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2020.0 DEFENDER (LE), 501-27

FRONT END SHEET METAL REPAIRS

FRONT SIDE MEMBER AND CLOSING PANEL SECTION - 90 [G2452694]

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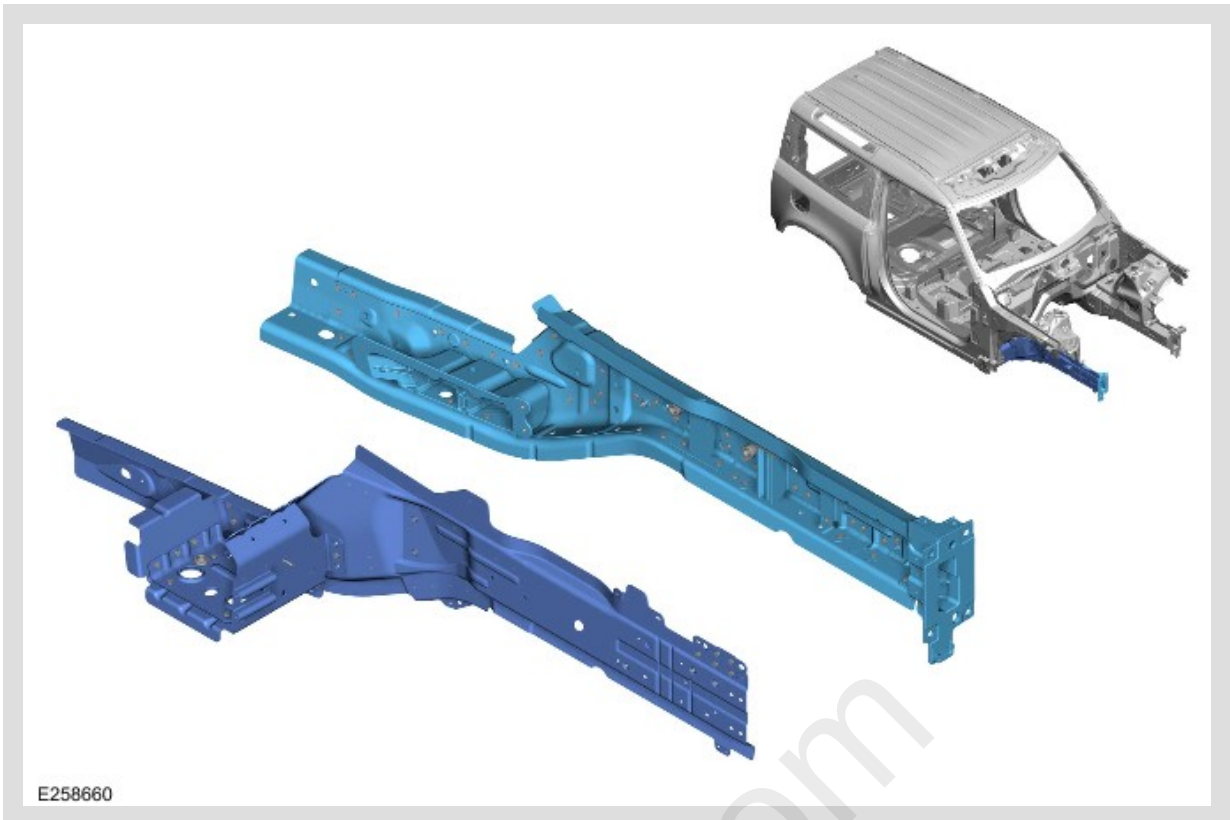
REMOVAL

 NOTE:

In this procedure the front side member and closing panel section is installed in conjunction with:

- Front armature
- Front wheel arch liner
- Fender
- Hood latch panel
- Coolant expansion tank
- Cooling module
- Charge air radiator
- Auxiliary radiator
- Front subframe
- Engine.

1.



The front side member 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.
- Where Flow Form Rivet (FFR) removal is instructed, remove the head and then remove the shaft with a punch. Clean the 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.
- To make sure that the vehicle is correctly aligned it must be placed on a JLR approved alignment jig.

When installing the front side member and closing panel section 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).

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4. For additional information on the fixings required to complete this procedure
Refer to: [Specifications - 110](#) (501-27 Front End Sheet Metal Repairs, Specifications).
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5. For additional removal information
Refer to: [Front Armature](#) (501-19 Bumpers, Removal and Installation).
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6. For additional removal information
Refer to: [Front Wheel Arch Liner](#) (501-02 Front End Body Panels, Removal and Installation).
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7. For additional removal information
Refer to: [Front Right Fender](#) (501-02 Front End Body Panels, Removal and Installation).
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8. For additional removal information
Refer to: [Hood Latch Panel](#) (501-02 Front End Body Panels, Removal and Installation).
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9. For additional removal information
Refer to: [Coolant Expansion Tank](#) (303-03A Engine Cooling - INGENIUM I4 2.0L Diesel, Removal and Installation).
Refer to: [Coolant Expansion Tank](#) (303-03B Engine Cooling - INGENIUM I4 2.0L Petrol/INGENIUM I4 2.0L Petrol - PHEV, Removal and Installation).
Refer to: [Coolant Expansion Tank](#) (303-03C Engine Cooling - INGENIUM I6 3.0L Petrol, Removal and Installation).
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10. For additional removal information
Refer to: [Cooling Module](#) (303-03A Engine Cooling - INGENIUM I4 2.0L Diesel, Removal and Installation).
Refer to: [Cooling Module](#) (303-03B Engine Cooling - INGENIUM I4 2.0L Petrol/INGENIUM I4 2.0L Petrol - PHEV, Removal and Installation).
Refer to: [Cooling Module](#) (303-03C Engine Cooling - INGENIUM I6 3.0L Petrol, Removal and Installation).
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11. For additional removal information
Refer to: [Charge Air Radiator](#) (303-03A Engine Cooling - INGENIUM I4 2.0L Diesel, Removal and Installation).
Refer to: [Charge Air Radiator](#) (303-03B Engine Cooling - INGENIUM I4 2.0L Petrol/INGENIUM I4 2.0L Petrol - PHEV, Removal and Installation).
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12. For additional removal information
Refer to: [Auxiliary Radiator](#) (303-03B Engine Cooling - INGENIUM I4 2.0L Petrol/INGENIUM I4 2.0L Petrol - PHEV, Removal and Installation).
Refer to: [Auxiliary Radiator](#) (303-03C Engine Cooling - INGENIUM I6 3.0L Petrol, Removal and Installation).
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13. For additional removal information
Refer to: [Front Subframe](#) (502-00 Uni-Body, Subframe and Mounting System, Removal and Installation).
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14. For additional removal information

Refer to: Engine Assembly Remove for Access (303-01 Engine - INGENIUM I4 2.0L Diesel, Removal).

Refer to: [Engine - INGENIUM I4 2.0L Petrol](#) (303-01B Engine - INGENIUM I4 2.0L Petrol/INGENIUM I4 2.0L Petrol - PHEV, Removal).

Refer to: Engine - INGENIUM I4 2.0L Petrol - PHEV (303-01 Engine - INGENIUM I4 2.0L Petrol/INGENIUM I4 2.0L Petrol - PHEV, Removal).

Refer to: [Engine Assembly Remove for Access](#) (303-01C Engine - INGENIUM I6 3.0L Petrol, Removal).

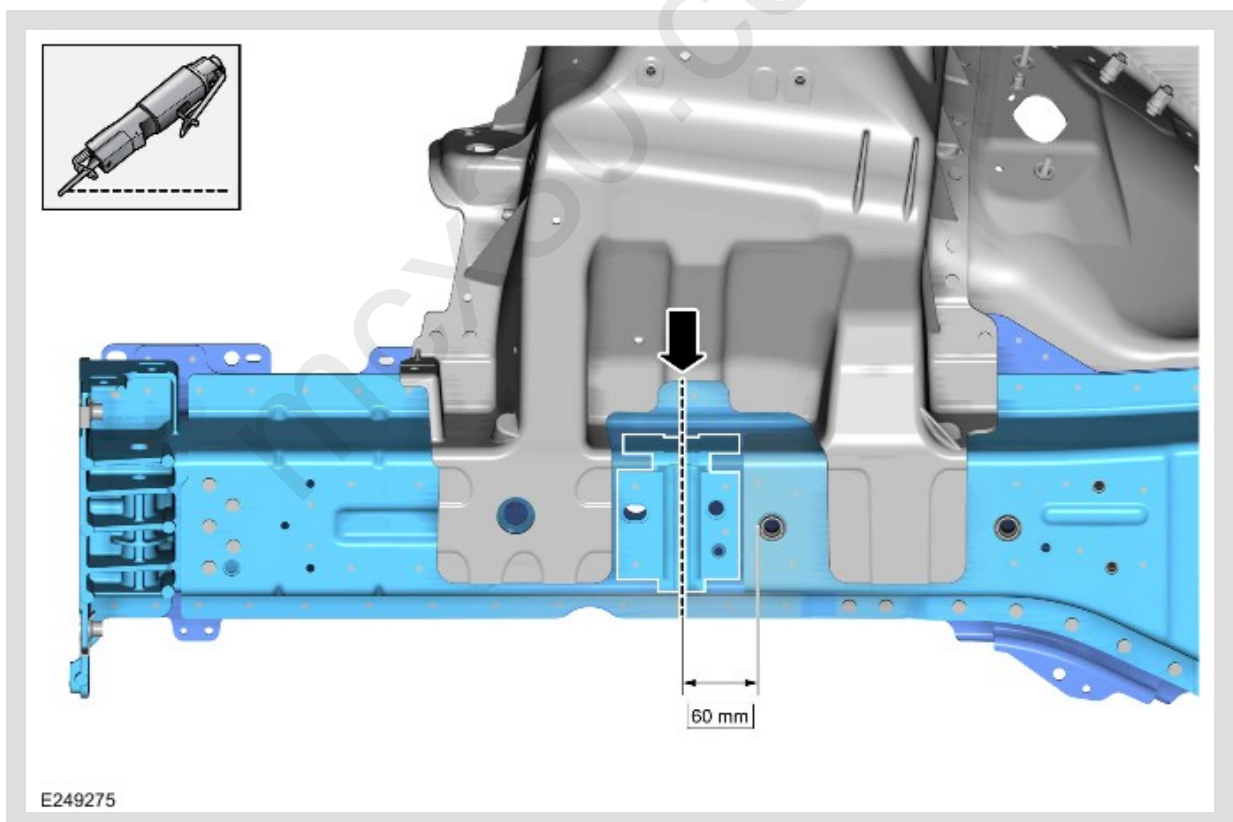
15. Release and position the wiring harness to one side.

16. Release and position the brake pipes to one side.

17.

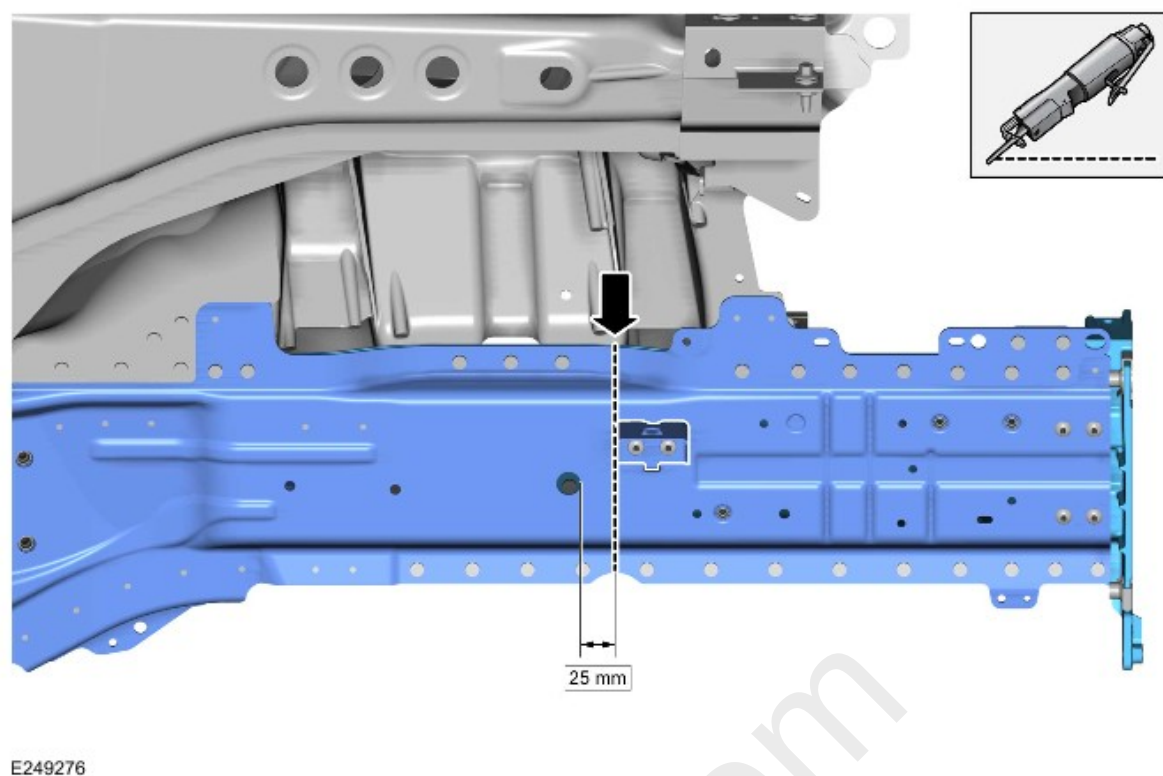
⚠ CAUTIONS:

- The front side member and front side member closing panel joints are staggered.
- Care should be taken not to cut through into the front side member closing panel, as this section of the front side member closing panel remains in place.



