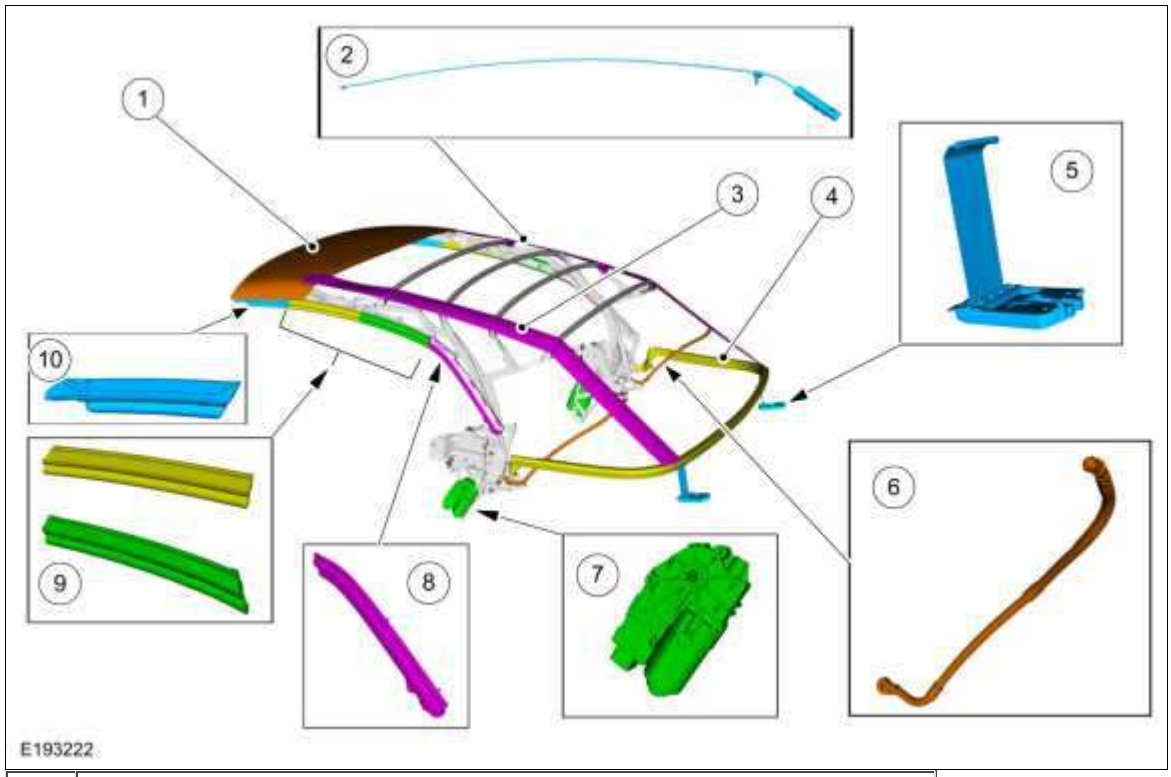
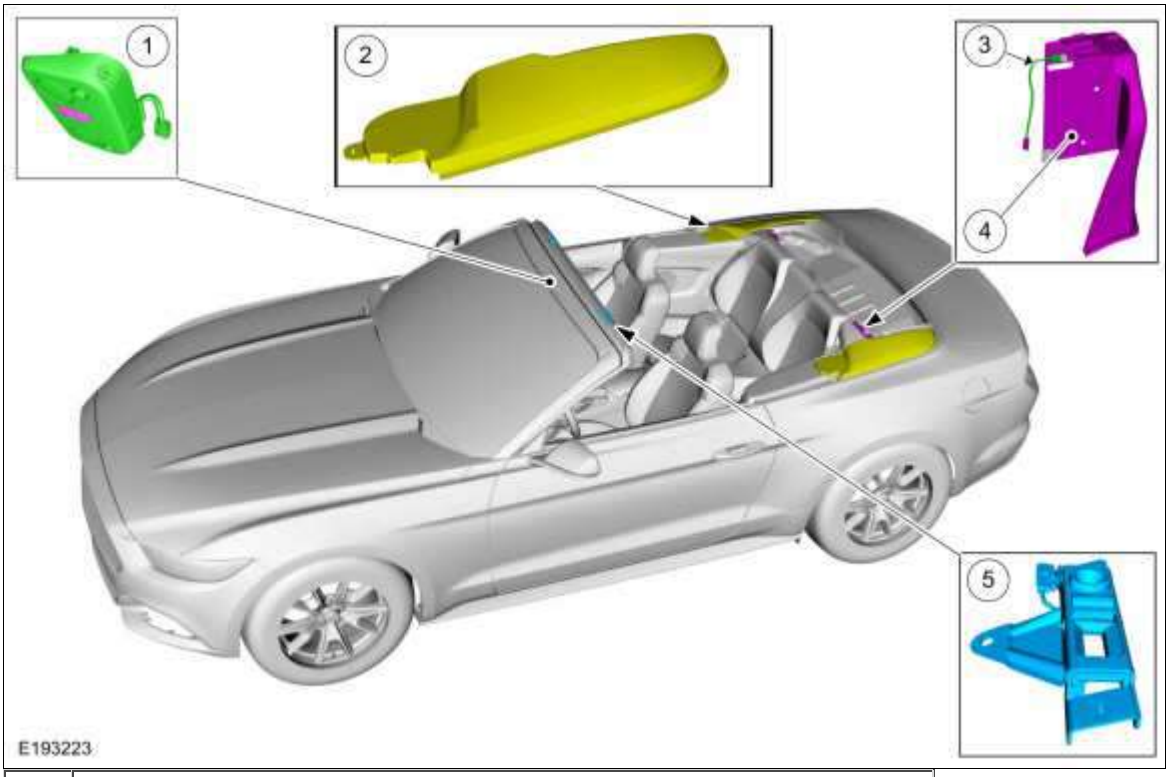
Convertible Top - Component Location

Frame Related Components



Item	Description
1	Convertible top front panel
2	Convertible top tension cable (routed through convertible top material)
3	Stay pad
4	Floating bow
5	Convertible top tension belt (located in the luggage compartment)
6	Rear glass tension rod
7	Convertible top motor (Moveable Roof Control Module (MRCM))
8	Convertible top rear panel lower seal
9	Convertible top center panel side weatherstrip (forward/rear)
10	Convertible top front panel side weatherstrip

Sensors And Switches



Item	Description
1	Overhead console (contains convertible top open/close switch)
2	Tonneau cover (includes magnet for tonneau cover sensor operation)
3	Tonneau cover sensor (PIA to D-tower cover)
4	D-tower cover
5	Convertible top front striker (LH side convertible top striker contains convertible top latch switch)

Convertible Top - Overview

Overview

The convertible top system is controlled by 2 smart electric motors called the Moveable Roof Control Module A (MRCMA) and the Moveable Roof Control Module B (MRCMB). The Moveable Roof Control Module A (MRCMA) is the primary module for the system and communicates with other modules and the Moveable Roof Control Module B (MRCMB) over the MS-CAN. The convertible top is raised and lowered using the convertible top switch, the switch must be held in position (up or down) while the roof is raised or lowered. The convertible top can only be operated when the following conditions are met:

Convertible Top Opening Conditions

- Accessory delay relay is active.
- Vehicle speed is less than 5 km/h (3 mph).
- Convertible top latch switch is open.

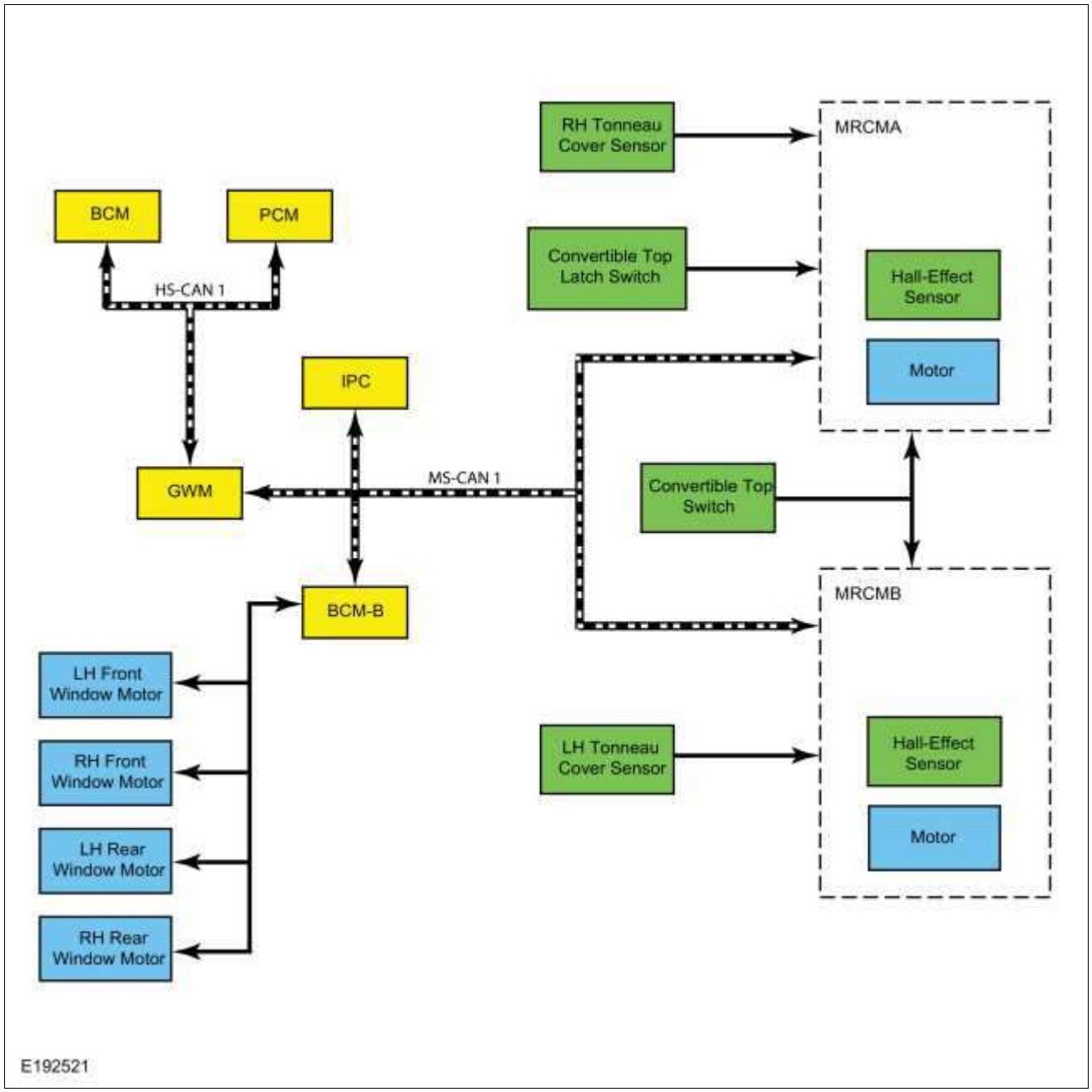
Convertible Top Closing Conditions

- Accessory delay relay is active.
- Vehicle speed is less than 5 km/h (3 mph).
- Tonneau covers (if equipped) are **not** in place.

Convertible Top - System Operation and Component Description

System Operation

System Diagram



Network Message Charts

Moveable Roof Control Module A (MRCMA) Network Input Messages

Broadcast Message	Originating Module	Message Purpose
Accessory delay status	BCM	This message is sent to the GWM and then to the Moveable Roof Control Module A (MRCMA). This message informs the Moveable Roof Control Module A (MRCMA) of the current accessory delay relay status;

Broadcast Message	Originating Module	Message Purpose
		active or not active.
Convertible Top Request	Moveable Roof Control Module B (MRCMB)	This message informs the Moveable Roof Control Module A (MRCMA) the vehicle occupant has requested the convertible top to be raised.
Convertible Top Status	Moveable Roof Control Module B (MRCMB)	This message informs the Moveable Roof Control Module A (MRCMA) of the current Moveable Roof Control Module B (MRCMB) convertible top status; opened, closed, moving, stalled or faulted.
Ignition Status	BCM	This message is sent to the GWM and then to the Moveable Roof Control Module A (MRCMA). This message informs the Moveable Roof Control Module A (MRCMA) of the current ignition status; OFF, ACC, RUN, START or UNKNOWN.
LH rear window down status	BCMB	This message informs the Moveable Roof Control Module A (MRCMA) the LH rear window is in the full down position.
RH rear window down status	BCMB	This message informs the Moveable Roof Control Module A (MRCMA) the RH rear window is in the full down position.
Tonneau Cover Status	Moveable Roof Control Module B (MRCMB)	This message informs the Moveable Roof Control Module A (MRCMA) of the current Moveable Roof Control Module B (MRCMB) tonneau cover status; installed, not installed, not used or faulted.
Vehicle speed	PCM	This message is sent to the GWM and then to the Moveable Roof Control Module A (MRCMA). This message informs the Moveable Roof Control Module A (MRCMA) of the current vehicle speed.

Moveable Roof Control Module B (MRCMB) Network Input Messages

Broadcast Message	Originating Module	Message Purpose
Accessory delay status	BCM	This message is sent to the GWM and then to the Moveable Roof Control Module B (MRCMB). This message informs the Moveable Roof Control Module B (MRCMB) of the current accessory delay relay status; active or not active.
Convertible Top Request	Moveable Roof Control Module A (MRCMA)	This message informs the Moveable Roof Control Module B (MRCMB) the vehicle occupant has requested the convertible top to be lowered.
Convertible Top Status	Moveable Roof Control Module A (MRCMA)	This message informs the Moveable Roof Control Module B (MRCMB) of the current Moveable Roof Control Module A (MRCMA) convertible top status; opened, closed, moving, stalled or faulted.
Ignition Status	BCM	This message is sent to the GWM and then to the Moveable Roof Control Module B (MRCMB). This message informs the Moveable Roof Control Module B (MRCMB) of the current ignition status; OFF, ACC, RUN, START or UNKNOWN.
Tonneau Cover Status	Moveable Roof Control Module A (MRCMA)	This message informs the Moveable Roof Control Module B (MRCMB) of the current Moveable Roof Control Module A (MRCMA) tonneau cover status; installed, not installed, not used or faulted.

Convertible Top Function

The convertible top UP switch position is hard-wired to the Moveable Roof Control Module A (MRCMA) and the convertible top switch DOWN position is hard-wired to the Moveable Roof Control Module B (MRCMB). When the

convertible top down function requirements have been met (accessory delay relay is active, vehicle speed is less than 5 km/h (3 mph) and the convertible top latch is released) and the convertible top DOWN switch is activated, a ground signal is sent to the Moveable Roof Control Module B (MRCMB). The Moveable Roof Control Module B (MRCMB) sends a convertible top down message over the MS-CAN to the Moveable Roof Control Module A (MRCMA). The Moveable Roof Control Module A (MRCMA) verifies all down function requirements have been met and then sends a window down message over the MS-CAN to the BCMB to lower all 4 windows. The BCMB sends a signal on the global open circuit to the 4 window motors to activate a full down operation of all 4 windows. Once the windows are fully lowered, the full down sensor in each rear quarter window motor sends a signal to the BCMB indicating the windows are in the full DOWN position. The BCMB sends the rear window status message to the Moveable Roof Control Module A (MRCMA) over the MS-CAN. After receiving the rear window status message from the BCMB, the Moveable Roof Control Module A (MRCMA) sends a convertible top down message to the Moveable Roof Control Module B (MRCMB) and the convertible top is lowered.

When the convertible top up function requirements have been met (accessory delay relay is active, vehicle speed is less than 5 km/h (3 mph) and the 2 tonneau covers (if equipped) are not in place) and the convertible top switch UP is activated, a ground signal is sent to the Moveable Roof Control Module A (MRCMA). The Moveable Roof Control Module A (MRCMA) verifies all up function requirements have been met and then sends a window down message over the MS-CAN to the BCMB to lower all 4 windows. The BCMB sends a signal on the global open circuit to the 4 window motors to activate a full down operation of all 4 windows. Once the windows are fully lowered, the full down sensor in each rear quarter window motor sends a signal to the BCMB indicating the windows are in the full DOWN position. The BCMB sends the rear window status message to the Moveable Roof Control Module A (MRCMA) over the MS-CAN. After receiving the rear window status message from the BCMB, the Moveable Roof Control Module A (MRCMA) sends a convertible top up message to the Moveable Roof Control Module B (MRCMB) and the convertible top is raised.

If the convertible top cannot be raised or lowered, the Moveable Roof Control Module A (MRCMA), Moveable Roof Control Module B (MRCMB) or BCMB sets a DTC. There are no warning indicators associated with the convertible top system, but messages may be displayed in the message center.

Convertible Top Drop Window Function

When the convertible top switch is operated (to raise or lower the convertible top), the BCMB sends a signal on the global open circuit to the 4 window motors to activate a full down operation of all 4 windows. When the rear quarter windows reach the full DOWN position, the full down sensor in each rear quarter window motor sends a signal to the BCMB indicating the windows are in the full DOWN position. If the BCMB does not see the full down signal from both rear quarter window motors, the convertible top does not operate. The BCMB also disables the rear quarter window control switch from operating the rear quarter windows when the convertible top is not in the full UP or full DOWN position by sending a message (pulses) on the global open circuit (the front door window motors ignore this message). This function prevents an accidental opening of the convertible top with the windows in the UP position causing contact between the windows and convertible top which may result in damage to the convertible top or windows. For additional information on window operation,
Refer to: Glass, Frames and Mechanisms - System Operation and Component Description (501-11 Glass, Frames and Mechanisms, Description and Operation).

Moveable Roof Control Module A (MRCMA) Message Center Messages

The Moveable Roof Control Module A (MRCMA) continually monitors the convertible top system operation and status using Hall-effect switches. The convertible top latch contains a magnet which activates a Hall-effect switch. The Hall-effect switch is hard-wired to the Moveable Roof Control Module A (MRCMA) so the module knows the roof is secured. The optional tonneau covers also each contain a magnet which activates a Hall-effect switch. One Hall-effect switch is hard-wired to the Moveable Roof Control Module A (MRCMA) and the other is hard-wired to the Moveable Roof Control Module B (MRCMB). When one or both tonneau covers are installed, the magnet actives the Hall-effect switch and prevents the convertible top from being raised. The Moveable Roof Control Module A (MRCMA) receives vehicle speed from the PCM over the HS-CAN1. If the vehicle speed exceeds 5 km/h (3 mph), the Hall-effect switches indicates one or more of the tonneau covers are installed or the convertible top latch is not fully engaged the Moveable Roof Control Module A (MRCMA) sends a message to the IPC over the MS-CAN.

When the IPC receives a convertible top status message from the Moveable Roof Control Module A (MRCMA), one or more of the following messages is displayed in the message center:

- **TOP DISABLED — REMOVE COVERS** – Displays when the vehicle occupants attempt to raise the convertible top with the optional tonneau covers installed.
- **TOP DISABLED — REDUCE SPEED** – Displays when the vehicle occupants attempt to lower or raise the convertible top and vehicle speed is greater than 5 km/h (3 mph).

- **TOP NOT SECURE** – Displays when the vehicle occupants have raised convertible top, vehicle speed exceeds 5 km/h (3 mph) and the convertible top latch has not been fully engaged.

For additional information on the message center,
Refer to: Message Center - System Operation and Component Description (413-01 Instrumentation, Message Center and Warning Chimes, Description and Operation).

Component Description

Convertible Top Latch Switch

The convertible top latch switch is a Hall-effect style switch, the switch is activated by a magnet in the convertible top. When the convertible top is closed and fully latched, the Hall-effect switch closes and sends a signal to the Moveable Roof Control Module A (MRCMA).

Convertible Top Switch

The convertible top switch is a 3-position (UP, DOWN, NEUTRAL), momentary contact, rocker style switch.

Moveable Roof Control Module A (MRCMA)

The Moveable Roof Control Module A (MRCMA) is the primary electronic control unit for the convertible top system and communicates with the Moveable Roof Control Module B (MRCMB) and other modules over the MS-CAN or HS-CAN1 through the GWM. The Moveable Roof Control Module A (MRCMA) monitors all sensor inputs and all CAN messages relating to the convertible top and directly controls the convertible top using a motor. The Moveable Roof Control Module A (MRCMA) also contains a Hall-effect switch to detect convertible top movement and position (open, closed, moving).

The Moveable Roof Control Module A (MRCMA) and Moveable Roof Control Module B (MRCMB) use their internal Hall-effect switches and the MS-CAN to synchronize motor speed and direction.

Moveable Roof Control Module B (MRCMB)

The Moveable Roof Control Module B (MRCMB) is the secondary electronic control unit for the convertible top system and communicates with the Moveable Roof Control Module A (MRCMA) over the MS-CAN and the BCM over the HS-CAN1 through the GWM. The Moveable Roof Control Module B (MRCMB) monitors one of the tonneau cover Hall-effect switches and MS-CAN messages from the Moveable Roof Control Module A (MRCMA) and directly controls the convertible top using a motor. The Moveable Roof Control Module B (MRCMB) also contains a Hall-effect switch to detect convertible top movement and position (open, closed, moving).

Tonneau Cover Switches

The tonneau cover switches are Hall-effect style switches, the switches are activated by a magnet located in each tonneau cover (1 magnet per cover). When the tonneau covers are installed, the Hall-effect switches close and send a signal to the Moveable Roof Control Module A (MRCMA) and the Moveable Roof Control Module B (MRCMB). One switch is hard-wired to each module.

Convertible Top

Diagnostic Trouble Code (DTC) Charts

Diagnostic Trouble Code (DTC) Chart: Moveable Roof Control Module A (MRCMA)

Diagnostics in this manual assume a certain skill level and knowledge of Ford-specific diagnostic practices. REFER to: Diagnostic Methods (100-00 General Information, Description and Operation).

Moveable Roof Control Module A (MRCMA) DTC Chart

DTC	Description	Action
B1070:12	Tonneau Lid Piston Out Sensor: Circuit Short to Battery	GO to Pinpoint Test B
B1070:14	Tonneau Lid Piston Out Sensor: Circuit Short to Ground or Open	GO to Pinpoint Test B
B1070:29	Tonneau Lid Piston Out Sensor: Signal Invalid	GO to Pinpoint Test B
B1078:12	Convertible Top Latched Sensor: Circuit Short to Battery	GO to Pinpoint Test C
B1078:14	Convertible Top Latched Sensor: Circuit Short to Ground or Open	GO to Pinpoint Test C
B1078:29	Convertible Top Latched Sensor: Signal Invalid	GO to Pinpoint Test C
B1267:24	Convertible / Folding Top Activation Up Switch: Signal Stuck High	GO to Pinpoint Test E
P0604:44	Internal Control Module Random Access Memory (RAM) Error: Data Memory Failure	• Using a diagnostic scan tool, CLEAR the DTC. • CYCLE the ignition from ON to OFF and back to ON. CARRY OUT the Moveable Roof Control Module A (MRCMA) self-test. • If the DTC returns, INSTALL a new Moveable Roof Control Module A (MRCMA). REFER to: Convertible Top Motor (501-18 Convertible Top, Removal and Installation).
P0605:45	Internal Control Module Read Only Memory (ROM) Error: Program Memory Failure	• Using a diagnostic scan tool, CLEAR the DTC. • CYCLE the ignition from ON to OFF and back to ON. CARRY OUT the Moveable Roof Control Module A (MRCMA) self-test. • If the DTC returns, INSTALL a new Moveable Roof Control Module A (MRCMA). REFER to: Convertible Top Motor (501-18 Convertible Top, Removal and Installation).
P062F:46	Internal Control Module EEPROM Error: Calibration / Parameter Memory Failure	• Using a diagnostic scan tool, CLEAR the DTC. • SET the ignition to OFF and wait 20 seconds. SET the ignition to ON. CARRY OUT the Moveable Roof Control Module A (MRCMA) self-test. • If the DTC returns, INSTALL a new Moveable Roof Control Module A (MRCMA). REFER to: Convertible Top Motor (501-18 Convertible

DTC	Description	Action
		Top, Removal and Installation).
P1240:1C	Sensor Power Supply - Circuit Voltage Out of Range	GO to Pinpoint Test D
U0140:00	Lost Communication With Body Control Module: No Sub Type Information	GO to Pinpoint Test F
U0142:00	Lost Communication With Body Control Module "B": No Sub Type Information	GO to Pinpoint Test G
U020A:00	Lost Communication With Moveable Roof Control Module "B" (MRCMB): No Sub Type Information	GO to Pinpoint Test I
U0294:00	Lost Communication With Powertrain Control Monitor Module: No Sub Type Information	GO to Pinpoint Test H
U2011:64	Motor: Signal Plausibility Failure	• Using a diagnostic scan tool, CLEAR the DTC. • SET the ignition to ON. Using the convertible top switch, OPEN or CLOSE the convertible top. • If the convertible top does not operate, INSTALL a new Moveable Roof Control Module A (MRCMA). REFER to: Convertible Top Motor (501-18 Convertible Top, Removal and Installation).
U2011:98	Motor: Component or System Over Temperature	• WAIT a minimum of 2 minutes to allow the motor time to cool. • Using a diagnostic scan tool, CLEAR the DTC. • SET the ignition to ON. Using the convertible top switch, OPEN or CLOSE the convertible top. • If the convertible top does not operate, CARRY OUT the Moveable Roof Control Module A (MRCMA) self-test. • If the DTC does not return, DIAGNOSE any other Moveable Roof Control Module A (MRCMA) Diagnostic Trouble Codes (DTCs), verify all convertible roof operation entry conditions have been met. REFER to: Convertible Top - Overview (501-18 Convertible Top, Description and Operation). • If the DTC returns, the system has not had sufficient time to cool. SET the ignition to OFF and WAIT another 2 minutes, CLEAR the DTC and REPEAT the self-test.
U2013:64	Switch Pack: Signal Plausibility Failure	GO to Pinpoint Test E
U3000:49	Control Module: Internal Electronic Failure	• Using a diagnostic scan tool, CLEAR the DTC. • SET the ignition to ON. Using the convertible top switch, OPEN or CLOSE the convertible top. • Using a diagnostic scan tool, CARRY OUT the Moveable Roof Control Module A (MRCMA) self-test. • If the DTC returns, INSTALL a new Moveable Roof Control Module A (MRCMA). REFER to: Convertible Top Motor (501-18 Convertible Top, Removal and Installation).

Diagnostic Trouble Code (DTC) Chart: Moveable Roof Control Module B (MRCMB)

Diagnostics in this manual assume a certain skill level and knowledge of Ford-specific diagnostic practices. REFER to: Diagnostic Methods (100-00 General Information, Description and Operation).

Moveable Roof Control Module B (MRCMB) DTC Chart

DTC	Description	Action
B1070:12	Tonneau Lid Piston Out Sensor: Circuit Short to Battery	GO to Pinpoint Test B
B1070:14	Tonneau Lid Piston Out Sensor: Circuit Short to Ground or Open	GO to Pinpoint Test B
B1070:29	Tonneau Lid Piston Out Sensor: Signal Invalid	GO to Pinpoint Test B
B1268:24	Convertible / Folding Top Activation Down Switch: Signal Stuck High	GO to Pinpoint Test E
P0604:44	Internal Control Module Random Access Memory (RAM) Error: Data Memory Failure	• Using a diagnostic scan tool, CLEAR the DTC. • CYCLE the ignition from ON to OFF and back to ON. CARRY OUT the Moveable Roof Control Module B (MRCMB) self-test. • If the DTC returns, INSTALL a new Moveable Roof Control Module B (MRCMB). REFER to: Convertible Top Motor (501-18 Convertible Top, Removal and Installation).
P0605:45	Internal Control Module Read Only Memory (ROM) Error: Program Memory Failure	• Using a diagnostic scan tool, CLEAR the DTC. • CYCLE the ignition from ON to OFF and back to ON. CARRY OUT the Moveable Roof Control Module B (MRCMB) self-test. • If the DTC returns, INSTALL a new Moveable Roof Control Module B (MRCMB). REFER to: Convertible Top Motor (501-18 Convertible Top, Removal and Installation).
P062F:46	Internal Control Module EEPROM Error: Calibration / Parameter Memory Failure	• Using a diagnostic scan tool, CLEAR the DTC. • SET the ignition to OFF and wait 20 seconds. SET the ignition to ON. CARRY OUT the Moveable Roof Control Module B (MRCMB) self-test. • If the DTC returns, INSTALL a new Moveable Roof Control Module B (MRCMB). REFER to: Convertible Top Motor (501-18 Convertible Top, Removal and Installation).
U0140:00	Lost Communication With Body Control Module: No Sub Type Information	GO to Pinpoint Test F
U0207:00	Lost Communication With Moveable Roof Control Module "A" (MRCMA): No Sub Type Information	GO to Pinpoint Test J
U2011:64	Motor: Signal Plausibility Failure	• Using a diagnostic scan tool, CLEAR the DTC. • SET the ignition to ON. Using the convertible top switch, OPEN or CLOSE the convertible top. • If the convertible top does not operate, INSTALL a new Moveable Roof Control Module B (MRCMB). REFER to: Convertible Top Motor (501-18 Convertible Top, Removal and Installation).

DTC	Description	Action
U2011:98	Motor: Component or System Over Temperature	• WAIT a minimum of 2 minutes to allow the motor time to cool. • Using a diagnostic scan tool, CLEAR the DTC. • SET the ignition to ON. Using the convertible top switch, OPEN or CLOSE the convertible top. • If the convertible top does not operate, CARRY OUT the Moveable Roof Control Module B (MRCMB) self-test. • If the DTC does not return, DIAGNOSE any other Moveable Roof Control Module B (MRCMB) Diagnostic Trouble Codes (DTCs), verify all convertible roof operation entry conditions have been met. REFER to: Convertible Top - Overview (501-18 Convertible Top, Description and Operation). • If the DTC returns, the system has not had sufficient time to cool. SET the ignition to OFF and WAIT another 2 minutes, CLEAR the DTC and REPEAT the self-test.
U2013:64	Switch Pack: Signal Plausibility Failure	GO to Pinpoint Test E
U3000:49	Control Module: Internal Electronic Failure	• Using a diagnostic scan tool, CLEAR the DTC. • SET the ignition to ON. Using the convertible top switch, OPEN or CLOSE the convertible top. • Using a diagnostic scan tool, CARRY OUT the Moveable Roof Control Module B (MRCMB) self-test. • If the DTC returns, INSTALL a new Moveable Roof Control Module B (MRCMB). REFER to: Convertible Top Motor (501-18 Convertible Top, Removal and Installation).

Diagnostic Trouble Code (DTC) Chart: Body Control Module B (BCMB)

Diagnostics in this manual assume a certain skill level and knowledge of Ford-specific diagnostic practices. REFER to: Diagnostic Methods (100-00 General Information, Description and Operation).

BCMB DTC Chart

DTC	Description	Action
B126E:23	Right Rear Window Fully Down Feedback: Signal Stuck Low	GO to Pinpoint Test K
B126E:24	Right Rear Window Fully Down Feedback: Signal Stuck High	GO to Pinpoint Test K
B126F:23	Left Rear Window Fully Down Feedback: Signal Stuck Low	GO to Pinpoint Test K
B126f:24	Left Rear Window Fully Down Feedback: Signal Stuck High	GO to Pinpoint Test K
—	All Other BCMB Diagnostic Trouble Codes (DTCs)	REFER to: Body Control Module B (BCMB) (419-10 Multifunction Electronic Modules, Diagnosis and Testing).

Symptom Chart

Diagnostics in this manual assume a certain skill level and knowledge of Ford-specific diagnostic practices. REFER to: Diagnostic Methods (100-00 General Information, Description and Operation).

Symptom	Possible Sources	Action
• A module does not respond to the diagnostic scan tool	• Fuse • Wiring, terminals or connectors • Moveable Roof Control Module A (MRCMA) concern • Moveable Roof Control Module B (MRCMB) concern • BCMB concern	• REFER to: Communications Network (418-00 Module Communications Network, Diagnosis and Testing).
• The convertible top is inoperative	• Refer to the Pinpoint Test	• GO to Pinpoint Test A
• The convertible top is difficult to latch	• Convertible top latch front striker incorrectly installed • Convertible top latch incorrectly installed • Convertible top incorrectly installed	• CHECK the convertible top latch installation. REFER to: Convertible Top Front Panel (501-18 Convertible Top, Removal and Installation). REINSTALL as necessary. • CHECK the convertible top latch front striker installation. REFER to: Convertible Top Front Striker (501-18 Convertible Top, Removal and Installation). REINSTALL as necessary. • CHECK the convertible top installation. REFER to: Convertible Top Assembly (501-18 Convertible Top, Removal and Installation). REINSTALL as necessary.
• The windows do not lower when the convertible top is opened or closed	• Wiring, terminals or connectors • Network communication concern • Window motor • BCMB concern • Moveable Roof Control Module A (MRCMA) concern	• RETRIEVE and RECORD all BCMB and Moveable Roof Control Module A (MRCMA) Diagnostic Trouble Codes (DTCs). • DIAGNOSE all retrieved Diagnostic Trouble Codes (DTCs). GO to the DTC Chart: BCMB or DTC Chart: Moveable Roof Control Module A (MRCMA).
• The message center displays Top Not Secured	• Convertible top incorrect installed • Convertible top not latched correctly • Latch sensor concern	• CLOSE the convertible top without latching and VERIFY the top is correctly installed / aligned. REINSTALL the convertible top as necessary. • LATCH the convertible top and TEST DRIVE the vehicle above 5 km/h (3 mph). If the message does not return, INFORM the customer of the correct latching procedure. • RETRIEVE and RECORD all Moveable Roof Control Module A (MRCMA) Diagnostic Trouble Codes (DTCs). GO to the DTC Chart: Moveable Roof Control Module A (MRCMA).
• The message center displays Top Disabled - Remove Covers	• Tonneau covers are installed • Tonneau cover sensor concern	• VERIFY the covers **are not** installed. REMOVE the covers and CLOSE the convertible roof. INFORM the customer the tonneau covers must be removed before closing the convertible roof. • RETRIEVE and RECORD all Moveable Roof Control Module A (MRCMA) and Moveable Roof Control Module B (MRCMB) Diagnostic Trouble Codes (DTCs). GO to the DTC Chart: Moveable Roof Control Module A (MRCMA) or the DTC Chart:

		Moveable Roof Control Module B (MRCMB).
• The message center displays Top Disabled - Reduce Speed	• Vehicle speed concern • Network communication concern	• RETRIEVE and RECORD all PCM Diagnostic Trouble Codes (DTCs). DIAGNOSE all vehicle speed related Diagnostic Trouble Codes (DTCs). REFER to: Electronic Engine Controls (303-14A Electronic Engine Controls - 2.3L EcoBoost (231kW/314PS), Diagnosis and Testing). REFER to: Electronic Engine Controls (303-14B Electronic Engine Controls - 3.7L Duratec (227kW/301PS), Diagnosis and Testing). REFER to: Electronic Engine Controls (303-14C Electronic Engine Controls - 5.0L 32V Ti-VCT/5.0L Ti-VCT V8 (308kW/418PS), Diagnosis and Testing). • RETRIEVE and RECORD all Moveable Roof Control Module A (MRCMA), Moveable Roof Control Module B (MRCMB) and GWM Diagnostic Trouble Codes (DTCs). GO to the DTC Chart: Moveable Roof Control Module A (MRCMA), the DTC Chart: Moveable Roof Control Module B (MRCMB) or REFER to: Communications Network (418-00 Module Communications Network, Diagnosis and Testing).

Pinpoint Tests

The Convertible Top Is Inoperative

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

Normal Operation and Fault Conditions

The convertible top is controlled through the use of a switch, the switch must be held in place during convertible top operation. Voltage for convertible top operation is supplied to the Moveable Roof Control Module A (MRCMA) and Moveable Roof Control Module B (MRCMB) from the BJB. There are several requirements which must be met before the convertible top can be opened or closed,
REFER to: Convertible Top - Overview (501-18 Convertible Top, Description and Operation).
For additional convertible

Circuit faults, a convertible top switch failure, network communication errors, invalid network data or an internal failure of one or more modules listed below prevents the convertible top from operating.

Possible Sources

- Fuses
- Wiring, terminals or connectors
- Convertible top switch
- Tonneau covers installed
- Vehicle speed concern
- Network communication concern
- Rear window concern
- Moveable Roof Control Module A (MRCMA)
- Moveable Roof Control Module B (MRCMB)
- BCMB concern
- GWM concern
- BCM concern
- PCM concern

Visual Inspection and Diagnostic Pre-checks

- Make sure the tonneau covers are not installed.
- Make sure BJB fuses 15 (20A) and 17 (20A) are OK.

PINPOINT TEST A : THE CONVERTIBLE TOP IS INOPERATIVE

NOTICE: Use the correct probe adapter(s) when making measurements. Failure to use the correct probe adapter(s) may cause damage to the connector.

A1 VERIFY THE COMMUNICATION NETWORK

- Ignition ON.
- Using a diagnostic scan tool, carry out the Network Test.

Do the Moveable Roof Control Module A (MRCMA), Moveable Roof Control Module B (MRCMB), BCMB, GWM, BCM and PCM all pass the Network Test?

Yes	GO to A2
No	DIAGNOSE no communication with the unresponsive module. REFER to: Communications Network (418-00 Module Communications Network, Diagnosis and Testing).

A2 RETRIEVE ANY DIAGNOSTIC TROUBLE CODES (DTCS)

- Using a diagnostic scan tool, carry out the self test for the following modules:
  - Moveable Roof Control Module A (MRCMA)
  - Moveable Roof Control Module B (MRCMB)
  - BCMB
  - GWM
  - BCM
  - PCM, KOEO

Are any Diagnostic Trouble Codes (DTCs) present in any of the modules listed above?

Yes	DIAGNOSE all Diagnostic Trouble Codes (DTCs) before continuing with this test. For Moveable Roof Control Module A (MRCMA) Diagnostic Trouble Codes (DTCs), GO to the DTC Chart: Moveable Roof Control Module A (MRCMA). For Moveable Roof Control Module B (MRCMB) Diagnostic Trouble Codes (DTCs), GO to the DTC Chart: Moveable Roof Control Module B (MRCMB). For BCMB Diagnostic Trouble Codes (DTCs), REFER to: Body Control Module B (BCMB) (419-10 Multifunction Electronic Modules, Diagnosis and Testing). For GWM Diagnostic Trouble Codes (DTCs), REFER to: Communications Network (418-00 Module Communications Network, Diagnosis and Testing). For BCM Diagnostic Trouble Codes (DTCs), REFER to: Body Control Module (BCM) (419-10 Multifunction Electronic Modules, Diagnosis and Testing). For PCM Diagnostic Trouble Codes (DTCs), REFER to: Electronic Engine Controls (303-14A Electronic Engine Controls - 2.3L EcoBoost (231kW/314PS), Diagnosis and Testing). REFER to: Electronic Engine Controls (303-14B Electronic Engine Controls - 3.7L Duratec (227kW/301PS), Diagnosis and Testing). REFER to: Electronic Engine Controls (303-14C Electronic Engine Controls - 5.0L 32V Ti-VCT/5.0L Ti-VCT V8 (308kW/418PS), Diagnosis and Testing).
No	GO to A3

A3 CHECK THE BCM (BODY CONTROL MODULE) DELAYED ACCESSORY POWER (ACC_DELAY) PID (PARAMETER IDENTIFICATION)

- Using a diagnostic scan tool, view the BCM ACC_DELAY PID.

Does the PID display Active?

Yes	GO to A5
No	DIAGNOSE the accessory delay relay. REFER to: Body Control Module (BCM) (419-10 Multifunction Electronic Modules, Diagnosis and Testing).

A4 CHECK THE CONVERTIBLE TOP ACTIVATION UP (TOP_UP_SW) AND DOWN (TOP_DWN_SW) SWITCH PARAMETER IDENTIFICATIONS (PIDS)

- Using a diagnostic scan tool, view the Moveable Roof Control Module A (MRCMA) TOP_UP_SW PID while pressing the convertible top UP switch.
- Using a diagnostic scan tool, view the Moveable Roof Control Module B (MRCMB) TOP_DWN_SW PID while pressing the convertible top DOWN switch.

Does the PID display Active when the switch is pressed and Inactive when the switch is released?

Yes	GO to A5
No	If the PID displays Active all the time, GO to Pinpoint Test E If the PID displays Inactive all the time, GO to A9

A5 CHECK THE MOVEABLE ROOF CONTROL MODULE A (MRCMA) VEHICLE SPEED (VSS) PID (PARAMETER IDENTIFICATION)

- Using a diagnostic scan tool, view the Moveable Roof Control Module A (MRCMA) VSS PID.

Does the PID display less than 5 km/h (3 mph)?

Yes	GO to A6
No	DIAGNOSE the vehicle speed concern. REFER to: Electronic Engine Controls (303-14A Electronic Engine Controls - 2.3L EcoBoost (231kW/314PS), Diagnosis and Testing). REFER to: Electronic Engine Controls (303-14B Electronic Engine Controls - 3.7L Duratec (227kW/301PS), Diagnosis and Testing). REFER to: Electronic Engine Controls (303-14C Electronic Engine Controls - 5.0L 32V Ti-VCT/5.0L Ti-VCT V8 (308kW/418PS), Diagnosis and Testing).

A6 CHECK THE MOVEABLE ROOF CONTROL MODULE A (MRCMA) FRONT LATCH SENSOR (FRNT_LATCH_S) PID (PARAMETER IDENTIFICATION)

- Using a diagnostic scan tool, view the Moveable Roof Control Module A (MRCMA) FRNT_LATCH_S PID.

Does the PID display Inactive with the top open and Active with the top closed?

Yes	GO to A7
No	GO to Pinpoint Test C

A7 CHECK THE MOVEABLE ROOF CONTROL MODULE A (MRCMA) CONVERTIBLE TOP LATCH SENSOR VOLTAGE (LTCH_SNSR_V) PID (PARAMETER IDENTIFICATION)

- Using a diagnostic scan tool, view the Moveable Roof Control Module A (MRCMA) LTCH_SNSR_V PID.

Is the PID display equal to battery voltage?

Yes	If the vehicle is equipped with convertible top tonneau covers, GO to A8 If the vehicle is not equipped with convertible top tonneau covers, the system is operating correctly at this time. The concern may have been caused by a loose or corroded connector. DISCONNECT and INSPECT Moveable Roof Control Module A (MRCMA) C4830, Moveable Roof Control Module B (MRCMB) C4831, convertible top switch C9013 and convertible top latch switch C9111 for corrosion, damaged pins, bent pins, pushed-out pins and spread terminals. REPAIR or INSTALL NEW as necessary.
No	GO to Pinpoint Test D

A8 CHECK THE CONVERTIBLE TOP TONNEAU COVER SENSOR PARAMETER IDENTIFICATIONS (PIDS)

- Using a diagnostic scan tool, view the Moveable Roof Control Module A (MRCMA) tonneau cover sensor PID with the tonneau covers installed and removed.
- Using a diagnostic scan tool, view the Moveable Roof Control Module B (MRCMB) tonneau cover sensor PID with the tonneau covers installed and removed.

Do the Parameter Identifications (PIDs) display Active with the covers installed and Inactive with the covers removed?

Yes	The system is operating correctly at this time. The concern may have been caused by a loose or corroded connector. DISCONNECT and INSPECT Moveable Roof Control Module A (MRCMA) C4830, Moveable Roof Control Module B (MRCMB) C4831, convertible top switch C9013, convertible top latch switch C9111, LH tonneau cover sensor C4525 and RH tonneau cover sensor C4526 for corrosion, damaged pins, bent pins, pushed-out pins and spread terminals. REPAIR or INSTALL NEW as necessary.
No	GO to Pinpoint Test B

A9 CHECK THE CONVERTIBLE TOP ACTIVATION SWITCH CIRCUITS FOR AN OPEN

- Ignition OFF.
- Disconnect Moveable Roof Control Module A (MRCMA) C4830.
- Disconnect Moveable Roof Control Module B (MRCMB) C4831.
- Disconnect convertible top switch C9013.
- Measure:

Click to display connectors

Positive Lead	Measurement / Action	Negative Lead
C4830-8	Ω	C9013-4

- Measure:

Click to display connectors

Positive Lead	Measurement / Action	Negative Lead
C4831-8	Ω	C9013-3

Is the resistance less than 3 ohms?

Yes	GO to A10
No	REPAIR the circuit.

A10 CHECK THE CONVERTIBLE TOP ACTIVATION SWITCH GROUND CIRCUIT FOR AN OPEN

- Measure:

Click to display connectors

Positive Lead	Measurement / Action	Negative Lead
C9013-5	Ω	Ground

Is the resistance less than 3 ohms?

Yes	INSTALL a new convertible top switch. REFER to: Convertible Top Switch (501-18 Convertible Top, Removal and Installation).
No	REPAIR the circuit.

Tonneau Cover Sensor Faults

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

Normal Operation and Fault Conditions

A tonneau cover sensor is hardwired to the Moveable Roof Control Module A (MRCMA) and a separate tonneau cover sensor is hardwired to the Moveable Roof Control Module B (MRCMB). Each module sends out a 5 volt reference signal to the respective Hall-effect switch and receives a voltage signal input from the switch when the tonneau cover is installed. When a tonneau cover sensor or circuit is faulted, the convertible top may open, but does not close. Also, depending on the nature of the fault, the message center may display the TOP DISABLED - REMOVE COVERS.

DTC Fault Trigger Conditions

DTC	Description	Fault Trigger Conditions
B1070:12	Tonneau Lid Piston Out Sensor: Circuit Short To Battery	This DTC sets if the tonneau cover sensor voltage signal sent to the Moveable Roof Control Module A (MRCMA) or Moveable Roof Control Module B (MRCMB) is shorted to battery voltage.
B1070:14	Tonneau Lid Piston Out Sensor: Circuit Short To Ground or Open	This DTC sets if the tonneau cover sensor voltage signal sent to the Moveable Roof Control Module A (MRCMA) or Moveable Roof Control Module B (MRCMB) is shorted to ground or open.
B1070:29	Tonneau Lid Piston Out Sensor: Signal Invalid	This DTC sets if the Moveable Roof Control Module A (MRCMA) or Moveable Roof Control Module B (MRCMB) or receives an implausible signal from the tonneau cover sensor.

Possible Sources

- Wiring, terminals or connectors

- LH tonneau cover sensor
- RH tonneau cover sensor
- Moveable Roof Control Module A (MRCMA)
- Moveable Roof Control Module B (MRCMB)

PINPOINT TEST B : TONNEAU COVER SENSOR FAULTS

NOTICE: Use the correct probe adapter(s) when making measurements. Failure to use the correct probe adapter(s) may cause damage to the connector.

B1 CHECK FOR RETURNING DIAGNOSTIC TROUBLE CODES (DTCS)

- Using a diagnostic scan tool, clear the Moveable Roof Control Module A (MRCMA) or Moveable Roof Control Module B (MRCMB) Diagnostic Trouble Codes (DTCs).
- Ignition OFF.
- Ignition ON.
- With the convertible top in the open position, press and hold the convertible top UP switch for 2 seconds.
- Using a diagnostic scan tool, carry out the Moveable Roof Control Module A (MRCMA) and Moveable Roof Control Module B (MRCMB) self-tests.

Does the DTC return?

Yes	If DTC B1070:12 or B1070:29 is present, GO to B2 If DTC B1070:14 is present, GO to B3
No	The condition that caused the DTC to set is not present at this time. The concern may have been caused by a loose or corroded electrical connector or an intermittent concern. DISCONNECT and INSPECT the suspect tonneau cover sensor C4525 or C4526, and Moveable Roof Control Module A (MRCMA) C4830 or Moveable Roof Control Module B (MRCMB) C4831 for corrosion, bent pins, pushed-out pins and spread terminals. REPAIR or INSTALL new components as necessary. For all other Moveable Roof Control Module A (MRCMA) and Moveable Roof Control Module B (MRCMB) Diagnostic Trouble Codes (DTCs), GO to the DTC Chart: Moveable Roof Control Module A (MRCMA) or Moveable Roof Control Module B (MRCMB).

B2 CHECK THE TONNEAU COVER SENSOR SIGNAL CIRCUIT FOR A SHORT TO BATTERY VOLTAGE

- Ignition OFF.
- If Moveable Roof Control Module A (MRCMA) set the DTC:
  - Disconnect Moveable Roof Control Module A (MRCMA) C4830.
  - Disconnect LH tonneau cover sensor C4525.
- If Moveable Roof Control Module B (MRCMB) set the DTC:
  - Moveable Roof Control Module B (MRCMB) C4831.
  - Disconnect RH tonneau cover sensor C4526.
- Ignition ON.
- For Moveable Roof Control Module A (MRCMA) measure:

Click to display connectors

Positive Lead	Measurement / Action	Negative Lead
C4830-2		Ground

- For Moveable Roof Control Module B (MRCMB) measure:

Click to display connectors

Positive Lead	Measurement / Action	Negative Lead
C4831-2		Ground

Is any voltage present?

Yes	REPAIR the circuit.
No	If DTC B1070:29 **is not** present, INSTALL a new tonneau cover sensor. REFER to: Tonneau Cover Sensor (501-18 Convertible Top, Removal and Installation). If DTC B1070:29 **is** present, GO to B3

B3 CHECK THE TONNEAU COVER SENSOR SIGNAL CIRCUIT FOR A SHORT TO GROUND

- Ignition OFF.
- If Moveable Roof Control Module A (MRCMA) set the DTC:
  - Disconnect Moveable Roof Control Module A (MRCMA) C4830 (if not previously disconnected).
  - Disconnect the LH tonneau cover sensor C4525 (if not previously disconnected).
- If Moveable Roof Control Module B (MRCMB) set the DTC:
  - Moveable Roof Control Module B (MRCMB) C4831 (if not previously disconnected).
  - Disconnect the RH tonneau cover sensor C4526 (if not previously disconnected).
- For Moveable Roof Control Module A (MRCMA) measure:

Click to display connectors

Positive Lead	Measurement / Action	Negative Lead
C4830-2	Ω	Ground

- For Moveable Roof Control Module B (MRCMB) measure:

Click to display connectors

Positive Lead	Measurement / Action	Negative Lead
C4831-2	Ω	Ground

Is the resistance greater than 10,000 ohms?

Yes	If DTC B1070:29 **is not** present, INSTALL a new tonneau cover sensor. REFER to: Tonneau Cover Sensor (501-18 Convertible Top, Removal and Installation). If DTC B1070:29 **is** present, GO to B4
No	REPAIR the circuit.

B4 CHECK THE TONNEAU COVER SENSOR SIGNAL CIRCUIT FOR AN OPEN

- For Moveable Roof Control Module A (MRCMA) measure:

Click to display connectors

Positive Lead	Measurement / Action	Negative Lead
C4830-2	Ω	C4525-1

- For Moveable Roof Control Module B (MRCMB) measure:

Click to display connectors

Positive Lead	Measurement / Action	Negative Lead

Positive Lead	Measurement / Action	Negative Lead
C4831-2	Ω	C4526-1

Is the resistance less than 3 ohms?

Yes	GO to B5
No	REPAIR the circuit.

B5 CHECK THE TONNEAU COVER SENSOR SIGNAL CIRCUIT FOR A SHORT TOGETHER

- For Moveable Roof Control Module A (MRCMA) measure:

Click to display connectors

Positive Lead	Measurement / Action	Negative Lead
C4830-2	Ω	C4830-1

- For Moveable Roof Control Module B (MRCMB) measure:

Click to display connectors

Positive Lead	Measurement / Action	Negative Lead
C4831-2	Ω	C4831-1

Is the resistance greater than 10,000 ohms?

Yes	INSTALL a new tonneau cover sensor. REFER to: Tonneau Cover Sensor (501-18 Convertible Top, Removal and Installation).
No	REPAIR the circuit.

B1078:12, B1078:14, B1078:29

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

Normal Operation and Fault Conditions

The convertible top latch switch is hardwired to the Moveable Roof Control Module A (MRCMA). The Moveable Roof Control Module A (MRCMA) sends out a 5 volt reference signal to the Hall-effect switch and receives a voltage signal input back from the switch when the latch is open. When the latch switch or circuit is faulted, the convertible top may close, but does not open. Also, depending on the nature of the fault, the message center may display the TOP NOT SECURE. The convertible top latch switch is part of the convertible roof latch and striker assembly.

DTC Fault Trigger Conditions

DTC	Description	Fault Trigger Conditions

DTC	Description	Fault Trigger Conditions
B1078:12	Convertible Top Latched Sensor: Circuit Short To Battery	This DTC sets if the convertible top latch switch voltage signal sent to the Moveable Roof Control Module A (MRCMA) is shorted to battery voltage.
B1078:14	Convertible Top Latched Sensor: Circuit Short To Ground or Open	This DTC sets if the convertible top latch switch voltage signal sent to the Moveable Roof Control Module A (MRCMA) is shorted to ground or open.
B1078:29	Convertible Top Latched Sensor: Signal Invalid	This DTC sets if the Moveable Roof Control Module A (MRCMA) receives an implausible signal from the convertible top latch switch.

Possible Sources

- Wiring, terminals or connectors
- Convertible top latch assembly
- Moveable Roof Control Module A (MRCMA)

PINPOINT TEST C : B1078:12, B1078:14, B1078:29

NOTICE: Use the correct probe adapter(s) when making measurements. Failure to use the correct probe adapter(s) may cause damage to the connector.

C1 CHECK FOR RETURNING DIAGNOSTIC TROUBLE CODES (DTCS)

- Using a diagnostic scan tool, clear the Moveable Roof Control Module A (MRCMA) Diagnostic Trouble Codes (DTCs).
- Ignition OFF.
- Ignition ON.
- With the convertible top in the closed position, press and hold the convertible top DOWN switch for 2 seconds.
- Using a diagnostic scan tool, carry out the Moveable Roof Control Module A (MRCMA) self-test.

Does the DTC return?

Yes	If DTC B1078:12 or B1078:29 is present, GO to C2 If DTC B1078:14 is present, GO to C3
No	The condition that caused the DTC to set is not present at this time. The concern may have been caused by a loose or corroded electrical connector or an intermittent concern. DISCONNECT and INSPECT convertible top latch switch C9111 and Moveable Roof Control Module A (MRCMA) C4830 for corrosion, bent pins, pushed-out pins and spread terminals. REPAIR or INSTALL new components as necessary. For all other Moveable Roof Control Module A (MRCMA) Diagnostic Trouble Codes (DTCs), GO to the DTC Chart: Moveable Roof Control Module A (MRCMA).

C2 CHECK THE CONVERTIBLE LATCH SWITCH SIGNAL CIRCUIT FOR A SHORT TO BATTERY VOLTAGE

- Ignition OFF.
- Disconnect Moveable Roof Control Module A (MRCMA) C4830.
- Disconnect convertible top latch switch C9111.
- Ignition ON.
- Measure:

Click to display connectors

Positive Lead	Measurement / Action	Negative Lead
C4830-7		Ground

Is any voltage present?

Yes	REPAIR the circuit.
No	If DTC B1078:29 **is not** present, INSTALL a new convertible top latch switch. REFER to: Convertible Top Front Striker (501-18 Convertible Top, Removal and Installation). If DTC B1078:29 **is** present, GO to C3

C3 CHECK THE CONVERTIBLE LATCH SWITCH SIGNAL CIRCUIT FOR A SHORT TO GROUND

- Ignition OFF.
- Disconnect Moveable Roof Control Module A (MRCMA) C4830 (if not previously disconnected).
- Disconnect convertible top latch switch C9111 (if not previously disconnected).
- Measure:

Click to display connectors

Positive Lead	Measurement / Action	Negative Lead
C4830-7	Ω	Ground

Is the resistance greater than 10,000 ohms?

Yes	If DTC B1078:29 **is not** present, INSTALL a new convertible top latch switch. REFER to: Convertible Top Front Striker (501-18 Convertible Top, Removal and Installation). DTC B1078:29 **is** present, GO to C4
No	REPAIR the circuit.

C4 CHECK THE CONVERTIBLE LATCH SWITCH SIGNAL CIRCUIT FOR AN OPEN

- Measure:

Click to display connectors

Positive Lead	Measurement / Action	Negative Lead
C4830-7	Ω	C9111-1

Is the resistance less than 3 ohms?

Yes	GO to C5
No	REPAIR the circuit.

C5 CHECK THE CONVERTIBLE LATCH SWITCH SIGNAL CIRCUIT FOR A SHORT TOGETHER

- Measure:

Click to display connectors

Positive Lead	Measurement / Action	Negative Lead
C4830-7	Ω	C4830-1

Is the resistance greater than 10,000 ohms?

Yes	INSTALL a new convertible top latch switch. REFER to: Convertible Top Front Striker (501-18 Convertible Top, Removal and Installation).
No	REPAIR the circuit.

P1240:1C

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

Normal Operation and Fault Conditions

The convertible top latch switch and the LH tonneau cover switch are hardwired to the Moveable Roof Control Module A (MRCMA). The Moveable Roof Control Module A (MRCMA) sends battery voltage to both Hall-effect switches and back to the Moveable Roof Control Module A (MRCMA) for fault detection purposes. When one of the switches or the volt reference circuit is faulted, the convertible top does not operate.

DTC Fault Trigger Conditions

DTC	Description	Fault Trigger Conditions
P1240:1C	Sensor Power Supply: Circuit Voltage Out of Range	This DTC sets if the convertible top latch switch voltage signal sent to the Moveable Roof Control Module A (MRCMA) is below a predetermined limit.

Possible Sources

- Wiring, terminals or connectors
- Moveable Roof Control Module A (MRCMA)

PINPOINT TEST D : P1240:1C

NOTICE: Use the correct probe adapter(s) when making measurements. Failure to use the correct probe adapter(s) may cause damage to the connector.

D1 CHECK FOR RETURNING DIAGNOSTIC TROUBLE CODES (DTCS)

- Using a diagnostic scan tool, clear the Moveable Roof Control Module A (MRCMA) Diagnostic Trouble Codes (DTCs).
- Ignition OFF.
- Ignition ON.
- Using a diagnostic scan tool, carry out the Moveable Roof Control Module A (MRCMA) self-test.

Does DTC P1240:1C return?

Yes	GO to D1

No	The condition that caused the DTC to set is not present at this time. The concern may have been caused by a loose or corroded electrical connector or an intermittent concern. DISCONNECT and INSPECT LH tonneau cover sensor C4525, convertible top latch switch C9111 and Moveable Roof Control Module A (MRCMA) C4830 for corrosion, bent pins, pushed-out pins and spread terminals. REPAIR or INSTALL new components as necessary. For all other Moveable Roof Control Module A (MRCMA) Diagnostic Trouble Codes (DTCs), GO to the DTC Chart: Moveable Roof Control Module A (MRCMA).

D2 CHECK THE SENSOR VOLTAGE SUPPLY CIRCUIT FOR AN OPEN

- Ignition OFF.
- Disconnect Moveable Roof Control Module A (MRCMA) C4830.
- Disconnect convertible top latch switch C9111.
- Disconnect LH tonneau cover sensor C4525.
- Measure:

Click to display connectors

Positive Lead	Measurement / Action	Negative Lead
C4830-1	Ω	C9111-2

- Measure:

Click to display connectors

Positive Lead	Measurement / Action	Negative Lead
C4830-1	Ω	LH Tonneau Cover Connector Pin-2

- Measure:

Click to display connectors

Positive Lead	Measurement / Action	Negative Lead
C4830-1	Ω	C4830-3

Are the resistances less than 3 ohms?

Yes	GO to D3
No	REPAIR the circuit.

D3 CHECK THE SENSOR VOLTAGE SUPPLY CIRCUIT FOR A SHORT TO GROUND

- Measure:

Click to display connectors

Positive Lead	Measurement / Action	Negative Lead
C4830-1	Ω	Ground
C4830-3	Ω	Ground

Are the resistances greater than 10,000 ohms?

Yes	GO to D4
No	REPAIR the circuit.

D4 VERIFY ALL WIRING CONNECTIONS

- Disconnect all Moveable Roof Control Module A (MRCMA) related in-line connectors.
  Refer to Wiring Diagrams Cell 103 for schematic and connector information.
- Using a good light source, inspect Moveable Roof Control Module A (MRCMA) C4830 and related in-line connectors for the following:
  - corrosion - install new connector or terminal and clean the module pins
  - damaged or bent pins - install new terminals or pins
  - pushed-out pins - install new pins as necessary
  - spread terminals - install new terminals as necessary

Are the connectors free of corrosion, damaged pins, bent pins, pushed-out pins and spread terminals?

Yes	GO to D5
No	REPAIR the affected connectors or terminals. Refer to Wiring Diagrams Cell 5 for schematic and connector information.

D5 VERIFY SENSOR VOLTAGE SUPPLY

- Connect Moveable Roof Control Module A (MRCMA) C4830.
- Connect convertible top latch switch C9111.
- Connect LH tonneau cover sensor C4525.
- Connect all disconnected in-line connectors.
- Make sure all connectors fully seat and latch correctly.
- Ignition ON.
- Measure and record the battery
- Using a diagnostic scan tool, view the Moveable Roof Control Module A (MRCMA) convertible top latch sensor voltage (LTCH_SNSR_V) PID and the module supply voltage (VOLT_SUPPLY) PID.

Do both Parameter Identifications (PIDs) display greater than 9 volts?

Yes	The system is operating correctly at this time. The concern may have been caused by a loose or corroded connector. ADDRESS the root cause of any connector or pin issues.
No	If **both** Parameter Identifications (PIDs) display 9 volts or less, or **only** the VOLT_SUPPLY PID displays 9 volts or less, GO to D6 If the VOLT_SUPPLY PID displays **greater than** 9 volts and the LTCH_SNSR_V PID displays **9 volts or less**, CHECK OASIS for any applicable Technical Service Bulletins (TSBs). If a TSB exists for this concern, DISCONTINUE this test and FOLLOW the TSB instructions. If no Technical Service Bulletins (TSBs) address this concern, INSTALL a new Moveable Roof Control Module A (MRCMA). REFER to: Convertible Top Motor (501-18 Convertible Top, Removal and Installation).

D6 CHECK THE MODULE VOLTAGE SUPPLY CIRCUIT FOR AN OPEN OR EXCESSIVE RESISTANCE

- Ignition OFF.
- Disconnect Moveable Roof Control Module A (MRCMA) C4830.
- Remove BJB fuse 17 (20A).
- Measure:

Click to display connectors

Positive Lead	Measurement / Action	Negative Lead
C4830-6	Ω	BJB Fuse 17 (20A) Output Socket

Is the resistance less than 3 ohms?

Yes	DIAGNOSE the battery and charging system. REFER to: Charging System - 2.3L EcoBoost (201kW/273PS) (414-00 Charging System - General Information, Diagnosis and Testing). REFER to: Charging System - 3.7L Duratec (227kW/301PS) (414-00 Charging System - General Information, Diagnosis and Testing). REFER to: Charging System - 5.0L 32V Ti-VCT (414-00 Charging System - General Information, Diagnosis and Testing).
No	REPAIR the circuit.

