

Foreword

This Manual briefly introduces the main technical configuration of EV30 Pure Electric Vehicle, vehicle use, driving and operation, assembly and adjustment of each part and relevant points in preventive maintenance, and be referred to for implementation.

With the continuous progress of technology, EV30 Pure Electric Vehicle will continue to be improved and perfected, we will enrich and adjust the relevant contents of this manual in due time. In the process of using and maintaining the vehicle, if you find any deficiencies, please contact us in time for continuous improvement and perfection.

EV30 Caution

Caution; to minimize the possibility of personal injury and property damage, be sure to follow the following instructions carefully:

The Service Manual for EV30 Pure Electric Vehicle is prepared by the SAIC MAXUS Automotive Co., Ltd. for qualified professional technicians. Attempting repairs or service without the appropriate training, tools, and equipment could cause injury to you or others. Moreover, it may damage the vehicle or cause abnormal operation of the vehicle.

Proper vehicle service and repair are important to the safety of the service technician and to the safe, reliable operation of all motor vehicles. For the replacement of the part, the new one with the same part number or that designated by SAIC MAXUS Automotive Co., Ltd. is recommended. DO NOT use the replacement part which is not approved by SAIC MAXUS Automotive Co., Ltd.

The Service Guide recommended and introduced in this Manual provides an effective method for repairing and servicing vehicles. Special tools may sometimes be necessary.

Thus, before using any replacement part, the Service Guide or tools approved or recommended by SAIC MAXUS Automotive Co., Ltd., it is required to first ensure that they have no harm to personal safety or safe operation of the vehicle.

This Manual provides technical parameters, service guide and other information of the engine of MAXUS Pure Electric Vehicle series of the 2019 model year, and is not aimed at any particular vehicle model. For any description of the particular vehicle model, buyers should consult the dealer or distributor of SAIC MAXUS Automotive Co., Ltd.

Various "NOTE" to be followed are included in this Manual for minimizing the risks of personal injury during repair or service. Improper repair or service may damage the vehicle or render the vehicle unsafe. But, these "NOTE" are not comprehensive. SAIC MAXUS Automotive Co., Ltd. can not possibly warn of all the potentially hazardous consequences of your failure to follow these instructions.

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Error and Recommendation Report

If there is any error found in this Service Manual or any recommendation for the Manual, we are very willing to listen to them.

You can report the recommendation to the After-sales Service Department of SAIC MAXUS Automotive Co., Ltd. via letters or faxes and the contact information is provided as follows:

SAIC MAXUS After-sales Services

No.2500, Jungong Rd, Shanghai, P.R.China

Zip Code: 200438

When contacting, please prepare the following information:

- ? Your name
- ? Name of the authorized repairer
- ? Phone and fax number of the authorized repairer
- ? Model year and vehicle model
- ? VIN of your car
- ? Description of your concerns
- ? Necessary and relevant information (for example, samples or the number of the pages marked)
- ? Any applicable electronic information of the part identification number

The SAIC MAXUS will answer your question in the following manner:

- ? Hand over your question to the relevant service engineer
- ? Ask the relevant service engineer for the reply
- ? Provide the answer to your question within 10 workdays

We welcome users of SAIC MAXUS automotive to report their concerns to the Customer Support Center of SAIC MAXUS Automotive Co., Ltd. and the contact number is 400-081-2011.

Overview

Because of its pollution-free and zero-emission characteristics, pure electric bus is one of the development directions of urban green transportation and one of the final development directions of new energy vehicle technology.

EV30 is a pure electric vehicle with high voltage. When repairing any high-voltage components of the vehicle, it is necessary to remove the service switch on the power battery (see "Service Switch" for details).

Overview

General Technical Parameters

Major vehicle dimension parameters

Model	EV30 series of battery electric vehicle	EV30L series of battery electric vehicle
Driving type	Front-motor, front-wheel-drive	Front-motor, front-wheel-drive
Length, mm	4555	5145
Width, mm	1780	1780
Height, mm	1895	1900
Wheelbase, mm	2910	3285
Front/Rear suspension, mm	725/865	725/1080
Front track, mm	1548	1548
Rear track, mm	1553	1553
Minimum turning circle diameter, m	11.7	13.1

Vehicle weight parameters

Model	EV30 series of battery electric vehicle	EV30L series of battery electric vehicle
Gross vehicle weight, kg	2310 2460	2550 2630
Curb weight, kg	1445 1555	1530 1640
Axle load (Front/rear axle load under gross vehicle weight), kg	1050/1260 1080/1380	1120/1430 1170/1460
Passenger capacity	2	2

Overview

Dynamic performance parameters

Item		Parameter
Max. speed, km/h	Max. speed	120
Max. reverse speed, km/h		30
Gradeability, %	Max. gradeability	30 (short wheelbase model) 25 (long wheelbase model)
Accelerating ability, second	Accelerating time from 0 to 50 km/h	5.0 (short wheelbase, 35kWh high-voltage battery pack model) 5.2 (short wheelbase, 52.5kWh high-voltage battery pack model) 5.5 (long wheelbase, 35kWh high-voltage battery pack model) 5.5 (long wheelbase, 52.5kWh high-voltage battery pack model)
Driving range, km	NEDC condition	225 (short wheelbase, 35kWh high-voltage battery pack model) 290 (short wheelbase, 52.5kWh high-voltage battery pack model) 195 (long wheelbase, 35kWh high-voltage battery pack model) 260 (long wheelbase, 52.5kWh high-voltage battery pack model)

Major drive motor parameters

Model	TZ204XS85K05
Type	Permanent magnet synchronous motor
Rated speed, r/min	3000
Peak speed, r/min	5000
Rated power, kw	35
Peak power, kw	90
Rated torque, Nm	112
Max. torque, Nm	255

Overview

Chassis technical parameters





Item	Parameter
Front suspension	McPherson independent suspension
Rear suspension	Rear leaf spring non-independent suspension
Requirements for steel wheel dynamic balance	Residual dynamic unbalance on both sides of steel wheel assembly shall be less than 10g (main tire)
Sound free travel of brake pedal	within 10 mm
Reasonable application range of brake friction pair	At least 2mm remaining before wearable material reaching its wear limit

Recommended fluids

Item	Specification	Capacity
Coolant (electric drive system), L	D-35(-35° C)	4.5
Brake fluid, L	Laike 901-4 DOT 4	0.66
Washer fluid, L	Universal lower freezing point washer fluid	2
Air conditioning refrigerant, g	R1234yf	480
Air conditioning refrigerant, g	R134a	550
Reducer lubricating fluid, L	Lopal ATF 330	0.85 ± 0.05

Overview

Wheel and tire

Item			Parameter	
Wheel specification			5.5Jx15	
Tire specification			185/65R15 92H	185/65R15C 97/95S
Tire pressure (cold state)	Front wheel		280kPa/2.8bar/41psi	375kPa/3.75bar/54psi
			280kPa/2.8bar/41psi	375kPa/3.75bar/54psi
	Rear wheel		310kPa/3.1bar/45psi	375kPa/3.75bar/54psi
			310kPa/3.1bar/45psi	375kPa/3.75bar/54psi

Wheel alignment parameters

Item	Parameters
Front wheel toe-in	$0^\circ \pm 0.09^\circ$ Difference between left and right $\leq 0.1^\circ$
Front wheel camber	$-0.333^\circ \pm 0.5^\circ$ Difference between left and right $\leq 0.5^\circ$
Front wheel king pin inclination angle	$12.251^\circ \pm 0.5^\circ$ Difference between left and right $\leq 0.5^\circ$
Front wheel king pin caster angle	$4.15^\circ \pm 0.75^\circ$ Difference between left and right $\leq 0.5^\circ$
Rear wheel thrust angle	$0^\circ \pm 0.25^\circ$
Rear wheel toe-in	$0^\circ \pm 0.42^\circ$
Rear wheel camber	$0^\circ \pm 0.5^\circ$

Power and Control System

Specification

Fastener Specifications

Name	Torque (N.m)
Bolt - power battery	100-120 N.m
Bolt - high-tension distribution box	20-24 N.m
Bolt - front air compressor harness bracket	8-10 N.m
Bolt - on-board charger	20-24 N.m
Bolt - complete vehicle controller	8-10 N.m
Bolt - integral DC charging harness bracket	9 ± 1 N.m
Bolt - integral DC charging harness	9 ± 1 N.m
Bolt - charging and distribution unit assembly	22 ± 2 N.m
Nut - charging and distribution unit assembly	22 ± 2 N.m
Bolt-accelerator pedal	22 ± 2N.m
Bolt-electric vehicle communication controller	9 ± 1 Nm
Bolt - explosion-proof valve	6 ± 0.5Nm
Bolt - MSD base	6 ± 0.5Nm
Bolt - power high pressure connector	6 ± 0.5Nm
Bolt MSD connection busbar	9 ± 0.5Nm
Nut - CMU to mounting bracket	6 ± 0.5Nm
Bolt - CMU fixing bracket	9 ± 0.5Nm
Bolt - module	9 ± 0.8Nm
Bolt - copper bar	9 ± 0.8Nm
Bolt - BDU base	9 ± 0.8Nm
Bolt - BDU upper cover	9 ± 0.8Nm
Bolt - BMU	9 ± 0.8Nm
Bolt - upper cover	9 ± 0.8Nm

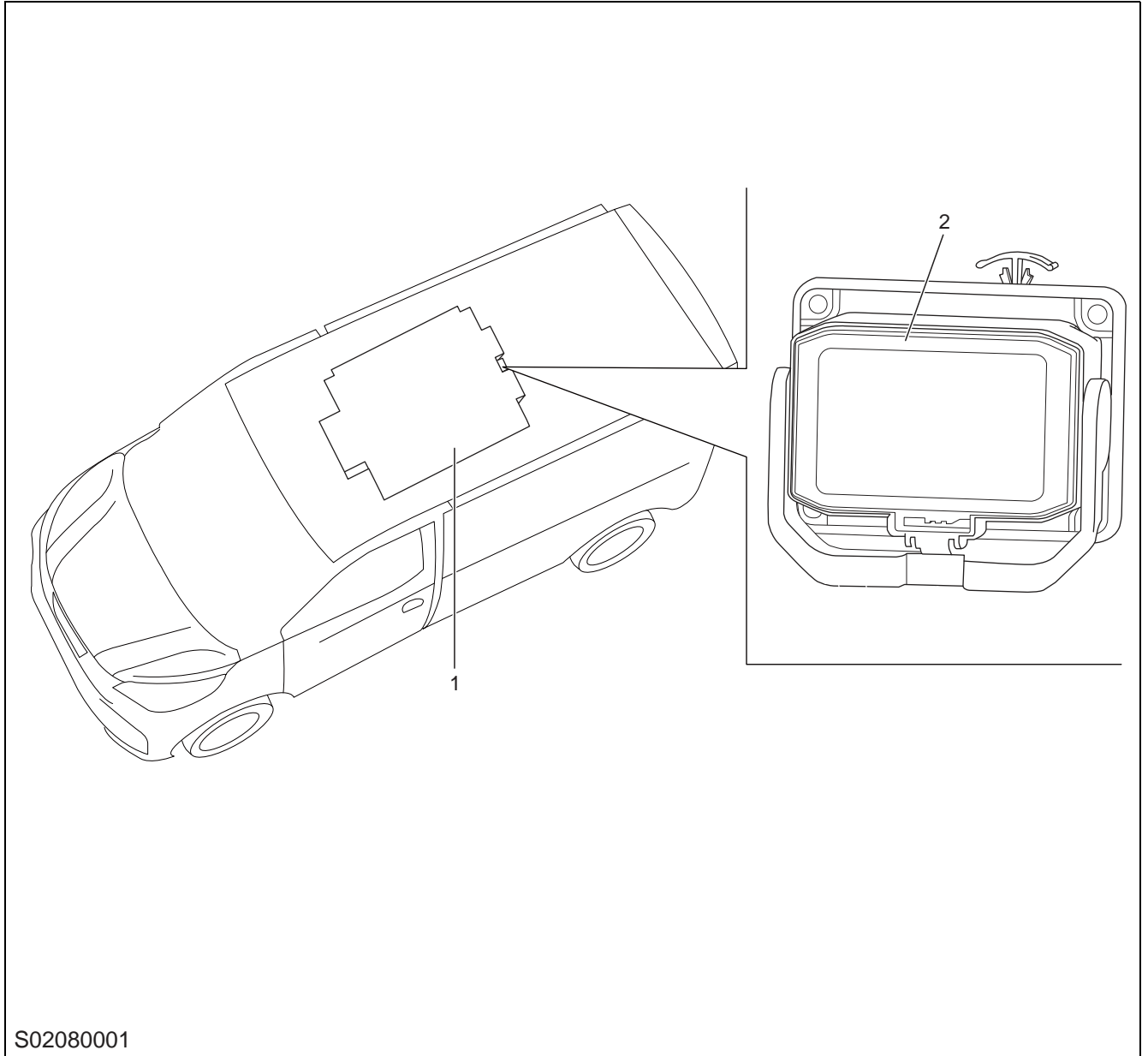
Power and Control System

Power Battery Parameter Specification

Name	35kWh 1C Capacity	52.5kWh 1C Capacity
Battery type	Ternary	Ternary
Voltage range (V)	268.8V-408V	268.8V-408V
Total energy (KWh) 23 ± 2 ° C, 1/3C	35.7kWh 1/3C Capacity	53.6 kWh 1/3C Capacity
Battery pack capacity (Ah) 23 ± 2 ° C, 1/3C	102Ah 1/3C Capacity	153Ah 1/3C Capacity
Cell	100Ah 1/C Capacity	150Ah 1/C Capacity
Combination mode	1P96S	1P96S
Ambient temperature range (° C)	Discharge: -30° C-55° C Charge: -20° C-55° C (without heater) -30° C-55° C (with heater)	Discharge: -30° C-55° C Charge: -20° C-55° C (without heater) -30° C-55° C (with heater)
Ambient Relative Humidity	15-95%	15-95%
Storage temperature	-40° C-60° C	-40° C-60° C
Battery pack cycle life (DOD100%)	About 1200	About 1200
Continuous charge current	100A (50%SOC, 25° C)	150A (50%SOC, 25° C)
Maximum charge current	255A (50%SOC, 25° C, 10s)	299A (50%SOC, 25° C, 10s)
Maximum discharge current	446 A (50%SOC, 25° C, 10s)	670A (50%SOC, 25° C, 10s)
Continuous discharge current	200A (50%SOC, 25° C)	300A (50%SOC, 25° C)
Charge retention (28 days at room temperature, 25 ° C, SOC ≥ 85%)	>95%	>95%
Insulation resistance factory test value (Ω)	5M Ω	5M Ω
Weight (kg)	237kg	335kg

Layout

Power Battery Layout



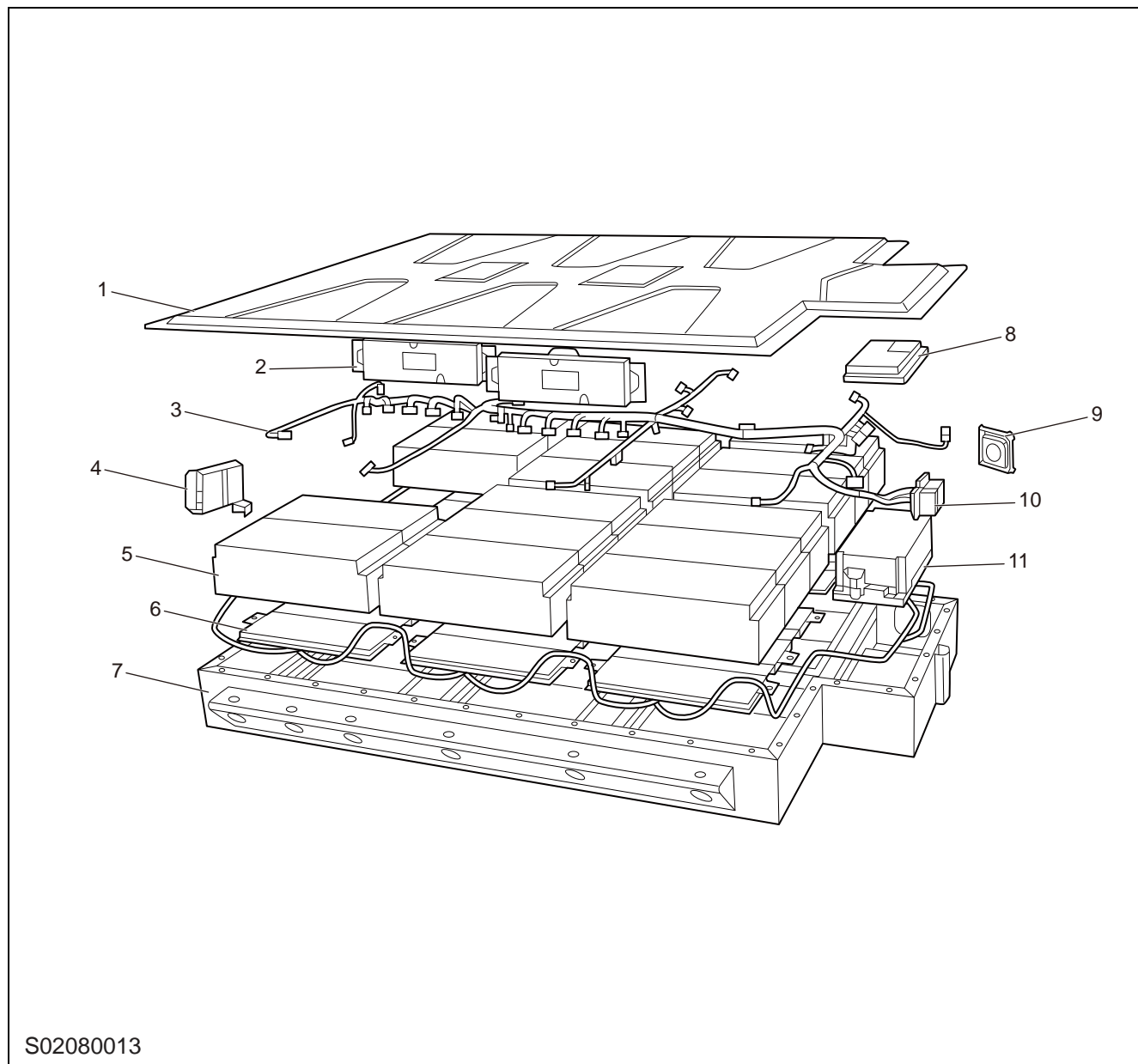
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1 Power battery

2 Service switch

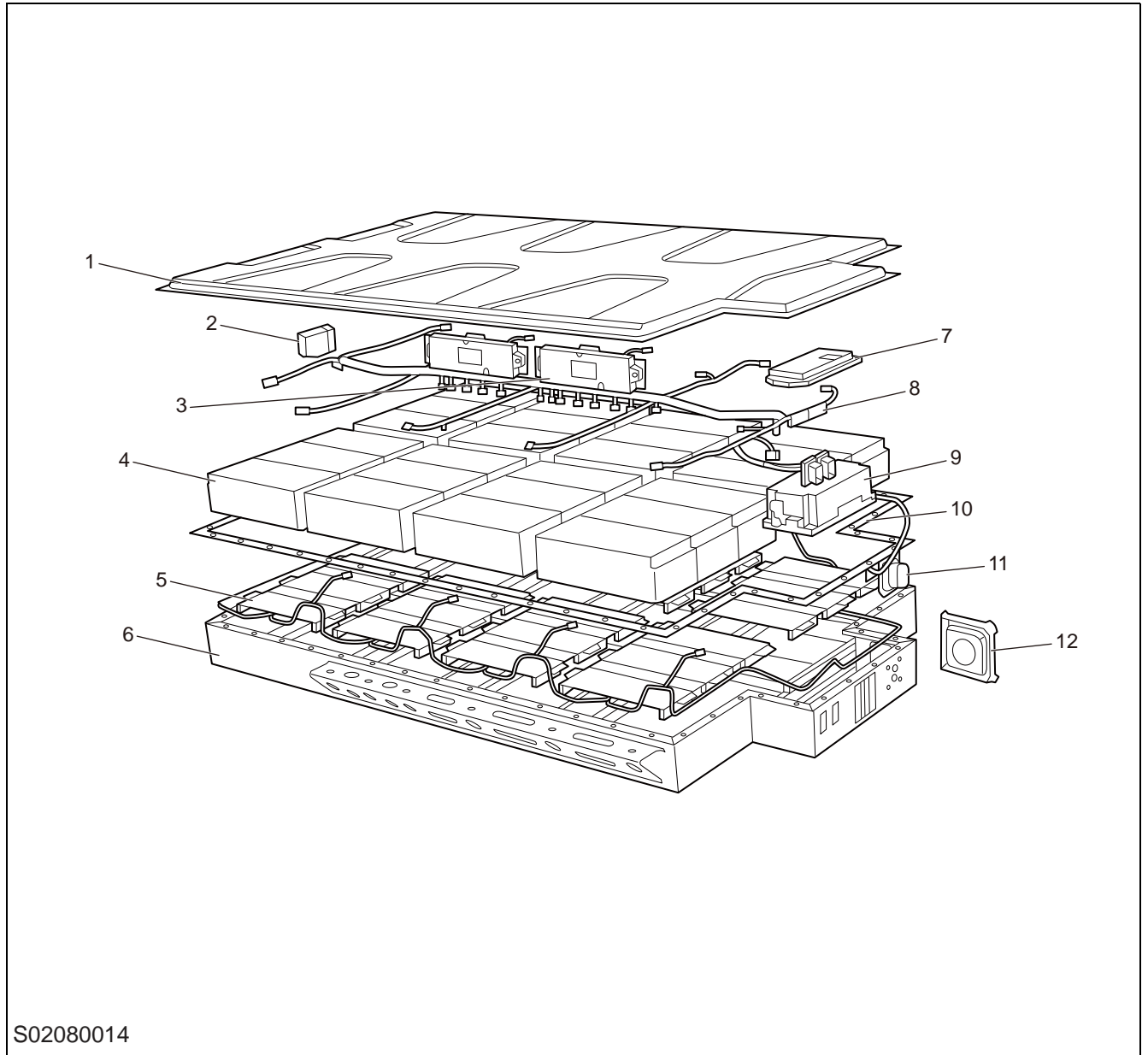
Power and Control System

Exploded View of Power Battery (35kwh)



- | | | | |
|---|---|----|------------------------------|
| 1 | Upper cover | 7 | Lower tray |
| 2 | CMU assembly | 8 | BMU |
| 3 | Low voltage harness assembly | 9 | Explosion-proof valve |
| 4 | MSD | 10 | Power high voltage connector |
| 5 | Modules | 11 | BDU assembly |
| 6 | Heating film assembly (with heating film) | | |

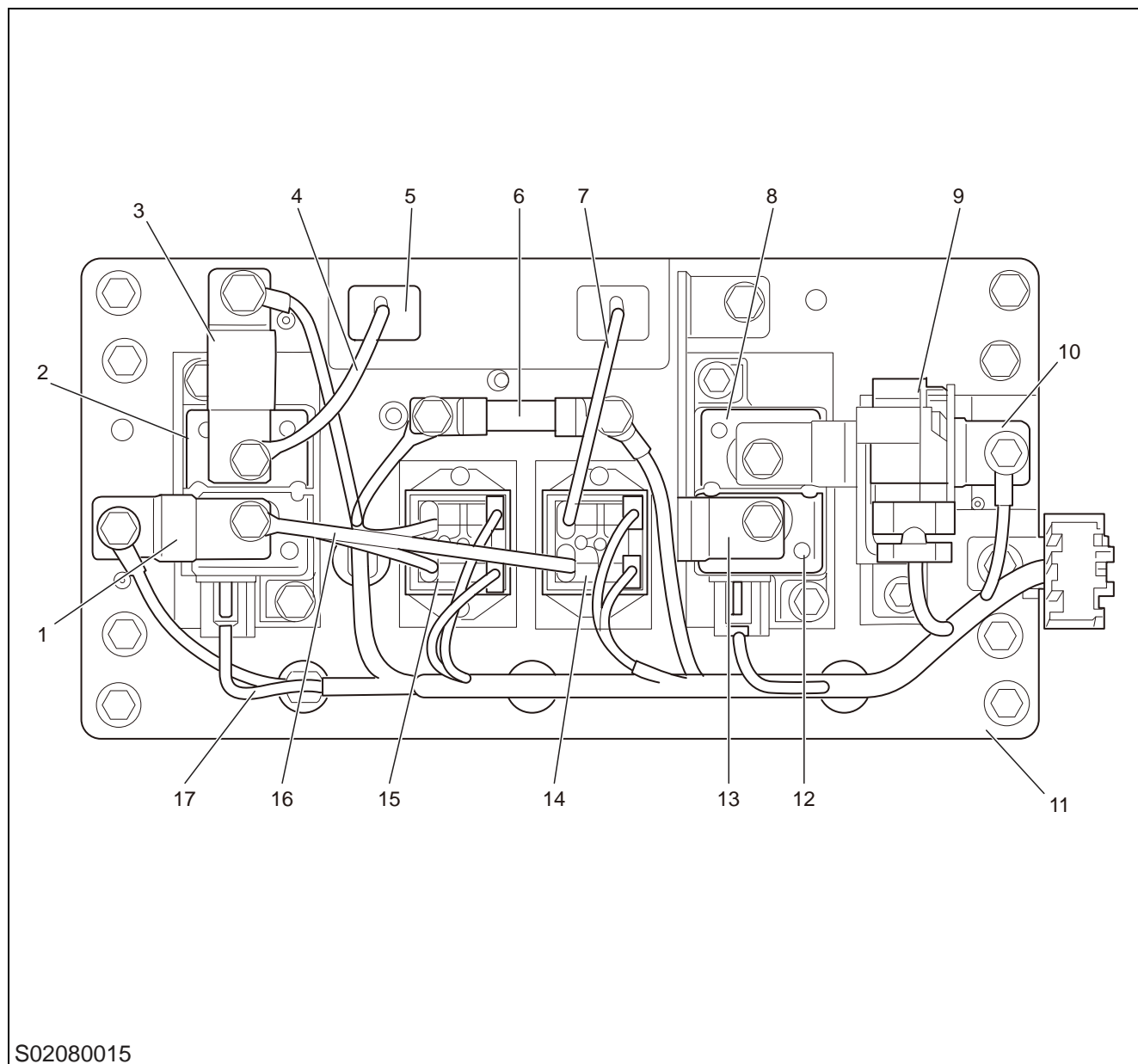
Exploded View of Power Battery (53kwh)



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- | | | | |
|---|---|----|------------------------------|
| 1 | Upper cover | 7 | BMU |
| 2 | MSD | 8 | Low voltage harness assembly |
| 3 | CMU assembly | 9 | BDU assembly |
| 4 | Modules | 10 | Sealing ring |
| 5 | Heating film assembly (with heating film) | 11 | Power high voltage connector |
| 6 | Lower tray | 12 | Explosion-proof valve |

BDU assembly Layout



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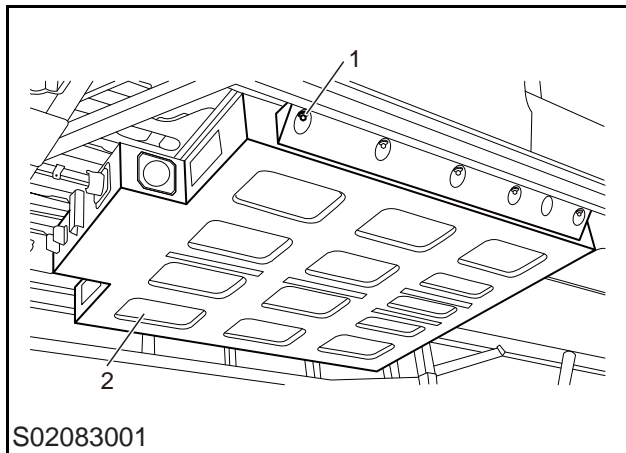
- | | | | |
|---|---|----|---|
| 1 | Main positive relay positive copper bar | 10 | Main negative relay negative copper bar |
| 2 | Main positive relay | 11 | High voltage box base |
| 3 | Main positive relay negative copper bar | 12 | Main negative relay |
| 4 | High voltage harness | 13 | Main negative relay positive copper bar |
| 5 | Precharge resistor | 14 | Precharge relay |
| 6 | Heating fuse | 15 | Heating relay |
| 7 | High voltage harness | 16 | High voltage harness |
| 8 | Main negative relay | 17 | Power battery harness |
| 9 | Hall current sensor | | |

Service Guide

Power Battery Replacement

Removal

- 1 Turn off the key power of the complete vehicle and wait for 3-5 minutes.
- 2 Remove the service switch. Refer to "Service Switch Replacement".
- 3 Lift the vehicle to the appropriate height.
- 4 Disconnect the harness connector from the battery.
- 5 Use an appropriate bracket to support the weight of the rear battery.
- 6 Disconnect the battery ground wire.
- 7 Remove 14 bolts (1) connecting the battery to the body.
- 8 And lower the bracket, remove the power battery (2).



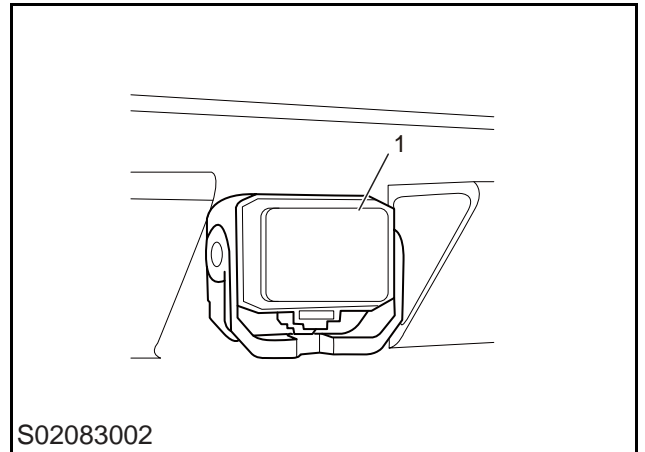
Installation

- 1 Lift the bracket and install the power battery (2).
- 2 Install 14 bolts connecting the battery to the body, and tighten them to 100-120 N.m.
- 3 Connect the battery ground wire.
- 4 Connect the harness connector to the battery.
- 5 Install the service switch. Refer to "Service Switch Replacement".
- 6 Perform the self-learning operation to the power battery again.

Service Switch Replacement

Removal

- 1 Pull the handle of the service switch outward to unlock.
- 2 Pull outward again to remove the service switch (1).



Installation

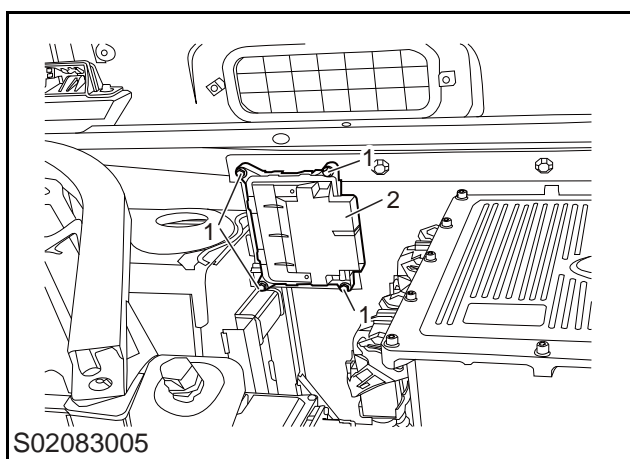
- 1 Install the service switch.
- 2 Press the handle of the service switch.

Power and Control System

Complete Vehicle Controller Replacement

Removal

- 1 Remove the service switch. Refer to "Service Switch Replacement".
- 2 Remove the bonnet.
- 3 Disconnect the electrical connector of the complete vehicle controller.
- 4 Remove 4 complete vehicle controller bolts (1).
- 5 Remove the complete vehicle controller (2).



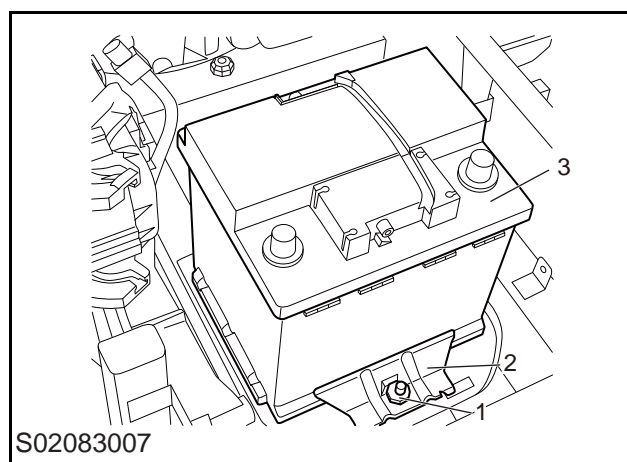
Installation

- 1 Install the complete vehicle controller.
- 2 Install 4 complete vehicle controller bolts, tighten them to 8-10 N.m and check the torque.
- 3 Connect the electrical connector of the complete vehicle controller.
- 4 Install the service switch. Refer to "Service Switch Replacement".
- 5 Perform the self-learning operation to the complete vehicle controller again.
- 6 Install the bonnet.

Battery Replacement

Removal

- 1 Turn off the key power of the complete vehicle and wait for 3-5 minutes.
- 2 Remove the service switch.
- 3 Remove the bonnet.
- 4 Remove the positive/negative battery cable.
- 5 Remove the battery block nut (1).
- 6 Remove the battery block (2).
- 7 Remove the battery(3).



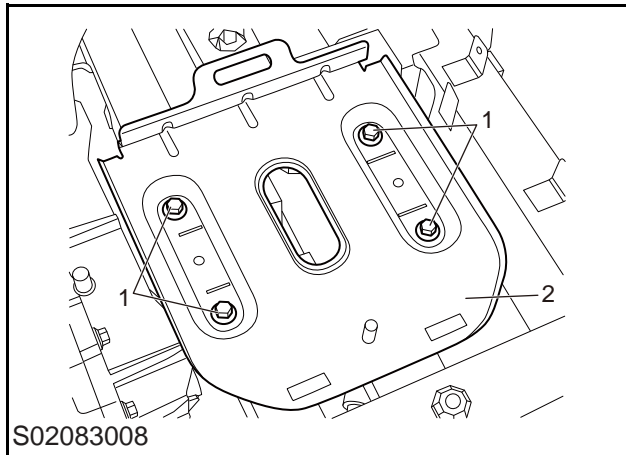
Installation

- 1 Install the battery.
- 2 Install the battery block and the block nut, tighten them to 20-24 N.m and check the torque.
- 3 Install the positive/negative battery cable.
- 4 Install the bonnet.
- 5 Install the service switch.

Battery Bracket Replacement

Removal

- 1 Turn off the key power of the complete vehicle and wait for 3-5 minutes.
- 2 Remove the service switch.
- 3 Remove the bonnet.
- 4 Remove the battery. Refer to "Battery Replacement".
- 5 Remove 4 battery bracket bolts (1).
- 6 Remove the battery bracket (2).



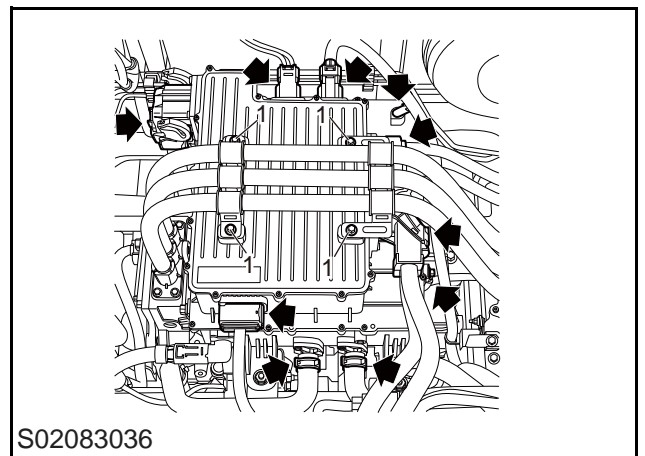
Installation

- 1 Install the battery bracket.
- 2 Install 4 battery bracket bolts, tighten them to 20-24 N.m and check the torque.
- 3 Install the battery. Refer to "Battery Replacement".
- 4 Install the bonnet.
- 5 Install the service switch.

Charging and Distribution Unit Assembly Replacement

Removal

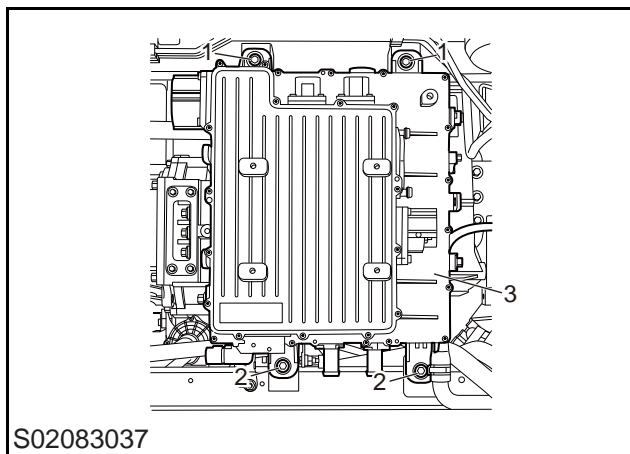
- 1 Turn off the key power of the complete vehicle and wait for 3-5 minutes.
- 2 Remove the service switch. Refer to "Service Switch Replacement".
- 3 Remove the front compartment trim panel.
- 4 Disconnect the negative battery cable.
- 5 Drain the cooling system coolant.
- 6 Disconnect the motor controller harness.
- 7 Disconnect the power battery high-voltage harness.
- 8 Disconnect the front electric heater high-voltage harness.
- 9 Disconnect the A/C compressor high voltage harness.
- 10 Disconnect the integral DC charging harness.
- 11 Disconnect the water inlet and outlet pipes.
- 12 Disconnect the harness connector and grounding wire from the charging and distribution unit.
- 13 Remove the motor three-phase harness retaining bolt (1).
- 14 Disconnect the three-phase harness from the motor controller, and remove the three-phase harness.



- 15 Remove the charging and distribution unit bolt (1) and nut (2).

Power and Control System

- 16 Remove the charging and distribution unit assembly (2).



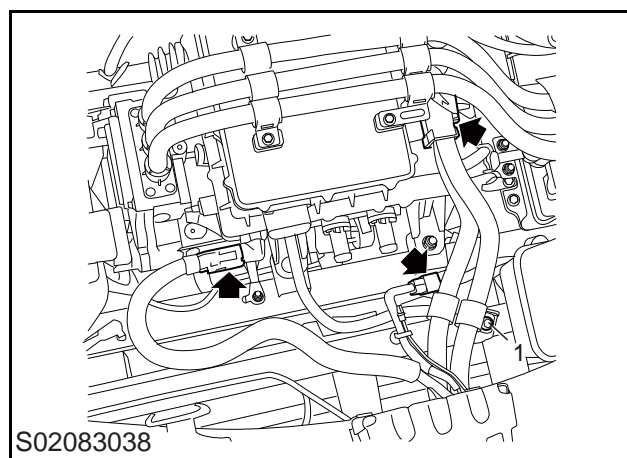
Installation

- 1 Install the charging and distribution unit assembly.
- 2 Install the charging and distribution unit assembly bolt and nut, tighten them to 22 ± 2 N.m, and check the torque.
- 3 Install the charging and distribution unit harness connector and grounding wire.
- 4 Install the three-phase harness.
- 5 Connect the water inlet and outlet pipes.
- 6 Install all the harnesses connecting the charging and distribution unit.
- 7 Refill the cooling system coolant.
- 8 Install the service switch. Refer to "Service Switch Replacement".
- 9 Connect the negative battery cable.

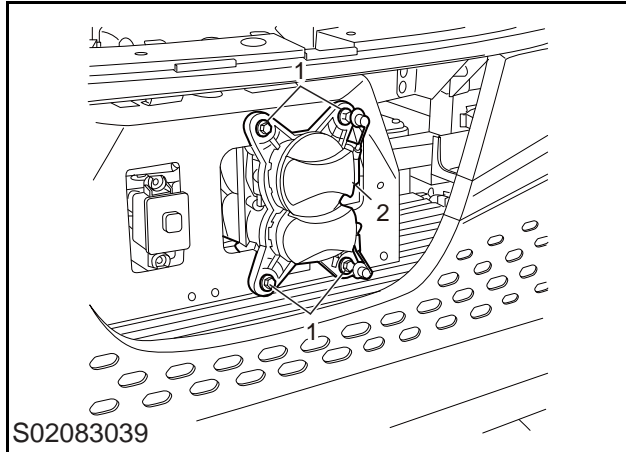
Integral AC/DC Charging Harness Assembly Replacement

Removal

- 1 Switch the ignition key to OFF position and wait 3-5 minutes.
- 2 Remove the service switch. Refer to "Service Switch Replacement".
- 3 Disconnect the engine compartment harness.
- 4 Disconnect the charging and distribution unit assembly harness.
- 5 Disconnect the integral AC/DC charging harness assembly bracket bolt (1).



- 6 Open the charging port door assembly.
- 7 Remove 4 integral AC/DC charging harness assembly bolts (1).
- 8 Remove the integral AC/DC charging harness assembly (2).



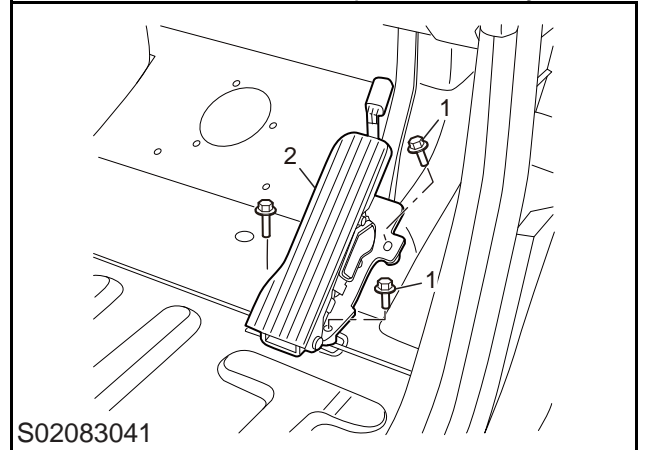
Installation

- 1 Install the integral AC/DC charging harness.
- 2 Install 4 integral AC/DC charging harness bolts, tighten them to 9 ± 1 N.m, and check the torque.
- 3 Connect the harness connector of the charging and distribution unit assembly.
- 4 Connect the harness connector of the engine compartment.
- 5 Install the integral AC/DC charging harness bracket bolts, tighten them to 9 ± 1 N.m, and check the torque.
- 6 Close the charging port door assembly.
- 7 Install the service switch. Refer to "Service Switch Replacement".

accelerator pedal assembly replacement

Removal

- 1 Disconnect the negative battery cable.
- 2 Disconnect the electrical connector of the accelerator pedal assembly.
- 3 Remove 3 accelerator pedal assembly bolts (1).
- 4 Remove the accelerator pedal assembly (2).



Install

- 1 Install the accelerator pedal assembly.
- 2 Install 3 accelerator pedal assembly bolts, and tighten them to 22 ± 2 Nm.
- 3 Connect the electrical connector of the accelerator pedal assembly.
- 4 Connect the negative battery cable.

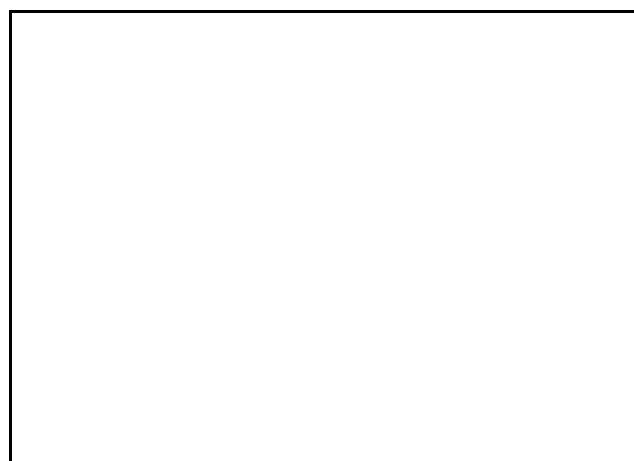
Power and Control System

Electric Vehicle Communication Controller (EVCC) Replacement

Removal

- 1 Disconnect the negative battery cable.
- 2 Remove the Complete Vehicle Controller. Refer to “Complete Vehicle Controller Replacement” .
- 3 Disconnect the electric vehicle communication controller electrical connector.
- 4 Remove 4 electric vehicle communication controller bolts (1).
- 5 Remove the electric vehicle communication controller (2).

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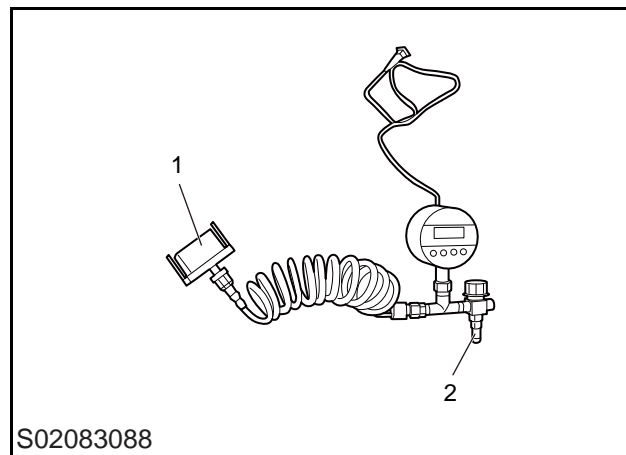
Installation

- 1 Install the electric vehicle communication controller.
- 2 Install the electric vehicle communication controller bolts, tighten them to 9 ± 1 Nm, and check the torque.
- 3 Connect the electric vehicle communication controller electrical connector.
- 4 Connect the negative battery cable.

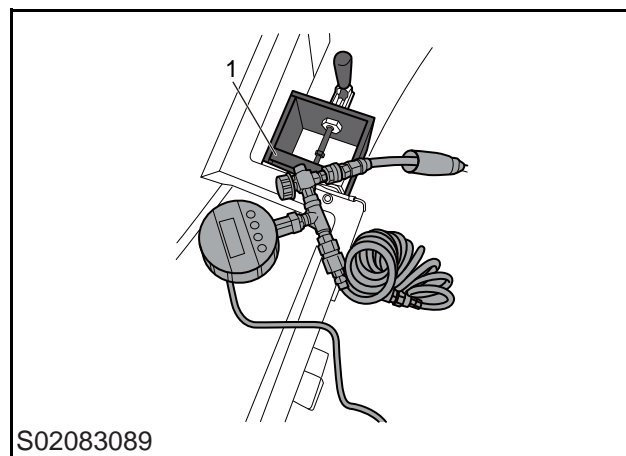
Power Battery Air Tightness Test

Operation steps

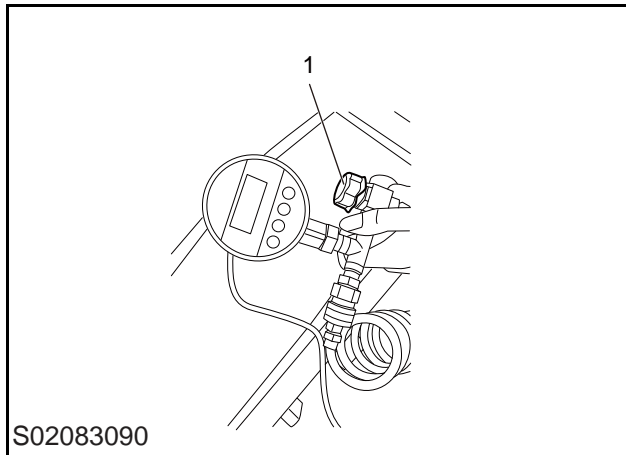
- 1 Connect the battery power high-voltage connector with the tool battery air inlet port (1).



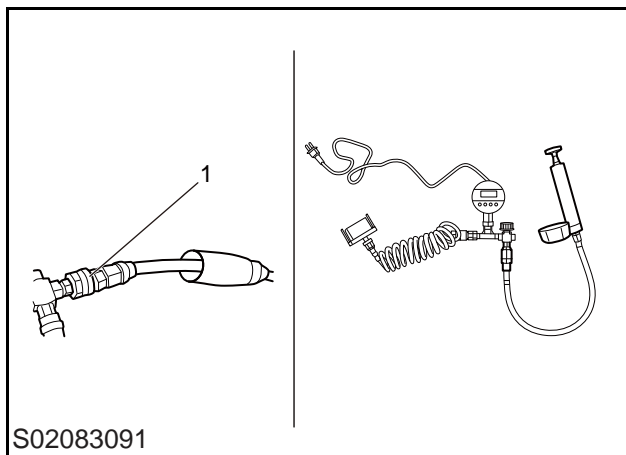
- 2 install the service switch.
- 3 Seal the explosion-proof valve with sealing tool (1).



- 4 plug in the instrument power supply (220V/AC).
- 5 turn off the air source switch (1).



- 6 Air pressure interface (1) is connected with external air compressor gas or air pump.



- 7 Slowly turn on the air source switch (using air compressor gas) or turn on the air source switch (using the air pump to pump air).

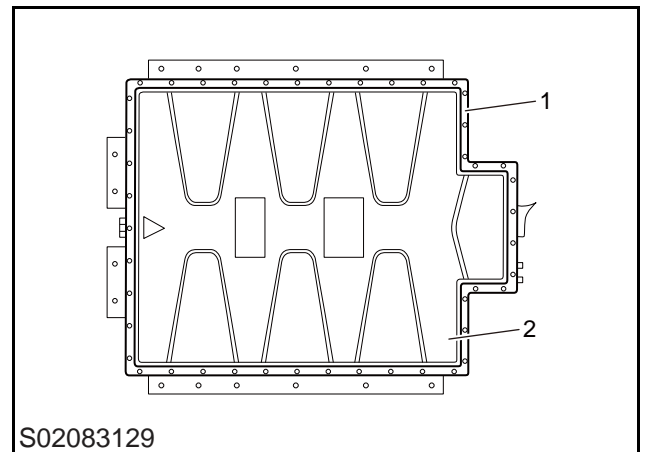
Note: if external air compressor gas is connected, the air source switch must be opened slowly.

- 8 Observe the barometer.
- 9 When the inflation pressure is 3.5kpa, turn off the air source switch, maintain the pressure for 60s, test for 60s, then pressure drop $\leq 40\text{Pa}$, the requirements are met; otherwise, it is not met.
- 10 If not, check the leakage point.
- 11 Leak detection method: use soap foam to smear around the battery box cover and the interface to see if there is blistering. If there is bubbling point, it is the leakage point.

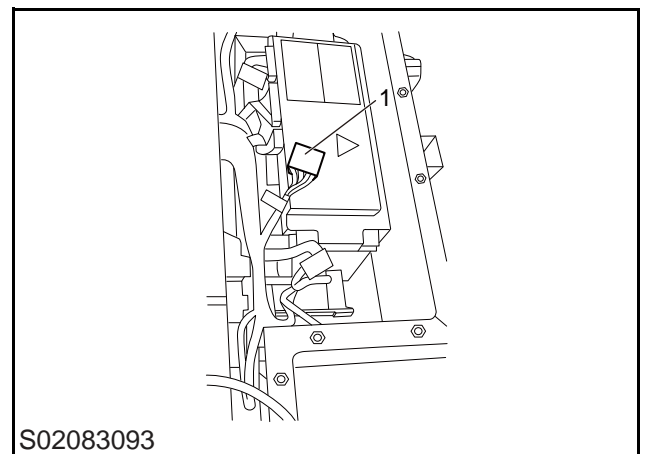
Power Battery Disassembly and Assembly (35kwh)

Removal

- 1 Remove the power battery. Refer to “power battery assembly replacement” .
- 2 Remove the power battery upper cover bolt (1).
- 3 Remove the power battery upper cover (2).

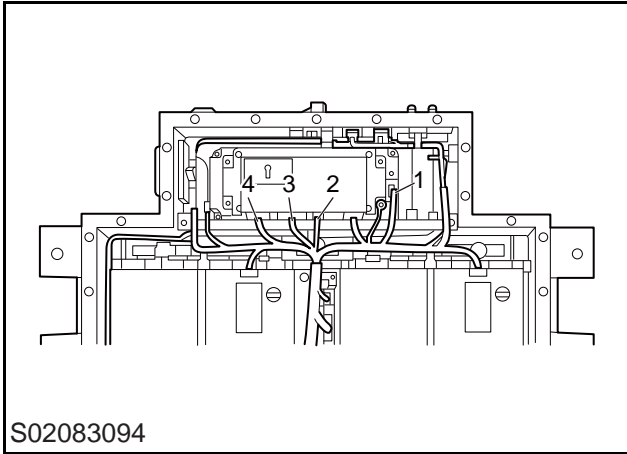


- 4 Remove the BMU high voltage connector (1).

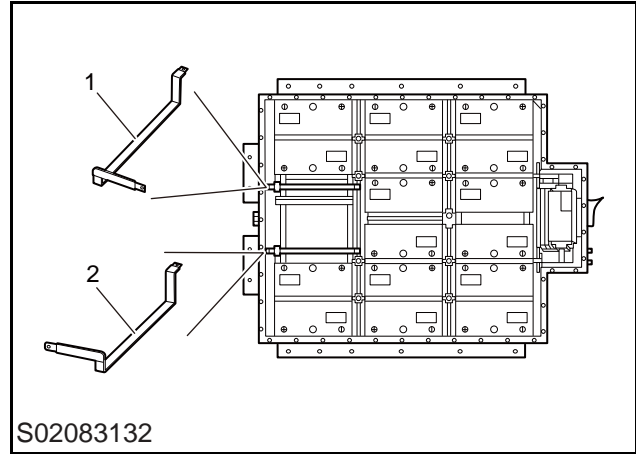


- 5 Check the insulation value of high voltage output negative copper bar, high voltage output positive copper bar, high voltage connector positive and negative pole and MSD positive and negative pole insulation value. Insulation test qualification standard: (500V, + - insulation value $> = 500\text{m } \Omega$)
- 6 pull out the wire harness connectors of BMU in sequence.

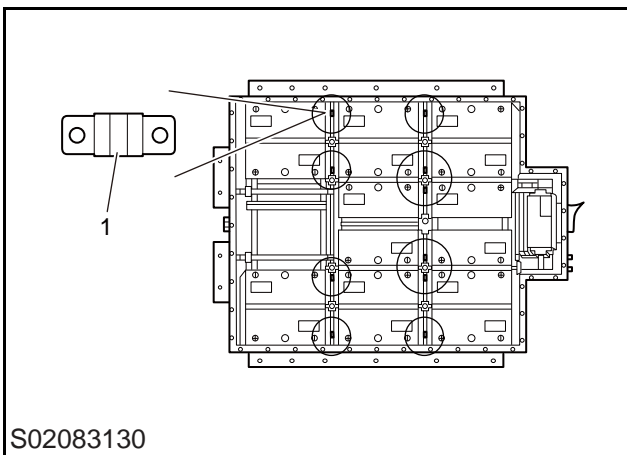
Power and Control System



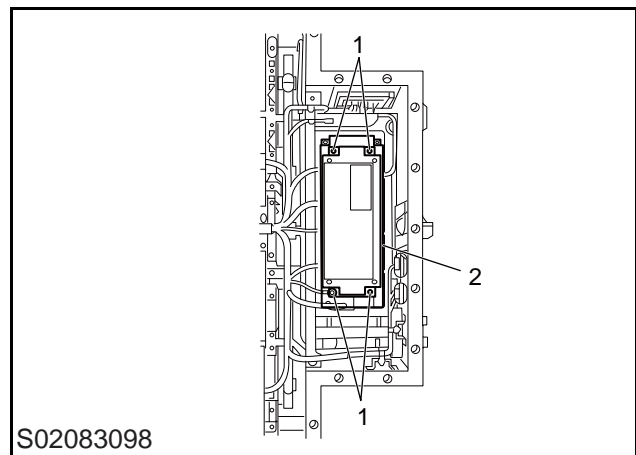
7 Remove the copper bar protective cover with a crowbar, remove the copper bar (1).



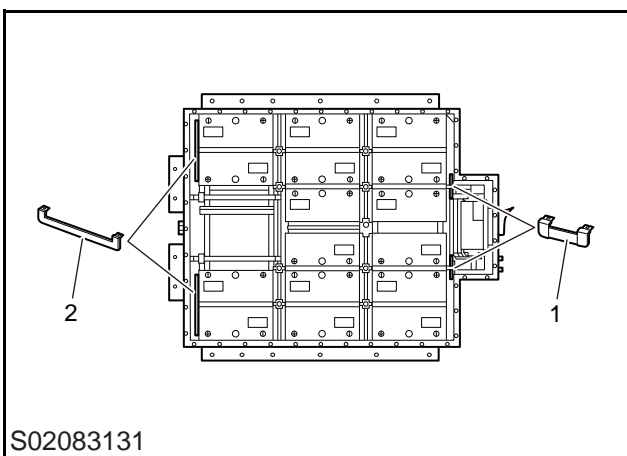
10 Remove the BMU bolts (1) and the BMU assembly (2).



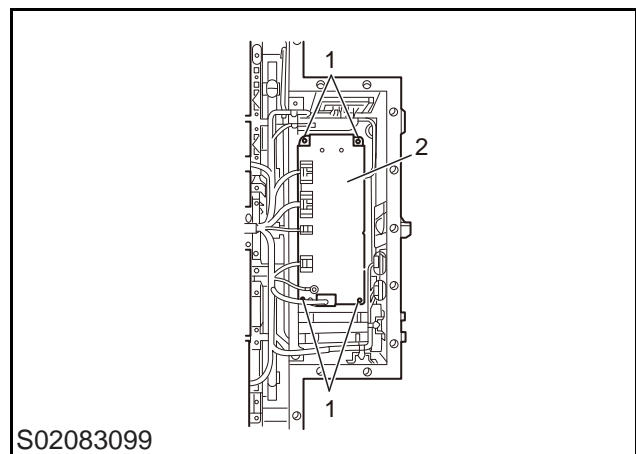
8 Remove the copper bar protective cover with a crowbar, remove the copper bar (1) and copper bar (2).



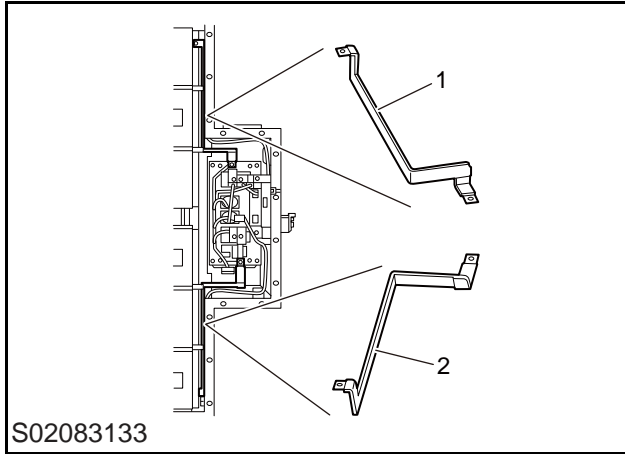
11 Remove the BDU upper cover bolt (1) and BDU upper cover (2).



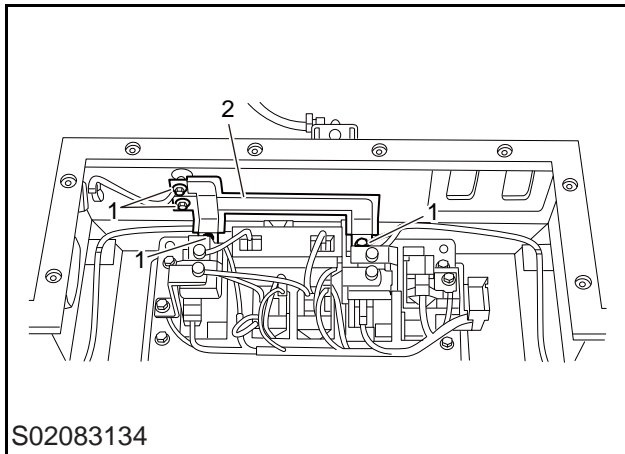
9 Remove the protective cover of copper bar with crowbar, remove MSD positive copper bar (1) and MSD negative copper bar (2).



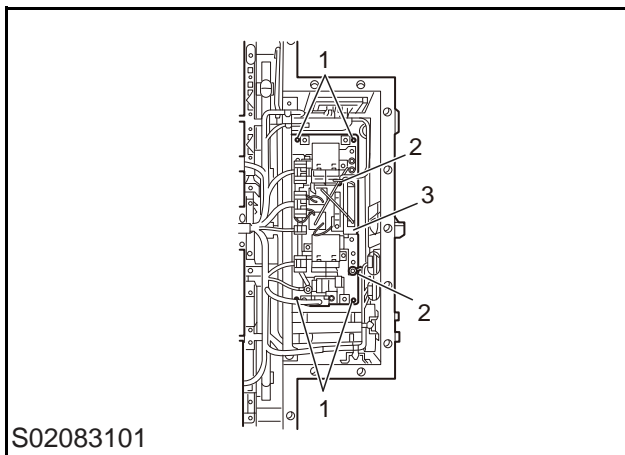
12 Remove the total positive and negative copper bars bolts, and remove the total positive copper bars (1) and the total negative copper bars (2).



- 13 Remove the high voltage bus bar bolts (1), remove the high voltage bus bar (2).

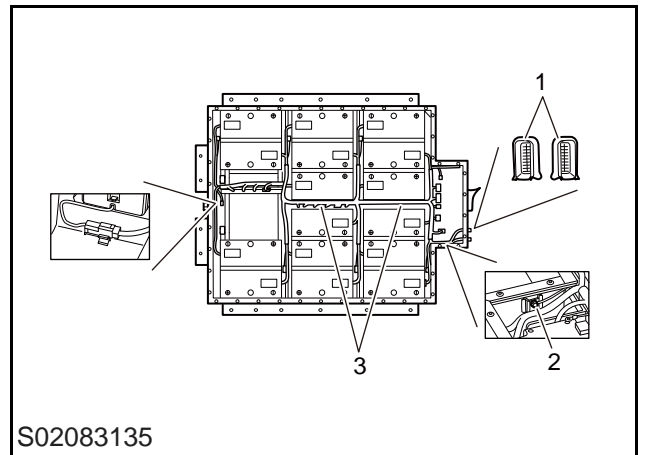


- 14 Remove the BDU lower tray connecting bolt (1), AC charging high voltage harness terminal (2), and BDU assembly (3).

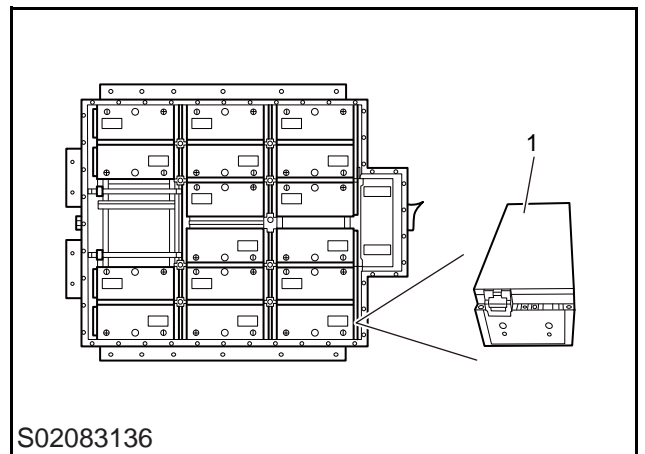


- 15 Pull out the connector on the module, and Pull out the connector and harness assembly on the CMU.

- 16 If equipped, remove the heating film harness connector.
 17 Remove the harness clip.
 18 Remove the two clamps (1) for the low pressure connector.
 19 Remove the ground wire bolt (2).
 20 Remove the low voltage harness assembly (3).

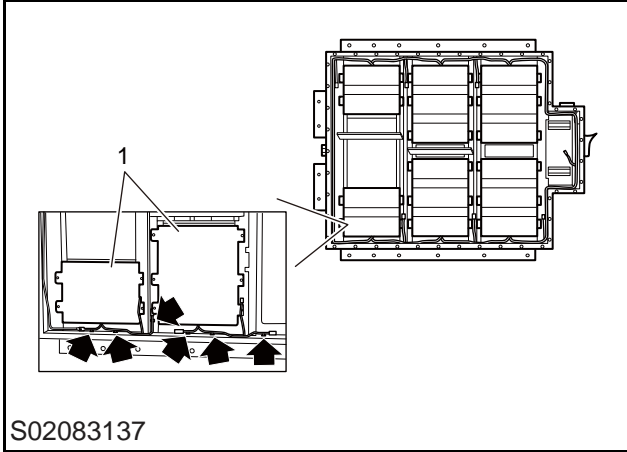


- 21 Remove the module bolts, take out the bolts and reinforcement plate, and remove Sixteen modules (1) with proper tools.

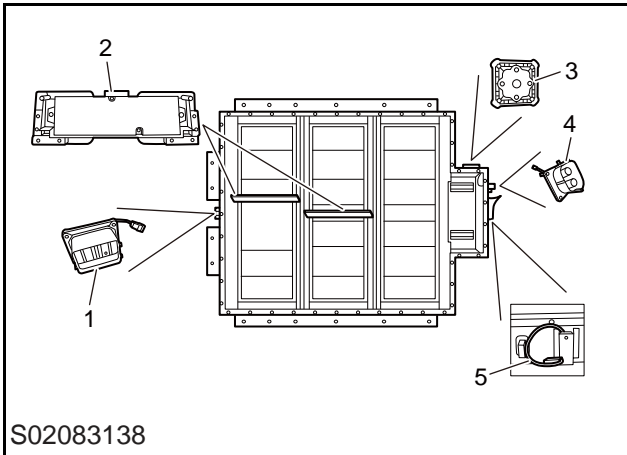


- 22 If equipped, remove the snap on the lower tray and remove the heating film assembly (1).

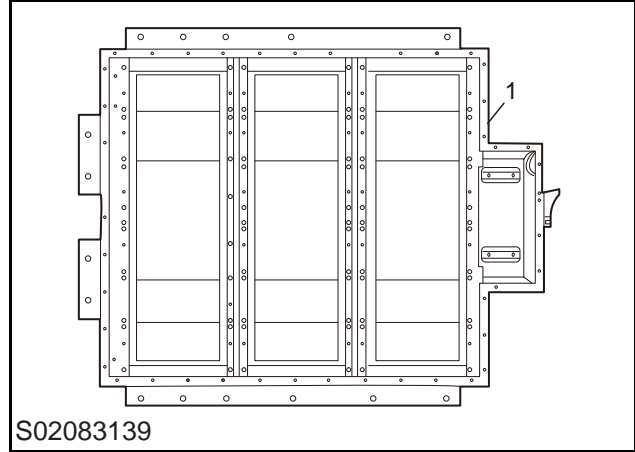
Power and Control System



- 23 Remove the MSD socket (1), CMU (2), assembly explosion-proof valve (3), high-voltage connector (4) and grounding wire (5).



- 24 Check the seal ring (1) for damage and replace the seal ring if damaged.



Installation

- 1 Clean the box with air pipe and wipe it with white cotton cloth.
- 2 Install CMU to the fixed bracket outside the box, tighten the nut to 6 ± 0.5 Nm, and check the torque.
- 3 Fix the fixed bracket with CMU installed in the box in sequence, with a total of 2 fixed supports, tighten the nut to 9 ± 0.5 Nm, and check the torque.
- 4 Install the explosion-proof valve, tighten the explosion-proof valve bolt to 6 ± 0.5 Nm, and check the torque.
- 5 Install the MSD base, tighten the MSD base bolts to 6 ± 0.5 Nm, and check the torque.
- 6 If equipped, put the heating film into the box, and pay attention to the alignment of the positioning hole of the heating film with the positioning pin of the box.

Note: the positioning hole of the heating film is aligned with the positioning pin of the box body, and the heating film harness clip is fixed to the positioning hole of the box body.

- 7 Module insulation test, insulation meter 500V detection insulation value is not less than 550m Ω .
- 8 put the module into the box, pay attention to the alignment between the module mounting hole and the box hole position.
- 9 Bolt is put into the hole along with the module and the reinforcing plate. The first time, the bolt is pre tightened and fixed diagonally. The second time, the bolt is tightened to 9 ± 0.8 nm according to the principle of diagonal tightening, and the torque is checked.

- 10 Install the connecting copper bar, tighten the bolts to 9 ± 0.8 nm, and check the torque.
 - 11 Install the MSD positive copper bar and remove the MSD negative copper bar, tighten the bolt to 9 ± 0.8 nm, and check the torque.
 - 12 Put the BDU assembly into the box, tighten the bolts to 9 ± 0.8 nm, and check the torque.
 - 13 Install the AC charging high voltage harness terminal.
 - 14 Install the high voltage bus bar, tighten the bolts to 9 ± 0.8 nm, and check the torque.
 - 15 After the fixing of copper bar, the insulation of the system is detected at 6 points: total positive and negative battery, positive and negative terminals of MSD base, positive and negative poles of high-voltage connector inside the box.
 - 16 Arrange the low-voltage wire inside the battery pack. The connector of the module to be inserted on the harness has corresponding marks. The module number from total negative to total positive is M1, M2...M16.
- Note: The total negative side harness is marked with green label, and the total positive side harness is marked with red label.**
- 17 Arrow shaped clip is fixed to the limit hole of reinforcing plate.
 - 18 Low pressure connector is fixed with clamp.

Note: Push the clamp from top to bottom along the plug-in slot.

- 19 Install the low voltage harness grounding wire bolt, tighten to 9 ± 0.8 nm, and check the torque.
- 20 Place the BDU upper cover on the BDU base, tighten the BDU upper cover bolts to 9 ± 0.8 nm, and check the torque.
- 21 Place the BMU on the BDU upper cover, tighten the BMU bolts to 9 ± 0.8 nm, and check the torque.
- 22 insert the high voltage connector interlock, MSD interlock, BMU interface, BDU interface, CMU interface connector, harness connector.

Note: It is necessary to confirm that all connectors should be inserted to the bottom, and the sound of "click" can be heard, and the opposite direction should be slightly stretched to ensure that they are inserted in place.

- 23 If equipped, plug the heating film assembly harness with the power battery harness assembly in pairs.

Note: It is necessary to confirm that all connectors should be inserted to the bottom, and the sound of "click" can be heard, and the opposite direction should be slightly stretched to ensure that they are inserted in place.

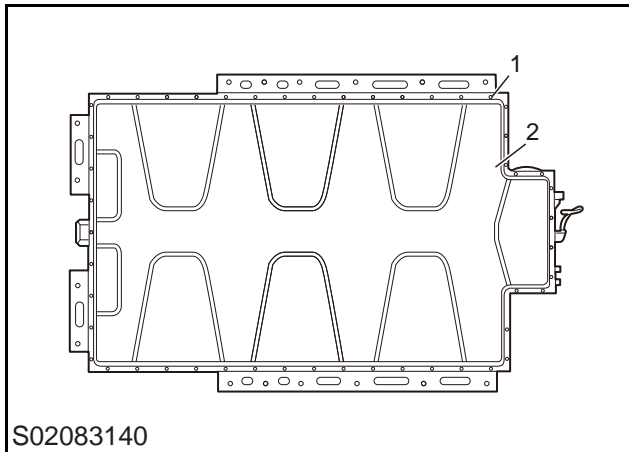
- 24 install the iron wire, tighten the bolt to 9 ± 0.8 nm, and check the torque.
- 25 First, place the sealing ring above the box along the outline of the box, align the hole position of the sealing ring, and then tear the protective surface of the sealing ring and paste it.
- 26 place the upper cover on the box, align the holes, install the bolts of the upper cover, pre tighten the first time (diagonal tightening principle), the second time tighten to 9 ± 0.8 nm, and check the torque.
- 27 Power battery air tightness test. Refer to " Power battery air tightness test ".
- 28 Install the power battery. Refer to "power battery assembly replacement" .

Power and Control System

Power Battery Disassembly and Assembly (53kwh)

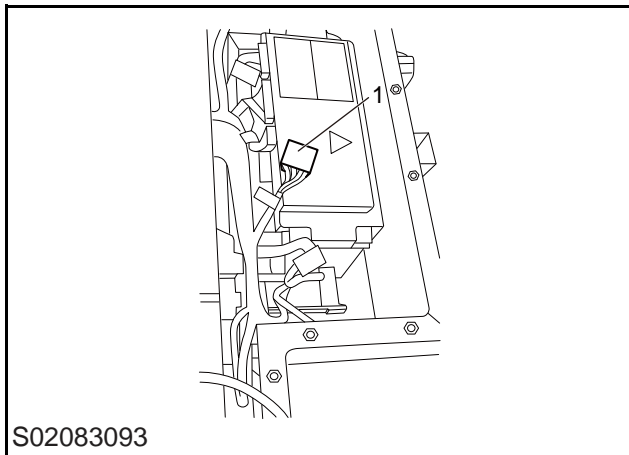
Removal

- 1 Remove the power battery. Refer to “power battery assembly replacement” .
- 2 Remove the power battery upper cover bolt (1).
- 3 Remove the power battery upper cover (2).



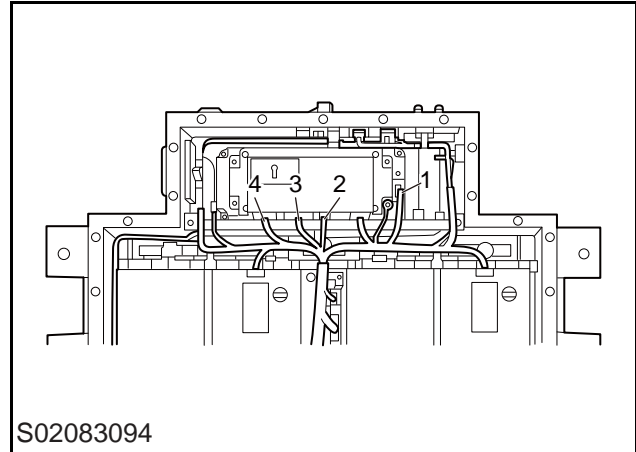
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- 4 Remove the BMU high voltage connector (1).



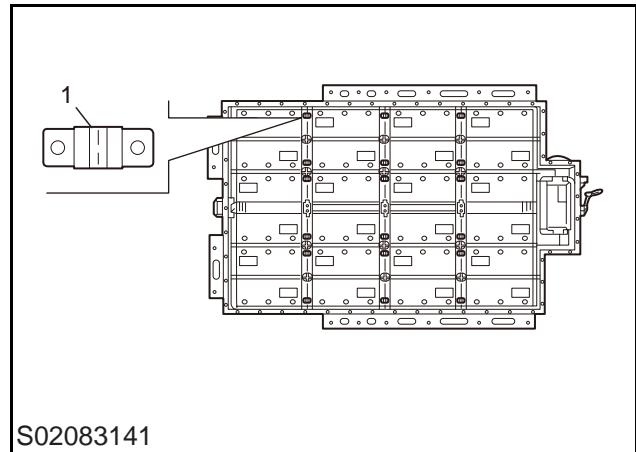
S02083093

- 5 Check the insulation value of high voltage output negative copper bar, high voltage output positive copper bar, high voltage connector positive and negative pole and MSD positive and negative pole insulation value. Insulation test qualification standard: (500V, + - insulation value $\geq 500m \Omega$)
- 6 pull out the wire harness connectors of BMU in sequence.



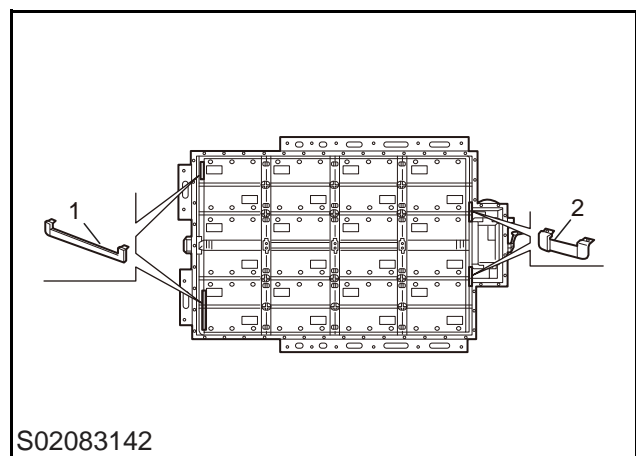
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- 7 Remove the copper bar protective cover with a crowbar, remove the copper bar (1).



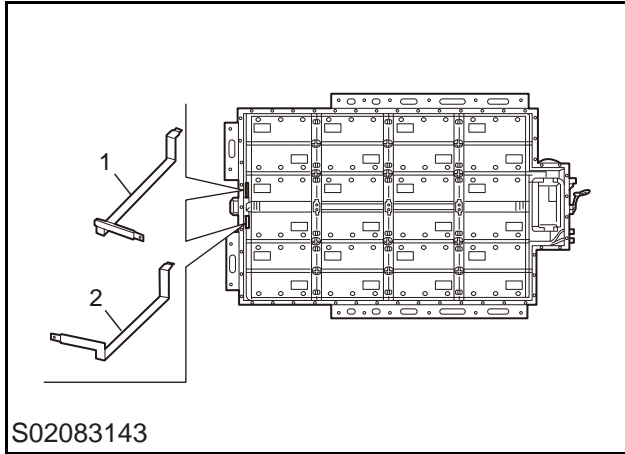
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- 8 .Remove the copper bar protective cover with a crowbar, remove the copper bar (1) and copper bar (2).

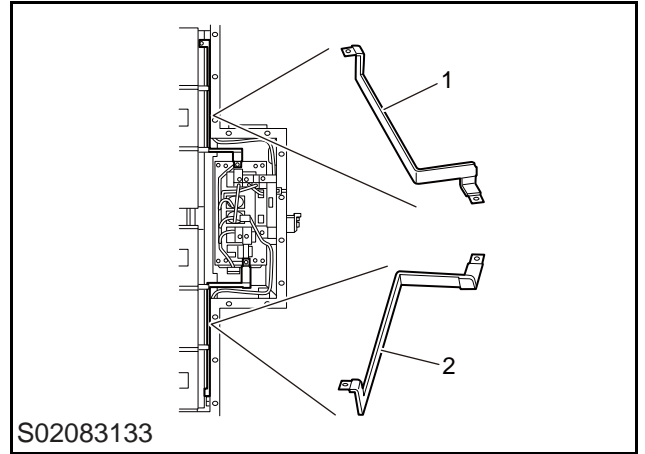


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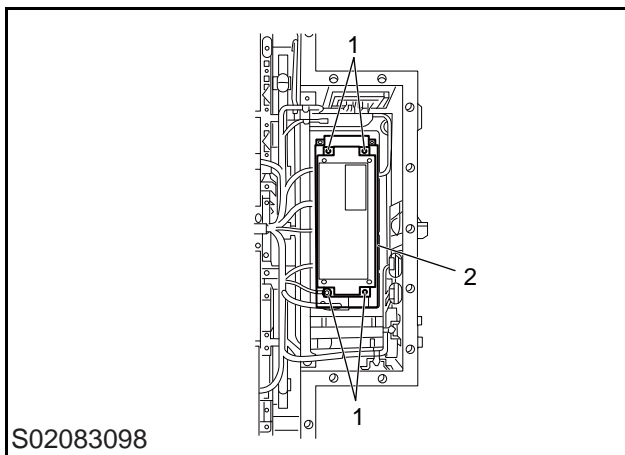
- 9 Remove the protective cover of copper bar with crowbar, remove MSD positive copper bar (1) and MSD negative copper bar (2).



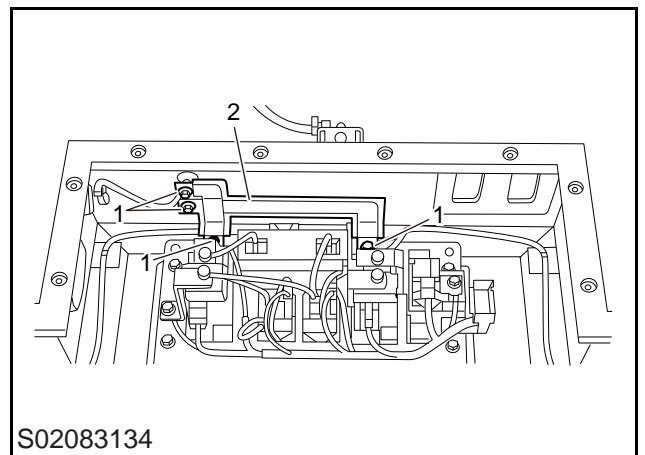
10 Remove the BMU bolts (1) and the BMU assembly (2).



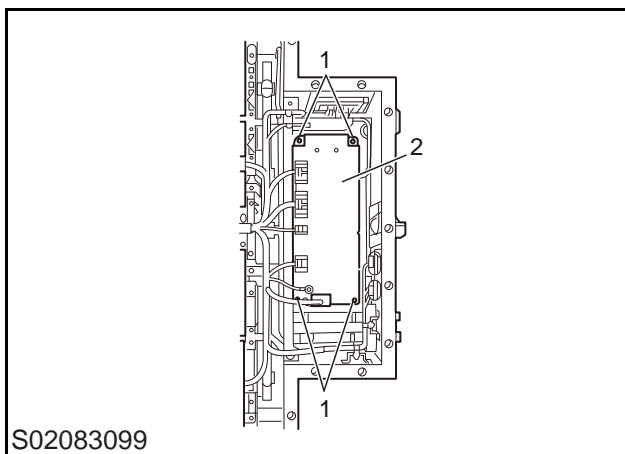
13 Remove the high voltage bus bar bolts (1), remove the high voltage bus bar (2).



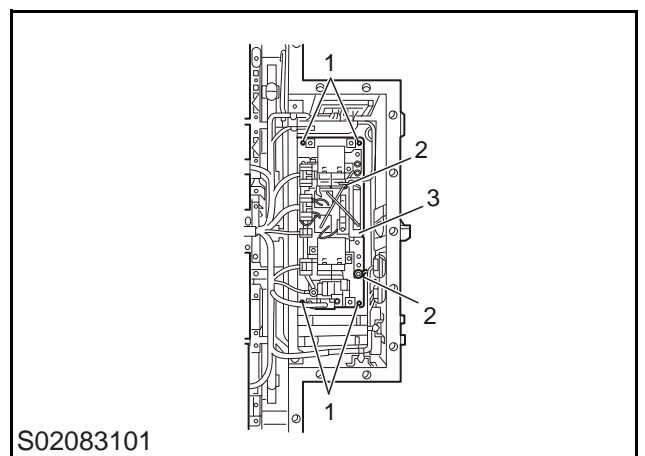
11 Remove the BDU upper cover bolt (1) and BDU upper cover (2).



14 Remove the BDU lower tray connecting bolt (1), AC charging high voltage harness terminal (2), and BDU assembly (3).



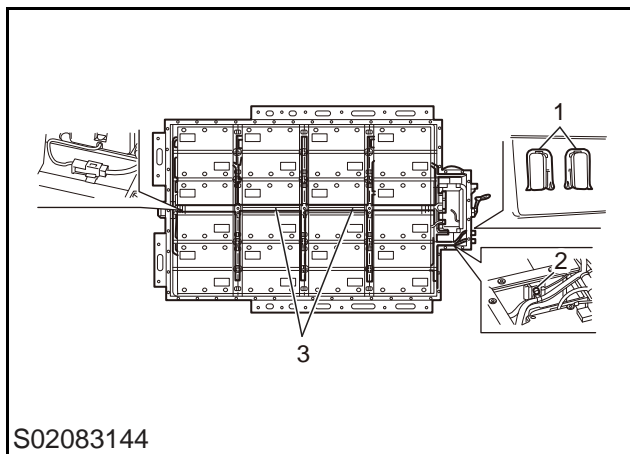
12 Remove the total positive and negative copper bars bolts, and remove the total positive copper bars (1) and the total negative copper bars (2).



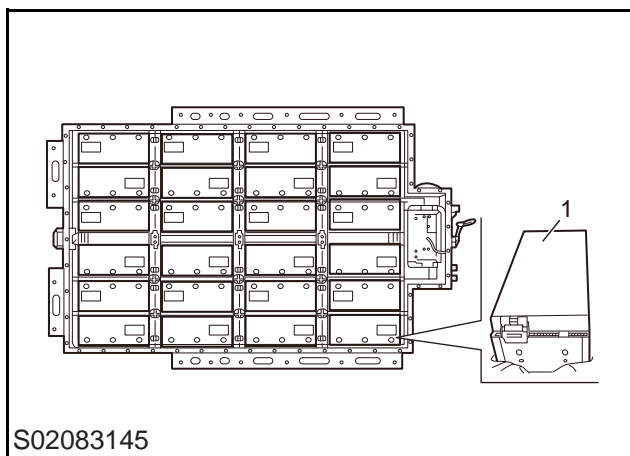
15 Pull out the connector on the module, and Pull out the connector and harness assembly on the CMU.

Power and Control System

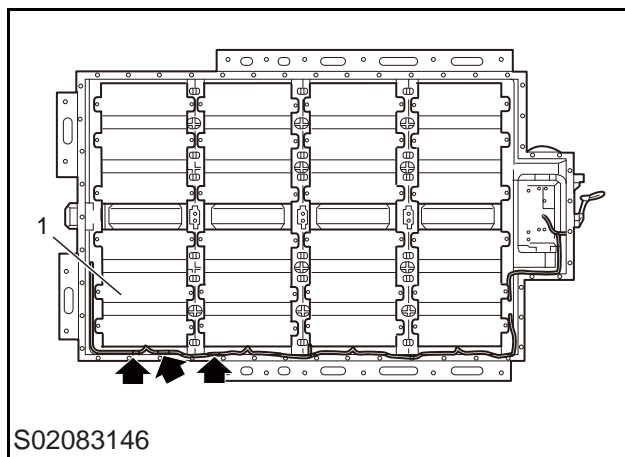
- 16 If equipped, remove the heating film harness connector.
- 17 Remove the harness clip.
- 18 Remove the two clamps (1) for the low pressure connector.
- 19 Remove the ground wire bolt (2).
- 20 Remove the low voltage harness assembly (3).



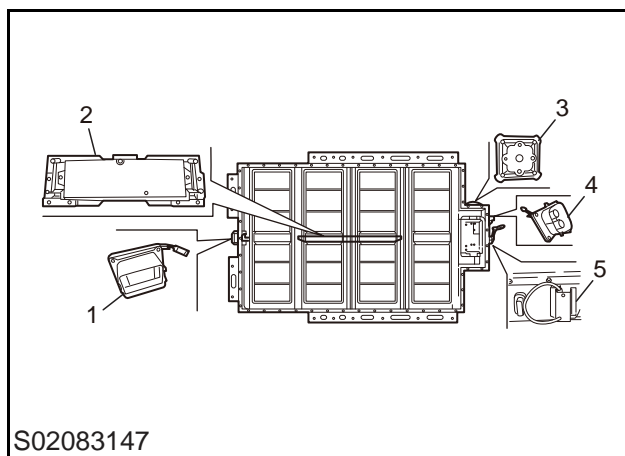
- 21 Remove the module bolts, take out the bolts and reinforcement plate, and remove twenty-four modules (1) with proper tools.



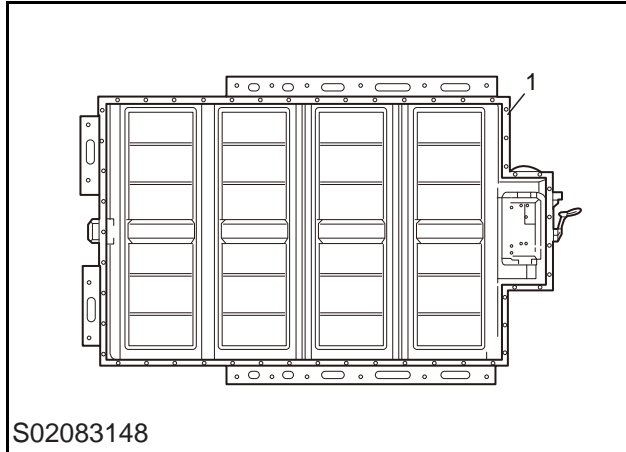
- 22 If equipped, remove the snap on the lower tray and remove the heating film assembly (1).



- 23 Remove the MSD socket (1), CMU (2), assembly explosion-proof valve (3), high-voltage connector (4) and grounding wire (5).



- 24 Check the seal ring (1) for damage and replace the seal ring if damaged.



Installation

- 1 Clean the box with air pipe and wipe it with white cotton cloth.
- 2 Install CMU to the fixed bracket outside the box, tighten the nut to 6 ± 0.5 Nm, and check the torque.
- 3 Fix the fixed bracket with CMU installed in the box in sequence, with a total of 2 fixed supports, tighten the nut to 9 ± 0.5 Nm, and check the torque.
- 4 Install the explosion-proof valve, tighten the explosion-proof valve bolt to 6 ± 0.5 Nm, and check the torque.
- 5 Install the MSD base, tighten the MSD base bolts to 6 ± 0.5 Nm, and check the torque.
- 6 If equipped, put the heating film into the box, and pay attention to the alignment of the positioning hole of the heating film with the positioning pin of the box.

Note: the positioning hole of the heating film is aligned with the positioning pin of the box body, and the heating film harness clip is fixed to the positioning hole of the box body.

- 7 Module insulation test, insulation meter 500V detection insulation value is not less than $550m \Omega$.
- 8 put the module into the box, pay attention to the alignment between the module mounting hole and the box hole position.
- 9 Bolt is put into the hole along with the module and the reinforcing plate. The first time, the bolt is pre tightened and fixed diagonally. The second time, the bolt is tightened to 9 ± 0.8 nm according to the principle of diagonal tightening, and the torque is checked.

- 10 Install the connecting copper bar, tighten the bolts to 9 ± 0.8 nm, and check the torque.
- 11 Install the MSD positive copper bar and remove the MSD negative copper bar, tighten the bolt to 9 ± 0.8 nm, and check the torque.
- 12 Put the BDU assembly into the box, tighten the bolts to 9 ± 0.8 nm, and check the torque.
- 13 Install the AC charging high voltage harness terminal.
- 14 Install the high voltage bus bar, tighten the bolts to 9 ± 0.8 nm, and check the torque.
- 15 After the fixing of copper bar, the insulation of the system is detected at 6 points: total positive and negative battery, positive and negative terminals of MSD base, positive and negative poles of high-voltage connector inside the box.
- 16 Arrange the low-voltage wire inside the battery pack. The connector of the module to be inserted on the harness has corresponding marks. The module number from total negative to total positive is M1, M2...M24.

Note: The total negative side harness is marked with green label, and the total positive side harness is marked with red label.

- 17 Arrow shaped clip is fixed to the limit hole of reinforcing plate.
- 18 Low pressure connector is fixed with clamp.

Note: Push the clamp from top to bottom along the plug-in slot.

- 19 Install the low voltage harness grounding wire bolt, tighten to 9 ± 0.8 nm, and check the torque.
- 20 Place the BDU upper cover on the BDU base, tighten the BDU upper cover bolts to 9 ± 0.8 nm, and check the torque.
- 21 Place the BMU on the BDU upper cover, tighten the BMU bolts to 9 ± 0.8 nm, and check the torque.
- 22 insert the high voltage connector interlock, MSD interlock, BMU interface, BDU interface, CMU interface connector, harness connector.

Note: It is necessary to confirm that all connectors should be inserted to the bottom, and the sound of "click" can be heard, and the opposite direction should be slightly stretched to ensure that they are inserted in place.

Power and Control System

23 If equipped, plug the heating film assembly harness with the power battery harness assembly in pairs.

Note: It is necessary to confirm that all connectors should be inserted to the bottom, and the sound of "click" can be heard, and the opposite direction should be slightly stretched to ensure that they are inserted in place.

24 install the iron wire, tighten the bolt to 9 ± 0.8 nm, and check the torque.

25 First, place the sealing ring above the box along the outline of the box, align the hole position of the sealing ring, and then tear the protective surface of the sealing ring and paste it.

26 place the upper cover on the box, align the holes, install the bolts of the upper cover, pre tighten the first time (diagonal tightening principle), the second time tighten to 9 ± 0.8 nm, and check the torque.

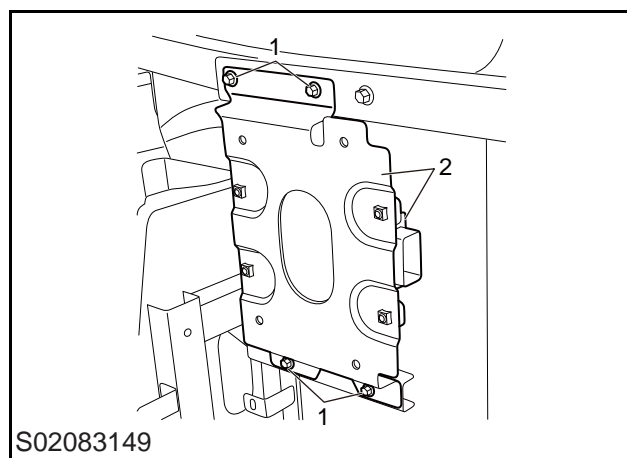
27 Power battery air tightness test. Refer to " Power battery air tightness test " .

28 Install the power battery. Refer to "power battery assembly replacement" .

Electric Vehicle Communication Controller (EVCC) Replacement

Removal

- 1 Disconnect the negative battery cable.
- 2 Remove the Complete Vehicle Controller. Refer to "Complete Vehicle Controller Replacement" .
- 3 Disconnect the electric vehicle communication controller electrical connector.
- 4 Remove 4 electric vehicle communication controller bolts (1).
- 5 Remove the electric vehicle communication controller (2).



Installation

- 1 Install the electric vehicle communication controller.
- 2 Install the electric vehicle communication controller bolts, tighten them to 9 ± 1 Nm, and check the torque.
- 3 Connect the electric vehicle communication controller electrical connector.
- 4 Connect the negative battery cable.

Power Cooling System

Specification

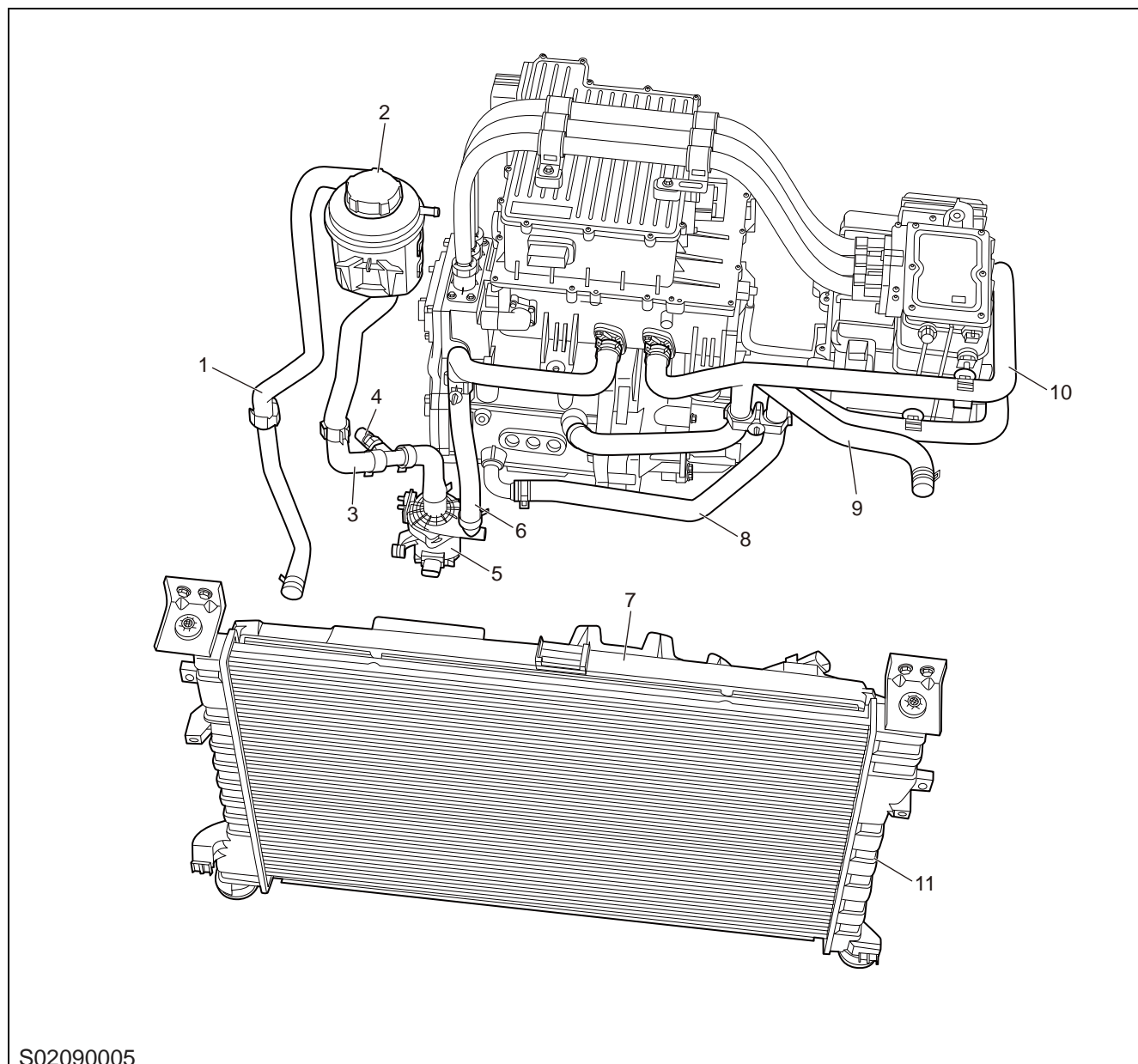
Fastener Specifications

Name	Torque
Bolt - fan assembly	8-10 N.m
Bolt - radiator support	4-6 N.m
Bolt - electric water pump to charger water pipe bracket	8-10 N.m
Bolt - motor to radiator hose bracket.	8-10 N.m

Power Cooling System

Layout

Cooling System Layout



- | | | | |
|---|--|----|---|
| 1 | Radiator to Expansion Tank Hose | 7 | Engine Cooling Fan |
| 2 | Expansion Tank | 8 | Motor controller to motor hose |
| 3 | Expansion Tank to Water Pump Hose | 9 | Motor to radiator water outlet pipe |
| 4 | Water Temperature Sensor | 10 | Radiator and Fan Assembly |
| 5 | Electric Water Pump | 11 | Charging and distribution unit to motor controller Hose |
| 6 | Electric water pump to charger pipe assembly | 12 | Radiator |

Service Guide

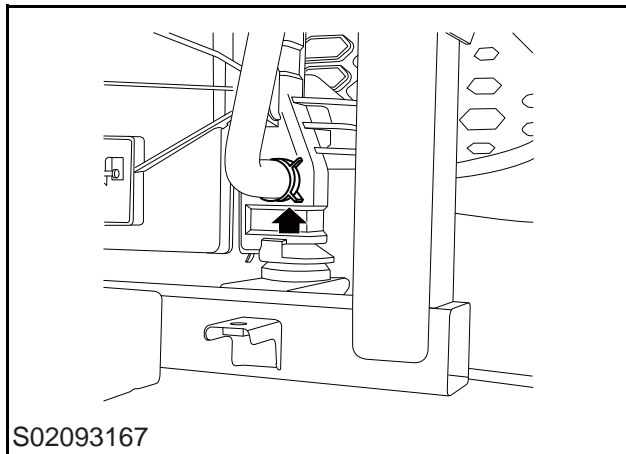
Motor Coolant Drain and Refill

Drain

- 1 Remove the expansion tank cap.

Warning: Spilled steam or coolant can cause injuries such as burns, so do not open the expansion tank cap when the cooling system is still hot.

- 2 Raise the vehicle.
- 3 Secure a suitable container to collect the coolant.
- 4 Disconnect the clamp at the radiator end connecting the electric water pump to the radiator hose, and disconnect the water pipe at the radiator end.



- 5 Drain the coolant.

Refill

- 1 Install the clamp at the radiator end connecting the electric water pump to the radiator hose.
- 2 Refill the coolant, until the coolant reaches the MAX line of the expansion tank and remains stationary.
- 3 Connect the scan tool, conduct actuator test - VCU- motor cooling water pump enabling operation, to make the electric water pump work, and the coolant in the expansion tank will be immediately drained; then immediately refill the coolant between MIN and MAX, and repeat the process 3-5 times until the liquid level of the expansion tank is stable.

Note: Always refill the coolant within 13 seconds after the antifreeze of the expansion tank is drained, otherwise it may trigger the water pump dry-run protection mechanism.

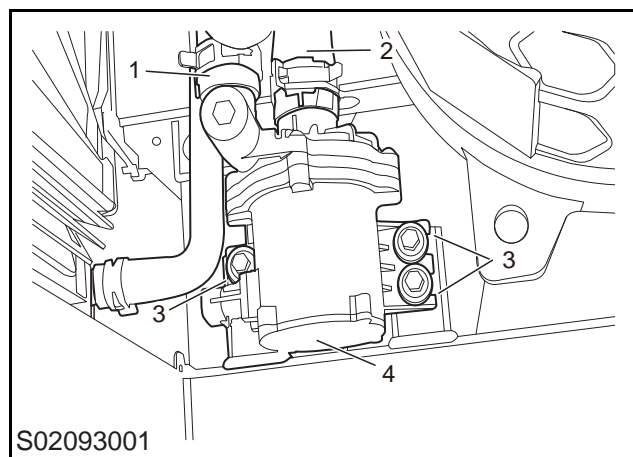
- 4 Continue to run the water pump for 15 minutes after the liquid level is stable, and the liquid level of the expansion tank has no decline.
- 5 Check the coolant level of the expansion tank, and check the cooling system for leakage.
- 6 Install the expansion tank cap.
- 7 Lower the vehicle.

Power Cooling System

Electric Water Pump Replacement

Removal

- 1 Disconnect the negative battery cable.
- 2 Remove the service switch. Refer to "Service Switch Replacement".
- 3 Drain the coolant of electric drive system.
- 4 Lift the vehicle to the appropriate height.
- 5 Disconnect the expansion tank to water pump hose (1) from the electric water pump.
- 6 Disconnect the electric water pump to charger water hose (2) from the electric water pump.
- 7 Remove the retaining bolt (3) of the electric water pump.
- 8 Remove the electric water pump (4).



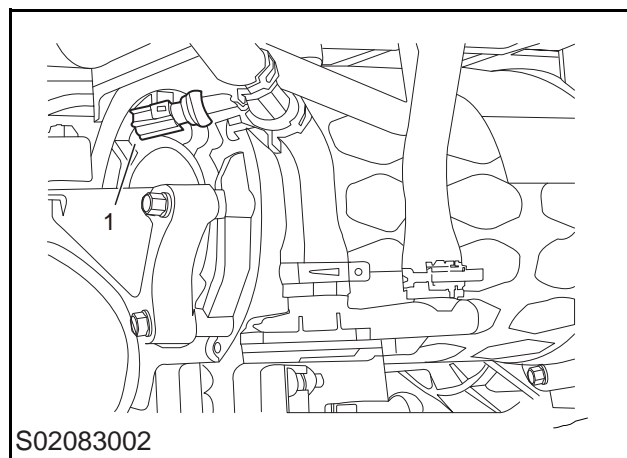
Installation

- 1 Install the electric water pump.
- 2 Install 3 electric water pump retaining bolts, and tighten them to 8-10 N.m.
- 3 Connect the electric water pump to charger water pipe onto the electric water pump.
- 4 Connect the expansion tank to water pump hose onto the electric water pump.
- 5 Fill the coolant of electric drive system.
- 6 Install the service switch. Refer to "Service Switch Replacement".
- 7 Connect the negative battery cable.

Water Temperature Sensor Replacement

Removal

- 1 Disconnect the negative battery cable.
- 2 Remove the service switch. Refer to "Service Switch Replacement".
- 3 Drain the coolant of electric drive system.
- 4 Lift the vehicle to the appropriate height.
- 5 Disconnect the electrical connector of the water temperature sensor.
- 6 Remove the water temperature sensor (1).



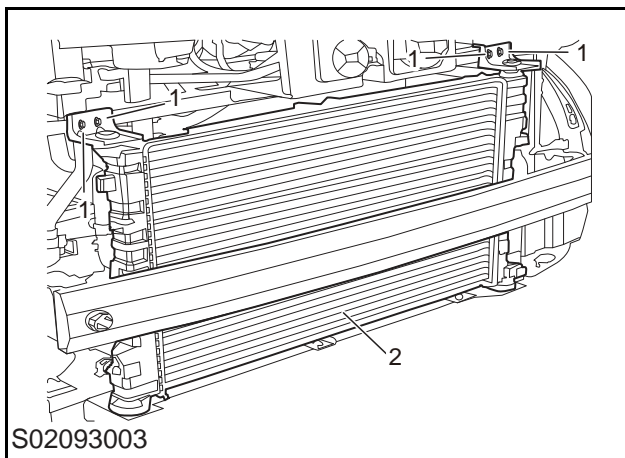
Installation

- 1 Install the water temperature sensor.
- 2 Connect the electrical connector of the water temperature sensor.
- 3 Fill the coolant of electric drive system.
- 4 Install the service switch. Refer to "Service Switch Replacement".
- 5 Connect the negative battery cable.

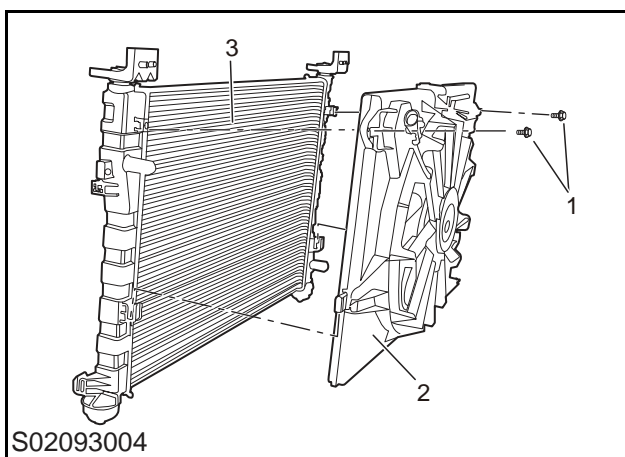
Radiator and Fan Assembly Replacement

Removal

- 1 Disconnect the negative battery cable.
- 2 Remove the service switch. Refer to "Service Switch Replacement".
- 3 Drain the coolant of electric drive system.
- 4 Remove the front bumper.
- 5 Lift the vehicle to the appropriate height.
- 6 Remove the radiator support bolt (1).
- 7 Remove the radiator and fan assembly (2).
- 3 Install the radiator and fan assembly onto the vehicle.
- 4 Install the radiator support bolt, and tighten it to 8-10 N.m.
- 5 Install the front bumper.
- 6 Fill the coolant of electric drive system.
- 7 Install the service switch. Refer to "Service Switch Replacement".
- 8 Connect the negative battery cable.



- 8 Remove the fan assembly bolt (1).
- 9 Remove the fan assembly (2) and the radiator (3).



Installation

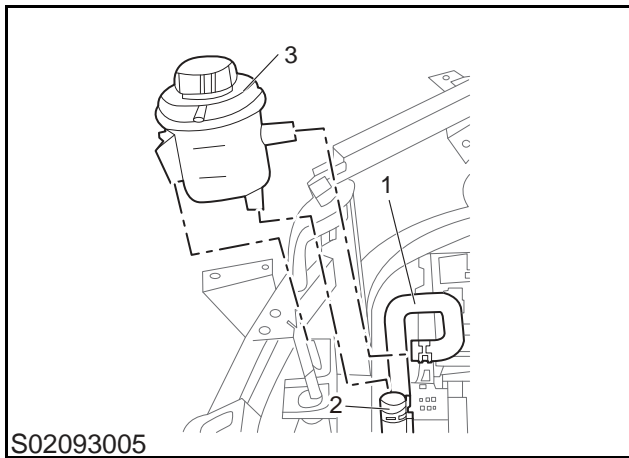
- 1 Install the fan assembly and the radiator.
- 2 Install the fan assembly bolt, and tighten it to 4-6 N.m.

Power Cooling System

Expansion Tank Replacement

Removal

- 1 Disconnect the negative battery cable.
- 2 Remove the service switch. Refer to "Service Switch Replacement".
- 3 Drain the coolant of electric drive system.
- 4 Disconnect the radiator to the expansion tank hose (1).
- 5 Disconnect the expansion tank to the water pump hose (2).
- 6 Remove the expansion tank (3) from the vehicle.



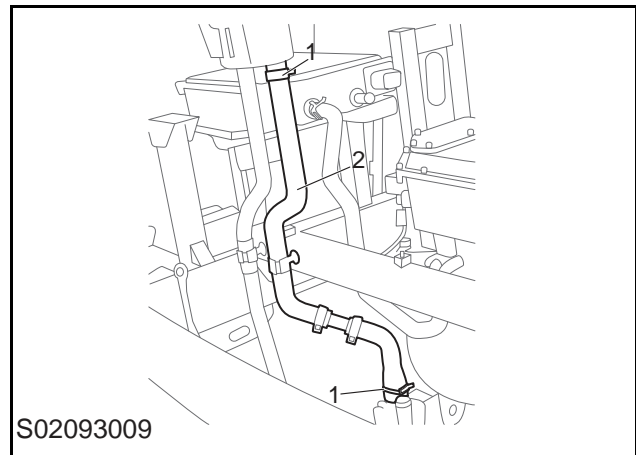
Installation

- 1 Install the expansion tank.
- 2 Install the expansion tank to the water pump hose.
- 3 Install the radiator to the expansion tank hose.
- 4 Fill the coolant of electric drive system.
- 5 Install the service switch. Refer to "Service Switch Replacement".
- 6 Connect the negative battery cable.

Expansion Tank to Water Pump Hose Replacement

Removal

- 1 Disconnect the negative battery cable.
- 2 Remove the service switch. Refer to "Service Switch Replacement".
- 3 Drain the coolant of electric drive system.
- 4 Disconnect 2 clamps (1) connecting the expansion tank to the water pump hose.
- 5 Remove the water temperature sensor. Refer to "Water Temperature Sensor Replacement".
- 6 Disconnect the clip connecting the expansion tank to the water pump hose, and remove the expansion tank from the water pump hose (2).



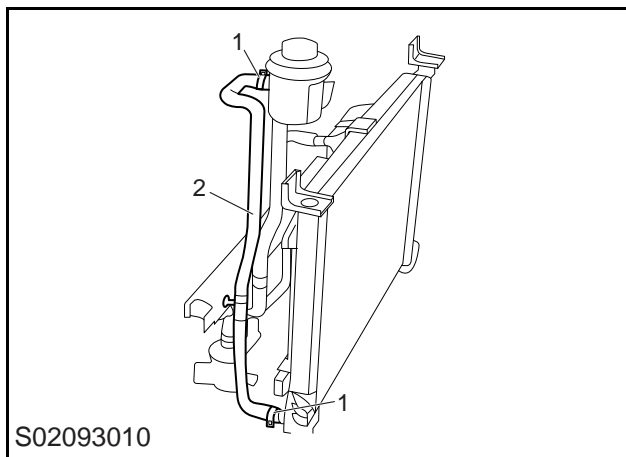
Installation

- 1 Install the expansion tank to the water pump hose.
- 2 Install the clip connecting the expansion tank to the water pump hose.
- 3 Install 2 clamps connecting the expansion tank to the water pump hose clamp.
- 4 Fill the coolant of electric drive system.
- 5 Install the service switch. Refer to "Service Switch Replacement".
- 6 Connect the negative battery cable.

Radiator to Expansion Tank Hose Replacement

Removal

- 1 Disconnect the negative battery cable.
- 2 Remove the service switch. Refer to "Service Switch Replacement".
- 3 Drain the coolant of electric drive system.
- 4 Disconnect 2 clamps (1) connecting the radiator to the expansion tank hose.
- 5 Disconnect the clip connecting the radiator to the expansion tank hose, and remove the radiator from the expansion tank hose (2).



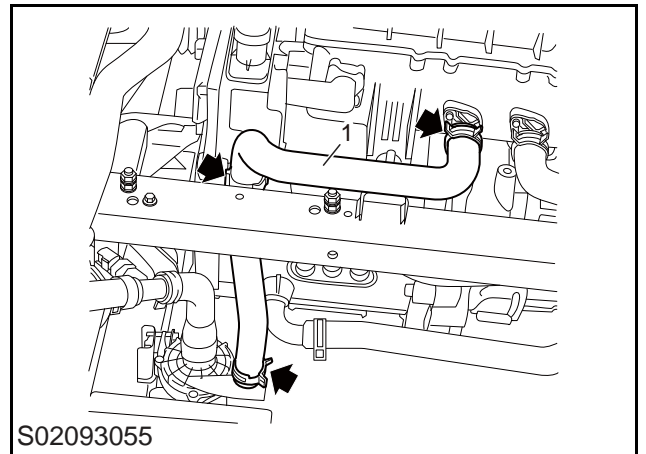
Installation

- 1 Install the radiator to the expansion tank hose.
- 2 Install the clip connecting the radiator to the expansion tank hose.
- 3 Install 2 clamps connecting the radiator to the expansion tank hose.
- 4 Fill the coolant of electric drive system.
- 5 Install the service switch. Refer to "Service Switch Replacement".
- 6 Connect the negative battery cable.

Electric Water Pump to Charger Pipe Assembly Replacement

Removal

- 1 Disconnect the negative battery cable.
- 2 Remove the service switch. Refer to "Service Switch Replacement".
- 3 Drain the coolant of electric drive system.
- 4 Disconnect the electric water pump to charger pipe from the body.
- 5 Disconnect the electric water pump to charger pipe assembly clamp.
- 6 Remove the electric water pump to charger pipe assembly (1).



