Кузов — Кузовной ремонт и общая информация

Land Rover Discovery Sport (L550) · Руководство по ремонту
Источник: lrdisc.com · разделов: 118

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Кузов ремонт и общая информация

Body Repairs and General Information

- Vehicle Specific Information and Tolerance Checks
- Vehicle Specific Information and Tolerance Checks Tailgate Alignment
- Vehicle Specific Information and Tolerance Checks Rear Door Alignment
- Vehicle Specific Information and Tolerance Checks Hood Alignment
- Vehicle Specific Information and Tolerance Checks Front Door Alignment
- Vehicle Specific Information and Tolerance Checks Fender Alignment
- Side Panel Sheet Metal Repairs / Description and Operation
- Side Panel Sheet Metal Repairs Side Panel (G1770901)
- Side Panel Sheet Metal Repairs Rocker Panel and 'B' Pillar Outer Panel (G1770927)
- Side Panel Sheet Metal Repairs Rocker Panel and B Pillar Inner (G1770926)
- Side Panel Sheet Metal Repairs Rocker Panel (G1770907)
- Side Panel Sheet Metal Repairs B-pillar Reinforcement (G1770905)
- Side Panel Sheet Metal Repairs B-pillar Inner Panel (G1770906) / Removal and Installation
- Side Panel Sheet Metal Repairs 'B' Pillar Outer Panel (G1770904)
- Side Panel Sheet Metal Repairs 'A' Pillar Reinforcement (G1770903)
- Side Panel Sheet Metal Repairs 'A' Pillar Outer Panel (G1770902)
- Roof Sheet Metal Repairs Windshield Header Panel (G1770878) / Removal and Installation
- Roof Sheet Metal Repairs Roof Rear Panel (G1770883)
- Roof Sheet Metal Repairs Roof Rear Header Panel (G1770882) / Removal and Installation
- Roof Sheet Metal Repairs Roof Panel (G1770876)
- Roof Sheet Metal Repairs Roof Front Panel (G1770881)
- Rear end Sheet Metal Repairs Water Drain Panel (G1770948) / Removal and Installation
- Rear end Sheet Metal Repairs Spare Wheel - Vehicles Without- 7 Seats (G1770929)
- Rear end Sheet Metal Repairs Spare Wheel - Vehicles Without- 7 Seats (G1770930)
- Rear end Sheet Metal Repairs Rear Wheelhouse Outer (G1770944)
- Rear end Sheet Metal Repairs Rear Side Member Section (G1770933)
- Rear end Sheet Metal Repairs Rear Side Member Lower Side Extension (G1771166) / Removal and Installation
- Rear end Sheet Metal Repairs Rear Side Member Closing Panel (G1780740) / Removal and Installation
- Rear end Sheet Metal Repairs Rear Lamp Panel Outer (G1771163)
- Rear end Sheet Metal Repairs Rear Floor Side Extension (G1770934)
- Rear end Sheet Metal Repairs Rear Bumper Retaining Rail (G1770947) / Removal and Installation
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- Front end Sheet Metal Repairs
- Front end Sheet Metal Repairs Suspension Top Mount (G1770868)
- Front end Sheet Metal Repairs Front Side Member and Suspension Top Mount Assembly (G1770869)
- Front end Sheet Metal Repairs Front Side Member (G1770867) /Removal and Installation
- Front end Sheet Metal Repairs Front Fender Mounting Panel (G1770874) / Removal and Installation

- Front end Sheet Metal Repairs Front Bumper Mounting (G1775677) / Removal and Installation
- Front end Sheet Metal Repairs Fender Apron Panel Reinforcement (G1770870) / Removal and Installation
- Front end Sheet Metal Repairs Fender Apron Panel Front Section (G1775681)
- Front end Sheet Metal Repairs Fender Apron Panel Front Reinforcement (G1775679)
- Front end Sheet Metal Repairs Fender Apron Panel (G1770873) / Removal and installation
- Front end Sheet Metal Repairs Fender Apron Lower Panel (G1775678) / Removal and Installation
- Body Repairs - General Information
- Body Repairs - Corrosion Protection
- Body Closure Noise Vibration and Harshness Sealing

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Body Closures Power Liftgate Switch (G1889733) / Removal and InstallationVehicle Specific Information and Tolerance Checks