B1267:24, B1268:24, U2013:64

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

Normal Operation and Fault Conditions

The convertible top switch is a 3-position rocker switch, the UP circuit is hardwired to the Moveable Roof Control Module A (MRCMA) and the DOWN circuit is hardwired to the Moveable Roof Control Module B (MRCMB). When the switch is pressed, the applicable module receives a ground signal and roof operation is initiated. The switch is designed so that both circuits (UP and DOWN) cannot be activated at the same time. The modules share the convertible top switch status on the MS-CAN. When the switch or one of the circuits is faulted, the convertible top does not operate. The convertible top switch is located in the overhead console and is serviced with the console assembly.

DTC Fault Trigger Conditions

DTC	Description	Fault Trigger Conditions
B1267:24	Convertible / Folding Top Activation Up Switch: Circuit Stuck High	This DTC sets if the Moveable Roof Control Module A (MRCMA) detects a ground signal on the convertible roof switch for longer than 30 seconds.
B1268:24	Convertible / Folding Top Activation Down Switch: Circuit Stuck High	This DTC sets if the Moveable Roof Control Module B (MRCMB) detects a ground signal on the convertible roof switch for longer than 30 seconds.
U2013:64	Switch Pack: Signal Plausibility Failure	This DTC sets if both control modules detect a ground signal at the same time.

Possible Sources

- Wiring, terminals or connectors
- Convertible top switch

PINPOINT TEST E : B1267:24, B1268:24, U2013:64

NOTICE: Use the correct probe adapter(s) when making measurements. Failure to use the correct

probe adapter(s) may cause damage to the connector.

E1 CHECK FOR RETURNING DIAGNOSTIC TROUBLE CODES (DTCS)

- Using a diagnostic scan tool, clear the Moveable Roof Control Module A (MRCMA) and Moveable Roof Control Module B (MRCMB) Diagnostic Trouble Codes (DTCs).
- Ignition OFF.
- Ignition ON.
- Attempt to open and close the convertible top using the convertible top switch.
- Using a diagnostic scan tool, carry out the Moveable Roof Control Module A (MRCMA) and Moveable Roof Control Module B (MRCMB) self-tests.

Does DTC B1267:24, B1268:24 or U2013:64 return?

Yes	If DTC B1267:24 or U2013:64 is present, GO to E2 If DTC B1268:24 is present, GO to E3
No	The condition that caused the DTC to set is not present at this time. The concern may have been caused by a loose or corroded electrical connector or an intermittent concern. DISCONNECT and INSPECT convertible top switch C9013, Moveable Roof Control Module A (MRCMA) C4830 and Moveable Roof Control Module B (MRCMB) C4831 for corrosion, bent pins, pushed-out pins and spread terminals. REPAIR or INSTALL new components as necessary. For all other Moveable Roof Control Module A (MRCMA) and Moveable Roof Control Module B (MRCMB) Diagnostic Trouble Codes (DTCs), GO to the DTC Chart: Moveable Roof Control Module A (MRCMA) or Moveable Roof Control Module B (MRCMB).

E2 CHECK THE CONVERTIBLE TOP SWITCH UP CIRCUIT FOR A SHORT TO GROUND

- Ignition OFF.
- Disconnect Moveable Roof Control Module A (MRCMA) C4830.
- Disconnect convertible top switch C9013.
- Measure:

Click to display connectors

Positive Lead	Measurement / Action	Negative Lead
C4830-8	Ω	Ground

Is the resistance greater than 10,000 ohms?

Yes	If DTC U2013:64 **is not** present, INSTALL a new convertible top switch. REFER to: Overhead Console (501-12 Instrument Panel and Console, Removal and Installation). If DTC U2013:64 **is** present, GO to E3
No	REPAIR the circuit.

E3 CHECK THE CONVERTIBLE TOP SWITCH DOWN CIRCUIT FOR A SHORT TO GROUND

- Ignition OFF.
- Disconnect Moveable Roof Control Module B (MRCMB) C4831.
- Disconnect convertible top switch C9013.
- Measure:

Click to display connectors

Positive Lead	Measurement / Action	Negative Lead

Positive Lead	Measurement / Action	Negative Lead
C4831-8	Ω	Ground

Is the resistance greater than 10,000 ohms?

Yes	INSTALL a new convertible top switch. REFER to: Overhead Console (501-12 Instrument Panel and Console, Removal and Installation).
No	REPAIR the circuit.

U0140:00

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

Normal Operation and Fault Conditions

With the ignition ON, the BCM sends messages to the Moveable Roof Control Module A (MRCMA) and Moveable Roof Control Module B (MRCMB) through the GWM over the HS-CAN1. If the Moveable Roof Control Module A (MRCMA) or Moveable Roof Control Module B (MRCMB) does not receive these messages within a certain time frame, the module sets a DTC. For information on the messages sent to the Moveable Roof Control Module A (MRCMA) and Moveable Roof Control Module B (MRCMB) by the BCM, refer to the Network Message Chart. REFER to: Convertible Top - System Operation and Component Description (501-18 Convertible Top, Description and Operation).

DTC Fault Trigger Conditions

DTC	Description	Fault Trigger Conditions
U0140:00	Lost Communication With Body Control Module: No Sub Type Information	This DTC sets in the Moveable Roof Control Module A (MRCMA) and Moveable Roof Control Module B (MRCMB) if the accessory delay status or ignition status message is missing from the BCM.

Possible Sources

- Wiring, terminals or connectors
- Network communication concern
- GWM
- BCM

PINPOINT TEST F : U0140:00

F1 CHECK THE COMMUNICATION NETWORK

- Ignition ON.
- Using a diagnostic scan tool, carry out the Network Test.

Do both the BCM and the GWM pass the Network Test?

Yes	GO to F2
No	DIAGNOSE the no communication with the BCM or GWM.

	REFER to: Communications Network (418-00 Module Communications Network, Diagnosis and Testing).

F2 CHECK THE MOVEABLE ROOF CONTROL MODULE A (MRCMA) AND MOVEABLE ROOF CONTROL MODULE B (MRCMB) CONTINUOUS MEMORY DIAGNOSTIC TROUBLE CODES (CMDTCS)

- Using a diagnostic scan tool, carry out the Moveable Roof Control Module A (MRCMA) and Moveable Roof Control Module B (MRCMB) self-tests.
- Retrieve and record all Diagnostic Trouble Codes (DTCs) from both modules.
- Using a diagnostic scan tool, clear the Diagnostic Trouble Codes (DTCs) from both modules.
- Ignition OFF.
- Ignition ON.
- Using a diagnostic scan tool, carry out the Moveable Roof Control Module A (MRCMA) and Moveable Roof Control Module B (MRCMB) self-tests.

Is DTC U0140:00 retrieved again?

Yes	GO to F3
No	GO to F6

F3 RETRIEVE ANY DIAGNOSTIC TROUBLE CODES (DTCS) FROM THE GWM (GATEWAY MODULE A) SELF-TEST

- Using a diagnostic scan tool, carry out the GWM self-test.

Are any Diagnostic Trouble Codes (DTCs) present in the GWM?

Yes	DIAGNOSE all GWM Diagnostic Trouble Codes (DTCs). REFER to: Communications Network (418-00 Module Communications Network, Diagnosis and Testing).
No	GO to F4

F4 RETRIEVE ANY DIAGNOSTIC TROUBLE CODES (DTCS) FROM THE BCM (BODY CONTROL MODULE) SELF-TEST

- Using a diagnostic scan tool, carry out the BCM self-test.

Are any Diagnostic Trouble Codes (DTCs) present in the BCM?

Yes	DIAGNOSE all BCM Diagnostic Trouble Codes (DTCs). REFER to: Body Control Module (BCM) (419-10 Multifunction Electronic Modules, Diagnosis and Testing).
No	GO to F5

F5 CHECK FOR DTC (DIAGNOSTIC TROUBLE CODE) U0140:XX SET IN OTHER MODULES

- Using the diagnostic scan tool, carry out the self-test for all modules.
- Retrieve and record the Continuous Memory Diagnostic Trouble Codes (CMDTCs) from all modules.

Is DTC U0140:xx set in 1 or more modules in addition to the Moveable Roof Control Module A (MRCMA) or Moveable Roof Control Module B (MRCMB)?

Yes	CHECK OASIS for any applicable Technical Service Bulletins (TSBs). If a TSB exists for

	this concern, DISCONTINUE this test and FOLLOW the TSB instructions. If no Technical Service Bulletins (TSBs) address this concern,   Click here to access Guided Routine (BCM).
No	GO to F6

F6 CHECK THE ELECTRICAL CONNECTORS

NOTICE: Use the correct probe adapter(s) when making measurements. Failure to use the correct probe adapter(s) may cause damage to the connector.

- Ignition OFF.
- Disconnect Moveable Roof Control Module A (MRCMA) C4830.
- Disconnect Moveable Roof Control Module B (MRCMB) C4831.
- Disconnect GWM C2431.
- Disconnect BCM C2280G.
- Using a good light source, inspect each connector for the following:
  - corrosion - install new connector or terminal and clean the module pins
  - damaged or bent pins - install new terminals or pins
  - pushed-out pins - install new pins as necessary
- Using a suitable mating terminal, check the following connector terminals for deformed or enlarged contacts:
  - C4830-9
  - C4830-10
  - C4831-9
  - C4831-10
  - C2431-19
  - C2431-20
  - C2431-22
  - C2431-23
  - C2280G-9
  - C2280G-10

Are all the connectors free of corrosion, pushed-out pins and deformed or enlarged contacts?

Yes	The system is operating correctly at this time. The DTC may have been set due to high network traffic, a loose connector, a corroded connector or an intermittent fault condition. ADDRESS the root cause of any connector or pin issues.
No	REPAIR the affected connector. Refer to Wiring Diagrams Cell 5 for schematic and connector information.

U0142:00

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

Normal Operation and Fault Conditions

When the convertible top is opened, the BCMB sends an "open" request to the rear window smart motors. Once the windows are open, the smart motors send a reply to the BCMB. The BCMB then sends a message to the Moveable Roof Control Module A (MRCMA) over the MS-CAN. If the Moveable Roof Control Module A (MRCMA) does not receive this message within a certain time frame, the module sets a DTC. For information on the messages sent to the Moveable Roof Control Module A (MRCMA) by the BCMB, refer to the Network Message Chart.
REFER to: Convertible Top - System Operation and Component Description (501-18 Convertible Top, Description and Operation).

DTC Fault Trigger Conditions

DTC	Description	Fault Trigger Conditions
U0142:00	Lost Communication With Body Control Module "B": No Sub Type Information	This DTC sets in the Moveable Roof Control Module A (MRCMA) if the rear window down status message is missing from the BCMB.

Possible Sources

- Wiring, terminals or connectors
- Network communication concern
- BCMB

PINPOINT TEST G : U0142:00

G1 CHECK THE COMMUNICATION NETWORK

- Ignition ON.
- Using a diagnostic scan tool, carry out the Network Test.

Does the BCMB pass the Network Test?

Yes	GO to G2
No	DIAGNOSE the no communication with the BCMB. REFER to: Communications Network (418-00 Module Communications Network, Diagnosis and Testing).

G2 CHECK THE MOVEABLE ROOF CONTROL MODULE A (MRCMA) CONTINUOUS MEMORY DIAGNOSTIC TROUBLE CODES (CMDTCS)

- Using a diagnostic scan tool, carry out the Moveable Roof Control Module A (MRCMA) self-test.
- Retrieve and record all Diagnostic Trouble Codes (DTCs) from the Moveable Roof Control Module A (MRCMA).
- Using a diagnostic scan tool, clear the Diagnostic Trouble Codes (DTCs) from the Moveable Roof Control Module A (MRCMA).
- Ignition OFF.
- Ignition ON.
- Using a diagnostic scan tool, carry out the Moveable Roof Control Module A (MRCMA) self-test.

Is DTC U0142:00 retrieved again?

Yes	GO to G3
No	GO to G5

G3 RETRIEVE ANY DIAGNOSTIC TROUBLE CODES (DTCS) FROM THE BCMB (BODY CONTROL MODULE B) SELF-TEST

- Using a diagnostic scan tool, carry out the BCMB self-test.

Are any Diagnostic Trouble Codes (DTCs) present in the BCMB?

Yes	DIAGNOSE all BCMB Diagnostic Trouble Codes (DTCs). REFER to: Body Control Module B (BCMB) (419-10 Multifunction Electronic Modules, Diagnosis and Testing).

No	GO to G4

G4 CHECK FOR DTC (DIAGNOSTIC TROUBLE CODE) U0142:XX SET IN OTHER MODULES

- Using the diagnostic scan tool, carry out the self-test for all modules.
- Retrieve and record the Continuous Memory Diagnostic Trouble Codes (CMDTCs) from all modules.

Is DTC U0142:xx set in 1 or more modules in addition to the Moveable Roof Control Module A (MRCMA)?

Yes	CHECK OASIS for any applicable Technical Service Bulletins (TSBs). If a TSB exists for this concern, DISCONTINUE this test and FOLLOW the TSB instructions. If no Technical Service Bulletins (TSBs) address this concern, INSTALL a new BCMB. REFER to: Body Control Module B (BCMB) (419-10 Multifunction Electronic Modules, Removal and Installation).
No	GO to G5

G5 CHECK THE ELECTRICAL CONNECTORS

NOTICE: Use the correct probe adapter(s) when making measurements. Failure to use the correct probe adapter(s) may cause damage to the connector.

- Ignition OFF.
- Disconnect Moveable Roof Control Module A (MRCMA) C4830.
- Disconnect BCMB C4368A.
- Using a good light source, inspect each connector for the following:
  - corrosion - install new connector or terminal and clean the module pins
  - damaged or bent pins - install new terminals or pins
  - pushed-out pins - install new pins as necessary
- Using a suitable mating terminal, check the following connector terminals for deformed or enlarged contacts:
  - C4830-9
  - C4830-10
  - C4368A-11
  - C4368A-23

Are both connectors free of corrosion, pushed-out pins and deformed or enlarged contacts?

Yes	The system is operating correctly at this time. The DTC may have been set due to high network traffic, a loose connector, a corroded connector or an intermittent fault condition. ADDRESS the root cause of any connector or pin issues.
No	REPAIR the affected connector. Refer to Wiring Diagrams Cell 5 for schematic and connector information.

U0294:00

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

Normal Operation and Fault Conditions

With the ignition ON, the PCM sends messages to the Moveable Roof Control Module A (MRCMA) through the GWM over the HS-CAN1. If the Moveable Roof Control Module A (MRCMA) does not receive these messages within a certain time frame, the module sets a DTC. For information on the messages sent to the Moveable Roof Control Module A (MRCMA) by the PCM, refer to the Network Message Chart.
REFER to: Convertible Top - System Operation and Component Description (501-18 Convertible Top, Description

and Operation).

DTC Fault Trigger Conditions

DTC	Description	Fault Trigger Conditions
U0294:00	Lost Communication With Powertrain Control Monitor Module: No Sub Type Information	This DTC sets in the Moveable Roof Control Module A (MRCMA) if the vehicle speed message is missing from the PCM.

Possible Sources

- Wiring, terminals or connectors
- Network communication concern
- PCM

PINPOINT TEST H : U0294:00

H1 CHECK THE COMMUNICATION NETWORK

- Ignition ON.
- Using a diagnostic scan tool, carry out the Network Test.

Do both the PCM and the GWM pass the Network Test?

Yes	GO to H2
No	DIAGNOSE the no communication with the PCM or GWM. REFER to: Communications Network (418-00 Module Communications Network, Diagnosis and Testing).

H2 CHECK THE MOVEABLE ROOF CONTROL MODULE A (MRCMA) CONTINUOUS MEMORY DIAGNOSTIC TROUBLE CODES (CMDTCS)

- Using a diagnostic scan tool, carry out the Moveable Roof Control Module A (MRCMA) self-test.
- Retrieve and record all Diagnostic Trouble Codes (DTCs) from the Moveable Roof Control Module A (MRCMA).
- Using a diagnostic scan tool, clear the Diagnostic Trouble Codes (DTCs) from the Moveable Roof Control Module A (MRCMA).
- Ignition OFF.
- Ignition ON.
- Using a diagnostic scan tool, carry out the Moveable Roof Control Module A (MRCMA) self-test.

Is DTC U0140:00 retrieved again?

Yes	GO to H3
No	GO to H6

H3 RETRIEVE ANY DIAGNOSTIC TROUBLE CODES (DTCS) FROM THE GWM (GATEWAY MODULE A) SELF-TEST

- Using a diagnostic scan tool, carry out the GWM self-test.

Are any Diagnostic Trouble Codes (DTCs) present in the GWM?

Yes	DIAGNOSE all GWM Diagnostic Trouble Codes (DTCs). REFER to: Communications Network (418-00 Module Communications Network, Diagnosis and Testing).
No	GO to H4

H4 RETRIEVE ANY DIAGNOSTIC TROUBLE CODES (DTCS) FROM THE PCM (POWERTRAIN CONTROL MODULE) SELF-TEST

- Using a diagnostic scan tool, carry out the PCM self-test.

Are any Diagnostic Trouble Codes (DTCs) present in the PCM?

Yes	DIAGNOSE all PCM Diagnostic Trouble Codes (DTCs). REFER to: Electronic Engine Controls (303-14A Electronic Engine Controls - 2.3L EcoBoost (231kW/314PS), Diagnosis and Testing). REFER to: Electronic Engine Controls (303-14B Electronic Engine Controls - 3.7L Duratec (227kW/301PS), Diagnosis and Testing). REFER to: Electronic Engine Controls (303-14C Electronic Engine Controls - 5.0L 32V Ti-VCT/5.0L Ti-VCT V8 (308kW/418PS), Diagnosis and Testing).
No	GO to H5

H5 CHECK FOR DTC (DIAGNOSTIC TROUBLE CODE) U0294:XX SET IN OTHER MODULES

- Using the diagnostic scan tool, carry out the self-test for all modules.
- Retrieve and record the Continuous Memory Diagnostic Trouble Codes (CMDTCs) from all modules.

Is DTC U0294:xx set in 1 or more modules in addition to the Moveable Roof Control Module A (MRCMA)?

Yes	CHECK OASIS for any applicable Technical Service Bulletins (TSBs). If a TSB exists for this concern, DISCONTINUE this test and FOLLOW the TSB instructions. If no Technical Service Bulletins (TSBs) address this concern, INSTALL a new PCM. REFER to: Powertrain Control Module (PCM) (303-14A Electronic Engine Controls - 2.3L EcoBoost (231kW/314PS), Removal and Installation). REFER to: Powertrain Control Module (PCM) (303-14B Electronic Engine Controls - 3.7L Duratec (227kW/301PS), Removal and Installation). REFER to: Powertrain Control Module (PCM) (303-14C Electronic Engine Controls - 5.0L 32V Ti-VCT/5.0L Ti-VCT V8 (308kW/418PS), Removal and Installation).
No	GO to H6

H6 CHECK THE ELECTRICAL CONNECTORS

NOTICE: Use the correct probe adapter(s) when making measurements. Failure to use the correct probe adapter(s) may cause damage to the connector.

- Ignition OFF.
- Disconnect Moveable Roof Control Module A (MRCMA) C4830.
- Disconnect GWM C2431.
- For 2.3L engine equipped vehicles, disconnect PCM C1551B.
- For 3.7L engine equipped vehicles, disconnect PCM C1381B.
- For 5.0L engine equipped vehicles, disconnect PCM C175B.
- Using a good light source, inspect each connector for the following:
  - corrosion - install new connector or terminal and clean the module pins
  - damaged or bent pins - install new terminals or pins
  - pushed-out pins - install new pins as necessary
- Using a suitable mating terminal, check the following connector terminals for deformed or enlarged

contacts:
- C4830-9
- C4830-10
- C2431-19
- C2431-20
- C2431-22
- C2431-23
- C1551B-75, C1381B-75 or C175B-69
- C1551B-76, C1381B-76 or C175B-58

Are all the connectors free of corrosion, pushed-out pins and deformed or enlarged contacts?

Yes	The system is operating correctly at this time. The DTC may have been set due to high network traffic, a loose connector, a corroded connector or an intermittent fault condition. ADDRESS the root cause of any connector or pin issues.
No	REPAIR the affected connector. Refer to Wiring Diagrams Cell 5 for schematic and connector information.

U020A:00

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

Normal Operation and Fault Conditions

With the ignition ON, the Moveable Roof Control Module B (MRCMB) sends messages to the Moveable Roof Control Module A (MRCMA) over the MS-CAN. If the Moveable Roof Control Module A (MRCMA) does not receive these messages within a certain time frame, the module sets a DTC. For information on the messages sent to the Moveable Roof Control Module A (MRCMA) by the Moveable Roof Control Module B (MRCMB), refer to the Network Message Chart.
REFER to: Convertible Top - System Operation and Component Description (501-18 Convertible Top, Description and Operation).

DTC Fault Trigger Conditions

DTC	Description	Fault Trigger Conditions
U020A:00	Lost Communication With Moveable Roof Control Module "B" (MRCMB): No Sub Type Information	This DTC sets in the Moveable Roof Control Module A (MRCMA) if the convertible top status messages are missing from the Moveable Roof Control Module B (MRCMB).

Possible Sources

- Wiring, terminals or connectors
- Network communication concern
- Moveable Roof Control Module B (MRCMB)

PINPOINT TEST I : U020A:00

I1 CHECK THE COMMUNICATION NETWORK
• Ignition ON. • Using a diagnostic scan tool, carry out the Network Test.

Does the Moveable Roof Control Module B (MRCMB) pass the Network Test?

Yes	GO to I2
No	DIAGNOSE the no communication with the Moveable Roof Control Module B (MRCMB). REFER to: Communications Network (418-00 Module Communications Network, Diagnosis and Testing).

I2 CHECK THE MOVEABLE ROOF CONTROL MODULE A (MRCMA) CONTINUOUS MEMORY DIAGNOSTIC TROUBLE CODES (CMDTCS)

- Using a diagnostic scan tool, carry out the Moveable Roof Control Module A (MRCMA) self-test.
- Retrieve and record all Diagnostic Trouble Codes (DTCs) from the Moveable Roof Control Module A (MRCMA).
- Using a diagnostic scan tool, clear the Diagnostic Trouble Codes (DTCs) from the Moveable Roof Control Module A (MRCMA).
- Ignition OFF.
- Ignition ON.
- Using a diagnostic scan tool, carry out the Moveable Roof Control Module A (MRCMA) self-test.

Is DTC U020A:00 retrieved again?

Yes	GO to I3
No	GO to I5

I3 RETRIEVE ANY DIAGNOSTIC TROUBLE CODES (DTCS) FROM THE MOVEABLE ROOF CONTROL MODULE B (MRCMB) SELF-TEST

- Using a diagnostic scan tool, carry out the Moveable Roof Control Module B (MRCMB) self-test.

Are any Diagnostic Trouble Codes (DTCs) present in the Moveable Roof Control Module B (MRCMB)?

Yes	DIAGNOSE all Moveable Roof Control Module B (MRCMB) Diagnostic Trouble Codes (DTCs). GO to the DTC Chart: Moveable Roof Control Module B (MRCMB).
No	GO to I4

I4 CHECK FOR DTC (DIAGNOSTIC TROUBLE CODE) U020A:XX SET IN OTHER MODULES

- Using the diagnostic scan tool, carry out the self-test for all modules.
- Retrieve and record the Continuous Memory Diagnostic Trouble Codes (CMDTCs) from all modules.

Is DTC U020A:xx set in 1 or more modules in addition to the Moveable Roof Control Module A (MRCMA)?

Yes	CHECK OASIS for any applicable Technical Service Bulletins (TSBs). If a TSB exists for this concern, DISCONTINUE this test and FOLLOW the TSB instructions. If no Technical Service Bulletins (TSBs) address this concern, INSTALL a new Moveable Roof Control Module B (MRCMB). REFER to: Convertible Top Motor (501-18 Convertible Top, Removal and Installation).
No	GO to I5

I5 CHECK THE ELECTRICAL CONNECTORS

NOTICE: Use the correct probe adapter(s) when making measurements. Failure to use the correct probe adapter(s) may cause damage to the connector.

- Ignition OFF.
- Disconnect Moveable Roof Control Module A (MRCMA) C4830.
- Disconnect Moveable Roof Control Module B (MRCMB) C4831.
- Using a good light source, inspect each connector for the following:
  - corrosion - install new connector or terminal and clean the module pins
  - damaged or bent pins - install new terminals or pins
  - pushed-out pins - install new pins as necessary
- Using a suitable mating terminal, check the following connector terminals for deformed or enlarged contacts:
  - C4830-9
  - C4830-10
  - C4831-9
  - C4831-10

Are both connectors free of corrosion, pushed-out pins and deformed or enlarged contacts?

Yes	The system is operating correctly at this time. The DTC may have been set due to high network traffic, a loose connector, a corroded connector or an intermittent fault condition. ADDRESS the root cause of any connector or pin issues.
No	REPAIR the affected connector. Refer to Wiring Diagrams Cell 5 for schematic and connector information.

U0207:00

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

Normal Operation and Fault Conditions

With the ignition ON, the Moveable Roof Control Module A (MRCMA) sends messages to the Moveable Roof Control Module B (MRCMB) over the MS-CAN. If the Moveable Roof Control Module B (MRCMB) does not receive these messages within a certain time frame, the module sets a DTC. For information on the messages sent to the Moveable Roof Control Module B (MRCMB) by the Moveable Roof Control Module A (MRCMA), refer to the Network Message Chart.
REFER to: Convertible Top - System Operation and Component Description (501-18 Convertible Top, Description and Operation).

DTC Fault Trigger Conditions

DTC	Description	Fault Trigger Conditions
U0207:00	Lost Communication With Moveable Roof Control Module "A" (MRCMB): No Sub Type Information	This DTC sets in the Moveable Roof Control Module B (MRCMB) if the convertible top status messages are missing from the Moveable Roof Control Module A (MRCMA).

Possible Sources

- Wiring, terminals or connectors
- Network communication concern
- Moveable Roof Control Module A (MRCMA)

PINPOINT TEST J : U0207:00

J1 CHECK THE COMMUNICATION NETWORK

- Ignition ON.
- Using a diagnostic scan tool, carry out the Network Test.

Does the Moveable Roof Control Module A (MRCMA) pass the Network Test?

Yes	GO to J2
No	DIAGNOSE the no communication with the Moveable Roof Control Module A (MRCMA). REFER to: Communications Network (418-00 Module Communications Network, Diagnosis and Testing).

J2 CHECK THE MOVEABLE ROOF CONTROL MODULE B (MRCMB) CONTINUOUS MEMORY DIAGNOSTIC TROUBLE CODES (CMDTCS)

- Using a diagnostic scan tool, carry out the Moveable Roof Control Module B (MRCMB) self-test.
- Retrieve and record all Diagnostic Trouble Codes (DTCs) from the Moveable Roof Control Module B (MRCMB).
- Using a diagnostic scan tool, clear the Diagnostic Trouble Codes (DTCs) from the Moveable Roof Control Module B (MRCMB).
- Ignition OFF.
- Ignition ON.
- Using a diagnostic scan tool, carry out the Moveable Roof Control Module B (MRCMB) self-test.

Is DTC U0207:00 retrieved again?

Yes	GO to J3
No	GO to J5

J3 RETRIEVE ANY DIAGNOSTIC TROUBLE CODES (DTCS) FROM THE MOVEABLE ROOF CONTROL MODULE A (MRCMA) SELF-TEST

- Using a diagnostic scan tool, carry out the Moveable Roof Control Module A (MRCMA) self-test.

Are any Diagnostic Trouble Codes (DTCs) present in the Moveable Roof Control Module A (MRCMA)?

Yes	DIAGNOSE all Moveable Roof Control Module A (MRCMA) Diagnostic Trouble Codes (DTCs). GO to the DTC Chart: Moveable Roof Control Module A (MRCMA).
No	GO to J4

J4 CHECK FOR DTC (DIAGNOSTIC TROUBLE CODE) U0207:XX SET IN OTHER MODULES

- Using the diagnostic scan tool, carry out the self-test for all modules.
- Retrieve and record the Continuous Memory Diagnostic Trouble Codes (CMDTCs) from all modules.

Is DTC U0207:xx set in 1 or more modules in addition to the Moveable Roof Control Module B (MRCMB)?

Yes	CHECK OASIS for any applicable Technical Service Bulletins (TSBs). If a TSB exists for this concern, DISCONTINUE this test and FOLLOW the TSB instructions. If no Technical Service Bulletins (TSBs) address this concern, INSTALL a new Moveable Roof Control Module A (MRCMA).

	REFER to: Convertible Top Motor (501-18 Convertible Top, Removal and Installation).
No	GO to J5

J5 CHECK THE ELECTRICAL CONNECTORS

NOTICE: Use the correct probe adapter(s) when making measurements. Failure to use the correct probe adapter(s) may cause damage to the connector.

- Ignition OFF.
- Disconnect Moveable Roof Control Module A (MRCMA) C4830.
- Disconnect Moveable Roof Control Module B (MRCMB) C4831.
- Using a good light source, inspect each connector for the following:
  - corrosion - install new connector or terminal and clean the module pins
  - damaged or bent pins - install new terminals or pins
  - pushed-out pins - install new pins as necessary
- Using a suitable mating terminal, check the following connector terminals for deformed or enlarged contacts:
  - C4830-9
  - C4830-10
  - C4831-9
  - C4831-10

Are both connectors free of corrosion, pushed-out pins and deformed or enlarged contacts?

Yes	The system is operating correctly at this time. The DTC may have been set due to high network traffic, a loose connector, a corroded connector or an intermittent fault condition. ADDRESS the root cause of any connector or pin issues.
No	REPAIR the affected connector. Refer to Wiring Diagrams Cell 5 for schematic and connector information.

Rear Window Down Feedback Signal Faults

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

Normal Operation and Fault Conditions

After receiving a "window drop" message from the Moveable Roof Control Module A (MRCMA), the BCMB sends a global open request to the 4 window smart motors. Once the windows have fully lowered, the rear window smart motors send a ground signal to the BCMB indicating they are in the full down position. The BCMB then sends a "window down" message to the Moveable Roof Control Module A (MRCMA) and convertible top operation continues. When there is a fault on the circuit between the BCMB and the smart motors or when there is a failure of the BCMB or smart motors, the rear windows do not operate when the convertible top is open or closed which prevents convertible top operation. For additional information on window operation,
REFER to: Glass, Frames and Mechanisms - System Operation and Component Description (501-11 Glass, Frames and Mechanisms, Description and Operation).

DTC Fault Trigger Conditions

DTC	Description	Fault Trigger Conditions
B126E:23	Right Rear Window Fully Down Feedback: Signal Stuck Low	This DTC sets in the BCMB when the accessory delay relay is OFF and the right rear window fully down feedback signal is active (low, indicating a possible short to ground).

DTC	Description	Fault Trigger Conditions
B126E:24	Right Rear Window Fully Down Feedback: Signal Stuck High	This DTC sets in the BCMB when the right rear window fully down feedback signal does not indicate "fully down" within 10 seconds of a "window drop" message from the Moveable Roof Control Module A (MRCMA) (indicating a possible open circuit).
B126F:23	Left Rear Window Fully Down Feedback: Signal Stuck Low	This DTC sets in the BCMB when the accessory delay relay is OFF and the left rear window fully down feedback signal is active (low, indicating a possible short to ground).
B126F:24	Left Rear Window Fully Down Feedback: Signal Stuck High	This DTC sets in the BCMB when the left rear window fully down feedback signal does not indicate "fully down" within 10 seconds of a "window drop" message from the Moveable Roof Control Module A (MRCMA) (indicating a possible open circuit).

Possible Sources

- Wiring, terminals or connectors
- LH rear window motor
- RH rear window motor
- BCMB

PINPOINT TEST K : REAR WINDOW DOWN FEEDBACK SIGNAL FAULTS

K1 CHECK FOR MOVEABLE ROOF CONTROL MODULE A (MRCMA) AND MOVEABLE ROOF CONTROL MODULE B (MRCMB) DIAGNOSTIC TROUBLE CODES (DTCS)

- Ignition ON.
- Using a diagnostic scan tool, carry out the Moveable Roof Control Module A (MRCMA) and Moveable Roof Control Module B (MRCMB) self-tests.

Are any Diagnostic Trouble Codes (DTCs) present in the Moveable Roof Control Module A (MRCMA) or Moveable Roof Control Module B (MRCMB)?

Yes	DIAGNOSE any Moveable Roof Control Module A (MRCMA) and Moveable Roof Control Module B (MRCMB) Diagnostic Trouble Codes (DTCs), before diagnosing any BCMB Diagnostic Trouble Codes (DTCs). GO to DTC Chart: Moveable Roof Control Module A (MRCMA) or DTC Chart: Moveable Roof Control Module B (MRCMB).
No	GO to K2

K2 CHECK FOR RETURNING BCMB (BODY CONTROL MODULE B) DIAGNOSTIC TROUBLE CODES (DTCS)

- Using a diagnostic scan tool, clear the BCMB Diagnostic Trouble Codes (DTCs).
- Ignition OFF.
- Ignition ON.
- Using the convertible top switch, attempt to operate the convertible roof for a minimum of 10 seconds.
- Using a diagnostic scan tool, carry out the BCMB self-test.

Does DTC B126E:23, B126E:24, B126F:23 or B126F:24 return?

Yes	GO to K3
No	The concern may have been caused by a loose or corroded connector causing an intermittent fault condition. DISCONNECT BCMB C4368B, LH rear power window motor C3118 and RH rear power window motor C3119. INSPECT all 3 connectors for; corrosion, bent pins, pushed-out pins and spread terminals. REPAIR or INSTALL new as necessary.

	For all other BCMB Diagnostic Trouble Codes (DTCs), REFER to: Body Control Module B (BCMB) (419-10 Multifunction Electronic Modules, Diagnosis and Testing).

K3 VERIFY REAR WINDOW OPERATION

- Using the master window control switch, operate the rear windows.

Do the rear windows operate correctly from the master window control switch?

Yes	For DTC B126E:23 or B126F:23, GO to K4 For DTC B126E:24 or B126F:24, GO to K5
No	DIAGNOSE the inoperative rear windows. REFER to: Glass, Frames and Mechanisms (501-11 Glass, Frames and Mechanisms, Diagnosis and Testing).

K4 CHECK THE REAR WINDOW DOWN FEEDBACK CIRCUITS FOR A SHORT TO GROUND

- Ignition OFF.
- Disconnect BCMB C4368B.
- If DTC B126E:23 is present, disconnect power window motor right rear C3119.
- If DTC B126F:23 is present, disconnect power window motor left rear C3118.
- If DTC B126E:23 is present, measure:

Click to display connectors

Positive Lead	Measurement / Action	Negative Lead
C4368B-16	Ω	Ground

- If DTC B126F:23 is present, measure:

Click to display connectors

Positive Lead	Measurement / Action	Negative Lead
C4368B-3	Ω	Ground

Is the resistance greater than 10,000 ohms?

Yes	GO to K6
No	REPAIR the circuit.

K5 CHECK THE REAR WINDOW DOWN FEEDBACK CIRCUITS FOR AN OPEN

- Ignition OFF.
- Disconnect BCMB C4368B.
- If DTC B126E:24 is present, disconnect power window motor right rear C3119.
- If DTC B126F:24 is present, disconnect power window motor left rear C3118.
- If DTC B126E:24 is present, measure:

Click to display connectors

Positive Lead	Measurement / Action	Negative Lead
C4368B-16	Ω	C3119-7

- If DTC B126F:24 is present, measure:

Click to display connectors

Positive Lead	Measurement / Action	Negative Lead
C4368B-3	Ω	C3118-7

Is the resistance less than 3 ohms?

Yes	GO to K6
No	REPAIR the circuit.

K6 CHECK THE ELECTRICAL CONNECTORS

NOTICE: Use the correct probe adapter(s) when making measurements. Failure to use the correct probe adapter(s) may cause damage to the connector.

- Ignition OFF.
- Disconnect BCMB C4368B.
- If DTC B126E:23 or B126E:24 is present, disconnect power window motor right rear C3119.
- If DTC B126F:23 or B126F:24 is present, disconnect power window motor left rear C3118.
- Using a good light source, inspect each connector for the following:
  - corrosion - install new connector or terminal and clean the module pins
  - damaged or bent pins - install new terminals or pins
  - pushed-out pins - install new pins as necessary
- Using a suitable mating terminal, check the following connector terminals for deformed or enlarged contacts:
  - C4368B-3
  - C4368B-16
  - C3119-7
  - C3118-7

Are all connectors free of corrosion, pushed-out pins and deformed or enlarged contacts?

Yes	INSTALL a new right rear or left rear power window motor. REFER to: Rear Quarter Window Regulator Motor - Convertible (501-11 Glass, Frames and Mechanisms, Removal and Installation).
No	REPAIR the affected connector. Refer to Wiring Diagrams Cell 5 for schematic and connector information.

Convertible Top Assembly

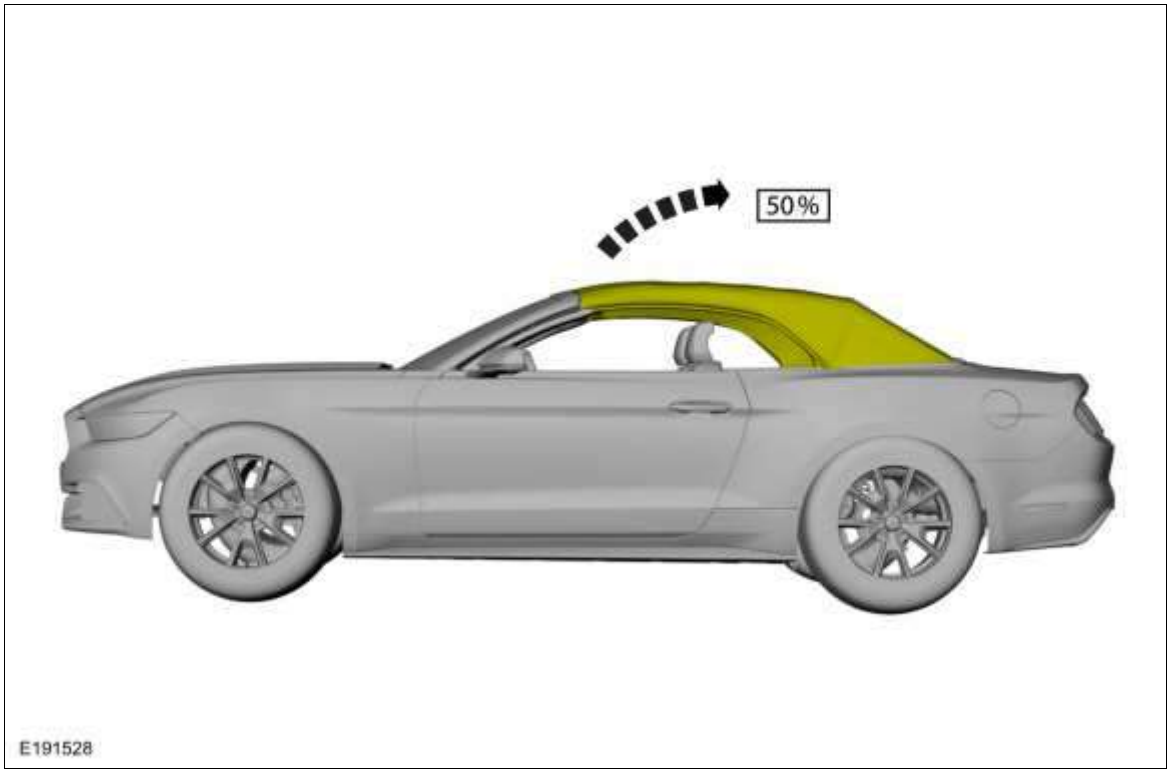
Removal

NOTICE: Make sure the body of the vehicle is fully covered with fender blankets or equivalent or damage to the finish may result.

NOTE: *Removal steps in this procedure may contain installation details.*

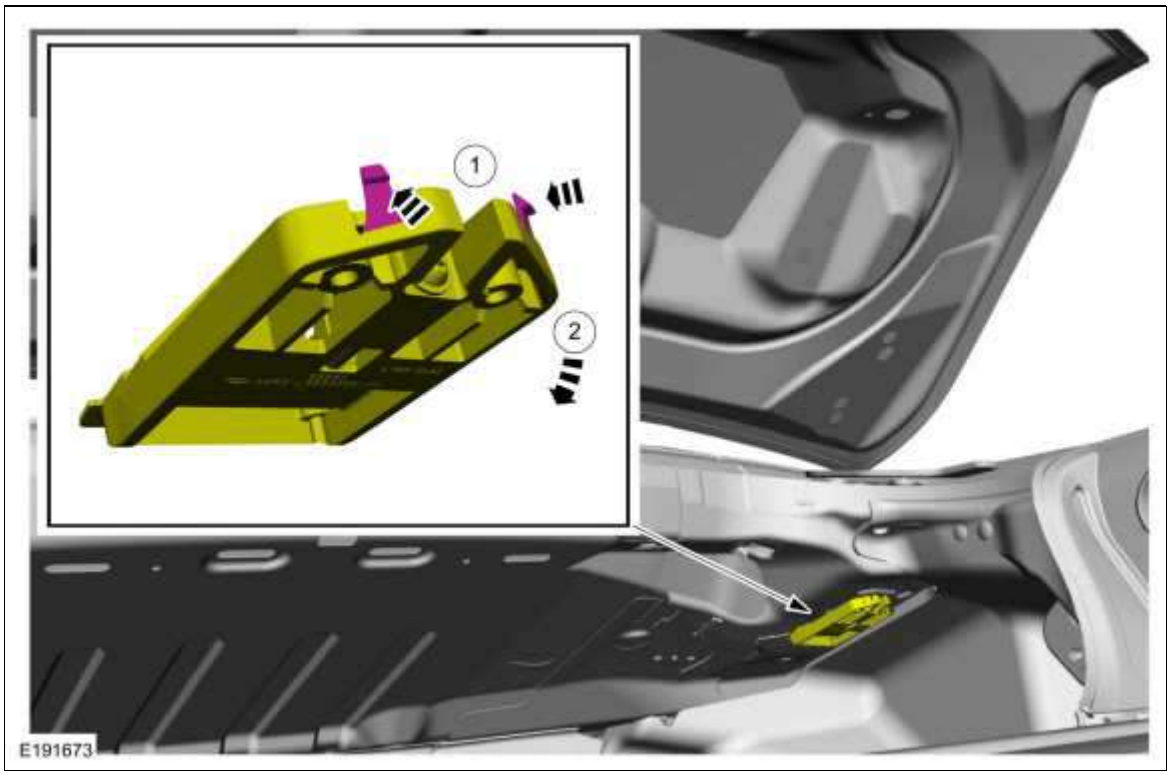
Many procedure views are with the convertible top in the fully closed position showing tension on the convertible top material.

1. Open the convertible top approximately 50 percent.



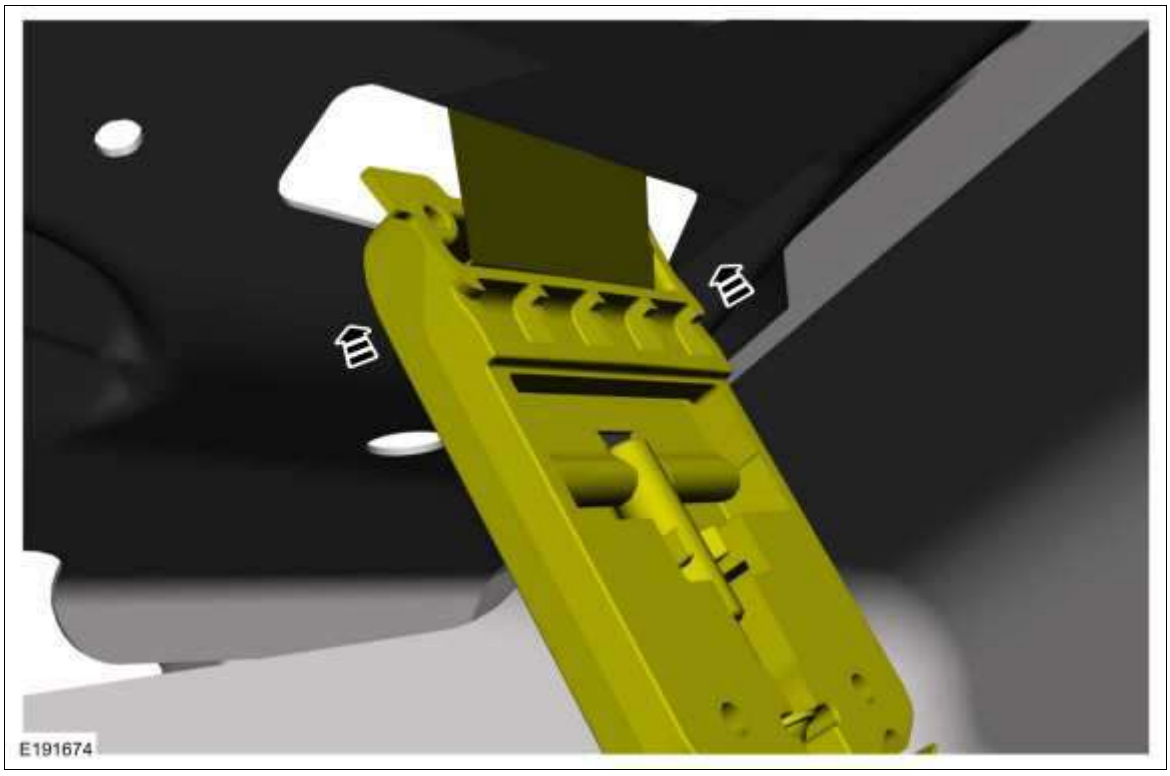
2. **NOTE:** *RH side shown, LH side similar.*

   From the luggage compartment on both sides, disconnect the convertible top tension belt adjuster bracket from body.
   1. Push in on the rear of the convertible top tension belt adjuster to release the locking tabs.
   2. Pull the rear of the convertible top tension belt adjuster down.



3. **NOTE:** *RH side shown, LH side similar.*

   On both sides, push convertible top tension belt adjuster bracket through body to interior.



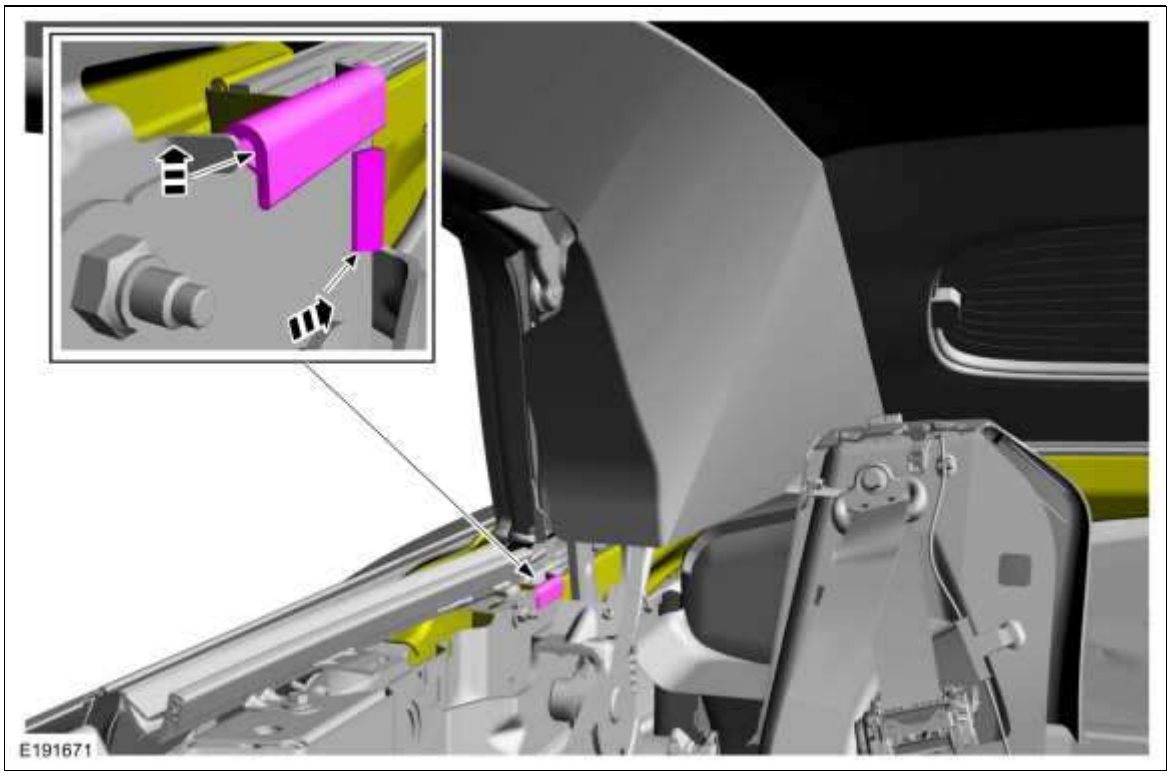
4. On both sides, remove the rear quarter panel speakers.
   Refer to: Rear Quarter Panel Speaker (415-00B Information and Entertainment System - General Information - Vehicles With: Touchscreen Display, Removal and Installation).
   Refer to: Rear Quarter Panel Speaker (415-00A Information and Entertainment System - General Information - Vehicles With: AM/FM/CD/SYNC, Removal and Installation).

5. Remove the parcel shelf.
   Refer to: Parcel Shelf - Convertible (501-05 Interior Trim and Ornamentation, Removal and Installation).

6. **NOTE:** *RH side shown, LH side similar.*

During installation, make sure to position all trough assembly flexible material and convertible top material in the exact location it was removed from.

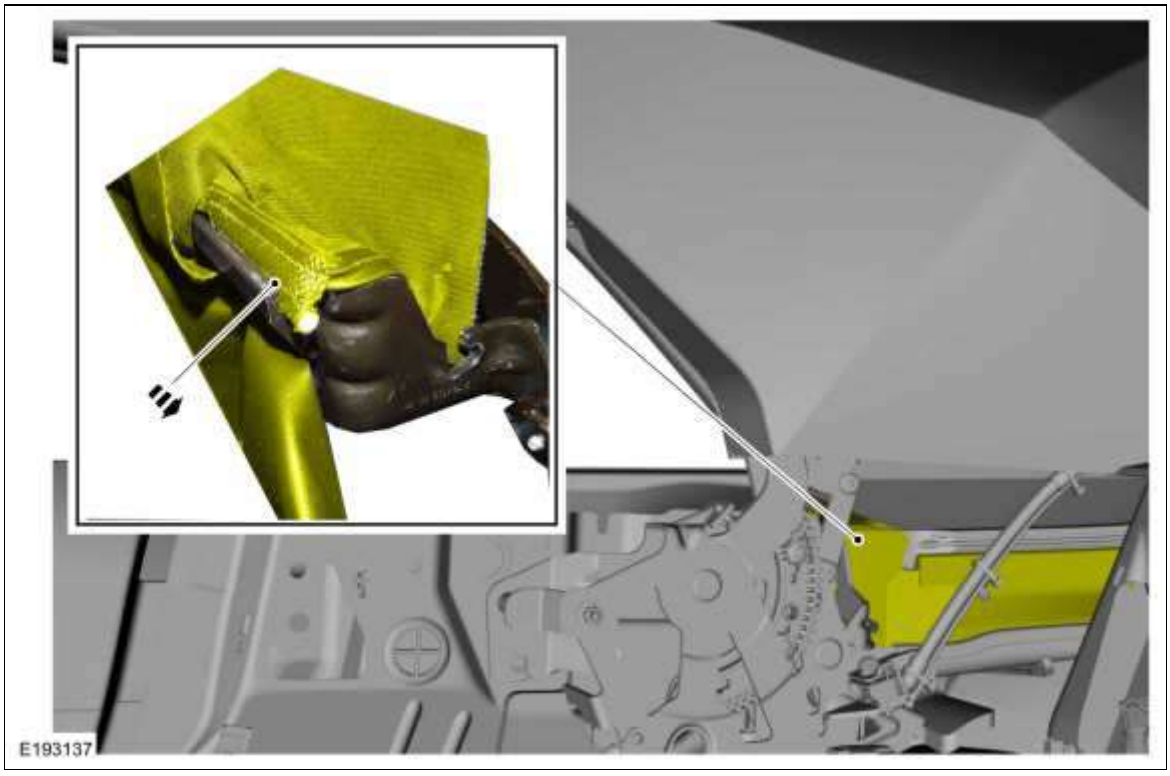
On both sides, disconnect both trough hanging retainers (near the rear window belt moulding) from the body.



7. **NOTE:** *RH side shown, LH side similar.*

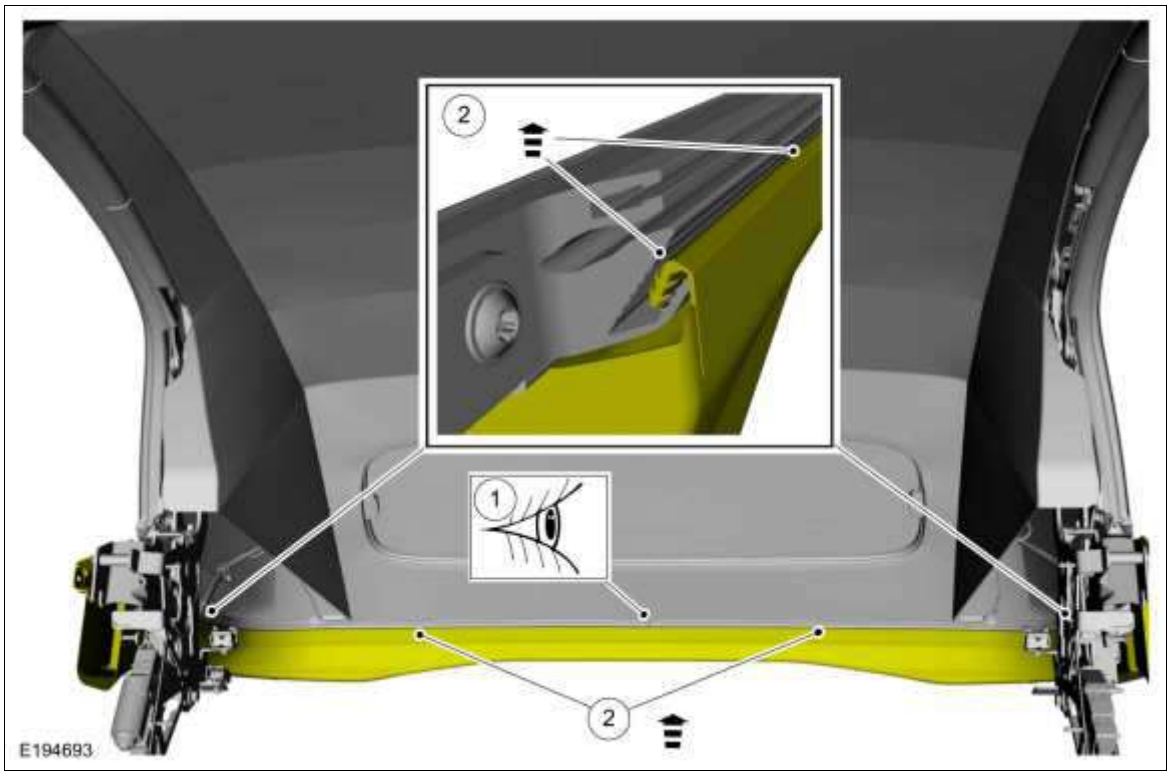
   During installation, make sure to position all trough assembly flexible material and convertible top material in the exact location it was removed from.

   On both sides, slide the water bag portion of the trough assembly out of the bracket and position aside.

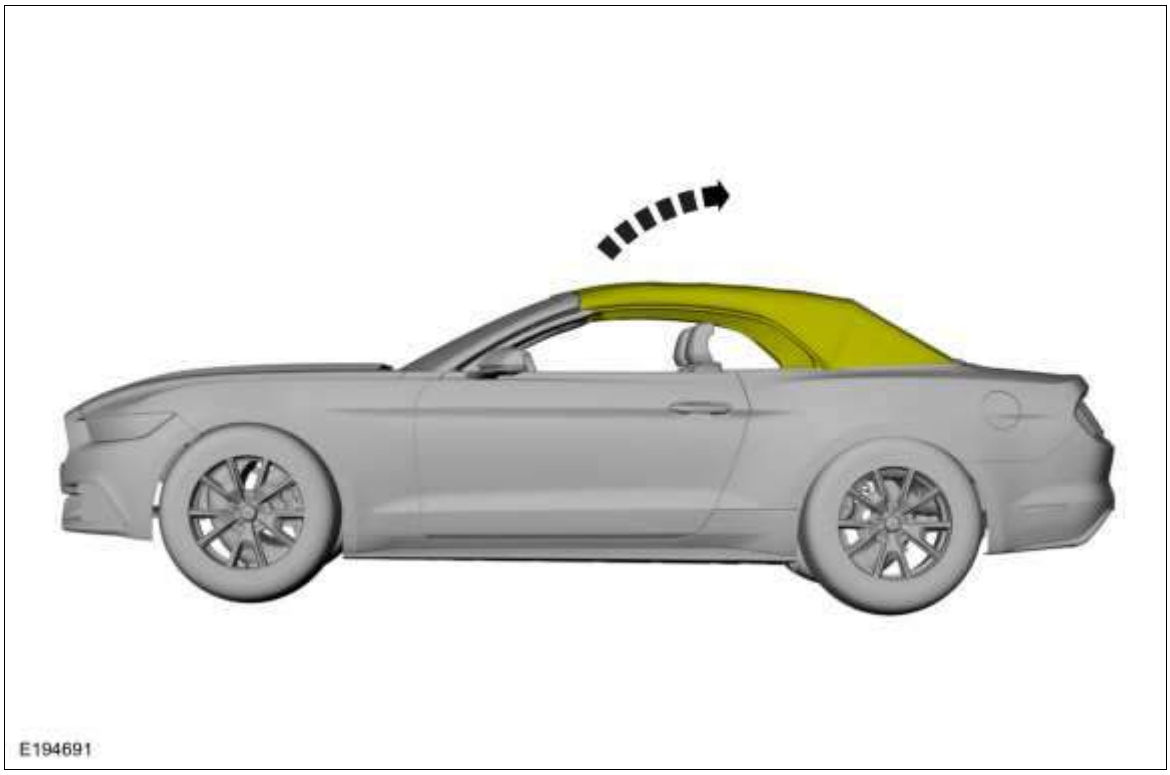


8. From inside the vehicle, disconnect the trough assembly from the convertible top assembly.

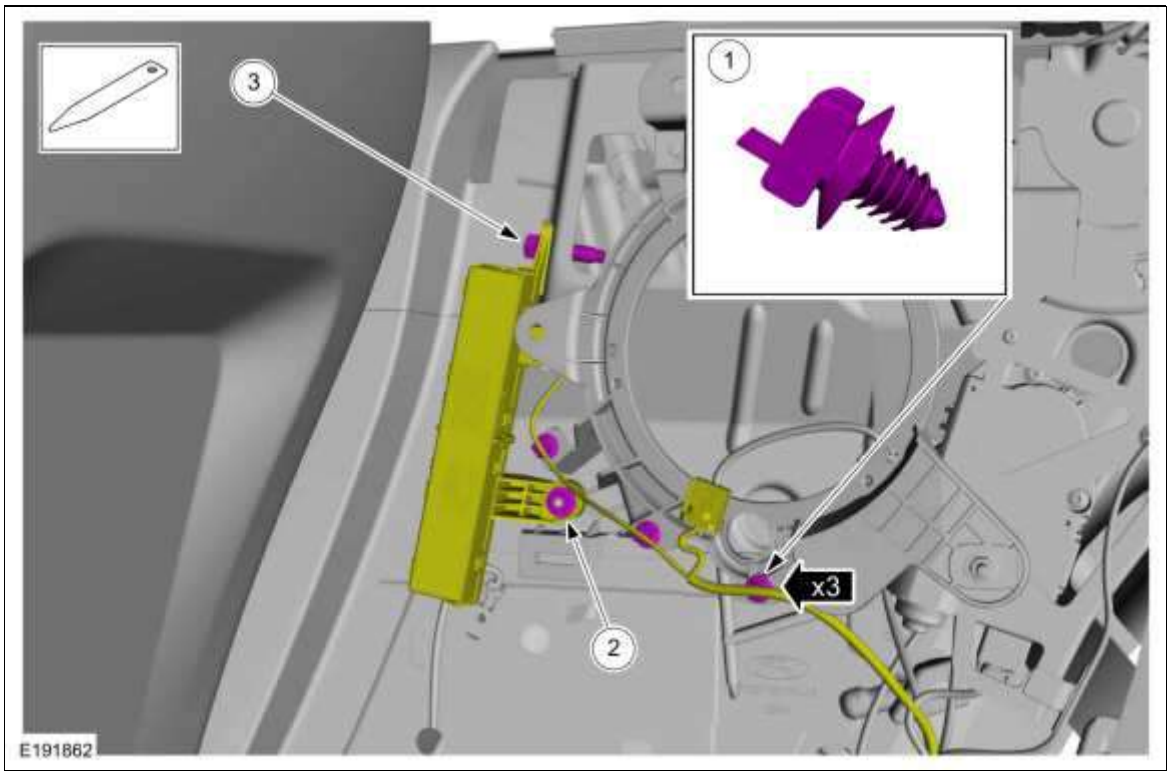
1. Locate the position of the notch on the floating bow and on the convertible top trough assembly for alignment reference during installation.
2. Pull the convertible top trough assembly up and out of the floating bow track along the back and the sides.



