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2020.0 DEFENDER (LE), 501-27

FRONT END SHEET METAL REPAIRS

FRONT SIDE MEMBER AND SUSPENSION TOP MOUNT ASSEMBLY - 90 (G2452639)

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REMOVAL

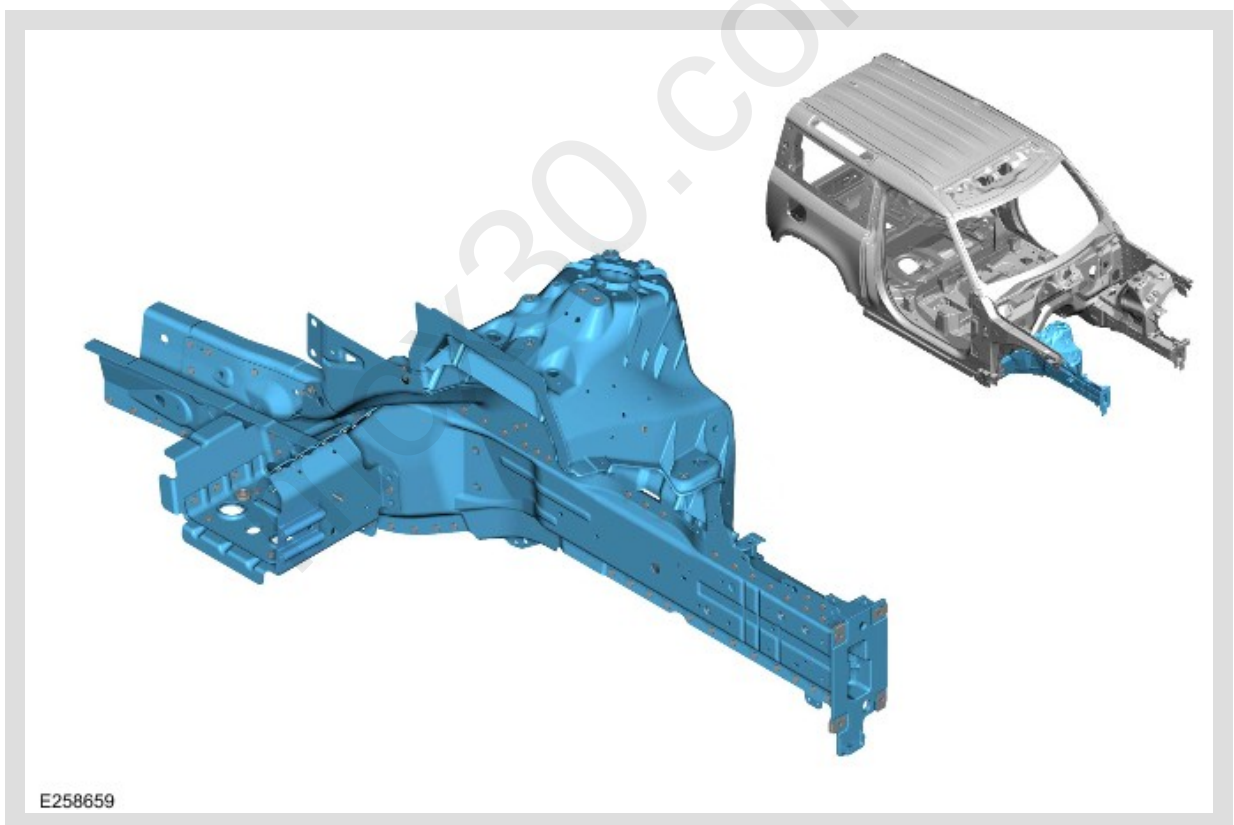
 NOTE:

The front side member and suspension top mount assembly is installed in conjunction with:

- Front Armature
- Hood
- Hood latch panel
- Fender
- Front wheel arch liner
- Instrument panel lower trim
- A-pillar lower trim panel
- Fixed side steps and protection tubes
- Air filter housing
- Engine Junction Box (EJB)
- Powertrain Control Module (PCM)
- Fuel Fired Booster Heater (FFBH)
- Electric coolant pump
- Integrated power brake system fluid reservoir
- Front air reservoir valve block
- Integrated power brake system
- Coolant expansion tank
- Air Conditioning (A/C) compressor
- Cooling module

- Charge air radiator
- Auxiliary radiator
- Shock absorber and spring assembly
- Upper arm
- Catalytic converter
- Engine
- Front subframe
- Steering gear

1.



The front side member and suspension top mount assembly 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 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 5.3 mm drill bit.
- 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 suspension top mount assembly 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](#) (501-27 Front End Sheet Metal Repairs, Specifications).

5. For additional removal information

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

6. For additional removal information

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

7. For additional removal information

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

8. For additional removal information

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

9. For additional removal information

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

10. For additional removal information

Refer to: [Instrument Panel Lower Trim](#) (501-12 Instrument Panel and Console, Removal and Installation).

11. For additional removal information

Refer to: [A-Pillar Lower Trim Panel](#) (501-05 Interior Trim and Ornamentation, Removal and Installation).

12. For additional removal information

Refer to: [Fixed Side Steps and Side Tubes - Part number: 90: VPLEP0433, VPLEP0391, 110: VPLEP0434, VPLEP0392](#) (102-03 Exterior, Removal and Installation).

13. For additional removal information

Refer to: [Air Filter Housing](#) (303-12A Intake Air Distribution and Filtering - INGENIUM I4 2.0L Diesel, Removal and Installation).

Refer to: [Air Filter Housing](#) (303-12B Intake Air Distribution and Filtering - INGENIUM I4 2.0L Petrol /INGENIUM I4 2.0L Petrol - PHEV, Removal and Installation).

Refer to: [Air Filter Housing](#) (303-12C Intake Air Distribution and Filtering - INGENIUM I6 3.0L Petrol, Removal and Installation).

14. For additional removal information

Refer to: [Engine Junction Box A](#) (418-00 Module Communications Network, Removal and Installation).

Refer to: [Engine Junction Box A](#) (418-00 Module Communications Network, Removal and Installation).

15. For additional removal information

Refer to: [Powertrain Control Module](#) (303-14A Electronic Engine Controls - INGENIUM I4 2.0L Diesel, Removal and Installation).

Refer to: [Powertrain Control Module](#) (303-14B Electronic Engine Controls - INGENIUM I6 3.0L Petrol, Removal and Installation).

Refer to: [Powertrain Control Module - INGENIUM I4 2.0L Petrol](#) (303-14C Electronic Engine Controls - INGENIUM I4 2.0L Petrol/INGENIUM I4 2.0L Petrol - PHEV, Removal and Installation).

Refer to: [Powertrain Control Module - INGENIUM I4 2.0L Petrol - PHEV](#) (303-14 Electronic Engine Controls - INGENIUM I4 2.0L Petrol/INGENIUM I4 2.0L Petrol - PHEV, Removal and Installation).

16. For additional removal information

Refer to: [Fuel Fired Booster Heater](#) (412-02 Auxiliary Climate Control, Removal and Installation).

17. For additional removal information

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

18. For additional removal information

Refer to: [Integrated Power Brake System Fluid Reservoir](#) (206-08 Brake Controls and Actuation, Removal and Installation).

19. For additional removal information

Refer to: [Front Air Reservoir Valve Block](#) (204-05 Vehicle Dynamic Suspension, Removal and Installation).

20. For additional removal information

Refer to: [Integrated Power Brake System](#) (206-08 Brake Controls and Actuation, Removal and Installation).

21. 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).

22. For additional removal information

Refer to: [Air Conditioning Compressor - INGENIUM I4 2.0L Diesel](#) (412-01 Climate Control, Removal and Installation).

Refer to: [Air Conditioning Compressor - INGENIUM I4 2.0L Petrol](#) (412-01 Climate Control, Removal and Installation).

Refer to: [Air Conditioning Compressor - INGENIUM I6 3.0L Petrol](#) (412-01 Climate Control, Removal and Installation).

23. 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).

24. 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).

25. 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).

26. For additional removal information

Refer to: [Shock Absorber and Spring Assembly - \[+\] Air Suspension](#) (204-01 Front Suspension, Removal and Installation).

Refer to: [Shock Absorber and Spring Assembly - \[+\] Coil Suspension](#) (204-01 Front Suspension, Removal and Installation).

27. For additional removal information

Refer to: [Right Upper Control Arm](#) (204-01 Front Suspension, Removal and Installation).

Refer to: [Left Upper Control Arm](#) (204-01 Front Suspension, Removal and Installation).

28. For additional removal information

Refer to: [Selective Catalyst Reduction Catalytic Converter](#) (309-00A Exhaust System - INGENIUM I4 2.0L Diesel, Removal and Installation).

Refer to: [Catalytic Converter - INGENIUM I4 2.0L Petrol](#) (309-00B Exhaust System - INGENIUM I4 2.0L Petrol/INGENIUM I4 2.0L Petrol - PHEV, Removal and Installation).

Refer to: [Catalytic Converter](#) (309-00C Exhaust System - INGENIUM I6 3.0L Petrol, Removal and Installation).

29. 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).

