Convertible Top

Special Tool(s)

 ST1137-A	73III Automotive Meter 105-R0057 or equivalent
 ST2834-A	Vehicle Communication Module (VCM) and Integrated Diagnostic System (IDS) software with appropriate hardware, or equivalent scan tool

Material

Item	Specification
MERCON® V Automatic Transmission Fluid XT-5-QM (or XT-5-QMC) (US); CXT-5-LM12 (Canada)	MERCON® V

Principles of Operation

NOTE: The Smart Junction Box (SJB) may also be identified as the Generic Electronic Module (GEM).

The convertible top system is controlled by the SJB . When the convertible top switch is activated, the SJB commands the front and rear windows to the full down position. When the SJB detects that the LH and RH rear window motors are in the full downward position, it will command the appropriate relay to close in order to raise or lower the convertible top. If the SJB does not detect a full down signal from the LH and RH rear window motors, the convertible top operation will be disabled.

The convertible top assembly is a floating frame, Z-fold design. The main pivot brackets are attached to the body, and the convertible top frame side rails expand or fold when the convertible top is raised or lowered. The LH and RH stay pads are attached to the convertible top frame bows, and provide the main source of tension for the convertible top material. When the convertible top is in the full down position, it is stored in the compartment behind the rear seat backrest. When the convertible top is in the full up position, the body provides a stop which the convertible top frame No. 5 bow contacts to provide a weather seal for the convertible top against the body.

The convertible top hydraulic system uses a reversible hydraulic pump and motor assembly. When activated, the hydraulic pump uses hydraulic pressure to extend the hydraulic lift cylinders to raise the convertible top, or retract the hydraulic lift cylinders to lower the convertible top. The hydraulic motor/pump assembly is equipped with a thermal circuit breaker. In the event of a concern, the circuit breaker will reset after approximately 5 minutes. The thermal circuit breaker is integral to the hydraulic motor and pump assembly and cannot be serviced separately. In the event of a hydraulic system failure, the convertible top cannot be operated manually.

Inspection and Verification

1. Verify the customer concern.

2. Visually inspect for obvious signs of mechanical or electrical damage.

Visual Inspection Chart

Mechanical	Electrical

• Convertible top brackets and frame
• Convertible top latches
• Hydraulic motor and pump assembly
• Hydraulic lift cylinders
• Hydraulic lines
	• Bussed Electrical Center (BEC) fuse(s):
	  ▪ 13 (40A)
	  ▪ 51 (10A)
	• Hydraulic motor and pump assembly
	• Convertible top ajar switch
	• Convertible top switch
	• Convertible top raise relay
	• Convertible top lower relay
	• LH or RH rear power window motor
	• Smart Junction Box (SJB)
	• Loose or corroded connections
	• Wiring harness

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. **NOTE:** Make sure to use the latest scan tool software release.

   If the cause is not visually evident, connect the scan tool to the Data Link Connector (DLC).

5. **NOTE:** The Vehicle Communication Module (VCM) LED prove out confirms power and ground from the DLC are provided to the VCM .

   If the scan tool does not communicate with the VCM :
   - check the VCM connection to the vehicle.
   - check the scan tool connection to the VCM .
   - refer to Section 418-00 , No Power To The Scan Tool, to diagnose no power to the scan tool.

6. If the scan tool does not communicate with the vehicle:
   - verify the ignition key is in the ON position.
   - verify the scan tool operation with a known good vehicle.
   - refer to Section 418-00 to diagnose no response from the SJB .

7. Carry out the network test.
   - If the scan tool responds with no communication for one or more modules, refer to Section 418-00 .
   - If the network test passes, retrieve and record continuous memory DTCs.

8. Clear the continuous DTCs and carry out the self-test diagnostics for the SJB .

9. If the DTCs retrieved are related to the concern, go to the Smart Junction Box (SJB) DTC Chart. For all other DTCs, refer to Section 419-10 .

10. If no DTCs related to the concern are retrieved, GO to Symptom Chart .

DTC Charts

Smart Junction Box (SJB) DTC Chart

DTC	Description	Action
B1402	Driver Power Window Down Switch Circuit Failure	GO to Pinpoint Test A .
B2068	Convertible Top Up Output Circuit Failure	GO to Pinpoint Test A .

B2069	Convertible Top Down Output Circuit Failure	GO to Pinpoint Test A .
B2481	Convertible Top Up/Down Switch Fault	GO to Pinpoint Test A .
B2578	Passenger Power Window Down Switch Circuit Failure	GO to Pinpoint Test A .
All Other DTCs	—	REFER to Section 419-10 .

Symptom Chart

Symptom Chart

Condition	Possible Sources	Action
• The convertible top does not raise/lower	• Bussed Electrical Center (BEC) • Circuitry • Convertible top lower relay • Convertible top raise relay • Convertible top switch • Fuse(s) • Hydraulic motor and pump assembly • LH rear window motor • RH rear window motor • Smart Junction Box (SJB)	• GO to Pinpoint Test A .
• The convertible top does not operate correctly	• Convertible top frame bows • Convertible top side rails • Hydraulic fluid leak • Hydraulic lift cylinder • Hydraulic motor and pump assembly • Low hydraulic fluid	• GO to Pinpoint Test B .

Pinpoint Tests

Pinpoint Test A: The Convertible Top Does Not Raise/Lower

Refer to Wiring Diagrams Cell 103 , Convertible Top for schematic and connector information.

Refer to Wiring Diagrams Cell 100 , Power Windows for schematic and connector information.

