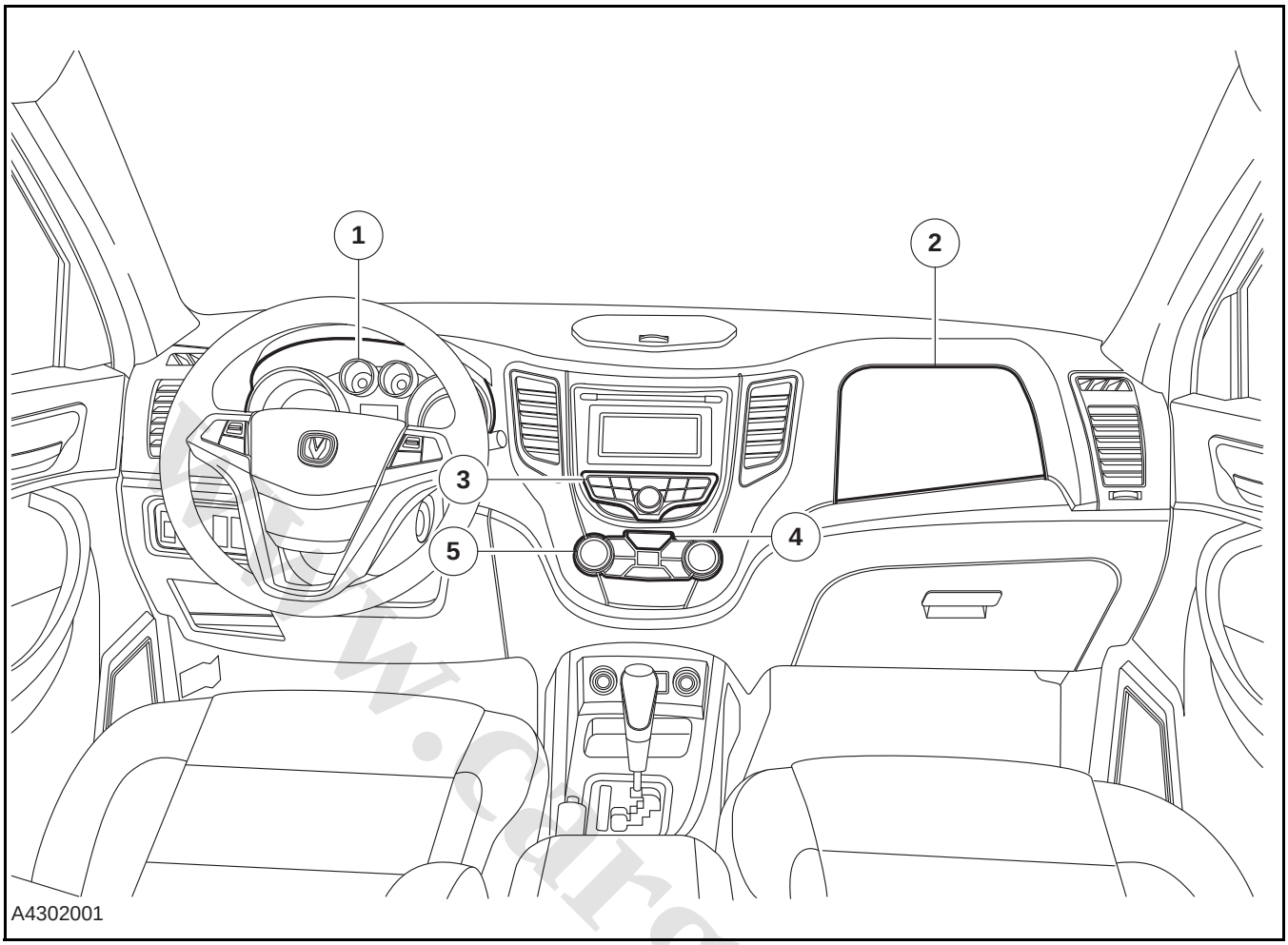
Buzzer Module

The buzzer module is in the instrument cluster. The buzzer drive signal comes from the body control module. The buzzer beeps in the following conditions catch the driver's attention.

Function	Description
Door not open alarm	① Turn the ignition switch to ON. ② Any one of the left front, right front, left rear, right rear and back doors is not closed. ③ The instrument buzzer alarms continuously until the door is closed properly.
Unfastened seat belt alarm	① Turn the ignition switch to ON, when the seat belt is unfastened, the instrument seat belt unfastened indicator is on. ② After the engine starts, the speed is more than 7 km / h, the buzzer alarms for 6 times and then stops for some time and alarms for 6 times in total of 5 cycles. ③ If the seat belt is pulled out in the process of driving, the instrument will again alarm cycle.

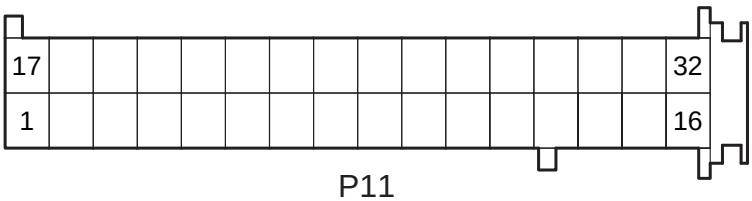
CAUTION: The alarm buzzer may not work correctly when the vehicle battery is low.

Location View



Item	Description	Item	Description
1	Instrument cluster assembly	4	Hazard warning lamp switch
2	Instrument panel assembly	5	A/C control panel
3	Front entertainment controller assembly		

Instrument Cluster Terminal List



P11

A4302002

Terminal ID	Terminal Description	Valid Signal Value	Remark
P11-1	Charging indicator signal	Low validity	-
P11-2	Front fog lamp indicator signal	-	-
P11-3	Rear fog lamp indicator signal	-	-
P11-4	-	-	-
P11-5	Airbag control module fault warning indicator signal	-	-
P11-6	Driver seat belt switch signal	-	-
P11-7	Immobilizer indicator signal	Low validity	-
P11-8	Parking brake switch signal / Brake level signal	Low validity	-
P11-9	Oil pressure warning indicator signal	Low validity	-
P11-10	Back lighting signal	-	-
P11-11	-	-	-
P11-12	-	-	-
P11-13	G102	-	Grounding wire
P11-14	Continuous power supply	Power supply +	-
P11-15	Ignition switch power supply (IG1)	Power supply +	-
P11-16	G102	-	Grounding wire
P11-17	-	-	-
P11-18	-	-	-

Terminal ID	Terminal Description	Valid Signal Value	Remark
P11-19	Outside temperature sensor signal	Resistance signal	-
P11-20	Fuel level sensor signal	Resistance signal	-
P11-21	Fuel level sensor ground signal	Resistance signal	-
P11-22	G104	-	Grounding wire
P11-23	-	-	-
P11-24	-	-	-
P11-25	Reversing radar -- data	-	-
P11-26	Reversing radar -- clock	-	-
P11-27	-	-	-
P11-28	High - beam indicator signal	-	-
P11-29	Vehicle speed signal output	Square signal	-
P11-30	Outside temperature sensor ground signal	-	Grounding wire
P11-31	CAN high	CAN	-
P11-32	CAN low	CAN	-

Symptom Diagnosis and Testing

General Equipment

Digital Multimeter
Changan Auto Special Diagnostic Tool
Wiring Harness Maintenance Special Tool

Inspection and Verification

1. Verify the customer concern.
2. Visually inspect for obvious signs of mechanical damage or electric damage.

Visual Inspection Chart

Mechanical	Electric
• Instrument cluster • Instrument decorative panel	• Fuse • Circuit • Control switch • Instrument cluster • BCM

3. Inspect the visible system circuit.
4. If an obvious cause for an observed or reported concern is found, correct the cause before proceeding to the next step.
5. If the cause is not visually evident, verify the symptom and refer to the Symptom Chart.

Symptom Chart

If there is a symptom but no diagnostic trouble code (DTC) is stored in control module and can not confirm symptom reasons in basic inspect, it is necessary to diagnosis and eliminate the symptoms in the following chart.

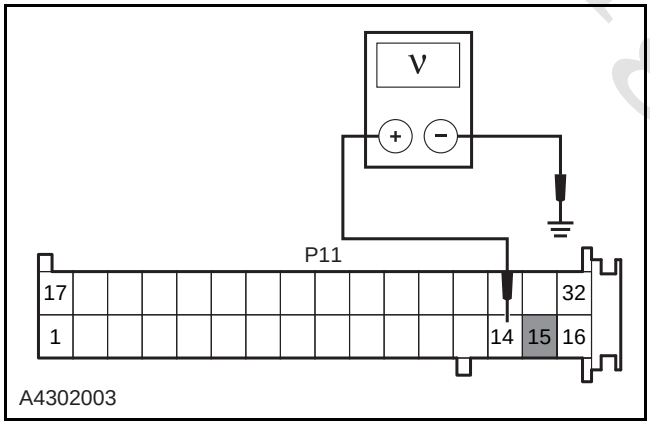
Symptom	Possible Sources	Solutions
When the position lamp is on, the scale plate light is off.	• Fuse • Circuit fault • Instrument cluster	**Refer to: When Position Lamp Is ON, Scale Panel Lamp Is OFF Diagnosis (4.3.2 Instrument, Symptom Diagnosis and Testing).**
When the ignition switch is in position "ON", but the immobilizer indicator does not blink.	• Fuse • Circuit fault • Instrument cluster • BCM	**Refer to: Immobilizer Indicator Is OFF When Ignition Switch Is ON Diagnosis (4.3.2 Instrument, Symptom Diagnosis and Testing).**
The driver side door is open, but the driver side door indicator is not on.	• Fuse • Circuit fault • Instrument cluster • The contact switch of driver side door • CAN communication circuit • BCM circuit	**Refer to: Driver Side Door Indicator Fault Diagnosis (4.3.2 Instrument, Symptom Diagnosis and Testing).**
The left turning signal indicator does not blink when turning left.	• Fuse • Circuit fault • Instrument cluster • CAN communication circuit • BCM circuit	**Refer to: Left Turn Signal Indicator Not Blink When Turning Left Diagnosis (4.3.2 Instrument, Symptom Diagnosis and Testing).**
When the ignition switch is in "ON" position and the high - beam works, the high - beam indicator is not on.	• Fuse • Circuit fault • Instrument cluster	**Refer to: High - Beam Indicator Fault When Ignition Switch Is at ON Position and High - beam Lamp Works Diagnosis (4.3.2 Instrument, Symptom Diagnosis and Testing).**
The front fog lamp works normally, but the front fog lamp indicator is off.	• Fuse • Circuit fault • Instrument cluster	**Refer to: Front Fog Lamp Indicator Fault When Front Fog Lamp Works Properly Diagnosis (4.3.2 Instrument, Symptom Diagnosis and Testing).**

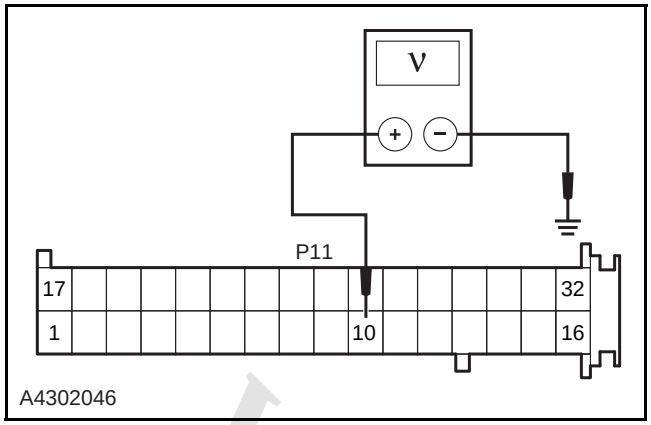
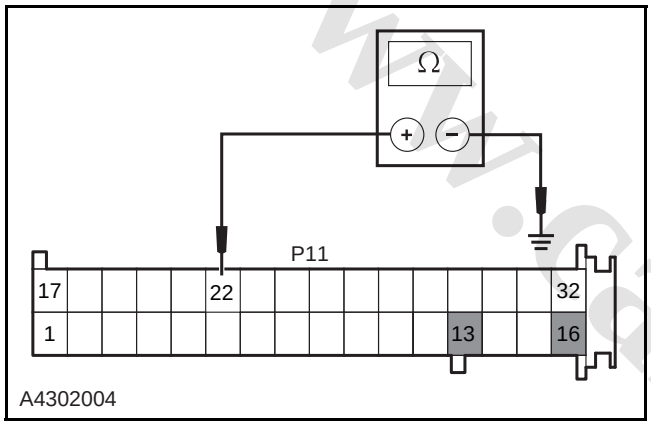
Symptom	Possible Sources	Solutions
Abnormal indication of the tachometer.	• Fuse • Circuit fault • Instrument cluster • CAN communication circuit • ECM • ECM circuit	**Refer to: Abnormal Tachometer Indicator Diagnosis (4.3.2 Instrument, Symptom Diagnosis and Testing).**
Abnormal speedometer indication.	• Fuse • Circuit fault • Instrument cluster • CAN communication circuit • ABS • ABS circuit	**Refer to: Abnormal Speedometer Indicator Diagnosis (4.3.2 Instrument, Symptom Diagnosis and Testing).**
Abnormal water temperature gauge indication.	• Fuse • Circuit fault • Instrument cluster • CAN communication circuit • ECM • ECM circuit	**Refer to: Abnormal Water Temperature Gauge Indicator Diagnosis (4.3.2 Instrument, Symptom Diagnosis and Testing).**
Abnormal fuel gauge indication.	• Fuse • Circuit fault • Instrument cluster • Fuel level sensor	**Refer to: Abnormal Fuel Gauge Indicator Diagnosis (4.3.2 Instrument, Symptom Diagnosis and Testing).**
The engine fault indicator does not light when the ignition switch at "ON" position.	• Fuse • Circuit fault • Instrument cluster • CAN communication circuit • ECM circuit • ECM	**Refer to: Engine Fault Indicator Not Light When Ignition Switch at ON Position Diagnosis (4.3.2 Instrument, Symptom Diagnosis and Testing).**
The engine oil pressure alarm indicator does not light when the ignition switch at "ON" position.	• Fuse • Circuit fault • Instrument cluster • Oil pressure switch	**Refer to: Engine Oil Pressure Alarm Indicator Fault When Ignition Switch at ON Position Diagnosis (4.3.2 Instrument, Symptom Diagnosis and Testing).**

Symptom	Possible Sources	Solutions
The charging indicator does not light when the ignition switch at "ON" position.	• Fuse • Circuit fault • Instrument cluster • Voltage regulator • Alternator	**Refer to: Charging Indicator Fault When Ignition Switch Is at "On" Position Diagnosis (4.3.2 Instrument, Symptom Diagnosis and Testing).**
Brake level alarm / Parking brake indicator is off.	• Fuse • Circuit fault • Instrument cluster • Parking brake switch • Brake fluid level sensor	**Refer to: Brake Level Alarm / Parking Brake Indicator Is OFF Diagnosis (4.3.2 Instrument, Symptom Diagnosis and Testing).**
The ABS fault indicator does not light when the ignition switch at "ON" position.	• Fuse • Circuit fault • Instrument cluster • CAN communication circuit • ABS • ABS module circuit	**Refer to: ABS Fault Indicator Not Light When Ignition Switch at "ON" Position Diagnosis (4.3.2 Instrument, Symptom Diagnosis and Testing).**
The EBD fault indicator does not light when the ignition switch at "ON" position.	• Fuse • Circuit fault • Instrument cluster • CAN communication circuit • ABS • ABS module circuit	**Refer to: EBD Fault Indicator Not Light When Ignition Switch at "ON" Position Diagnosis (4.3.2 Instrument, Symptom Diagnosis and Testing).**
When the ignition switch is at position "ON", the unfastened seat belt indicator is not on.	• Fuse • Circuit fault • Instrument cluster • Seat belt switch	**Refer to: Safe Belt Indicator Fault When Ignition Switch at "ON" Position Diagnosis (4.3.2 Instrument, Symptom Diagnosis and Testing).**
When the ignition switch is at position "ON", the airbag malfunction indicator is not on.	• Fuse • Circuit fault • Instrument cluster • SDM circuit • SDM	**Refer to: Airbag Malfunction Indicator Fault When Ignition Switch Is ON Diagnosis (4.3.2 Instrument, Symptom Diagnosis and Testing).**

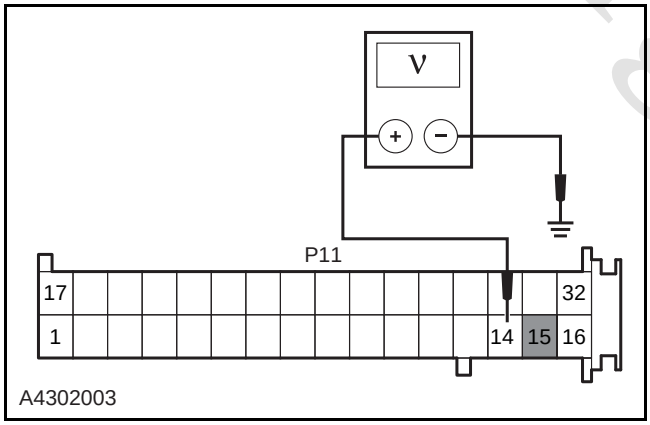
Symptom	Possible Sources	Solutions
Buzzer alarm works improperly.	• Fuse • Circuit fault • Instrument cluster • CAN communication circuit • BCM • BCM circuit	**Refer to: Abnormal Buzzer Alarm Diagnosis (4.3.2 Instrument, Symptom Diagnosis and Testing).**
Diagnosis procedure for abnormal display of the PRND gear in the liquid crystal display.	• Circuit fault • Instrument cluster • CAN communication circuit • TCM circuit • Neutral position switch • TCM	**Refer to: Abnormal Display of PRND Gear in the Liquid Crystal Display Diagnosis (4.3.2 Instrument, Symptom Diagnosis and Testing).**

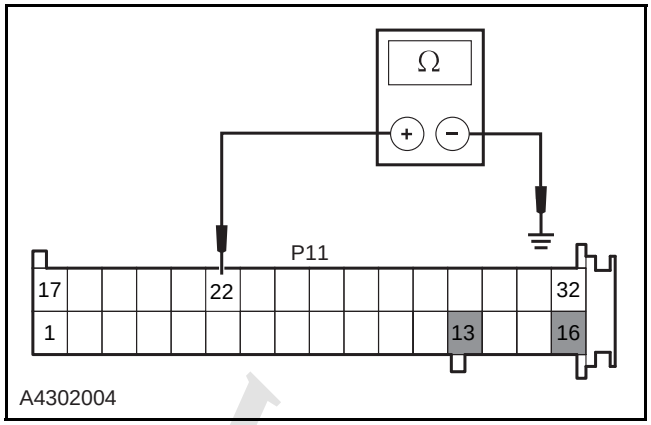
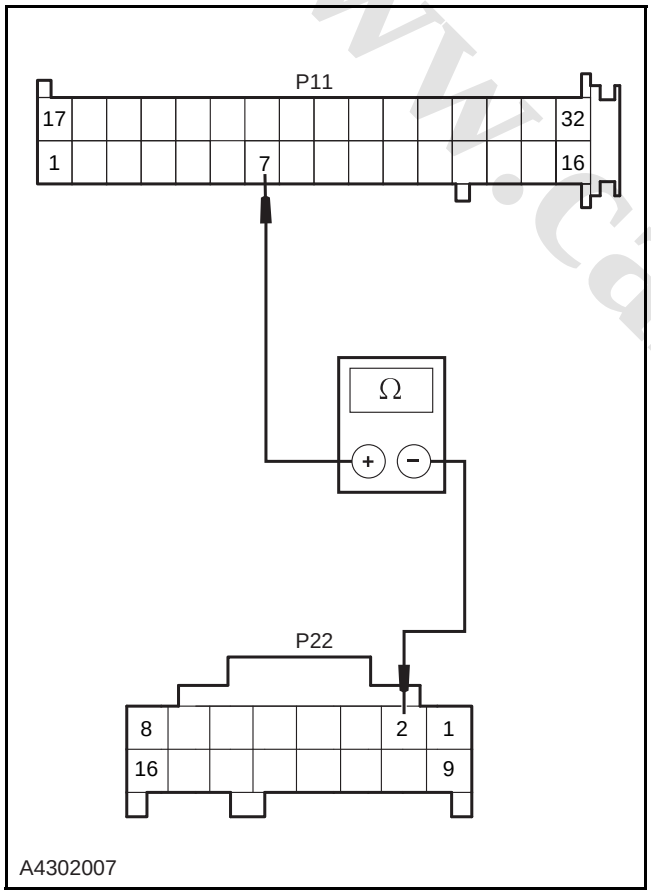
When Position Lamp Works Normally, Scale Plate Light Fault Diagnosis

Test Conditions	Details/Results/Solutions
1. General procedures	
	A. Inspect the instrument cluster wiring harness connectors for damage, poor contact, aging and loose. Is it normal? **Y** Go to step 2. **N** Repair the fault.
2. Inspect the fuse	
	A. Inspect the instrument cluster fuse IF06 and IF25. **Fuse Rated Capacity: 10 A, 10 A** Is the fuse normal? **Y** Go to step 3. **N** Inspect and repair the fuse circuit, replace the fuse in rated capacity.
3. Inspect the power supply circuit of the instrument cluster	
	A. Turn the ignition switch to position "LOCK". B. Disconnect the wiring harness connector P11 of the instrument scale plate light. C. Measure the voltage of the terminal 14 of the instrument cluster wiring harness connector P11. **Standard Voltage Value: 11 ~ 14 V** D. Turn the ignition switch to position "ON" and measure the voltage of the terminal 15 of the instrument cluster wiring harness connector P11. **Standard Voltage Value: 11 ~ 14 V** Is the voltage normal? **Y** Go to step 4. **N** Repair the instrument cluster power supply circuit.

Test Conditions	Details/Results/Solutions
4. Inspect the instrument scale plate light circuit	
 A4302046	A. Turn the ignition switch to "LOCK" position. B. Disconnect the wiring harness connector P11 of the instrument scale plate light. C. Measure the voltage of the terminal 10 of the instrument cluster wiring harness connector P11. **Standard Voltage Value: 11 ~ 14 V** Is the voltage normal? **Y** Go to step 5. **N** Repair the instrument scale plate light circuit fault.
5. Inspect the ground circuit of the instrument cluster	
 A4302004	A. Turn the ignition switch to "LOCK" position. B. Disconnect the wiring harness connector P11 of the instrument scale plate light. C. Measure the resistance between the terminal 13, 16 and 22 of the instrument cluster wiring harness connector P11 and the ground point wiring harness. **Standard Resistance Value: less than 5 Ω** Is the resistance value normal? **Y** Replace the instrument cluster. **Refer to: Instrument (4.3.2 Instrument, Removal and Installation).** **N** Repair the instrument cluster ground circuit.

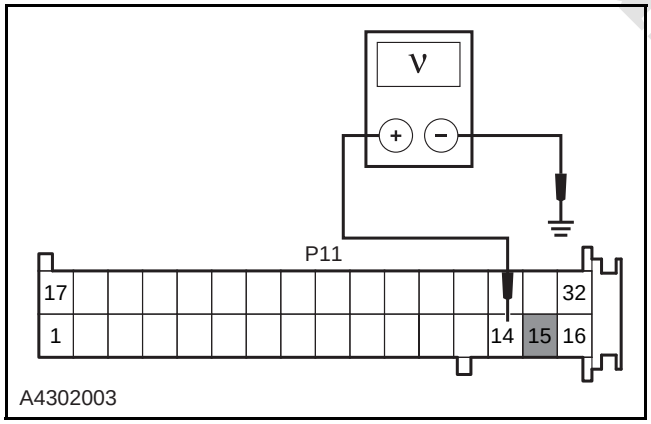
Immobilizer Indicator Fault When Ignition Switch Is at "ON" Position Diagnosis

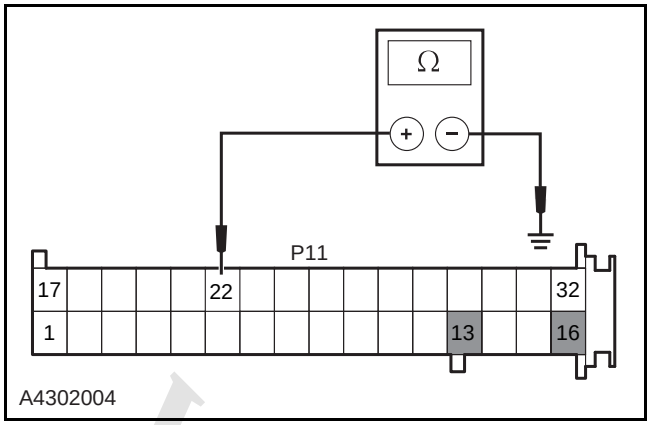
Test Conditions	Details/Results/Solutions
1. General procedures	
	A. Inspect the instrument cluster wiring harness connectors for damage, poor contact, aging and loose. Is it normal? **Y** Go to step 2. **N** Repair the fault.
2. Inspect the fuse	
	A. Inspect the instrument cluster fuse IF06 and IF25. **Fuse Rated Capacity: 10 A, 10 A** Is the fuse normal? **Y** Go to step 3. **N** Inspect and repair the fuse circuit, replace the fuse in rated capacity.
3. Inspect the power supply circuit of the instrument cluster	
	A. Turn the ignition switch to position "LOCK". B. Disconnect the instrument cluster wiring harness P11. C. Measure the voltage of the terminal 14 of the instrument cluster wiring harness connector P11. **Standard Voltage Value: 11 ~ 14 V** D. Turn the ignition switch to position "ON" and measure the voltage of the terminal 15 of the instrument cluster wiring harness connector P11. **Standard Voltage Value: 11 ~ 14 V** Is the voltage normal? **Y** Go to step 4. **N** Repair the instrument cluster power supply circuit.

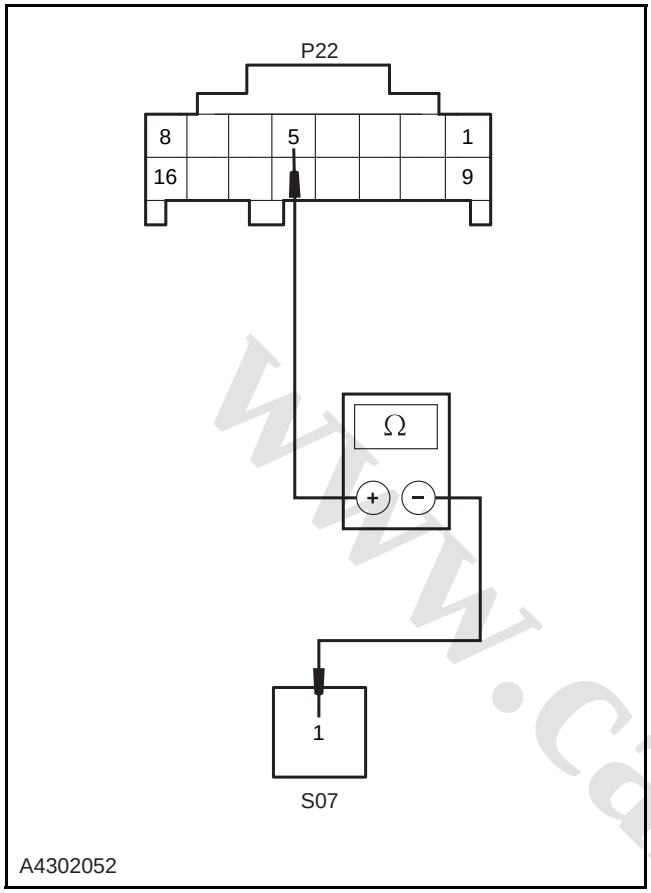
Test Conditions	Details/Results/Solutions
4. Inspect the ground circuit of the instrument cluster	
 A4302004	A. Turn the ignition switch to "LOCK" position. B. Disconnect the instrument cluster wiring harness connector P11. C. Measure the resistance between the terminal 13, 16 and 22 of the instrument cluster wiring harness connector P11 and the ground point wiring harness. **Standard Resistance Value: less than 5 Ω** Is the resistance value normal? **Y** Go to step 5. **N** Repair the instrument cluster ground circuit.
5. Inspect the circuit between the instrument cluster and BCM	
 A4302007	A. Turn the ignition switch to position "LOCK" and disconnect the battery negative cable. B. Measure the resistance value between the terminal 7 of the instrument cluster wiring harness connector P11 and the terminal 2 of the body control module wiring harness connector P22 and inspect if there is any open circuit occurring in the circuit. **Standard Resistance Value: less than 5 Ω** Is the resistance value normal? **Y** Go to step 6. **N** Repair and inspect the open circuit fault between the terminal 7 of the instrument cluster wiring harness connector P11 and the terminal 2 of the body control module wiring harness P22.

Test Conditions	Details/Results/Solutions
6. Replace the instrument cluster	
	A. Replace the instrument cluster. **Refer to: Instrument (4.3.2 Instrument, Removal and Installation).** Is the immobilizer indicator on? **Y** The system is normal. **N** Go to step 7.
7. Inspect and repair the body control module	
	A. Inspect and repair the body control module circuit and repair the circuit fault. B. Inspect and repair the body control module. **Refer to: Symptom Chart (4.3.14 Body Control System, Symptom Diagnosis and Testing).** Verify the system is normal.

Driver Side Door Indicator Fault Diagnosis

Test Conditions	Details/Results/Solutions
1. General procedures	
	A. Inspect the instrument cluster wiring harness connectors for damage, poor contact, aging and loose. Is it normal? **Y** Go to step 2. **N** Repair the fault.
2. Inspect the fuse	
	A. Inspect the instrument cluster fuse IF06 and IF25. **Fuse Rated Capacity: 10 A, 10 A** Is the fuse normal? **Y** Go to step 3. **N** Inspect and repair the fuse circuit, replace the fuse in rated capacity.
3. Inspect the power supply circuit of the instrument cluster	
	A. Turn the ignition switch to "LOCK" position. B. Disconnect the instrument cluster wiring harness connector P11. C. Measure the voltage of the terminal 14 of the instrument cluster wiring harness connector P11. **Standard Voltage Value: 11 ~ 14 V** D. Turn the ignition switch to position "ON" and measure the voltage of the terminal 15 of the instrument cluster wiring harness connector P11. **Standard Voltage Value: 11 ~ 14 V** Is the voltage normal? **Y** Go to step 4. **N** Repair the instrument cluster power supply circuit.

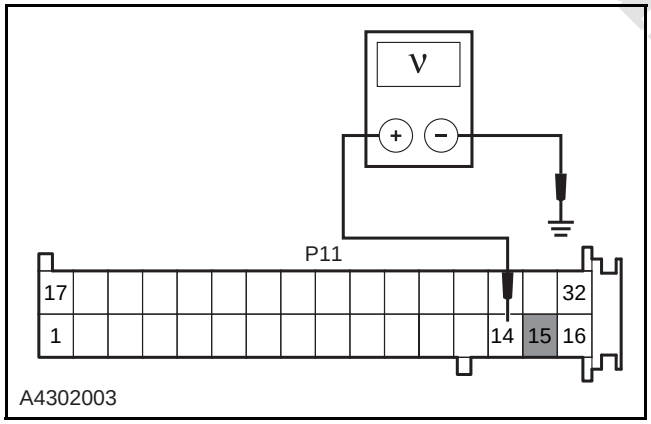
Test Conditions	Details/Results/Solutions
4. Inspect the ground circuit of the instrument cluster	
	A. Turn the ignition switch to "LOCK" position. B. Disconnect the instrument cluster wiring harness connector P11. C. Measure the resistance between the terminal 13, 16 and 22 of the instrument cluster wiring harness connector P11 and the ground point wiring harness. **Standard Resistance Value: less than 5 Ω** Is the resistance value normal? **Y** Go to step 5. **N** Repair the instrument cluster ground circuit.
5. Inspect the CAN communication circuit between the instrument cluster and BCM	
	A. Use the Changan Auto special diagnostic tool to inspect the DTC of the instrument cluster and BCM. B. Inspect the CAN network cable between the instrument cluster and BCM. Is the data communication state between the instrument cluster and BCM normal? **Y** Go to step 6. **N** Repair the related fault indicated by DTC and inspect and repair CAN network circuit. **Refer to: Diagnostic Tool Can Not Communicate via CAN With BCM (4.3.15 On - Board Network, Symptom Chart).**

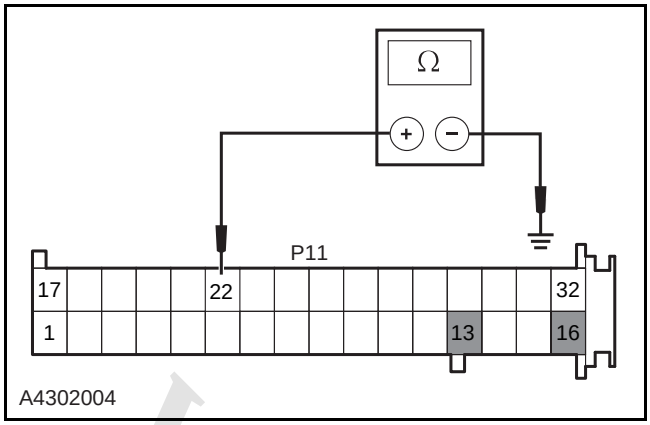
Test Conditions	Details/Results/Solutions
6. Inspect the circuit between BCM and the side door contact switch (take the left front door as an example)	
	A. Turn the ignition switch to position "LOCK" and disconnect the battery negative cable. B. Disconnect the BCM wiring harness connector P22. C. Disconnect the left front door contact switch wiring harness connector S07. D. Measure the resistance between the terminal 5 of the BCM wiring harness connector P22 and the terminal 1 of the left front door contact switch wiring harness connector S07 with the multimeter. **Standard Resistance Value: less than 5 Ω** Does the resistance meet the standard value? **Y** Go to step 7. **N** Inspect and repair the open circuit fault between the terminal 5 of the BCM wiring harness connector P22 and the terminal 1 of the left front door contact switch wiring harness connector S07.
7. Replace the left door contact switch (take the left front door as an example)	
	A. Turn the ignition switch to position "LOCK" and disconnect the battery negative cable. B. Replace the left door contact switch. Is the indicator on normally? **Y** Confirm the maintenance is finished. **N** Go to step 8.
8. Replace the instrument cluster assembly	
	A. Turn the ignition switch to "LOCK" position and disconnect the battery negative cable. B. Replace the instrument cluster assembly. **Refer to: Instrument (4.3.2 Instrument, Removal and Installation).** Is the side door indicator on? **Y** The system is normal. **N** Go to step 9.

Test Conditions	Details/Results/Solutions
9. Inspect and repair the body control module	
	A. Inspect and repair the body control module circuit and repair the circuit fault. B. Inspect and repair the body control module. **Refer to: Symptom Chart (4.3.14 Body Control System, Symptom Diagnosis and Testing).** Verify the system is normal.

CAUTION: The diagnosis procedure for when the passenger side door, the left rear door, the right rear door and the back door are open and the indicator is off is similar to the repair of the driver side door indicator, there is only difference on wiring harnesses.

Left Turn Indicator Fault When Turning Left Diagnosis

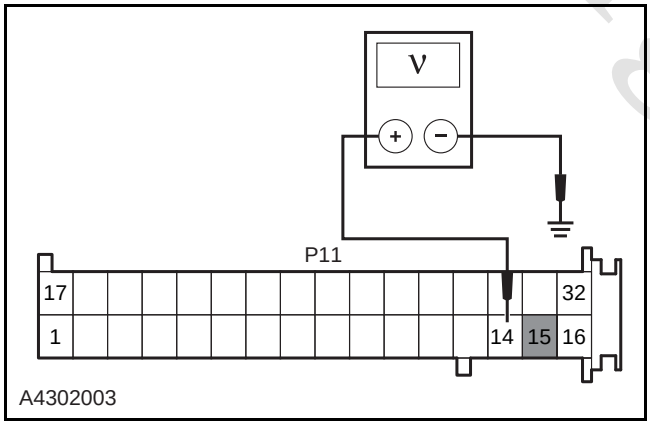
Test Conditions	Details/Results/Solutions
1. General procedures	
	A. Inspect the instrument cluster wiring harness connectors for damage, poor contact, aging and loose. Is it normal? **Y** Go to step 2. **N** Repair the fault.
2. Inspect the fuse	
	A. Inspect the instrument cluster fuse IF06 and IF25. **Fuse Rated Capacity: 10 A, 10 A** Is the fuse normal? **Y** Go to step 3. **N** Inspect and repair the fuse circuit, replace the fuse in rated capacity.
3. Inspect the power supply circuit of the instrument cluster	
	A. Turn the ignition switch to "LOCK" position. B. Disconnect the instrument cluster wiring harness connector P11. C. Measure the voltage of the terminal 14 of the instrument cluster wiring harness connector P11. **Standard Voltage Value: 11 ~ 14 V** D. Turn the ignition switch to position "ON" and measure the voltage of the terminal 15 of the instrument cluster wiring harness connector P11. **Standard Voltage Value: 11 ~ 14 V** Is the voltage normal? **Y** Go to step 4. **N** Repair the instrument cluster power supply circuit.

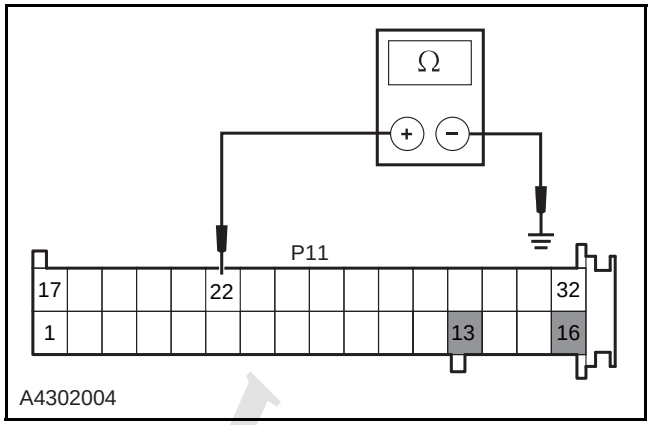
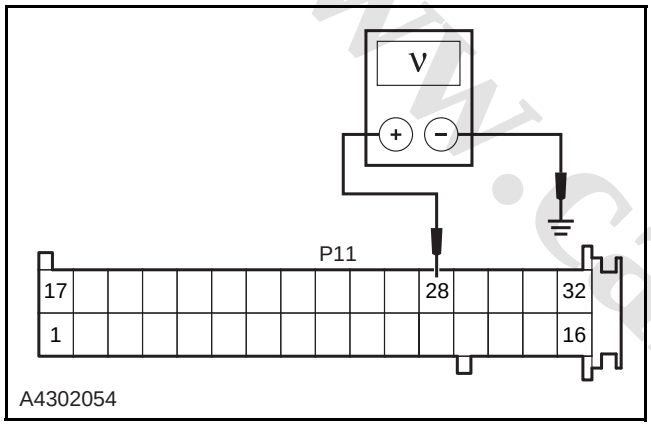
Test Conditions	Details/Results/Solutions
4. Inspect the ground circuit of the instrument cluster	
	A. Turn the ignition switch to "LOCK" position. B. Disconnect the instrument cluster wiring harness connector P11. C. Measure the resistance between the terminal 13, 16 and 22 of the instrument cluster wiring harness connector P11 and the ground point wiring harness. **Standard Resistance Value: less than 5 Ω** Is the resistance value normal? **Y** Go to step 5. **N** Repair the instrument cluster ground circuit.
5. Inspect the working state of the left turn signal lamp	
	A. Turn the ignition switch to "ON" position and turn the combination switch to the left turning signal lamp position. Is the left turn signal lamp normal? **Y** Go to step 6. **N** Inspect and repair the left turn signal lamp not working properly. **Refer to: Turn Signal Lamp Fault Diagnosis (4.3.6 Lighting System，Symptom Diagnosis and Testing).**
6. Inspect the CAN communication circuit between the instrument cluster and BCM	
	A. Use the Changan Auto special diagnostic tool to inspect the DTC of the instrument cluster and BCM. B. Inspect the CAN network cable between the instrument cluster and BCM. Is the data communication state between the instrument cluster and BCM normal? **Y** Go to step 7. **N** Repair the related fault indicated by DTC and inspect and repair the CAN network circuit. **Refer to: Diagnostic Tool Can Not Communicate via CAN With BCM (4.3.15 On - Board Network, Symptom Chart).**

Test Conditions	Details/Results/Solutions
7. Replace the instrument cluster	
	A. Turn the ignition switch to position "LOCK" and disconnect the battery negative cable. B. Replace the instrument cluster. **Refer to: Instrument (4.3.2 Instrument, Removal and Installation).** Does the indicator blink normally? **Y** The system is normal. **N** Go to step 8.
8. Inspect and repair the body control module	
	A. Inspect and repair the body control module circuit and repair the circuit fault. B. Inspect and repair the body control module. **Refer to: Symptom Chart (4.3.14 Body Control System, Symptom Diagnosis and Testing).** Verify the system is normal.

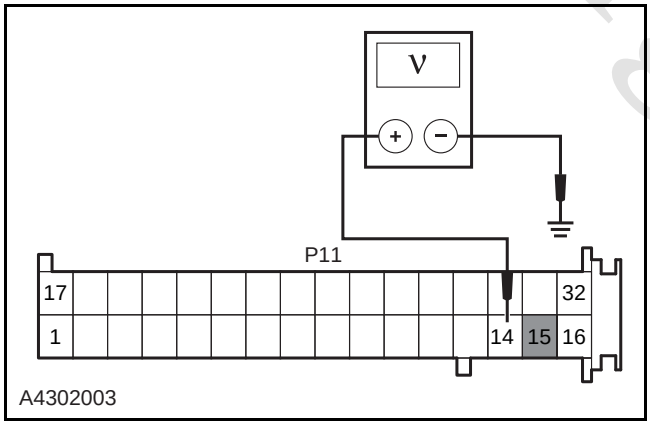
CAUTION: The diagnosis procedure for the turn right signal indicator is off when turning right is similar to the repair of the turn right indicator. There is difference on wiring harnesses.

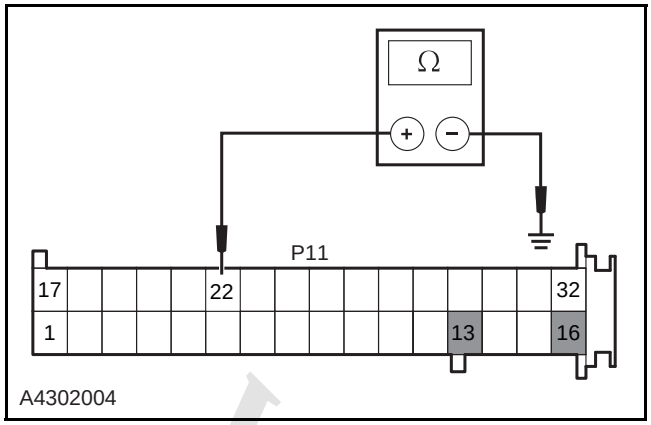
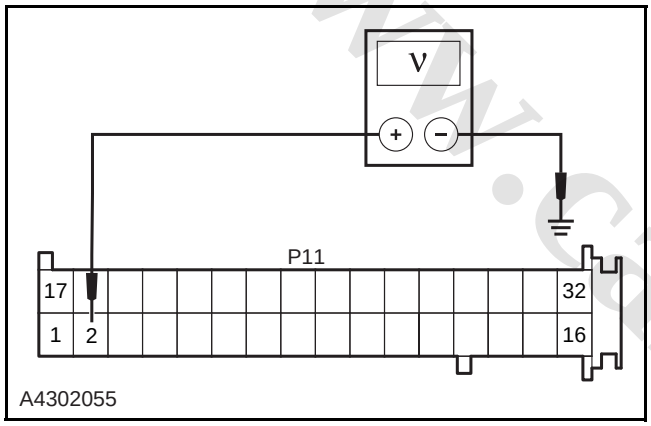
High - Beam Indicator Fault When Ignition Switch Is on "ON" Position and High - Beam Works Diagnosis

Test Conditions	Details/Results/Solutions
1. General procedures	
	A. Inspect the instrument cluster wiring harness connectors for damage, poor contact, aging and loose. Is it normal? **Y** Go to step 2. **N** Repair the fault.
2. Inspect the fuse	
	A. Inspect the instrument cluster fuse IF06 and IF25. **Fuse Rated Capacity: 10 A, 10 A** Is the fuse normal? **Y** Go to step 3. **N** Inspect and repair the fuse circuit, replace the fuse in rated capacity.
3. Inspect the power supply circuit of the instrument cluster	
	A. Turn the ignition switch to "LOCK" position. B. Disconnect the instrument cluster wiring harness P11. C. Measure the voltage of the terminal 14 of the instrument cluster wiring harness connector P11. **Standard Voltage Value: 11 ~ 14 V** D. Turn the ignition switch to position "ON" and measure the voltage of the terminal 15 of the instrument cluster wiring harness connector P11. **Standard Voltage Value: 11 ~ 14 V** Is the voltage normal? **Y** Go to step 4. **N** Repair the instrument cluster power supply circuit.

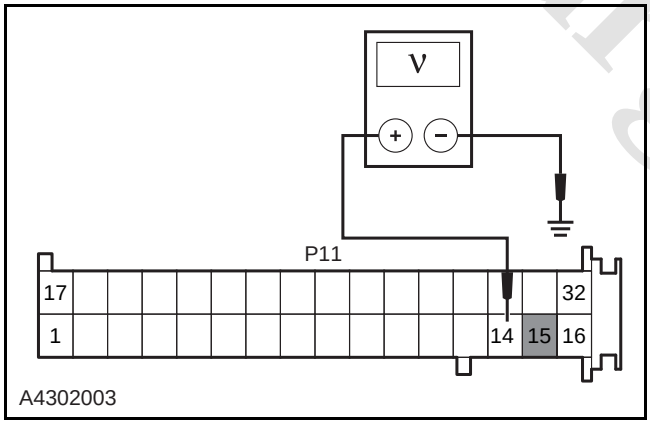
Test Conditions	Details/Results/Solutions
4. Inspect the ground circuit of the instrument cluster	
	A. Turn the ignition switch to "LOCK" position. B. Disconnect the instrument cluster wiring harness connector P11. C. Measure the resistance between the terminal 13, 16 and 22 of the instrument cluster wiring harness connector P11 and the ground point wiring harness. **Standard Resistance Value: less than 5 Ω** Is the resistance value normal? **Y** Go to step 5. **N** Repair the instrument cluster ground circuit.
5. Inspect the circuit between the instrument cluster and the high - beam relay	
	A. Turn the ignition switch to position "LOCK". B. Disconnect the instrument cluster wiring harness connector P11. C. Turn the ignition switch to "ON" position to turn on the high - beam and measure the voltage of the terminal 28 of the instrument cluster wiring harness connector P11. **Standard Voltage Value: 11 ~ 14 V** Is the voltage normal? **Y** Go to step 6. **N** Repair the open circuit fault between the terminal 28 of the instrument cluster wiring harness connector P11 and the terminal 5 of the high - beam relay ER05.
6. Replace the instrument cluster	
	A. Turn the ignition switch to position "LOCK" and disconnect the battery negative cable. B. Replace the instrument cluster. **Refer to: Instrument (4.3.2 Instrument, Removal and Installation).** Verify the system is normal.

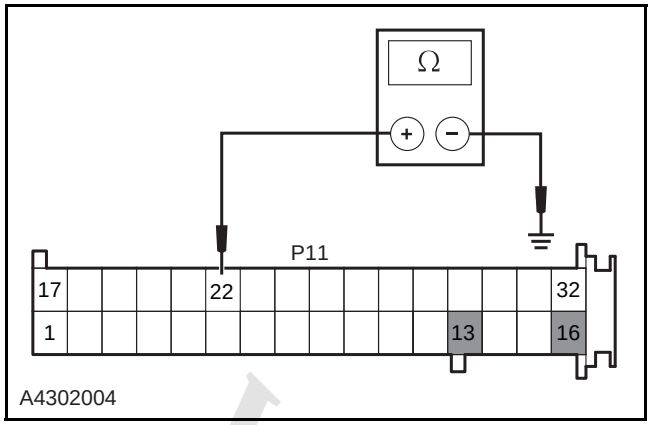
Front Fog Lamp Works Normally But Front Fog Indicator Fault Diagnosis

Test Conditions	Details/Results/Solutions
1. General procedures	
	A. Inspect the instrument cluster wiring harness connectors for damage, poor contact, aging and loose. Is it normal? **Y** Go to step 2. **N** Repair the fault.
2. Inspect the fuse	
	A. Inspect the instrument cluster fuse IF06 and IF25. **Fuse Rated Capacity: 10 A, 10 A** Is the fuse normal? **Y** Go to step 3. **N** Inspect and repair the fuse circuit, replace the fuse in rated capacity.
3. Inspect the power supply circuit of the instrument cluster	
	A. Turn the ignition switch to "LOCK" position. B. Disconnect the instrument cluster wiring harness connector P11. C. Measure the voltage of the terminal 14 of the instrument cluster wiring harness connector P11. **Standard Voltage Value: 11 ~ 14 V** D. Turn the ignition switch to position "ON" and measure the voltage of the terminal 15 of the instrument cluster wiring harness connector P11. **Standard Voltage Value: 11 ~ 14 V** Is the voltage normal? **Y** Go to step 4. **N** Repair the instrument cluster power supply circuit.

Test Conditions	Details/Results/Solutions
4. Inspect the ground circuit of the instrument cluster	
 A4302004	A. Turn the ignition switch to "LOCK" position. B. Disconnect the instrument cluster wiring harness connector P11. C. Measure the resistance between the terminal 13, 16 and 22 of the instrument cluster wiring harness connector P11 and the ground point wiring harness. **Standard Resistance Value: less than 5 Ω** Is the resistance value normal? **Y** Go to step 5. **N** Repair the instrument cluster ground circuit.
5. Inspect the circuit between the instrument cluster and the front fog lamp relay	
 A4302055	A. Turn the ignition switch to position "LOCK". B. Disconnect the instrument cluster wiring harness connector P11. C. Turn the lighting combination switch to the front fog lamp position and measure the voltage of the terminal 2 of the instrument cluster wiring harness connector P11. **Standard Voltage Value: 11 ~ 14 V** Is the voltage normal? **Y** Go to step 6. **N** Repair the open circuit fault between the terminal 2 of the instrument cluster wiring harness connector P11 and the terminal 5 of the front fog lamp relay IR01.
6. Replace the instrument cluster	
	A. Turn the ignition switch to position "LOCK" and disconnect the battery negative cable. B. Replace the instrument cluster. **Refer to: Instrument (4.3.2 Instrument, Removal and Installation).** Verify the system is normal.

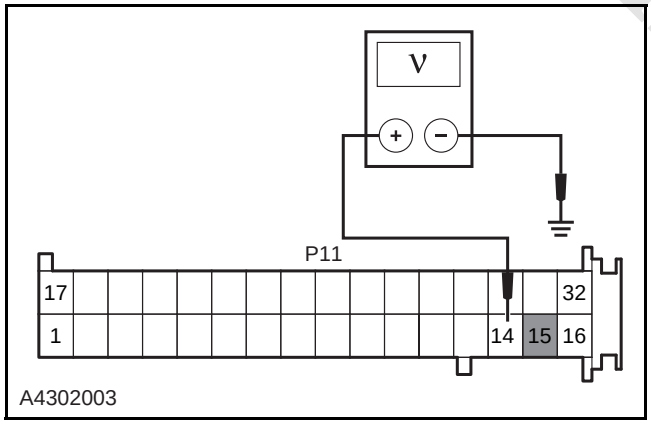
Abnormal Tachometer Indicator Diagnosis

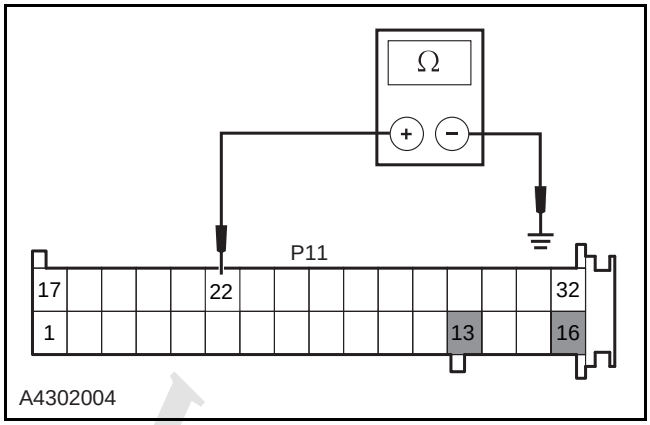
Test Conditions	Details/Results/Solutions
1. General procedures	
	A. Inspect the instrument cluster wiring harness connectors for damage, poor contact, aging and loose. Is it normal? **Y** Go to step 2. **N** Repair the fault.
2. Inspect the fuse	
	A. Inspect the instrument cluster fuse IF06 and IF25. **Fuse Rated Capacity: 10 A, 10 A** Is the fuse normal? **Y** Go to step 3. **N** Inspect and repair the fuse circuit, replace the fuse in rated capacity.
3. Inspect the power supply circuit of the instrument cluster	
	A. Turn the ignition switch to "LOCK" position. B. Disconnect the instrument cluster wiring harness connector P11. C. Measure the voltage of the terminal 14 of the instrument cluster wiring harness connector P11. **Standard Voltage Value: 11 ~ 14 V** D. Turn the ignition switch to position "ON" and measure the voltage of the terminal 15 of the instrument cluster wiring harness connector P11. **Standard Voltage Value: 11 ~ 14 V** Is the voltage normal? **Y** Go to step 4. **N** Repair the instrument cluster power supply circuit.

Test Conditions	Details/Results/Solutions
4. Inspect the ground circuit of the instrument cluster	
	A. Turn the ignition switch to "LOCK" position. B. Disconnect the instrument cluster wiring harness connector P11. C. Measure the resistance between the terminal 13, 16 and 22 of the instrument cluster wiring harness connector P11 and the ground point wiring harness. **Standard Resistance Value: less than 5 Ω** Is the resistance value normal? **Y** Go to step 5. **N** Repair the instrument cluster ground circuit.
5. Inspect the CAN communication circuit between the instrument cluster and the engine control module	
	A. Use the Changan Auto special diagnostic tool to inspect the DTC of the instrument cluster and ECM. B. Inspect the CAN network cable between the instrument cluster and ECM. Is the data communication state between the instrument cluster and ECM normal? **Y** Go to step 6. **N** Repair the related fault indicated by DTC and inspect and repair the CAN network circuit. **Refer to: Diagnostic Tool Can Not Communicate via CAN With ECM (4.3.15 On - Board Network, Symptom Chart).**
6. Read the tacho data flow with the diagnostic tool	
	A. Connect a special diagnostic tool. B. Start the vehicle and read the data flow of the engine tacho. C. Measure the actual speed with the engine tacho measurement tool. Is the data read from the diagnostic tool the same as the actual speed? **Y** Go to step 8. **N** Go to step 7.

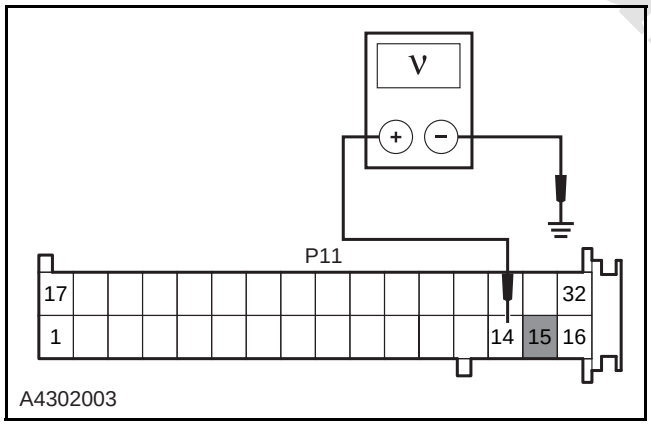
Test Conditions	Details/Results/Solutions
7. Diagnose the engine	
	A. Diagnose and repair the engine. **Refer to: DTC Chart (3.1.13 Electronic Control System - ME7, DTC Diagnosis and Testing).** Is the tachometer normal? **Y** Confirm the maintenance is finished. **N** Go to step 8.
8. Replace the engine control module	
	A. Turn the ignition switch to position "LOCK" and disconnect the battery negative cable. B. Replace the engine control module. **Refer to: Engine Control Module (3.1.13 Electronic Control System - ME7, Removal and Installation).** Is the tachometer display normal? **Y** Confirm the maintenance is finished. **N** Go to step 9.
9. Replace the instrument cluster	
	A. Turn the ignition switch to position "LOCK" and disconnect the battery negative cable. B. Replace the instrument cluster. **Refer to: Instrument (4.3.2 Instrument, Removal and Installation).** Verify the system is normal.

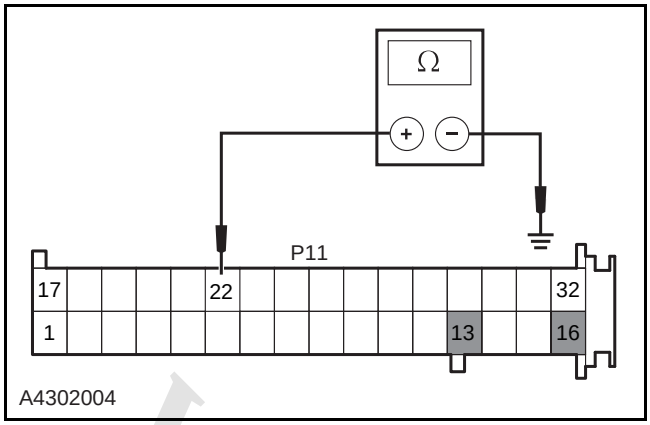
Speedometer Malfunction Diagnosis

Test Conditions	Details/Results/Solutions
1. General procedures	
	A. Inspect the instrument cluster wiring harness connectors for damage, poor contact, aging and loose. Is it normal? **Y** Go to step 2. **N** Repair the fault.
2. Inspect the fuse	
	A. Inspect the instrument cluster fuse IF06 and IF25. **Fuse Rated Capacity: 10 A, 10 A** Is the fuse normal? **Y** Go to step 3. **N** Inspect and repair the fuse circuit, replace the fuse in rated capacity.
3. Inspect the power supply circuit of the instrument cluster	
	A. Turn the ignition switch to "LOCK" position. B. Disconnect the instrument cluster wiring harness connector P11. C. Measure the voltage of the terminal 14 of the instrument cluster wiring harness connector P11. **Standard Voltage Value: 11 ~ 14 V** D. Turn the ignition switch to position "ON" and measure the voltage of the terminal 15 of the instrument cluster wiring harness connector P11. **Standard Voltage Value: 11 ~ 14 V** Is the voltage normal? **Y** Go to step 4. **N** Repair the instrument cluster power supply circuit.

Test Conditions	Details/Results/Solutions
4. Inspect the ground circuit of the instrument cluster	
	A. Turn the ignition switch to "LOCK" position. B. Disconnect the instrument cluster wiring harness connector P11. C. Measure the resistance between the terminal 13, 16 and 22 of the instrument cluster wiring harness connector P11 and the ground point wiring harness. **Standard Resistance Value: less than 5 Ω** Is the resistance value normal? **Y** Go to step 5. **N** Repair the instrument cluster ground circuit.
5. Inspect the CAN communication circuit between the instrument cluster and ABS	
	A. Use the Changan Auto special diagnostic tool to inspect the DTC of the instrument cluster and ABS. B. Inspect the CAN network cable between the instrument cluster and ABS. Is the data communication state between the instrument cluster and ASB normal? **Y** Go to step 6. **N** Repair the related fault indicated by DTC and inspect and repair the CAN network circuit. **Refer to: Diagnostic Tool Can Not Communicate via CAN with ABS (4.3.15 On - Board Network, Symptom Chart).**
6. Diagnose the ABS control system	
	A. Diagnose the ABS control system. **Refer to: DTC List (2.3.7 Anti - lock Brake Control System, DTC Diagnosis and Testing).** Is the speedometer normal? **Y** Confirm the maintenance is finished. **N** Replace the instrument cluster. **Refer to: Instrument (4.3.2 Instrument, Removal and Installation).** Verify the system is normal.

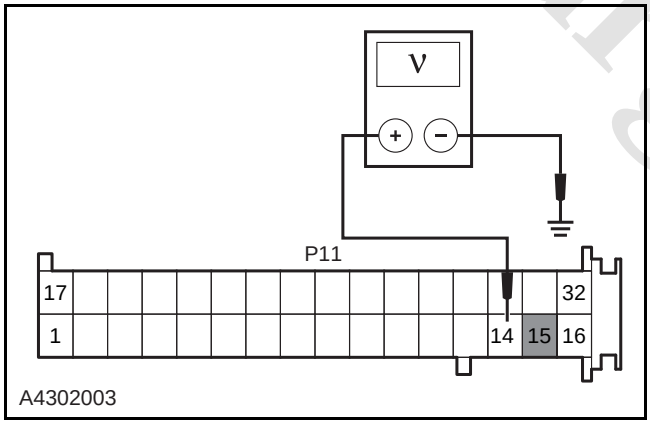
Water Temperature Gauge Malfunction Diagnosis

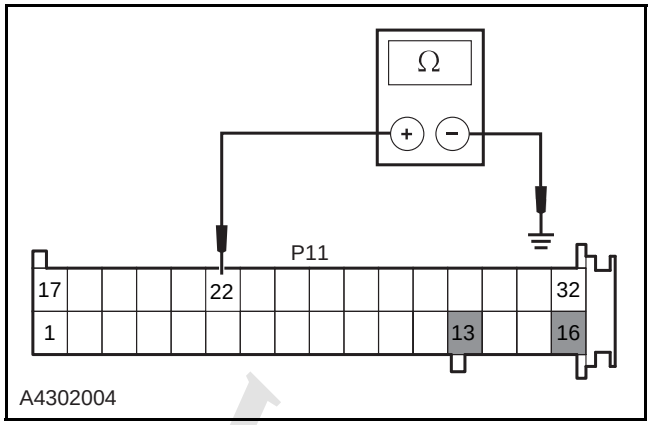
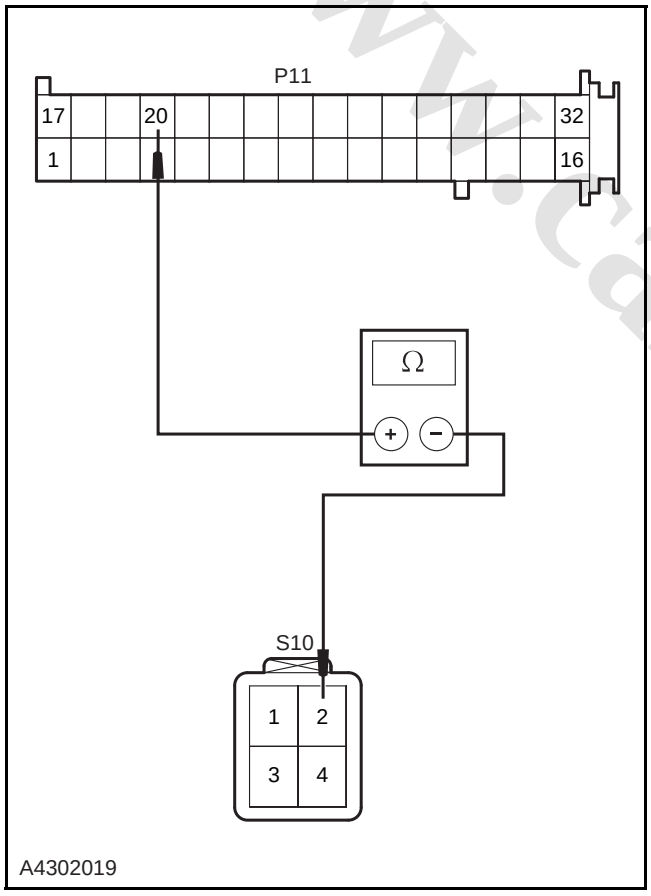
Test Conditions	Details/Results/Solutions
1. General procedures	
	A. Inspect the instrument cluster wiring harness connectors for damage, poor contact, aging and loose. Is it normal? **Y** Go to step 2. **N** Repair the fault.
2. Inspect the fuse	
	A. Inspect the instrument cluster fuse IF06 and IF25. **Fuse Rated Capacity: 10 A, 10 A** Is the fuse normal? **Y** Go to step 3. **N** Inspect and repair the fuse circuit, replace the fuse in rated capacity.
3. Inspect the power supply circuit of the instrument cluster	
	A. Turn the ignition switch to "LOCK" position. B. Disconnect the instrument cluster wiring harness P11. C. Measure the voltage of the terminal 14 of the instrument cluster wiring harness connector P11. **Standard Voltage Value: 11 ~ 14 V** D. Turn the ignition switch to position "ON" and measure the voltage of the terminal 15 of the instrument cluster wiring harness connector P11. **Standard Voltage Value: 11 ~ 14 V** Is the voltage normal? **Y** Go to step 4. **N** Repair the instrument cluster power supply circuit.

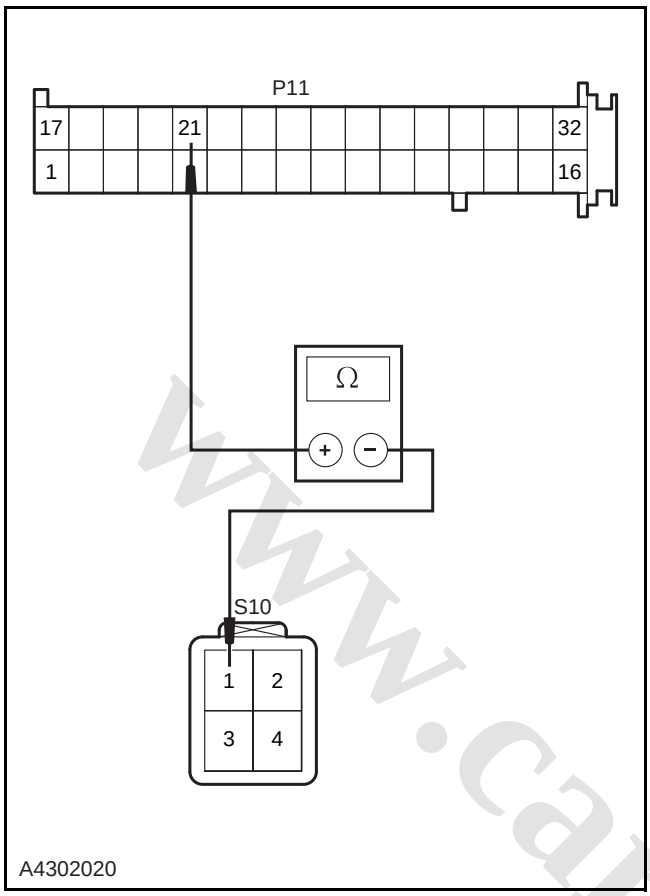
Test Conditions	Details/Results/Solutions
4. Inspect the ground circuit of the instrument cluster	
	A. Turn the ignition switch to "LOCK" position. B. Disconnect the instrument cluster wiring harness connector P11. C. Measure the resistance between the terminal 13, 16 and 22 of the instrument cluster wiring harness connector P11 and the ground point wiring harness. **Standard Resistance Value: less than 5 Ω** Is the resistance value normal? **Y** Go to step 5. **N** Repair the instrument cluster ground circuit.
5. Inspect the CAN communication circuit between the instrument cluster and the engine control module	
	A. Use the Changan Auto special diagnostic tool to inspect the DTC of the instrument cluster and ECM. B. Inspect the CAN network cable between the instrument cluster and ECM. Is the data communication state between the instrument cluster and ECM normal? **Y** Go to step 6. **N** Repair the related fault indicated by DTC and inspect and repair the CAN network circuit. **Refer to: Diagnostic Tool Can Not Communicate via CAN With ECM (4.3.15 On - Board Network, Symptom Chart).**
6. Read the related DTC with the diagnostic tool	
	A. Connect a special diagnostic tool. B. Start the vehicle and read the engine DTC. Is there any DTC related to the water temperature sensor? **Y** Go to step 8. **N** Go to step 7.

Test Conditions	Details/Results/Solutions
7. Read the data flow of the water temperature with a diagnostic tool	
	A. Connect a special diagnostic tool. B. Start the vehicle and read the data flow of the engine water temperature. C. Measure the actual water temperature with the water temperature measurement tool. Does the data read from the diagnostic tool match the actual water temperature? **Y** Go to step 9. **N** Go to step 8.
8. Diagnose the engine	
	A. Diagnose and repair the engine. **Refer to: DTC Chart (3.1.13 Electronic Control System - ME7, DTC Diagnosis and Testing).** Is the display of the water temperature gauge normal? **Y** Confirm the maintenance is finished. **N** Go to step 9.
9. Replace the instrument cluster	
	A. Turn the ignition switch to position "LOCK" and disconnect the battery negative cable. B. Replace the instrument cluster. **Refer to: Instrument (4.3.2 Instrument, Removal and Installation).** Verify the system is normal.

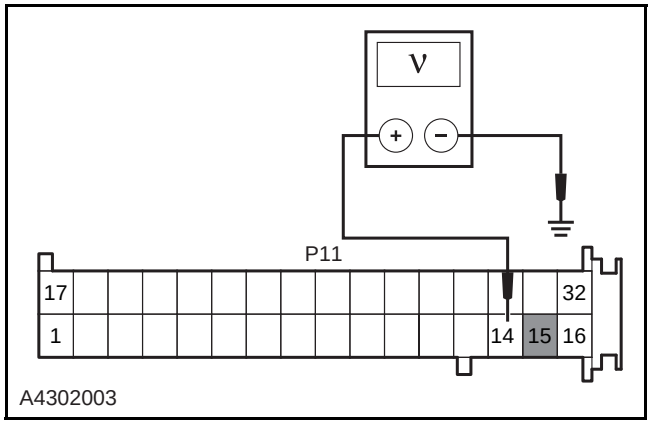
Fuel Gauge Malfunction Diagnosis

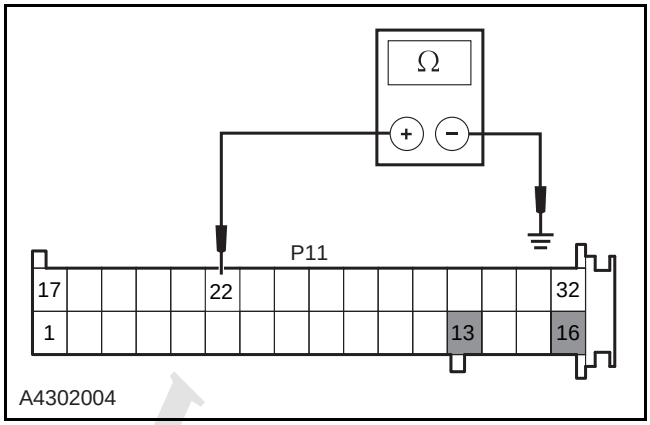
Test Conditions	Details/Results/Solutions
1. General procedures	
	A. Inspect the instrument cluster wiring harness connectors for damage, poor contact, aging and loose. Is it normal? **Y** Go to step 2. **N** Repair the fault.
2. Inspect the fuse	
	A. Inspect the instrument cluster fuse IF06 and IF25. **Fuse Rated Capacity: 10 A, 10 A** Is the fuse normal? **Y** Go to step 3. **N** Inspect and repair the fuse circuit, replace the fuse in rated capacity.
3. Inspect the power supply circuit of the instrument cluster	
	A. Turn the ignition switch to "LOCK" position. B. Disconnect the instrument cluster wiring harness connector P11. C. Measure the voltage of the terminal 14 of the instrument cluster wiring harness connector P11. **Standard Voltage Value: 11 ~ 14 V** D. Turn the ignition switch to "ON" position and measure the voltage of the terminal 15 of the instrument cluster wiring harness connector P15. **Standard Voltage Value: 11 ~ 14 V** Is the voltage normal? **Y** Go to step 4. **N** Repair the instrument cluster power supply circuit.

Test Conditions	Details/Results/Solutions
4. Inspect the ground circuit of the instrument cluster	
 A4302004	A. Turn the ignition switch to "LOCK" position. B. Disconnect the instrument cluster wiring harness connector P11. C. Measure the resistance between the terminal 13, 16 and 22 of the instrument cluster wiring harness connector P11 and the ground point wiring harness. **Standard Resistance Value: less than 5 Ω** Is the resistance value normal? **Y** Go to step 5. **N** Repair the instrument cluster ground circuit.
5. Inspect the circuit between the instrument cluster and the fuel level sensor	
 A4302019	A. Turn the ignition switch to "LOCK" position and disconnect the battery negative cable. B. Disconnect the instrument cluster wiring harness connector P11. C. Disconnect the fuel level sensor wiring harness connector S10. D. Measure the resistance value between the terminal 20 of the instrument cluster wiring harness connector P11 and the terminal 2 of the fuel level sensor wiring harness connector S10, and inspect if there is any open circuit occurring in the circuit. **Standard Resistance Value: less than 5 Ω** Is the resistance value normal? **Y** Go to step 6. **N** Inspect and repair the open circuit fault between the terminal 20 of the instrument cluster wiring harness connector P11 and the terminal 2 of the fuel level sensor wiring harness connector S10.

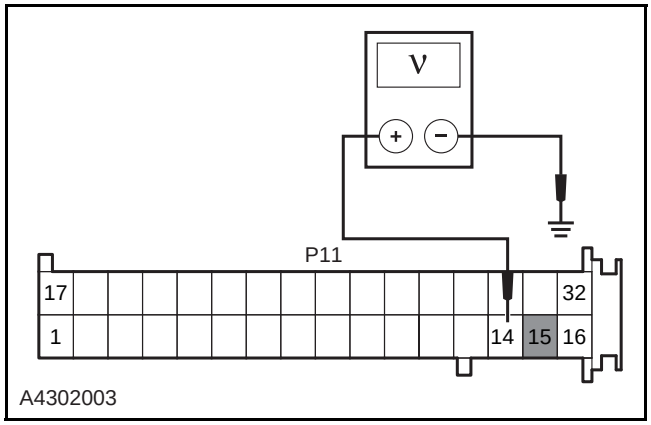
Test Conditions	Details/Results/Solutions
6. Inspect the ground circuit of the fuel level sensor	
 A4302020	A. Turn the ignition switch to position "LOCK" and disconnect the battery negative cable. B. Disconnect the instrument cluster wiring harness connector P11. C. Disconnect the fuel level sensor wiring harness connector S10. D. Measure the resistance between the terminal 1 of the fuel pump wiring harness connector S10 and the terminal 21 of the instrument cluster wiring harness connector P11. **Standard Resistance Value: less than 5 Ω** Is the resistance value normal? **Y** Go to step 7. **N** Inspect and repair the ground circuit of the fuel level sensor.
7. Replace the fuel level sensor	
	A. Turn the ignition switch to position "LOCK". B. Replace the fuel level sensor. **Refer to: Fuel Pump Assembly (3.1.7 Fuel System, Removal and Installation).** Is the display of the fuel gauge normal? **Y** Confirm the maintenance is finished. **N** Go to step 8.
8. Replace the instrument cluster	
	A. Turn the ignition switch to position "LOCK" and disconnect the battery negative cable. B. Replace the instrument cluster **Refer to: Instrument (4.3.2 Instrument, Removal and Installation).** Verify the system is normal.

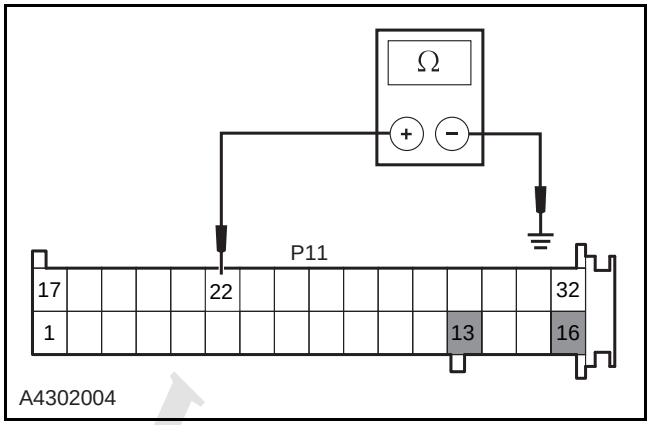
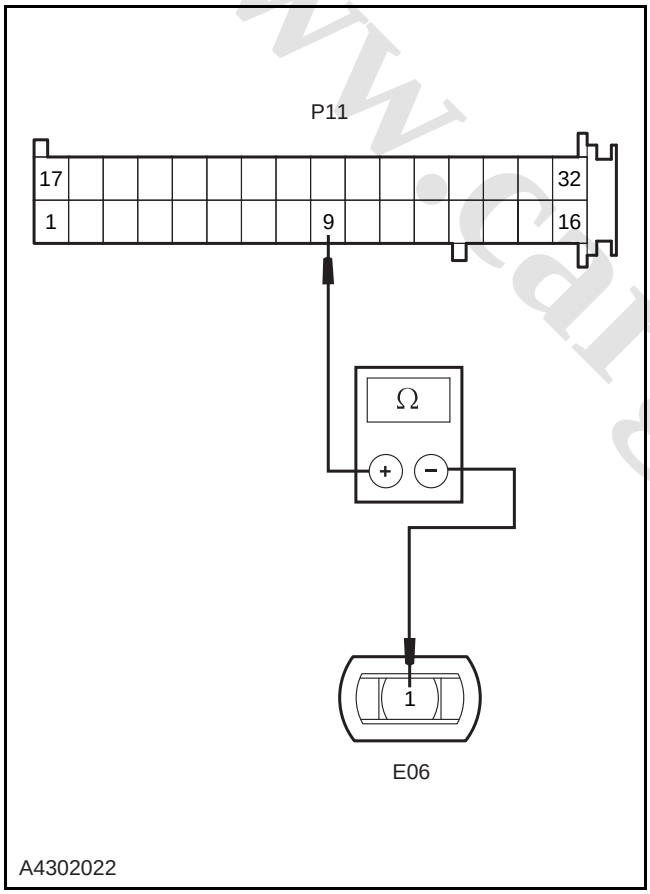
Engine Fault Indicator Not Light When Ignition Switch at "ON" Position Diagnosis

Test Conditions	Details/Results/Solutions
1. General procedures	
	A. Inspect the instrument cluster wiring harness connectors for damage, poor contact, aging and loose. Is it normal? **Y** Go to step 2. **N** Repair the fault.
2. Inspect the fuse	
	A. Inspect the instrument cluster fuse IF25 and IF06. **Fuse Rated Capacity: 10 A, 10 A** Is the fuse normal? **Y** Go to step 3. **N** Inspect and repair the fuse circuit, replace the fuse in rated capacity.
3. Inspect the power supply circuit of the instrument cluster	
	A. Turn the ignition switch to "LOCK" position. B. Disconnect the instrument cluster wiring harness connector P11. C. Measure the voltage of the terminal 14 of the instrument cluster wiring harness connector P11. **Standard Voltage Value: 11 ~ 14 V** D. Turn the ignition switch to "ON" position and measure the voltage of the terminal 15 of the instrument cluster wiring harness connector P11. **Standard Voltage Value: 11 ~ 14 V** Is the voltage normal? **Y** Go to step 4. **N** Repair the instrument cluster power supply circuit.

Test Conditions	Details/Results/Solutions
4. Inspect the ground circuit of the instrument cluster	
	A. Turn the ignition switch to "LOCK" position. B. Disconnect the wiring harness connector P11 of the instrument scale plate light. C. Measure the resistance between the terminal 13, 16 and 22 of the instrument cluster wiring harness connector P11 and the ground point wiring harness. **Standard Resistance Value: less than 5 Ω** Is the resistance value normal? **Y** Go to step 5. **N** Repair the instrument cluster ground circuit.
5. Inspect the CAN communication circuit between the instrument cluster and the engine control module	
	A. Use the Changan Auto special diagnostic tool to inspect the DTC of the instrument cluster and ECM. B. Inspect the CAN network cable between the instrument cluster and ECM. Is the data communication state between the instrument cluster and ECM normal? **Y** Go to step 6. **N** Repair the related fault indicated by DTC and inspect and repair the CAN network circuit. **Refer to: Diagnostic Tool Can Not Communicate via CAN With ECM (4.3.15 On - Board Network, Symptom Chart).**
6. Inspect the electronic control system of the engine	
	A. Diagnose the electronic control system of the engine with a special diagnostic tool. B. Repair as necessary according to the relevant DTC. **Refer to: DTC Chart (3.1.13 Electronic Control System - ME7, DTC Diagnosis and Testing).** Is the display of the engine malfunction indicator normal? **Y** Confirm the maintenance is finished. **N** Replace the instrument cluster. **Refer to: Instrument (4.3.2 Instrument, Removal and Installation).** Verify the system is normal.

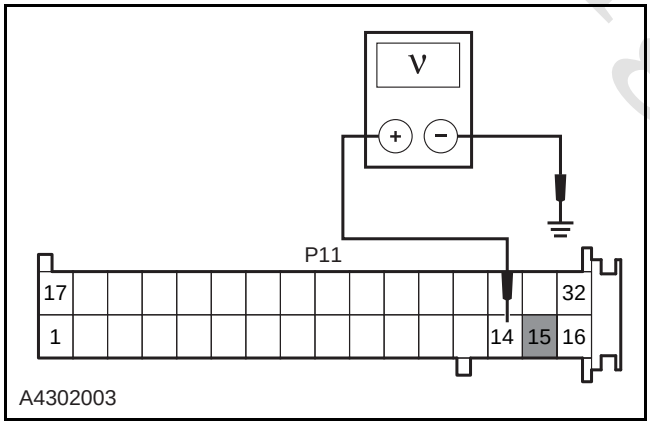
Oil Pressure Alarm Indicator Fault When Ignition Switch Is at "ON" Position

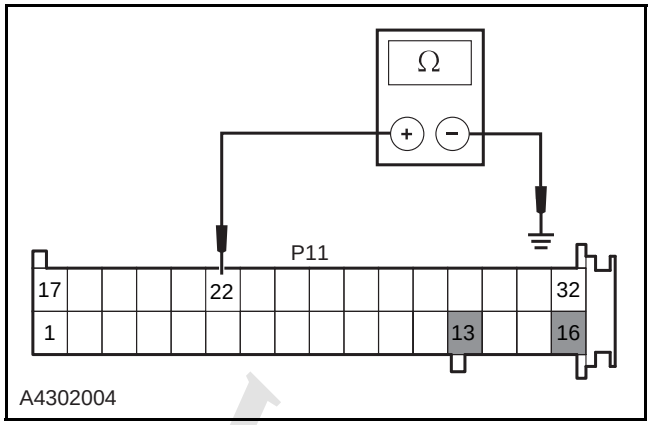
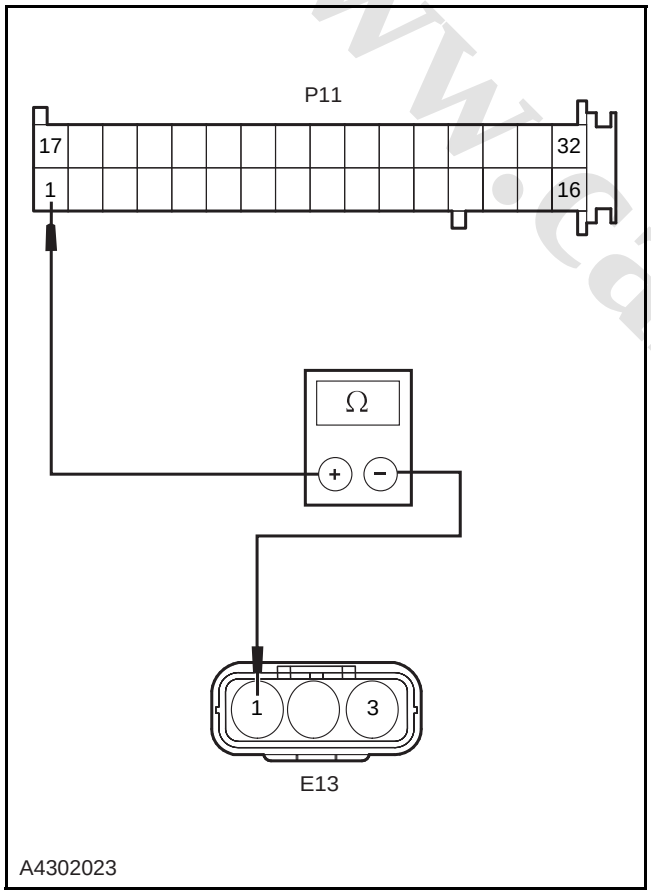
Test Conditions	Details/Results/Solutions
1. General procedures	
	A. Inspect the instrument cluster wiring harness connectors for damage, poor contact, aging and loose. Is it normal? **Y** Go to step 2. **N** Repair the fault.
2. Inspect the fuse	
	A. Inspect the instrument cluster fuse IF06 and IF25. **Fuse Rated Capacity: 10 A, 10 A** Is the fuse normal? **Y** Go to step 3. **N** Inspect and repair the fuse circuit, replace the fuse in rated capacity.
3. Inspect the power supply circuit of the instrument cluster	
	A. Turn the ignition switch to "LOCK" position. B. Disconnect the instrument cluster wiring harness connector P11. C. Measure the voltage of the terminal 14 of the instrument cluster wiring harness connector P11. **Standard Voltage Value: 11 ~ 14 V** D. Turn the ignition switch to position "ON" and measure the voltage of the terminal 15 of the instrument cluster wiring harness connector P11. **Standard Voltage Value: 11 ~ 14 V** Is the voltage normal? **Y** Go to step 4. **N** Repair the instrument cluster power supply circuit.

Test Conditions	Details/Results/Solutions
4. Inspect the ground circuit of the instrument cluster	
	A. Turn the ignition switch to "LOCK" position. B. Disconnect the instrument cluster wiring harness connector P11. C. Measure the resistance between the terminal 13, 16 and 22 of the instrument cluster wiring harness connector P11 and the ground point wiring harness. **Standard Resistance Value: less than 5 Ω** Is the resistance value normal? **Y** Go to step 5. **N** Repair the instrument cluster ground circuit.
5. Inspect the circuit between the instrument cluster and the oil pressure switch	
	A. Turn the ignition switch to position "LOCK" and disconnect the battery negative cable. B. Disconnect the instrument cluster wiring harness connector P11. C. Disconnect the engine oil pressure switch wiring harness connector E04. D. Measure the resistance value between the terminal 9 of the instrument cluster wiring harness connector P11 and the terminal 1 of the oil pressure switch wiring harness connector E06 and inspect for open circuit. **Standard Resistance Value: less than 5 Ω** Is the resistance value normal? **Y** Go to step 6. **N** Inspect and repair the open circuit fault between the terminal 9 of the instrument cluster wiring harness connector P11 and the terminal 1 of the oil pressure switch wiring harness connector E06.

Test Conditions	Details/Results/Solutions
6. Replace the oil pressure switch	
	A. Turn the ignition switch to position "LOCK" and disconnect the battery negative cable. B. Replace the oil pressure switch. Is the oil pressure alarm indicator normal? **Y** Confirm the maintenance is finished. **N** Replace the instrument cluster. **Refer to: Instrument (4.3.2 Instrument, Removal and Installation).** Verify the system is normal.

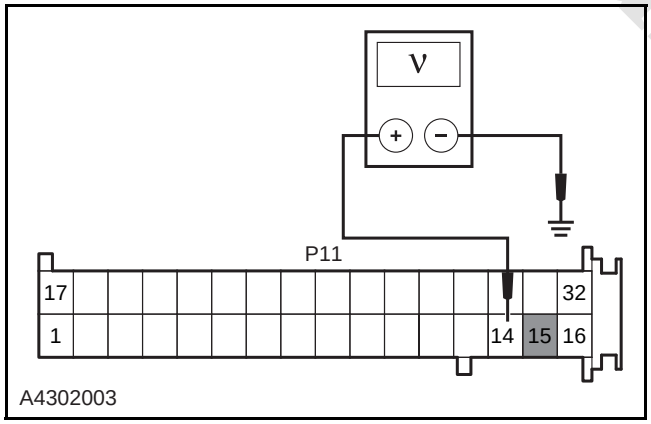
Charging Indicator Fault When Ignition Switch Is at "ON" Position Diagnosis

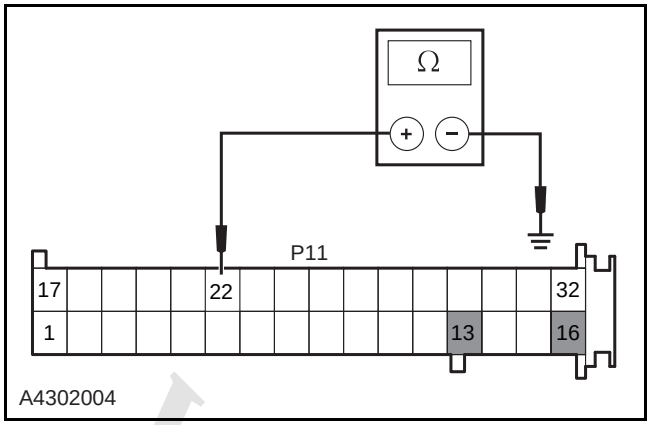
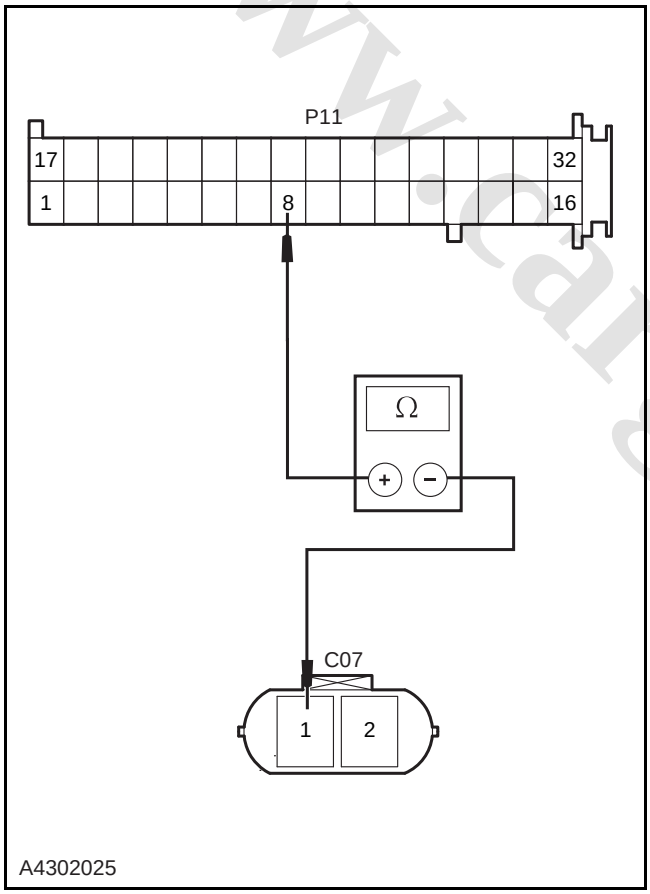
Test Conditions	Details/Results/Solutions
1. General procedures	
	A. Inspect the instrument cluster wiring harness connectors for damage, poor contact, aging and loose. Is it normal? **Y** Go to step 2. **N** Repair the fault.
2. Inspect the fuse	
	A. Inspect the instrument cluster fuse IF06 and IF25. **Fuse Rated Capacity: 10 A, 10 A** Is the fuse normal? **Y** Go to step 3. **N** Inspect and repair the fuse circuit, replace the fuse in rated capacity.
3. Inspect the power supply circuit of the instrument cluster	
	A. Turn the ignition switch to "LOCK" position. B. Disconnect the instrument cluster wiring harness connector P11. C. Measure the voltage of the terminal 14 of the instrument cluster wiring harness connector P11. **Standard Voltage Value: 11 ~ 14 V** D. Turn the ignition switch to position "ON" and measure the voltage of the terminal 15 of the instrument cluster wiring harness connector P11. **Standard Voltage Value: 11 ~ 14 V** Is the voltage normal? **Y** Go to step 4. **N** Repair the instrument cluster power supply circuit.

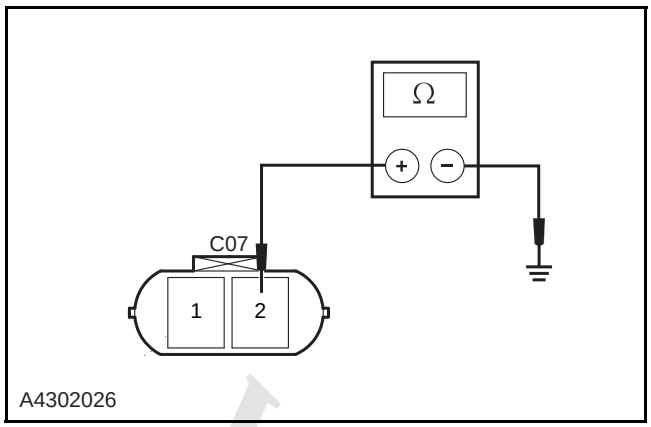
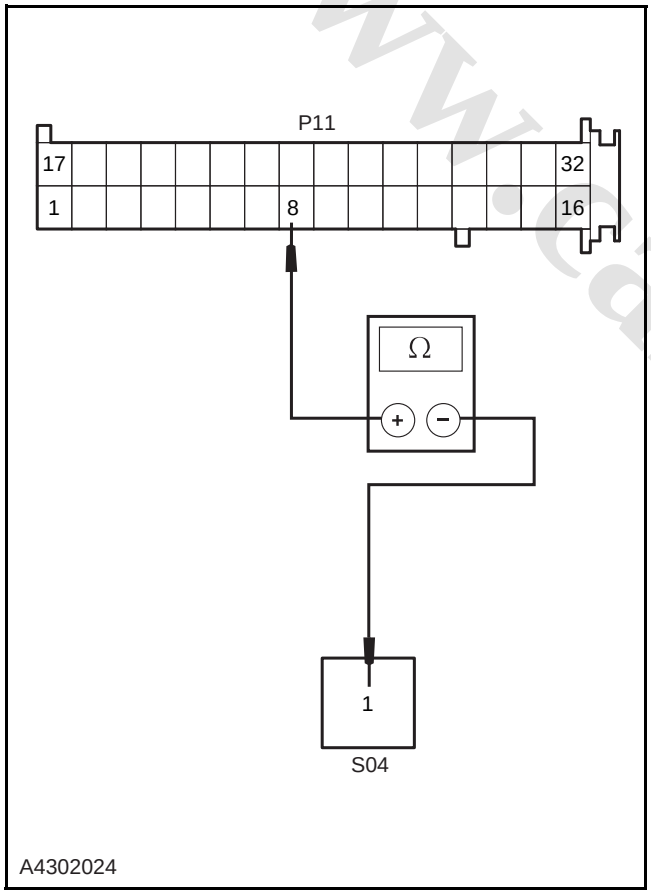
Test Conditions	Details/Results/Solutions
4. Inspect the ground circuit of the instrument cluster	
	A. Turn the ignition switch to "LOCK" position. B. Disconnect the instrument cluster wiring harness connector P11. C. Measure the resistance between the terminal 13, 16 and 22 of the instrument cluster wiring harness connector P11 and the ground point wiring harness. **Standard Resistance Value: less than 5 Ω** Is the resistance value normal? **Y** Go to step 5. **N** Repair the instrument cluster ground circuit.
5. Inspect the circuit between the instrument cluster and the alternator voltage regulator	
	A. Turn the ignition switch to "LOCK" position and disconnect the battery negative cable. B. Disconnect the instrument cluster wiring harness connector P11. C. Disconnect the alternator wiring harness connector E13. D. Measure the resistance value between the 1 terminal of instrument cluster wiring harness connector P11 and the 1 terminal of the alternator wiring harness connector E13 and inspect if there is any open circuit occurring in the circuit. **Standard Resistance Value: less than 5 Ω** Is the resistance value normal? **Y** Go to step 6. **N** Inspect and repair the open circuit fault between the terminal 1 of the instrument cluster wiring harness connector P11 and the terminal 1 of the alternator wiring harness connector E13.

Test Conditions	Details/Results/Solutions
6. Replace the alternator	
	A. Turn the ignition switch to "LOCK" position and disconnect the battery negative cable. B. Replace the alternator. **Refer to: Alternator (3.1.10 Charging System， Removal and Installation).** Is it normal? **Y** Confirm the maintenance is finished. **N** Replace the instrument cluster. **Refer to: Instrument (4.3.2 Instrument, Removal and Installation).** Verify the system is normal.

Brake Level Alarm / Parking Brake Indicator Fault Diagnosis

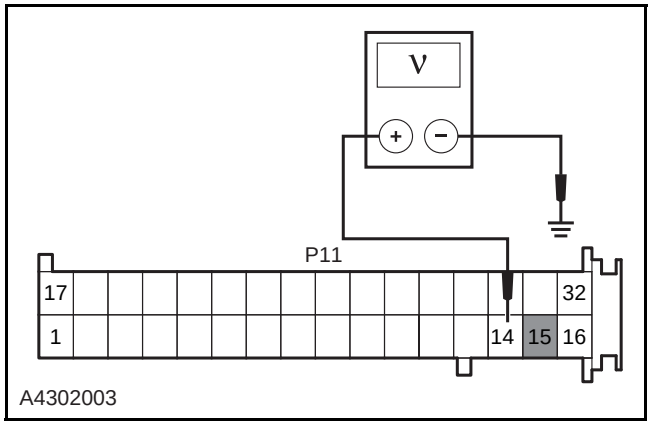
Test Conditions	Details/Results/Solutions
1. General procedures	
	A. Inspect the instrument cluster wiring harness connectors for damage, poor contact, aging and loose. Is it normal? **Y** Go to step 2. **N** Repair the fault.
2. Inspect the fuse	
	A. Inspect the instrument cluster fuse IF06 and IF25. **Fuse Rated Capacity: 10 A, 10 A** Is the fuse normal? **Y** Go to step 3. **N** Inspect and repair the fuse circuit, replace the fuse in rated capacity.
3. Inspect the power supply circuit of the instrument cluster	
	A. Turn the ignition switch to "LOCK" position. B. Disconnect the instrument cluster wiring harness connector P11. C. Measure the voltage of the terminal 14 of the instrument cluster wiring harness connector P11. **Standard Voltage Value: 11 ~ 14 V** D. Turn the ignition switch to position "ON" and measure the voltage of the terminal 15 of the instrument cluster wiring harness connector P11. **Standard Voltage Value: 11 ~ 14 V** Is the voltage normal? **Y** Go to step 4. **N** Repair the instrument cluster power supply circuit.

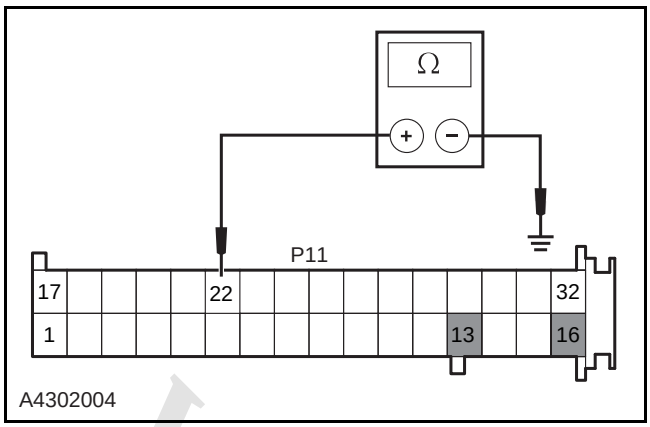
Test Conditions	Details/Results/Solutions
4. Inspect the ground circuit of the instrument cluster	
	A. Turn the ignition switch to "LOCK" position. B. Disconnect the instrument cluster wiring harness connector P11. C. Measure the resistance between the terminal 13, 16 and 22 of the instrument cluster wiring harness connector P11 and the ground point wiring harness. **Standard Resistance Value: less than 5 Ω** Is the resistance value normal? **Y** Go to step 5. **N** Repair the instrument cluster ground circuit.
5. Inspect the circuit between the instrument cluster and the brake fluid level sensor	
	A. Turn the ignition switch to position "LOCK" and disconnect the battery negative cable. B. Disconnect the instrument cluster wiring harness connector P11. C. Disconnect the brake fluid level sensor wiring harness connector C07. D. Measure the resistance value between the terminal 8 of the instrument cluster wiring harness connector P11 and the terminal 1 of the brake fluid level sensor wiring harness connector C07. Inspect the circuit for open circuit. **Standard Resistance Value: less than 5 Ω** Is the resistance value normal? **Y** Go to step 6. **N** Repair the open circuit fault between the terminal 8 of the instrument cluster wiring harness connector P11 and the terminal 1 of the brake fluid level sensor wiring harness connector C07.

Test Conditions	Details/Results/Solutions
6. Inspect the ground circuit of the brake fluid level sensor	
 A4302026	A. Turn the ignition switch to position "LOCK" and measure the resistance between the terminal 2 of the brake fluid level sensor wiring harness connector C07 and the ground point wiring harness. **Standard Resistance Value: less than 5 Ω** Is the resistance value normal? **Y** Go to step 7. **N** Repair the ground circuit of the brake fluid level sensor.
7. Inspect the circuit between the instrument cluster and the parking brake switch	
 A4302024	A. Turn the ignition switch to "LOCK" position and disconnect the battery negative cable. B. Disconnect the instrument cluster wiring harness connector P11. C. Disconnect the parking brake switch wiring harness connector S04. D. Measure the resistance value between the terminal 8 of the instrument cluster wiring harness connector P11 and the terminal 1 of the parking brake switch wiring harness connector S04 and inspect for open circuit. **Standard Resistance Value: less than 5 Ω** Is the resistance normal? **Y** Go to step 8. **N** Inspect and repair the open circuit fault between the terminal 8 of the instrument cluster wiring harness connector P11 and the terminal 1 of the parking brake switch wiring harness connector S04.

Test Conditions	Details/Results/Solutions
8. Replace the parking brake switch / brake level sensor	
	A. Turn the ignition switch to position "LOCK" and disconnect the battery negative cable. B. Replace the parking brake switch. **Refer to: Parking Brake Warning Lamp Switch (2.3.4 Parking Brake and Actuation, Removal and Installation).** C. Replace the brake fluid level sensor. Is the display normal? **Y** Confirm the maintenance is finished. **N** Replace the instrument cluster. **Refer to: Instrument (4.3.2 Instrument, Removal and Installation).** Verify the system is normal.

ABS Fault Indicator Fault When Ignition Switch at "ON" Position Diagnosis

Test Conditions	Details/Results/Solutions
1. General procedures	
	A. Inspect the instrument cluster wiring harness connectors for damage, poor contact, aging and loose. Is it normal? **Y** Go to step 2. **N** Repair the fault.
2. Inspect the fuse	
	A. Inspect the instrument cluster fuse IF06 and IF25. **Fuse Rated Capacity: 10 A, 10 A** Is the fuse normal? **Y** Go to step 3. **N** Inspect and repair the fuse circuit, replace the fuse in rated capacity.
3. Inspect the power supply circuit of the instrument cluster	
	A. Turn the ignition switch to "LOCK" position. B. Disconnect the instrument cluster wiring harness connector P11. C. Measure the voltage of the terminal 14 of the instrument cluster wiring harness connector P11. **Standard Voltage Value: 11 ~ 14 V** D. Turn the ignition switch to position "ON" and measure the voltage of the terminal 15 of the instrument cluster wiring harness connector P11. **Standard Voltage Value: 11 ~ 14 V** Is the voltage normal? **Y** Go to step 4. **N** Repair the instrument cluster power supply circuit.

Test Conditions	Details/Results/Solutions
4. Inspect the ground circuit of the instrument cluster	
	A. Turn the ignition switch to "LOCK" position. B. Disconnect the instrument cluster wiring harness connector P11. C. Measure the resistance between the terminal 13, 16 and 22 of the instrument cluster wiring harness connector P11 and the ground point wiring harness. **Standard Resistance Value: less than 5 Ω** Is the resistance value normal? **Y** Go to step 5. **N** Repair the instrument cluster ground circuit.
5. Inspect the CAN communication circuit between the instrument cluster and the ABS control module	
	A. Use the Changan Auto special diagnostic tool to inspect the DTC of the instrument cluster and ABS. B. Inspect the CAN network cable between the instrument cluster and ABS. Is the data communication state between the instrument cluster and ASB normal? **Y** Go to step 6. **N** Repair the related fault indicated by DTC and inspect and repair the CAN network circuit. **Refer to: Diagnostic Tool Can Not Communicate via CAN With ABS (4.3.15 On - Board Network, Symptom Chart).**
6. Inspect the ABS control system	
	A. Diagnose the ABS control system with the special diagnostic tool. B. Repair as necessary according to the relevant DTC. **Refer to: DTC Chart (2.3.7 Anti - Lock Brake System, DTC Diagnosis and Testing).** Is the display of the ABS fault indicator normal? **Y** Confirm the maintenance is finished. **N** Replace the instrument cluster. **Refer to: Instrument (4.3.2 Instrument, Removal and Installation).** Verify the system is normal.

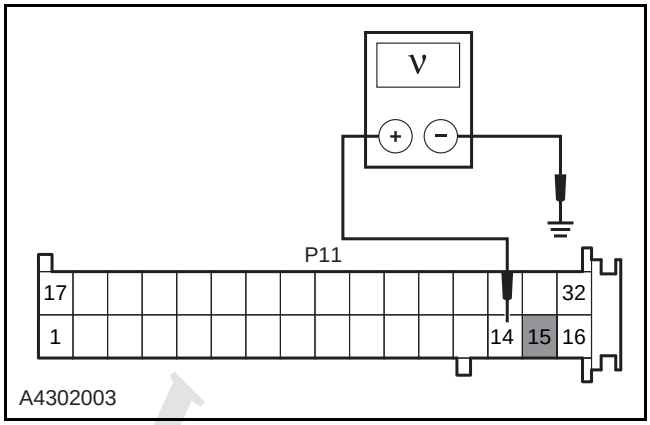
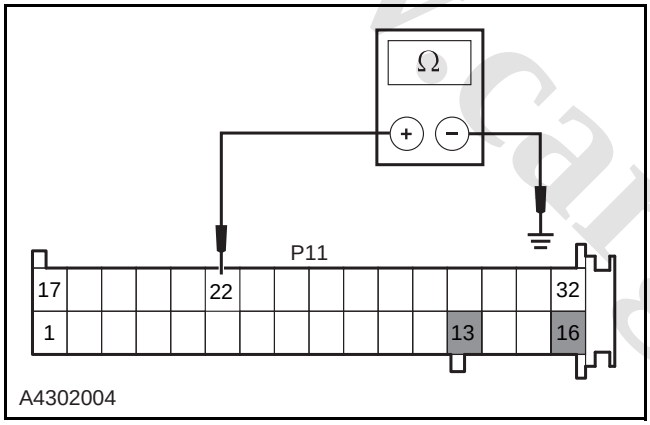
EBD Fault Indicator Not Light When Ignition Switch Is at "ON" Position Diagnosis

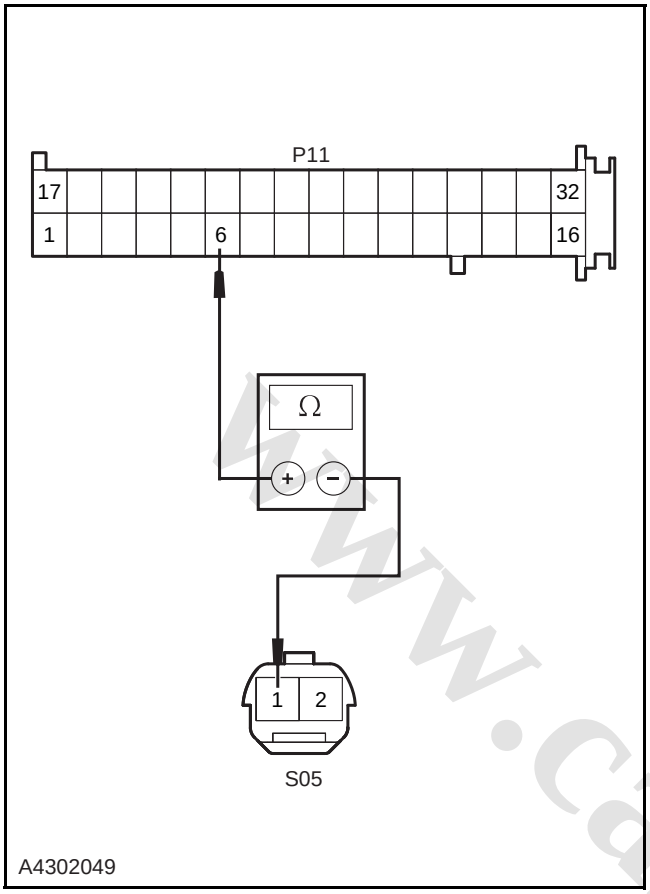
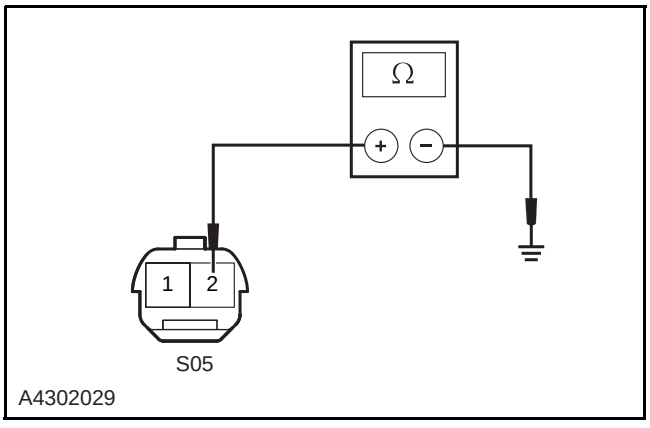
EBD (Electric Brakeforce Distribution) belongs to the electrical control brake force distribution system, when there are faults in the EBD system, so that it needs to light the EBD indicator, it will light the indicator driven through the instrument cluster of the communication circuits which is between the ABS system and the instrument cluster, at the same time, the ABS system will also light the ABS indicator to remind the driver with the relevant fault tips.

CAUTION: Diagnosis procedures for EBD indicator does not light when the ignition switch at "ON" position is the same to the procedures for ABS indicator does not light when the ignition switch at "ON" position.

Unfastened Seat Belt Indicator Fault When Ignition Switch Is at "ON" Position Diagnosis

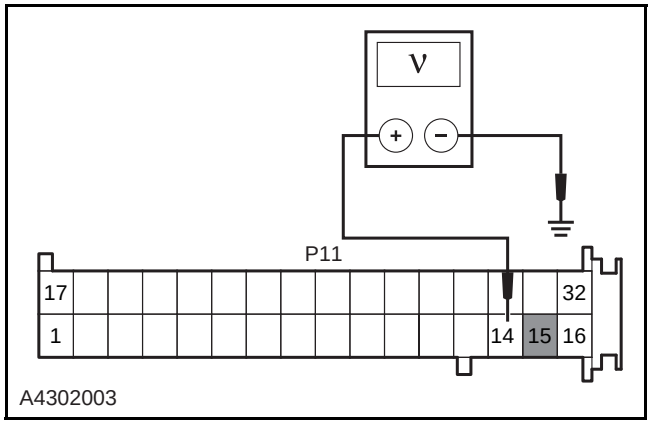
Test Conditions	Details/Results/Solutions
1. General procedures	
	A. Inspect the instrument cluster wiring harness connectors for damage, poor contact, aging and loose. Is it normal? **Y** Go to step 2. **N** Repair the fault.
2. Inspect the fuse	
	A. Inspect the instrument cluster fuse IF06 and IF25. **Fuse Rated Capacity: 10 A, 10 A** Is the fuse normal? **Y** Go to step 3. **N** Inspect and repair the fuse circuit, replace the fuse in rated capacity.

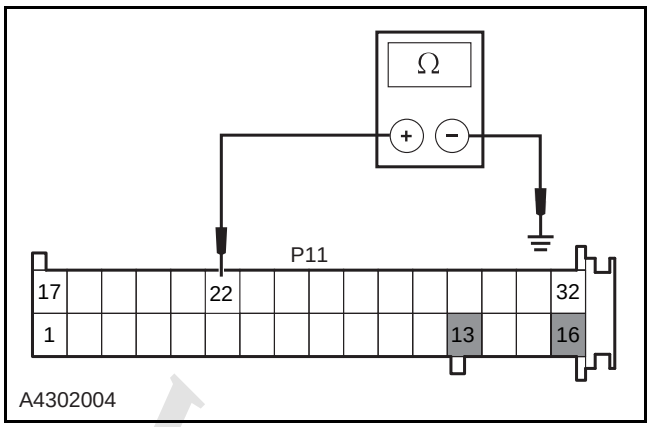
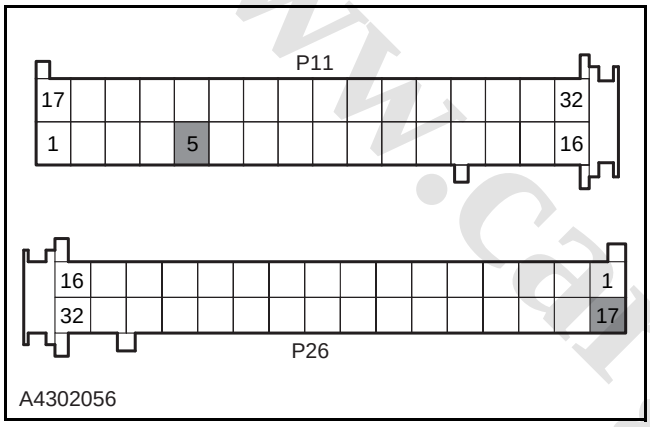
Test Conditions	Details/Results/Solutions
3. Inspect the power supply circuit of the instrument cluster	
	A. Turn the ignition switch to "LOCK" position. B. Disconnect the instrument cluster wiring harness connector P11. C. Measure the voltage of the terminal 14 of the instrument cluster wiring harness connector P11. **Standard Voltage Value: 11 ~ 14 V** D.Turn the ignition switch to position "ON" and measure the voltage of the terminal 15 of the instrument cluster wiring harness connector P11. **Standard Voltage Value: 11 ~ 14 V** Is the voltage normal? **Y** Go to step 4. **N** Repair the instrument cluster power supply circuit.
4. Inspect the ground circuit of the instrument cluster	
	A. Turn the ignition switch to "LOCK" position. B. Disconnect the instrument cluster wiring harness connector P11. C. Measure the resistance between the terminal 13, 16 and 22 of the instrument cluster wiring harness connector P11 and the ground point wiring harness. **Standard Resistance Value: less than 5 Ω** Is the resistance value normal? **Y** Go to step 5. **N** Repair the instrument cluster ground circuit.

Test Conditions	Details/Results/Solutions
5. Inspect the circuit between the instrument cluster and the driver seat belt switch	
	A. Turn the ignition switch to position "LOCK" and disconnect the battery negative cable. B. Disconnect the instrument cluster wiring harness connector P11. C. Disconnect the wiring harness connector S05 of the driver seat belt. D. Measure the resistance value between the terminal 6 of the instrument cluster wiring harness connector P11 and the terminal 1 of the driver seat belt switch wiring harness connector S05. Inspect the circuit for open circuit. **Standard Resistance Value: less than 5 Ω** Is the resistance value normal? **Y** Go to step 6. **N** Repair the open circuit fault between the terminal 6 of the instrument cluster wiring harness connector P11 and the terminal 1 of the driver seat belt switch wiring harness connector S05.
6. Inspect the ground circuit of the driver seat belt switch	
	A. Turn the ignition switch to position "LOCK" and measure the resistance between the terminal 2 of the seat belt switch wiring harness connector S05 and the ground point wiring harness. **Standard Resistance Value: less than 5 Ω** Is the resistance value normal? **Y** Go to step 7. **N** Repair the driver seat belt switch ground circuit.

Test Conditions	Details/Results/Solutions
7. Replace the seat belt switch	
	A. Turn the ignition switch to "LOCK" position and disconnect the battery negative cable. B. Replace the seat belt switch. Is the display normal? **Y** Confirm the maintenance is finished. **N** Replace the instrument cluster. **Refer to: Instrument (4.3.2 Instrument, Removal and Installation).** Verify the system is normal.

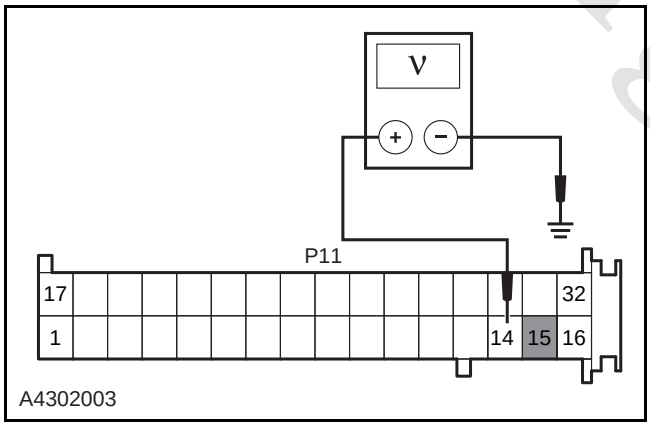
Airbag Fault Indicator Fault When Ignition Switch Is at "ON" Position Diagnosis

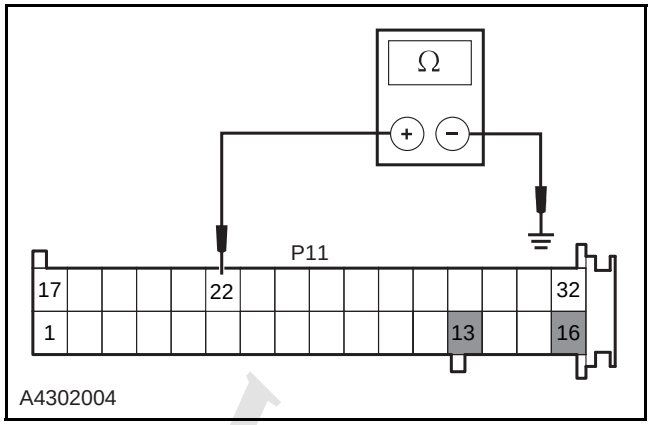
Test Conditions	Details/Results/Solutions
1. General procedures	
	A. Inspect the instrument cluster wiring harness connectors for damage, poor contact, aging and loose. Is it normal? **Y** Go to step 2. **N** Repair the fault.
2. Inspect the fuse	
	A. Inspect the instrument cluster fuse IF06 and IF25. **Fuse Rated Capacity: 10 A, 10 A** Is the fuse normal? **Y** Go to step 3. **N** Inspect and repair the fuse circuit, replace the fuse in rated capacity.
3. Inspect the power supply circuit of the instrument cluster	
	A. Turn the ignition switch to "LOCK" position. B. Disconnect the instrument cluster wiring harness connector P11. C. Measure the voltage of the terminal 14 of the instrument cluster wiring harness connector P11. **Standard Voltage Value: 11 ~ 14 V** D. Turn the ignition switch to position "ON" and measure the voltage of the terminal 15 of the instrument cluster wiring harness connector P11. **Standard Voltage Value: 11 ~ 14 V** Is the voltage normal? **Y** Go to step 4. **N** Repair the instrument cluster power supply circuit.

