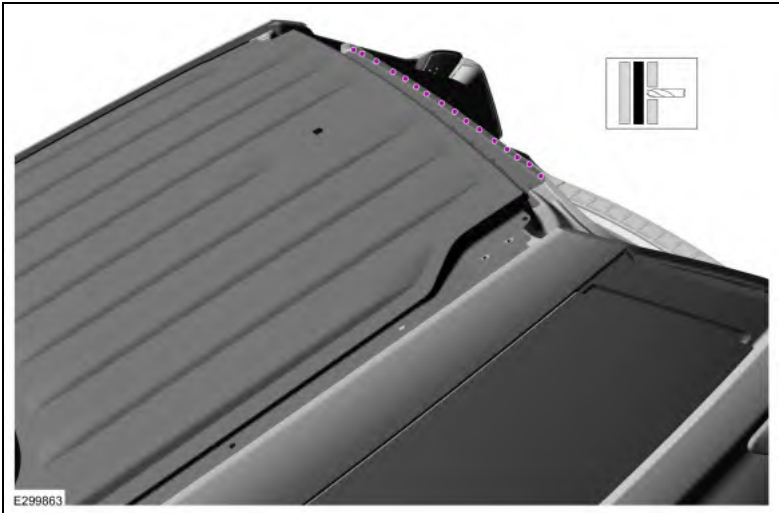
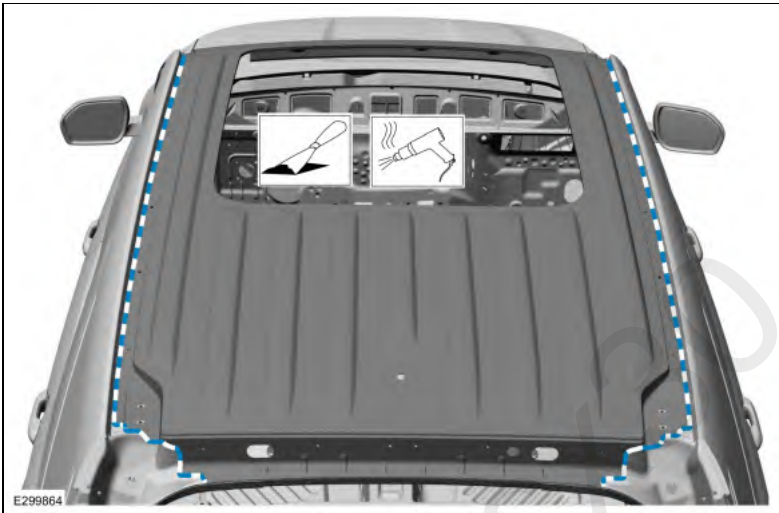


