GENERAL INFORMATION

Clutch Trouble Shooting

* PLEASE READ THIS FIRST *

NOTE: **This is GENERAL information. This article is not intended to be specific to any unique situation or individual vehicle configuration. For model-specific information see appropriate articles where available.**

ALL MODELS

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CLUTCH TROUBLE SHOOTING

Problem & Possible Cause	Action
Clutch Chatters/Grabs	
Incorrect Pedal Adjustment	Adjust Free Play
Worn Input Shaft Spline	Replace Input Shaft
Binding Pressure Plate	Replace Pressure Plate
Binding Throw-Out Lever	Check Throw-Out Lever, Check Throw-Out Bearing, Check Bearing Retainer
Uneven Pressure Plate Contact With Flywheel	Align/Replace Worn Parts
Transmission Misaligned	Align Transmission
Worn Pressure Plate	Replace Clutch Assembly
Oil-Saturated Disc	Replace Clutch Assembly, Repair Oil Leak
Loose Engine Mounts	Replace Engine Mounts
Clutch Pedal Sticks Down	
Clutch Cable Binding	Replace Clutch Cable
Weak Pressure Plate Springs	Replace Clutch Assembly
Binding Clutch Linkage	Lubricate Linkage
Broken Clutch Pedal Return Spring	Replace Return Spring
Clutch Will Not Release	
Oil-Saturated Disc	Replace Clutch Assembly, Repair Oil Leak
Defective Disc Face	Replace Clutch Assembly
Disc Sticking on Input Shaft Splines	Replace Disc/Input Shaft
Binding Pilot Bearing	Replace Pilot Bearing
Faulty Clutch Master Cylinder	Replace Master Cylinder
Faulty Clutch Slave Cylinder	Replace Slave Cylinder
Blown Clutch Hose	Replace Hose
Sticky Throw-Out Bearing Sleeve	Clean/Lube Sleeve
Clutch Cable Binding	Replace Clutch Cable
Broken/Loose Bellhousing	Check Bellhousing
Rattling/Squeaking	
Broken Throw-Out Lever Return Spring	Replace Return Spring
Faulty Throw-Out Bearing	Replace Throw-Out Bearing
Faulty Clutch Disc	Replace Clutch Disc

Scan Tool Reference

Control Module References for scan tool information

Circuit/System Verification

1. Ignition ON/Vehicle In Service Mode.
2. Verify DTC U1007 is not set.
   - **If the DTC is set**

     Refer to **Scan Tool Does Not Communicate with Device on CAN 8** .

   - **Go to next step: If the DTC is not set**
3. All OK.

DTC U1008 (K73 TELEMATIC CONTROL MODULE)

Diagnostic Instructions

- Perform the Diagnostic System Check prior to using this diagnostic procedure: **Diagnostic System Check - Vehicle**
- Review the description of Strategy Based Diagnosis: **Strategy Based Diagnosis**
- An overview of each diagnostic category can be found here: **Diagnostic Procedure Instructions**

DTC Descriptor

DTC U1008

Loss of Ethernet Link

For symptom byte information, refer to **Symptom Byte List** .

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
B+	U1008	U1008	-	-
Ignition	U1008	U1008	-	-
Ethernet Bus 4 [+] (circuit 7211)	U1008	U1008	U1008	-
Ethernet Bus 4 [-] (circuit 7210)	U1008	U1008	U1008	-
Ground	-	U1008	-	-

Circuit/System Description

The Ethernet bus 4 is used to communicate between K73 Telematic Control Module and A11 Radio. This Ethernet harness consists of a single twisted copper pair of wires (circuits 7210 & 7211) from point to point.

Conditions for Running the DTC

The system voltage is between 9 - 16 V.

Conditions for Setting the DTC

A supervised periodic message that includes the transmitter device availability has not been received.

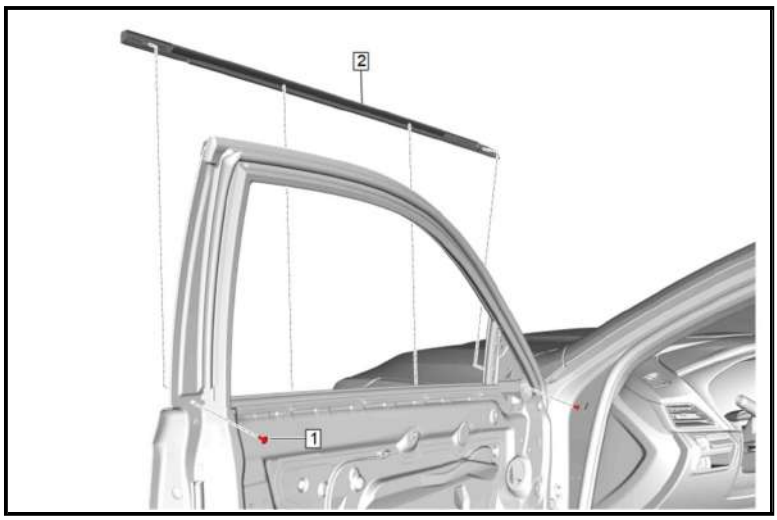
Action Taken When the DTC Sets

NOTE: **Leave 1 outside rearview mirror nut partially installed, secure the outside rearview mirror housing, and proceed to remove remaining outside rearview mirror nut.**

