


External Controls

Special Tool(s)

 <p>ST1137-A</p>	<p>73 Digital Multimeter 105-R0051 or equivalent</p>
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Inspection and Verification

1. Verify the customer concern by operating the transmission external control.
2. Visually inspect for obvious signs of mechanical and electrical damage; refer to the following chart:

Visual Inspection Chart

Mechanical	Electrical
<ul style="list-style-type: none"> • Selector lever linkage binding • Brake Shift Interlock Actuator (BSIA) • Transmission selector lever cable 	<ul style="list-style-type: none"> • Bussed Electrical Center (BEC) fuse(s): <ul style="list-style-type: none"> ■ 39 (15A) ■ 59 (30A) • Smart Junction Box (SJB) • Wiring harness (circuitry) • Loose connections or corroded terminals • LED

3. If the concern is not visually evident, determine the symptom. GO to [Symptom Chart - External Controls](#) or GO to [Symptom Chart - NVH](#).

DTC Chart

DTC	Component	Description	Condition	Symptom	Action
B2572	Brake Shift Interlock Actuator (BSIA)	BSIA output circuit failure	The associated circuitry connected to the Smart Junction Box (SJB) or fuse, or the SJB itself may have an issue causing a BSIA concern.	BSIA is inoperative or does not operate correctly.	GO to Pinpoint Test A .

Symptom Chart — External Controls

Symptom Chart — External Controls

Condition	Possible Sources	Action
<ul style="list-style-type: none"> • The Brake Shift Interlock Actuator (BSIA) system does not release/lock correctly 	<ul style="list-style-type: none"> • Wiring harness (circuitry) • BSIA fuse 59 (30A) • BSIA • Smart Junction Box 	<ul style="list-style-type: none"> • GO to Pinpoint Test A.

	(SJB)	
<ul style="list-style-type: none"> The transmission selector lever is out of correct gear relationship 	<ul style="list-style-type: none"> Transmission selector lever cable and bracket installation Transmission selector lever retaining clip Transmission selector lever cable out of adjustment 	<ul style="list-style-type: none"> GO to Pinpoint Test B .
<ul style="list-style-type: none"> Transmission selector lever indicator does not correspond to the gear 	<ul style="list-style-type: none"> Transmission selector lever cable and bracket installation Transmission selector lever linkage 	<ul style="list-style-type: none"> TIGHTEN the bolts holding the transmission selector lever cable bracket. VERIFY Transmission Range (TR) sensor range for correct adjustment. REFER to Section 307-01.
<ul style="list-style-type: none"> The Transmission Control Switch (TCS) is inoperative 	<ul style="list-style-type: none"> Bussed Electrical Center (BEC) fuse 39 (15A) TCS TCS not cycled during self-test PCM Wiring harness (circuitry) 	<ul style="list-style-type: none"> GO to Pinpoint Test C .
<ul style="list-style-type: none"> The Transmission Control Indicator Lamp (TCIL) is not operating correctly 	<ul style="list-style-type: none"> LED Instrument Cluster (IC) PCM 	<ul style="list-style-type: none"> REFER to Section 413-01.
<ul style="list-style-type: none"> Excessive selector lever effort 	<ul style="list-style-type: none"> Transmission selector lever cable Transmission selector cable and bracket installation 	<ul style="list-style-type: none"> INSTALL a new transmission selector lever cable. ADJUST the transmission selector cable. TIGHTEN the transmission selector cable bracket bolts.
<ul style="list-style-type: none"> Transmission selector lever will not shift 	<ul style="list-style-type: none"> Transmission selector lever cable Broken transmission selector level cable 	<ul style="list-style-type: none"> INSTALL a new transmission selector lever cable. INSTALL a new transmission selector lever cable.

Symptom Chart — NVH

Symptom Chart — NVH

NOTE: NVH symptoms should be identified using the diagnostic tools that are available. For a list of these tools, an explanation of their uses and a glossary of common terms, refer to [Section 100-04](#). Since it is possible any one of multiple systems may be the cause of a symptom, it may be necessary to use a process of elimination type of diagnostic approach to pinpoint the responsible system. If this is not the causal system for the symptom, refer back to [Section 100-04](#) for the next likely system and continue diagnosis.