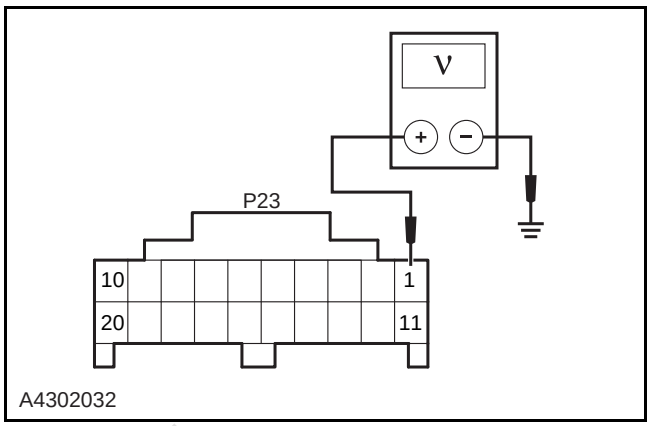
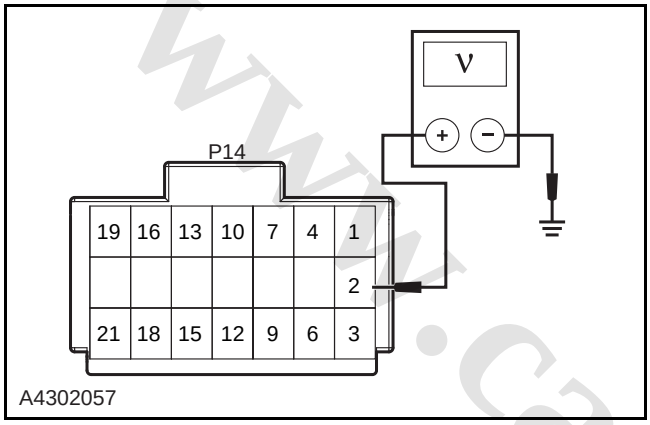
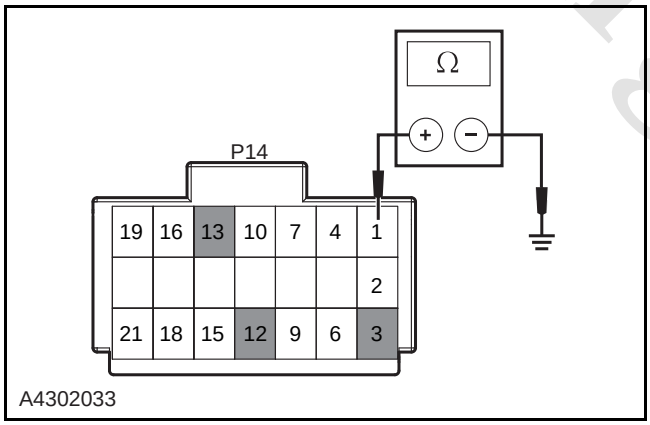
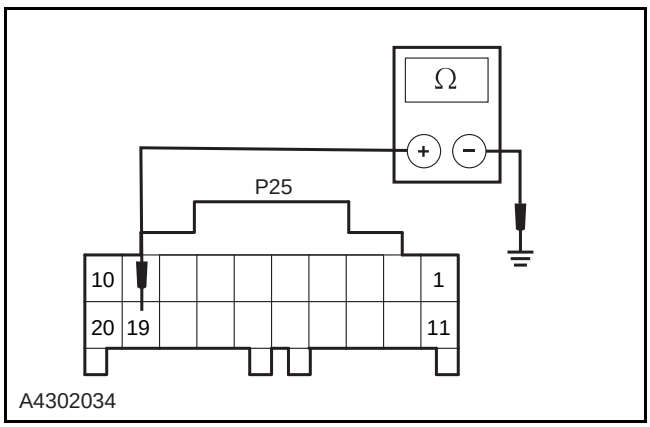
Test Conditions	Details/Results/Solutions
4. Inspect the ground circuit of the instrument cluster	
 A4302004	A. Turn the ignition switch to "LOCK" position. B. Disconnect the instrument cluster wiring harness connector P11. C. Measure the resistance between the terminal 13, 16 and 22 of the instrument cluster wiring harness connector P11 and the ground point wiring harness. **Standard Resistance Value: less than 5 Ω** Is the resistance value normal? **Y** Go to step 5. **N** Repair the instrument cluster ground circuit.
5. Inspect the circuit between the instrument cluster and the airbag control module	
 A4302056	A. Turn the ignition switch to position "LOCK" and disconnect the battery negative cable. B. Disconnect the instrument cluster wiring harness connector P11. C. Disconnect harness connector S26 of air bag control module. D. Measure the resistance value between the terminal 5 of the instrument cluster wiring harness connector P11 and the terminal 17 of the airbag control module wiring harness connector P26. Inspect the circuit for open circuit. **Standard Resistance Value: less than 5 Ω** Is the resistance value normal? **Y** Go to step 6. **N** Inspect and repair the open circuit fault between the terminal 5 of the instrument cluster wiring harness connector P11 and the terminal 17 of the airbag control module wiring harness connector P26.

Test Conditions	Details/Results/Solutions
6. Replace the instrument cluster	
Warning: The airbag control module (SDM) is equipped with backup power supply which makes the air bag deploy successfully even in case of battery voltage loss during crash. **Warning: Disconnect the battery positive cable for over 60 s before repairing the airbag system in order to keep safe.**	A. Turn the ignition switch to "LOCK" position and disconnect the battery negative cable. B. Replace the instrument cluster. **Refer to: Instrument (4.3.2 Instrument, Removal and Installation).** Is the display normal? **Y** Confirm the maintenance is finished. **N** Replace the airbag control module. **Refer to: Airbag Control Module (4.2.1 Supplemental Restraint System, Removal and Installation).** Verify the system is normal.

Buzzer Malfunction Diagnosis

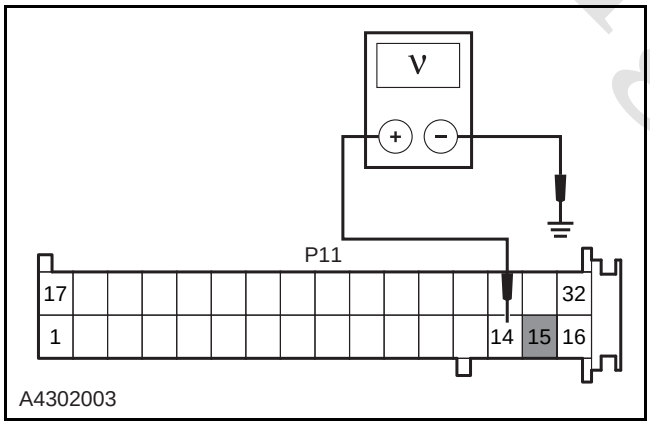
Test Conditions	Details/Results/Solutions
1. General procedures	
	A. Inspect the instrument cluster wiring harness connectors for damage, poor contact, aging and loose. Is it normal? **Y** Go to step 2. **N** Repair the fault.
2. Inspect the fuse	
	A. Inspect the instrument cluster fuse IF06 and IF25. B. Inspect the BCM fuse IF17. **Fuse Rated Capacity: 10 A, 10 A and 10 A** Is the fuse normal? **Y** Go to step 3. **N** Inspect and repair the fuse circuit, replace the fuse in rated capacity.
3. Inspect the power supply circuit of the instrument cluster	
	A. Turn the ignition switch to "LOCK" position. B. Disconnect the instrument cluster wiring harness connector P11. C. Measure the voltage of the terminal 14 of the instrument cluster wiring harness connector P11. **Standard Voltage Value: 11 ~ 14 V** D. Turn the ignition switch to position "ON" and measure the voltage of the terminal 15 of the instrument cluster wiring harness connector P11. **Standard Voltage Value: 11 ~ 14 V** Is the voltage normal? **Y** Go to step 4. **N** Repair the instrument cluster power supply circuit.

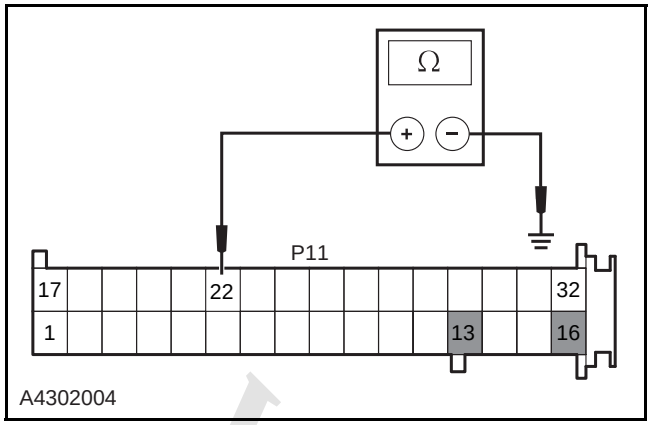
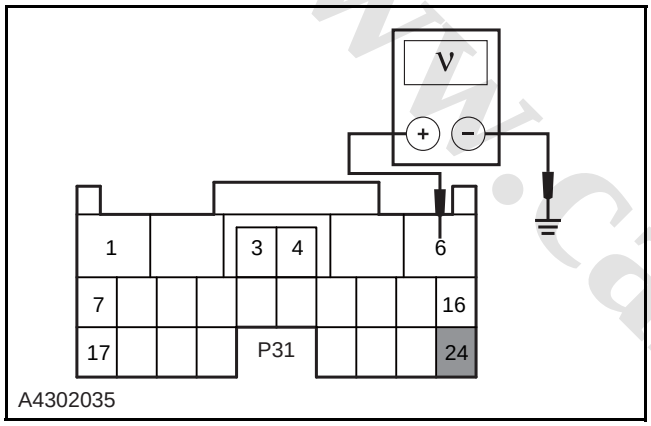
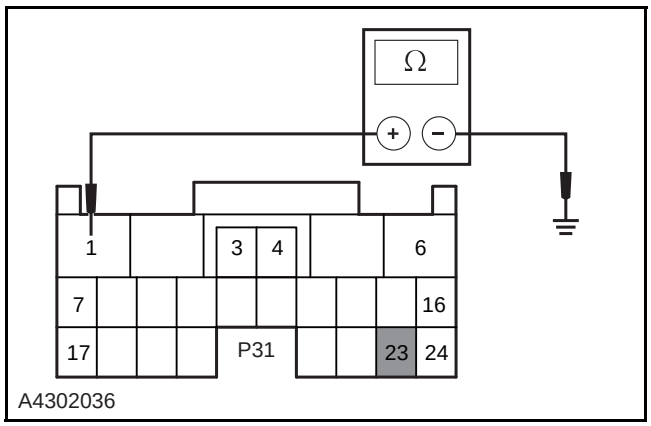
Test Conditions	Details/Results/Solutions
4. Inspect the ground circuit of the instrument cluster	
	A. Turn the ignition switch to "LOCK" position. B. Disconnect the instrument cluster wiring harness connector P11. C. Measure the resistance between the terminal 13, 16 and 22 of the instrument cluster wiring harness connector P11 and the ground point wiring harness. **Standard Resistance Value: less than 5 Ω** Is the resistance value normal? **Y** Go to step 5. **N** Repair the instrument cluster ground circuit.
5. Inspect the CAN communication circuit between the instrument cluster and the body control module	
	A. Use the Changan Auto special diagnostic tool to inspect the DTC of the instrument cluster and BCM. B. Inspect the CAN network cable between the instrument cluster and BCM. Is the data communication state between the instrument cluster and BCM normal? **Y** Go to step 6. **N** Repair the related fault indicated by DTC and inspect and repair the CAN network circuit. **Refer to: Diagnostic Tool Can Not Communicate via CAN with BCM (4.3.15 On - Board Network, Symptom Chart).**
6. Inspect the power supply circuit of the body control module	

Test Conditions	Details/Results/Solutions
 A4302032	A. Turn the ignition switch to "ON" position and measure the voltage between the terminal 1 of the body control module wiring harness connector P23 and the reliable ground. **Standard Voltage Value: 11 ~ 14 V** B. Turn the ignition switch to position "LOCK" and measure the voltage between the terminal 2 of the body control module wiring harness connector P14 and the reliable ground. **Standard Voltage Value: 11 ~ 14 V** Is the voltage normal? **Y** Go to step 7. **N** Repair the power supply circuit of the body control module.
 A4302057	
7. Inspect the ground circuit of the body control module	
 A4302033	A. Turn the ignition switch to position "LOCK" and measure the resistance between the terminal 1, 3, 12 and 13 of the body control module wiring harness connector P14 and the ground point wiring harness. B. Turn the ignition switch to position "LOCK" and measure the resistance between the terminal 19 of the body control module wiring harness connector P25 and the ground point wiring harness. **Standard Resistance Value: less than 5 Ω** Is the resistance value normal? **Y** Go to step 8. **N** Repair the ground circuit of the body control module.
 A4302034	

Test Conditions	Details/Results/Solutions
8. Replace the body control module	
	A. Turn the ignition switch to "LOCK" position and disconnect the battery negative cable. B. Replace the body control module. **Refer to: Body Control Module Replacement (4.3.14 Body Control System, Removal and Installation).** Is it normal? **Y** Confirm the maintenance is finished. **N** Replace the instrument cluster. **Refer to: Instrument (4.3.2 Instrument, Removal and Installation).** Verify the system is normal.

Abnormal PRND Gear Display in Liquid Crystal Display Diagnosis

Test Conditions	Details/Results/Solutions
1. General procedures	
	A. Inspect the instrument cluster wiring harness connectors for damage, poor contact, aging and loose. Is it normal? **Y** Go to step 2. **N** Repair the fault.
2. Inspect the fuse	
	A. Inspect the instrument cluster fuse IF06 and IF25. B. Inspect the TCM fuse IF04 and IF10. **Fuse Rated Capacity: 10 A, 10 A, 10 A and 10 A** Is the fuse normal? **Y** Go to step 3. **N** Inspect and repair the fuse circuit, replace the fuse in rated capacity.
3. Inspect the power supply circuit of the instrument cluster	
	A. Turn the ignition switch to "LOCK" position. B. Disconnect the instrument cluster wiring harness P11. C. Measure the voltage of the terminal 14 of the instrument cluster wiring harness connector P11. **Standard Voltage Value: 11 ~ 14 V** D. Turn the ignition switch to position "ON" and measure the voltage of the terminal 15 of the instrument cluster wiring harness connector P11. **Standard Voltage Value: 11 ~ 14 V** Is the voltage normal? **Y** Go to step 4. **N** Repair the instrument cluster power supply circuit.

Test Conditions	Details/Results/Solutions
4. Inspect the ground circuit of the instrument cluster	
 A4302004	A. Turn the ignition switch to "LOCK" position. B. Disconnect the instrument cluster wiring harness connector P11. C. Measure the resistance between the terminal 13, 16 and 22 of the instrument cluster wiring harness connector P11 and the ground point wiring harness. **Standard Resistance Value: less than 5 Ω** Is the resistance value normal? **Y** Go to step 5. **N** Repair the instrument cluster ground circuit.
6. Inspect the TCM power supply and its ground circuit	
 A4302035  A4302036	A. Turn the ignition switch to position "LOCK". B. Disconnect the TCM wiring harness connector P31. C. Turn the ignition switch to position "ON" and measure the voltage of the terminal 6 and 24 of the TCM wiring harness connector P31 respectively. **Standard Voltage Value: 11 ~ 14 V** D. Measure the resistance between the terminal 1 and 23 of the TCM wiring harness connector P31 and the the ground circuit respectively. **Standard Resistance Value: less than 5 Ω** Is the value measured normal? **Y** Go to step 7. **N** Inspect and repair the open circuit fault of the power supply of the airbag control module and the ground circuit.

Test Conditions	Details/Results/Solutions
7. Read the DTC of the gear switch and the communication signal in the TCM system	
CAUTION: When lifting the vehicle, make sure that the cushion block doesn't touch the catalyst converter, the brake pipe or the fuel pipe. It will cause damage or decrease the performance of the vehicle if you touch those components. Make sure all the lifting devices meet the weight - lifting standard and are in good working condition. Ensure that all the vehicles load evenly and stably. Make sure the lifting device doesn't apply excessive force on the frame rail or damage the rail.	A. Connect a special diagnostic tool. B. Lift the vehicle to at least 10 cm above the ground, start the engine, and move the gear lever back and forth for several times until the gear switch can move freely among different gears. C. Read the DTC about the gear switch and the communication signal in TCM system. Any DTC? **Y** Inspect and repair according to the DTC. **Refer to: DTC Chart (3.2.1 Automatic Transmission, DTC Diagnosis and Testing).** **N** Go to step 8.
8. Replace the TCM control module	
	A. Turn the ignition switch to "LOCK" position and disconnect the battery negative cable. B. Replace the TCM. **Refer to: TCM (3.2.1 Automatic Transmission, Removal and Installation).** Is it normal? **Y** Confirm the maintenance is finished. **N** Replace the instrument cluster. **Refer to: Instrument (4.3.2 Instrument, Removal and Installation).** Verify the system is normal.

Removal and Installation

Instrument

Removal

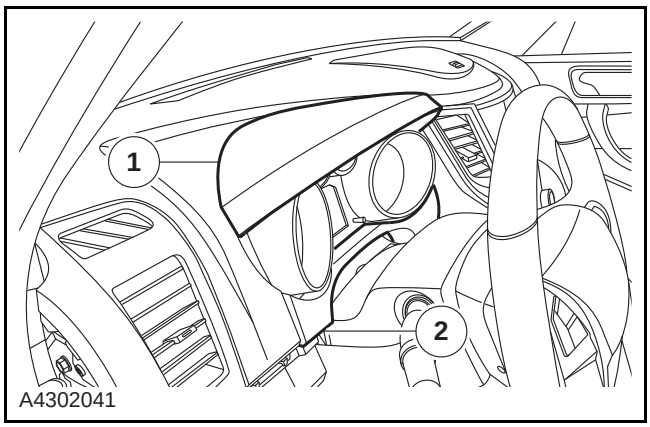
1. Disconnect the battery negative cable.

   Refer to: Battery Inspection (3.1.10 Charging System, General Procedures).

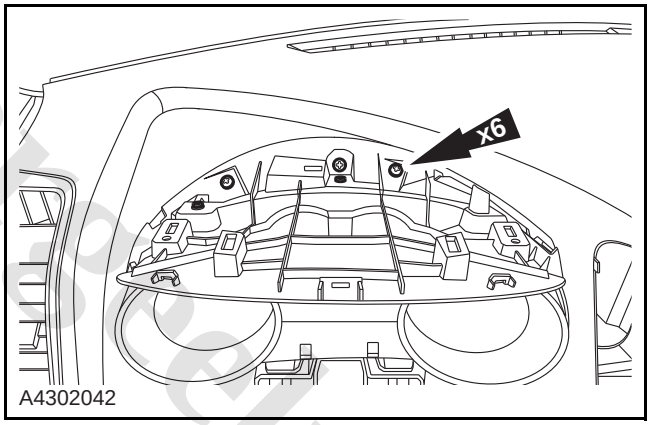
2. Remove the Instrument hood with a proper tool.

   1. Instrument cover.

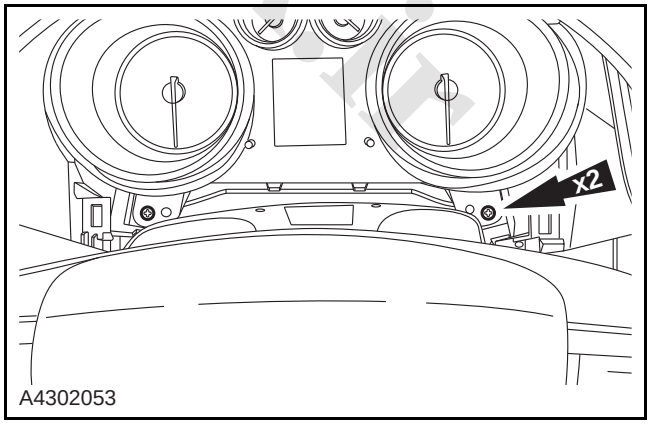
   2. Screw cover board on the Instrument cover.



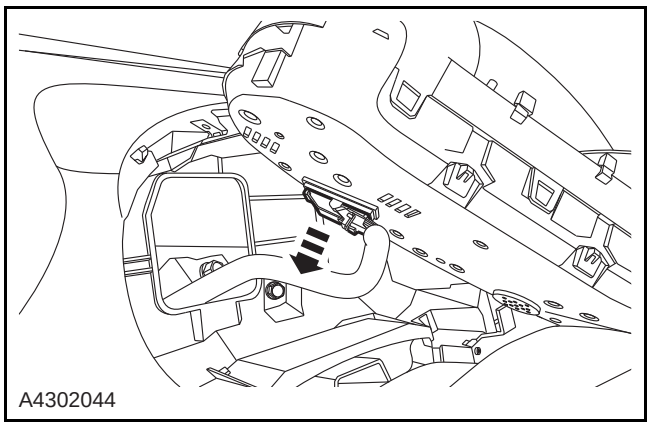
3. Remove the 6 upper retaining screws in the Instrument hood.



4. Remove the 2 retaining bolts on the lower Instrument.



5. Disconnect the Instrument wiring harness.



Installation

1. To install, reverse the removal procedure.

Specifications

Torque Specifications

Description	Nm	lb-ft	lb-in
Horn retaining bolt	21	15	-

Description and Operation

System Overview

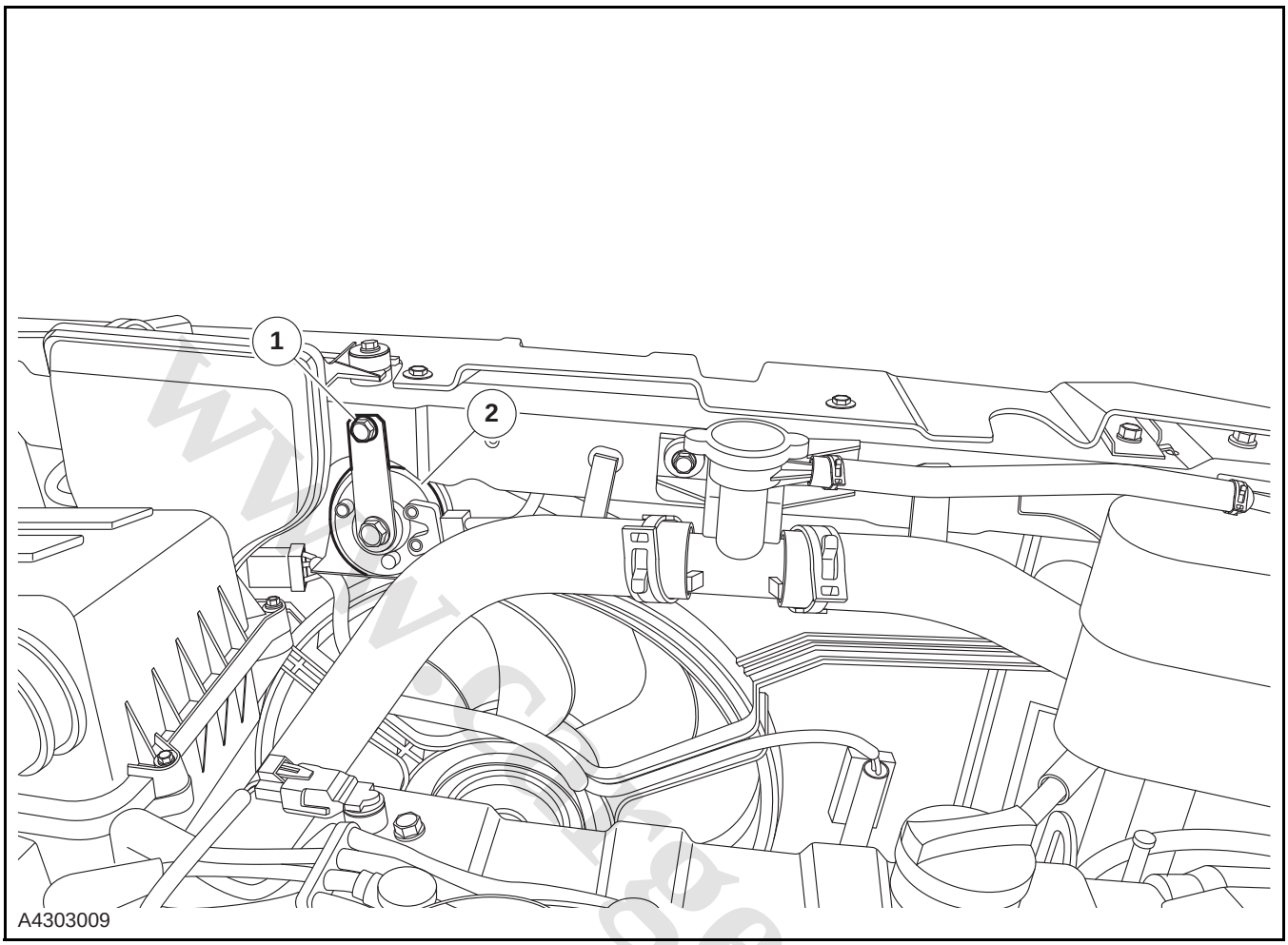
Warning: The vehicle is equipped with an airbag system. Failure to follow the correct Descriptions may cause following: a. The airbag system deploys unexpectedly. b.The airbag system fails to work when needed.

Warning: Follow the Descriptions below strictly to avoid the above mentioned situations: a. Make sure that you work on or around the components of the airbag system and its circuit before maintenance. b. Before working on or around the component of the airbag system and its circuit, deactivate the airbag system.

The horn is located in engine compartment, retained on the rear side of the radiator on the front of the vehicle. The horn has two control modes. One of the horn control methods is controlled by the steering wheel horn switch, when pressing down the horn button, and the horn relay supplies power to the horn circuit directly to activate the horn. The other one is that when the body immobilizer information has the demand to activate the horn, the body control module controls the horn directly.

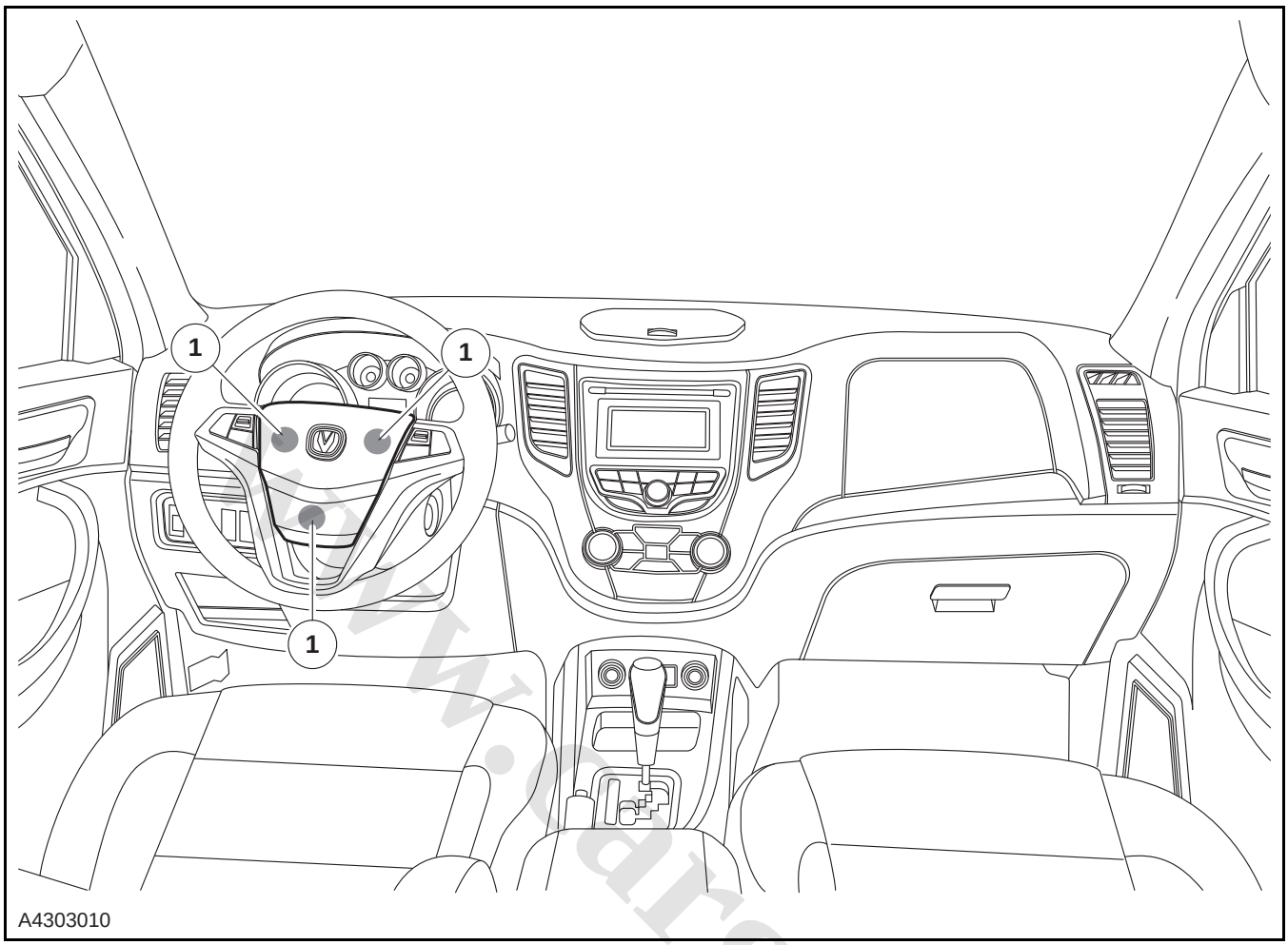
Location View

Horn



Item	Description	Item	Description
1	Hexagon flange bolt	2	Electrical horn assembly

Horn Switch



Item	Description
1	Horn switch

Symptom Diagnosis and Testing

General Equipment

Digital Multimeter
Changan Auto Special Diagnostic Tool

Warning: Wrong installation of the clock spring assembly could lead damage to the internal spiral coil and the coil fault to cause the airbag module failure and personal injury.

Warning: The airbag control module (SDM) is equipped with backup power supply which makes the airbag deploy successfully even in case of battery voltage loss during crash. Disconnect the battery positive cable for over 60 s before repairing the air - bag system in order to keep safe.

Inspection and Verification

1. Verify the customer concern.
2. Visually inspect for obvious signs of mechanical and electrical damage, whether there are obvious signs of collision or not.

Visual Inspection Chart

Mechanical	Electric
• Steering Wheel • Horn	• Circuit • Clock Spring • Horn switch of the steering wheel • Horn relay

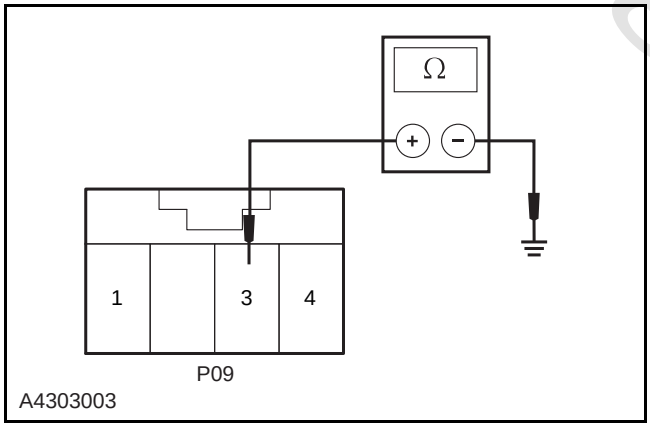
3. Inspect the visible system circuit.
4. If an obvious cause for an observed or reported concern is found, correct the cause before proceeding to the next step.
5. If the cause is not visually evident, verify the symptom and refer to the Symptom Chart.

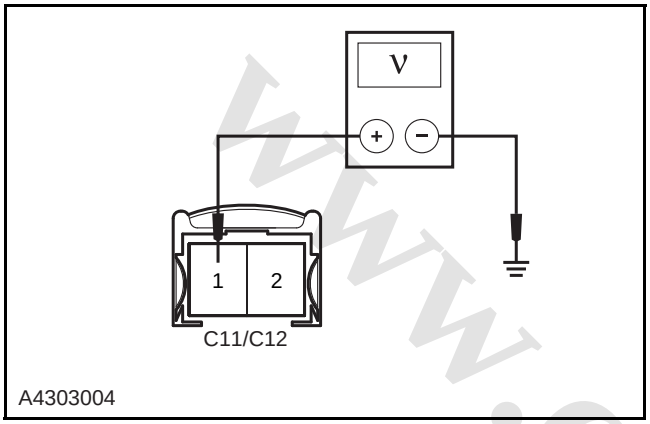
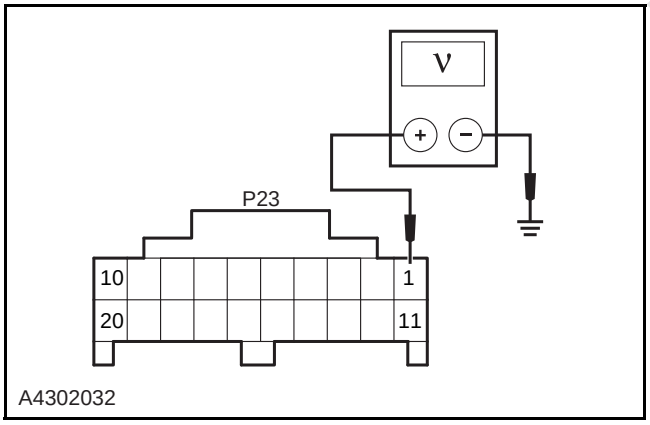
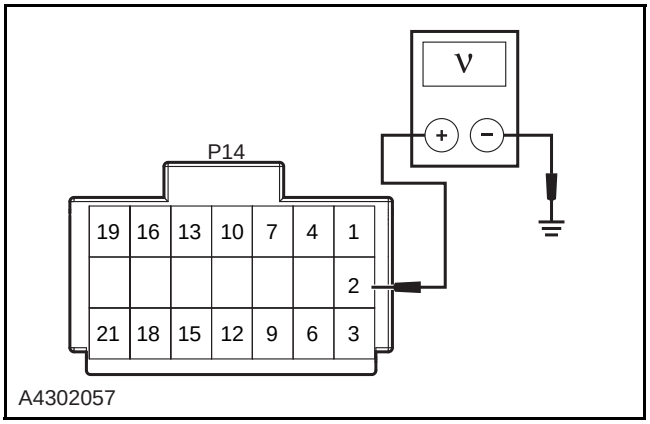
Symptom Chart

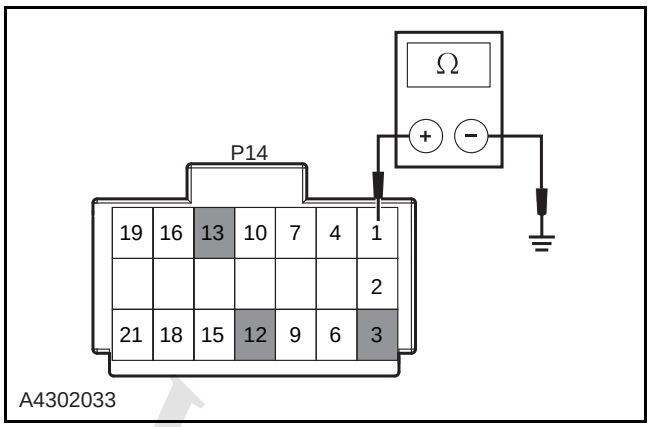
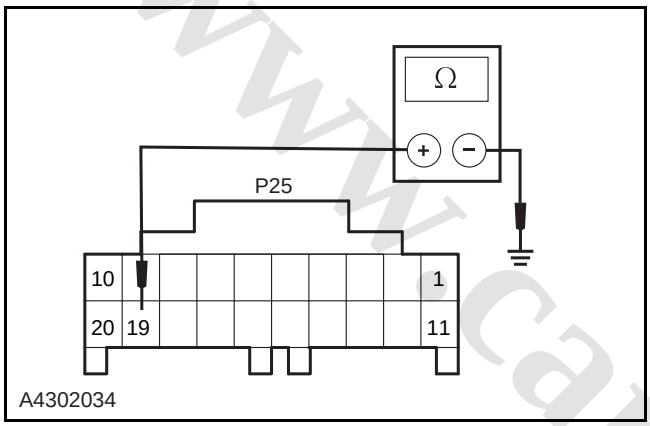
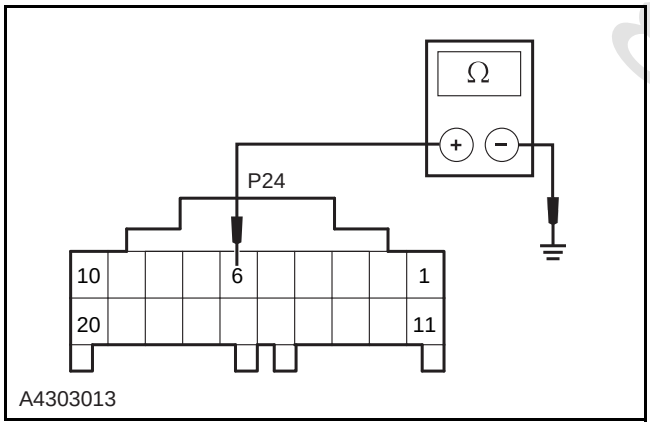
If there is a symptom but no diagnostic trouble code (DTC) is stored in control module and can not confirm symptom reasons in basic inspect, it is necessary to diagnosis and eliminate the symptoms in the following chart.

Symptom	Possible Sources	Solutions
The horn sounding is abnormal	• Relay IR03 • Horn power line short circuit to power supply • Relay coil control line normally grounded • Horn switch • BCM	**Refere to: Horn Always On Diagnosis (4.3.3 Horn, Symptom Diagnosis and Testing).**
Horn fault	• Fuse • Circuit • Relay IR03 • Horn • Horn switch	**Refere to: Horn Does Not Work Diagnosis (4.3.3 Horn, Symptom Diagnosis and Testing).**
One horn does not work	• Horn • Circuit	**Refere to: One Horn Does Not Work Diagnosis (4.3.3 Horn, Symptom Diagnosis and Testing).**
Abnormal horn	• Horn	**Refere to: Horn (4.3.3 Horn, Removal and Installation).**

Horn Always ON Diagnosis

Test Conditions	Details/Results/Solutions
1. General procedures	
	A. Inspect the clock spring, horn wiring harness connectors for damage, poor contact, aging, loosening or other signs. Is it normal? **Y** Go to step 2. **N** Repair the fault.
2. Inspect the horn switch	
	A. Disconnect the wiring harness connector P09 of the horn switch. Does the horn keep working? **Y** Go to step 3. **N** Inspect and repair the horn switch, replace the horn switch if necessary. **Refere to: Driver Airbag and Steering Wheel (4.2.1 Supplemental Restraint System, Removal and Installation).**
3. Inspect the ground circuit of the horn switch	
	A. Disconnect the horn switch wiring harness connector P09. B. Measure the resistance between the terminal 3 of the wiring harness connector P09 of the horn switch and the reliable ground. **Standard Resistance Value: 10 MΩ or more** Is the resistance value normal? **Y** Go to step 4. **N** Inspect and repair the short circuit to ground fault between the terminal 3 of the wiring harness connector P09 of horn switch and the terminal 1 of the horn relay IR03.

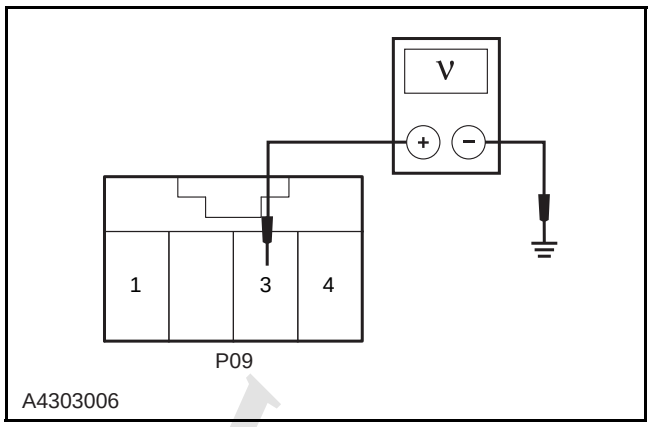
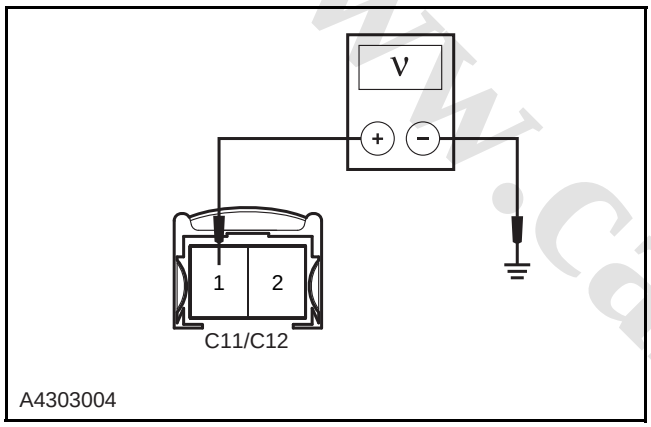
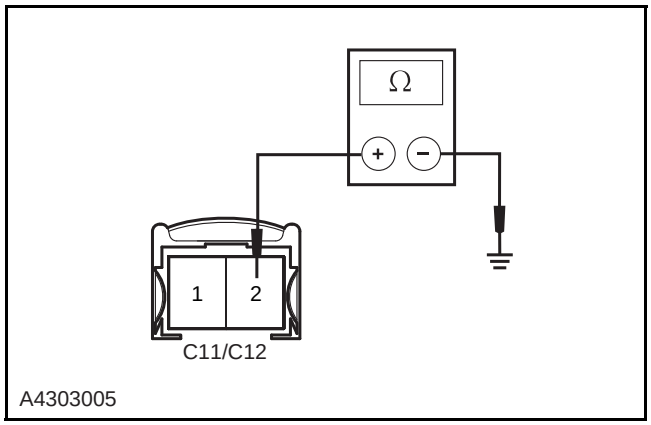
Test Conditions	Details/Results/Solutions
4. Inspect the horn relay	
	A. Replace a new horn relay. Is the horn always on? **Y** Go to step 5. **N** Verify the system is normal.
5. Inspect the power supply circuit of the horn	
 A4303004	A. Disconnect the terminal 1 of the horn wiring harness connector C11 / C12. B. Measure the voltage of the terminal 1 of the horn wiring harness connector C11 / C12. **Standard Voltage Value: 0 V** Is the voltage normal? **Y** Go to step 6. **N** Inspect and repair the short circuit to power supply fault between the terminal 1 of the horn wiring harness connector C11 / C12 and the terminal 5 of the horn relay IR03.
6. Inspect the power supply circuit of the body control module	
 A4302032	A. Turn the ignition switch to position "ON" and measure the voltage between the terminal 1 of the body control module wiring harness connector P23 and the reliable ground. **Standard Voltage Value: 11 ~ 14 V** B. Turn the ignition switch to position "LOCK" and measure the voltage between the terminal 2 of the body control module wiring harness connector P14 and the reliable ground. **Standard Voltage Value: 11 ~ 14 V** Is the voltage normal? **Y** Go to step 7. **N** Repair the power supply circuit of the body control module.
 A4302057	

Test Conditions	Details/Results/Solutions
7. Inspect the ground circuit of the body control module	
 A4302033  A4302034	A. Turn the ignition switch to position "LOCK" and measure the resistance between the terminal 1, 3, 12 and 13 of the body control module wiring harness connector P14 and the ground point wiring harness. B. Turn the ignition switch to position "LOCK" and measure the resistance between the terminal 19 of the body control module wiring harness connector P25 and the ground point wiring harness. **Standard Resistance Value: less than 5 Ω** Is the resistance value normal? **Y** Go to step 8. **N** Repair the ground circuit of the body control module.
8. Inspect the circuit between the body control module and the horn relay	
 A4303013	A. Turn the ignition switch to position "LOCK" and disconnect the battery negative cable. B. Disconnect the body control module wiring harness connector P24. C. Connect the battery negative cable and measure the resistance between the terminal 6 of the body control module wiring harness connector P24 and the reliable ground. **Standard Resistance Value: 10 MΩ or more** Is the resistance value normal? **Y** Go to step 9. **N** Inspect and repair the short circuit to ground fault between the terminal 6 of the body control module wiring harness connector P24 to the terminal 1 of the horn relay IR03.

Test Conditions	Details/Results/Solutions
9. Replace the body control module	
	A. Turn the ignition switch to "LOCK" position and disconnect the battery negative cable. B. Replace the body control module. **Refere to: Body Control Module (4.3.14 Body Control System, Removal and Installation).** Confirm the maintenance is finished.

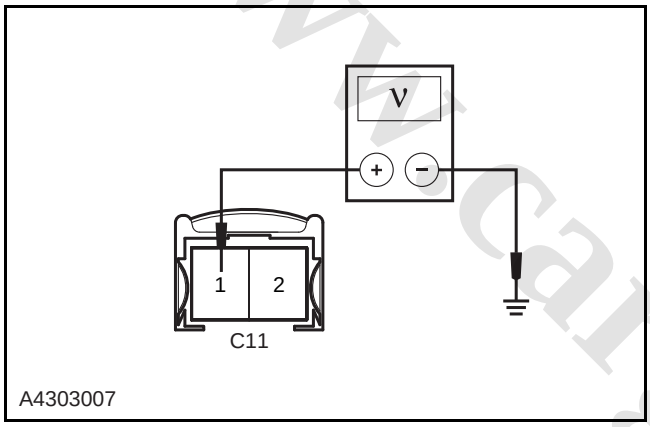
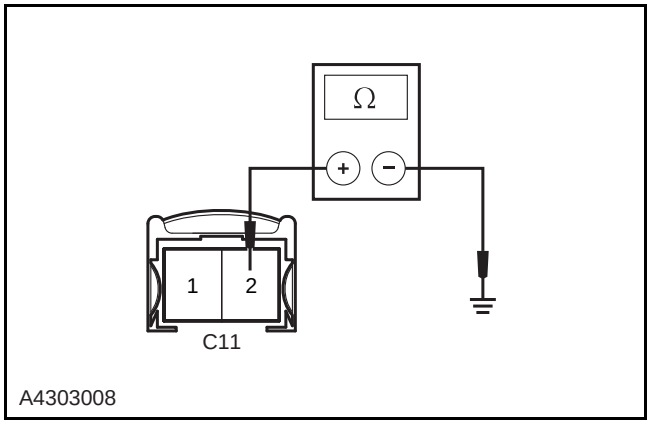
Horn Not Work Diagnosis

Test Conditions	Details/Results/Solutions
1. General procedures	
	A. Inspect the clock spring, horn wiring harness for damage, poor contact, aging, loosening or other signs. Is it normal? **Y** Go to step 2. **N** Repair the fault.
2. Inspect the fuse	
	A. Inspect the horn fuse IF22. **Fuse Rated Capacity: 15 A** Is the fuse normal? **Y** Go to step 3. **N** Repair the fuse circuit, replace the fuse in rated capacity.
3. Inspect the horn switch	
	A. Disconnect the horn switch wiring harness connector P09, use the wiring harness tool to connect the terminal 3 of the wiring harness connector P09 to ground. Does the horn work? **Y** Repair the horn switch, replace the horn switch if necessary. **Refere to: Driver Airbag and Steering Wheel (4.2.1 Supplemental Restraint System, Removal and Installation).** **N** Go to step 4.
4. Inspect the horn relay	
	A. Replace a new horn relay. Does the horn work normally? **Y** Verify the system is normal. **N** Go to step 5.

Test Conditions	Details/Results/Solutions
5. Inspect the horn switch circuit	
	A. Disconnect the horn switch wiring harness connector P09. B. Measure the voltage of the terminal 3 of the horn switch wiring harness connector P09. **Standard Voltage Value: 11 ~ 14 V** Is the resistance value normal? **Y** Go to step 6. **N** Inspect and repair the open circuit fault between the terminal 3 of the horn wiring harness connector P09 and the terminal 1 of the horn relay IR03.
6. Inspect the horn circuit	
	A. Press and hold the horn switch, while use a multimeter to measure the voltage of the terminal 1 of the horn wiring harness connector C11 / C12. **Standard Voltage Value: 11 ~ 14 V** Is voltage normal? **Y** Go to step 7. **N** Inspect and repair the open circuit fault between the terminal 1 of the horn wiring harness connector C11 / C12 and the terminal 5 of the horn relay IR03.
7. Inspect the horn ground circuit	
	A. Disconnect the horn wiring harness connector C11/ C12. B. Measure the resistance between the terminal 2 of the horn wiring harness connector C11 / C12 and the reliable ground. **Standard Resistance Value: less than 5 Ω** Is the resistance value normal? **Y** Go to step 8. **N** Inspect and repair the open circuit fault of the circuit between the terminal 2 of the horn wiring harness connector C11 / C12 and the ground point G301.
8. Replace the horn	
	A. Replace the horn. **Refere to: Horn (4.3.3 Horn, Removal and Installation).** Verify the system is normal.

One Horn Not Work Diagnosis

CAUTION: This diagnosis procedure is used to diagnose the horn A not working, and the horn B not working is the similar to this.

Test conditions	Details/Results/Solutions
1. General procedures	
	A. Inspect the clock spring, horn wiring harness for damage, poor contact, aging, loosening or other signs. Is it normal? **Y** Go to step 2. **N** Repair the fault.
2. Inspect the power supply circuit of the horn A	
 A4303007	A. Disconnect the horn A wiring harness connector C11. B. Press the horn switch. C. Measure the voltage of the terminal 1 of the horn A wiring harness connector C11. **Standard Voltage Value: 11 ~ 14 V** Is the voltage normal? **Y** Go to step 3. **N** Inspect and repair the open circuit fault between the terminal 5 of the horn relay IR03 and the terminal 1 of the horn A wiring harness connector C11.
3. Inspect the horn A ground circuit	
 A4303008	A. Disconnect the horn A wiring harness connector C11. B. Measure the resistance between the terminal 2 of the horn A wiring harness connector C11 and the reliable ground. **Standard Resistance Value: less than 5 Ω** Is the resistance value normal? **Y** Replace the horn A. **Refere to: Horn (4.3.3 Horn, Removal and Installation).** **N** Inspect and repair the open circuit fault of the horn A ground circuit. Verify the system is normal.

Removal and Installation

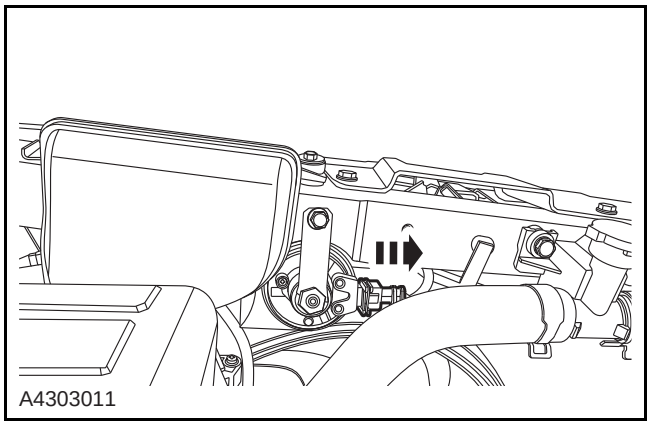
Horn

Removal

1. Disconnect the battery negative cable.

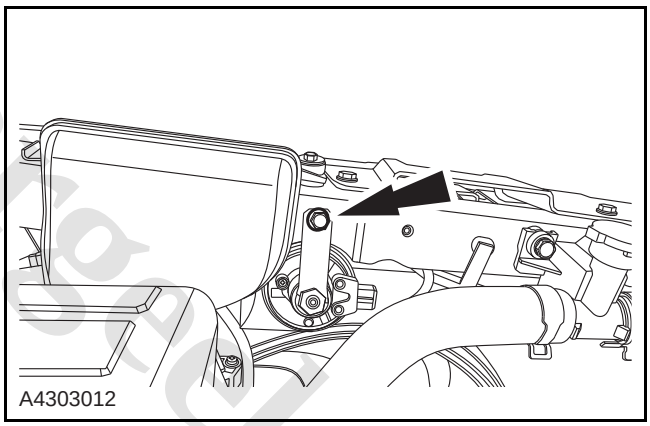
   Refer to: Battery Inspection (3.1.10 Charging System, General Procedures).

2. Disconnect the horn wiring harness connector.


A4303011

3. Remove the horn retaining bolt and take out the horn.

   Torque: 21 Nm


A4303012

Installation

1. To install, reverse the removal procedure.

Specifications

General Specifications

Description	Item	Parameter
Cigarette lighter and accessory power	Rated voltage	12 V (DC)
	Maximum current	10 A
	Reset time	Less than 18 s
	Durability	5,000 times

Description and Operation

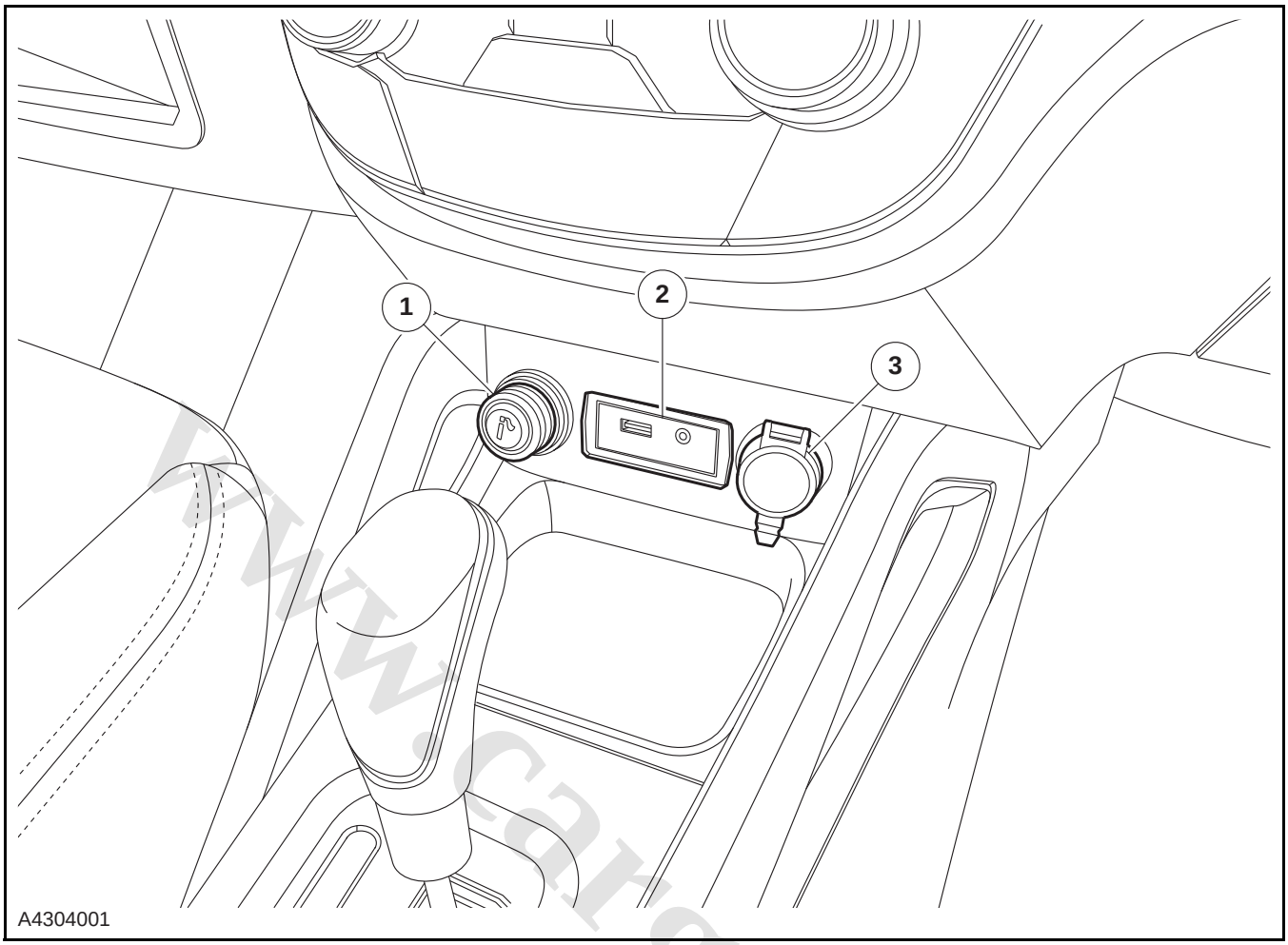
System Overview

The cigarette lighter is installed on the lower Instrument center control panel. It can be pulled out and used when it pops up after its heating element becomes hot in seconds upon pressing the button.

CAUTION: Be careful to avoid scalding for high temperature of the functioning cigarette lighter.

The front row accessory power is installed in the inside of the cigarette lighter, and the rear accessory power on the C-pillar lower trim panel with the same installation way of the front accessory power. Through this socket, you can get 12 V DC power output.

Location View



Item	Description	Item	Description
1	Cigarette lighter	3	Accessory power
2	USB and AUX interface		

Symptom Diagnosis and Testing

General Equipment

Digital Multimeter
Diagnostic Tool

Inspection and Verification

1. Verify the customer concern.
2. Visually inspect for obvious signs of mechanical or electrical damage and the deformation due to collision.

Visual Inspection Chart

Mechanical	Electric
• Cigarette lighter retainer • Accessory power socket	• Fuse • Circuit • Cigarette lighter • Accessory power

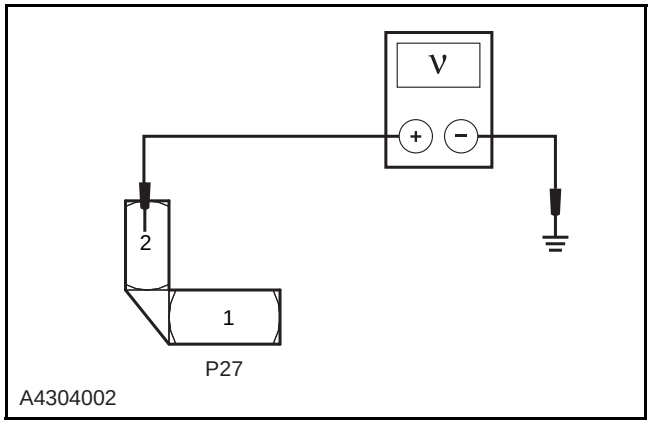
3. Inspect the easily visible or visible system circuit.
4. If an obvious cause for an observed or reported concern is found, correct the cause before proceeding to the next step.
5. If the cause is not visually evident, verify the symptom and refer to the Symptom Chart.

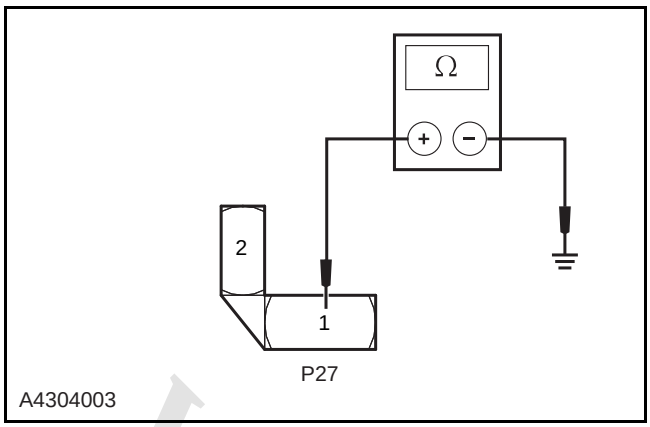
Symptom Chart

If there is a symptom but no diagnostic trouble code (DTC) is stored in control module and can not confirm the symptom reasons in basic inspect, it is necessary to diagnosis and eliminate the symptoms in the following chart.

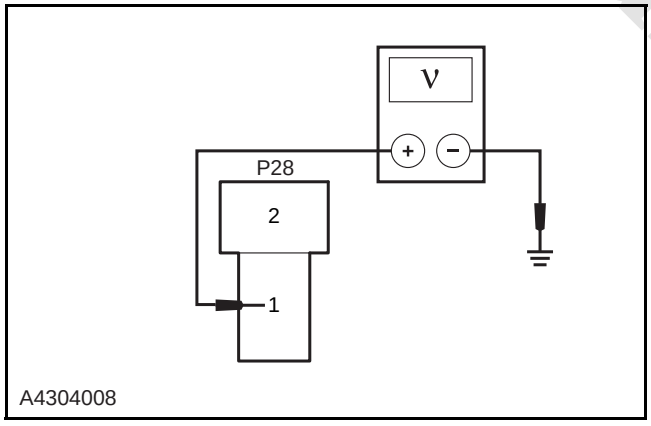
Symptom	Possible Sources	Solutions
Cigarette lighter fault	• Fuse and circuit • Cigarette lighter	**Refer to: Cigarette Lighter Failure Diagnosis (4.3.4 Cigarette Lighter / Accessory Power Supply，Symptom Diagnosis and Testing).**
The cigarette lighter does not pop up automatically	• Cigarette lighter • Cigarette lighter retainer	• Replace the cigarette lighter. • Replace the cigarette lighter retainer.
Accessory power fault	• Fuse and circuit • Accessory power socket	**Refer to: Accessory Power Failure Diagnosis (4.3.4 Cigarette Lighter / Accessory Power Supply，Symptom Diagnosis and Testing).**
Rear on - board power failure	• Fuse and circuit • Rear on - board power socket	**Refer to: Rear On - board Power Failure Diagnosis (4.3.4 Cigarette Lighter / Accessory Power Supply，Symptom Diagnosis and Testing).**

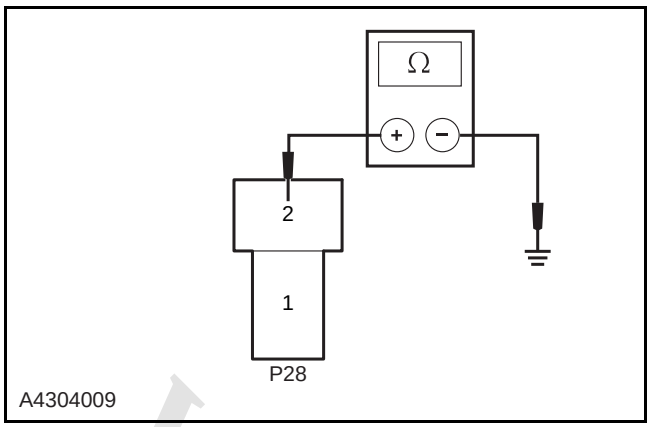
Cigarette Lighter Failure Diagnosis

Test Conditions	Details/Results/Solutions
1. General procedures	
	A. Inspect the cigarette lighter wiring harness connector for signs of damage, poor contact, aging or loose. Is it normal? **Y** Go to step 2. **N** Repair the fault.
2. Inspect the fuse	
	A. Inspect the cigarette lighter fuse IF13. **Fuse Rated Capacity: 15 A** Is the fuse normal? **Y** Go to step 3. **N** Inspect and repair the fuse circuit and replace the fuse in rated capacity.
3. Replace the cigarette lighter	
	A. Install a new cigarette lighter. Is the cigarette lighter normal? **Y** Verify the system is normal. **N** Go to step 4.
4. Inspect the power circuit of the cigarette lighter	
	A. Turn the ignition switch to "ACC" position. B.Measure the voltage between terminal 2 of the cigarette lighter wiring harness connector P27 and the reliable ground. **Standard Voltage Value: 11 ~ 14 V** Is the voltage normal? **Y** Go to step 5. **N** Inspect and repair the open circuit fault between the terminal 27 of the I/P fuse and relay box IF13 and the terminal 2 of the cigarette lighter wiring harness connector P27.

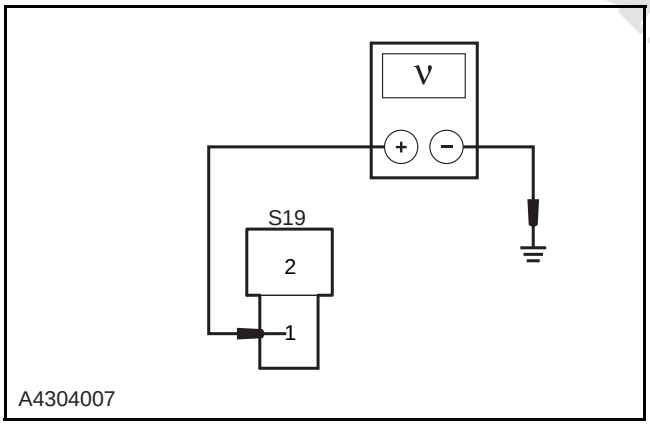
Test Conditions	Details/Results/Solutions
5. Inspect the ground circuit of the cigarette lighter	
 A4304003	A. Turn the ignition switch to position "LOCK". B. Disconnect the cigarette lighter wiring harness connector P27. C. Measure the resistance between the terminal 1 of the cigarette lighter wiring harness connector P27 and the reliable ground. **Standard Resistance Value: less than 5 Ω** Is the resistance value normal? **Y** Go to step 6. **N** Inspect and repair the open circuit fault between the terminal 1 of the cigarette lighter wiring harness connector P27 and the ground point G103.
6. Replace the cigarette lighter retainer	
	A. Turn the ignition switch to position "LOCK". B. Replace the cigarette lighter retainer. **Refer to: Cigarette Lighter (4.3.4 Cigarette Lighter / Accessory Power Supply, Removal and Installation).** Verify the system is normal.

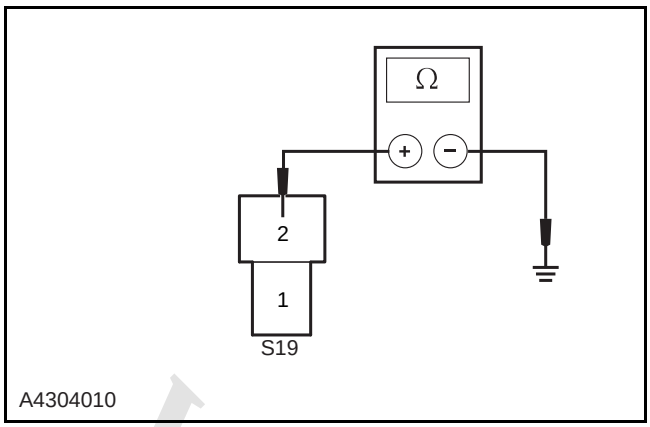
Accessory Power Failure Diagnosis

Test Conditions	Details/Results/Solutions
1. General procedures	
	A. Inspect the accessory power wiring harness connector for signs of damage, poor contact, aging or getting loose. Is it normal? **Y** Go to step 2. **N** Repair the fault.
2. Inspect the fuse	
	A. Inspect the accessory power fuse IF14. **Fuse Rated Capacity: 15 A** Is the fuse normal? **Y** Go to step 3. **N** Repair the fuse circuit, replace the fuse in rated capacity.
3. Inspect the power supply circuit of the accessory power	
 A4304008	A. Turn the ignition switch to position "ACC". B. Measure the voltage between the terminal 1 of the accessory power wiring harness connector P28 and the reliable ground with a multimeter. **Standard Voltage Value: 11 ~ 14 V** Is voltage normal? **Y** Go to step 4. **N** Inspect and repair the open circuit fault between the terminal 29 of the fuse IF14 and the terminal 1 of the accessory power wiring harness connector P28.

Test Conditions	Details/Results/Solutions
4. Inspect the ground circuit of the accessory power	
	A. Turn the ignition switch to position "LOCK". B. Disconnect the accessory power wiring harness connector P28. C. Measure the resistance between the terminal 2 of the accessory power wiring harness connector P28 and the reliable ground. **Standard Resistance Value: less than 5 Ω** Is the resistance value normal? **Y** Go to step 5. **N** Inspect and repair the open circuit fault between the terminal 2 of the accessory power wiring harness connector P28 and the ground point G103.
5. Replace the accessory power socket	
	A. Turn the ignition switch to position "LOCK". B. Replace the accessory power socket. Verify the system is normal.

Rear On - Board Power Failure Diagnosis

Test Conditions	Details/Results/Solutions
1. General procedures	
	A. Inspect the rear on-board power wiring harness connector for signs of damage, poor contact, aging or getting loose. Is it normal? **Y** Go to step 2. **N** Repair the fault.
2. Inspect the fuse	
	A. Inspect the rear on - board power fuse IF15. **Fuse Rated Capacity: 15 A** Is the fuse normal? **Y** Go to step 3. **N** Inspect and repair the fuse circuit, replace the fuse in rated capacity.
3. Inspect the rear on - board power circuit	
	A. Turn the ignition switch to position "ACC". B. Use a multimeter to measure the voltage between the terminal 1 of the rear on - board power wiring harness connector S19 and the reliable ground. **Standard Voltage Value: 11 ~ 14 V** Is voltage normal? **Y** Go to step 4. **N** Inspect and repair the open circuit fault between the terminal 31 of the fuse IF15 and the terminal 1 of the rear on - board power wiring harness connector S19.

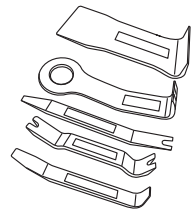
Test Conditions	Details/Results/Solutions
4. Inspect the rear on - board power ground circuit	
 A4304010	A. Turn the ignition switch to position "LOCK". B. Disconnect the rear on - board power wiring harness connector S19. C. Measure the resistance between the terminal 2 of the rear on - board power wiring harness connector S19 and the reliable ground. **Standard Resistance Value: less than 5 Ω** Is the resistance value normal? **Y** Go to step 5. **N** Inspect and repair the open circuit fault between the terminal 2 of the rear on - board power wiring harness connector S19 and the ground point G205.
5. Replace the rear on - board power socket	
	A. Turn the ignition switch to position "LOCK". B. Replace the rear on - board power socket. Verify the system is normal.

Removal and Installation

Cigarette Lighter

Removal

Special Tool

 CA501-002	Interior and Exterior Trim Remover CA501-002

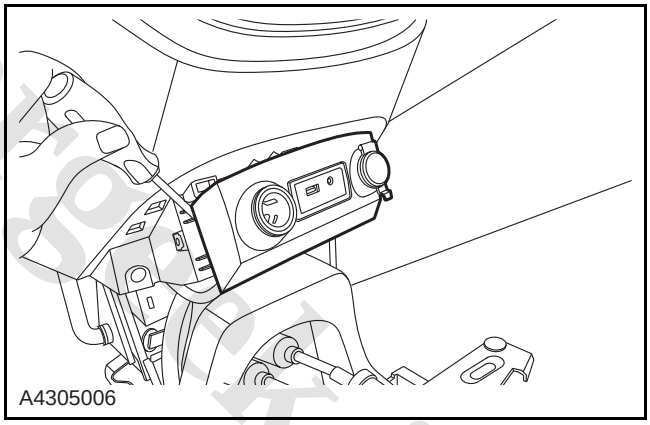
1. Disconnect the battery negative cable.

   Refer to: Battery Inspection (3.1.10 Charging System, General Procedures).

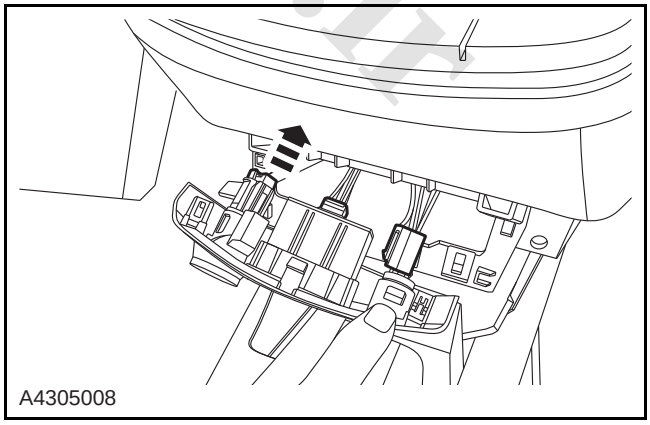
2. Remove the console.

   Refer to: Console (5.1.6 Instrument and Console, Removal and Installation).

3. Use a specific tool to remove the cigarette lighter and accessory power supply control panel.


A4305006

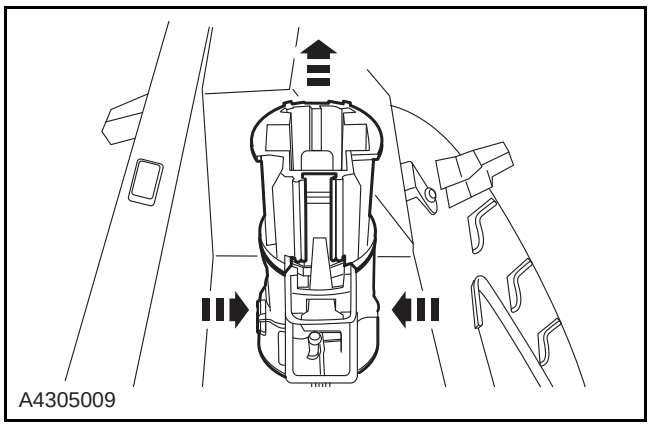
4. Disconnect the cigarette lighter and accessory power wiring harness connector.


A4305008

5. Remove the cigarette lighter.

1. Use a proper tool to pry off the clamps on the both sides of the cigarette lighter retainer.

2. Remove the cigarette lighter from the cigarette lighter retainer.



Installation

1. To install, reverse the removal procedure.

Specifications

General Specifications

Description	Item	Parameter
CD player assembly / Radio assembly power	Rated voltage	12 V (DC)
	Rated current	-

Torque Specifications

Description	Nm	lb-ft	lb-in
CD player assembly / Radio assembly retaining screw	3	-	27
Front speaker retaining screw	3	-	27
Rear speaker retaining screw	3	-	27
Antenna retaining bolt	9	-	80

Description and Operation

System Overview

Two options are available for the audio entertainment system of this vehicle: CD player with radio and DVD.

Radio

When you turn on the audio switch and shift to "AM" and "FM", the antenna module receives radio signals and transports them to the audio system. The audio system receives the radio signals and then filters the wave, tunes the needed signals, amplifies the electronic signals through the amplifier and finally outputs them through speakers.

CD Playing

When you turn on the audio switch and shift to "CD", the audio system controls the CD player to work, read the data on the CD, transforms (D / A) the processed data into analog sound signals, transports them to the audio system amplifying circuit and finally outputs them through speakers.

DVD Play

When you turn on the audio system switch and shift to DVD mode, the audio system will control the DVD work, read the data on CD, transform the processed data into analog images by D / A and output them to the audio system audio frequency amplifying circuit and finally output them through the display.

Component Description

Front and Rear Speakers

The vehicle uses high - fidelity surround sound system with a configuration of six speakers, including two tweeters in the A - pillar trim, and the other four speakers are located within the four door trims respectively.

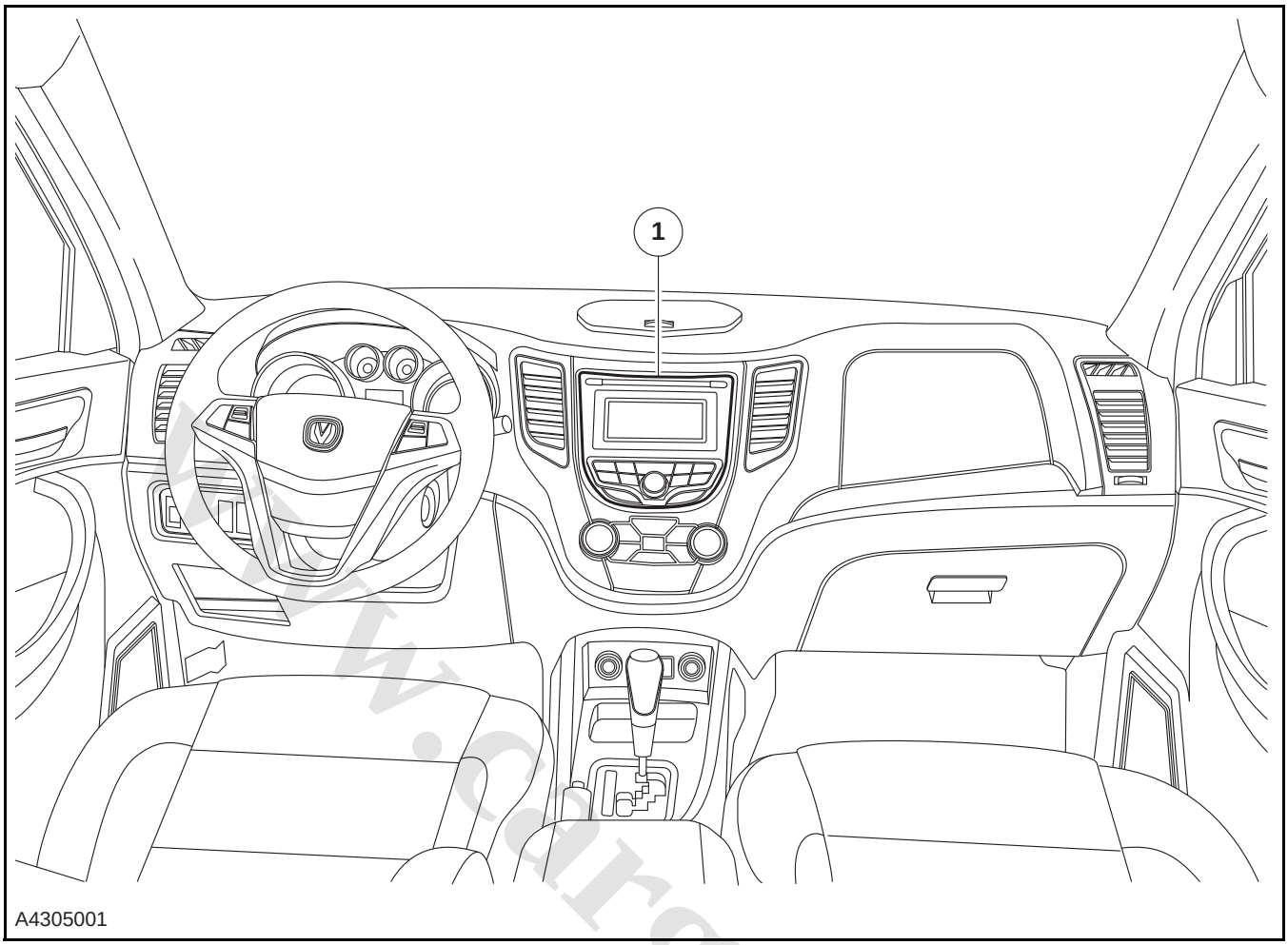
Steering Wheel Volume Control Switch

The steering wheel volume control switch has the function of volume control and mute. When the control switch is pushed to a needed function, the audio system gets a different voltage input.

Maintenance of The Disks

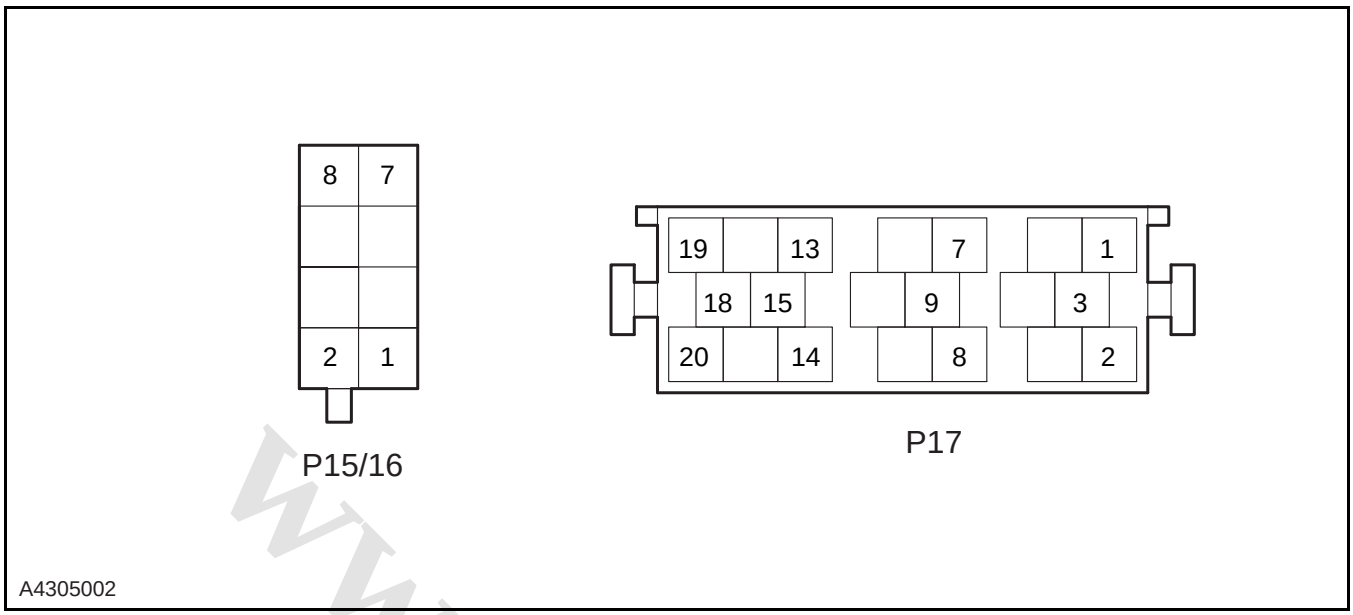
The disks should be handled carefully. They should be put in a disk box away from sunshine, heat and dust. If the surface of a disk is dirty, use a clean soft cloth soaked in neutral cleaner to clean the disk.

Location View



Item	Description
1	CD player assembly / Radio assembly

CD Player Assembly / Radio Assembly Terminal List



Terminal No.	Connection	Terminal Description
P15-1	0.5 VT/BU	Steering wheel wire control ground
P15-2	0.5 VT/YE	Steering wheel wire control input
P15-3	-	-
P15-4	0.5 VT/WH	Ignition switch power (ACC)
P15-5	0.5 PK	Antenna power supply
P15-6	0.5 GN/RD	Back lighting power
P15-7	1.25 VT/RD	Continuous power
P15-8	1.25 BK	G102
P16-1	0.5 GN/BN	Right rear speaker anode
P16-2	0.5 GN/BU	Right rear speaker cathode
P16-3	0.5 VT/GN	Passenger side door speaker anode, right tweeter anode
P16-4	0.5 VT/OG	Passenger side door speaker cathode, right tweeter cathode
P16-5	0.5 GY/BU	Driver side door speaker anode, left tweeter anode
P16-6	0.5 GY/RD	Driver side door speaker cathode, left tweeter cathode
P16-7	0.5 GN/PK	Left rear speaker anode
P16-8	0.5 GN/VT	Left rear speaker cathode
P17-1	-	-
P17-2	-	-
P17-3	0.3 GN/RD	Vehicle speed signal
P17-4	-	-
P17-5	-	-
P17-6	-	-

Terminal No.	Connection	Terminal Description
P17-7	-	-
P17-8	-	-
P17-9	-	-
P17-10	-	-
P17-11	-	-
P17-12	-	-
P17-13	-	-
P17-14	-	-
P17-15	-	-
P17-16	-	-
P17-17	-	-
P17-18	-	-
P17-19	-	-
P17-20	-	-

Symptom Diagnosis and Testing

General Equipment

Digital Multimeter
Changan Auto Special Diagnostic Tool

Inspection and Verification

CAUTION: When testing whether the audio entertainment system has poor signal receiving or noise interference, park the vehicle outdoors far from metal buildings and power supply wires, and close the engine hood and the trunk.

1. Verify the customer concern.
2. Visually inspect for obvious signs of mechanical or electrical damage and the deformation due to collision.

Visual Inspection Chart

Mechanical	Electric
• Antenna • Front entertainment controller assembly • Steering wheel button • Clock spring (high configuration)	• Fuse • Circuit • Audio circuit • Antenna and feeder • Speakers • CD player assembly / Radio assembly

3. Inspect the visible system circuit.

CAUTION: The twisted - pair cable can shield the electronic components effectively from interference. If the shielding layer of the original circuits is damaged, install a new shielding layer.

4. If any obvious burning smell or overheating of the component is found in the inspection process, it shall be determined first whether it is damaged.
5. If an obvious cause for an observed or reported concern is found, correct the cause before proceeding to the next step.
6. If the cause is not visually evident, verify the symptom and refer to the Symptom Chart.

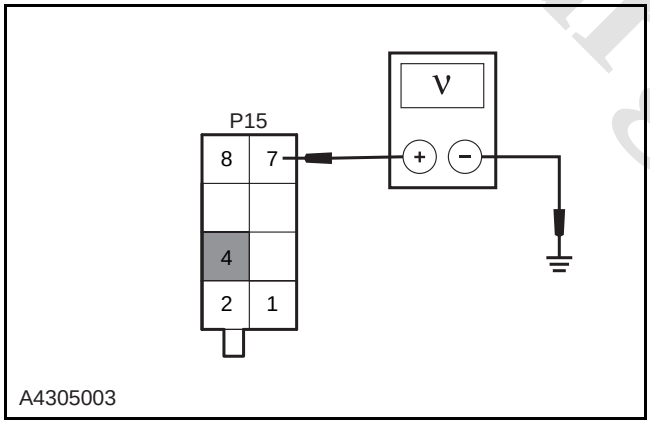
Symptom Chart

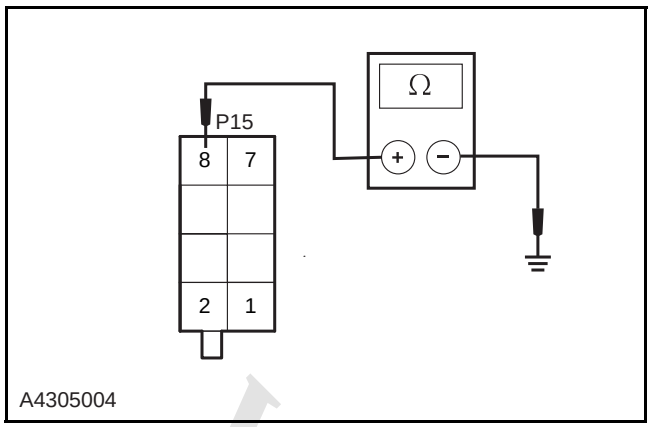
If there is a symptom but no diagnostic trouble code (DTC) is stored in control module and can not confirm the symptom reasons in basic inspect, it is necessary to diagnose and eliminate the symptoms in the following chart.

Symptom	Possible Sources	Solutions
No display, function unavailable, start failure	• Fuse • Circuit • CD player assembly / Radio assembly	**Refer to: No Display, Malfunction, Start Failure Diagnosis (4.3.5 Information and Entertainment System, Symptom Diagnosis and Testing).**
No sound when playing the disk or turning on the radio (display, operation, disk reading and radio station searching are normal.)	• Circuit • Speakers • CD player assembly / Radio assembly	**Refer to: No Sound When Playing Disc or Radio (Normal Display, Operation, Rear Disc and Radio Station Searching) Diagnosis (4.3.5 Information and Entertainment System, Symptom Diagnosis and Testing).**
Radio station fixing fails when the radio is on	• Circuit • Antenna and feeder • CD player assembly / Radio assembly	**Refer to: Radio Station Fixing Failure When Playing Radio Diagnosis (4.3.5 Information and Entertainment System, Symptom Diagnosis and Testing).**
The power supply indicator does not light	• Fuse and circuit • CD player assembly / Radio assembly	• Replace the fuse. • Inspect and repair the circuit. • Replace the CD player assembly / radio assembly.
The sound is not clear	• Circuit interference • Antenna and feeder • Speakers • CD player assembly / Radio assembly	• Inspect and repair the circuit. • Inspect and repair the antenna and feeder. • Inspect and repair or replace the speakers. • Inspect and repair or replace the CD player assembly / radio assembly.
Poor or no radio signal receiving	• There is interference or shield at the place. • Antenna and feeder • CD player assembly / Radio assembly	• Change the place for receiving radio signals. • Inspect and repair or replace the antenna and feeder. • Inspect and repair or replace the CD player assembly / radio assembly.

Symptom	Possible Sources	Solutions
The steering wheel control device does not work	• Circuit • Steering wheel volume control switch • Control circuit of the steering wheel volume control switch • CD player assembly / Radio assembly	• Inspect and repair the circuit. • Inspect and repair or replace the steering wheel volume control switch. • Inspect and repair or replace the CD player assembly / radio assembly.
Wrong or no display on the screen	• The screen does not light • Screen fault	• Inspect and repair the screen circuit. • Inspect and repair or replace the CD player assembly / radio assembly.

No Display, Malfunction and Start Failure Diagnosis

Test Conditions	Details/Results/Solutions
1. General procedures	
	A. Inspect the wiring harness connector of the audio system, antenna and feeder to see if there is damage, poor contact, aging or release. Is it normal? **Y** Go to step 2. **N** Repair the fault.
2. Inspect the fuse	
	A. Inspect the audio system fuse IF12 and IF24. **Fuse Rated Capacity: 15 A, 10 A** Is the fuse normal? **Y** Go to step 3. **N** Inspect and repair the fuse circuit, replace the fuse in rated capacity.
3. Inspect the power supply circuit of the audio system	
	A. Turn the ignition switch to position "LOCK". B. Disconnect the audio system wiring harness connector P15. C. Measure the the voltage of terminal 7 of the audio system wiring harness connector P15. **Standard Voltage Value: 11 ~ 14 V** D. Turn the ignition switch to position "ACC". E. Measure the the voltage of terminal 4 of the audio system wiring harness connector P15. **Standard Voltage Value: 11 ~ 14 V** Is voltage normal? **Y** Go to step 4. **N** Inspect and repair the open circuit fault of the audio system power supply circuit.

Test Conditions	Details/Results/Solutions
4. Inspect the audio system ground circuit	
 A4305004	A. Turn the ignition switch to position "LOCK". B. Disconnect the audio system wiring harness connector P15. C. Measure the wiring harness resistance between the terminal 8 of the audio system wiring harness connector P15 and the ground point. **Standard Resistance Value: less than 5 Ω** Is the resistance normal? **Y** Go to step 5. **N** Inspect and repair the open circuit of the audio system.
5. Replace the audio system	
	A. Turn the ignition switch to position "LOCK". B. Replace the audio system. **Refer to: CD Player Assembly / Radio Assembly (4.3.5 Information and Entertainment System, Removal and Installation).** Verify the system is normal.

No Sound When Playing Disk or Turning On Radio Diagnosis (Normal Display, Operation, Disk Reading and Radio Station Searching) Diagnosis

Test Conditions	Details/Results/Solutions
1. General procedures	
	A. Inspect the wiring harness connector of the audio system, antenna and feeder to see if there is damage, poor contact, aging or release. Is it normal? **Y** Go to step 2. **N** Repair the fault.
2. Inspect the working of all the speakers	
	A. Turn the ignition switch to "ACC", switch on the audio system, set it to output in all tracks, cancel the mute function and enter the playing state. Do all the speakers not work? **Y** Go to step 3. **N** Go to step 4.
3. Replace the audio system	
	A. Turn the ignition switch to position "LOCK". B. Replace the audio system. **Refer to: CD Player Assembly / Radio Assembly (4.3.5 Information and Entertainment System, Removal and Installation).** Does the driver side speaker not worker? **Y** Go to step 4. **N** Verify the system is normal.

Test Conditions	Details/Results/Solutions
4. Inspect and repair the driver side speaker circuit and the states	
	A. Turn the ignition switch to position "LOCK". B. Inspect and repair the driver side speaker circuit, and there shall be no short circuit or open circuit. C. Replace the speaker. **Refer to: Front Speaker (4.3.5 Information and Entertainment System, Removal and Installation) or Tweeter (4.3.5 Information and Entertainment System, Removal and Installation).** Is the system normal? **Y** Verify the system is normal. **N** Go to step 5.
5. Inspect and repair the passenger side speaker circuit and states	
	A. Turn the ignition switch to position "LOCK". B. Inspect and repair the passenger side speaker circuit, and there shall be no short circuit and open circuit. C. Replace the speaker. **Refer to: Front Speaker (4.3.5 Information and Entertainment System, Removal and Installation). or Tweeter (4.3.5 Information and Entertainment System, Removal and Installation).** Is the system normal? **Y** Verify the system is normal. **N** Go to step 6.

Test Conditions	Details/Results/Solutions
6. Inspect and repair the circuits and states of the left rear speakers	
	A. Turn the ignition switch to position "LOCK". B. Inspect and repair the left rear speaker circuit, and there shall be no short circuit and open circuit. C. Replace the left rear speakers. **Refer to: Rear Speaker (4.3.5 Information and Entertainment, Removal and Installation).** Is the system normal? **Y** Verify the system is normal. **N** Go to step 7.
7. Inspect and repair the circuit and states of the right rear speakers	
	A. Turn the ignition switch to position "LOCK". B. Inspect and repair the right rear speaker circuit, and there shall be no short circuit and open circuit. C. Replace the right rear speakers. **Refer to: Rear Speaker (4.3.5 Information and Entertainment, Removal and Installation).** Verify the system is normal.

Radio Station Fixing Failure Diagnosis

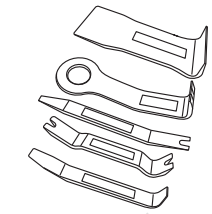
Test Conditions	Details/Results/Solutions
1. General procedures	
	A. Inspect the wiring harness connector of the audio system, antenna and feeder to see if there is damage, poor contact, aging or release. Is it normal? **Y** Go to step 2. **N** Repair the fault.
2. Change the workplace for the audio system to receive radio signals	
	A. Move the vehicle to an appropriate place far from metal buildings and power supply circuits and has radio signals, then receive radio signals and fix the radio station of the audio system. Is the system normal? **Y** Verify the system is normal. **N** Go to step 3.
3. Replace the audio system	
	A. Turn the ignition switch to position "LOCK". B. Replace the audio system. **Refer to: CD Player Assembly / Radio Assembly (4.3.5 Information and Entertainment System, Removal and Installation).** Is the system normal? **Y** Verify the system is normal. **N** Go to step 4.
4. Replace the antenna and feeder of the radio	
	A. Turn the ignition switch to "LOCK" and replace the radio feeder. **Refer to: Antenna and Feeder (4.3.5 Information and Entertainment System, Removal and Installation).** Verify the system is normal.

Removal and Installation

CD Player Assembly/Radio Assembly

Removal

Special Tool

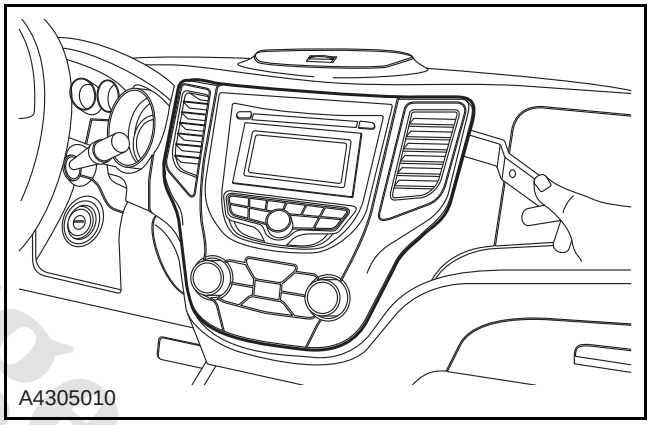
 CA501-002	Interior and Exterior Trim Remover CA501-002

1. Disconnect the battery negative cable.

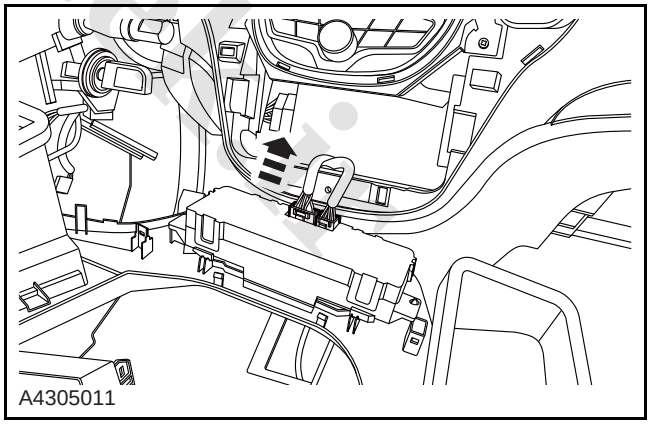
   Refer to: Battery Inspection (3.1.10 Charging System, General Procedures).

2. Use a special tool to remove the center control panel assembly.

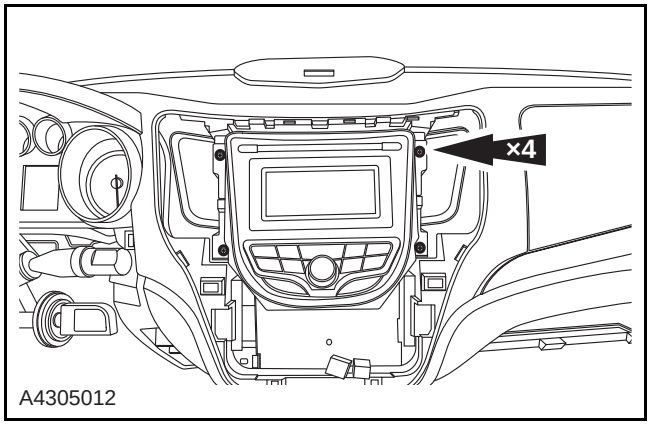
   Special Tool: CA501-002


A4305010

3. Disconnect the the center control panel assembly connector.


A4305011

4. Remove the CD player assembly/radio assembly retaining screw, and take out the CD player assembly/radio assembly.



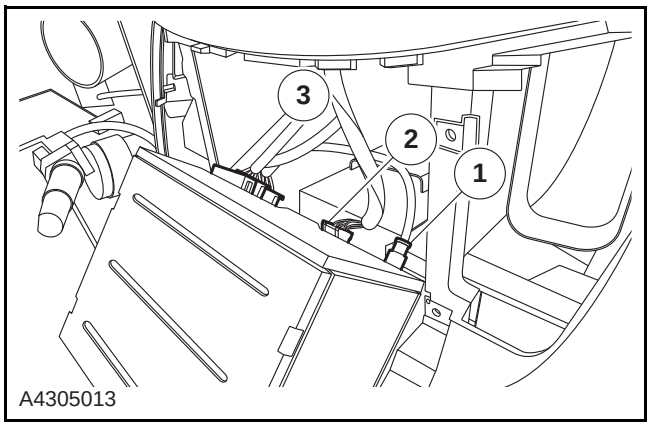
5. Disconnect the connector connecting with the CD player assembly/radio assembly.

1. Disconnect the CD player assembly/radio assembly feeder connector.

2. Disconnect the the CD player assembly/radio assembly accessory connector.

3. Disconnect the the CD player assembly/radio assembly connector.

4. Take out the CD player assembly/radio assembly.



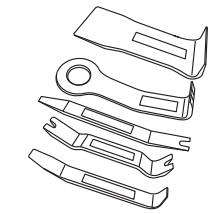
Installation

1. The installation process is reverse.

High-pitch Speaker

Removal

Special Tool:

 CA501-002	Interior and Exterior Trim Remover CA501-002

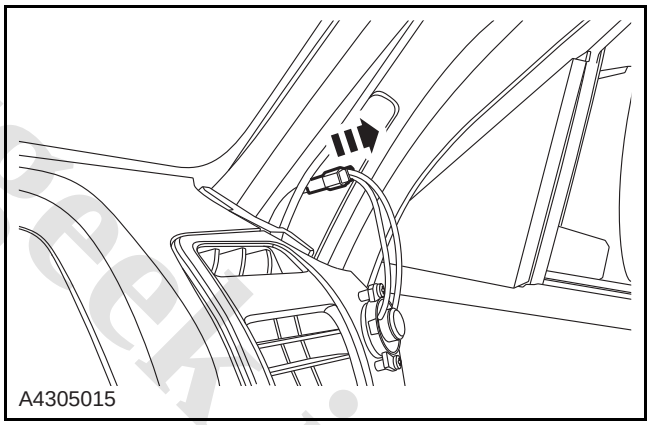
1. Disconnect the battery negative cable.

   Refer to: Battery Inspection (3.1.10 Charging System, General Procedures).

2. Remove the A-pillar trim panel.

   Refer to: A-pillar Trim (5.1.9 Interior Trim and Ornamentation, Removal and Installation).

3. Disconnect the high-pitch speaker connector, and take out the high-pitch speaker.


A4305015

Front Speaker

Removal

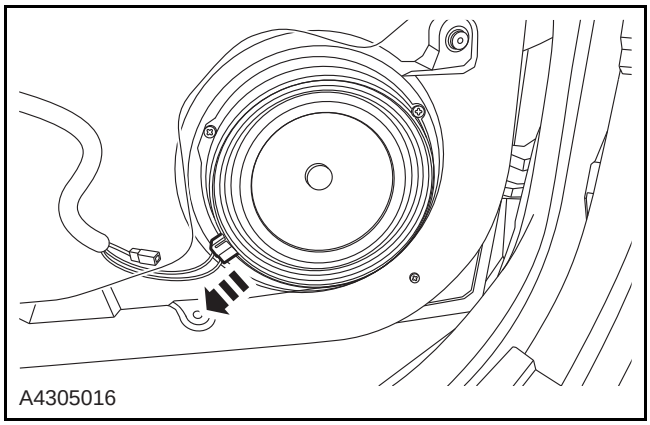
1. Disconnect the battery negative cable.

   Refer to: Battery Inspection (3.1.10 Charging System, General Procedures).

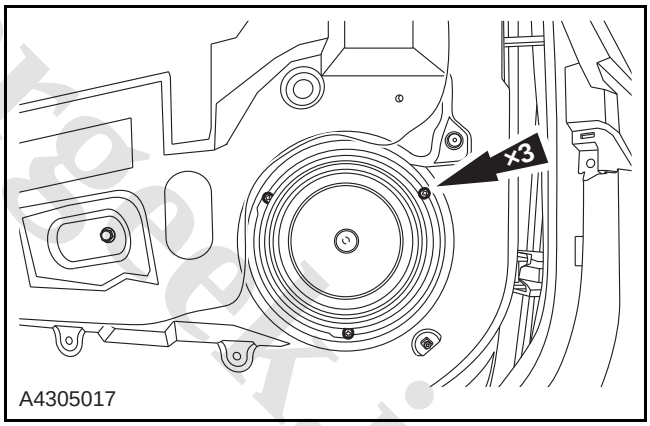
2. Remove the front door interior trim panel.

   Refer to: Front Door Interior Decoration (5.1.2Door,Removal and Installation).

3. Disconnect the wiring harness connector of the front speaker.


A4305016

4. Disconnect the front speaker retaining screw, and take out the front speaker.



A4305017

Installation

1. The installation process is reverse.

Rear Speaker

Removal

CAUTION: The rear speaker's removal and installation is the same as the front speaker.

Refer to: Rear Speaker (4.3.5 Information and Entertainment System, Removal and Installation).

Antenna and Feeder

Removal

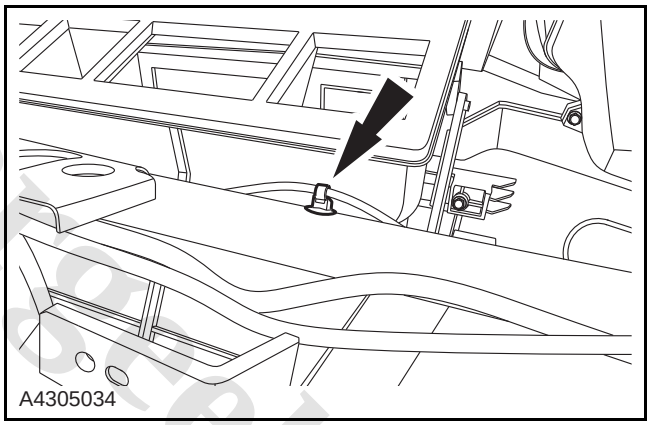
1. Disconnect the battery negative cable.

   Refer to: Battery Inspection (3.1.10 Charging System, General Procedures).
2. Remove the Instrument.

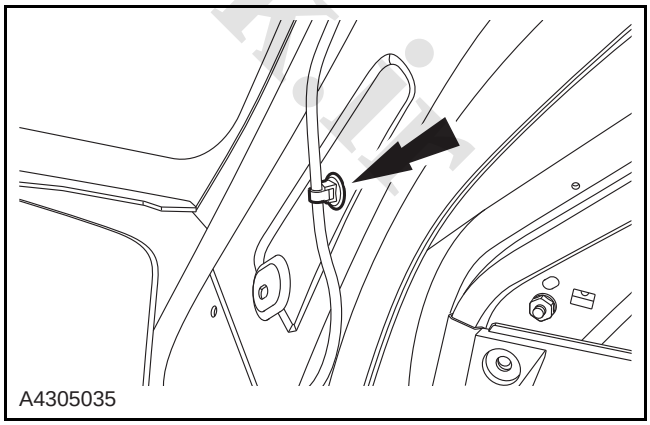
   Refer to: Instrument (5.1.6 Instrument and Console, Removal and Installation).
3. Remove the A-pillar trim panel.

   Refer to: A-pillar Trim (5.1.9 Interior Trim and Ornamentation, Removal and Installation).
4. Remove the roof lining.

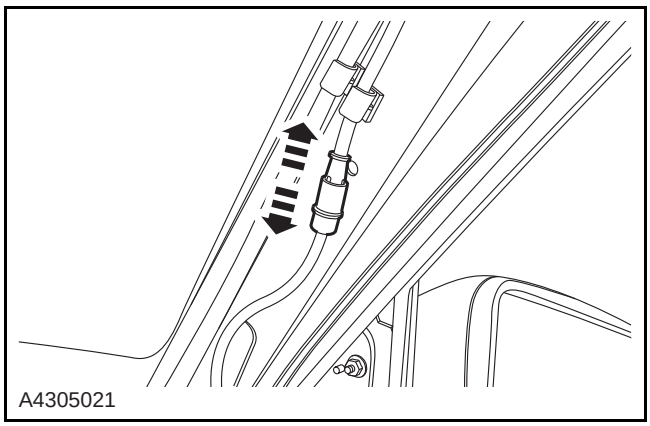
   Refer to: Roof Lining (5.1.9 Interior Trim and Ornamentation, Removal and Installation).
5. Disconnect the harness clip in the Instrument inner frame.


A4305034

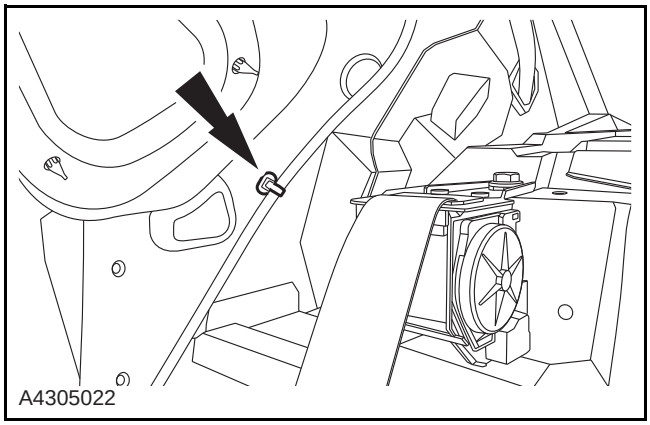
6. Disconnect the feeder clip in the right A-pillar trim panel.


A4305035

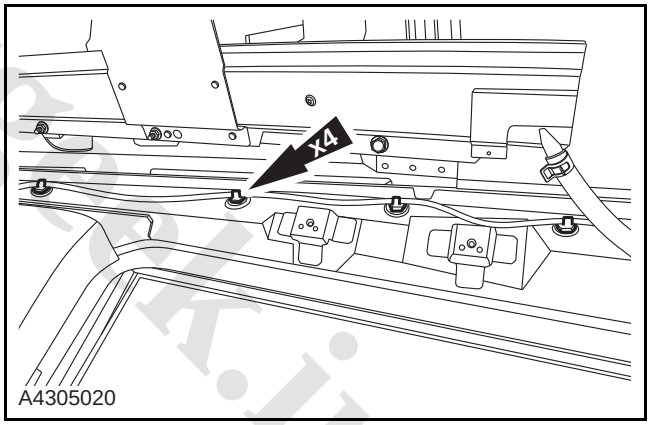
7. Disconnect the body front end feeder connector, and take out the feeder assembly.



8. Disconnect the retaining clip of the body rear feeder.



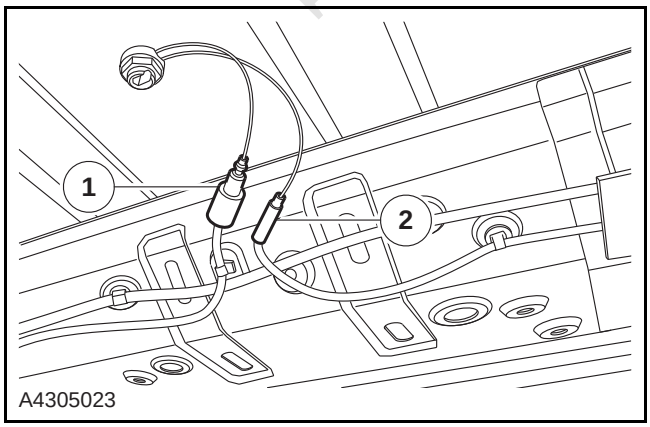
9. Detach the feeder from the rear retaining clip.



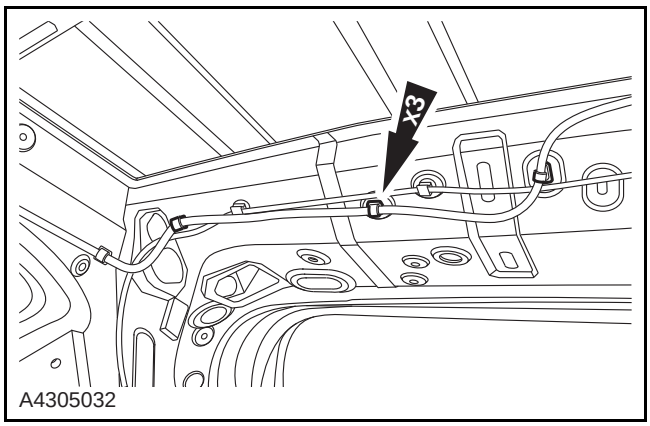
10. Disconnect the body rear end feeder connector.

1. Disconnect the wiring harness connector 1 of the antenna and feeder.

2. Disconnect the wiring harness connector 1 of the antenna and feeder.



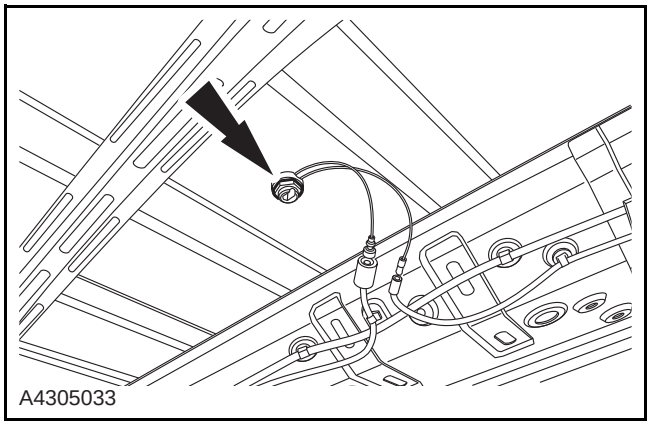
11. Disconnect the retaining clip of the body rear feeder, and take out the feeder assembly.



A4305032

12. Remove the retaining nut of the antenna , and take out the antenna assembly.

Torque: 9 Nm


A4305033

Installation

1. The installation process is reverse.

Specifications

Component Specifications

Name	Bulb Item	Model
Front combination lamp assembly - low beam	Single-beam tungsten halogen bulb	H7
Front combination lamp assembly - high beam	Single-beam tungsten halogen bulb	H1
Front combination lamp assembly - position lamp	Incandescent lamp bulb	W5W
Front combination lamp assembly - turn signal lamp	Incandescent lamp bulb	PY21W
Front fog Lamp	Tungsten halogen bulb	H3
Front roof lamp	Incandescent lamp bulb	W10W
Front door lamp	Incandescent lamp bulb	W5W
Rear fog Lamp	Tungsten halogen bulb	P21W
Reverse lamp	Tungsten halogen bulb	W16W
Brake lamp / rear position lamp	Dual-beam incandescent bulb	P21/5W
Rear turn signal lamp	Incandescent lamp bulb	PY21W
High-mounted brake lamp	LED	-
License plate lamp	Incandescent lamp bulb	W5W
Rear roof lamp	Incandescent lamp bulb	C10W
Rear trunk lamp	Incandescent lamp bulb	W5W

Description and Operation

System Overview

Turn Signal Lamp

Turn the ignition switch to "ON" position. Left or right turn signal lamp flashes controlled by BCM after it has received engaged signal from turn signal lamp switch or hazard warning lamp switch. At the same time, exterior relay is also driven by BCM to simulate the sound of turning. If turn signal filament (only front and rear turn signal lamps) fails, the blinking frequency doubles. Meanwhile, exterior turn signal lamp audio relay is driven with a same frequency.

CAUTION: The side turn signal lamp fault will not rise the change in frequency.

Lane Change Blinking

Turn the ignition switch to "ON" position. Between 100 ms and 700 ms turn the ignition switch from "OFF" to "ON" and then back to "OFF". The relevant turn signal lamp blinks for three times. Meanwhile, if the switch signal is greater than 100 ms and less than 700 ms during the three turn signal blinks, the lane change blinking function will be activated again.

Hazard Warning Lamp

If the hazard warning lamp switch is activated, both left and right turn signal lamps will flash in the frequency of 360 ms - "ON" / 360 ms - "OFF", if that switch is pressed again after activation, the flashing of the hazard warning lamps will stop. The activation of hazard warning signal is not controlled by the ignition switch.

Collision Alarm

The ignition switch is in the "ON" position, and when there is a collision signal, the hazard warning lamp will be activated, press the emergency alarm switch 4 s after the signal is activated, and the hazard warning lamp will be terminated.

Priority of Turn Signal and Hazard Warning Signal

Turn on the ignition switch. Priority will be given to the turn signal if left/right turn signal lamp switch is activated after the hazard warning switch. In contrast, priority will be given to the hazard warning signal.

Priority of Lane Change and Hazard Warning Signal

If the hazard warning switch is also activated when activating the left/right lane change blinking function, the priority will be given to the hazard warning signal and the lane change blinking will be called off.

Door Ajar Alarm

If the ignition switch is in the "ON" position and any door is opened (including the back door), BCM sets the Buzzer Alarm Mode in CAN messages to "door ajar prompt" for 2 s. If the door is closed in the 2 seconds, the Buzzer Alarm Mode in CAN messages is set to "closed". If other doors are opened in the 2 s "alarm" (the process of sending the corresponding CAN message), BCM no longer responds (only alarm one time). After warning, if the other doors are opened, the BCM will alarm again (sending the corresponding CAN messages).

Door Ajar Lock Alarm

When the ignition switch is in the "LOCK" position, any door is open, press the remote lock key, the door does not act (the door can first be set latch and then for unlock), and BCM sets Buzzer Alarm Mode in the CAN message as Door Not Closed Lock Prompt for 10 s. (ACC position or "ON", the remote control does not work), if press the door handle button, the PEPS lockout signal is sent, BCM receives and processes the remote latch signal.

The buzzer will stop the alarm in any of the following conditions (the CAN message buzzer alarm mode is set to the OFF): the state of the power supply changes into a non-OFF, the four-door is closed, press the remote control to unlock, 10 s after the buzzer alarmed and activated.

Keyhole Lighting Indicator

The BCM control keyhole lighting indicator is on in any of the following conditions: when the left front or right front door changes from the close to open state and the key is not inserted, at least the left front or right front door key is opened from the

time the key is inserted to the time when it is pulled.

The BCM control keyhole lighting indicator is off in any of the following conditions: all the front doors are closed and the key is inserted, all the front door are closed, no key is inserted and the indicator is off after 25 s delay, all the front door are closed and no key is inserted, press the remote control "lock" button or mechanical key or central locking switch to lock.

Roof Lamp Gradually On

If the roof lamp switch is in the "Door" position, the BCM control roof lamp is on gradually in any of the following conditions: any door changes from the close to open state (not including the back door), the ignition switch is in the "LOCK" state, and press the "unlock" button on the remote controller or the mechanical key or central locking switch to unlock, the ignition key is removed.

Roof Lamp Gradually Off

If the roof lamp switch is in the "Door" position, the roof lamp linearly fades out in 2 s in any of the following conditions: the ignition switch is in the "LOCK" position, all doors are closed (not including the back door) and use the central locking switch or mechanical key to complete the door lock, the ignition switch is in the "LOCK" position, all doors (not including the back door) are closed and then press the "lock" button on the remote controller, all doors are closed (not including the back door) and the ignition switch is in the "ON" position, the ignition switch is in the "LOCK" position and 30 s after all doors areclosed (not including the back door), after the automatically locking function is executed.

Controlling Roof Lamp by Remote Controller

When ignition switch at "LOCK" position, unlock the door by pressing UNLOCK button on remote controller or by mechanical key or central locking switch. In this case the roof lamp will be illuminated gradually.

When ignition switch at "LOCK", press the "lock" button on remote controller after all doors (including back door) are closed. In this case the roof lamp will go off gradually.

Follow Me Home Lighting

With the ignition switch turned to the "LOCK" position, quickly set the light control switch from "OFF" to low beam and then back to "OFF" position, the low beams will be illuminated for some while and the buzzer signals a sound. If a door is ajar (including tailgate), the low beams will turn off after time delay of 180 s. If all doors are closed, the low beams will turn off after time delay of 60 s. When low beam is illuminated, BCM will make the low beam off when ignition switch at "ON" or low beam switch in any position except "OFF".

Vehicle Locater Light

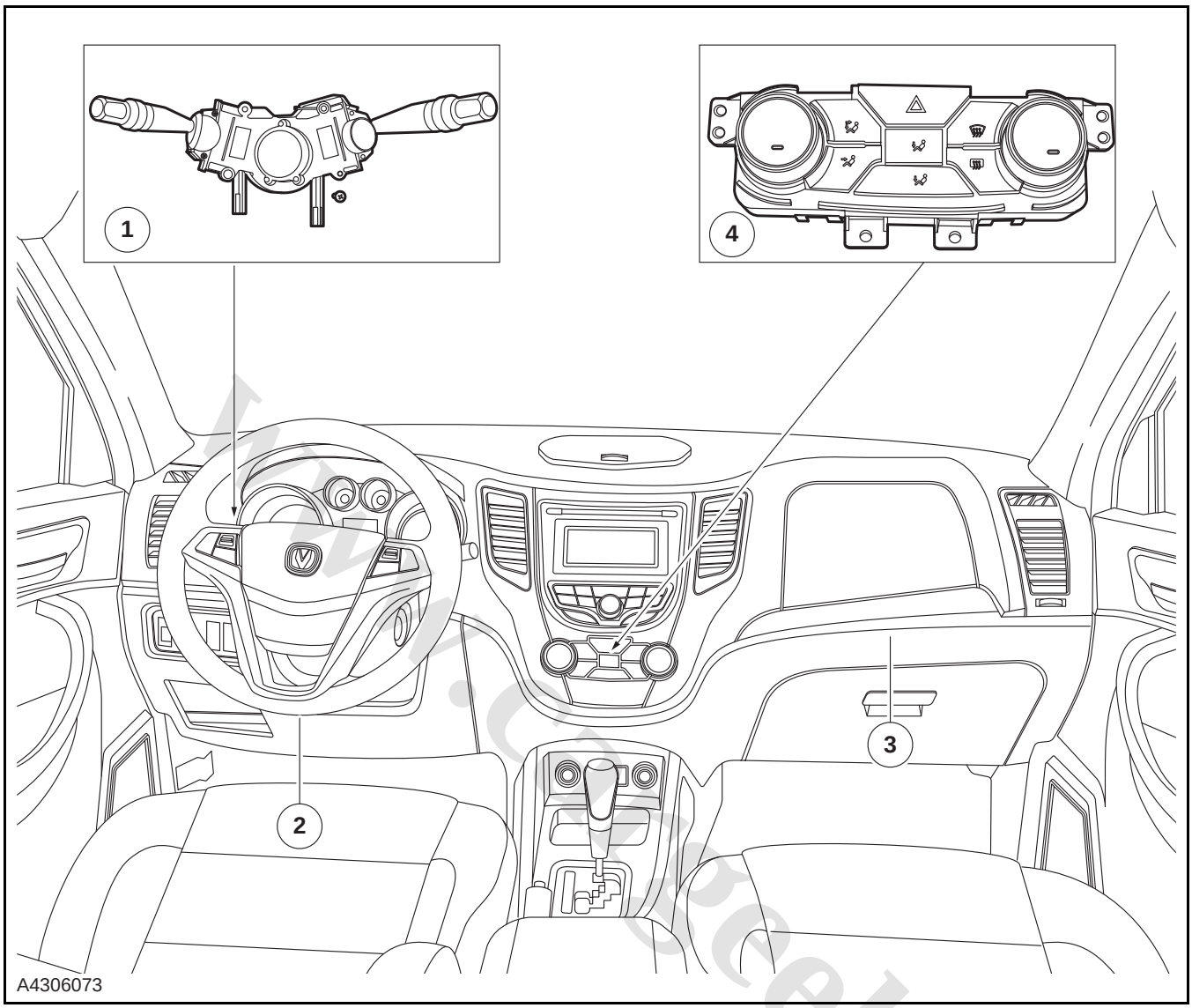
With the ignition key removed and four doors locked, if pressing the Lock button on the remote controller twice continuously within 2 s, both left and right turn signal lamps are activated and the anti-theft horn gives two sounds. After 25 s, the turn signal lamp is off. If at this time the Unlock button is pressed or a door opened, both left and right turn signal lamps will change to corresponding flash mode.

Low beam Control after Shut down

When the ignition switch is in the "LOCK" state, the key is removed, BCM is awake and switch the low beam switch from "OFF" - low beam (headlamp position) - "OFF" within 2 s, the BCM will control the low beam. If any door (including back door) is not closed, the low beam lamp delays 180 s to extinguish, if the doors are closed, the low beam delays 60 s to extinguish. If the door status changes in the delay period, the delay time will recalculated according to the state after change. During the low beam is on, if this condition triggering the function is satisfied again, the function will restart.

