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Service and Consumables

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Fluid Specifications

Description	Specification
A/C Gas	1234yf, 280g, NO OIL
Brake Fluid	Dot 4
Coolant	Glysantin G40
Washer Fluid	Screenwash with frost protection, diluted with clean water, as specified on the bottle.
Rear Axle Oil	75W80 Fully Synthetic Oil

Jacking and Lifting

Preparation

⚠ WARNING: The jack provided with the vehicle is intended to be used in an emergency for changing a deflated tyre. To avoid damage to the vehicle, never use the jack to raise the vehicle for any other purpose. Refer to the Driver Handbook when using the jack supplied with the vehicle. Failure to follow these instructions may result in personal injury.

⚠ WARNING: Make sure that no contact is made between the lifting equipment and the high voltage battery or any other high voltage components during the lifting of this vehicle. Damage to any of the high voltage components could cause serious injury.

⚠ CAUTION: Do not allow the hoist adapters to contact the steering linkage, suspension arms, stabiliser bar, rear suspension assemblies or to compress the lower suspension arm stabiliser bar insulator. Damage to the suspension and steering linkage components may occur if care is not exercised when positioning the hoist adapters of two-post hoists prior to lifting the vehicle.

⚠ CAUTION: Never use the electric drive unit as a lift point. Damage to the electric drive unit housing and cover may occur.

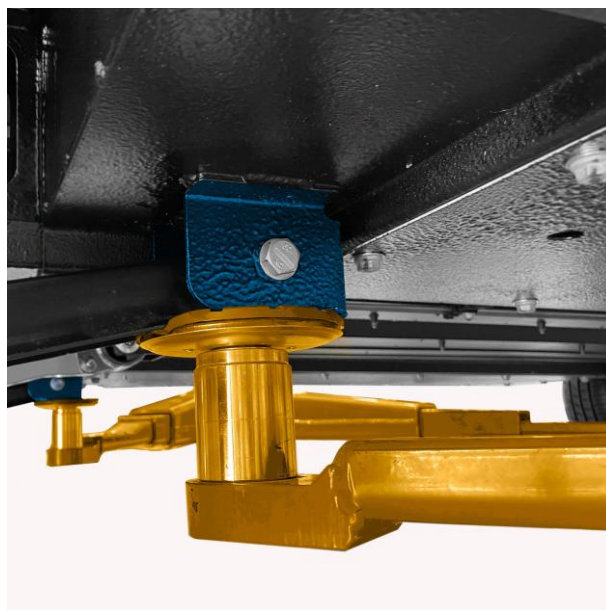
⚠ CAUTION: When using a floor jack, a cushioned pad must be utilised to avoid body damage.

The following safety precautions must be observed when raising the vehicle to carry out service operations:

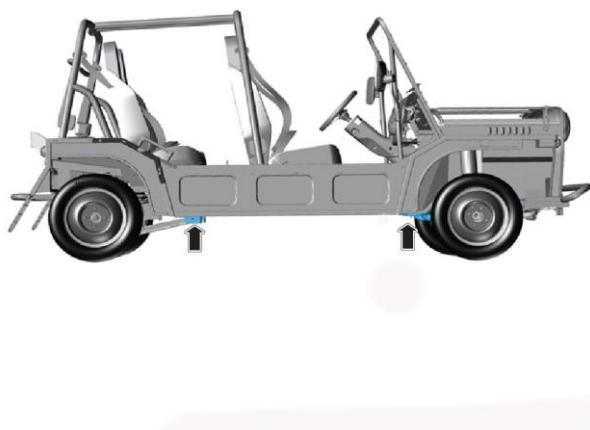
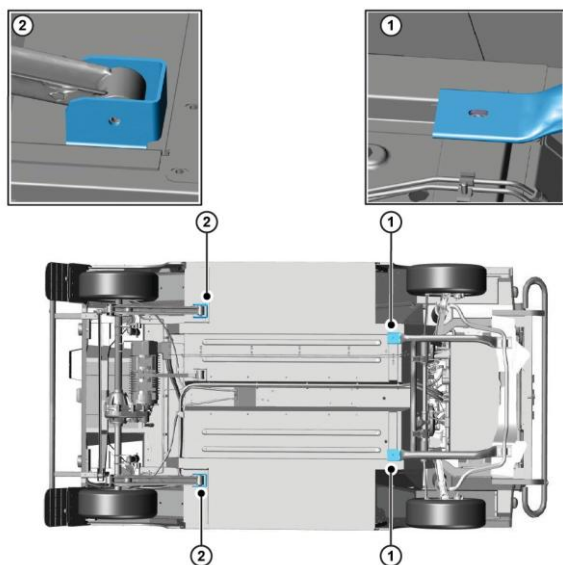
- Never rely on a jack alone to support a vehicle. Always use suitable vehicle stands to provide rigid support.
- When working beneath a vehicle, whenever possible use a vehicle hoist instead of a jack and vehicle stands.
- Make sure that the vehicle is standing on firm, level ground before using a jack.
- Do not rely on the parking brake alone; chock the wheels.
- Check that any lifting equipment used has adequate capacity for the load being lifted and is in correct working order.

1. **⚠ CAUTION:** Do not lift the vehicle from any other point other than the approved lifting positions, as lifting the vehicle from any other points can cause damage to the vehicle.

- Twin-post hoist lifting points.



- Approved lifting positions.

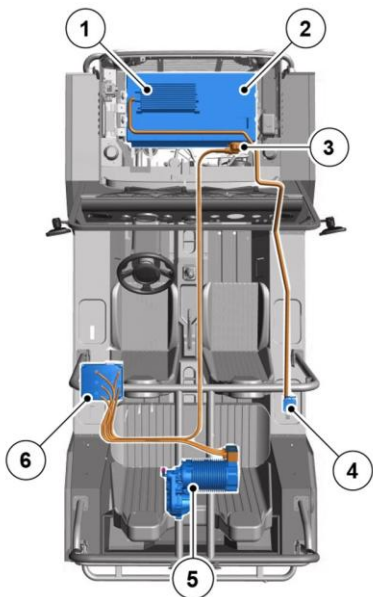
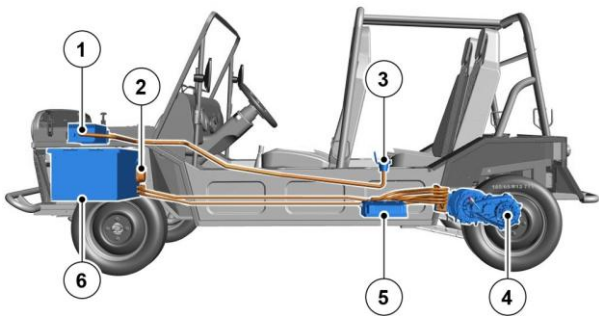


High Voltage System

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High Voltage System Component Overview

⚠ WARNING:
Only technicians trained in High Voltage Awareness and who have completed required certification courses (IMI Level 3 or equivalent) can perform this procedure. If in any doubt, contact MOKE Aftersales.



Annotation	Description
1	DC/DC Converter
2	High Voltage Battery
3	MSD Safety Plug
4	High Voltage Charging Port
5	Electric Drive Motor
6	Inverter

High Voltage Power Up/Power Down

- ⚠ **WARNING:**
Only technicians trained in High Voltage Awareness and who have completed required certification courses (IMI Level 3 or equivalent) can perform this procedure. If in any doubt, contact MOKE Aftersales.
- ⚠ **WARNING:**
Verify that high voltage power is not available to high voltage components (HV battery, motor, DCDC/OBC, inverters, etc.) before servicing them.
- ⚠ **WARNING:**
Remove all jewellery (watches, bracelets, rings, necklaces, earrings, ID tags, piercings, etc.) and objects (keys, coins, pens, pencils, tools, fasteners, etc.) from your pockets before performing any high voltage procedure.
- ⚠ **WARNING:**
If you need corrective eyewear, make sure it is securely fastened to your head and cannot fall off.
- ⚠ **WARNING:**
Wear High Voltage (HV) gloves and safety glasses when handling any high voltage component, including test equipment. Test gloves with an authorised glove tester before each use and verify the testing date on the gloves. Use Natural Rubber Dielectric Safety Electrician's Gloves, 1000V Max Working Voltage which complies with EN 60903 / IEC 903.
- ⚠ **WARNING:**
Read and understand all repair and operating instructions before working on MOKE vehicles, components, or repair equipment.
- ⚠ **WARNING:**
Assume high voltage is present at all times when working on a MOKE vehicle, high voltage components, or high voltage test equipment until proven otherwise. Energy states can change during testing, so be cautious.
- ⚠ **WARNING:**
Have an electrical safety hook in the area when working with HV components. Electrical safety hooks are used to remove an injured person from a live high voltage circuit without additional injury.
- ⚠ **WARNING:**
Use a proving unit, or high voltage digital multimeter to check for high voltage on both sides of the connector every time you disconnect a high voltage connector.
- ⚠ **WARNING:**
Ensure the insulation meter and leads can handle at least 500V DC.
- ⚠ **WARNING:**
Obey all instructions when using test equipment or servicing a MOKE vehicle or high voltage components. If repair instructions are unclear or you have questions, contact Aftersales@MOKEinternational.com.

- ⚠ **WARNING:**
If test equipment fails to operate as expected, do not attempt to diagnose or repair the vehicle.
- ⚠ **WARNING:**
Ensure all cables are connected before turning on test equipment or initiating its use.

Acronyms

- HV = High Voltage
- LV = Low Voltage
- MSD = Manual Service Disconnect
- EDU = Electric Drive Unit
- PPE = Personal Protection Equipment

HV Personal Protective Equipment

Electrical Insulating Natural Rubber Dielectric Safety Electrician's Gloves, 1000V Max Working Voltage which complies with EN 60903 / IEC 903



- When gloves are used for the first time, use a permanent marker to record the date in the boxes provided.
- Gloves that have signs of damage or fail a leakage test should not be used.
- Do not blow into the glove – moisture is electrically conductive!

Glove Inflator



- Test gloves before every use.
- Electrical Pneumatic Glove Tester and Air Inflator.

Visor Protection or Safety Glasses



- Ideally wear visor protection against arc flash or Safety glasses.

HV Workshop Equipment

Safety Rescue Hook



The safety rescue hook can be the difference between life and death in accidents involving electricity. The hook is used to free a person who has become electrified and stuck. With the rescue hook, one can remove the person without coming into contact with the electrical source themselves.

Lith-Ex Fire Extinguisher



Lith-Ex fire extinguisher is the only suitable choice when a lithium-ion battery causes a fire. While generally used for portable electronic devices, such as phones and tools, it can be used for locations where larger batteries are used, such as electric vehicles.

Car Fire Blanket



Recommended: The car fire blanket is designed to be quickly deployed over any vehicle fire depriving the oxygen supply on a larger scale.

Safety Barrier and Signs



To maintain a safe environment around the vehicle, it is essential to establish a secure perimeter using appropriate barriers. This will prevent unauthorised or untrained individuals from accessing the area. Only personnel who have received specific High Voltage (HV) training should be allowed to enter the secured zone behind the barrier. This measure ensures that only qualified staff are exposed to potential hazards, thereby minimizing the risk of accidents or injuries. Additionally, clear signage should be posted around the barrier to inform all personnel of the restricted access and the presence of HV equipment or operations.

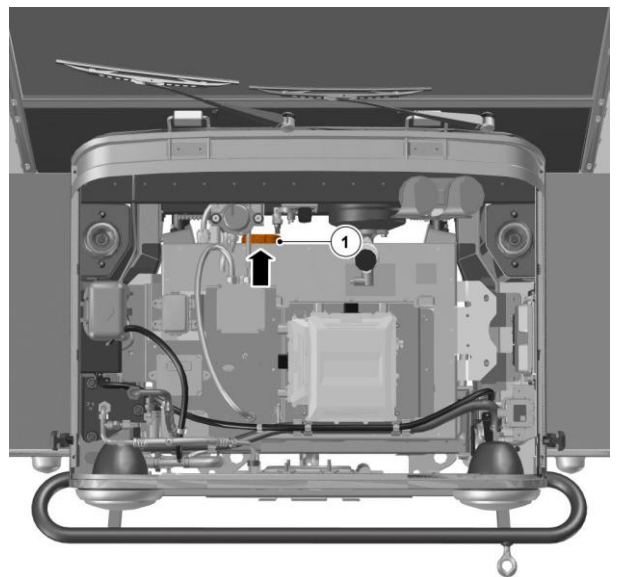
Power Down

1. Turn the ignition to **OFF** position and take the keys out of the ignition barrel.
2. Store the vehicle keys away from the vehicle in a locked container. The keys must **only** be accessible to the authorised person who is working on the vehicle.
3. Disconnect the 12V system. See 12V System Disconnect 54.
4. Wait 15 minutes.
5. Loosen and remove the four fasteners on the high voltage battery.

Move the high voltage battery in the direction shown, to gain access to the MSD plug.



6. After 15 minutes, using the correct PPE, locate the MSD plug 1 on the HV battery.



7. The MSD plug has a two-stage locking mechanism.

- Press and hold the middle lock **A**.
- Raise the lever to 45°.
- Press and hold the secondary lock **B**.
- Raise the lever to 90° and then remove the MSD plug.

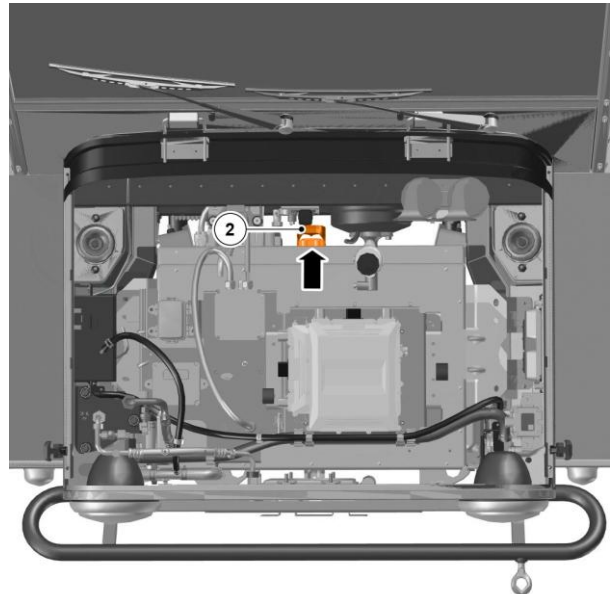


- The MSD plug should be locked away, and **only** accessible to the authorised person who is working on the vehicle.

⚠ WARNING:
Ensure the vehicle rear wheels do not turn. The EDU will act as a generator and recharge the capacitance in the inverter. Use a strap or chain to prevent the rear wheels turning.

- Using the correct PPE, disconnect the EDU connector.
 - This connector has a lock which needs to be released prior to opening the connector 2.

- If this lock is not released, the connector lever pin will break off and require replacement.



- Using the correct PPE, and a Proving Unit, carry out zero volt check on the disconnected DC/DC connector.



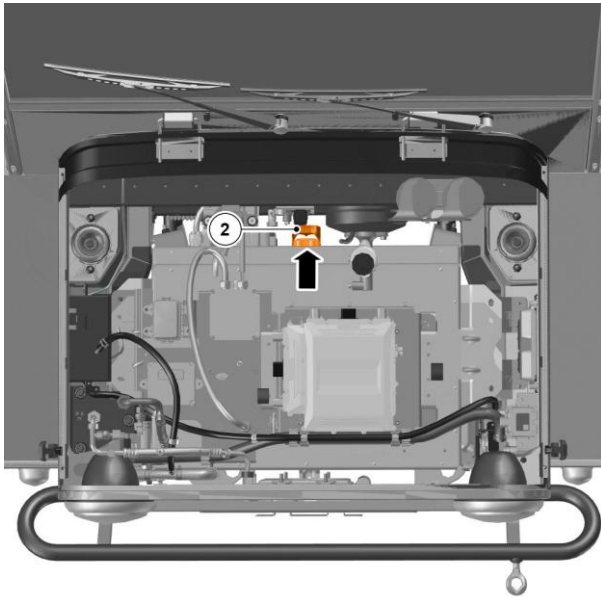
Note:

As per the HV training, it is always recommended to use a proving unit to validate the voltage on HV connector.

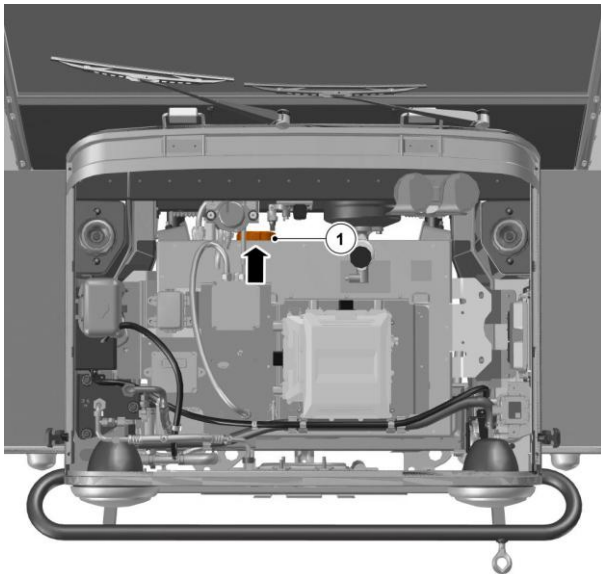


PowerUp

1. Using the correct PPE, re-connect EDU connector 2 to the HV battery.



2. Using the correct PPE, re-connect the MSD plug 1 to HV battery.



3. Move the high voltage battery in the direction shown and install the four fasteners to a torque of 24 Nm.



4. Connect the 12V system. See 12V System Disconnect 54.
5. Turn the ignition to **ON** position.

Vehicle Controller

Preparation

Note: This procedure contains illustrations showing certain components removed to provide extra clarity.

Removal

1. Disconnect the 12V system. See 12V System Disconnect 54
2. Open the bonnet.
3. Remove the two fasteners.

Disconnect the two electrical connectors by releasing the locking mechanism and then remove the vehicle controller.



Installation

1. Connect the two electrical connectors to vehicle controller.
2. Install the vehicle controller.
Install and tighten the two fasteners.
3. Close the bonnet.
4. Connect the 12V system. See 12V System Disconnect 54.

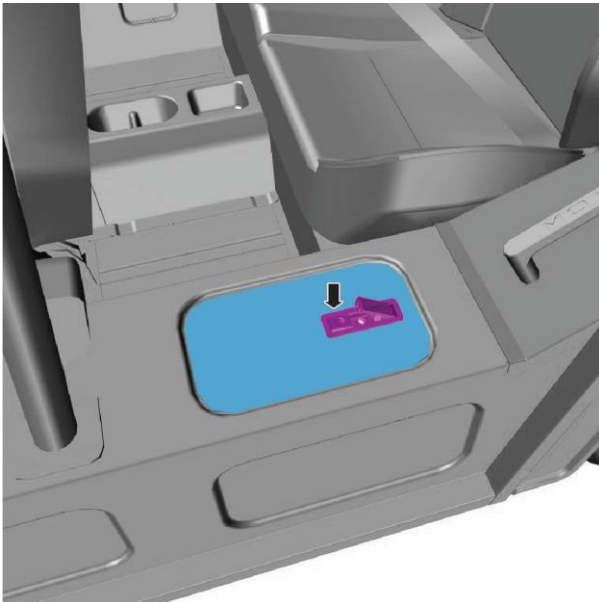
Inverter

Preparation

-  **WARNING:** This procedure must only be done by approved personnel.
-  **WARNING:** You must do this procedure in the exact sequence shown. Failure to do so could result in serious personal injury.
-  **WARNING:** Make sure that you obey all local legislation when you work with high voltages and high voltage systems.
-  **WARNING:** Approved personal protective equipment includes: safety glasses or visor, rubber gloves meeting Class 0 or better and non-flammable, non-melting clothing, must be worn when instructed to do so.
-  **WARNING:** Always wear the applicable protective safety equipment when you work with batteries. Batteries contain poisonous and corrosive acid that can cause body injuries.

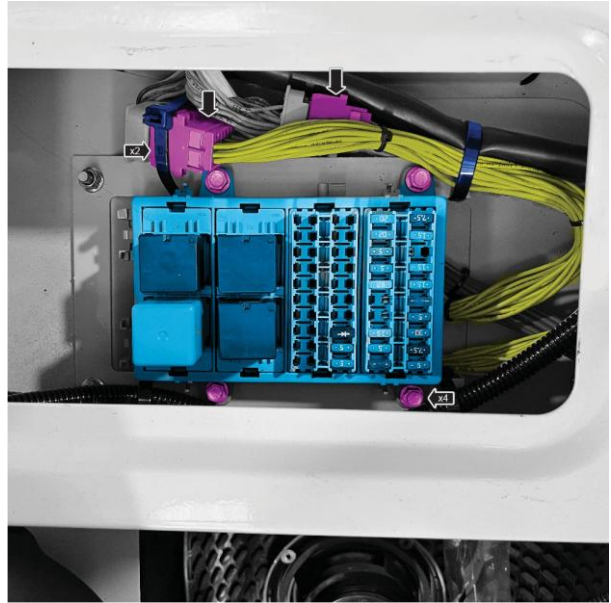
Remove

1. Power down the high voltage system. See High Voltage Power Up/Power Down 9.
2. Position the vehicle on a suitable 2 post lift. See Jacking and Lifting 5.
3. Remove the 12V battery.
4. Remove the rear left compartment lid.

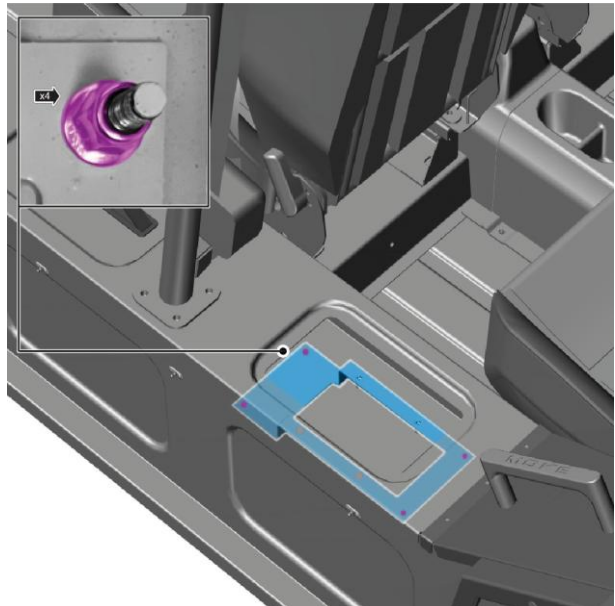


5. Cut and discard the two cable ties.
Disconnect the two fusebox electrical connectors.

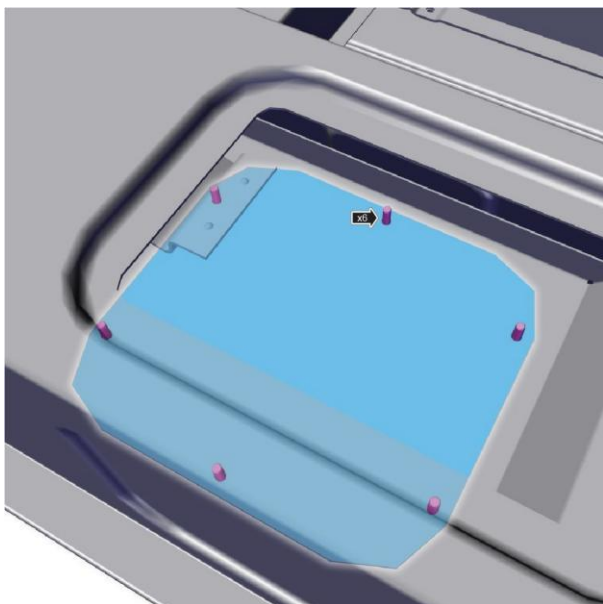
Remove the four fasteners and remove the fusebox.



6. Remove the four fasteners from the fuse box mounting plate and remove.

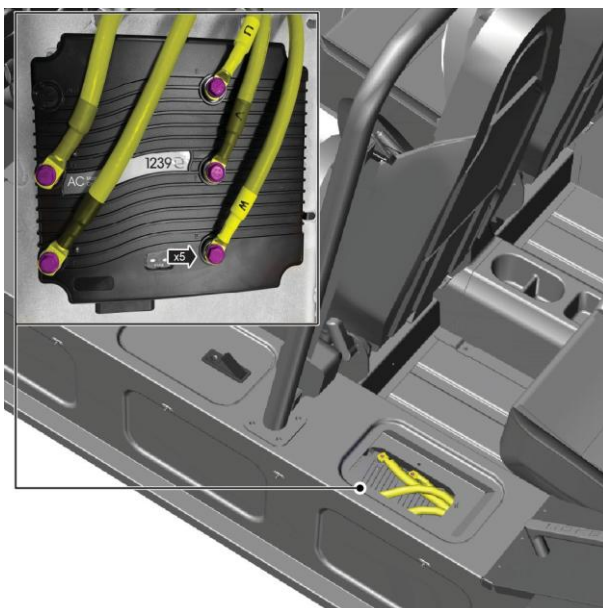


7. Remove the six fasteners and remove the inverter access lid.

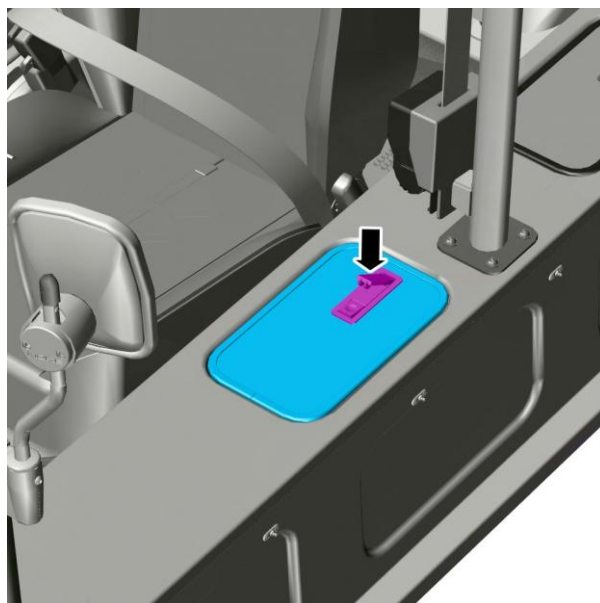


8. **Note:** Note the fitted position of all components prior to removal.

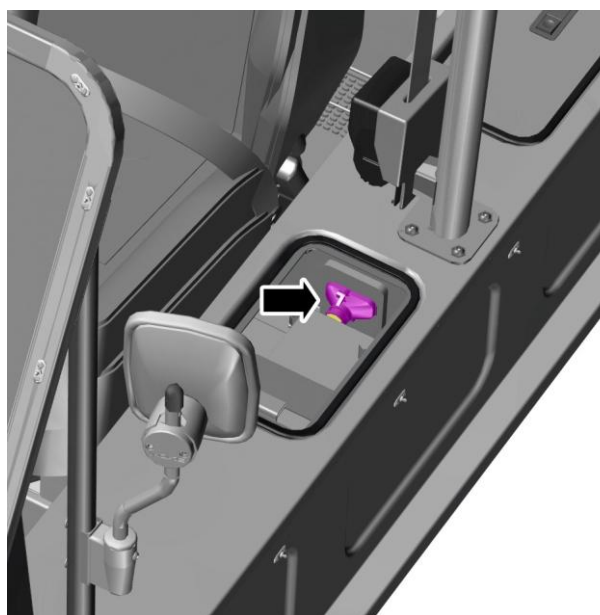
Remove the five fasteners from the HV cable terminals on the inverter and move aside.



9. Open the front left compartment lid.



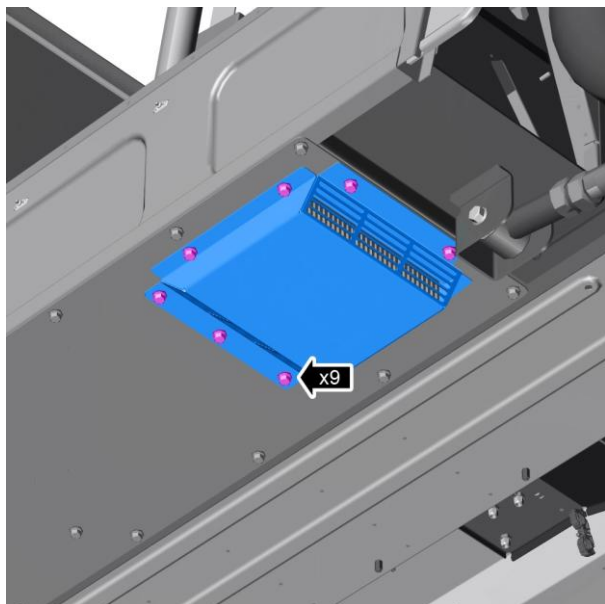
10. Disconnect the electrical connector for the inverter.



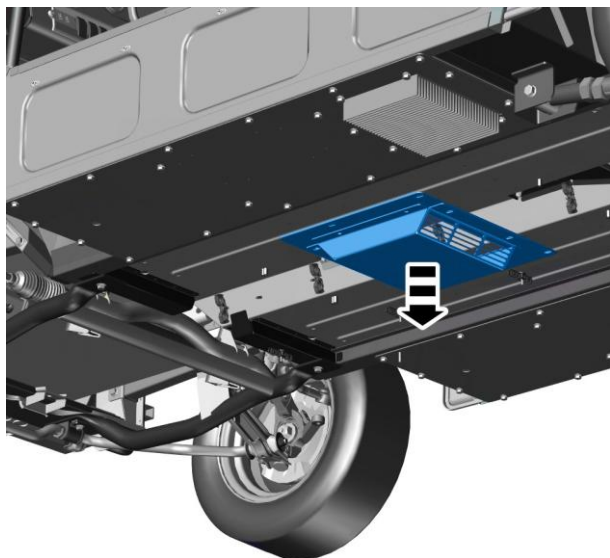
11. Remove the 12V battery.

12. Raise the vehicle to the correct height to work.

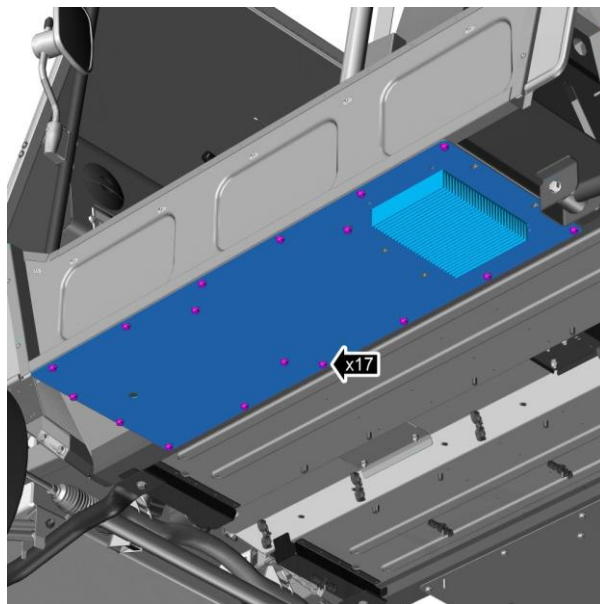
13. Remove the nine fasteners from the inverter cooling shroud.



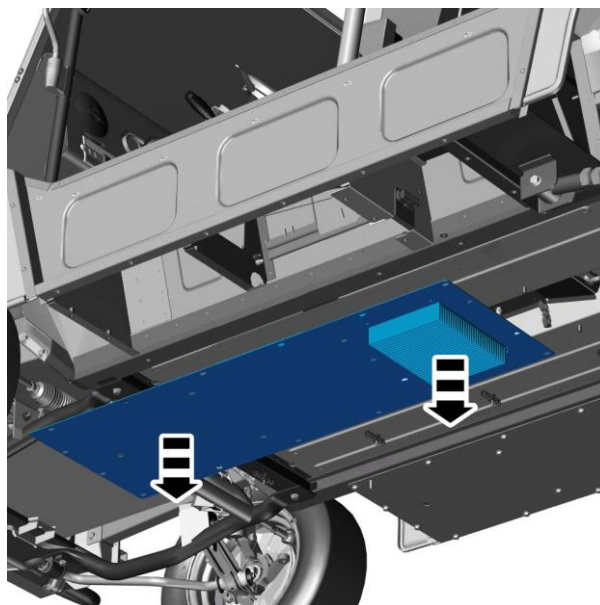
14. Remove the inverter cooling shroud.



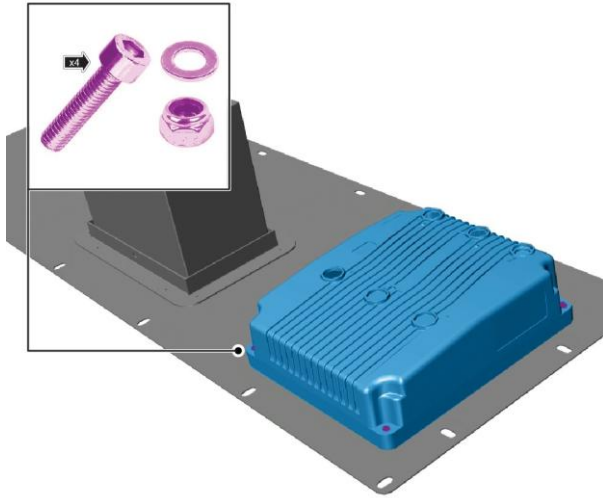
15. Using a suitable support tool, support the floor panel and remove the 17 fasteners.



16.  **CAUTION:** The aid of one more technician is necessary to prevent damage to the vehicle. Remove the floor panel from the vehicle.



17. Remove the four fasteners from the inverter and remove.



18. Separate the inverter from heatsink and clean off thermal pad.

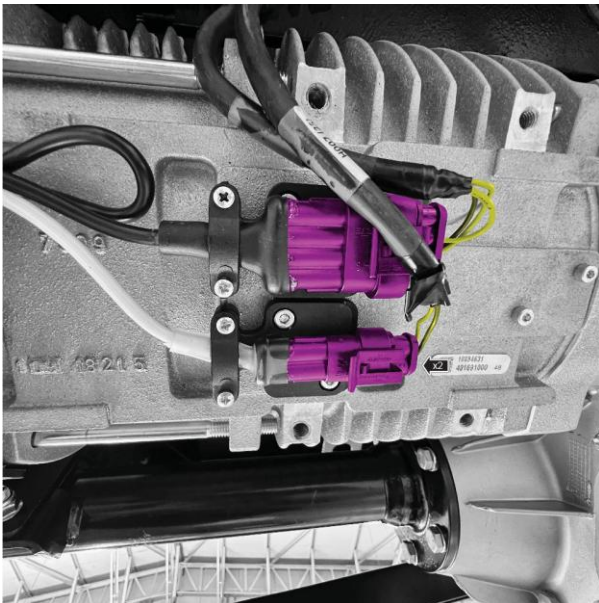
Install

1. Install new thermal pad.
2. Install the inverter on to the floor panel and tighten the four fasteners.
3. Using suitable support tool, install the floor panel into the vehicle.
Tighten the 17 fasteners to a torque of **24 Nm**.
4. Install the inverter cooling shroud.
Tighten the nine fasteners to a torque of **24 Nm**.
5. Lower the vehicle to the correct height to work.
6. Install the HV cables on to the inverter and tighten the five fasteners to a torque of **10 Nm**.
7. Install the inverter access lid and tighten the six fasteners.
8. Install the fuse box mounting plate and tighten the four fasteners.
9. Install the fuse box and tighten the four fasteners.
Reconnect the two electrical connections, and install two new cable ties.
10. Install the rear left compartment lid.
11. Reconnect the electrical connector for the inverter.
12. Install the 12V battery.
13. Install the front left compartment lid.
14. Power up the high voltage system. See High Voltage Power Up/Power Down 9.