Normal Operation

The convertible top switch supplies a ground signal to the Smart Junction Box (SJB) on circuit 2038 (LB/OG) when the convertible top switch is depressed to the lower position, or circuit 2052 (VT/OG) when the convertible top switch is depressed to the raise position. The convertible top system will not operate when the vehicle speed is greater than 5 km/h (3 mph) or if the ignition switch is in the START position. The convertible top hydraulic system uses a 12-volt reversible pump and motor assembly. When the SJB receives a request to operate the convertible top, the SJB sends a signal to the front and rear windows to lower the windows to the full down position. The SJB monitors the status of the rear windows on circuit 2012 (RD/BK) for the right rear window, and circuit 2014 (YE/LB) for the left rear window. When the SJB detects a full down signal from the RH and LH rear window motors, the convertible top operation is enabled. If the SJB does not detect a full down signal from the RH and LH rear window motors, the convertible top operation is disabled. When either the convertible top raise relay or the convertible top lower relay is activated, the other relay will remain in its normal state and supplies ground to the hydraulic motor and pump assembly. The convertible top raise and lower relay coils receive voltage at all times from SJB fuse 51 (10A). The convertible top raise and lower relay contacts receive voltage at all times from SJB fuse 13 (40A). When the convertible top switch is pressed to the lower position, and the SJB

detects a full down signal from the LH and RH rear window motors, the SJB activates the convertible top lower relay by grounding circuit 1174 (WH/RD). When the convertible top lower relay is activated, voltage is supplied to the hydraulic motor and pump through circuit 902 (YE). Ground is supplied to the hydraulic motor and pump assembly through circuit 903 (RD). When the convertible top switch is pressed in the raise position, and the SJB detects a full down signal from the LH and RH rear window motors, the SJB activates the convertible top lower relay by grounding circuit 588 (VT). When the convertible top raise relay is activated, voltage is supplied to the hydraulic motor and pump assembly through circuit 903 (RD). Ground is supplied to the hydraulic motor and pump assembly through circuit 902 (YE).

The hydraulic motor/pump assembly is equipped with a thermal circuit breaker. In the event of a concern, the circuit breaker will reset after approximately 5 minutes. The thermal circuit breaker is integral to the hydraulic motor and pump assembly and cannot be serviced separately.

DTC Description	Fault Trigger Conditions
B1402 — Driver Power Window Down Switch Circuit Failure	Short to ground detected by the Driver Seat Module (DSM) during on-demand self test.
B2068 — Convertible Top Up Output Circuit Failure	Short to ground, short to battery or open.
B2069 — Convertible Top Down Output Circuit Failure	Short to ground, short to battery or open.
B2481 — Convertible Top Up/Down Switch Fault	Short to ground.
B2578 — Passenger Power Window Down Switch Circuit Failure	Short to ground detected by the DSM during on-demand self test.

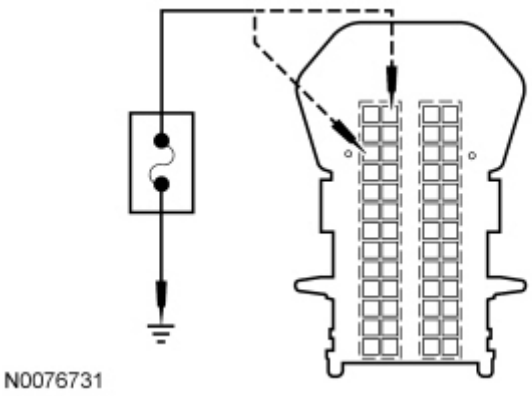
This pinpoint test is intended to diagnose the following:

- Bussed Electrical Center (BEC)
- Convertible top raise relay
- Convertible top lower relay
- Convertible top switch
- Fuse(s)
- Hydraulic motor and pump assembly
- LH or RH rear window motor
- SJB
- Wiring, terminals or connectors

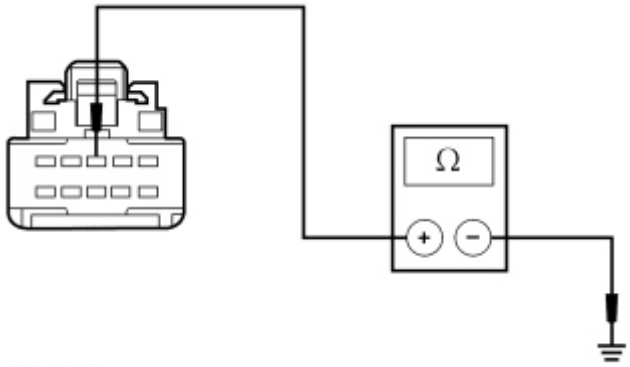
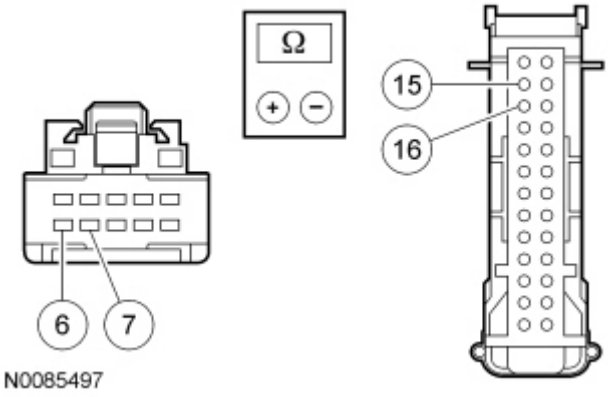
PINPOINT TEST A: THE CONVERTIBLE TOP DOES NOT RAISE/LOWER

Test Step	Result / Action to Take
A1 RETRIEVE THE RECORDED DTCs FROM THE SJB	
• **NOTE:** Repair all Vehicle Speed Sensor (VSS) DTCs before proceeding with pinpoint test. • Retrieve the recorded SJB DTCs from the continuous and on-demand self tests. • **Are any SJB DTCs recorded?**	**Yes** For DTC B2481, GO to A10. For DTC B2068, VERIFY that BEC fuse 51 (10A) is OK. If OK, GO to A12. For DTC B2069, VERIFY that BEC fuse 51 (10A) is OK. If OK, GO to A14. For DTC B1402 or B2578, GO to A21. **No** GO to A2.
A2 CHECK THE VEHICLE SPEED INPUT	

