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2020.0 DEFENDER (LE), 501-28

ROOF SHEET METAL REPAIRS

ROOF PANEL – 90, VEHICLES WITHOUT: ROOF OPENING PANEL (G2452594)

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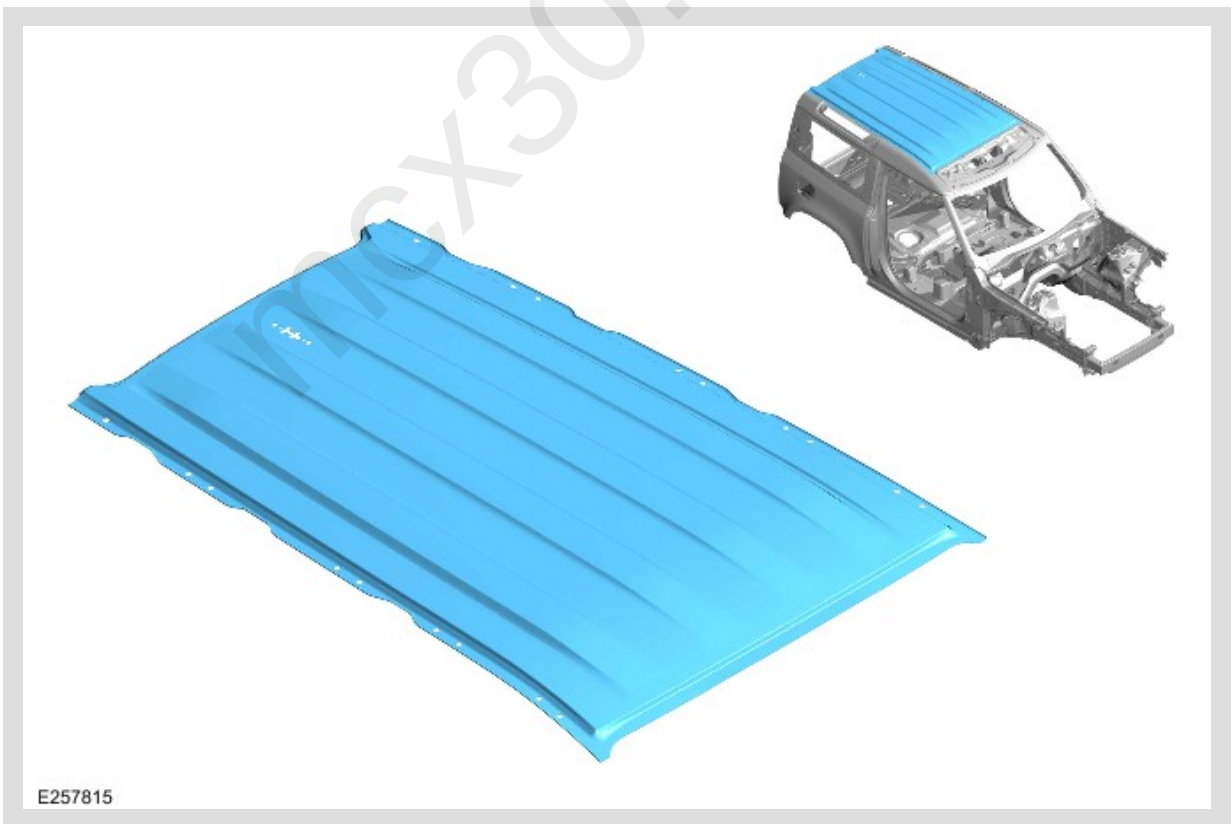
REMOVAL

 NOTE:

In this procedure the roof panel is installed in conjunction with:

- Roof panel moulding
- Rear spoiler
- Front roof trim panel
- Alpine window
- Roof pod.

1.



The roof panel is serviced as indicated.

2.

Before commencing this procedure make sure that you are aware of all Health and Safety requirements. Refer to: [Health and Safety Precautions](#) (100-00 General Information, Description and Operation).

3.



NOTES:

- Where Breakstem Fastener (BSF) removal is instructed remove the fastener shaft with a 4 mm punch and remove the head with a 6.5 mm drill bit. Clean all the drilled holes to make sure they are free from debris.
- Where Self Piercing Rivet (SPR) removal is instructed use either the Jaguar Land Rover (JLR) approved SPR tool or a 5.3 mm drill bit. Clean all the drilled holes to make sure they are free from debris.
- Any joints sealed as part of vehicle manufacture must be sealed as part of the repair.

When installing the roof panel make sure that you are aware of the methods, tools and fixings used in this procedure.

Refer to: [Body Repairs](#) (501-25A Body Repairs - General Information, Description and Operation).

Refer to: [Adhesives, Fixings and Consumables](#) (501-25A Body Repairs - General Information, Description and Operation).

4.

For additional information on the fixings required to complete this procedure

Refer to: [Specifications - 110](#) (501-28 Roof Sheet Metal Repairs, Specifications).

5.