30. For additional removal information

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

31. For additional removal information

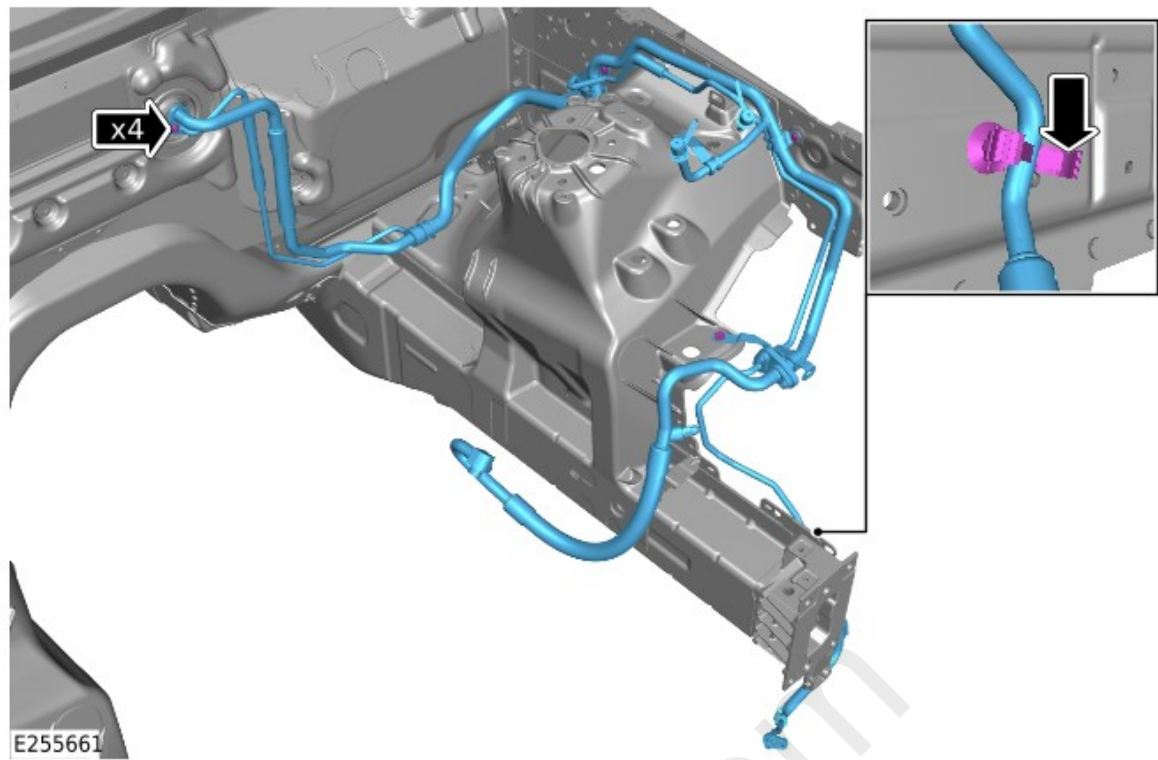
Refer to: [Steering Gear](#) (211-02 Power Steering, Removal and Installation).

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

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

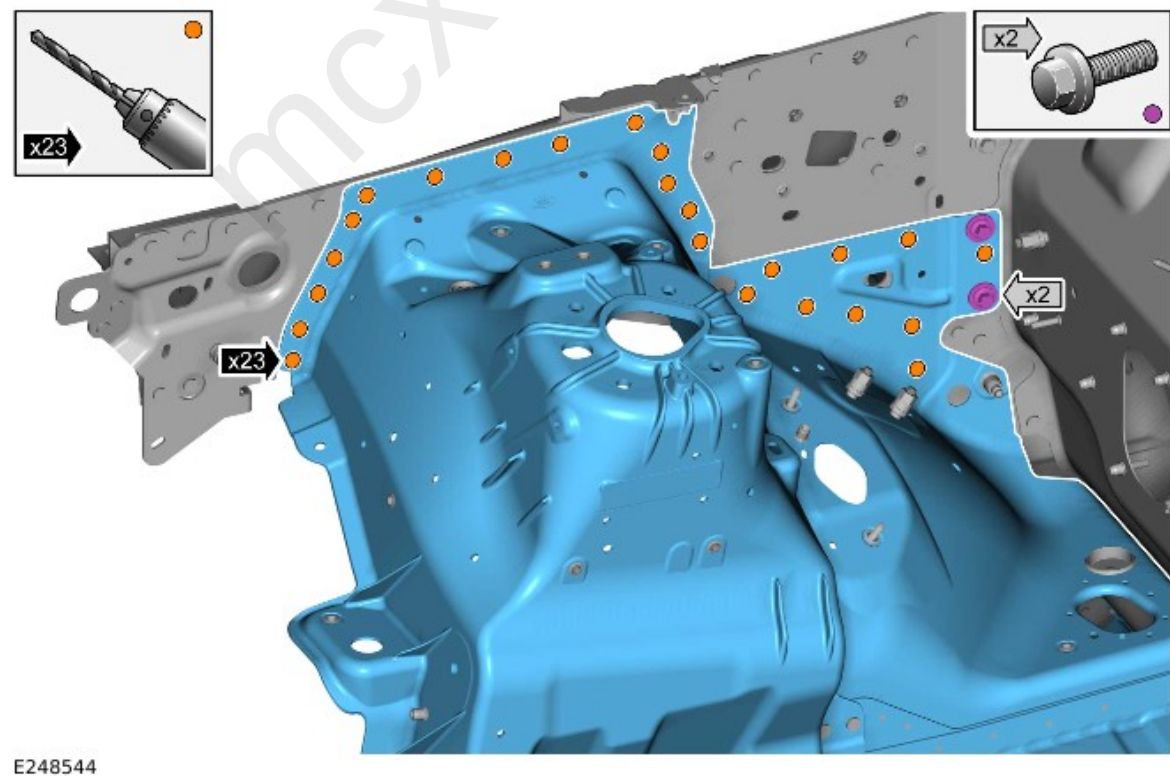
34. Release and position the floor carpet to one side.

35.



- Remove the 4 bolts.
- Release the clip.
- Remove the A/C pipes.

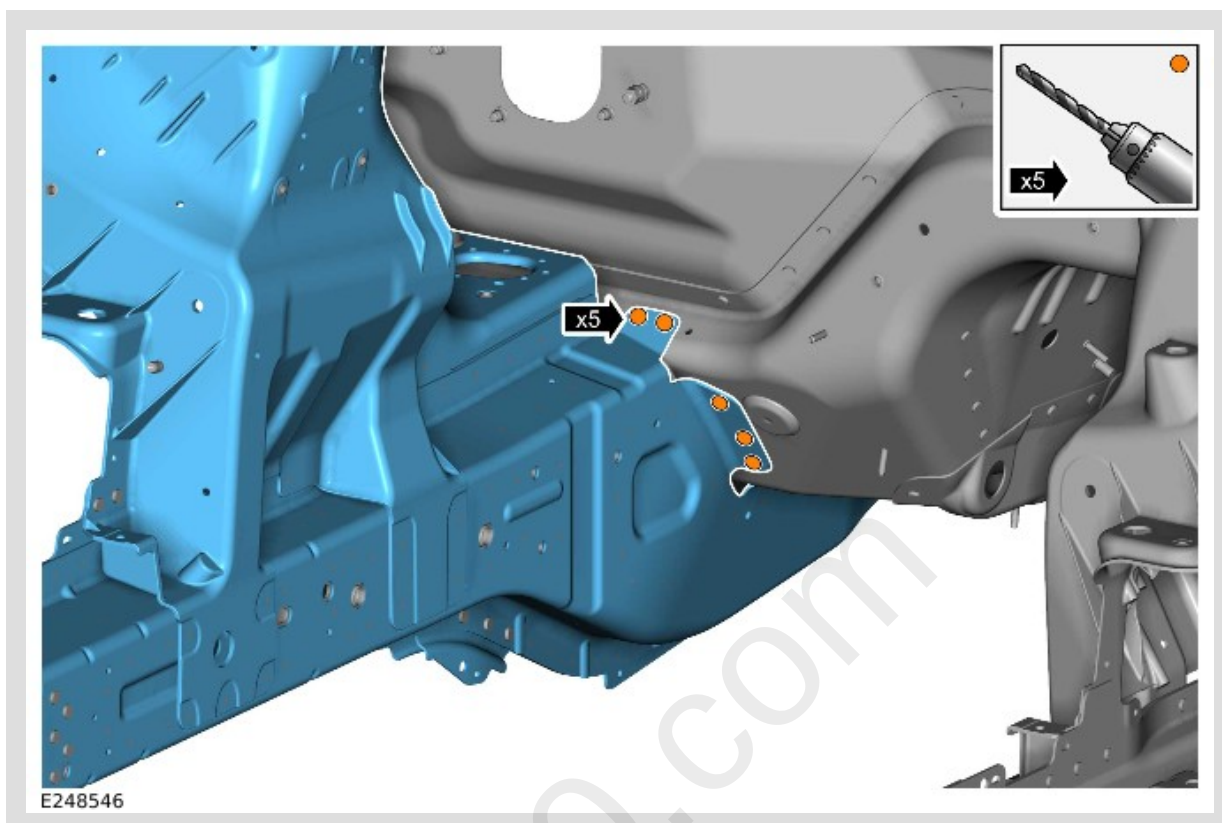
36.



Remove the Self Piercing Rivets (SPRs) and bolts as indicated.