12. Outside Rearview Mirror Nut (1) - Remove [3x]

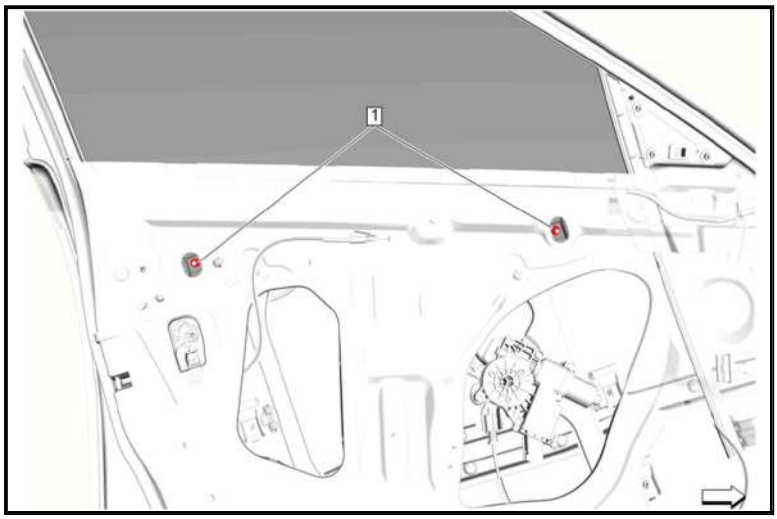
NOTE: **Remove outside rearview mirror housing and glass as assembly.**

13. Outside Rearview Mirror Housing (2) - Remove

14. 

Front Side Door Window Belt Reveal Molding Bolt (1) - Remove [2x]

15. Using the appropriate tool, start at the rear and work forward, lift the front side door window belt reveal molding (2) up to remove it from the door flange.
16. Front Side Door Window Belt Reveal Molding (2) - Remove

17. 

Place the front side door window in the full up position and tape in place.

18. Front Side Door Window Regulator Sash Clamp Nut (1) - Release [2x]
19. Place the front side door window regulator in the full down position.

12. All OK.

Repair Instructions

Perform the **Diagnostic Repair Verification** after completing the repair.

- **Control Module References** for K40P Passenger Seat Adjuster Memory Module replacement, programming and setup

DTC B1A84 OR B1A85

Diagnostic Instructions

- Perform the **Diagnostic System Check - Vehicle** prior to using this diagnostic procedure.
- Review **Strategy Based Diagnosis** for an overview of the diagnostic approach.
- **Diagnostic Procedure Instructions** provides an overview of each diagnostic category.

DTC Descriptors

DTC B1A84

Driver Seat Recline Motor Forward Control

DTC B1A85

Driver Seat Recline Motor Rearward Control

For symptom byte information refer to **Symptom Byte List** .

Diagnostic Fault Information

Circuit Number	Circuit Function	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
276	Control	B1A84 11	B1A84 13	B1A84 12	-
277	Control	B1A85 11	B1A85 13	B1A85 12	-

Circuit/System Description

Battery voltage is supplied at all times to the seat memory control module through a 10 A fuse located in the instrument panel fuse block. This voltage is used by the module for logic power. Battery positive voltage is also supplied at all times to the seat memory control module through a 30 A fuse located in the instrument panel fuse block. This voltage is connected to a power rail internal to the seat memory control module and is used to drive the power seat motors. Each seat motor is controlled by the seat memory control module by applying power and ground through the control circuits to the motor.

All motors are reversible. For example, when the seat switch is operated to move the entire seat forward, a serial data message is sent from the seat adjuster switch to the seat memory control module indicating the entire seat forward command. In response to this message, the seat memory control module applies battery voltage through the driver seat horizontal motor forward control circuit and ground through the driver seat horizontal motor rearward control circuit to the motor. The motor runs to drive the entire seat forward until the switch is released, the motor reaches the end of travel, or an obstruction prevents further seat movement. Moving the entire seat rearward works similarly to moving the entire seat forward, except that battery positive voltage and ground are applied on the opposite circuits causing the motor to run in the opposite direction.

Conditions for Running the DTC

- Seat switch request or seat motor control must be active for greater than 3 s.
- Module battery voltage must be between 9 - 16 V.

Component	Description
	• K20 Engine Control Module • K71 Transmission Control Module

Conditions for Running the DTC

- Ignition = On or Vehicle = Service Mode
- System Voltage = 9 to 16 V

Conditions for Setting the DTC

- Parking Brake Actuator = Service Release

Actions Taken When the DTC Sets

- A message and/or warning indicator may be displayed to the driver.

Conditions for Clearing the DTC

- The conditions for setting the DTC no longer exist.

Reference Information

Schematic Reference

Park Brake System Wiring Schematics

Connector End View Reference

Master Electrical Component List , or **Component Connector End Views - Index**

Electrical Information Reference

- **Circuit Testing**
- **Connector Repairs**
- **Testing for Intermittent Conditions and Poor Connections**
- **Wiring Repairs**

Scan Tool Reference

Control Module References

Circuit/System Verification

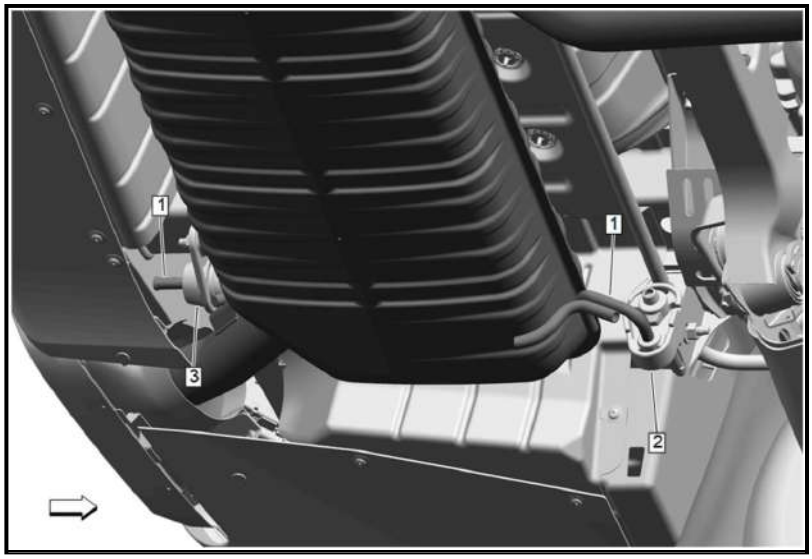
1. Ignition - On/Vehicle - In Service Mode
2. Verify DTC C2A1D is not set.
    - **If the DTC is set**
    1. Verify the condition does not exist: Left and Right Park Brake Actuator Status = Service Release
        - If a condition exists

          Perform the control function: Deactivate Rear Park Brake Service Position.