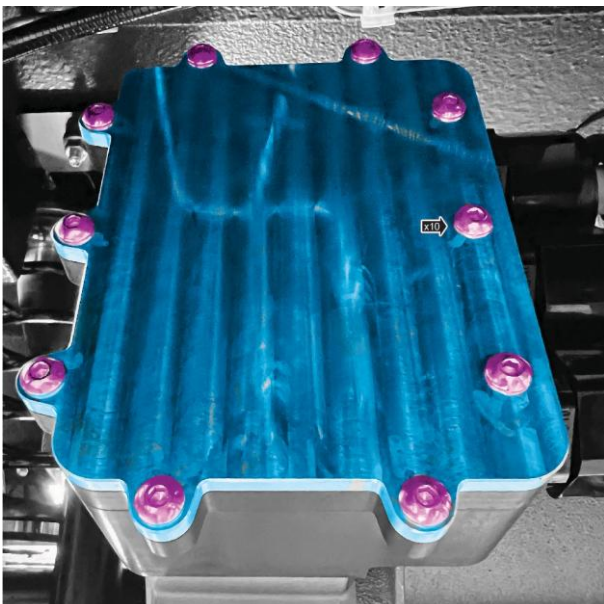
Motor

Remove

1. Power down the high voltage system. See High Voltage Power Up/Power Down 9.
2. Raise and support the vehicle, using a suitable lift. See Jacking and Lifting 5.
3. Disconnect the two 12V electrical connectors from the motor.



4. Remove the 10 fasteners and remove the high voltage cable housing lid.

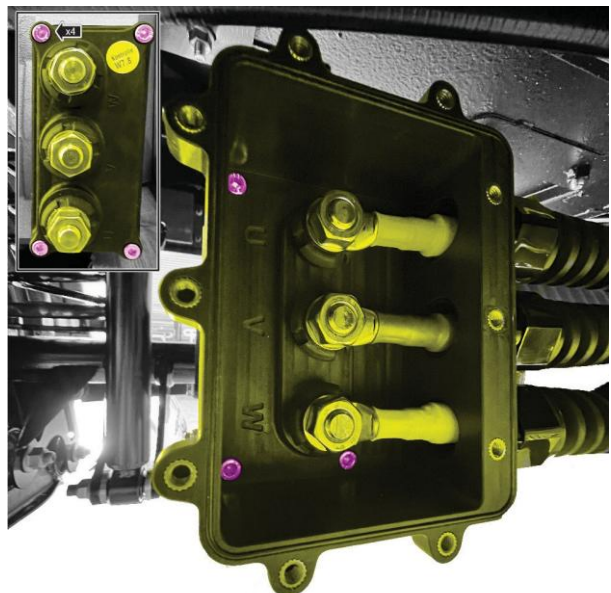


5. Remove the three fasteners that secure the high voltage cables to the motor.



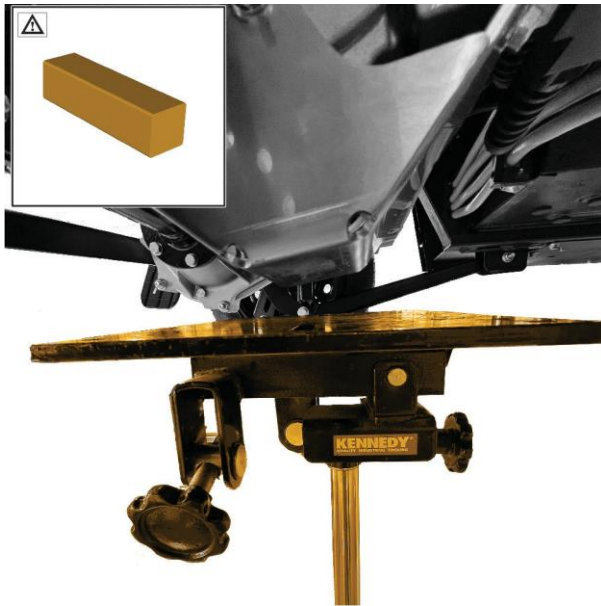
6.  **CAUTION:** Secure and support the high voltage cables. Do not let the high voltage cables hang.
 **Note:** Note the position of the high voltage cables prior to removal.

Remove the four fasteners and reposition the high voltage cable terminal away from the motor.

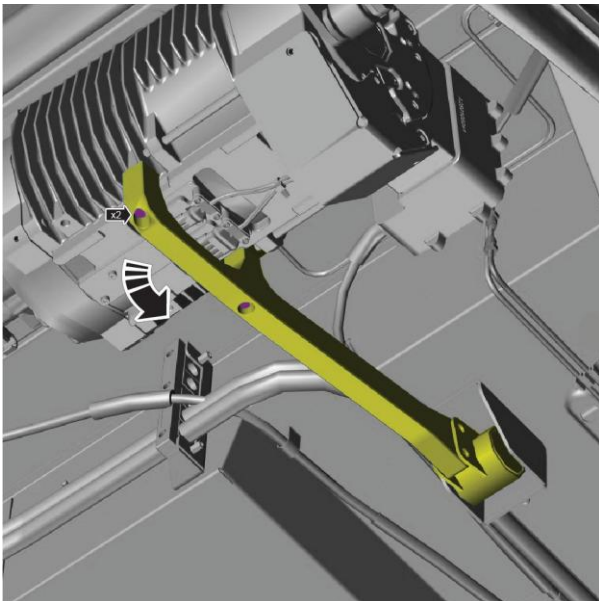


7.  **CAUTION:** Take care not to damage the surrounding components.
 **CAUTION:** Use a suitable block to aid the support tool.

Using a suitable support tool, support the motor.



8. Remove the two fasteners securing the motor support bracket to the motor and aside the motor support brace.

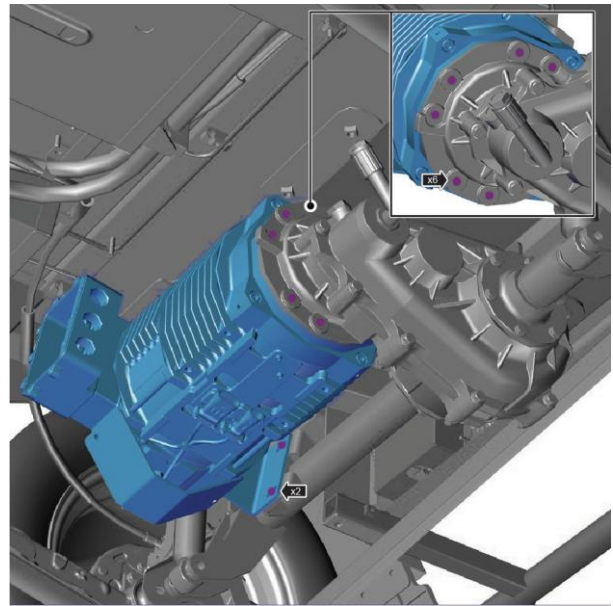


9.  **CAUTION:** This step requires the aid of a second technician.

Remove the six fasteners securing the e-motor to the differential.

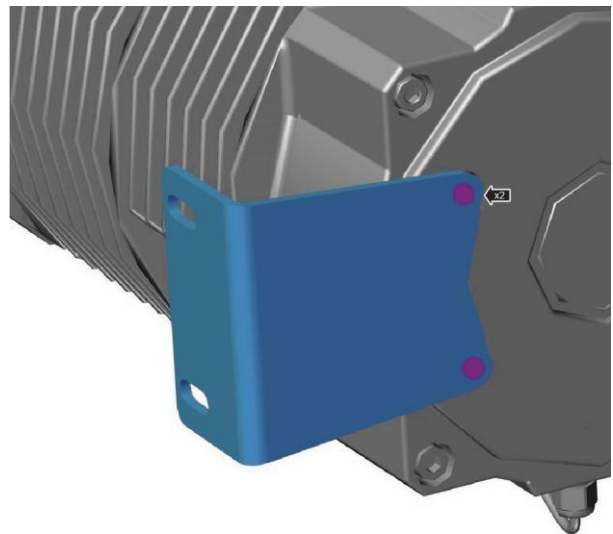
Remove the two fasteners securing the bracket to the rear axle.

Remove the motor.



10. Remove the two fasteners securing the right side motor bracket to the motor.

Remove the right side motor bracket.



Install

1. Install the right side motor bracket and tighten the two fasteners to the torque of **10 Nm**.
2. Install the motor and tighten the six fasteners to the torque of **9 Nm**.
3. Apply **Loctite™ 243** to the two fasteners.
Install the motor support brace into the correct position and tighten the two fasteners to the torque of **25 Nm**.
4. Remove the support tool from the motor.
5. Install the high voltage cable terminal to the motor and tighten the four fasteners to a torque of **5 Nm**.

6. Install and tighten the three high voltage fasteners to the torque of **20 Nm**.
7. Install the high voltage cable housing lid and tighten the 10 fasteners to the torque of **5 Nm**.
8. Connect the two 12V electrical connectors to the motor.
9. Lower the vehicle.
10. Power up the high voltage system. See High Voltage Power Up/Power Down 9.

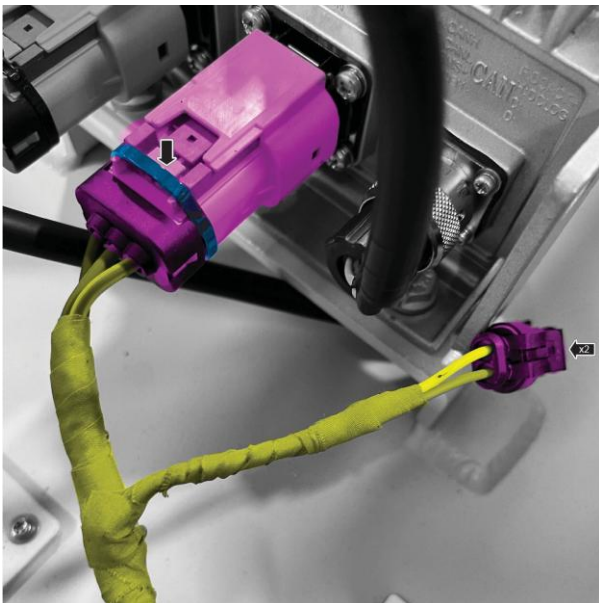
High Voltage Charge Port

Preparation

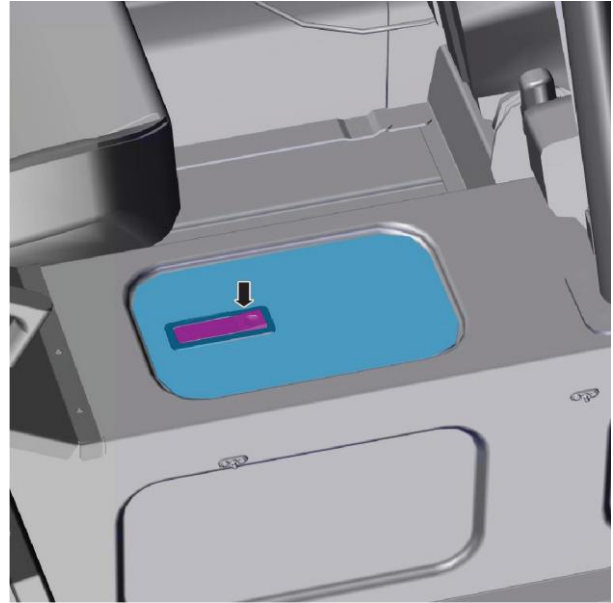
-  **WARNING:** This procedure must only be done by approved personnel.
-  **WARNING:** You must do this procedure in the exact sequence shown. Failure to do so could result in serious personal injury.
-  **WARNING:** Make sure that you obey all local legislation when you work with high voltages and high voltage systems.
-  **WARNING:** Approved personal protective equipment must be worn when instructed to do so and includes: safety glasses or visor, rubber gloves meeting Class 0 or better and non-flammable, non-melting clothing.
-  **WARNING:** Always wear the applicable protective safety equipment when you work with batteries. Batteries contain poisonous and corrosive acid that can cause body injuries.
-  **CAUTION:** Set the ignition to OFF before you start this procedure.
-  **Note:** This procedure contains illustrations showing certain components removed to provide extra clarity.

Remove

1. Power down the high voltage system. See High Voltage Power Up/Power Down 9.
2. Raise and support the vehicle on a suitable lift. See Jacking and Lifting 5.
3. Cut the cable tie and discard.
Disconnect the DC/DC converter to high voltage charge port electrical connector and the 12V electrical connector.



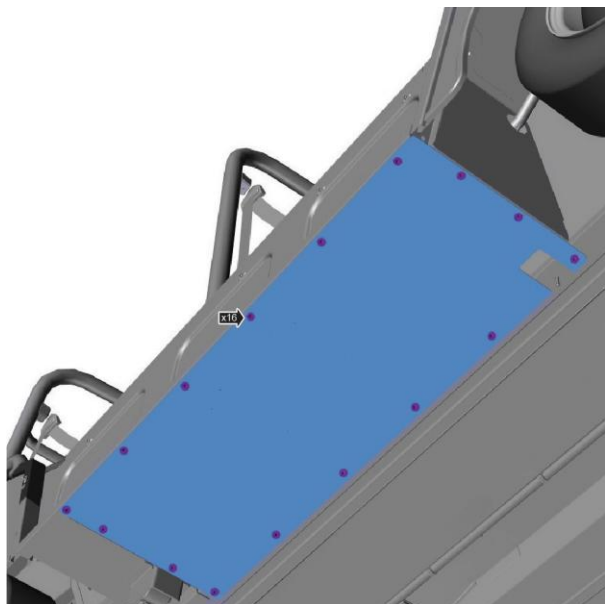
4. Open the rear right compartment.



5. Remove the four fasteners from the high voltage charge port.

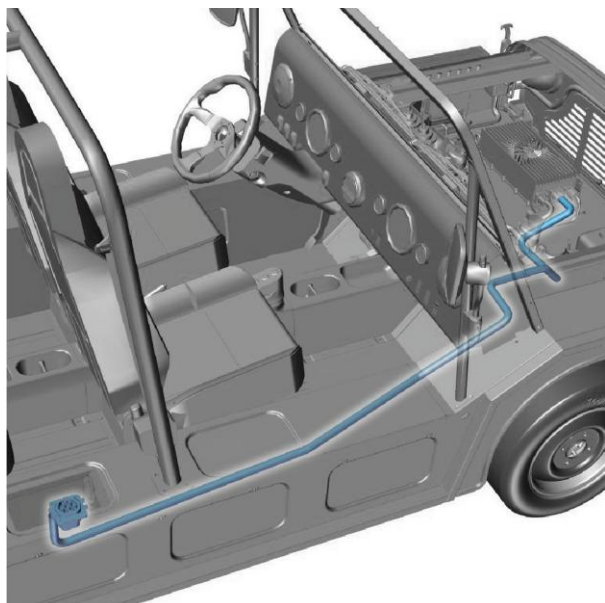


6. Remove the 16 fasteners and remove the right side access panel.



7. Lower the vehicle.

7. Remove the high voltage charge port.



Install

1. Install the high voltage charge port.
2. Install the right side access panel and tighten the 16 fasteners to the torque of **10 Nm**.
3. Tighten the four fasteners on the high voltage charge port to the torque of **10 Nm**.
4. Close the rear right compartment.
5. Connect the DC/DC converter to high voltage charge electrical connector and the 12V electrical connector.
Install a new cable tie on the DC/DC electrical connector.
6. Power up the high voltage system. See High Voltage Power Up/Power Down 9.

DC/DC Converter

Preparation

-  **WARNING:** This procedure must only be done by approved personnel.
-  **WARNING:** You must do this procedure in the exact sequence shown. Failure to do so could result in serious personal injury.
-  **WARNING:** Make sure that you obey all local legislation when you work with high voltages and high voltage systems.
-  **WARNING:** Approved personal protective equipment includes: safety glasses or visor, rubber gloves meeting Class 0 or better and non-flammable, non-melting clothing, must be worn when instructed to do so.
-  **WARNING:** Always wear the applicable protective safety equipment when you work with batteries. Batteries contain poisonous and corrosive acid that can cause body injuries.
-  **CAUTION:** Set the ignition to OFF before you start this procedure
-  **Note:** This procedure contains illustrations showing certain components removed to provide extra clarity.

Remove

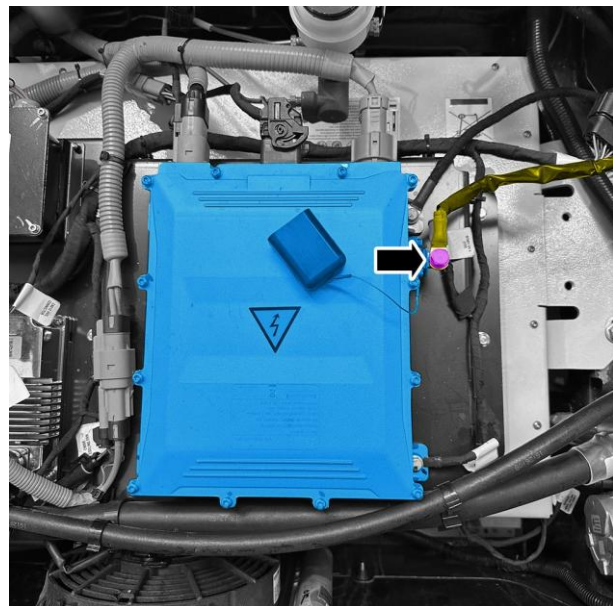
1. Power down the high voltage system. See High Voltage Power Up/Power Down 9.
2. Cut the cable tie on the electrical connectors.
Disconnect the two high voltage connectors and the one low voltage connector.



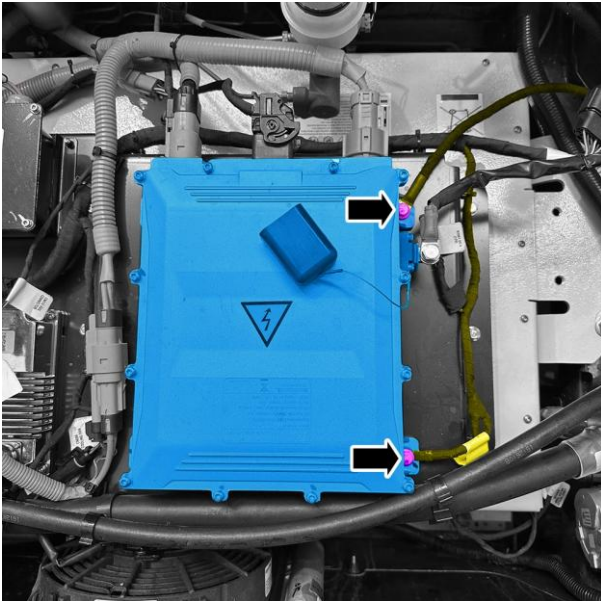
3. Remove the cover on the DC/DC converter for the 12V output.



4. Remove the fastener and reposition the 12V output away from the DC/DC converter.



- Remove the two fasteners and reposition the earth straps away from the DC/DC converter.



- Remove the four fasteners from the DC/DC converter.

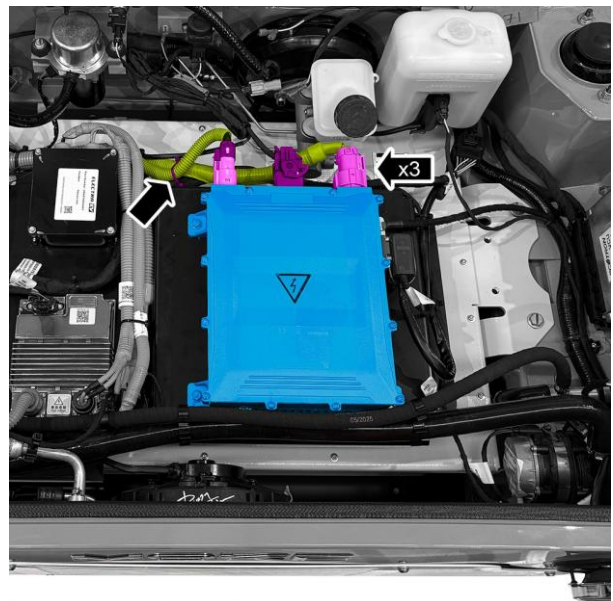


- Remove the DC/DC converter.



Install

- Install the DC/DC converter.
Tighten the four fasteners to the torque of **40 Nm**.
- Install the 12V output cable to the DC/DC converter and tighten the fastener to the torque of **10 Nm**.
- Install the cover for the 12V output.
- Install the earth straps and tighten the fasteners to the torque of **10 Nm**.
- Install the two high voltage connectors and the one low voltage connector to the DC/DC converter.
Install the new cable tie on the connectors as shown.



- Power up the high voltage system. See High Voltage Power Up/Power Down 9.

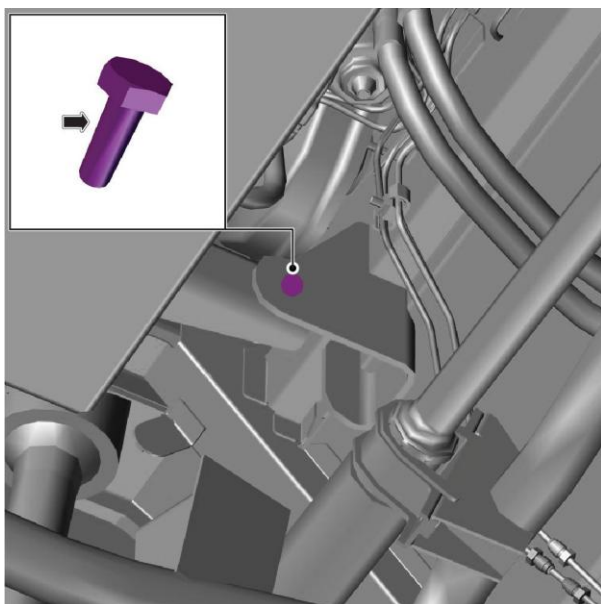
High Voltage Battery

Preparation

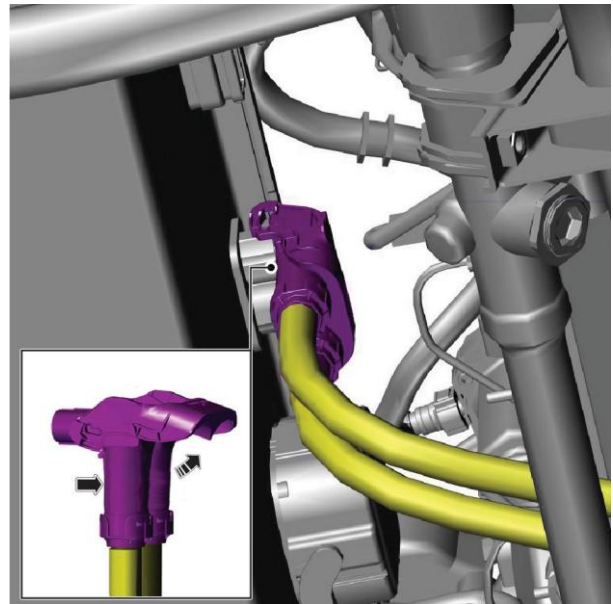
-  **WARNING:** This procedure must only be done by approved personnel.
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-  **WARNING:** Make sure that you obey all local legislation when you work with high voltages and high voltage systems.
-  **WARNING:** Approved personal protective equipment includes: safety glasses or visor, rubber gloves meeting Class 0 or better and non-flammable, non-melting clothing, must be worn when instructed to do so.
-  **WARNING:** Always wear the applicable protective safety equipment when you work with batteries. Batteries contain poisonous and corrosive acid that can cause body injuries.
-  **CAUTION:** Set the ignition to OFF before you start this procedure.

Remove

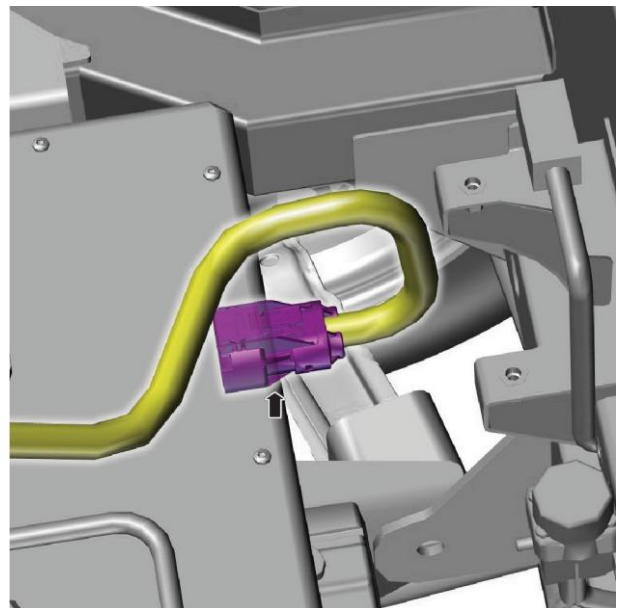
1. Power down the high voltage system. See High Voltage Power Up/Power Down 9.
2. Remove the DC/DC converter. See DC/DC Converter 24.
3. Remove the battery thermal management system (If fitted). See High Voltage Battery Thermal Management System 29.
4. Remove the brake master cylinder. See Master Cylinder 70.
5. Remove the fastener that secures the high voltage battery mount to the body.



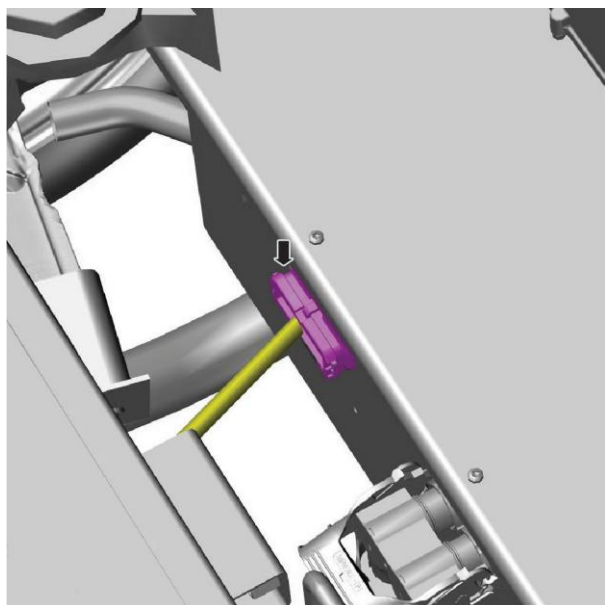
6. Disconnect the high voltage battery to inverter connector.



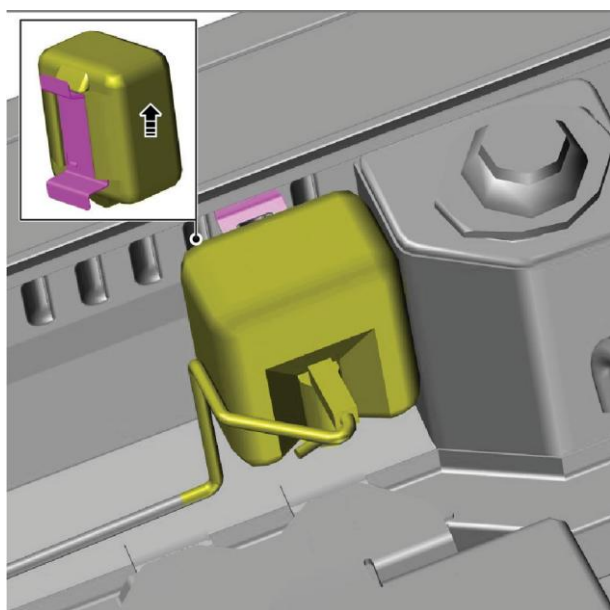
7. Disconnect the high voltage battery to DC/DC converter connector.



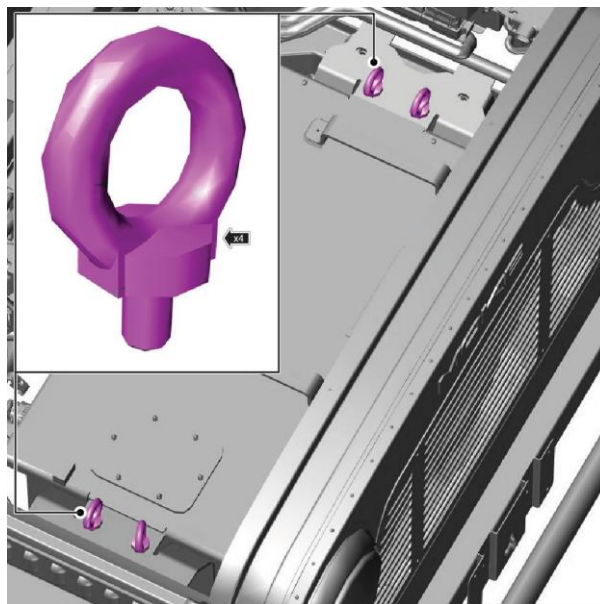
8. Disconnect the 12V electrical connector.



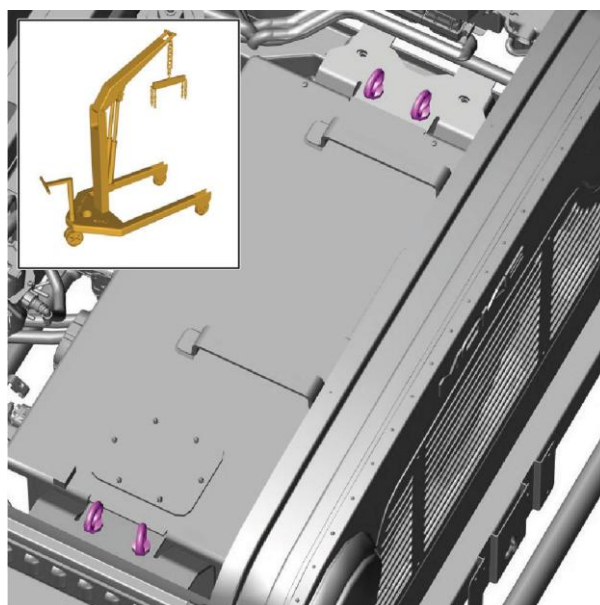
9. Release and move aside the washer fluid reservoir.



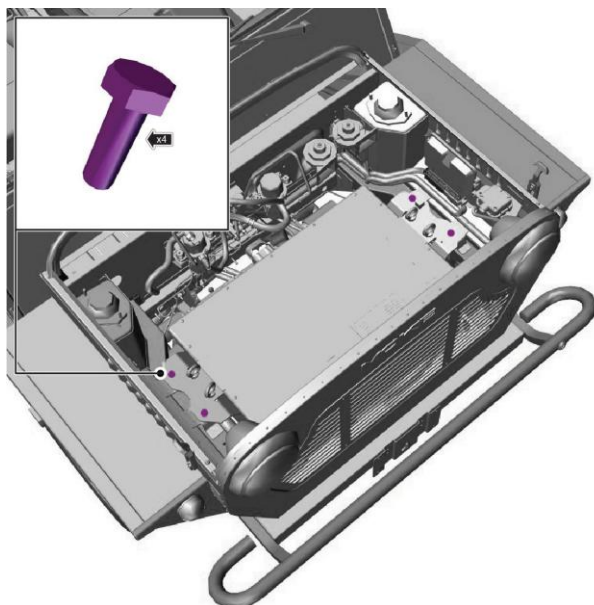
10. Install the four hooks and hand tighten the hooks to the high voltage battery.



11. Install suitable lifting equipment onto the hooks.



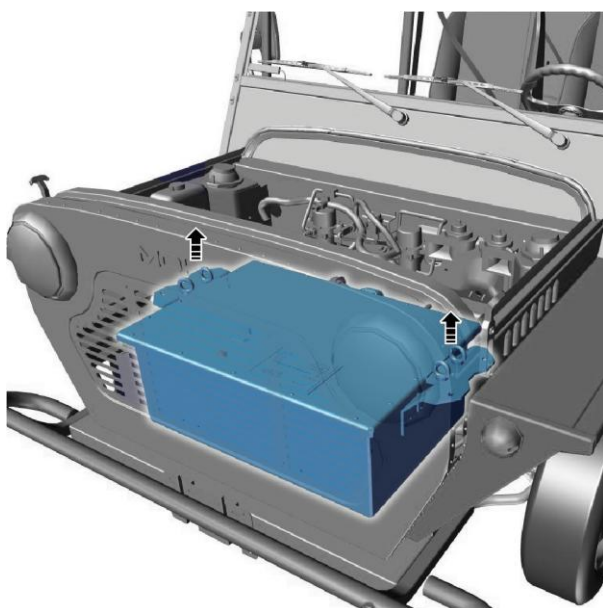
12. Remove the four high voltage battery fasteners.



6. Connect the high voltage battery to DC/DC converter connector.
7. Connect the high voltage battery to inverter connector.
8. Install and tighten the fastener that secures the high voltage battery mount to the body to a torque of **36 Nm**.
9. Install the brake master cylinder. See Master Cylinder 70.
10. Install the battery thermal management system (If fitted). See High Voltage Battery Thermal Management System 29.
11. Install the DC/DC converter. See DC/DC Converter 24.
12. Power up the high voltage system. See High Voltage Power Up/Power Down 9.

13.  **CAUTION:** This step requires the aid of a second technician.

Using suitable lifting equipment, remove the high voltage battery.



Install

1.  **CAUTION:** This step requires the aid of a second technician.

Using suitable lifting equipment, install the high voltage battery.

2. Install and tighten the four fasteners to the torque of **24 Nm**.
3. Remove the four hooks.
4. Install the washer fluid reservoir into the correct location.
5. Connect the 12V connector to the high voltage battery.

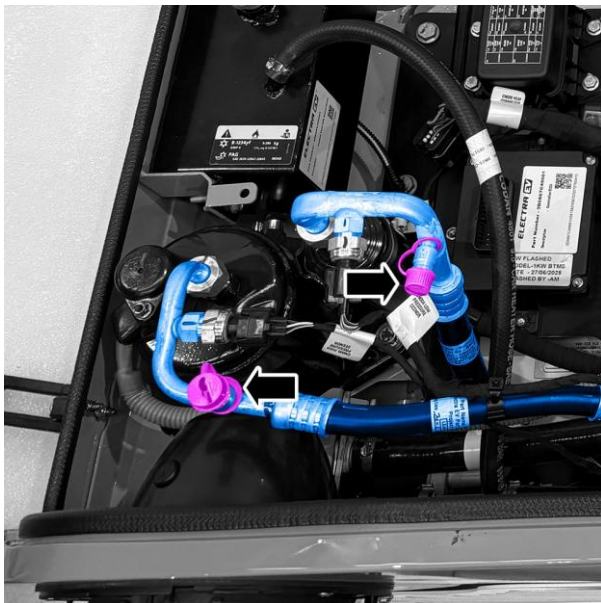
High Voltage Battery Thermal Management System

Preparation

-  **WARNING:** This procedure must only be done by approved personnel.
-  **WARNING:** You must do this procedure in the exact sequence shown. Failure to do so could result in serious personal injury.
-  **WARNING:** Make sure that you obey all local legislation when you work with high voltages and high voltage systems.
-  **WARNING:** Approved personal protective equipment includes: safety glasses or visor, rubber gloves meeting Class 0 or better and non-flammable, non-melting clothing, must be worn when instructed to do so.
-  **WARNING:** Always wear the applicable protective safety equipment when you work with batteries. Batteries contain poisonous and corrosive acid that can cause body injuries.
-  **WARNING:** The components and fluids in the procedure will be hot. Use the correct personal protective equipment (PPE) to prevent personal injury.
-  **CAUTION:** Set the ignition to OFF before you start this procedure.

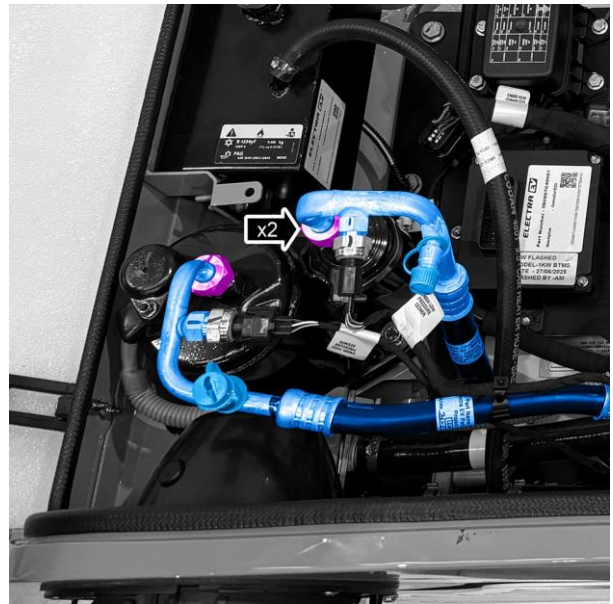
Remove

1. Power down the high voltage system. See High Voltage Power Up/Power Down 9.
2. Remove the DC/DC converter. See DC/DC Converter 24.
3. Recover the AC gas from the AC system.