ⓘ CAUTION:

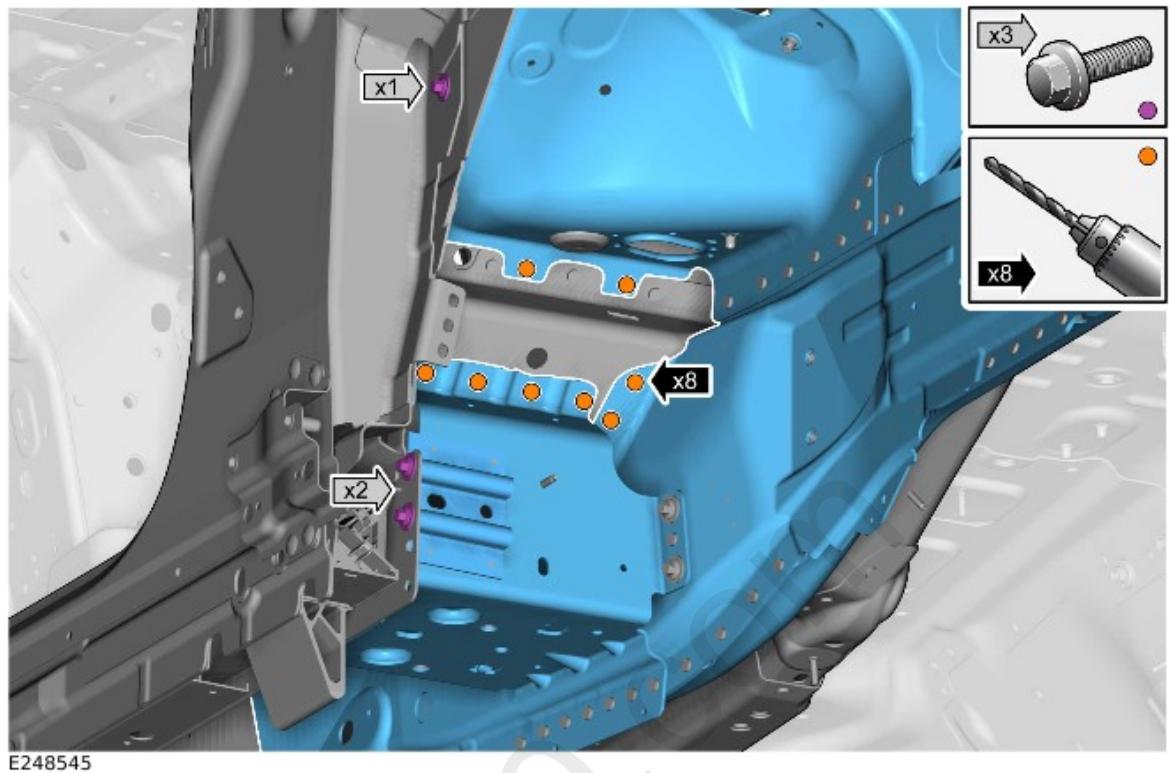
Care should be taken not to damage the wiring harness.



Remove the SPRs as indicated.

ⓘ CAUTION:

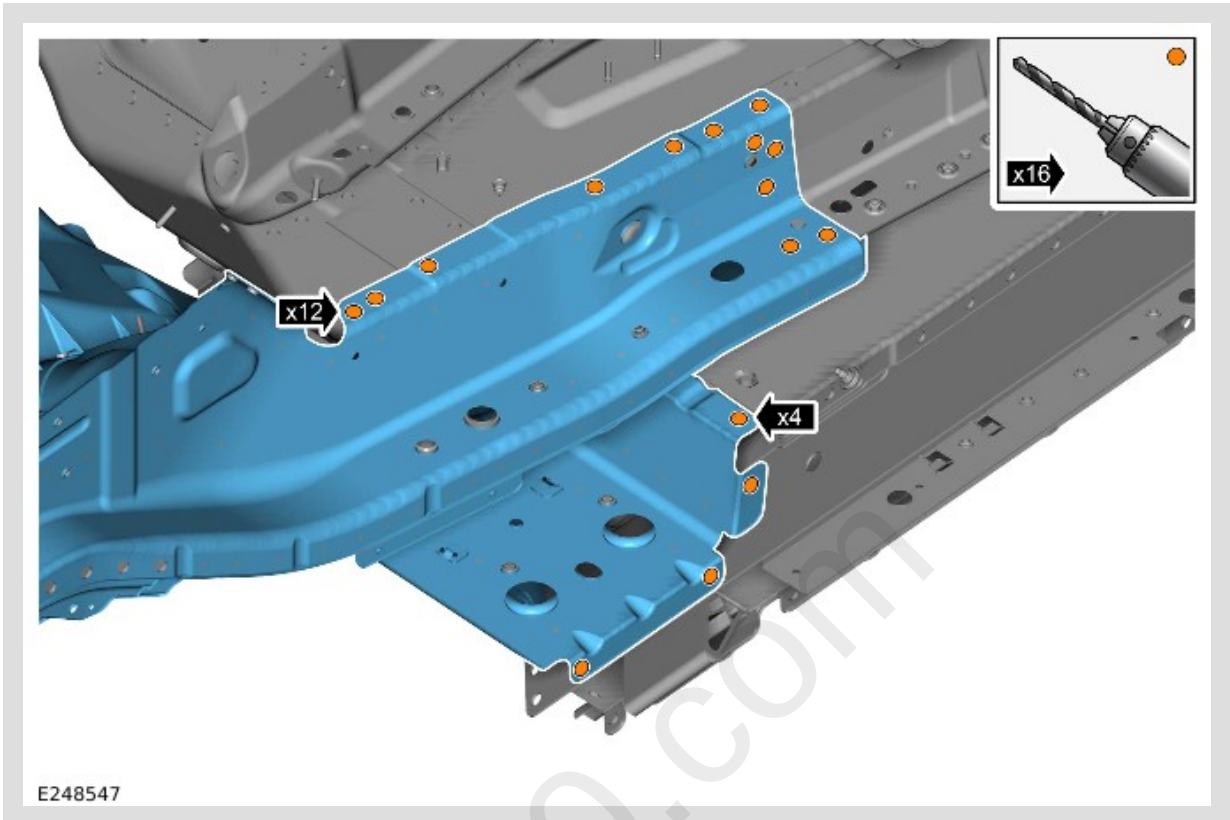
Care should be taken not to damage the wiring harness.



Remove the SPRs and bolts as indicated.

ⓘ CAUTION:

Care should be taken not to damage the wiring harness.

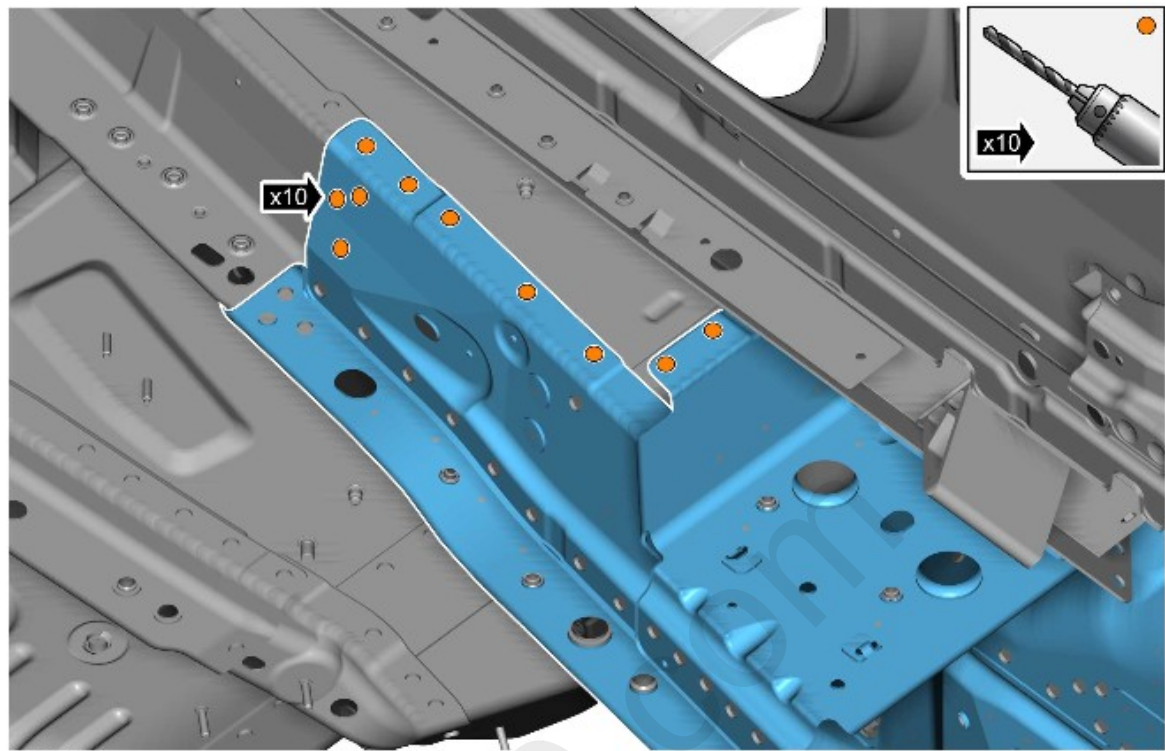


Remove the SPRs as indicated.

40.

⚠ CAUTION:

Care should be taken not to damage the wiring harness.



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Remove the SPRs as indicated.

41.



⚠ CAUTION:

This step will require the aid of another technician as the panel will be heavy.

Carefully separate the joints and remove the front side member and suspension top mount assembly.

INSTALLATION

⚠ CAUTION:

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

 NOTE:

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

1. Remove the rivet remnants.

2. Dress the flanges where necessary.

3.