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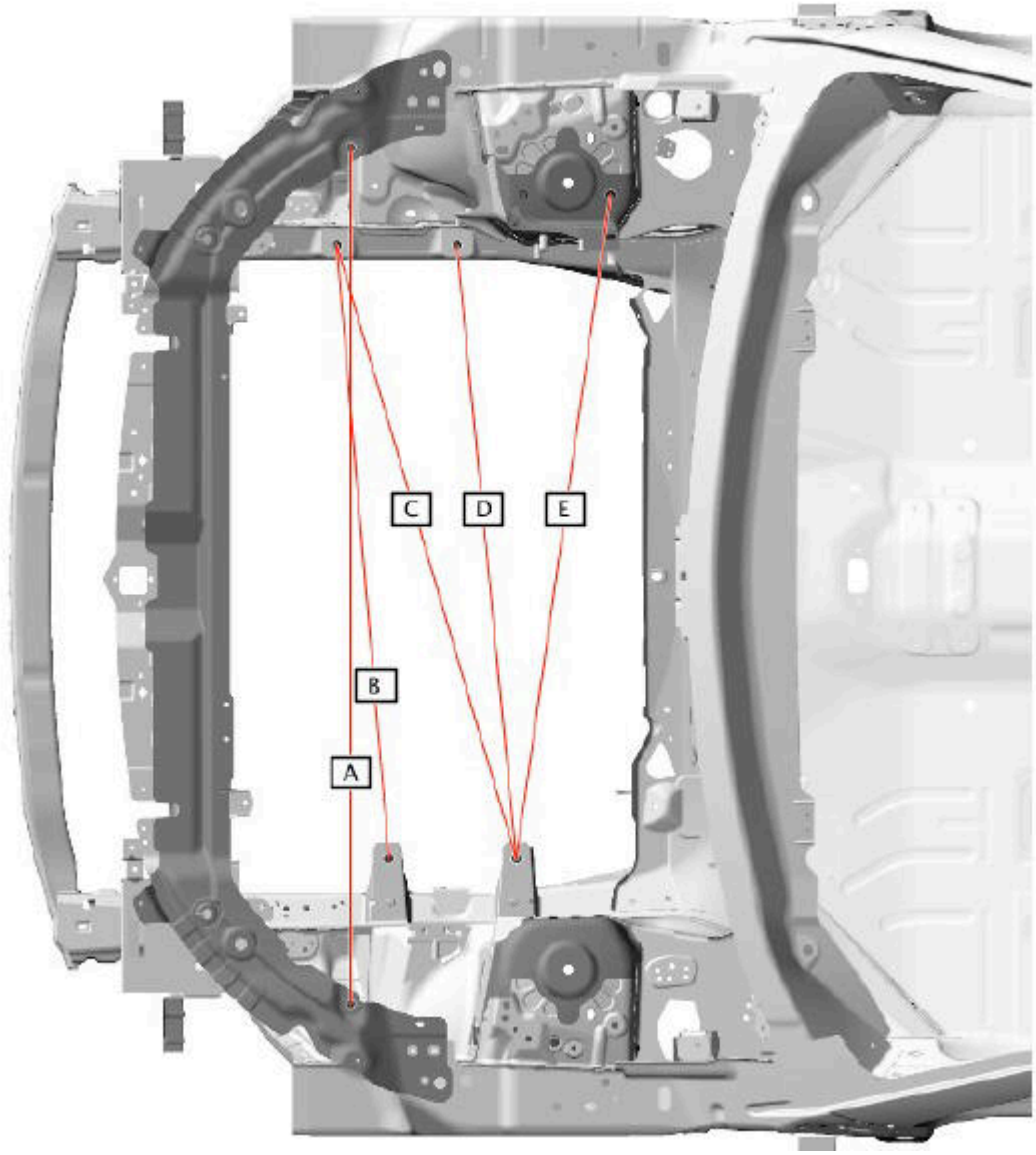
Автомобиль специальный информация и допуск проверки