Installation

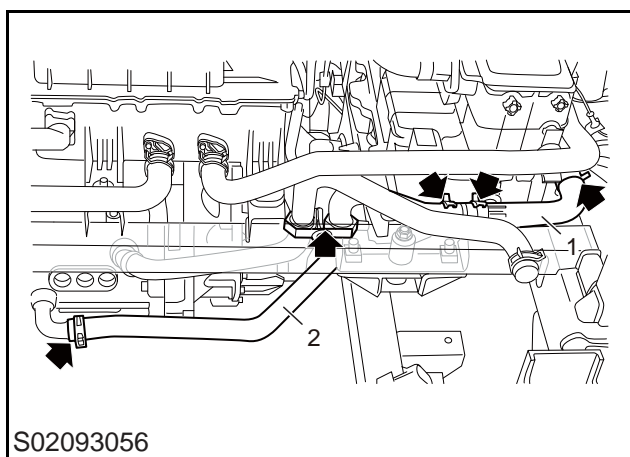
- 1 Install the electric water pump to charger pipe assembly.
- 2 Install the electric water pump to charger pipe assembly to the body.
- 3 Install the electric water pump to charger pipe assembly clamp.
- 4 Fill the coolant of electric drive system.
- 5 Install the service switch. Refer to "Service Switch Replacement".
- 6 Connect the negative battery cable.

Power Cooling System

Motor Controller to Motor Hose Replacement

Removal

- 1 Disconnect the negative battery cable.
- 2 Remove the service switch. Refer to "Service Switch Replacement".
- 3 Drain the coolant of electric drive system.
- 4 Disconnect the motor controller to motor hose from the body.
- 5 Disconnect the motor controller to motor hose clamp.
- 6 Remove the motor controller to motor hoses (1, 2).



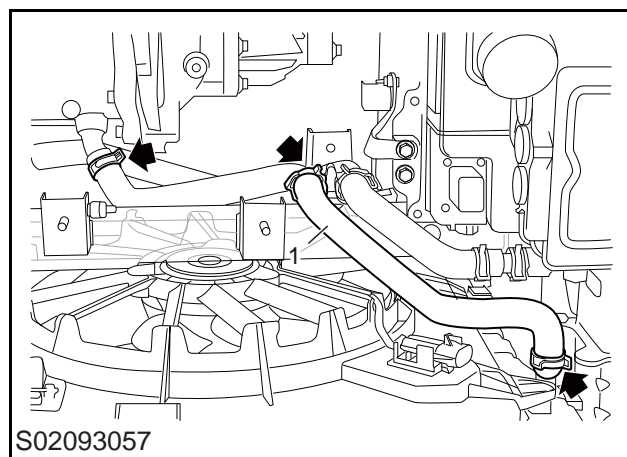
Installation

- 1 Install the motor controller to motor hose.
- 2 Install the motor controller to motor hose to the body.
- 3 Install the motor controller to motor hose clamp.
- 4 Fill the coolant of electric drive system.
- 5 Install the service switch. Refer to "Service Switch Replacement".
- 6 Connect the negative battery cable.

Motor to Radiator Water Outlet Pipe Replacement

Removal

- 1 Disconnect the negative battery cable.
- 2 Remove the service switch. Refer to "Service Switch Replacement".
- 3 Drain the coolant of electric drive system.
- 4 Disconnect the motor to radiator water outlet pipe from the body.
- 5 Disconnect the motor to radiator water outlet pipe clamp.
- 6 Remove the motor to radiator water outlet pipe (1).



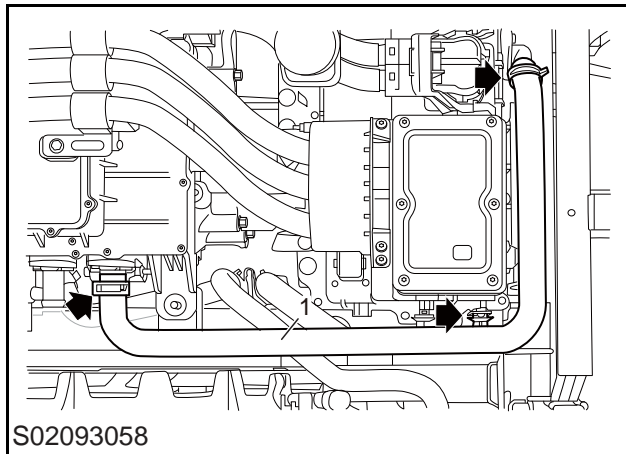
Installation

- 1 Install the motor to radiator water outlet pipe.
- 2 Install the motor to radiator water outlet pipe to the body.
- 3 Install the motor to radiator water outlet pipe clamp.
- 4 Fill the coolant of electric drive system.
- 5 Install the service switch. Refer to "Service Switch Replacement".
- 6 Connect the negative battery cable.

Charging and Distribution Unit to Motor Controller Hose Replacement

Removal

- 1 Disconnect the negative battery cable.
- 2 Remove the service switch. Refer to "Service Switch Replacement".
- 3 Drain the coolant of electric drive system.
- 4 Disconnect the charging and distribution unit to motor controller hose from the motor controller.
- 5 Disconnect the charging and distribution unit to motor controller hose clamp.
- 6 Remove the charging and distribution unit to motor controller hose (1).



Installation

- 1 Install the charging and distribution unit to motor controller hose.
- 2 Install the charging and distribution unit to motor controller hose to the motor controller.
- 3 Install the charging and distribution unit to motor controller hose clamp.
- 4 Fill the coolant of electric drive system.
- 5 Install the service switch. Refer to "Service Switch Replacement".
- 6 Connect the negative battery cable.

Electric Drive System

Specification

Fastener Specifications

Name	Torque (N.m)
Drain Plug	30 ± 5 N.m
Fuel Level Plug	35 ± 5 N.m
Bolt-rear suspension (short)	100-120 N.m
Bolt-rear suspension (long)	170-190 N.m
Bolt-reducer suspension and bracket connection	55-65 N.m
Nut-reducer suspension	100-120 N.m
Bolt-reducer suspension bracket	55-65 N.m
Bolt-transmission to drive motor	22 ± 3 N.m
Bolt-housing bolt	30 ± 3 N.m
Intermediate Shaft Locking Nut	160 ± 10 N.m
Bolt-main reduction gear to differential housing	90-100 N.m
Bolt-drive motor suspension and bracket connection	55-65 N.m
Nut-drive motor suspension	100-120 N.m
Bolt-drive motor suspension bracket	55-65 N.m
Bolt - motor controller	22 ± 2 N.m

Parameter Specification of Electric Drive Unit

Name	Parameters
Motor model	TZ204XS85K05
Motor type	Permanent magnet synchronous motor
Operating Voltage	240~420V
Peak power, KW	90
Rated power, KW	40
Rated torque, N.m	125
Peak torque, N.m	255
Rate speed, rpm	3100
Peak speed, rpm	10300

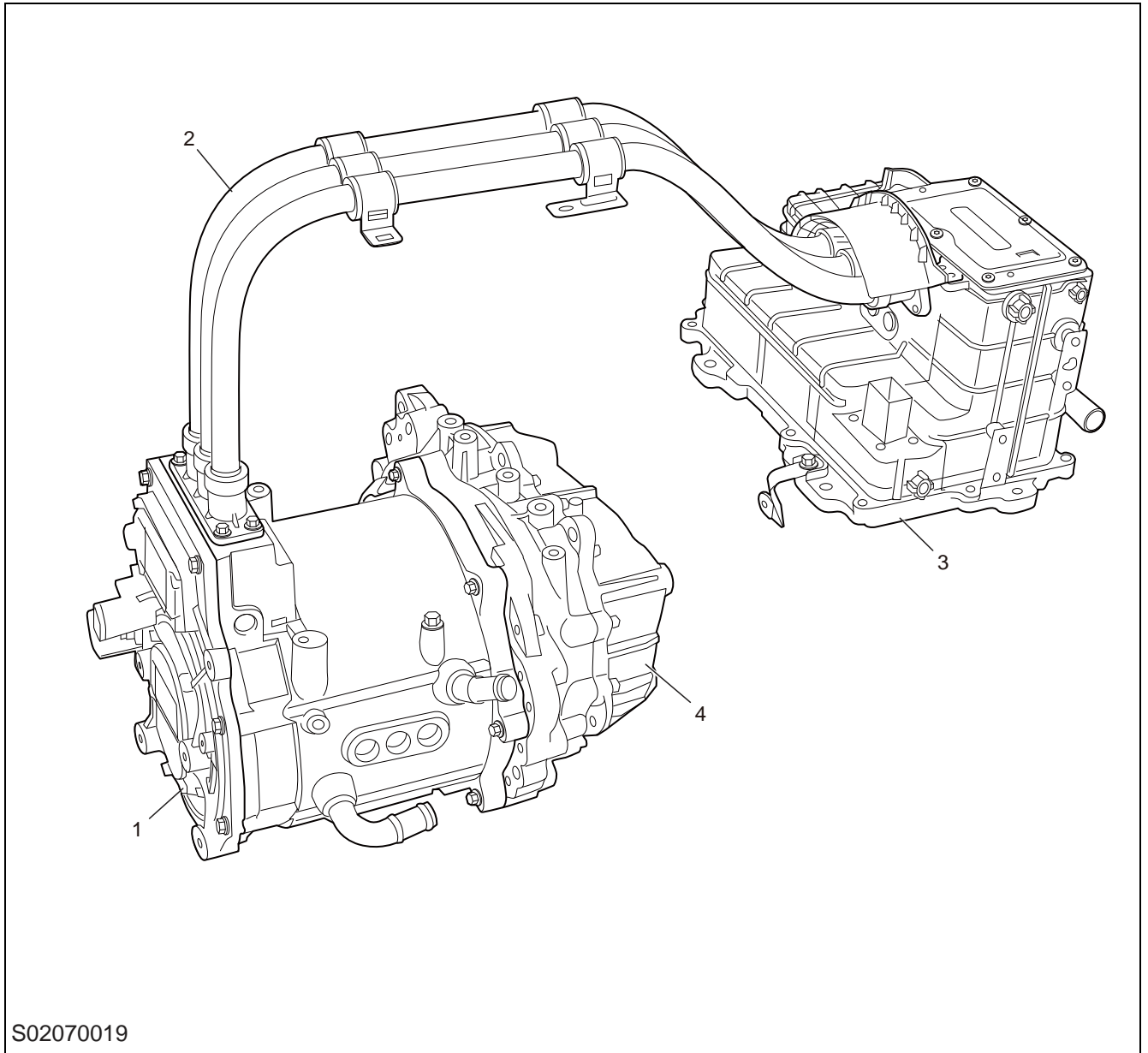
Electric Drive System

Parameter Specification of Reducer

Model	SH28E1B
Speed Ratio:	9.348
First Level Deceleration	2.5
Second Level Deceleration	3.739
Transmission Center Distance	185mm
Maximum Input Torque	255Nm
Maximum Input Speed	10300rpm
Quality (Without Oil)	77.5 ± 0.5kg
Lubricant	ATF 330
Standard Fuel Consumption	0.85L
Maximum Transmission Profile Size (Length*Width*Height)	481*477*556

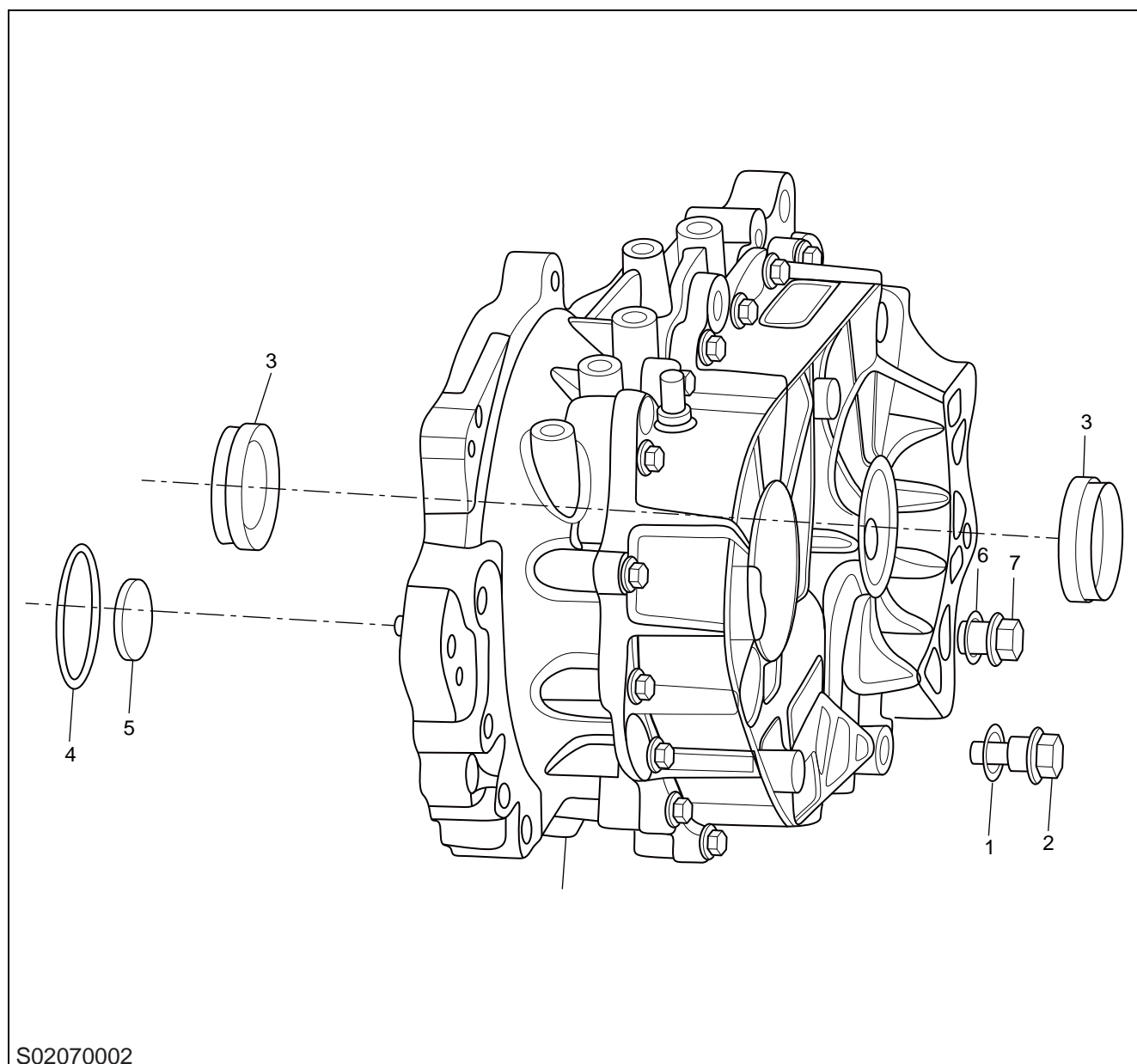
Layout

Electric Drive System Layout



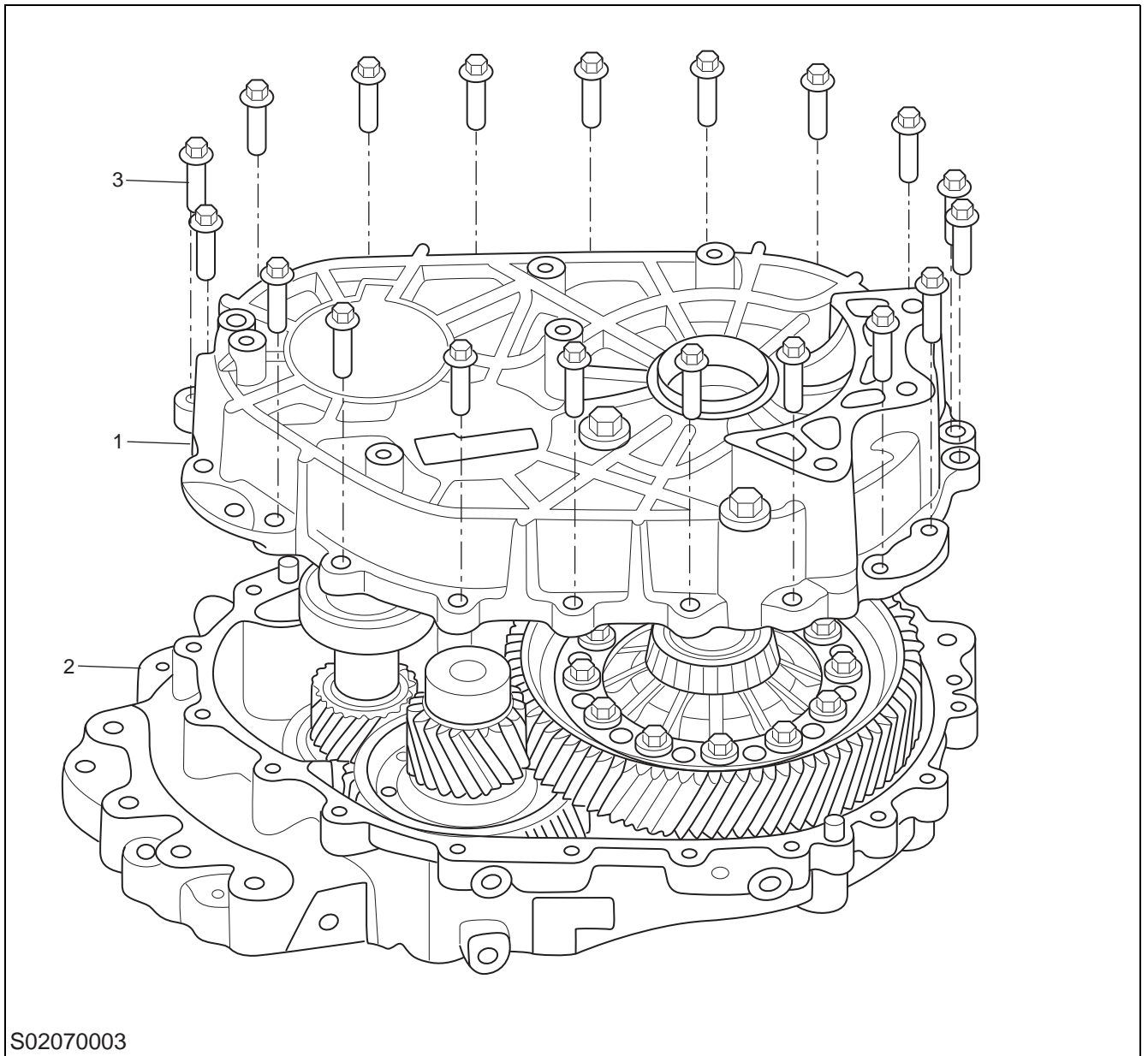
- 1 Drive motor
- 2 Motor three-phase harness
- 3 Motor controller
- 4 Reducer

Reducer Accessory Layout



- | | | | |
|---|-----------------------|---|----------------------|
| 1 | Gasket | 5 | Input Shaft Oil Seal |
| 2 | Fill/Drain Plug | 6 | Gasket |
| 3 | Output Shaft Oil Seal | 7 | Filler Plug Assembly |
| 4 | Motor O-ring | | |

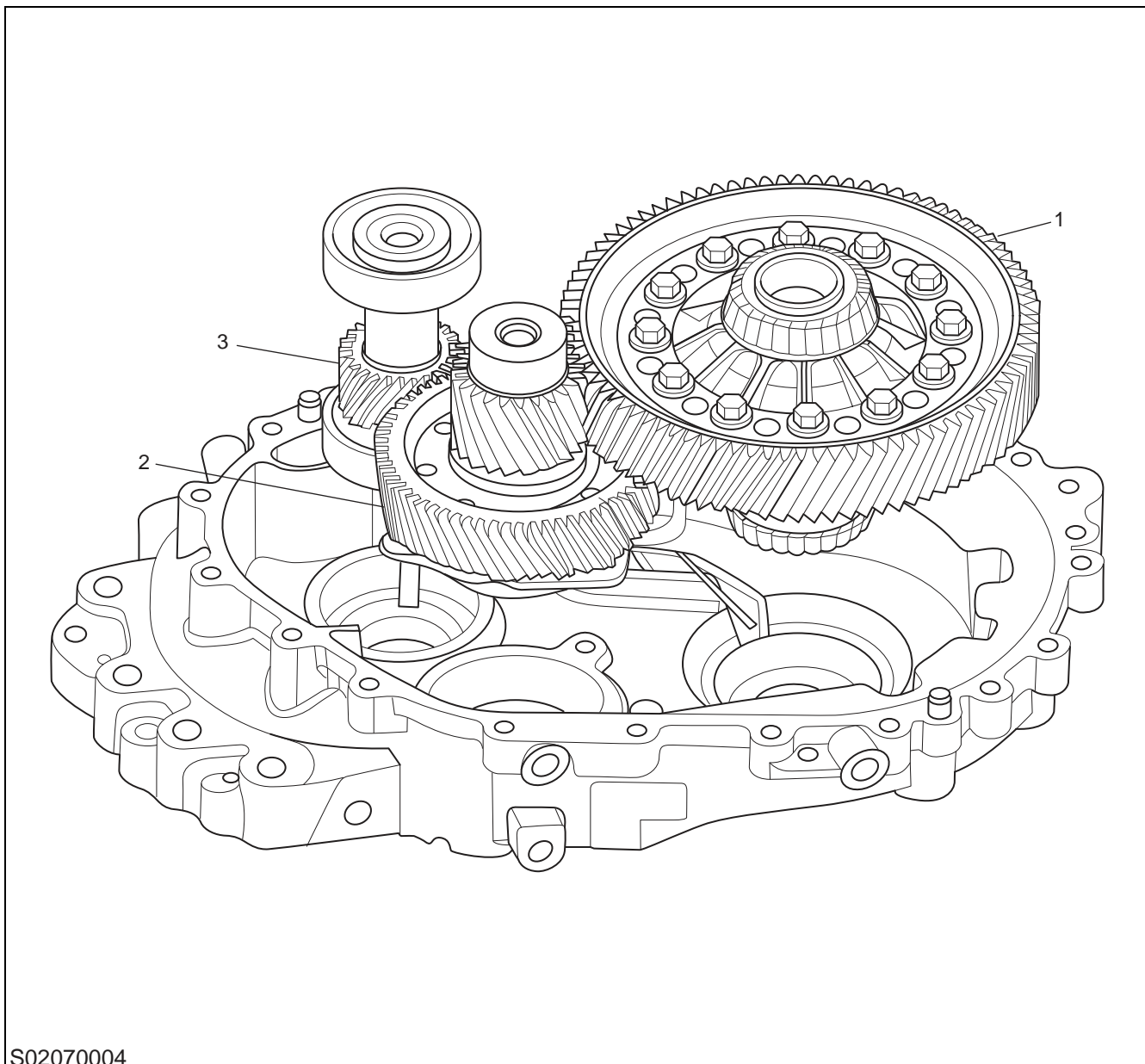
Reducer Housing Exploded View



- 1 Left Housing
- 2 Right Housing

- 3 Housing Bolt

Gear Transmission Mechanism Exploded View 1



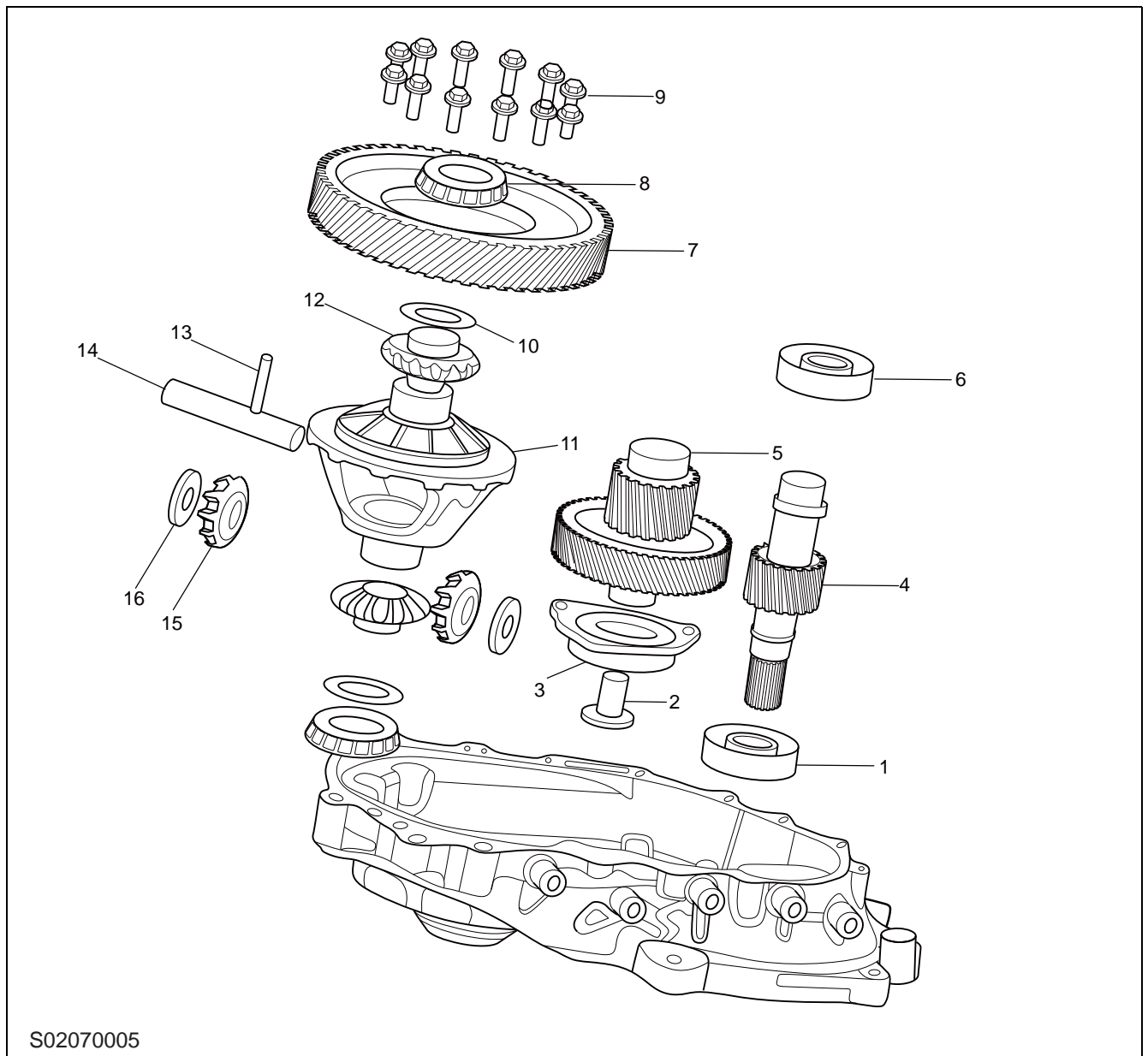
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1 Differential Assembly

3 Input Shaft Assembly

2 Intermediate Shaft Assembly

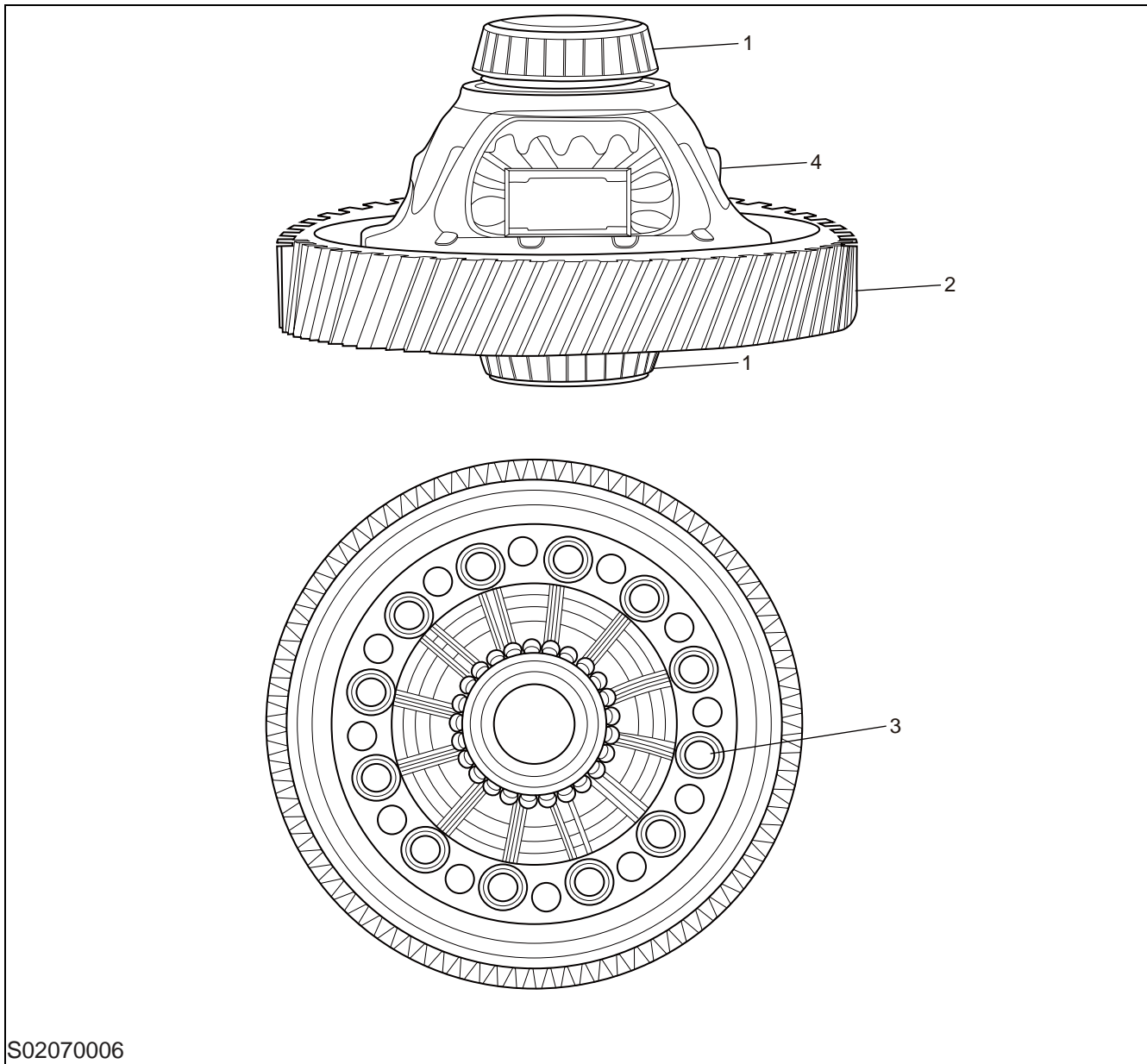
Gear Transmission Mechanism Exploded View 2



S02070005

- | | | | |
|----|---|----|----------------------|
| 1 | Input Shaft Bearing | 11 | Differential Housing |
| 2 | Locking Nut | 12 | Axle Shaft Gear |
| 3 | Intermediate Shaft Bearing | 13 | Spring Pin |
| 4 | Input Shaft | 14 | Planet Gear Shaft |
| 5 | Intermediate Shaft | 15 | Planet Gear |
| 6 | Input Shaft Bearing | 16 | Planet Gear Gasket |
| 7 | Main Reduction Gear | | |
| 8 | Inner Ring of Differential Cone Bearing | | |
| 9 | Main Reduction Gear Retaining Bolt | | |
| 10 | Axle Shaft Gear Gasket | | |

Differential Assembly Exploded View



S02070006

1 Inner Ring of Differential Cone Bearing

2 Main Reduction Gear

3 Differential Bolt

4 Differential Housing

Service Guide

Reducer Oil Drain and Refill

Drain

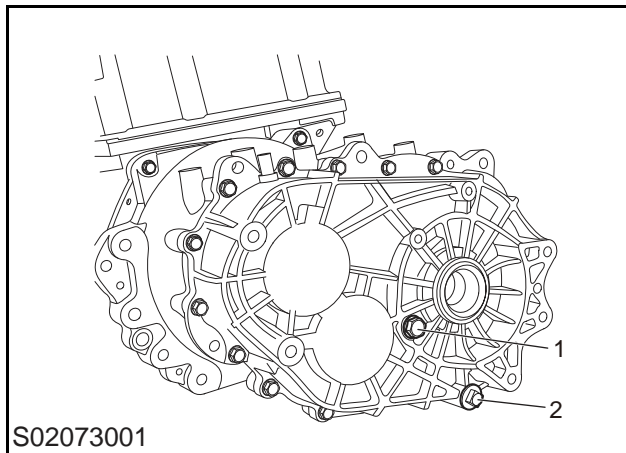
- 1 Lift the vehicle and place the appropriate container under the transmission.
- 2 Clean the filler plug area, remove the filler plug (1) and the gasket.

Note:The fill/drain bolt gasket is a disposable part, which shall be discarded after being removed.

- 3 Clean the drain plug area, remove the drain plug (2) and the gasket.

Note:The fill/drain bolt gasket is a disposable part, which shall be discarded after being removed.

- 4 Drain the transmission fluid.



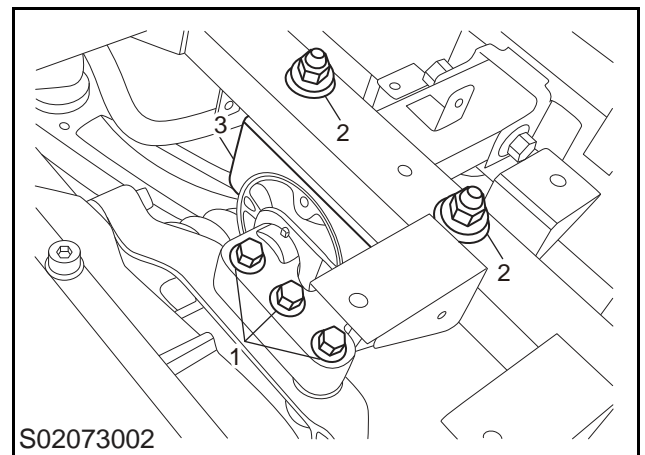
Refill

- 1 Clean the oil drain port as well as the oil filler.
- 2 Place the new drain plug gasket onto the drain plug, install and tighten the drain plug to 30 ± 5 N.m.
- 3 Using an appropriate and clean funnel to fill the transmission fluid into the transmission through the oil filler until it reaches the specified value.
- 4 Place the new filler/drain plug gasket onto the filler plug, install and tighten the filler plug to 35 ± 5 N.m.
- 5 Clean oil stains at filler/drain plug.
- 6 Lower the vehicle to the ground.

Reducer Suspension Replacement

Removal

- 1 Disconnect the negative battery cable.
- 2 If it is domestic model, remove the battery bracket. Refer to "Battery Bracket Replacement".
- 3 If it is overseas model, remove the motor controller. Refer to "Motor Controller Replacement".
- 4 Raise the vehicle.
- 5 Using an appropriate tool to support the reducer.
- 6 Remove 3 reducer suspensions and bracket connection bolts (1).
- 7 Remove 2 reducer suspension nuts (2).
- 8 Remove the reducer suspension (3).



Installation

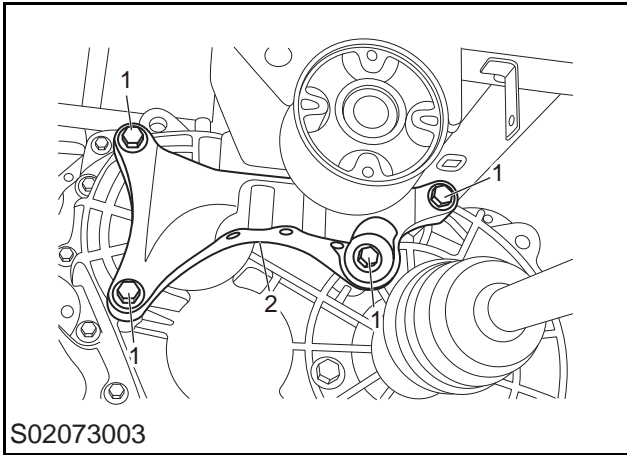
- 1 Install the reducer suspension.
- 2 Install 2 reducer suspension nuts, tighten them to 100-120 N.m and check the torque.
- 3 Install 3 reducer suspensions and bracket connection bolts, tighten them to 55-65 N.m and check the torque.
- 4 Lower the vehicle.
- 5 If it is domestic model, install the battery bracket. Refer to "Battery Bracket Replacement".
- 6 If it is overseas model, install the motor controller. Refer to "Motor Controller Replacement".
- 7 Connect the negative battery cable.

Electric Drive System

Reducer Suspension Bracket Replacement

Removal

- 1 Disconnect the negative battery cable.
- 2 If it is domestic model, remove the battery bracket. Refer to "Battery Bracket Replacement".
- 3 If it is overseas model, remove the motor controller. Refer to "Motor Controller Replacement".
- 4 Raise the vehicle.
- 5 Using an appropriate tool to support the reducer.
- 6 Remove 3 reducer suspensions and bracket connection bolts. Refer to "Reducer Suspension Replacement".
- 7 Remove 4 reducer suspensions bracket bolts (1).
- 8 Remove the reducer suspension bracket (2).



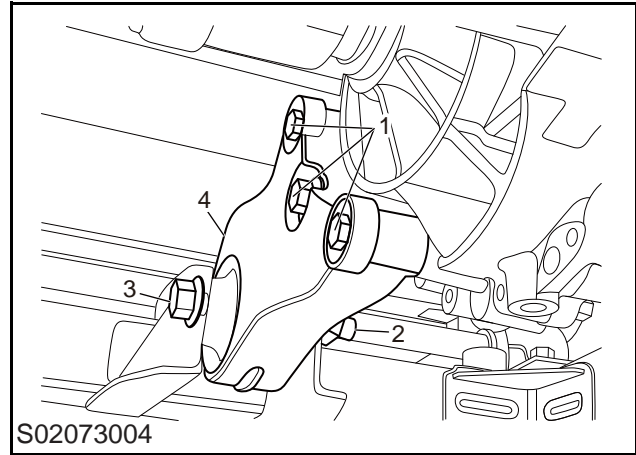
Installation

- 1 Install the reducer suspension bracket.
- 2 Install 4 reducer suspensions bracket bolts, tighten them to 55-65 N.m and check the torque.
- 3 Install 3 reducer suspensions and bracket connection bolts. Refer to "Reducer Suspension Replacement".
- 4 Lower the vehicle.
- 5 If it is domestic model, install the battery bracket. Refer to "Battery Bracket Replacement".
- 6 If it is overseas model, install the motor controller. Refer to "Motor Controller Replacement".
- 7 Connect the negative battery cable.

Rear Reducer Suspension Replacement

Removal

- 1 Disconnect the negative battery cable.
- 2 Raise the vehicle.
- 3 Using an appropriate tool to support the reducer.
- 4 Remove 3 rear reducer suspension bolts (short) (1).
- 5 Remove 3 rear reducer suspension nuts (2) and bolts (long) (3).
- 6 Remove the rear reducer suspension (4).



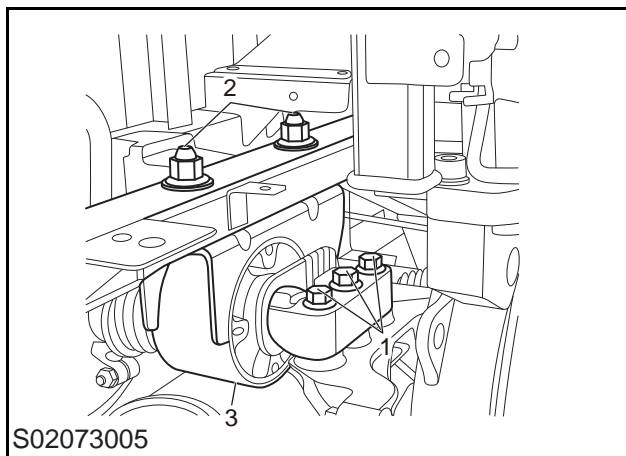
Installation

- 1 Install the rear reducer suspension.
- 2 Install the rear reducer suspension bolt (long) and nut, tighten them to 170-190 N.m and check the torque.
- 3 Install 3 rear reducer suspension bolts (short), tighten them to 100-120 N.m and check the torque.
- 4 Lower the vehicle.
- 5 Connect the negative battery cable.

Drive Motor Suspension Replacement

Removal

- 1 Disconnect the negative battery cable.
- 2 If it is domestic model, remove the on-board charger. Refer to "On-board Charger Replacement".
- 3 If it is overseas model, remove the battery bracket. Refer to "Battery Bracket Replacement".
- 4 Raise the vehicle.
- 5 Using an appropriate tool to support the drive motor.
- 6 Remove 3 drive motor suspensions and bracket connection bolts (1).
- 7 Remove 2 drive motor suspension nuts (2).
- 8 Remove the drive motor suspension (3).



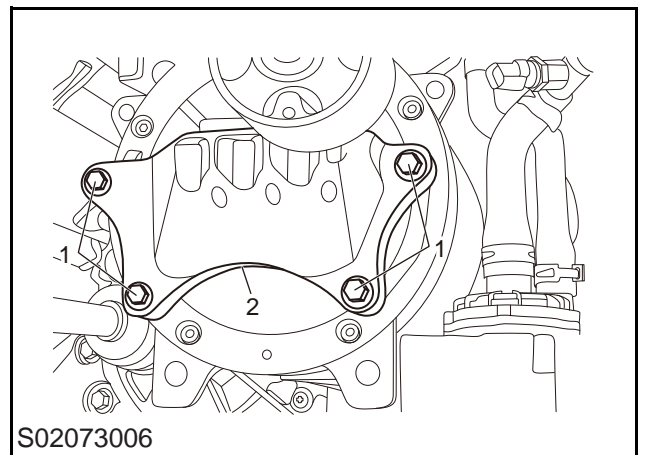
Installation

- 1 Install the drive motor suspension.
- 2 Install 2 drive motor suspension nuts, tighten them to 100-120 N.m and check the torque.
- 3 Install 3 drive motor suspensions and bracket connection bolts, tighten them to 55-65 N.m and check the torque.
- 4 Lower the vehicle.
- 5 If it is domestic model, install the on-board charger. Refer to "On-board Charger Replacement".
- 6 If it is overseas model, install the battery bracket. Refer to "Battery Bracket Replacement".
- 7 Connect the negative battery cable.

Drive Motor Suspension Bracket Replacement

Removal

- 1 Disconnect the negative battery cable.
- 2 If it is domestic model, remove the on-board charger. Refer to "On-board Charger Replacement".
- 3 If it is overseas model, remove the battery bracket. Refer to "Battery Bracket Replacement".
- 4 Raise the vehicle.
- 5 Using an appropriate tool to support the drive motor.
- 6 Remove 3 drive motor suspensions and bracket connection bolts. Refer to "Drive Motor Suspension Replacement".
- 7 Remove 4 drive motor suspensions bracket bolts (1).
- 8 Remove the drive motor suspension bracket (2).



Installation

- 1 Install the drive motor suspension bracket.
- 2 Install 4 drive motor suspensions bracket bolts, tighten them to 55-65 N.m and check the torque.
- 3 Install 3 drive motor suspensions and bracket connection bolts. Refer to "Drive Motor Suspension Replacement".
- 4 Lower the vehicle.
- 5 If it is domestic model, install the on-board charger. Refer to "On-board Charger Replacement".
- 6 If it is overseas model, install the battery bracket. Refer to "Battery Bracket Replacement".

- 7 Connect the negative battery cable.

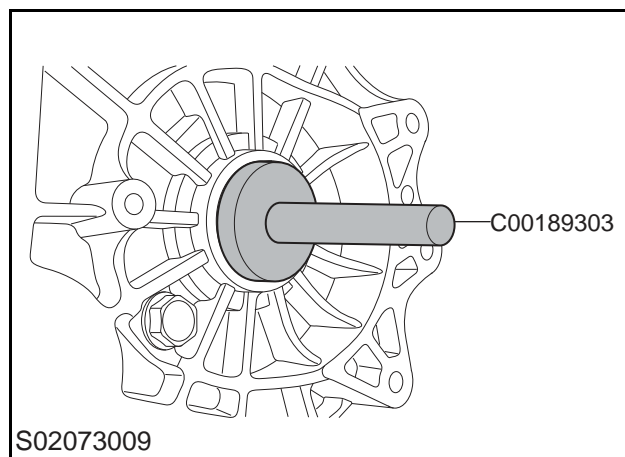
Differential Axle Shaft Oil Seal Replacement (Left)

Removal

- 1 Drain the reducer oil. Refer to "Reducer Oil Drain and Refill".
- 2 Remove the left axle shaft. Refer to "Axle Shaft Replacement - Left".
- 3 Remove and discard the oil seal carefully, take care not to damage the housing oil seal assembly cylinder surface.

Installation

- 1 Clean the oil seal groove.
- 2 Install the new oil seal with the special tool C00189303.



- 3 Install the left axle shaft. Refer to "Axle Shaft Replacement - Left".
- 4 Refill the reducer oil. Refer to "Reducer Oil Drain and Refill".

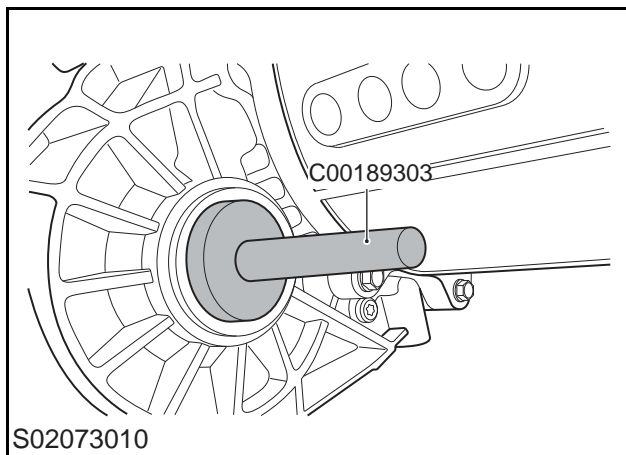
Differential Axle Shaft Oil Seal Replacement (Right)

Removal

- 1 Drain the reducer oil. Refer to "Reducer Oil Drain and Refill".
- 2 Remove the right axle shaft. Refer to "Axle Shaft Replacement - Right".
- 3 Remove and discard the oil seal carefully, take care not to damage the housing oil seal assembly cylinder surface.

Installation

- 1 Clean the oil seal groove.
- 2 Install the new oil seal with the special tool C00189303.

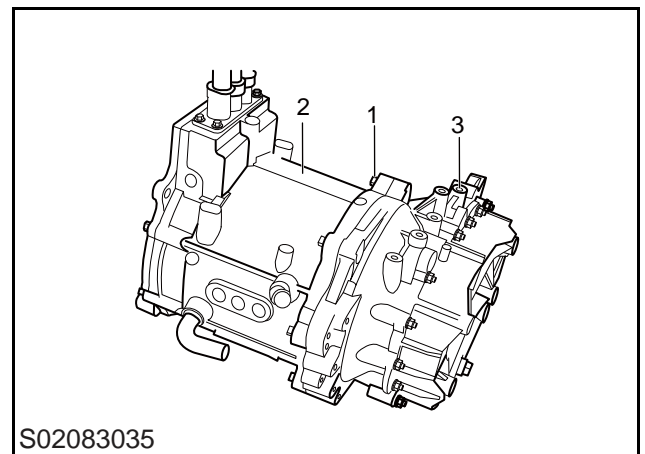
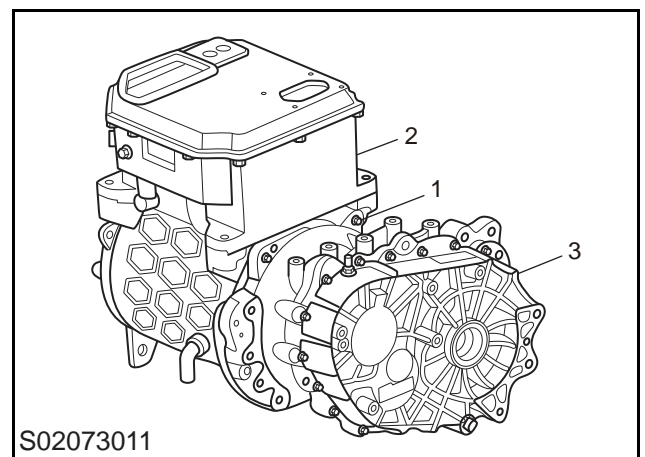


- 3 Install the right axle shaft. Refer to "Axle Shaft Replacement - Right".
- 4 Refill the reducer oil. Refer to "Reducer Oil Drain and Refill".

Electric Drive Unit Assembly and Reducer Replacement

Removal

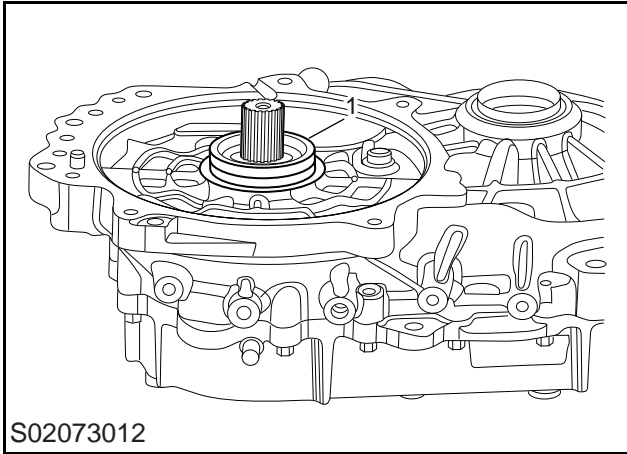
- 1 Lift the vehicle,
- 2 remove the electric drive system assembly from the complete vehicle. Refer to "Electric Drive System Assembly Replacement".
- 3 Remove the retaining bolt (1) of the motor assembly.
- 4 Tap the housing with a nylon hammer to separate the motor assembly (2) from the reduction box assembly (3).



- 5 Remove the motor O-ring (1).

Note: The motor O-ring is a disposable part, which shall be discarded after being removed.

Electric Drive System



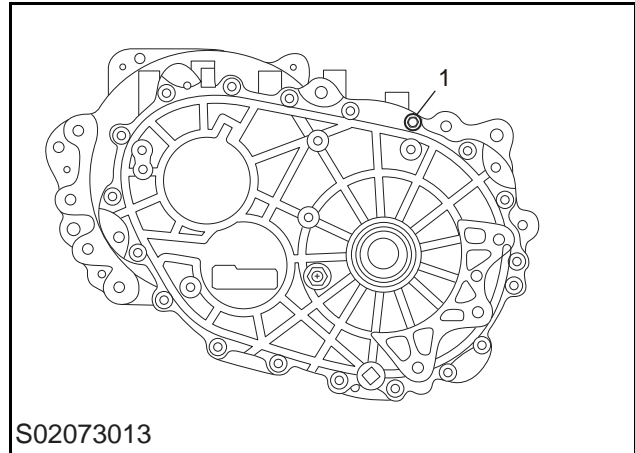
Installation

- 6 Assemble the new O-ring onto the assembly.
- 7 Install 7 motor retaining bolts, and tighten them to 22 ± 3 N.m.
- 8 Install the electric drive system assembly onto the complete vehicle. Refer to "Electric Drive System Assembly Replacement".
- 9 Lower the vehicle.

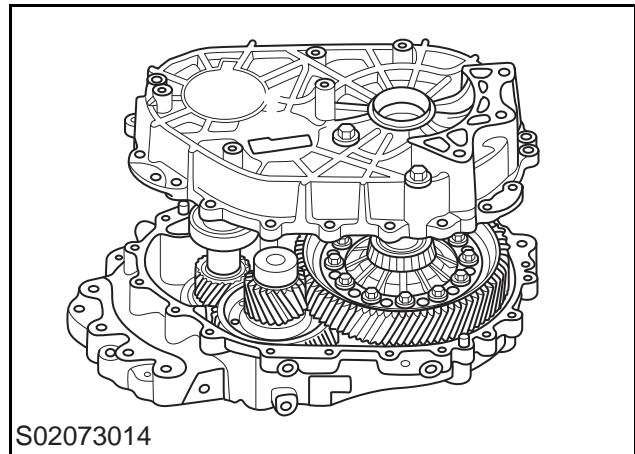
Reducer Assembly Breakdown

Removal

- 1 Drain the reducer oil. Refer to "Reducer Oil Drain and Refill".
- 2 Remove the reducer assembly. Refer to "Reducer Replacement".
- 3 Remove the housing connection bolts (1) on both sides.



- 4 Tap the right housing with a nylon hammer to separate the left housing.



Note: Tap the housing boss with a nylon hammer to separate it.

- 5 Remove the differential assembly.
- 6 Remove the intermediate shaft assembly.
- 7 Remove the input shaft assembly and the input shaft adjustment gasket.
- 8 If the intermediate shaft/differential assembly needs to be replaced, heat the left housing intermediate shaft/differential cone bearing seat,

remove the intermediate shaft/outer ring of the differential cone bearing and the intermediate shaft/differential adjustment gasket.

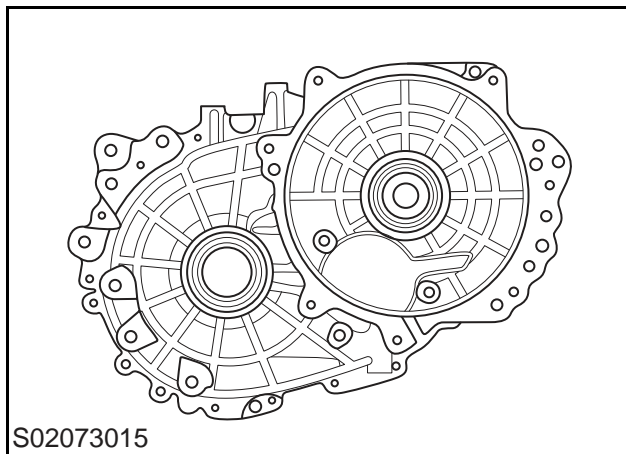
- 9 Remove and discard the right housing input shaft oil seal carefully, take care not to damage the housing oil seal assembly cylinder surface.

Note: *The oil seal is discarded after being removed.*

Installation

Note:

- ? Clean all parts and seals before assembly.
 - ? Use original transmission fluid to lubricate bearings and rotating parts.
 - ? Check the parts for indications of wear, scratch and damage, and replace if necessary.
 - ? Apply sealant to the front left housing bonding surface.
- 1 Press and install the input shaft oil seal into place with special tool C00189302 on the right housing.



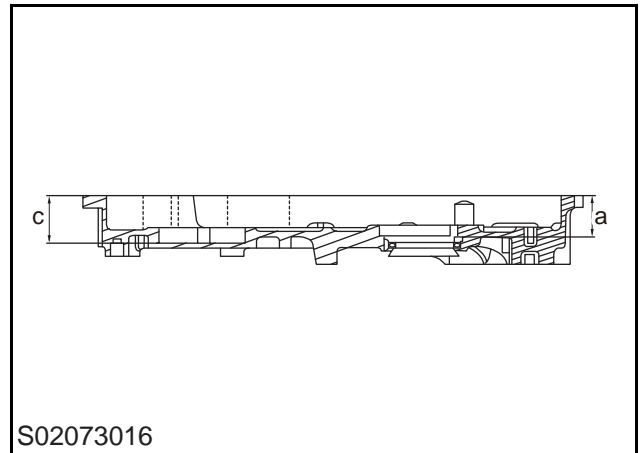
- 2 Measure the thickness of the removed input shaft, intermediate shaft and differential gaskets and select new adjustment gaskets according to the above thickness.

If the differential, input shaft or intermediate shaft are replaced, select the suitable gasket again. Refer to "Selection of Gasket".

- 3 Use measuring plate and height gauge to measure:

Distance a from large end face of left housing to bottom end face of differential bearing hole and record.

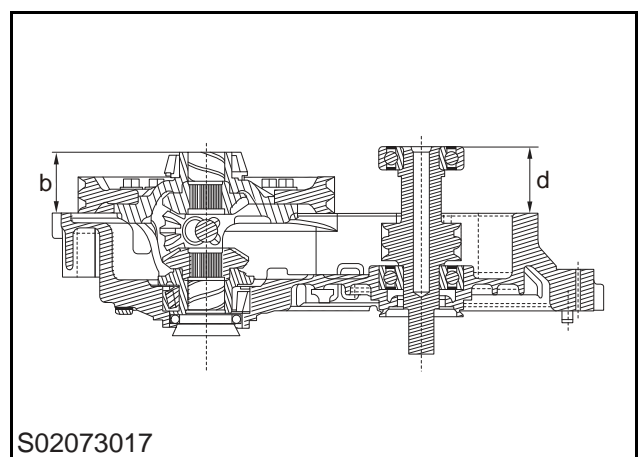
Distance c from large end face of left housing to bottom end face of input shaft bearing hole and record.



- 4 Put the differential assembly, intermediate shaft assembly, and input shaft assembly into the right housing in order.
- 5 Put the outer ring of the differential cone bearing into the differential.
- 6 Rotate the input shaft forward and reverse 5 laps each to ensure the shafting is vertical.
- 7 Use measuring block and measuring plate to measure through height gauge:

Distance b from large plane of right housing to end face of differential ball bearing and record.

Distance d from large plane of right housing to end face of input shaft ball bearing and record.



- 1 Calculate the thickness of differential cone bearing adjustment gasket equals to a-b, select the gasket according to the assembly record table.

Electric Drive System

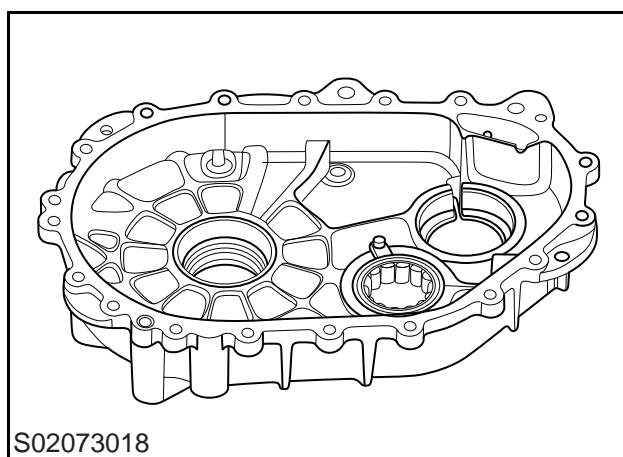
Differential bearing adjustment gasket selection requirements interference: 0.10-0.19mm	
Measure the clearance X (mm) (Housing bearing base plane to the periphery of the bearing)	Thickness of gasket (mm)
$1.61 \leq X \leq 1.71$	1.8
$1.71 \leq X \leq 1.81$	1.9
$1.81 \leq X \leq 1.91$	2.0
$1.91 \leq X \leq 2.01$	2.1
$2.01 \leq X \leq 2.11$	2.2
$2.11 \leq X \leq 2.21$	2.3
$2.21 \leq X \leq 2.31$	2.4

- Calculate the thickness of input shaft bearing gasket equals to c-d, select the gasket according to the assembly record table.

Rear input shaft bearing adjustment gasket selection requirements clearance: 0-0.05mm	
Measure the clearance X (mm) (Housing bearing base plane to the periphery of the bearing)	Thickness of gasket (mm)
$1.35 \leq X \leq 1.40$	1.35
$1.40 \leq X \leq 1.45$	1.40
$1.45 \leq X \leq 1.50$	1.45
$1.50 \leq X \leq 1.55$	1.50
$1.55 \leq X \leq 1.60$	1.55
$1.60 \leq X \leq 1.65$	1.60
$1.65 \leq X \leq 1.70$	1.65
$1.70 \leq X \leq 1.75$	1.70
$1.75 \leq X \leq 1.80$	1.75

- Press and install the outer ring and gasket of the cone bearing to the left housing with special tool C00189308.
- Press and install the outer ring of the intermediate shaft bearing into the left housing

with special tools C00189218 and C00189226, then install the retaining bolt of the intermediate shaft bearing locking plate.



- Put the input shaft adjustment gasket to the corresponding position of the corresponding left housing
- Install the input shaft assembly, intermediate shaft assembly and differential assembly into the front housing.
- Apply sealant evenly to the front left housing bonding surface.

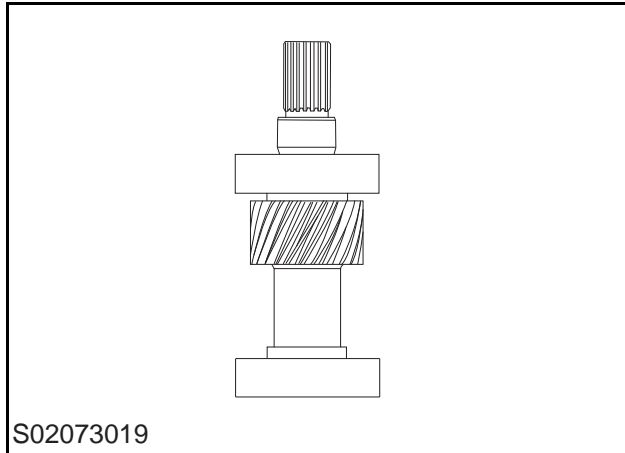
Note: The sealant model is Loctite 5900.

- Install the left housing into the right housing, and tap the right housing with a nylon hammer to make both housings tightly combined.
- Tighten the housing connection bolts on both sides to 30 ± 3 N.m.
- Install the filler plug and its gasket, and tighten them to 35 ± 5 N.m.
- Install the drain plug and its gasket, and tighten them to 30 ± 5 N.m.

Input Shaft Assembly Replacement

Removal

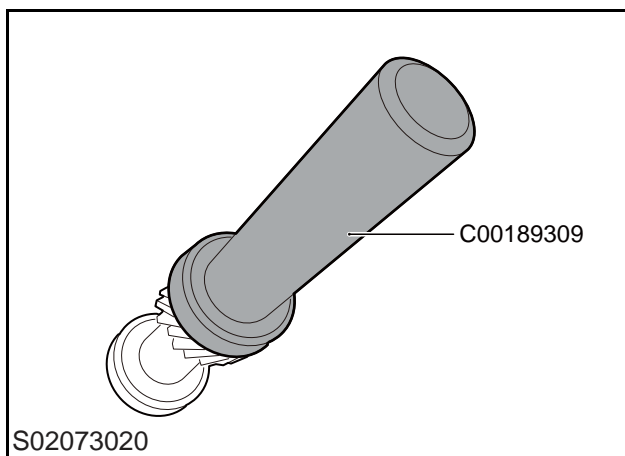
- 1 Remove the reducer assembly. Refer to "Reducer Replacement".
- 2 Remove the input shaft assembly. Refer to "Reducer Assembly Breakdown".
- 3 Pull out the ball bearings on both ends of the input shaft with the puller.



Installation

Note:

- ? Clean all parts and seals before assembly.
 - ? Use original transmission fluid to lubricate bearings and rotating parts.
 - ? Check the parts for indications of wear, scratch and damage, and replace if necessary.
- 1 Use the special tool C00189309 to install the bearings on both ends of the input shaft into place.



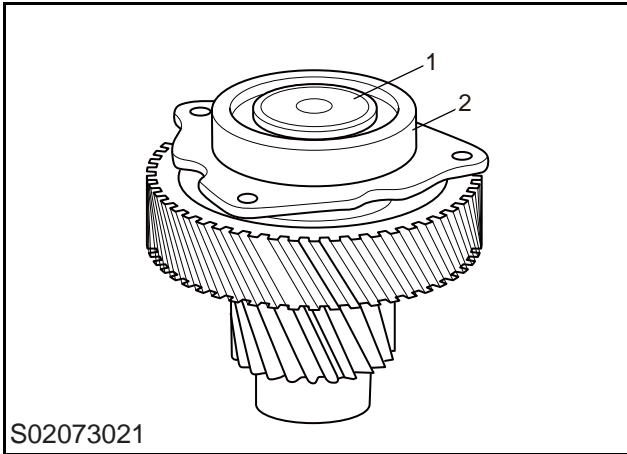
- 2 Press and install the input shaft oil seal into place with special tool C00189302 on the right housing.
- 3 Install the input shaft assembly. Refer to "Reducer Assembly Breakdown".
- 4 Install the reducer assembly. Refer to "Reducer Replacement".

Electric Drive System

Intermediate Shaft Assembly Replacement

Removal

- 1 Remove the reducer assembly. Refer to "Reducer Replacement".
- 2 Remove the intermediate shaft assembly. Refer to "Reducer Assembly Breakdown".
- 3 Remove the intermediate shaft locking nut (1).
- 4 Remove the intermediate shaft bearing (2) with the puller. (If the front bearing is damaged, replace the intermediate shaft bearing).



Installation

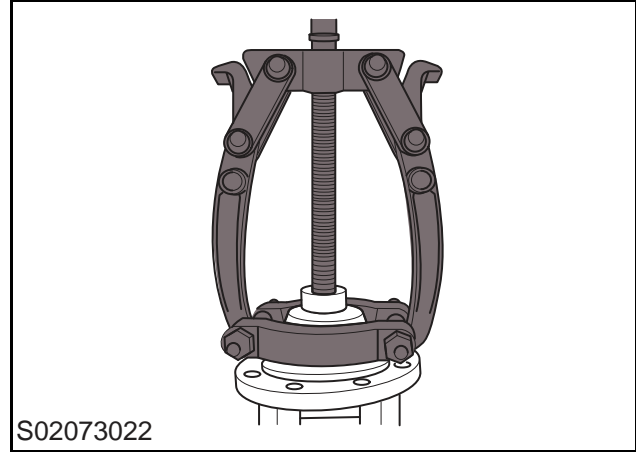
Note:

- ? Check the parts for indications of wear, scratch and damage, and replace if necessary.
- 1 Press the intermediate shaft bearing onto the intermediate shaft with special tool C00189305.
 - 2 Apply sealant (Tonsan 1243B) to locking nut.
 - 3 Assemble the locking nut to the intermediate shaft assembly, and tighten it to 160 ± 10 N.m.
 - 4 Install the intermediate shaft assembly. Refer to "Reducer Assembly Breakdown".
 - 5 Install the reducer assembly. Refer to "Reducer Replacement".

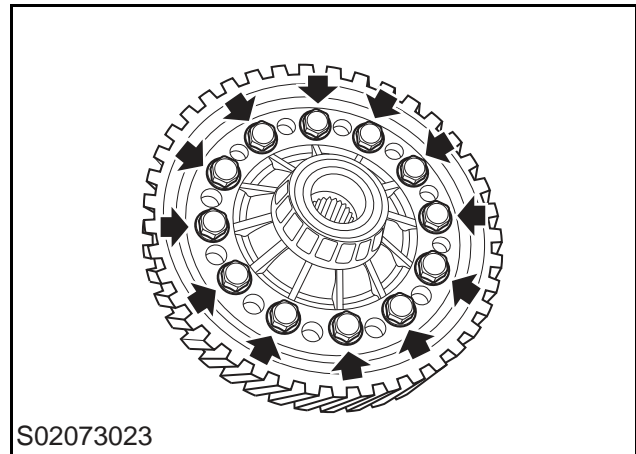
Differential Assembly Replacement

Removal

- 1 Remove the reducer assembly. Refer to "Reducer Replacement".
- 2 Remove the differential assembly. Refer to "Reducer Assembly Breakdown".
- 3 Pull out the inner ring of the cone bearing on both sides with the puller.



- 4 Remove the bolt as well as the main reduction gear.

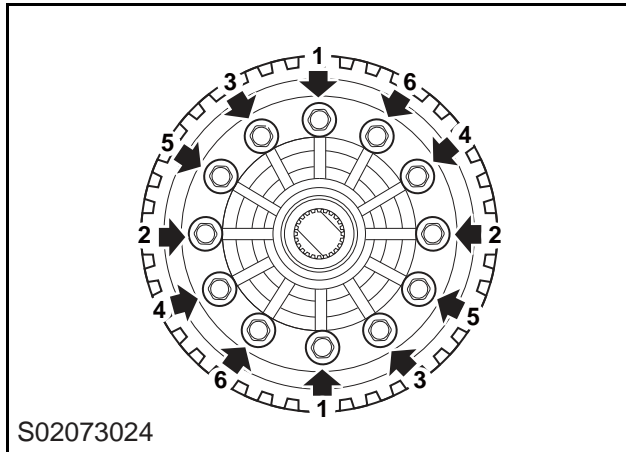


- 5 Remove the planet shaft pin with the punching tool.
- 6 Remove the planet shaft, planet gear, axle shaft gear and gasket.

Installation

- 1 Install the planet gear, planet gear gasket, axle shaft gear and axle shaft gear gasket into the differential housing and install the planet gear shaft.

- 2 Press in the planet shaft pin, which shall be flush with the housing step surface, and the opening direction of the planet shaft pin is perpendicular to the axial direction of the planet shaft.
- 3 Press the large chamfering end of the main reduction gear down into the differential component, install and tighten 12 bolts to 90-100 N.m in the order shown.



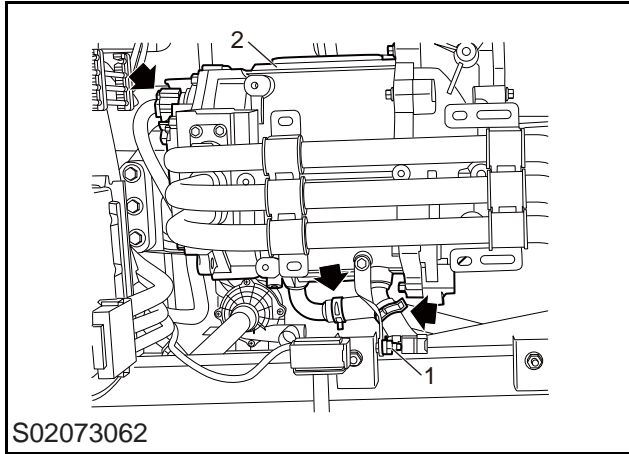
- 4 Press and install the inner ring of front and rear differential cone bearings with special tool C00189306.
- 5 Install the reducer assembly. Refer to "Reducer Assembly Breakdown".

Electric Drive System Assembly Replacement

Removal

- 1 Remove the manual service disconnect. Refer to "Manual Service Disconnect Replacement".
- 2 Drain the coolant. Refer to "Coolant Drain".
- 3 Drain the reducer oil. Refer to "Reducer Oil Drain and Refill".
- 4 Remove the charging and distribution unit assembly. Refer to "Charging and Distribution Unit Assembly Replacement".
- 5 Remove the motor controller harness assembly. Refer to "Motor Controller Harness Assembly Replacement".
- 6 Disconnect the harness connector of the engine compartment.
- 7 Disconnect the pipe - motor controller to motor.
- 8 Disconnect the hose - motor to radiator.
- 9 The electric drive system assembly will be supported by an appropriate tool.
- 10 Remove the drive motor suspension bracket. Refer to "Drive Motor Suspension Bracket Replacement".
- 11 Remove the reducer suspension bracket. Refer to "Reducer Suspension Bracket Replacement".
- 12 Remove the rear reducer suspension. Refer to "Rear Reducer Suspension Replacement".
- 13 Remove the ground bolt (1).
- 14 Remove the electric drive system assembly (2).
- 15 If necessary, separate the motor assembly from the reducer assembly.

Electric Drive System



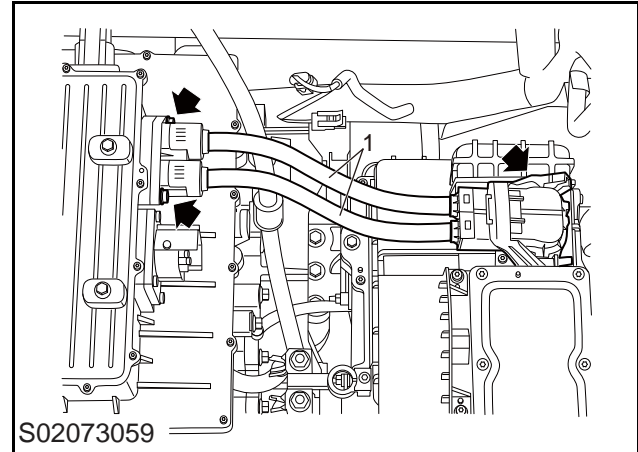
Installation

- 1 Install the electric drive system assembly onto the vehicle.
- 2 Install the reducer suspension bracket. Refer to "Reducer Suspension Bracket Replacement".
- 3 Install the rear reducer suspension. Refer to "Rear Reducer Suspension Replacement".
- 4 Install the drive motor suspension bracket. Refer to "Drive Motor Suspension Bracket Replacement".
- 5 Install the left/right axle shaft. Refer to "Axle Shaft Replacement".
- 6 Install the motor to the radiator hose.
- 7 Install the pipe - motor controller to motor.
- 8 Install the ground bolt, and connect the harness connector of the engine compartment.
- 9 Install the motor controller harness assembly. Refer to "Motor Controller Harness Assembly Replacement".
- 10 Install the charging and distribution unit assembly. Refer to "Charging and Distribution Unit Assembly Replacement".
- 11 Refill the reducer oil. Refer to "Reducer Oil Drain and Refill".
- 12 Drain the coolant. Refer to "Coolant Drain".
- 13 Install the manual service disconnect. Refer to "Manual Service Disconnect Replacement".
- 14 Perform corner mark learning with the scan tool.

Motor Controller Harness Replacement

Removal

- 1 Disconnect the negative battery cable.
- 2 Remove the service switch.
- 3 Remove the connector on both ends of motor controller harness.
- 4 Remove the motor controller harness (1).



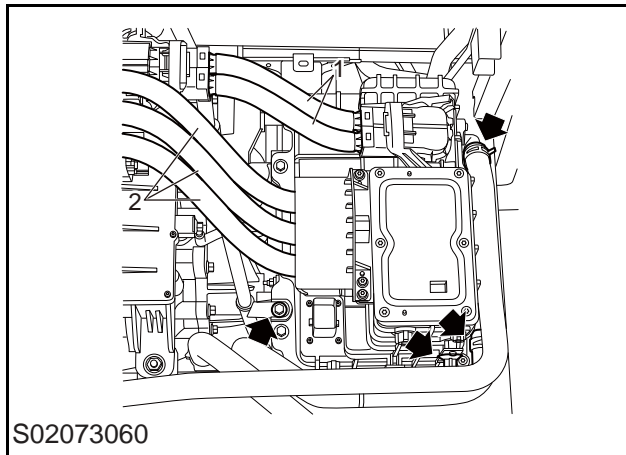
Installation

- 1 Install the motor controller harness.
- 2 Connect the both ends of motor controller harness.
- 3 Install the service switch.
- 4 Connect the negative battery cable.

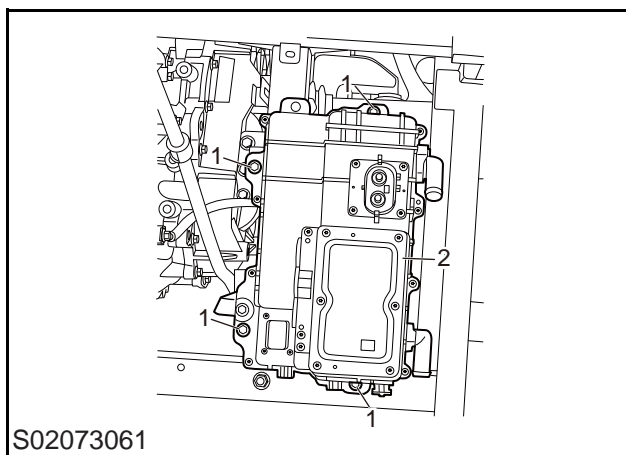
Motor Controller Replacement

Removal

- 1 Disconnect the negative battery cable.
- 2 Remove the service switch.
- 3 Drain the coolant.
- 4 Disconnect the water inlet and outlet pipes.
- 5 Disconnect the motor controller harness connector and grounding wire.
- 6 Disconnect the bracket from the motor controller.
- 7 Disconnect the motor controller harness (1).
- 8 Disconnect the motor three-phase harness (2).



- 9 Remove the motor controller bolt (1).
- 10 Remove the motor controller (2).



Installation

- 1 Install the motor controller.
- 2 Install the motor controller bolts, tighten them to 22 ± 2 N.m, and check the torque.

- 3 Connect the harness connector of the motor controller.
- 4 Install the motor three-phase harness.
- 5 Install the motor controller harness.
- 6 Install the motor controller harness connector and grounding wire.
- 7 Install the pipe bracket on the motor controller.
- 8 Connect the water inlet and outlet pipes.
- 9 Refill the motor controller cooling system coolant.
- 10 Install the service switch.
- 11 Connect the negative battery cable.
- 12 Perform corner mark learning with the scan tool.
- 13 Calibrate the resolver angle of the motor controller through Grade x.Grade x path model eDeliver3-module PEU-special function-special function-calibration resolver angle calibrate resolver angle.



Electric Drive System

Description and Operation

Reducer Component Description

Overview

It is a level 2 reducer. The shift lever is located on the center console of the passenger compartment and provides the driver with the selection of three transmission positions -- Drive (D), Neutral (N) and Reverse (R).

Reducer Housing

The transmission housing is made of die-cast aluminum and is bolted to the motor in front compartment of the motor vehicle. The transmission input shaft and intermediate shaft are supported by bearings.

The filler plug is installed on the transmission housing, which is above the side of the left housing, while the drain plug is located below the side of the left housing, each sealed with an aluminum gasket. Fill the lubricating oil to the transmission in order to lubricate the internal components in the way of splash lubrication. The vent plug is installed on the top of the right housing.

Reducer Component

There are splines at the front end of the input shaft which are matched with the internal splines of the motor. The input shaft is supported by a ball bearing. Starting from the connection end with the motor, the parts shall be arranged in the following order:

- ? Front input shaft bearing
- ? Input shaft
- ? Rear input shaft bearing

There is a driven gear at the front end of the intermediate shaft. The intermediate shaft welding assembly is supported by bearings and bearing seats, and starting from the connection end with the motor, the parts shall be arranged in the following order:

- ? Intermediate shaft ball bearing
- ? Intermediate shaft welding assembly
- ? Intermediate shaft pillar bearing

Differential

Through a conventionally designed differential, the main deceleration driven wheel is bolted to the differential housing, which supports the axle shaft gear, planet gear,

and planet gear shaft. The differential assembly is supported by bearings and bearing seats in the transmission housing.

Reducer Operation

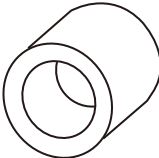
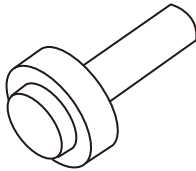
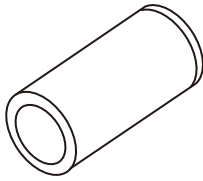
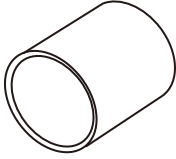
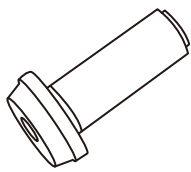
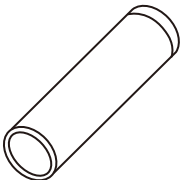
Reducer Component

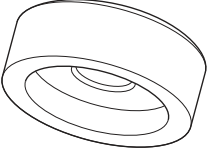
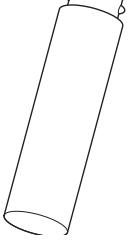
The driveline realizes the transmission and deceleration of torque through the engagement of different gears on the input shaft and the intermediate shaft, thus transmitting the motor power to the wheels more effectively. The motor torque is transmitted from the motor to the transmission input shaft through splines. Then the torque is transmitted through the input shaft gear to the intermediate shaft pinion and the main reduction driven gear, and then to the drive shaft. After the vehicle is started and during the driving process, the speed of the vehicle can be altered by changing the speed and direction of the motor in order to realize the shift between drive and reverse.

Differential

The differential allows the wheels to rotate at different speeds with the same amount of torque in the center. The pinion integrated with the intermediate shaft engages the main reduction driven gear on the differential. When the intermediate shaft rotates and the wheels move in a straight line, torque is applied to the entire assembly and the planet gear does not rotate. The torque is transmitted to the wheel through the drive shaft. When cornering, the inner wheels travel a short distance at a slow speed, causing the planet gears to rotate, while the outer axle shaft gears provide the outer wheels with a faster speed.

Special Tools

SN.	Tool Number/ Description	Illustration
1	C00189302 Input Shaft Oil Seal Assembly Tool	 C00189302
2	C00189303 Differential Oil Seal Assembly Tool	 C00189303
3	C00189305 Intermediate Shaft Bearing Assembly Tool	 C00189305
4	C00189306 Differential Bearing Assembly Tool	 C00189306
5	C00189308 Differential Bearing Outer Ring Assembly Tool	 C00189308
6	C00189309 Input Shaft Bearing Assembly Tool	 C00189309

SN.	Tool Number/ Description	Illustration
7	C00189218 Axle Shaft Oil Seal Assembly Tool	
8	C00189226 Universal Handle	

Shift Manipulation Control System

Specification

Fastener Specifications

Name	Torque (N.m)
Nut - Electronic Shift Assembly	1.2-1.8 N.m

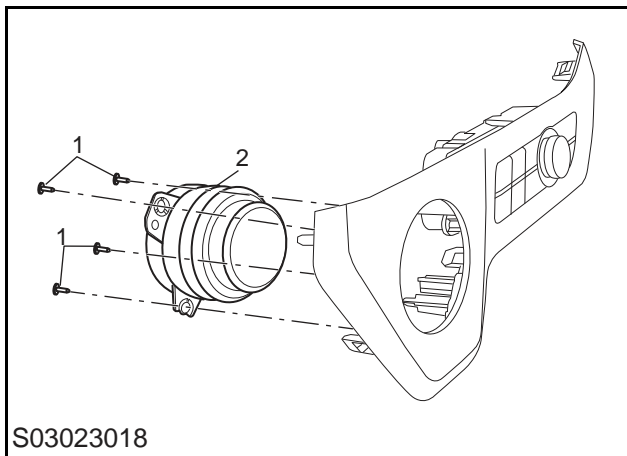
Transmission

Service Guide

Knob Electronic Shift Assembly Replacement

Removal

- 1 Remove the A/C panel.
- 2 Disconnect the electrical connector of the electronic shift assembly.
- 3 Remove 4 retaining bolts (1) of the electronic shift assembly.
- 4 Remove the electronic shift assembly (2).



Installation

- 1 Install the electronic shift assembly.
- 2 Connect the electrical connector of the electronic shift assembly.
- 3 Install 4 retaining bolts of the electronic shift assembly, tighten them to 1.2-1.8 N.m and check the torque.
- 4 Install the A/C panel.

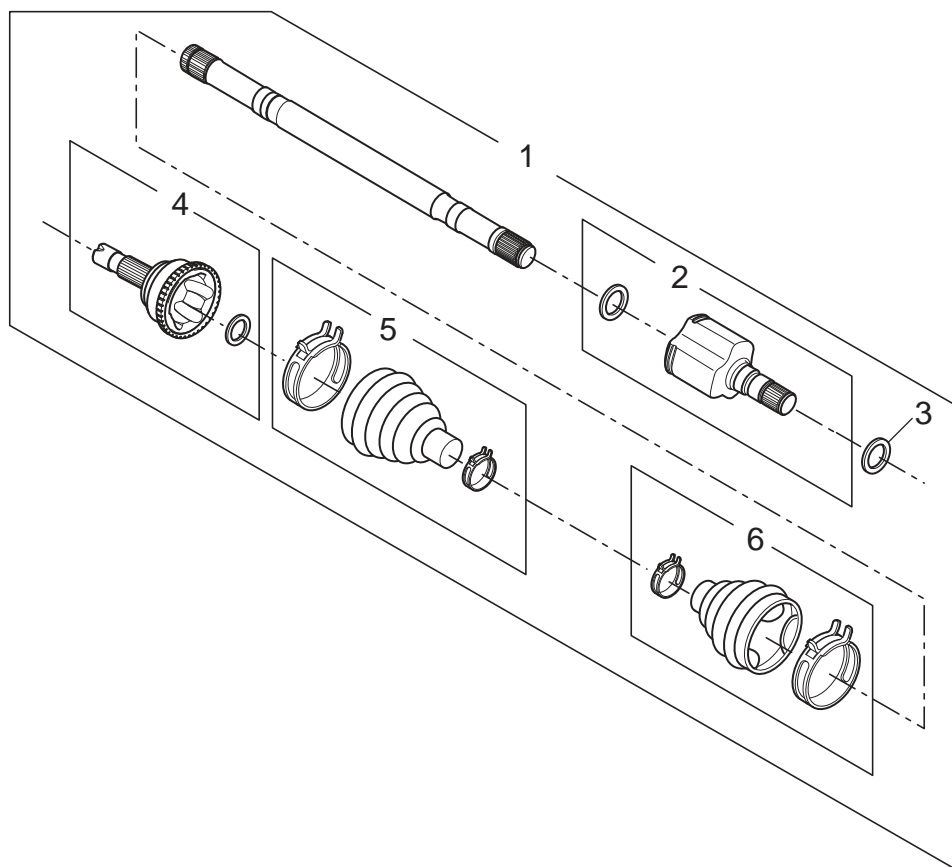
Front and Rear Drive Shaft

Specification

Fastener Specifications

Name	Torque (N.m)
Bolt - hub	230-270 N.m

Exploded View of Front Axle Shaft Assembly



S04030001

- | | | | |
|---|------------------------|---|------------------------|
| 1 | Axle Shaft Assembly | 4 | Outer Segment Assembly |
| 2 | Inner Segment Assembly | 5 | Outer Segment Sleeve |
| 3 | Snap ring | 6 | Inner Segment Sleeve |

Service Guide

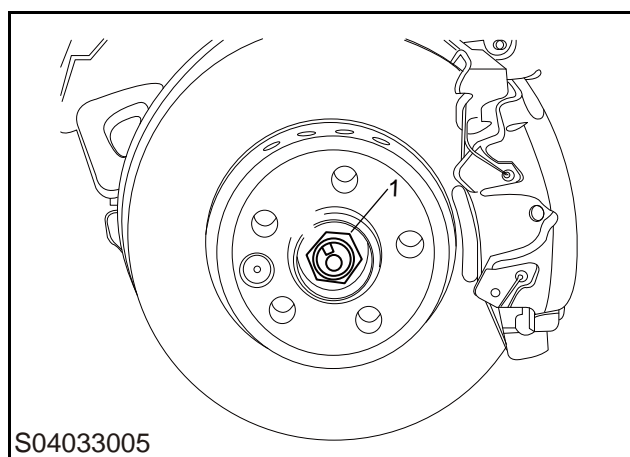
Front Axle Shaft Replacement - Right

Removal

- 1 Remove the right front tire and wheel assembly. Refer to "Wheel Replacement".

Warning: To avoid personal injury and/or component damage, do not load the vehicle weight on the front wheels or try to run the vehicle after removing the wheel drive shaft or wheel drive shaft nuts. Otherwise it may cause the separation of the inner bearing race, thereby resulting in brake and suspension components damage and loss of control.

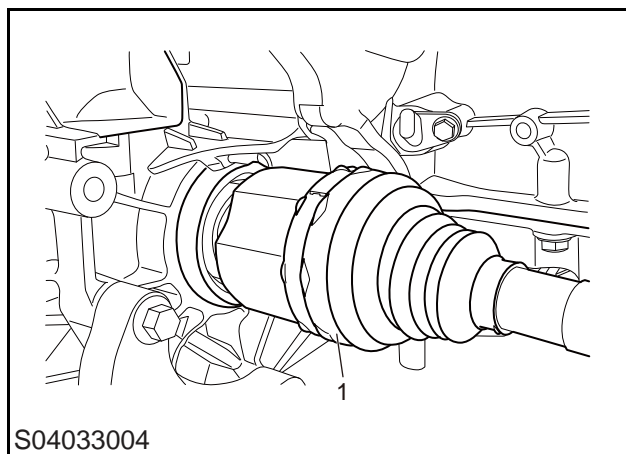
- 2 Remove the hub locking nut (1).



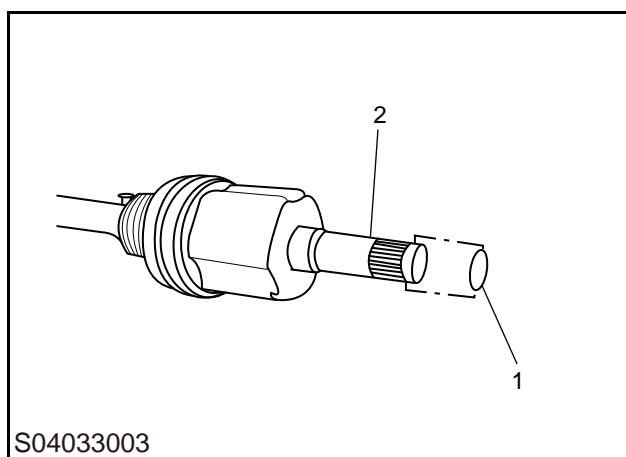
- 3 Remove the steering linkage outer tie rod from the steering knuckle. Refer to "Steering Linkage Outer Tie Rod Replacement".
- 4 Remove the lower control arm of front suspension from the steering knuckle. Refer to "Lower Swing Arm Assembly Replacement".

Note: The wheel drive shaft sheath, seals and clamps shall be free from the contact with sharp objects at all times when servicing the wheel drive shaft or its vicinity. If the sheath, seals or clamps are damaged, it may lead to lubricating oil leakage from the universal joint, resulting in increased noise and failure of the wheel drive shaft.

- 5 Use a suitable tool to remove the front axle shaft (1) from the transmission.



- 6 Remove and discard the spring collar (1) of front axle shaft from the front axle shaft (2).



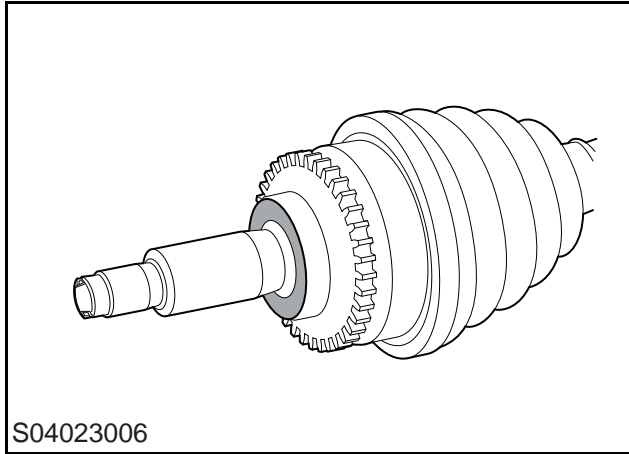
Installation

- 1 Install new spring collar of front axle shaft onto the front axle shaft.

Note: Ensure that the intermediate shaft of the front drive axle is fully assembled on the transmission.

- 2 Install the front axle shaft.

Note: When only the axle shaft needs to be removed/installed, wear reducer Dow Corning molycote7400 shall be applied to the contact surface of the hub prior to the installation.



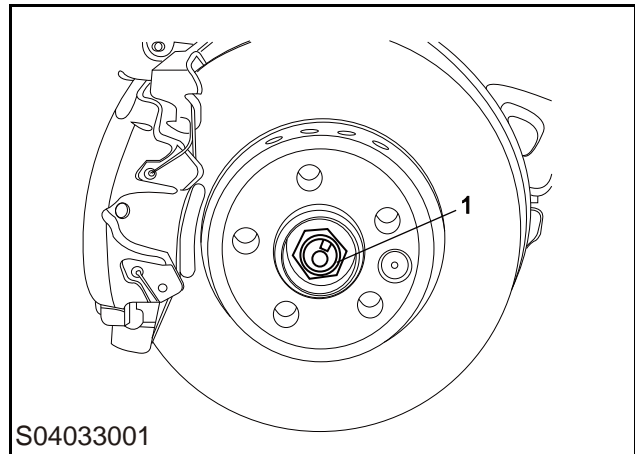
- 3 Install the lower control arm of front suspension onto the steering knuckle. Refer to "Lower Swing Arm Assembly Replacement".
- 4 Install the steering linkage outer tie rod onto the steering knuckle. Refer to "Steering Linkage Outer Tie Rod Replacement"
- 5 Install the hub locking nut and tighten it to 230-270 N.m.
- 6 Install the right front tire and wheel assembly. Refer to "Wheel Replacement".

Front Axle Shaft Replacement - Left Removal

- 1 Remove the left front tire and wheel assembly. Refer to "Wheel Replacement".

Warning: To avoid personal injury and/or component damage, do not load the vehicle weight on the front wheels or try to run the vehicle after removing the wheel drive shaft or wheel drive shaft nuts. Otherwise it may cause the separation of the inner bearing race, thereby resulting in brake and suspension components damage and loss of control.

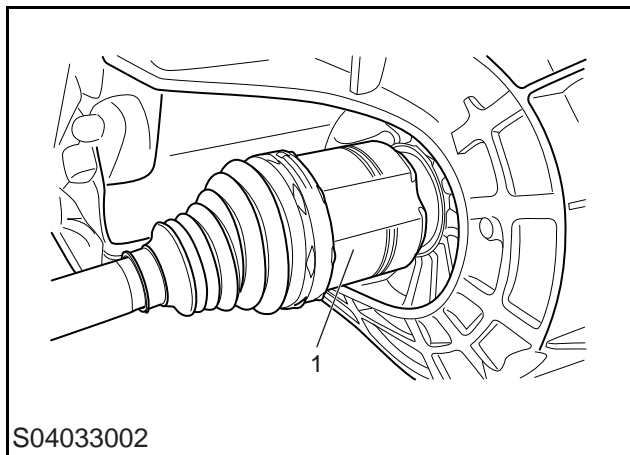
- 2 Remove the hub locking nut (1).



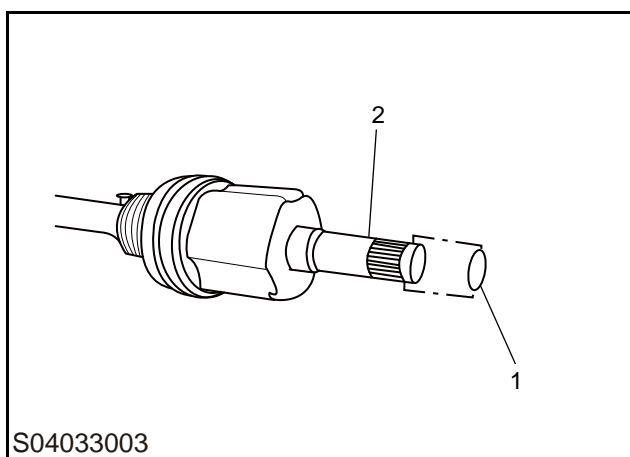
- 3 Remove the steering linkage outer tie rod from the steering knuckle. Refer to "Steering Linkage Outer Tie Rod Replacement".
- 4 Remove the lower control arm of front suspension from the steering knuckle. Refer to "Lower Swing Arm Assembly Replacement".

Note: The wheel drive shaft sheath, seals and clamps shall be free from the contact with sharp objects at all times when servicing the wheel drive shaft or its vicinity. If the sheath, seals or clamps are damaged, it may lead to lubricating oil leakage from the universal joint, resulting in increased noise and failure of the wheel drive shaft.

- 5 Use a suitable tool to remove the front axle shaft (1) from the transmission.



- 6 Remove and discard the spring collar (1) of front axle shaft from the front axle shaft (2).



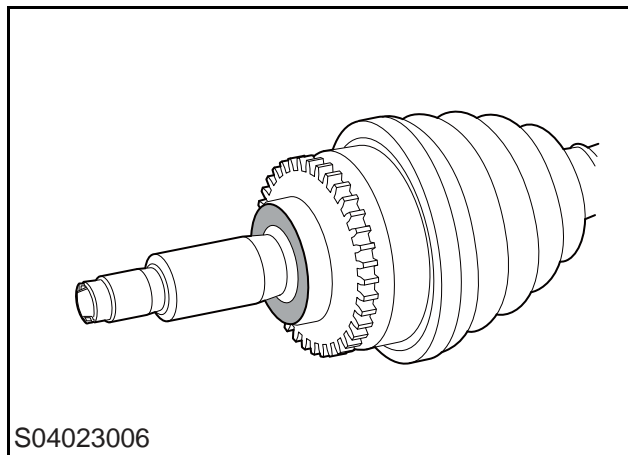
Installation

- 1 Install new spring collar of front axle shaft onto the front axle shaft.

Note: *Ensure that the intermediate shaft of the front drive axle is fully assembled on the transmission.*

- 2 Install the front axle shaft.
- 3 Install the lower control arm of front suspension onto the steering knuckle. Refer to "Lower Swing Arm Assembly Replacement".

Note: *When only the axle shaft needs to be removed/installed, wear reducer Dow Corning molycote7400 shall be applied to the contact surface of the hub prior to the installation.*



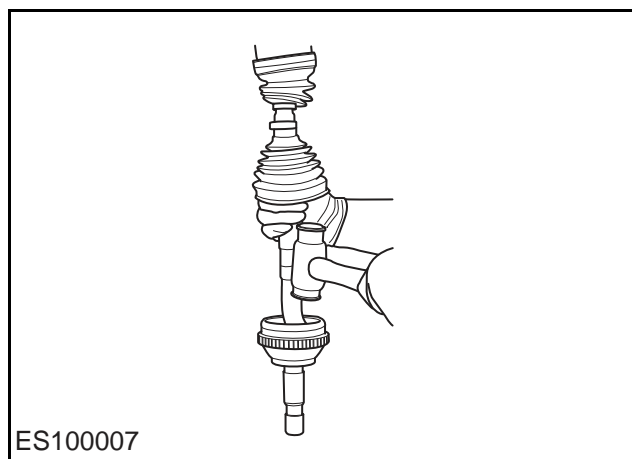
- 4 Install the steering linkage outer tie rod onto the steering knuckle. Refer to "Steering Linkage Outer Tie Rod Replacement"
- 5 Install the hub locking nut and tighten it to 230-270 N.m.
- 6 Install the left front tire and wheel assembly. Refer to "Wheel Replacement".

Driveline

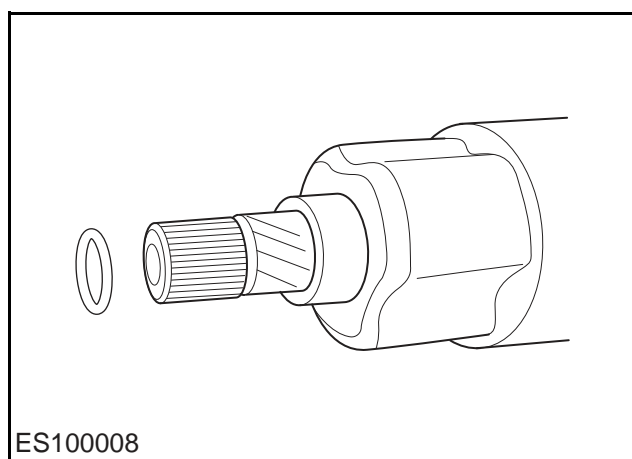
Constant-velocity Universal Joint and its Dust Shield Replacement

Removal

- 1 Remove the axle shaft assembly, please refer to "Front Axle Shaft Replacement".
- 2 Install the drive shaft clip to the vise.
- 3 Loosen and discard clamps at both ends of the dust shield.
- 4 Align the constant-velocity universal joint with the intermediate solid shaft. Then slightly knock the constant-velocity universal joint with a copper hammer to separate it. Remove the constant-velocity universal joint and its dust shield.

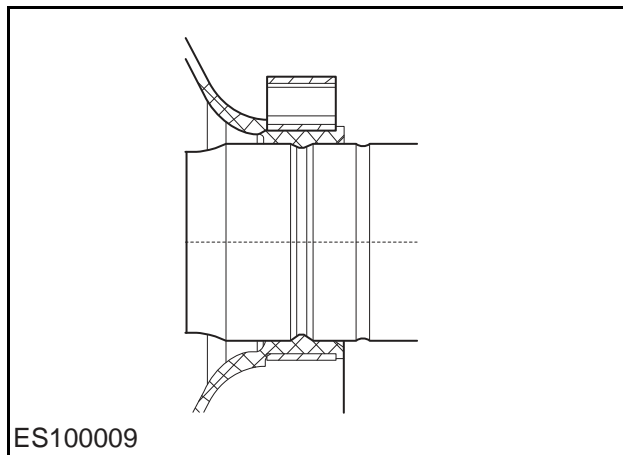


- 5 Remove the snap ring from the drive shaft and discard.



Installation

- 1 Fix the dust shield to the intermediate solid shaft with a clamp (small), and install its ends to the outside of two grooves.

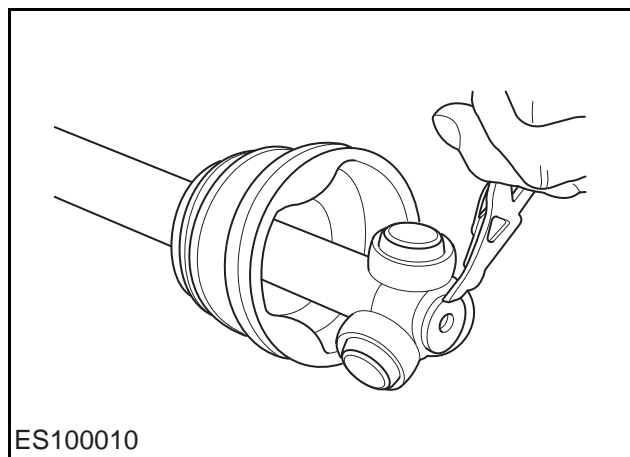


- 2 Install a new snap ring to the intermediate solid shaft.
- 3 Fill the constant-velocity universal joint with the lubricating grease provided, and apply the residual grease on the inner side of dust shield of constant-velocity universal joint.
- 4 Press the intermediate solid shaft into the constant-velocity universal joint completely.
- 5 Clean the junction between the dust shield and constant-velocity universal joint, and fix the dust shield clamp (large).
- 6 Ensure the constant-velocity universal joint will not interfere the dust shield when rotating freely from each direction.
- 7 Install the drive shaft, please refer to "Front Axle Shaft Replacement".

Tripod Universal Joint and its Dust Shield Replacement

Removal

- 1 Remove the drive shaft, please refer to "Front Axle Shaft Replacement".
- 2 Install the axle shaft clip to the vise.
- 3 Loosen and discard clamps at both ends of the dust shield.
- 4 Remove the intermediate solid shaft of drive shaft.
- 5 Remove the snap spring at the end of intermediate solid shaft with the nipper pliers and discard it.



- 6 Remove the tripod joint and dust shield from the intermediate shaft.

Installation

- 1 Clean the intermediate solid shaft, tripod shaft and sleeve.
- 2 Install the dust shield to the intermediate solid shaft with a new clamp (small),
- 3 and install its ends to the outside of two grooves.
- 4 Locate the tripod joint onto the intermediate solid shaft.
- 5 Install a new snap spring onto the end of intermediate solid shaft.
- 6 Fill the tripod universal joint with the lubricating grease provided, and apply the residual grease on the inner side of dust shield of constant-velocity universal joint.
- 7 Press the intermediate solid shaft into the tripod universal joint completely.

- 8 Clean the junction between the dust shield and tripod universal joint, and fix the dust shield clamp (large).
- 9 Ensure the tripod universal joint will not interfere the dust shield when rotating freely from each direction.
- 10 Install the drive shaft, please refer to "Front Axle Shaft Replacement".

Driveline

Operation and Description

Drive Shaft Description and Operation

The wheel drive shaft is a flexible assembly consisting of an inner universal joint and an outer constant velocity universal joint connected by the axle shaft. The inner universal joint is completely flexible and can be stretched inside and outside. The outer universal joint is also flexible, but cannot be stretched inside and outside. These drive shafts are used to transmit rotational force from the transmission to the front wheel tire and wheel assemblies.

Power Steering

Specification

Fastener Specifications

Name	Torque (N.m)
Nut - Steering Gear Outer Tie Rod to Steering Knuckle	60-70 N.m
Nut - Steering Gear Outer Tie Rod to Steering Gear	53-63 N.m
Nut - Steering Gear to Subframe	180-200 N.m
Bolt - Steering Gear to Subframe	180-200 N.m

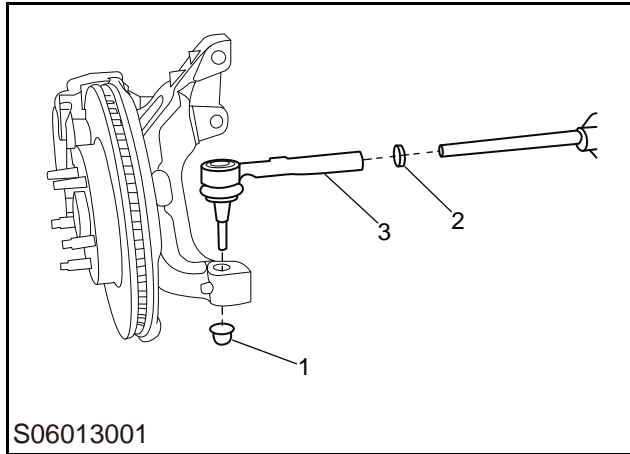
Steering System

Service Guide

Steering Gear Outer Tie Rod Replacement

Removal

- 1 Remove the front wheel. Refer to "Wheel Replacement".
- 2 Remove and discard 1 nut (1) fixing the steering gear outer tie rod to the steering knuckle, and disconnect the steering gear outer tie rod from the steering knuckle.
- 3 Release the locking nut (2) of the steering gear outer tie rod.
- 4 Screw off the outer tie rod (3) from the power steering gear, and mark the position of the locking nut.



Installation

- 1 Screw the steering gear outer tie rod to the mark position of locking nut with the ball joint upward.
- 2 Tighten the locking nut to 53-63 N.m.
- 3 Connect the steering gear outer tie rod to the steering arm, install new nut and tighten it to 60-70 N.m.

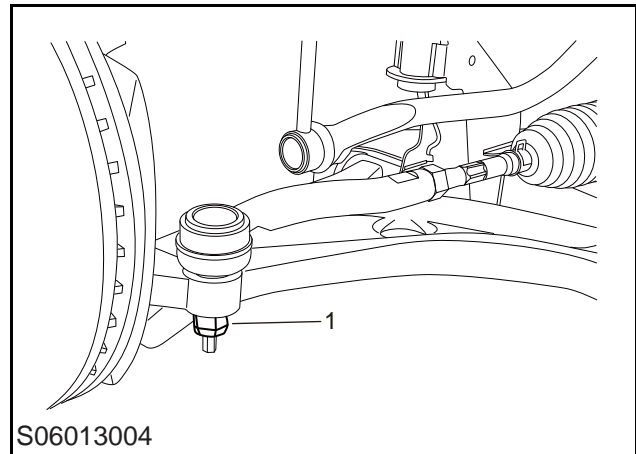
Note: Do not tighten the inner tie rod nut of steering linkage during installation. After adjusting the front wheel toe, tighten the nut.

- 4 Install wheels. Refer to "Wheel Replacement".
- 5 Lower the vehicle.
- 6 Check the alignment parameters of front wheels. Align four wheels.

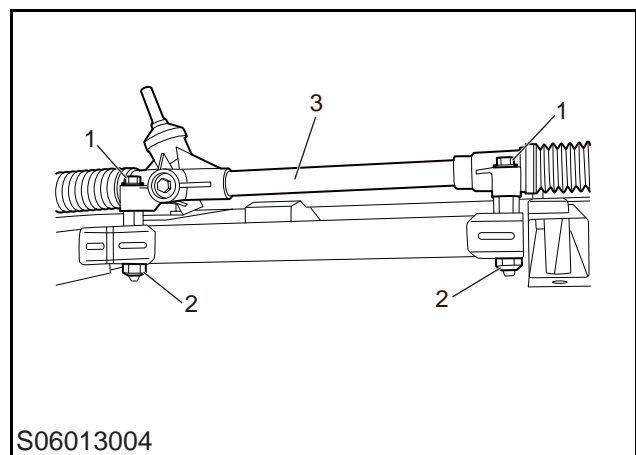
Steering Gear Assembly Replacement

Removal

- 1 Remove the front wheel. Refer to "Wheel Replacement".
- 2 Remove the lower bolt fixing the steering intermediate shaft to the steering gear assembly. Refer to "Steering Intermediate Shaft Extension Replacement".
- 3 Raise the vehicle.
- 4 Remove and discard nuts (1) fastening the steering gear outer tie rod to the hub on both sides, and disconnect the steering gear outer tie rod from the steering knuckle.



- 5 Remove 2 bolts (1) and nuts (2) fixing the steering gear to the subframe.
- 6 Remove the steering gear assembly (3).



Installation

- 1 Install and fix the steering gear to the subframe.

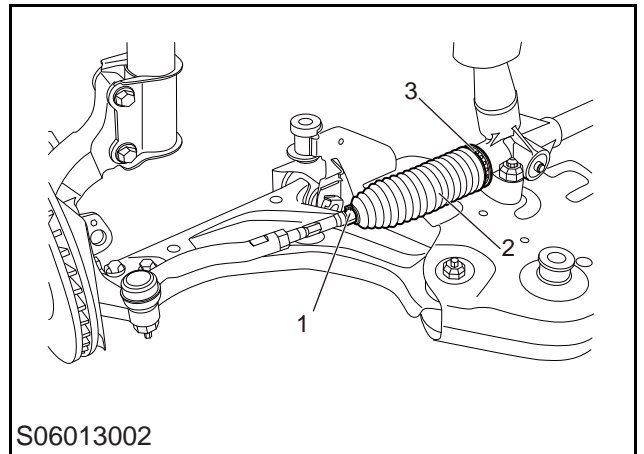
- 2 Install 2 new bolts and nuts, and tighten them to 180-200 N.m.
- 3 Install new nuts fixing the steering gear outer tie rod to the hub on both sides, and tighten them to 60-70 N.m.
- 4 Connect the steering intermediate shaft to the lower bolt of steering gear assembly. Refer to "Steering Intermediate Shaft Extension Replacement".
- 5 Install wheels. Refer to "Wheel Replacement".
- 6 Check the alignment parameters of front wheels. Refer to "Four-Wheel Alignment".
- 7 Perform the learning of electronic power steering module.

Steering Gear Sleeve Replacement

Removal

- 1 Remove the steering linkage outer tie rod. Refer to "Steering Linkage Outer Tie Rod Replacement".
- 2 Remove and discard the sleeve clamp (1).
- 3 Remove and discard the outer sleeve clamp (2) of steering gear. Mark the installation position of sleeve clamp (2) on the steering gear.
- 4 Remove the steering gear sleeve (3).

Note: After removing the steering gear sleeve, check the steering linkage inner tie rod for obvious corrosion or pollution. Continue to repair if there is no indication. If the obvious corrosion or pollution exists, replace the inner tie rod.



Installation

- 1 Loosely install the new clamp on the inside of the steering gear sleeve.
- 2 Install the steering gear sleeve.
- 3 Adjust the sleeve clamp to the mark position on the steering gear to ensure the correct installation position.
- 4 Use the clamp installation tool to crimp the inner sleeve clamp of steering gear.

Note: The steering sleeve must be located in the correct groove on the steering gear.

- 5 Install new sleeve clamp.
- 6 Install the steering linkage outer tie rod. Refer to "Steering Linkage Outer Tie Rod Replacement".

Steering System

Steering Wheel and Steering Column

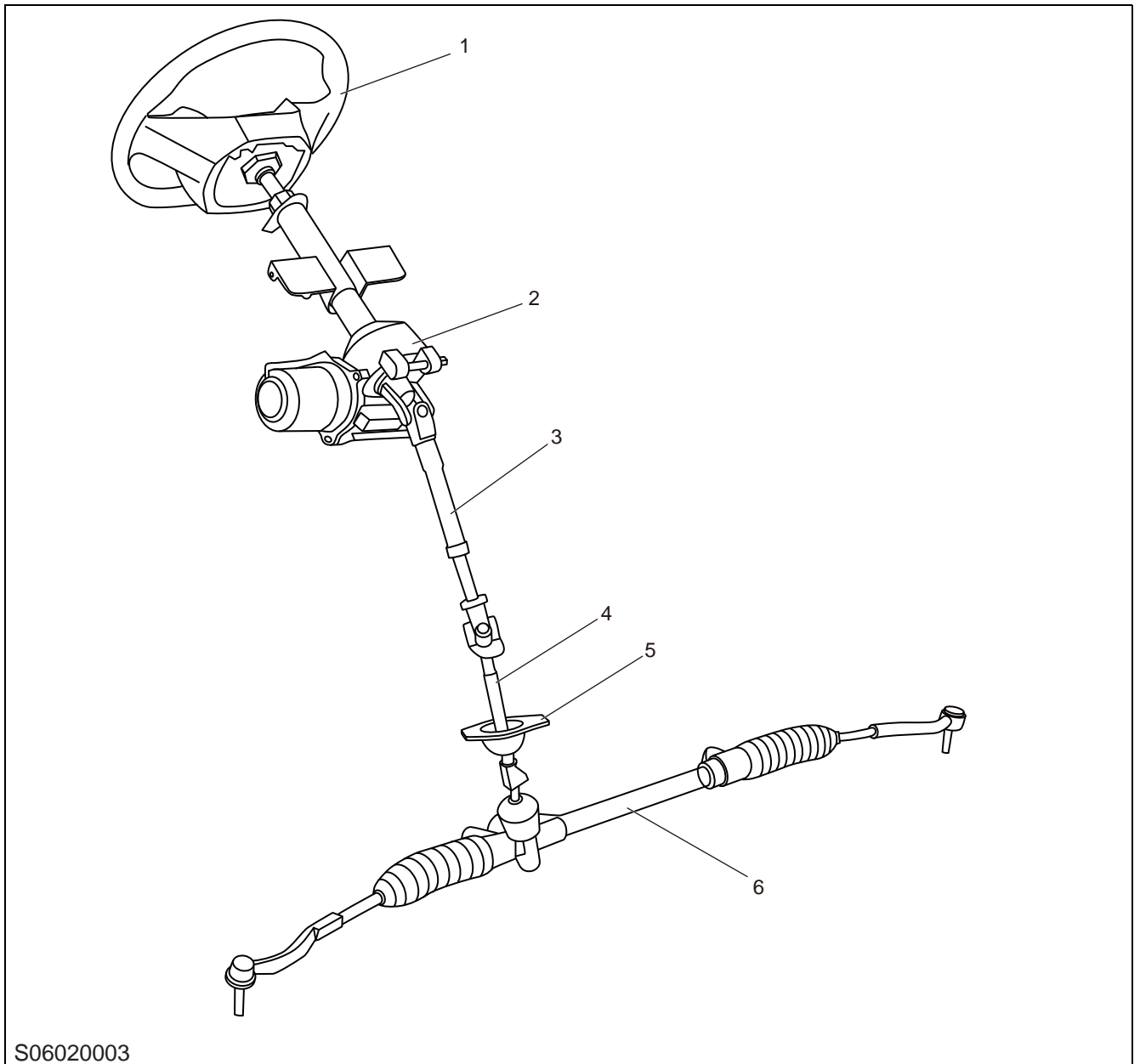
Specification

Fastener Specifications

Name	Torque (N.m)
Bolt - Steering Intermediate Shaft Extension to Steering Gear	32-38 N.m
Bolt - Steering Column to Intermediate Shaft	42-48 N.m
Bolt - Steering Column Bracket to Body	20-24 N.m
Nut - Steering Wheel	32-38 N.m
Bolt - Steering Intermediate Shaft to Extension Shaft	32-38 N.m

Layout

Steering System Components Layout



- 1 Steering Wheel
- 2 Steering Column
- 3 Steering Intermediate Shaft
- 4 Steering Intermediate Shaft Extension
- 5 Dust Shield
- 6 Steering Gear Assembly

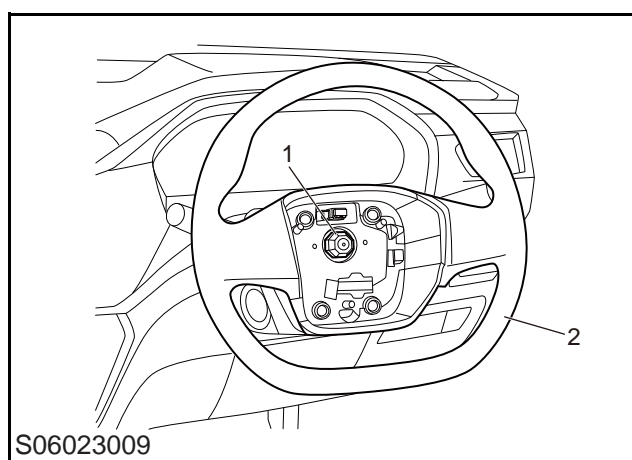
Steering System

Service Guide

Steering Wheel Assembly Replacement

Removal

- 1 Disconnect the negative battery cable.
- 2 Remove the driver airbag module assembly (Refer to Steering Wheel (Driver) Airbag Assembly Replacement).
- 3 Disconnect the electrical connector of steering wheel switch.
- 4 Remove the steering wheel assembly nut (1).
- 5 Remove the steering wheel assembly (2).