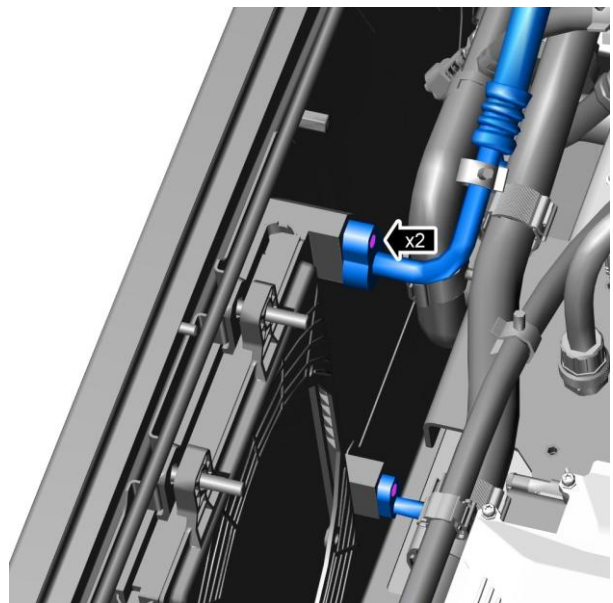
4. Remove the two fasteners from the AC pipes from the AC compressor.

Release the AC pipes from the AC compressor.



5. Remove the two fasteners from the AC pipes to the AC radiator.

Remove the AC pipes.



6.  **CAUTION:** Prepare to collect the released fluid.

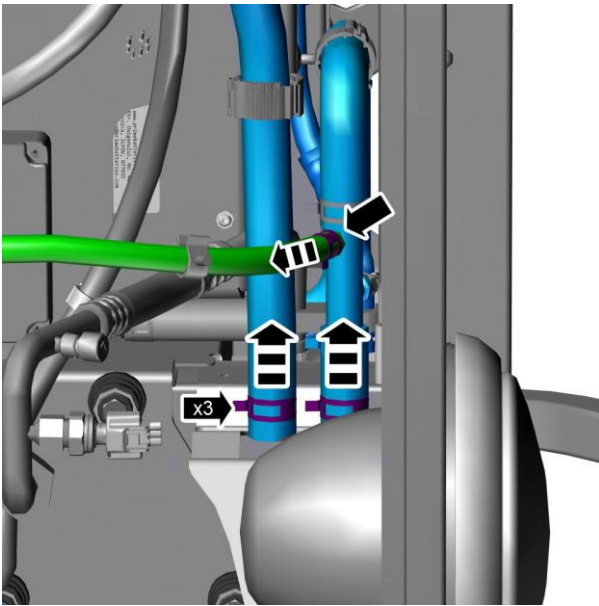


Note:

Record the sequence and position of the components before removal. You must install the components in the same sequence and position.

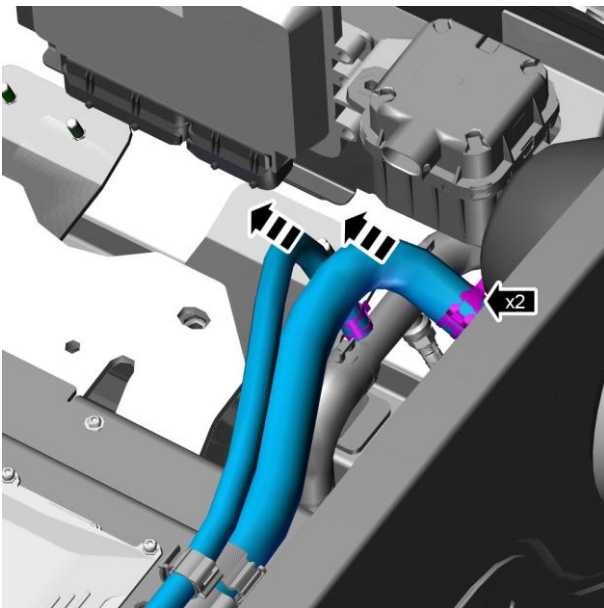
Remove the three fasteners on the coolant hoses and be prepare to catch the coolant fluid.

Remove the coolant hoses in the direction shown.

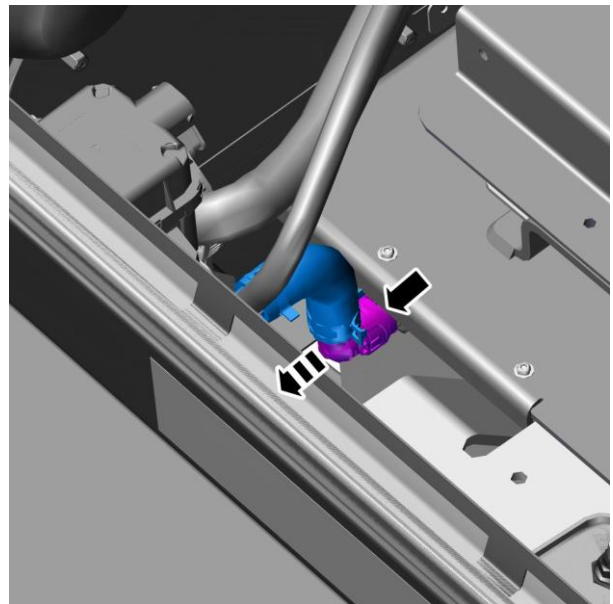


7. **CAUTION:**
Prepare to collect the released fluid.

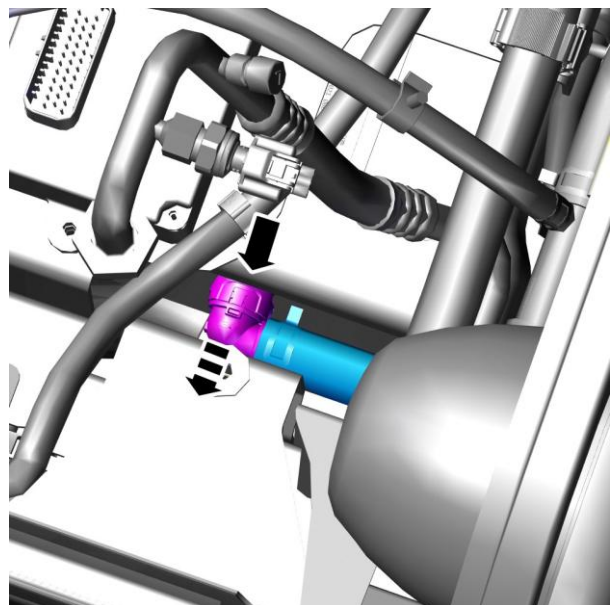
Remove the two fasteners on the coolant hoses and remove in the direction shown.



8. Remove the coolant hose from the side of the high voltage battery.

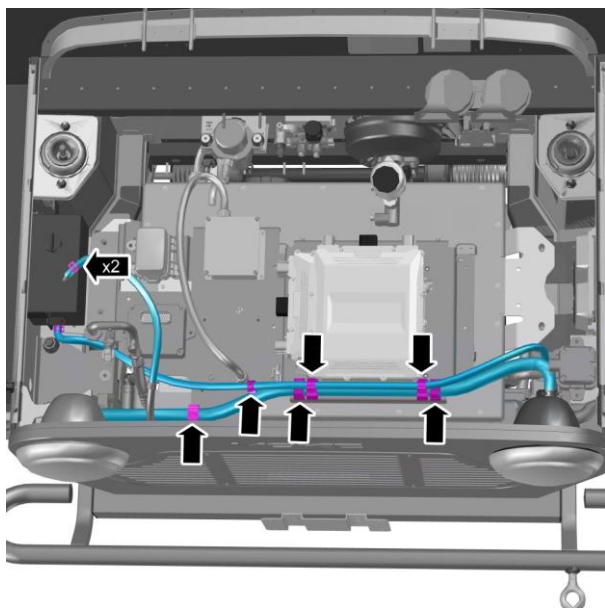


9. Repeat step 8 for the other side of the high voltage battery.

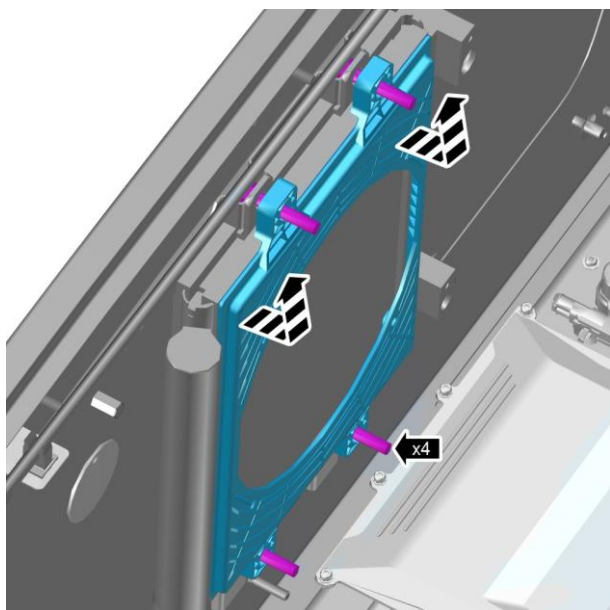


10. **Note:**
Record the sequence and position of the components before removal. You must install the components in the same sequence and position.
Release the six clips.

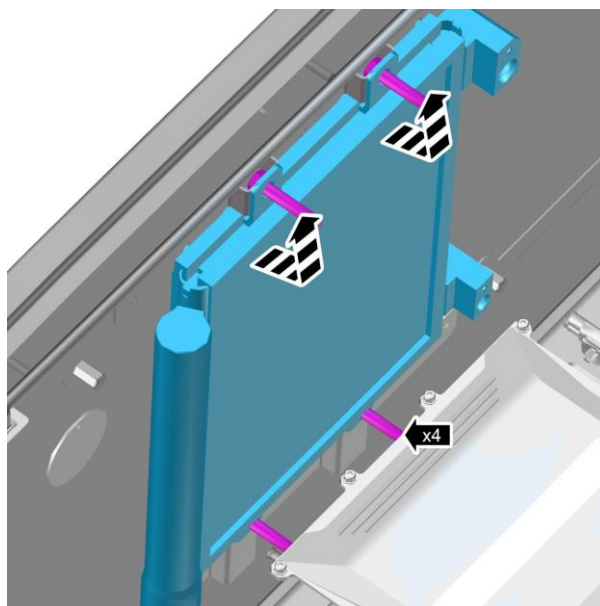
Remove the coolant hoses from the vehicle.



11. Remove the four fasteners and then remove the fan shroud.



12. Remove the four fasteners and remove the AC radiator as shown.



13. Disconnect the low voltage connection battery thermal management system.



14.  CAUTION: This step requires the aid of a second technician.

Remove the four fasteners.

Remove the battery thermal management system.



8. Install the coolant hoses to the chiller and the coolant reservoir
9. Install the AC pipes to the AC radiator.
Install the two fasteners and tighten.
10. Install the AC pipes to the AC compressor.
Install the two fasteners and tighten.
11. Install the DC/DC converter. See DC/DC Converter 24.
12. Refill the coolant sytem and perform a coolant bleed.
13. Re-gas the AC system.
14. Install the AC caps on the fill ports.
15. Power up the high voltage system. See High Voltage Power Up/Power Down 9.

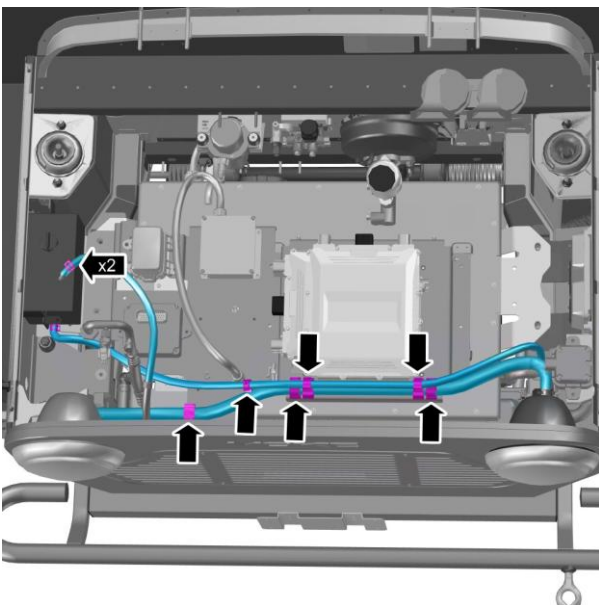
Install

1.  **CAUTION:** This step requires the aid of a second technician.

Install the battery thermal management system on to the high voltage battery.

Install the four fastners and tighten to a torque of **24 Nm**.

2. Install the AC radiator and tighten the four fasteners.
3. Install the AC fan shroud and tighten the four fasteners.
4. Install coolant hoses to the vehicle and secure the clips.



5. Connect the coolant hose on the right side of high voltage battery.
6. Connect the coolant hose on the left side of high voltage battery.
7. Install the coolant hoses to the water pump.

Low Voltage System Overview

Lighting System

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Other Electrical Equipment

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 Electrical Items..... 39

 Automatic Monitoring and Control 41

Wiring Harness

 Cabin Wiring Harness..... 42

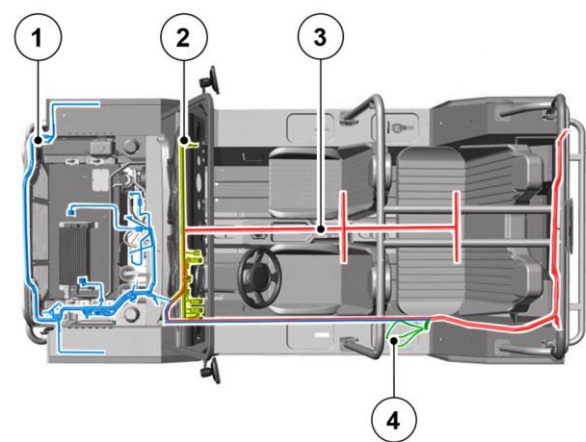
 Main Wiring Harness..... 45

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12V Battery

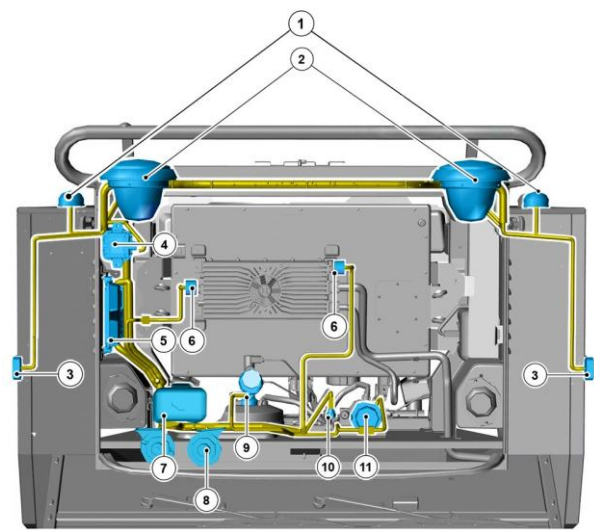
 Disconnect/Connect 54

Low Voltage Harness Routing



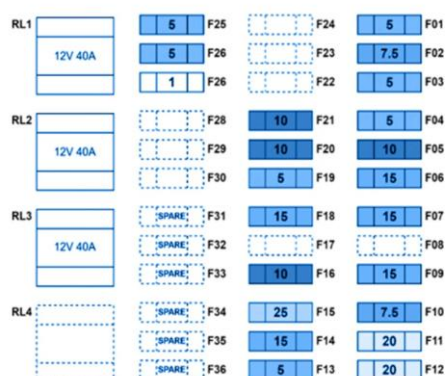
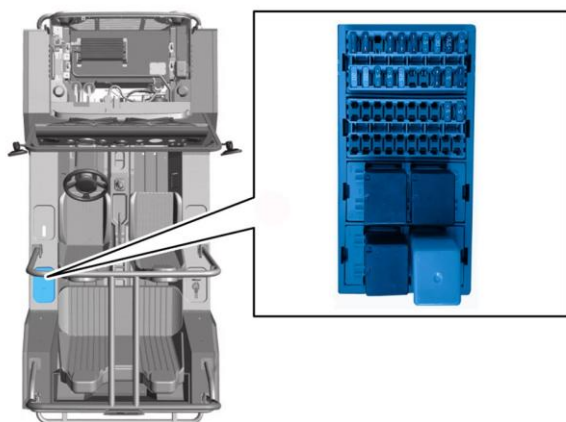
Annotation	Description
1	Engine bay harness
2	Dashboard harness
3	Cabin harness
4	Fusebox harness

Low Voltage Engine Bay Harness System Component Overview



Annotation	12VComponentDescription
1	Indicators
2	Headlights
3	Side repeater
4	Acoustic vehicle alert system (AVAS)
5	Vehicle controller
6	DC/DC Converter 12V connections
7	Washer pump
8	Horns
9	Brake fluid level sensor
10	Inetia safety switch
11	Vaccum pump

Cabin Fuse Box



Fuse ID	Circuit	Fuse Rating (Amps)
F01	Instrument cluster and OBDII	5
F02	Acoutisc vehicle alert system 12V power	7.5
F03	Gear selector 12V power	5
F04	Hazard/Indicator relay	5
F05	Battery management system 12V power	10
F06	Vehicle control unit (Ok to drive signal) to Inverter	15

F07	Vehicle control unit 12V power	15
F08	Not used	-
F09	Horns	15
F10	Brake pedal switch	7.5
F11	Vaccum pump	20
F12	Ignition switch 12V power	20
F13	Radio back up	5
F14	Immobiliser	15
F15	Headlamp 12V power	25
F16	Inverter 12V power	10
F17	Not used	-
F18	Wiper motor	15
F19	Acousitc vehicle alert system ignition	5
F20	Radio ignition/12V Aux power	10
F21	Not used	-
F22	Not used	-
F23	Not used	-
F24	Not used	-
F25	Rear fog lamp switch 12V power	5
F26	Side lights 12V power	5
F27	Headlamp diode	1
F28	Not used	-
F29	Not used	-
F30	Not used	-
F31	Spare	-
F32	Spare	-

Headlamp

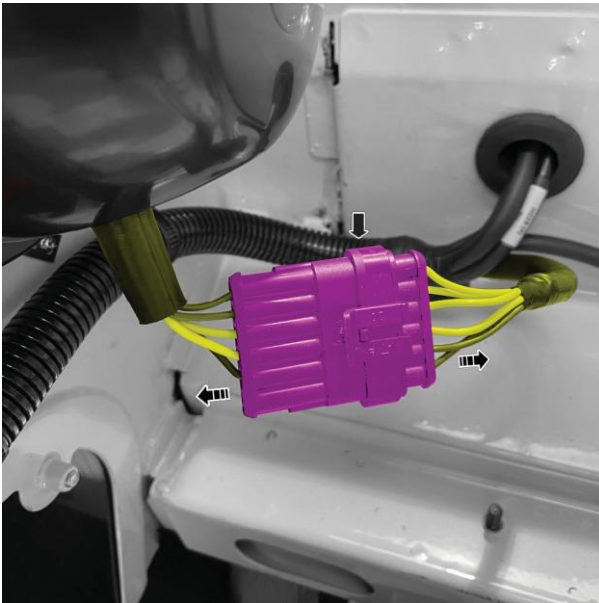
Preparation

CAUTION: Take extra care not to damage the surrounding trim panels.

Note: The illustrations shows a left hand component, right side components are similar.

Remove

1. Disconnect the 12V system. See 12V System Disconnect 54.
2. Open the bonnet.
3. Disconnect the headlamp electrical connector.

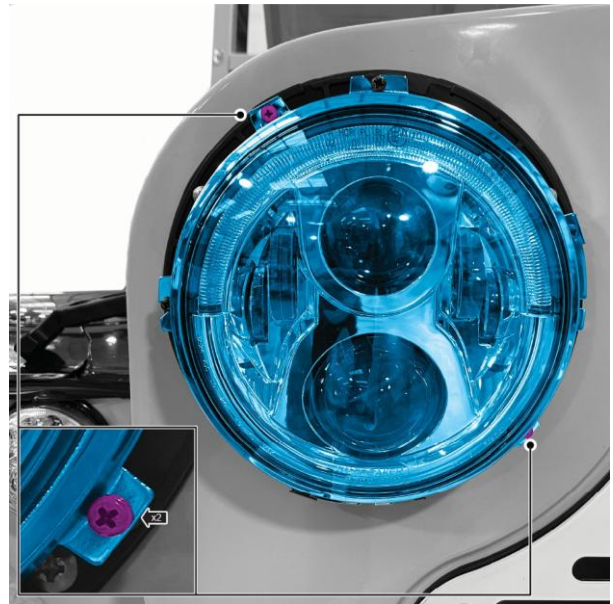


4. **CAUTION:** Take extra care not to damage the surrounding components.

Remove the fastener from the headlamp rim and remove it.



5. Un-screw the two fasteners and remove the headlamp.



Install

1. Install the headlamp into the headlamp bucket and position the headlamp tabs with the headlamp bucket.
2. Tighten the three fasteners fasteners.
3. Install the headlamp rim and tighten the fastener.
4. Reconnect the headlamp electrical connection.
5. Close the bonnet.
6. Connect the 12V system. See 12V System Disconnect 54.

Wiper Motor

Preparation

- Note:** Before disconnecting the electrical system, make sure the wipers are turned off and in the 'park' position.
- Note:** This procedure contains illustrations for left hand drive, right hand drive are similar.
- Note:** Note the fitted position of all components prior to removal

Remove

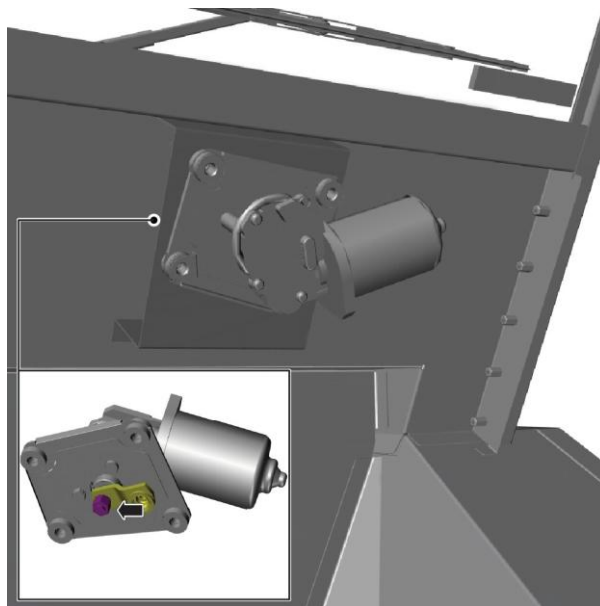
1. Disconnect the 12V system. See 12V System Disconnect 54.
2. Remove the instrument panel. See Instrument Panel - Remove for access 103.
3. Disconnect the electrical connector on the wiper motor.



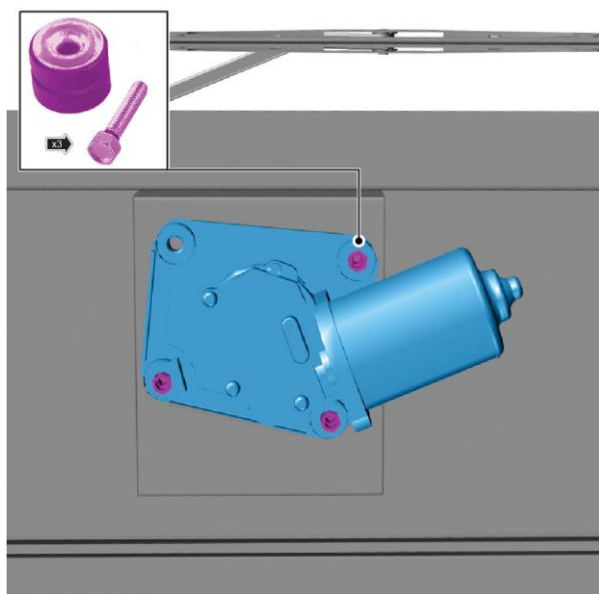
4. Remove the fastener and disconnect the earth cable.



5. Remove the fastener that secures the wiper linkage to the wiper motor and move aside.



6. Remove the three fasteners from the wiper motor and remove.



Install

1. Install the wiper motor and tighten the three fasteners to a torque of **13 Nm**.
2. Install the wiper linkage on to the wiper motor and tighten the fasteners to a torque of **10 Nm**.
3. Install the earth cable on to wiper motor and tighten the fastener to a torque of **13 Nm**.
4. Connect the wiper motor electrical connector.
5. Install the instrument panel. See Instrument Panel - Remove for access 103.
6. Connect the 12V system. See 12V System Disconnect 54.

Combination Switch

Preparation

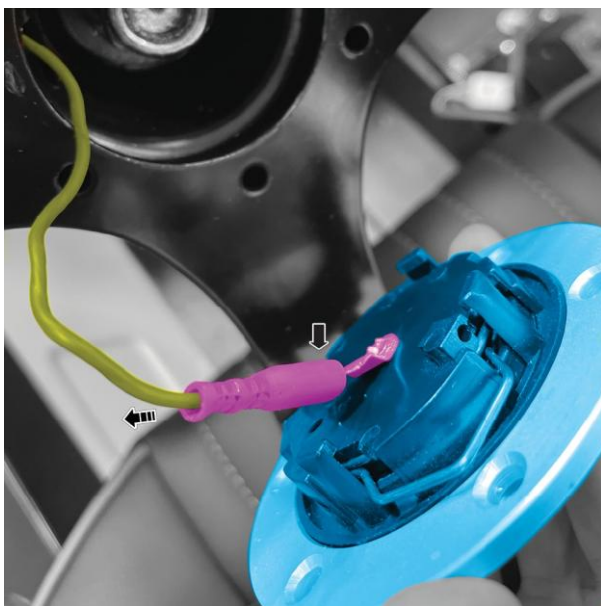
-  CAUTION: You must not use the steering lock to hold the steering wheel when you remove or install the fastener.
-  CAUTION: If you do not hold the steering wheel, damage will occur to the steering lock.

Remove

1. Disconnect the 12V system. See 12V System Disconnect 54.
2. Remove the six fasteners from the horn and reposition for access to electrical connector.



3. Disconnect the electrical connection from the horn button and then remove.



4. Remove the fastener that attaches the steering wheel to the steering column and discard.

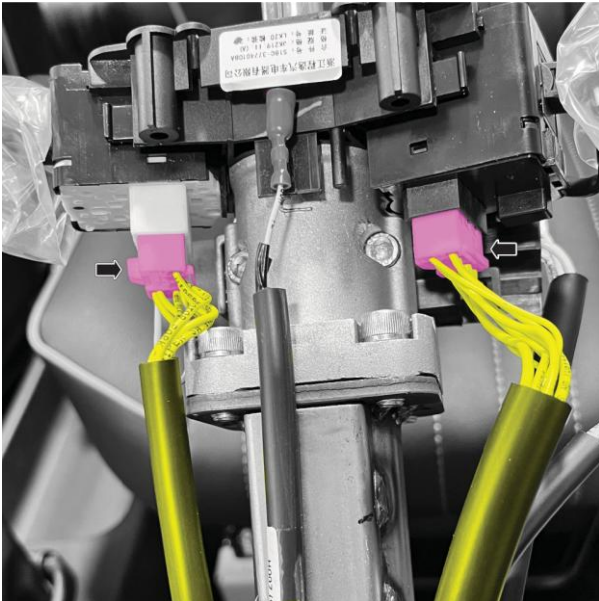
Mark the position of the steering wheel on the splines prior to removal.



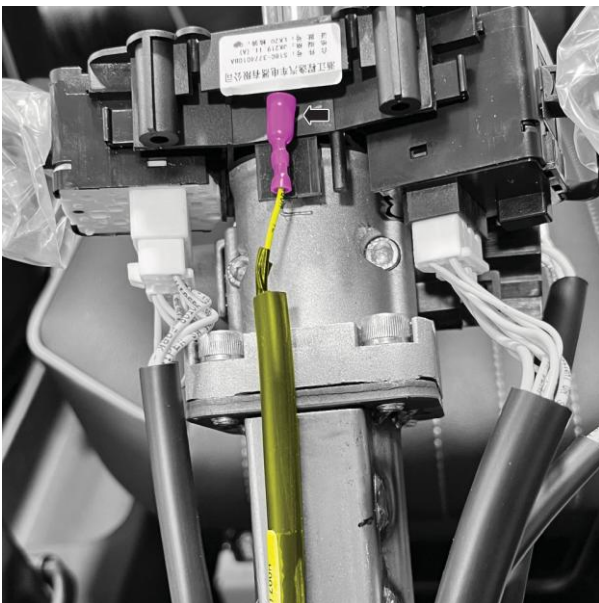
5. Remove the steering wheel.
6. Remove the steering column covers by removing the seven fasteners.



7. Release the two electrical connectors on the combination switch.

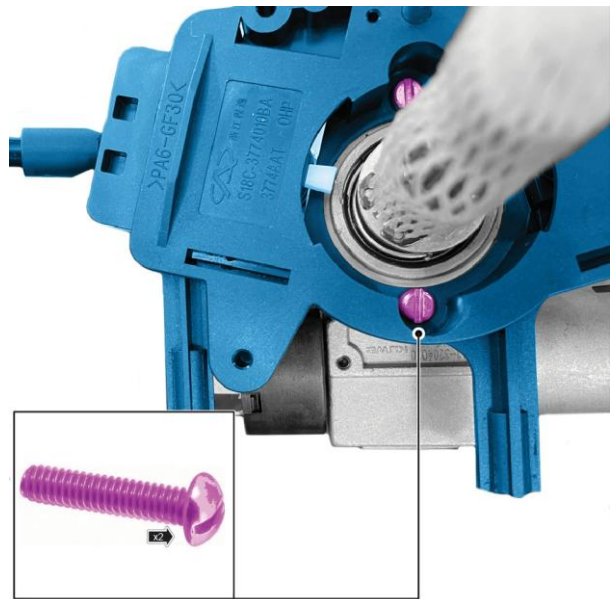


8. Remove the electrical connector from the steering wheel contact ring.



9. Remove the two fasteners from the combination switch.

Remove the combination switch.



Install

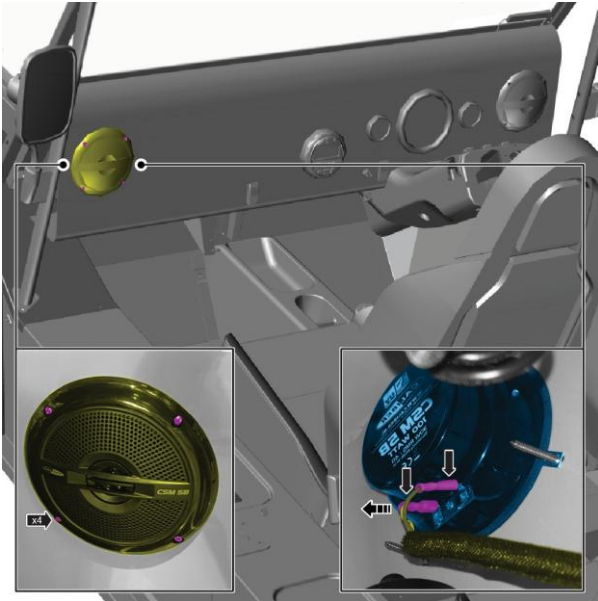
1. Install the combination switch on to the steering column. Tighten the two fasteners.
2. Reconnect the electrical connector to the steering wheel contact ring.
3. Reconnect the two electrical connectors on the combination switch.
4. Install the steering column covers and tighten the fasteners.
5. Install the steering wheel, note the position of the splines and tighten the fasteners to a torque of **60 Nm**.
6. Reconnect the electrical connector for the horn.
7. Install the horn into the steering wheel and tighten the six fasteners.
8. Connect the 12V system. See 12V System Disconnect 54.

Immobiliser

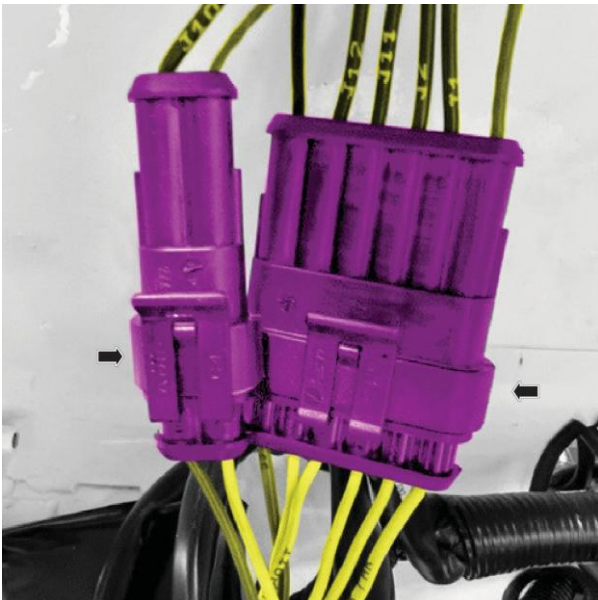
Remove

1. Disconnect the 12V system. See 12V System Disconnect 54.
2. Remove the four fasteners and reposition the left side instrument panel speaker to allow access to the electrical connector.

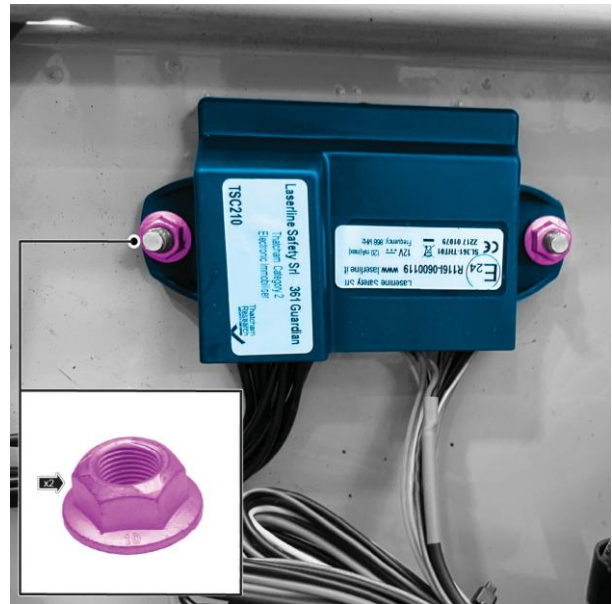
Disconnect the two electrical connectors and remove the left side instrument panel speaker.



3. Disconnect the two electrical connectors from the immobiliser.



4. Remove the two fasteners and remove the immobiliser.



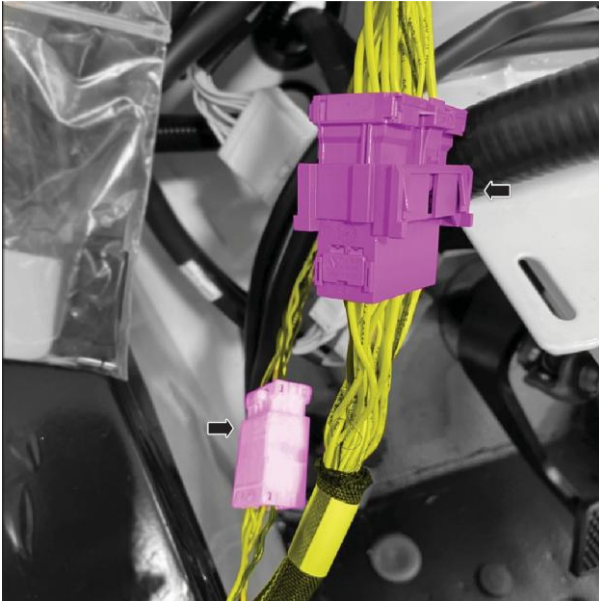
Install

1. Install the immobiliser and tighten the two fasteners.
2. Connect the two electrical connections on the immobiliser.
3. Install the the speaker into the instrument panel and connect the two electrical connectors.
4. Install the fasteners on the speakers and tighten.
5. Connect the 12V system. See 12V System Disconnect 54.