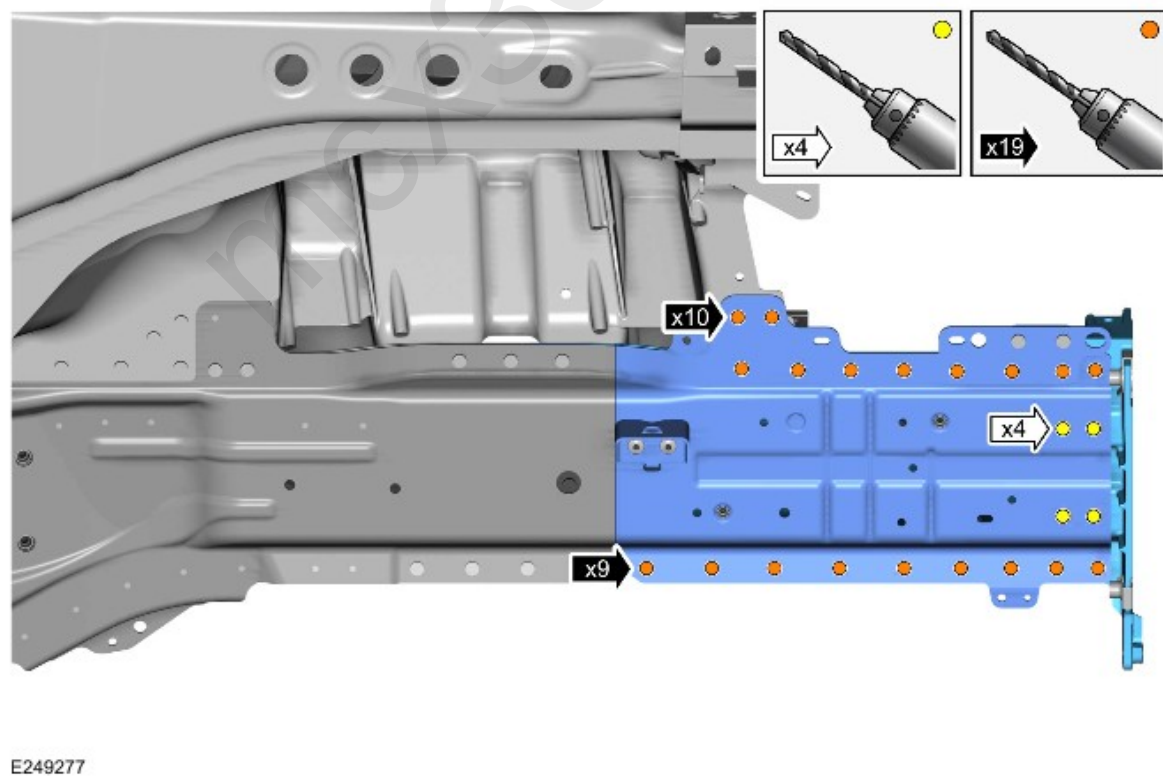
Measure, mark and cut the front side member where the Metal Inert Gas (MIG) welded butt joint is to be made as indicated.

18.



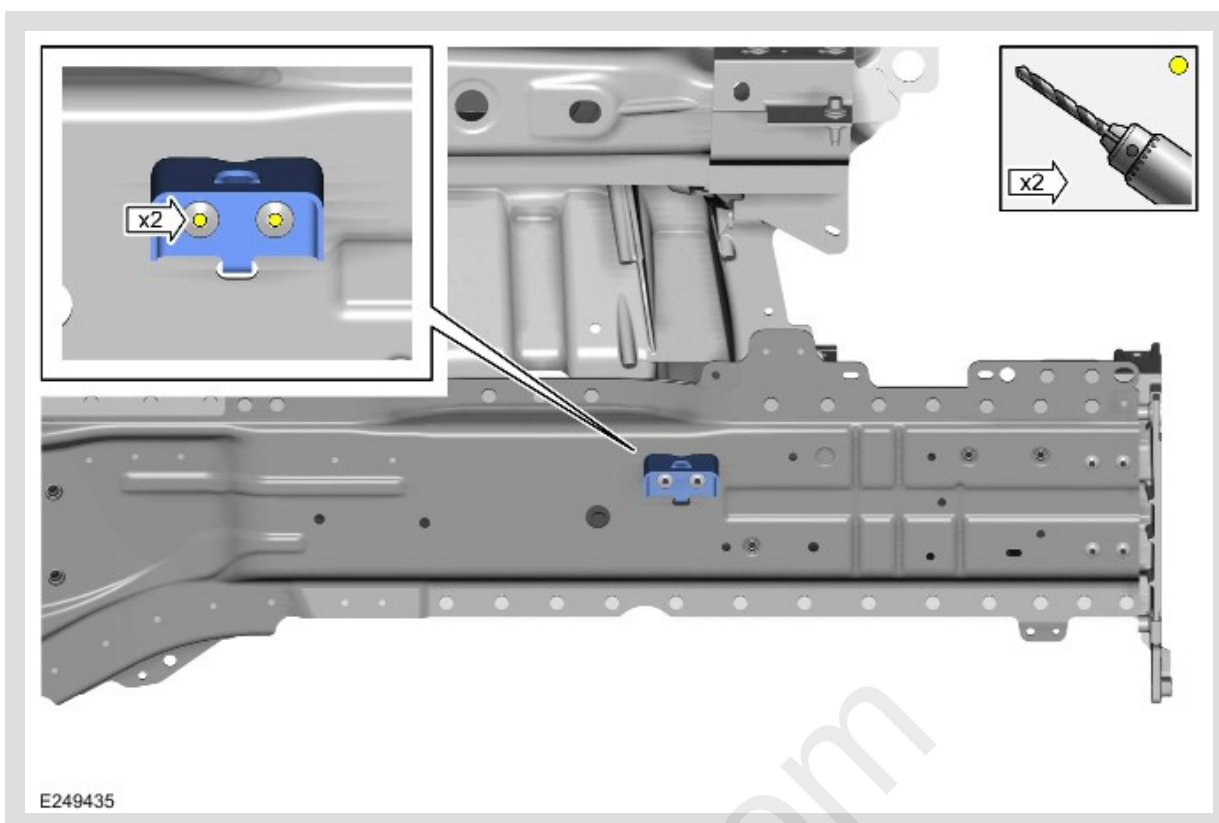
Measure, mark and cut the front side member closing panel where the MIG welded butt joint is to be made as indicated.

19.



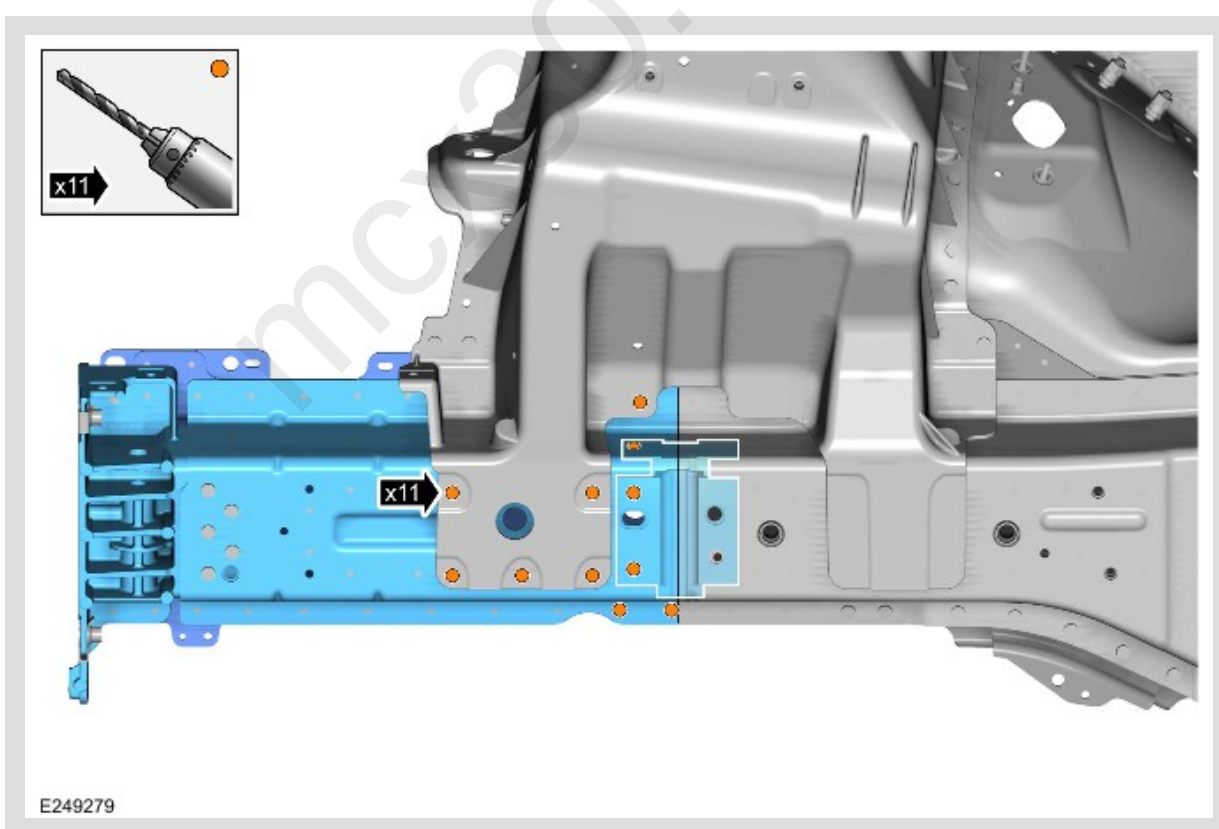
Remove the Self Piercing Rivets (SPRs) and Breakstem Fasteners (BSFs) as indicated.

20.



Remove the BSFs and bracket as indicated.

21.