9. Fully open the convertible top.

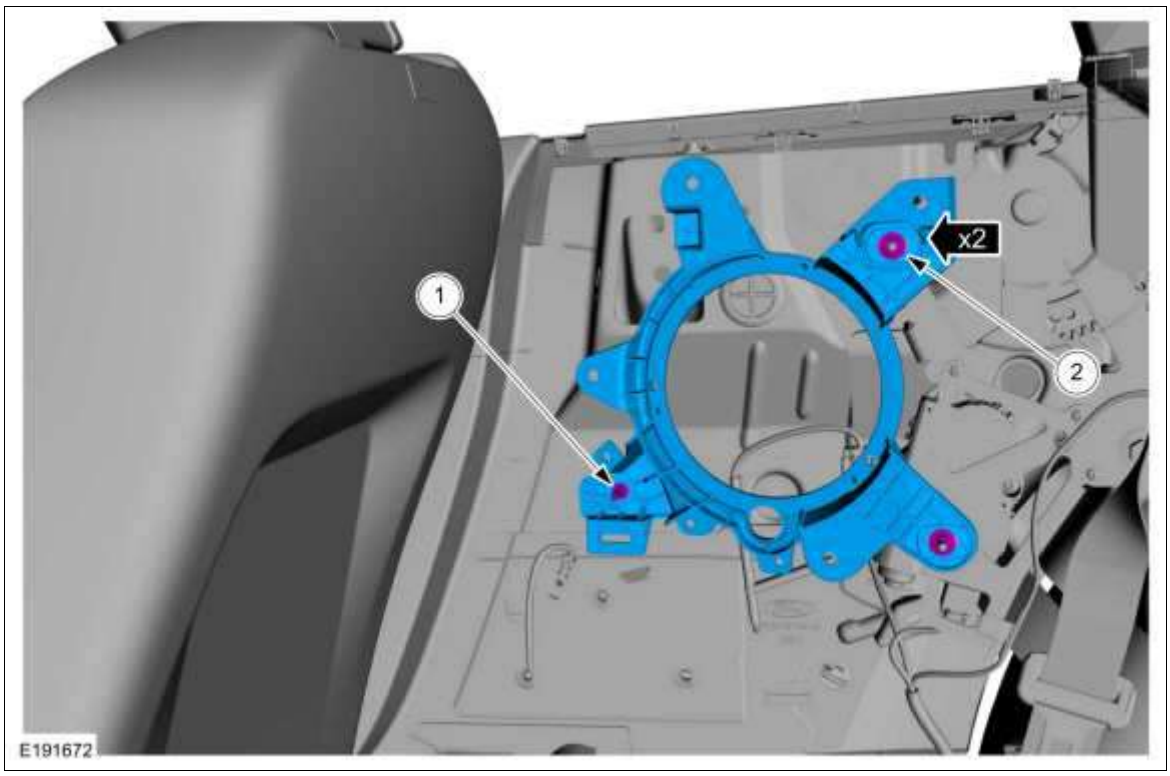


10. On the RH side only, position aside the RTM and bracket assembly.
    1. Disconnect the RTM wiring harness clips from the speaker bracket.
       Torque: 93 lb.in (10.5 Nm)
    2. Remove the RTM bracket nut.
       Torque: 71 lb.in (8 Nm)
    3. Remove the RTM bracket bolt and position the RTM and bracket assembly aside.
       Torque: 17 lb.in (1.9 Nm)



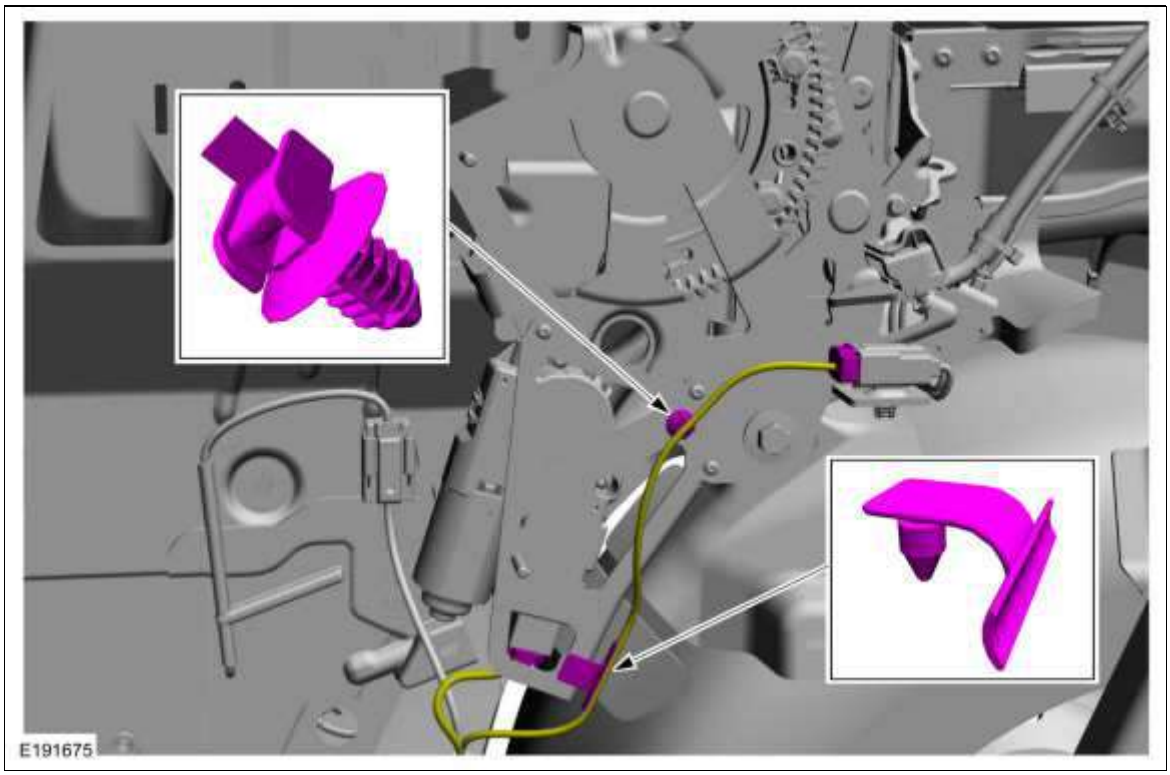
11. **NOTE:** *RH side shown, LH side similar.*

    On both sides, remove the rear quarter panel speaker brackets.
    1. On both sides, remove the speaker bracket stud.
       Torque: 93 lb.in (10.5 Nm)
    2. On both sides, remove the speaker bracket nuts and the speaker bracket.
       Torque: 71 lb.in (8 Nm)



12. **NOTE:** *RH side shown, LH side similar.*

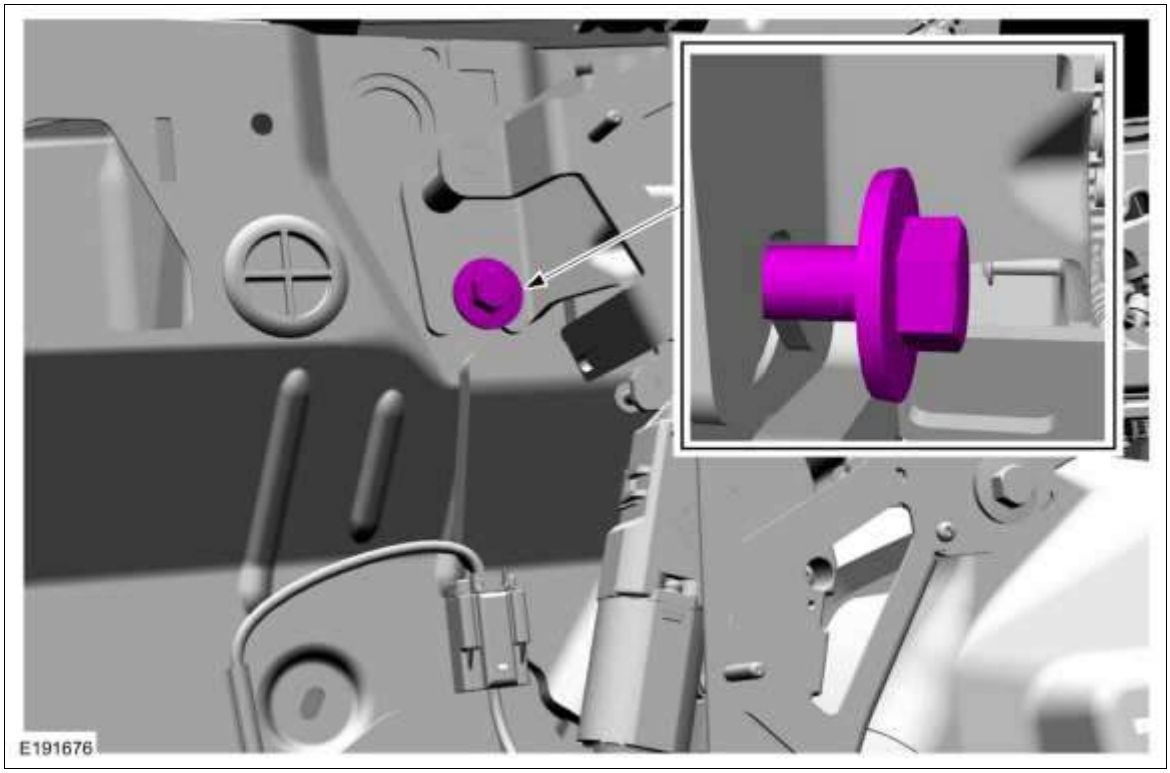
    On both sides, disconnect the convertible top harness routing clip retainers and connectors and position aside.



13. **NOTE:** *RH side shown, LH side similar.*

    Loosen the bolts approximately 13 mm (1/2 in.) for clearance of the guide pins when removing the convertible top assembly.

    On both sides, loosen the convertible top forward mounting bracket bolts.
    Torque: 35 lb.ft (48 Nm)

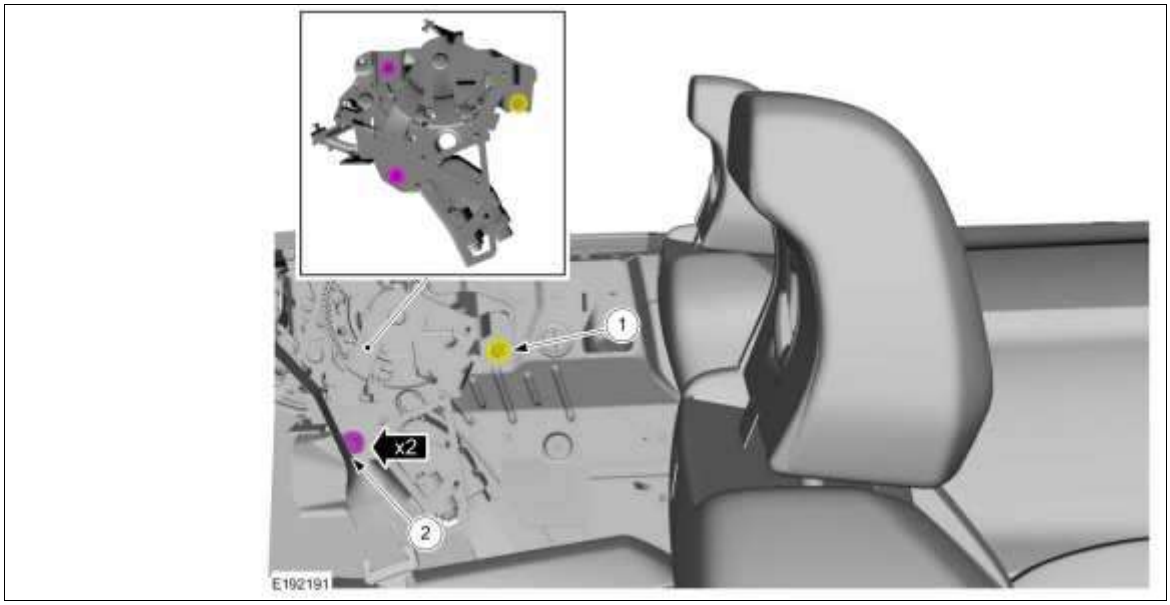


14. **NOTE:** *LH side shown, RH side similar.*

    Remove the remaining convertible top assembly bolts.

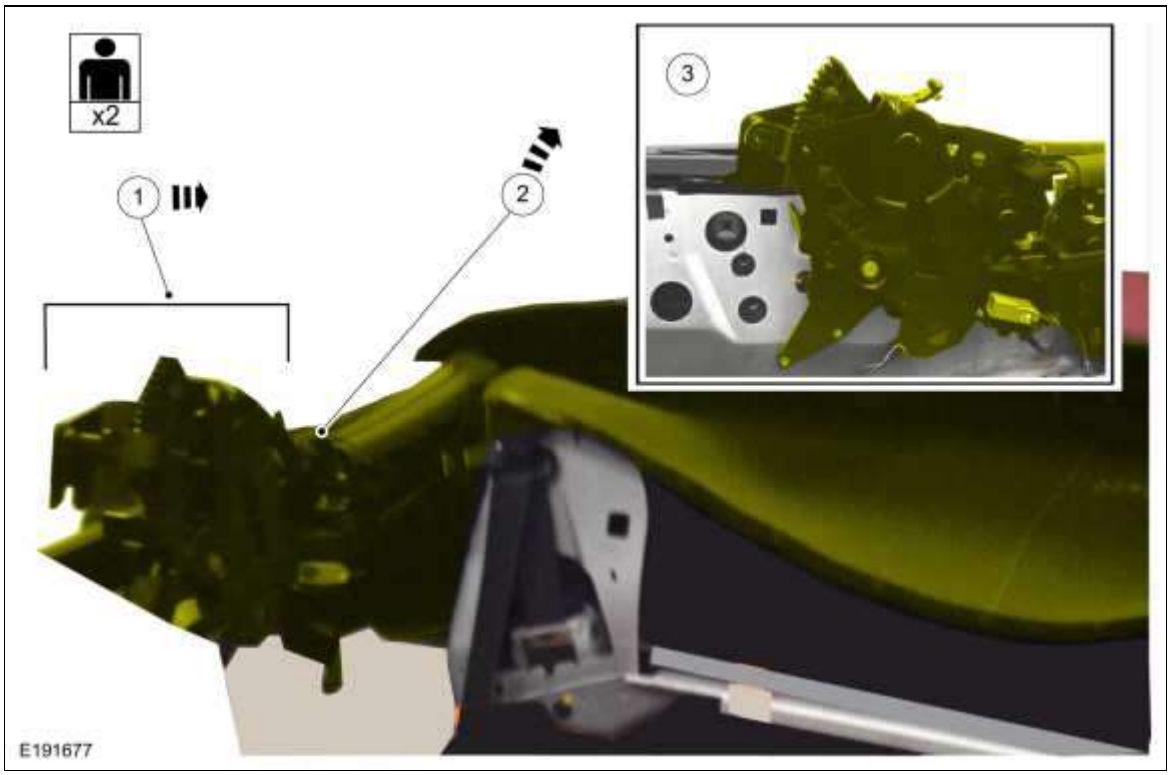
    1. **NOTE:** *This bolt remains to assist positioning the convertible top assembly during installation.*

2. On both sides, remove the remaining convertible top retaining bolts.
   Torque: 35 lb.ft (48 Nm)

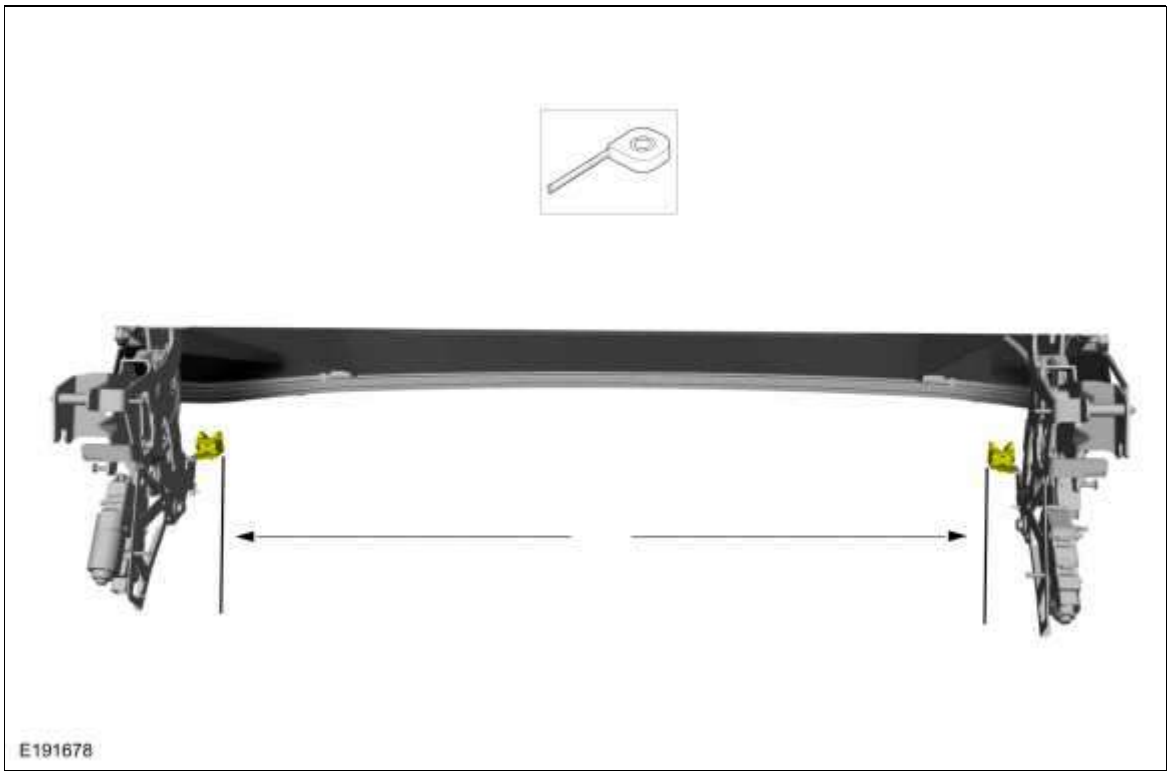


15. **NOTICE: Make sure the body of the vehicle is fully covered with fender blankets or equivalent or damage to the finish may result.**

    Position the convertible top assembly for removal.
    1. Grasping the assembly on both sides in the area of the gears/motors pull the sides together, releasing the guide pins from the body interior sheet metal.
    2. With the help of an assistant, lift/tilt the gears/motors area of the assembly up and rearward, resting the gears/motors area on top of the body interior sheet metal.
    3. Inset is the position off the convertible top gear assembly area after positioning in sub step 2.



16. Measure the distance between the RH and LH sides of the frame assembly.

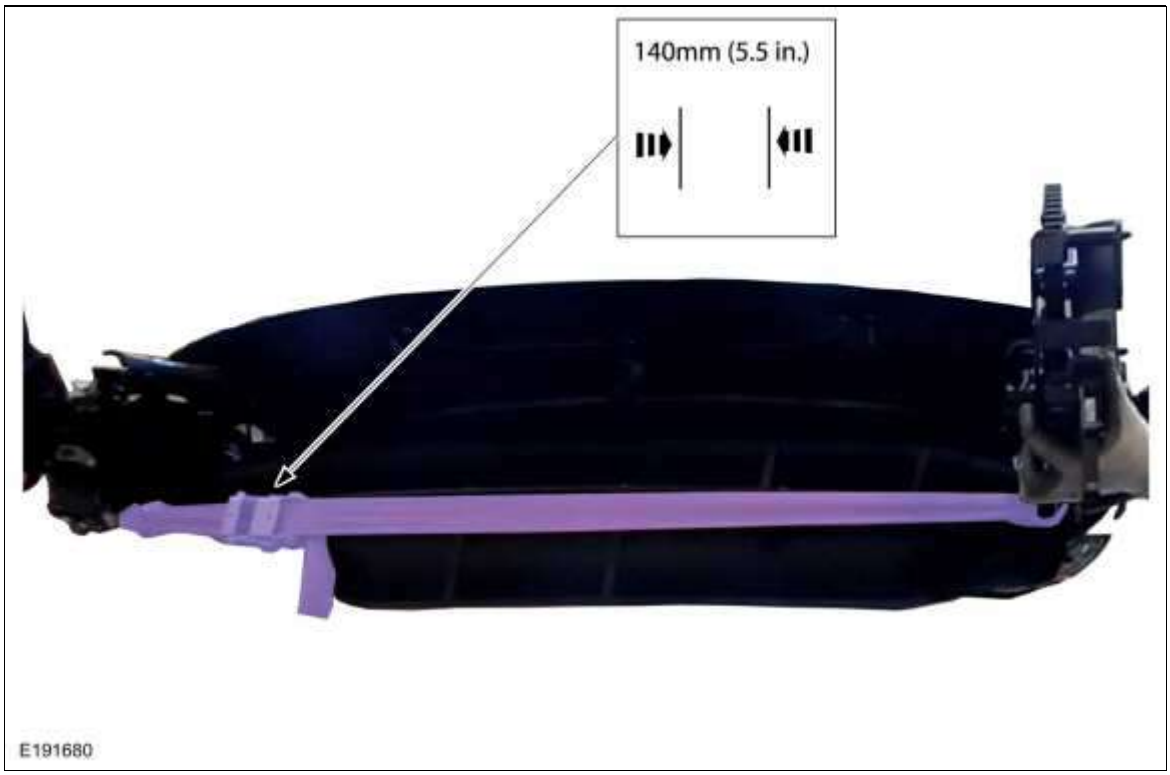


17. **NOTE:** *LH side shown, RH side similar.*

    On both sides, attach a retaining strap to the bottom of both floating bowl brackets as shown.

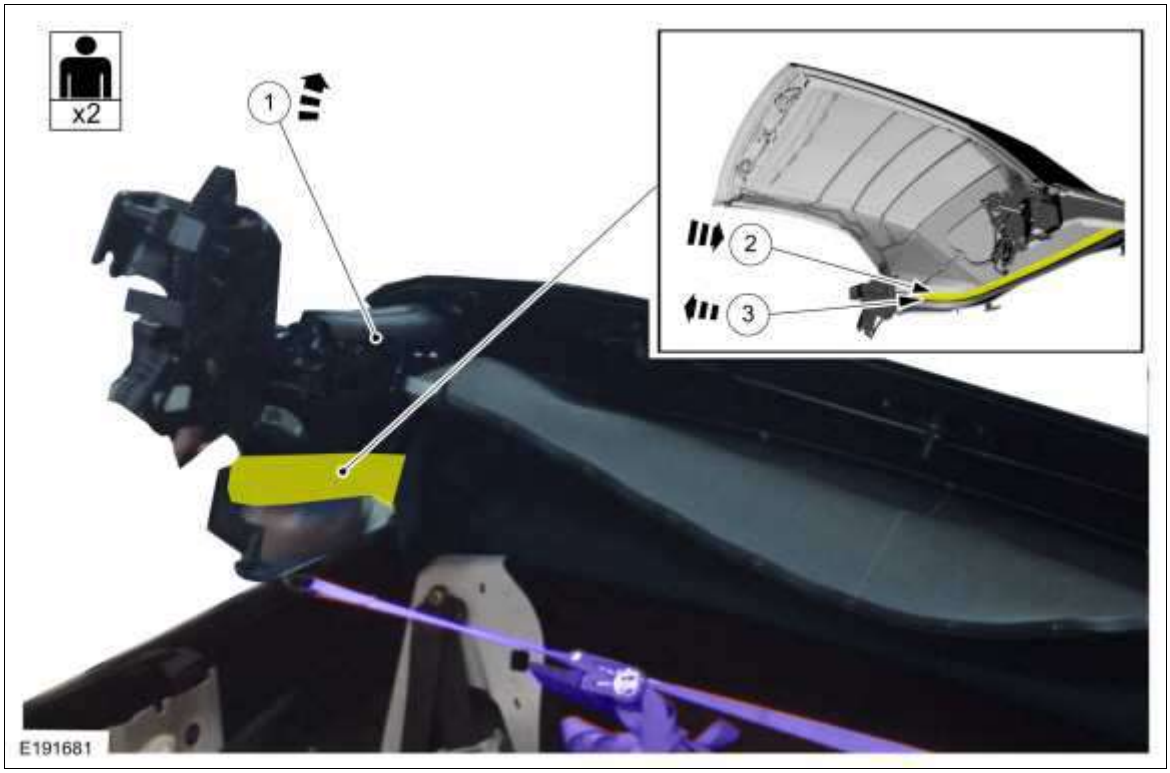
18. **NOTICE: Reducing the distance between the floating bow brackets by more than 165 mm (6.5 in.) may cause damage to the assembly.**

    Tighten the retaining strap so the measurement between the floating bow brackets is reduced by a maximum of 140 mm (5.5 in.).



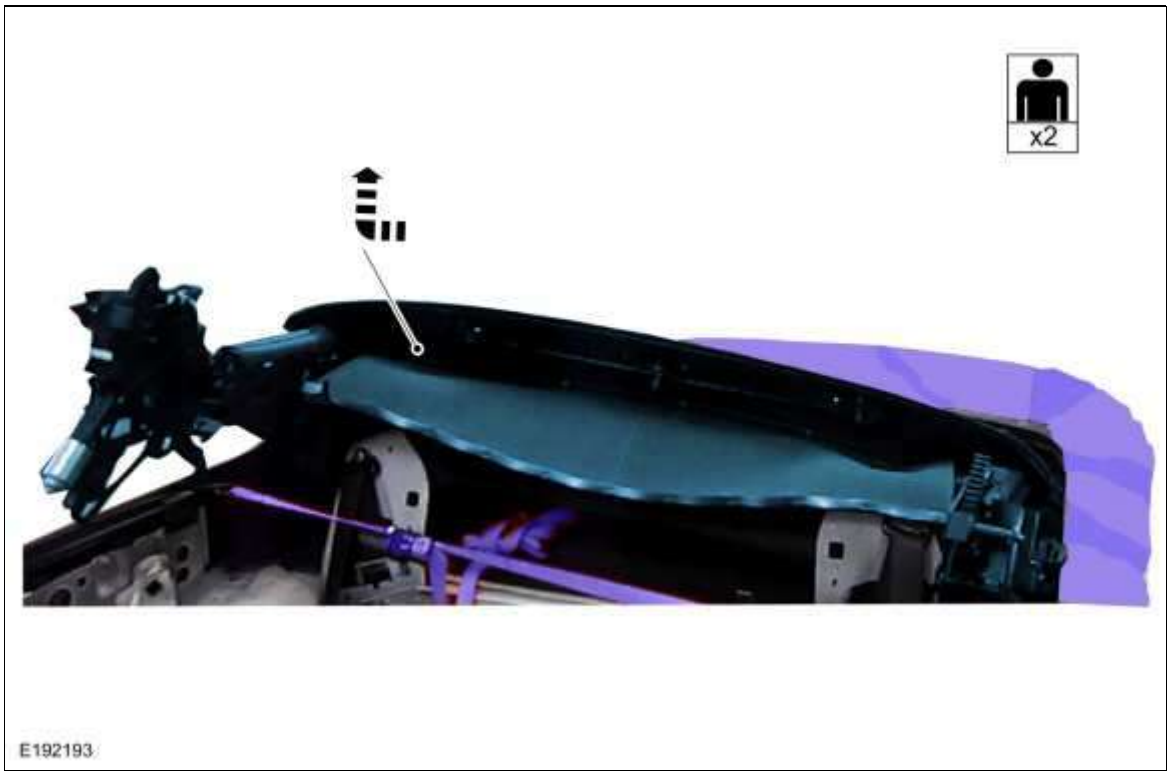
19. **NOTE:** *The sub steps should be performed together as a single step.*

    With the help of an assistant, lift the RH side of the convertible top assembly above the vehicle body.
    1. Lift the RH side of the convertible top assembly.
    2. While the convertible top assembly is being raised, push the floating bow area of the convertible top assembly inward until the RH side of the convertible top assembly including the floating bow is fully above the vehicle body.
    3. Pull the floating bow part of the convertible top assembly outward for clearance to lift out the convertible top assembly in the next step.



20. **NOTE:** *This step and the next step should be performed together as a single step.*

    With the help of an assistant, move the convertible top assembly toward the RH side of the vehicle and lift the LHside above the vehicle body.



21. With the help of an assistant, carefully remove the convertible top assembly the rear of the vehicle to a suitable workbench.

22. **NOTE:** *If the convertible top assembly is being removed to service other convertible top components (not replacing the complete assembly) the motors must be removed to allow free convertible top position changes for access to remove components.*

    Skip this step if the complete convertible top assembly is being replaced.

    If the convertible top assembly needs to be repositioned for access to other components when on the workbench, remove both convertible top motors.
    Refer to: Convertible Top Motor (501-18 Convertible Top, Removal and Installation).

Installation

1. Transfer parts as necessary.
2. To install, reverse the removal procedure.
3. If the complete convertible top assembly was replaced, fully close and latch the convertible top and reopen to initialize the motors.

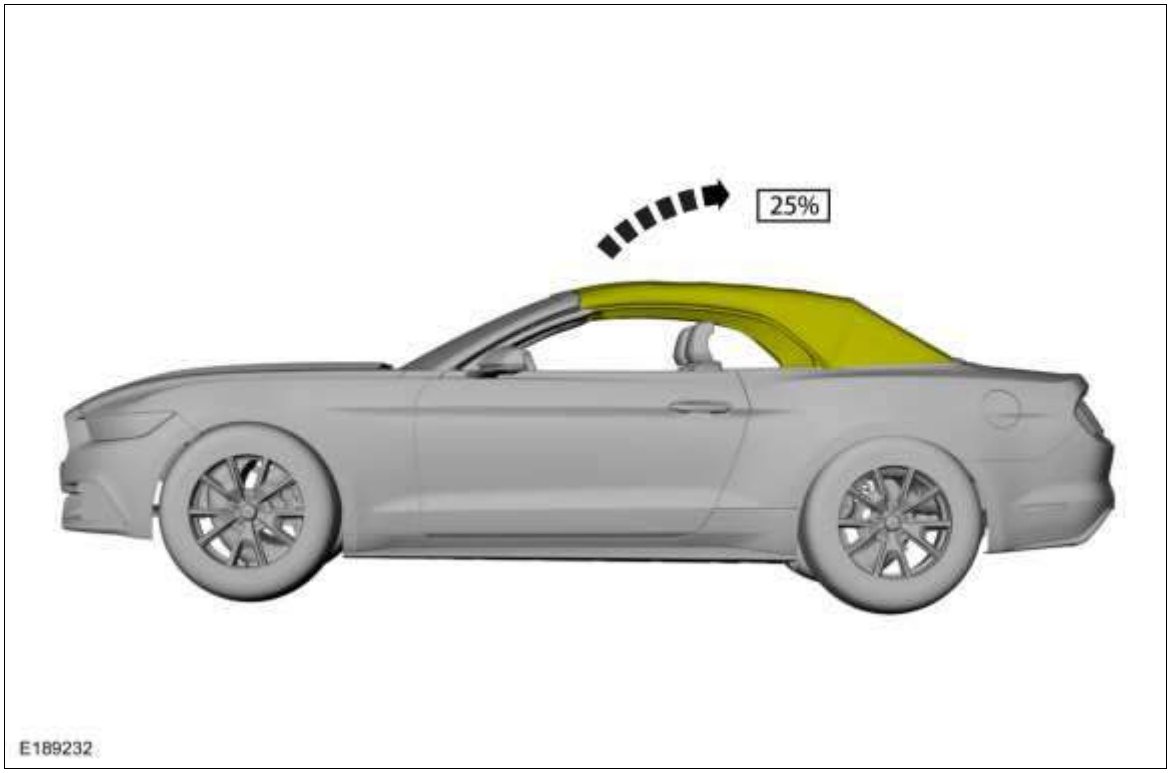
Convertible Top Center Panel Side Weatherstrip

Removal

NOTE: *Procedure views are with the convertible top in the fully closed position showing tension on the convertible top material, actual position should be approximately 25-50 percent open allowing slack in the convertible top material and other components for serviceability.*

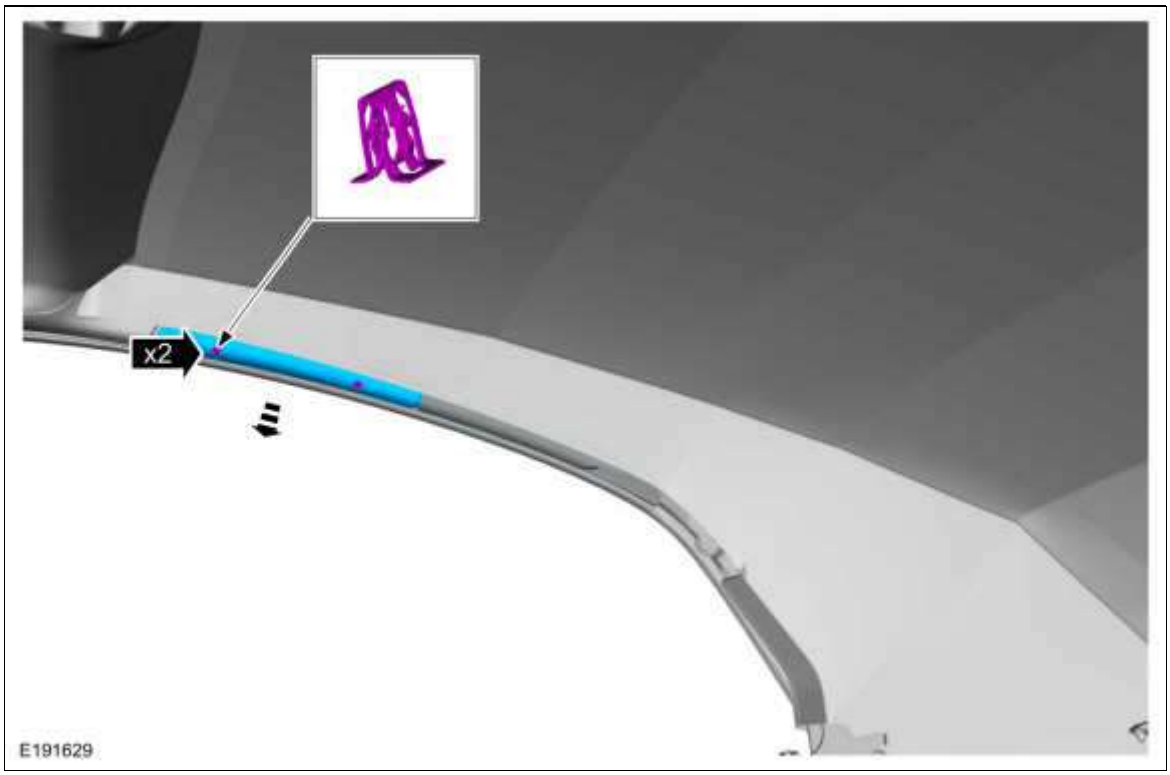
This procedure can be used for any of the 4 convertible top center panel side weatherstrips.

1. Open the convertible top approximately 25 percent.



2. **NOTE:** *RH side shown, LH side similar.*

   Pull down to remove the convertible top center panel side weatherstrip trim.

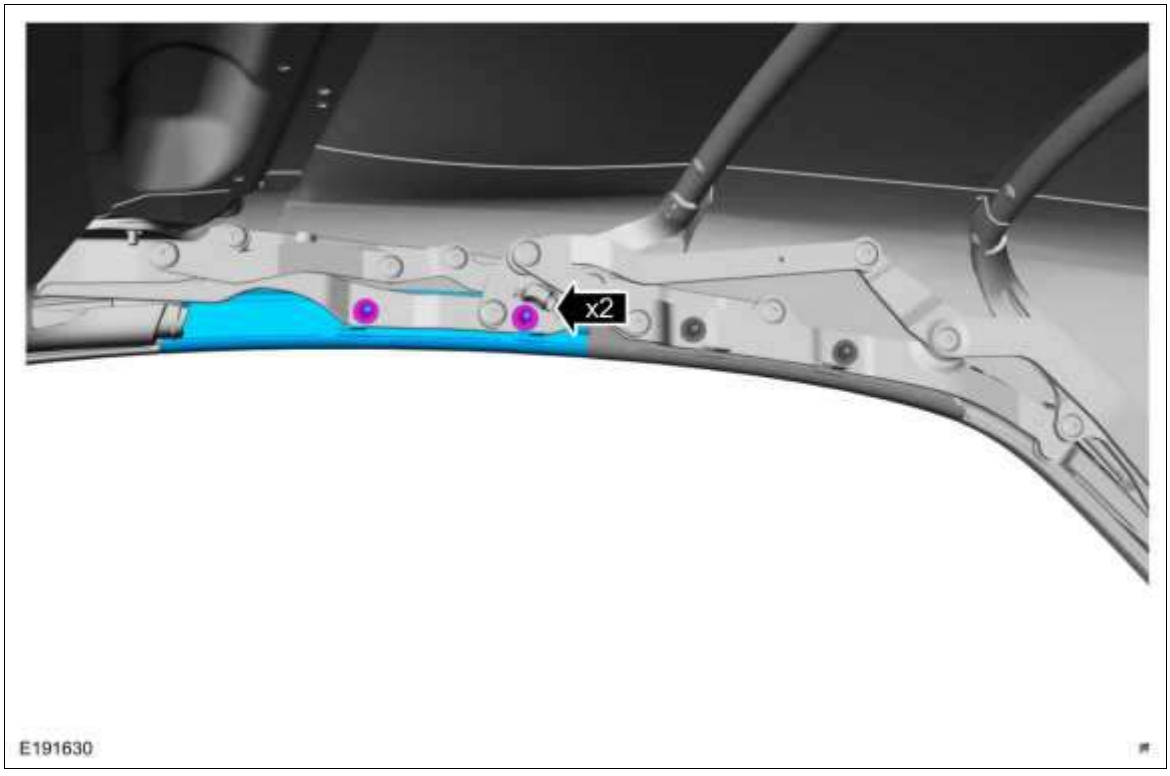


3. **NOTE:** *RH side shown, LH side similar.*

   Convertible top headliner removed for clarity.

   If any shims are present, note the position for installation.

   Remove the convertible top center panel side weatherstrip nuts and the convertible top center panel side weatherstrip.



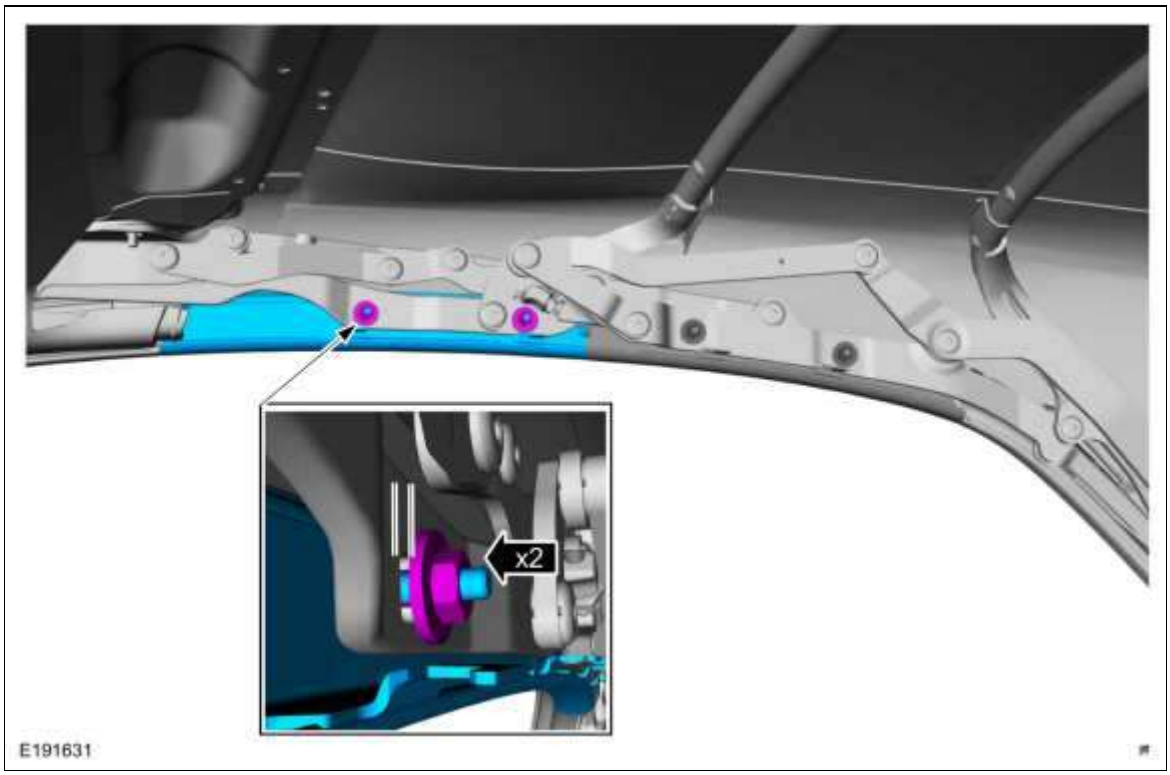
Installation

1. **NOTE:** *RH side shown, LH side similar.*

   Convertible top headliner removed for clarity.

Install with shim if removed with shim.

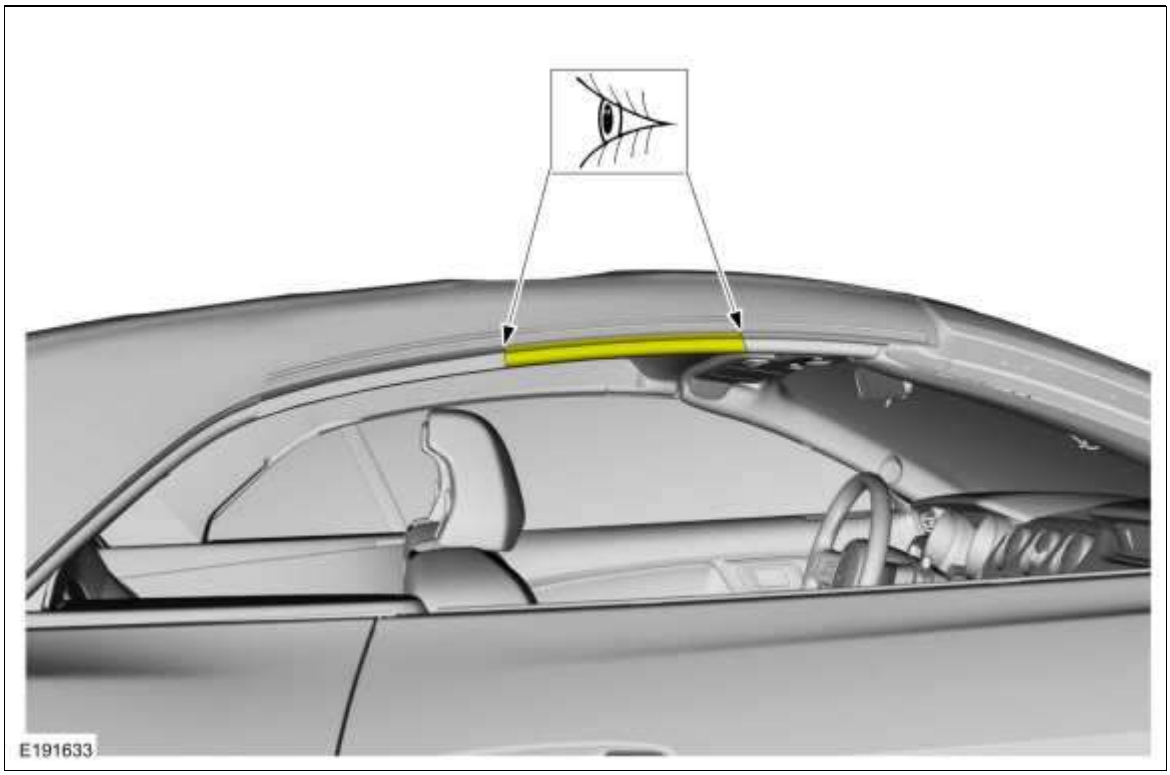
Loose install the convertible top center panel side weatherstrip.



2. Close the convertible top.

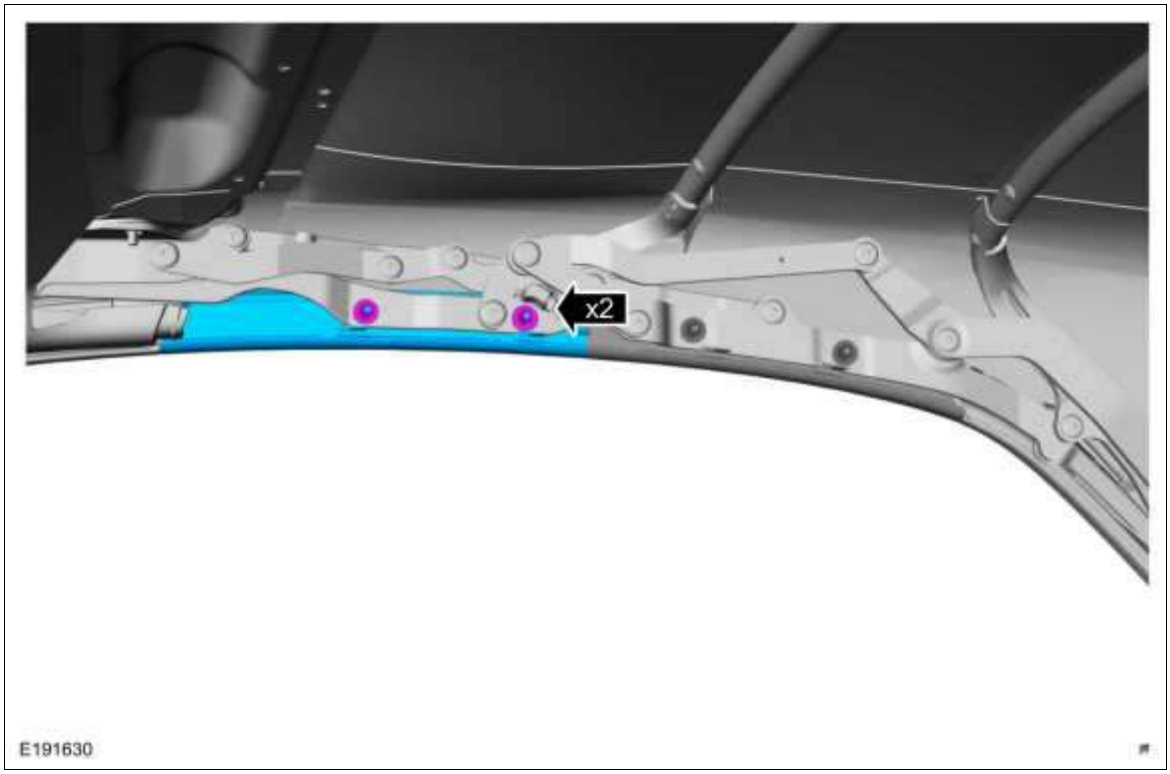
3. **NOTE:** *RH side shown, LH side similar.*

   Check for correct alignment of the convertible top center panel side weatherstrip and wiggle to seat properly if needed.



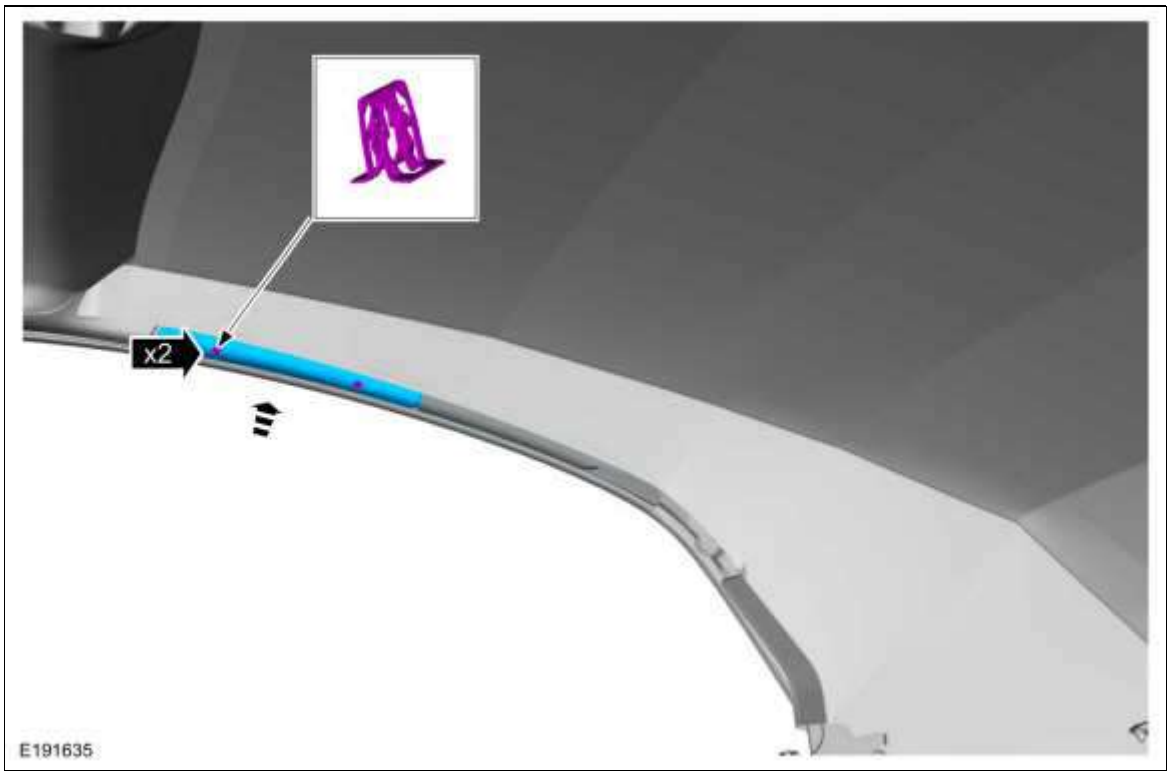
4. **NOTE:** *Water test the convertible top to verify no water leak exists after repair.*

   Tighten the convertible top center panel side weatherstrip nuts.
   Torque: 62 lb.in (7 Nm)



5. **NOTE:** *RH side shown, LH side similar.*

   Install the convertible top center panel side weatherstrip trim.



Convertible Top Front Panel

Special Tool(s) / General Equipment

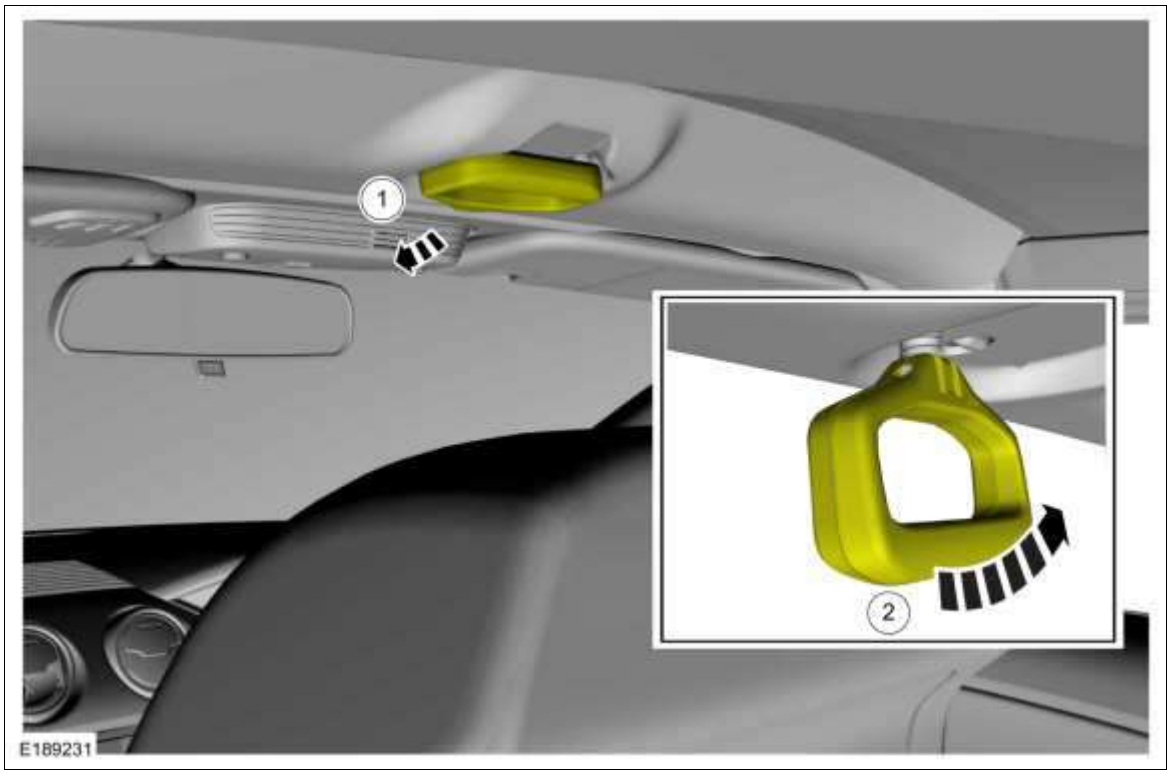
Rivet Gun
Electric Drill

Removal

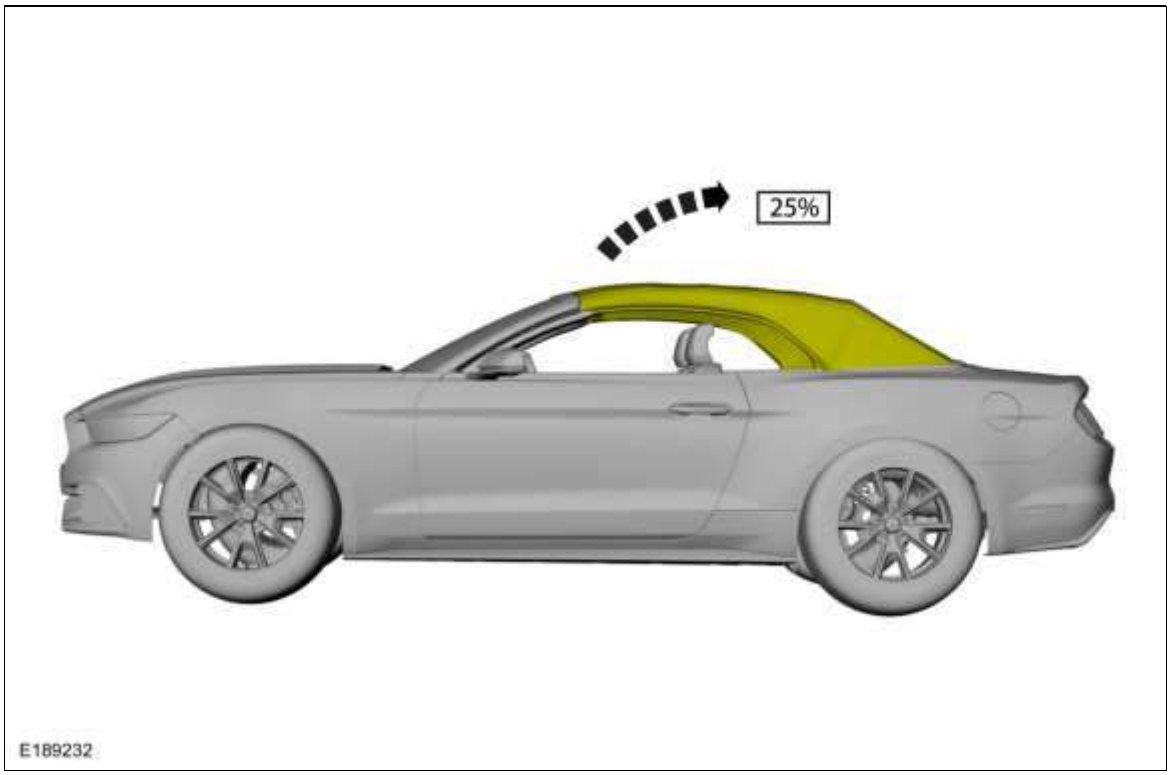
NOTE: *Removal steps in this procedure may contain installation details.*

Procedure views are with the convertible top in the fully closed position showing tension on the convertible top material, actual position should be approximately 25-50 percent open allowing slack in the convertible top material and other components for serviceability.

1. Release the convertible top.
    1. Lower the convertible top latch handle.
    2. Twist the convertible top latch handle clockwise to release the convertible top.



2. Open the convertible top approximately 25 percent.

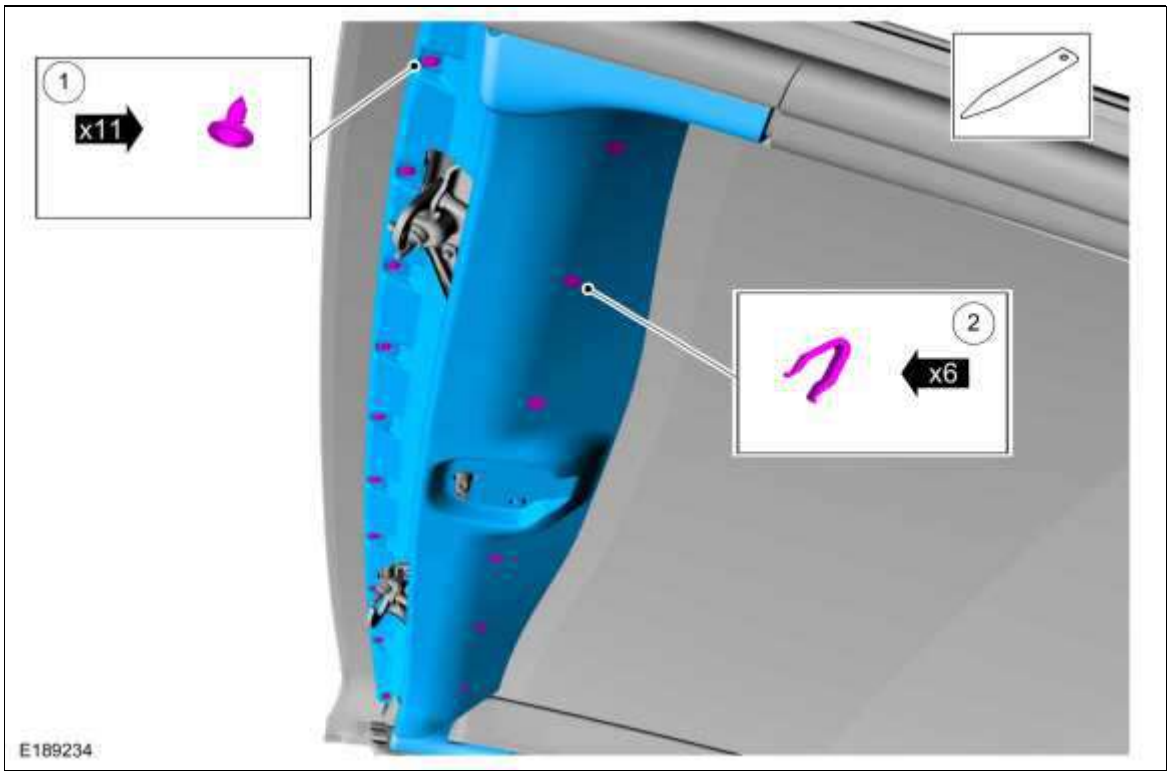


3. Remove the convertible top latch handle.

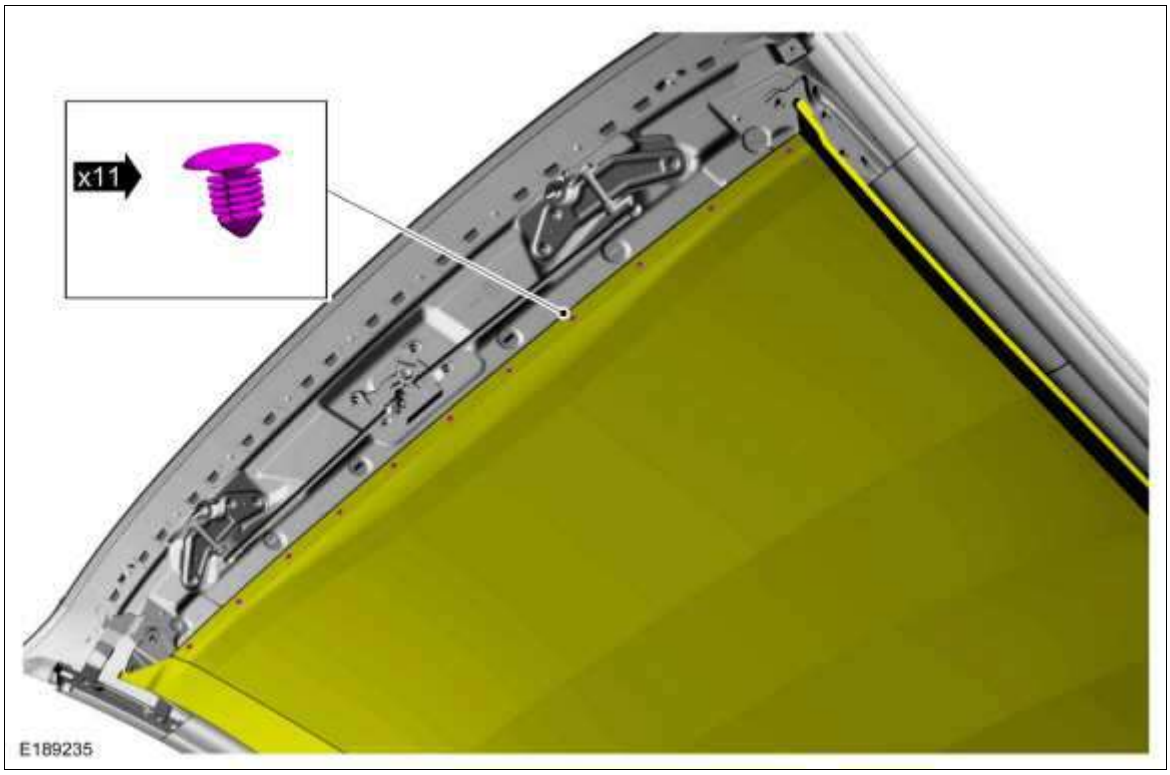
4.

Remove the convertible top front panel trim.

1. Remove the convertible top front panel trim retainers on the front of the trim.
2. Release the clips under the back of the convertible top front panel trim and remove the trim.



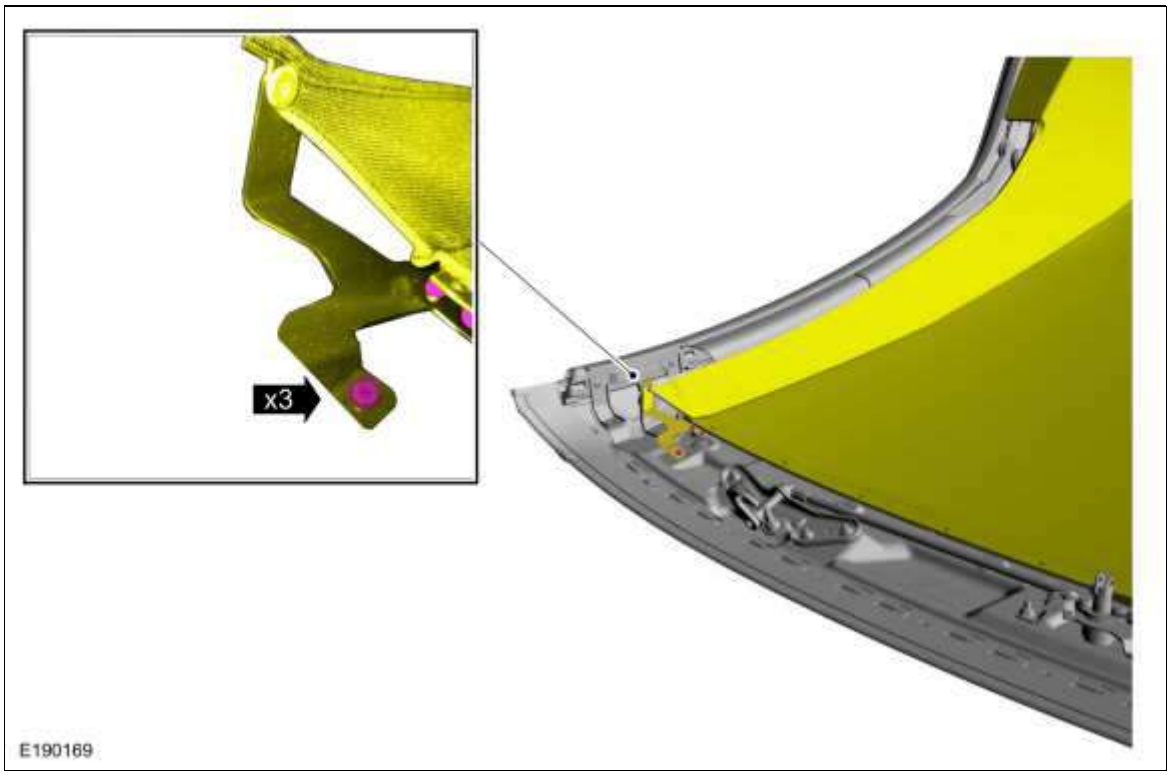
5. Remove the headliner push pin retainers along the back of the convertible top front panel.