14. Remove the welds.
Use the General Equipment: Spot Weld Drill Bit



15. Remove the seam sealer.
Use the General Equipment: Hot Air Gun
Use the General Equipment: Scraper for Straight Edges

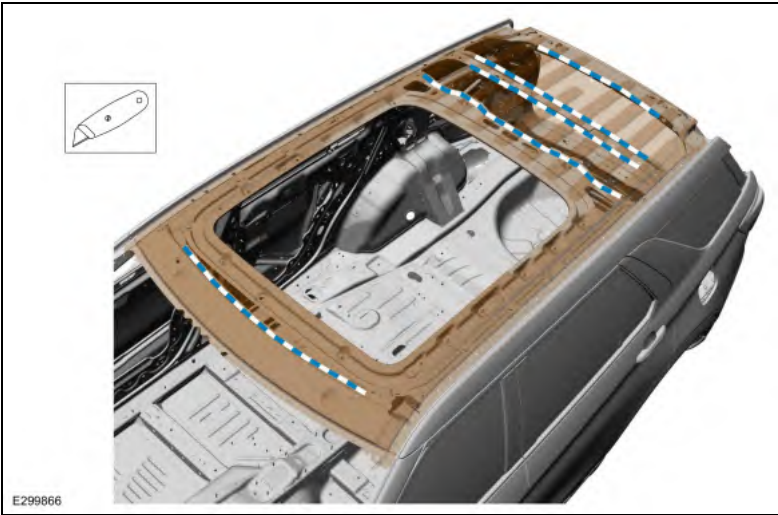


16. On Both Sides:
Remove the welds.
Use the General Equipment: Spot Weld Drill Bit

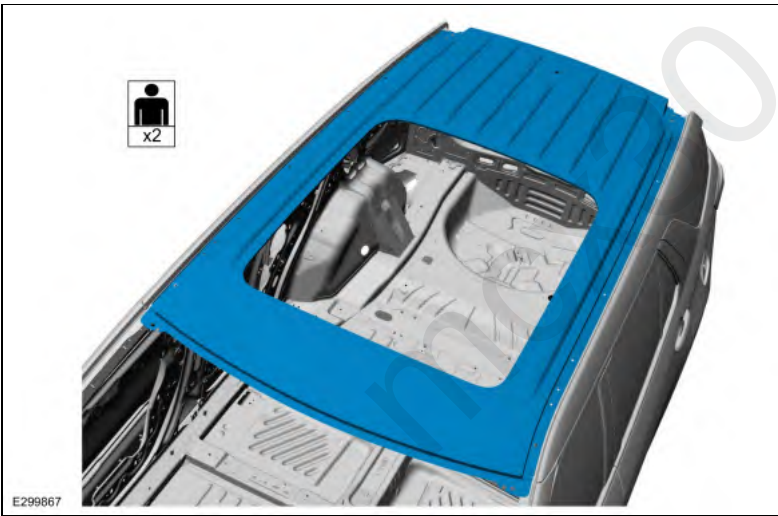


17. **NOTE:** Leave as much NVH foam intact on the roof bows as possible.

Using a broad-edged scraper or sharp knife, separate the outer panel from the roof bows.
Use the General Equipment: Knife



18. With the help of an assistant, remove the roof panel.



Installation

NOTICE: The HVTB (High Voltage Traction Battery) in an EV (Electric Vehicle), HEV or PHEV can be affected and damaged by excessively high temperatures. The temperature in some body shop paint booths can exceed 60° C (140° F). Therefore, during refinishing operations, the paint booth temperature must set at or below 60° C (140° F) with a bake time of 45 minutes or less. Temperatures in excess of 60° C (140° F) or cure durations longer than 45 minutes will require the HVTB be removed from the vehicle prior to placing in the paint booth.

NOTICE: If refinishing cure temperatures exceed 60° C (140° F), the charge port light ring must be removed.

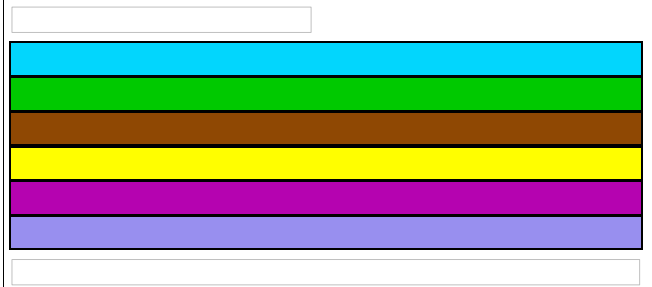
NOTICE: EV (Electric Vehicle), HEV and PHEV contain a HVTB (High Voltage Traction Battery). Before welding near the HVTB, the HVTB must be removed to avoid heat damage.

NOTE: Factory welds may be substituted with resistance spot welds or MIG plug welds. Resistance spot welds may not be placed directly over original factory location, they must be placed adjacent to original location and equal factory welds in quantity. MIG plug welds must equal factory welds in both location and quantity.

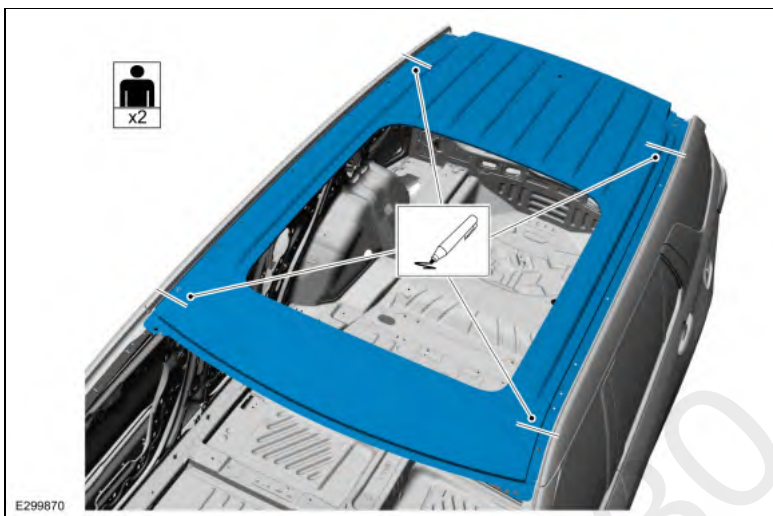
- 1. ⚠️ **WARNING:** Before beginning any service procedure in this manual, refer to health and safety warnings in section 100-00 General Information. Failure to follow this instruction may result in serious personal injury.