For additional removal information

Refer to: [Roof Panel Moulding - 110](#) (501-08 Exterior Trim and Ornamentation, Removal and Installation).

6.

For additional removal information

Refer to: [Rear Spoiler](#) (501-08 Exterior Trim and Ornamentation, Removal and Installation).

7.

For additional removal information

Refer to: [Front Roof Trim Panel](#) (501-08 Exterior Trim and Ornamentation, Removal and Installation).

8.

For additional removal information

Refer to: [Alpine Window](#) (501-11 Glass, Frames and Mechanisms, Removal and Installation).

9.

For additional removal information

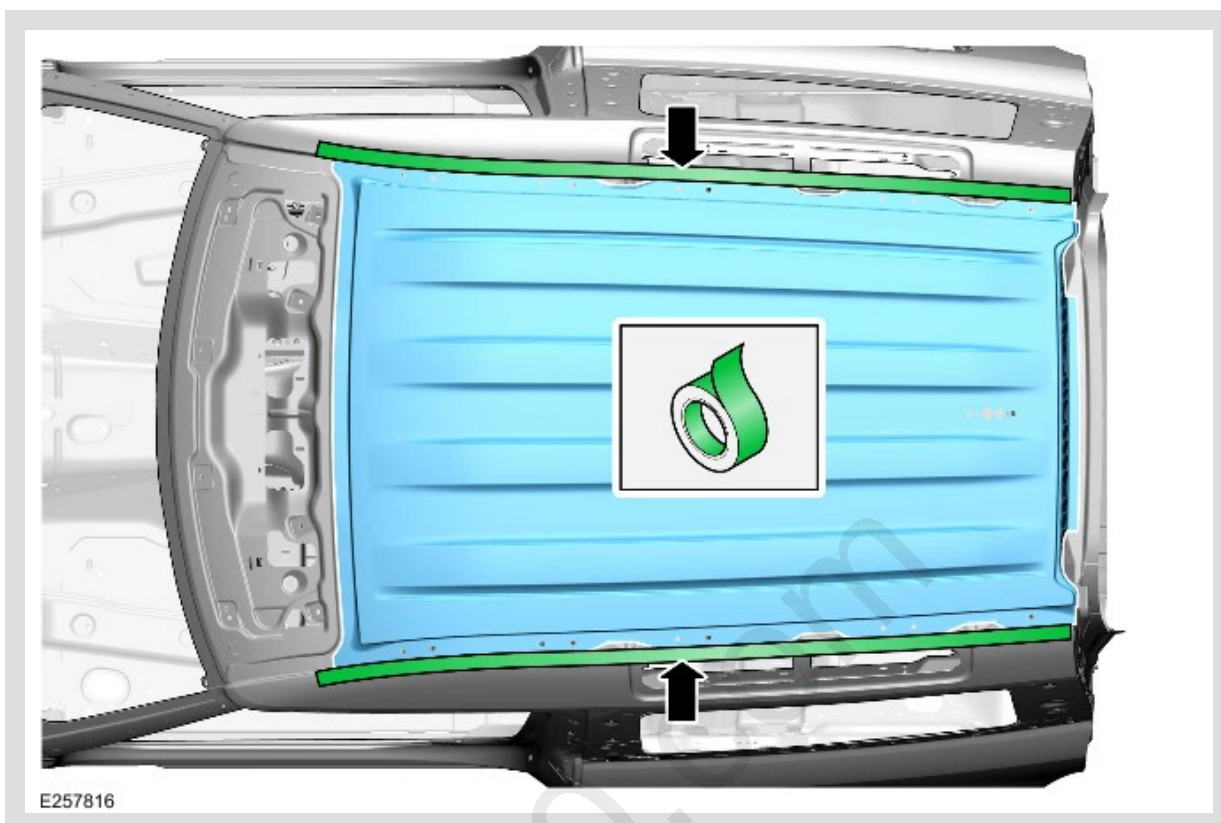
Refer to: [Roof Pod](#) (415-01 Information and Entertainment System, Removal and Installation).

10.

Release and position the wiring harness to one side.