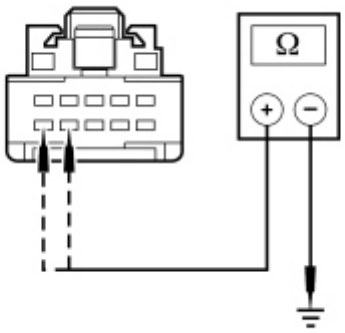
• Ignition ON. • Enter the following diagnostic mode on the scan tool: PCM DataLogger. • Monitor the PCM VSS PID. • **Does the PID display less than 5 km/h (3 mph)?**	**Yes** GO to A3. **No** REFER to the Powertrain Control/Emissions Diagnosis (PC/ED) manual to diagnose the VSS.
A3 CHECK THE SJB CONVERTIBLE TOP SWITCH INPUT	
• Enter the following diagnostic mode on the scan tool: SJB PIDs. • Monitor the convertible top switch TOP_UP and TOP_DN SJB PIDs while operating the convertible top switch in the raise and lower positions. • **Does the PID status change from OFF to ON for both positions?**	**Yes** GO to A4. **No** GO to A7.
A4 CHECK THE WINDOW OPERATION	
• Raise the front and rear windows to the full up position. • Operate the convertible top switch. • **Do the front and rear windows fully open?**	**Yes** GO to A5. **No** REFER to Section 501-11 to diagnose the convertible top drop feature.
A5 CHECK THE REAR WINDOW FULL DOWN INPUTS TO THE SJB	
• Enter the following diagnostic mode on the scan tool: SJB DataLogger. • Lower the LH and RH rear windows to the full down position. • Monitor the LH and RH rear window LR_DOWN and RR_DOWN SJB PIDs. • **Does the PID status display Yes for both PIDs?**	**Yes** GO to A6. **No** GO to A24.
A6 CHECK FOR CONVERTIBLE TOP MOTOR OPERATION	

• Ignition OFF.
• Disconnect: SJB C2280C.
• Ignition ON.
• Connect a fused jumper wire between ground and SJB:
  ▪ C2280C-11, circuit 588 (VT), harness side.
  ▪ C2280C-26, circuit 1174 (WH/RD), harness side.
 
N0076731
• **Does the convertible top motor operate in both directions?**
	Yes
	The system is operating correctly at this time. The concern may have been caused by a loose or corroded connector. TEST the system for normal operation.
	
	No
	GO to A16.

A7 CHECK CIRCUIT 1205 (BK) AT THE CONVERTIBLE TOP SWITCH FOR AN OPEN	
• Ignition OFF. • Disconnect: Convertible Top Switch C9013. • Measure the resistance between convertible top switch C9013-3, circuit 1205 (BK), harness side and ground.	**Yes** GO to A8. **No** REPAIR the circuit. TEST the system for normal

 N0025476 • **Is the resistance less than 5 ohms?**	operation.
A8 CHECK CIRCUITS 2038 (LB/OG) AND 2052 (VT/OG) FOR AN OPEN • Measure the resistance between convertible top switch C9013, harness side and SJB , harness side using the following chart: **Convertible Top Switch** / **Circuit** / **SJB** C9013-6 / 2038 (LB/OG) / C2280F-16 C9013-7 / 2052 (VT/OG) / C2280F-15  N0085497 • **Are the resistances less than 5 ohms?**	**Yes** GO to A9 . **No** REPAIR the circuit(s). TEST the system for normal operation.
A9 CHECK THE OPERATION OF THE CONVERTIBLE TOP SWITCH • Measure the resistance between the convertible top switch pin 7, component side and the convertible top switch pin 3, component side while operating the convertible top switch in the raise position; and between the convertible top switch pin 6, component side and the convertible top switch pin 3, component side while operating the convertible top switch in the lower position. • **Are the resistances less than 5 ohms?**	**Yes** GO to A27 . **No** INSTALL a new convertible top switch. REFER to Convertible Top Switch in this section. TEST the system for normal operation.

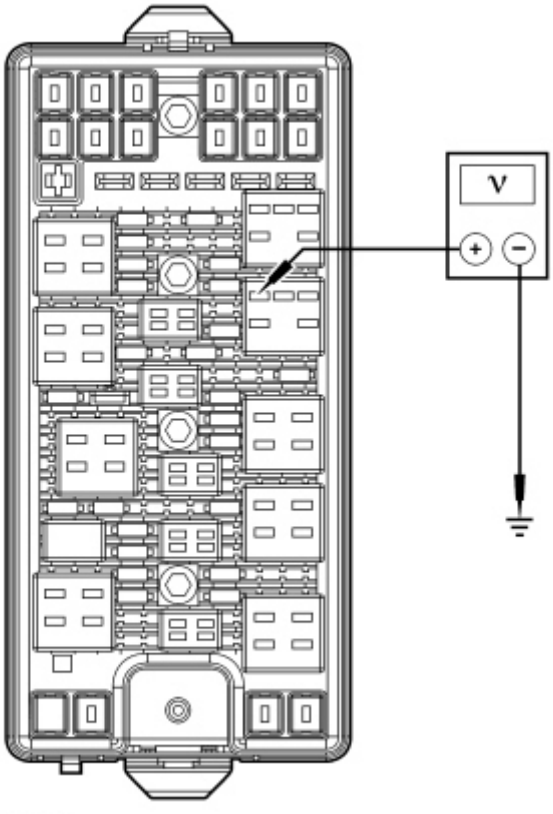
A10 CHECK CIRCUITS 2038 (LB/OG) AND 2052 (VT/OG) FOR A SHORT TO GROUND
• Ignition OFF.
• Disconnect: Convertible Top Switch C9013.
• Disconnect: SJB C2280F.
• Measure the resistance between ground and convertible top switch:
  ▪ C9013-7, circuit 2052 (VT/OG), harness side.
  ▪ C9013-6, circuit 2038 (LB/OG), harness side.
	Yes
	GO to A11 .
	
