

Lumbar Support Description and Operation (Without Memory)

Lumbar Support Components

The power seat lumbar support systems consist of the following components:

- Lumbar support switch
- Lumbar support motor

Lumbar Support Switch

The lumbar switch provides both power and ground to the lumbar support motor. Battery positive voltage is supplied at all times to the lumbar adjuster switch through a 30 A fuse located in the underhood fuse block. When the lumbar switch is in an inactive state, the switch contacts are closed to the switch ground circuits.

Lumbar Support Operation

The lumbar support motor contains an electronic circuit breaker (PTC) that will reset only after voltage has been removed from the motor. The lumbar support motor moves the lumbar support forward and rearward.

When the lumbar switch is operated to move the lumbar support forward, battery voltage is applied through the lumbar forward switch contacts and the lumbar motor forward control circuit to the motor. The motor is grounded through the lumbar rearward switch contacts and the lumbar motor rearward control circuit to the motor. The motor runs to drive the lumbar support forward toward the occupant's back until the switch is released. Moving the lumbar support rearward works similarly to moving the lumbar support forward, except that battery positive voltage and ground are applied on opposite circuits causing the motor to run in the opposite direction.

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Lumbar Support Description and Operation (With Memory)

The driver seat lumbar support system consists of the following components:

- Driver seat adjuster switch
- Seat memory control module
- Driver seat lumbar support motor

Driver Seat Adjuster Switch

Ground is supplied at all times to the driver seat adjuster switch through the switch ground circuit and ground connection. The seat memory control module supplies a low current voltage to each signal circuit of the seat adjuster switch. When the lumbar switches are pressed, the appropriate signal circuit from the seat memory control module is pulled low through the switch contacts indicating the lumbar command. The seat memory control module then commands the driver seat lumbar support motor to move in response to the switch signal.

Lumbar Support Motor

The seat memory control module controls the lumbar motor and all seat motors via half bridges that are connected to a single power rail internal to the module. It also connects all lumbar and seat motor outputs to a common ground whenever they are not in operation. The module monitors the motor control circuits for a shorted to ground or voltage before enabling any motor.

The lumbar support motor contains an electronic circuit breaker (PTC) that will reset only after voltage has been removed from the motor. The lumbar support motor moves the lumbar support forward and rearward.

Lumbar Support Operation

The seat lumbar support motor is reversible. For example, when the lumbar switch is pressed to move the lumbar support forward, ground is applied through the switch contacts and the seat lumbar forward switch signal circuit to the seat memory control module. In response to this signal, the module applies battery voltage through the lumbar motor forward control circuit and ground through the lumbar motor rearward control circuit to the motor. The motor runs in order to drive the lumbar support forward toward the occupant's back until the switch is released. Moving the lumbar support rearward works similarly to moving the lumbar support forward, except that battery voltage and ground are applied on the opposite circuits causing the motor to run in the opposite direction.

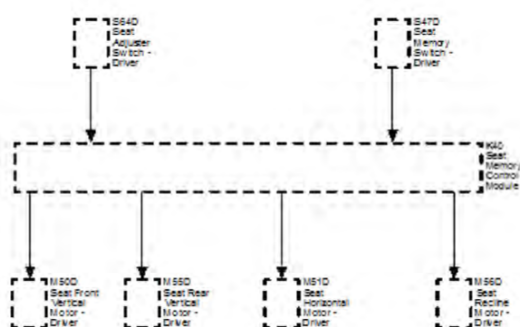
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Memory Seats Description and Operation

The memory seat system consists of the following components:

- Driver seat adjuster switch
- Driver seat memory switch
- Seat memory control module
- Driver seat horizontal motor
- Driver seat front vertical motor
- Driver seat rear vertical motor
- Driver seat recline motor
- Driver seat horizontal motor position sensor
- Driver seat front vertical motor position sensor
- Driver seat rear vertical motor position sensor
- Driver seat recline motor position sensor

Memory Seat Block Diagram



Driver Seat Adjuster Switch

Ground is supplied at all times to the driver seat adjuster switch through the switch ground circuit and ground connection. The seat memory control module supplies a low current voltage to each signal circuit of the seat adjuster switch. When the driver seat adjuster switches are pressed, the appropriate signal circuit from the seat memory control module is pulled low through the switch contacts indicating the power seat command. The seat memory control

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module then commands the appropriate driver seat motor to move in response to the switch signal.

Seat Memory Control Module Power and Grounds

Battery positive voltage is supplied at all times to the seat memory control module through a 30 A fuse located in the underhood fuse block. This voltage is used by the module to apply power to the driver seat and lumbar motor when commanded ON. Battery positive voltage is also applied at all times to the seat memory control module through a 10 A fuse located in the rear body fuse block. This voltage is used to power up the module, seat adjuster switch signal circuits, and the seat position sensors. Ground is provided to the seat memory control module through the module ground circuit and ground connection.

Seat Motors

There are 4 motors that move the position of the seat. These are the seat horizontal motor, seat front vertical motor, seat rear vertical motor, and the seat back recline motor. The horizontal motor moves the entire seat forward and rearward. The seat front vertical motor moves the front of the seat cushion up or down. The seat rear vertical motor moves the rear of the seat cushion up and down. Due to the seat adjuster switch design the front tilt and the seat height adjuster motor cannot be operated at the same time. The recline motor moves the angle of the seat back forward or rearward.

The seat memory control module controls all seat and lumbar motors via half bridges that are connected to a single power rail internal to the module. The module connects all seat and lumbar motor outputs to a common ground whenever they are not in operation. The seat memory control module checks to see if any motor control circuits are shorted to ground or voltage before enabling any seat or lumbar motor. All of the motors operate independently of each other. Each motor contains a electronic circuit breaker (PTC), which will reset only after voltage has been removed from the motor.

All seat motors are reversible. For example, when a seat switch is pressed to move the entire seat forward, ground is applied through the switch contacts onto the seat horizontal forward switch signal circuit to the seat memory control module. In response to this signal, the 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 in order to drive the entire seat forward. Moving the entire seat rearward works similarly to moving the entire seat forward, except that battery voltage and ground are applied on the opposite circuits causing the motor to run in the opposite direction. All of the motors are powered this way.

Position Sensors

To monitor seat position, each seat motor has an internal 2-wire hall-effect position sensor. The seat memory control module supplies all the sensors with a common 12 V reference when the seat is moving and a unique signal circuit for each sensor. During seat motor operation, the position sensors provide a specific number of pulse signals for every revolution of the motor shaft.

The seat memory control module determines seat position by keeping a running counter where movement in the forward/upward direction adds counts and movement in the rearward/down direction subtracts counts. The value of the counter will be in the range of 0 – 65,535

The value of these counters, which represent seat positions, are stored in memory for future seat memory recall operation. During a memory seat position recall, the seat memory control module moves the seat in such a way to return it the stored counter value.

Memory Functions

In all power modes except crank, memory recalls can be initiated by pressing and holding one of the memory position buttons until the seat reaches the stored memory position associated with the activated button. This is called a supervised recall.

Un-supervised recalls, a momentary push of memory recall switch, are available when the ignition is ON and the vehicle transmission is the park position.

The seat memory control module supplies a ground at all times through a low reference circuit to the driver seat memory switch. The module also supplies memory set and memory recall signal circuits to the seat memory switch. When a memory recall switch is pressed, the signal circuit from the seat memory control module is pulled low through the switch contacts and a series of resistors indicating the memory recall request. In response to this signal, the seat memory control module commands the appropriate seat motors to move to the pre-recorded seat positions stored in memory.

Refer to the Owner's Manual for storing memory positions.

Power Seats System Description and Operation

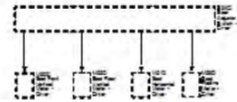
The driver and passenger 8-way power seat systems each consist of the following components:

- Seat adjuster switch
- Seat horizontal motor
- Seat front vertical motor
- Seat rear vertical motor
- Seat recline motor

The 2-way power seat system consists of a seat adjuster switch and a seat vertical motor.

Note: If equipped, the passenger seat block diagram is identical to the driver seat.

Power Seat Block Diagram



Seat Motors

All of the seat motors operate independently of each other. Each motor contains an electronic circuit breaker (PTC) that opens in the event of a circuit overload and will reset only after voltage has been removed from the circuit. There are four seat position motors and one lumbar motor. These are the horizontal motor, front vertical motor, rear vertical motor, and the seat back recline motor. The seat horizontal motor moves the entire seat forward and rearward. The seat vertical motors may operate independently to tilt the front or rear of the seat cushion up or down. Both motors can also run simultaneously to move the entire seat up or down. The recline motor moves the angle of the seat back forward or rearward.

Seat Operation

The seat switches provide both power and ground to the selected seat motors.

All seat motors are reversible. For example, when the seat horizontal forward switch is pressed to move the entire seat forward, ground is applied through the switch contacts and the seat horizontal motor forward control circuit to the motor. With the horizontal motor rearward switch contacts closed to the switch B+ circuit, the motor runs in order to drive the entire seat forward until the switch is released. Moving the entire seat rearward works similarly to moving the entire seat forward, except the battery voltage and ground are applied on opposite

circuits causing the motor to run in the opposite direction. All seat motors are powered this way.

DTC B1395

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 B1395 03

Device Voltage Reference Output Circuit Low Voltage

DTC B1395 07

Device Voltage Reference Output Circuit High Voltage

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
Memory Sensor High Reference	B1395 03	—	B1395 07	—

Circuit/System Description

The seat memory control module does not support memory lumbar although the wiring does. The module still supplies a 5 V reference voltage to the driver seat lumbar position sensor.

Conditions for Running the DTC

- DTC B1327 must not be present.
- Battery voltage must be between 9–16 V.

Conditions for Setting the DTC

B1395 03

The seat memory control module detects that the reference voltage is less than 4.8 V.

B1395 07

The seat memory control module detects that the reference voltage is greater than 5.2 V.

Action Taken When the DTC Sets

No action taken.

Conditions for Clearing the DTC

- The current DTC clears when the fault is no longer present and the power mode changes to OFF then back to ACC or RUN.
- The history DTC will clear after 40 consecutive fault-free ignition cycles have occurred.

Diagnostic Aids

The seat memory control module does not support memory lumbar functions, although it supplies a 5 V reference, signal, and low reference circuits to the lumbar position sensor. The module only monitors the 5 V reference circuit to the sensor and not the signal circuit.

[Reference Information](#)

Schematic Reference

[Driver Seat Schematics](#)

Connector End View Reference

[Component Connector End Views](#)

Description and Operation

[Lumbar Support Description and Operation](#)

Electrical Information Reference

- [Circuit Testing](#)
- [Connector Repairs](#)
- [Testing for Intermittent Conditions and Poor Connections](#)
- [Wiring Repairs](#)

Scan Tool Reference

[Control Module References](#) for scan tool information

[Circuit/System Testing](#)

1. Ignition OFF, disconnect the X2 harness connector at the M53D Seat Lumbar Support Motor – Driver, ignition ON.
2. Test for 4.8–5.2 V between the 5 V reference circuit terminal 3 and ground.
 - ⇒ **If less than 4.8 V**
 - 2.1. Ignition OFF, disconnect the X5 harness connector at the K40 Seat Memory Control Module.
 - 2.2. Test for infinite resistance between the 5 V reference circuit and ground.
 - ⇒ If less than infinite resistance, repair the short to ground on the circuit.
 - ⇓ If infinite resistance
 - 2.3. Test for less than 2 Ω in the signal circuit end to end.
 - ⇒ If 2 Ω or greater, repair the open/high resistance in the circuit.
 - ⇒ If less than 2 Ω , replace the K40 Seat Memory Control Module.
 - ⇒ **If greater than 5.2 V**
 - 2.1. Ignition OFF, disconnect the X5 harness connector at the K40 Seat Memory Control Module, ignition ON.
 - 2.2. Test for less than 1 V between the 5 V reference circuit and ground.
 - ⇒ If 1 V or greater, repair the short to voltage on the circuit.
 - ⇒ If less than 1 V, replace the K40 Seat Memory Control Module.
 - ⇓ **If between 4.8–5.2 V**
3. Replace the M53D Seat Lumbar Support Motor – Driver.

[Repair Instructions](#)

Perform the [Diagnostic Repair Verification](#) after completing the diagnostic procedure.

- [Seat Lumbar Sub System Replacement](#)

- [Control Module References](#) for K40 Seat Memory Control Module replacement, setup, and programming

DTC B1405, B1825, B2355, B2365, or B2375

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 B1405

Control Module Voltage Reference Output 2 Circuit

DTC B1825

Driver Seat Recline Position Sensor Circuit

DTC B2355

Driver Seat Front Vertical Position Sensor Circuit

DTC B2365

Driver Seat Rear Vertical Position Sensor Circuit

DTC B2375

Driver Seat Assembly Horizontal Position Sensor Circuit

For symptom byte information refer to [Symptom Byte List](#)

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
12 V Reference	B1405 02, B1825 06, B2355 06, B2365 06, B2375 06	B1825 06, B2355 06, B2365 06, B2375 06	—	—
Driver Seat Front Vertical Position Sensor Signal	B2355 06	B2355 06	B1825 01, B2355 01, B2365 01, B2375 01	B2355 5A
Driver Seat Rear Vertical Position Sensor Signal	B2365 06	B2365 06	B1825 01, B2355 01, B2365 01, B2375 01	B2365 5A
Driver Seat Horizontal Position Sensor Signal	B2375 06	B2375 06	B1825 01, B2355 01, B2365 01, B2375 01	B2375 5A
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Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
Driver Seat Recline Position Sensor Signal	B1825 06	B1825 06	B1825 01, B2355 01, B2365 01, B2375 01	B1825 5A

Circuit Description

The seat memory control module monitors the position of the seat motors by using hall effect position sensors which are an internal part of each motor. The module supplies each sensor with a 12 V reference circuit only when any seat motor is active, and a low side signal circuit. During seat motor operation, the hall effect position sensor provides a determined number of pulse signals for every revolution of the motor shaft. The scan tool displays these pulse signals as counts that range from 0–65,535. The module counts the feedback pulses from each sensor to determine seat position and end of travel limits for each of the seat motors. High scan tool count values indicate forward or upward seat positions while low count values indicate rearward or downward seat positions.

Conditions for Running the DTC

- Any seat motor must be active.
- DTC B1325 must not be present.
- Module battery voltage must be between 9–16 V.

Conditions for Setting the DTC

The seat memory control module does not detect position sensor movement or pulse signals while the adjuster motor is active. The following conditions will set this DTC:

B1405 02

The seat memory control module detects a short to ground or an open on the 12 V reference circuit.

B1825 01, B2355 01, B2365 01, or B2375 01

The seat memory control module detects a voltage greater than 5 V on the sensor signal circuit.

B1825 06, B2355 06, B2365 06, or B2375 06

The seat memory control module detects a short to ground or an open on the sensor signal circuit.

Action Taken When the DTC Sets

- With a short to ground or an open circuit, the seat memory control module disables the memory recall commands of the motor monitored by the sensor. The motor will respond to manual position commands.
- With a short to battery voltage, the seat memory control module disables the memory recall commands for all four seat motors. The motors will respond to manual position commands.

Conditions for Clearing the DTC

- The current DTC clears when the fault is no longer present and the power mode changes to OFF then back to ACC or RUN.
- The history DTC will clear after 40 consecutive fault-free ignition cycles have occurred.

Reference Information

Schematic Reference

[Driver Seat Schematics](#)**Connector End View Reference**[Component Connector End Views](#)**Description and Operation**[Memory Seats Description and Operation](#)**Electrical Information Reference**

- [Circuit Testing](#)
- [Connector Repairs](#)
- [Testing for Intermittent Conditions and Poor Connections](#)
- [Wiring Repairs](#)

Scan Tool Reference

[Control Module References](#) for scan tool information

[Circuit/System Testing](#)

1. Ignition OFF, disconnect the harness connector at the appropriate driver seat motor listed below for which the DTC set:
 - M50D Seat Front Vertical Motor – Driver
 - M55D Seat Rear Vertical Motor – Driver
 - M51D Seat Horizontal Motor – Driver
 - M56D Seat Recline Motor – Driver
2. Ignition ON.
3. Test for greater than 10.8 V between the 12 V reference circuit terminal 2 and ground while pressing any power seat switch.
⇒ **If 10.8 V or less**
 - 3.1. Ignition OFF, disconnect the X5 harness connector at the K40 Seat Memory Control Module.
 - 3.2. Test for infinite resistance between the 12 V reference circuit and ground.
⇒ If less than infinite resistance, repair the short to ground on the circuit.
⇓ If infinite resistance
 - 3.3. Test for less than 2 Ω in the 12 V reference circuit end to end.
⇒ If 2 Ω or greater, repair the open/high resistance in the circuit.
⇒ If less than 2 Ω , replace the K40 Seat Memory Control Module.
⇓ **If greater than 10.8 V**
4. Test for 0.2–2 V between the signal circuit terminal 4 and ground.
⇒ **If less than 0.2 V**
 - 4.1. Ignition OFF, disconnect the X5 harness connector at the K40 Seat Memory Control Module.
 - 4.2. Test for infinite resistance between the signal circuit and ground.
⇒ If less than infinite resistance, repair the short to ground on the circuit.
⇓ If infinite resistance
 - 4.3. Test for less than 2 Ω in the signal circuit end to end.
⇒ If 2 Ω or greater, repair the open/high resistance in the circuit.
⇒ If less than 2 Ω , replace the K40 Seat Memory Control Module.
⇒ **If greater than 2 V**

4.1. Ignition OFF, disconnect the X5 harness connector at the K40 Seat Memory Control Module, ignition ON.

4.2. Test for less than 1 V between each signal circuit listed below and ground.

- Front vertical sensor terminal 12
- Seat horizontal sensor terminal 11
- Rear vertical sensor terminal 25
- Seat recline sensor terminal 26

⇒ If 1 V or greater, repair the short to voltage on the circuit.

