

Seating - Seats

Diagnosis and Testing

Principle of Operation

For a detailed description of the seats and seat operation, refer to the relevant Description and Operation section in the workshop manual. REFER to: Seats (501-10, Description and Operation).

Inspection and Verification



CAUTION: Diagnosis by substitution from a donor vehicle is **NOT** acceptable. Substitution of control modules does not guarantee confirmation of a fault, and may also cause additional faults in the vehicle being tested and/or the donor vehicle.

• **NOTE:** Prior to carrying out any diagnosis, ensure the vehicle battery is in a good serviceable condition, refer to the battery care manual.

1. **1.** Verify the customer concern.
2. **2.** Visually inspect for obvious signs of damage and system integrity.

Visual Inspection

Mechanical	Electrical
<ul style="list-style-type: none"> ● Security, condition and correct installation of seat components and fixings 	<ul style="list-style-type: none"> ● Fuses ● Harnesses for damage/corrosion ● Electrical connectors ● Damaged/corroded pins

3. **3.** If an obvious cause for an observed or reported concern is found, correct the cause (if possible) before proceeding to the next step.
4. **4.** If the cause is not visually evident, verify the concern and refer to the Symptom Chart, alternatively, check for Diagnostic Trouble Codes (DTCs) and refer to the DTC Index/Summaries.

Symptom Chart

Symptom	Possible Cause	Action
Front seat fore/aft movement not functioning	<ul style="list-style-type: none"> ● Carry out the pinpoint test associated to this Symptom 	GO to Pinpoint Test A.
Front seat excessive fore/aft free play	<ul style="list-style-type: none"> ● Carry out the pinpoint test associated to this Symptom 	GO to Pinpoint Test B.
Front seat fore/aft movement noisy	<ul style="list-style-type: none"> ● Carry out the pinpoint test associated to this Symptom 	GO to Pinpoint Test C.
Front seat height, tilt and/or seat extension motor movement not functioning	<ul style="list-style-type: none"> ● Carry out the pinpoint test associated to this Symptom 	GO to Pinpoint Test D.
Front seat height, tilt and/or extension movement noisy	<ul style="list-style-type: none"> ● Carry out the pinpoint test associated to this Symptom 	GO to Pinpoint Test E.

Pinpoint Tests

PINPOINT TEST A : FRONT SEAT FORE/AFT MOVEMENT NOT FUNCTIONING	
TEST CONDITIONS	DETAILS/RESULTS/ACTIONS
A1: CHECK FOR FRONT SEAT FORWARD-REARWARD SEAT MOTOR OPERATION	
	WARNING: Before work is carried out, make the air bag supplemental restraint system safe. For additional information, refer to Standard Workshop Practices section of workshop manual.
	<ol style="list-style-type: none"> 1 Set ignition status to 'ON'. 2 From the switch pack, operate the front seat forward-rearward seat motor switch and listen for evidence of the motor operating.
	Does the motor operate? Yes GO to A2 . No GO to A3 .
A2: CHECK FRONT SEAT FORWARD-REARWARD SEAT MOTOR DRIVE BAR	
	<ol style="list-style-type: none"> 1 Check front seat drive bar for correct installation and condition
	Is the front seat drive bar correctly installed and in a serviceable condition? Yes Re-check for correct front seat forward-rearward movement. Remove seat to allow for further investigation if required. No Correctly install front seat forward-rearward seat motor drive bar, or replace if required.
A3: CHECK FRONT SEAT FORWARD-REARWARD SEAT MOTOR	
	WARNING: When carrying out the following steps, stand clear of all moving parts and ensure link harness is routed accordingly.
	<ol style="list-style-type: none"> 1 Set ignition status to 'OFF'. 2 Disconnect front seat forward-rearward seat motor connector.

• NOTE: It may be that the seat has been driven to the limit of travel along the relevant axis, and when the link harness is connected, the seat will remain in the same position. If this is the case, a jolt may be felt from the motor. To confirm the motor operation, swap the link harness to alternate motor pin connections and the seat should travel in the opposite direction.