Installation

- 1 Install the steering wheel assembly onto the steering column.

Note: When installing the steering wheel, ensure the steering column is matched with the rectangular key slot of the steering wheel.

- 2 Install the steering wheel assembly nut and tighten it to 32-38 N.m.
- 3 Connect the electrical connector of steering wheel switch.
- 4 Install the driver airbag module assembly.
- 5 Connect the negative battery cable.

Steering Column Replacement

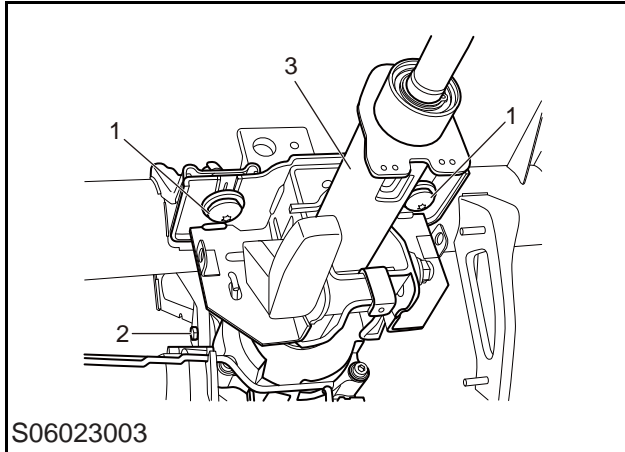
Removal

- 1 Disconnect the negative battery cable.
- 2 Remove the steering wheel assembly. Refer to "Steering Wheel Assembly Replacement".
- 3 Remove the driver side lower guard plate of instrument panel.
- 4 Release the steering column to the lowest position.
- 5 Remove the upper steering column shroud.
- 6 Remove the lower steering column shroud.
- 7 Remove the steering column switch.
- 8 Remove the upper bolt of the steering intermediate shaft. Refer to "Steering Intermediate Shaft Replacement".
- 9 Lock the adjusting handle to prevent the upper and lower column from falling off.

Warning: Do not release the adjusting handle during handling and assembly, otherwise the upper and lower column may fall off, resulting in possible damage to the steering column.

- 10 Disconnect the connector from the steering column.
- 11 Remove 3 bolts (1, 2) mounting the steering column onto the instrument panel beam assembly.
- 12 Remove the upper steering column assembly (3).

Note: The steering column is easily damaged when removed from the vehicle. If the steering column falls to the ground with end downward, it may cause damage to the steering shaft or loosen the injection molding that maintain the stiffness of the steering column. Leaning on the steering column can cause the sleeve to bend or deform.



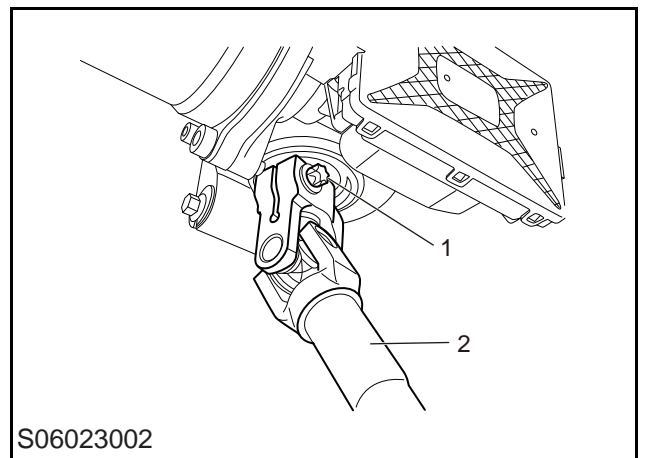
Installation

- 1 Fix the steering column onto the instrument panel beam assembly.
- 2 Install 3 bolts fixing the steering column bracket to the body, and tighten them to 20-24 N.m.
- 3 Install the upper bolt of the steering intermediate shaft. Refer to "Steering Intermediate Shaft Replacement".
- 4 Connect the connector to the steering column.
- 5 Install the steering column switch.
- 6 Release the steering column adjusting lever and move the steering column to the upper position.
- 7 Install the lower steering column shroud.
- 8 Install the upper steering column shroud.
- 9 Install the driver side lower guard plate of instrument panel. Refer to "Instrument Panel Driver Side Lower Guard Plate Replacement".
- 10 Install the steering wheel assembly.
- 11 Connect the negative battery cable.
- 12 Perform the self learning of power steering module.
- 13 If the upper steering column falls off during handling or assembly, please reinstall the falling parts to ensure that the steering shaft parallel gears are located at 6 o'clock position when the lower fork blind gears of the intermediate shaft are located at 9 o'clock position. After assembly, check that the left and right strokes of the steering wheel are consistent, otherwise it needs to be reinstalled.

Steering Intermediate Shaft Replacement

Removal

- 1 Turn the steering wheel to the straight ahead position, and support it to prevent movement.
- 2 Remove the driver side lower guard plate of instrument panel.
- 3 Remove the lower bolt of the steering intermediate shaft. Refer to "Steering Intermediate Shaft Extension Replacement".
- 4 Remove the upper bolt (1) of the steering intermediate shaft.
- 5 Remove the steering intermediate shaft (2).



Installation

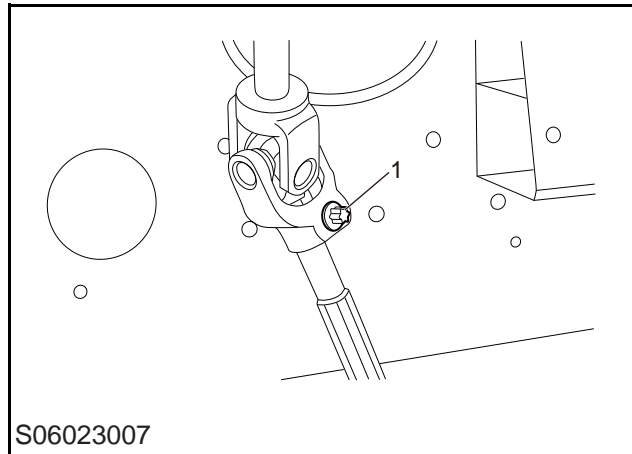
- 1 Install the steering intermediate shaft.
- 2 Push the upper universal joint carefully onto the steering gear.
- 3 Install the upper bolt of steering intermediate shaft and tighten it to 42-48 N.m.
- 4 Push the lower universal joint carefully onto the steering gear.
- 5 Install the lower bolt of steering intermediate shaft. Refer to "Steering Intermediate Shaft Extension Replacement".
- 6 Install the driver side lower guard plate of instrument panel.

Steering System

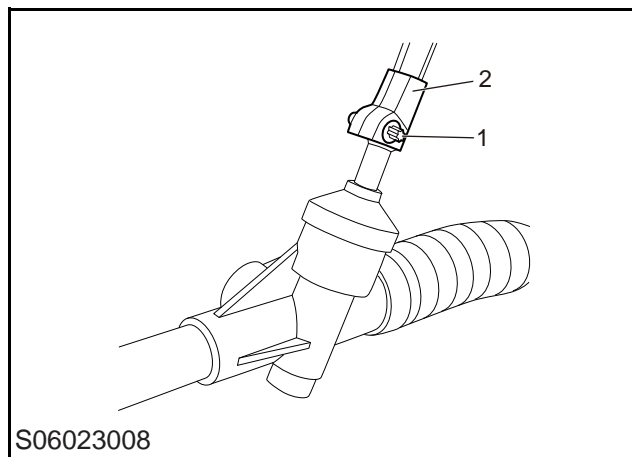
Steering Intermediate Shaft Extension Replacement

Removal

- 1 Turn the steering wheel to the straight ahead position, and support it to prevent movement.
- 2 Remove the bolt (1) fixing the steering intermediate shaft to the extension shaft.



- 3 Remove the bolt (1) fixing the steering intermediate shaft extension to the steering gear.
- 4 Remove the steering intermediate Shaft Extension (2).



Installation

- 1 Install the steering intermediate shaft extension.
- 2 Install the upper steering intermediate shaft extension carefully onto the steering gear.
- 3 Install the bolt fixing the steering intermediate shaft extension to the steering gear, and tighten it to 32-38 N.m.

- 4 Install the lower steering intermediate shaft extension carefully onto the steering intermediate shaft.
- 5 Install the bolt fixing the steering intermediate shaft to the extension shaft, and tighten it to 32-38 N.m.

General Diagnosis of Suspension System (Wheel Alignment)

Specification

Fastener Specifications

Name	Torque
Nut - Steering Gear Outer Tie Rod	53-63 N.m

Wheel Alignment Parameters

Refer to "Technical Parameters" in General Information.

Suspension System

Service Guide

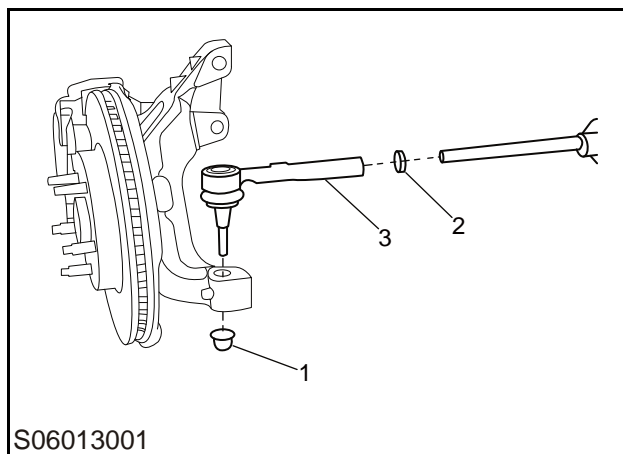
Four-Wheel Alignment

Check

- 1 Only the equipment approved by the company can be used for four-wheel alignment adjustment of the vehicle.
- 2 The equipment must be adjusted according to the manufacturer's requirements.
- 3 Ensure that the correct vehicle data is entered into the equipment.
- 4 Check if the steering tie rod ball joint, front lower swing arm ball joint and wheel bearing are worn. Replace or repair if required.
- 5 Check and adjust the tire pressure.
- 6 Lift the vehicle at the four-wheel aligner.
- 7 Ensure that the vehicle is under curb weight condition and lift the vehicle.
- 8 Ensure that the wheel mounting clamp is adjusted to the correct size and firmly fixed to the vehicle.
- 9 Make sure the camera is properly installed and aligned.
- 10 Conduct the alignment of the wheels according to the equipment manufacturing instruction. Lower the vehicle so that the vehicle suspension is in a normal state.
- 11 Ensure that the steering wheel is centered.

Adjustment

- 1 Observe the readings on the test equipment and adjust the four-wheel alignment data as required.
- 2 Alignment of front wheel toe-in:
 - a. Release the locking nut (2) on the steering gear outer tie rod.
 - b. Adjust the steering tie rod so that the alignment parameters of front wheels reach the specified value.
 - c. Tighten the locking nut to 53-63 N.m.



- d. Repeat the above steps on the other side.

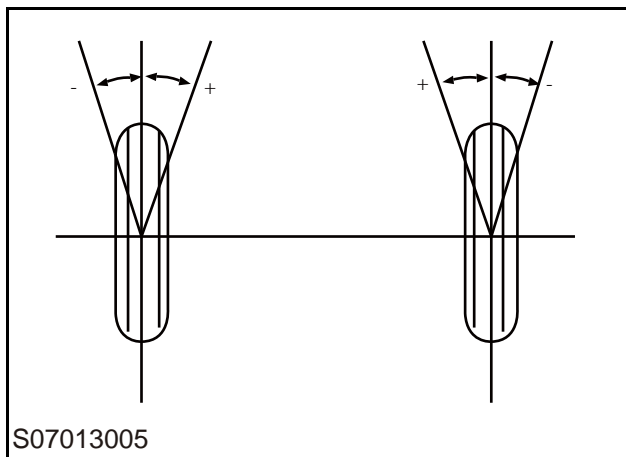
Description and Operation

Side-sway Description

Side-sway refers to the unintentional drift or deviation of a vehicle from a straight direction to either side when applying force by hand on the steering wheel. Side-sway is a symptom resulting from over-sensitive response of the vehicle to external disturbances such as uneven road and crosswind, which may be aggravated by poor returnability of steering mechanism.

Toe-in Description

Wheel toe-in refers to the degree that the front and/or rear wheels deflect inward or outward from the front position. When the wheels deflect inward, the toe-in is positive (+). When the wheels deflect outward, the toe-in is negative (-). The actual value of the toe-in is normally a fraction of a degree. The function of the toe-in is to ensure that wheels on both sides roll in parallel. The toe-in also compensates for a small amount of deviation caused by the wheel support system when the wheels roll forward. In other words, with the vehicle standing still and the wheels set with toe-in, the wheels tend to roll in parallel on the road when the vehicle is moving. Improper adjustment of the toe-in will lead to premature tire wear and unstable steering.



Memory Steering Description

Memory steering refers to the tendency of a vehicle to deviate to the last turning direction operated by the driver. In addition, after turning in the opposite, the vehicle tends to deviate to that direction.

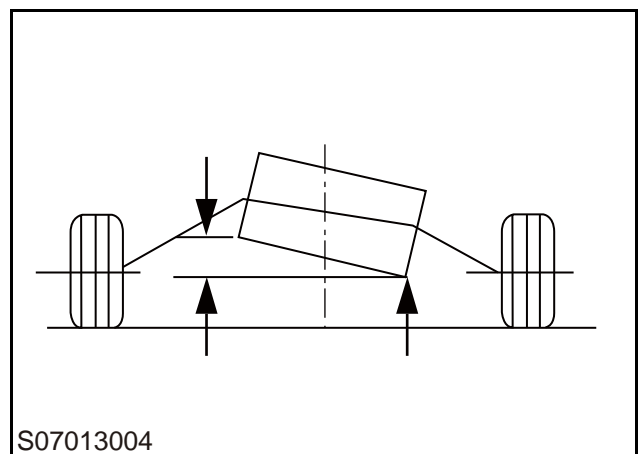
Scrub Radius Description

Theoretically, the scrub radius should be as small as possible. Typically, the steering kingpin inclination (SAI) intersects the centerline of the tire and wheels below the road surface to form a positive scrub radius. In the strut structure, the steering axis inclination (SAI) is much larger than the long arm/short arm suspension system. This allows the steering axis inclination (SAI) and wheel camber to intersect above the road surface, which forms a negative scrub radius. The smaller the scrub radius, the better the directional stability. The installation of wheels added after sales leads to additional deviation of the vehicle, which may significantly increase the scrub radius. The newly installed wheels may cause the centerline of the tire to deviate further from the spindle. This will increase the scrub radius.

A larger scrub radius can cause severe shimmy after hitting the uneven road surface. Four wheel drive vehicles with large tires use a steering shock absorber to compensate for the increased scrub radius. The scrub radius can not be measured directly with conventional methods. The scrub radius is geometrically designed by the engineer during the design phase of the suspension system.

Torque Steering Description

When hardly accelerated, the vehicle may deviate in one direction. When decelerated, the vehicle may deviate in another direction.



On the specific vehicle, the following factors may cause the torque steering to be more obvious:

Suspension System

- ? A right front tire with a smaller diameter causes a right guide torque. Check the front tires for differences in brand, structure or size. If the tires look similar, exchange the front tires on both sides and retest the vehicle. Tires and wheel assemblies have had a significant impact on the correction of torque steering.
- ? There are great differences between the pressure of front right and front left tires.
- ? The difference between the left and right side of the axle angle in the front view may cause the vehicle to deviate significantly when steering. The deviation will appear on the side where the axle tilts downward most from the differential to the wheel. The axle tilts downward from the differential. The inclination between the transaxle surface and the horizontal plane can be used as a sign of the tilt angle of the axle. The higher side of the transaxle surface (as shown on the left) has the maximum axle angle which tilts downward.

Deviation Description

Vehicle deviation refers to the force applied to the steering wheel to keep the vehicle running in a straight line when the vehicle is driving on a typical straight line at a constant high speed.

Prompt: It is normal for a vehicle to deviate in road slope direction. Deviations are usually caused by the following factors:

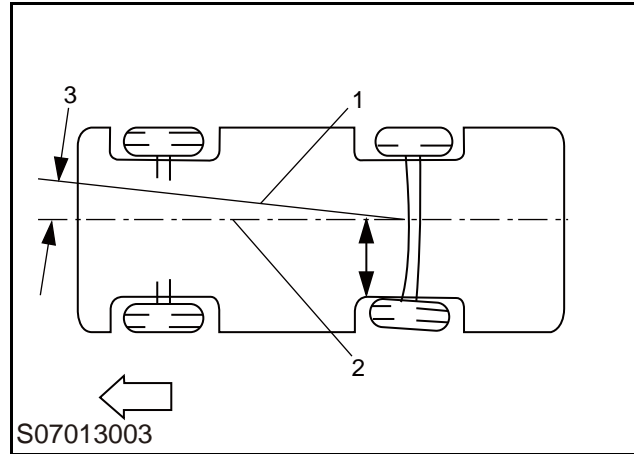
- ? Road slope
- ? Changes of tire structure
- ? Wheel alignment (difference between left and rear kingpin caster of front wheels and difference between camber of left and right wheels)
- ? Unbalanced Steering Gear
- ? The steering position of electronic power steering (EPS) and torque sensor are not properly calibrated

Thrust Angle Description

The front wheels are used for vehicle orientation or steering. The rear wheels control the trace. This trace action is related to the thrust angle (3). The thrust angle is the track that rear wheels travel. Theoretically, the thrust angle is geometrically consistent with the body centerline (2).

As shown in the figure, the left rear wheel is a positive toe-in, resulting in the thrust line (1) to deviate from the

center. The resulting deviation from the centerline is regarded as the thrust angle.



The incorrectly set thrust angle may make the driving route of vehicle looks like a "dog track", which may cause the steering wheel to fail to return or the axle to be mistaken for bending. The thrust angle can be checked during wheel alignment.

A positive thrust angle indicates that the thrust line points to the right side of the vehicle (RHS).

A negative thrust angle indicates that the thrust line points to the left side of the vehicle (LHS).

If the thrust angle exceeds the specified value, altering the axle-to-body relationship will change the reading of thrust angle.

If the vehicle exceeds in the positive (+) direction (moving forward on the right side and/or backward on the left side), the thrust angle will be moved toward the zero angle position.

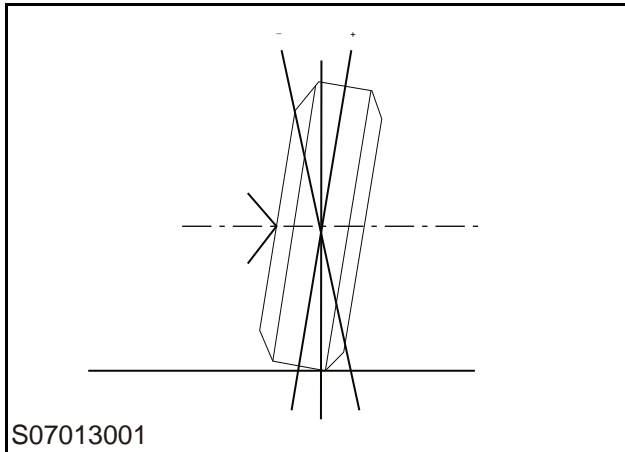
If the vehicle is in the negative (-) direction (moving backward on the right side and/or forward on the left side), the thrust angle will be moved toward the zero angle position.

Camber Angle Description

Wheel camber refers to the angle at which the wheel deviates from the vertical direction when viewed from the front of the vehicle. When the top of the wheel tilts outward, the wheel camber is positive (+). When the top of the wheel tilts inward, the wheel camber is negative (-). The degree of tilt is measured by the angle deviates from

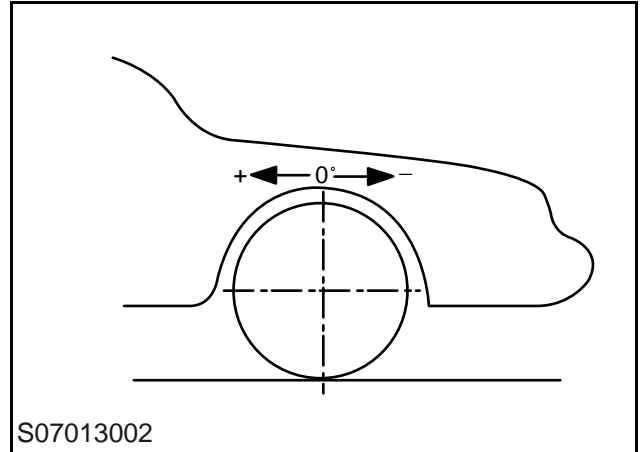
the vertical direction. The set value of wheel camber has influence on direction control and tire wear.

- ? Large positive wheel camber may cause premature wear to the outside of tires and the excessive wear of suspension parts.
- ? Large negative wheel camber may cause premature wear to the inside of tires and the excessive wear of suspension parts.
- ? If the cambers on both sides differ from each other by 1° or above, the vehicle may deviate to the side with larger camber.



Kingpin Caster Description

Kingpin caster refers to the angle at which the highest point of the steering axis tilts forward or backward when viewed from the side of the vehicle. Tilting backward is positive (+) while forward is negative (-). The kingpin caster affects the direction control during steering instead of the tire wear. The kingpin caster is affected by the height of the vehicle, so it is of great importance to keep the body at the design height. Overloaded vehicle or weak or slack rear spring will affect the kingpin caster. When the rear part of the vehicle is lower than the designed body leveling height, the front suspension moves towards the direction where the positive kingpin caster increases. When the rear part of the vehicle is higher than the designed body leveling height, the front suspension moves towards the direction where the positive kingpin caster decreases.



It is difficult to steer at high speed with a small positive kingpin caster, and the wheel return performance decreases after the steering is completed. If the positive kingpin caster of one wheel is larger than that of other wheels, the wheel will deflect toward the center of the vehicle. In this case, even if the positive kingpin caster is extremely small, it will cause the vehicle to deviate.

Suspension System

Front Suspension

Specification

Fastener Specifications

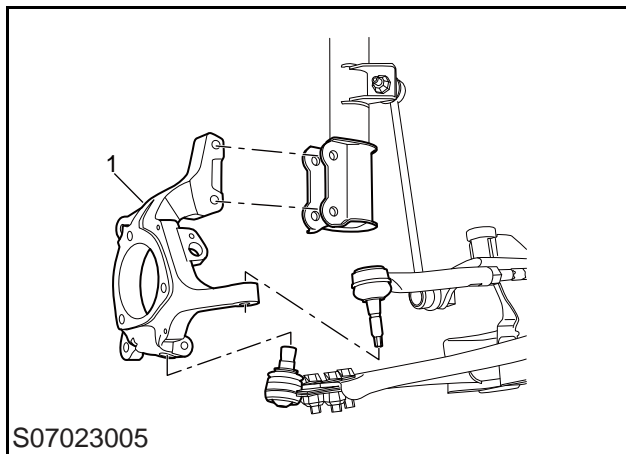
Name	Torque (N.m)
Bolt - Front Stabilizer Bar to Front Subframe	45-55 N.m
Nut - Front Link to Stabilizer Bar	50-60 N.m
Bolt - Front Suspension Lower Swing Arm to Subframe	80-100 N.m + 90°
Nut - Ball Pin of Lock Control Arm to Steering Knuckle	65-75 N.m
Nut - Lower Swing Arm Ball Head to Lower Swing Arm	100-120 N.m
Nut - Top Support of Front Shock Absorber	60-70 N.m
Bolt - Front Shock Absorber Strut to Steering Knuckle	110-130 N.m
Bolt - Hub Bearing	100-120 N.m

Service Guide

Steering Knuckle Replacement

Removal

- 1 Remove the front wheel.
- 2 Remove the wheel speed sensor.
- 3 Remove the wheel hub bearing.
- 4 Remove the front brake disc mudguard.
- 5 Disconnect the front shock absorber strut and spring assembly from the steering knuckle.
- 6 Disconnect the outer tie rod from the steering knuckle.
- 7 Disconnect the lower swing arm from the steering knuckle. Refer to "Lower Swing Arm Replacement".
- 8 Remove the steering knuckle (1).



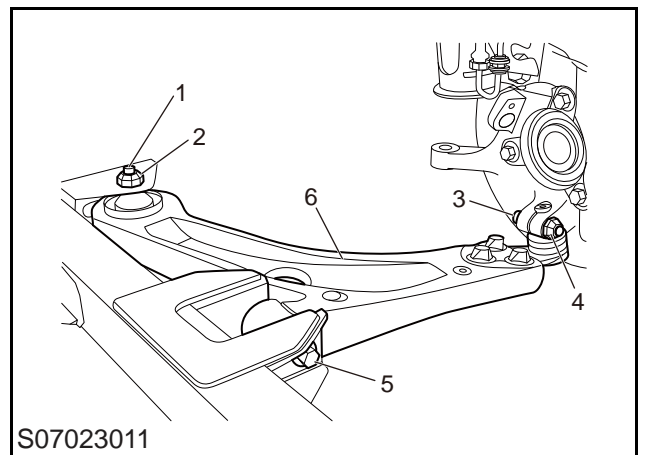
Installation

- 1 Install the steering knuckle.
- 2 Install the lower swing arm to the steering knuckle. Refer to "Lower Swing Arm Replacement".
- 3 Install the outer tie rod to the steering knuckle.
- 4 Install the front shock absorber strut and spring assembly to the steering knuckle.
- 5 Install the front brake disc mudguard.
- 6 Install the wheel hub bearing.
- 7 Install the wheel speed sensor.
- 8 Install the front wheel.

Lower Swing Arm Replacement

Removal

- 1 Raise the vehicle.
- 2 Remove the front wheel.
- 3 Remove the bolt (1) and nut (2) fixing the front suspension lower swing arm to the subframe.
- 4 Remove the bolt (3) and nut (4) fixing the ball pin of lock control arm to the steering knuckle.
- 5 Use the ball joint removal tool to separate the lower swing arm from the steering knuckle.
- 6 Remove the front bolt (5) fixing the front suspension lower swing arm to the subframe.
- 7 Remove the front lower swing arm (6).



Installation

- 1 Install the front lower swing arm.
- 2 Install the front bolt fixing the front suspension lower swing arm to the subframe, and tighten it to 80-100 N.m + 90° .
- 3 Install the bolt and nut fixing the ball pin of lock control arm to the steering knuckle, and tighten them to 65-75 N.m.
- 4 Install the nut and bolt fixing the front suspension lower swing arm to the subframe, and tighten them to 80-100 N.m + 90° .
- 5 Install the front wheel.
- 6 Lower the vehicle.

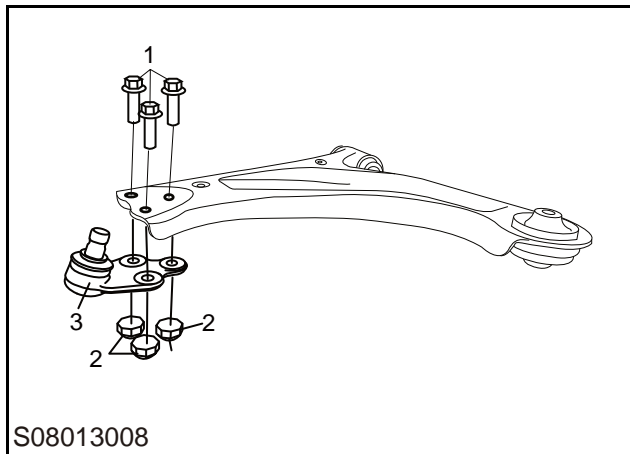
Suspension System

Lower Swing Arm Ball Head Replacement

Removal

Note: This ball joint sleeve repair method is only applicable when the outer ball joint sleeve of the front lower swing arm is damaged during repair or maintenance. If the vehicle has been driving with a damaged sleeve for a period of time, this repair method is not applicable anymore and the front lower swing arm assembly must be replaced.

- 1 Remove the front lower swing arm assembly. Refer to "Front Lower Swing Arm Replacement".
- 2 Remove and discard 3 bolts (1) and nuts (2) of the lower swing arm ball head.
- 3 Remove the lower swing arm ball head (3).



Installation

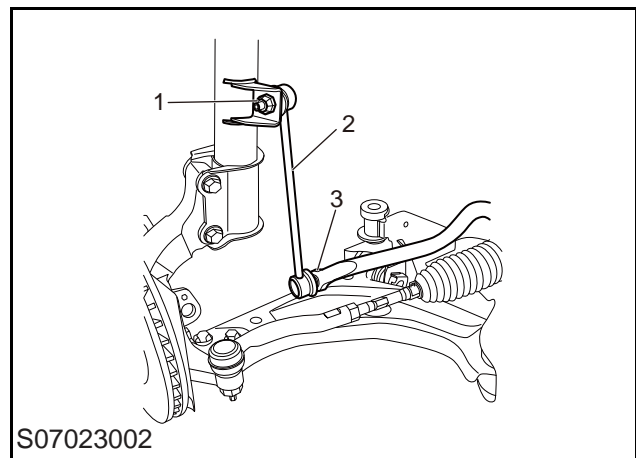
- 1 Install the lower swing arm ball head to the front lower swing arm assembly.
- 2 Install 3 new bolts and nuts of the lower swing arm ball head, and tighten them to 100-120 N.m.
- 3 Install the front lower swing arm assembly. Refer to "Front Lower Swing Arm Replacement".

Stabilizer Bar Link Replacement

Removal

- 1 Raise the vehicle.
- 2 Remove the front wheel. Refer to "Wheel Replacement".
- 3 Remove 2 nuts (1) of front stabilizer bar link.
- 4 Remove the front horizontal stabilizer bar link (2).

Note: Note: To prevent damage to parts, two wrenches should be used at the same time when loosening or tightening the pipe fitting.



Installation

- 1 Install the front horizontal stabilizer bar link.
- 2 Install 2 nuts of front stabilizer bar link and tighten them to 50-60 N.m.

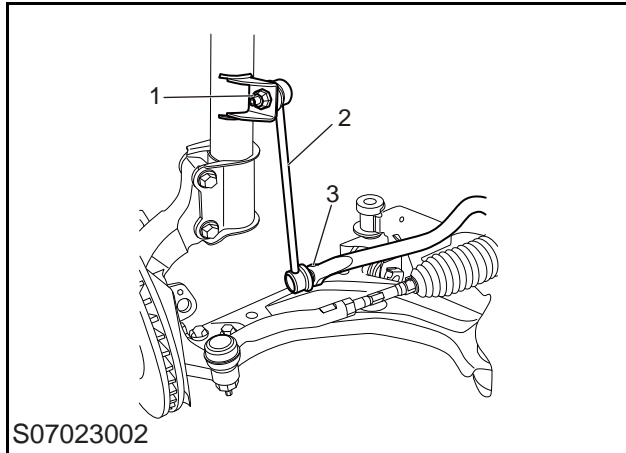
Note: Note: To prevent damage to parts, two wrenches should be used at the same time when loosening or tightening the pipe fitting.

- 3 Install two front wheels. Refer to "Wheel Replacement".
- 4 Lower the vehicle.

Front Stabilizer Bar Replacement

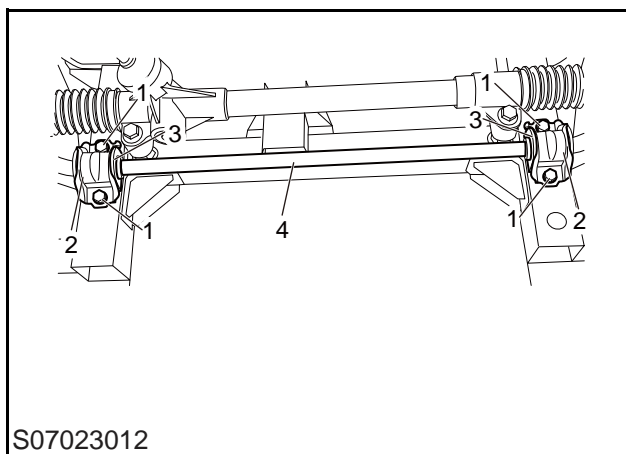
Removal

- 1 Remove two front wheels. Refer to "Wheel Replacement".
- 2 Raise the vehicle.
- 3 Remove and discard the nut (1) fixing the front horizontal stabilizer bar to the front suspension stabilizer bar link.



- 2 Install the front stabilizer bar bushing and locate it to the mount.
- 3 Install the front stabilizer bar bushing clamp.
- 4 Install new retaining bolt of the front stabilizer bar bushing clamp and tighten it to 45-55 N.m.
- 5 Align the front stabilizer bar link, install new nut fixing the front stabilizer bar link to the front horizontal stabilizer bar and tighten it to 50-60 N.m.
- 6 Lower the vehicle.
- 7 Install two front wheels. Refer to "Wheel Replacement".

- 4 Fix the front hub to one side so there is enough space to remove the front stabilizer bar.
- 5 Remove and discard 4 retaining bolts (1) of the stabilizer bar clamp.
- 6 Remove 2 front stabilizer bar clamps (2).
- 7 Remove 2 front stabilizer bar bushings (3).
- 8 Remove the front horizontal stabilizer bar (4).



Installation

- 1 Locate the front stabilizer bar to the subframe, and adjust it into place.

Suspension System

Front Stabilizer Bar Bushing Replacement

Removal

- 1 Remove two front wheels. Refer to "Wheel Replacement".
- 2 Raise the vehicle.
- 3 Remove the front stabilizer bar and its bushing. Refer to "Front Stabilizer Bar Replacement".

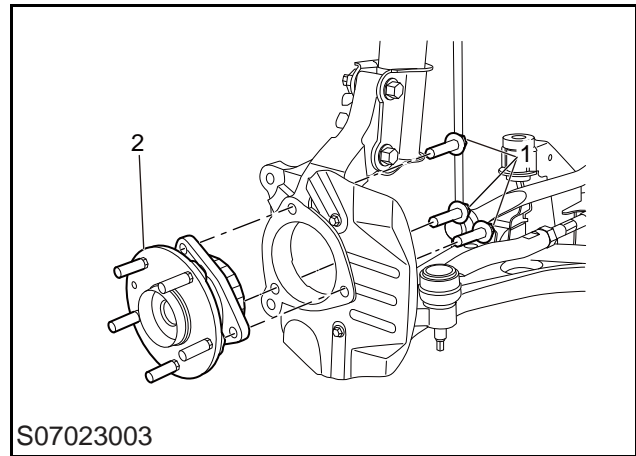
Installation

- 1 Install the front stabilizer bar and its bushing. Refer to "Front Stabilizer Bar Replacement".
- 2 Raise the vehicle.
- 3 Install two front wheels. Refer to "Wheel Replacement".

Front Hub Bearing Replacement

Removal

- 1 Raise the vehicle.
- 2 Remove the front wheel. Refer to "Wheel Replacement".
- 3 Separate the front axle shaft from the front hub bearing. Refer to "Front Axle Shaft Replacement - Left" and "Front Axle Shaft Replacement - Right".
- 4 Remove the front brake disc. Refer to "Front Brake Disc Replacement".
- 5 Remove 3 hub bearing bolts (1).
- 6 Remove the front hub bearing (2).



Installation

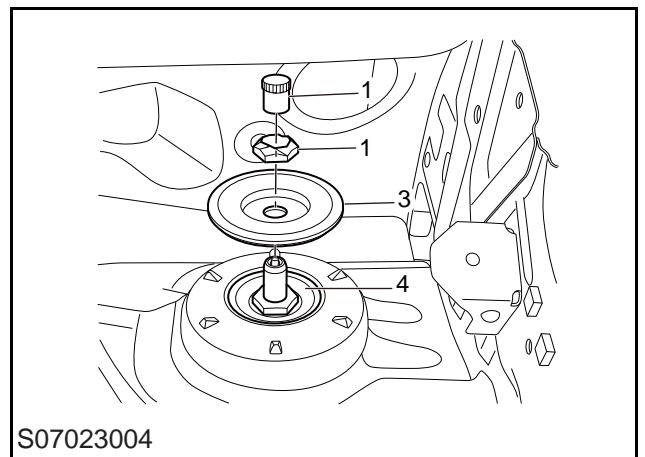
- 1 Clean the junction between the front hub bearing assembly and the front steering knuckle.
- 2 Clean the junction between the front steering knuckle and the front shock absorber.
- 3 Clean the junction between the front steering knuckle to the front lower swing arm ball joint.
- 4 Install the front hub bearing to the steering knuckle.
- 5 Install 3 new front hub bearing bolts and tighten them to 100-120 N.m.
- 6 Install the front brake disc. Refer to "Front Brake Disc Replacement".
- 7 Connect the front axle shaft to the front hub bearing. Refer to "Front Axle Shaft Replacement - Left" and "Front Axle Shaft Replacement - Right".

- 8 Install the front wheel. Refer to "Wheel Replacement".
- 9 Lower the vehicle.
- 10 Check the alignment parameters of wheels. Refer to "Four-Wheel Alignment".

Front Shock Absorber Strut and Spring Assembly Replacement

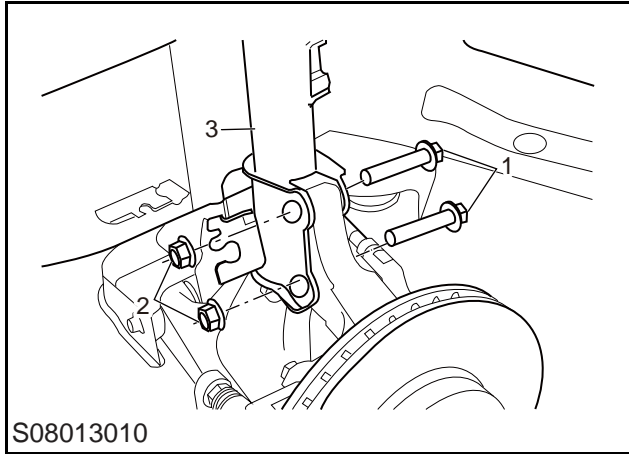
Removal

- 1 Open the bonnet.
- 2 Remove the dust cover (1) of the front shock absorber.
- 3 Remove the top support nut (2) of the front shock absorber.
- 4 Remove the upper gasket (3) of the front shock absorber.
- 5 Remove the front shock absorber strut and spring assembly (4) from the body.



- 6 Raise the vehicle.
- 7 Remove the front wheel.
- 8 Disconnect the stabilizer bar link at the front shock absorber strut and the spring assembly. Refer to "Stabilizer Bar Link Replacement".
- 9 Disconnect the pipeline and harness connected to the front shock absorber strut and spring assembly.
- 10 Remove 2 nuts (1) and bolts (2) fixing the front shock absorber strut to the steering knuckle.
- 11 Remove the front shock absorber strut and spring assembly (3) from the vehicle.

Suspension System



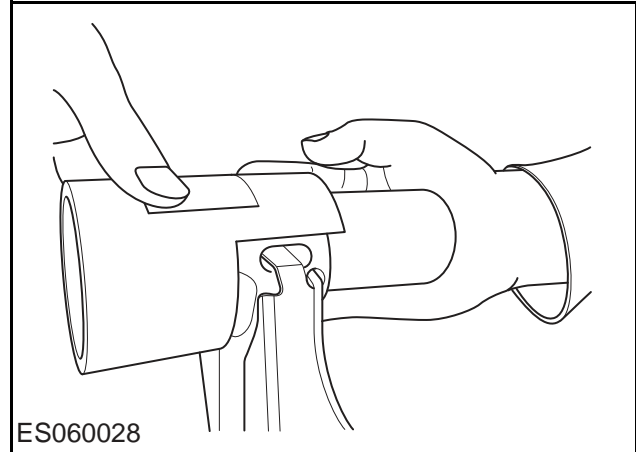
Installation

- 1 Install the front shock absorber strut and spring assembly.
- 2 Install 2 nuts and bolts fixing the front shock absorber strut to the steering knuckle, and tighten them to 110-130 N.m.
- 3 Connect the pipeline and harness connected to the front shock absorber strut and spring assembly.
- 4 Connect the stabilizer bar link to the front shock absorber strut and the spring assembly. Refer to "Stabilizer Bar Link Replacement".
- 5 Lower the vehicle.
- 6 Install the front wheel.
- 7 Install the shock absorber strut and spring assembly to the body.
- 8 Install the upper gasket of the front shock absorber.
- 9 Install the top support nut of the front shock absorber.
- 10 Install the dust cover of the front shock absorber.

Lower Swing Arm Rear Bushing Replacement

Removal

- 1 Remove the lower swing arm assembly. Refer to "Lower Swing Arm Assembly Replacement".
- 2 Use special tool C00189250 to press out the rear bushing of lower swing arm. It must be pressed out vertically to prevent sleeve deformation.



Installation

- 1 Check the sleeve for deformation. If any, replace the lower swing arm assembly.
- 2 Use special tool C00189250 to press vertically the rear bushing into swing arm sleeve.
- 3 Install the lower swing arm assembly. Refer to "Lower Swing Arm Assembly Replacement".

Description and Operation

Description and Operation of Front Suspension

There are two main functions of front suspension:

- ? It provides vibration isolation for the driver when driving on uneven roads.
- ? Determine the driving smoothness and maneuverability of vehicle.

The front suspension absorbs the impact energy of the wheels during driving on uneven road and distributes the energy to the whole suspension system. This process provides vibration isolation for passengers when driving on the road. The suspension system determines the driving smoothness of vehicle through its ratio of dispersed energy and absorbed energy. The suspension system has been designed for driving smoothness and cannot be adjusted. Driving smoothness is described in this description to help understand the function of the suspension system. The suspension system must allow the tires and wheel assembly to move vertically while keeping the tire level with the road when the vehicle is driving on an uneven road.

This requires the steering knuckle to be suspended between the lower control arm and the strut assembly. The lower control arm is connected to the steering knuckle at the outermost point of the control arm. This connection is accomplished through a ball joint. The innermost end of the control arm is connected to the frame at 2 points through a semi-rigid bushing. The upper steering knuckle is connected to the strut assembly. The strut assembly is connected to the body by an upper bearing. The steering knuckle can move up and down independently from the body structure and frame.


Most of the up-and-down motion of the steering knuckle is absorbed by the coil spring as the vehicle passes over the bumpy roads. The spring is kept in tension state on the strut assembly. The strut is used in conjunction with this system to buffer the vibration of the coil spring. The strut is essentially a hydraulic cylinder. The strut is filled with oil, and a movable shaft is connected to the piston in the strut. The valves in the shock absorber produce resistance to the flow of oil, preventing the piston and shaft from moving quickly. Each end of the shock absorber is connected in this way to take advantage of

the reaction force of a single spring. Each end of the strut is the connection point between the suspension system and the vehicle and acts as a coil spring seat. This allows the strut to reduce the reaction force of the spring independently by means of damping operation. The lower control arm can be rotated vertically on the frame. The ball joint keeps the steering knuckle perpendicular to the road surface.

The front suspension system is fitted with a stabilizer bar. The stabilizer bar is connected between the lower left and right control arm assemblies through the stabilizer bar link and the stabilizer bar vibration isolator. The stabilizer bar can control the independent displacement of the suspension system when the vehicle steers. The limitation on the independent displacement determines the handling characteristics of the vehicle when steering.

Suspension System

Special Tools

SN.	Tool Number/ Description	Illustration
1	C00189250 Lower arm bushing remover	 C00189250

Rear Suspension

Specification

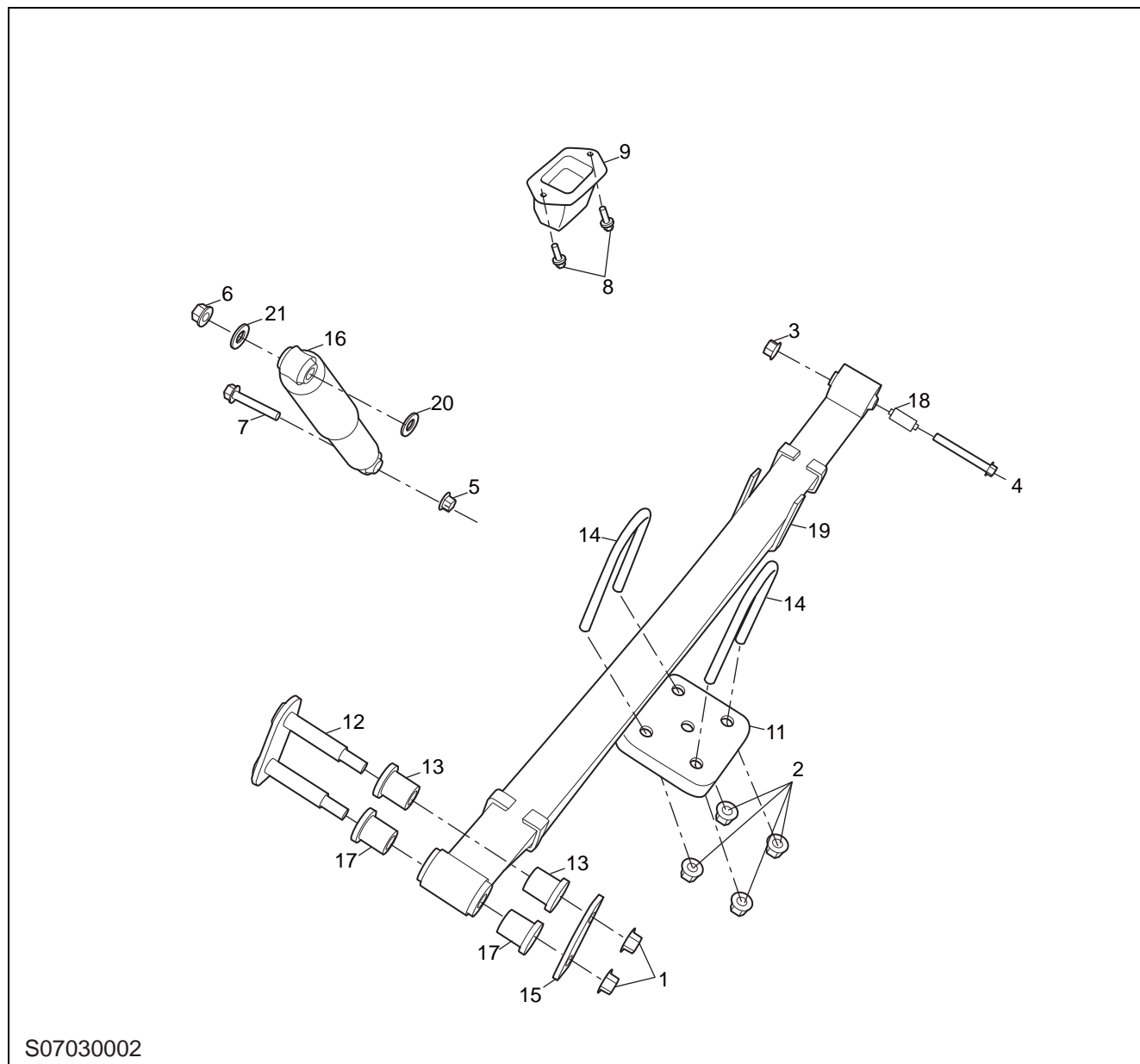
Fastener Specifications

Name	Torque (N.m)
Nut - Rear Shackle of Rear Leaf Spring	110-130 N.m
Nut - U-bolt	110-130 N.m
Nut - Front Shackle Bushing of Rear Leaf Spring	200-220 N.m
Bolt - Rear Shock Absorber to Rear Axle	110-130 N.m
Bolt - Rear Suspension Shock Absorber to Body	110-130 N.m
Bolt - Rear Suspension Bumper Block	20-24 N.m
Nut - rear wheel hub bearing assembly	250 ± 10 Nm

Suspension System

Layout

Rear Suspension Layout



S07030002

- | | | | |
|---|---|----|---|
| 1 | Nut - Rear Leaf Spring Shackle | 10 | Rear Leaf Spring Assembly |
| 2 | Nut - U-bolt | 11 | Rear Leaf Spring Lower Bracket Assembly |
| 3 | Nut - Rear Leaf Spring Front Spring Eye Bushing | 12 | Rear Leaf Spring Shackle Assembly |
| 4 | Bolt - Rear Leaf Spring Front Spring Eye | 13 | Rear Shackle Busing of Rear Leaf Spring |
| 5 | Nut - Rear Shock Absorber to Axle | 14 | Bolt - Rear Leaf Spring |
| 6 | Nut - Rear Shock Absorber to Frame | 15 | Rear Leaf Spring Shackle Cover Plate |
| 7 | Bolt - Rear Shock Absorber to Rear Axle | 16 | Rear Suspension Shock Absorber |
| 8 | Bolt - Rear Bumper Block to Frame | 17 | Rear Leaf Spring Rear Spring Eye Bushing |
| 9 | Rear Suspension Bumper Block | 18 | Rear Leaf Spring Front Spring Eye Bushing |

- 19 Rear Leaf Spring
- 20 Gasket - Rear Shock Absorber to Body
- 21 Gasket - Rear Shock Absorber to Body
- 22 Rear Leaf Spring Assembly

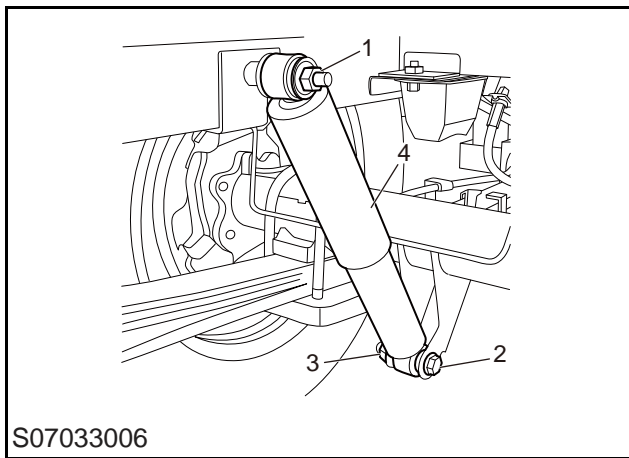
Suspension System

Service Guide

Rear Suspension Shock Absorber Replacement

Removal

- 1 Raise the vehicle.
- 2 Remove the nut (1) fixing the rear suspension shock absorber to the body.
- 3 Remove the bolt (2) and nut (3) fixing the rear shock absorber to the rear axle.
- 4 Remove the rear shock absorber (3).



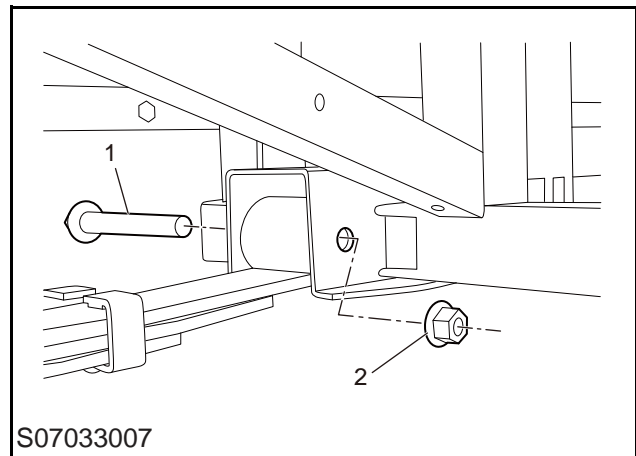
Installation

- 1 Install the rear shock absorber.
- 2 Install the bolt and nut fixing the rear shock absorber to the rear axle, and tighten them to 110-130 N.m.
- 3 Install the nut fixing the rear suspension shock absorber to the body, and tighten it to 110-130 N.m.
- 4 Lower the vehicle.

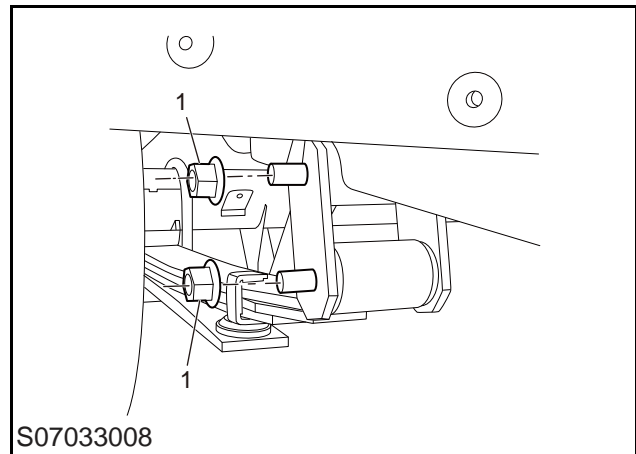
Rear Leaf Spring Assembly Replacement

Removal

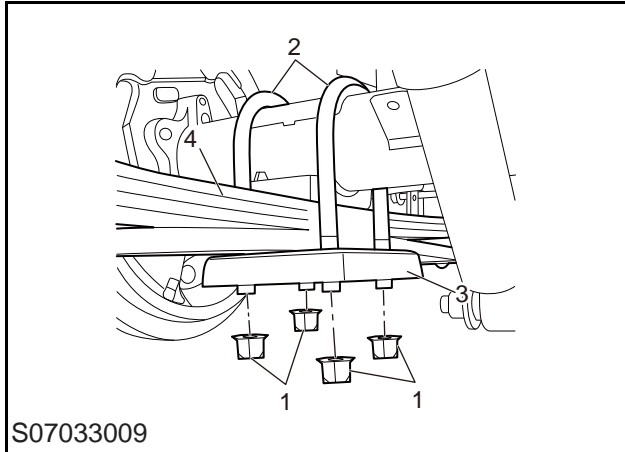
- 1 Raise the vehicle.
- 2 Remove the rear wheel. Refer to "Wheel Replacement".
- 3 Disconnect the harness connector of rear ABS speed sensor.
- 4 Remove the front connecting bolt (1) and nut (2) of rear leaf spring fixing it to the body bracket.



- 5 Remove the rear shackle of rear leaf spring, the bushing and the shackle cover plate connection fixed by 2 nuts.



- 6 Remove 4 nuts (1) connecting the rear leaf spring to the rear axle, and remove the U-bolt (2) and the lower bracket (3) of rear spring.
- 7 Remove the rear leaf spring (4).

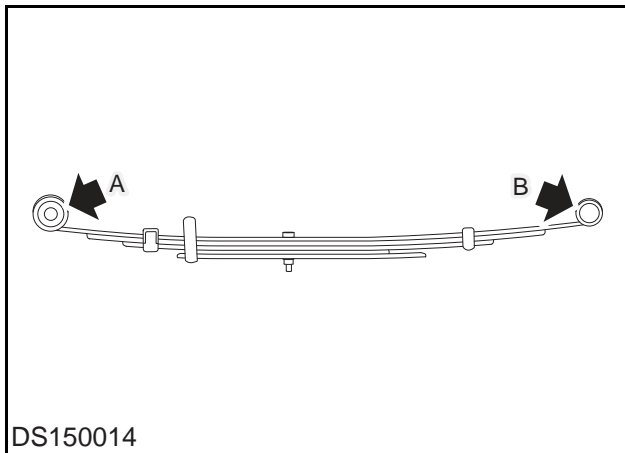


S07033009

- 8 Check the front spring eye bushing of leaf spring for aging and abrasion. Use special tool C00089917 to force out the front spring eye bushing of rear leaf spring if necessary.

Installation

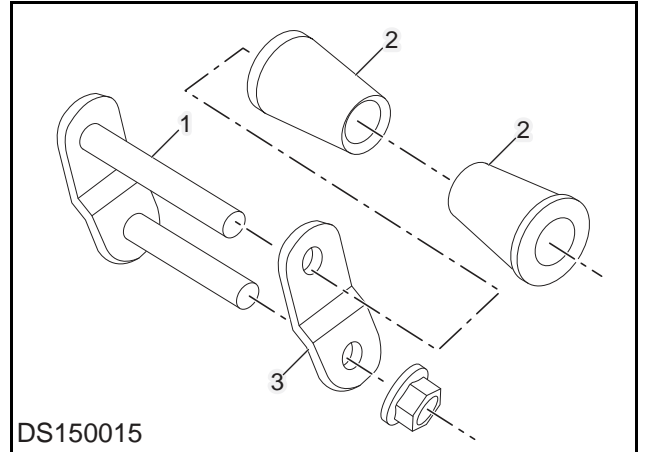
- 1 Determine the installation position A of front bracket of rear leaf spring and the installation position B of rear leaf spring shackle first.



DS150014

- 2 Install the rear leaf spring shackle (1), bushing (2) and shackle cover plate (3).

Note: Make sure the bushing is installed in the direction shown.



DS150015

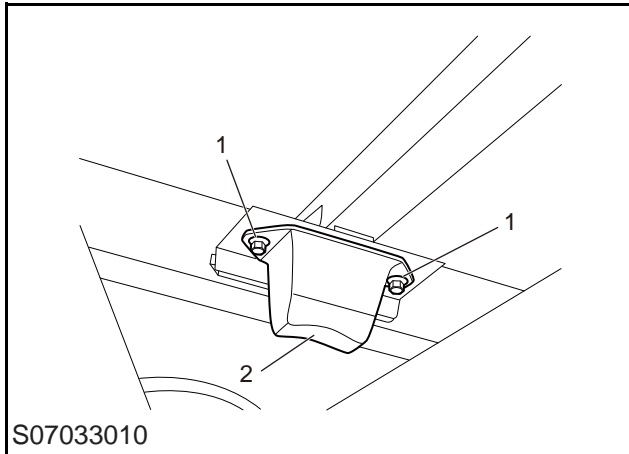
- 3 Install 2 rear shackle nuts of rear leaf spring and tighten them to 110-130 N.m.
- 4 Install the front shackle bushing nut of rear leaf spring and tighten it to 200-220 N.m.
- 5 Install the lower bracket of rear spring, U-bolt and 4 U-bolts and nuts, then tighten them to 110-130 N.m.
- 6 Lower the vehicle.

Suspension System

Rear Suspension Bumper Block Replacement

Removal

- 1 Raise the vehicle.
- 2 Remove 2 bolts (1) of rear suspension bumper block.
- 3 Remove the rear suspension bumper block (2).



Installation

- 1 Install the rear suspension bumper block.
- 2 Install 2 bolts of rear suspension bumper block, and tighten them to 20-24 N.m.
- 3 Lower the vehicle.

Rear Axle Beam Assembly Replacement

Removal

- 1 Remove rear axle with brake assembly replacement. Refer to “rear axle with brake assembly replacement” .
- 2 Remove rear wheel hub bearing assembly. Refer to “rear wheel hub bearing assembly replacement” .
- 3 Remove rear brake disc mudguard. Refer to “rear brake disc mudguard replacement” .
- 4 Remove the rear axle beam assembly.

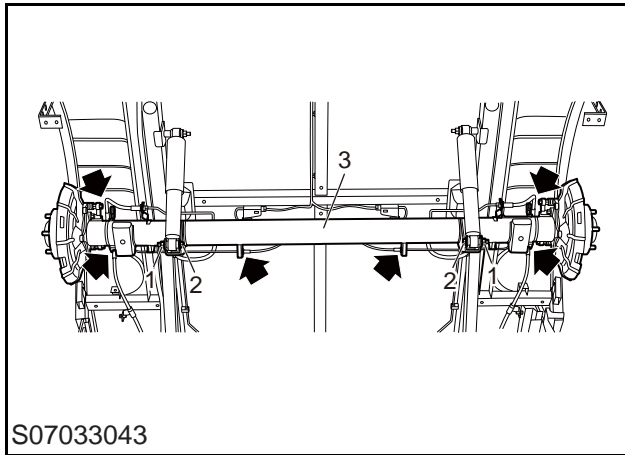
Installation

- 1 Install the rear axle beam assembly.
- 2 Install rear brake disc mudguard. Refer to “rear brake disc mudguard replacement” .
- 3 Install rear wheel hub bearing assembly. Refer to “rear wheel hub bearing assembly replacement” .
- 4 Install rear axle with brake assembly replacement. Refer to “rear axle with brake assembly replacement” .

Rear axle with brake assembly replacement

Removal

- 1 Remove the rear wheel.
- 2 Remove the rear leaf spring assembly. Refer to "Rear leaf spring assembly Replacement".
- 3 Support the rear axle with bracket.
- 4 Remove the rear shock absorber to the rear axle nut (1) and bolt (2) . Refer to "Rear shock absorber Replacement".
- 5 disconnect the harness and pipeline connected to the rear axle with brake assembly.
- 6 Remove the Rear axle with brake assembly (3) .



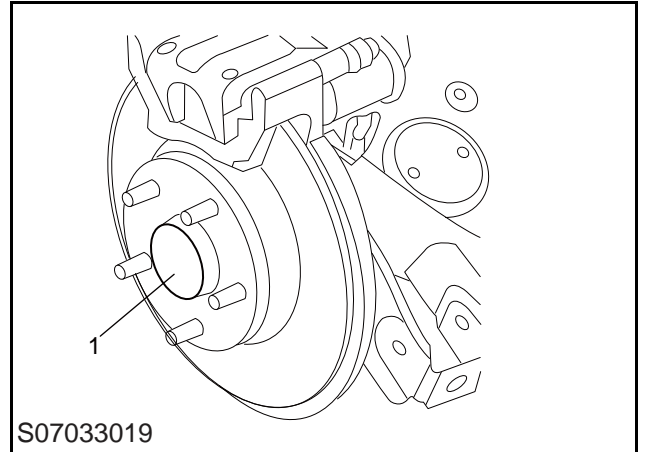
Installation

- 1 Install the Rear axle with brake assembly.
- 2 Install the harness and pipeline connected to the rear axle with brake assembly.
- 3 Install the rear shock absorber to the rear axle assembly. Refer to "Rear shock absorber Replacement".
- 4 Install the rear leaf spring assembly. Refer to "Rear leaf spring assembly Replacement".
- 5 Install the rear wheel.

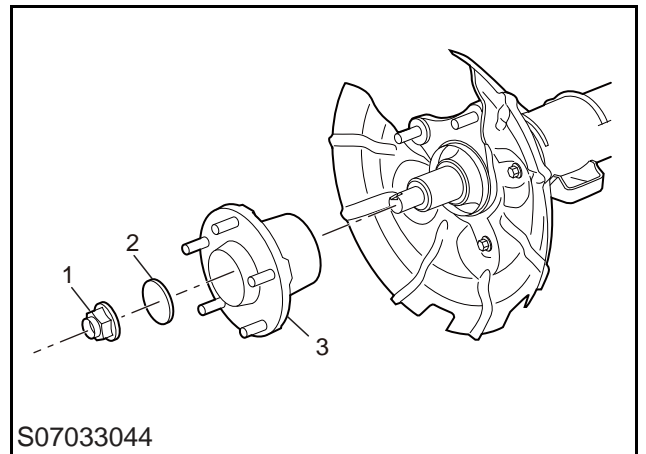
Rear Wheel Hub Bearing Assembly Replacement

Removal

- 1 Remove the rear wheel.
- 2 Remove and discard the rear bearing dust shield (1).



- 3 Remove the rear brake disc. Refer to "Rear Brake Disc Replacement".
- 4 Remove and discard the rear wheel hub bearing assembly nut (1) and gasket (2).
- 5 Remove the rear wheel hub bearing assembly (3).

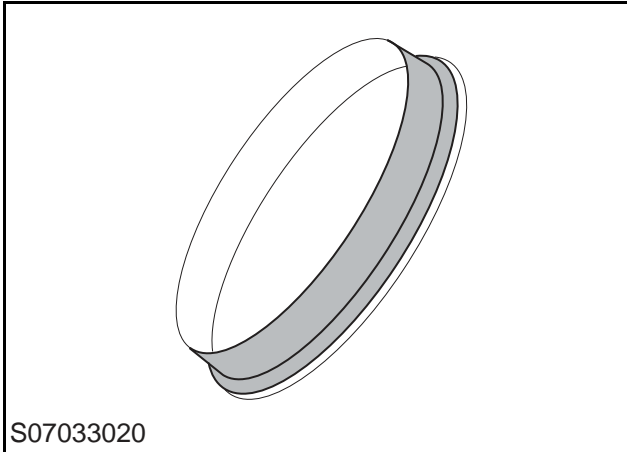


Installation

- 1 Install the rear wheel hub bearing assembly.
- 2 Install a new gasket and Install a new rear wheel hub bearing assembly nut and tighten it to 250 ± 10 Nm.
- 3 Install the rear brake disc. Refer to "Rear Brake Disc Replacement".

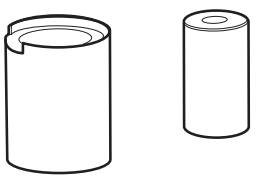
Suspension System

- 4 Apply sealant on the side of the new rear bearing dust shield, and install the rear bearing dust shield. Caution: Before assembling the new dust shield, you need to apply a circle of sealant on its side, and there should be no omissions. The sealant should be silicone sealant, and Huitian POWER-SEAL sealant or equivalent sealant should be used.



- 5 Install the rear wheels.

Special Tools

SN.	Tool Number/ Description	Illustration
1	C00089917 Front Spring Eye Bushing Removal and Installation Tool	 <p>C00089917</p>

Suspension System

Tires and Wheels

Specification

Fastener Specifications

Name	Torque (N.m)
Bolt - Wheel	125 ± 13 N.m

Service Manual

Wheel Replacement

Warning: DO NOT lubricate the wheel rim and tire with lubricant containing silicone oil. Clean the tire bead before the removal of tire. Lubricate the area completely with the mixture of 50% lubricant and 50% water before the installation.

Warning: Use a tire changer to remove tires and avoid using manual tools or a tire lever alone to replace tires, otherwise wheel disk or rim may be damaged.

Removal

- 1 Place the vehicle on the lifting platform and lift it to a certain height.
- 2 Remove the wheel trim cover with a screwdriver.
- 3 Remove 6 wheel bolts with a socket wrench.
- 4 Remove wheels.

Note: Avoid placing the hub panel towards the ground to prevent scratches.

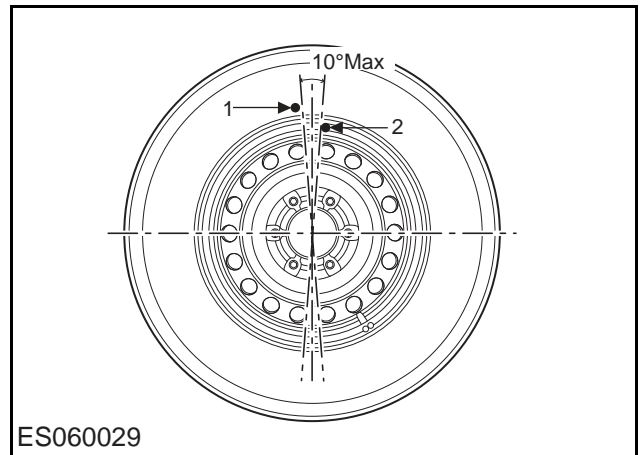
- 5 Take down the wheel balance block and record the location and mass of each balance block for re-installation. (if applicable)
- 6 Loosen the valve cap to release the air. Remove the tire and pull out the wheel valve or tire pressure monitoring sensor.

Installation

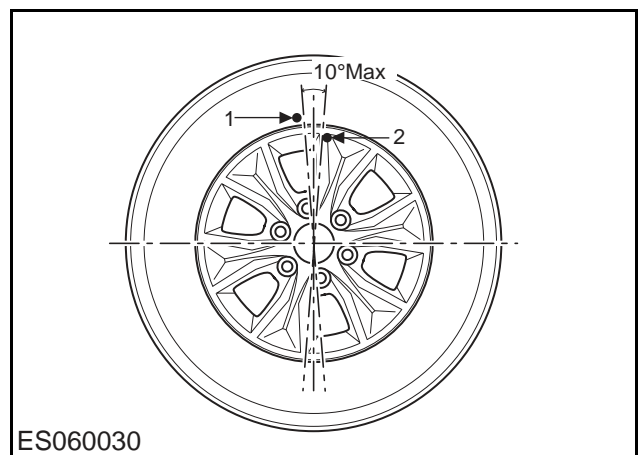
Note: Brush away the deposited corrosion on the mounting surfaces of wheel, brake drum and brake disc with scraping tool or steel wire brush before the installation of wheels. During the installation, improper mating of metal mounting surface and metal will cause the looseness of wheel bolts. The wheel may thus fall off in driving, resulting in vehicle out of control and even personal injury.

- 1 Install the wheel valve assembly and ensure it is fully matched and sealed with the rim.
- 2 Install the tire with the tire changer and align the tire to the matching marks on the wheel.
- ? During the installation of steel wheel, the tire with mark 1 of ϕ 10 red dot shall be installed on the same side with the steel wheel with mark 2

of ϕ 8 white dot (if marked) at 0 angle. The tire assembly is required to be within 10 degrees after the installation.



- ? During the installation of alloy wheel, the tire with mark 1 of ϕ 10 red dot shall be installed on the same side with the steel wheel with mark 2 of ϕ 10 red dot (if marked) at 0 angle. The tire assembly is required to be within 10 degrees after the installation.



- 3 Inflate the tire until the wheel disk is in place. Ensure the locating ring at the outer side of the tire bead is around the wheel rim flange on both sides. This method can ensure the correct position of tire bead.
- 4 Check the air tightness of the valve with soap water, reinstall it in case of any leak.

Note: DO NOT damage the tire when installing accessories, especially the tire bead.

- 5 After each wheel is assembled, carry out the balance test to the tire with a tire dynamic balancer.

Suspension System

6 Pay attention to the followings when installing the balance block:

1) After the installation of the steel wheel assembly, the allowable unilateral residual unbalance is 10 grams or less. The maximum weight of the balance block is 60 grams on either side and no more than 120 grams on both sides.

2) After installation of the alloy wheel assembly, the allowable unilateral residual unbalance is 8 grams or less. The maximum weight of the balance block is 80 grams on either side and no more than 160 grams on both sides.

7 After the wheel dynamic balance test, determine the mass of the balance block and install it on the wheel.

8 Install the wheel trim cover.

9 Install the wheel and tighten the wheel nut in sequence with the socket wrench to the torque:
 125 ± 13 N.m.

Warning: The leaked oil on the vertical surface between the wheel, the brake disc and brake drum will cause wheel looseness in driving, thereby resulting in personal injury accidents due to vehicle out of control. DO NOT heat to loosen the wheel fastened tightly, which will shorten the service life of the wheel, wheel bolt, hub and bearing assembly. The wheel nuts must be tightened to the correct torque in proper sequence to prevent distortion of the wheel, brake disc and brake drum.

Description and Operation

Rear suspension consists of leaf spring and shock absorber, wherein the leaf spring is provided with the function of both elastic element and guiding mechanism. The rear leaf spring is the full-flight leaf spring, the stiffness of which varies slowly with load to offer higher bearing capability of suspension while perfectly taking comfort into consideration.

Service brake

Specification

Fastener Specifications

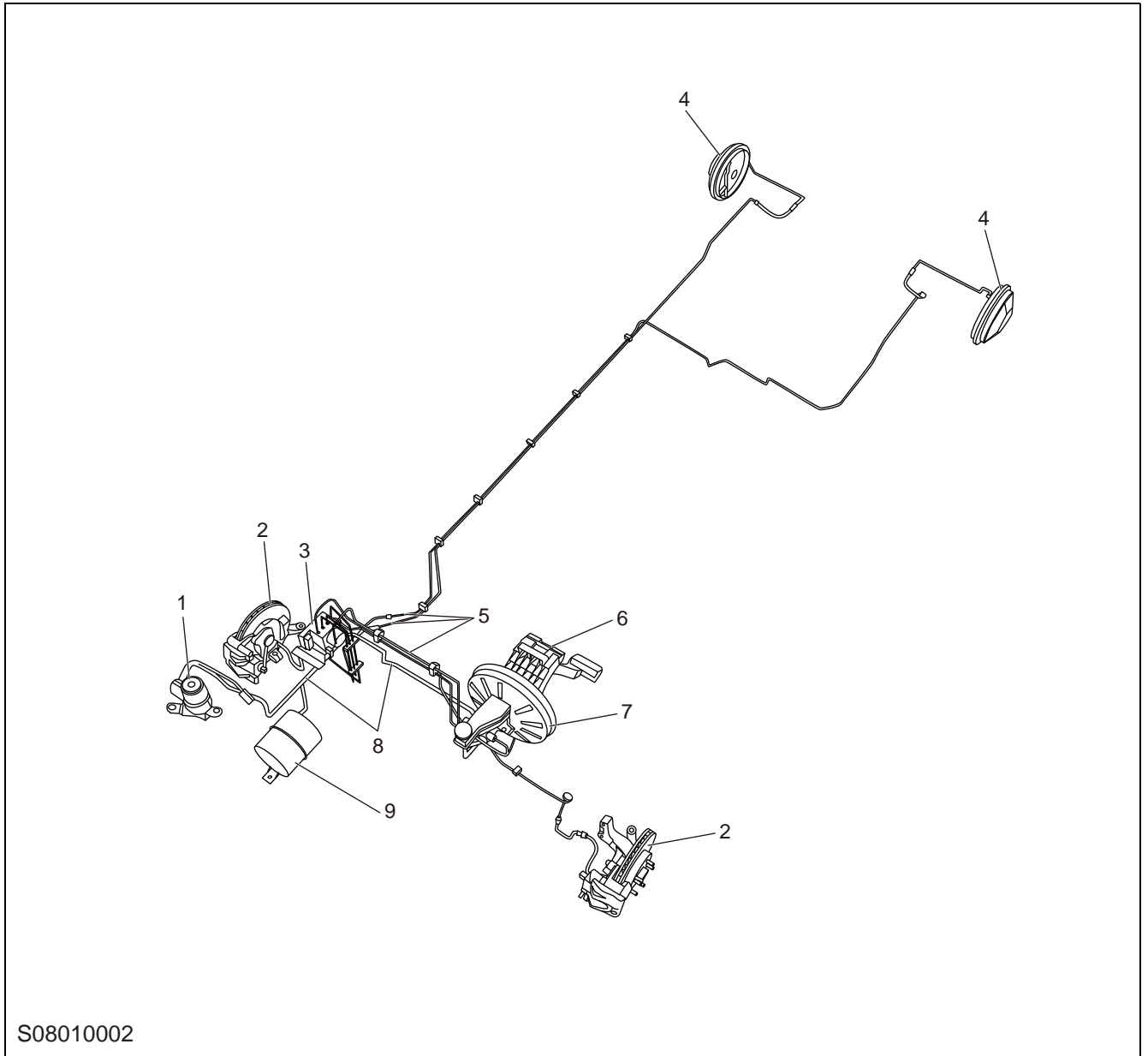
Name	Torque (N.m)
Bolt - Front brake caliper assembly	100 - 120 N.m
Bolt - Front brake disc	8-10 N.m
Bolt - Brake hose to brake caliper	32-38 N.m
Bolt - Pedal assembly	20-24 N.m
Nut - Pedal assembly	20-24 N.m
Screw - Clutch pedal position sensor	1.2 - 1.8 N.m
Bolt - Rear brake drum	8-10 N.m
Bolt - Electronic vacuum pump	5 - 7 N.m
Bolt - Vacuum cylinder	20-24 N.m
bolt - the rear brake disc	8-10 Nm
bolt - the rear brake disc mudguard	20-24 Nm
Bolt - Rear brake caliper assembly	110-130 Nm
Bolt-brake lining guide pin	30-35Nm

Brake System

Parameters

Name	Value
Front	Disc brake
Rear	Disc brake
Diameter of front brake disc	
Front	282mm
Rear	271mm
Thickness of front brake disc	
New	26mm
Service limit value	24mm
Thickness of rear brake disc	
New	10mm
Service limit value	8mm
Minimum thickness of brake pad material	
Front brake lining (with a self-adhesive gasket)	8.65mm
Rear brake shoe (with a self-adhesive gasket)	8.1mm
Maximum runout of brake disc	
Front	0.06mm
Rear	0.06mm

Brake System Layout

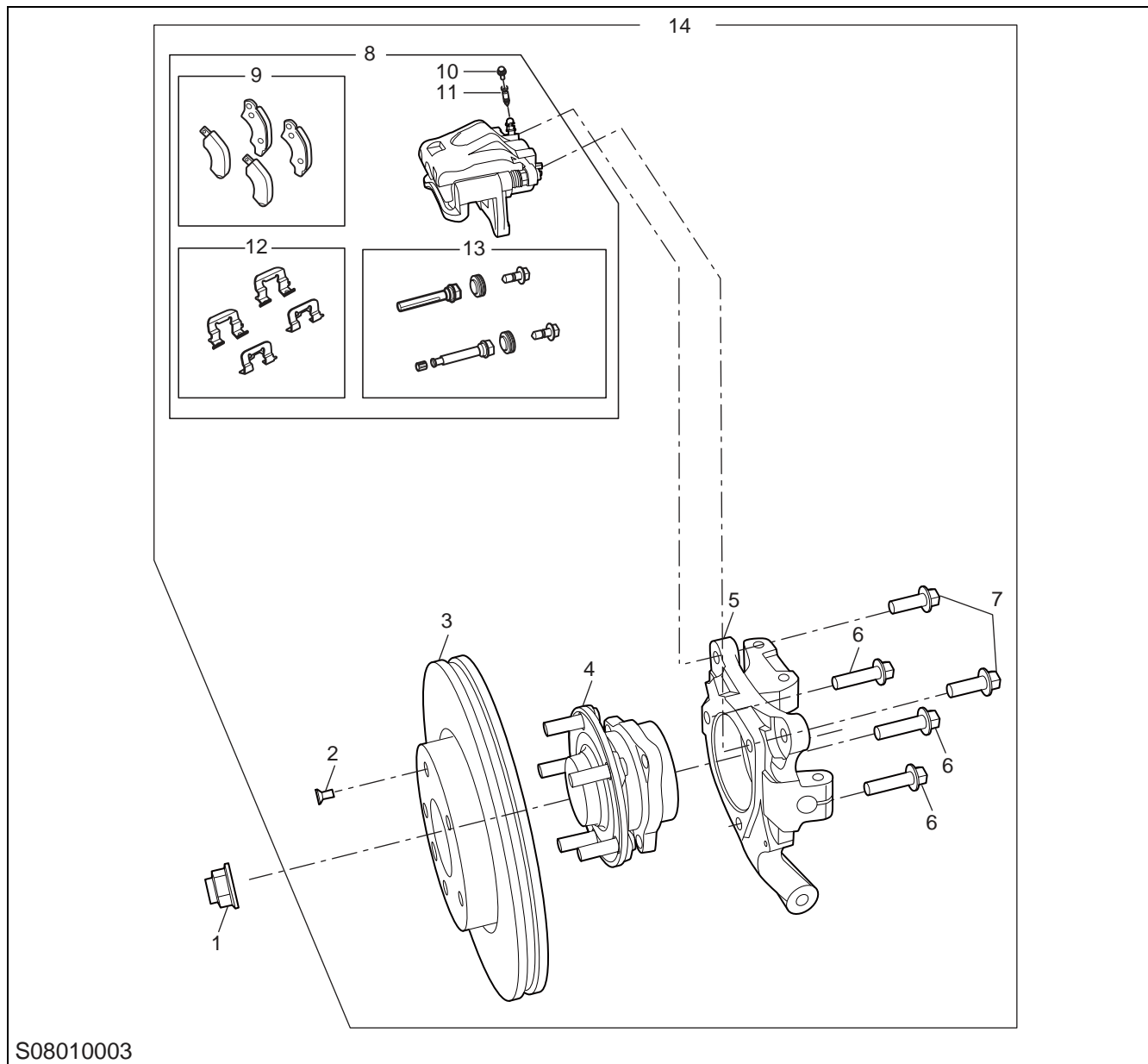


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- | | | | |
|---|------------------------|---|--------------------------|
| 1 | Electronic vacuum pump | 6 | Brake pedal assembly |
| 2 | Brake angle assembly | 7 | Vacuum booster assembly |
| 3 | ABS control module | 8 | Vacuum tube assembly |
| 4 | Disc brake | 9 | Vacuum cylinder assembly |
| 5 | Brake pipe assembly | | |

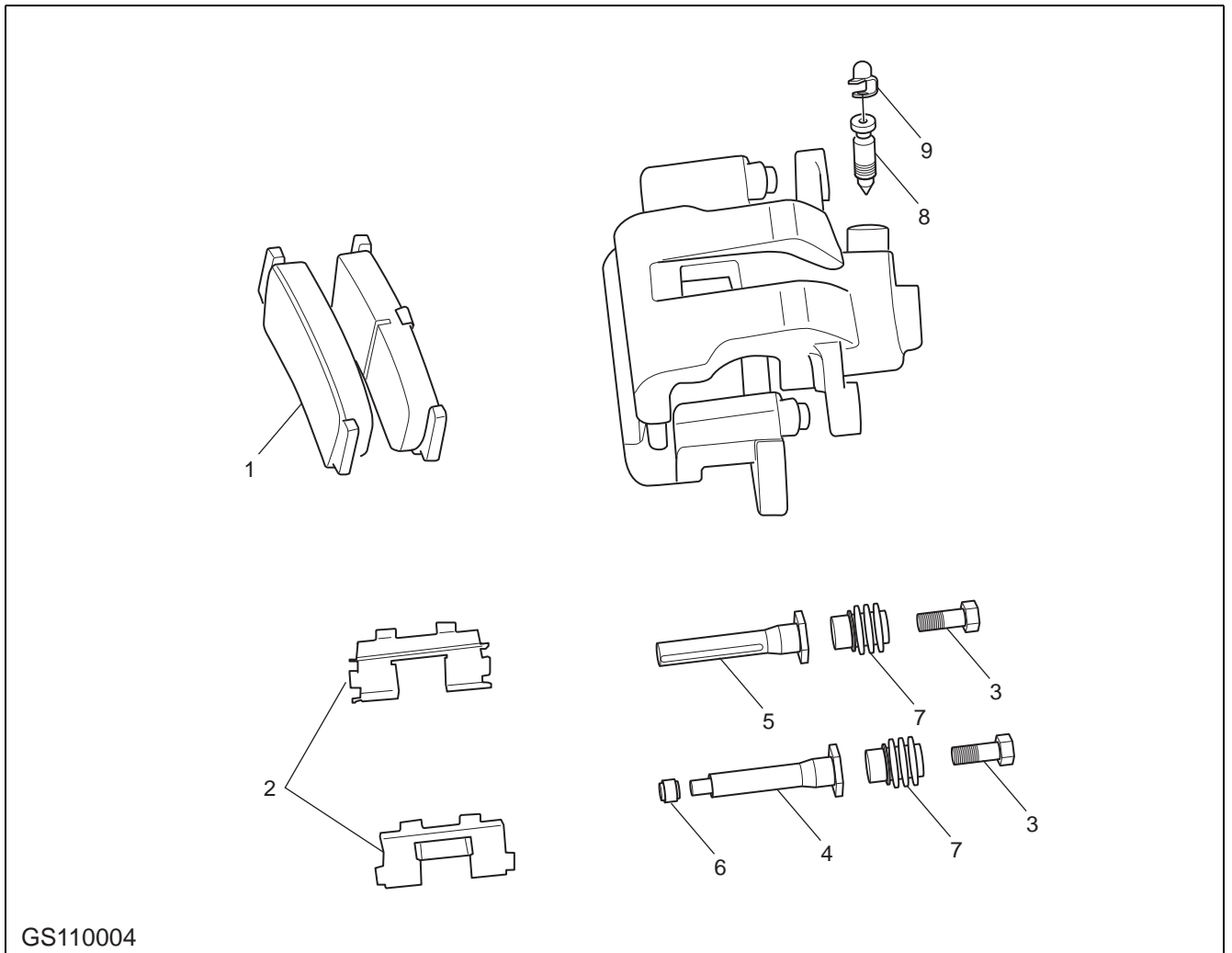
Brake System

Exploded View of Front Brake Caliper



- | | | | |
|----|--|----|--|
| 1 | Nut - Front hub | 11 | Front brake caliper bleeder screw |
| 2 | Screw - Front brake disc | 12 | Front brake circlip assembly |
| 3 | Front brake disc | 13 | Front brake caliper guide pin and bushing assembly |
| 4 | Front hub bearing | 14 | Brake angle assembly |
| 5 | Front steering knuckle | | |
| 6 | Bolt - Steering knuckle to hub bearing | | |
| 7 | Bolt - Front brake caliper | | |
| 8 | Front brake caliper assembly | | |
| 9 | Front brake lining assembly | | |
| 10 | Front brake caliper bleeder screw cap | | |

Exploded View of Rear Brake Callper



GS110004

- 1 Brake block assembly
- 2 Brake block snap ring
- 3 Pivot pin bolt
- 4 Guide pin
- 5 Locating pin
- 6 Buffer gum cover
- 7 Guide pin dust shield
- 8 Bleeder screw
- 9 Bleeder screw cap

Brake System

Service Guide

Brake Disc Check

Removal

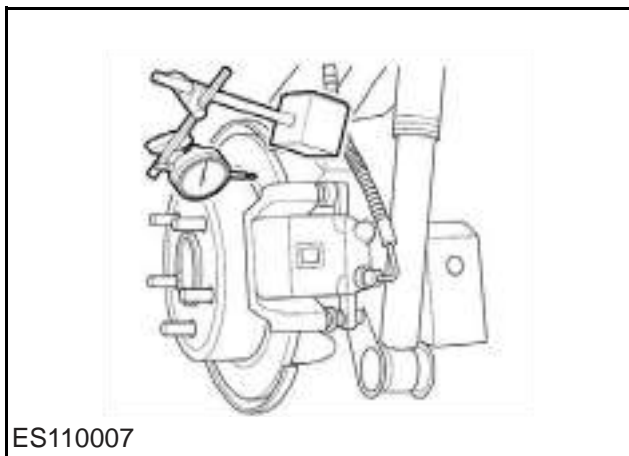
- 1 Lift the vehicle.
- 2 Remove wheels. Refer to "Wheel Replacement".
- 3 Remove the bolt fixing the caliper to the steering knuckle. Remove the brake caliper assembly and hold it with a bracket.

Note: *Do not hang the brake caliper on the hose.*

- 4 Clear slight rust spots, scratches and grooves on the operating surface of brake disc with an abrasive paper. In case of severe wear signs, scratches or cracks on the operating surface, conduct turning to the brake disc or replace it with a new one.
- 5 Measure the brake disc thickness of more than 8 testing points on the circumference of contact center between the brake disc and friction lining with an outer-diameter dial indicator. The minimum thickness of brake disc shall not be lower than the value specified in Technical Parameters. If exceeds, the brake disc must be replaced.

Note: *Brake discs must be replaced in pairs, unless the mileage does not reach 1,500km after this brake disc is replaced.*

- 6 Fix the dial indicator onto the steering knuckle as illustrated below. Fix the dial indicator measuring head onto the position 10mm away from the brake disc edge.



- 7 Zero set the dial indicator and rotate wheels for a circle. Then measure the brake disc runout. The

brake disc runout shall not exceed the value specified in the technical parameters. If the runout exceeds the limit, the brake pedal will vibrate and shake during braking.

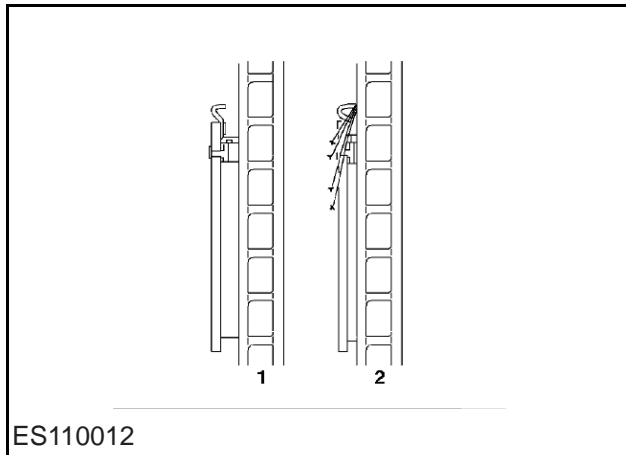
- 8 If the brake disc runout exceeds the limit:
 - 1) Remove the brake disc.
 - 2) Ensure the flange between the brake disc to the hub is clean.
 - 3) Install the brake disc.
 - 4) Check the brake disc runout according to the aforesaid steps.
 - 5) If the runout still exceeds the limit, replace the front brake disc.
- 9 Install the bolt fixing the caliper.
- 10 Install wheels. Refer to "Wheel Replacement".
- 11 Depress the brake pedal for several times to adjust the brake block.
- 12 Lower the vehicle.

Front Brake Lining Replacement

Removal

The front and rear disc-type brakes are equipped with a wear indicator respectively as illustrated. When the brakes make noise due to the wear is lower than the specification, the friction lining shall be replaced. The thickness of friction lining shall not be lower than the value specified in Technical Parameters.

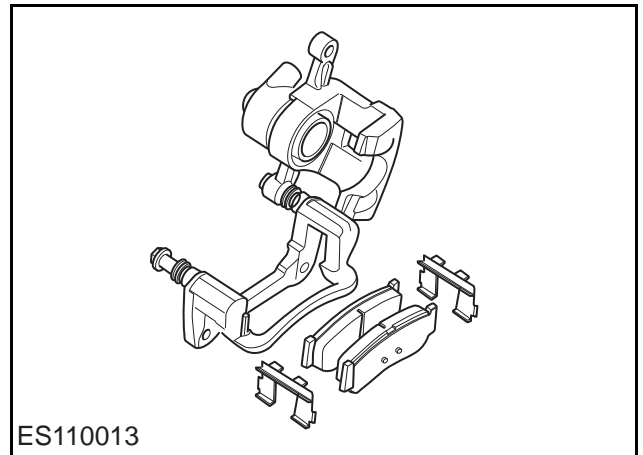
Warning: The brake linings of front wheels or rear wheels must be replaced meanwhile, otherwise the braking efficiency will be weakened.



- 1 Place the vehicle on the lift and lift it to a certain height.

Warning: Warning: The vehicle must be supported on a safe device.

- 2 Remove wheels. Refer to "Wheel Replacement".
- 3 Loosen the guide pin, rotate the caliper body to a certain angle, and remove the snap ring and brake shoe from the bracket.



Installation

- 1 Clean the brake caliper housing and front brake caliper bracket.
- 2 Check the brake caliper and sealing condition for damage.
- 3 Fix the brake linings onto the bracket with snap rings, and close the caliper body. Tighten the guide pin bolts, and tighten the torque of front and rear brake calipers to 35 N.m.
- 4 Depress the brake pedal for several times to install the brake pad.

Prompt: The stroke of brake pedal may be longer than usual for the first time of braking.

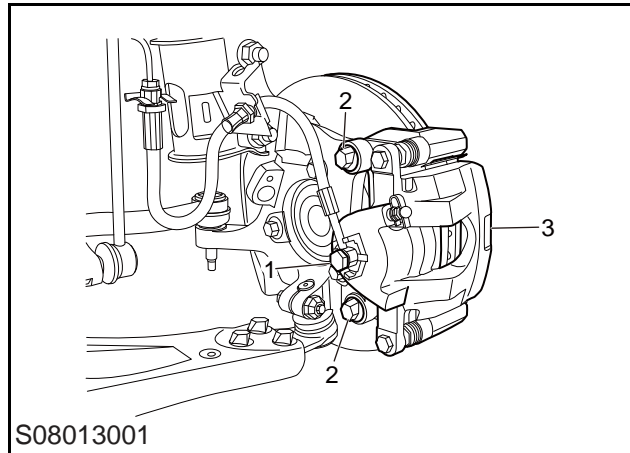
- 5 Install wheels. Refer to "Wheel Replacement".
- 6 Lower the vehicle.

Brake System

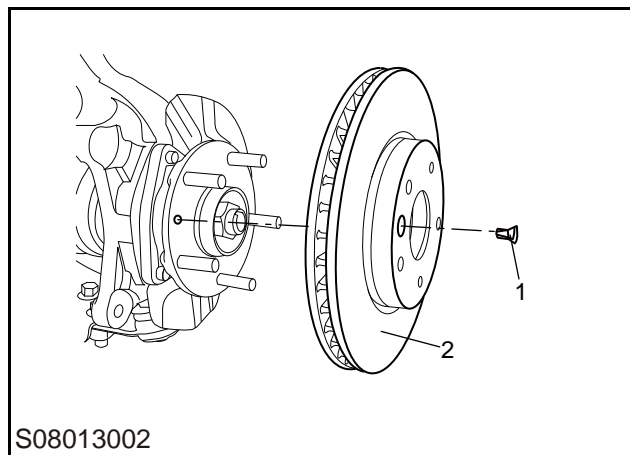
Front Brake Disc Replacement

Removal

- 1 Raise the vehicle.
- 2 Remove wheels. Refer to "Wheel Replacement".
- 3 Remove 2 bolts (2) of the front brake caliper assembly.
- 4 Lift the brake caliper assembly (3) and fix it to the frame.



- 5 Remove the front brake disc bolt (1).
- 6 Remove the front brake disc assembly (2).



Installation

- 1 Ensure the junction surface between the front brake disc and the hub bearing is clean.
- 2 Install the front brake disc.
- 3 Install the front brake disc bolts and tighten them to 8 - 10 N.m.

- 4 Check the front brake disc runout. Check the thickness and circular runout of the front brake disc.
- 5 Install the brake caliper assembly and fix it to the steering knuckle.
- 6 Install 2 bolts of the brake caliper assembly and tighten them to 100 - 120 N.m.
- 7 Install wheels. Refer to "Wheel Replacement".
- 8 Lower the vehicle.

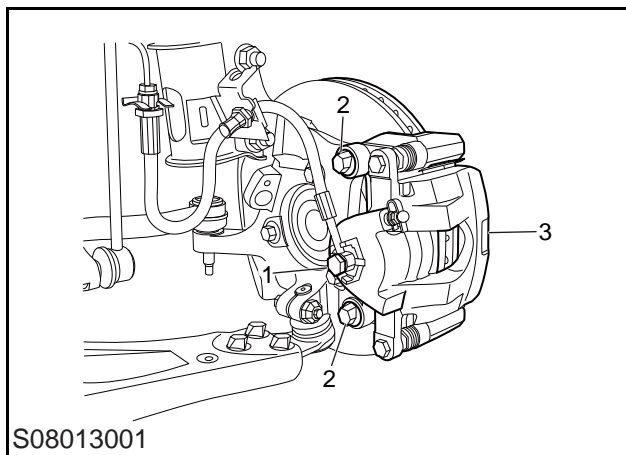
Front Brake Caliper Assembly Replacement

Removal

- 1 Raise the vehicle.
- 2 Remove wheels. Refer to "Wheel Replacement".
- 3 Place a proper container under the vehicle to collect the spilled liquid.
- 4 Remove the bolt (1) and the gasket fixing the brake hose to the front brake caliper, and disconnect the hose.

Note: Note: Before disconnecting or removing the brake pipeline, ensure the middle area and joints around the pipeline are clean. Block the opened connection to prevent contaminant from entering.

- 5 Remove 2 bolts (2) of the front brake caliper.
- 6 Remove the brake caliper housing assembly (3).



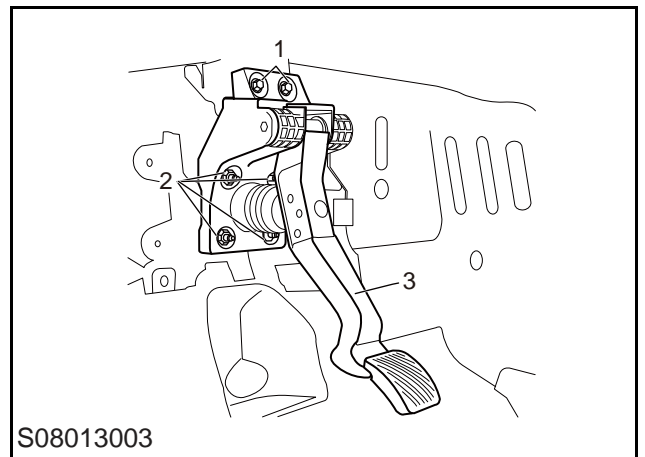
Installation

- 1 Clean all dirt and corrosion from the edges of the front brake disc.
- 2 Fix the front brake caliper assembly to the front brake caliper bracket and make them aligned.
- 3 Install 2 bolts of the front brake caliper assembly and tighten them to 100 - 120 N.m.
- 4 Install the bolt fixing the brake hose to the front brake caliper and tighten the joint to 32 - 38 N.m.
- 5 Drain the brake system. Brake System Drain
- 6 Install wheels. Refer to "Wheel Replacement".
- 7 Lower the vehicle.

Pedal Assembly Replacement

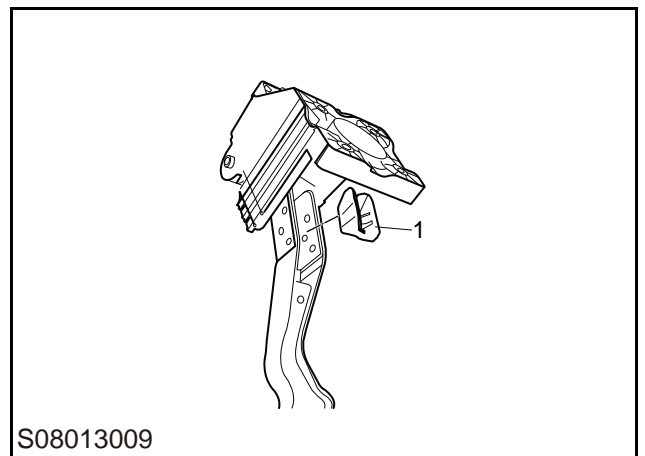
Removal

- 1 Disconnect the negative battery cable.
- 2 Remove the driver side lower cover plate assembly.
- 3 Remove the brake pedal position sensor.
- 4 Disconnect the electrical connector of the accelerator pedal assembly.
- 5 Remove 2 bolts (1) of the brake pedal.
- 6 Remove 4 nuts (2) of the brake pedal.
- 7 Disconnect the brake pedal assembly from the vacuum booster pump and remove it (3).



Installation

- 1 Check the brake pedal bushing (1). If damaged, install a new brake pedal bushing (1).



- 2 Install the brake pedal to the vehicle.
- 3 Install 4 nuts of the brake pedal and tighten them to 20 - 24 N.m.

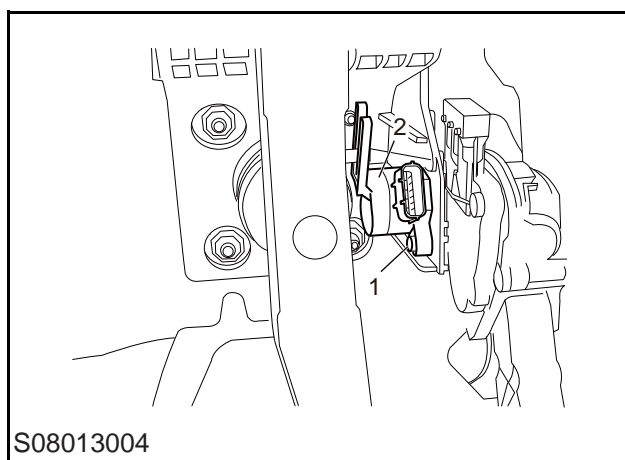
Brake System

- 4 Install 2 bolts of the brake pedal and tighten them to 20 - 24 N.m.
- 5 Install the brake pedal position sensor. Refer to "Brake Pedal Position Sensor Replacement".
- 6 Install the driver side lower cover plate assembly. Refer to "Driver Side Lower Cover Plate Assembly Replacement".

Brake Pedal Position Sensor Replacement

Removal

- 1 Disconnect the negative battery cable.
- 2 Remove the driver side lower cover plate assembly.
- 3 Disconnect the connector of the brake pedal position sensor.
- 4 Remove 1 bolt (1) fixing the brake pedal position sensor to the pedal bracket.
- 5 Remove the brake pedal position sensor (2) from the vehicle.



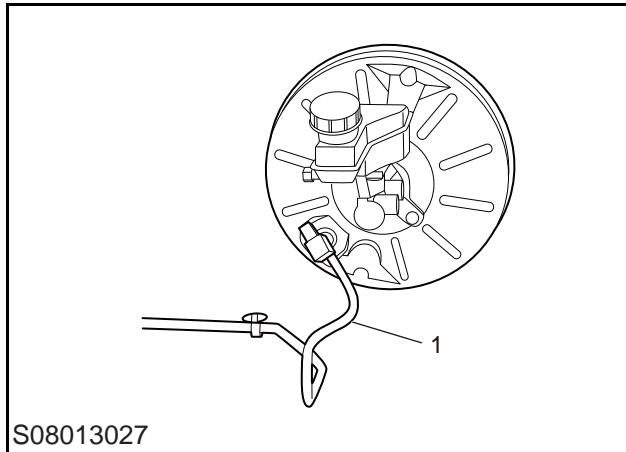
Installation

- 1 Install the brake pedal position sensor to the vehicle.
- 2 Fix the brake pedal position sensor to the pedal bracket, install 1 bolt and tighten it to 1.2 - 1.8 N.m.
- 3 Connect the connector of the brake pedal position sensor.
- 4 Install the driver side lower cover plate assembly.
- 5 Connect the negative battery cable.
- 6 Perform the self-learning of the brake pedal position sensor.

Vacuum Booster Assembly Replacement

Removal

- 1 Disconnect the negative battery cable.
- 2 Remove the brake master cylinder and the fluid reservoir assembly. Refer to "Master Cylinder and Fluid Reservoir Assembly Replacement".
- 3 Disconnect the connector of vacuum sensor of vacuum tube, and then disconnect the vacuum tube (1) from the vacuum booster.

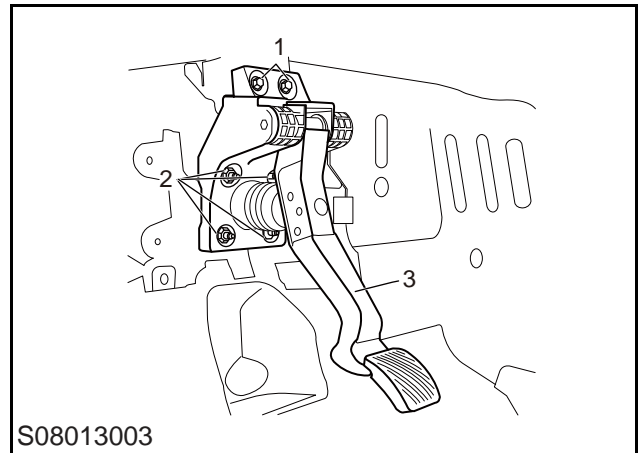


Note: Note: Be careful not to apply too much force during disassembly to avoid damage to the joint of vacuum tube. Be careful not to damage the connector when installing and removing the vacuum tube with the vacuum sensor and pay attention to waterproof protection.

- 4 Remove the driver side lower cover plate assembly.
- 5 Cut off the connection between the vacuum booster and the brake pedal.

Note: Note: Check the brake pedal bushing for damage. If damaged, replace the brake pedal bushing.

- 6 Remove 4 nuts of the vacuum booster.



- 7 Remove the vacuum booster assembly and pads from the vehicle.

Installation

- 1 Install the vacuum booster assembly and pads.
- 2 Install 4 nuts of the vacuum booster and tighten them to 20 - 24 N.m.
- 3 Connect the vacuum booster and the brake pedal.
- 4 Install the driver side lower cover plate assembly.
- 5 Connect the vacuum tube to the vacuum booster.

Note: Note: Be careful not to let dust and impurities enter the vacuum tube. If it is hard to install the vacuum tube, specified grease for vacuum tube installation is required to lubricate the vacuum tube. It cannot be replaced by other liquids or lubricants.

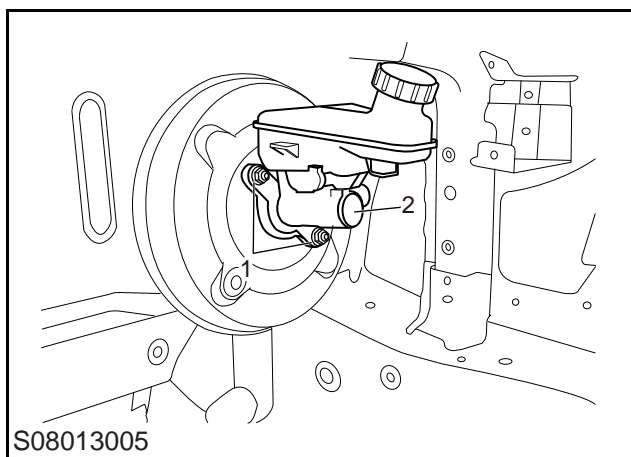
- 6 Connect the connector of vacuum sensor of vacuum booster.
- 7 Install the brake master cylinder and the fluid reservoir assembly. Refer to "Master Cylinder and Fluid Reservoir Assembly Replacement".
- 8 Bleed the brake system.
- 9 Connect the negative battery cable.

Brake System

Master Cylinder and Fluid Reservoir Assembly Replacement

Removal

- 1 Open the bonnet.
- 2 Disconnect the negative battery cable.
- 3 Disconnect the electrical connector.
- 4 Disconnect the brake pipeline joint of the brake master cylinder.
- 5 Cover the brake pipe joint and plug the master cylinder outlet to avoid the loss and contamination of the brake fluid.
- 6 Remove 2 nuts (1) of the master cylinder and the fluid reservoir assembly.
- 7 Remove the master cylinder and the fluid reservoir assembly (2) and discard seal rings of the master cylinder and the fluid reservoir assembly.



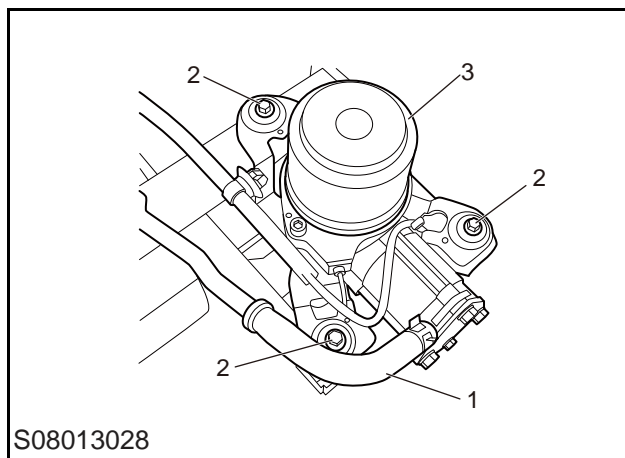
Installation

- 1 Install new seal rings of the master cylinder and the fluid reservoir assembly.
- 2 Install the master cylinder and the fluid reservoir assembly.
- 3 Install 2 nuts of the master cylinder and the fluid reservoir assembly and tighten them to 20 - 26 N.m.
- 4 Connect the joint of brake pipeline to the brake master cylinder.
- 5 Connect the electrical connector.
- 6 Bleed the brake system.
- 7 Connect the negative battery cable.

Electronic Vacuum Pump Replacement

Removal

- 1 Open the bonnet and disconnect the negative battery cable.
- 2 Disconnect the connector of the vacuum pump.
- 3 Disconnect the vacuum tube (1) from the vacuum pump.
- 4 Remove the bolt (2) of the electronic vacuum pump.
- 5 Remove the electronic vacuum pump (3).



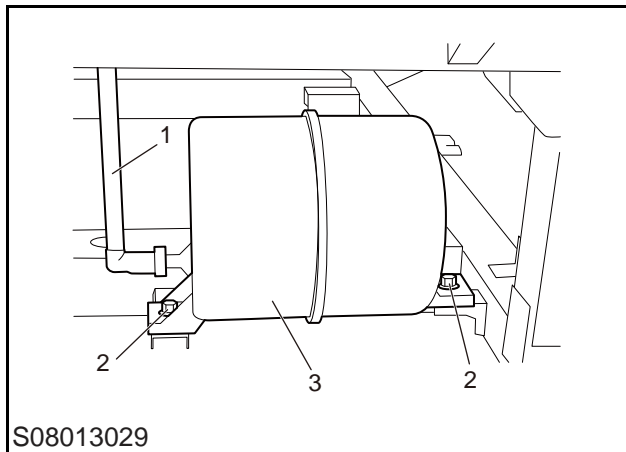
Installation

- 1 Install the electronic vacuum pump.
- 2 Install 3 bolts of the electronic vacuum pump and tighten them to 5 - 7 N.m.
- 3 Connect the quick connector of the vacuum tube to the vacuum pump.
- 4 Connect the connector of the vacuum pump.
- 5 Connect the negative battery cable.

Vacuum Cylinder Replacement

Removal

- 1 Raise the vehicle.
- 2 Cut off the connection between the vacuum cylinder (3) and the vacuum tube (1).
- 3 Remove the nut (2) connecting the vacuum cylinder to the vehicle body.
- 4 Remove the vacuum cylinder (3).



Installation

- 1 Install the vacuum cylinder.
- 2 Install nuts connecting the vacuum cylinder to the vehicle body and tighten them to 20 - 24 N.m.
- 3 Connect the vacuum tube to the vacuum cylinder.
- 4 Lower the vehicle.

Brake System Drain

The following steps show the method of draining the overall system. When the main or auxiliary line becomes an independent line, operate the line which shall be drained. Only when the brake pipe is disconnected from the brake hose and there is small amount of oil loss, the hydraulic system can be drained partially.

Warning: Warning: Protect eyes and skin from contacting the brake fluid.

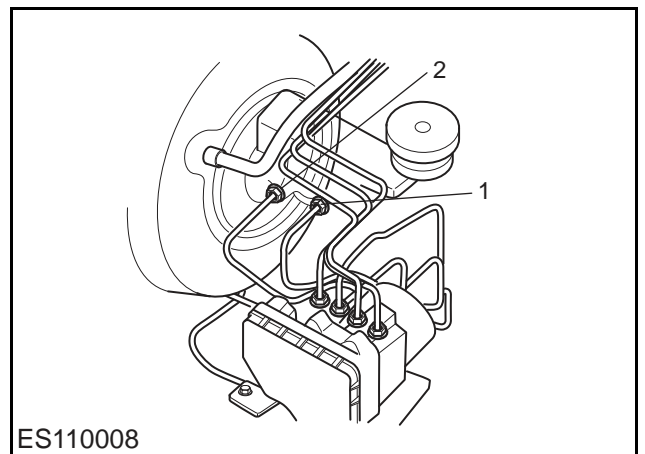
Note: Note: DO NOT reuse the brake fluid drained from the brake system.

Drain

- 1 Fill the brake fluid reservoir to the MAX marking position.

Note: Note: Ensure new brake fluid level is between the MIN and MAX during the whole process of draining brake fluid.

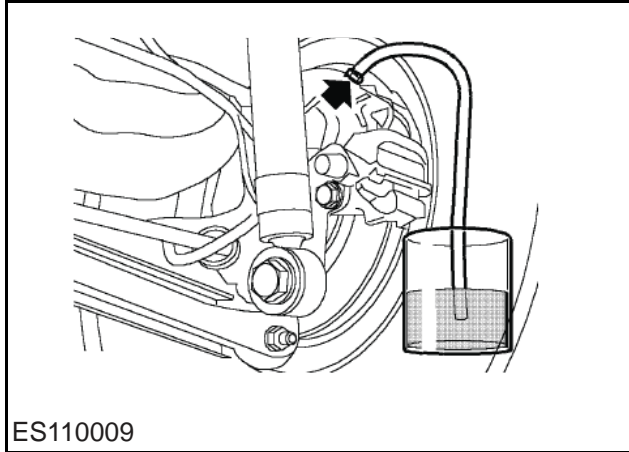
- 2 Lift the vehicle from the lifting platform.
- 3 Start the engine. Do not conduct air clearance operation with the engine shut down, which may damage the vacuum booster.
- 4 Exhaust the brake master cylinder assembly.



