Table Of Contents

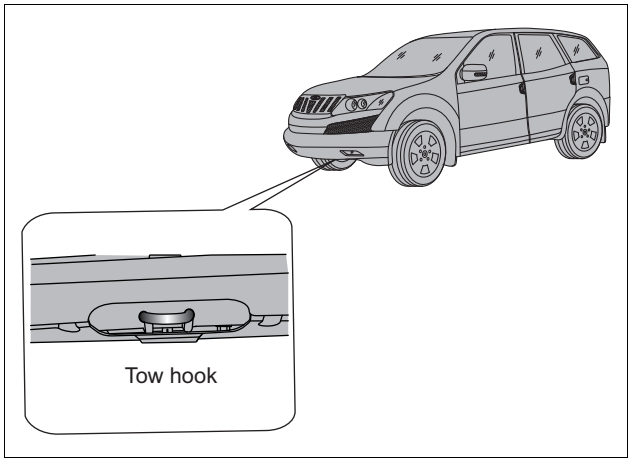
GENERAL INFORMATION

CONTENTS

Towing the Vehicle

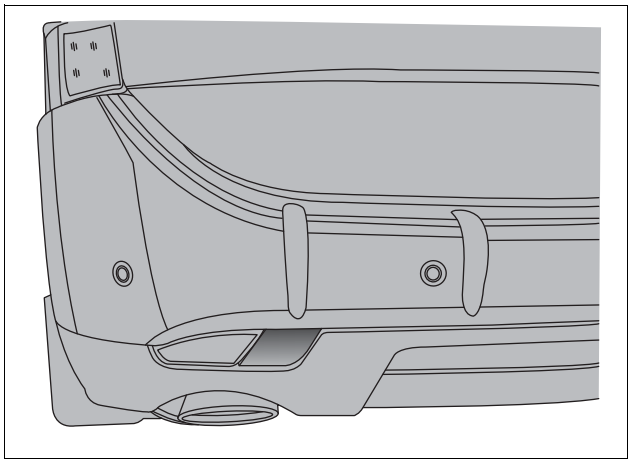
Front Tow Hook

Front tow hook is welded to front cradle assembly

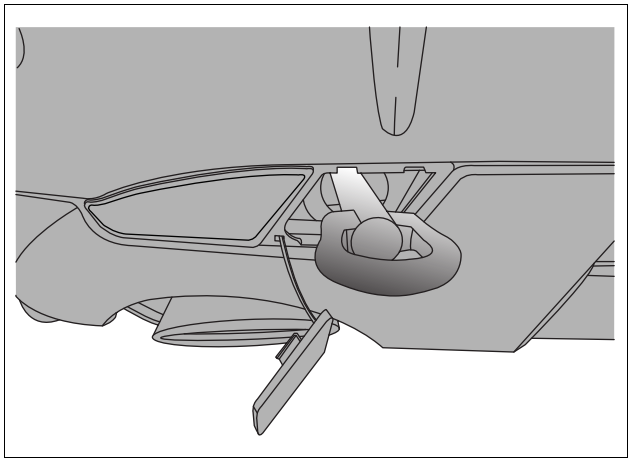


Rear Tow Hook

1. Remove the tow cover using a small screw driver



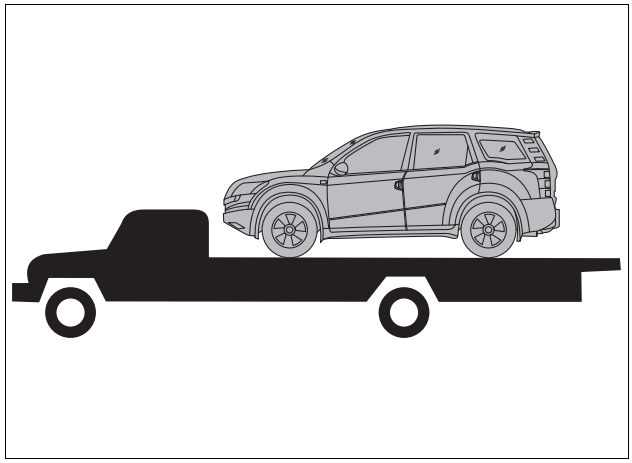
2. Rotate in anti-clockwise direction to tighten the tow hook.



Towing Equipment

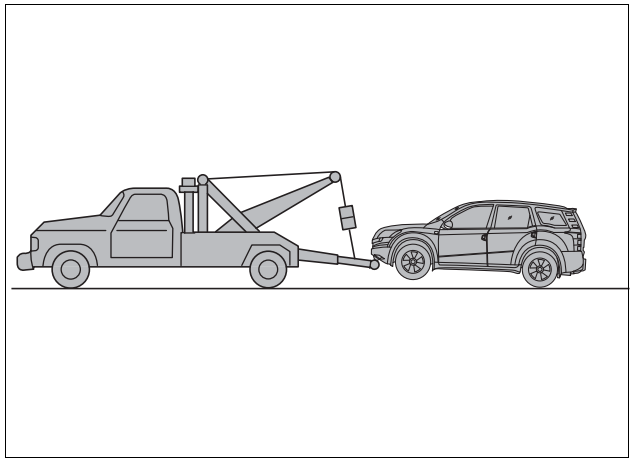
Towing Equipments are of three Types

Flat-bed equipment: The vehicle is loaded on the back of a truck. This is the safest and best way of towing.



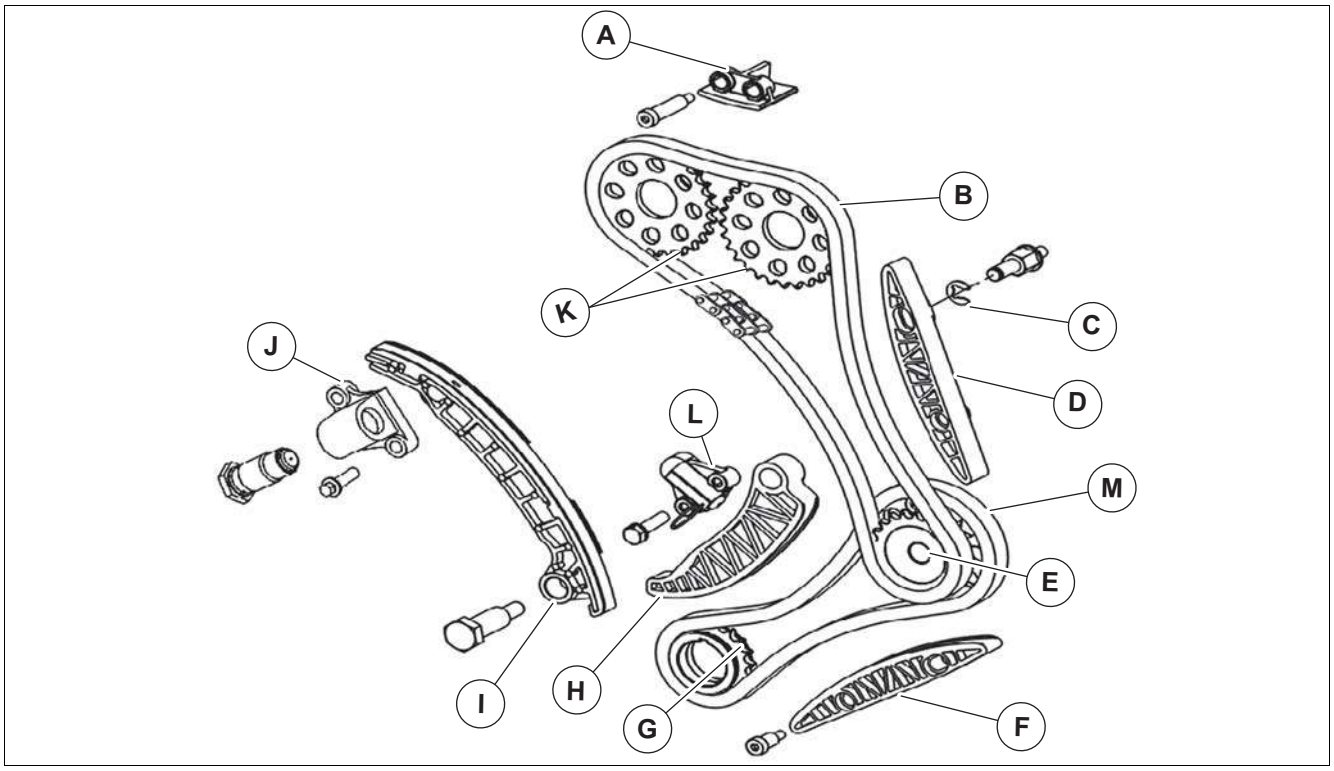
Wheel-lift equipment: The tow truck uses two pivoting arms that go under the tyres (front or rear) and lift them off the ground. The other two tyres remain on the ground.