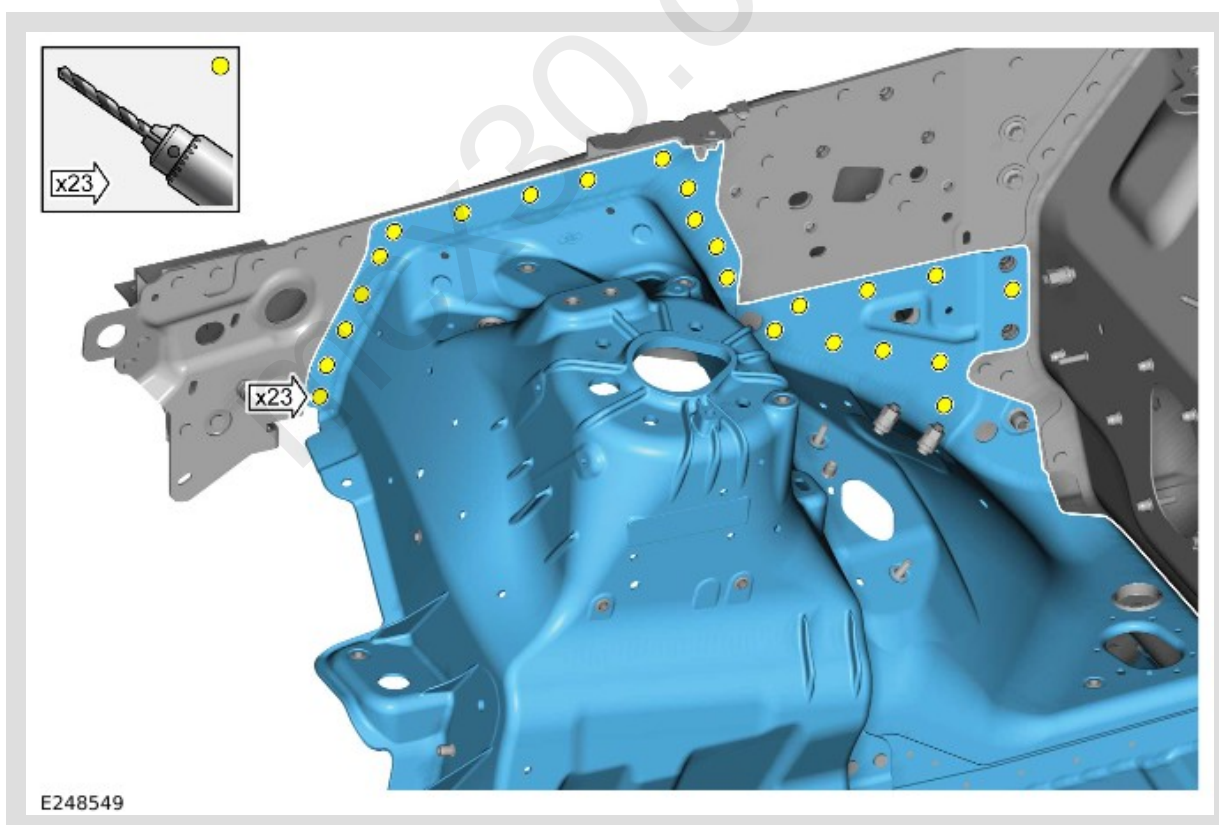


 CAUTION:

This step will require the aid of another technician as the panel will be heavy.

Offer up the new front side member and suspension top mount assembly and clamp into position. Check alignment, if correct proceed to next step, if not rectify and check the alignment again before proceeding.

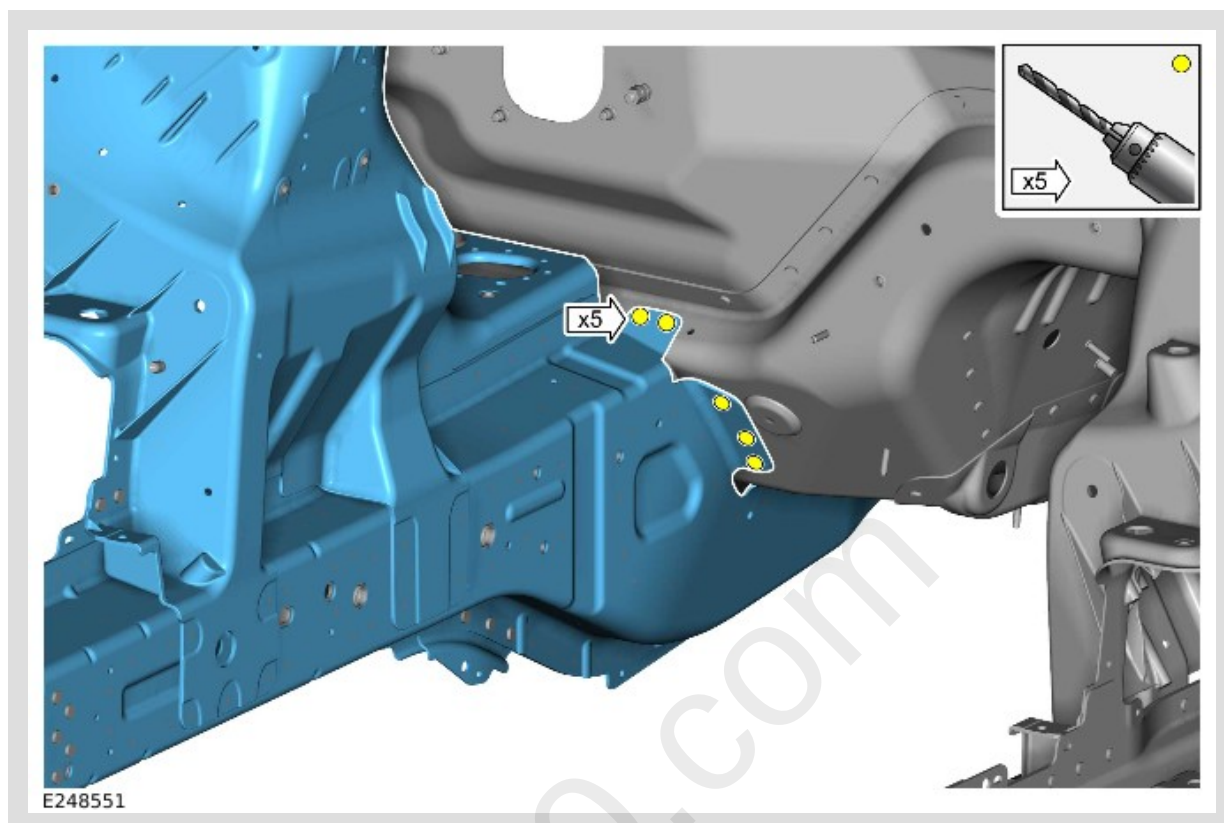
4.



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

ⓘ CAUTION:

Care should be taken not to damage the wiring harness.

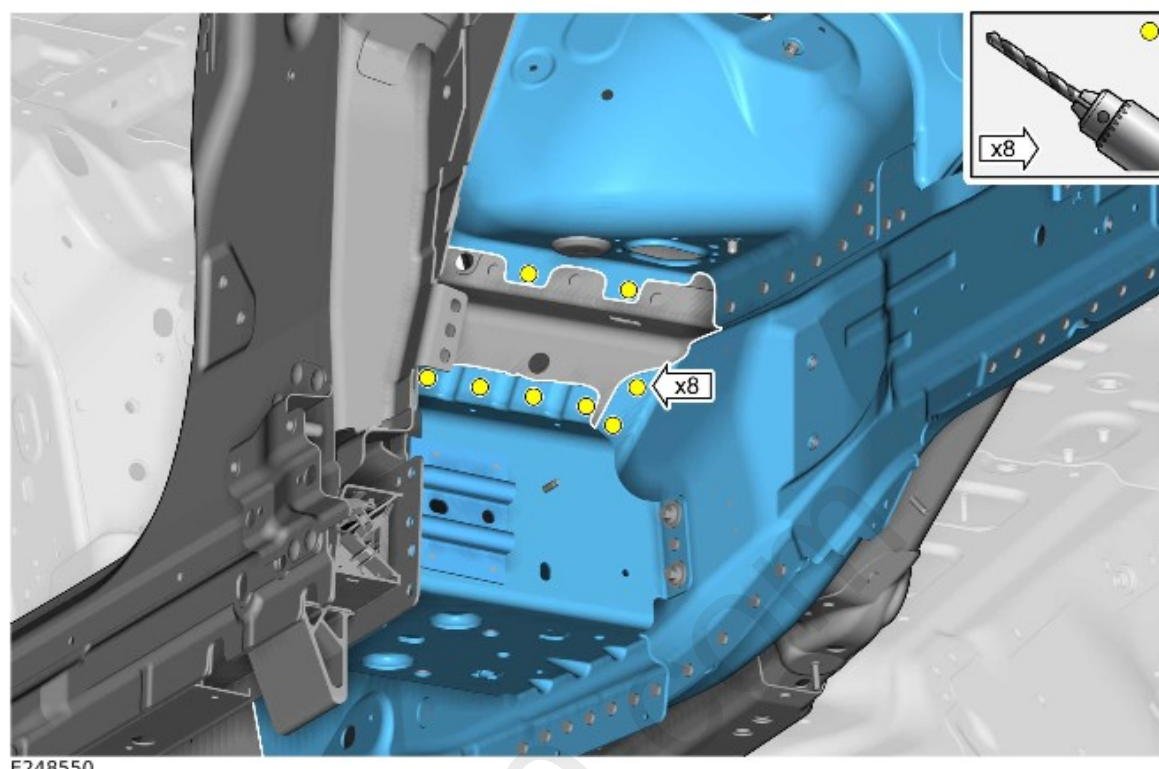


Drill holes where the BSFs are to be installed as indicated.