	No
	REPAIR the circuit(s). CLEAR the DTCs. REPEAT the self-test.



N0072270

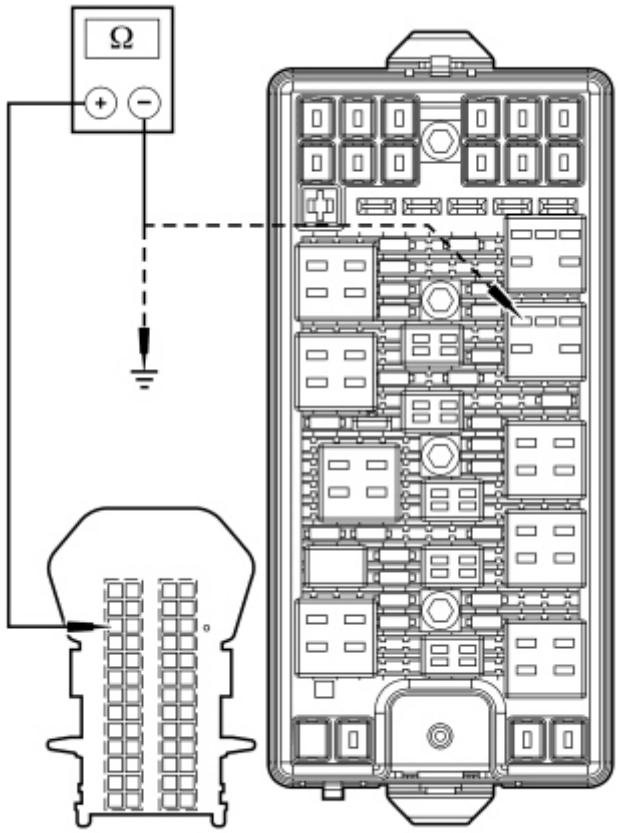
- **Are the resistances greater than 10,000 ohms?**

A11 CHECK THE CONVERTIBLE TOP SWITCH	
• Measure the resistance between the convertible top switch pin 7, component side and the convertible top switch pin 3, component side; and between the convertible top switch pin 6, component side and the convertible top switch pin 3, component side. • **Are the resistances greater than 10,000 ohms?**	**Yes** GO to A27 . **No** INSTALL a new convertible top switch. REFER to Convertible Top Switch in this section. CLEAR the DTCs. REPEAT the self-test.
A12 CHECK CIRCUIT 588 (VT) FOR A SHORT TO VOLTAGE	
• Ignition OFF. • Disconnect: SJB C2280c. • Remove the BEC convertible top raise relay. • Ignition ON. • Measure the voltage between BEC convertible top raise relay pin 85 and ground.	**Yes** REPAIR the circuit. CLEAR the DTCs. REPEAT the self-test. **No** GO to A13 .

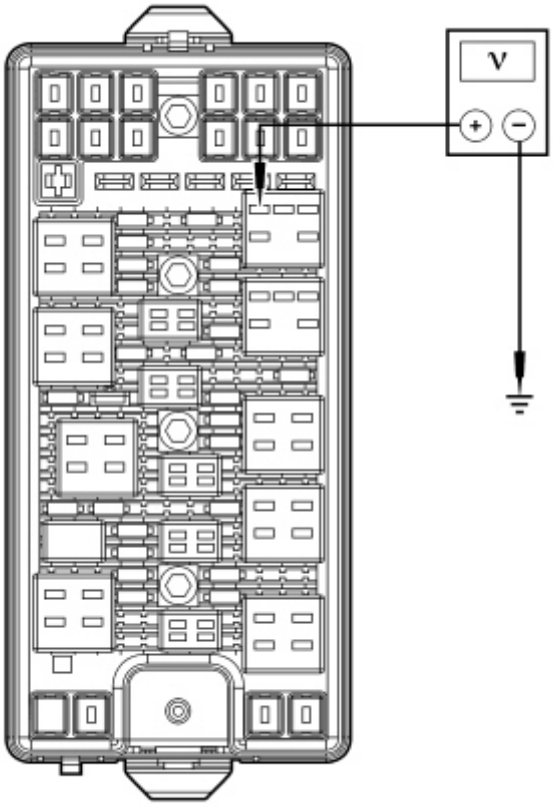


N0072273

• **Is any voltage present?**	
A13 CHECK CIRCUIT 588 (VT) FOR A SHORT TO GROUND OR AN OPEN	

• Ignition OFF.
• Measure the resistance between SJB :
  ▪ C2280c-11, circuit 588 (VT), harness side and BEC convertible top raise relay pin 85.
  ▪ C2280c-11, circuit 588 (VT), harness side and ground.
 
 	
N0076732
• **Is the resistance less than 5 ohms between the SJB and the BEC , and greater than 10,000 ohms between the SJB and ground?**
	Yes
	CARRY OUT the relay component test for the convertible top raise relay.
	
	Refer to Wiring Diagrams Cell 149 for component testing.
	
	If the convertible top raise relay does not pass the component test, INSTALL a new convertible top raise relay. CLEAR the DTCs. REPEAT the self-test. If the convertible top raise relay passes the component test, GO to A27 .
	
	No
	REPAIR the circuit. CLEAR the DTCs. REPEAT the self-test.

A14 CHECK CIRCUIT 1174 (WH/RD) FOR A SHORT TO VOLTAGE	
• Ignition OFF. • Disconnect: SJB C2280c. • Remove the BEC convertible top lower relay. • Ignition ON. • Measure the voltage between BEC convertible top lower relay pin 85 and ground.	**Yes** REPAIR the circuit. CLEAR the DTCs. REPEAT the self-test. **No** GO to A15 .