        - Go to next step: If no condition exists

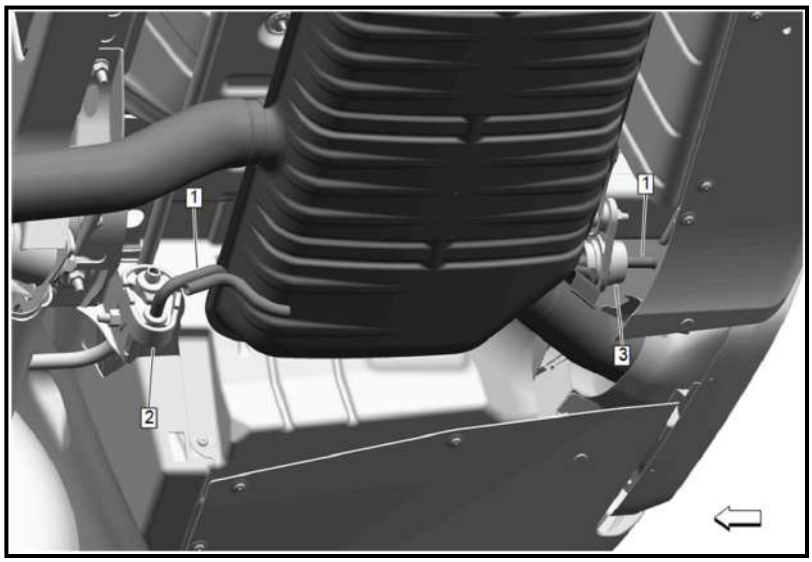
          Go to next step: Perform the following learn procedure: **Park Brake Calibration**

    - **Go to next step: If the DTC is not set**
3. All OK.

21. 

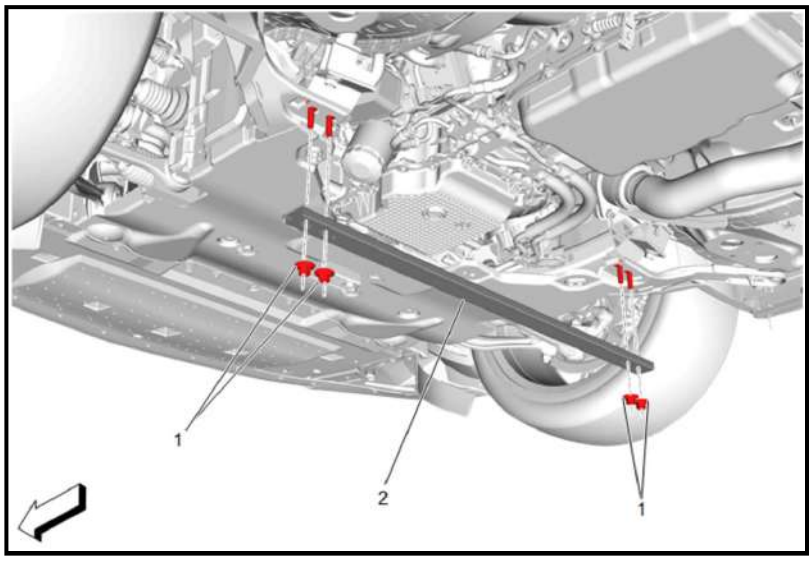
Exhaust Muffler (1) @ Exhaust Intermediate Pipe Insulator-Left Side (2) - Separate

22. Exhaust Muffler (1) @ Exhaust Rear Muffler Insulator-Left Side (3) - Separate

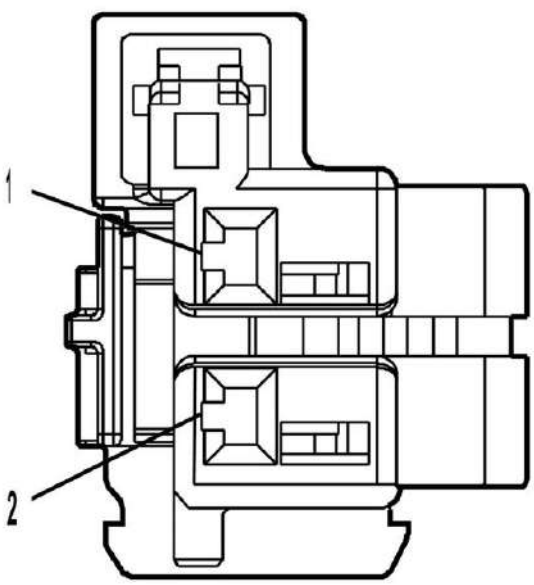
23. 

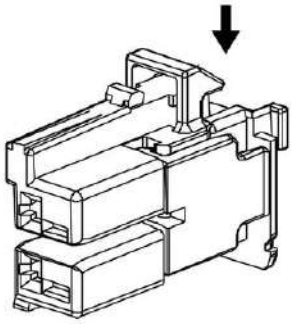
Exhaust Muffler (1) @ Exhaust Intermediate Pipe Insulator-Right Side (2) - Separate

24. Exhaust Muffler (1) @ Exhaust Rear Muffler Insulator-Right Side (3) - Separate

25. 