Condition	Possible Sources	Action
<ul style="list-style-type: none"> Vibration — a high frequency (20-80 Hz) that is felt through the seat or transmission selector lever. 	<ul style="list-style-type: none"> Transmission selector lever cable incorrectly routed, grounded out or 	<ul style="list-style-type: none"> CHECK the transmission selector lever cable. REPAIR as necessary. REFER to Selector Lever

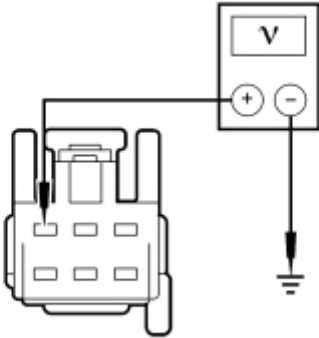
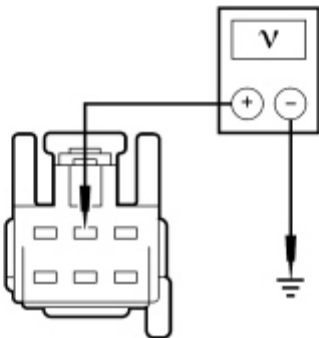
Changes with engine speed	loose	Cable and Bracket in this section.
<ul style="list-style-type: none"> Rattle, noise, buzz or other noise 	<ul style="list-style-type: none"> Transmission selector lever loose Transmission selector lever 	<ul style="list-style-type: none"> TIGHTEN the selector lever bolt. INSTALL a new transmission selector lever. REFER to Selector Lever in this section.

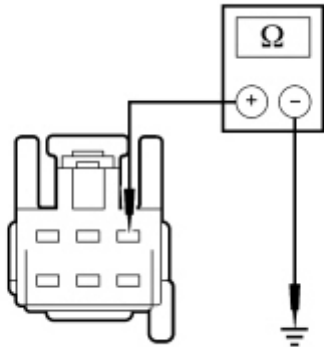
Pinpoint Tests

Refer to Wiring Diagrams Cell [37](#), Shift Lock for schematic and connector information.

Refer to Wiring Diagrams Cell [29](#), Transmission Control for schematic and connector information.

PINPOINT TEST A: THE [BSIA](#) SYSTEM DOES NOT RELEASE/LOCK CORRECTLY

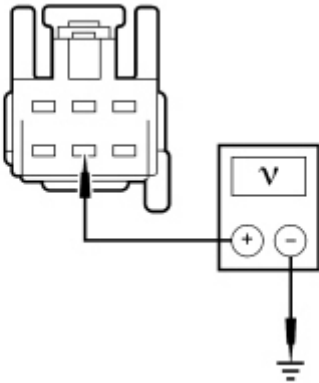
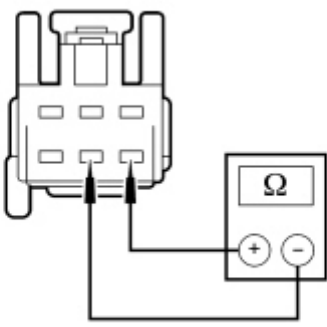
Test Step	Result / Action to Take
A1 CHECK CIRCUIT 1040 (RD/BK) FOR AN OPEN <ul style="list-style-type: none"> Disconnect: Transmission Selector Lever C307. Measure the voltage between selector lever C307-3, circuit 1040 (RD/BK), harness side and ground while applying and releasing the brake pedal.  <p>N0050538</p> <ul style="list-style-type: none"> Is the voltage greater than 10 volts with the brake pedal applied and 0 volt with the brake pedal released? 	<p>Yes GO to A2.</p> <p>No REPAIR circuit 1040 (RD/BK). CLEAR the DTC. TEST the system for normal operation.</p>
A2 CHECK CIRCUIT 664 (YE/LG) FOR AN OPEN <ul style="list-style-type: none"> Measure the voltage between selector lever C307-2, circuit 664 (YE/LG), harness side and ground.  <p>N0050539</p>	<p>Yes GO to A4.</p> <p>No REPAIR circuit 664 (YE/LG) for an open. CLEAR the DTC. TEST the system for normal operation.</p>

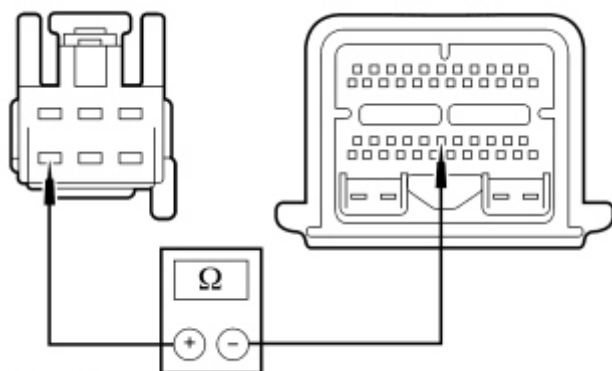
<ul style="list-style-type: none"> Is the voltage greater than 10 volts? 	
A3 TEST CIRCUIT 1205 (BK) FOR AN OPEN	
<ul style="list-style-type: none"> Measure the resistance between selector lever C307-1, circuit 1205 (BK), harness side and ground.  <p>N0050540</p>	<p>Yes INSTALL a new selector lever assembly. REFER to Selector Lever in this section. CLEAR the DTC. TEST the system for normal operation.</p> <p>No REPAIR circuit 1205 (BK) for an open. CLEAR the DTC. TEST the system for normal operation.</p>
<ul style="list-style-type: none"> Is the resistance less than 5 ohms? 	