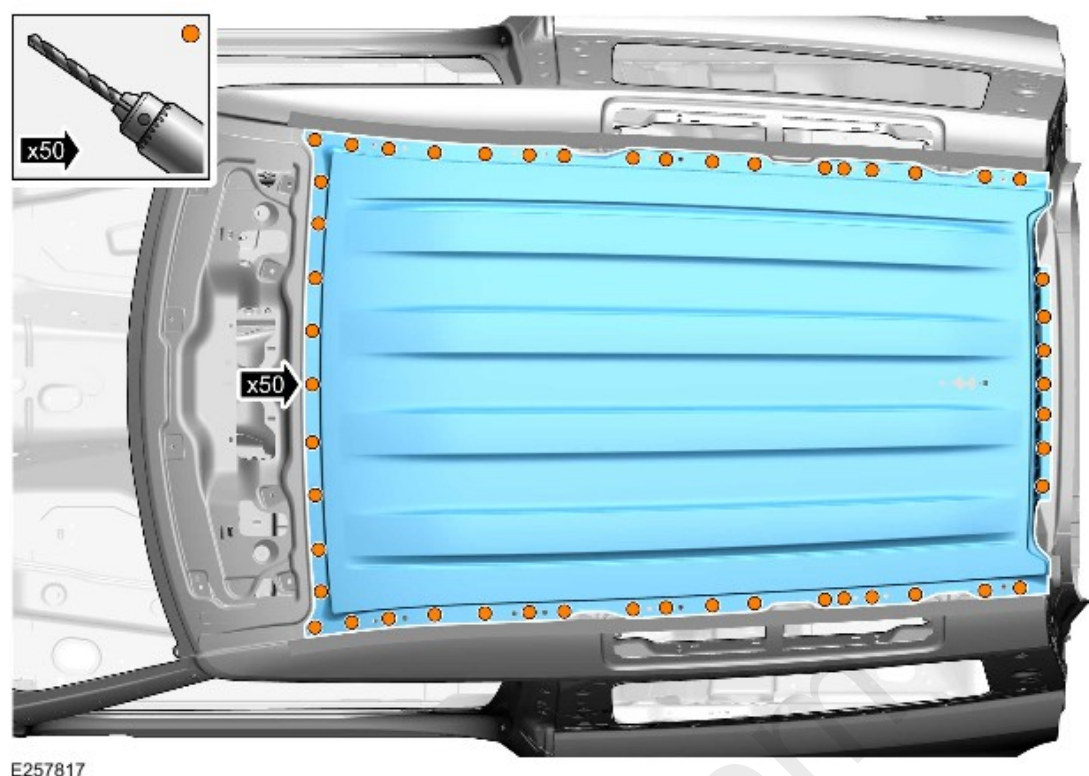
ⓘ CAUTION:

Apply tape to avoid damage to the roof and surrounding panels.



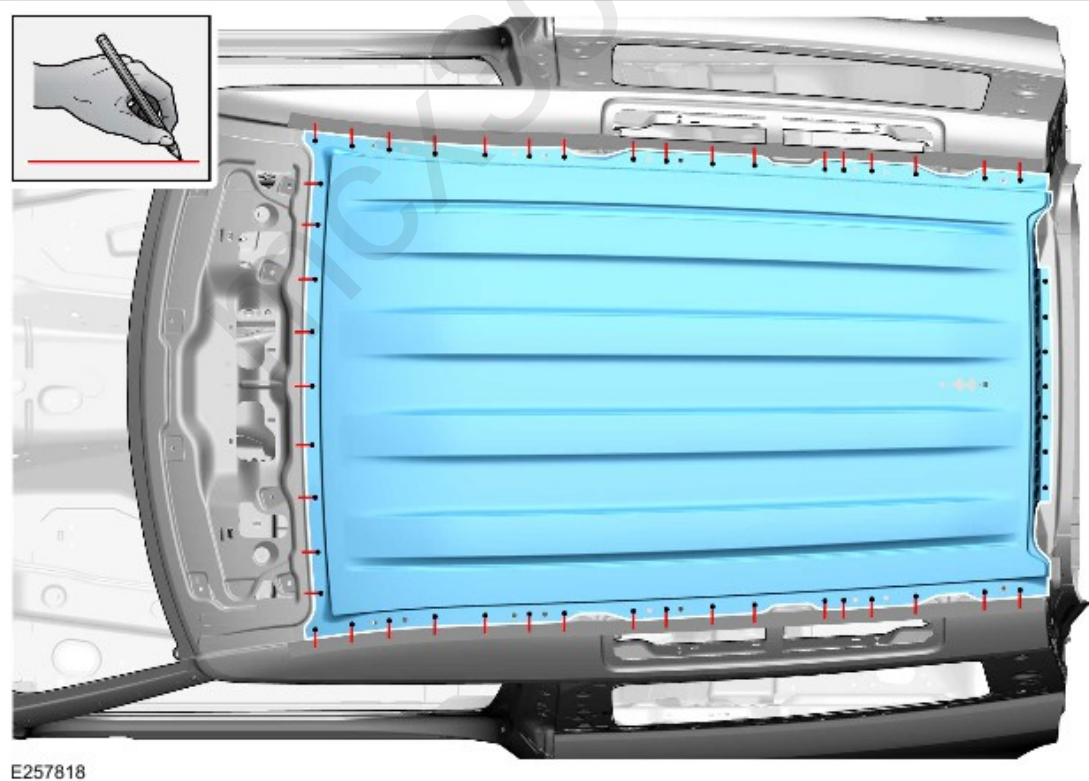
Apply protective tape as indicated.

12.



Remove the Self Piercing Rivets (SPRs) as indicated.

13.



Measure and mark the SPR locations before removing the roof panel.

14.

 CAUTION:

This step will require the aid of another technician.

Carefully separate the joints and remove the roof panel.

INSTALLATION

 CAUTION:

Where structural adhesive is to be applied between surfaces it is essential compression is applied to the joints during the curing period.