Cabin Wiring Harness

Remove

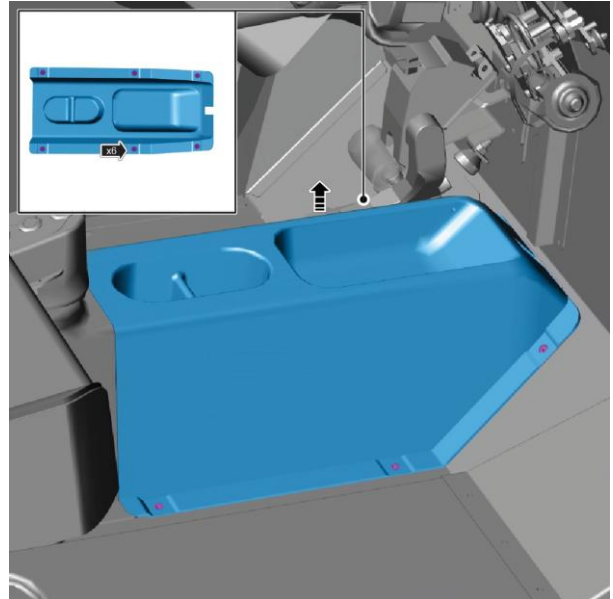
1. Disconnect the 12V system. See 12V System Disconnect 54.
2. Remove both front seats. See Front Seat 97.
3. Remove the rear seats. See Rear Seat 98.
4. Disconnect the two electrical connectors from the instrument panel harness.



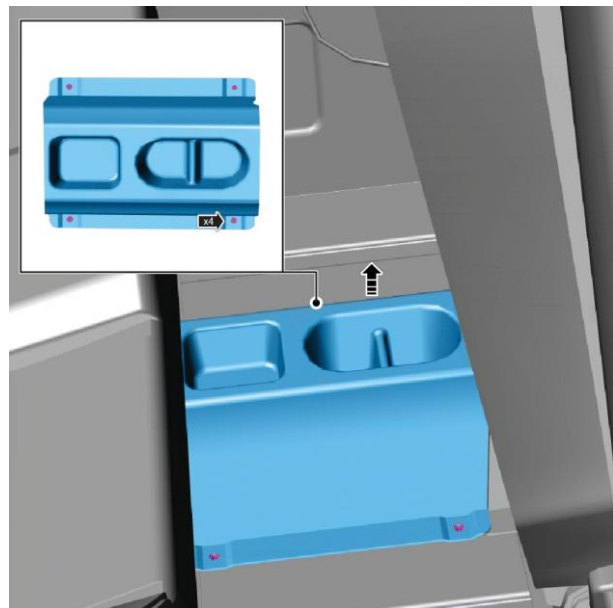
5. Disconnect the three cabin harness connectors from the main wiring harness.



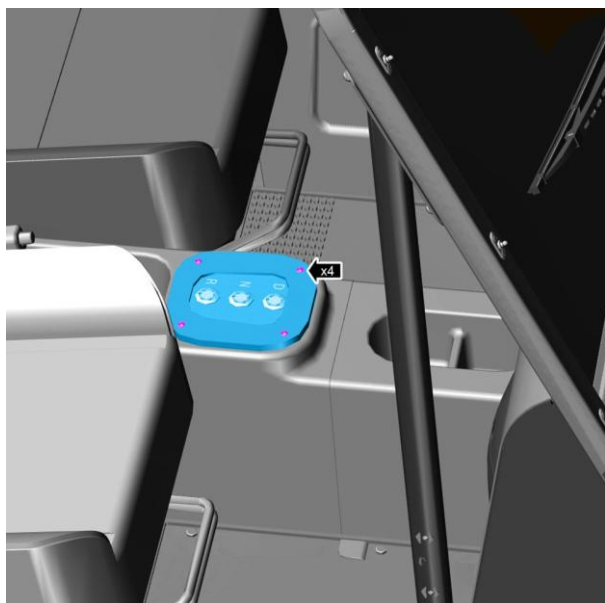
6. Remove the six fasteners from the front section of the centre console trim and then remove from the vehicle.



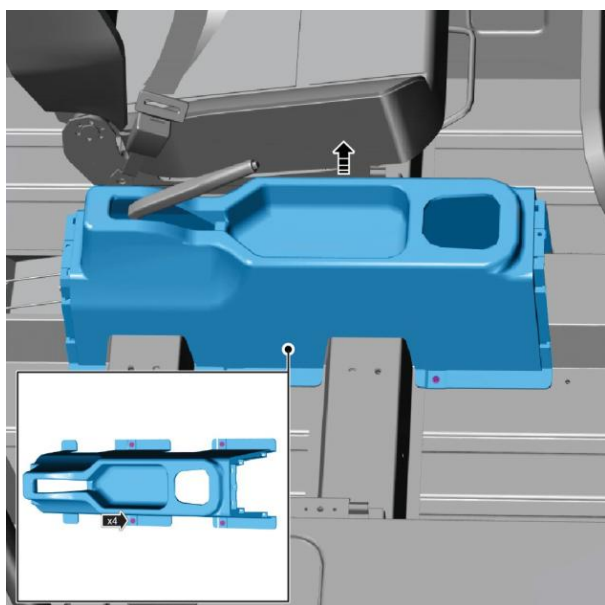
7. Remove the four fasteners from the rear section of the centre console trim and then remove from the vehicle.



8. To remove the gear selector, remove the four fasteners.

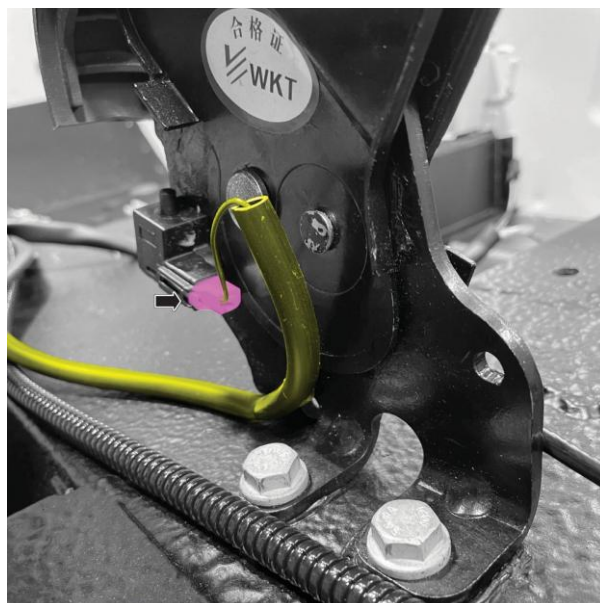


9. Remove the four fasteners from centre section of the centre console and then remove.

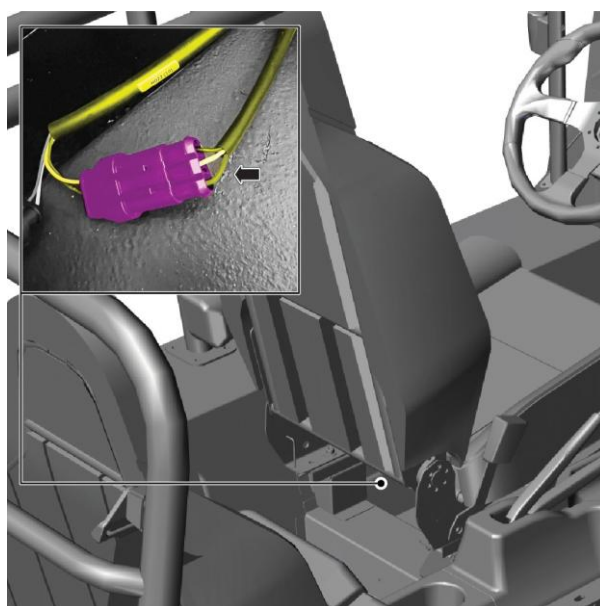


10. Disconnect the gear selector switch electrical connector.

11. Disconnect the handbrake switch electrical connector.

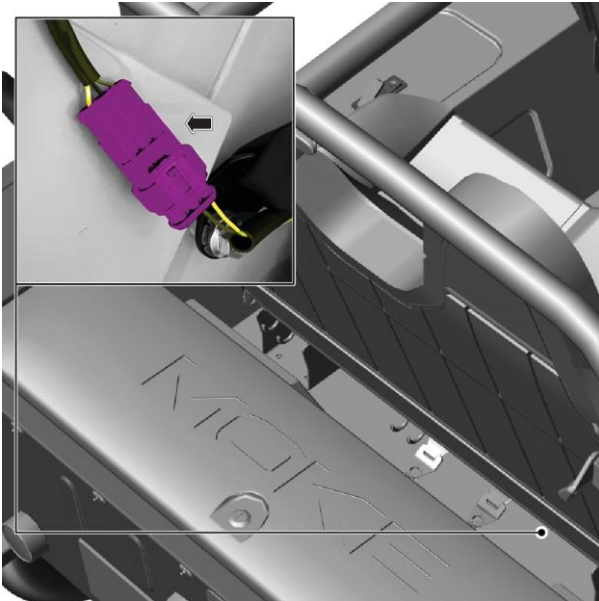


12. **Note:** Repeat this step on the other side.
Disconnect the electrical connector on the front seatbelt buckle.

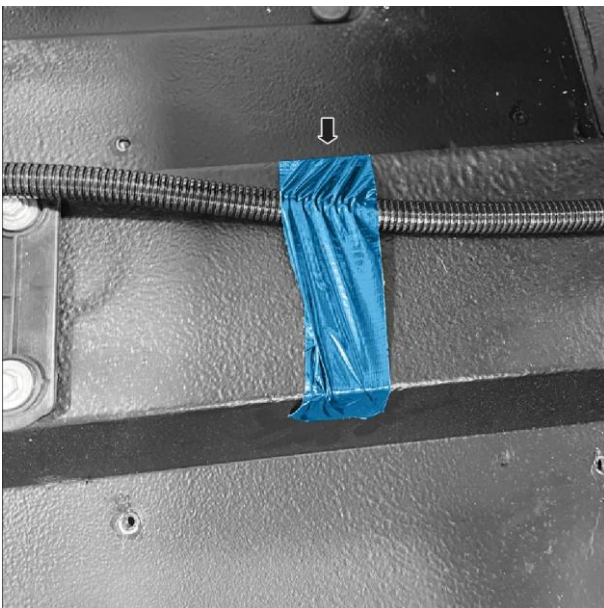


13. **Note:** Repeat this step on the other side.

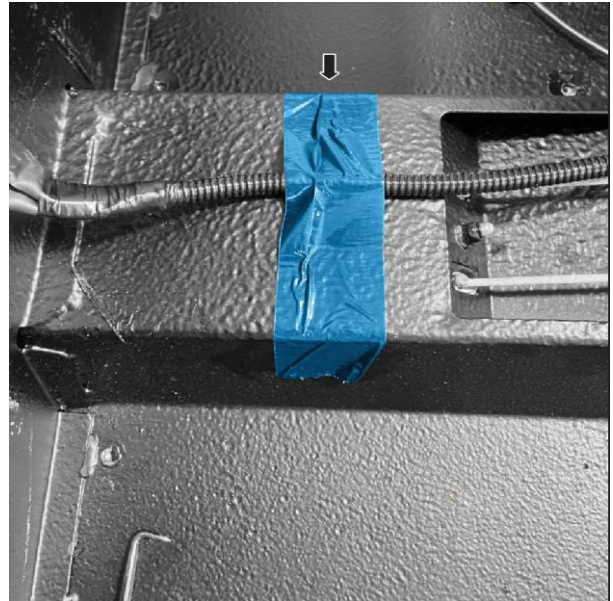
Disconnect the electrical connection for the rear seatbelt buckle.



14. Remove the tape from the front section of the cabin harness.



15. Remove the tape from the rear section of the cabin harness.



16. Remove the cabin harness.

Install

1. Install the cabin harness.
2. Install a new piece of tape to the rear section of the cabin harness.
3. Install a new piece of tape to the front section of the cabin harness.
4.  **Note:** Repeat this step on the other side.
Reconnect the electrical connection for the rear seatbelt buckle.
5.  **Note:** Repeat this step on the other side.
Reconnect the electrical connector on the front seatbelt buckle.
6. Reconnect the handbrake switch electrical connector.
7. Reconnect the gear selector switch electrical connector.
8. Install the centre console and then tighten the four fasteners.
9. Install the gear selector on to the gear stick assembly.
10. Install the rear section of the centre console and then tighten the four fasteners.
11. Install the front section of the centre console and then tighten the four fasteners.
12. Reconnect the three cabin harness connectors to main wiring harness.
13. Reconnect the two electrical connectors to the instrument panel harness.
14. Install both rear seats. See Rear Seat 98.
15. Install both front seats. See Front Seat 97.
16. Connect the 12V system. See 12V System Disconnect 54.

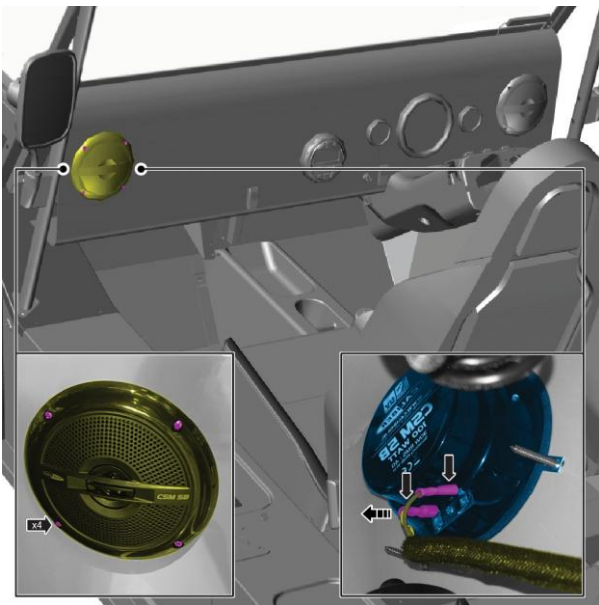
Main Wiring Harness

Preparation

- Note:** This procedure contains illustrations showing certain components removed to provide extra clarity.
- Note:** Left hand drive illustration(s) shown, right hand drive is similar.

1. Power down the high voltage system. See High Voltage Power Up/Power Down 9.
2. Remove the four fasteners and reposition the left side instrument panel speaker to allow access to the electrical connector.

Disconnect the two electrical connectors and remove the left side instrument panel speaker.

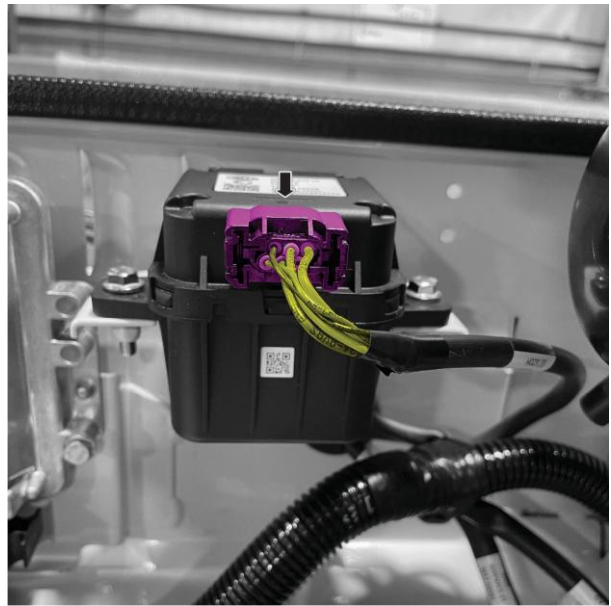


3. Disconnect the three cabin to main wiring harness connectors.

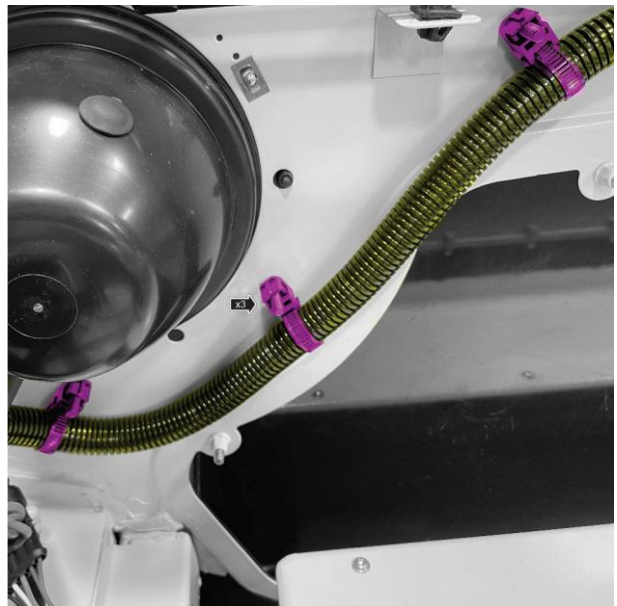


4. Open the bonnet.

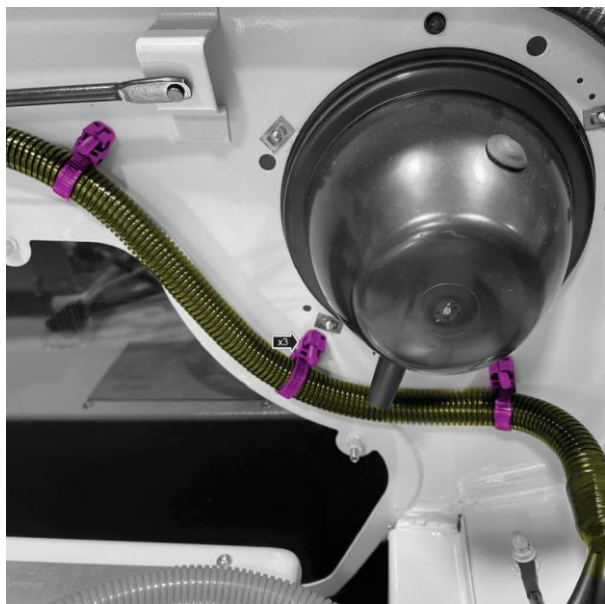
5. Disconnect the AVAS connector.



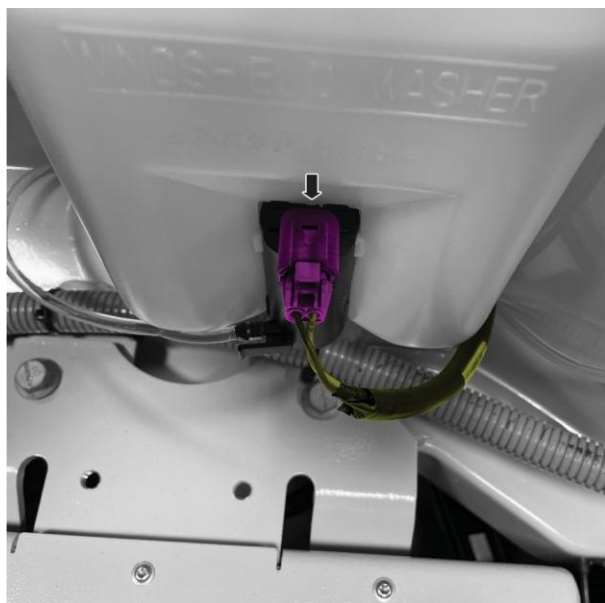
6. Release the three wiring harness clips on the left hand side.



7. Release the three wiring harness clips on the right hand side.

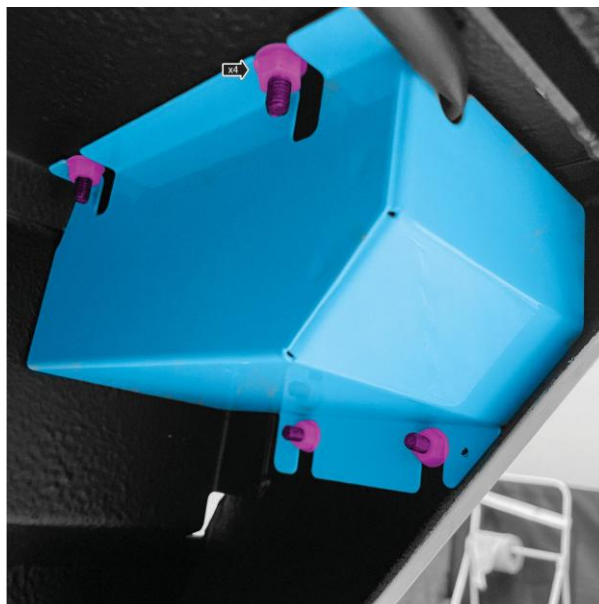


8. Disconnect the washer bottle connector.



9. **Note:** Repeat this step on the other side.

- Remove the four fasteners and remove the right side indicator box.

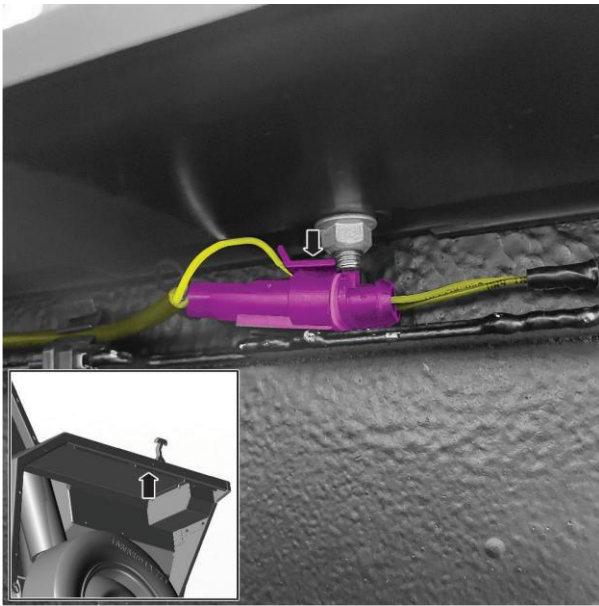


10. **Note:** Repeat this step on the other side.
Disconnect the right side indicator connector.



11. **Note:** Repeat this step on the other side.

Disconnect the right side light connector.



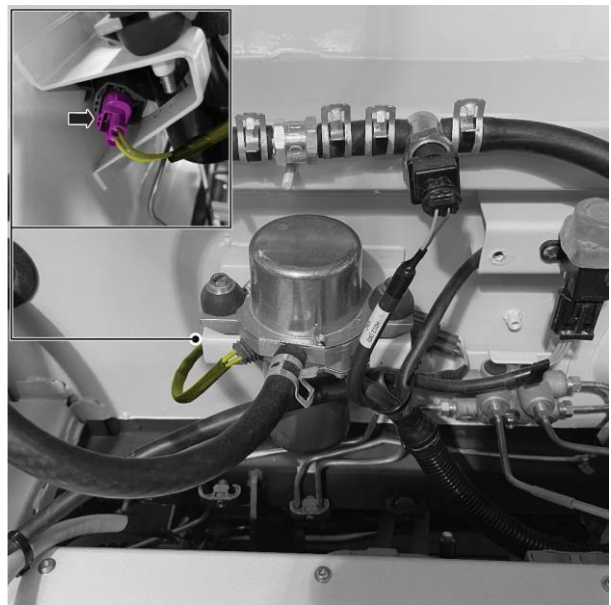
12. Disconnect the brake vacuum pressure sensor connector.



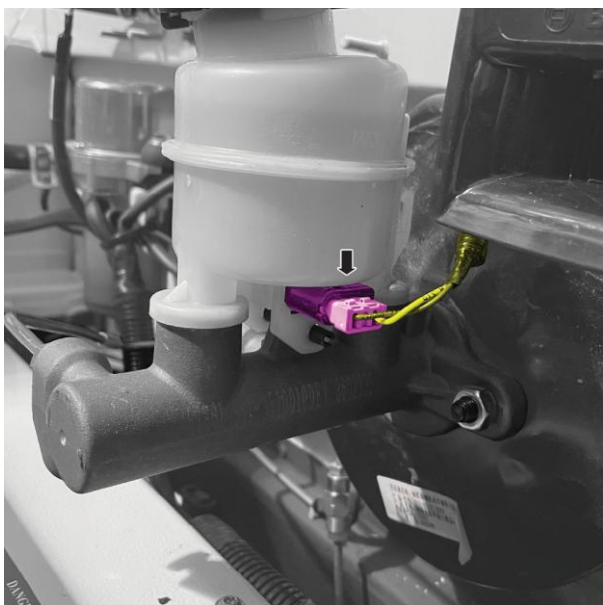
13. Disconnect the inertia switch connector.



14. Disconnect the brake vacuum pump connector.



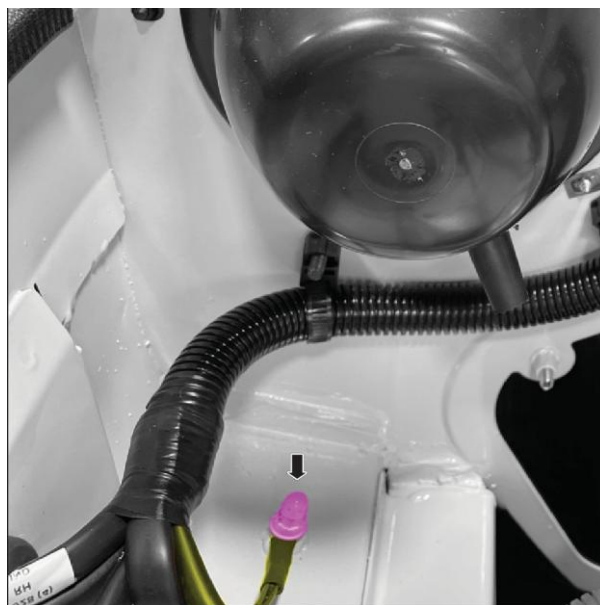
15. Disconnect the brake fluid level sensor connector.



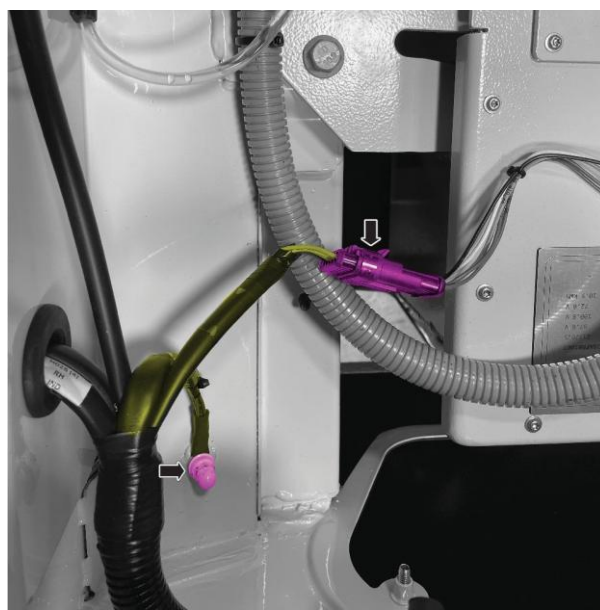
16. Disconnect the two electrical connectors on the vehicle controller.



17. Remove the fastener and disconnect the earth lead.

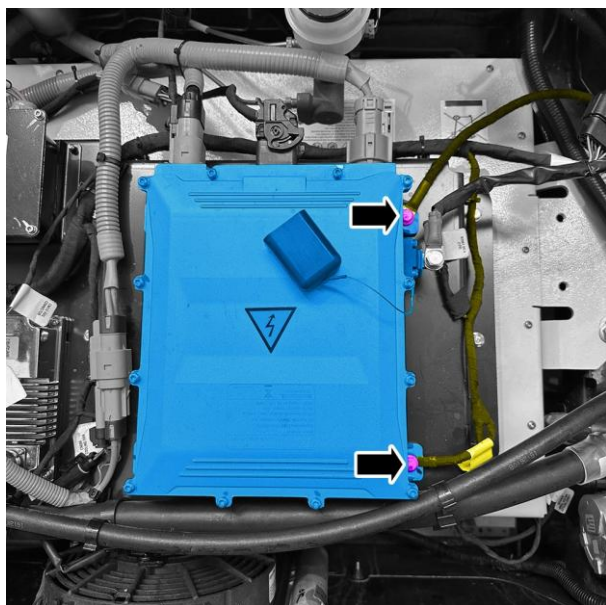


18. Disconnect the DC/DC 12V connector and remove the ground point.



19. Remove the electrical connection on the DC/DC converter.

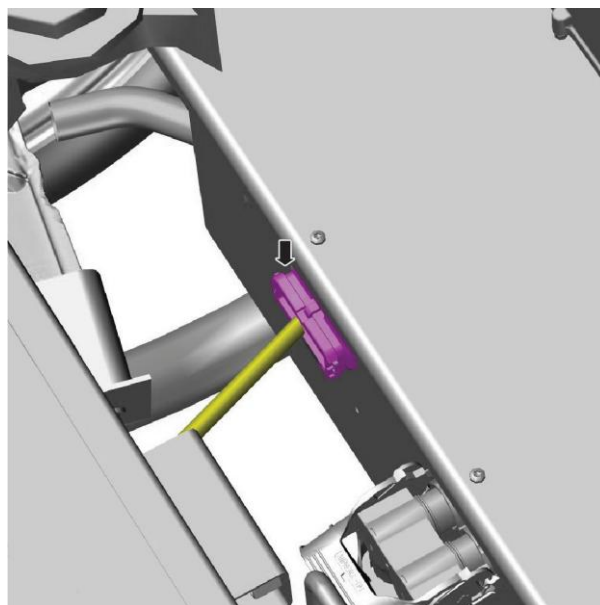
Remove the fastener and disconnect the earth lead.



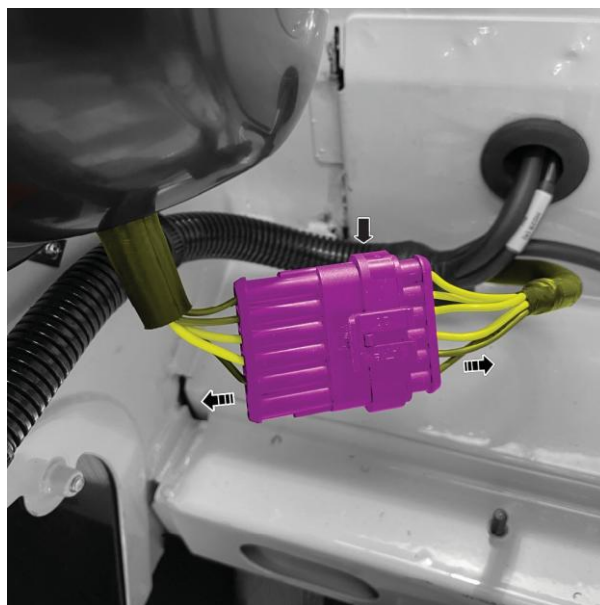
20. Remove the electrical connector on the DC/DC converter.



21. Disconnect the high voltage battery 12V connector.

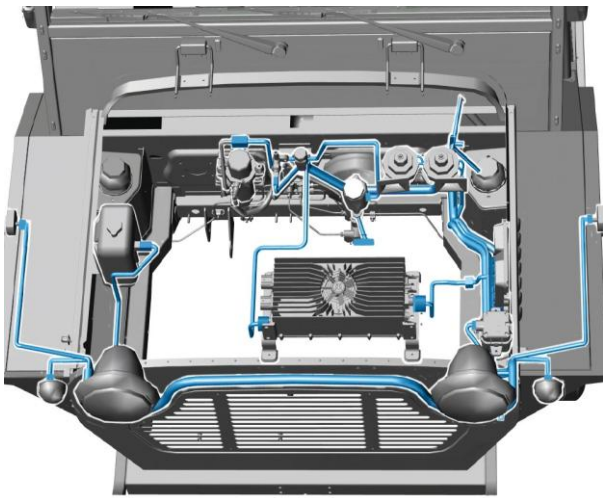


22. **Note:** Repeat this step on the other side.
Disconnect the electrical connectors on the headlights.



23. **Note:** Note the fitted position of all components prior to removal.

Remove the wiring harness from the vehicle.



18. Install the three wiring harness clips on the left hand side.
19. Reconnect the AVAS connection.
20. Close the bonnet.
21. Reconnect the three cabin to main wiring harness connection.
22. Reconnect the two electrical connectors and install the left speaker into the instrument panel.
Install the four fasteners.
23. Power up the high voltage system. See High Voltage Power Up/Power Down 9.

Install

1. Install the main wiring harness into the engine bay.
2.  **Note:** Repeat this step on the other side.
Reconnect the headlight electrical connection.
3. Reconnect the high voltage battery 12V connection.
4. Reconnect the electrical connector on the DC/DC converter.
5. Reconnect the electrical connection on the DC/DC converter.
6. Reconnect the DC/DC 12V connector.
Install the ground lead tighten the fastener to a torque of **10 Nm**.
7. Install the earth lead and tighten the fastener to a torque of **10 Nm**.
8. Reconnect the two electrical connectors on the vehicle controller.
9. Reconnect the brake fluid level sensor connection.
10. Reconnect the brake vacuum pump connection.
11. Reconnect the inertia switch connection.
12. Reconnect the brake vacuum pressure sensor connection.
13.  **Note:** Repeat this step on the other side.
Reconnect the right side light connection.
14.  **Note:** Repeat this step on the other side.
Reconnect the right side indicator connection.
15.  **Note:** Repeat this step on the other side.
Install the right side indicator box and tighten the four fasteners to a torque of **10 Nm**.
16. Reconnect the washer bottle connection.
17. Install the three wiring harness clips on the right hand side.

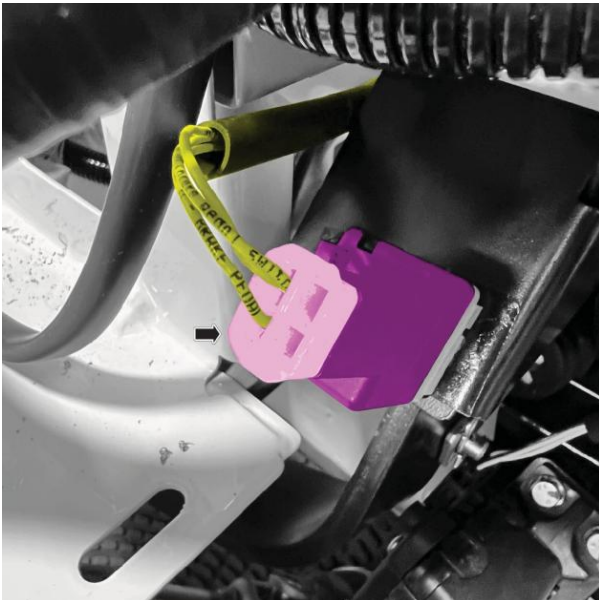
Instrument Panel Wiring Harness

Remove

1. Disconnect the 12V system. See 12V System Disconnect 54.
2. Remove the steering column. See Steering Column 82.
3. Disconnect the electrical connector to the throttle pedal.

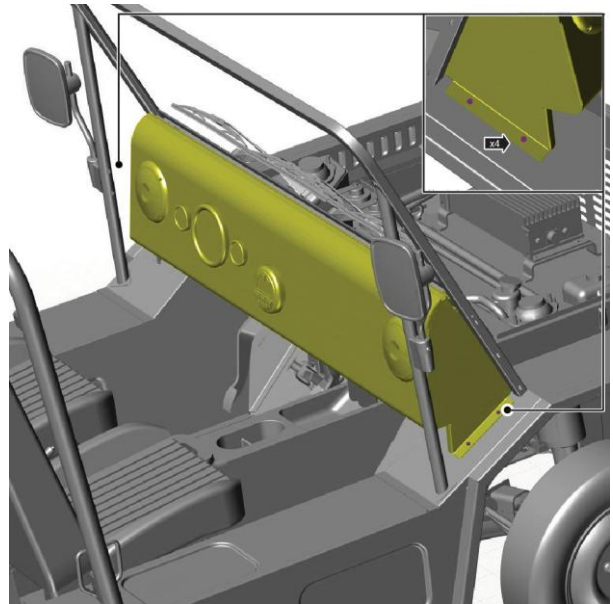


4. Disconnect the electrical connector to the brake pedal.

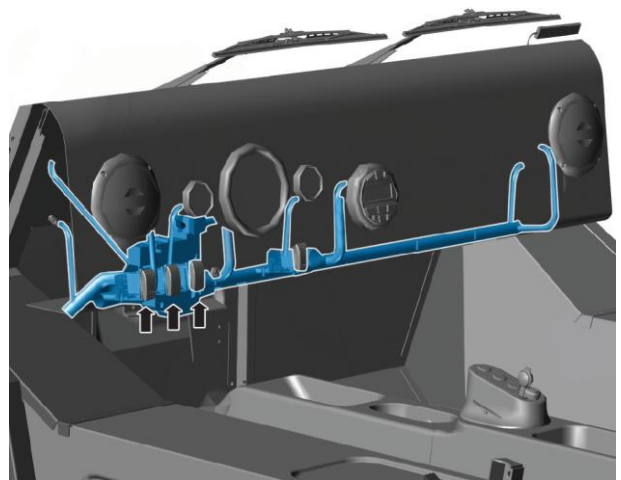


5. Remove the windscreen. See Windscreen Assembly (Heated) 94.

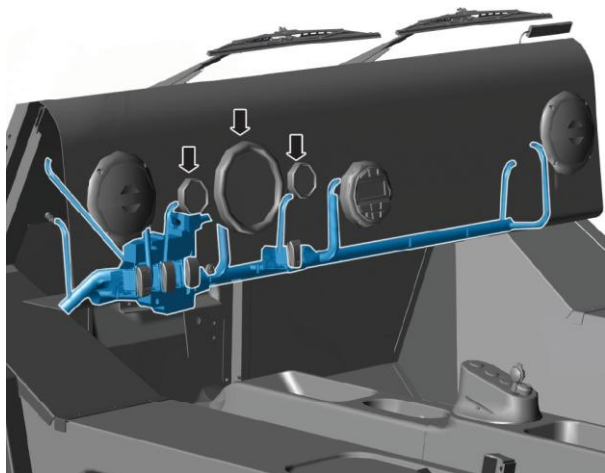
6. Remove the four fasteners and reposition the instrument panel to allow access.