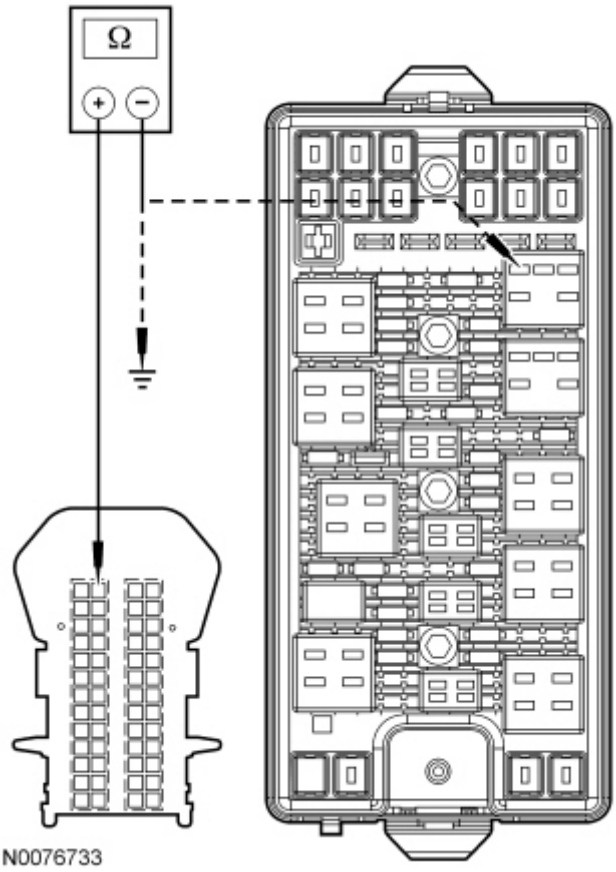


N0072271

- **Is any voltage present?**

A15 CHECK CIRCUIT 1174 (WH/RD) FOR A SHORT TO GROUND OR AN OPEN	

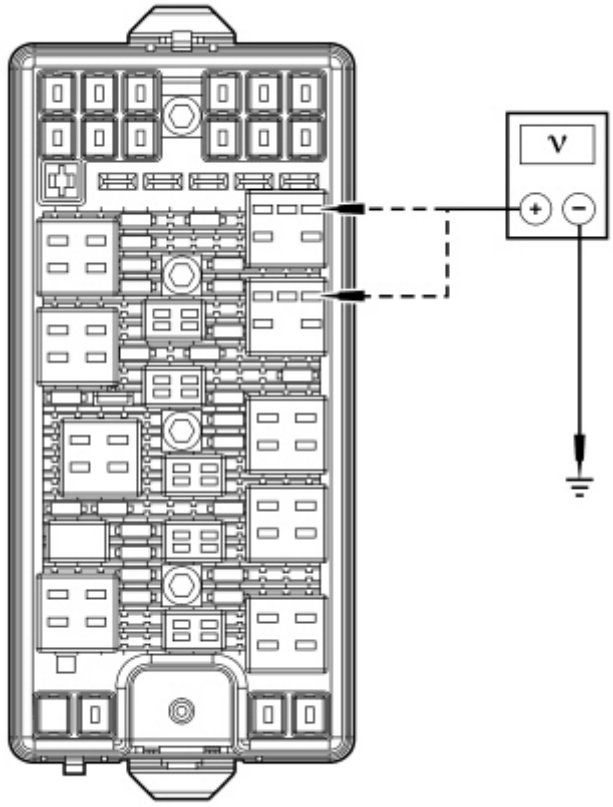
• Ignition OFF.
• Measure the resistance between SJB :
  ▪ C2280c-26, circuit 1174 (WH/RD), harness side and BEC convertible top lower relay pin 85.
  ▪ C2280c-26, circuit 1174 (WH/RD), harness side and ground.
	Yes
	CARRY OUT the relay component test for the convertible top lower relay.
	
	Refer to Wiring Diagrams Cell 149 for component testing.
	
	If the convertible top lower relay does not pass the component test, INSTALL a new convertible top lower relay. CLEAR the DTCs. REPEAT the self-test. If the convertible top lower relay passes the component test, GO to A27 .
	
	No
	REPAIR the circuit. CLEAR the DTCs. REPEAT the self-test.



- **Is the resistance less than 5 ohms between the SJB and the BEC, and greater than 10,000 ohms between the SJB and ground?**

A16 CHECK THE CONVERTIBLE TOP RELAYS	
• Carry out the relay component test for the convertible top raise relay and the convertible top lower relay. Refer to Wiring Diagrams Cell 149 for component testing. • **Did the convertible top raise relay and the convertible top lower relay pass the relay component test?**	**Yes** GO to A17. **No** INSTALL a new convertible top raise relay or convertible top lower relay. TEST the system for normal operation.
A17 CHECK FOR VOLTAGE TO THE CONVERTIBLE TOP RELAYS	

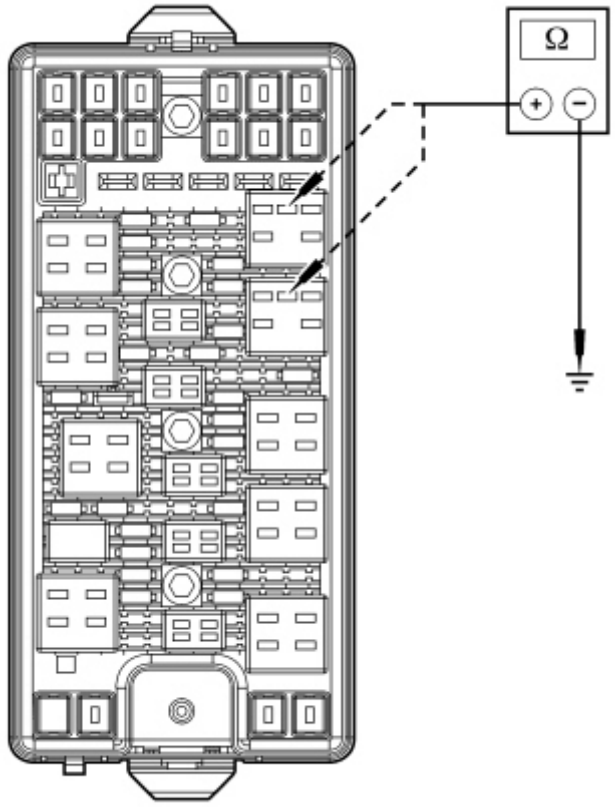
• Remove the convertible top raise and lower relays.
• Measure the voltage between ground and:
  ▪ BEC convertible top lower relay pin 87.
  ▪ BEC convertible top raise relay pin 87.
	Yes
	GO to A18.
	