Vehicle Specific Information and Tolerance Checks

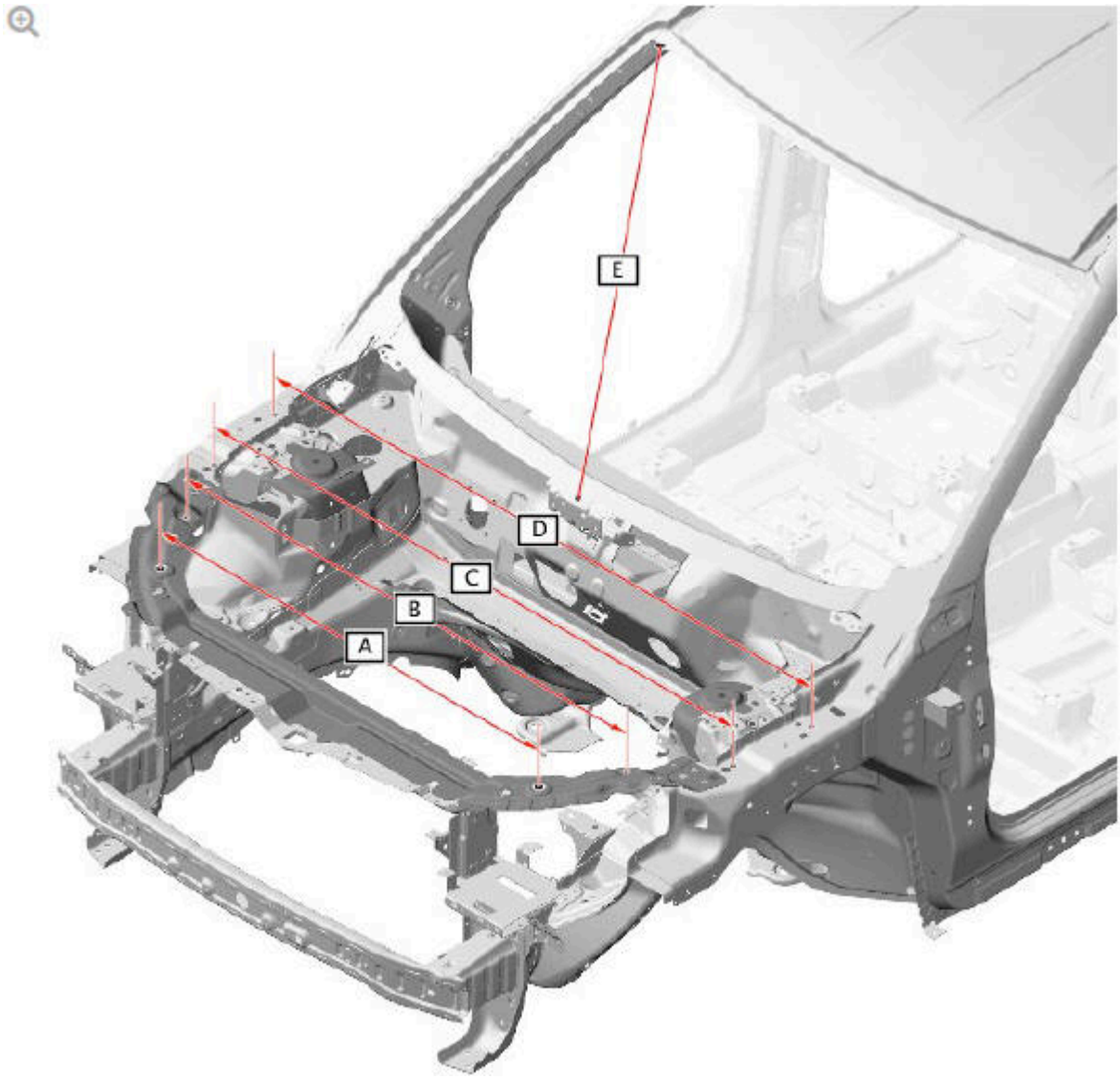
FRONT END BODY DIMENSIONS

NOTES:

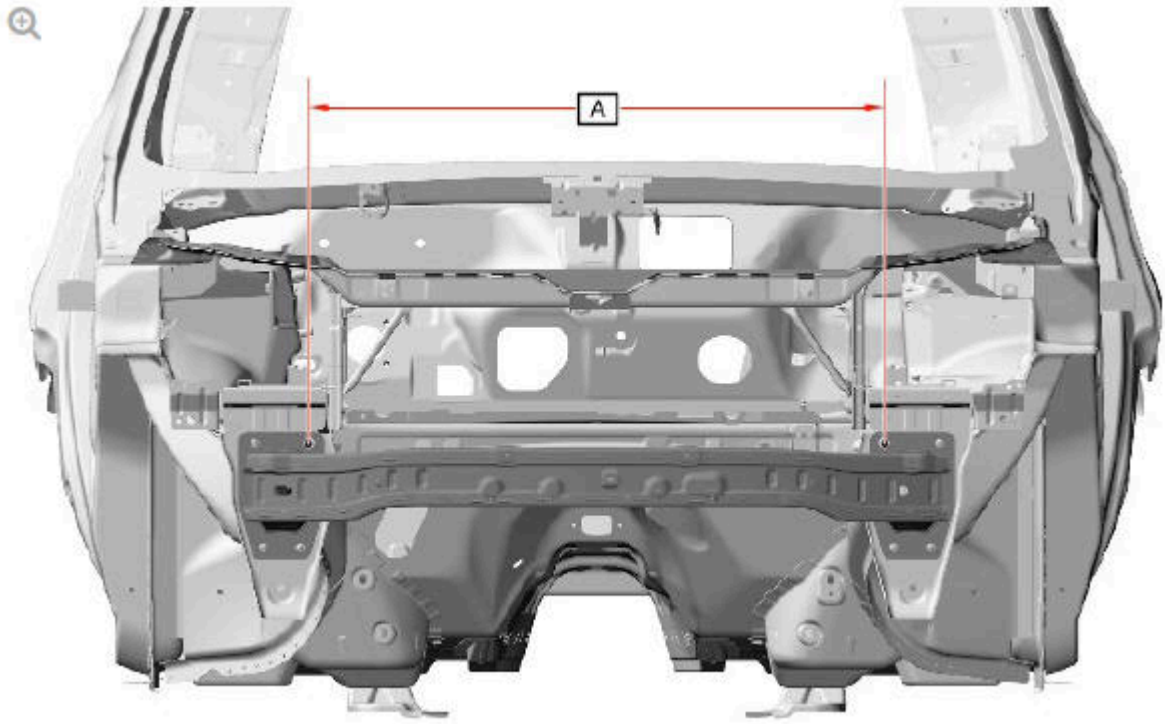
- *All dimensions shown are in millimetres (mm).*
- *Dimensions shown to holes, are always taken from/to the hole centre. They are also always to the body panel surface, not to the top of bolts or components.*