- ? Connect the brake pipe.
- ? Depress the brake pedal slowly all the way down and hold it.
- ? Release the joint 1 of the brake pipe.
- ? Re-tighten the brake pipe joint, and leave the brake pedal to return slowly.
- ? Repeat the aforesaid steps until there is no air exhausted when the joint 1 of the brake pipe is released.

Brake System

- ? Repeat the aforesaid steps to bleed air from the joint 2 of the brake pipe.
- 5 Remove the bleeder screw cap from the rear right brake caliper (for left-hand drive model), and install the hose onto the exhaust screw. Insert the free end of hose into the container filled with new brake fluid.



- 6 Apply braking onto the brake pedal for several times, and then apply stable pressure onto it.
- 7 Loosen the bleeder screw to separate the brake fluid from air. Leave the brake pedal to return without any external force.
- 8 Depress the brake pedal to the maximum stroke steadily, and leave it to return without any external force. Repeat this operation for several times until the brake fluid containing no bubble flows into the container. Then fix the brake pedal to the maximum stroke position, tighten the drain screw to 9 - 13 N.m, and loosen the brake pedal.
- 9 Remove the hose from the drain screw, and install the bleeder screw cap.
- 10 Repeat the drain procedures for the rest 3 brake calipers according to the sequence below:

For left-hand-drive model: rear right, rear left, front right and front left

For right-hand-drive model: rear left, rear right, front left and front right

Warning: Warning: The incorrect drain sequence may severely weaken the braking efficiency.

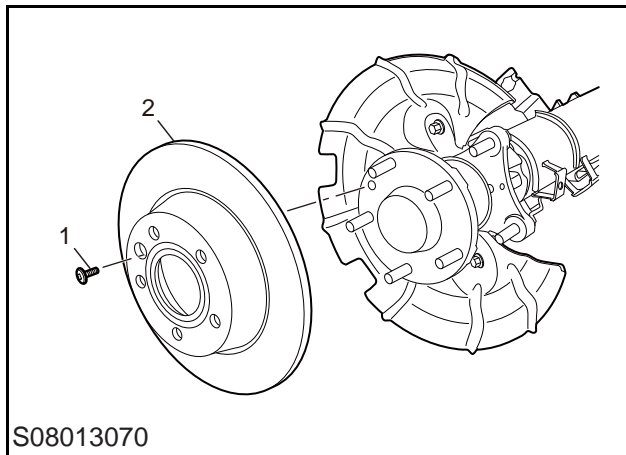
- 11 Shut down the engine.
- 12 Lower the vehicle.

- 13 Fill the brake fluid reservoir to the MAX marking line.
- 14 Apply braking and check for leakage.
- 15 Test the vehicle on road. When the braking works, check whether the free stroke of brake pedal is within 10mm. If you feel that brake pedal is soft, do not drive the vehicle. Confirm whether the unacceptable brake pedal foot feeling and the stroke is not caused by the dislocation of the brake friction plate or other mechanical faults. Then repeat the exhaust process of the brake system. Besides, if the aforesaid exhaust process does not achieve the ideal effect due to the severe brake fluid loss, drain the ABS/ESP regulator. This operation is conducted through the scan tool. Refer to Instructions for SAIC Commercial Vehicle Scan Tool for details.

Rear Brake Disc Replacement

Removal

- 1 Raise the vehicle.
- 2 Remove wheels. Refer to "Wheel Replacement".
- 3 Remove the rear brake caliper assembly and fix it to the frame without disconnecting the brake pipeline. Refer to "Rear Brake Caliper Assembly Replacement".
- 4 Remove the rear brake disc bolt (1).
- 5 Remove the rear brake disc assembly (2).



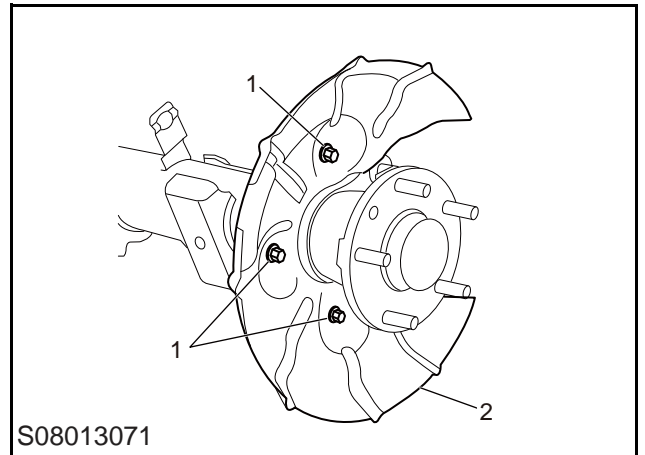
Installation

- 1 Ensure the junction surface between the rear brake disc and the hub bearing is clean. 2 Install the rear brake disc.
- 2 Install the rear brake disc bolt and tighten them to 8-10Nm.
- 3 Install the rear brake caliper assembly. Refer to "Rear Brake Caliper Assembly Replacement".
- 4 Install wheels. Refer to "Wheel Replacement".
- 5 Lower the vehicle.

Rear Brake Disc Mudguard Replacement

Removal

- 1 Raise the vehicle.
- 2 Remove wheels. Refer to "Wheel Replacement".
- 3 Remove the rear brake disc. Refer to "Rear Brake disc Replacement".
- 4 Remove rear brake disc mudguard bolt(1).
- 5 Remove rear brake disc mudguard.



Installation

- 1 Install rear brake disc mudguard.
- 2 Install the rear brake disc mudguard bolt and tighten them to 8-10Nm.
- 3 Install the rear brake disc. Refer to "Rear Brake disc Replacement".
- 4 Install wheels. Refer to "Wheel Replacement".
- 5 Lower the vehicle.

Brake System

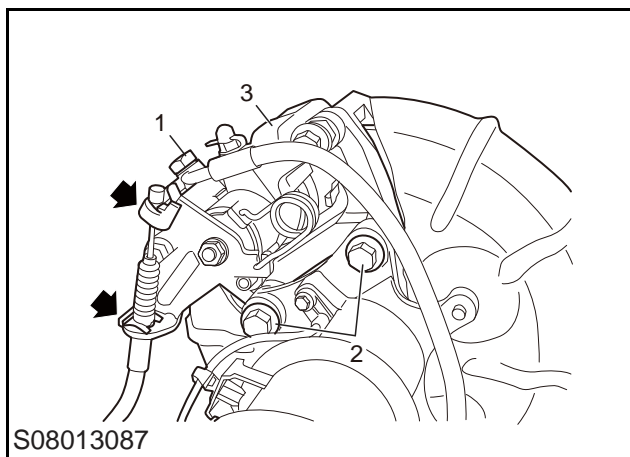
Rear Brake Caliper Assembly Replacement

Removal

- 1 Raise the vehicle.
- 2 Remove wheels. Refer to "Wheel Replacement".
- 3 Place a proper container under the vehicle to collect the spilled liquid.
- 4 Remove the bolt (1) and the gasket fixing the brake hose to the rear brake caliper, and disconnect the hose.

Note: Before disconnecting or removing the brake pipeline, ensure the middle area and joints around the pipeline are clean. Block the opened connection to prevent contaminant from entering.

- 5 Remove 2 bolts (2) of the rear brake caliper.
- 6 Remove the brake caliper housing assembly (3).



Installation

- 1 Clean all dirt and corrosion from the edges of the rear brake disc.
- 2 Fix the rear brake caliper assembly to the rear brake caliper bracket and make them aligned.
- 3 Install 2 bolts of the rear brake caliper assembly and tighten them to 110 - 130 N.m.
- 4 Install the bolt fixing the brake hose to the rear brake caliper and tighten the joint to 32 - 38 N.m.
- 5 Drain the brake system. Refer to " Brake System Drain ".
- 6 Install wheels. Refer to "Wheel Replacement".
- 7 Lower the vehicle.

Rear Brake Lining Replacement

Removal

The rear disc-type brakes are equipped with a wear indicator respectively as illustrated. When the brakes make noise due to the wear is lower than the specification, the friction lining shall be replaced. The thickness of friction lining shall not be lower than the value specified in Technical Parameters.

Note: The brake linings of front wheels or rear wheels must be replaced meanwhile, otherwise the braking efficiency will be weakened.

- 1 Place the vehicle on the lift and lift it to a certain height.

Note: The vehicle must be supported on a safe device.

- 2 Remove wheels. Refer to "Wheel Replacement".
- 3 Loosen the guide pin, rotate the caliper body to a certain angle, and remove the snap ring and brake shoe from the bracket.

Installation

- 1 Clean the brake caliper housing and front brake caliper bracket.
- 2 Check the brake caliper and sealing condition for damage.
- 3 screw in the caliper piston with a suitable tool.

Note: when screwing in, screw in the dust cover of piston by hand and screw in slowly to prevent the piston guard from cracking due to the following rotation.

- 4 Fix the brake linings onto the bracket with snap rings, and close the caliper body. Tighten the guide pin bolts, and tighten the torque of front and rear brake calipers to 30-35Nm.
- 5 Depress the brake pedal for several times to install the brake lining.

Note: The stroke of brake pedal may be longer than usual for the first time of braking.

- 6 Install wheels. Refer to "Wheel Replacement".
- 7 Lower the vehicle.

Description and Operation

Electric Vacuum Assist Brake System

The vacuum sensor integrated in the vacuum tube assembly detects the vacuum in the vacuum booster all the time. The signal is transmitted to the VMS via CAN bus and when the VMS detects the vacuum in the vacuum booster is below the required range, it will control the electric vacuum pump to turn on. The vacuum pump operates to extract air in the vacuum tube/vacuum cylinder and vacuum booster and increase the vacuum; until the vacuum in the vacuum booster reaches the required value, the vacuum pump stops working. Therefore, it can ensure sufficient boost when applying the brake pedal.

Operating voltage: 9 - 16V

Max. vacuum: -86kPa

Operating temperature: -40 ~ 120 °C

Brake System

Parking Brake

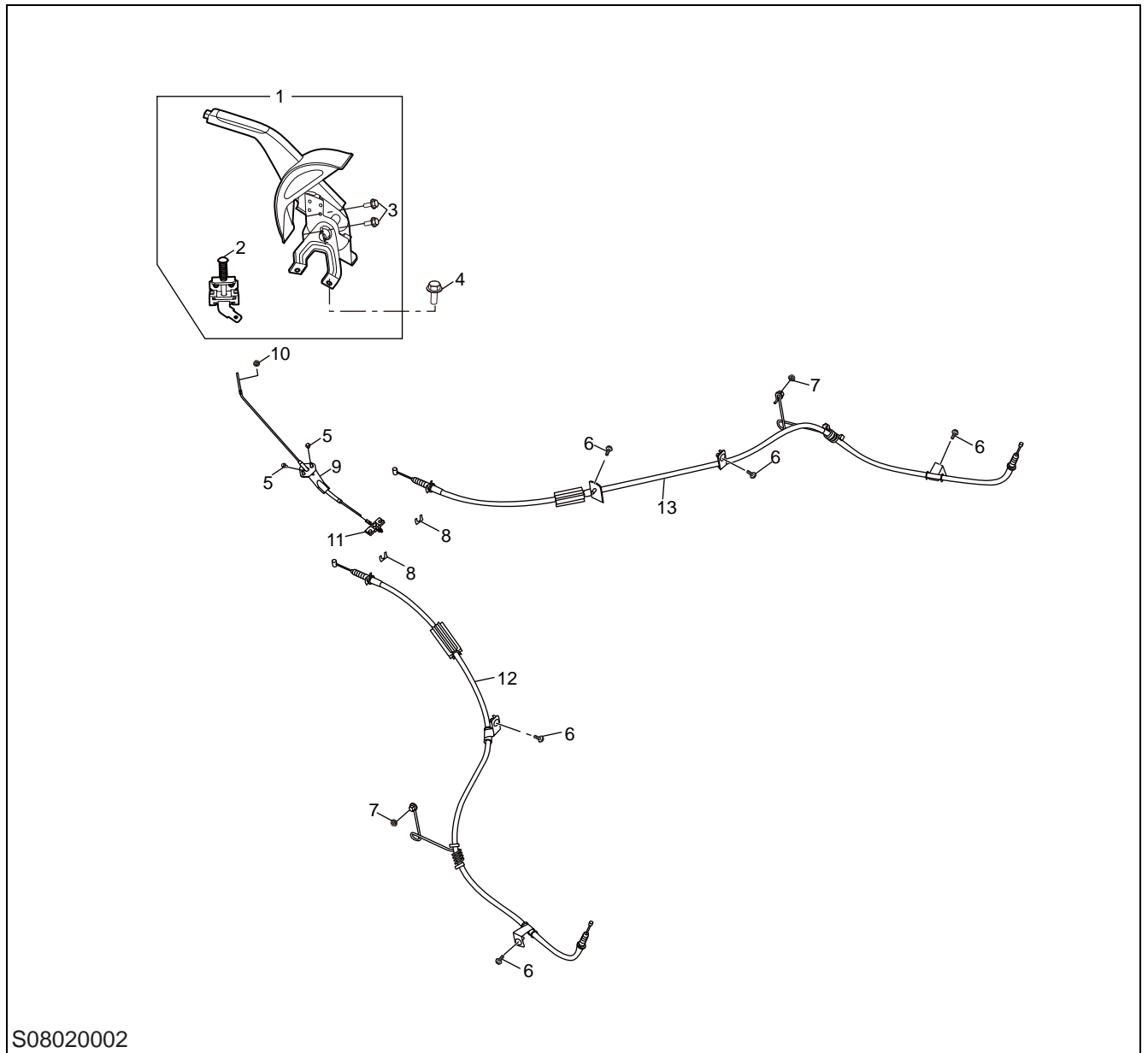
Specification

Fastener Specifications

Name	Torque (N.m)
Bolt - Parking brake cable bracket	8-10 N.m
Bolt - Parking brake handle	20-24 N.m

Layout

Parking Brake Layout



S08020002

- | | | | |
|---|------------------------------------|----|-----------------------------------|
| 1 | Parking brake handle | 10 | Cable regulating nut |
| 2 | Parking brake switch | 11 | Balancer assembly |
| 3 | Switch mounting screw | 12 | Rear parking brake cable assembly |
| 4 | Bolt - Parking brake handle | 13 | Rear parking brake cable assembly |
| 5 | Bolt - Parking brake cable bracket | | |
| 6 | Bolt - Rear parking brake cable | | |
| 7 | Nut - Parking brake cable bracket | | |
| 8 | Circlip - Parking brake cable | | |
| 9 | Front parking brake cable assembly | | |

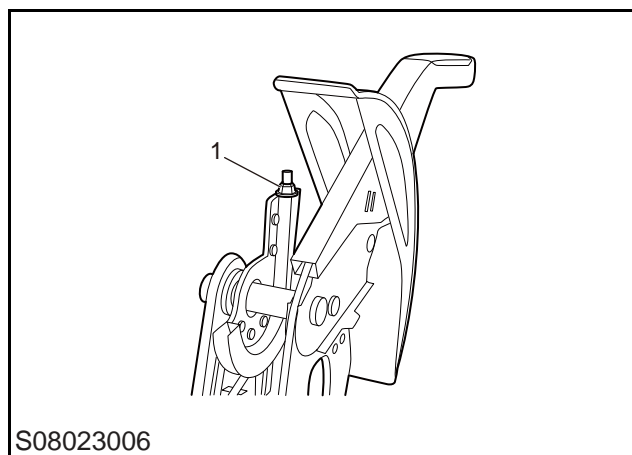
Brake System

Service Guide

Parking Brake Handle Assembly Adjustment

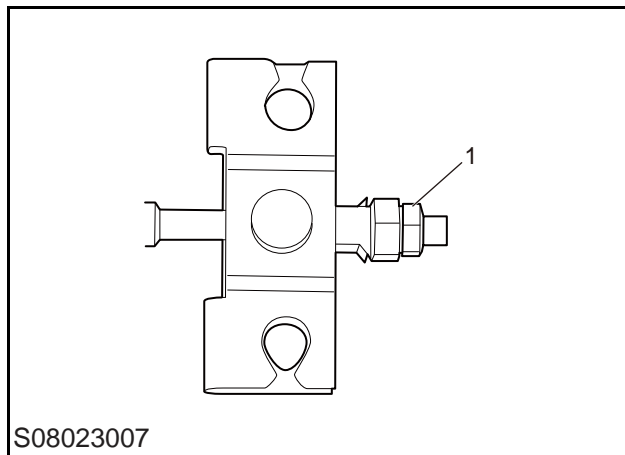
Before adjusting the parking brake cable, adjust the parking brake clearance adjusting mechanism first. The rear drum brake has the self-adjusting mechanism to adjust the clearance between the brake shoe and the brake drum. The self-adjusting mechanism can realize the self-adjustment of the clearance by directly and repeatedly pressing the brake pedal in the whole stroke (generally for 5~10 times). When the stroke of the handbrake is too long, firstly press the brake pedal to adjust the clearance between the brake shoe and the brake drum in place, and then adjust the stroke by adjusting the balance block or regulating nuts at the handbrake end.

- 1 Clamp wheels and release the parking brake handle (push it to the bottom).
- 2 Keep lifting the vehicle from a lift until wheels leave the ground.
- 3 Then apply a force within 200N to pull up the parking brake handle by 6 ~ 7 teeth generally, and the rear wheels will be locked. After the brake pedal is completely released, rear wheels can rotate freely. Otherwise it is required to adjust the clearance between the parking brake shoe and the brake drum and then adjust the length of parking brake cable.
- 4 Remove the auxiliary fascia console.
- 5 Fix the regulating nut (1) at the front end of the parking brake cable tightly, until the thread portion of the front parking brake cable exceeds 18 ± 3 mm of the regulating nut.



Note: The vehicle must be supported on a safe device.

- 6 Fix the regulating nut (1) at the rear end of the parking brake cable tightly, until the thread portion of the front parking brake cable exceeds 10 ± 1 mm of the regulating nut.

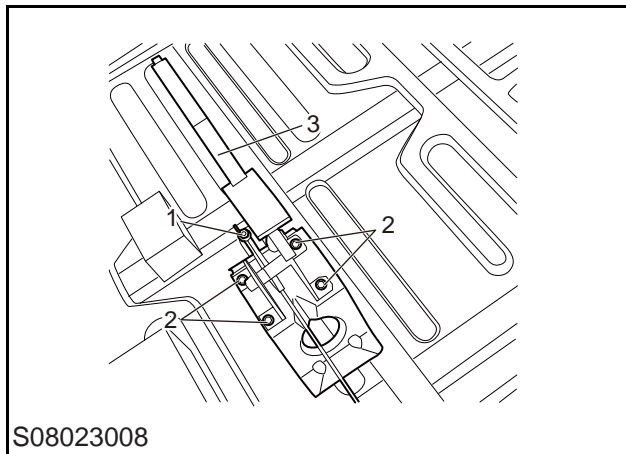


- 7 Move the parking brake handle up and down completely.
- 8 Release the parking brake handle and ensure rear wheels can rotate without obstruction.
- 9 Rotate the ignition key to "ON" position.
- 10 Pull up the parking brake handle for 6 ~ 7 teeth. Then the parking brake indicator lamp will go on and both rear wheels will be locked; release the parking brake handle. Then the parking brake indicator lamp will go out and rear wheels can rotate freely. Re-adjust if the adjustment result is nonconforming.
- 11 Turn off the ignition key.
- 12 Install the auxiliary fascia console.
- 13 Lower the vehicle.

Parking Brake Handle Assembly Replacement

Removal

- 1 Remove the auxiliary fascia console. Refer to "Auxiliary Fascia Console Replacement".
- 2 Release the regulating nut (1) of the parking brake cable.
- 3 Disconnect the parking brake cable assembly and remove it from the parking brake handle assembly.
- 4 Remove 4 bolts (2) of the parking brake handle assembly.
- 5 Remove the parking brake handle assembly (3).



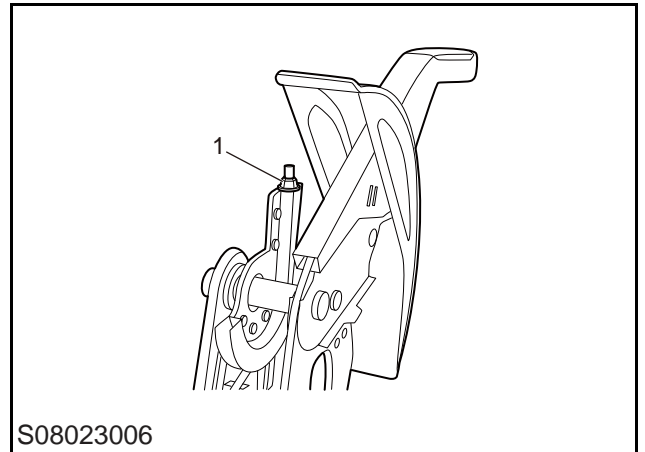
Installation

- 1 Install the parking brake handle assembly.
- 2 Install 4 nuts of the parking brake handle assembly and tighten them to 20 - 24 N.m.
- 3 Fix the parking brake cable assembly to the parking brake handle.
- 4 Adjust the regulating nut of the parking brake cable and regulate the tension of the parking brake cable. Refer to "Parking Brake Handle Assembly Adjustment".
- 5 Install the auxiliary fascia console. Refer to "Auxiliary Fascia Console Replacement".

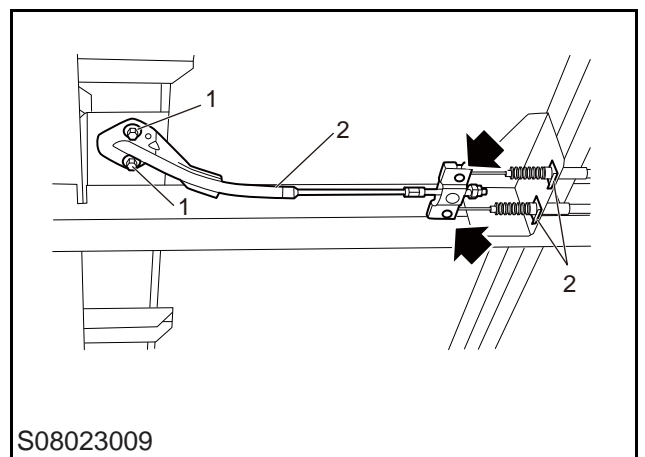
Parking Brake Cable Replacement

Removal

- 1 Release the parking brake cable.
- 2 Remove the auxiliary fascia console.
- 3 Remove wheels.
- 4 Remove the regulating nut (1) at the front end of the parking brake cable.



- 5 Raise the vehicle.
- 6 Remove the power battery. Refer to "Power Battery Replacement".
- 7 Remove 2 bolts (1) of the front parking brake cable bracket.
- 8 Cut off the connection between the front parking brake cable and the rear one.
- 9 Remove the front parking brake cable (2) .
- 10 Remove 2 elastic clips (3) of the rear parking brake cable.



- 11 Remove 5 bolts of the rear parking brake cable.

Brake System

- 12 Remove 2 nuts of the rear parking brake cable bracket.
- 13 Remove the rear parking brake cable from the rear brake assembly.

Installation

- 1 Fix the rear parking brake cable onto the rear parking brake shoe. Refer to "Rear Parking Brake Shoe Replacement".
- 2 Install 2 nuts of the rear parking brake cable bracket.
- 3 Install 5 bolts of the rear parking brake cable.
- 4 Install 2 elastic clips of the rear parking brake cable.
- 5 Connect the front parking brake cable and the rear one.
- 6 Install 2 bolts of the front parking brake cable bracket.
- 7 Install the regulating nut at the front end of the parking brake cable.
- 8 Check and adjust the parking brake cable. Refer to "Parking Brake Handle Assembly Adjustment".
- 9 Install wheels.
- 10 Install the power battery. Refer to "Power Battery Replacement".
- 11 Install the auxiliary fascia console.

Antilock Brake System

Specification

Fastener Specifications

Name	Torque (N.m)
Bolt - Front wheel speed sensor	8-10 N.m
Bolt - Rear wheel speed sensor	8-10 N.m
Bolt - ABS control module bracket	20-24 N.m
Nut - ABS control module bracket	20-24 N.m
Fastening joint - Brake pipe	12 - 18 N.m

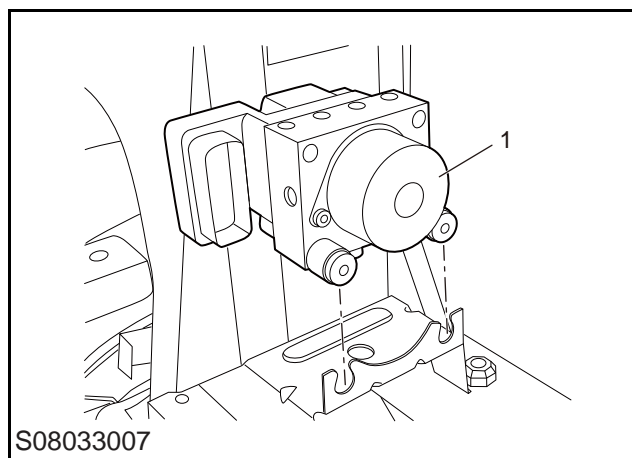
Brake System

Service Guide

ABS Control Module Replacement

Removal

- 1 Disconnect the negative battery cable.
- 2 Place a piece of cloth under the ABS control module to absorb the spilled oil.
- 3 Disconnect the connector from the ABS control module.
- 4 Disconnect 2 fuel inlet brake pipes from the ABS control module.
- 5 Cover the brake pipe joint to avoid the loss and contamination of the brake fluid.
- 6 Record the positions of 4 fuel outlet pipes on the ABS control module for assembly, and then disconnect the fuel outlet brake pipe from the top of the EPS control module.
- 7 Cover the brake pipe joint to avoid the loss and contamination of the brake fluid.
- 8 Remove the ABS control module (1).



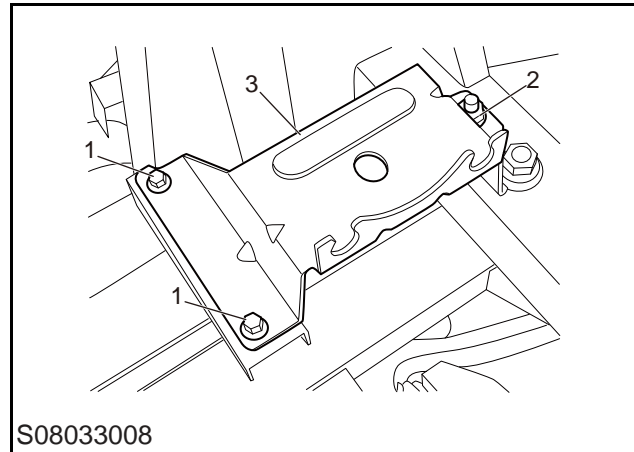
Installation

- 1 Clean the brake tube joint.
- 2 Connect the fuel inlet and outlet pipes to the ABS control module and ensure that each pipe is connected to its appropriate port. And tighten the joint to 12 - 18 N.m. and check the torque.
- 3 Connect the connector of the ABS control module.
- 4 Drain the brake system.
- 5 Connect the negative battery cable.
- 6 Program and code the ABS control module.

ABS Control Module Bracket Replacement

Removal

- 1 Disconnect the negative battery cable.
- 2 Remove the ABS control module. Refer to "ABS Control Module Replacement".
- 3 Remove 2 bracket bolts (1) and 1 bracket nut (2).
- 4 Remove the ABS control module bracket (3).



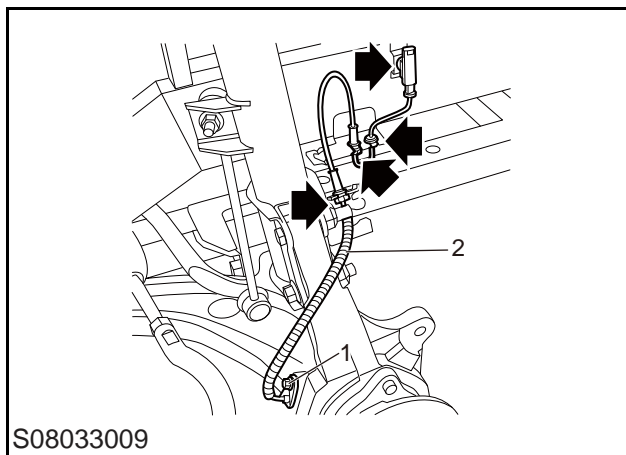
Installation

- 1 Install the ABS control module bracket.
- 2 Install 3 fasteners of the ABS control module bracket, tighten them to 20 - 24 N.m. and check the torque.
- 3 Install the ABS control module. Refer to "ABS Control Module Replacement".
- 4 Connect the negative battery cable.

Front Wheel Speed Sensor Replacement

Removal

- 1 Disconnect the negative battery cable.
- 2 Disconnect the connector of the front wheel speed sensor.
- 3 Raise the vehicle.
- 4 Remove the front wheel.
- 5 Cut off several connections between the wheel speed sensor harnesses, the vehicle body and the front shock absorber.
- 6 Remove bolts (1) of the front wheel speed sensor.
- 7 Remove the front wheel speed sensor (2).



Installation

- 1 Install the front wheel speed sensor.
- 2 Install bolts of the front wheel speed sensor and tighten them to 8 - 10 N.m.
- 3 Fix the wheel speed sensor harnesses to the vehicle body and the front shock absorber.

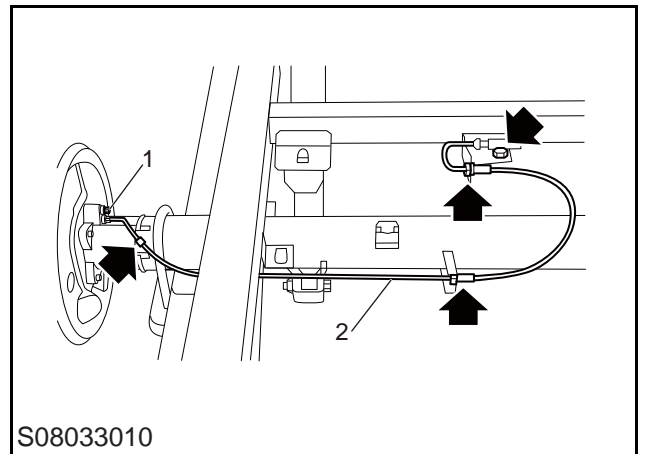
Note: Note: If the direction of the harness is not correct, it may interfere with the drive shaft and there is a risk of wear and rupture.

- 4 Install the front wheel.
- 5 Lower the vehicle.
- 6 Connect the electrical connector of the front wheel speed sensor.
- 7 Connect the negative battery cable.

Rear Wheel Speed Sensor Replacement

Removal

- 1 Disconnect the negative battery cable.
- 2 Raise the vehicle.
- 3 Disconnect the connector of the rear wheel speed sensor.
- 4 Cut off several connections between the wheel speed sensor harnesses, the vehicle body and the rear axle.
- 5 Remove bolts (1) of the rear wheel speed sensor.
- 6 Remove the rear wheel speed sensor (2).



Installation

- 1 Clean the contact surface between the rear wheel speed sensor and the rear axle.
- 2 Install the rear wheel speed sensor to the vehicle.
- 3 Install wheel speed sensor harnesses to the vehicle body and the rear axle.

Note: Note: If the direction of the harness is not correct, it may interfere with the drive shaft and there is a risk of wear and rupture.

- 4 Install bolts of the rear wheel speed sensor and tighten them to 8 - 10 N.m.
- 5 Connect the connector of the rear wheel speed sensor.
- 6 Lower the vehicle.
- 7 Connect the negative battery cable.

Air Conditioner

Specification

Parameters

Compressor type	SEE27-5C
Compressor displacement	27cc
Compressor voltage	
• Low voltage	DC 12V
• High Voltage	DC 300V
Rotational speed of compressor	
• Minimum speed	1000
• Maximum speed	8600
Compressor motor output power	2.5Kw/4000rpm
A/C lubricating oil type	SP-A2/PVE
Total lubricating oil filling level	150g
Refrigerant type	R134a/R1234yf
Refrigerant charge	
• Front A/C	R134a (550g) R1234yf (480g)
Evaporator temperature sensor	
• Compressor ON	4 °C
• Compressor OFF	1 °C
Pressure protection	
• High-pressure protection opening pressure	3.14MPa
• Low-pressure protection opening pressure	0.19MPa
PTC	2KW

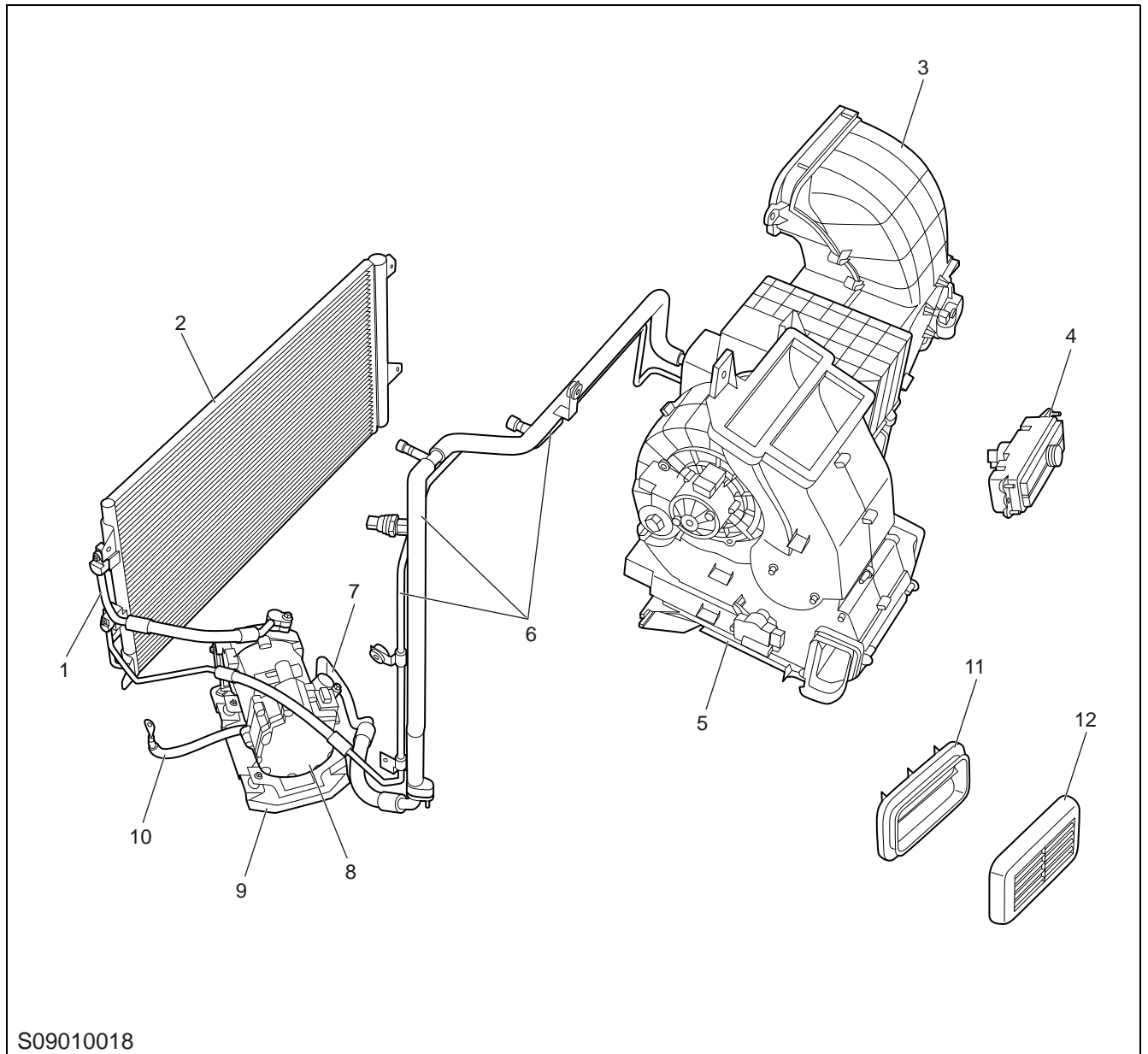
Air Conditioner

Fastener Specifications

Name	Torque (Nm)S
Bolt - compressor exhaust pipe assembly	9 ± 1 Nm
Bolt - front evaporator A / C pipe assembly	9 ± 1 Nm
Bolt - condenser	9 ± 1 Nm
Bolt - air conditioning compressor assembly	22 ± 2 Nm
Bolt - air conditioning compressor bracket	22 ± 2 Nm
Bolt - AC compressor intake pipe to AC compressor	22 ± 2 Nm
Bolt - AC compressor discharge pipe to AC compressor	22 ± 2Nm
Nut - air conditioning compressor intake pipe to front evaporator air conditioning line	9 ± 1Nm
Bolt - AC compressor discharge line to condenser	9 ± 1Nm
Bolt - front evaporator air conditioning line to condenser	9 ± 1Nm
Bolt - front evaporator air conditioning line	9 ± 1Nm
Bolt - front air conditioning assembly	22 ± 2Nm
Bolt - front HVAC assembly	22 ± 2Nm

Layout

A/C Layouts



- | | | | |
|---|--|----|--|
| 1 | Compressor exhaust pipe assembly | 8 | Compressor assembly |
| 2 | Condenser assembly | 9 | Compressor bracket |
| 3 | Front air conditioning assembly | 10 | Compressor ground wire |
| 4 | Air conditioning control panel | 11 | Car room exhaust outlet (CAB) |
| 5 | Front HVAC assembly | 12 | Car compartment exhaust vent cover plate (CAB) |
| 6 | Condenser to front evaporator air conditioning line assembly | | |
| 7 | Compressor intake pipe assembly | | |

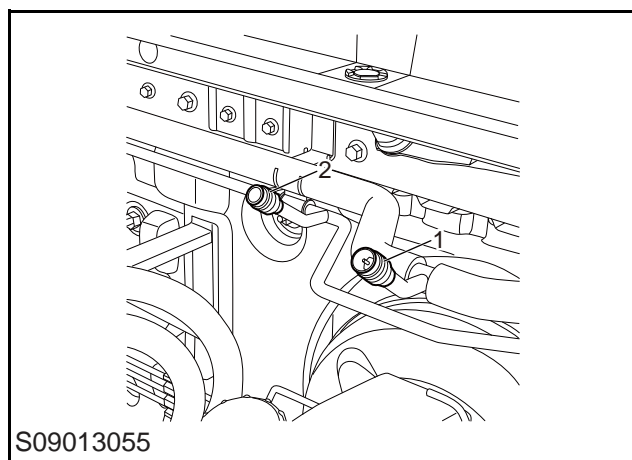
Air Conditioner

Service Guide

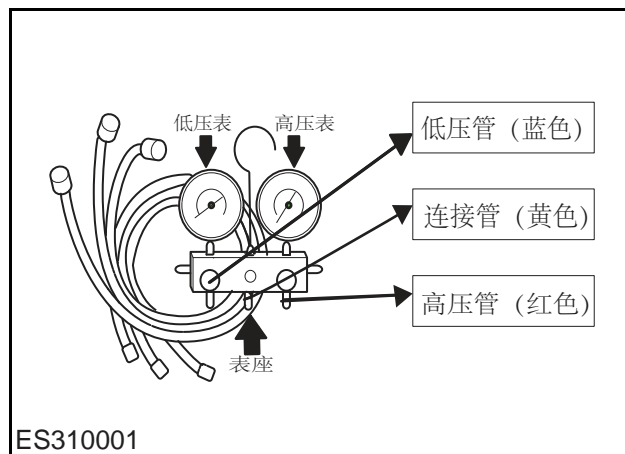
Refrigerant Drain and Refill

Drain

- 1 Connect 3 pipes onto the refrigerant with fluoride pressure gauge as required.
- 2 Remove the high and low pressure filling valve cover.
- 3 Respectively connect the blue low-pressure pipe and red high-pressure system pipe onto the filling valves (1) and (2) of A/C system.



- 4 Prepare one measuring cup, place the yellow intermediate pipe into the measuring cup and cover it with a clean cloth to prevent the refrigerant oil from spraying out.
- 5 Slowly turn on the blue and red knobs on the refrigerant with fluoride pressure gauge, and then refrigerant and refrigeration oil will flow out slowly.
- 6 After the refrigerant in the system is drained completely, tighten the high and low pressure knobs on the gauge, and remove the pipe.
- 7 The refrigeration oil drained out is sucked into the system in virtue of the vacuum in the system and refrigerant with fluoride pressure gauge after vacuuming the system.



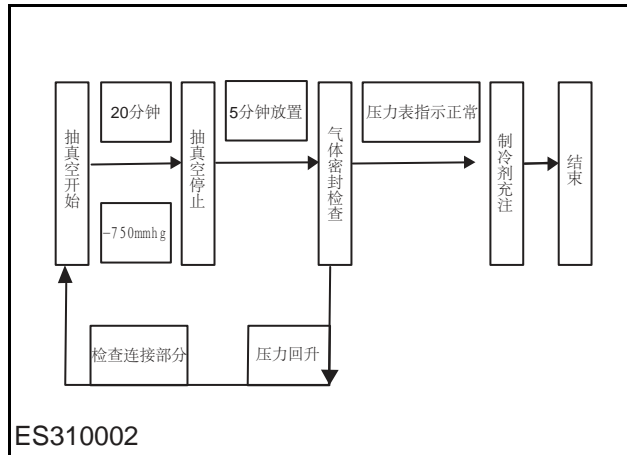
Refill

- 1 Confirm the system is vacuumed without leakage, connect the intermediate pipe connecting the refrigerant with fluoride pressure gauge to the vacuum pump to the joint of refrigerant tank.
- 2 Place the refrigerant tank upside down on an electronic scale, open the refrigerant tank valve, and loosen the intermediate pipe on the refrigerant with fluoride pressure gauge to release air in the pipe. Do not tighten the joint until refrigerant flows out from the joint.
- 3 Check and record the weight on the electronic scale, turn on the high-voltage switch on the refrigerant with fluoride pressure gauge so that the refrigerant flows into the A/C system, and then observe the weight on the electronic scale anytime.
- 4 When the refilling amount reaches the specified weight, turn off the refrigerant with fluoride pressure gauge switch and subsequently the refrigerant tank valve switch.
- 5 Remove the refrigerant with fluoride pressure gauge, and refilling is finished.

Note:

High pressure: 3.14MPa

Low pressure: 0.196MPa

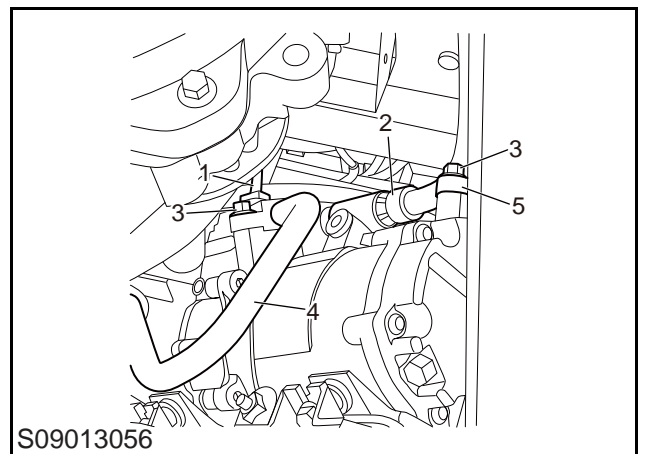


A/C Compressor Assembly Replacement

Removal

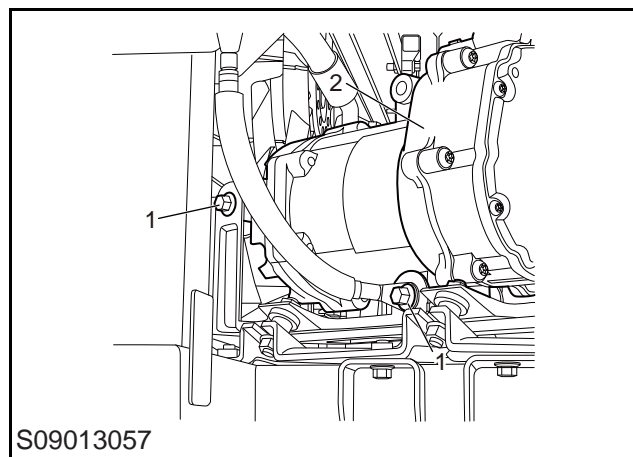
- 1 Switch the ignition key to OFF position and wait 3-5 minutes.
- 2 Disconnect the negative battery cable.
- 3 Remove the service switch. Refer to "Service Switch Replacement".
- 4 Drain the refrigerant. Refer to "Refrigerant Drain and Refill".
- 5 Raise the vehicle.
- 6 Disconnect the low-voltage harness connector (1) of the A/C compressor assembly.
- 7 Disconnect the high-voltage harness connector (2) of the A/C compressor assembly.
- 8 Remove 2 retaining bolts (3) on the inlet pipe and exhaust pipe of the A/C compressor assembly.
- 9 Disconnect the inlet pipe (4) and exhaust pipe (5) from the A/C compressor assembly.

Note: Seal the A/C pipeline joint and A/C compressor joint with the dust cover to prevent dust from entering.



- 10 Remove 2 retaining bolts (1) fixing the A/C compressor assembly to the A/C compressor assembly bracket.
- 11 Remove the A/C compressor assembly (2) from the A/C compressor assembly bracket.

Air Conditioner



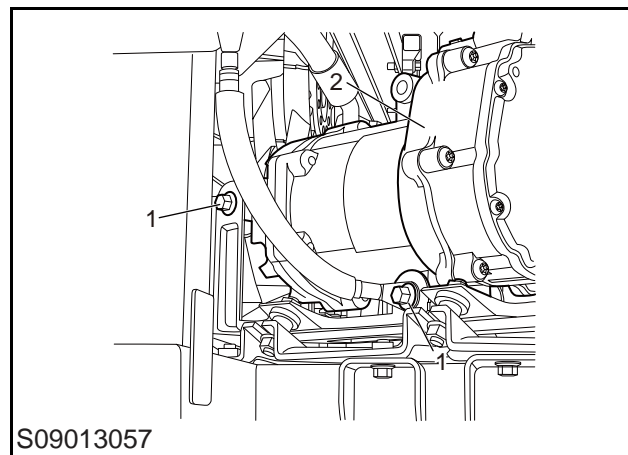
Installation

- 1 Fix the A/C compressor assembly to the A/C compressor assembly.
- 2 Place the A/C compressor assembly grounding wire to the bolt hole location.
- 3 Install 2 retaining bolts fixing the A/C compressor assembly to the A/C compressor assembly bracket, tighten them to $22 \pm 2\text{Nm}$ and check the torque.
- 4 Remove the dust cover of A/C compressor assembly joint to inlet pipe and exhaust pipe.
- 5 Install the A/C compressor inlet pipe and exhaust pipe to the A/C compressor assembly.
- 6 Install 2 retaining bolts fixing the A/C compressor inlet pipe and exhaust pipe to the A/C compressor assembly, tighten them to $22 \pm 2\text{Nm}$ and check the torque.
- 7 Connect the high-voltage harness connector of the A/C compressor assembly.
- 8 Connect the low-voltage harness connector of the A/C compressor assembly.
- 9 Lower the vehicle.
- 10 Refill the refrigerant. Refer to "Refrigerant Drain and Refill".
- 11 Install the service switch. Refer to "Service Switch Replacement".
- 12 Connect the negative battery cable.

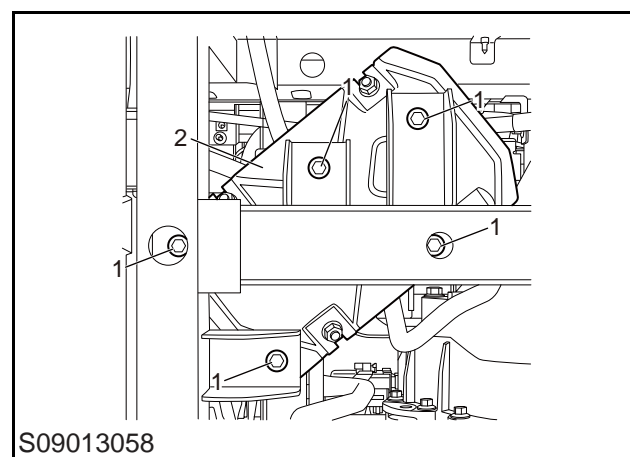
A/C Compressor Bracket Assembly Replacement

Removal

- 1 Raise the vehicle.
- 2 Remove 2 retaining bolts (1) fixing the A/C compressor assembly to the A/C compressor bracket assembly.



- 3 Lift the A/C compressor assembly on the frame with the iron wire.
- 4 Remove 5 retaining bolts (1) fixing the A/C compressor bracket to the frame.
- 5 Remove the A/C compressor bracket assembly (2) from the A/C compressor assembly.



Installation

- 1 Install the A/C compressor bracket to the A/C compressor assembly.
- 2 Install 5 retaining bolts fixing the A/C compressor bracket assembly to the A/C compressor assembly, tighten them to $22 \pm 2\text{Nm}$ and check the torque.

- 3 Place the A/C compressor assembly grounding wire to the bolt hole location.
- 4 Install 2 retaining bolts fixing the A/C compressor assembly to the A/C compressor bracket assembly, tighten them to $22 \pm 2\text{Nm}$ and check the torque.
- 5 Lower the vehicle.

Condenser Assembly Replacement

Removal

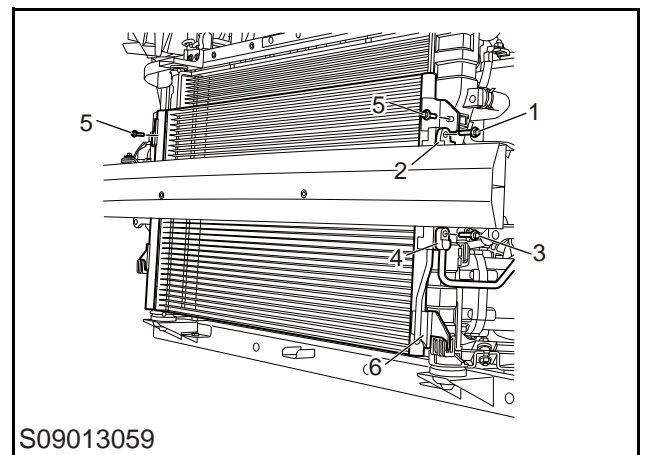
- 1 Drain the refrigerant. Refer to "Refrigerant Drain and Refill".
- 2 Remove the front bumper assembly. Refer to "Front Bumper Assembly Replacement".
- 3 Remove the retaining bolt (1) fixing the A/C compressor exhaust pipe assembly to the condenser assembly, and disconnect the A/C compressor exhaust pipe assembly (2) from the condenser assembly.

Note: Cover the condenser assembly joint with the dust cover to prevent dust from entering.

- 4 Remove the retaining bolt (3) fixing the pipeline assembly (condenser to evaporator) to the condenser assembly, and disconnect the pipeline assembly (condenser to evaporator) (4) from the condenser assembly.

Note: Cover the condenser assembly joint with the dust cover to prevent dust from entering.

- 5 Remove 2 retaining bolts (5) fixing the condenser to the radiator assembly.
- 6 Remove the condenser assembly (6) from the radiator assembly.



Installation

- 1 Fix the condenser assembly to the radiator assembly.
- 2 Install 2 retaining bolts fixing the condenser assembly to the radiator, tighten them to $9 \pm 1\text{Nm}$ and check the torque.

Air Conditioner

- 3 Remove the dust cover, and fix the pipeline assembly (condenser to evaporator) to the condenser assembly.

Note: *When installing, ensure the seal ring at the pipeline assembly (condenser to evaporator) joint is intact.*

- 4 Install the retaining bolt fixing the pipeline assembly (condenser to evaporator) to the condenser assembly, tighten them to $9 \pm 1\text{Nm}$ and check the torque.

- 5 Remove the dust cover, and fix the A/C compressor exhaust pipe assembly to the condenser assembly.

Note: *When installing, ensure the seal ring at the A/C compressor exhaust pipe joint is intact.*

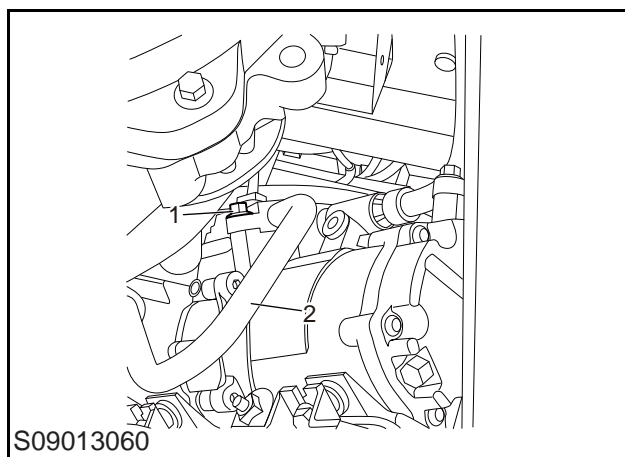
- 6 Install the retaining bolt fixing the A/C compressor exhaust pipe assembly to the condenser.
- 7 Install the front bumper assembly. Refer to "Front Bumper Assembly Replacement".
- 8 Refill the refrigerant. Refer to "Refrigerant Drain and Refill".

A/C Compressor Inlet Pipe Assembly Replacement

Removal

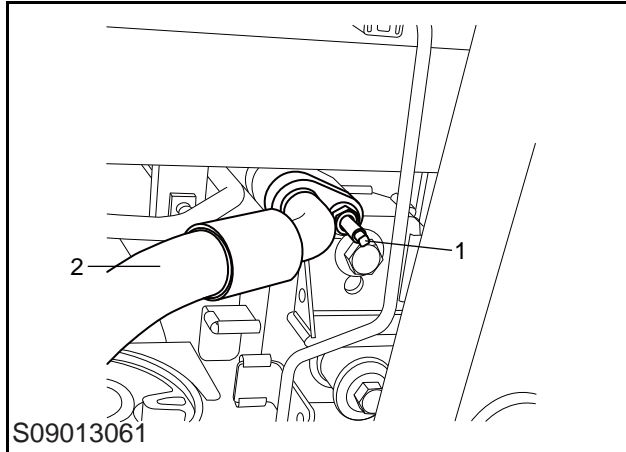
- 1 Drain the refrigerant. Refer to "Refrigerant Drain and Refill".
- 2 Raise the vehicle.
- 3 Remove the retaining bolt (1) fixing the A/C compressor inlet pipe assembly to the A/C compressor, and disconnect the A/C compressor inlet pipe assembly (2) from the A/C compressor.

Note: *Cover the A/C compressor joint with the dust cover to prevent dust from entering.*



- 4 Remove the retaining nut (1) of the pipeline assembly (condenser to evaporator), and remove the A/C compressor inlet pipe assembly (2).

Note: *Cover the pipeline assembly (condenser to evaporator) joint with the dust cover to prevent dust from entering.*



Installation

- 1 Remove the dust cover, and fix the A/C compressor inlet pipe assembly to the pipeline assembly (condenser to evaporator).

Note: When installing, ensure the seal ring at the A/C compressor inlet pipe joint is intact.

- 2 Install the retaining nut of the A/C compressor inlet pipe assembly, tighten them to $9 \pm 1\text{Nm}$ and check the torque.
- 3 Remove the dust cover, and fix the A/C compressor inlet pipe assembly to the A/C compressor assembly.

Note: When installing, ensure the seal ring at the A/C compressor inlet pipe joint is intact.

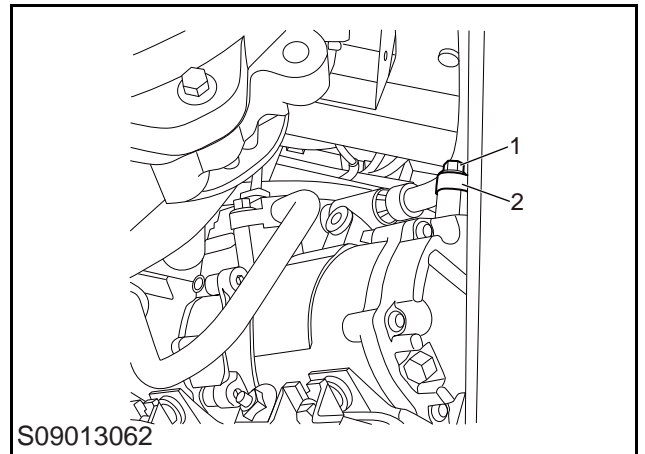
- 4 Install the retaining bolt fixing the A/C compressor inlet pipe assembly to the A/C compressor assembly, tighten them to $22 \pm 2\text{Nm}$ and check the torque.
- 5 Lower the vehicle.
- 6 Refill the refrigerant. Refer to "Refrigerant Drain and Refill".

A/C Compressor Exhaust Pipe Assembly Replacement

Removal

- 1 Drain the refrigerant. Refer to "Refrigerant Drain and Refill".
- 2 Raise the vehicle.
- 3 Remove the retaining bolt (1) fixing the A/C compressor exhaust pipe assembly to the A/C compressor, and disconnect the A/C compressor exhaust pipe assembly (2) from the A/C compressor.

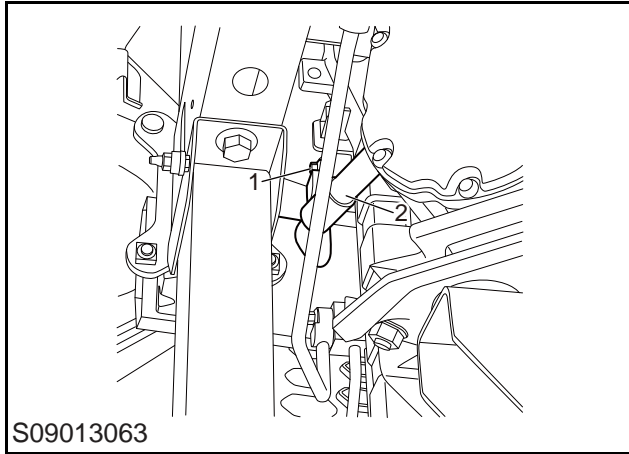
Note: Cover the A/C compressor joint with the dust cover to prevent dust from entering.



- 4 Remove the retaining bolt (1) fixing the A/C compressor exhaust pipe assembly to the condenser assembly, disconnect the A/C compressor exhaust pipe assembly (2) from the condenser assembly, and remove the A/C compressor exhaust pipe assembly (2).

Note: Cover the condenser assembly joint with the dust cover to prevent dust from entering.

Air Conditioner



Installation

- 1 Remove the dust cover, and fix the A/C compressor exhaust pipe assembly to the condenser assembly.

Note: When installing, ensure the seal ring at the A/C compressor exhaust pipe joint is intact.

- 2 Install the retaining bolt fixing the A/C compressor exhaust pipe assembly to the condenser, tighten them to $9 \pm 1\text{Nm}$ and check the torque.
- 3 Remove the dust cover, and fix the A/C compressor exhaust pipe assembly to the A/C compressor assembly.

Note: When installing, ensure the seal ring at the A/C compressor exhaust pipe joint is intact.

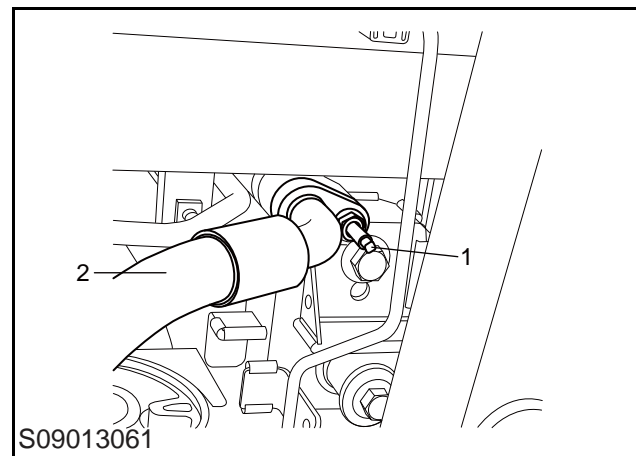
- 4 Install the retaining bolt fixing the A/C compressor exhaust pipe assembly to the A/C compressor assembly, tighten them to $22 \pm 2\text{Nm}$ and check the torque.
- 5 Lower the vehicle.
- 6 Refill the refrigerant. Refer to "Refrigerant Drain and Refill".

Pipeline Assembly (Condenser to Evaporator) Replacement

Removal

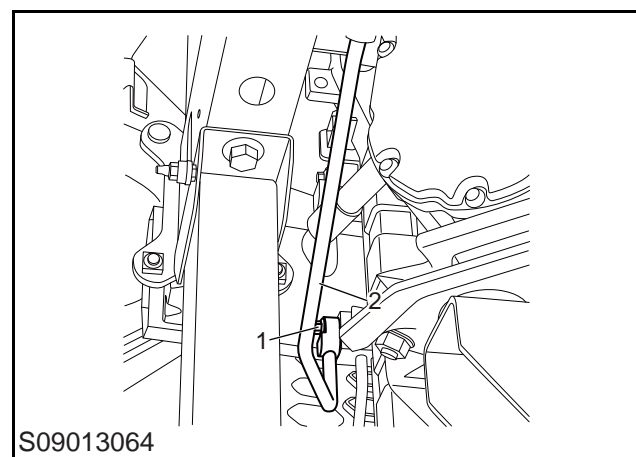
- 1 Drain the refrigerant. Refer to "Refrigerant Drain and Refill".
- 2 Raise the vehicle.
- 3 Remove the retaining nut (1) of the pipeline assembly (condenser to evaporator), and disconnect the A/C compressor inlet pipe assembly (2) from the A/C pipeline.

Note: Cover the pipeline assembly (condenser to evaporator) joint with the dust cover to prevent dust from entering.

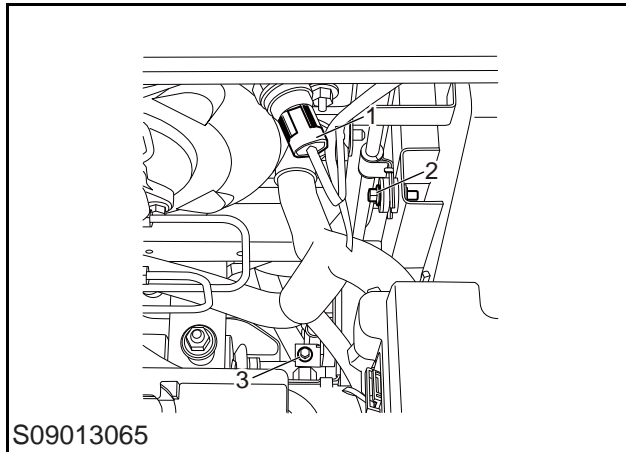


- 4 Remove the retaining bolt (1) fixing the pipeline assembly (condenser to evaporator) to the condenser assembly, and disconnect the pipeline assembly (condenser to evaporator) (2) from the condenser assembly.

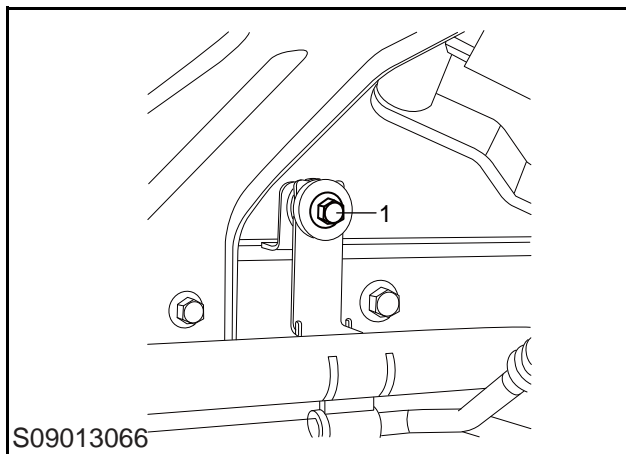
Note: Cover the condenser assembly joint with the dust cover to prevent dust from entering.



- 5 Lower the vehicle.
- 6 Disconnect the connector (1) of the pipeline assembly (condenser to evaporator).
- 7 Remove the retaining bolt (2) fixing the pipeline assembly (condenser to evaporator) to the body.
- 8 Remove the retaining bolt (3) fixing the pipeline assembly (condenser to evaporator) to the A/C pipeline mounting bracket.

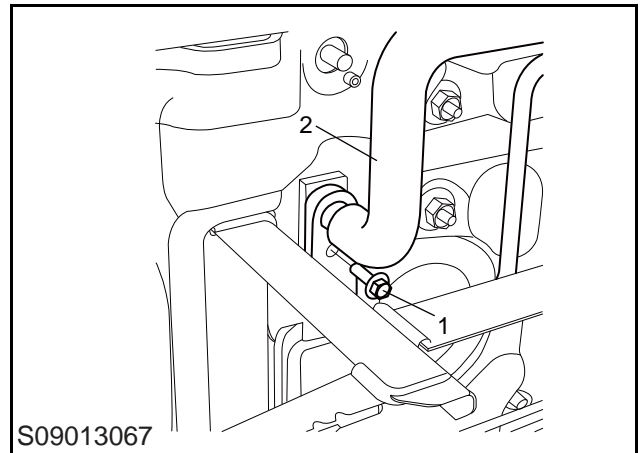


- 9 Remove the retaining bolt (1) fixing the pipeline assembly (condenser to evaporator) to the dash panel.



- 10 Remove the retaining bolt (1) fixing the pipeline assembly (condenser to evaporator) to the expansion valve, disconnect the pipeline assembly (condenser to evaporator) (2) from the expansion valve, and remove the pipeline assembly (condenser to evaporator) (2).

Note: Cover the expansion valve joint with the dust cover to prevent dust from entering.



Installation

- 1 Place the pipeline assembly (condenser to evaporator) to the appropriate position.
- 2 Remove the dust cover, and fix the pipeline assembly (condenser to evaporator) to the expansion valve.

Note: When installing, ensure the seal ring at the pipeline assembly (condenser to evaporator) joint is intact.

- 3 Install the retaining bolt fixing the pipeline assembly (condenser to evaporator) to the expansion valve, tighten them to $9 \pm 1\text{Nm}$ and check the torque.
- 4 Install the retaining bolt fixing the pipeline assembly (condenser to evaporator) to the dash panel.
- 5 Install the retaining bolt fixing the pipeline assembly (condenser to evaporator) to the body, tighten them to $9 \pm 1\text{Nm}$ and check the torque.
- 6 Install the retaining bolt fixing the pipeline assembly (condenser to evaporator) to the A/C pipeline mounting bracket, tighten them to $9 \pm 1\text{Nm}$ and check the torque.
- 7 Connect the connector of the pipeline assembly (condenser to evaporator).
- 8 Raise the vehicle.
- 9 Remove the dust cover, and fix the pipeline assembly (condenser to evaporator) to the condenser assembly.

Note: When installing, ensure the seal ring at the pipeline assembly (condenser to evaporator) joint is intact.

Air Conditioner

10 Install the retaining bolt fixing the pipeline assembly (condenser to evaporator) to the condenser assembly, tighten them to $9 \pm 1\text{Nm}$ and check the torque.

11 Remove the dust cover, and fix the A/C compressor inlet pipe to the pipeline assembly (condenser to evaporator).

Note: When installing, ensure the seal ring at the pipeline assembly (condenser to evaporator) joint is intact.

12 Install the retaining nut of the A/C compressor inlet pipe assembly, tighten them to $9 \pm 1\text{Nm}$ and check the torque.

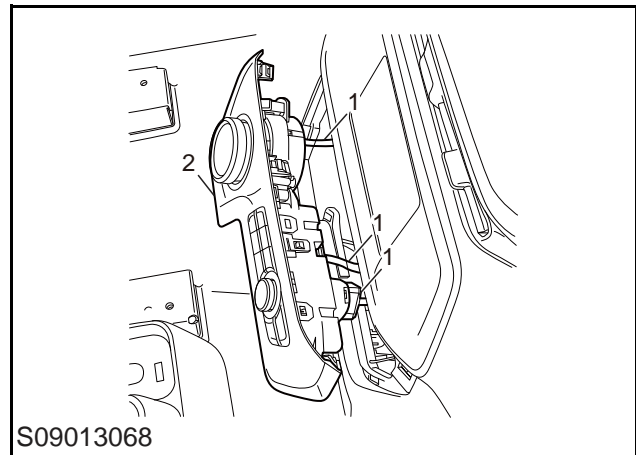
13 Lower the vehicle.

14 Refill the refrigerant. Refer to "Refrigerant Drain and Refill".

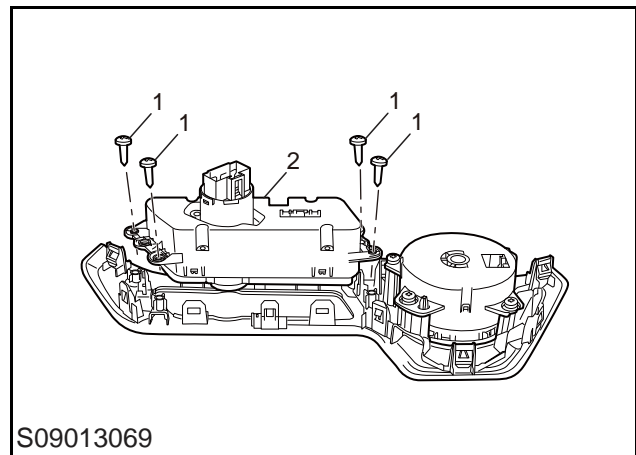
Front A/C Control Panel Replacement

Removal

- 1 Pry off the clips with a proper tool, and remove the A/C control panel, rotary knob electronic shifter assembly and front A/C control panel from the instrument panel.
- 2 Disconnect the connector (1) of the rotary knob electronic shifter assembly and front A/C control panel, and remove the A/C control panel, rotary knob electronic shifter assembly and front A/C control panel (2).



- 3 Remove 4 retaining screws (1) fixing the front A/C control panel to the A/C control panel.
- 4 Pry off the clips, and remove the front A/C control panel (2) from the A/C control panel.



Installation

- 1 Fix the front A/C control panel to the A/C control panel.
- 2 Install 4 retaining screws fixing the front A/C control panel to the A/C control panel.

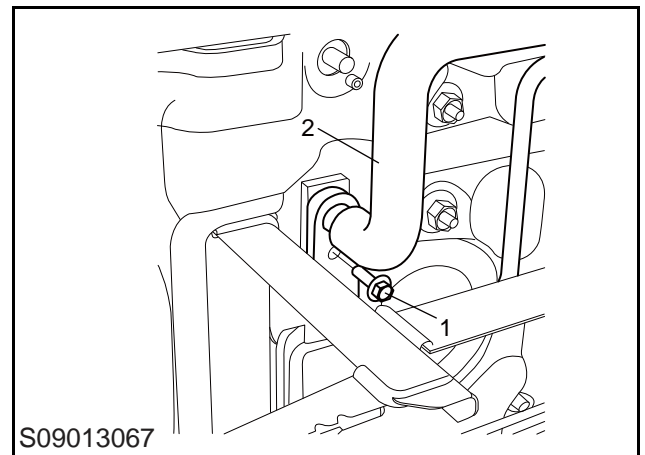
- 3 Place the rotary knob electronic shifter assembly and front A/C control panel to the appropriate position, and connect the connector of the rotary knob electronic shifter assembly and front A/C control panel.
- 4 Fix the A/C control panel, rotary knob electronic shifter assembly and front A/C control panel to the instrument panel.

Front A/C Assembly Replacement

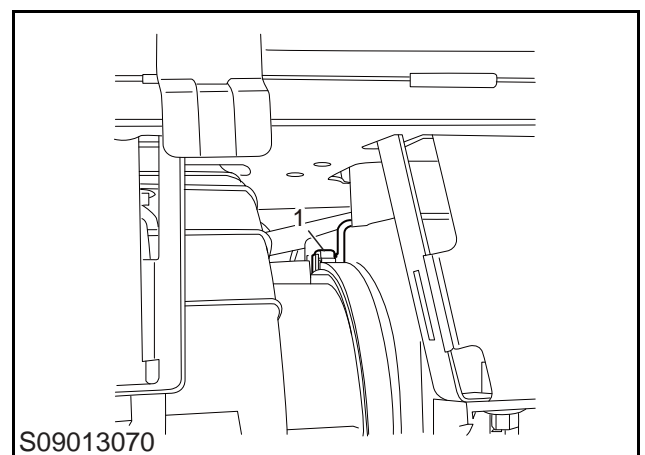
Removal

- 1 Drain the refrigerant. Refer to "Refrigerant Drain and Refill".
- 2 Remove the instrument panel body assembly. Refer to "Instrument Panel Body Assembly Replacement".
- 3 Remove the retaining bolt (1) fixing the pipeline assembly (condenser to evaporator) to the expansion valve, and disconnect the pipeline assembly (condenser to evaporator) (2) from the expansion valve.

Note: Cover the expansion valve joint with the dust cover to prevent dust from entering.



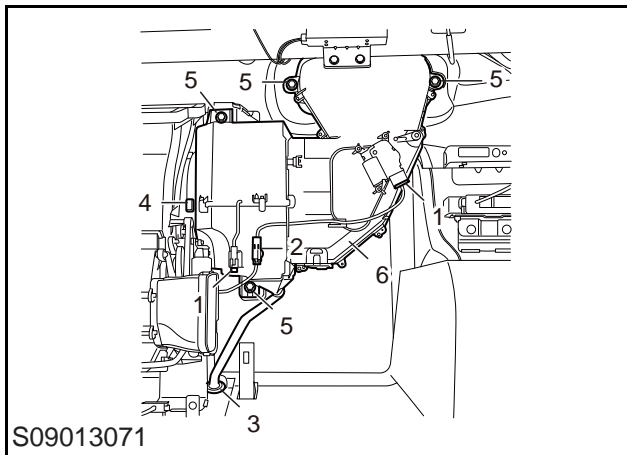
- 4 Remove the retaining clip (1) fixing the front A/C assembly to the front HVAC assembly.



- 5 Disconnect the front A/C assembly connector (1).

Air Conditioner

- 6 Remove the retaining clip (2) fixing the instrument panel harness patch cable to the front A/C assembly.
 - 7 Remove the drain pipe (3) of the front A/C assembly from the dash panel lower panel.
 - 8 Remove the retaining clip (4) fixing the front A/C assembly to the front HVAC assembly.
 - 9 Remove 4 retaining bolts (5) of the front A/C assembly, and remove the front A/C assembly (6).
- 9 Install the instrument panel body assembly. Refer to "Instrument Panel Body Assembly Replacement".
 - 10 Refill the refrigerant. Refer to "Refrigerant Drain and Refill".



Installation

- 1 Fix the front A/C assembly to the front HVAC assembly.
- 2 Install 4 retaining bolts of the front A/C assembly, tighten them to 22 ± 2 Nm and check the torque.
- 3 Install the retaining clip fixing the front A/C assembly to the front HVAC assembly.
- 4 Fix the drain pipe of the front A/C assembly to the dash panel lower panel.
- 5 Fix the retaining clip of the instrument panel harness patch cable to the front A/C assembly.
- 6 Connect the front A/C assembly connector.
- 7 Remove the dust cover, and fix the pipeline assembly (condenser to evaporator) to the expansion valve.

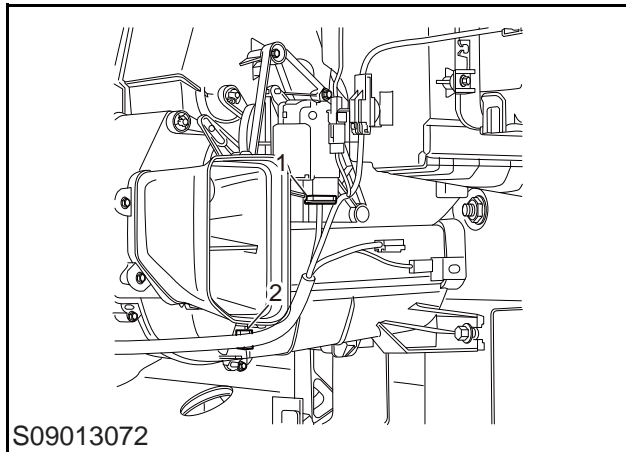
Note: When installing, ensure the seal ring at the pipeline assembly (condenser to evaporator) joint is intact.

- 8 Install the retaining bolt fixing the pipeline assembly (condenser to evaporator) to the

Front HVAC Assembly Replacement

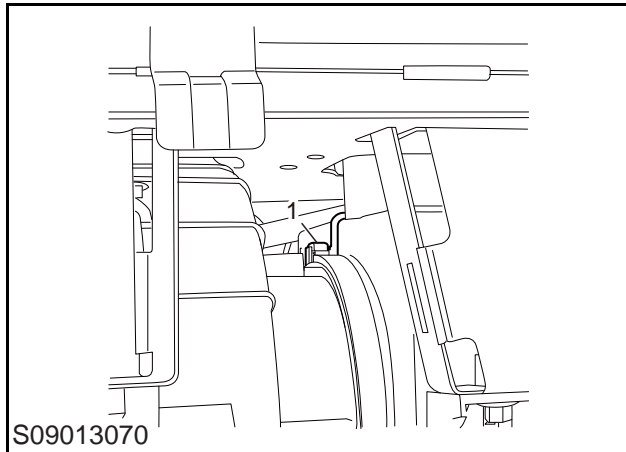
Removal

- 1 Remove the instrument panel body assembly. Refer to "Instrument Panel Body Assembly Replacement".
- 2 Disconnect the front HVAC assembly connector (1).
- 3 Remove the retaining clip (2) fixing the instrument panel harness to the front HVAC assembly.

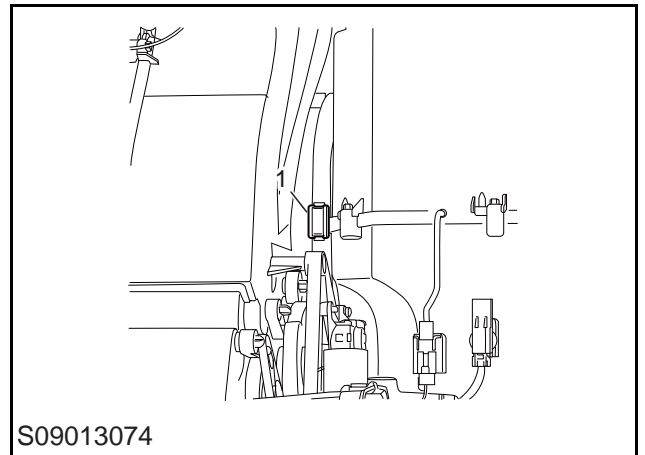


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- 4 Remove 2 retaining clips (1) fixing the front A/C assembly to the front HVAC assembly.

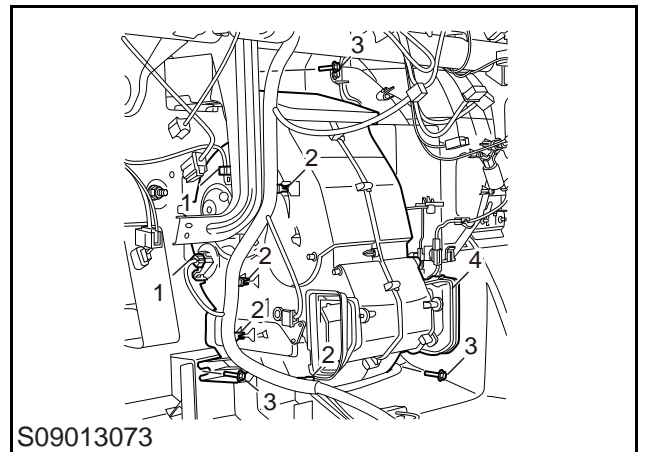


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- 5 Disconnect the front HVAC assembly connector (1).
- 6 Remove 4 retaining clips (2) fixing the instrument panel harness to the front HVAC assembly.
- 7 Remove 3 retaining bolts (3) fixing the front HVAC assembly to the dash panel.
- 8 Remove the front HVAC assembly (4).



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Installation

- 1 Fix the front HVAC assembly to the front A/C assembly.
- 2 Install 3 retaining bolts fixing the front HVAC assembly to the dash panel, tighten them to 22 ± 2 Nm and check the torque.
- 3 Install 5 retaining clips fixing the instrument panel harness to the front HVAC assembly.
- 4 Install 2 retaining clips fixing the front A/C assembly to the front HVAC assembly.
- 5 Connect the front HVAC assembly connector.

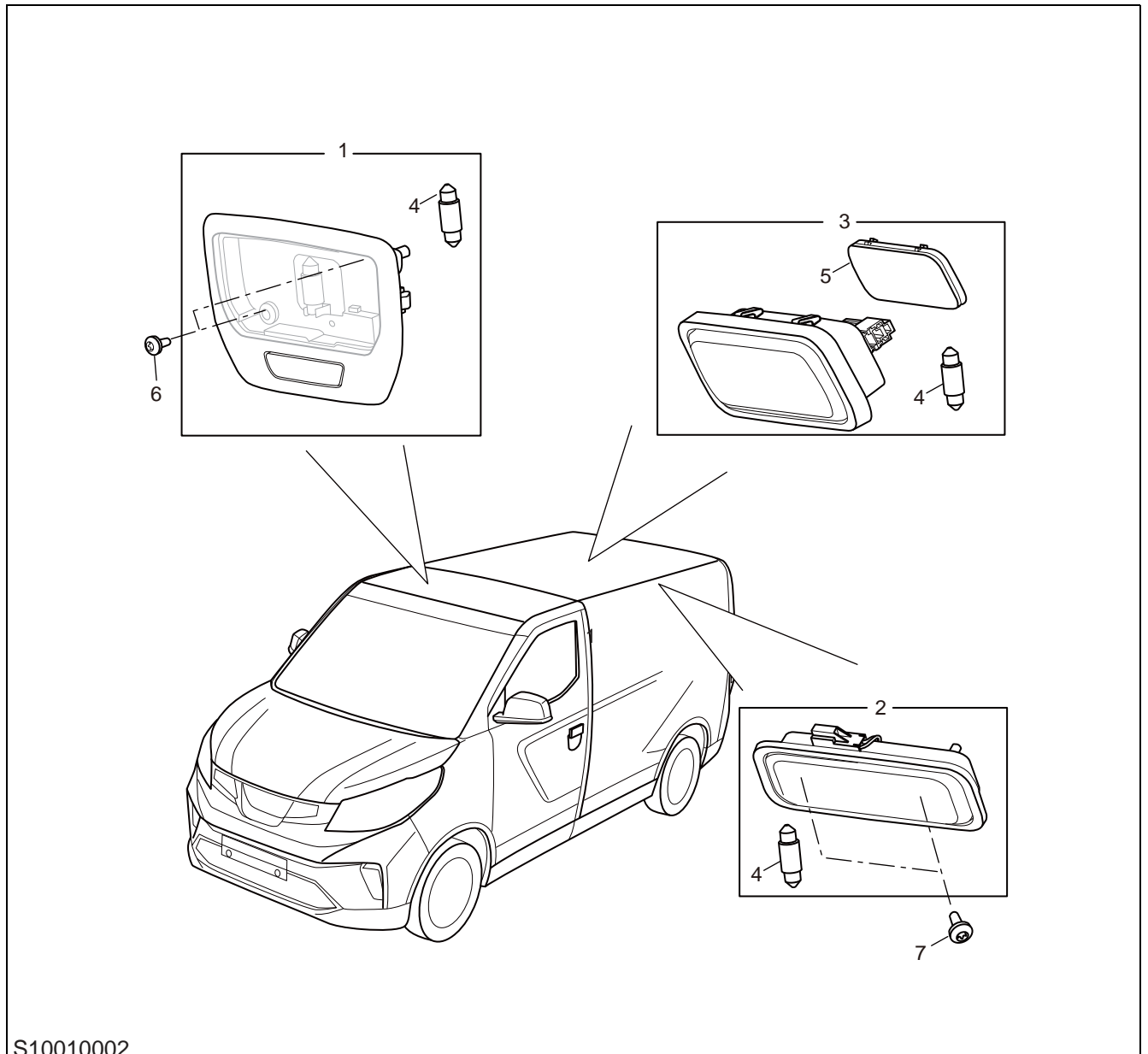
Air Conditioner

- 6 Install the instrument panel body assembly.
Refer to "Instrument Panel Body Assembly Replacement".

Interior Lighting

Layout

Interior Lighting Layout



S10010002

- | | | | |
|---|--|---|---|
| 1 | Front ceiling interior reading lamp assembly | 5 | Rear ceiling interior reading lamp shade |
| 2 | Rear ceiling interior reading lamp assembly | 6 | Bolt/Screw - Front ceiling interior reading lamp installation |
| 3 | Rear ceiling interior reading lamp assembly | 7 | Bolt/Screw - Rear ceiling interior reading lamp |
| 4 | Rear ceiling interior reading lamp bulb | | |

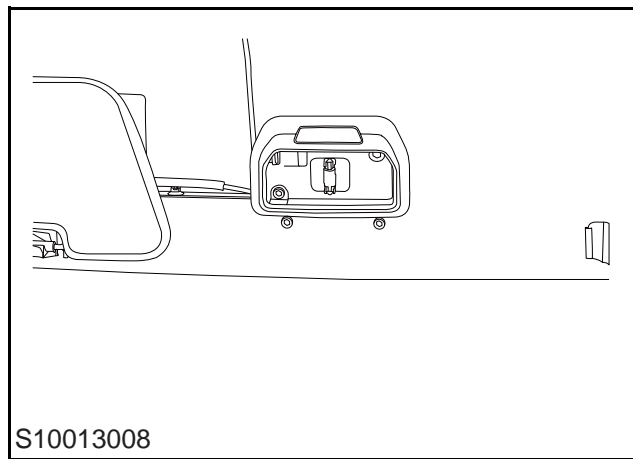
Lighting System

Service Guide

Front Reading Lamp Replacement

Removal

- 1 Disconnect the negative battery cable.
- 2 Remove the front reading lamp shade.
- 3 Remove 2 screws fixing the front reading lamp assembly to the reading lamp bracket.
- 4 Remove the reading lamp and disconnect the electrical connector on the reverse side.



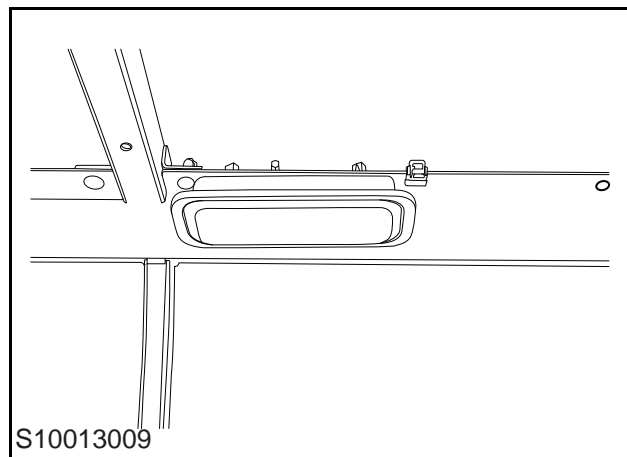
Installation

- 1 Connect the electrical connector of the front reading lamp.
- 2 Fix the front reading lamp to the reading lamp bracket, install and tighten 2 screws.
- 3 Install the front reading lamp shade.
- 4 Connect the negative battery cable.

Rear Reading Lamp Replacement

Removal

- 1 Disconnect the negative battery cable.
- 2 Remove the rear reading lamp shade.
- 3 Remove and take down 2 screws fixing the rear reading lamp to the reading lamp bracket.
- 4 Take down the reading lamp and disconnect the electrical connector.



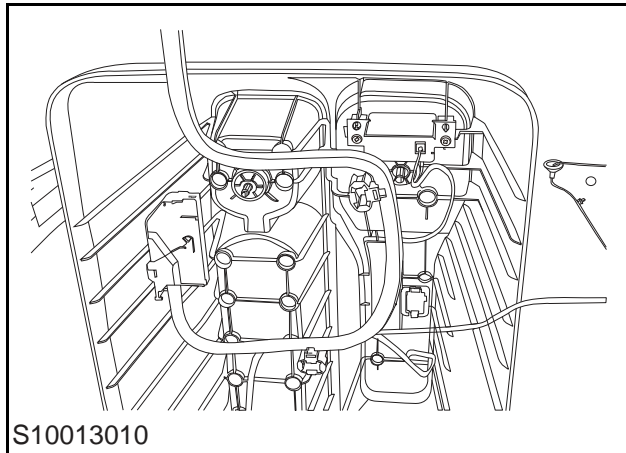
Installation

- 1 Connect the electrical connector of the rear reading lamp.
- 2 Fix the rear reading lamp to the reading lamp bracket, install and tighten 2 screws.
- 3 Install the reading lamp shade.
- 4 Connect the negative battery cable.

USB Charger Replacement

Removal

- 1 Disconnect the negative battery cable.
- 2 Remove the auxiliary fascia console assembly.
- 3 Disconnect the electrical connector from the USB charger.
- 4 Remove and take down 2 screws fixing the USB charger to the auxiliary fascia console.



Installation

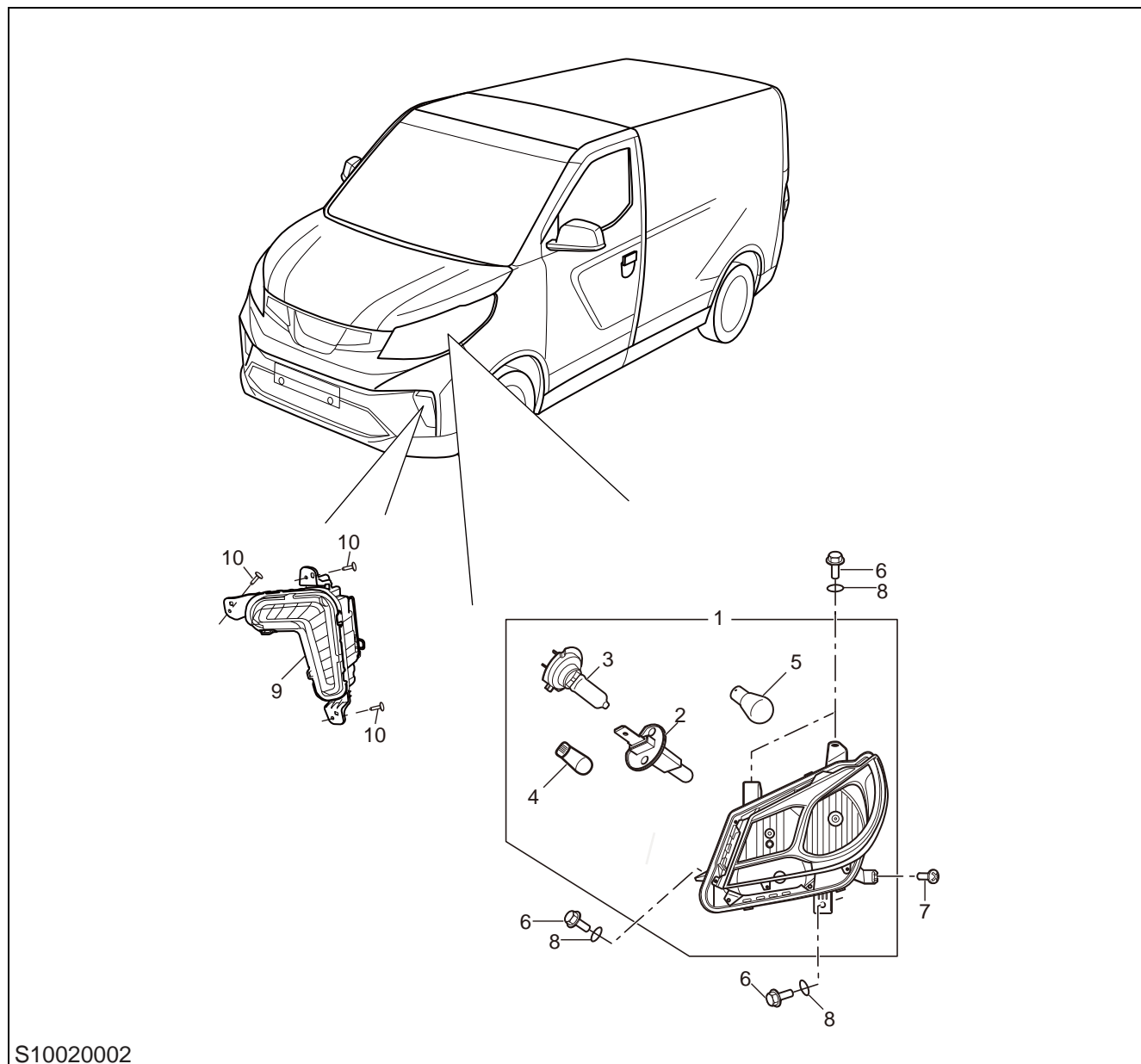
- 1 Fix the USB charger to the auxiliary fascia console, install and tighten 2 screws.
- 2 Connect the electrical connector of the USB charger.
- 3 Install the auxiliary fascia console assembly.
- 4 Connect the negative battery cable.

Lighting System

Exterior Lighting

Layout

Exterior Lighting Layout

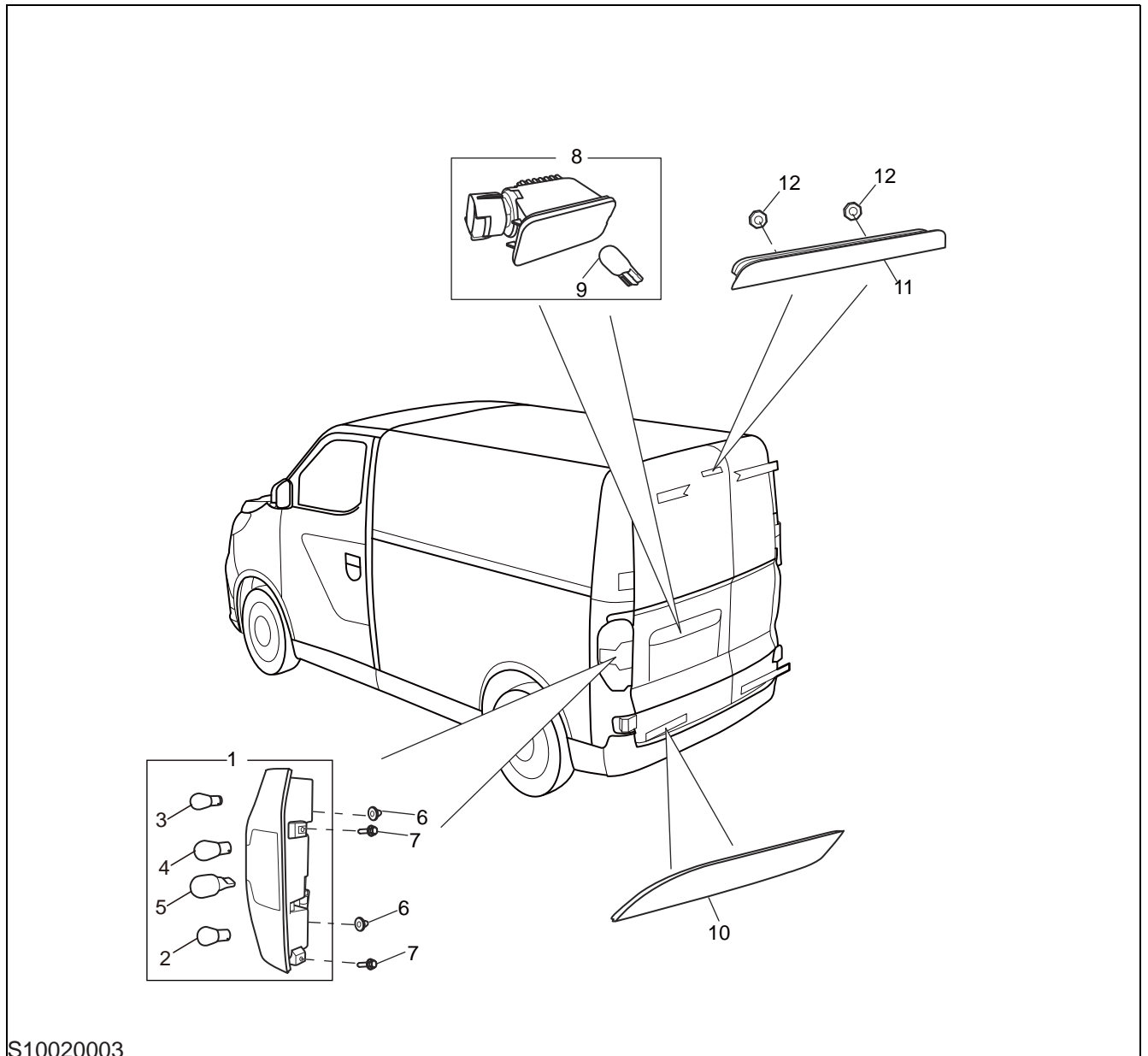


S10020002

- | | | | |
|---|--------------------------------|----|-----------------------------------|
| 1 | Headlamp assembly | 6 | Bolt/Screw - Headlamp assembly |
| 2 | Main beam headlamp bulb | 7 | Bolt/Screw - Headlamp assembly |
| 3 | Main beam headlamp bulb | 8 | Washer - Headlamp assembly |
| 4 | Front position lamp bulb | 9 | Daytime running lamp |
| 5 | Front turning signal lamp bulb | 10 | Bolt/Screw - Daytime running lamp |

Layout

Exterior Lighting Layout



S10020003

- | | | | |
|---|--|----|--------------------------------|
| 1 | Rear combination lamp | 7 | Bolt/Screw - Tail lamp |
| 2 | Bulbs of rear combination lamp and rear fog lamp | 8 | License plate lamp assembly |
| 3 | Bulbs of rear position lamp and brake lamp | 9 | License plate lamp bulb |
| 4 | Rear turning signal lamp bulb | 10 | Rear reflex reflector assembly |
| 5 | Rear reverse lamp bulb | 11 | High-mounted brake lamp |
| 6 | Clip - Tail lamp | 12 | Nut - High-mounted stop lamp |

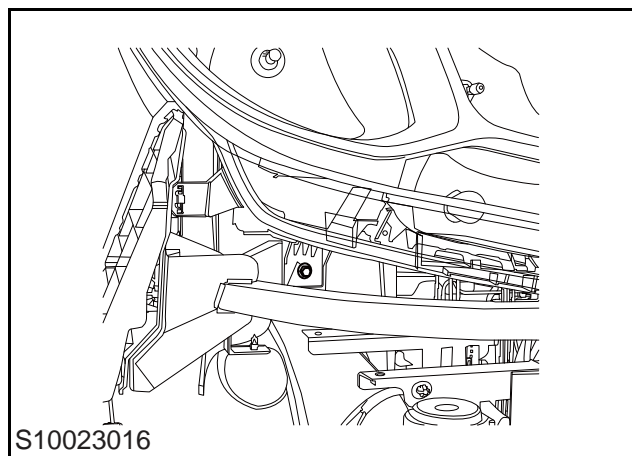
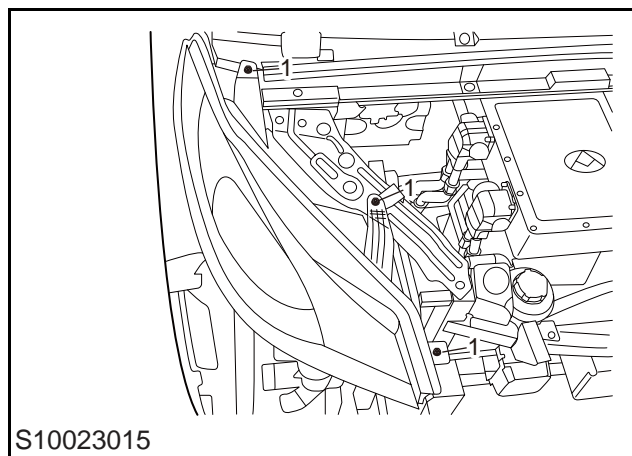
Lighting System

Service Guide

Headlamp Replacement

Removal

- 1 Disconnect the negative battery cable.
- 2 Remove the front bumper assembly.
- 3 Disconnect the headlamp electrical connector.
- 4 Remove 4 bolts fixing the headlamp to the vehicle body and take down the headlamp.



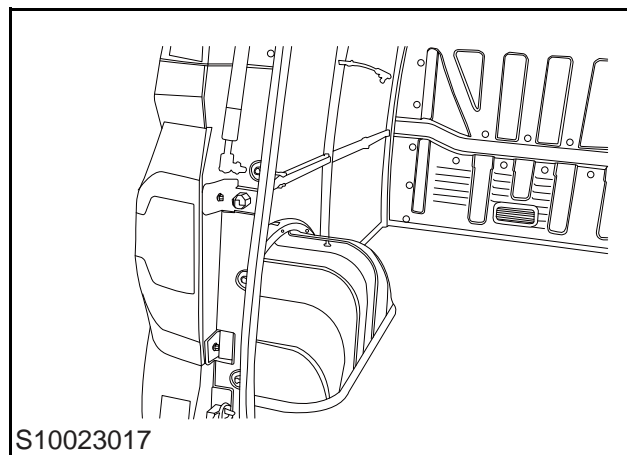
Installation

- 1 Fix the front combination lamp to the vehicle body, then install and tighten 4 bolts.
- 2 Connect the electrical connector of the front combination lamp.
- 3 Install the front bumper assembly.
- 4 Connect the negative battery cable.

Rear Combination Lamp Replacement

Removal

- 1 Disconnect the negative battery cable.
- 2 Remove and take down 2 bolts fixing the rear combination lamp to the vehicle body.
- 3 Disconnect the electrical connector of the rear combination lamp.



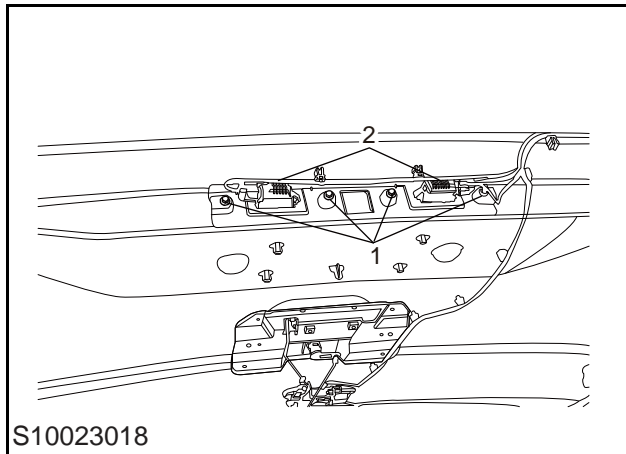
Installation

- 1 Connect the electrical connector of the rear combination lamp.
- 2 Fix the rear combination lamp to the vehicle body, then install and tighten 2 bolts.
- 3 Connect the negative battery cable.

License Plate Lamp Replacement

Removal

- 1 Disconnect the negative battery cable.
- 2 Remove the rear door interior trim panel assembly.
- 3 Disconnect the electrical connector (1) of the license plate lamp assembly.
- 4 Remove and take down 4 bolts (2) fixing the license plate lamp and its bracket to the rear door exterior trim panel.



- 5 Release the clip and remove the license plate lamp from its bracket.

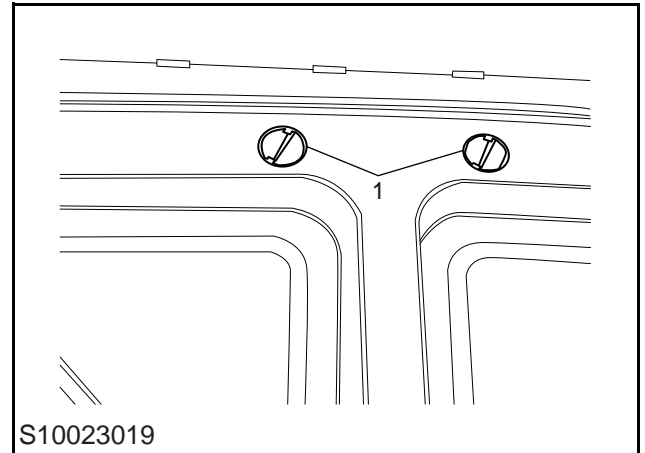
Installation

- 1 Fix the license plate lamp to the mounting bracket.
- 2 Fix the license plate lamp and its bracket to the rear door exterior trim panel, install and tighten 4 bolts.
- 3 Connect the electrical connector of the license plate lamp assembly.
- 4 Install the rear door interior trim panel assembly.
- 5 Connect the negative battery cable.

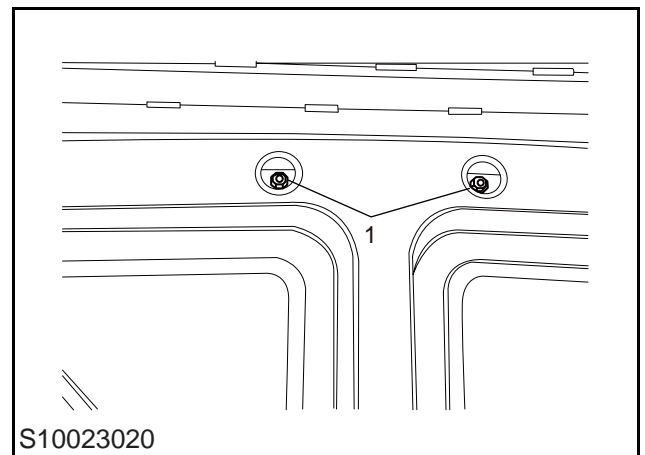
High Mounted Stop Lamp Replacement

Removal

- 1 Disconnect the negative battery cable.
- 2 Remove 2 plugs of the rear door interior trim panel.

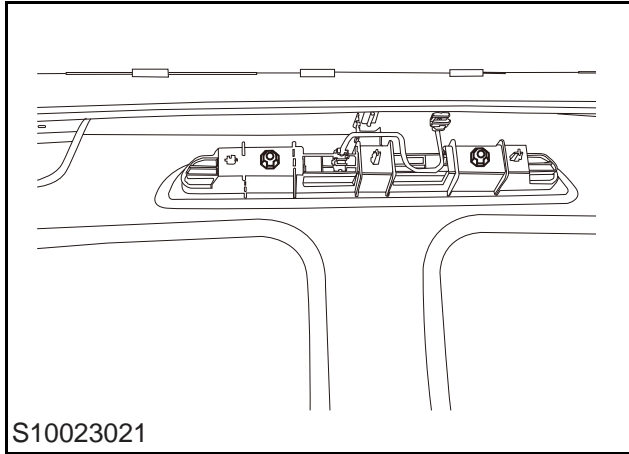


- 3 Remove and take down 2 nuts fixing the high-mounted stop lamp to the rear door exterior trim panel.



- 4 Remove the high-mounted stop lamp outside the vehicle and disconnect the electrical connector.

Lighting System



Installation

- 1 Connect the electrical connector of the high-mounted stop lamp.
- 2 Fix the high-mounted stop lamp to the rear door exterior trim panel, install and tighten 2 nuts.
- 3 Install 2 plugs of the rear door interior trim panel.
- 4 Connect the negative battery cable.

Instrument Panel and Console

Specification

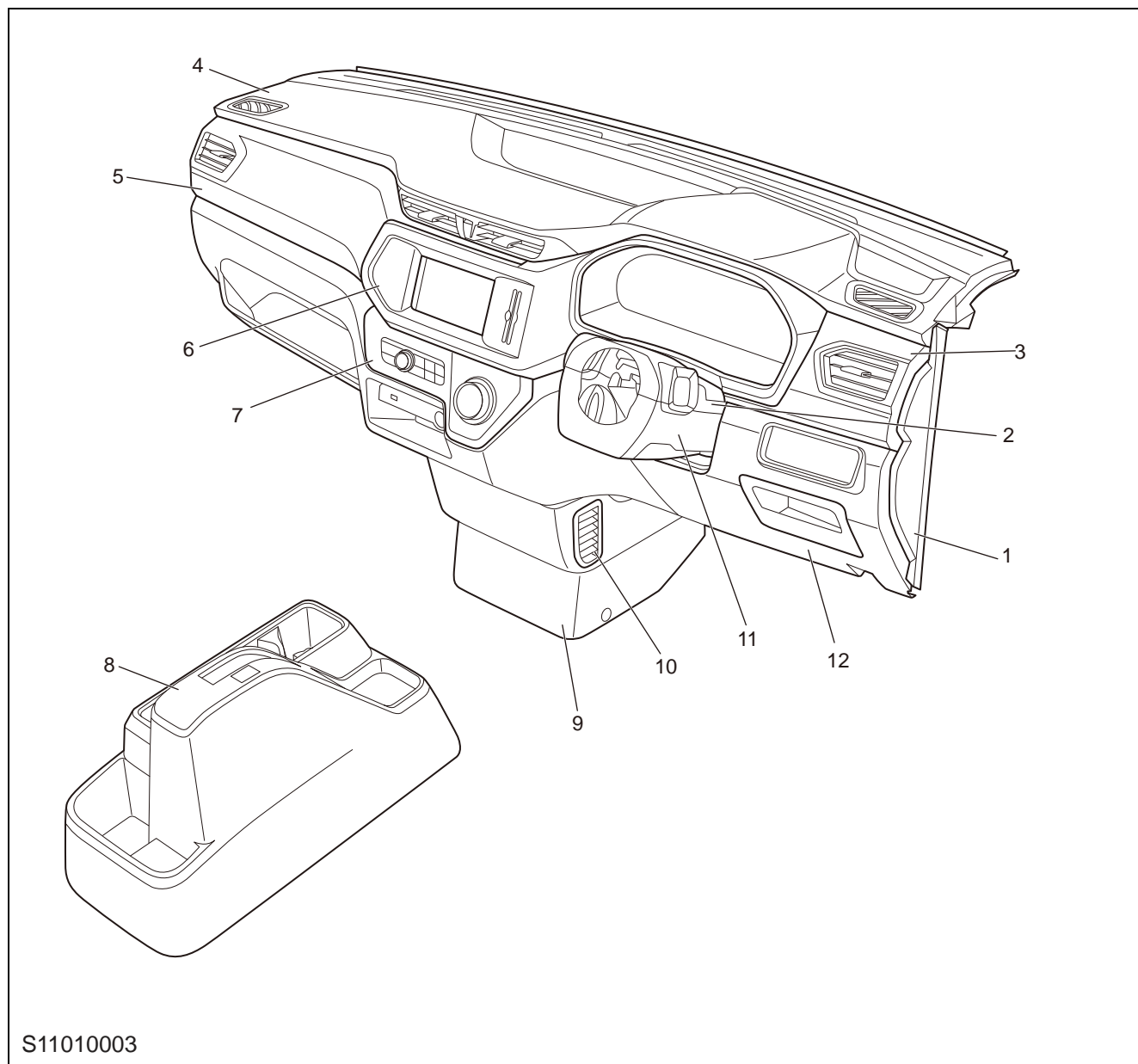
Fastener Specifications

Name	Torque (N.m)
Bolt - Instrument panel beam to body	22 ± 2
Bolt - Instrument panel beam to beam retaining bracket	22 ± 2
Bolt - Instrument panel beam bracket to body	22 ± 2

Interior Trim

Layout

Instrument Panel and Console Layout



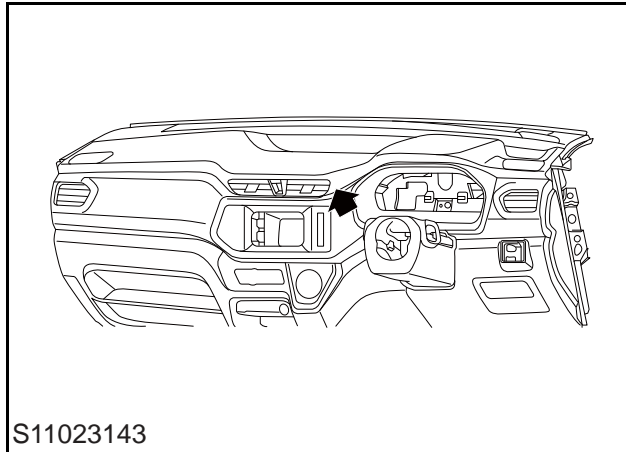
- | | |
|---|--|
| 1 left side cover plate assembly | 9 instrument panel center lower trim panel assembly |
| 2 steering column upper guard assembly | 10 air outlet of instrument panel center lower trim panel |
| 3 left instrument panel trim panel assembly | 11 steering column lower guard assembly |
| 4 instrument panel body assembly | 12 instrument panel driver side lower guard board assembly |
| 5 right instrument panel guard assembly | |
| 6 central control panel assembly | |
| 7 air conditioning control panel | |
| 8 auxiliary instrument panel assembly | |

Service Guide

Instrument Panel Body Assembly Replacement

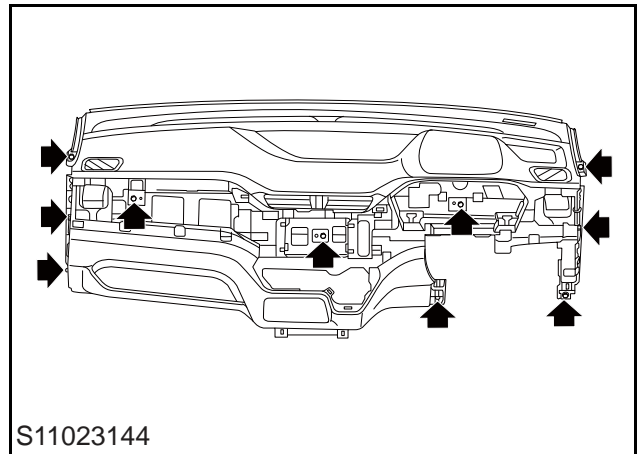
Removal

- 1 Disconnect the battery (negative first).
- 2 Remove the left and right side end cover assembly (refer to "Instrument Panel Side End Cover Assembly Replacement").
- 3 Remove the instrument panel driver side lower guard plate assembly (refer to "Instrument Panel Driver Side Lower Guard Plate Assembly Replacement").
- 4 Remove the center console upper panel assembly.