{If equipped} Front Crossmember Brace Nut (1) - Remove [4x]





Connector Part Information

- Harness Type: Transmission Range Control
- OEM Connector: 13514136
- Service Connector: Service by Harness - See Part Catalog
- Description: 2 -Way F 1.2 MCON Series (BN)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool
I	Not Available	No Tool Required	Not Available

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	- -	YE / BN WH	6210 6388	Torque Converter Clutch Enable Solenoid Valve B Control Transmission High Side Driver 2 Control	I I	M5N MQA
2	- -	GY / BN VT	6388 7819	Transmission High Side Driver 2 Control Default Disable Solenoid Control	I I	M5N MQA

Q80L ENGINE MOUNT ACTUATOR - LEFT

- Fuel Feed Intermediate Pipe
- Fuel Pump Seal

Special Tools

EN-52443 High Pressure Fuel Pump Alignment Tool

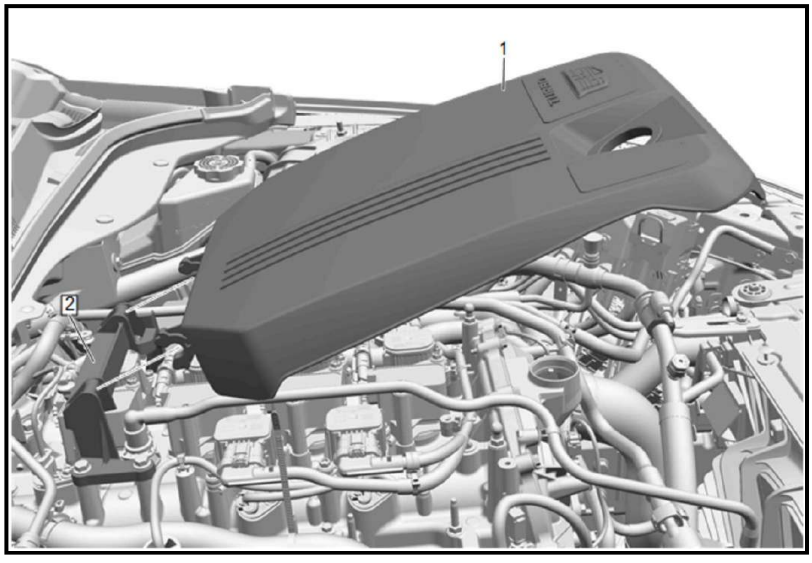
Equivalent regional tools: **Special Tools (Diagnostic)** , or **Special Tools (Mechanical)**

Removal Procedure

WARNING: **Refer to Diesel/Gasoline Vapors Warning .**

WARNING: **Refer to Safety Glasses Warning .**

1. Relieve the fuel system pressure. **Fuel Pressure Relief**
2. Disconnect the battery negative cable. **Battery Negative Cable Disconnection and Connection**
3. Remove the oil fill cap.
4. 

   Lift up on the front of the intake manifold cover (1).
5. 

   Intake Manifold Cover (1) @ Upper Intake Manifold Bracket (2) - Remove

- Circuit numbers are significant in identifying its power or ground function. Single digit circuit numbers are identified different than the multiple digit circuits. The multiple digit circuit number functions are identified by the last 2 digits of the circuit number
  - Circuit 1 is Primary Battery positive voltage.
  - Circuit 2 is Battery positive voltage.
  - Circuit 3 is Run/Crank ignition voltage.
  - Circuit 4 is Accessory voltage.
  - Circuit 5 is Crank voltage.
  - Circuits ending in 42 are primary fused B+ circuits (generally the first fuse in the circuit after the battery)
  - Circuits ending in 40 are secondary fused circuits (generally fuses in a fuse block after the primary circuit)
  - Circuits ending in 39 and 41 are ignition voltage circuits.
  - Circuits ending in 50 are grounds.
  - Circuits ending in 51 are low reference (ground) circuits.

Reference Information

Schematic Reference

- **Starting and Charging Wiring Schematics**
- **Control Module References**

Connector End View Reference

Master Electrical Component List , or **Component Connector End Views - Index**

Electrical Information Reference

- **Circuit Testing**
- **Connector Repairs**
- **Testing for Intermittent Conditions and Poor Connections**
- **Wiring Repairs**