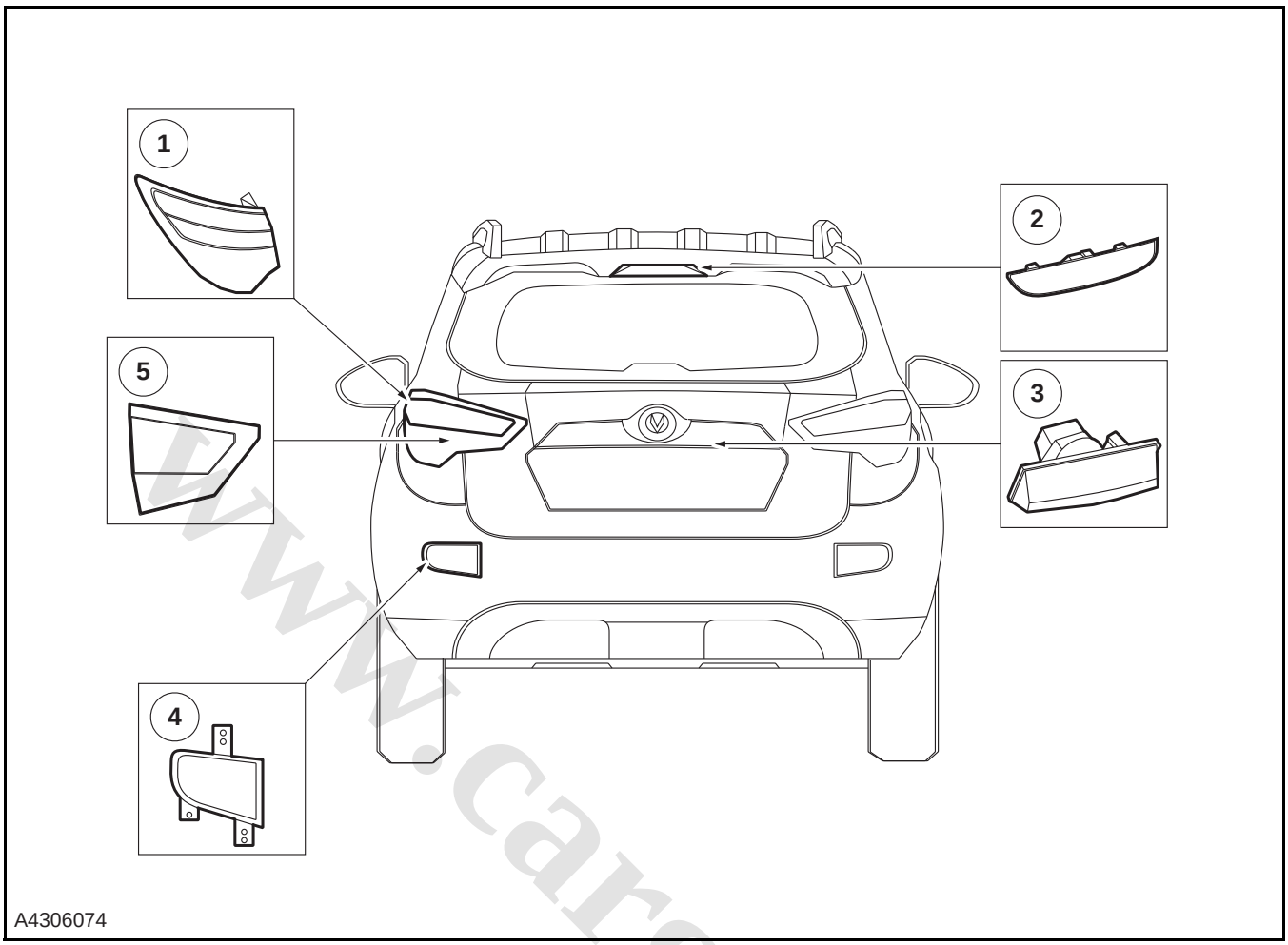
When the ignition switch is in the "LOCK" state and the low beam is on, meeting any of the following conditions, the BCM will control the low beam to go off: 180 s/60 s delay time goes by, the ignition switch status changes from "LOCK" to "ON", the key is inserted into the keyhole, the low beam input signal changes from "OFF" to "ON" and remains "ON" exceeding 2 s.

Location View



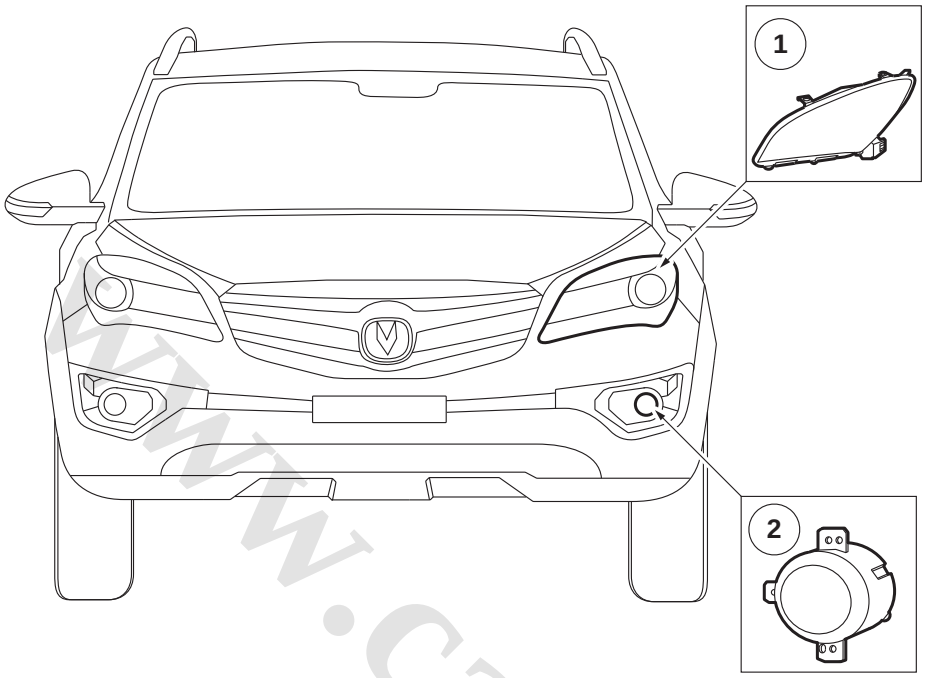
Item	Description	Item	Description
1	Lighting combination switch	3	Instrument panel
2	Steering wheel	4	A/C control moduel (with hazard warning lamp switch)

Rear Lighting Location View



Item	Description	Item	Description
1	Rear combination lamp A assembly	4	Rear fog lamp assembly
2	High-mounted brake lamp	5	Rear combination lamp B assembly
3	License plate lamp assembly		

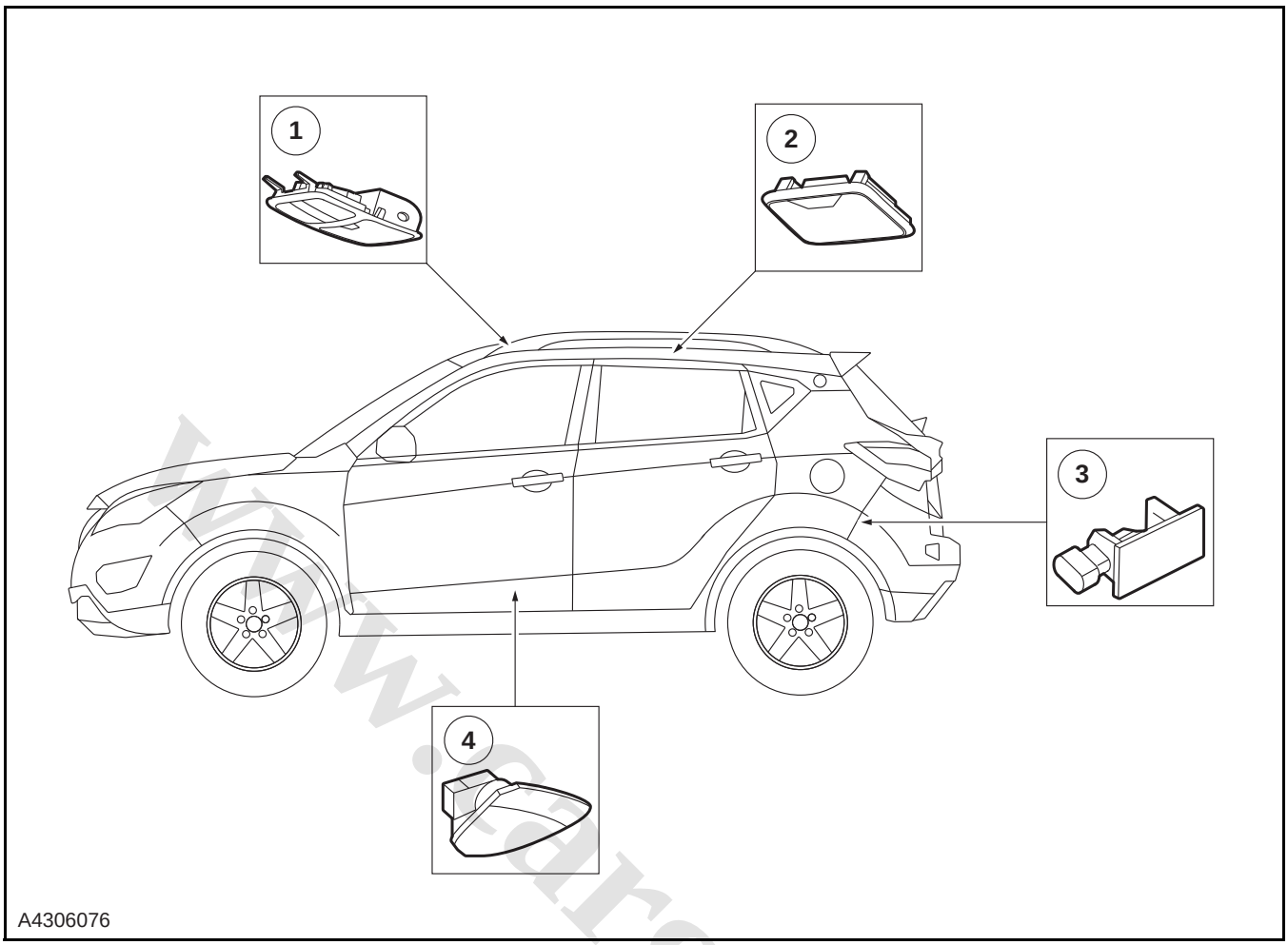
Front Lighting Location View



A4306075

Item	Description	Item	Description
1	Front combination lamp assembly	2	Front fog lamp assembly

Interior Lamp Location View

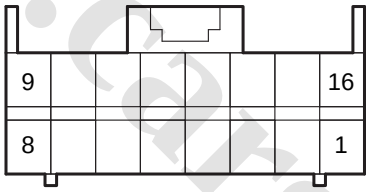


Item	Description	Item	Description
1	Front roof lamp assembly	3	Trunk lamp assembly
2	Rear roof lamp assembly	4	Front door lamp assembly

General Procedures

Lighting Combination Switch Inspection

P \ T	1	2	3	4	5	6	7	9	10	11	15	16
Position Light SW					○	○						
Lo Beam SW				○	○	○						
High Beam SW							○				○	
Overtaking Light SW							○					○
Front Fog Light SW	○	○										
Rear Fog Light SW	○	○	○									
LH Turn Light SW								○	○			
RH Turn Light SW									○	○		



P02

A4306066

Test Conditions	Details/Results/Actions
1. Inspect the position lamp switch	
	A.Disconnect the lighting combination switch wiring harness connector P02. B.Turn the lighting combination switch to the position POSITION LAMP. C.Measure the resistance to see if the terminal 6 and 5 of the lighting combination switch wiring harness conncetor P02 conduct electricity. **Standard Resistance Value: less than 1 Ω** D.Turn off the lighting combination switch. E.Measure the resistance to see if the terminal 6 and 5 of the lighting combination switch wiring harness connector P02 are disconnected. **Standard Resistance Value: 10 MΩ or more** Is it normal? **Y** Go to step 2. **N** Replace the lighting combination switch. **Refer to: Lighting Combination Switch (4.3.6 Lighting System, Removal and Installation).**
2. Inspect the low beam lamp switch	
	A.Turn the lighting combination switch to position "LOW BEAM LAMP". B.Measure the resistance to see if the terminal 6 and 4 of the lighting combination switch wiring harness connector P02 conduct electricity. **Standard Resistance Value: less than 1 Ω** C.Turn off the lighting combination switch. D.Measure the resistance to see if the terminal 6 and 4 of the lighting combination switch wiring harness connector P02 are disconnected. **Standard Resistance Value: 10 MΩ or more** Is it normal? **Y** Go to step 3. **N** Replace the lighting combination switch. **Refer to: Lighting Combination Switch (4.3.6 Lighting System, Removal and Installation).**

Test Conditions	Details/Results/Actions
3. Inspect the high-beam lamp switch	
	A.Turn the lighting combination switch to position "HIGH BEAM LAMP". B.Measure the resistance to see if the terminal 7 and 15 of the lighting combination switch wiring harness connector P02 conduct electricity. **Standard Resistance Value: less than 1 Ω** C.Turn off the lighting combination switch. D.Measure the resistance to see if the terminal 7 and 15 of the lighting combination switch wiring harness connector P02 are disconnected. **Standard Resistance Value: 10 MΩ or more** Is it normal? **Y** Go to step 4. **N** Replace the lighting combination switch. **Refer to: Lighting Combination Switch (4.3.6 Lighting System, Removal and Installation).**
4. Inspect the overtaking lamp switch	
CAUTION: In this case the lighting combination switch should at first be off and then to position OVERTAKING LAMP.	
	A.Turn the lighting combination switch to position OVERTAKING LAMP. B.Measure the resistance to see if the terminal 16 and 7 of the lighting combination switch wiring harness connector P02 conduct electricity. **Standard Resistance Value: less than 1 Ω** C.Turn off the lighting combination switch. D.Measure the resistance to see if the terminal 16 and 7 of the lighting combination switch wiring harness connector P02 are disconnected. **Standard Resistance: 10 MΩ or more** Is it normal? **Y** Go to step 5. **N** Replace the lighting combination switch. **Refer to: Lighting Combination Switch (4.3.6 Lighting System, Removal and Installation).**

Test Conditions	Details/Results/Actions
5. Inspect the front fog lamp switch	
	A.Turn on the front fog lamp switch of the lighting combination switch. B.Measure the resistance to see if the terminal 6 and 5 of the lighting combination switch wiring harness connector P02 conduct electricity. **Standard Resistance Value: less than 1 Ω** C.Turn off the lighting combination switch. D.Measure the resistance to see if the terminal 2 and 1 of the lighting combination switch wiring harness connector P02 are disconnected. **Standard Resistance Value: 10 MΩ or more** Is it normal? **Y** Go to step 6. **N** Replace the lighting combination switch. **Refer to: Lighting Combination Switch (4.3.6 Lighting System, Removal and Installation).**
6.Inspect the left turn signal lamp switch	
	A.Turn on the left turn signal lamp switch of the lighting combination switch. B.Measure the resistance to see if terminal 9 and 10 of the lighting combination switch wiring harness connector P02 conduct electricity. **Standard Resistance Value: less than 1 Ω** C.Turn off the left turn signal lamp switch. D.Measure the resistance to see if the terminal 10 and 9 of the lighting combination switch wiring harness connector P02 are disconnected. **Standard Resistance Value: 10 MΩ or more** Is it normal? **Y** Go to step 7. **N** Replace the lighting combination switch. **Refer to: Lighting Combination Switch (4.3.6 Lighting System, Removal and Installation).**

Test Conditions	Details/Results/Actions
7. Inspect the right turn signal lamp switch	
	A.Turn on the right turn signal lamp switch of the lighting combination switch. B.Measure the resistance to see if the terminal 11 and 10 of the lighting combination switch wiring harness connector P02 conduct electricity. **Standard Resistance Value: less than 1 Ω** C.Turn off the right turn signal lamp switch. D.Measure the resistance to see if the terminal 10 and 11 of the lighting combination switch wiring harness connector P02 are disconnected. **Standard Resistance Value: 10 MΩ or more** Is it normal? **Y** **Refer to: Symptom Chart (4.3.6 Lighting System, Symptom Diagnosis and Testing).** **N** Replace the lighting combination switch. **Refer to: Lighting Combination Switch (4.3.6 Lighting System, Removal and Installation).**
8. Inspect the rear fog lamp switch	
	A.Turn on the rear fog lamp switch of the lighting combination switch. B.Measure the resistance to see if the terminal 2 and 3 of the switch wiring harness connector P02 conduct electricity. **Standard Resistance Value: less than 1 Ω** C.Turn off the rear fog lamp switch. D.Measure the resistance to see if the terminal 3 and 2 of the switch wiring harness connector P02 are disconnected. **Standard Resistance Value: 10 MΩ or more** Is it normal? **Y** **Refer to: Symptom Chart (4.3.6 Lighting System, Symptom Diagnosis and Testing).** **N** Replace the lighting combination switch. **Refer to: Lighting Combination Switch (4.3.6 Lighting System, Removal and Installation).**

Symptom Diagnosis and Testing

General Equipment

Digital Multimeter
Changan Auto Special Diagnostic Tool

Inspection and Verification

1. Verify the customer concern.
2. Visually inspect for obvious electrical fault. Eliminate the bulb damage as the cause of the fault.
3. Inspect the obvious and visible system circuits.
4. If an obvious cause for an observed or reported concern is found, correct the cause before proceeding to the next step.
5. If the cause is not visually evident, verify the symptom and refer to the Symptom Chart.

Visual Inspection Chart

Electric Part
• Fuse
• Circuit
• Switch
• Bulb

Symptom Chart

If there is symptom but no diagnosis trouble code (DTC) is stored in control module and can not confirm symptom reasons in basic inspect, it is necessary to diagnosis and eliminate the symptoms in the following chart.

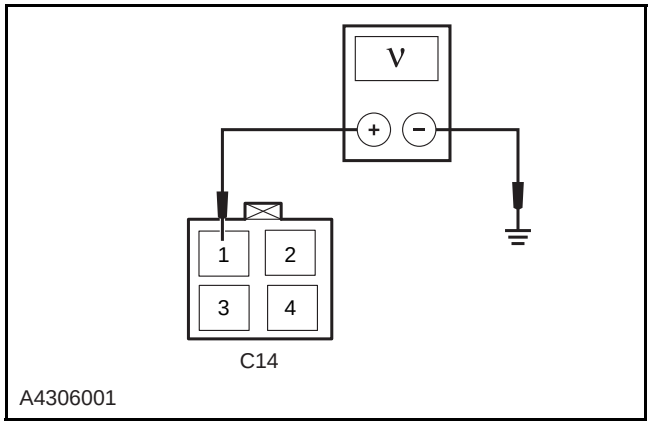
Symptom	Possible Sources	Action
Brake lamp fault	• Fuse • Circuit • Bulb • Brake lamp switch	**Refer to: Brake Lamp Fault Diagnosis (4.3.6 Lighting System, Symptom Diagnosis and Testing).**
One or more brake lamp fault	• Circuit • Bulb	**Refer to: One or More Brake Lamps Fault Diagnosis (4.3.6 Lighting System, Symptom Diagnosis and Testing).**
Brake lamp on permanently	• Circuit • Brake lamp switch	**Refer to: Brake Lamp Always On Diagnosis (4.3.6 Lighting System, Symptom Diagnosis and Testing).**
Turn signal lamp fault	• Fuse • Circuit • Bulb • Lighting combination switch • BCM	**Refer to: Turn Signal Lamp Fault Diagnosis (4.3.6 Lighting System, Symptom Diagnosis and Testing).**
One or more turn signal lamps fault	• Circuit • Bulb • Lighting combination switch • BCM	**Refer to: One or More Turn Signal Lamps Fault Diagnosis (4.3.6 Lighting System, Symptom Diagnosis and Testing).**
One or more turn signal lamps on permanently (not blink)	• Circuit • BCM	**Refer to: One or More Turn Signal Lamps Always On Diagnosis (No Blink) (4.3.6 Lighting System, Symptom Diagnosis and Testing).**
Hazard warning lamp fault	• Circuit • BCM • Hazard warning lamp switch	**Refer to: Invalid Hazard Warning Lamp Diagnosis (4.3.6 Lighting System, Symptom Diagnosis and Testing).**
All hazard warning lamps blink permanently	• Fuse • Circuit • BCM • Hazard warning lamp switch	**Refer to: Continuous Blink of All Hazard Warning Lamps Diagnosis (4.3.6 Lighting System, Symptom Diagnosis and Testing).**

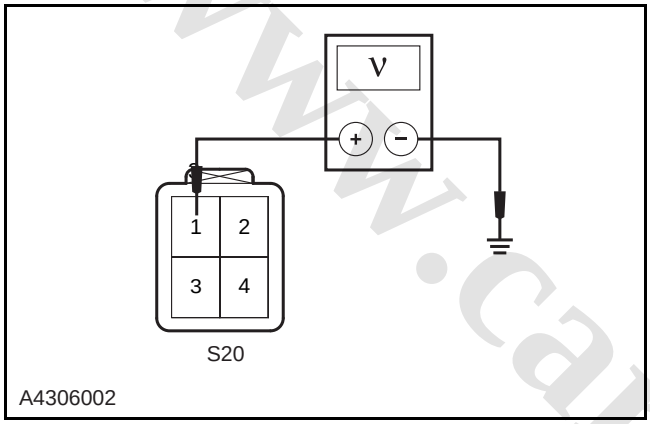
Symptom	Possible Sources	Action
Position lamp fault	• Circuit • Bulb • Lighting combination switch • Position lamp relay	**Refer to: Position Lamp Misfunction Diagnosis (4.3.6 Lighting System, Symptom Diagnosis and Testing).**
Position lamp on permanently	• Circuit • Lighting combination switch • Position lamp relay	**Refer to: Position Lamp Always On Diagnosis (4.3.6 Lighting System, Symptom Diagnosis and Testing).**
Front fog lamp fault	• Fuse • Circuit • Bulb • Lighting combination switch • Position lamp relay • Front fog lamp relay	**Refer to: Front Fog Lamp Fault Diagnosis (4.3.6 Lighting System, Symptom Diagnosis and Testing).**
Front fog lamp on permanently	• Circuit • Lighting combination switch • Front fog lamp relay	**Refer to: Front Fog Lamp Always On Diagnosis (4.3.6 Lighting System, Symptom Diagnosis and Testing).**
Rear fog lamp fault	• Fuse • Circuit • Bulb • Rear fog lamp relay • Lighting combination switch	**Refer to: Rear Fog Lamp Fault Diagnosis (4.3.6 Lighting System, Symptom Diagnosis and Testing).**
Rear fog lamp on permanently	• Circuit • Rear fog lamp relay • Lighting combination switch	**Refer to: Rear Fog Lamp Always On Diagnosis (4.3.6 Lighting System, Symptom Diagnosis and Testing).**
Reverse lamp fault (MT)	• Circuit • Fuse • Bulb • Reverse lamp switch	**Refer to: Reverse Lamp Fault Diagnosis (MT) (4.3.6 Lighting System, Symptom Diagnosis and Testing).**
Reverse lamp fault (AT)	• Circuit • Fuse • Bulb • Reverse lamp relay • Neutral position switch	**Refer to: Reverse Lamp Fault Diagnosis (AT) (4.3.6 Lighting System, Symptom Diagnosis and Testing).**
Reverse lamp on permanently (MT)	• Circuit • Reverse lamp switch	**Refer to: Reverse Lamp Always On Diagnosis (MT) (4.3.6 Lighting System, Symptom Diagnosis and Testing).**

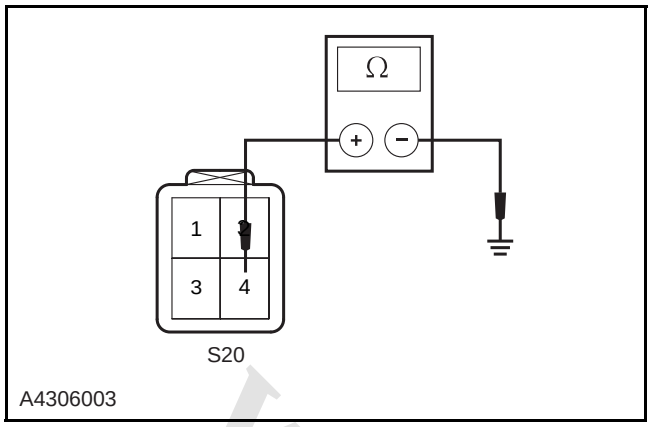
Symptom	Possible Sources	Action
Reverse lamp on permanently (AT)	• Circuit • Reverse lamp relay • Neutral position switch	**Refer to: Reverse Lamp Always On Diagnosis (AT) (4.3.6 Lighting System, Symptom Diagnosis and Testing).**
Low beam lamp fault	• Fuse • Circuit • Bulb • Low beam lamp relay • BCM • Lighting combination switch	**Refer to: Low Beam Fault Diagnosis (4.3.6 Lighting System, Symptom Diagnosis and Testing).**
Low beam lamp on permanently	• Circuit • Low beam lamp relay • Lighting combination switch • BCM	**Refer to: Low Beam Always On Diagnosis (4.3.6 Lighting System, Symptom Diagnosis and Testing).**
High beam lamp fault	• Fuse • Circuit • Bulb • High beam relay • Lighting combination switch • BCM	**Refer to: High Beam Fault Diagnosis (4.3.6 Lighting System, Symptom Diagnosis and Testing).**
High beam lamp on permanently	• Circuit • High beam relay • Lighting combination switch • BCM	**Refer to: High Beam Always On Diagnosis (4.3.6 Lighting System, Symptom Diagnosis and Testing).**
Overtaking lamp fault	• Circuit • Lighting combination switch	**Refer to: Overtaking Lamp Fault Diagnosis (4.3.6 Lighting System, Symptom Diagnosis and Testing).**
License plate lamp fault	• Circuit • Fuse • Bulb • Position lamp relay • Lighting combination switch	**Refer to: License Plate Lamp Fault Diagnosis (4.3.6 Lighting System, Symptom Diagnosis and Testing).**

Symptom	Possible Sources	Action
Front roof lamp fault	• Circuit • Fuse • Bulb • Front roof lamp switch • Door contact switch • BCM	**Refer to: Front Roof Lamp Fault Diagnosis (4.3.6 Lighting System, Symptom Diagnosis and Testing).**
Rear roof lamp fault	• Circuit • Fuse • Bulb • Rear roof lamp switch	**Refer to: Rear Roof Lamp Fault Diagnosis (4.3.6 Lighting System, Symptom Diagnosis and Testing).**
Trunk lamp fault	• Circuit • Fuse • Bulb • Rear back door lock motor	**Refer to: Trunk lamp Fault Diagnosis (4.3.6 Lighting System, Symptom Diagnosis and Testing).**
Courtesy lamp failure	• Circuit • Fuse • Bulb • Door contact switch	**Refer to: Courtesy Lamp Fault Diagnosis (4.3.6 Lighting System, Symptom Diagnosis and Testing).**
Low beam light angle adjustment failure	• Fuse • Circuit • Light angle adjustment switch • Light angle adjustment motor	**Refer to: Low Beam Light Angle Fault Diagnosis (4.3.6 Lighting System, Symptom Diagnosis and Testing).**

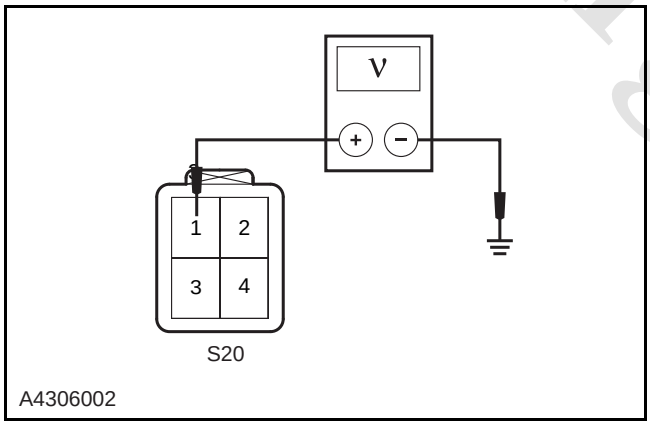
Brake Lamp Fault Diagnosis

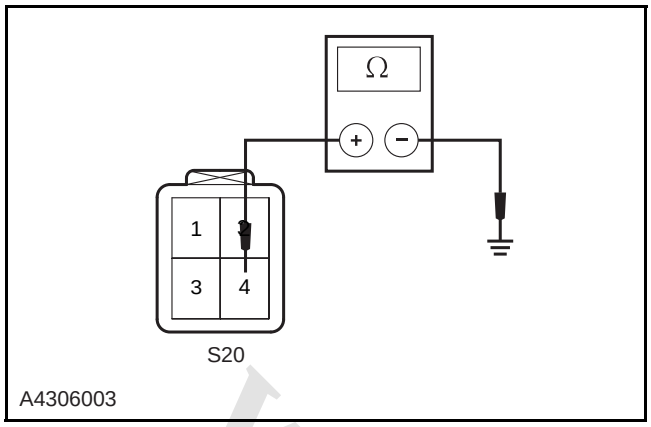
Test Conditions	Details/Results/Actions
1. General inspection	
	A. Inspect the wiring harness connectors of the light combination switch and light assembly a for damage, poor contact, aging and loose. B. Inspect the filament and lamp holder of the brake lamp bulb for abnormal conditions such as breakage and oxidation. Is it normal? **Y** Go to step 2. **N** Repair the fault or replace the bulb.
2. Inspect the fuse	
	A. Inspect the brake lamp fuse IF21. **Rated Capacity Fuse: 10 A** Is the fuse normal? **Y** Go to step 3. **N** Inspect and repair the fuse circuit, replace the fuse in rated capacity.
3. Inspect the brake lamp switch power circuit	
	A. Turn the ignition switch to position "LOCK". B. Disconnect the brake lamp switch wiring harness connector C14. C. Measure the voltage between the terminal 1 of the brake lamp switch wiring harness connector C14 and the reliable ground. **Standard Voltage Value: 11 ~ 14 V** Is the voltage normal? **Y** Go to step 4. **N** Inspect and repair the open circuit between the terminal 1 of the brake lamp switch wiring harness connector C14 and the terminal 43 of the fuse IF21 in the I/P fuse and relay box P01.

Test Conditions	Details/Results/Actions
4. Inspect the brake lamp switch	
	A. Press the brake lamp switch. B. Measure the resistance between the terminal 1 and 2 of the brake lamp switch wiring harness connector C14. **Standard Resistance Value: less than 1 Ω** Is the resistance value normal? **Y** Go to step 5. **N** Replace the brake lamp switch and verify the system for normal operation.
5. Inspect the brake lamp power supply (take the left brake lamp as example)	
	A. Turn the ignition switch to position "LOCK". B. Disconnect the left rear tail lamp wiring harness connector S20. C. Depress the brake pedal. D. Measure the voltage between the terminal 1 of the left rear tail lamp wiring harness connector S20 and the reliable ground. **Standard Voltage Value: 11 ~ 14 V** Is the voltage normal? **Y** Go to step 6. **N** Inspect and repair the open circuit between the terminal 1 of the left rear tail lamp wiring harness connector S20 and the terminal 2 of the brake lamp switch wiring harness connector C14.

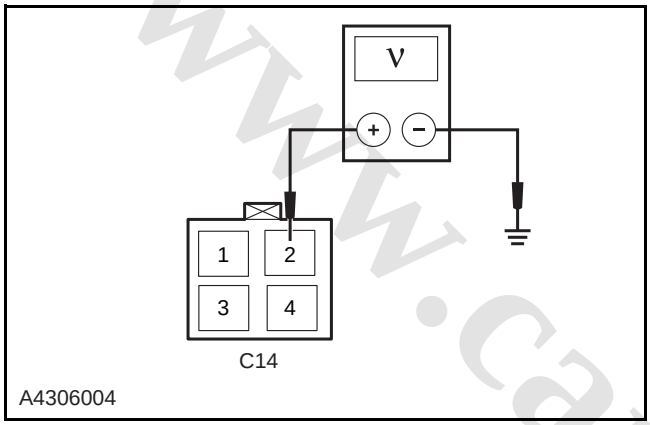
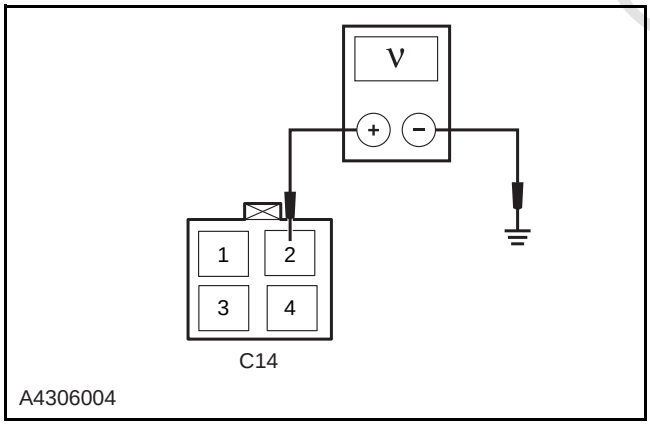
Test Conditions	Details/Results/Actions
6. Inspect the ground circuit of the brake lamp	
	A. Turn the ignition switch to position "LOCK". B. Disconnect the left rear tail lamp wiring harness connector S20. C. Measure the resistance between the terminal 4 of the left rear tail lamp assembly wiring harness connector S20 and the reliable ground. **Standard Resistance Value: less than 5 Ω** Is the resistance value normal? **Y** Replace the left rear lamp assembly. **Refer to: Rear Tail Lamp (4.3.6 Lighting System, Removal and Installation).** Confirm the maintenance is finished. **N** Inspect and repair the open circuit between the terminal 4 of the left tail lamp wiring harness connector S20 and the ground point G203. Verify the system is normal.

One or More Brake Lamp Fault Diagnosis

Test Conditions	Details/Results/Actions
1. General inspection	
	A. Inspect the related wiring harness connectors for signs of damage, poor contact, aging or loose. Is it normal? **Y** Go to step 2. **N** Repair the fault.
2. Inspect the brake lamp bulbs at fault	
	A. Inspect the filament in the brake lamp bulb to see if it's in good condition. B. Inspect the brake lamp bulb contact for signs such as oxidation or poor contact. Is it abnormal? **Y** Replace the brake lamp bulb. Solve the problem of oxidation. **N** Go to step 3.
3. Inspect the brake lamp power supply (take the left brake lamp as example)	
	A. Turn the ignition switch to position "LOCK". B. Disconnect the left rear lamp tail wiring harness connector S20. C. Depress the brake pedal. D. Measure the voltage between the terminal 1 of the left rear tail lamp wiring harness connector S20 and the reliable ground. **Standard Voltage Value: 11 ~ 14 V** Is the voltage normal? **Y** Go to step 4. **N** Inspect and repair the open circuit between the terminal 1 of the right rear tail lamp assembly wiring harness connector S20 and the terminal 2 of the brake lamp switch wiring harness connector C14.

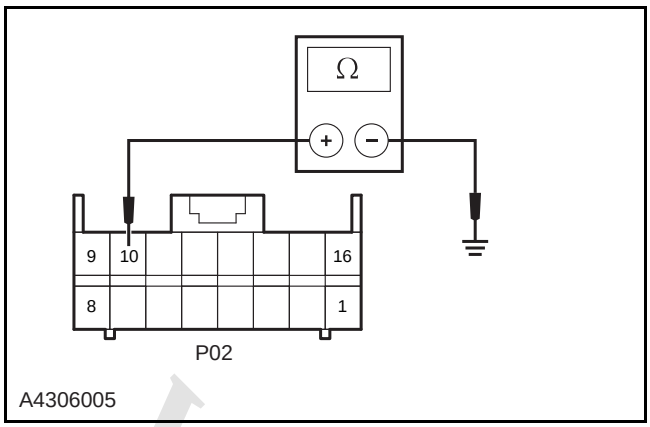
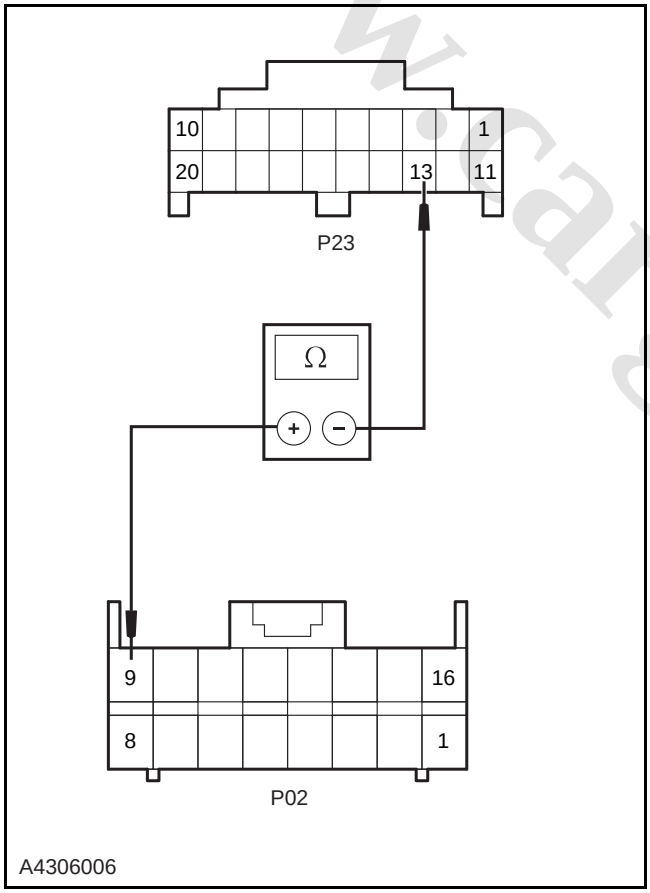
Test conditions	Details/Results/Actions
4. Inspect the brake lamp ground circuit (take the left brake lamp as example)	
	A. Turn the ignition switch to position "LOCK". B. Disconnect the left rear lamp tail wiring harness connector S20. C. Measure the resistance between the terminal 4 of the left rear tail lamp wiring harness connector S20 and the reliable ground. **Standard Resistance Value: less than 5 Ω** Is the resistance value normal? **Y** Verify the system is normal. **N** Inspect and repair the open circuit between the terminal 4 of the left tail lamp wiring harness connector S20 and the ground point G203. Verify the system is normal.

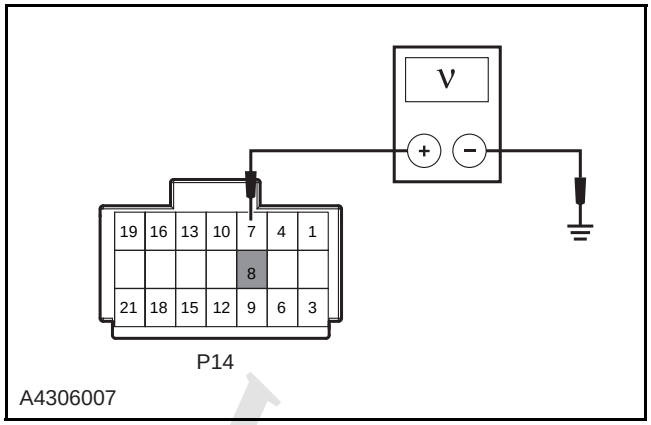
Brake Lamp Always On Diagnosis

Test Conditions	Details/Results/Actions
1. General inspection	
	A. Inspect the related wiring harness connectors for signs of damage, poor contact, aging or loose. Is it normal? **Y** Go to step 2. **N** Repair the fault.
2. Inspect the brake lamp switch	
	**CAUTION: This step must be executed online with brake lamp switch wiring harness connector connected.** A. Measure the voltage between the terminal 2 of the brake lamp switch wiring harness connector C14 and the reliable ground. **Standard Voltage Value: 0 V** Is the voltage normal? **Y** Go to step 3. **N** Replace the brake light switch.
3. Inspect the related wiring harness connectors of the brake lamp	
	A. Turn the ignition switch to position "LOCK" and disconnect the battery negative cable. B. Disconnect the brake lamp switch wiring harness connector C14. C. Disconnect the ABS control module wiring harness connector C19. D. Disconnect the ECM wiring harness connector E01. E. Turn the ignition switch to position "ON". F. Measure the voltage between the terminal 2 of the brake lamp switch wiring harness connector C14 and the reliable ground. **Standard Voltage Value: 0 V** Is the voltage normal? **Y** Verify the system is normal. **N** Inspect short circuit between the terminal 2 of the brake lamp switch harness connector C14 and power supply.

Turn Signal Lamp Fault Diagnosis

Test Conditions	Details/Results/Actions
1. General inspection	
	A. Inspect the related wiring harness connectors for signs of damage, poor contact, aging or loose. B. Inspect the filament and the lamp holder of the turn signal lamp bulb for abnormal conditions such as breakage and oxidation. Is it normal? **Y** Go to step 2. **N** Repair the fault or replace the bulb.
2. Inspect the hazard warning lamp switch	
	A. Press down the hazard warning lamp switch. Is the hazard warning lamp on? **Y** Go to step 3. **N** Go to step 7.
3. Inspect signals from turn signal lamp switch	
	A. Connect a special diagnostic tool. B. Select "Read BCM Data Stream". C. Turn the lighting combination switch to the left or right turn signal position. Is the data stream normal? **Y** Go to step 7. **N** Go to step 4.
4. Inspect the lighting combination switch - turn signal switch	
	A. Inspect the turn signal lamp switch. **Refer to: Lighting Combination Switch Test (4.3.6 Lighting System, General Procedure).** Is the lighting combination switch normal? **Y** Go to step 5. **N** Replace the lighting combination switch.

Test Conditions	Details/Results/Actions
5. Inspect the ground circuit of the lighting combination switch - turn signal switch	
 A4306005	A. Turn the ignition switch to position "LOCK". B. Disconnect the lighting combination switch wiring harness connector P02. C. Measure the resistance between the terminal 10 of the lighting combination switch wiring harness connector P02 and the reliable ground. **Standard Resistance Value: less than 5 Ω** Is the resistance value normal? **Y** Go to step 6. **N** Inspect and repair the open circuit between the terminal 10 of the lighting combination switch wiring harness connector P02 and the ground point G101.
6. Inspect the circuit between lighting combination switch and BCM	
 A4306006	A. Turn the ignition switch to position "LOCK" and disconnect the battery negative cable. B. Disconnect the lighting combination switch wiring harness connector P02 and the BCM wiring harness connector P23. C. Measure the resistance between the terminal 9 of the lighting combination switch wiring harness connector P02 and the terminal 13 of the BCM wiring harness connector P23 and inspect if there is any open circuit. **Standard Resistance Value: less than 5 Ω** Is the resistance value normal? **Y** Go to step 7. **N** Inspect and repair the open circuit fault between the terminal 9 of the lighting combination switch wiring harness connector P02 and the terminal 13 of the BCM wiring harness connector P23.

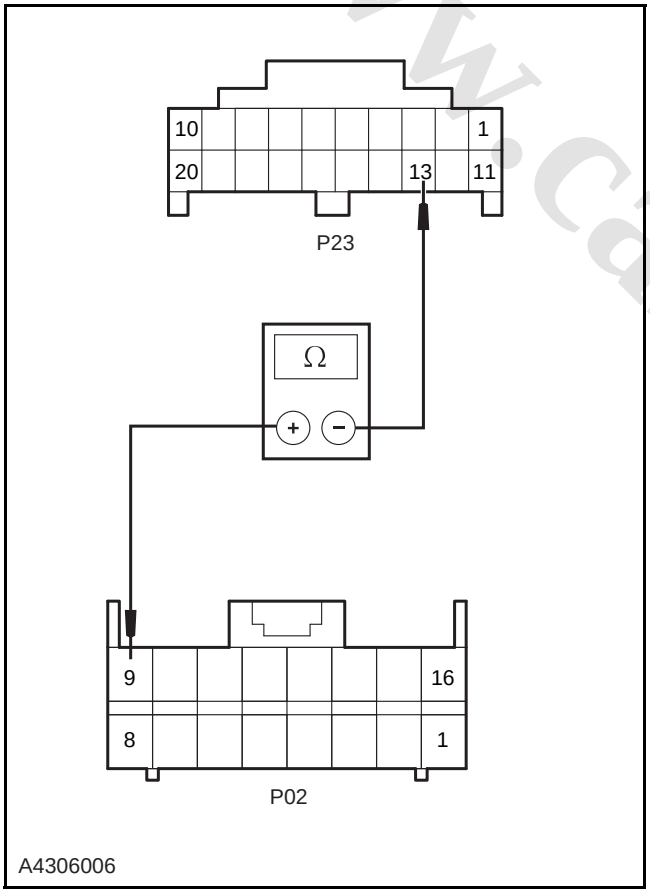
Test Conditions	Details/Results/Actions
7. Inspect the BCM turn signal lamp power supply output	
	**CAUTION: Do not disconnect the body control module wiring harness connector. On line inspection is required.** A. Turn the ignition switch to "ON" position. B. Turn the lighting combination switch to the left or right turn signal position. C. Measure the voltage between the terminal 7 of the BCM wiring harness connector P14 and the reliable ground. D. Measure the voltage between the terminal 8 of the BCM wiring harness connector P14 and the reliable ground. **Standard Value: Change From 0 V to 11 ~ 14 V** Is the voltage normal? **Y** Inspect the open circuit between the output terminals of the power supply of each turn signal lamp and the BCM turn signal lamp. **Refer to: One Side Turn Signal Lamp Fault Diagnosis (4.3.6 Lighting System, Symptom Diagnosis and Testing).** **N** Go to step 8.
8. Inspect the BCM power supply and ground circuit	
	A. Inspect the BCM power supply and ground circuit. **Refer to: DTC Diagnosis Procedure Index (4.3.14 Body Control System, DTC Diagnosis and Testing).** Is it normal? **Y** Go to step 9. **N** Troubleshooting.
9. Replace the BCM	
	A. Turn the ignition switch to position "LOCK" and disconnect the battery negative cable. B. Replace the BCM. **Refer to: Body Control Module (4.3.14 Body Control System, Removal and Installation).** Verify the system is normal.

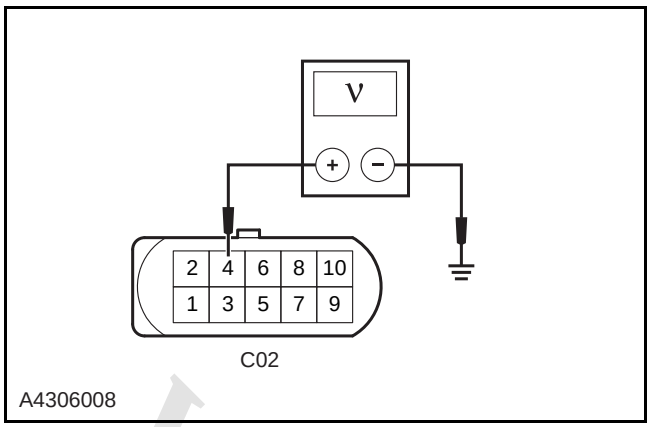
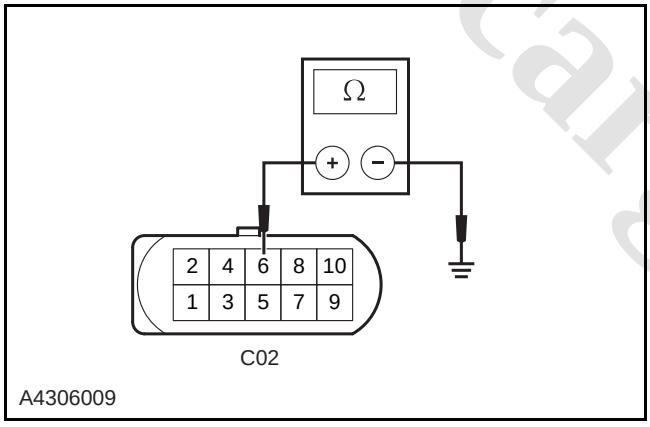
One or More Turn Signal Lamps Fault Diagnosis

CAUTION: Before executing this process, use a diagnostic tool to carry out a self-diagnosis for the BCM system so as to help to eliminate faults quickly.

CAUTION: This process is carried out for the left turn signal lamp fault only. Process for the right is similar.

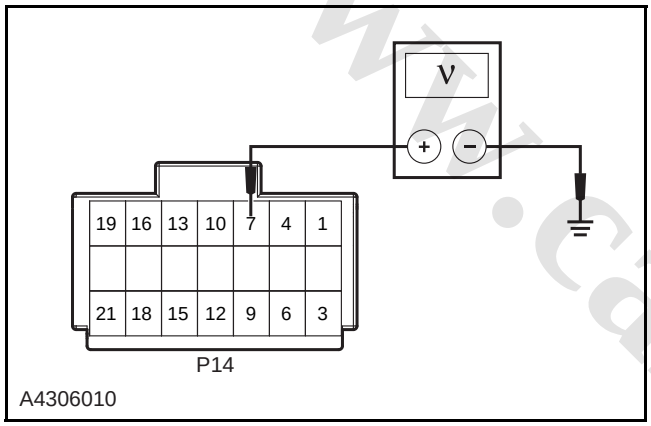
Test conditions	Details/Results/Actions
1. General inspection	
	A. Inspect the related wiring harness connectors for signs of damage, poor contact, aging or loose. Is it normal? **Y** Go to step 2. **N** Repair the fault.
2. Inspect the turn signal bulbs with fault	
	A. Inspect the filament in turn signal bulb to see if it's in good condition. B. Inspect the turn signal bulb contact for signs such as oxidation or poor contact. Is it abnormal? **Y** Replace the turn signal bulb. Solve the problem of oxidation. **N** Go to step 3.
3. Verify the symptom	
	A. Turn the ignition switch to position "ON". B. Turn the lighting combination switch to the left turn signal position. Are all the left turn signal lamps normal? **Y** Go to step 7. **N** Go to step 4.
4. Inspect signals from turn signal lamp switch	
	A. Connect a special diagnostic tool. B. Select "Read BCM Data Stream". C. Turn the lighting combination switch to the left turn signal position. Is the data stream normal? **Y** Go to step 7. **N** Go to step 5.

Test conditions	Details/Results/Actions
5. Inspect the lighting combination switch - the left turn signal switch	
	A. Inspect the left turn signal switch. **Refer to: Lighting Combination Switch Test (4.3.6 Lighting System, General Procedure).** Is the lighting combination switch normal? **Y** Go to step 6. **N** Replace the lighting combination switch. **Refer to: Lighting Combination Switch (4.3.6 Lighting System, Removal and Installation).**
6. Inspect the circuit between wiper combination switch and BCM	
	A. Turn the ignition switch to position "LOCK" and disconnect the battery negative cable. B. Disconnect the lighting combination switch wiring harness connector P02 and the BCM wiring harness connector P23. C. Measure the resistance between the terminal 9 of the lighting combination switch wiring harness connector P02 and the terminal 13 of the BCM wiring harness connector P23 and inspect if there is any open circuit. **Standard Resistance Value: less than 5 Ω** Is the resistance value normal? **Y** Go to step 7. **N** Inspect and repair the open circuit fault between the terminal 9 of the lighting combination switch wiring harness connector P02 and the terminal 13 of the BCM wiring harness connector P23.

Test conditions	Details/Results/Actions
7. Inspect the left turn signal lamp power supply circuit (take the left front turn signal lamp for example)	
	A. Turn the ignition switch to position "LOCK", disconnect the left headlamp wiring harness connector C02. B. Turn the ignition switch to position "ON". C. Turn the lighting combination switch to the left turn signal position. D. Measure the voltage between the terminal 4 of the left headlamp wiring harness connector C02 and the reliable ground. **Standard Value: Change From 0 V to 11 ~ 14 V** Is the voltage normal? **Y** Go to step 8. **N** Inspect and repair the open circuit between the terminal 4 of the left headlamp wiring harness connector C02 and the terminal 7 of the the BCM wiring harness connector P14.
8. Inspect the left turn signal lamp ground circuit (take the left front turn signal lamp for example)	
	A. Turn the ignition switch to position "LOCK". B. Disconnect the left headlamp wiring harness connector C02. C. Measure the voltage between the terminal 6 of the left headlamp wiring harness connector C02 and the reliable ground. **Standard Resistance Value: less than 5 Ω** Is the resistance value normal? **Y** Verify the system is normal. **N** Inspect and repair the open circuit between the terminal 6 of the left headlamp wiring harness connector C02 and the ground point G301. Verify the system is normal.

One or More Turn Signal Lamps Always On (Not Blink) Diagnosis

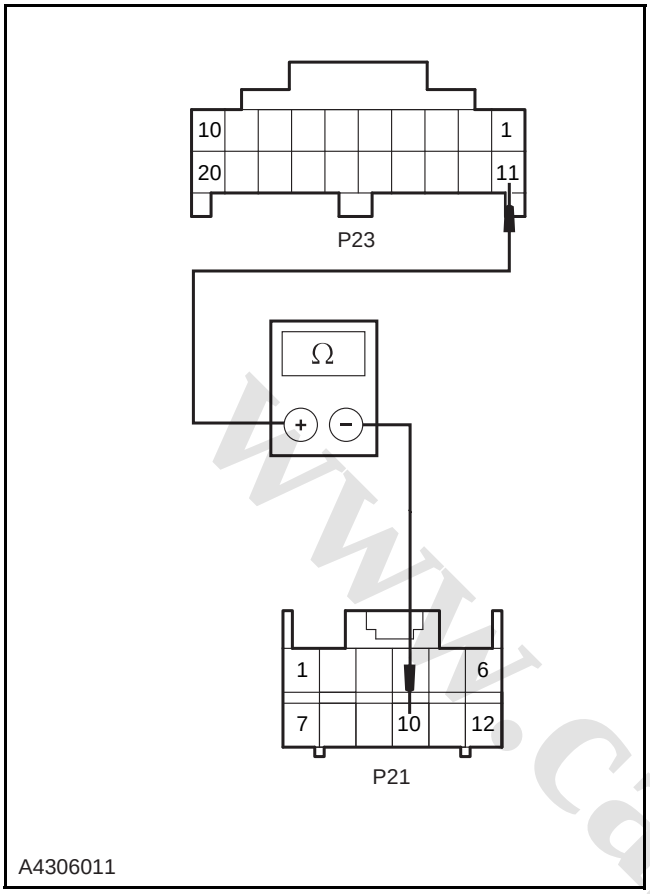
CAUTION: This process is carried out for the left turn signal lamp fault only. Process for the right is similar.

Test conditions	Details/Results/Actions
1. General inspection	
	A. Inspect the related wiring harness connectors for signs of damage, poor contact, aging or loose. Is it normal? **Y** Go to step 2. **N** Repair the fault.
2. Inspect the BCM turn signal lamp power supply output	
 A4306010	A. Turn the ignition switch to position "LOCK" and disconnect the battery negative cable. B. Disconnect the BCM wiring harness connector P14. C. Measure the voltage between the terminal 7 of the BCM wiring harness connector P14 and the reliable ground. **Standard Voltage Value: 0 V** Is the voltage normal? **Y** Go to step 3. **N** Inspect the short circuit fault between the terminal 7 of the BCM wiring harness connector P14 and the power supply.
3. Inspect the BCM power supply and ground circuit	
	A. Inspect the BCM power supply and ground circuit. **Refer to: DTC Diagnosis Procedure Index (4.3.14 Body Control System, DTC Diagnosis and Testing).** Is it normal? **Y** Go to step 4. **N** Troubleshooting.

Test conditions	Details/Results/Actions
4. Replace the BCM	
	A. Turn the ignition switch to position "LOCK" and disconnect the battery negative cable. B. Replace the BCM. **Refer to: Body Control Module (4.3.14 Body Control System, Removal and Installation).** Verify the system is normal.

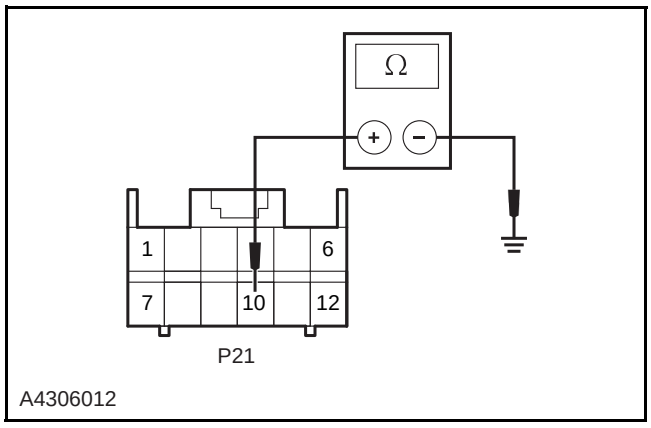
Hazard Warning Lamp Fault Diagnosis

Test Conditions	Details/Results/Actions
1. General inspection	
	A. Inspect the related wiring harness connectors for signs of damage, poor contact, aging or loose. Is it normal? **Y** Go to step 2. **N** Repair the fault.
2. Verify the symptom	
	A. Connect a specific diagnostic tool. B. Select "Read BCM Data Stream". C. Press down the hazard warning lamp switch. Is the data stream normal? **Y** Go to step 6. **N** Go to step 3.

Test Conditions	Details/Results/Actions
3. Inspect the circuit of the hazard warning lamp switch and BCM	
	A. Turn the ignition switch to position "LOCK" and disconnect the battery negative cable. B. Disconnect the A/C control module wiring harness connector P21 and the BCM wiring harness connector P23. C. Measure the resistance between the terminal 10 of the air conditioning control module wiring harness connector P21 and the terminal 11 of the BCM wiring harness conenctor P23. **Standard Resistance Value: less than 5 Ω** Is the resistance value normal? **Y** Go to step 4. **N** Inspect and repair the open circuit fault between the terminal 10 of the A/C control module wiring harness connector P21 and the terminal 11 of the BCM wiring harness connector P23.
4. Inspect the BCM power supply and ground circuit	
	A. Inspect the BCM power supply and ground circuit. **Refer to: DTC Diagnosis Procedure Index (4.3.14 Body Control System, DTC Diagnosis and Testing).** Is it normal? **Y** Go to step 5. **N** Troubleshooting.

Test Conditions	Details/Results/Actions
5. Inspect the air conditioning control module	
	A. Turn the ignition switch to position "LOCK" and disconnect the battery negative cable. B. Replace the air conditioning control module. **Refer to: A/C Control Module (4.1.1 Heating, Ventilation and Air Conditioning, Removal and Installation).** Is it normal? **Y** Replace the air conditioning control module. **Refer to: A/C Control Module (4.1.1 Heating, Ventilation and Air Conditioning, Removal and Installation).** **N** Go to step 6.
6. Replace the BCM	
	A. Turn the ignition switch to position "LOCK" and disconnect the battery negative cable. B. Replace the BCM. **Refer to: Body Control Module (4.3.14 Body Control System, Removal and Installation).** Verify the system is normal.

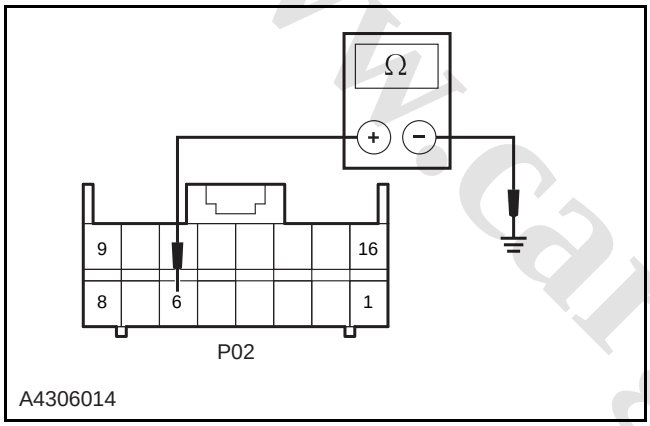
Continuous Blink of All Hazard Warning Lamps Diagnosis

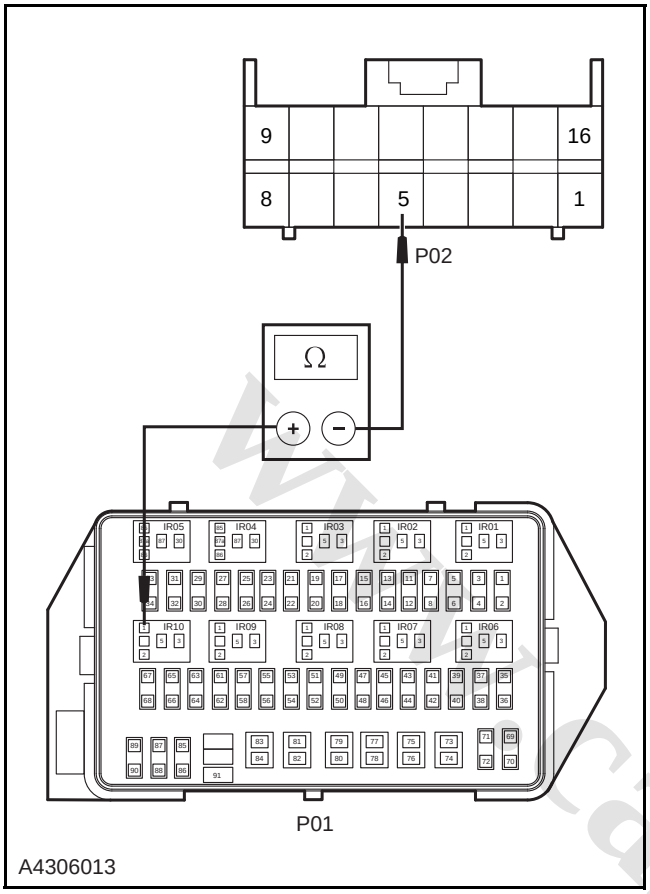
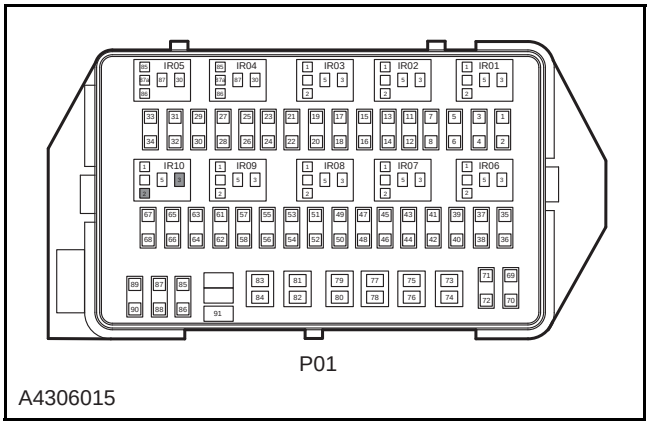
Test Conditions	Details/Results/Actions
1. General inspection	
	A. Inspect the related wiring harness connectors for signs of damage, poor contact, aging or loose. Is it normal? **Y** Go to step 2. **N** Repair the fault.
2. Verify the symptom	
	A. Turn off the hazard warning lamp switch. Are the hazard warning lamp still working continuously? **Y** Go to step 3. **N** Intermittent fault, inspect the hazard warning lamp switch, replace it when necessary.
3. Inspect the hazard warning lamp switch signal	
	A. Connect a specific diagnostic tool. B. Select "Read BCM Data Stream". C. Press down the hazard warning lamp switch. Is the data stream normal? **Y** Go to step 7. **N** Go to step 4.
4. Inspect the hazard warning lamp switch circuit	
	A. Turn the ignition switch to "LOCK" position and disconnect the battery negative cable. B. Disconnect the A/C control module wiring harness connector P21 and the BCM wiring harness connector P23. C. Measure the resistance between the terminal 10 of the air conditioning control module wiring harness connector P21 and the reliable ground. **Standard Resistance Value: 10 MΩ or more** Is the resistance value normal? **Y** Go to step 5. **N** Inspect and repair the open circuit fault between the terminal 10 of the A/C control module wiring harness connector P21 and the terminal 11 of the BCM wiring harness connector P23.

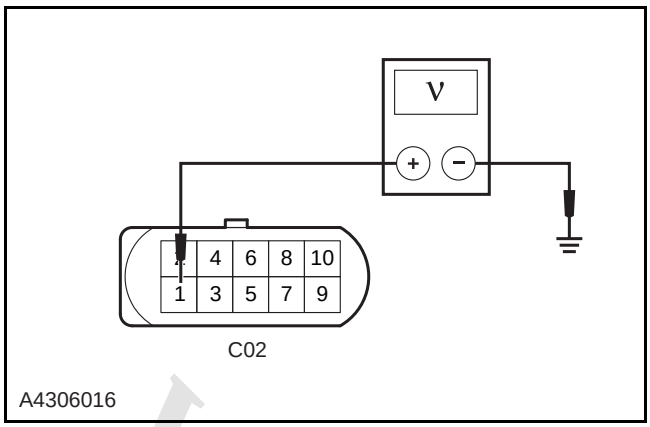
Test Conditions	Details/Results/Actions
5. Inspect the air conditioning control module	
	A. Turn the ignition switch to position "LOCK" and disconnect the battery negative cable. B. Replace the air conditioning control module. **Refer to: A/C Control Module (4.1.1 Heating, Ventilation and Air Conditioning, Removal and Installation).** Is it normal? **Y** Replace the air conditioning control module. **N** Go to step 6.
6. Inspect the BCM power supply and ground circuit	
	A. Inspect the BCM power supply and ground circuit. **Refer to: DTC Diagnosis Procedure Index (4.3.14 Body Control System, DTC Diagnosis and Testing).** Is it normal? **Y** Go to step 7. **N** Troubleshooting.
7. Replace the BCM	
	A. Turn the ignition switch to position "LOCK" and disconnect the battery negative cable. B. Replace the BCM. **Refer to: Body Control Module (4.3.14 Body Control System, Removal and Installation).** Verify the system is normal.

Position Lamp Fault Diagnosis

Test Conditions	Details/Results/Actions
1. General inspection	
	A. Inspect the related wiring harness connectors for signs of damage, poor contact, aging or loose. B. Inspect the filament and the lamp holder of the position lamp bulb for abnormal conditions such as breakage and oxidation. Is it normal? **Y** Go to step 2. **N** Repair the fault or replace the bulb.
2. Inspect the fuse	
	A. Inspect the fuse IF32. **Rated Capacity Fuse: 10 A** Is the fuse normal? **Y** Go to step 3. **N** Inspect and repair the fuse circuit, replace the fuse in rated capacity.
3. Inspect the position lamp relay IR10	
	A. Turn the ignition switch to position "LOCK". B. Exchange the position lamp relay IR10 with that of same type on the vehicle in good working order. C. Turn the ignition switch to "ON" position and turn on the position lamp. Is the position lamp normal? **Y** Replace the position lamp relay IR10. Verify the system is normal. **N** Go to step 4.

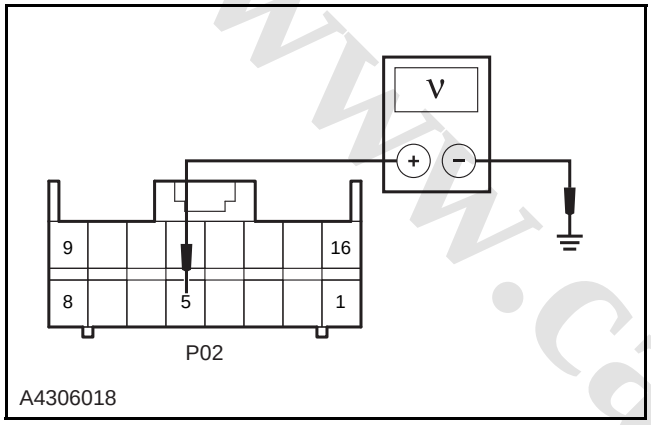
Test Conditions	Details/Results/Actions
4. Inspect the lighting combination switch - position lamp switch	
	A. Inspect the position lamp switch. **Refer to: Lighting Combination Switch Test (4.3.6 Lighting System, General Procedure).** Is the lighting combination switch normal? Y Go to step 5. N Replace the lighting combination switch. **Refer to: Lighting Combination Switch (4.3.6 Lighting System, Removal and Installation).**
5. Inspect the ground circuit of the lighting combination switch - front fog lamp switch	
	A. Turn the ignition switch to position "LOCK". B. Disconnect the lighting combination switch wiring harness connector P02. C. Measure the resistance between the terminal 6 of the lighting combination switch wiring harness connector P02 and the reliable ground. **Standard Resistance Value: less than 5 Ω** Is the resistance value normal? **Y** Go to step 6. **N** Inspect and repair the open circuit fault between the terminal 6 of the lighting combination switch wiring harness connector P02 and the ground point G101.

Test Conditions	Details/Results/Actions
6. Inspect the position lamp relay IR10 control circuit	
 A4306013	A. Turn the ignition switch to position "LOCK". B. Remove the position relay IR10, disconnect the light combination switch wiring harness connector P02. C. Measure the resistance between the terminal 5 of the lighting combination switch wiring harness connector P02 and the terminal 1 of the relay IR10 in the I/P fuse and relay box P01 and inspect if there is any open circuit **Standard Resistance Value: less than 5 Ω** Is the resistance value normal? **Y** Go to step 7. **N** Inspect and repair the open circuit fault between the Terminal 5 of the lighting combination switch wiring harness connector P02 and the terminal 1 of the fuse IR10 in the I/P fuse and relay box P01.
7. Inspect the position lamp relay IR10 control circuit	
 A4306015	A. Turn the ignition switch to position "LOCK", remove the position lamp relay IR10. B. Measure the voltage between the terminal 2 and 3 of the relay IR10 in the interior electric center P01 and reliable ground respectively. **Standard Voltage Value: 11 ~ 14 V** Is the voltage normal? **Y** Go to step 8. **N** Replace the I/P fuse and relay box P01. Verify the system is normal.

Test Conditions	Details/Results/Actions
8. Inspect the position lamp voltage input circuit (take the left front position lamp as example)	
	A. Turn the ignition switch to position "LOCK", disconnect the left headlamp wiring harness connector C02. B. Operate the position lamp switch. C. Measure the voltage between the terminal 1 of the left headlamp wiring harness connector C02 and the reliable ground. **Standard Voltage Value: 11 ~ 14 V** Is the voltage normal? **Y** Inspect and repair the open circuit fault between the Terminal 5 of the left headlamp wiring harness connector C02 and the ground point G301. Verify the system is normal. **N** Inspect and repair the open circuit fault between the Terminal 1 of the left headlamp wiring harness connector C02 and the Terminal 5 of the relay IR10 in the I/P fuse and relay box P01. Verify the system is normal.

Position Lamp Always On Diagnosis

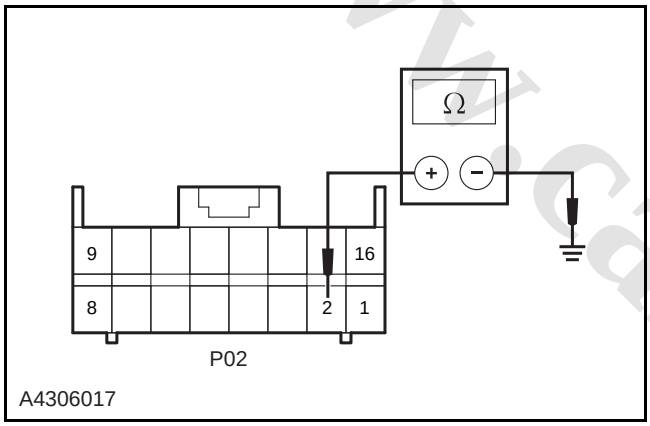
Test Conditions	Details/Results/Actions
1. General inspection	
	A. Inspect the related wiring harness connectors for signs of damage, poor contact, aging or loose. Is it normal? **Y** Go to step 2. **N** Repair the fault.
2. Remove the position lamp relay IR10	
	A. Remove the position lamp relay IR10. Does the position lamp work normal? **Y** Go to step 3. **N** Inspect and repair the short circuit to power supply fault of the position lamp voltage input circuit.

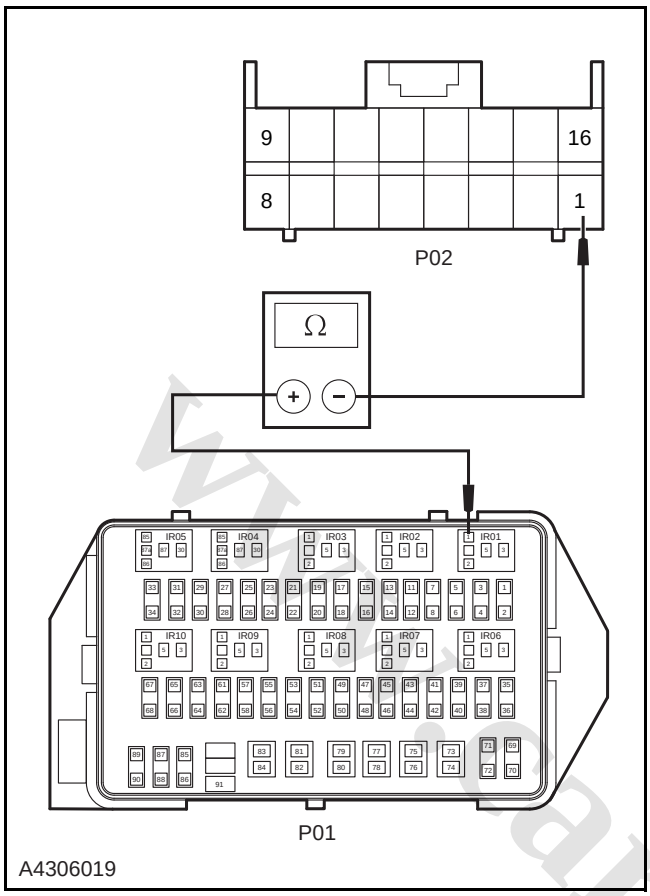
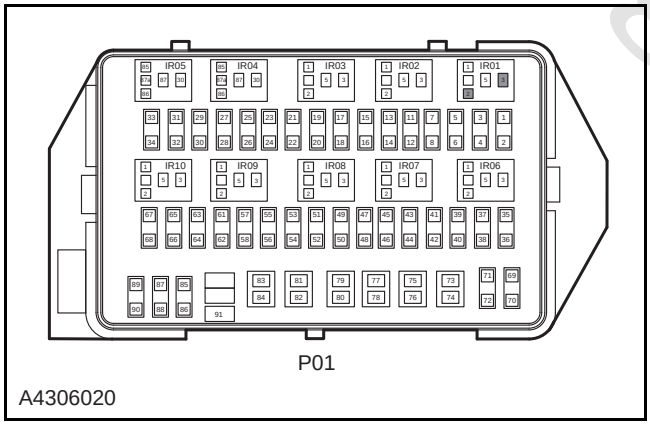
Test Conditions	Details/Results/Actions
3. Inspect the position lamp relay IR10	
	A. Turn the ignition switch to position "LOCK". B. Exchange the position lamp relay IR10 with that of same type on the vehicle in good working order. Does the position lamp work normal? **Y** Replace the position lamp relay IR10. Verify the system is normal. **N** Go to step 4.
4. Inspect the position lamp relay control circuit	
 A4306018	A. Turn the ignition switch to position "LOCK" and disconnect the battery negative cable. B. Remove the position relay IR10, disconnect the lighting combination switch wiring harness connector P02. C. Measure the resistance between the terminal 5 of the lighting combination switch wiring harness connector P02 and the reliable ground. **Standard Resistance Value: 10 MΩ or more** Is the resistance value normal? **Y** Replace the lighting combination switch. **Refer to: Lighting Combination Switch (4.3.6 Lighting System, Removal and Installation).** **N** Inspect and repair the short circuit to ground fault between the terminal 1 of the position lamp relay IR10 in the I/P fuse and relay box P01 and the Terminal 5 of the lighting combination switch wiring harness connector P02, and replace the I/P fuse and relay box P01 as necessary.

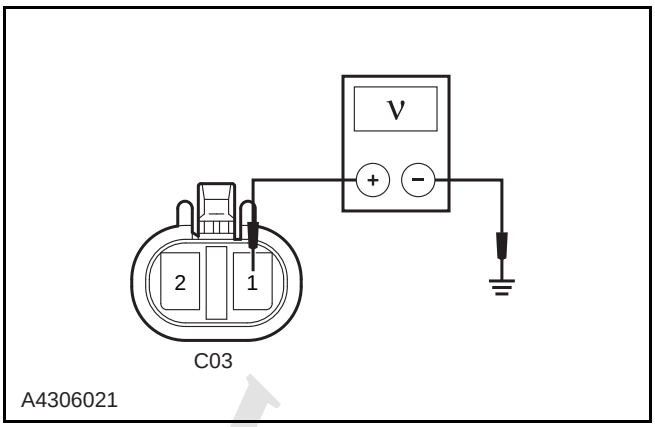
Front Fog Lamp Fault Diagnosis

CAUTION: The normal work of the front fog lamp is base on the normal work of the position lamp, so inspect the position lamp before carrying out this diagnosis procedure. Refer to Symptom Chart (4.3.6 Lighting System, Symptom Diagnosis and Testing of Position Lamp).

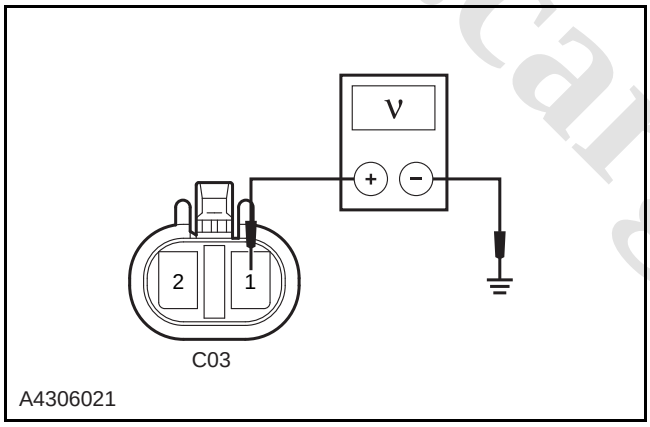
Test conditions	Details/Results/Actions
1. General inspection	
	A. Inspect the related wiring harness connectors for signs of damage, poor contact, aging or loose. B. Inspect the filament and the lamp holder of the front fog lamp bulb for abnormal conditions such as breakage and oxidation. Is it normal? **Y** Go to step 2. **N** Repair the fault or replace the bulb.
2. Inspect the fuse	
	A. Inspect the front fog lamp fuse IF18. **Rated Capacity Fuse: 15 A** Is the fuse normal? **Y** Go to step 3. **N** Inspect and repair the fuse circuit, replace the fuse in rated capacity.
3. Inspect the front fog lamp relay IR01	
	A. Turn the ignition switch to position "LOCK". B. Exchange the front fog lamp relay IR01 with the normal vehicle of the same model. C. Turn the ignition switch to the "ON" position and the lighting combination switch to "front fog lamp" position. Is the system normal? **Y** Replace the front fog lamp relay IR01 of the fault vehicle. Verify the system is normal. **N** Go to step 4.

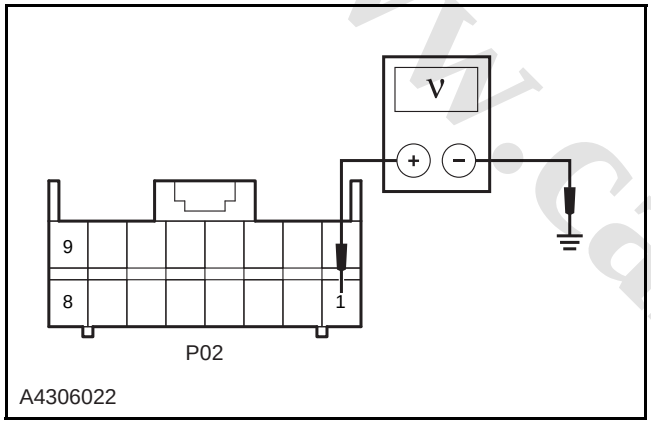
Test conditions	Details/Results/Actions
4. Inspect the lighting combination switch - front fog lamp switch	
	A. Inspect the front fog lamp switch. **Refer to: Lighting Combination Switch Test (4.3.6 Lighting System, General Procedures).** Is the lighting combination switch normal? Y Go to step 5. N Replace the lighting combination switch. **Refer to: Lighting Combination Switch (4.3.6 Lighting System, Removal and Installation).**
5. Inspect the ground circuit of the lighting combination switch - front fog lamp switch	
 A4306017	A. Disconnect the lighting combination switch wiring harness connector P02. B. Measure the resistance between the Terminal 2 of the lighting combination switch wiring harness connector P02 and the reliable ground. **Standard Resistance Value: less than 5 Ω** Is the resistance value normal? **Y** Go to step 6. **N** Inspect and repair the open circuit fault between the terminal 2 of the lighting combination switch wiring harness connector P02 and the ground point G101.

Test conditions	Details/Results/Actions
6. Inspect the control circuit of the front fog lamp relay	
 A4306019	A. Turn the ignition switch to position "LOCK" and disconnect the battery negative cable. B. Remove the front fog lamp relay IR01, disconnect the light combination switch wiring harness connector P02. C. Measure the resistance between the terminal 1 of the light combination switch wiring harness connector P02 and the terminal 1 of the relay IR01 in the I/P fuse and relay box P01. **Standard Resistance Value: less than 5 Ω** Is the resistance value normal? **Y** Go to step 7. **N** Inspect and repair the open circuit fault between the terminal 1 of the light combination switch wiring harness connector P02 and the terminal 1 of the relay IR01 in the I/P fuse and relay box P01.
7. Inspect the control power supply circuit of the front fog lamp relay IR01	
 A4306020	A. Turn the ignition switch to position "LOCK", remove the front fog lamp relay IR01. B. Measure the voltage between the terminal 2, terminal 3 of the relay IR01 in the interior electric center P01 and reliable ground respectively. **Standard Voltage Value: 11 ~ 14 V** Is the voltage normal? **Y** Go to step 8. **N** Replace the I/P fuse and relay box P01. Verify the system is normal.

Test conditions	Details/Results/Actions
8. Inspect the front fog lamp voltage input circuit (take the left front fog lamp as example)	
	A. Turn the ignition switch to position "LOCK", disconnect the left front fog lamp wiring harness connector C03. B. Turn the lighting combination switch to "front fog lamp" position. **CAUTION: The position lamp must be switched on.** C. Measure the voltage between the terminal 1 of the left front fog lamp wiring harness connector C03 and the reliable ground. **Standard Voltage Value: 11 ~ 14 V** Is the voltage normal? **Y** Inspect and repair the open circuit fault between the terminal 2 of the left front fog lamp wiring harness connector C03 and the ground point G301. Verify the system is normal. **N** Inspect and repair the open circuit fault between the terminal 1 of the left front fog lamp wring harness connector C03 and the terminal 5 of relay IR01 in the I/P fuse and relay box P01, and replace P01 when necessary. Verify the system is normal.

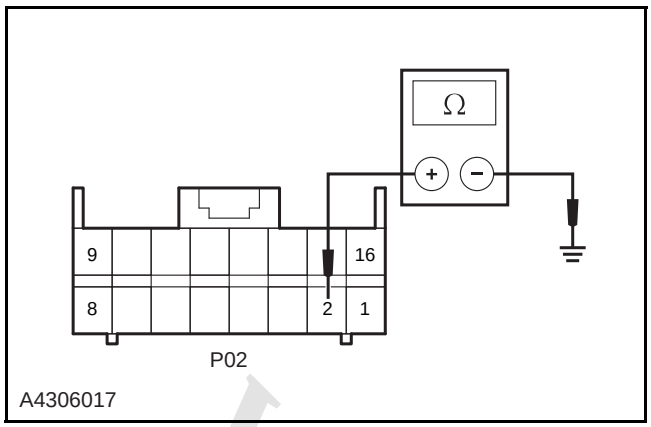
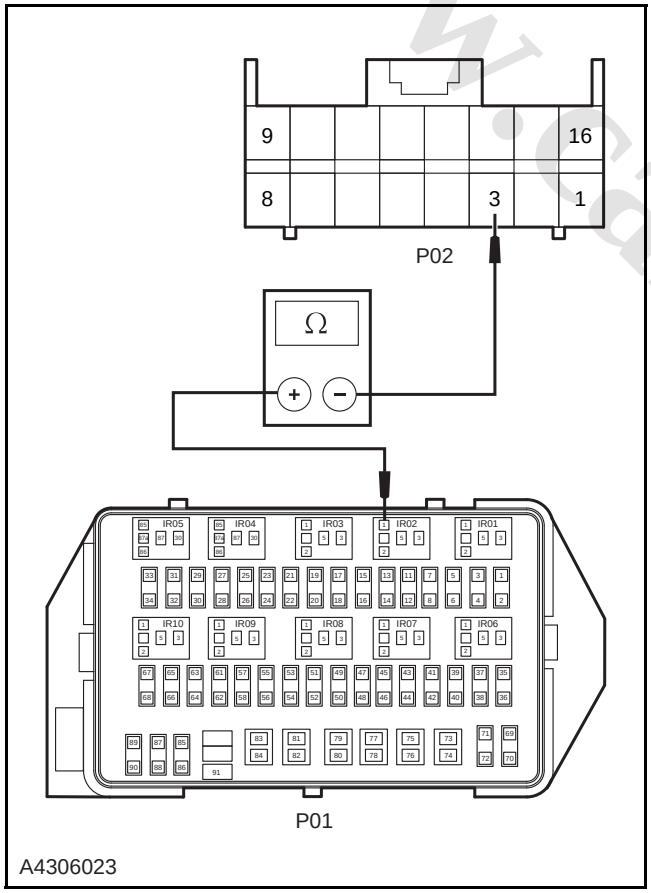
Front Fog Lamp Always On Diagnosis

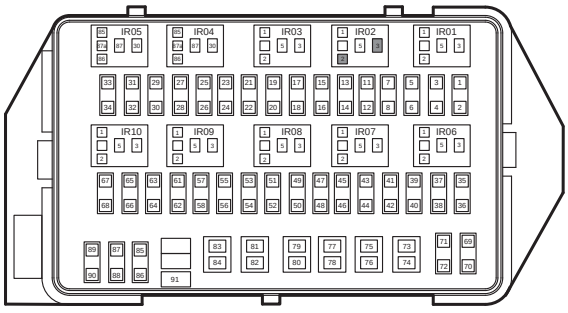
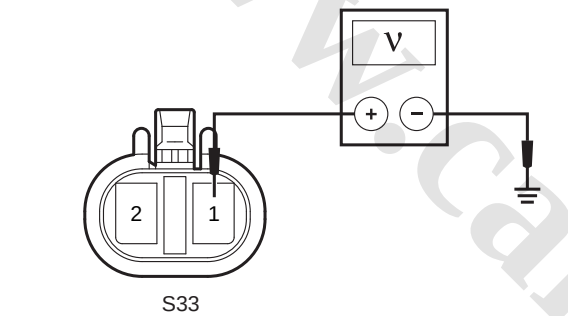
Test Conditions	Details/Results/Actions
1. General inspection	
	A. Inspect the related wiring harness connectors for signs of damage, poor contact, aging or loose. Is it normal? **Y** Go to step 2. **N** Repair the fault.
2. Remove the front fog lamp relay IR01	
	A. Remove the front fog lamp relay IR01. Does the front fog lamp work normal? **Y** Go to step 4. **N** Go to step 3.
3. Inspect the front fog lamp voltage input circuit (take the left front fog lamp as example)	
	A. Turn the ignition switch to position "LOCK". B. Remove the front fog lamp relay IR01, disconnect the left front fog lamp wiring harness connector C03. C. Measure the voltage between the terminal 1 of the left front fog lamp wiring harness connector C03 and the reliable ground. **Standard Voltage Value: 0 V** Is the voltage normal? **Y** Verify the symptom. **Refer to: Symptom Chart (4.3.6 Lighting System, Symptom Diagnosis and Testing).** **N** Inspect the short circuit between the terminal 1 of the left front lamp harness connector C03 and the power supply.

Test Conditions	Details/Results/Actions
4. Inspect the front fog lamp relay IR01	
	A. Turn the ignition switch to position "LOCK". B. Exchange the front fog lamp relay IR01 with the normal vehicle of the same model. C. Turn the ignition switch to the "ON" position and the lighting combination switch to the "front fog lamp" position. Is the system normal? **Y** Replace the front fog lamp relay IR01 of the fault vehicle. Verify the system is normal. **N** Go to step 5.
5. Inspect the control circuit of the front fog lamp relay IR01	
 A4306022	A. Turn the ignition switch to "LOCK" position and disconnect the battery negative cable. B. Remove the front fog lamp relay IR01, disconnect the lighting combination switch wiring harness connector P02. C. Measure the resistance between the terminal 1 of the lighting combination switch wiring harness connector P02 and the reliable ground. **Standard Resistance Value: 10 MΩ or more** Is the resistance value normal? **Y** Replace the lighting combination switch. **Refer to: Lighting Combination Switch (4.3.6 Lighting System, Removal and Installation).** Verify the system is normal. **N** Inspect and repair the short circuit to ground fault between the terminal 1 of the relay IR01 in the I/P fuse and relay box P01 and the terminal 1 of thr lighting combination switch wiring harness connector P02, and replace the I/P fuse and relay box P01 as necessary. Verify the system is normal.

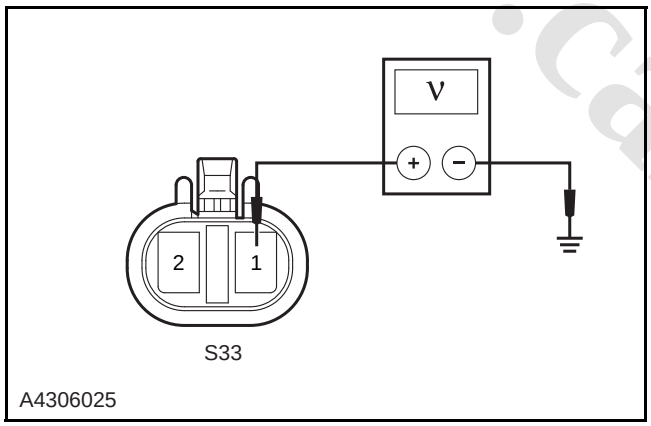
Rear Fog Lamp Fault Diagnosis

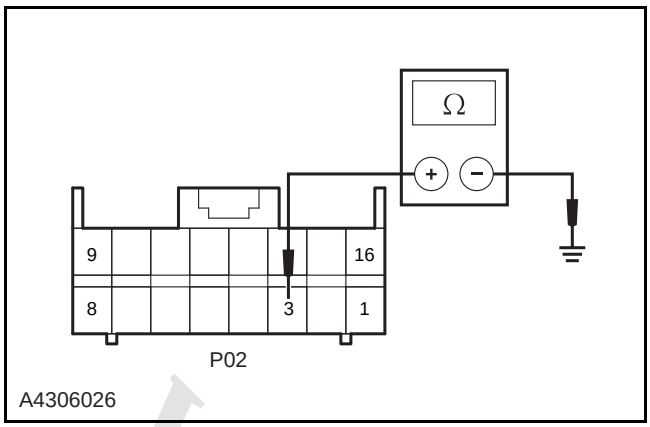
Test conditions	Details/Results/Actions
1. General inspection	
	A. Inspect the related wiring harness connector for signs of damage, poor contact, aging or loose. B. Inspect the filament and the lamp holder of the rear fog lamp bulb for abnormal conditions such as breakage and oxidation. Is it normal? **Y** Go to step 2. **N** Repair the fault or replace the bulb.
2. Inspect the fuse	
	A. Inspect the fuse IF10 and IF19. **Rated Capacity Fuse: 10 A** Is the fuse normal? **Y** Go to step 3. **N** Inspect and repair the fuse circuit, replace the fuse in rated capacity.
3. Inspect the rear fog lamp relay IR02	
	A. Turn the ignition switch to position "LOCK". B. Exchange the rear fog lamp relay IR02 with the normal vehicle of the same model. C. Turn on the rear fog lamp switch. Does the rear fog lamp work? **Y** Replace the rear fog lamp relay IR02, confirm the system is normal. **N** Go to step 4.
4. Inspect the lighting combination switch - rear fog lamp switch	
	A. Inspect the rear fog lamp switch. **Refer to: Lighting Combination Switch Test (4.3.6 Lighting System, General Procedures).** Is the lighting combination switch normal? **Y** Go to step 5. **N** Replace the lighting combination switch. **Refer to: Lighting Combination Switch (4.3.6 Lighting System, Removal and Installation).**

Test conditions	Details/Results/Actions
5. Inspect the ground circuit of lighting combination switch - rear fog lamp switch	
 A4306017	A. Turn the ignition switch to position "LOCK". B. Disconnect the lighting combination switch wiring harness connector P02. C. Measure the resistance between the terminal 2 of the lighting combination switch wiring harness connector P02 and the reliable ground. **Standard Resistance Value: less than 5 Ω** Is the resistance value normal? **Y** Go to step 6. **N** Inspect and repair the open circuit fault between the terminal 2 of the lighting combination switch wiring harness connector P02 and the ground point G101.
6. Inspect the rear fog lamp relay IR02 control circuit	
 A4306023	A. Turn the ignition switch to position "LOCK". B. Disconnect the lighting combination switch wiring harness connector P02. C. Measure the resistance between the terminal 3 of the lighting combination switch wiring harness connector P02 and the terminal 1 of the relay IR02 in the I/P fuse and relay box P01 and inspect if there is any open circuit **Standard Resistance Value: less than 5 Ω** Is the resistance value normal? **Y** Go to step 7. **N** Inspect and repair the open circuit fault between the terminal 3 of the lighting combination switch wiring harness connector P02 and the terminal 1 of the relay IR02 in the I/P fuse and relay box P01.

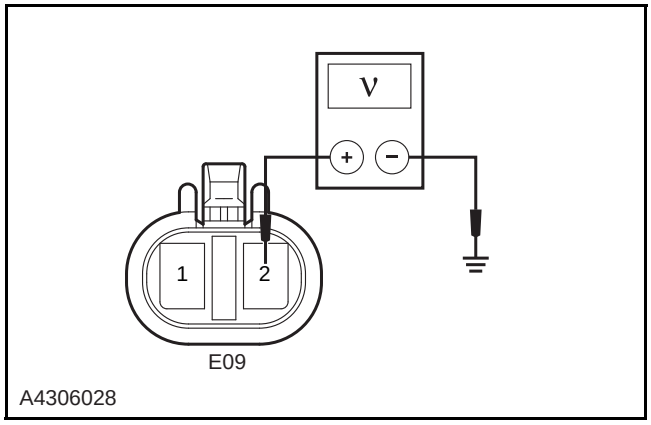
Test conditions	Details/Results/Actions
7. Inspect the rear fog lamp relay IR02 power circuit	
 P01 A4306024	A. Turn the ignition switch to position "LOCK", remove the rear fog lamp relay IR02. B. Measure the voltage between the terminal 2, terminal 3 of the relay IR02 in the interior electric center P01 and reliable ground respectively. **Standard Voltage Value: 11 ~ 14 V** Is the voltage normal? **Y** Go to step 8. **N** Replace the I/P fuse and relay box P01. Verify the system is normal.
8. Inspect the rear fog lamp voltage input circuit (take the left rear fog lamp as example)	
 S33 A4306025	A. Turn the ignition switch to position "LOCK", disconnect the left rear fog lamp wiring harness connector S33. B. Turn on the rear fog lamp switch. C. Measure the voltage between the terminal 1 of the left rear fog lamp wiring harness connector S33 and the reliable ground. **Standard Voltage Value: 11 ~ 14 V** Is the voltage normal? **Y** Inspect and repair the open circuit fault between the terminal 2 of the left rear fog lamp wiring harness connector S33 and the ground point G203. **N** Inspect and repair the open circuit fault between the terminal 1 of the left rear fog lamp wiring harness connector S33 and the terminal 5 of the relay IR02 in the I/P fuse and relay box P01. Verify the system is normal.

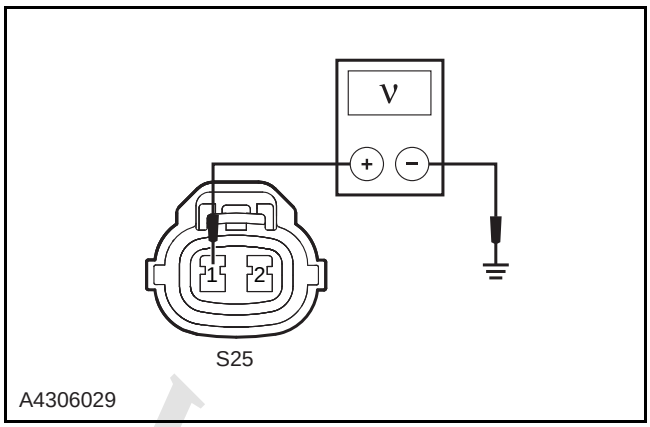
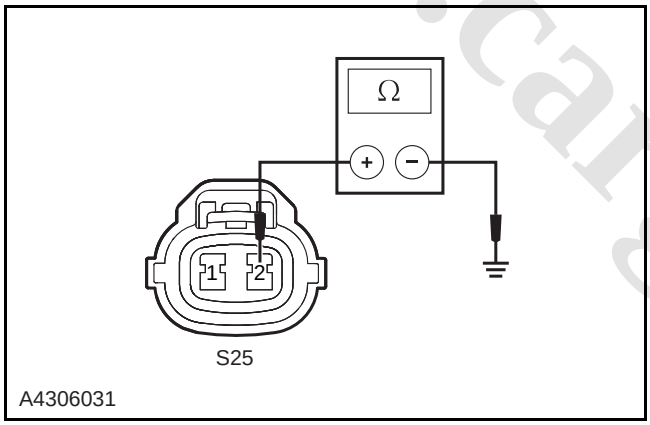
Rear Fog Lamp Always On Diagnosis

Test Conditions	Details/Results/Actions
1. General inspection	
	A. Inspect the related wiring harness connector for signs of damage, poor contact, aging or loose. Is it normal? **Y** Go to step 2. **N** Repair the fault.
2. Remove the rear fog lamp relay IR02	
	A. Remove the rear fog lamp relay IR02. Does the rear fog lamp work normally? **Y** Go to step 4. **N** Go to step 3.
3. Inspect the rear fog lamp voltage input circuit (take the left rear fog lamp as example)	
	A. Turn the ignition switch to position "LOCK". B. Remove the rear fog lamp relay IR02, disconnect the left rear fog lamp wiring harness connector S33. C. Measure the voltage between the terminal 1 of the left rear fog lamp wiring harness connector S33 and the reliable ground. **Standard Voltage Value: 0 V** Is the voltage normal? **Y** Verify the symptom. **Refer to: Symptom Chart (4.3.6 Lighting System, Symptom Diagnosis and Testing).** **N** Inspect the short circuit fault between the terminal 1 of the left rear fog lamp harness connector S33 and the power supply.
4. Inspect the rear fog lamp relay IR02	
	A. Turn the ignition switch to position "LOCK". B. Exchange the rear fog lamp relay IR02 with the normal vehicle of the same model. Does the rear fog lamp work normally? **Y** Replace the rear fog lamp relay IR02. Verify the system is normal. **N** Go to step 5.

Test Conditions	Details/Results/Actions
5. Inspect the control circuit of the rear fog lamp relay	
	A. Turn the ignition switch to "LOCK" position and disconnect the battery negative wiring harness. B. Remove the rear fog lamp relay IR02, disconnect the light combination switch wiring harness connector P02. C. Measure the resistance between the terminal 3 of the lighting combination switch wiring harness connector P02 and the reliable ground. **Standard Resistance Value: 10 MΩ or more** Is the resistance value normal? **Y** Replace the lighting combination switch. **Refer to: Lighting Combination Switch (4.3.6 Lighting System, Removal and Installation).** **N** Inspect and repair the short circuit to ground fault between the terminal 1 of the rear fog relay IR02 in the I/P fuse and relay box P01 and the terminal 3 of the lighting combination wiring harness connector P02, and replace the I/P fuse and relay box P01 as necessary.

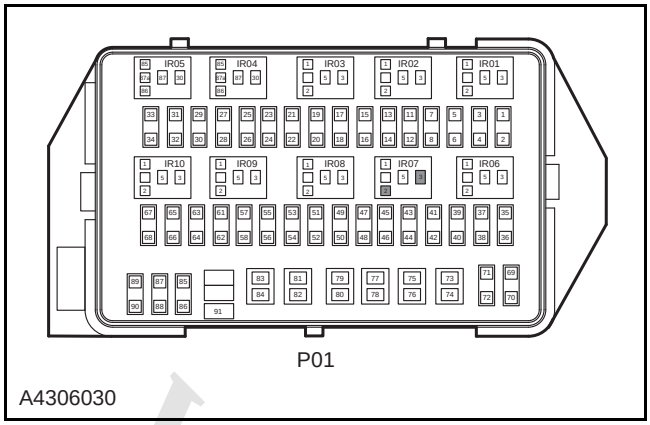
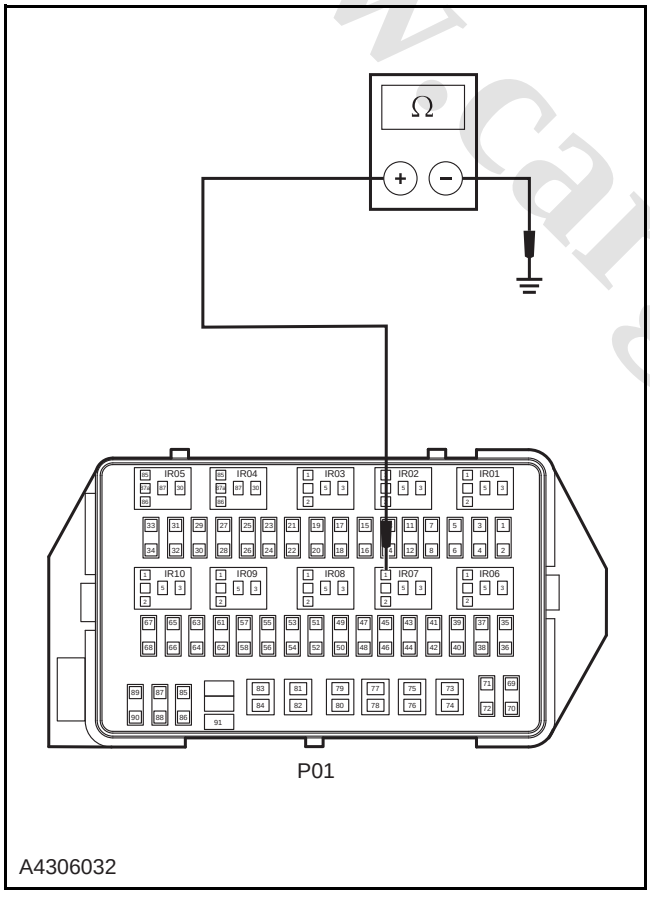
Invalid Reverse Lamp (MT) Diagnosis

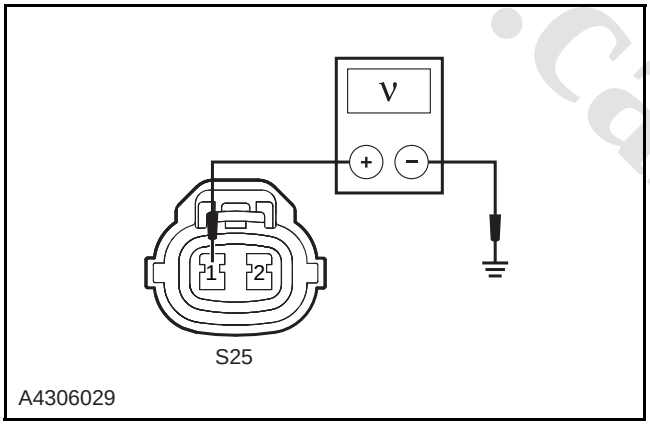
Test Conditions	Details/Results/Actions
1. General inspection	
	A. Inspect the related wiring harness connectors for signs of damage, poor contact, aging or loose. B. Inspect the filament and the lamp holder of the reverse lamp bulb for abnormal conditions such as breakage and oxidation. Is it normal? **Y** Go to step 2. **N** Repair the fault or replace the bulb.
2. Inspect the fuse	
	A. Inspect the reverse lamp fuse IF10. **Rated Capacity Fuse: 10 A** Is the fuse normal? **Y** Go to step 3. **N** Inspect and repair the fuse circuit, replace the fuse in rated capacity.
3. Inspect the reverse lamp switch output power supply	
	A. Turn the ignition switch to "ON" position. B. Put the gear lever into the reverse gear. C. Measure the voltage between the terminal 2 of the reverse lamp switch wiring harness connector E09 and the reliable ground. **Standard Voltage Value: 11 ~ 14 V** Is the voltage normal? **Y** Go to step 4. **N** Replace the reverse lamp switch. Verify the system is normal.

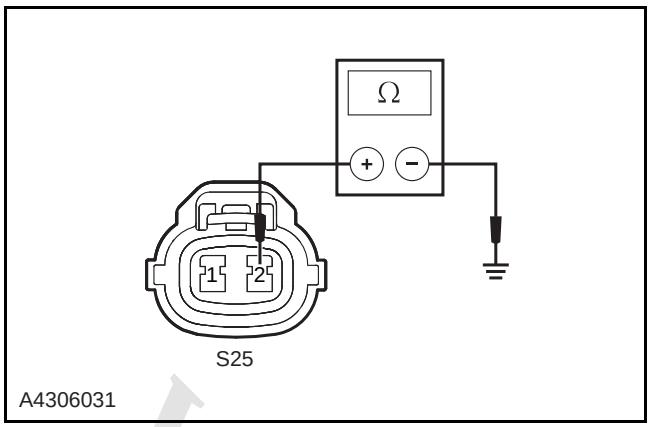
Test Conditions	Details/Results/Actions
4. Inspect the voltage input circuit of the reverse lamp (take the left reverse lamp as example)	
	A. Turn the ignition switch to position "LOCK". B. Disconnect the left reverse lamp wiring harness connector S25. C. Turn the ignition switch to position "ON". D. Put the gear lever into the reverse gear. E. Measure the voltage between the terminal 1 of the left reverse lamp wiring harness connector S25 and the reliable ground. **Standard Voltage Value: 11 ~ 14 V** Is the voltage normal? **Y** Go to step 5. **N** Inspect and repair the open circuit between the terminal 1 of the left reverse lamp wiring harness connector S25 and the terminal 2 of the reverse lamp switch wiring harness connector E09.
5. Inspect the power supply circuit of the reverse lamp (take the left reverse lamp as example)	
	A. Turn the ignition switch to position "LOCK". B. Disconnect the reverse lamp wiring harness connector S25. C. Measure the resistance between the terminal 2 of the left reverse lamp wiring harness connector S25 and the reliable ground. **Standard Resistance Value: less than 5 Ω** Is the resistance value normal? **Y** Replace the reverse lamp switch Verify the system is normal. **N** Inspect and repair the open circuit fault between the terminal 2 of the left reverse lamp wiring harness connector S25 and the ground point G203. Verify the system is normal.

Invalid Reverse Lamp (AT) Diagnosis

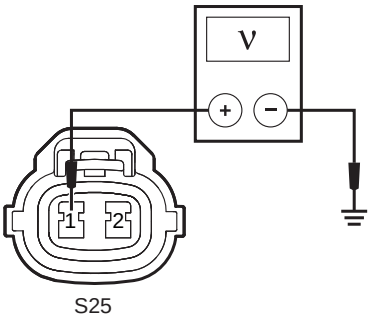
Test Conditions	Details/Results/Actions
1. General inspection	
	A. Inspect the related wiring harness connectors for signs of damage, poor contact, aging or loose. B. Inspect the filament and the lamp holder of the reverse lamp bulb for abnormal conditions such as breakage and oxidation. Is it normal? **Y** Go to step 2. **N** Repair the fault or replace the bulb.
2. Inspect the fuse	
	A. Inspect the reverse lamp fuse IF10. **Rated Capacity Fuse: 10 A** Is the fuse normal? **Y** Go to step 3. **N** Inspect and repair the fuse circuit, replace the fuse in rated capacity.
3. Inspect the reverse lamp relay	
	A. Exchange the reverse lamp relay IR07 with that of same type on the vehicle in good working order. Is the reverse lamp working normally? **Y** Replace the reverse lamp relay IR07 on the fault vehicle. Verify the system is normal. **N** Go to step 4.

Test Conditions	Details/Results/Actions
4. Inspect the reverse lamp relay power supply circuit	
 P01 A4306030	A. Remove the reverse lamp relay IR07. B. Measure the voltage between the terminal 2, terminal 3 of the reverse lamp relay IR07 in the interior electric center P01 and reliable ground respectively. **Standard Voltage Value: 11 ~ 14 V** Is the voltage normal? **Y** Go to step 5. **N** Inspect and repair the open circuit fault between the terminals 2 & 3 of the reverse lamp relay IR07 and the terminal 21 of IF10 in the I/P fuse and relay box P01, and replace the I/P fuse and relay box P01 as necessary.
5. Inspect the reverse lamp relay control circuit	
 P01 A4306032	A. Put the transmission gear lever into the reverse gear. B. Turn the ignition switch to position "LOCK". C. Remove reverse lamp relay IR07. D. Measure the voltage between the terminal 1 of the reverse lamp relay IR07 in the interior electric center P01 and reliable ground respectively. **Standard Resistance Value: less than 5 Ω** Is the resistance value normal? **Y** Go to step 7. **N** Go to step 6.

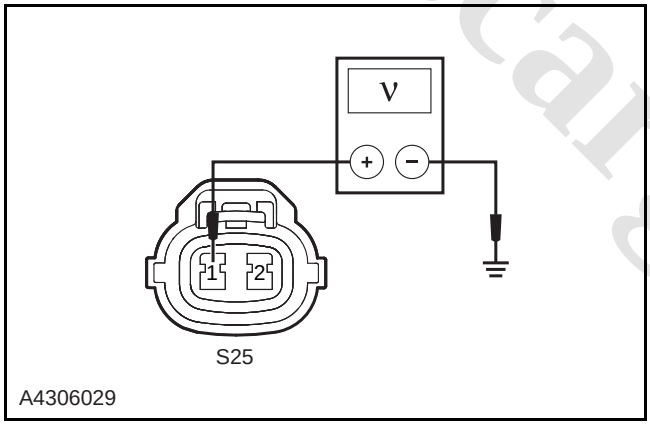
Test Conditions	Details/Results/Actions
6. Inspect the neutral position switch	
	A. Inspect the neutral position switch. **Refer to: Gear Switch Inspection (3.2.1 Automatic Transmission, General Procedure).** Is it normal? **Y** Inspect and repair the open circuit fault between the terminal 1 of the neutral position switch wiring harness connector C25 and the terminal 1 of the reverse lamp relay IR07 in the I/P fuse and relay box P01. **N** Replace the neutral position switch. **Refer to: Neutral Position Switch (3.2.1 Automatic Transmission, Removal and Installation).**
7. Inspect the power supply circuit of the reverse lamp (take the left reverse lamp as example)	
	A. Turn the ignition switch to position "LOCK". B. Disconnect the reverse lamp wiring harness connector S25. C. Turn the ignition switch to position "ON". D. Put the transmission gear lever into the reverse gear. E. Measure the voltage between the terminal 1 of the left reverse lamp wiring harness connector S25 and the reliable ground. **Standard Voltage Value: 11 ~ 14 V** Is the voltage normal? **Y** Go to step 8. **N** Inspect and repair the open circuit fault between the terminal 1 of the left reverse lamp wiring harness connector S25 and the terminal 5 of the reverse lamp relay IR07.

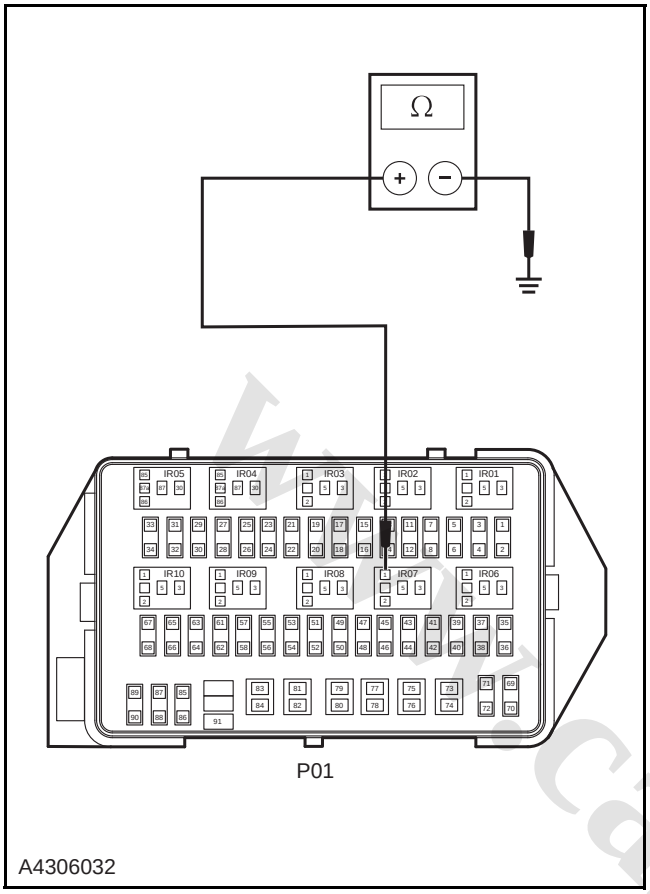
Test Conditions	Details/Results/Actions
8. Inspect the power supply circuit of the reverse lamp (take the left reverse lamp as example)	
	A. Turn the ignition switch to position "LOCK". B. Disconnect the reverse lamp wiring harness connector S25. C. Measure the resistance between the terminal 2 of the reverse lamp wiring harness connector S25 and the reliable ground. **Standard Resistance Value: less than 5 Ω** Is the resistance value normal? **Y** Replace the reverse lamp switch. Verify the system is normal. **N** Inspect and repair the open circuit between the terminal 2 of the left reverse lamp wiring harness connector S25 and the ground point G203. Verify the system is normal.

Reverse Lamp's Constant ON (MT) Diagnosis

Test Conditions	Details/Results/Actions
1. General inspection	
	A. Inspect the related wiring harness connectors for signs of damage, poor contact, aging or loose. Is it normal? **Y** Go to step 2. **N** Repair the fault.
2. Inspect the reverse lamp switch	
	A. Turn the ignition switch to position "LOCK". B. Disconnect the reverse lamp switch wiring harness connector E09. C. Observe the reverse lamp working condition. Is the reverse lamp working normally? **Y** Replace the reverse lamp switch. **N** Go to step 3.
3. Inspect the power supply circuit of the reverse lamp (take the left reverse lamp as example)	
 S25 A4306029	A. Turn the ignition switch to position "LOCK". B. Disconnect the reverse lamp wiring harness connector S25. C. Turn the ignition switch to position "ON". D. Measure the voltage between the terminal 1 of the left reverse lamp wiring harness connector S25 and the reliable ground. **Standard Voltage Value: 0 V** Is the voltage normal? **Y** Verify the symptom. **Refer to: Symptom Chart (4.3.6 Lighting System, Symptom Diagnosis and Testing).** **N** Inspect the short circuit fault between the terminal 1 of left reverse lamp wiring harness connector S25 and the power supply. Verify the system is normal.

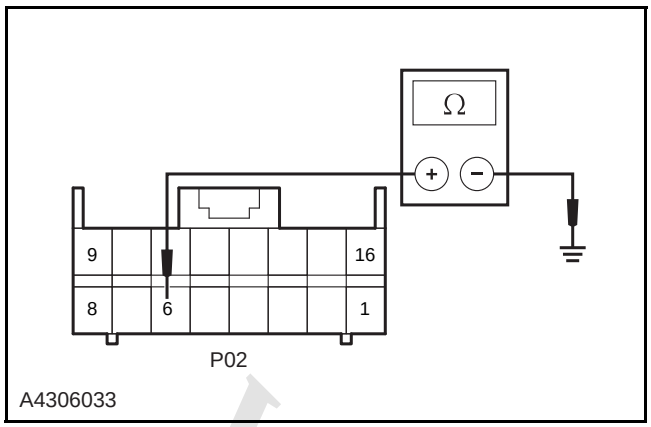
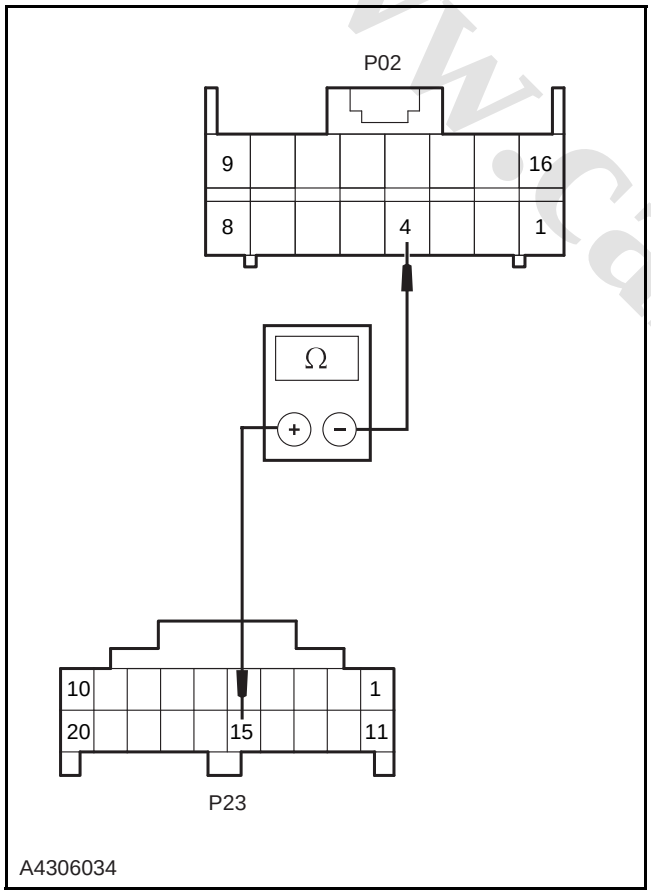
Reverse Lamp's Constant ON (AT) Diagnosis

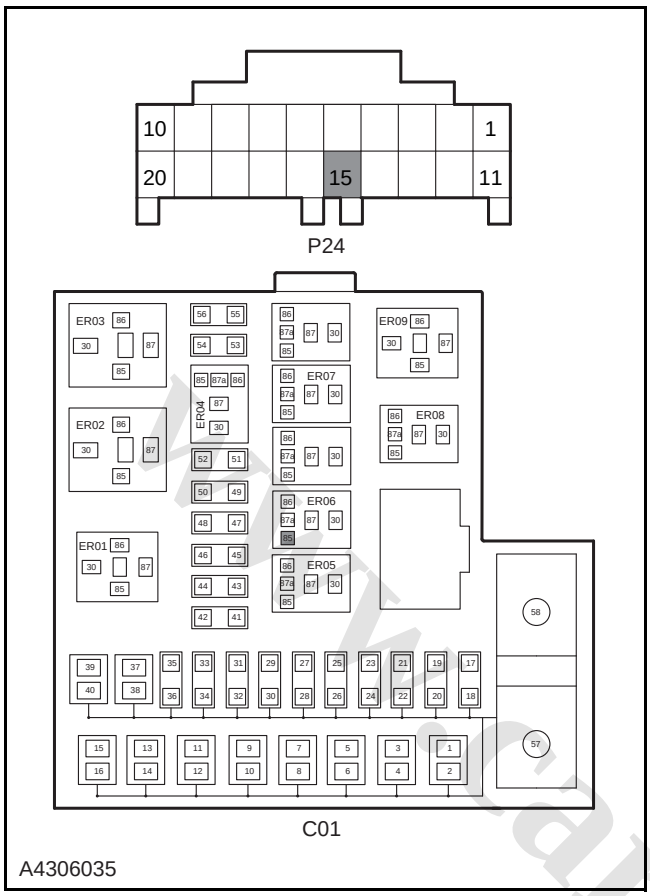
Test Conditions	Details/Results/Actions
1. General inspection	
	A. Inspect the related wiring harness connectors for signs of damage, poor contact, aging or loose. Is it normal? **Y** Go to step 2. **N** Repair the fault.
2. Remove the reverse lamp relay	
	A. Remove the reverse lamp relay IR07. Is the reverse lamp off? **Y** Go to step 4. **N** Go to step 3.
3. Inspect the power supply circuit of the reverse lamp (take the left reverse lamp as example)	
	A. Turn the ignition switch to position "LOCK". B. Remove the reverse lamp relay IR07, disconnect the left reverse lamp wiring harness connector S25. C. Turn the ignition switch to position "ON". D. Measure the voltage between the terminal 1 of the left reverse lamp wiring harness connector S25 and the reliable ground. **Standard Voltage Value: 0 V** Is the voltage normal? **Y** Verify the symptom. **Refer to: Symptom Chart (4.3.6 Lighting System, Symptom Diagnosis and Testing).** **N** Inspect the short circuit fault between the terminal 1 of left reverse lamp harness connector S25 and the power supply.