Sling-type equipment: The tow truck uses metal cables with hooks on both ends. These hooks go around parts of the frame or suspension and lift the end of the vehicle off the ground. This is not a good method of towing as it may damage the vehicle's suspension and body. Avoid tow with sling type equipment.



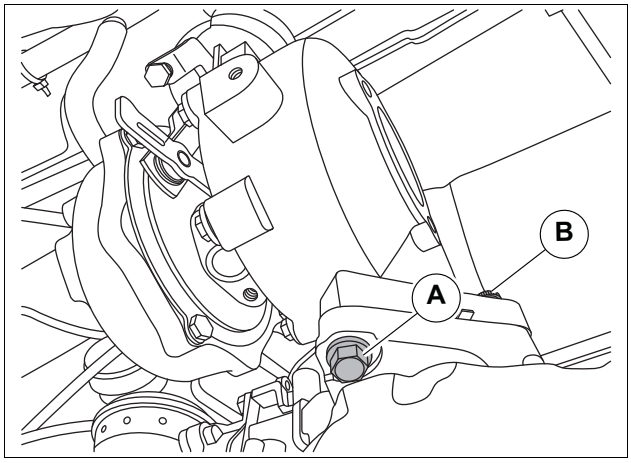
If the vehicle cannot be transported by flat-bed equipment, it should be towed by wheel-lift equipment with the front wheels off the ground.

Timing Chain and Sprockets

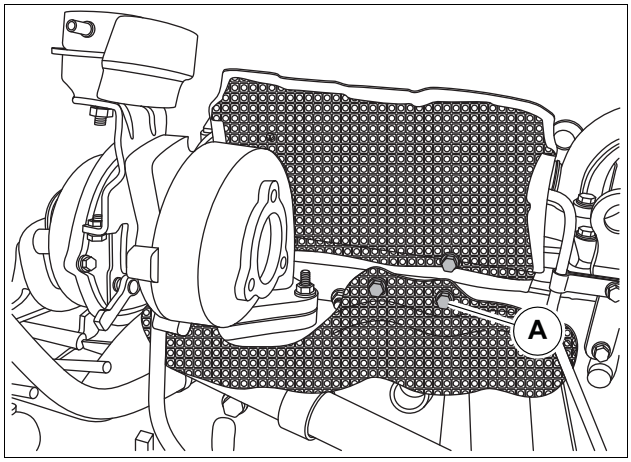


A. Guide Cam Shaft
B. Secondary Timing Chain
C. Circlip Secondary Guide
D. Secondary Chain Guide
E. HPP Sprocket
F. EGR cooler mixer
G. Crankshaft Sprocket
H. Primary Tensioner Guide
I. Tensioner Arm Secondary
J. Secondary Tensioner
K. Inlet & Exhaust Camshaft Sprocket
L. Hydraulic Tensioner Primary
M. Primary Timing Chain

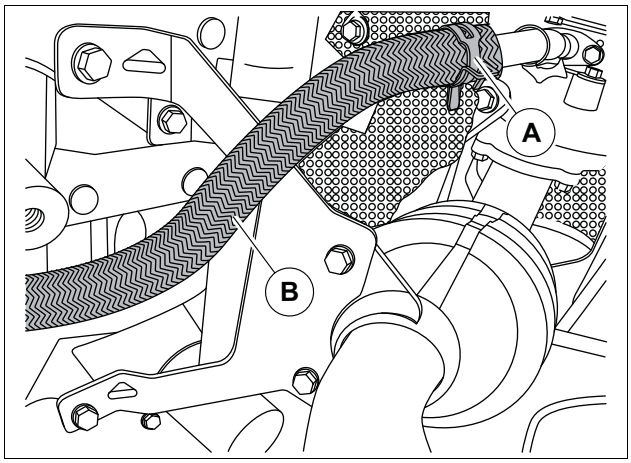
29. Install the 12mm mounting bolt (A) and two 12mm mounting nuts (B) to the turbocharger.



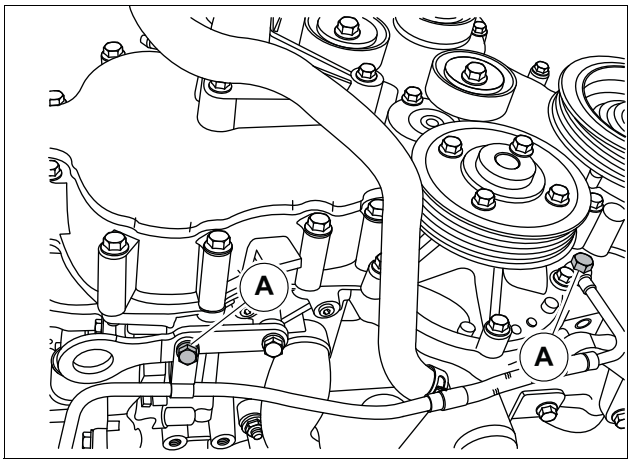
30. Install the five 12mm top and bottom turbocharger heatshield and exhaust manifold teaselled mounting bolts (A).



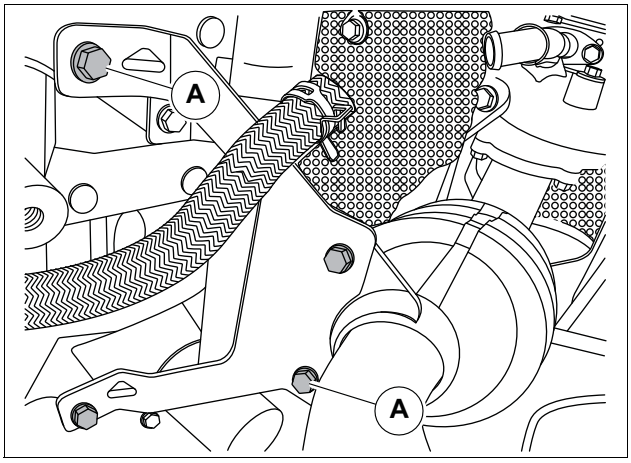
31. Press the lock (A) and insert the turbocharger oil outlet hose (B) into the oil fan.