6. **NOTE:** *LH side shown, RH side similar.*

   The headliner tension brackets can remain on the convertible top headliner.

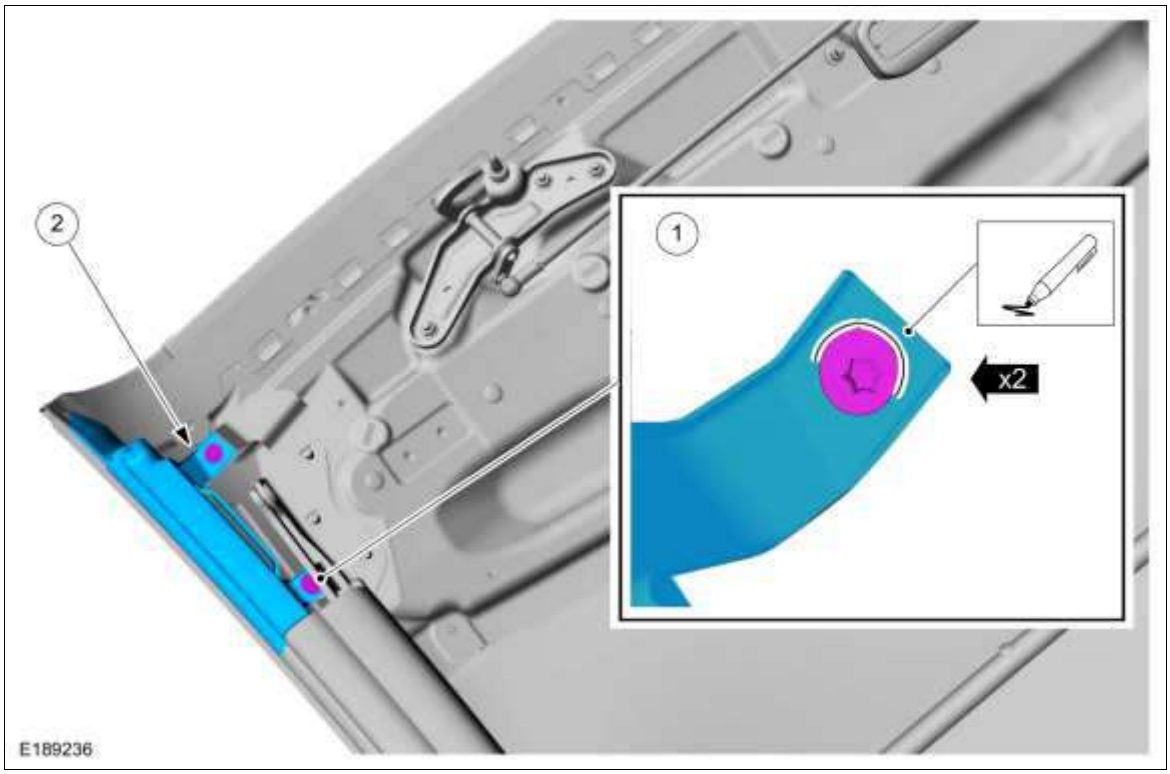
   On both sides.
   Remove the headliner tension bracket retainers and brackets from the convertible top front panel.



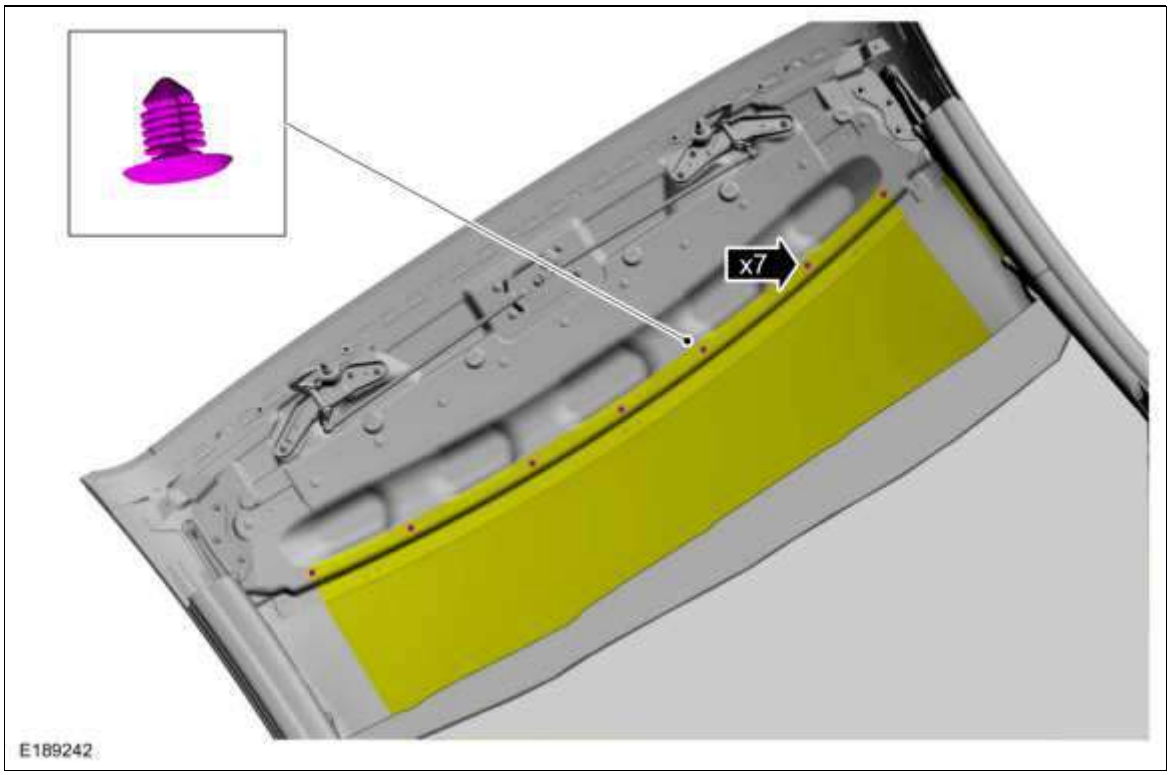
7. **NOTE:** *RH side shown, LH side similar.*

   If any shims are present, note the position for installation.

   On both sides.
   Remove the convertible top front panel side weatherstrip and bracket assembly.
   1. Mark the convertible top front panel side weatherstrip bracket assembly at the retainers for installation reference.
   2. Remove the convertible top front panel side weatherstrip and bracket assembly retainers and remove the weatherstrip/bracket assembly.

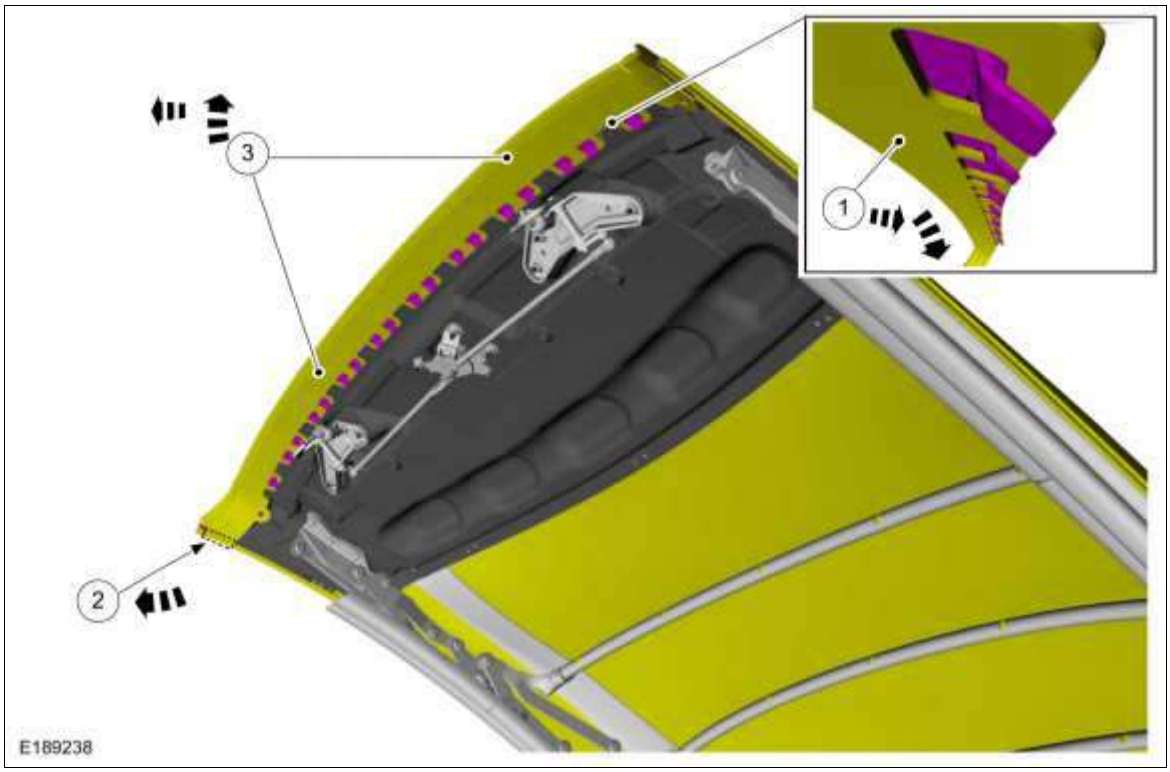


8. Remove the convertible top material push pin retainers at the back of the convertible top front panel.



9. Disconnect the convertible top material from the front underside of the convertible top front panel.
    1. Across the front, pull the convertible top material backward and down to release from the convertible top front panel clips.
    2. **NOTE:** *RH side shown, LH side similar.*

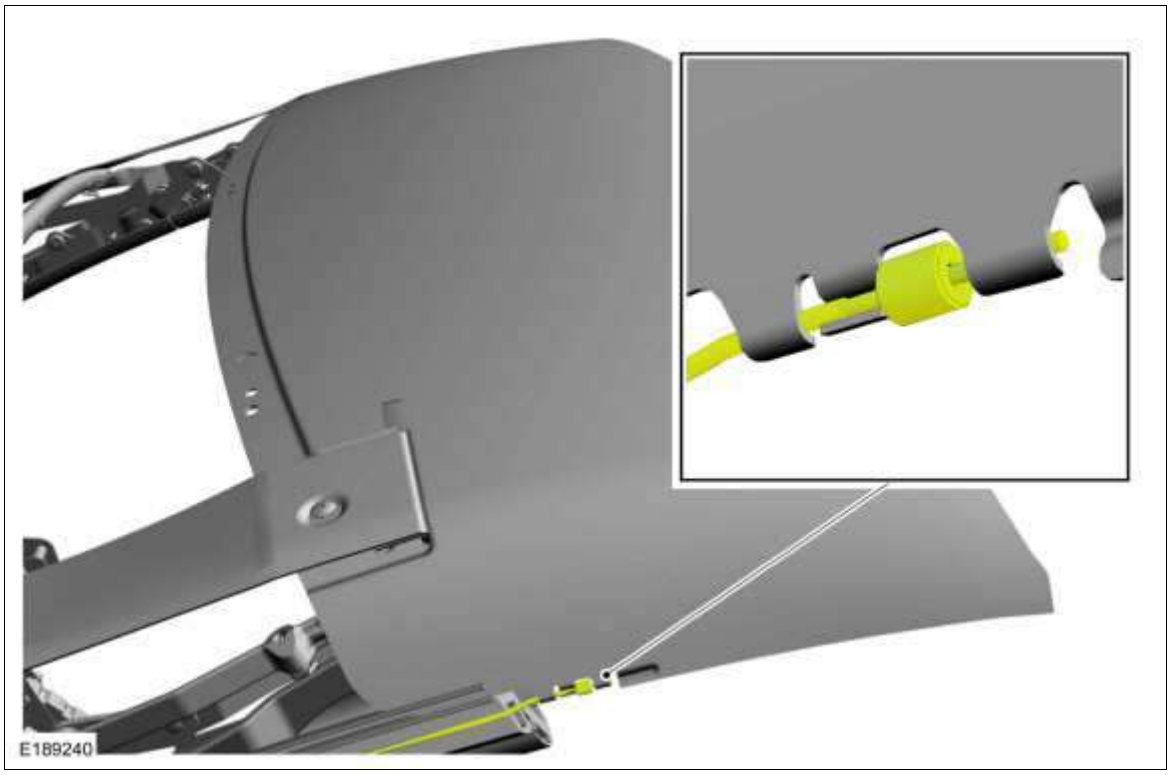
       On both sides, pull the convertible top material from the double sided tape securing the material to the convertible top front panel.
    3. Roll the convertible top material forward and up over the convertible top front panel.



10. Fold the front of the convertible top material back to the first crossbow to expose the convertible top tension cable end and stay pad rivets.

11. **NOTE:** *RH side shown, LH side similar.*

    On both sides.
    Disconnect the convertible top tension cable from the convertible top front panel.



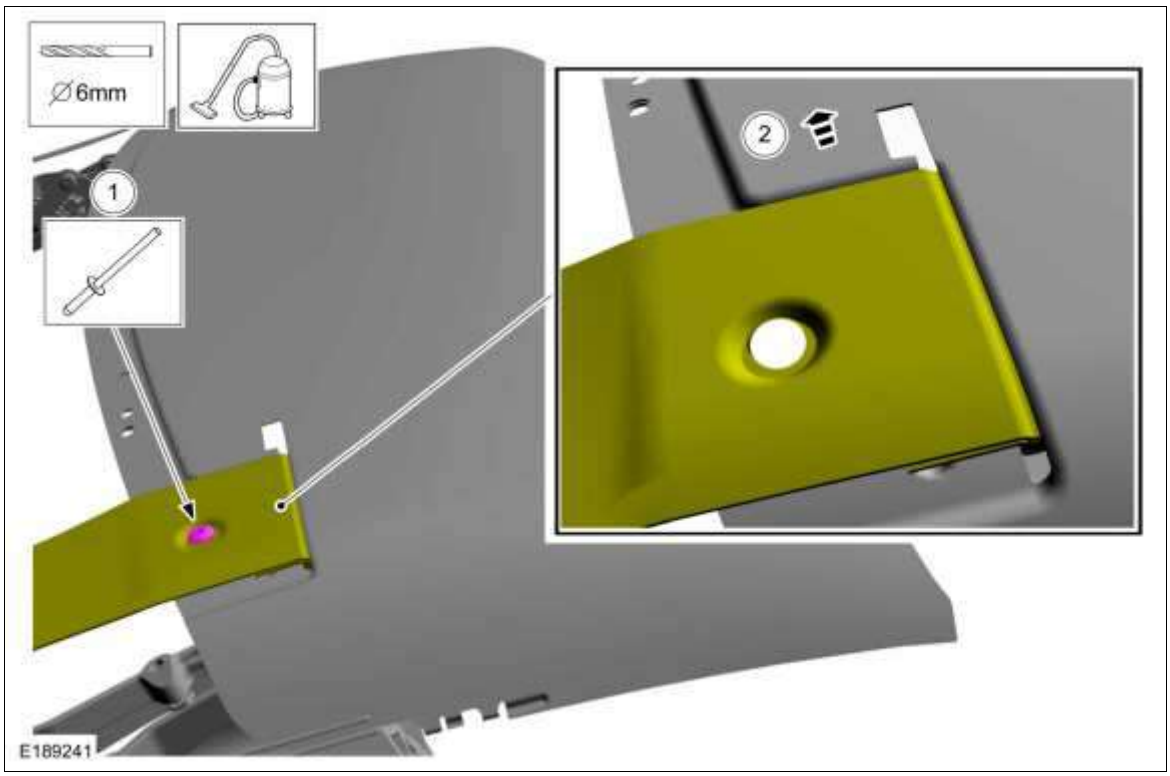
12. **NOTE:** *RH side shown, LH side similar.*

    On both sides.
    Disconnect the stay pad from the convertible top front panel.

    1. **NOTE:** *All rivet shavings must be removed from the vehicle and convertible top assembly.*

       Drill the stay pad rivets from the convertible top front panel.
       Use the General Equipment: Electric Drill

2. Slide the stay pad to the center of the convertible top front panel to disconnect the stay pad.

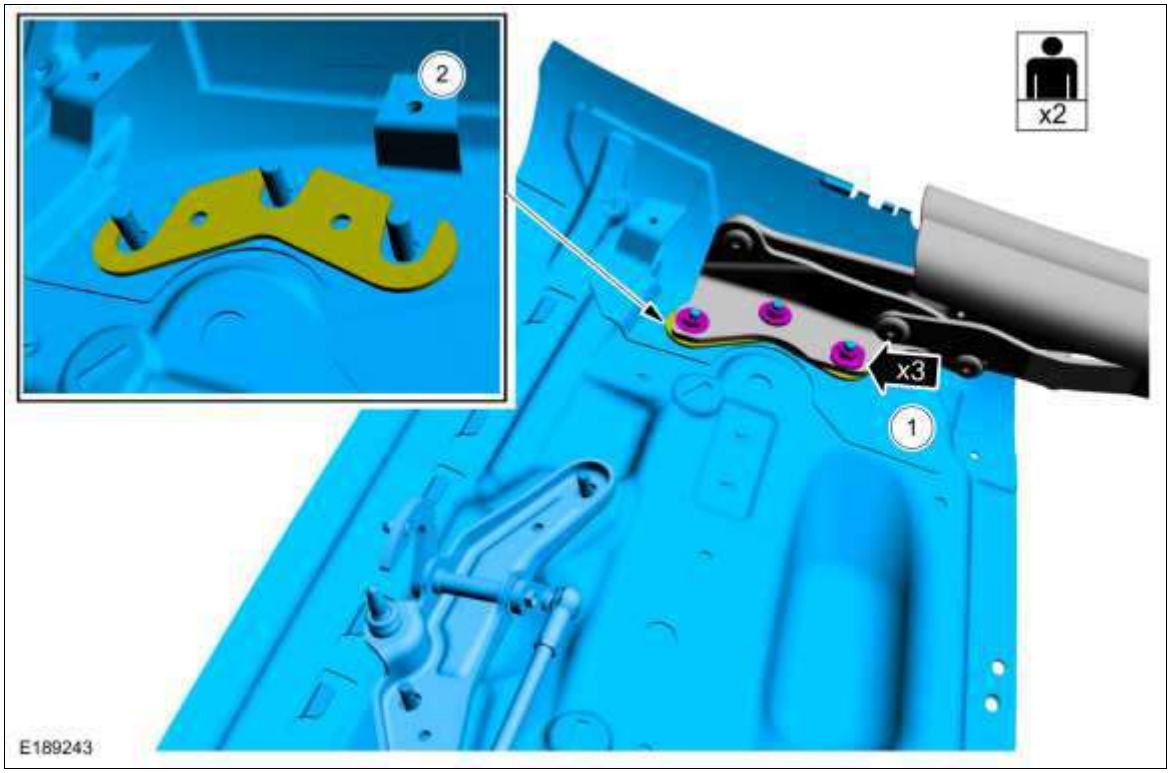


13. **NOTE:** *LH side shown, RH side similar.*

On both sides.
Remove the convertible top front panel.

1. With the help of an assistant.
   Remove the frame to convertible top front panel retainers.

2. **NOTE:** *If equipped, retain the shims for installation on both sides.*



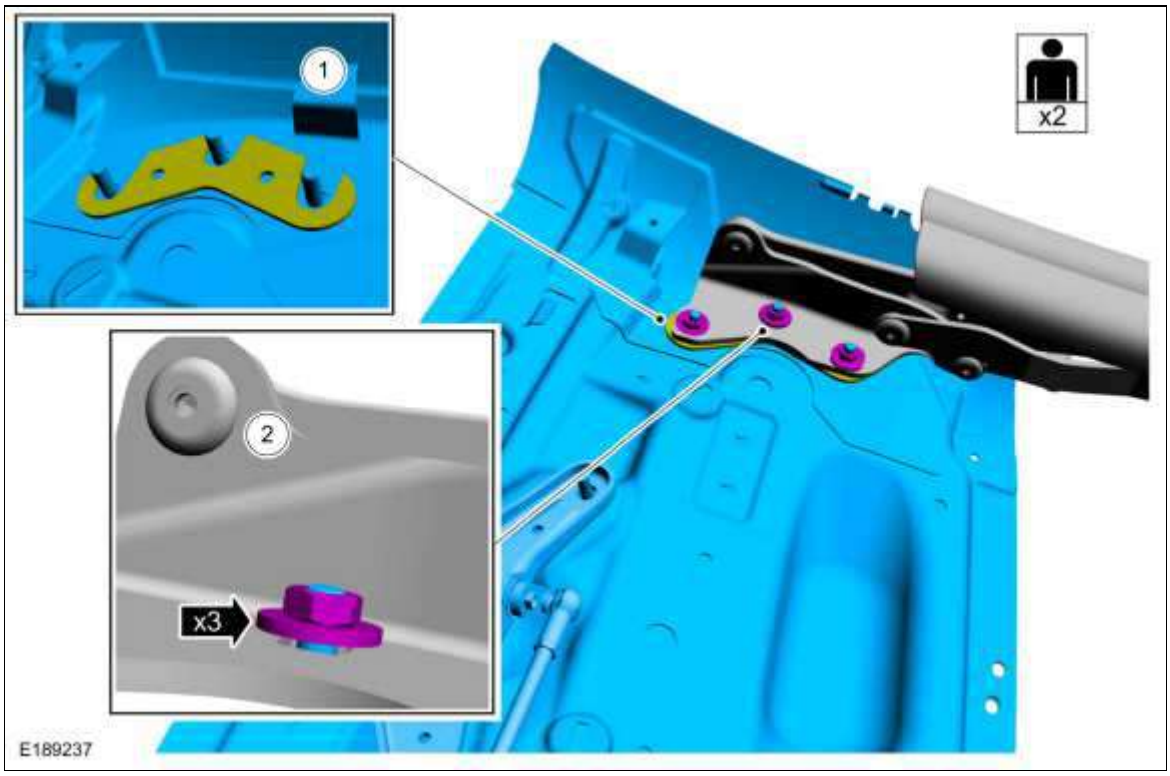
Installation

1. **NOTE:** *LH side shown, RH side similar.*

   On both sides with the help of an assistant, loose install the convertible top front panel.
   1. Position the shims as removed.

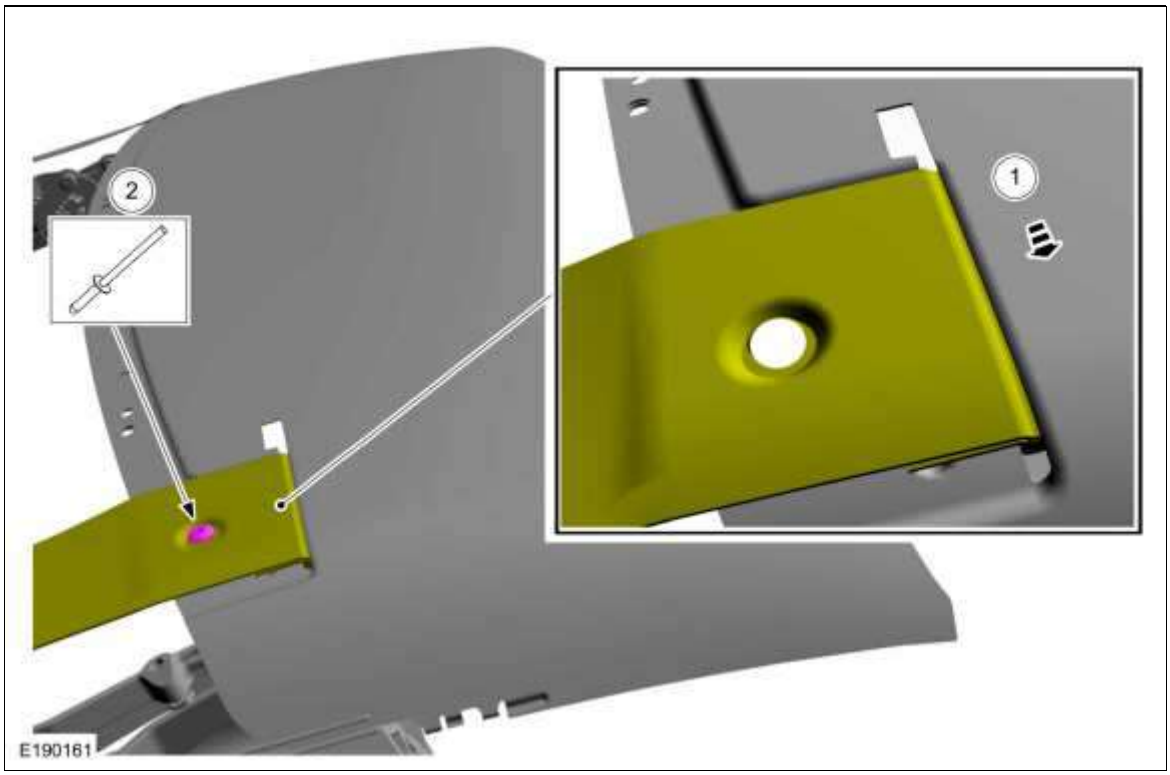
   2. **NOTE:** *The convertible top front panel retainers are loose installed at this point so the alignment of the panel to frame can be set later in the procedure by closing and latching the convertible top.*

      Position the convertible top front panel and loose install the retainers.



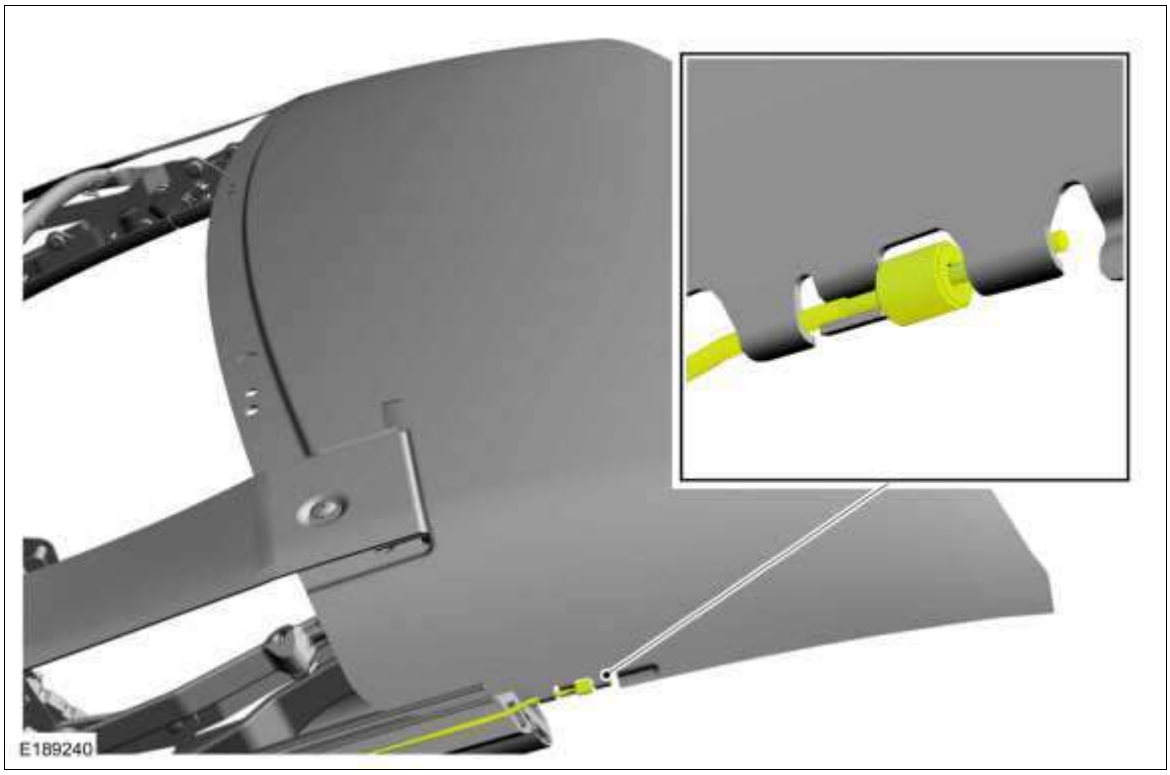
2. **NOTE:** *RH side shown, LH side similar.*

   On both sides.
   Attach the stay pad to the convertible top front panel.
   1. Position the stay pad and slide outward to proper position for installing the rivet.
   2. Install the stay pad rivets attaching the stay pad to the convertible top front panel.
      Use the General Equipment: Rivet Gun

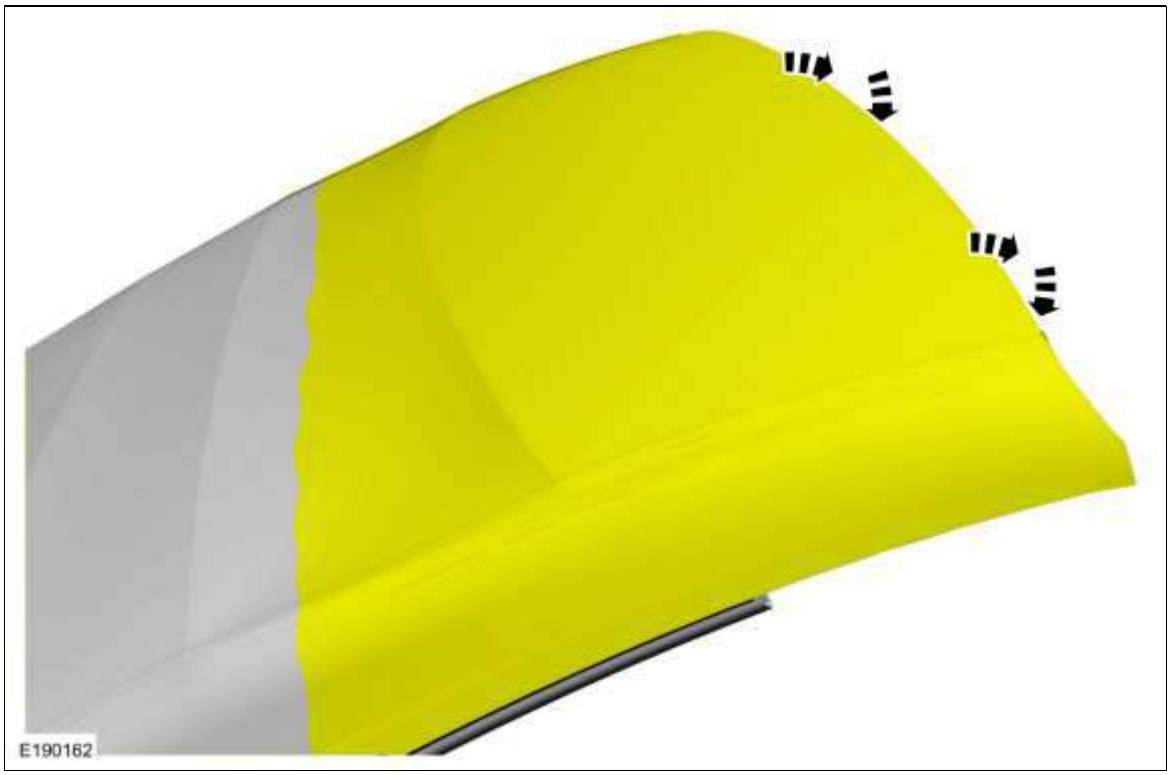


3. **NOTE:** *RH side shown, LH side similar.*

   On both sides.
   Connect the convertible top tension cable to the convertible top front panel.



4. Fold the front of the convertible top material over the front of the convertible top front panel.



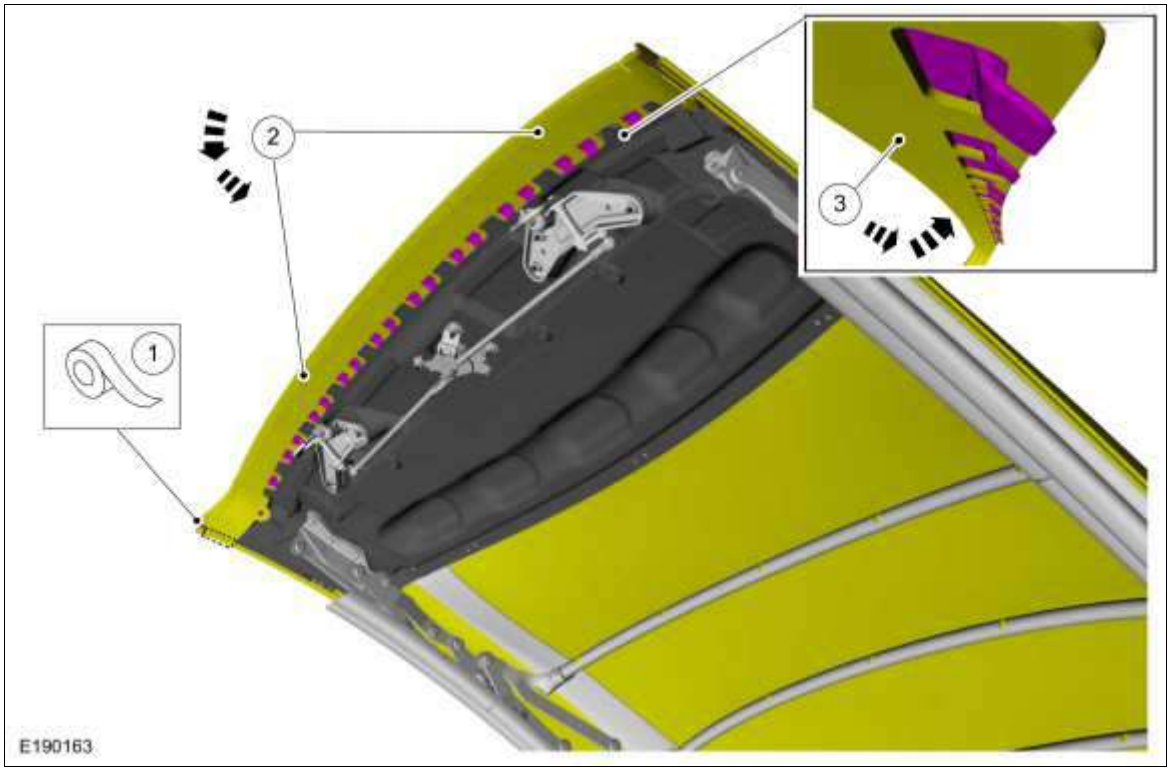
5. Connect the convertible top material to the front underside of the convertible top front panel.

    1. **NOTE:** *RH side shown, LH side similar.*

        On both sides, apply double sided tape to the convertible top front panel as positioned when removed.

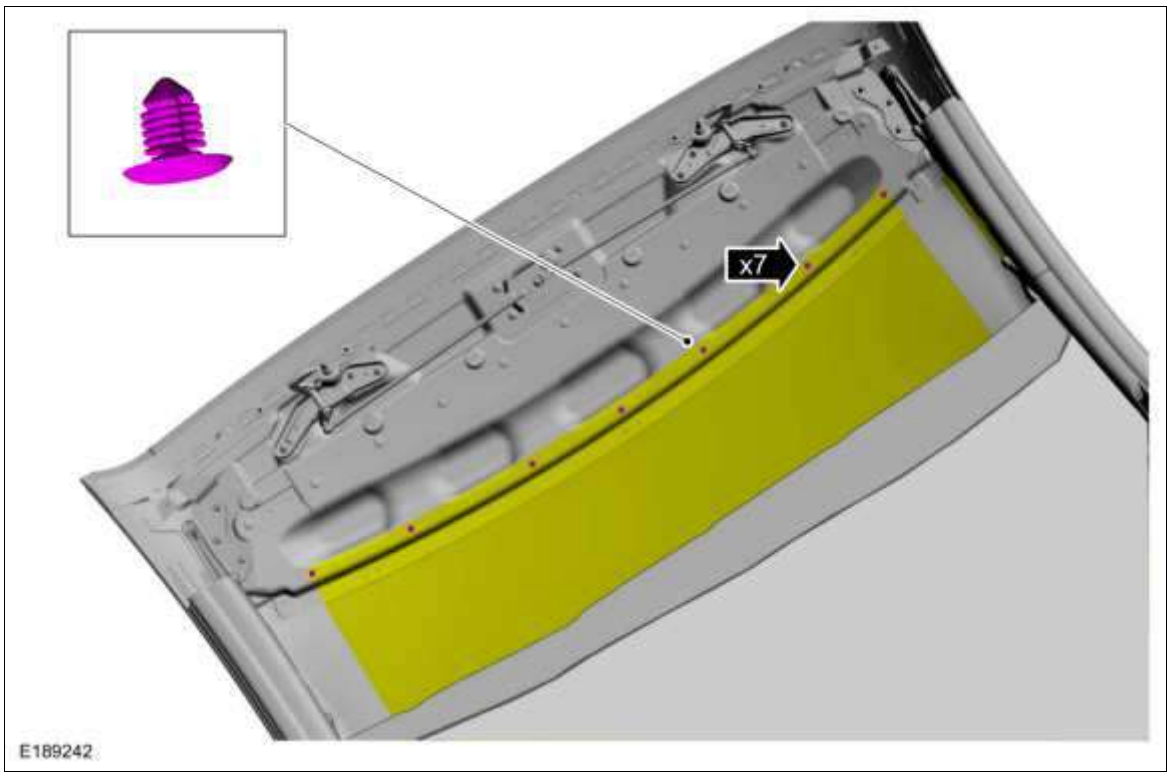
    2. **NOTE:** *Sub steps 2 and 3 can be performed together along the front of the convertible top front panel.*

        Roll the convertible top material down and rearward over the convertible top front panel.
    3. Across the front, attach the convertible top material over the convertible top front panel clips.



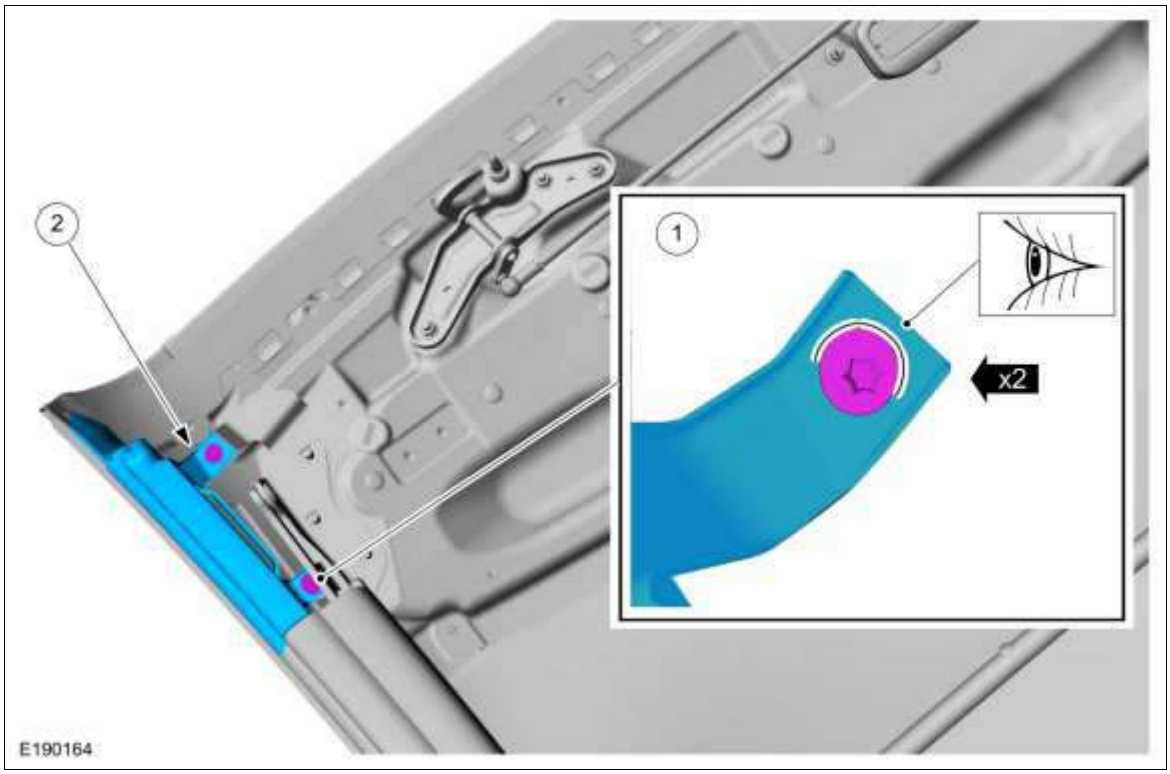
6. Position the convertible top material and install the push pin retainers along the back of the convertible top

front panel.



7. **NOTE:** *RH side shown, LH side similar.*

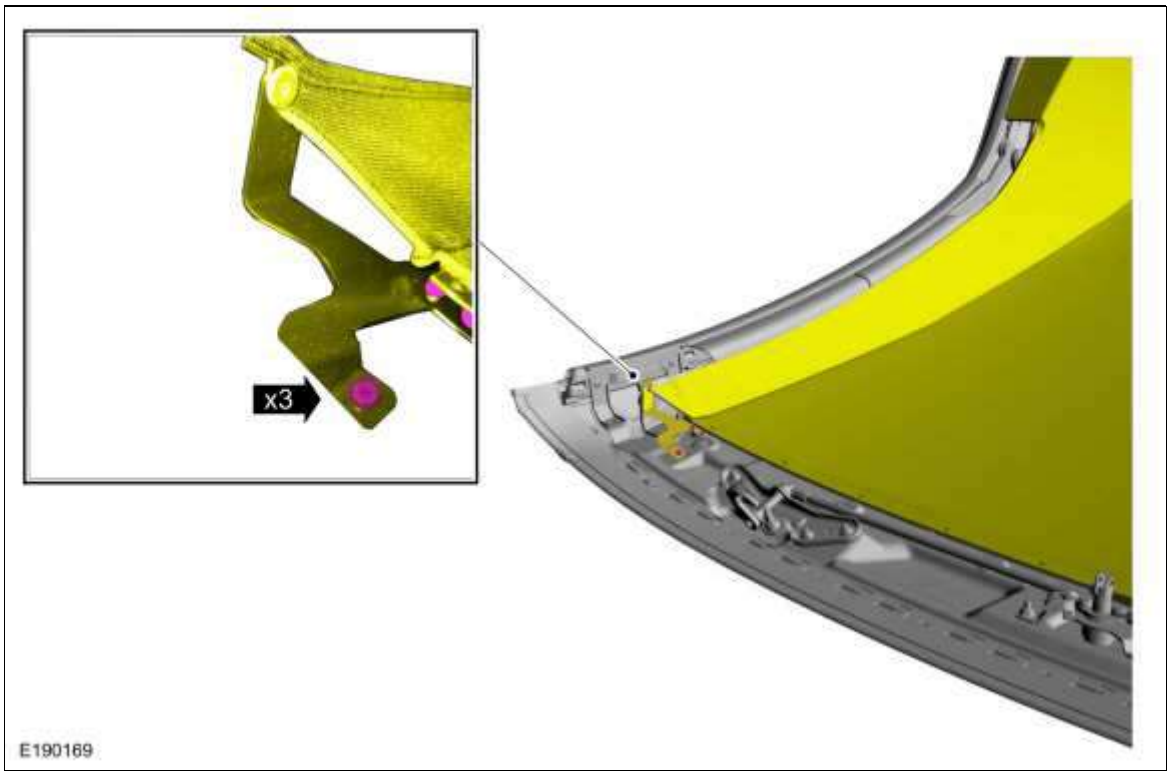
   On both sides.
   Install the front panel side weatherstrip and bracket assembly.
   1. Align the front panel side weatherstrip and bracket assembly using the marks applied during removal.
   2. Tighten the front panel side weatherstrip and bracket assembly retainers.
      Torque: 62 lb.in (7 Nm)



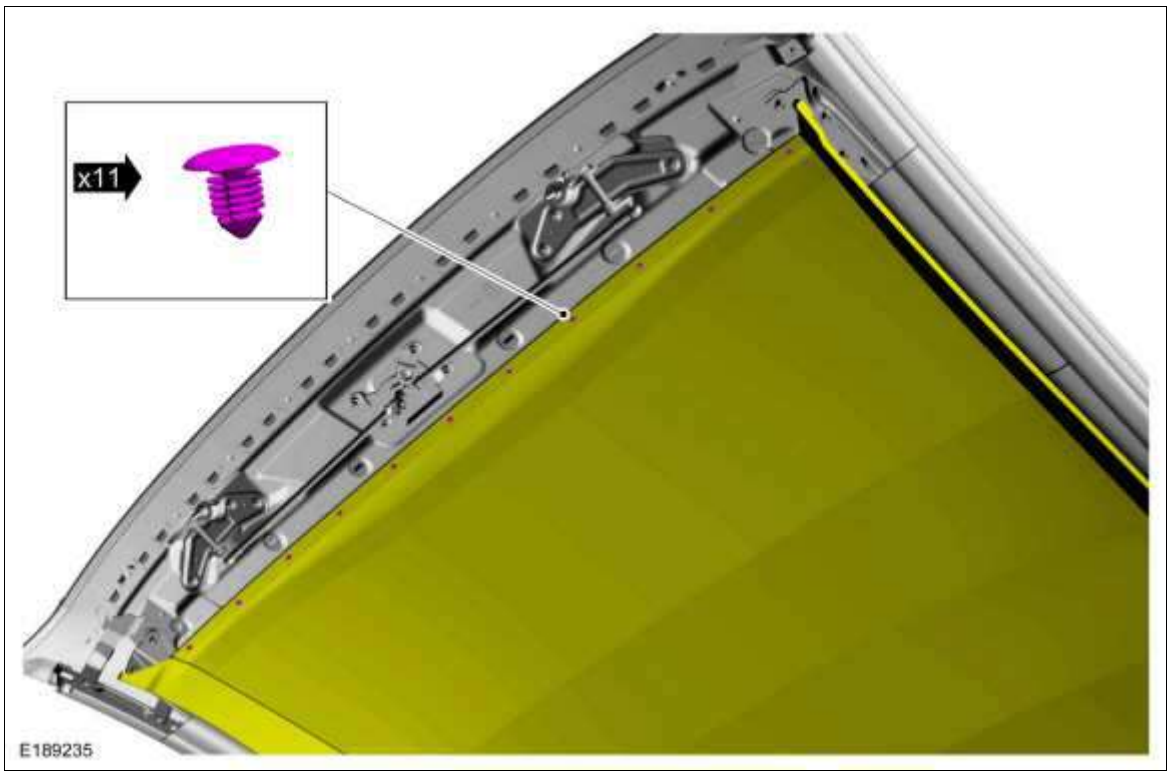
8. **NOTE:** *Before tightening, make sure to properly align the bracket so that the headliner to back of front panel retainers are also aligned for the next step.*

RH side shown, LH side similar.

On both sides.
Install the headliner tension bracket to the convertible top front panel.
Torque: 18 lb.in (2 Nm)

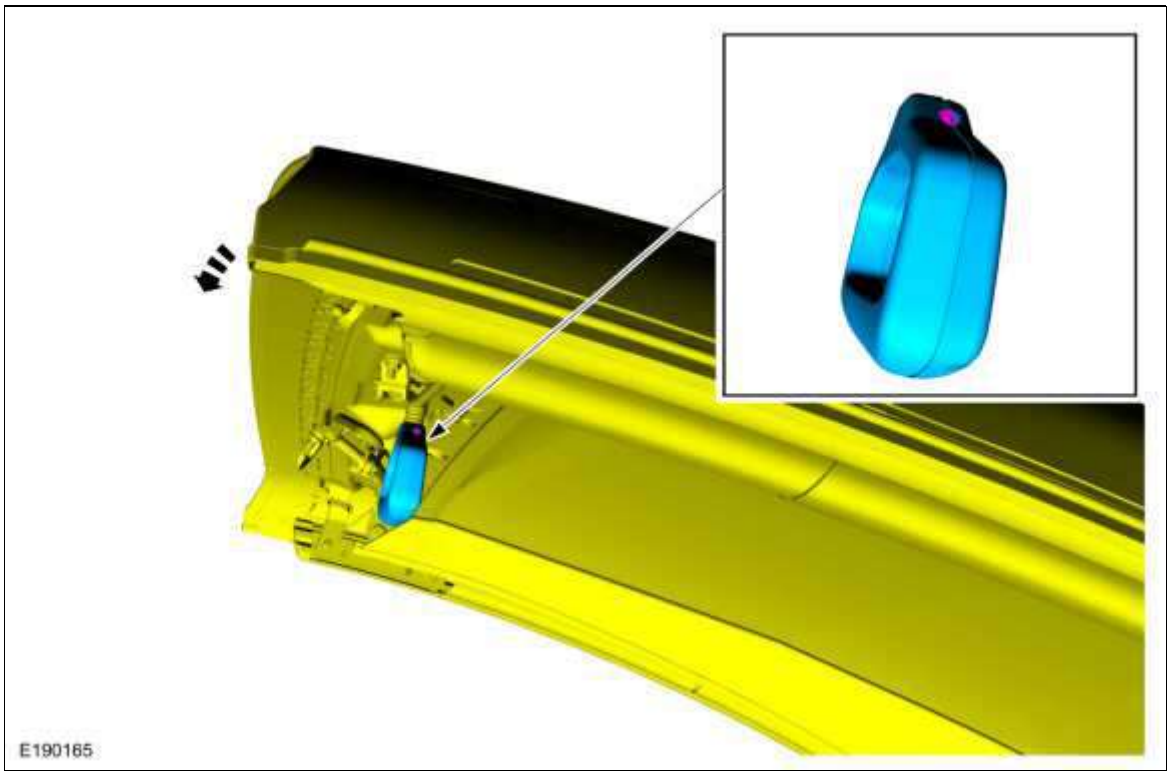


9. Position the headliner and install the headliner push pin retainers along the back of the convertible top front panel.



10. **NOTE:** *The retainer does not need to be tightened at this time.*

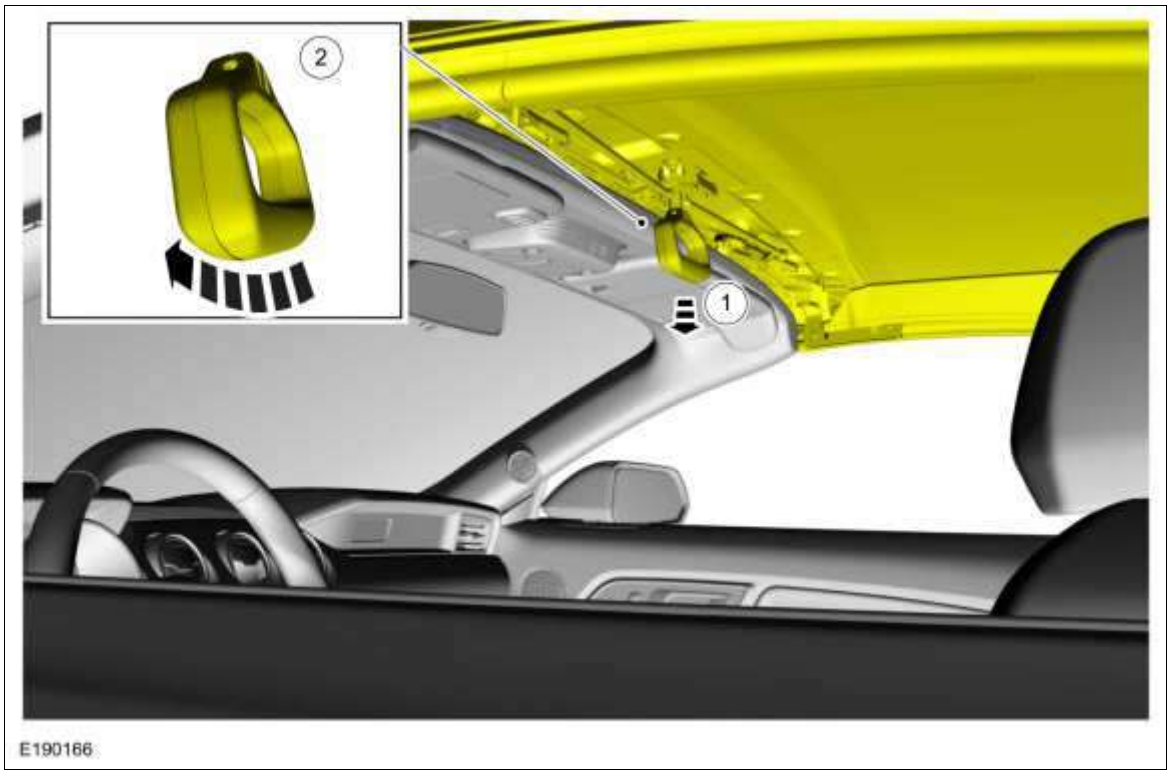
Close the convertible top and install the convertible top latch handle and retainer.



11.

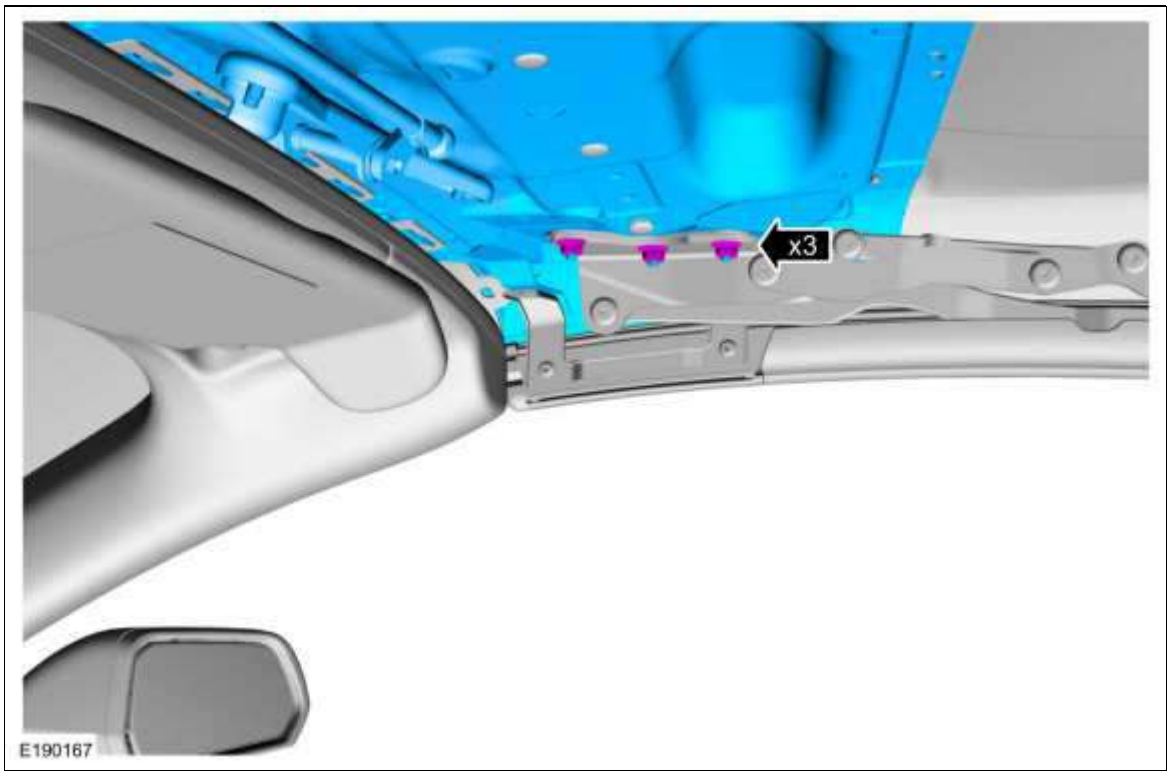
Secure the convertible top in the closed position.

1. Pull down on the convertible top to position the latching mechanism properly.
2. Twist the latch handle counter clockwise to fully secure the convertible top.

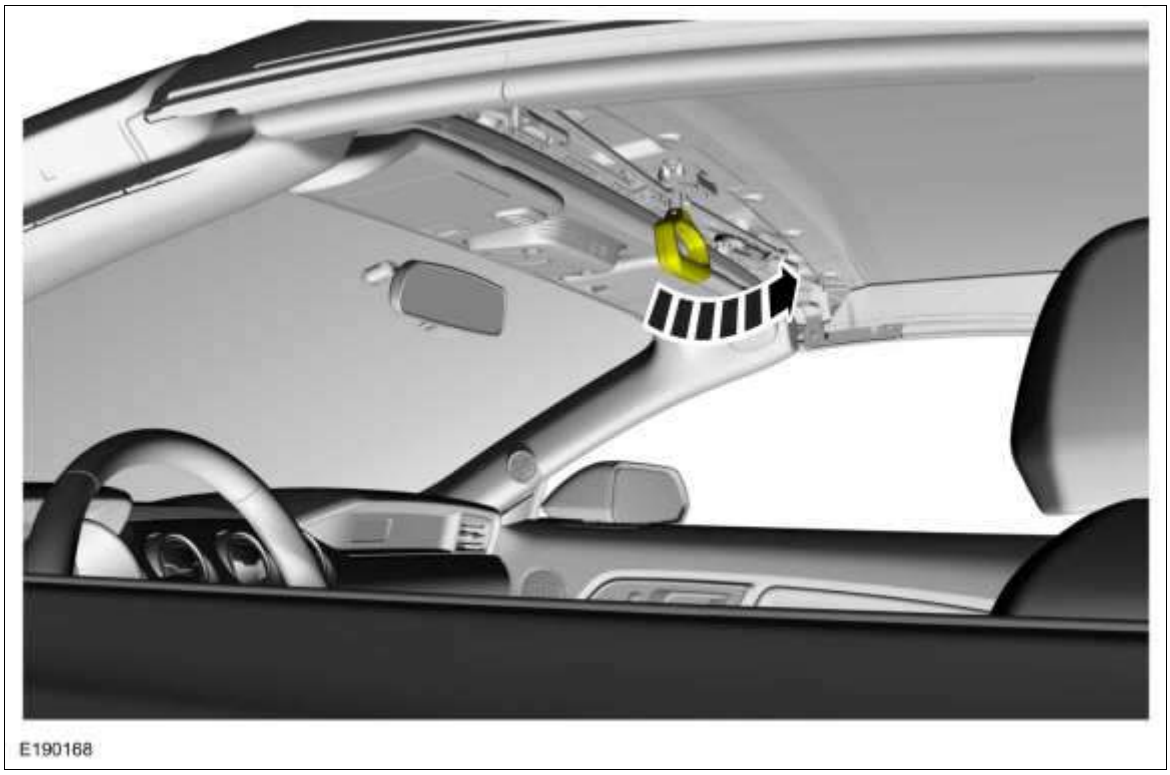


12. **NOTE:** *RH side shown, LH side similar.*

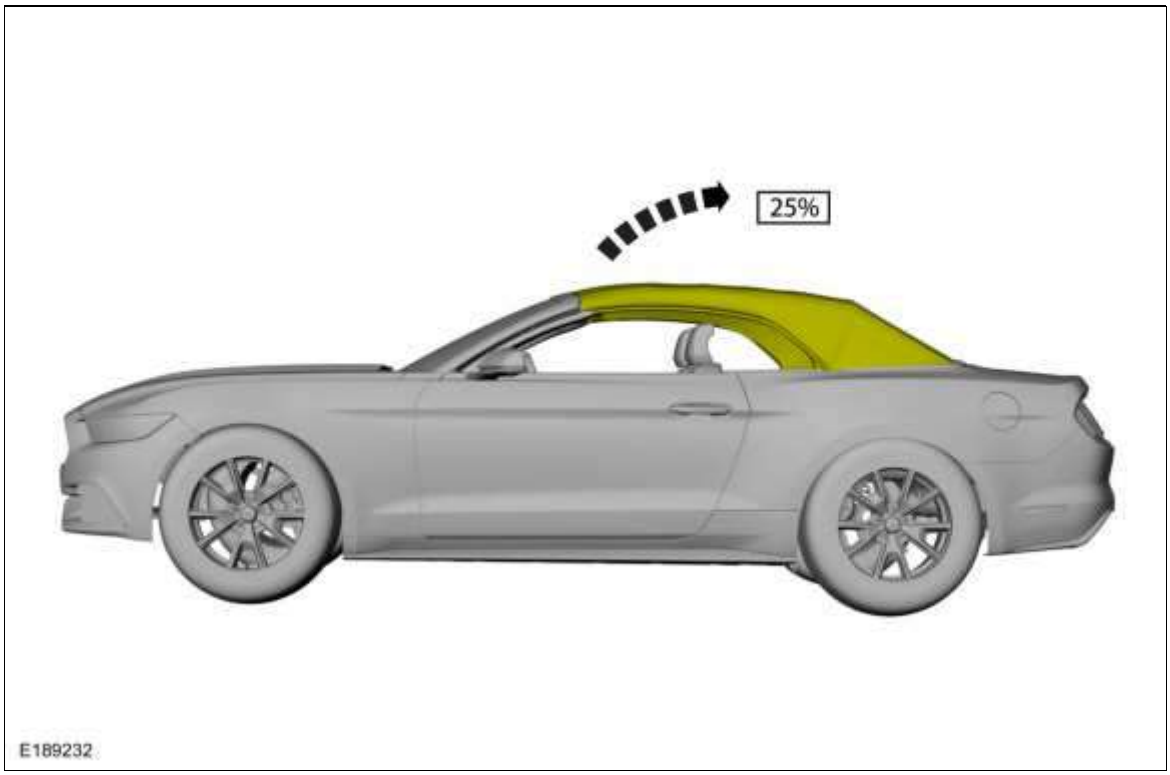
On both sides.
Tighten the convertible top front panel to frame bracket nuts.
Torque: 106 lb.in (12 Nm)



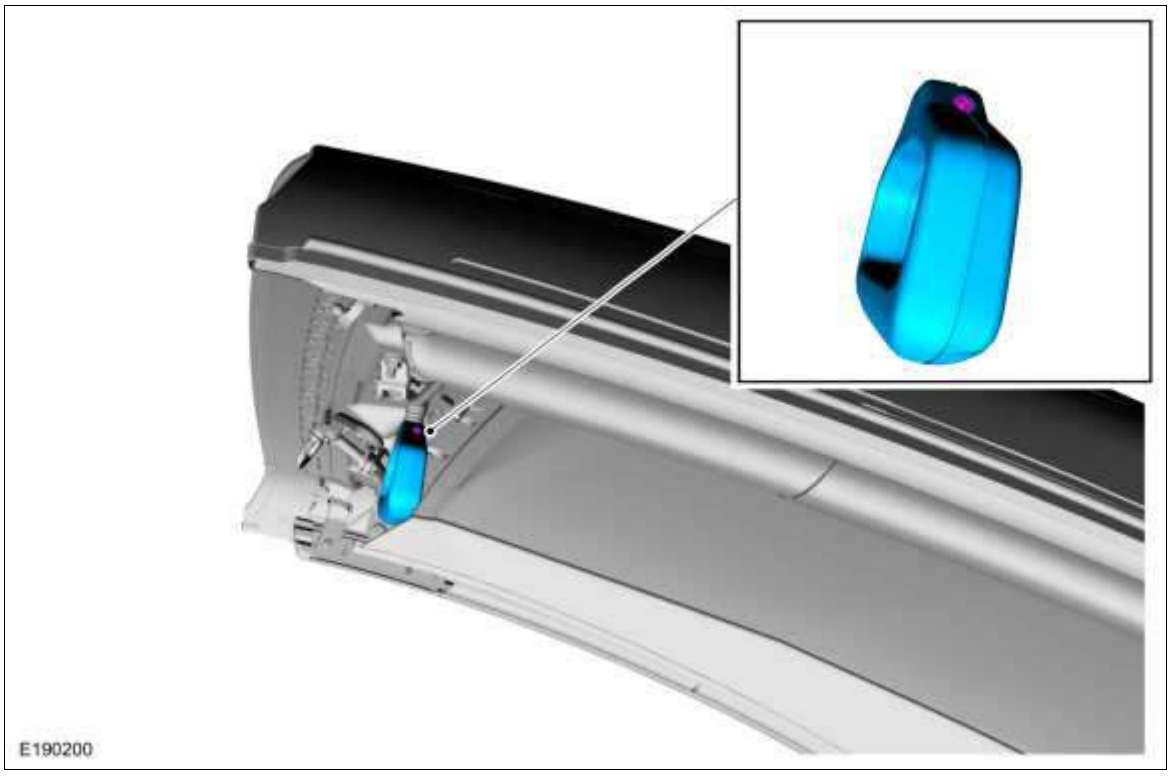
13. Twist the convertible top latch handle clockwise to release the convertible top.