⇒ If less than 1 V, replace the K40 Seat Memory Control Module.

↓ **If between 0.2–2 V**

5. Test or replace the seat motor.

Repair Instructions

Perform the [Diagnostic Repair Verification](#) after completing the repair.

- [Front Seat Tilt Adjuster Actuator Replacement](#)
- [Driver or Passenger Seat Vertical Adjuster Actuator Replacement](#)
- [Front Seat Adjuster Actuator Replacement](#)
- [Driver or Passenger Seat Recliner Actuator Replacement](#)
- [Control Module References](#) for K40 Seat Memory Control Module replacement, programming and setup

DTC B1735, B1740, B1745, B1750, B1755, B1760, B1815, B1820, B1830, B1835, B1840, or B1845 (Left Hand Drive)

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 B1735 02

Driver Seat Front Up Switch Circuit Short to Ground

DTC B1740 02

Driver Seat Front Down Switch Circuit Short to Ground

DTC B1745 02

Driver Seat Rear Up Switch Circuit Short to Ground

DTC B1750 02

Driver Seat Rear Down Switch Circuit Short to Ground

DTC B1755 02

Driver Seat Assembly Forward Switch Circuit Short to Ground

DTC B1760 02

Driver Seat Assembly Rearward Switch Circuit Short to Ground

DTC B1815 02

Driver Seat Recline Forward Switch Circuit Short to Ground

DTC B1820 02

Driver Seat Recline Rearward Switch Circuit Short to Ground

DTC B1830 02

Driver Seat Lumbar Support Forward Switch Circuit Short to Ground

DTC B1835 02

Driver Seat Lumbar Support Rearward Switch Circuit Short to Ground

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
Front Vertical Up Switch Signal	B1735 02, B1740 02, B1745 02	1	—	—

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
	B1750 02, B1755 02, B1760 02, B1815 02, B1820 02, B1830 02, B1835 02			
Front Vertical Down Switch Signal	B1735 02, B1740 02, B1745 02, B1750 02, B1755 02, B1760 02, B1815 02, B1820 02, B1830 02, B1835 02	1	—	—
Rear Vertical Up Switch Signal	B1735 02, B1740 02, B1745 02, B1750 02, B1755 02, B1760 02, B1815 02, B1820 02, B1830 02, B1835 02	1	—	—
Rear Vertical Down Switch Signal	B1735 02, B1740 02, B1745 02, B1750 02, B1755 02, B1760 02, B1815 02, B1820 02, B1830 02, B1835 02	1	—	—
Horizontal Forward Switch Signal	B1735 02, B1740 02, B1745 02, B1750 02, B1755 02, B1760 02, B1815 02, B1820 02, B1830 02, B1835 02	1	—	—
Horizontal Rearward Switch Signal	B1735 02, B1740 02, B1745 02, B1750 02, B1755 02, B1760 02,	1	—	—

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
	B1815 02, B1820 02, B1830 02, B1835 02			
Recline Forward Switch Signal	B1735 02, B1740 02, B1745 02, B1750 02, B1755 02, B1760 02, B1815 02, B1820 02, B1830 02, B1835 02	1	—	—
Recline Rearward Switch Signal	B1735 02, B1740 02, B1745 02, B1750 02, B1755 02, B1760 02, B1815 02, B1820 02, B1830 02, B1835 02	1	—	—
Driver Seat Lumbar Forward Switch Signal	B1735 02, B1740 02, B1745 02, B1750 02, B1755 02, B1760 02, B1815 02, B1820 02, B1830 02, B1835 02	2	—	—
Driver Seat Lumbar Rearward Switch Signal	B1735 02, B1740 02, B1745 02, B1750 02, B1755 02, B1760 02, B1815 02, B1820 02, B1830 02, B1835 02	2	—	—
1. Power seat is inoperative 2. Lumbar support is inoperative				

Circuit/System Description

The seat memory control module supplies a reference voltage to each signal circuit of the driver seat adjuster switch. When the power seat or lumbar switches are pressed, the appropriate signal circuit from the seat memory control module is pulled low through the

switch contacts indicating the power seat command. The seat memory control module then commands the driver seat or lumbar to move in response to the switch signals.

Conditions for Running the DTC

- DTC B1325 must not be present.
- Module battery voltage must be between 9–16 V.

Conditions for Setting the DTC

- If a seat or lumbar switch circuit is active in one direction and the switch for the opposite direction is pressed, this DTC will set.
- A short to ground on a switch signal circuit.

Action Taken When the DTC Sets

- A motor output driven in response to a switch considered failed, is deactivated for both directions.
- All memory recall commands are ignored.
- The seat memory control module will respond to any other switch signal that has not set a DTC.

Conditions for Clearing the DTC

- The current DTC will clear and set the DTC to history, when the fault is no longer present and the ignition is cycled OFF then back to ACC or RUN.
- The history DTC will clear after 40 consecutive fault-free ignition cycles have occurred.

Diagnostic Aids

- If one of the switch signal circuits is shorted to ground, multiple DTCs will set.
- If a switch is stuck in one direction and the switch is pressed in the opposite direction, a single DTC will set.

Reference Information

Schematic Reference

[Driver Seat Schematics](#)

Connector End View Reference

[Component Connector End Views](#)

Description and Operation

[Memory Seats Description and Operation](#)

Electrical Information Reference

- [Circuit Testing](#)
- [Connector Repairs](#)
- [Testing for Intermittent Conditions and Poor Connections](#)
- [Wiring Repairs](#)

Scan Tool Reference

[Control Module References](#) for scan tool information

Circuit/System Verification

1. Ignition ON.

2. Verify the scan tool seat switch parameters listed below change between Inactive and Forward/Rearward or UP/Down when pressing the appropriate seat directional switch.

- Driver Seat Cushion Front Vertical Switch
- Driver Seat Cushion Rear Vertical Switch
- Driver Seat Horizontal Switch
- Driver Seat Back Switch
- Driver Lumbar Support Horizontal Switch

⇒ **If the parameter does not change**

Refer to Circuit/System Testing.

⇓ **If the parameter changes**

3. All OK.

Circuit/System Testing

1. Ignition OFF, disconnect the X1 and X2 harness connectors at the S64D Seat Adjuster Switch – Driver.

2. Verify that all scan tool driver seat switch parameters listed below are Inactive:

- Driver Seat Cushion Front Vertical Switch
- Driver Seat Cushion Rear Vertical Switch
- Driver Seat Horizontal Switch
- Driver Seat Back Switch
- Driver Lumbar Support Horizontal Switch

⇒ **If not Inactive**

- 2.1. Ignition OFF, disconnect the X5 harness connector at the K40 Seat Memory Control Module, ignition ON.

- 2.2. Test for infinite resistance between the appropriate signal circuit terminal listed below and ground:

- Front vertical up switch terminal 1 X1
- Front vertical down switch terminal 5 X1
- Rear vertical up switch terminal 8 X1
- Rear vertical down switch terminal 10 X1
- Horizontal forward switch terminal 3 X1
- Horizontal rearward switch terminal 7 X1
- Recline forward switch terminal 4 X1
- Recline rearward switch terminal 9 X1
- Driver seat lumbar forward terminal 2 X2
- Driver seat lumbar rearward terminal 6 X2

⇒ If less than infinite resistance, repair the short to ground on the circuit.

⇒ If infinite resistance, replace the K40 Seat Memory Control Module.

⇓ **If Inactive**

3. Install a 3 A fused jumper wire between the ground circuit terminal 6 X1 and the appropriate signal circuit terminal listed below:

- Front vertical up switch terminal 1 X1
- Front vertical down switch terminal 5 X1
- Rear vertical up switch terminal 8 X1
- Rear vertical down switch terminal 10 X1
- Horizontal forward switch terminal 3 X1

- Horizontal rearward switch terminal 7 X1
- Recline forward switch terminal 4 X1
- Recline rearward switch terminal 9 X1
- Driver seat lumbar forward terminal 2 X2
- Driver seat lumbar rearward terminal 6 X2

4. Verify the appropriate scan tool seat switch parameter is Forward/Rearward or UP/Down.

⇒ **If not Forward/Rearward or UP/Down**

- 4.1. Ignition OFF, disconnect the X5 harness connector at the K40 Seat Memory Control Module, ignition ON.
- 4.2. Test for less than 1 V between the signal circuit terminal and ground.
 - ⇒ If 1 V or greater, repair the short to voltage on the circuit.
 - ⇓ If less than 1 V
- 4.3. Ignition OFF.
- 4.4. Test for less than 2 Ω in the signal circuit end to end.
 - ⇒ If 2 Ω or greater, repair the open/high resistance in the circuit.
 - ⇒ If less than 2 Ω , replace the K40 Seat Memory Control Module.

⇓ **If Forward/Rearward or UP/Down**

5. Test or replace the S64D Seat Adjuster Switch – Driver.

Component Testing

Seat Adjuster Switch Test

1. Ignition OFF, disconnect the X1 and X2 harness connectors at the S64D Seat Adjuster Switch – Driver.
2. Test for infinite resistance between the ground terminal 6 X1 and each signal terminal with the switch in the open position.
 - ⇒ **If less than infinite resistance**
Replace the S64D Seat Adjuster Switch – Driver.
 - ⇓ **If infinite resistance**
3. Test for less than 2 Ω between the ground terminal 6 X1 and each signal terminal with the appropriate switch in the closed position.
 - ⇒ **If 2 Ω or greater**
Replace the S64D Seat Adjuster Switch – Driver.
 - ⇓ **If less than 2 Ω**
4. All OK.

Repair Instructions

Perform the [Diagnostic Repair Verification](#) after completing the repair.

- [Driver or Passenger Seat Adjuster Switch Replacement](#)
- [Control Module References](#) for K40 Seat Memory Control Module replacement, programming and setup

DTC B1735, B1740, B1745, B1750, B1755, B1760, B1815, B1820, B1830, B1835, B1840, or B1845 (Right Hand Drive)

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 B1735 02

Driver Seat Front Up Switch Circuit Short to Ground

DTC B1740 02

Driver Seat Front Down Switch Circuit Short to Ground

DTC B1745 02

Driver Seat Rear Up Switch Circuit Short to Ground

DTC B1750 02

Driver Seat Rear Down Switch Circuit Short to Ground

DTC B1755 02

Driver Seat Assembly Forward Switch Circuit Short to Ground

DTC B1760 02

Driver Seat Assembly Rearward Switch Circuit Short to Ground

DTC B1815 02

Driver Seat Recline Forward Switch Circuit Short to Ground

DTC B1820 02

Driver Seat Recline Rearward Switch Circuit Short to Ground

DTC B1830 02

Driver Seat Lumbar Forward Switch Circuit Short to Ground

DTC B1835 02

Driver Seat Lumbar Rearward Switch Circuit Short to Ground

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
Front Vertical Up Switch Signal	B1735 02, B1740 02, B1745 02	1	—	—

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
	B1750 02, B1755 02, B1760 02, B1815 02, B1820 02, B1830 02, B1835 02			
Front Vertical Down Switch Signal	B1735 02, B1740 02, B1745 02, B1750 02, B1755 02, B1760 02, B1815 02, B1820 02, B1830 02, B1835 02	1	—	—
Rear Vertical Up Switch Signal	B1735 02, B1740 02, B1745 02, B1750 02, B1755 02, B1760 02, B1815 02, B1820 02, B1830 02, B1835 02	1	—	—
Rear Vertical Down Switch Signal	B1735 02, B1740 02, B1745 02, B1750 02, B1755 02, B1760 02, B1815 02, B1820 02, B1830 02, B1835 02	1	—	—
Horizontal Forward Switch Signal	B1735 02, B1740 02, B1745 02, B1750 02, B1755 02, B1760 02, B1815 02, B1820 02, B1830 02, B1835 02	1	—	—
Horizontal Rearward Switch Signal	B1735 02, B1740 02, B1745 02, B1750 02, B1755 02, B1760 02,	1	—	—

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
	B1815 02, B1820 02, B1830 02, B1835 02			
Recline Forward Switch Signal	B1735 02, B1740 02, B1745 02, B1750 02, B1755 02, B1760 02, B1815 02, B1820 02, B1830 02, B1835 02	1	—	—
Recline Rearward Switch Signal	B1735 02, B1740 02, B1745 02, B1750 02, B1755 02, B1760 02, B1815 02, B1820 02, B1830 02, B1835 02	1	—	—
Driver Seat Lumbar Forward Switch Signal	B1735 02, B1740 02, B1745 02, B1750 02, B1755 02, B1760 02, B1815 02, B1820 02, B1830 02, B1835 02	2	—	—
Driver Seat Lumbar Rearward Switch Signal	B1735 02, B1740 02, B1745 02, B1750 02, B1755 02, B1760 02, B1815 02, B1820 02, B1830 02, B1835 02	2	—	—
1. Power seat is inoperative 2. Lumbar support is inoperative				

Circuit/System Description

The seat memory control module supplies a reference voltage to each signal circuit of the driver seat adjuster switch. When the power seat or lumbar switches are pressed, the appropriate signal circuit from the seat memory control module is pulled low through the

switch contacts indicating the power seat command. The seat memory control module then commands the driver seat or lumbar to move in response to the switch signals.

Conditions for Running the DTC

- DTC B1325 must not be present.
- Module battery voltage must be between 9–16 V.

Conditions for Setting the DTC

- If a seat or lumbar switch circuit is active in one direction and the switch for the opposite direction is pressed, this DTC will set.
- A short to ground on a switch signal circuit.

Action Taken When the DTC Sets

- A motor output driven in response to a switch considered failed, is deactivated for both directions.
- All memory recall commands are ignored.
- The seat memory control module will respond to any other switch signal that has not set a DTC.

Conditions for Clearing the DTC

- The current DTC will clear and set the DTC to history, when the fault is no longer present and the ignition is cycled OFF then back to ACC or RUN.
- The history DTC will clear after 40 consecutive fault-free ignition cycles have occurred.

Diagnostic Aids

- If one of the switch signal circuits is shorted to ground, multiple DTCs will set.
- If a switch is stuck in one direction and the switch is pressed in the opposite direction, a single DTC will set.

Reference Information

Schematic Reference

[Driver Seat Schematics](#)

Connector End View Reference

[Component Connector End Views](#)

Description and Operation

[Memory Seats Description and Operation](#)

Electrical Information Reference

- [Circuit Testing](#)
- [Connector Repairs](#)
- [Testing for Intermittent Conditions and Poor Connections](#)
- [Wiring Repairs](#)

Scan Tool Reference

[Control Module References](#) for scan tool information

Circuit/System Verification

1. Ignition ON.

2. Verify the scan tool seat switch parameters listed below change between Inactive and Forward/Rearward or UP/Down when pressing the appropriate seat directional switch.

- Driver Seat Cushion Front Vertical Switch
- Driver Seat Cushion Rear Vertical Switch
- Driver Seat Horizontal Switch
- Driver Seat Back Switch
- Driver Lumbar Support Horizontal Switch

⇒ **If the parameter does not change**

Refer to Circuit/System Testing.

⇓ **If the parameter changes**

3. All OK.

Circuit/System Testing

1. Ignition OFF, disconnect the X1 and X2 harness connectors at the S64D Seat Adjuster Switch – Driver.

2. Verify that all scan tool driver seat switch parameters listed below are Inactive:

- Driver Seat Cushion Front Vertical Switch
- Driver Seat Cushion Rear Vertical Switch
- Driver Seat Horizontal Switch
- Driver Seat Back Switch
- Driver Lumbar Support Horizontal Switch

⇒ **If not Inactive**

- 2.1. Ignition OFF, disconnect the X5 harness connector at the K40 Seat Memory Control Module, ignition ON.

- 2.2. Test for infinite resistance between the appropriate signal circuit terminal listed below and ground:

- Front vertical up switch terminal 4 X1
- Front vertical down switch terminal 1 X1
- Rear vertical up switch terminal 8 X1
- Rear vertical down switch terminal 6 X1
- Horizontal forward switch terminal 3 X1
- Horizontal rearward switch terminal 9 X1
- Recline forward switch terminal 2 X1
- Recline rearward switch terminal 7 X1
- Driver seat lumbar forward terminal 2 X2
- Driver seat lumbar rearward terminal 6 X2

⇒ If less than infinite resistance, repair the short to ground on the circuit.

⇒ If infinite resistance, replace the K40 Seat Memory Control Module.