DTC Type Reference

Powertrain Diagnostic Trouble Code (DTC) Type Definitions

Scan Tool Reference

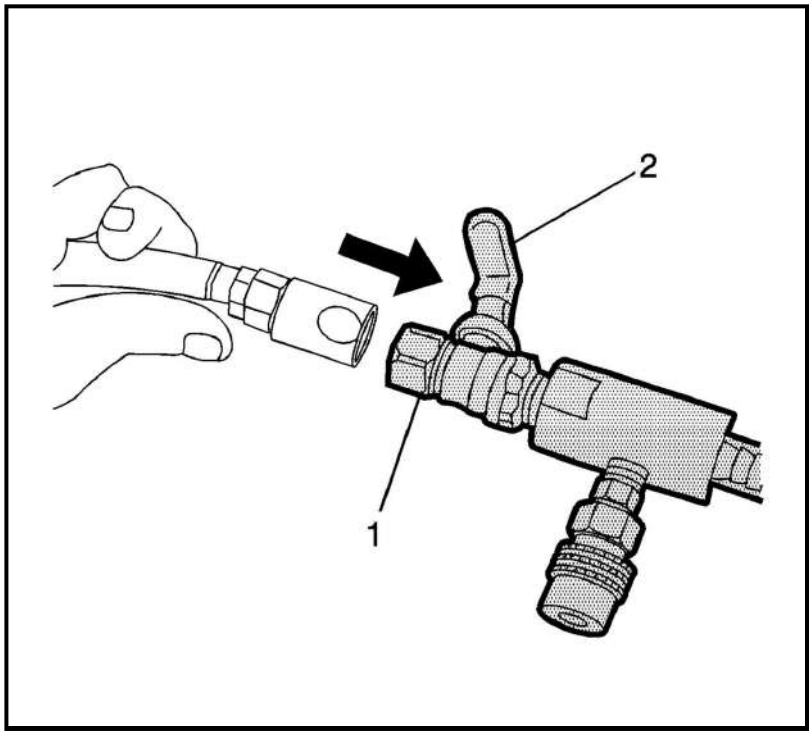
Control Module References

Circuit/System Testing

1. Ignition Off, disconnect the connector(s) at the K212 Gear Shift Control Module.
2. Verify a test lamp illuminates between ground circuit terminal 20 and B+
   - **If the test lamp does not illuminate**

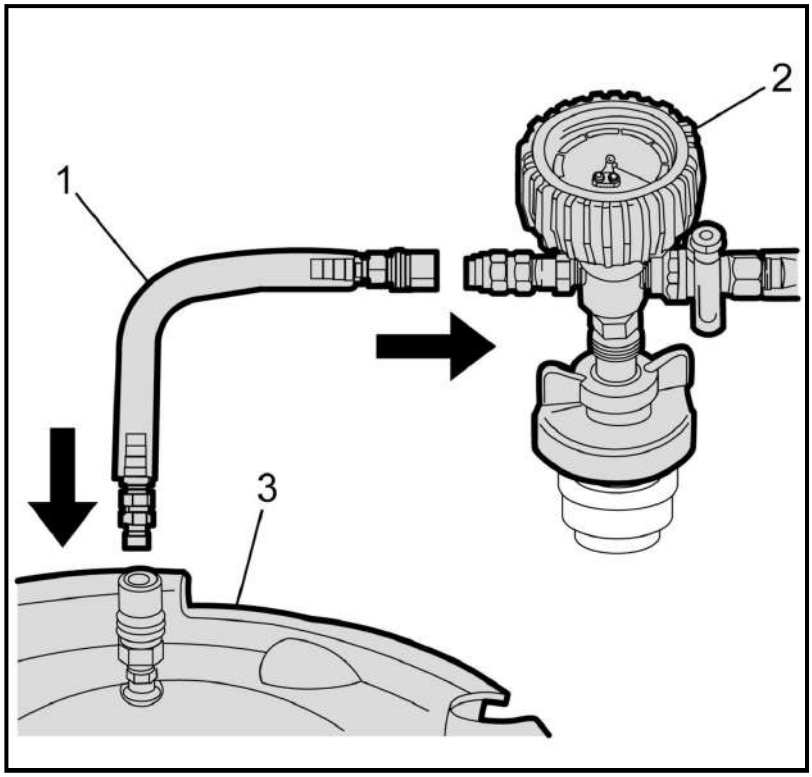
     Repair the open/high resistance on circuit 1450 or the ground connection.

   - **Go to next step: If the test lamp illuminates**
3. Ignition ON.
4. Verify a test lamp illuminates between B+ circuit terminal 9 and ground.
   - **If the test lamp does not illuminate and the circuit fuse is good**

12. 

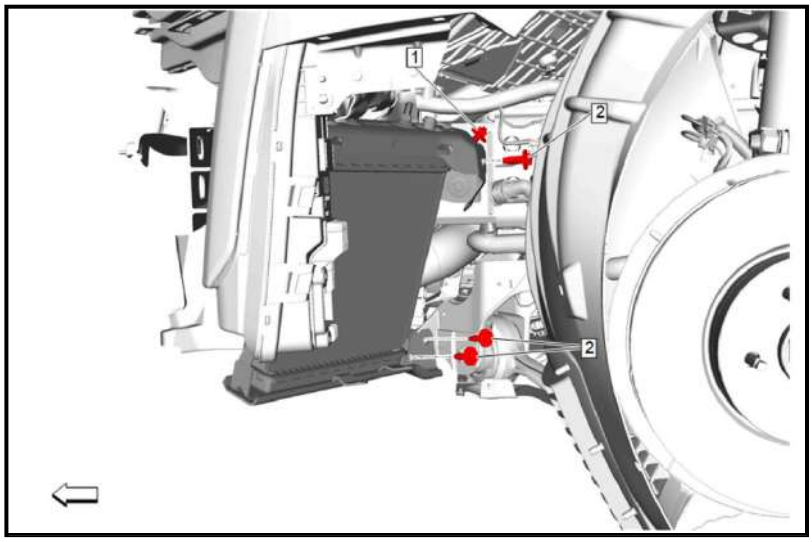
Attach a shop air hose to the venturi assembly (1).

Ensure the valve (2) on the venturi assembly is closed.

13. 