ITEM	FROM	TO	DIMENSION
A	RH (right-hand) tooling hole	LH (left-hand) tooling hole	1280.00
B	Transmission LH mounting, forward stud	Engine RH mounting forward fixing hole	920.19
C	Transmission LH mounting, rear stud	Engine RH mounting forward fixing hole	955.70
D	Transmission LH mounting, rear stud	Engine RH mounting middle fixing hole	921.35
E	Transmission LH mounting, rear stud	Damper mounting, rear hole	993.24



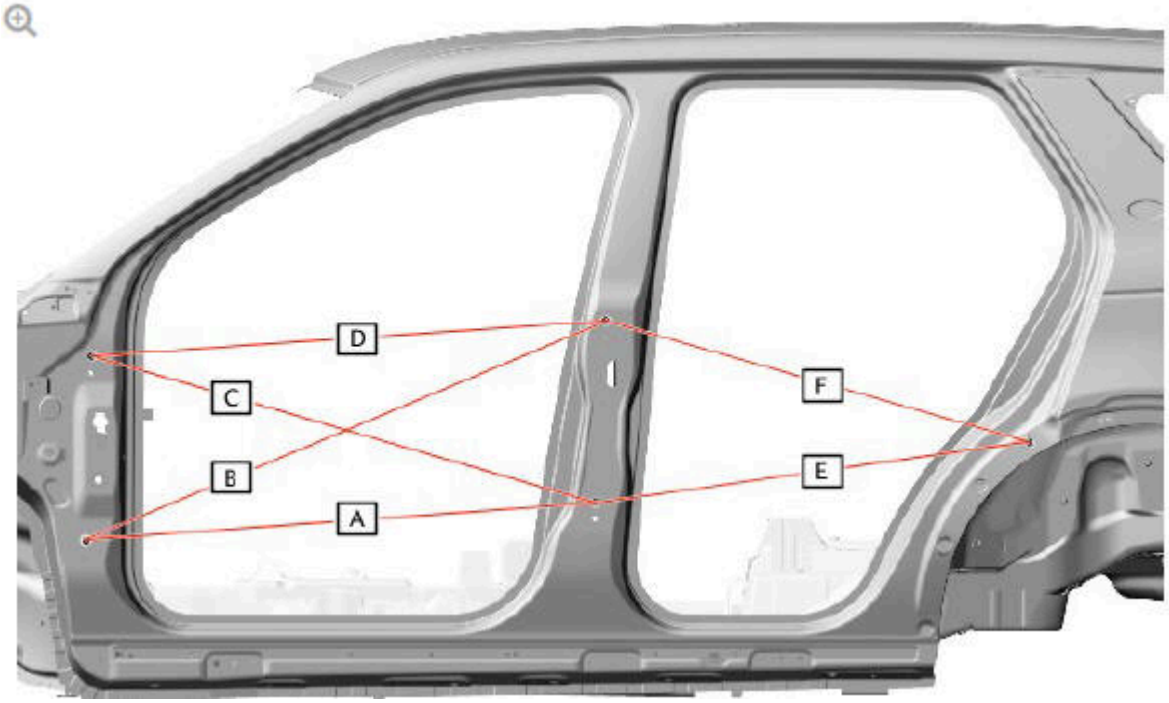
ITEM	FROM	TO	DIMENSION
A	RH forward tooling hole	LH forward tooling hole	1097.00
B	RH rear tooling hole	LH rear tooling hole	1280.00
C	RH Fender forward bracket rear fixing hole	LH Fender forward bracket rear fixing hole	1509.44
D	RH Fender rear bracket fixing hole	LH Fender rear bracket fixing hole	1515.00
E	RH Roof panel tooling hole	Bulkhead centre bracket tooling hole.	1099.56