6.

ⓘ CAUTION:

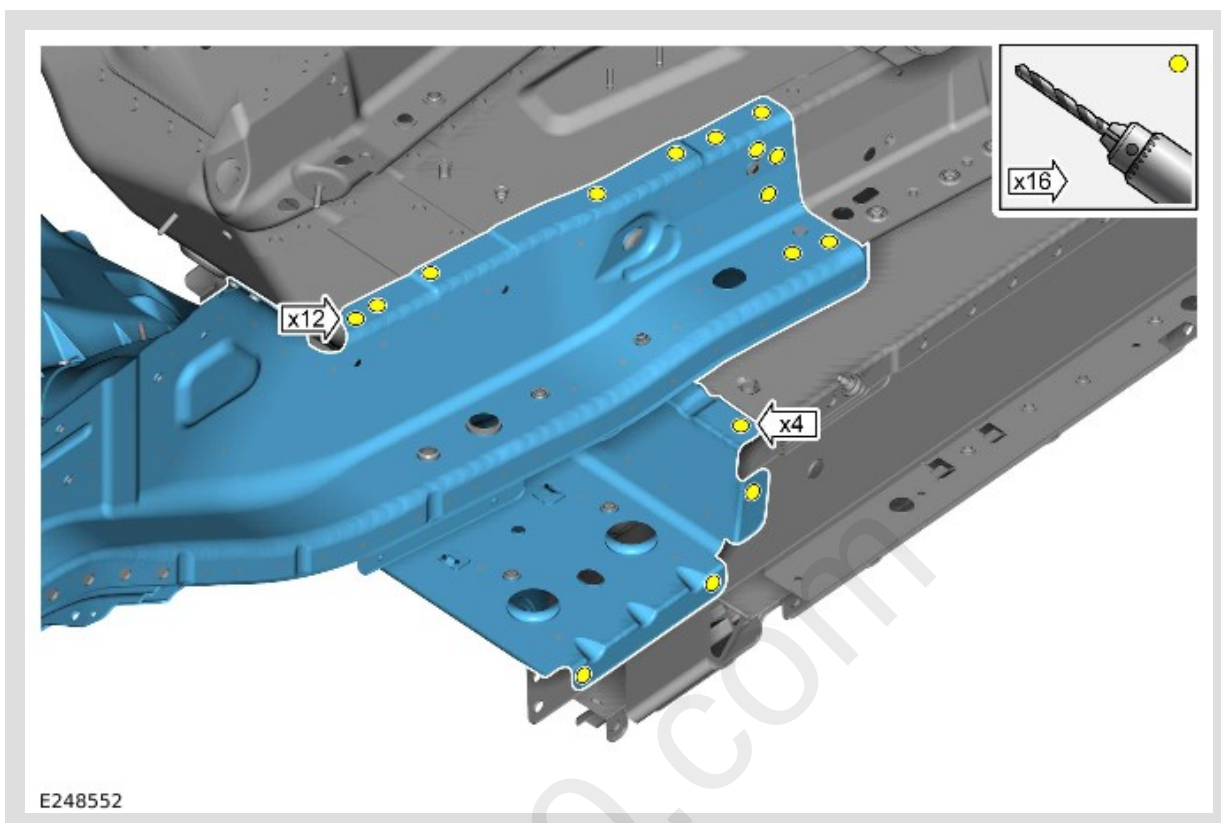
Care should be taken not to damage the wiring harness.



Drill holes where the BSFs are to be installed as indicated.

ⓘ CAUTION:

Care should be taken not to damage the wiring harness.

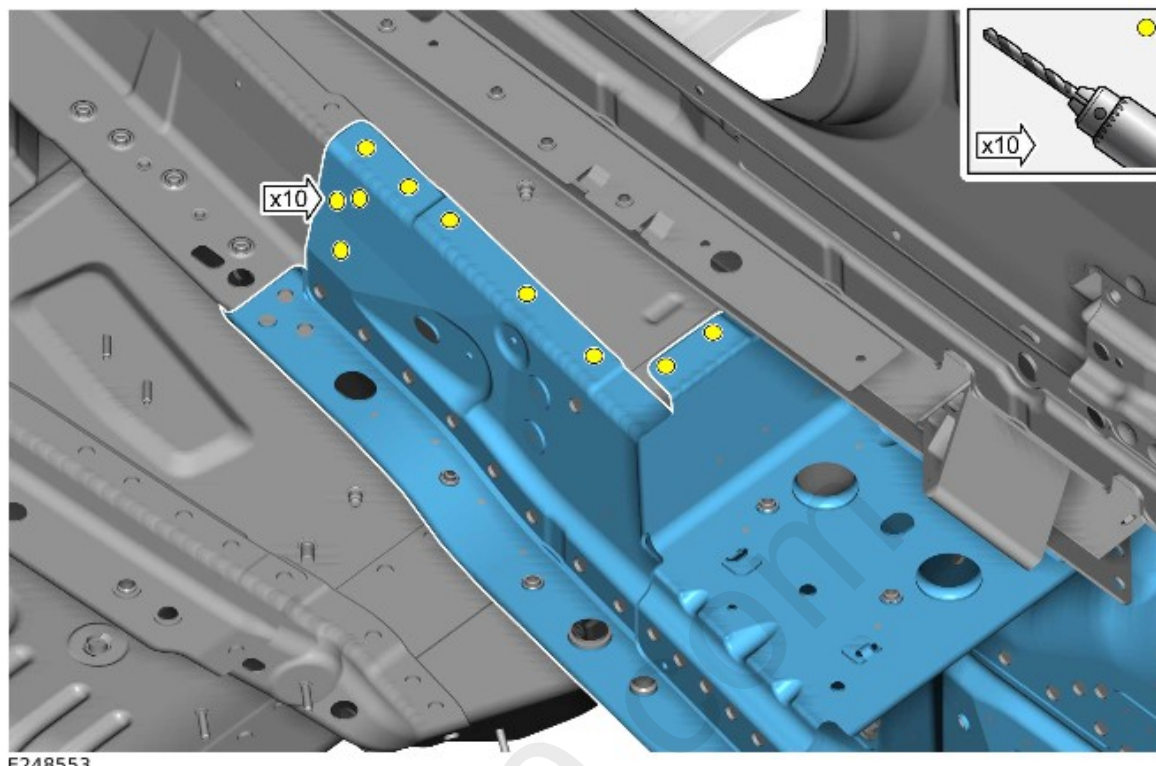


Drill holes where the BSFs are to be installed as indicated.

8.

⚠ CAUTION:

Care should be taken not to damage the wiring harness.



Drill holes where the BSFs are to be installed as indicated.

9.



⚠ CAUTION:

This step will require the aid of another technician as the panel will be heavy.

Remove the new front side member and suspension top mount assembly.

10.

Deburr the drilled holes.

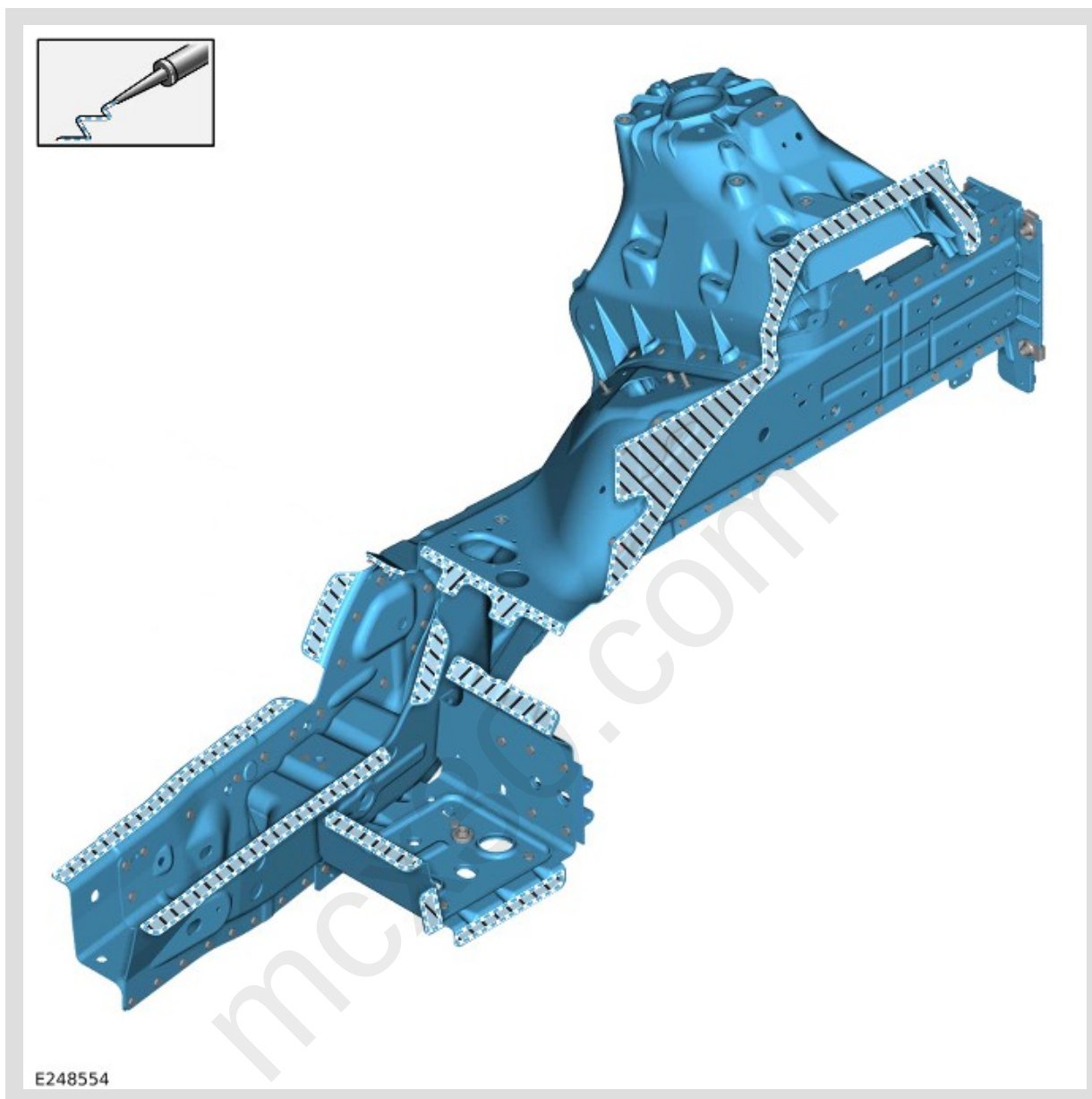
11.