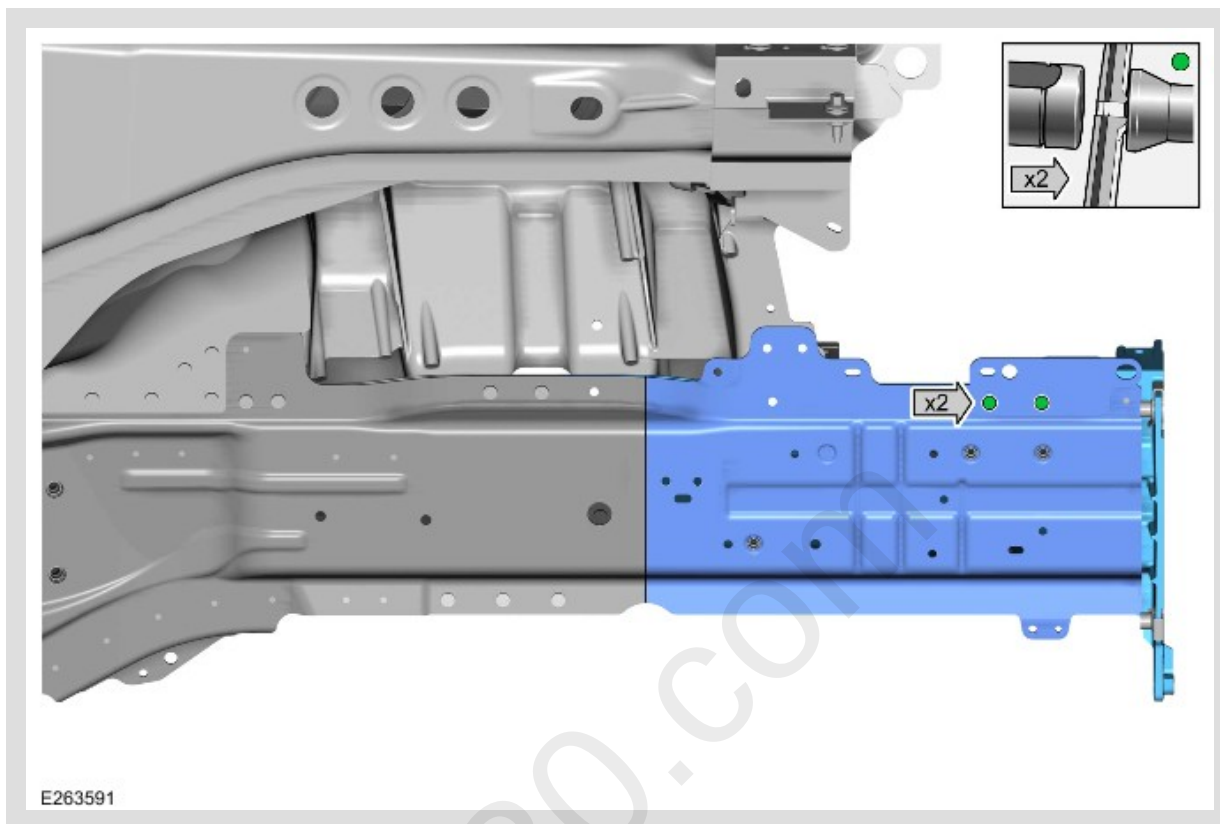


Remove the SPRs as indicated.

22.

NOTE:

Where Flow Form Rivet (FFR) installation is indicated. Make sure that the panel is planished before removal.



Planish the panel as indicated.

23.

Carefully separate the joints and remove the front side member and closing panel sections.

INSTALLATION

CAUTION:

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

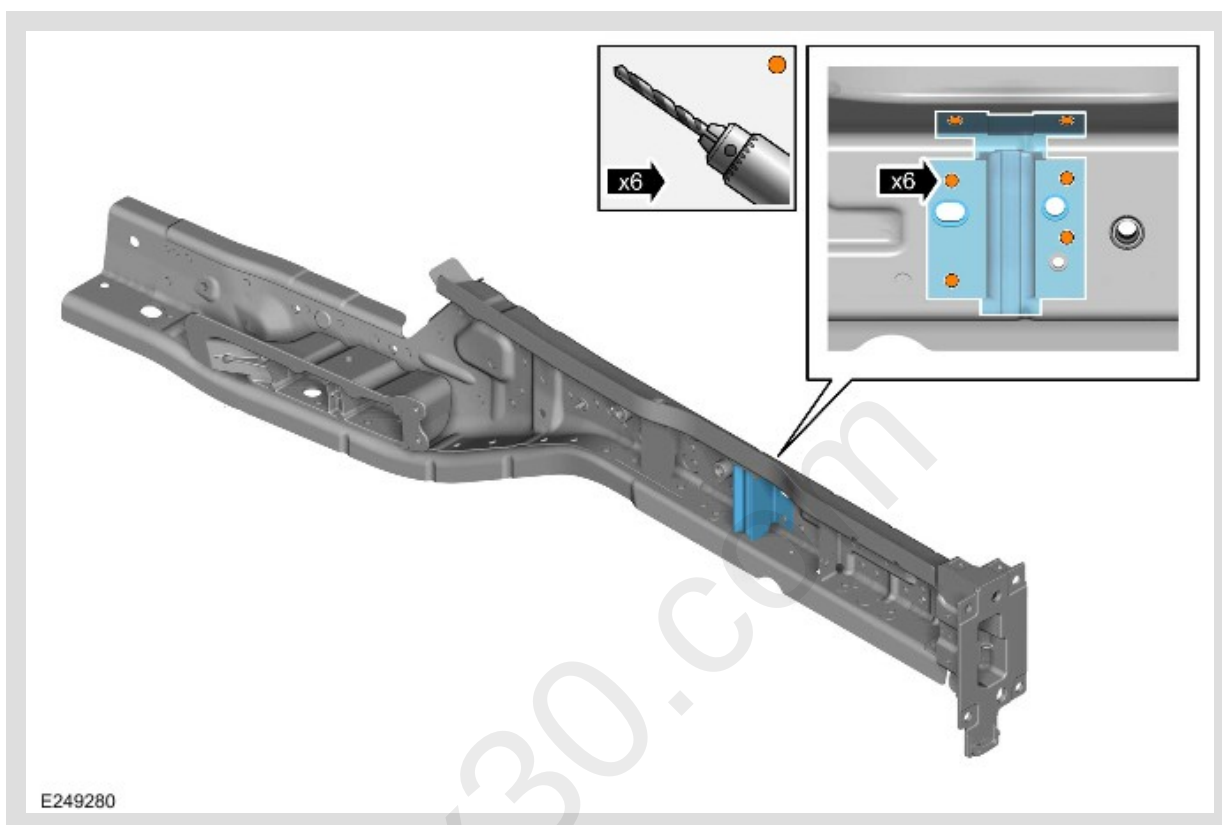
NOTES:

- 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.
- Flow Form Rivet (FFR) installation requires using the JLR approved FFR installation tool.
- Refer to Adhesive, Fixings and Consumables for further information on Flow Form Rivets (FFRs).

1. Remove the rivet remnants.

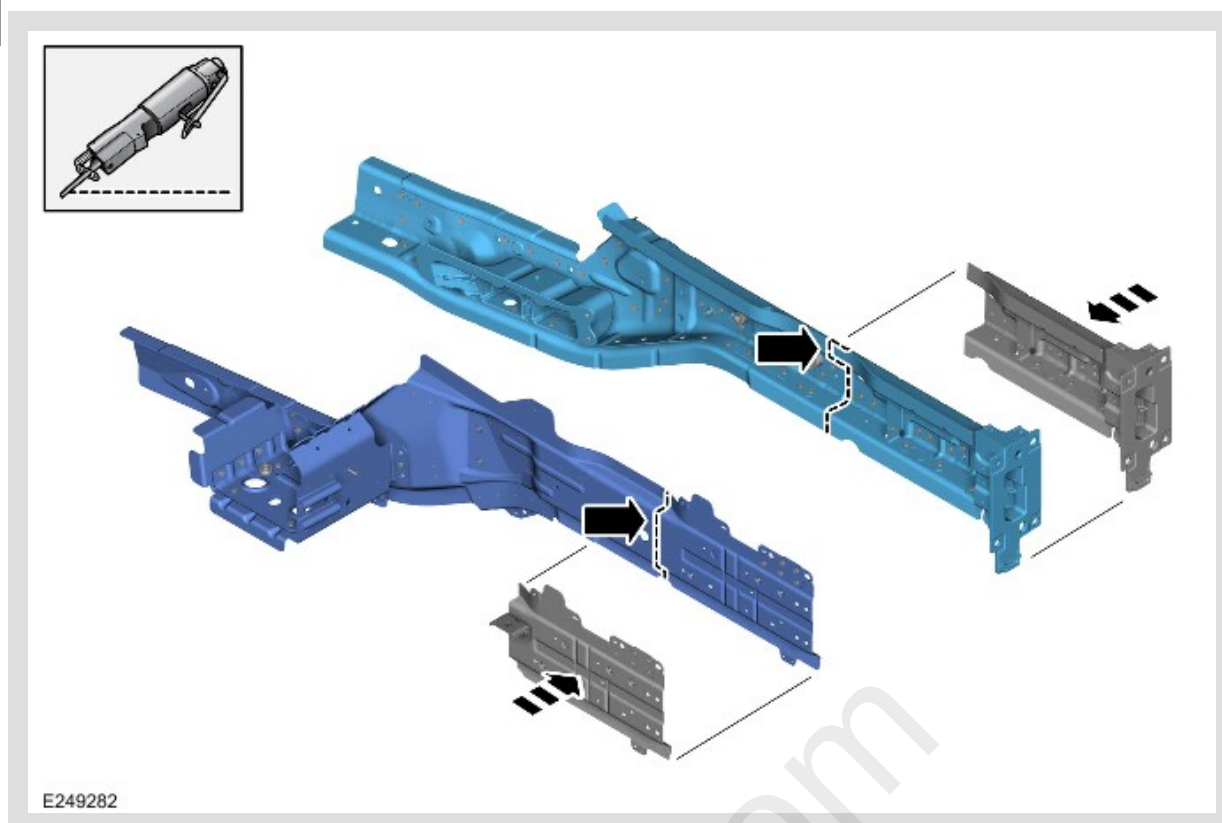
2. Dress the flanges where necessary.

3.



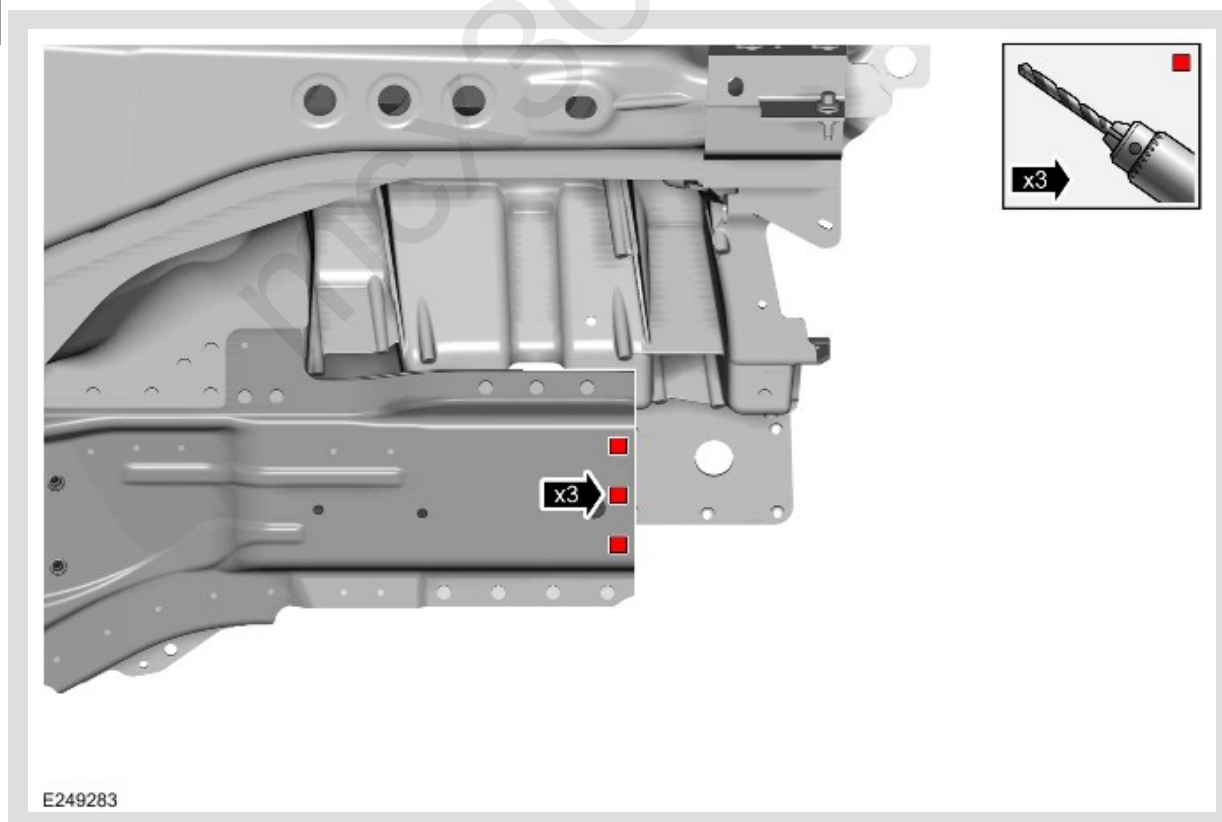
Remove the Self Piercing Rivets (SPRs) from the new front side member as indicated.