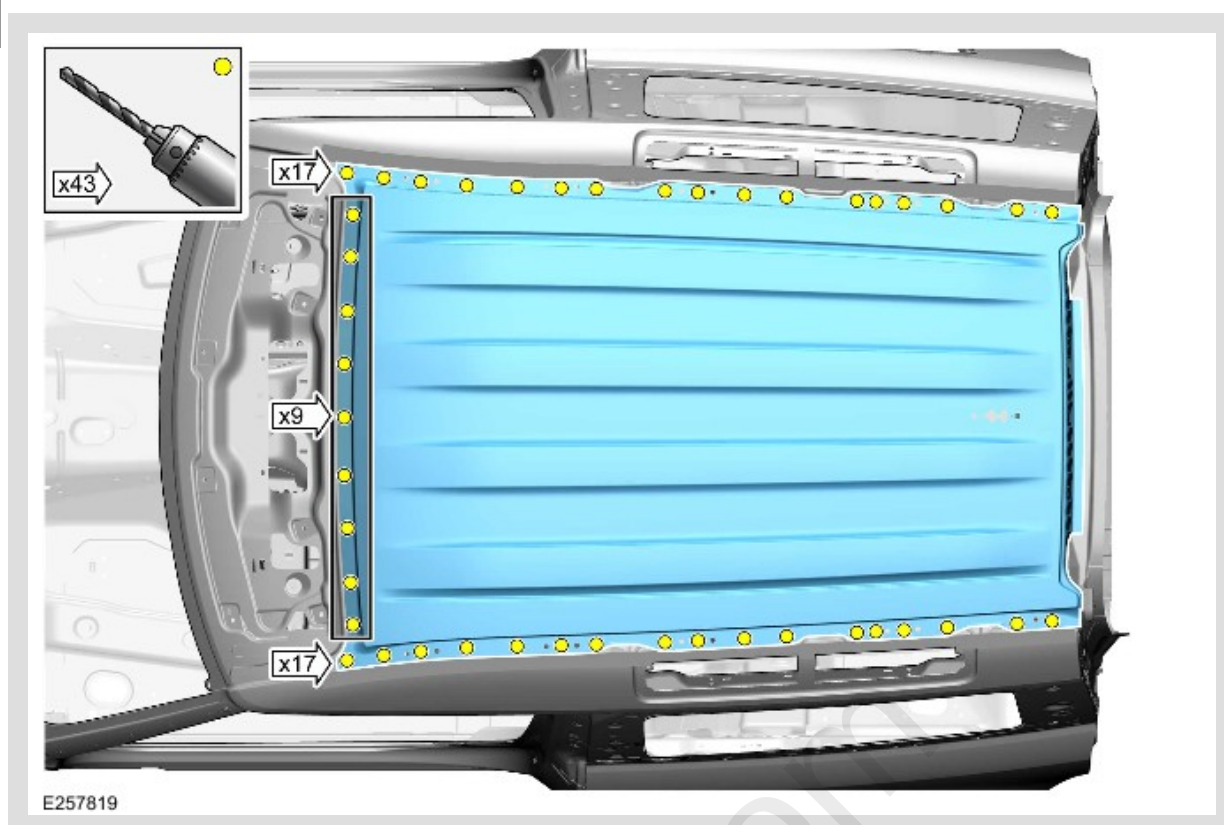
 NOTES:

- Breakstem Fastener (BSF) installation involves using the JLR approved BSF installation tool and requires a hole diameter of 6.5 mm.
- Self Piercing Rivet (SPR) installation requires using the JLR approved SPR tool.

1. Dress the flanges where necessary.

2. Remove the rivet remnants.

3. Offer up the new roof panel and clamp into position. Check alignment, if correct proceed to next step, if not rectify and check the alignment again before proceeding.