Refer to: Health and Safety Precautions (100-00 General Information, Description and Operation).
Refer to: High Voltage System Health and Safety Precautions - Overview (100-00 General Information, Description and Operation).

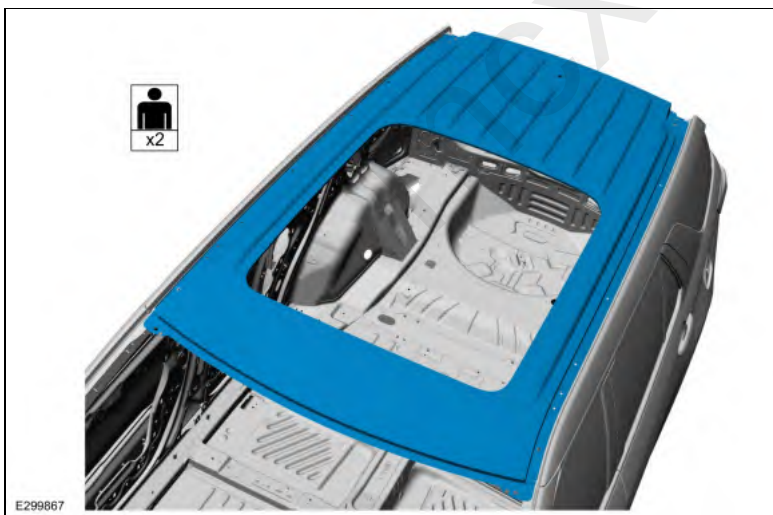
- 2. Drill plug weld holes.
Use the General Equipment: 8 mm Drill Bit



3. With the help of an assistant, install, properly align and index mark the roof panel to the vehicle.

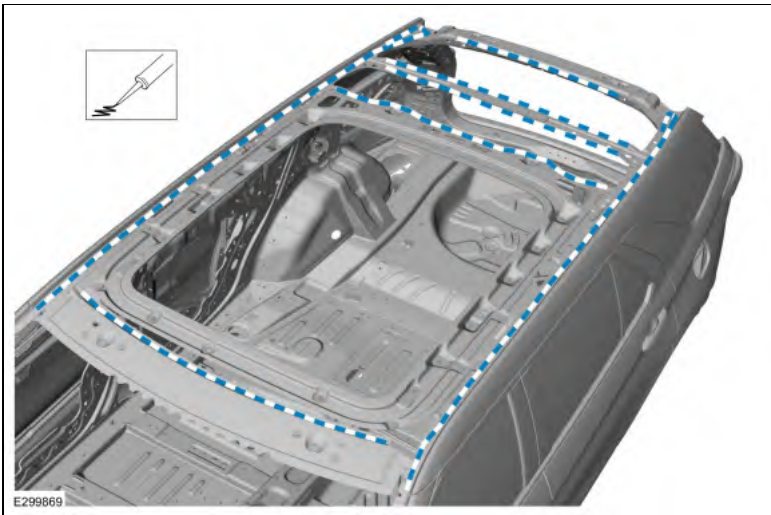


4. With the help of an assistant, remove the roof panel.



5. Apply adhesive.

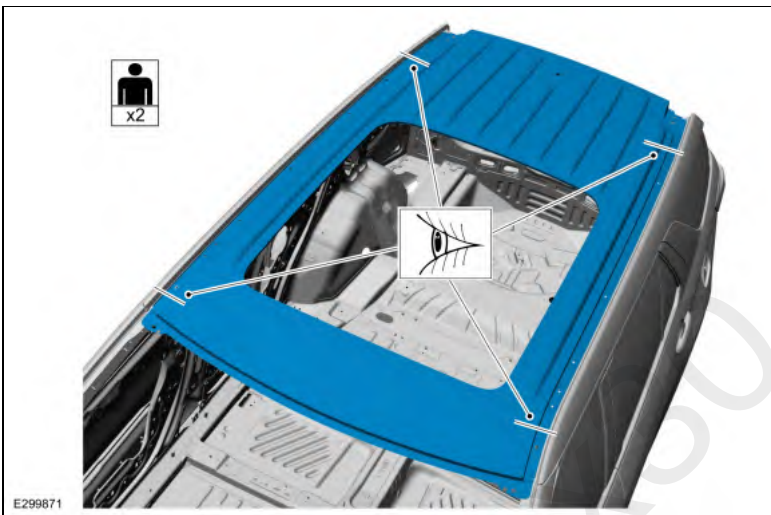
Material: Metal Bonding Adhesive / TA-1, TA-1-B, 3M, 08115, LORD FusorÂ® 108B