	No
	VERIFY that BEC fuse 13 (40A) is OK. If BEC fuse 13 (40A) is not OK, GO to A20.



N0072275

- **Are the voltages greater than 10 volts?**

A18 CHECK CIRCUIT 1205 (BK) FOR AN OPEN • Measure the resistance between ground and: ▪ BEC convertible top lower relay pin 87a. ▪ BEC convertible top raise relay pin 87a.	**Yes** GO to A19 . **No** REPAIR the circuit. TEST the system for normal operation.



N0072276

- **Are the resistances less than 5 ohms?**

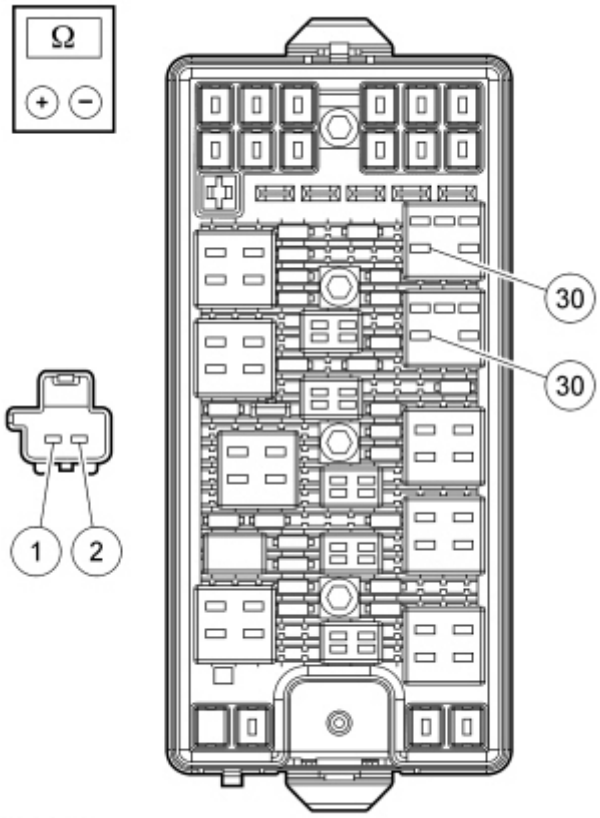
A19 CHECK CIRCUITS 902 (YE) AND 903 (RD) FOR AN OPEN

- Ignition OFF.
- Disconnect: Convertible Top Motor C4062.
- Measure the resistance between convertible top motor C4062, harness side and BEC relays using the following chart:

Convertible Top Motor	Circuit	BEC
C4062-1	903 (RD)	Convertible Top Lower Relay Pin 30
C4062-2	902 (YE)	Convertible Top Raise Relay Pin 30

Yes
INSTALL a new convertible top motor. REFER to Hydraulic System, Lift Cylinder and Motor in this section. TEST the system for normal operation.

No
REPAIR the circuit(s). TEST the system for normal operation.

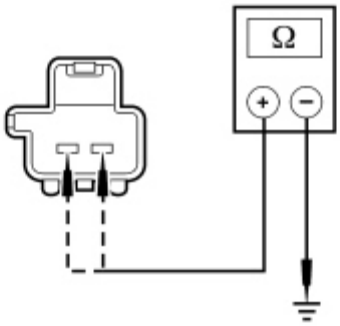


N0085498

- **Are the resistances less than 5 ohms?**

A20 CHECK CIRCUITS 902 (YE) AND 903 (RD) FOR A SHORT TO GROUND

- Disconnect: Convertible Top Motor C4062.
- Measure the resistance between ground and convertible top motor:
  - C4062-1, circuit 903 (RD), harness side.
  - C4062-2, circuit 902 (YE), harness side.



N0072278

- **Are the resistances greater than 10,000 ohms?**

Yes
INSTALL a new convertible top motor. REFER to Hydraulic System, Lift Cylinder and Motor in this section. TEST the system for normal operation.

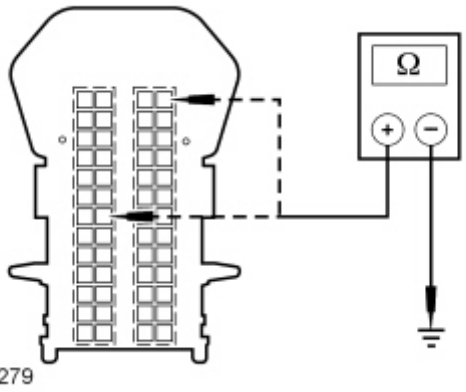
No
REPAIR the circuit(s). TEST the system for normal operation.

A21 CHECK THE OPERATION OF THE REAR WINDOW MOTORS

- Raise the LH and RH rear windows to the full up position.
- Ignition OFF.
- Disconnect: SJB C2280c.
- Measure the resistance between ground and SJB :
  - **DTC B1402:** C2280c-52, circuit 2014 (YE/LB), harness side.
  - **DTC B2578:** C2280c-20, circuit 2012 (RD/BK), harness side.