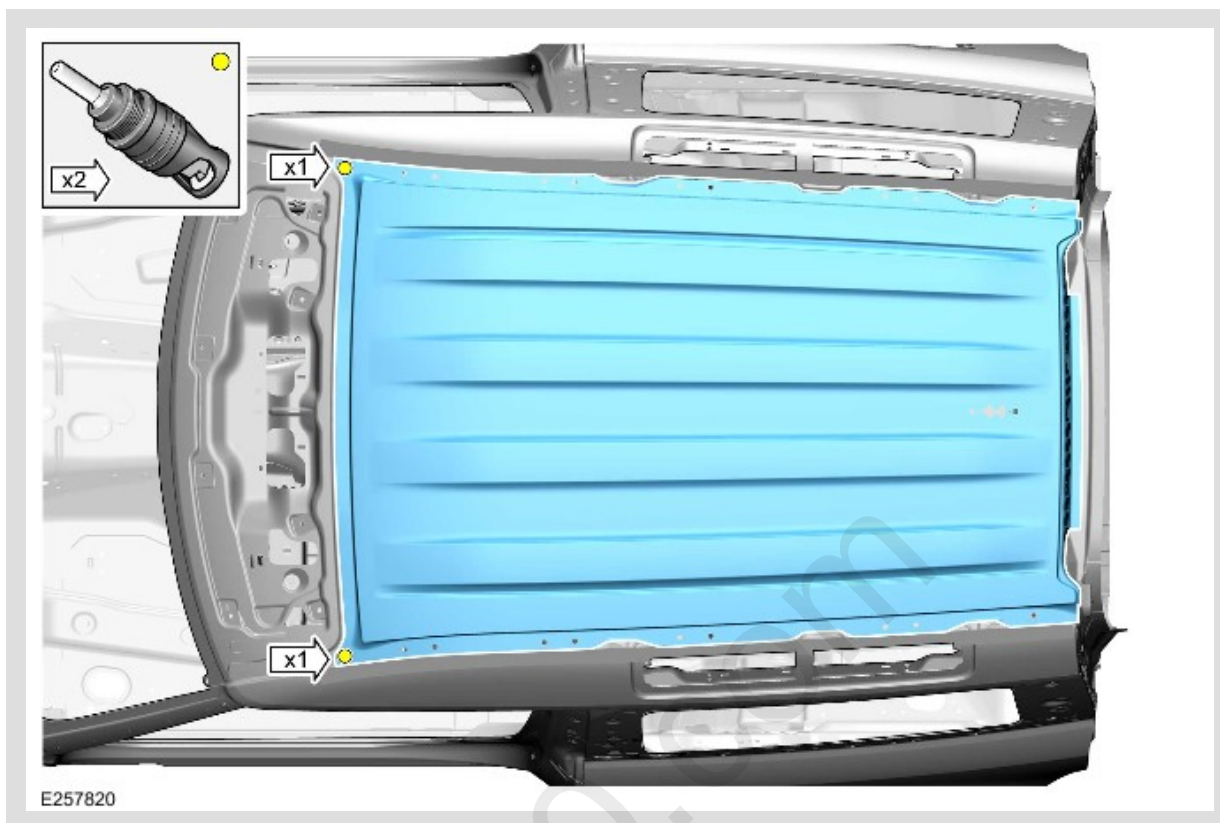


Drill holes where the Breakstem Fasteners (BSFs) are to be installed as indicated.

5.

NOTE:

Make sure that the JLR recommended countersink tool is used for this step.



Countersink the holes to a depth of 2 mm as indicated.

6.

CAUTION:

This step will require the aid of another technician.

Remove the new roof panel.

7.

Deburr the drilled holes.

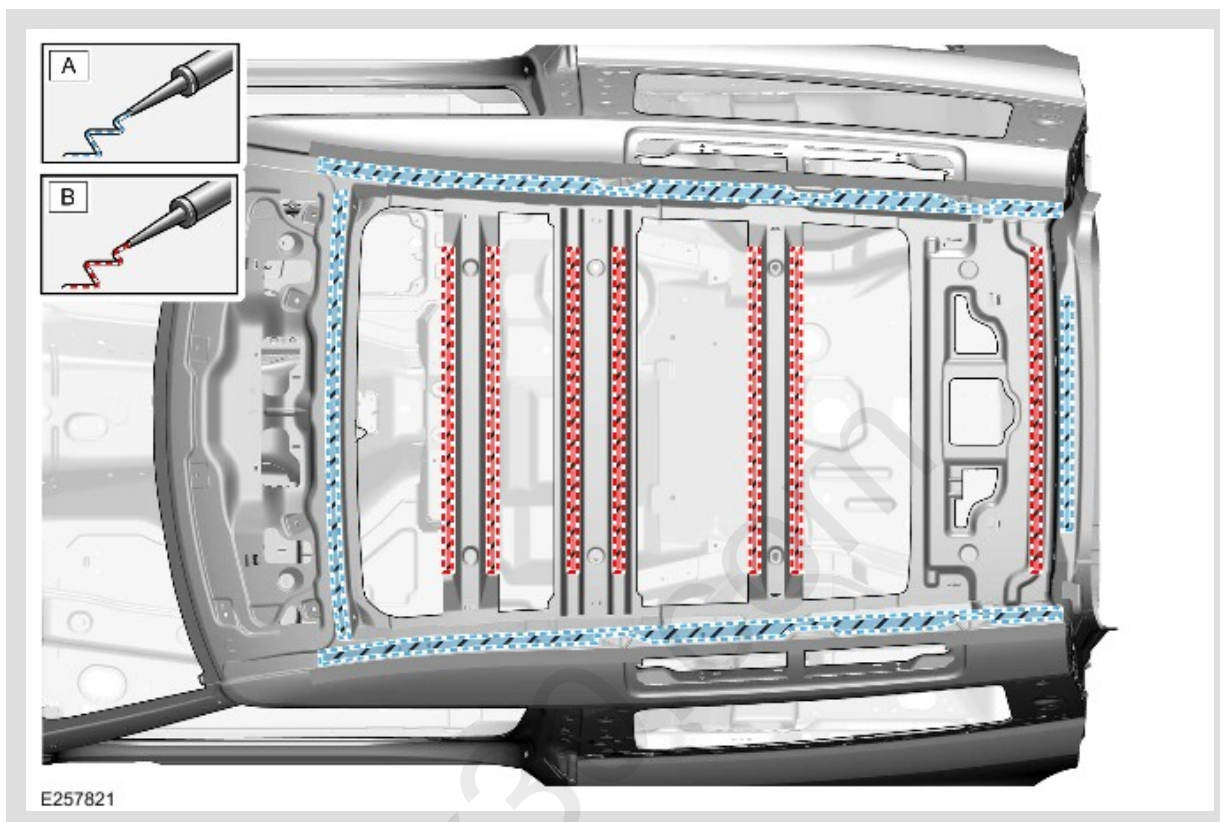
8.