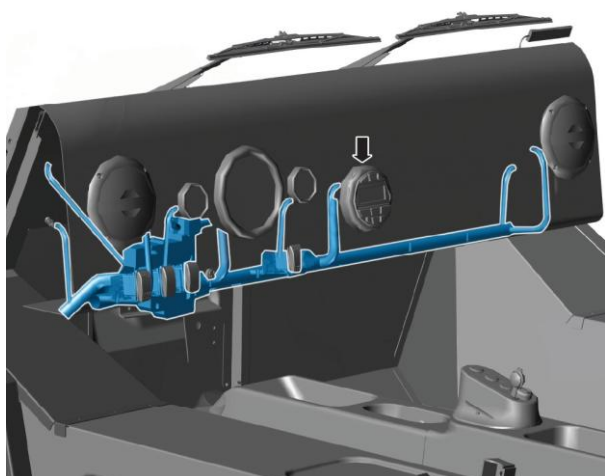
7. Disconnect the three electrical connections to instrument panel switches.



8. Disconnect the three electrical connectors to the instrument gauges.



9. Disconnect the electrical connector to the radio.



10. Remove the instrument panel.

11. Disconnect the electrical connector to the wiper motor.



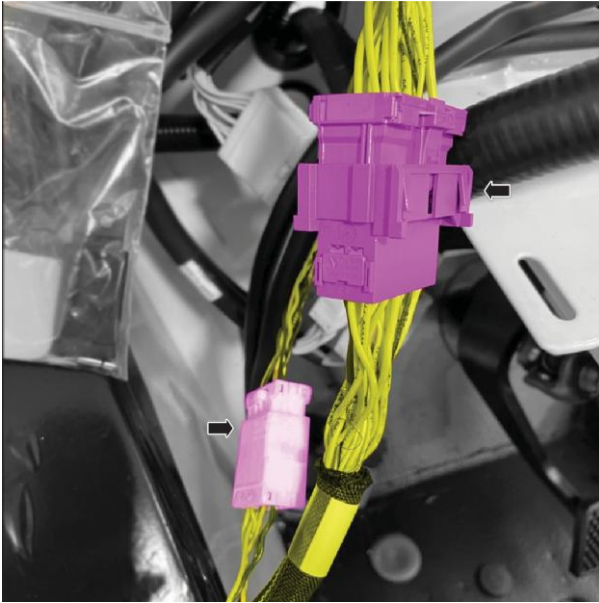
12. Remove the fastener and disconnect the earth cable.



13. **Note:** Note the fitted position of components prior to removal.

Disconnect the two electrical connectors from the cabin harness.

Remove the instrument panel harness.



Install

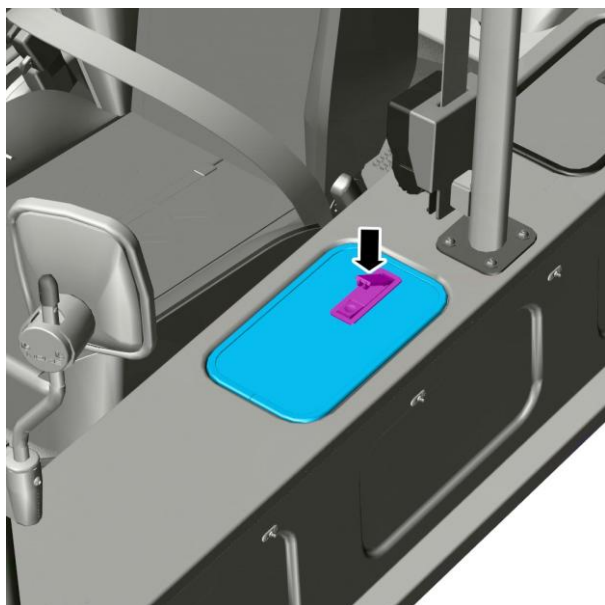
1. Install the instrument panel wiring harness and reconnect the two electrical connections to the cabin harness.
2. Install the earth cable on to the wiper motor and tighten the fastener to a torque of **13 Nm**.
3. Reconnect the electrical connector to the wiper motor.
4. Install the instrument panel into the vehicle allowing access.
5. Reconnect the electrical connection to the radio.
6. Reconnect the three electrical connectors to the instrument gauges.
7. Disconnect the three electrical connections to instrument panel switches.
8. Install the four fasteners to the instrument panel and tighten the fasteners to a torque of **10 Nm**.
9. Install the windscreen. See Windscreen Assembly (Heated) 94.
10. Reconnect the electrical connector to the brake pedal.
11. Reconnect the electrical connector to the throttle pedal.
12. Install the steering column. See Steering Column 82.
13. Connect the 12V system. See 12V System Disconnect 54.

12V System Disconnect

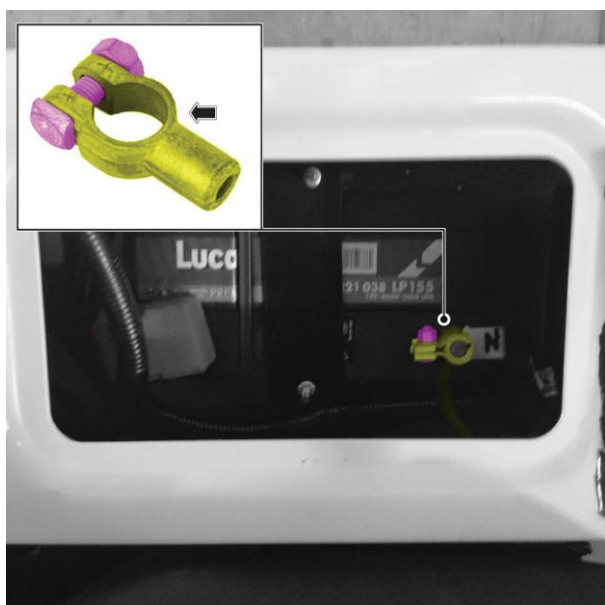
Preparation

Note: This procedure contains illustrations showing certain components removed to provide extra clarity.

1. Open the front left compartment lid.



2. Disconnect the earth cable from the 12V battery.



1. Connect the earth cable to the 12V battery.
2. Close the front right compartment lid.

Wheel Brakes General	
Front Brake Disc, Caliper and Knuckle Assembly	56
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Hydraulic/Vacuum Hydraulic Brake System	
Brake Controls.....	67
Master Cylinder.....	70
Handbrake	
Handbrake Controls	72

Front Brake Disc, Caliper and Knuckle Assembly

Preparation

⚠ WARNING: Do not swallow the brake fluid or let it touch your skin or eyes. If you get brake fluid in your mouth, get medical aid immediately. Flush all brake fluid from your eyes or skin with water and get medical aid. Brake fluid is poisonous.

⚠ WARNING: Install the brake hoses in the correct position. They must not come into contact with other parts when the steering and suspension operates. If they do, the brake can lose its function and cause an accident.

⚠ WARNING: Do not twist the brake hoses. Install the brake hoses when the wheels hang freely and point forward. If not, the brake can lose its function and cause an accident.

⚠ CAUTION: If you spill brake fluid on the paintwork, clean the area with cold water immediately. Brake fluid can cause damage to the paintwork.

⚠ CAUTION: The aid of one more technician is necessary to prevent damage to the vehicle.

⚠ CAUTION: Prepare to collect the brake fluid.

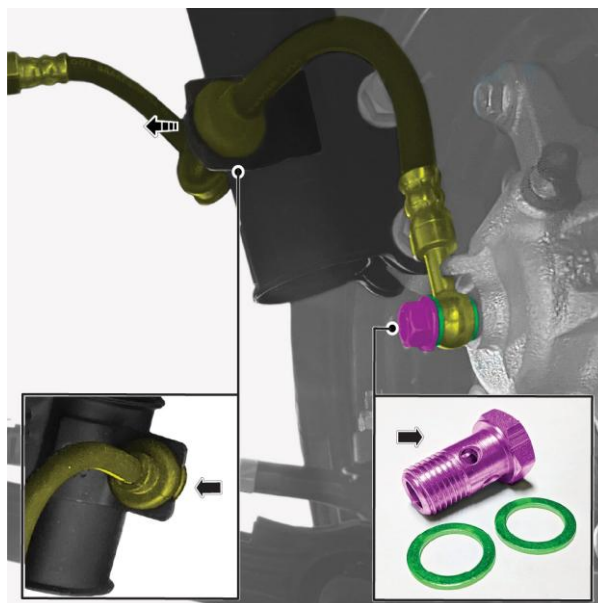
i Note: This procedure contains illustrations for left side components, right side components are similar.

i Note: Note the fitted position of all components prior to removal.

Remove

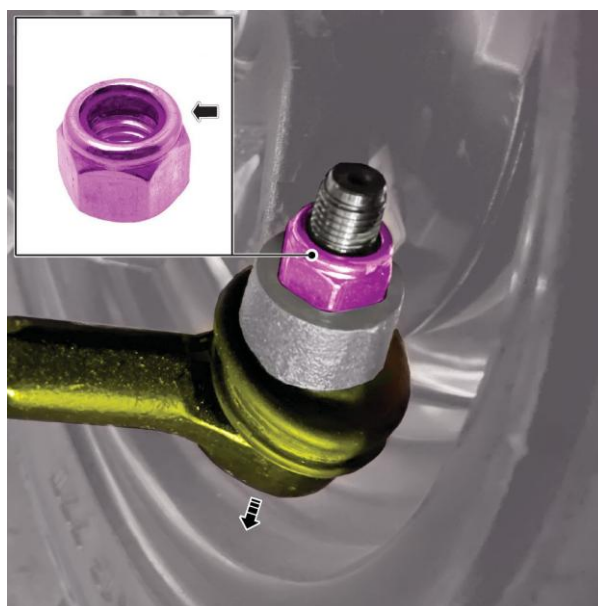
1. Disconnect the 12V system. See 12V System Disconnect 54.
2. Position the vehicle on a suitable 2 post lift. See Jacking and Lifting 5.
3. Remove the left front wheel. See Wheel and Tyre 86.
4. Use an suitable tool to clamp the front brake hose. Remove the fastener from the front brake hose to the brake caliper.
Remove and discard the two seals from the front brake hose union.

Release the brake hose grommet from the front suspension strut.



5. Use an applicable tool to release the track rod end from the knuckle assembly.

Remove and discard the track rod fastener.

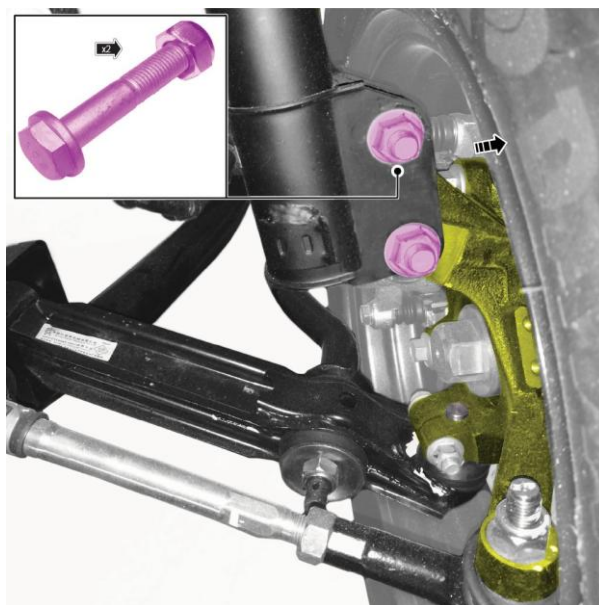


6. Remove and discard the fastener securing the anti-roll bar to the lower suspension arm.

To release the anti-roll bar pull in the direction shown.

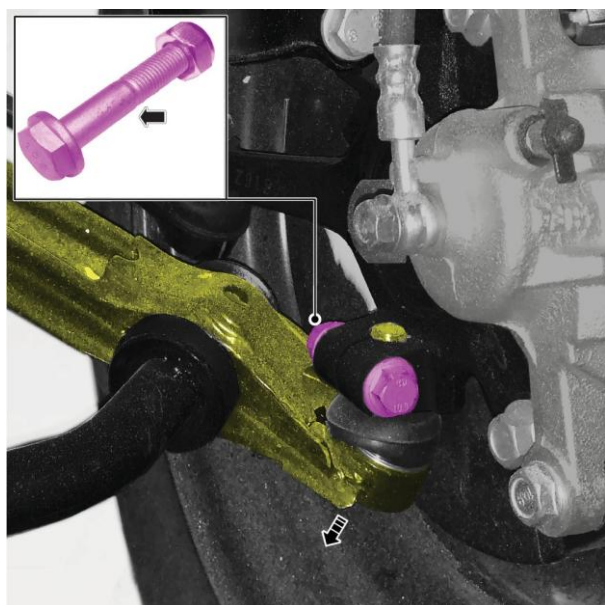


Remove the knuckle assembly from the vehicle.



7. Remove and discard the fastener.

Use a suitable tool to release the lower suspension arm ball joint from the knuckle assembly.



8. Lower the vehicle to the correct height to work.

9. Support the knuckle assembly.

Remove the two fasteners from the front suspension strut and discard them.

Install

1. Install the front knuckle assembly to the suspension strut.

Install the two fasteners and tighten them to a torque of **110 Nm**.

2. Raise the vehicle to the correct height to work.

Install the lower suspension arm ball joint to the knuckle assembly. Install a new fastener and tighten to a torque of **80 Nm**.

3. Install the anti-roll bar to the lower suspension arm. Install a new fastener and tighten to a torque of **70 Nm**.

4. Install the track rod end to the knuckle assembly. Install a new fastener and tighten to a torque of **50 Nm**.

5. **Note:** Install new seals. If you do not follow these instructions it can cause leaks in the hydraulic system.

Install the front brake hose to the caliper and tighten the fastener to a torque of **16 Nm**.

Remove the tool used to clamp the front brake hose.

6. Bleed the brake system. See Brake System Bleeding 65.

7. Install the front wheel. See Wheel and Tyre 86.

8. Check and adjust the wheel alignment. See Wheel Alignment 78.

9. Connect the 12V system. See 12V System Disconnect 54.

Front Brake Pad Replacement

Preparation

⚠ WARNING: Do not swallow the brake fluid or let it touch your skin or eyes. If you get brake-fluid in your mouth, get medical aid immediately. Flush all brake fluid from your eyes or skin with water and get medical aid. Brake-fluid is poisonous.

⚠ WARNING: Do not twist the brake hoses. Install the brake hoses when the wheels hang freely and point forward. If not, the brake can lose its function and cause an accident.

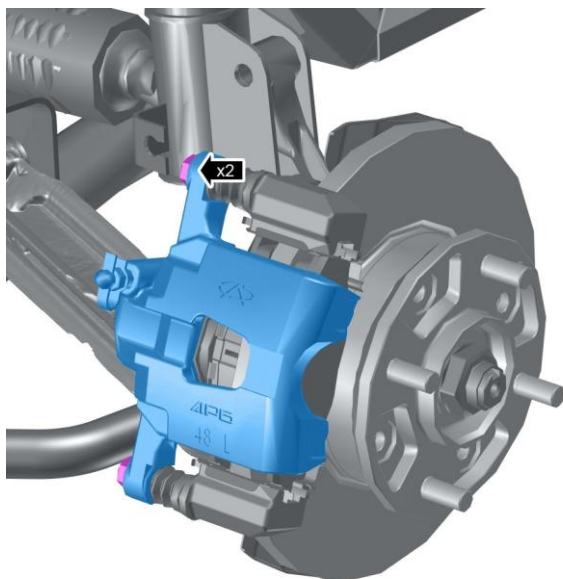
⚠ CAUTION: If you spill brake fluid on the paintwork, clean the area with cold water immediately. Brake fluid can cause damage to the paintwork.

i Note: This procedure contains illustrations for left side components, right side components are similar.

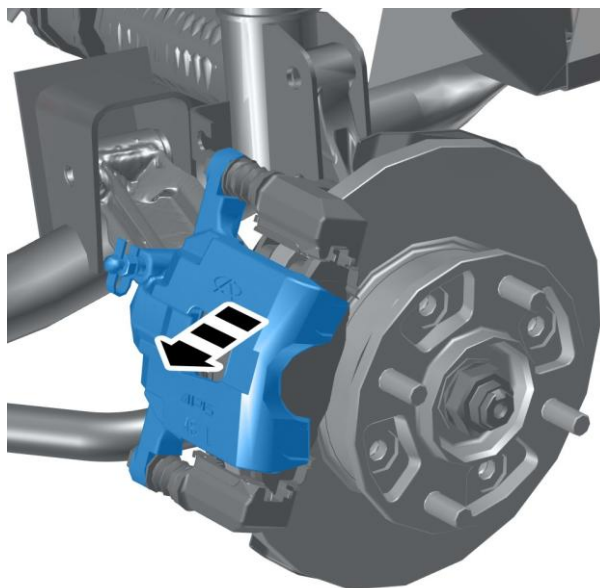
i Note: Note the fitted position of all components prior to removal.

Remove

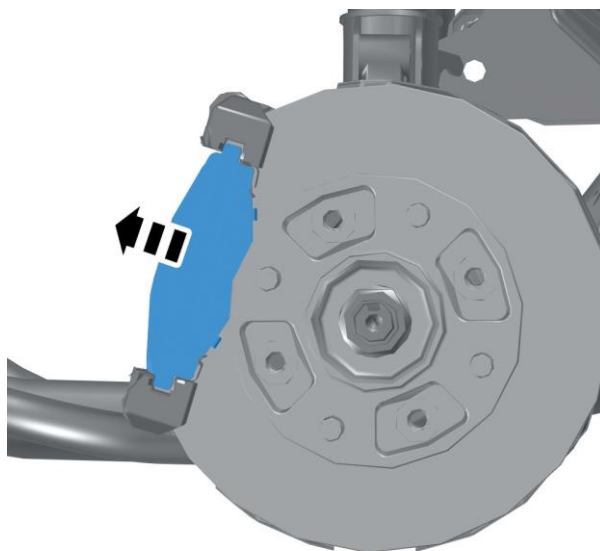
1. Position the vehicle on a suitable 2 post lift. See Jacking and Lifting 5.
2. Remove the left front wheel. See Wheel and Tyre 86.
3. Remove the 2 fasteners from the brake caliper.



4. Remove the brake caliper.



5. Remove the brake pads.



6. Remove the brake pad fitting kit.

Install

1. Install the brake fitting kit to the brake carrier.
2. Install the brake pads.
3. Use an applicable tool to push back the hydraulic piston of the brake caliper.
4. Install the brake caliper to the brake carrier.
5. Install the two fasteners on the brake caliper and tighten to a torque of **25 Nm**.
6. Lower the vehicle to the ground.
7. Pump the brake pedal until the brake pedal is hard.

i Note:

Operate the brake pedal to make sure that the brake pads are in contact with the brake discs before you use the vehicle.

Front Brake Pad Replacement and Disc Replacement

Preparation

⚠ WARNING: Do not swallow the brake fluid or let it touch your skin or eyes. If you get brake-fluid in your mouth, get medical aid immediately. Flush all brake fluid from your eyes or skin with water and get medical aid. Brake-fluid is poisonous.

⚠ WARNING: Do not twist the brake hoses. Install the brake hoses when the wheels hang freely and point forward. If not, the brake can lose its function and cause an accident.

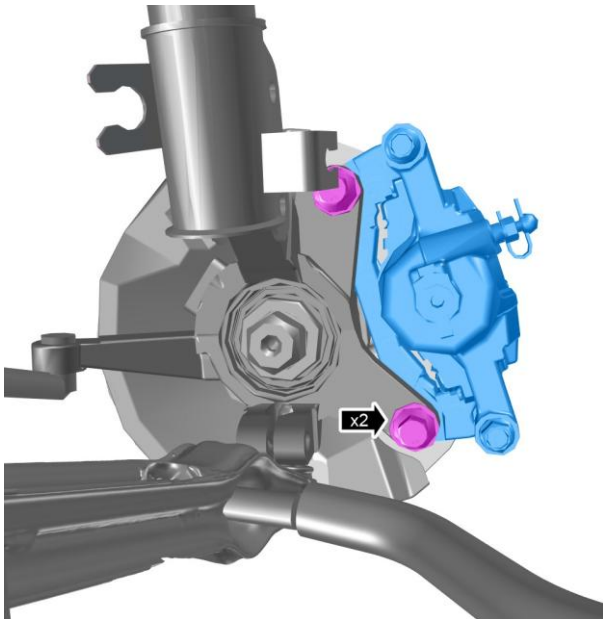
⚠ CAUTION: If you spill brake fluid on the paintwork, clean the area with cold water immediately. Brake fluid can cause damage to the paintwork.

i Note: This procedure contains illustrations for left side components, right side components are similar.

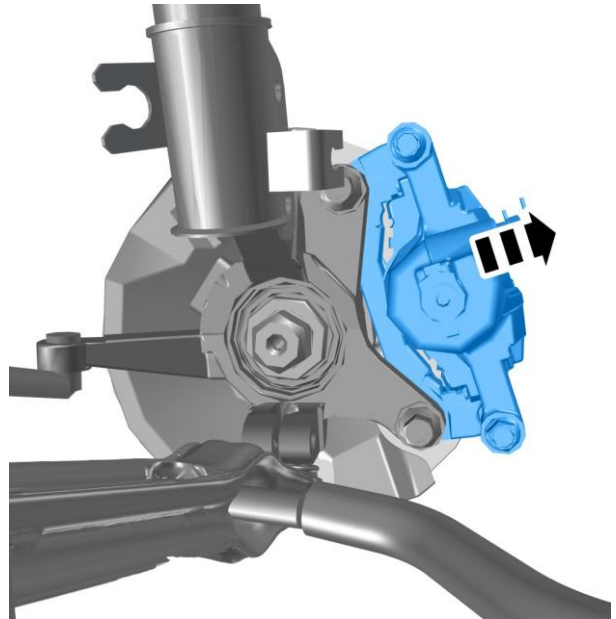
i Note: Note the fitted position of all components prior to removal.

Remove

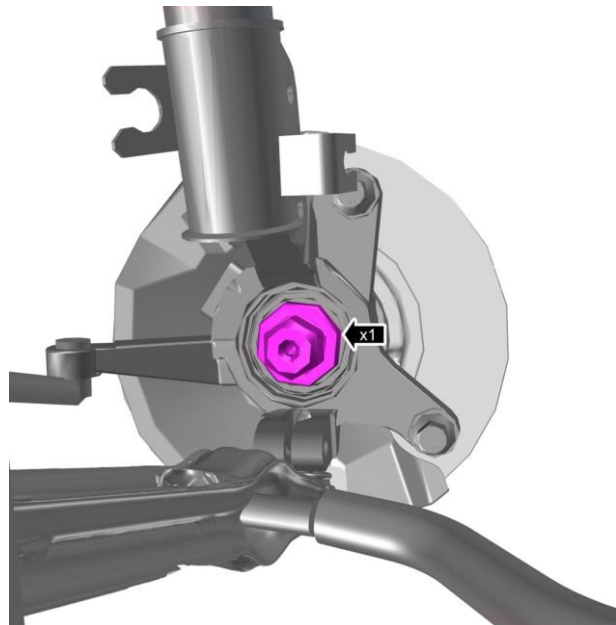
1. Position the vehicle on a suitable 2 post lift. See Jacking and Lifting 5.
2. Remove the left front wheel. See Wheel and Tyre 86.
3. Remove the 2 fasteners from the brake caliper.



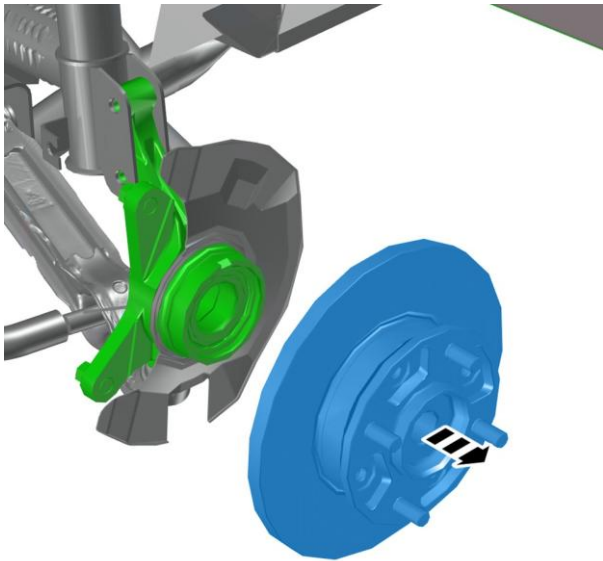
4. Remove the brake caliper from the knuckle and stow aside.



5. Remove the split pin from the wheel bearing fastener.
6. Remove the fastener from the wheel bearing.



7. Using a bearing puller remove the hub and disc assembly.



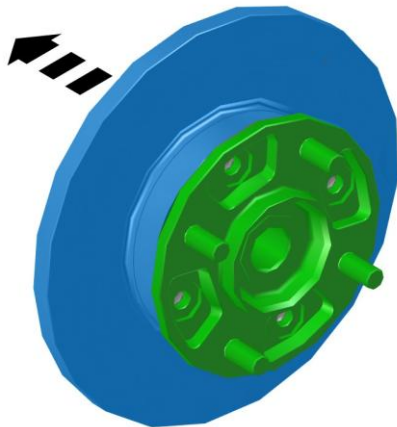
9. Tighten the wheel bearing fastener to a torque of **220 Nm**.
10. Install a new split pin on the wheel bearing fastener.
11. Pump the brake pedal until the brake pedal is hard.



Note:

Operate the brake pedal to make sure that the brake pads are in contact with the brake discs before you use the vehicle.

8. Remove the four fasteners securing the brake disc to the hub.
9. Remove the brake disc.



Install

1. Install the brake disc to the hub.
2. Install the four fasteners and tighten to a torque of **40 Nm**.
3. Install the hub and disc assembly to the front knuckle.
4. Install the wheel bearing fastener and tighten until the hub is correctly seated in the wheel bearing.
5. Install the brake caliper and carrier.
6. Tighten the two fasteners to a torque of **80 Nm**.
7. Install the front left wheel. See Wheel and Tyre 86.
8. Lower the vehicle to the ground.

Rear Brake Drum and Shoe Replacement

Preparation

⚠ WARNING: Do not swallow the brake fluid or let it touch your skin or eyes. If you get brake fluid in your mouth, get medical aid immediately. Flush all brake fluid from your eyes or skin with water and get medical aid. Brake fluid is poisonous.

⚠ CAUTION: If you spill brake fluid on the paintwork, clean the area with cold water immediately. Brake fluid can cause damage to the paintwork.

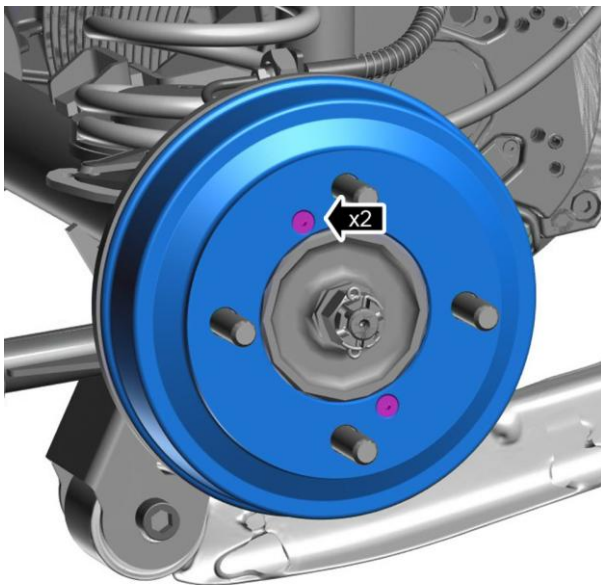
⚠ CAUTION: The aid of one more technician is necessary to prevent damage to the vehicle.

i Note: This procedure contains illustrations for right side components, left side components are similar.

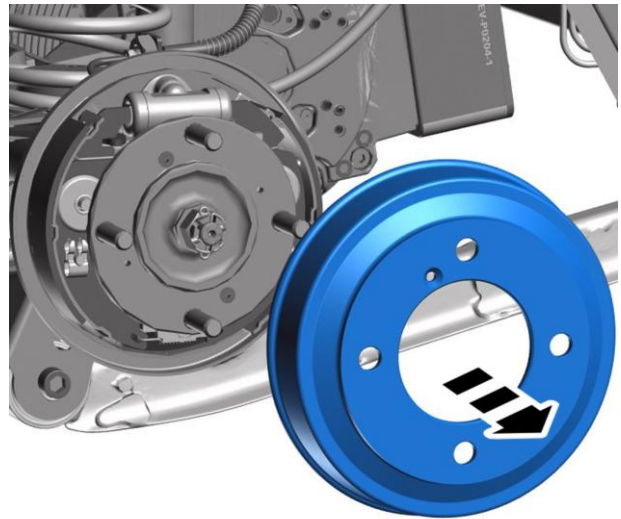
i Note: Note the fitted position of all components prior to removal.

Remove

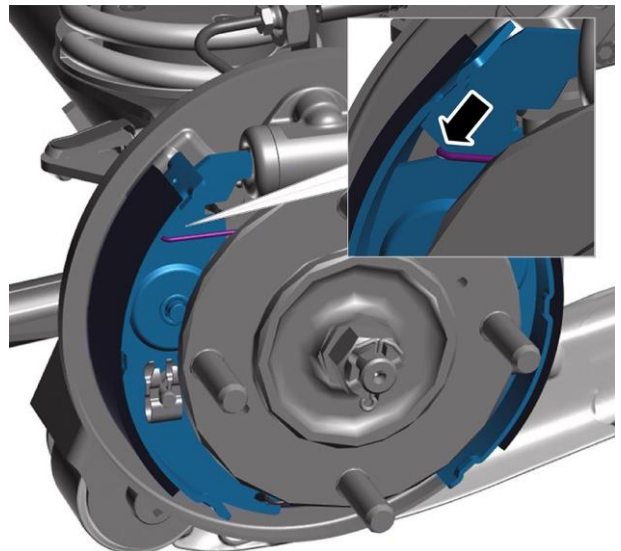
1. Disconnect the 12V system. See 12V System Disconnect 54.
2. Position the vehicle on a suitable 2 post lift. See Jacking and Lifting 5.
3. Make sure that the handbrake is not applied.
4. Remove the right rear wheel. See Wheel and Tyre 86.
5. Remove the 2 fasteners from the rear brake drum.



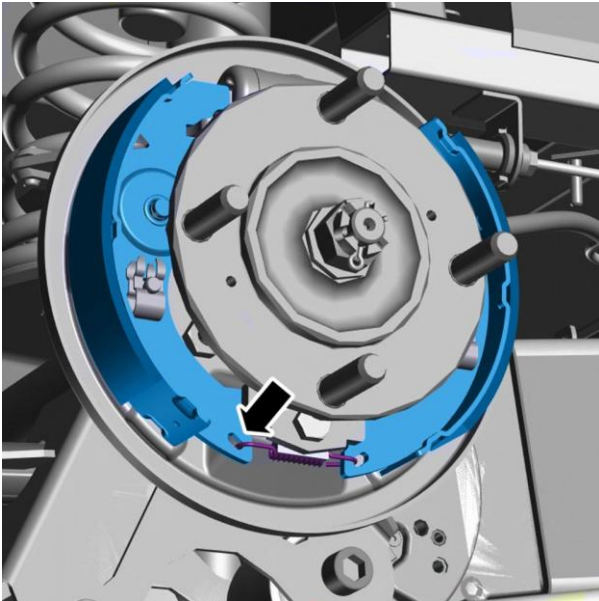
6. Remove the brake drum.



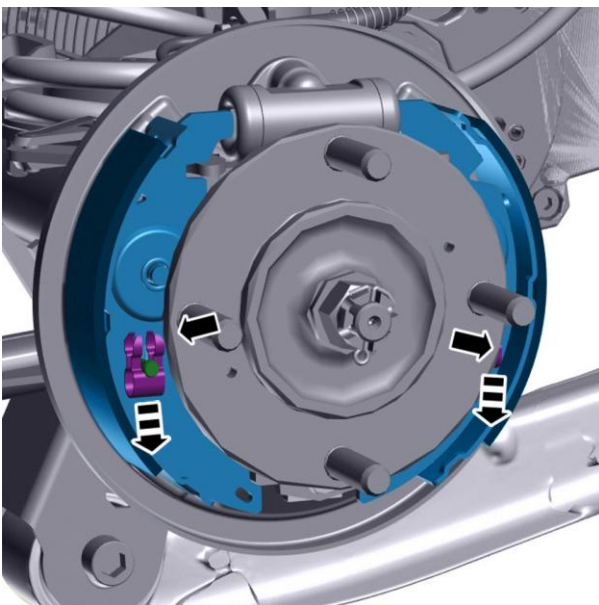
7. Using a suitable tool remove the upper spring from the brake shoes.



8. Using a suitable tool remove the lower spring from the brake shoes.



9. Remove the brake shoe securing clip from both of the brake shoes in the direction shown.



10. Remove the brake shoe securing pin from the backplate in the direction shown.

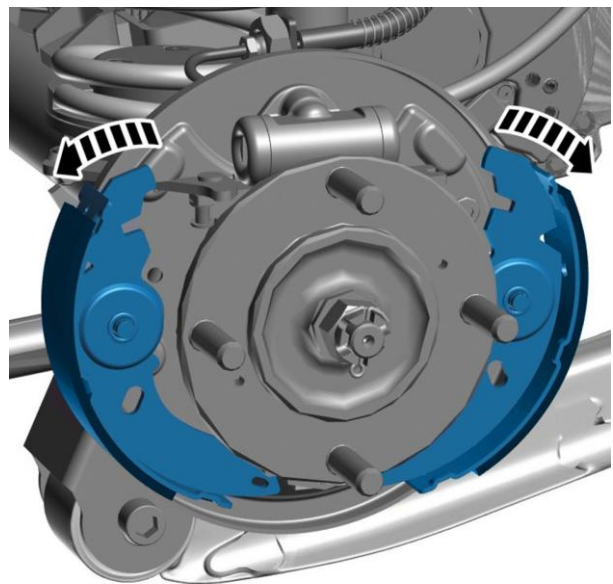


Note:

Repeat this step for the other brake shoe.



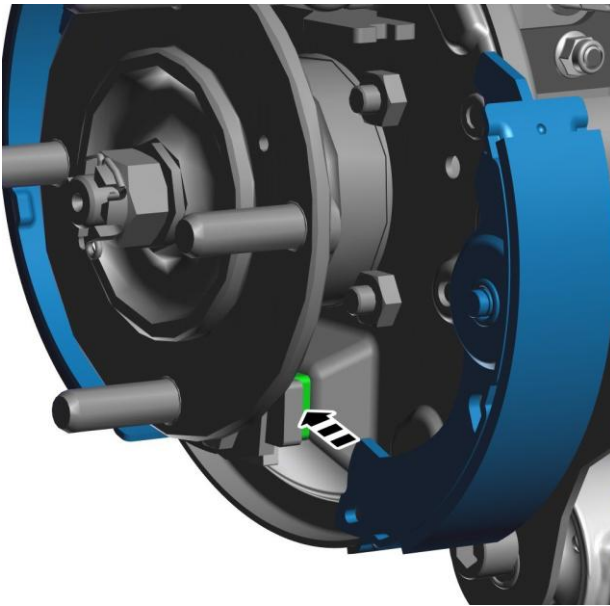
11. Remove both brake shoes.



Install

1. Clean the mounting surfaces on the brake back plate.
2. Push both pistons on the rear brake wheel cylinder until they are fully retracted.