Clean and prepare the panel surfaces.

12.

 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.

13.

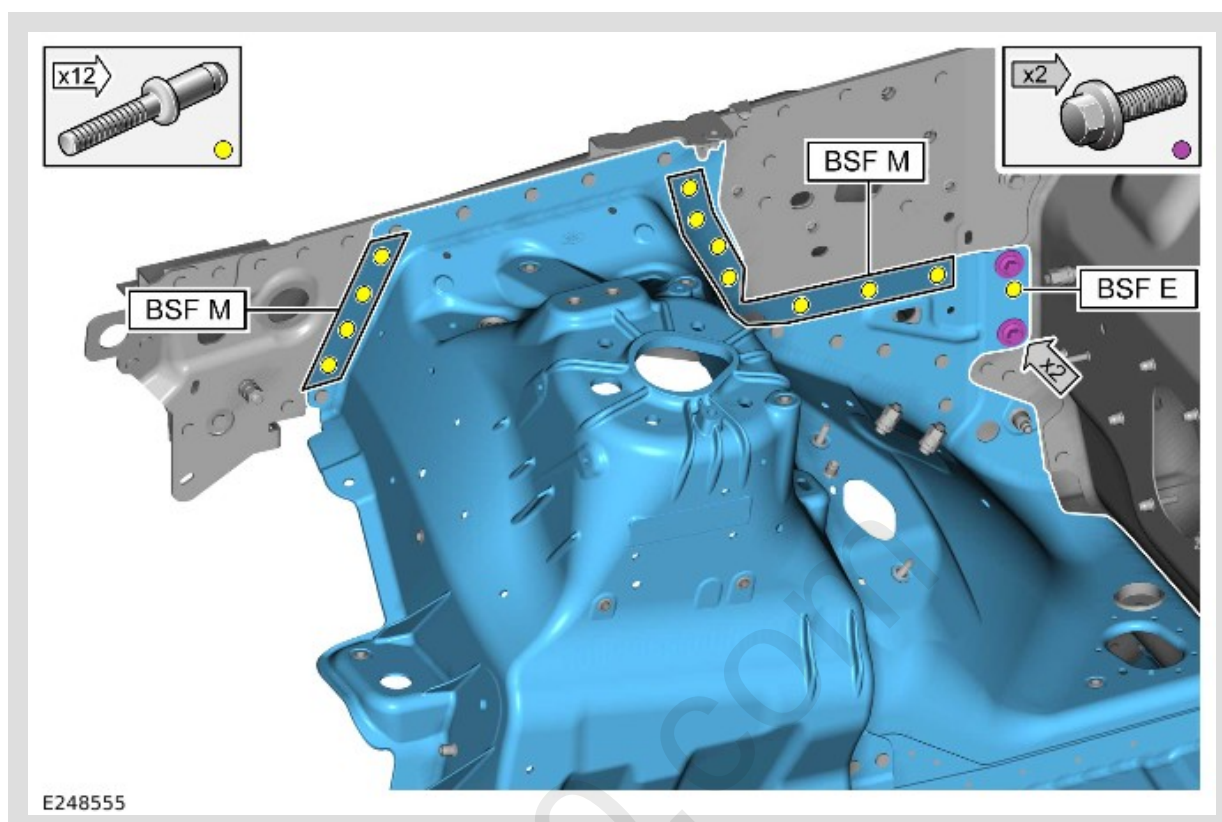
 **CAUTION:**

This step will require the aid of another technician as the panel will be heavy.

Offer up the new front side member and suspension top mount assembly and clamp into position. Check alignment, if correct proceed to next step, if not rectify and check the alignment again before proceeding.

 NOTE:

Make sure that the Breakstem Fasteners (BSFs) are installed from the inside.

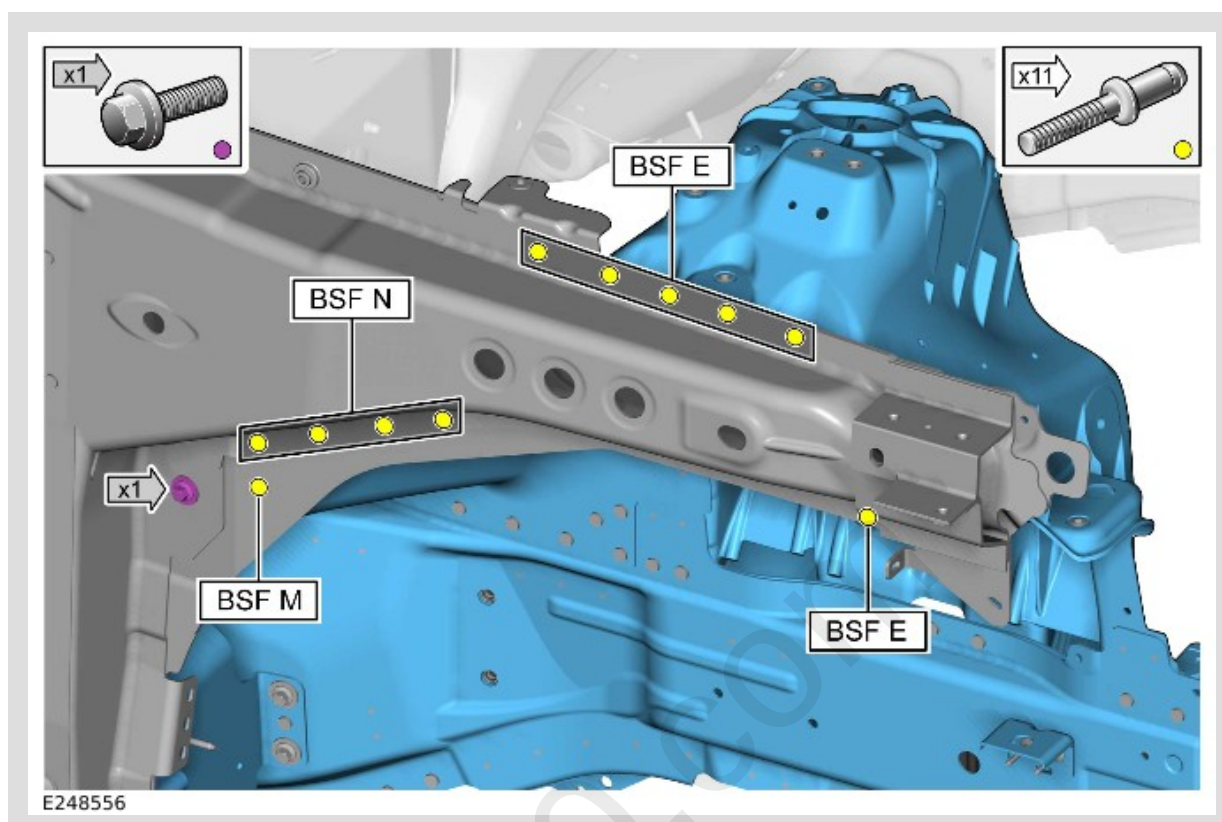


Install the BSFs and bolts as indicated. Tighten the bolts.