4.



Use the old front side member and closing panel section for reference. Measure, mark and cut the new front side member and closing panel, where the MIG welded butt joints are to be made as indicated.

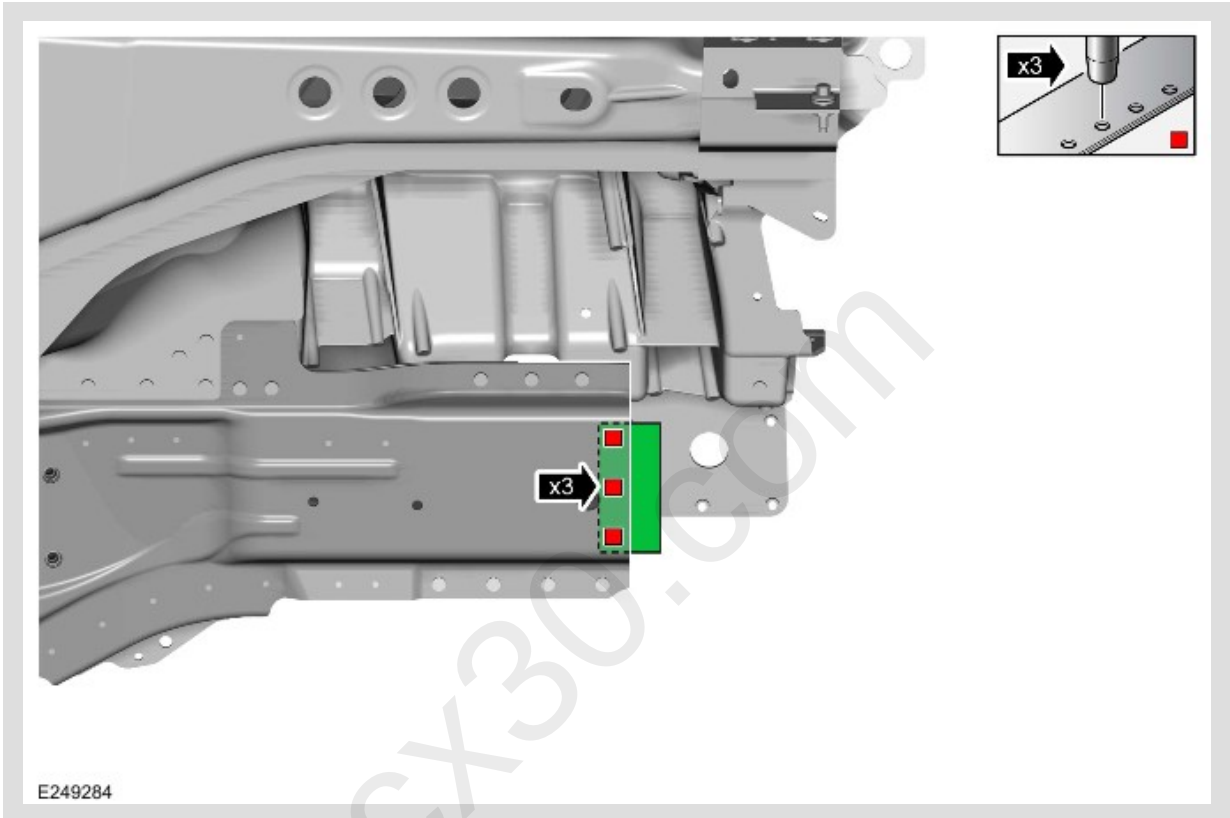
5.



Drill holes where the backing plate is to be installed as indicated.

6. Measure and cut a backing plate 30 mm wide, 15 mm each side of the MIG welded butt joint from the side member closing panel section remnant.
7. Cut 2 run on/run off tabs from the side member closing panel section remnant.
8. Clean and prepare the panel surfaces.

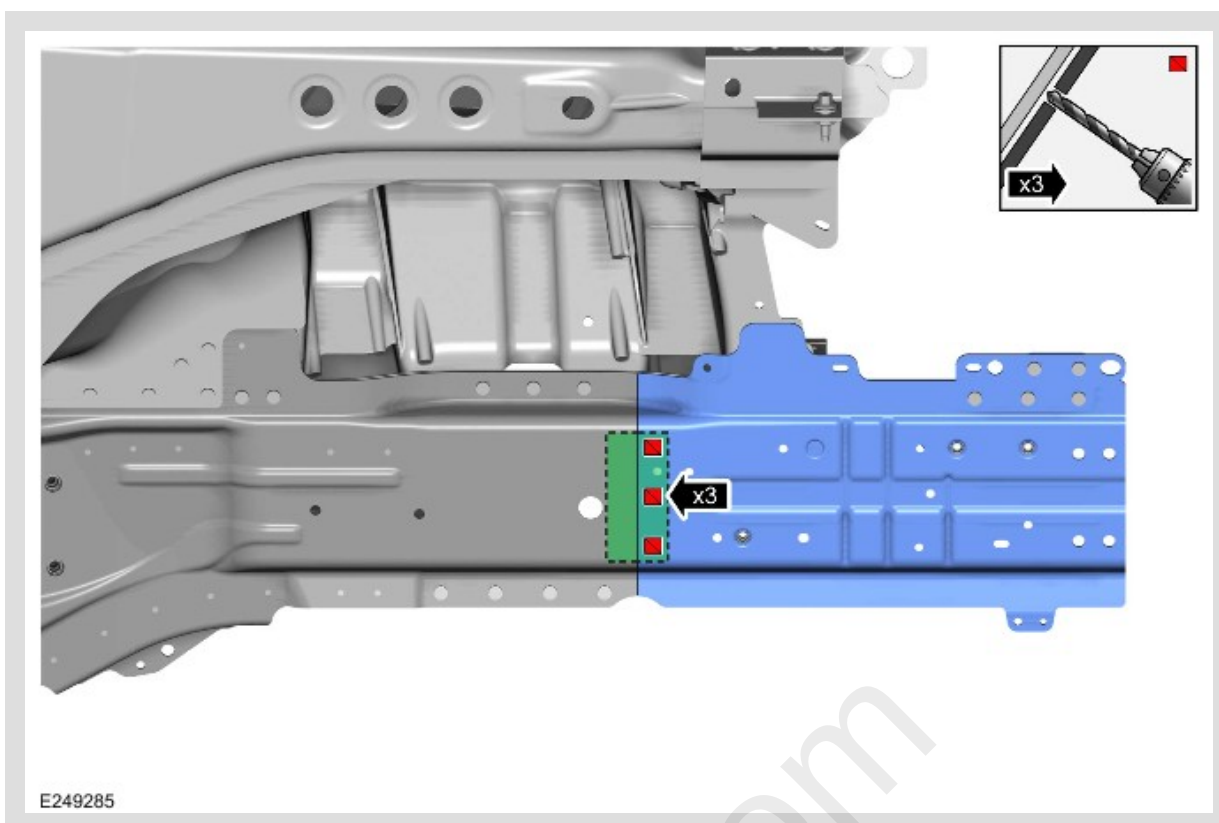
9.



Install and MIG plug weld the backing plate as indicated.

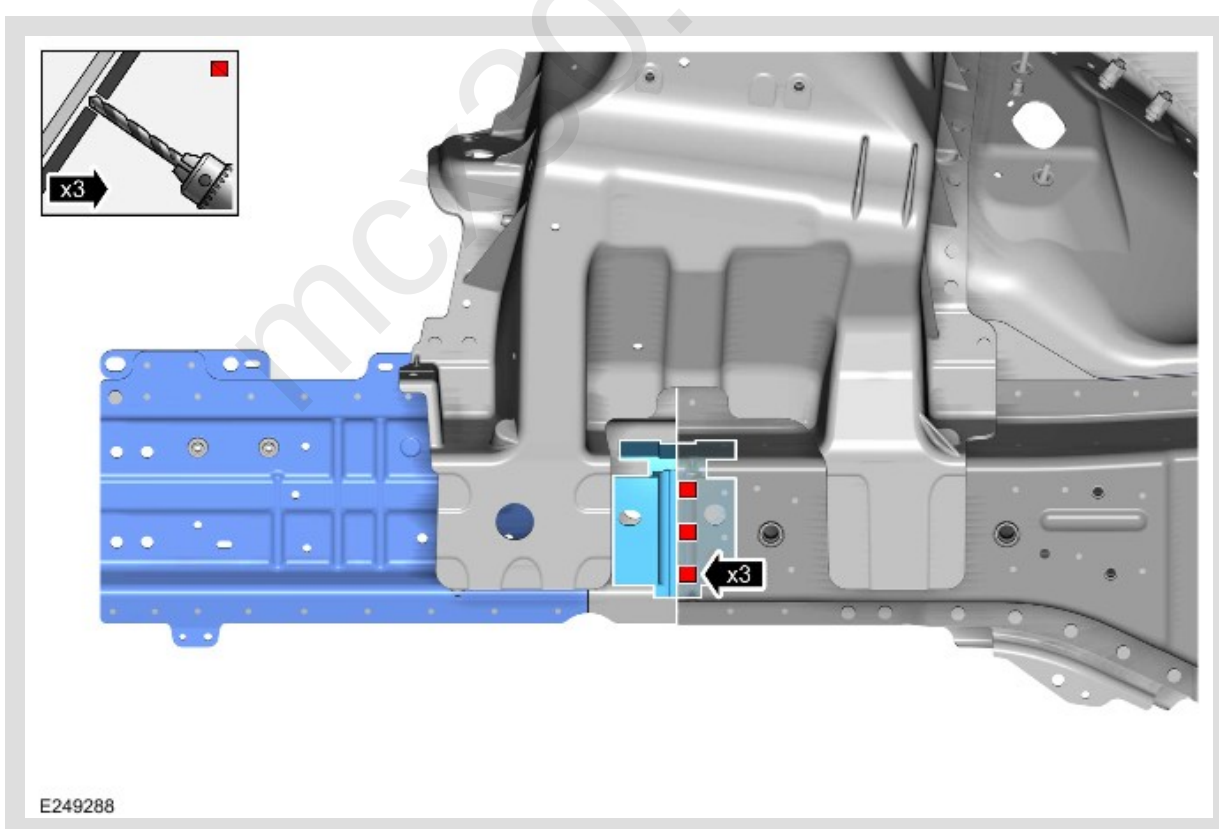
10. Offer up the new side member closing panel section and clamp into position. Check alignment, if correct proceed to next step, if not rectify and check the alignment again before proceeding.

11.



Drill holes where the MIG plug welds are to be installed as indicated.

12.



Drill holes where the backing plate is to be installed as indicated.