⇓ **If Inactive**

3. Install a 3 A fused jumper wire between the ground circuit terminal 10 X1 and the appropriate signal circuit terminal listed below:

- Front vertical up switch terminal 4 X1
- Front vertical down switch terminal 1 X1
- Rear vertical up switch terminal 8 X1
- Rear vertical down switch terminal 6 X1
- Horizontal forward switch terminal 3 X1

- Horizontal rearward switch terminal 9 X1
- Recline forward switch terminal 2 X1
- Recline rearward switch terminal 7 X1
- Driver seat lumbar forward terminal 2 X2
- Driver seat lumbar rearward terminal 6 X2

4. Verify the appropriate scan tool seat switch parameter is Forward/Rearward or UP/Down.

⇒ **If not Forward/Rearward or UP/Down**

- 4.1. Ignition OFF, disconnect the X5 harness connector at the K40 Seat Memory Control Module, ignition ON.
- 4.2. Test for less than 1 V between the signal circuit terminal and ground.
 - ⇒ If 1 V or greater, repair the short to voltage on the circuit.
 - ⇓ If less than 1 V
- 4.3. Ignition OFF.
- 4.4. Test for less than 2 Ω in the signal circuit end to end.
 - ⇒ If 2 Ω or greater, repair the open/high resistance in the circuit.
 - ⇒ If less than 2 Ω , replace the K40 Seat Memory Control Module.

⇓ **If Forward/Rearward or UP/Down**

5. Test or replace the S64D Seat Adjuster Switch – Driver.

Component Testing

Seat Adjuster Switch Test

1. Ignition OFF, disconnect the X1 and X2 harness connectors at the S64D Seat Adjuster Switch – Driver.
2. Test for infinite resistance between the ground terminal 10 X1 and each signal terminal with the switch in the open position.
 - ⇒ **If less than infinite resistance**
Replace the S64D Seat Adjuster Switch – Driver.
 - ⇓ **If infinite resistance**
3. Test for less than 2 Ω between the ground terminal 10 X1 and each signal terminal with the appropriate switch in the closed position.
 - ⇒ **If 2 Ω or greater**
Replace the S64D Seat Adjuster Switch – Driver.
 - ⇓ **If less than 2 Ω**
4. All OK.

Repair Instructions

Perform the [Diagnostic Repair Verification](#) after completing the repair.

- [Driver or Passenger Seat Adjuster Switch Replacement](#)
- [Control Module References](#) for K40 Seat Memory Control Module replacement, programming and setup

DTC B2755 or B2765

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 B2755 00

Driver Seat Memory Select Switch Circuit

DTC B2755 01

Driver Seat Memory Select Switch Circuit Short to Battery

DTC B2755 02

Driver Seat Memory Select Switch Circuit Short to Ground

DTC B2765 02

Seat Memory Set Switch Circuit Short to Ground

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
Memory Seat Switch Signal	B2755 02	1	B2755 01	B2755 00
Memory Seat Switch Set Signal	B2765 02	1	—	—
Low Reference	—	1	—	—
1. Memory recall is inoperative				

Circuit/System Description

Low reference is supplied to the driver seat memory switch from the seat memory control module. When a memory switch is pressed, the signal circuit from the seat memory control module is pulled low through the switch contacts and series of resistors indicating the memory recall request. In response to this signal, the seat memory control module commands the appropriate seat motors to move to the pre-recorded seat positions stored in memory.

Conditions for Running the DTC

- DTC B1327 must not be present.
- Battery voltage must be between 9–16 V.

Conditions for Setting the DTC

B2755 00

The seat memory control module detects a stuck memory 1 or memory 2 switch for a given amount of time.

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B2755 01

If the seat memory control module detects a short to voltage on the memory seat switch signal circuit this DTC will set.

B2755 02

If the seat memory control module detects a short to ground on the memory seat switch signal circuit this DTC will set.

B2765 02

If the memory set switch signal is active for greater than 30 s, the module will set this DTC.

Actions Taken When the DTC Sets

- Current and history DTCs are set.
- All memory recall commands are ignored.

Conditions for Clearing the DTCs

- The DTC automatically clears when the switch circuit setting the DTC is no longer active.
- A history DTC will clear once 50 consecutive fault-free ignition cycles have occurred.

Reference Information**Schematic Reference**

[Driver Seat Schematics](#)

Connector End View Reference

[Component Connector End Views](#)

Description and Operation

[Memory Seats Description and Operation](#)

Electrical Information Reference

- [Circuit Testing](#)
- [Connector Repairs](#)
- [Testing for Intermittent Conditions and Poor Connections](#)
- [Wiring Repairs](#)

Scan Tool Reference

[Control Module References](#) for scan tool information

Circuit/System Verification

1. Ignition ON.
2. Verify the scan tool Seat Memory Control Module Memory Recall Switches parameter changes between Inactive and Memory 1 when pressing the memory 1 switch.
⇒ **If the parameter does not change**
Refer to Circuit/System Testing.
⇓ **If the parameter changes**
3. Verify the scan tool Seat Memory Control Module Memory Recall Switches parameter changes between Inactive and Memory 2 when pressing the memory 2 switch.
⇒ **If the parameter does not change**
Refer to Circuit/System Testing.
⇓ **If the parameter changes**

4. Verify the scan tool Memory Recall Switches parameter changes between Inactive and Memory 3 when pressing the memory 3 switch.
 - ⇒ **If the parameter does not change**
Refer to Circuit/System Testing.
 - ⇓ **If the parameter changes**
5. Verify the scan tool Memory Recall Switches parameter changes between Inactive and Set when pressing the SET switch.
 - ⇒ **If the parameter does not change**
Refer to Circuit/System Testing.
 - ⇓ **If the parameter changes**
6. All OK.

Circuit/System Testing

1. Ignition OFF, disconnect the harness connector at the S47D Seat Memory Switch – Driver, Ignition ON.
2. Press a power seat switch in order to wake up the K40 Seat Memory Control Module.
3. Test for 9 V or greater between each signal circuit terminal listed below and ground:
 - Memory seat switch set signal terminal 5
 - Memory seat switch signal terminal 6
- ⇒ **If less than 9 V**
 - 3.1. Ignition OFF, disconnect the X6 harness connector at the K40 Seat Memory Control Module.
 - 3.2. Test for infinite resistance between the signal circuit and ground.
 - ⇒ If less than infinite resistance, repair the short to ground on the circuit.
 - ⇓ If infinite resistance
 - 3.3. Test for less than 2 Ω in the signal circuit end to end.
 - ⇒ If 2 Ω or greater, repair the open/high resistance in the circuit.
 - ⇒ If less than 2 Ω , replace the K40 Seat Memory Control Module.
- ⇓ **If 9 V or greater**
4. Ignition OFF, disconnect the X6 harness connector at the K40 Seat Memory Control Module, Ignition ON.
5. Test for less than 1 V between each signal circuit terminal listed below and ground:
 - Memory seat switch set signal terminal 5
 - Memory seat switch signal terminal 6
- ⇒ **If 1 V or greater**
Repair the short to voltage on the circuit.
- ⇓ **If less than 1 V**
6. Test or replace the S47D Seat Memory Switch – Driver.

Component Testing

Driver Seat Memory Switch

1. Ignition OFF, disconnect the harness connector at the S47D Seat Memory Switch – Driver.
2. Test for infinite resistance between each signal terminal listed below and the low reference terminal 1 with the switch in the open position.
 - Terminal 5
 - Terminal 6
- ⇒ **If less than infinite resistance**
Replace the S47D Seat Memory Switch – Driver.

↓ **If infinite resistance**

3. Test for less than $4\ \Omega$ between the signal terminal 5 and the low reference terminal 1 while pressing the memory SET button.

⇒ **If $4\ \Omega$ or greater**

Replace the S47D Seat Memory Switch – Driver.

↓ **If less than $4\ \Omega$**

4. Test for $570\text{--}697\ \Omega$ between the signal terminal 6 and the low reference terminal 1 while pressing the memory 1 button.

⇒ **If not between $570\text{--}697\ \Omega$**

Replace the S47D Seat Memory Switch – Driver.

↓ **If between $570\text{--}697\ \Omega$**

5. Test for $1803\text{--}2204\ \Omega$ between the signal terminal 6 and the low reference terminal 1 while pressing the memory 2 button.

⇒ **If not between $1803\text{--}2204\ \Omega$**

Replace the S47D Seat Memory Switch – Driver.

↓ **If between $1803\text{--}2204\ \Omega$**

6. Test for $5.52\text{k--}6.74\ \text{k}\Omega$ between the signal terminal 6 and the low reference terminal 1 while pressing the memory 3 button.

⇒ **If not between $5.52\text{k--}6.74\ \text{k}\Omega$**

Replace the S47D Seat Memory Switch – Driver.

↓ **If between $5.52\text{k--}6.74\ \text{k}\Omega$**

7. All OK.

Repair Instructions

Perform the [Diagnostic Repair Verification](#) after completing the repair.

- [Driver Seat Adjuster Memory Switch Replacement](#)
- [Control Module References](#) for K40 Seat Memory Control Module replacement, programming, and setup

DTC B3920

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 B3920 00

Driver Seat Motors Group 1 Common Circuit

For symptom byte information refer to [Symptom Byte List](#)

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
Driver Seat Front Vertical Motor Down Control	B3920 02	1	B3920 01	B3920 00, B3920 0B
Driver Seat Front Vertical Motor Up Control	B3920 02	1	B3920 01	B3920 00, B3920 0B
Driver Seat Horizontal Motor Forward Control	B3920 02	1	B3920 01	B3920 00, B3920 0B
Driver Seat Horizontal Motor Rearward Control	B3920 02	1	B3920 01	B3920 00, B3920 0B
Driver Seat Rear Vertical Motor Down Control	B3920 02	1	B3920 01	B3920 00, B3920 0B
Driver Seat Rear Vertical Motor Up Control	B3920 02	1	B3920 01	B3920 00, B3920 0B
Driver Seat Recline Motor Forward Control	B3920 02	1	B3920 01	B3920 00, B3920 0B
Driver Seat Recline Motor Rearward Control	B3920 02	1	B3920 01	B3920 00, B3920 0B
Driver Power Seat Lumbar Motor Forward Control	B3920 02	2	B3920 01	B3920 00, B3920 0B
Driver Power Seat Lumbar Motor Rearward Control	B3920 02	2	B3920 01	B3920 00, B3920 0B
1. Power seat and memory functions are inoperative 2. Lumbar support is inoperative				

Circuit/System Description

The seat memory control module controls the seat and lumbar motors via half bridges that are connected to power rails internal to the module. The seat memory control module connects all of the motor control circuits on each power rail to a common reference point whenever they are not in operation. The module monitors all seat motor control circuits for a shorted to ground or voltage before enabling any seat motor.

When a power seat switch is pressed or when a memory recall is requested, each seat motor receives battery voltage and ground from the seat memory control module via the motor control circuits. All motors are reversible, so the direction the motor rotates depends on which control circuit voltage is applied and which control circuit ground is applied. When the switch is operated in the opposite direction, the module reverses the polarity and applies voltage and ground to the opposite circuits to move the seat in the opposite direction.

Conditions for Running the DTC

- DTC B1325 must not be present.
- Module battery voltage must be between 9–16 V.

Conditions for Setting the DTC

B3920 00

Current out of the module does not match the current returning to the module from 1.5–5 A.

B3920 01

The voltage on any power rail 1 motor control circuit exceeds 2.78 V for 100 ms.

B3920 02

The voltage on any power rail 1 motor control circuit is below 1.47 V for 100 ms.

B3920 0B

The differential current measured through the high and low side of the power rail is within tolerance of each other, but the absolute current or an over-current has exceeded the maximum value.

Action Taken When the DTC Sets

The seat memory control module will not allow operation of any motor on the power rail for which the DTC was set.

Conditions for Clearing the DTC

- The current DTC clears when the fault is no longer present and the power mode changes to OFF then back to ACC or RUN.
- The history DTC will clear after 40 consecutive fault-free ignition cycles have occurred.

Reference Information

Schematic Reference

[Driver Seat Schematics](#)

Connector End View Reference

[Component Connector End Views](#)

Description and Operation

[Memory Seats Description and Operation](#)

Electrical Information Reference

- [Circuit Testing](#)
- [Connector Repairs](#)
- [Testing for Intermittent Conditions and Poor Connections](#)
- [Wiring Repairs](#)

Scan Tool Reference

[Control Module References](#) for scan tool information

Circuit/System Testing

B3920 01 or B3920 02

1. Ignition OFF, disconnect the X3 harness connector at the K40 Seat Memory Control Module.
2. Test for infinite resistance between each control circuit terminal listed below and ground:

- Front vertical motor up control terminal 3
- Front vertical motor down control terminal 4
- Rear vertical motor up control terminal 5
- Rear vertical motor down control terminal 6
- Horizontal motor forward control terminal 11
- Horizontal motor rearward control terminal 12
- Recline motor forward control terminal 1
- Recline motor rearward control terminal 2
- Lumbar motor forward control terminal 9
- Lumbar motor rearward control terminal 10

⇒ **If less than infinite resistance**

Repair the short to ground on the circuit.

⇓ **If infinite resistance**

3. Ignition ON.
4. Test for less than 1 V between each control circuit terminal listed below and ground:

- Front vertical motor up control terminal 3
- Front vertical motor down control terminal 4
- Rear vertical motor up control terminal 5
- Rear vertical motor down control terminal 6
- Horizontal motor forward control terminal 11
- Horizontal motor rearward control terminal 12
- Recline motor forward control terminal 1
- Recline motor rearward control terminal 2
- Lumbar motor forward control terminal 9
- Lumbar motor rearward control terminal 10

⇒ **If 1 V or greater**

Repair the short to voltage on the circuit.

⇓ **If less than 1 V**

5. Replace the K40 Seat Memory Control Module.

B3920 00 or B3920 0B

1. Ignition ON.
2. Clear the current and history DTC.

3. Determine which motor set this DTC by operating the driver seat and lumbar motors listed below one at a time in both directions. Check for the DTC to set between each motor test.
 - M50D Seat Front Vertical Motor – Driver
 - M55D Seat Rear Vertical Motor – Driver
 - M51D Seat Horizontal Motor – Driver
 - M56D Seat Recline Motor – Driver
 - M53D Seat Lumbar Support Motor – Driver

4. Ignition OFF, disconnect the harness connector at the seat motor for which the DTC set, ignition ON.

5. Clear the DTC.

6. Verify that DTC B3920 00 or B3920 0B does not set while operating the seat motor adjuster switch in both directions.

⇒ **If DTC B3920 00 or B3920 0B sets**

- 6.1. Test for infinite resistance between the appropriate control circuit terminals listed below:

- All seat motors control circuit terminal 1 and control circuit terminal 3
- Lumbar motor control circuit terminal A and control circuit terminal B

⇒ If less than infinite resistance, repair the short between the circuits.

⇓ If infinite resistance

- 6.2. Test for less than 2 Ω in each control circuit end to end.

⇒ If 2 Ω or greater, repair the open/high resistance in the circuit.

⇒ If less than 2 Ω , replace the seat motor.

⇓ **If DTC B3920 00 or B3920 0B does not set**

7. Replace the seat motor.

Repair Instructions

Perform the [Diagnostic Repair Verification](#) after completing the repair.

- [Front Seat Tilt Adjuster Actuator Replacement](#)
- [Driver or Passenger Seat Vertical Adjuster Actuator Replacement](#)
- [Front Seat Adjuster Actuator Replacement](#)
- [Driver or Passenger Seat Recliner Actuator Replacement](#)
- [Seat Lumbar Sub System Replacement](#)
- [Control Module References](#) for K40 Seat Memory Control Module replacement, programming and setup

Symptoms - Power Seats

Note: The following steps must be completed before using the symptom tables.

1. Perform the [Diagnostic System Check - Vehicle](#) before using the Symptom Tables in order to verify that all of the following are true:
 - There are no DTCs set.
 - The control modules can communicate via the serial data link.
2. Review the system operation in order to familiarize yourself with the system functions. Refer to the following system descriptions:
 - [Lumbar Support Description and Operation](#)
 - [Memory Seats Description and Operation](#)
 - [Power Seats System Description and Operation](#)

Visual/Physical Inspection

- Inspect for aftermarket devices which could affect the operation of the system. Refer to [Checking Aftermarket Accessories](#).
- Inspect the easily accessible or visible system components for obvious damage or conditions which could cause the symptom.

Intermittent

Faulty electrical connections or wiring may be the cause of intermittent conditions. Refer to [Testing for Intermittent Conditions and Poor Connections](#).

Symptom List

Refer to a symptom diagnostic procedure from the following list in order to diagnose the symptom:

- [Lumbar Support Malfunction](#)
- [Memory Seat Feature Malfunction](#)
- [Power Seat Malfunction](#)

Lumbar Support Malfunction (8-Way Seat without Memory)

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.

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
B+	1, 2	2	—	—
Seat Lumbar Motor Forward Control	2	2	—	—
Seat Lumbar Motor Rearward Control	2	2	—	—
Ground	—	2	—	—
1. Power seats inoperative 2. Lumbar support inoperative				

Circuit/System Description

The seat lumbar support is controlled through the seat lumbar support switch. Battery voltage is supplied at all times to the lumbar switch through a 30 A fuse located in the underhood fuse block. When the lumbar switches are in an inactive state, the switch contacts are closed to the switch ground circuit.