- 5 Remove the instrument panel left air outlet assembly (refer to "Instrument Panel Left Air Outlet Assembly Replacement").
- 6 Remove the instrument panel right air outlet assembly (refer to "Instrument Panel Right Air Outlet Assembly Replacement").
- 7 Remove the steering wheel (refer to "Steering Wheel Replacement").
- 8 Remove the instrument pack and shroud assembly (refer to "Instrument Pack and Shroud Assembly Replacement").
- 9 Remove the air conditioning control panel (refer to "Air Conditioning Control Panel Replacement").
- 10 Remove the entertainment system (refer to "Entertainment System Display and Host Replacement").

- 11 Disconnect the corresponding electrical harness connector.
- 12 Unscrew the screws as shown in the figure.



- 13 Remove the instrument panel body assembly.

Installation

- 1 Install retaining screws of the instrument panel body assembly.
- 2 Connect the electrical harness connector.
- 3 Install the entertainment system.
- 4 Install the air conditioning control panel.
- 5 Install the instrument pack and shroud assembly.
- 6 Install the steering wheel assembly.
- 7 Install the instrument panel right air outlet assembly.
- 8 Install the instrument panel left air outlet assembly.
- 9 Install the center console upper panel assembly.
- 10 Install the instrument panel driver side lower guard plate assembly.
- 11 Install the left and right side end cover assembly.
- 12 Connect the battery.

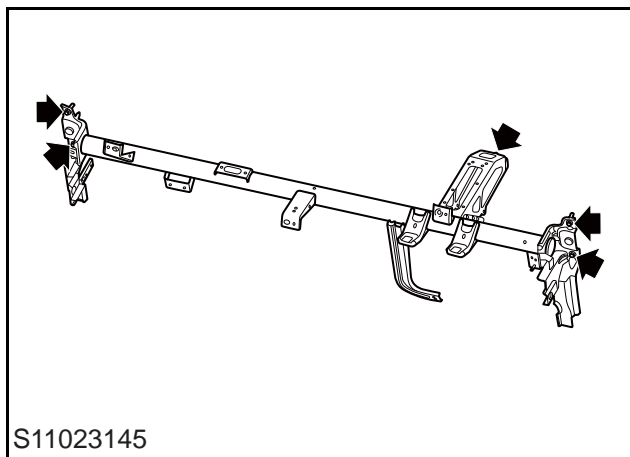
Note: The sealing strip should be into place when fitting.

Interior Trim

Instrument Panel Beam Replacement

Removal

- 1 Remove the instrument panel body (refer to "Instrument Panel Body Replacement").
- 2 Remove the parts fitted on the instrument panel beam.
- 3 Remove the steering column assembly (refer to "Steering Column Assembly Replacement").
- 4 Unscrew 5 bolts connecting the instrument panel beam to the vehicle body.



- 5 Remove retaining nuts of the fuse box.
- 6 Remove the instrument panel beam assembly.

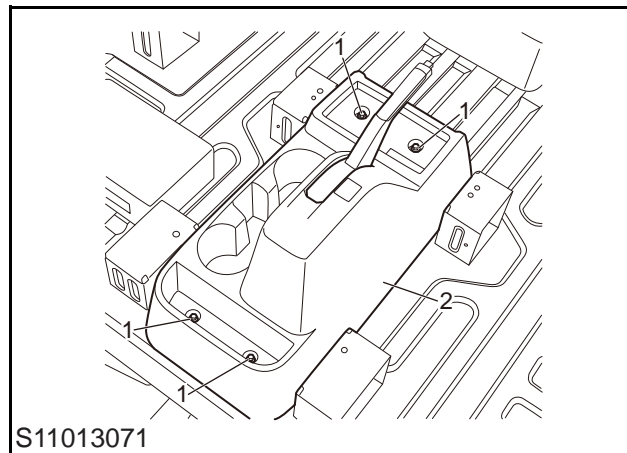
Installation

- 1 Install retaining nuts of the fuse box.
- 2 Install 5 bolts connecting the instrument panel beam to the vehicle body, with the mounting torque of 22 ± 2 N.m.
- 3 Install the steering column assembly.
- 4 Install the parts on the instrument panel beam.
- 5 Install the instrument panel body assembly.

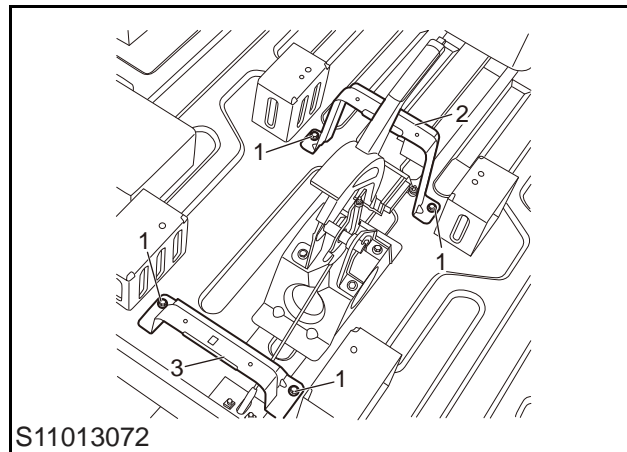
Auxiliary Instrument Panel Assembly And Bracket Replacement

Removal

- 1 Remove the auxiliary instrument panel cover.
- 2 Remove 4 auxiliary instrument panel bolts (1) .
- 3 Remove auxiliary instrument panel assembly (2) .



- 4 If necessary, remove auxiliary instrument panel bracket bolt (1) .
- 5 If necessary, remove auxiliary instrument panel bracket (2) and auxiliary instrument panel floor connecting bracket (3) .



Install

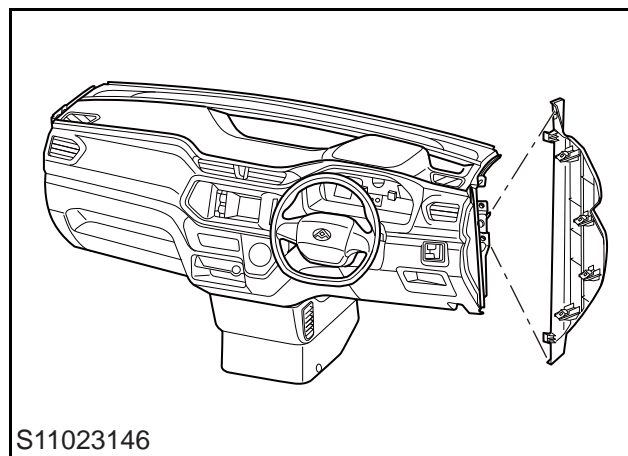
- 1 Install auxiliary instrument panel bracket and auxiliary instrument panel floor connecting bracket.
- 2 Install auxiliary instrument panel bracket bolt, and tighten them to 9 ± 1 Nm.
- 3 Install auxiliary instrument panel assembly.

- 4 Install auxiliary instrument panel assembly bolts, and tighten them to $5 \pm 1\text{Nm}$.
- 5 Install the auxiliary instrument panel cover.

Instrument Panel Side End Cover Assembly Replacement

Removal

- 1 Remove the left and right side end cover assembly (pay attention to the clips).



- 2 Take down the left and right side end cover assembly.

Installation

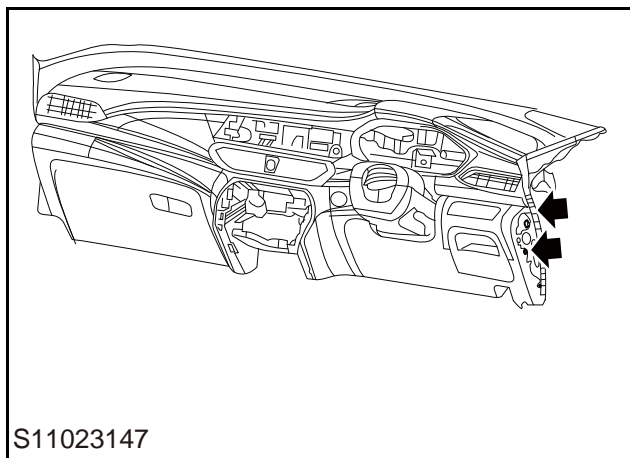
- 1 Installation is the reverse of removal.

Interior Trim

Instrument Panel Driver Side Lower Guard Plate Assembly Replacement

Removal

- 1 Disconnect the battery (negative first).
- 2 Remove the instrument panel driver side end cover assembly (refer to "Instrument Panel Side End Cover Assembly Replacement").
- 3 Remove the instrument panel left air outlet assembly (refer to "Instrument Panel Left Air Outlet Assembly Replacement").
- 4 Remove 2 bolts fixing the instrument panel driver side lower guard plate assembly.



- 5 Remove the bonnet cable handle.
- 6 Remove the instrument panel driver side lower guard plate assembly.

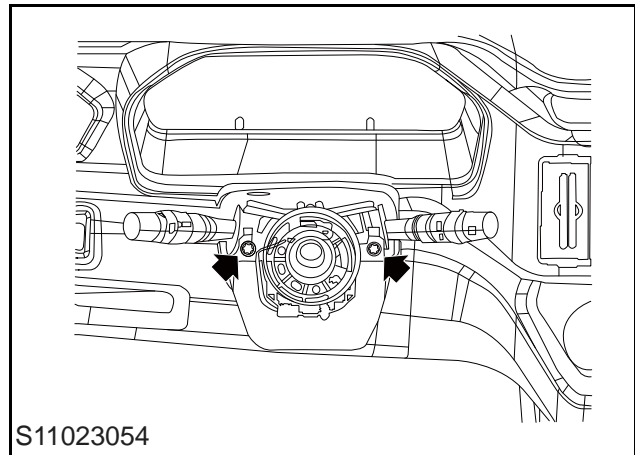
Installation

- 1 Install the bonnet cable handle to the instrument panel driver side lower guard plate assembly.
- 2 Install 3 bolts fixing the instrument panel driver side lower guard plate assembly.
- 3 Connect connectors of atmosphere lamps.
- 4 Install the instrument panel wood-grain trim panel assembly (coated trim panel assembly).
- 5 Install the instrument panel driver side end cover assembly.
- 6 Connect the battery.

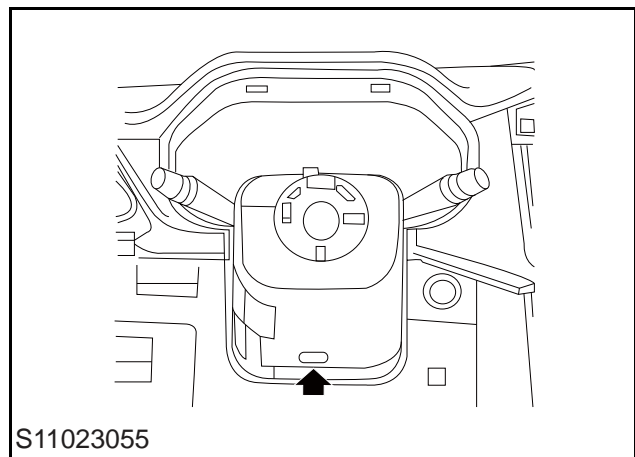
Upper/Lower Steering Column Shroud Replacement

Removal

- 1 Remove the steering wheel assembly (Refer to "Steering Wheel Assembly Replacement").
- 2 Remove the upper steering column shroud.
- 3 Remove 2 screws connecting the lower steering column shroud to the combination switch base.



- 4 Remove the screws from the bottom of lower steering column shroud.



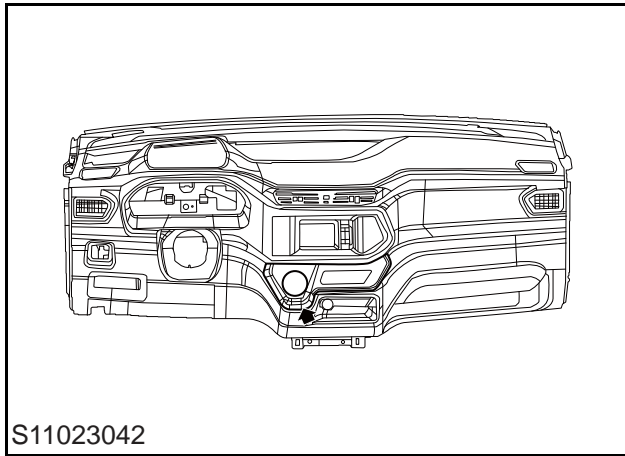
- 5 Take down the lower steering column shroud.

Installation

- 1 Install retaining screws under the lower steering column shroud.
- 2 Install 2 screws connecting the lower steering column shroud to the combination switch base.
- 3 Install the steering wheel assembly.

Center Console Lower Panel Assembly Replacement

Removal



- 4 Remove the electronic knob gear shift lever (refer to "Electronic Knob Gear Shift Lever Replacement").
- 5 Remove the air conditioning control panel (refer to "Air Conditioning Control Panel Replacement").
- 6 Remove the center console lower panel assembly and pay attention to the removal of clips.

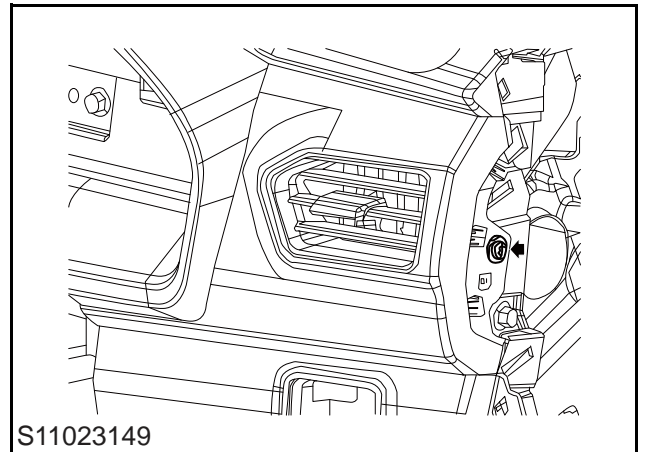
Installation

- 1 Installation is the reverse of removal.

Instrument Panel Left Air Outlet Assembly Replacement

Removal

- 1 Remove the left and right side end cover assembly (refer to "Left and Right Side End Cover Assembly Replacement").
- 2 Remove the center console upper panel assembly.
- 3 Remove screws connecting the instrument panel left air outlet assembly to the instrument panel.



- 4 Take down the instrument panel left air outlet assembly.

Installation

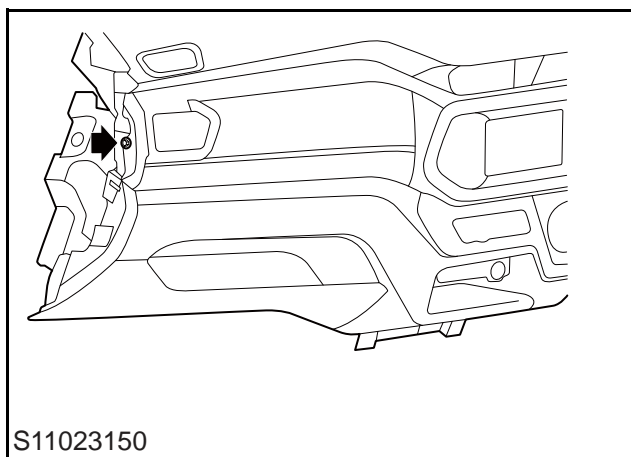
- 1 Installation is the reverse of removal.

Interior Trim

Instrument Panel Right Air Outlet Assembly Replacement

Removal

- 1 Remove the left and right side end cover assembly (refer to "Left and Right Side End Cover Assembly Replacement").
- 2 Remove the center console upper panel assembly.
- 3 Remove screws connecting the instrument panel right air outlet assembly to the instrument panel.



- 4 Take down the instrument panel right air outlet assembly.

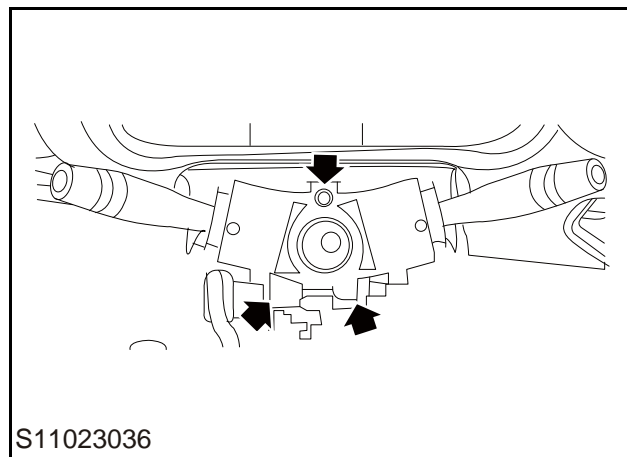
Installation

- 1 Installation is the reverse of removal.

Combination Switch Assembly Replacement

Removal

- 1 Remove the steering wheel assembly (Refer to "Steering Wheel Assembly Replacement").
- 2 Remove the upper and lower steering column shrouds (refer to "Upper/Lower Steering Column Shroud Replacement").
- 3 Remove the clock spring assembly and the clock spring returning ring (refer to "Clock Spring Assembly and Clock Spring Returning Ring Replacement").
- 4 Remove 3 bolts connecting the combination switch to the steering column.



- 5 Remove the combination switch base and combination switch assembly.

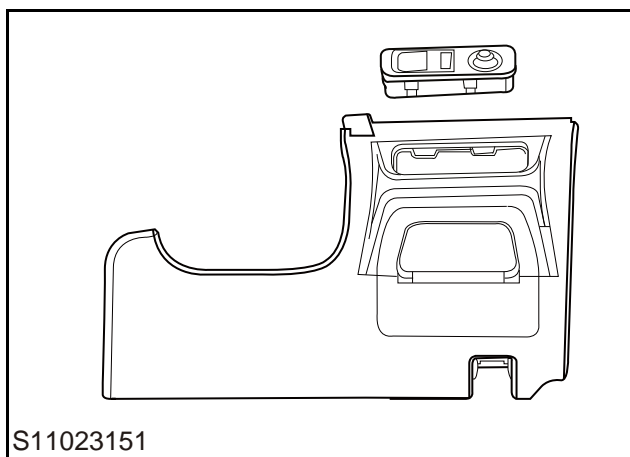
Installation

- 1 Install the combination switch assembly to the combination switch base.
- 2 Install 3 bolts connecting the combination switch to the steering column.
- 3 Install the clock spring assembly and the clock spring returning ring.
- 4 Install the upper and lower steering column shrouds.
- 5 Install the steering wheel assembly.

Rearview Mirror Regulating and Dimmer Switch Assembly Replacement

Removal

- 1 Disconnect the battery (negative first).
- 2 Remove the instrument panel driver side lower guard plate assembly (refer to "Instrument Panel Driver Side Lower Guard Plate Assembly Replacement").
- 3 Disconnect connectors of the rearview mirror regulating and dimmer switch.
- 4 Remove the rearview mirror regulating and dimmer switch assembly.



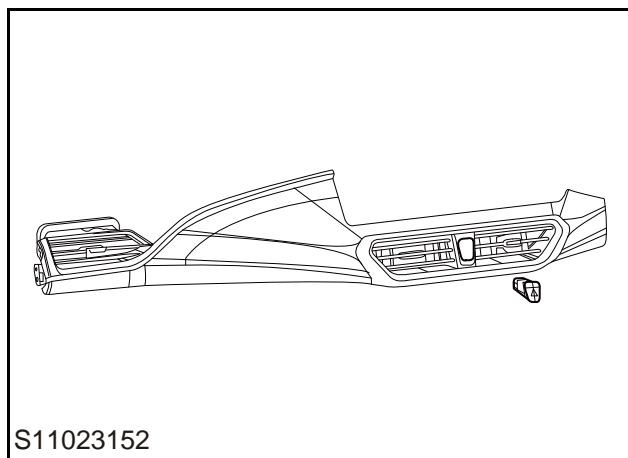
Installation

- 1 Connect connectors of the rearview mirror regulating and dimmer switch.
- 2 Install the instrument panel driver side lower guard plate assembly.
- 3 Connect the battery.

Hazard Warning Lamp Switch Replacement

Removal

- 1 Disconnect the battery (negative first).
- 2 Remove the instrument panel wood-grain trim panel assembly (coated trim panel assembly) (refer to "Instrument Panel Wood-Grain Trim Panel Assembly (Coated Trim Panel Assembly) Replacement").
- 3 Disconnect the hazard warning lamp switch connector.
- 4 Remove the hazard warning lamp switch.



Installation

- 1 Connect the hazard warning lamp switch connector.
- 2 Install the instrument panel wood-grain trim panel assembly (coated trim panel assembly).
- 3 Connect the battery.

Interior Trim

Driver Side Window Regulator Switch Assembly Replacement

Removal

- 1 Disconnect the battery (negative first).
- 2 Remove the driver side front door interior trim panel assembly (refer to "Front Door Interior Trim Panel Assembly Replacement").
- 3 Disconnect the driver side window regulator switch connector.
- 4 Remove the driver side window regulator switch assembly.

Installation

- 1 Connect the driver side window regulator switch connector.
- 2 Install the front door interior trim panel assembly at the driver side.
- 3 Connect the battery.

Auxiliary Fascia Console Switch (EPB Switch) Replacement

Removal

- 1 Remove the auxiliary fascia console assembly (refer to "Auxiliary Fascia Console Assembly Replacement").
- 2 Remove the switch block of the auxiliary fascia console.

Installation

- 1 Installation is the reverse of removal.

**Driver Compartment Interiors and
Switches**

Specification

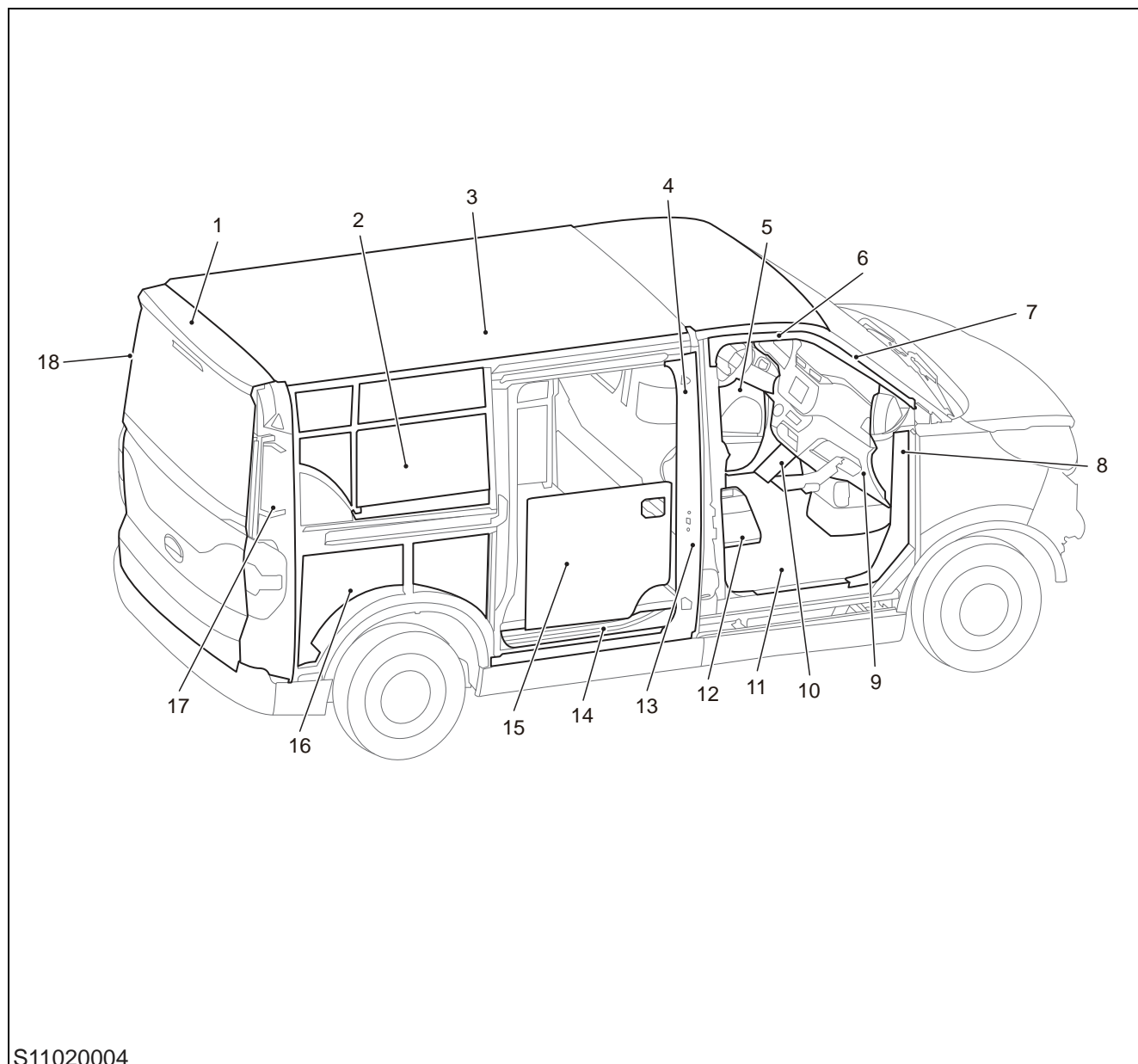
Fastener Specifications

Name	Torque (N.m)
Screw - A-pillar handle	5 ± 1
Bolt/Screw - Sun visor	5 ± 1
Screw - B-pillar handle	5 ± 1

Interior Trim

Layout

Interiors and Switch 1

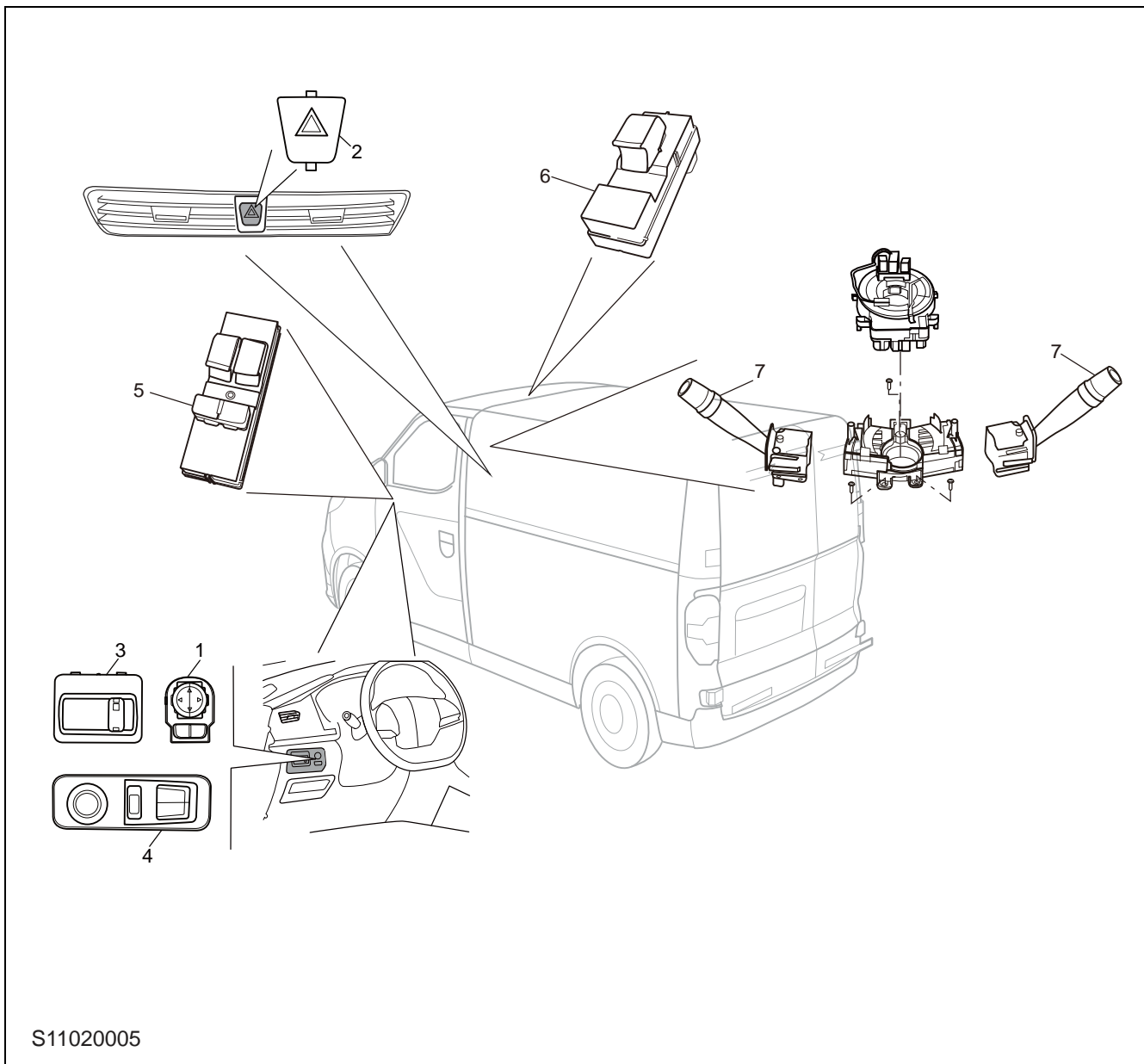


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- | | | | |
|---|---|----|------------------------------------|
| 1 | D-pillar upper trim panel assembly | 9 | Instrument panel assembly |
| 2 | Rear quarter panel assembly | 10 | Footrest assembly |
| 3 | Driver compartment roof interior assembly | 11 | Carpet Assembly |
| 4 | B-pillar upper trim panel assembly | 12 | Auxiliary fascia console assembly |
| 5 | Front door trim panel assembly | 13 | B-pillar lower trim panel assembly |
| 6 | Passenger compartment ceiling handle | 14 | Courtesy panel covering |
| 7 | A-pillar upper trim panel assembly | 15 | Sliding door trim panel assembly |
| 8 | A-pillar lower trim panel assembly | 16 | Rear quarter panel assembly |

17 D-Pillar lower trim panel assembly

Interiors and Switch 2



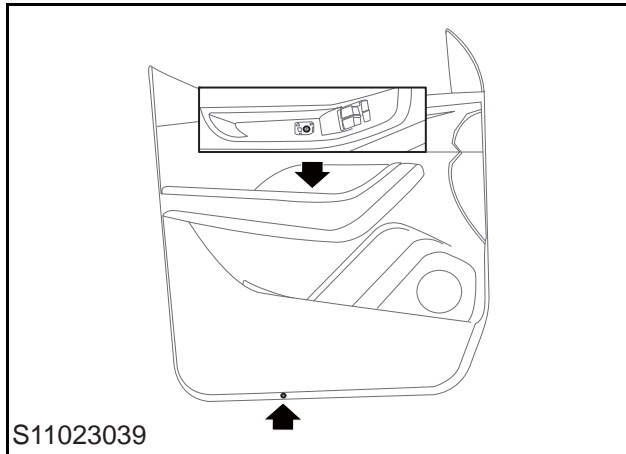
- 1 Rearview mirror regulating switch assembly
- 2 Hazard warning lamp switch
- 3 Dimmer switch assembly
- 4 Dimmer switch assembly
- 5 Driver window regulator switch assembly
- 6 Passenger window regulator switch assembly
- 7 Combination switch assembly

Service Guide

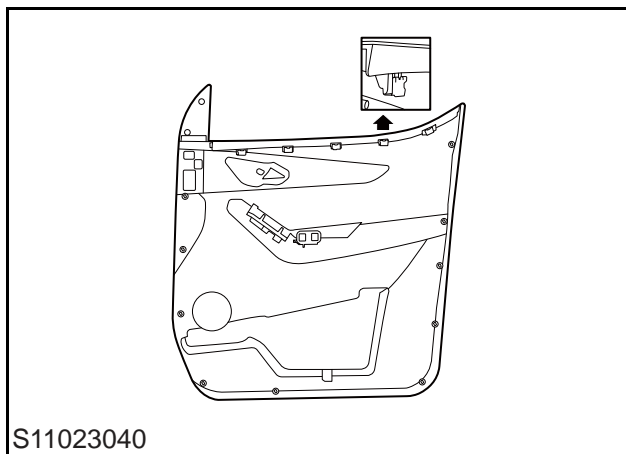
Front Door Interior Trim Panel Assembly Replacement

Removal

- 1 Disconnect the battery (negative first).
- 2 Remove retaining screws of the front door interior trim panel (as shown below).



- 3 Disconnect the electrical connector.
- 4 Remove the front door interior trim panel assembly. Note: 5 leaf springs of interior trim panel and door frame are needed to be lifted up.



- 5 Release the front door outer handle pull rod assembly.

Installation

- 1 Install the front door interior trim panel assembly.

Note: The interior trim panel and the door frame have 5 leaf springs.

- 2 Connect the battery connector.

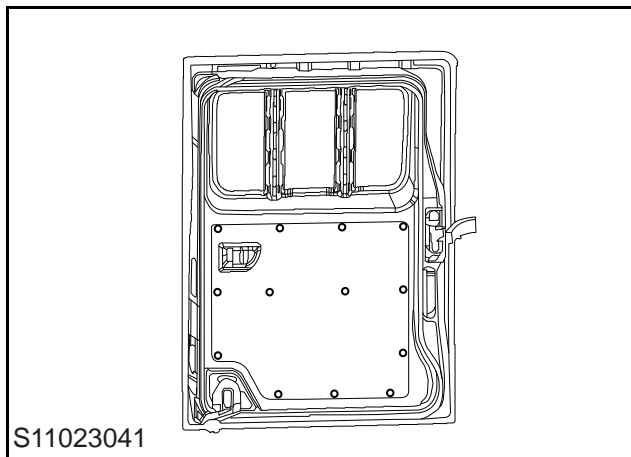
- 3 Install retaining screws of the front door interior trim panel.
- 4 Connect the battery.

Interior Trim

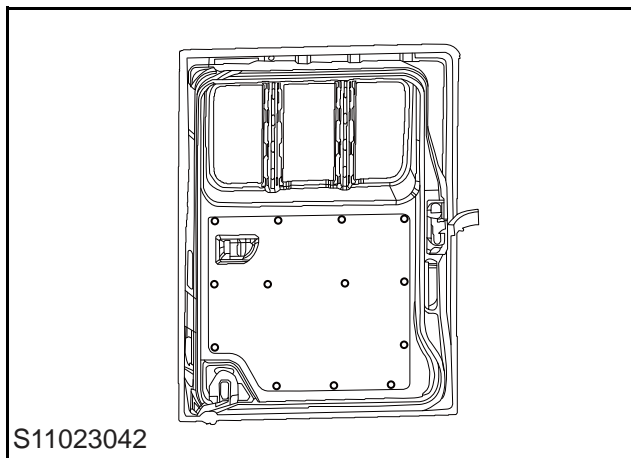
Sliding Door Interior Trim Panel Assembly Replacement

Removal

- 1 Remove the side sliding door inner handle trim ring.



- 2 Slowly pry up the sliding door interior trim panel along four edges. Note: there are 13 clips in total (as shown below).



- 3 Remove the sliding door interior trim panel assembly.

Installation

- 1 Install the sliding door interior trim panel assembly.

Note: The interior trim panel and the door frame have 5 leaf springs.

- 2 Install the side sliding door inner handle trim ring.

Front Door Waterproof Membrane Replacement

Removal

- 1 Remove the front door interior trim panel assembly (refer to "Front Door Interior Trim Panel Assembly Replacement").
- 2 Remove the front door inner handle (refer to "Front Door Inner Handle Replacement").
- 3 Peel off the front door waterproof membrane.

Installation

- 1 Installation is the reverse of removal.

Note: Note: When sticking the waterproof membrane, the waterproof membrane and the front door sheet metal should be closely and smoothly fitted.

Rear Door Trim Panel Assembly Replacement

Removal

- 1 Slowly pry up the rear door interior trim panel along four edges and ensure the clips are fixed. Refer to "Sliding Door Interior Trim Panel Assembly Replacement" for specific operations.

Installation

- 1 Install the rear door trim panel assembly and ensure the retaining clips are fitted in place.

Courtesy Covering Replacement

Removal

- 1 Remove screws fixing the courtesy covering with a cross screwdriver of suitable size.
- 2 Take down the courtesy covering.

Installation

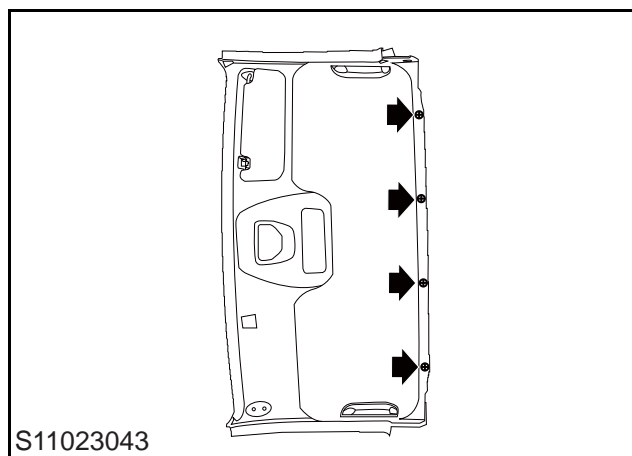
- 1 Installation is the reverse of removal.

Interior Trim

Driver Compartment Roof Interior Assembly Replacement

Removal

- 1 Remove A and B-pillar upper trim panels (refer to "A and B -pillar Upper Trim Panels Replacement").
- 2 Remove the sun visor retaining bracket and sun visor assembly.
- 3 Remove handles of the driver and passenger compartment ceilings.
- 4 Remove the ceiling reading lamp assembly (refer to "Ceiling Reading Lamp Assembly Replacement").
- 5 Remove 4 clips of the driver compartment roof interiors (as shown below).



- 6 Remove the driver compartment roof interior assembly along the edge.

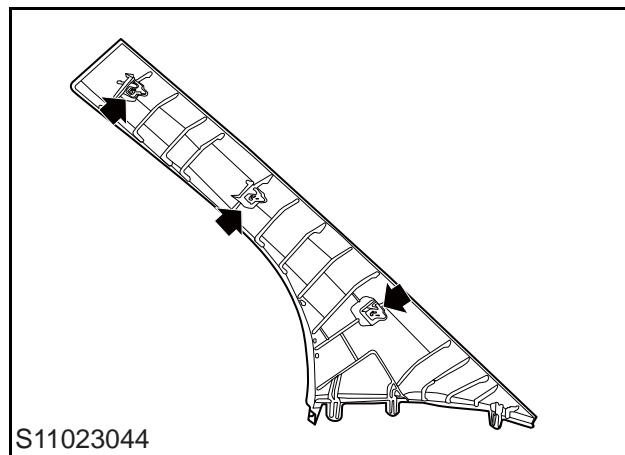
Installation

- 1 Install the driver compartment roof interior assembly to the roof.
- 2 Install 4 retaining clips fixing the driver compartment roof interior assembly to the roof.
- 3 Install the ceiling reading lamp assembly.
- 4 Install handles of the driver and passenger compartment ceilings.
- 5 Install the sun visor retaining bracket and the sun visor assembly.
- 6 Install A and B-pillar upper trim panels.

A-pillar Upper Trim Panel Replacement

Removal

- 1 Remove the A-pillar upper trim panel (positions of clips and buckles are as illustrated).



Installation

- 1 Installation is the reverse of removal.

A-pillar Lower Trim Panel Replacement

Removal

- 1 Remove the footrest assembly(refer to "Footrest Assembly Replacement").
- 2 Remove the front door courtesy covering (refer to "Courtesy Covering Replacement").
- 3 Slowly pry up the A-pillar lower trim panel along the edge.

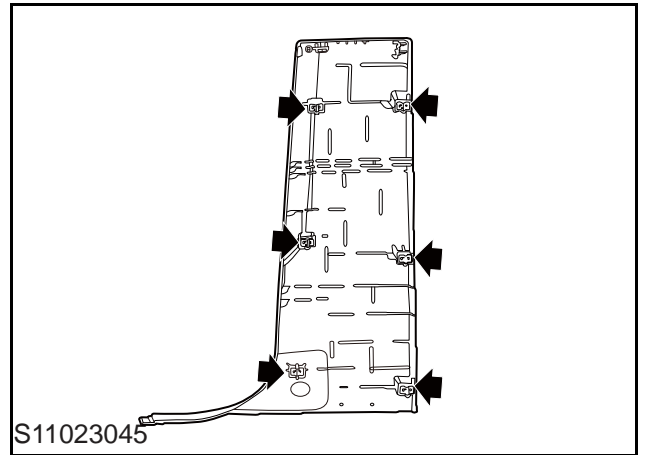
Installation

- 1 Installation is the reverse of removal.

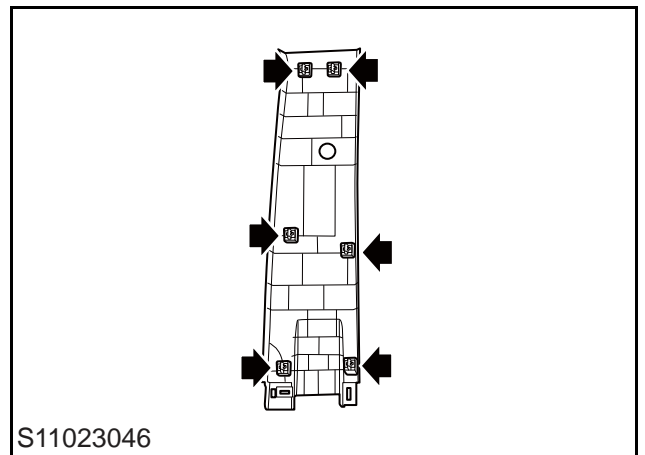
B-pillar Upper Trim Panel Replacement

Removal

- 1 Remove the front door and sliding door courtesy covering (refer to "Courtesy Covering Replacement").
- 2 Remove seat belt anchor points (refer to "Seat Belt Replacement").
- 3 Remove the B-pillar lower trim panel and positions of clips are as illustrated.



- 4 Remove the B-pillar upper trim panel and positions of clips are as illustrated.



Installation

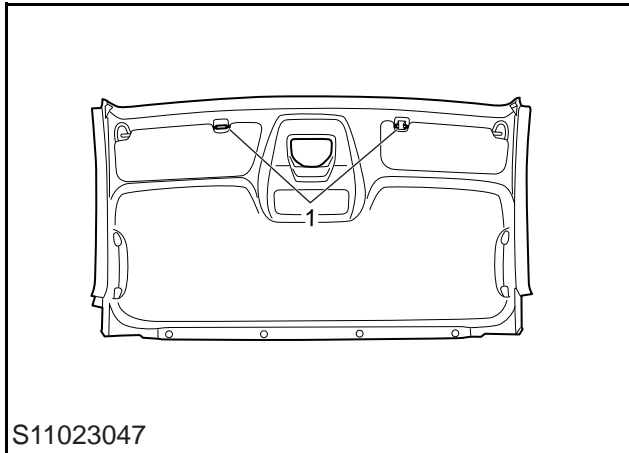
- 5 Install the B-pillar upper trim panel and pay attention to the positions of clips.
- 6 Install the B-pillar lower trim panel and pay attention to positions of clips.
- 7 Install seat belt anchor points.
- 8 Install the front and rear door courtesy covering.

Interior Trim

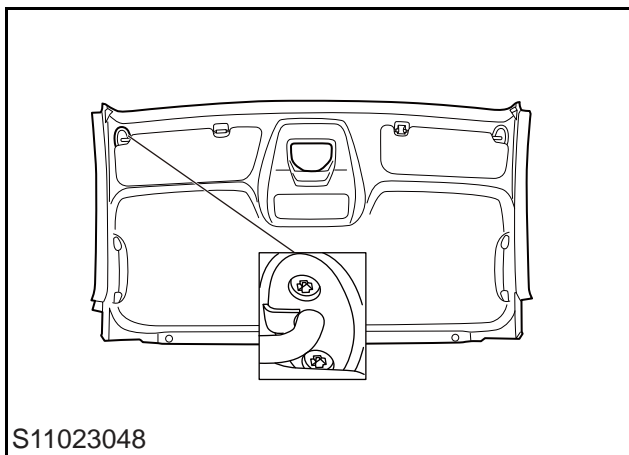
Sun Visor Assembly Replacement

Removal

- 1 Remove the sun visor retaining bracket (1).



- 2 Remove 2 retaining screws of the sun visor.



- 3 Remove the sun visor assembly.

Installation

- 1 Install 2 retaining screws of the sun visor.
- 2 Install the sun visor retaining bracket.

Rear Quarter Panel Assembly Replacement

Removal

- 1 Slowly pry up the rear quarter panel along four edges and ensure the clips are fixed. Refer to "Sliding Door Interior Trim Panel Assembly Replacement" for specific operations.

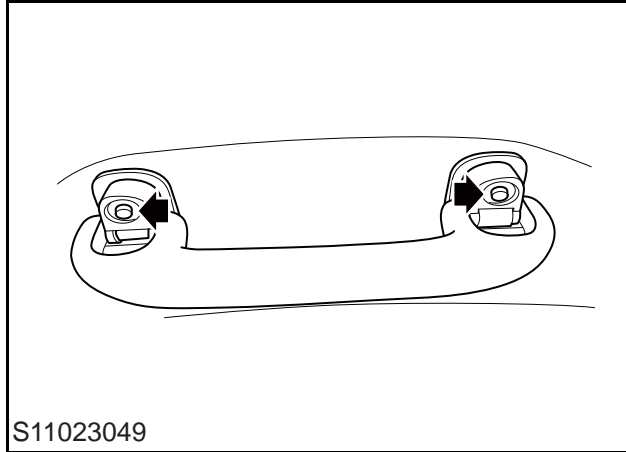
Installation

- 1 Install the rear quarter panel assembly and ensure the retaining clips are clamped in place.
- 2 Install the rear quarter panel assembly and ensure the retaining clips are clamped to the vehicle body.

Diver and Passenger Compartment Ceiling Handle Replacement

Removal

- 1 Pry the handle plug.



- 2 Remove handle retaining screws.
- 3 Remove the pillar handle.

Installation

- 1 Install retaining screws of the pillar handle.
- 2 Install plugs of retaining screws of the pillar handle.

Footrest Assembly Replacement

Removal

- 1 Pry the footrest assembly along the edge.

Installation

- 2 Installation is the reverse of removal.

Interior Trim

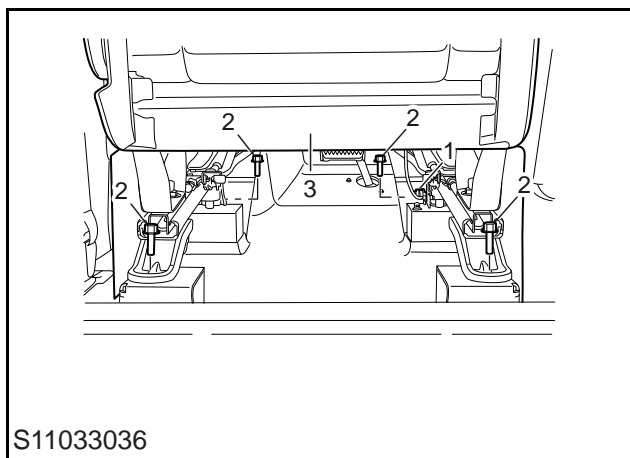
Seats

Service Guide

Driver Seat Assembly Replacement

Removal

- 1 Adjust the driver seat to a suitable position.
- 2 Disconnect the connector (1) of the driver seat assembly.
- 3 Remove 4 retaining bolts (2) fixing the driver seat to the seat mounting bracket.
- 4 Remove the driver seat assembly (3).



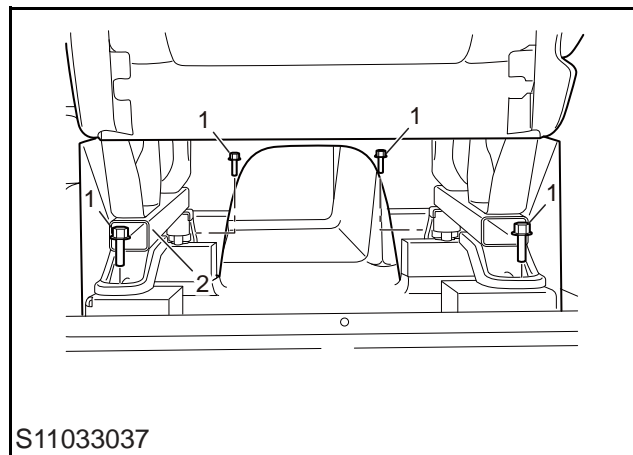
Installation

- 1 Adjust the driver seat to a suitable position.
- 2 Install 4 fastening bolts fixing the driver seat assembly to the seat mounting bracket.
- 3 Connect the connector of the driver seat assembly.

Front Single Passenger Seat Assembly Replacement

Removal

- 1 Adjust the front single passenger seat to a suitable position.
- 2 Remove 4 retaining bolts (1) fixing the front single passenger seat to the seat mounting bracket.
- 3 Remove the front single passenger seat assembly (2).



Installation

- 1 Adjust the front single passenger seat to a suitable position.
- 2 Install 4 retaining bolts fixing the front single passenger seat to the seat mounting bracket.

Exteriors

Specification

Name	Torque (N.m)
Screw - License plate to tail gate	9 ± 1
Bolt - Windscreen cover plate assembly	9 ± 1
Nut - License plate to tail gate	9 ± 1
Bolt/Screw - Front bumper lower baffle	9 ± 1
Bolt - Front wheelhouse liner	5 ± 0.5
Nut - Roof rack	9 ± 1
Bolt - Sopiler assembly	9 ± 1

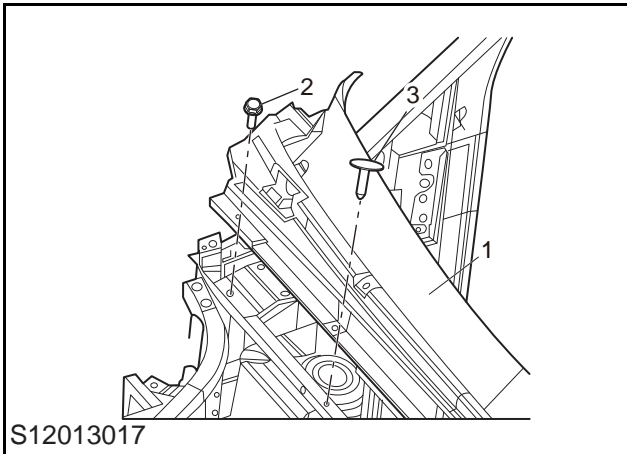
Exterior Trim

Service Guide

Windscreen Cover Plate Assembly Replacement

Removal

- 1 Remove the wiper arm first (refer to "Wiper Arm Replacement").
- 2 Remove bolts (2) and snap fasteners (3) tightening the windscreen cover plate assembly to the windscreen gutter channel.



- 3 Remove the windscreen cover plate assembly from the windscreen weatherstrip.

Installation

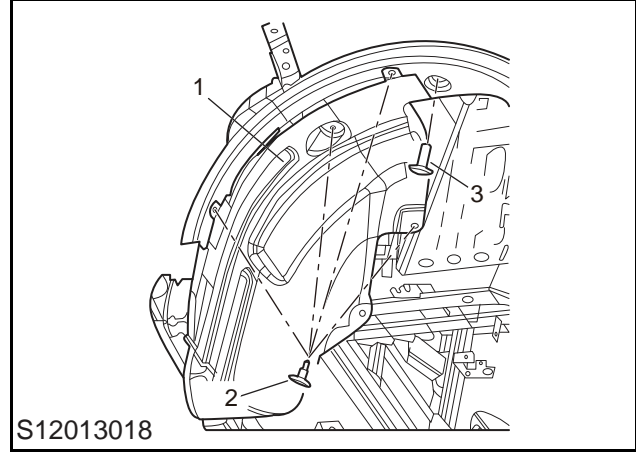
- 1 Tighten and clamp the windscreen cover plate to the gutter channel longitudinal beam with 1 sub-packaging windscreen cover plate (1), 1 bolt of the windscreen cover plate assembly (2) and 1 snap fastener of the windscreen cover plate assembly (3).
- 2 Tighten and clamp the windscreen cover plate to the gutter channel longitudinal beam with 1 bolt of the windscreen cover plate assembly (2) and 2 snap fasteners of the windscreen cover plate assembly (3).

- Tighten bolts of the windscreen cover plate assembly with the torque of 9 ± 1 N.m.

Front Wheelhouse Liner

Removal

- 1 Remove bolts (3) tightening the front wheelhouse liner to the front bumper assembly.



- 2 Remove snap fasteners of the front wheelhouse liner.
- 3 Remove the front wheelhouse liner.

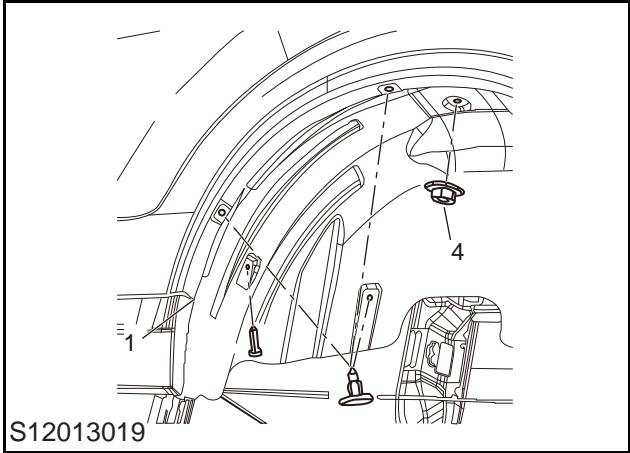
Installation

- 1 Install the front wheelhouse liner.
- 2 Install bolts of the front wheelhouse liner with the torque of 5 ± 0.5 N.m.
- 3 Install snap fasteners of the front wheelhouse liner.

Rear Wheelhouse Liner

Removal

- 1 Remove snap fasteners of the rear wheelhouse liner;
- 2 Remove bolts of the rear wheelhouse liner;
- 3 Remove nuts of the rear wheelhouse liner



- 4 Remove the rear wheelhouse liner

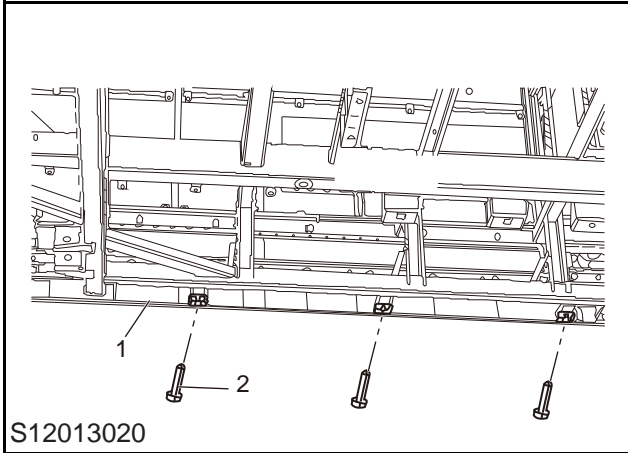
Installation

- 1 Install the rear wheelhouse liner.
 - 2 Install snap fasteners of the rear wheelhouse liner;
 - 3 Install nuts of the rear wheelhouse liner;
 - 4 Install bolts of the rear wheelhouse liner;
- Tighten bolts of the rear wheelhouse liner with the torque of 5 ± 0.5 N.m.

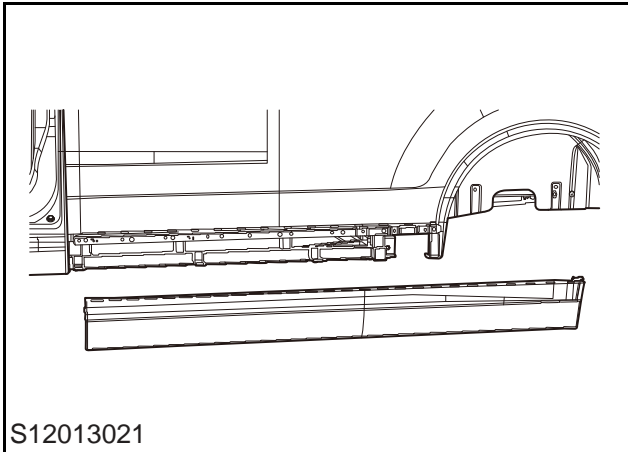
Threshold Molding and Quarter Skirt Panel

Removal

- 1 Remove bolts of skirt rack rear interiors



- 2 Remove skirt rack rear interiors



Installation

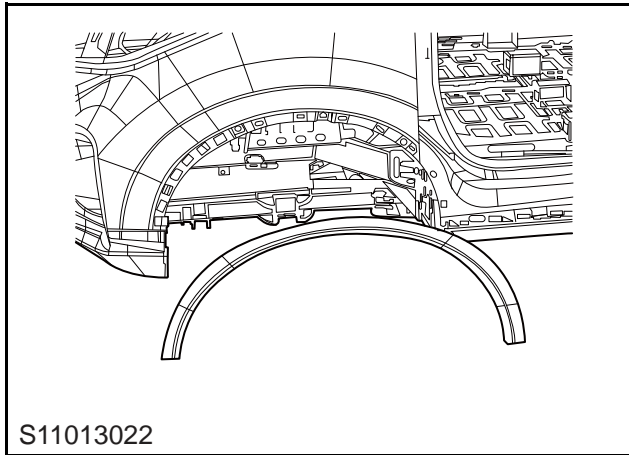
- 1 Install the quarter skirt panel
- 2 Install bolts tightening the quarter skirt panel to the vehicle body.

Exterior Trim

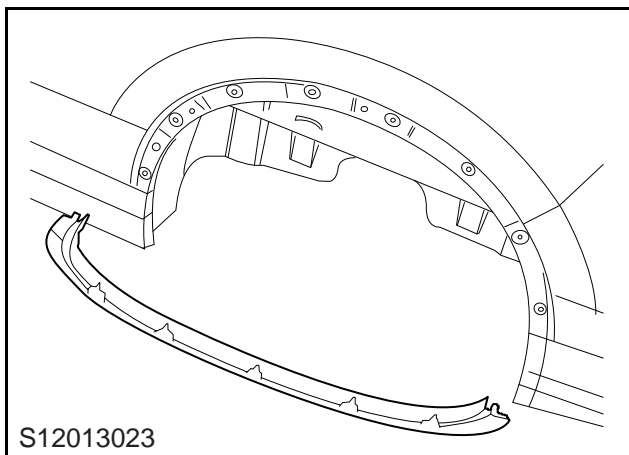
Front and Rear Wheel Brow Assembly

Removal

- 1 Remove the front wheel brow assembly



- 2 Remove the rear wheel brow assembly



Installation

- 1 Clamp the front wheel brow assembly to the front bumper assembly
- 2 Install the rear wheel brow assembly

Rearview Mirrors

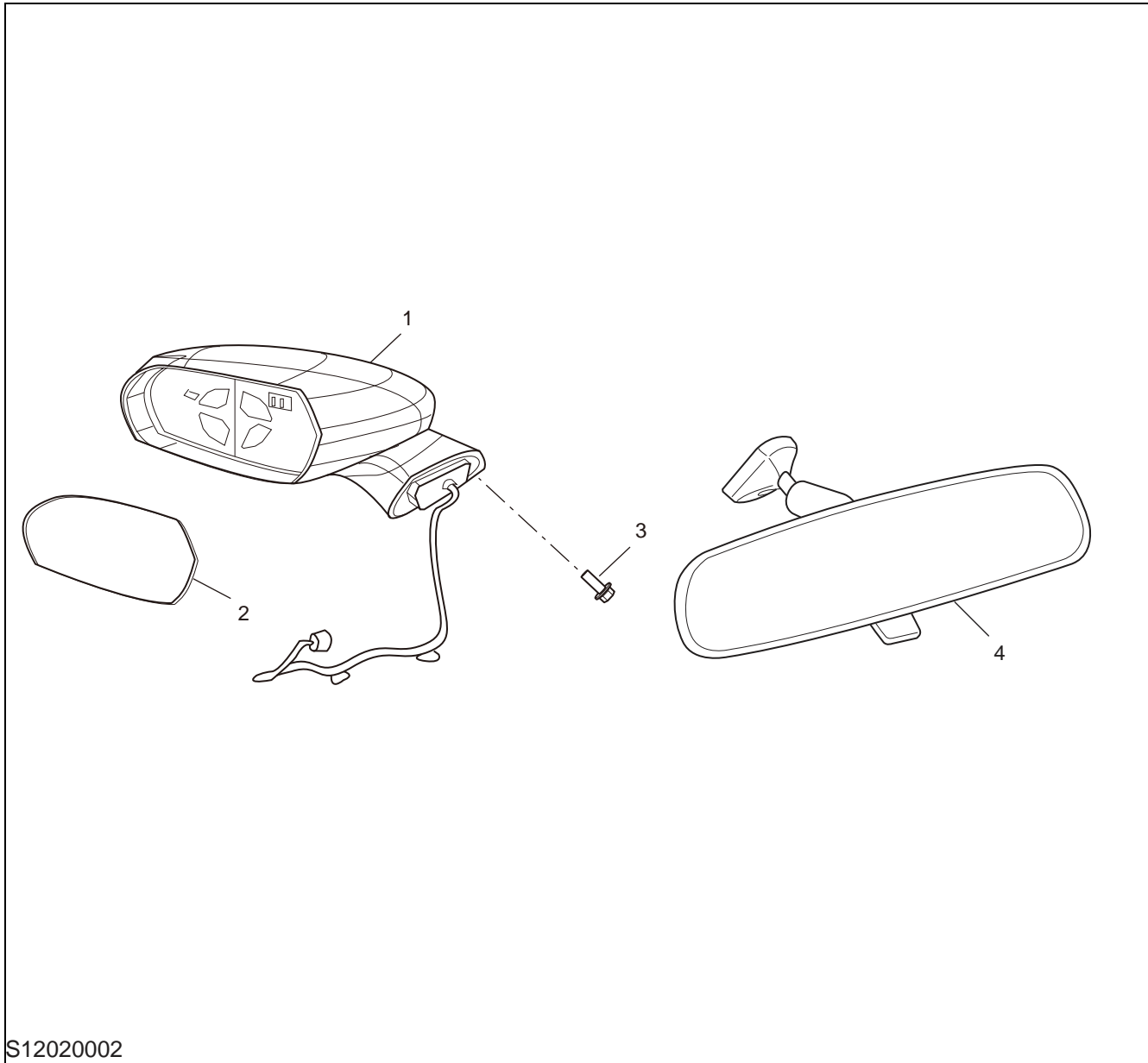
Specification

Name	Torque (N.m)
Bolt - Exterior rearview mirrors	9 ± 1
Bolt - Interior rearview mirrors	1.5 ± 0.5

Exterior Trim

Layout

Rearview Mirrors Layout



S12020002

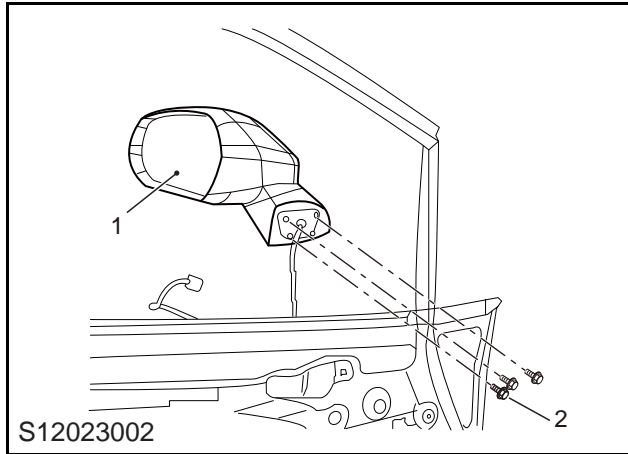
- 1 Exterior Rearview Mirrors
- 2 Lens
- 3 Screws
- 4 Interior rearview mirrors

Service Guide

Exterior Rearview Mirrors Replacement

Removal

- 1 Remove the door trim panel (refer to "Door Trim Panel Replacement").
- 2 Remove 3 bolts of rearview mirrors. (2)



- 3 Disconnect 2 clips connecting the door interior trim panel and then disconnect rearview mirrors harnesses.
- 4 Remove exterior rearview mirrors. (1)

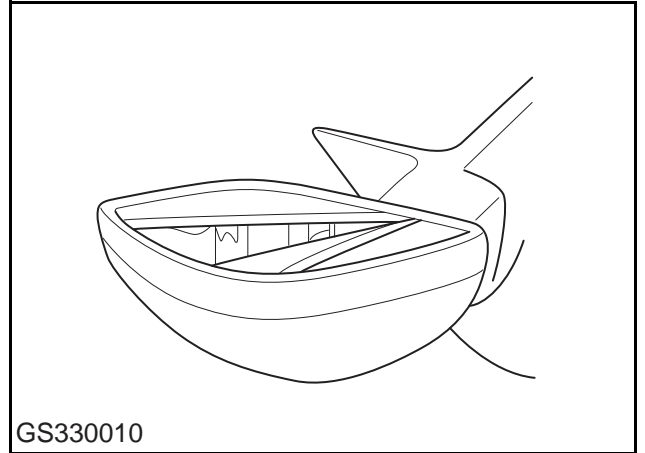
Installation

- 1 Connect the harness to the door harness assembly and clamp 2 clips tightly on the door interior trim panel.
- 2 Install exterior rearview mirrors to the front door assembly and tighten bolts of rearview mirrors to 9 ± 1 N.m.
- 3 Install the door trim panel (refer to "Door Trim Panel Replacement").

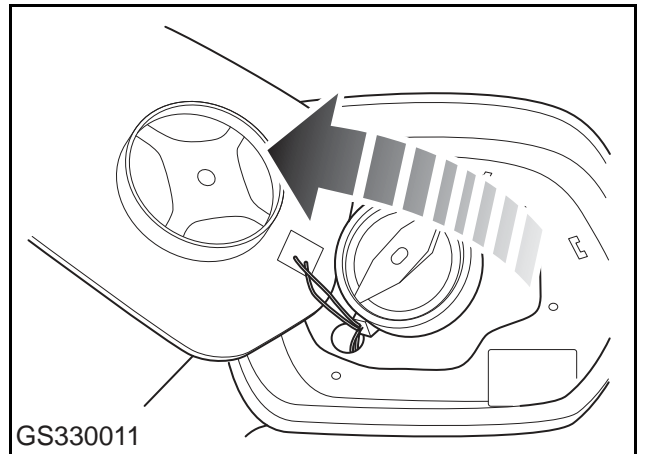
Exterior Rearview Mirror Lens Replacement

Removal

- 1 Adjust the lens to the illustrated position.



- 2 Jack up the clip with a flat head screw driver and remove the lens from the rearview mirrors assembly.



- 3 Disconnect the heated glass wires (if any).

Installation

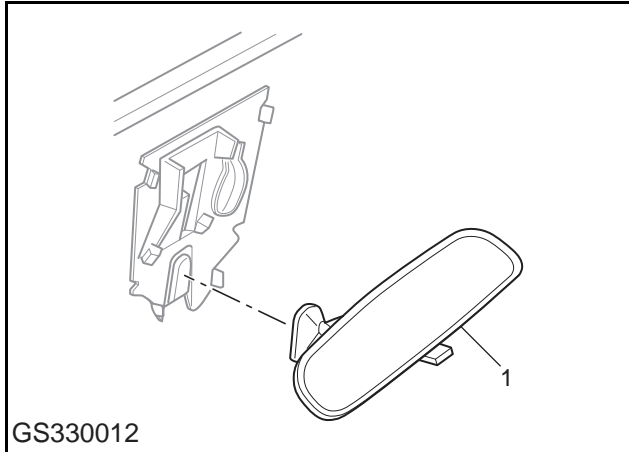
- 1 Connect the heated glass wires (if any).
- 2 Install the lens to the rearview mirrors assembly.

Exterior Trim

Interior Rearview Mirrors Replacement

Removal

- 1 Remove mounting bolts of interior rearview mirrors.
- 2 Push out the interior rearview mirrors assembly from the bottom up.

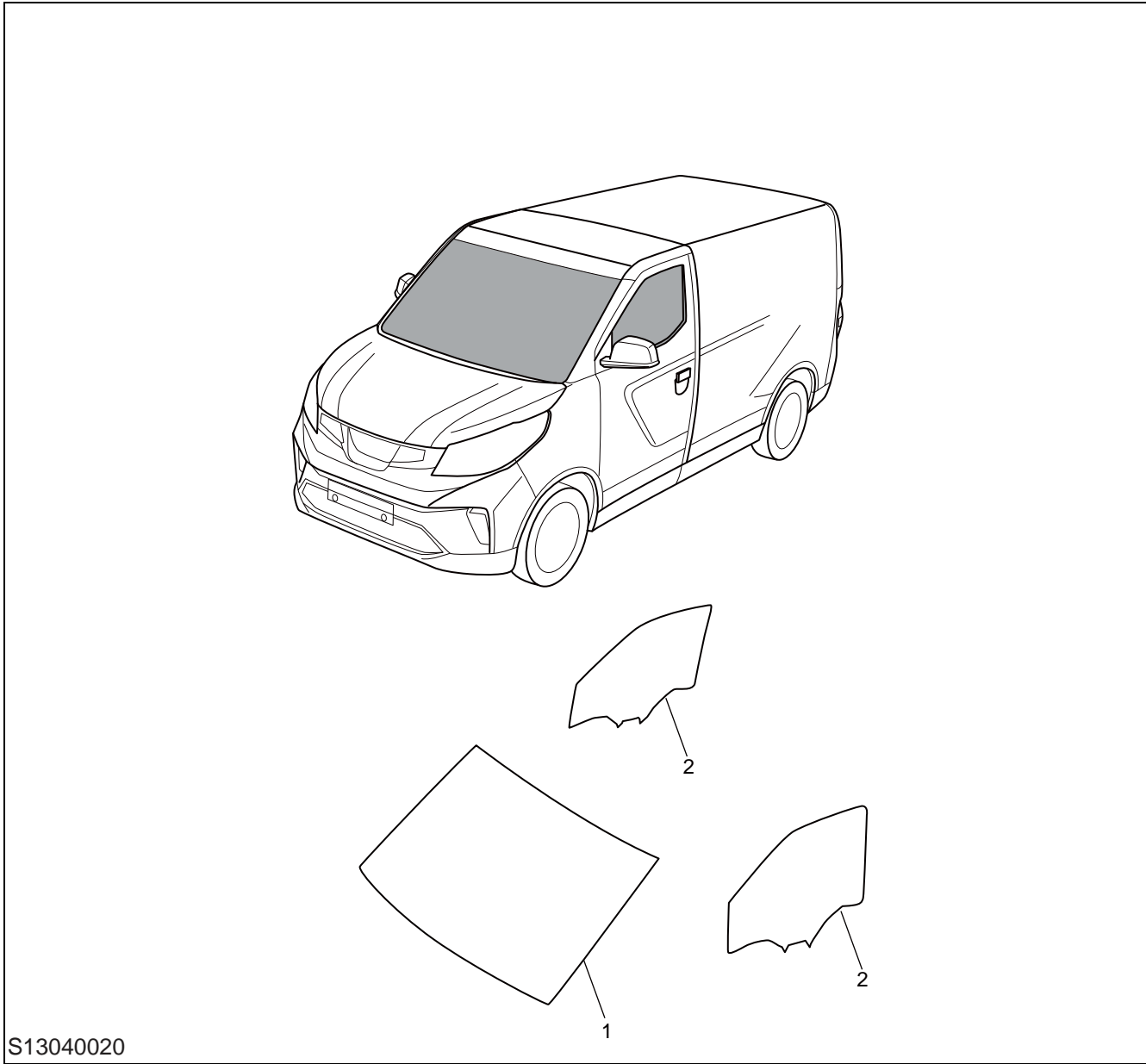


Installation

- 1 Push in the interior rearview mirrors assembly from the top down.
- 2 Install bolts of interior rearview mirrors and tighten them to 1.5 ± 0.5 N.m.

Stationary Windows

Layout



S13040020

- 1 Windscreen
- 2 Front door glass

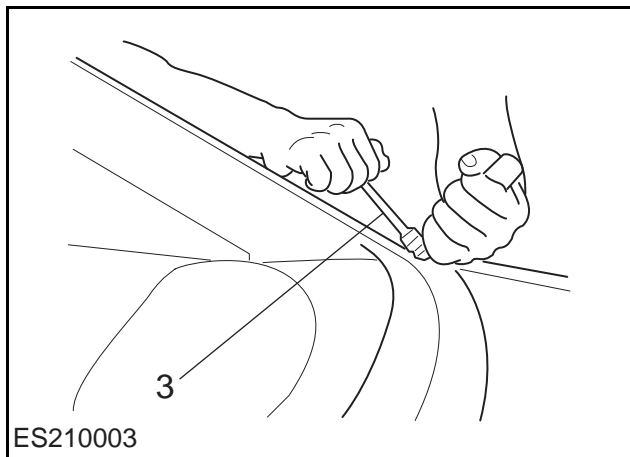
Exterior Trim

Service Guide

Windscreen Replacement

Removal

- 1 Remove the interior rearview mirrors, refer to "Interior Rearview Mirrors Replacement".
- 2 Disconnect the rain sensor harness connector (if equipped).
- 3 Remove the wiper arm. Refer to "Wiper Arm Replacement".
- 4 Remove the windscreen cover plate assembly and windscreen cover plate trim cover. Refer to "Windscreen Cover Plate Assembly Replacement".
- 5 Cut the adhesive around the windscreen with a tool.



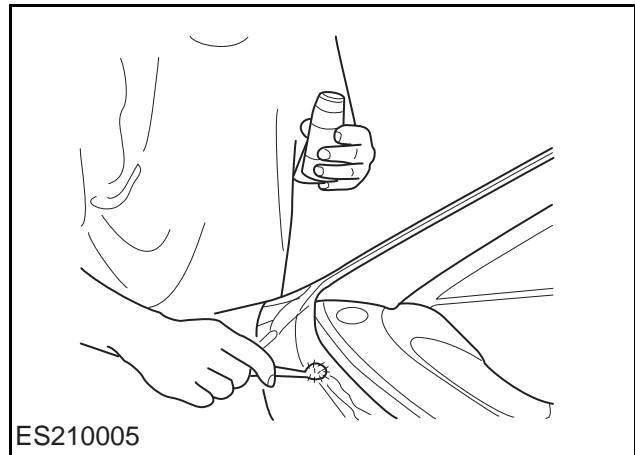
- 6 Remove the windscreen with a sucker under the help of an assistant.

Installation

- 1 Wipe the inner surface of glass with clean cloth or bleached fiber (roll paper) immersed with a proper amount of specified glass cleaner, and clean the body paint with organic solvent inactive to the surface (such as acetone), then dry it for at least 5 minutes. Note: The used cloth or bleached fiber (roll paper) must be replaced. Use the cleaner directly and never dilute it with water. Warning: To avoid any adverse reaction between cleaner and primer or polyurethane adhesive, prevent the cleaner from contacting with newly painted primer or polyurethane adhesive. Do not use the cleaner to remove excess primer or polyurethane adhesive; the surface to be cleaned must be completely dry

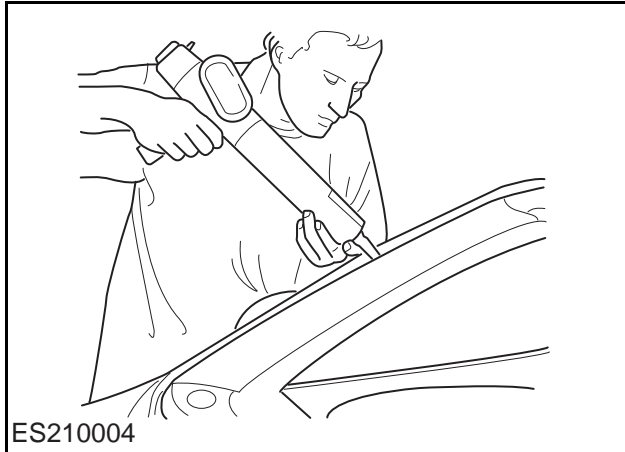
before applying primer or polyurethane adhesive.

- 2 Fully shake the glass primer and paint primer. Dip a small amount of mixture with a clean brush or gauze and evenly wipe the surface of the glass and top fixing frame which have been cleaned by cleaner. One-time instead of repeated painting is required with drying time of approximately 5-15 minutes.



Note: The surface coated with primer must be dry and free from dust, grease and other contaminants that may affect adhesion. Shake up the primer to prevent it from precipitation each time it is not in use for a long period. **Warning:** Do not apply primer onto the body and glass with any remaining polyurethane adhesive, otherwise it may result in poor adhesion of the newly coated polyurethane adhesive.

- 3 Apply a layer of 8mm-width polyurethane adhesive evenly, continuously and vertically around the windscreen with a standard pneumatic or manual glue gun by reference to the glue track.



- 4 Align the upper locating pin of the windscreen with the body hole.
- 5 Press the windscreen in place.
- 6 Stick tape around the windscreen to keep it in the correct installation position until the polyurethane adhesive is solidified.

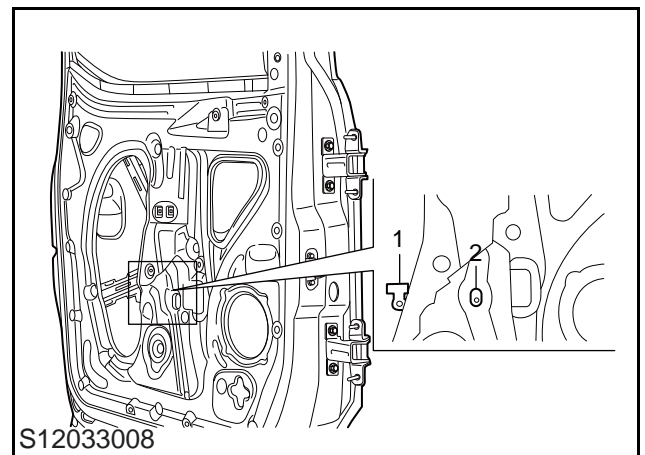
Note: For moisture-cure polyurethane adhesive, solidify it at 21 ° C (70 ° F) or higher temperature and the relative humidity no less than 30% for at least 6 hours. It takes at least 24 hours for the polyurethane adhesive to be fully solidified. For chemical-cure polyurethane adhesive, solidify it for at least 1 hour. DO NOT touch the repaired area until the minimum solidification time has elapsed.

- 7 Conduct a rain test, that is, shower the windscreen softly with warm water to check the windscreen for any sign of leakage.
- 8 If any leakage is found, apply more polyurethane adhesive around the leakage point. If it still leaks, remove the windscreen and repeat the whole procedure.
- 9 Install the windscreen cover plate assembly and windscreen cover plate trim cover.
- 10 Install the wiper arm.
- 11 Connect the rain sensor harness connector (if equipped).

Front Door Glass Replacement

Removal

- 1 Remove the interior trim panel and waterproof membrane of the door.
- 2 Lower the glass to the following position to find bolts connecting the glass and the regulator, and release connecting bolts.



- 3 Pull the glass upward and outward from the door.

Installation

- 1 Installation is the reverse of removal.

Note: The tightening sequence of glass mounting nuts: Fit into the circular mounting hole (figure 1) first and then the long circular hole (figure 2).

Note: The torque of glass mounting bolts is: 9 ± 1 N.m.

Exterior Trim

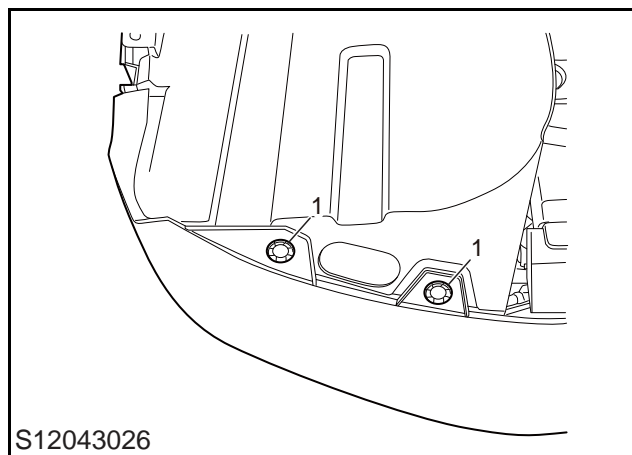
Bumper

Service Guide

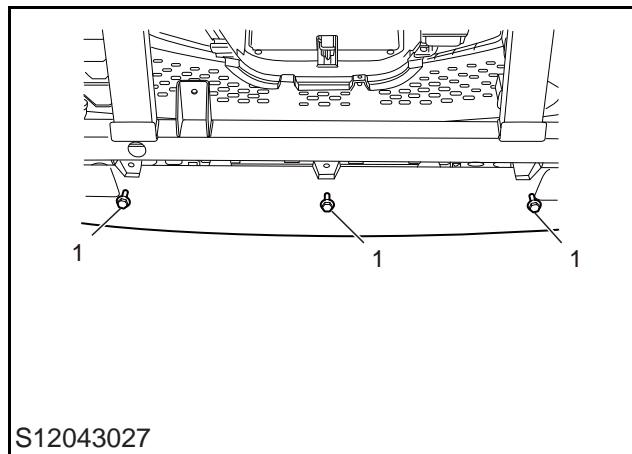
Front Bumper Assembly Replacement

Removal

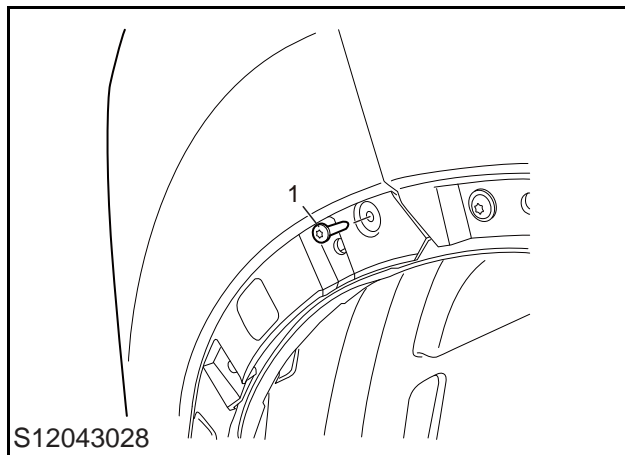
- 1 Remove the left and right wheel brow assembly. Refer to "Front and Rear Wheel Brow Assembly Replacement".
- 2 Remove 2 snap fasteners (1) of left and right front wheelhouse liners.



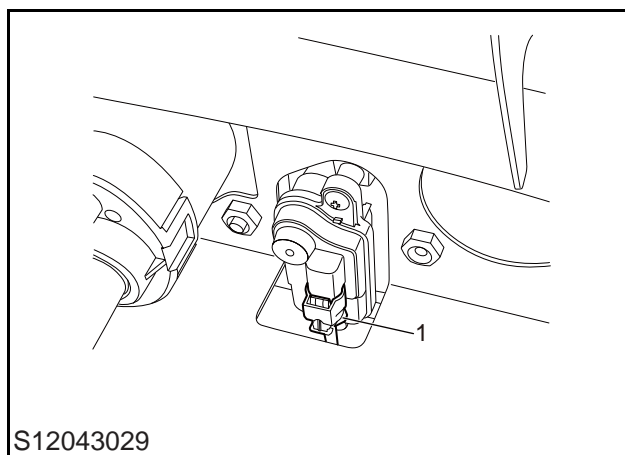
- 3 Remove 3 retaining bolts (1) fixing the front bumper assembly to the front bumper bracket.



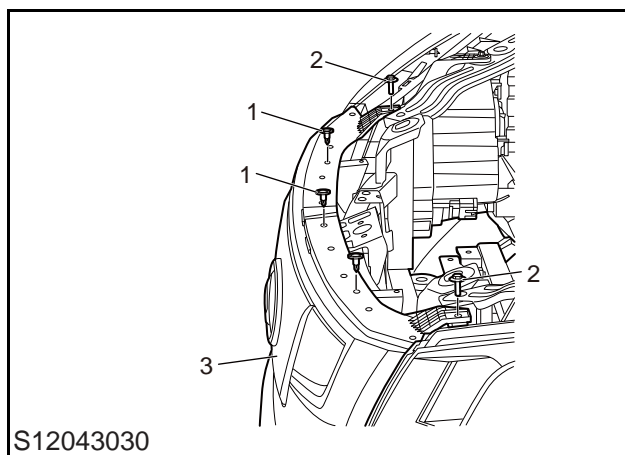
- 4 Remove retaining screws (1) fixing the front bumper assembly to left and right front bumper brackets.



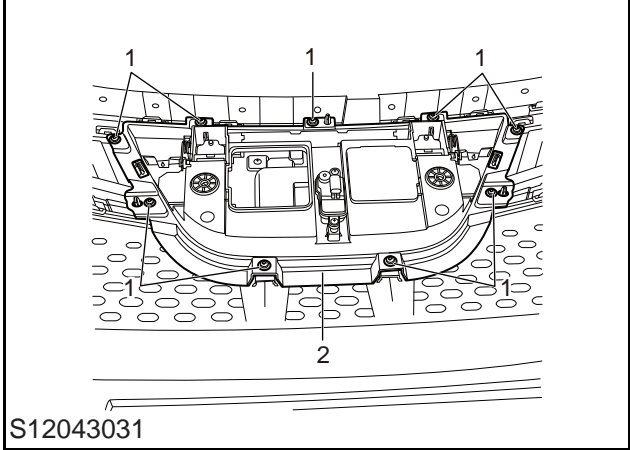
- 5 Disconnect the connector (1) of the charging port.



- 6 Remove 3 snap fasteners (1) fixing the front bumper assembly to the front bumper bracket.
- 7 Remove 2 retaining bolts (2) fixing the front bumper assembly to the front bumper bracket.
- 8 Remove the front bumper assembly and charging port (3) from the vehicle body.



- 9 Remove 9 retaining screws (1) fixing the charging port to the bumper assembly.
- 10 Remove the charging port (2) from the front bumper assembly.



Installation

- 1 Fix the charging port to the front bumper assembly.
- 2 Install 9 retaining screws fixing the charging port to the bumper assembly.
- 3 Fix the front bumper assembly and charging port to the vehicle body.

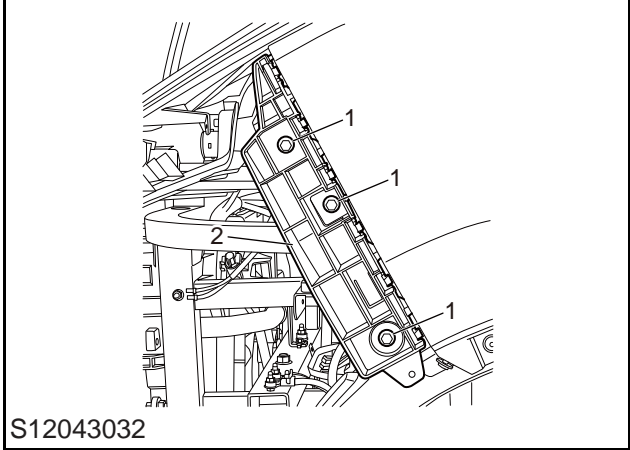
Note: This step can be performed by 2 people if necessary.

- 4 Install 5 retaining bolts fixing the front bumper assembly to the front bumper bracket.
- 5 Install 3 snap fasteners fixing the front bumper assembly to the front bumper bracket.
- 6 Connect the connector of the charging port.
- 7 Install 4 retaining screws fixing the front bumper assembly to the left and right front bumper brackets.
- 8 Install 2 snap fasteners of left and right front wheelhouse liners.
- 9 Install the left and right wheel brow assembly. Refer to "Front and Rear Wheel Brow Assembly Replacement".

Front Bumper Bracket Replacement

Removal

- 1 Remove the front bumper assembly. Refer to "Front Bumper Assembly Replacement".
- 2 Remove 3 retaining bolts (1) fixing the front bumper bracket to the fender.
- 3 Remove the front bumper bracket (2) from the fender.



Installation

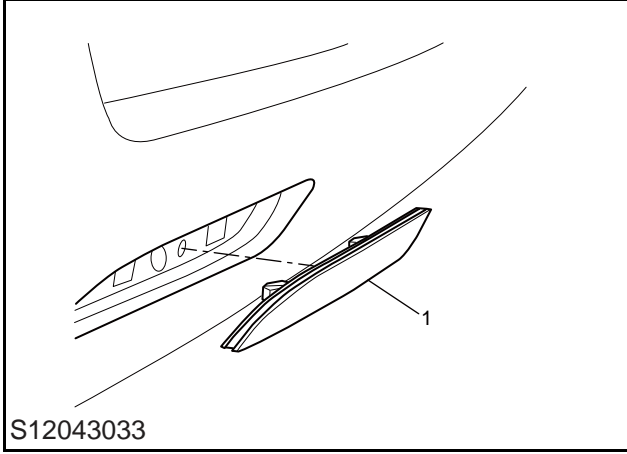
- 1 Install the front bumper bracket to the fender.
- 2 Install 3 retaining bolts fixing the front bumper bracket to the fender.
- 3 Install the front bumper assembly. Refer to "Front Bumper Assembly Replacement".

Exterior Trim

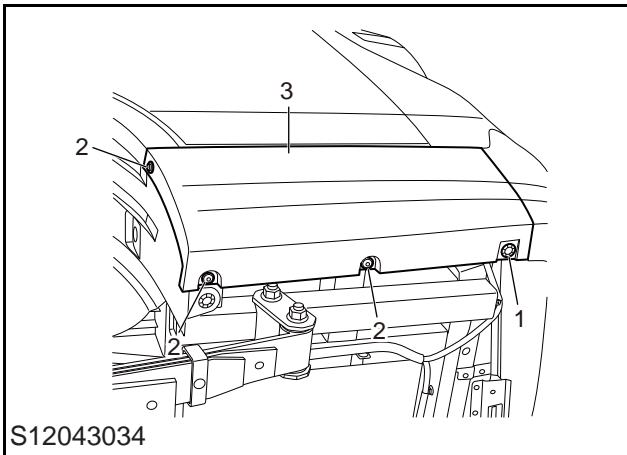
Rear Bumper Assembly Replacement

Removal

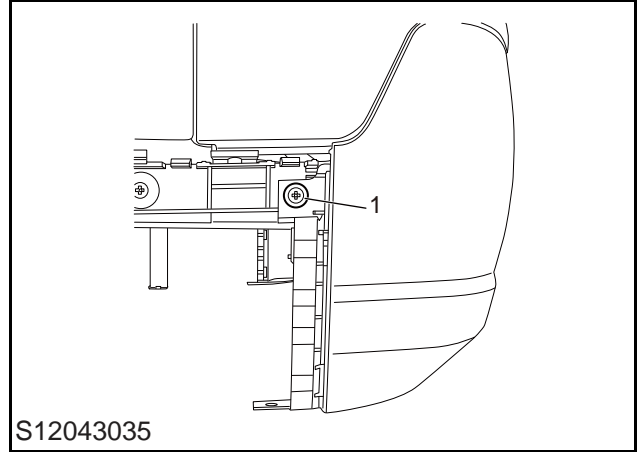
- 1 Pry off the clip and remove left and right reflex reflectors (1).



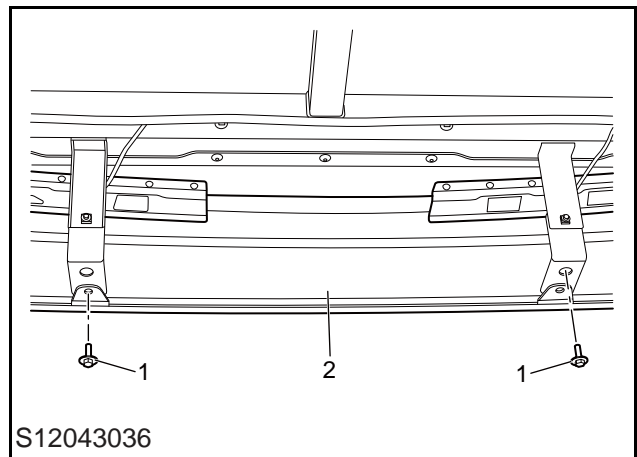
- 2 Remove snap fasteners (1) fixing left and right rear bumper side panels to the rear bumper.
- 3 Remove 3 retaining bolts (2) fixing left and right rear bumper side panels to the rear bumper mounting bracket.
- 4 Remove left and right rear bumper side panels (3).



- 5 Remove retaining screws (1) fixing left and right rear bumpers to the rear bumper retaining bracket.



- 6 Remove 2 retaining bolts fixing the rear bumper to the end part of the vehicle.
- 7 Remove 2 retaining bolts (1) fixing the rear bumper to the rear bumper retaining bracket.
- 8 Remove the rear bumper assembly (2) from the vehicle body.



Installation

- 1 Install the rear bumper assembly to the vehicle body.

Note: This step can be performed by 2 people if necessary.

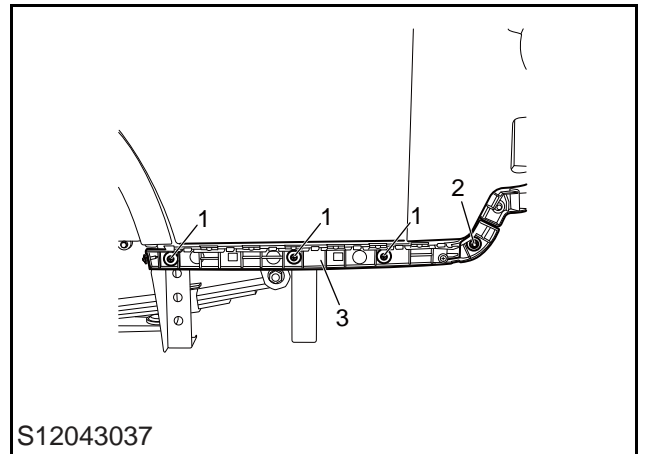
- 2 Install 2 retaining bolts fixing the rear bumper to the rear bumper retaining bracket.
- 3 Install 2 retaining bolts fixing the rear bumper to the end part of the vehicle.
- 4 Install retaining screws fixing left and right rear bumpers to the rear bumper retaining bracket.
- 5 Install left and right rear bumper side panels.

- 6 Install 3 retaining bolts fixing left and right rear bumper side panels to the bumper retaining bracket.
- 7 Install snap fasteners fixing left and right rear bumper side panels to the rear bumper.
- 8 Install left and right reflex reflectors.

Rear Bumper Retaining Bracket Replacement

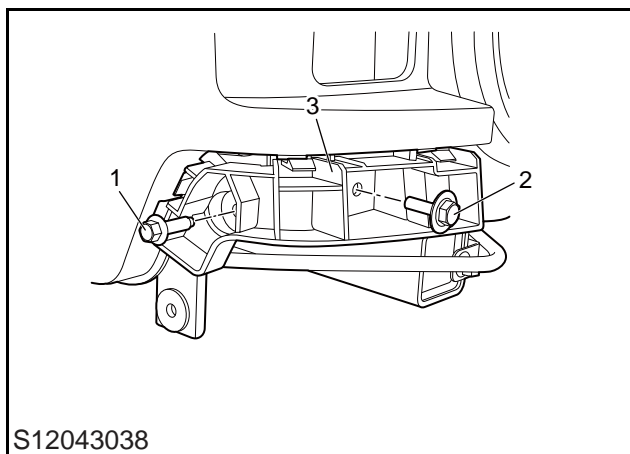
Removal

- 1 Remove the rear bumper assembly. Refer to "Rear Bumper Assembly Replacement".
- 2 Remove 3 retaining screws (1) fixing the rear bumper retaining bracket to the rear vehicle body.
- 3 Remove 1 retaining bolt (2) fixing the rear bumper retaining bracket to the rear vehicle body.
- 4 Remove the rear bumper retaining bracket(3) from the rear quarter panel.



- 5 Remove retaining bolts (1) fixing the rear bumper retaining bracket to the rear vehicle body.
- 6 Remove retaining bolts (2) fixing the rear bumper retaining bracket to the rear vehicle body.
- 7 Remove the rear bumper retaining bracket (3) from the D-pillar lower trim panel.

Exterior Trim



Installation

- 1 Install the rear bumper retaining bracket to the D-pillar lower trim panel.
- 2 Install 2 retaining bolts fixing the rear bumper retaining bracket to the rear vehicle body.
- 3 Install the rear bumper retaining bracket to the rear quarter panel.
- 4 Install 1 retaining bolt and 3 retaining screws fixing the rear bumper retaining bracket to the rear vehicle body.
- 5 Install the rear bumper assembly. Refer to "Rear Bumper Assembly Replacement".

Wiper and Washer System

Specification

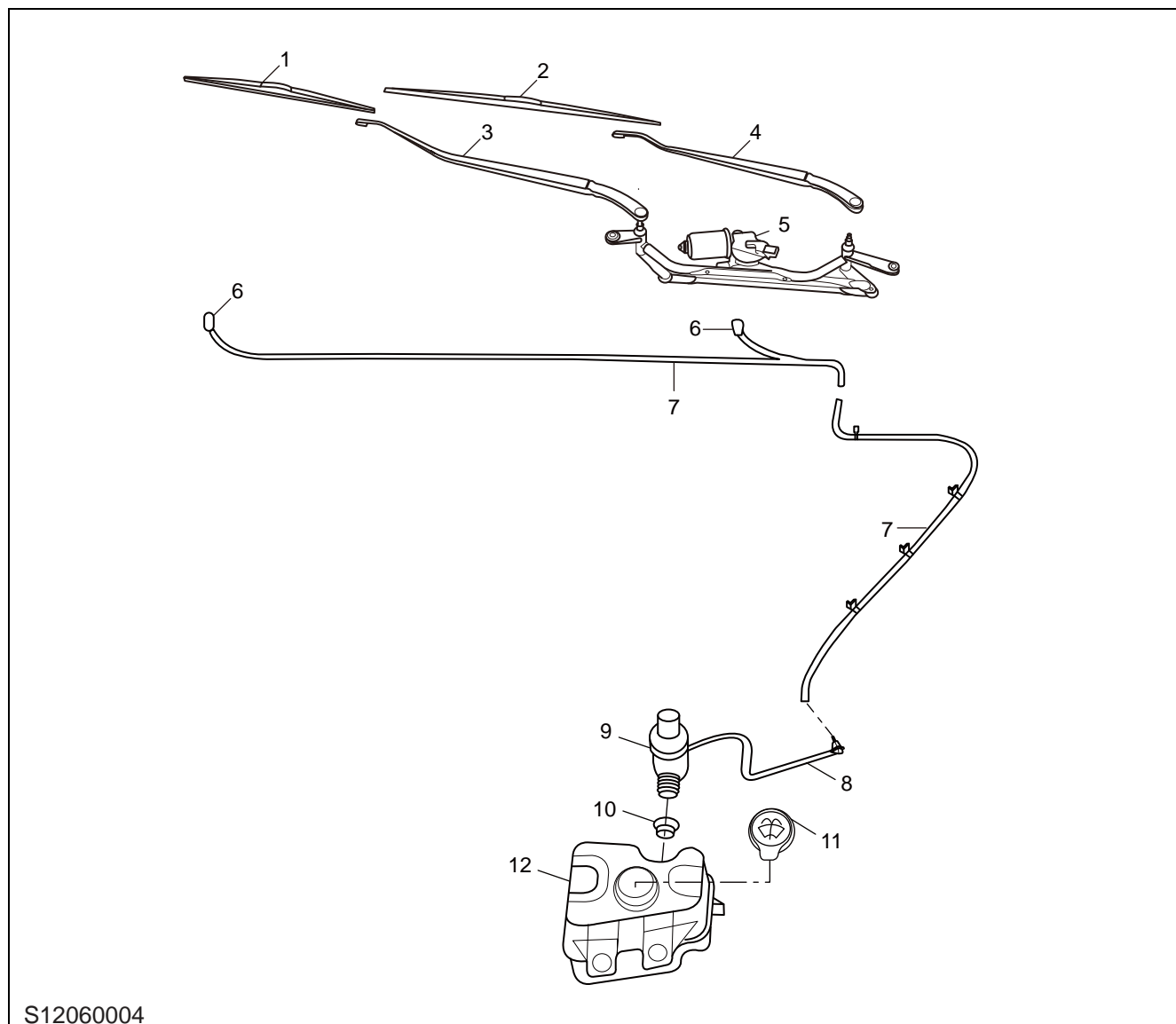
Fastener Specifications

Name	Torque (N.m)
Nut - Wiper arm assembly	45 ± 2
Bolt - Wiper motor assembly	9 ± 1
Bolt - Front washer reservoir body assembly	9 ± 1
Nut - Rear wiper arm assembly	20 ± 2
Bolt - Rear wiper motor assembly	9 ± 1
Bolt - Front washer reservoir cover assembly	9 ± 1

Exterior Trim

Layout

Wiper And Washer Layout



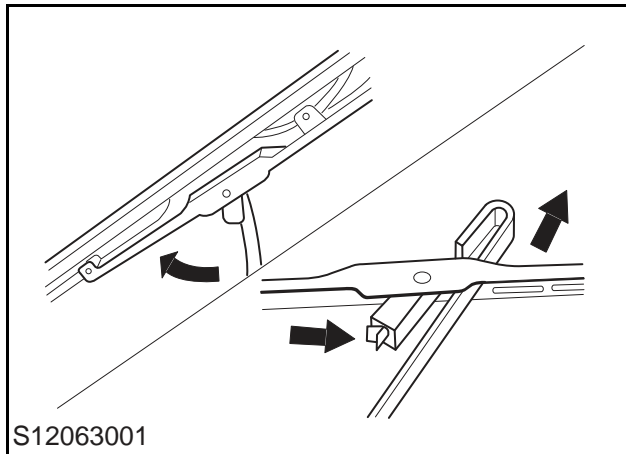
- | | | | |
|---|-----------------------------------|----|-----------------------|
| 1 | Front wiper blade | 10 | Washer pump seal ring |
| 2 | Front wiper blade | 11 | Front wash pot lid |
| 3 | Front wiper arm | 12 | Front washing body |
| 4 | Front wiper arm | | |
| 5 | Wiper motor assembly | | |
| 6 | Windshield washer nozzle assembly | | |
| 7 | Front washer fluid hose assembly | | |
| 8 | Front washer fluid hose assembly | | |
| 9 | Front windshield washer pump | | |

Service Guide

Front Wiper Blade Replacement

Removal

- 1 Rotate the wiper blade on the wiper arm.
- 2 Slide the wiper blade downward along the wiper arm while pressing the retaining clip to remove it.



Installation

- 1 Slide the wiper blade into the wiper arm till the retaining clip is engaged to install the wiper blade.
- 2 Locate the wiper blade to the windscreen.

Wiper Arm Assembly Replacement

Removal

- 1 Remove the front wiper blade (refer to "Front Wiper Blade Replacement").
- 2 Remove the wiper arm cover.
- 3 Unscrew retaining nuts fixing the wiper arm to the linkage mechanism mandrel.
- 4 Take down the wiper arm assembly.

Installation

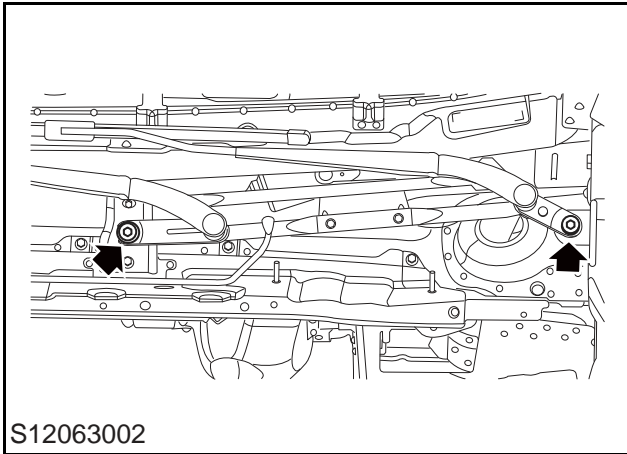
- 1 Fix the wiper arm to the linkage mechanism mandrel and tighten nuts to 20 ± 2 N.m.
- 2 Install the wiper arm cover.
- 3 Install the front wiper blade.

Exterior Trim

Wiper Linkage Mechanism Assembly (Witch Motor) Replacement

Removal

- 1 Place the wiper control switch in "OFF" position.
- 2 Disconnect the battery (negative first).
- 3 Remove the wiper arm assembly (refer to "Wiper Arm Assembly Replacement").
- 4 Remove the windscreen cover plate assembly (refer to "Windscreen Cover Plate Assembly Replacement").
- 5 Disconnect the connecting harness of the wiper motor.
- 6 Remove connecting bolts of the linkage mechanism (as indicated by the arrow).



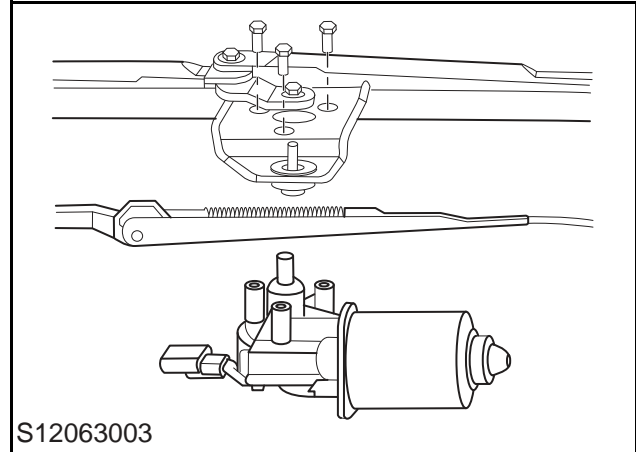
Installation

- 1 Place the wiper motor assembly into the windscreen gutter channel.
- 2 Screw bolts connecting the linkage mechanism assembly and the front quarter panel and tighten the torque of 9 ± 1 N.m.
- 3 Adjust the linkage position to allow three joints of the drive rod on the same line.
- 4 Screw nuts of the wiper arm assembly and tighten the torque of 45 ± 2 N.m.
- 5 Connect the wiper motor harness.
- 6 Connect the battery (positive first).
- 7 Operate the wiper switch shortly, and check whether the wiper mechanism is in "OFF" position.
- 8 Pour water on the windscreen to check the operability of the wiper.

Wiper Motor Assembly Replacement

Removal

- 1 Remove the wiper linkage mechanism assembly (with motor) (refer to "Wiper Linkage Mechanism Assembly (With Motor) Replacement").
- 2 Remove bolts and nuts connecting the motor and the linkage mechanism and take down the wiper motor assembly.



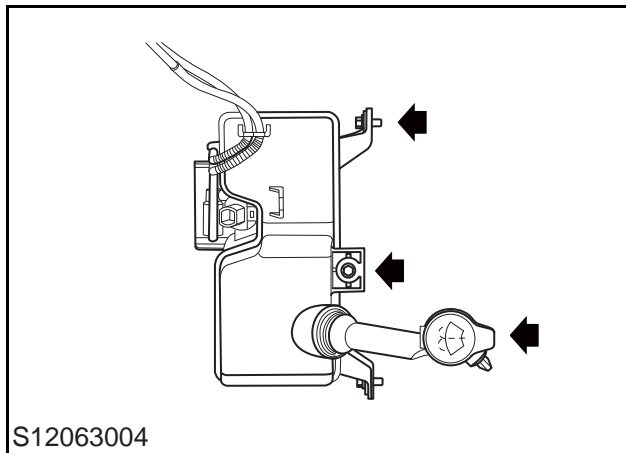
Installation

- 1 Fix the wiper motor to the linkage mechanism and tighten bolts and nuts.
- 2 Install the wiper linkage mechanism assembly (with motor).

Washer Reservoir Body Assembly

Removal

- 1 Disconnect the battery (negative first).
- 2 Remove the front bumper assembly (refer to "Front Bumper Assembly Replacement").
- 3 Disconnect the electrical connector of the windscreen washer pump.
- 4 Cut off the connection between the windscreen washer pump and the washer hose.
- 5 Remove the washer reservoir cover assembly (refer to "Washer Reservoir Cover Assembly Replacement").
- 6 Remove all connecting bolts and nuts of the washer reservoir body assembly.



- 7 Remove the washer reservoir body assembly.

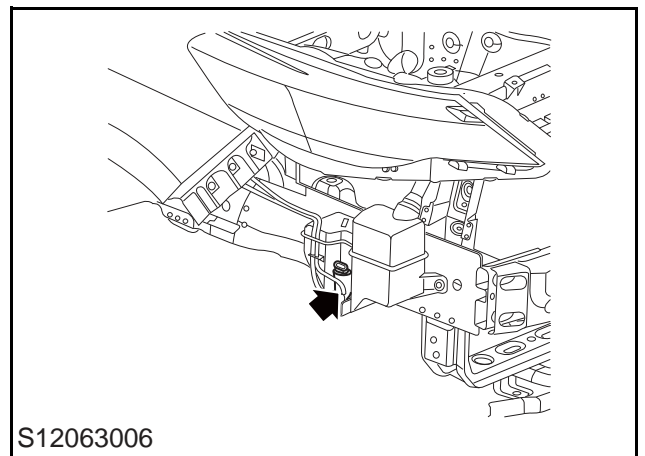
Installation

- 1 Install all connecting bolts and nuts of the washer reservoir body assembly.
- 2 Install the washer reservoir cover assembly.
- 3 Connect the windscreen washer pump and the washer hose.
- 4 Connect the electrical connector of the windscreen washer pump.
- 5 Install the front bumper assembly.
- 6 Connect the negative battery cable.

Windscreen Washer Pump Replacement

Removal

- 1 Disconnect the battery (negative first).
- 2 Remove the front bumper assembly (refer to "Front Bumper Assembly Replacement").
- 3 Disconnect the electrical connector of the windscreen washer pump.
- 4 Cut off the connection between the windscreen washer pump and the washer hose.
- 5 Remove the washer pump from the washer reservoir assembly.



Installation

- 1 Install the washer pump to the washer reservoir assembly.
- 2 Connect the windscreen washer pump and the washer hose.
- 3 Connect the electrical connector of the windscreen washer pump.
- 4 Install the front bumper assembly.
- 5 Connect the negative battery cable.

Exterior Trim

Front Washer Hose and Nozzle Assembly Replacement

Removal

- 1 Remove the windscreen cover plate assembly (refer to "Windscreen Cover Plate Assembly Replacement").
- 2 Open and support the bonnet.
- 3 Disconnect the hose at the washer pump end.
- 4 Cut off the connection between the front washer hose assembly and the nozzle.
- 5 Remove the washer nozzle.

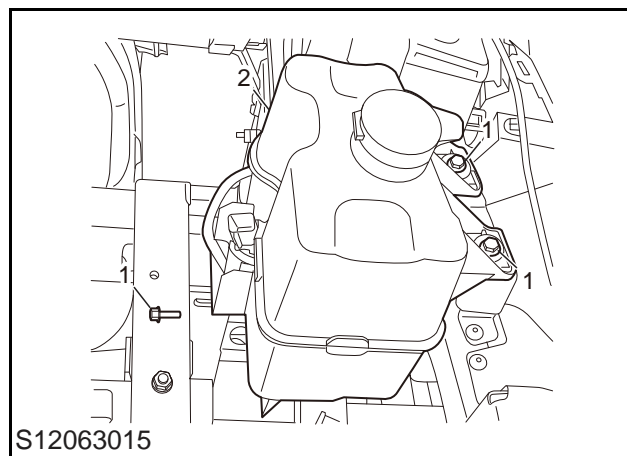
Installation

- 1 Connect the front washer hose assembly and the nozzle.
- 2 Connect the hose at the washer pump end.
- 3 Close the bonnet.
- 4 Install the windscreen cover plate assembly.

Scrubber Tank Body Assembly Replacement

Removal

- 1 Disconnect the battery negative pole.
- 2 Disconnect the electrical connection of the windshield washer pump.
- 3 Disconnect the windshield washer pump from the hose.
- 4 Remove all connecting bolts (1) of the scrubber tank body assembly.
- 5 Remove the scrubber tank body assembly (2).



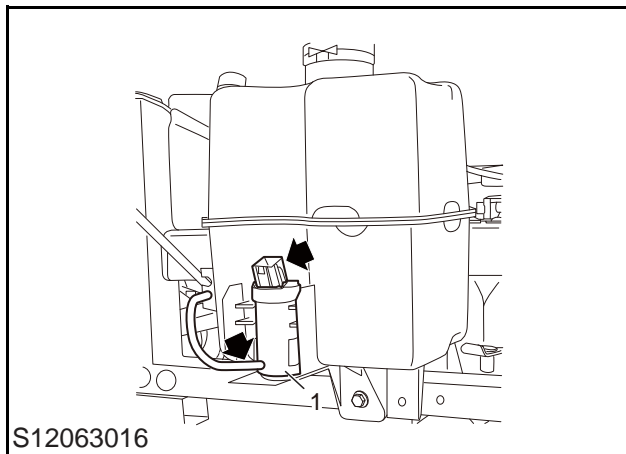
Installation

- 1 Install all connecting bolts of the scrubber tank body assembly, tighten to 9 ± 1 nm, and check the torque.
- 2 Connect the windshield washer pump and the hose.
- 3 Connect the front windshield washer pump electrical connector.
- 4 Connect the battery negative pole.

Windshield washer pump replacement

Removal

- 1 Disconnect the battery negative pole.
- 2 Disconnect the electrical connection of the windshield washer pump.
- 3 Disconnect the front windshield washer pump from the hose.
- 4 Remove the washer pump (1) from the washer water tank assembly.