3 Using a locally made fused link harness and power supply, connect power and ground to forward-rearward seat motor.

Battery positive terminal	Battery negative terminal
forward-rearward seat motor pin 1	forward-rearward seat motor pin 2

Does the motor operate?

Yes

Using manufacturer approved diagnostic system, check for related Diagnostic Trouble Codes (DTCs) and carry out the repair operations specified. Alternatively, refer to the electrical circuit diagrams and check front seat forward-rearward seat motor circuits.


No

Replace front seat forward-rearward seat motor. Refer to relevant section of workshop manual.

PINPOINT TEST B : FRONT SEAT EXCESSIVE FORWARD-REARWARD FREE PLAY

TEST CONDITIONS	DETAILS/RESULTS/ACTIONS
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B1: CHECK FRONT SEAT FOR EXCESSIVE FORWARD-REARWARD FREE PLAY

 **WARNING:** Before work is carried out, make the air bag supplemental restraint system safe. For additional information, refer to Standard Workshop Practices section of workshop manual.

1 Check all accessible front seat frame fixings are installed and to the correct torque.

Are all accessible front seat frame fixings installed and to the correct torque?

Yes

[GO to B2.](#)

No

Install and tighten all accessible front seat frame fixings to correct torque and re-check for excessive free play.

B2: COMPARE THE FRONT SEAT FORWARD-REARWARD FREE PLAY AGAINST A SIMILAR SEAT

1 Compare the front seat forward-rearward free play against a similar seat.

Is the front seat forward-rearward free play excessive when compared to a similar seat?

Yes

[GO to B3.](#)

No

The front seat frame is operating correctly. Submit Electronic Product Quality Report (EPQR) with any further query.

B3: CHECK REMAINING FRONT SEAT FRAME FIXINGS

1 Remove front seat and/or any seat covers/trim to allow access to check remaining front seat frame fixings are all installed and to the correct torque.

Are all remaining front seat frame fixings installed and to the correct torque?

Yes

Replace front seat frame. Refer to the relevant section of the workshop manual.


No

Install and tighten all remaining front seat frame fixings to correct torque and re-check for excessive free play.

PINPOINT TEST C : FRONT SEAT FORWARD-REARWARD MOVEMENT NOISY

TEST CONDITIONS	DETAILS/RESULTS/ACTIONS
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C1: COMPARE FRONT SEAT FORWARD-REARWARD MOVEMENT NOISE TO OTHER FRONT SEAT

 **WARNING:** Before work is carried out, make the air bag supplemental restraint system safe. For additional information, refer to Standard Workshop Practices section of workshop manual.

1 Compare the front seat forward-rearward movement noise to other front seat.

Is the front seat forward-rearward movement noise excessive when compared to other front seat?

Yes

[GO to C2.](#)

No

[GO to C3.](#)

C2: COMPARE FRONT SEAT FORWARD-REARWARD MOVEMENT NOISE TO FRONT SEAT IN OTHER VEHICLE

1 Compare the front seat forward-rearward movement noise to front seat in other vehicle.

Is the front seat forward-rearward movement noise excessive when compared to front seat in other vehicle?

Yes

[GO to C3.](#)

No

The front seat frame is operating correctly. Submit Electronic Product Quality Report (EPQR) with any further query.

C3: CHECK FOR DEBRIS OBSTRUCTING SEAT MOVEMENT

1 Check for debris obstructing seat movement.

Is the front seat forward-rearward movement obstructed by debris?

Yes

Remove obstruction and re-check for noisy forward-rearward seat movement.

No

[GO to C4.](#)

C4: RE-ALIGN FRONT SEAT FRAME

1 Loosen front seat frame fixings.

2 Set ignition status to 'ON'.

3 Using the front seat switch pack drive the front seat fully forward then fully rearward.

4 Tighten front seat frame fixings to the correct torque.

5 Re-check for noisy seat movement.

Is the front seat forward-rearward movement still noisy?

Yes

[GO to C5.](#)

No



The front seat frame is now operating correctly.