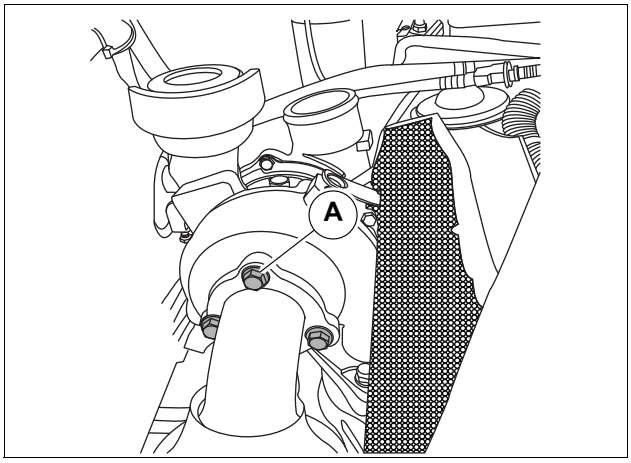
32. Install the 14mm turbocharger oil inlet pipe mounting banjo bolt (A) and 12mm turbocharger oil inlet pipe bracket mounting bolt (A), and install the inlet pipe.



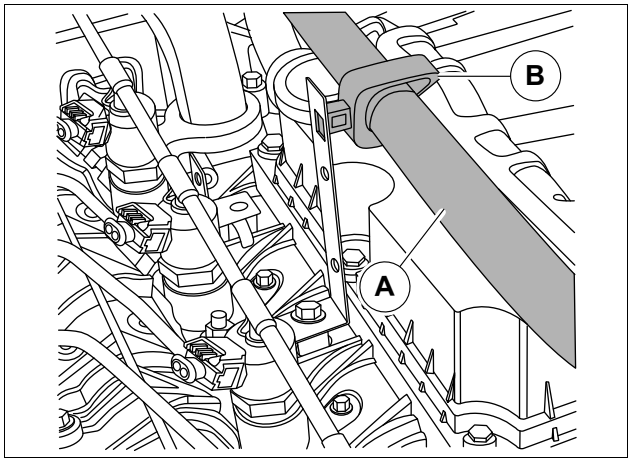
33. Install the two 13mm catalytic convertor bracket mounting bolts (A).



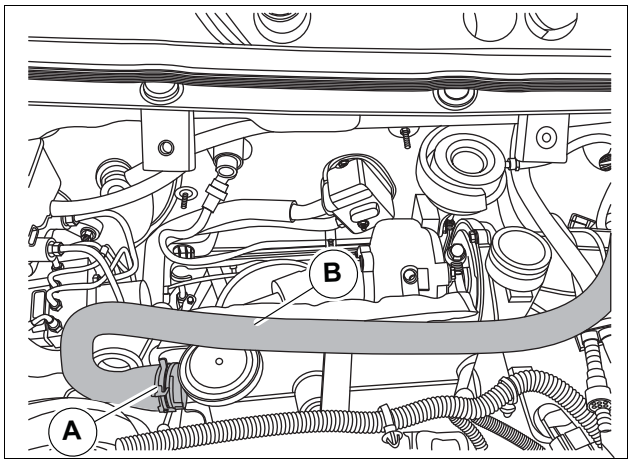
34. Install the 13mm catalytic converter mounting bolt (A) to the catalytic converter bracket, and install the catalytic converter.



3. Detach the oil separator hose (A) from the clip (B).



4. Unclip the clip (A) and remove the oil separator hose (B) from the oil separator unit.



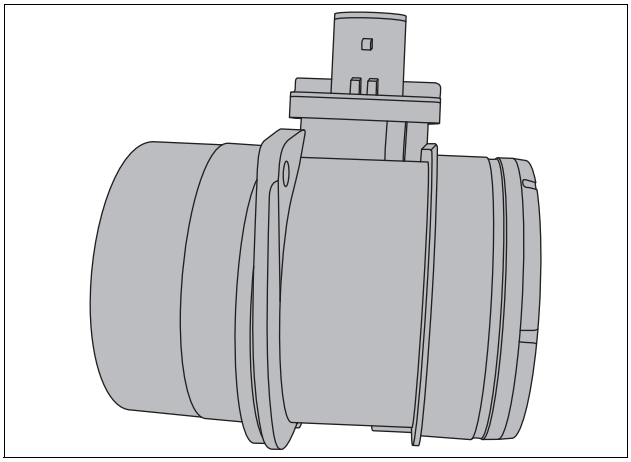
Installation

1. To install, reverse the removal procedure.

Notice
Before installing the oil separator hose inspect for any damaged. Any vacuum leak will lead to a high-pressure build up and then it will go through the intake system.

Notice
High-pressure build up in the intake system give a signal of high blow by or be confused with compressor oil leak.

HFM Sensor

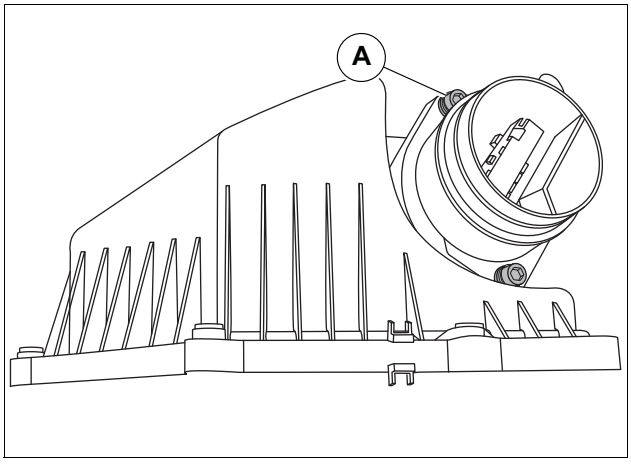


HFM Sensor is mounted between air filter and turbocharger. This sensor gives Information about the amount of air quantity and temperature of the air entering in the engine. This input is used by the ECU for corrections of fuel quantity based on amount of air availability for optimization of exhaust gas circulation & the turbocharger control.

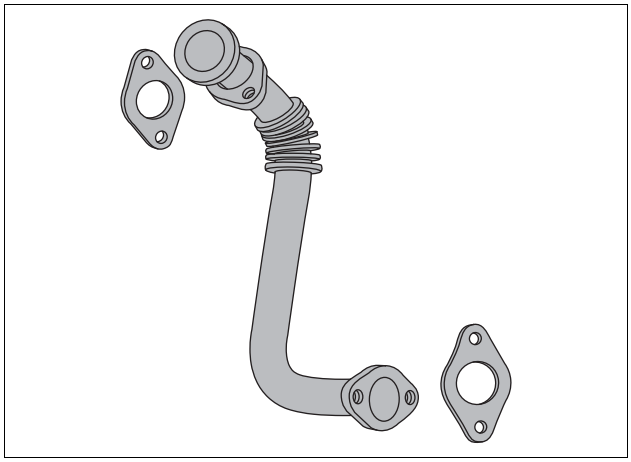
Removal

1. Remove the negative terminal of the battery. **For additional information refer to Battery removal and installation section.**
1. Remove the air cleaner top cover. **For additional information refer to Air Filter Element removal and installation section.**
2. Using a 5mm Allen key Loosen the two HFM sensor mounting bolts (A) and remove the HFM sensor from the air cleaner top cover.