14. Open the convertible top approximately 25%.



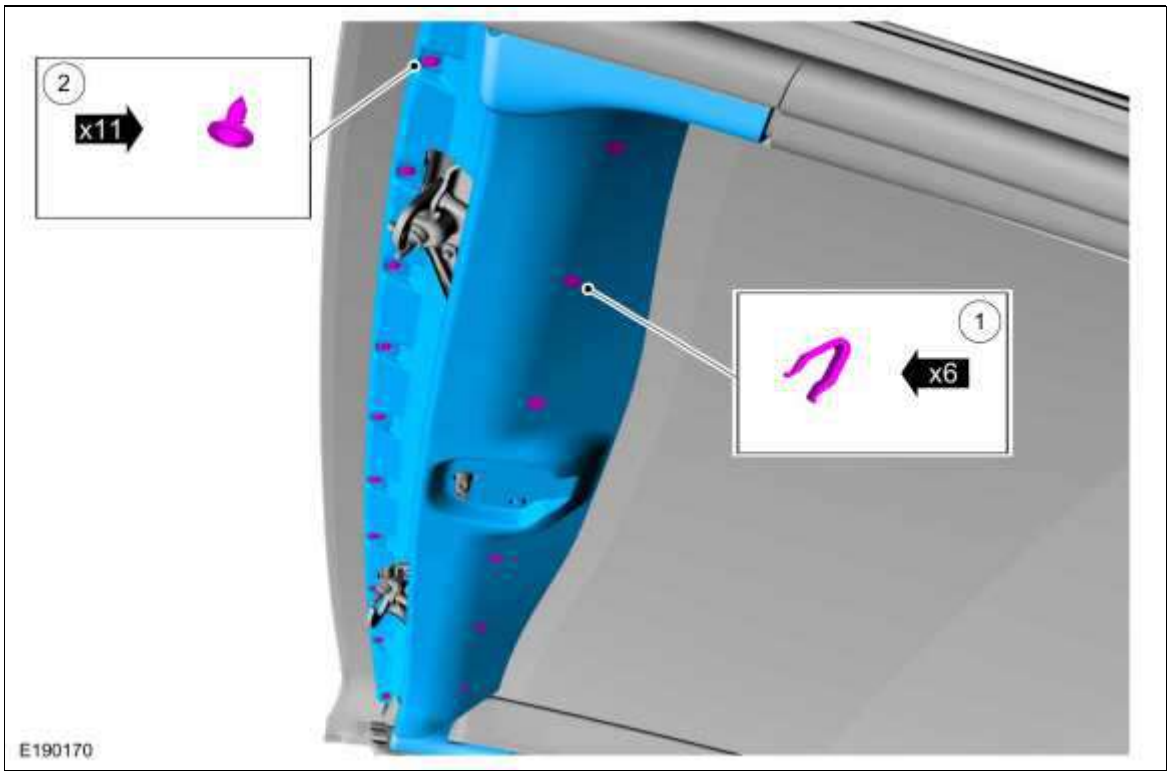
15. Remove the convertible top latch handle.



16.

Install the convertible top front panel trim.

1. Position the convertible top front panel trim and attach the clips under the back of the convertible top front panel trim.
2. Install the convertible top front panel trim retainers on the front of the trim.
   Torque: 25 lb.in (2.8 Nm)



17. Install the convertible top latch handle.
    Torque: 31 lb.in (3.5 Nm)

Convertible Top Front Panel Side Weatherstrip

Special Tool(s) / General Equipment

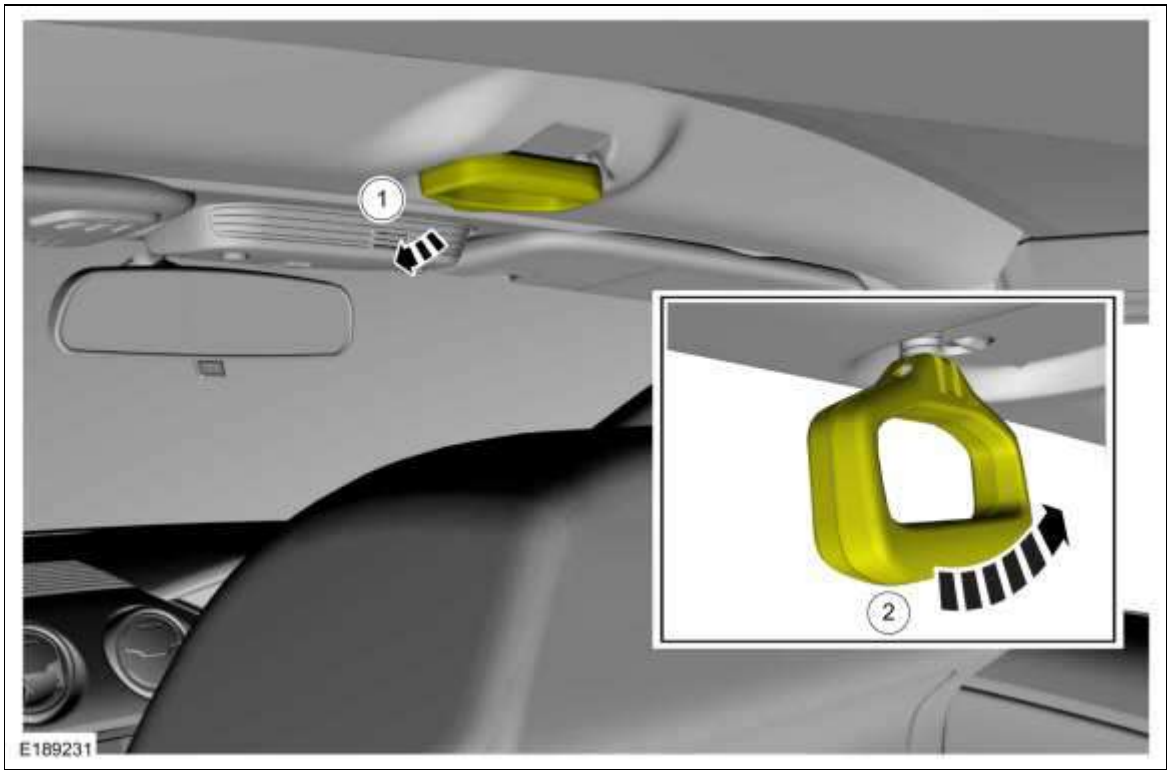
Rivet Gun
Electric Drill
Vise

Removal

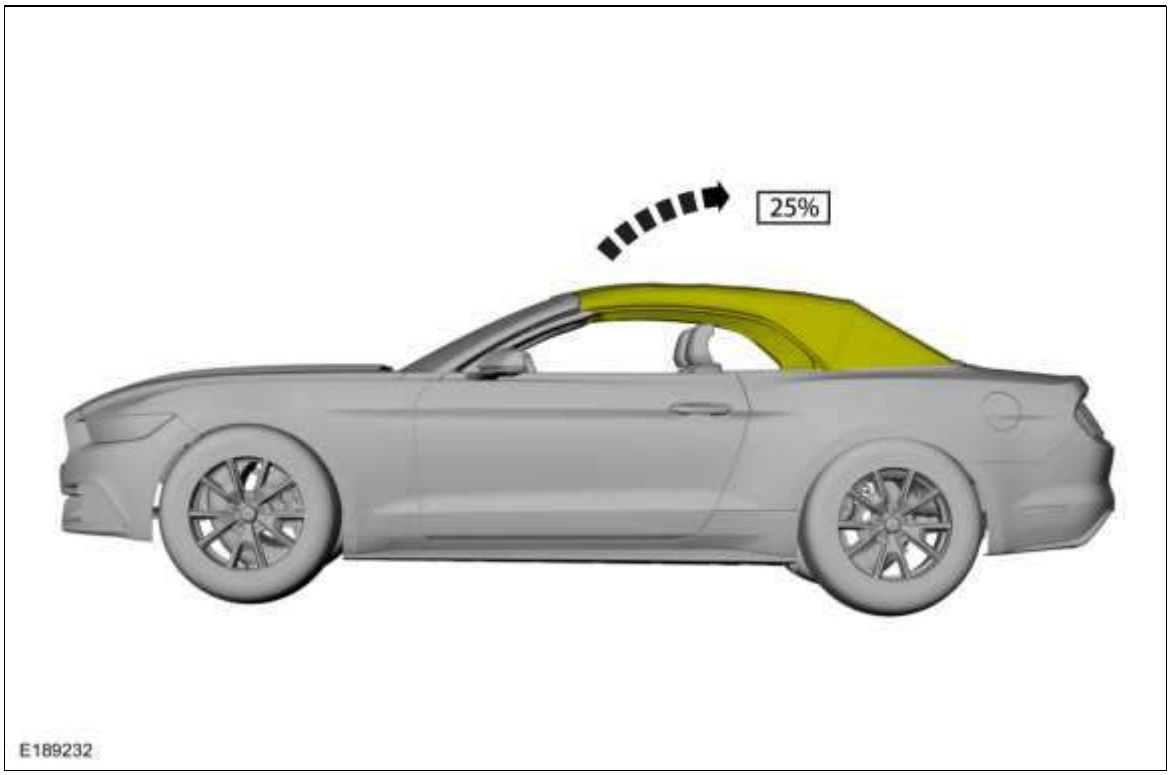
NOTE: *Removal steps in this procedure may contain installation details.*

Procedure views are with the convertible top in the fully closed position showing tension on the convertible top material, actual position should be approximately 25-50 percent open allowing slack in the convertible top material and other components for serviceability.

1. Release the convertible top.
    1. Lower the convertible top latch handle.
    2. Twist the convertible top latch handle clockwise to release the convertible top.

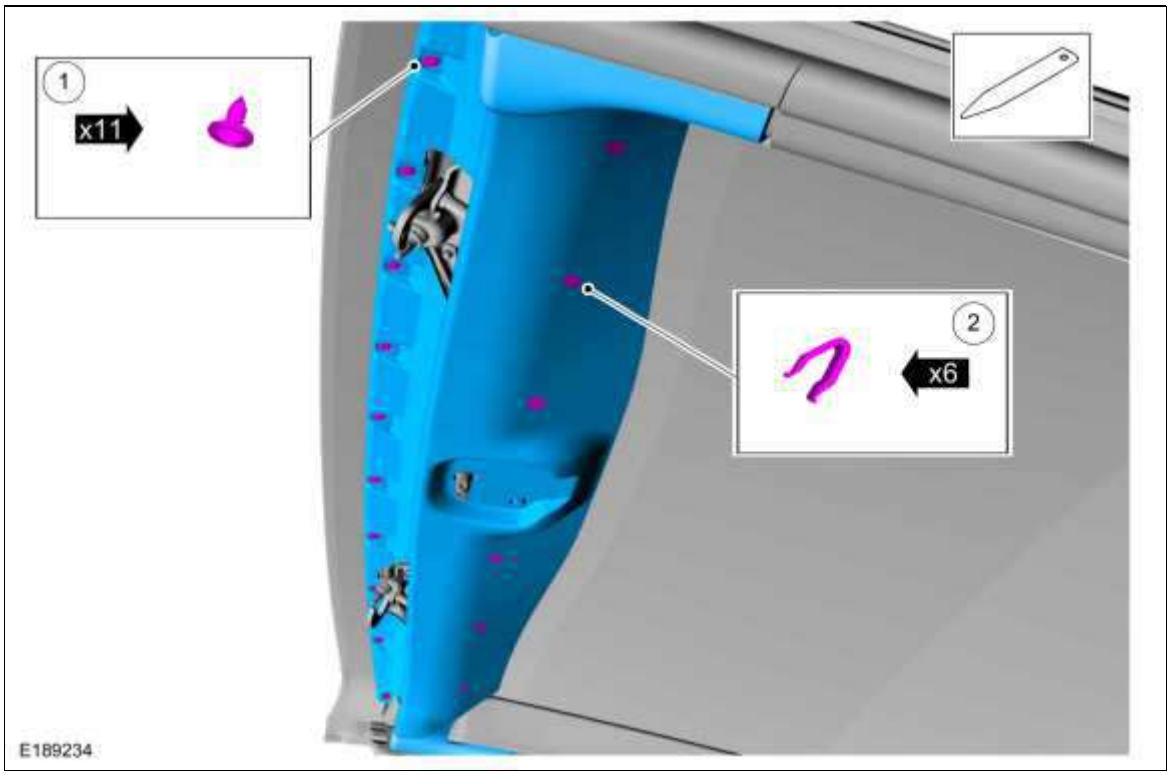


2. Open the convertible top approximately 25%.

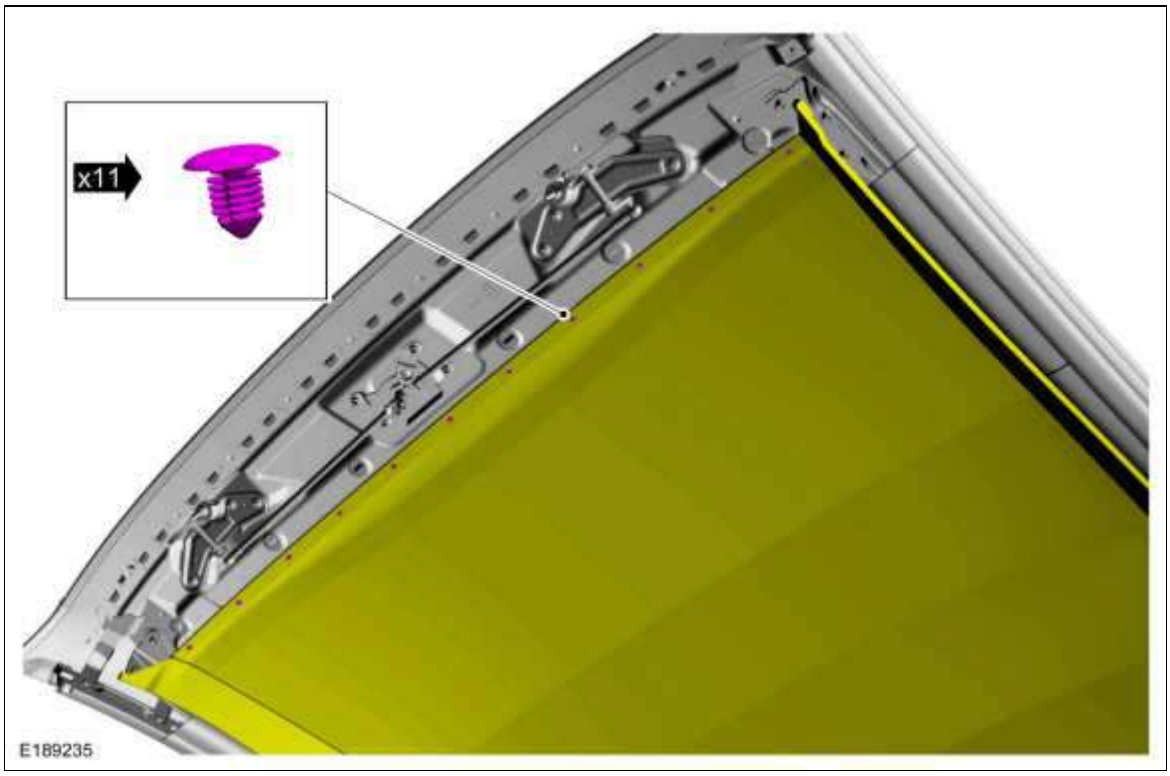


3. Remove the convertible top latch handle.
   Torque: 31 lb.in (3.5 Nm)

4.
   Remove the convertible top front panel trim.
   1. Remove the convertible top front panel trim retainers on the front of the trim.
      Torque: 25 lb.in (2.8 Nm)
   2. Release the clips under the back of the convertible top front panel trim and remove the trim.

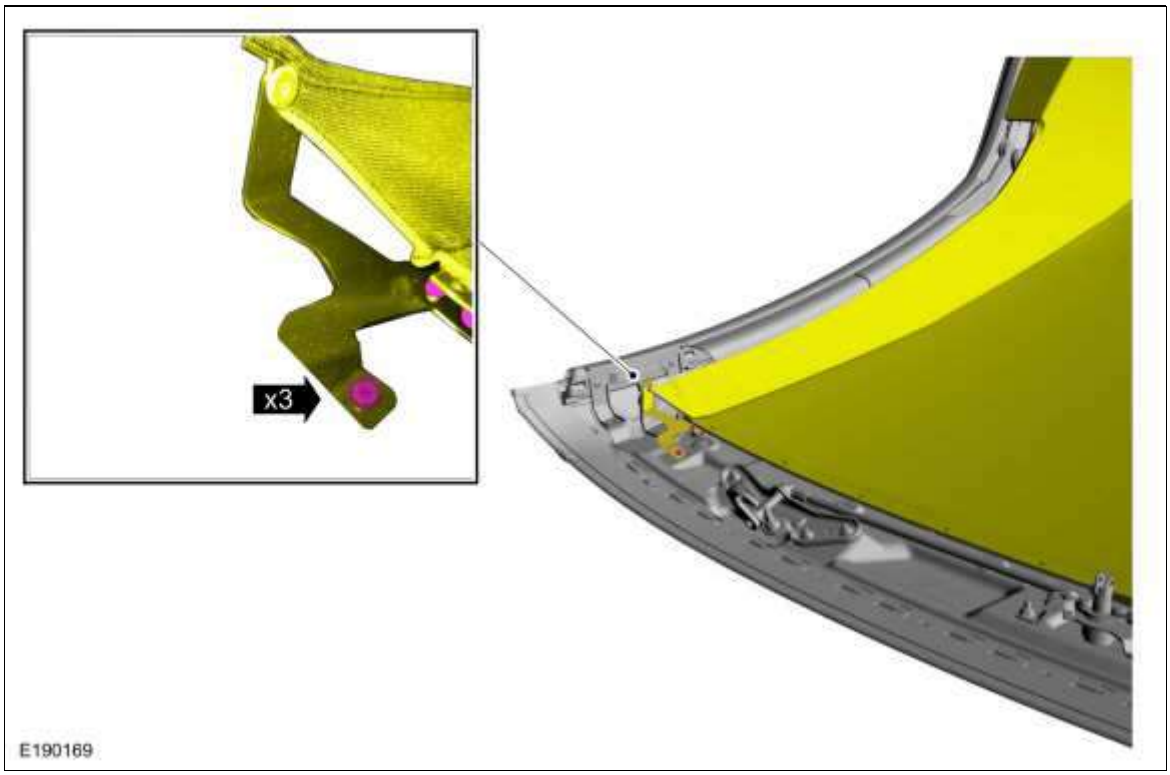


5. Remove the headliner push pin retainers along the back of the convertible top front panel.
   Torque: 25 lb.in (2.8 Nm)



6. **NOTE:** *LH side shown, RH similar.*

   Remove the headliner tension bracket retainers and bracket from the convertible top front panel.
   Torque: 25 lb.in (2.8 Nm)



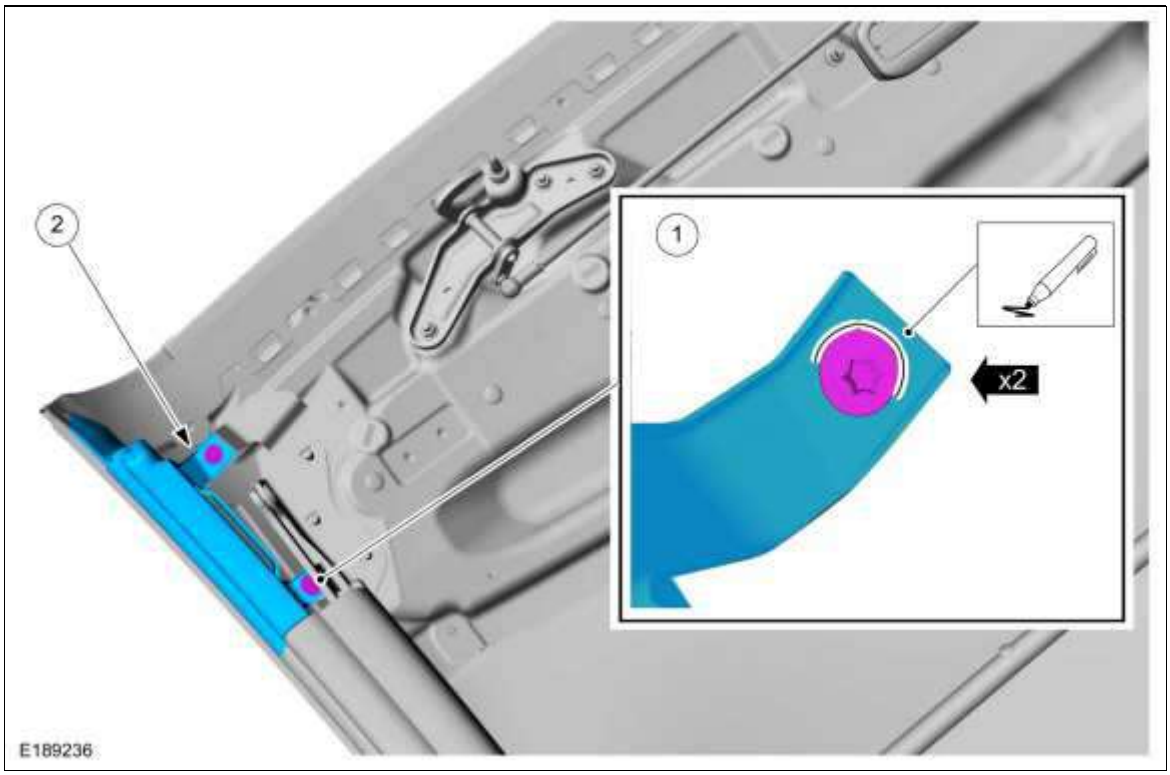
7. **NOTE:** *Headliner removed for clarity.*

   RH side shown, LH similar.

   Remove the convertible top front panel side weatherstrip and bracket assembly.

   1. **NOTE:** *The reference marks must be used during installation because there is no adjustment for the convertible top front panel side weatherstrip.*

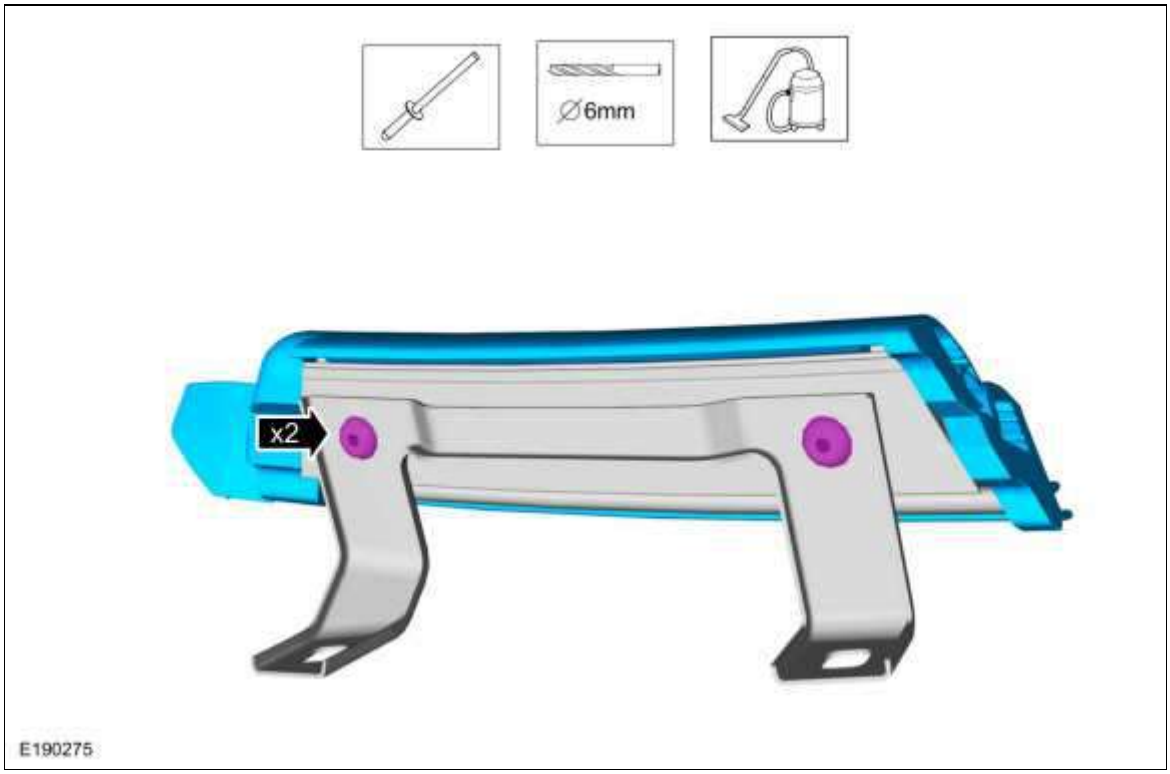
      Mark the convertible top front panel side weatherstrip bracket assembly at the retainers for installation reference.
   2. Remove the convertible top front panel side weatherstrip and bracket assembly retainers and remove the weatherstrip/bracket assembly.
      Torque: 62 lb.in (7 Nm)



8. **NOTE:** *All rivet shavings must be removed from the vehicle and convertible top assembly.*

   Make sure that the bracket does not bend when positioning in the bench vise or when drilling out the rivets.

   With the convertible top front panel side weatherstrip and bracket assembly secured in a bench vise.
   Drill out the retaining rivets.
   Use the General Equipment: Vise
   Use the General Equipment: Electric Drill
   Use the General Equipment: Rivet Gun



Installation

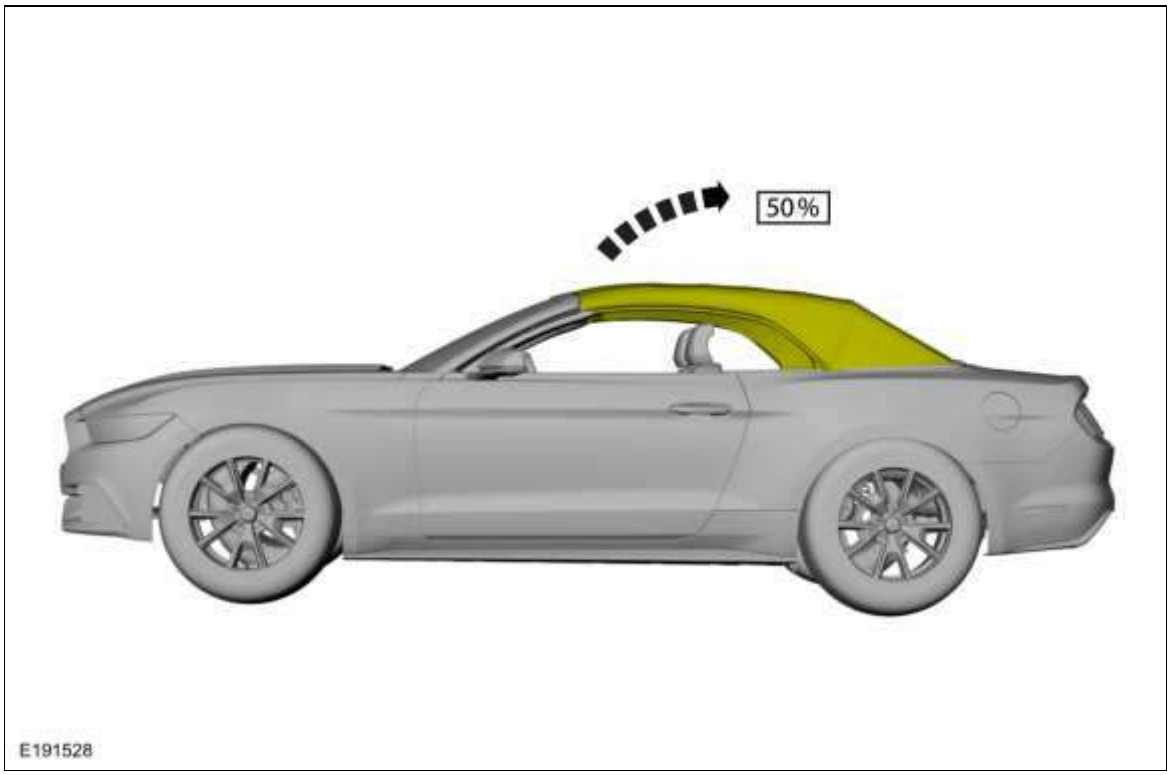
1. To install, reverse the removal procedure.

Convertible Top Front Striker

Removal

NOTE: *Removal steps in this procedure may contain installation details.*

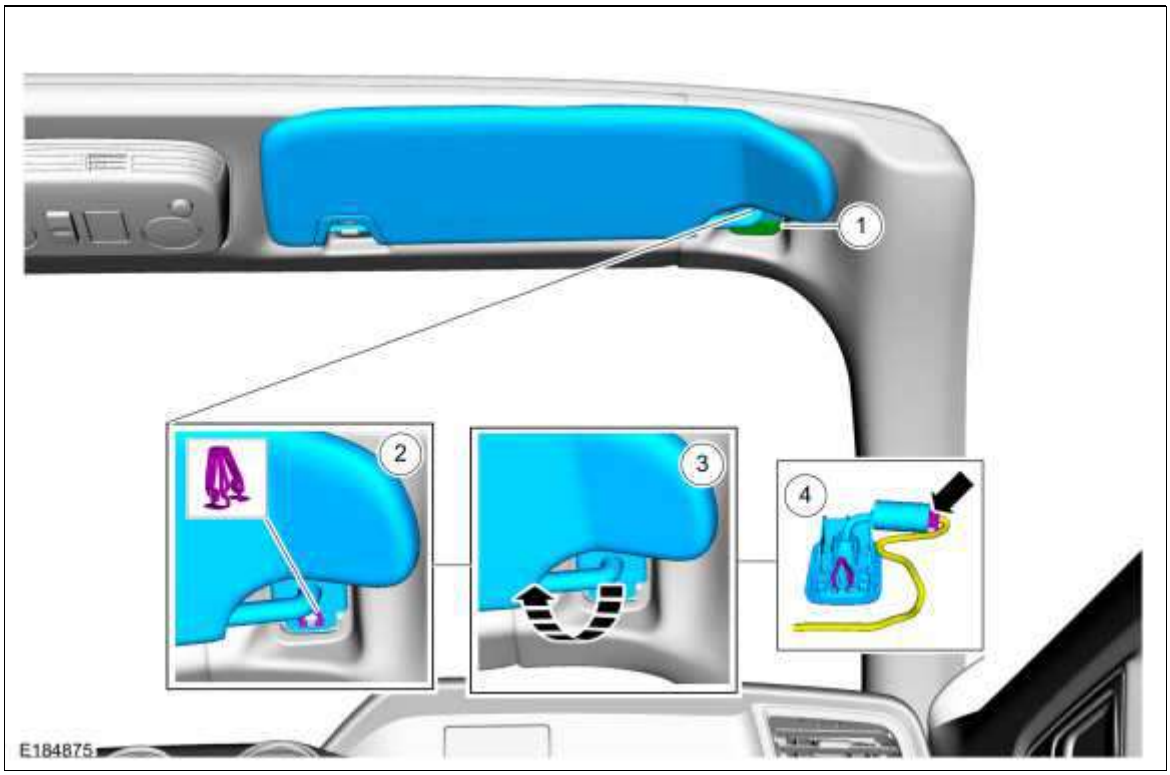
1. Open the convertible top approximately 50 percent.



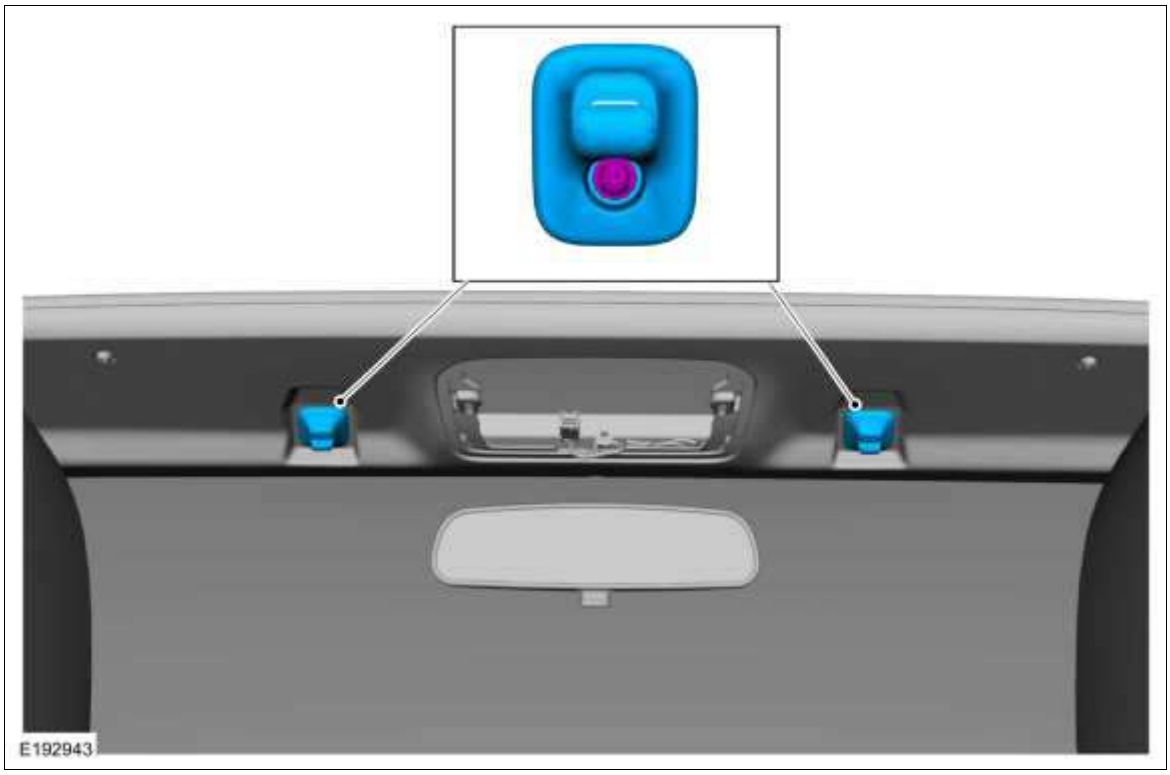
2. On both sides, remove the A-pillar trim panels.
   Refer to: A-Pillar Trim Panel - Convertible (501-05 Interior Trim and Ornamentation, Removal and Installation).

3. **NOTE:** *RH side shown, LH side similar.*

   On both sides.
   Remove the sun visors.
   1. Remove the sun visor cap.
   2. Release the clip.
   3. Remove the sun visor.
   4. If equipped.
      Disconnect the electrical connector.



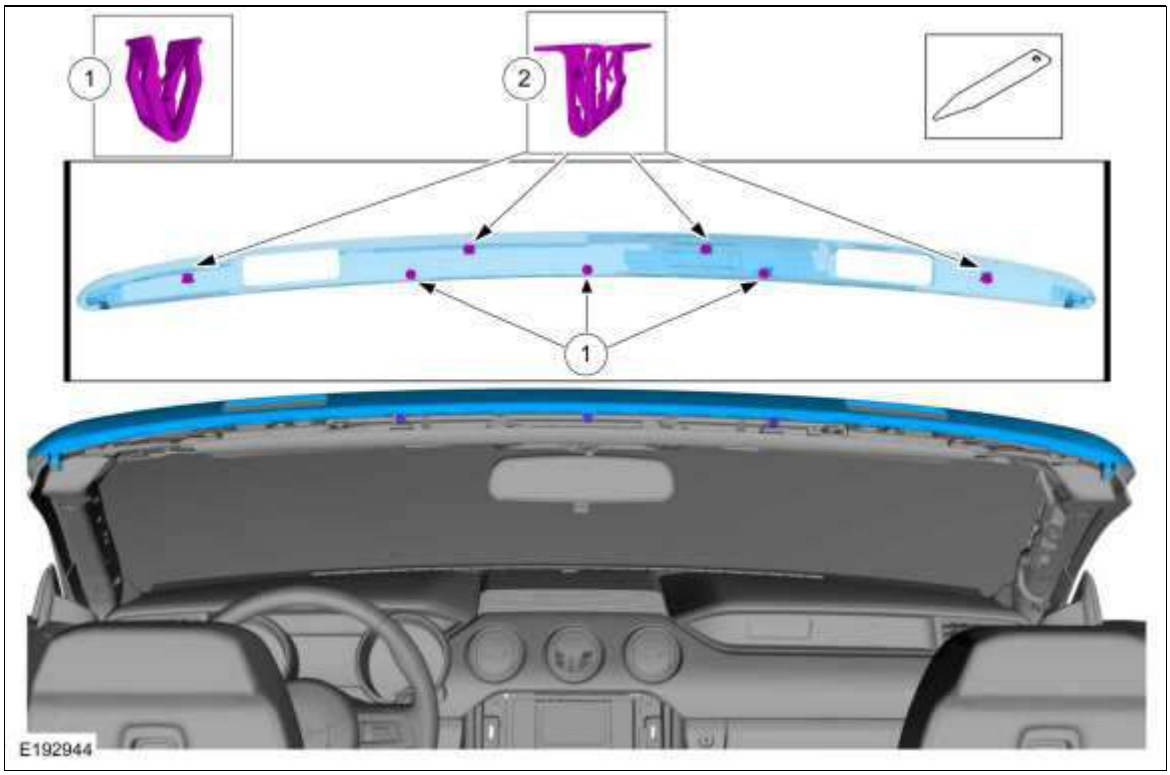
4. Remove the sun visor latch clips.



5.

Remove the windshield header upper trim panel.

1. Release the 3 windshield header upper trim panel clips from the lower trim panel.
2. Release the 4 windshield header upper trim panel clips from the windshield header and remove the upper header trim panel.

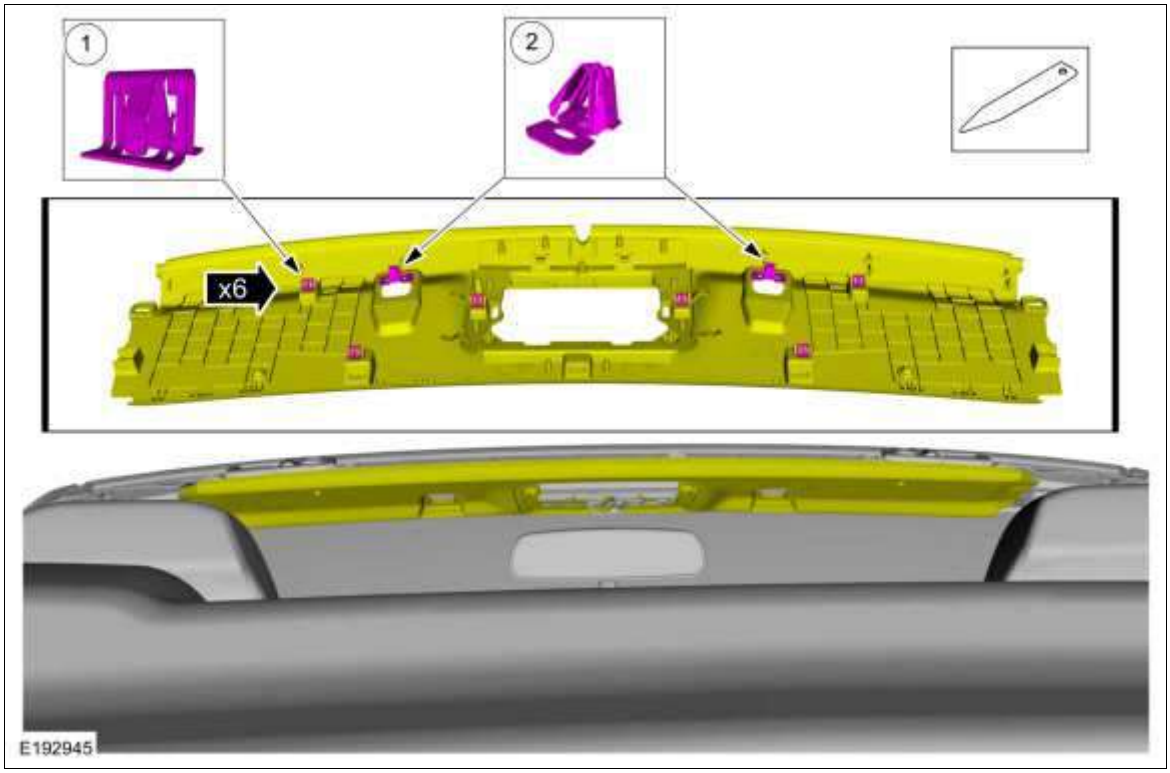


6. **NOTE:** *Wiring harness and overhead console removed for clarity.*

Move the windshield header lower trim panel for access to the convertible top striker lower bolt.

1. Release the 6 windshield header lower trim panel clips from the windshield header.
2. **NOTE:** *Disconnect the wiring harness as necessary for clearance.*

   Release the 2 windshield header lower trim panel clips (sun visor clips) from the windshield header and lower the windshield header lower trim panel.



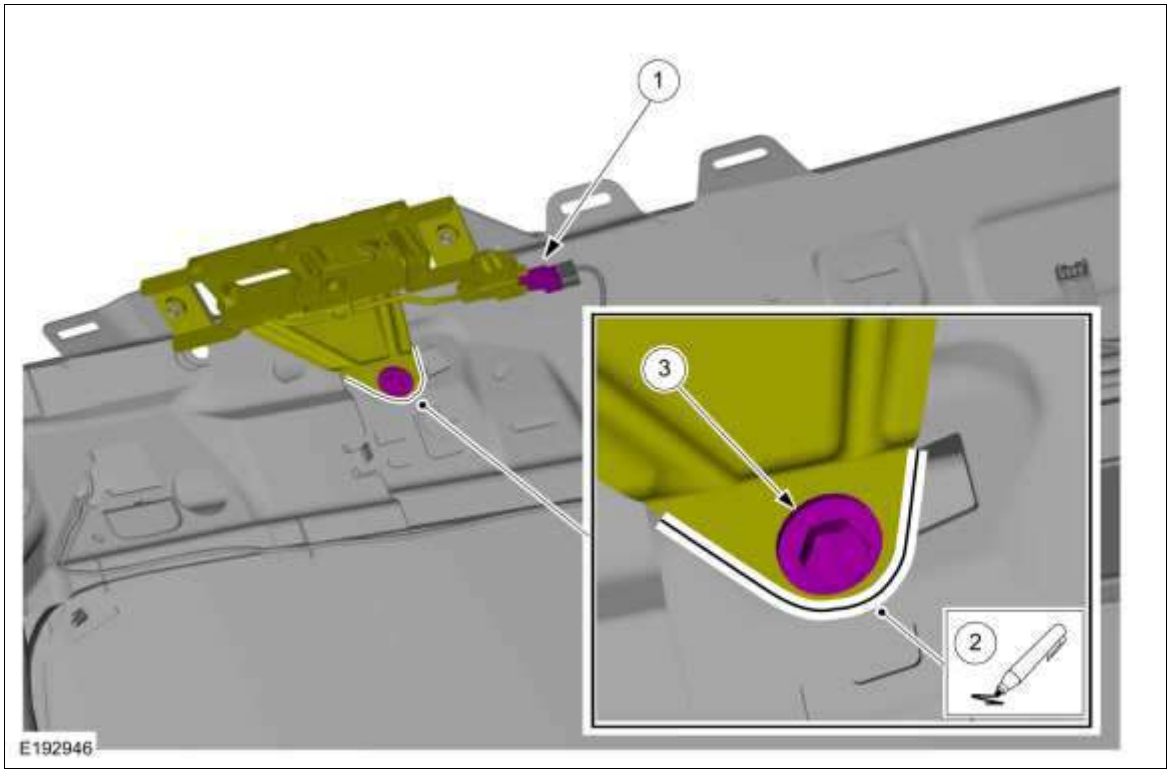
7. **NOTE:** *side shown, RH side similar.*

Remove the convertible top front striker lower bolt and on the LH side, disconnect the harness connector .

1. On the LH side only.
   Disconnect the convertible top latch switch harness connector.

2. **NOTE:** *The convertible top front striker reference marks must be used during installation for proper alignment.*

   Mark the convertible top front striker to header panel for installation reference.
3. Remove the convertible top front striker lower bolt.
   Torque: 133 lb.in (15 Nm)

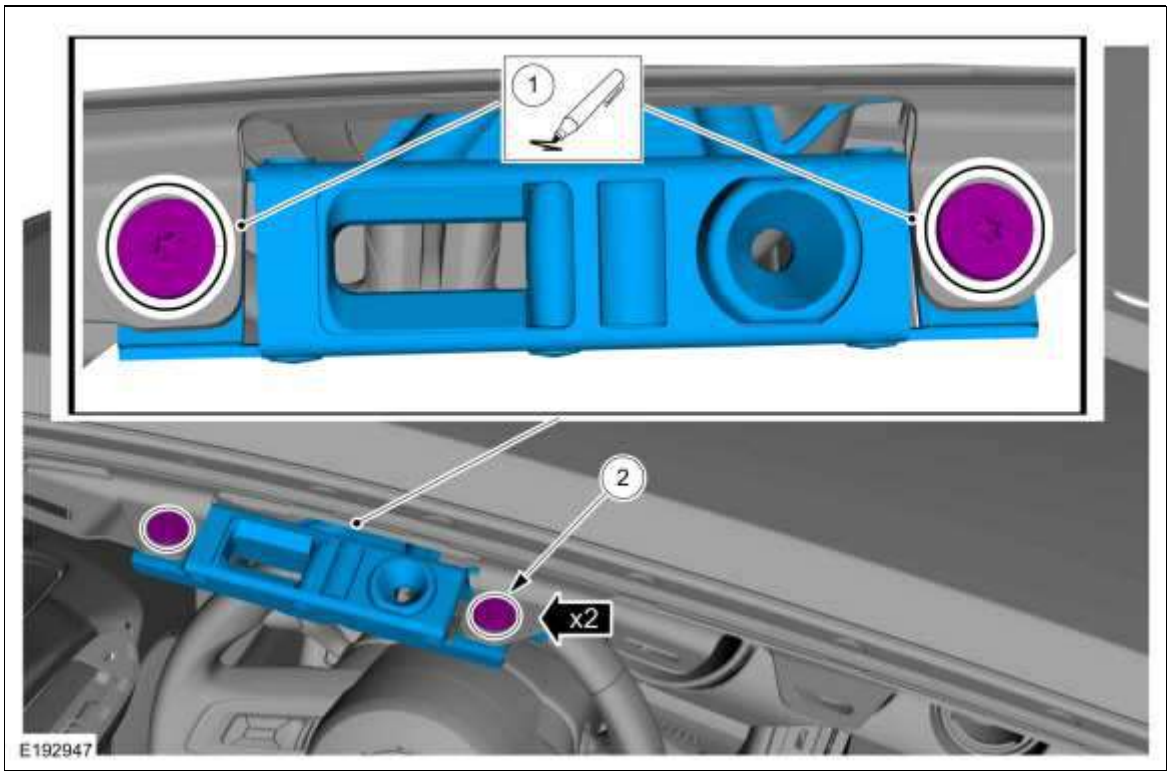


8. **NOTE:** *LH side shown, RH side similar.*

Remove the convertible top front striker.

1. **NOTE:** *The convertible top front striker retainer reference marks must be used during installation.*

   Mark the convertible top header panel around the retainers for installation reference.
2. Remove the convertible top front striker upper retainers and the striker.
   Torque: 93 lb.in (10.5 Nm)



Installation

1. To install, reverse the removal procedure.

Convertible Top Headliner

Special Tool(s) / General Equipment

Rivet Gun
Electric Drill

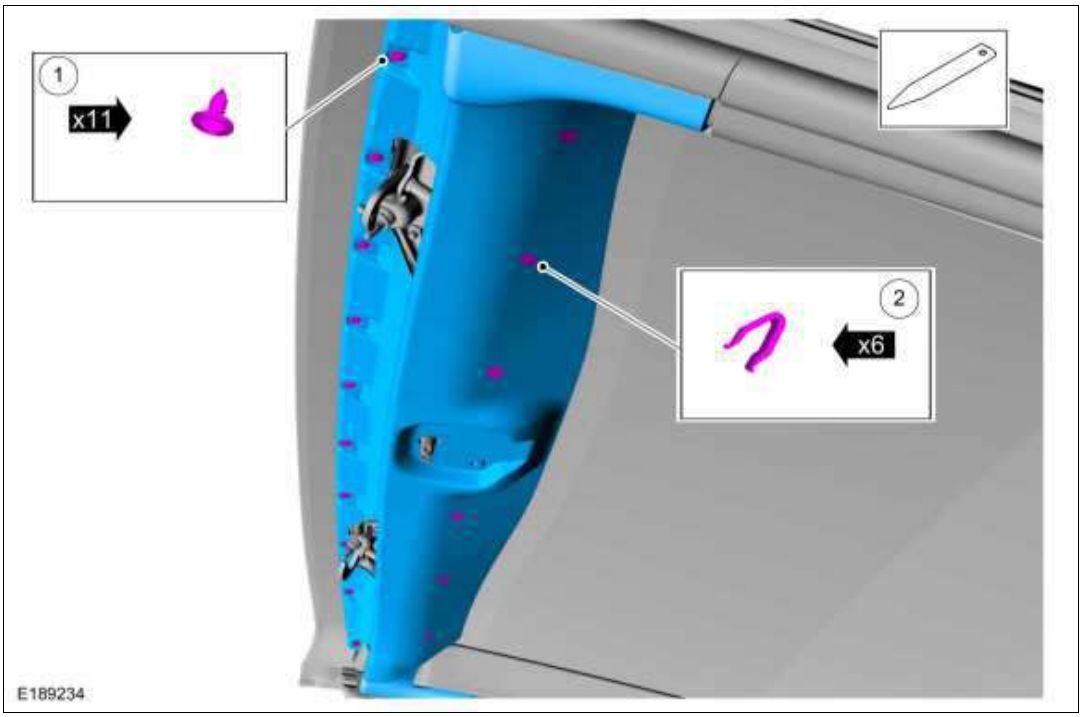
Removal

NOTE: *Removal steps in this procedure may contain installation details.*

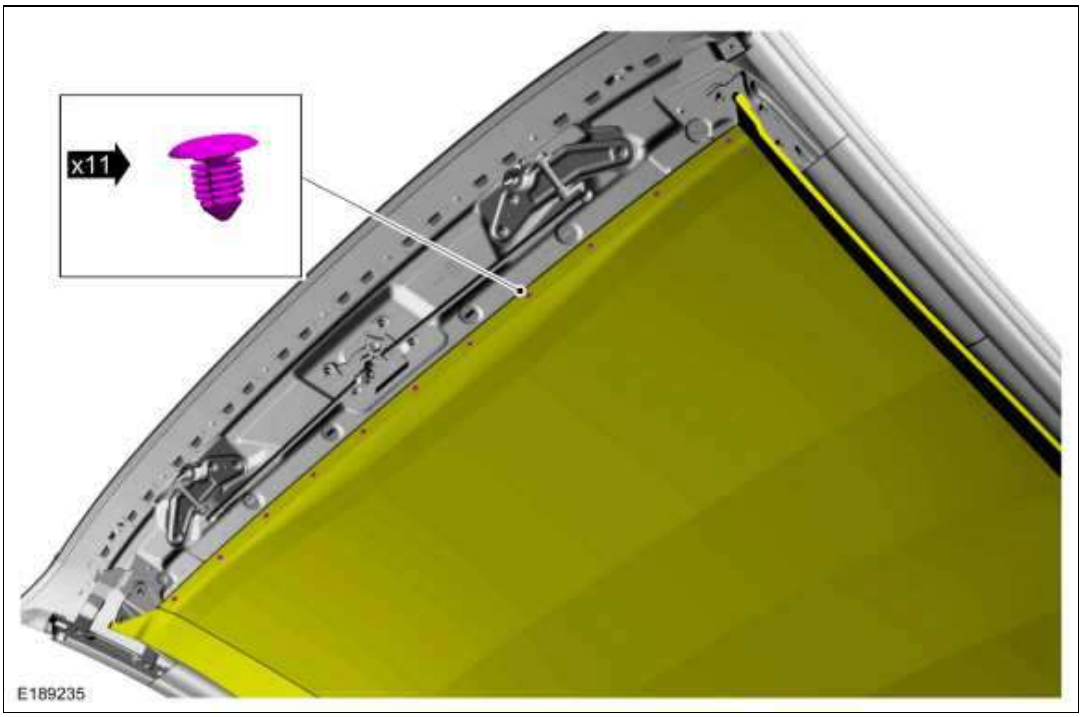
Procedure views are with the convertible top in the fully closed position showing tension on the convertible top material, actual position should be approximately 25-50 percent open allowing slack in the convertible top material and other components for serviceability.

1. Remove the convertible top latch handle.
   Torque: 31 lb.in (3.5 Nm)

2. Remove the convertible top front panel trim.
   1. Remove the convertible top front panel trim retainers on the front of the trim.
      Torque: 18 lb.in (2 Nm)
   2. Release the clips under the back of the convertible top front panel trim and remove the trim.



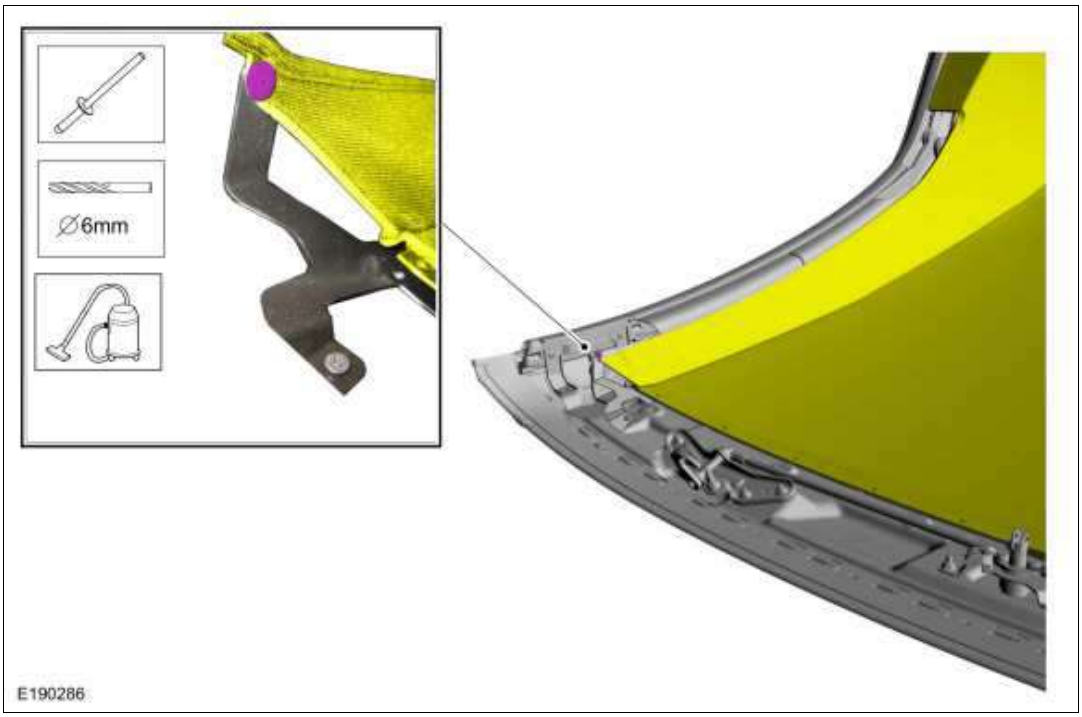
3. Remove the convertible top headliner push pin type retainers along the back of the convertible top front panel.



4. **NOTE:** *All rivet shavings must be removed from the vehicle and convertible top assembly.*

   LH side shown, RH side similar.

   On both sides, drill out the rivet to disconnect the convertible top headliner from the convertible top headliner tension bracket.
   Use the General Equipment: Electric Drill
   Use the General Equipment: Rivet Gun
   Torque: 25 lb.in (2.8 Nm)

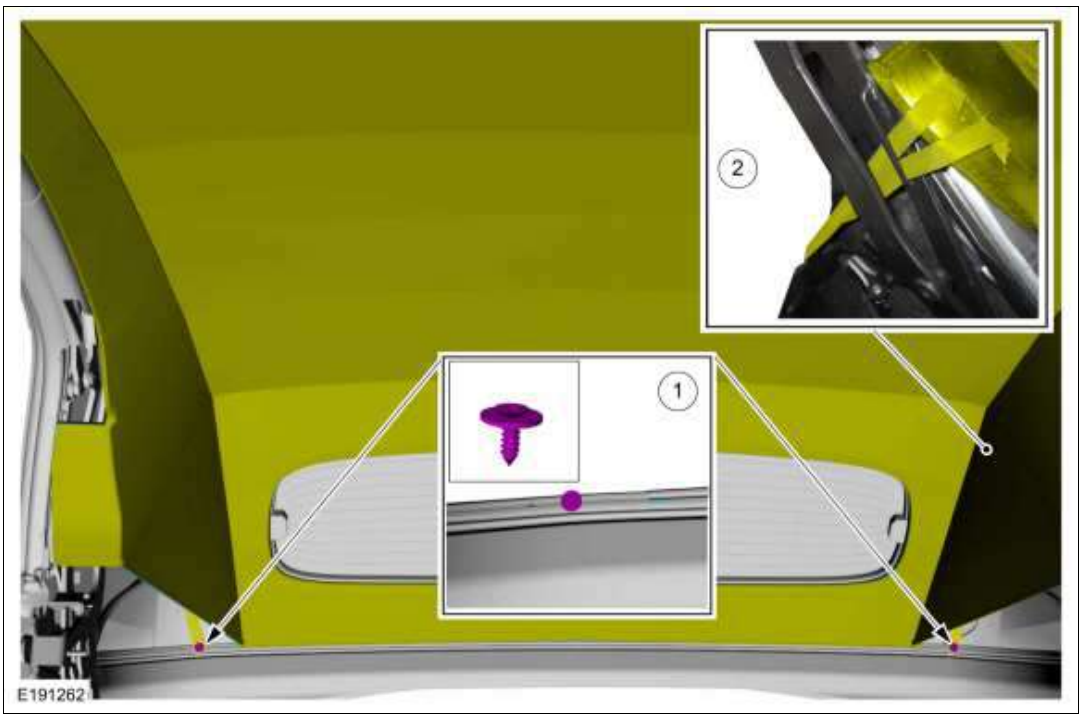


5. Remove the convertible top headliner nylon fabric strap from the floating bow.
    1. Remove the convertible top headliner nylon fabric strap retainers from the floating bow.
       Torque: 62 lb.in (7 Nm)

    2. **NOTE:** *During installation, route the nylon fabric strap through the frame as it was removed.*

       LH side shown, RH side similar.

       On both sides, route the nylon fabric strap through the frame.



6. **NOTE:** *Fold the convertible top headliner down between each cross bow after rivet removal to expose the next cross bow.*

   All rivet shavings must be removed from the vehicle and convertible top assembly.

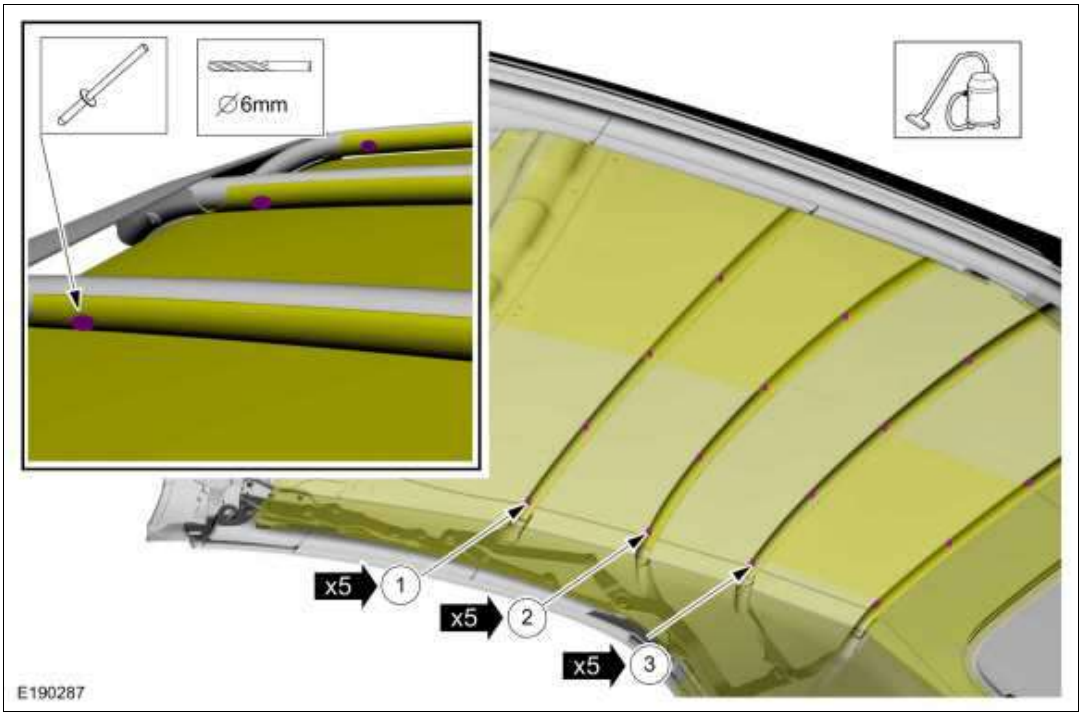
   Drill out the cross bow retaining rivets.