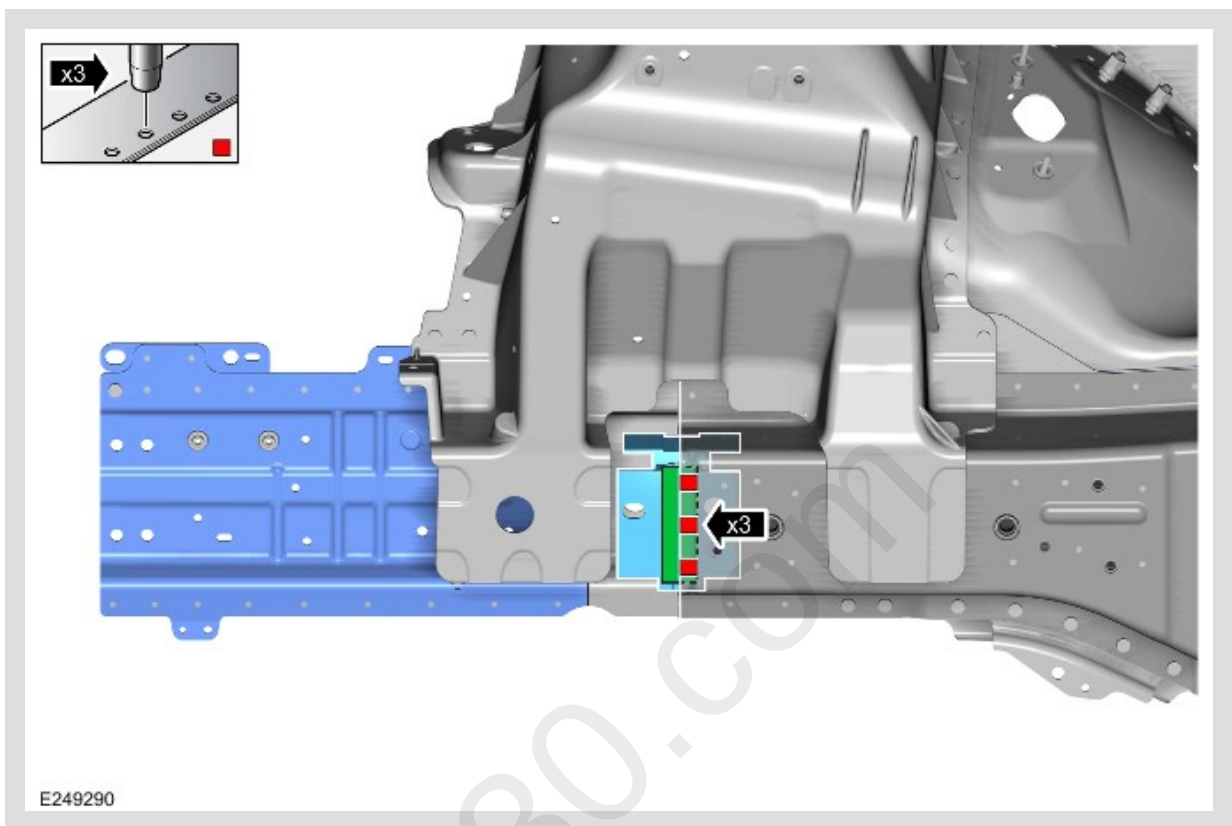
13.

Measure and cut a backing plate 30 mm wide, 15 mm each side of the MIG butt joint from the side member remnant.

14. Cut 2 run on/run off tabs from the side member section remnant.

15. Clean and prepare the panel surfaces.

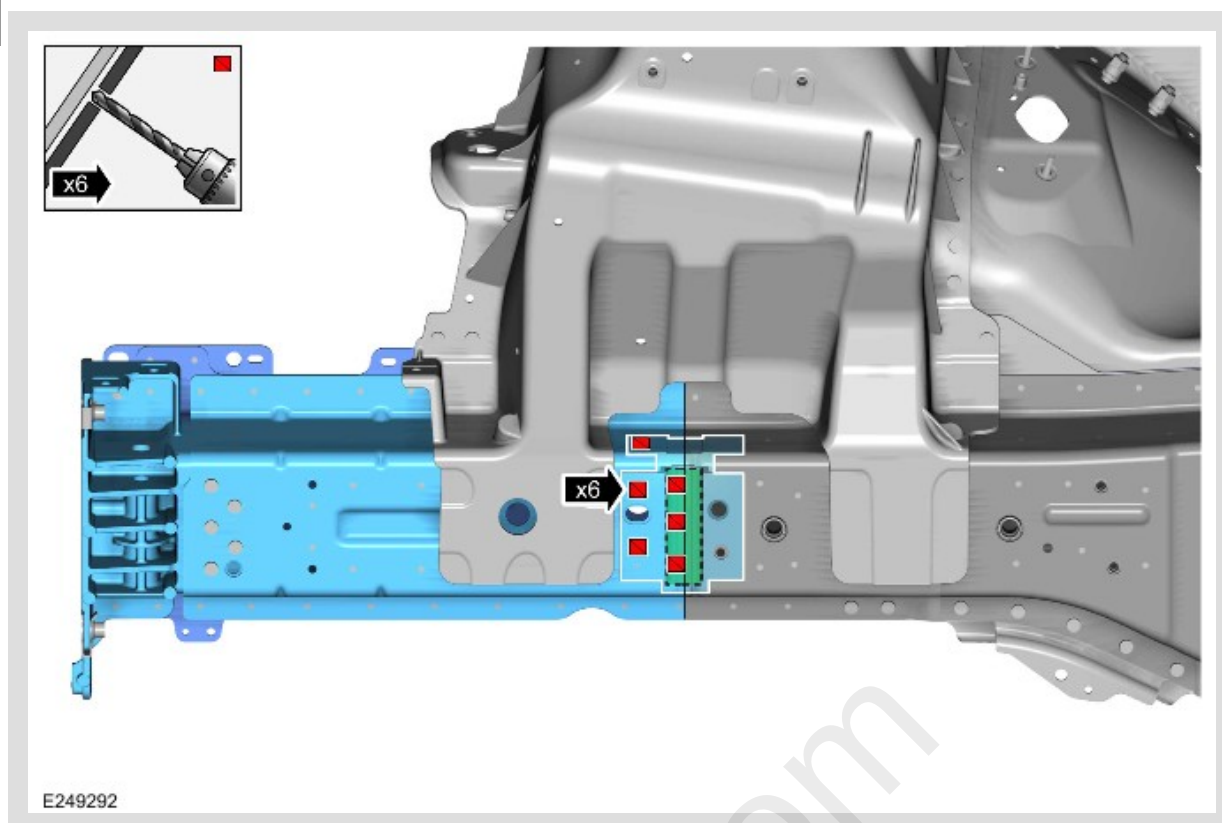
16.



Install and MIG plug weld the backing plate as indicated.

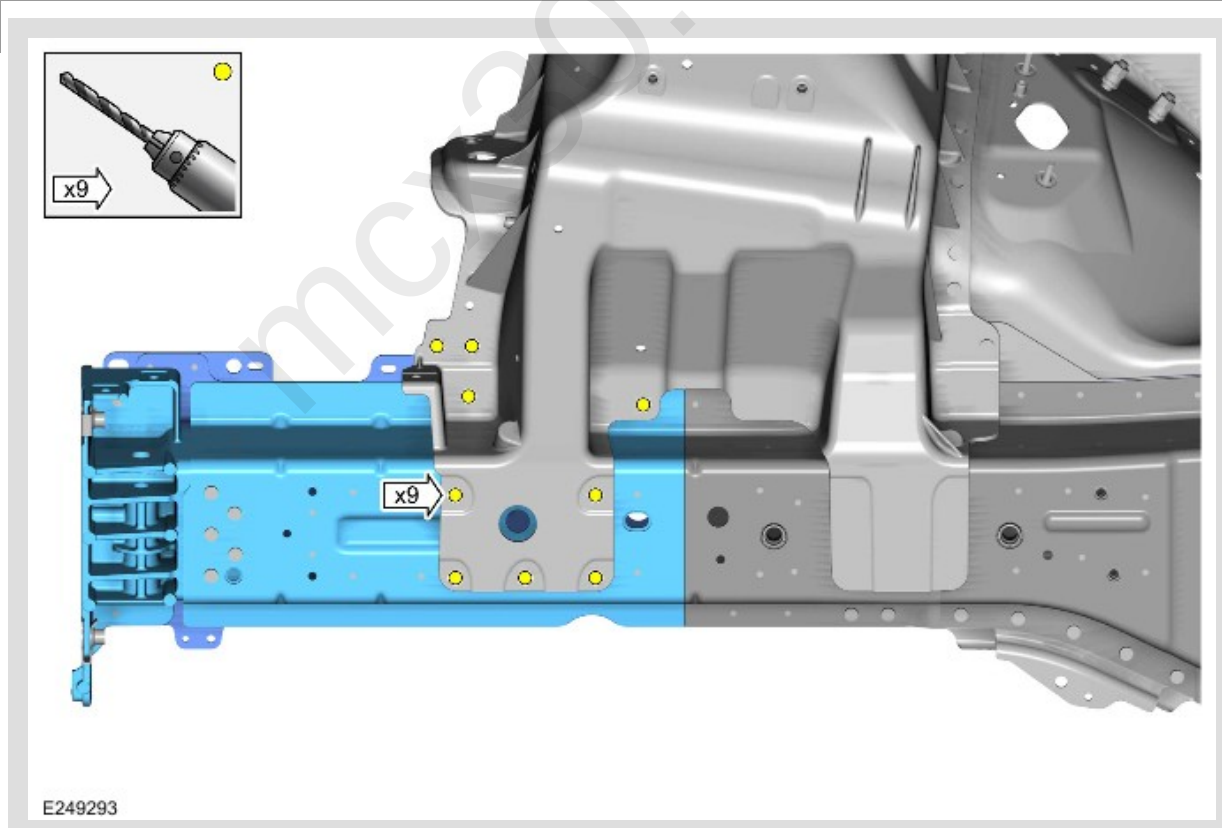
17. Offer up the new side member section and clamp into position. Check alignment, if correct proceed to next step, if not rectify and check the alignment again before proceeding.

18.



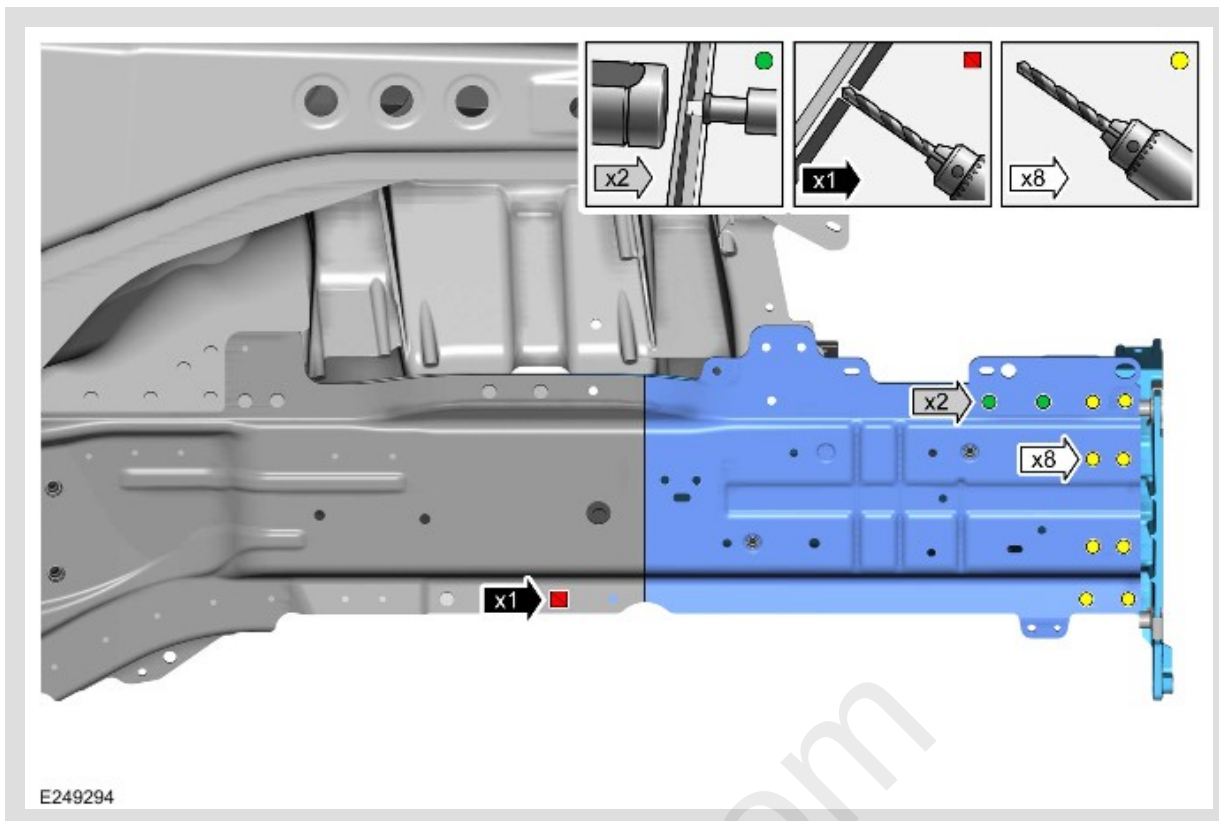
Drill holes where the MIG plug welds are to be installed as indicated.