Notice
Handle the HFM Sensor carefully while removing to avoid damage.



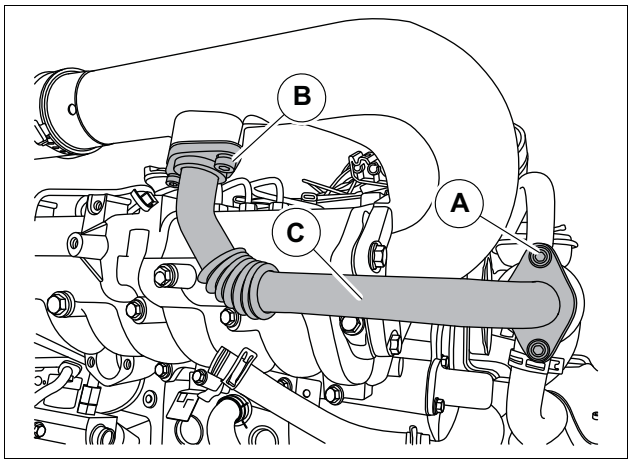
EGR Long pipe



EGR long pipe is connected between EGR cooler to intake manifold. Through this pipe the cold exhaust gases are routed to intake manifold and mixes with fresh air.

Removal

1. Remove the NVH cover. **For additional information refer to NVH Cover removal and installation section.**
2. Using a 6mm allen key, remove the two mounting bolts (A) from the EGR cooler and the two mounting bolts (B) from the inlet manifold, and separately remove the EGR long pipe (C)*.*



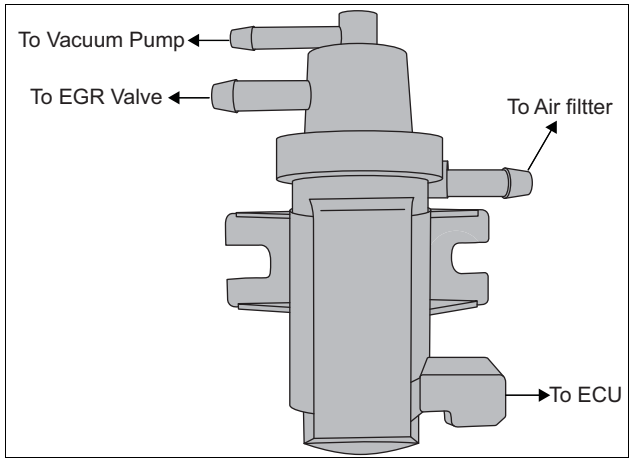
Installation

1. To install, reverse the removal procedure.

Notice

Inspect the EGR long pipe gaskets condition, Replace if damaged.

EGR Modulator



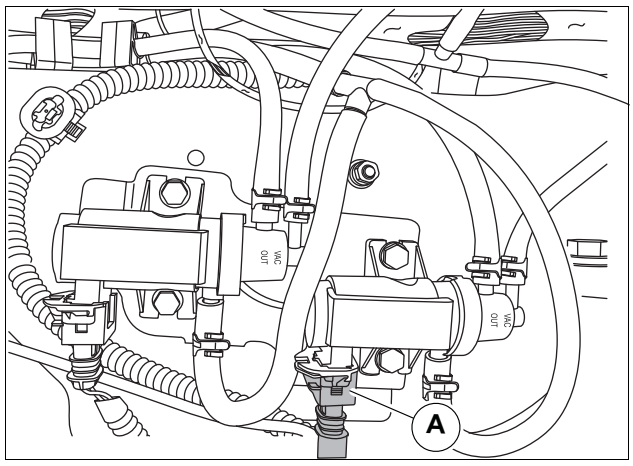
EGR modulator is an electro pneumatic solenoid switch, which is controlled more precisely by the EMS ECU based on the Engine speed, Coolant Temperature and Accelerator pedal position etc.

Notice

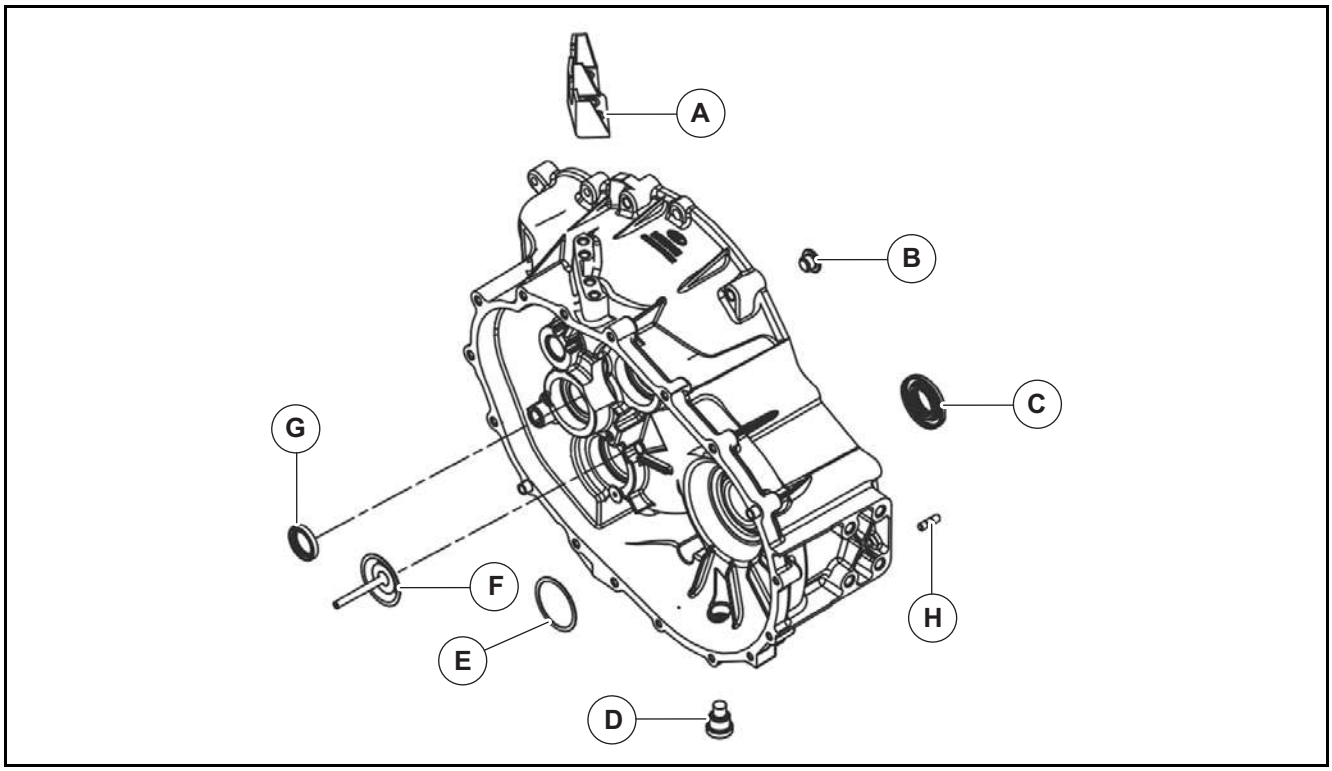
Care should be taken to connect the ports of the EGR modulator to their respective hoses. Any interchanging of the connections will lead to malfunctioning of the EGR system.