C5: CHECK FRONT SEAT FORWARD-REARWARD SEAT MOTOR DRIVE BAR


1 Check front seat drive bar for correct installation and condition.

Is the front seat drive bar correctly installed and in a serviceable condition?	<p>Yes Replace front seat forward-rearward seat motor. Refer to relevant section of workshop manual.</p> <p>No Correctly install front seat forward-rearward seat motor drive bar, or replace if required.</p>
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PINPOINT TEST D : FRONT SEAT HEIGHT, TILT AND/OR SEAT EXTENSION MOTOR MOVEMENT NOT FUNCTIONING

TEST CONDITIONS	DETAILS/RESULTS/ACTIONS						
D1: CHECK FRONT SEAT HEIGHT, TILT OR EXTENSION MOTOR							
<ul style="list-style-type: none"> WARNINGS: 							
 Before work is carried out, make the air bag supplemental restraint system safe. For additional information, refer to Standard Workshop Practices section of workshop manual.							
 When carrying out the following steps, stand clear of all moving parts and ensure link harness is routed accordingly.							
<ol style="list-style-type: none"> Set ignition status to 'OFF'. Disconnect front seat height, tilt or extension motor connector. <ul style="list-style-type: none"> NOTE: It may be that the seat has been driven to the limit of travel along the relevant axis, and when the link harness is connected, the seat will remain in the same position. If this is the case, a jolt may be felt from the motor. To confirm the motor operation, swap the link harness to alternate motor pin connections and the seat should travel in the opposite direction. Using a locally made fused link harness and power supply, connect power and ground to relevant motor. <table border="1"> <thead> <tr> <th></th> <th>Battery positive terminal</th> <th>Battery negative terminal</th> </tr> </thead> <tbody> <tr> <td>motor pin 1</td> <td></td> <td>motor pin 2</td> </tr> </tbody> </table> 			Battery positive terminal	Battery negative terminal	motor pin 1		motor pin 2
	Battery positive terminal	Battery negative terminal					
motor pin 1		motor pin 2					
Does the motor operate? Yes Using manufacturer approved diagnostic system, check for related Diagnostic Trouble Codes (DTCs) and carry out the repair operations specified. Alternatively, refer to the electrical circuit diagrams and check relevant motor circuits.							
No Replace the relevant motor. Refer to relevant section of workshop manual.							

PINPOINT TEST E : FRONT SEAT HEIGHT, TILT AND/OR EXTENSION MOVEMENT NOISY

TEST CONDITIONS	DETAILS/RESULTS/ACTIONS
E1: COMPARE THE HEIGHT, TILT OR EXTENSION MOVEMENT NOISE WITH THE OTHER FRONT SEAT	
 WARNING: Before work is carried out, make the air bag supplemental restraint system safe. For additional information, refer to Standard Workshop Practices section of workshop manual.	
<ol style="list-style-type: none"> Compare the front seat movement noise to other front seat. 	
Is the front seat height, tilt or extension movement noise excessive when compared to other front seat? Yes GO to E2. No GO to E3.	
E2: COMPARE FRONT SEAT HEIGHT, TILT OR EXTENSION MOVEMENT NOISE TO FRONT SEAT IN OTHER VEHICLE	
<ol style="list-style-type: none"> Compare the front seat height, tilt or extension movement noise to front seat in other vehicle. 	
Is the front seat height, tilt or extension movement noise excessive when compared to front seat in other vehicle? Yes GO to E3. No The front seat frame is operating correctly. Submit Electronic Product Quality Report (EPQR) with any further query.	
E3: CHECK FOR DEBRIS OBSTRUCTING SEAT MOVEMENT	
<ol style="list-style-type: none"> Check for debris obstructing seat movement. 	
Is the front seat height, tilt or extension movement obstructed by debris? Yes Remove obstruction and re-check for noisy height, tilt or extension seat movement. If still noisy GO to E4. No GO to E4.	
E4: CHECK FOR HEIGHT, TILT OR EXTENSION MOVEMENT MECHANISM LUBRICATION	
<ol style="list-style-type: none"> Check and apply manufacturer approved lubrication to seat height, tilt or extension movement mechanism and re-test for noise. 	
Is the front seat height, tilt or extension noise still apparent? Yes Replace the relevant motor. Refer to relevant section of workshop manual. No The front seat height, tilt or extension motor is operating correctly.	