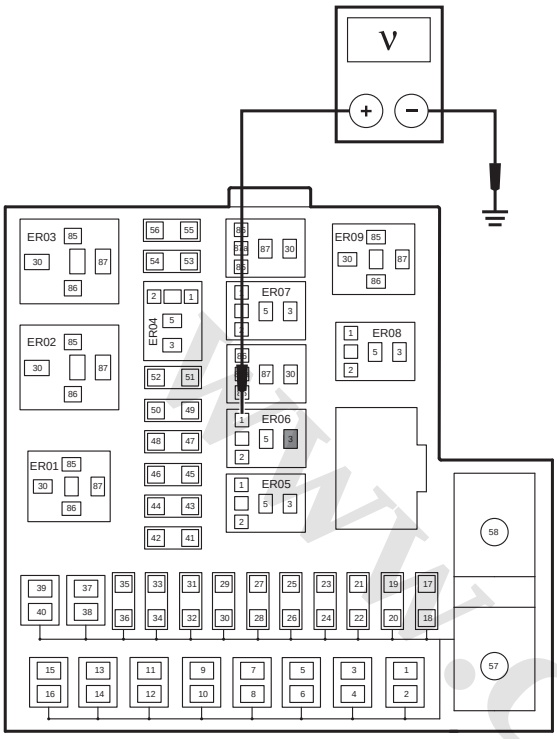
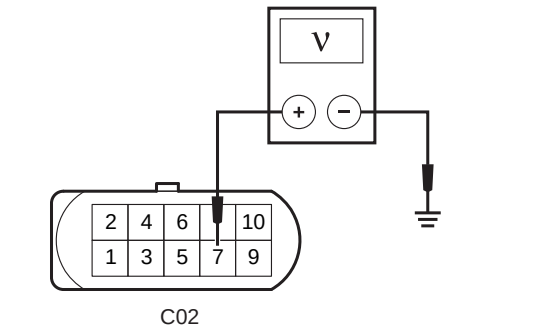
Test Conditions	Details/Results/Actions
4. Inspect the reverse lamp relay control circuit	
	A. Set the gearshift lever in any gear except reverse gear. B. Turn the ignition switch to position "LOCK". C. Remove reverse lamp relay IR07. D. Measure the resistance between the terminal 1 of relay IR07 in the interior electric center and reliable ground. **Standard Resistance Value: 10 MΩ or more** Is the resistance value normal? **Y** Replace the reverse lamp relay IR07 and verify the system is normal. **N** Go to step 5.
5. Inspect the neutral position switch circuit	
	A. Turn the ignition switch to position "LOCK". B. Disconnect the neutral position switch wiring harness connector C25. C. Turn the ignition switch to position "ON". whether the reverse lamp is off? **Y** Replace the neutral position switch. **Refer to: Neutral Position Switch (3.2.1 Automatic Transmission, Removal and Installation).** Verify the system is normal. **N** Inspect and repair the short circuit to ground fault between the terminal 1 of the IR07 in the I/P fuse and relay box and the terminal 1 of the neutral position switch C25. Verify the system is normal.

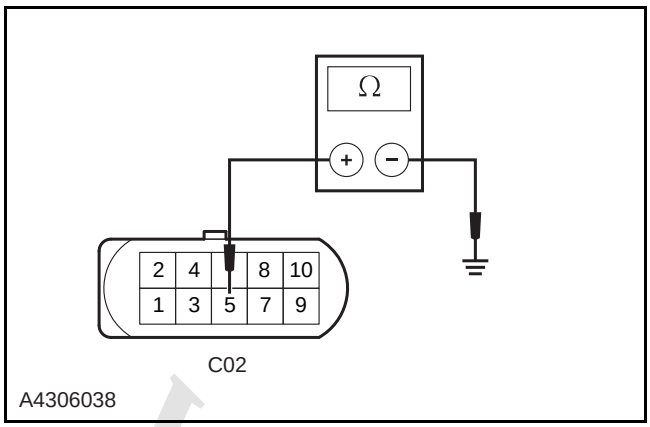
Low Beam Fault Diagnosis

Test Conditions	Details/Results/Actions
1. General inspection	
	A. Inspect the related wiring harness connectors for signs of damage, poor contact, aging or loose. B. Inspect the filament and the lamp holder of the low beam lamp bulb for abnormal conditions such as breakage and oxidation. Is it normal? **Y** Go to step 2. **N** Repair the fault or replace the bulb.
2. Inspect the fuse	
	A. Inspect the fuse EF18. **Rated Capacity Fuse: 15 A** Is the fuse normal? **Y** Go to step 3. **N** Inspect and repair the fuse circuit, replace the fuse in rated capacity.
3. Inspect the low beam relay ER06	
	A. Exchange the low beam relay ER06 with that of same type on the vehicle in good working order. Do low/high beams work normally? **Y** Replace the low beam relay ER06 of the fault vehicle. Verify the system is normal. **N** Go to step 4.
4. Inspect the lighting combination switch - low beam switch	
	A. Inspect the lighting combination switch - low beam switch. **Refer to: Lighting Combination Switch Test (4.3.6 Lighting System, General Procedures).** Is the lighting combination switch normal? **Y** Go to step 5. **N** Replace the lighting combination switch. **Refer to: Lighting Combination Switch (4.3.6 Lighting System, Removal and Installation).**

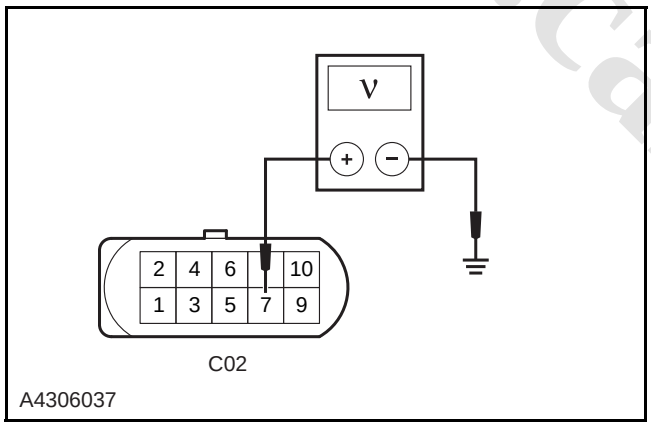
Test Conditions	Details/Results/Actions
5. Inspect the lighting combination lamp switch ground circuit	
 A4306033	A. Disconnect the lighting combination switch wiring harness connector P02. B. Measure the resistance between the terminal 6 of the lighting combination switch wiring harness connector P02 and the reliable ground. **Standard Resistance Value: less than 5 Ω** Is the resistance value normal? **Y** Go to step 6. **N** Inspect and repair the open circuit fault between the terminal 6 of the lighting combination switch wiring harness connector P02 and the ground point G101.
6. Inspect the circuit between lighting combination switch and BCM	
 A4306034	A. Turn the ignition switch to "LOCK" position and disconnect the battery negative cable. B. Disconnect the BCM wiring harness connector P23. C. Disconnect the lighting combination switch wiring harness connector P02. D. Measure the resistance between the terminal 4 of the lighting combination switch wiring harness connector P02 and the terminal 15 of the BCM wiring harness connector P23. **Standard Resistance Value: less than 5 Ω** Is the resistance value normal? **Y** Go to step 7. **N** Inspect and repair the open circuit fault between the terminal 4 of the lighting combination switch wiring harness connector P02 and the terminal 15 of the BCM wiring harness connector P23.

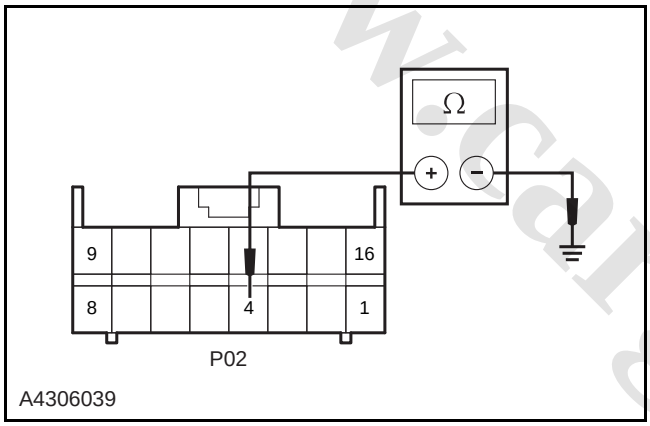
Test Conditions	Details/Results/Actions
7. Inspect the low beam relay control circuit	
 A4306035	A. Turn the ignition switch to position "LOCK". B. Remove the low beam relay ER06 and disconnect BCM wiring harness connector P24. C. Measure the resistance between the terminal 15 of the BCM wiring harness connector P24 and the terminal 2 of the low beam relay ER06 in the engine compartment fuse and relay box C01. **Standard Resistance Value: less than 5 Ω** Is the resistance value normal? **Y** Go to step 8. **N** Inspect and repair the open circuit between the terminal 15 of the BCM wiring harness connector P24 and the terminal 2 of relay ER06 in the engine compartment fuse and relay box C01.

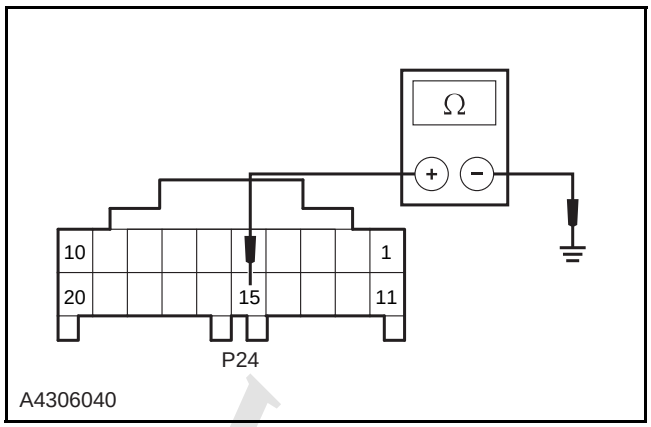
Test Conditions	Details/Results/Actions
8. Inspect the power supply of low beam relay ER06	
 C01 A4306036	A. Turn the ignition switch to position "LOCK". B. Remove the low beam relay. C. Measure the voltage between the terminal 1 and 3 of the low beam relay ER06 in the engine compartment fuse and relay box C01 and the reliable ground point. **Standard Voltage Value: 11 ~ 14 V** Is the voltage normal? **Y** Go to step 9. **N** Inspect and repair the open circuit fault between the terminal 1 and 3 of the low beam relay ER06 in the engine compartment fuse and relay box C01 and the terminal 35 of the fuse EF18, and replace the engine compartment fuse and relay box C01 as necessary.
9. Inspect the low beam voltage input circuit (take the left front low beam for example)	
 C02 A4306037	A. Turn the ignition switch to position "LOCK", disconnect the wiring harness connector C02 of the left headlamp. B. Turn the ignition switch to position "ON". C. Turn the lighting combination switch to "low beam" position. D. Measure the voltage between the terminal 7 of the left headlamp wiring harness connector C02 and the reliable ground. **Standard Voltage Value: 11 ~ 14 V** Is the voltage normal? **Y** Go to step 10. **N** Inspect and repair the open circuit fault between the terminal 7 of the left headlamp wring harness connector C02 and the terminal 5 of the relay ER06 of the engine compartment fuse and relay box C01, and replace C01 when necessary. Verify the system is normal.

Test Conditions	Details/Results/Actions
10. Inspect the low beam ground circuit (take the left front low beam as example)	
	A. Turn the ignition switch to position "LOCK", disconnect the wiring harness connector C02 of the left headlamp. B. Measure the voltage between the terminal 5 of the left headlamp wiring harness connector C02 and the reliable ground. **Standard Resistance Value: less than 5 Ω** Is the resistance value normal? **Y** Go to step 11. **N** Inspect and repair the open circuit fault between the terminal 5 of the left headlamp wiring harness connector C02 and the ground point G301. Verify the system is normal.
11. Inspect the BCM power supply and ground circuit	
	A. Inspect the BCM power supply and ground circuit. **Refer to: DTC Diagnostic Procedure Index (4.3.14 Body Control System, DTC Diagnosis and Testing).** Is it normal? **Y** Go to step 12. **N** Troubleshooting.
12. Replace the BCM	
	A. Turn the ignition switch to position "LOCK" and disconnect the battery negative cable. B. Replace the BCM. **Refer to: Body Control Module (4.3.14 Body Control System, Removal and Installation).** Verify the system is normal.

Low Beam Always On Diagnosis

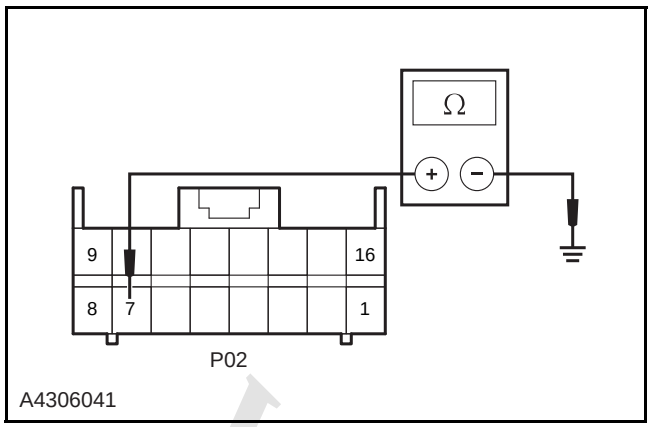
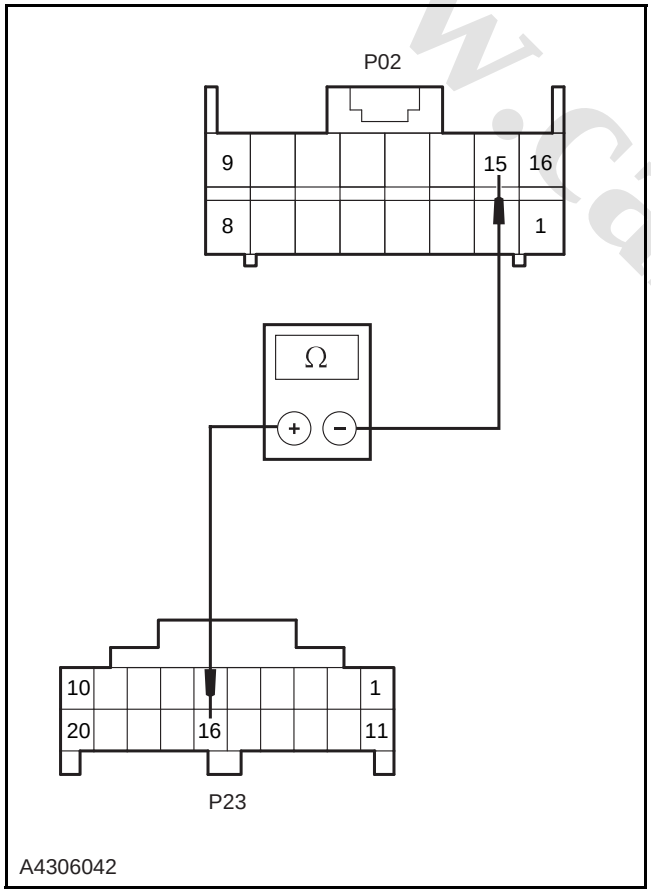
Test Conditions	Details/Results/Actions
1. General inspection	
	A. Inspect the related wiring harness connectors for signs of damage, poor contact, aging or loose. Is it normal? **Y** Go to step 2. **N** Repair the fault.
2. Remove the low beam relay	
	A. Remove the low beam relay ER06. Do low beam work normally? **Y** Go to step 3. **N** Go to step 4.
3. Inspect the low beam voltage input circuit (take the left low beam for example)	
	A. Turn the ignition switch to position "LOCK". B. Remove the low beam relay ER06, disconnect the left headlamp wiring harness connector C02. C. Turn the ignition switch to position "ON". D. Measure the voltage between the terminal 7 of the left headlamp wiring harness connector C02 and the reliable ground. **Standard Voltage Value: 0 V** Is the voltage normal? **Y** Verify the symptom. **Refer to: Symptom Chart (4.3.6 Lighting System, Symptom Diagnosis and Testing).** **N** Inspect the short circuit between the terminal 7 of left headlamp wiring harness connector S02 and the power supply.

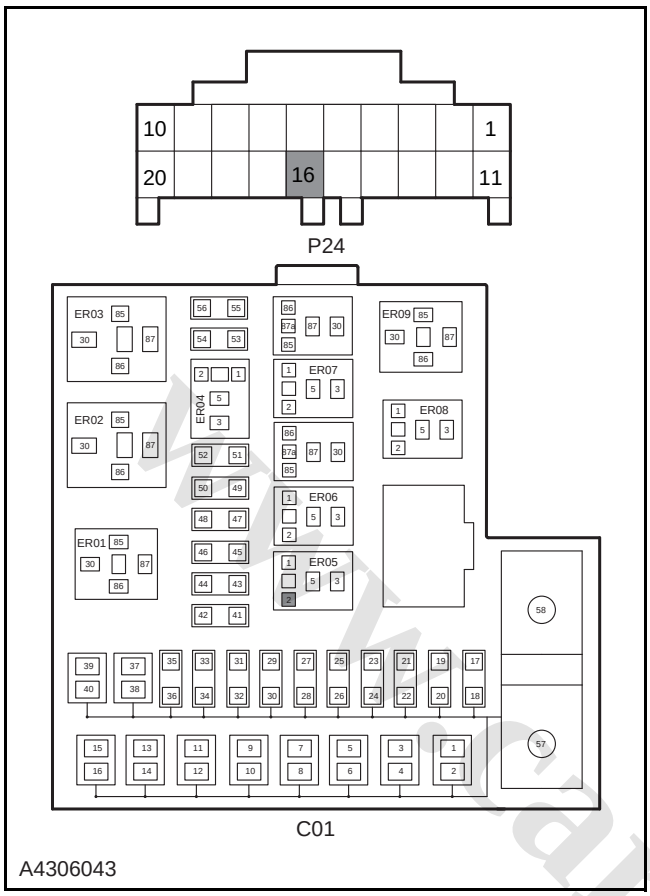
Test Conditions	Details/Results/Actions
4. Inspect the lighting combination switch - low beam switch	
	A. Inspect the lighting combination switch - low beam switch. **Refer to: Lighting Combination Switch Test (4.3.6 Lighting System, General Procedure).** Is the lighting combination switch normal? **Y** Go to step 5. **N** Replace the lighting combination switch. **Refer to: Lighting Combination Switch (4.3.6 Lighting System, Removal and Installation).**
5. Inspect the circuit of the BCM to the lighting combination switch	
	A. Turn the ignition switch to "LOCK" position and disconnect the battery negative cable. B. Disconnect the BCM wiring harness connector P23. C. Disconnect the lighting combination switch wiring harness connector P02. D. Measure the resistance between the terminal 4 of the lighting combination switch wiring harness connector P02 and the reliable ground. **Standard Resistance Value: 10 MΩ or more** Is the resistance value normal? **Y** Go to step 6. **N** Inspect and repair the short circuit fault between the terminal 15 of the BCM wiring harness connector P23 and the terminal 4 of the lighting combination switch wiring harness connector P02.

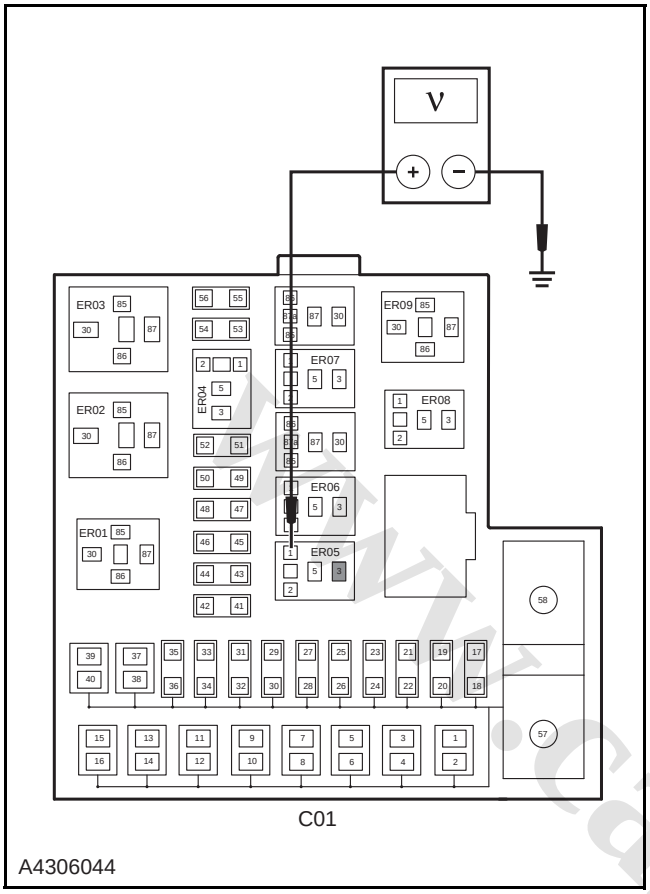
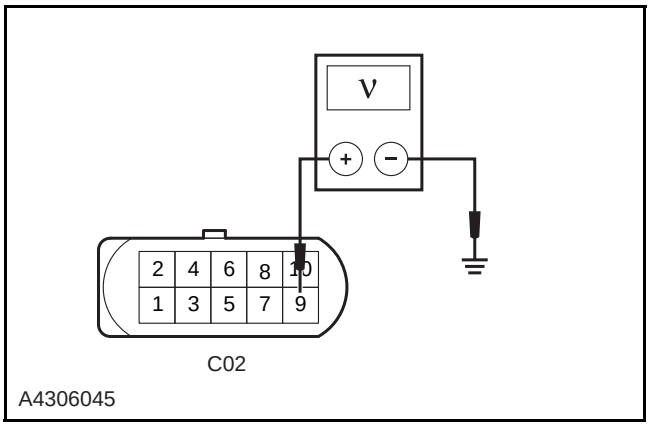
Test Conditions	Details/Results/Actions
6. Inspect the low beam relay control circuit	
 A4306040	A. Turn the ignition switch to position "LOCK". B. Remove the low beam relay ER06 and disconnect BCM wiring harness connector P24. C. Measure the resistance between the terminal 15 of the BCM control module wiring harness connector P24 and the reliable ground. **Standard Resistance Value: 10 MΩ or more** Is the resistance value normal? **Y** Go to step 7. **N** Inspect and repair the short circuit fault between the terminal 15 of the BCM wiring harness connector P24 and the terminal 2 of the low beam relay ER06 in the engine compartment fuse and relay box C01.
7. Inspect the BCM power supply and ground circuit	
	A. Inspect the BCM power supply and ground circuit. **Refer to: DTC Diagnostic Procedure Index (4.3.14 Body Control System, DTC Diagnosis and Testing).** Is it normal? **Y** Go to step 8. **N** Troubleshooting.
8. Replace the BCM	
	A. Turn the ignition switch to position "LOCK" and disconnect the battery negative cable. B. Replace the BCM. **Refer to: Body Control Module (4.3.14 Body Control System, Removal and Installation).** Verify the system is normal.

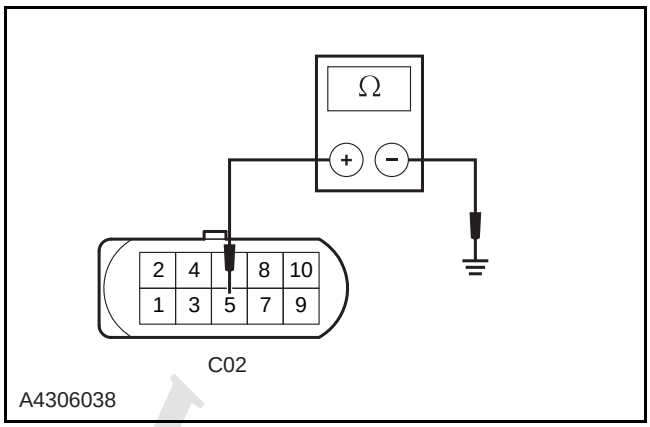
High Beam Fault Diagnosis

Test Conditions	Details/Results/Actions
1. General inspection	
	A. Inspect the related wiring harness connectors for signs of damage, poor contact, aging or loose. B. Inspect the filament and the lamp holder of the high beam bulb for abnormal conditions such as breakage and oxidation. Is it normal? **Y** Go to step 2. **N** Repair the fault or replace the bulb.
2. Inspect the fuse	
	A. Inspect the fuse EF17. **Rated Capacity Fuse: 15 A** Is the fuse normal? **Y** Go to step 3. **N** Inspect and repair the fuse circuit, replace the fuse in rated capacity.
3. Inspect the high beam lamp relay ER05	
	A. Exchange the high beam relay ER05 with that of same type on the vehicle in good working order. Do low/high beams work normally? **Y** Replace the high beam relay ER05 of the fault vehicle. Verify the system is normal. **N** Go to step 4.
4. Inspect the lighting combination switch - high beam lamp switch	
	A. Inspect the lighting combination switch - high beam lamp switch. **Refer to: Lighting Combination Switch Test (4.3.6 Lighting System, General Procedures).** Is the lighting combination switch normal? **Y** Go to step 5. **N** Replace the lighting combination switch. **Refer to: Lighting Combination Switch (4.3.6 Lighting System, Removal and Installation).**

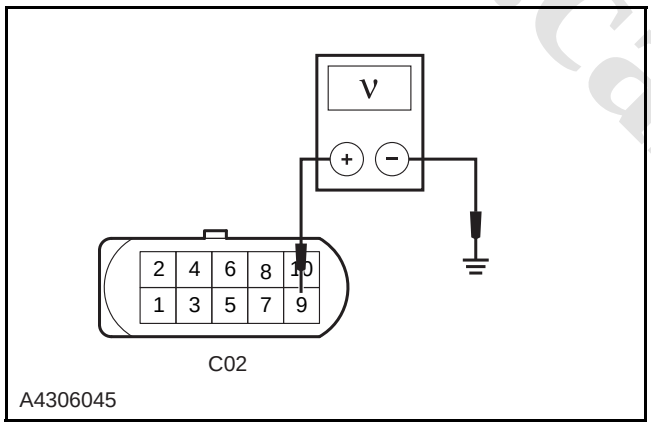
Test Conditions	Details/Results/Actions
5. Inspect the lighting combination lamp switch ground circuit	
 A4306041	A. Turn the ignition switch to position "LOCK". B. Disconnect the lighting combination switch wiring harness connector P02. C. Measure the resistance between the terminal 7 of the lighting combination switch wiring harness connector P02 and the reliable ground. **Standard Resistance Value: less than 5 Ω** Is the resistance value normal? **Y** Go to step 6. **N** Inspect and repair the open circuit fault between the terminal 7 of the lighting combination switch wiring harness connector P02 and the ground point G101.
6. Inspect the circuit between lighting combination switch and BCM	
 A4306042	A. Turn the ignition switch to "LOCK" position and disconnect the battery negative wiring harness. B. Disconnect the BCM wiring harness connector P23. C. Disconnect the lighting combination switch wiring harness connector P02. D. Measure the resistance between the terminal 15 of the lighting combination switch wiring harness connector P02 and the terminal 16 of the BCM wiring harness connector P23. **Standard Resistance Value: less than 5 Ω** Is the resistance value normal? **Y** Go to step 7. **N** Inspect and repair the short circuit fault between the terminal 15 of the lighting combination switch wiring harness connector P02 and the terminal 16 of the BCM wiring harness connector P23.

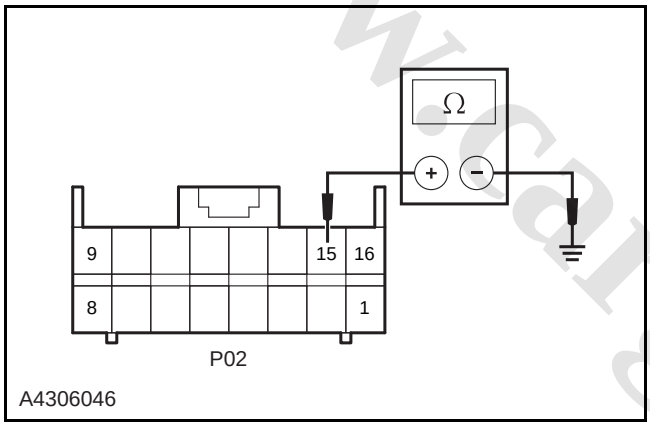
Test Conditions	Details/Results/Actions
7. Inspect the high beam relay control circuit	
 A4306043	A. Turn the ignition switch to position "LOCK". B. Remove the high beam relay ER05 and disconnect BCM wiring harness connector P24. C. Measure the resistance between the terminal 16 of the BCM wiring harness connector P24 and the terminal 2 of the high beam relay ER05 in the engine compartment fuse and relay box C01. **Standard Resistance Value: less than 5 Ω** Is the resistance value normal? **Y** Go to step 8. **N** Inspect and repair the short circuit fault between the terminal 16 of the BCM wiring harness connector P24 and the terminal 2 of the high beam relay ER05 in the engine compartment fuse and relay box C01.

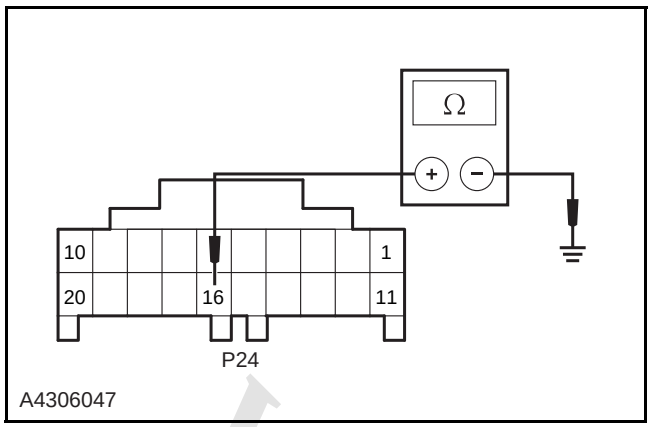
Test Conditions	Details/Results/Actions
8. Inspect the power supply circuit of high beam lamp relay ER05	
 C01 A4306044	A. Turn the ignition switch to position "LOCK". B. Remove the high beam lamp relay ER05. C. Measure the voltage between the terminal 1 and 3 of the high beam relay ER05 in the engine compartment fuse and relay box C01 and the reliable ground. **Standard Voltage Value: 11 ~ 14 V** Is the voltage normal? **Y** Go to step 9. **N** Inspect and repair the open circuit fault between the terminal 1 and 3 of the high beam relay ER05 in the engine compartment fuse and relay box C01 and the termianl 33 of the fuse EF17, and replace the engine compartment fuse and relay box C01 as necessary.
9. Inspect the high beam voltage input circuit (take the left front high beam for example)	
 C02 A4306045	A. Turn the ignition switch to position "LOCK", disconnect the wiring harness connector C02 of the left headlamp. B. Turn the ignition switch to position "ON". C. Turn the lighting combination switch to "high beam" position. D. Measure the voltage between the terminal 9 of the left headlamp wiring harness connector C02 and the reliable ground. **Standard Voltage Value: 11 ~ 14 V** Is the voltage normal? **Y** Go to step 10. **N** Inspect and repair the open circuit fault between the terminal 9 of the left headlamp wiring harness connector C02 and the terminal 5 of the relay ER05 in the engine compartment fuse and relay box C01, and replace C01 when necessary.

Test Conditions	Details/Results/Actions
10. Inspect the high beam ground circuit (take the left front high beam as example)	
	A. Turn the ignition switch to position "LOCK", disconnect the wiring harness connector C02 of the left headlamp. B. Measure the voltage between the terminal 5 of the left headlamp wiring harness connector C02 and the reliable ground. **Standard Resistance Value: less than 5 Ω** Is the resistance value normal? **Y** Go to step 11. **N** Inspect and repair the open circuit between the terminal 5 of the left headlamp wiring harness connector C02 and the ground point G301.
11. Inspect the BCM power supply and ground circuit	
	A. Inspect the BCM power supply and ground circuit. **Refer to: DTC Diagnostic Procedure Index (4.3.14 Body Control System, DTC Diagnosis and Testing)** Is it normal? **Y** Go to step 12. **N** Troubleshooting.
12. Replace the BCM	
	A. Turn the ignition switch to position "LOCK" and disconnect the battery negative cable. B. Replace the BCM. **Refer to: Body Control Module (4.3.14 Body Control System, Removal and Installation).** Verify the system is normal.

High Beam Always On Diagnosis

Test Conditions	Details/Results/Actions
1. General inspection	
	A. Inspect the related wiring harness connectors for signs of damage, poor contact, aging or loose. Is it normal? **Y** Go to step 2. **N** Repair the fault.
2. Remove the high beam lamp relay ER05	
	A. Remove the high beam lamp relay ER05. Do high beam work normally? **Y** Go to step 3. **N** Go to step 4.
3. Inspect the high beam voltage input circuit (take the left high beam for example)	
	A. Turn the ignition switch to position "LOCK". B. Remove the high beam relay ER05, disconnect the left headlamp wiring harness connector C02. C. Turn the ignition switch to position "ON". D. Measure the voltage between the terminal 9 of the left headlamp wiring harness connector C02 and the reliable ground. **Standard Voltage Value: 0 V** Is the voltage normal? **Y** Verify the symptom. **Refer to: Symptom Chart (4.3.6 Lighting System, Symptom Diagnosis and Testing).** **N** Inspect and repair the short circuit fault between the terminal 9 of left headlamp wiring harness connector C02 and the power supply.

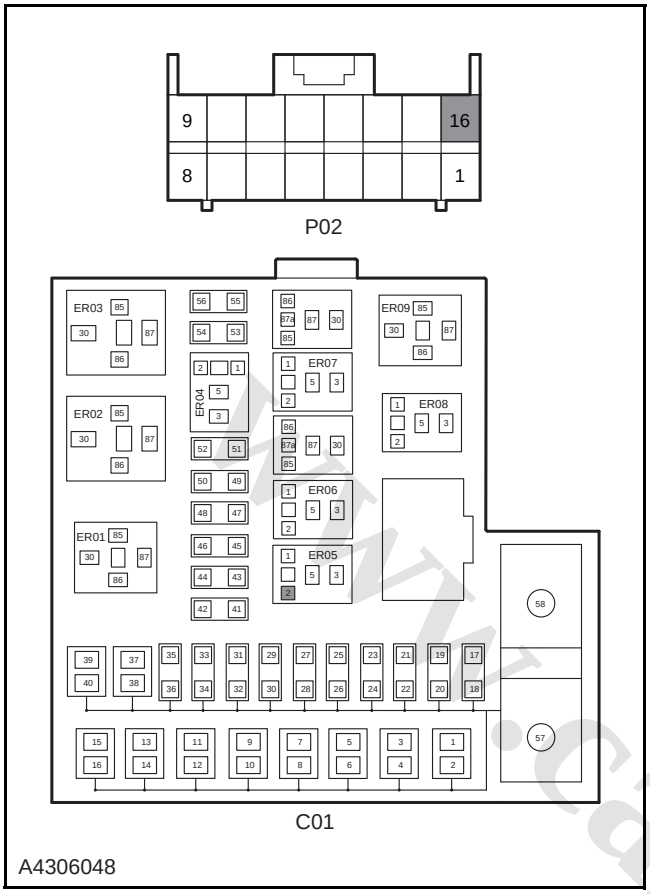
Test Conditions	Details/Results/Actions
4. Inspect the lighting combination switch - high beam switch	
	A. Inspect the lighting combination switch - high beam lamp switch. **Refer to: Lighting Combination Switch Test (4.3.6 Lighting System, General Procedures).** Is the lighting combination switch normal? **Y** Go to step 5. **N** Replace the lighting combination switch. **Refer to: Lighting Combination Switch (4.3.6 Lighting System, Removal and Installation).**
5. Inspect the circuit of the BCM to the lighting combination switch	
	A. Turn the ignition switch to "LOCK" position and disconnect the battery negative wiring harness. B. Disconnect the BCM wiring harness connector P23. C. Disconnect the lighting combination switch wiring harness connector P02. D. Measure the resistance between the terminal 15 of the lighting combination switch wiring harness connector P02 and the reliable ground. **Standard Resistance Value: 10 MΩ or more** Is the resistance value normal? **Y** Go to step 6. **N** Inspect and repair the open circuit fault between the terminal 16 of the BCM wiring harness connector P23 and the terminal 15 of the lighting combination switch wiring harness connector P02.

Test Conditions	Details/Results/Actions
6. Inspect the high beam relay control circuit	
 A4306047	A. Turn the ignition switch to position "LOCK". B. Remove the high beam relay ER05 and disconnect BCM wiring harness connector P24. C. Measure the resistance between the terminal 16 of the BCM wiring harness connector P24 and the reliable ground. **Standard Resistance Value: 10 MΩ or more** Is the resistance value normal? **Y** Go to step 7. **N** Inspect and repair the short circuit fault between the terminal 16 of the BCM wiring harness connector P24 to the terminal 2 of the high beam relay ER05 in the engine compartment fuse and relay box C01.
7. Inspect the BCM power supply and ground circuit	
	A. Inspect the BCM power supply and ground circuit. **Refer to: DTC Diagnostic Procedure Index (4.3.14 Body Control System, DTC Diagnosis and Testing)** Is it normal? **Y** Go to step 8. **N** Troubleshooting.
8. Replace the BCM	
	A. Turn the ignition switch to position "LOCK" and disconnect the battery negative cable. B. Replace the BCM. **Refer to: Body Control Module (4.3.14 Body Control System, Removal and Installation).** Verify the system is normal.

Overtaking Lamp Fault Diagnosis

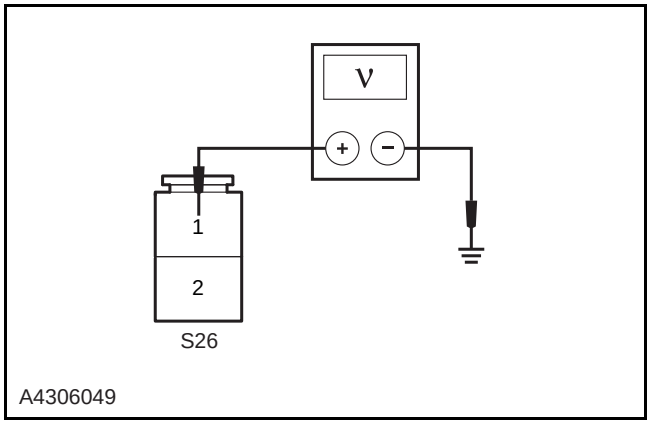
CAUTION: Before carrying out this diagnostic procedure, confirm the working status of high beams. If high beams work improperly, carry out the high beam failure diagnosis procedure. Refer to: Symptom Table (4.3.6 Lighting System, Symptom Diagnosis and Testing of Low/ High Beams).

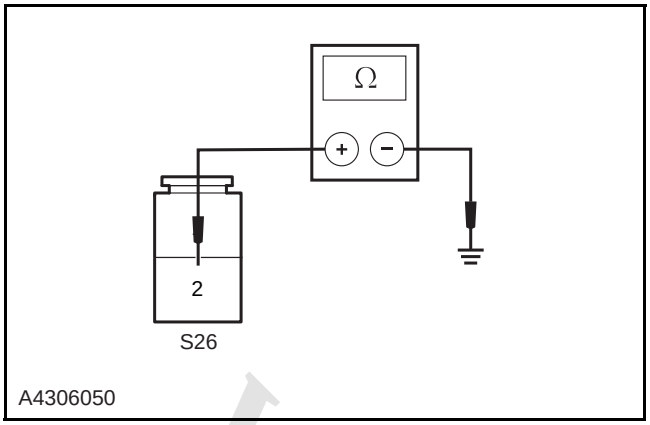
Test conditions	Details/Results/Actions
1. General inspection	
	A. Inspect the related wiring harness connectors for signs of damage, poor contact, aging or loose. Is it normal? **Y** Go to step 2. **N** Repair the fault.
2. Inspect the lighting combination switch - overtaking lamp	
	A. Turn the ignition switch to position "LOCK". B. Disconnect the lighting combination switch wiring harness connector P02. C. Inspect the lighting combination switch - overtaking lamp. **Refer to: Lighting Combination Switch Test (4.3.6 Lighting system, General Procedure).** Is the lighting combination switch normal? **Y** Go to step 3. **N** Replace the lighting combination switch. **Refer to: Lighting Combination Switch (4.3.6 Lighting System, Removal and Installation).**

Test conditions	Details/Results/Actions
3. Inspect the high beam relay control circuit	
	A.Turn the ignition switch to position "LOCK". B. Remove the high beam relay ER05, disconnect the lighting combination switch wiring harness connector P02. C. Measure the resistance between the terminal 16 of the lighting combination switch wiring harness connector P02 to the terminal 2 of the high beam relay ER05 in the engine compartment fuse and relay box C01. **Standard Resistance Value: less than 5 Ω** Is the resistance value normal? **Y** Verify the system is normal. **N** Inspect and repair the open circuit fault between the terminal 16 of the lighting combination switch wiring harness connector P02 to the terminal 2 of the high beam relay ER05 in the engine compartment fuse and relay box C01.

License Plate Lamp Fault Diagnosis

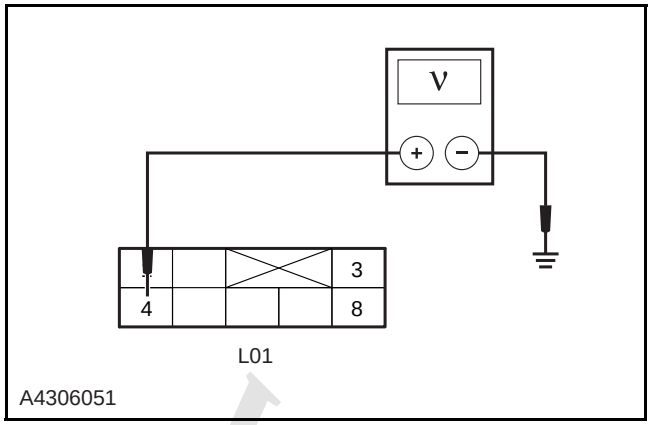
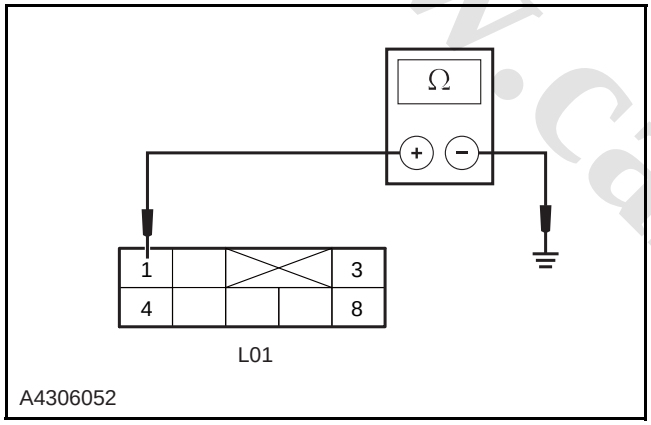
CAUTION: Before carrying out this diagnostic procedure, confirm the working status of position lamps. If a position lamp works improperly, carry out the position lamp failure diagnosis procedure. Refer to: Symptom Table (4.3.6 Lighting System, Symptom Diagnosis and Testing of Position Lamps).

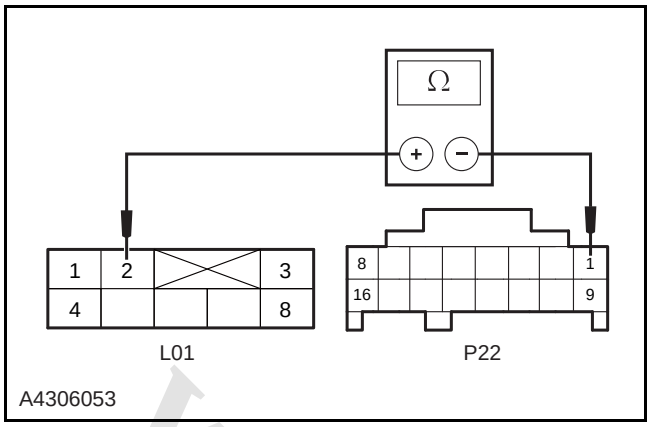
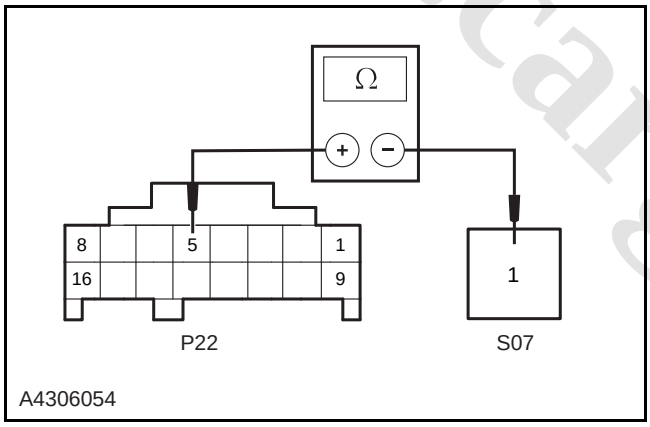
Test Conditions	Details/Results/Actions
1. General inspection	
	A. Inspect the related wiring harness connectors for signs of damage, poor contact, aging or loose. B. Inspect the filament and the lamp holder of the license plate lamp bulb for abnormal conditions such as breakage and oxidation. Is it normal? **Y** Go to step 2. **N** Repair the fault or replace the bulb.
2. Inspect the working condition of the position lamp	
	A. Inspect the position lamp operating state. Does the position lamp work normal? **Y** Go to step 3. **N** The position lamp doesn't work. **Refer to: Position Lamp Fault Diagnosis (4.3.6 Lighting System, Symptom Diagnosis and Testing).**
3. Inspect the voltage input circuit of the license plate lamp (take the left license plate lamp as example)	
	A. Turn the ignition switch to position "LOCK". B. Disconnect the left license plate lamp wiring harness connector S26. C. Turn the lighting combination switch to position "POSITION LAMP". D. Measure the voltage between the terminal 1 of the left license plate lamp wiring harness connector S26 and the reliable ground. **Standard Voltage Value: 11 ~ 14 V** Is the voltage normal? **Y** Go to step 4. **N** Inspect and repair the open circuit between the terminal 1 of the left license plate lamp wiring harness connector S26 and the terminal 5 of the relay IR10 iin the I/P fuse and relay box P01.

Test Conditions	Details/Results/Actions
4. Inspect the ground circuit of the license plate lamp (take the left license plate lamp as example)	
 A4306050	A. Turn the ignition switch to position "LOCK". B. Disconnect the left license plate lamp wiring harness connector S26. C. Measure the resistance between the terminal 2 of the left license plate lamp wiring harness connector S26 and the reliable ground. **Standard Resistance Value: less than 5 Ω** Is the resistance value normal? **Y** Check the ground of left license plate lamp itself and replace it as necessary. **Refer to: License Plate Light (4.3.6 Lighting System, Removal and Installation).** Verify the system is normal. **N** Inspect and repair the open circuit fault between the terminal 2 of the left license plate lamp wiring harness connector S26 and the ground point G203. Verify the system is normal.

Front Roof Lamp Fault Diagnosis

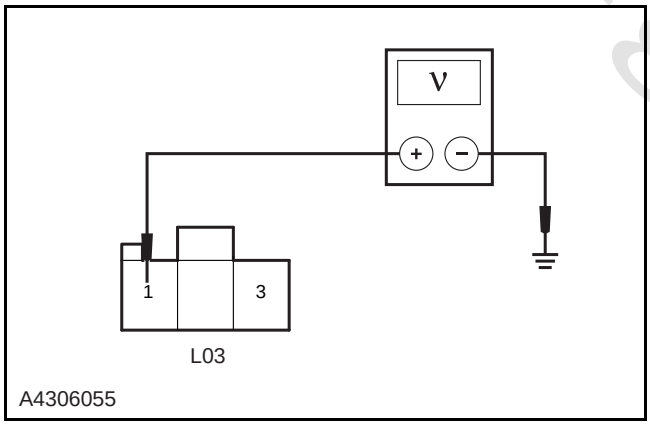
Test Conditions	Details/Results/Actions
1. General inspection	
	A. Inspect the related wiring harness connectors for signs of damage, poor contact, aging or loose. B. Inspect the bulb filament and the holder of the roof lamp for damage, oxidation or any other abnormal phenomenon. Is it normal? **Y** Go to step 2. **N** Repair the fault or replace the bulb.
2. Verify the symptom	
	A. All the door are closed, press the front roof lamp switch. Is the front roof lamp on? B. When the roof lamp switch is in the "Door" position, open any door (excluding the back door). Is the front roof lamp on? **Y** When the front roof lamp switch is in the "Door" position, the front roof lamp is not on. Go to step 6. **N** Go to step 3.
3. Inspect the fuse	
	A. Inspect the fuse IF31. **Rated Capacity Fuse: 10 A** Is the fuse normal? **Y** Go to step 4. **N** Inspect and repair the fuse circuit, replace the fuse in rated capacity.

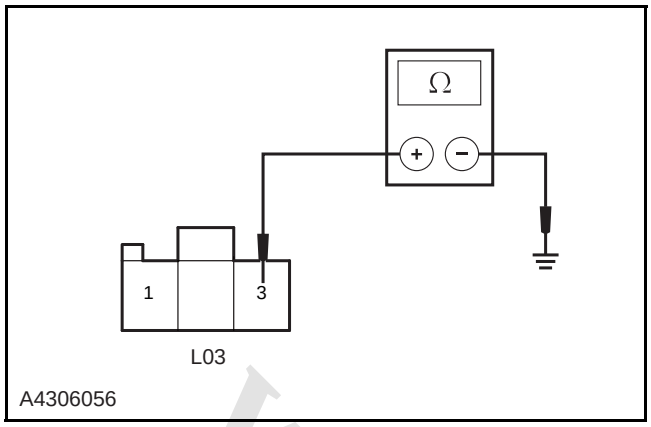
Test Conditions	Details/Results/Actions
4. Inspect the voltage input circuit of the front roof lamp	
 A4306051	A. Turn the ignition switch to position "LOCK". B. Disconnect the front roof lamp wiring harness connector L01. C. Measure the voltage between the terminal 4 of the front roof lamp wiring harness connector L01 and the reliable ground. **Standard Voltage Value: 11 ~ 14 V** Is the voltage normal? **Y** Go to step 5. **N** Inspect and repair the open circuit fault between the terminal 4 of the front roof lamp wiring harness connector L01 and the terminal 65 of the fuse IF31 in the I/P fuse and relay box P01.
5. Inspect the ground circuit of the front roof lamp	
 A4306052	A. Turn the ignition switch to position "LOCK". B. Disconnect the front roof lamp wiring harness connector L01. C. Measure the resistance between the terminal 1 of the front roof lamp wiring harness connector L01 and the reliable ground. **Standard Resistance Value: less than 5 Ω** Is the resistance value normal? **Y** Replace the front roof lamp switch. **Refer to: Roof Lamp (4.3.6 Lighting System, Removal and Installation).** Verify the system is normal. **N** Inspect and repair the open circuit between the terminal 1 of the front roof lamp wiring harness connector L01 and the ground point G104.

Test Conditions	Details/Results/Actions
6. Inspect the front roof lamp to BCM circuit	
 A4306053	A. Turn the ignition switch to position "LOCK" and disconnect the battery negative cable. B. Disconnect the roof lamp wiring harness connector L01 and BCM wiring harness connector P22. C. Measure the resistance between the terminal 2 of the front roof lamp wiring harness connector L01 and the terminal 1 of the BCM wiring harness connector P22. **Standard Resistance Value: less than 5 Ω** Is the resistance value normal? **Y** Go to step 7. **N** Inspect and repair the open circuit fault between the terminal 2 of the roof lamp wiring harness connector L01 and the terminal 1 of the the BCM wiring harness connector P22.
7. Inspect and repair all the door (excluding the back door) contact switches and their circuits (take the left front door contact switch for example)	
 A4306054	A. Turn the ignition switch to position "LOCK" and disconnect the battery negative cable. B. Disconnect the left front door contact switch wiring harness connector S07 and BCM wiring harness connector P22. C. Measure the resistance between the terminal 1 of the left front door contact switch wiring harness connector S07 and the terminal 5 of the BCM wiring harness connector P22. **Standard Resistance Value: less than 5 Ω** Is the resistance value normal? **Y** Go to step 8. **N** Inspect and repair the open circuit fault between the terminal 1 of the left front door contact switch wiring harness connector S07 and the terminal 5 of the BCM wiring harness connector P22.

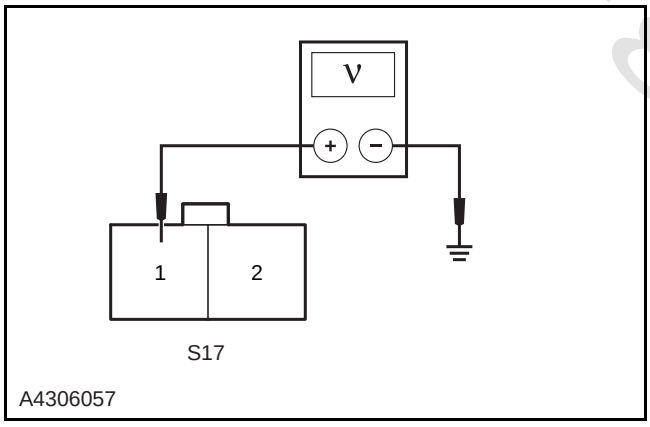
Test Conditions	Details/Results/Actions
8. Inspect all door contact switches (take the left front door contact switches for example)	
	A. Replace the left front contact switch, ensure its normal ground. B. Observe the front roof lamp working condition. Is it normal? **Y** Replace the left front door contact switch. **N** Go to step 9.
9. Inspect the BCM power supply and ground circuit	
	A. Inspect the BCM power supply and ground circuit. **Refer to: DTC Diagnostic Procedure Index (4.3.14 Body Control System, DTC Diagnosis and Testing).** Is it normal? **Y** Go to step 10. **N** Troubleshooting.
10. Replace the BCM	
	A. Turn the ignition switch to position "LOCK" and disconnect the battery negative cable. B. Replace the BCM. **Refer to: Body Control Module (4.3.14 Body Control System, Removal and Installation).** Verify the system is normal.

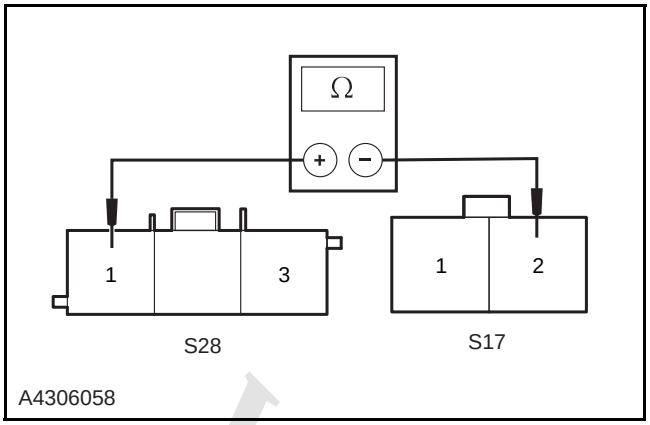
Rear Roof Lamp Fault Diagnosis

Test Conditions	Details/Results/Actions
1. General inspection	
	A. Inspect the related wiring harness connectors for signs of damage, poor contact, aging or loose. B. Inspect the filament and the lamp holder of the rear roof lamp bulb for abnormal conditions such as breakage and oxidation. Is it normal? **Y** Go to step 2. **N** Repair the fault or replace the bulb.
2. Inspect the fuse	
	A. Inspect the fuse IF31. **Rated Capacity Fuse: 10 A** Is the fuse normal? **Y** Go to step 3. **N** Inspect and repair the fuse circuit, replace the fuse in rated capacity.
3. Inspect the rear roof lamp voltage input circuit	
	A. Turn the ignition switch to position "LOCK". B. Disconnect the rear roof lamp wiring harness connector L03. C. Measure the voltage between the terminal 1 of the rear roof lamp wiring harness connector L03 and the reliable ground. **Standard Voltage Value: 11 ~ 14 V** Is the voltage normal? **Y** Go to step 4. **N** Inspect and repair the open circuit between the terminal 1 of the rear roof lamp wiring harness connector L03 and the terminal 65 of the fuse IF31 in the I/P fuse and relay box.

Test Conditions	Details/Results/Actions
4. Inspect the ground circuit of the rear roof lamp	
	A. Turn the ignition switch to position "LOCK". B. Disconnect the rear roof lamp wiring harness connector L03. C. Measure the resistance between the terminal 3 of the rear roof lamp wiring harness connector L03 and the reliable ground. **Standard Resistance Value: less than 5 Ω** Is the resistance value normal? **Y** Go to step 5. **N** Inspect and repair the open circuit between the terminal 3 of the rear roof lamp wiring harness connector L03 and the ground point G104.
5. Replace the rear roof lamp assembly	
	A. Turn the ignition switch to position "LOCK". B. Replace the rear roof lamp assembly. **Refer to: Roof Lamp (4.3.6 Lighting System, Removal and Installation).** Verify the system is normal.

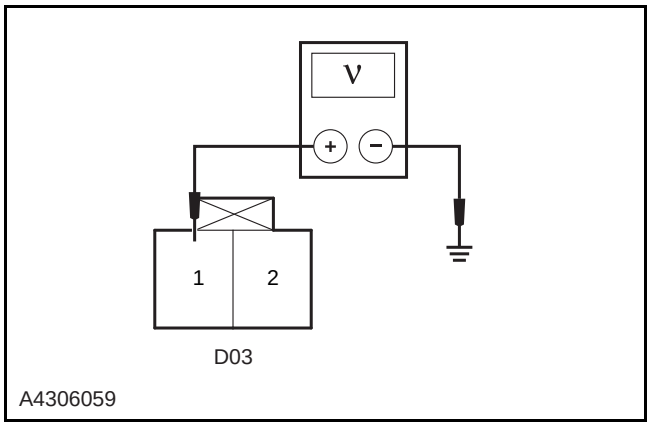
Trunk Lamp Failure Diagnosis

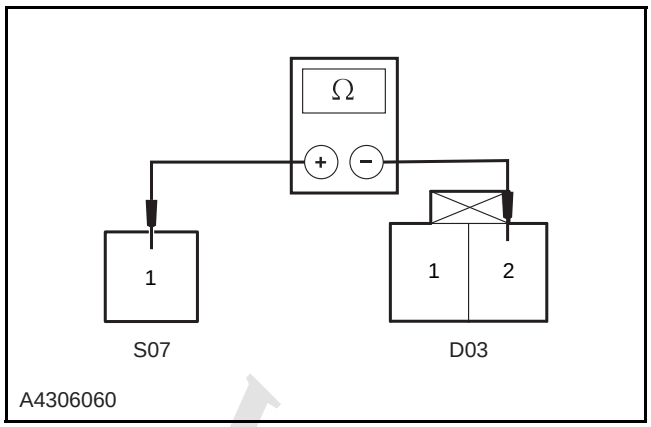
Test Conditions	Details/Results/Actions
1. General inspection	
	A. Inspect the related wiring harness connectors for signs of damage, poor contact, aging or loose. B. Inspect the bulb filament of the trunk lamp for damage, oxidation or any other abnormal phenomenon. Is it normal? **Y** Go to step 2. **N** Repair the fault or replace the bulb.
2. Inspect the fuse	
	A. Inspect the trunk lamp fuse IF31. **Rated Capacity Fuse: 15 A** Is the fuse normal? **Y** Go to step 3. **N** Inspect and repair the fuse circuit, replace the fuse in rated capacity.
3. Inspect the voltage input circuit of the trunk lamp	
	A. Turn the ignition switch to position "LOCK". B. Disconnect the trunk lamp wiring harness connector S17. C. Measure the voltage between the terminal 1 of the trunk lamp harness connector S17 and reliable ground. **Standard Voltage Value: 11 ~ 14 V** Is the voltage normal? **Y** Go to step 4. **N** Inspect and repair the open circuit fault between the terminal 1 of the trunk lamp wiring harness connector S17 and the terminal 65 of the fuse IF31 in the I/P fuse and relay box P01.

Test Conditions	Details/Results/Actions
4. Inspect the trunk lamp to the tailgate lock motor circuit	
 A4306058	A. Turn the ignition switch to position "LOCK". B. Disconnect the trunk lamp wiring harness connector S17. C. Disconnect the wiring harness connector S28 of the back door lock motor. D. Measure the resistance between the terminal 2 of the trunk lamp wiring harness connector S17 and the terminal 1 of the tailgate lock motor wiring harness connector S28 and inspect if there is any open circuit. **Standard Resistance Value: less than 5 Ω** Is the resistance value normal? **Y** Replace the tailgate lock motor. **Refer to: Tailgate Lock (4.3.9 Central Lock and Theft-Deterrent System, Removal and Installation).** Verify the system is normal. **N** Inspect and repair the open circuit fault between the terminal 2 of the trunk lamp wiring harness connector S17 and the terminal 1 of the tailgate lock motor wiring harness connector S28. Verify the system is normal.

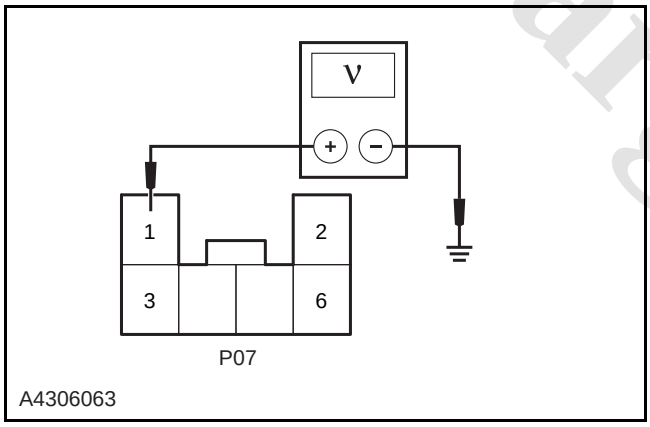
Courtesy Lamp Fault Diagnosis

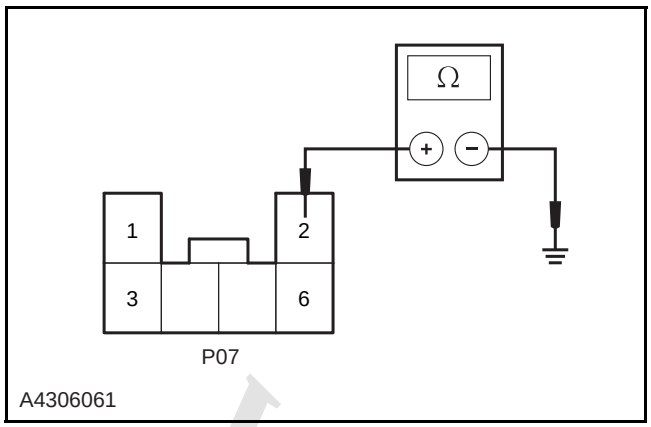
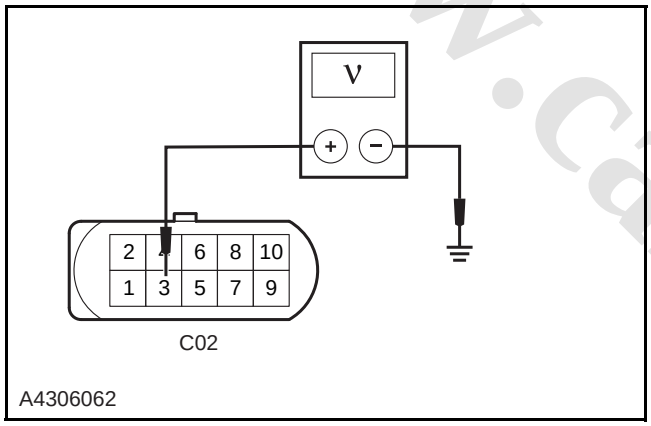
CAUTION: This diagnostic procedure is intended for diagnosis of driver side courtesy lamp failure. In case of failure of passenger side courtesy lamp, refer to this procedure for servicing.

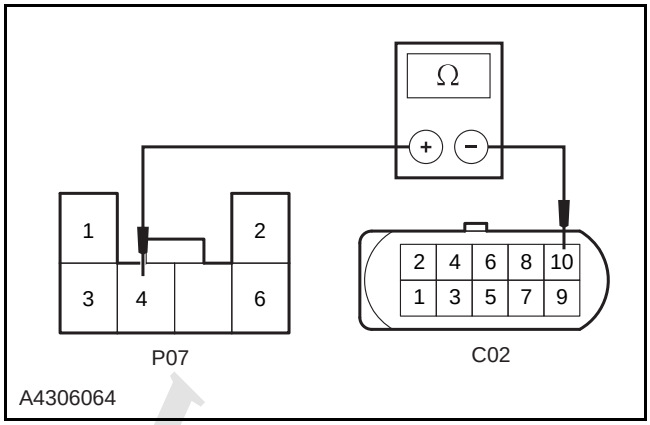
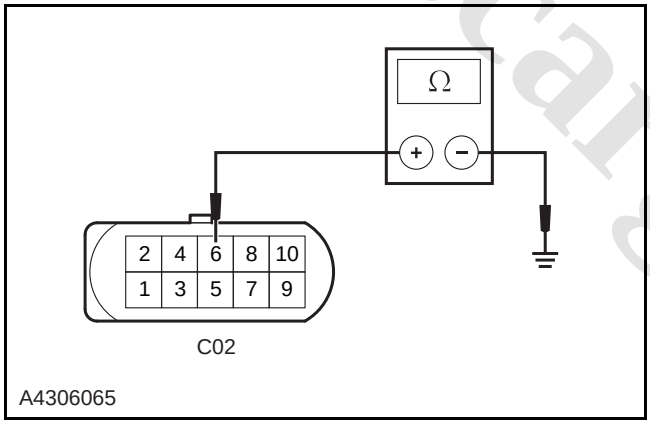
Test Conditions	Details/Results/Actions
1. General inspection	
	A. Inspect the related wiring harness connectors for signs of damage, poor contact, aging or loose. B. Inspect the filament and the lamp holder of the driver courtesy lamp bulb for abnormal conditions such as breakage and oxidation. Is it normal? **Y** Go to step 2. **N** Repair the fault or replace the bulb.
2. Inspect the fuse	
	A. Inspect the fuse IF24. **Rated Capacity Fuse: 10 A** Is the fuse normal? **Y** Go to step 3. **N** Inspect and repair the fuse circuit, replace the fuse in rated capacity.
3. Inspect the voltage input circuit of the driver side courtesy lamp	
	A. Turn the ignition switch to position "LOCK". B. Disconnect the driver courtesy lamp wiring harness connector D03. C. Measure the voltage between the terminal 1 of the driver courtesy lamp wiring harness connector D03 and the reliable ground. **Standard Voltage Value: 11 ~ 14 V** Is the voltage normal? **Y** Go to step 4. **N** Inspect and repair the open circuit fault between the terminal 1 of the driver side courtesy lamp wiring harness connector D03 and the terminal 49 of the fuse IF24 in the I/P fuse and relay box P01.

Test Conditions	Details/Results/Actions
4. Inspect the driver side door courtesy lamp to the left front contact switch circuit	
 A4306060	A. Turn the ignition switch to position "LOCK". B. Disconnect the driver courtesy lamp wiring harness connector D03. C. Disconnect the contact switch wiring harness connector of the left front door S07. D. Measure the resistance between the terminal 2 of driver side courtesy lamp wiring harness connector D03 and terminal 1 of left front door contact switch wiring harness connector S07. Inspect the circuit for open circuit. **Standard Resistance Value: less than 5 Ω** Is the resistance value normal? **Y** Replace the left front contact switch, ensure its normal ground. Verify the system is normal. **N** Inspect and repair the open circuit fault between the terminal 2 of the driver side courtesy lamp wiring harness connector D03 and the terminal 1 of the left front door contact switch wiring harness connector S07. Verify the system is normal.

Low Beam Angle Adjustment Failure Diagnosis

Test condition	Details/Results/Actions
1. General inspection	
	A. Inspect the related wiring harness connectors for signs of damage, poor contact, aging or loose. Is it normal? **Y** Go to step 2. **N** Repair the fault.
2. Inspect the fuse	
	A. Inspect the fuse IF02. **Fuse Rated Capacity: 10 A** Is the fuse normal? **Y** Go to step 3. **N** Inspect and repair the fuse circuit, replace the fuse in rated capacity.
3. Inspect the power circuit of the lighting angle adjustment motor (for example, left headlamp)	
	A. Turn the ignition switch to position "LOCK". B. Disconnect the lightning adjusting switch wiring harness connector P07. C. Turn the ignition switch to position "ON". D. Measure the voltage between the terminal 1 of the lighting angle adjustment switch wiring harness connector P07 and the reliable ground. **Standard Voltage Value: 11 ~ 14 V** Is the voltage normal? **Y** Go to step 4. **N** Inspect and repair the open circuit fault between the terminal 1 of the lighting angle adjustment switch wiring harness connector P07 and the terminal 3 of the fuse IF02 in the the I/P fuse and relay box P01.

Test condition	Details/Results/Actions
4. Inspect the ground circuit of the lighting angle adjustment switch	
 A4306061	A. Turn the ignition switch to position "LOCK". B. Disconnect the lightning adjusting switch wiring harness connector P07. C. Measure the resistance between the terminal 2 of the lighting angle adjustment switch wiring harness connector P07 and the reliable ground. **Standard Resistance Value: less than 5 Ω** Is the resistance value normal? **Y** Go to step 5. **N** Inspect and repair the open circuit fault between the terminal 2 of the lighting angle adjustment switch wiring harness connector P07 and the ground point G101.
5. Inspect the voltage input circuit of the lighting angle adjustment motor (for example, left headlamp)	
 A4306062	A. Turn the ignition switch to position "LOCK". B. Disconnect the left headlamp wiring harness connector C02. C. Turn the ignition switch to position "ON". D. Measure the voltage between the terminal 3 of the left headlamp wiring harness connector C02 and the reliable ground. **Standard Voltage Value: 11 ~ 14 V** Is the voltage normal? **Y** Go to step 6. **N** Inspect and repair the open circuit fault between the terminal 3 of the left headlamp wiring harness connector C02 and the terminal 3 of the fuse IF02 in the I/P fuse and relay box P01.

Test condition	Details/Results/Actions
6. Inspect the circuit from lighting angle adjustment switch to its motor (for example, left headlamp)	
 A4306064	A. Turn the ignition switch to position "LOCK". B. Disconnect the lightning adjusting switch wiring harness connector P07. C. Disconnect the left headlamp wiring harness connector C02. D. Measure the resistance between the terminal 4 of the lighting angle adjustment switch wiring harness connector P07 and the Terminal 10 of the left headlamp wiring harness connector C02. **Standard Resistance Value: less than 5 Ω** Is the resistance value normal? **Y** Go to step 7. **N** Inspect and repair the open circuit fault between the terminal 4 of the lighting angle adjustment switch wiring harness connector P07 and the terminal 10 of the left headlamp wiring harness connector C02.
7. Inspect the ground circuit of the lighting angle adjustment motor (for example, left headlamp)	
 A4306065	A. Turn the ignition switch to position "LOCK". B. Disconnect the left headlamp wiring harness connector C02. C. Measure the resistance between the terminal 6 of the left headlamp wiring harness connector C02 and the reliable ground. **Standard Resistance Value: less than 5 Ω** Is the resistance value normal? **Y** Go to step 8. **N** Inspect and repair the open circuit fault between the terminal 6 of the left headlamp wiring harness connector C02 and the ground point G301.

Test condition	Details/Results/Actions
8. Inspect the lighting angle adjustment switch	
	A. Replace the lighting angle adjustment switch. B. Operate the lighting angle adjustment switch. Is the system normal? **Y** Replace the beam angle adjustment switch. **Refer to: Lighting Adjustment Switch (4.3.6 Lighting System, Removal and Installation).** Verify the system is normal. **N** Go to step 9.
9. Replace the lighting angle adjustment motor	
	A. Turn the ignition switch to position "LOCK" and disconnect the battery negative cable. B. Replace the lighting angle adjustment motor. Verify the system is normal.

Removal and Installation

Lighting Combination Switch

Removal

1. Disconnect the battery negative cable.

   Refer to: Battery Inspection (3.1.10 Charging System, General Procedures).

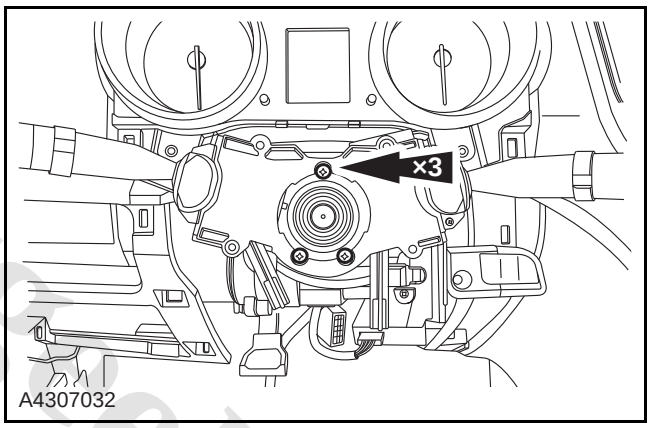
2. Remove the driver airbag and the steering wheel.

   Refer to: Driver Airbag and Steering Wheel (4.2.1 Supplemental Restraint System, Removal and Installation).

3. Remove the clock spring.

   Refer to: Clock Spring (4.2.1 Supplemental Restraint System, Removal and Installation).

4. Remove the 3 retaining screws of the combination switch.

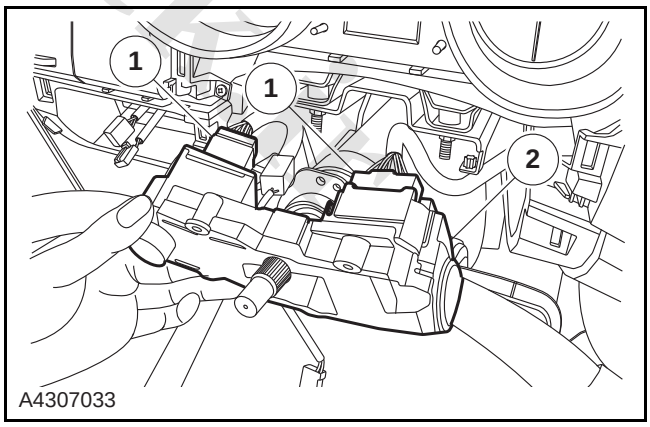


A4307032

5. Remove the light combination switch assembly.

   1. Disconnect the wiring harness connector of the wiper combination switch.

   2. Remove the lighting combination switch.



A4307033

Installation

1. The installation process is reverse.

Hazard Warning Lamp Switch

Removal and Installation

Refer to: A/C Control Module (4.1.1 Heating, Ventilation and Air Conditioning, Removal and Installation).

Front Combination Lamp

Removal

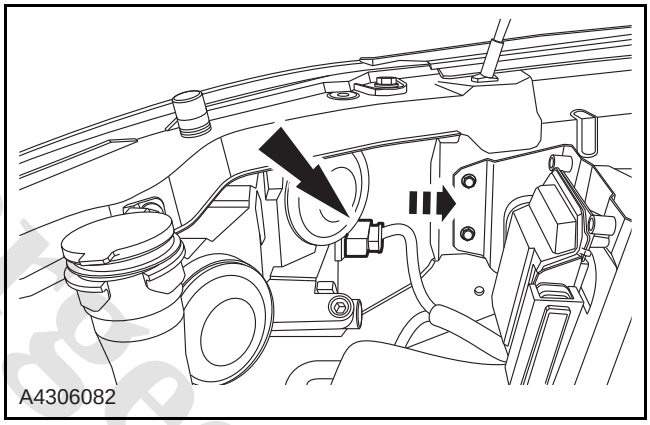
1. Disconnect the battery negative cable.

   Refer to: Battery Inspection (3.1.10 Charging System, General Procedures).

2. Remove the front bumper.

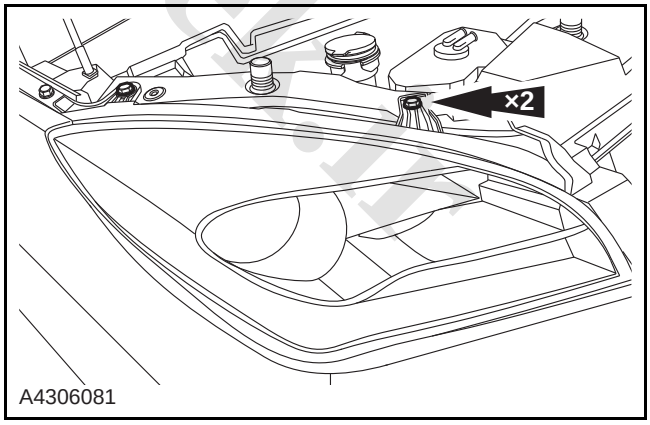
   Refer to: Front Bumper (5.1.7 Bumper, Removal and Installation).

3. Disconnect the headlamp wiring harness connector.



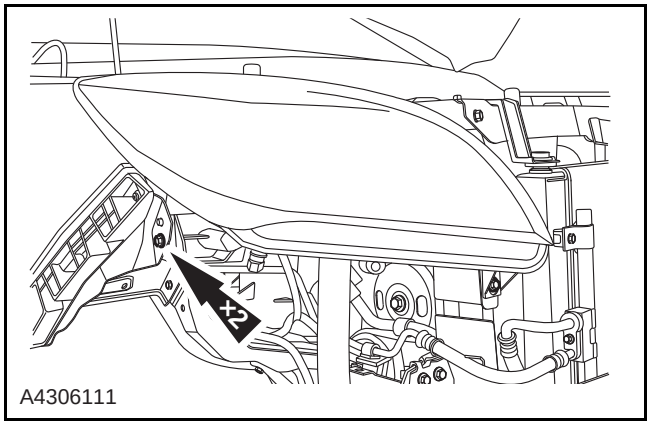
4. Remove the upper 2 retaining bolts of the headlamp.

   Torque: 10 Nm



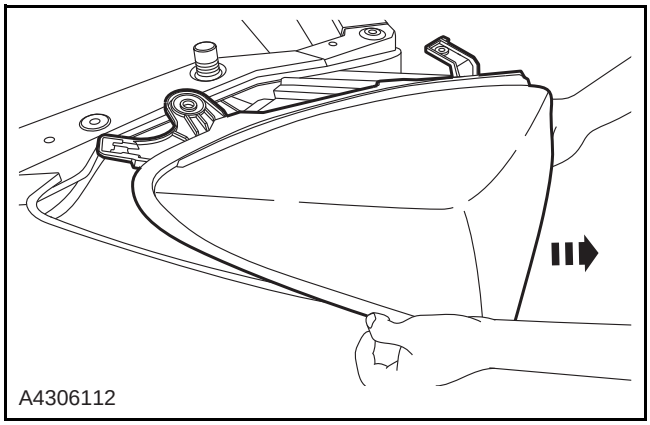
5. Remove the lower 2 retaining bolts of the headlamp.

   Torque: 10 Nm



A4306111

6. Take out the headlamp assembly.


A4306112

Installation

1. To install, reverse the removal procedure.

CAUTION: When installing the headlamp, install the 2 retaining bolts on the headlamp, adjust the position of the headlamp and then tighten them together.

Headlight Adjustment

1. Ready to work.

1. Place the vehicle in the horizontal plane.

2. Inspect whether the headlight works properly, replace the damaged components when necessary.

3. Check the wheel pressure.

4. Inspect the load (no more than half of the oil tank load).

5. Adjust the headlight horizontal adjustment system for several times to inspect its function, and then turn the switch in the position "ON".

6. Set up the light test screen for the following headlight adjustment value (x):

X=17 cm/10 m=0 degree 59 points=1.7%. (left),

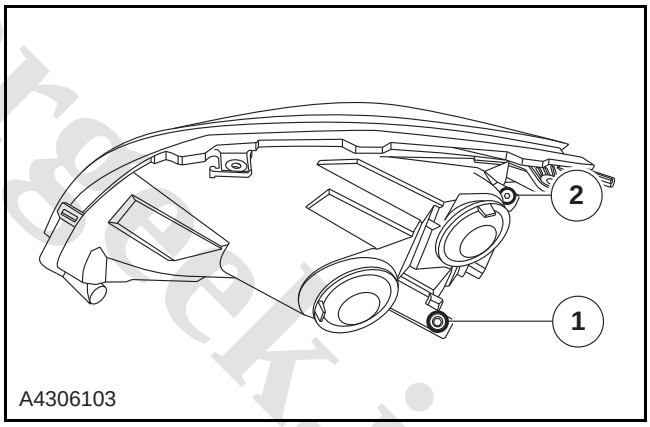
X=35 cm/10 m=2 degrees 0 point=3.5%. (right),

2. Open the low beam.

3. Adjust the adjusting screw position of the low beam as shown in the right illustration.

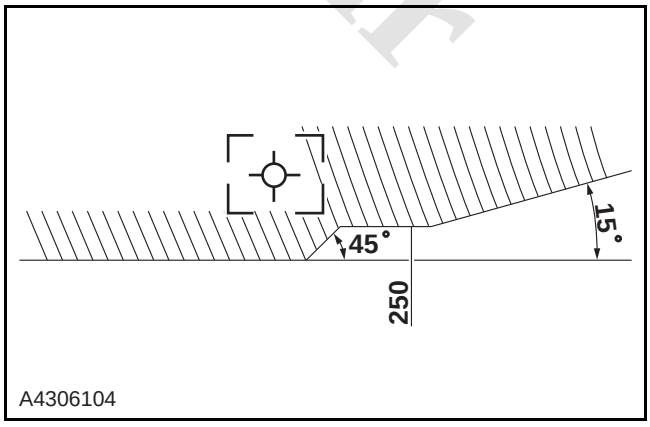
1. Vertically adjust the screw.

2. Horizontally adjust the screw.



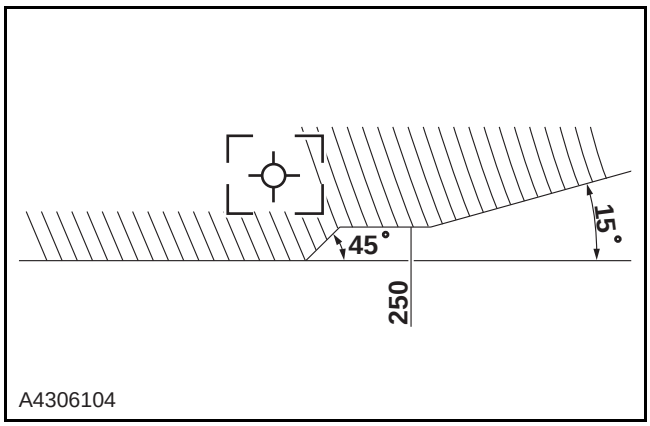
4. Vertically adjust the low beam to make the light and dark cut-off line produced by the low beam drop in the shadow area as shown in the right illustration.

CAUTION: Some divergent light of the low beam may drop above the 15° line.



5. Horizontally adjust the low beam to make the light and dark cut-off line produced by the low beam drop in the shadow area as shown in the right illustration.

CAUTION: Vertically adjust it again after the horizontal adjustment.



Front Fog Lamp

Removal

1. Disconnect the battery negative cable.

   Refer to: Battery Inspection (3.1.10 Charging System, General Procedures).

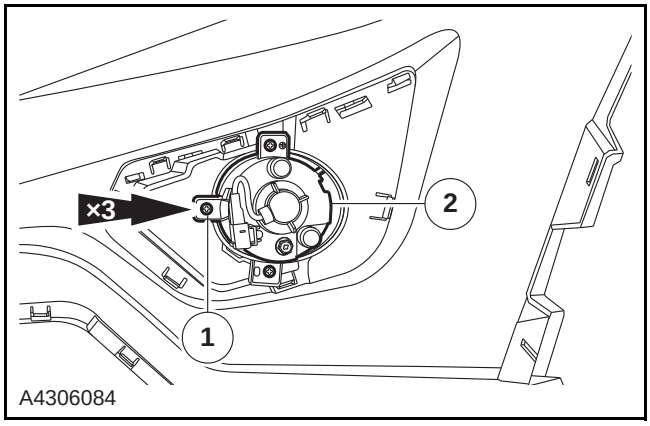
2. Remove the front bumper.

   Refer to: Front Bumper (5.1.7 Bumper, Removal and Installation).

3. Remove the front fog lamp assembly.

   1. Remove the 3 retaining screws on front fog lamp assembly.

   2. Remove the front fog lamp assembly.



Installation

1. To install, reverse the removal procedure.

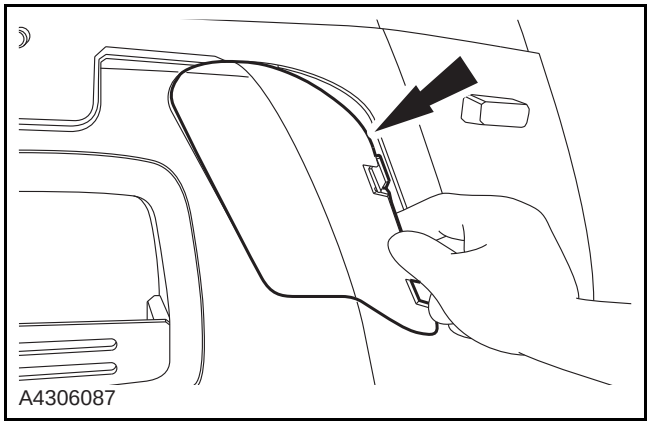
Rear Combination Lamp

Removal

1. Disconnect the battery negative cable.

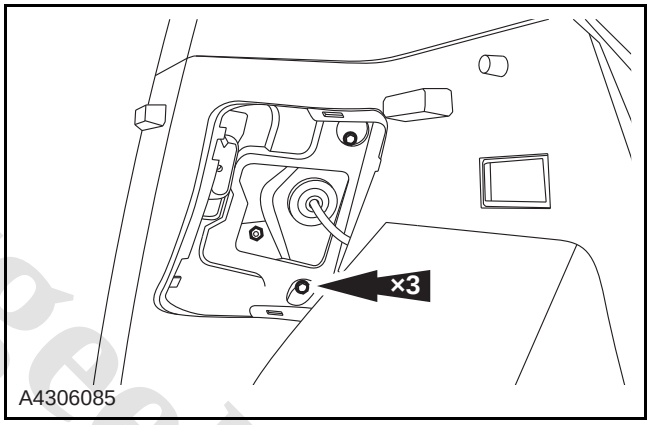
   Refer to: Battery Inspection (3.1.10 Charging System, General Procedures).

2. Remove the tail lamp harness cover plate.


A4306087

3. Remove the 3 retaining nuts on tail lamp.

   Torque: 8 Nm

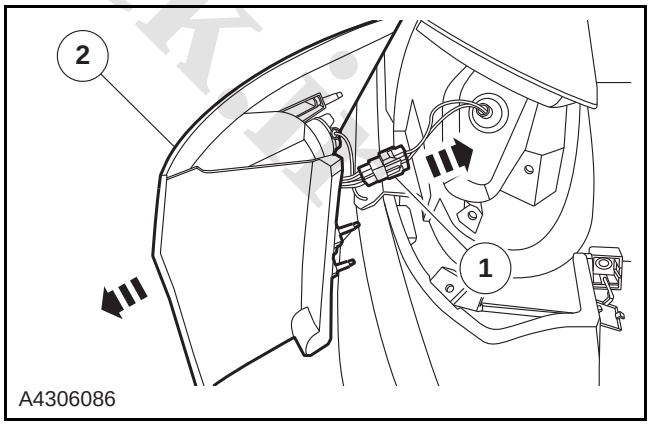


A4306085

4. Remove the tail lamp assembly.

   1. Disconnect the tail lamp wiring harness connector.

   2. Take out the tail lamp assembly.



A4306086

Installation

1. To install, reverse the removal procedure.

Reverse Lamp

Removal

1. Disconnect the battery negative cable.

   Refer to: Battery Inspection (3.1.10 Charging System, General Procedures).

2. Remove the trim panel of the tailgate.

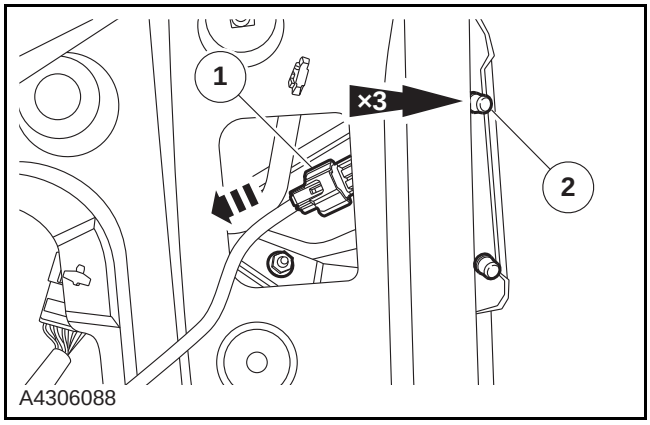
   Refer to: Tailgate Trim Panel (5.1.9 Interior trim and Ornamentation, Removal and Installation).

3. Remove the reverse lamp.

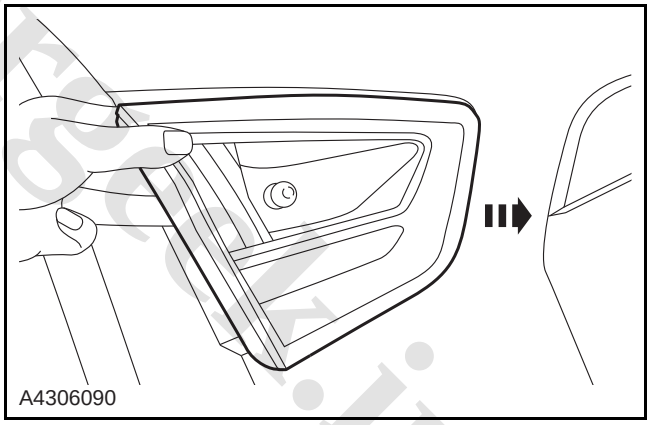
   1. Disconnect the reverse lamp wiring harness connector.

   2. Remove the 3 retaining nuts on tail lamp.

   Torque: 8 Nm



4. Remove the reverse lamp.



Installation

1. To install, reverse the removal procedure.

License Plate Lamp

Removal

1. Disconnect the battery negative cable.

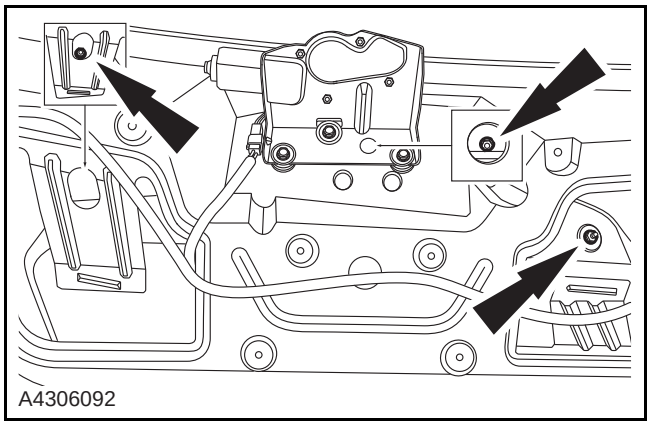
   Refer to: Battery Inspection (3.1.10 Charging System, General Procedures).

2. Remove the trim panel of the tailgate.

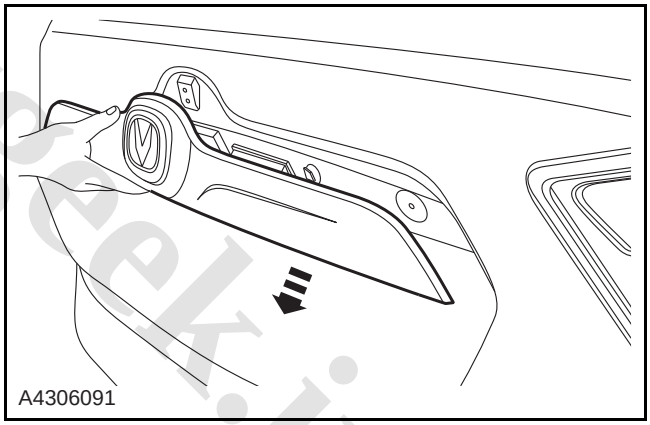
   Refer to: Tailgate Trim Panel (5.1.9 Interior trim and Ornamentation, Removal and Installation).

3. Remove the 3 retaining nuts of the rear license plate lamp cover assembly.

   Torque: 8 Nm


A4306092

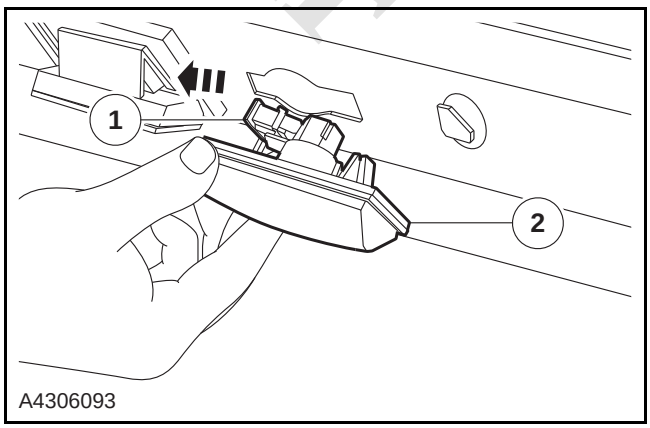
4. Take out the rear license plate lamp cover assembly.


A4306091

5. Remove the license plate lamp.

   1. Disconnect the license plate lamp wiring harness connector.

   2. Remove the license plate lamp.



A4306093

Installation

1. To install, reverse the removal procedure.

Rear Fog Lamp

Removal

1. Disconnect the battery negative cable.

   Refer to: Battery Inspection (3.1.10 Charging System, General Procedures).

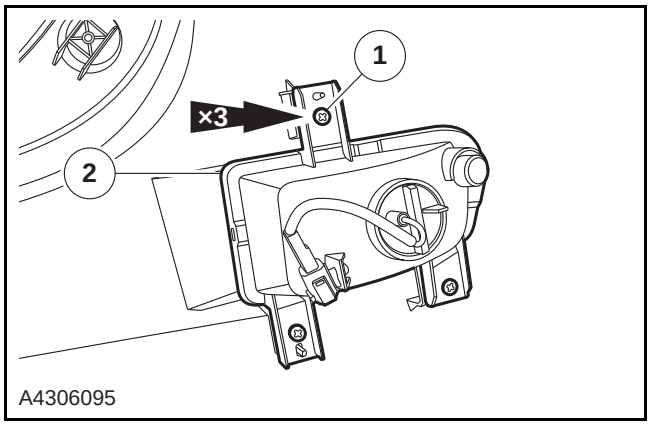
2. Remove the rear bumper.

   Refer to: Rear Bumper (5.1.7 Bumper, Removal and Installation).

3. Remove the rear fog lamp assembly.

   1. Remove the 3 retaining nuts on rear fog lamp.

   2. Take out the rear fog lamp assembly.



Installation

1. To install, reverse the removal procedure.

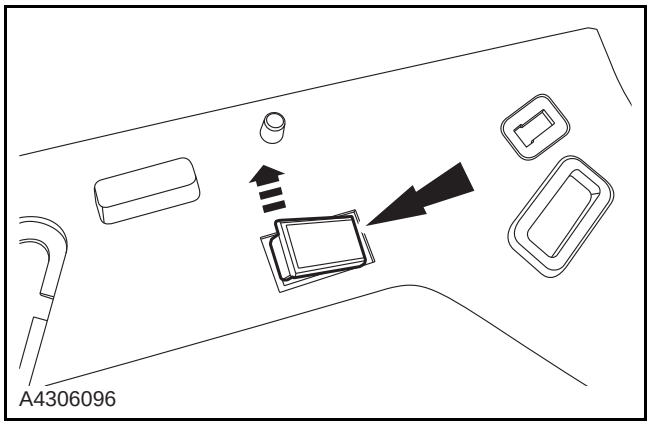
Trunk Lamp

Removal

1. Disconnect the battery negative cable.

   Refer to: Battery Inspection (3.1.10 Charging System, General Procedures).
2. Remove the C-pillar trim panel.

   Refer to: C-pillar Trim Panel (5.1.9 Interior Trim Panel and Accessories, Removal and Installation).
3. Take out the trunk lamp from the C-pillar trim panel.



Installation

1. To install, reverse the removal procedure.

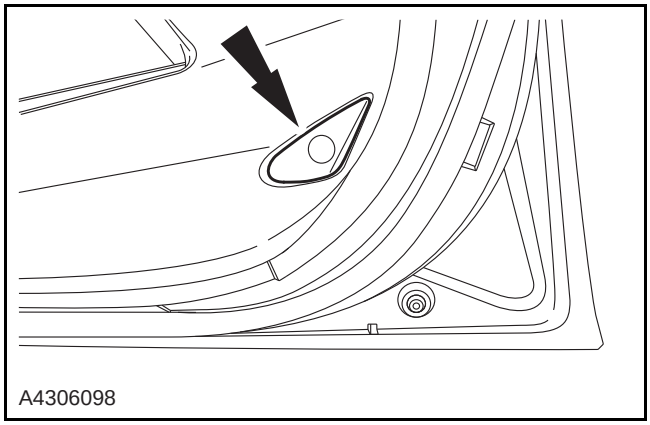
Courtesy Lamp

Removal

1. Disconnect the battery negative cable.

   Refer to: Battery Inspection (3.1.10 Charging System, General Procedures).

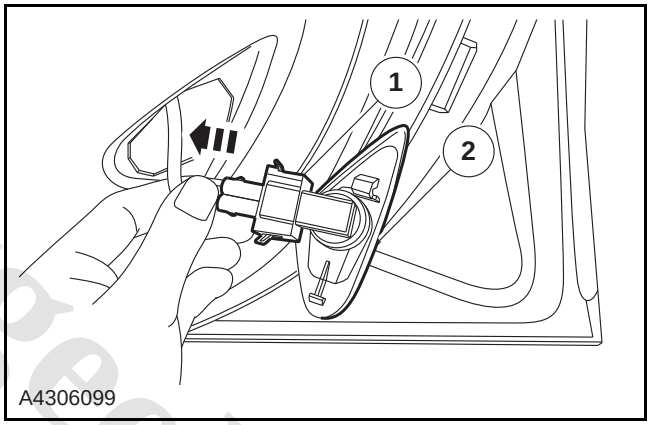
2. Use appropriate tools to remove the courtesy lamp from the front door interior trim panel from the indication in the right illustration.


A4306098

3. Remove the courtesy lamp.

   1. Disconnect the courtesy lamp wiring harness connector.

   2. Remove the courtesy lamp.



A4306099

Installation

1. To install, reverse the removal procedure.

Dome Lamp

Removal

1. Disconnect the battery negative cable.

   Refer to: Battery Inspection (3.1.10 Charging System, General Procedures).

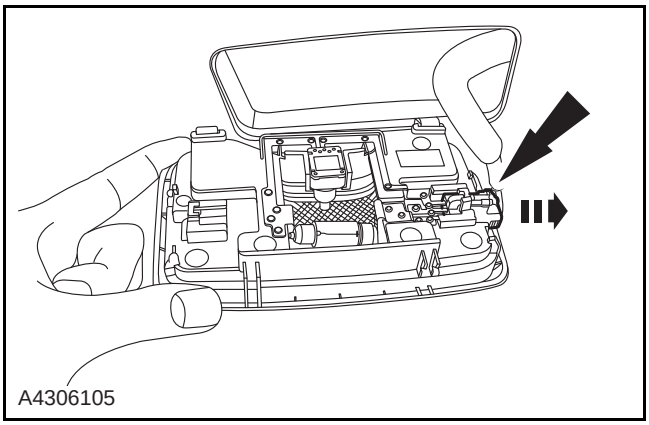
2. Remove the front dome lamp.

   Refer to: Sunroof Switch (4.3.12 Sunroof, Removal and Installation).

3. Remove the rear dome lamp.

   1. Use a proper tool to remove the rear dome lamp from the top cover interior trim panel.

   2. Disconnect the rear dome lamp wiring harness connector.



Installation

1. To install, reverse the removal procedure.
2. Connect the rear dome lamp assembly and the ceiling wiring harness assembly connector. Note not to wind the wiring harness on the mounting circlips on the rear dome lamp.
3. Place the rear dome lamp horizontally with the switch side in the head direction, align and press in the circlip position of the rear dome lamp mounting bracket, and then rotate the two metal reed on the lamp body click into the rear dome lamp bracket. Note the corresponding position of the top cover lining only is a via.

High-mounted brake Lamp

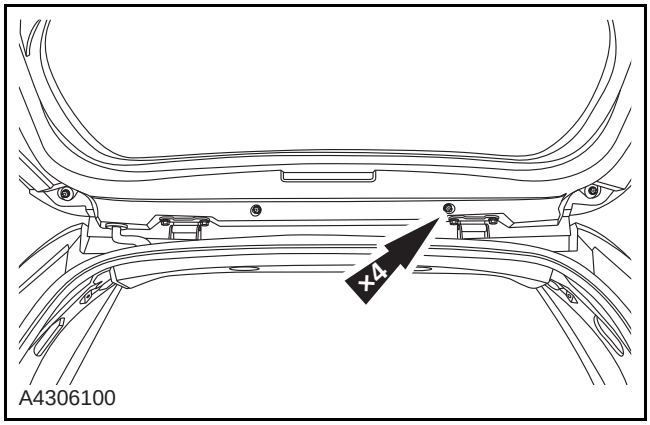
Removal

1. Disconnect the battery negative cable.

   Refer to: Battery Inspection (3.1.10 Charging System, General Procedures).

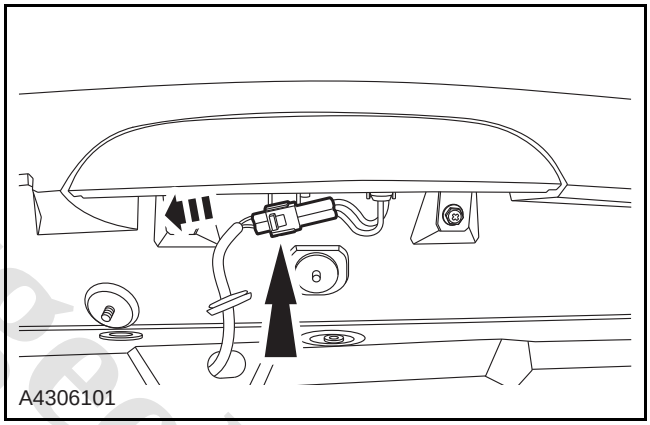
2. Remove the 4 retaininig bolts of the spoiler.

   Torque: 10 Nm



A4306100

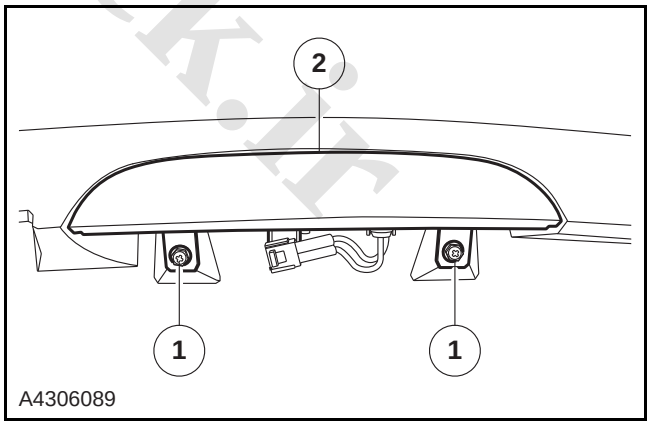
3. Disconnect the wiring harness connector of the high mounted brake lamp.


A4306101

4. Remove the high mounted brake lamp.

   1. Remove the high mounted brake lamp retaining screws.

   2. Take out the high mounted brake lamp.



A4306089

Installation

1. To install, reverse the removal procedure.

Illumination Adjusting Switch

Removal

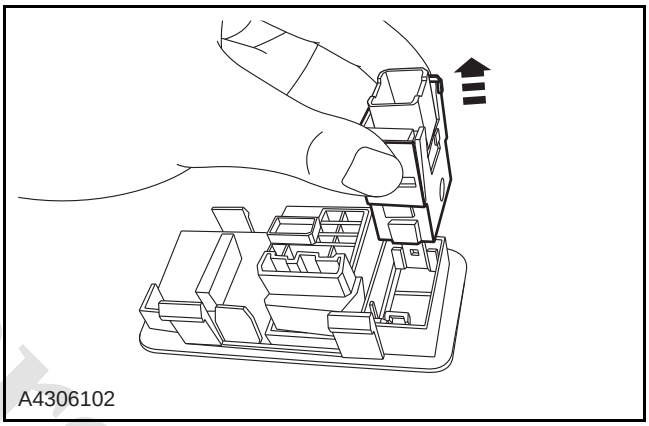
1. Disconnect the battery negative cable.

   Refer to: Battery Inspection (3.1.10 Charging System, General Procedures).

2. Remove the Instrument lower cover at the driver side.

   Refer to: Instrument (5.1.6 Instrument and Console, Removal and Installation).

3. Remove the illumination adjusting switch baseplate from the driver side Instrument lower cover.
4. Remove the illumination adjusting switch with suitable tools.


A4306102

Installation

1. To install, reverse the removal procedure.
2. Ensure the lightning adjusting switch circlip is mounted in place during the installation.

Specifications

General Specifications

Description	Specification	Capacity (L)
Washer fluid	ZT-30	3.0

Torque Specifications

Description	Nm	lb-ft	lb-in
Front wiper arm retaining nut	20	15	-
Front wiper motor and drive arm assembly installing bolt	11	8	-
Rear wiper arm retaining nut	12	9	-
Rear wiper motor output shaft nut	14	10	-
Rear wiper motor assembly retaining bolts	11	8	-
Windshield washer water bottle retaining bolts	10	-	89

Description and Operation

System Overview

Front Wiper System

The wiper system consists of the front and rear wiper system two parts. The front wiper system is composed of wiper motor, drive arm, wiper arm, wiper blade, washer hose and wiper switch and BCM. The front wiper motor has a automatic return device, which transfers a return signal to BCM when the wiper switch is at "OFF" position. BCM drives the front wiper to return to stop position at low speed. The front wiper is installed in U-shaped groove at the lower left side of front windshield and connected directly with the front wiper drive arm.

The front wiper motor can work at low speed, high speed and intermittent style. The front wiper switch is one of the components of the wiper combination switch. The front wiper is operated by the operation lever on the wiper combination switch at the right side of the steering column.

Rear Wiper System

The rear wiper system consists of the wiper motor assembly, wiper arm, wiper blade, washing hoses and wiper combination switch. The rear wiper motor assembly is mounted on the interior plate of the back door through the wiper motor mounting plate, and the rear wiper motor output shaft drives the wiper arm through the rear windshield.

Washer System

The washer system consists of the front and rear washer two parts. The front and rear washer system is composed of the washer reservoir, washer motor, hose, washer nozzle and wiper/ washer switch. The washer reservoir is mounted on the body longitudinal beam at the right inside of the front bumper, and it connects to the front and rear washer motors. The front windshield washing fluid is transported to the two washer nozzles mounted on the engine compartment cover through the washing hose, and the rear windshield washing fluid is transported to the one nozzle mounted on the back door through the washing hose. The washer switch is one of the components of the wiper combination switch.

Wiper Intermittent Time Change Function with Speed

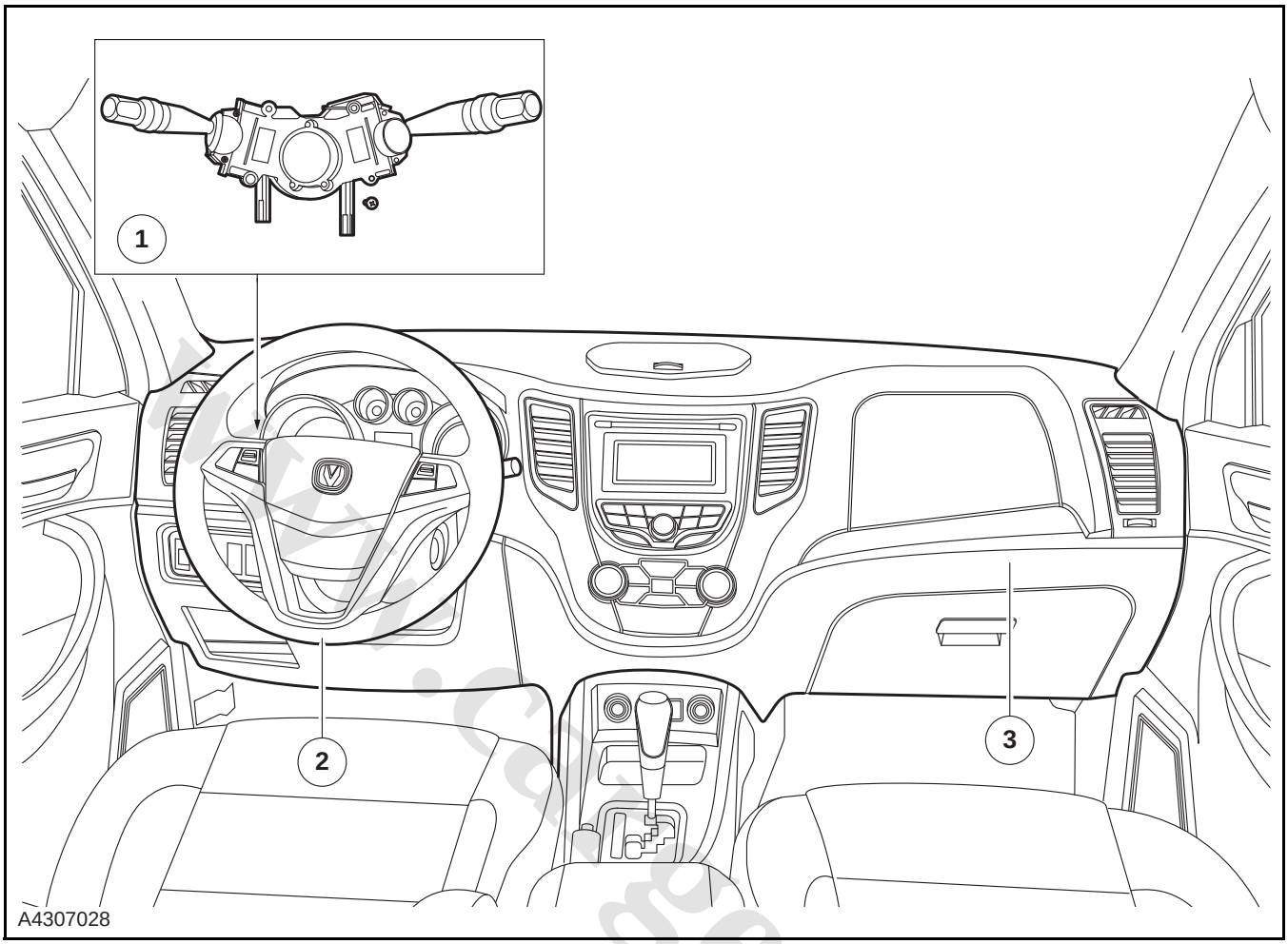
When the ignition switch is in the "ON" position, the front wiper switch is in the intermittent position, the wiper intermittent time can be adjusted automatically according to the speed change (This function can be opened and closed according to the requirements).

Front Wiper Maintenance Mode

If the time for switching the wiper switch to "Low" position is more than 1 s with 5 s after the ignition switch is switched from "ON" to "LOCK", the front wiper system enters the maintenance mode and the wiper will brush and stop 1 s later.

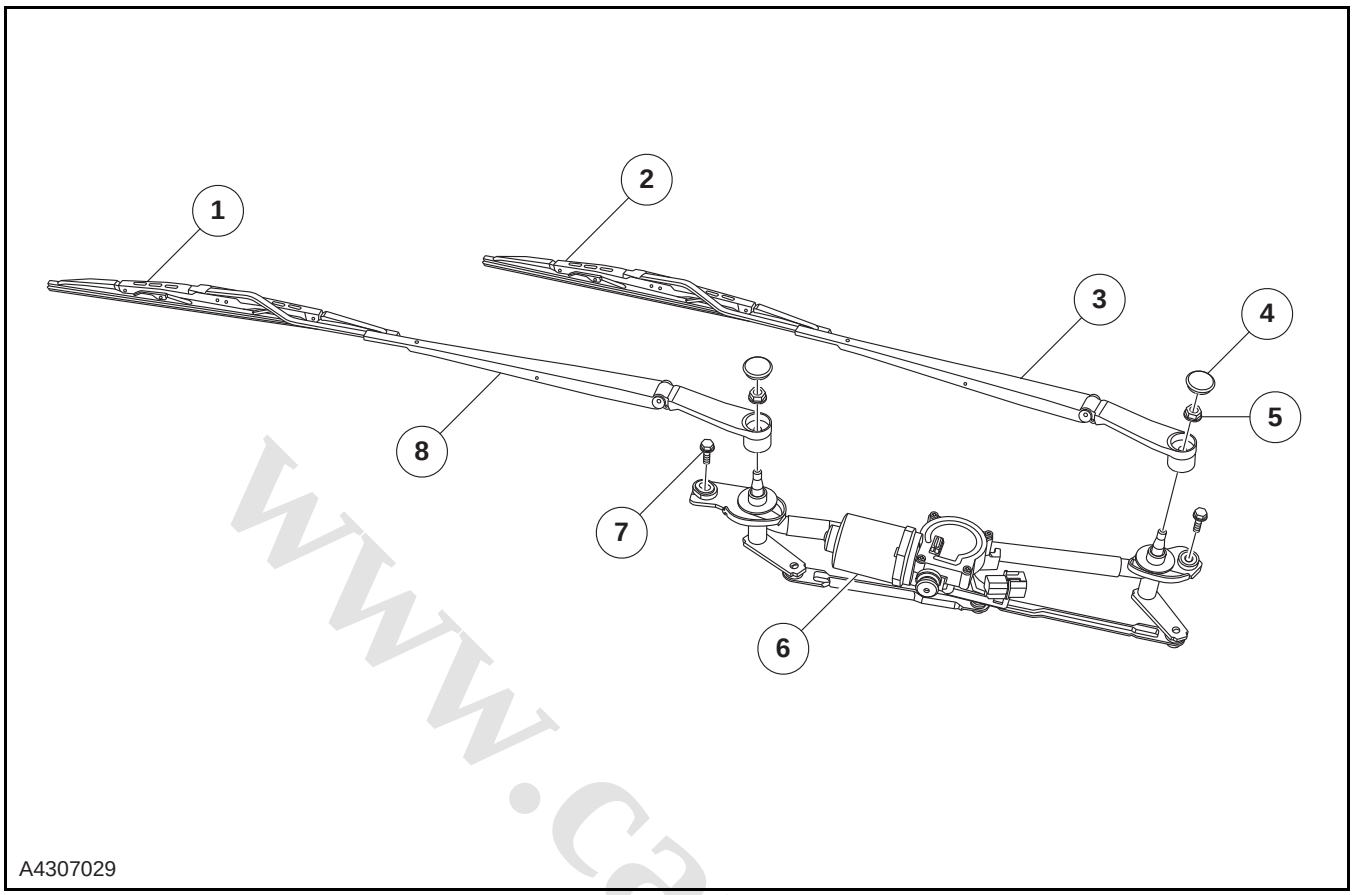
Location View

Wiper Combination Switch Position



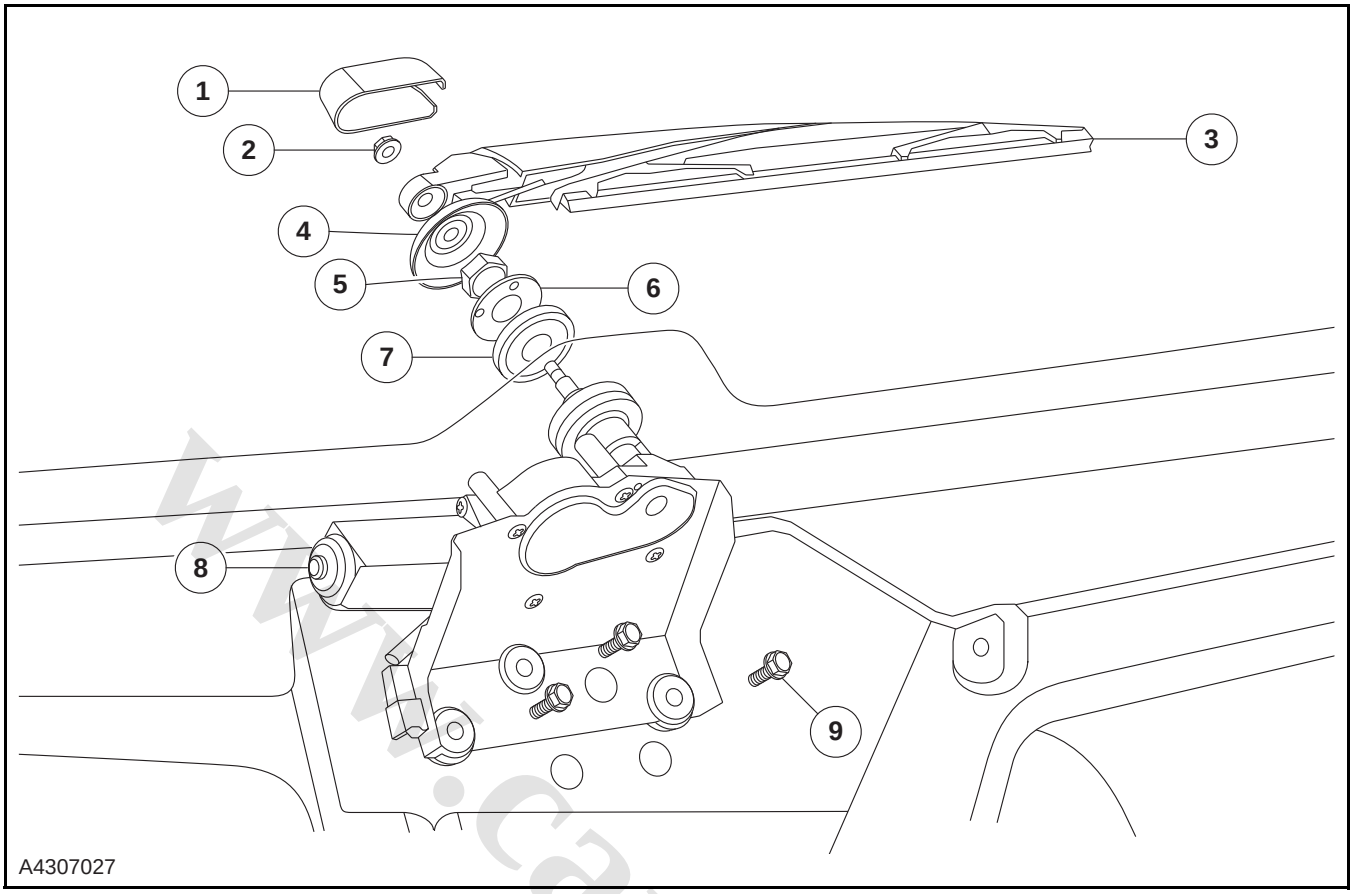
Item	Description	Item	Description
1	Wiper combination switch	3	Instrument
2	Steering wheel		

Front Wiper Assembly Component View



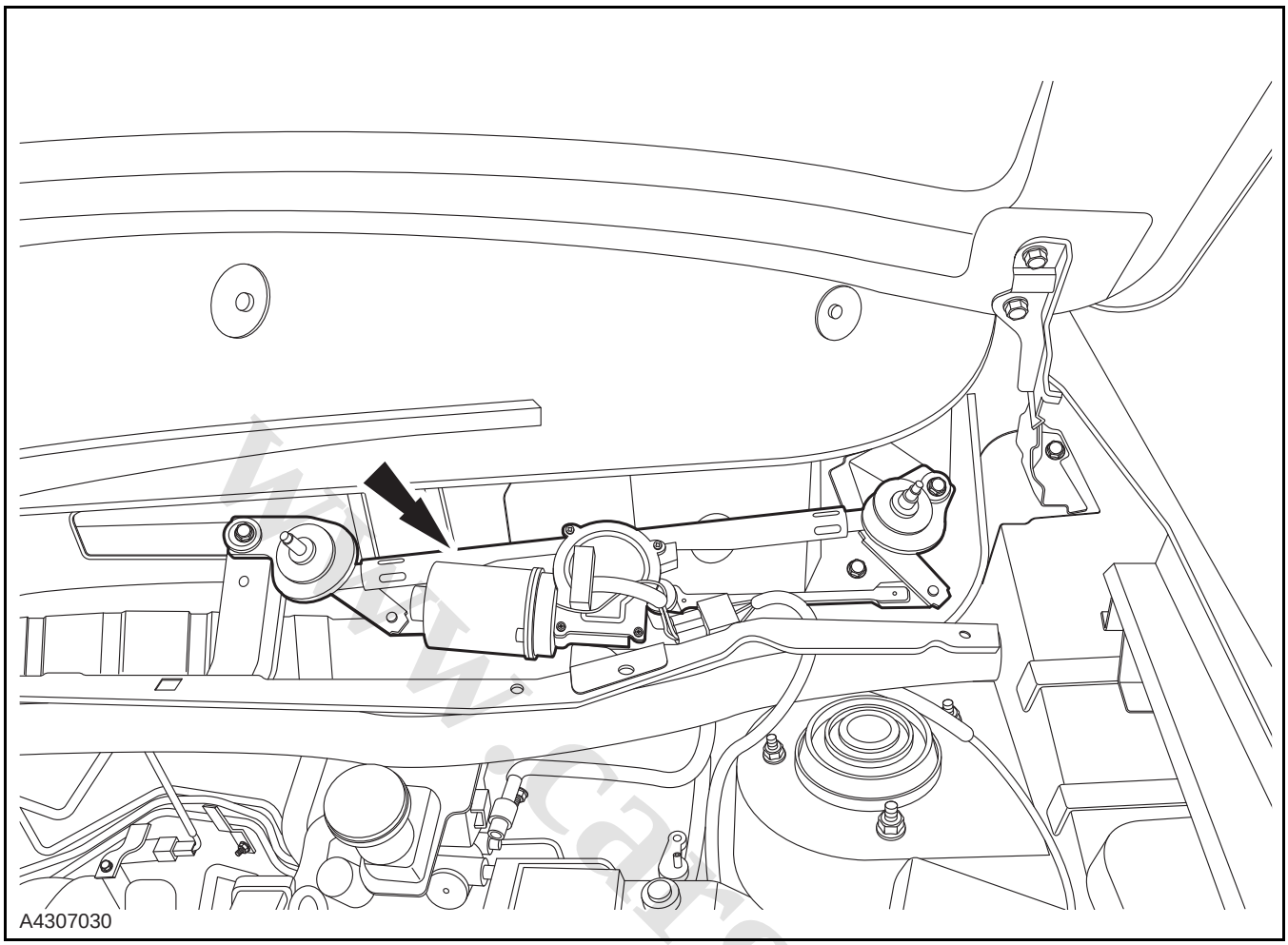
Item	Description	Item	Description
1	Vice wiper brush assembly	5	Hex flange nut
2	Main wiper brush assembly	6	Front wiper motor and drive arm assembly
3	Main wiper arm assembly	7	Hex flange bolt
4	Wiper arm port lid	8	Sub-wiper arm assembly

Rear Wiper Assembly Component View

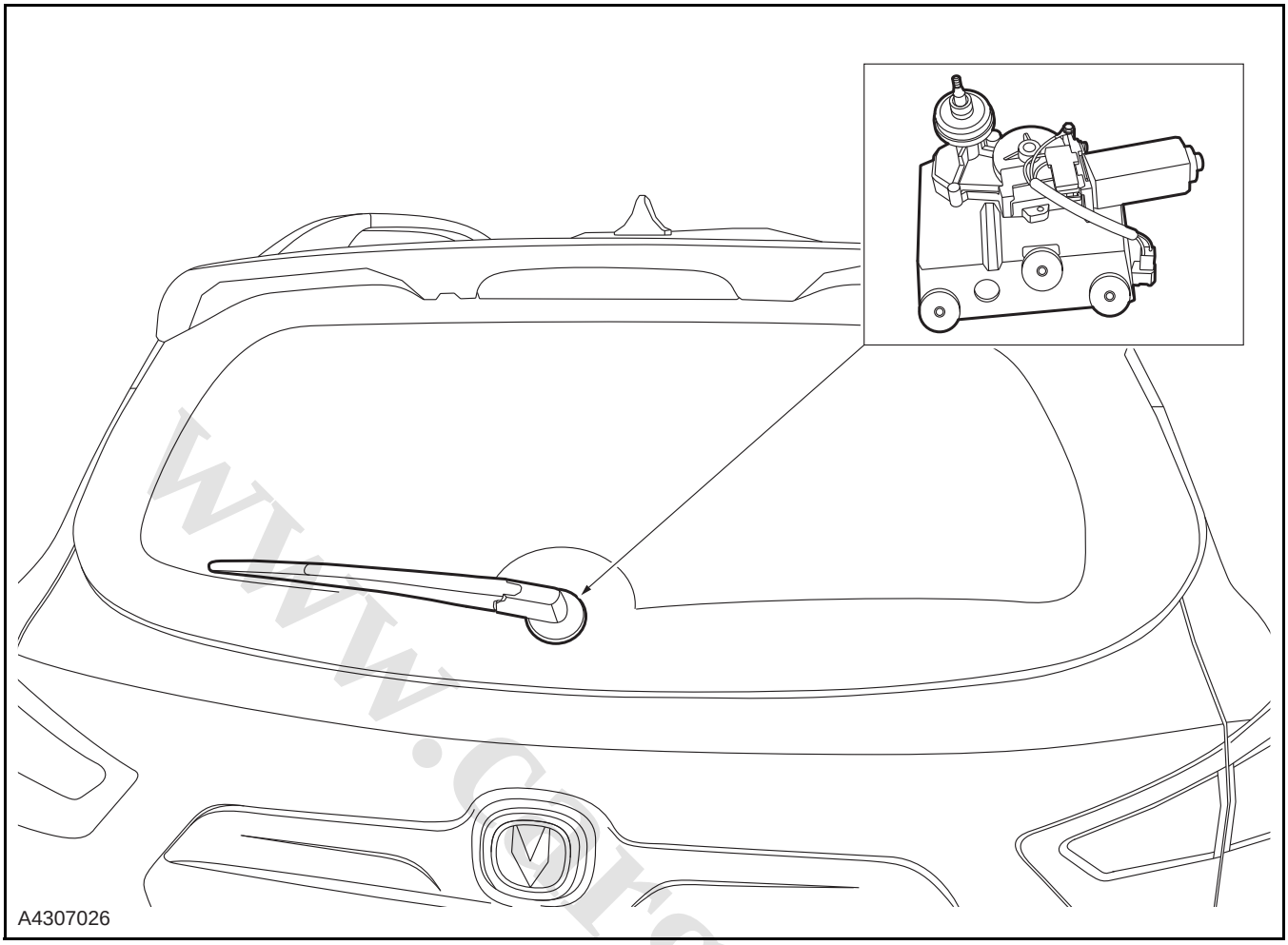


Item	Description	Item	Description
1	Wiper arm decorative cover	6	Gasket
2	Hex flange nut	7	Rubber gasket
3	Rear window wiper arm and wiper brush assembly	8	Rear wiper motor assembly
4	Motor decorative cover	9	Hex flange bolt
5	Output shaft nut		

Front Wiper Motor and Drive Arm Assembly Location View



Rear Wiper Motor Assembly Location View



Washer Location View

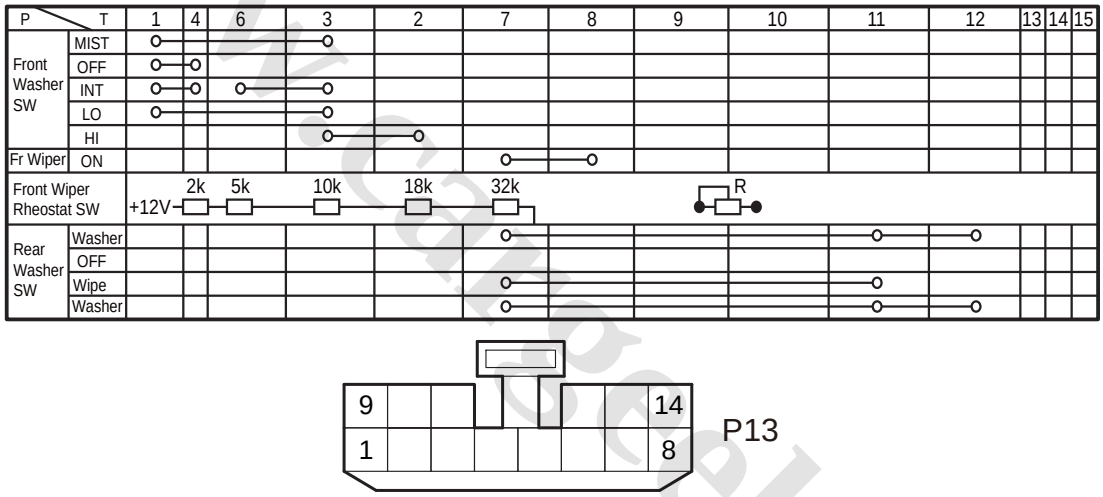
General Procedures

Test of Wiper Combination Switch

The wiper combination switch can be tested according to the wiper combination switch gear range chart to determine the performance of the switch and provide further maintenance solution.