Removal

1. Disconnect the battery negative terminal. **For additional information refer to Battery removal and installation section**
2. Remove the air filter housing. **For additional information refer to Air Filter Housing removal and installation section.**
3. Press the lock, and disconnect the EGR modulator block colour electrical connector (A).

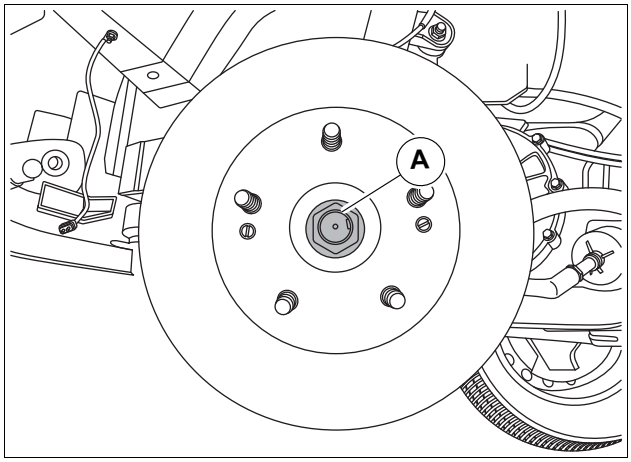


Clutch Housing AWD

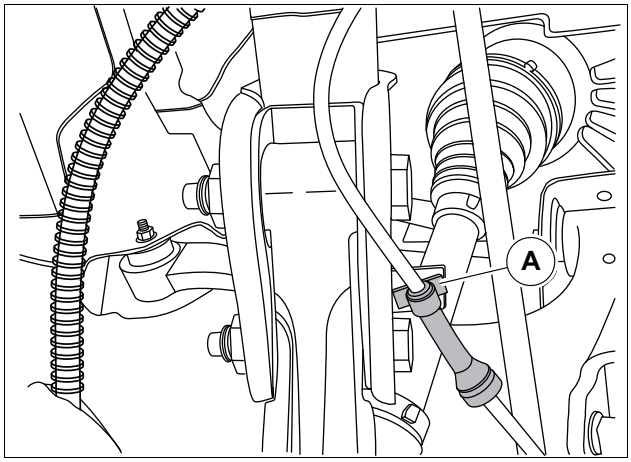


A. Bracket Cable Shift
B. Plug Clutch Housing
C. Oil Seal Differential Case Output
D. Drain Plug
E. Preload Shim Differential
F. Oil Slinger
G. Oil Seal Input Shaft
H. Stud

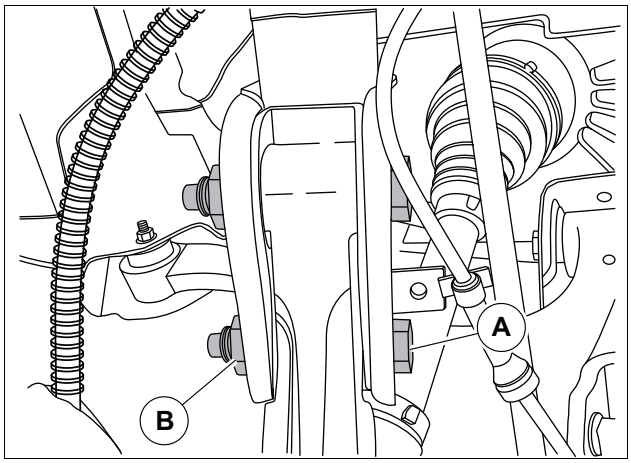
4. Remove the 36mm LHS halfshaft lock nut (A).



5. Remove the tie rod end. **For additional information refer to Tie-rod Ends removal and installation section.**
6. Unclip the wheel speed sensor wire (A) from the strut assembly.



7. Remove the two 24mm strut mounting bolts (A) and nuts (B) from bottom of the strut assembly.



Notice

While removing halfshaft, support the lower control arm using jack to avoid damage of halfshaft rubber boot and brake disc.

8. Detach the halfshaft from the LH knuckle.
9. Remove the LH halfshaft assembly from the transmission.

Notice

While removing the LHS halfshaft, collect the oil from the transmission using a container to avoid oil spilling.

Installation

1. To install, reverse the removal procedure.

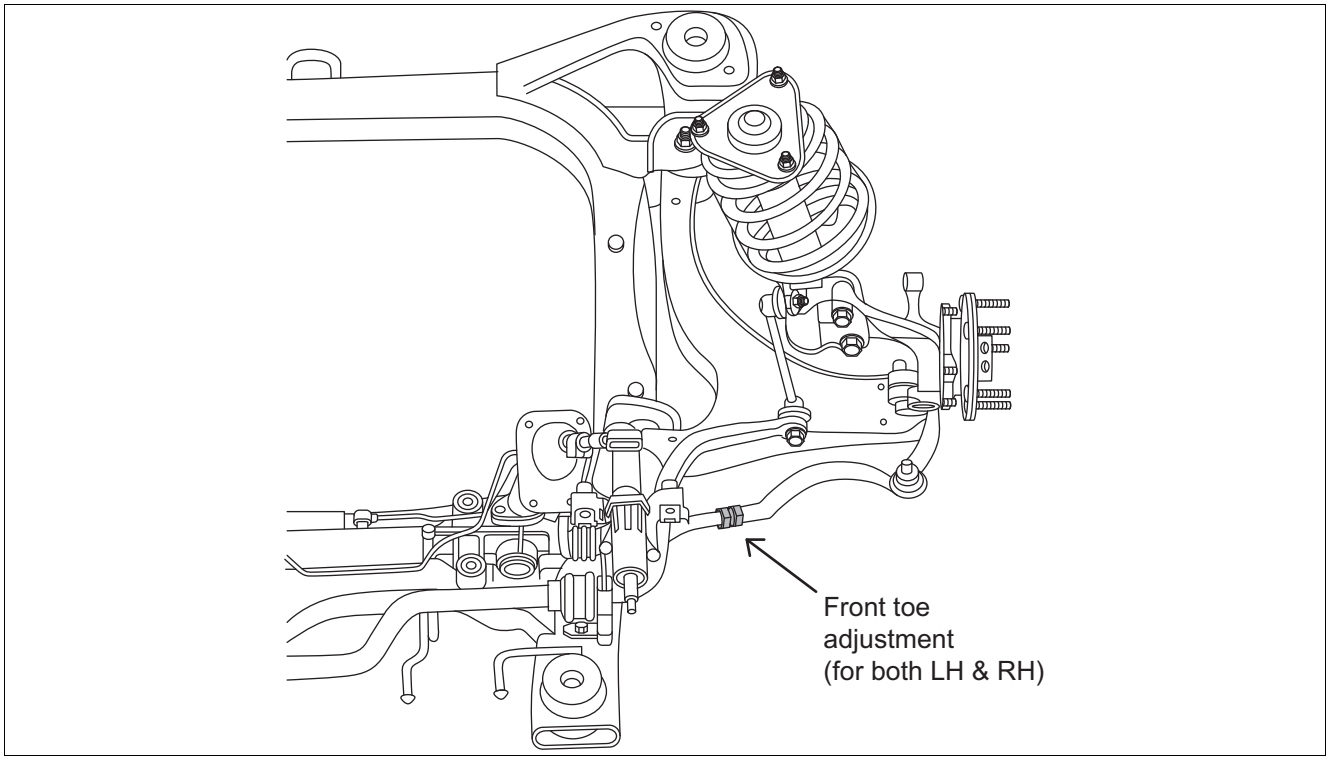
9. Front wheel alignment includes adjustment of Front Toe angle & camber angle (if required).