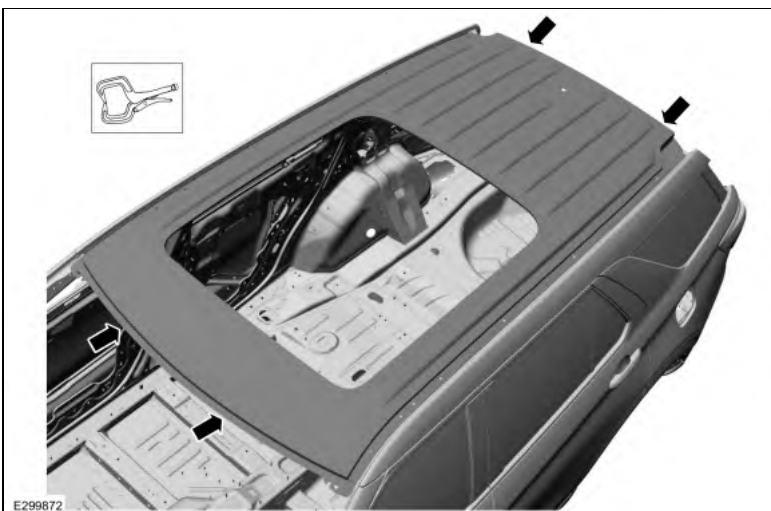
6. **NOTE:** Do not lift the panel from the body once installed. If the panel requires re-positioning, slide the panel to the correct location.

NOTE: Assure full adhesive contact at all locations, apply additional adhesive as required.

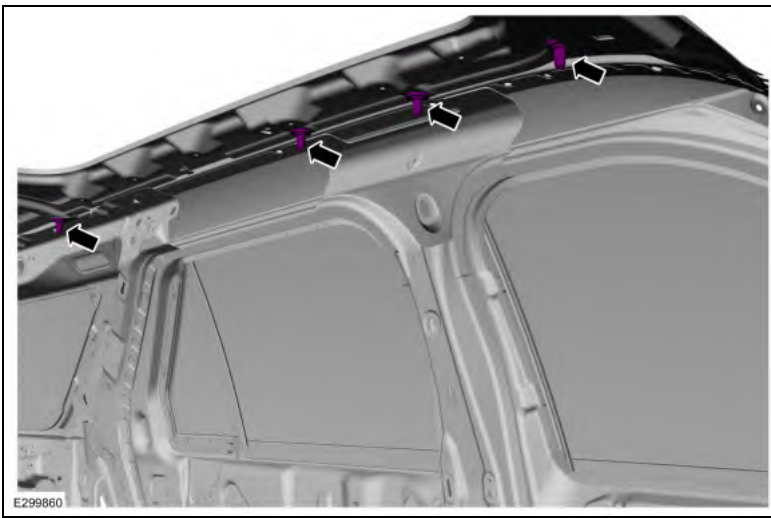
With the help of an assistant, install and align the roof outer panel.



7. Tightly clamp (without damaging) the roof outer panel in the front and rear header areas. Use the General Equipment: Locking Pliers