Clean and prepare the panel surfaces.

9.

NOTES:

- Make sure a continuous bead of adhesive surrounds the fixing holes.
- A: Apply a 5 mm zig zag bead of JLR recommended bonding material as indicated.
- B: Apply a 5 mm zig zag bead of JLR recommended flexible sealant as indicated.



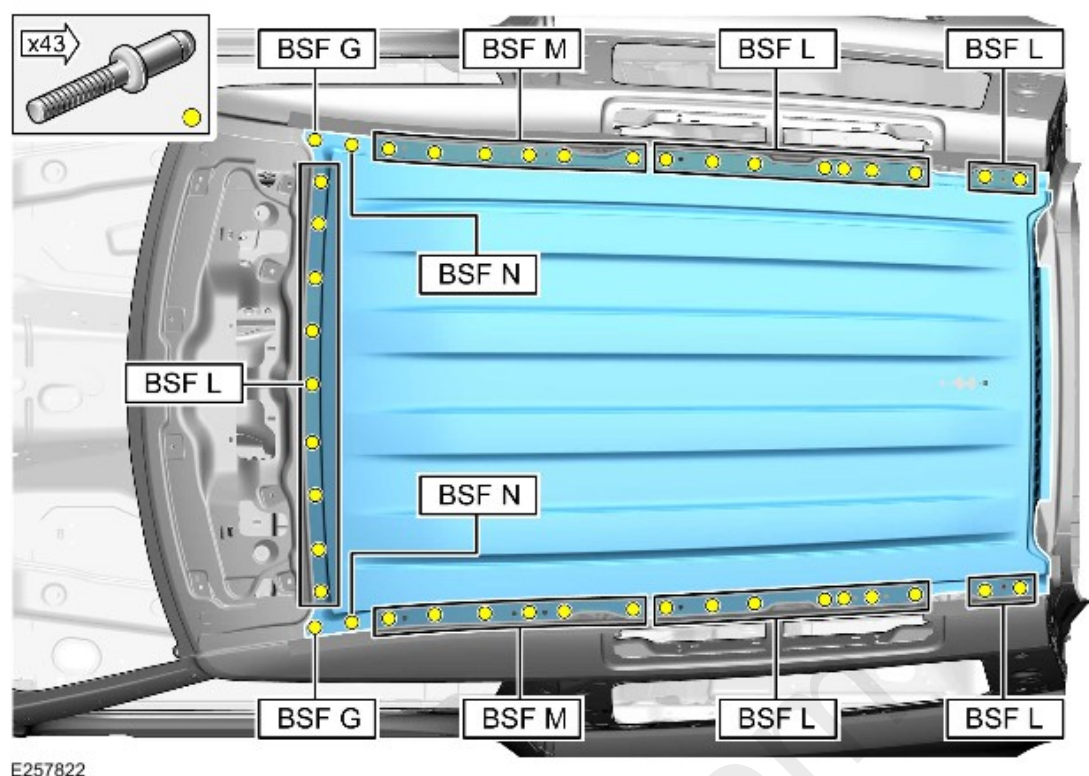
10.

CAUTION:

This step will require the aid of another technician.