19.



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

20.



Drill holes where the MIG plug weld and BSFs are to be installed as indicated. Punch calibrated holes where the Flow Form Rivets (FFRs) are to be installed as indicated.

21. Remove the new side member and side member closing panel sections.

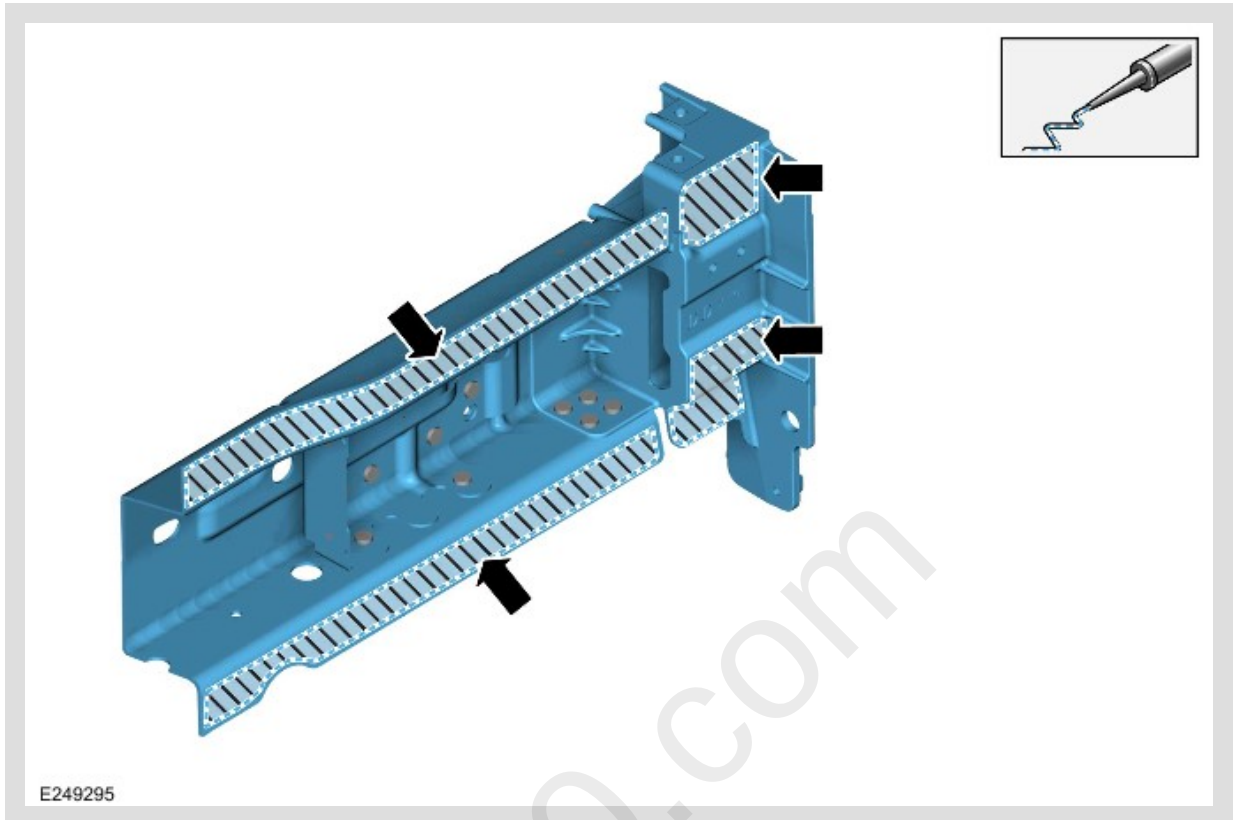
22. Deburr the drilled holes.

23. Clean and prepare the panel surfaces.

24.

 NOTE:

Make sure a continuous bead of adhesive surrounds the fixing holes.

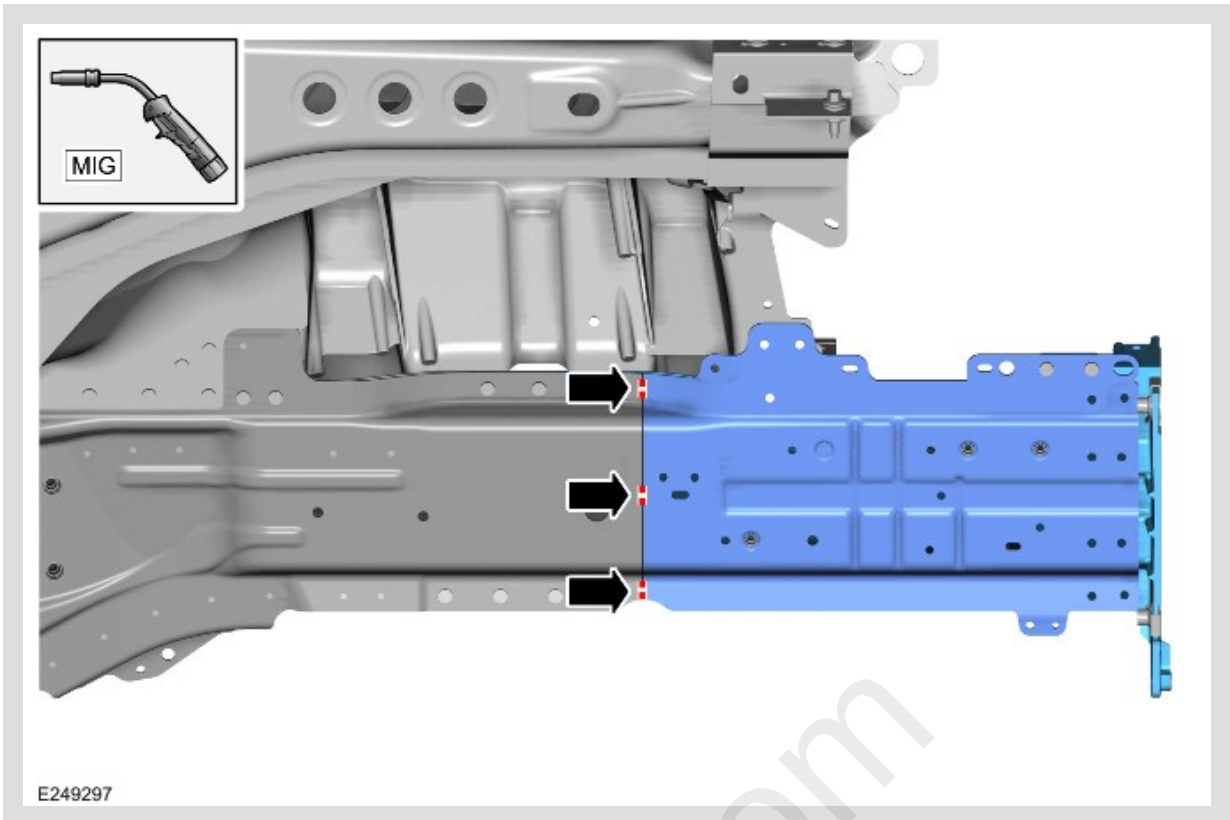


Apply a 5 mm zig zag bead of the JLR recommended bonding material as indicated.

25.

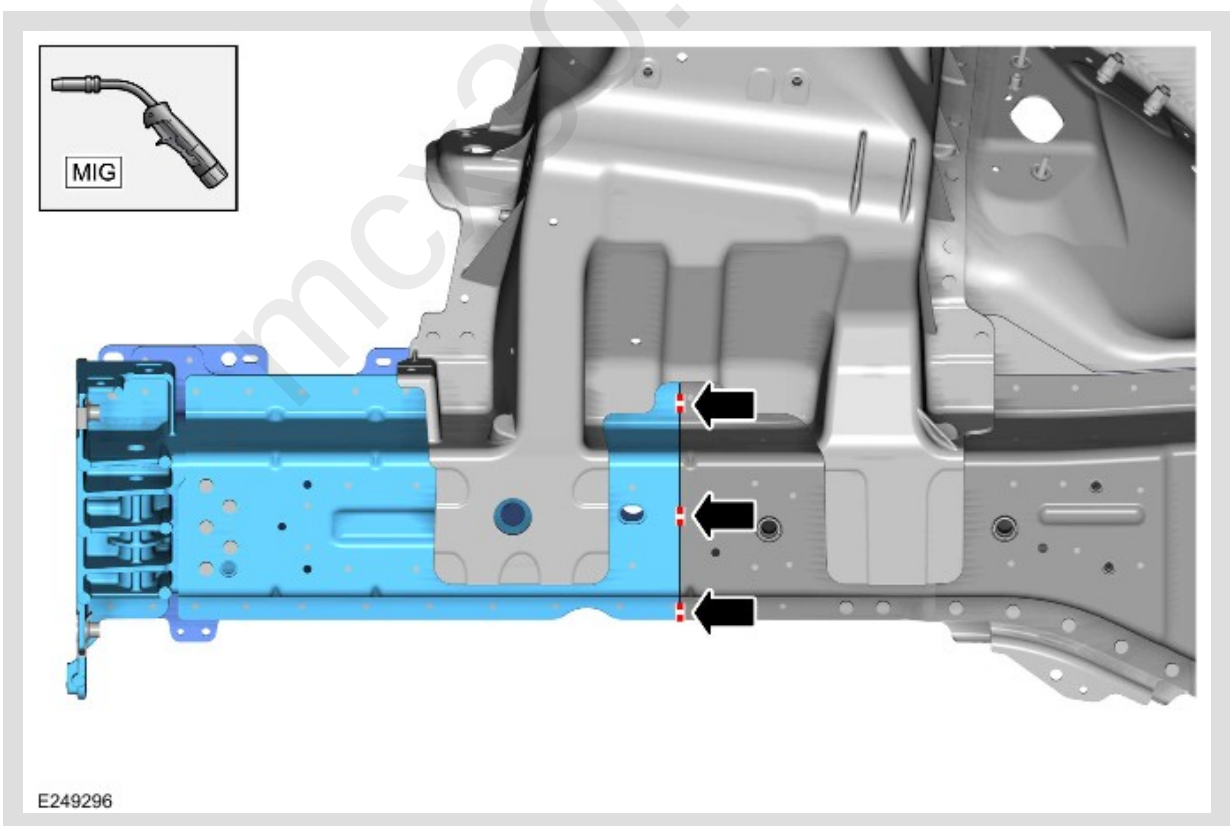
Offer up the new side member and side member closing panel sections and clamp into position. Check alignment, if correct proceed to next step, if not rectify and check the alignment again before proceeding.

26.



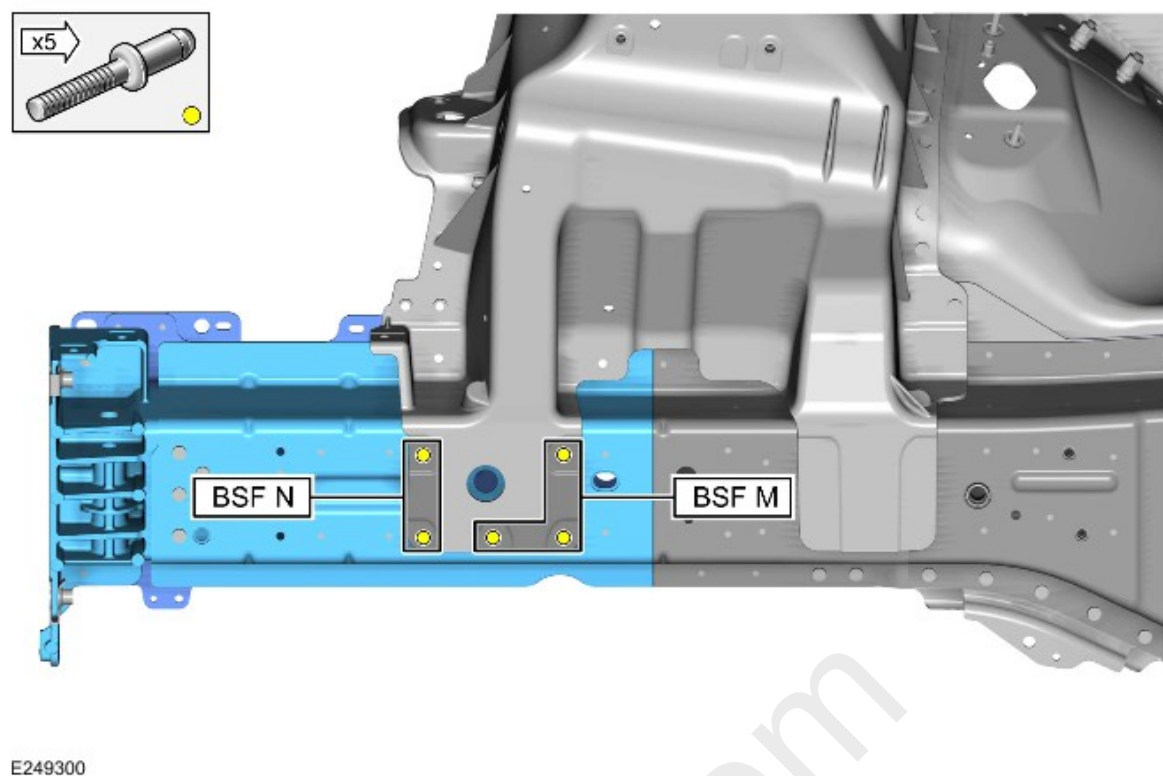
MIG tack weld the butt joint as indicated.