8. Install the roof opening panel frame nuts.
Torque: 18 lb.ft (25 Nm)

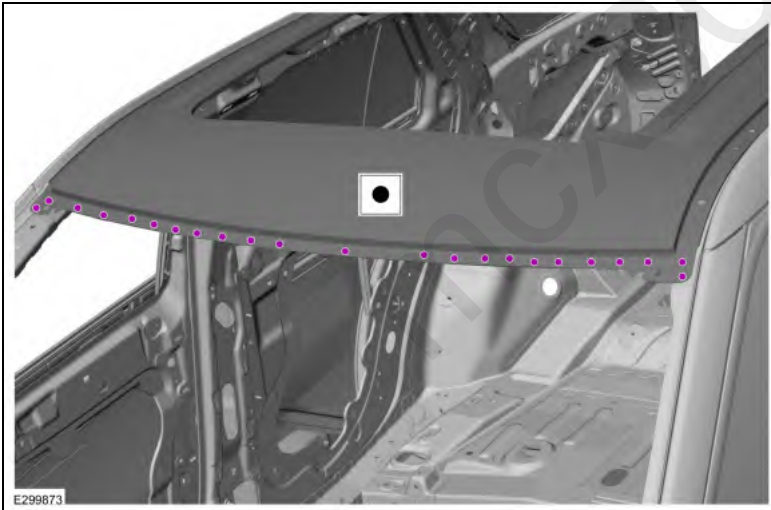


9. **NOTE:** *Excess squeeze-out adhesive does not need to be removed. Allow excess to act as a sealer.*

Smooth out any adhesive squeeze-out in the roof ditch seam.

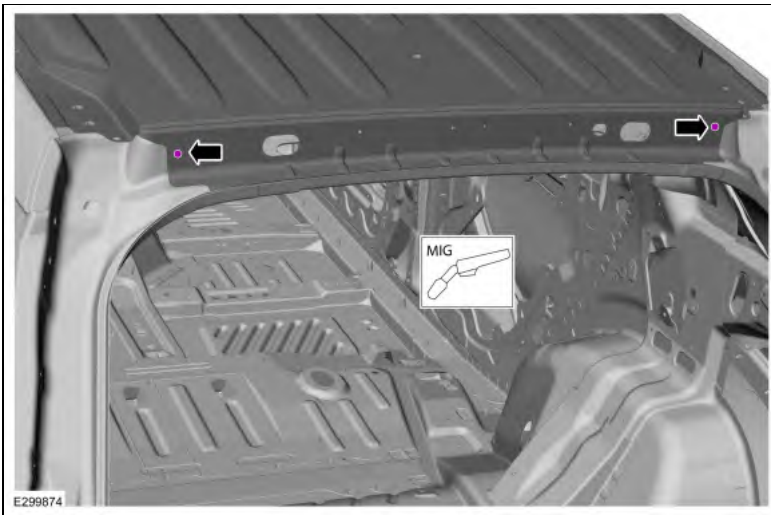
10. Install the welds.

Use the General Equipment: Resistance Spotwelding Equipment

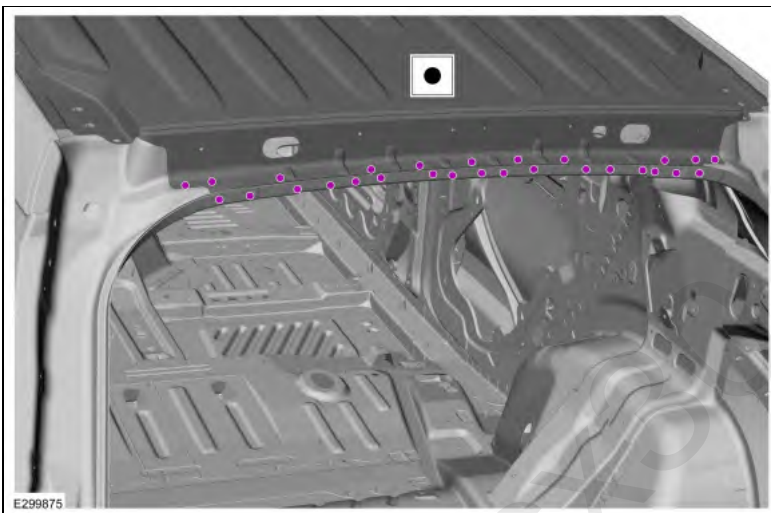


11. Install the welds.

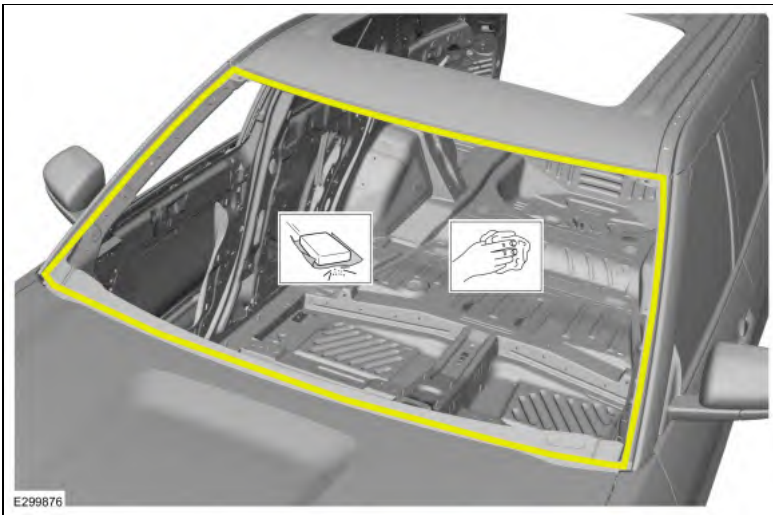
Use the General Equipment: MIG/MAG Welding Equipment