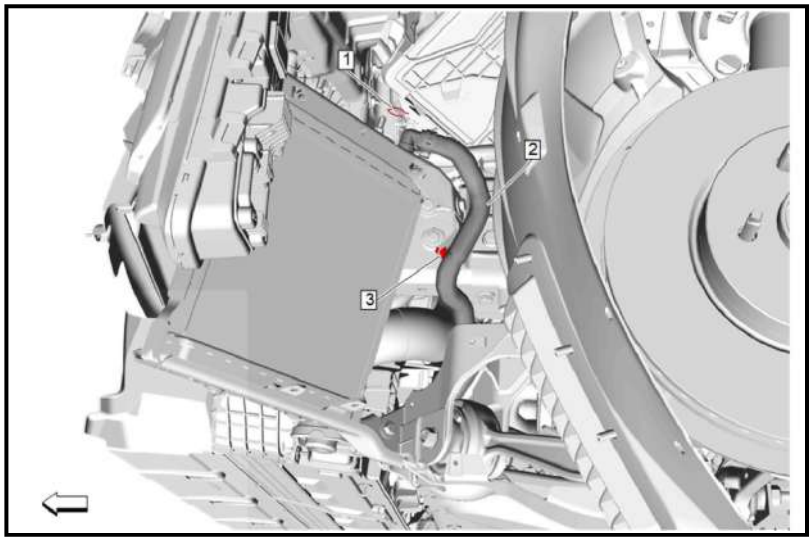
Attach the vacuum hose (1) to the vacuum gauge assembly (2) and the vacuum tank (3).

Install the engine auxiliary radiator assembly (1) to the vehicle.

7. 

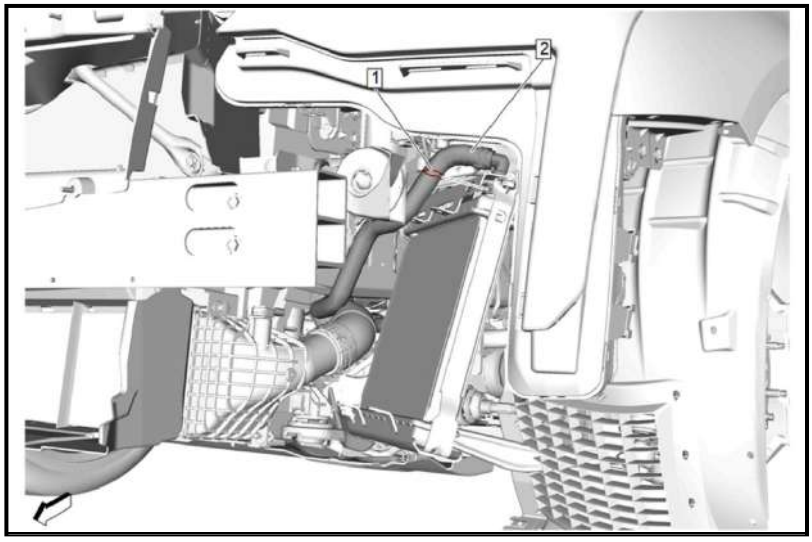
Charge Air Cooler Bracket Bolt (2) - Install and tighten [3x] - **Fastener Specifications**

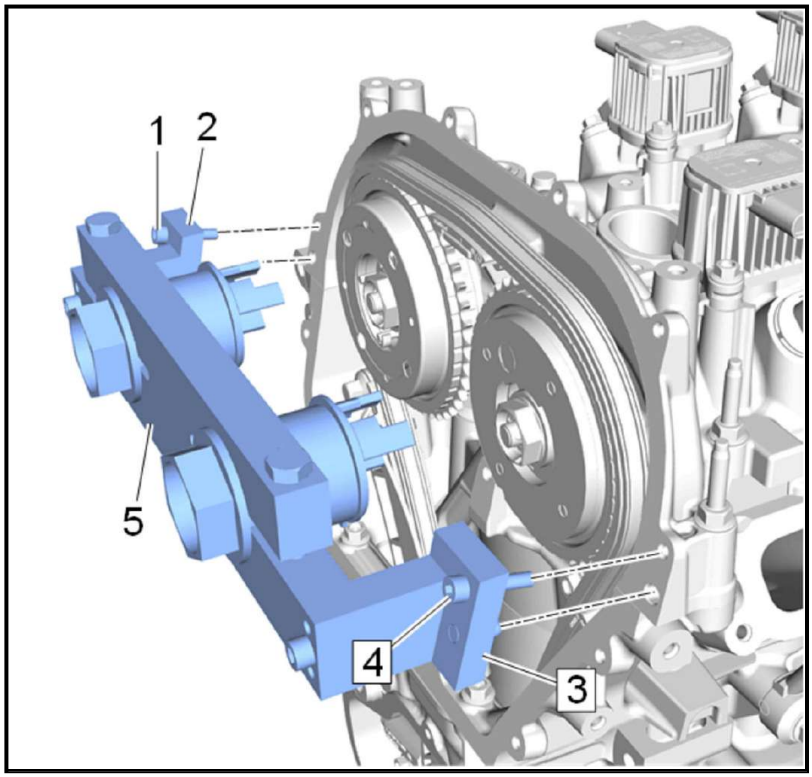
8. Charge Air Cooler Upper Bracket Nut (1) - Tighten - **Fastener Specifications**

9. 

Install the radiator outlet hose retainer (1) into the radiator outlet hose connector.

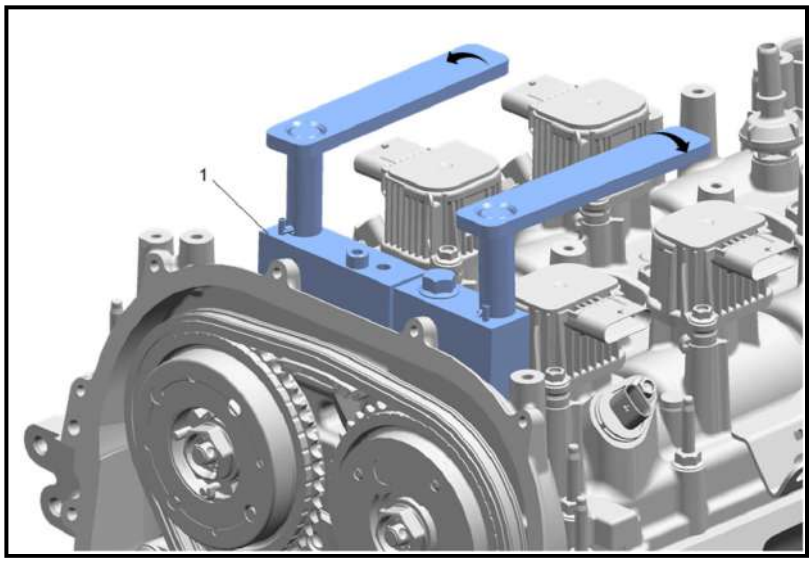
10. Install the auxiliary radiator outlet pipe (2) to the engine auxiliary radiator ensuring that the radiator outlet hose retainer (1) is fully engaged.
11. Radiator Outlet Hose Clip (3) - Install

12. 