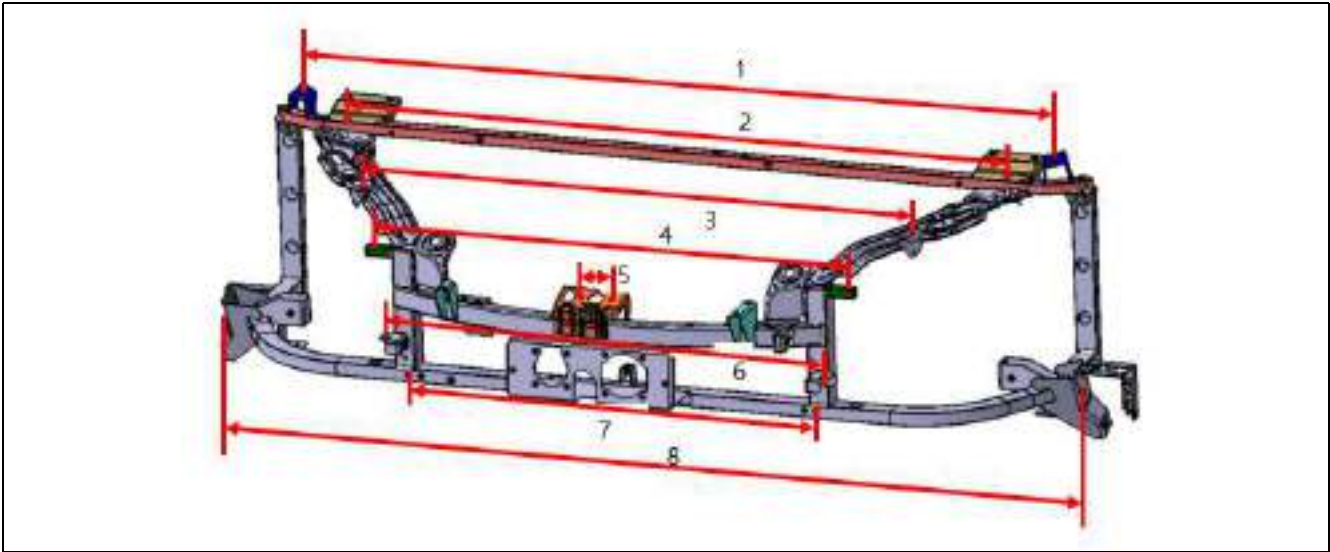


Installation

- 1 Install the washer pump to the washer water tank assembly.
- 2 Connect the windshield washer pump and the hose.
- 3 Connect the electrical connector of the windshield washer pump.
- 4 Connect the battery negative pole.

Overall Dimension

Engine Compartment



- 1 Headlamp mounting positioning hole (symmetry)
- 2 Installation hole of front windshield cover plate (symmetry)
- 3 Middle mounting hole of headlamp (symmetry)
- 4 Upper mounting point of front bumper assembly (symmetry)
- 5 Front cover plate lock installation point
- 6 Front mounting hole of headlamp (symmetry)
- 7 Low temperature radiator mounting hole (outside hole, symmetry)
- 8 Fender front mounting point (symmetry)

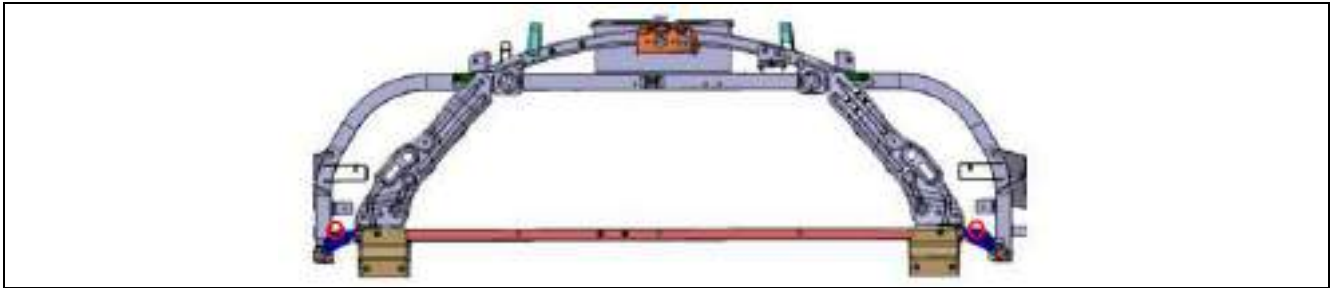
Reference point	Reference dimension (mm)
1-1	1436.29
2-2	1260
3-3	1049.155
4-4	906
5-5	57
6-6	836.243
7-7	1633.926

Note: the measured dimensions are the distance between the centers of two circles.

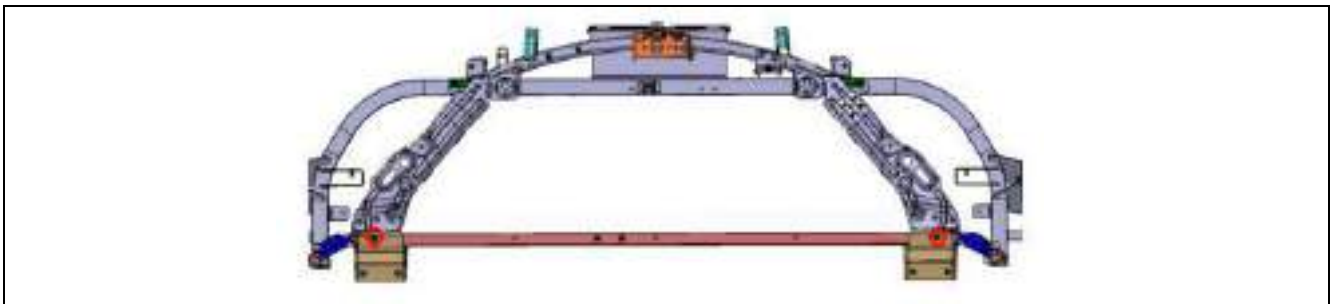
Overall Dimension

Graphic illustration of engine bay mounting hole

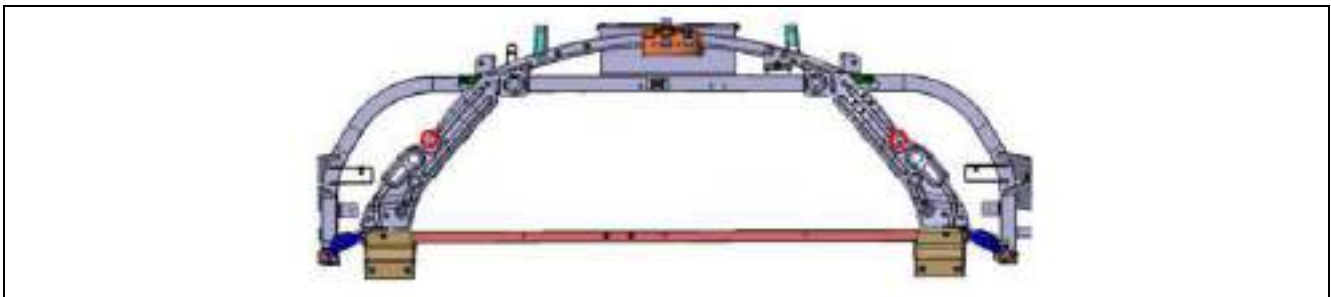
1 Headlamp mounting positioning hole (symmetry)



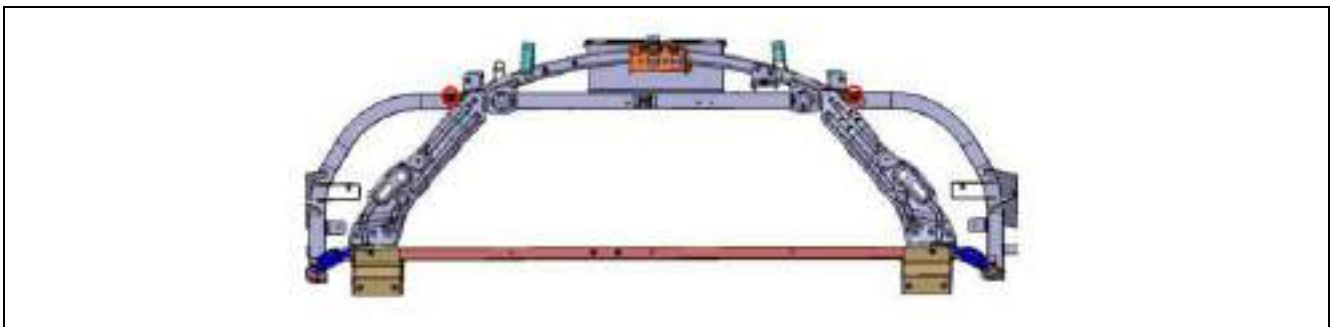
2 Installation hole of front windshield cover plate (symmetry)



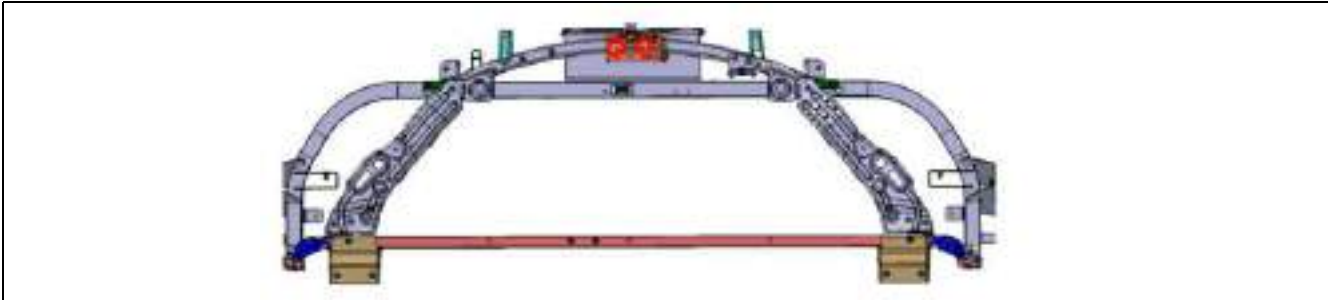
3 Middle mounting hole of headlamp (symmetry)



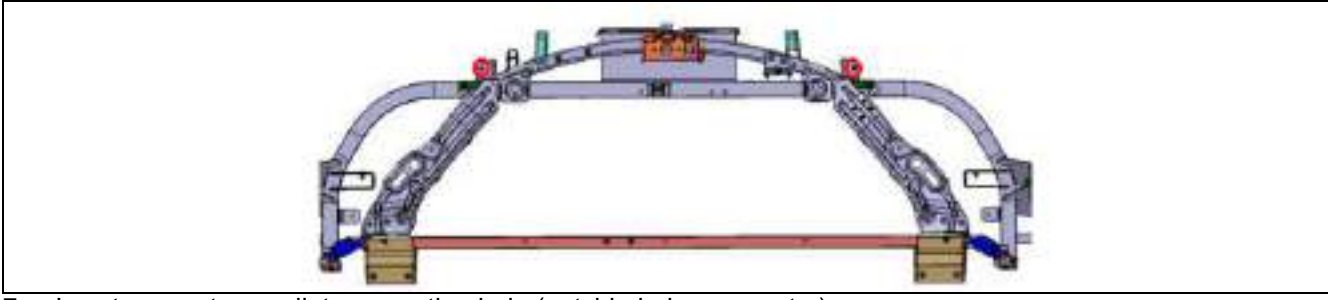
4 Upper mounting point of front bumper assembly (symmetry)



5 Front cover plate lock installation point



6 Front mounting hole of headlamp (symmetry)

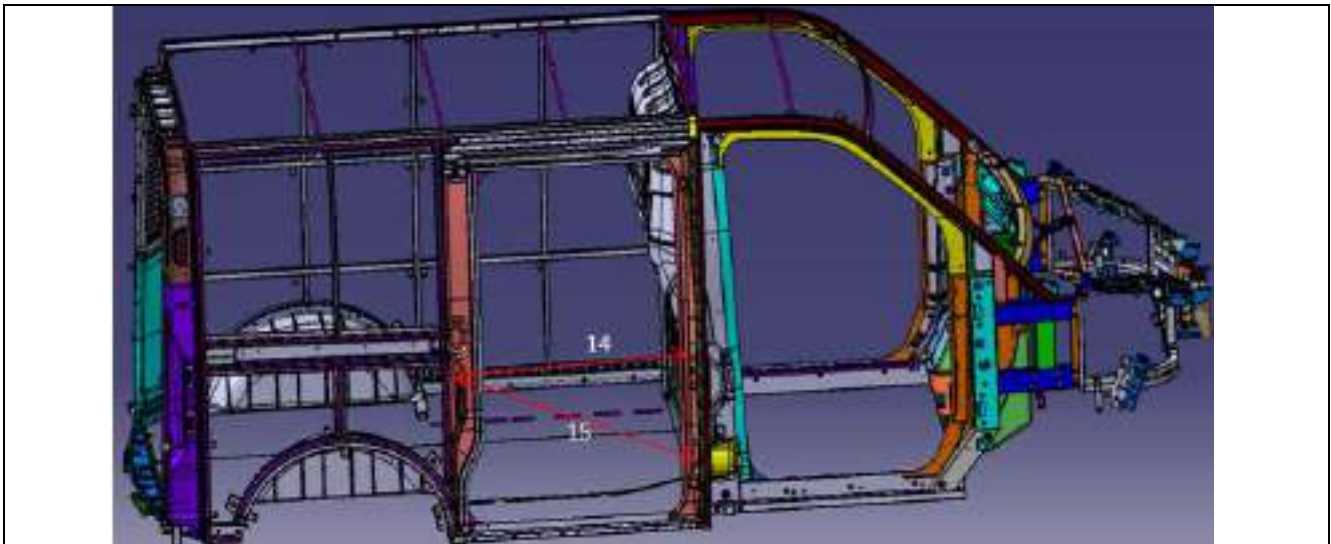
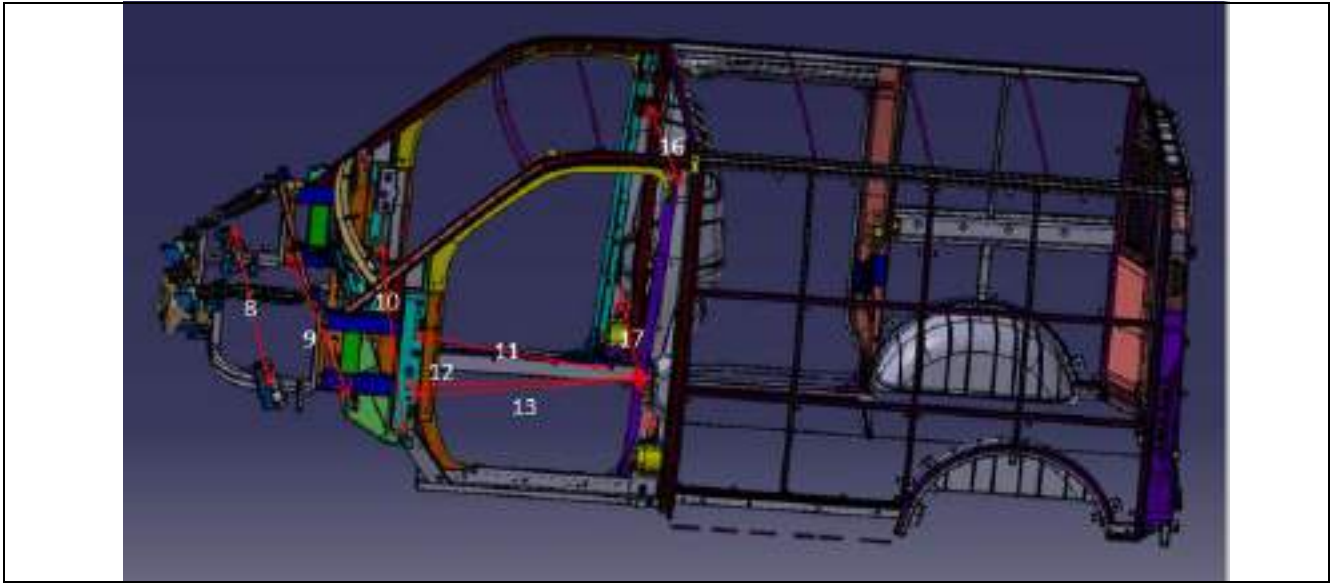


7 Low temperature radiator mounting hole (outside hole, symmetry)



Overall Dimension

Body Compartment Assembly



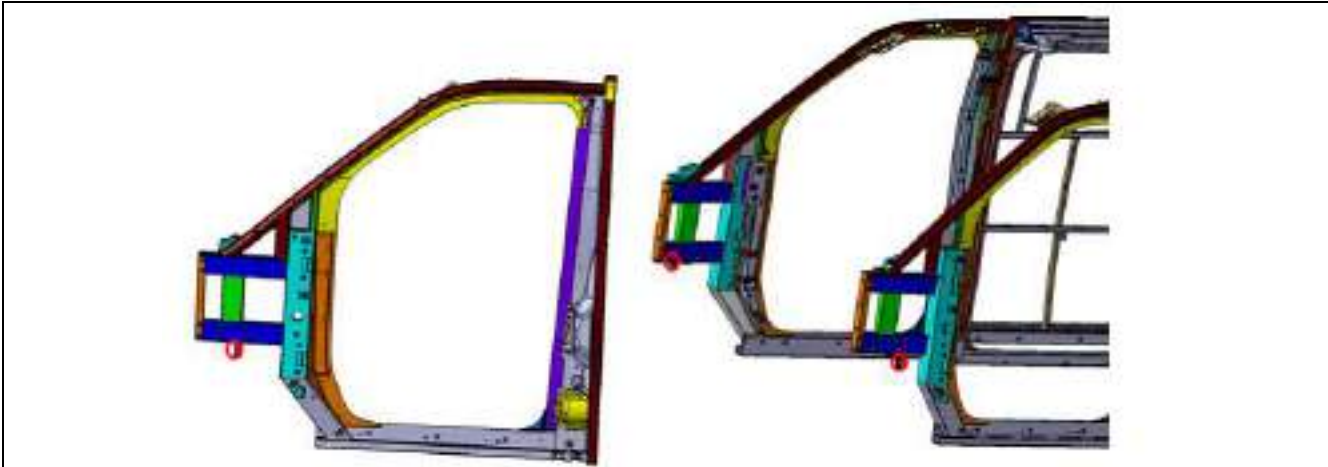
Reference point	Reference dimension (mm)	Reference point	Reference dimension (mm)
8-8	1632.426	18-19	997.22
9-9	1734	20-20	1437.233
10-10	1732.5	21-21	1561.166
13-16	1053.031		
14-16	1060.764		
15-16	1053.411		
17-19	946.625		

Graphic illustration of body cabin assembly

8 Fender front mounting point (symmetry)

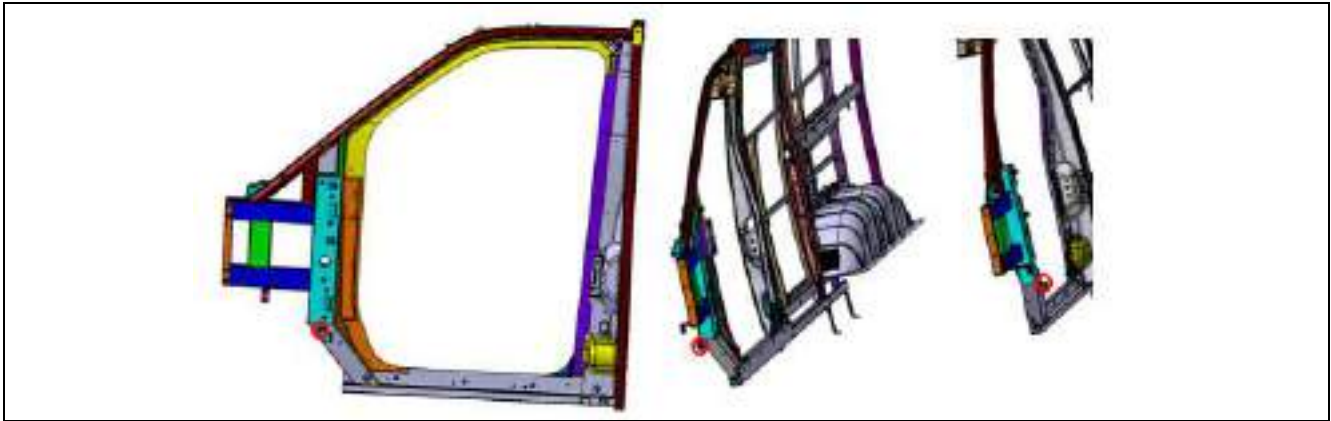


9 Fender middle mounting point (symmetry)

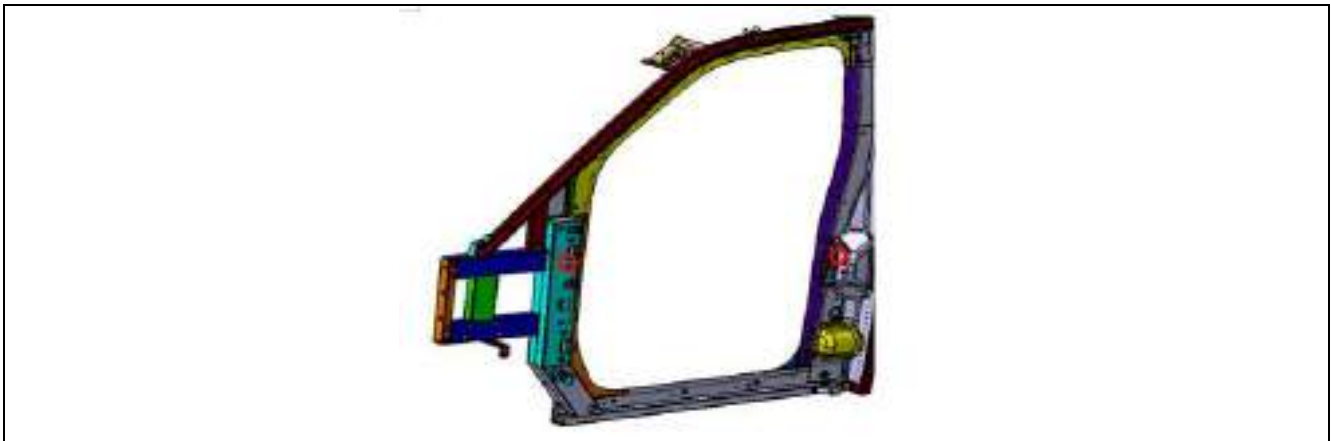


10 Fender rear mounting points (symmetric)

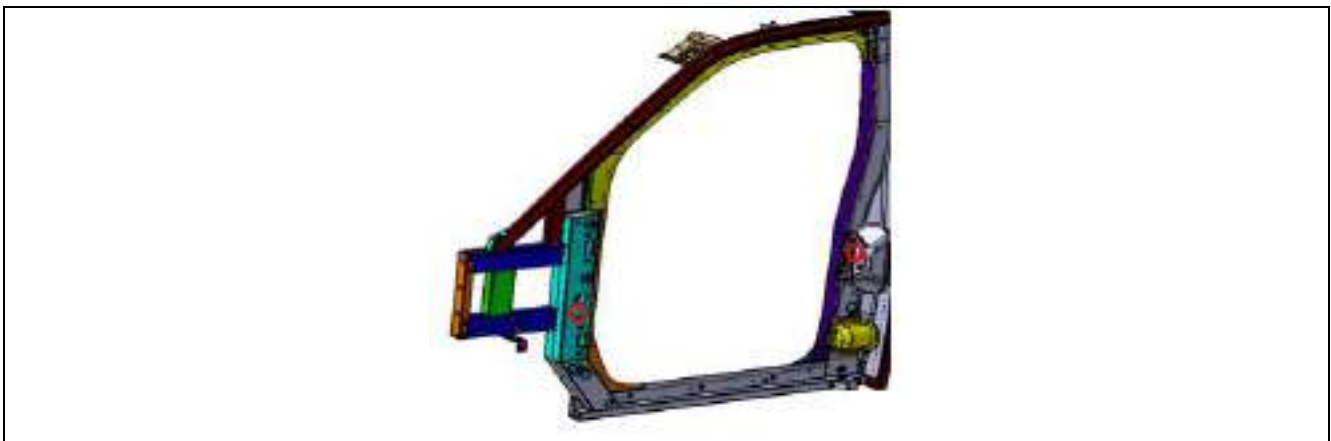
Overall Dimension



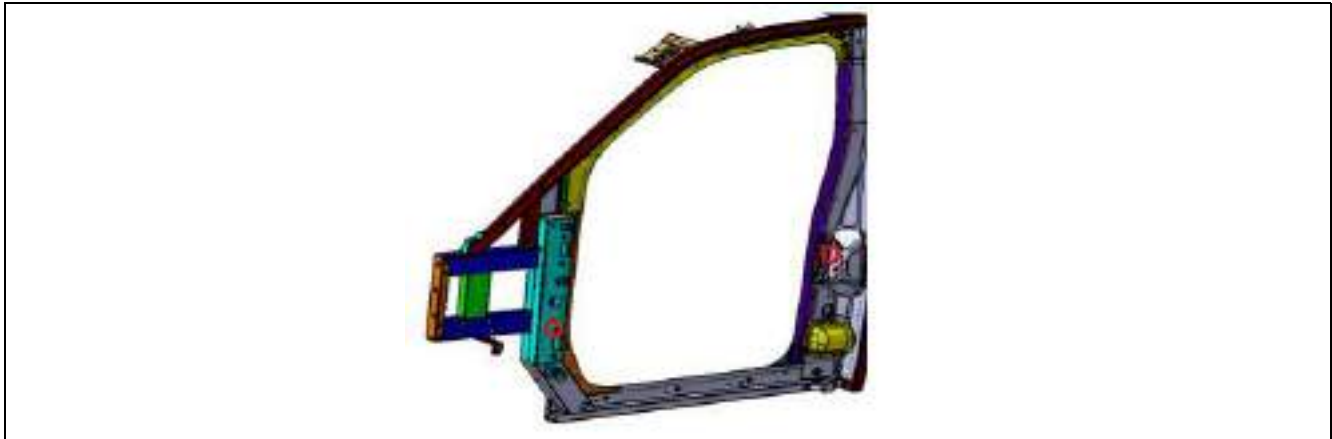
11 Front door upper hinge lower mounting hole to front door lock upper mounting hole (13-16)



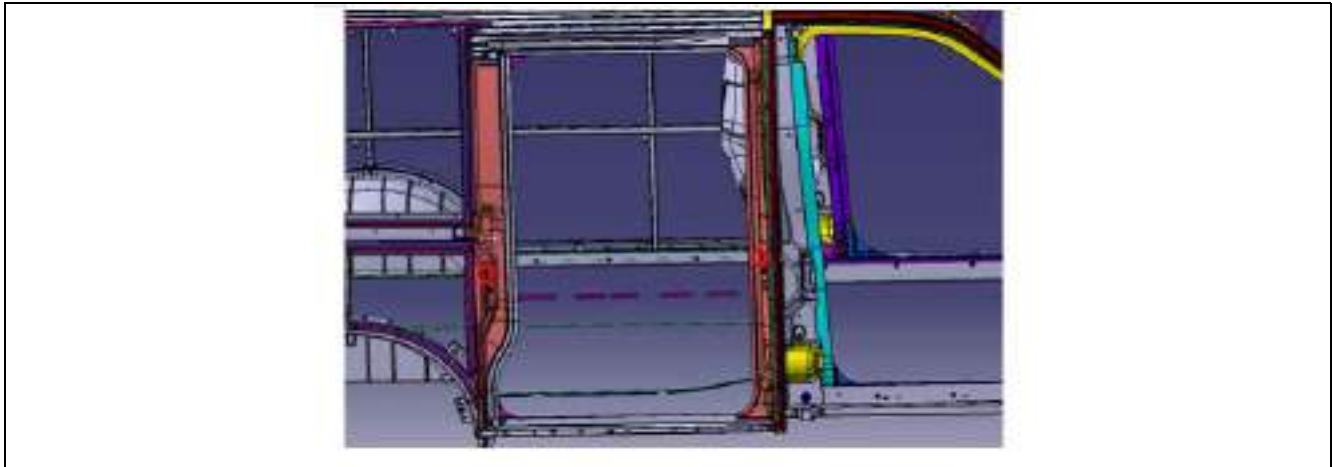
12 Side wall positioning hole to front door lock mounting hole (14-16)



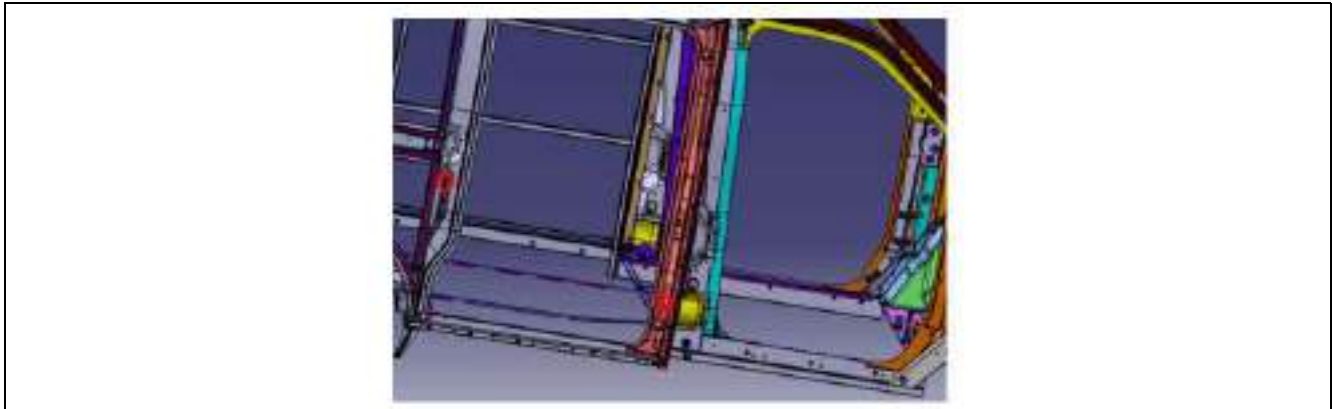
13 Front door lower hinge mounting hole to front door lock upper mounting hole (15-16)



14 Side shift the mounting hole on the latch to the pin mounting hole (17-19)

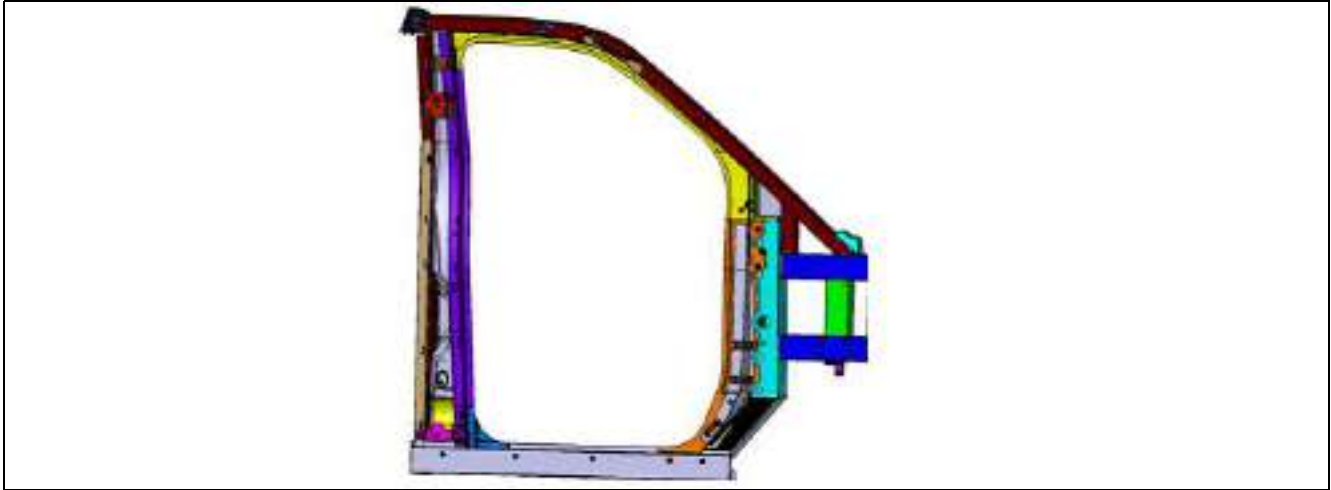


15 Lower mounting hole of lower hinge mounting plate of side sliding door to upper mounting hole of side sliding door latch (18-19)

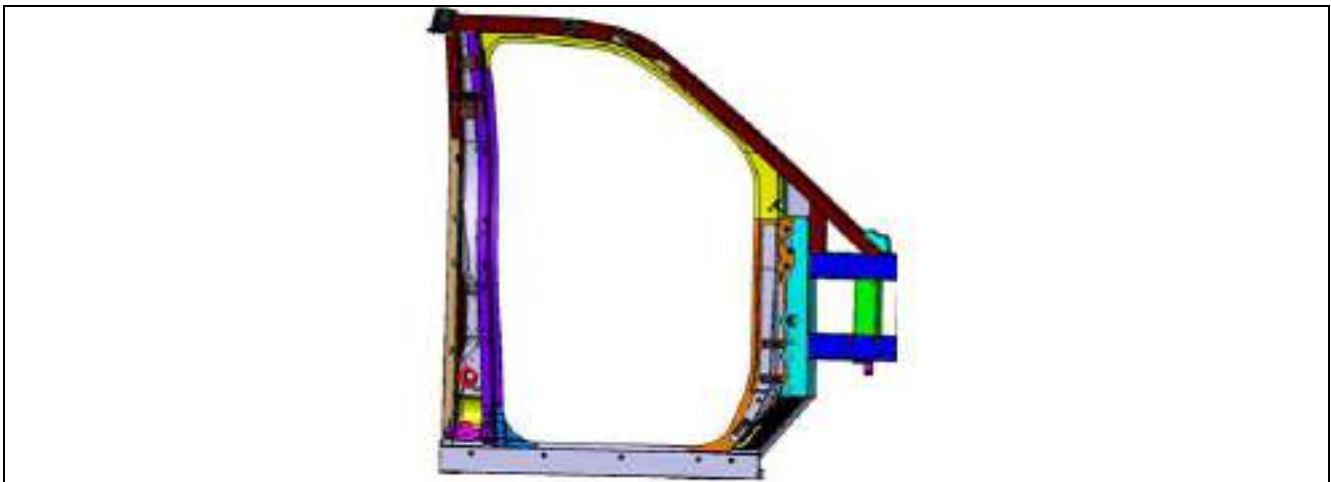


16 Front seat belt mounting hole (20-20, symmetry)

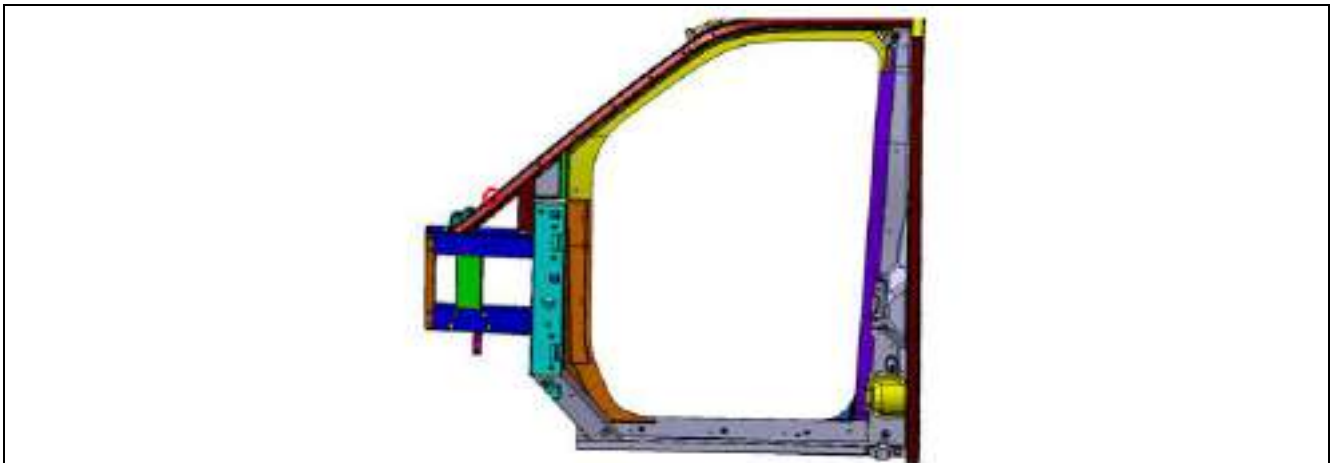
Overall Dimension



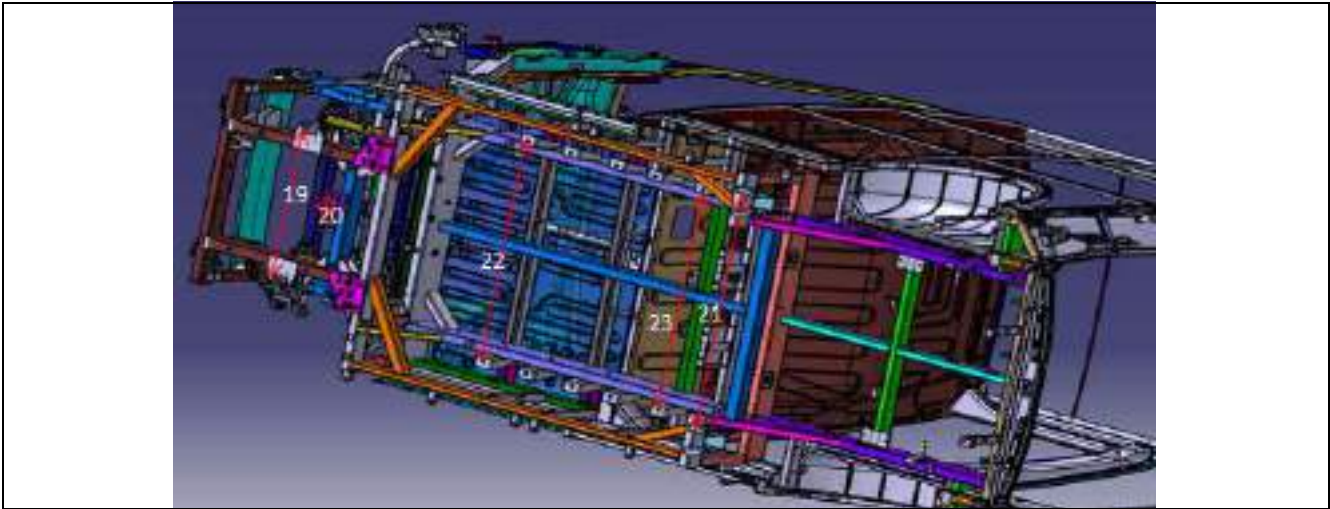
17 Front safety belt retractor upper mounting hole (21-21, symmetry)



18 A-pillar guard plate buckle Installation hole (24-24, symmetry)



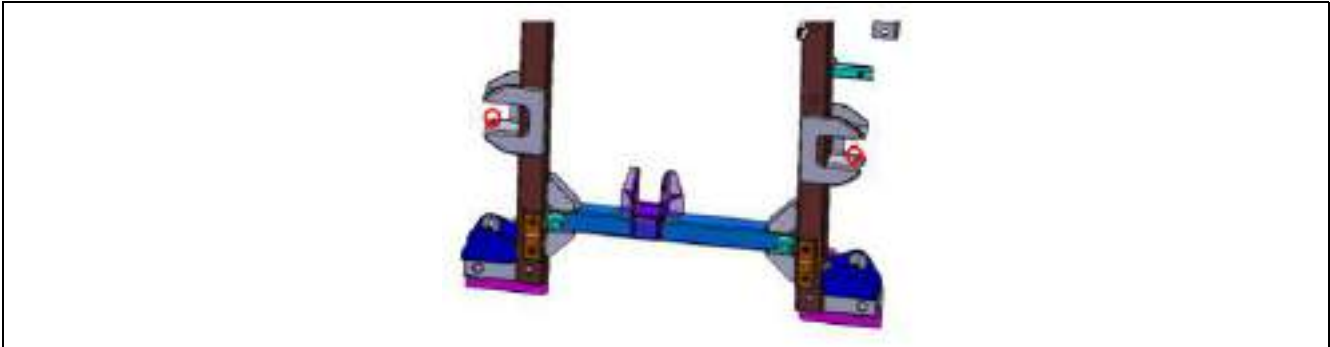
Lower Body



Reference point	Reference dimension (mm)
27-27	789.204
28-28	61
29-29	1216
30-30	1129.996
31-31	1130

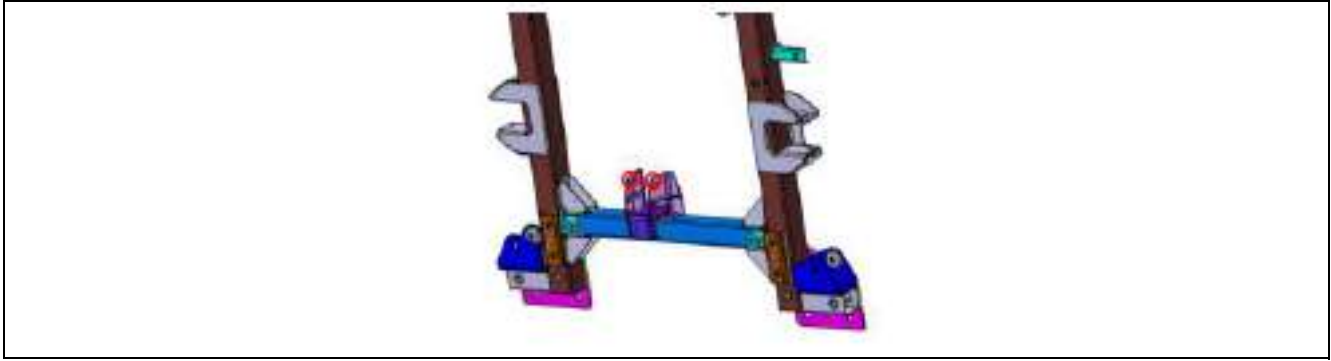
Graphic illustration of lower body

19 Mounting hole of suspension arm bushing (27-27, symmetry)

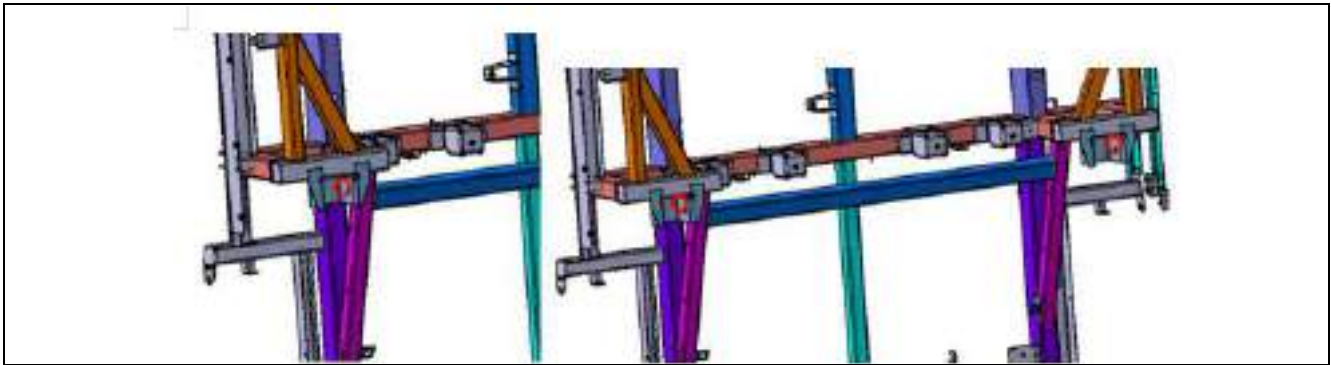


20 Rear mount mounting hole (28-28, symmetry)

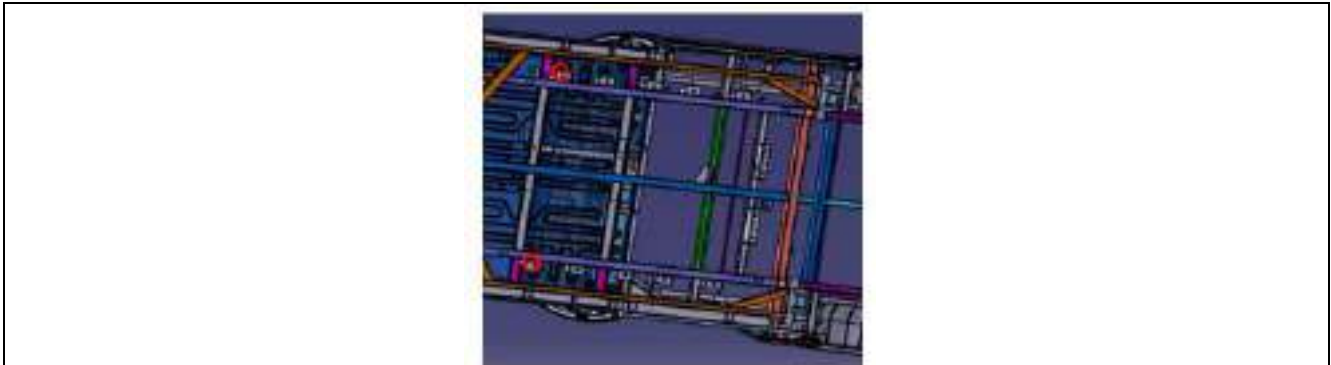
Overall Dimension



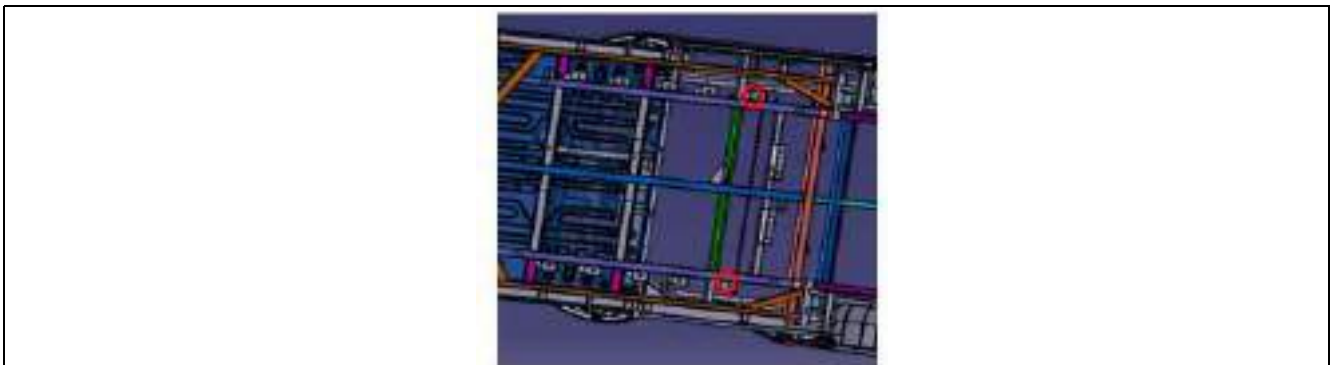
21 Leaf spring front lifting lug bracket (29-29, symmetry)



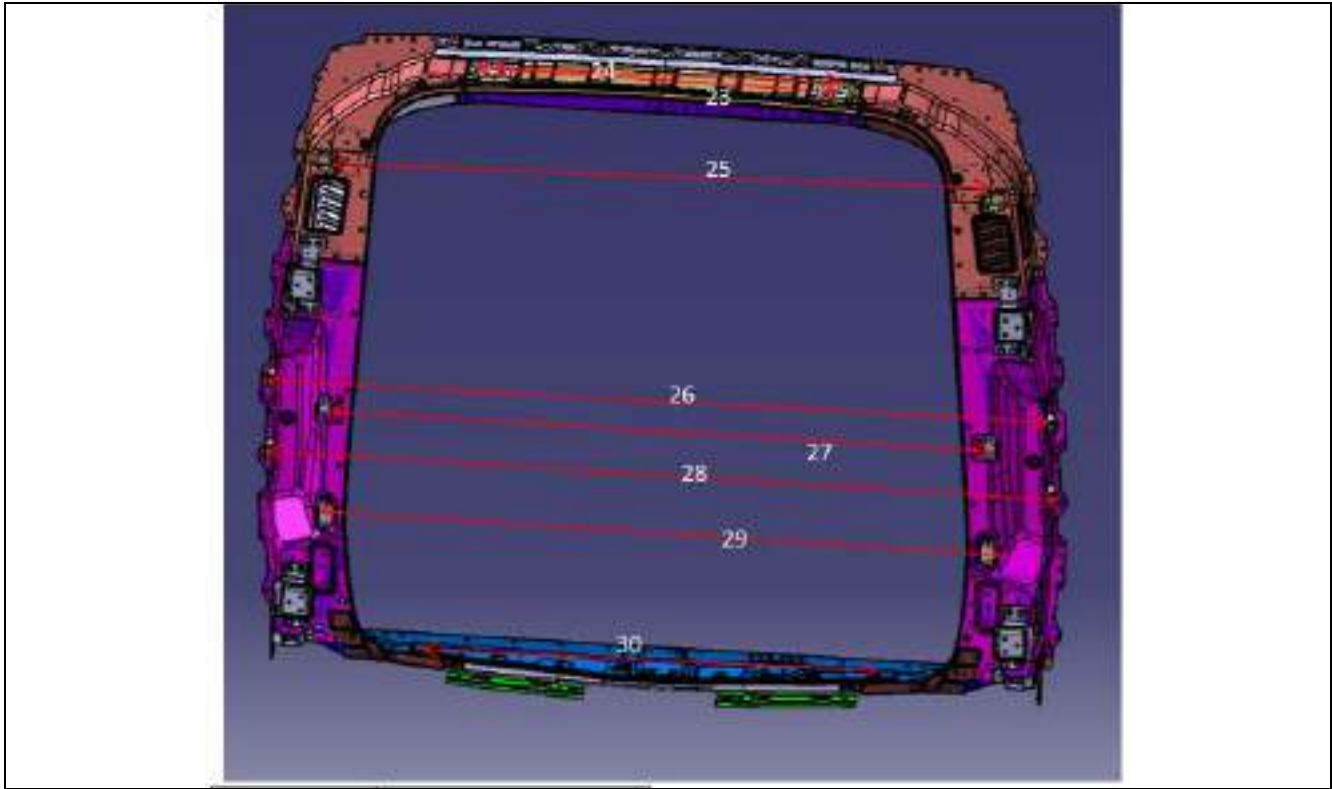
22 Battery front mounting hole (30-30, symmetry)



23 Battery rear mounting hole (31-31, symmetry)



Steel Rear End Panel



Reference point	Reference dimension (mm)
32-32	720.
33-33	720.002

Graphic illustration of steel rear wall

24 Liftgate hinge mounting hole (32-32, symmetry)



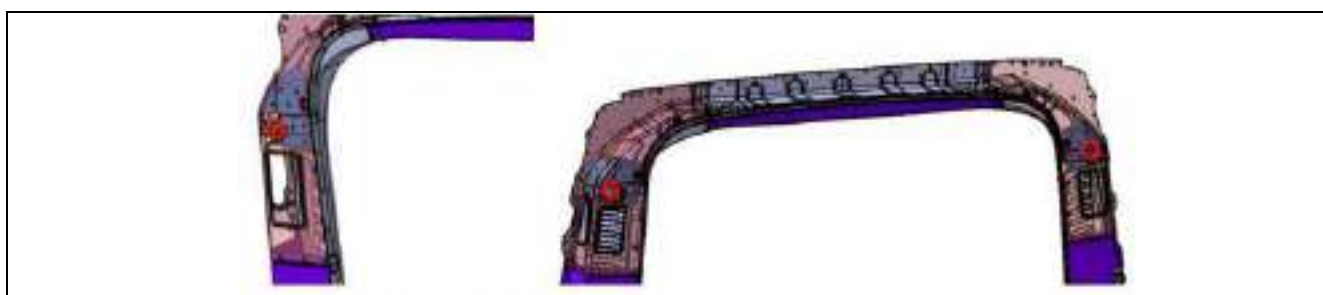
25 Liftgate hinge mounting hole (33-33, symmetry)



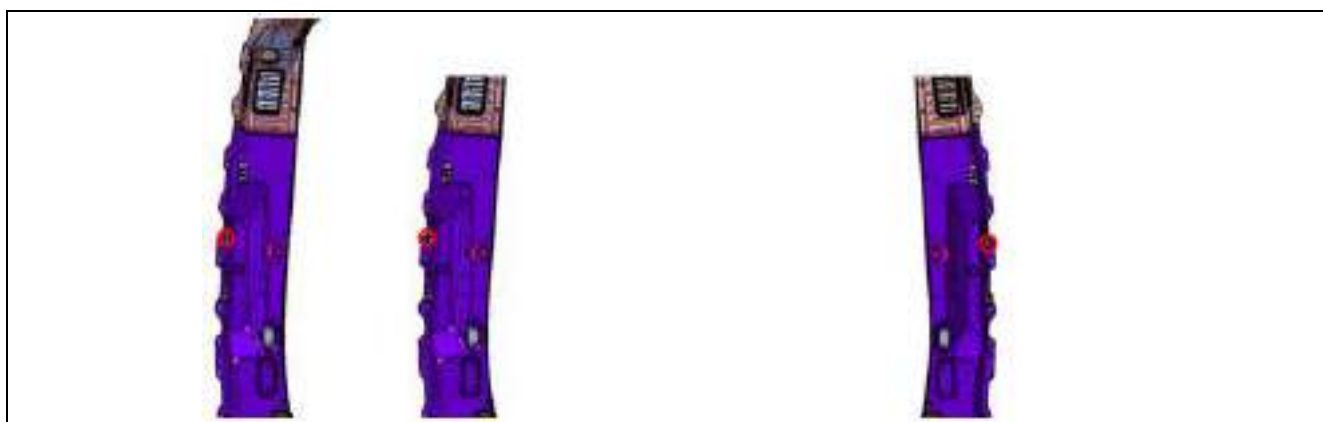
Overall Dimension

Reference point	Reference dimension (mm)
34-34	1434.015
35-35	1677.537
36-36	1453.078
37-37	1681.537
38-38	1449.578
39-39	940.331

26 Mounting hole of tail door air strut (34-34, symmetry)



27 Tail lamp mounting hole (35-35, symmetry)



28 Tail lamp mounting hole (36-36, symmetry)



29 Tail lamp mounting hole (37-37, symmetry)



30 Tail lamp mounting holes (38-38, symmetric)



31 Rear door sill mounting hole (39-39, symmetry)



Front Body

Specification

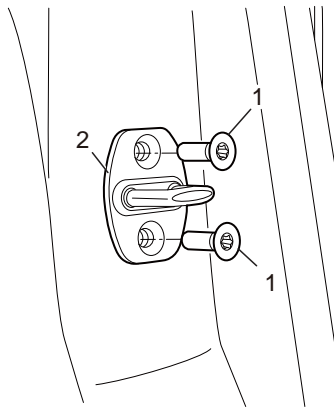
Fastener Specifications

Name	Torque (N.m)
Bolt - Bonnet hinge	5 ± 0.5
Bolt - Fender	5 ± 0.5

Body System

Layout

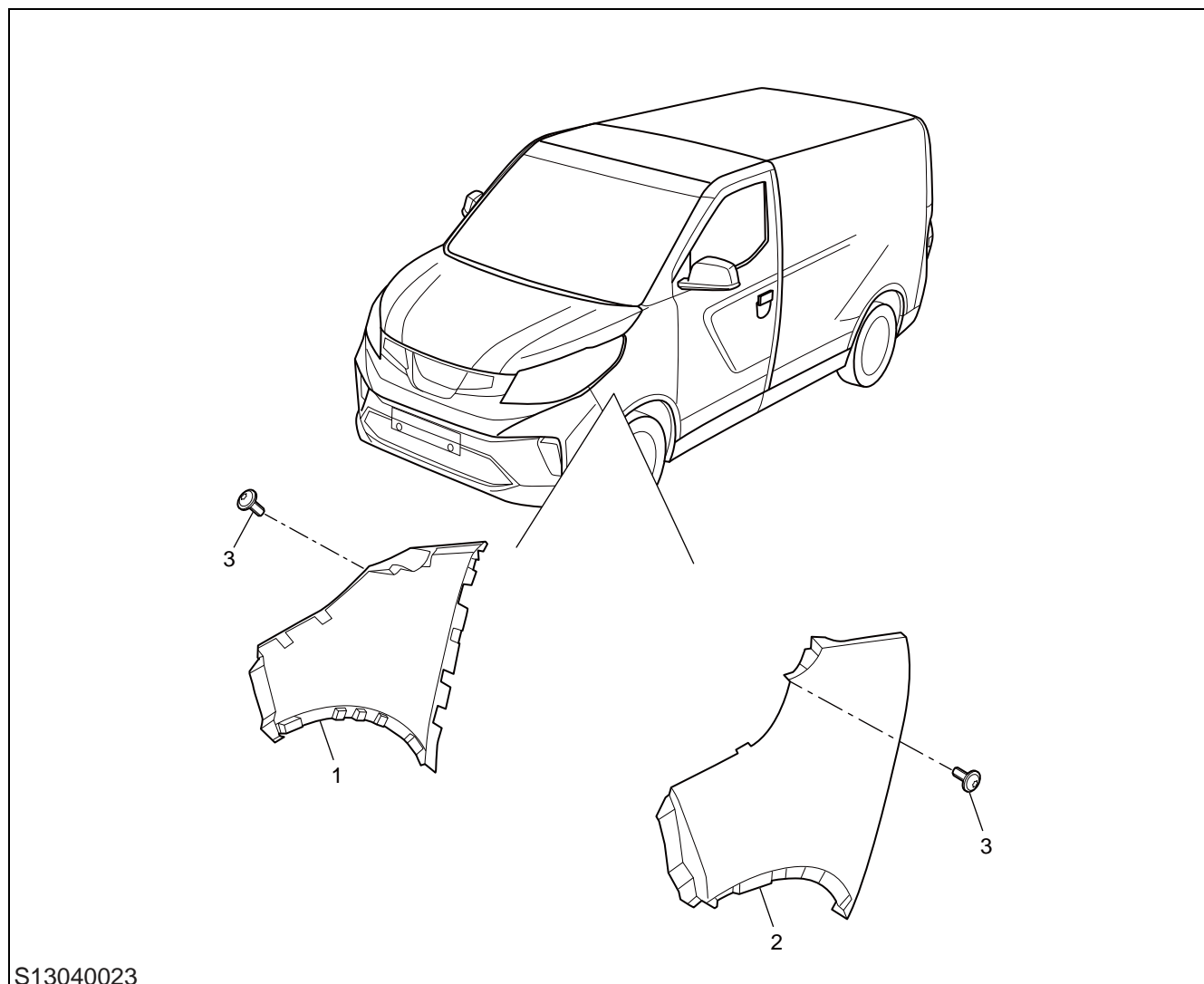
Bonnet Layout



S13043022

- 1 Bonnet
- 2 Bonnet Hinge Assembly
- 3 Bonnet Hinge Bolt
- 4 Bonnet Weatherstrip
- 5 Bumper Block
- 6 Bonnet Weatherstrip

Fender Layout



S13040023

- 1 Fender
- 2 Fender
- 3 Fender bolt

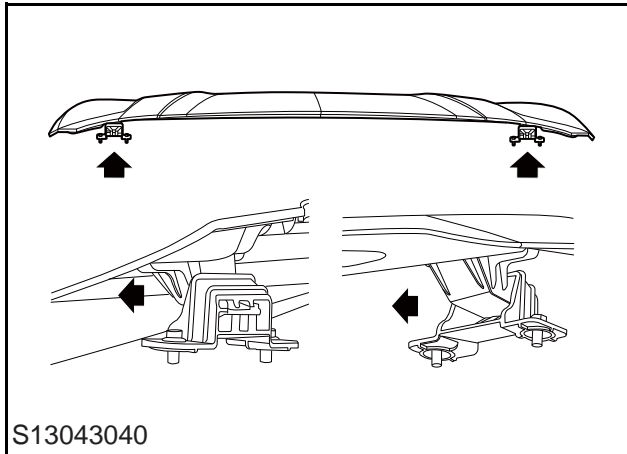
Body System

Service Guide

Bonnet Replacement

Removal

- 1 Disconnect the negative battery cable.
- 2 Pull the bonnet release under the driver side lower guard plate to unlock the bonnet.
- 3 After unlocking, slightly lift the bonnet (about 10 cm) upward, and do not lift the bonnet too much to avoid breaking the pin of the inner plate of the bonnet. Hold the edge of the bonnet, pull the bonnet forward, so as to detach the pin of the inner plate of the bonnet from the bonnet hinge (small socket), and remove the bonnet.



- 4 After removing the bonnet, place the bonnet flat, protect the surface of the bonnet, and do not use the corner of the bonnet to support the bonnet to avoid knocking the paint of parts.

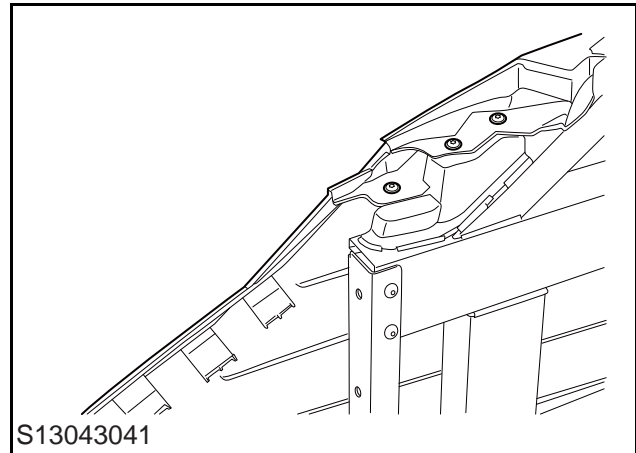
Installation

- 1 When installing, please hold the both sides of the bonnet and align the pins on both sides of the bonnet with the small socket of the bonnet and insert them to the end.
- 2 After the bonnet side lock pin is aligned with the body side lock hole, press the external surface of the front end of the bonnet to make the bonnet lock pin completely enter the lock. Try pulling the bonnet up to check if the locking mechanism is properly snapped.

Note: EV31 bonnet is the detachable bonnet, which cancels the traditional flip hinge structure, and applies a mechanism of pin-socket.

Fender Replacement

- 1 Open the bonnet and support the bonnet
- 2 Disconnect the negative battery cable
- 3 Remove the front combination lamp
- 4 Remove the front bumper
- 5 Remove the front wheelhouse liner
- 6 Remove all bolts fixing the fender to the body.



- 7 Remove the fender.

Installation

- 1 Installation is the reverse of removal. Pay attention to the following precautions: Tighten the bolt of the fender to 5 ± 0.5 N.m.

Rear Body

Specification

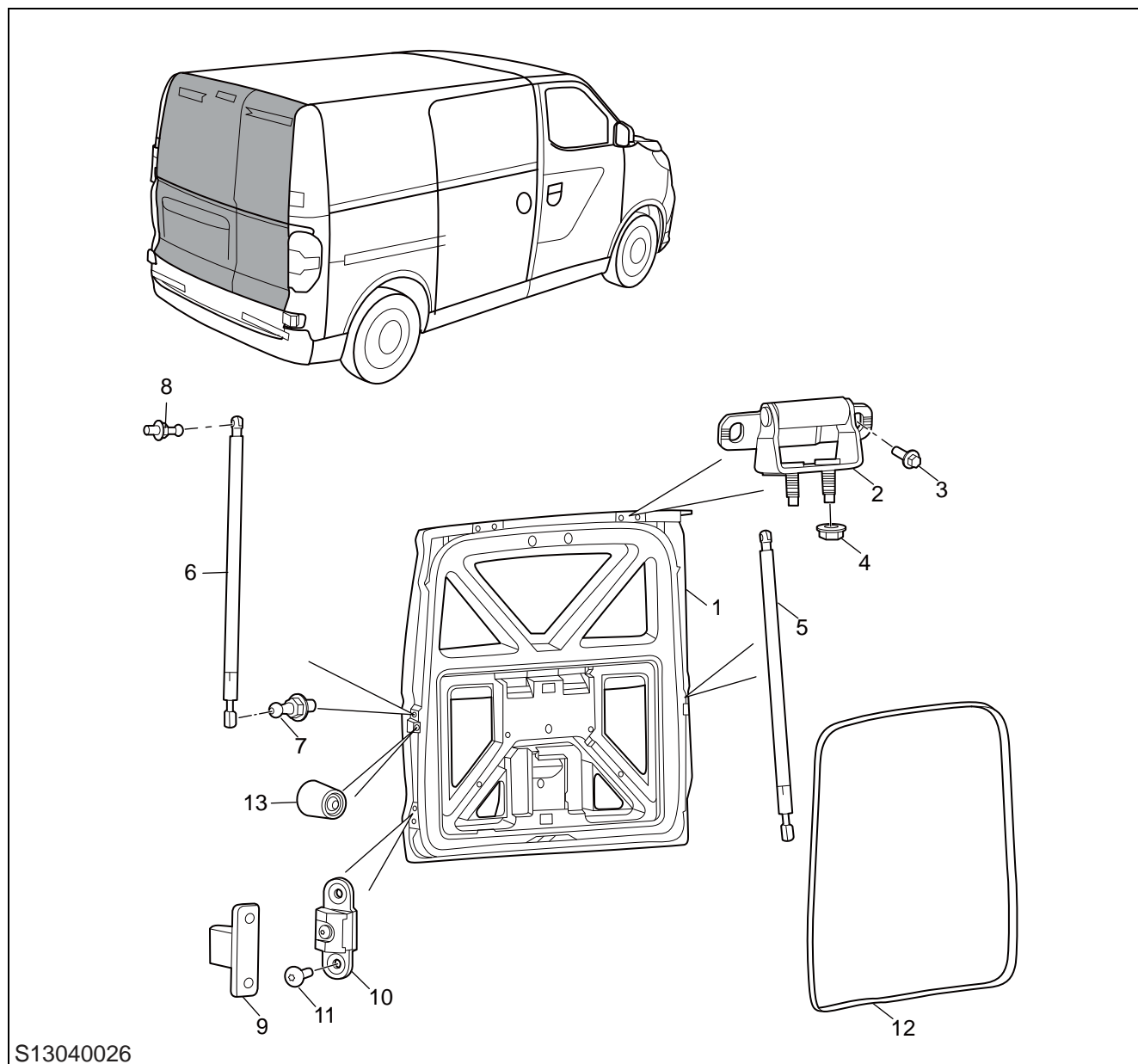
Fastener Specifications

Name	Torque (N.m)
Bolt - Tailgate hinge	22 ± 2

Body System

Layout

Tailgate Layout



S13040026

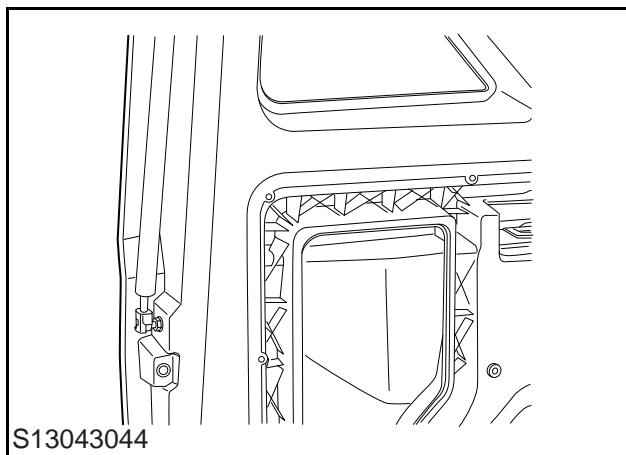
- | | | | |
|---|-------------------------|----|------------------------------|
| 1 | Tailgate | 8 | Gas Spring Ball Pin |
| 2 | Tailgate Hinge Assembly | 9 | Tailgate Stop Block |
| 3 | Tailgate Hinge Bolt | 10 | Tailgate Stop Block |
| 4 | Tailgate Hinge Bolt | 11 | Tailgate Check Bolt |
| 5 | Tailgate Gas Strut | 12 | Tailgate Frame Weatherstrips |
| 6 | Tailgate Gas Strut | 13 | Bumper Block |
| 7 | Gas Spring Ball Pin | | |

Service Guide

Tailgate Replacement

Removal

- 1 Disconnect the negative battery cable.
- 2 Open and support the tailgate.
- 3 Disconnect the harness connector of the tailgate.
- 4 Remove the gas strut assembly from the tailgate. When removing or installing the tailgate gas strut, the alternate support must be provided to avoid the possibility of damage to the vehicle or personal injury.



- 5 Remove the bolt from the tailgate hinge.
- 6 Remove the tailgate from the vehicle.

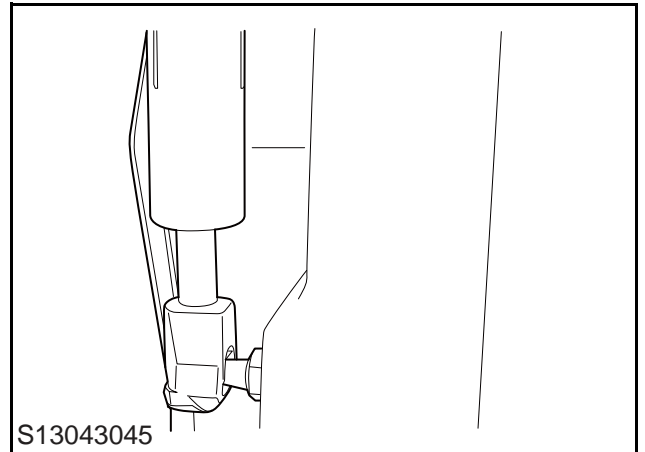
Installation

- 1 Installation is the reverse of removal. Pay attention to the following precautions: Tighten the hinge bolt of the tailgate to the torque of 22 ± 2 N.m

Tailgate Gas Strut Replacement

Removal

- 1 Open and support the tailgate.
- 2 Pry off the leaf spring from the bottom of tailgate gas strut with a small flat-bladed tool.
- 3 Remove the bottom of tailgate gas strut from the gas spring lower ball pin.



- 4 Pry off the leaf spring from the top of tailgate gas strut with a small flat-bladed tool.
- 5 Remove the top of tailgate gas strut from the gas spring upper mounting bracket.
- 6 Remove the gas strut assembly from the tailgate. When removing or installing the tailgate gas strut, the alternate support must be provided to avoid the possibility of damage to the vehicle or personal injury.

Installation

- 1 Installation is the reverse of removal.

Body System

Door

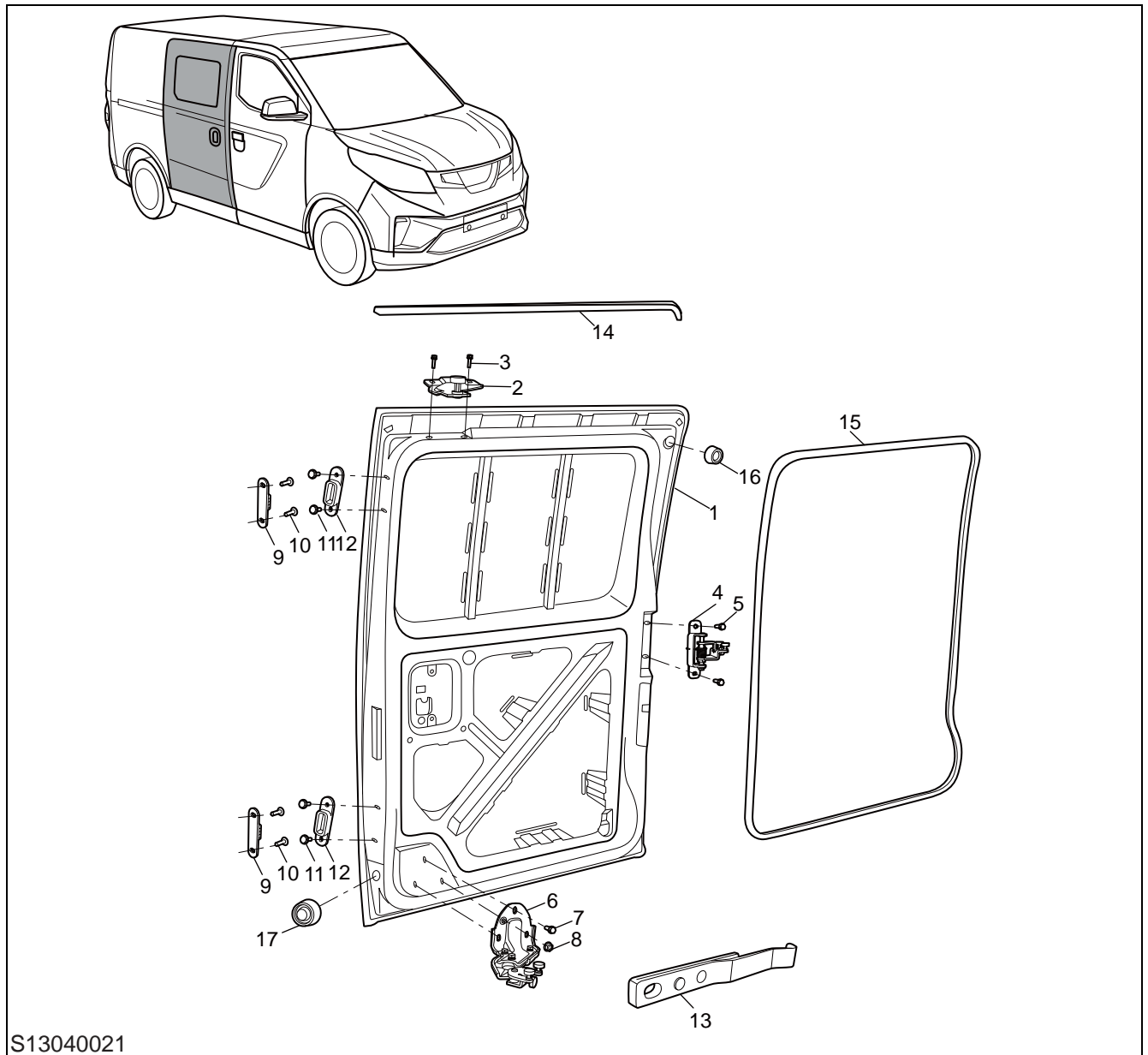
Specification

Fastener Specifications

Name	Torque (N.m)
Bolt - Side Sliding Door Upper Hinge Assembly	9 ± 1
Bolt - Side Sliding Door Middle Hinge Assembly	22 ± 2
Bolt - Side Sliding Door Lower Hinge Assembly	22 ± 2
Bolt - Front Door Hinge	26 ± 3
Bolt - Front Door Check	9 ± 1

Layout

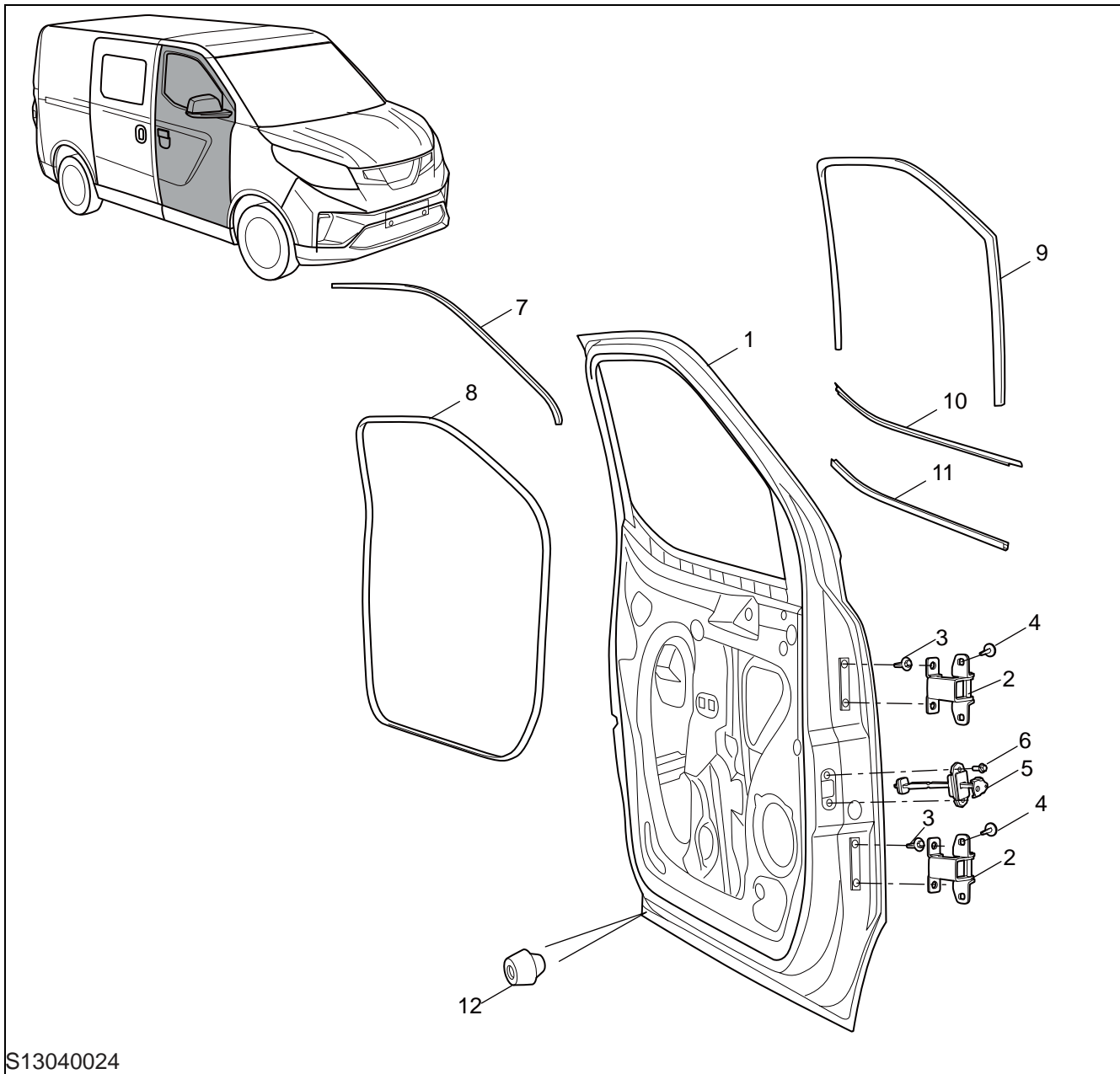
Side Sliding Door Layout



S13040021

- | | | | |
|---|---|----|---------------------------------------|
| 1 | Side Sliding Door Welding Assembly | 10 | Side Sliding Door Check |
| 2 | Side Sliding Door Upper Hinge Assembly | 11 | Side Sliding Door Check Bolt |
| 3 | Side Sliding Door Upper Hinge Bolt | 12 | Side Sliding Door |
| 4 | Side Sliding Door Middle Hinge Assembly | 13 | Side Sliding Door Upper Weatherstrip |
| 5 | Side Sliding Door Middle Hinge Bolt | 14 | Side Sliding Door Frame Weatherstrips |
| 6 | Side Sliding Door Lower Hinge Assembly | 15 | Bumper Block |
| 7 | Side Sliding Door Lower Hinge Bolt | 16 | Bumper Block |
| 8 | Side Sliding Door Check | | |
| 9 | Side Sliding Door Check Bolt | | |

Front Door Layout



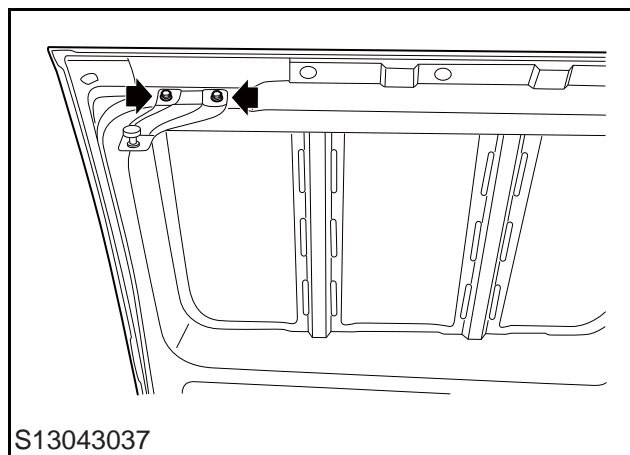
- | | | | |
|---|---------------------------------------|----|-------------------------------------|
| 1 | Front Side Door Welding Assembly; | 7 | Front Side Door Upper Weatherstrip; |
| 2 | Front Side Door Upper Hinge Assembly; | 8 | Front Side Door Frame Weatherstrips |
| 3 | Front Door Hinge Bolt; | 9 | Front Door Window Weatherstrip; |
| 4 | Front Door Hinge Bolt | 10 | Front Door Outer Weatherstrip |
| 5 | Front Side Door Check Assembly; | 11 | Front Door Inner Weatherstrip |
| 6 | Front Door Check Bolt; | 12 | Front Side Door Bumper Block |

Service Guide

Side Sliding Doors and Hinges Replacement

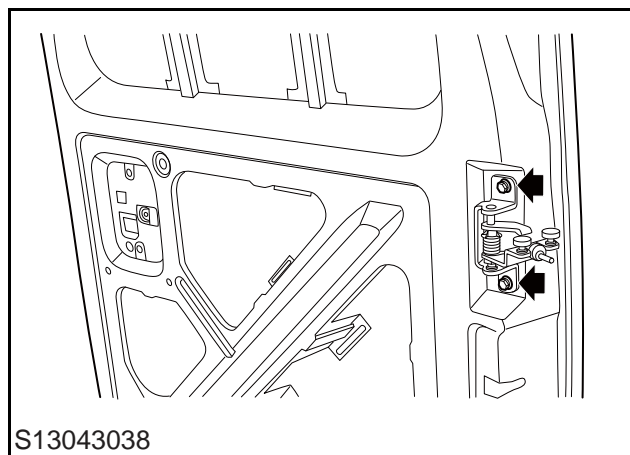
Removal

- 1 Open the side sliding door to the appropriate position.
- 2 Remove the bolts on the side sliding door upper hinge.

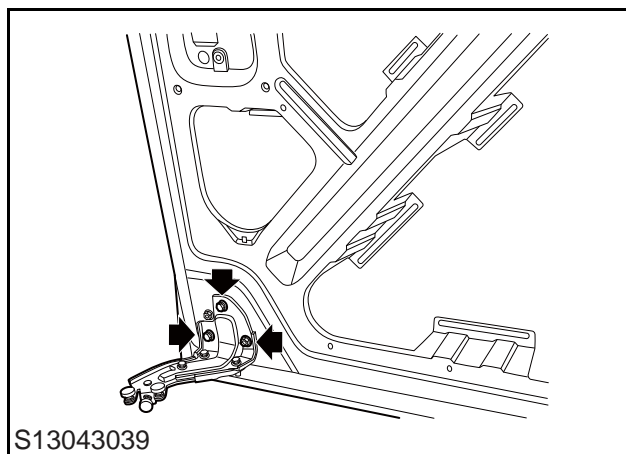


S13043037

- 3 Pull out the door upper hinge.
- 4 Obtain the side sliding door upper hinge assembly.
- 5 The disassembly method of the side sliding door middle hinge and the lower hinge is the same as that of the upper hinge.



S13043038



S13043039

- 6 Slide the hinge to disengage the hinge from the guide rail.
- 7 Remove the side sliding door.

Installation

- 1 Installation is the reverse of removal. Pay attention to the following precautions:

- Tighten the bolts on the upper hinge with a tightening torque: 9 ± 1 N.m.

- Tighten the bolts on the side sliding door middle hinge and the lower hinge. The tightening torque will be 22 ± 2 N.m for the middle hinge and 22 ± 2 N.m for the lower hinge.

Adjustment

- 1 Open the side sliding door to the appropriate position to check the hinges that fixes the door.
- 2 Use the door bracket to help correct the door.
- 3 Remove the door bracket and close the door to check whether it has been corrected.
- 4 Tighten the hinge bolts to the specified torque after the correction.

Body System

Front Door/Hinge Replacement

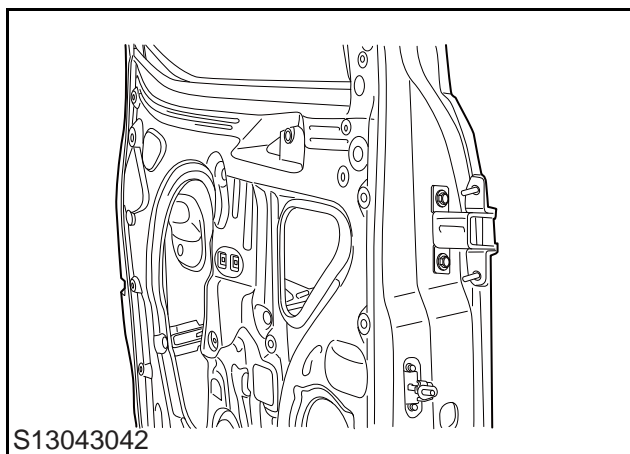
Removal

- 1 Open the front door and support it.
- 2 Remove the front door interior trim panel.
- 3 Remove the front door waterproof membrane.
- 4 Remove the front door glass and regulator.
- 5 Remove the front door lock and link.
- 6 Remove the exterior rearview mirror.
- 7 Remove the inside and outside handles of the front side door.
- 8 Disconnect the negative battery harness.
- 9 Disconnect the front door harness from the front door.
- 10 Remove the front door check.

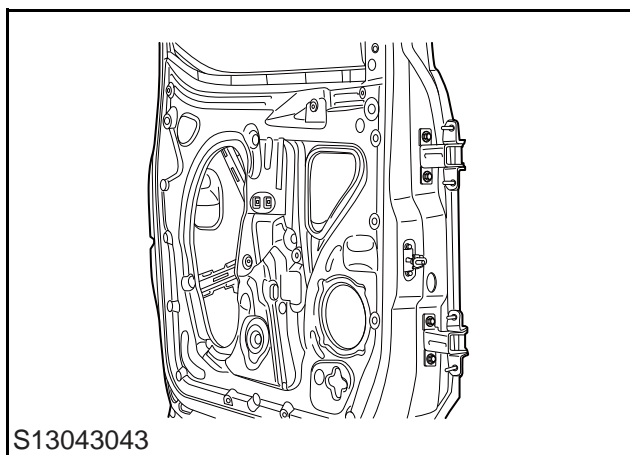
- 12 Remove the front door.

Installation

- 1 Installation is the reverse of removal. Pay attention to the following precautions: Tighten the hinge bolt of the front door to the torque of 26 ± 3 N.m. Tighten the front door check bolt to the torque of 9 ± 1 N.m.



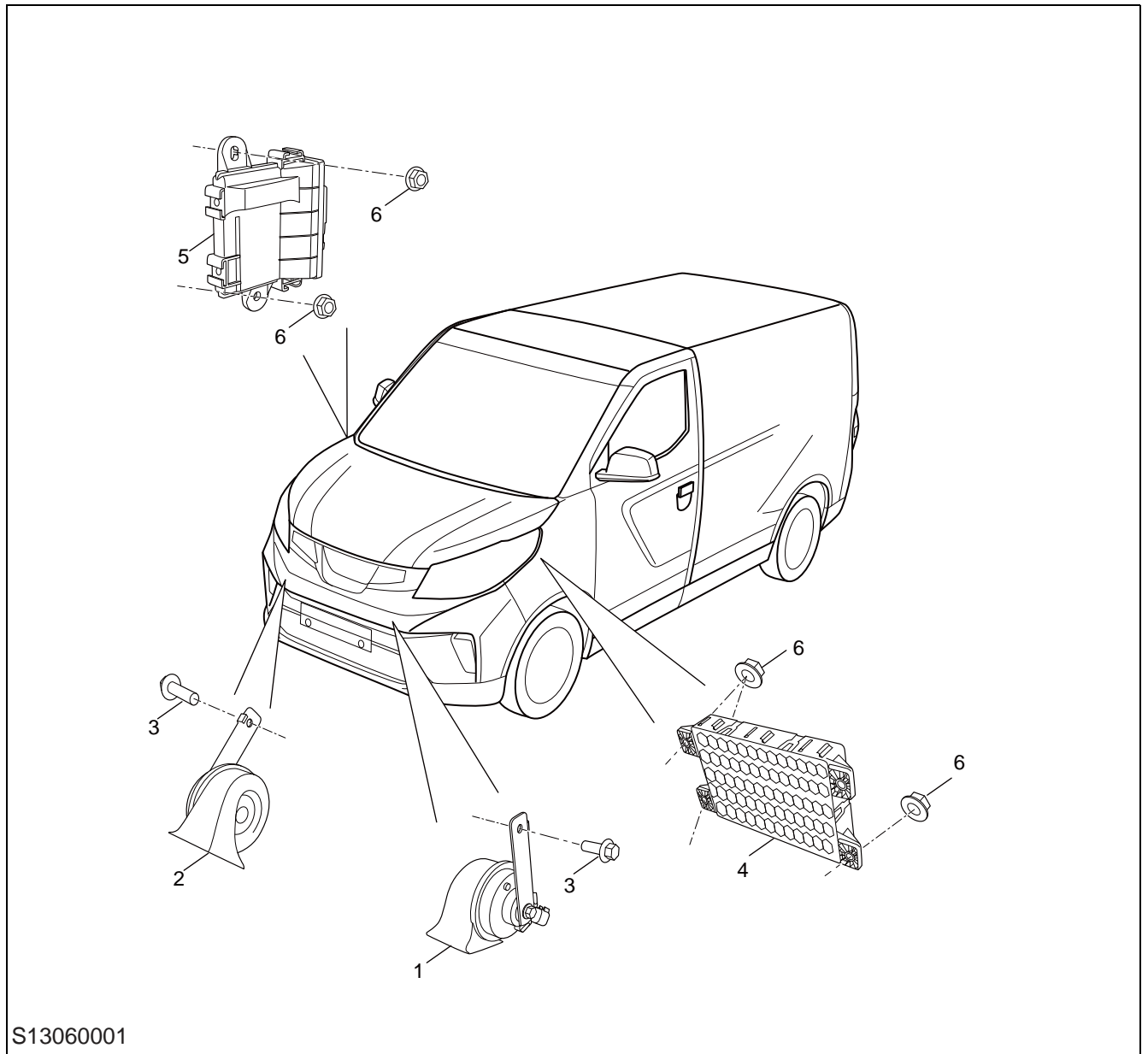
- 11 Remove the front door upper/lower hinge.



Body Controller

Layout

Body Controller Layout



- 1 Woofer
- 2 Tweeter
- 3 Retaining Bolt

- 4 Body Control Module
- 5 Gateway

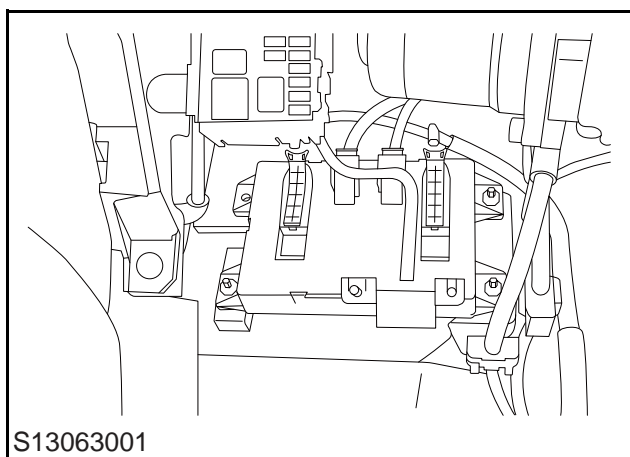
Body System

Service Guide

Body Control Module Replacement

Removal

- 1 Disconnect the negative battery cable.
- 2 Remove the instrument panel driver side lower guard plate assembly.
- 3 Disconnect the electrical connector of the BCM.
- 4 Remove 4 bolts fixing the BCM to the body, and remove the BCM.



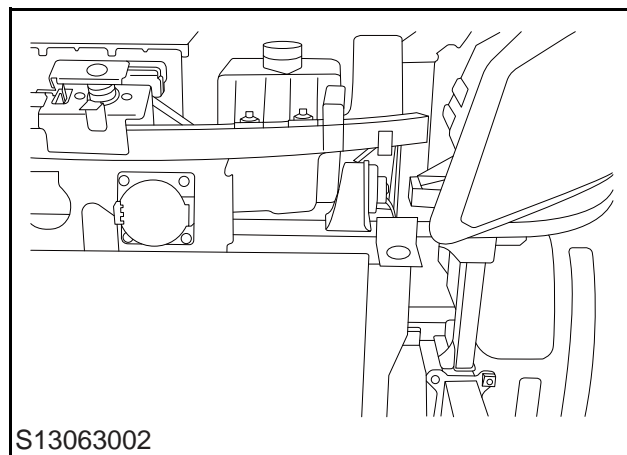
Installation

- 1 Fix the BCM to the body, install and tighten 4 bolts.
- 2 Connect the electrical connector of the BCM.
- 3 Install the instrument panel driver side lower guard plate assembly.
- 4 Connect the negative battery cable.

Gateway Replacement

Removal

- 1 Disconnect the negative battery cable.
- 2 Disconnect the electrical connector of the gateway.
- 3 Remove 2 bolts fixing the gateway to the body, and remove the gateway.



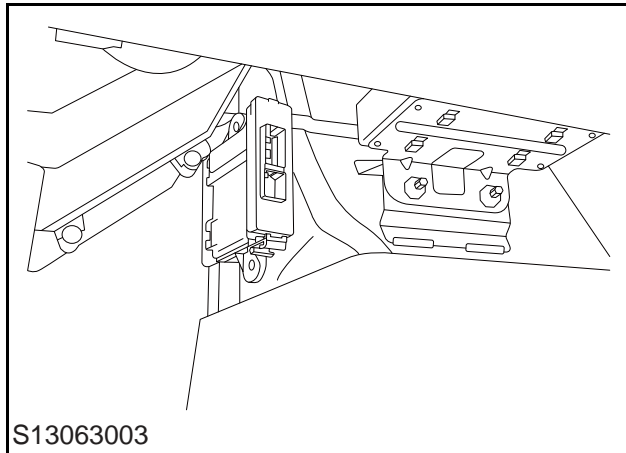
Installation

- 1 Fix the gateway to the body, install and tighten 2 bolts.
- 2 Connect the electrical connector of the gateway.
- 3 Connect the negative battery cable.

Horn Replacement

Removal

- 1 Disconnect the negative battery cable.
- 2 Remove the front bumper assembly.
- 3 Remove 1 bolt fixing the horn to the front bumper beam and remove the horn.
- 4 Disconnect the electrical connector of the woofer.



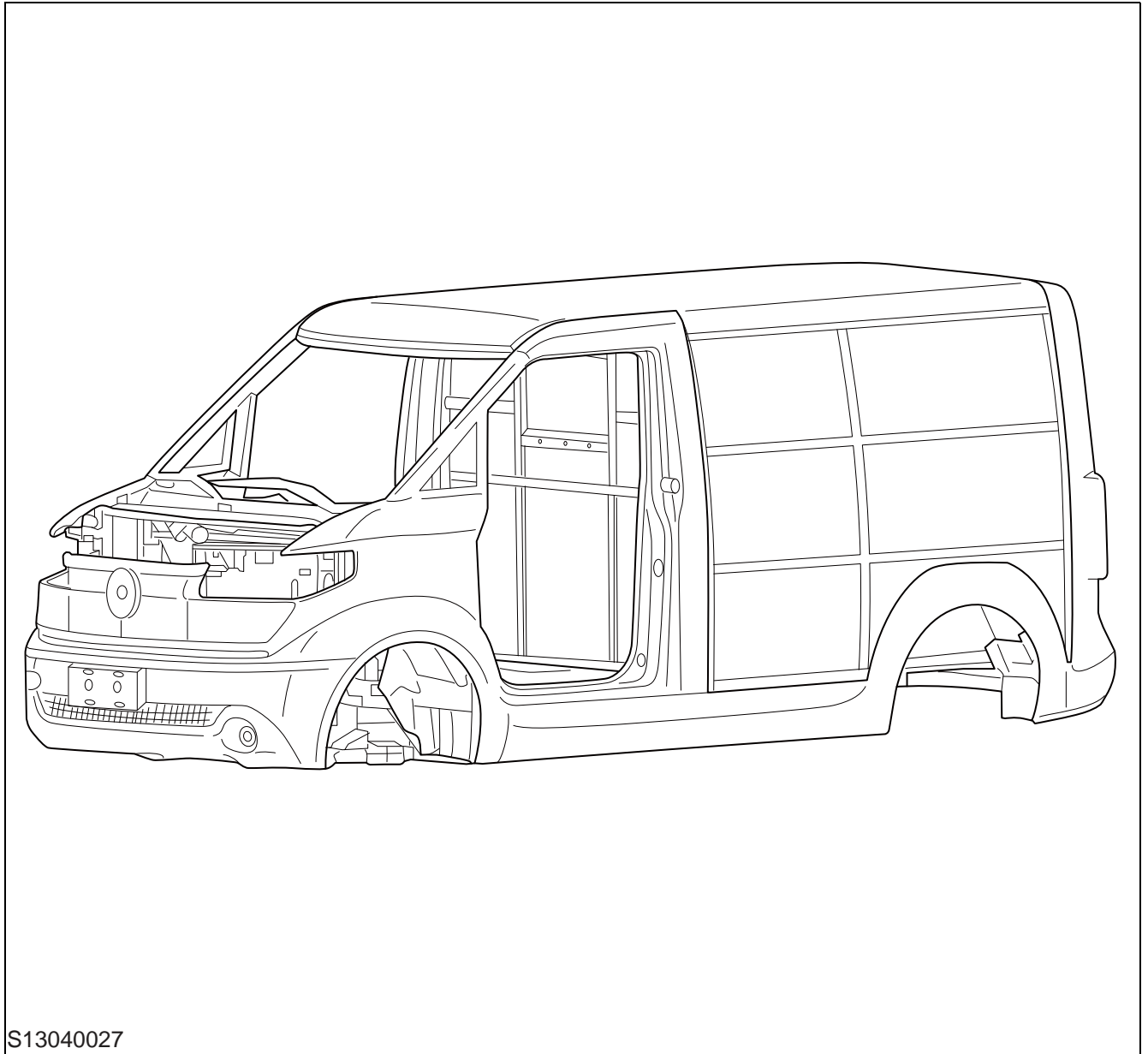
Installation

- 1 Connect the electrical connector of the horn.
- 2 Fix the horn to the front bumper beam, install and tighten 1 bolt.
- 3 Install the front bumper assembly.
- 4 Connect the negative battery cable.