PINPOINT TEST B: THE TRANSMISSION SELECTOR LEVER IS OUT OF CORRECT GEAR RELATIONSHIP

Test Step	Result / Action to Take
B1 CHECK THE TRANSMISSION SELECTOR LEVER LINKAGE	
<ul style="list-style-type: none"> Ignition ON. Apply the brake pedal. Move the transmission selector lever in all ranges. Observe the transmission selector lever linkage during operation. Is the transmission selector lever linkage OK? 	<p>Yes GO to B2.</p> <p>No REPAIR as necessary. TEST the system for normal operation.</p>
B2 CHECK THE TRANSMISSION SELECTOR LEVER CABLE	
<ul style="list-style-type: none"> Check the transmission selector lever cable and transmission selector lever cable bracket installation and tightness. Is the transmission selector lever cable and transmission selector lever cable bracket correctly installed and adjusted? 	<p>Yes GO to B3.</p> <p>No REPAIR as necessary. REFER to Selector Lever Cable and Bracket in this section. TEST the system for normal operation.</p>
B3 CHECK THE TRANSMISSION SELECTOR LEVER LINKAGE/CABLE FOR CORRECT GEAR RELATIONSHIP	
<ul style="list-style-type: none"> Apply the brake pedal. Move the transmission selector lever in all ranges. Does the indicator match the gear selection? 	<p>Yes VERIFY the correct adjustment of the Transmission Range (TR) sensor. REFER to Section 307-01. ADJUST the TR sensor if necessary. TEST the system for normal operation.</p> <p>No ADJUST the transmission selector lever cable. REFER to Selector Lever Cable Adjustment in this section. TEST the system for normal operation.</p>

PINPOINT TEST C: THE [TCS](#) IS INOPERATIVE

Test Step	Result / Action to Take
<p>C1 CHECK THE VOLTAGE TO THE <u>TCS</u></p> <ul style="list-style-type: none"> • Ignition OFF. • Disconnect: Transmission Selector Lever C307. • Ignition ON. • Measure the voltage between transmission selector lever C307-5, circuit 1862 (VT/WH), harness side and ground.  <p>N0050541</p> <ul style="list-style-type: none"> • Is the voltage greater than 10 volts? 	<p>Yes GO to C2.</p> <p>No REPAIR circuit 1862 (VT/WH). TEST the system for normal operation.</p>
<p>C2 CHECK THE <u>TCS</u></p> <ul style="list-style-type: none"> • Measure the resistance between selector lever C307-5 and C307-6, component side, while applying and releasing the Transmission Control Switch (TCS).  <p>N0051230</p> <ul style="list-style-type: none"> • Is the resistance less than 5 ohms with the <u>TCS</u> applied and greater than 10,000 ohms with the <u>TCS</u> released? 	<p>Yes GO to C3.</p> <p>No INSTALL a new selector lever knob. TEST the system for normal operation.</p>
<p>C3 CHECK CIRCUIT 224 (TN/WH) FOR AN OPEN</p> <ul style="list-style-type: none"> • Ignition OFF. • Disconnect: PCM C175B. • Measure the resistance between selector lever C307-6, circuit 224 (TN/WH), harness side and PCM C175B-29, circuit 224 (TN/WH), harness side. 	<p>Yes GO to C4.</p> <p>No REPAIR circuit 224 (TN/WH) for an open. TEST the system for normal operation.</p>

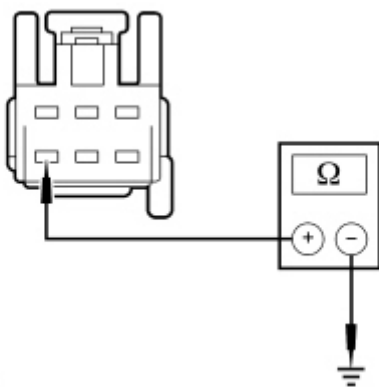


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- Is the resistance less than 5 ohms?

C4 CHECK CIRCUIT 224 (TN/WH) FOR A SHORT TO GROUND

- Measure the resistance between selector lever C307-6, circuit 224 (TN/WH), harness side and ground.



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- Is the resistance greater than 10,000 ohms?

Yes
INSTALL a new PCM.
REFER to [Section 303-14](#). TEST the system for normal operation.

No
REPAIR circuit 224 (TN/WH) for a short to ground. TEST the system for normal operation.