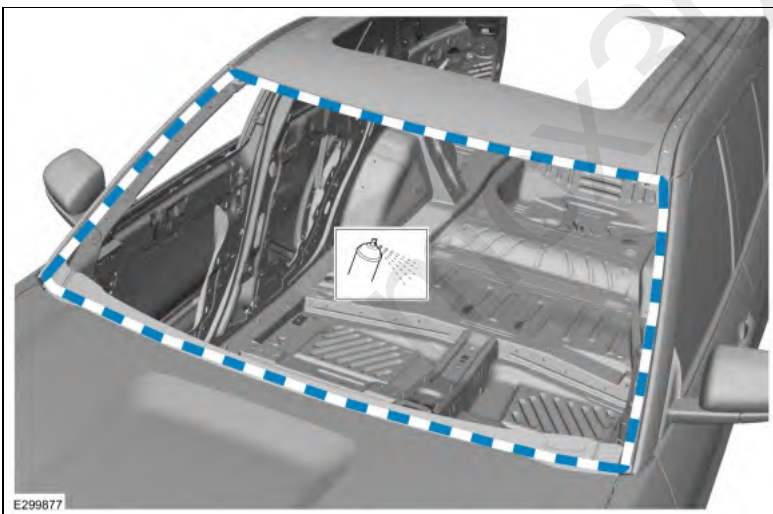
12. Install the welds.
Use the General Equipment: Resistance Spotwelding Equipment



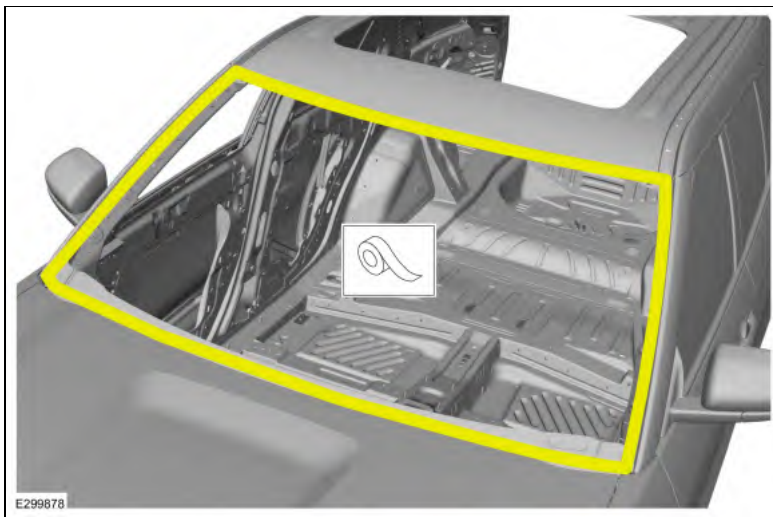
13. Sand to remove old adhesive, e-coat and clean.