Intermittent gear switch resistance value input:

Gear range	Hardware resistance (KΩ)	Interval time (s)	Sensitivity
1	2 ± 5%	The wiper intermittent time shall be adjusted automatically according to the speed change	Max.
2	7 ± 5%		-
3	17 ± 5%		
4	35 ± 5%		
5	67 ± 5%		Min.



A4307004

Wiper Abnormal Noise Treatment

Principles: To determine the location of the sound. Clean, adjust and repair the abnormal noise position, replace the components when necessary.

CAUTION: Do not use the wiper to clean the dust on the dry windshield, otherwise it may damage the windshield and the wiper blade. It may cause the abnormal noise. Clear the snow and frost on the windshield before using the wiper in the winter.

Execute the following steps when the abnormal sound of the wiper occurs:

1. Inspect the windshield, clear the foreign matter on it. Replace the windshield when there is a thick scratch or crack on the windshield. Inspect the wiper blade and the wiper arm, whether they are deformed or damaged. Repair or replace them according to the corresponding conditions.
2. Replace the qualified washing fluid for the windshield to make sure normal operation of the wiper blade.
3. Lift the wiper blade and the wiper arm from the windshield. Repeat the scraping operation. It is helpful to determine whether the noise comes from the contact between the wiper blade and the windshield or the malfunction of the wiper system itself.
4. Use the qualified windshield washing fluid provided by Changan Automobile to clean the windshield. After the cleaning, if the water does not form droplets but evenly distributed throughout the glass surface, it indicates that the glass is already clean.
5. Lift each wiper blade from the windshield to scrub and clean the the blade assembly with washing liquid soaked cloth, until the the black deposit disappears. Then wash the wiper blade assembly with clean drinking water.
6. Replace the failed components of the wiper system.

Symptom Diagnosis and Testing

General Equipment

Digital Multimeter
Changan Auto Special Diagnostic Tool

Inspection and Verification

1. Verify the customer concern.
2. Visually inspect for obvious signs of mechanical or electrical damage and the deformation due to collision.

Visual Inspection Chart

Mechanical	Electric
• Front windshield • Rear windshield • Nozzle • Washing fluid pipeline • Washing fluid reservoir • Wiper blade • Wiper arm • Wiper drive arm	• Fuse • Circuit • BCM • Wiper combination switch • Front wiper motor • Rear wiper motor • Front washer motor • Rear washer motor

3. Inspect the visible system circuit.
4. If an obvious cause for an observed or reported concern is found, correct the cause before proceeding to the next step.
5. If the cause is not visually evident, verify the symptom and refer to the Symptom Chart.

Symptom Chart

If there is symptom but no diagnosis trouble code (DTC) is stored in control module and can not confirm symptom reasons in basic inspect, it is necessary to diagnosis and eliminate the symptoms in the following chart.

Symptom	Possible Sources	Action
Front wiper fail	• The front wiper linkage is not mounted in the right place • Front wiper fault • Wiper combination switch • The battery voltage is too low • Front wiper motor • Circuit fault • BCM	**Refer to: Front Wiper Failure Diagnosis (4.3.7 Wipers and Washers, Symptom Diagnosis and Testing).**
The front wiper can not stop	• Circuit fault • Wiper return signal fault • Wiper combination switch • Front wiper motor • BCM	**Refer to: Front Wiper Constantly Working Diagnosis (4.3.7 Wipers and Washers, Symptom Diagnosis and Testing).**
Front wiper does not work in the low gear	• Circuit fault • Low speed gear signal fault • Wiper combination switch • Front wiper motor • BCM	**Refer to: Inoperative Wiper in Low Gear Diagnosis(4.3.7 Wipers and Washers, Symptom Diagnosis and Testing).**
Front wiper does not work in the high speed gear	• Circuit fault • High gear signal fault • Wiper combination switch • Front wiper motor • BCM	**Refer to: Inoperative Wiper in High Gear Diagnosis (4.3.7 Wipers and Washers, Symptom Diagnosis and Testing).**
The one-off wiping gear does not work	• Wiper combination switch	**Refer to: Wiper Combination Switch (4.3.7 Wipers and Washers, Removal and Installation).**
The intermittent gear of the front wiper does not work	• Circuit fault • Wiper combination switch • BCM	**Refer to: Front Wiper Intermittent Function Fault Diagnosis (4.3.7 Wipers and Washers, Symptom Diagnosis and Testing).**

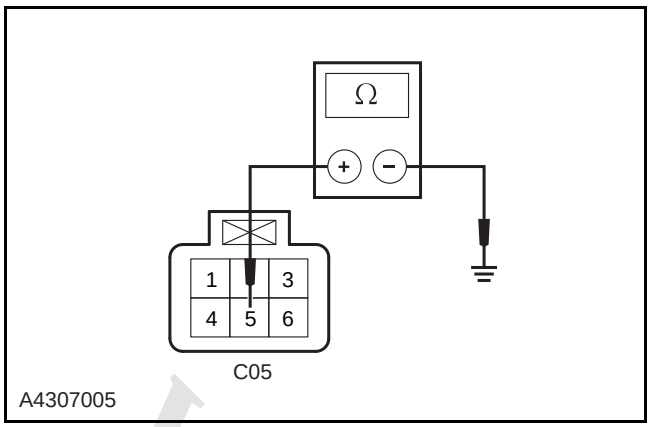
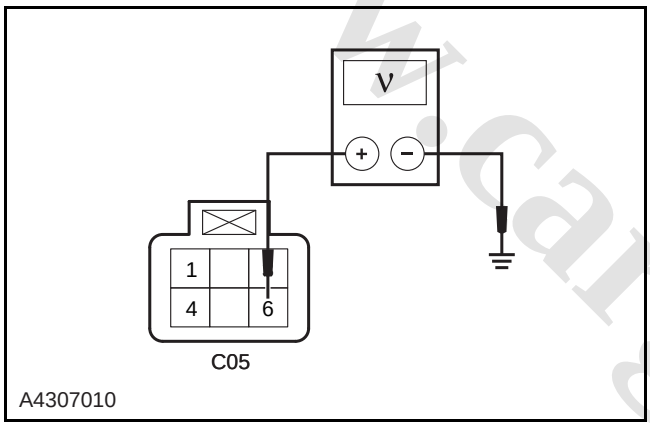
Symptom	Possible Sources	Action
Front wiper works continuously in the intermittent gear	• Circuit fault • Front wiper intermittent signal fault • Wiper combination switch • BCM	**Refer to: Front Wiper Constantly Working Under the Intermittent Operation Mode Diagnosis (4.3.7 Wipers and Washers, Symptom Diagnosis and Testing).**
The windshield is still dirty after wiping	• Circuit fault • The washing fluid does not qualify the standard • The battery voltage is low • Wiper blade fault • Windshield scratch, crack • Wiper fault • Front wiper motor	**Refer to: Windshield Is Still Dirty After Wiping Diagnosis (4.3.7 Wipers and Washers, Symptom Diagnosis and Testing).**
The wiper is shaking during the wiping process	• Circuit fault • The wiper linkage is not mounted in the right place • The washing fluid does not qualify the standard • The battery voltage is low • Wiper blade fault • Wiper fault • Windshield scratch, crack • Front wiper motor	**Refer to: Wiper Wobble Operation Diagnosis (4.3.7 Wipers and Washers, Symptom Diagnosis and Testing).**
Abnormal noise during the wiping process	• Circuit fault • The washing fluid does not qualify the standard • The battery voltage is low • Wiper blade fault • The wiper linkage is not mounted in the right place • Wiper fault • Windshield scratch, crack • Wiper motor	**Refer to: Wiper Squeal and Rattle Diagnosis (4.3.7 Wipers and Washers, Symptom Diagnosis and Testing).**

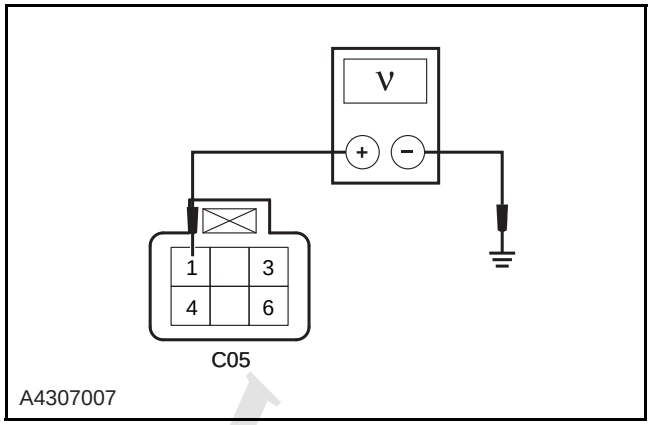
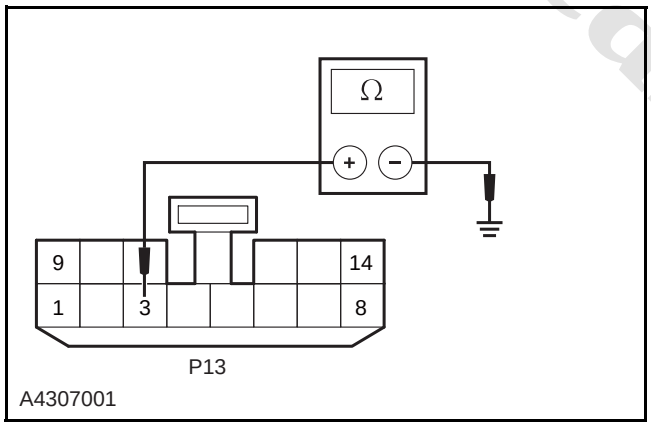
Symptom	Possible Sources	Action
The front wiper can not go back to the initial position	• The wiper linkage is not mounted in the right place • Wiper fault • Circuit fault • Wiper combination switch • Front wiper motor return signal fault • Front wiper motor • BCM	**Refer to: Front Wiper Can Not Go Back to the Initial Position Diagnosis (4.3.7 Wipers and Washers, Symptom Diagnosis and Testing).**
Rear wiper failure	• Rear wiper linkage is not mounted in the right place • Rear wiper fault • Wiper combination switch • The battery voltage is too low • Rear wiper motor • Circuit fault	**Refer to: Rear Wiper Failure Diagnosis (4.3.7 Wipers and Washers, Symptom Diagnosis and Testing).**
The rear wiper can not go back to the initial position	• The wiper linkage is not mounted in the right place • Wiper fault • Circuit fault • Wiper combination switch • Rear wiper motor return signal fault • Rear wiper motor	**Refer to: Rear Wiper Can Not Go Back to the Initial Position Diagnosis (4.3.7 Wipers and Washers, Symptom Diagnosis and Testing).**
The front washer does not work	• Insufficient washing fluid • Washer nozzle fault • Washing hose fault • Front washer switch • Circuit fault • Front washer motor	**Refer to: Inoperative Front Washer Diagnosis (4.3.7 Wipers and Washers, Symptom Diagnosis and Testing).**
The rear washer does not work	• Insufficient washing fluid • Washer nozzle fault • Washing hose fault • Rear washer switch • Circuit fault • Rear Washer motor	**Refer to: Inoperative Washer Diagnosis (4.3.7 Wipers and Washers, Symptom Diagnosis and Testing).**

Symptom	Possible Sources	Action
The spray can not reach the windshield	• Insufficient washing fluid • Washer nozzle fault • Washing hose fault • Washer motor	**Refer to: Inaccurate Water Injection Diagnosis (4.3.7 Wipers and Washers, Symptom Diagnosis and Testing).**

Front Wiper Fault Diagnosis

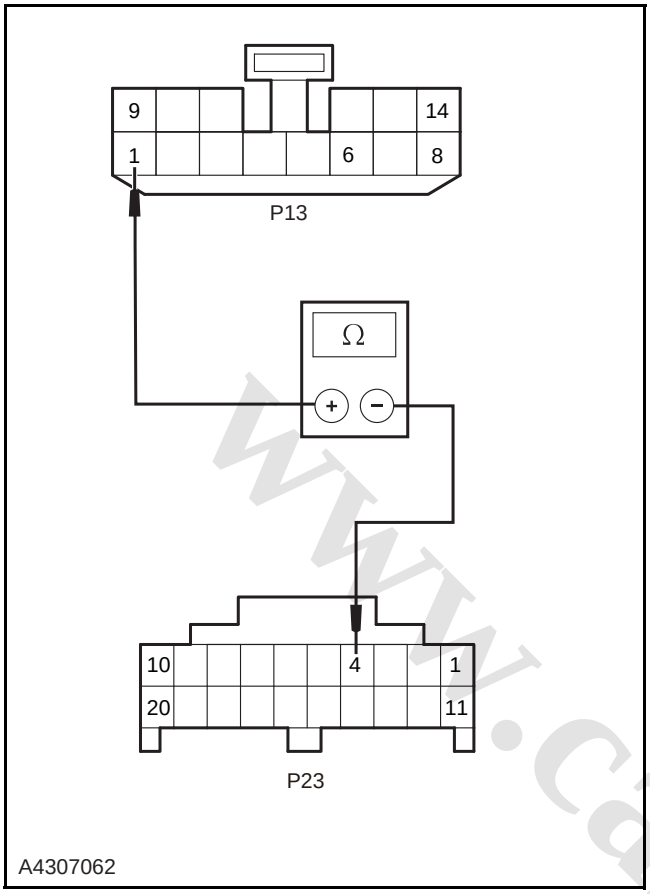
Test conditions	Details/Results/Actions
1. General inspection	
	A. Inspect the wiring harness connectors of the wiper combination switch and the wiper motor for signs of damage, poor contact, aging and loose. B. Inspect the wiper mounting position and the overall status. Is it normal? **Y** Go to step 2. **N** Repair the fault.
2. Inspect the fuse	
	A. Inspect the wiper system fuse IF03 and IF23. **Rated capacity of the fuse: 20 A** Is the fuse normal? **Y** Go to step 3. **N** Inspect and repair the fuse circuit, replace the fuse in rated capacity.
3. Inspect the working state of the rear wiper motor	
	A. Turn the ignition switch to position "ON", turn the wiper combination switch to the corresponding gear. Does the front wiper fail? **Y** Go to step 4. **N** Repair according to the working condition of the wiper system. **Refer to: Symptoms Chart (4.3.7 Wipers and Washers, Symptom Diagnosis and Testing).**

Test conditions	Details/Results/Actions
4. Inspect the ground circuit of the front wiper motor	
	A. Turn the ignition switch to position "LOCK", disconnect the front wiper motor wiring harness connector C05. B. Measure the resistance between the terminal 5 of the front wiper motor wiring harness connector C05 and the reliable ground. **Standard Resistance Value: less than 5 Ω** Is the resistance value normal? **Y** Go to step 5. **N** Inspect and repair the open circuit between the terminal 5 of the front wiper motor wiring harness connector C05 and the ground point G302.
5. Inspect the input voltage of the front wiper motor at low speed	
	A. Turn the ignition switch to positon "LOCK", disconnect the wiring harness connector C05 of the front wiper motor. B. Turn the ignition switch to position "ON". C. Turn the front wiper combination switch to "LO" position. D. Use multimeter to measure the voltage between the terminal 6 of the front wiper motor wiring harness connector C05 and reliable ground point. **Standard Voltage Value: 11 ~ 14 V** Is the voltage normal? **Y** Remove the front wiper motor. **Refer to: Front Wiper Motor and Drive Arm (4.3.7 Wipers and Washers, Removal and Installation)** Verify the system is normal. **N** Go to step 6.

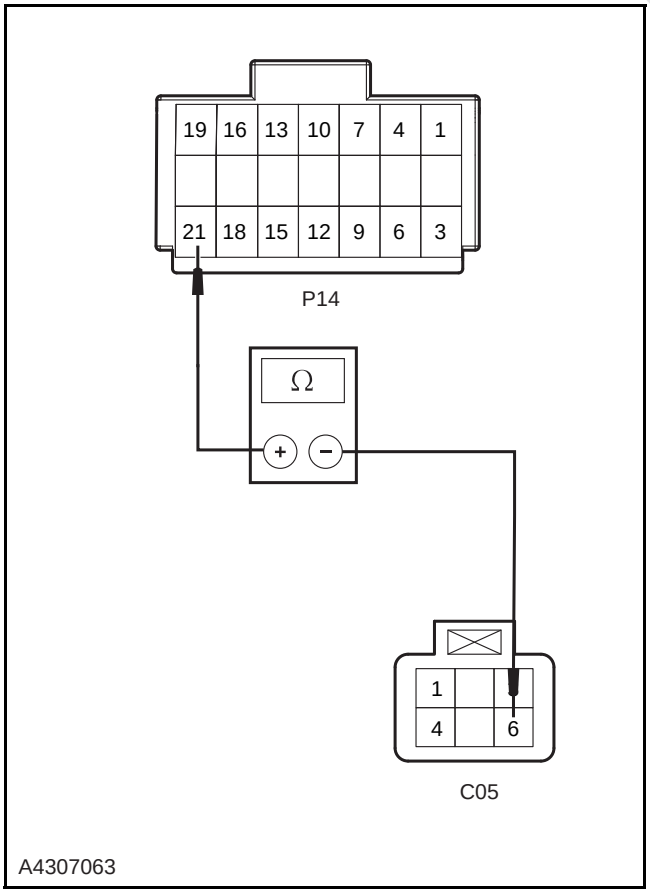
Test conditions	Details/Results/Actions
6. Inspect the input voltage of the front wiper motor at high speed	
	A. Turn the ignition switch to position "LOCK", disconnect the wiring harness connector C05 of front wiper motor. B. Turn the ignition switch to position "ON". C. Turn the front wiper combination switch to "HI" position. D. Measure the voltage between the terminal 1 of the front wiper motor wiring harness connector C05 and the reliable ground. **Standard Voltage Value: 11 ~ 14 V** Is the voltage normal? **Y** Remove the front wiper motor. **Refer to: Front Wiper Motor and Drive Arm (4.3.7 Wipers and Washers, Removal and Installation).** **N** Go to step 7.
7. Inspect the wiper combination switch ground circuit	
	A. Turn the ignition switch to "LOCK" position and disconnect the wiper combination switch wiring harness connector P13. B. Turn the ignition switch to position "ON". C. Measure the resistance between the terminal 3 of the wiper combination switch wiring harness connector P13 and the reliable ground. **Standard Resistance Value: less than 5 Ω** Is the resistance value normal? **Y** Go to step 8. **N** Inspect and repair the open circuit between the terminal 3 of the wiper combination switch wiring harness connector P13 and the ground point G101.

Test conditions	Details/Results/Actions
8. Inspect the wiper combination switch	
	A. Turn the ignition switch to position "LOCK". B. Disconnect the wiring harness connector P13 of the wiper combination switch. C. Inspect the wiper combination switch performance in accordance with the wiper combination switch gear chart. **Standard Resistance Value: less than 5Ω** The intermittent position is corresponding to the standard resistance value. Is it normal? **Y** Go to step 9. **N** Replace the wiper combination switch. **Refer to: Wiper Combination Switch (4.3.7 Wipers and Washers, Removal and Installation).** Verify the system is normal.

Test conditions	Details/Results/Actions
9. Inspect the low speed gear circuit of the front wiper motor	



A4307062



A4307063

A. Turn the ignition switch to "LOCK" position and disconnect the battery negative wiring harness.

B. Disconnect the front wiper motor wiring harness connector C05, the wiper combination switch wiring harness connector P13 and the BCM wiring harness connector P14, P23.

C. Measure the resistance between the terminal 1 of the wiper combination switch wiring harness connector P13 and the terminal 4 of the BCM wiring harness connector P23.

D. Measure the resistance between the terminal 21 of the BCM wiring harness connector P14 and the terminal 6 of the wiper motor wiring harness connector C05.

Standard Resistance Value: less than 5 Ω

Is the resistance value normal?

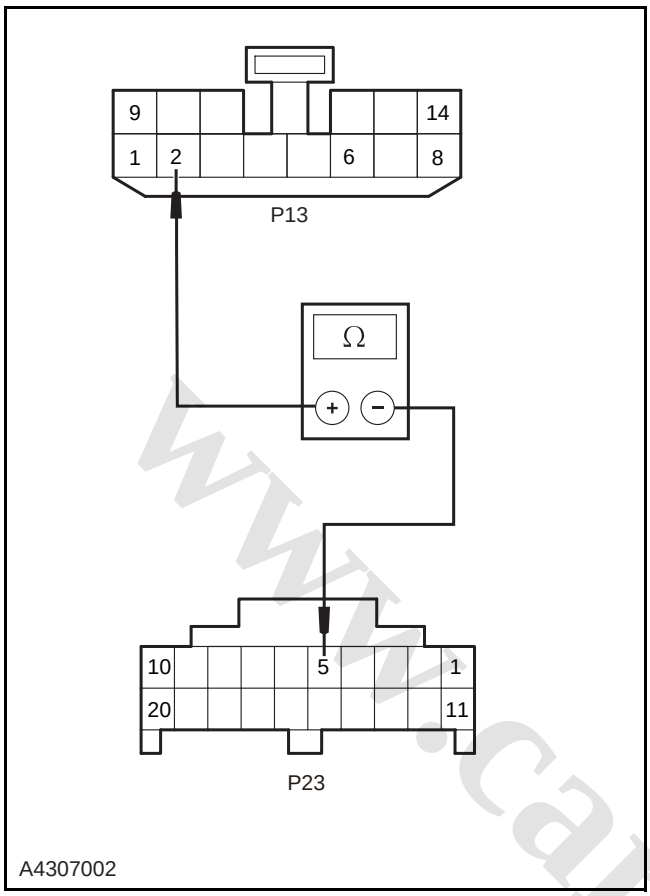
Y

Go to step 10.

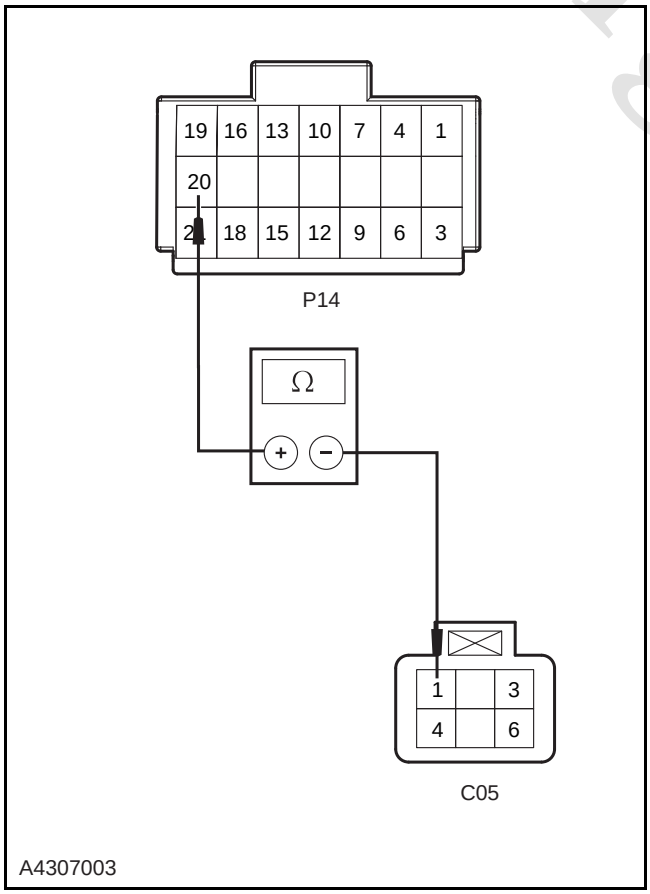
N

Inspect the circuit between the terminal 1 of the wiper combination switch wiring harness connector P13 and the terminal 4 of the BCM wiring harness connector P23 or the circuit between the terminal 21 of the BCM wiring harness connector P14 and the terminal 6 of the front wiper motor wiring harness connector C05.

Test conditions	Details/Results/Actions
10. Inspect the high speed gear circuit of the front wiper motor	



A4307002



A4307003

A. Turn the ignition switch to "LOCK" position and disconnect the battery negative wiring harness.

B. Disconnect the front wiper motor wiring harness connector C05, the wiper combination switch wiring harness connector P13 and the BCM wiring harness connector P14, P23.

C. Measure the resistance between the terminal 2 of the wiper combination switch wiring harness connector P13 and the terminal 5 of the BCM wiring harness connector P23.

D. Measure the resistance between the terminal 20 of the BCM wiring harness connector P14 and the terminal 1 of the front wiper motor wiring harness connector C05.

Standard Resistance Value: less than 5 Ω

Is the resistance value normal?

Y

Go to step 11.

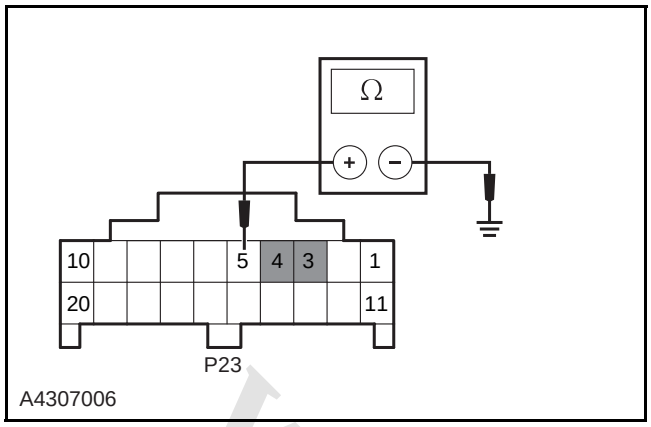
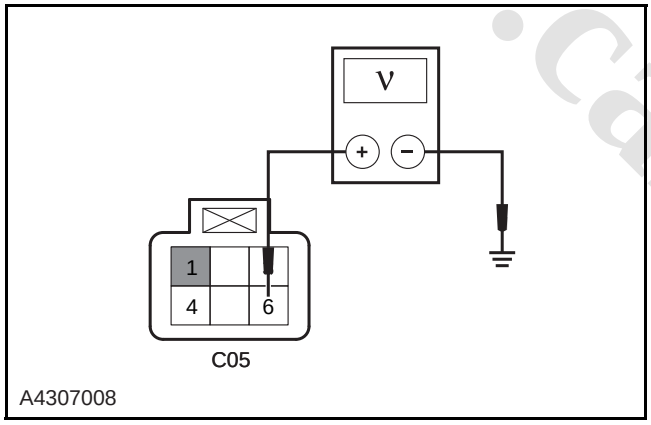
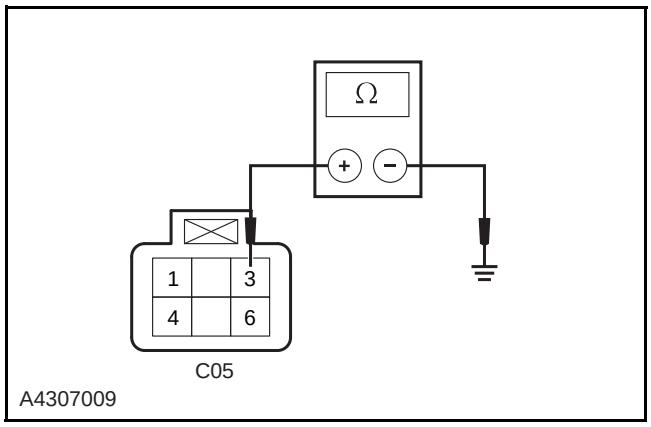
N

Inspect the circuit between the terminal 2 of the wiper combination switch wiring harness connector P13 and the terminal 5 of the BCM wiring harness connector P23 or the circuit between the terminal 20 of the BCM wiring harness connector P14 and the terminal 1 of the wiper motor wiring harness connector C05.

Test conditions	Details/Results/Actions
11. Inspect the BCM power supply and ground circuit	
	A. Inspect the BCM power supply and ground circuit. **Refer to: DTC Diagnosis Procedure Index (4.3.14 Body Control System, DTC Diagnosis and Testing).** Is it normal? **Y** Go to step 12. **N** Troubleshooting.
12. Replace the BCM	
	A. Turn the ignition switch to position "LOCK" and disconnect the battery negative cable. B. Replace the BCM. **Refer to: Body Control Module (4.3.14 Body Control System, Removal and Installation).** Verify the system is normal.

Front Wiper Unable to Stop Diagnosis

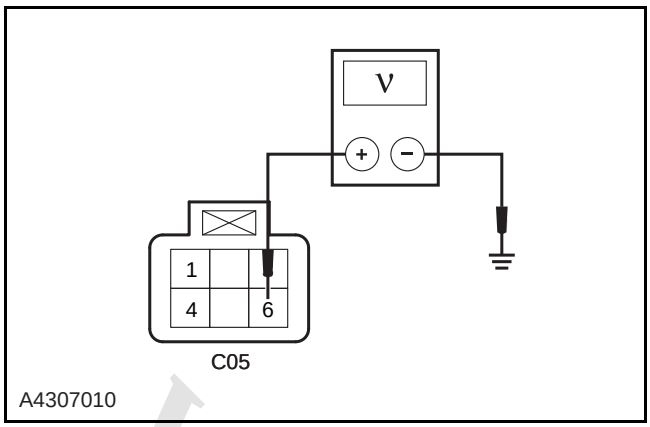
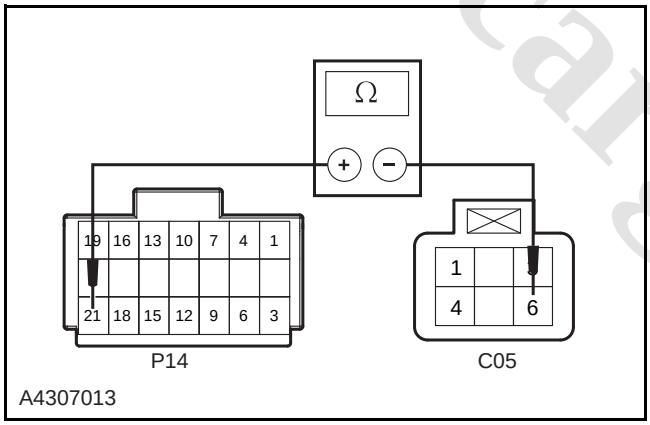
Test conditions	Details/Results/Actions
1. General inspection	
	A. Inspect the wiring harness connectors of the wiper combination switch and the wiper motor for signs of damage, poor contact, aging and loose. B. Inspect the wiper mounting position and the overall status. Is it normal? **Y** GO to step 2. **N** Repair the fault.
2. Inspect the wiper combination switch	
	A. Turn the ignition switch to position "LOCK". B. Disconnect the wiring harness connector P13 of the wiper combination switch. C. Inspect the wiper combination switch performance in accordance with the wiper combination switch gear table. **Standard Resistance Value: less than 5Ω** The intermittent position is corresponding to the standard resistance value. Is it normal? **Y** Go to step 3. **N** Replace the wiper combination switch. **Refer to: Wiper Combination Switch (4.3.7 Wipers and Washers, Removal and Installation).** Verify the system is normal.

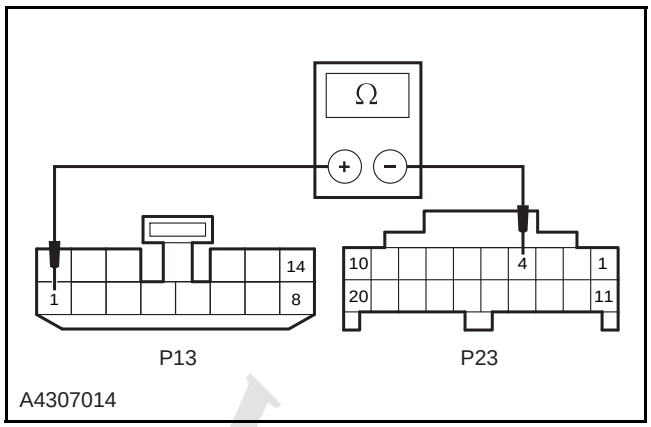
Test conditions	Details/Results/Actions
3. Inspect the circuit between wiper combination switch and BCM	
 A4307006	A. Turn the ignition switch to position "LOCK" and disconnect the battery negative wiring harness. B. Disconnect the wiper combination switch wiring harness connector P13 and BCM wiring harness connector P23. C. Measure the resistance between the terminal 3, 4, 5 of the BCM wiring harness connector P23 and reliable ground. **Standard Resistance Value: 10 MΩ or more** Is it normal? **Y** Go to step 4. **N** Repair the open circuit fault between the terminal 6, 1 and 2 of the wiper combination switch wiring harness connector P13 and the terminal 3, 4 and 5 of the BCM wiring harness connector P23.
4. Inspect the front wiper motor circuit	
 A4307008	A. Turn the ignition switch to position "LOCK" and disconnect the battery negative cable. B. Disconnect the BCM wiring harness connector P14 and P22, disconnect the front wiper motor wiring harness connector C05. C. Measure the voltage between the terminal 1 and 6 of the front wiper motor wiring harness connector C05 and reliable ground. **Standard Voltage: 0 V** D. Measure the resistance between the terminal 3 of the front wiper motor wiring harness connector C05 and the reliable ground. **Standard Resistance Value: 10 MΩ or more** Is it normal? **Y** Go to step 5. **N** Repair the open circuit fault between the terminal 1 and 6 of the front wiper motor wiring harness connector C05 and the terminal 20 and 21 of the BCM wiring harness connector P14. Inspect and repair the open circuit between the terminal 3 of the front wiper motor wiring harness connector C05 and the terminal 3 of the BCM wiring harness connector P22.
 A4307009	

Test conditions	Details/Results/Actions
5. Inspect the front wiper motor	
	A. Turn the ignition switch to "LOCK" position and disconnect the battery negative wiring harness. B. Remove the front wiper motor. **Refer to: Front Wiper Motor and Drive Arm (4.3.7 Wipers and Washers, Removal and Installation).** Is the system normal? **Y** Replace the front wiper motor and confirm the repair has been finished. **N** Go to step 6.
6. Inspect the BCM power supply and ground circuit	
	A. Inspect the BCM power supply and ground circuit. **Refer to: Fault Diagnosis Procedure Index (4.3.14 Body Control System, DTC Diagnosis and Testing).** Is it normal? **Y** Go to step 7. **N** Troubleshooting.
7. Replace the BCM	
	A. Turn the ignition switch to position "LOCK" and disconnect the battery negative cable. B. Replace the BCM. **Refer to: Body Control Module (4.3.14 Body Control System, Removal and Installation).** Verify the system is normal.

Front Wiper Low Speed Gear Fault Diagnosis

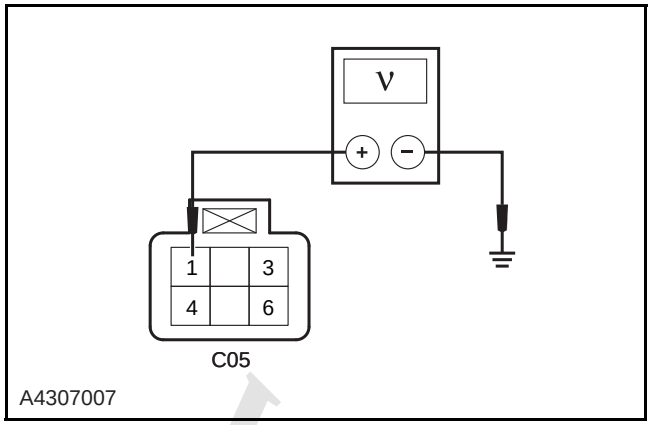
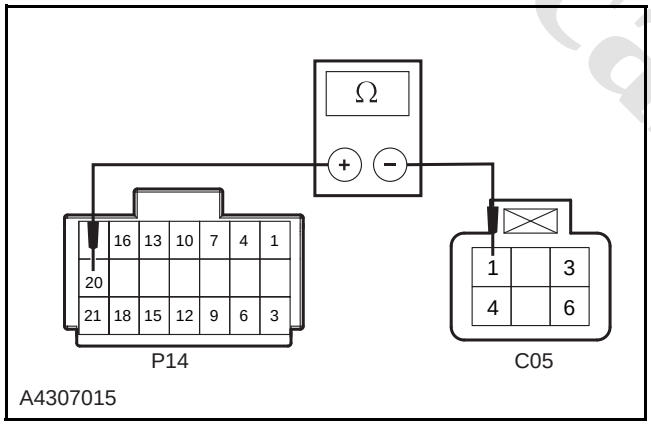
Test conditions	Details/Results/Actions
1. General inspection	
	A. Inspect the wiring harness connectors of the wiper combination switch and the wiper motor for signs of damage, poor contact, aging and loose. B. Inspect the wiper mounting position and the overall status. Is it normal? **Y** GO to step 2. **N** Repair the fault.
2. Inspect the wiper combination switch	
	A. Turn the ignition switch to position "LOCK". B. Disconnect the wiring harness connector P13 of the wiper combination switch. C. Inspect the wiper combination switch performance in accordance with the wiper combination switch gear table. **Standard Resistance Value: less than 5Ω** The intermittent position is corresponding to the standard resistance value. Is it normal? **Y** Go to step 3. **N** Replace the wiper combination switch. **Refer to: Wiper Combination Switch (4.3.7 Wipers and Washers, Removal and Installation).** Verify the system is normal.

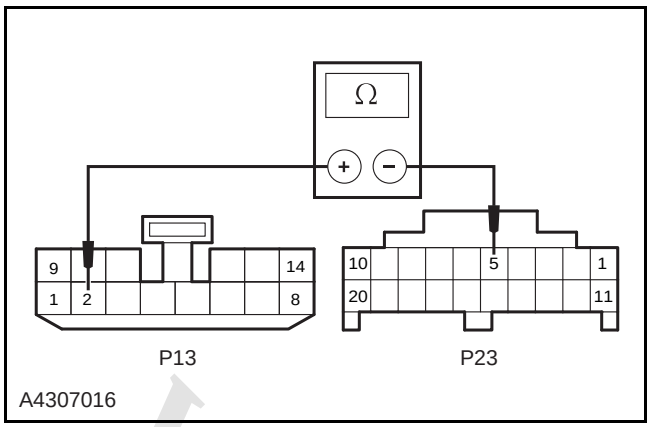
Test conditions	Details/Results/Actions
3. Inspect the input voltage of the wiper motor at low speed	
 A4307010	A. Turn the ignition switch to position "LOCK", disconnect the wiring harness connector C05 of front wiper motor. B. Turn the ignition switch to position "ON". C. Turn the wiper combination switch to "LO" position. D. Measure the voltage between the terminal 6 of the front wiper motor wiring harness connector C05 and the reliable ground. **Standard Voltage Value: 11 ~ 14 V** Is the voltage normal? **Y** Remove the front wiper motor. **Refer to: Front Wiper Motor and Drive Arm (4.3.7 Wipers and Washers, Removal and Installation).** **N** Go to step 4.
4. Inspect the low speed gear input circuit of the front wiper motor	
 A4307013	A. Turn the ignition switch to "LOCK" position, disconnect the front wiper motor wiring harness connector C05, and disconnect the BCM wiring harness connector P14. B. Measure the resistance between the terminal 6 of the front wiper motor wiring harness connector C05 and the terminal 21 of the BCM wiring harness connector P14. **Standard Resistance Value: less than 5 Ω** Is the resistance value normal? **Y** Go to step 5. **N** Inspect and repair the open circuit between the terminal 6 of the front wiper motor wiring harness connector C05 and the terminal 21 of the BCM wiring harness connector P14.

Test conditions	Details/Results/Actions
5. Inspect the circuit between wiper combination switch and BCM	
	A. Turn the ignition switch to "LOCK" position, disconnect the wiper combination switch wiring harness connector P13 and disconnect the BCM wiring harness connector P23. B. Measure the resistance between the terminal 1 of the wiper combination switch wiring harness connector P13 and the terminal 4 of the BCM wiring harness connector P23. **Standard Resistance Value: less than 5 Ω** Is the resistance value normal? **Y** Go to step 6. **N** Inspect and repair the open circuit between the terminal 1 of the wiper combination switch wiring harness connector P13 and the terminal 4 of the BCM wiring harness connector P23.
6. Inspect the BCM power supply and ground circuit	
	A. Inspect the BCM power supply and ground circuit. **Refer to: Fault Diagnosis Procedure Index (4.3.14 Body Control System, DTC Diagnosis and Testing).** Is it normal? **Y** Go to step 7. **N** Troubleshooting.
7. Replace the BCM	
	A. Turn the ignition switch to position "LOCK" and disconnect the battery negative cable. B. Replace the BCM. **Refer to: Body Control Module (4.3.14 Body Control System, Removal and Installation).** Verify the system is normal.

Wiper Not Working in High Speed Gear Diagnosis

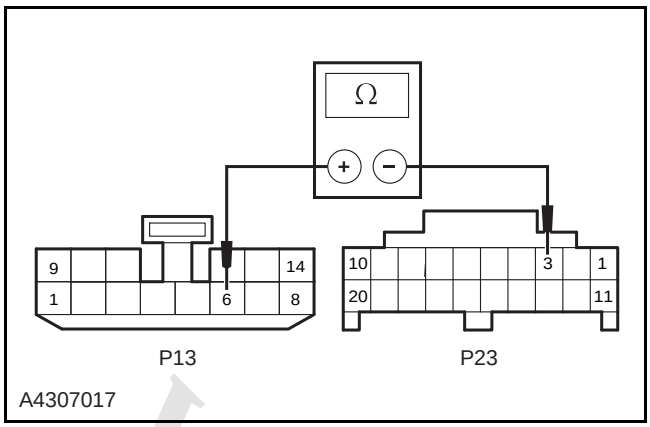
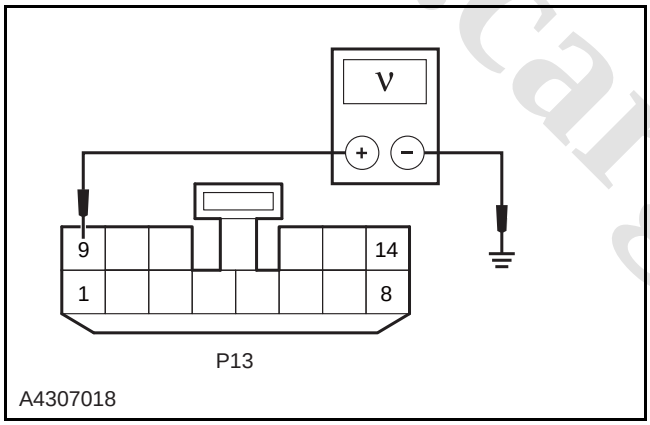
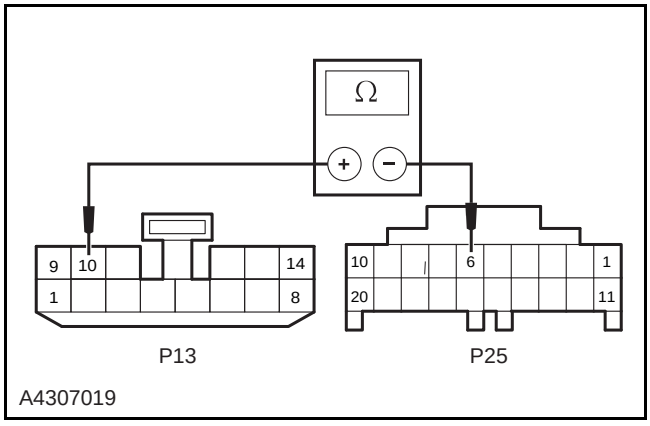
Test conditions	Details/Results/Actions
1. General inspection	
	A. Inspect the wiring harness connectors of the wiper combination switch and the wiper motor for signs of damage, poor contact, aging and loose. B. Inspect the wiper mounting position and the overall status. Is it normal? **Y** Go to step 2. **N** Repair the fault.
2. Inspect the wiper combination switch	
	A. Turn the ignition switch to position "LOCK". B. Disconnect the wiring harness connector P13 of the wiper combination switch. C. Inspect the wiper combination switch performance in accordance with the wiper combination switch gear table. **Standard Resistance Value: less than 5Ω** The intermittent position is corresponding to the standard resistance value. Is it normal? **Y** Go to step 3. **N** Replace the wiper combination switch. **Refer to: Wiper Combination Switch (4.3.7 Wipers and Washers, Removal and Installation).** Verify the system is normal.

Test conditions	Details/Results/Actions
3. Inspect the input voltage of the front wiper motor at high speed	
	A. Turn the ignition switch to position "LOCK", disconnect the wiring harness connector C05 of the wiper motor. B. Turn the ignition switch to position "ON". C. Turn the wiper combination switch to "HI" position. D. Measure the voltage between the terminal 1 of the front wiper motor wiring harness connector C05 and the reliable ground. **Standard Voltage Value: 11 ~ 14 V** Is the voltage normal? **Y** Remove the front wiper motor. **Refer to: Front Wiper Motor and Drive Arm (4.3.7 Wipers and Washers, Removal and Installation).** **N** Go to step 4.
4. Inspect the high speed gear input circuit of the front wiper motor	
	A. Turn the ignition switch to "LOCK" position, disconnect the front wiper motor wiring harness connector C05, and disconnect the BCM wiring harness connector P14. B. Measure the resistance between the terminal 1 of the front wiper motor wiring harness connector C05 and the terminal 20 of the BCM wiring harness connector P14. **Standard Resistance Value: less than 5 Ω** Is the resistance value normal? **Y** Go to step 5. **N** Inspect and repair the open circuit between the terminal 1 of the front wiper motor wiring harness connector C05 and the terminal 20 of the BCM wiring harness connector P14.

Test conditions	Details/Results/Actions
5. Inspect the circuit between wiper combination switch and BCM	
 A4307016	A. Turn the ignition switch to "LOCK" position, disconnect the wiper combination switch wiring harness connector P13 and disconnect the BCM wiring harness connector P23. B. Measure the resistance between the terminal 2 of the wiper combination switch wiring harness connector P13 and the terminal 5 of the BCM wiring harness connector P23. **Standard Resistance Value: less than 5 Ω** Is the resistance value normal? **Y** Go to step 6. **N** Inspect and repair the open circuit fault between the terminal 2 of the wiper combination switch wiring harness connector P13 and the terminal 5 of the BCM wiring harness connector P23.
6. Inspect the BCM power supply and ground circuit	
	A. Inspect the BCM power supply and ground circuit. **Refer to: Fault Diagnosis Procedure Index (4.3.14 Body Control System, DTC Diagnosis and Testing).** Is it normal? **Y** Go to step 7. **N** Troubleshooting.
7. Replace the BCM	
	A. Turn the ignition switch to position "LOCK" and disconnect the battery negative cable. B. Replace the BCM. **Refer to: Body Control Module (4.3.14 Body Control System, Removal and Installation).** Verify the system is normal.

Front Wiper Intermittent Function Fault Diagnosis

Test conditions	Details/Results/Actions
1. General inspection	
	A. Inspect the wiring harness connectors of the wiper combination switch and the wiper motor for signs of damage, poor contact, aging and loose. B. Inspect the wiper mounting position and the overall status. Is it normal? **Y** GO to step 2. **N** Repair the fault.
2. Inspect the fuse	
	A. Inspect the front wiper combination switch fuse IF03. **Fuse Rated Capacity: 20 A** Is the fuse normal? **Y** Go to step 3. **N** Inspect and repair the fuse circuit, replace the fuse in rated capacity.
3. Inspect the wiper combination switch	
	A. Turn the ignition switch to position "LOCK". B. Disconnect the wiring harness connector P13 of the wiper combination switch. C. Inspect the wiper combination switch performance in accordance with the wiper combination switch gear table. **Standard Resistance Value: less than 5Ω** The intermittent position is corresponding to the standard resistance value. Is it normal? **Y** Go to step 4. **N** Replace the wiper combination switch. **Refer to: Wiper Combination Switch (4.3.7 Wipers and Washers, Removal and Installation).** Verify the system is normal.

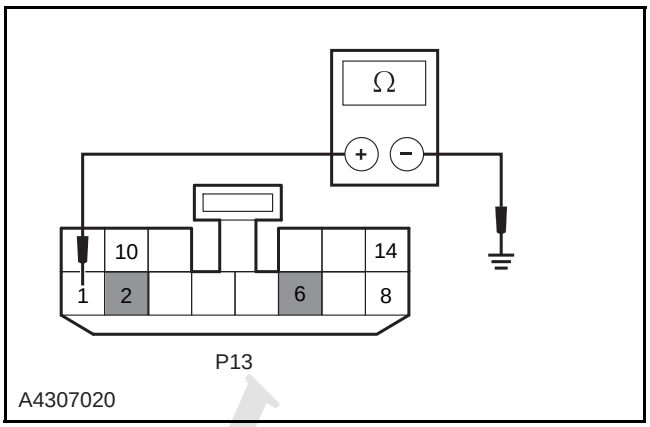
Test conditions	Details/Results/Actions
4. Inspect the intermittent gear circuit of the front wiper	
 A4307017	A. Turn the ignition switch to "LOCK" position and disconnect the battery negative wiring harness. B. Disconnect the wiper combination switch wiring harness connector P13 and the BCM wiring harness connector P23. C. Measure the resistance between the terminal 6 of the wiper combination switch wiring harness connector P13 and the terminal 3 of the BCM wiring harness connector P23. **Standard Resistance Value: less than 5 Ω** Is the resistance value normal? **Y** Go to step 5. **N** Inspect and repair the open circuit fault between the Terminal 6 of the wiper combination switch wiring harness connector P13 and the Terminal 3 of the BCM wiring harness connector P23.
5. Inspect the front wiper intermittent adjustable line	
 A4307018  A4307019	A. Turn the ignition switch to "LOCK" position and disconnect the battery negative wiring harness. B. Disconnect the wiper combination switch wiring harness connector P13 and the BCM wiring harness connector P25. C. Turn the ignition switch to position "ON". D. Measure the voltage between the terminal 9 of the wiper combination switch wiring harness connector P13 and the reliable ground. **Standard Voltage Value: 11 ~ 14 V** E. Measure the resistance between the terminal 10 of the wiper combination switch wiring harness connector P13 and the terminal 6 of the BCM wiring harness connector P25. **Standard Resistance Value: less than 5 Ω** Is the voltage or resistant normal? **Y** Go to step 6. **N** Inspect and repair the open circuit between the terminal 9 of the wiper combination switch wiring harness connector P13 and the terminal 5 of fuse IF03 in the I/P fuse and relay box P01. Inspect and repair the open circuit between the terminal 10 of the wiper combination switch wiring harness connector P13 and the terminal 6 of the BCM wiring harness connector P25.

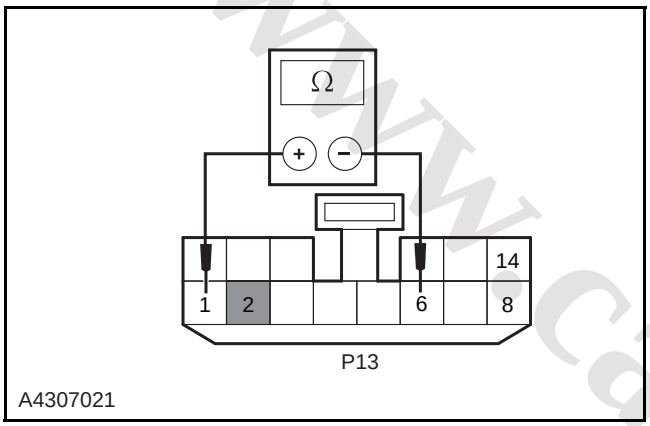
Test conditions	Details/Results/Actions
6. Inspect the BCM power supply and ground circuit	
	A. Inspect the BCM power supply and ground circuit. **Refer to: Fault Diagnosis Procedure Index (4.3.14 Body Control System, DTC Diagnosis and Testing).** Is it normal? **Y** Go to step 7. **N** Troubleshooting.
7. Replace the BCM	
	A. Turn the ignition switch to position "LOCK" and disconnect the battery negative cable. B. Replace the BCM. **Refer to: Body Control Module (4.3.14 Body Control System, Removal and Installation).** Verify the system is normal.

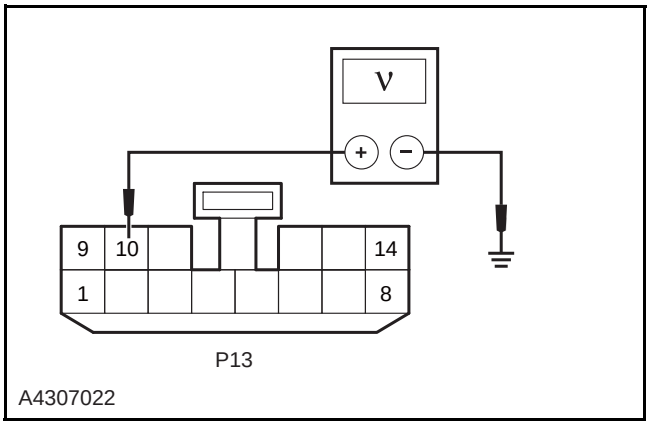
Front Wiper Constantly Working in Intermittent Gear Diagnosis

Test conditions	Details/Results/Actions
1. General inspection	
	A. Inspect the wiring harness connectors of the wiper combination switch and the wiper motor for signs of damage, poor contact, aging and loose. B. Inspect the wiper mounting position and the overall status. Is it normal? **Y** GO to step 2. **N** Repair the fault.
2. Inspect the wiper combination switch	
	A. Turn the ignition switch to position "LOCK". B. Disconnect the wiring harness connector P13 of the wiper combination switch. C. Inspect the wiper combination switch performance in accordance with the wiper combination switch gear table. **Standard Resistance Value: less than 5Ω** The intermittent position is corresponding to the standard resistance value. Is it normal? **Y** Go to step 3. **N** Replace the wiper combination switch. **Refer to: Wiper Combination Switch (4.3.7 Wipers and Washers, Removal and Installation).** Verify the system is normal.

Test conditions	Details/Results/Actions
3. Inspect the circuit between wiper combination switch and BCM	







A. Turn the ignition switch to position "LOCK" and disconnect the battery negative cable.

B. Disconnect the BCM wiring harness connector P23 and P25 and the wiper combination switch wiring harness connector P13.

C. Connect the battery negative cable.

D. Measure the resistance between the terminal 1, 2, 6 of the wiper combination switch wiring harness connector P13 and the reliable ground.

E. Measure the resistance between terminal 6 of the wiper combination switch wiring harness connector P13 and the terminal 1 and 2.

Standard Resistance Value: 10 MΩ or more

F. Measure the voltage between the terminal 10 of the wiper combination switch wiring harness connector P13 and the reliable ground.

Standard Voltage: 0 V

Is the resistance value normal?

Y

Go to step 4.

N

Repair the fault between the terminal 1, 2 and 6 of the wiper combination switch wiring harness connector P13 and the terminal 4, 5 and 3 of the BCM wiring harness connector P23.

Repair the fault between the terminal 10 of the wiper combination switch wiring harness connector P13 and the terminal 6 of the BCM wiring harness connector P25.

Test conditions	Details/Results/Actions
4. Inspect the BCM power supply and ground circuit	
	A. Inspect the BCM power supply and ground circuit. **Refer to: Fault Diagnosis Procedure Index (4.3.14 Body Control System, DTC Diagnosis and Testing).** Is it normal? **Y** Go to step 5. **N** Troubleshooting.
5. Replace the BCM	
	A.Turn the ignition switch to LOCK position and disconnect the battery negative cable. B. Replace the BCM. **Refer to: Body Control Module (4.3.14 Body Control System, Removal and Installation).** Verify the system is normal.

Windshield Still Dirty After Wiping Diagnosis

Test conditions	Details/Results/Actions
1. General inspection	
	A. Add the washing fluid meeting the standard of Chana Automobile for wiper operation. Is it normal? **Y** Confirm the maintenance is finished. **N** Go to step 2.
2. Inspect the wiper blade	
	A. Inspect the cleanliness of the wiper blade. B. Inspect the wiper blade for deformation, aging and damage. Is the performance of the wiper blade normal? **Y** Go to step 3. **N** Clean the wiper blade with the special washing fluid and replace it when necessary.
3. Inspect the wiper arm	
	A. Inspect the installation position of the wiper arm. B. Inspect the wiper arm for its elasticity. Is the performance of the wiper arm normal? **Y** Go to step 4. **N** Adjust the installation position of the wiper arm and replace it as necessary.
4. Inspect the windshield	
	A. Inspect the cleanliness of the windshield. B. Inspect the scratches and cracks of the windshield. Is the performance of the windshield normal? **Y** Go to step 5. **N** Clean the front windshield with the special washing fluid and replace it when necessary.

Test conditions	Details/Results/Actions
5. Inspect the wiper linkage	
	A. Inspect the mounting situation of the wiper linkage. B. Inspect the wiper deformation and damage. Is the performance of the wiper arm normal? **Y** Go to step 6. **N** Mount the wiper linkage correctly, repair the deformed parts, replace the failed linkage.
6. Replace the wiper motor	
	A. Turn the ignition switch to position "LOCK", disconnect the wiring harness connector of the wiper motor. B. Replace the wiper motor. **Refer to: Front Wiper Motor and Drive Arm (4.3.7 Wipers and Washers, Removal and Installation).** **Refer to: Rear Wiper Motor and Drive Arm (4.3.7 Wipers and Washers, Removal and Installation).** Verify the system is normal.

Shaking Wiper During Working Process Diagnosis

Test conditions	Details/Results/Actions
1. General inspection	
	A. Add the washing fluid meeting the standard of Chana Automobile for wiper operation. Is it normal? **Y** Repair completed. **N** Go to step 2.
2. Inspect the wiper blade	
	A. Inspect the cleanliness of the wiper blade. B. Inspect the wiper blade for deformation, aging and damage. Is the performance of the wiper blade normal? **Y** Go to step 3. **N** Clean the wiper blade with the special washing fluid and replace it when necessary.
3. Inspect the wiper arm	
	A. Inspect the installation position of the wiper arm. B. Inspect the wiper arm for its elasticity. Is the performance of the wiper arm normal? **Y** Go to step 4. **N** Adjust the installation position of the wiper arm and replace it as necessary.
4. Inspect the windshield	
	A. Inspect the cleanliness of the windshield. B. Inspect the scratches and cracks of the windshield. Is the performance of the windshield normal? **Y** Go to step 5. **N** Clean the windshield with the special washing fluid and replace it when necessary.

Test conditions	Details/Results/Actions
5. Inspect the wiper linkage	
	A. Inspect the mounting situation of the wiper linkage. B. Inspect the wiper deformation and damage. Is the wiper linkage normal? **Y** Go to step 6. **N** Mount the wiper linkage correctly, repair the deformed parts, replace the failed linkage.
6. Replace the wiper motor	
	A. Turn the ignition switch to position "LOCK", disconnect the wiring harness connector of the wiper motor. B. Replace the wiper motor. **Refer to: Front Wiper Motor and Drive Arm (4.3.7 Wipers and Washers, Removal and Installation).** **Refer to: Rear Wiper Motor and Drive Arm (4.3.7 Wipers and Washers, Removal and Installation).** Verify the system is normal.

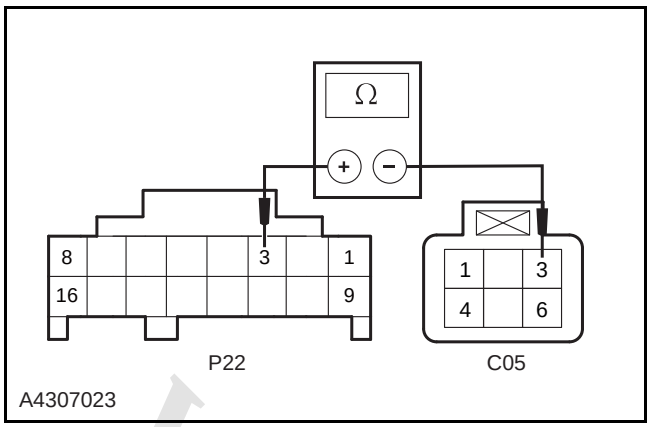
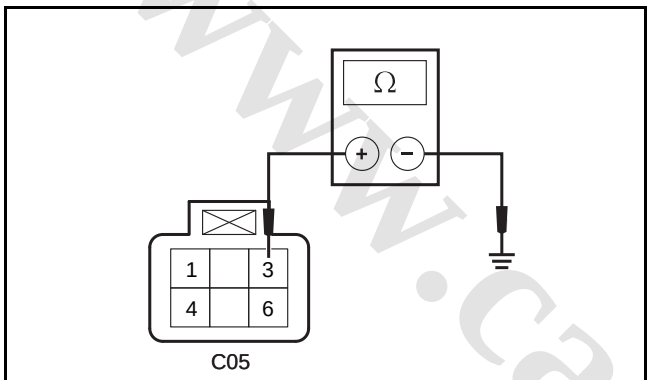
Abnormal Noise During Wiping Diagnosis

Test conditions	Details/Results/Actions
1. Inspect the wiper blade	
	A. Inspect the cleanliness of the wiper blade. B. Inspect the wiper blade for deformation, aging and damage. Is the performance of the wiper blade normal? **Y** Go to step 2. **N** Clean the wiper blade with the special washing fluid and replace it when necessary.
2. Inspect the windshield	
	A. Inspect the cleanliness of the windshield. B. Inspect the scratches and cracks of the windshield. Is the performance of the windshield normal? **Y** Go to step 3. **N** Clean the windshield with the special washing fluid and replace it when necessary.
3. Inspect the washing situation	
	A. Add the washing fluid meeting the standard of Chana Automobile for wiper operation. Does the abnormal noise still exist? **Y** Repair completed. **N** Go to step 4.
4. Inspect the wiper arm	
	A. Inspect the installation position of the wiper arm. B. Inspect the wiper arm for its elasticity. Is the performance of the wiper arm normal? **Y** Go to step 5. **N** Adjust the installation position of the wiper arm and replace it as necessary.

Test conditions	Details/Results/Actions
5. Inspect the wiper linkage	
	A. Inspect the mounting situation of the wiper linkage. B. Inspect the wiper deformation and damage. Is the wiper linkage normal? **Y** Go to step 6. **N** Mount the wiper linkage correctly, repair the deformed parts, replace the failed linkage.
6. Replace the wiper motor	
	A. Turn the ignition switch to position "LOCK". B. Replace the wiper motor. **Refer to: Front Wiper Motor and Drive Arm (4.3.7 Wipers and Washers, Removal and Installation).** **Refer to: Rear Wiper Motor and Drive Arm (4.3.7 Wipers and Washers, Removal and Installation).** Verify the system is normal.

Wiper Unable to Return to Initial Position Diagnosis

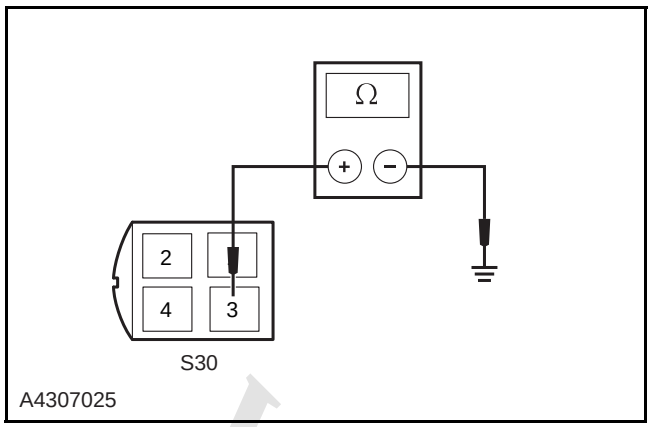
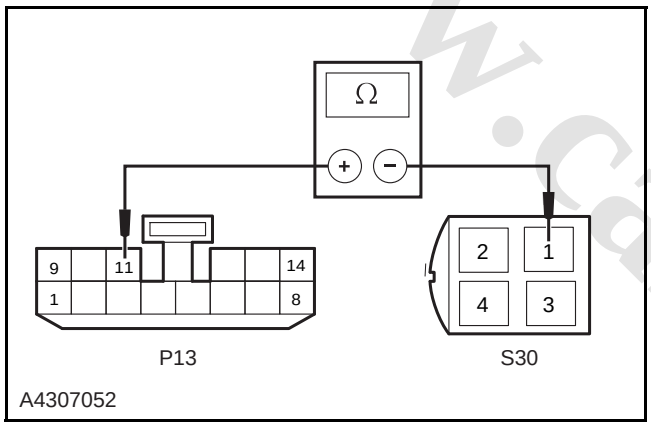
Test conditions	Details/Results/Actions
1. General inspection	
	A. Inspect the wiring harness connectors of the wiper combination switch and the wiper motor for signs of damage, poor contact, aging and loose. B. Inspect the wiper mounting position and the overall status. Is it normal? **Y** Go to step 2. **N** Repair the fault.
2. Inspect the wiper arm	
	A. Inspect the installation position of the wiper arm. B. Inspect the wiper arm for its elasticity. Is the performance of the wiper arm normal? **Y** Go to step 3. **N** Adjust the installation position of the front wiper arm and replace it as necessary.
3. Inspect the wiper linkage	
	A. Inspect the mounting situation of the wiper linkage. B. Inspect the wiper deformation and damage. Is the wiper linkage normal? **Y** Go to step 4. **N** Mount the wiper linkage correctly, repair the deformed parts, replace the failed linkage.

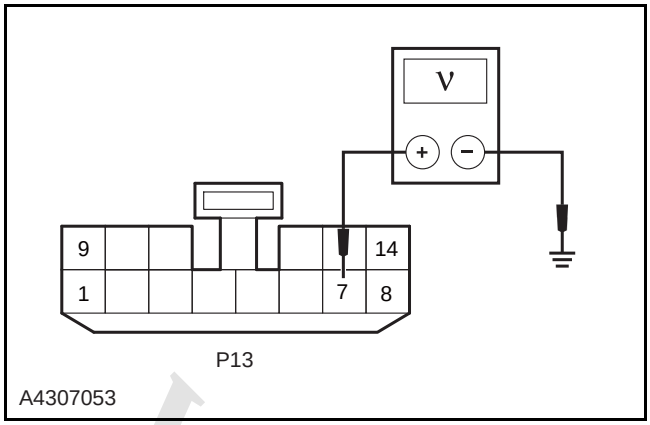
Test conditions	Details/Results/Actions
4. Inspect the return circuit of the front wiper motor	
 A4307023	A. Turn the ignition switch to position "LOCK". B. Disconnect the front wiper motor wiring harness connector C05, disconnect the BCM wiring harness connector P22. C. Measure the resistance between the terminal 3 of the front wiper combination switch wiring harness connector C05 and the terminal 3 of the BCM wiring harness connector P22. **Standard Resistance Value: less than 5 Ω** D. Measure the resistance between the terminal 3 of the front wiper motor wiring harness connector C05 and the reliable ground. **Standard Resistance Value: 10 MΩ or more** Is it normal? **Y** Go to step 5. **N** Inspect and repair the fault circuit between the terminal 3 of the front wiper motor wiring harness connector C05 and the terminal 3 of the BCM wiring harness connector P22.
 A4307024	
5. Inspect the front wiper motor	
	A. Turn the ignition switch to position "LOCK", disconnect the wiring harness connector of wiper motor. B. Remove the front wiper motor. **Refer to: Front Wiper Motor and Drive Arm (4.3.7 Wipers and Washers, Removal and Installation).** Is the system normal? **Y** Replace the front wiper motor and confirm if the system operates normally. **N** Go to step 6.

Test conditions	Details/Results/Actions
6. Inspect the BCM power supply and ground circuit	
	A. Inspect the BCM power supply and ground circuit. **Refer to: Fault Diagnosis Procedure Index (4.3.14 Body Control System, DTC Diagnosis and Testing).** Is it normal? **Y** Go to step 7. **N** Troubleshooting.
7. Replace the BCM	
	A. Turn the ignition switch to position "LOCK" and disconnect the battery negative cable. B. Replace the BCM. **Refer to: Body Control Module (4.3.14 Body Control System, Removal and Installation).** Verify the system is normal.

Rear Wiper Fault Diagnosis

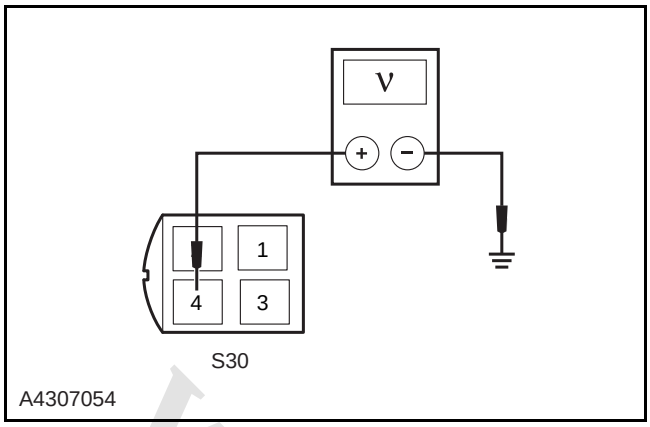
Test conditions	Details/Results/Actions
1. General inspection	
	A. Inspect the wiring harness connectors of the wiper combination switch and the wiper motor for signs of damage, poor contact, aging and loose. B. Inspect the wiper mounting position and the overall status. Is it normal? **Y** Go to step 2. **N** Repair the fault.
2. Inspect the fuse	
	A. Inspect the wiper sytem fuse IF03. **Fuse Rated Capacity: 20 A** Is the fuse normal? **Y** Go to step 3. **N** Inspect and repair the fuse circuit, replace the fuse in rated capacity.
3. Inspect the wiper combination switch	
	A. Turn the ignition switch to position "LOCK". B. Disconnect the wiring harness connector P13 of the wiper combination switch. C. Inspect the wiper combination switch performance in accordance with the wiper combination switch gear table. **Standard Resistance Value: less than 5Ω** The intermittent position is corresponding to the standard resistance value. Is it normal? **Y** Go to step 4. **N** Replace the wiper combination switch. **Refer to: Wiper Combination Switch (4.3.7 Wipers and Washers, Removal and Installation).** Verify the system is normal.

Test conditions	Details/Results/Actions
4. Inspect the power supply circuit of the rear wiper motor	
	A. Turn the ignition switch to position "LOCK", disconnect the wiring harness connector S30 of rear wiper motor. B. Measure the resistance between the terminal 3 of the rear wiper motor wiring harness connector S30 and the reliable ground. **Standard Resistance Value: less than 5 Ω** Is the resistance value normal? **Y** Go to step 5. **N** Inspect and repair the open circuit between the terminal 3 of the rear wiper motor wiring harness connector S30 and the ground point G205.
5. Inspect the power input circuit of the rear wiper motor	
	A. Turn the ignition switch to "LOCK" position, disconnect the rear wiper motor wiring harness connector S30, and disconnect the wiper combination switch wiring harness connector P13. B. Measure the resistance between the terminal 1 of the rear wiper motor wiring harness connector S30 and the terminal 11 of the wiper combination switch wiring harness connector P13. **Standard Resistance Value: less than 5 Ω** Is the resistance value normal? **Y** Go to step 6. **N** Inspect and repair the open circuit between the terminal 1 of the rear wiper motor wiring harness connector S30 and the terminal 11 of the wiper combination switch wiring harness connector P13.

Test conditions	Details/Results/Actions
6. Inspect the power supply circuit of the wiper combination switch	
	A. Turn the ignition switch to "LOCK" position and disconnect the wiper combination switch wiring harness connector P13. B. Turn the ignition switch to position "ON". C. Measure the voltage between the terminal 7 of the wiper combination switch wiring harness connector P13 and the reliable ground. **Standard Voltage Value: 11 ~ 14 V** Is the voltage value normal? **Y** Go to step 7. **N** Inspect and repair the fault circuit between the terminal 7 of the wiper combination switch wiring harness connector P13 and the terminal 5 of the fuse IF03 in the I/P fuse and relay box P01.
7. Replace the rear wiper motor	
	A. Turn the ignition switch to position "LOCK". B. Replace the rear wiper motor. **Refer to: Rear Wiper Motor and Drive Arm (4.3.7 Wipers and Washers, Removal and Installation).** Verify the system is normal.

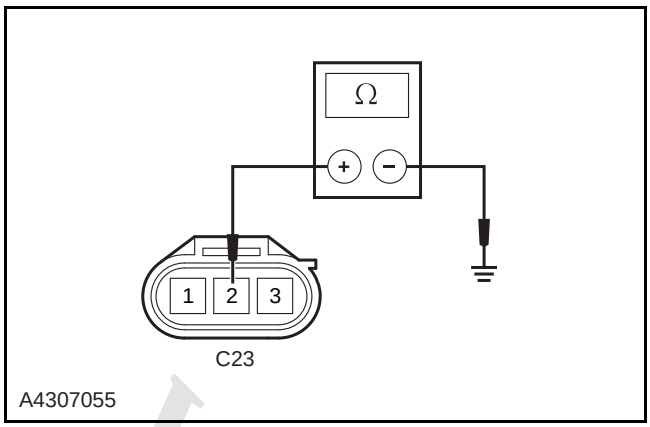
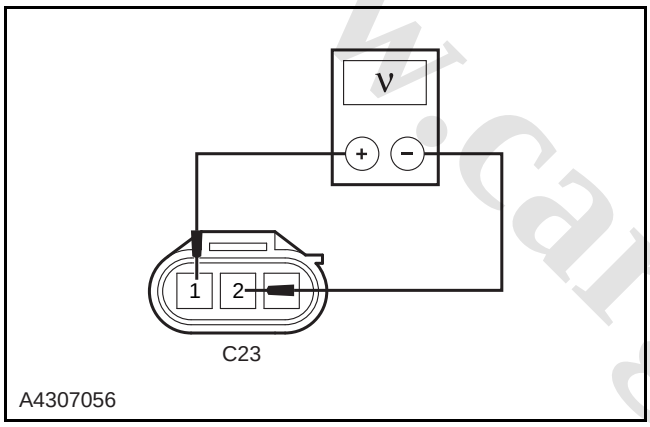
Rear Wiper Can Not Go Back to the Initial Position Diagnosis

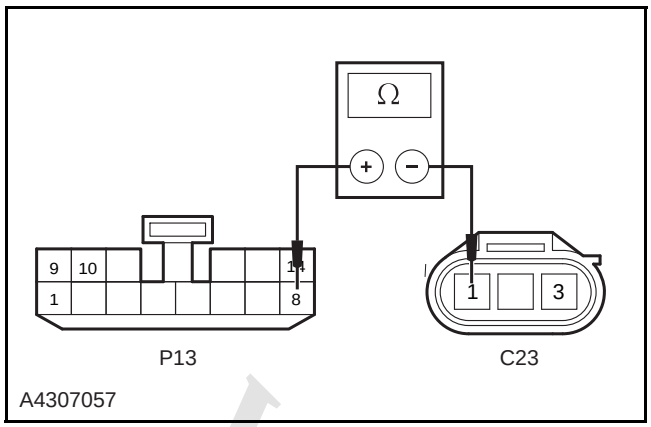
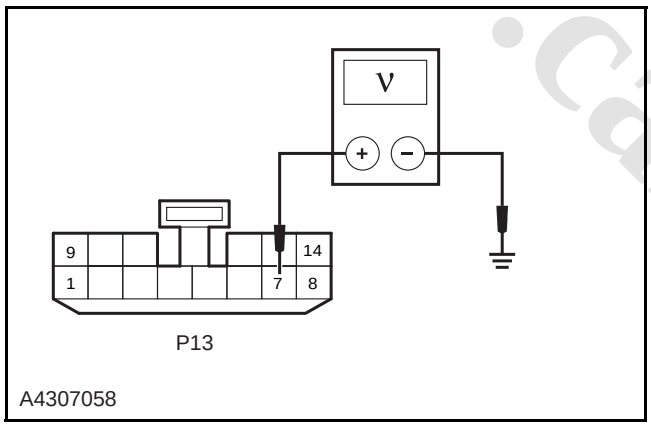
Test conditions	Details/Results/Actions
1. General inspection	
	A. Inspect the wiring harness connectors of the wiper combination switch and the wiper motor for signs of damage, poor contact, aging and loose. B. Inspect the wiper mounting position and the overall status. Is it normal? **Y** GO to step 2. **N** Repair the fault.
2. Inspect the wiper arm	
	A. Inspect the installation position of the wiper arm. B. Inspect the wiper arm for its elasticity. Is the performance of the wiper arm normal? **Y** Go to step 3. **N** Adjust the installation position of the wiper arm and replace it as necessary.
3. Inspect the wiper linkage	
	A. Inspect the mounting situation of the wiper linkage. B. Inspect the wiper deformation and damage. Is the wiper linkage normal? **Y** Go to step 4. **N** Mount the wiper linkage correctly, repair the deformed parts, replace the failed linkage.

Test conditions	Details/Results/Actions
4. Inspect the rear wiper motor back signal circuit	
	A. Turn the ignition switch to position "LOCK". B. Disconnect the wiring harness connector S30 of the rear wiper motor. C. Turn the ignition switch to position "ON". D. Measure the voltage between the terminal 4 of the rear wiper motor wiring harness connector S30 and the reliable ground. **Standard Voltage Value: 11 ~ 14 V** Is the voltage normal? **Y** Go to step 5. **N** Inspect and repair the open circuit between the terminal 4 of the rear wiper motor wiring harness connector S30 and the terminal 5 of the fuse IF03 in the I/P fuse and relay box P01.
5. Replace the rear wiper motor	
	A. Replace the rear wiper motor. **Refer to: Rear Wiper Motor and Drive Arm (4.3.7 Wipers and Washers, Removal and Installation).** Verify the system is normal.

Front Washer Fault Diagnosis

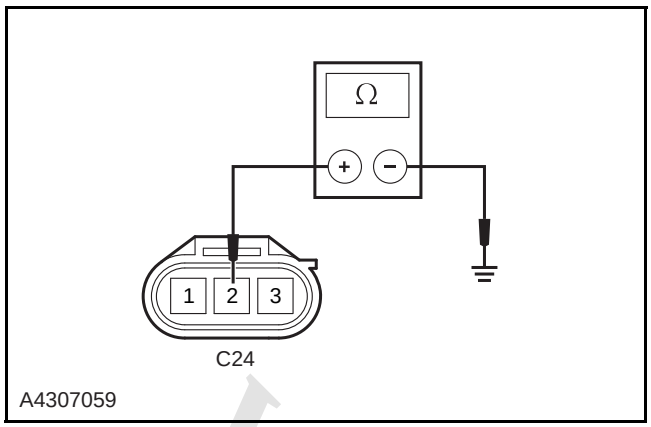
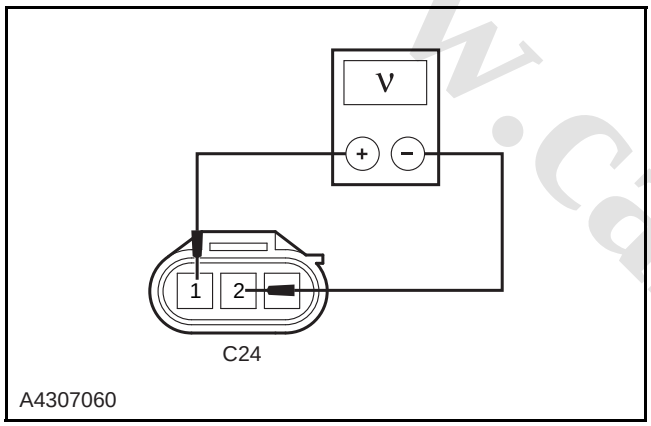
Test conditions	Details/Results/Actions
1. General inspection	
	A. Inspect the volume of the washing fluid. B. Inspect the washer hose for any distortion, bending or damage. C. Inspect the washer nozzle for any crack and damage. D. Inspect the wiring harness connector P13 of the wiper combination switch and the wiring harness connector C23 of the front wiper motor for damage, poor contact, aging and loose. Is it normal? **Y** GO to step 2. **N** Repair the fault.
2. Inspect the fuse	
	A. Inspect the front wiper system fuse IF03. **Fuse Rated capacity: 20 A** Is the fuse normal? **Y** Go to step 3. **N** Inspect and repair the fuse circuit, replace the fuse in rated capacity.
3. Inspect the wiper combination switch	
	A. Turn the ignition switch to position "LOCK". B. Disconnect the wiring harness connector P13 of the wiper combination switch. C. Inspect the wiper combination switch performance in accordance with the wiper combination switch gear table. **Standard Resistance Value: less than 5Ω** The intermittent position is corresponding to the standard resistance value. Is it normal? **Y** Go to step 4. **N** Replace the wiper combination switch. **Refer to: Wiper Combination Switch (4.3.7 Wipers and Washers, Removal and Installation).** Verify the system is normal.

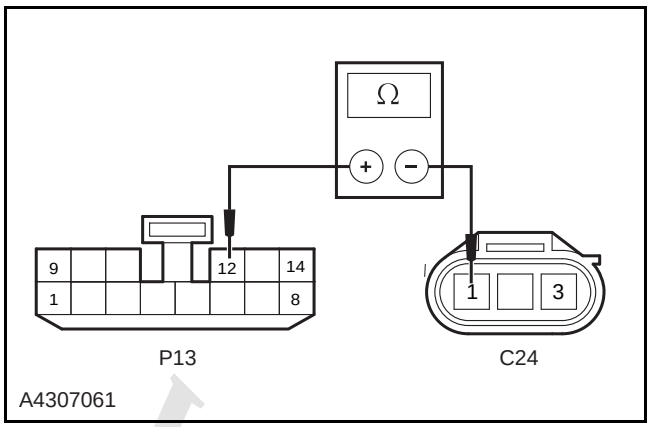
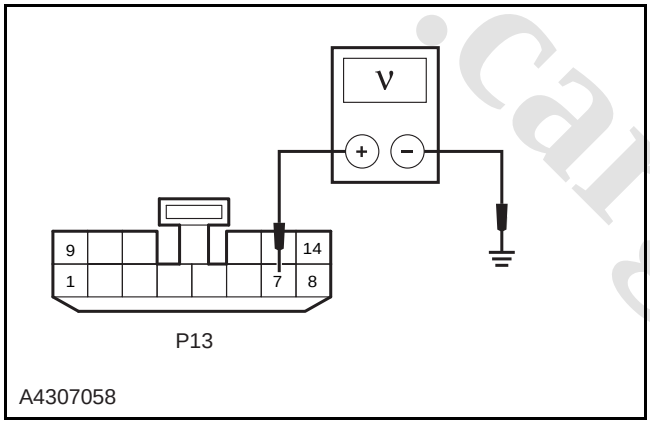
Test conditions	Details/Results/Actions
4. Inspect the ground circuit of the front washer motor	
 A4307055	A. Turn the ignition switch to position "LOCK", disconnect the wiring harness connector C23 of the front washer motor. B. Measure the resistance between the terminal 2 of the washer motor wiring harness connector C23 and the reliable ground. **Standard Resistance Value: less than 5 Ω** Is the resistance value normal? **Y** Go to step 5. **N** Inspect and repair the open circuit fault between the Terminal 2 of the washer motor wiring harness connector C23 and the ground point G304.
5. Inspect the input voltage of the front washer motor	
 A4307056	A. Turn the ignition switch to pposition "LOCK", disconnect the wiring harness connector C23 of front washer motor. B. Turn the ignition switch to position "ON". C. Turn the wiper combination switch to "WASH" position. D. Measure the voltage between the terminal 1 and the terminal 2 of the front washer motor wiring harness connector C23. **Standard Voltage Value: 11 ~ 14 V** Is the voltage normal? **Y** Replace the front washer motor. **Refer to: Washing Equipment (4.3.7 Wipers and Washers, Removal and Installation)** Verify the system is normal. **N** Go to step 6.

Test conditions	Details/Results/Actions
6. Inspect the circuit between the washer motor and the wiper combination switch	
 A4307057	A. Turn the ignition switch to "LOCK" position, disconnect the wiper combination switch wiring harness connector P13 and disconnect the front washer motor wiring harness connector C23. B. Measure the resistance between the terminal 8 of the wiper combination switch wiring harness connector P13 and the terminal 1 of the washer motor wiring harness connector C23. **Standard Resistance Value: less than 5 Ω** Is the resistance value normal? **Y** Go to step 7. **N** Inspect and repair the open circuit between the terminal 8 of the wiper combination switch wiring harness connector P13 and the terminal 1 of the rear wiper motor wiring harness connector C23.
7. Inspect the power circuit of the front washer motor	
 A4307058	A. Turn the ignition switch to "LOCK" position and disconnect the wiper combination switch wiring harness connector P13. B. Turn the ignition switch to position "ON". C. Measure the voltage between the terminal 7 of the wiper combination switch wiring harness connector P13 and the reliable ground. **Standard Voltage Value: 11 ~ 14 V** Is the voltage normal? **Y** Verify the system is normal. **N** Inspect and repair the open circuit between the terminal 7 of the wiper combination switch wiring harness connector P13 and the terminal 5 of fuse IF03 in the I/P fuse and relay box P01.

The Rear Washer Fault Diagnosis

Test conditions	Details/Results/Actions
1. General inspection	
	A. Inspect the volume of the washing fluid. B. Inspect the washer hose for any distortion, bending or damage. C. Inspect the washer nozzle for any crack and damage. D. Inspect the wiring harness connector P13 of the wiper combination switch and wiring harness connector C24 of the front wiper motor for damage, poor contact, aging and loose. Is it normal? **Y** Go to step 2. **N** Repair the fault.
2. Inspect the fuse	
	A. Inspect the rear wiper system fuse IF03. **Fuse Rated Capacity: 20 A** Is the fuse normal? **Y** Go to step 3. **N** Inspect and repair the fuse circuit, replace the fuse in rated capacity.
3. Inspect the wiper combination switch	
	A. Turn the ignition switch to position "LOCK". B. Disconnect the wiring harness connector P13 of the wiper combination switch. C. Inspect the wiper combination switch performance in accordance with the wiper combination switch gear table. **Standard Resistance Value: less than 5Ω** The intermittent position is corresponding to the standard resistance value. Is it normal? **Y** Go to step 4. **N** Replace the wiper combination switch. **Refer to: Wiper Combination Switch (4.3.7 Wipers and Washers, Removal and Installation).** Verify the system is normal.

Test conditions	Details/Results/Actions
4. Inspect the ground circuit of the rear washer motor	
	A. Turn the ignition switch to position "LOCK", disconnect the wiring harness connector C24 of the rear washer motor. B. Measure the resistance between the terminal 2 of the rear washer motor wiring harness connector C24 and the reliable ground. **Standard Resistance Value: less than 5 Ω** Is the resistance value normal? **Y** Go to step 5. **N** Inspect and repair the open circuit fault between the terminal 2 of the washer motor wiring harness connector C24 and the ground point G304.
5. Inspect the input voltage of the rear washer motor	
	A. Turn the ignition switch to position "LOCK", disconnect the wiring harness connector C24 of front washer motor. B. Turn the ignition switch to position "ON". C. Turn the wiper combination switch to "WASH" position. D. Measure the voltage between the terminal 1 and the terminal 2 of the washer motor wiring harness connector C24. **Standard Voltage Value: 11 ~ 14 V** Is the voltage normal? **Y** Replace the rear washer motor. **Refer to: Washing Equipment (4.3.7 Wipers and Washers, Removal and Installation).** Verify the system is normal. **N** Go to step 6.

Test conditions	Details/Results/Actions
6. Inspect the circuit between the rear washer motor and the wiper combination switch	
 A4307061	A. Turn the ignition switch to "LOCK" position, disconnect the wiper combination switch wiring harness connector P13 and disconnect the front washer motor wiring harness connector C24. B. Measure the resistance between the terminal 12 of the wiper combination switch wiring harness connector P13 and the terminal 1 of the washer motor wiring harness connector C24. **Standard Resistance Value: less than 5 Ω** Is the resistance value normal? **Y** Go to step 7. **N** Inspect and repair the open circuit between the terminal 12 of the wiring harness connector P13 of the wiper combination switch and the terminal 1 of the wiper motor wiring harness connector C24.
7. Inspect the power circuit of the front washer motor	
 A4307058	A. Turn the ignition switch to "LOCK" position and disconnect the wiper combination switch wiring harness connector P13. B. Turn the ignition switch to position "ON". C. Measure the voltage between the terminal 7 of the wiper combination switch wiring harness connector P13 and the reliable ground. **Standard Voltage Value: 11 ~ 14 V** Is the voltage normal? **Y** Verify the system is normal. **N** Inspect and repair the open circuit between the terminal 7 of the wiper combination switch wiring harness connector P13 and the terminal 5 of fuse IF03 in the I/P fuse and relay box P01.

Front Spray Not In PlaceDiagnosis

Test conditions	Details/Results/Actions
1. General inspection	
	A. Inspect the volume of the washing fluid. B. Inspect the washer hose for any distortion, bending or damage. Is it normal? **Y** Go to step 2. **N** Repair the fault.
2. Inspect the washer nozzle	
	A. Inspect the spray angle and position during the washing operation. B. Adjust the washer washer nozzle. Is it normal? **Y** Confirm the maintenance is finished. **N** Go to step 3.
3. Replace the washer nozzle	
	A. Replace the washer washer nozzle. Verify the system is normal.

Removal and Installation

Wiper Combination Switch

Removal

1. Disconnect the battery negative cable.

   Refer to: Battery Inspection (3.1.10 Charging System, General Procedures).

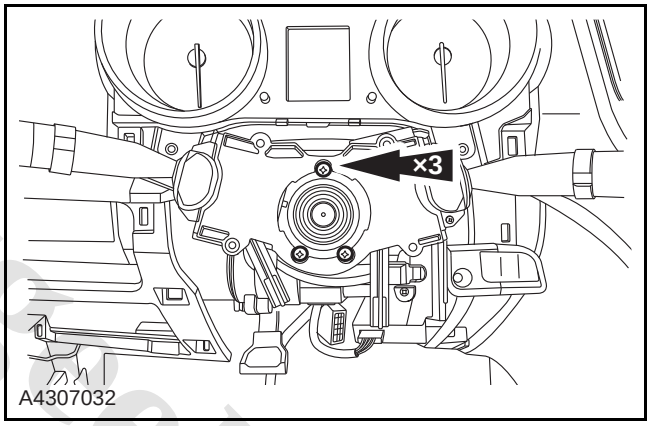
2. Remove the driver airbag and the steering wheel.

   Refer to: Driver Airbag and Steering Wheel (4.2.1 Supplemental Restraint System, Removal and Installation).

3. Remove the clock spring.

   Refer to: Clock Spring (4.2.1 Supplemental Restraint System, Removal and Installation).

4. Remove the 3 retaining screws of the combination switch.

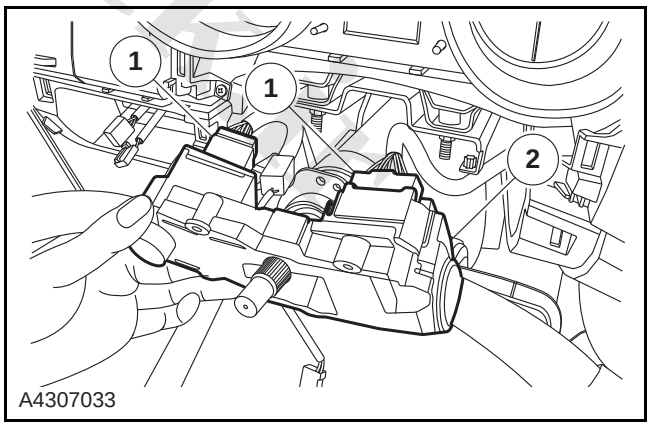


A4307032

5. Take off the wiper combination switch from the steering column.

   1. Disconnect the wiring harness connector of the wiper combination switch.

   2. Take out the wiper combination switch.



A4307033

Installation

1. The installation process is reverse.

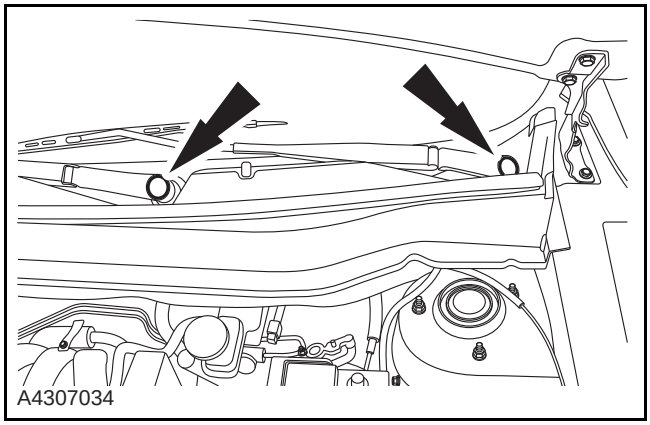
Front Wiper Motor and Drive Arm

Removal

1. Disconnect the battery negative cable.

   Refer to: Battery Inspection (3.1.10 Charging System, General Procedures).

2. Using suitable tools, remove the cover of the retaining nut on the front wiper arm.

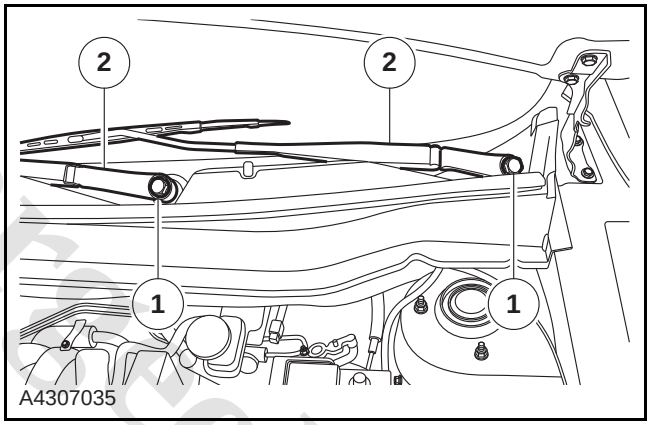

A4307034

3. Remove the front wiper arm.

   1. Remove the wiper arm retaining nuts in the sequence from the passenger side to the driver side.

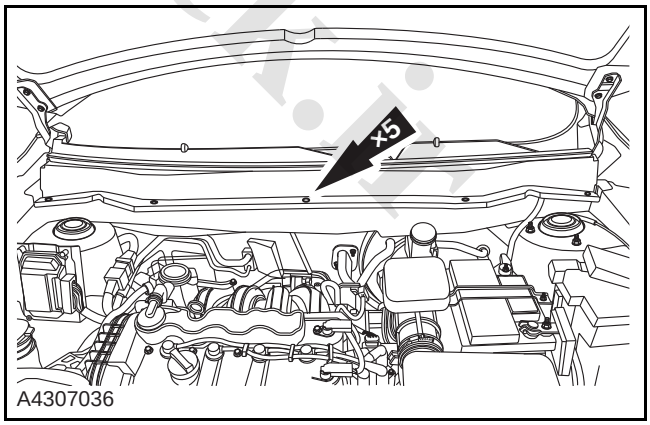
   Torque: 20 Nm

   2. Take out the front wiper arm.



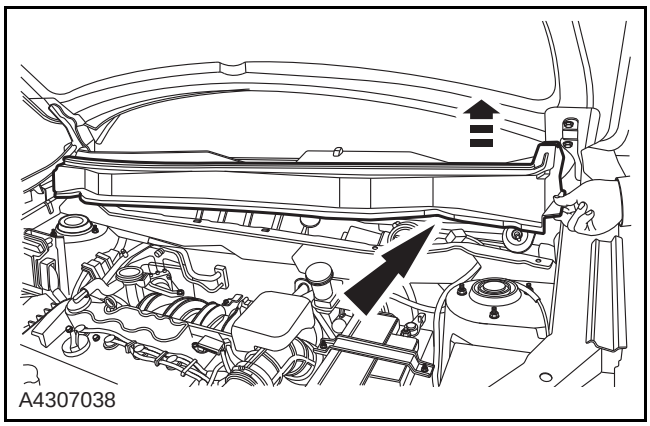
A4307035

4. Loosen the 5 retaining clamps of the front cover decoration.



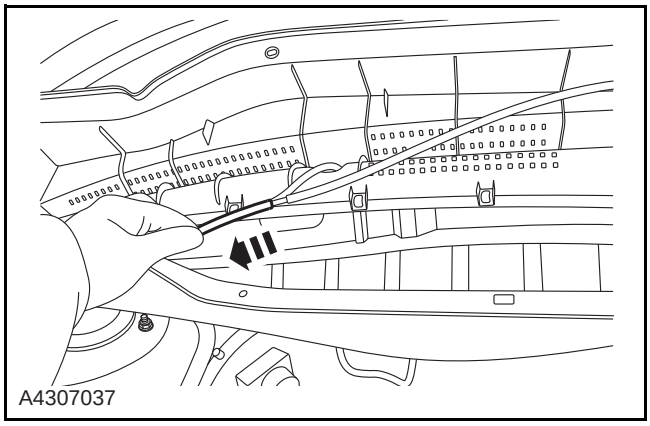
A4307036

5. Separate the front cover decoration from the front windshield.


A4307038

6. Disconnect the spray pipe from the front wiper nozzle.

CAUTION: Do not damage the washing fluid hose when separating the front cover decoration from the front windshield.


A4307037

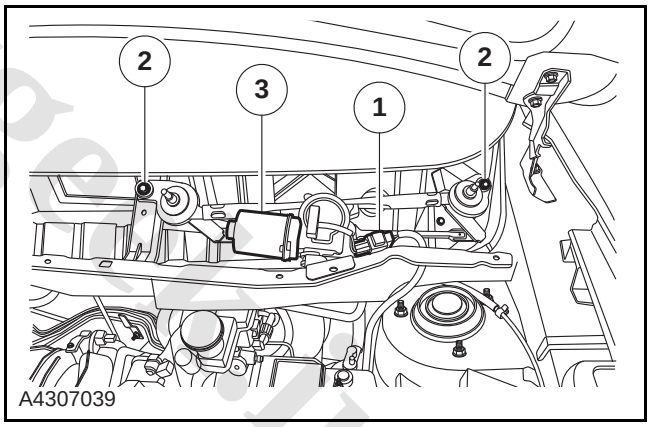
7. Remove the front wiper motor and the drive arm.

1. Disconnect the front wiper motor wiring harness connector.

2. Remove the 2 retaining bolts on the drive arm.

Torque: 11 Nm

3. Take out the wiper motor and the drive arm assembly.



A4307039

Installation

1. To install, reverse the removal procedure.
2. Click the another mount point in the U-shaped groove of the warm air blower pressure chamber board welded assembly, and mount it firmly in place when installing the front wiper motor and the drive arm assembly.
3. Ensure the opening pore of the front cover decoration assembly is concentric with the output shaft of the front wiper motor and drive arm assembly.

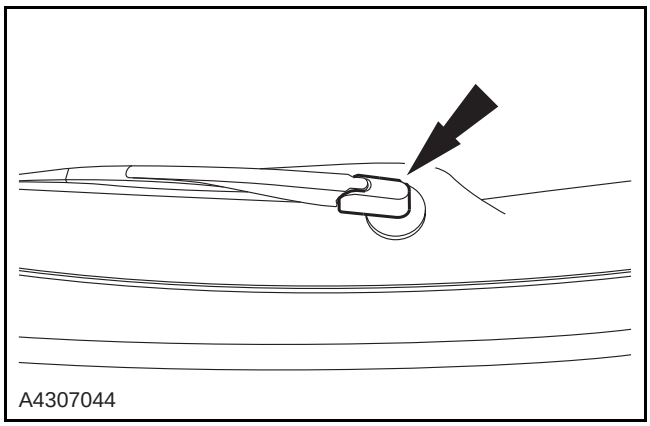
Rear Wiper Motor and Drive Arm

Removal

1. Disconnect the battery negative cable.

   Refer to: Battery Inspection (3.1.10 Charging System, General Procedures).

2. Using suitable tools to remove the cover of the retaining nut on the rear wiper arm.

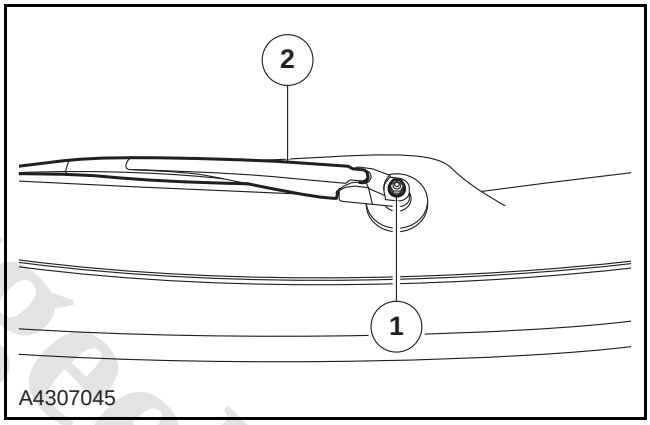

A4307044

3. Remove the rear wiper arm.

   1. Remove the retaining nut of the rear wiper arm.

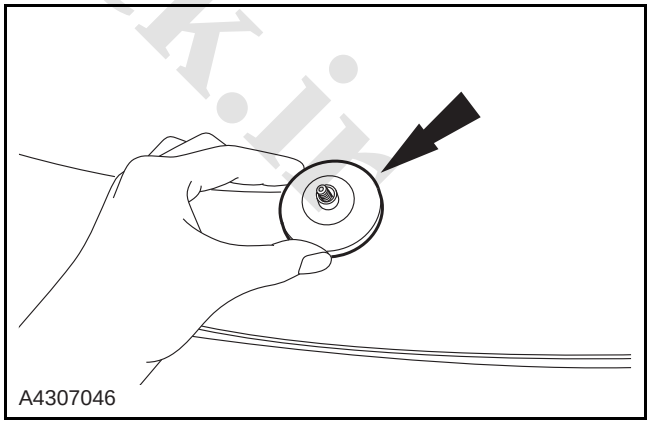
   Torque: 12 Nm

   2. Take out the rear wiper arm.



A4307045

4. Remove the cover of the rear wiper arm.

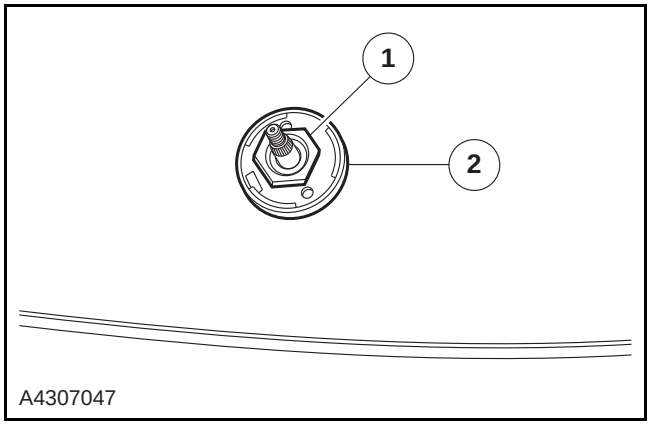

A4307046

5. Remove the nut of the rear wiper motor output shaft.

1. Remove the nut of the rear wiper motor output shaft.

Torque: 14 Nm

2. Remove the rear wiper motor gasket.



6. Remove the interior trim panel of the rear storage.

Refer to: Rear Storage Console (5.1.9 Interior trim and Ornamentation, Removal and Installation).

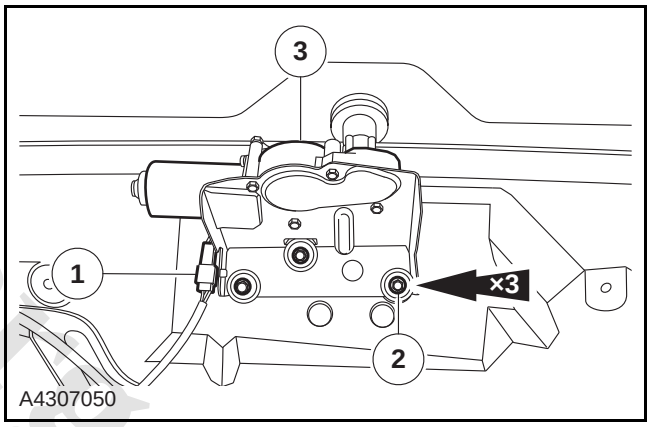
7. Remove the wiper motor and the drive arm.

1. Disconnect the front wiper motor wiring harness connector.

2. Remove the 3 retaining bolts of the rear wiper motor assembly.

Torque: 11 Nm

3. Take out the rear wiper motor and the drive arm.



Installation

1. The installation process is reverse.

Washer

Removal

1. Disconnect the battery negative cable.

   Refer to: Battery Inspection (3.1.10 Charging System, General Procedures).

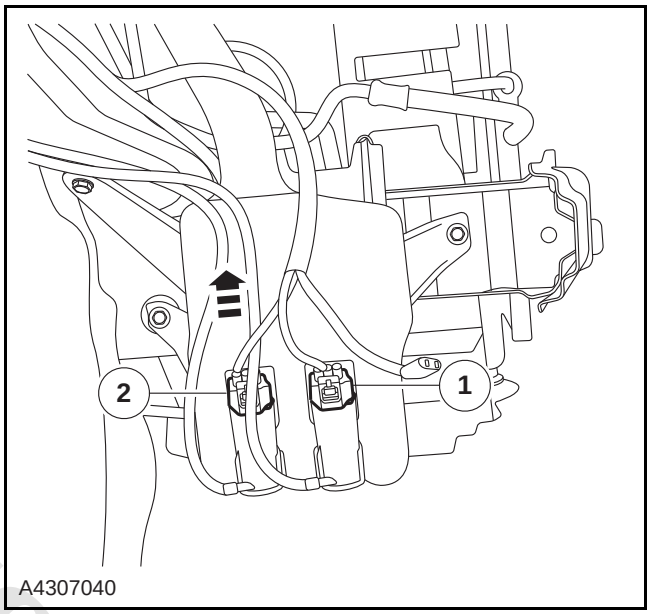
2. Remove the front bumper.

   Refer to: Front Bumper (5.1.7 Bumper, Removal and Installation).

3. Disconnect the washer motor wiring harness connector.

   1. Disconnect the front wiper motor wiring harness connector.

   2. Disconnect the rear wiper motor wiring harness connector.



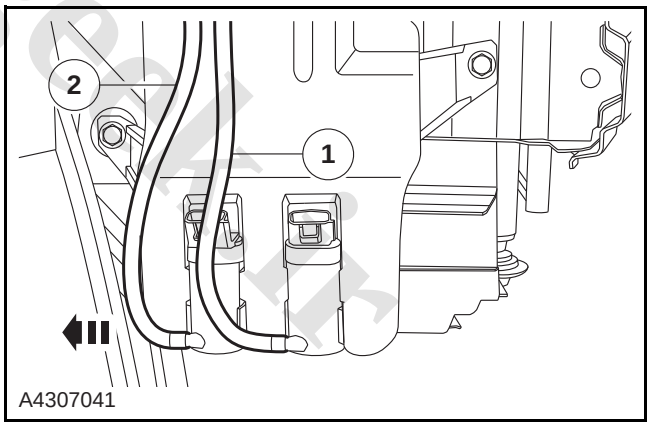
A4307040

4. Disconnect the washing hose and the washer motor.

   1. Disconnect the front washing hose and the front washer motor.

   2. Disconnect the rear washing hose and the rear washer motor.

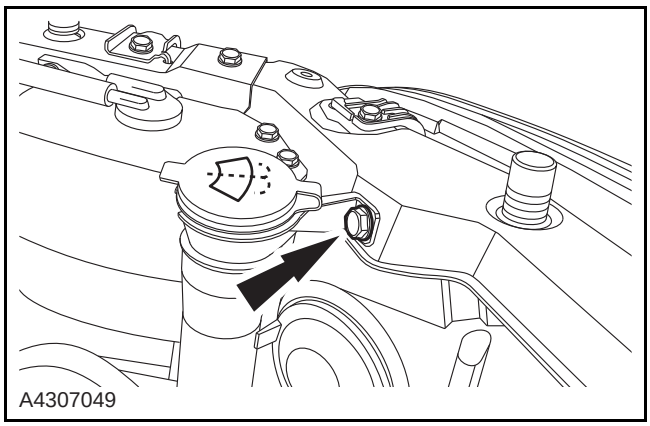
CAUTION: Place a reservoir next to the washer water bottle to collect the washing fluid when disconnecting the washing hose.



A4307041

5. Remove the retaining bolt of the front windshield washer water bottle assembly.

Torque: 10 Nm

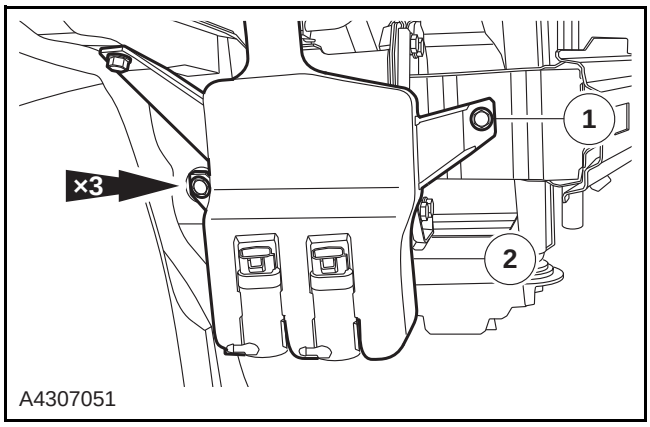

A4307049

6. Remove the front windshield washer water bottle.

1. Remove the 3 retaining bolts of the front windshield washer water bottle assembly.

Torque: 10 Nm

2. Take out the front windshield washer water bottle assembly.



A4307051

Installation

1. To install, reverse the removal procedure.

Specifications

General Specifications

Description	Item	Parameters
Power rearview mirror motor	Working voltage	12 V (DC)

Torque Specifications

Description	Nm	lb-ft	lb-in
Power rearview mirror assembly mounting nut	18	13	-

Description and Operation

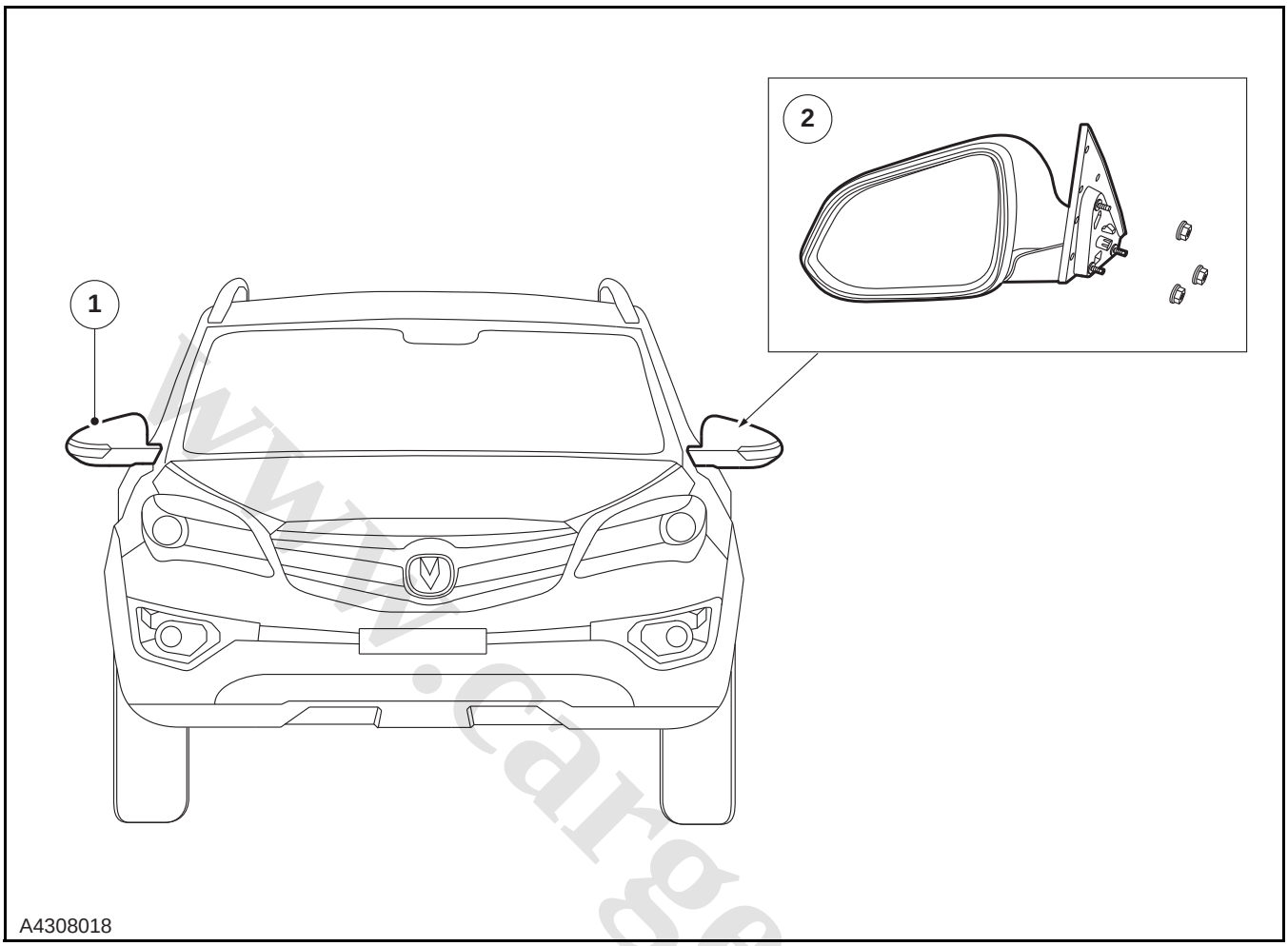
System Overview

The exterior rearview mirror integrates the side turning signal light, electrically adjustable and electrically folding function, applicable for different configurations of this model.

The exterior power rearview mirror of this car is provided with interior adjustment. There are three motors inside. The exterior rearview mirror can be adjusted and folded by the adjustment switch mounted on the decoration panel below the instrument panel at he driver side. When the exterior power rearview mirror reaches the max. adjustment angle, the operation will stop, but the motor will run continuously as long as the switch is pressed. As such, the duration when the switch is pressed shall not exceed necessary time, otherwise, the motor will be damaged.