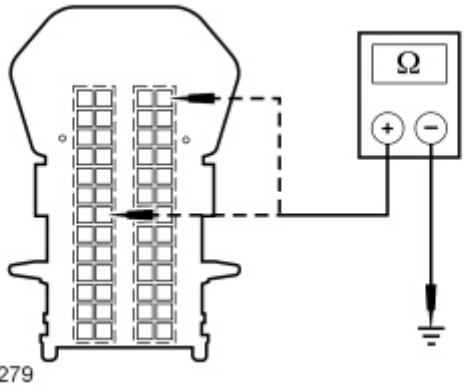
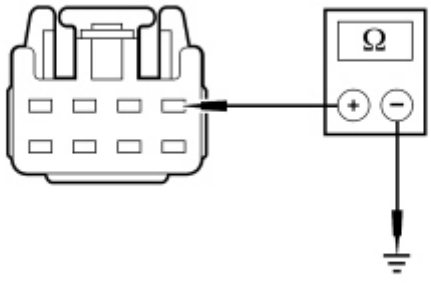
Yes
GO to A22 .

No
GO to A27 .

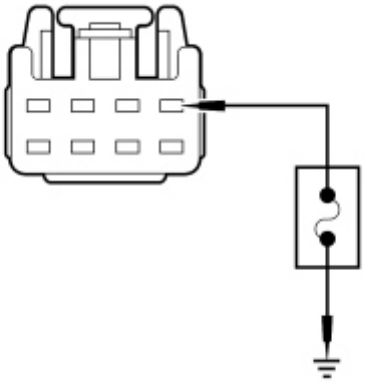


N0072279

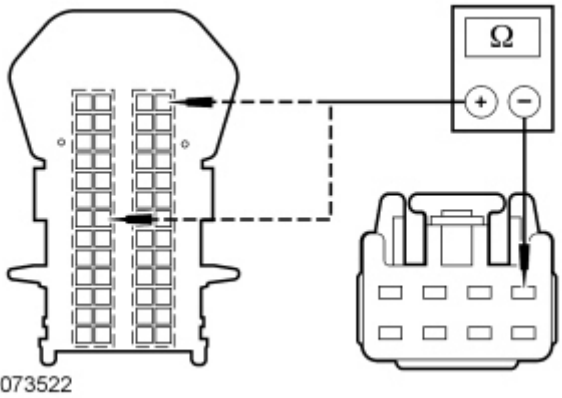
- **Is the resistance less than 5 ohms?**

A22 CHECK CIRCUIT 2012 (RD/BK) OR 2014 (YE/LB) FOR A SHORT TO GROUND	
• Disconnect: **DTC B1402:** Inline C312. • Disconnect: **DTC B2578:** Inline C313. • Measure the resistance between ground and SJB : ▪ **DTC B1402:** C2280c-52, circuit 2014 (YE/LB), harness side. ▪ **DTC B2578:** C2280c-20, circuit 2012 (RD/BK), harness side.  N0072279 • **Is the resistance greater than 10,000 ohms?**	**Yes** GO to A23 . **No** REPAIR the circuit(s). CLEAR the DTCs. REPEAT the self-test.
A23 CHECK RH REAR WINDOW MOTOR CIRCUIT 2012 (RD/BK) AND LH REAR WINDOW MOTOR CIRCUIT 2012 (RD/BK) FOR A SHORT TO GROUND	
• Disconnect: **DTC B1402:** LH Rear Window Motor C3118. • Disconnect: **DTC B2578:** RH Rear Window Motor C3119. • Measure the resistance between ground and SJB : ▪ **DTC B1402:** C312-1, circuit 2012 (RD/BK), window motor side. ▪ **DTC B2578:** C313-1, circuit 2012 (RD/BK), window motor side.  N0072590	**Yes** INSTALL a new LH or RH rear window motor as necessary. REFER to Section 501-11 . CLEAR the DTCs. REPEAT the self-test. **No** REPAIR the circuit(s). CLEAR the DTCs. REPEAT the self-test.

• **Is the resistance greater than 10,000 ohms?**	
A24 CHECK THE INPUTS TO THE SJB	

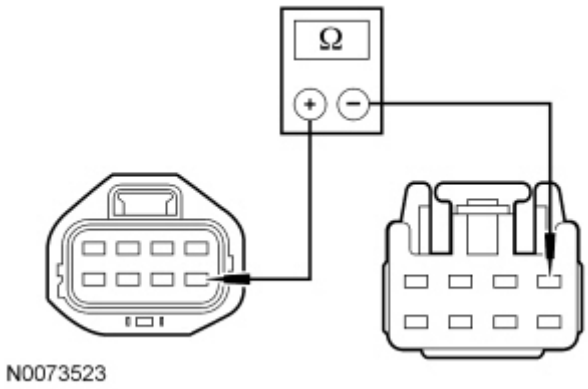
• Ignition OFF.
• Disconnect: Inline C312.
• Disconnect: Inline C313.
• Ignition ON.
• Enter the following diagnostic mode on the scan tool: SJB DataLogger.
• Monitor the LH and RH rear window LR_DOWN and RR_DOWN SJB PIDs while connecting a fused jumper wire between ground and inline:
  ▪ C312-1, circuit 2014 (YE/BK), SJB side.
  ▪ C313-1, circuit 2012 (RD/BK), SJB side.
 
N0076734
• **Does the PID status display Yes for both PIDs?**
	Yes
	GO to A26 .
	
	No
	GO to A25 .

A25 CHECK CIRCUIT 2012 (RD/BK) OR CIRCUIT 2014 (YE/LB) FOR AN OPEN	

• Disconnect: SJB 2280C.
• Measure the resistance between SJB :
  ▪ C2280C-20, circuit 2012 (RD/BK), harness side and inline C313-1, circuit 2012 (RD/BK), SJB side.
  ▪ C2280C-52, circuit 2014 (YE/LB), harness side and inline C312-1, circuit 2014 (YE/LB), SJB side.
 