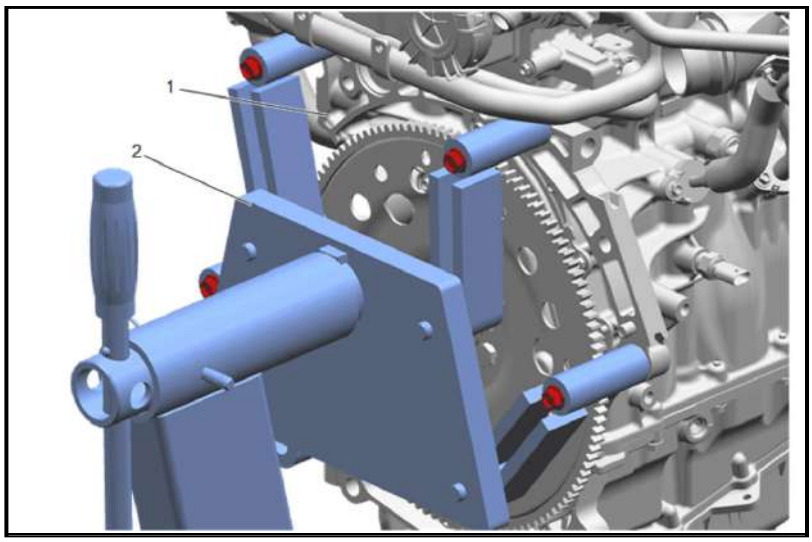
46. 

Loosen the 2 bolts (1, 4) of **EN-52461-100** Adapter Cam Phaser Torque Reaction Tool (5).

47. Remove the **EN-52461** Cam Phaser Torque Reaction Tool (5) along with the 2 **EN-52461-100** Adapter Cam Phaser Torque Reaction Tool (2, 3) from the engine.

48. 

Remove the **EN-52462-A** Camshaft Tool (1) by rotating the levers in direction of arrows.

2. 

   Using **J-36854** Engine Stand (2), install the engine (1).