Location View

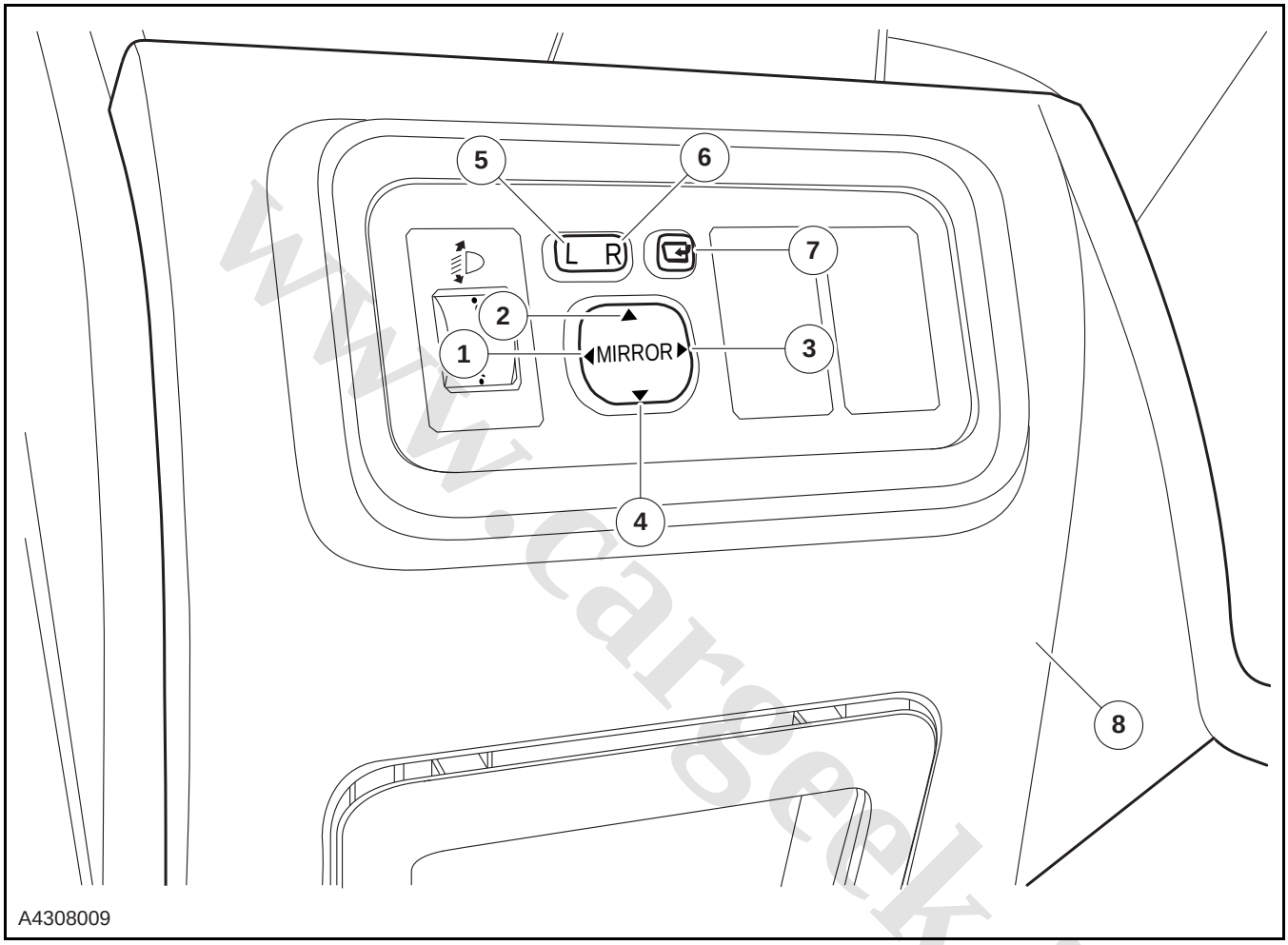
Power Rearview Mirror Location View



Item	Description	Item	Description
1	Right exterior rearview mirror assembly	2	Left exterior rearview mirror assembly

General Procedures

First, turn the left-right control switch of the power rearview mirror control switch to the corresponding position to control the left or right rearview mirror. Press the up, down, left and right positions of the button (shown in figure), control the power rearview mirror to turn to the corresponding directions, so that the behind objects and vehicles can be seen from the exterior rearview mirror. Press the folding button (shown in figure) to control the left-right power rearview mirror to fold towards the vehicle inside, and press the folding button again to control the left-right power rearview mirror towards the vehicle outside.

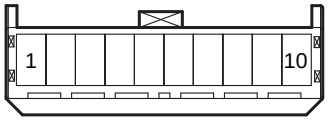


A4308009

Item	Description	Item	Description
1	Button - left	5	Button - left rearview mirror
2	Button - up	6	Button - right rearview mirror
3	Button - right	7	Button - rearview mirror folding
4	Button - down	8	Lower cover of the instrument panel at the the driver side

Rearview Mirror Control Switch Gear Chart

P \ T		5	7	6	8	4	3	2	10	9
OFF										
L	UP		○	○	○	○				
	DW		○	○	○	○				
	L	○	○	○	○					
	R	○	○	○	○					
R	UP		○	○	○		○			
	DW		○	○	○		○			
	L		○	○	○			○		
	R		○	○	○			○		
OPEN			○		○				○	○
CLOSE			○		○				○	○



P03

A4308002

Symptom Diagnosis and Testing

General Equipment

Digital Multimeter

Inspection and Verification

1. Verify the customer concern.
2. Visually inspect for obvious signs of mechanical or electrical damage and the deformation due to collision.

Visual Inspection Chart

Mechanical	Electric
•Power rearview mirror •Door •Instrument panel	•Fuse •Circuit • Rearview mirror control switch

3. Inspect the visible system circuit.
4. If an obvious cause for an observed or reported concern is found, correct the cause before proceeding to the next step.
5. If the cause is not visually evident, verify the symptom and refer to the Symptom Chart.

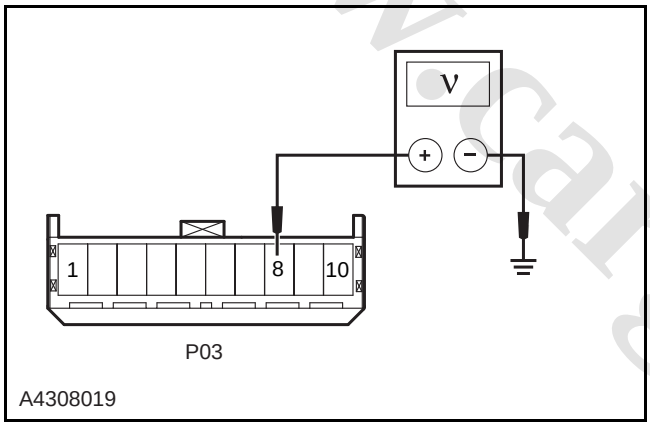
Symptom Chart

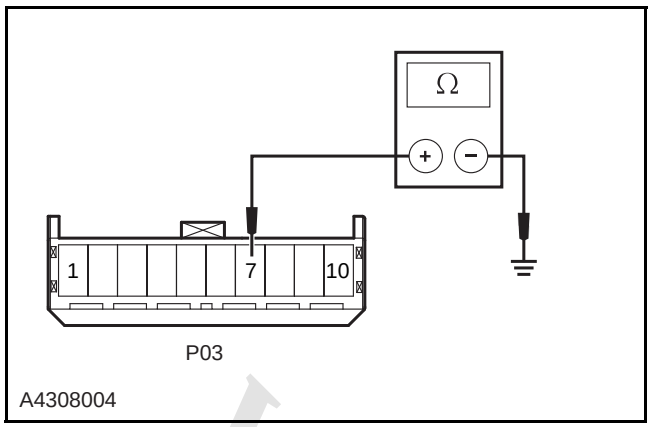
If there is a symptom but no diagnosis trouble code (DTC) is stored in control module and can not confirm symptom reasons in basic inspect, it is necessary to diagnosis and eliminate the symptoms in the following chart.

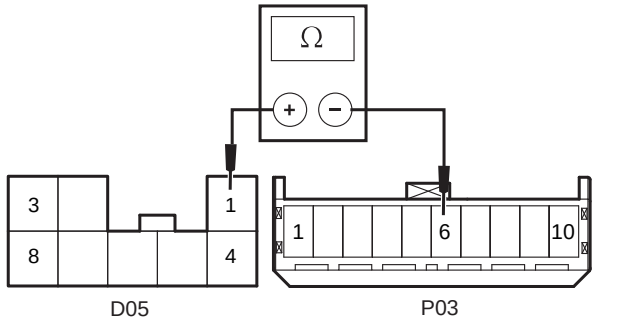
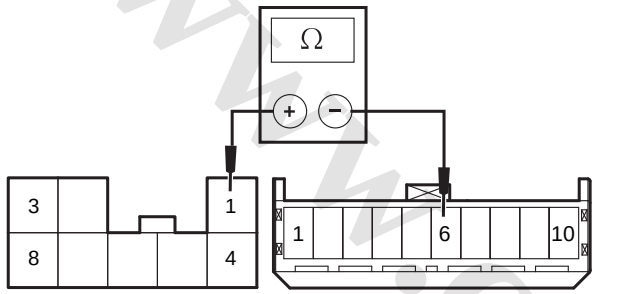
Items	Possible Sources	Action
All the rearview mirrors can not be adjusted	•Fuse •Circuit fault •Rearview mirror control switch •Rearview mirror motor	**Refer to: All Rearview Mirrors Can Not Be Adjusted Diagnosis (4.3.8 Power Rearview Mirror, Symptom Diagnosis and Testing).**
Single rearview mirror can not be adjusted	•Circuit fault •Rearview mirror control switch •Rearview mirror motor	**Refer to: Single Rearview Mirror Can Not Be Adjusted Diagnosis (4.3.8 Power Rearview Mirror, Symptom Diagnosis and Testing).**
Single rearview mirror can not be folded	•Circuit fault •Rearview mirror control switch •Rearview mirror motor	**Refer to: Single Rearview Mirror Can Not Be Folded Diagnosis (4.3.8 Power Rearview Mirror, Symptom Diagnosis and Testing).**
Rearview mirror adjustments are not in place	•Circuit fault •Rearview mirror control switch •Rearview mirror motor	•Inspect and repair the circuit. •Inspect and repair the rearview mirror control switch. •Replace the rearview mirror assembly.

All Rearview Mirrors Can Not Be Adjusted Diagnosis

Test Conditions	Details/Results/Actions
1. General inspection	
	A. Inspect the rearview mirror control switch or rearview mirror assembly wiring harness connector for damage, poor contact, aging and loose. Is it normal? **Y** Go to step 2. **N** Repair the fault.
2. Inspect the ignition switch status	
	A. Inspect the ignition switch status, make sure the ignition switch is in the "ACC" or "ON" position. B. Re-adjust the rearview mirror. Is it normal? **Y** Confirm the maintenance is finished. **N** Go to step 3.
3. Inspect the fuse	
	A. Inspect the rearview mirror control switch fuse IF16 in the I/P fuse and relay box P01. **Fuse Rated Capacity: 10 A** Is the fuse normal? **Y** Go to step 4. **N** Inspect and repair the fuse circuit, replace the fuse in rated capacity.

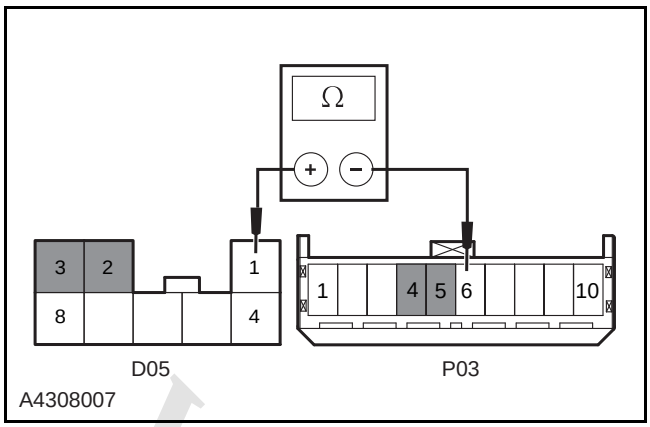
Test Conditions	Details/Results/Actions
4. Inspect the rearview mirror control switch	
	A. Turn the ignition switch to position "LOCK", disconnect the wiring harness connector P03 of the rearview mirror control switch. B. According to the rearview mirror control switch gear chart, inspect the conduction of the rearview mirror control switch. Is the circuit normal? **Y** Go to step 5. **N** Turn the ignition switch to position "LOCK" , replace the rearview mirror control switch. **Refer to: Power Rearview Mirror (4.3.8 Power Rearview Mirror, Removal and Installation).**
5. Inspect the power supply circuit of the rearview mirror control switch	
	A. Turn the ignition switch to position "LOCK" and disconnect the rearview mirror control switch wiring harness connector P03. B. Turn the ignition switch to position "ON". C. Measure the voltage between the terminal 8 of the rearview mirror control switch wiring harness connector P03 and the reliable ground. **Standard Voltage Value: 11 ~ 14 V** Is the voltage normal? **Y** Go to step 6. **N** Inspect and repair the open circuit fault between the terminal 8 of the rearview mirror control switch wiring harness connector P03 and the fuse IF16 of the I/P fuse and relay box P01.

Test Conditions	Details/Results/Actions
6. Inspect the ground circuit of the rearview mirror control switch	
 A4308004	A. Turn the ignition switch to position "LOCK" and disconnect the rearview mirror control switch wiring harness connector P03. B. Measure the resistance between the terminal 7 of the rearview mirror control switch wiring harness connector P03 and the reliable ground. **Standard Resistance Value: less than 5 Ω** Is the resistance value normal? **Y** Go to step 7. **N** Inspect and repair the open circuit fault between the terminal 7 of the rearview mirror switch wiring harness connector P03 and the ground point G101.
7. Inspect the circuit of the terminal 6 of the rearview mirror switch wiring harness connector P03 to the left-right rearview mirror	

Test Conditions	Details/Results/Actions
 A4308005  A4308006	A. Turn the ignition switch to position "LOCK", disconnect the rearview mirror control switch wiring harness connector P03, the right rearview mirror wiring harness connector D11 and the left rearview wiring harness connector D05. B. Inspect the resistance between the terminal 6 of the rearview mirror control switch wiring harness connector P03 to the terminal 1 of the left rearview mirror wiring harness connector D05. **Standard Resistance Value: less than 5 Ω** C. Inspect the resistance between the terminal 6 of the rearview mirror control switch wiring harness P03 to the terminal 1 of the right rearview mirror wiring harness connector D11. **Standard Resistance Value: less than 5 Ω** Is the resistance normal? **Y** Remove the power rearview mirror assembly. **Refer to: Power Rearview Mirror (4.3.8 Power Rearview Mirror, Removal and Installation).** Verify the system is normal. **N** Inspect and repair the open circuit fault between the terminal 6 of the rearview mirror control switch wiring harness P03 and the terminal 1 of the left rearview wiring harness connector D05. Inspect and repair the open circuit fault between the terminal 6 of the rearview mirror control switch wiring harness connector P03 to the terminal 1 of the right rearview mirror wiring harness connector D11.

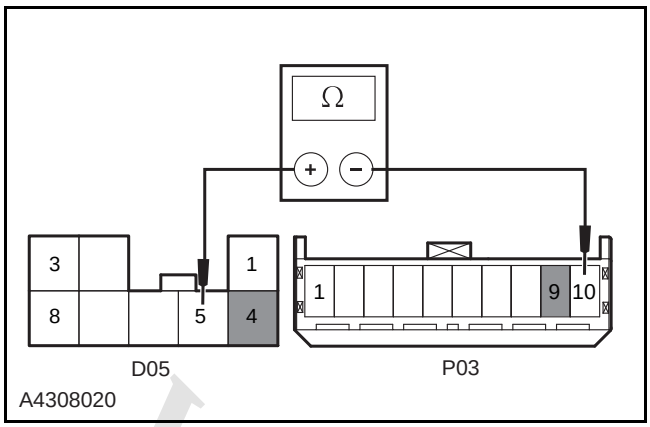
Single Rearview Mirror Can Not Be Adjusted Diagnosis

Test Conditions	Details/Results/Actions
1. General inspection	
	A. Inspect the rearview mirror control switch or rearview mirror assembly wiring harness connector for damage, poor contact, aging and loose. Is it normal? **Y** Go to step 2. **N** Repair the fault.
2. Inspect the rearview mirror control switch	
	A. Turn the ignition switch to position "LOCK", disconnect the wiring harness connector P03 of the rearview mirror control switch. B. According to the rearview mirror control switch gear chart, inspect the conduction of the rearview mirror control switch. Is the circuit normal? **Y** Go to step 3. **N** Replace the rearview mirror control switch. **Refer to: Power Rearview Mirror (4.3.8 Power Rearview Mirror, Removal and Installation).**

Test Conditions	Details/Results/Actions
3. Inspect the rearview assembly circuit (take the left side for example)	
	A. Turn the ignition switch to position "LOCK", disconnect the wiring harness connector P03 of the rearview mirror control switch, disconnect the wiring harness connector D05 of the left rearview mirror assembly. B. Inspect the resistance between the terminal 6 of the rearview mirror control switch wiring harness connector P03 to the terminal 1 of the left rearview mirror wiring harness connector D05. C. Inspect the resistance between the terminal 4 of the rearview mirror control switch wiring harness connector P03 and the terminal 3 of the left rearview mirror wiring harness connector D05. D. Inspect the resistance between the terminal 5 of the rearview mirror control switch wiring harness connector P03 to the terminal 2 of the left rearview mirror wiring harness connector D05. **Standard Resistance Value: less than 5 Ω** Is the resistance value normal? **Y** Remove the left power rearview mirror assembly. **Refer to: Power Rearview Mirror (4.3.8 Power Rearview Mirror, Removal and Installation).** **N** Inspect and repair the open circuit fault of the rear-view mirror control switch to the left rearview assembly.

Single Rearview Mirror Can Not Be Folded Diagnosis

Test Conditions	Details/Results/Actions
1. General inspection	
	A. Inspect the rearview mirror control switch or rearview mirror assembly wiring harness connector for damage, poor contact, aging and loose. Is it normal? **Y** Go to step 2. **N** Repair the fault.
2. Inspect the control switch of the rearview mirror	
	A. Turn the ignition switch to position "LOCK", disconnect the wiring harness connector P03 of the rearview mirror control switch. B. According to the rearview mirror control switch gear chart, inspect the conduction of the rearview mirror control switch. Is the circuit normal? **Y** Go to step 3. **N** Replace the rearview mirror control switch. **Refer to: Power Rearview Mirror (4.3.8 Power Rearview Mirror, Removal and Installation).**

Test Conditions	Details/Results/Actions
3. Inspect the left rearview assembly circuit (take the left side for example)	
	A. Turn the ignition switch to position "LOCK", disconnect the wiring harness connector P03 of the rearview mirror control switch, disconnect the wiring harness connector D05 of the left rearview mirror assembly. B. Inspect the resistance between the terminal 9 of the rearview mirror switch wiring harness connector P03 to the terminal 4 of the left rearview mirror wiring harness connector D05. C. Inspect the resistance between the terminal 10 of the rearview mirror contorl switch wiring harness connector P03 and the terminal 5 of the left rearview mirror wiring harness connector D05. **Standard Resistance Value: less than 5 Ω** Is the resistance value normal? **Y** Go to step 4. **N** Inspect and repair the open circuit fault between the terminal 9 of the rearview mirror control switch wiring harness connector P03 and the terminal 4 of the left rearview mirror wiring harness connector D05. Inspect and repair the open circuit fault between the terminal 10 of the rearview mirror control switch wiring harness connector P03 and the terminal 5 of the left rearview wiring harness connector D05.
4. Replace the left rearview mirror assembly	
	A. Turn the ignition switch to position "LOCK" , replace the left rearview mirror assembly. **Refer to: Power Rearview Mirror (4.3.8 Power Rearview Mirror, Removal and Installation).** Confirm the maintenance is finished.

Removal and Installation

Power Rearview Mirror

Removal

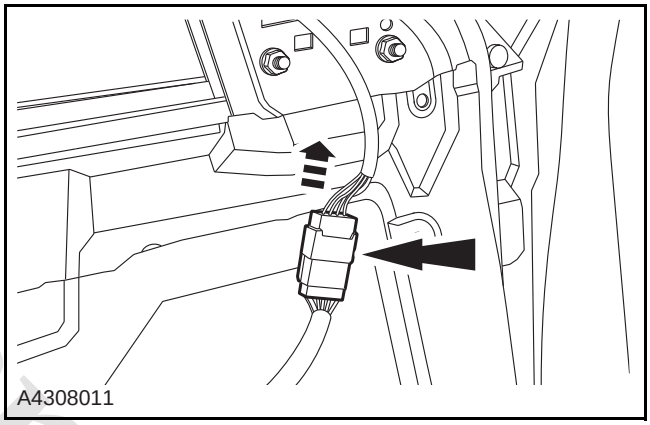
1. Disconnect the battery negative cable.

   Refer to: Battery Inspection (3.1.10 Charging System, General Procedures).

2. Use a specific tool to remove front door triangle interior trim panel.
3. Remove the front door interior trim panel.

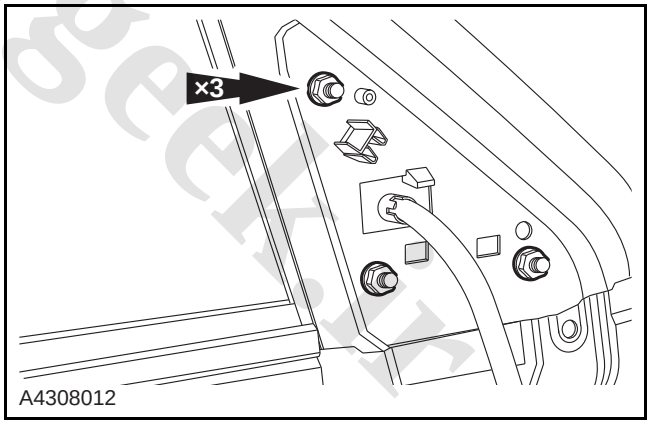
   Refer to: Front Door Interior Decoration (5.1.2 Door, Removal and Installation).

4. Disconnect the wiring harness connector of the power rearview mirror.


A4308011

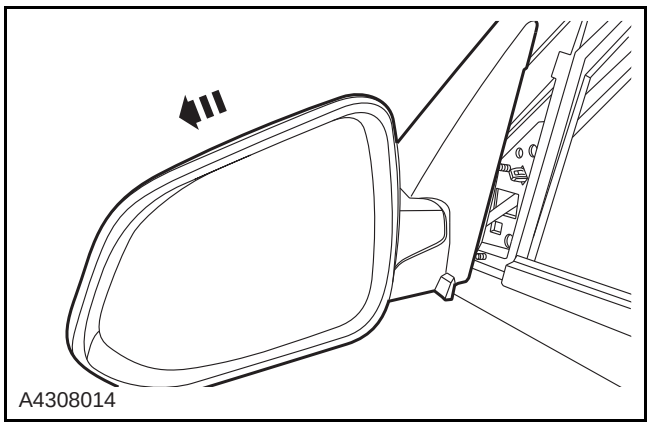
5. Remove the 3 retaining screws of the rearview mirror.

   Torque: 18 Nm



A4308012

6. Remove the power rearview mirror.



Installation

1. To install, reverse the removal procedure.

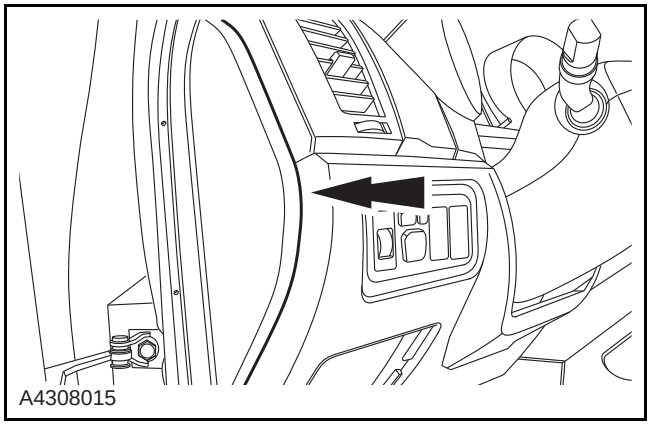
Power Rearview Mirror Switch Assembly

Removal

1. Disconnect the battery negative cable.

   Refer to: Battery Inspection (3.1.10 Charging System, General Procedures).

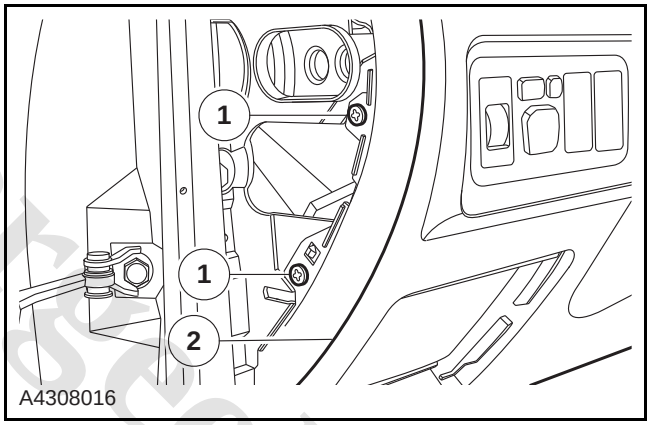
2. Remove the left decoration panel of the instrument panel.


A4308015

3. Remove the Instrument lower cover at the the driver side.

   1. Remove the 2 retaining screws of the Instrument lower cover at the the driver side.

   2. Remove the Instrument lower cover at the driver side.

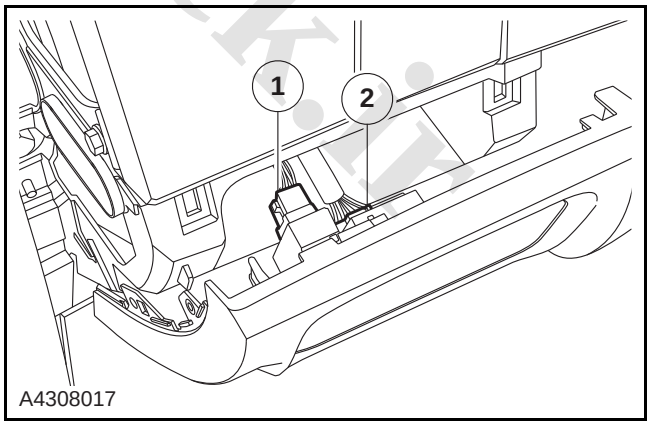


A4308016

4. Disconnect the wiring harness connector.

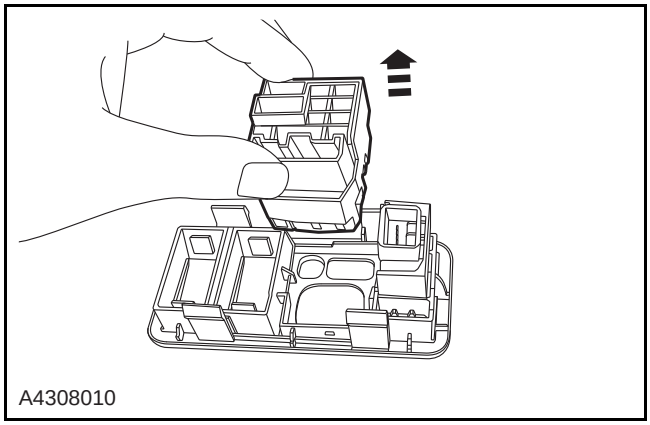
   1. Disconnect the lightning adjusting switch wiring harness connector.

   2. Disconnect the wiring harness connector of the power rearview mirror switch.



A4308017

5. Remove the power rearview mirror switch base from the Instrument lower cover at the the driver side.
6. Remove the power rearview mirror switch with suitable tools.


A4308010

Installation

1. To install, reverse the removal procedure.

Description and Operation

System Overview

Remote Control Key Low Battery Voltage Alarm Function

BCM sends CAN message when the remote control key battery voltage is below 2.3 V to remind the driver.

The remote control key sends the low battery information to BCM by RF when the voltage is below 2.3 V, and when unlocking/locking, BCM control hazard warning indicator will blink for 9 times, and the normal unlock/lock turning signal lamp feedback will not be carried out.

Body Immobilizer Function

The remote control anti-theft uses two keys with the lock key for setting and unlock key for releasing. Pull out the remote key to close all the doors. Press the lock key of the remote controller, the anti-theft indicator LED blink slowly after 5s to show that the system enters protection state. In protection state, open any doors or turn IGN at "ON" position and the turning light alarm will last about 5 min and the horn sounds 28 (it can be set not making sound). The anti-theft LED will enter fast blinking state. If the turning light alarm period ends and any door is still open or ignition switch is at "ON" position, BCM will start the alarm again. Press any key on the remote controller to stop the alarm, but the anti-theft LED will still be in fast blinking state and the system is still in protection state. Press "UNLOCK" key of the controller again to release the protection.

Engine Immobilizer Module

BCM and ECM in vehicles equipped with the IMMO immobilizer system work at the same time to control the engine immobilizer function. When the vehicle is in the security state, BCM provides protection signal to ECM via K network, when the vehicle is in the non-security state, BCM provides release protection signal to ECM via K network, every ignition BCM will verify the key authentication, the immobilizer system state will change to the security state if the key authentication fails, and will not respond to the ECM signal requests to prevent the engine from starting.

Remote Control key Locking

If the remote control key is not in the ignition switch and all the doors are closed (excluding the back door), press the "lock" key on the remote controller, all doors lock, and the turn signal lamp blinks twice. If the remote control key is not in the ignition switch and any door is opened (excluding the back door), press the "lock" key on the remote controller, all doors unlock, and the turn signal lamp does not blink and the horn alarms once (0.1 s). If the remote control key is in the ignition switch, press the "lock" key on the remote controller, all the doors do not act, and the turn signal lamp does not blink.

Mechanical Key Locking

If the remote control key is not in the ignition switch and all the doors are closed (excluding the back door), touch the central door switch lock gear in the vehicle or lock with the mechanical key, all the doors lock, and at the same time, the turn signal lamp blinks twice.

If the remote control key is in the ignition switch, touch the central door switch lock gear in the vehicle or lock with the mechanical key, all the doors lock, but the turn signal lamp does not blink.

If the remote control key is not in the ignition switch and any door is opened (excluding the back door), touch the central door switch lock gear in the vehicle or lock with the mechanical key, all the doors lock and then unlock, and the turn signal lamp does not blink.

Remote Control Key Unlocking

When the vehicle is in the security state, press the remote control unlock key, the four doors unlock and the vehicle exists the security state to enter the non-security state, meanwhile, the immobilizer indicator extinguishes and the turn signal lamp blinks once. When the key is in the ignition switch, press the "unlock" key on the remote controller, all the doors do not act. If the immobilizer system has been triggered in anti-theft state, the turning lamp blinks 4 times when

RKE unlocking exits protection and alarm is activated.

Mechanical Key Unlock

If the remote control key is not in the ignition switch and all the doors are closed (excluding the back door), touch the central door switch unlock gear in the vehicle or unlock with the mechanical key, all the doors unlock, and at the same time, the turn signal lamp blinks once.

If the remote control key is in the ignition switch, touch the central door switch unlock gear in the vehicle or unlock with the mechanical key, all the doors unlock, but the turn signal lamp does not blink.

If the remote control key is not in the ignition switch and any door is opened (excluding the back door), touch the central door switch unlock gear in the vehicle or unlock with the mechanical key, all the doors unlock, the turn signal lamp does not blink and the horn does not alarm.

Vehicle Speed Sensing Central Control Door Lock Function

BCM will perform lock automatically in the following conditions: if the vehicle speed transfers from less than 20 km/h to the more than 20 km/h. All doors are closed (not including the back door), previous automatic locking rear door status (excluding the back door) changes, the ignition status in the "ON".

This function is disabled by default and can be activated with diagnosis device. Only when both this function and the collision unlock function are activated, this function can be available. After the collision unlock is activated and the turn signal lamp is in the alarm state, the speed sensor latch is automatically disabled until the turn signal alarm is canceled.

Automatically Lock Again

When BCM is in the security state, alarm activated state or central control door lock state, press the "unlock" key on the remote controller. BCM needs to start automatically and then lock the timer. If the timer times out (default for 30 s), BCM will execute automatically the re-lock function according to the current door state.

If the four doors are all closed, BCM executes the lock function, and meanwhile, the turn signal lamp blinks twice, the immobilizer state changes to security state, and the roof lamp is off. If not all the four doors are closed, BCM does not execute the lock function, the turn signal lamp does not blink, the horn alarms once, the immobilizer state changes to security state, and the roof lamp is off.

If RKE unlocks in 30 s, the timer restart timing.

If there are the following conditions in the timer operating, the timer stops and the automatic relock function is canceled: the central control door switch locks, the mechanical key locks, the remote control key locks, any door state changes from closed to open (excluding the back door), the key is inserted, the ignition state changes.

Automatic Unlocking Function

When BCM is in the non-security state, the vehicle speed is zero and all the doors are in the closed state (excluding the back door) or the ignition switch is in the "LOCK" state, if the key is pulled out from the ignition switch, BCM will automatically execute the unlock action.

Collision Unlocking

If receiving "collision happens" signal from air bag ECU and the ignition switch is at "ON" gear, unlock automatically 2 times (excluding the back door), the time interval is 3s. Meanwhile all turning lamps are enabled to blink (like danger warning light).

Collision definition: receiving a collision signal with low level impulse of 180 ms to 220 ms If other lock and unlock requests are received in 3 s, they will not be executed. After 4 s of collision unlock, if the hazard warning switch signal is received, the turn signal lamp will stop blink. Ignore the hazard signal function in 4 s.

Door Lock Motor Thermal Protection Function

If the central lock is unlocked / locked for more than 10 times in 10 s, the central lock motor will be disabled for 1 min to protect the motor. But if it interferes with collision unlocking function, the latter has more priority. Operate the unlock or lock through the central control door switch or the remote control key in the door lock motor protec-

tion stage, BCM will not execute, and the turn signal lamp will not blink.

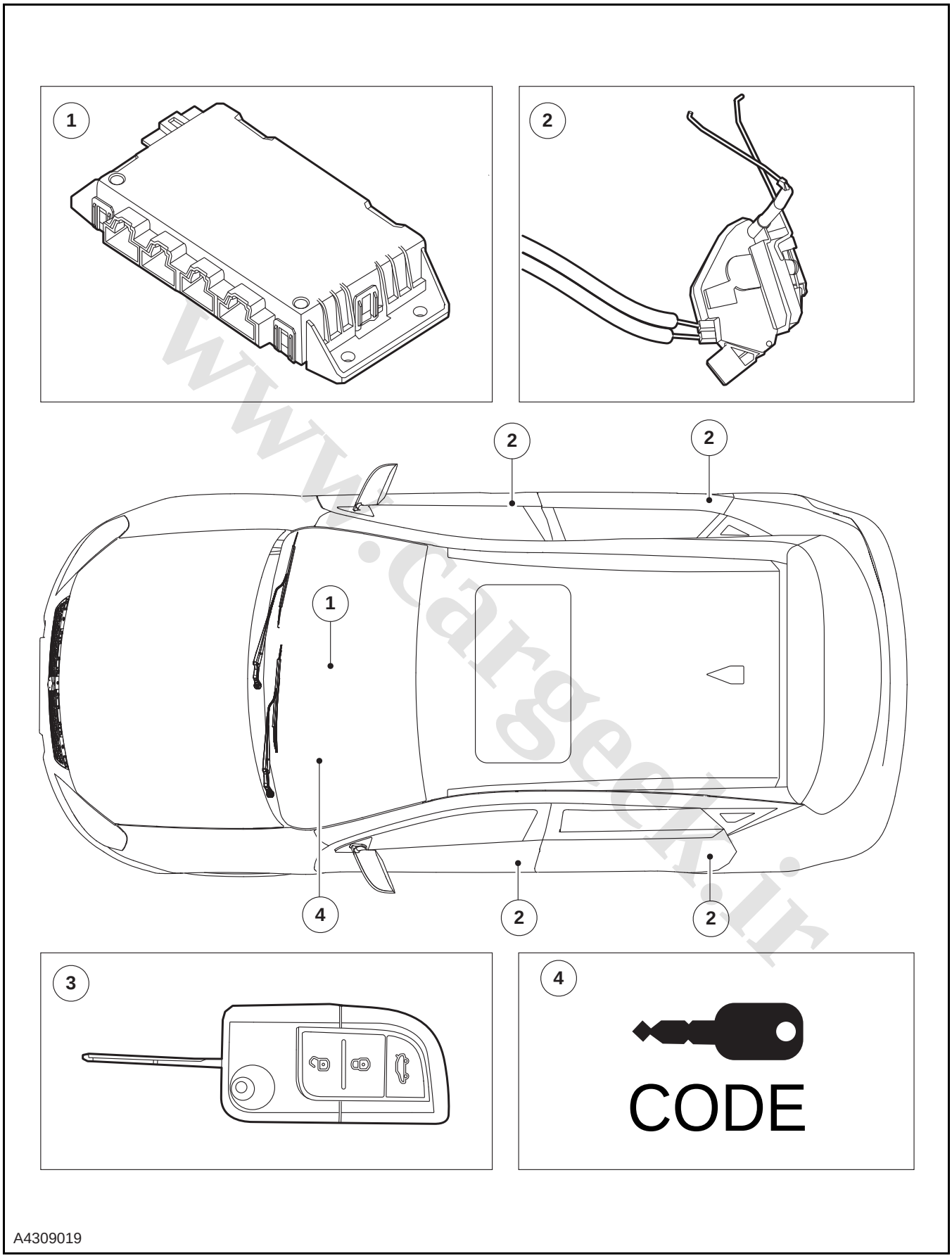
Trunk Unlocking Function

If the vehicle speed is more than or equal to 10 km/h, the trunk is not allowed to unlock. When the remote control key is not in the ignition switch, press the "trunk unlock" key on the remote controller for 2 s, the trunk will be unlocked. If the driver door is in the unlock state, press the "trunk release switch" again, the trunk will be unlocked. If the driver door is in the lock state, press the "trunk release switch" again, the trunk will not be unlocked.

Remote Control Key Learning

Learning shall be done before using the remote control key. After the diagnostic tool sends the diagnosis command and BCM enters the learning mode, press the remote control key lock and unlock keys for more than 5 s in 1 min simultaneously, the remote control key will identify the lock and unlock keys and sends the learning information when the state is available. BCM will record the key ID, receives rolling code and other information after receiving the learning information.

Location View



Item	Description	Item	Description
1	BCM	3	Remote control emitter and key
2	Door Lock	4	Immobilizer indicator light

Remote Control Key Matching

1. Turn the ignition switch to position "ON".
2. Connect diagnostic tool to DLC interface.
3. Select in sequence on the diagnostic tool: "Changan Auto" / "Software version" / "Model selection CS35" / "Body controller" / "Safe operation" / "Enter password" / "Enter safe operation" / "Key matching" / "Start matching".
4. Enter the data reading option to read the key number after the completion of the matching, and confirm whether it is consistent with the actual number, if it is, confirm whether the matched remote control key function is normal, if it is not or the matched remote control key function is abnormal, it's necessary to match the key again.

Engine Immobilizer Module

1. Turn the ignition switch to position "ON".
2. Connect diagnostic tool to DLC interface.
3. Select in sequence on the diagnostic tool: "Changan Auto" / "Software version" / "Model selection CS35" / "Body controller" / "Safe operation" / "Enter password" / "Enter safe operation" / "Immobilizer key matching" / "Start matching".
4. Enter the data reading option to read the key number after the completion of the matching, and confirm whether it is consistent with the actual number, if it is, confirm whether the matched remote control key function is normal, if it is not or the matched remote control key function is abnormal, it's necessary to match the key again.

Set Model and The Alarm Function of Anti-theft Alarm Horn

1. Turn the ignition switch to "ON" position.
2. Connect diagnostic tool to DLC interface.
3. Choose in turn: "Changan Auto" / "Software Version" / "Model selection CS35" / "Body Controller" / " Safe visit " / "Enter password" / press "Setting button" after access / choose car type, anti-theft horn alarm turn on or press "Exit" button after turn off the anti-theft horn alarm.
4. Car model configuration confirmation: operate the glass up / down function. If it cannot be operated, there is error in car model configuration.
5. AT / MT configuration confirmation: when the speed reaches 7 km/h with the seat belt not buckled, if the beeper does not give any alarm. then there is error in the configuration.
6. Anti-theft horn alarm function setting inspect and verifying: After all the doors (including back door) are closed, press the remote control lock button, 5 s later, open the door with interior handle and check whether the horn gives alarm.

Automatic Locking During Driving Function Setting

1. Turn the ignition switch to "ON" position.
2. Perform the setting with special diagnosis tool.

Remarks Description

1. If BCM does not match the keys online or manually before, the original password is 0000.
2. If the fault code does not exist, please verify:
   - Whether the vehicle is in anti-theft alarm state. Observe to verify whether the anti-theft indicator on the meter blinks quickly, if so, it is in anti-theft alarm state. Release anti-theft by pressing the unlock button of remote control twice.
   - Whether diagnostic tool successfully connected with BCM. Use a multimeter to inspect whether the diagnosis interface CAN-H and CAN-L is conducted to the corresponding PIN of BCM.

Refer to: CAN Integrity Inspection (4.3.15 On-board Network, General Procedures).

Symptom Diagnosis and Testing

General Equipment

Digital Multimeter
Changan aAuto Special Diagnostic Tool

Inspection and Verification

1. Verify the customer concern.
2. Visually inspect for obvious signs of mechanical or electrical damage and the deformation due to collision.
3. Inspect the visible system circuit.
4. If an obvious cause for an observed or reported concern is found, correct the cause before proceeding to the next step.
5. If the cause is not visually evident, verify the symptom and refer to the Symptom Chart.

Visual Inspection Chart

Mechanical	Electric
• Buckle • Door dislocation • Back door dislocation • Door plug pin • Control level • Door External Handle • Remote controller • Door lock core • Cable	• Door lock motor • Battery • Fuse • Connection plug of electric appliance loose or being corroded • Remote control emitter • Circuit • BCM

Symptom Chart

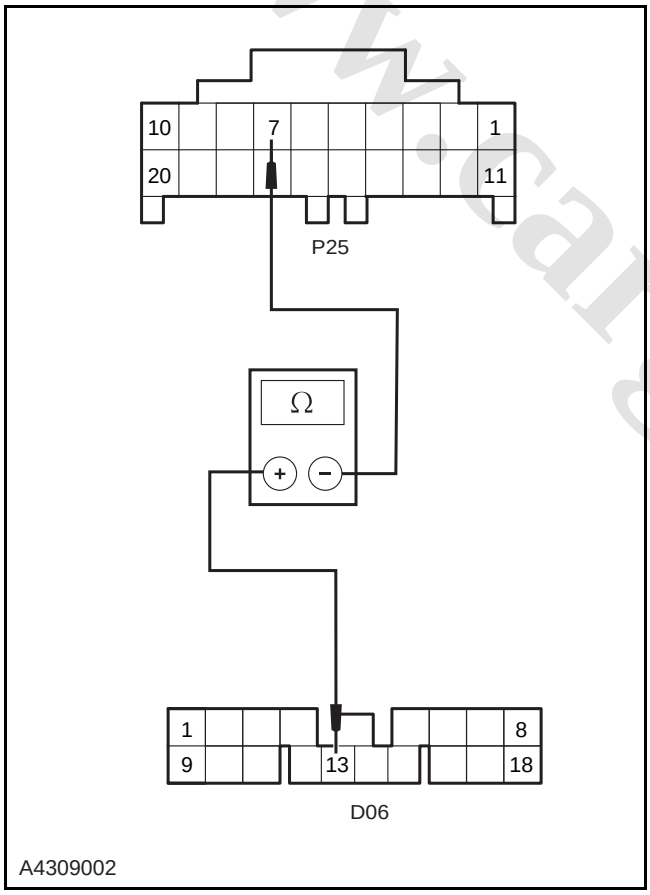
If there is symptom but no diagnosis trouble code (DTC) is stored in control module and can not confirm symptom reasons in basic inspect, it is necessary to diagnosis and eliminate the symptoms in the following chart.

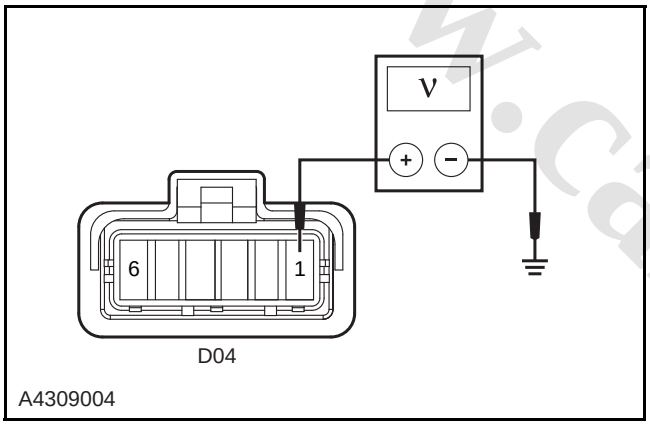
Symptom	Possible Sources	Action
All functions of the remote controller are invalid	• The remote controller is not configured online • Remote control distance is over 12m, or strong interfering resource nearby (mobile phone, launching pad, etc) • Remote controller has no power, inspect whether the battery inside is more than 2.9 V • A poor contact between battery and remote controller • Insufficient battery voltage • Remote controller damaged	• Configure the key online again or manually configure the key with diagnosis tool • Press remote controller within 12 m to inspect whether the function is normal, or verify whether there is a interference source • Re-install the PCB of the remote controller • Charge the battery • Replace the remote controller and learn it again by diagnosis tool
One or more doors can not be locked or opened	• The problem of door lock or interior and exterior cable	• Replace the door lock or install interior and exterior cable again
Central control lock failure	• The fuse of door lock power supply is burnt • Thermal protection for door lock motor, wait for 1 min to see whether the door lock works normally • The harness connector linking door lock with BCM do not fully insert or loose • Low battery voltage • Use remote controller to lock and unlock, listen whether there is relay action inside BCM. If the action exists, it is the problem of door lock circuit harness or door lock, if the action does not exist, BCM signal is short circuited to the output terminal of the motor or BCM internal circuit is open	**Refer to: Central Lock Invalidation Diagnosis (4.3.9 Central Lock and Theft-Deterrent System, Symptom Diagnosis and Testing).**
One central control lock and above failure	• Door Lock Motor • Circuit • BCM	**Refer to: One or More Central Door Lock Failure Diagnosis (4.3.9 Central Lock and Theft-Deterrent System, Symptom Diagnosis and Testing).**

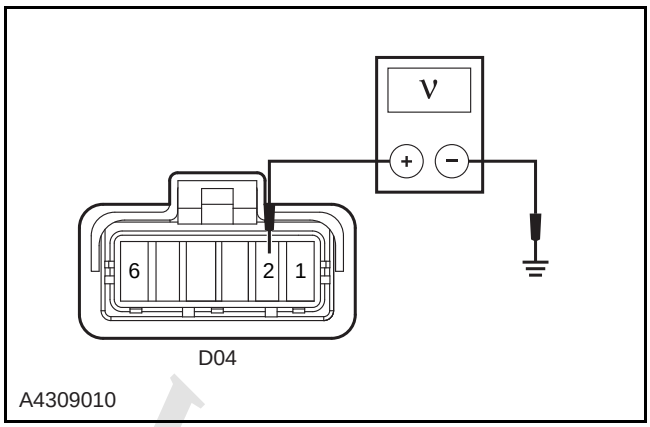
Symptom	Possible Sources	Action
The central control lock is normal but the remote controller fails	• The remote controller fails to match correctly • Remote controller • BCM	**Refer to: Central Lock Is Normal But the Remote Controller Is Invalid Diagnosis (4.3.9 Central Lock and Theft-Deterrent System, Symptom Diagnosis and Testing).**
The remote control central control door lock works but fails to enter the theft-deterrent state	• Circuit • The contact switch of driver side door • The contact switch of passenger side door • The contact switch of left rear door • The contact switch of right rear door • The contact switch of trunk cover • The reminding switch of key • BCM	**Refer to: Remote Control Central Door Lock Is Unable to Enter Into the Anti-theft State Diagnosis (4.3.9Central Lock and Theft-Deterrent System, Symptom Diagnosis and Testing).**
Locking / unlocking cannot be performed with mechanical key	• Driver side door lock element • Driver side door lock motor • Circuit • BCM	**Refer to: Mechanical Key Unable to Lock / Unlock Diagnosis (4.3.9 Central Lock and Theft-Deterrent System, Symptom Diagnosis and Testing).**

Central Control Lock Failure Diagnosis

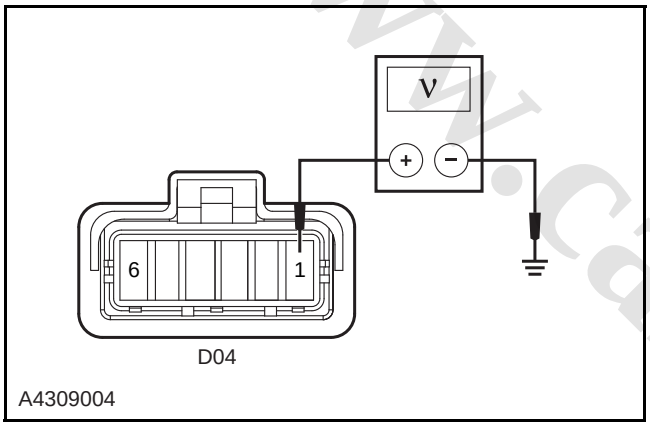
Test Conditions	Details/Results/Actions
1. General inspection	
	A. Inspect the wiring harness connectors of all central lock motors for damage, poor contact, aging and loose. Is it normal? **Y** Go to step 2. **N** Repair the fault.
2. Inspect the fuse	
	A. Inspect the fuse IF17 and IF20. **Fuse Rated Capacity: 10 A (IF17) , 20 A (IF20)** Is the fuse normal? **Y** Go to step 3. **N** Inspect and repair the fuse circuit, replace the fuse in rated capacity.
3. Verify the symptom	
	A. Press the lock button on the remote controller. B. Press the lock / unlock switch on the driver side-door. Is it normal? **N** Press the lock button on the remote controller and the central control lock does not work, inspect the remote controller battery. Press the lock / unlock button on the driver side-door and the central control lock does not work, go to step 4.

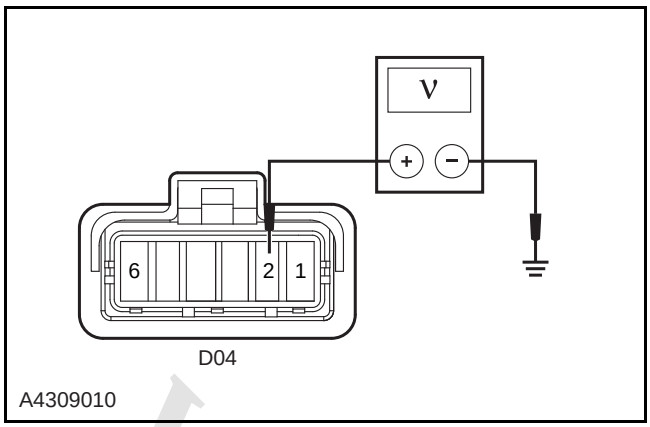
Test Conditions	Details/Results/Actions
4. Inspect the central control lock switch of driver side-door	
	A. Inspect the central control lock switch of driver side-door. **Refer to: Gear Table of Driver Door Power Window Switch (4.3.10 Power Window, General Procedures)** Is the switch normal? **Y** Go to step 5. **N** Replace power window switch. **Refer to: Power Window Switch (4.3.10 Power Window, Removal and Installation).**
5. Inspect the central control door locking, unlocking signal circuit	
	A. Turn the ignition switch to "LOCK" position and disconnect the battery negative wiring harness. B. Disconnect the driver side power window switch wiring harness connector D06 and the BCM wiring harness connector P25. C. Measure the resistance between the terminal 13 of the driver side power window switch wiring harness connector D06 and the terminal 7 of the BCM wiring harness connector P25 . **Standard Resistance Value: less than 5 Ω** Is the resistance value normal? **Y** Go to step 6. **N** Repair the fault between the terminal 13 of the driver side power window switch wiring harness connector D06 and the terminal 7 of the BCM wiring harness connector P25.

Test Conditions	Details/Results/Actions
6. Use mechanical key to execute lock / unlock function outside driver side-door	
	A. Locking / Unlocking with mechanical key. B. Verify the operation result. Are above operations normal? **Y** Go to step 7. **N** Locking / Unlocking cannot be performed with mechanical key. **Refer to: Mechanical** **Refer to: Key Unable to Lock / Unlock Diagnosis (4.3.9 Central Lock and Theft-Deterrent System, Symptom Diagnosis and Testing).**
7. Inspect the central control door motor locking signal (take driver side for example)	
	A. Turn the ignition switch to position "LOCK". B. Disconnect the driver side-door lock motor wiring harness connector D04. C. Turn the ignition switch to position "ON". D. Perform unlocking. E. Measure the voltage between the terminal 1 of the driver side-door lock motor wiring harness connector D04 and reliable ground. **Standard Voltage Value: 11 ~ 14 V** Is the voltage normal? **Y** Go to step 8. **N** Repair the open circuit fault between the terminal 1 of the driver side-door lock motor wiring harness connector D04 and the terminal 15 of the BCM wiring harness connector P14.

Test Conditions	Details/Results/Actions
8. Inspect the central control door motor unlocking signal (take driver side for example)	
	A. Turn the ignition switch to "LOCK" position and disconnect the battery negative wiring harness. B. Disconnect the driver side-door lock motor wiring harness connector D04. C. Turn the ignition switch to position "ON". D. Perform collision unlocking. E. Measure the voltage between the terminal 2 of the driver side-door lock motor wiring harness connector D04 and reliable ground. **Standard Voltage Value: 11 ~ 14 V** Is the voltage normal? **Y** Go to step 9. **N** Repair the open circuit fault between the terminal 2 of the driver side-door lock motor wiring harness connector D04 and the terminal 15 of the BCM wiring harness connector P14.
9. Inspect the BCM power supply and ground circuit	
	A. Inspect the BCM power supply and ground circuit. **Refer to: DTC Diagnostic Procedure Index (4.3.14 Body Control System, DTC Diagnosis and Testing).** Is it normal? **Y** Replace the BCM. **Refer to: Body Control Module (4.3.14 Body Control System, Removal and Installation).** **N** Dispose fault part.

One or More Cntral Locks Fault Diagnosis

Test conditions	Details/Results/Actions
1. Verify the symptom	
	A. Operate central control lock/unlock switch. B. Fault verifying. Does one central control lock or above fail? **Y** Go to step 2. **N** Intermittent fault. **Refer to: Symptom Chart (4.3.9 Central Lock and Theft-Deterrent System, Symptom Diagnosis and Testing).**
2. Inspect the central control door motor locking signal (take driver side for example)	
	A. Turn the ignition switch to position "LOCK". B. Remove the trim panel of driver side-door. **Refer to: Front Door Interior Decoration (5.1.2 Door, Removal and Installation).** C. Disconnect the driver side-door lock motor wiring harness connector D04. D. Turn the ignition switch to position "ON". E. Perform unlocking. F. Measure the voltage between the terminal 1 of the driver side-door lock motor wiring harness connector D04 and reliable ground. **Standard Voltage Value: 11 ~ 14 V** Is the voltage normal? **Y** Go to step 3. **N** Repair the open circuit fault between the terminal 1 of the driver side-door lock motor wiring harness connector D04 and the terminal 14 of the BCM wiring harness connector P14.

Test conditions	Details/Results/Actions
3. Inspect the central control door motor locking signal (take driver side for example)	
	A. Turn the ignition switch to position "LOCK". B. Remove the trim panel of the driver side-door. **Refer to: Front Door Interior Decoration (5.1.2 Door, Removal and Installation).** C. Disconnect the driver side-door lock motor wiring harness connector D04. D. Turn the ignition switch to position "ON". E. Perform unlocking. F. Measure the voltage between the terminal 2 of the driver side-door lock motor wiring harness connector D04 and reliable ground. **Standard Voltage Value: 11 ~ 14 V** Is the voltage normal? **Y** Replace the driver side door lock. **Refer to: Front Door Lock (4.3.9 Central Lock and Theft-Deterrent System, Removal and Installation).** **N** Repair the open circuit fault between the terminal 2 of the driver side-door lock motor wiring harness connector D04 and the terminal 15 of the BCM wiring harness connector P14.

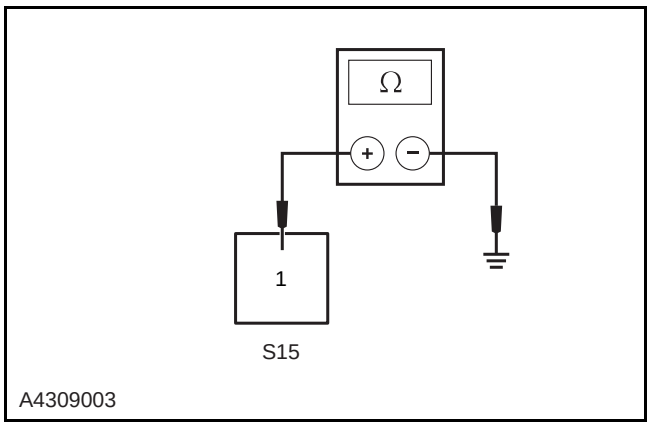
Remote Controller Fails But Central Control Lock Is Normal Diagnosis

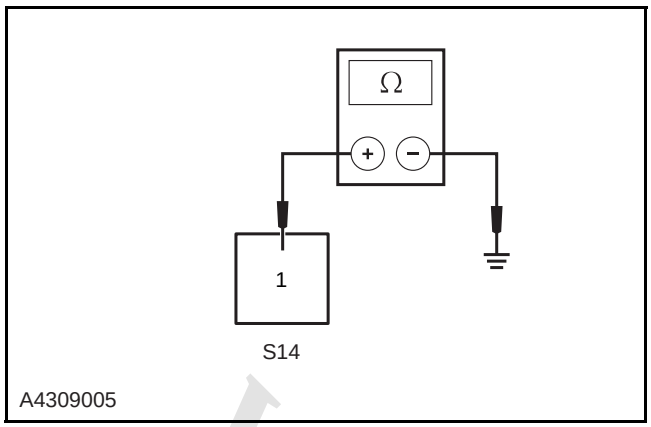
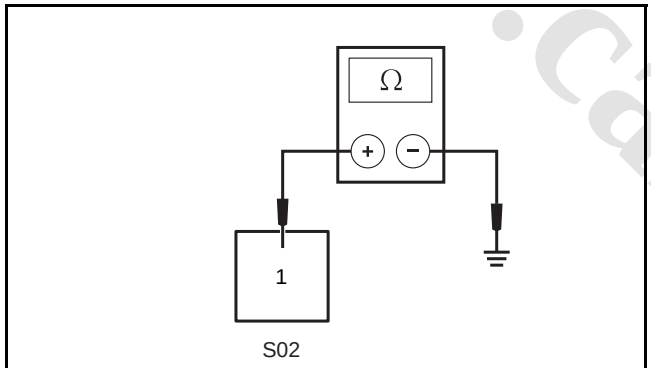
Test Conditions	Details/Results/Actions
1. Inspect the remote controller battery	
	A. Inspect the voltage of remote controller battery. **Standard Voltage Value: more than 2.9 V** Is the voltage normal? **Y** Go to step 2. **N** Replace the remote controller battery.
2. Program the remote controller key again	
	A. Match the remote controller. **Refer to: Remote Controller Key Matching (4.3.9 Central Lock and Body Anti-theft System, Description and Operation).** Return to normal? **Y** Verify the symptom. **Refer to: Symptom Chart (4.3.9 Central Lock and Body Anti-theft system, Symptom Diagnosis and Testing).** **N** Go to step 3.
3. Replace a new remote controller and match it	
	A. Match the remote controller. **Refer to: Remote Controller Key Matching (4.3.9 Central Lock and Body Anti-theft System, Description and Operation).** Return to normal? **Y** Replace the remote controller. **N** Go to step 4.

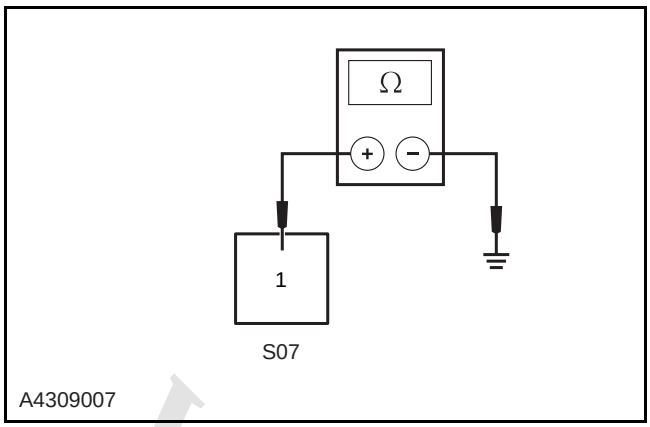
Test Conditions	Details/Results/Actions
4. Inspect the BCM power supply and ground circuit	
	A. Inspect the BCM power supply and ground circuit. **Refer to: DTC Diagnostic Procedure Index (4.3.14 Body Control System, DTC Diagnosis and Testing).** Is it normal? **Y** Replace the BCM. **Refer to: Body Control Module (4.3.14 Body Control System, Removal and Installation).** **N** Dispose fault part.

Central Lock Acts But Fails to Enter Anti-theft State Diagnosis

Test Conditions	Details/Results/Actions
1. Verify the symptom	
	A. Verify that all the doors, back door and engine hood are closed in place. B. Press the locking button on the remote controller. Observe whether the vehicle can enter anti-theft state normally? **Y** Verify the symptom. **Refer to: Symptom Chart (4.3.9 Central Lock and Body Anti-theft System, Symptom Diagnosis and Testing).** **N** Go to step 2.
2. Inspect the BCM - "Right Rear Door State Switch"	
	A. Close all the doors and trunk cover. B. Connect diagnosis tool. C. Turn the ignition switch to "ON" position. D. Select in turn: BCM / Data Flow Test / Analog Input Switch Test. E. Test "Right Rear Door State Switch" Is the action test normal? **Y** Go to step 3. **N** Go to step 6.
3. Inspect the BCM - "Left Rear Door State Switch"	
	A. Close all the doors and trunk cover. B. Connect the diagnosis tool. C. Turn the ignition switch to "ON" position. D. Select in turn: BCM / Data Flow Test / Analog Input Switch Test. E. Inspect "Left Rear Door State Switch" Is the action test normal? **Y** Go to step 4. **N** Go to step 7.

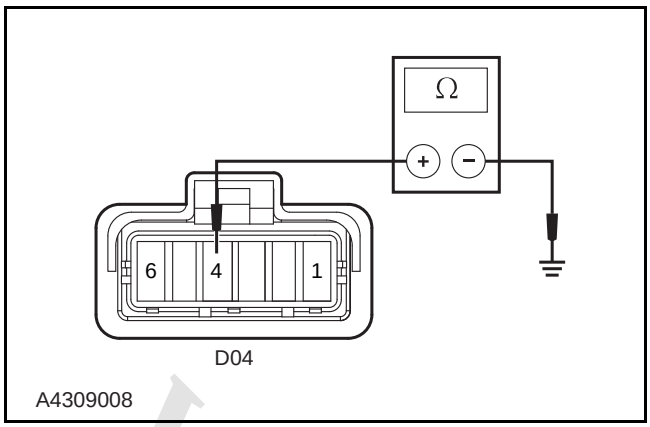
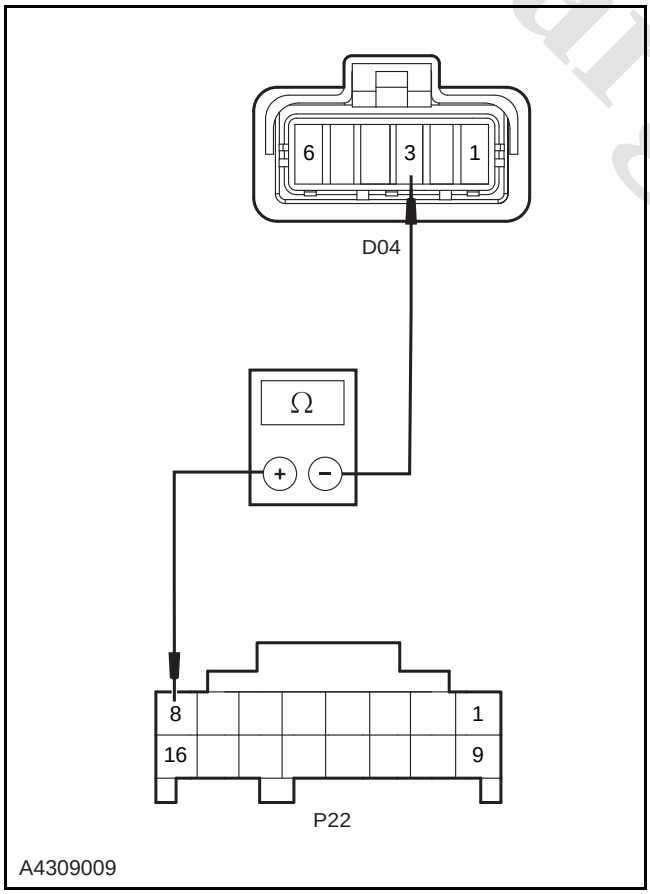
Test Conditions	Details/Results/Actions
4. Inspect the BCM - "Right Front Door State Switch"	
	A. Close all the doors and trunk cover. B. Connect the diagnosis tool. C. Turn the ignition switch to "ON" position. D. Select in turn: BCM / Data Flow Test / Analog Input Switch Test. E. Test "Right Front Door State Switch" Is the action test normal? **Y** Go to step 5. **N** Go to step 8.
5. Inspect the BCM - "Left Front Door State Switch"	
	A. Close all the doors and rear door. B. Connect the diagnosis tool. C. Turn the ignition switch to "ON" position. D. Select in turn: BCM / Data Flow Test / Analog Input Switch Test. E. Test "Left Front Door State Switch" Is the action test normal? **Y** Go to step 10. **N** Go to step 9.
6. Inspect the signal circuit of right rear door contact switch	
	A. Turn the ignition switch to "LOCK" position and disconnect the battery negative wiring harness. B. Disconnect the right rear door contact switch wiring harness connector S15 and the BCM wiring harness connector P22. C. Measure the resistance between the terminal 1 of the right rear door contact switch wiring harness connector S15 and the reliable ground. **Standard Resistance Value: 10 MΩ or more** Is the resistance value normal? **Y** Replace the right rear door contact switch. **N** Inspect and repair the short circuit to ground fault between the terminal 1 of the right rear door contact switch wiring harness connector S15 and the terminal 14 of the BCM wiring harness connector P22.

Test Conditions	Details/Results/Actions
7. Inspect the signal circuit of left rear door contact switch	
 A4309005	A. Turn the ignition switch to "LOCK" position and disconnect the battery negative wiring harness. B. Disconnect the left rear door contact switch wiring harness connector S14 and the BCM wiring harness connector P22. C. Measure the resistance between the terminal 1 of the right rear door contact switch wiring harness connector S14 and the reliable ground. **Standard Resistance Value: 10 MΩ or more** Is the resistance value normal? **Y** Replace the left rear door contact switch. **N** Inspect and repair the short circuit to ground fault between the terminal 1 of the left rear door contact switch wiring harness connector S14 and the terminal 7 of the BCM wiring harness connector P22.
8. Inspect the contact switch signal circuit of passenger side-door	
 A4309006	A. Turn the ignition switch to "LOCK" position and disconnect the battery negative wiring harness. B. Disconnect the passenger side door contact switch wiring harness connector S02 and the BCM wiring harness connector P22. C. Measure the resistance between the terminal 1 of the passenger side-door contact switch wiring harness connector S02 and reliable ground. **Standard Resistance Value: 10 MΩ or more** Is the resistance value normal? **Y** Replace the contact switch of passenger side-door. **N** Inspect and repair the short circuit to ground fault between the terminal 1 of the passenger door contact switch wiring harness connector S02 and the terminal 6 of the BCM wiring harness connector P22.

Test Conditions	Details/Results/Actions
9. Inspect the contact switch signal circuit of driver side-door	
	A. Turn the ignition switch to "LOCK" position and disconnect the battery negative wiring harness. B. Disconnect the driver side door contact switch wiring harness connector S07 and the BCM wiring harness connector P22. C. Measure the resistance between the terminal 1 of the driver side-door contact switch wiring harness connector S07 and reliable ground. **Standard Resistance Value: 10 MΩ or more** Is the resistance value normal? **Y** Replace the contact switch of driver side-door. **N** Inspect and repair the short circuit to ground fault between the terminal 1 of the driver side-door contact switch wiring harness connector S07 and the terminal 5 of the BCM wiring harness connector P22.
10. Inspect the BCM power supply and ground circuit	
	A. Inspect the BCM power supply and ground circuit. **Refer to: DTC Diagnostic Procedure Index (4.3.14 Body Control System, DTC Diagnosis and Testing).** Is it normal? **Y** Replace the BCM. **Refer to: Body Control Module (4.3.14 Body Control System, Removal and Installation).** **N** Dispose fault part.

Mechanical Key Unable to Lock / Unlock Diagnosis

Test conditions	Details/Results/Actions
1. Verify the symptom	
	A. Use mechanical key to execute lock / unlock function outside driver side-door. B. Verify the operation result. Are all the doors unable to be locked / unlocked? **Y** Go to step 2. **N** Inspect and repair one failed central control door lock or above. **Refer to: One or More Central Door Locks Failure Diagnosis (4.3.9 Central Lock and Theft-Deterrent System, Symptom Diagnosis and Testing).**
2. Inspect the lock switch of driver side-door	
	A. Turn the ignition switch to position "LOCK". B. Remove the trim panel of driver side-door. **Refer to: Front Door Interior Decoration (5.1.2 Door, Removal and Installation).** C. Disconnect the connector D04 of the driver side-door lock motor. D. Insert the key into the door lock to perform locking operation. E. Measure whether the terminal 3 and terminal 4 of the driver side-door lock motor are connected. **Standard Resistance Value: less than 5 Ω** Is the resistance value normal? **Y** Go to step 3. **N** Replace the driver side door lock. **Refer to: Front Door Lock (4.3.9 Central Lock and Theft-Deterrent System, Removal and Installation).**

Test conditions	Details/Results/Actions
3. Inspect the ground circuit of driver side-door lock switch	
	A. Turn the ignition switch to position "LOCK" and disconnect the battery negative cable. B. Remove the trim panel of driver side-door. **Refer to: Front Door Interior Decoration (5.1.2 Door, Removal and Installation).** C. Disconnect the driver side-door lock motor wiring harness connector D04. D. Disconnect the BCM wiring harness connector P22. E. Measure the resistance between the terminal 4 of the driver side-door lock motor wiring harness connector D04 and reliable ground. **Standard Resistance Value: less than 5 Ω** Is the resistance value normal? **Y** Go to step 4. **N** Repair the open circuit between the terminal 4 of the driver side-door lock motor wiring harness connector D04 and ground point G201.
4. Inspect the locking / unlocking signal circuit of driver side-door lock switch	
	A. Turn the ignition switch to "LOCK" position and disconnect the battery negative wiring harness. B. Remove the trim panel of driver side-door. **Refer to: Front Door Interior Decoration (5.1.2 Door, Removal and Installation).** C. Disconnect the driver side-door lock motor wiring harness connector D04. D. Disconnect the BCM wiring harness connector P22. E. Measure the resistance between the terminal 3 of the driver side-door lock motor wiring harness connector D04 and the terminal 8 of the BCM wiring harness connector P25. **Standard Resistance Value: less than 5 Ω** Is the resistance value normal? **Y** Go to step 5. **N** Repair the open circuit fault between the terminal 3 of the driver side-door lock motor wiring harness connector D04 and the terminal 8 of the BCM wiring harness connector P22.

Test conditions	Details/Results/Actions
5. Inspect the BCM power supply and ground circuit	
	A. Inspect the BCM power supply and ground circuit. **Refer to: DTC Diagnostic Procedure Index (4.3.14 Body Control System, DTC Diagnosis and Testing).** Is it normal? **Y** Replace the BCM. **Refer to: Body Control Module (4.3.14 Body Control System, Removal and Installation).** **N** Dispose fault part.

Removal and Installation

Front Door Lock

Removal

1. Disconnect the battery negative cable.

   Refer to: Battery Inspection (3.1.10 Charging System, General Procedures).

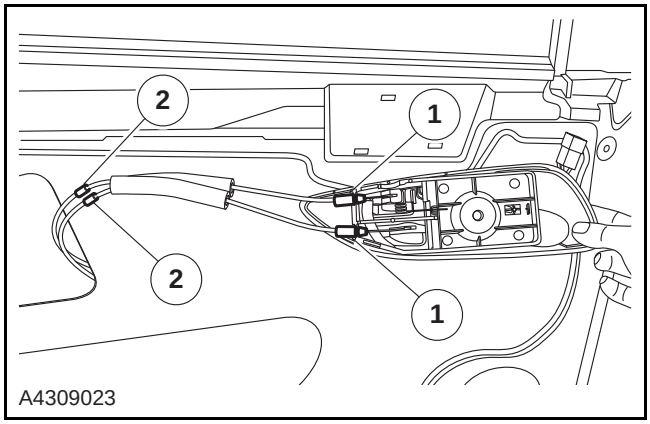
2. Remove the interior trim panel of the front door.

   Refer to: Front Door Interior Trim (5.1.2 Door, Removal and Installation).

3. Disconnect the cable with the handle.

   1. Detach the internal handle cable from the front door internal handle.

   2. Disconnect the inner cable with the clip.



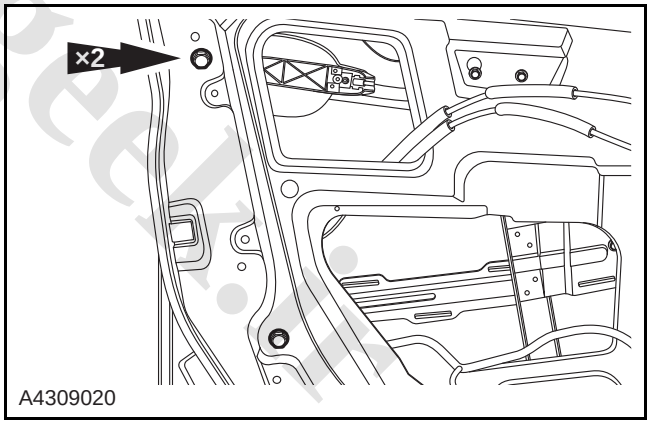
A4309023

4. Use a proper tool to remove the waterproof membrane.

CAUTION: Do not touch with a sticky surface to avoid weaken viscosity when reloading.

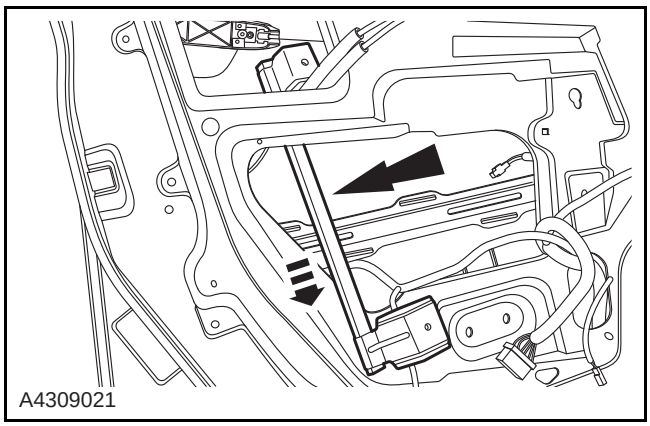
5. Remove the front window glass lower slot retaining bolt.

   Torque: 8 Nm



A4309020

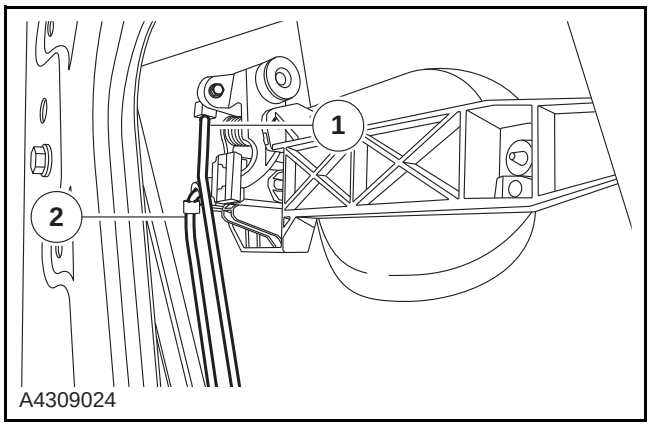
6. Take out the front window glass lower slot.



7. Disconnect the connecting link of the front door.

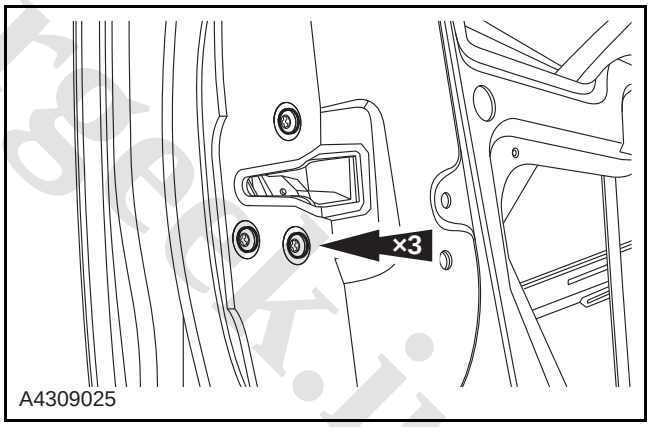
1. Disconnect the connecting link of the exterior handle of the front door.

2. Disconnect the link of the lock core of the front door.



8. Remove the 3 retaining bolts of the front door lock.

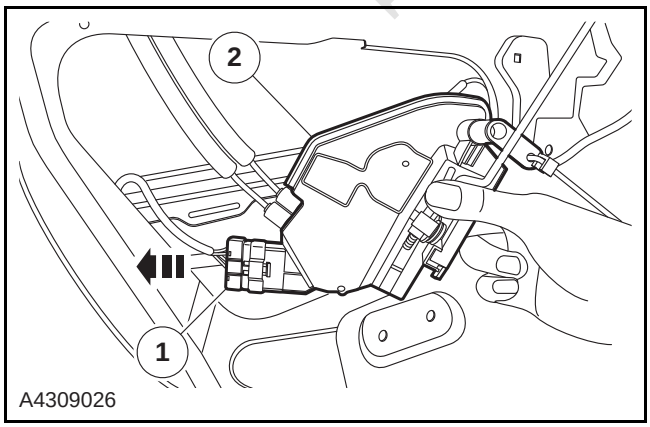
Torque: 8 Nm



9. Remove the front door lock block.

1. Disconnect the wiring harness connector of the front door lock.

2. Take out the front door lock block.



Installation

1. The installation process is reverse.

Rear Door Lock

Removal

1. Disconnect the battery negative cable.

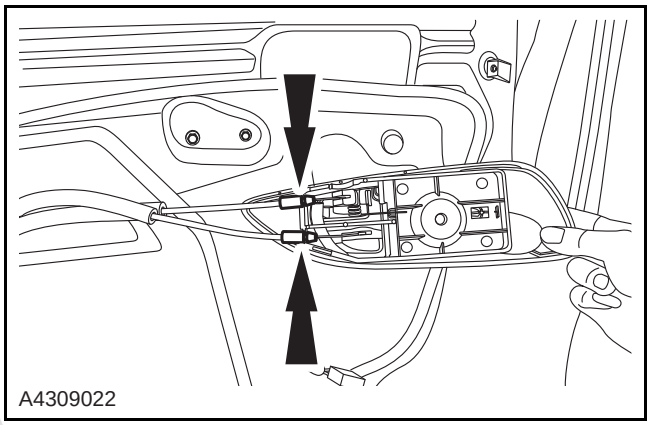
   Refer to: Battery Inspection (3.1.10 Charging System, General Procedures).

2. Remove the rear door interior decorative panel.

   Refer to: Front Door Interior Trim (5.1.2 Door, Removal and Installation).

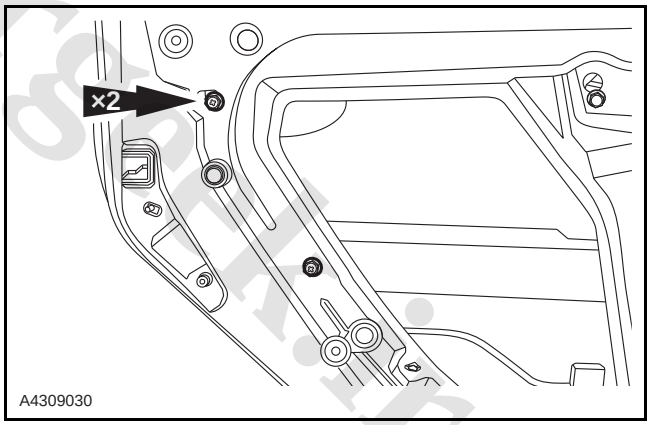
3. Detach the internal handle cable from the rear door internal handle.
4. Use a proper tool to remove the waterproof membrane.

CAUTION: Do not touch with a sticky surface to avoid weaken viscosity when reloading.


A4309022

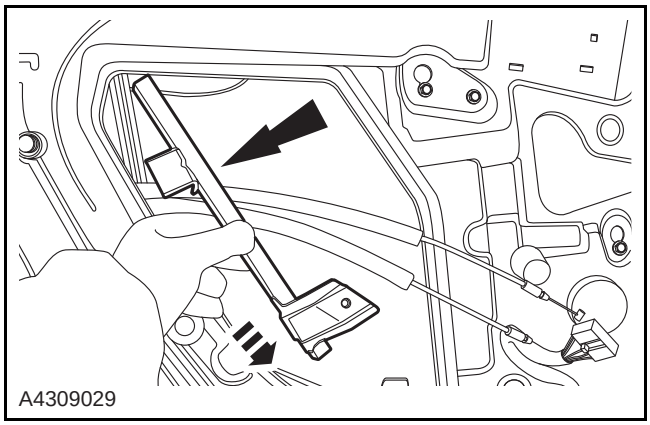
5. Remove the rear window glass lower slot retaining bolt.

   Torque: 8 Nm

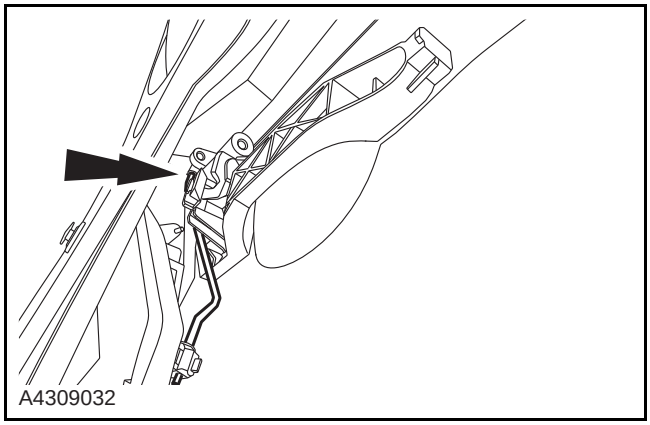


A4309030

6. Take out the rear window glass lower slot.

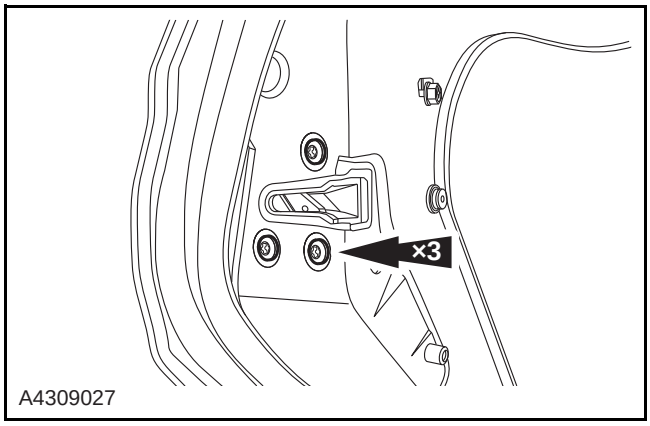

A4309029

7. Disconnect the connecting link of the exterior handle of the rear door.



8. Remove the 3 retaining bolts of the rear door lock.

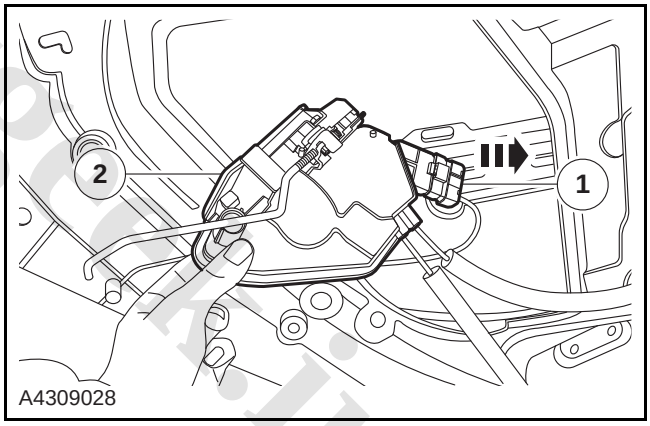
Torque: 10 Nm



9. Remove the rear door lock block.

1. Disconnect the wiring harness connector of the front door lock.

2. Take out the rear door lock block.



Installation

1. To install, reverse the removal procedure.

Rear Back Door Lock

Removal

1. Disconnect the battery negative cable.

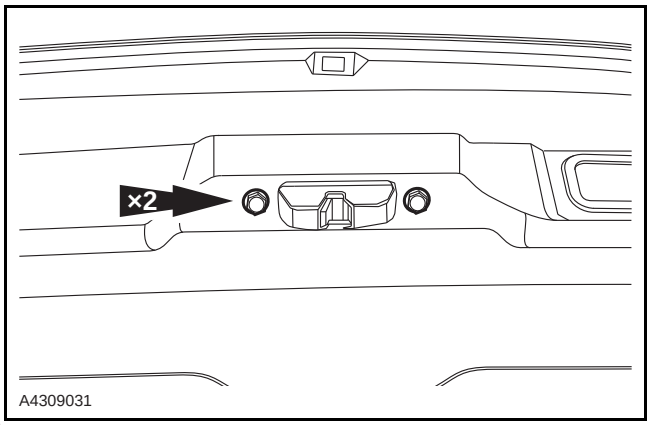
   Refer to: Battery Inspection (3.1.10 Charging System, General Procedures).

2. Remove the interior trim panel of the rear back door.

   Refer to: Rear Storage Console (5.1.9 Interior Trim and Ornamentation, Removal and Installation).

3. Remove the 2 retaining bolts of the rear door lock block.

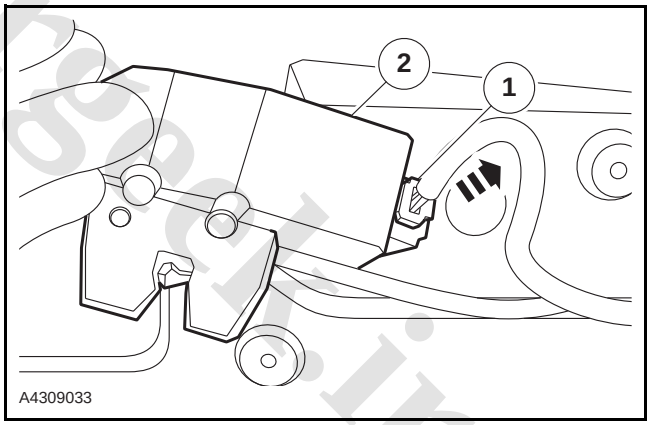
   Torque: 10 Nm



4. Remove the rear back door lock block.

   1. Disconnect the wiring harness connector of the front door lock.

   2. Take out the rear door lock block.



Installation

1. To install, reverse the removal procedure.

Specifications

General Specifications

Description	Item	Parameter
Door glass regulator motor	Working voltage	12 V (DC)

Torque Specifications

Description	Nm	lb-ft	lb-in
Door glass bracket mounting bolt	8	-	59
Door glass regulator mounting bolt	8	-	59
External clamping strip retaining bolt	5	-	37
Door assembly slide mounting bolt	8	-	59
Door interior (exterior) handle mounting screw	5	-	37
Window regulator mounting screw	5	-	37

Description and Operation

System Overview

The window glass control methods include general driver control and independent passenger control two methods. Windows of this model are operated electrically. Just press the glass lift switch to lift the window glass. There are window glass regulator switches for each window inside the driver side door, and other switches on relevant doors.

Window manual regulation: when the power supply gear is at the "ON" gear, press the driver window switch UP/DOWN gear or local window UP/DOWN gear for window up/down until the release or the window up to the top/down to the bottom.

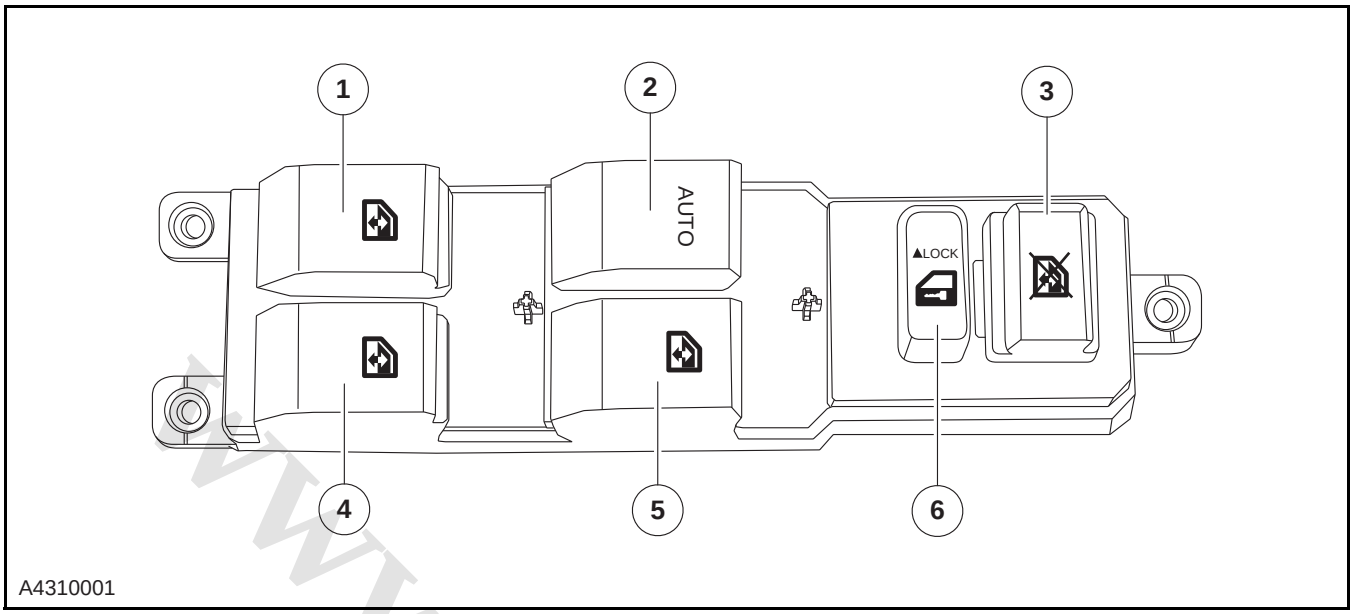
One-key-down function of the driver side window: Press the driver window to the second gear (the bottom), the driver window will drop automatically to the completely open position. During the process, if the driver window switch up key or down key signal is detected, the power window will stop dropping, other power windows has no automatic drop function.

There is a blocking switch in front of the driver door window switch. Press the blocking switch to lock/unlock the lifting or lowering of other three power windows.

Effective window function for 1 minute misfire: when the ignition switch is at the "LOCK" state, all windows ON/OFF signals and switch LOCK/STOP signals are effective in 1 minute.

Location View

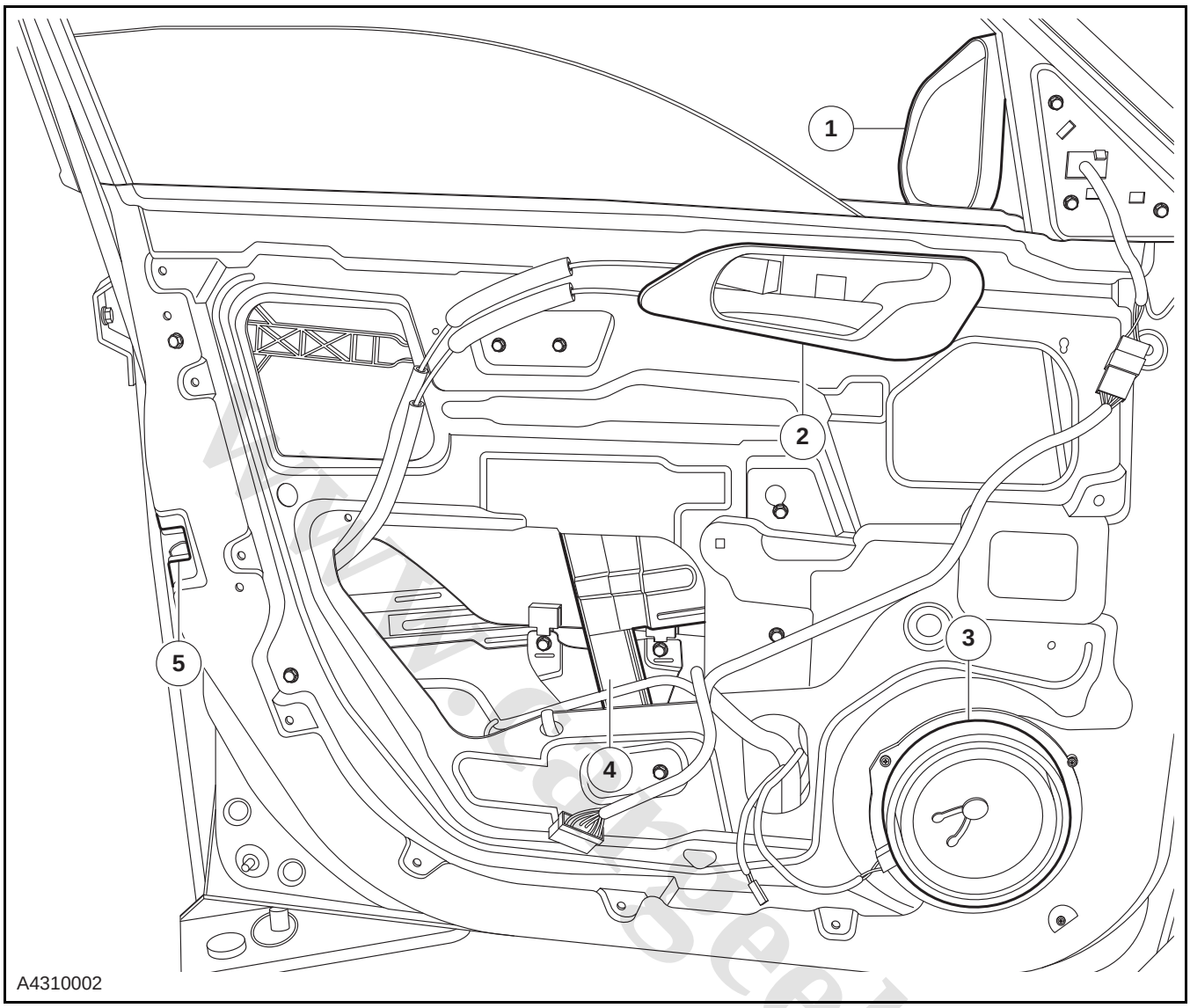
Driver Side Door Window Switch



A4310001

Item	Description	Item	Description
1	Left rear door window regulating switch	4	Right rear door window regulating switch
2	Driver side window regulating switch	5	Passenger side window regulating switch
3	Window regulating lock switch	6	Central door locking button

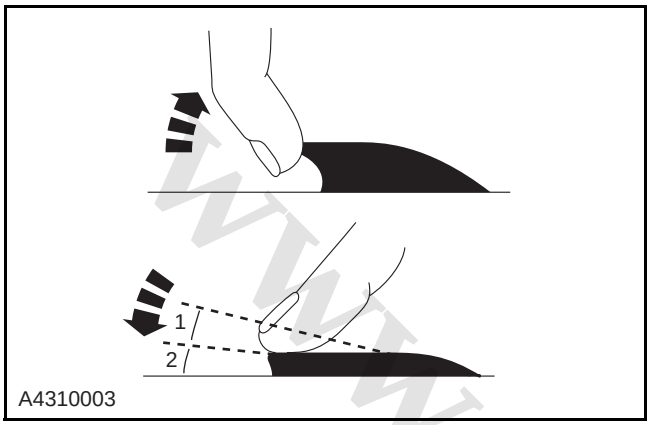
Driver Side Door Component Location View



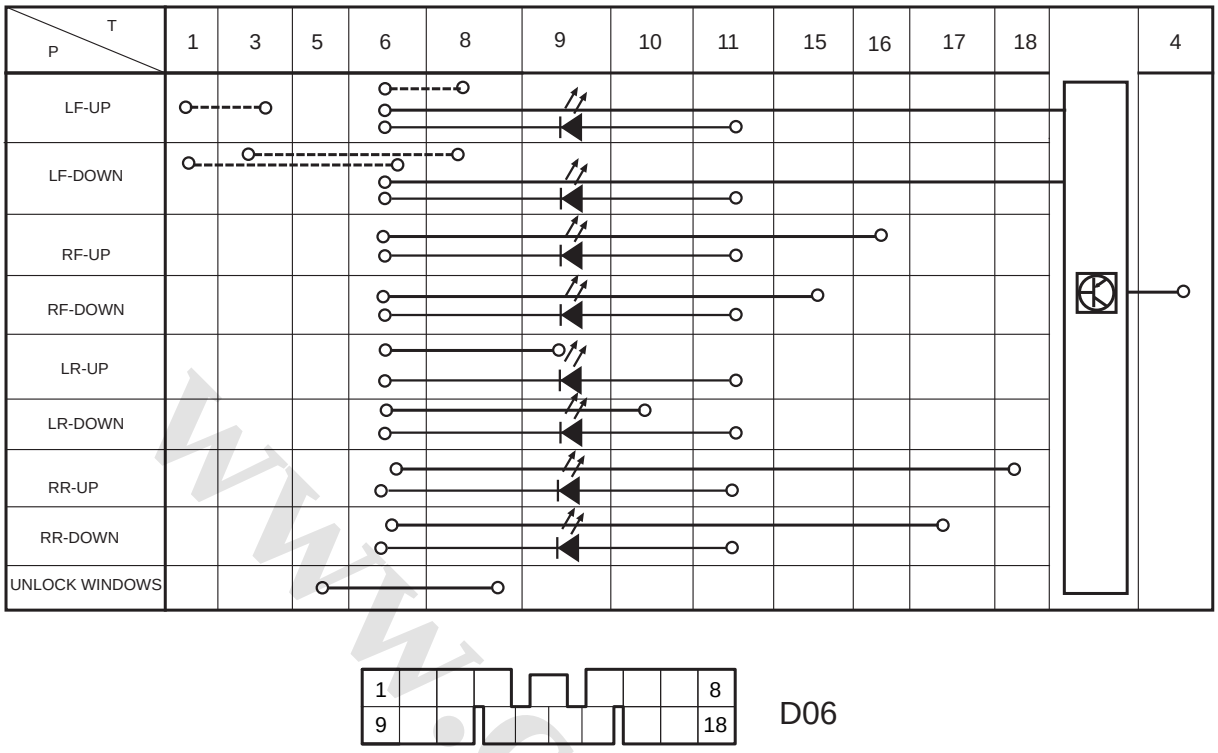
Item	Description	Item	Description
1	Power rearview mirror	4	Front window glass regulator
2	Front door interior handle assembly	5	Front door lock assembly
3	Front door speaker		

General Procedures

Press the window regulating button, the window glass will lower manually (the window is open) for the first gear, the window glass will lower automatically for the second gear (the bottom). If pull up the button during the process of automatic lowering, the window glass will stop lowering. Pull up the button, the door window glass will lift (close).

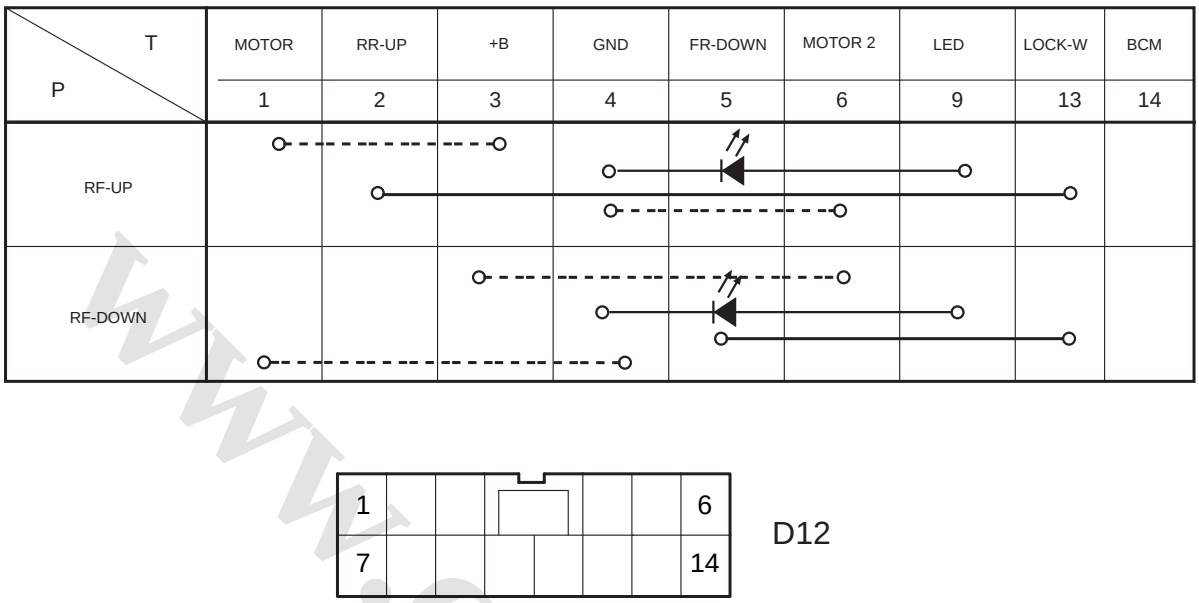


Driver Door Power Window Switch Gear Chart



A4310004

Passenger Door Power Window Switch, Left Rear Power Window Switch and Right Rear Power Window Switch Gear Chart



A4310006

Symptom Diagnosis and Testing

General Equipment

Digital Multimeter
Changan Auto special diagnostic tool

Inspection and Verification

1. Verify the customer concern.
2. Visually inspect for obvious signs of mechanical or electrical damage and the deformation due to collision.

Visual Inspection Chart

Mechanical	Electric
• Window sealing element • Window frame • Door • Door interior trim	• Fuse • Circuit • Window regulating switch • BCM • Window regulator

3. Inspect the visible system circuit.
4. If an obvious cause for an observed or reported concern is found, correct the cause before proceeding to the next step.
5. If the cause is not visually evident, verify the symptom and refer to the Symptom Chart.

Symptom Chart

If there is a symptom but no diagnosis trouble code (DTC) is stored in control module and can not confirm symptom reasons in basic inspect, it is necessary to diagnosis and eliminate the symptoms in the following chart.

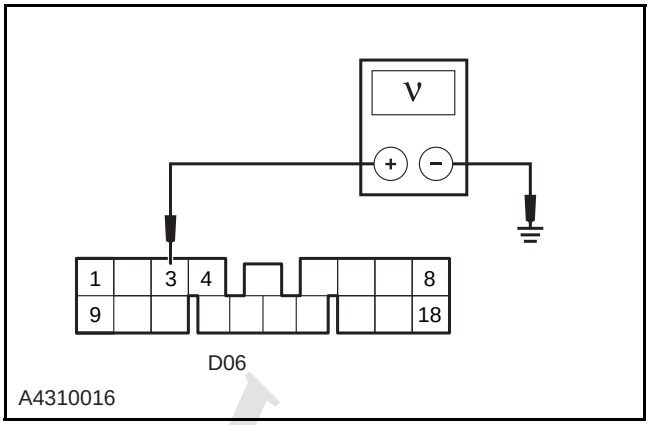
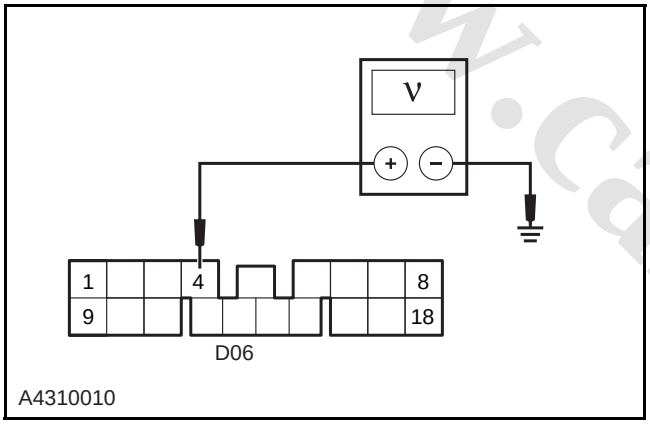
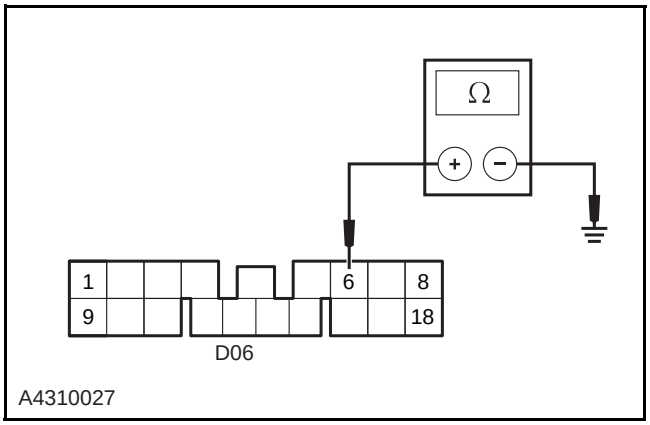
Symptom	Possible Sources	Action
All power windows working failure	• Circuit fault • Window switch • BCM • Fuse	**Refer to: All Power Windows Fail to Work Diagnosis (4.3.10 Power Window, Symptom Diagnosis and Testing).**
Only one window fails	• Circuit fault • Window switch • Door window glass regulator motor	**Refer to: Driver Side Power Window Failure Diagnosis (4.3.10 Power Window, Symptom Diagnosis and Testing).**
Power window delay functional failure	• Circuit fault • BCM	**Refer to: Power Window Delay Functional Failure Diagnosis (4.3.10 Power Window, Symptom Diagnosis and Testing).**
Window locking functional failure	• Circuit fault • Driver window locking switch	• Inspect the circuit, or replace as necessary. • Replace the left front window switch.
The window switch lamp is not on	• Circuit fault • Lighting combination switch • Window switch	• Inspect and repair the circuit. • Inspect the position lamp operating state. • Replace the light combination switch. • Replace the window switch.
Power window unable to lift to top	• Circuit fault • Door window glass regulator motor • Glass guide rail • Glass dash groove • Door	• Inspect and repair the circuit. • Replace the window glass regulator motor. • Inspect or replace the glass guide rail. • Inspect or replace the dash groove. • Inspect and repair the door.
Power window displacement in regulating	• Door window glass regulator motor • Glass guide rail • Glass dash groove • Door	• Inspect or replace the glass guide rail. • Inspect or replace the dash groove. • Inspect and repair the door. • Replace the window glass regulator motor.

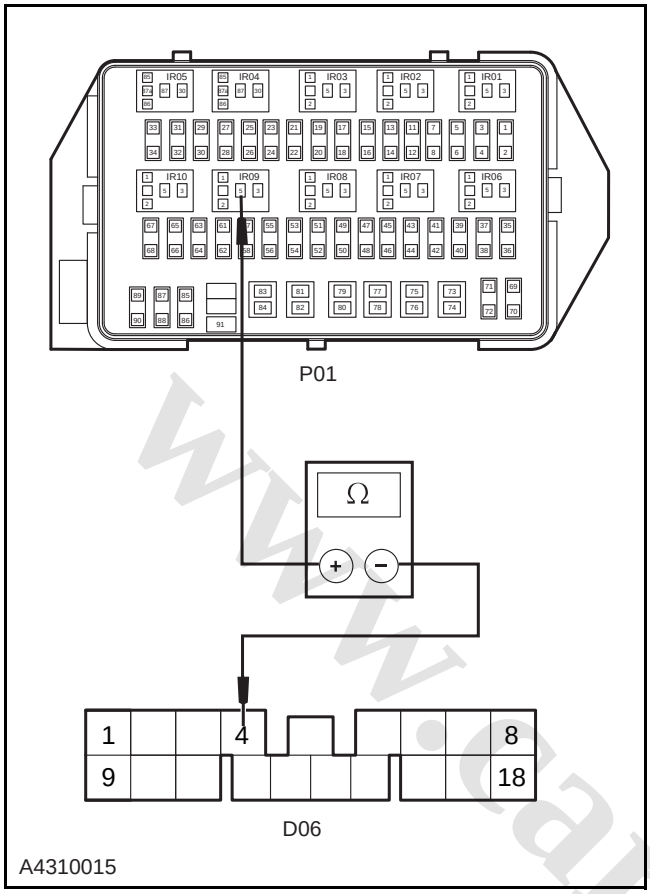
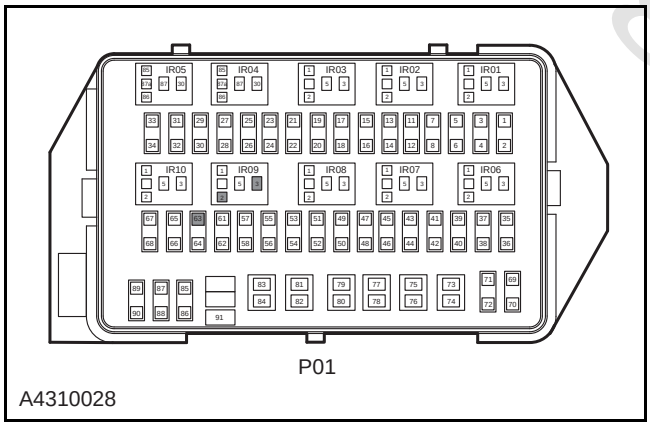
Symptom	Possible Sources	Action
Power window regulating slowly	• Circuit fault • The battery voltage is low. • Door window glass regulator motor • Glass guide rail • Glass dash groove • Door	• Inspect and repair the circuit. • Inspect and repair the charging system and replace the battery. • Inspect or replace the glass guide rail. • Inspect or replace the dash groove. • Inspect and repair the door. • Replace the window glass regulator motor.

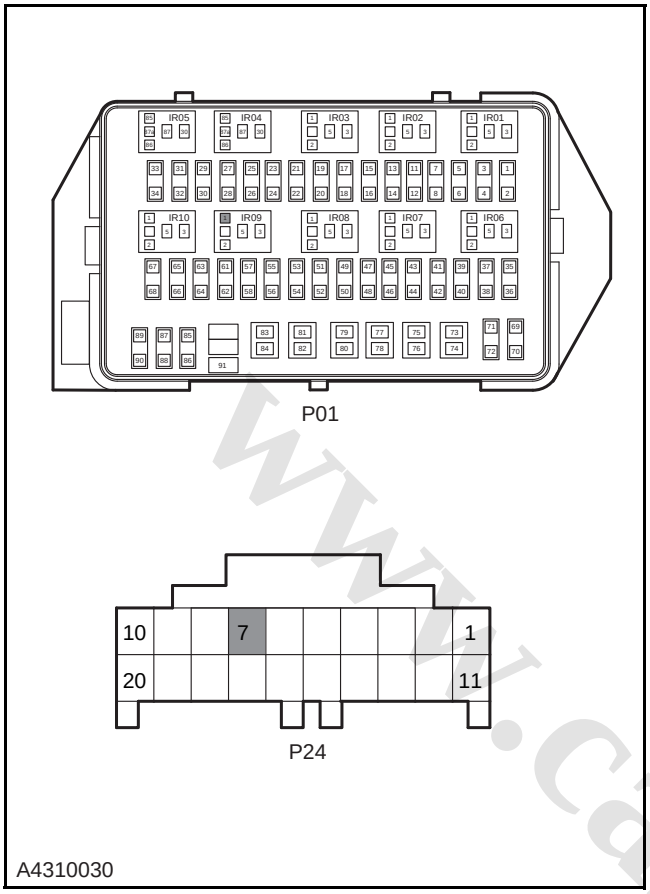
All Power Windows Failure Diagnosis

Test Conditions	Details/Results/Actions
1. General inspection	
	A. Inspect the window switch, window glass regulator motor wiring harness connector for damage, poor contact, aging and loose. Is it normal? **Y** Go to step 2. **N** Repair the fault.
2. Verify the ignition status	
	A. Turn the ignition switch to "ON" position. Is the ignition switch status normal? **Y** Go to step 3. **N** Inspect and repair the ignition switch or ignition switch circuit.
3. Inspect the fuse	
	A. Inspect the window switch fuse IF29 & IF30. **Fuse Rated Capacity: 30 A** Is the fuse normal? **Y** Go to step 4. **N** Inspect and repair the fuse circuit, replace the fuse in rated capacity.

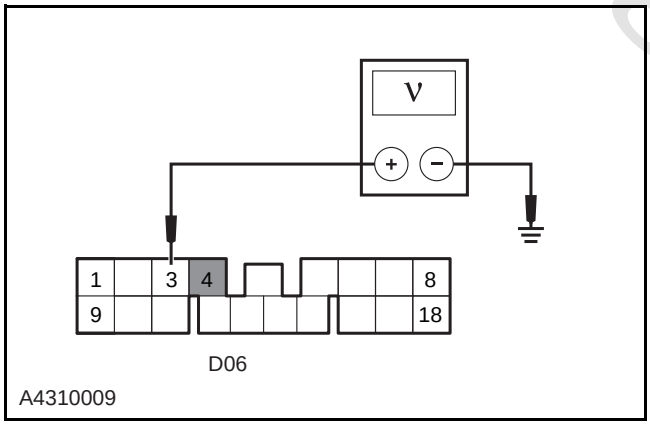
Test Conditions	Details/Results/Actions
4. Inspect the battery voltage	
	A. Inspect the battery voltage with the multimeter. **Standard Voltage Value: 11 ~ 14 V** Is the voltage normal? **Y** Go to step 5. **N** Inspect and repair the charging system. **Refer to: Battery Undercharge or Battery Overcharge Diagnosis (3.1.10 Charging System, Symptom Diagnosis and Testing).**
5. Inspect the driver side power window switch	
	A. Turn the ignition switch to "ON" position. B. Inspect the switch function according to the driver side power window switch control chart from the rear side of the driver side power window switch wiring harness connector. Is the switch normal? **Y** Go to step 6. **N** Replace the driver side power window switch. **Refer to: Power Window Switch (4.3.10 Power Window, Removal and Installation).**
6. Inspect the power window relay	
	A. Turn the ignition switch to position "LOCK". B. Replace the new power window relay, turn the ignition switch to the "ON" position. C. Control the power window up and down. Do the power windows work normally? **Y** Replace the power window relay. **N** Go to step 7.

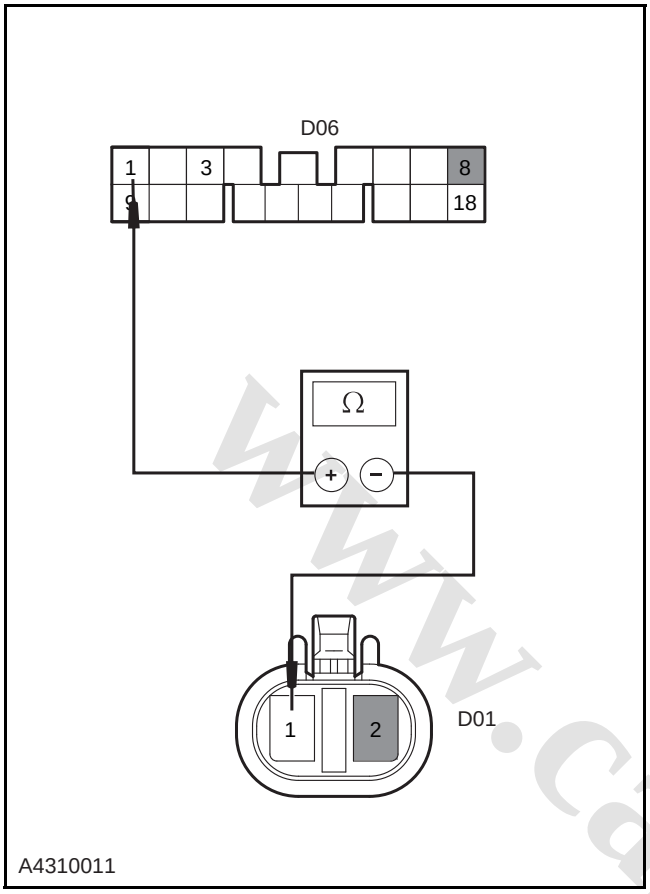
Test Conditions	Details/Results/Actions
7. Measure the power supply of the driver side window switch wiring harness connector D06 terminal 3	
 A4310016	A. Turn the ignition switch to position "LOCK". B. Disconnect the driver side power window switch wiring harness connector D06. C. Measure the voltage between the driver side power window switch wiring harness connector D06 terminal 3 and the reliable ground. **Standard Voltage Value: 11 ~ 14 V** Is the voltage normal? **Y** Go to step 8. **N** Inspect and repair the power supply circuit fault between the driver side power window switch wiring harness connector D06 terminal 3 and the fuse IF29 terminal 61.
8. Measure the power supply of the driver side window switch wiring harness connector D06 terminal 4	
 A4310010	A. Turn the ignition switch to position "LOCK". B. Disconnect the driver side power window switch wiring harness connector D06. C. Turn the ignition switch to "ON" position. D. Measure the voltage between the driver side power window switch wiring harness connector D06 terminal 4 and the reliable ground. **Standard Voltage Value: 11 ~ 14 V** Is voltage normal? **Y** Go to step 9. **N** Go to step 10.
9. Inspect the driver side power window switch ground circuit	
 A4310027	A. Turn the ignition switch to position "LOCK". B. Disconnect the driver side power window switch wiring harness connector D06. C. Measure the resistance value between the driver side power window switch wiring harness connector D06 terminal 6 and the reliable ground. **Standard Resistance Value: less than 5 Ω** Is the resistance normal? **Y** Verify the system is normal. **N** Inspect and repair the circuit fault between the driver side power window switch wiring harness D06 terminal 6 to the ground point G201.

Test Conditions	Details/Results/Actions
10. Circuit between the power window relay IR09 and the driver side power window switch	
 A4310015	A. Turn the ignition switch to position "LOCK". B. Disconnect the driver side power window switch wiring harness connector D06. C. Disconnect the power window relay IR09. D. Measure the resistance between the I/P fuse and relay box D06 terminal 4 and IR09 terminal 5. **Standard Resistance Value: less than 5 Ω** Is the resistance value normal? **Y** Go to step 11. **N** Inspect and repair the open circuit fault between the driver side power window switch wiring harness connector D06 terminal 4 and the power window relay IR09 terminal 5.
11. Inspect the power window relay IR09 power supply circuit	
 A4310028	A. Turn the ignition switch to "LOCK" position and disconnect the battery negative cable. B. Disconnect the I/P fuse and relay box IF30 fuse. C. Disconnect the power window relay IR09. D. Measure the resistance between the terminal 63 of the fuse IF30 in the I/P fuse and relay box P01 and the terminal 2 and 3 of the power window relay fuse IR09. **Standard Resistance Value: less than 5 Ω** Is the resistance value normal? **Y** Go to step 12. **N** Inspect and repair the open circuit fault between the terminal 63 of the fuse IF30 in the I/P fuse and relay box P01 and the terminal 2 and 3 of the power window fuse IR09.

Test Conditions	Details/Results/Actions
12. Inspect the power window relay IR09 control circuit	
	A. Turn the ignition switch to "LOCK" position and disconnect the battery negative cable. B. Disconnect the power window relay IR09. C. Disconnect the BCM wiring harness connector P24. D. Measure the resistance between the power window relay IR09 terminal 1 and the BCM wiring harness connector P24 terminal 7. **Standard Resistance Value: less than 5 Ω** Is the resistance value normal? **Y** Go to step 13. **N** Inspect and repair the open circuit fault between the terminal 1 of the power window relay IR09 and the terminal 7 of the the BCM wiring harness connector P24.
13. Inspect the BCM power supply and the ground circuit	
	A. Inspect the BCM power supply and ground circuit. **Refer to: DTC Diagnostic Procedure Index (4.3.14 Body Control System, DTC Diagnosis and Testing).** Is the BCM power supply and the ground circuit normal? **Y** Go to step 14. **N** Repair the fault part.
14. Replace the BCM	
	A. Turn the ignition switch to position "LOCK" and disconnect the battery negative cable. B. Replace the BCM. **Refer to: Body Control Module (4.3.14 Body Control System, Removal and Installation).** Confirm the maintenance is finished.