3. Mount the new shoes on to the back plate as shown.



4. Install the securing pin and clip to both brake shoes.
5. Install the lower spring to both brake shoes.
6. Install the upper spring to both brake shoes.
7. Install the brake drum.
8. Install and tighten the two fasteners to a torque of **10 Nm**.
9. Install the rear right wheel. See Wheel and Tyre 86.
10. Lower the vehicle to the ground.
11. Pump the brake pedal until the brake pedal is hard.



Note:

Operate the brake pedal to make sure that the brake pads are in contact with the brake discs before you use the vehicle.

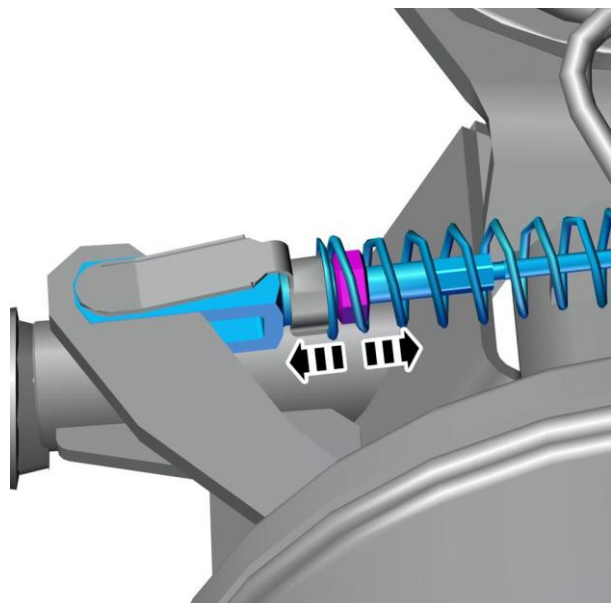
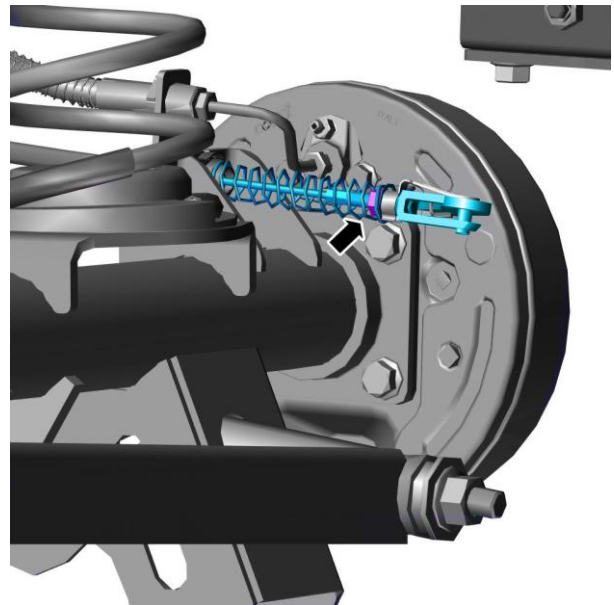
12. Connect the 12V system. See 12V System Disconnect 54.

Adjustment

1. Before you adjust the handbrake prepare the vehicle as follows:
 - Make sure the brake system is bled correctly and there is no air in the system.
 - Make sure the brake pedal travel is correct.
 - Operate the brake pedal many times.
 - Operate the handbrake many times.
 - Make sure the rear brake shoes are not excessively worn and are adjusted correctly.
2. Operate the handbrake. If the handbrake moves up with 6 clicks (teeth engaging with the ratchet) the adjustment is correct.

If the adjustment is not correct do the steps that follow:

- Rotate the adjuster fastener clockwise or counterclockwise until the handbrake lever moves up 6 clicks.



- Operate the handbrake again to make sure the adjustment does not change.
- Make sure the rear wheels can be turned with the handbrake off and the brake is not binding.

Brake System Bleeding

Preparation

⚠ WARNING: Do not swallow the brake fluid or let it touch your skin or eyes. If you get brake fluid in your mouth, get medical aid immediately. Flush all brake-fluid from your eyes or skin with water and get medical aid. Brake fluid is poisonous.

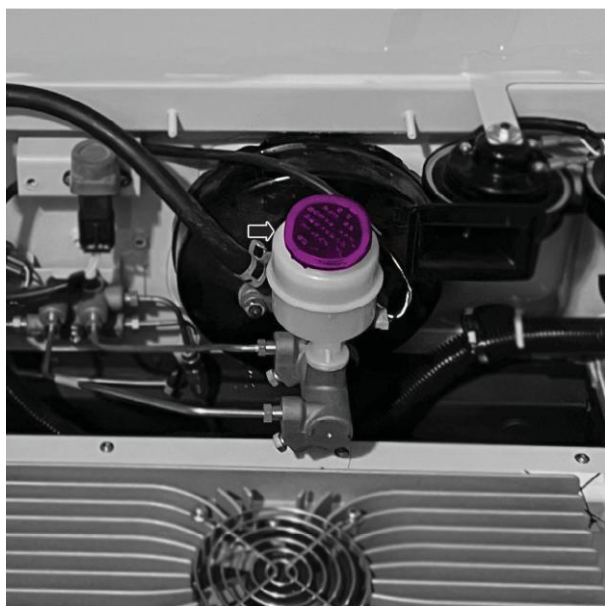
⚠ WARNING: Bleed the brakes with the correct procedure only. An incorrect procedure will have an effect on the brake performance.

⚠ WARNING: Dirt or dirty fluid must not go into the reservoir. Only use the specified brake fluid from sealed containers. Do not mix brake fluid types.

⚠ CAUTION: If you spill brake fluid on the paintwork, clean the area with cold water immediately. Brake fluid can cause damage to the paintwork.

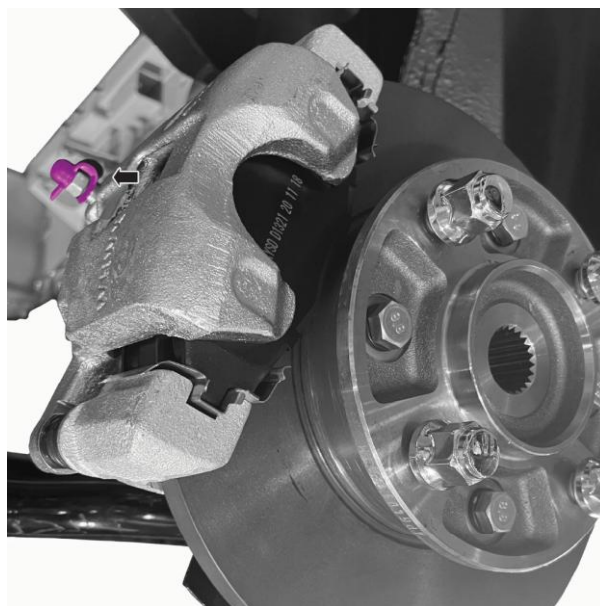
⚠ CAUTION: Prepare to collect the brake fluid.

1. Position the vehicle on a suitable 2 post lift. See Jacking and Lifting 5.
2. Make sure the ignition is **OFF** before starting work.
3. Open the bonnet.
4. Turn the brake fluid reservoir cap counterclockwise and remove the brake fluid reservoir cap from the vehicle.



5. Remove the four wheels. See Wheel and Tyre 86.
6. **i Note:** Repeat this step on the other side.

Remove the dust cap from the front brake caliper bleed screw.



7. **i Note:** Repeat this step on the other side. Remove the dust cap from the rear wheel cylinder bleed screw.



8. **i Note:** Examine and correct the brake fluid level during the bleed procedure.

Using suitable equipment to bleed the air out of the hydraulic brakes system.

Start the bleed procedure on the left rear bleed screw, continue the procedure in a anti-clockwise direction around the vehicle. You must bleed the air from all four bleed screws.

9.  **WARNING:** Operate the brake pedal to make sure that the brake pads and shoes are in contact with the brake discs and drums before you use the vehicle. If the brake pads/shoes are not in contact with the brake discs/drums, the braking system will not operate correctly.

 **Note:** If the operation of the brake pedal is not satisfactory you must do the bleed procedure again.

Check the brake fluid level. Add brake fluid of the correct manufacturers specification to the brake fluid reservoir if the level is below the maximum mark.

10.  **Note:** Repeat this step on the other side.

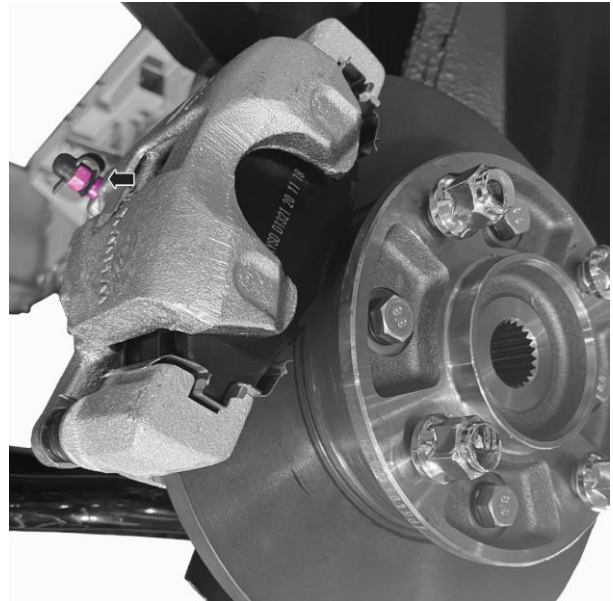
Tighten the rear wheel cylinder bleed screw to a torque of **12 Nm**.

Clean off spilled brake fluid from the area and install the dust cap.



11.  **Note:** Repeat this step on the other side.
Tighten the front brake caliper bleed screw to a torque of **12 Nm**.

Clean off split brake fluid from the area and install the dust cap.



12. Install all four wheels. See Wheel and Tyre 86.
13. Lower the vehicle down to the correct height to work.
14. Install the brake fluid reservoir cap and turn the reservoir cap clockwise until hand tight.
15. Close the bonnet.

Pedal Box Assembly

Preparation

Note: This procedure contains illustrations showing certain components removed to provide extra clarity

Remove

1. Disconnect the 12V system. See 12V System Disconnect 54.
2. Loosen and remove the four fasteners on the high voltage battery and slide the high voltage battery forward.



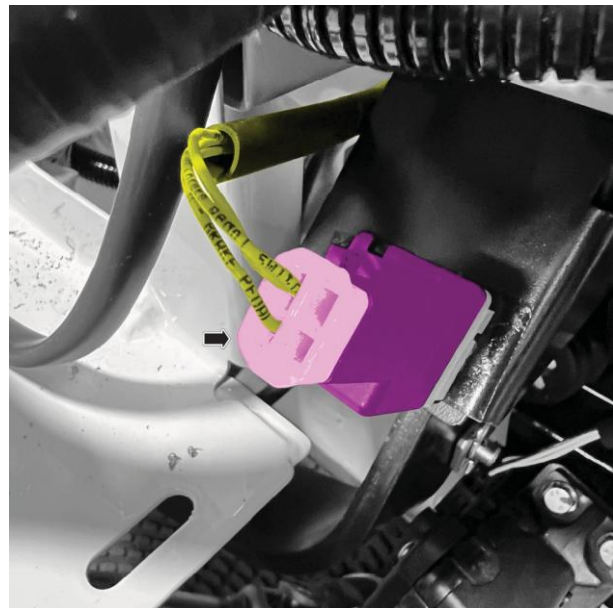
3. Remove the seven fasteners from the lower steering column cover.
Carefully release the alignment pins securing the upper column cover to the lower cover and remove.



4. Disconnect the electrical connector from the throttle pedal.



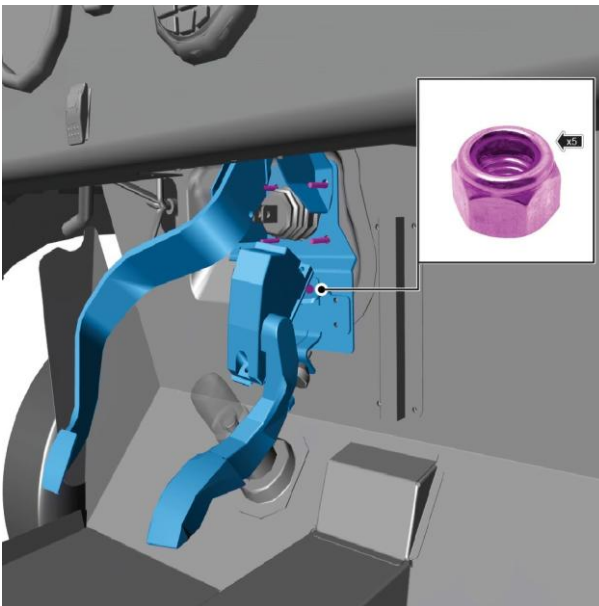
5. Disconnect the electrical connector from the brake pedal.



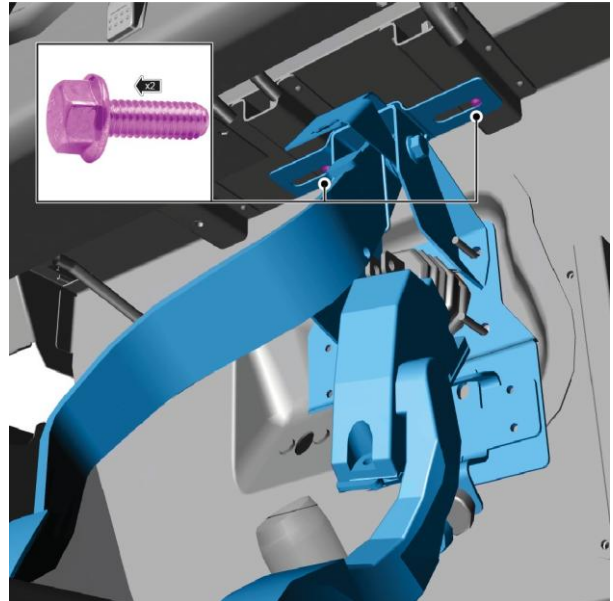
6. Remove the split pin and the linkage pin from the brake pedal.



7. Remove the five fasteners from the pedal box assembly.

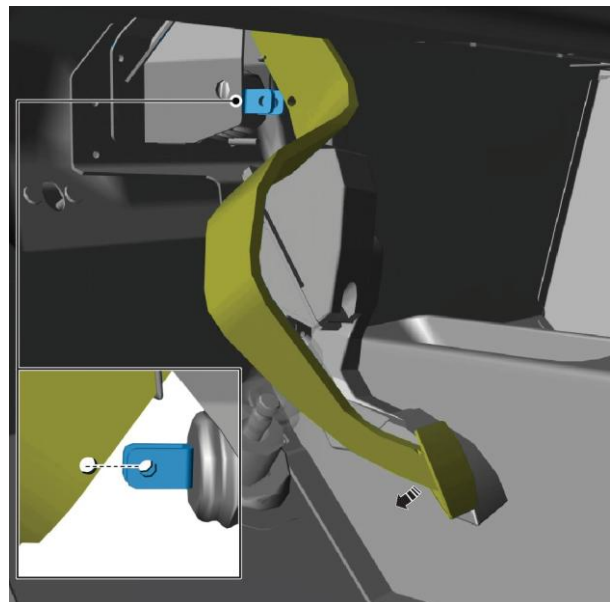


8. Remove the two fasteners and remove the pedal box assembly.



Install

1. Install the pedal box assembly.
2. Install the two fasteners that secures the pedal box assembly to the body and tighten to a torque of **10 Nm**.
3. Install the five fasteners that secures the pedal box assembly to the vacuum booster and tighten to a torque of **32 Nm**.
4. Align the brake pedal with the vacuum booster linkage. Install the linkage pin and the split pin.



5. Connect the electrical connector on the throttle pedal. Connect the electrical connector on the brake light switch.
6. Install the steering column covers. Install the seven fasteners and tighten.

7. Move the high voltage battery in the direction shown and install the four fasteners to a torque of **24 Nm**.



8. Connect the 12V system. See 12V System Disconnect 54.

Master Cylinder

Preparation

⚠ WARNING: Do not swallow the brake fluid or let it touch your skin or eyes. If you get brake fluid in your mouth, get medical aid immediately. Flush all brake fluid from your eyes or skin with water and get medical aid. Brake fluid is poisonous.

⚠ WARNING: Bleed the brakes with the correct procedure only. An incorrect procedure will have an effect on the braking performance.

⚠ CAUTION: If you spill brake fluid on the paintwork, clean the area with cold water immediately. Brake fluid can cause damage to the paint work.

⚠ CAUTION: Dirt or dirty fluid must not go into the brake fluid reservoir. Only use the specified brake fluid from seal containers. Do not mix brake fluid types.

⚠ CAUTION: Do not apply too much force or bend the brake pipes.

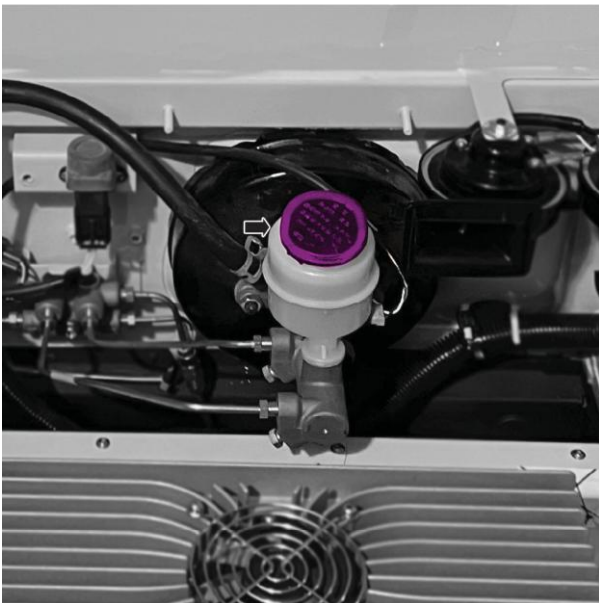
⚠ CAUTION: Prepare to collect any brake fluid when you remove the brake pipes.

i Note: The illustrations show a left hand drive vehicle, right hand drive is similar.

i Note: This procedure contains illustrations showing certain components removed to provide extra clarity.

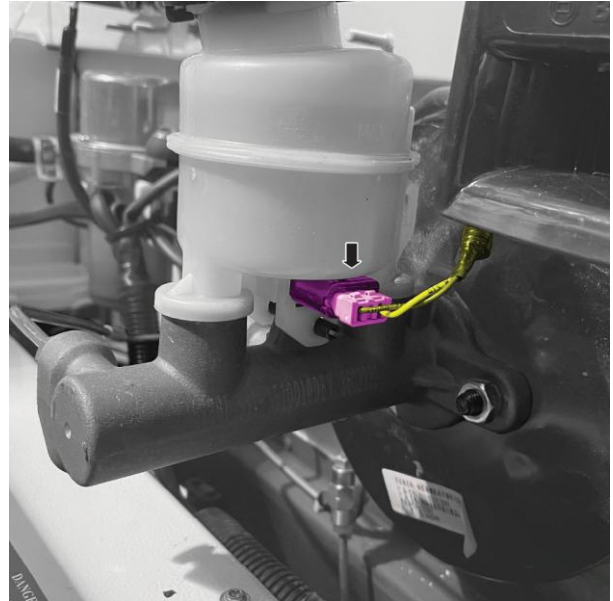
Remove

1. Disconnect the 12V system. See 12V System Disconnect 54.
2. Open bonnet.
3. Remove the brake fluid reservoir cap.



4. Using a suitable syringe or vacuum bleeder, remove the brake fluid from the reservoir.

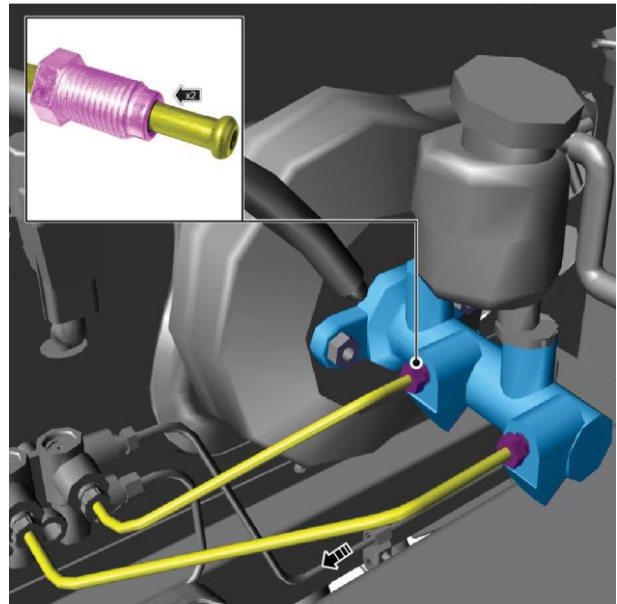
5. Disconnect the brake fluid level sensor electrical connector and move aside.



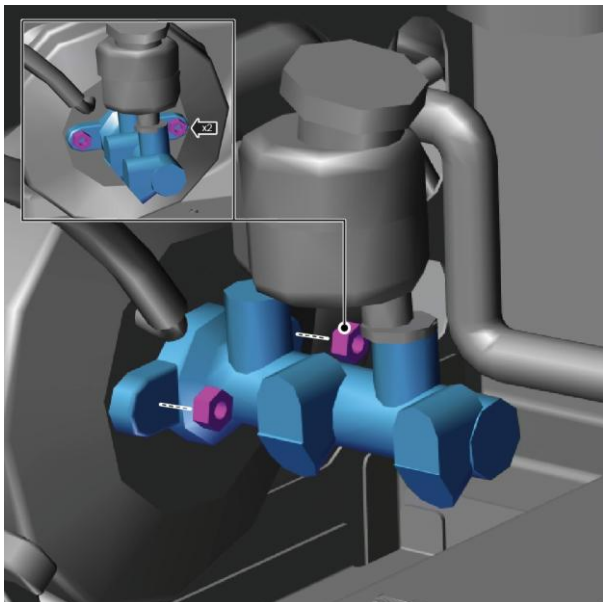
6. **i Note:** Seal off the open brake pipe ends and brake master cylinder ports to prevent components from any contamination.

Release the two fasteners that secure the brake pipes to brake master cylinder.

Carefully move the brake pipes away from the brake master cylinder.



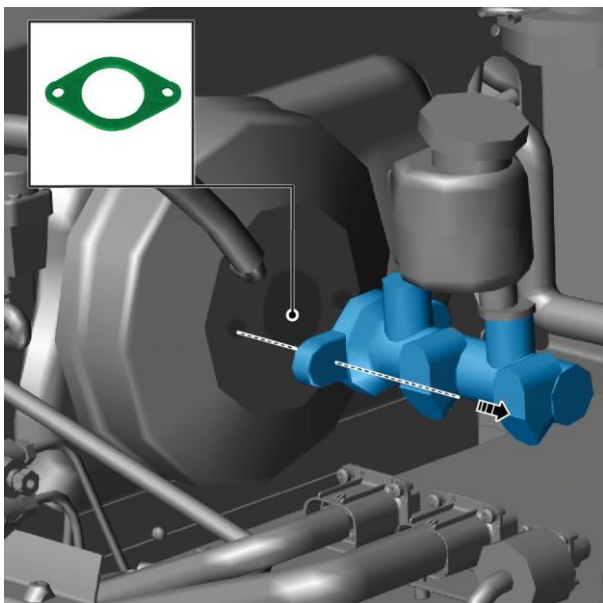
7. Remove the two fasteners that attach the brake master cylinder to the vacuum booster assembly.



8. Pull the brake master cylinder out of the vacuum booster assembly in the direction shown.

Remove the brake master cylinder from the vehicle.

Remove the gasket and discard it.



9. If you replace the brake master cylinder remove the brake fluid reservoir and install on to the new component.

Install

1. Install a new gasket to the brake master cylinder and install them to the vacuum booster assembly.
2. Install and tighten the two brake master cylinder fasteners to a torque of **20 Nm**.
3. **Note:** Clean the brake pipes and brake master cylinder ports and remove any temporary seals before you install the brake pipes.

Install the brake pipes to the master cylinder and tighten the fasteners to a torque of **13 Nm**.

4. Connect the brake fluid level sensor electrical connector.
5. Fill the brake fluid reservoir to the maximum level with the correct brake fluid.
6. Check the brake fluid reservoir, pipes and seals for any leaks.
7. Bleed the braking system. See Brake System Bleeding 65.
8. Connect the 12V systems. See 12V System Disconnect 54.

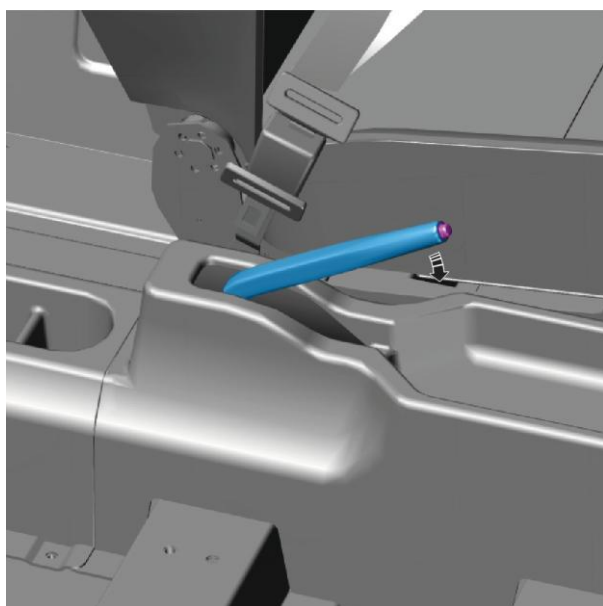
Handbrake Cable

Preparation

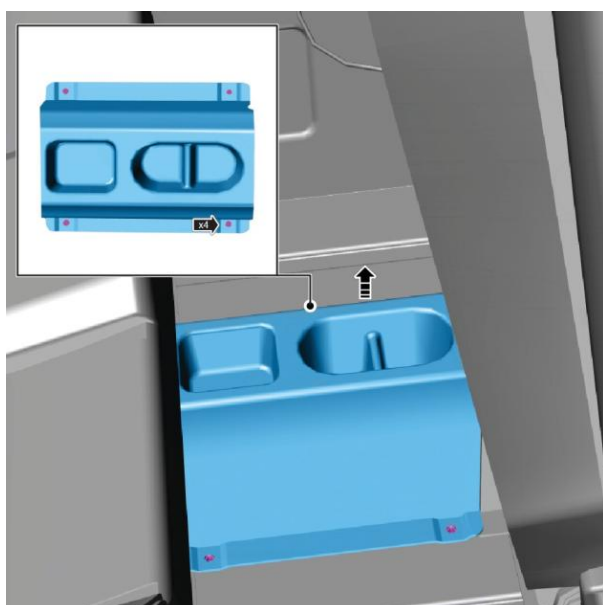
- Note:** This procedure contains illustrations showing certain components removed to provide extra clarity.
- Note:** This procedure contains illustrations for left side components, right side components are similar.

Remove

1. Position the vehicle on a suitable 2 post lift. See Jacking and Lifting 5.
2. Release the handbrake.



3. Remove the four fasteners from the rear section of the centre console rear section and remove.

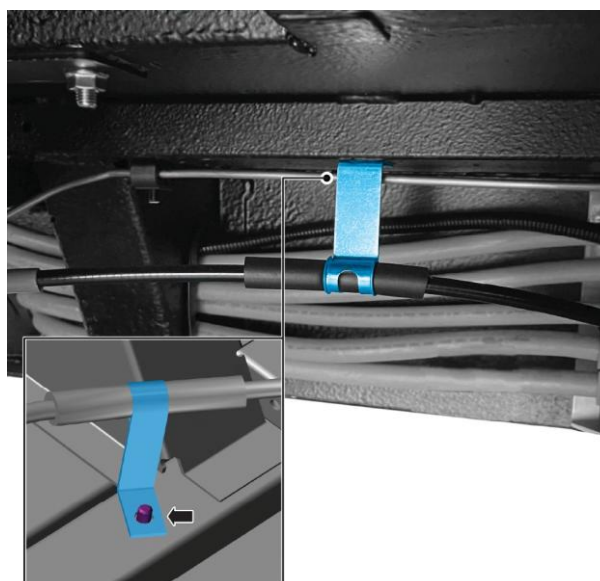


4. Raise the vehicle to the correct height to work.
5. **Note:** Repeat steps 6 to 9 for the other side.
Remove the rear wheel. See Wheel and Tyre 86.

6. Remove the locking pin that secures the handbrake cable to the handbrake mechanism on the rear brake assembly.



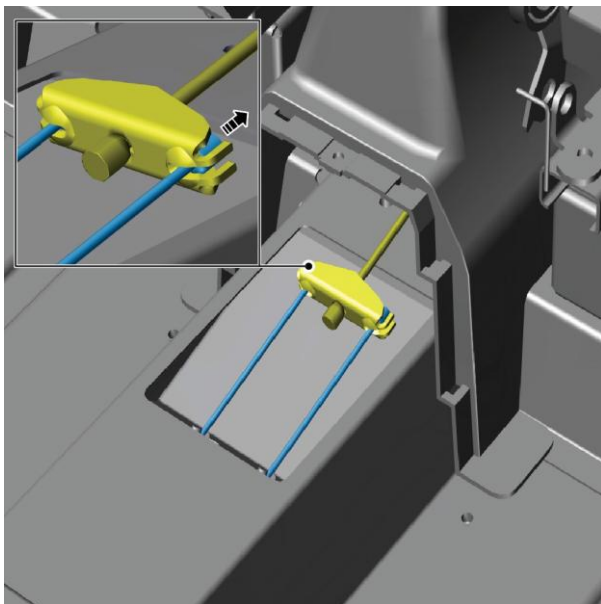
7. Remove the fastener from the mounting bracket and then remove from the vehicle.



8. Remove the securing clip from the mounting bracket on the rear axle and release the handbrake cable.

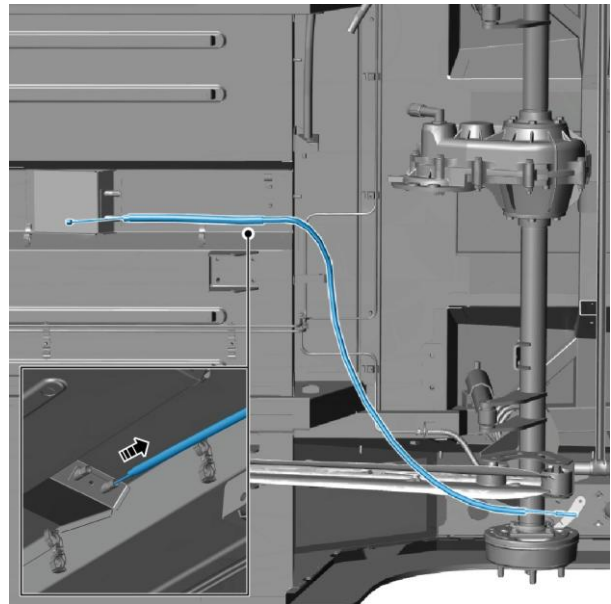


9. Lower the vehicle down to the correct height to work.
10. Release the end of the handbrake cable from the connecting bracket.



11. Raise the vehicle to the correct height to work.

12. Remove the handbrake cable.



Install

1. Install the handbrake cable in to the under body.
2. Lower the vehicle to the correct height to work.
3. Install the end of the handbrake cable into the connecting bracket.
4. Raise the vehicle to the correct height to work.
5. **Note:** Repeat steps 5-8 for the other side.

Position the handbrake cable in the mounting bracket. Install and tighten the fastener to a torque of **10 Nm**.

6. Position the handbrake cable in the mounting bracket on the rear axle and install the securing clip.
7. **Note:** Make sure the components are securely fitted.

Install the handbrake cable into the handbrake mechanism on the rear of the brake assembly.

Install the securing pin.

8. Install the rear wheel. See Wheel and Tyre 86.
9. Lower the vehicle to the correct height to work.
10. **Note:** Make sure that the brake drums can rotate without resistance.

Carry out handbrake adjustment. See Handbrake Lever Assembly 74.

11. Install the rear section of the centre console and tighten the four fasteners to a torque of **10 Nm**.

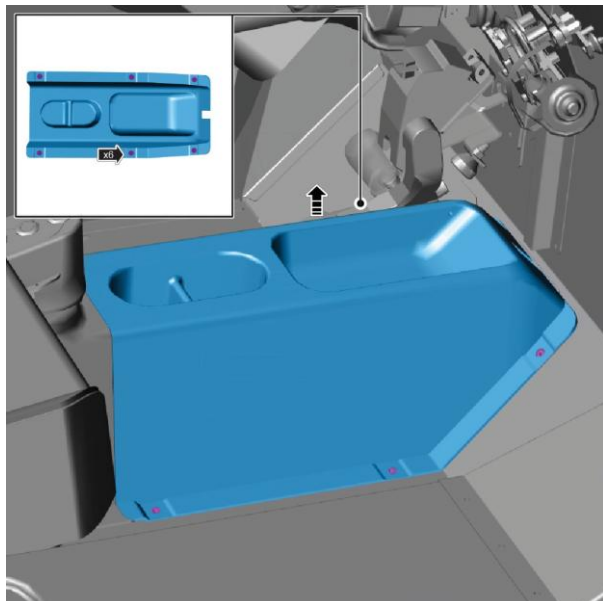
Handbrake Lever Assembly

Preparation

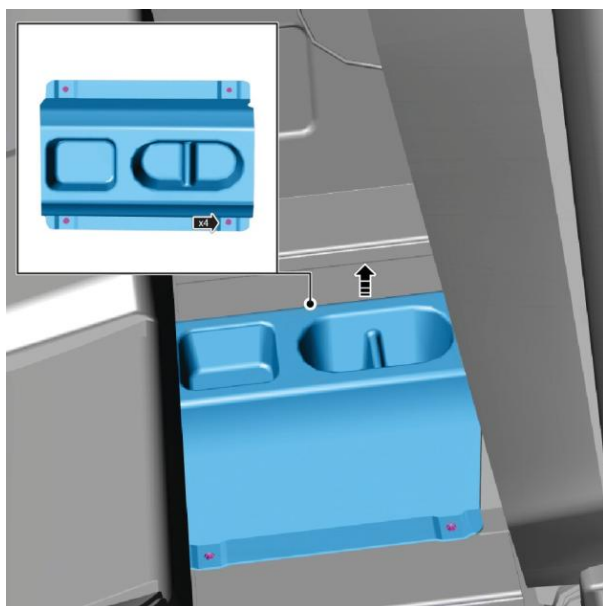
⚠ WARNING: The handbrake operation is removed during this procedure. If the vehicle is not on a jack or hoist put chocks against the wheels. Without handbrake operation the vehicle can move suddenly and cause serious injury or death.

Remove

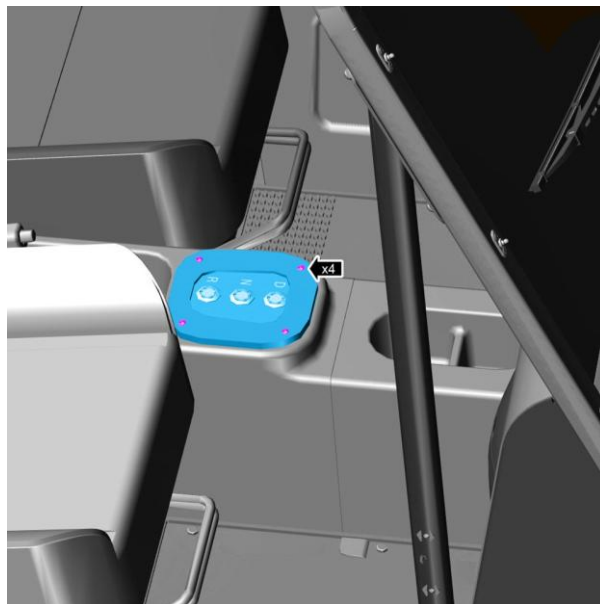
1. Remove the six fasteners from the front section of the centre console trim and then remove from the vehicle.