The lumbar motor is reversible. For example, when the lumbar forward switch is pressed to move the lumbar support forward, battery voltage is applied through the switch contacts and the lumbar motor forward control circuit to the lumbar motor. With the lumbar motor rearward switch contacts closed to the switch ground circuit, the motor runs in order to drive the lumbar support forward toward the occupants back until the switch is released. Moving the lumbar support rearward works similarly to moving the lumbar support forward, except that battery positive voltage and ground are applied on opposite circuits causing the motor to run in the opposite direction.

Reference Information

Schematic Reference

- [Driver Seat Schematics](#)
- [Passenger Seat Schematics](#)

Connector End View Reference

[Component Connector End Views](#)

Description and Operation

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[Lumbar Support Description and Operation](#)**Electrical Information Reference**

- [Circuit Testing](#)
- [Connector Repairs](#)
- [Testing for Intermittent Conditions and Poor Connections](#)
- [Wiring Repairs](#)

[Circuit/System Verification](#)

1. Ignition ON.
2. Verify that all power seat functions operate when being controlled by the S64 Seat Adjuster Switch.
⇒ **If any power seat function does not operate**
Refer to [Power Seat Malfunction](#).
↓ **If all power seat functions operate**
3. Refer to Circuit/System Testing.

[Circuit/System Testing](#)

1. Ignition OFF, disconnect the harness connector at the appropriate M53 Seat Lumbar Support Motor.
2. Connect a test lamp between control circuit terminal A and control circuit terminal B, ignition ON.
3. Verify the test lamp turns ON when commanding the lumbar support forward and rearward using the lumbar switch.
⇒ **If the test lamp remains OFF during either of the commands**
 - 3.1. Ignition OFF.
 - 3.2. Test for infinite resistance between each control circuit and ground.
⇒ If less than infinite resistance, repair the short to ground on the circuit.
↓ If infinite resistance
 - 3.3. Test for less than 2 Ω in each control circuit end to end.
⇒ If 2 Ω or greater, repair the open/high resistance in the circuit.
⇒ If less than 2 Ω , test or replace the S64 Seat Adjuster Switch.
↓ **If the test lamp turns ON during each of the commands**
4. Test or replace the M53 Seat Lumbar Support Motor.

[Component Testing](#)**Lumbar Support Switch**

1. Ignition OFF, disconnect the X2 harness connector at the appropriate S64 Seat Adjuster Switch.
2. Test for infinite resistance between the ground terminal and each lumbar signal terminal with the switch in the open position.
⇒ **If less than infinite resistance**
Replace the S64 Seat Adjuster Switch.
↓ **If infinite resistance**
3. Test for less than 2 Ω between the ground terminal and each lumbar signal terminal with the appropriate switch in the closed position.
⇒ **If 2 Ω or greater**
Replace the S64 Seat Adjuster Switch.
↓ **If less than 2 Ω**

4. All OK.

Lumbar Support Motor

1. Ignition OFF, disconnect the harness connector at the appropriate M53 Seat Lumbar Support Motor.

Note: When performing the following tests, make sure that the lumbar support is not already in the position the test is attempting to produce.

2. Install a 30 A fused jumper wire between control terminal 1 and 12 V.

3. Momentarily install a jumper wire between control terminal 5 and ground. The lumbar motor should momentarily perform the appropriate FORWARD/ REARWARD function.

⇒ **If the motor does not perform the FORWARD/ REARWARD function**

Replace the M53 Seat Lumbar Support Motor.

⇓ **If the motor performs the FORWARD/ REARWARD function**

4. Reverse the jumper wires; the lumbar motor should perform FORWARD/ REARWARD function.

⇒ **If the motor does not perform the FORWARD/ REARWARD function**

Replace the M53 Seat Lumbar Support Motor.

⇓ **If the motor performs the FORWARD/ REARWARD function**

5. All OK.

Repair Instructions

Perform the [Diagnostic Repair Verification](#) after completing the repair.

- [Driver or Passenger Seat Adjuster Switch Replacement](#)
- [Seat Lumbar Sub System Replacement](#)

Lumbar Support Malfunction (With 2-Way Seat without Memory)

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.

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
B+	1	2	—	—
Seat Lumbar Motor Forward Control	1	2	—	—
Seat Lumbar Motor Rearward Control	1	2	—	—
Ground	—	2	—	—
1. Power seats and lumbar support are inoperative 2. Lumbar support is inoperative				

Circuit/System Description

The seat lumbar support is controlled through the seat lumbar support switch. Battery voltage is supplied at all times to the lumbar switch through a 30 A fuse located in the underhood fuse block. When the lumbar switches are in an inactive state, the switch contacts are closed to the switch ground circuits.

The lumbar motor is reversible. For example, when the lumbar forward switch is pressed to move the lumbar support forward, battery voltage is applied through the switch contacts and the lumbar motor forward control circuit to the lumbar motor. With the lumbar motor rearward switch contacts closed to the switch ground circuit, the motor runs in order to drive the lumbar support forward toward the occupants back until the switch is released. Moving the lumbar support rearward works similarly to moving the lumbar support forward, except that battery positive voltage and ground are applied on opposite circuits causing the motor to run in the opposite direction.

Reference Information

Schematic Reference

- [Driver Seat Schematics](#)
- [Passenger Seat Schematics](#)

Connector End View Reference

[Component Connector End Views](#)

Description and Operation

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[Lumbar Support Description and Operation](#)

Electrical Information Reference

- [Circuit Testing](#)
- [Connector Repairs](#)
- [Testing for Intermittent Conditions and Poor Connections](#)
- [Wiring Repairs](#)

[Circuit/System Testing](#)

1. Ignition OFF and all vehicle systems OFF, disconnect the harness connector at the appropriate S65 Seat Lumbar Support Switch. It may take up to 2 min for all vehicle systems to power down.
2. Test for less than 10 Ω between the ground circuit terminals listed below and ground:
 - Terminal A
 - Terminal C
- ⇒ **If 10 Ω or greater**
 - 2.1. Ignition Off.
 - 2.2. Test for less than 2 Ω in the ground circuit end to end.
 - ⇒ If 2 Ω or greater, repair the open/high resistance in the circuit.
 - ⇒ If less than 2 Ω , repair the open/high resistance in the ground connection.
- ⇓ **If less than 10 Ω**
3. Ignition ON.
4. Verify a test lamp illuminates between the B+ circuit terminal D and ground.
- ⇒ **If the test lamp does not illuminate**
 - 4.1. Ignition OFF.
 - 4.2. Test for infinite resistance between the B+ circuit and ground.
 - ⇒ If less than infinite resistance, repair the short to ground on the circuit.
 - ⇓ If infinite resistance
 - 4.3. Test for less than 2 Ω in the B+ circuit end to end.
 - ⇒ If 2 Ω or greater, repair the open/high resistance in the circuit.
 - ⇒ If less than 2 Ω , verify the fuse is not open and there is voltage at the fuse.
- ⇓ **If the test lamp illuminates**
5. Ignition OFF, connect the harness connector at the S65 Seat Lumbar Support Switch and disconnect the harness connector at the M53 Seat Lumbar Support Motor.
6. Connect a test lamp between control circuit terminal A and control circuit terminal B, ignition ON.
7. Verify the test lamp turns ON when commanding the lumbar support Forward and Rearward using the S65 Seat Lumbar Support Switch.
- ⇒ **If the test lamp remains OFF during either of the commands**
 - 7.1. Ignition OFF, disconnect the harness connector at the S64 Seat Adjuster Switch.
 - 7.2. Test for less than 2 Ω in each control circuit end to end.
 - ⇒ If 2 Ω or greater, repair the open/high resistance in the circuit.
 - ⇒ If less than 2 Ω , test or replace the S64 Seat Adjuster Switch
- ⇓ **If the test lamp turns ON during each of the commands**
8. Test or replace the M53 Seat Lumbar Support Motor.

[Component Testing](#)

M53 Seat Lumbar Support Motor

1. Ignition OFF, disconnect the harness connector at the M53 Seat Lumbar Support Motor.

Note: When performing the following tests, make sure that the lumbar support is not already in the position the test is attempting to produce.

2. Install a 30 A fused jumper wire between control terminal B and 12 V.
3. Momentarily install a jumper wire between control terminal A and ground. The M53 Seat Lumbar Support Motor should momentarily perform the lumbar FORWARD function.

⇒ **If the motor does not perform the lumbar FORWARD function**

Replace the M53 Seat Lumbar Support Motor.

⇓ **If the motor performs the lumbar FORWARD function**

4. Reverse the polarity of jumper wires; the lumbar motor should perform REARWARD function.

⇒ **If the motor does not perform the lumbar REARWARD function**

Replace the M53 Seat Lumbar Support Motor.

⇓ **If the motor performs the lumbar REARWARD function**

5. All OK.

Repair Instructions

Perform the [Diagnostic Repair Verification](#) after completing the repair.

- [Driver or Passenger Seat Adjuster Switch Replacement](#)
- [Seat Lumbar Sub System Replacement](#)

Memory Seat Feature Malfunction

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.

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
Memory Switch Signal Terminal 1	B2755 02	1	B2755 01	B2755 00 —
Memory Set Switch Signal Terminal 5	B2765 02	1	—	—
Driver Seat Memory Switch Low Reference	—	1	—	—
1. Memory seat feature is inoperative				

Circuit/System Description

Low reference is supplied to the driver seat memory switch from the seat memory control module. When a memory switch is pressed, the signal circuit from the seat memory control module is pulled low through the switch contacts and series of resistors indicating the memory recall request. In response to this signal, the seat memory control module commands the appropriate seat motors to move to the pre-recorded seat positions stored in memory.

Diagnostic Aids

The seat memory control module must be awake when measuring voltage from either one of the memory seat switch signal circuits. Voltage readings of 0.0 V or 5 V are possible if the module is not fully awake and result in misdiagnosing the circuit.

Reference Information

Schematic Reference

[Driver Seat Schematics](#)

Connector End View Reference

[Component Connector End Views](#)

Description and Operation

[Memory Seats Description and Operation](#)

Electrical Information Reference

- [Circuit Testing](#)
- [Connector Repairs](#)
- [Testing for Intermittent Conditions and Poor Connections](#)

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- [Wiring Repairs](#)

Scan Tool Reference

[Control Module References](#) for scan tool information

Circuit/System Verification

1. Ignition ON.
2. Verify that all manual power seat functions operate when being controlled by the S64D Seat Adjuster Switch – Driver.
 - ⇒ **If any manual power seat function does not operate**
Refer to [Power Seat Malfunction](#)
 - ⇓ **If all manual power seat functions operate**
3. Refer to Circuit/System Testing.

Circuit/System Testing

1. Ignition OFF, disconnect the harness connector at the S47D Seat Memory Switch – Driver.
2. Test for less than 30 Ω between the low reference circuit terminal 1 and ground.
 - ⇒ **If 30 Ω or greater**
 - 2.1. Ignition OFF, disconnect the X6 harness connector at the K40 Seat Memory Control Module.
 - 2.2. Test for less than 2 Ω in the low reference circuit end to end
 - ⇒ If 2 Ω or greater, repair the open/high resistance in the circuit.
 - ⇒ If less than 2 Ω , replace the K40 Seat Memory Control Module.
 - ⇓ **If less than 30 Ω**
3. Ignition ON, press a power seat switch in order to wake up the K40 Seat Memory Control Module.
4. Test for 9 V or greater between each signal circuit terminal listed below and ground:
 - Memory seat switch set signal terminal 5
 - Memory seat switch signal terminal 6
 - ⇒ **If less than 9 V**
 - 4.1. Ignition OFF, disconnect the X6 harness connector at the K40 Seat Memory Control Module.
 - 4.2. Test for infinite resistance between the signal circuit and ground.
 - ⇒ If less than infinite resistance, repair the short to ground on the circuit.
 - ⇓ If infinite resistance
 - 4.3. Test for less than 2 Ω in the signal circuit end to end.
 - ⇒ If 2 Ω or greater, repair the open/high resistance in the circuit.
 - ⇒ If less than 2 Ω , replace the K40 Seat Memory Control Module.
 - ⇓ **If 9 V or greater**
5. Ignition OFF, disconnect the X6 harness connector at the K40 Seat Memory Control Module, ignition ON.
6. Test for less than 1 V between each signal circuit terminal listed below and ground:
 - Memory seat switch set signal terminal 5
 - Memory seat switch signal terminal 6
 - ⇒ **If 1 V or greater**
Repair the short to voltage on the circuit.
 - ⇓ **If less than 1 V**
7. Test or replace the S47D Seat Memory Switch – Driver.

Component Testing

Driver Seat Memory Switch

1. Ignition OFF, disconnect the harness connector at the S47D Seat Memory Switch – Driver.
2. Test for infinite resistance between each signal terminal listed below and the low reference terminal 1 with the switch in the open position.
 - Terminal 5
 - Terminal 6
- ⇒ **If less than infinite resistance**
Replace the S47D Seat Memory Switch – Driver.
- ⇓ **If infinite resistance**
3. Test for less than 5 Ω between the signal terminal 5 and the low reference terminal 1 while pressing the memory SET button.
- ⇒ **If 5 Ω or greater**
Replace the S47D Seat Memory Switch – Driver.
- ⇓ **If less than 5 Ω**
4. Test for 573–701 Ω between the signal terminal 6 and the low reference terminal 1 while pressing the memory 1 button.
- ⇒ **If not between 573–701 Ω**
Replace the S47D Seat Memory Switch – Driver.
- ⇓ **If between 573–701 Ω**
5. Test for 1.8k–2.2 k Ω between the signal terminal 6 and the low reference terminal 1 while pressing the memory 2 button.
- ⇒ **If not between 1800–2201 Ω**
Replace the S47D Seat Memory Switch – Driver.
- ⇓ **If between 1800–2201 Ω**
6. Test for 5.52k–6.73 k Ω between the signal terminal 6 and the low reference terminal 1 while pressing the memory 3 button.
- ⇒ **If not between 5.52k–6.73 k Ω**
Replace the S47D Seat Memory Switch – Driver.
- ⇓ **If between 5.52k–6.73 k Ω**
7. All OK.

Repair Instructions

Perform the [Diagnostic Repair Verification](#) after completing the repair.

- [Driver Seat Adjuster Memory Switch Replacement](#)
- [Control Module References](#) for K40 Seat Memory Control Module replacement, programming and setup

Power Seat Malfunction (Left Hand Drive with Memory)

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.

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
Seat Memory Control Module B+ Terminal 1 X1	U0208 00, 2	U0208 00, 2	—	—
Seat Memory Control Module B+ Terminal 2 X1	1, 3	1, 3	—	—
Front Vertical Up Switch Signal	B1735 02, B1740 02, B1745 02, B1750 02, B1755 02, B1760 02, B1815 02, B1820 02, B1830 02, B1835 02	1	—	—
Front Vertical Down Switch Signal	B1735 02, B1740 02, B1745 02, B1750 02, B1755 02, B1760 02, B1815 02, B1820 02, B1830 02, B1835 02	1	—	—
Rear Vertical Up Switch Signal	B1735 02, B1740 02, B1745 02, B1750 02, B1755 02, B1760 02, B1815 02, B1820 02, B1830 02, B1835 02	1	—	—
Rear Vertical Down Switch Signal	B1735 02, B1740 02, B1745 02, B1750 02	1	—	—

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
	B1755 02, B1760 02, B1815 02, B1820 02, B1830 02, B1835 02			
Horizontal Forward Switch Signal	B1735 02, B1740 02, B1745 02, B1750 02, B1755 02, B1760 02, B1815 02, B1820 02, B1830 02, B1835 02	1	—	—
Horizontal Rearward Switch Signal	B1735 02, B1740 02, B1745 02, B1750 02, B1755 02, B1760 02, B1815 02, B1820 02, B1830 02, B1835 02	1	—	—
Recline Forward Switch Signal	B1735 02, B1740 02, B1745 02, B1750 02, B1755 02, B1760 02, B1815 02, B1820 02, B1830 02, B1835 02	1	—	—
Recline Rearward Switch Signal	B1735 02, B1740 02, B1745 02, B1750 02, B1755 02, B1760 02, B1815 02, B1820 02, B1830 02, B1835 02	1	—	—
Driver Seat Front Vertical Motor Down Control	B3920 02	1	B3920 01	B3920 00, B3920 0B
Driver Seat Front Vertical Motor Up Control	B3920 02	1	B3920 01	B3920 00, B3920 0B

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
Driver Seat Horizontal Motor Forward Control	B3920 02	1	B3920 01	B3920 00, B3920 0B
Driver Seat Horizontal Motor Rearward Control	B3920 02	1	B3920 01	B3920 00, B3920 0B
Driver Seat Rear Vertical Motor Down Control	B3920 02	1	B3920 01	B3920 00, B3920 0B
Driver Seat Rear Vertical Motor Up Control	B3920 02	1	B3920 01	B3920 00, B3920 0B
Driver Seat Recline Motor Forward Control	B3920 02	1	B3920 01	B3920 00, B3920 0B
Driver Seat Recline Motor Rearward Control	B3920 02	1	B3920 01	B3920 00, B3920 0B
Ground	—	U0208 00, 2	—	—
1. Power seat and memory functions inoperative 2. Scan Tool Does Not Communicate with Low Speed GMLAN Device 3. Lumbar support is inoperative				

Circuit/System Description

Battery voltage is supplied at all times to the seat memory control module through a fuse located in the underhood 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 circuit breaker 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, the switch signal circuit from the seat memory control module is pulled low indicating the entire seat forward command. In response to this signal, 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. 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.