Passenger Side Power Window Failure Diagnosis

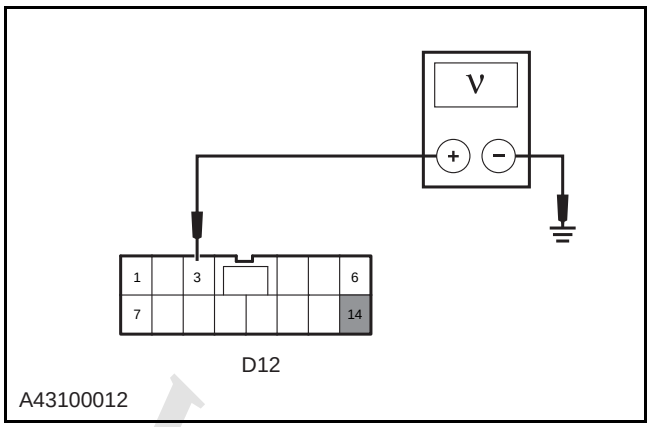
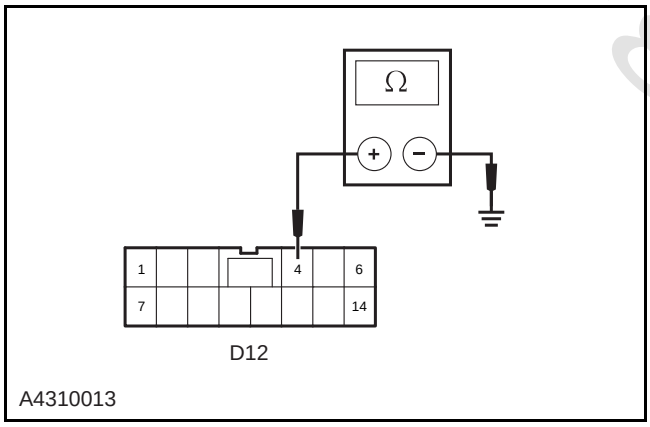
Test Conditions	Details/Results/Actions
1. General inspection	
	A. Inspect the window switch, window glass regulator motor wiring harness connector for damage, poor contact, aging and loose. Is it normal? **Y** Go to step 2. **N** Repair the fault.
2. Inspect the driver side power window switch	
	A. Turn the ignition switch to position "ON". B. Inspect the switch function according to the driver side power window switch control chart from the rear side of the driver side power window switch wiring harness connector. Is the switch normal? **Y** Go to step 3. **N** Replace the driver side power window switch. **Refer to: Power Window Switch (4.3.10 Power Window, Removal and Installation).**
3. Inspect the driver side power window switch power supply circuit	
 D06 A4310009	A. Turn the ignition switch to position "LOCK". B. Disconnect the driver side power window switch wiring harness connector D06. C. Measure the value between the driver side power window switch wiring harness connector D06 terminal 3 and the reliable ground. D. Turn the ignition switch to "ON" position. E. Measure the value between the driver side power window switch wiring harness connector D06 terminal 4 and the reliable ground. **Standard Voltage Value: 11 ~ 14 V** Is the voltage normal? **Y** Go to step 4. **N** Inspect and repair the open circuit fault between the driver side power window switch wiring harness connector D06 terminal 3 and the terminal 61 of the fuse IF29. Repair the open circuit fault between the driver side power window switch wiring harness connector D06 terminal 4 and the power window relay IR09 terminal 87.

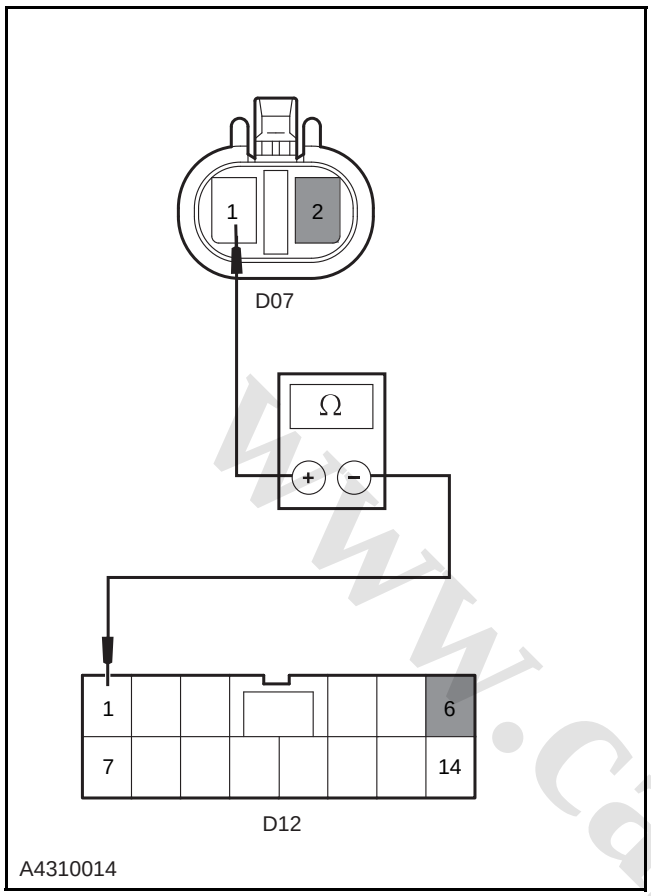
Test Conditions	Details/Results/Actions
4. Inspect the driver side window glass regulator motor circuit	
	A. Turn the ignition switch to position "LOCK". B. Disconnect the driver side window switch wiring harness connector D06. C. Disconnect the driver side regulator motor wiring harness connector D01. D. Measure the resistance between the driver side window switch wiring harness connector D06 terminal 1 and 8 and the driver side regulator motor wiring harness connector D01 terminal 1 and 2 respectively. **Standard Resistance Value: less than 5 Ω** Is the resistance normal? **Y** Go to step 5. **N** Inspect and repair the circuit fault between the driver side window switch wiring harness connector D06 terminal 1 and 8 and the driver side regulator motor wiring harness connector D01 terminal 1 and 2 respectively.
5. Replace the driver side window glass regulator assembly	
	A. Turn the ignition switch to position "LOCK". B. Replace the driver side window glass regulator assembly. **Refer to: Front Window Regulator Assembly (4.3.10 Power Window, Removal and Installation).** Confirm the maintenance is finished.

Passenger Side Power Window Failure Diagnosis

Test Conditions	Details/Results/Actions
1. General inspection	
	A. Inspect the window switch, window glass regulator motor wiring harness connector for damage, poor contact, aging and loose. Is it normal? **Y** Go to step 2. **N** Repair the fault.
2. Inspect the driver side power window switch	
	A. Turn the ignition switch to "ON" position. B. Inspect the switch function according to the driver side power window switch control chart from the rear side of the driver side power window switch wiring harness connector. Is the switch normal? **Y** Go to step 3. **N** Replace the driver side power window switch. **Refer to: Power Window Switch (4.3.10 Power Window, Removal and Installation).**
3. Inspect the passenger side power window switch	
	A. Turn the ignition switch to "ON" position. B. Inspect the switch function according to the driver side power window switch control chart from the rear side of the passenger side window switch wiring harness connector. Is the switch normal? **Y** Go to step 4. **N** Replace the passenger side power window switch. **Refer to: Power Window Switch (4.3.10 Power Window, Removal and Installation).**

Test Conditions	Details/Results/Actions
4. Inspect the passenger side power window regulating status	
	A. First, verify that the driver side power window switch lock button is unlocked. B. Operate the driver side power window switch to control the regulation of the passenger side power window. C. Operate the passenger side power window switch to control the regulating of the passenger side power window. Do all passenger side power window fail to work? **Y** Go to step 5. **N** • If the driver side power window switch can control the regulation of the passenger side power window but the passenger side power window switch fails to control the regulation of the passenger side power window, inspect and replace the switch. 1. The open circuit fault from the passenger side power window switch wiring harness connector D12 terminal 13 to the driver side power window switch wiring harness connector D06 terminal 5. • If the driver side power window switch cannot control the regulation of the passenger side power window, but the passenger side power window switch can, inspect and replace: 1. The open circuit fault from the passenger side power window switch wiring harness connector D12 terminal 2 to the driver side power window switch wiring harness connector D06 terminal 16. 2. The open circuit fault from the passenger side power window switch wiring harness connector D12 terminal 5 to the driver side power window switch wiring harness connector D06 terminal 15.

Test Conditions	Details/Results/Actions
5. Inspect the passenger side power window switch power supply circuit	
	A. Turn the ignition switch to position "LOCK". B. Disconnect the passenger side window switch wiring harness connector D12. C. Measure the voltage between the passenger side power window switch wiring harness connector D12 terminal 3 and the reliable ground. D. Turn the ignition switch to "ON" position. E. Measure the voltage between the passenger side power window switch wiring harness connector D12 terminal 14 and the reliable ground. **Standard Voltage Value: 11 ~ 14 V** Is the voltage normal? **Y** Go to step 6. **N** Inspect and repair the open circuit fault between the terminal 3 of the passenger side power window wiring harness connector D12 and the terminal 63 of the fuse IF30 in the I/P fuse and relay box P01. Inspect and repair the open circuit fault between the terminal 14 of the passenger side power window wiring harness connector D12 and the terminal 87 of the fuse IR09 in the I/P fuse and relay box P01.
6. Inspect the passenger side power window switch ground circuit	
	A. Turn the ignition switch to position "LOCK". B. Disconnect the passenger side power window switch wiring harness connector D12. C. Measure the resistance value between the driver side power window switch wiring harness connector D12 terminal 4 and the reliable ground. **Standard Resistance Value: less than 5 Ω** Is the resistance normal? **Y** Go to step 7. **N** Inspect and repair the circuit fault between the passenger side power window switch wiring harness connector D12 terminal 4 to the ground point G202.

Test Conditions	Details/Results/Actions
7. Inspect the passenger side power window switch to the window motor circuit	
	A. Turn the ignition switch to position "LOCK". B. Disconnect the passenger side power window motor wiring harness connector D07 and the passenger side power window switch wiring harness connector D12. C. Measure the resistance between the passenger side power window motor wiring harness connector D07 terminal 1 and 2 and the passenger side power window switch wiring harness connector D12 terminal 1 and 6 respectively. **Standard Resistance Value: less than 5 Ω** Is the resistance normal? **Y** Go to step 8. **N** Inspect and repair the circuit fault between the passenger side power window motor wiring harness connector D07 terminal 1 and 2 and the passenger side power window switch wiring harness connector D12 terminal 1 and 6 respectively.
8. Replace the passenger side window glass regulator assembly	
	A. Turn the ignition switch to position "LOCK". B. Replace the passenger side window glass regulator assembly. **Refer to: Front Window Regulator Assembly (4.3.10 Power Window, Removal and Installation).** Confirm the maintenance is finished.
CAUTION: Left rear door power window and right rear door power window failure diagnosis procedures are similar to the passenger side power window failure procedures, except for the difference in harnesses.	

Power Window Delay Functional Failure Diagnosis

Test Conditions	Details/Results/Actions
1. General inspection	
	A. Inspect the window switch, window glass regulator motor wiring harness connector for damage, poor contact, aging and loose. Is it normal? **Y** Go to step 2. **N** Repair the fault.
2. Inspect the BCM power supply and the ground circuit	
	A. Inspect the BCM power supply circuit. **Refer to: DTC Diagnostic Procedure Index (4.3.14 Body Control System, DTC Diagnosis and Testing).** Is the BCM power supply and the ground circuit normal? **Y** Go to step 3. **N** Repair the fault part.
3. Replace the BCM	
	A. Turn the ignition switch to position "LOCK" and disconnect the battery negative cable. B. Replace the BCM. **Refer to: Body Control Module (4.3.14 Body Control System, Removal and Installation).** Confirm the maintenance is finished.

Removal and Installation

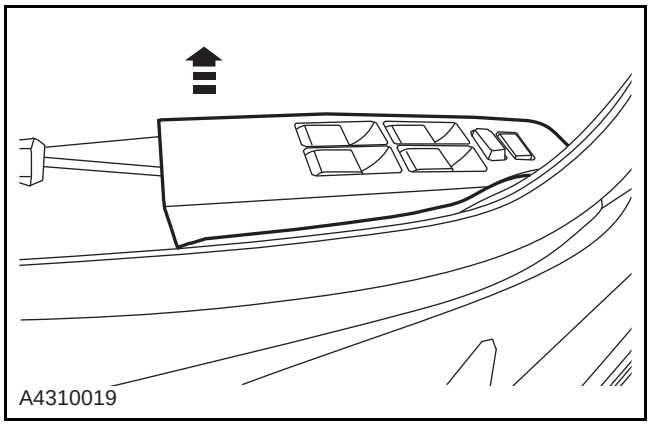
Power Window Switch

Removal

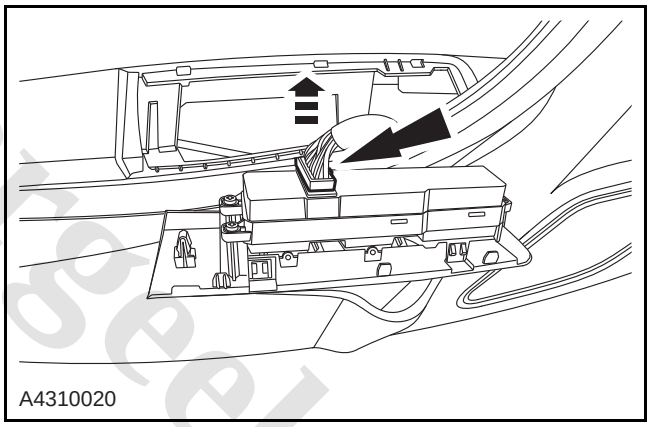
1. Disconnect the battery negative cable.

   Refer to: Battery Inspection (3.1.10 Charging System, General Procedures).

2. Remove the power window switch with suitable tools.


A4310019

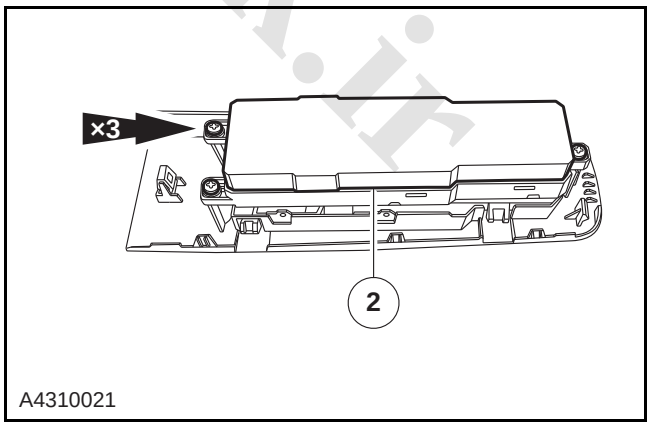
3. Disconnect the power window switch wiring harness connector.


A4310020

4. Remove the power window switch.

   1. Remove the 3 retaining screws of the power window switch.

   2. Take out the power window switch.



A4310021

Installation

1. To install, reverse the removal procedure.

Front Window Glass Regulator

Removal

1. Disconnect the battery negative cable.

   Refer to: Battery Inspection (3.1.10 Charging System, General Procedures).

2. Remove the front door interior trim panel.

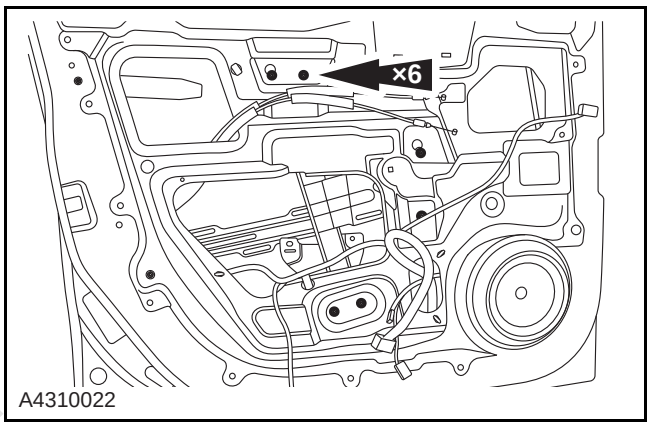
   Refer to: Front Door Interior Decoration (5.1.2 Door, Removal and Installation).

3. Remove the front window glass.

   Refer to: Front Window Glass (5.1.2 Door, Removal and Installation).

4. Remove the 6 retaining bolts of the front window glass regulator.

   Torque: 8 Nm

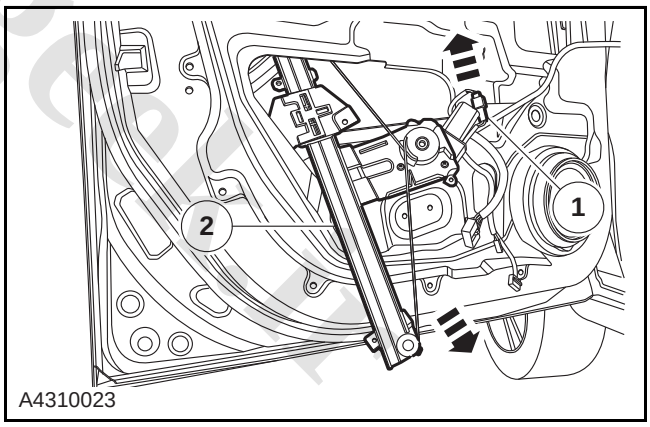


A4310022

5. Remove the front window glass.

   1. Disconnect the wiring harness connector of the front window glass regulator.

   2. Take out the front window glass regulator assembly.



A4310023

Installation

1. To install, reverse the removal procedure.

Rear Window Glass Regulator

Removal

1. Disconnect the battery negative cable.

   Refer to: Battery Inspection (3.1.10 Charging System, General Procedures).

2. Remove the rear door interior decorative panel.

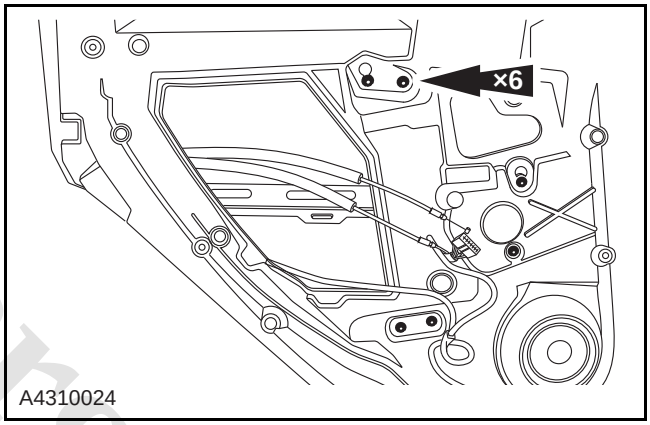
   Refer to: Rear Door Interior Trim (5.1.2 Door, Removal and Installation).

3. Remove the rear window glass.

   Refer to: Front Window Glass (5.1.2 Door, Removal and Installation).

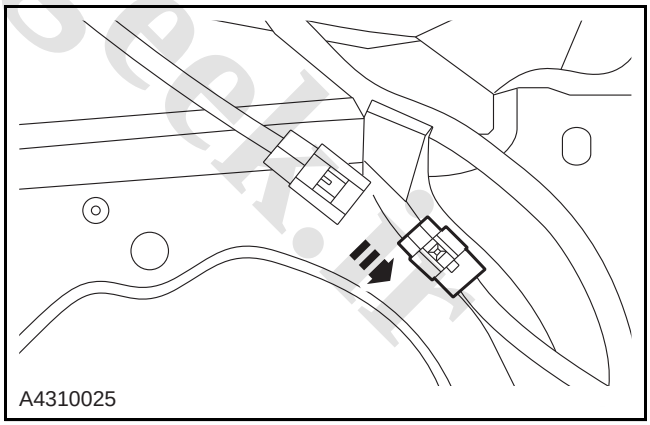
4. Remove the 6 retaining bolts of the rear window glass regulator.

   Torque: 8 Nm

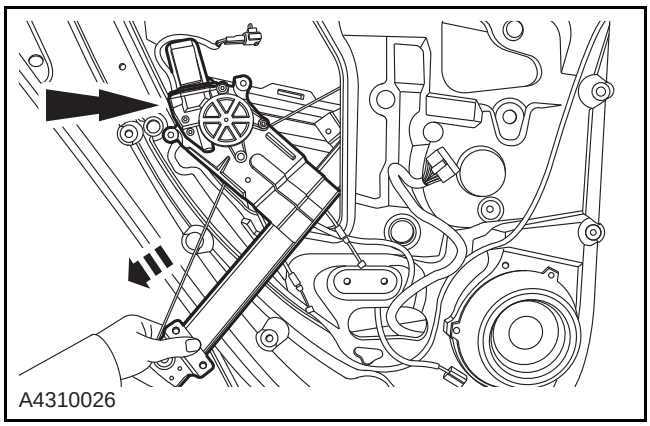


A4310024

5. Disconnect the wiring harness connector of the rear window glass regulator.


A4310025

6. Take out the rear power window glass regulator assembly.



Installation

1. To install, reverse the removal procedure.

Description and Operation

System Overview

Rear defroster is located at the inner side of the rear windshield. The rear defroster switch is on the air conditioning control panel, and the A/C control panel controls the rear windshield defroster function.

Function description of the rear defroster and exterior rear view mirror heating:

Function activation: When the ignition switch is in the "ON" position and the vehicle voltage is more than 9 V, if the rear defroster switch is pressed, the rear defroster function will be activated, at the same time the rear defroster working indicator located on the air conditioning control panel is on.

Function de-activation: If press again the rear defroster switch or turn the ignition switch to the "LOCK" position, the rear defroster function will be released; when the ignition switch reverts to the "ON" position, the rear defroster function recovers.

Symptom Diagnosis and Testing

General Equipment

Digital Multimeter
Changan Auto Special Diagnostic Tool

Inspection and Verification

1. Verify the customer concern.
2. Inspect if there is after-sales rectification device which can affect rear door window defrosting.
3. Visually inspect for obvious signs of mechanical or electrical damage and the deformation due to collision.

Visual Inspection Chart

Mechanical	Electric
• Rear wind-shield • Instrument	• Fuse • Rear defroster relay • Circuit • Rear windshield defroster • A/C control module • BCM

4. Inspect the visible system circuit.
5. If an obvious cause for an observed or reported concern is found, correct the cause before proceeding to the next step.
6. If the cause is not visually evident, verify the symptom and refer to the Symptom Chart.

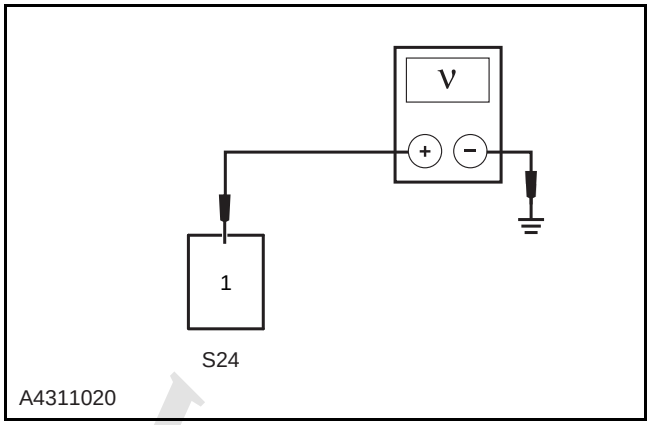
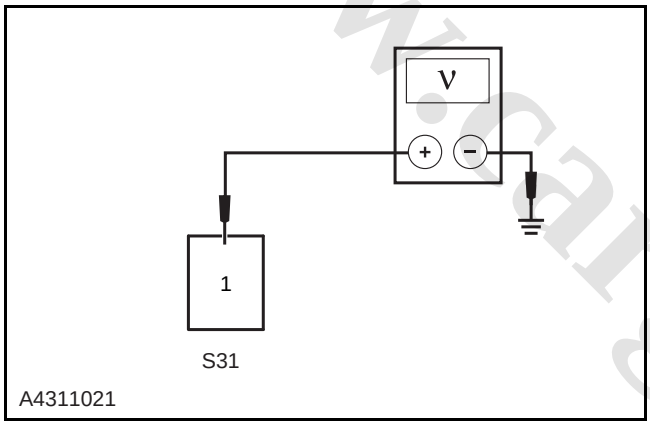
Symptom Chart

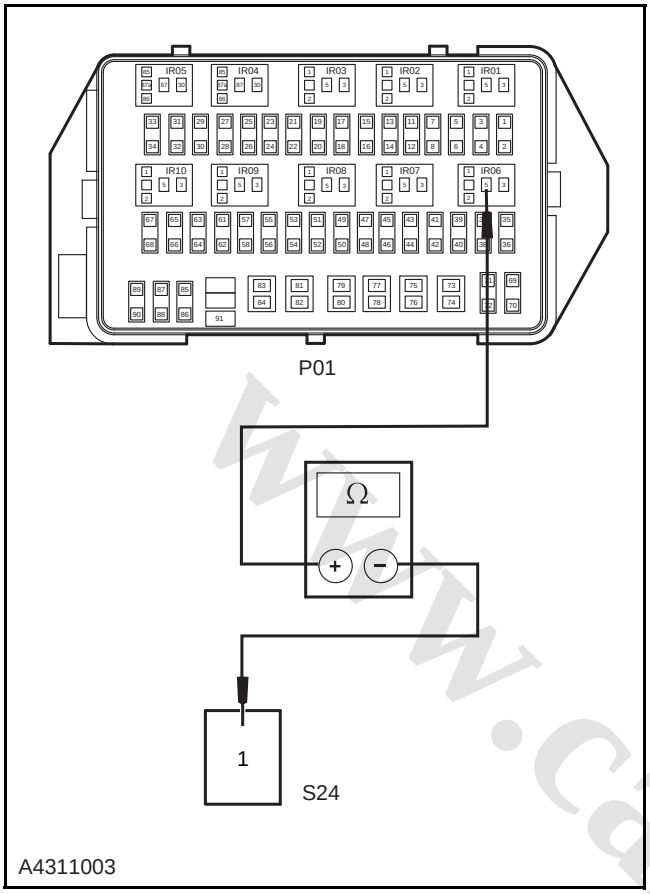
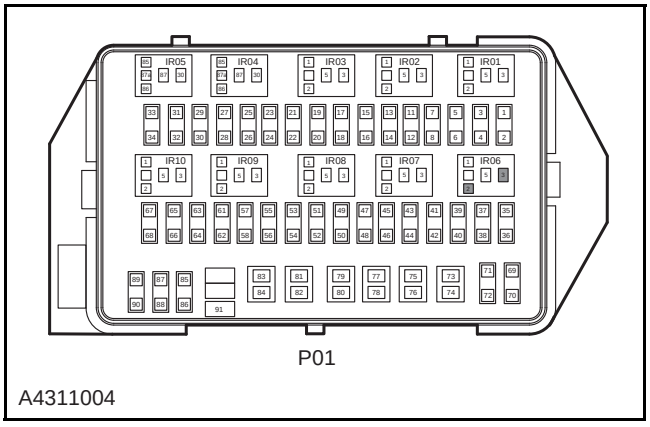
If there is symptom but no diagnosis trouble code (DTC) is stored in control module and can not confirm symptom reasons in basic inspection, it is necessary to diagnosis and eliminate the symptoms in the following chart.

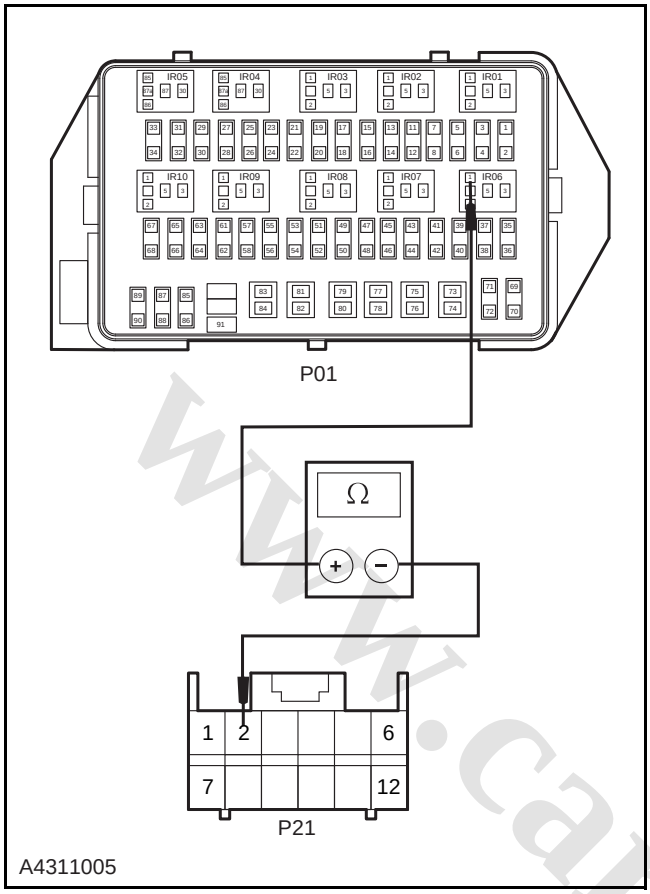
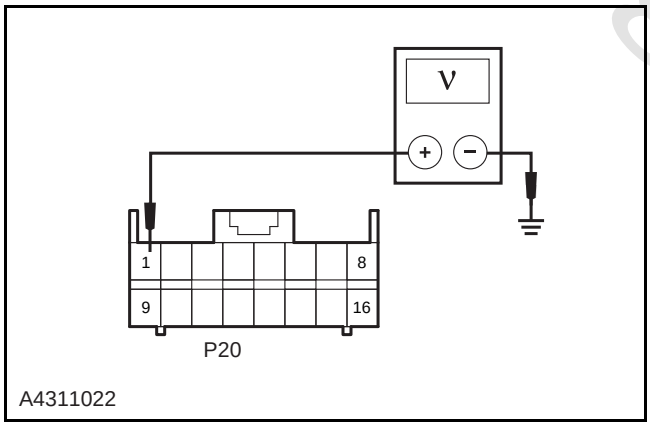
Symptom	Possible Sources	Action
Rear windshield defroster failure	• Insufficient battery voltage • Fuse • Rear defroster relay • Circuit fault • A/C control module fault • BCM • Rear windshield defroster fault	**Refer to: Rear Windshield Defroster Failure Diagnosis (4.3.11 Defroster, Symptom Diagnosis and Testing).**
Defrost indicator does not light	• Circuit fault • A/C control module fault	• Inspect and repair the circuit • Inspect the A/C control module
Defrost indicator is always on	• Circuit fault • A/C control module fault	• Inspect and repair the circuit • Inspect the A/C control module
Rear windshield defroster failure	• Rear windshield defroster fault	• Inspect and repair the rear windshield defroster or replace the rear windshield

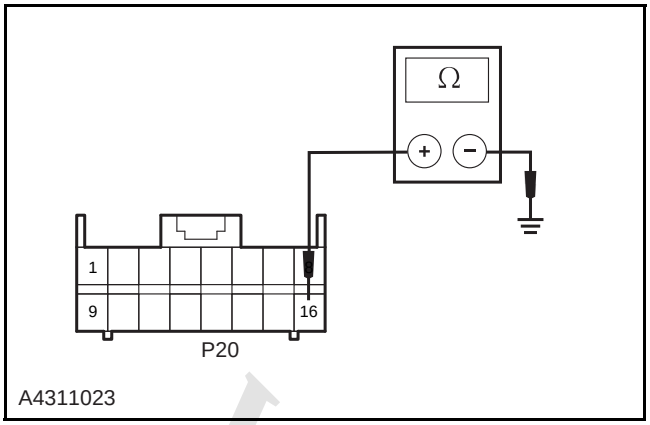
Rear Windshield Defroster Failure Diagnosis

Test conditions	Details/Results/Actions
1. General inspection	
	A.Inspect the A/C control module and defroster wiring harness connectors for damage, poor contact, aging and loose. Is it normal? **Y** Go to step 2. **N** Repair the fault.
2.Inspect the fuse	
	A.Inspect the rear defroster fuse IF02, IF27. **Fuse Rated Capacity: 10 A (IF02), 25 A (IF27)** Is the fuse normal? **Y** Go to step 3. **N** Inspect and repair the fuse circuit, replace the fuse in rated capacity.
3.Inspect the rear defroster relay IR06	
	A.Turn the ignition switch to position "LOCK". B.Install a new rear defroster relay IR06, turn the ignition switch to "ON" position and press the rear defroster switch. Is the rear windshield defroster working normally? **Y** Replace a new rear defroster relay IR06. **N** Go to step 4.

Test conditions	Details/Results/Actions
4. Inspect the power circuit of the rear defroster	
	A.Turn the ignition switch to position "LOCK". B.Disconnect the rear defroster wiring harness connector S24. C.Turn the ignition switch to "ON" position, press the rear defrosting switch. D.Measure the voltage between the terminal 1 of rear defroster wiring harness connector S24 and the reliable ground. **Standard Voltage Value: 11 ~ 14 V** Is the voltage normal? **Y** Go to step 5. **N** Go to step 6.
5. Inspect the ground circuit of the rear defroster	
	A.Turn the ignition switch to position "LOCK". B.Disconnect the rear defroster wiring harness connector S31. C.Measure the resistance between the terminal 1 of rear defroster wiring harness connector S31 and the reliable ground. **Standard Resistance Value: less than 5 Ω** Is the resistance value normal? **Y** Replace the rear windshield. **Refer to: Rear Windshield (5.1.1 Front/Rear Windshield, Removal and Installation).** **N** Inspect and repair the open circuit fault between the terminal 1 of the rear defroster wiring harness connector S31 and the ground point G205.

Test conditions	Details/Results/Actions
6. Inspect the power circuit of the rear defroster	
 A4311003	A.Turn the ignition switch to position "LOCK" and disconnect the battery negative cable. B.Disconnect the rear defroster wiring harness connector S24 and the rear defroster relay IR06 respectively. C.Measure the resistance between the terminal 1 of the rear defroster wiring harness connector S24 and the terminal 5 of the rear defroster relay IR06. **Standard Resistance Value: less than 5 Ω** Is it normal? **Y** Go to step 7. **N** Inspect and repair the circuit fault between the terminal 1 of the rear defroster wiring harness connector S24 and the terminal 5 of the rear defroster relay IR06.
7. Inspect the power supply circuit of rear defroster relay	
 A4311004	A.Turn the ignition switch to position "LOCK". B.Disconnect the rear defroster relay IR06. C.Turn the ignition switch to position "ON". D.Measure the voltage between the terminal 2 and 3 of the rear defroster relay IR06 and the reliable ground. **Standard Voltage Value: 11 ~ 14 V** Is the voltage normal? **Y** Go to step 8. **N** Inspect and repair the power supply circuit of the rear defroster relay.

Test conditions	Details/Results/Actions
8.Inspect the rear defroster relay control circuit	
 A4311005	A.Turn the ignition switch to position "LOCK". B.Disconnect the rear defroster relay IR06 and the A/C control module wiring harness connector P21. C.Measure the resistance between the terminal 1 of the rear defroster relay IR06 and the A/C control module wiring harness connector P21. **Standard Resistance Value: less than 5 Ω** Is the resistance value normal? **Y** Go to step 9. **N** Repair the circuit fault between the terminal 1 of the rear defroster relay IR06 and the terminal 2 of the A/C control module wiring harness connector P21.
9. Inspect the power supply circuit of the A/C control module	
 A4311022	A.Turn the ignition switch to position "LOCK". B.Disconnect the A/C control module wiring harness connector P20. C.Turn the ignition switch to position "ON". D.Measure the voltage between the terminal 1 of the A/C control module wiring harness connector P20 and the reliable ground. **Standard Voltage Value: 11 ~ 14 V** Is the voltage normal? **Y** Go to step 10. **N** Inspect and repair the power circuit of the A/C control module.

Test conditions	Details/Results/Actions
10. Inspect the ground circuit of the A/C control module	
 A4311023	A.Turn the ignition switch to position "LOCK". B.Disconnect the A/C control module wiring harness connector P20. C.Measure the voltage between the terminal 16 of the A/C control module wiring harness connector P20 and the reliable ground. **Standard Resistance Value: less than 5 Ω** Is the voltage normal? **Y** Replace the A/C control module. **Refer to: A/C Control Module (4.1.1 Heating, Ventilation and Air Conditioning, Removal and Installation).** **N** Inspect and repair the circuit fault between the terminal 16 of the A/C control module wiring harness connector P20 and the reliable ground G104.

Specification

General Specifications

Name	Parameter
Working voltage	9 ~ 16 V
Initialize voltage	No less than 10 V
Static current	No more than 250 uA

Description and Operation

System Overview

If your vehicle is equipped with a sunroof, you can use the sunroof control switch on the roof for opening, closing or tilting. Only when the ignition switch is in "ON" position, the sunroof can work.

WARNING: Do not operate the sunroof when driving the vehicle, otherwise, your attention will be distracted and lead to losing control of the vehicle and traffic accidents resulting in personal injury or damage to the properties even death.

Sunroof system is composed of the following components:

- Sunroof switch
- Sunroof control module
- Sunroof motor with sensor
- Sunroof frame assembly

Sunroof Anti-pinch Function

The sunroof has the anti-pinch function, and when the resistance is too large during the sunroof automatically shutdown (including sliding close and tilt close), it is determined logically as there are objects or body parts jammed by the sunroof glass and the sunroof glass will immediately reverse move to completely open state.

If there is any tiny obstacle between the sliding glass and the sunroof frame, the anti-pinch function may not be enabled.

The sunroof anti-pinch function can only be enabled when the sunroof glass operates. When pressing and holding, the anti-pinch function will fail.

WARNING: Although the sunroof has the anti-pinch function, due to the large reaction force required by trigging the anti-pinch, in order to protect the occupant safety, do not extand the head, hands and other parts out of the sunroof to avoid injury.

Overheating Protection Function

If the actual operation time of the sunroof motor in all the modes exceeds the specified operation time limit, the motor will stop to cool down. When the specified cool-down time is reached, the normal operation will resume without the need of re-initialization.

Sunroof Initialization Function

Sunroof synchronizes the zero point recorded by the control module and that of the sunroof assembly through touching the hard block point. Thus, the sunroof can work normally, or there will be devation of sunroof working position.

Sunroof Initialization Method

When the sunroof does not work normally caused by the disconnected battery or lack of power, please follow the steps on the sunroof initialization:

1. Put the ignition switch at "ON" position.
2. Press and hold the "CLOSE" button, the sunroof is completely shut down and bounces up and down once until the sunroof is fully tilted open, the whole process will continue for 7~15 s;
3. Press the "SLIDE OPEN" button to close the sunroof.
   - After several opening and closing strokes of the sunroof, the sunroof bounce may occur. The phenomenon is the normal sunroof auto initialization performance.

When the above steps are completed, run the sunroof for a routine so that it automatically adjusts the anti-pinch force.

Re-initialization shall be performed in case of following conditions:

- If the sunroof is de-energized during operation, the ECU will become abnormal and re-initialization shall be performed.
- If power supply is interrupted within 5 s after the sunroof stops, the time is not long enough for ECU to store the parameters and re-initialization shall be performed.
- It is normally around 2 years in operation before the sunroof is unable to be closed in place (long time operation, wearing gap between mechanical group).

Sunroof Initialization Notes

When initializing, the locked current will reach about 10 A. If the power is not sufficient, the voltage drop occurs and when the voltage drops below 9 V, the sunroof control module will stop working and the initialization will be unfinished.

General Procedures

Sunroof Switch Inspection

1. Hold the "CLOSE" button and measure the resistance between the terminal 3 and terminal 6 of the sunroof switch L01.

   Standard Resistance Value: less than 1 Ω

2. Release the "CLOSE" button and measure the resistance between the terminal 3 and terminal 6 of the sunroof switch L01.

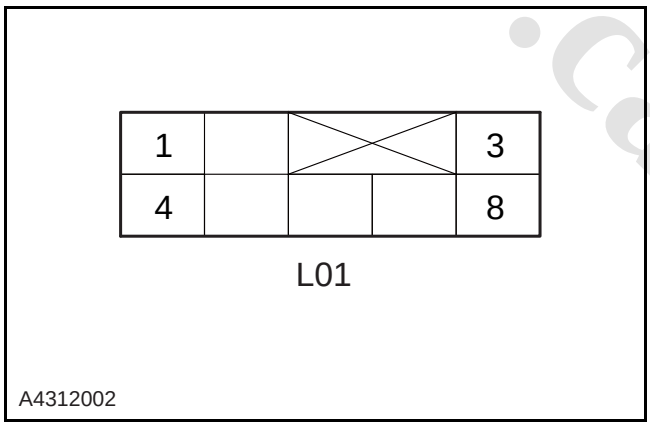
   Standard Resistance Value: 10 MΩ or more

3. Hold the "UP" button and measure the resistance between the terminal 7 and terminal 6 of the sunroof switch L01.

   Standard Resistance Value: less than 1 Ω

4. Release the "UP" button and measure the resistance between the terminal 7 and terminal 6 of the sunroof switch L01.

   Standard Resistance Value: 10 MΩ or more



Symptom Diagnosis and Testing

Inspection and Verification

1. Verify the customer concern.
2. Obvious symptom in electrical appliance by visual inspect.
3. Inspect the visible system circuit.
4. If an obvious cause for an observed or reported concern is found, correct the cause before proceeding to the next step.
5. If the cause is not visually evident, verify the symptom and refer to the Symptom Chart.

Visual Inspection Chart

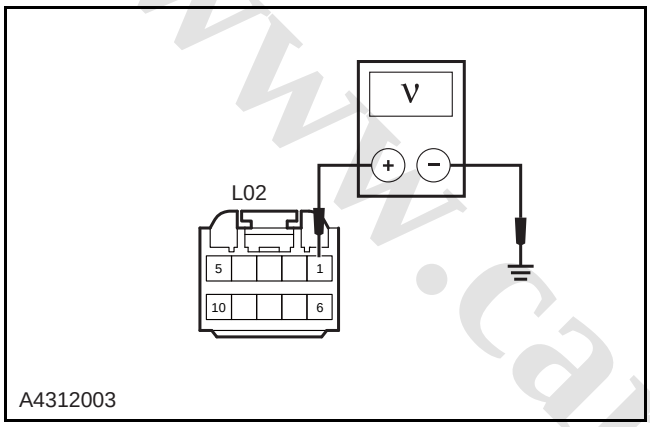
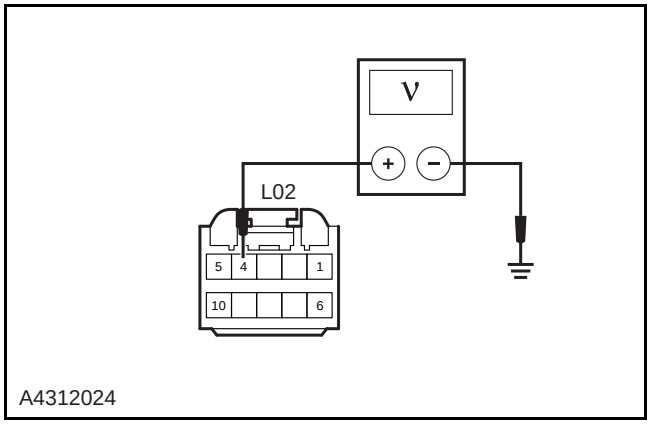
Electric Part
• Battery
• Fuse
• Connection plug of electric appliance loose or being corroded
• Wiring harness
• Sunroof control module and motor assembly

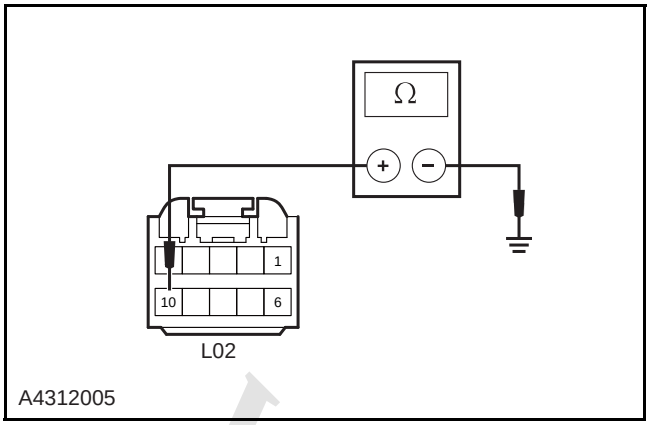
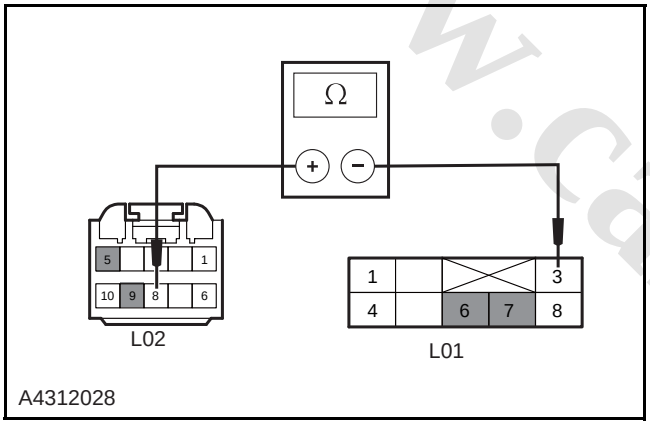
Symptom Chart

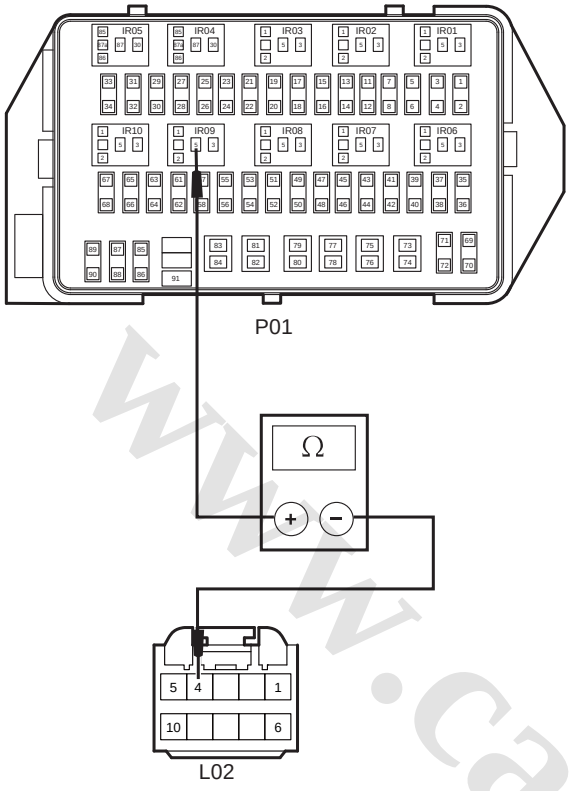
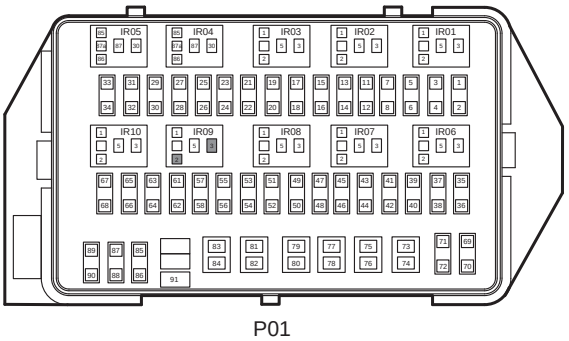
Symptoms	Possible Sources	Action
Sunroof fault	• Fuses • Relay • Sunroof switch • Sunroof control module and motor assembly • Circuit • BCM	**Refer to: Sunroof Not Working Diagnosis (4.3.12 Sunroof, Symptom Diagnosis and Testing).**
The sunroof can't be closed	• Sunroof switch • Sunroof motor seized • Sunroof control module and motor assembly • Circuit • Sunroof frame assembly	**Refer to: Sunroof Unable to Close Diagnosis (4.3.12 Sunroof, Symptom Diagnosis and Testing).**
Abnormal sound of sunroof motor	• Sunroof motor • Sunroof frame	• Replace the sunroof control module and motor assembly • Replace the sunroof frame

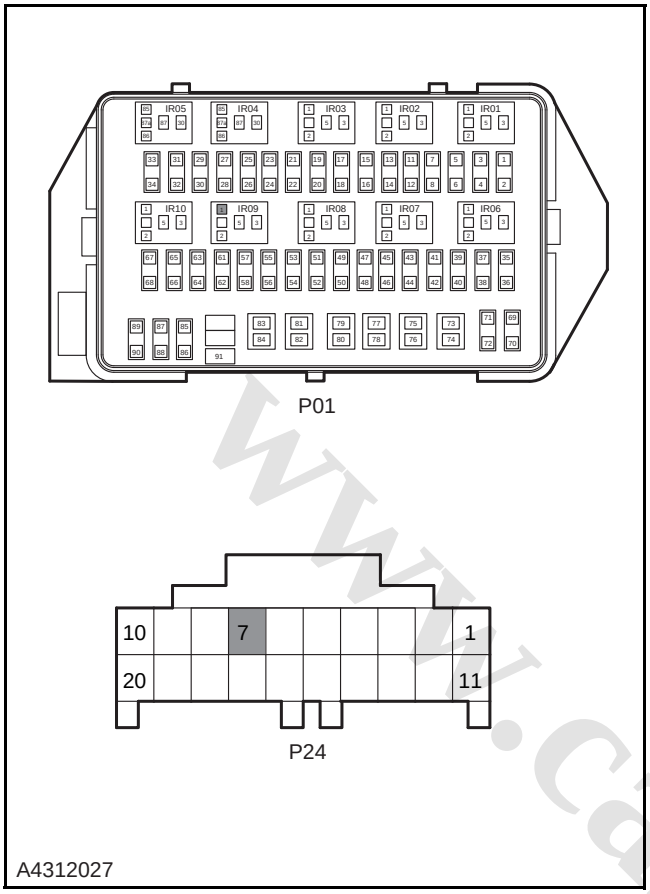
Sunroof Not Working Diagnosis

Test Conditions	Details/Results/Actions
1. General inspection	
	A.Inspect the wiring harness connectors of switch and motor for signs of damage, poor contact, aging, or loose. Is it normal? **Y** Go to step 2. **N** Repair the fault.
2. Inspect the fuse	
	A.Inspect the sunroof control module fuse IF30, EF14. **Fuse Rated Capacity: 30 A (IF30), 25 A (EF14)** Is the fuse normal? **Y** Go to step 3. **N** Inspect and repair the fuse circuit, replace the fuse in rated capacity.

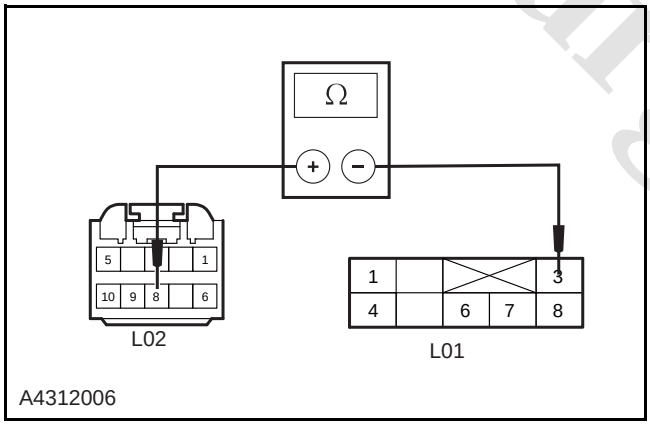
Test Conditions	Details/Results/Actions
3.Inspect the sunroof switch	
	A.Inspect the sunroof switch. **Refer to: Sunroof Switch Inspection (4.3.12 Sunroof, General Procedures).** Is the switch normal? **Y** Go to step 4. **N** Replace the sunroof switch.
4. Inspect the power supply of the terminal 1 of the sunroof control module wiring harness connector L02	
 A4312003	A.Turn the ignition switch to position "LOCK". B.Disconnect the wiring harness connector L02 of the sunroof control module. C.Measure the resistance between the terminal 1 of sunroof control module wiring harness connector L02 and reliable ground. **Standard Voltage Value: 11 ~ 14 V** Is the voltage normal? **Y** Go to step 5. **N** Repair the open circuit between the terminal 1 of sunroof control module wiring harness connector L02 and the terminal 27 of fuse EF14 of engine compartment fuse and relay box C01.
5. Inspect the power supply of the terminal 4 of the sunroof control module wiring harness connecto L02	
 A4312024	A.Turn the ignition switch to position "LOCK". B.Disconnect the wiring harness connector L02 of the sunroof control module. C.Turn the ignition switch to "ON". D.Measure the resistance between the terminal 4 of sunroof control module wiring harness connector L02 and reliable ground. **Standard Voltage Value: 11 ~ 14 V** Is the voltage normal? **Y** Go to step 6. **N** Go to step 8.

Test Conditions	Details/Results/Actions
6.Inspect the ground circuit of the sunroof control module	
 A4312005	A.Turn the ignition switch to position "LOCK". B.Disconnect the sunroof control module wiring harness connector L02. C.Measure the resistance between the terminal 10 of sunroof control module wiring harness connector L02 and reliable ground. **Standard Resistance Value: less than 5 Ω** Is the resistance value normal? **Y** Go to step 7. **N** Inspect and repair the open circuit between the terminal 10 of sunroof control module wiring harness connector L02 and the ground point G201.
7. Inspect the circuit between sunroof control module and sunroof switch	
 A4312028	A.Turn the ignition switch to position "LOCK". B.Disconnect the wiring harness connector L02 of the sunroof control module. C.Disconnect the wiring harness connector L01 of the sunroof switch. D.Measure the respective resistance between terminal 5, 8, 9 of sunroof control module wiring harness connector L02 and terminal 6, 3, 7 of sunroof switch wiring harness connector L01. **Standard Resistance Value: less than 5 Ω** Is the resistance value normal? **Y** Replace the sunroof control module and motor assembly. **Refer to: Sunroof Motor (4.3.12 Sunroof, Removal and Installation).** **Refer to: Sunroof Control Module (4.3.12 Sunroof, Removal and Installation).** Carry out the sunroof initialization procedure to verify that the system is normal. **N** Inspect and repair the open circuit between the terminal 5, 8, 9 of sunroof control module wiring harness connector L02 and the terminal 6, 3, 7 of sunroof switch wiring harness connector L01.

Test Conditions	Details/Results/Actions
8. Inspect the circuit between the sunroof control module and the relay IR09	
 A4312025	A.Turn the ignition switch to position "LOCK". B.Remove the relay IR09. C.Disconnect the wiring harness connector L02 of the sunroof control module. D.Measure the resistance between the terminal 4 of sunroof control module wiring harness connector L02 and reliable ground. **Standard Resistance Value: less than 5 Ω** Is the resistance value normal? **Y** Go to step 9. **N** Repair the open circuit between the terminal 4 of sunroof control module wiring harness connector L02 and the terminal 5 of relay IR09.
9. Inspect the power supply circuit of the IR09 relay	
 A4312026	A.Turn the ignition switch to position "LOCK". B.Remove the relay IR09. C.Measure the voltage between terminal 2 and 3 of relay IR09 of I/P fuse and relay box P01, and reliable ground respectively. **Standard Voltage Value: 11 ~ 14 V** Is the voltage normal? **Y** Go to step 10. **N** Inspect and repair the open circuit between the terminal 63 of IF30 in the fuse and relay box P01 and the terminal 2 and 3 of the relay IR09 respectively, and replace the I/P fuse and relay box P01 as necessary.

Test Conditions	Details/Results/Actions
10. Inspect the relay IR09 ground circuit	
	A.Turn the ignition switch to "LOCK" position and disconnect the battery negative cable. B.Remove the relay IR09. C.Disconnect the BCM wiring harness connector P24. D.Measure the resistance between terminal 1 of the relay IR09 and terminal 7 of the BCM wiring harness connector P24 . **Standard Resistance Value: less than 5 Ω** Is the resistance value normal? **Y** Go to step 11. **N** Inspect and repair the open circuit fault between the terminal 1 of the relay IR09 and the terminal 7 of the the BCM wiring harness connector P24.
11. Inspect the BCM power supply and the ground circuit	
	A. Inspect the BCM power supply circuit. **Refer to: DTC Diagnostic Procedure Index (4.3.14 Body Control System, DTC Diagnosis and Testing).** Is the BCM power supply and the ground circuit normal? **Y** Go to step 12. **N** Repair the fault part.
12. Replace the BCM	
	A.Turn the ignition switch to position "LOCK" and disconnect the battery negative cable. B.Replace the BCM. **Refer to: Body Control Module (4.3.14 Body Control System, Removal and Installation).** Confirm the maintenance is finished.

Sunroof Can’t Be Closed Diagnosis

Test Conditions	Details/Results/Actions
1.Inspect the sunroof switch	
	A.Inspect the sunroof switch. **Refer to: Sunroof Switch Inspection (4.3.12 Sunroof, General Procedures).** Is the switch normal? **Y** Go to step 2. **N** Replace the sunroof switch.
2. Carry out the sunroof initialization	
	A.Carry out the initialization program. B.Operate the sunroof switch. Does the sunroof work normal? **Y** Confirm the maintenance is finished. **N** Go to step 3.
3. Inspect the circuit between sunroof control module and sunroof switch	
	A.Turn the ignition switch to position "LOCK". B.Disconnect the wiring harness connector L02 of the sunroof control module. C.Disconnect the wiring harness connector L01 of the sunroof switch. D.Measure the respective resistance between terminal 8 of sunroof control module wiring harness connector L02 and terminal 3 of sunroof switch wiring harness connector L01. **Standard Resistance Value: less than 5 Ω** Is the resistance normal? **Y** Go to step 4. **N** Repair the open circuit between the terminal 8 of sunroof control module wiring harness connector L02 and the terminal 3 of sunroof switch wiring harness connector L01.

Test Conditions	Details/Results/Actions
4. Replace the sunroof control module and motor assembly	
	A.Replace the sunroof control module and motor assembly. **Refer to: Sunroof Motor (4.3.12 Sunroof, Removal and Installation).** **Refer to: Sunroof control module (4.3.12 Sunroof, Removal and Installation).** Execute the initialization program. Does the sunroof work normal? **Y** Verify the system is normal. **N** Replace the sunroof frame assembly. **Refer to: Sunroof Frame (4.3.12 Sunroof, Removal and Installation).**

Removal and Installation

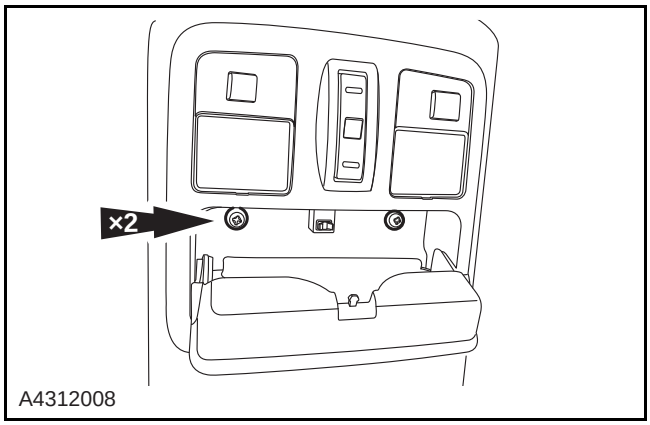
Sunroof Switch

Removal

1. Disconnect the battery negative cable.

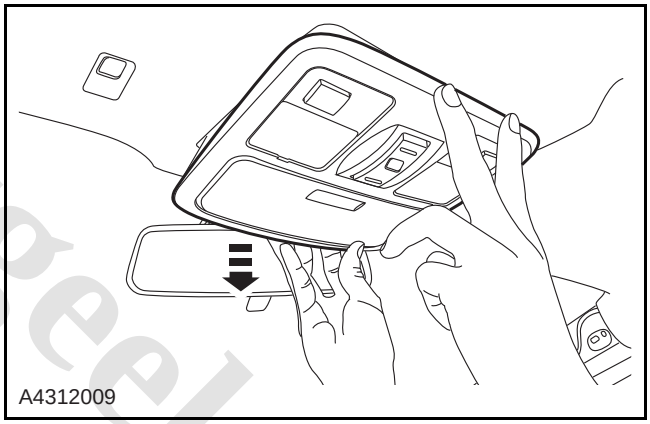
   Refer to: Battery Inspection (3.1.10 Charging System, General Procedures).

2. Open the spectacle case, and remove the retaining screws of the sunroof switch.

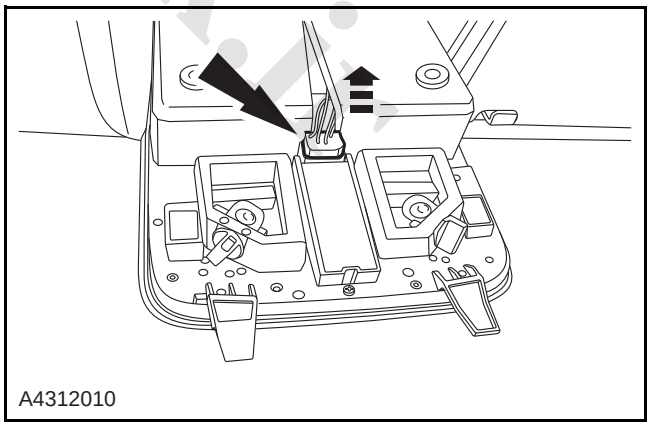


A4312008

3. Detach the sunroof switch from the roof lining.


A4312009

4. Disconnect the wiring harness connector of the sunroof switch.


A4312010

Installation

1. To install, reverse the removal procedure.

Sunroof Motor

Removal

1. Disconnect the battery negative cable.

   Refer to: Battery Inspection (3.1.10 Charging System, General Procedures).

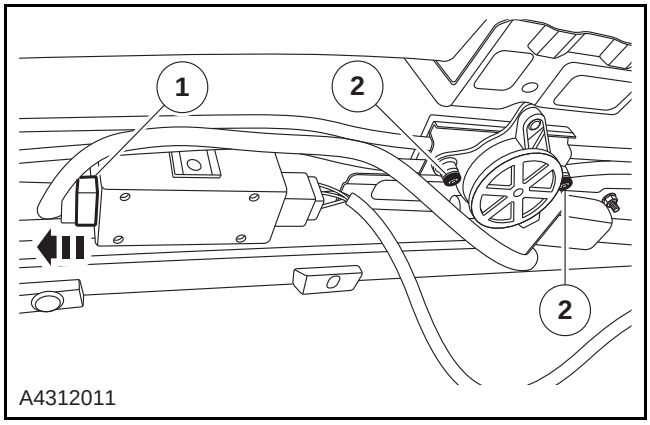
2. Remove the roof lining.

   Refer to: Roof Lining (5.1.9 Interior Trim and Ornamentation, Removal and Installation).

3. Remove the sunroof motor.

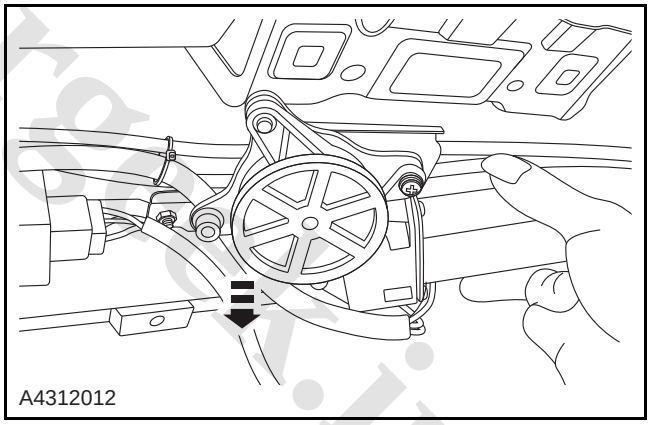
   1. Disconnect the sunroof motor wiring harness connector.

   2. Remove the 2 retaining screws of the sunroof motor.



A4312011

4. Remove the sunroof motor assembly.


A4312012

Installation

1. To install, reverse the removal procedure.
2. Conduct the initial setup.

Sunroof Motor Control Module

Removal

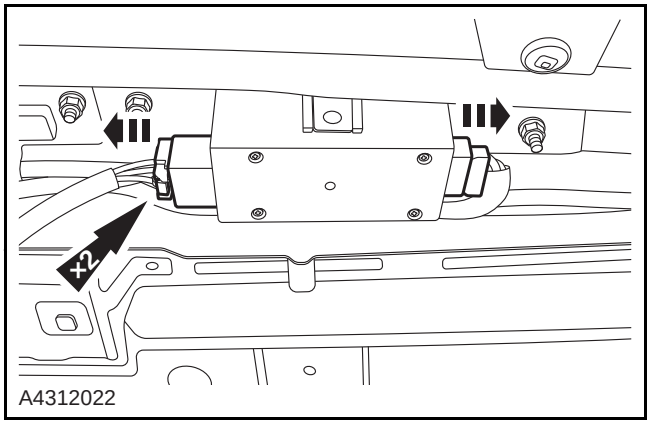
1. Disconnect the battery negative cable.

   Refer to: Battery Inspection (3.1.10 Charging System, General Procedures).

2. Remove the roof lining.

   Refer to: Roof Lining (5.1.9 Interior Trim and Ornamentation, Removal and Installation).

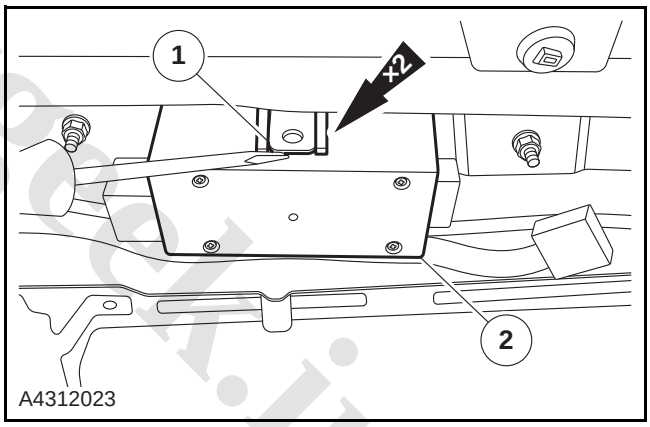
3. Disconnect the sunroof motor control module wiring harness connector.



4. Drive the sunroof motor control module.

   1. Use a proper tool to remove the 2 clips on the sunroof motor control module.

   2. Take out the sunroof motor control module.



Installation

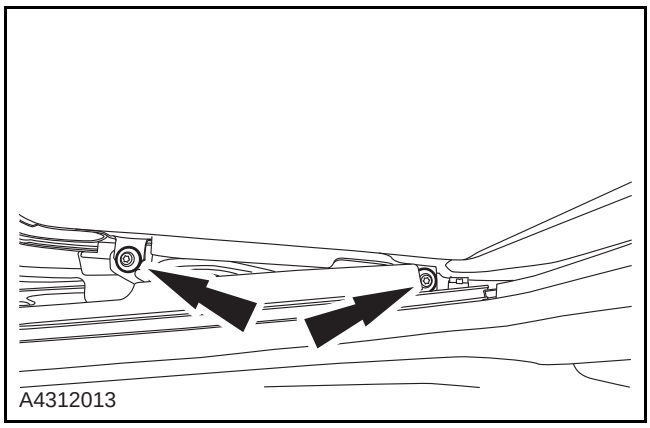
1. To install, reverse the removal procedure.
2. Conduct the initial setup.

Sunroof Glass

Removal

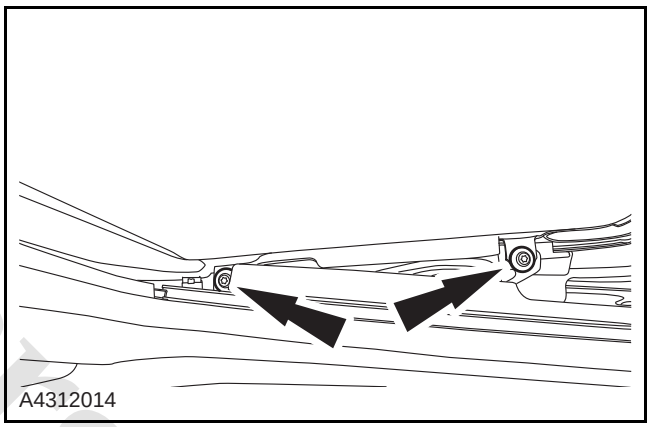
1. Remove the 2 retaining bolts of the left side of the sunroof glass.

   Torque: 8 Nm

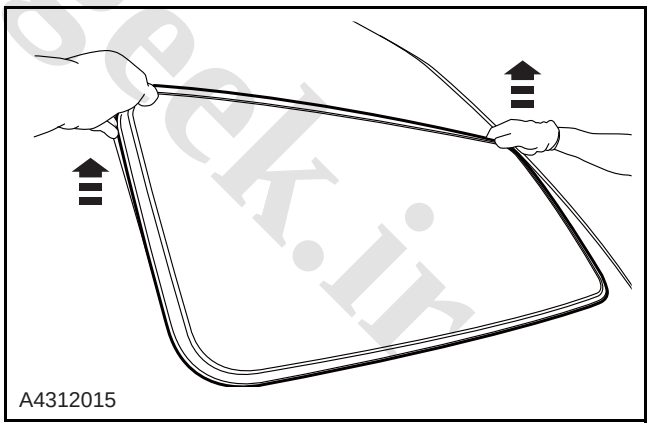

A4312013

2. Remove the 2 retaining bolts of the sunroof glass.

   Torque: 8 Nm


A4312014

3. Take out the sunroof glass from the vehicle top.


A4312015

Installation

1. To install, reverse the removal procedure.
2. Adjust the sunroof glass position.
3. Test the sealing performance.

Sunroof Sun Visor

Removal

1. Disconnect the battery negative cable.

   Refer to: Battery Inspection (3.1.10 Charging System, General Procedures).

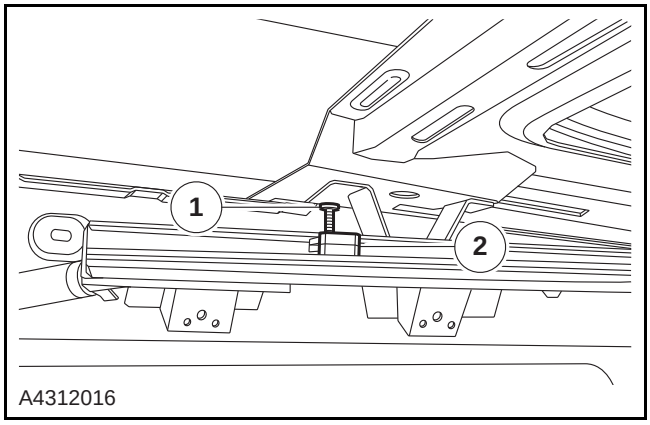
2. Remove the roof lining.

   Refer to: Roof Lining (5.1.9 Interior Trim and Ornamentation, Removal and Installation).

3. Remove the limit stop on both sides.

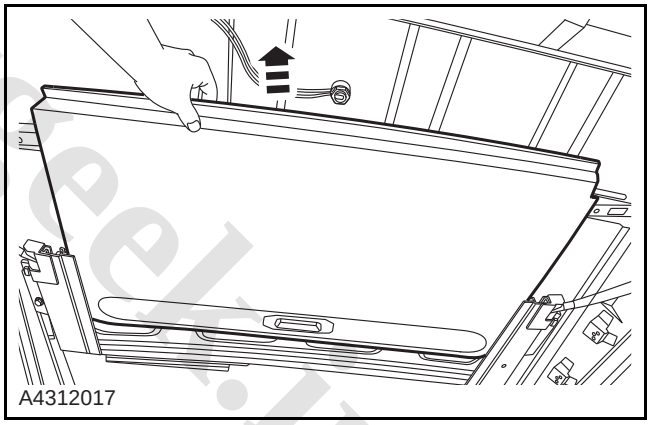
   1. Remove the retaining screw of the limit stop.

   2. Take out the limit stop.



A4312016

4. Take out the sunroof sun visor.


A4312017

Installation

1. To install, reverse the removal procedure.

Sunroof Frame

Removal

1. Disconnect the battery negative cable.

   Refer to: Battery Inspection (3.1.10 Charging System, General Procedures).

2. Remove the roof lining.

   Refer to: Roof Lining (5.1.9 Interior Trim and Ornamentation, Removal and Installation).

3. Remove the sunroof motor.

   Refer to: Sunroof Motor (4.3.12 Sunroof , Removal and Installation).

4. Drive the sunroof motor control module.

   Refer to: Sunroof Motor Control Module (4.3.12 Sunroof, Removal and Installation).

5. Remove the sunroof glass.

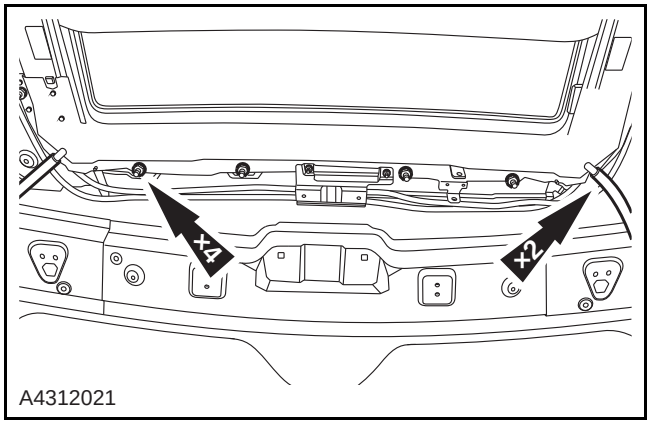
   Refer to: Sunroof Glass (4.3.12 Sunroof, Removal and Installation).

6. Remove the sunroof frame.

   1. Disconnect the 2 connections between the sunroof exhaust water pipe and the sunroof frame.

   2. Remove the 4 retaining bolts of the front side of the sunroof frame.

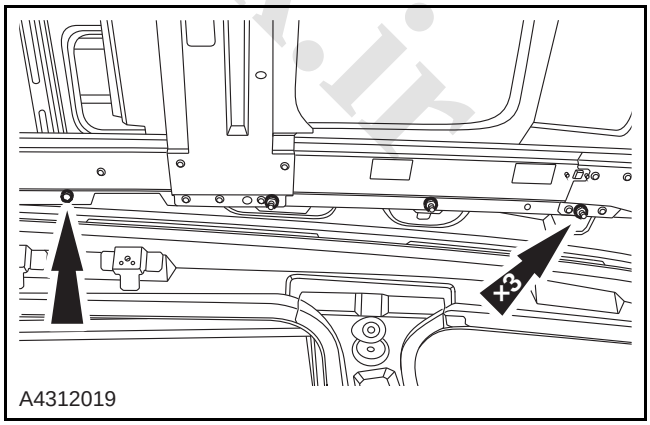
   Torque: 12 Nm



A4312021

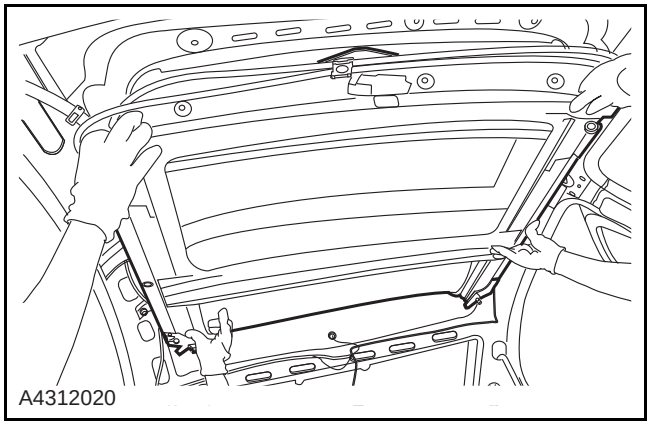
7. Remove the 3 retaining bolts and the 1 nuts on the left and right sides of the sunroof frame.

   Torque: 12 Nm



A4312019

8. Remove the sunroof frame assembly.



Installation

1. To install, reverse the removal procedure.
2. Adjust the sunroof glass position.
3. Test the sunroof sealing performance.

Specifications

General Specifications

Description	Specification	
Working voltage	9 ~ 16 V	
Working current	Less than 200 mA	
Operating frequency	58 KHz	
Detection range	150 cm (max)	
Reverse radar sensor detection angle	Horizontal	110° ~ 120°
	Vertical	50° ~ 60°

Description and Operation

System Overview

The reverse radar control device determines the distance between the vehicle and the obstacle by three ultra sensors installed on the rear bumper. Put down the vehicle hand brake, hang into the reverse gear in the ignition state and the parking aid system starts self-check. If there is no fault, the buzzer beeps once; one sensor fails, the buzzer beeps twice; two or more sensors fail, the buzzer beeps three times. When one of the three rear parking aid sensors is detected inoperative, the parking aid system will be canceled.

Among three ultra sensors, the intermediate one is "Intermediate sensor" and the others are "Angle sensor".

Rear Sensor Alarm Method:

- During the reverse, if the buzzer beeps quickly at intervals, it indicates that the distance between the rear sensor and the obstacle is only 1 ~ 0.6 m.
- During the reverse, if the buzzer beeps quickly at intervals, it indicates that the distance between the rear sensor and the obstacle is only 0.6 ~ 0.4 m.
- During the reverse, if the buzzer beeps continuously, it indicates that the distance between the rear sensor and the obstacle is less than 0.4 m.

Angle Sensor Alarm Method:

- During the reverse, if the buzzer beeps quickly at intervals, it indicates that the distance between the rear sensor and the obstacle is only 0.6 ~ 0.4 m.
- During the reverse, if the buzzer beeps quickly at intervals, it indicates that the distance between the rear sensor and the obstacle is only 0.4 ~ 0.25 m.
- During the reverse, if the buzzer beeps continuously, it indicates that the distance between the rear sensor and the obstacle is less than 0.25 m.

CAUTION: When the speed exceeds 10 km/h, the reverse radar will not work and cannot identify obstacles.

CAUTION: If reverse on the uneven pavement, cobblestone pavement, mountain road and grass road or on the location with ultrasonic wave source surrounding, the device may send wrong signal.

CAUTION: To ensure the normal system, the sensor surface must keep clean and free from drop, snow and ice.

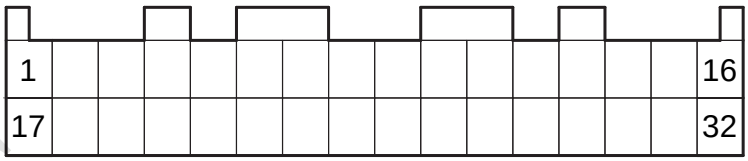
CAUTION: Prevent the sensor surface from crushing, shaking or scraping. When drag the trailer, the device is non-functional.

Component Description

Parking Aid System Control Module

The parking aid system control module contains parking aid system buzzer and provides the working power through the reverse lamp switch.

Reverse radar control module terminal list is shown as followings:



S21

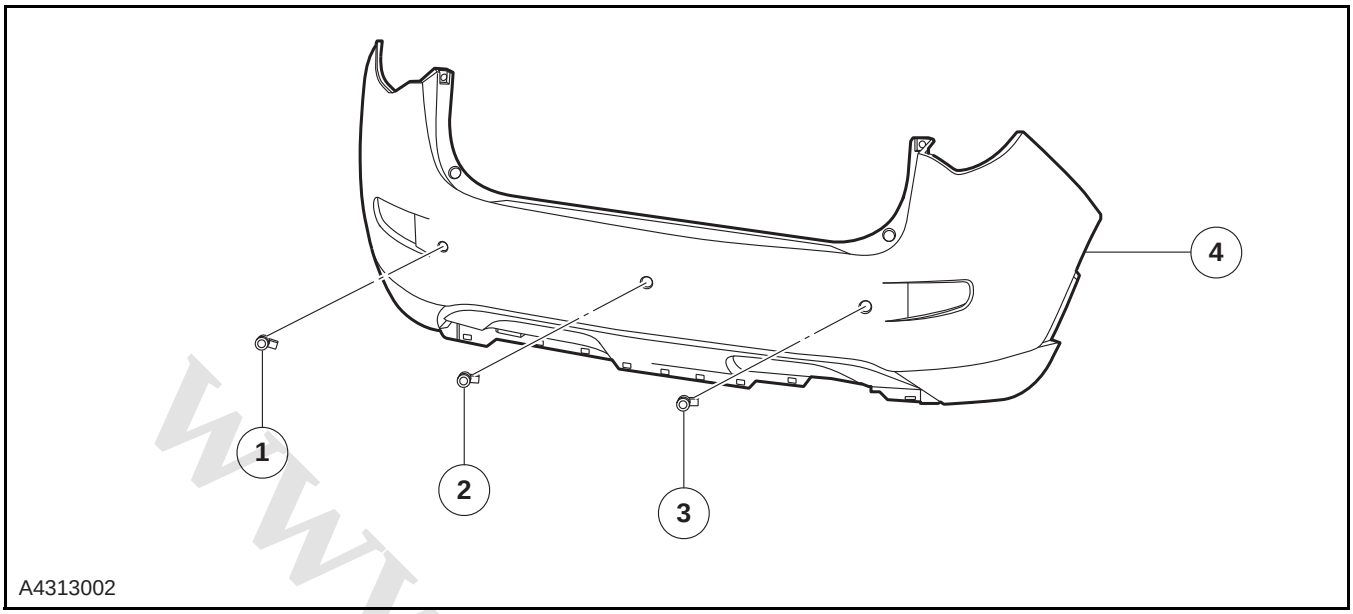
A4313001

Terminal ID	Description	Connection	Terminal Description	Status
1	R-Shift	-	R gear	S101 reserved function
2	-	-	-	-
3	-	-	-	-
4	-	-	-	-
5	-	-	-	-
6	-	-	-	-
7	CANH	-	CAN line	S101 reserved function
8	CANL	-	CAN line	S101 reserved function
9	SW	-	System switch	S101 reserved function
10	-	-	-	-
11	RRM	0.5 BN/UN	Right rear central SENSOR	-
12	-	-	-	-
13	RRC	0.5 BN/RD	Right rear corner SENSOR	-
14	SENSOR GND	0.5 BN/BK	SENSOR GND	-
15	RFC	-	Right front corner SENSOR	S101 reserved function

Terminal ID	Description	Connection	Terminal Description	Status
16	-	-	-	-
17	GND	0.5 BK	System ground	-
18	-	-	-	-
19	POWER	0.5 BN/WH	System power	S101 uses the reverse as the power
20	-	-	-	-
21	-	-	-	-
22	-	-	-	-
23	CLK	0.3 BN	Communication line	-
24	DATA	0.3 BN/YE	Communication line	-
25	LED	-	Operation indication	S101 reserved function
26	-	-	-	-
27	LRM	-	Left rear central SENSOR	S101 reserved function
28	-	-	-	-
29	LRC	0.5 BN/GN	Left rear corner SENSOR	-
30	-	-	-	-
31	LFC	-	Left front corner SENSOR	S101 reserved function

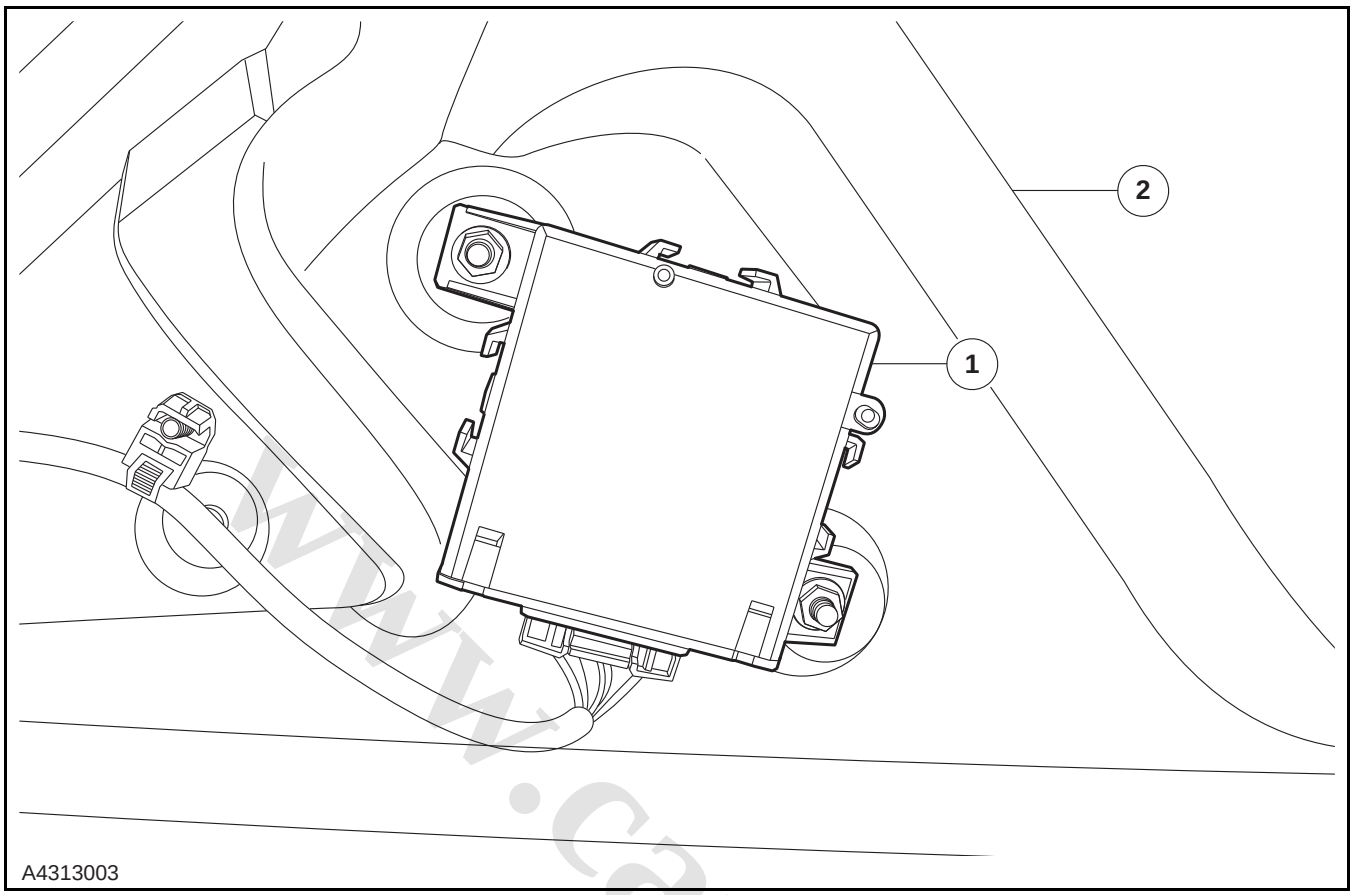
Location View

Reverse Radar Sensor Position



Item	Description	Item	Description
1	Left rear corner sensor	3	Right rear corner sensor
2	Rear central sensor	4	Rear bumper

Reverse Radar Control Module Location View



Item	Description	Item	Description
1	Reverse radar control module	2	Wheel casing inner plate (left rear)

Symptom Diagnosis and Testing

General Equipment

Digital Multimeter
Changan Auto Special Diagnostic Tool

Inspection and Verification

1. Verify the customer concern.
2. Visually inspect for obvious signs of mechanical damage or electric damage.

Visual Inspection Chart

Electric Part
• Fuse
• Circuit
• Wiring harness connector
• Reverse radar sensor
• Reverse radar control module

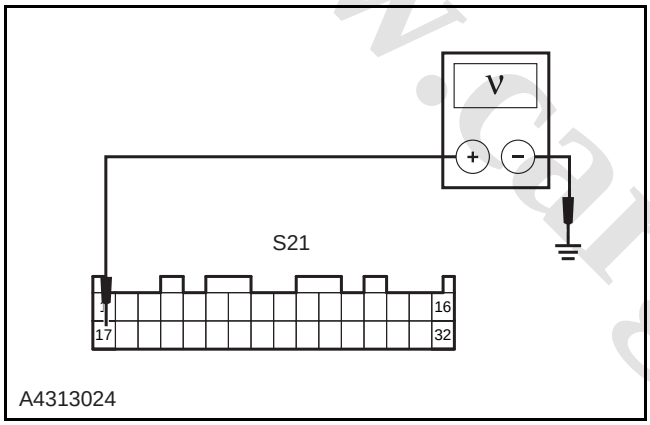
3. If an obvious cause for an observed or reported concern is found, correct the cause before proceeding to the next step.
4. If the cause is not visually evident, verify the symptom and refer to the Symptom Chart.

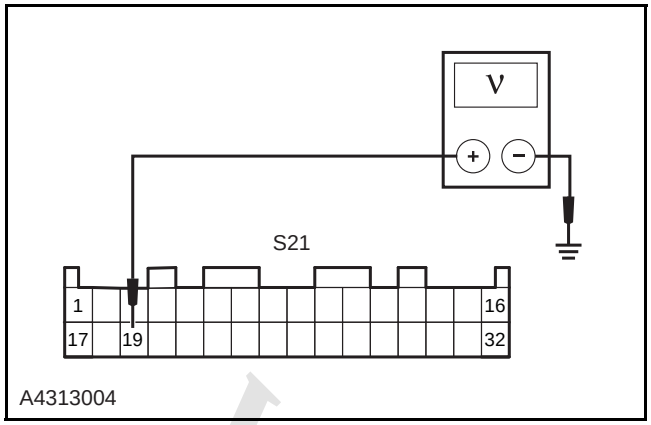
Symptom Chart

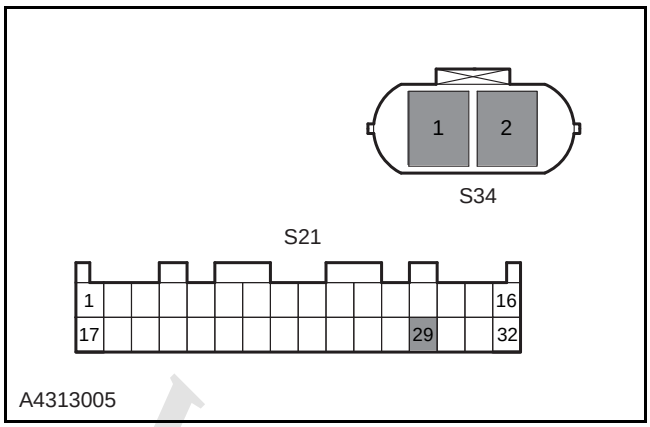
If there is symptom but no diagnosis trouble code (DTC) is stored in control module and can not confirm symptom reasons in basic inspect, it is necessary to diagnosis and eliminate the symptoms in the following chart.

Symptom	Possible Sources	Action
No alarming when meeting obstacle in reversing	• The system voltage is too low • Circuit fault • Sensor • Buzzer fault • Reverse gear failure • Reverse radar control module	**Refer to: No Alarming When Meeting Obstacle in Reversing Diagnosis (4.3.13 Parking Aid System, Symptom Diagnosis and Testing).**
The buzzer alarms when there is no obstacle in reversing	• Dirt or foreign matters on the sensor • Overload • Circuit fault • Incorrect installation • Reverse radar control module	**Refer to: Buzzer Alarms When There Is No Obstacle in Reversing Diagnosis (4.3.13 Parking Aid System, Symptom Diagnosis and Testing).**
Inaccurate alarming distance of the obstacle in reversing	• Obstacles are sound-absorbing materials, such as: sponge, foam	• The sensor characteristic, no sound wave return
	• Too small obstacle	• The sensor cannot detect
	• Dirt or foreign matters on the sensor	• Inspect the sensor connector
	• Poor sensor connector contact	• Keep the sensor surface clean and wipe the dirt
	• Reverse radar sensor	• Replace the reverse radar sensor **Refer to: Reverse Radar Sensor (4.3.13 Parking Aid System, Removal and Installation).**
	• Reverse radar control module	• Replace the reverse radar control module **Refer to: Parking Aid System Module (4.3.13 Parking Aid System, Removal and Installation).**

No Alarming When Meeting Obstacle in Reverse Diagnosis

Test Conditions	Details/Results/Actions
1. General inspection	
	A.Inspect the wiring harness connector for abscission, damage and dirt. B.Inspect the sensors for the correct installation and reliable retaining. C.Inspect the sensor surface for the dirt or foreign matter. D.Inspect the buzzer working conditions under other warning states. Is it normal? **Y** Go to step 2. **N** Repair the fault.
2. Inspect the ground circuit of the parking aid module	
 A4313024	A.Turn the ignition switch to position "LOCK" and disconnect the battery negative cable. B.Disconnect the parking aid system control module wiring harness connector S21. C.Measure the resistance between the terminal 17 of parking aid control module wiring harness connector S21 and the reliable ground. **Standard Resistance Value: less than 5 Ω** Is the resistance value normal? **Y** Go to step 3. **N** Repair the open circuit between the terminal 17 of parking aid control module wiring harness connector S21 and the ground point G204.
3. Inspect the reverse lamp	
	A.Turn the ignition switch to "ON" position. B.Engage the gear lever to the reverse and inspect the reverse lamp. Is the reverse lamp normal? **Y** Go to step 4. **N** Inspect the circuit of reversing lamp. **Refer to: Reverse Lamp Failure Diagnosis (4.3.6 Lighting System, Symptom Diagnosis and Testing).**

Test Conditions	Details/Results/Actions
4.Inspect the parking aid system module power	
 A4313004	A.Turn the ignition switch to position "LOCK" and disconnect the battery negative cable. B.Disconnect the reverse radar control module wiring harness connector S21. C.Connect the battery negative cable and turn the ignition switch to "ON" position. D.Put the gear lever into the reversing gear. E.Measure the voltage between the terminal 19 of parking aid control module wiring harness connector S21 and the reliable ground. **Standard Voltage Value: 11 ~ 14 V** Is the voltage normal? **Y** Go to step 5. **N** Inspect and repair the open circuit between the terminal 19 of the parking aid control module wiring harness connector S21 and the reverse lamp switch wiring harness connector E09.
5.Inspect the reverse radar sensor	
	A.Replace three sensors in good condition. Is the system normal? **Y** Replace the reverse radar sensor. **Refer to: Reverse Radar Sensor (4.3.13 Parking Aid System, Removal and Installation).** **N** Go to step 6.

Test Conditions	Details/Results/Actions
6.Inspect the left rear reverse radar sensor circuit	
 A4313005	**CAUTION: The inspection procedures of the circuits of intermediate and right sensors are similar to this, except for the terminal wiring harness.** A.Turn the ignition switch to position "LOCK" and disconnect the battery negative cable. B.Disconnect the reverse radar control module wiring harness connector S21 and the left sensor wiring harness connector S34. C.Measure the resistance between terminal 1 of the left sensor wiring harness connector S34 and terminal 29 of reverse radar control module wiring harness connector S21. **Standard Resistance Value: less than 5 Ω** D.Measure the resistance between the terminal 1 of left sensor wiring harness connector S34 and the reliable ground. **Standard Resistance Value: 10 MΩ or more** E.Measure the resistance between the terminal 2 of left sensor wiring harness connector S34 and the reliable ground. **Standard Resistance Value: less than 5 Ω** Is it normal? **Y** Go to step 7. **N** Repair the fault circuit.
6. Replace the reverse radar control module	
	A.Turn the ignition switch to "LOCK" position and disconnect the battery negative cable. B.Replace the reverse radar control module. **Refer to: Parking Aid System Module (4.3.13 Parking Aid System, Removal and Installation).** Verify the system is normal.

Buzzer Alarms When There Is No Obstacle in Reverse Diagnosis

Test Conditions	Details/Results/Actions
1. General inspection	
	A.Inspect the wiring harness connector for abscission, damage and dirt. B.Inspect the sensors for the correct installation and reliable retaining. C.Inspect the sensor surface for the dirt or foreigh matter. D.Inspect the load condition of the trunk. Is it normal? **Y** Go to step 2. **N** Repair the fault.
2.Inspect the reverse radar sensor	
	A.Replace three sensors in good condition. Is the system normal? **Y** Replace the reverse radar sensor. **Refer to: Reverse Radar Sensor (4.3.13 Parking Aid System, Removal and Installation).** **N** Go to step 3.
3.Inspect the reverse radar control module	
	A.Turn the ignition switch to "LOCK" position and disconnect the battery negative cable. B.Remove the reverse radar control module. **Refer to: Parking Aid System Module (4.3.13 Parking Aid System, Removal and Installation).** C.Install the removed parking aid system module on another vehicle with the same configuration and in good condition. D.Test the parking aid system. Is it normal? **Y** Replace the reverse radar control module. **Refer to: Parking Aid System (4.3.13 Parking Aid System, Symptom Diagnosis and Testing).** **N** Inspect and repair the parking aid system circuit. **Refer to: Parking Aid System (4.3.13 Parking Aid System, Symptom Diagnosis and Testing).**

Removal and Installation

Parking Aid System Control Module

Removal

1. Disconnect the battery negative cable.

   Refer to: Battery Inspection (3.1.10 Charging System, General Procedures).

2. Remove the C-pillar lower trim panel.

   Refer to: C-Pillar Trim Panel (5.1.9 Interior Trim Panel and Accessories, Removal and Installation).

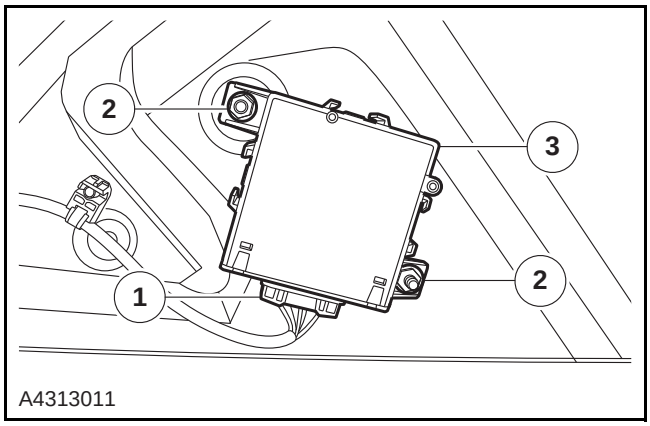
3. Remove the parking aid system control module.

   1. Disconnect the wiring harness connector of the parking aid system control module.

   2. Remove the 2 fixing bolts of the parking aid system control module.

   Torque: 23 Nm

   3. Take out the parking aid system control module.



A4313011

Installation

1. To install, reverse the removal procedure.

Reverse Radar Sensor

Removal

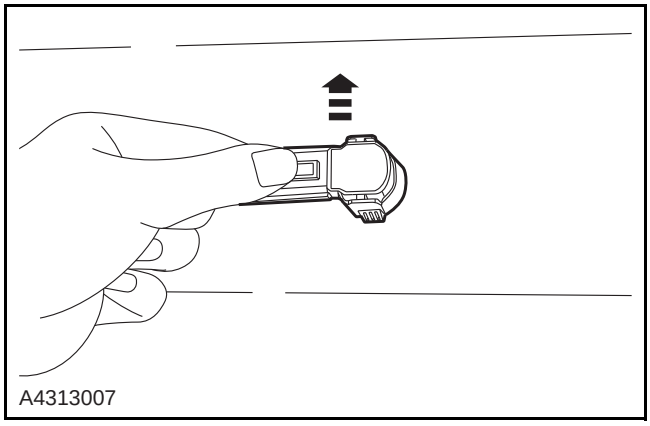
1. Disconnect the battery negative cable.

   Refer to: Battery Inspection (3.1.10 Charging System, General Procedures).

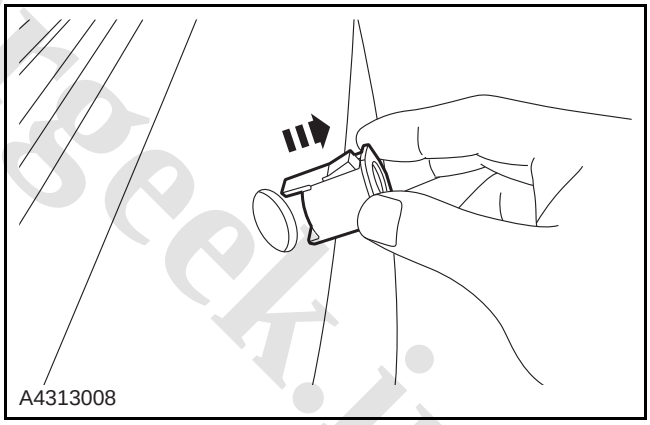
2. Remove the rear bumper.

   Refer to: Rear Bumper (5.1.7 Bumper, Removal and Installation).

3. Remove the reverse radar sensor.


A4313007

4. Take out the sensor trim cover from the rear bumper.


A4313008

Installation

1. To install, reverse the removal procedure.

Specifications

General Specifications

Description	Specification
Working voltage	9 ~ 16 V (DC)
Rated Voltage	12.8 V (DC)
Working temperature	- 40 ~ 85 °C

Torque Specifications

Description	Nm	lb-ft	lb-in
BCM mounting bolt	11	8	-

Description and Operation

System Overview

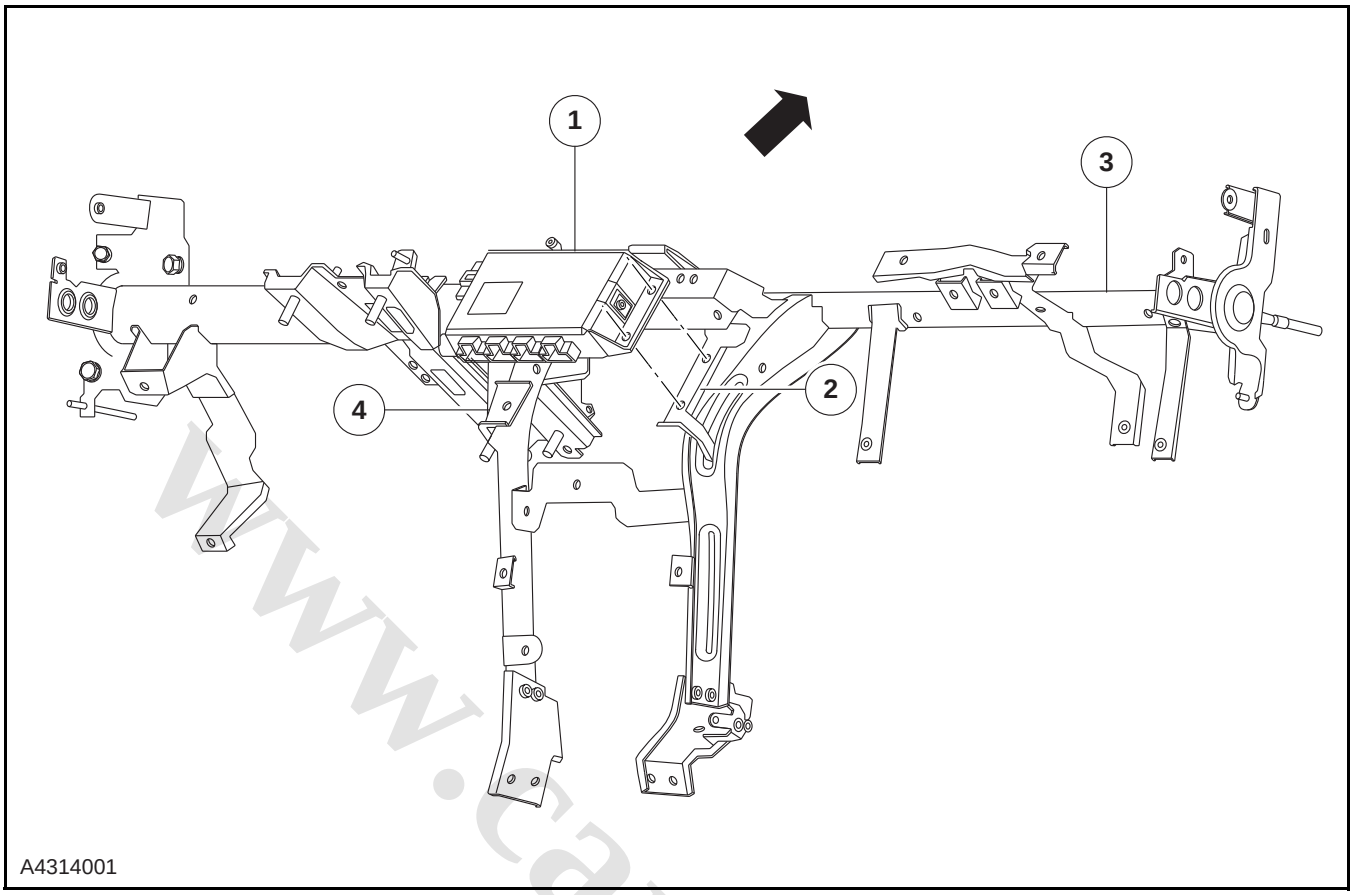
The body control system consists of body control module, anti-theft reading coil, body remote control key, power window, left and right turn signal lamps, headlamps, four-door lock motors, rear back door lock motor, buzzer, trunk lamp, keyhole lighting lamp, interior lamp, combination switch, hazard warning switch and so on.

Main functions of body control system include:

- Central door locking control
- Back door unlocking
- Remote key entry system
- Anti-theft control system
- Engine immobilizer System
- Front wiper control
- Front headlight control
- Vehicle Locator Light control
- Left and right turn signal lamp control
- Indoor lamp control
- Keyhole illumination indication
- Window power management
- Energy management
- Power saving management
- Network management
- Diagnosis

Refer to the system description and operation for the functions.

Location View



Item	Description	Item	Description
1	Body control module	3	Steering support welding assembly
2	BCM right mounting bracket	4	BCM left mounting bracket

Symptom Diagnosis and Testing

Inspection and Verification

1. Verify the customer concern.
2. Obvious symptom in electrical appliance by visual inspect.
3. Inspect the visible system circuit.
4. If an obvious cause for an observed or reported concern is found, correct the cause before proceeding to the next step.
5. If the cause is not visually evident, verify the symptom and refer to the Symptom Chart.

Visual Inspection Chart

Electric Part
• Battery
• Fuse
• Connection plug of electric appliance loose or being corroded
• Wiring harness

Symptom Chart

CAUTION: After replacing BCM, learn remote control key again to reset AT/MT and the vehicle configurations.

Function	Symptom	Possible Sources	Action
Remote control and door lock control	All functions of the remote controller are invalid.	• Remote controller not matched on line. • Remote control distance is over 30 m, or strong interfering resource nearby (mobile phone, launching pad, etc). • The remote controller is low power. • A poor contact between the battery and the remote controller. • Insufficient battery voltage. • The remote controller is damaged.	• Re-match the key. • Use the controller within specified range and avoid strong interference source. • Replace the remote controller battery. • Repair the controller. • Charge the battery. • Replace the remote controller and match it again by diagnosis tool.
	The single door lock doesn't work.	• The the door lock wiring harness connector is loose and not in the right position. • Circuit to the lock failed. • Door lock is damaged.	• Replug the door lock wiring harness connector. • Inspect and repair the circuit to the lock. • Replace door lock.
	One or more doors can not be locked or opened.	• Door lock or interior and exterior cable damaged.	• Replace the door lock or install interior and exterior cable again
	No automatic driving lock function	• It is canceled by manually setting. • CAN communication is not normal. • Speed signal of ECM or TCM is not sent. • BCM fault.	• Set this function again with diagnostic tool. • Solve the CAN bus communication problem. **Refer to: Diagnostic Tool Can Not Communicate Via CAN With BCM (4.3.15 Onboard Network, Symptom Chart).** • Inspect and repair ECM or TCM vehicle speed signal. • Replace BCM and rematch the remote key and configure vehicle model.

Function	Symptom	Possible Sources	Action
Lighting control of turning and emergency warning	Both turn signal and emergency warning lamps not work.	• Turn signal lamp power fuse damaged, loose or other circuit malfunction. • Turn signal lamp wiring harness connector to BCM improperly installed, loose or other circuit malfunction. • Wiring harness connectors of turn signal switch and emergency warning switch to BCM improperly plugged or other circuit malfunction. • Turn signal lamp damaged. • BCM or its circuit failed.	• Replace the fuse or repair its circuit. • Reconnect the wiring harness connector from BCM to turn signal lamp or inspect and repair its circuit. • Reconnect the wiring harness connector from BCM to turn signal switch or inspect and repair its circuit. • Replace the turning lamp. • Replace BCM and rematch the remote key and configure vehicle model, or inspect and repair its circuit.
	In the normal condition, it flashes when the vehicle turns.	• The lamp power is incorrect. • BCM fault.	• Replace it with turn signal lamp bulb of standard power. • Replace BCM and rematch the remote key and configure vehicle model.
	Indicator failure defection doesn't work (When one of front/ rear turn signal lamp is not on, lamp doesn't flash).	• BCM fault.	• Replace BCM and rematch the remote key and configure vehicle model.
Indoor lamp control	The front roof lamp doesn't have the function of gradually on and off (The function is normal when roof lamp switch in ON).	• Connector from front roof lamp to BCM loose or falling, or its circuit failed. • Front roof lamp switch fault. • BCM fault.	• Reconnect BCM wiring harness connector or inspect and repair its circuit. • Replace the front roof lamp switch. • Replace BCM and rematch the remote key and configure vehicle model.

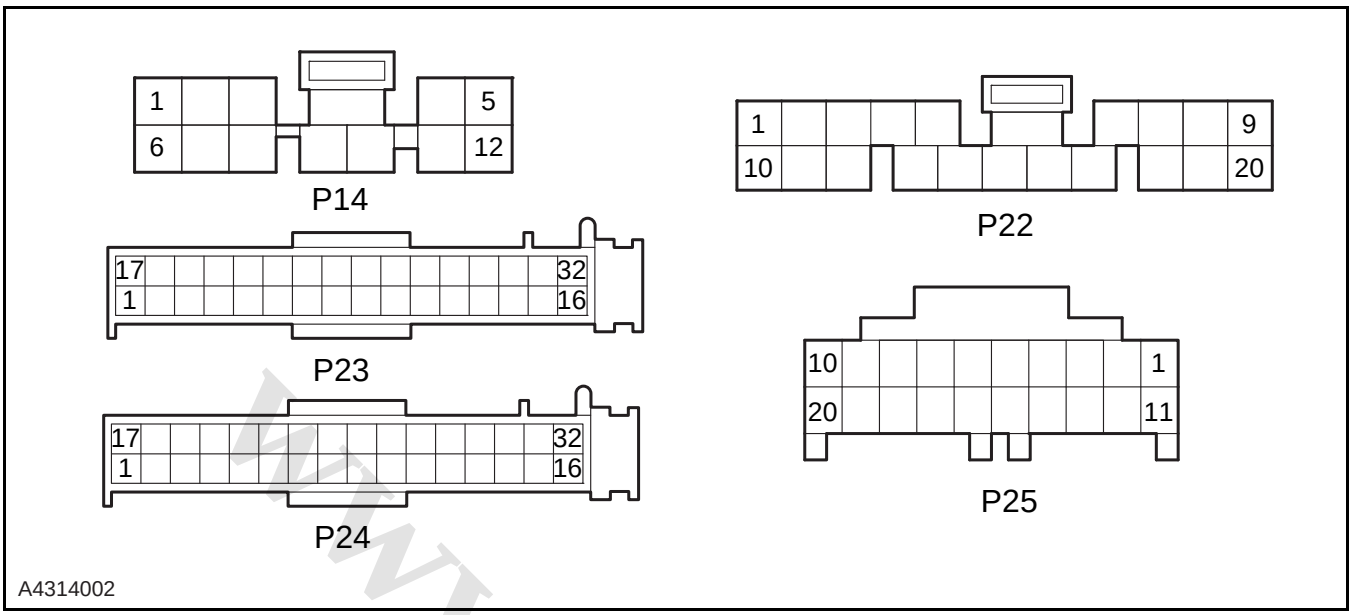
Function	Symptom	Possible Sources	Action
Front wiper control	The front wiper does not work.	• Fuse of front wiper damaged or loose. • Fuse of ignition switch signal damaged or loose. • Ignition switch abnormal. • Wiring harness connector of front wiper to BCM loose or breaking off, or its circuit failed, or wiper switch failed. • Front wiper motor damaged • BCM or its circuit failed	• Reconnect or replace the fuse. • Reconnect or replace the fuse on the ignition switch. • Inspect and remove circuit fault from ignition switch signal to BCM or ignition switch fault in the steering lock. • Reconnect the BCM connector or replace the wiper combination switch. • Remove the front wiper motor. • Replace BCM and rematch the remote key and configure vehicle model, or inspect and repair its circuit.
	The front wiper can not return or return abnormally.	• Return signal of front wiper abnormal. • Connector of front wiper return signal to BCM loose. • Front wiper installation improper. • Fastening point of front wiper motor and wiper arm loose or displaced relatively.	• Inspect and repair circuit fault from return switch signal to BCM or return switch fault in the motor. • Reconnect the connector of BCM wiring harness. • Adjust mechanical installation of wiper. • Adjust and tighten relative position of wiper motor and wiper arm.
	Backlash in front wiper return.	• Front wiper failed. • BCM fault.	• Remove the front wiper motor. • Replace BCM and rematch the remote key and configure vehicle model.
	No intermittent control or intermittent function abnotmal of front wiper.	• Circuit fault between the intermittent control switch and the fuse. • Circuit from intermittent control switch signal to BCM failed. • Intermittent control switch failed. • BCM fault.	• Inspect the intermittent control switch and fuse circuit fault. • Inspect circuit fault from BCM to intermittent control switch. • Replace the wiper combination switch. • Replace BCM and rematch the remote key and configure vehicle model.

Function	Symptom	Possible Sources	Action
Low beam lamp and Follow me home lamp control	Low beam lamp and Follow me home lamp are abnormal.	• The circuit or fuse of low beam lamp has fault. • BCM wiring harness connector loose or dropping. • Low-beam lamp relay fault. • Circuit fault between BCM and the low-beam. • Low-beam light bulb failed. • Light combination switch or its circuit failed. • BCM or its circuit failed.	• The circuit or fuse of low beam lamp has fault. • BCM wiring harness connector loose or dropping. • Low-beam lamp relay fault. • Circuit fault between BCM and the low-beam. • Low-beam light bulb failed. • Light combination switch or its circuit failed. • Replace BCM and rematch the remote key and configure vehicle model, or inspect and repair its circuit.
	Follow me home lamp can not be actived.	• There is lamp switch (front fog lamp switch, rear fog lamp switch, high beam lamp switch and so on) still on • Light combination switch or its circuit failed. • BCM or its circuit failed	• Activate the function of Follow me home after confirming that related lamp switch is off. • Replace the light combination switch or inspect and repair its circuit. • Replace BCM and rematch the remote key and configure vehicle model, or inspect and repair its circuit.
High Beam Control	High beam not working.	• The circuit or fuse of high beam lamp has fault. • BCM wiring harness connector loose or dropping. • High-beam lamp relay fault. • Circuit fault between BCM and the high-beam. • High-beam bulb failed. • Light combination switch or its circuit failed. • BCM or its circuit failed.	• The circuit or fuse of high beam lamp has fault. • BCM wiring harness connector loose or dropping. • High-beam lamp relay fault. • Circuit fault between BCM and the high-beam. • High-beam light bulb failed. • Lighting combination switch or its circuit failed. • Replace BCM and rematch the remote key and configure vehicle model, or inspect and repair its circuit.

Function	Symptom	Possible Sources	Action
Alarm prompt	There is no prompt warning function.	• Connector of BCM wiring harness loosed or dropping. • Connector of instrument wiring harness loosed or dropping. • CAN communication is not normal. • Buzzer in the instrument fault. • BCM or its circuit failed.	• Reconnect the connector of BCM wiring harness. • Reconnect the wiring harness connector of the instrument. • Solve the CAN bus communication problem. **Refer to: Diagnostic Tool Can Not Communicate Via CAN With BCM (4.3.15 On-board Network System, Symptom Chart).** • Replace the instrument. • Replace BCM and rematch the remote key and configure vehicle model, or inspect and repair its circuit.
Anti-theft alarm	Security indicator light not flash after remote lockup.	• Door opened, unable to enter Armed status. • Connector of wiring harness from BCM to the instrument loosed or dropping or circuit fault. • Security indicator light in the instrument damaged. • BCM or its circuit failed.	• Perform remote locking after all doors are closed. • Inspect and repair the circuit fault from BCM to the instrument or any connector becoming loose or breaking off. • Replace the instrument. • Replace BCM and rematch the remote key and configure vehicle model, or inspect and repair its circuit.
	Anti-theft alarm is activated if no illegal invasion after the protection is set (open door or turn on the ignition switch).	• Door wiring harness connector has no poor contact, and there is a short circuit to ground of the door contact switch signal (Door indicator on the instrument is on). • Poor contact of door contact switch (door indicator on the instrument not on)or wiring harness connector becoming loose or falling off. • Door wiring harness has water, causing a short circuit to ground of door contact switch (Door indicator on the instrument is on). • BCM fault.	• Inspect and repair the circuit or its wiring harness connector from BCM to door contact switch . • Reconnect the wiring harness connector or replace the door contact switch. • Inspect and repair the waterproofing measures of the door wiring harness. • Replace BCM and rematch the remote key and configure vehicle model.