Body Repair

Layout

Body Layout



S13040027

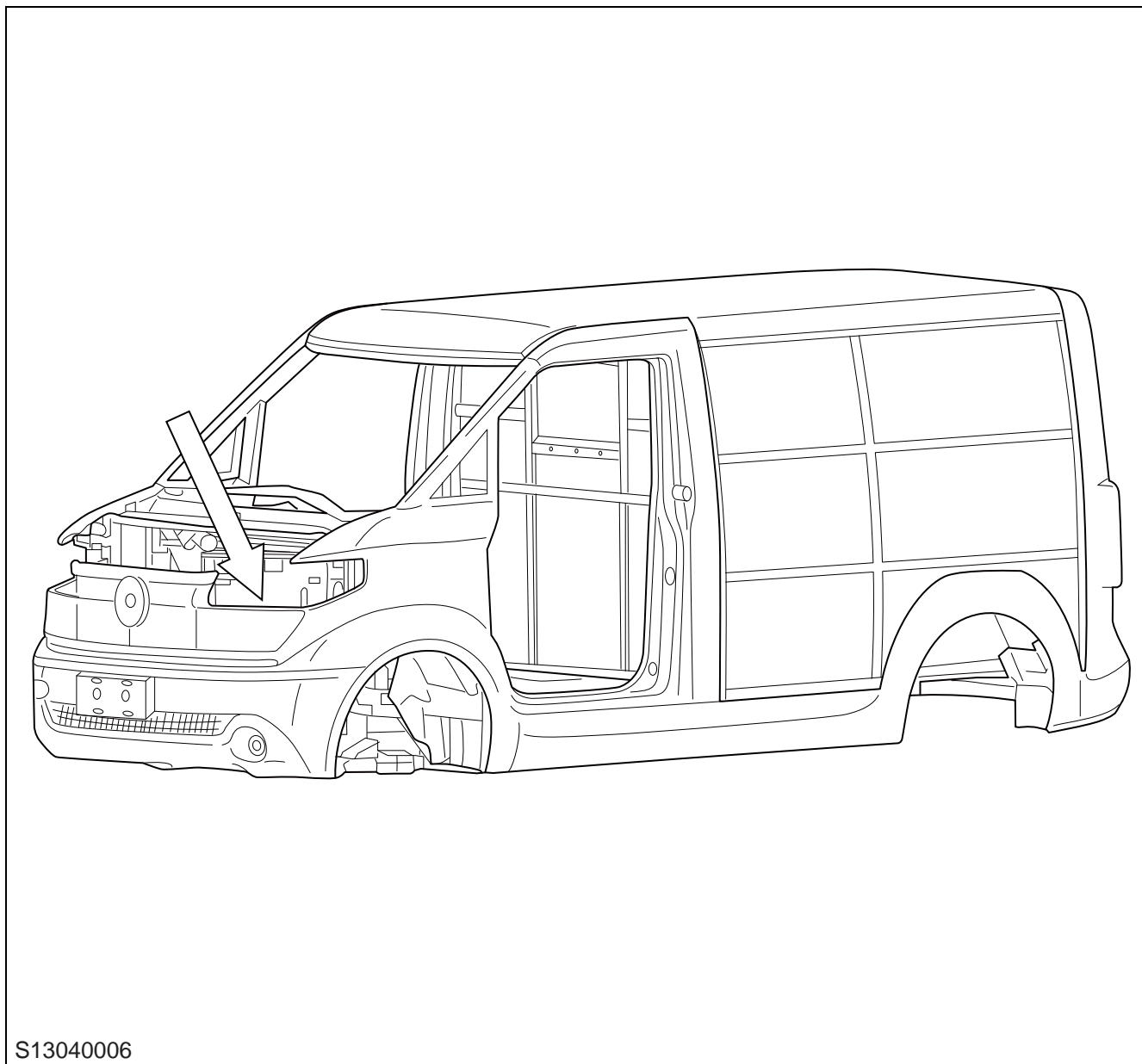
Part	Material
Fender	Plastic
Bonnet	Plastic
Tailgate	Plastic
Front door	Sheet metal

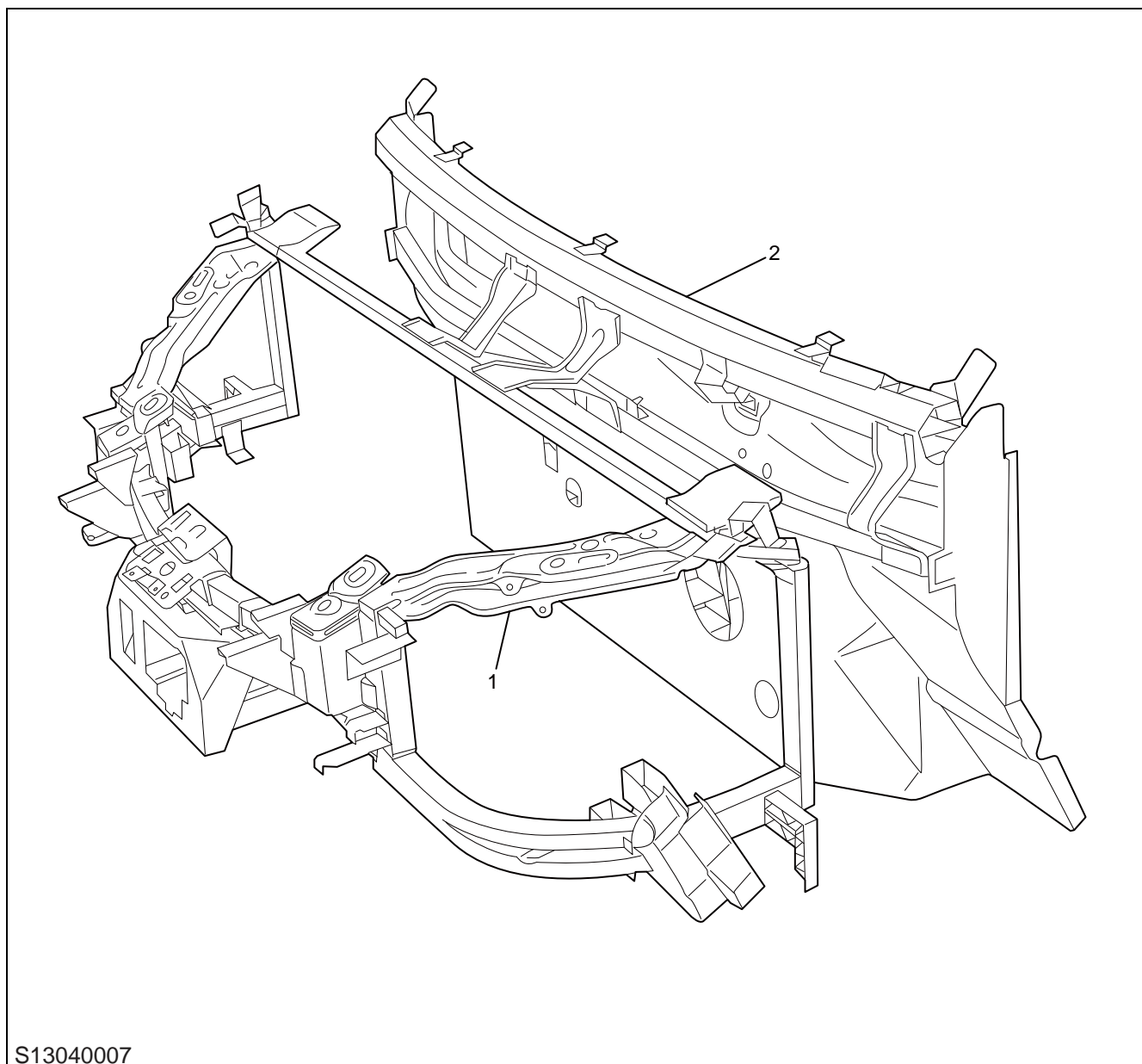
Body Repair

Part	Material
Sliding door	Sheet metal
Body fascia	Steel plate
Roof fascia	Steel plate

Front Compartment Frame Structure

Basically, all materials are made of aluminum, and some of the structure containing a small amount of steel due to performance requirements





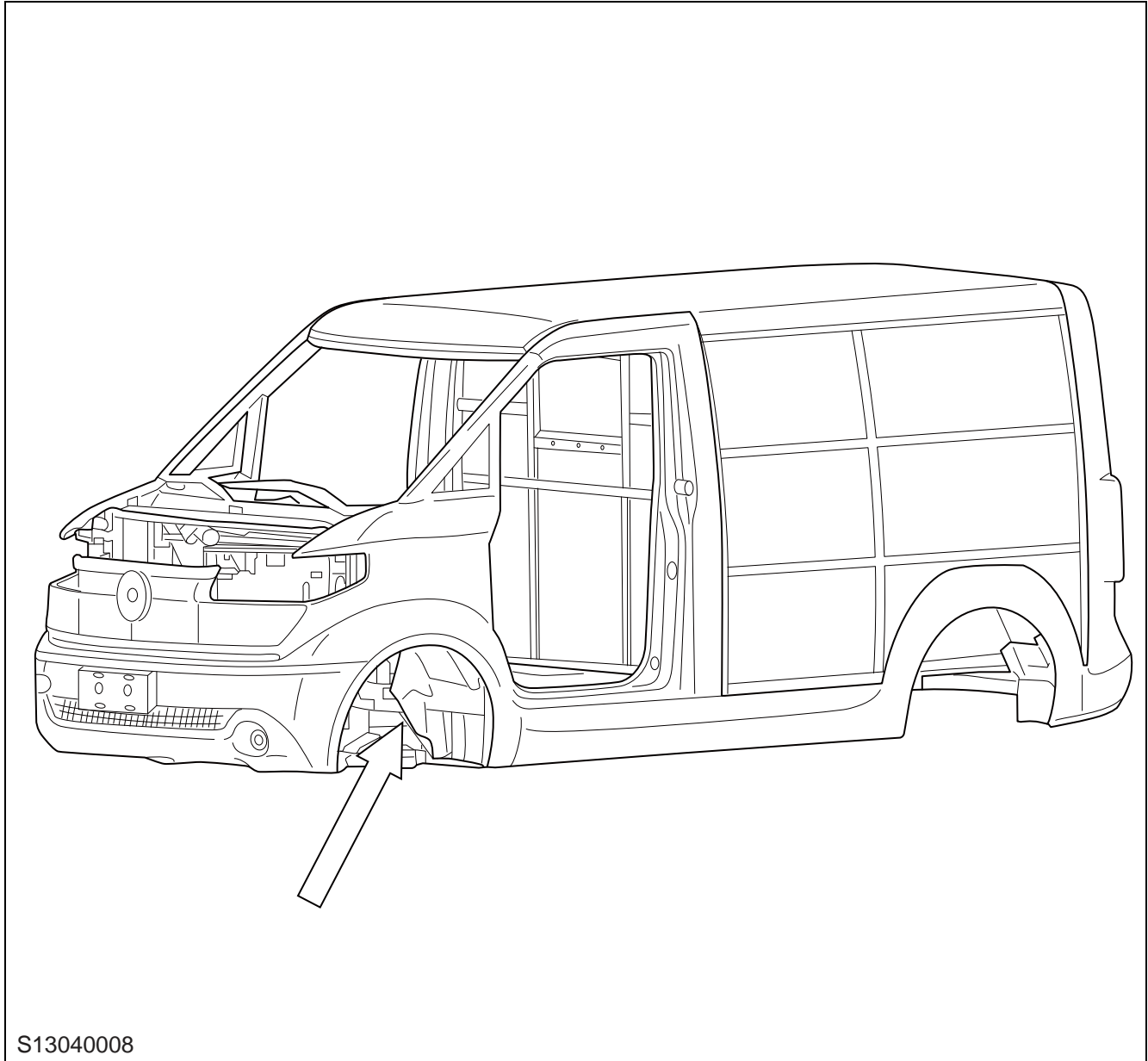
S13040007

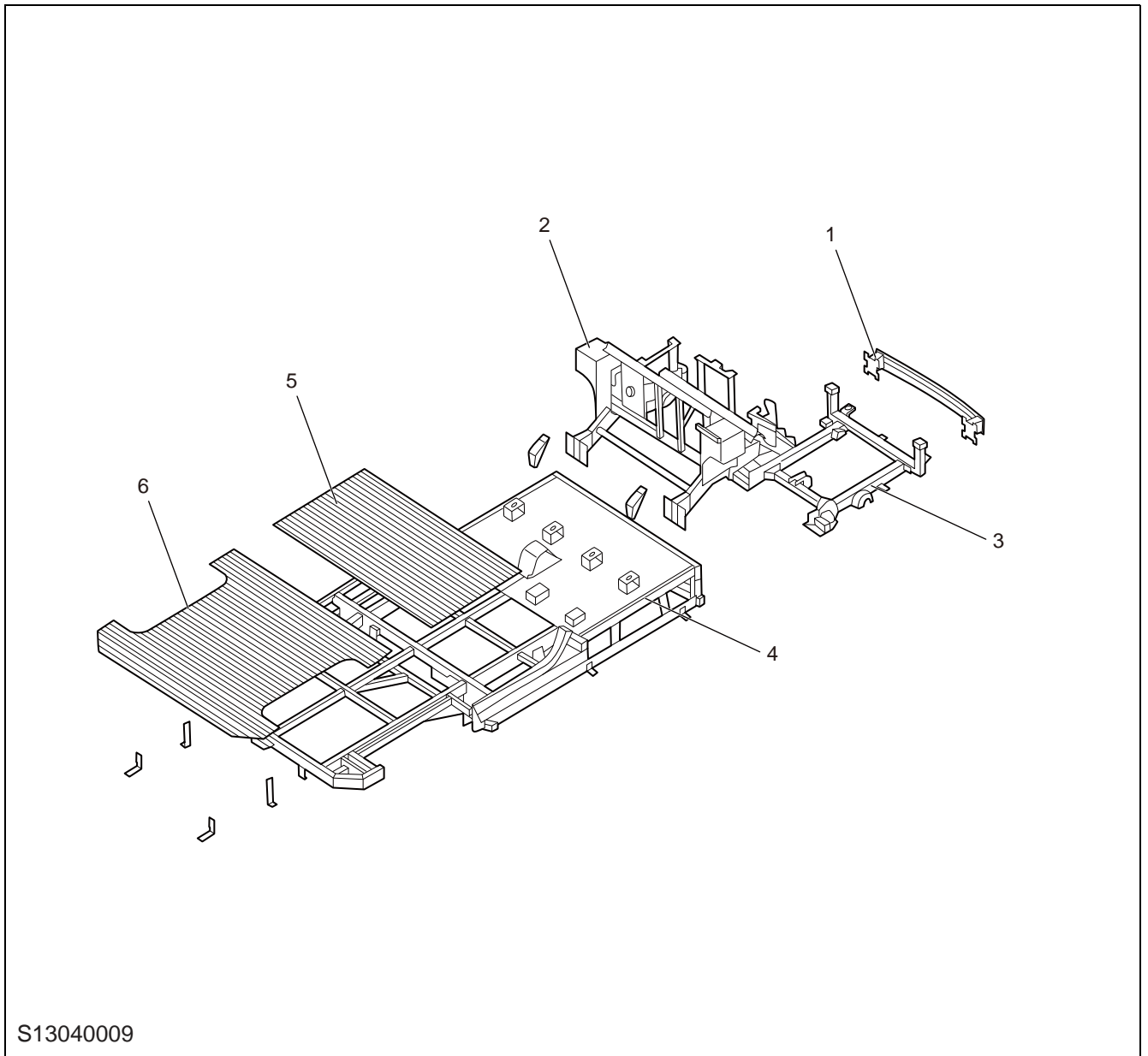
- 1 Front Structure
- 2 Dash Panel Assembly

Body Repair

Floor Frame

Except that the front anti-collision beam is made of aluminum, others are made of aluminum





S13040009

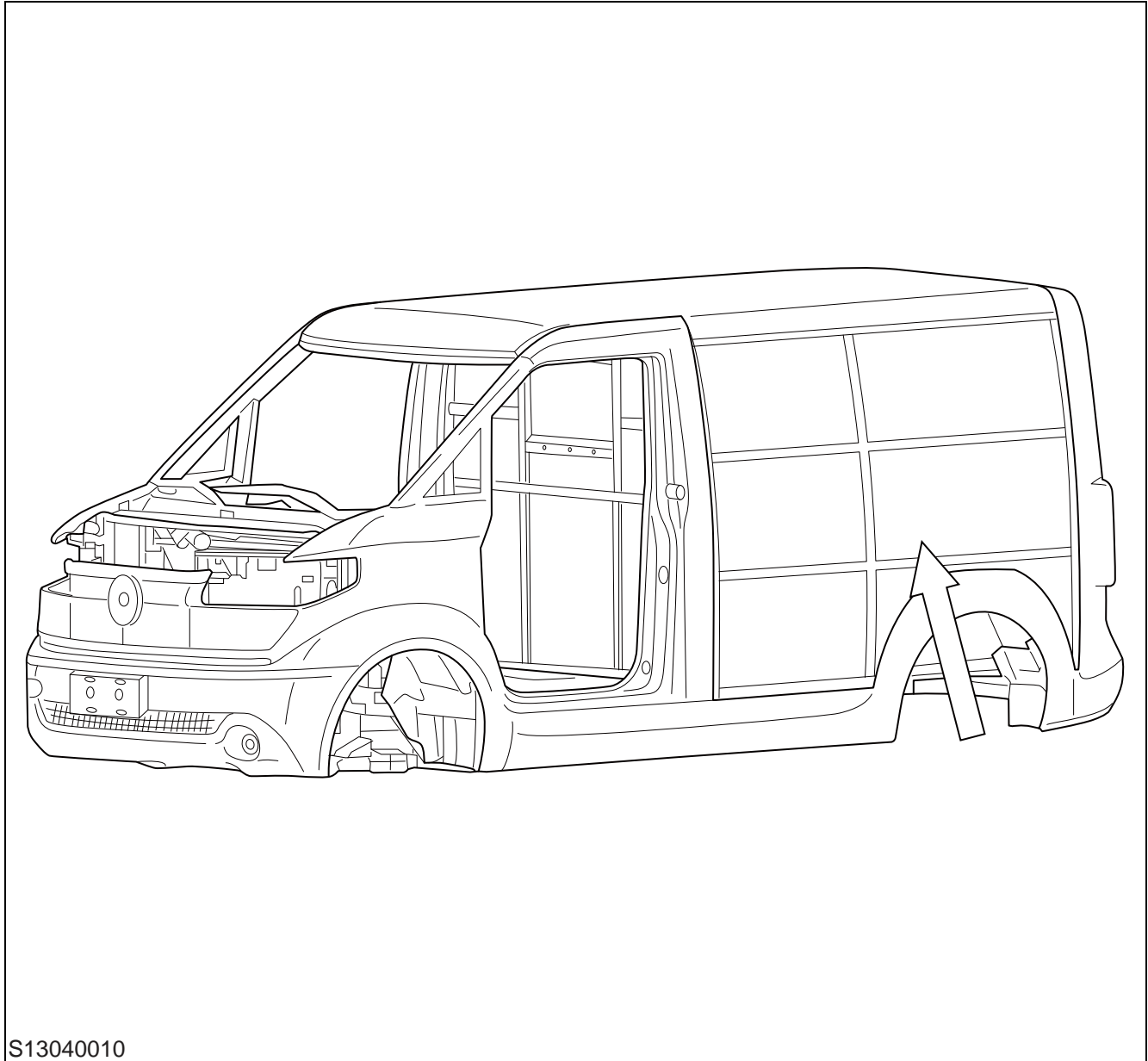
- 1 Front Anti-collision Beam Assembly
- 2 Front Frame Assembly
- 3 Subframe Assembly

- 4 Rear Floor Frame Assembly
- 5 Middle Floor
- 6 Rear Floor

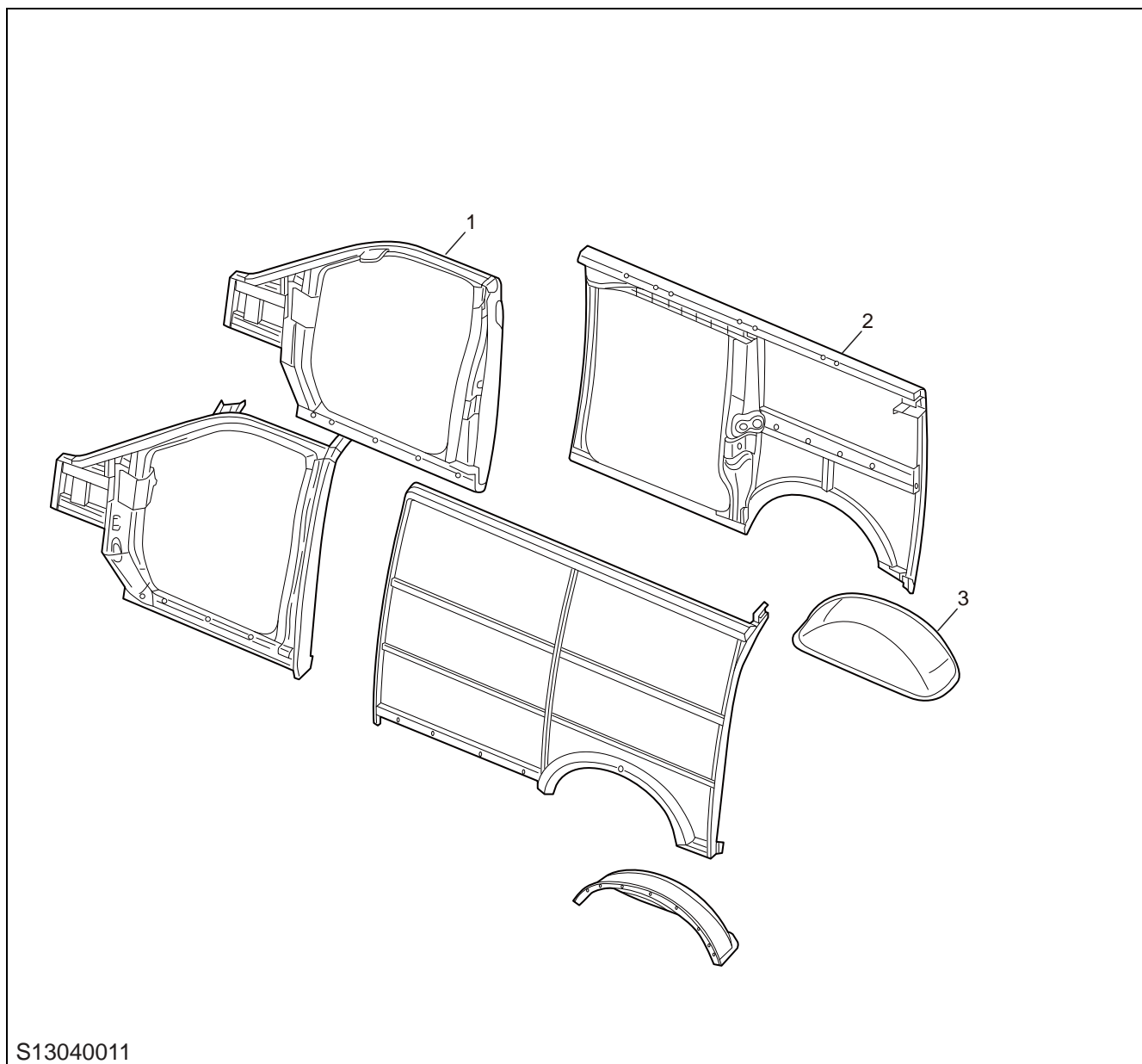
Body Repair

Bodyside Inner Panel

Except that the rear wheelhouse outer panel is made of steel, others are made of aluminum



S13040010



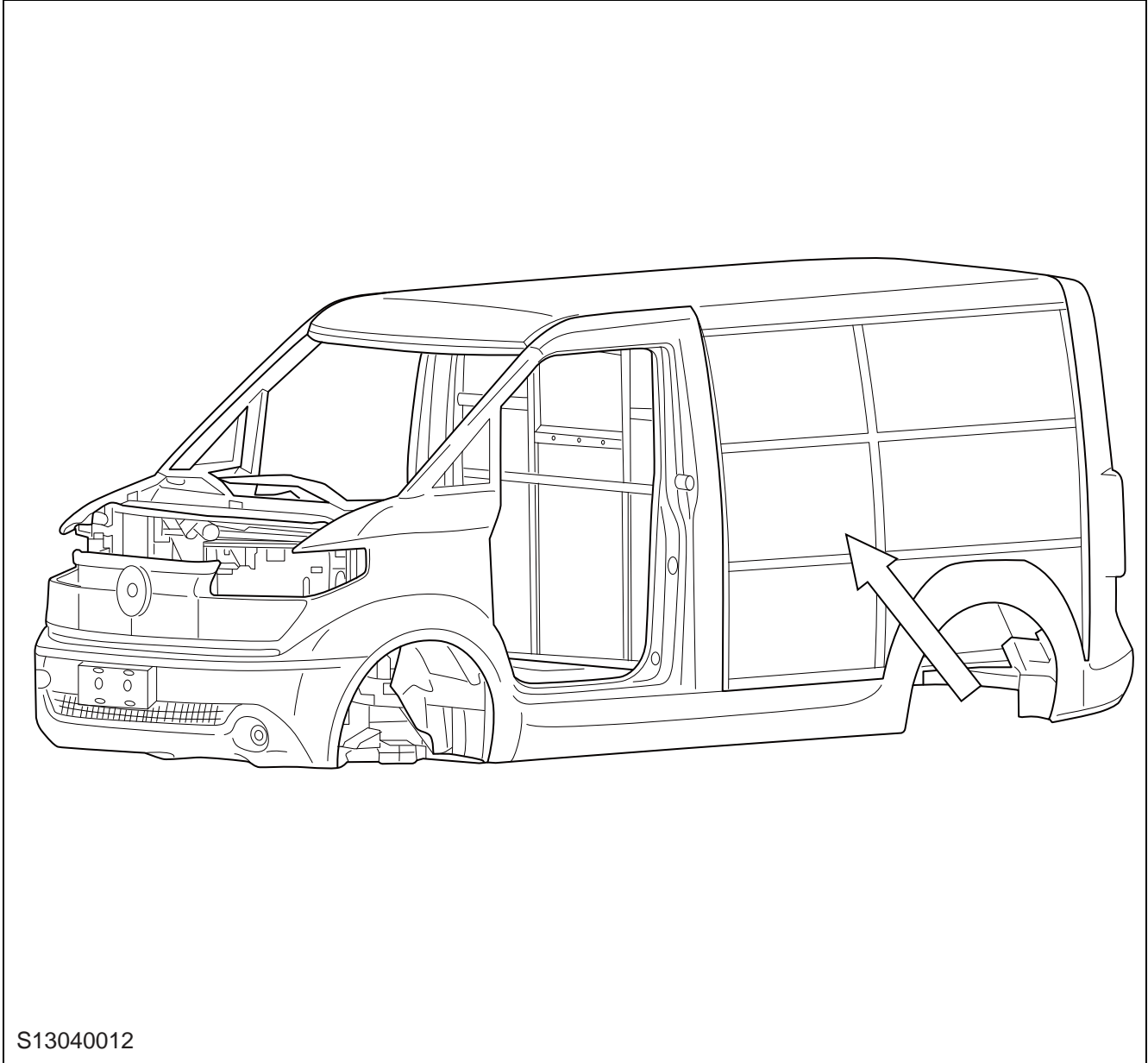
S13040011

- 1 Bodyside Inner Panel Assembly
- 2 Bodyside Inner Panel Assembly
- 3 Rear Wheelhouse Outer Panel

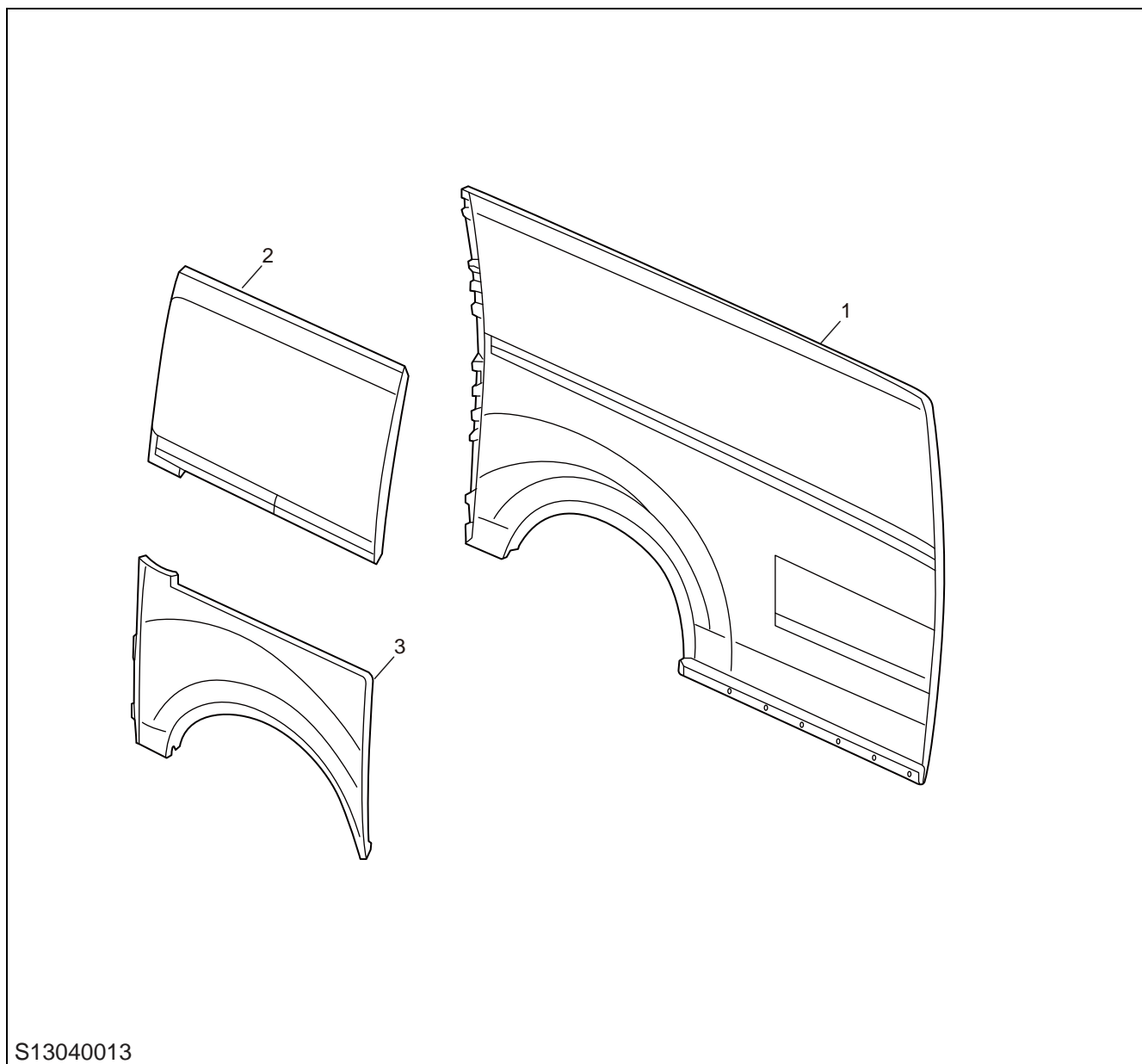
Body Repair

Bodyside Outer Panel

All materials are made of steel



S13040012



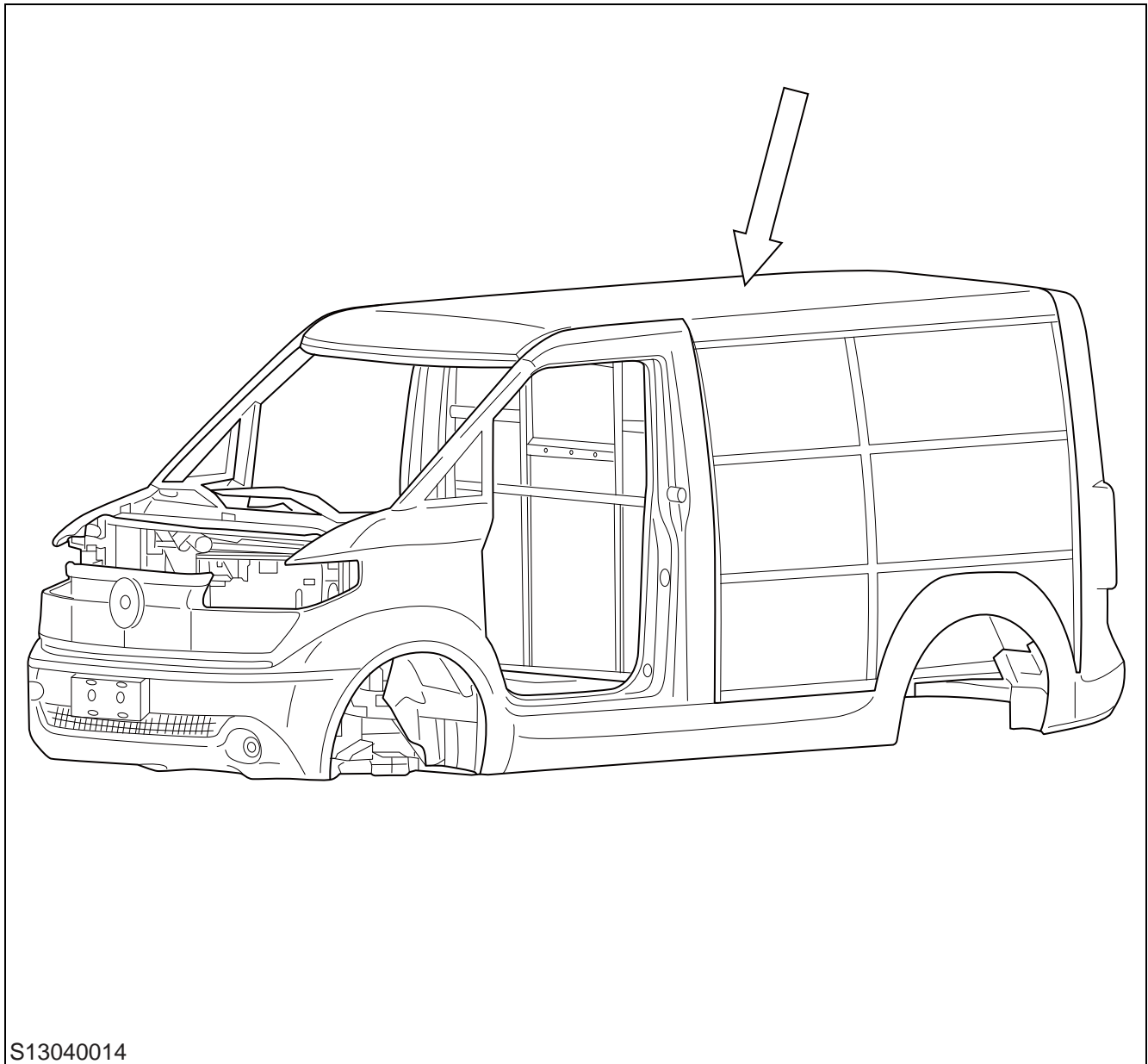
S13040013

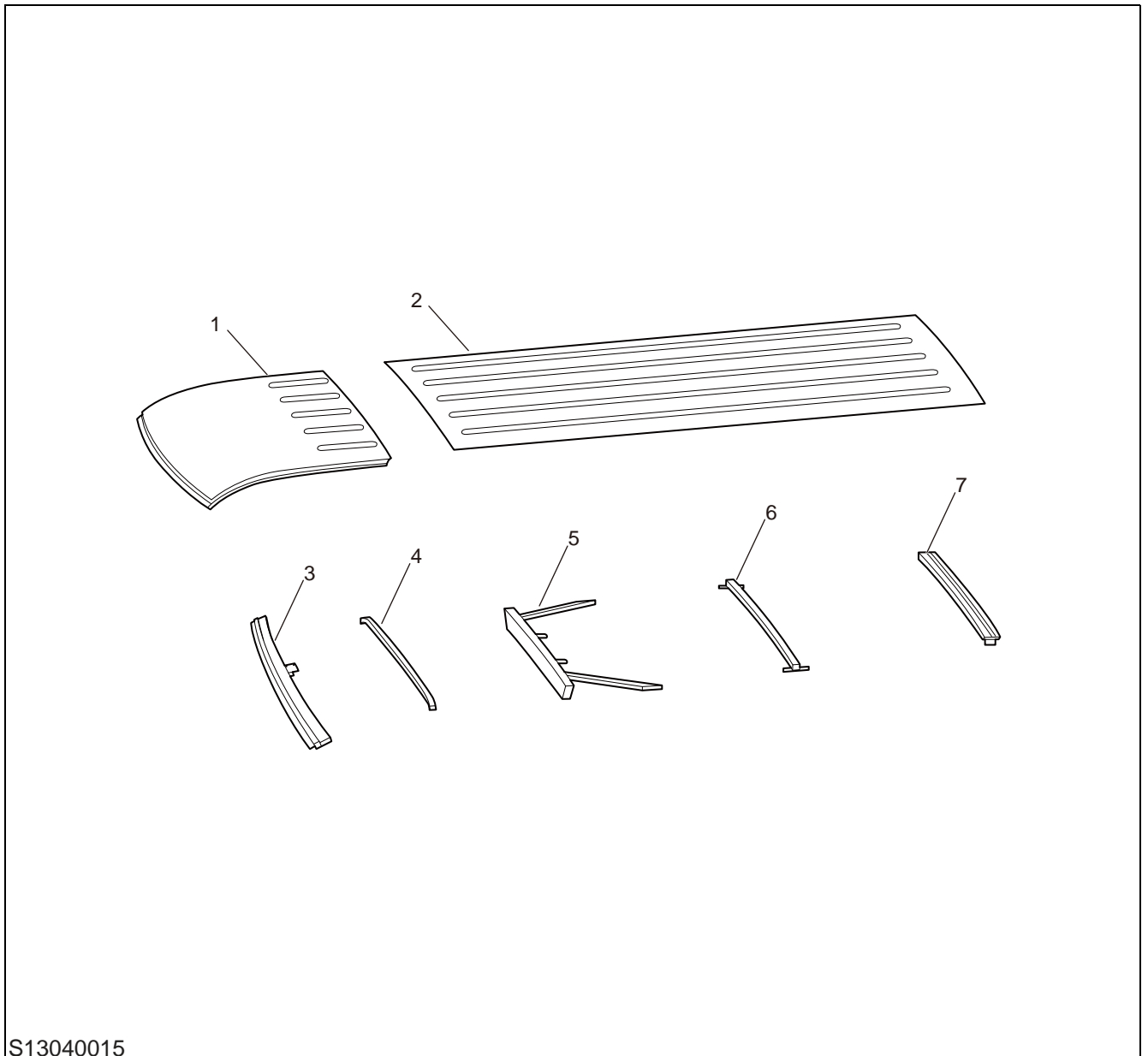
- 1 Bodyside Outer Panel
- 2 Bodyside Outer Panel
- 3 Bodyside Outer Panel

Body Repair

Roof Assembly

Roof fascia is made of steel and all beams are made of aluminum.





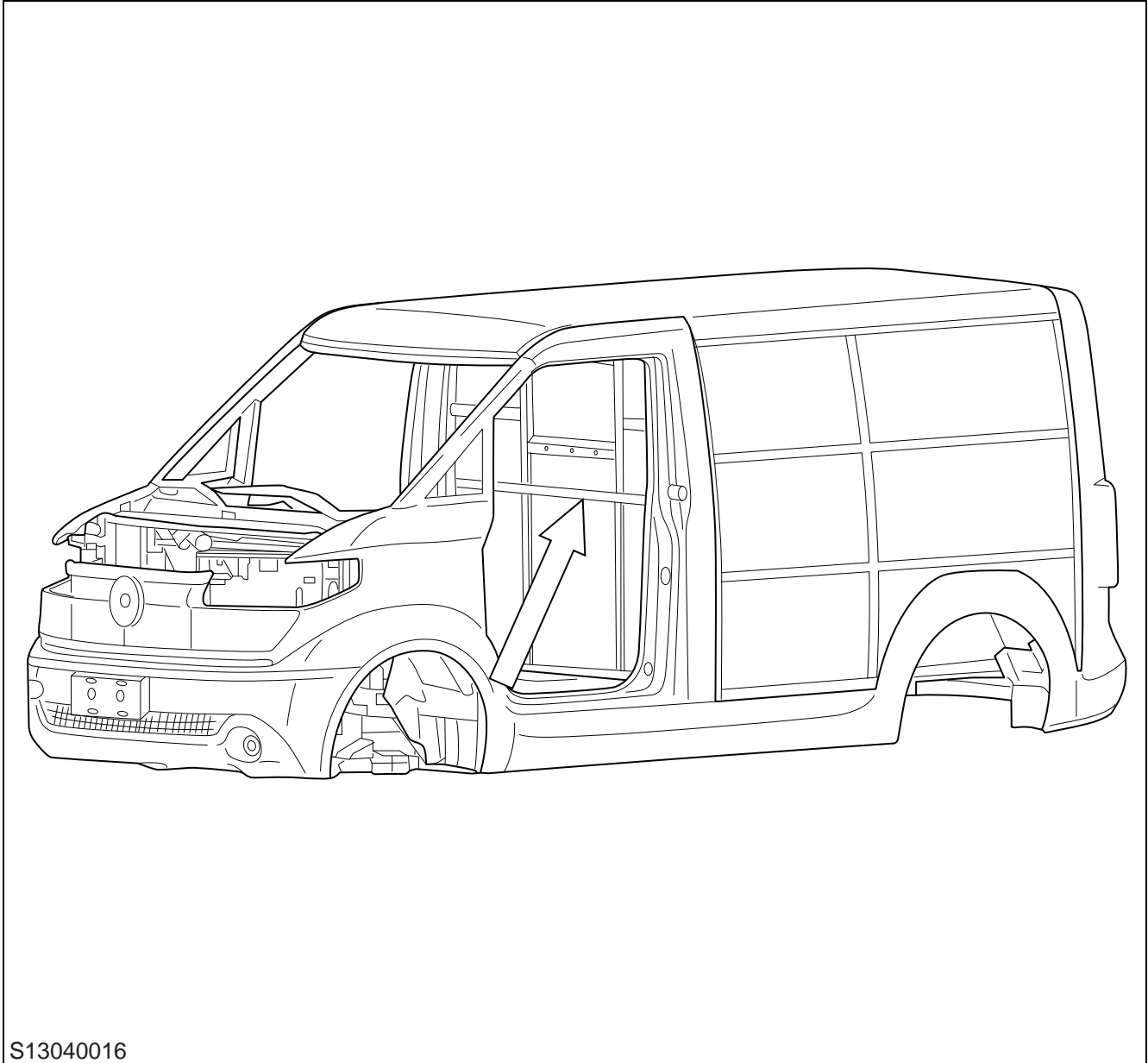
S13040015

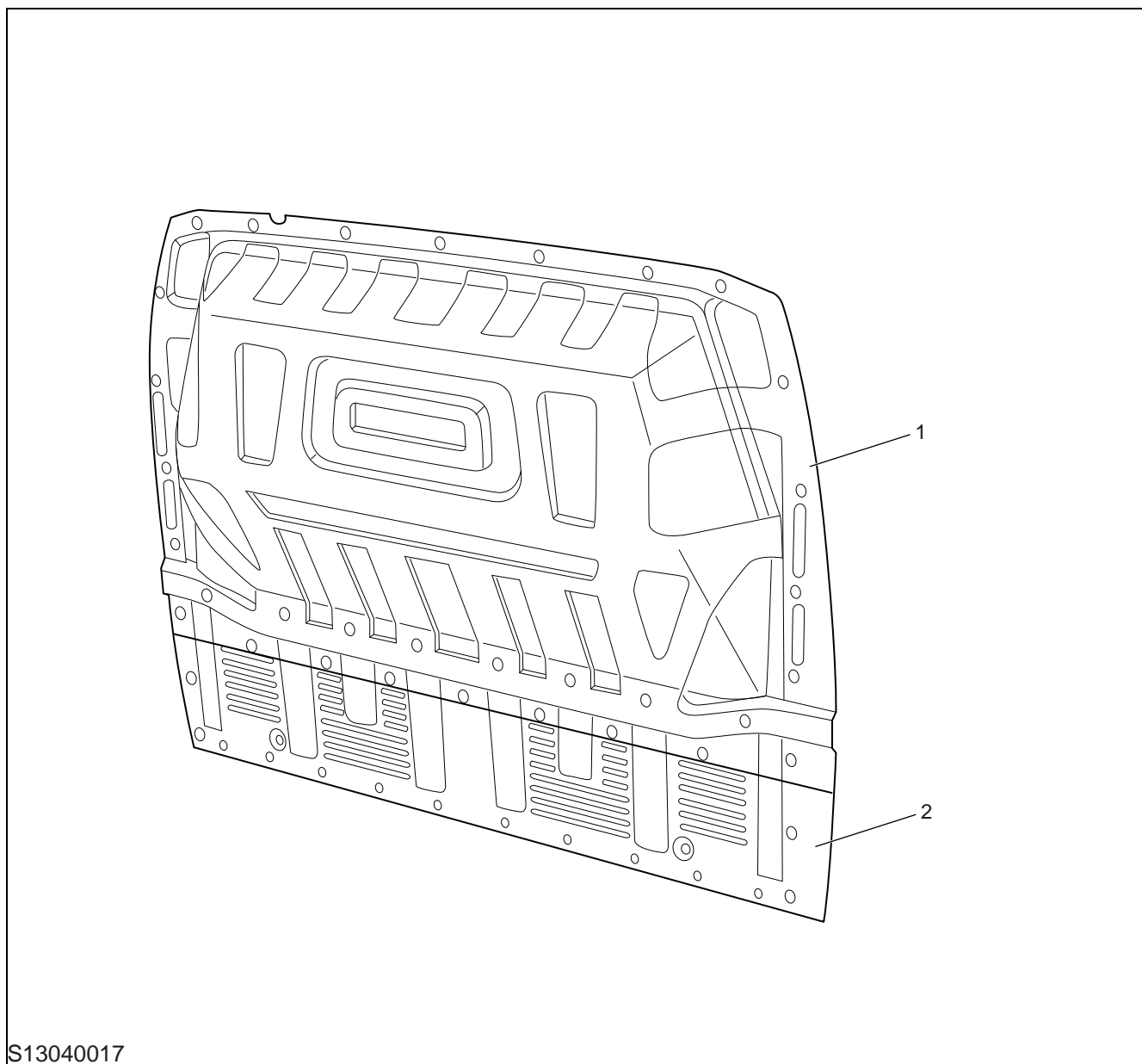
- | | | | |
|---|------------------------|---|--------------------|
| 1 | Front Roof Outer Panel | 5 | Roof Frame Vehicle |
| 2 | Rear Roof Outer Panel | 6 | No.2 Roof Beam |
| 3 | No.1 Roof Beam | 7 | Rear Roof Beam |
| 4 | Front Roof Beam | | |

Body Repair

Goods Spacer Plate

All materials are made of steel





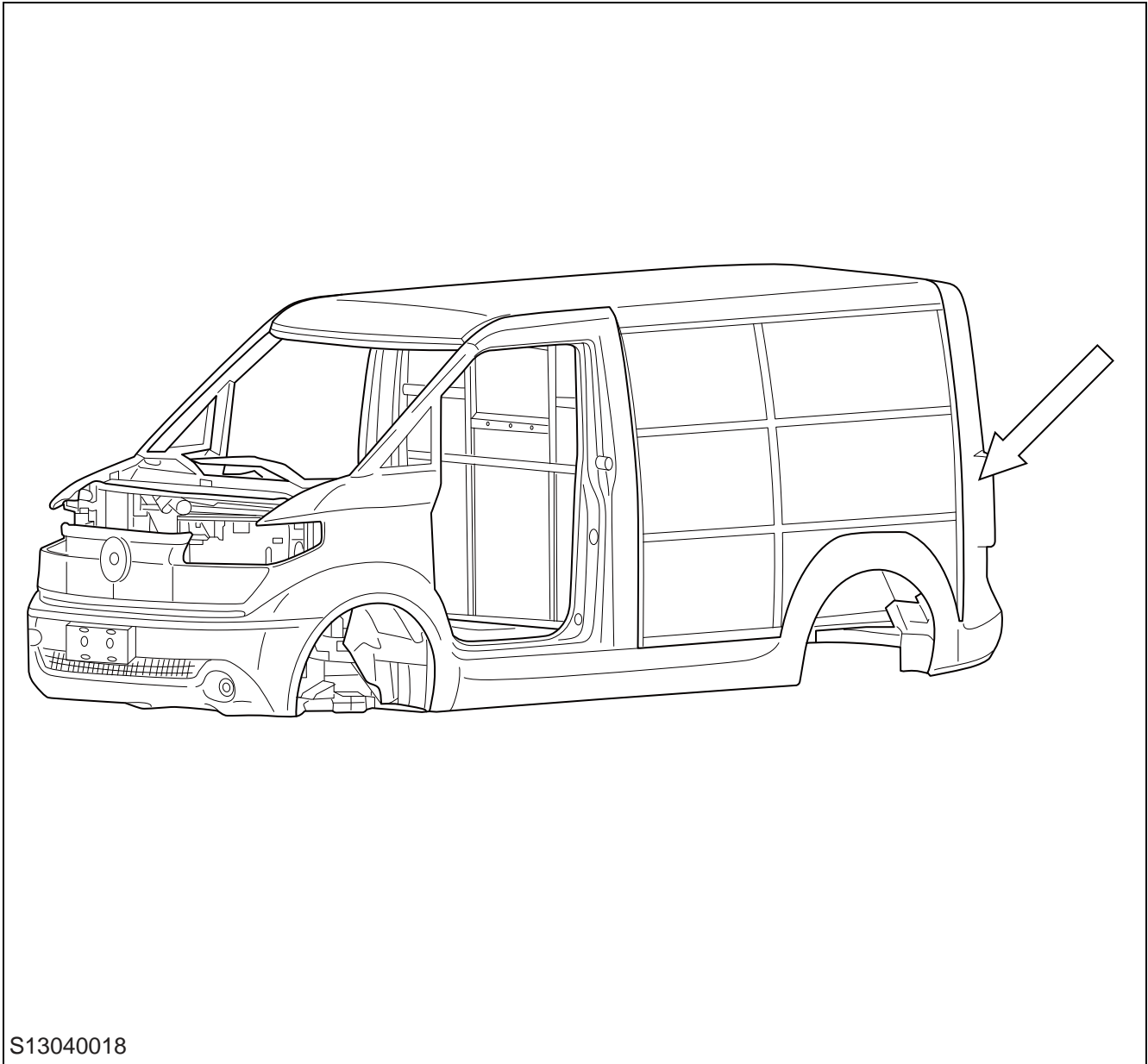
S13040017

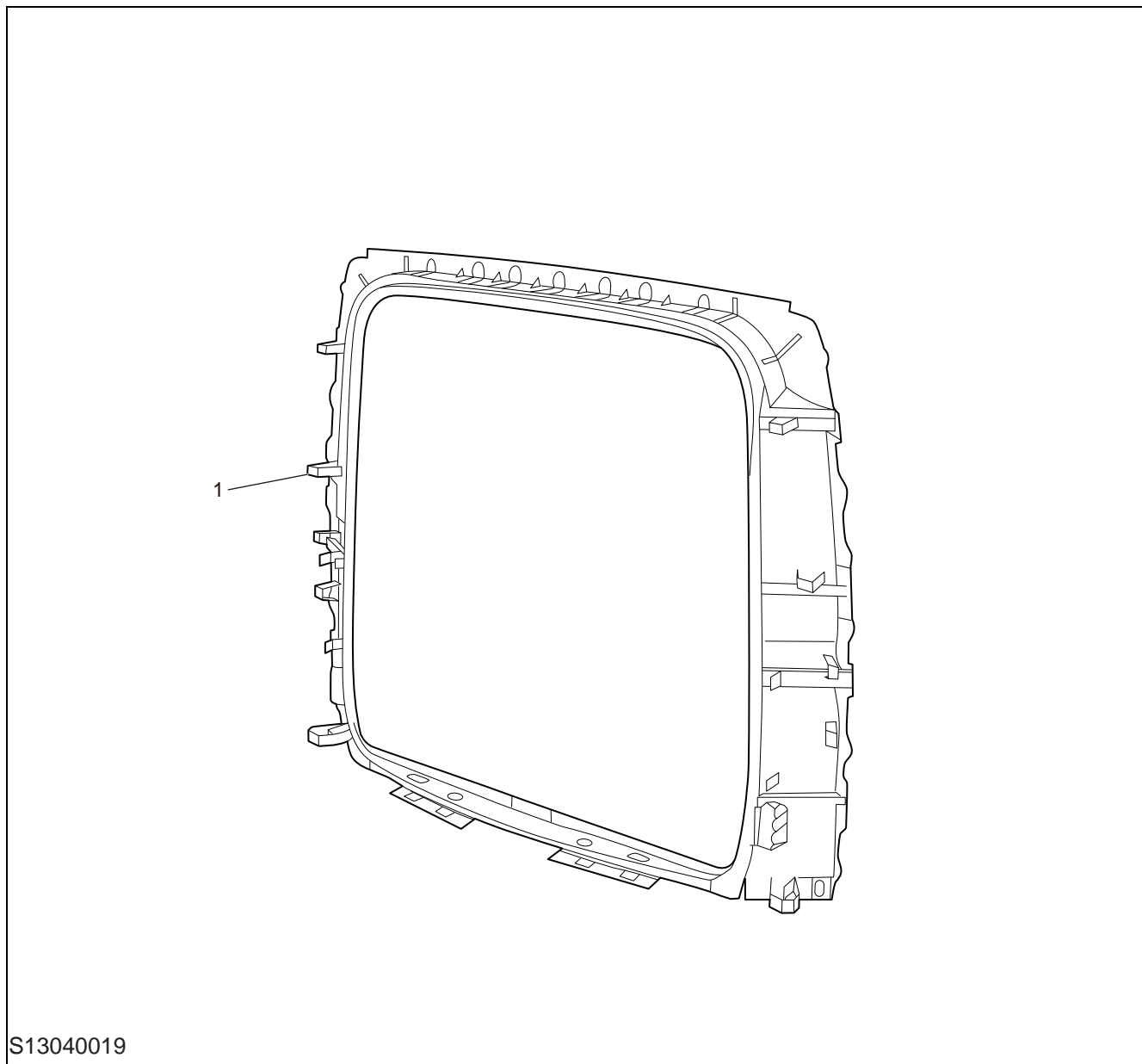
- 1 B-pillar Upper Spacer Plate
- 2 B-pillar Lower Spacer Plate

Body Repair

Rear End Panel Assembly

It is aluminum rear end panel initially, and then switching to steel rear end panel





S13040019

1 Rear End Panel Assembly

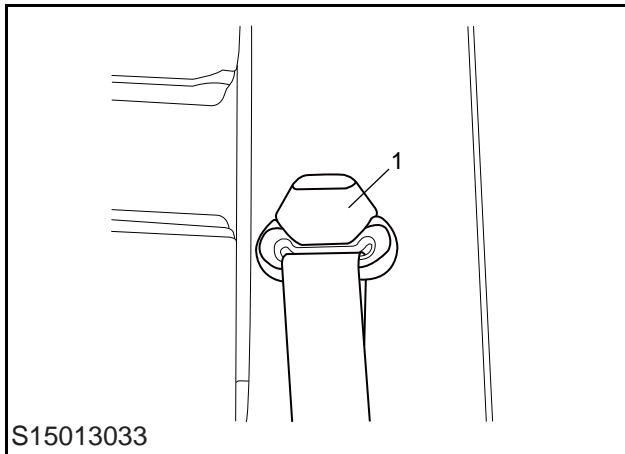
Seat Belt

Service Guide

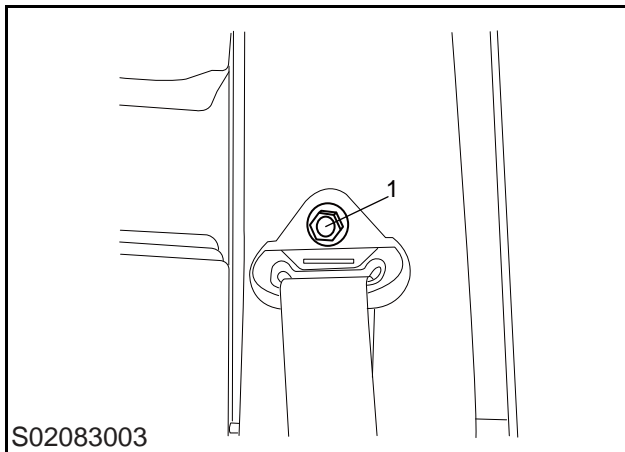
Front Seat Belt Assembly Replacement

Removal

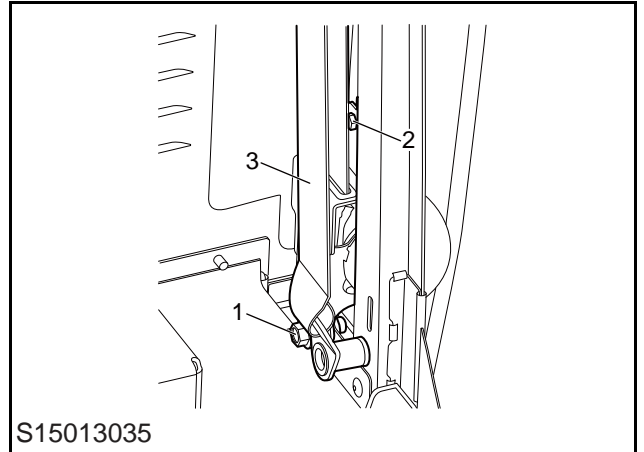
- 1 Remove the B-pillar lower trim panel assembly. Refer to "B-pillar Lower Trim Panel Assembly Replacement".
- 2 Remove the front seat belt guide ring cover (1).



- 3 Remove the retaining bolt (1) fixing the front seat belt assembly to the B-pillar.



- 4 Remove the retaining bolt (1) fixing the front seat belt assembly to the B-pillar.
- 5 Remove the retaining bolt (2) fixing the front seat belt assembly to the B-pillar.
- 6 Remove the front seat belt assembly (3).



Installation

- 1 Place the front seat belt assembly to the appropriate position.
- 2 Install the retaining bolt fixing the front seat belt assembly to the B-pillar.
- 3 Install the front seat belt guide ring cover.
- 4 Install the B-pillar lower trim panel assembly. Refer to "B-pillar Lower Trim Panel Assembly Replacement".

Security and Protection

Supplemental Restraint System (SIR)

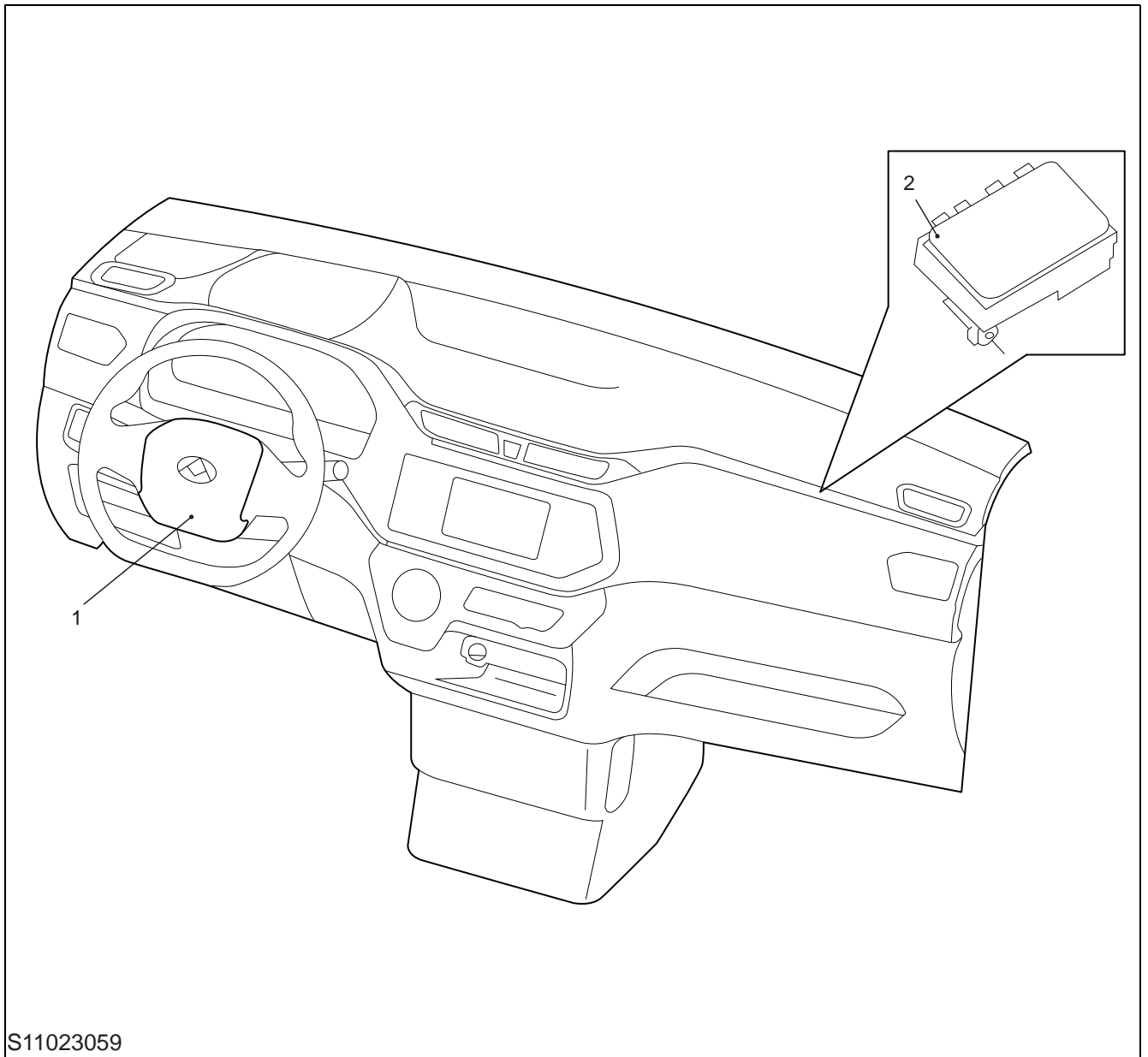
Specification

Fastener Specifications

Name	Torque (N.m)
Bolt - Passenger Airbag	9 ± 1

Layout

Supplemental Restraint System (SIR) Layout



- 1 Driver Airbag Assembly
- 2 Front Passenger Airbag Assembly

Security and Protection

Service Guide

Driver Airbag Assembly

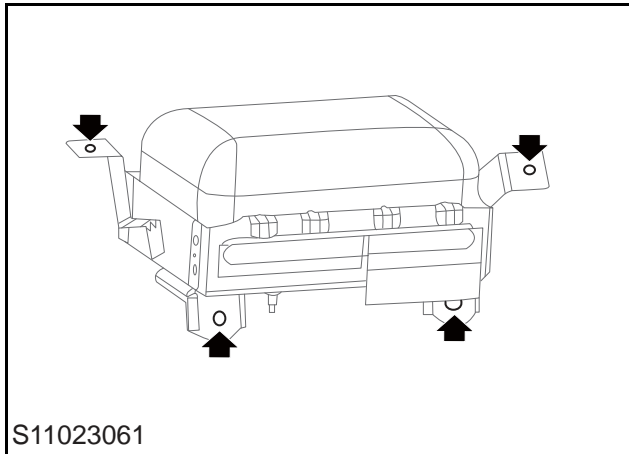
Removal

Warning: DO NOT remove the airbag until the battery (or any possible auxiliary power supply of the vehicle) is disconnected and the capacitor of SRS control module is discharged for at least 10 min.

- 1 Disconnect the battery.

Note: Disconnect the negative battery harness first;

- 2 Make sure that the wheels are in a position of straight driving and pry off the circlip on both sides and the lower circlip with the screwdriver (maximum diameter shall be no more than 5 mm).



- 3 Lift the airbag module assembly from the steering wheel carefully and disconnect the airbag electrical connector.

Note: The airbag electrical connector has a safety buckle to secure it in place. Loosen the safety buckle before removing the connector.

- 4 Store the airbag in place according to storage requirements.

Installation

- 1 Installation is the reverse of removal. Pay attention to the following precautions:
- 2 Re-tighten the safety buckle when installing the electrical connector.
- 3 Reconnect the battery, the positive (+) first.
- 4 Ensure correct wiring.

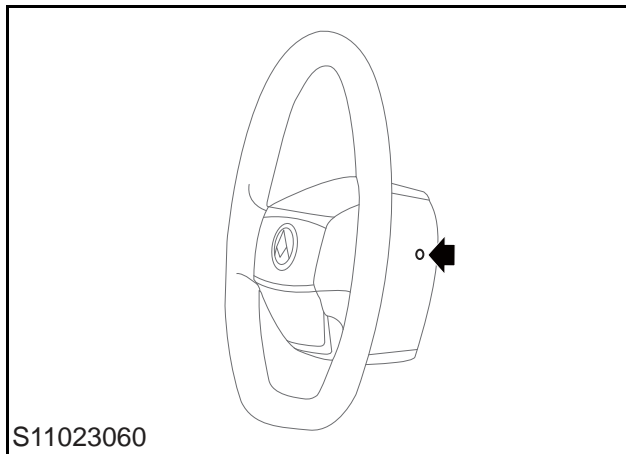
- 5 Check the operation of SRS warning lamp after installation. (check whether the SRS warning lamp is normal after power-on).

Front Passenger Airbag Assembly Replacement

Removal

Warning: Warning: DO NOT remove the airbag until the battery (or any possible auxiliary power supply of the vehicle) is disconnected and the capacitor of SRS control module is discharged for at least 10 min.

- 1 Disconnect the battery. Note: Disconnect the negative first;
- 2 Remove the instrument panel body assembly (Refer to "Instrument Panel Body Assembly Replacement");
- 3 Disconnect the lighting switch and electrical connector;
- 4 Unscrew the airbag retaining bolt;



- 5 Lift the airbag from instrument panel carefully, loosen electrical connector safety buckle and disconnect the harness connector;
- 6 Store the airbag in place according to storage requirements.

Installation

- 1 Installation is the reverse of removal. Observe the following precaution:
- 2 Tighten the airbag bolt to the torque of 9 ± 1 N.m.
- 3 Reconnect the battery, the positive (+) first.
- 4 Ensure correct wiring.
- 5 Check the operation of SRS warning lamp after installation. (check whether the SRS warning lamp is normal after power-on)

Clock Spring Assembly Replacement

Removal

- 1 Remove the steering wheel assembly (Refer to "Steering Wheel Assembly Replacement").
- 2 Remove the upper and lower steering column shroud (Refer to "Upper/Lower Steering Column Shroud Replacement").
- 3 Remove the clock spring assembly and the clock spring returning ring.

Installation

- 1 Installation is the reverse of removal.

Note: Installation Requirements of the Clock Spring:

1. The clock spring is retained with a pin, which shall not be pulled out before installing the steering wheel, otherwise the clock spring will rotate freely and deviate from the center position.
2. When installing the steering wheel, pull out the pin to confirm whether the clock spring is at the center position (If a yellow mark is visible on the clock spring surface window, it means the spring is centered). If yes, fix the steering wheel.
3. If not, adjust the spring to the center position, and then install the steering wheel.
4. Removal and installation of the clock spring may cause the position change to the steering angle sensor, please carry out zero calibration for the steering angle sensor with an aftermarket scan tool after the installation (If not calibrated, ESP warning indicator may keep ON).

Security and Protection

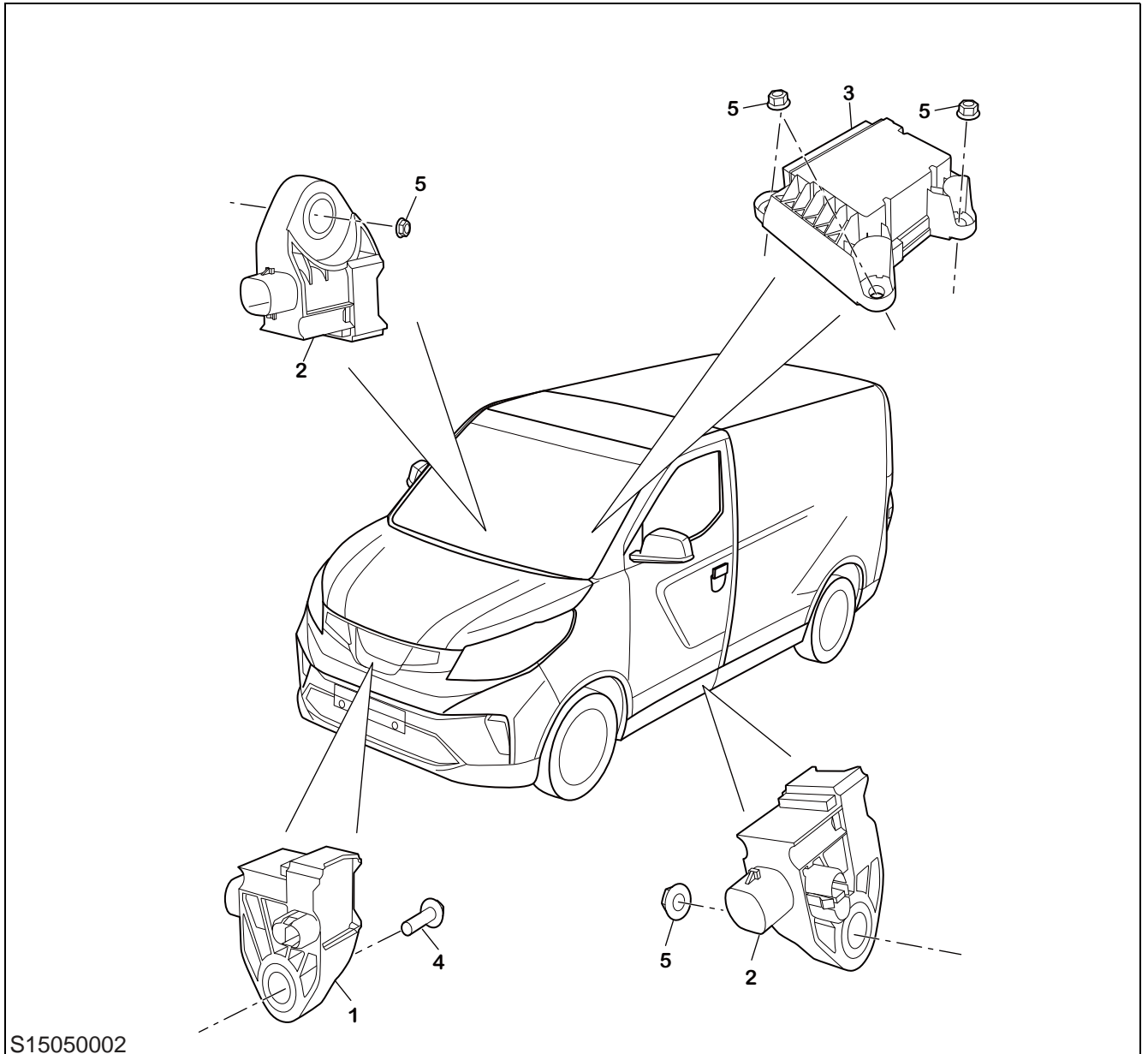
Description and Operation

Operating principle, etc.

Airbag

Layout

Airbag Layout



S15050002

- | | | | |
|---|---|----|---|
| 5 | Airbag front impact sensor | 8 | Bolt/Screw - Airbag front impact sensor |
| 6 | Airbag side impact sensor | 9 | Nut - Airbag side impact sensor |
| 7 | Airbag control and diagnostic unit assembly | 10 | Nut - Airbag ECU |

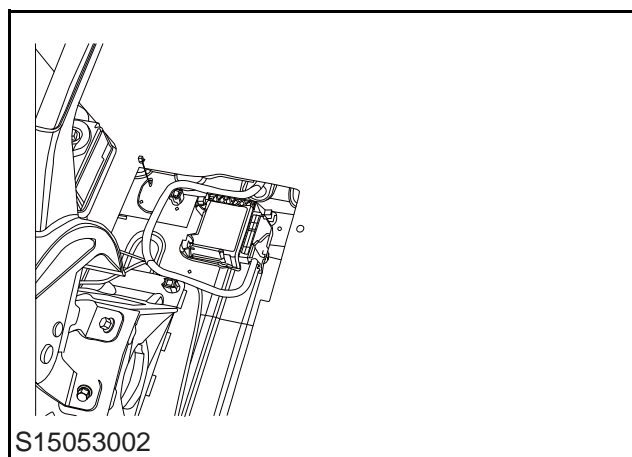
Security and Protection

Service Guide

Airbag Module Replacement

Removal

- 1 Disconnect the negative battery cable.
- 2 Remove the auxiliary fascia console assembly.
- 3 Disconnect the harness connector of the airbag module.
- 4 Remove 3 bolts fixing the airbag module to the floor, and remove them.



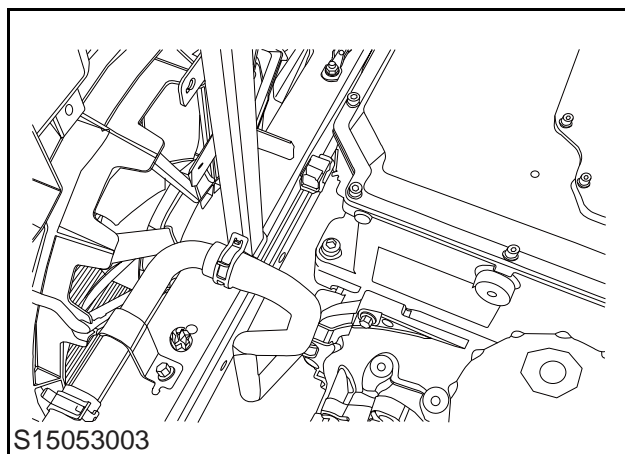
Installation

- 1 Fix the airbag module to the floor, install and tighten 3 screws.
- 2 Connect the electrical connector of the airbag module.
- 3 Install the auxiliary fascia console assembly.
- 4 Connect the negative battery cable.

Airbag Front Impact Sensor Replacement

Removal

- 1 Disconnect the negative battery cable.
- 2 Disconnect the electrical connector of airbag front impact sensor.
- 3 Remove 1 bolt fixing the airbag front impact sensor to the subframe front mounting plate reinforcement panel, and remove it.



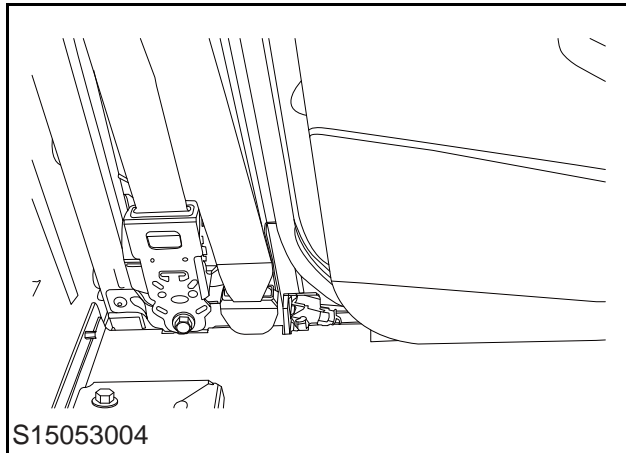
Installation

- 1 Fix the airbag front impact sensor to the subframe front mounting plate reinforcement panel, install and tighten 1 bolt.
- 2 Connect the electrical connector of airbag front impact sensor.
- 3 Connect the negative battery cable.

Airbag Side Impact Sensor Replacement

Removal

- 1 Disconnect the negative battery cable.
- 2 Remove the B-pillar lower trim panel assembly.
- 3 Disconnect the electrical connector of airbag side impact sensor.
- 4 Remove 1 nut fixing the airbag side impact sensor to the body, and remove it.



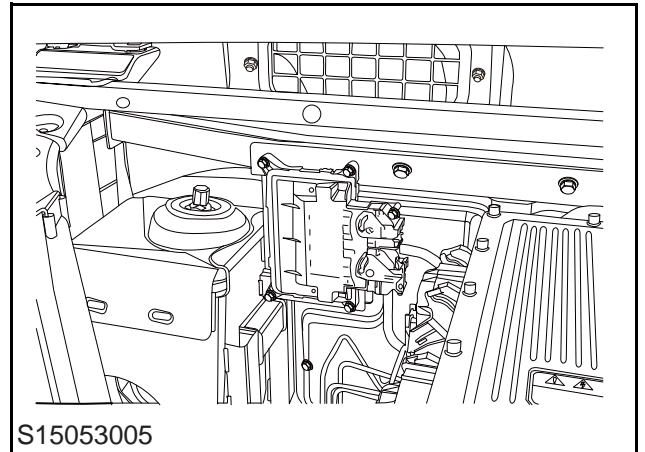
Installation

- 1 Fix the airbag side impact sensor to the body, install and tighten 1 nut.
- 2 Connect the electrical connector of airbag side impact sensor.
- 3 Install the B-pillar lower trim panel assembly.
- 4 Connect the negative battery cable.

Vehicle Control Unit Module Replacement

Removal

- 1 Disconnect the negative battery cable.
- 2 Disconnect the harness connector of the vehicle control unit module.
- 3 Remove 4 bolts fixing the vehicle control unit module to the front firewall, and remove them.



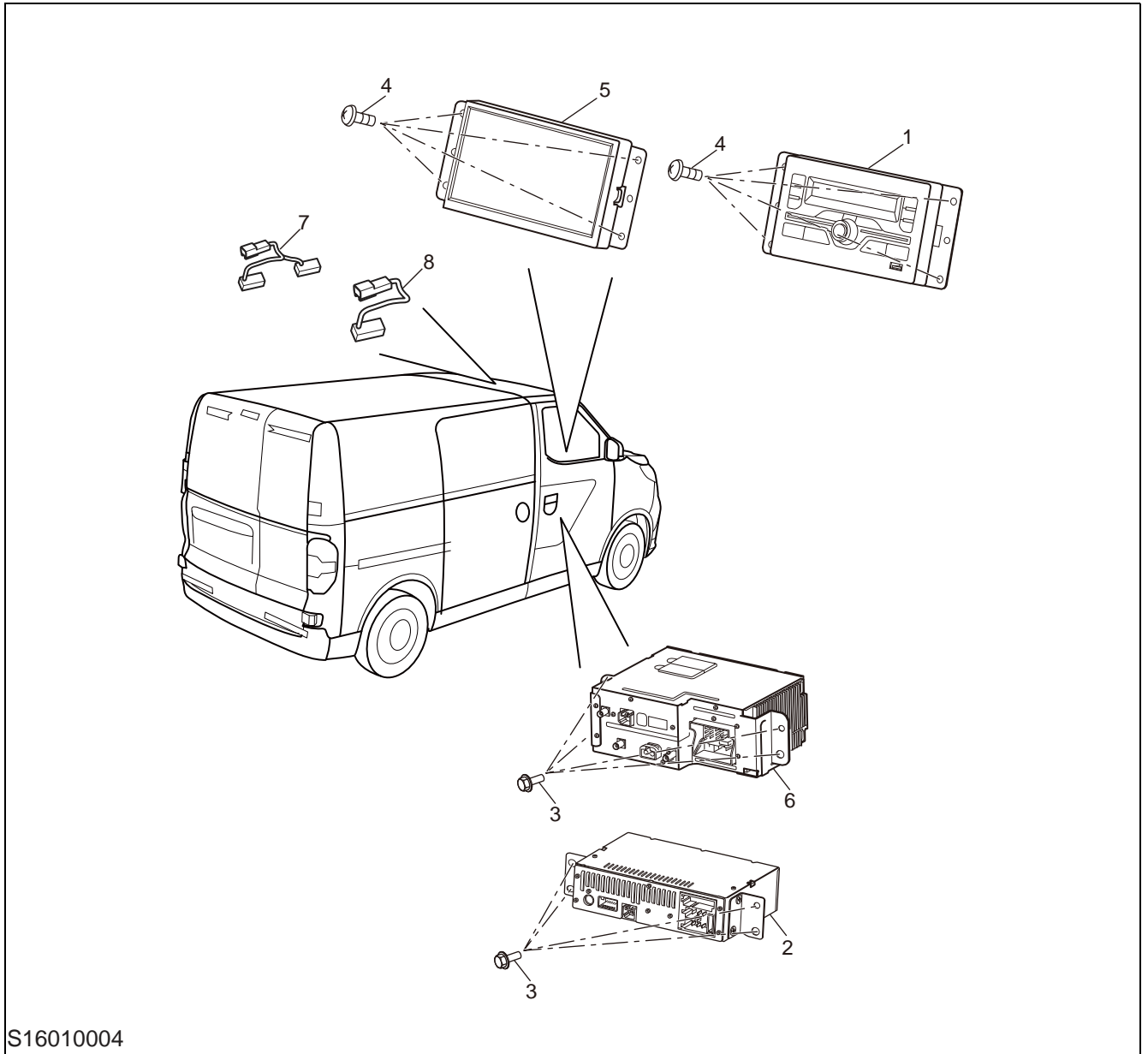
Installation

- 1 Fix the vehicle control unit module to the front firewall, install and tighten 4 bolts.
- 2 Connect the harness connector of the vehicle control unit module.
- 3 Connect the negative battery cable.

Entertainment and Navigation System

Layout

Entertainment Mainframe and Display

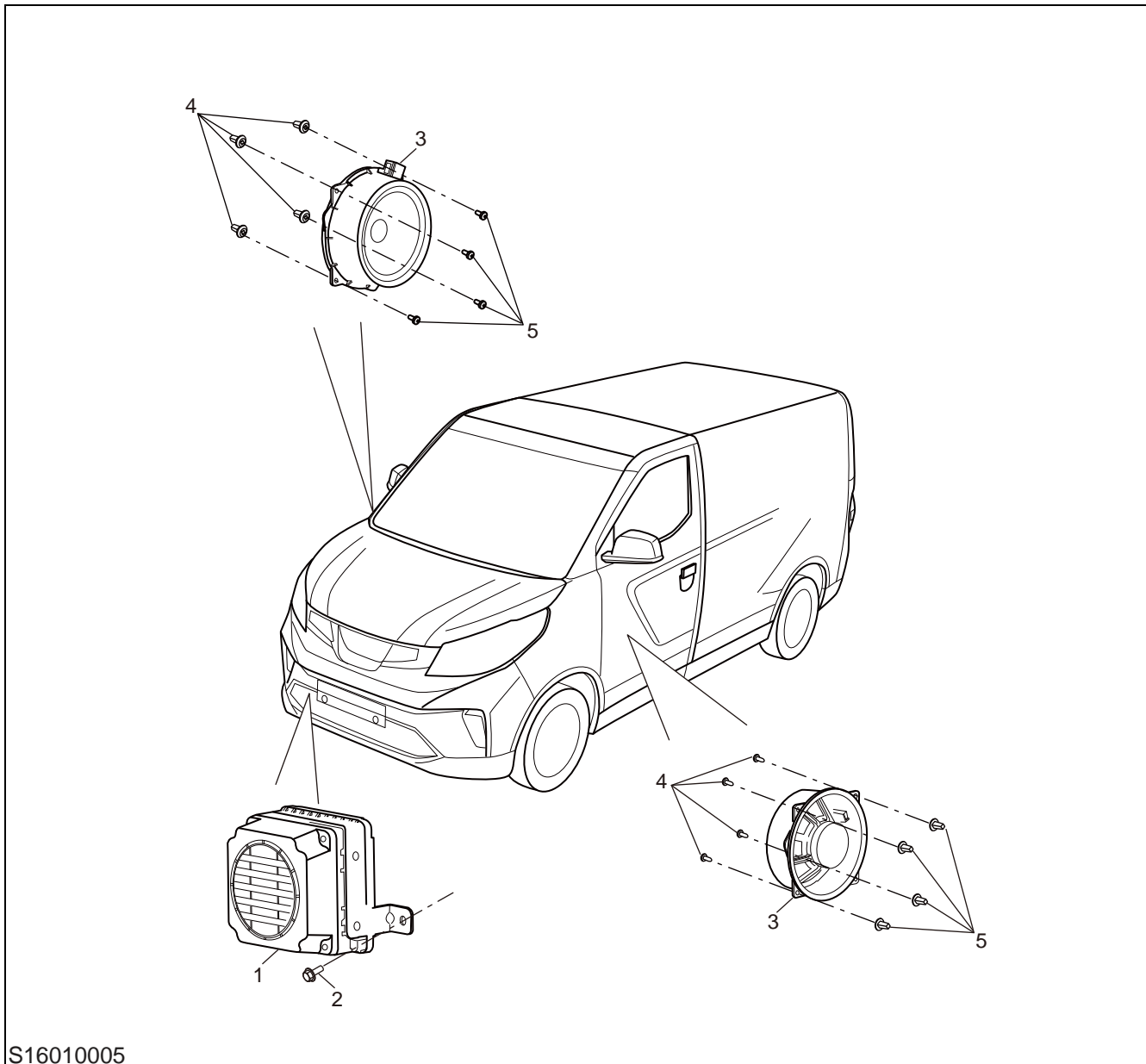


- | | | | |
|---|--------------------------|---|----------------------|
| 1 | Radio Panel | 5 | Navigation Display |
| 2 | Radio Mainframe | 6 | Navigation Mainframe |
| 3 | Mainframe Retaining Bolt | 7 | Microphone |
| 4 | Panel Retaining Screw | 8 | Microphone |

Entertainment and Navigation System

Layout

Audio System



1 Low-speed Alarm Buzzer

2 Retaining Bolt

3 Front Speakers

4 Retaining Screw

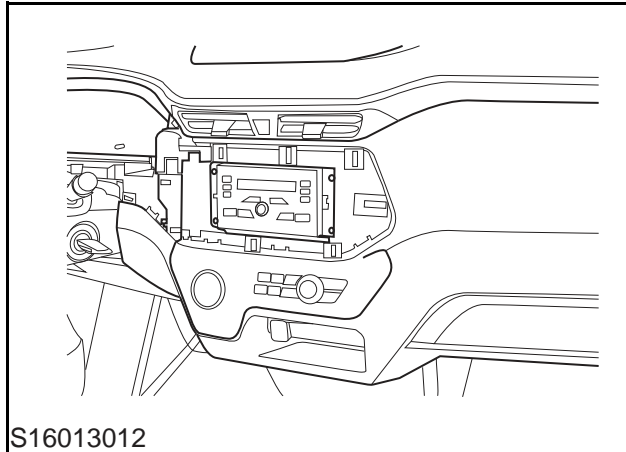
5 Retaining Nut

Service Guide

Radio Panel Replacement

Removal

- 1 Disconnect the negative battery cable.
- 2 Remove the central control panel assembly.
- 3 Remove 4 screws fixing the radio panel to the instrument panel body.



- 4 Remove the radio panel, and disconnect the electrical connector on the back.

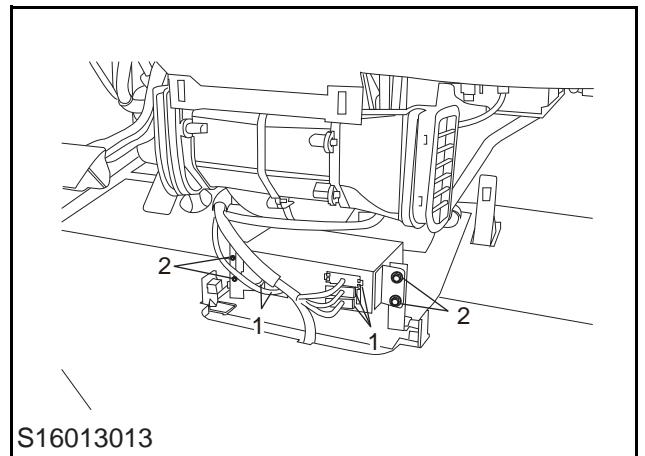
Installation

- 1 Remove the electrical connector of the radio panel.
- 2 Fix the radio panel to the instrument panel body, install and tighten 4 screws.
- 3 Install the central control panel assembly.
- 4 Connect the negative battery cable.

Radio Mainframe Replacement

Removal

- 1 Disconnect the negative battery cable.
- 2 Remove the instrument panel central lower trim panel assembly.
- 3 Disconnect the electrical connector (1) of the radio body.
- 4 Remove 4 bolts fixing the radio body to the bracket, and remove them.



Installation

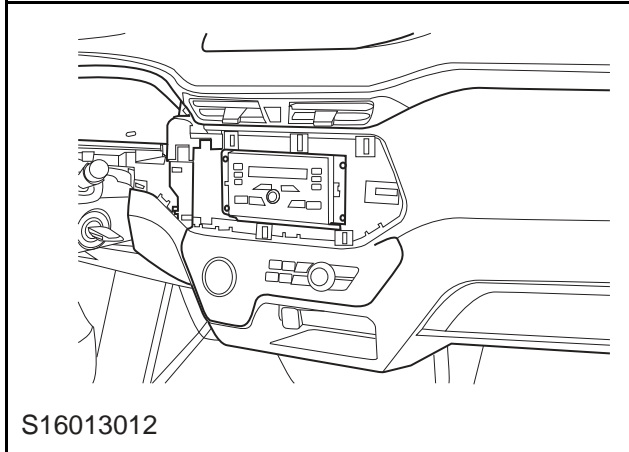
- 1 Fix the radio mainframe to the bracket, install and tighten 4 bolts.
- 2 Connect the electrical connector of the radio mainframe.
- 3 Install the instrument panel central lower trim panel assembly.
- 4 Connect the negative battery cable.

Entertainment and Navigation System

Entertainment System Display Removal Replacement

Removal

- 1 Disconnect the negative battery cable.
- 2 Remove the central control panel assembly.
- 3 Remove 4 screws fixing the entertainment system display to the instrument panel body.



4. Remove the entertainment system display, and disconnect the electrical connector on the back.

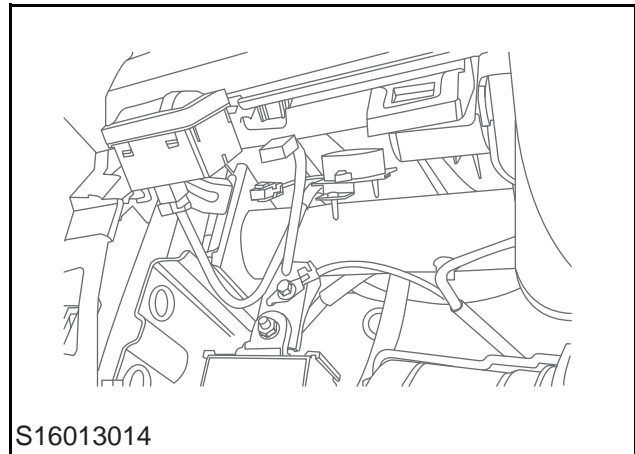
Installation

- 1 Remove the electrical connector of the entertainment system display.
- 2 Fix the entertainment system display to the instrument panel body, install and tighten 4 screws.
- 3 Install the central control panel assembly.
- 4 Connect the negative battery cable.

Radar Buzzer Replacement

Removal

- 1 Disconnect the negative battery cable.
- 2 Remove the instrument panel driver side lower guard plate assembly.
- 3 Disconnect the electrical connector of the radar buzzer.
- 4 Remove 2 screws fixing the radar buzzer to the instrument panel beam, and remove them.



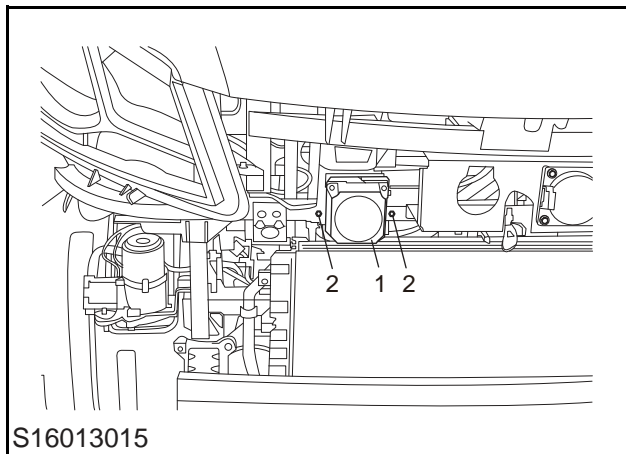
Installation

- 1 Fix the radar buzzer to the instrument panel beam, install and tighten 2 screws.
- 2 Connect the electrical connector of the radar buzzer.
- 3 Install the instrument panel driver side lower guard plate assembly.
- 4 Connect the negative battery cable.

Low-speed Alarm Buzzer Replacement

Removal

- 1 Disconnect the negative battery cable.
- 2 Remove the front bumper assembly.
- 3 Disconnect the electrical connector (1) of the low-speed alarm buzzer.
- 4 Remove 2 bolts (2) fixing the low-speed alarm buzzer to the headlamp lower mounting beam, and remove them.



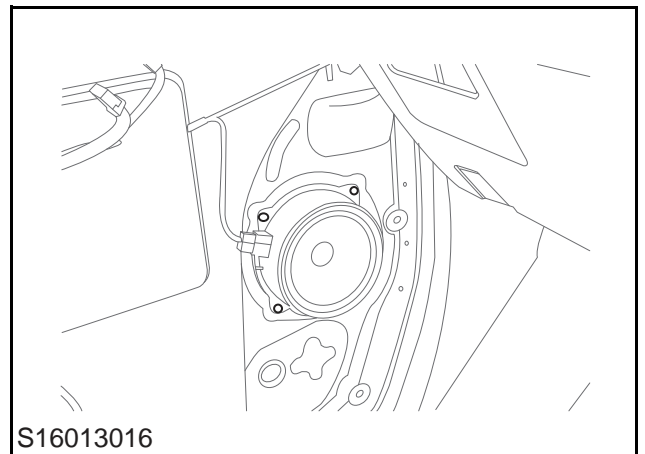
Installation

- 1 Fix the low-speed alarm buzzer to the headlamp lower mounting beam, install and tighten 2 bolts.
- 2 Connect the electrical connector of the low-speed alarm buzzer.
- 3 Install the front bumper assembly.
- 4 Connect the negative battery cable.

Left Speaker Replacement

Removal

- 1 Disconnect the negative battery cable.
- 2 Remove the driver side door interior trim panel assembly.
- 3 Disconnect the electrical connector of the speaker.
- 4 Remove 4 screws fixing the speaker to the door, and remove them.



Installation

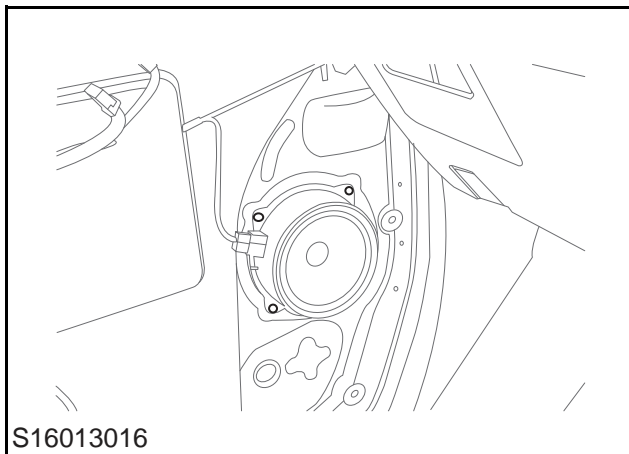
- 1 Fix the speaker to the door, install and tighten 4 screws.
- 2 Connect the electrical connector of the speaker.
- 3 Install the driver side door interior trim panel assembly.
- 4 Connect the negative battery cable.

Entertainment and Navigation System

Right Speaker Replacement

Removal

- 1 Disconnect the negative battery cable.
- 2 Remove the driver side door interior trim panel assembly.
- 3 Disconnect the electrical connector of the speaker.
- 4 Remove 4 screws fixing the speaker to the door, and remove them.



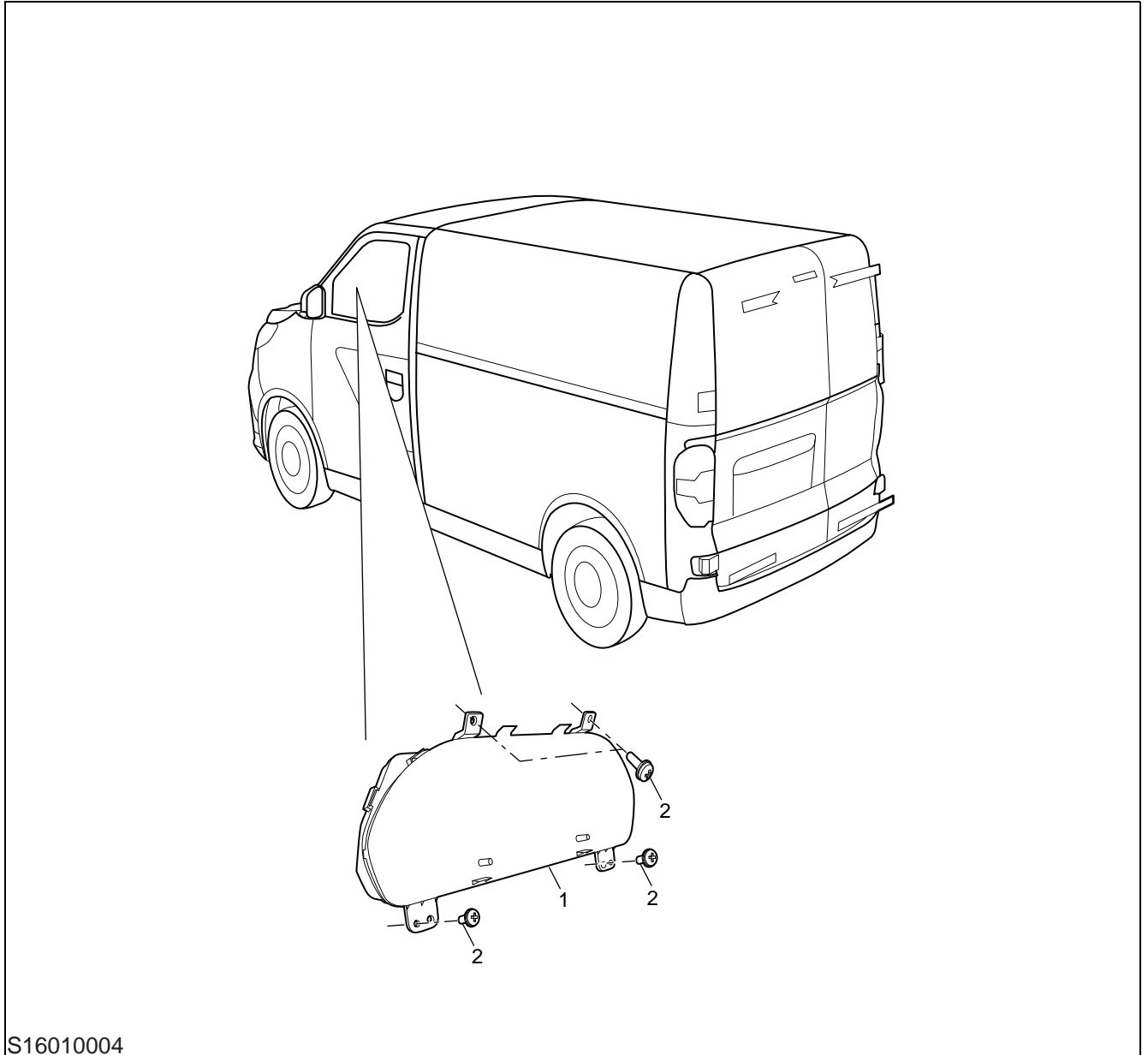
Installation

- 1 Fix the speaker to the door, install and tighten 4 screws.
- 2 Connect the electrical connector of the speaker.
- 3 Install the driver side door interior trim panel assembly.
- 4 Connect the negative battery cable.

Display and IPK

Layout

Display and IPK Layout



S16010004

1 Instrument Pack

2 Retaining Screw

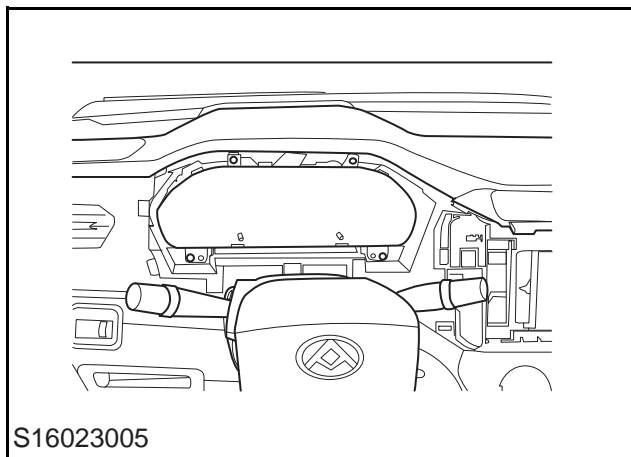
Entertainment and Navigation System

Service Guide

Instrument Pack Remove

Removal

- 1 Disconnect the negative battery cable.
- 2 Remove the central control panel assembly
- 3 Remove 4 screws fixing the IPK to the instrument panel body.



- 4 Remove the IPK, and disconnect the electrical connector on the back.

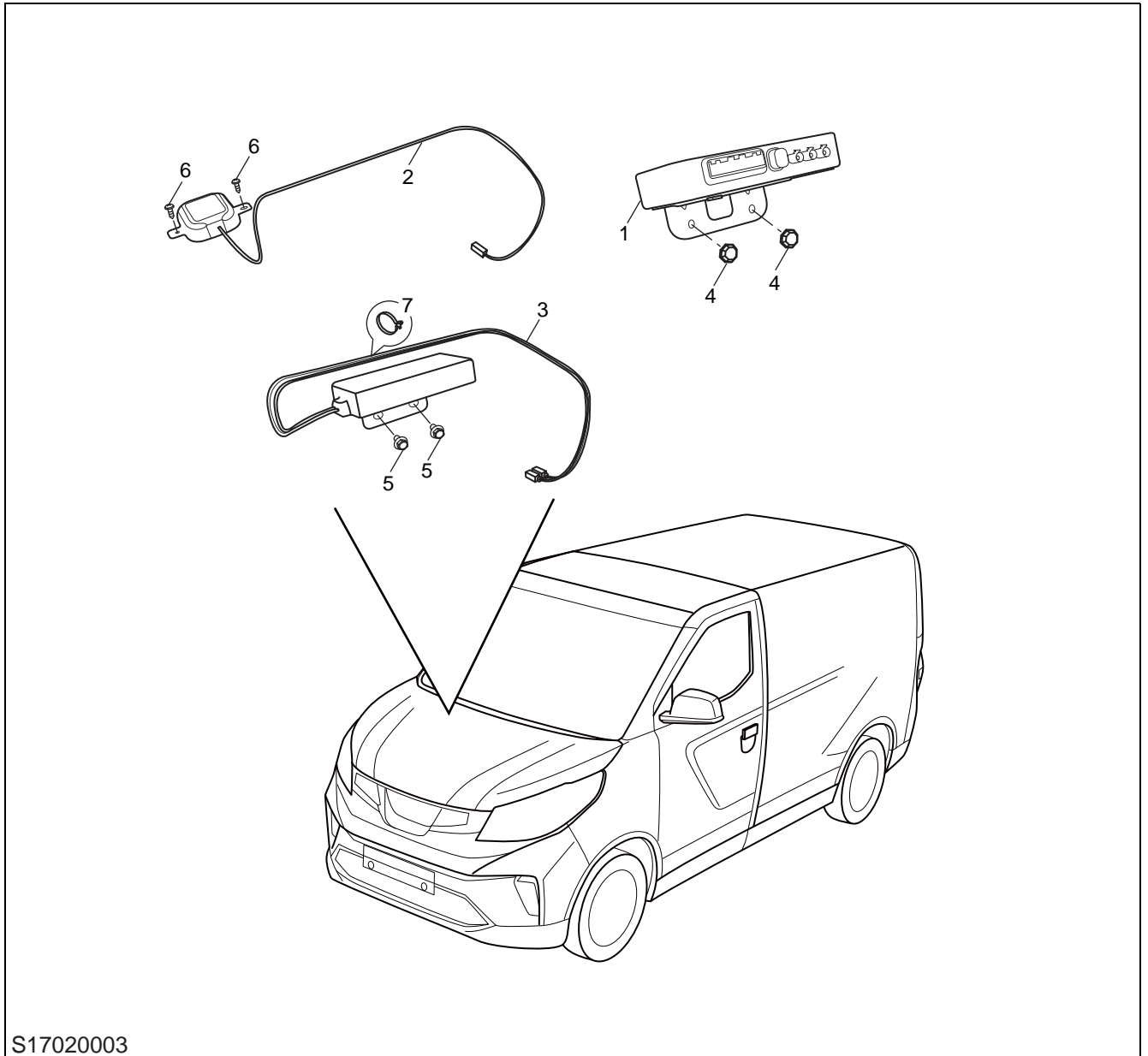
Installation

- 1 Connect the electrical connector of the IPK.
- 2 Fix the IPK to the instrument panel body, install and tighten 4 screws.
- 3 Install the central control panel assembly.
- 4 Connect the negative battery cable.

Data Communication

Layout

Data Communication Layout



1 Remote Communication Module

2 BD/GPS Antenna

3 4G Antenna

4 Retaining Bolt

5 Retaining Bolt

6 Retaining Screw

7 Clip

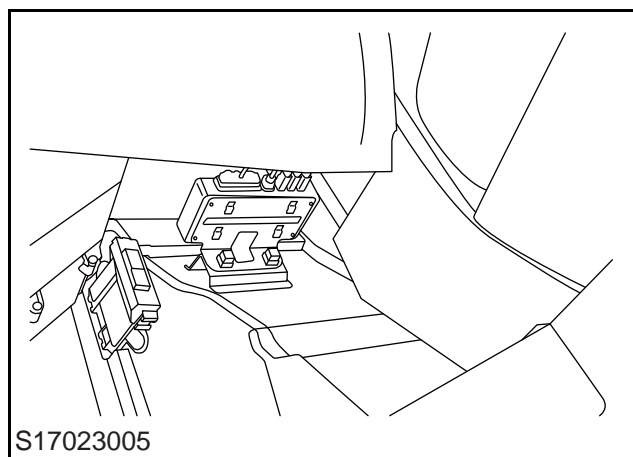
Power and Signal Distribution

Service Guide

Remote Communication Module Replacement

Removal

- 1 Disconnect the negative battery cable.
- 2 Disconnect the electrical connector (1) of the remote communication module.
- 3 Remove 2 bolts fixing the remote communication module, and remove them.



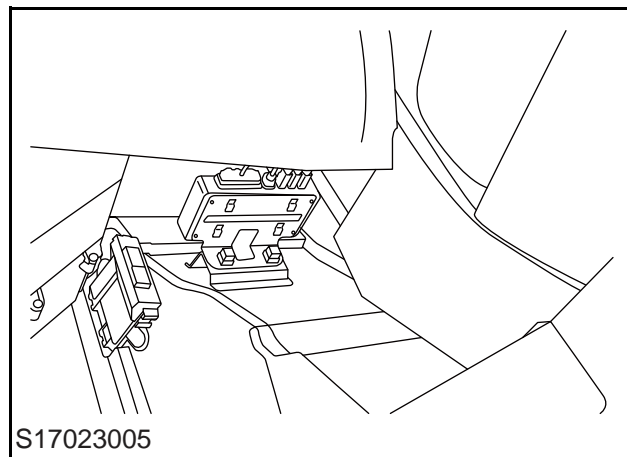
Installation

- 1 Fix the remote communication module to the body, install and tighten 2 bolts.
- 2 Connect the electrical connector of the remote communication module.
- 3 Connect the negative battery cable.

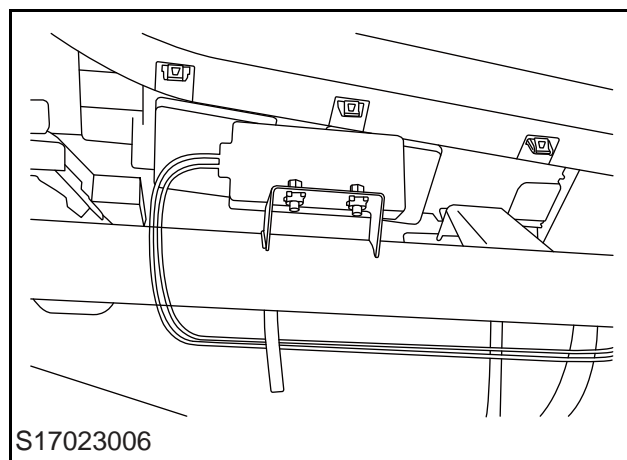
4G Antenna Replacement

Removal

- 1 Disconnect the negative battery cable.
- 2 Disconnect the 4G antenna from the remote communication module.



- 3 Remove 2 bolts fixing the 4G antenna to the instrument panel beam, and remove the 4G antenna.



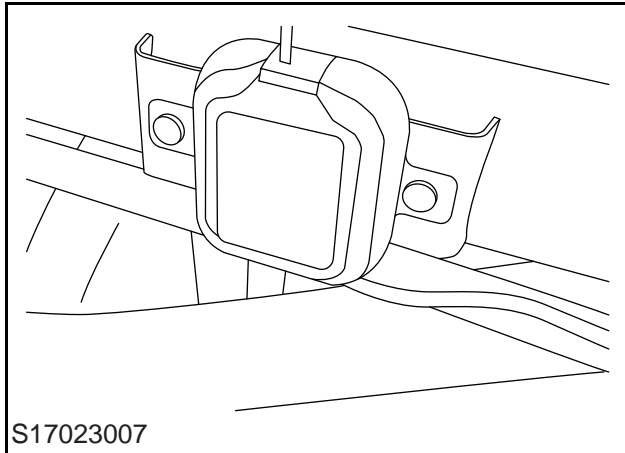
Installation

- 1 Fix the 4G antenna to the instrument panel beam, install and tighten 2 bolts.
- 2 Connect the 4G antenna to the connector of the remote communication module.
- 3 Connect the negative battery cable.

BD/GPS Antenna Replacement

Removal

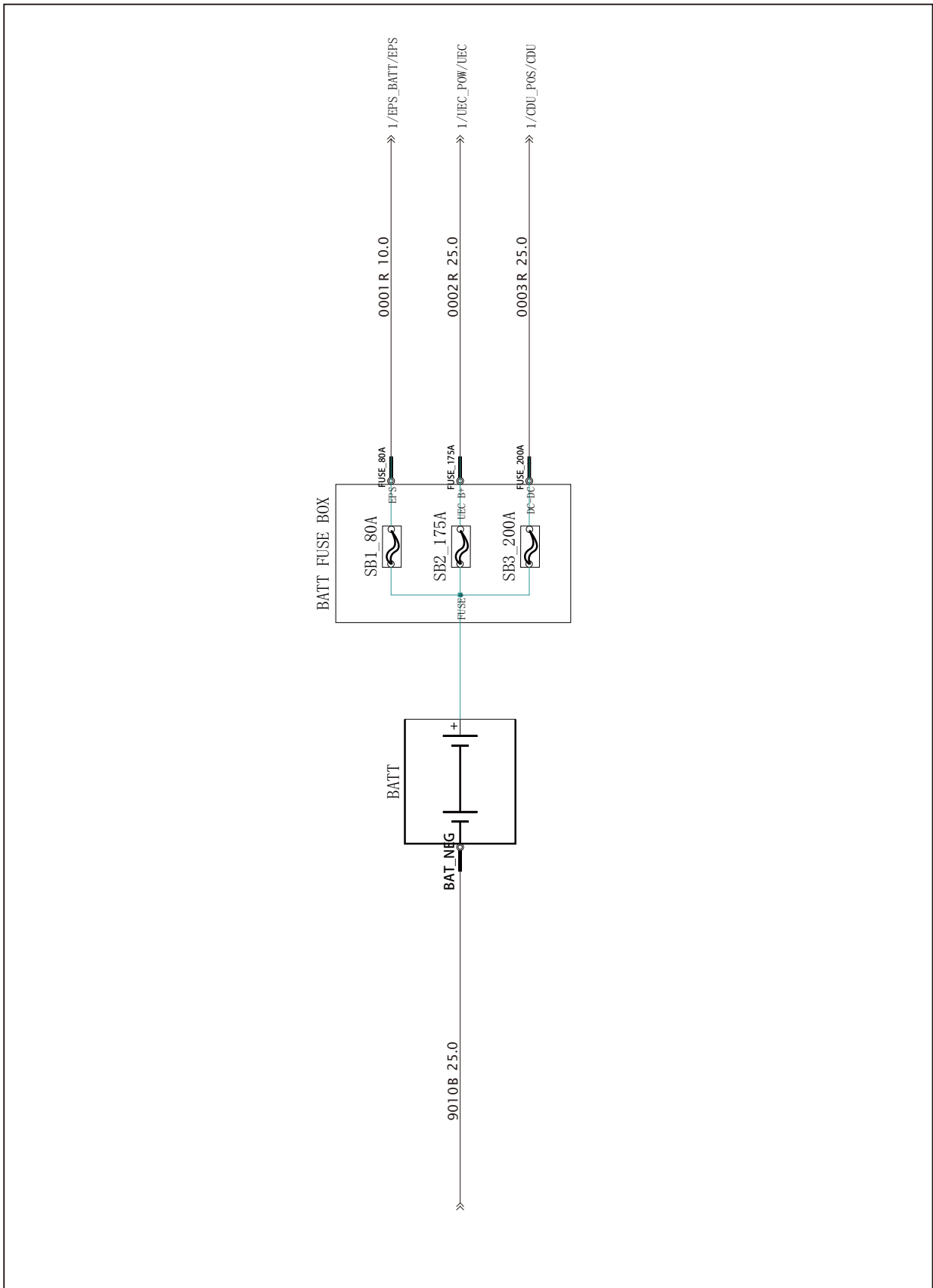
- 1 Disconnect the negative battery cable.
- 2 Disconnect the BD/GPS antenna from the remote communication module.
- 3 Remove 2 screws fixing the BD/GPS antenna to the instrument panel beam, and remove the BD/GPS antenna.



Installation

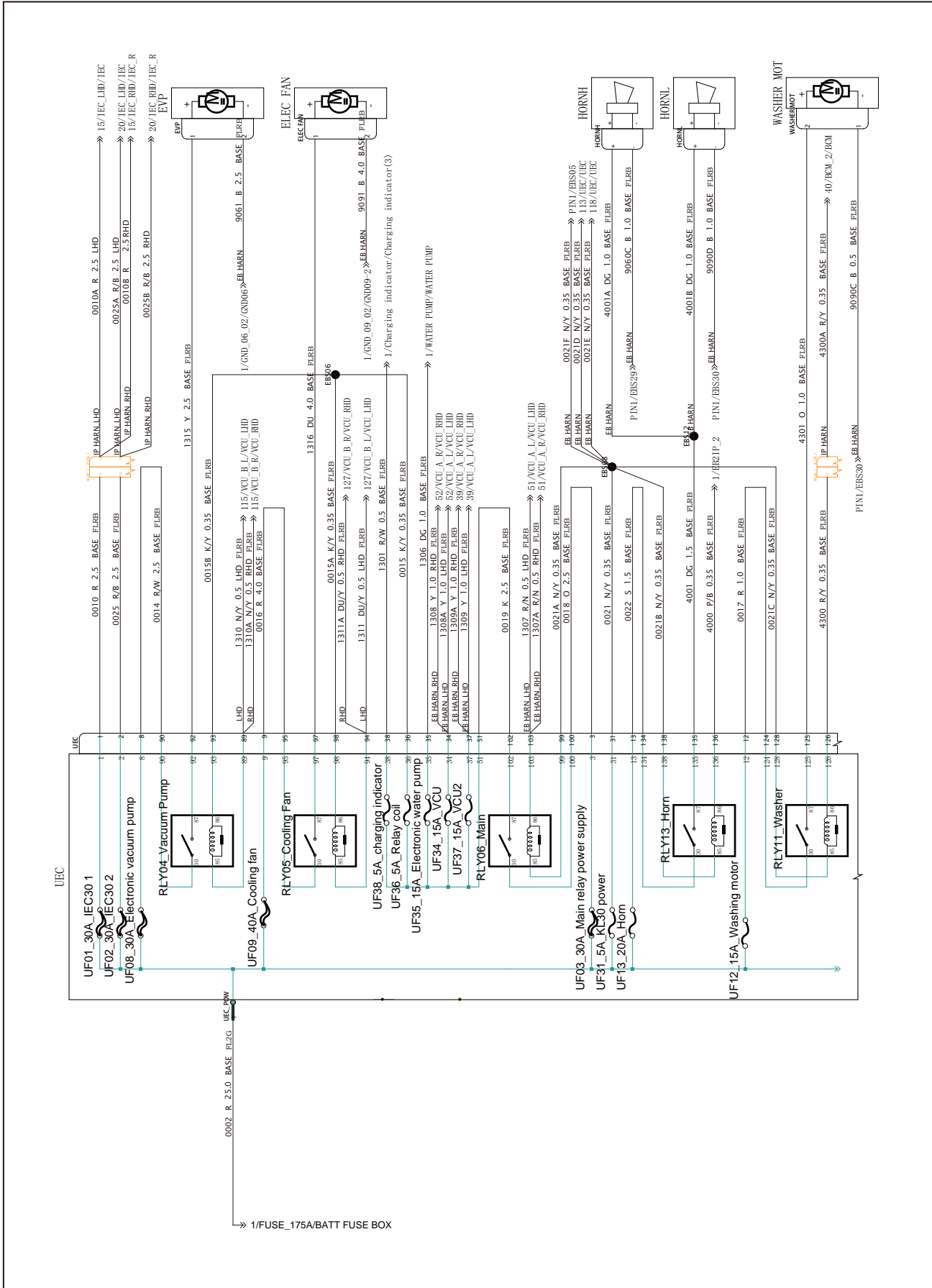
- 1 Fix the BD/GPS antenna to the instrument panel beam, install and tighten 2 screws.
- 2 Connect the BD/GPS antenna to the connector of the remote communication module.
- 3 Connect the negative battery cable.