- **Toe:** First loose the lock nut on Toe rod assy by holding the OBJ housing and then adjust the toe by rotating the IBJ shank. After setting the toe, torque the lock nut by holding the OBJ housing as shown in figure-6

- **Camber:** There is no provision given for front camber adjustment. If camber value is found out of specification range, then use following hardware in place of existing M16 strut mounting bottom hardwares..

  Bolt Hex Fl. M14 X 1.5X 80 X 8.8

  Nut Hex Fl.M14 X 1.5 X14



10. After assembling above hardwares, required camber specs is to be ensured by puling/pushing the wheel end assy. as required. Torque value of 150±10 Nm to be ensured on these hardwares

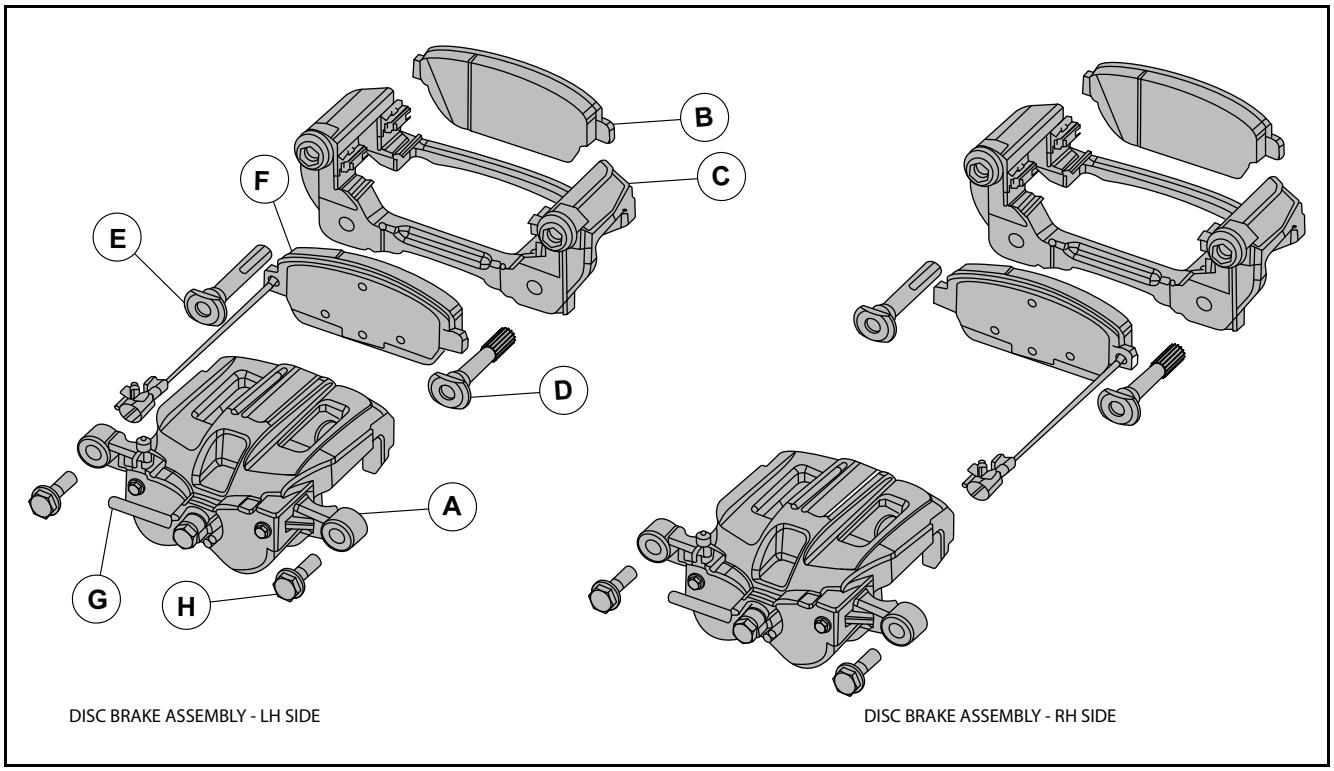
CAUTION

After wheel alignment toe setting adjustment, tightening torque on Rear toe bar nut and Steering tie rod nut is MUST required. The torque delivery to this nut joint has to be ensured with open end torque range tool (shown below). Manual torque tightening on this joint will not deliver intended torque.