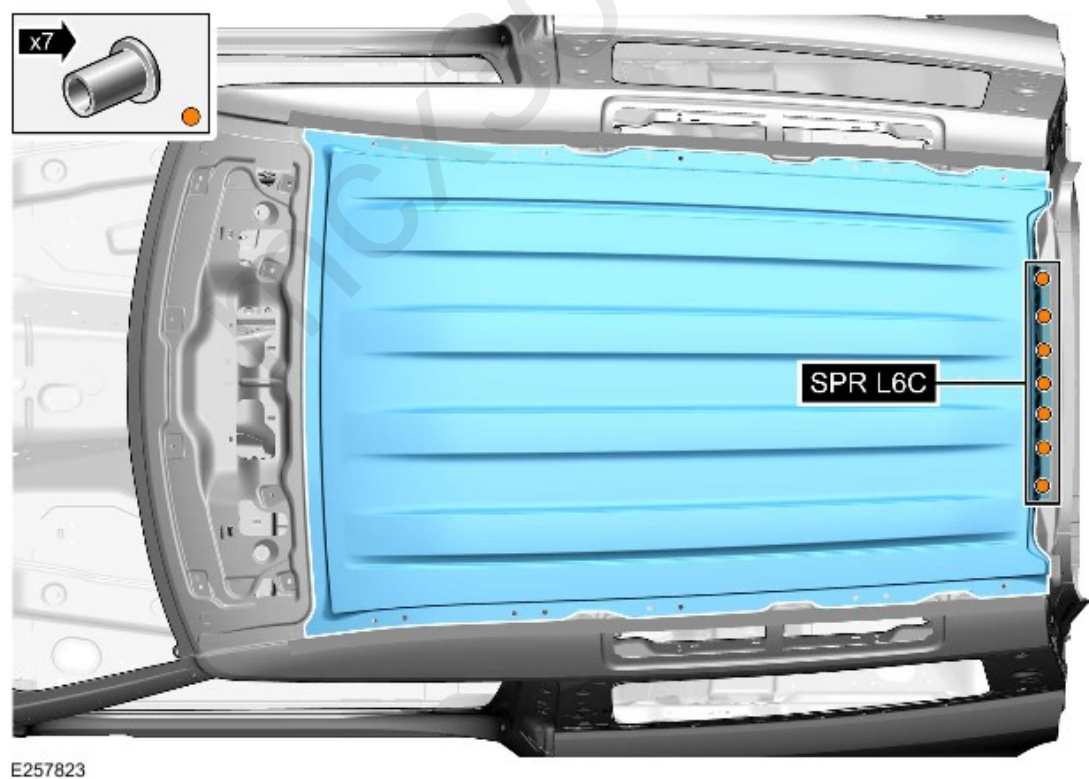
Offer up the new roof panel and clamp into position. Check alignment, if correct proceed to next step, if not rectify and check the alignment again before proceeding.

11.



Install the BSFs as indicated.

12.



Install the Self Piercing Rivets (SPRs) as indicated.

13.

Remove any excess adhesive.

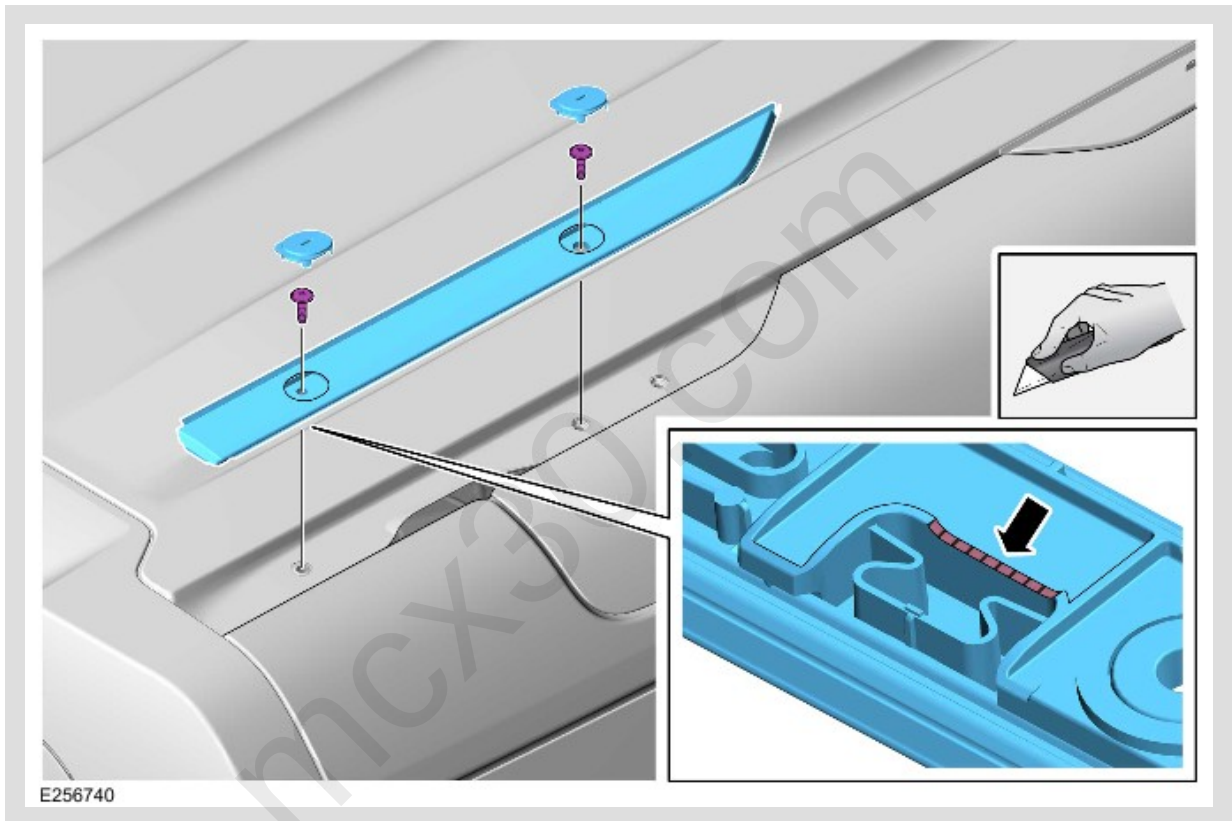
14. Make sure that all installed BSFs and SPRs are sealed using a JLR recommended sealer.