BATT FUSE BOX

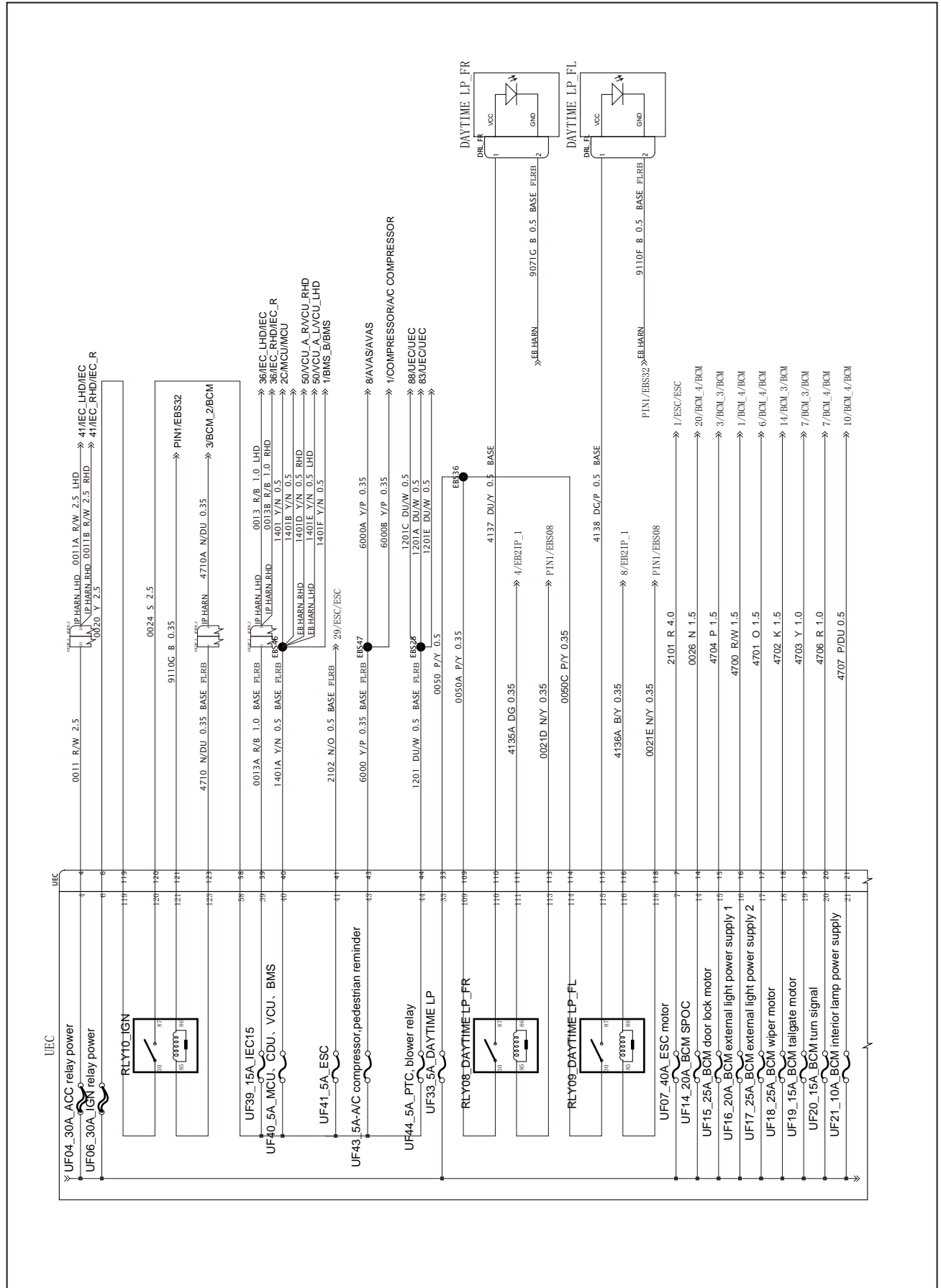


Electrical circuit diagrams

UEC-1

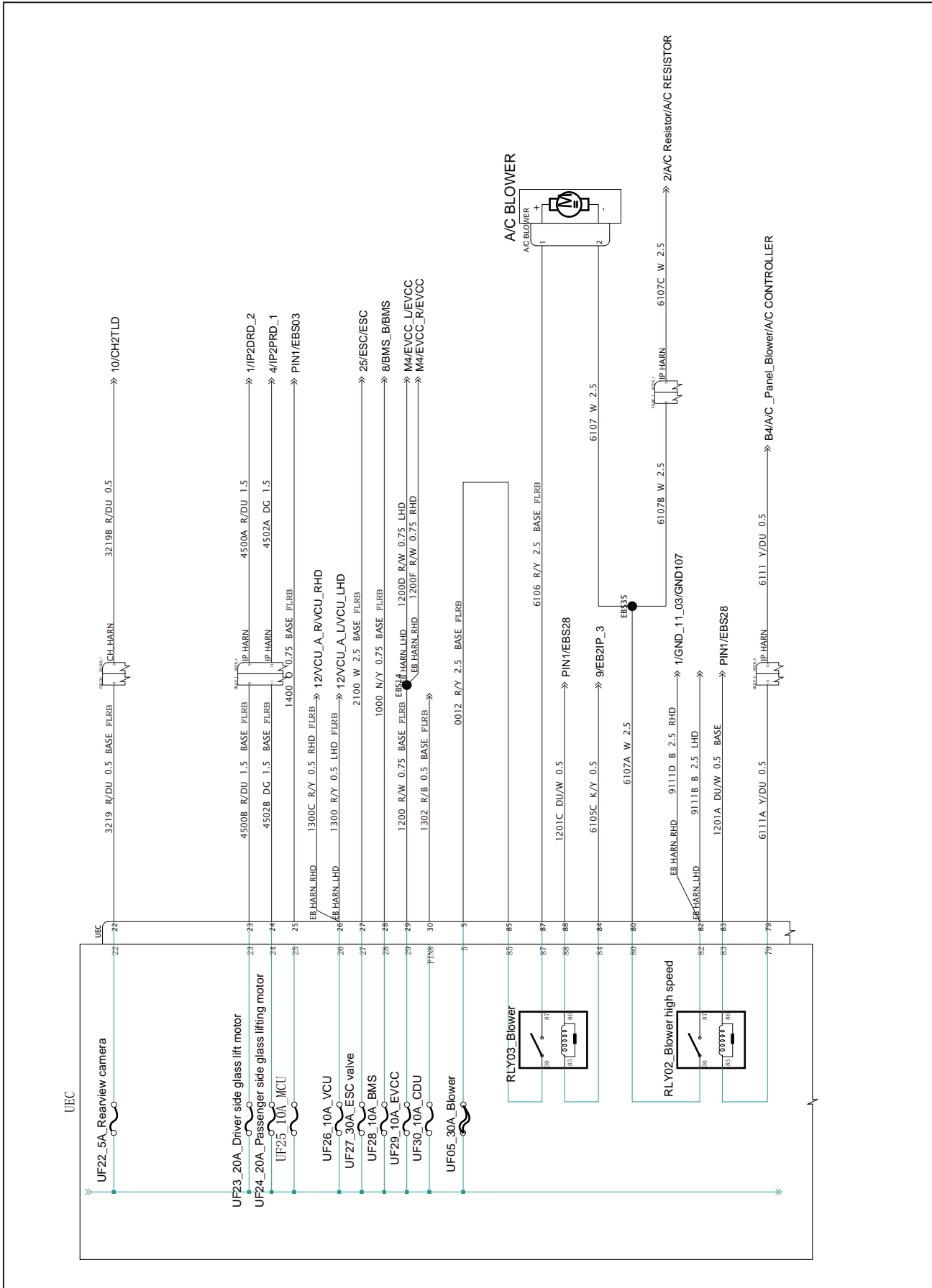


UEC-2

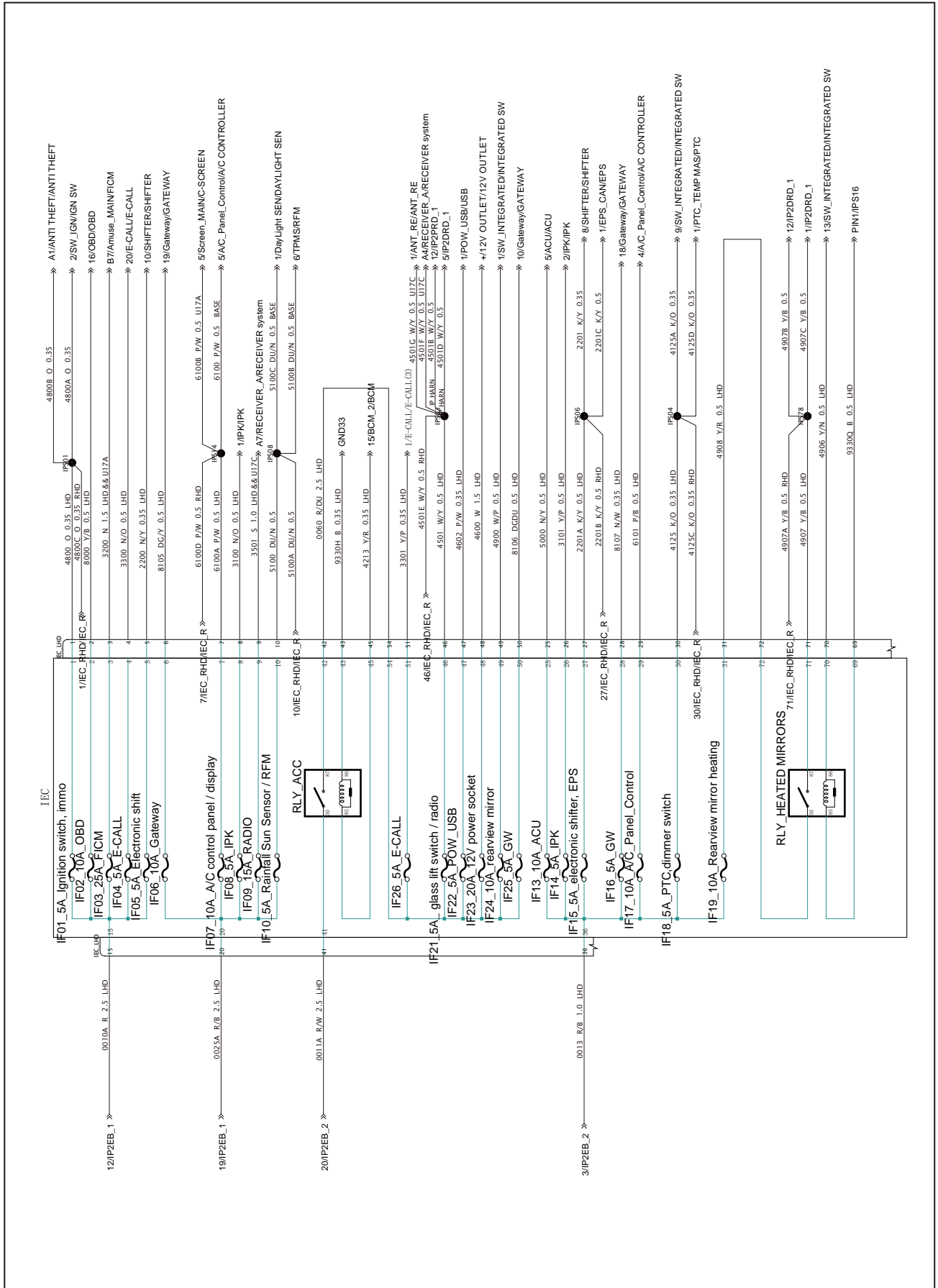


Electrical circuit diagrams

UEC-3

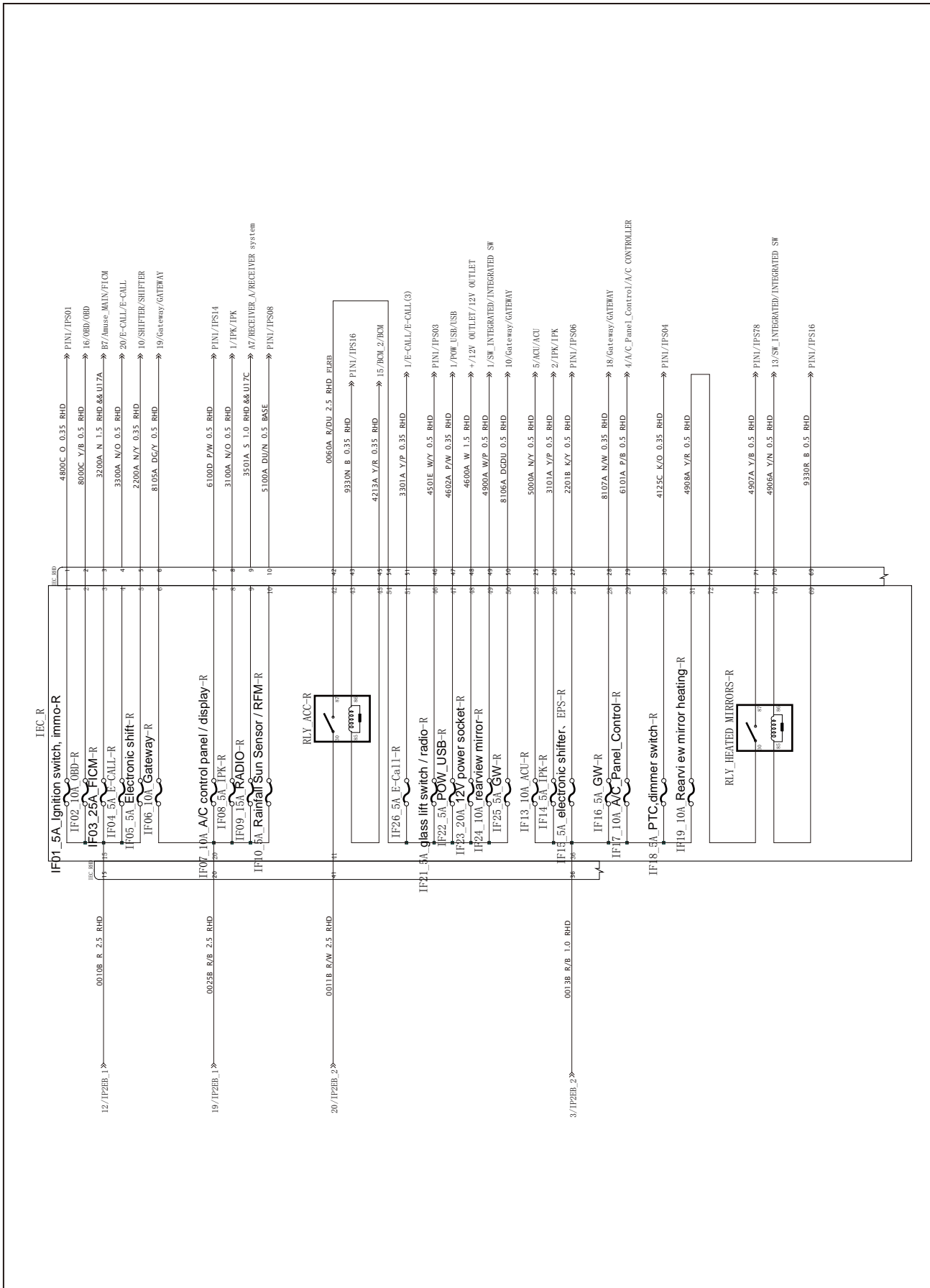


IEC-LHD

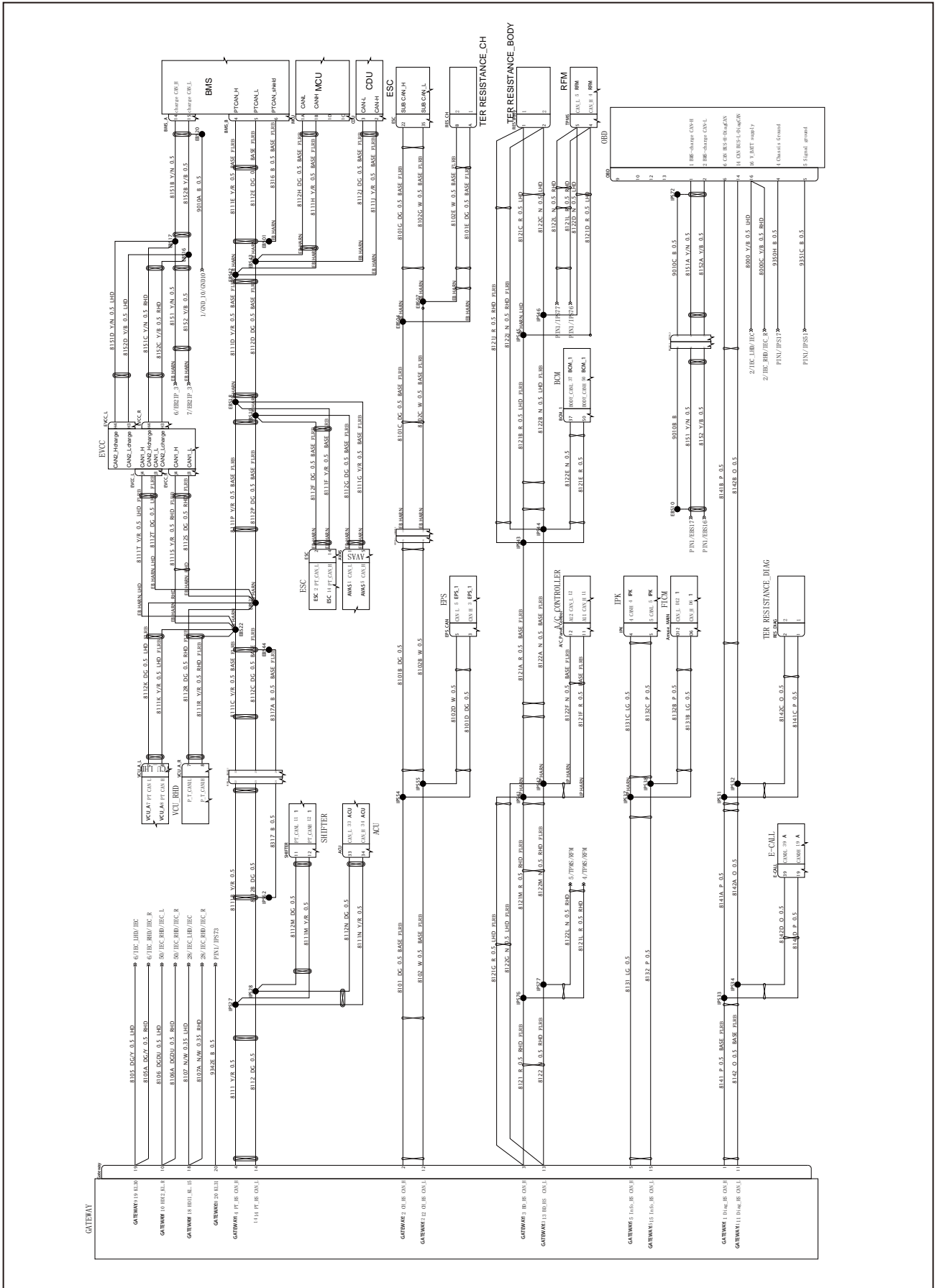


Electrical circuit diagrams

IEC-RHD

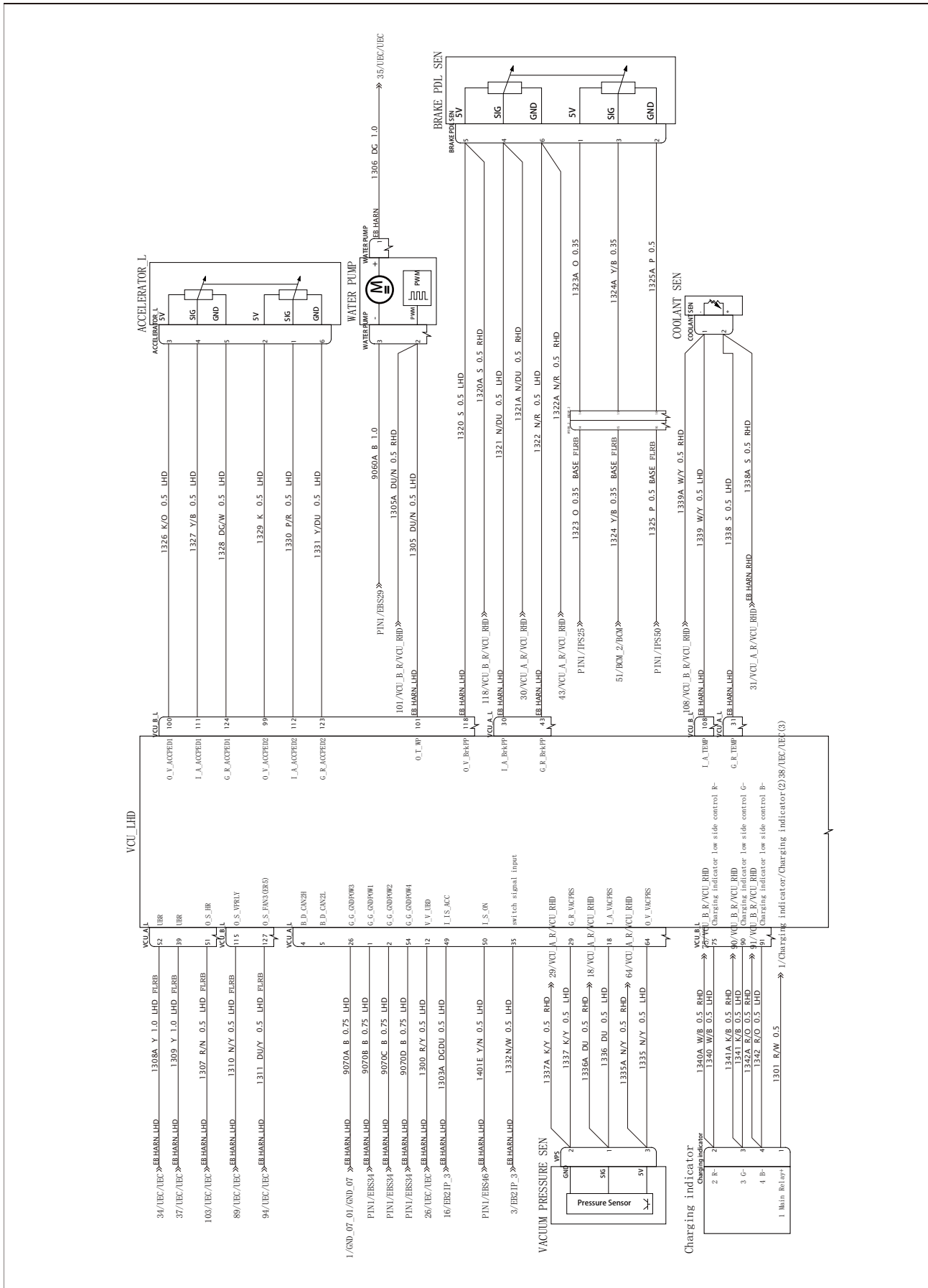


GATEWAY

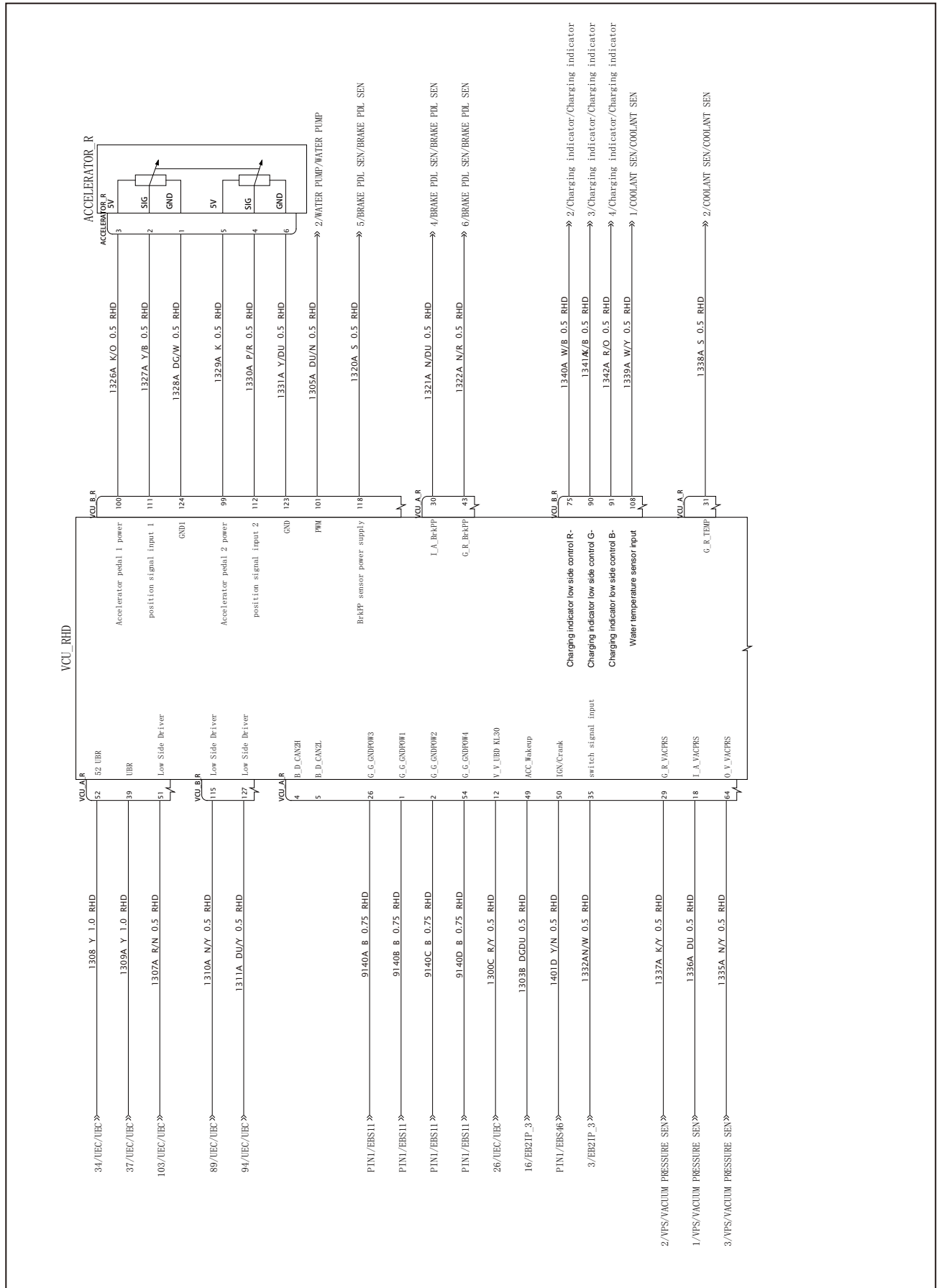


Electrical circuit diagrams

VCU

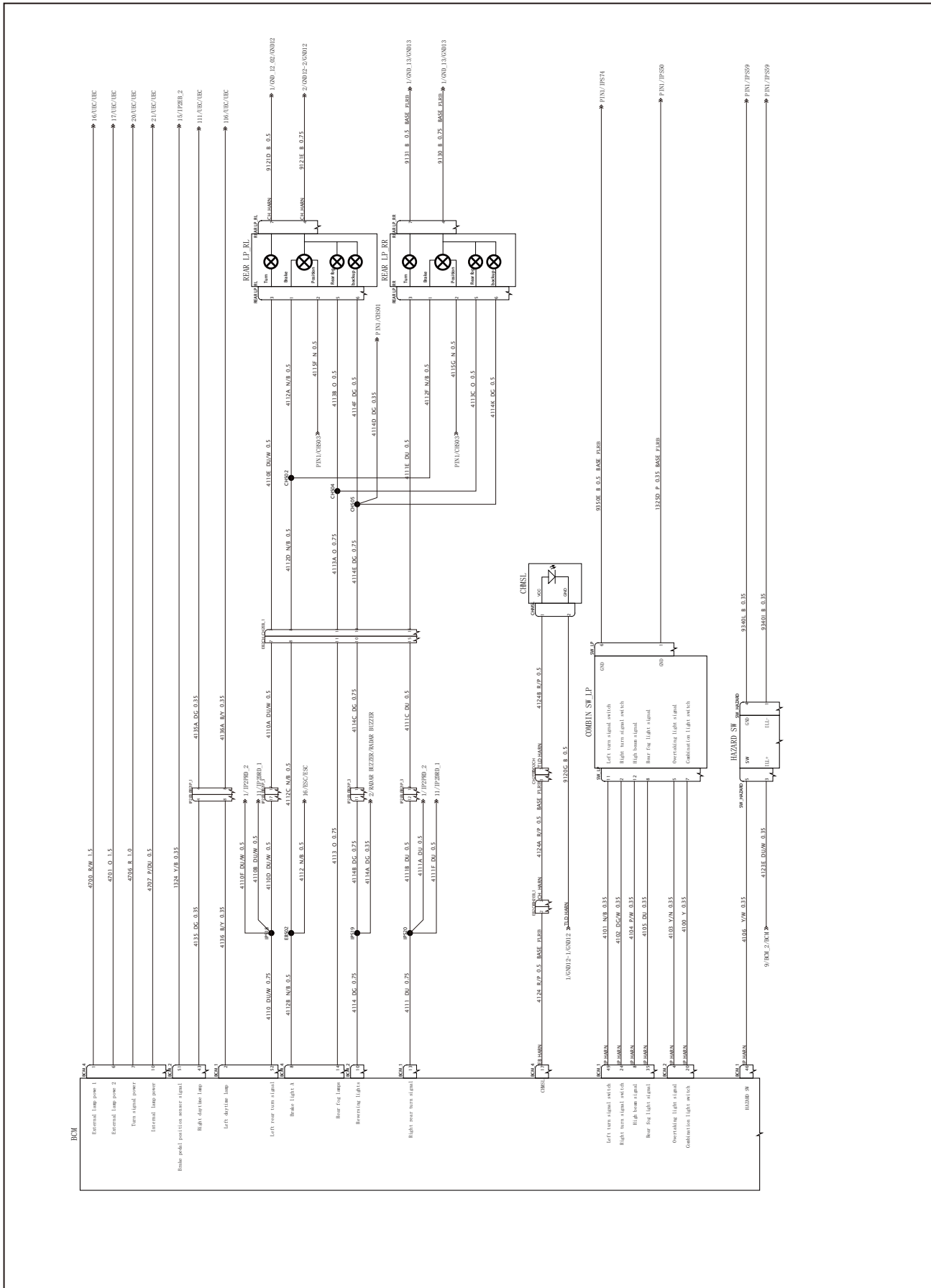


VCU_RHD

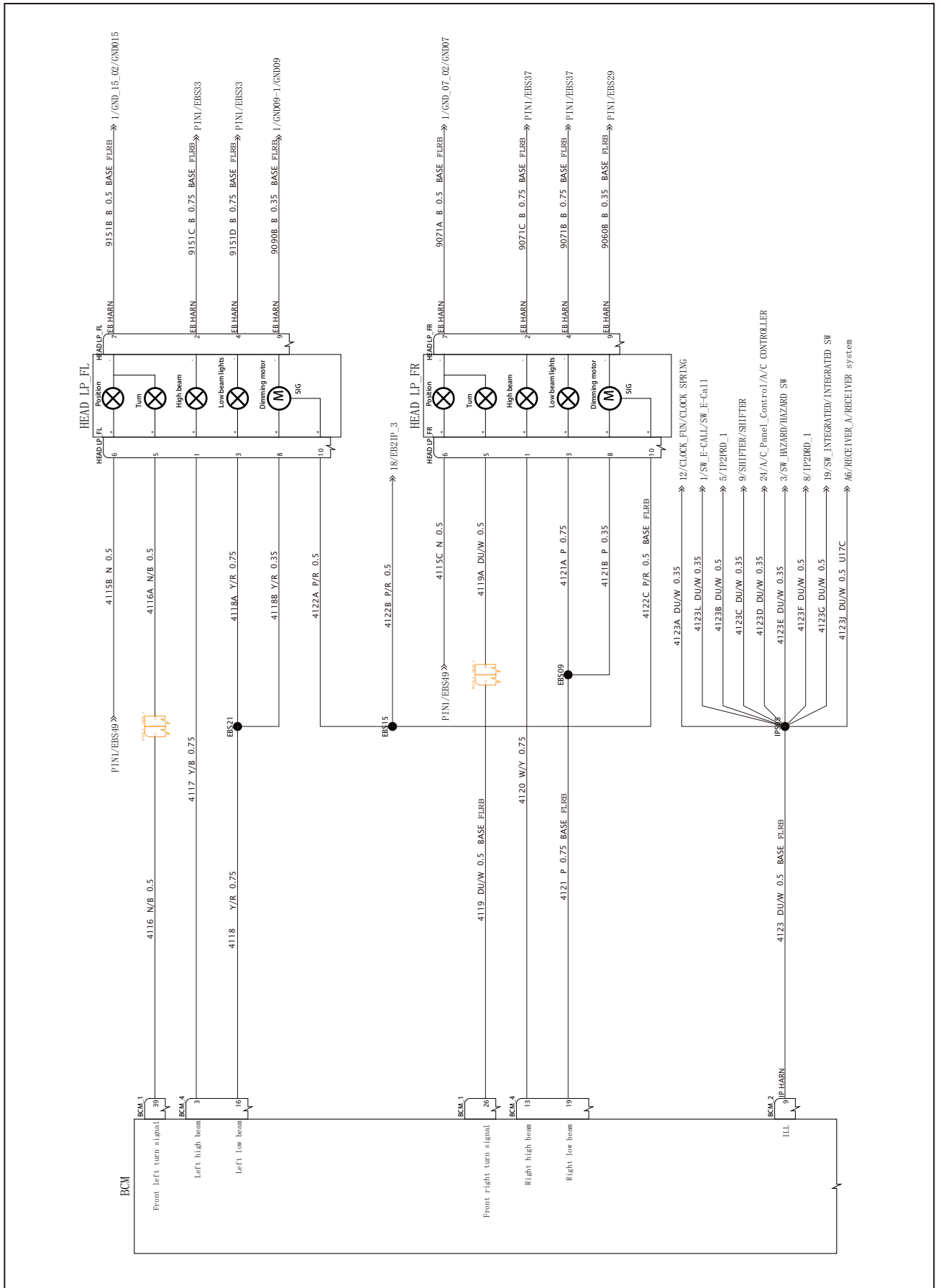


Electrical circuit diagrams

CM_LIGHT System-1

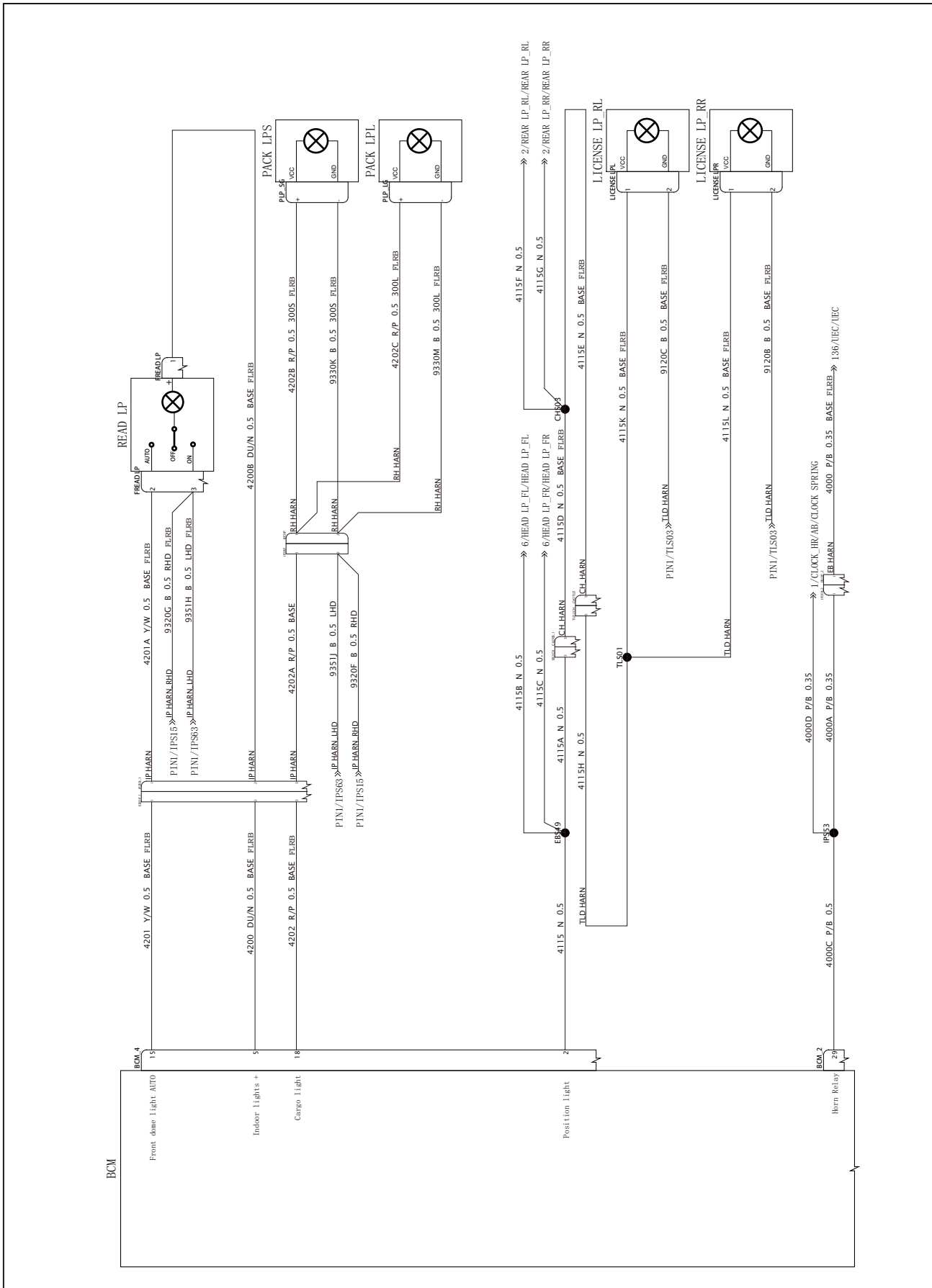


BCM_LIGHT System-2

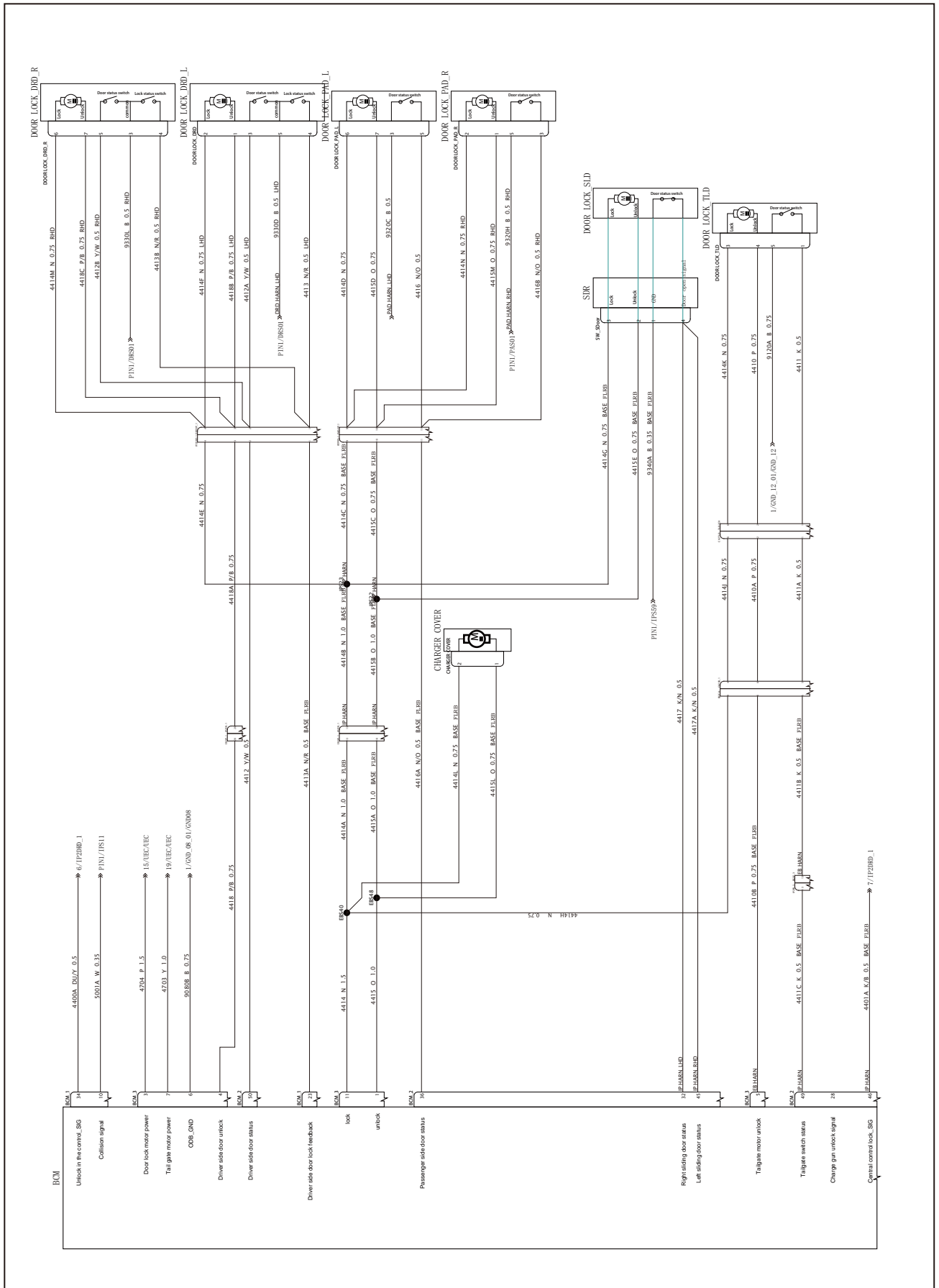


Electrical circuit diagrams

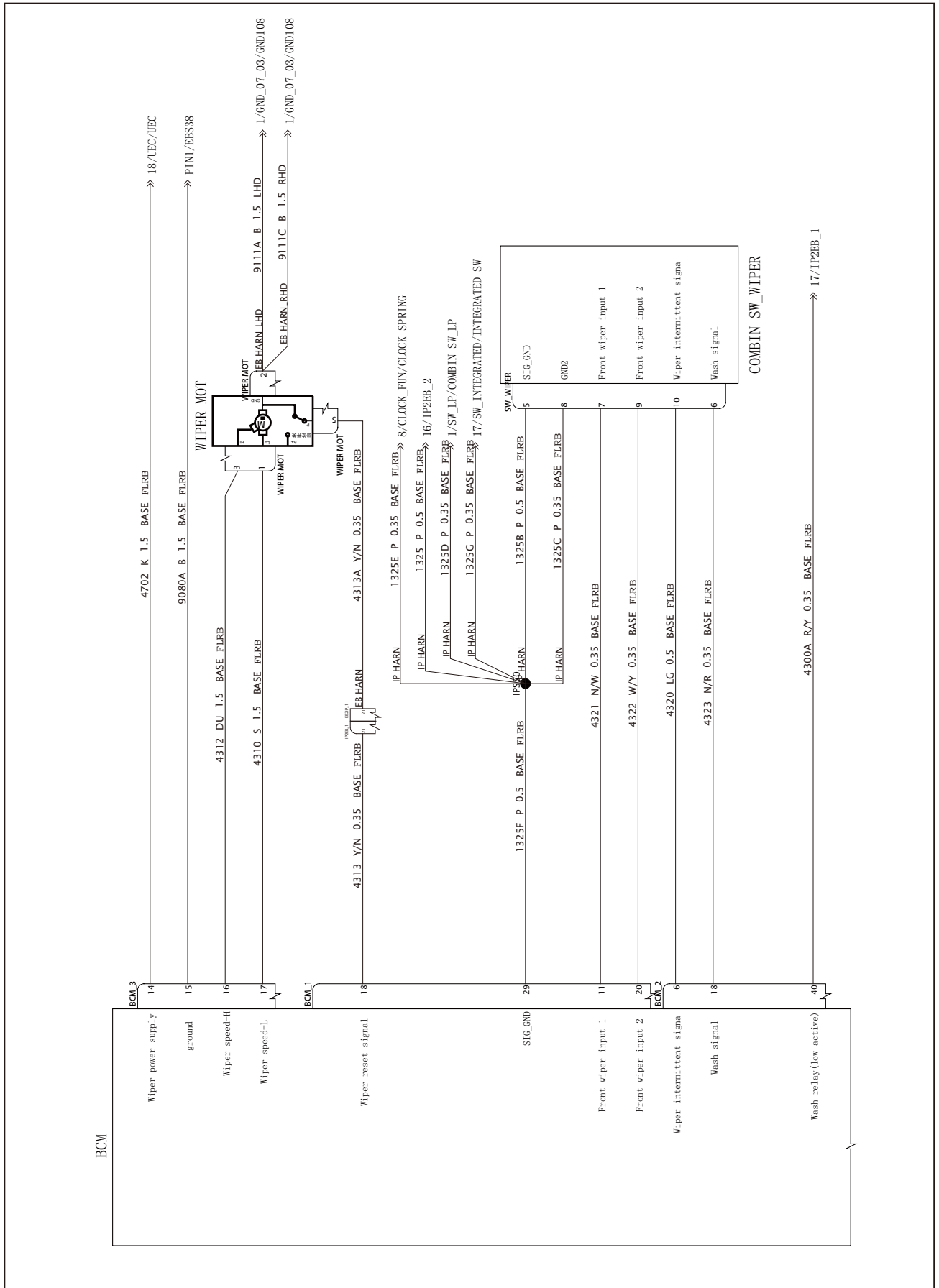
BCM_LIGHT System-3



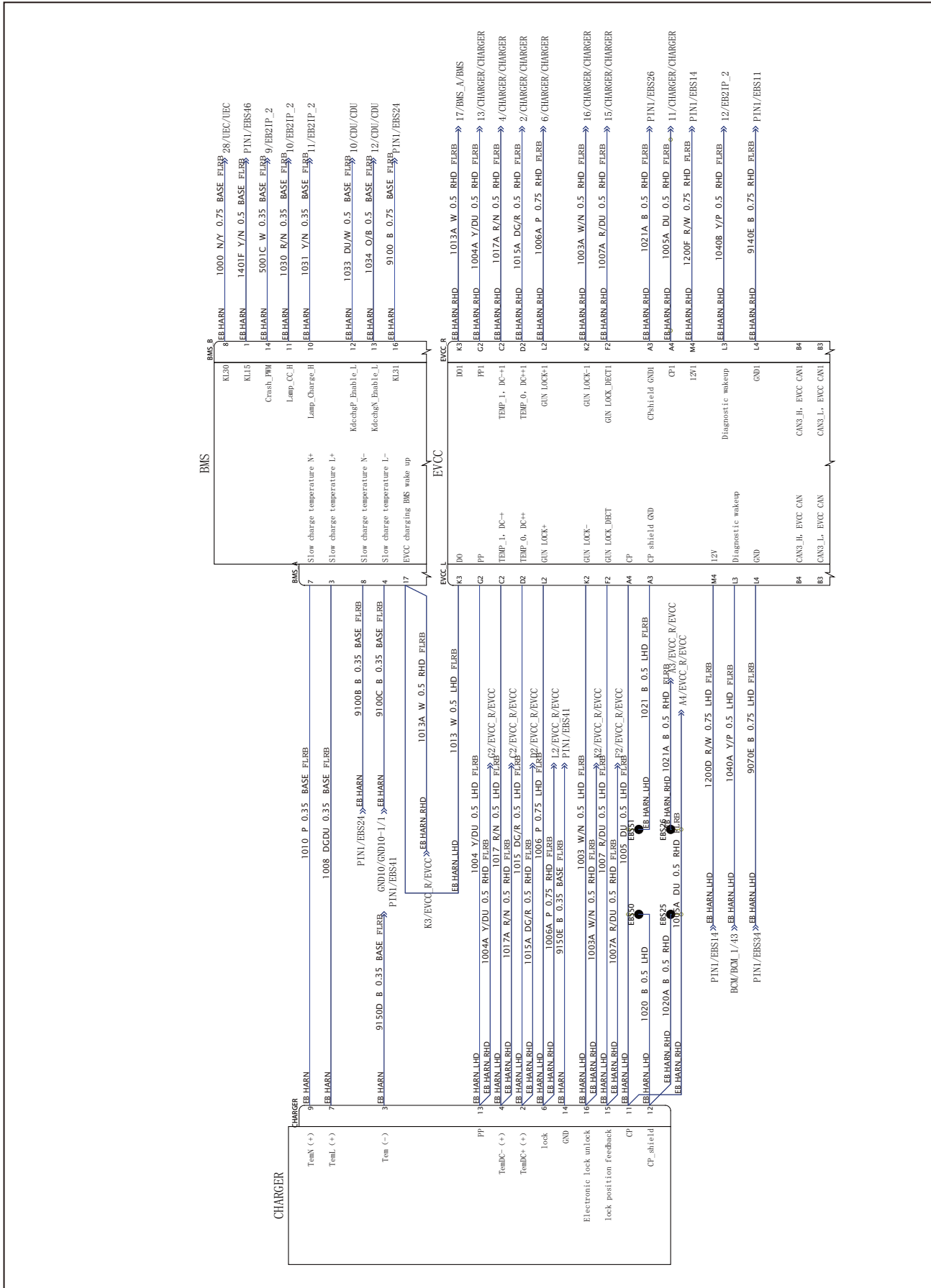
BCM_DOOR_LOCK System



BCM_WIPER_MOT System

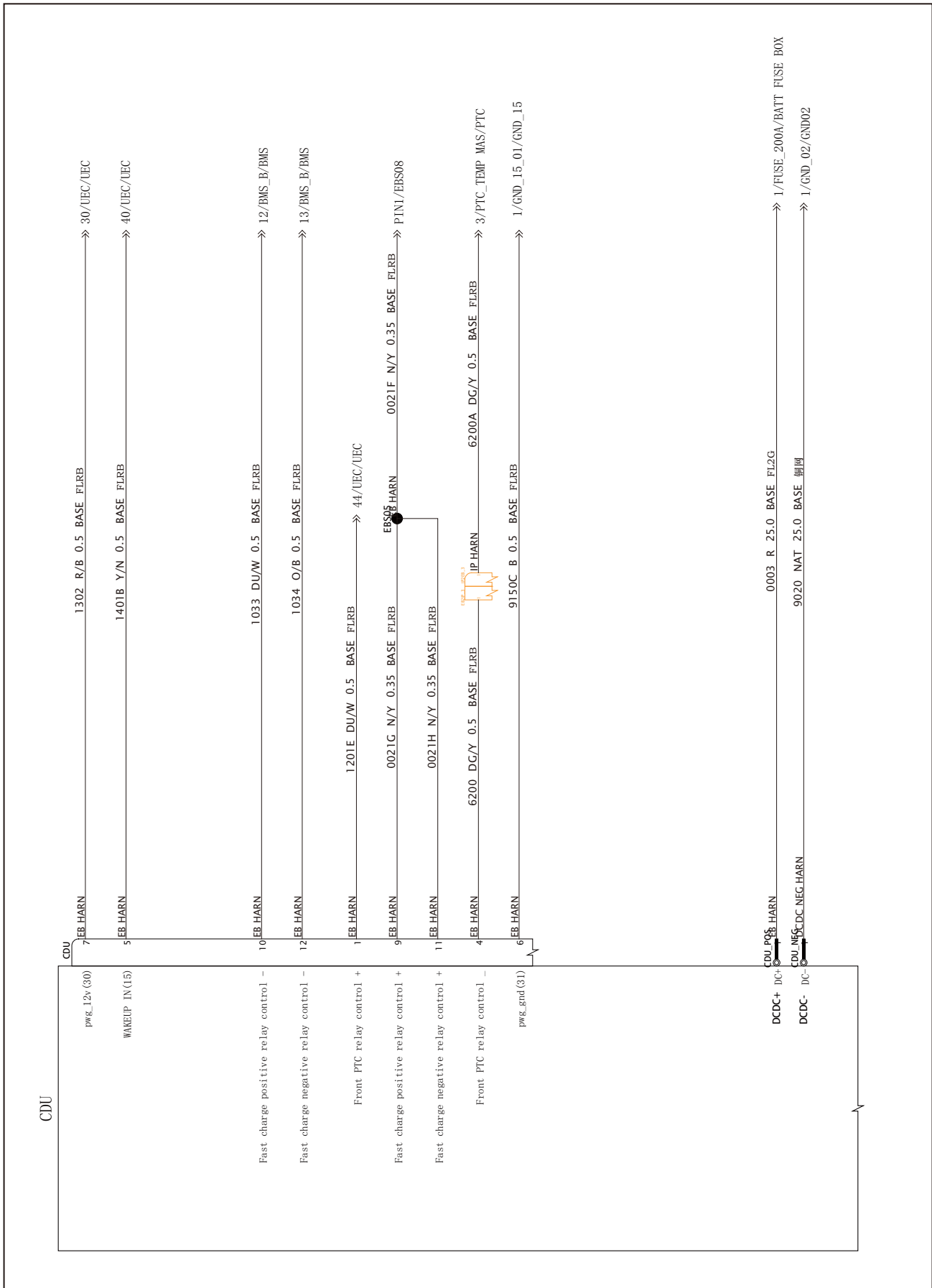


BMS System

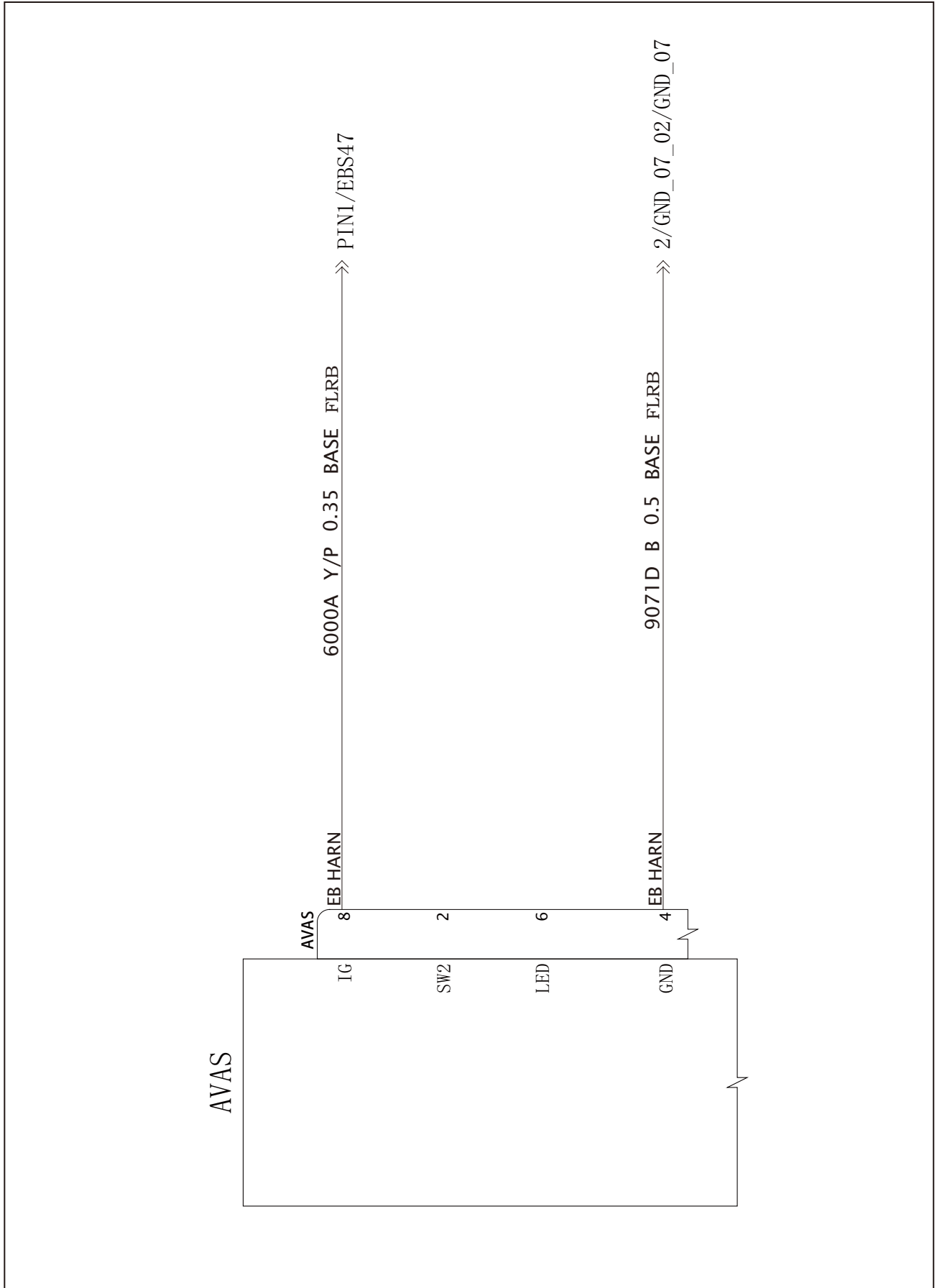


Electrical circuit diagrams

CDU System

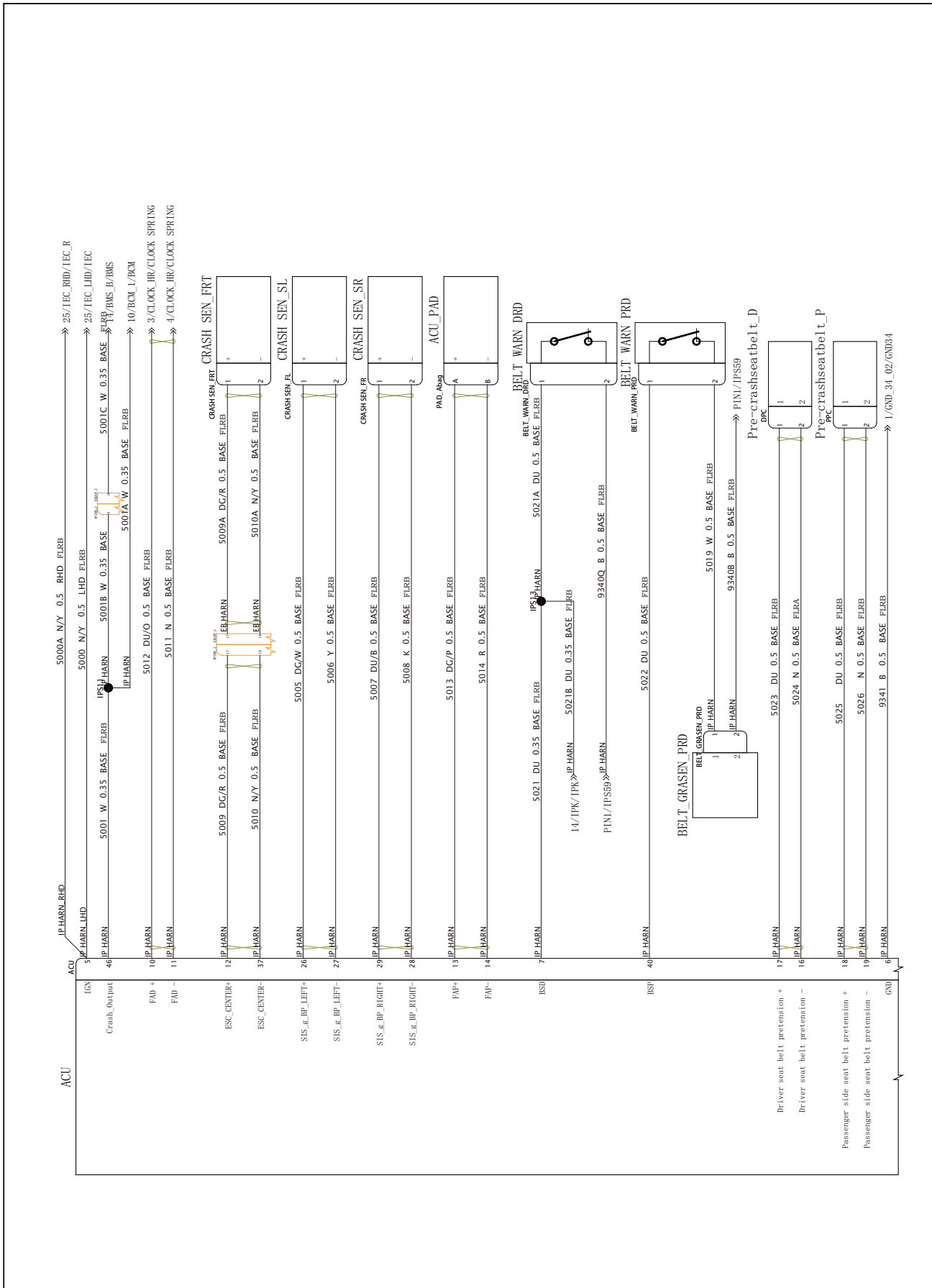


LOW SPEED BUZZER System

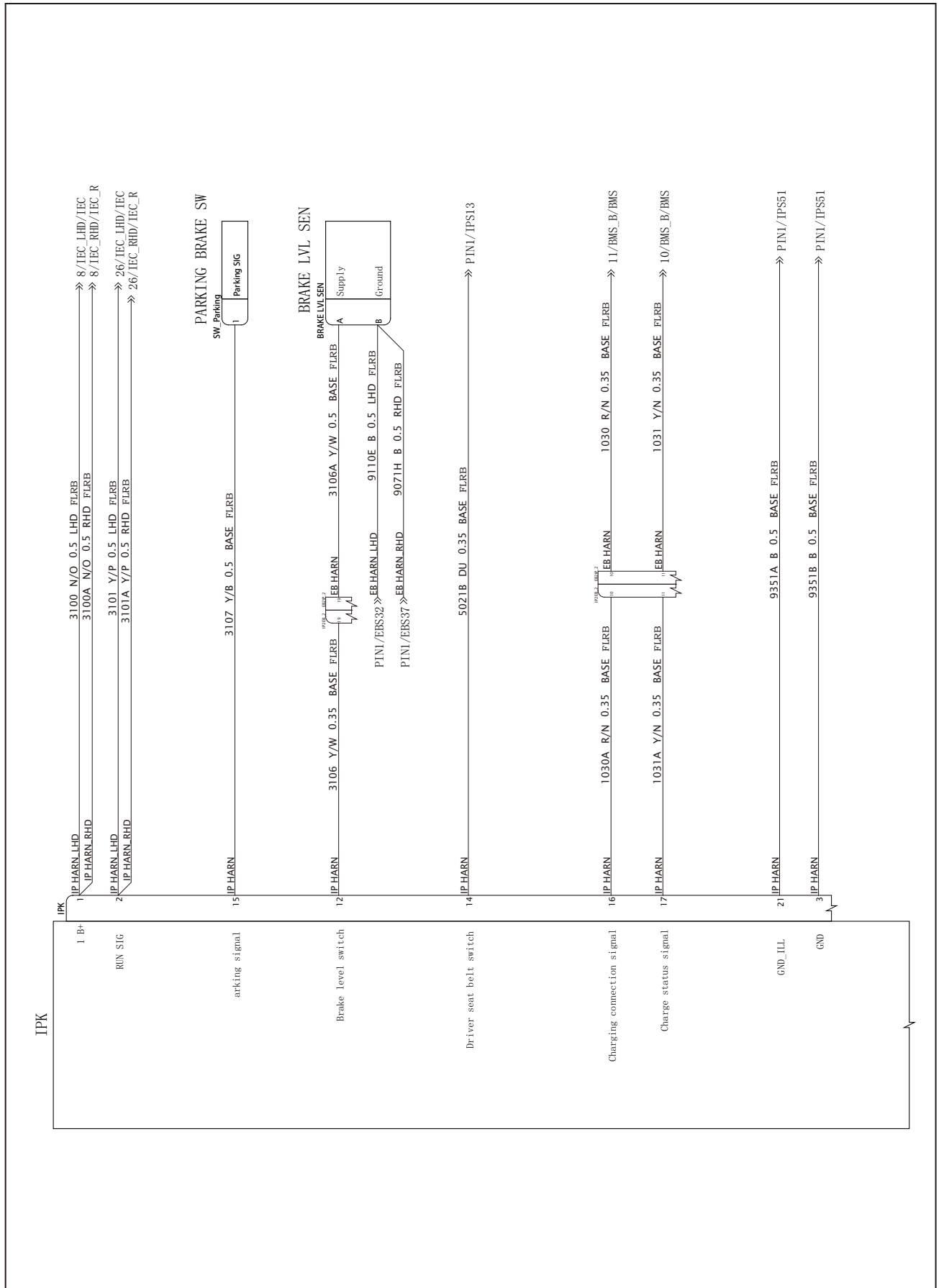


Electrical circuit diagrams

ACU System

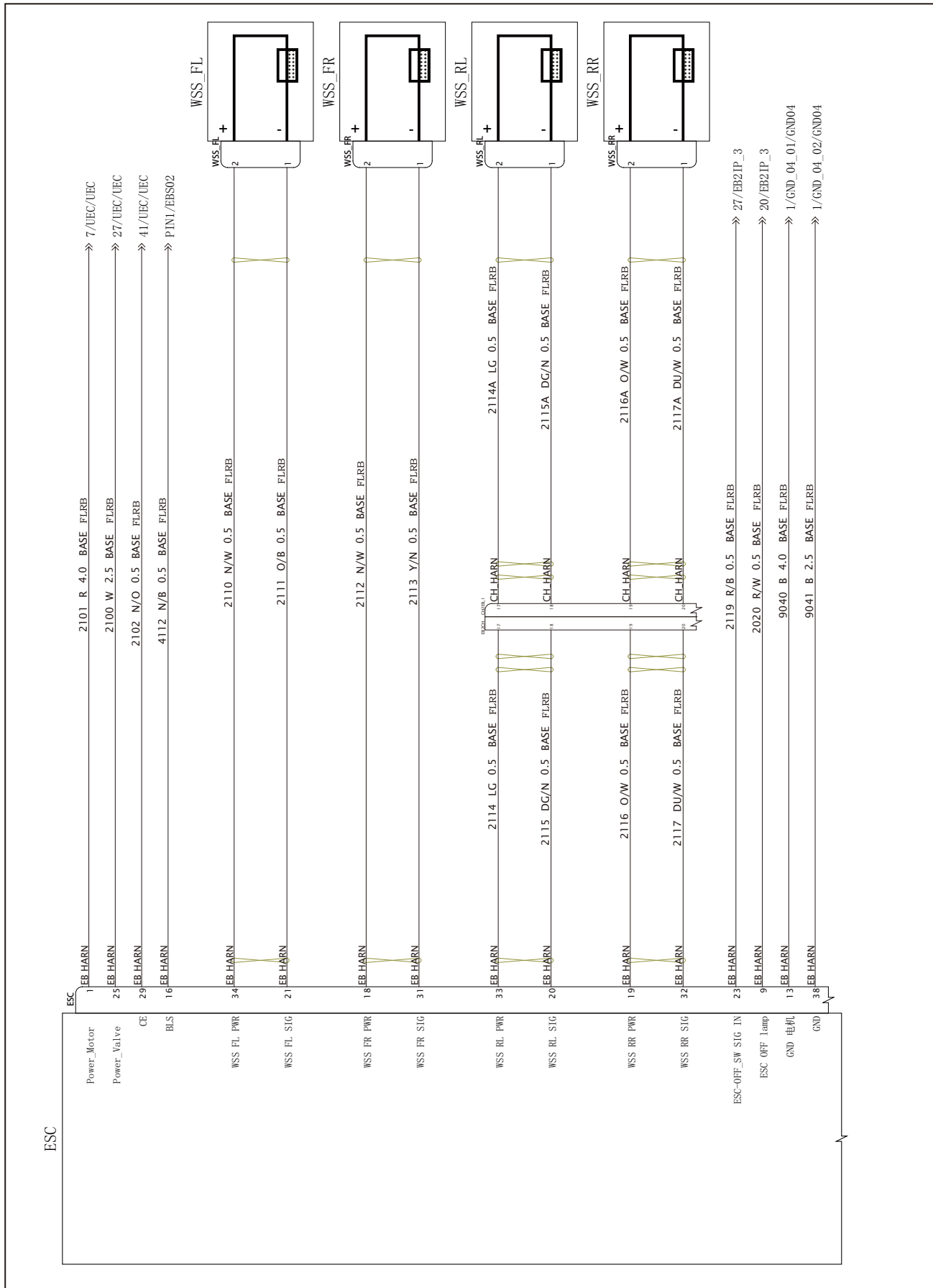


IPK System

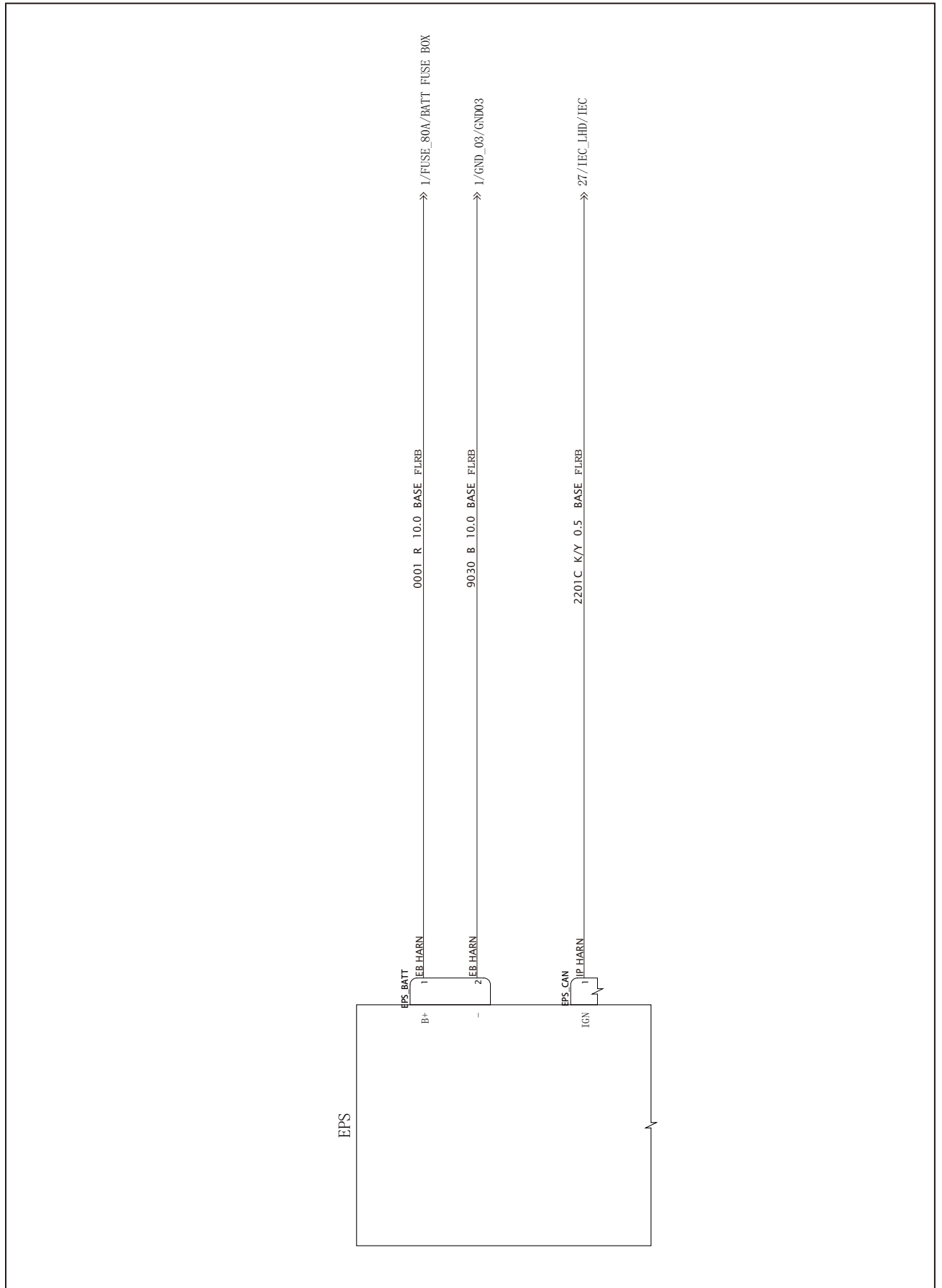


Electrical circuit diagrams

ESC System

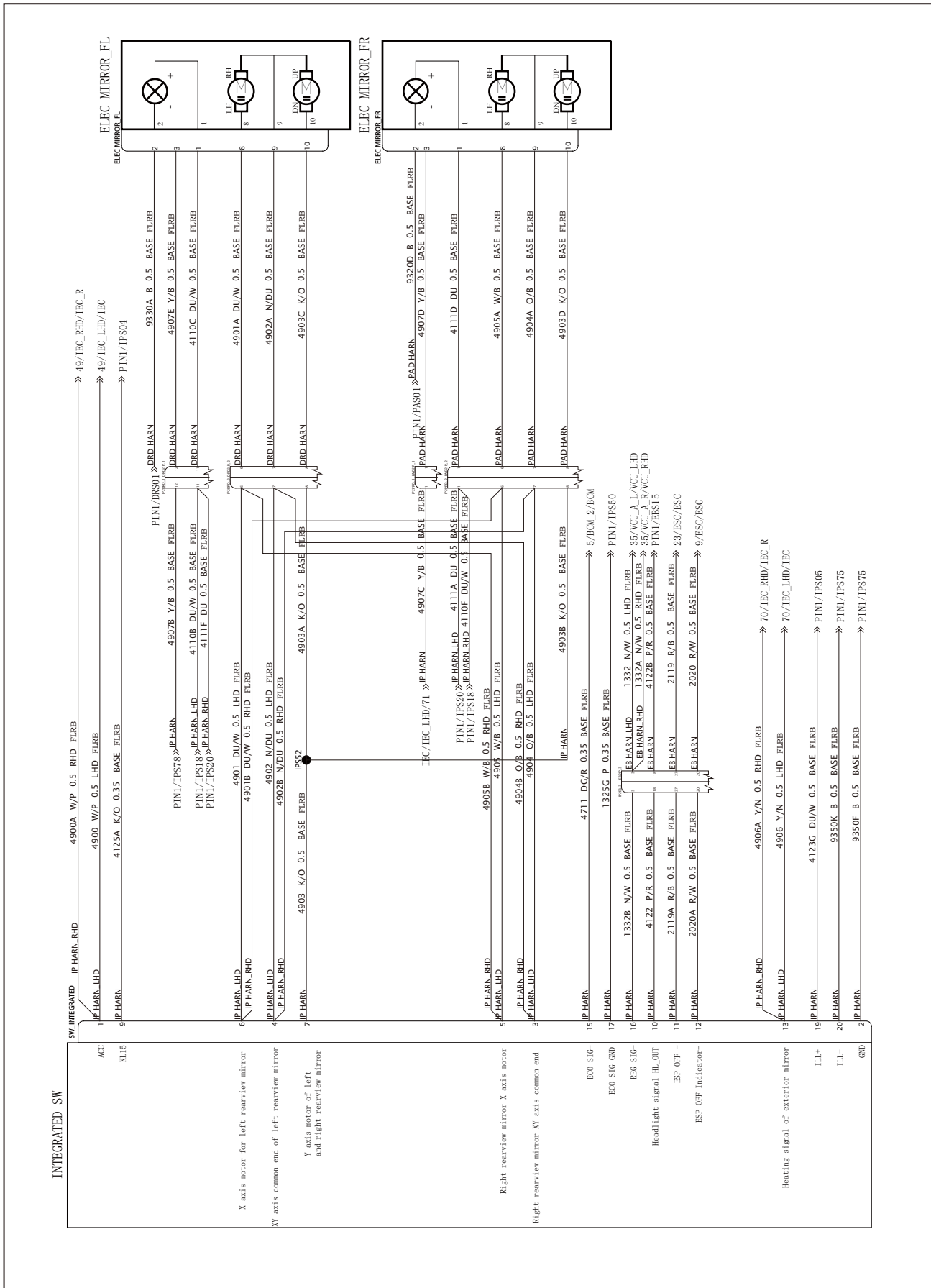


EPS System

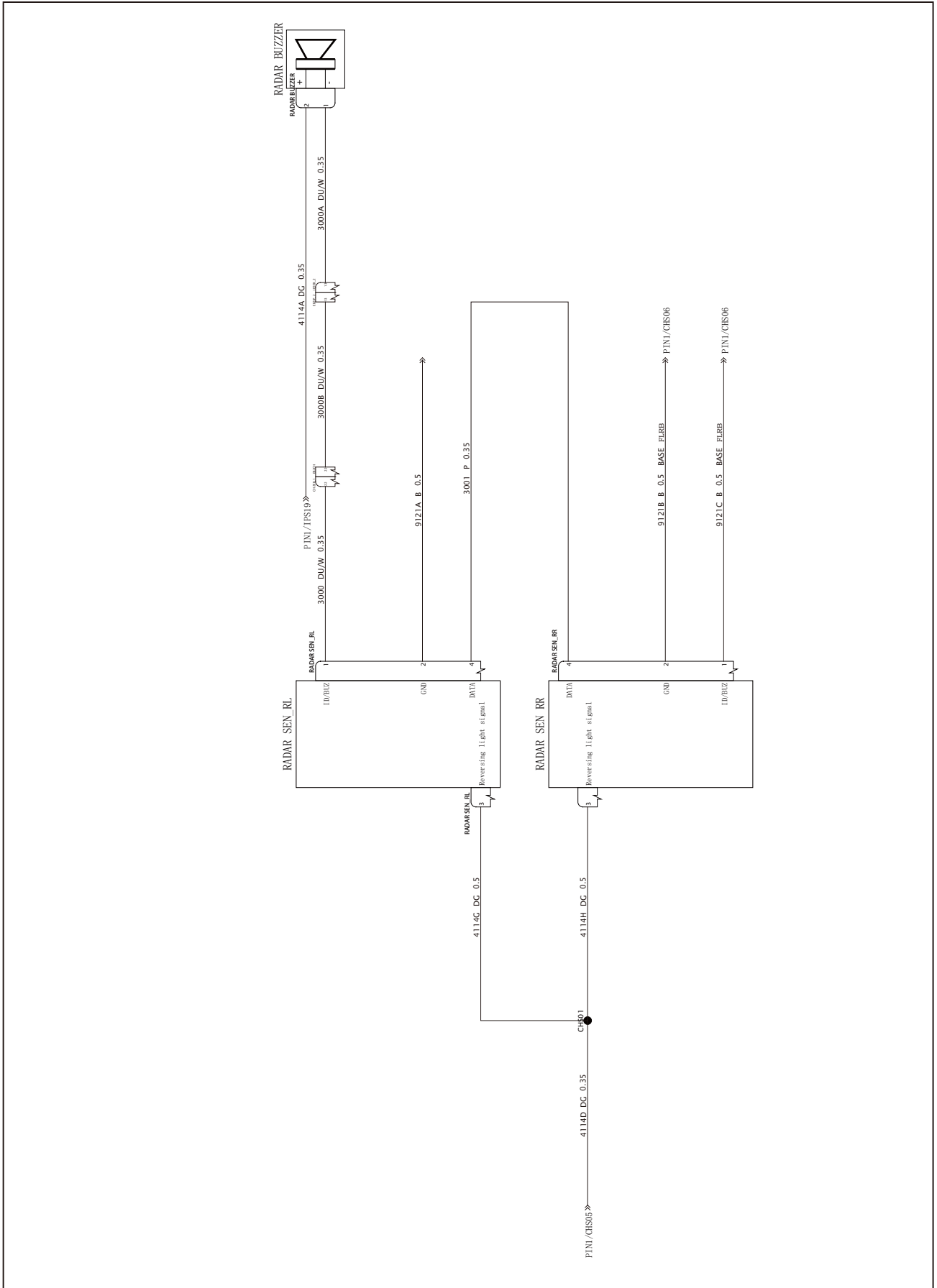


Electrical circuit diagrams

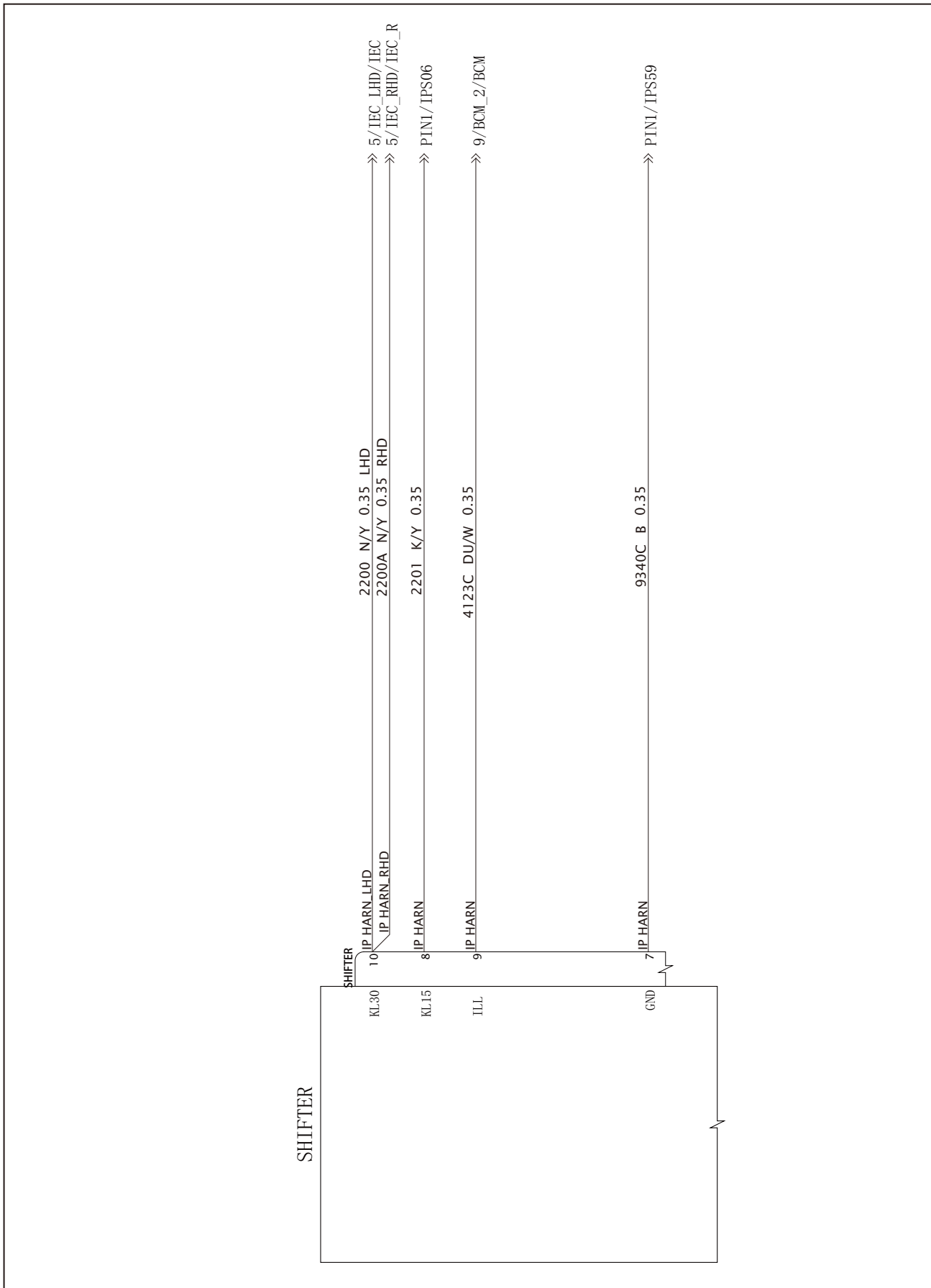
ELEC_REARVIEW MIRROR System



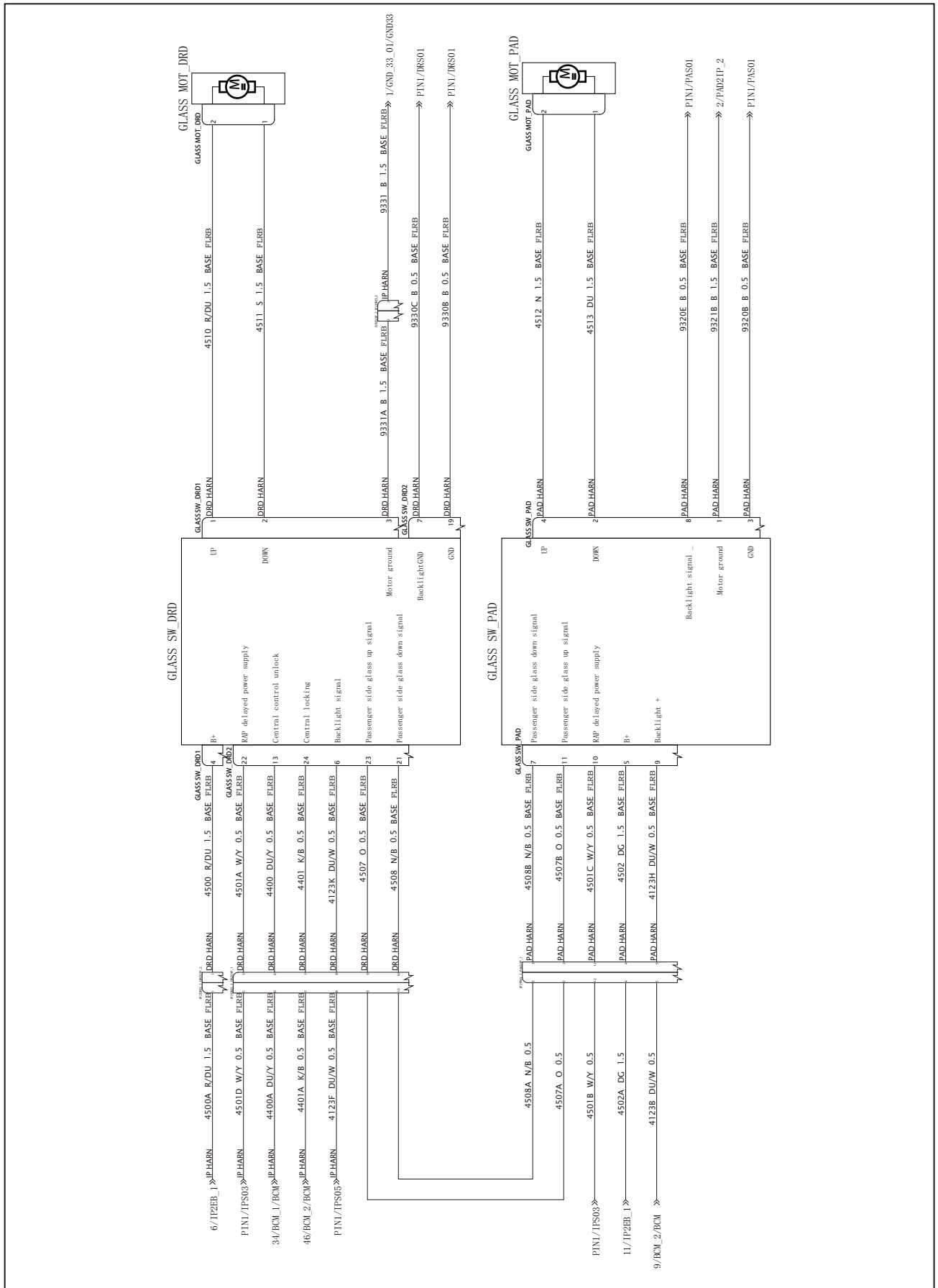
RADAR_SEN System



ELEC SHIFTER System

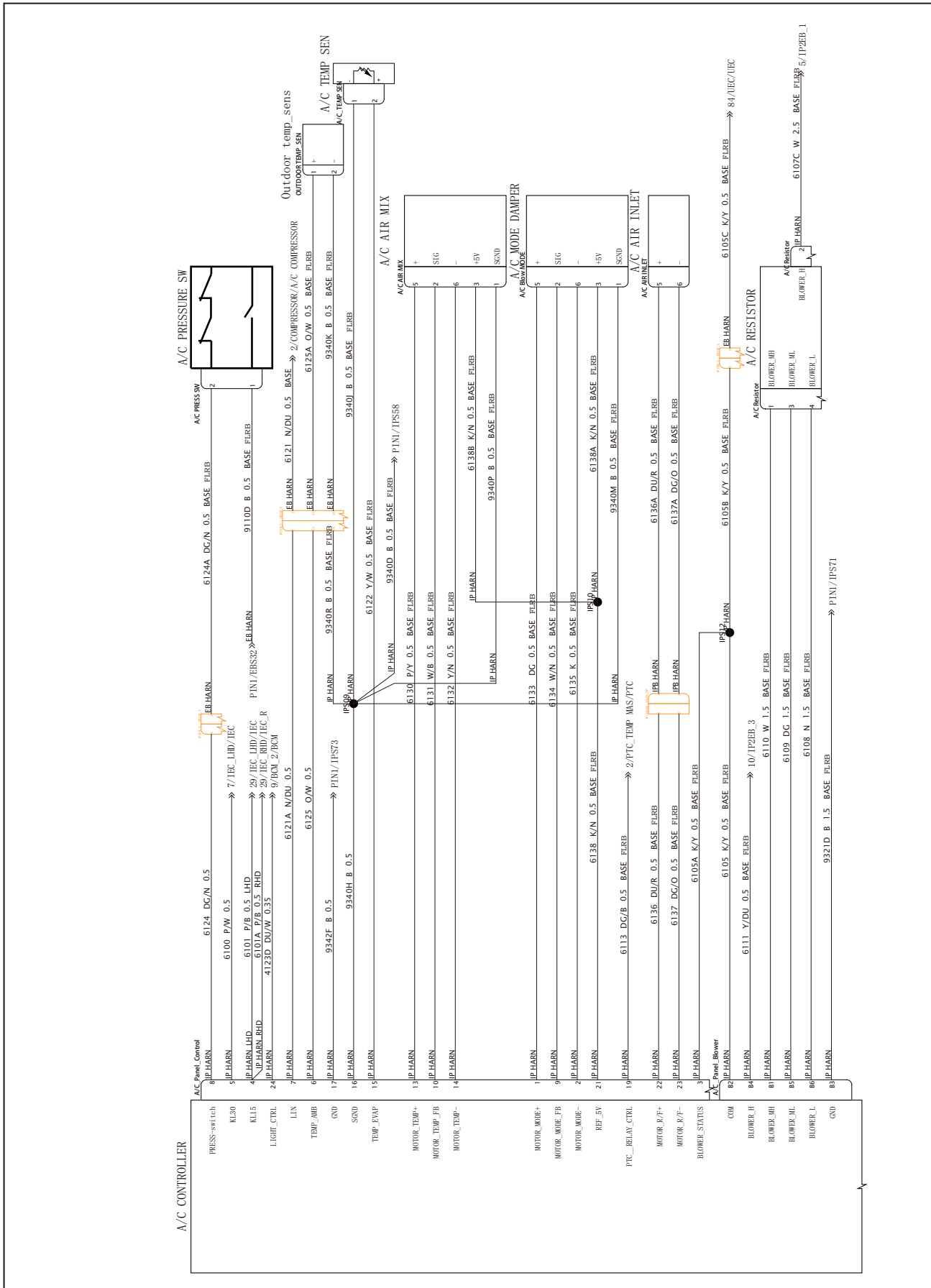


ELEC GLASS System

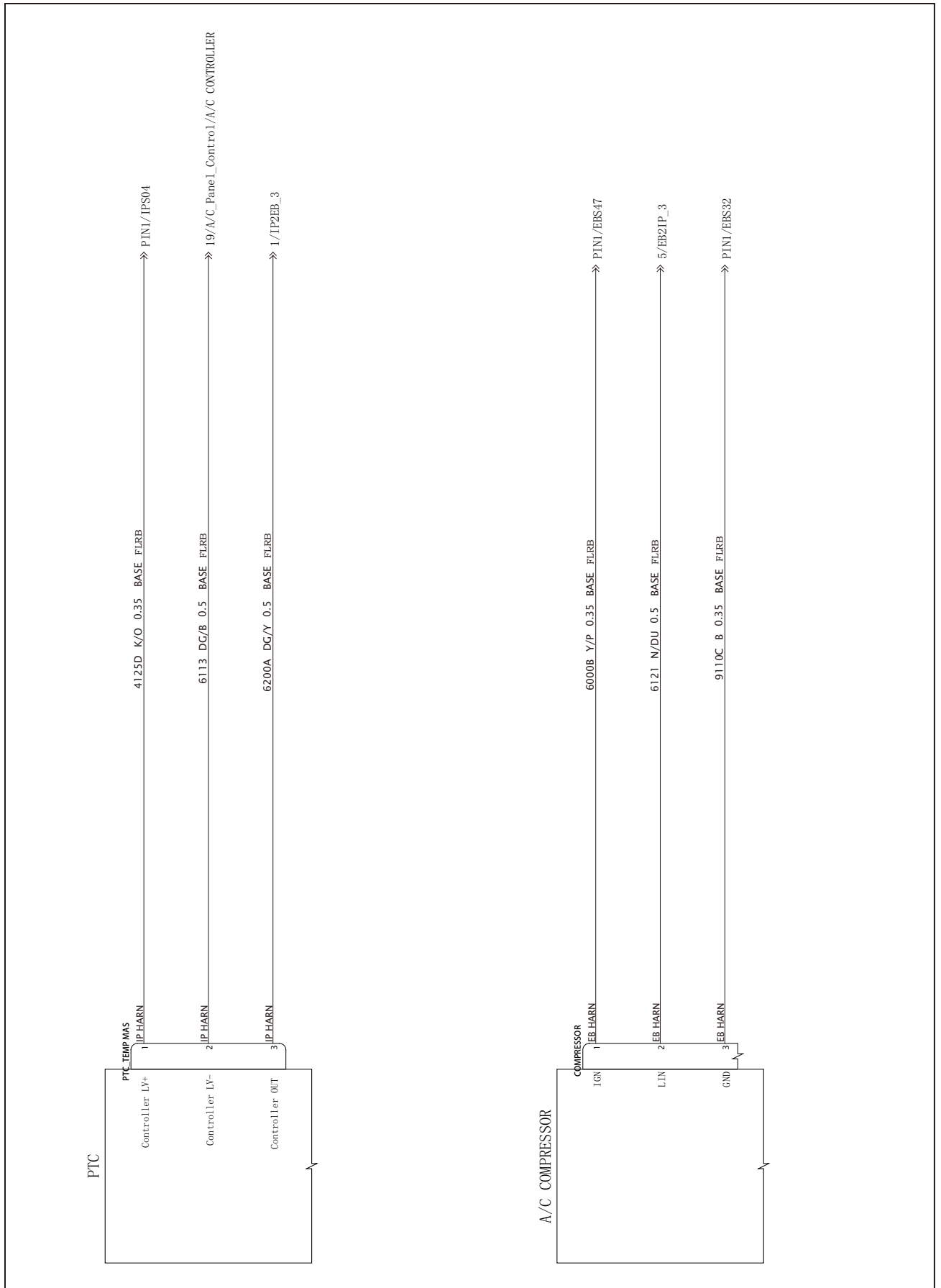


Electrical circuit diagrams

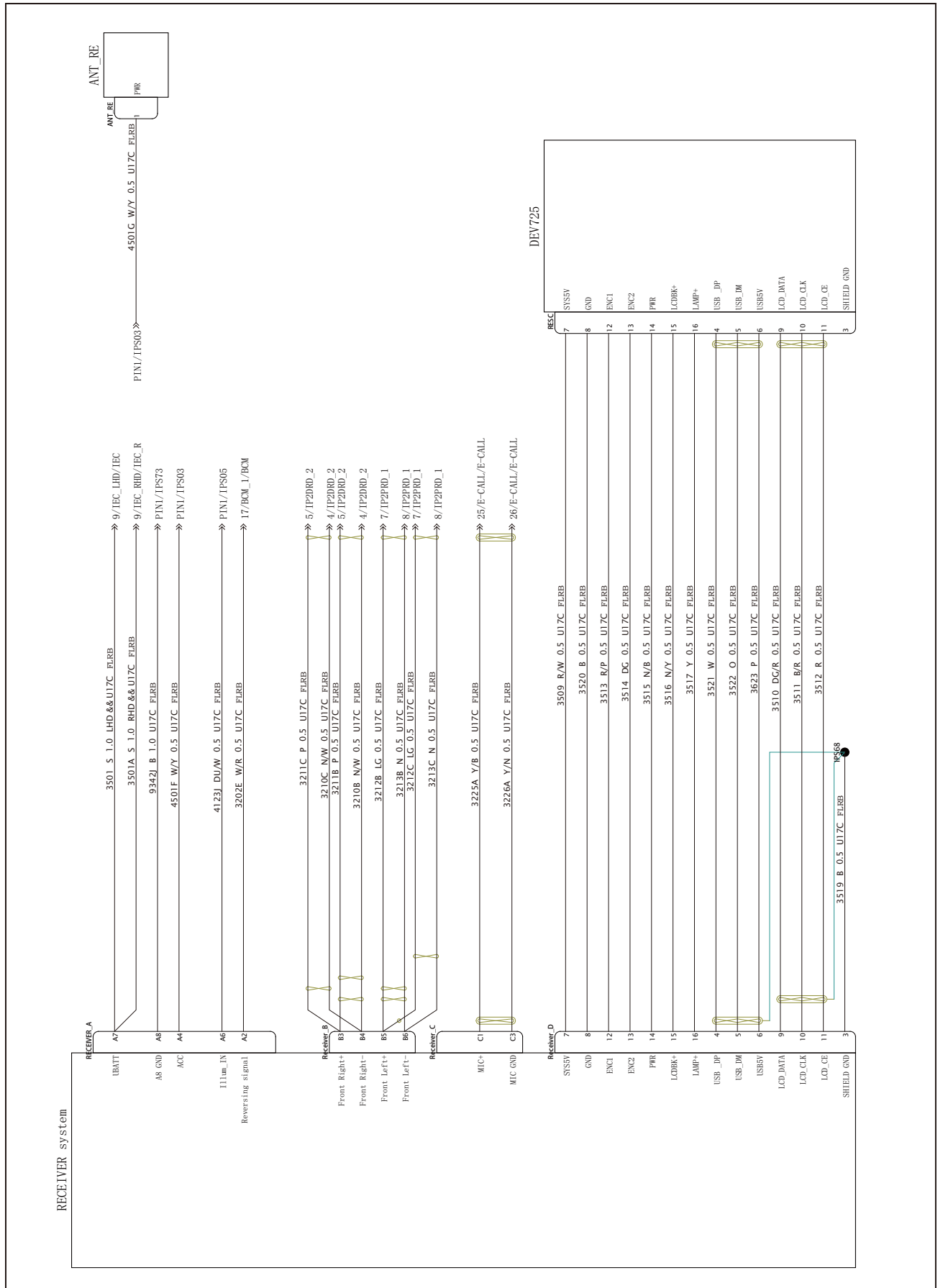
A/C MODULE System-1



PTCA/C COMPRESSOR System

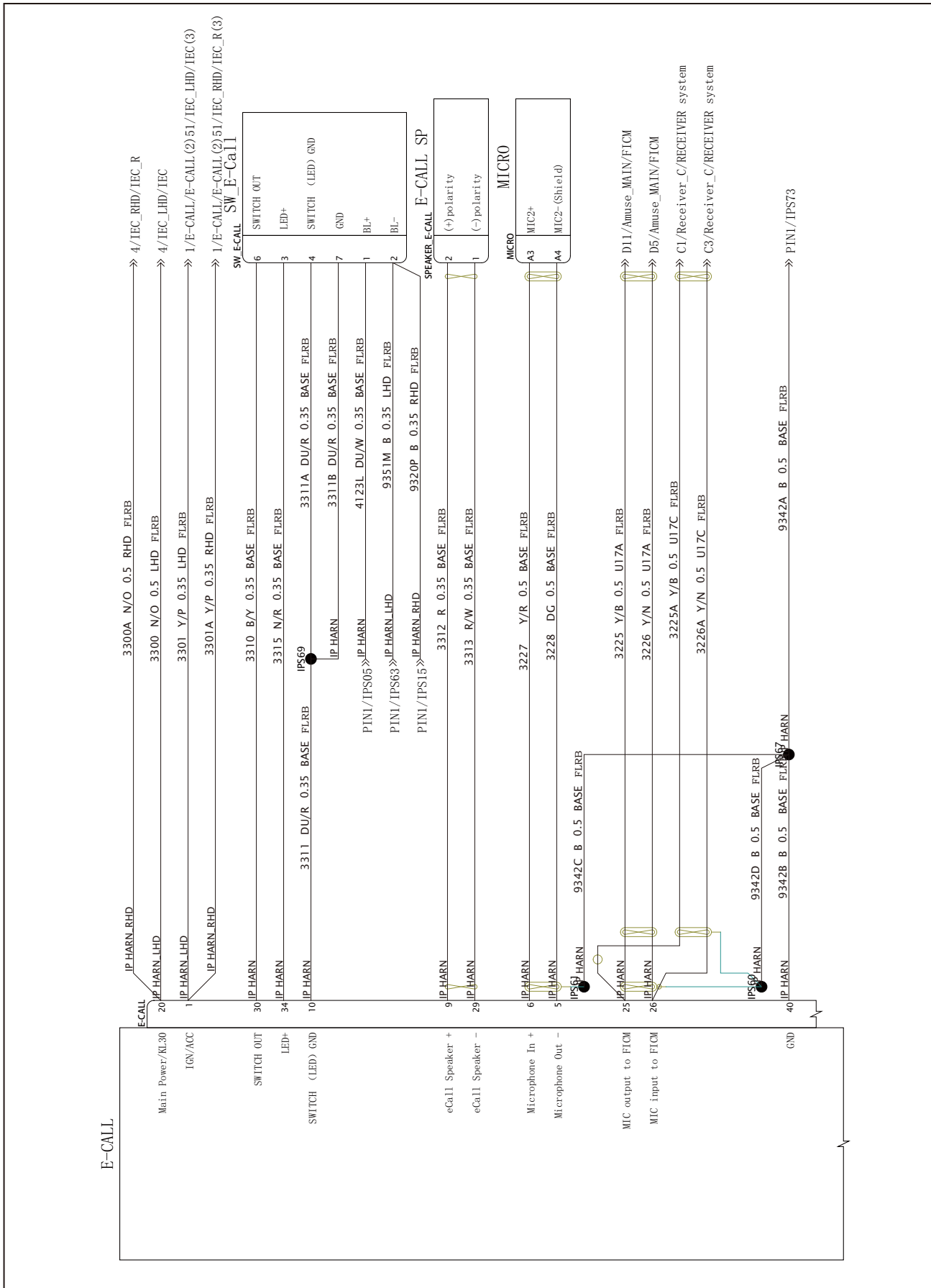


RECEIVER system

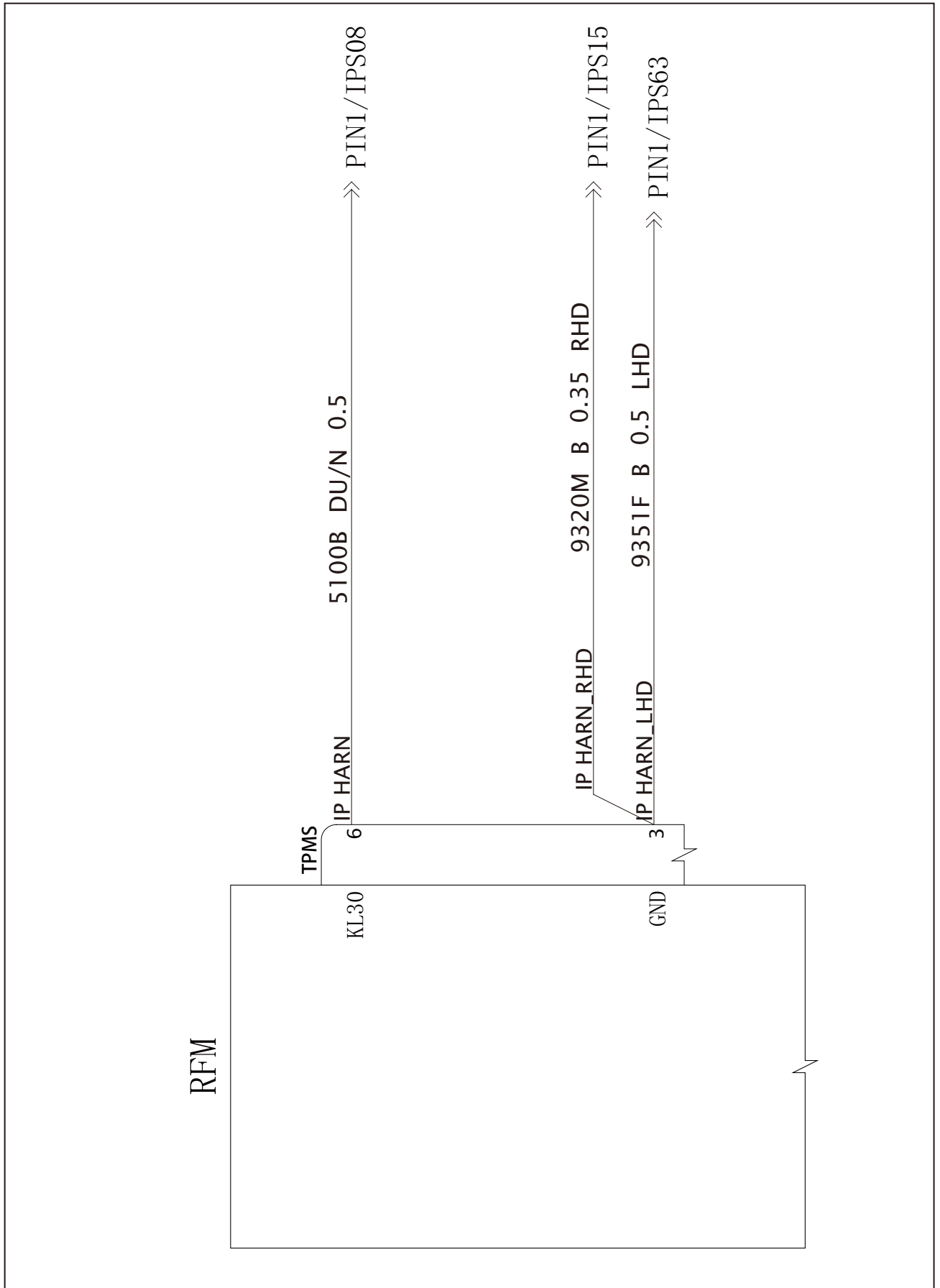


Electrical circuit diagrams

E-CALL

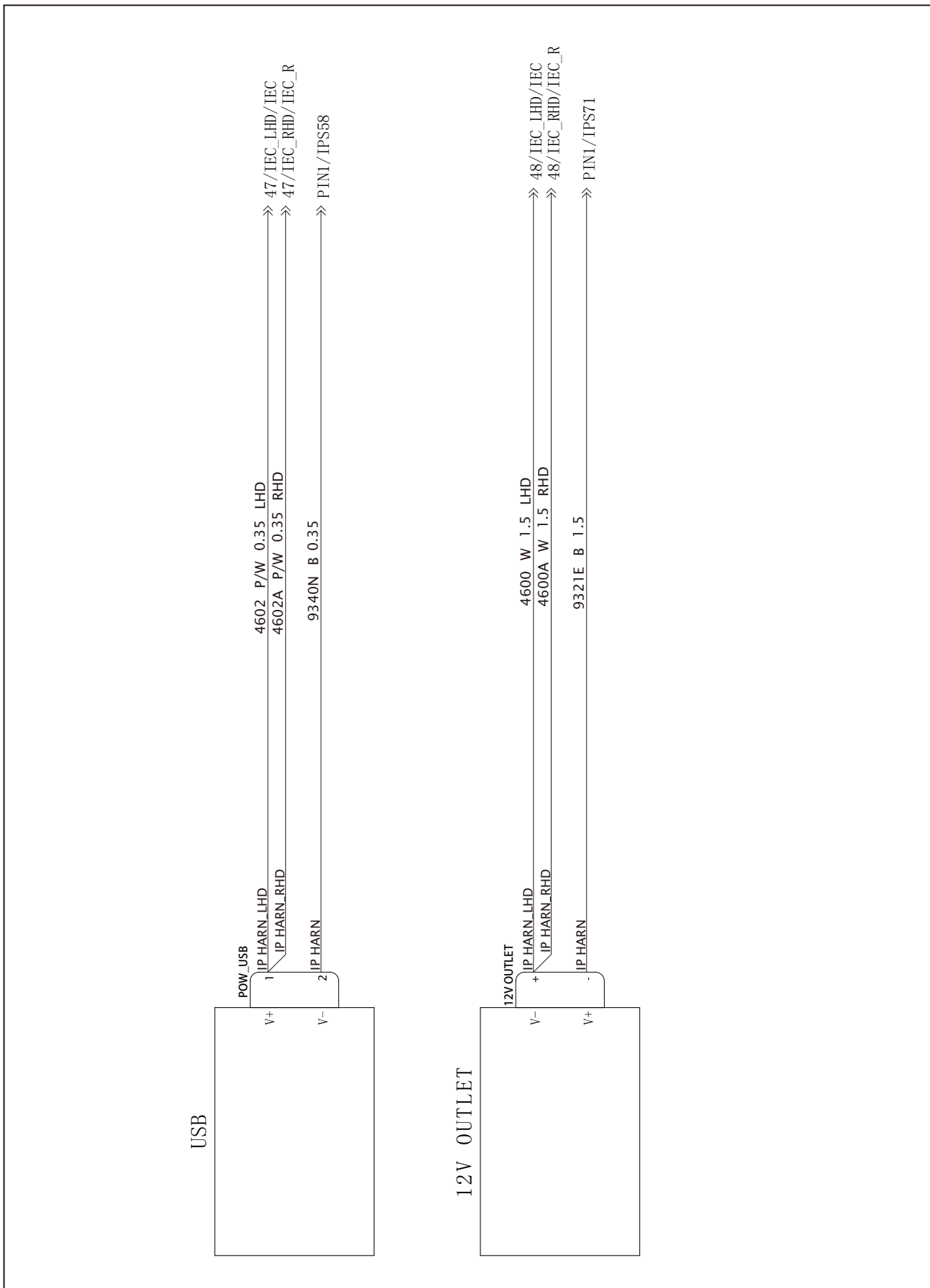


RF System

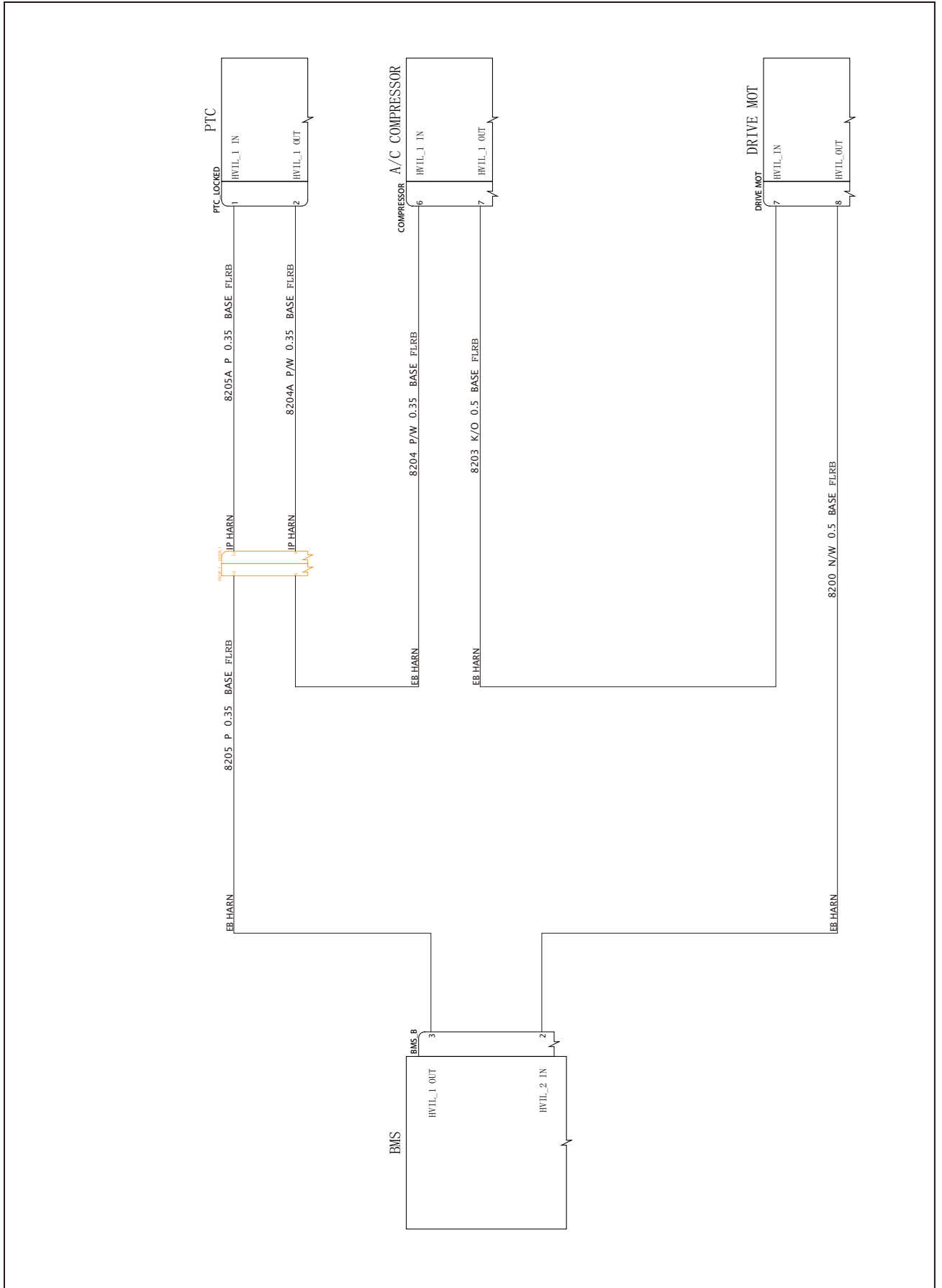


Electrical circuit diagrams

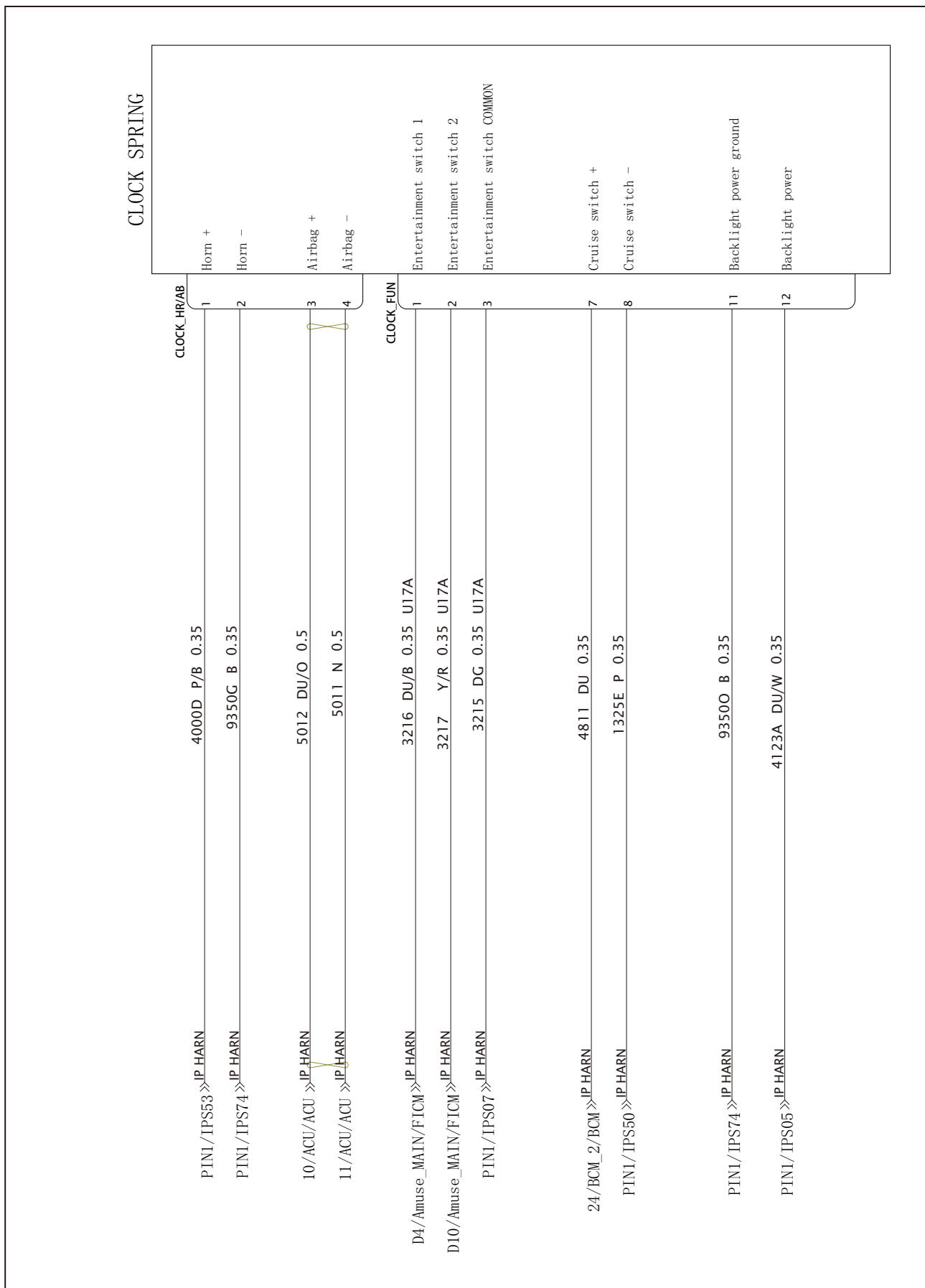
POWER System



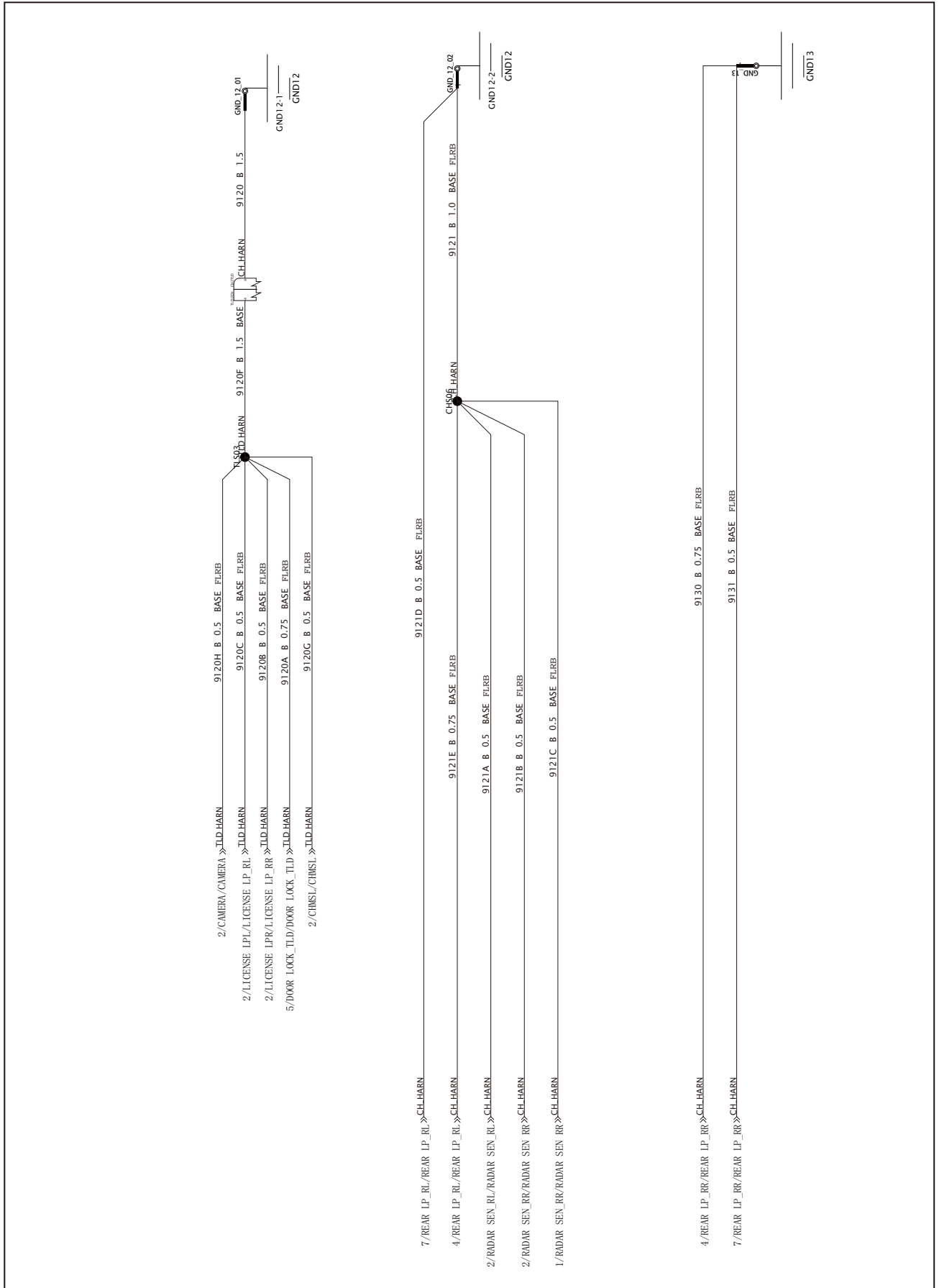
LOOP INTERLOCKING System



CLOCK SPRING

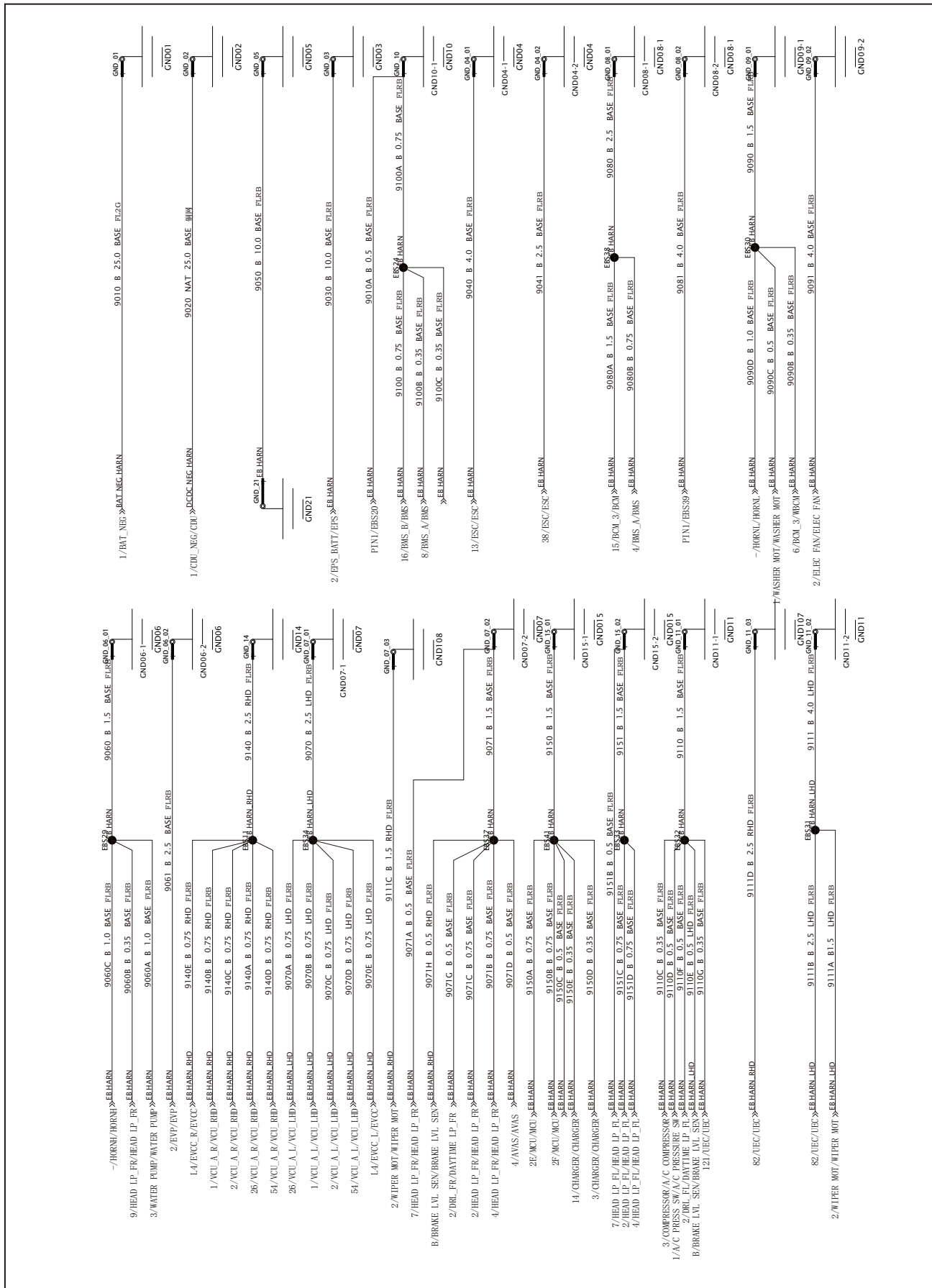


GND-EB_REAR



Electrical circuit diagrams

GND-EB_FRONT



GND-IP_LEFT