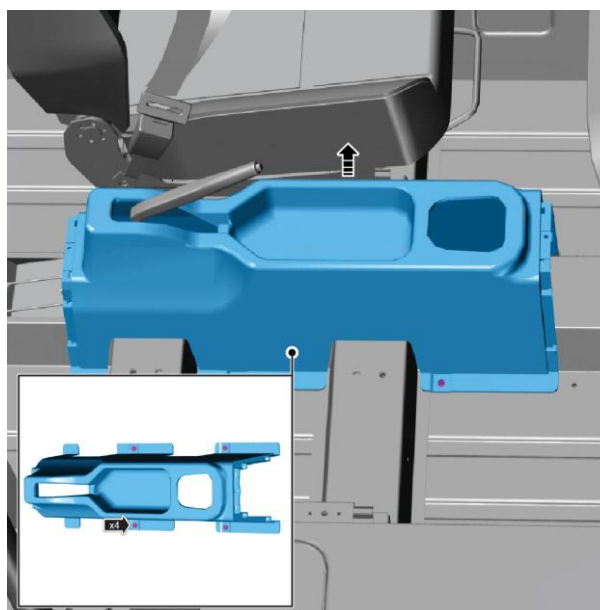
2. Remove the four fasteners from the rear section of the centre console trim and then remove from the vehicle.



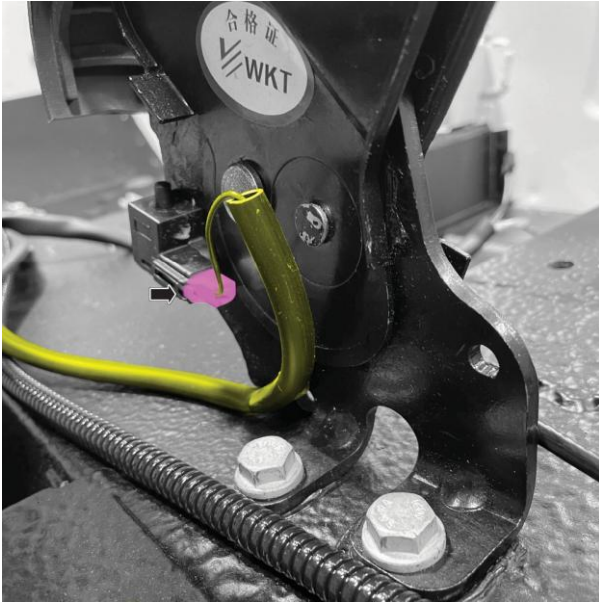
3. Remove the four fasteners and then remove the gear selector.



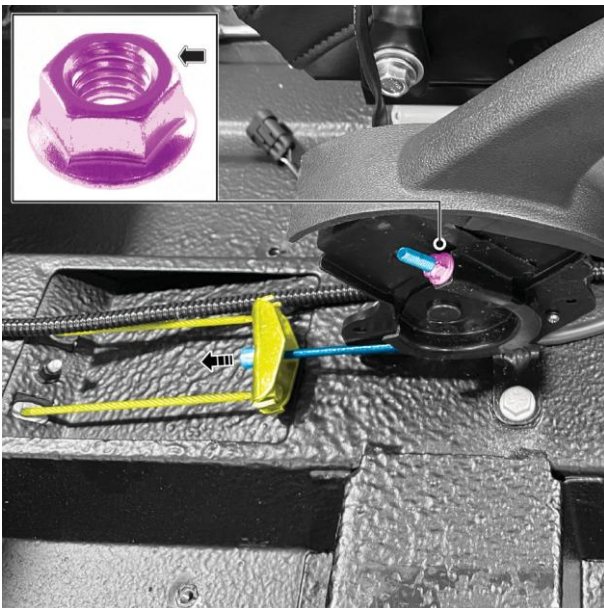
4. Remove the four fasteners from centre section of the centre console and then remove.



5. Disconnect the handbrake switch electrical connector.



6. Remove the handbrake linkage fastener and remove from the connecting bracket.



7. Remove the three fasteners from the handbrake assembly.



8. Remove the handbrake assembly from the vehicle.

Install

1. Install the handbrake assembly to the vehicle.
2. Install the three fasteners that attach the handbrake assembly to the panel and tighten to **31 Nm**.
3. Install the handbrake linkage cable into the connecting bracket.
4. Install the handbrake adjuster fastener to the handbrake linkage cable.
5. Connect the handbrake switch electrical connector.
6. Install the centre section of the centre console into the vehicle and tighten the four fasteners to a torque of **10 Nm**.
7. Reconnect the electrical connector on the automatic gear selector.
Install the automatic gear selector into the centre console ensuring the plastic tabs firm click into place.
8. Install the front section of the centre console into the vehicle and tighten the six fasteners to a torque of **10 Nm**.
9. Install the rear section of the centre console into the vehicle and tighten the four fasteners to a torque of **10 Nm**.

Adjustment

1. Before you adjust the handbrake prepare the vehicle as follows:
 - Make sure the brake system is bled correctly and there is no air in the system.
 - Make sure the brake pedal travel is correct.
 - Operate the brake pedal many times.
 - Operate the handbrake many times.

- Make sure the rear brake shoes are not excessively worn and are adjusted correctly.
2. Operate the handbrake. If the handbrake moves up with 6 clicks (teeth engaging with the ratchet) the adjustment is correct.

If the adjustment is not correct do the steps that follow:

- Rotate the adjuster fastener clockwise or counterclockwise until the handbrake moves up 6 clicks.
- Operate the handbrake again to make sure the adjustment does not change.
- Make sure the rear wheels can be turned with the handbrake off and the brake is not binding.

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Wheel Alignment

Preparation

-  **CAUTION:** Adjustments must be completed on both sides of the vehicle.
-  **CAUTION:** Adjustments must be even on both sides of the vehicle.
-  **Note:** This procedure contains illustrations for left side components, right side components are similar.
-  **Note:** Only use recommended calibrated wheel alignment equipment.
-  **Note:** Only the front toe is adjustable.

Adjustment

1. Position the vehicle on a suitable 2 post lift. See Jacking and Lifting 5.
2. Lift the vehicle to the correct height to work
3.  **Note:** Examine the front suspension and steering assembly for worn or damaged components. If the suspension components are not in a satisfactory condition you must replace them before you continue.
-  **Note:** Examine the condition of the tyres and if they are not in a satisfactory condition you must replace them before you continue.

Set the tyres to the correct pressures.

4. Lower the vehicle down.
5. Position the vehicle on a flat and level surface.
6. Roll the vehicle backward and forward to settle the suspension and steering.
7.  **Note:** If the alignment is out check the suspension for any signs of damage or wear and tear.

Using suitable equipment, measure the wheel alignment and compare your results to the Manufacture Specification Data. If your measurements do not match the specification, it is necessary to adjust the wheel alignment.

8.  **CAUTION:** To prevent damage to the track rod ends, use an additional wrench when loosening or tightening the components.

Release the fastener on the tie rod.



9. Turn the tie rod to make the adjustment.



10. Once the adjustment has been completed tighten the fastener to a torque of **35 Nm**.
 11. Using suitable equipment, re-check the wheel alignment measurement and compare your results to the Wheel Alignment Specification 79.
- If further adjustments are required repeat steps 6 to 9.

Wheel Alignment Specification

Specifications: Front wheel position are as follows.

Front wheels	Specification	Tolerance
Wheel castor angle	3°.15 ¹	±30 ¹
Wheel camber angle	1°	±30 ¹
Wheel toe-in angle	10 ¹	10 ¹
Steering angle	Innerside: 35° Outter side: 31°	±4

Steering Rack

Preparation

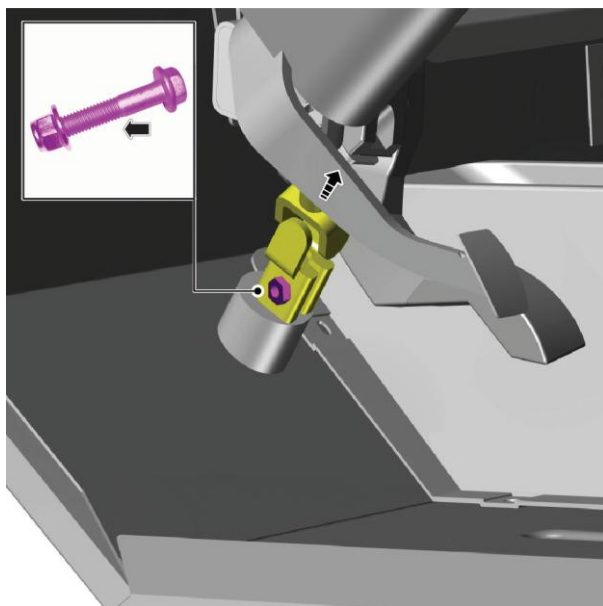
CAUTION: Make sure the road wheels are in the straight ahead position before you remove the steering rack.

Note: Note the fitted position of all components prior to removal.

Remove

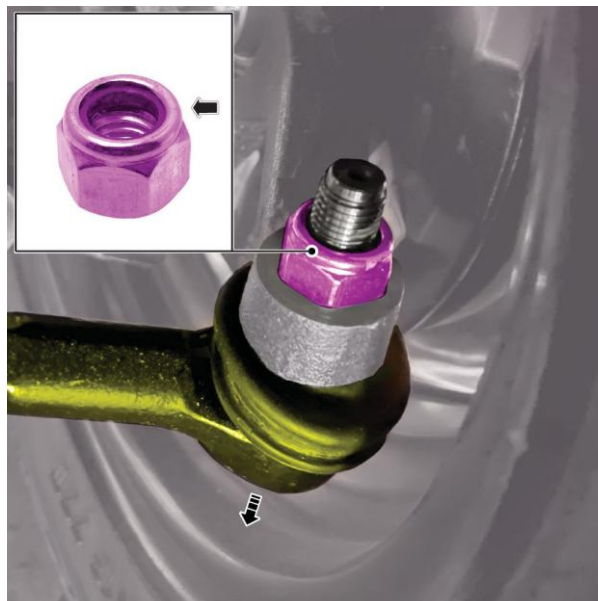
1. Position the vehicle on a suitable 2 post lift. See Jacking and Lifting 5.
2. Disconnect the 12V system. See 12V System Disconnect 54.
3. Raise vehicle to the correct height to work.
4. Remove the front wheels. See Wheel and Tyre 86.
5. Lower the vehicle to the correct height to work.
6. Remove and discard the fastener.

Release the steering column from the steering rack intermediate shaft.

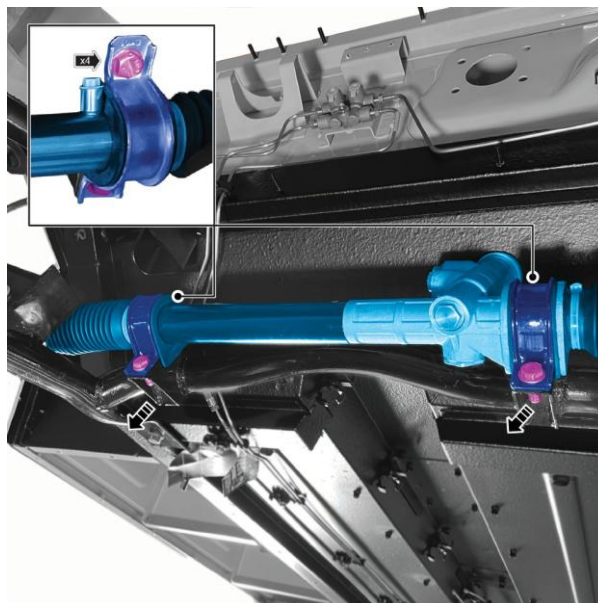


7. Lift the vehicle to the correct height to work.
8. **Note:** Repeat this step for the other side. Remove and discard the fastener.

Use a suitable tool to release the track rod end from the knuckle assembly.



9. Support the steering rack with suitable tooling. Remove and discard the four fasteners and then remove the two brackets. Remove the steering rack.



Install

1. Install the steering rack. Install the two brackets with four new fasteners and tighten to a torque of **80 Nm**.
2. Lower the vehicle to the correct height to work.
3. Align and connect the steering column universal joint to the steering rack intermediate shaft. Install a new fastener and tighten to a torque of **20 Nm**.
4. Lift the vehicle to the correct height to work.

5.  **Note:** Repeat this step again on the left side of the vehicle.

Install the track rod end to the knuckle assembly.

Install a new fastener and tighten to a torque of **50 Nm**.

6. Install the front wheels. See Wheel and Tyre 86.
7. Connect the 12V system. See 12V System Disconnect 54.
8. Check and adjust the wheel alignment. See Wheel Alignment 78.

Steering Column

Preparation

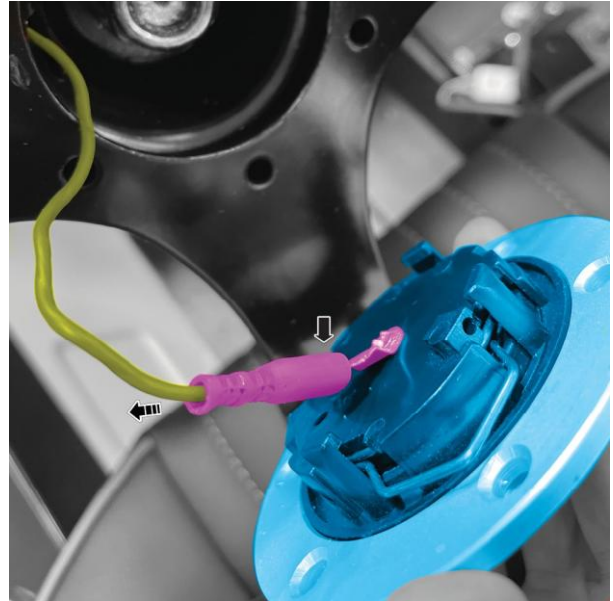
-  **CAUTION:** Make sure the road wheels are in the straight ahead position before you remove the steering wheel.
-  **CAUTION:** You must not use the steering lock to hold the steering wheel when you remove or install the fasteners.
-  **CAUTION:** If you do not hold the steering wheel during installation or removal of the fastener damage will occur to the steering lock.
-  **Note:** Note the fitted position of all components prior to removal.

Remove

1. Disconnect the 12V system. See 12V System Disconnect 54.
2. Remove the mechanical key from the starter switch.
3. Remove the six fasteners from the horn to reposition for access to electrical connector.



4. Disconnect the electrical connection from the horn button and remove.



5.  **CAUTION:** You must not use the steering lock to hold the steering wheel when you remove or install the fastener.
-  **CAUTION:** If you do not hold the steering wheel, damage will occur to steering lock.

Remove the fastener that attaches the steering wheel to the steering column and discard.

Remove the steering wheel.

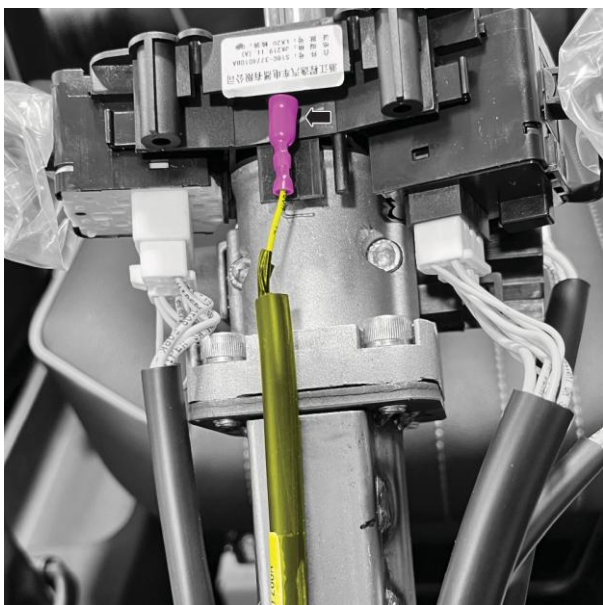


6. Remove the seven fasteners from the lower steering column cover.

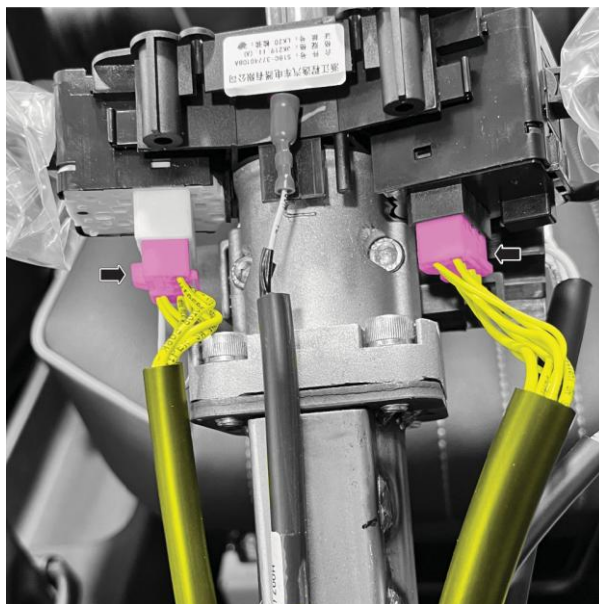
Carefully release the alignment pins securing the upper steering column cover to the lower cover and remove.



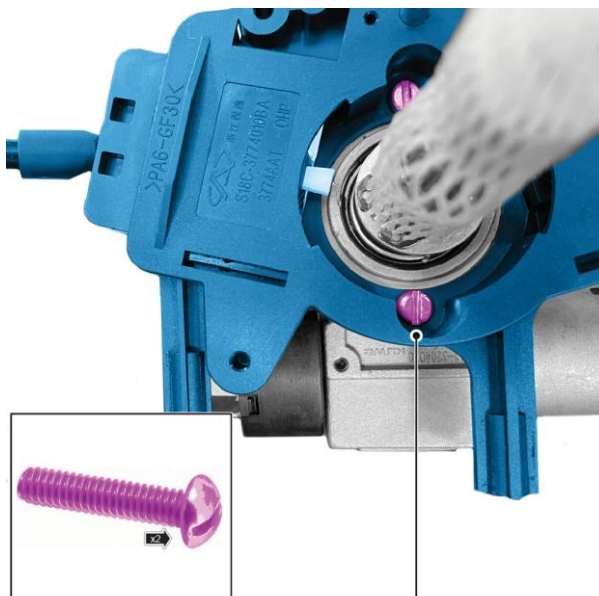
7. Disconnect the electrical connector from the steering wheel contact ring.



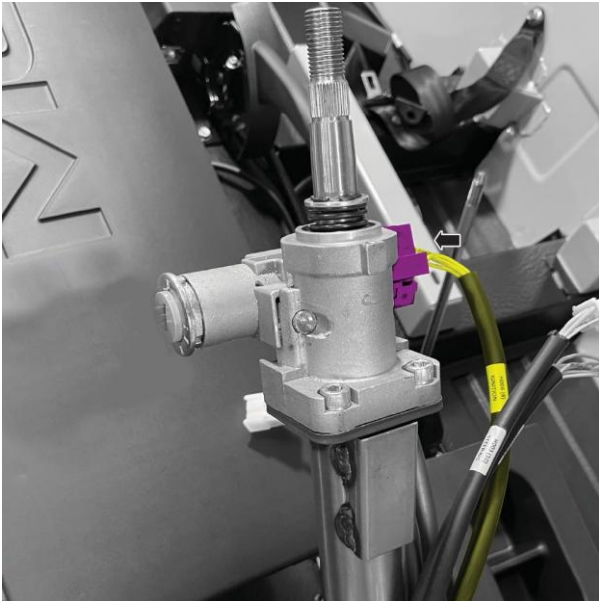
8. Disconnect the two electrical connectors from the combination switch.



9. Remove the two fasteners from the combination switch and then remove from the steering column.

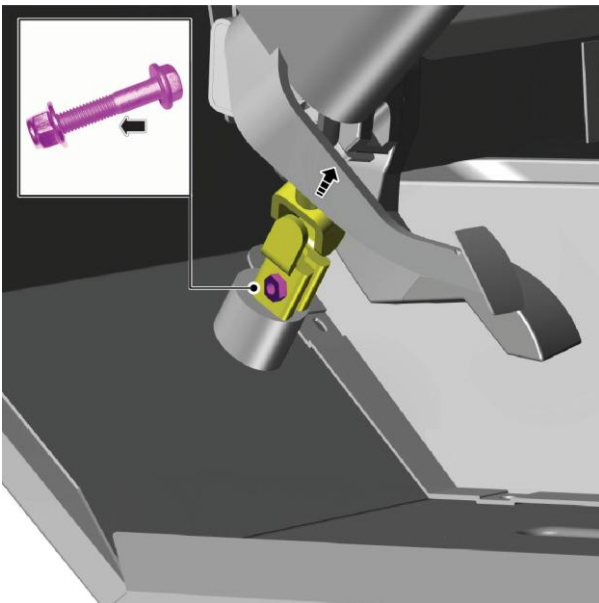


10. Disconnect the electrical connector from the starter switch.



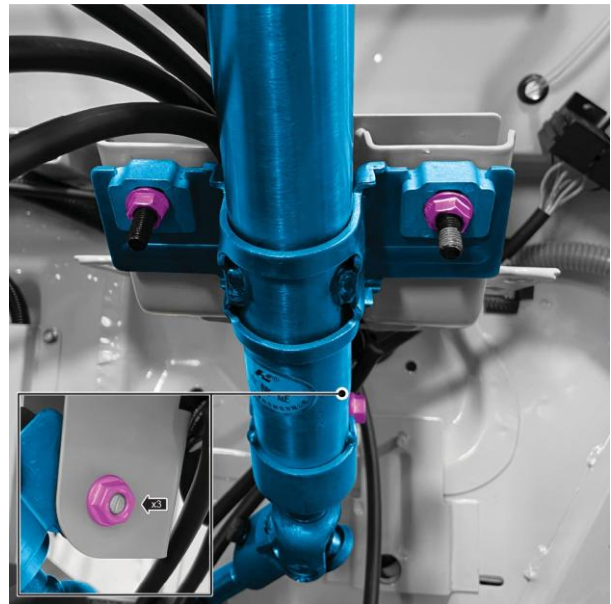
11. Remove and discard the fastener from the universal joint.

Release the universal joint from the steering rack intermediate shaft



12. Remove the three fasteners securing the steering column to the body.

Remove the steering column.



Install

- Position the steering column for installation.
Align and connect the steering column universal joint to the steering rack intermediate shaft.
Install a new fastener but do not torque tighten at this point.
- Install the three fasteners that secures the steering column and tighten to a torque of **33 Nm**.
Tighten the lower fastener to a torque of **44 Nm**.
- Install and tighten the universal joint fastener to a torque of **24 Nm**.
- Connect the electrical connector to the starter switch.
- Install the combination switch on to the steering column and tighten the fastener.
Reconnect the two electrical connectors to combination switch.
- Reconnect the electrical connector to contact ring.
- Install both the upper and lower steering column covers to the steering column.
Install the seven fasteners and tighten.
- CAUTION:** You must not use the steering lock to hold the steering wheel when you remove or install the fastener.

CAUTION: If you do not hold the steering wheel, damage will occur to the steering lock.

Install the steering wheel and tighten the fastener to a torque of **60 Nm**.
- Install the horn button and reconnect the electrical connector
Install the six fasteners and tighten.
- Connect the 12V system. See 12V System Disconnect 54.

Wheels and Tyres	
Front Suspension	
Front Shock Absorber (Including Spring).....	87
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Rear Suspension	89

Wheel and Tyre

Preparation

WARNING: You must do this procedure in the exact sequence shown, as failure to do so could result in serious personal injury.

Remove

1. Position the vehicle on a suitable 2 post lift. See Jacking and Lifting 5
2. Apply the handbrake.
3. Loosen the four wheel fasteners by 180 degrees.

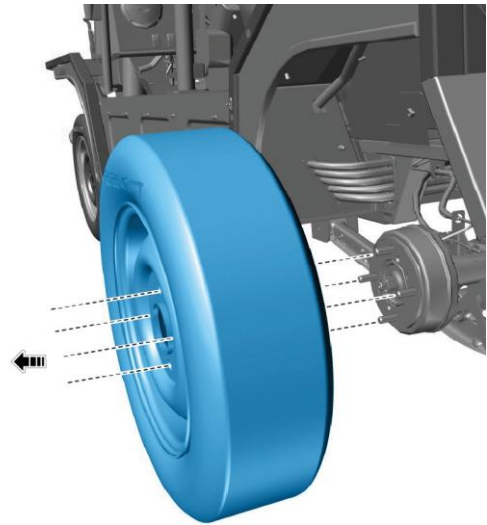


4. Release the handbrake.

Note: For service actions being performed on the rear wheels.

5. Raise the vehicle to a suitable height to work.
6. Remove the four wheel fasteners.

Remove the wheel and tyre assembly.



Install

1. Install the wheel and tyre assembly onto the hub.
Install the four wheel fasteners and tighten them by hand.
2. Lower the vehicle to the ground.
3. Use the following sequence to tighten the wheel fasteners.

Tighten the four wheel fasteners to a torque of **120 Nm**.



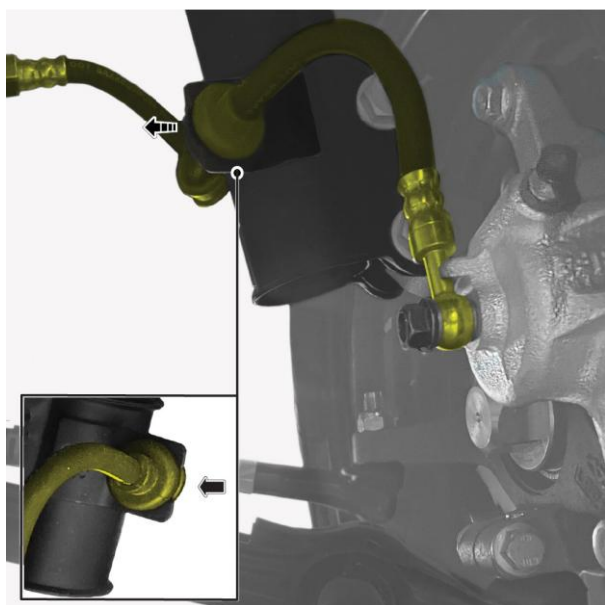
Front Shock Absorber (Including Spring)

Preparation

- Note:** Note the fitted position of all components prior to removal.
- Note:** This procedure contains illustrations for left side components, right side components are similar.

Remove

1. Disconnect the 12V system. See 12V System Disconnect 54.
2. Position the vehicle on a suitable 2 post lift. See Jacking and Lifting 5.
3. Raise the vehicle to a suitable height to work.
4. Remove the front wheel. See Wheel and Tyre 86.
5. Remove the brake hose grommet from the front shock absorber and move aside.

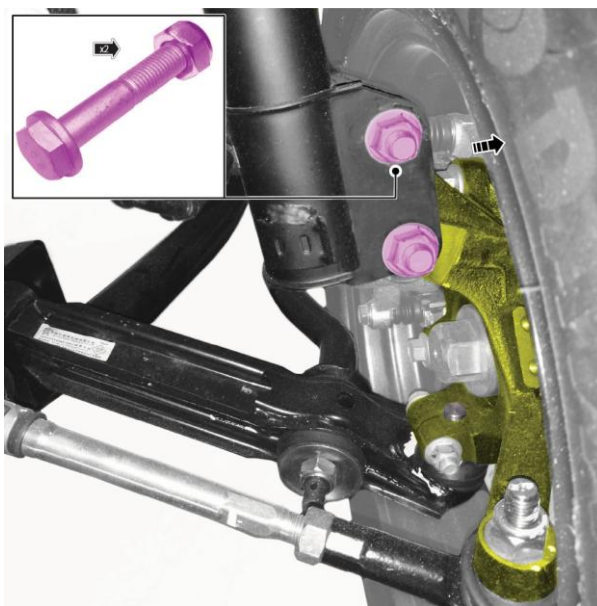


6. **CAUTION:** The aid of one or more technicians is necessary to prevent damage to the vehicle.

- Note:** Support the knuckle and brake assembly when carrying out this step.

Support the knuckle assembly and remove the two fasteners and discard them.

Pull the knuckle assembly away from the front shock absorber.



7. Lower the vehicle to the correct height to work and open the bonnet.
8. **CAUTION:** The aid of one or more technician is necessary to prevent damage to the vehicle.

Support the front shock absorber and remove the two fasteners and discard them.

Remove the front shock absorber.



Install

1. **CAUTION:** The aid of one or more technician is necessary to prevent damage to the vehicle.

Install the front shock absorber and tighten the two fasteners to a torque of **35 Nm**.

2. Raise the vehicle to the correct height to work.

3.  **Note:** Support the steering hub and brake assemblies during this step action.
 Align and install the knuckle assembly to the front shock absorber. Install the two fasteners tighten them to a torque of **110 Nm**.
4. Install the brake hose grommet to the front shock absorber.
5. Install the front wheel. See Wheel and Tyre 86.
6. Lower vehicle to the correct height to work.
7. Check and adjust the wheel alignment. See Wheel Alignment 78.
8. Connect the 12V system. See 12V System Disconnect 54.

Rear Axle Assembly

Preparation

WARNING: The aid of one more technician is necessary to prevent personal injury or damage to the vehicle.

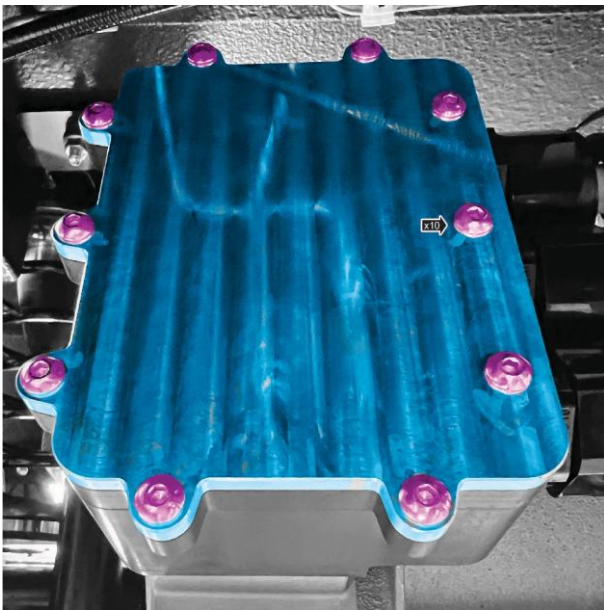
Note: This procedure contains illustrations for left side components, right side components are similar.

Note: Note the fitted positions of all components prior to removal.

Remove

1. Power down the high voltage system. See High Voltage Power Up/Power Down 9.
2. Raise and support the vehicle. See Jacking and Lifting 5.
3. Remove both rear wheels. See Wheel and Tyre 86.
4. Remove the six fasteners and the high voltage cable housing lid.

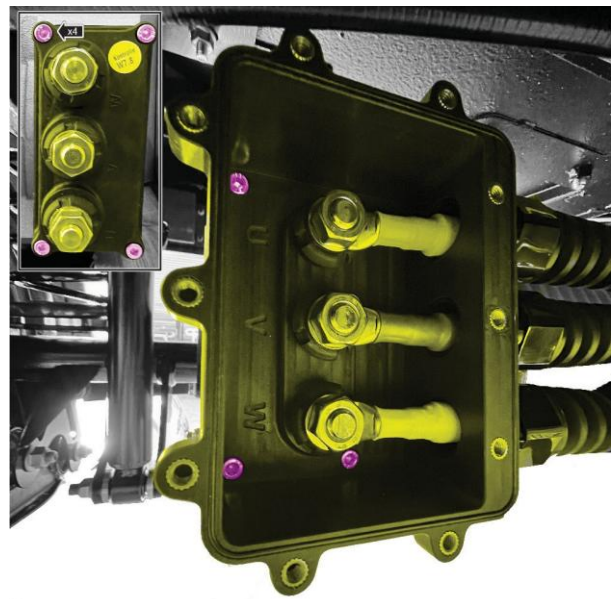
Remove and discard the O-ring seal.



5. Remove the three fasteners that secure the high voltage cables to the motor.



6. Remove the four fasteners and reposition the high voltage cable away from the motor.



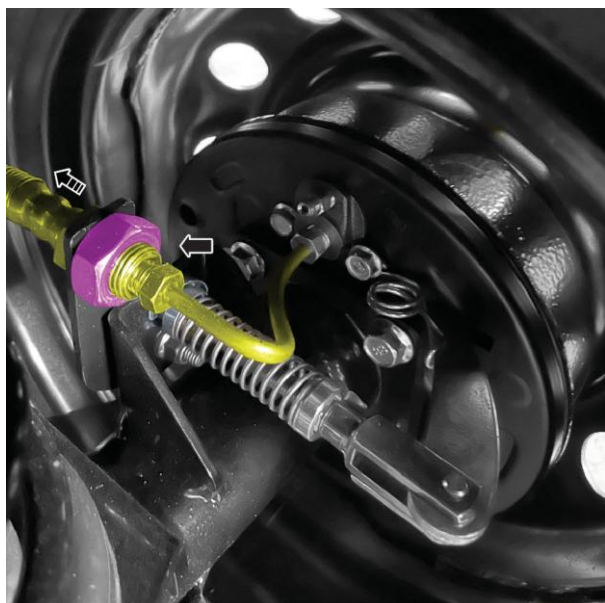
7. **CAUTION:** Prepare to catch escaping brake fluid.
Note: Repeat this step on the other side.

Release the brake pipe from the brake drum.



8. Release the fixing from the brake line that secures it to the rear axle.

Note: Repeat this step on the other side.
Move brake hose aside.



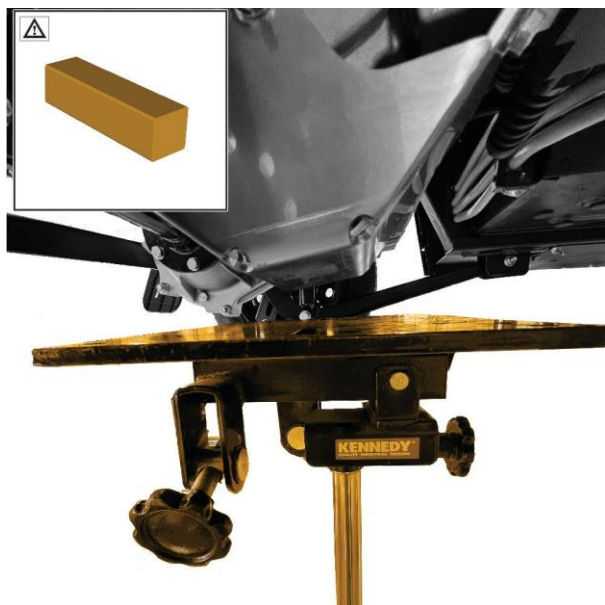
9. Remove the locking pin that secures the handbrake cable to the handbrake mechanism on the rear brake assembly.



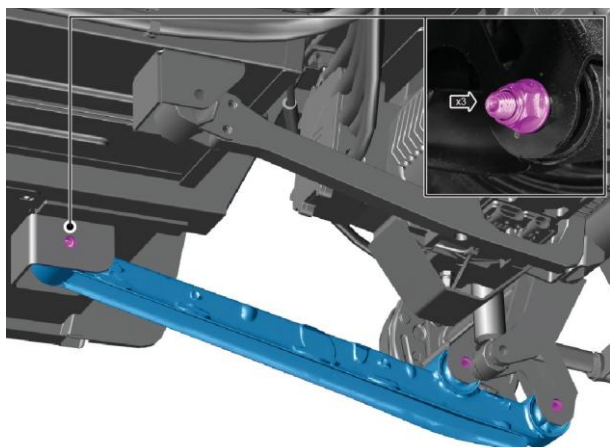
10. Remove the securing clip from the mounting bracket on the rear axle and release the handbrake cable.



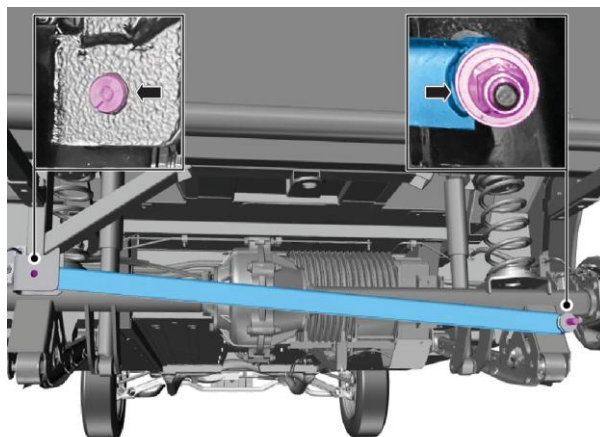
11. Using a suitable support, support the rear axle assembly.