Reference Information

Schematic Reference

[Driver Seat Schematics](#)

Connector End View Reference

[Component Connector End Views](#)

Description and Operation

[Memory Seats Description and Operation](#)

Electrical Information Reference

- [Circuit Testing](#)
- [Connector Repairs](#)
- [Testing for Intermittent Conditions and Poor Connections](#)
- [Wiring Repairs](#)

Scan Tool Reference

[Control Module References](#) for scan tool information

Circuit/System Verification

1. Ignition ON.
2. Verify the scan tool seat switch parameters listed below change between Inactive and Forward/Rearward or Up/Down when pressing the appropriate switch.
 - Driver Seat Horizontal Switch
 - Driver Seat Cushion Front Vertical Switch
 - Driver Seat Cushion Rear Vertical Switch
 - Driver Seat Back Switch
- ⇒ **If the parameter does not change**
Refer to Circuit/System Testing – Driver Seat Adjuster Switch Circuit Test
- ⇓ **If the parameter changes**
3. Verify the seat directional motors listed below operate while operating the appropriate seat switches in both directions.
 - M50D Seat Front Vertical Motor – Driver
 - M55D Seat Rear Vertical Motor – Driver
 - M51D Seat Horizontal Motor – Driver
 - M56D Seat Recline Motor – Driver
- ⇒ **If any seat motor does not operate**
Refer to Circuit/System Testing – Seat Motor Control Circuit Test.
- ⇓ **If all seat motors operate**
4. All OK.

Circuit/System Testing

Driver Seat Adjuster Switch Circuit Test

1. Ignition OFF and all vehicle systems OFF, disconnect the X1 harness connector at the S64D Seat Adjuster Switch – Driver. It may take up to 2 min for all vehicle systems to power down.
2. Test for less than 10 Ω between the ground circuit terminal 6 and ground.
- ⇒ **If 10 Ω or greater**
 - 2.1. Ignition Off.
 - 2.2. Test for less than 2 Ω in the ground circuit end to end.
 - ⇒ If 2 Ω or greater, repair the open/high resistance in the circuit.
 - ⇒ If less than 2 Ω , repair the open/high resistance in the ground connection.
- ⇓ **If less than 10 Ω**
3. Install a 3 A fused jumper wire between the ground circuit terminal 6 and the appropriate signal circuit terminal listed below, ignition ON.
 - Front vertical upward switch terminal 1
 - Front vertical downward switch terminal 5

- Rear vertical upward switch terminal 8
 - Rear vertical downward switch terminal 10
 - Horizontal forward switch terminal 3
 - Horizontal rearward switch terminal 7
 - Recline forward switch terminal 4
 - Recline rearward switch terminal 9
4. Verify the appropriate scan tool seat switch parameter is Forward/Rearward or UP/Down.
- ⇒ **If not Forward/Rearward or UP/Down**
- 4.1. Ignition OFF, disconnect the X5 harness connector at the K40 Seat Memory Control Module, ignition ON.
- 4.2. Test for less than 1 V between the signal circuit and ground.
- ⇒ If 1 V or greater, repair the short to voltage on the circuit.
- ⇓ If less than 1 V
- 4.3. Ignition OFF.
- 4.4. Test for less than 2 Ω in the signal circuit end to end.
- ⇒ If 2 Ω or greater, repair the open/high resistance in the circuit.
- ⇒ If less than 2 Ω , replace the K40 Seat Memory Control Module.
- ⇓ **If Forward/Rearward or UP/Down**
5. Test or replace the S64D Seat Adjuster Switch – Driver.

Seat Motor Control Circuit Test

1. Ignition OFF, disconnect the X2 harness connector at the K40 Seat Memory Control Module.
2. Test for less than 10 Ω between ground circuit terminal 5 and ground.
- ⇒ **If 10 Ω or greater**
- 2.1. Ignition OFF.
- 2.2. Test for less than 2 Ω in the ground circuit end to end.
- ⇒ If 2 Ω or greater, repair the open/high resistance in the circuit.
- ⇒ If less than 2 Ω , repair the open/high resistance in the ground connection.
- ⇓ **If less than 10 Ω**
3. Ignition OFF, disconnect the X1 harness connector at the K40 Seat Memory Control Module, ignition ON.
4. Verify that a test lamp illuminates between the B+ circuit terminal 2 and ground.
- ⇒ **If the test lamp does not illuminate and the circuit fuse is OK.**
- 4.1. Ignition OFF, remove the test lamp.
- 4.2. Test for less than 2 Ω in the B+ circuit end to end.
- ⇒ If 2 Ω or greater, repair the open/high resistance in the circuit.
- ⇒ If less than 2 Ω , verify the fuse is OK and there is voltage at the fuse.
- ⇒ **If the test lamp does not illuminate and the circuit fuse is open.**
- 4.1. Ignition OFF, remove the test lamp.
- 4.2. Test for infinite resistance between the B+ circuit and ground.
- ⇒ If less than infinite resistance, repair the short to ground on the circuit.
- ⇒ If infinite resistance, replace the K40 Seat Memory Control Module.
- ⇓ **If the test lamp illuminates.**
5. Ignition OFF, connect the X1 harness connector at the K40 Seat Memory Control Module and disconnect the harness connector at the appropriate seat motor listed below:
- M50D Seat Front Vertical Motor – Driver

- M55D Seat Rear Vertical Motor – Driver
- M51D Seat Horizontal Motor – Driver
- M56D Seat Recline Motor – Driver

6. Connect a test lamp between control circuit terminal 1 and control circuit terminal 3, ignition ON.

Note: Once a seat motor is commanded On using the scan tool, the seat function may not work using the seat adjuster switch until you back out of the scan tool Control Functions menu.

7. Verify the test lamp turns ON when commanding the seat motor in the Up/Down or Forward/Rearward states with a scan tool.

⇒ **If the test lamp remains OFF during either of the commands**

7.1. Ignition OFF, disconnect the X3 harness connector at the K40 Seat Memory Control Module.

7.2. Test for infinite resistance between each control circuit and ground.

⇒ If less than infinite resistance, repair the short to ground on the circuit.

⇓ If infinite resistance

7.3. Test for less than 2 Ω in each control circuit end to end.

⇒ If 2 Ω or greater, repair the open/high resistance in the circuit.

⇒ If less than 2 Ω , replace the K40 Seat Memory Control Module.

⇓ **If the test lamp turns ON during each of the commands**

8. Test or replace the seat motor.

Component Testing

Seat Adjuster Switch Test

1. Ignition OFF, disconnect the X1 and X2 harness connectors at the S64D Seat Adjuster Switch – Driver.

2. Test for infinite resistance between the ground terminal 6 X1 and each signal terminal with the switch in the open position.

⇒ **If less than infinite resistance**

Replace the S64D Seat Adjuster Switch – Driver.

⇓ **If infinite resistance**

3. Test for less than 2 Ω between the ground terminal 6 X1 and each signal terminal with the appropriate switch in the closed position.

⇒ **If 2 Ω or greater**

Replace the S64D Seat Adjuster Switch – Driver.

⇓ **If less than 2 Ω**

4. All OK.

Seat Motor

1. Ignition OFF, disconnect the harness connector at the appropriate seat motor listed below:

- M50D Seat Front Vertical Motor – Driver
- M55D Seat Rear Vertical Motor – Driver
- M51D Seat Horizontal Motor – Driver
- M56D Seat Recline Motor – Driver

Note: When performing the following tests, make sure that the seat is not already in the position the test is attempting to produce.

2. Install a 30 A fused jumper wire between control terminal 1 and 12 V.

3. Momentarily install a jumper wire between control terminal 3 and ground. The seat motor should momentarily perform the appropriate FORWARD/ REARWARD/ UP/ DOWN function.

- ⇒ **If the motor does not perform the FORWARD/ REARWARD/ UP/ DOWN function**
Replace the seat motor.
- ⇓ **If the motor performs the FORWARD/ REARWARD/ UP/ DOWN function**
4. Reverse the jumper wires; the motor should perform FORWARD/ REARWARD/ UP/ DOWN function.
- ⇒ **If the motor does not perform the FORWARD/ REARWARD/ UP/ DOWN function**
Replace the seat motor.
- ⇓ **If the motor performs the FORWARD/ REARWARD/ UP/ DOWN function**
5. All OK.

Repair Instructions

Perform the [Diagnostic Repair Verification](#) after completing the repair.

- [Driver or Passenger Seat Adjuster Switch Replacement](#)
- [Front Seat Tilt Adjuster Actuator Replacement](#)
- [Driver or Passenger Seat Vertical Adjuster Actuator Replacement](#)
- [Front Seat Adjuster Actuator Replacement](#)
- [Driver or Passenger Seat Recliner Actuator Replacement](#)
- [Control Module References](#) for K40 Seat Memory Control Module replacement, programming and setup

Power Seat Malfunction (8-Way Seat without Memory)

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.

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
B+	1	1	—	—
Front Vertical Motor Down Control	1	1	—	—
Front Vertical Motor Up Control	1	1	—	—
Horizontal Motor Forward Control	1	1	—	—
Horizontal Motor Rearward Control	1	1	—	—
Rear Vertical Motor Down Control	1	1	—	—
Rear Vertical Motor Up Control	1	1	—	—
Recline Motor Forward Control	1	1	—	—
Recline Motor Rearward Control	1	1	—	—
Ground	—	1	—	—
1. Power seat inoperative				

Circuit/System Description

The driver seat without memory and the passenger seat are completely controlled through their respective seat adjuster switches. Battery voltage is supplied at all times to the seat adjuster switch through a 30 A fuse located in the underhood fuse block. When the seat switches are in an inactive state, the switch contacts are closed to the switch ground circuit.

All seat motors are reversible. For example, when the seat horizontal forward switch is pressed to move the entire seat forward, battery voltage is applied through the switch contacts and the seat horizontal motor forward control circuit to the motor. With the horizontal motor rearward switch contacts closed to the switch ground circuit, the motor runs in order to drive the entire seat forward until the switch is released. Moving the entire seat rearward works similarly to moving the entire seat forward, except that battery voltage and ground are applied on opposite circuits causing the motor to run in the opposite direction. All seat motors are powered this way.

Reference Information

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Schematic Reference

- [Driver Seat Schematics](#)
- [Passenger Seat Schematics](#)

Connector End View Reference

[Component Connector End Views](#)

Description and Operation

[Power Seats System Description and Operation](#)

Electrical Information Reference

- [Circuit Testing](#)
- [Connector Repairs](#)
- [Testing for Intermittent Conditions and Poor Connections](#)
- [Wiring Repairs](#)

[Circuit/System Verification](#)

1. Verify the appropriate driver or passenger seat directional motors listed below operate while operating the seat switches in both directions.
 - M51 Seat Horizontal Motor
 - M50 Seat Front Vertical Motor
 - M55 Seat Rear Vertical Motor
 - M56 Seat Recline Motor
- ⇒ **If all seat motors do not operate**
Refer to Circuit/System Testing – Seat Adjuster Switch Circuit Test.
- ⇒ **If 1 or more seat motors operate but not all**
Refer to Circuit/System Testing – Seat Motor Circuit Test.
- ⇓ **If all seat motors operate**
2. All OK.

[Circuit/System Testing](#)**Seat Adjuster Switch Circuit Test**

1. Ignition OFF, disconnect the harness connector at the appropriate S64 Seat Adjuster Switch.
2. Test for less than 10 Ω between the appropriate ground circuit terminal listed below and ground.
 - Left seat terminal 2
 - Right seat terminal 5
- ⇒ **If 10 Ω or greater**
 - 2.1. Ignition OFF.
 - 2.2. Test for less than 2 Ω in the ground circuit end to end.
 - ⇒ If 2 Ω or greater, repair the open/high resistance in the circuit.
 - ⇒ If less than 2 Ω , repair the open/high resistance in the ground connection.
- ⇓ **If less than 10 Ω**
3. Ignition ON.
4. Verify a test lamp illuminates between the appropriate B+ circuit terminal listed below and ground.
 - Left seat terminal 6

- Right seat terminal 10

⇒ **If the test lamp does not illuminate**

4.1. Ignition OFF

4.2. Test for less than $2\ \Omega$ in the B+ circuit end to end.

⇒ If $2\ \Omega$ or greater, repair the open/high resistance in the circuit.

⇒ If less than $2\ \Omega$, verify the circuit breaker is not open and there is voltage at the circuit breaker.

↓ **If the test lamp illuminates**

5. Test or replace the S64 Seat Adjuster Switch.

Seat Motor Circuit Test

1. Ignition OFF, disconnect the harness connector at the appropriate seat motor listed below:

- M50 Seat Front Vertical Motor
- M55 Seat Rear Vertical Motor
- M51 Seat Horizontal Motor
- M56 Seat Recline Motor

2. Connect a test lamp between control circuit terminal 1 and control circuit terminal 3, Ignition ON.

3. Verify the test lamp illuminates when commanding the seat motor Up and Down or Forward and Rearward using the seat adjuster switch.

⇒ **If the test lamp does not illuminate during either of the commands**

3.1. Ignition OFF, disconnect the harness connector at the S64 Seat Adjuster Switch.

3.2. Test for less than $2\ \Omega$ in each control circuit end to end.

⇒ If $2\ \Omega$ or greater, repair the open/high resistance in the circuit.

⇒ If less than $2\ \Omega$, test or replace the S64 Seat Adjuster Switch

↓ **If the test lamp illuminates during each of the commands**

4. Test or replace the seat motor.

Component Testing

Seat Adjuster Switch Test

1. Ignition OFF, disconnect the harness connector at the S64 Seat Adjuster Switch.

2. Test for infinite resistance between the B+ terminal and each control terminal with the switch in the open position.

⇒ **If less than infinite resistance**

Replace the S64 Seat Adjuster Switch.

↓ **If infinite resistance**

3. Test for less than $2\ \Omega$ between the B+ terminal and each control terminal with the appropriate switch in the closed position.

⇒ **If $2\ \Omega$ or greater**

Replace the S64 Seat Adjuster Switch.

↓ **If less than $2\ \Omega$**

4. Test for less than $2\ \Omega$ between the ground terminal and each control terminal with the switch in the open position.

⇒ **If $2\ \Omega$ or greater**

Replace the S64 Seat Adjuster Switch.

↓ **If less than $2\ \Omega$**

5. All OK.

Seat Motor

1. Ignition OFF, disconnect the harness connector at the appropriate seat motor listed below:

- M50 Seat Front Vertical Motor
- M55 Seat Rear Vertical Motor
- M51 Seat Horizontal Motor
- M56 Seat Recline Motor

Note: When performing the following tests, make sure that the seat is not already in the position the test is attempting to produce.

2. Install a 30 A fused jumper wire between control terminal 1 and 12 V.

3. Momentarily install a jumper wire between control terminal 3 and ground. The seat motor should momentarily perform the appropriate FORWARD/ REARWARD/ UP/ DOWN function.

⇒ **If the motor does not perform the FORWARD/ REARWARD/ UP/ DOWN function**
Replace the motor.

⇓ **If the motor performs the FORWARD/ REARWARD/ UP/ DOWN function**

4. Reverse the jumper wires; the motor should perform FORWARD/ REARWARD/ UP/ DOWN function.

⇒ **If the motor does not perform the FORWARD/ REARWARD/ UP/ DOWN function**
Replace the motor.

⇓ **If the motor performs the FORWARD/ REARWARD/ UP/ DOWN function**

5. All OK.

Repair Instructions

Perform the [Diagnostic Repair Verification](#) after completing the repair.

- [Driver or Passenger Seat Adjuster Switch Replacement](#)
- [Front Seat Tilt Adjuster Actuator Replacement](#)
- [Driver or Passenger Seat Vertical Adjuster Actuator Replacement](#)
- [Front Seat Adjuster Actuator Replacement](#)
- [Driver or Passenger Seat Recliner Actuator Replacement](#)

Power Seat Malfunction (Right Hand Drive with Memory)

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.