14. Apply a Ford approved epoxy-based adhesive and allow to dry.



15. Mask off the area.



16. Seam Sealing:

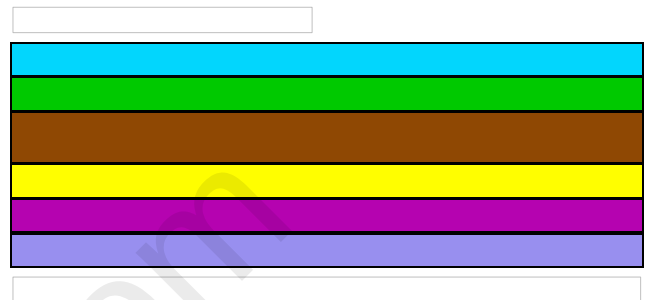
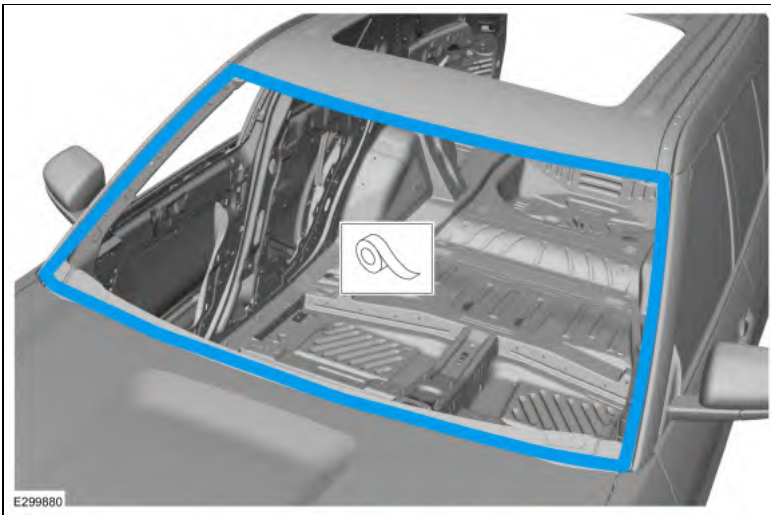
All seams must be sealed to production level.

Material: Seam Sealer / TA-2-B, 3M, 08308, LORD Fusor® 805DTM



17. Refinish the entire repair using a Ford approved paint system and typical refinishing techniques.

18. Unmask the area.



19. Install the roof opening panel.
 Refer to: Roof Opening Panel Blind (501-17 Roof Opening Panel, Removal and Installation).
 Refer to: Roof Opening Panel Fixed Glass (501-17 Roof Opening Panel, Removal and Installation).
 Refer to: Roof Opening Panel Glass (501-17 Roof Opening Panel, Removal and Installation).
 Refer to: Roof Opening Panel Motor (501-17 Roof Opening Panel, Removal and Installation).
 Refer to: Roof Opening Panel Shield (501-17 Roof Opening Panel, Removal and Installation).
20. Install the windshield.
 Refer to: Fixed Glass (501-11 Glass, Frames and Mechanisms, General Procedures).
21. Install the antenna.
 Refer to: Roof Mounted Antenna (415-00A Information and Entertainment System - General Information - Vehicles Without: SYNC 3, Removal and Installation).
 Refer to: Roof Mounted Antenna (415-00B Information and Entertainment System - General Information - Vehicles With: SYNC 3, Removal and Installation).
22. On Both Sides:
 Install the roof rail.
 Refer to: Roof Rail (501-08 Exterior Trim and Ornamentation, Removal and Installation).
23. On Both Sides:
 Install the side air curtain.
 Refer to: Side Curtain Airbag (501-20B Supplemental Restraint System, Removal and Installation).
24. Position all wiring to original location.
25. Install the headliner.
 Refer to: Headliner (501-05 Interior Trim and Ornamentation, Removal and Installation).
26. Install the liftgate and hinges.
 Refer to: Liftgate (501-03 Body Closures, Removal and Installation).
27. Adjust the liftgate.
 Refer to: Liftgate Alignment (501-03 Body Closures, General Procedures).
28. Repower the SRS.
 Refer to: Supplemental Restraint System (SRS) Repowering (501-20B Supplemental Restraint System, General Procedures).