27.



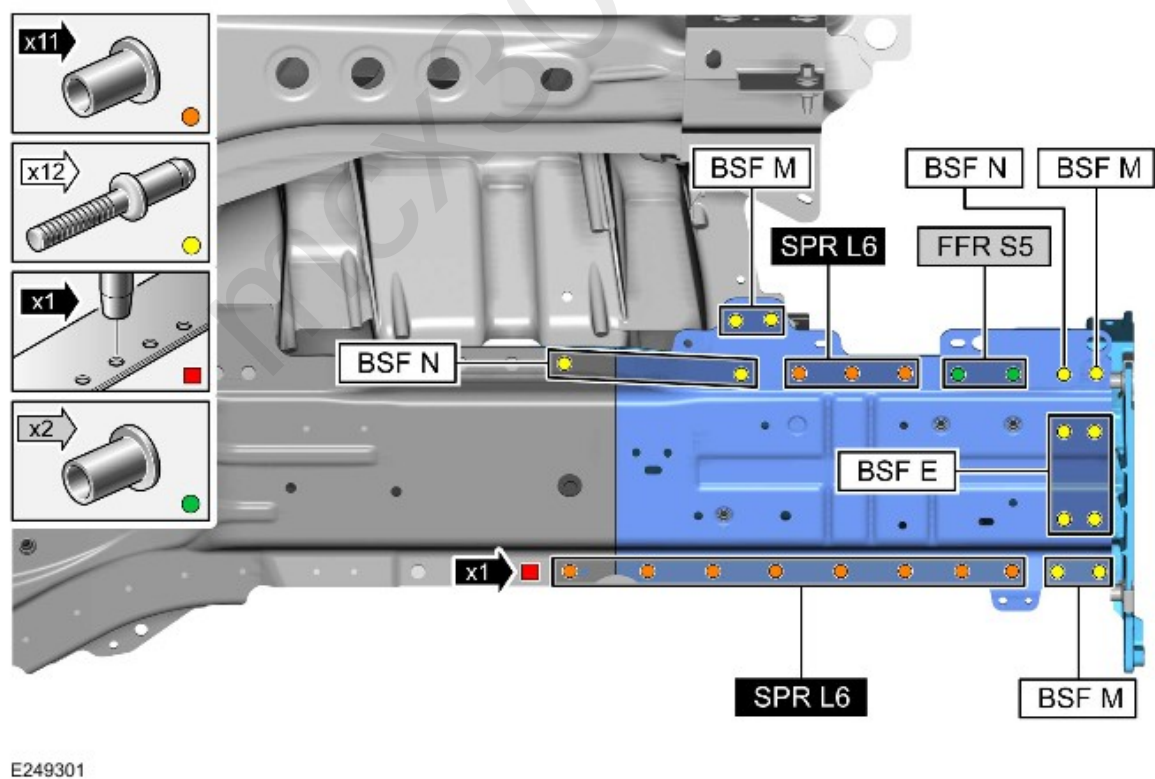
MIG tack weld the butt joint as indicated.

28.



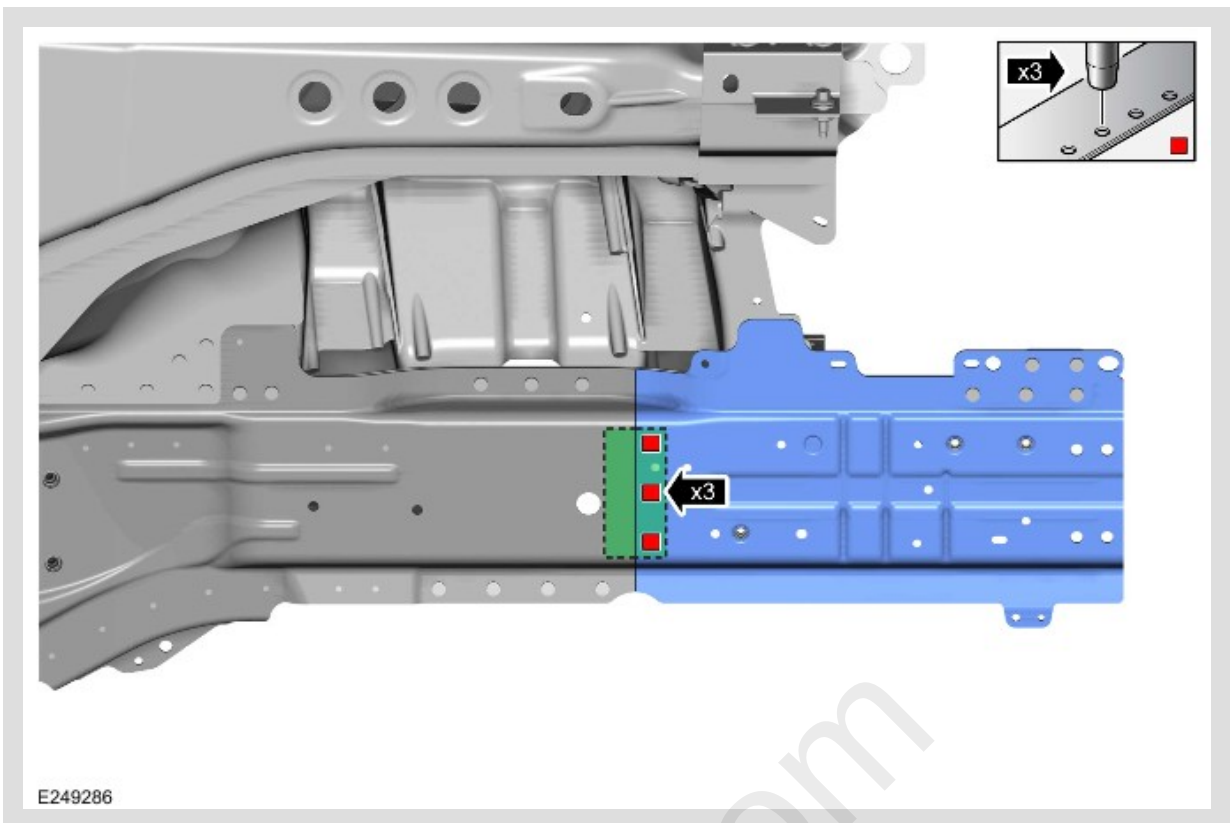
Install the BSFs as indicated.

29.



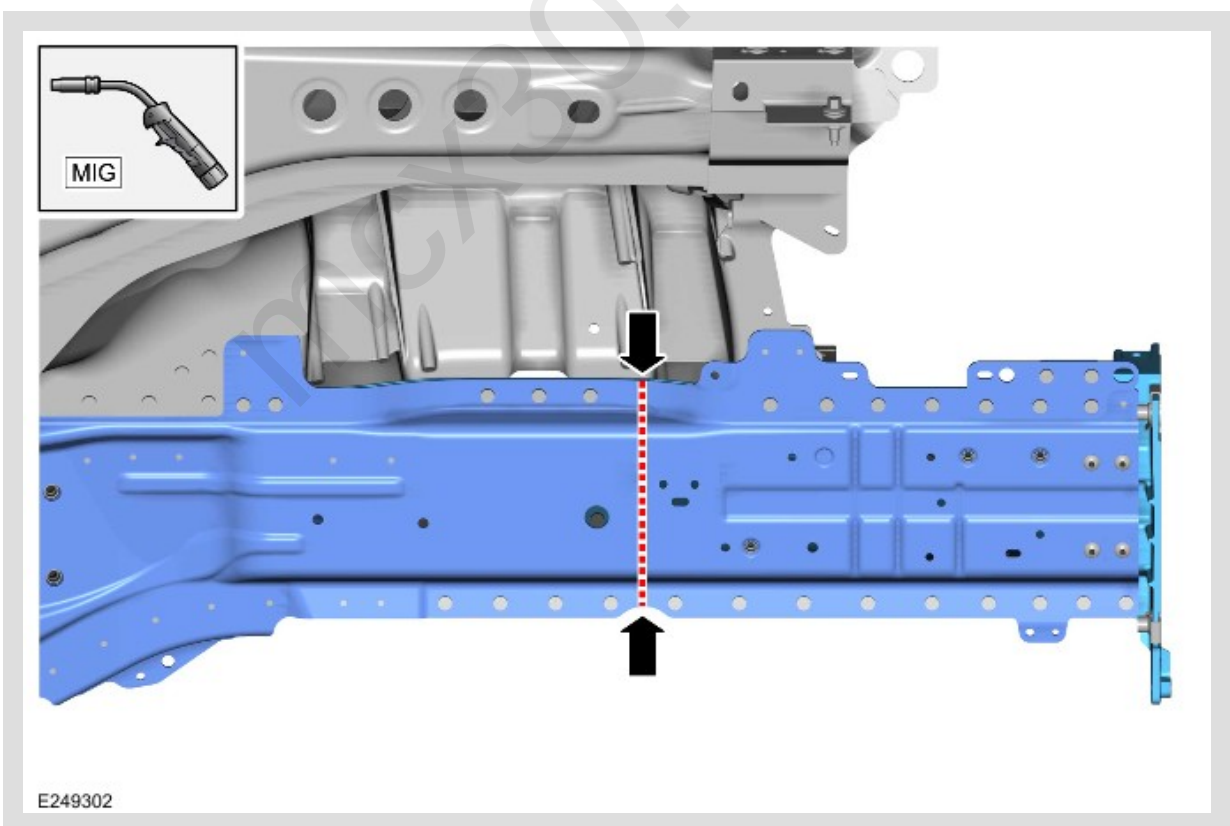
Install the MIG plug weld, SPRs, BSFs and FFRs as indicated.

30.