Torque: 25Nm

 NOTE:

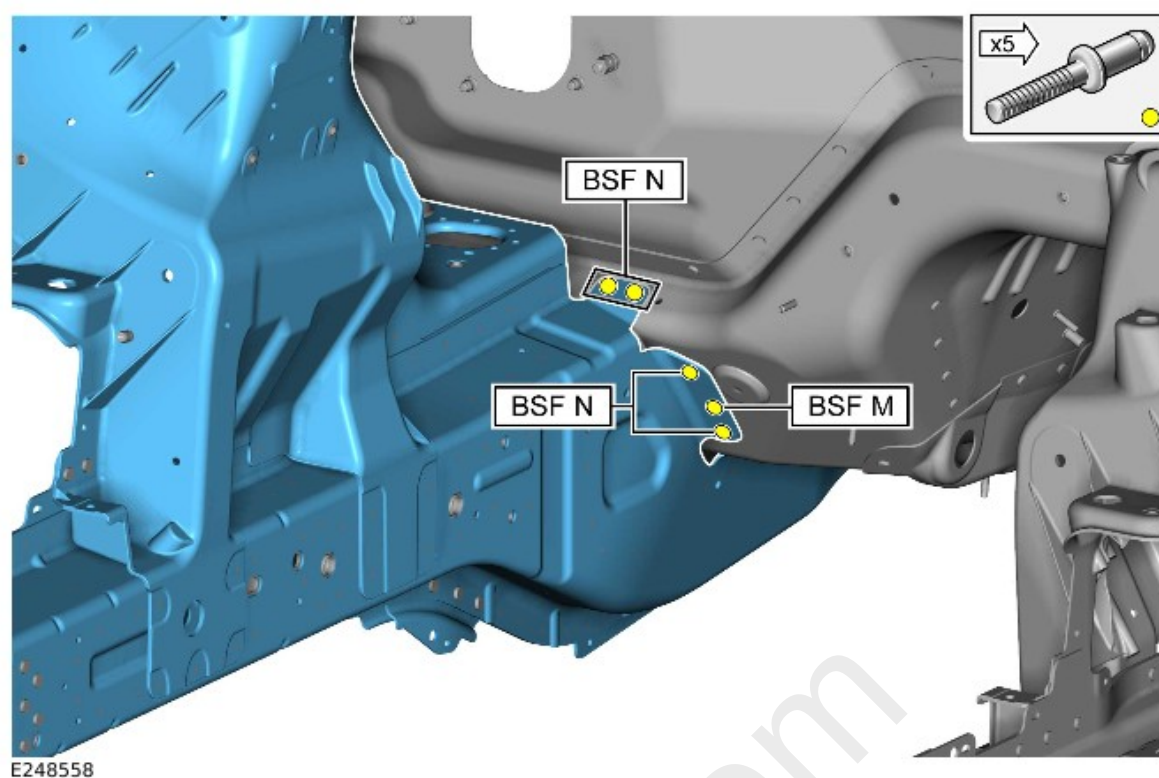
Make sure that the Breakstem Fasteners (BSFs) are installed from the outside.



Install the BSFs and bolt as indicated. Tighten the bolt.

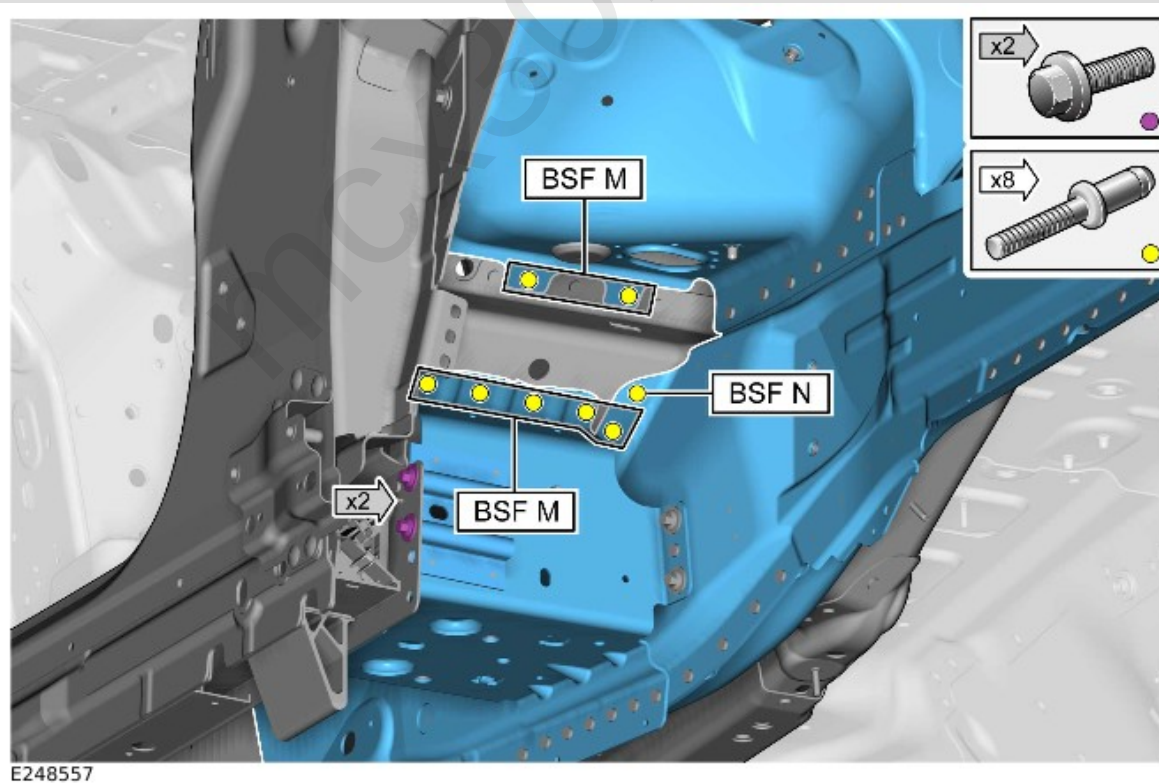
Torque: 25Nm

16.



Install the BSFs as indicated.

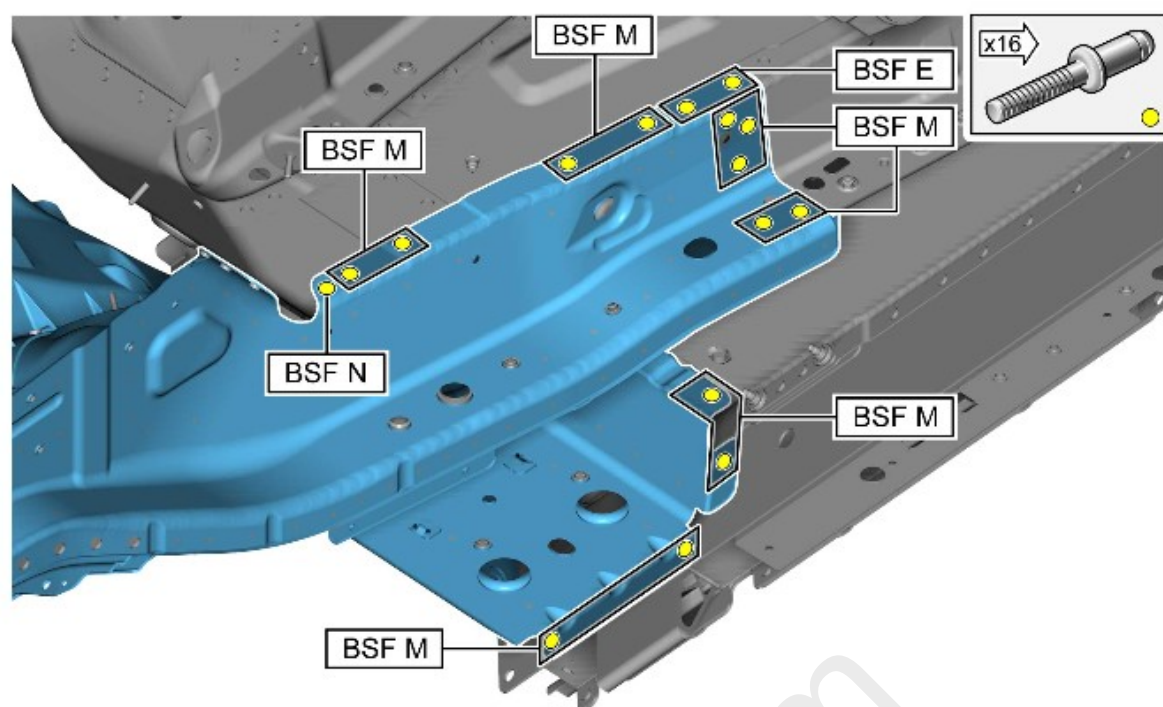
17.



Install the BSFs and bolts as indicated. Tighten the bolts.