    1. **NOTE:** *Inset view is from above with convertible top material removed for clarity.*

       Remove the rivets from cross bow 1.

Use the General Equipment: Electric Drill
Use the General Equipment: Rivet Gun

2. Remove the rivets from cross bow 2.
3. Remove the rivets from cross bow 3.



7. Remove the headliner from cross bow 4.

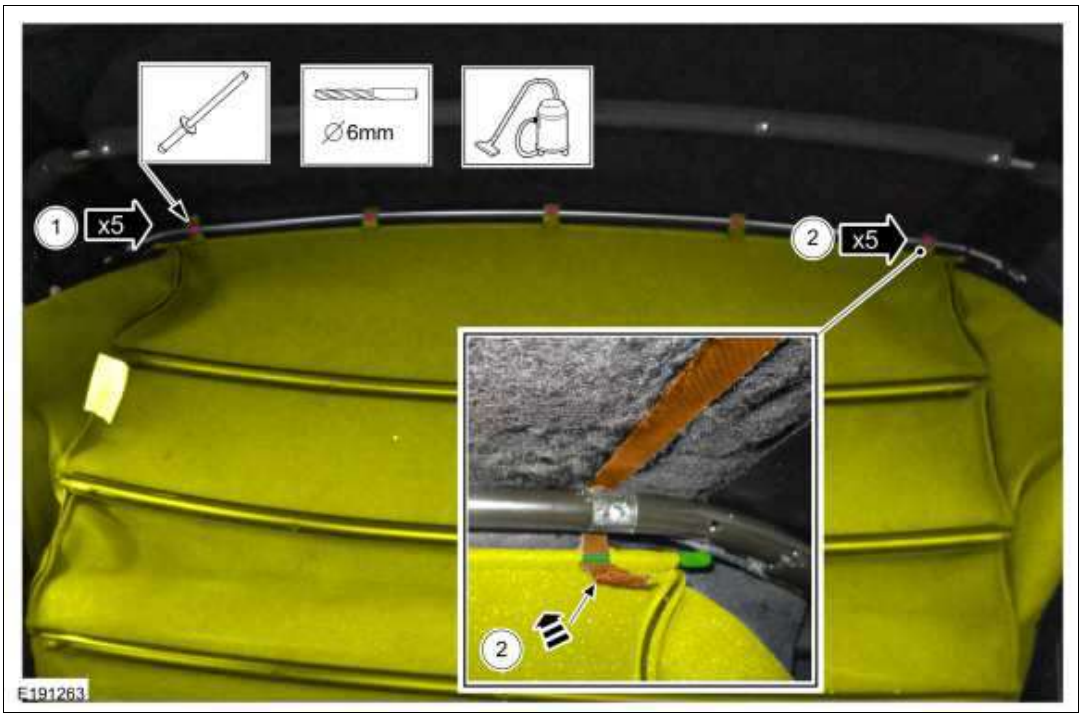
1. **NOTE:** *All rivet shavings must be removed from the vehicle and convertible top assembly.*

   Drill out the rivets from cross bow 4.
   Use the General Equipment: Electric Drill
   Use the General Equipment: Rivet Gun

2. **NOTE:** *The nylon fabric strap has 2 sided tape holding it to cross bow 4 to aid in positioning during installation.*

   The nylon fabric strap can remain routed over cross bow 4 after pushing through the convertible top headliner.

   Pull the end of the nylon fabric strap from the cross bar and push through the convertible top headliner to release the convertible top headliner from cross bow 4.



8. **NOTE:** *All rivet, shavings or pieces must be removed from all cross bows and the vehicle interior. Rivet ends left in any cross bow may result in a rattle condition.*

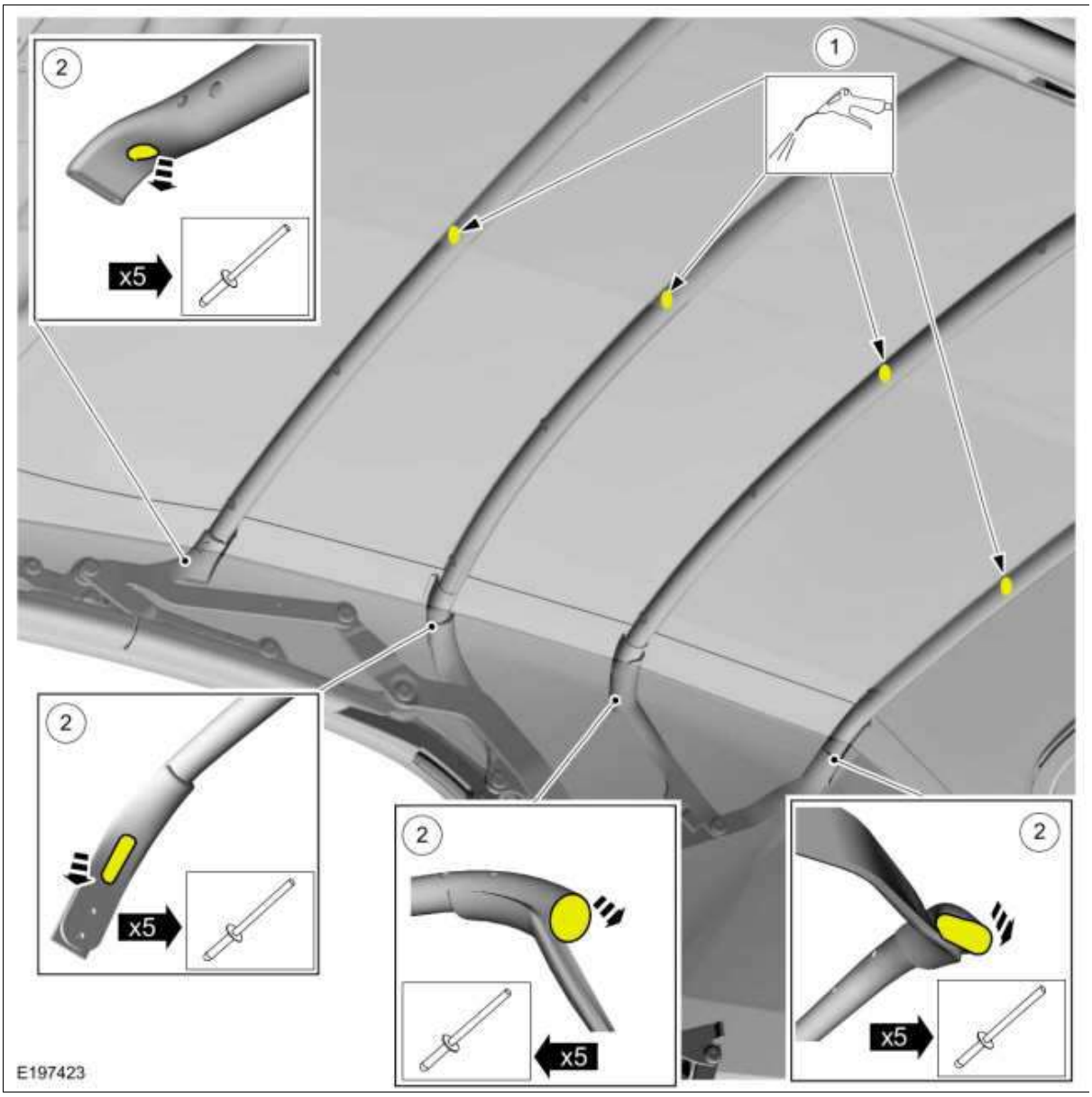
   Remove all rivet pieces from inside all of the cross bows.

   1. **NOTE:** *It may be necessary to force compressed air into multiple rivet holes in the cross bows to get all rivet pieces out of the cross bows.*

      Using an air nozzle and compressed air, blow into each cross bow to force the rivet pieces to the outer ends of the cross bows for removal.

   2. **NOTE:** *Check both ends of each cross bow to make sure all rivet pieces are removed from the vehicle*

      At the ends of the cross bows, collect all rivet pieces and verify that all rivet ends are accounted for.



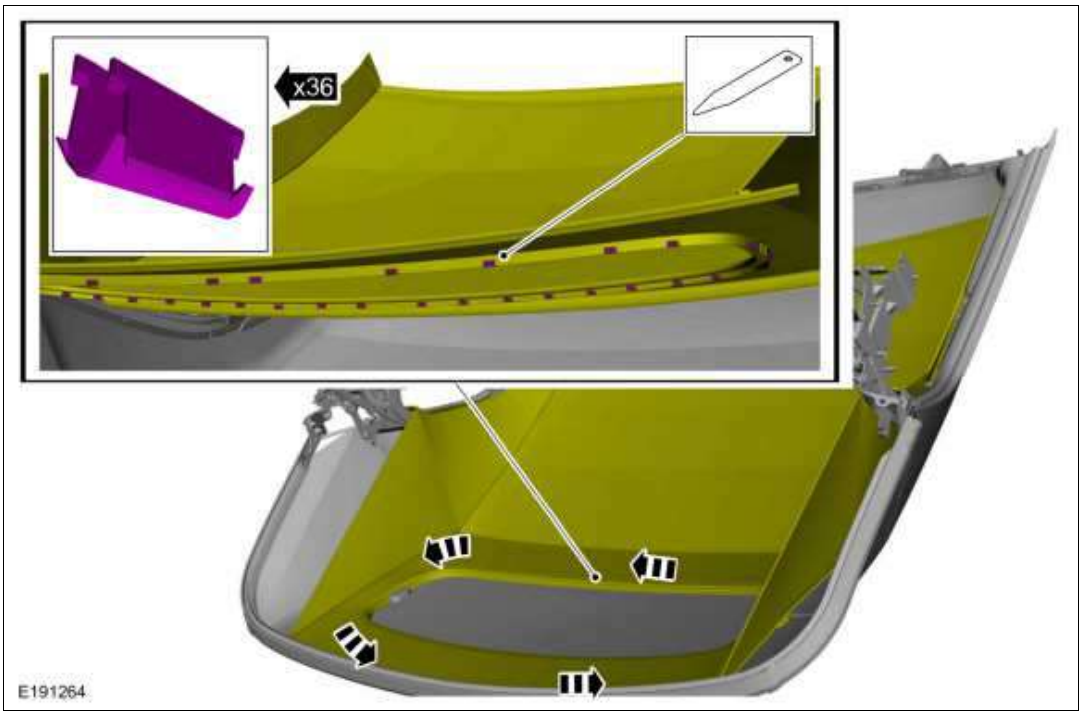
9. **NOTE:** *The convertible top headliner trim ring is permanently attached to the convertible top headliner, and the rear window glass frame is permanently attached to the convertible top material.*

   Some retaining clips may stay on the rear window glass frame. Remove from the rear window glass frame and position all retaining clips on the convertible top headliner trim ring at the location where they were removed.

   For installation, begin with the top 2 corners when attaching the convertible top headliner trim ring to the rear window glass frame. This ensures proper alignment as the convertible top headliner trim ring is attached around the rear window glass frame.

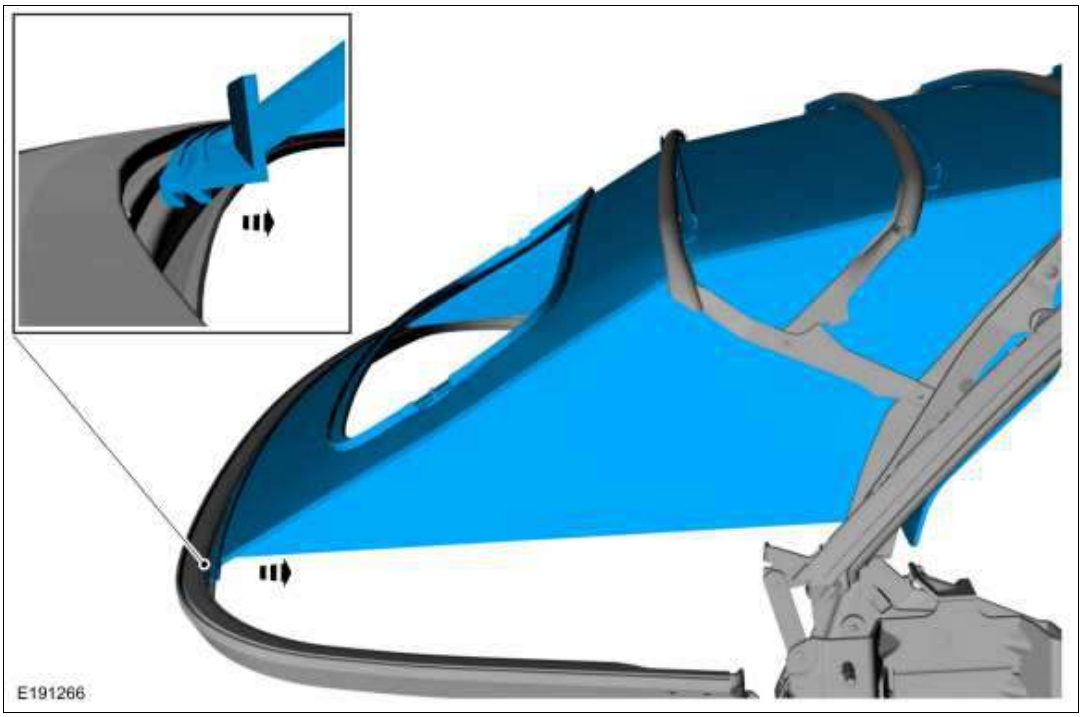
   View shown is with the convertible top off vehicle for clarity.

   Carefully pry the convertible top headliner trim ring from the rear window glass frame.



10. **NOTE:** *View is from outside the vehicle with the convertible top material removed for clarity.*

    From inside the vehicle, pull the headliner straight out of the floating bow to remove.



Installation

1. To install, reverse the removal procedure.

Convertible Top Material

Special Tool(s) / General Equipment

Rivet Gun
Electric Drill
Flat-Bladed Screwdriver

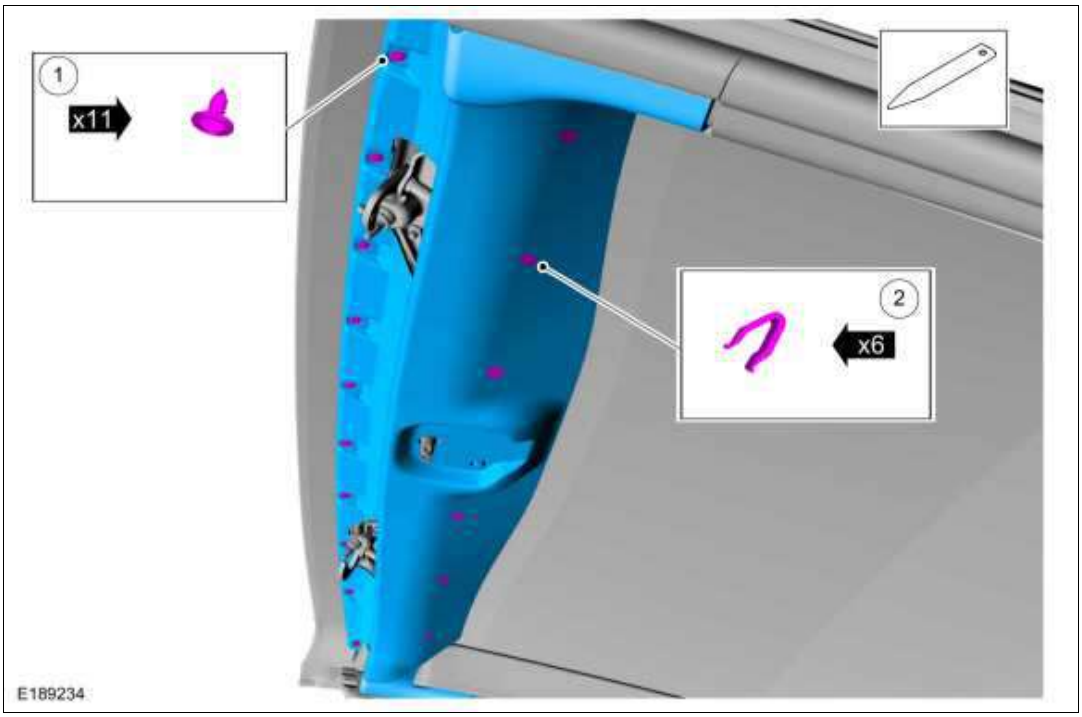
Removal

NOTE: *Removal steps in this procedure may contain installation details.*

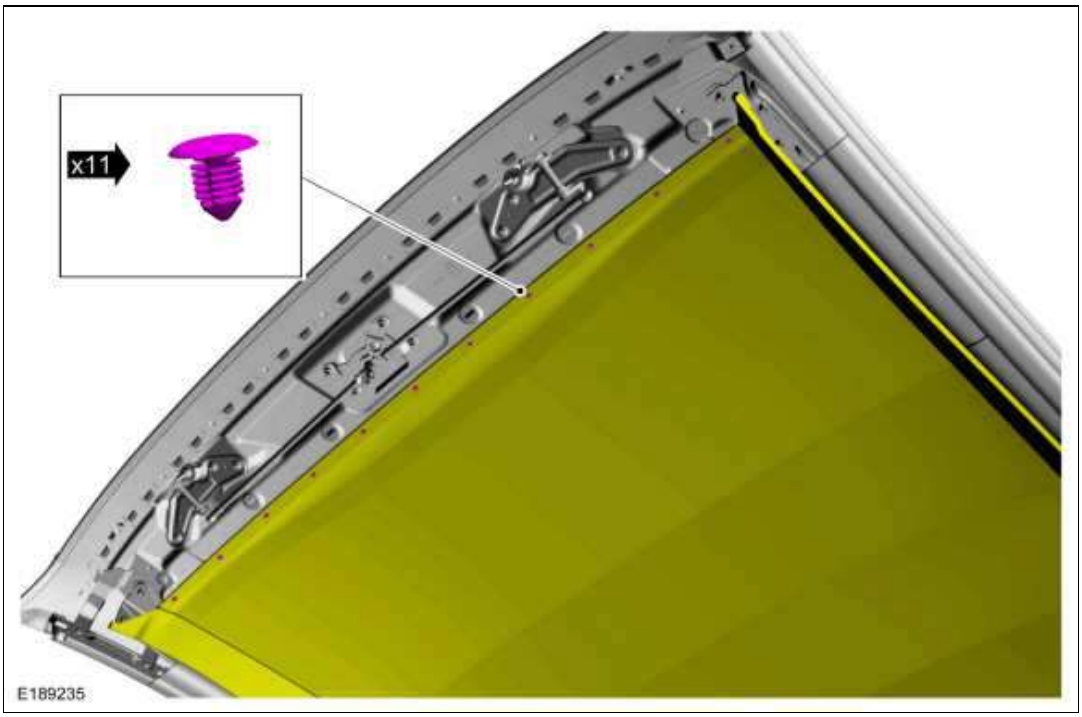
Procedure views are with the convertible top in the fully closed position showing tension on the convertible top material, actual position should be approximately 25-50 percent open allowing slack in the convertible top material and other components for serviceability.

1. Refer to: Convertible Top Trough Assembly (501-18 Convertible Top, Removal and Installation).
2. Remove the convertible top latch handle.

3. Remove the convertible top front panel trim.
   1. Remove the convertible top front panel trim retainers on the front of the trim.
      Torque: 18 lb.in (2 Nm)
   2. Release the clips under the back of the convertible top front panel trim and remove the trim.



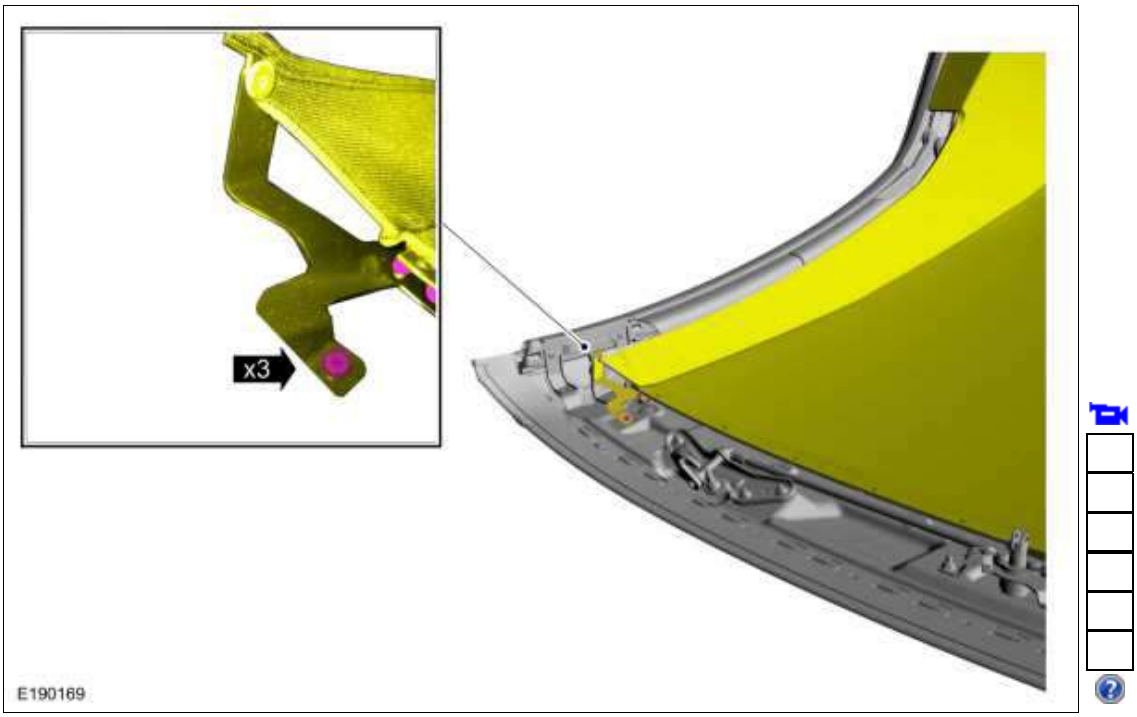
4. Remove the convertible top headliner push pin retainers along the back of the convertible top front panel.



5. **NOTE:** *The headliner tension bracket will still be attached to the headliner.*

   LH side shown, RH side similar.

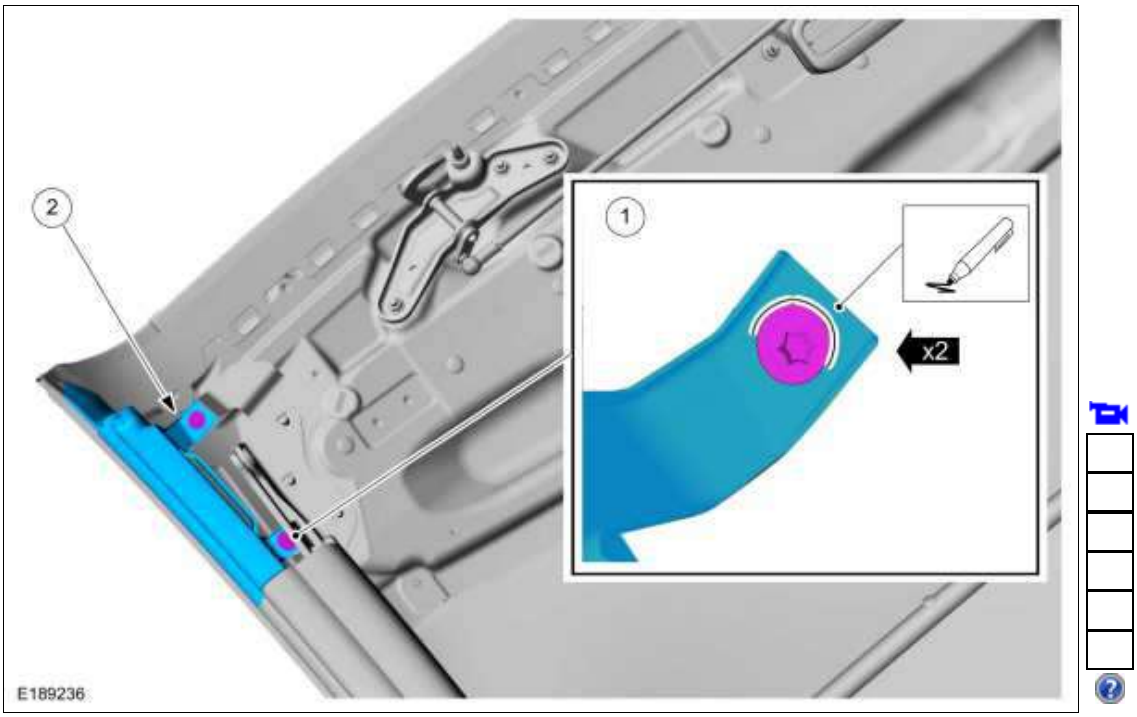
   On both sides, remove the headliner tension bracket retainers and bracket from the convertible top front panel.
   Torque: 18 lb.in (2 Nm)



6. **NOTE:** *RH side shown, LH side similar.*

   If any shims are present, note the position for installation.

   On both sides, remove the convertible top front panel side weatherstrip and bracket assembly.
   1. Mark the convertible top front panel side weatherstrip bracket assembly at the retainers for installation reference.
   2. Remove the convertible top front panel side weatherstrip and bracket assembly retainers and remove the weatherstrip/bracket assembly.



7. **NOTE:** *Fold the convertible top headliner down between each cross bow after rivet removal to expose the next cross bow.*

   All rivet shavings must be removed from the vehicle and convertible top assembly.

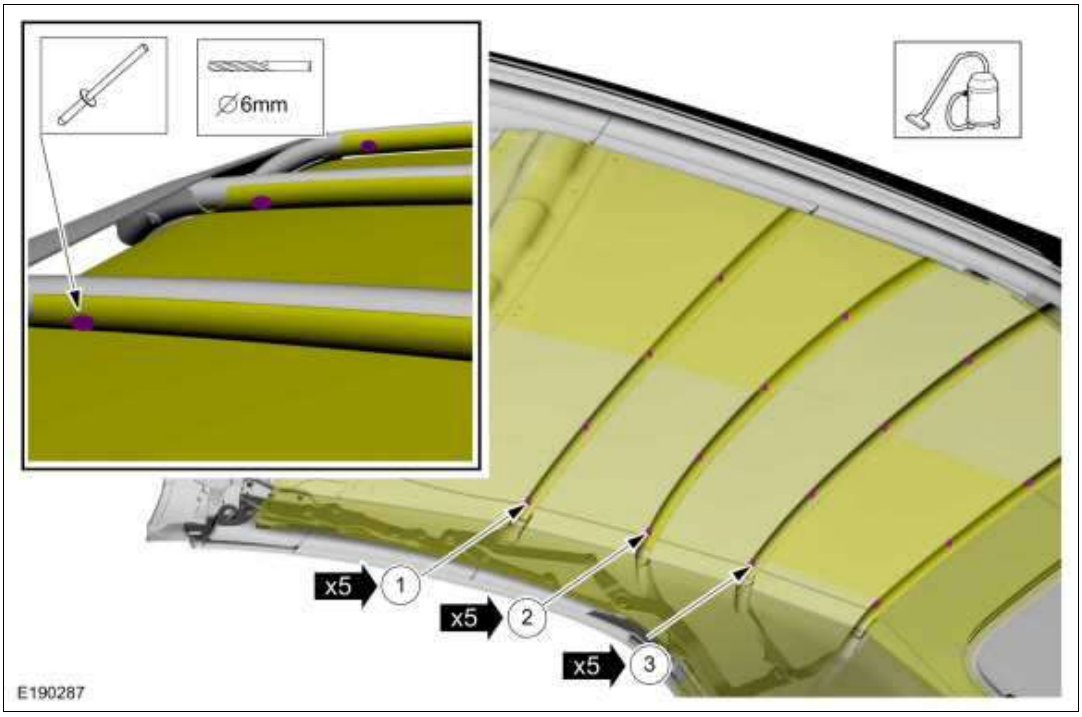
   Drill out the cross bow retaining rivets.

   1. **NOTE:** *Inset view is from above with convertible top material removed for clarity.*

      Remove the rivets from cross bow 1.

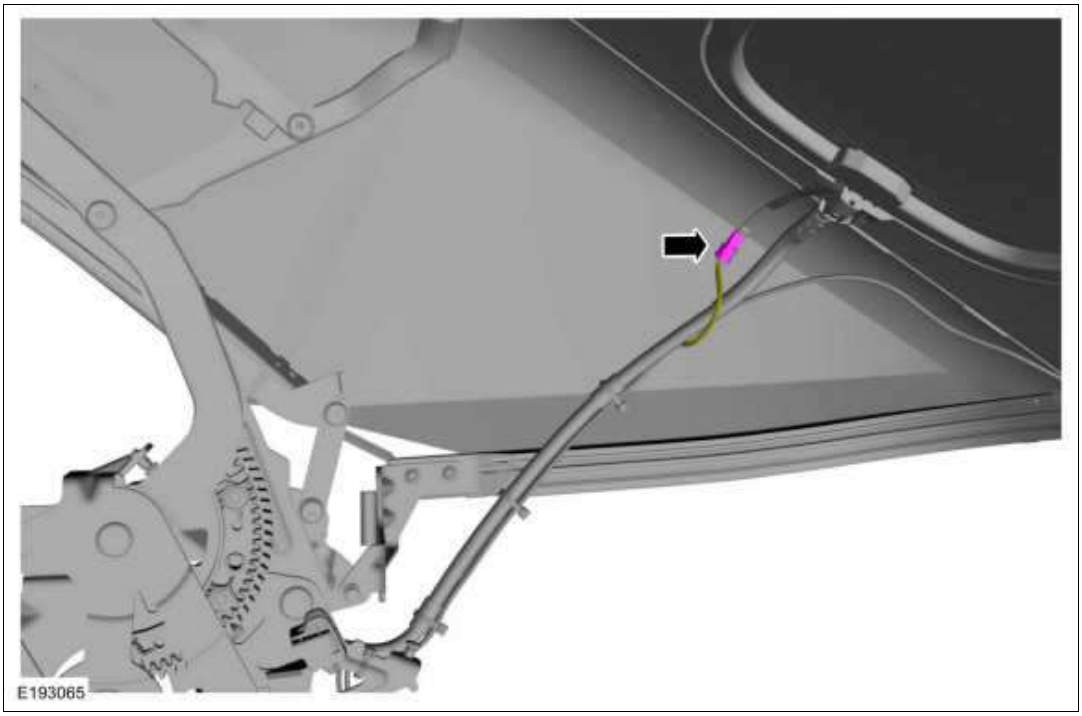
Use the General Equipment: Electric Drill
Use the General Equipment: Rivet Gun

2. Remove the rivets from cross bow 2.
3. Remove the rivets from cross bow 3.



8. **NOTE:** *RH side shown, LH side similar.*

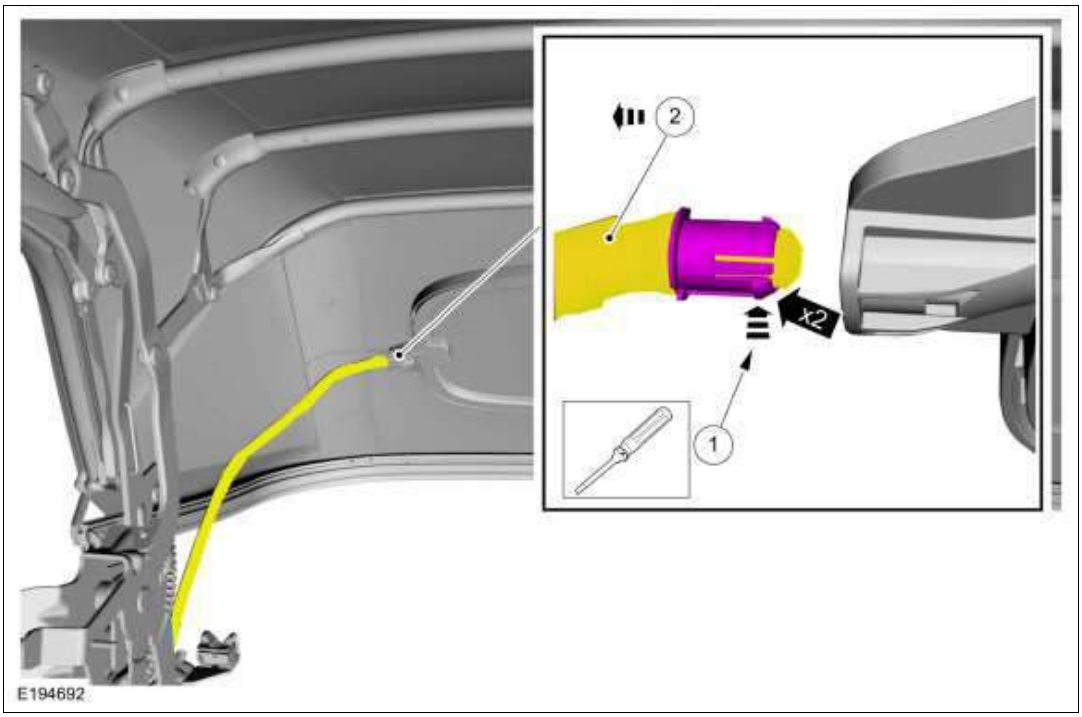
On both sides, disconnect the rear window defrost harness.



9. **NOTE:** *RH side shown, LH side similar.*

Remove the rear glass tension rod.

1. Using a small flat-bladed screwdriver, press in on the retainer tabs to release the rear glass tension rod.
   Use the General Equipment: Flat-Bladed Screwdriver
2. Pull out on the rear glass tension rod to remove from the rear glass frame.



10. Remove the headliner from cross bow 4.

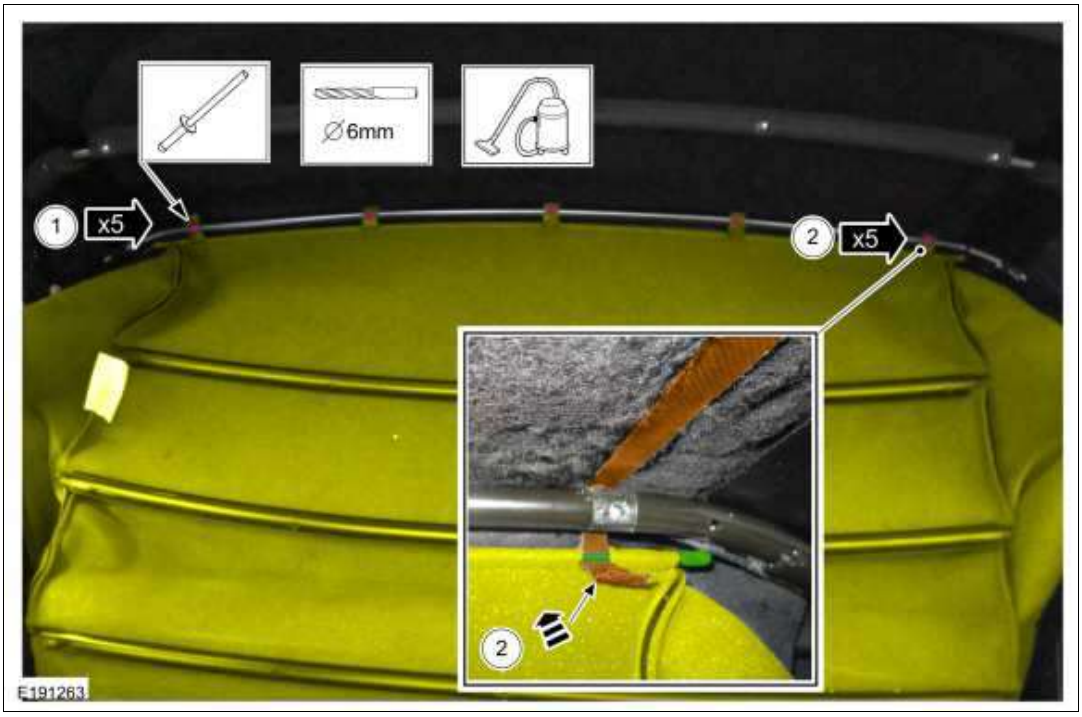
    1. **NOTE:** *All rivet shavings must be removed from the vehicle and convertible top assembly.*

       Drill out the rivets from cross bow 4.
       Use the General Equipment: Electric Drill
       Use the General Equipment: Rivet Gun

    2. **NOTE:** *The nylon fabric strap has 2 sided tape holding it to cross bow 4 to aid in positioning during installation.*

       The nylon fabric strap can remain routed over cross bow 4 after pushing through the convertible top headliner.

       Pull the end of the nylon fabric strap from the cross bar and push through the convertible top headliner to release the convertible top headliner from cross bow 4.



11. **NOTE:** *All rivet, shavings or pieces must be removed from all cross bows and the vehicle interior. Rivet ends left in any cross bow may result in a rattle condition.*

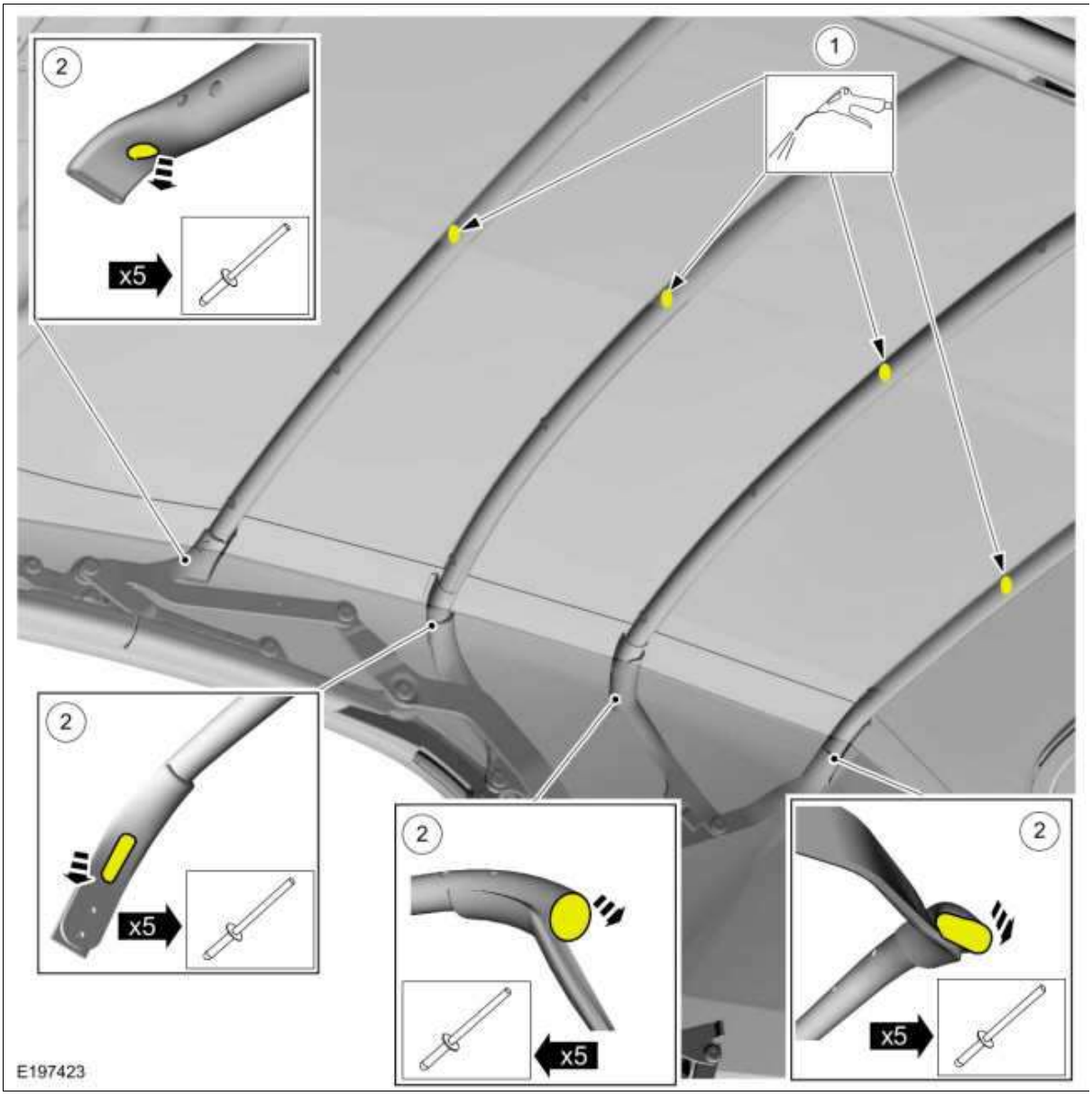
Remove all rivet pieces from inside all of the cross bows.

1. **NOTE:** *It may be necessary to force compressed air into multiple rivet holes in the cross bows to get all rivet pieces out of the cross bows.*

   Using an air nozzle and compressed air, blow into each cross bow to force the rivet pieces to the outer ends of the cross bows for removal.

2. **NOTE:** *Check both ends of each cross bow to make sure all rivet pieces are removed from the vehicle*

   At the ends of the cross bows, collect all rivet pieces and verify that all rivet ends are accounted for.



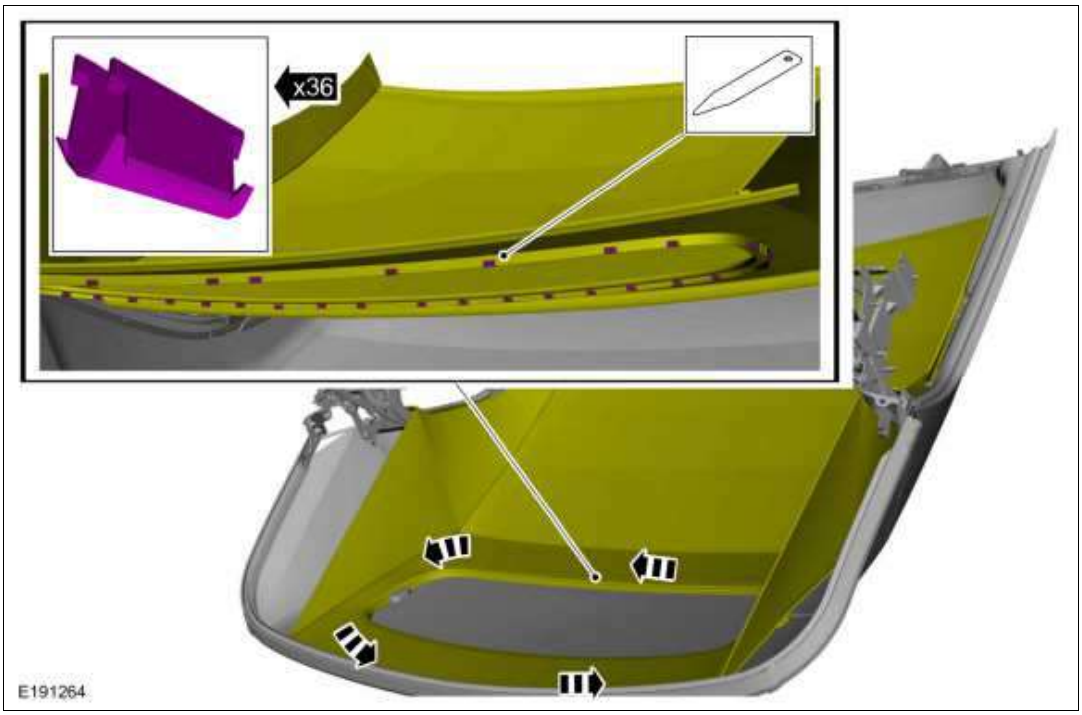
12. **NOTE:** *The convertible top headliner trim ring is permanently attached to the convertible top headliner, and the rear window glass frame is permanently attached to the convertible top material.*

    Some retaining clips may stay on the rear window glass frame. Remove from the rear window glass frame and position all retaining clips on the convertible top headliner trim ring at the location where they were removed.

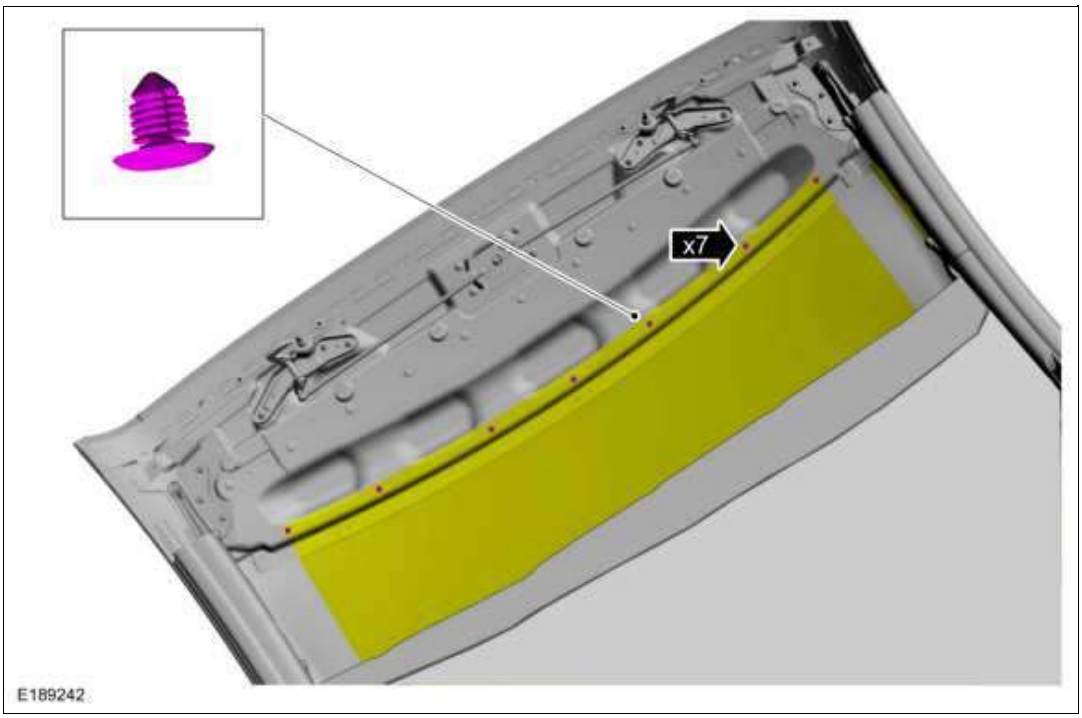
    For installation, begin with the top 2 corners when attaching the convertible top headliner trim ring to the rear window glass frame. This ensures proper alignment as the convertible top headliner trim ring is attached around the rear window glass frame.

    View shown is with the convertible top off vehicle for clarity.

    Beginning on the top corners of the rear window glass frame, carefully pry the convertible top headliner trim ring from the rear window glass frame.

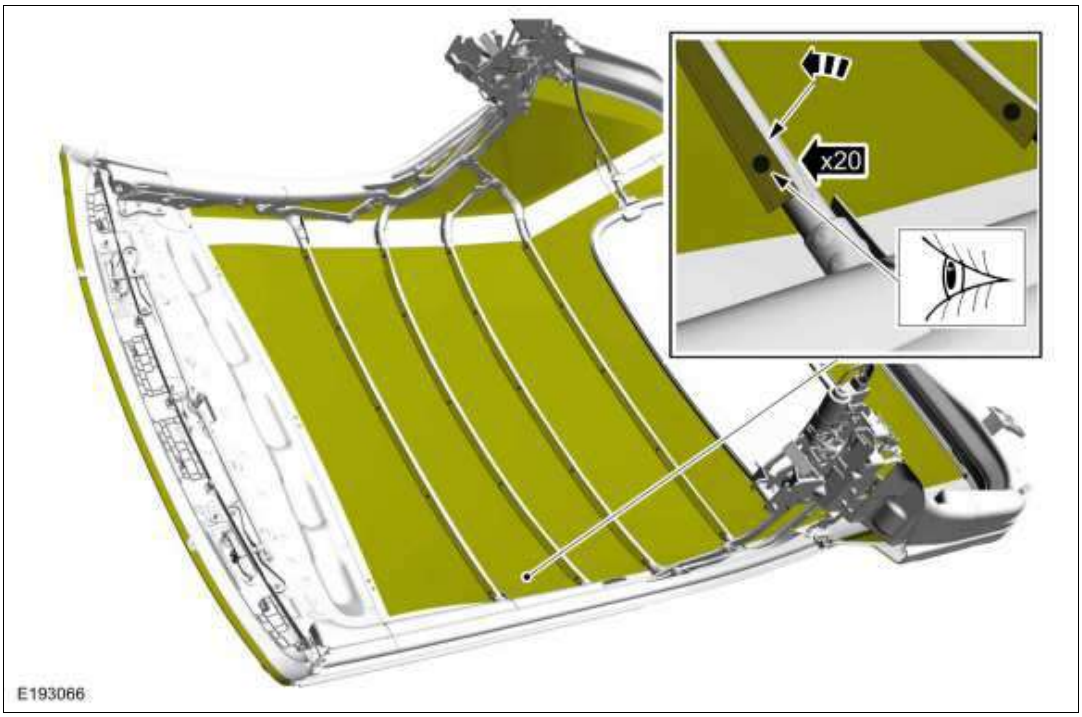


13. Remove the convertible top material push pins at the back of the convertible top front panel.



14. **NOTE:** *The convertible top material to crossbow retaining flaps are attached to the crossbows with 2 sided tape to align the holes for the same rivets that were removed for the headliner. During installation, make sure to line up the holes. A standard 2 sided tape can be used to ease alignment retention during installation.*

    Pull the convertible top material to crossbow retaining flap from the 2 sided tape at each crossbow.



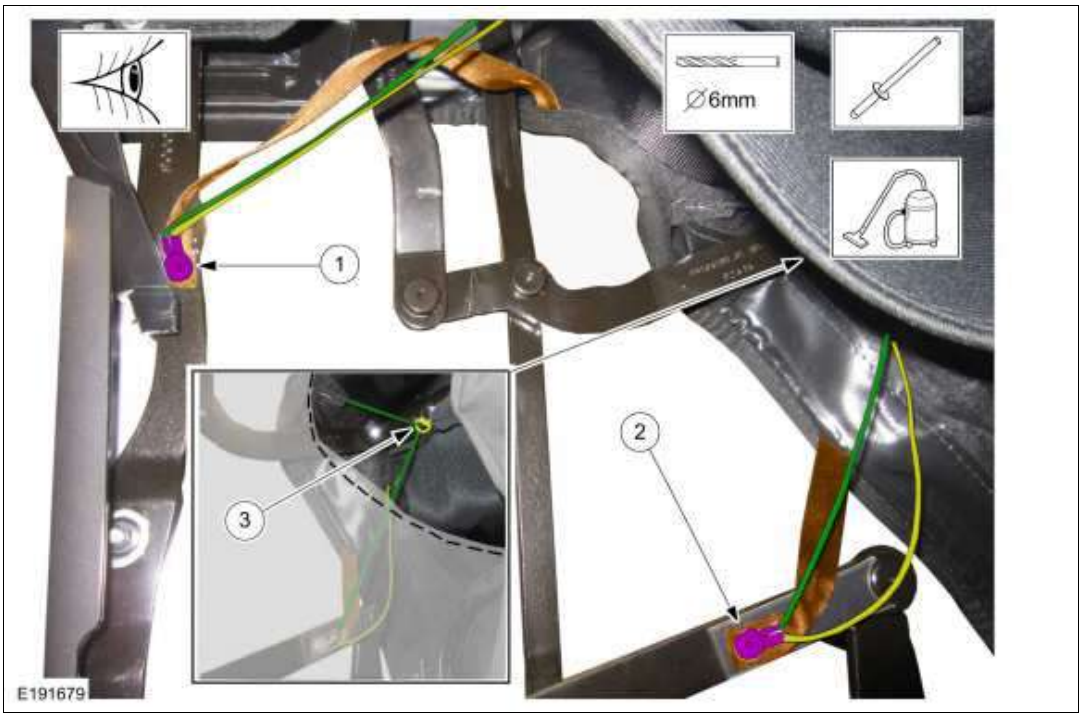
15. **NOTE:** *During installation, route the convertible top tension cords and nylon fabric straps through the frame exactly as they were removed.*

    All rivet shavings must be removed from the vehicle and convertible top assembly.

    RH side shown, LH side similar.

    On both sides, disconnect the convertible top tension cords and nylon fabric straps from the frame assembly.
    1. Drill out the rivets to the front set of tension cords at the front side of the frame.
       Use the General Equipment: Electric Drill
       Use the General Equipment: Rivet Gun
    2. Drill out the rivets to the second set of tension cords at the center side of the frame.
    3. **NOTE:** *Do not drill out the D-ring retaining rivet.*

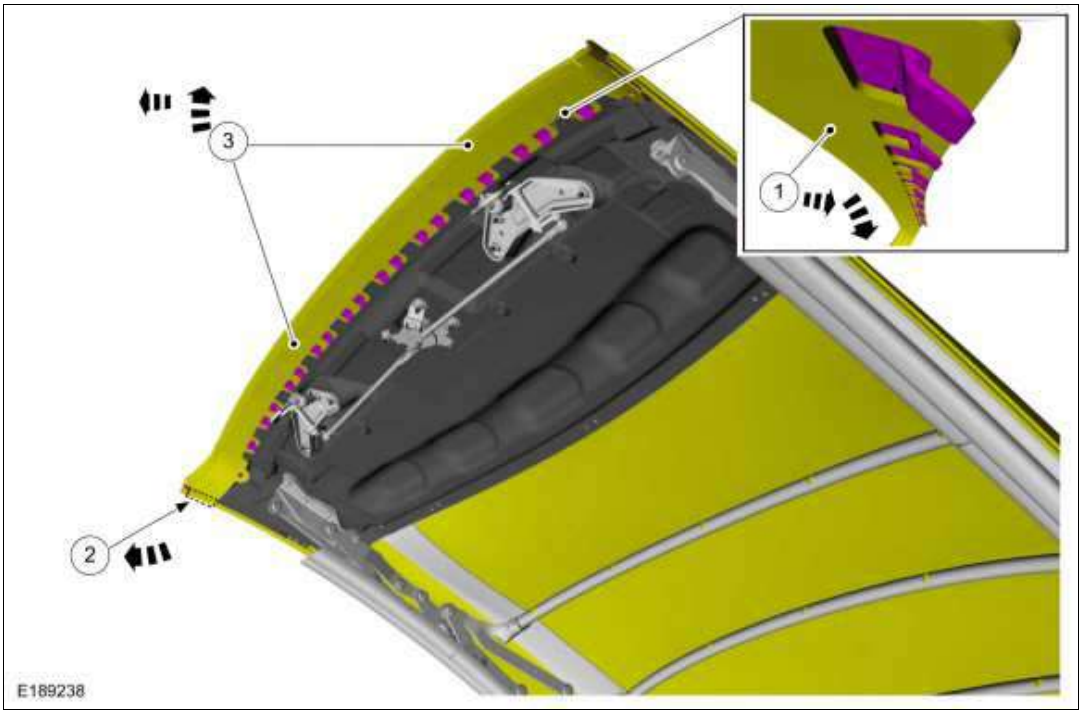
       Route the tension cord through the D-ring.



16. Disconnect the convertible top material from the front underside of the convertible top front panel.
    1. Pull the convertible top material backward and down to release from the convertible top front panel clips.
    2. On both sides, pull the convertible top material from the double sided tape securing the material to the

convertible top front panel.

3. Roll the convertible top material forward and up over the convertible top front panel.

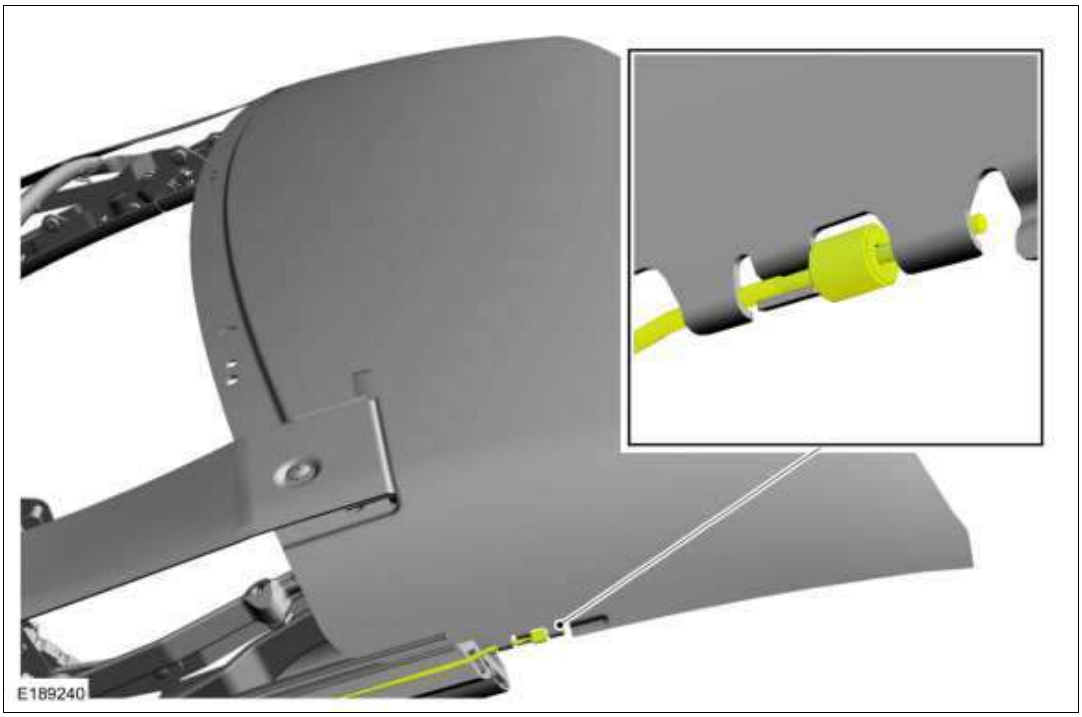


17. Fold the front of the convertible top material back to the first crossbow to expose the convertible top tension cable ends at the convertible top front panel.

18. **NOTE:** *RH side shown, LH side similar.*

    If the convertible top material is to be reinstalled a draw string can be attached to the convertible top tension cable and left in the convertible top material for pulling the convertible top tension cable back into the convertible top material during installation.

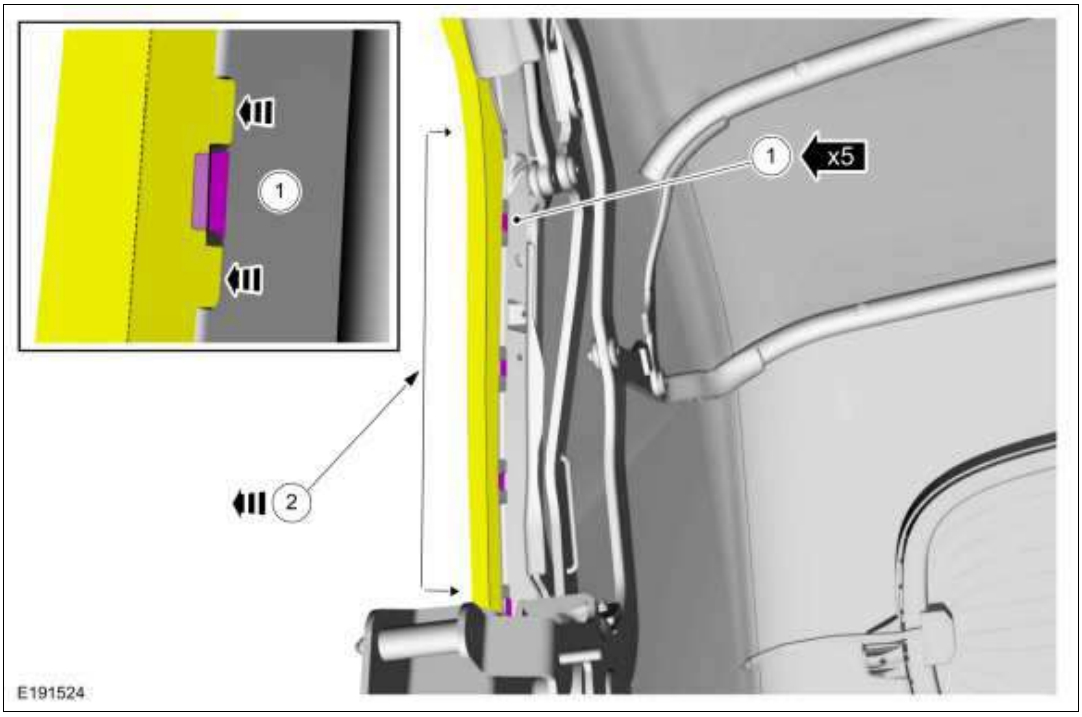
    On both sides, disconnect the convertible top tension cable from the convertible top front panel.



19. On both sides.
    Refer to: Convertible Top Rear Panel Lower Weatherstrip (501-18 Convertible Top, Removal and Installation).

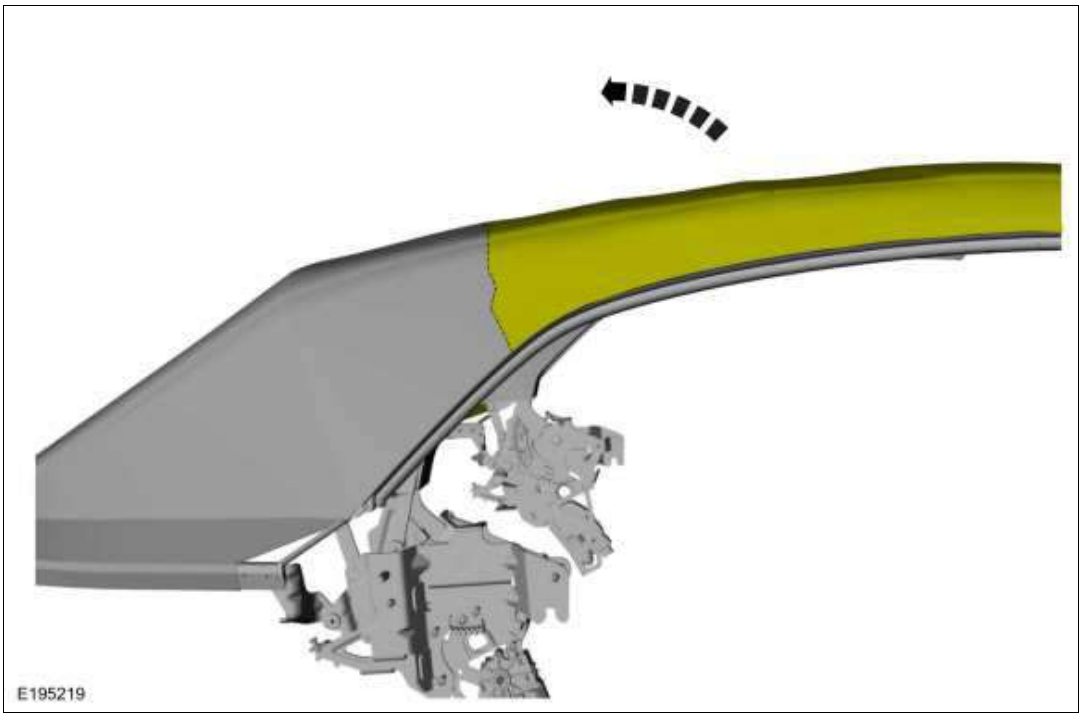
20. **NOTE:** *RH side shown, LH side similar.*

    On both sides, release the convertible top material from the frame under the removed convertible top rear panel lower weatherstrip.
    1. Release the convertible top material edge trim from the frame as indicated in all 5 locations under the removed convertible top rear panel lower weatherstrip.
    2. Pull the convertible top material out to fully release from the frame.