 	
N0073522
• **Are the resistances less than 5 ohms?**
	Yes
	GO to A27 .
	
	No
	REPAIR the circuit(s). TEST the system for normal operation.

A26 CHECK RH REAR WINDOW MOTOR CIRCUIT 2012 (RD/BK) AND LH REAR WINDOW MOTOR CIRCUIT 2012 (RD/BK) FOR AN OPEN	

• Disconnect: RH Rear Window Motor C3118.
• Disconnect: LH Rear Window Motor C3119.
• Measure the resistance between rear window motor:
  ▪ **RH:** C3119-5, circuit 2012 (RD/BK), harness side and inline C313-1, circuit 2012 (RD/BK), window motor side.
  ▪ **LH:** C3118-5, circuit 2012 (RD/BK), harness side and inline
	Yes
	INSTALL a new LH or RH rear window motor. REFER to Section 501-11 . TEST the system for normal operation.

C312-1, circuit 2012 (RD/BK), window motor side.  N0073523 • **Are the resistances less than 5 ohms?**	**No** REPAIR the circuit(s). TEST the system for normal operation.
A27 CHECK FOR CORRECT SJB OPERATION	

• Disconnect all the SJB connectors.
• Check for:
  ▪ corrosion.
  ▪ pushed-out pins.
• Connect all the SJB connectors and make sure they seat correctly.
• Operate the system and verify the concern is still present.
• **Is the concern still present?**
	Yes
	INSTALL a new SJB. REFER to Section 419-10. CLEAR the DTCs. REPEAT the self-test.
	
	No
	The system is operating correctly at this time. The concern may have been caused by a loose or corroded connector. CLEAR the DTCs. REPEAT the self-test.

Pinpoint Test B: The Convertible Top Does Not Operate Correctly

Refer to Wiring Diagrams Cell 103, Convertible Top for schematic and connector information.

Normal Operation

The convertible top hydraulic system uses a 12-volt reversible pump and motor assembly. When active, the pump uses hydraulic pressure to extend the hydraulic lift cylinders to raise the convertible top, or retract the hydraulic lift cylinders to lower the convertible top. The convertible top assembly is a floating frame, Z-fold design. The main pivot brackets are attached to the body, and the convertible top frame side rails expand or fold when the convertible top is raised or lowered. The convertible top frame bows attach to the convertible top frame side rails and provide tension for the convertible top material.

This pinpoint test is intended to diagnose the following:

- Convertible top frame bows
- Convertible top side rails
- Hydraulic fluid leak
- Hydraulic lift cylinders
- Hydraulic motor/pump assembly
- Low hydraulic fluid

PINPOINT TEST B: THE CONVERTIBLE TOP DOES NOT OPERATE CORRECTLY

Test Step	Result / Action to Take

B1 CHECK THE HYDRAULIC FLUID LEVEL	
• Lower the convertible top. • Gain access to the hydraulic motor and pump assembly. • **NOTE:** Make sure that the hydraulic lift cylinders are fully retracted before checking the hydraulic fluid level. • Inspect the hydraulic reservoir and check the hydraulic fluid level. • **Is the hydraulic fluid level at the "+" sign that is molded into the hydraulic reservoir?**	**Yes** GO to B4 . **No** GO to B2 .
B2 CHECK THE HYDRAULIC SYSTEM FOR LEAKS	
• Inspect all hydraulic fittings and hoses for hydraulic fluid leaks. • **Are any hydraulic fluid leaks present?**	**Yes** REPAIR the leaking hydraulic fitting or INSTALL a new hydraulic hose as necessary. BLEED the hydraulic system. REFER to System Bleeding in this section. TEST the system for normal operation. **No** GO to B3 .
B3 FILL THE HYDRAULIC SYSTEM	
• **NOTE:** The hydraulic fluid level should be at the "+" sign that is molded into the hydraulic reservoir. • Add hydraulic fluid to the hydraulic fluid reservoir. • Operate the convertible top system. • **Does the convertible top system operate correctly?**	**Yes** The concern is not present at this time. RETURN the vehicle to the customer. **No** BLEED the hydraulic system. REFER to System Bleeding in this section. TEST the system for normal operation.
B4 CHECK THE CONVERTIBLE TOP LINKAGE	
• Remove the hydraulic lift cylinder bolts and disconnect the hydraulic lift cylinders from the convertible top linkage. • **NOTE:** The convertible top is not adjustable. If the convertible top frame is damaged or requires adjustment, the damaged components must be replaced. • Manually operate the convertible top assembly up and down while observing the convertible top linkage. • **Does the linkage operate smoothly without binding?**	**Yes** GO to B5 . **No** INSTALL new components as necessary. REFER to Convertible Top Bows or Convertible Top Side Rail in this section. TEST the system for normal operation.
B5 CHECK THE HYDRAULIC LIFT CYLINDERS	
• Operate the hydraulic system using a 12-volt fused (40A) power source. • **Do the hydraulic lift cylinders extend and retract fully and evenly?**	**Yes** GO to B6 . **No** BLEED the hydraulic system. REFER to System Bleeding in this section. If concern is still present after bleeding the hydraulic system, INSTALL a new hydraulic lift cylinder. REFER to Hydraulic System, Lift Cylinder and Motor in this section. TEST the system for normal operation.
B6 BLEED THE HYDRAULIC SYSTEM	
• Bleed the hydraulic system. Refer to	**Yes**

System Bleeding in this section. • Operate the convertible top system upward and downward 3 times. • **Does the convertible top system operate correctly?**	The concern is not present at this time. RETURN the vehicle to the customer. **No** INSTALL a new motor and pump assembly. REFER to Hydraulic System, Lift Cylinder and Motor in this section. TEST the system for normal operation.