15. Make sure that any open or exposed panel joints are correctly sealed.

16. Make sure corrosion protection is applied to all areas affected by the repair.

17.  **NOTE:**

When installing the roof panel mouldings in conjunction with the roof panel.

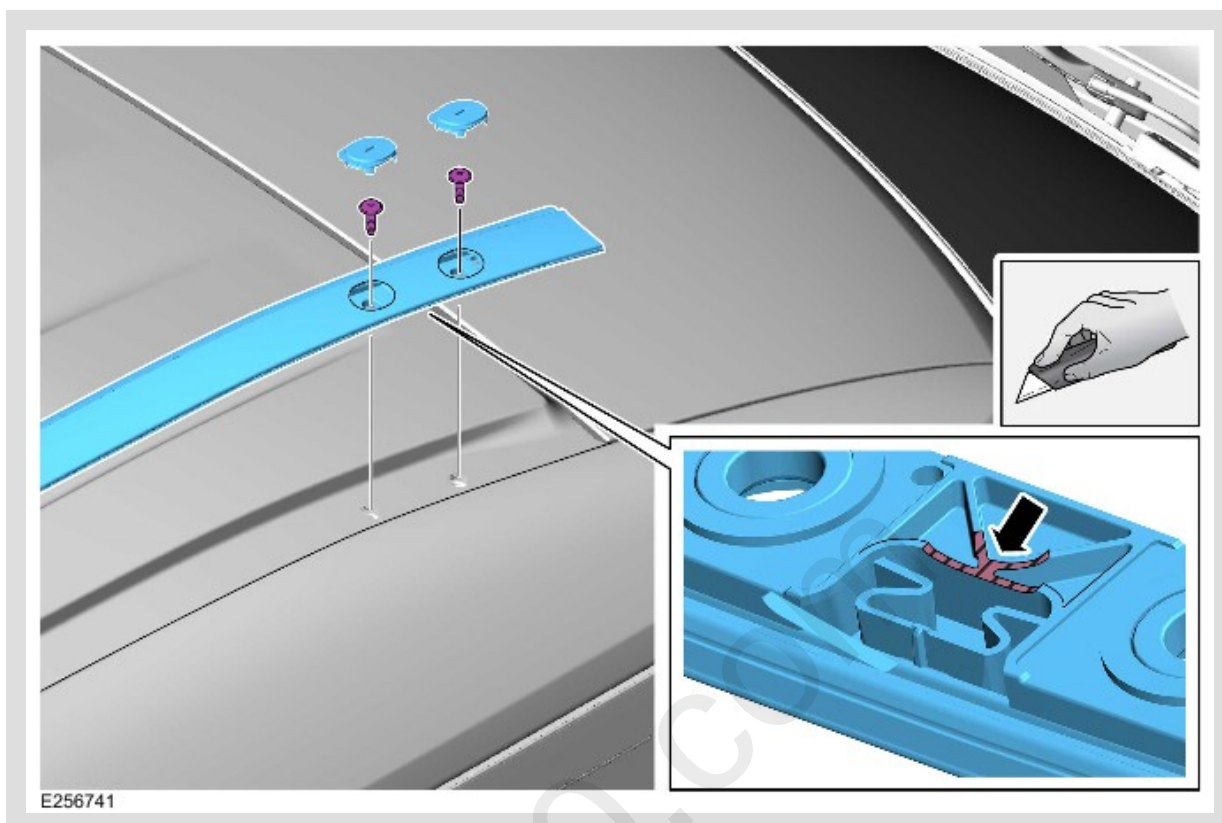


Using a suitable tool, cut a slot directly above the installed BSF in the roof panel moulding as indicated.

18.

 NOTE:

When installing the roof panel mouldings in conjunction with the roof panel.



Using a suitable tool, cut a slot directly above the installed BSF in the roof panel moulding as indicated.

 NOTE:

The installation of associated panels and components is the reversal of the removal procedure.

19. For additional installation information

Refer to: [Roof Pod](#) (415-01 Information and Entertainment System, Removal and Installation).

20. For additional installation information

Refer to: [Alpine Window](#) (501-11 Glass, Frames and Mechanisms, Removal and Installation).

21. For additional installation information

Refer to: [Front Roof Trim Panel](#) (501-08 Exterior Trim and Ornamentation, Removal and Installation).

22. For additional installation information

Refer to: [Rear Spoiler](#) (501-08 Exterior Trim and Ornamentation, Removal and Installation).

23. For additional installation information

Refer to: [Roof Panel Moulding - 110](#) (501-08 Exterior Trim and Ornamentation, Removal and Installation).

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