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
Seat Memory Control Module B+ Terminal 1 X1	U0208 00, 2	U0208 00, 2	—	—
Seat Memory Control Module B+ Terminal 2 X1	1, 3	1, 3	—	—
Front Vertical Up Switch Signal	B1735 02, B1740 02, B1745 02, B1750 02, B1755 02, B1760 02, B1815 02, B1820 02, B1830 02, B1835 02	1	—	—
Front Vertical Down Switch Signal	B1735 02, B1740 02, B1745 02, B1750 02, B1755 02, B1760 02, B1815 02, B1820 02, B1830 02, B1835 02	1	—	—
Rear Vertical Up Switch Signal	B1735 02, B1740 02, B1745 02, B1750 02, B1755 02, B1760 02, B1815 02, B1820 02, B1830 02, B1835 02	1	—	—
Rear Vertical Down Switch Signal	B1735 02, B1740 02,	1	—	—

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Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
	B1745 02, B1750 02, B1755 02, B1760 02, B1815 02, B1820 02, B1830 02, B1835 02			
Horizontal Forward Switch Signal	B1735 02, B1740 02, B1745 02, B1750 02, B1755 02, B1760 02, B1815 02, B1820 02, B1830 02, B1835 02	1	—	—
Horizontal Rearward Switch Signal	B1735 02, B1740 02, B1745 02, B1750 02, B1755 02, B1760 02, B1815 02, B1820 02, B1830 02, B1835 02	1	—	—
Recline Forward Switch Signal	B1735 02, B1740 02, B1745 02, B1750 02, B1755 02, B1760 02, B1815 02, B1820 02, B1830 02, B1835 02	1	—	—
Recline Rearward Switch Signal	B1735 02, B1740 02, B1745 02, B1750 02, B1755 02, B1760 02, B1815 02, B1820 02, B1830 02, B1835 02	1	—	—
Driver Seat Front Vertical Motor Down Control	B3920 02	1	B3920 01	B3920 00, B3920 0B
	B3920 02	1	B3920 01	

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
Driver Seat Front Vertical Motor Up Control				B3920 00, B3920 0B
Driver Seat Horizontal Motor Forward Control	B3920 02	1	B3920 01	B3920 00, B3920 0B
Driver Seat Horizontal Motor Rearward Control	B3920 02	1	B3920 01	B3920 00, B3920 0B
Driver Seat Rear Vertical Motor Down Control	B3920 02	1	B3920 01	B3920 00, B3920 0B
Driver Seat Rear Vertical Motor Up Control	B3920 02	1	B3920 01	B3920 00, B3920 0B
Driver Seat Recline Motor Forward Control	B3920 02	1	B3920 01	B3920 00, B3920 0B
Driver Seat Recline Motor Rearward Control	B3920 02	1	B3920 01	B3920 00, B3920 0B
Ground	—	U0208 00, 2	—	—
1. Power seat and memory functions inoperative 2. Scan Tool Does Not Communicate with Low Speed GMLAN Device 3. Lumbar support is inoperative				

Circuit/System Description

Battery voltage is supplied at all times to the seat memory control module through a fuse located in the underhood 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 circuit breaker 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, the switch signal circuit from the seat memory control module is pulled low indicating the entire seat forward command. In response to this signal, 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. 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.

Reference Information

Schematic Reference

[Driver Seat Schematics](#)

Connector End View Reference

[Component Connector End Views](#)

Description and Operation

[Memory Seats Description and Operation](#)

Electrical Information Reference

- [Circuit Testing](#)
- [Connector Repairs](#)
- [Testing for Intermittent Conditions and Poor Connections](#)
- [Wiring Repairs](#)

Scan Tool Reference

[Control Module References](#) for scan tool information

Circuit/System Verification

1. Ignition ON.
 2. Verify the scan tool seat switch parameters listed below change between Inactive and Forward/Rearward or Up/Down when pressing the appropriate switch.
 - Driver Seat Horizontal Switch
 - Driver Seat Cushion Front Vertical Switch
 - Driver Seat Cushion Rear Vertical Switch
 - Driver Seat Back Switch
- ⇒ **If the parameter does not change**
Refer to Circuit/System Testing – Driver Seat Adjuster Switch Circuit Test
- ↓ **If the parameter changes**
3. Verify the seat directional motors listed below operate while operating the appropriate seat switches in both directions.
 - M50D Seat Front Vertical Motor – Driver
 - M55D Seat Rear Vertical Motor – Driver
 - M51D Seat Horizontal Motor – Driver
 - M56D Seat Recline Motor – Driver
- ⇒ **If any seat motor does not operate**
Refer to Circuit/System Testing – Seat Motor Control Circuit Test.
- ↓ **If all seat motors operate**
4. All OK.

Circuit/System Testing

Driver Seat Adjuster Switch Circuit Test

1. Ignition OFF and all vehicle systems OFF, disconnect the X1 harness connector at the S64D Seat Adjuster Switch – Driver. It may take up to 2 min for all vehicle systems to power down.
 2. Test for less than 10 Ω between the ground circuit terminal 10 and ground.
- ⇒ **If 10 Ω or greater**
- 2.1. Ignition Off.
 - 2.2. Test for less than 2 Ω in the ground circuit end to end.
 - ⇒ If 2 Ω or greater, repair the open/high resistance in the circuit.
 - ⇒ If less than 2 Ω , repair the open/high resistance in the ground connection.
- ↓ **If less than 10 Ω**
3. Install a 3 A fused jumper wire between the ground circuit terminal 10 and the appropriate signal circuit terminal listed below, ignition ON.

- Front vertical up switch terminal 4
- Front vertical down switch terminal 1
- Rear vertical up switch terminal 8
- Rear vertical down switch terminal 6
- Horizontal forward switch terminal 3
- Horizontal rearward switch terminal 9
- Recline forward switch terminal 2
- Recline rearward switch terminal 7

4. Verify the appropriate scan tool seat switch parameter is Forward/Rearward or UP/Down.

⇒ **If not Forward/Rearward or UP/Down**

- 4.1. Ignition OFF, disconnect the X5 harness connector at the K40 Seat Memory Control Module, ignition ON.
- 4.2. Test for less than 1 V between the signal circuit and ground.
 - ⇒ If 1 V or greater, repair the short to voltage on the circuit.
 - ⇓ If less than 1 V
- 4.3. Ignition OFF.
- 4.4. Test for less than 2 Ω in the signal circuit end to end.
 - ⇒ If 2 Ω or greater, repair the open/high resistance in the circuit.
 - ⇒ If less than 2 Ω , replace the K40 Seat Memory Control Module.

⇓ **If Forward/Rearward or UP/Down**

5. Test or replace the S64D Seat Adjuster Switch – Driver.

Seat Motor Control Circuit Test

1. Ignition OFF, disconnect the X2 harness connector at the K40 Seat Memory Control Module.
2. Test for less than 10 Ω between ground circuit terminal 5 and ground.

⇒ **If 10 Ω or greater**

- 2.1. Ignition OFF.
- 2.2. Test for less than 2 Ω in the ground circuit end to end.
 - ⇒ If 2 Ω or greater, repair the open/high resistance in the circuit.
 - ⇒ If less than 2 Ω , repair the open/high resistance in the ground connection.

⇓ **If less than 10 Ω**

3. Ignition OFF, disconnect the X1 harness connector at the K40 Seat Memory Control Module, ignition ON.
4. Verify that a test lamp illuminates between the B+ circuit terminal 2 and ground.

⇒ **If the test lamp does not illuminate.**

- 4.1. Ignition OFF.
- 4.2. Test for infinite resistance between the B+ circuit and ground.
 - ⇒ If less than infinite resistance, repair the short to ground on the circuit.
 - ⇓ If infinite resistance
- 4.3. Test for less than 2 Ω in the B+ circuit end to end.
 - ⇒ If 2 Ω or greater, repair the open/high resistance in the circuit.
 - ⇒ If less than 2 Ω , verify the fuse is OK and there is voltage at the fuse.

⇓ **If the test lamp illuminates.**

5. Ignition OFF, connect the X1 harness connector at the K40 Seat Memory Control Module and disconnect the harness connector at the appropriate seat motor listed below:
 - M50D Seat Front Vertical Motor – Driver

- M55D Seat Rear Vertical Motor – Driver
- M51D Seat Horizontal Motor – Driver
- M56D Seat Recline Motor – Driver

6. Connect a test lamp between control circuit terminal 1 and control circuit terminal 3, ignition ON.

Note: Once a seat motor is commanded On using the scan tool, the seat function may not work using the seat adjuster switch until you back out of the scan tool Control Functions menu.

7. Verify the test lamp turns ON when commanding the seat motor in the Up/Down or Forward/Rearward states with a scan tool.

⇒ **If the test lamp remains OFF during either of the commands**

7.1. Ignition OFF, disconnect the X3 harness connector at the K40 Seat Memory Control Module.

7.2. Test for infinite resistance between each control circuit and ground.

⇒ If less than infinite resistance, repair the short to ground on the circuit.

⇓ If infinite resistance

7.3. Test for less than 2 Ω in each control circuit end to end.

⇒ If 2 Ω or greater, repair the open/high resistance in the circuit.

⇒ If less than 2 Ω , replace the K40 Seat Memory Control Module.

⇓ **If the test lamp turns ON during each of the commands**

8. Test or replace the seat motor.

Component Testing

Seat Adjuster Switch Test

1. Ignition OFF, disconnect the X1 and X2 harness connectors at the S64D Seat Adjuster Switch – Driver.

2. Test for infinite resistance between the ground terminal 10 and each signal terminal with the switch in the open position.

⇒ **If less than infinite resistance**

Replace the S64D Seat Adjuster Switch – Driver.

⇓ **If infinite resistance**

3. Test for less than 2 Ω between the ground terminal 10 and each signal terminal with the appropriate switch in the closed position.

⇒ **If 2 Ω or greater**

Replace the S64D Seat Adjuster Switch – Driver.

⇓ **If less than 2 Ω**

4. All OK.

Seat Motor

1. Ignition OFF, disconnect the harness connector at the appropriate seat motor listed below:

- M50D Seat Front Vertical Motor – Driver
- M55D Seat Rear Vertical Motor – Driver
- M51D Seat Horizontal Motor – Driver
- M56D Seat Recline Motor – Driver

Note: When performing the following tests, make sure that the seat is not already in the position the test is attempting to produce.

2. Install a 30 A fused jumper wire between control terminal 1 and 12 V.

3. Momentarily install a jumper wire between control terminal 3 and ground. The seat motor should momentarily perform the appropriate FORWARD/ REARWARD/ UP/ DOWN function.

- ⇒ **If the motor does not perform the FORWARD/ REARWARD/ UP/ DOWN function**
Replace the seat motor.
- ⇓ **If the motor performs the FORWARD/ REARWARD/ UP/ DOWN function**
4. Reverse the jumper wires; the motor should perform FORWARD/ REARWARD/ UP/ DOWN function.
- ⇒ **If the motor does not perform the FORWARD/ REARWARD/ UP/ DOWN function**
Replace the seat motor.
- ⇓ **If the motor performs the FORWARD/ REARWARD/ UP/ DOWN function**
5. All OK.

Repair Instructions

Perform the [Diagnostic Repair Verification](#) after completing the repair.

- [Driver or Passenger Seat Adjuster Switch Replacement](#)
- [Front Seat Tilt Adjuster Actuator Replacement](#)
- [Driver or Passenger Seat Vertical Adjuster Actuator Replacement](#)
- [Front Seat Adjuster Actuator Replacement](#)
- [Driver or Passenger Seat Recliner Actuator Replacement](#)
- [Control Module References](#) for K40 Seat Memory Control Module replacement, programming and setup

Power Seat Malfunction (2-Way Seat without Memory)

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.

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
B+	1	1	—	—
Rear Vertical Motor Down Control	1	1	—	—
Rear Vertical Motor Up Control	1	1	—	—
Ground	—	1	—	—
1. Power seat inoperative				

Circuit/System Description

Battery voltage is supplied at all times to the seat adjuster switch through a 30 A fuse located in the underhood fuse block. When the seat switch is in an inactive state, the switch contacts are closed to the switch ground circuit.

The seat rear vertical motor is reversible. For example, when the seat vertical up switch is pressed to move the entire seat up, battery voltage is applied through the switch contacts and the seat rear vertical motor up control circuit to the motor. With the vertical motor down switch contacts closed to the switch ground circuit, the motor runs in order to drive the entire seat up until the switch is released. Moving the entire seat down works similarly to moving the entire seat up, except that battery voltage and ground are applied on opposite circuits causing the motor to run in the opposite direction.

Reference Information

Schematic Reference

- [Driver Seat Schematics](#)
- [Passenger Seat Schematics](#)

Connector End View Reference

[Component Connector End Views](#)

Description and Operation

[Power Seats System Description and Operation](#)

Electrical Information Reference

- [Circuit Testing](#)
- [Connector Repairs](#)
- [Testing for Intermittent Conditions and Poor Connections](#)

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- [Wiring Repairs](#)

[Circuit/System Verification](#)

1. Verify the driver or passenger M55 Seat Rear Vertical Motor operates when pressing the seat switch in both directions.
 - ⇒ **If the M55 Seat Rear Vertical Motor does not operate**
Refer to Circuit/System Testing.
 - ↓ **If the M55 Seat Rear Vertical Motor operates**
2. All OK.

[Circuit/System Testing](#)

1. Ignition OFF and all vehicle systems OFF, disconnect the harness connector at the appropriate S64 Seat Adjuster Switch. It may take up to 2 min for all vehicle systems to power down.
2. Test for less than 10 Ω between each ground circuit terminal listed below and ground:
 - Terminal A
 - Terminal C
- ⇒ **If 10 Ω or greater**
 - 2.1. Ignition OFF.
 - 2.2. Test for less than 2 Ω in the ground circuit end to end.
 - ⇒ If 2 Ω or greater, repair the open/high resistance in the circuit.
 - ⇒ If less than 2 Ω , repair the open/high resistance in the ground connection.
- ↓ **If less than 10 Ω**
3. Ignition ON.
4. Verify a test lamp illuminates between the B+ circuit terminal D and ground.
 - ⇒ **If the test lamp does not illuminate**
 - 4.1. Ignition OFF
 - 4.2. Test for less than 2 Ω in the B+ circuit end to end.
 - ⇒ If 2 Ω or greater, repair the open/high resistance in the circuit.
 - ⇒ If less than 2 Ω , verify the circuit breaker is not open and there is voltage at the circuit breaker.
 - ↓ **If the test lamp illuminates**
5. Ignition OFF, connect the harness connector at the S64 Seat Adjuster Switch and disconnect the harness connector at the M55 Seat Rear Vertical Motor.
6. Connect a test lamp between control circuit terminal 1 and control circuit terminal 3, ignition ON.
7. Verify the test lamp illuminates when commanding the M55 Seat Rear Vertical Motor Up and Down using the seat adjuster switch.
 - ⇒ **If the test lamp does not illuminate during either of the commands**
 - 7.1. Ignition OFF, disconnect the harness connector at the S64 Seat Adjuster Switch.
 - 7.2. Test for less than 2 Ω in each control circuit end to end.
 - ⇒ If 2 Ω or greater, repair the open/high resistance in the circuit.
 - ⇒ If less than 2 Ω , test or replace the S64 Seat Adjuster Switch.
 - ↓ **If the test lamp illuminates during each of the commands**
8. Test or replace the M55 Seat Rear Vertical Motor.

[Component Testing](#)

Seat Motor

1. Ignition OFF, disconnect the harness connector at the M55 Seat Rear Vertical Motor.

Note: When performing the following tests, make sure that the seat is not already in the position the test is attempting to produce.

2. Install a 30 A fused jumper wire between control terminal 1 and 12 V.
3. Momentarily install a jumper wire between control terminal 5 and ground. The seat motor should momentarily perform the appropriate UP/ DOWN function.

⇒ **If the motor does not perform the UP/ DOWN function**

Replace the motor.

⇓ **If the motor performs the UP/ DOWN function**

4. Reverse the jumper wires; the motor should perform UP/ DOWN function.

⇒ **If the motor does not perform the UP/ DOWN function**

Replace the motor.

⇓ **If the motor performs the UP/ DOWN function**

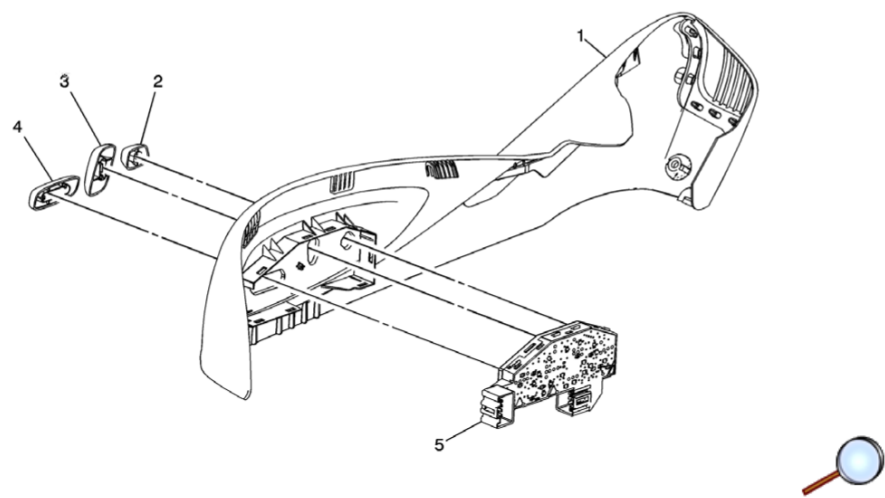
5. All OK.

Repair Instructions

Perform the [Diagnostic Repair Verification](#) after completing the repair.