Disassembly and Assembly

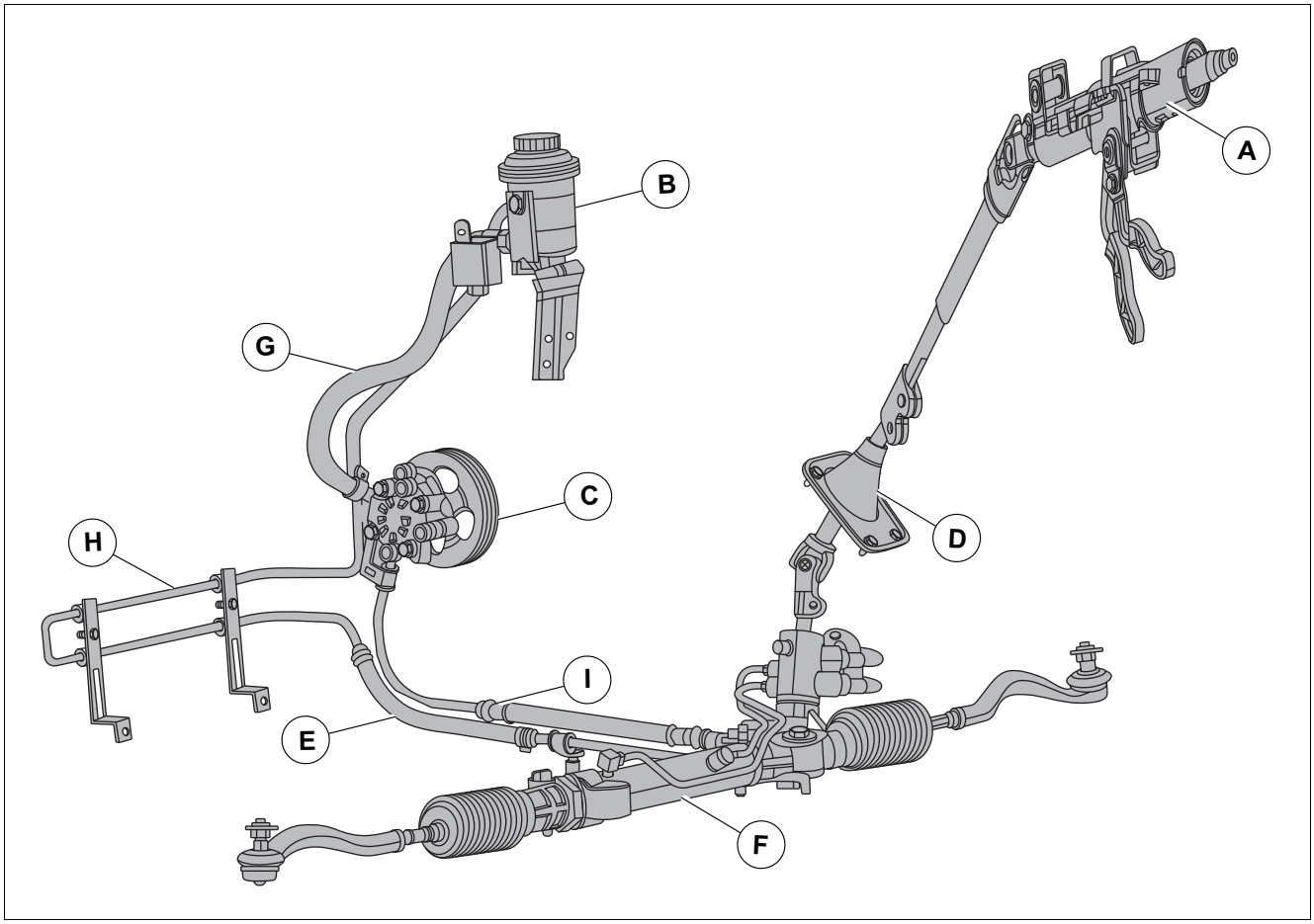
Front Brake Caliper

Exploded View



A. Caliper Assembly
B. Outer Brake Pad
C. Caliper Bracket
D. Locking Pin
E. Guide Pin
F. Inner Brake Pad
G. Brake Hose Assembly
H. Caliper Pin Bolt

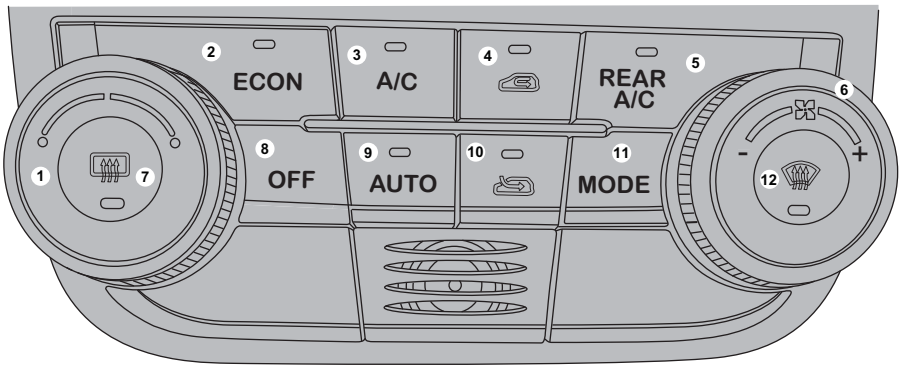
Component Location Index



A. Steering column assembly
B. Power steering reservoir with mounting bracket
C. Power steering pump
D. Steering grommet
E. Return hose
F. Assembly steering gear (steering rack and pinion assembly)
G. Suction hose
H. Cooler loop assembly
I. Pressure hose

HVAC Controls

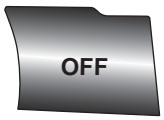
1. Temperature control dial
2. Economic mode
3. A/C On switch
4. Recirculation mode selector
5. Rear air condition main switch
6. Fan speed control dial
7. Rear window defroster switch
8. ECON OFF mode selector
9. AUTO mode selector
10. Fresh air mode selector
11. Air distribution mode selector
12. Front windshield defroster selector



Blower Fan Speed Control Dial

You can select blower fan speed from low to high position. To increase the blower fan speed, turn the dial in clockwise direction.To decrease the blower fan speed, turn the dial in anti-clockwise direction.

Blower Fan OFF Switch

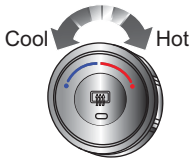


Press this switch to turn OFF the blower fan which will subsequently stop the operation of the heating and cooling system.

Air Conditioning Switch

Press this switch to turn ON or OFF the AC. The switch will illuminate when the blower fan is turned ON. Push the switch once again to turn OFF the AC.

Temperature Control Dial



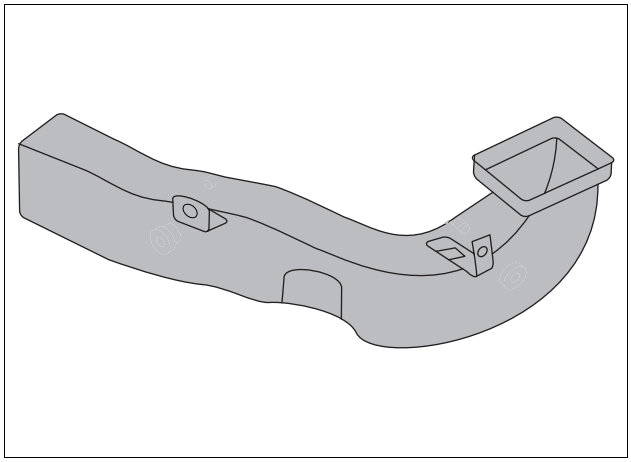
This control is used to set the degree of cooling or heating desired.

Cool: Turning the dial in anti-clockwise (Blue) direction.

Hot: Turning the dial in clockwise (Red) direction.

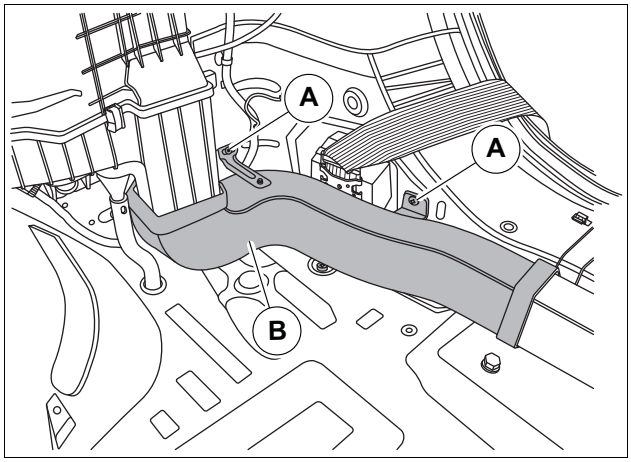
Turn the dial to set the desired temperature. The temperature will increase to the maximum 32°C (90°F) by turning the dial clockwise. The temperature will decrease to the minimum 17°C (62°F) by turning the dial anti-clockwise.