21. **NOTE:** *RH side shown, LH side similar.*

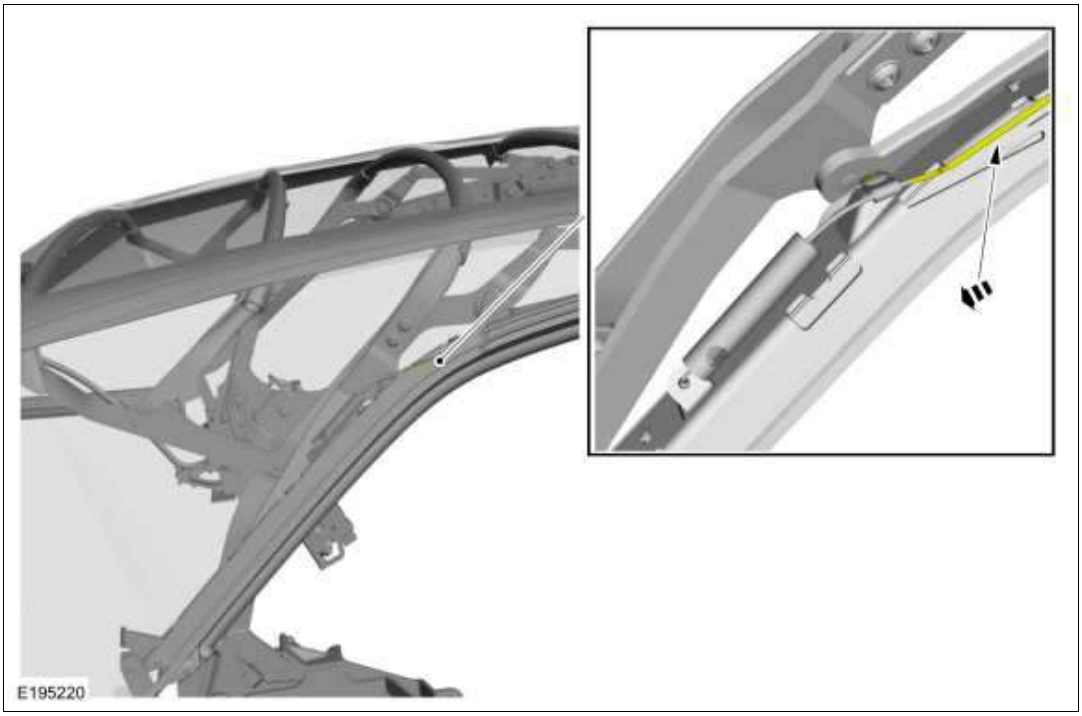
    On both sides, pull the convertible top material back to access the back of the convertible top tension cable.



22. **NOTE:** *RH side shown, LH side similar.*

    NOTE: *Make sure to note the routing of the tension cable through the convertible top material for installation.*

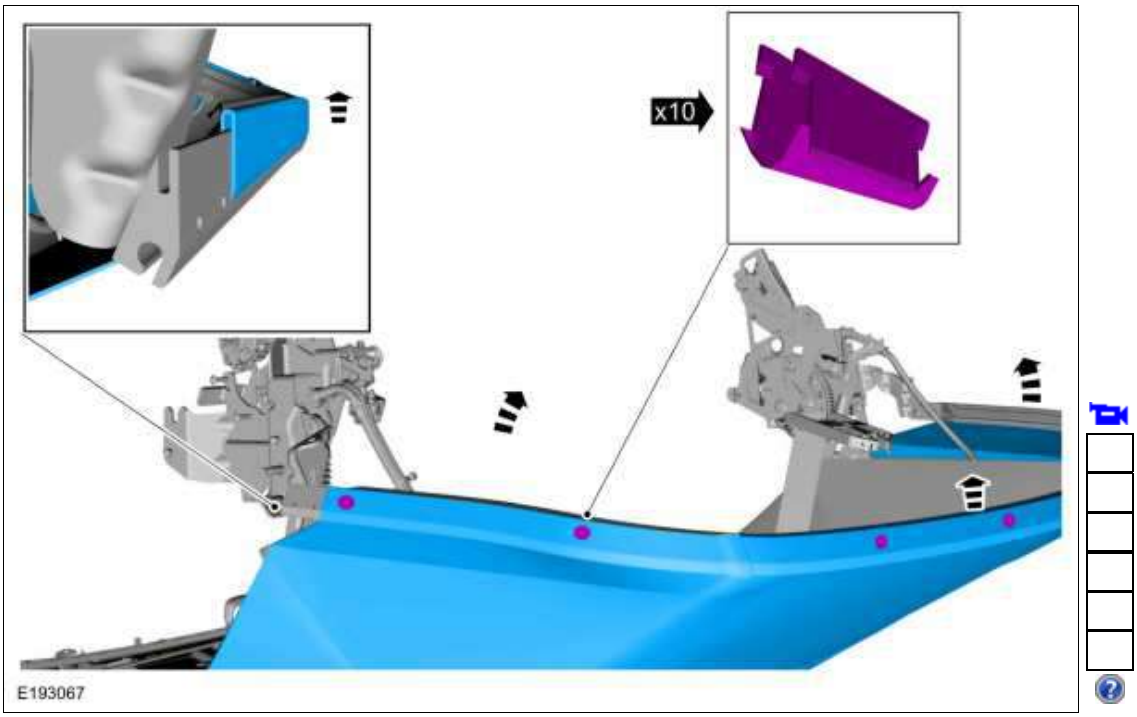
    On both sides, leaving the convertible top tension cable attached to the frame, pull the front of the convertible top tension cable out of the convertible top material.



23. **NOTE:** *Make sure to remove the convertible top material retaining clips from the floating bow. The convertible top material retaining clips must be placed on the convertible top material in the proper locations when installing.*

    RH side shown, LH side similar.

    Pull the convertible top material out of the floating bow to remove.



Installation

1. Transfer parts as necessary.
2. To install, reverse the removal procedure.

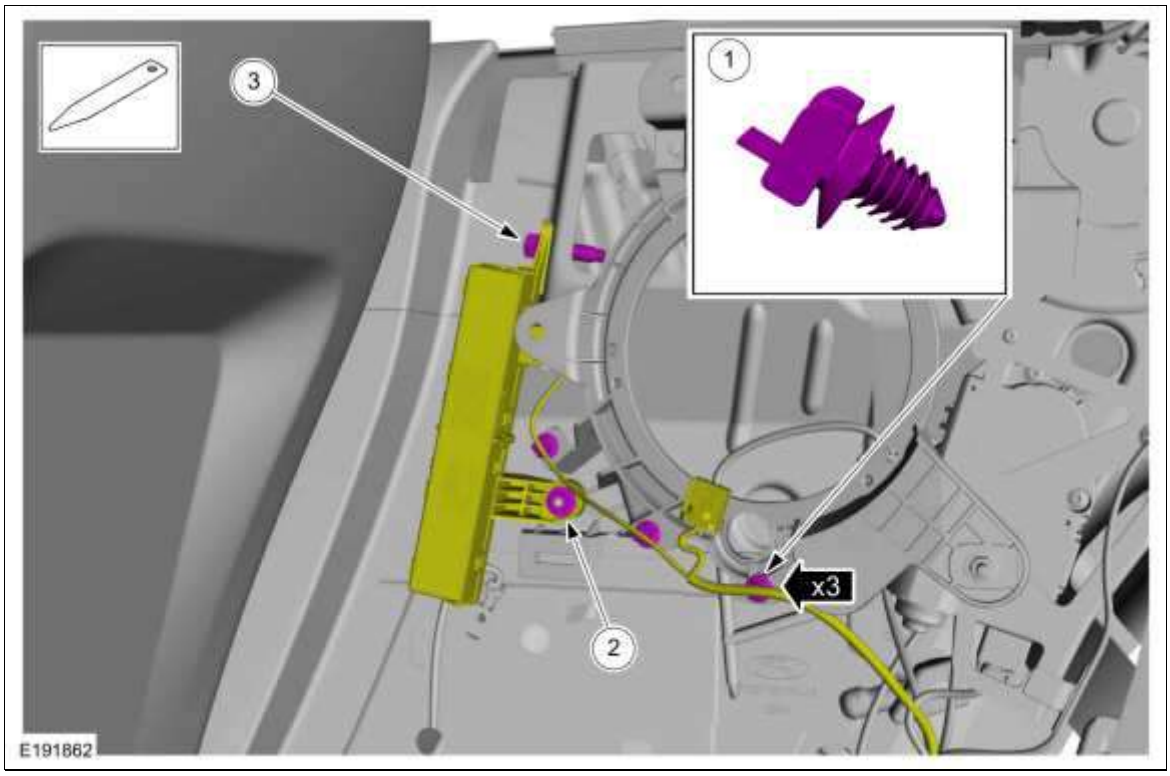
Convertible Top Motor

Removal

NOTE: *Removal steps in this procedure may contain installation details.*

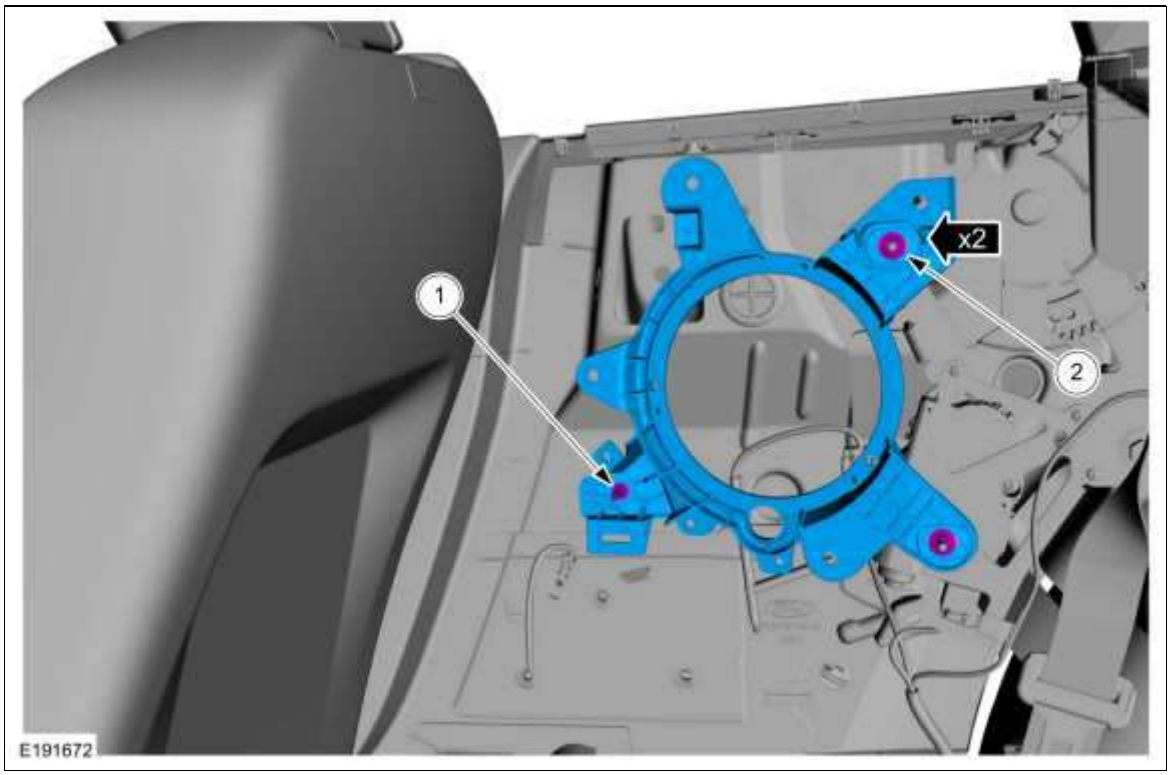
1. On both sides, remove the rear quarter panel speakers.
   Refer to: Rear Quarter Panel Speaker (415-00B Information and Entertainment System - General Information - Vehicles With: Touchscreen Display, Removal and Installation).
   Refer to: Rear Quarter Panel Speaker (415-00A Information and Entertainment System - General Information - Vehicles With: AM/FM/CD/SYNC, Removal and Installation).

2. On the RH side only.
   Position aside the RTM and bracket assembly.
   1. Disconnect the RTM wiring harness clips from the speaker bracket.
      Torque: 93 lb.in (10.5 Nm)
   2. Remove the RTM bracket nut.
      Torque: 71 lb.in (8 Nm)
   3. Remove the RTM bracket bolt and position the RTM and bracket assembly aside.
      Torque: 17 lb.in (1.9 Nm)



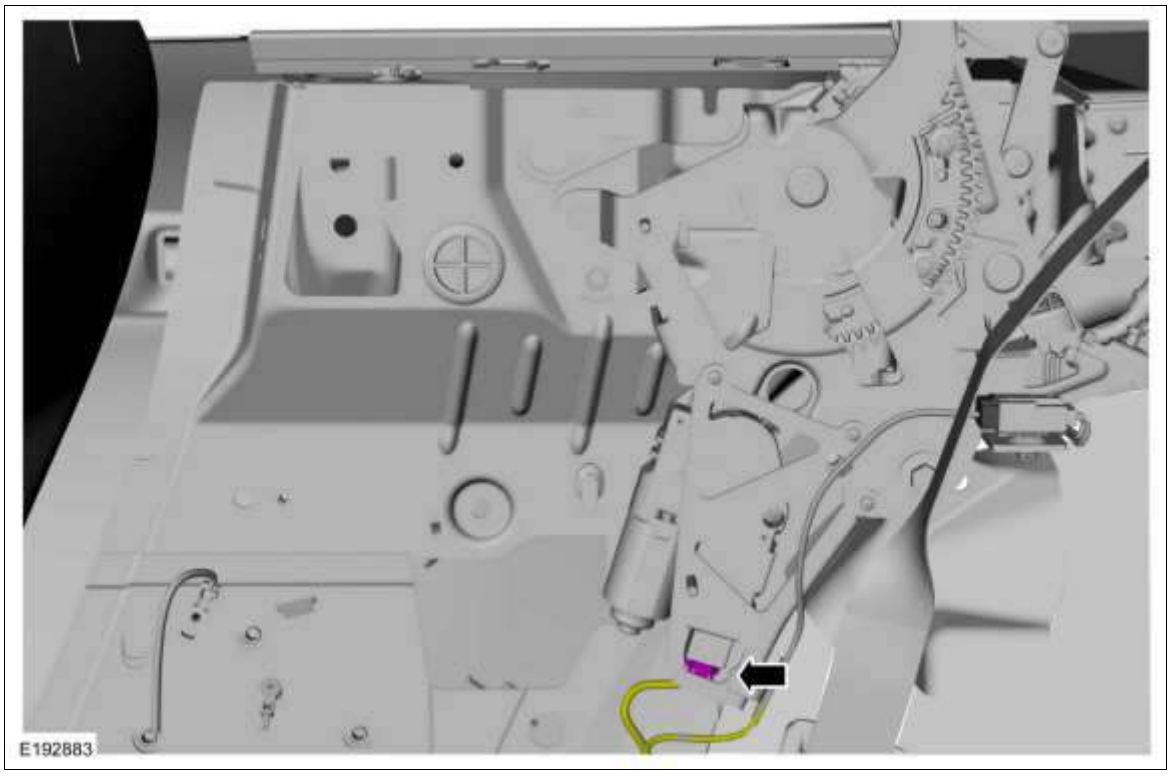
3. **NOTE:** *RH side shown, LH side similar.*

   On both sides.
   Remove the rear quarter panel speaker brackets.
   1. Remove the speaker bracket stud.
      Torque: 93 lb.in (10.5 Nm)
   2. Remove the speaker bracket nuts and the speaker bracket.
      Torque: 71 lb.in (8 Nm)



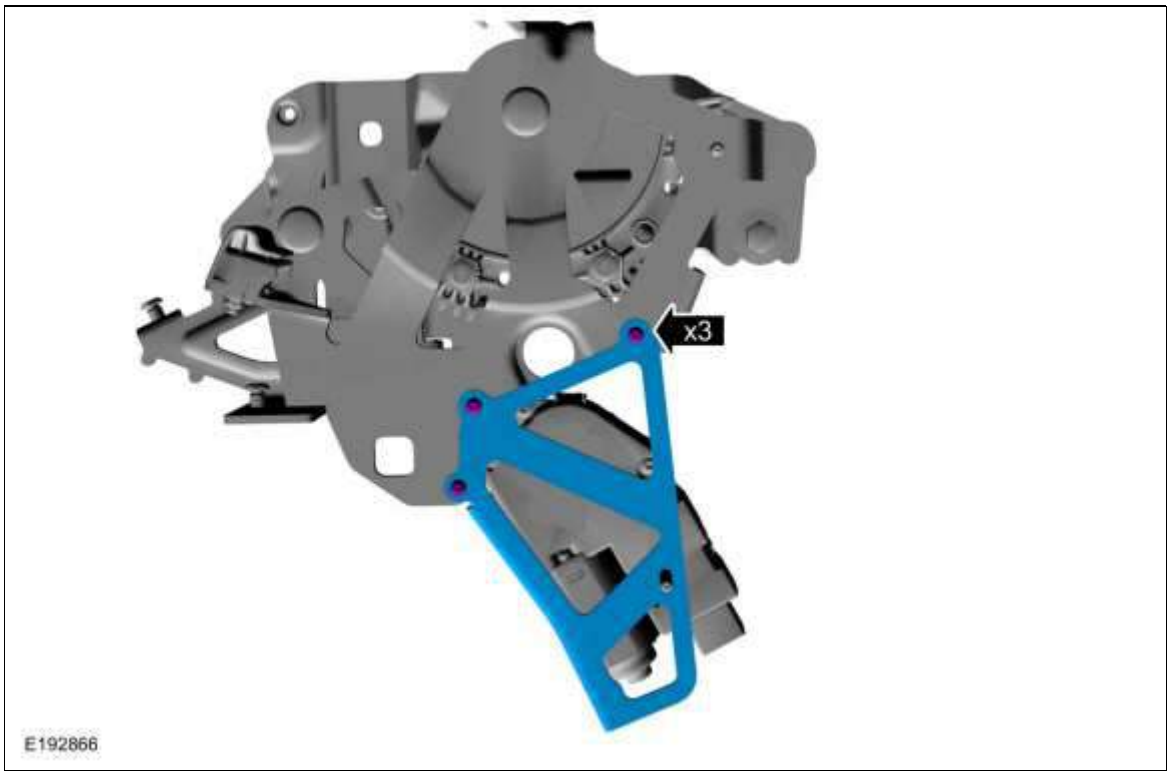
4. **NOTE:** *RH side shown, LH side similar.*

   Disconnect the harness connectors and position harness aside.



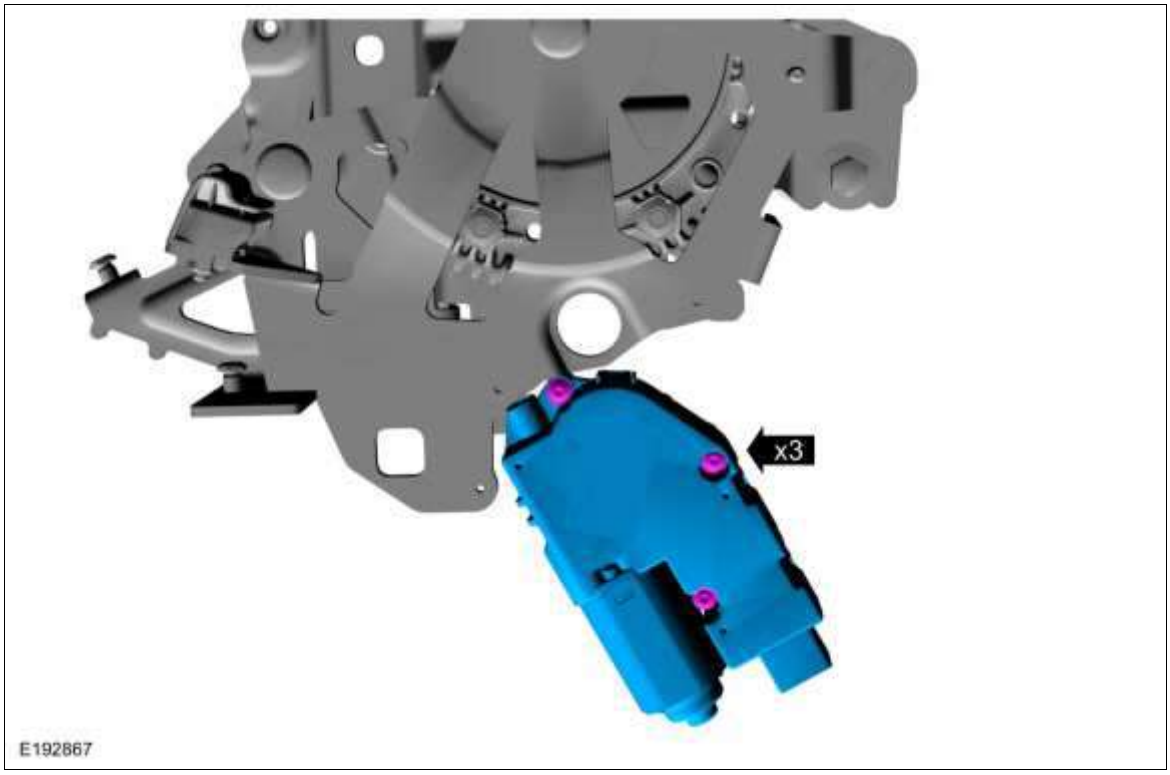
5. **NOTE:** *LH side shown, RH side similar.*

   Remove the motor guard bracket retainers and position aside.
   Torque: 25 lb.in (2.8 Nm)



6. **NOTE:** *LH side shown, RH side similar.*

   Remove the convertible top motor.
   Torque: 106 lb.in (12 Nm)



Installation

1. To install, reverse the removal procedure.
2. To initialize the motors, fully close and latch the convertible top and reopen fully.

Convertible Top Rear Panel Lower Weatherstrip

Special Tool(s) / General Equipment

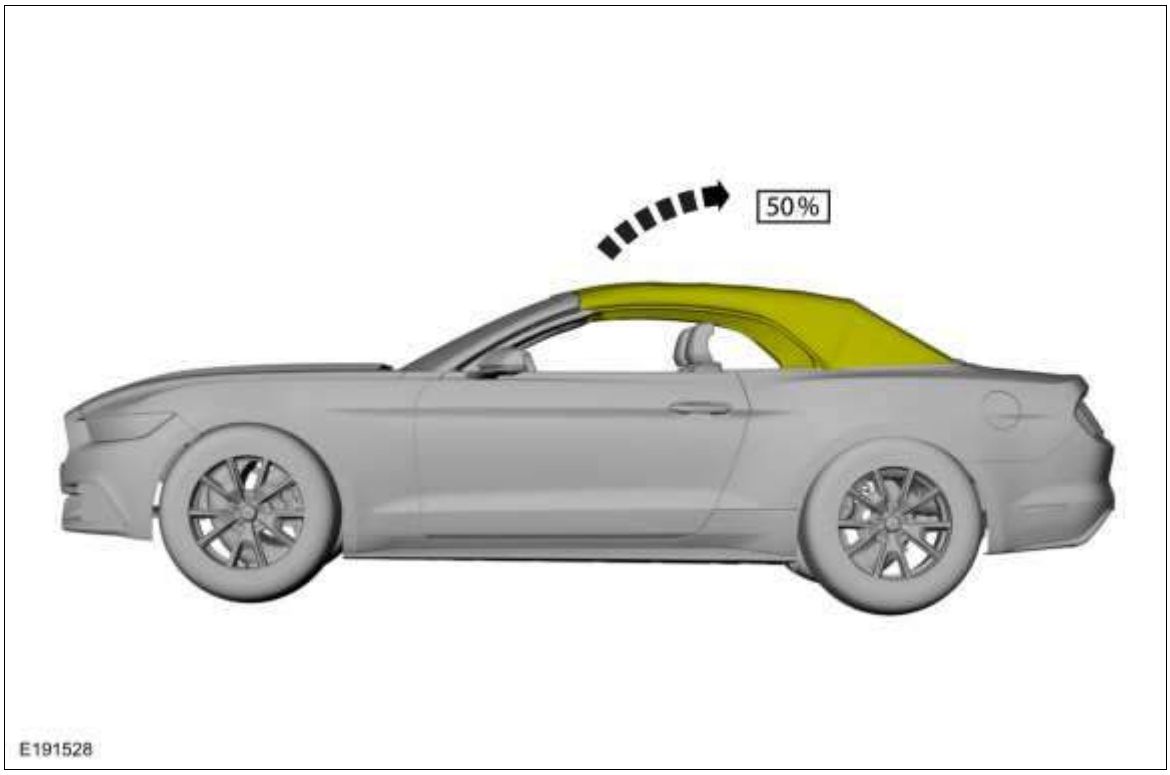
Electric Drill

Removal

NOTE: *Removal steps in this procedure may contain installation details.*

Procedure views are with the convertible top in the fully closed position showing tension on the convertible top material, actual position should be approximately 25-50 percent open allowing slack in the convertible top material and other components for serviceability.

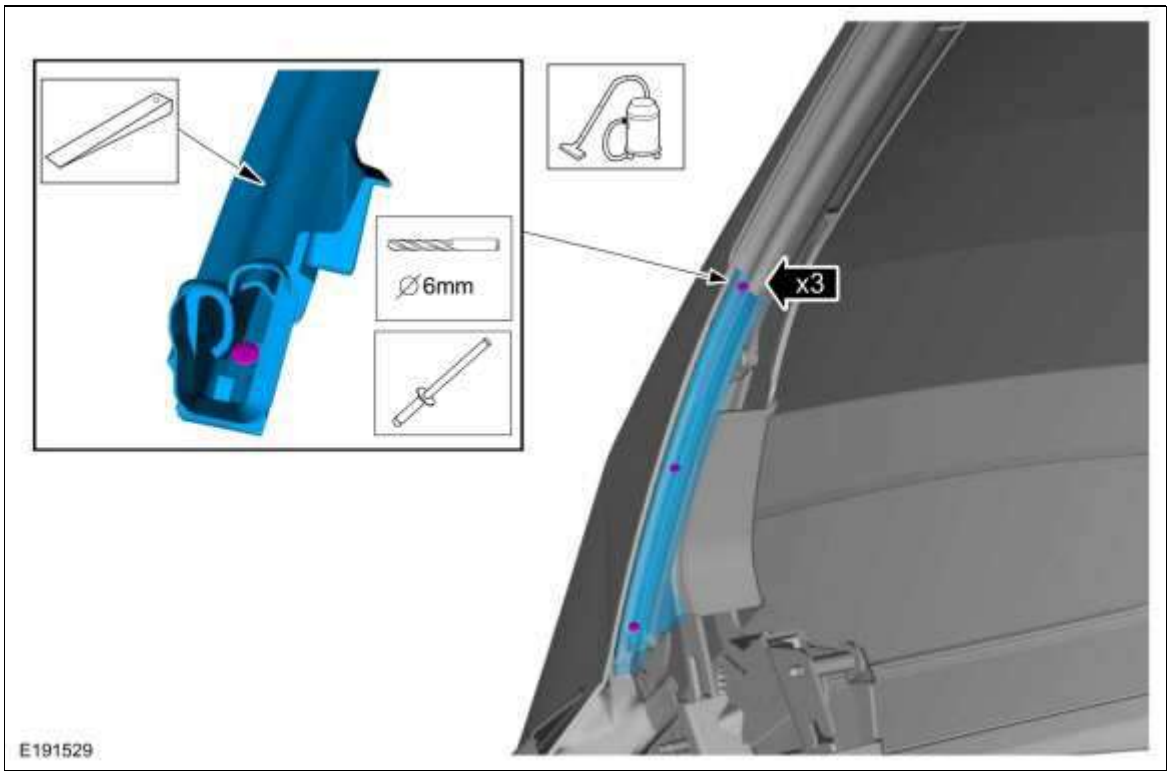
1. Open the convertible top approximately 50 percent.



2. **NOTE:** *RH side shown, LH side similar.*

   All rivet shavings must be removed from the vehicle and convertible top assembly.

   Drill the rivets from the convertible top rear panel lower weatherstrip.
   Use the General Equipment: Electric Drill



Installation

1. To install, reverse the removal procedure.

Convertible Top Switch

Removal

1. The roof opening panel switch is replaced as an assembly with the overhead console.
   Refer to: Overhead Console (501-12 Instrument Panel and Console, Removal and Installation).

Installation

1. To install, reverse the removal procedure.

Convertible Top Tension Belt

Removal

NOTE: *Removal steps in this procedure may contain installation details.*

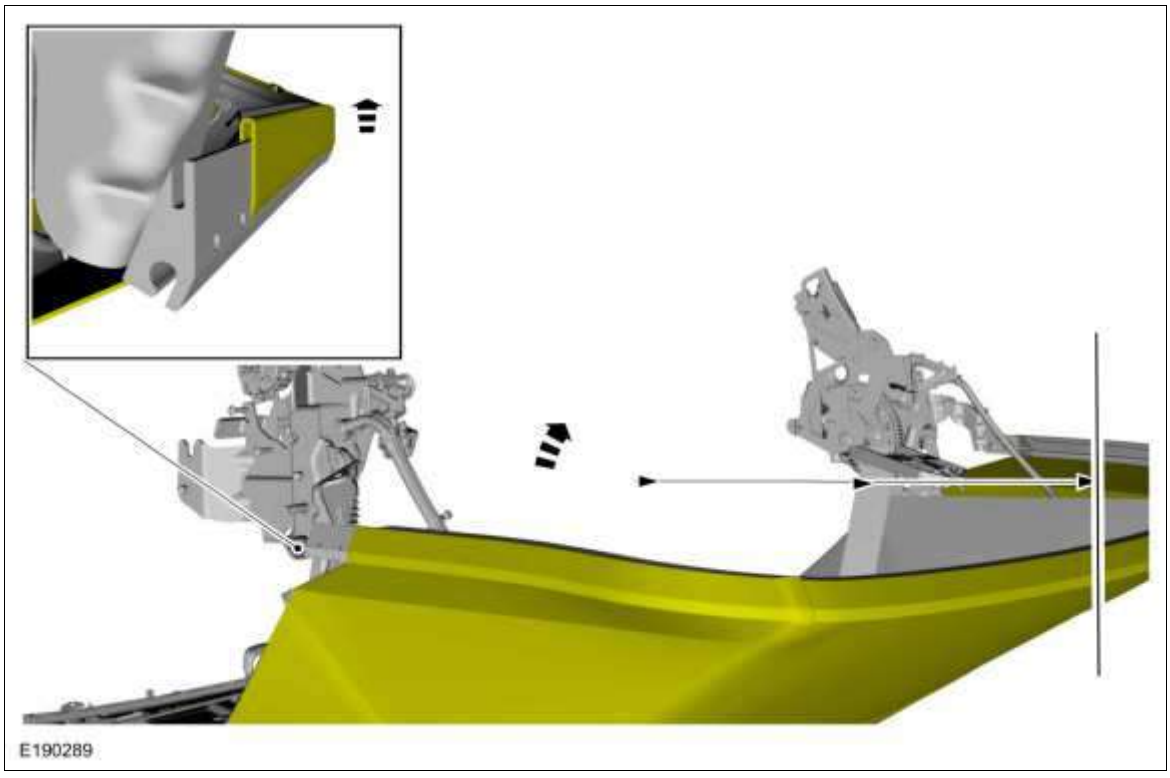
Procedure views are with the convertible top in the fully closed position showing tension on the convertible top material, actual position should be approximately 25-50 percent open allowing slack in the convertible top material and other components for serviceability.

1. Remove the convertible top assembly.
   Refer to: Convertible Top Assembly (501-18 Convertible Top, Removal and Installation).

2. **NOTE:** *Make sure to remove the convertible top material retaining clips from the floating bow. The convertible top material retaining clips must be placed on the convertible top material in the proper locations when installing.*

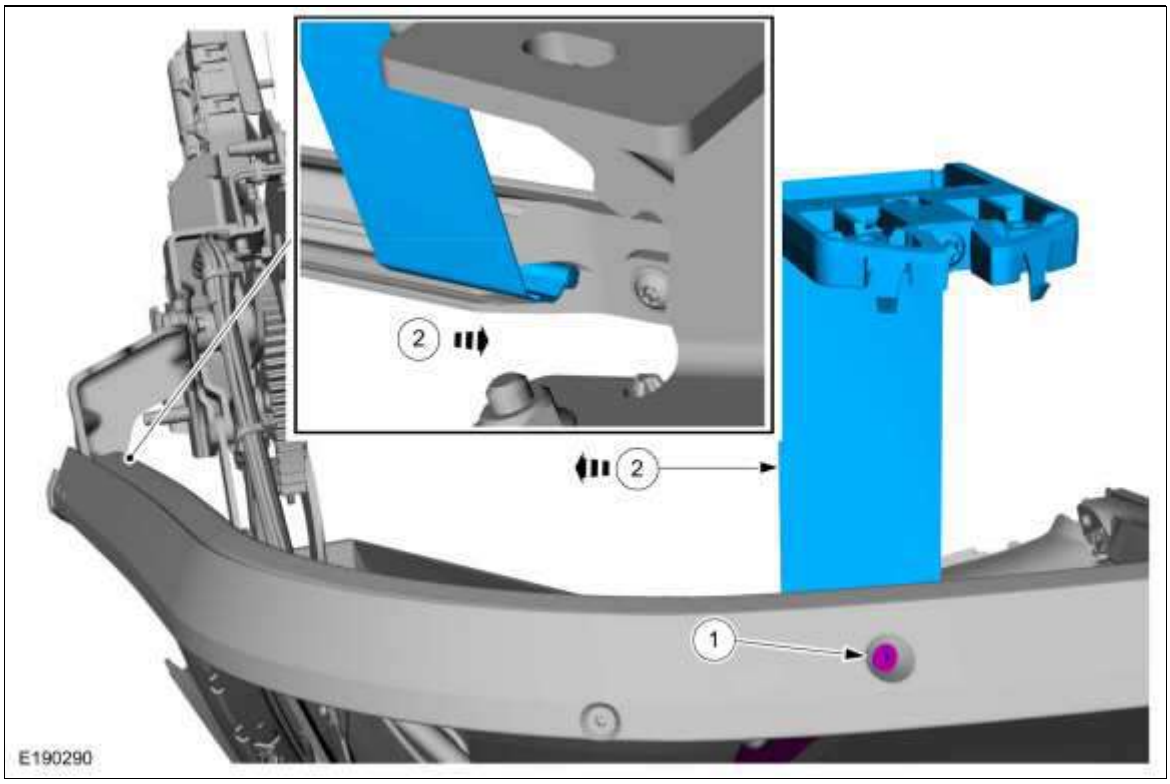
   RH side shown, LH side similar.

   Partially disconnect the convertible top material from the floating bow.



3. **NOTE:** *RH side shown, LH side similar.*

   Remove the tension belt.
   1. Remove the tension belt retaining screw.
      Torque: 62 lb.in (7 Nm)
   2. Slide the tension belt out of the floating bow.



Installation

1. To install, reverse the removal procedure.

Convertible Top Tension Cable

Special Tool(s) / General Equipment

Rivet Gun
Electric Drill
Draw Cord

Removal

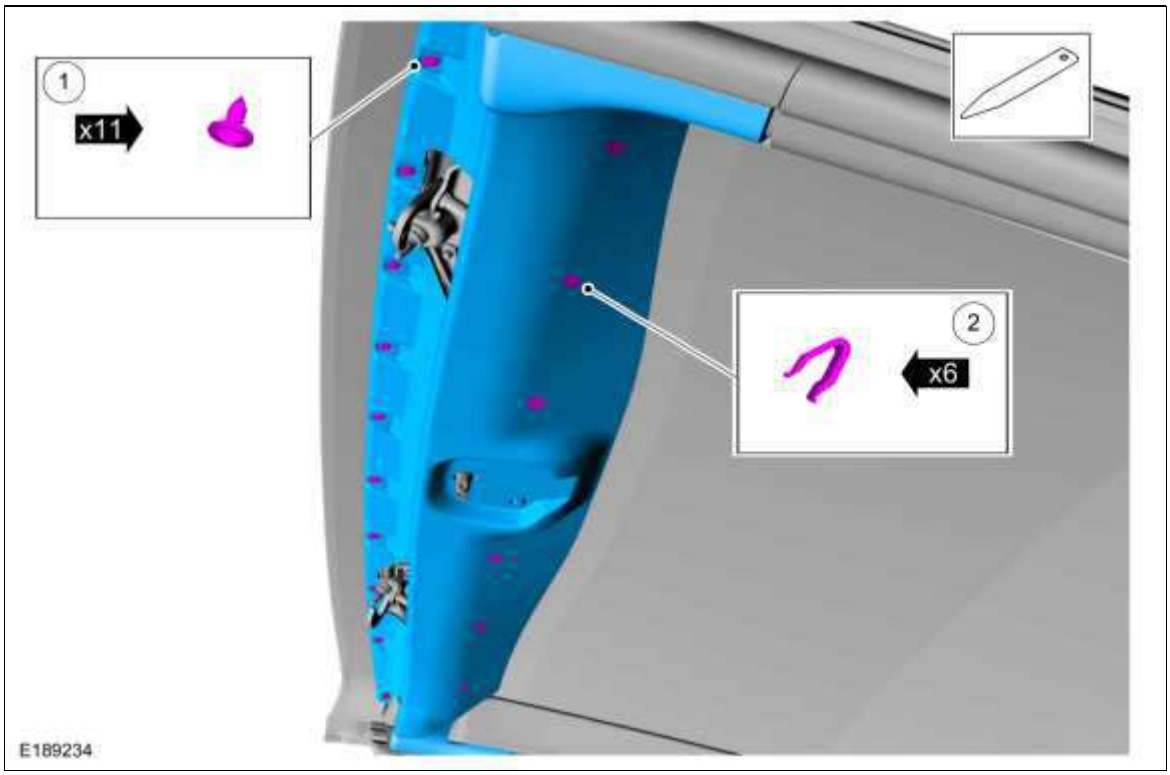
NOTE: *Removal steps in this procedure may contain installation details.*

Procedure views are with the convertible top in the fully closed position showing tension on the convertible top material, actual position should be approximately 25-50 percent open allowing slack in the convertible top material and other components for serviceability.

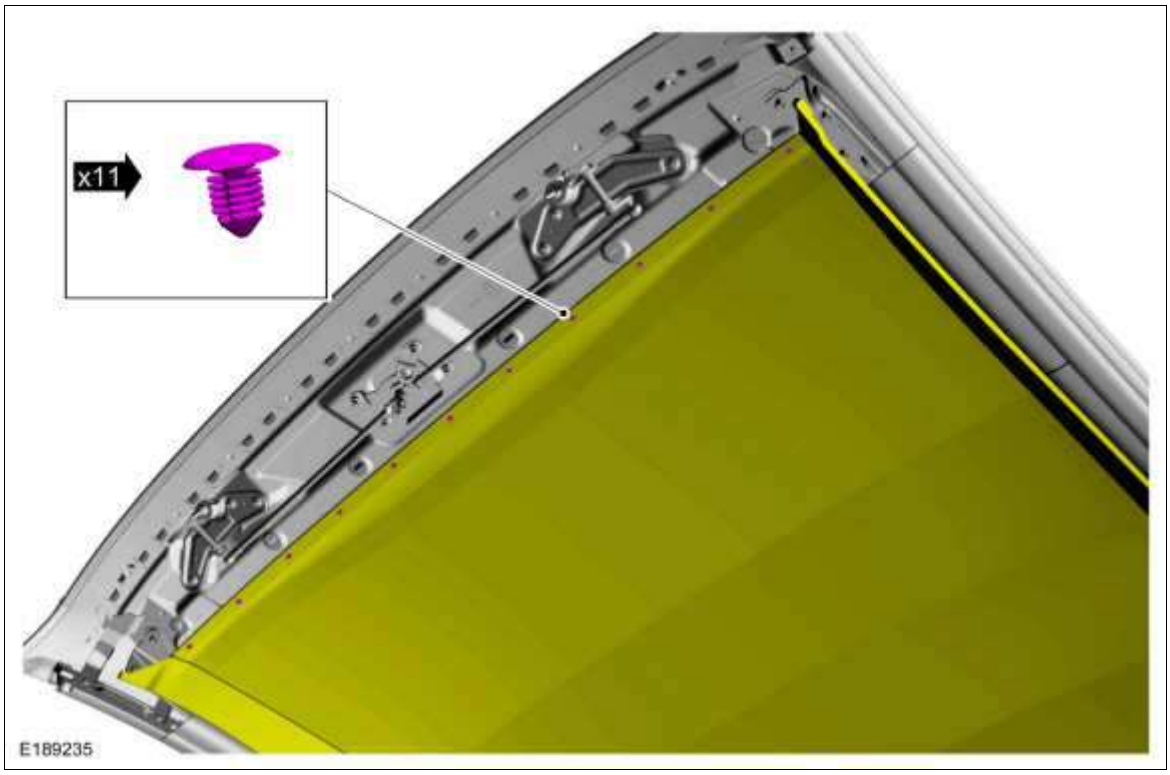
1. On the side needing convertible top tension cable serviced.
   Refer to: Convertible Top Rear Panel Lower Weatherstrip (501-18 Convertible Top, Removal and Installation).

2. Remove the convertible top latch handle.
   Torque: 31 lb.in (3.5 Nm)

3. Remove the convertible top front panel trim.
   1. Remove the convertible top front panel trim retainers on the front of the trim.
      Torque: 18 lb.in (2 Nm)
   2. Release the clips under the back of the convertible top front panel trim and remove the trim.

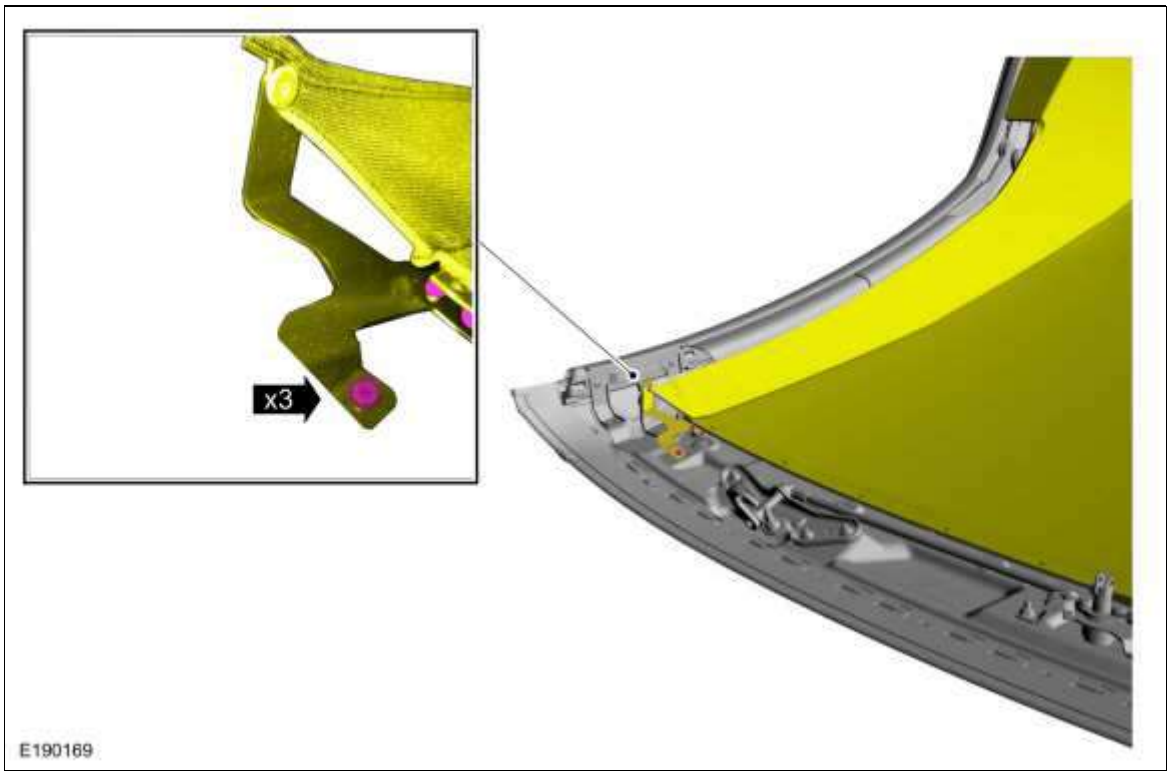


4. Remove the headliner push pin retainers along the back of the convertible top front panel.



5. **NOTE:** *LH side shown, RH side similar.*

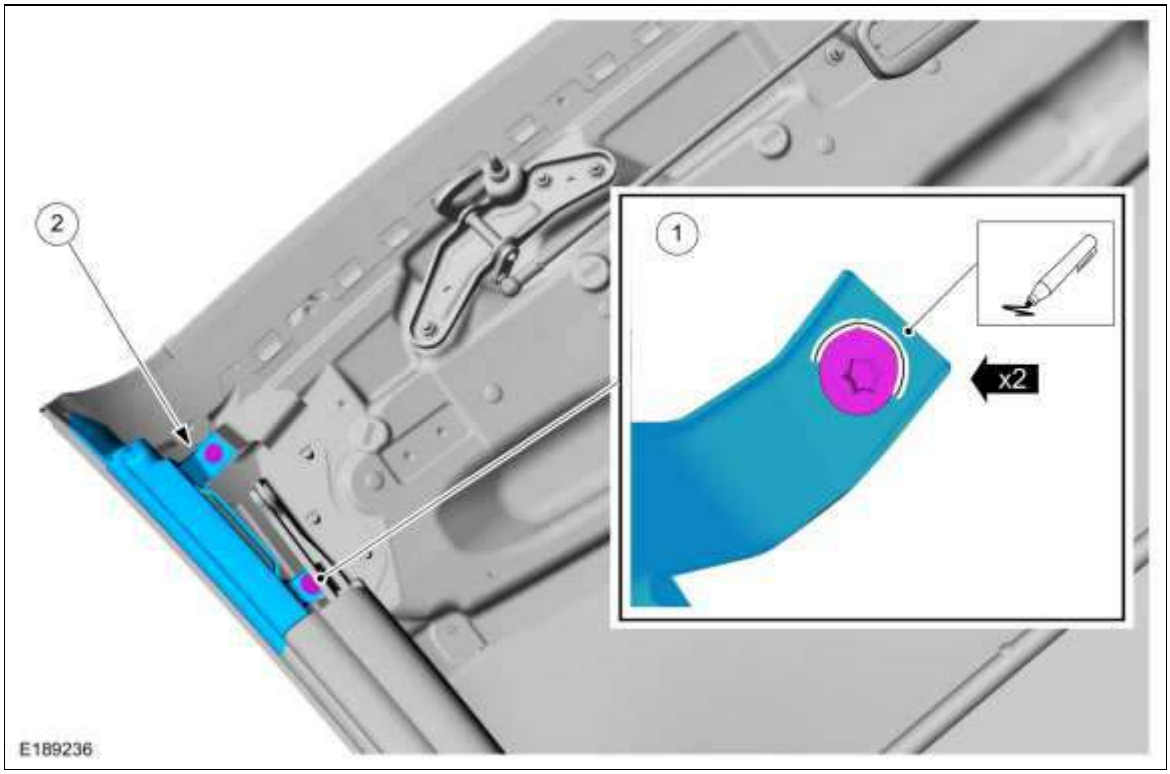
   On both sides, remove the headliner tension bracket retainers and bracket from the convertible top front panel.
   Torque: 25 lb.in (2.8 Nm)



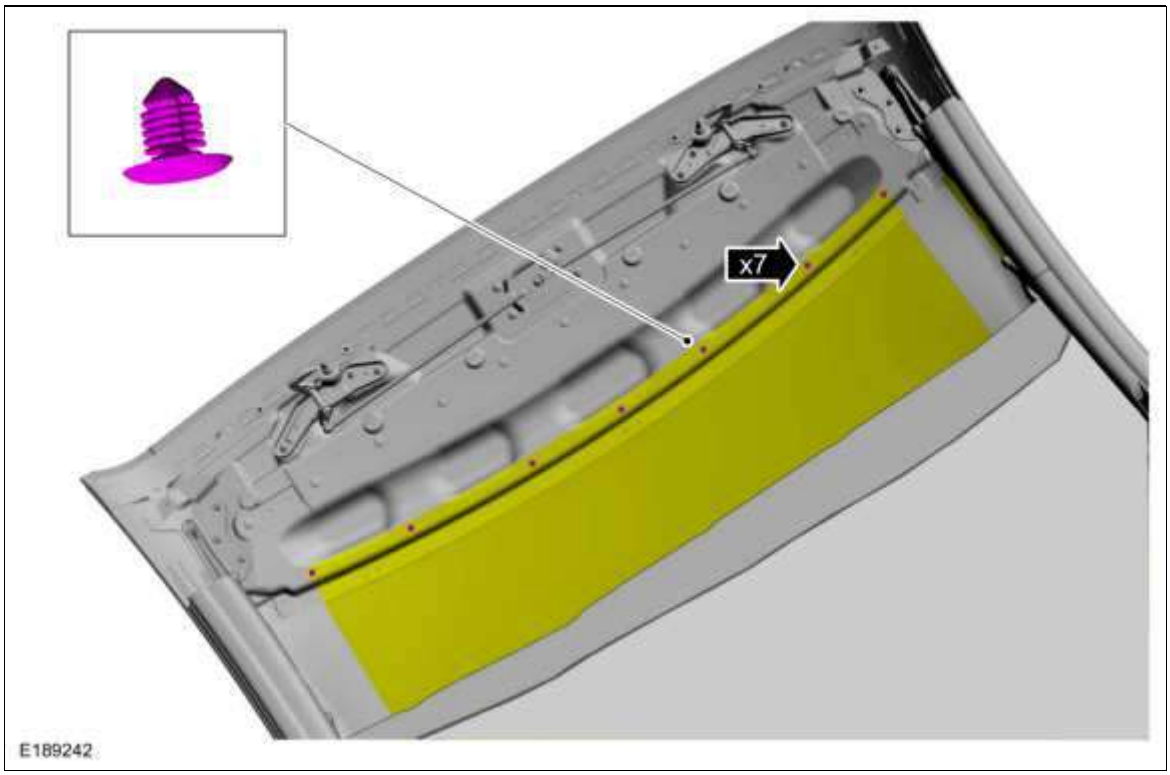
6. **NOTE:** *RH side shown, LH side similar.*

   If any shims are present, note the position for installation.

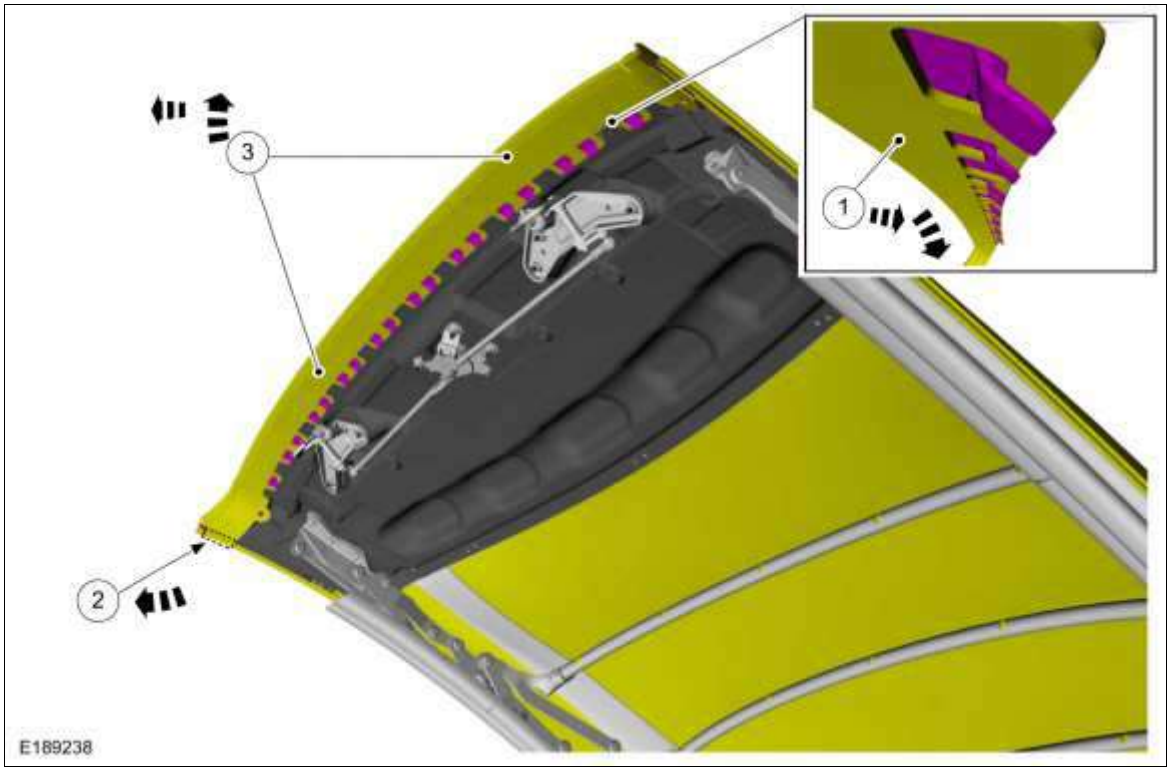
   On both sides, remove the convertible top front panel side weatherstrip and bracket assembly.
   1. Mark the convertible top front panel side weatherstrip bracket assembly at the retainers for installation reference.
      Torque: 62 lb.in (7 Nm)
   2. Remove the convertible top front panel side weatherstrip and bracket assembly retainers and remove the weatherstrip/bracket assembly.



7. Remove the convertible top material push pins at the back of the convertible top front panel.



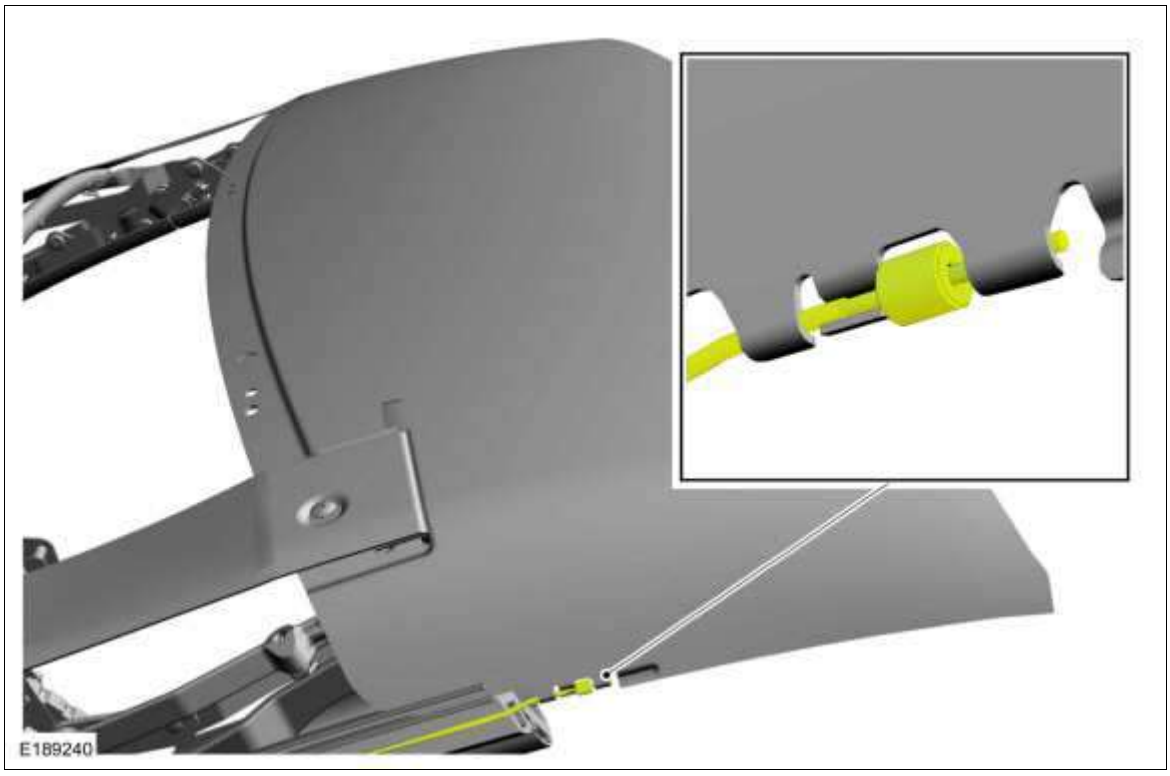
8. On both sides, disconnect the convertible top material from the front underside of the convertible top front panel.
    1. Pull the convertible top material backward and down to release from the convertible top front panel clips.
    2. Pull the convertible top material from the double sided tape securing the material to the convertible top front panel.
    3. Roll the convertible top material forward and up over the convertible top front panel.



9. Fold the front of the convertible top material back to the first crossbow to expose the tension cable end and stay pad rivets.

10. **NOTE:** *RH side shown, LH side similar.*

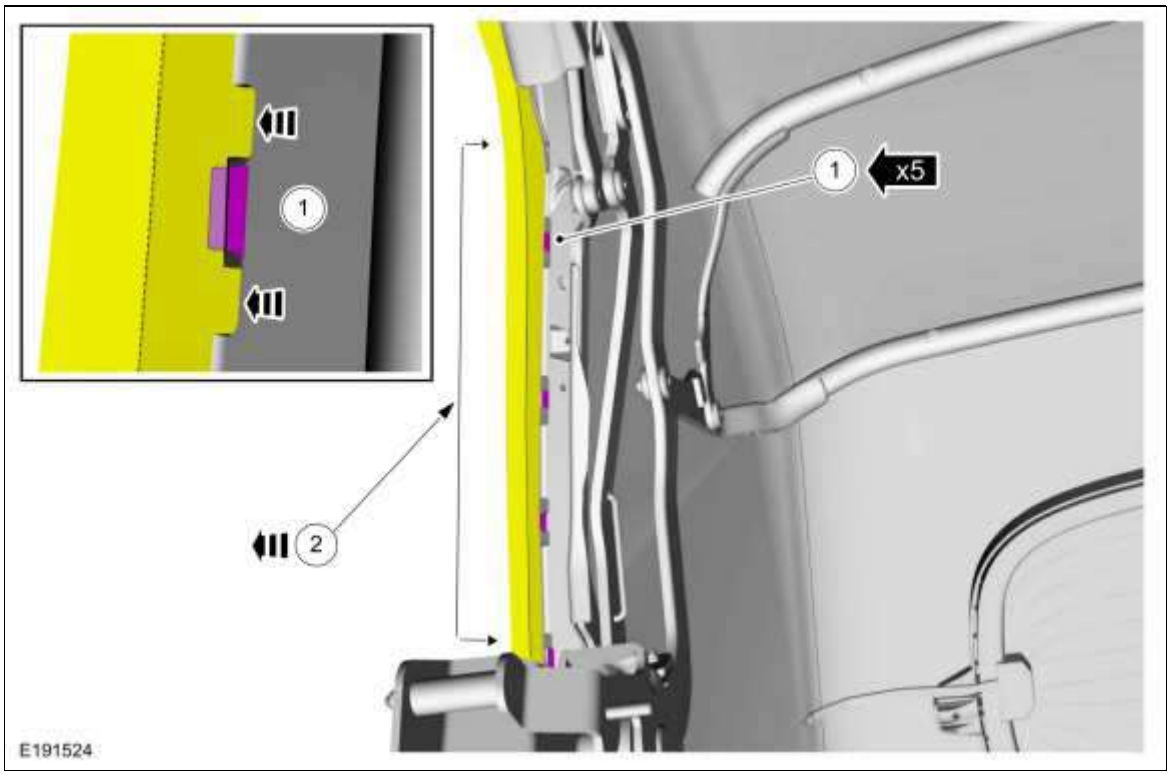
    Disconnect the convertible top tension cable from the convertible top front panel.



11. **NOTE:** *RH side shown, LH side similar.*

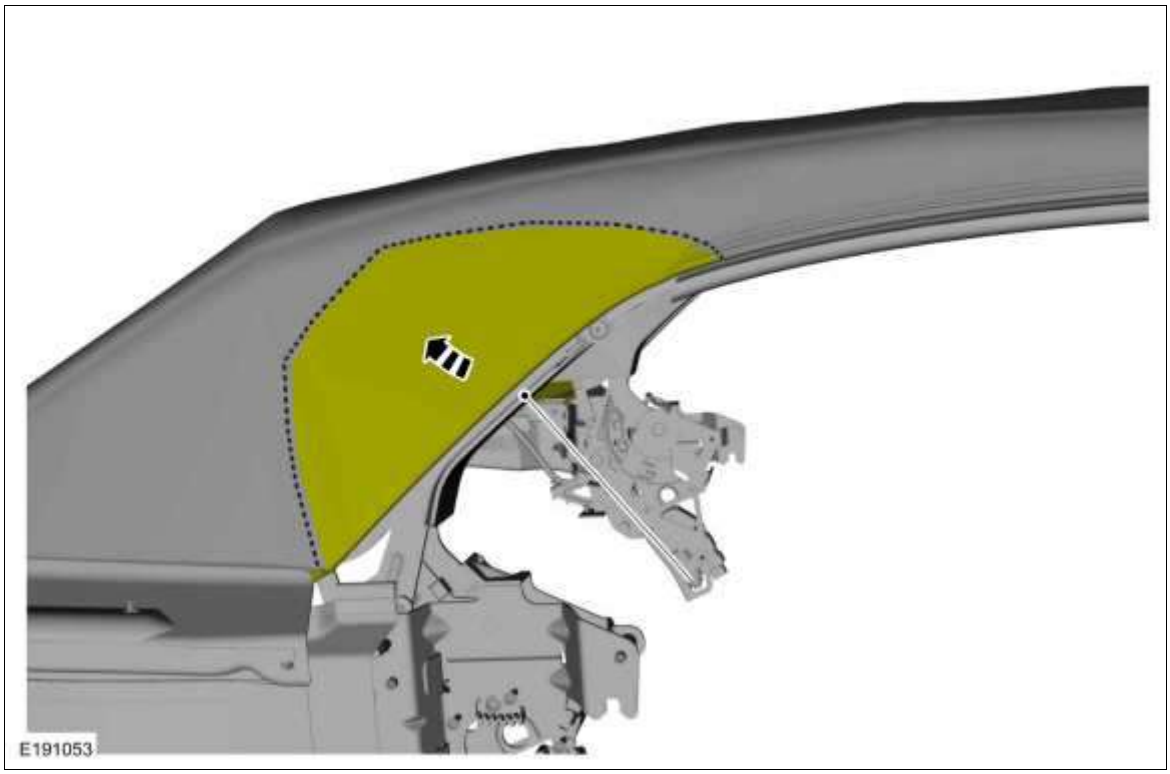
    Release the convertible top material from the frame under the removed convertible top rear panel lower weatherstrip.