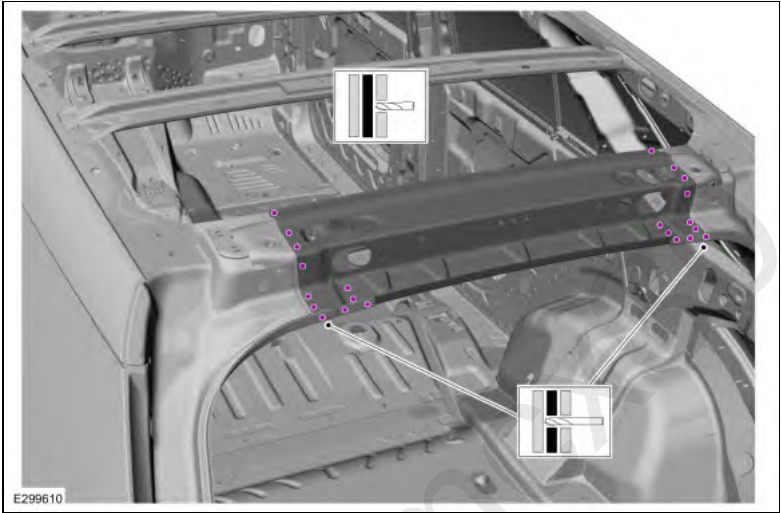
Roof Rear Frame

Special Tool(s) / General Equipment

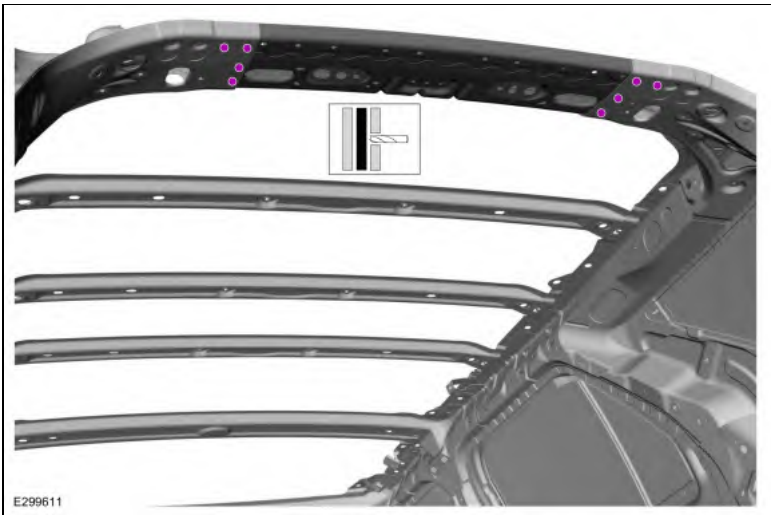
Resistance Spotwelding Equipment
Spot Weld Drill Bit
Locking Pliers

Removal

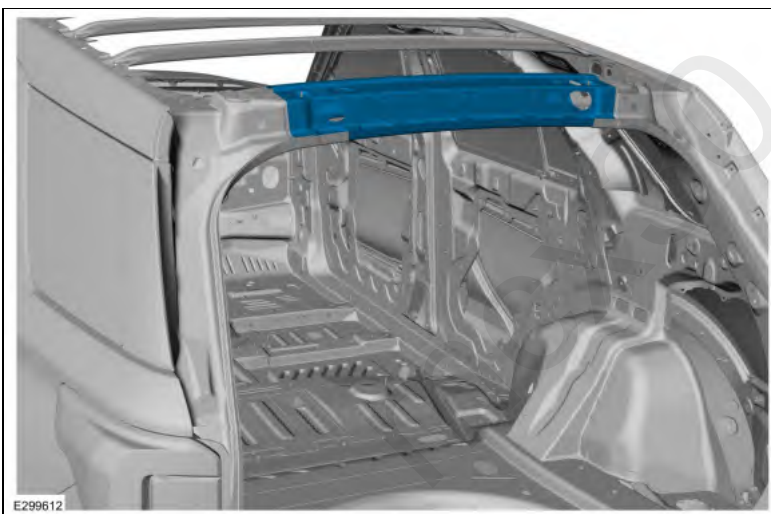
1. **WARNING:** Before beginning any service procedure in this manual, refer to health and safety warnings in section 100-00 General Information. Failure to follow this instruction may result in serious personal injury.
- Refer to: Health and Safety Precautions (100-00 General Information, Description and Operation).
- Refer to: High Voltage System Health and Safety Precautions - Overview (100-00 General Information, Description and Operation).
2. Remove the roof.
- Refer to: Roof Panel (501-28 Roof Sheet Metal Repairs, Removal and Installation).
- Refer to: Roof Panel - Vehicles With: Roof Opening Panel (501-28 Roof Sheet Metal Repairs, Removal and Installation).
3. Position aside the wiring harness and washer hose on the roof rear frame.
4. Remove the welds.
- Use the General Equipment: Spot Weld Drill Bit



5. Remove the welds.
- Use the General Equipment: Spot Weld Drill Bit



6. Remove the roof rear frame.



Installation

1. **WARNING:** Before beginning any service procedure in this manual, refer to health and safety warnings in section 100-00 General Information. Failure to follow this instruction may result in serious personal injury.

Refer to: Health and Safety Precautions (100-00 General Information, Description and Operation).

Refer to: High Voltage System Health and Safety Precautions - Overview (100-00 General Information, Description and Operation).

2. Install, properly position and clamp the roof rear frame.
Use the General Equipment: Locking Pliers