Rear Duct HVAC End



Removal

1. Remove the RH lower quarter trim. **For additional information refer to Rear RHS Quarter Trims (Upper and Lower) removal and installation section.**
2. Remove the rear duct middle. **For additional information refer to Rear Duct Middle removal and installation section.**
3. Unscrew the two rear duct HVAC end mounting screws (A) and remove the rear duct HVAC end (B) separately.

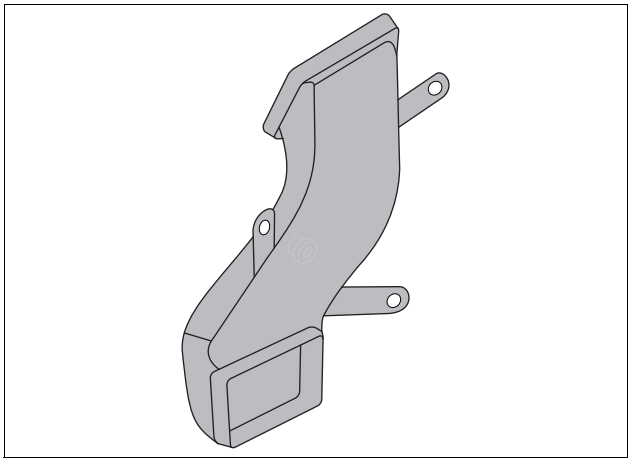


4. Remove the rear duct HVAC end separately.

Installation

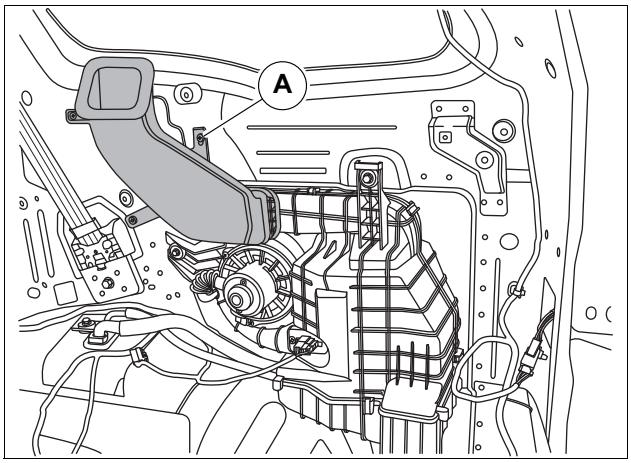
1. To install, reverse the removal procedure.

Rear Duct RH Top



Removal

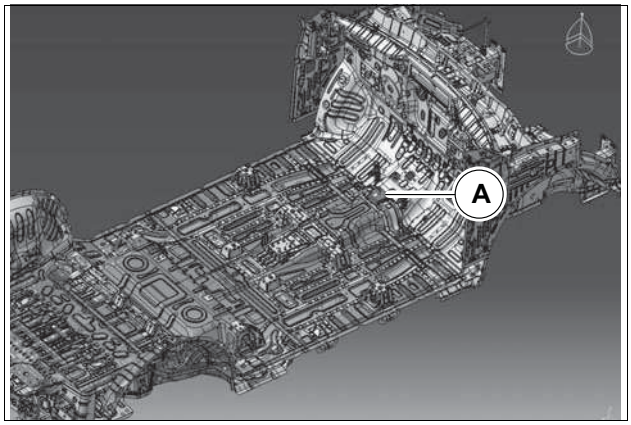
1. Remove the RH top quarter trim. **For additional information refer to Rear RHS Quarter Trims (Upper and Lower) removal and installation section.**
2. Unscrew the three rear duct RH top mounting screws (A) and remove the rear duct RH top (B) from the rear HVAC unit.



Installation

1. To install, reverse the removal procedure.

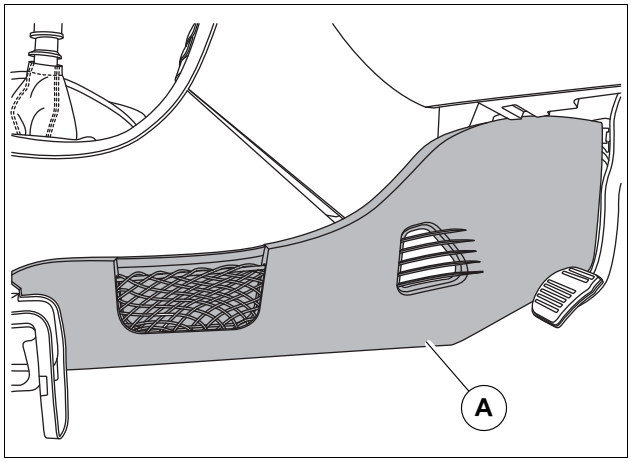
SRS ECU



A. SRS ECU

Removal

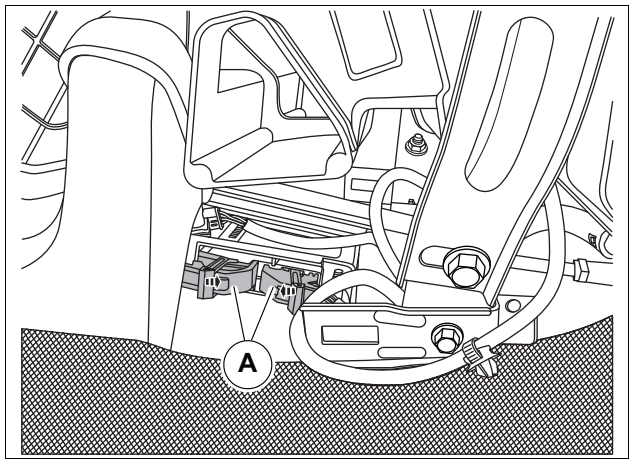
1. Disconnect and isolate the negative terminal of the battery. **For additional information refer to Battery removal and installation section.**
2. Pull out the side trims (A) from both the sides of the floor console.



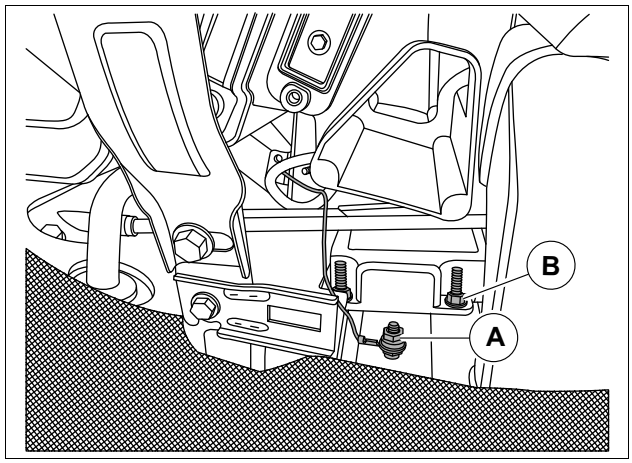
Notice

Carefully remove the side trims without damaging the trim locks.

3. Unlock the lock and disconnect the two SRS module electrical connectors (A) from the SRS module which is located below the RHS HVAC unit.



4. Loosen the 10mm SRS ECU earth mounting nut (A) and disconnect the earth connection, remove the three SRS ECU mounting nuts (B) and detach the SRS ECU.



Installation

1. To install, reverse the removal procedure.