DTC Diagnosis and Testing

BCM Terminal View



BCM Terminal List

Terminal Number	Connection	Terminal Description	Status	Signal Type
P14-1	1.25 BK	GND	Output	L
P14-2	0.5RD/WH	BCM power	Input	H
P14-3	1.25 BK	GND	Input	L
P14-4	0.85 GN	Hazard warning lamp power	Input	H
P14-5	-	-	-	-
P14-6	-	-	-	-
P14-7	0.5 GN/BK	Power supply of left turn signal lamp	Output	H
P14-8	0.5 GN/WH	Power supply of right turn signal lamp	Output	H
P14-9	-	-	-	-
P14-10	-	-	-	-
P14-11	-	-	-	-
P14-12	1.25 BK	GND	Input	L
P14-13	1.25 BK	GND	Input	L
P14-14	1.25 VT/YE	Door lock signal	Output	H
P14-15	1.25 VT/RD	Door unlock signal	Output	H
P14-16	2.0 RD	Door lock motor power	Input	H
P14-17	1.25 RD/GN	Back door lock motor signal	Output	H
P14-18	-	-	-	-

Terminal Number	Connection	Terminal Description	Status	Signal Type
P14-19	1.25 WH	Wiper power	Input	H
P14-20	0.85 BU/RD	Wiper high speed signal	Output	H
P14-21	0.85 BU	Wiper low speed signal	Output	H
P22-1	0.5 RD/BN	Door control switch signal	Output	L
P22-2	0.3 WH/RD	Anti-theft indicator signal	Output	L
P22-3	0.85 BU/WH	Front wiper stop position signal	Input	L
P22-4	0.5 OG/BK	Collision signal	Input	PWM
P22-5	0.5 WH/GN	LF door contact switch signal	Input	L
P22-6	0.5 WH/BU	RF door contact switch signal	Input	L
P22-7	0.3 GY	LR door contact switch signal	Input	L
P22-8	0.5 PK/WH	Lock/Unlock state switch signal	Input	L
P22-9	-	-	-	-
P22-10	-	-	-	-
P22-11	-	-	-	-
P22-12	-	-	-	-
P22-13	0.5 RD	Air conditioning control panel (rear defroster on signal)	Input	H
P22-14	0.3 WH	RR door contact switch signal	Input	L
P22-15	0.5 RD/WH	Back door motor switch signal	Input	L
P22-16	-	-	-	-
P23-1	0.85 WH/RD	Ignition switch power supply (IG1)	Input	H
P23-2	0.5 VT/BU	Key not pulled remind switch signal	Input	L
P23-3	0.5 BU	Front wiper intermittent switch signal	Input	L
P23-4	0.5 OG	Front wiper low speed switch signal	Input	L
P23-5	0.5 GN/OG	Front wiper high speed switch signal	Input	L
P23-6	0.85 BK/YE	Front wiper rinse switch signal	Input	L
P23-7	-	-	-	-
P23-8	-	-	-	-

Terminal Number	Connection	Terminal Description	Status	Signal Type
P23-9	-	-	-	-
P23-10	-	-	-	-
P23-11	0.5 GY	Hazard warning lamp control signal	Input	L
P23-12	0.5 BU/BK	Back door release switch signal	Input	L
P23-13	0.5 GY/WH	Left turn lamp control signal	Input	L
P23-14	0.5 GY/BK	Right turn lamp control signal	Input	L
P23-15	0.5 GN	Low beam control signal	Input	L
P23-16	0.5 PK	High beam control signal	Input	L
P23-17	-	-	-	-
P23-18	-	-	-	-
P23-19	-	-	-	-
P23-20	-	-	-	-
P24-1	0.5 LG	CAN L	Input	I/O
P24-2	0.5 VT/YE	K-LINE	Input	I/O
P24-3	0.5 WH	Immobilizer coil LIN0	Input	I/O
P24-4	0.5 BK/WH	Keyhole illumination	Output	H
P24-5	-	-	-	-
P24-6	0.5 LU	Horn relay control signal	Output	L
P24-7	0.5 BU	Window power control signal	Output	L
P24-8	-	-	-	-
P24-9	-	-	-	-
P24-10	-	-	-	-
P24-11	0.5 LG/BK	CAN H	Input	I/O
P24-12	-	-	-	-
P24-13	-	-	-	-
P24-14	-	-	-	-
P24-15	0.5 GN/YE	Low-beam relay control signal	Output	L
P24-16	0.5 GN/VT	High-beam relay control signal	Output	L
P24-17	-	-	-	-
P24-18	-	-	-	-
P24-19	-	-	-	-
P24-20	-	-	-	-

Terminal Number	Connection	Terminal Description	Status	Signal Type
P25-1	-	-	-	-
P25-2	-	-	-	-
P25-3	-	-	-	-
P25-4	-	-	-	-
P25-5	-	-	-	-
P25-6	0.5 YE	Front wiper intermittent time adjustment signal	Input	H
P25-7	0.3 GY/OG	Central door lock locking/ unlocking switch signal	Input	Analog
P25-8	-	-	-	-
P25-9	-	-	-	-
P25-10	-	-	-	-
P25-11	-	-	-	-
P25-12	-	-	-	-
P25-13	-	-	-	-
P25-14	-	-	-	-
P25-15	-	-	-	-
P25-16	-	-	-	-
P25-17	-	-	-	-
P25-18	-	-	-	-
P25-19	0.5 BK	GND	Input	L
P25-20	-	-	-	-

Fault Code Chart

Fault Code	Description	Setting Condition
B1001	FLASH partial failure of the electronic control unit	Checksum not right
B1002	EEPROM partial failure of the electronic control unit	Checksum not right
B1003	Ignition lock light short circuit to ground	Ignition_Ring_LED_CMD = 100% and reports failure
	Ignition lock light short circuit to power supply	Ignition_Ring_LED_CMD = OFF and reports failure
B1007	Low-beam relay short circuit to ground or open circuit	LOW_BEAM_RLY_CMD = OFF and reports failure
	Low-beam relay short circuit to power supply	LOW_BEAM_RLY_CMD = ON and reports failure

Fault Code	Description	Setting Condition
B1008	High-beam relay short circuit to ground or open circuit	HIGN_BEAM_RLY_CMD = OFF and reports failure
	High-beam relay short circuit to power supply	HIGH_BEAM_RLY_CMD = ON and reports failure
B1011	Horn relay short circuit to ground or open circuit	HORN_RLY_CMD = OFF and reports failure
	Horn relay short circuit to power supply	HORN_RLY_CMD = ON and reports failure
B1012	Window power relay short circuit to ground or open circuit	Power_Window_Relay_CMD = OFF and reports failure
	Window power relay short circuit to power supply	Power_Window_Relay_CMD = ON and reports failure
B1020	Immobilizer indicator short circuit to power supply	ANTI_THEFT_LED_CMD = OFF and feedback is low
	Immobilizer indicator short circuit to power supply	ANTI_THEFT_LED_CMD = ON and feedback is high
B1024	A 21 W bulb failure of the right turn signal lamp	RIGHT_TURN_CMD = ON and ADC out of range
	short circuit to power supply	RIGHT_TURN_CMD = ON and ADC out of range
	Right turn signal lamp overload or short circuit to ground	RIGHT_TURN_CMD = ON and ADC out of range
B1025	A 21 W bulb failure of the left turn signal lamp	LEFT_TURN_CMD = ON and ADC out of range
	Left turn signal lamp open circuit	LEFT_TURN_CMD = ON and ADC out of range
	Left turn signal lamp overload or short circuit to ground	LEFT_TURN_CMD = ON and ADC out of range
B1027	Indoor lamp PWM output short circuit to power	INTERIOR_LIGHT_CMD = 100% and feedback is high
B1029	Front wiper motor stop	Power Mode is RUN and wiper is not able to go back to park position after 10sec
B1030	The front wiper motor can not leave the stop position	Power Mode is RUN and wiper is always in park position for 10sec even output is ON
B1031	BCM power supply undervoltage	Battery voltage ADC out of range
	BCM power supply overvoltage	Battery voltage ADC out of range
B1032	Broken HZ_PWR fuse or poor contact of the wiring harness connector	ADC out of range
B1033	Broken Wip_PWR fuse or poor contact of the wiring harness connector	ADC out of range
B1034	Broken CDL_PWR fuse or poor contact of the wiring harness connector	ADC out of range
B1041	The front wiper intermittent time/ sensitivity input exceeds the range	ADC out of range

Fault Code	Description	Setting Condition
B1043	LIN communication channel 1 short circuit to ground	-
B1044	K-line short circuit to ground	-
B1045	IMMO LIN can not start	BCM can not receive any message from basestation
B1046	Invalid ECM secret key	ECM secret key is not programmed or is invalid (the lowest 4 bytes of ECM secret key is set to all 0s or all 1s)
B1047	Missing transponder/no response	No response from transponder for 1second since ignition ON
B1048	Invalid transponder secret key	Transponder secret key is not programmed or is invalid (the lowest 4 bytes of transponder secret key is set to all 0s or all 1s)
B1049	Wrong TxP	Transponder ID received does not match with learnt transponder IDs
B1050	Transponder ID table empty	No transponder ID in the EEPROM
B1051	No ECM challenge or no ACK	No challenge from ECM for 1.5 seconds since ignition ON
B1052	ECM authentication failed	ECM authentication failed
B1053	Transponder data format error	Format of the data received from transponder does not match with predefined format
B1057	IMMO LIN communication interrupt	BCM received message and then lost
B1058	IMMO coil open/short	Feedback from base station showing short/open
U1001	CAN communication network BUS OFF error	1. Not in Low Power Mode 2. When bus off counter more than 10
	Network message EMS receive timeout	1. 2 sec after IGN is ON 2. CAN is not Bus off or within 1sec after bus off recovery) 3. Have not receive EMS ID255 message for 5* message cycle 4. 2 sec before IGN off
U1002	Network message ABS receive timeout	1. 2 sec after IGN is ON 2. CAN is not Bus off or within 1 sec after bus off recovery) 3. Have not receive ABS ID218 message for 5* message cycle 4. 2 sec before IGN off
U1001	BCM send timeout	1. BCM shall set this DTC when continuously sending timeout for 20 times 2. CAN is not Bus off or within 1 sec after bus off recovery

DTC Diagnostic Procedure Index

Fault Code	Description	Diagnosis Procedures
B1001	FLASH partial failure of the electronic control unit	Refer to: DTC B1001, B1002
B1002	EEPROM partial failure of the electronic control unit	
B1003	Ignition lock light coil short circuit to ground/ power supply	Refer to: DTC B1003
B1007	Low-beam relay short circuit to ground/power supply or open circuit	Refer to: DTC B1007
B1008	High-beam relay short circuit to ground/power supply or open circuit	Refer to: DTC B1008
B1011	Horn relay short circuit to ground/power supply or open circuit	Refer to: DTC B1011
B1012	Window power relay short circuit to ground/ power supply or open circuit	Refer to: DTC B1012
B1020	Immobilizer indicator short circuit to ground/ power supply or open circuit	Refer to: DTC B1020
B1024	Right turn signal lamp short circuit to ground/ power supply or open circuit or a 21 W bulb failure of the right turn signal lamp	Refer to: DTC B1024
B1025	Left turn signal lamp short circuit to ground/ power supply or open circuit or a 21 W bulb failure of the left turn signal lamp	Refer to: DTC B1025
B1027	Front roof lamp PWM output short circuit to power supply	Refer to: DTC B1027
B1029	Front wiper motor stop	Refer to: DTC B1029, B1030
B1030	Front wiper motor can not leave the stop position.	
B1031	BCM supply voltage too high or too low	Refer to: DTC B1031, B1032, B1033, B1034
B1032	Broken HZ_PWR fuse or poor contact of the wiring harness connector	
B1033	Broken Wip_PWR fuse or poor contact of the wiring harness connector	
B1034	Broken CDL_PWR fuse or poor contact of the wiring harness connector	
B1041	The front wiper intermittent time/sensitivity input exceeds the range.	Refer to: DTC B1041

Fault Code	Description	Diagnosis Procedures
B1043	LIN communication channel 1 short circuit to ground	Refer to: DTC B1043, B1044, B1045, B1051, B1057, B1058
B1044	K-line short circuit to ground	
B1045	IMMO LIN can not start	
B1051	No ECM challenge or no ACK	
B1057	IMMO LIN communication interrup	
B1058	IMMO coil open/short	
B1046	Invalid ECM secret key	Refer to: DTC B1046, B1047, B1048, B1049, B1050, B1052, B1053
B1047	Missing transponder/ no response	
B1048	Invalid transponder secret key	
B1049	Wrong TxP	
B1050	Transponder ID Table Empty	
B1052	ECM authentication failed	
B1053	Transponder data format error	

DTC B1001, B1002

1. Fault Code Description

Fault Code	Description	Definition
B1001	FLASH partial failure of the electronic control unit	• BCM memory error
B1002	EEPROM partial failure of the electronic control unit	

2. Diagnosis Procedures

Test Conditions	Details/Results/Actions
1. General inspection	
	A. Inspect the related wiring harness connectors for signs of damage, poor contact, aging or loose. Is it normal? **Y** Go to step 2. **N** Repair the fault.
2. Eliminate fault code	
	A. Connect the fault diagnostic tool. B. Enter into BCM. C. Select the "Clear fault code" function. D. Operate the ignition switch. E. Reread fault code. Does the fault code still exist? **Y** Go to step 3. **N** Intermittent fault. **Refer to: Intermittent Fault Inspection (3.1.13 Electrical Control System - ME7, Symptom Diagnosis and Testing).**
3. Inspect the BCM power supply and ground circuit	
	A. Inspect the BCM power supply and ground circuit. **Refer to: DTC Diagnostic Procedure Index (4.3.14 Body Control System, DTC Diagnosis and Testing).** Is it normal? **Y** Go to step 4. **N** Troubleshooting.

Test Conditions	Details/Results/Actions
4. Replace the BCM	
	A. Turn the ignition switch to "LOCK" position and disconnect the battery negative cable. B. Replace the BCM. **Refer to: Body Control Module (4.3.14 Body Control System, Removal and Installation).** Verify the system is normal.

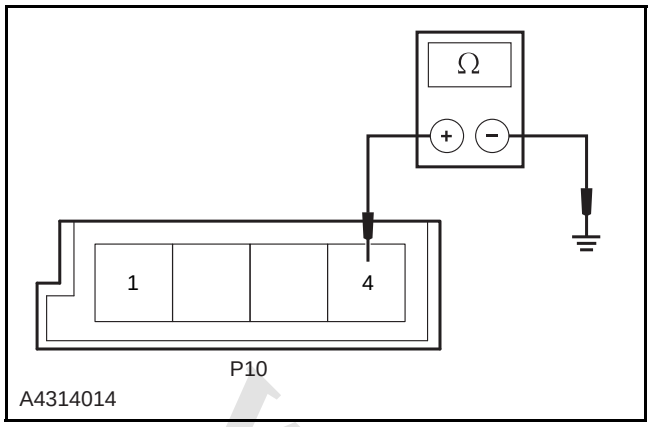
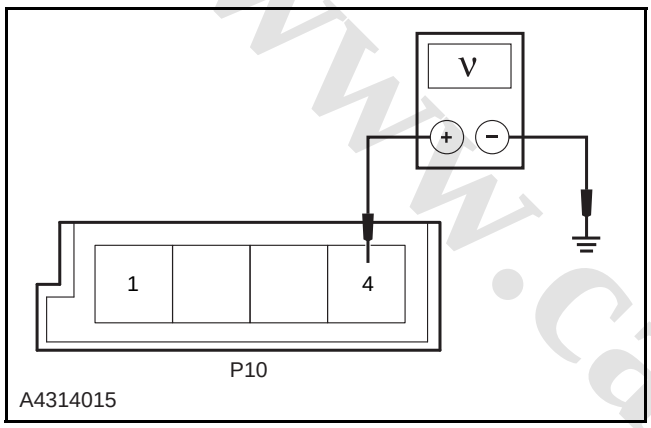
DTC B1003

1. Fault Code Description

Fault Code	Description	Definition
B1003	Ignition lock light short circuit to ground/power supply	• When the ignition key is inserted into the ignition switch, the BCM outputs signal to control the ignition lock lights by the terminal 4 of the wiring harness connector P24 to extinguish the ignition lock lamps.

2. Diagnosis Procedures

Test Conditions	Details/Results/Actions
1. General inspection	
	A. Inspect the related wiring harness connector for signs of damage, poor contact, aging or loose. Is it normal? **Y** Go to step 2. **N** Repair the fault.
2. Eliminate fault code	
	A. Connect the fault diagnostic tool. B. Enter into BCM. C. Select the "Clear fault code" function. D. Operate the ignition switch. E. Reread fault code. Does fault code still exist? **Y** Go to step 3. **N** Intermittent fault. **Refer to: Intermittent Fault Inspection (3.1.13 Electrical Control System - ME7, Symptom Diagnosis and Testing).**

Test Conditions	Details/Results/Actions
3. Inspect the ignition lock light control circuit	
 A4314014  A4314015	A. Turn the ignition switch to position "LOCK" and disconnect the battery negative cable. B. Disconnect the ignition lock light wiring harness connector P10 and the BCM wiring harness connector P24. C. Connect the battery negative cable. D. Measure the resistance between the terminal 4 of the ignition lock lamp wiring harness connector P10 and the reliable ground. **Standard Resistance Value: 10 MΩ or more** E. Measure the voltage between the terminal 4 of the ignition lock lamp wiring harness connector P10 and the reliable ground. **Standard Voltage: 0 V** Is it normal? **Y** Go to step 4. **N** Inspect and repair the short circuit to ground between the terminal 4 of the ignition lock lamp wiring harness connector P10 and the terminal 4 of the BCM wiring harness connector P24.
4. Inspect the anti-theft coil/ignition lock light assembly	
	A. Turn the ignition switch to position "LOCK". B. Replace the anti-theft coil/ignition lock light assembly. Is the system normal? **Y** Replace the anti-theft coil/ignition lock light assembly. Verify the system is normal. **N** Go to step 5.
5. Inspect the BCM power supply and ground circuit	
	A. Inspect the BCM power supply and ground circuit. **Refer to: DTC Diagnostic Procedure Index (4.3.14 Body Control System, DTC Diagnosis and Testing).** Is it normal? **Y** Go to step 6. **N** Dispose fault part.

Test Conditions	Details/Results/Actions
6. Replace the BCM	
	A. Replace the BCM. **Refer to: Body Control Module (4.3.14 Body Control System, Removal and Installation).**

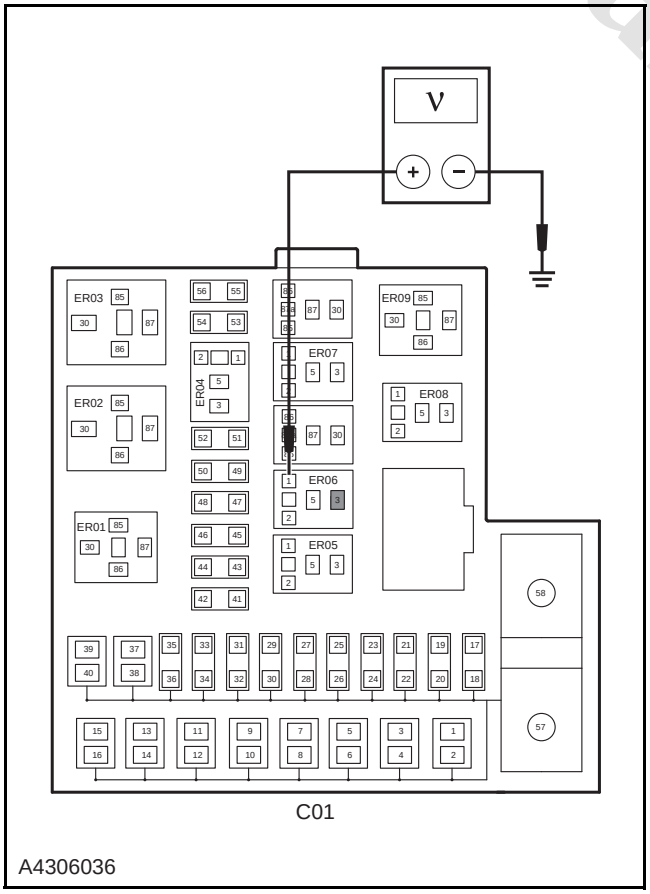
DTC B1007

1. Fault Code Description

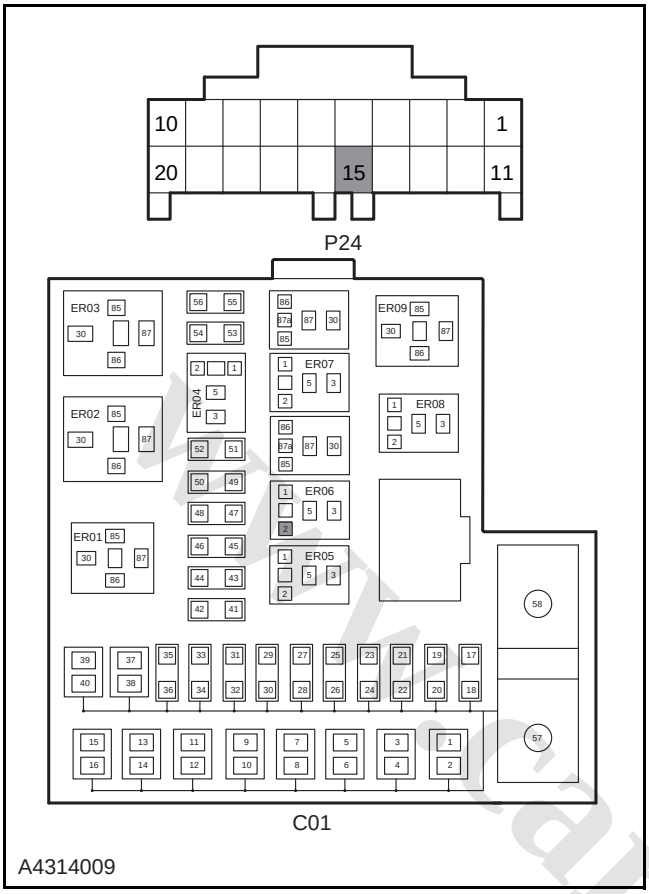
Fault Code	Description	Definition
B1007	Low-beam relay short circuit to ground/power supply or open circuit	• BCM monitors whether the low beam switch is in the connection state via the terminal 15 of P23. If it monitors that the terminal is connected with ground, at the same time, terminal 15 of P24 outputs a certain signal to control the low beam relay to illuminate the low beam.

2. Diagnosis Procedures

Test Conditions	Details/Results/Actions
1. General inspection	
	A. Inspect the related wiring harness connectors for signs of damage, poor contact, aging or loose. Is it normal? **Y** Go to step 2. **N** Repair the fault.
2. Eliminate fault code	
	A. Connect the fault diagnostic tool. B. Enter into BCM. C. Select the "Clear fault code" function. D. Operate the ignition switch. E. Reread fault code. Does fault code still exist? **Y** Go to step 3. **N** Intermittent fault **Refer to: Intermittent Fault Inspection (3.1.13 Electrical Control System - ME7, Symptom Diagnosis and Testing).**

Test Conditions	Details/Results/Actions
3. Inspect the fuse	
	A. Inspect the fuse EF18. **Fuse Rated Capacity: 15 A** Is the fuse normal? **Y** Go to step 4. **N** Inspect and repair the fuse circuit, replace the fuse in rated capacity.
4. Inspect the low beam relay ER06	
	A. Exchange the low beam relay ER06 with that of same type on the vehicle in good working order. Does the low beam work normally? **Y** Replace the low beam relay ER06 of the fault vehicle. Verify the system is normal. **N** Go to step 5.
5. Inspect the power supply circuit of the low beam relay ER06	
 C01 A4306036	A. Turn the ignition switch to position "LOCK". B. Remove the low beam relay ER06. C. Measure the voltage between the terminal 1 and 3 of the low-beam relay ER06 in the engine compartment fuse and relay box C01 and the reliable ground point. **Standard Voltage Value: 11 ~ 14 V** Is the voltage normal? **Y** Go to step 6. **N** Inspect and repair the open circuit between the terminal 1 and 3 of the low-beam relay ER06 in the engine compartment fuse and relay box C01 and the terminal 35 of the fuse EF18, and replace the engine compartment fuse and relay box C01 as necessary.

Test Conditions	Details/Results/Actions
6. Inspect the low beam relay control circuit	



A4314009

A. Turn the ignition switch to position "LOCK" and disconnect the battery negative cable.

B. Remove the low beam relay ER06 and disconnect BCM wiring harness connector P24.

C. Connect the battery negative cable.

D. Inspect the resistance between the terminal 2 of the relay ER06 in the engine compartment fuse and relay box C01 and the terminal 15 of the BCM wiring harness connector P24.

Standard Resistance Value: less than 5 Ω

E. Measure the resistance between the terminal 15 of the BCM wiring harness connector P24 and the reliable ground.

Standard Resistance Value: 10 MΩ or more

F. Measure the voltage between the terminal 15 of the BCM wiring harness connector P24 and the reliable ground.

Standard Voltage: 0 V

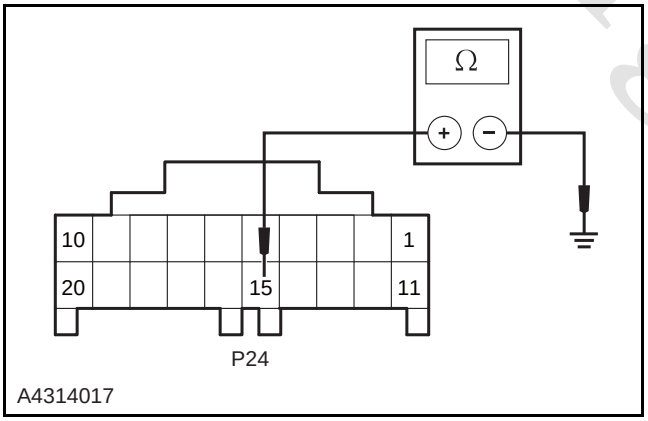
Is it normal?

Y

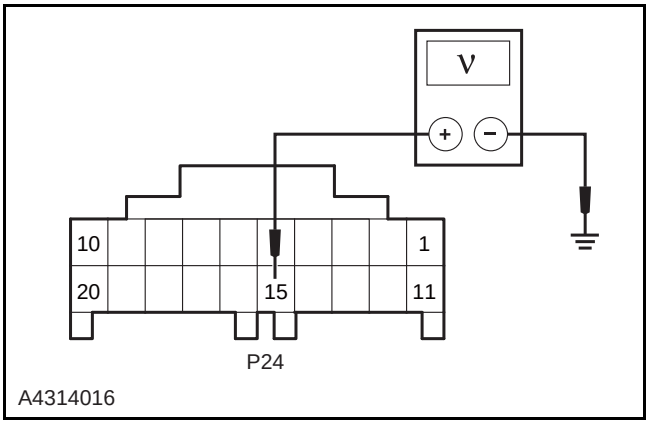
Go to step 7.

N

Measure the circuit fault between the terminal 2 of the relay ER06 in the engine compartment fuse and relay box C01 and the terminal 15 of the BCM wiring harness connector P24.



A4314017



A4314016

Test Conditions	Details/Results/Actions
7. Inspect the BCM power supply and ground circuit	
	A. Inspect the BCM power supply and ground circuit. **Refer to: DTC Diagnostic Procedure Index (4.3.14 Body Control System, DTC Diagnosis and Testing).** Is it normal? **Y** Go to step 8. **N** Dispose fault part.
8. Replace the BCM	
	A. Replace the BCM. **Refer to: Body Control Module (4.3.14 Body Control System, Removal and Installation).**

DTC B1008

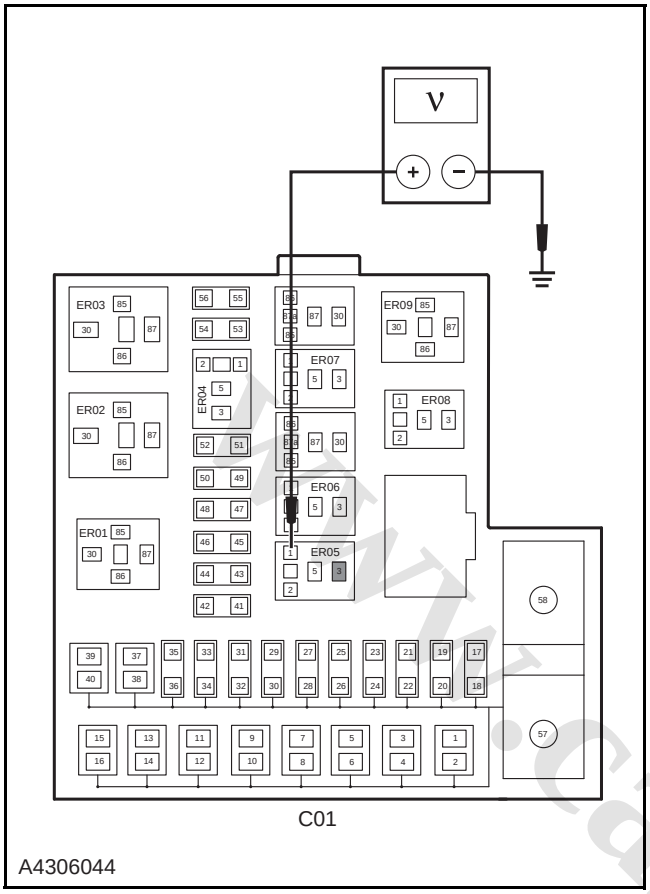
DTC Description

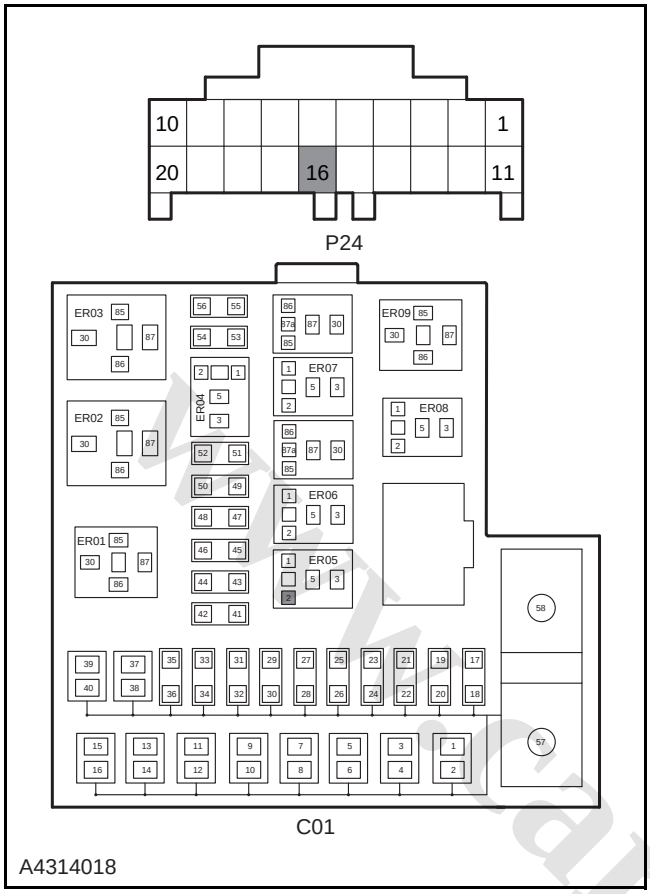
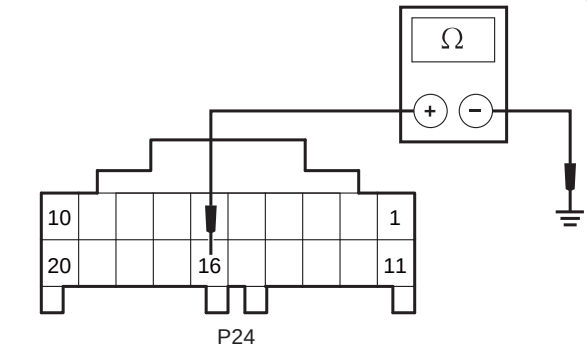
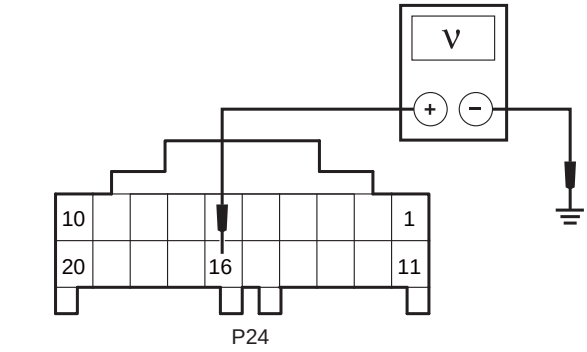
Fault Code	Description	Definition
B1008	High-beam relay short circuit to ground/power supply or open circuit	• BCM monitors whether the high beam switch is in the connection state via the terminal 16 of P23. If it monitors that the terminal is connected with ground, at the same time, terminal 16 of P24 outputs a certain signal to control the high beam relay to illuminate the high beam

2. Diagnosis Procedures

Test Conditions	Details/Results/Actions
1. General inspection	
	A. Inspect the related wiring harness connectors for signs of damage, poor contact, aging or loose. Is it normal? **Y** Go to step 2. **N** Repair the fault.

Test Conditions	Details/Results/Actions
2. Eliminate fault code	
	A. Connect the fault diagnostic tool. B. Enter into BCM. C. Select the "Clear fault code" function. D. Operate the ignition switch. E. Reread fault code. Does fault code still exist? **Y** Go to step 3. **N** Intermittent fault. **Refer to: Intermittent Fault Inspection (3.1.13 Electrical Control System - ME7, Symptom Diagnosis and Testing).**
3. Inspect the fuse	
	A. Inspect fuse EF17. **Fuse Rated Capacity: 15 A** Is the fuse normal? **Y** Go to step 4. **N** Inspect and repair the fuse circuit, replace the fuse in rated capacity.
4. Inspect the high beam relay ER05	
	A. Exchange the high beam relay ER05 with that of same type on the vehicle in good working order. Does the high beam work normally? **Y** Replace the high beam relay ER05 of the fault vehicle. Verify the system is normal. **N** Go to step 5.

Test Conditions	Details/Results/Actions
5. Inspect the power supply circuit of the high beam relay ER05	
 A4306044	A. Turn the ignition switch to position "LOCK". B. Remove high beam relay ER05. C. Measure the voltage between the terminal 1 and 3 of the high-beam relay ER05 in the engine compartment fuse and relay box C01 and the reliable ground point. **Standard Voltage Value: 11 ~ 14 V** Is the voltage normal? **Y** Go to step 6. **N** Inspect and repair the open circuit between the terminal 1 and 3 of the high-beam relay ER05 in the engine compartment fuse and relay box C01 and the terminal 33 of the fuse EF17, and replace the engine compartment fuse and relay box C01 as necessary.

Test Conditions	Details/Results/Actions
6. Inspect the high beam relay control circuit	
 A4314018	A. Turn the ignition switch to position "LOCK" and disconnect the battery negative cable. B. Remove the high beam relay ER05 and disconnect the BCM wiring harness connector P24. C. Connect the battery negative cable. D. Inspect the resistance between the terminal 2 of the relay ER05 in the engine compartment fuse and relay box C01 and the terminal 16 of the BCM wiring harness connector P24. **Standard Resistance Value: less than 5 Ω** E. Measure the resistance between the terminal 16 of the BCM wiring harness connector P24 and the reliable ground. **Standard Resistance Value: 10 MΩ or more** F. Measure the voltage between the terminal 16 of the BCM wiring harness connector P24 and the reliable ground. **Standard Voltage: 0 V** Is it normal? **Y** Go to step 7. **N** Measure the circuit fault between the terminal 2 of the relay ER05 of the engine compartment fuse and relay box C01 and the terminal 16 of the BCM wiring harness connector P24.
 A4314020	
 A4314019	

Test Conditions	Details/Results/Actions
7. Inspect the BCM power supply and ground circuit	
	A. Inspect the BCM power supply and ground circuit. **Refer to: DTC Diagnostic Procedure Index (4.3.14 Body Control System, DTC Diagnosis and Testing).** Is it normal? **Y** Go to step 8. **N** Dispose fault part.
8. Replace the BCM	
	A. Replace the BCM. **Refer to: Body Control Module (4.3.14 Body Control System, Removal and Installation).**

DTC B1011

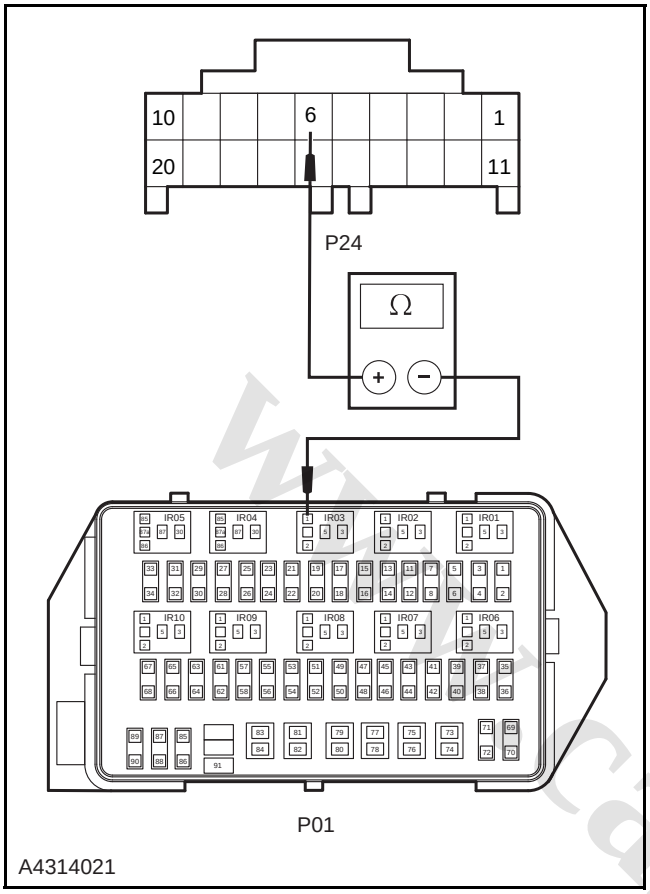
1. Fault Code Description

Fault Code	Description	Definition
B1011	Horn relay short circuit to ground/power supply or open circuit	• BCM controls the horn relay to close and open to enable the horn by the output signal of the terminal 6 of the P24.

2. Diagnosis Procedures

Test Conditions	Details/Results/Actions
1. General inspection	
	A. Inspect the related wiring harness connectors for signs of damage, poor contact, aging or loose. Is it normal? **Y** Go to step 2. **N** Repair the fault.
2. Eliminate fault code	
	A. Connect the fault diagnostic tool. B. Enter into BCM. C. Select the "Clear fault code" function. D. Operate the ignition switch. E. Reread fault code. Does fault code still exist? **Y** Go to step 3. **N** Intermittent fault. **Refer to: Intermittent Fault Inspection (3.1.13 Electrical Control System - ME7, Symptom Diagnosis and Testing).**

Test Conditions	Details/Results/Actions
3. Inspect the horn relay control circuit	



A4314021

A. Turn the ignition switch to position "LOCK" and disconnect the battery negative cable.

B. Remove the horn relay IR03 and disconnect the BCM wiring harness connector P24.

C. Connect the battery negative cable.

D. Inspect the resistance between the terminal 1 of the relay IR03 in the I/P fuse and relay box P01 and the terminal 6 of the BCM wiring harness connector P24.

Standard Resistance Value: less than 5 Ω

E. Measure the resistance between the terminal 6 of the BCM wiring harness connector P24 and the reliable ground.

Standard Resistance Value: 10 MΩ or more

F. Measure the voltage between the terminal 6 of the BCM wiring harness connector P24 and the reliable ground.

Standard Voltage: 0 V

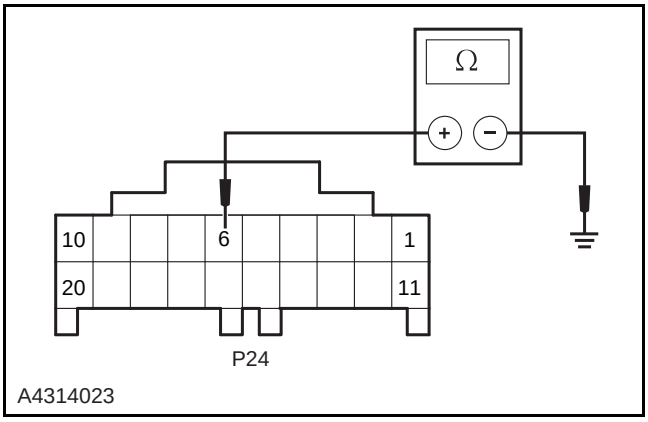
Is it normal?

Y

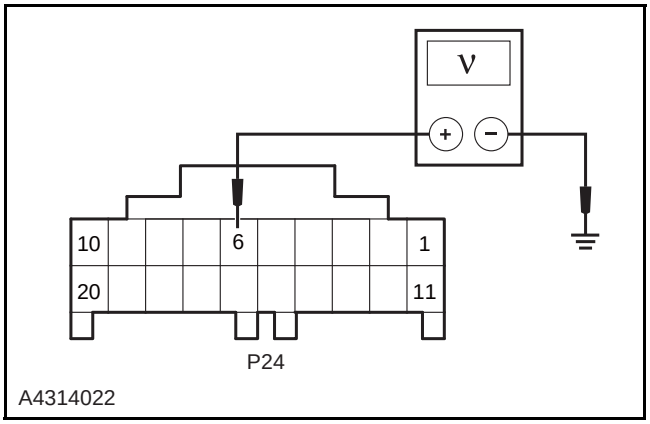
Go to step 4.

N

Inspect and repair the circuit fault between the terminal 1 of the relay IR03 in the I/P fuse and relay box P01 and the terminal 6 of the BCM wiring harness connector P24.



A4314023



A4314022

Test Conditions	Details/Results/Actions
4. Inspect the BCM power supply and ground circuit	
	A. Inspect the BCM power supply and ground circuit. **Refer to: DTC Diagnostic Procedure Index (4.3.14 Body Control System, DTC Diagnosis and Testing).** Is it normal? **Y** Go to step 5. **N** Dispose fault part.
5. Replace the BCM	
	A. Replace the BCM. **Refer to: Body Control Module (4.3.14 Body Control System, Removal and Installation).**

DTC B1012

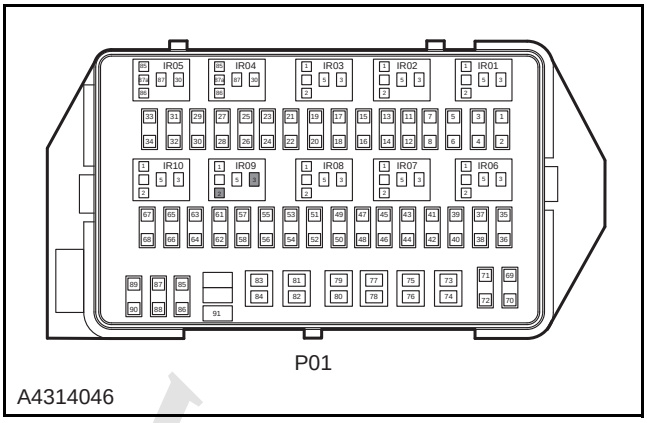
1. Fault Code Description

Fault Code	Description	Definition
B1012	Window power relay short circuit to ground/ power supply or open circuit	• BCM controls the window power relay by the output signal of the terminal 7 of the P24.

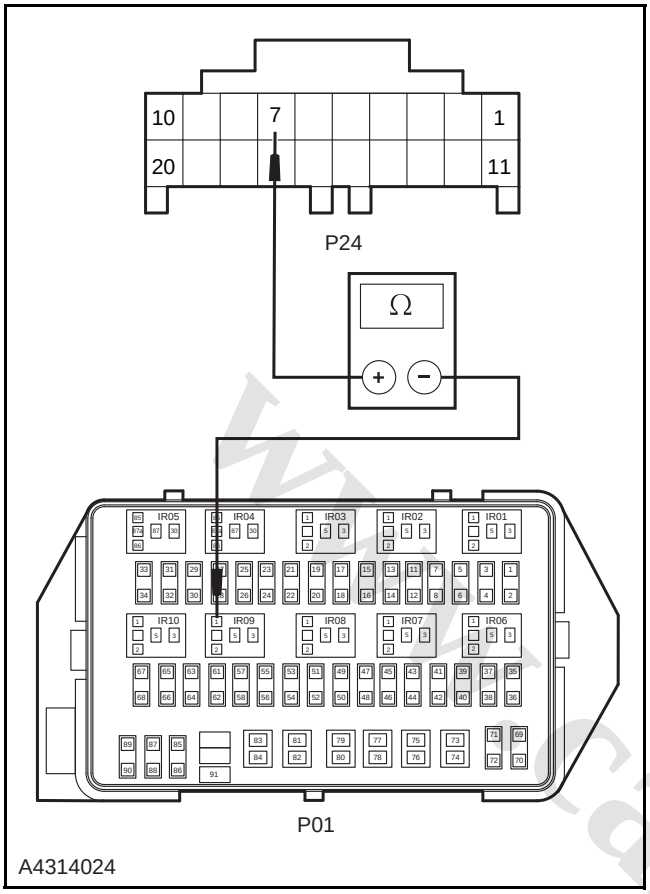
2. Diagnosis Procedures

Test Conditions	Details/Results/Actions
1. General inspection	
	A. Inspect the related wiring harness connectors for signs of damage, poor contact, aging or loose. Is it normal? **Y** Go to step 2. **N** Repair the fault.

Test Conditions	Details/Results/Actions
2. Eliminate fault code	
	A. Connect the fault diagnostic tool. B. Enter into BCM. C. Select the "Clear fault code" function. D. Operate the ignition switch. E. Reread fault code. Does fault code still exist? **Y** Go to step 3. **N** Intermittent fault. **Refer to: Intermittent Fault Inspection (3.1.13 Electrical Control System - ME7, Symptom Diagnosis and Testing).**
3. Inspect the fuse	
	A. Inspect the fuse IF30. **Fuse Rated Capacity: 30 A** Is the fuse normal? **Y** Go to step 4. **N** Inspect and repair the fuse circuit, replace the fuse in rated capacity.
4. Inspect the window power relay IR09	
	A. Exchange the power window relay IR09 with that of same type on the vehicle in good working order. Do the power windows work normally? **Y** Replace the window power relay IR09 of the fault vehicle. Verify the system is normal. **N** Go to step 5.

Test Conditions	Details/Results/Actions
5. Inspect the power supply circuit of the window power relay IR09	
 P01 A4314046	A. Turn the ignition switch to position "LOCK". B. Remove the window power relay IR09. C. Measure the voltage between terminal 2 and 3 of the power window relay IR09 in the interior electric center P01 and reliable ground respectively. **Standard Voltage Value: 11 ~ 14 V** Is the voltage normal? **Y** Go to step 6. **N** Inspect and repair the open circuit between terminal 2 and 3 of the power window relay IR09 in the I/P fuse and relay box P01 and the terminal 63 of the fuse IF30, and replace the I/P fuse and relay box P01 as necessary.

Test Conditions	Details/Results/Actions
6. Inspect and repair the window power relay control circuit	



A4314024

A. Turn the ignition switch to position "LOCK" and disconnect the battery negative cable.

B. Remove the power window relay IR09 and disconnect BCM wiring harness connector P24.

C. Connect the battery negative cable.

D. Inspect the resistance between the terminal 1 of the relay IR09 in the I/P fuse and relay box P01 and the terminal 7 of the BCM wiring harness connector P24.

Standard Resistance Value: less than 5 Ω

E. Measure the resistance between the terminal 7 of the BCM wiring harness connector P24 and the reliable ground.

Standard Resistance Value: 10 MΩ or more

F. Measure the voltage between the terminal 7 of the BCM wiring harness connector P24 and the reliable ground.

Standard Voltage: 0 V

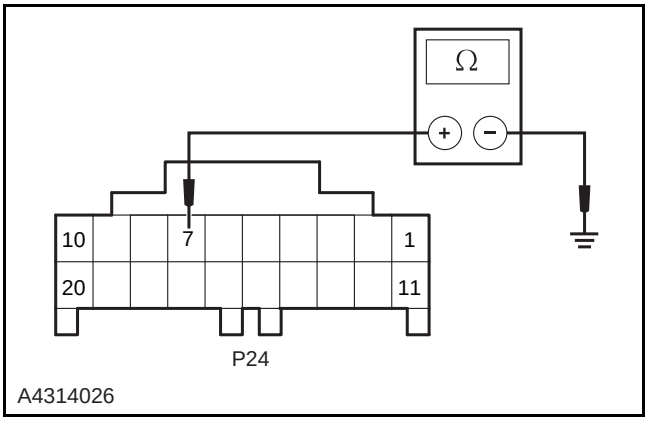
Is it normal?

Y

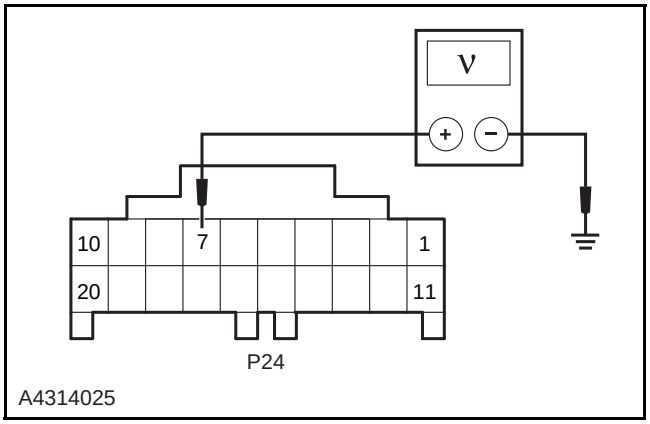
Go to step 7.

N

Inspect and repair the open circuit between the terminal 1 of the relay IR09 in the I/P fuse and relay box P01 and the terminal 7 of the BCM wiring harness connector P24.



A4314026



A4314025

Test Conditions	Details/Results/Actions
7. Inspect the BCM power supply and ground circuit	
	A. Inspect the BCM power supply and ground circuit. **Refer to: DTC Diagnostic Procedure Index (4.3.14 Body Control System, DTC Diagnosis and Testing).** Is it normal? **Y** Go to step 8. **N** Dispose fault part.
8. Replace the BCM	
	A. Replace the BCM. **Refer to: Body Control Module (4.3.14 Body Control System, Removal and Installation).**

DTC B1020

1. Fault Code Description

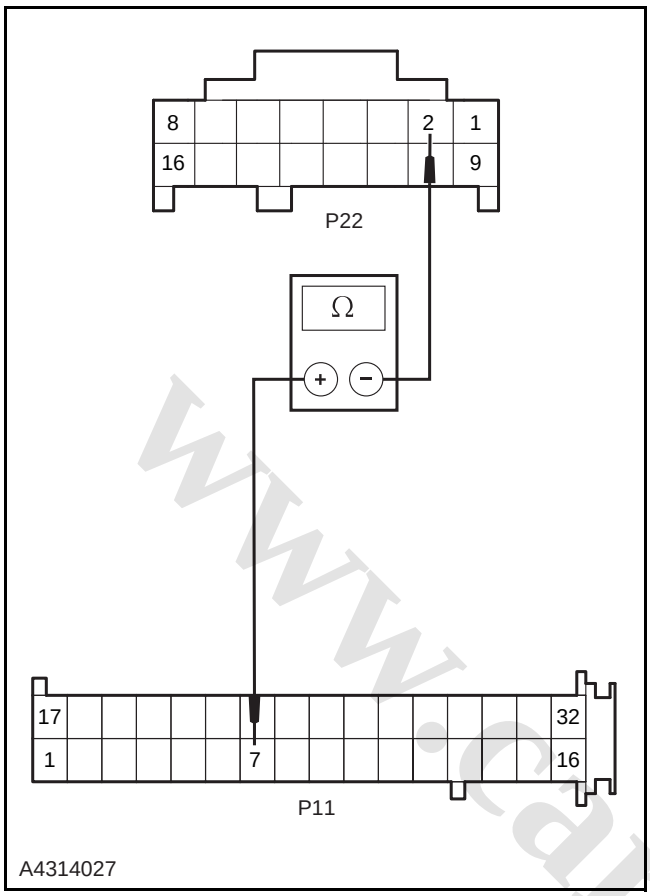
Fault Code	Description	Definition
B1020	Immobilizer indicator short circuit to ground/ power supply or open circuit	• BCM controls the anti-theft indicator by the output signal of the terminal 2 of the P22.

2. Diagnosis Procedures

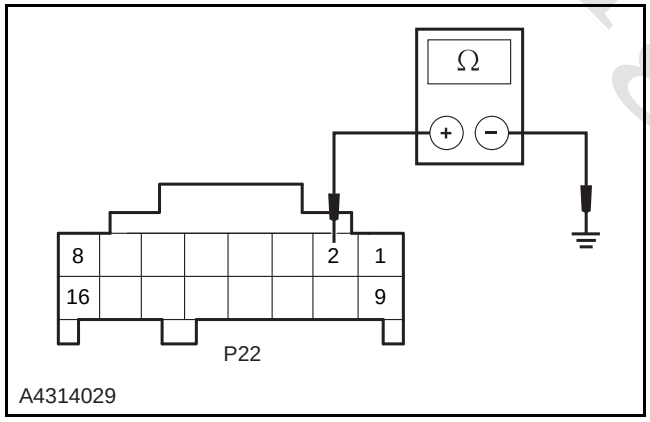
Test Conditions	Details/Results/Actions
1. General inspection	
	A. Inspect the related wiring harness connectors for signs of damage, poor contact, aging or loose. Is it normal? **Y** Go to step 2. **N** Repair the fault.

Test Conditions	Details/Results/Actions
2. Eliminate fault code	
	A. Connect the fault diagnostic tool. B. Enter into BCM. C. Select the "Clear fault code" function. D. Operate the ignition switch. E. Reread fault code. Does fault code still exist? **Y** Go to step 3. **N** Intermittent fault. **Refer to: Intermittent Fault Inspection (3.1.13 Electrical Control System - ME7, Symptom Diagnosis and Testing).**

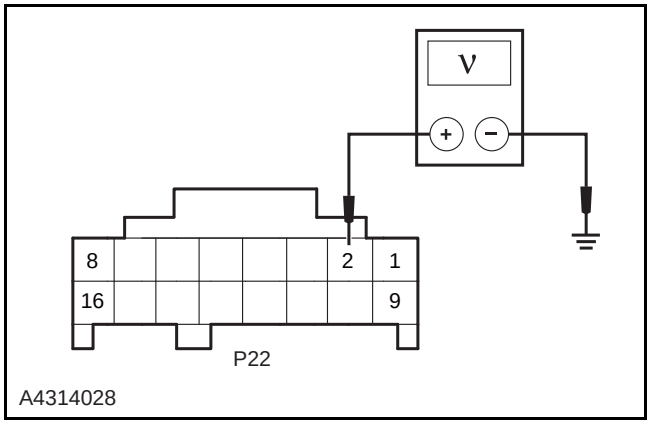
Test Conditions	Details/Results/Actions
3. Inspect and repair the anti-theft indicator control circuit	



A4314027



A4314029



A4314028

A. Turn the ignition switch to position "LOCK" and disconnect the battery negative cable.

B. Disconnect the Instrument wiring harness connector P11 and the BCM wiring harness connector P22.

C. Connect the battery negative cable.

D. Inspect the resistance between the terminal 7 of the Instrument wiring harness connector P11 and the terminal 2 of the the BCM wiring harness connector P22.

Standard Resistance Value: less than 5 Ω

E. Measure the resistance between the terminal 2 of the BCM wiring harness connector P22 and the reliable ground.

Standard Resistance Value: 10 MΩ or more

F. Measure the voltage between the terminal 2 of the BCM wiring harness connector P22 and the reliable ground.

Standard Voltage: 0 V

Is it normal?

Y

Go to step 4.

N

Inspect and repair the circuit between the terminal 7 of the Instrument wiring harness connector P11 and the terminal 2 of BCM wiring harness connector P22.

Test Conditions	Details/Results/Actions
4. Inspect the BCM power supply and ground circuit	
	A. Inspect the BCM power supply and ground circuit. **Refer to: DTC Diagnostic Procedure Index (4.3.14 Body Control System, DTC Diagnosis and Testing).** Is it normal? **Y** Go to step 5. **N** Dispose fault part.
5. Replace the BCM	
	A. Replace the BCM. **Refer to: Body Control Module (4.3.14 Body Control System, Removal and Installation).**

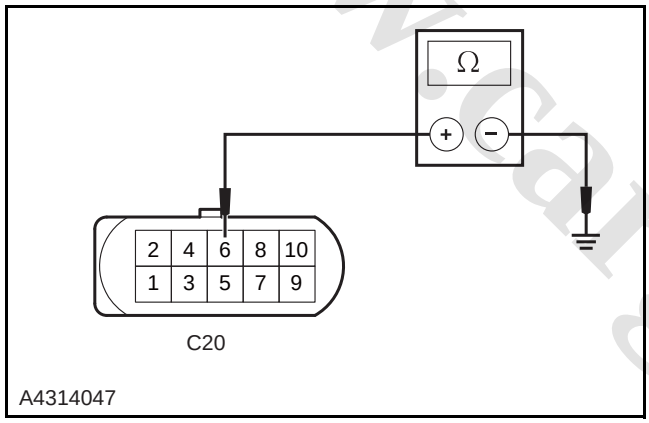
DTC B1024

1. Fault Code Description

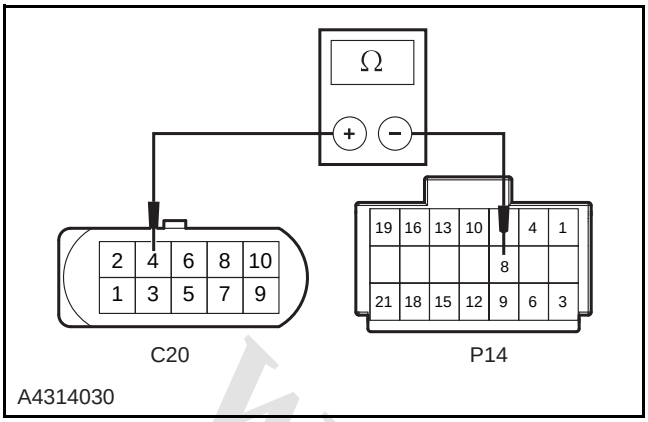
Fault Code	Description	Definition
B1024	Right turn signal lamp short circuit to ground/ power supply or open circuit or a 21 W bulb failure of the right turn signal lamp	• BCM monitors whether the right turn lamp switch is in the connection state via the terminal 14 of P23. If it monitors that the terminal is connected with ground, at the same time, the terminal 8 of P14 outputs working voltage to control the right turn lamp to illuminate the right turn signal lamps.

2. Diagnosis Procedures

Test Conditions	Details/Results/Actions
1. General inspection	
	A. Inspect the related wiring harness connectors for signs of damage, poor contact, aging or loose. B. Inspect the bulb filament and the holder of the the right turn lamp for damage, oxidation or any other abnormal phenomenon. Is it normal? **Y** Go to step 2. **N** Repair the fault or replace the bulb.

Test Conditions	Details/Results/Actions
2. Eliminate fault code	
	A. Connect the fault diagnostic tool. B. Enter into BCM. C. Select the "Clear fault code" function. D. Operate the ignition switch. E. Reread fault code. Does fault code still exist? **Y** Go to step 3. **N** Intermittent fault **Refer to: Intermittent Fault Inspection (3.1.13 Electrical Control System - ME7, Symptom Diagnosis and Testing).**
3. Inspect and repair the right turn signal lamp ground circuit (take the right front turn signal lamp for example).	
	A. Turn the ignition switch to position "LOCK". B. Disconnect the right headlamp wiring harness connector C20. C. Measure the resistance between the terminal 6 of the right headlamp wiring harness connector C20 and the reliable ground. **Standard Resistance Value: less than 5 Ω** Is it normal? **Y** Go to step 4. **N** Inspect and repair the open circuit between the terminal 6 of the right headlamp wiring harness connector C20 and the ground point G304.

Test Conditions	Details/Results/Actions
4. Inspect and repair the right turn signal lamp power input circuit (take the right front turn signal lamp for example).	



A4314030

A. Turn the ignition switch to position "LOCK" and disconnect the battery negative cable.

B. Disconnect the right headlamp wiring harness connector C20 and the BCM wiring harness connector P14.

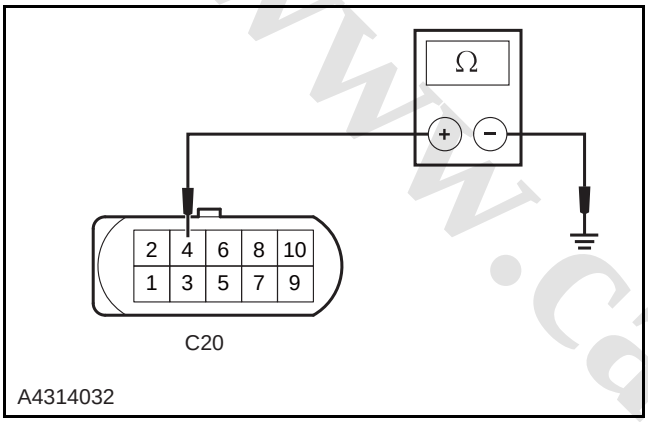
C. Connect the battery negative cable.

D. Inspect and repair the resistance between the terminal 4 of the right headlamp wiring harness connector C20 and the terminal 8 of the the BCM wiring harness connector P14.

Standard Resistance Value: less than 5 Ω

E. Measure the resistance between the terminal 4 of the right headlamp wiring harness connector C20 and the reliable ground.

Standard Resistance Value: 10 MΩ or more



A4314032

F. Measure the voltage between the terminal 4 of the right headlamp wiring harness connector C20 and the reliable ground.

Standard Voltage: 0 V

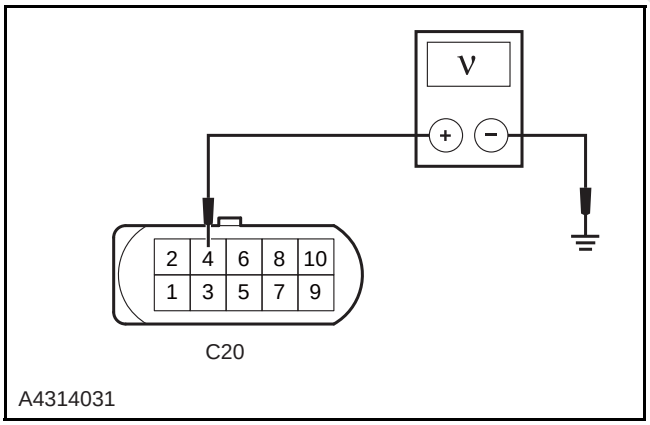
Is it normal?

Y

Go to step 5.

N

Inspect and repair the open circuit fault between the terminal 4 of the right headlamp wiring harness connector C20 and the terminal 8 of the the BCM wiring harness connector P14.



A4314031

Test Conditions	Details/Results/Actions
5. Inspect the BCM power supply and ground circuit	
	A. Inspect the BCM power supply and ground circuit. **Refer to: DTC Diagnostic Procedure Index (4.3.14 Body Control System, DTC Diagnosis and Testing).** Is it normal? **Y** Go to step 6. **N** Dispose fault part.
6. Replace the BCM	
	A.Replace the BCM. **Refer to: Body Control Module (4.3.14 Body Control System, Removal and Installation).**

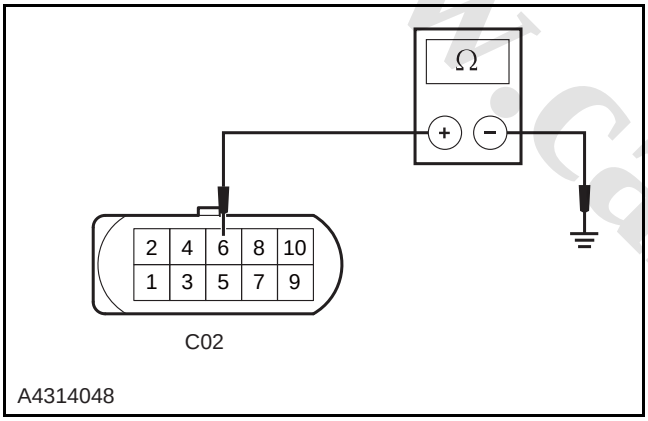
DTC B1025

1. Fault Code Description

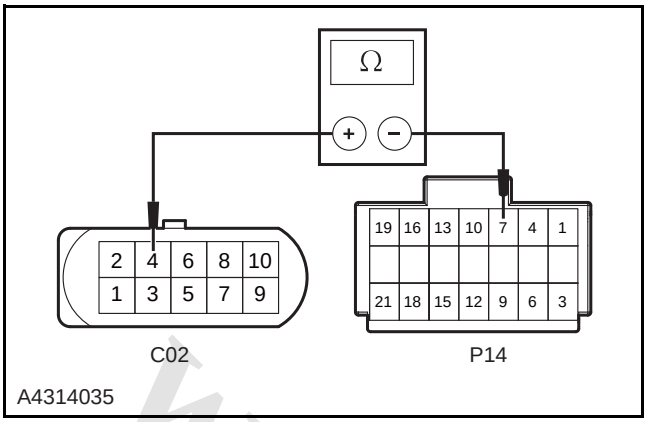
Fault Code	Description	Definition
B1025	Left turn signal lamp short circuit to ground/ power supply or open circuit or a 21 W bulb failure of the left turn signal lamp	• BCM monitors whether the left turn lamp switch is in the connection state via the terminal 13 of P23. If it monitors that the terminal is connected with ground, at the same time, terminal 7 of P14 outputs working voltage to control the left turn lamp to illuminate the left turn signal lamps.

2. Diagnosis Procedures

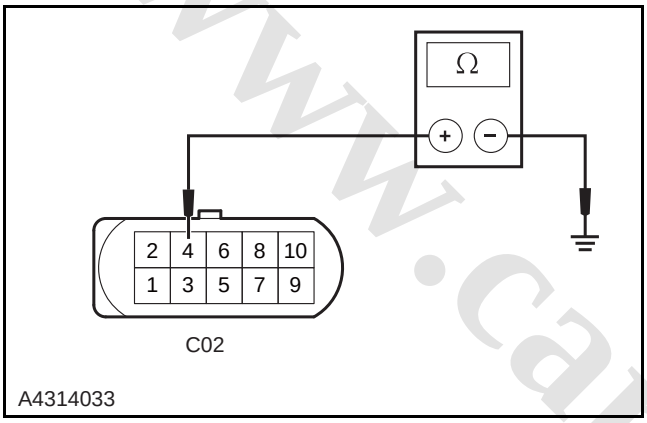
Test Conditions	Details/Results/Actions
1. General inspection	
	A. Inspect the related wiring harness connectors for signs of damage, poor contact, aging or loose. B. Inspect the bulb filament and the holder of the left turn lamp for damage, oxidation or any other abnormal phenomenon. Is it normal? **Y** Go to step 2. **N** Repair the fault or replace the bulb.

Test Conditions	Details/Results/Actions
2. Eliminate fault code	
	A. Connect the fault diagnostic tool. B. Enter into BCM. C. Select the "Clear fault code" function. D. Operate the ignition switch. E. Reread fault code. Does fault code still exist? **Y** Go to step 3. **N** Intermittent fault. **Refer to: Intermittent Fault Inspection (3.1.13 Electrical Control System - ME7, Symptom Diagnosis and Testing).**
3. Inspect and repair the left turn signal lamp ground circuit (take the left turn signal lamp for example).	
	A. Turn the ignition switch to position "LOCK". B. Disconnect the left headlamp wiring harness connector C02. C. Measure the resistance between the terminal 6 of the left headlamp wiring harness connector C02 and the reliable ground. **Standard Resistance Value: less than 5 Ω** Is it normal? **Y** Go to step 4. **N** Inspect and repair the open circuit between the terminal 6 of the left headlamp wiring harness connector C02 and the ground point G301.

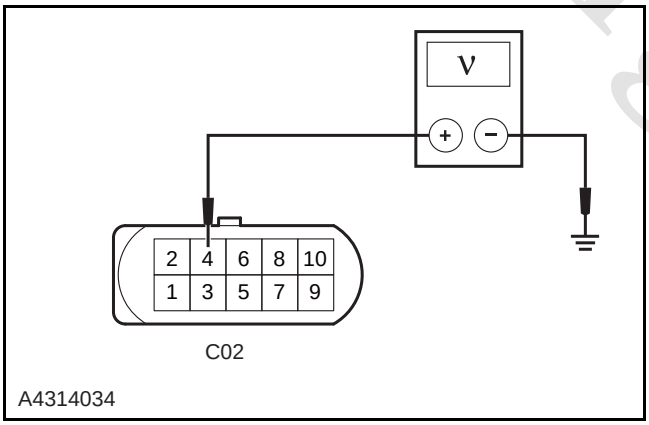
Test Conditions	Details/Results/Actions
4. Inspect and repair the left turn signal lamp power input circuit (take the left front turn signal lamp for example).	



A4314035



A4314033



A4314034

A. Turn the ignition switch to position "LOCK" and disconnect the battery negative cable.

B. Disconnect the left headlamp wiring harness connector C02 and the BCM wiring harness connector P14.

C. Connect the battery negative cable.

D. Inspect the resistance between the terminal 4 of the left headlamp wiring harness connector C02 and the terminal 7 of the the BCM wiring harness connector P14.

Standard Resistance Value: less than 5 Ω

E. Measure the resistance between the terminal 4 of the left headlamp wiring harness connector C02 and the reliable ground.

Standard Resistance Value: 10 MΩ or more

F. Measure the voltage between the terminal 4 of the left headlamp wiring harness connector C02 and the reliable ground.

Standard Voltage: 0 V

Is it normal?

Y

Go to step 5.

N

Inspect and repair the circuit fault between the terminal 4 of the left headlamp wiring harness connector C02 and the terminal 7 of the the BCM wiring harness connector P14.

Test Conditions	Details/Results/Actions
5. Inspect the BCM power supply and ground circuit	
	A. Inspect the BCM power supply and ground circuit. **Refer to: DTC Diagnostic Procedure Index (4.3.14 Body Control System, DTC Diagnosis and Testing).** Is it normal? **Y** Go to step 6. **N** Dispose fault part.
6. Replace the BCM	
	A. Replace the BCM. **Refer to: Body Control Module (4.3.14 Body Control System, Removal and Installation).**

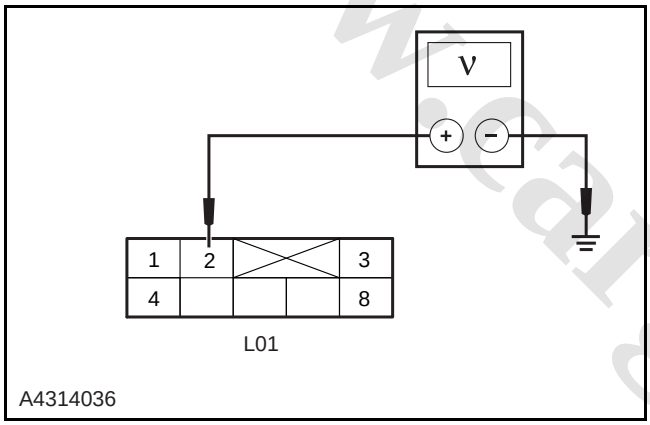
DTC B1027

1. Fault Code Description

Fault Code	Description	Definition
B1027	Front roof lamp PWM output short circuit to power supply	• When the roof lamp switch is in the "DOOR" position, if the door is opened, BCM receives the signal of the door opening and closing, the BCM controls the front roof lamp by the input signal of the terminal 1 of the P22.

2. Diagnosis Procedures

Test Conditions	Details/Results/Actions
1. General inspection	
	A. Inspect the related wiring harness connectors for signs of damage, poor contact, aging or loose. Is it normal? **Y** Go to step 2. **N** Repair the fault.

Test Conditions	Details/Results/Actions
2. Eliminate fault code	
	A. Connect the fault diagnostic tool. B. Enter into BCM. C. Select the "Clear fault code" function. D. Operate the ignition switch. E. Reread fault code. Does fault code still exist? **Y** Go to step 3. **N** Intermittent fault. **Refer to: Intermittent Fault Inspection (3.1.13 Electrical Control System - ME7, Symptom Diagnosis and Testing).**
3. Inspect the front roof lamp to BCM circuit	
	A. Turn the ignition switch to position "LOCK" and disconnect the battery negative cable. B. Disconnect the front roof lamp wiring harness connector L01 and the BCM wiring harness connector P22. C. Measure the voltage between the terminal 2 of the front roof lamp switch wiring harness connector L01 and the reliable ground. **Standard Voltage: 0 V** Is the voltage normal? **Y** Go to step 4. **N** Inspect and repair the short circuit to power between the terminal 2 of the front roof lamp wiring harness connector L01 and the terminal 1 of the the BCM wiring harness connector P22.
4. Inspect the BCM power supply and ground circuit	
	A. Inspect the BCM power supply and ground circuit. **Refer to: DTC Diagnostic Procedure Index (4.3.14 Body Control System, DTC Diagnosis and Testing).** Is it normal? **Y** Go to step 5. **N** Dispose fault part.

Test Conditions	Details/Results/Actions
5. Replace the BCM	
	A. Replace the BCM. **Refer to: Body Control Module (4.3.14 Body Control System, Removal and Installation).**

DTC B1029, B1030

1. Fault Code Description

Fault Code	Description	Definition
B1029	Front wiper motor stop	• The working condition of the front wiper motor is controlled by BCM. When the Terminal 4 of BCM wiring harness connector P23 receives a voltage signal from the Terminal 1 of combination switch wiring harness connector P11, BCM outputs a voltage of certain frequency to the Terminal 21 of BCM wiring harness connector P14 for low-speed operation of wiper motor. • The working condition of front wiper motor is controlled by BCM. When the Terminal 5 of BCM wiring harness connector P13 receives a voltage signal from the Terminal 2 of combination switch wiring harness connector P13, BCM outputs a voltage of certain frequency to the Terminal 20 of BCM wiring harness connector P14 for high-speed operation of wiper motor.
B1030	Front wiper motor can not leave the stop position	

2. Diagnosis Procedures

Test Conditions	Details/Results/Actions
1. General inspection	
	A. Inspect the related wiring harness connectors for signs of damage, poor contact, aging or loose. Is it normal? **Y** Go to step 2. **N** Repair the fault.

Test Conditions	Details/Results/Actions
2. Eliminate fault code	
	A. Connect the fault diagnostic tool. B. Enter into BCM. C. Select the "Clear fault code" function. D. Operate the ignition switch. E. Reread fault code. Does fault code still exist? **Y** Go to step 3. **N** Intermittent fault. **Refer to: Intermittent Fault Inspection (3.1.13 Electrical Control System - ME7, Symptom Diagnosis and Testing).**
3. Inspect and repair the front wiper motor assembly and its circuit.	
	A. Inspect and repair the front wiper motor assembly and its circuit. **Refer to: Front Wiper Failure Diagnosis (4.3.7 Wipers and Washers, Symptom Diagnosis and Testing).**

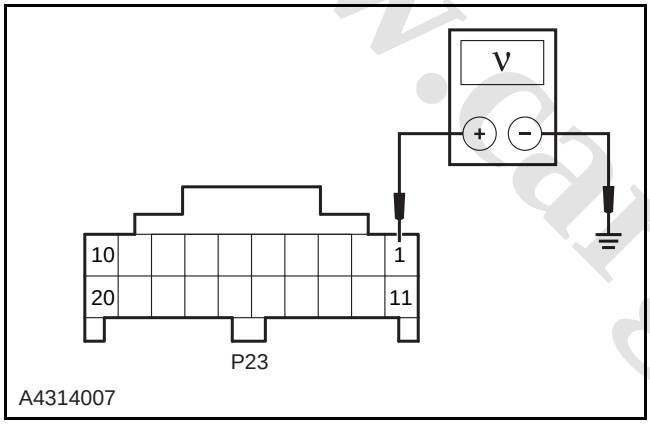
DTC B1031, B1032, B1033, B1034

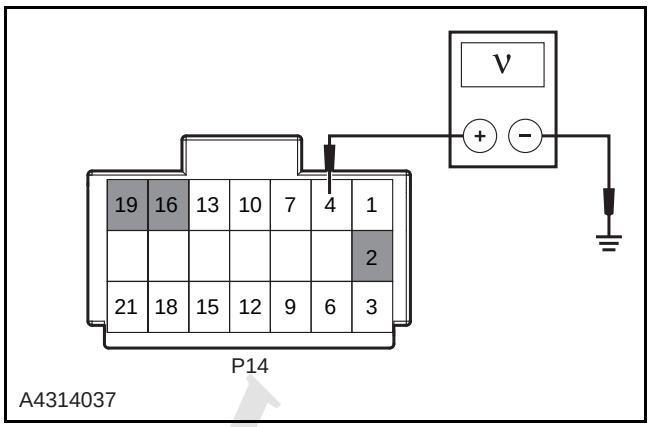
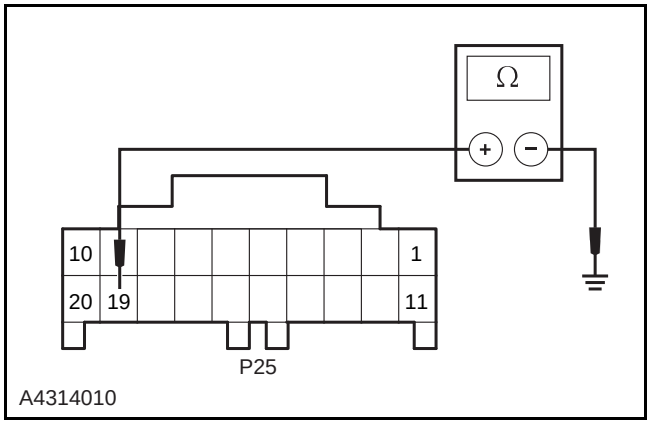
1. Fault Code Description

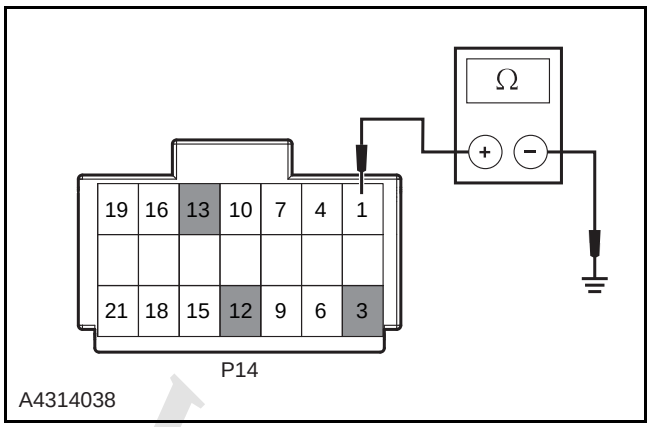
Fault Code	Description	Definition
B1031	Supply voltage too high or too low	• If BCM has monitored that system voltage continuously less than 9 V or more than 16 V , fault code will be recorded.
B1032	Broken HZ_PWR fuse or poor contact of the wiring harness connector	
B1033	Broken Wip_PWR fuse or poor contact of the wiring harness connector	
B1034	Broken CDL_PWR fuse or poor contact of the wiring harness connector	

2. Diagnosis Procedures

Test Conditions	Details/Results/Actions
1. General inspection	
	A. Inspect the related wiring harness connectors for signs of damage, poor contact, aging or loose. Is it normal? **Y** Go to step 2. **N** Repair the fault.
2. Eliminate fault code	
	A. Connect the fault diagnostic tool. B. Enter into BCM. C. Select the "Clear fault code" function. D. Operate the ignition switch. E. Reread fault code. Does fault code still exist? **Y** Go to step 3. **N** Intermittent fault. **Refer to: Intermittent Fault Inspection (3.1.13 Electrical Control System - ME7, Symptom Diagnosis and Testing).**
3. Inspect the fuse	
	A. Inspect the fuse IF06, IF17, IF20, IF23, IF26. **Fuse Rated Capacity: 10 A (IF06, IF17), 15 A (IF26), 20 A (IF20, IF23).** Is the fuse normal? **Y** Go to step 4. **N** Inspect and repair the fuse circuit, replace the fuse in rated capacity.

Test Conditions	Details/Results/Actions
4. Inspect the charging system	
	A. Inspect the battery voltage with the multimeter. **Standard Voltage Value: 11 ~ 14 V** B. Start the engine, inspect the battery voltage with the multimeter. **Standard Voltage Value: 11 ~ 16 V** Is the voltage normal? **Y** Go to step 5. **N** Inspect and repair the charging system. **Refer to: Battery Undercharge Diagnosis, Battery Overcharge Diagnosis (3.1.10 Charging System, Symptom Diagnosis and Testing).**
5. Inspect the power terminal of the BCM wiring harness connector P23	
	A. Turn the ignition switch to position "LOCK" and disconnect the battery negative cable. B. Disconnect the BCM wiring harness connector P23. C. Connect the battery negative cable and turn the ignition switch to "ON" position. D. Measure the voltage between the terminal 1 of the BCM wiring harness connector P23 and reliable ground. **Standard Voltage Value: 11 ~ 14 V** Is the voltage normal? **Y** Go to step 6. **N** Inspect and repair the open circuit between the terminal 1 of the BCM wiring harness connector P23 and the terminal 13 of the fuse IF06 in the I/P fuse and relay box P01.

Test Conditions	Details/Results/Actions
6. Inspect the power terminal of the BCM wiring harness connector P14	
 A4314037	A. Turn the ignition switch to position "LOCK" and disconnect the battery negative cable. B. Disconnect the BCM wiring harness connector P14. C. Connect the battery negative cable. D. Measure the voltage between the terminal 2, 4, 16 and 19 of the BCM wiring harness connector P14 and the reliable ground. **Standard Voltage Value: 11 ~ 14 V** Is the voltage normal? **Y** Go to step 7. **N** Inspect and repair the open circuit between the terminal 2 of the BCM wiring harness connector P14 and the terminal 35 of the fuse IF17 in the I/P fuse and relay box P01. Inspect and repair the open circuit between the terminal 4 of the BCM wiring harness connector P14 and the terminal 53 of the fuse IF17 in the I/P fuse and relay box P01. Inspect and repair the open circuit between the terminal 16 of the BCM wiring harness connector P14 and the terminal 41 of the fuse IF20 in the I/P fuse and relay box P01. Inspect and repair the open circuit between the terminal 19 of the BCM wiring harness connector P14 and the terminal 47 of the fuse IF23 in the I/P fuse and relay box P01.
7. Inspect the BCM wiring harness connector P25 ground circuit	
 A4314010	A. Turn the ignition switch to position "LOCK" and disconnect the battery negative cable. B. Disconnect the BCM wiring harness connector P25. C. Measure the resistance between the terminal 19 of the BCM wiring harness connector P25 and the reliable ground. **Standard Resistance Value: less than 5 Ω** Is the resistance value normal? **Y** Go to step 8. **N** Inspect and repair the open circuit between the terminal 19 of the BCM wiring harness connector P25 and the ground point G104.

Test Conditions	Details/Results/Actions
8. Inspect the BCM wiring harness connector P14 ground circuit	
	A. Turn the ignition switch to position "LOCK" and disconnect the battery negative cable. B. Disconnect the BCM wiring harness connector P14. C. Measure the resistance between the terminal 1, 3, 12 and 13 of the BCM wiring harness connector P14 and the reliable ground. **Standard Resistance Value: less than 5 Ω** Is the resistance value normal? **Y** Go to step 9. **N** Inspect and repair the open circuit between the terminal 1, 3, 12 and 13 of the BCM wiring harness connector P14 and the ground point G103.
9. Replace the BCM	
	A. Replace the BCM. **Refer to: Body Control Module (4.3.14 Body Control System, Removal and Installation).**

DTC B1041

1. Fault Code Description

Fault Code	Description	Definition
B1041	The front wiper intermittent time/sensitivity input exceeds the range	• The working condition of wiper motor is controlled by BCM. When terminal 3 of BCM P23 receives a ground signal from Terminal 6 of the combination switch P13, and at the same time terminal 6 of BCM P25 receives a voltage signal from terminal 10 of the combination switch P13, perform the intermittent operation of the wiper motor.

2. Diagnosis Procedures

Test Conditions	Details/Results/Actions
1. General inspection	
	A. Inspect the related wiring harness connectors for signs of damage, poor contact, aging or loose. Is it normal? **Y** Go to step 2. **N** Repair the fault.

Test Conditions	Details/Results/Actions
2. Eliminate fault code	
	A. Connect the fault diagnostic tool. B. Enter into BCM. C. Select the "Clear fault code" function. D. Operate the ignition switch. E. Reread fault code. Does fault code still exist? **Y** Go to step 3. **N** Intermittent fault. **Refer to: Intermittent Fault Inspection (3.1.13 Electrical Control System - ME7, Symptom Diagnosis and Testing).**
3. Inspect and repair the front wiper combination switch and circuit	
	A. Inspect and repair the front wiper combination switch and circuit. **Refer to: Wiper Intermittent Function Fault Diagnosis (4.3.7 Wipers and Washers, Symptom Diagnosis and Testing).**

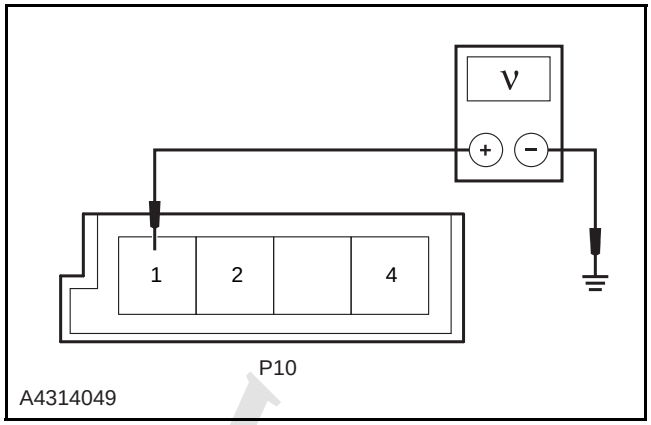
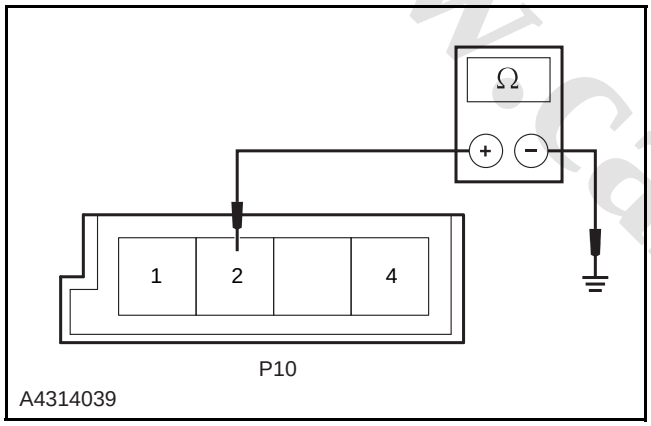
DTC B1043, B1044, B1045, B1051, B1057, B1058

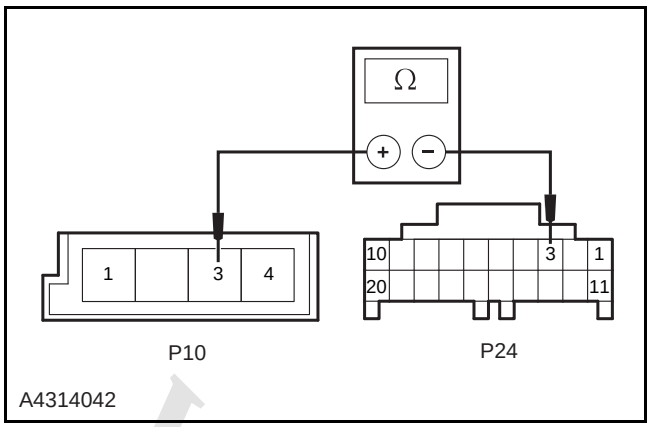
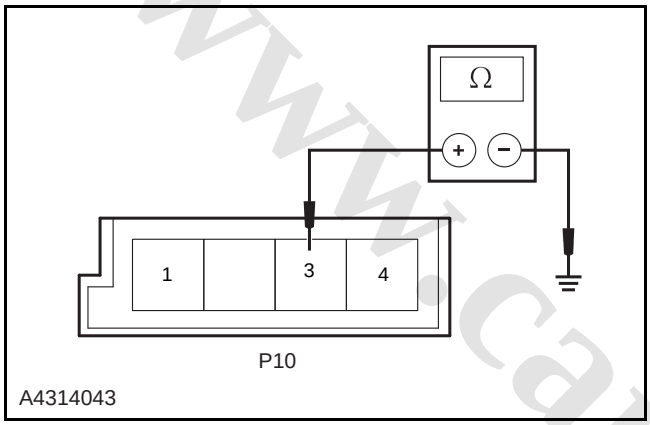
1. Fault Code Description

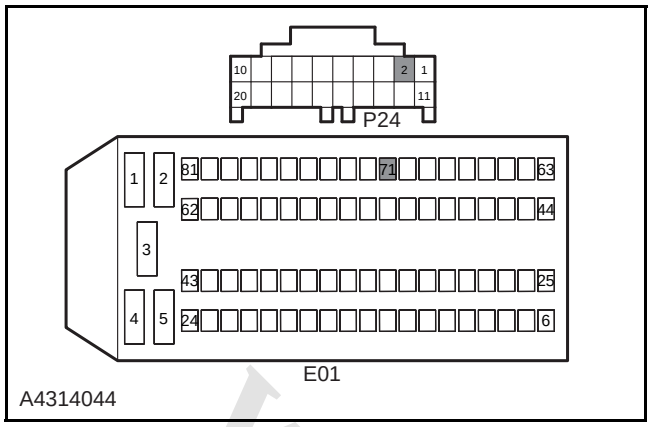
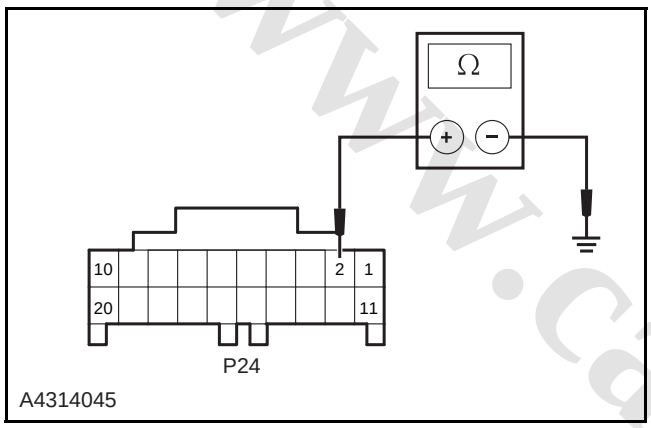
Fault Code	Description	Definition
B1043	LIN communication channel 1 short circuit to ground	• BCM receives the signal transferred via the K-LIN network line by the immobilizer coil, and at the same time the signal is transferred between BCM and ECM via the K-LIN network line, the immobilizer system is under security state to prevent from the start of the engine.
B1044	K-line short circuit to ground	
B1045	IMMO LIN can not start	
B1051	No ECM challenge or no ACK	
B1057	IMMO LIN communication interrupt	
B1058	IMMO coil open/short	

2. Diagnosis Procedures

Test Conditions	Details/Results/Actions
1. General inspection	
	A. Inspect the related wiring harness connectors for signs of damage, poor contact, aging or loose. Is it normal? **Y** Go to step 2. **N** Repair the fault.
2. Eliminate fault code	
	A. Connect the fault diagnostic tool. B. Enter into BCM. C. Select the "Clear fault code" function. D. Operate the ignition switch. E. Reread fault code. Does fault code still exist? **Y** Go to step 3. **N** Intermittent fault. **Refer to: Intermittent Fault Inspection (3.1.13 Electrical Control System - ME7, Symptom Diagnosis and Testing).**
3. Inspect the fuse	
	A. Inspect the fuse IF17. **Fuse Rated Capacity: 10 A.** Is the fuse normal? **Y** Go to step 4. **N** Inspect and repair the fuse circuit, replace the fuse in rated capacity.

Test Conditions	Details/Results/Actions
4. Inspect the power supply circuit of anti-theft coil	
 A4314049	A. Turn the ignition switch to position "LOCK". B. Disconnect the immobilizer coil wiring harness connector P10. C. Measure the voltage between the terminal 1 of the anti-theft coil wiring harness connector P10 and reliable ground. **Standard Voltage Value: 11 ~ 14 V** Is the voltage normal? **Y** Go to step 5. **N** Inspect and repair the open circuit between the terminal 1 of the anti-theft coil wiring harness connector P10 and the terminal 35 of the fuse IF17 in the I/P fuse and relay box P01.
5. Inspect the immobilizer coil ground circuit	
 A4314039	A. Turn the ignition switch to position "LOCK". B. Disconnect the anti-theft coil wiring harness connector P10. C. Measure the voltage between the terminal 2 of the anti-theft coil wiring harness connector P10 and reliable ground. **Standard Resistance Value: 10 MΩ or more** Is the resistance value normal? **Y** Go to step 6. **N** Inspect and repair the open circuit between the terminal 2 of the anti-theft coil wiring harness connector P10 and the ground point G104.

Test Conditions	Details/Results/Actions
6. Inspect the LIN network circuit between the anti-theft coil to BCM	
 A4314042	A. Turn the ignition switch to position "LOCK" and disconnect the battery negative cable. B. Disconnect the anti-theft coil wiring harness connector P10 and the BCM wiring harness connector P24. C. Measure the resistance between the terminal 3 of the anti-theft coil wiring harness connector P10 and the terminal 3 of the BCM wiring harness connector P24. **Standard Resistance Value: less than 5 Ω** D. Measure the resistance between the terminal 3 of the anti-theft coil wiring harness connector P10 and reliable ground. **Standard Resistance Value: 10 MΩ or more** Is the resistance value normal? **Y** Go to step 7. **N** Inspect and repair the open circuit or short circuit to the ground between the terminal 3 of the anti-theft coil wiring harness connector P10 and the terminal 3 of the BCM wiring harness connector P24.
 A4314043	

Test Conditions	Details/Results/Actions
7. Inspect the K network circuit between the ECM and the BCM	
 A4314044	A. Turn the ignition switch to position "LOCK" and disconnect the battery negative cable. B. Disconnect the ECM wiring harness connector E01 and the BCM wiring harness connector P24. C. Measure the resistance between the terminal 2 of the BCM wiring harness connector P24 and the terminal 71 of the ECM wiring harness connector E01. **Standard Resistance Value: less than 5 Ω** D. Measure the resistance between the terminal 2 of the BCM wiring harness connector P24 and the reliable ground. **Standard Resistance Value: 10 MΩ or more** Is the resistance value normal? **Y** Go to step 8. **N** Inspect and repair the open circuit or short circuit to ground between the terminal 71 of the ECM wiring harness connector E01 and the terminal 2 of the BCM wiring harness connector P24.
 A4314045	
8. Inspect the anti-theft coil/ignition lock light assembly	
	A. Turn the ignition switch to position "LOCK". B. Replace the anti-theft coil/ignition lock light assembly. Is the system normal? **Y** Replace the anti-theft coil/ignition lock light assembly. Verify the system is normal. **N** Go to step 9.

Test Conditions	Details/Results/Actions
9. Inspect the BCM power supply and ground circuit	
	A. Inspect the BCM power supply and ground circuit. **Refer to: DTC Diagnostic Procedure Index (4.3.14 Body Control System, DTC Diagnosis and Testing).** Is it normal? **Y** Go to step 10. **N** Troubleshooting.
10. Replace the BCM	
	A. Turn the ignition switch to "LOCK" position and disconnect the battery negative cable. B. Replace the BCM. **Refer to: Body Control Module (4.3.14 Body Control System, Removal and Installation).** C. Match the remote key and the engine immobilizer, and prepare the model configuration. **Refer to: Remote Controller Key Matching (4.3.9 Central Lock and Body Anti-theft System, Description and Operation).** **Refer to: Engine Anti-theft Matching (4.3.9 Central Lock and Theft-Deterrent System, General Procedures).** D. Learn the remote key. **Refer to: Remote Controller Key Learning (4.3.9 Central Lock and Body Anti-theft System, Description and operation).** Verify the system is normal.

DTC B1046, B1047, B1048, B1049, B1050, B1052, B1053

1. Fault code description

Fault Code	Description	Definition
B1046	Invalid ECM secret key	• BCM receives the signal transferred via the K-LIN network line by the immobilizer coil, and at the same time the signal is transferred between BCM and ECM via the K-LIN network line, the immobilizer system is under security state to prevent from the start of the engine.
B1047	Missing transponder/ no response	
B1048	Invalid transponder secret key	
B1049	Wrong TxP	
B1050	Transponder ID table empty	
B1052	ECM authentication failed	
B1053	Transponder data format error	

2. Diagnosis Procedures

Test Conditions	Details/Results/Actions
1. General inspection	
	A. Inspect the related wiring harness connectors for signs of damage, poor contact, aging or loose. Is it normal? **Y** Go to step 2. **N** Repair the fault.
2. Eliminate fault code	
	A. Connect the fault diagnostic tool. B. Enter into BCM. C. Select the "Clear fault code" function. D. Operate the ignition switch. E. Reread fault code. Does fault code still exist? **Y** Go to step 3. **N** Intermittent fault. **Refer to: Intermittent Fault Inspection (3.1.13 Electrical Control System - ME7, Symptom Diagnosis and Testing).**

Test Conditions	Details/Results/Actions
3. Inspect the remote key matching state	
	A. Match the remote key and the engine immobilizer. **Refer to: Remote Controller Key Matching (4.3.9 Central Lock and Body Anti-theft System, Description and operation).** **Refer to: Engine Anti-theft Matching (4.3.9 Central Lock and Theft-Deterrent System, General Procedures).** B. Learn the remote key. **Refer to: Remote Controller Key Learning (4.3.9 Central Lock and Body Anti-theft System, Description and operation).** Is it normal? **Y** Match the remote key and the engine immobilizer and learn the remote key. **N** Go to step 4.
4. Inspect the remote key	
	A. Replace a new remote key, and remote the remote key and the engine immobilizer. **Refer to: Remote Controller Key Matching (4.3.9 Central Lock and Body Anti-theft System, Description and operation).** **Refer to: Engine Anti-theft Matching (4.3.9 Central Lock and Theft-Deterrent System, General Procedures).** B. Learn the remote key. **Refer to: Remote Controller Key Learning (4.3.9 Central Lock and Body Anti-theft System, Description and operation).** Is the system normal? **Y** Replace the remote key, and learn the engine immobilizer match with the remote key. **N** Go to step 5.

Test Conditions	Details/Results/Actions
5. Inspect the BCM power supply and ground circuit	
	A. Inspect the BCM power supply and ground circuit. **Refer to: DTC Diagnostic Procedure Index (4.3.14 Body Control System, DTC Diagnosis and Testing).** Is it normal? **Y** Go to step 6. **N** Troubleshooting.
6. Replace the BCM	
	A. Turn the ignition switch to "LOCK" position and disconnect the battery negative cable. B. Replace the BCM. **Refer to: Body Control Module (4.3.14 Body Control System, Removal and Installation).** C. Match the remote key and the engine immobilizer, and prepare the model configuration. **Refer to: Remote Controller Key Matching (4.3.9 Central Lock and Body Anti-theft System, Description and operation).** **Refer to: Engine Anti-theft Matching (4.3.9 Central Lock and Theft-Deterrent System, General Procedures).** D. Learn the remote key. **Refer to: Remote Controller Key Learning (4.3.9 Central Lock and Body Anti-theft System, Description and operation).** Verify the system is normal.

DTC U1001, U1002

1. Fault Code Description

Fault Code	Description	Definition
U1001	CAN communication network BUS OFF error	• System control modules and diagnostic interfaces communicate one another via onboard network bus.
	Network message EMS receive timeout	
	BCM send timeout	
U1002	Network message ABS receive timeout	

2. Diagnosis Procedures

Test Conditions	Details/Results/Actions
1. General inspection	
	A. Inspect the related wiring harness connectors for signs of damage, poor contact, aging or loose. Is it normal? **Y** Go to step 2. **N** Repair the fault.
2. Eliminate fault code	
	A. Connect the fault diagnostic tool. B. Enter into BCM. C. Select the "Clear fault code" function. D. Operate the ignition switch. E. Reread fault code. Does fault code still exist? **Y** Go to step 3. **N** Intermittent fault. **Refer to: Intermittent Fault Inspection (3.1.13 Electrical Control System - ME7, Symptom Diagnosis and Testing).**

Test Conditions	Details/Results/Actions
3. Inspect and repair the CAN bus	
	A. Inspect and repair the CAN bus. **Refer to: CAN Integrity Inspection (4.3.15 On-board Network, General Procedures).** Is the CAN bus line normal? **Y** Go to step 4. **N** Inspect and repair the faulty CAN bus line.
4. Inspect the BCM power supply and ground circuit	
	A. Inspect the BCM power supply and ground circuit. **Refer to: DTC Diagnostic Procedure Index (4.3.14 Body Control System, DTC Diagnosis and Testing).** Is it normal? **Y** Go to step 5. **N** Troubleshooting.
5. Replace the BCM	
	A. Turn the ignition switch to "LOCK" position and disconnect the battery negative cable. B. Replace the BCM. **Refer to: Body Control Module (4.3.14 Body Control System, Removal and Installation).** Verify the system is normal.

Removal and Installation

Body Control Module

Removal

1. Disconnect the battery negative cable.

   Refer to: Battery Inspection (3.1.10 Charging System, General Procedures).

2. Remove the CD/Radio assembly.

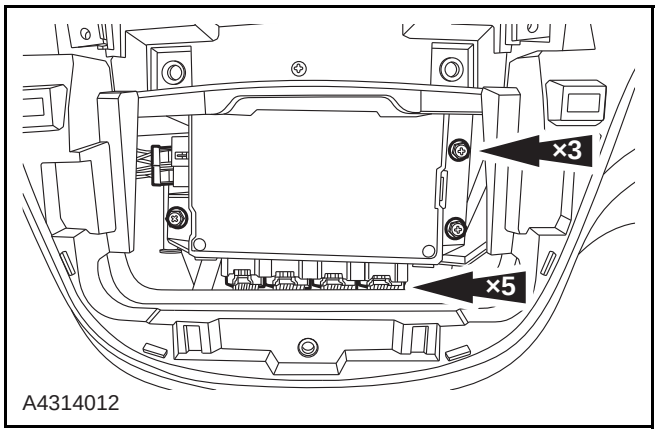
   Refer to: CD player assembly/radio assembly (4.3.5 Information and Entertainment System, Removal and Installation).

3. Remove the BCM.

   1. Disconnect the 5 wiring harness connectors of the BCM.

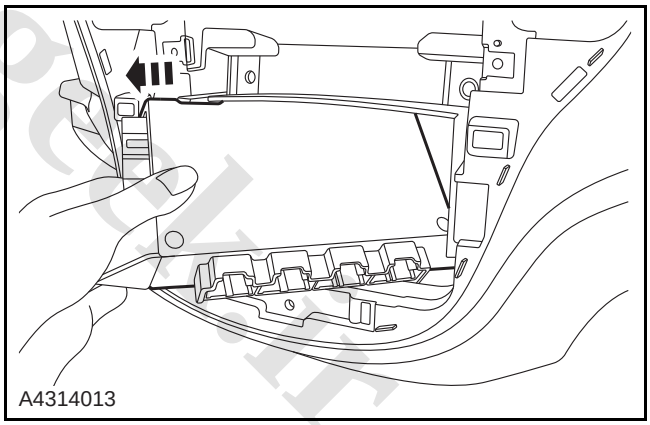
   2. Remove the 3 retaining bolts of the BCM.

   Torque: 10 Nm



A4314012

4. Take out the BCM.


A4314013

Installation

1. To install, reverse the removal procedure.
2. Set up the new BCM.
   1. Enter the initial password "0000".
   2. Match the remote control.
   3. Modify the initial password.
   4. Configure the model.

CAUTION: The left and right turning lamps may be inoperative if the initial password is not modified. Anti-theft indicator will not flash in anti-theft condition.

Description and Operation

System Overview

The vehicle has three kinds of communication: CAN, K-LINE and LIN.

Description of CAN Bus

CAN is the abbreviation of Controller Area Network and the full name is Controller Area Network Bus that can realize the interconnection and data communication of controllers.

The communication media of CAN Bus is twisted-pair and the communication rate of the high-speed CAN Bus is 500kbps. The terminals at both sides of the twisted-pair contain a resistance of 120 Ω respectively and one end is in the ECM, the other is in the BCM.

The vehicle CAN network has diagnosis function nodes, including Engine Control Module (ECM), Automatic Transmission Control Module (TCM), Anti-lock Brake System (ABS), Combined Instrument Panel (IP), Body Control Module (BCM), Electronic Power Steering System (EPS).

Description of LIN Bus

LIN is a new low-cost serial communication system used in the distributed electrical control system of the automotive. It is mainly used in the serial communications of intelligent sensors and actuators, such as the anti-theft coil and the communication circuit of the body control module (BCM).

Features of LIN Bus:

UART-based data format

Single master/multiple slaves structure

Single line transmission: 0 ~ 12 V

Communication rate: 19.2 kbps

Description of K Bus

The K-line is used for the diagnosis communications between the external testing tools and the on-board ECM. The transmission rate is 10.47 kbps. The voltage switches between 0 V and 12 V when transmitting signals: 12 V, logic "1"; 0 V, logic"0".

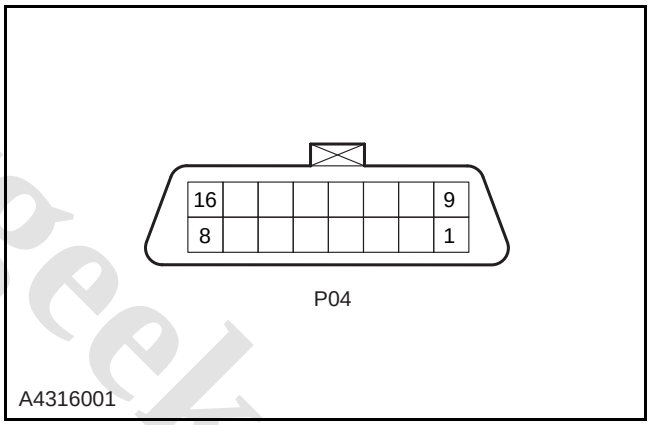
Description of DLC

Data Link Connector (DLC) is the result of the discussion and regulation of the automobile manufacturers in the world. This wiring harness connector is needed when using the diagnosis tool to communicate with the vehicle and to program the communication system the vehicle used.

This wiring harness connector should meet the following requirements:

- Standard 16-pin wiring harness connector and able to connect every diagnosis tool.
- Always supplying power for the diagnosis tool through terminal 16.
- Always supply ground for the diagnosis tool through terminal 4.
- The terminals left are used to communicate with the vehicle system.

DLC View



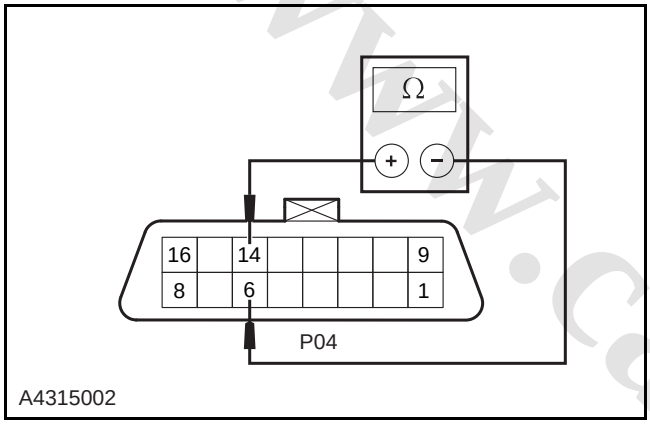
Terminal ID	Wiring	Terminal Description
1	-	-
2	-	-
3	-	-
4	0.5 BK	GND
5	0.5 BK	GND
6	0.5 LG/BK	CAN - H
7	0.5 VT/YE	ECM & BCM diagnosis K-line
8	-	-
9	-	-
10	-	-

11	-	-
12	-	-
13	-	-
14	0.5 LG	CAN - L
15	0.5 OG/GN	SDM diagnosis K-line
16	0.5 RD/WH	+B Power

CAN Bus Integrity Inspection

1. Turn the ignition switch to position "LOCK".
2. Measure the resistance between the terminals 6 and 14 of DLC.

Standard Value: 55 ~ 63 Ω



3. If the resistance is 110 ~ 125 Ω or it is not conductive, it indicates that the CAN Bus fault. Inspect the wiring harness connectors of ECM and BCM successively and if there is open circuit or poor contact, repair it.

Symptom Diagnosis and Testing

General Equipment

Digital Multimeter
Changan Auto Special Diagnostic Tool

Inspection and Verification

1. Verify the customer concern.
2. Visually inspect the obvious symptom in electrical appliance.
3. Inspect the visible system circuit.
4. If an obvious cause for an observed or reported concern is found, correct the cause before proceeding to the next step.
5. If the cause is not visually evident, verify the symptom and refer to the Symptom Chart.

Visual Inspection Chart

Electric Part
• Battery • Fuse • Connection plug of electric appliance loose or being corroded. • Wiring harness

Symptom Chart

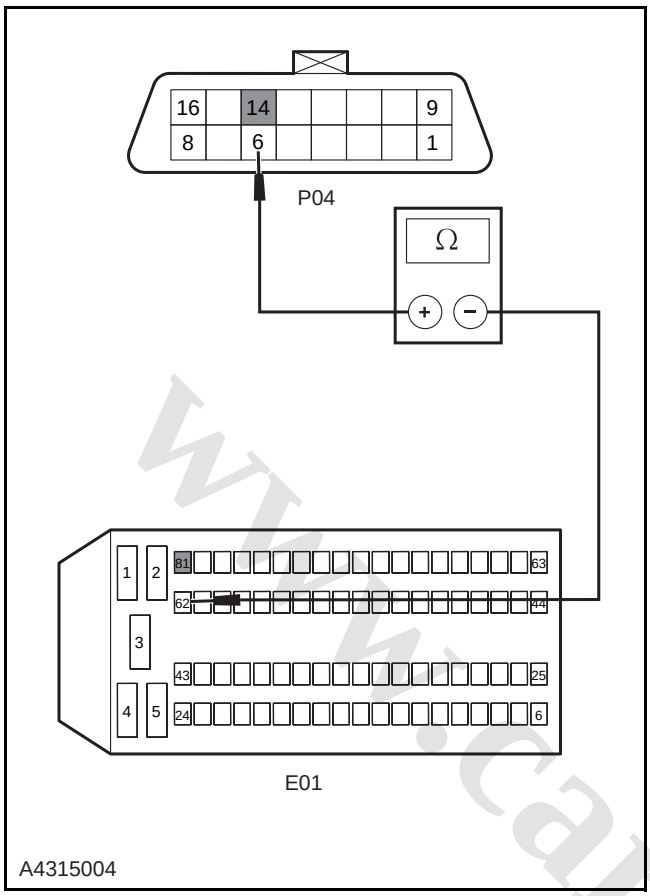
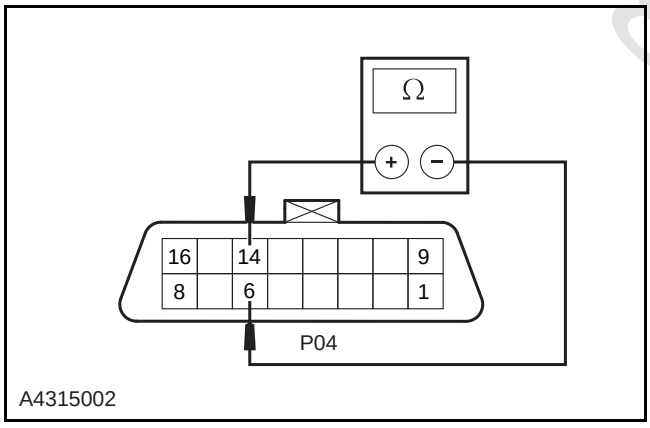
If there is a symptom but no diagnosis trouble code (DTC) is stored in control module and can not confirm symptom reasons in basic inspect, it is necessary to diagnose and eliminate the symptoms in the following chart.

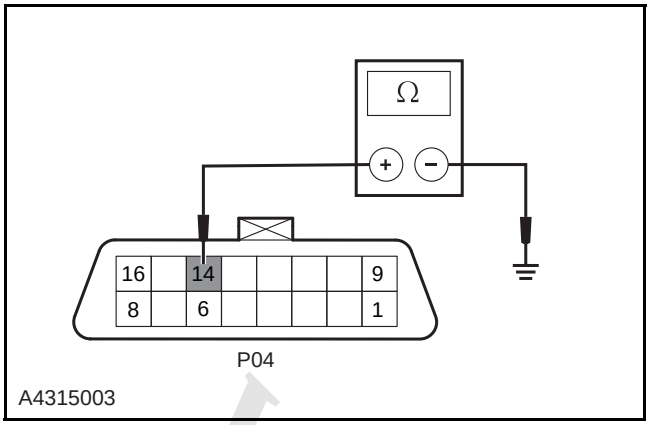
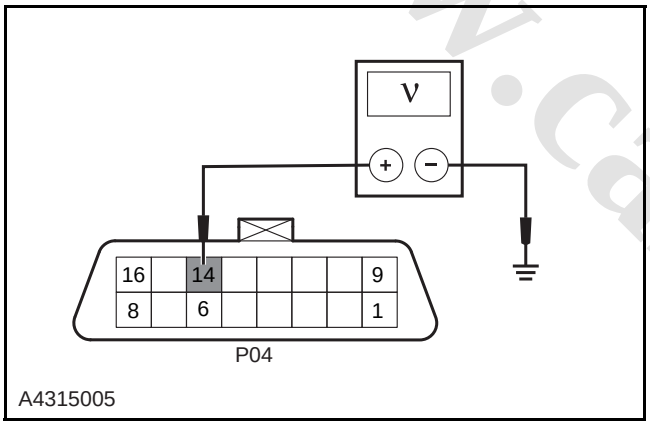
Symptom	Possible Sources	Action
The diagnosis tool can't communicate via CAN with ECM	• Diagnostic tool • Circuit • ECM module	**Refer to: Diagnostic Tool Can Not Communicate via CAN With ECM Diagnosis (4.3.15 On-board Network System, Symptom Diagnosis and Testing).**
The diagnosis tool can't communicate via CAN with TCM	• Diagnostic tool • Circuit • TCM module	• The symptom diagnosis procedure is similar to that of ECM **Refer to: Diagnostic Tool Can Not Communicate via CAN With ECM Diagnosis (4.3.15 On-board Network, Symptom Diagnosis and Testing).**
The diagnosis tool can't communicate via CAN with ABS	• Diagnostic tool • Circuit • ABS module	• The symptom diagnosis procedure is similar to that of ECM **Refer to: Diagnostic Tool Can Not Communicate via CAN With ECM Diagnosis (4.3.15 On-board Network, Symptom Diagnosis and Testing).**
The diagnosis tool can't communicate via CAN with BCM	• Diagnostic tool • Circuit • BCM module	• The symptom diagnosis procedure is similar to that of ECM **Refer to: Diagnostic Tool Can Not Communicate via CAN With ECM Diagnosis (4.3.15 On-board Network, Symptom Diagnosis and Testing).**
The diagnosis tool can't communicate via CAN with the EPS	• Diagnostic tool • Circuit • EPS module	• The symptom diagnosis procedure is similar to that of ECM **Refer to: Diagnostic Tool Can Not Communicate via CAN With ECM Diagnosis (4.3.15 On-board Network, Symptom Diagnosis and Testing).**

Symptom	Possible Sources	Action
The diagnostic tool can not communicate via CAN with IPC	• Diagnostic tool • Circuit • IPC instrument module	• The symptom diagnosis procedure is similar to that of ECM **Refer to: Diagnostic Tool Can Not Communicate via CAN With ECM Diagnosis (4.3.15 On-board Network, Symptom Diagnosis and Testing).**
The diagnosis tool cannot communicate via K-line with SDM.	• Diagnostic tool • Circuit • SDM module	**Refer to: Diagnostic Tool Can Not Communication via K-line With SD Diagnosis (4.3.15 On-board Network, Symptom Diagnosis and Testing).**

Diagnosis Tool Can Not Communicate via CAN With ECM Diagnosis

Test Conditions	Details/Results/Actions
1. Verify the symptom	
	A. Use a normal vehicle. B. Try to communicate with ECM. Is the communication normal? **Y** Go to step 2. **N** Replace a new diagnosis tool.
2. General inspection	
	A. Inspect the CAN network twisted-pair and related harness connectors for damage, poor contact, aging or loose. Is it normal？ **Y** Go to step 3. **N** Repair the fault.
3. Inspection of CAN Bus Integrity	
	A. Inspection of CAN bus integrity. **Refer to: CAN Bus Integrity Inspection (4.3.15 On-board Network, General Procedures).** Is the system normal? **Y** Verify the system is normal. **N** Go to step 4.

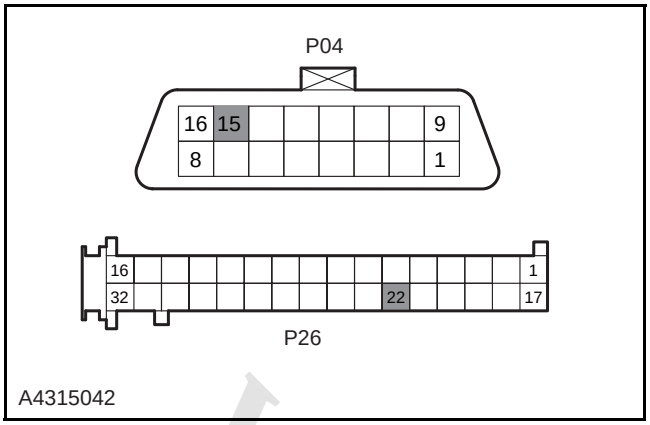
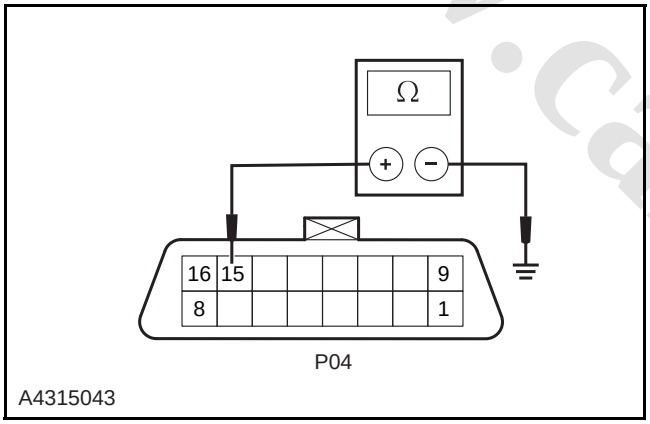
Test Conditions	Details/Results/Actions
4. Inspect the circuit between the DLC and the ECM	
 A4315004	A. Turn the ignition switch to "LOCK" position and disconnect the battery negative wiring harness. B. Disconnect the ECM wiring harness connector E01. C. Measure with multimeter the resistance between the terminal 6 of the DLC wiring harness connector P04 and the terminal 62 of the ECM wiring harness connector E01. D. Measure with multimeter the resistance between the terminal 14 of the DLC wiring harness connector P04 and the terminal 81 of the ECM wiring harness connector E01. **Standard Resistance: less than 5 Ω** Is the resistance value normal? **Y** Go to step 5. **N** Inspect and repair the open circuit fault between the terminal 14, 6 of the DLC wiring harness connector P04 and the terminal 81, 62 of the ECM wiring harness connector E01.
5. Inspect if there is short circuit in the CAN communication line	
 A4315002	A. Turn the ignition switch to "LOCK" position and disconnect the battery negative wiring harness. B. Disconnect all the control module wiring harness connectors in CAN network. C. Measure the resistance between the terminal 6 and terminal 14 of the diagnosis interface wiring harness connector P04. **Standard Resistance Value: 10 MΩ or more** Is the resistance value normal? **Y** Go to step 6. **N** Inspect the short circuit fault between CAN communication lines.

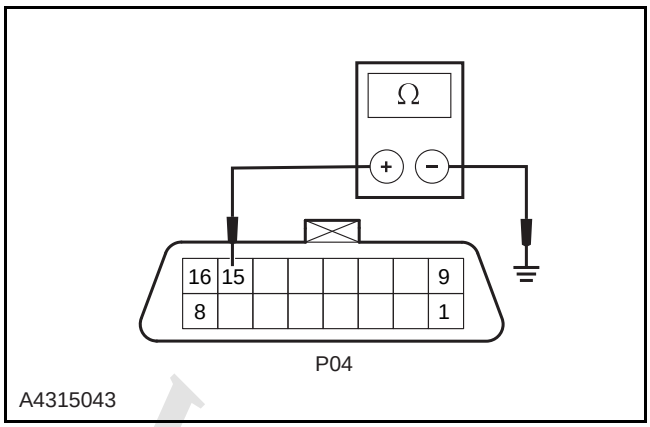
Test Conditions	Details/Results/Actions
6. Inspect the short circuit between the diagnosis circuit and ground	
 A4315003	A. Turn the ignition switch to position "LOCK" and disconnect the battery negative cable. B. Disconnect all the control module wiring harness connectors in CAN network. C. Measure the resistance between the terminal 6 and 14 of the DLC wiring harness connector P04 and the reliable ground. **Standard Resistance Value: less than 5 Ω** Is the resistance value normal? **Y** Go to step 7. **N** Inspect and repair the short circuit to ground fault of terminal 6 and 14 of the DLC wiring harness connector P04.
7. Inspect the short circuit to power supply of the diagnosis circuit	
 A4315005	A. Turn the ignition switch to position "LOCK" and disconnect the battery negative cable. B. Disconnect all the control module wiring harness connectors in CAN network. C. Connect the battery negative cable and turn the ignition switch to "ON" position. D. Measure the voltage between the terminal 6, 14 of the DLC wiring harness connector P04 and the reliable ground. **Standard Voltage: 0 V** Is the voltage normal? **Y** Go to step 8. **N** Repair the short circuit to power supply fault between the terminal 6, 14 of the DLC wiring harness connector P04 and the terminal 62, 81 of the ECM wiring harness connector E01.

Test Conditions	Details/Results/Actions
8. Inspect the ECM power supply and ground circuit	
	A. Inspect the power circuit of ECM. **Refer to: DTC Diagnosis Chart (3.1.13 Electronic Control System - ME7, DTC Diagnosis and Testing).** Is the ECM power and ground circuit normal? **Y** Go to step 9. **N** Repair the fault part.
9. Replace the ECM	
	A. Turn the ignition switch to "LOCK" position and disconnect the battery negative wiring harness. B. Replace the ECM. **Refer to: Engine Control Module (3.1.13 Electronic Control System - ME7, Removal and Installation).** Confirm the maintenance is finished.

Diagnosis Tool Can Not Communicate via K-line With SDM Diagnosis

Test Conditions	Details/Results/Actions
1. Verify the symptom	
	A. Use a normal vehicle. B. Try to communicate with SDM. Is the communication normal? **Y** Go to step 2. **N** Replace a new diagnosis tool.
2. General inspection	
	A. Inspect the K-line and related wiring harness connectors for signs of damage, poor contact, aging or loose. Is it normal? **Y** Go to step 3. **N** Repair the fault.

Test Conditions	Details/Results/Actions
3. Inspect the circuit between DLC and SDM	
 A4315042	A. Turn the ignition switch to position "LOCK" and disconnect the battery negative cable. B. Disconnect the SDM wiring harness connector P26. C. Measure with multimeter the resistance between the terminal 15 of the DLC wiring harness connector P04 and the terminal 22 of the SDM wiring harness connector P26. **Standard Resistance Value: less than 5 Ω** Is the resistance value normal? **Y** Go to step 4. **N** Inspect and repair the open circuit fault between the terminal 15 of the DLC wiring harness connector P04 and the terminal 22 of the SDM wiring harness connector P26.
4. Inspect the short circuit to ground of the SDM diagnosis circuit	
 A4315043	A. Turn the ignition switch to position "LOCK" and disconnect the battery negative cable. B. Disconnect the wiring harness connector of SDM. C. Measure the resistance between the terminal 15 of DLC wiring harness connector P04 and the reliable ground. **Standard Resistance Value: less than 5 Ω** Is the resistance value normal? **Y** Go to step 5. **N** Repair the short circuit fault to the power supply between the terminal 15 of the DLC wiring harness connector P04 and terminal 22 of the SDM wiring harness connector P26.

Test Conditions	Details/Results/Actions
5. Inspect the short circuit to the power supply of the SDM diagnosis circuit	
	A. Turn the ignition switch to position "LOCK" and disconnect the battery negative cable. B. Disconnect the wiring harness connector of SDM. C. Connect the battery negative cable and turn the ignition switch to "ON" position. D. Measure the voltage between the terminal 15 of the DLC wiring harness connector P04 and the reliable ground. **Standard Voltage Value: 0 V** Is voltage normal? **Y** GO to step 6. **N** Repair the short circuit to power supply fault between the terminal 14 of the DLC wiring harness connector P04 and terminal 22 of the SDM wiring harness connector P26.
6. Inspect the SDM power supply and ground circuit	
	A. Inspect the SDM power supply and ground circuit. **Refer to: DTC Diagnosis Chart (4.3.15 On-board Network, DTC Diagnosis and Testing).** Is the ECM power and ground circuit normal? **Y** Go to step 7. **N** Repair the fault part.
7. Replace the SDM	
	A. Turn the ignition switch to position "LOCK" and disconnect the battery negative cable. B. Replace the SDM. **Refer to: Airbag Control Module (4.2.1 Supplemental Restraint System, Removal and Installation).** Confirm the maintenance is finished.