- [Driver or Passenger Seat Adjuster Switch Replacement](#)
- [Driver or Passenger Seat Vertical Adjuster Actuator Replacement](#)

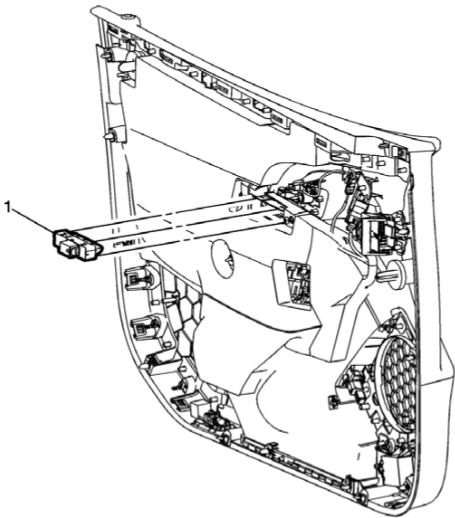
Driver or Passenger Seat Adjuster Switch Replacement (8-Way Power)



Driver or Passenger Seat Adjuster Switch Replacement

Callout	Component Name
Preliminary Procedure Remove the front seat cushion outer finish panel. Refer to Front Seat Cushion Outer Finish Cover Replacement .	
1	Front Seat Cushion Outer Finish Cover
2	Front Seat Lumbar Switch Knob
3	Front Seat Recliner Knob
4	Front Seat Adjuster Knob
5	Driver or Passenger Seat Adjuster Switch Procedure Use a flat-bladed tool to release the switch from the finish cover.

Driver Seat Adjuster Memory Switch Replacement

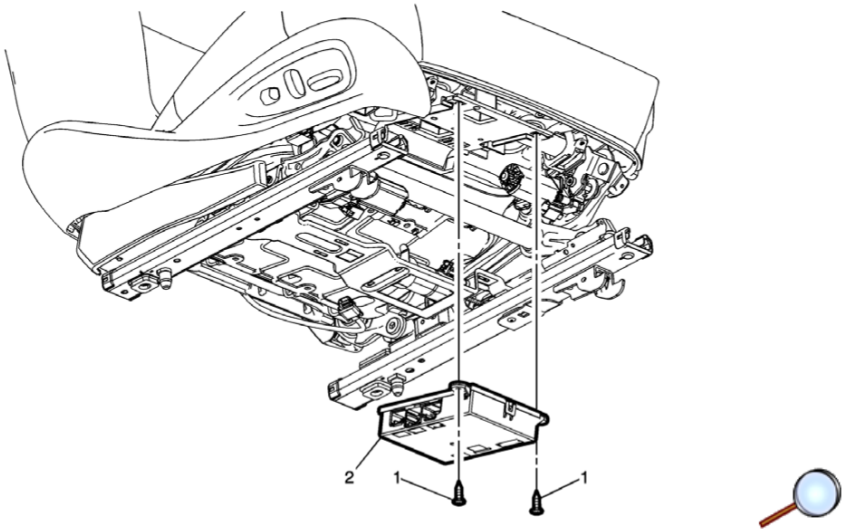


Driver Seat Adjuster Memory Switch Replacement

Callout	Component Name
Preliminary Procedure Remove the front side door trim panel. Refer to Front Side Door Trim Replacement .	
1	Driver Seat Adjuster Memory Switch Procedure Disconnect the electrical connector.

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Driver Seat Adjuster Memory Module Replacement

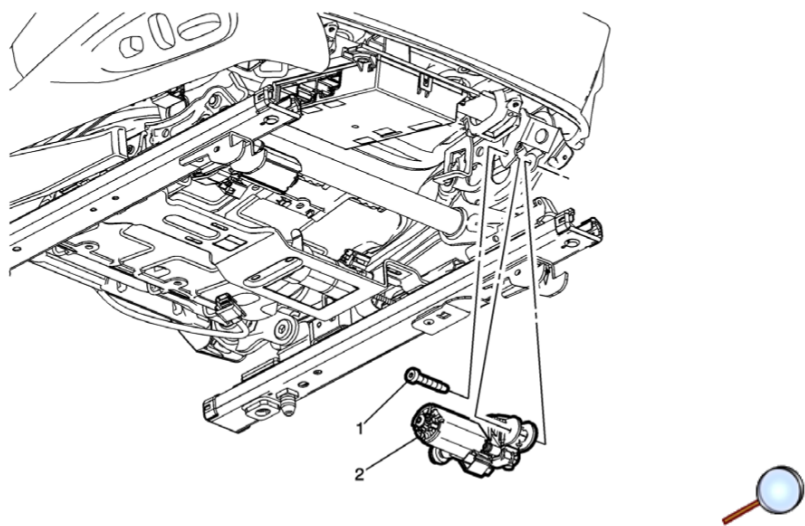


Driver Seat Adjuster Memory Module Replacement

Callout	Component Name
Preliminary Procedure Remove the driver or passenger seat . Refer to Driver or Passenger Seat Removal and Installation .	
1	Driver Seat Adjuster Memory Module Fastener (Qty: 2) Caution: Refer to Fastener Caution .
2	Driver Seat Adjuster Memory Module Procedure 1. Disconnect the electrical connectors. 2. Remove the module from the wiring harness and module bracket. 3. Refer to Control Module References for programing and setup information.

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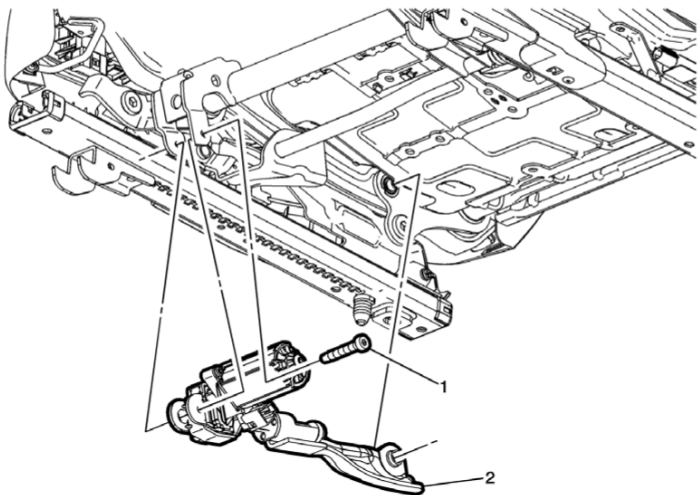
Front Seat Tilt Adjuster Actuator Replacement



Front Seat Tilt Adjuster Actuator Replacement

Callout	Component Name
Preliminary Procedure Remove the driver or passenger seat. Refer to Driver or Passenger Seat Removal and Installation	
1	Front Seat Tilt Adjuster Actuator Securing Fastener Caution: Refer to Fastener Caution . Procedure 1. Set the seat to its highest position. 2. Remove the securing clip from the actuator and cushion frame. Tighten 8N•m (70 lb in)
2	Front Seat Tilt Adjuster Actuator Procedure 1. Disconnect the electrical connector. 2. Remove the tilt adjuster actuator by pulling downward from the cushion frame.

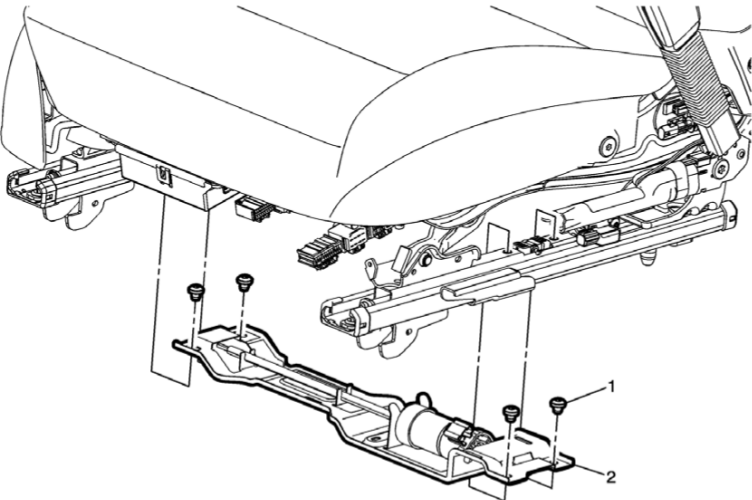
Driver or Passenger Seat Vertical Adjuster Actuator Replacement



Driver or Passenger Seat Vertical Adjuster Actuator Replacement

Callout	Component Name
Preliminary Procedures 1. Remove the driver or passenger seat. Refer to Driver or Passenger Seat Removal and Installation . 2. Remove the front seat cushion outer finish cover. Refer to Front Seat Cushion Outer Finish Cover Replacement .	
1	Driver or Passenger Seat Vertical Adjuster Actuator Fastener Caution: Refer to Fastener Caution . Tighten 8 N•m (70 lb in)
2	Driver or Passenger Seat Vertical Adjuster Actuator Procedure 1. Disconnect the electrical connector. 2. Remove the vertical adjuster actuator by pulling downward from the cushion frame.

Front Seat Adjuster Actuator Replacement

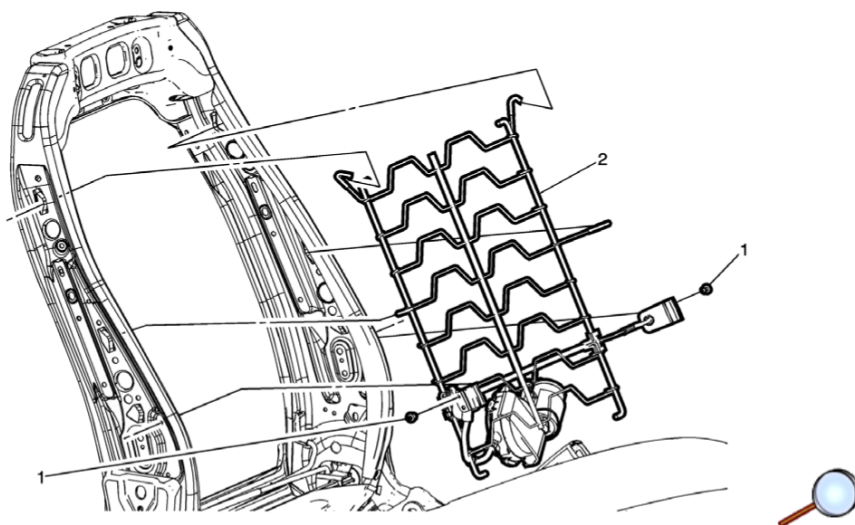


Front Seat Adjuster Actuator Replacement

Callout	Component Name
Preliminary Procedure Remove the driver or passenger seat. Refer to Driver or Passenger Seat Removal and Installation	
1	Front Seat Adjuster Actuator Fasteners (Qty: 4) Caution: Refer to Fastener Caution .
2	Front Seat Adjuster Actuator Procedure 1. Disconnect the electric connector. 2. Remove the seat adjuster motor shaft out of both seat frame side brackets. 3. Remove the seat adjuster and mounting bracket by pulling downward from the cushion frame.

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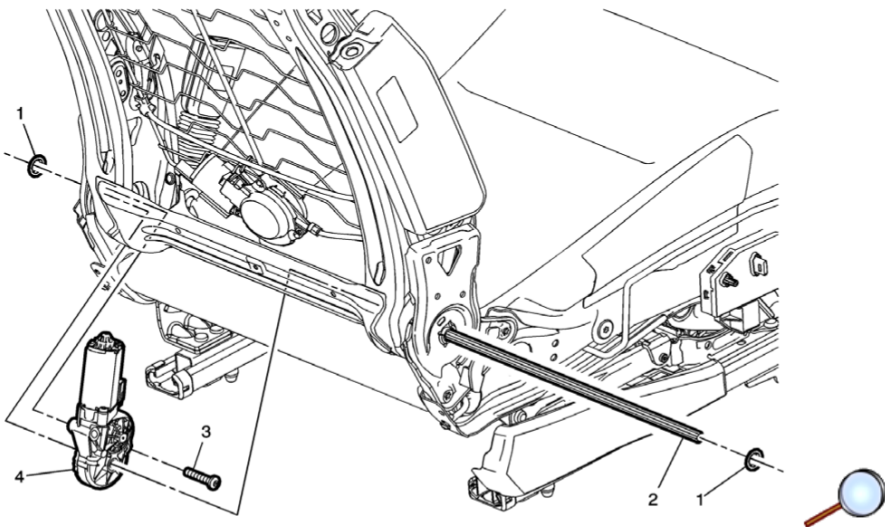
Seat Lumbar Sub System Replacement



Seat Lumbar Sub System Replacement

Callout	Component Name
Warning: Refer to SIR Warning . Preliminary Procedures 1. Remove the driver or passenger seat. Refer to Driver or Passenger Seat Removal and Installation. 2. Remove the driver or passenger seat back cushion cover and pad. Refer to Driver or Passenger Seat Back Cover and Pad Replacement.	
1	Front Seat Lumbar Support Rivet (Qty: 2) Warning: Use the proper eye protection when drilling to prevent metal chips from causing physical injury. Procedure Drill out rivets on the sides of the seat back frame.
2	Front Seat Lumbar Support Procedure 1. Disconnect the electrical connectors, if equipped. 2. Pull outward at the bottom of the seat to release the bottom support wires. 3. Disengage the lumbar support top and side retainers from the seat back frame. 4. Pull the bottom of the lumbar forward and up until the lumbar support wires disengage from the seat back frame.

Driver or Passenger Seat Recliner Actuator Replacement



Driver or Passenger Seat Recliner Actuator Replacement

Callout	Component Name
Preliminary Procedures 1. Remove the driver or passenger seat. Refer to Driver or Passenger Seat Removal and Installation . 2. Remove the driver or passenger seat back cushion cover and pad. Refer to Driver or Passenger Seat Back Cover and Pad Replacement .	
1	Push on Nut Note: Cut off to remove and replace with new nut.
2	Driver or Passenger Seat Back Cushion Frame Cross Bar Procedure 1. Clamp the lower seat back frame so that the seat back does not move while replacing the recliner actuator. 2. Using a hammer and brass punch tap the bar out far enough to release from the recliner actuator motor.
3	Driver or Passenger Seat Recliner Actuator Bolt Caution: Refer to Fastener Caution Tighten 6 N•m (53 lb in)
4	Driver or Passenger Seat Recliner Actuator

Callout	Component Name
	Procedure Disconnect the electrical connector.

Driver Seat Schematics

Figure 1: [AH5/AL9 \(RHD\)](#)

Figure 2: [AH5/AL9 \(LHD\)](#)

Figure 3: [AH6/AL9](#)

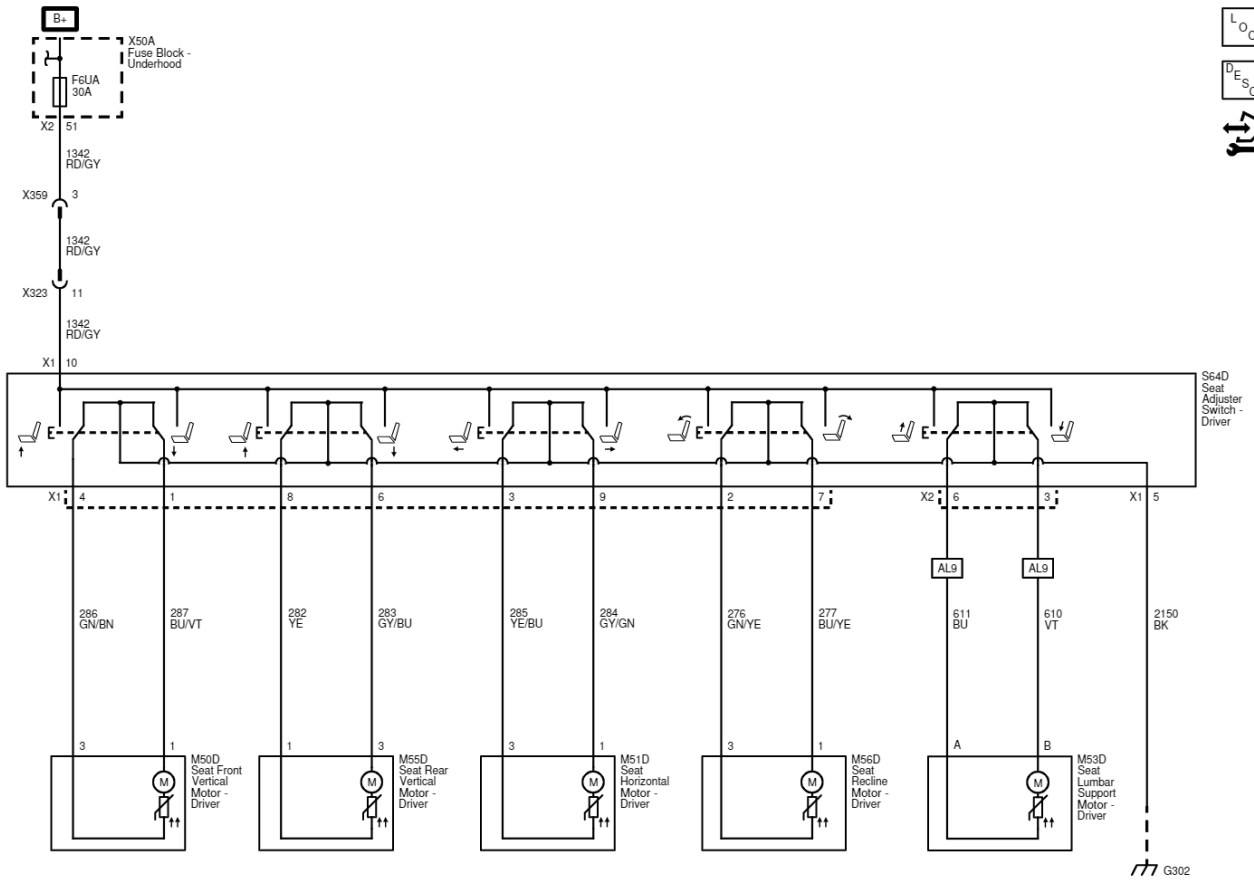
Figure 4: [Power, Ground, Serial Data and Seat Memory Switch \(A45\)](#)