    1. Release the convertible top material edge trim from the frame as indicated in all 5 locations under the removed convertible top rear panel lower weatherstrip.
    2. Pull the convertible top material out to fully release from the frame.



12. **NOTE:** *RH side shown, LH side similar.*

    Position the convertible top material up in the area shown for access to remove the convertible top tension cable.



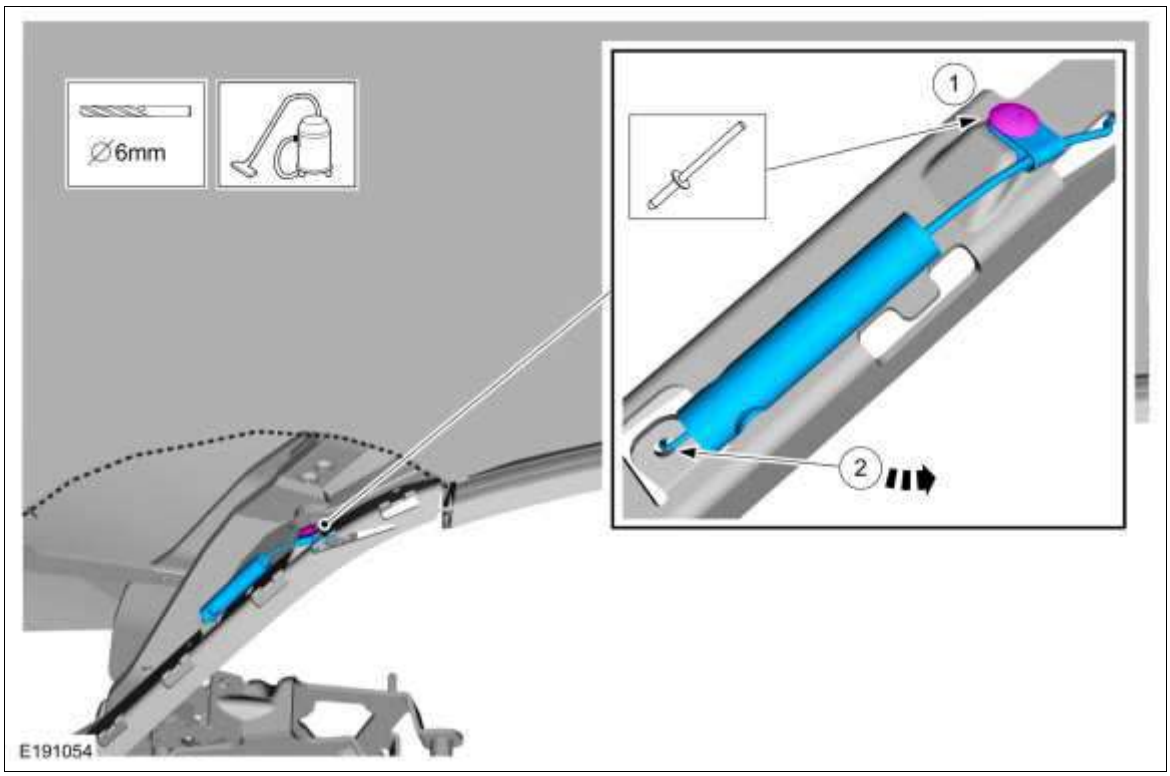
13. **NOTE:** *RH side shown, LH side similar.*

    Disconnect the convertible top tension cable from the convertible top frame.

    1. **NOTE:** *All rivet shavings must be removed from the vehicle and convertible top assembly.*

       Drill out the convertible top tension cable rivet.
       Use the General Equipment: Electric Drill
       Use the General Equipment: Rivet Gun

2. Disconnect the spring end of the convertible top tension cable from the frame.

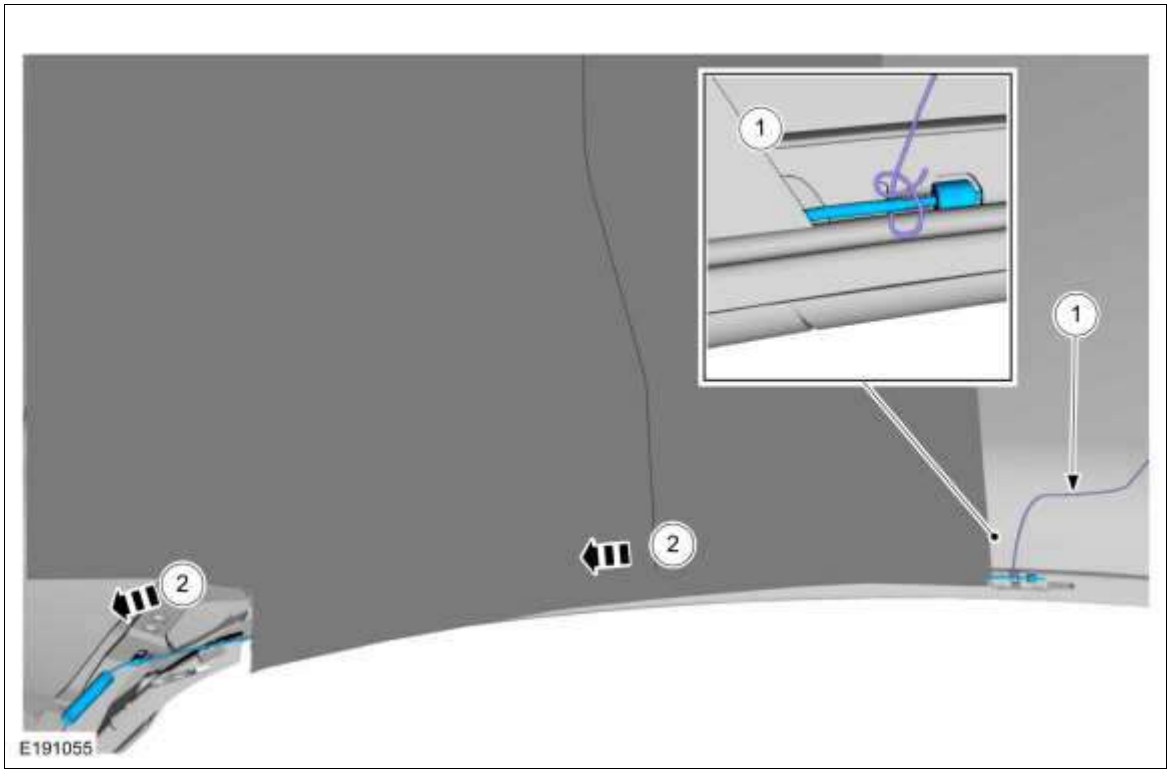


14. **NOTE:** *RH side shown, LH side similar.*

Remove the convertible top tension cable.

1. **NOTE:** *The draw cord is attached to the wiring harness so the harness can be easily routed through the convertible top material during installation.*

   Attach a draw cord to the convertible top tension cable.
   Use the General Equipment: Draw Cord
2. Pull the convertible top tension cable from the convertible top material leaving the draw cord exposed on both sides of the convertible top material for installation.



Installation

1. To install, reverse the removal procedure.

Convertible Top Trough Assembly

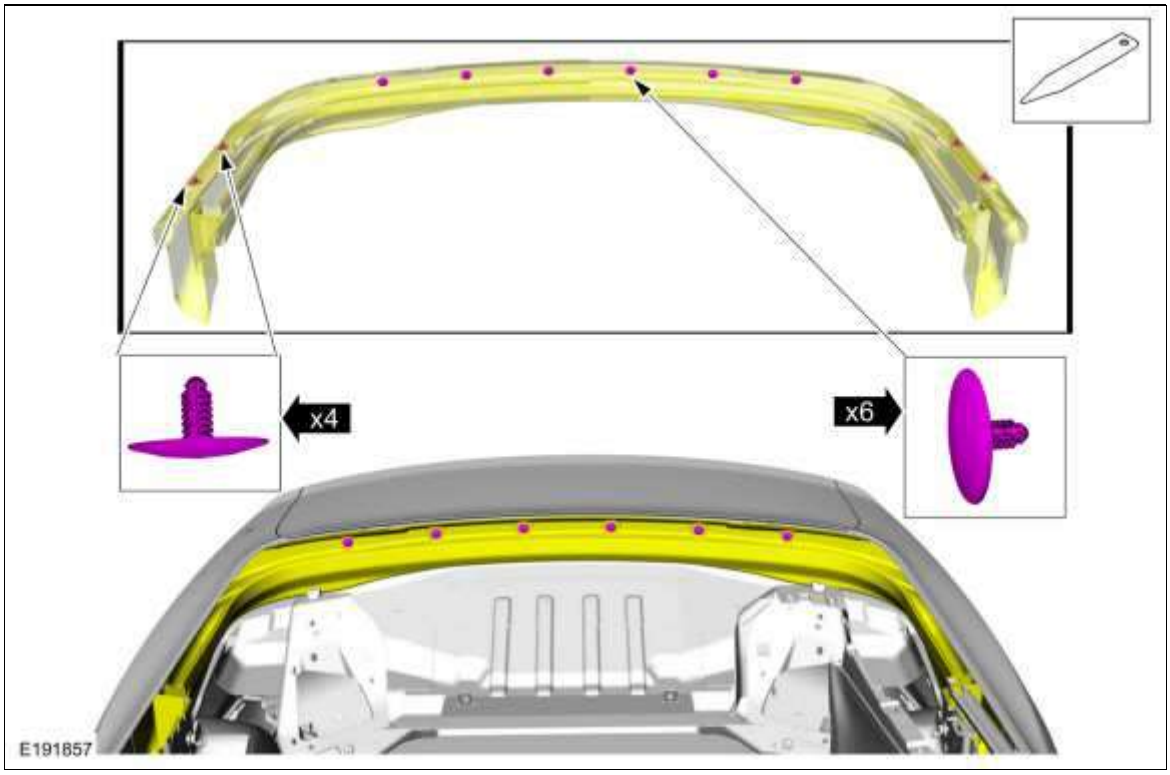
Removal

NOTE: *Removal steps in this procedure may contain installation details.*

Many procedure views are with the convertible top in the fully closed position showing tension on the convertible top material. Actual position should be approximately 25-50 percent open allowing slack in the convertible top material and other components for serviceability.

1. Remove the convertible top assembly.
   Refer to: Convertible Top Assembly (501-18 Convertible Top, Removal and Installation).

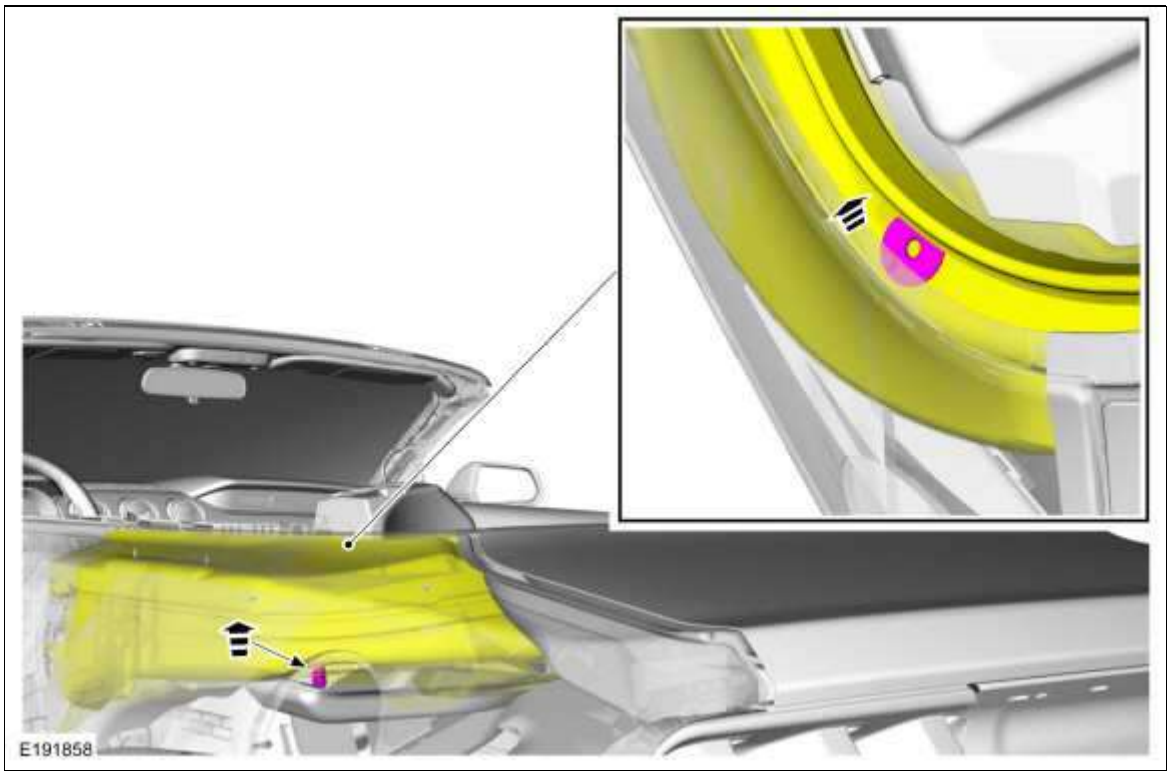
2. Remove the convertible top trough assembly to inner body panel push pin retainers.



3. **NOTE:** *LH shown, RH side similar.*

   The water drain fitting should not be removed from the flexible water bag portion of the convertible top trough assembly.

   On both sides, from inside the convertible top trough assembly.
   Carefully pull up on the flexible water bag portion of the convertible top trough assembly and the water drain fitting to release the water drain fitting from the inner body panel grommet/drain hose.

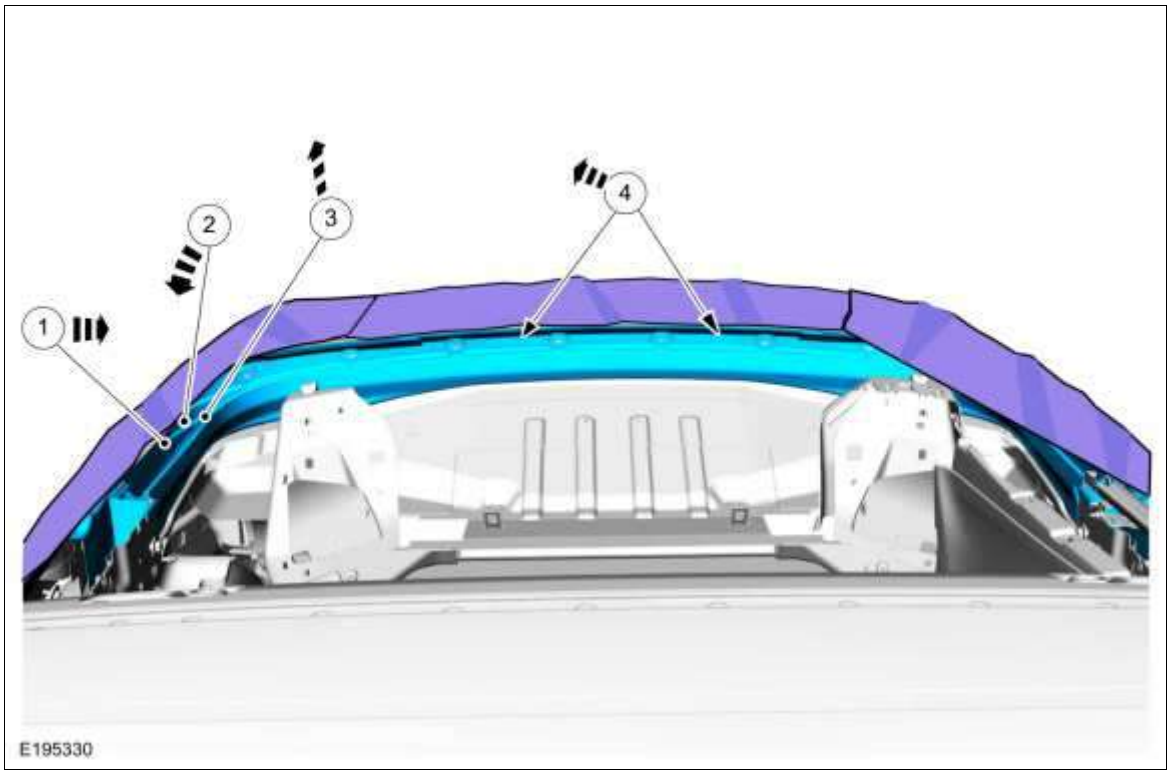


4. **NOTICE: Make sure the body of the vehicle is fully covered with fender blankets or equivalent or damage to the finish may result.**

Remove the trough assembly from the vehicle.

1. **NOTE:** *Sub steps 1, 2 and 3 should be performed together as a single step.*

   Pull the RH side of the convertible top trough assembly inward for clearance of the body side panels.
2. Roll the RH side of the convertible top trough assembly forward and slightly down for clearance of the rear body panels.
3. Lift the RH rear of the convertible top trough assembly above the body panels.
4. Remove the convertible top trough assembly toward the RH side of the vehicle.



Installation

1. To install, reverse the removal procedure.

Stay Pad

Special Tool(s) / General Equipment

Rivet Gun
Electric Drill

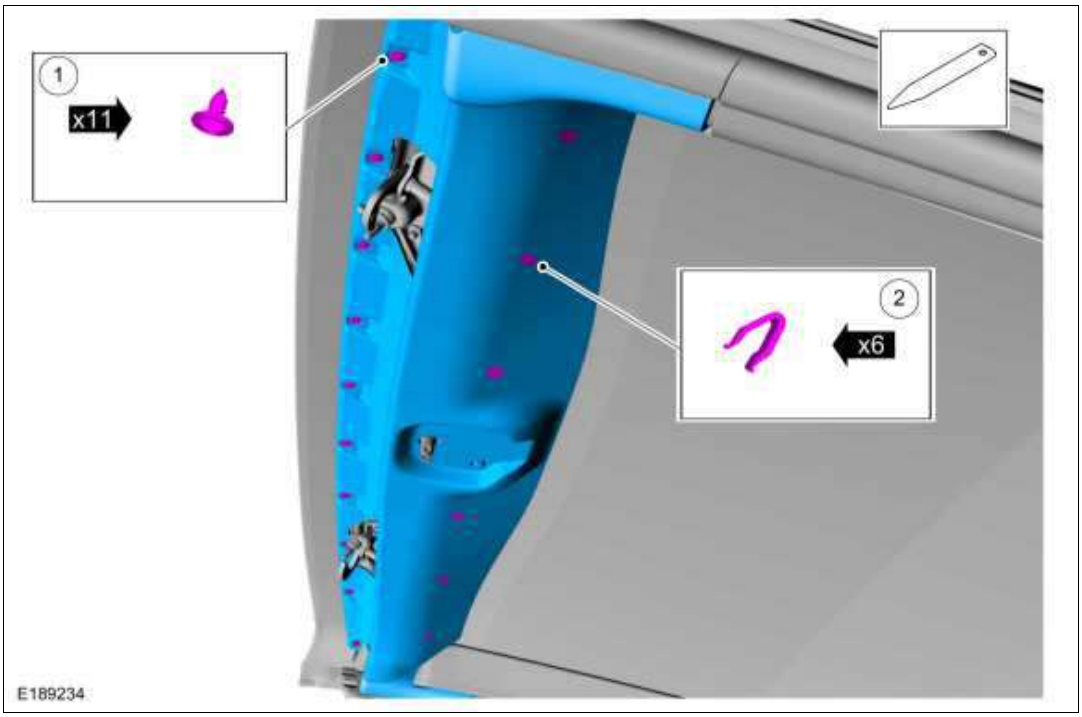
Removal

NOTE: *Removal steps in this procedure may contain installation details.*

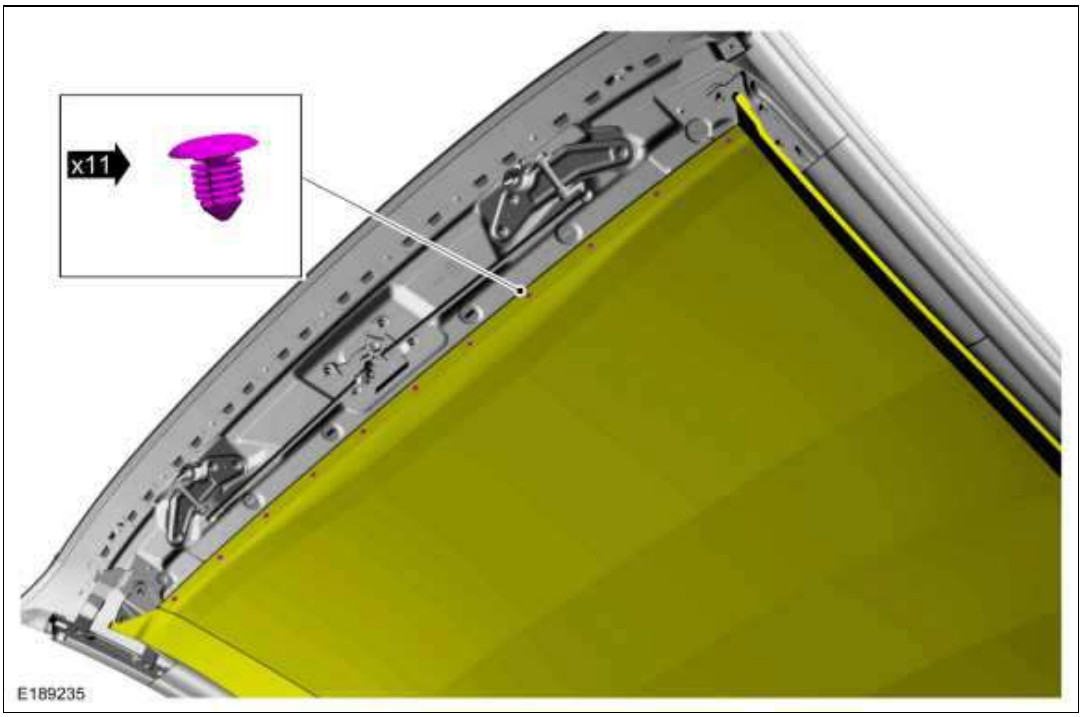
Procedure views are with the convertible top in the fully closed position showing tension on the convertible top material, actual position should be approximately 25-50 percent open allowing slack in the convertible top material and other components for serviceability.

1. Refer to: Convertible Top Assembly (501-18 Convertible Top, Removal and Installation).
2. Remove the convertible top latch handle.
   Torque: 31 lb.in (3.5 Nm)

3. Remove the convertible top front panel trim.
   1. Remove the convertible top front panel trim retainers on the front of the trim.
      Torque: 18 lb.in (2 Nm)
   2. Release the clips under the back of the convertible top front panel trim and remove the trim.

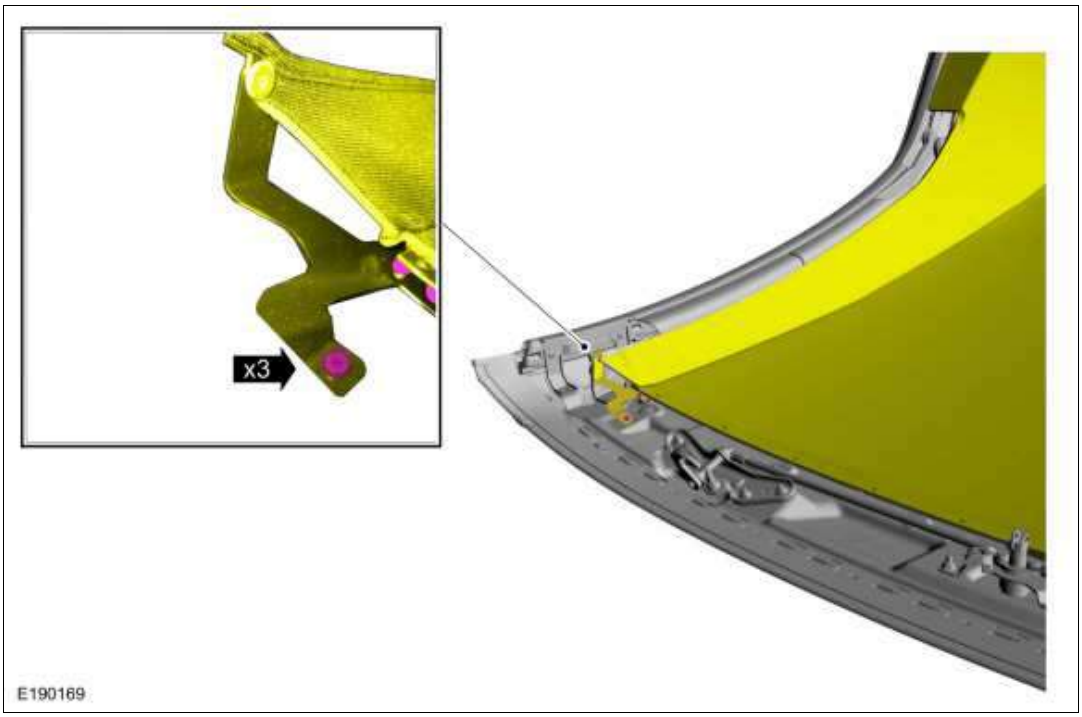


4. Remove the headliner push pin retainers along the back of the convertible top front panel.



5. **NOTE:** *LH side shown, RH side similar.*

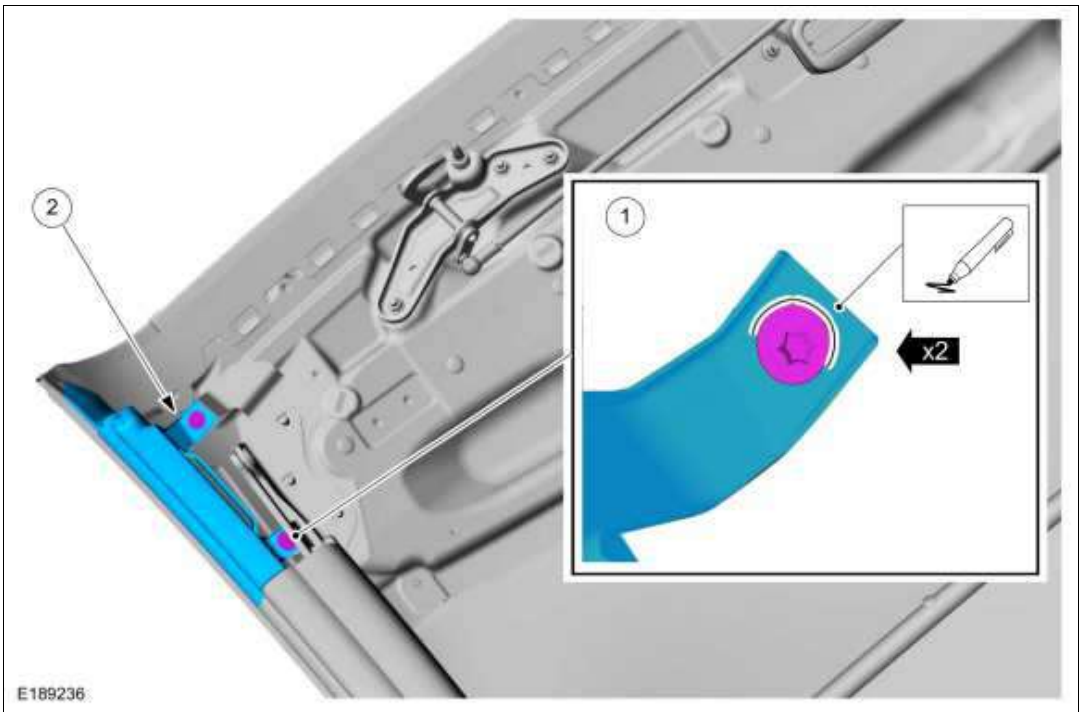
   On both sides, remove the headliner tension bracket retainers and bracket from the convertible top front panel.
   Torque: 25 lb.in (2.8 Nm)



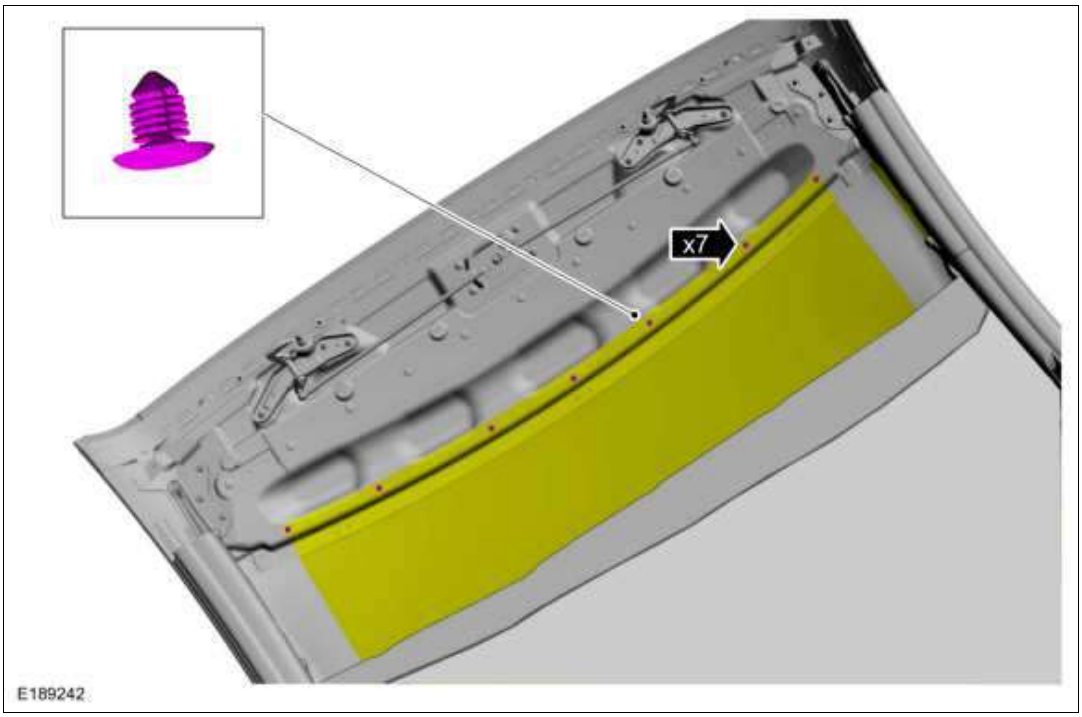
6. **NOTE:** *RH side shown, LH side similar.*

   If any shims are present, note the position for installation.

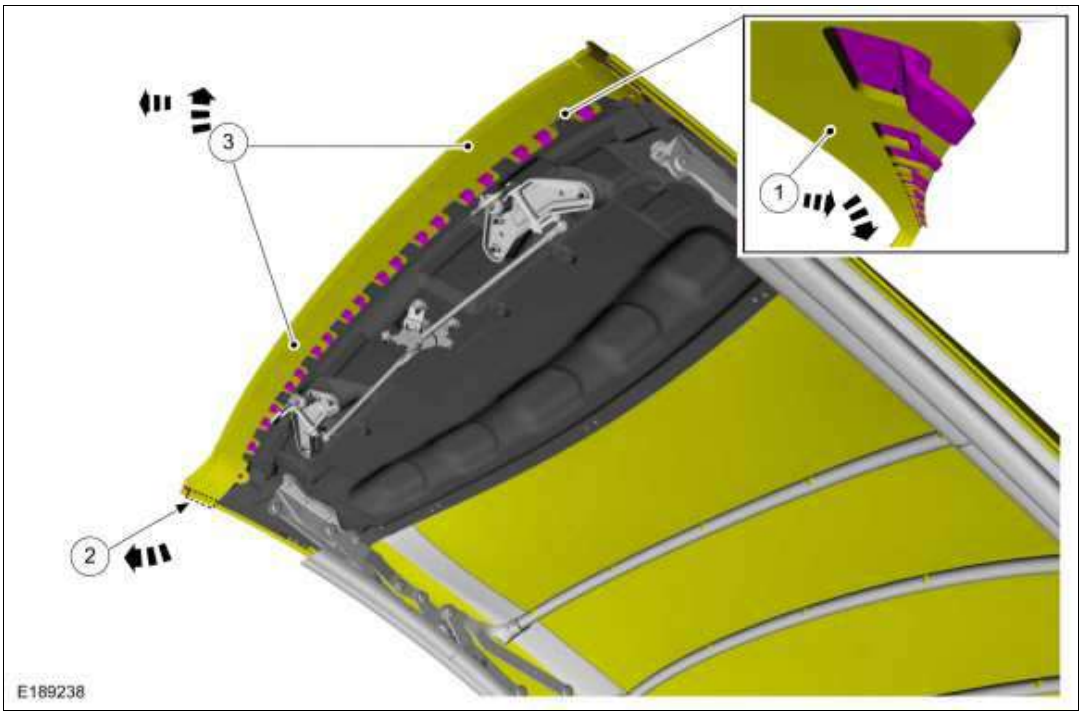
   On both sides, remove the convertible top front panel side weatherstrip and bracket assembly.
   1. Mark the convertible top front panel side weatherstrip bracket assembly at the retainers for installation reference.
      Torque: 62 lb.in (7 Nm)
   2. Remove the convertible top front panel side weatherstrip and bracket assembly retainers and remove the weatherstrip/bracket assembly.



7. Remove the convertible top material push pins at the back of the convertible top front panel.



8. On both sides, disconnect the convertible top material from the front underside of the convertible top front panel.
    1. Pull the convertible top material backward and down to release from the convertible top front panel clips.
    2. Pull the convertible top material from the double sided tape securing the material to the convertible top front panel.
    3. Roll the convertible top material forward and up over the convertible top front panel.



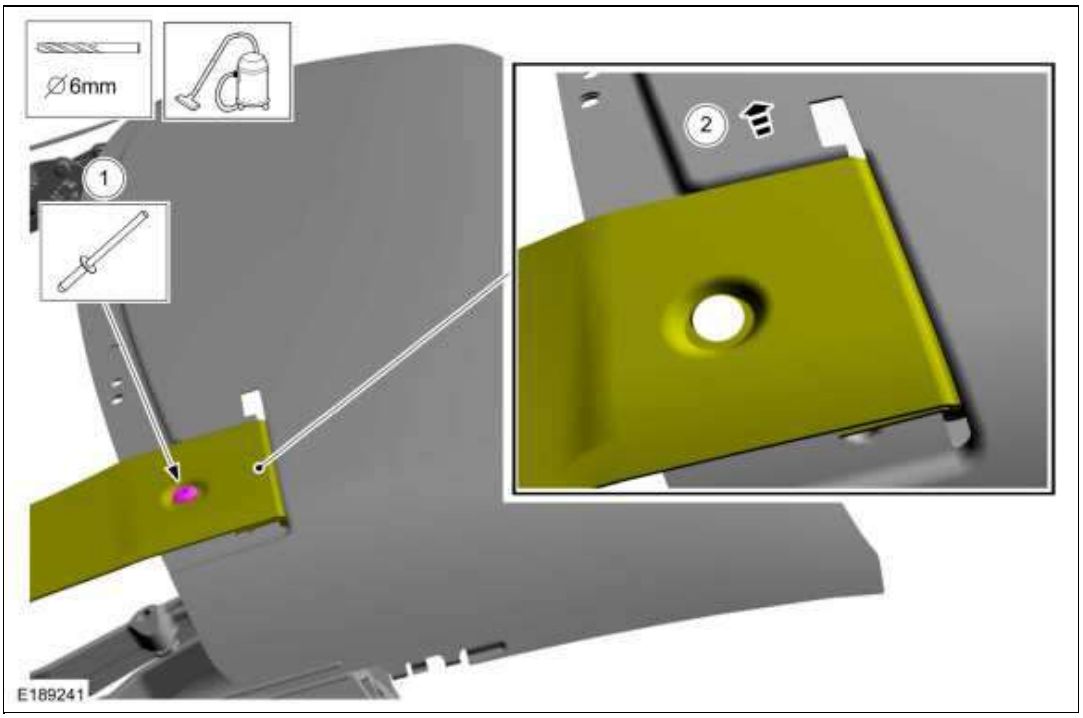
9. Fold the front of the convertible top material back to the first crossbow to expose the tension cable end and stay pad rivets.

10. **NOTE:** *RH side shown, LH side similar.*

    Disconnect the stay pad from the convertible top front panel.

    1. **NOTE:** *All rivet shavings must be removed from the vehicle and convertible top assembly.*

       Drill the stay pad rivets from the convertible top front panel.
       Use the General Equipment: Electric Drill
       Use the General Equipment: Rivet Gun
    2. Slide the stay pad to the center of the convertible top front panel to disconnect the stay pad.



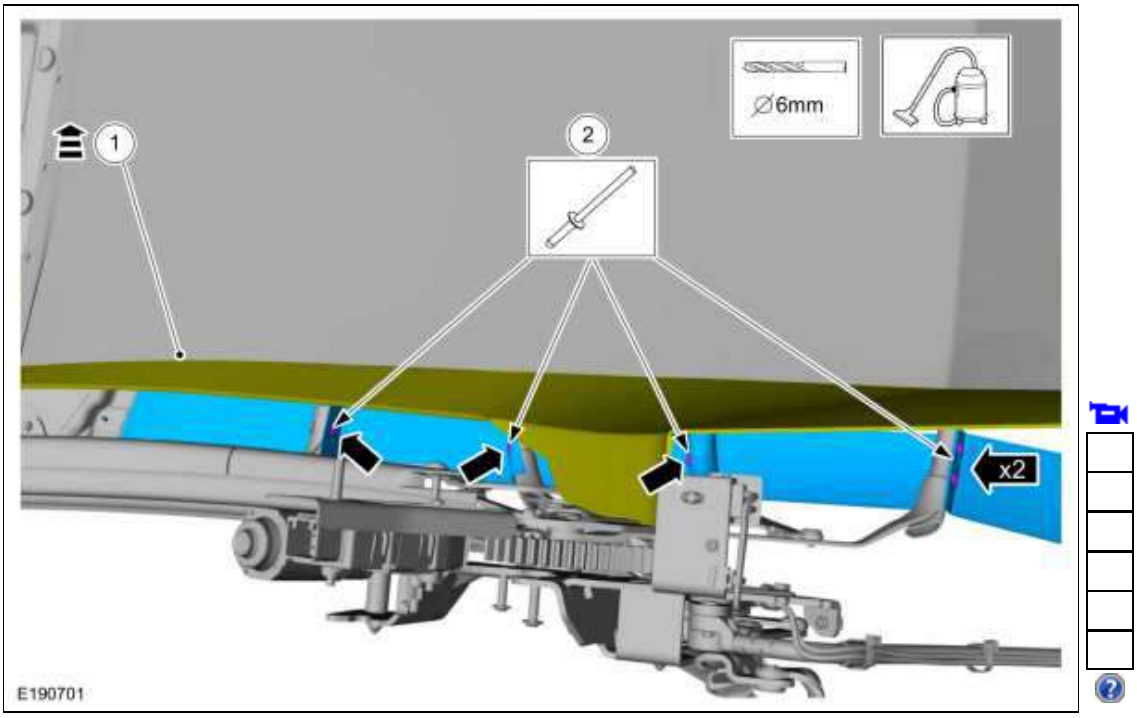
11. **NOTE:** *Clean all rivet shavings from the vehicle after removing the rivets.*

    RH side shown, LH side similar.

    Remove the stay pad to cross bow rivets.
    1. Pull the edge of the headliner inward to access the stay pad rivets.

    2. **NOTE:** *All rivet shavings must be removed from the vehicle and convertible top assembly.*

Drill out the stay pad rivets.
Use the General Equipment: Electric Drill
Use the General Equipment: Rivet Gun



12. **NOTE:** *All rivet, shavings or pieces must be removed from all cross bows and the vehicle interior. Rivet ends left in any cross bow may result in a rattle condition.*

    RH side shown, LH side similar.

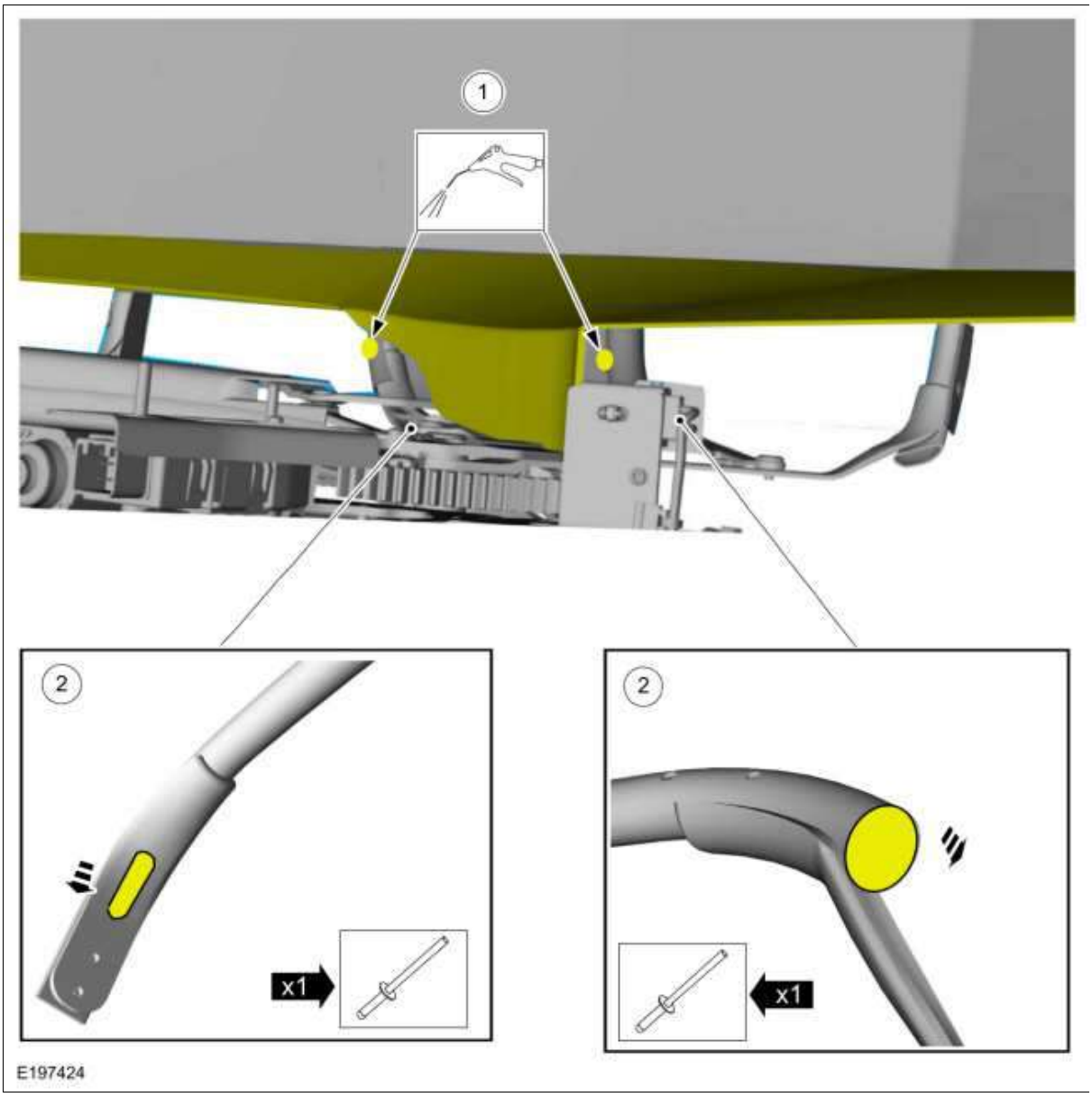
    Remove all rivet pieces from inside two center cross bows.

    1. **NOTE:** *It may be necessary to force compressed air into multiple rivet holes in the cross bows to get all rivet pieces out of the cross bows.*

       Using an air nozzle and compressed air, blow the two center cross bow to force the rivet pieces to the outer ends of the cross bows for removal.

    2. **NOTE:** *Check both ends of each cross bow to make sure all rivet pieces are removed from the vehicle*

       At the ends of the cross bows, collect all rivet pieces and verify that all rivet ends are accounted for.



13. **NOTE:** *All rivet, shavings or pieces must be removed from the front and rear cross bows and the vehicle interior. Rivet ends left in any cross bow may result in a rattle condition.*

    RH side shown, LH side similar.

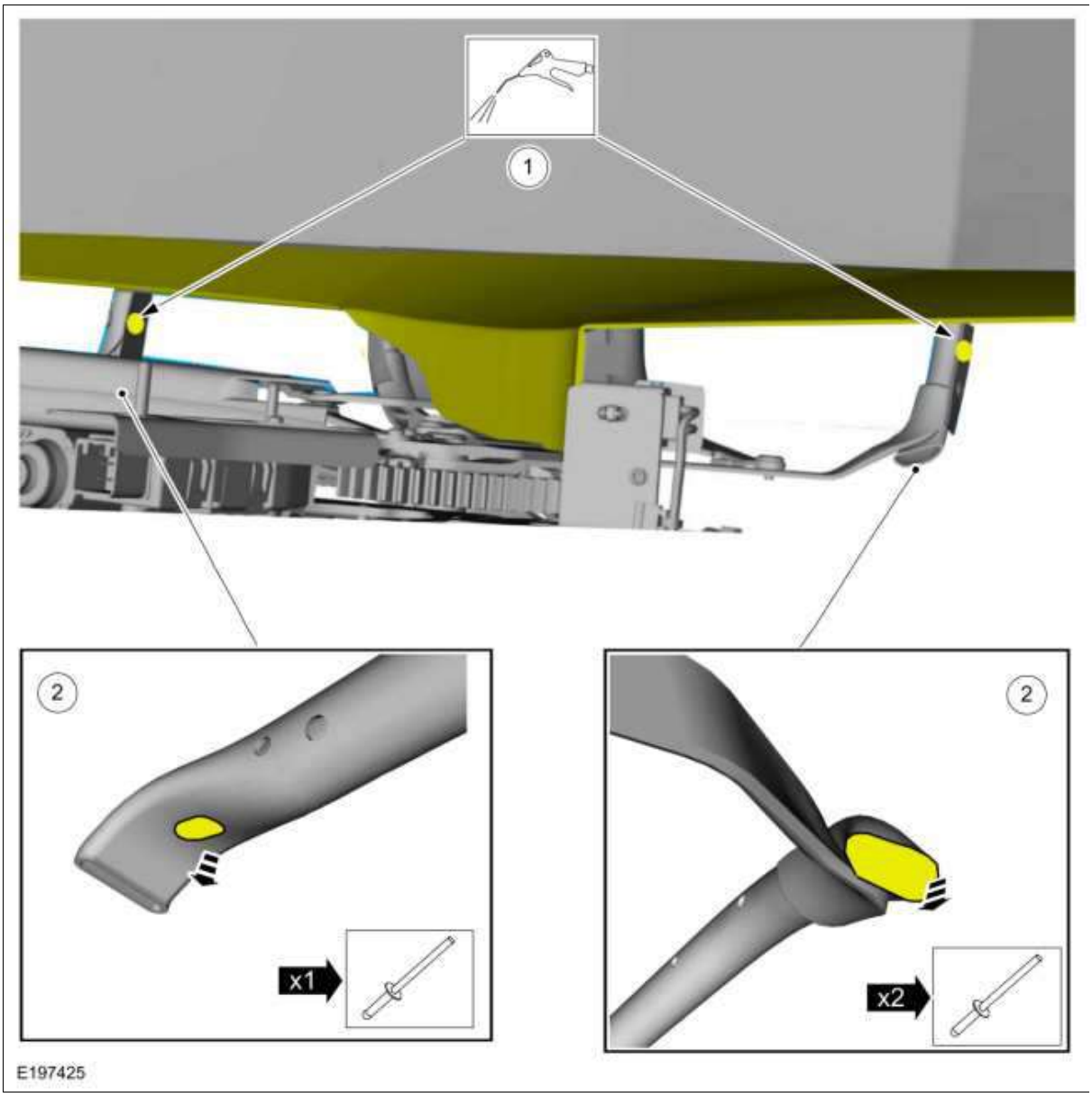
    Remove all rivet pieces from inside the front and rear cross bows.

    1. **NOTE:** *It may be necessary to force compressed air into multiple rivet holes in the cross bows to get all rivet pieces out of the cross bows.*

       Using an air nozzle and compressed air, blow into the front and rear cross bows to force the rivet pieces to the outer ends of the cross bows for removal.

    2. **NOTE:** *Check both ends of each cross bow to make sure all rivet pieces are removed from the vehicle*

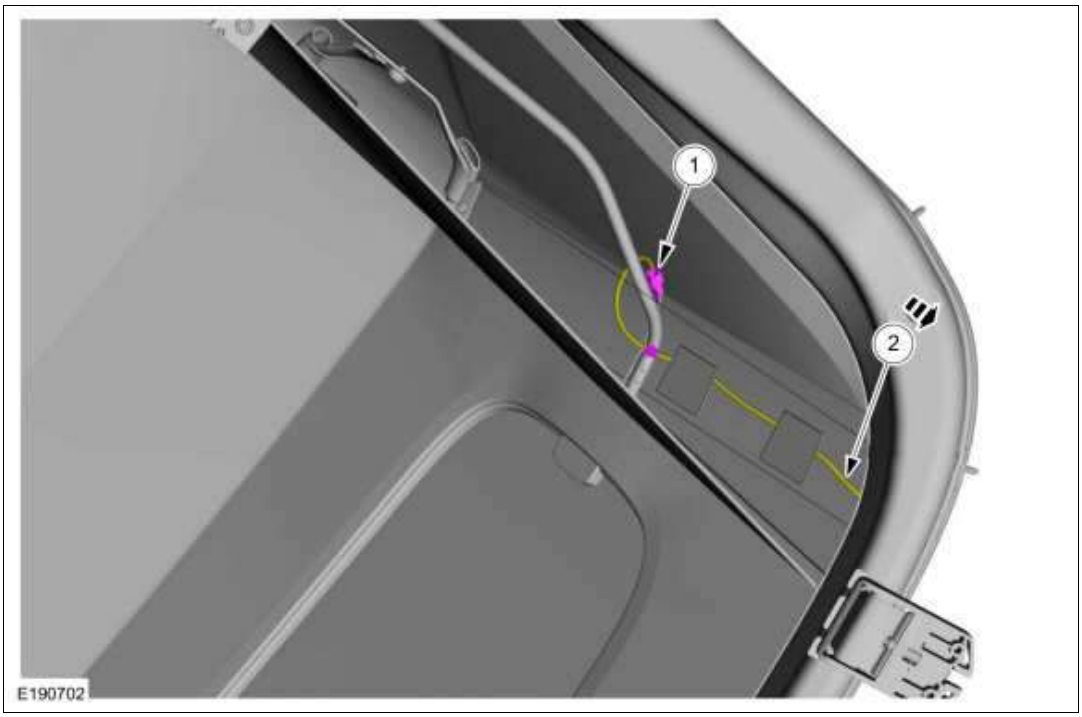
       At the ends of the cross bows, collect all rivet pieces and verify that all rivet ends are accounted for.



14. **NOTE:** *RH side shown, LH side similar.*

Remove the wiring harness from the LH stay pad webbing.

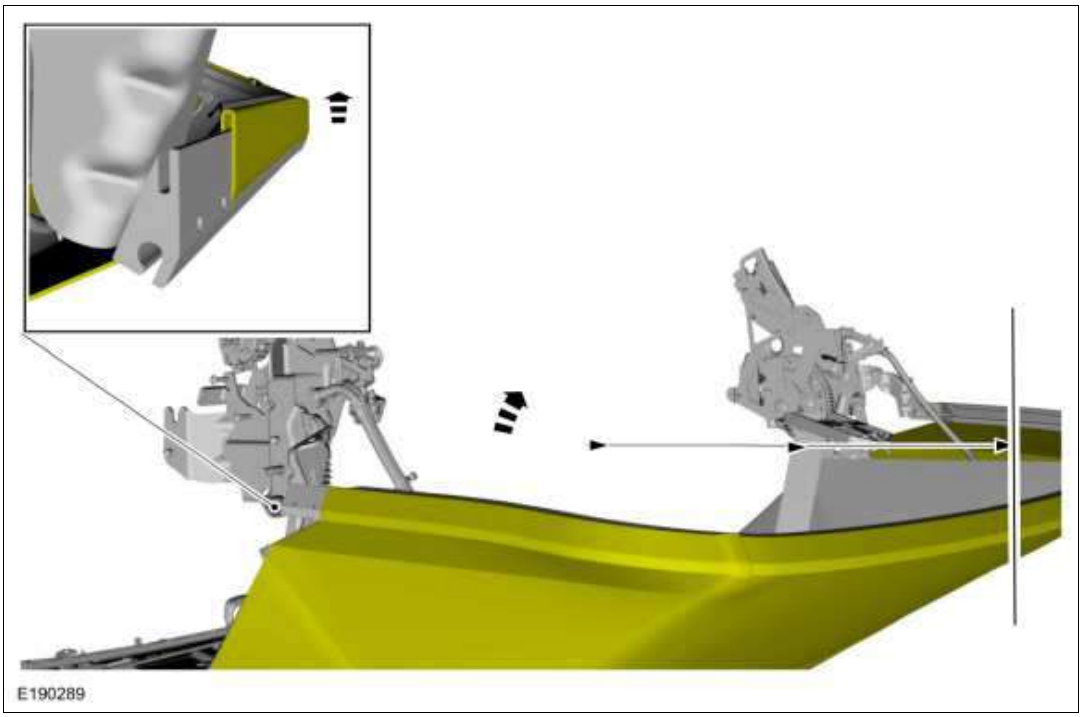
1. Disconnect the rear window wiring harness connector and routing connector, if equipped.
2. Route the wiring harness through the stay pad webbing.



15. **NOTE:** *Make sure to remove the convertible top material retaining clips from the floating bow. The convertible top material retaining clips must be placed on the convertible top material in the proper locations when installing.*

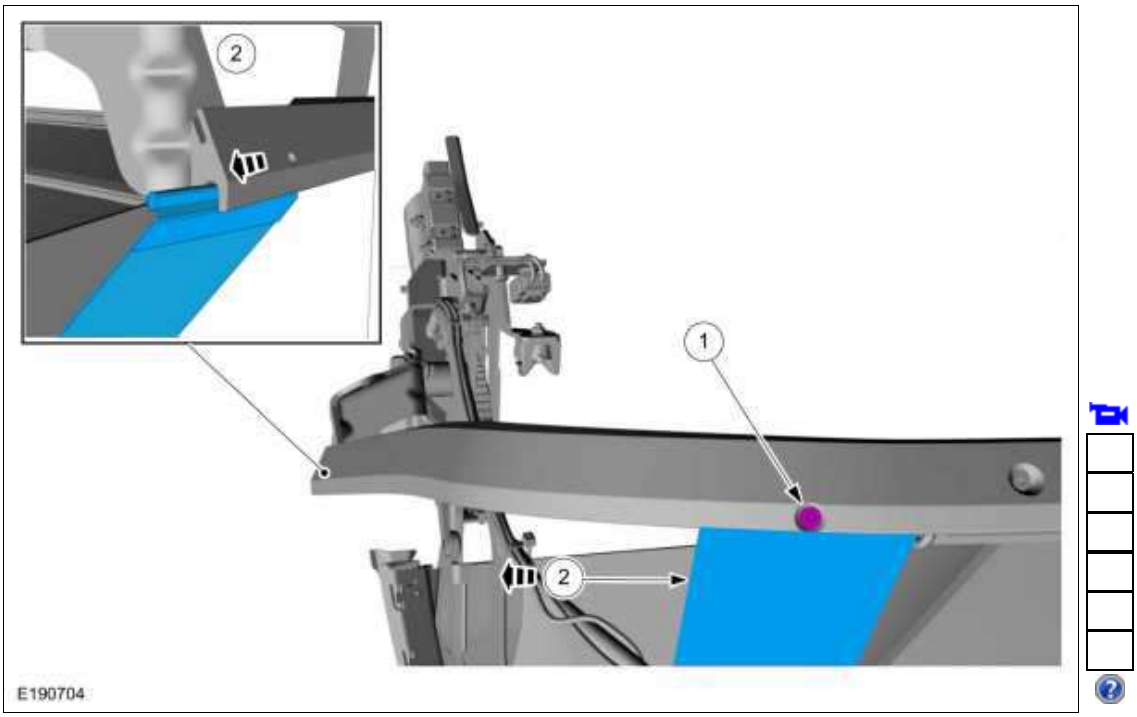
    RH side shown, LH side similar.

    Partially disconnect the convertible top material from the floating bow.



16. **NOTE:** *RH side shown, LH side similar.*

    Remove the stay pad.
    1. Remove the stay pad retaining screw.
       Torque: 62 lb.in (7 Nm)
    2. Slide the tension belt out of the floating bow.



Installation

1. To install, reverse the removal procedure.

Tonneau Cover Sensor

Removal

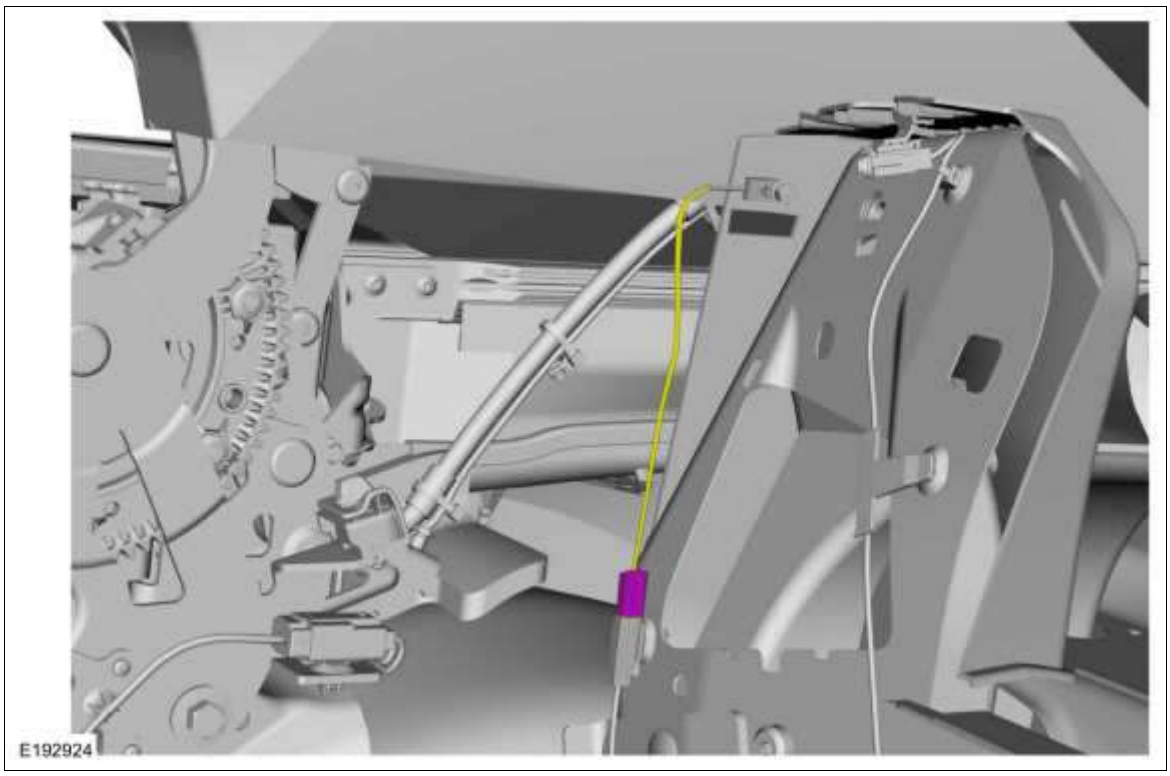
NOTE: *Removal steps in this procedure may contain installation details.*

The tonneau cover sensor is part of the D-tower cover and must be replaced as an assembly.

1. Remove the load space trim panel as necessary.
   Refer to: Loadspace Trim Panel - Convertible (501-05 Interior Trim and Ornamentation, Removal and Installation).

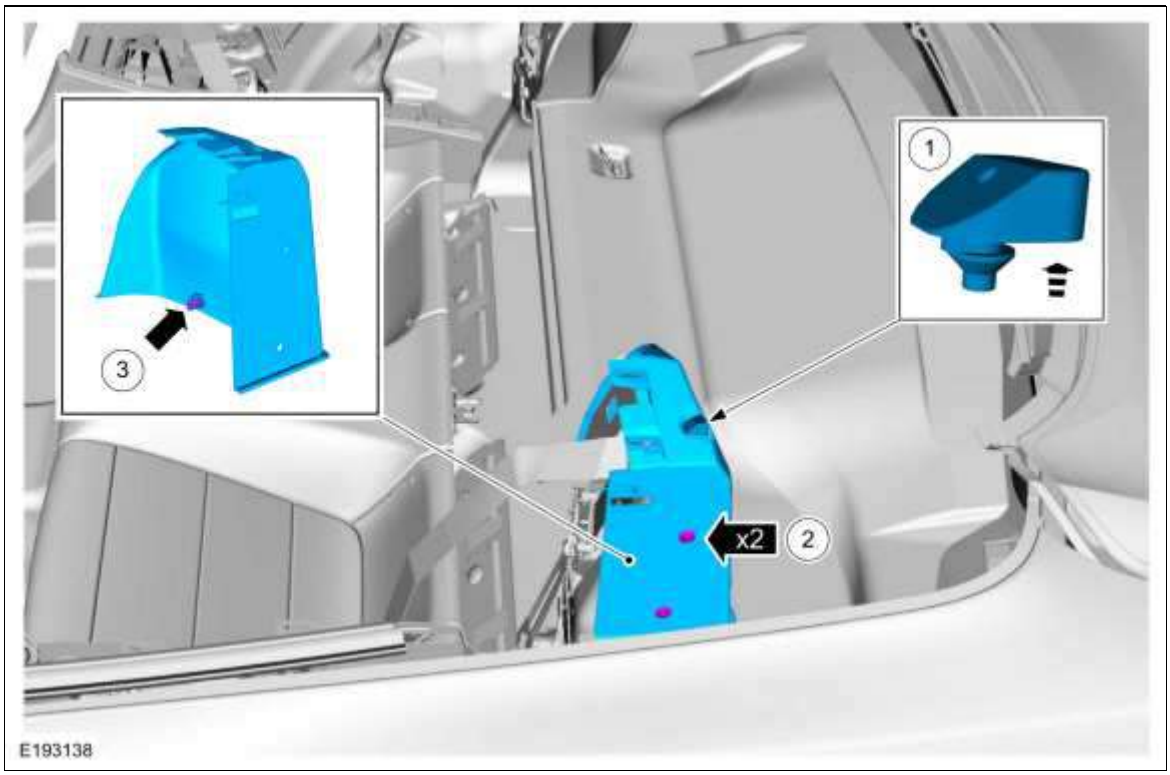
2. **NOTE:** *RH side shown, LH side similar.*

   Disconnect the harness connector.



3. **NOTE:** *LH side shown, RH side similar.*

   Remove the necessary D-tower cover.
   1. Remove the bumper stop.
   2. Remove the 2 pin-type retainers.
   3. Release the clip and remove the cover.



Installation

1. To install, reverse the removal procedure.