3. Engine - Install - **Engine Replacement (RWD)**, or **Engine Replacement (AWD)**

ENGINE PRELUBING

Single Use Fasteners and Components

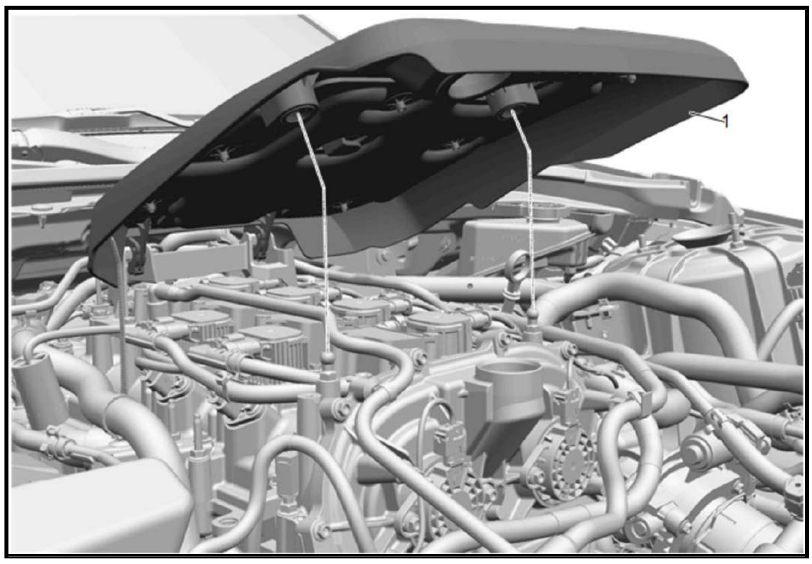
Engine Oil Pressure Sensor Seal

Special Tools

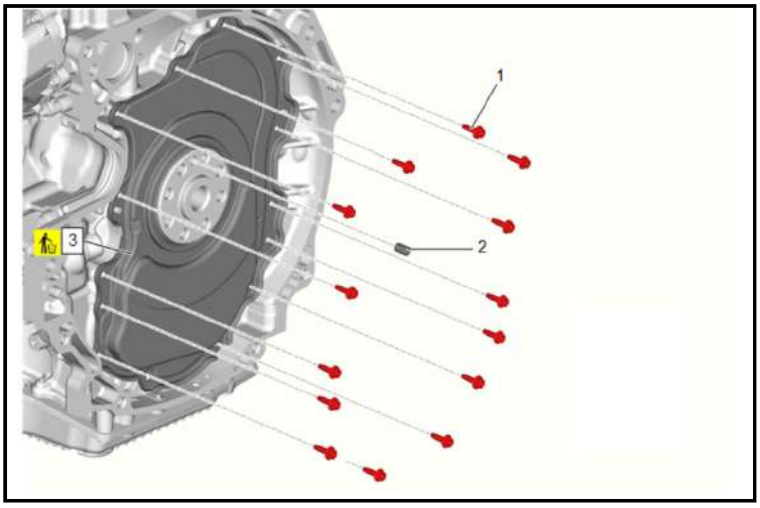
EN-45299 Engine Preluber

Equivalent regional tools: **Special Tools**

1. Remove the oil fill cap.

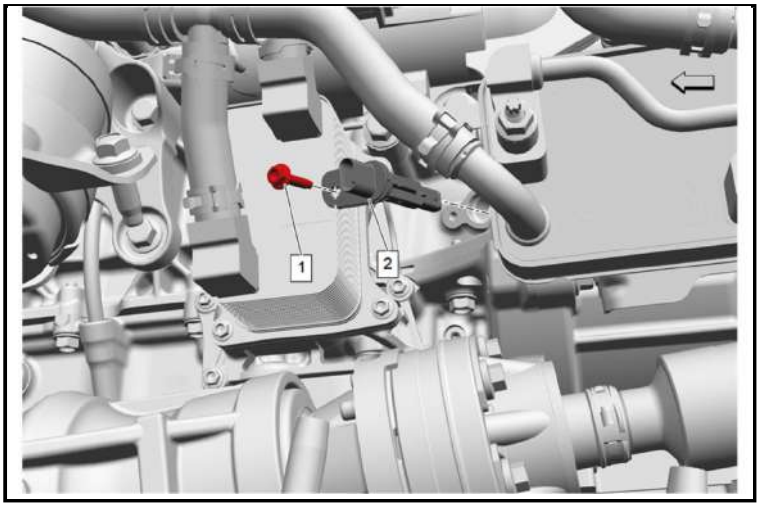
2. 

   Lift up on the front of the intake manifold cover (1) as indicated.

36. 

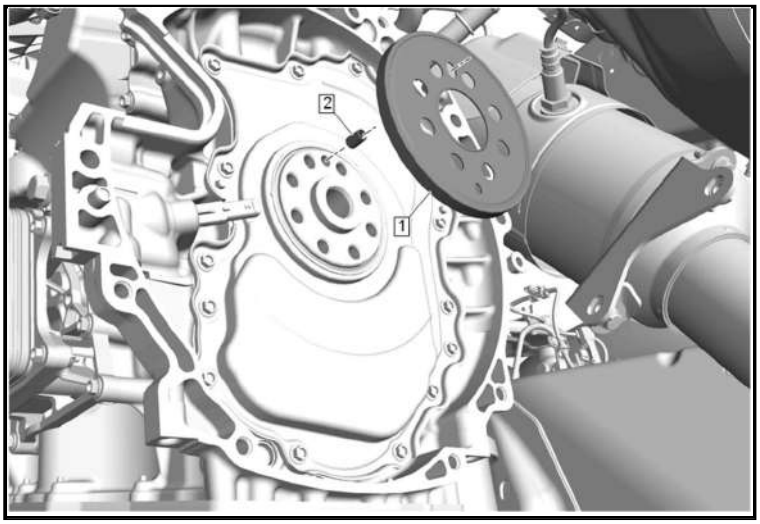
Crankshaft Rear Oil Seal Housing Bolt (1) - Install, but do NOT tighten [14x]

37. Crankshaft Rear Oil Seal Housing Bolt (1) - Tighten in sequence [14x] - **Fastener Specifications**

38. 

Crankshaft Position Sensor (2) - Install

39. Crankshaft Position Sensor Bolt (1) - Install and tighten - **Fastener Specifications**

40. 

Crankshaft Position Sensor Reluctor Ring (1) - Install

GENERAL INFORMATION

Anti-Lock Brake Safety Precautions

* PLEASE READ THIS FIRST *

This article is intended for general information purposes only. This information may not apply to all makes and models. If vehicle is equipped with Anti-Lock Brake System (ABS), refer to appropriate ANTI-LOCK BRAKE SYSTEM article in the BRAKES section for description, operation, depressurizing, testing, system bleeding, trouble shooting and servicing of specific system.

ANTI-LOCK BRAKE SAFETY PRECAUTIONS

WARNING: **Failure to depressurize ABS could lead to physical injury.**

- NEVER open a bleeder valve or loosen a hydraulic line while ABS is pressurized.
- NEVER disconnect or reconnect any electrical connectors while ignition is on. Damage to ABS control unit may result.
- **DO NOT** attempt to bleed hydraulic system without first referring to the appropriate ANTI-LOCK BRAKE SYSTEM article in the BRAKES section.
- Only use specially designed brake hoses/lines on ABS equipped vehicles.
- **DO NOT** tap on speed sensor components (sensor, sensor rings). Sensor rings must be pressed into hubs, NOT hammered into hubs. Striking these components can cause demagnetization or a loss of polarization, affecting the accuracy of the speed signal returning to the ABS control unit.
- **DO NOT** mix tire sizes. Increasing the width, as long as tires remain close to the original diameter, is acceptable. Rolling diameter must be identical for all 4 tires. Some manufacturers recommend tires of the same brand, style and type. Failure to follow this precaution may cause inaccurate wheel speed readings.
- **DO NOT** contaminate speed sensor components with grease. Only use recommended coating, when system calls for an anti-corrosion coating.
- When speed sensor components have been removed, ALWAYS check sensor-to-ring air gaps when applicable. These specifications can be found in each appropriate article.
- ONLY use recommended brake fluids. **DO NOT** use silicone brake fluids in an ABS equipped vehicle.
- When installing transmission devices (CB's, telephones, etc.) on ABS equipped vehicles, **DO NOT** locate the antenna near the ABS control unit (or any control unit).
- Disconnect all on-board computers, when using electric welding equipment.
- **DO NOT** expose the ABS control unit to prolonged periods of high heat (185 B°F/85B°C for 2 hours is generally considered a maximum limit).