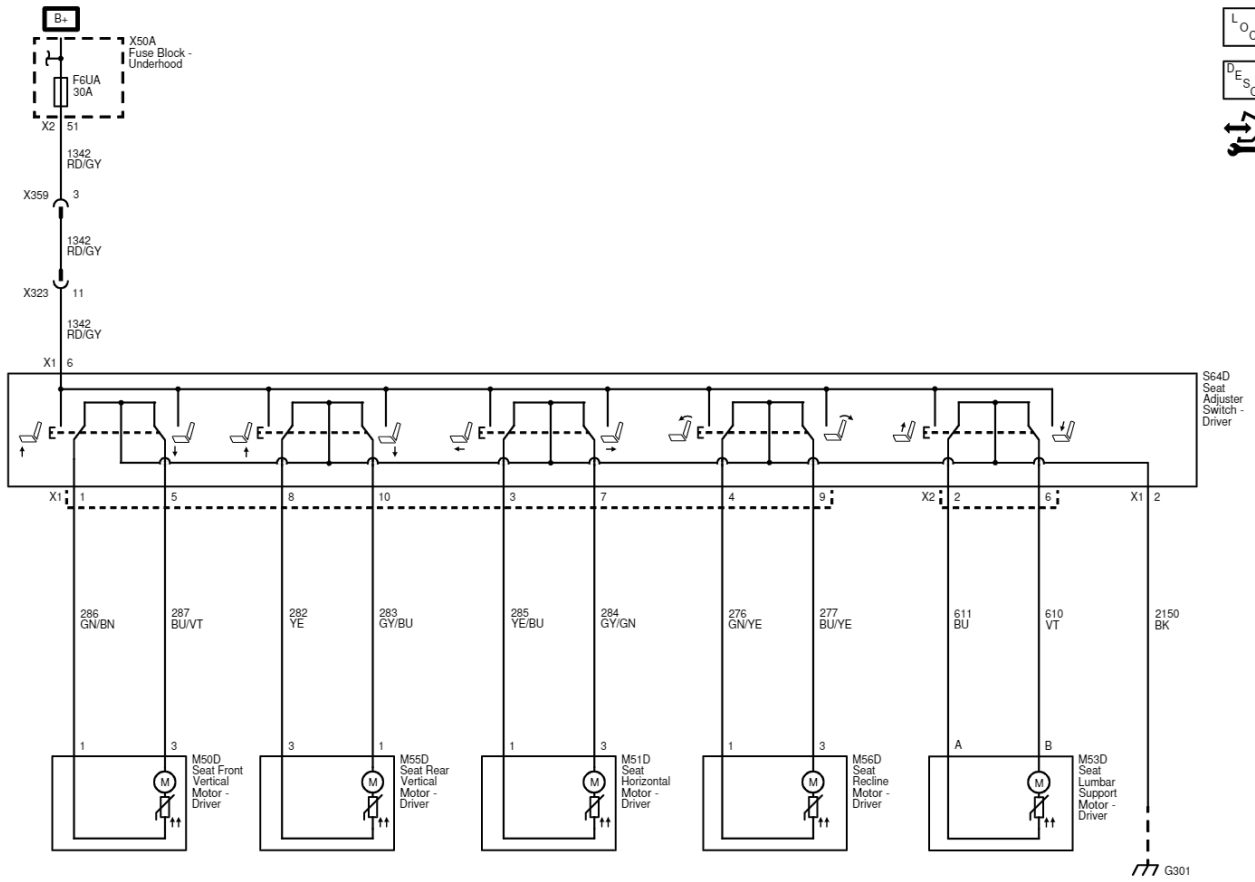
Figure 5: [Position Motors and Seat Adjuster Switch \(A45/RHD\)](#)

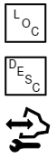
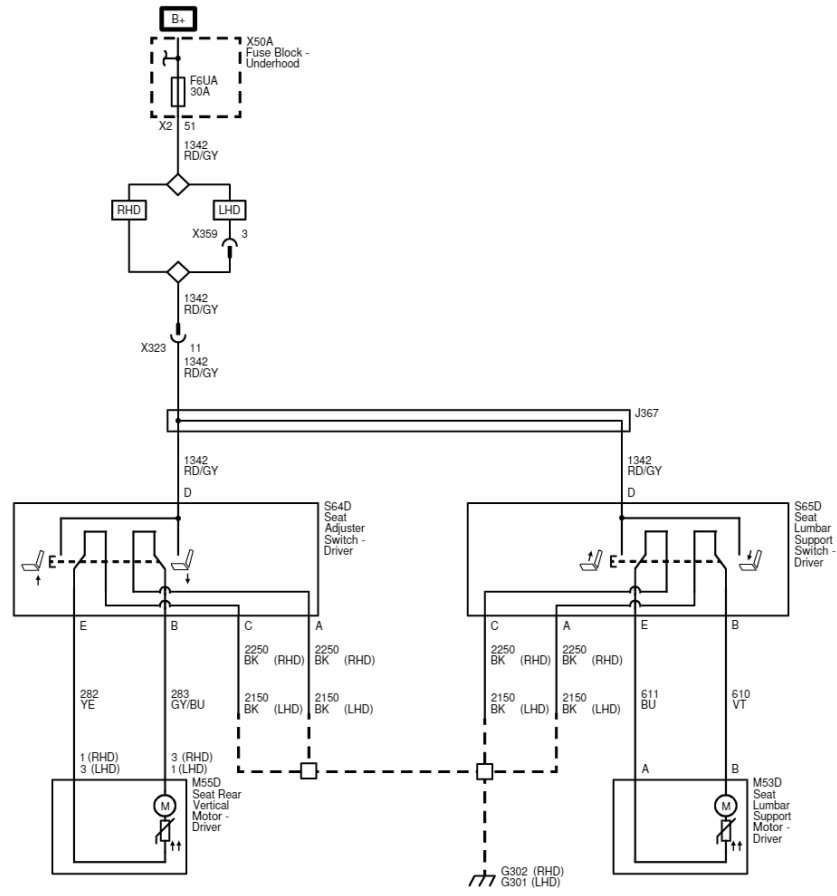
Figure 6: [Position Motors and Seat Adjuster Switch \(A45/LHD\)](#)

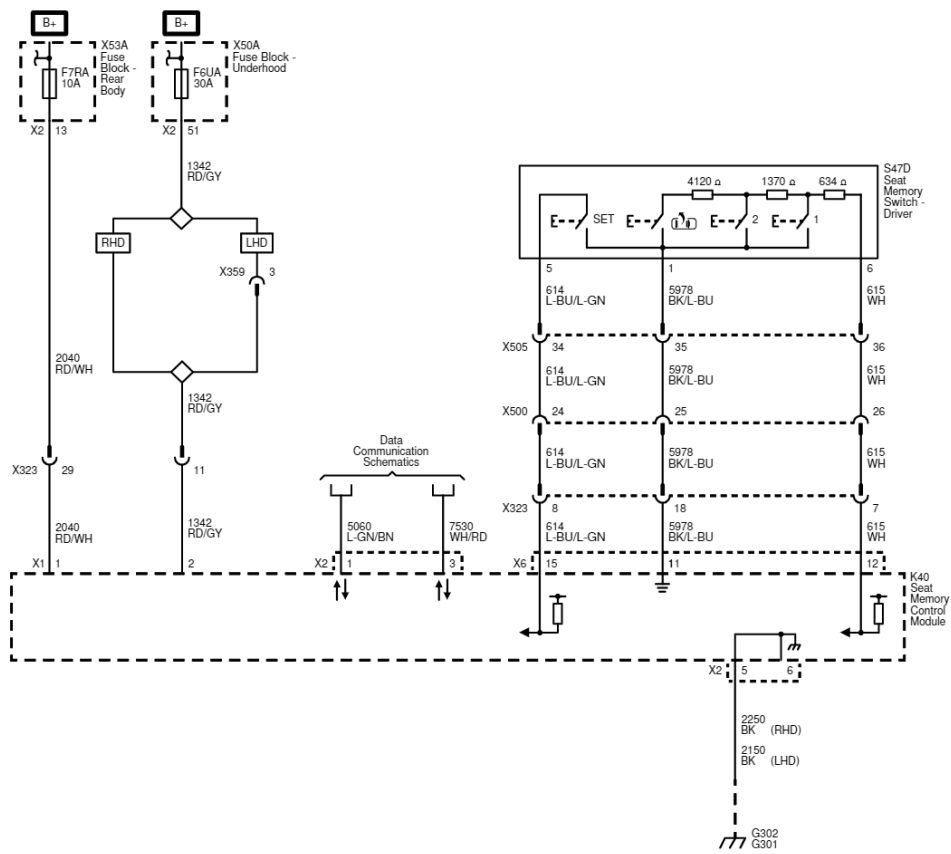
Figure 7: [Lumbar Support \(A45/AL9\)](#)

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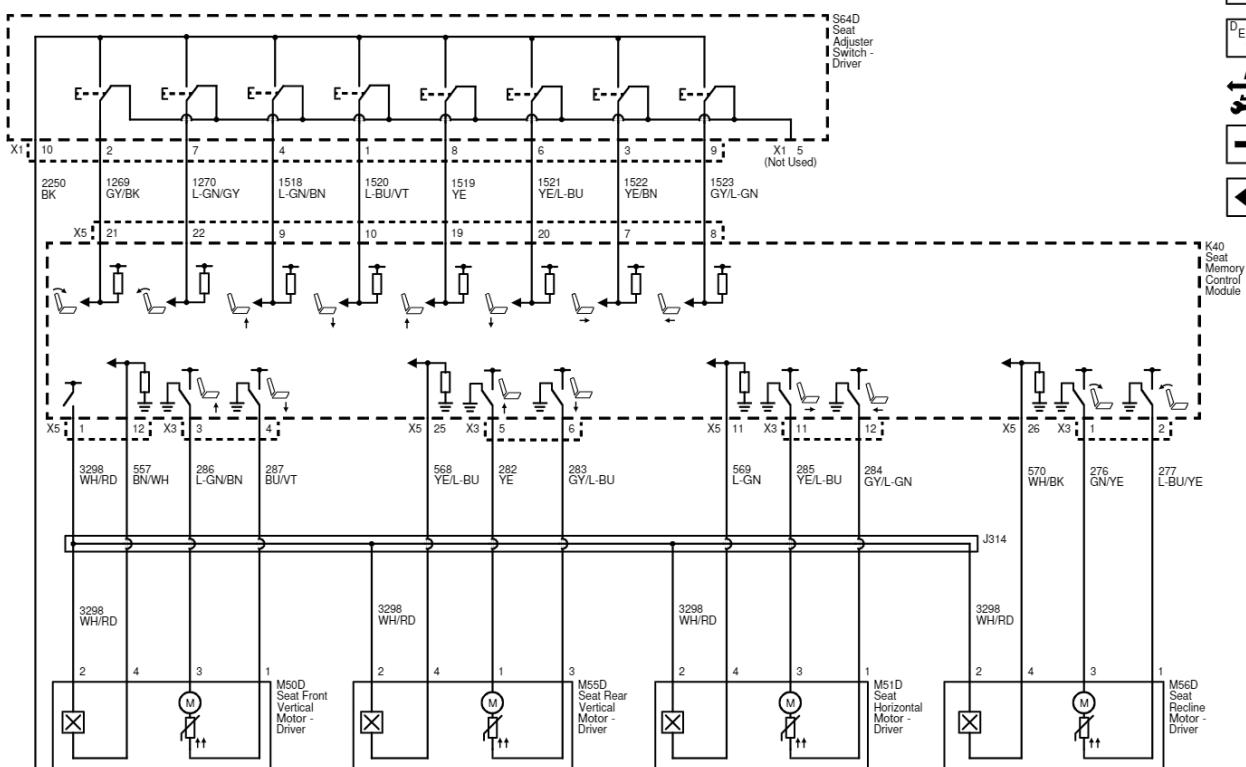
LOG

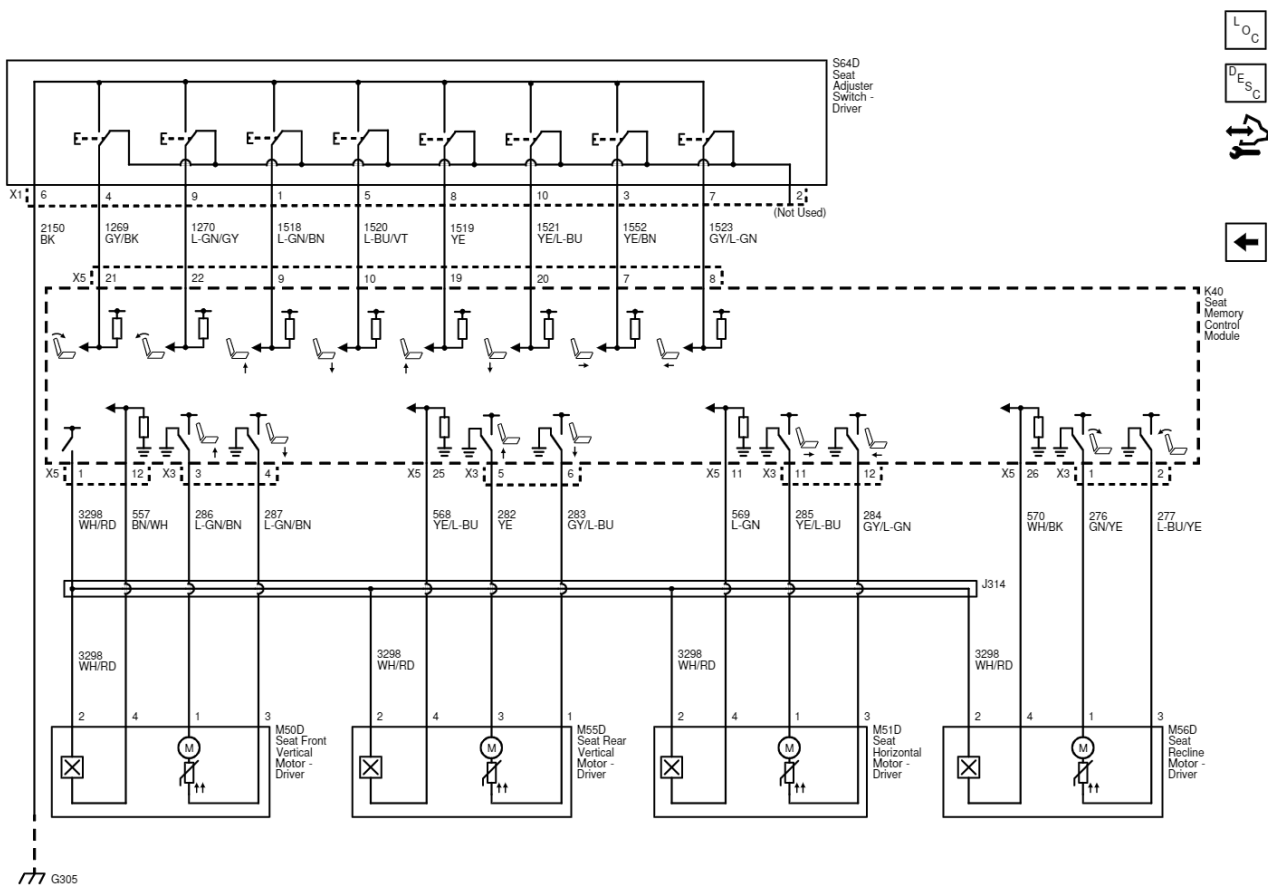
DES

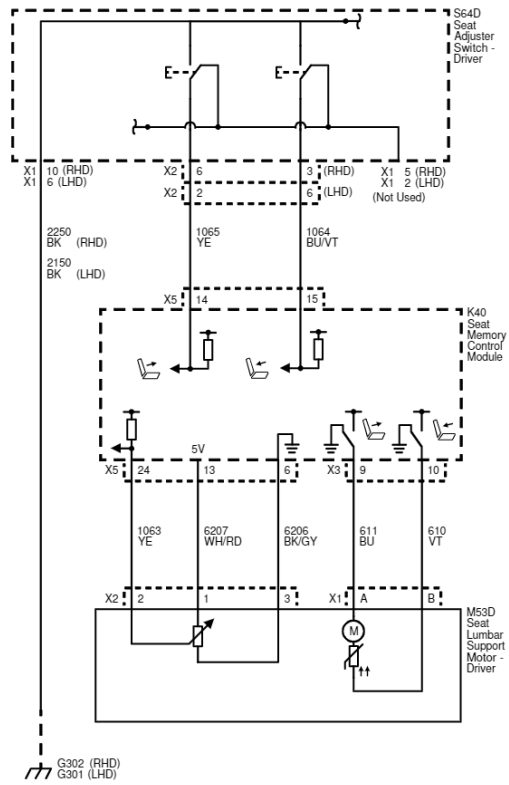
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Passenger Seat Schematics

Figure 1: [AH8/AT9 \(RHD\)](#)

Figure 2: [AH8/AT9 \(LHD\)](#)

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