Torque: 25Nm

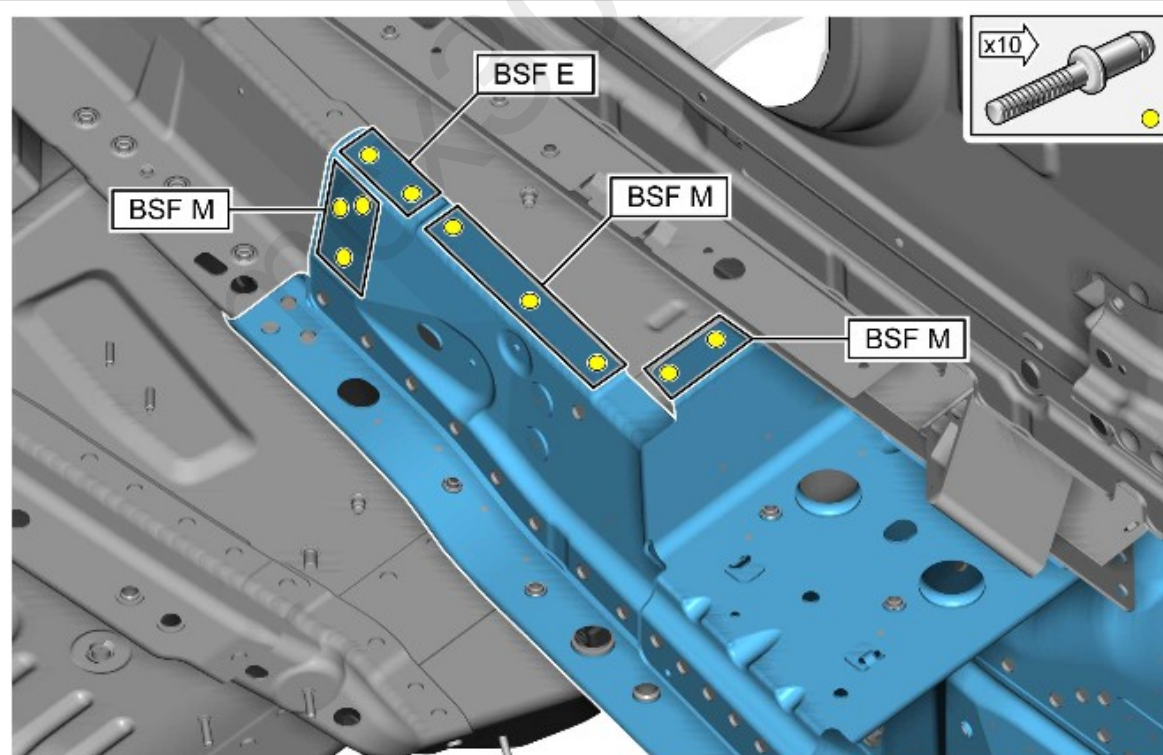
18.



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Install the BSFs as indicated.

19.



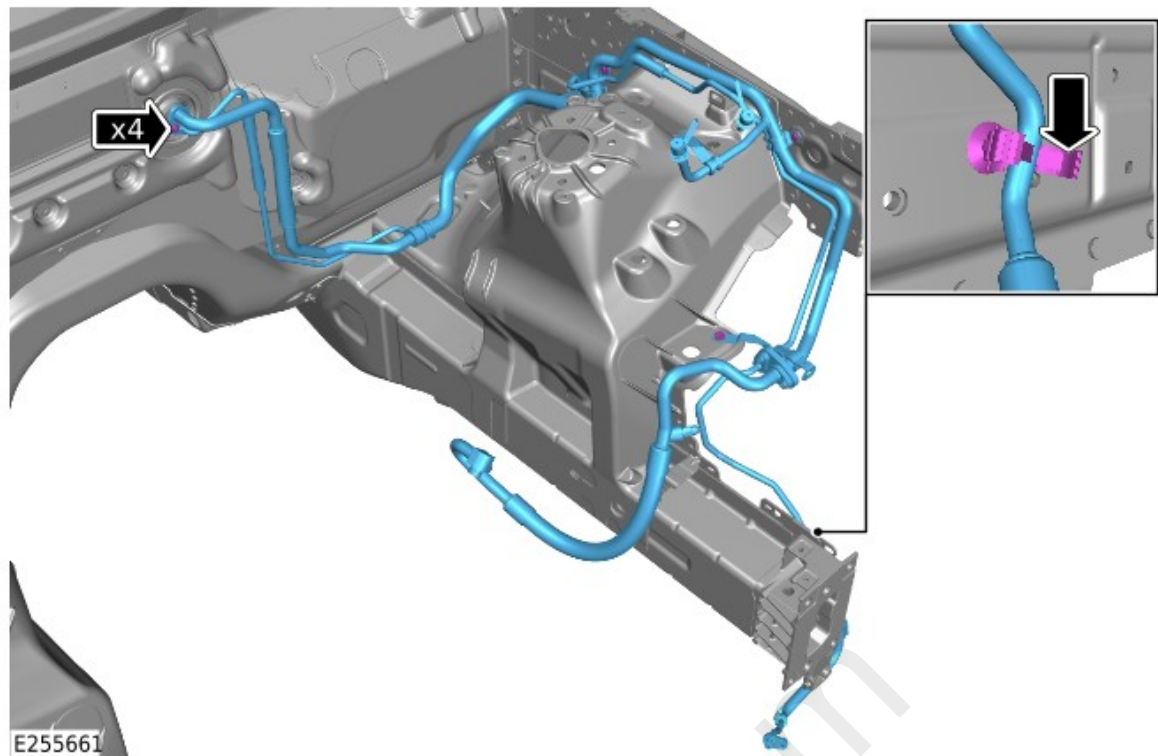
E248560

Install the BSFs as indicated.

20.

Remove any excess adhesive.

21.



- Install the A/C pipes.
- Install the clip.
- Tighten the bolts.
Torque: 10Nm

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

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

24. Make sure that all installed BSFs are sealed using a JLR recommended sealer.



NOTE:

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

25. For additional installation information
Refer to: [Steering Gear](#) (211-02 Power Steering, Removal and Installation).

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

27. 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).

28. For additional installation information

Refer to: [Selective Catalyst Reduction Catalytic Converter](#) (309-00A Exhaust System - INGENIUM I4 2.0L Diesel, Removal and Installation).

Refer to: [Catalytic Converter - INGENIUM I4 2.0L Petrol](#) (309-00B Exhaust System - INGENIUM I4 2.0L Petrol/INGENIUM I4 2.0L Petrol - PHEV, Removal and Installation).

Refer to: [Catalytic Converter](#) (309-00C Exhaust System - INGENIUM I6 3.0L Petrol, Removal and Installation).

29. For additional installation information

Refer to: [Right Upper Control Arm](#) (204-01 Front Suspension, Removal and Installation).

Refer to: [Left Upper Control Arm](#) (204-01 Front Suspension, Removal and Installation).

30. For additional installation information

Refer to: [Shock Absorber and Spring Assembly - \[+\] Air Suspension](#) (204-01 Front Suspension, Removal and Installation).

Refer to: [Shock Absorber and Spring Assembly - \[+\] Coil Suspension](#) (204-01 Front Suspension, Removal and Installation).

31. 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).

32. 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).

33. 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).

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34. For additional installation information
- Refer to: [Air Conditioning Compressor - INGENIUM I4 2.0L Diesel](#) (412-01 Climate Control, Removal and Installation).
- Refer to: [Air Conditioning Compressor - INGENIUM I4 2.0L Petrol](#) (412-01 Climate Control, Removal and Installation).
- Refer to: [Air Conditioning Compressor - INGENIUM I6 3.0L Petrol](#) (412-01 Climate Control, Removal and Installation).

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35. 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).

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36. For additional installation information
- Refer to: [Integrated Power Brake System](#) (206-08 Brake Controls and Actuation, Removal and Installation).

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37. For additional installation information
- Refer to: [Front Air Reservoir Valve Block](#) (204-05 Vehicle Dynamic Suspension, Removal and Installation).

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38. For additional installation information
- Refer to: [Integrated Power Brake System Fluid Reservoir](#) (206-08 Brake Controls and Actuation, Removal and Installation).

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39. For additional installation information
- Refer to: [Electric Coolant Pump](#) (303-03C Engine Cooling - INGENIUM I6 3.0L Petrol, Removal and Installation).

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40. For additional installation information
- Refer to: [Fuel Fired Booster Heater](#) (412-02 Auxiliary Climate Control, Removal and Installation).

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41. For additional installation information
- Refer to: [Powertrain Control Module](#) (303-14A Electronic Engine Controls - INGENIUM I4 2.0L Diesel, Removal and Installation).
- Refer to: [Powertrain Control Module](#) (303-14B Electronic Engine Controls - INGENIUM I6 3.0L Petrol, Removal and Installation).
- Refer to: [Powertrain Control Module - INGENIUM I4 2.0L Petrol](#) (303-14C Electronic Engine Controls - INGENIUM I4 2.0L Petrol/INGENIUM I4 2.0L Petrol - PHEV, Removal and Installation).
- Refer to: [Powertrain Control Module - INGENIUM I4 2.0L Petrol - PHEV](#) (303-14 Electronic Engine Controls - INGENIUM I4 2.0L Petrol/INGENIUM I4 2.0L Petrol - PHEV, Removal and Installation).
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42. For additional installation information

Refer to: [Engine Junction Box A](#) (418-00 Module Communications Network, Removal and Installation).

Refer to: [Engine Junction Box A](#) (418-00 Module Communications Network, Removal and Installation).

43. For additional installation information

Refer to: [Air Filter Housing](#) (303-12A Intake Air Distribution and Filtering - INGENIUM I4 2.0L Diesel, Removal and Installation).

Refer to: [Air Filter Housing](#) (303-12B Intake Air Distribution and Filtering - INGENIUM I4 2.0L Petrol /INGENIUM I4 2.0L Petrol - PHEV, Removal and Installation).

Refer to: [Air Filter Housing](#) (303-12C Intake Air Distribution and Filtering - INGENIUM I6 3.0L Petrol, Removal and Installation).

44. For additional installation information

Refer to: [Fixed Side Steps and Side Tubes - Part number: 90: VPLEP0433, VPLEP0391, 110: VPLEP0434, VPLEP0392](#) (102-03 Exterior, Removal and Installation).

45. For additional installation information

Refer to: [A-Pillar Lower Trim Panel](#) (501-05 Interior Trim and Ornamentation, Removal and Installation).

46. For additional installation information

Refer to: [Instrument Panel Lower Trim](#) (501-12 Instrument Panel and Console, Removal and Installation).

47. For additional installation information

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

50. For additional installation information

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

51. For additional installation information

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