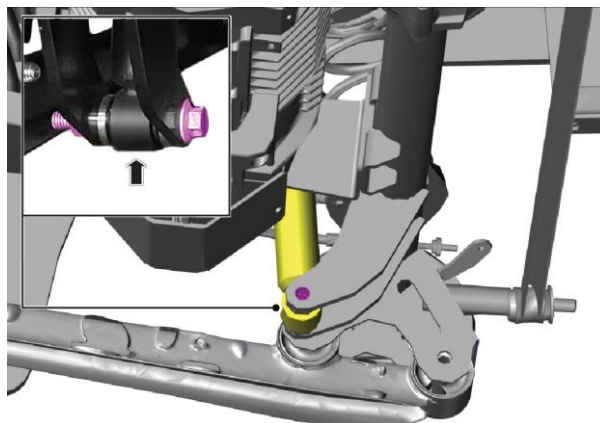
12. **Note:** Repeat this step for the other side.
Remove the three fasteners. Remove the lower arm.



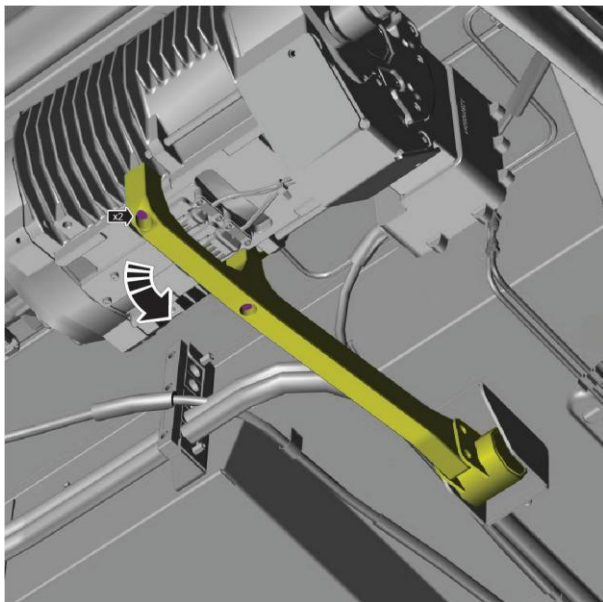
13. Remove the two fasteners for the stabiliser bar. Remove the stabiliser bar.



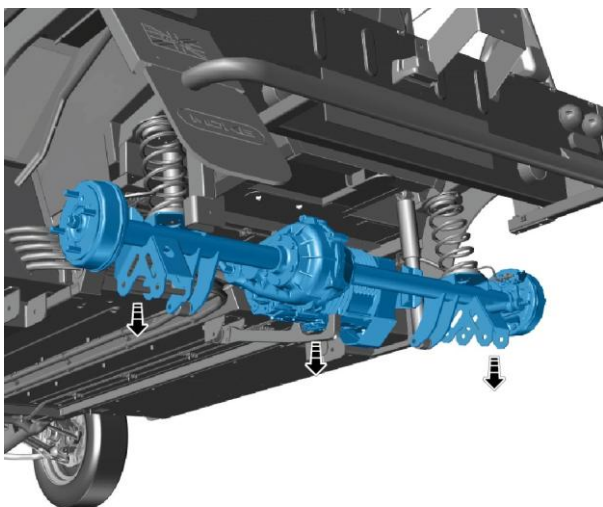
14. **Note:** Repeat this step on the other side.
Remove and discard the fastener that secures the damper to rear axle.
Release the damper from the rear axle.



15. Remove the three fasteners. Remove the e-motor support brace.



16. **Note:** Make sure the springs are removed. Remove the rear axle assembly.



5. **Note:** Repeat this step for the other side.
Install the lower arm and tighten the three fasteners to a torque of **50 Nm**.
6. Install the handbrake cable into the rear axle and install the securing clip.
7. Install the handbrake cable into the handbrake mechanism on the rear of the brake assembly and install the securing pin.
8. Install the brake pipe into the rear axle and tighten the fastener to a torque of **13 Nm**.
9. Install the brake pipe into the brake drum and tighten to a torque of **13 Nm**.
10. Reposition the high voltage cable into the motor and tighten the six fasteners to a torque of **16 Nm**.
11. Tighten the three fasteners that secure the high voltage cable to the motor to a torque of **16 Nm**.
12. Install the new O-ring seal to the high voltage cable housing lid.
Install the high voltage cable housing lid and tighten the six fasteners to a torque of **5 Nm**.
13. Power up the high voltage system. See High Voltage Power Up/Power Down 9.
14. Bleed the brake system. See Brake System Bleeding 65.
15. Install both rear wheels. See Wheel and Tyre 86.
16. Lower the vehicle.

Install

1. **CAUTION:** Make sure the springs are seated correctly.
Install the rear axle assembly.
2. Install the e-motor support brace and tighten the fasteners to a torque of **41 Nm**.
3. **Note:** Repeat this step for the other side.
Reposition the damper into the correct location and tighten the new fastener to a torque of **50 Nm**.
4. Install the stabiliser bar and tighten the two new fasteners to a torque of **50 Nm**.

Glass	
Windscreen (Heated).....	94
Seats and Seatbelts	
Seats	97
Seatbelts.....	99
Interior Trim	
Instrument Panel	103

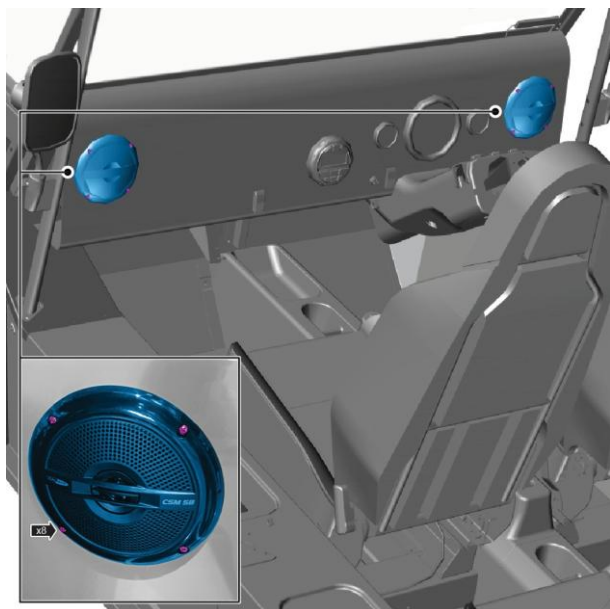
Windscreen Assembly (Heated)

Preparation

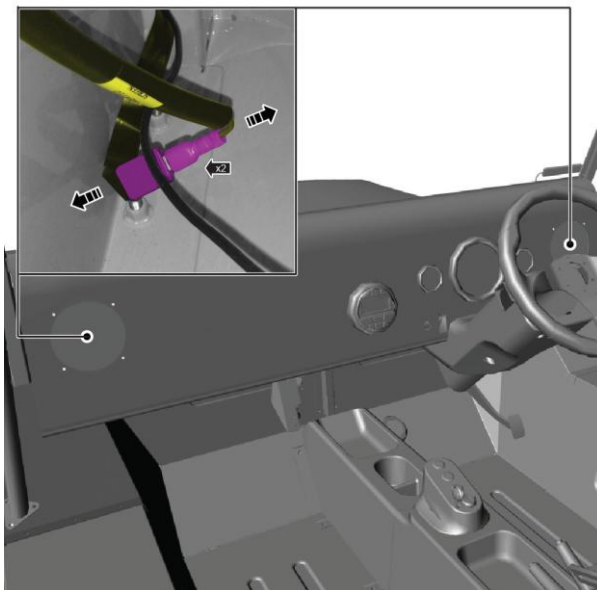
-  **WARNING:** Wear the applicable PPE when you cut out glass from the vehicle.
-  **CAUTION:** The aid of one or more technicians is necessary to prevent damage to the vehicle.
-  **CAUTION:** Apply protection on the painted surfaces around the windscreen area.
-  **Note:** Note the fitted position of all components prior to removal.

Remove

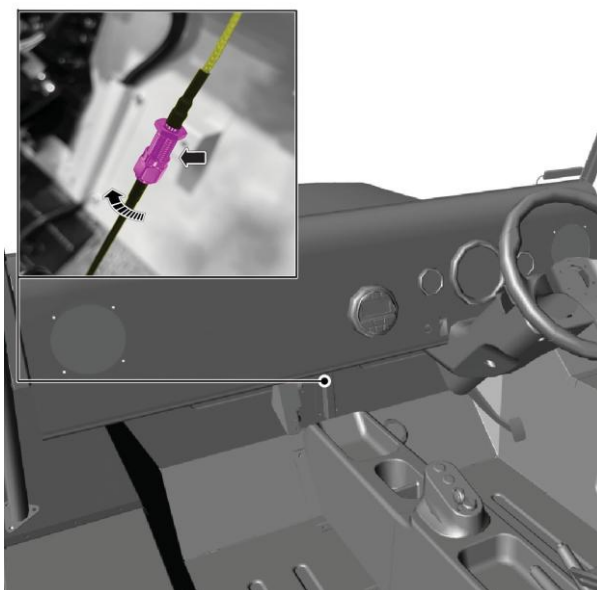
1. Disconnect the 12V system. See 12V System Disconnect 54
2. Remove the eight fasteners and reposition both speaker to allow access to the electrical connections.
Disconnect the two electrical connectors and remove both speakers.



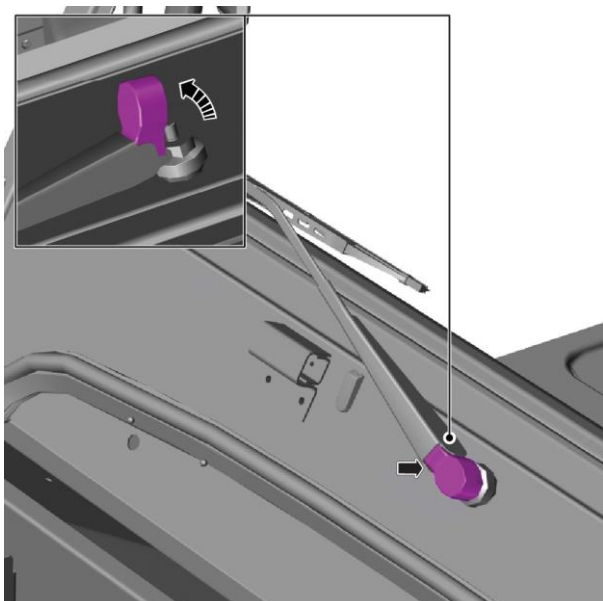
3. Disconnect both the electrical connectors for the heated windscreen.



4. Disconnect the electrical connection for the DAB antenna.



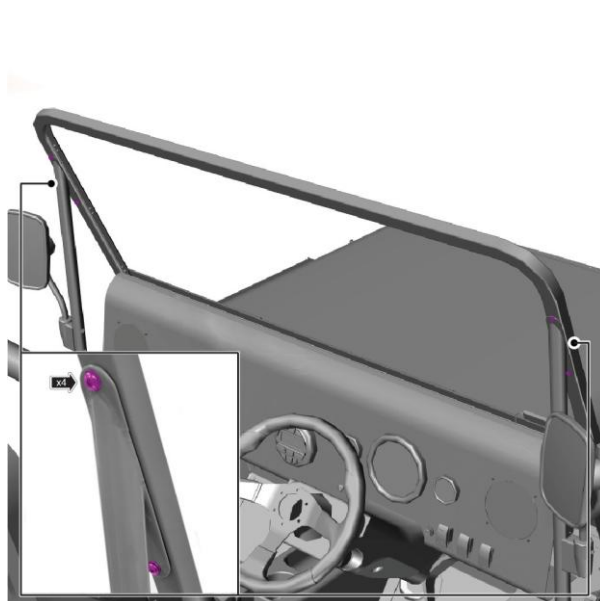
5. Lift the plastic cap on both wiper blades.



6. Remove the fasteners from both wiper arms.
Use a suitable tool to release the wiper arm from the vehicle.



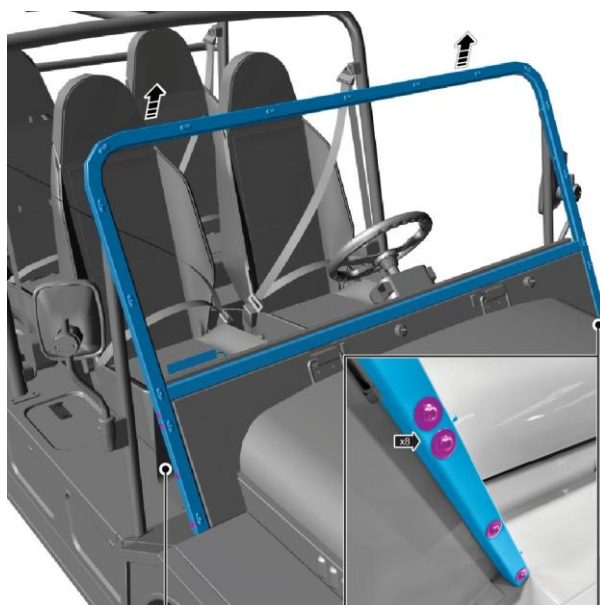
7. Remove the four fasteners from the windscreen support.



8.  **CAUTION:** The aid of one or more technicians is necessary to prevent damage to the vehicle.

Remove the eight fasteners from the windscreen frame and carefully lift the windscreen assembly and remove the electrical cables from the grommet.

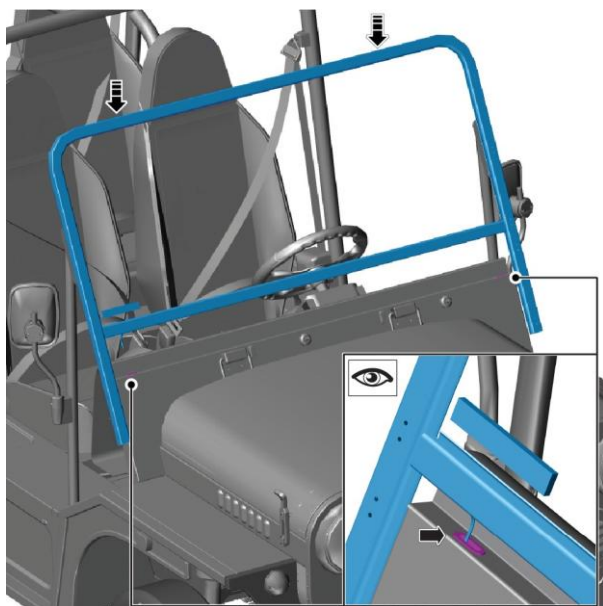
Remove the windscreen assembly from the vehicle.



Install

1. Install the windscreen assembly onto the vehicle making sure the electrical cables for the heated screen and DAB antenna are routed through the grommet.

Install the eight fasteners and tighten to a torque of **8 Nm**.



2. Apply **Loctite™ 243** to the four fasteners for the windscreen support and tighten to a torque of **6 Nm**.
3. Install both wiper arms and tighten to a torque of **31.5 Nm**.
4. Reconnect the electrical connection for the DAB antenna.
5. Reconnect both the electrical connectors for the heated windscreen.
6. Reconnect the electrical connectors on both speakers and position into the instrument panel.
Tighten the eight fasteners to a torque of **1.5 Nm**.
7. Connect the 12V system. See 12V System Disconnect 54

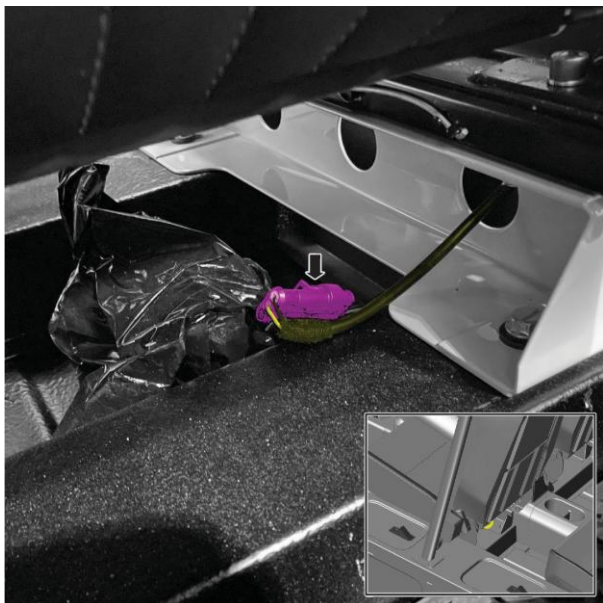
Front Seat

Preparation

-  **Note:** This procedure contains illustrations showing certain components removed to provide extra clarity.
-  **Note:** The images show a left hand drive vehicle, right hand drive is similar.

Remove

1. Disconnect the seat occupancy sensor electrical connector.



2.  **CAUTION:** This step requires the aid of a second technician.

Remove the four fasteners and remove the front seat.



Install

1.  **CAUTION:** This step requires the aid of a second technician.

Install the front seat and tighten the four fasteners to a torque of **24 Nm**.

2. Connect the seat occupancy sensor electrical connector.

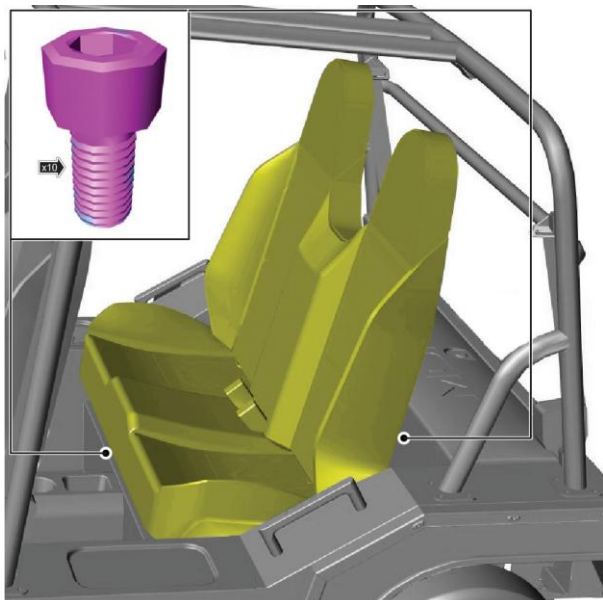
Rear Seat

Preparation

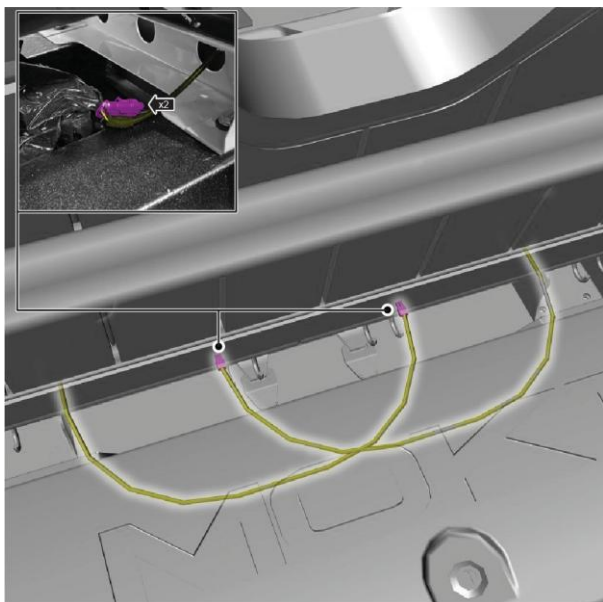
- Note:** This procedure contains illustrations showing certain components removed to provide extra clarity.

Remove

1. Remove the 10 fasteners and reposition the seat to allow access to the electrical connectors.



2. Disconnect the two seat occupancy sensors electrical connectors.



3. **CAUTION:** This step requires the aid of a second technician.

Remove the rear seat.



Install

1. **CAUTION:** This step requires the aid of a second technician.

Install the rear seat.

2. Connect the two seat occupancy sensors electrical connectors.
3. Install and tighten the 10 fasteners to the torque of **24 Nm**.

Front Seatbelt and Buckle

Preparation

- Note:** This procedure contains illustrations for the right side components, left side components are similar.
- Note:** This procedure contains illustrations showing certain components removed to provide extra clarity.

Remove

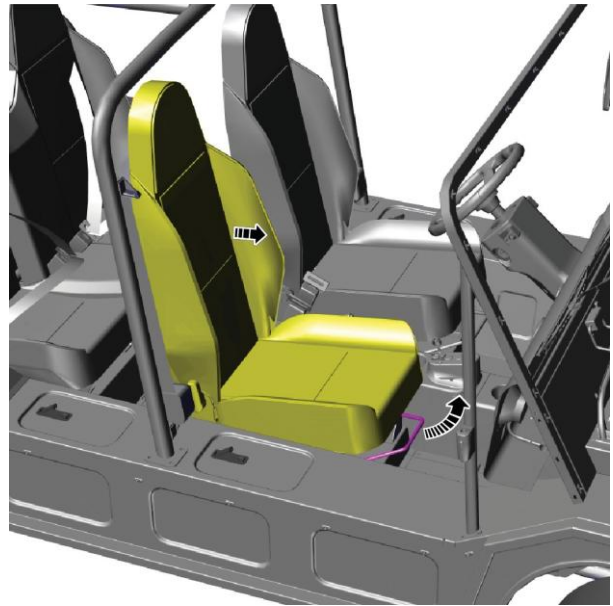
1. Remove the plastic cover from the upper seatbelt anchor point using a suitable plastic trim tool.



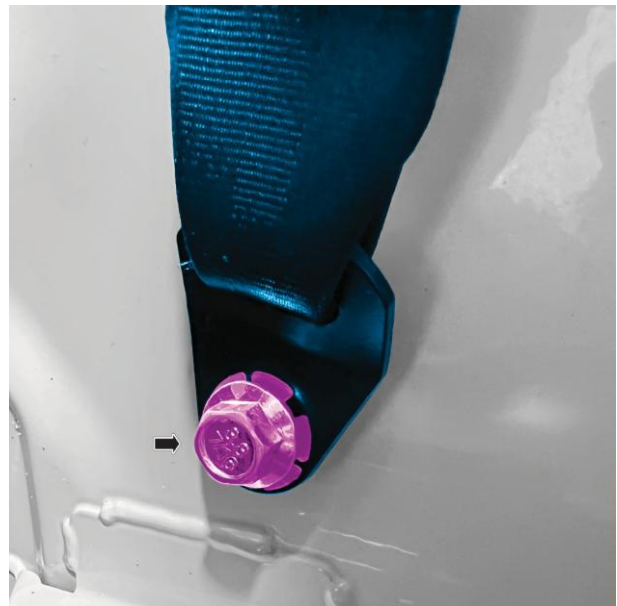
2. Remove the fastener from the upper seatbelt anchor point.



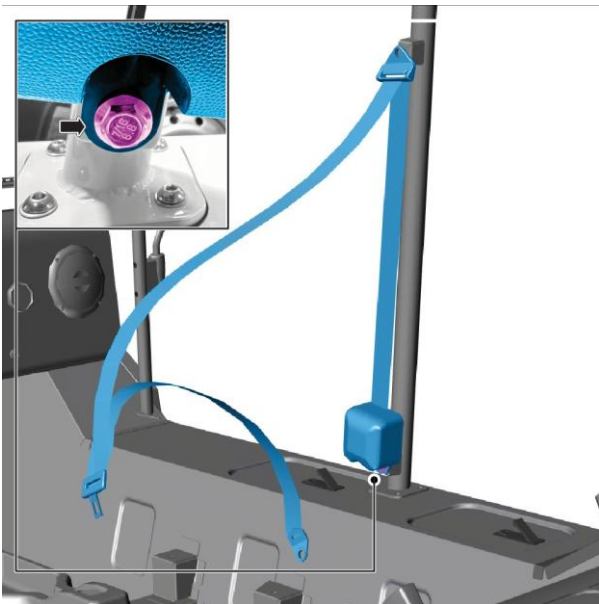
3. Reposition the front seat forward.



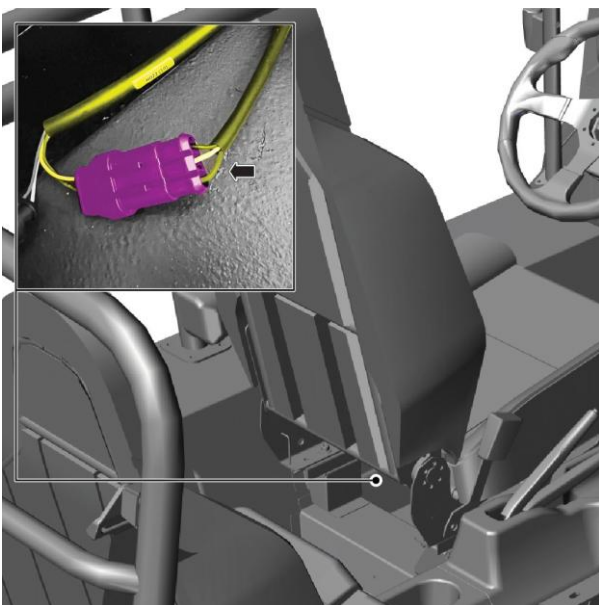
4. Remove the fastener from the lower seatbelt anchor point.



5. Remove the fastener from the seatbelt assembly and then remove.

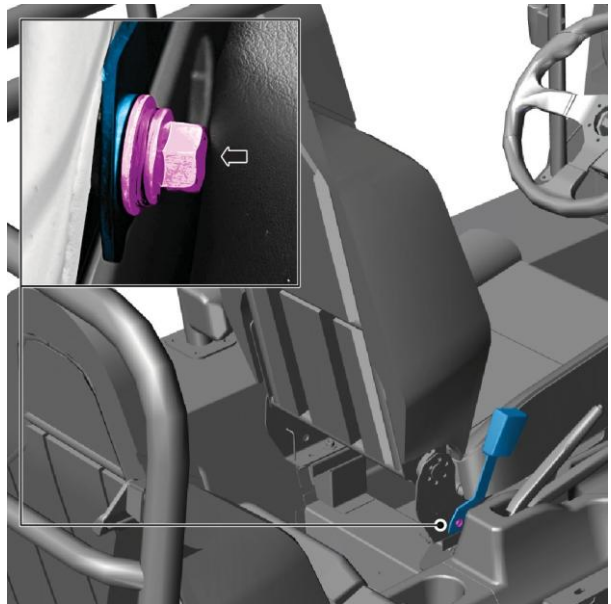


6. Disconnect the electrical connector on the seatbelt buckle.



7. Reposition the seat rearwards.

8. Remove the fastener and remove the seatbelt buckle.



Install

1. **Note:** Spring washers must be installed on the fastener, damaged washers must be replaced.
Install the seatbelt buckle and tighten the fastener to a torque of **40 Nm**.
2. Reposition the seat forwards.
3. Reconnect the electrical connection on the seatbelt buckle.
4. **Note:** Spring washers must be installed on the fastener, damaged washers must be replaced.
Install the seatbelt assembly into the vehicle and tighten the fastener to a torque of **40 Nm**.
5. **Note:** Spring washers must be installed on the fastener, damaged washers must be replaced.
Install the lower seatbelt anchor point and tighten the fastener to a torque of **40 Nm**.
6. **Note:** Spring washers must be installed on the fastener, damaged washers must be replaced.
Install the upper seatbelt anchor point and tighten the fastener to a torque of **40 Nm**.
7. Reposition the seat backwards.
8. Install the plastic cover over the upper anchor point.

Rear Seatbelt and Buckle

Preparation

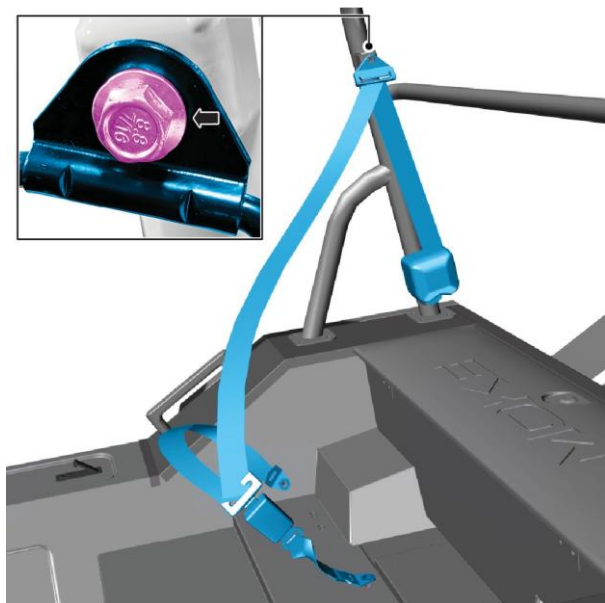
- Note:** This procedure contains illustrations for the right side components, left side components are similar.
- Note:** This procedure contains illustrations showing certain components removed to provide extra clarity.

Remove

1. Remove the rear seats. See Rear Seat 98.
2. Remove the plastic cover from the upper seatbelt anchor point using a suitable plastic trim tool.



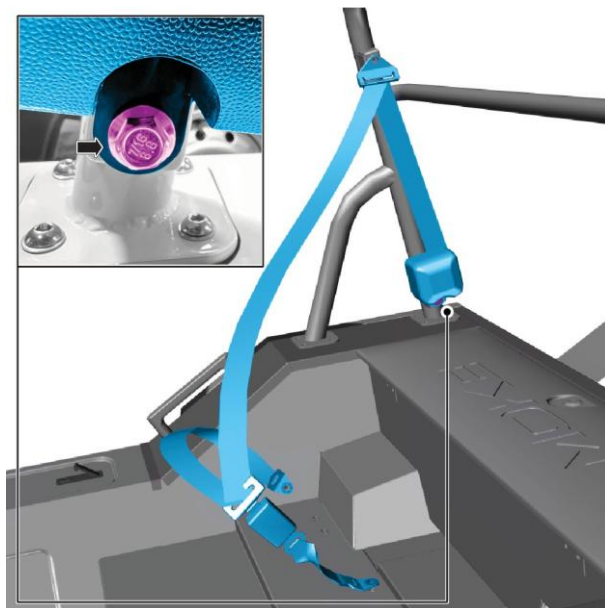
3. Remove the fastener from the upper anchor point.



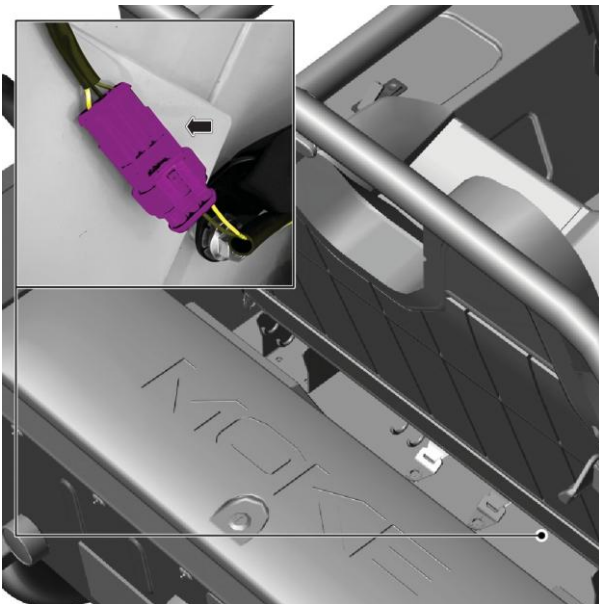
4. Remove the fastener from the lower anchor point.



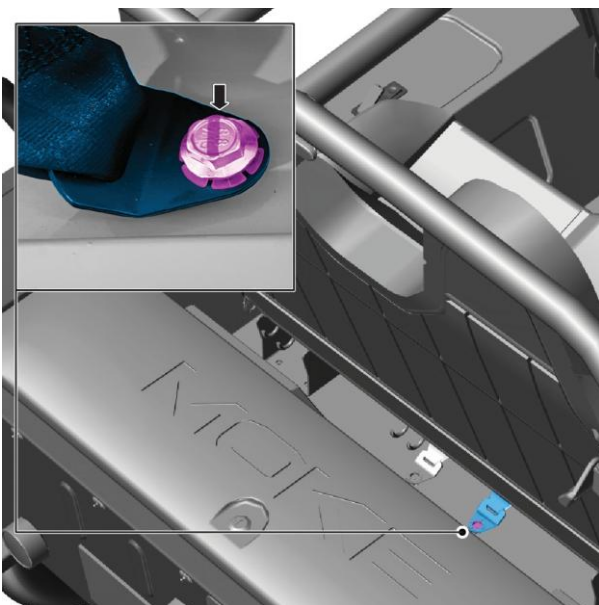
5. Remove the fastener from the seatbelt assembly and then remove.



6. Disconnect the electrical connection for the seatbelt buckle.



7. Remove the fastener from the rear seatbelt buckle and remove.



Install the lower seatbelt anchor point and tighten the fastener to a torque of **40 Nm**.

5. **Note:** Spring washers must be installed on the fastener, damaged washers must be replaced.

Install the upper seatbelt anchor point and tighten the fastener to a torque of **40 Nm**.

6. Install the plastic cover over the upper anchor point.
7. Install the rear seats. See Rear Seat 98.

1. **Note:** Spring washers must be installed on the fastener, damaged washers must be replaced.

Install the rear seatbelt buckle and tighten the fastener to a torque of **40 Nm**.

2. Reconnect the electrical connection on the seatbelt buckle.

3. **Note:** Spring washers must be installed on the fastener, damaged washers must be replaced.

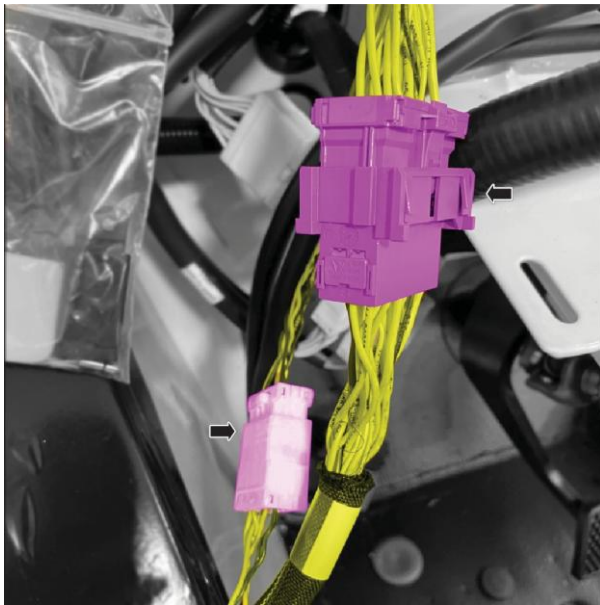
Install the seatbelt assembly and tighten the fastener to a torque of **40 Nm**.

4. **Note:** Spring washers must be installed on the fastener, damaged washers must be replaced.

Instrument Panel - Remove for access

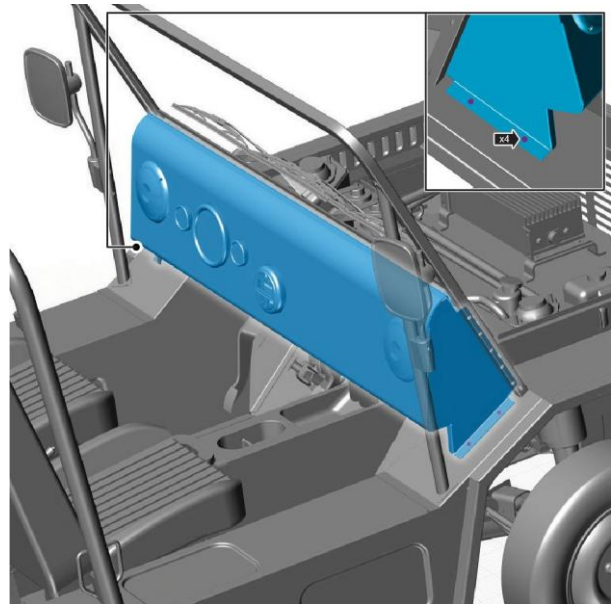
Preparation

- Note:** This procedure contains illustrations showing certain components removed to provide extra clarity
 - Note:** The illustrations show a left hand drive vehicle, right hand drive is similar
1. Power down the high voltage system. See High Voltage Power Up/Power Down 9.
 2. Remove the steering column. See Steering Column 82.
 3. Disconnect the instrument panel harness electrical connector.



4. Remove the windscreen. See Windscreen Assembly (Heated) 94.
5. **CAUTION:** This step requires the aid of a second technician.
- CAUTION:** Take extra care not to damage the surrounding components.

Remove the four fasteners and remove the instrument panel.



Install

1. Install the instrument panel and tighten the four fasteners to the torque of **10 Nm**.
2. Install the windscreen. See Windscreen Assembly (Heated) 94.
3. Connect the instrument panel wiring harness connectors to the cabin harness.
4. Install the steering column. See Steering Column 82
5. Power up the high voltage system. See High Voltage Power Up/Power Down 9