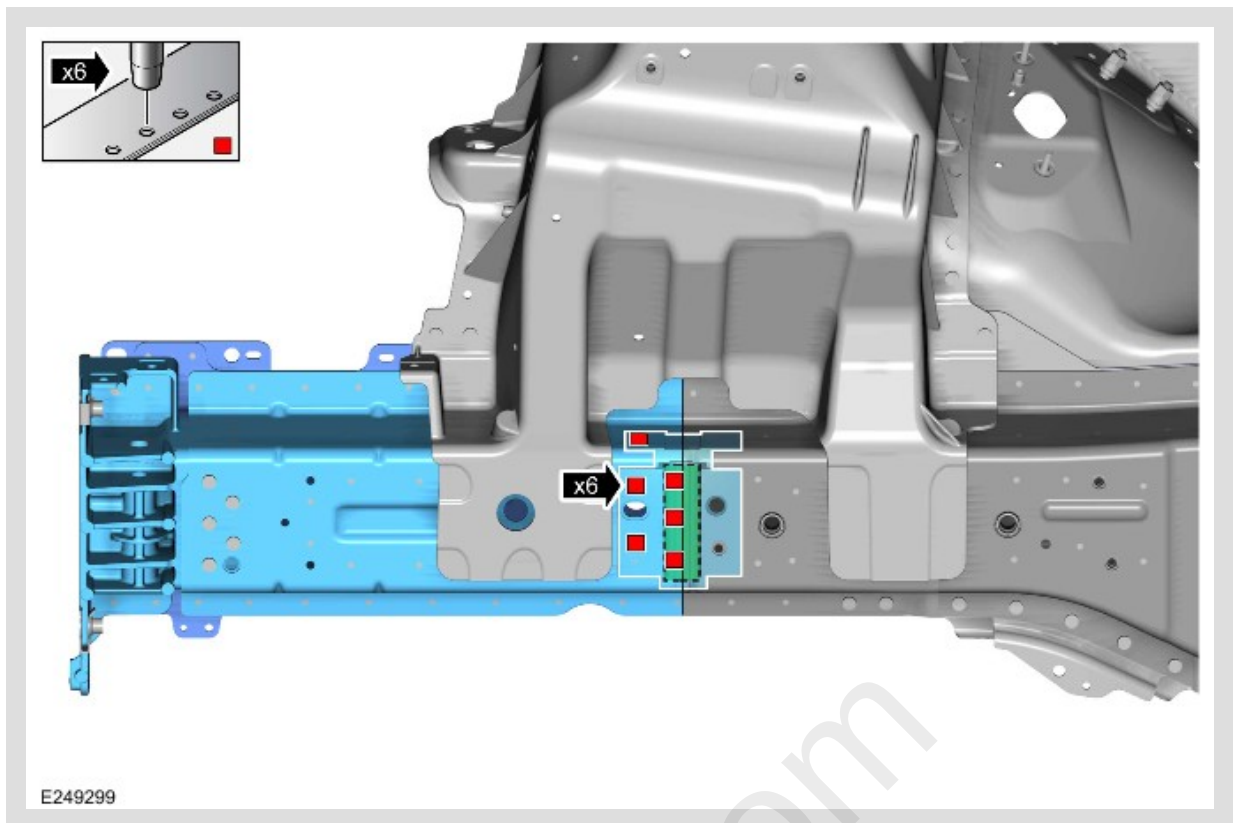
MIG plug weld the backing plate as indicated.

31.



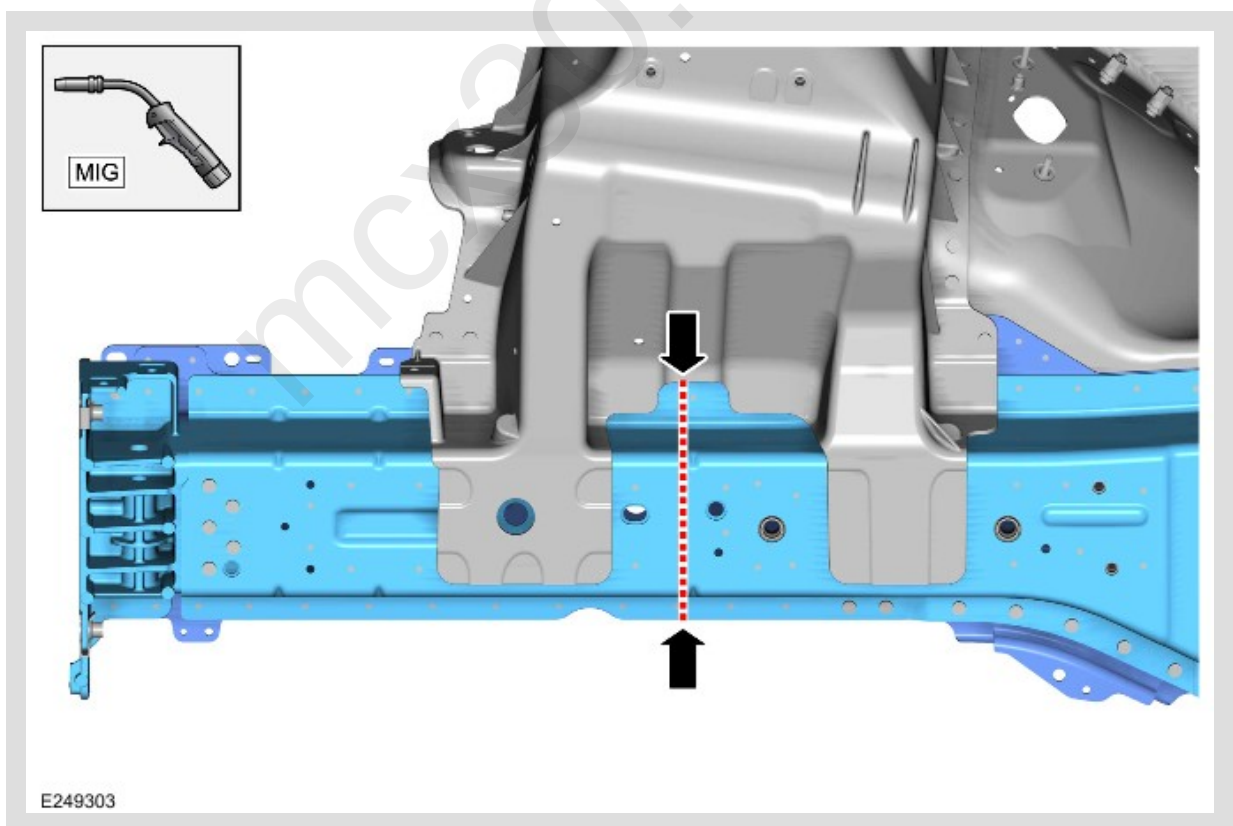
Install the run on/run off tabs and MIG weld the butt joint as indicated.

32.



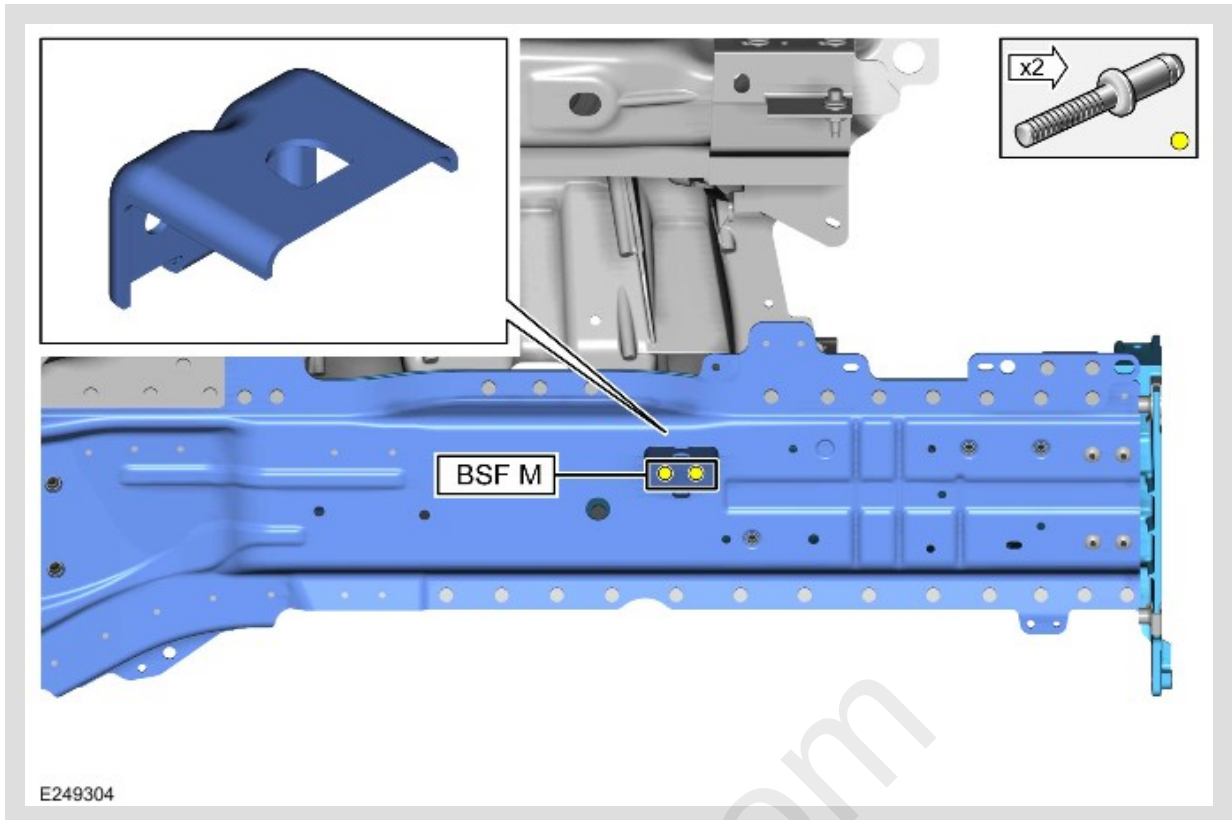
MIG plug weld the backing plate as indicated.

33.



Install the run on/run off tabs and MIG weld the butt joint as indicated.

34.



Install the old bracket and BSFs as indicated.

35. Remove the run on/run off tabs.

36. Complete a non-destructive crack inspection on the MIG welded butt joints. If correct proceed to next step, if not, rectify and recheck before proceeding.

37. Remove any excess adhesive.

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

39. Make sure that all installed fixings are sealed using a JLR recommended sealer.

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



NOTE:

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

41. For additional installation information

Refer to: Engine Assembly Remove for Access (303-01 Engine - INGENIUM I4 2.0L Diesel, Installation).

Refer to: [Engine - INGENIUM I4 2.0L Petrol](#) (303-01B Engine - INGENIUM I4 2.0L Petrol/INGENIUM I4 2.0L Petrol - PHEV, Installation).

Refer to: Engine - INGENIUM I4 2.0L Petrol - PHEV (303-01 Engine - INGENIUM I4 2.0L Petrol/INGENIUM I4 2.0L Petrol - PHEV, Installation).

Refer to: [Engine Assembly Remove for Access](#) (303-01C Engine - INGENIUM I6 3.0L Petrol, Installation).

42. For additional installation information

Refer to: [Front Subframe](#) (502-00 Uni-Body, Subframe and Mounting System, Removal and Installation).

43. For additional installation information

Refer to: [Auxiliary Radiator](#) (303-03B Engine Cooling - INGENIUM I4 2.0L Petrol/INGENIUM I4 2.0L Petrol - PHEV, Removal and Installation).

Refer to: [Auxiliary Radiator](#) (303-03C Engine Cooling - INGENIUM I6 3.0L Petrol, Removal and Installation).

44. For additional installation information

Refer to: [Charge Air Radiator](#) (303-03A Engine Cooling - INGENIUM I4 2.0L Diesel, Removal and Installation).

Refer to: [Charge Air Radiator](#) (303-03B Engine Cooling - INGENIUM I4 2.0L Petrol/INGENIUM I4 2.0L Petrol - PHEV, Removal and Installation).

45. For additional installation information

Refer to: [Cooling Module](#) (303-03A Engine Cooling - INGENIUM I4 2.0L Diesel, Removal and Installation).

Refer to: [Cooling Module](#) (303-03B Engine Cooling - INGENIUM I4 2.0L Petrol/INGENIUM I4 2.0L Petrol - PHEV, Removal and Installation).

Refer to: [Cooling Module](#) (303-03C Engine Cooling - INGENIUM I6 3.0L Petrol, Removal and Installation).

46. For additional installation information

Refer to: [Coolant Expansion Tank](#) (303-03A Engine Cooling - INGENIUM I4 2.0L Diesel, Removal and Installation).

Refer to: [Coolant Expansion Tank](#) (303-03B Engine Cooling - INGENIUM I4 2.0L Petrol/INGENIUM I4 2.0L Petrol - PHEV, Removal and Installation).

Refer to: [Coolant Expansion Tank](#) (303-03C Engine Cooling - INGENIUM I6 3.0L Petrol, Removal and Installation).

47. For additional installation information

Refer to: [Hood Latch Panel](#) (501-02 Front End Body Panels, Removal and Installation).

48. For additional installation information

Refer to: [Front Right Fender](#) (501-02 Front End Body Panels, Removal and Installation).

49. For additional installation information

Refer to: [Front Wheel Arch Liner](#) (501-02 Front End Body Panels, Removal and Installation).

50. For additional installation information

Refer to: [Front Armature](#) (501-19 Bumpers, Removal and Installation).

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