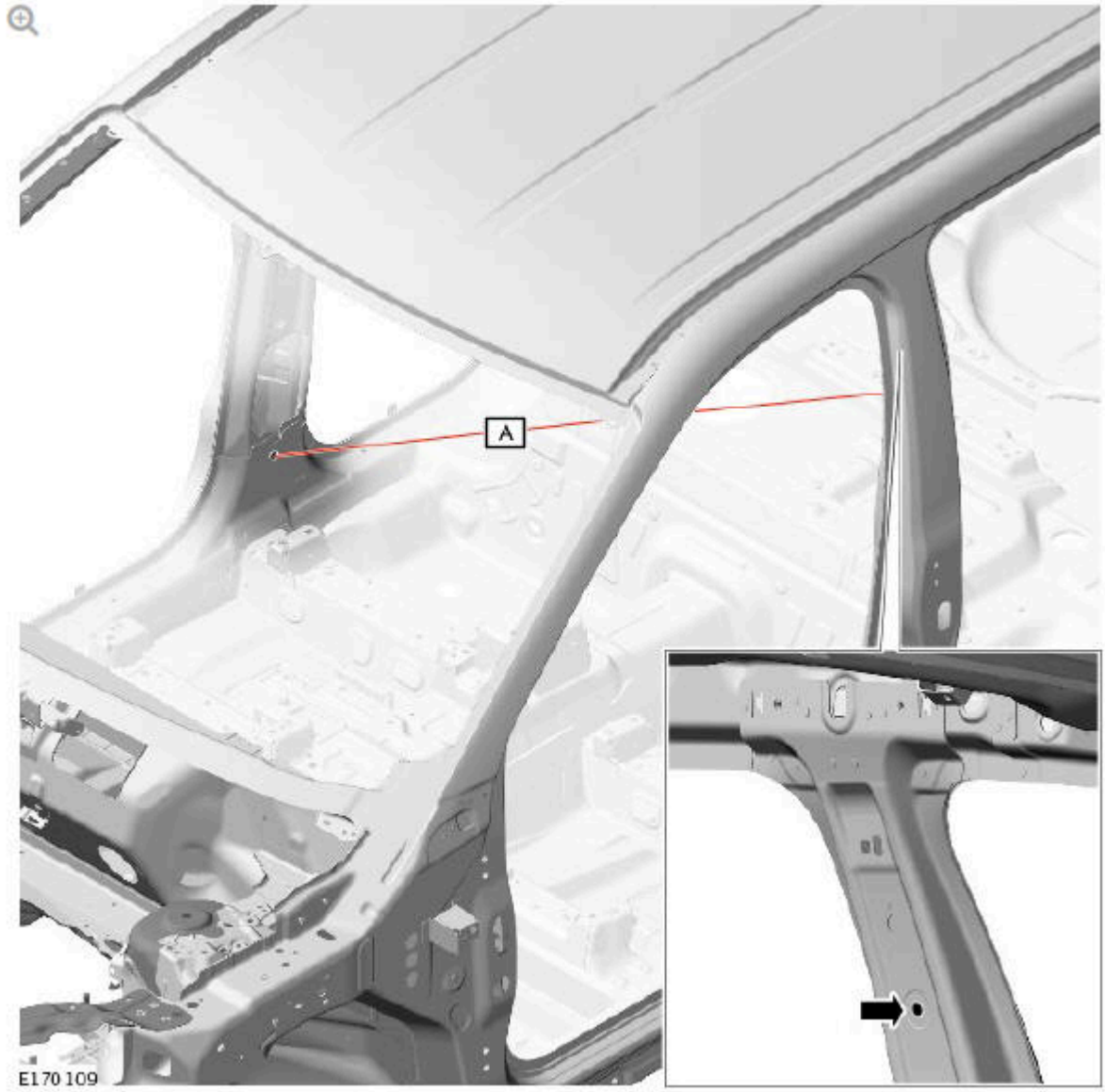
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ITEM	FROM	TO	DIMENSION
A	Bumper RH top inboard fixing hole	Bumper LH top inboard fixing hole	960.11

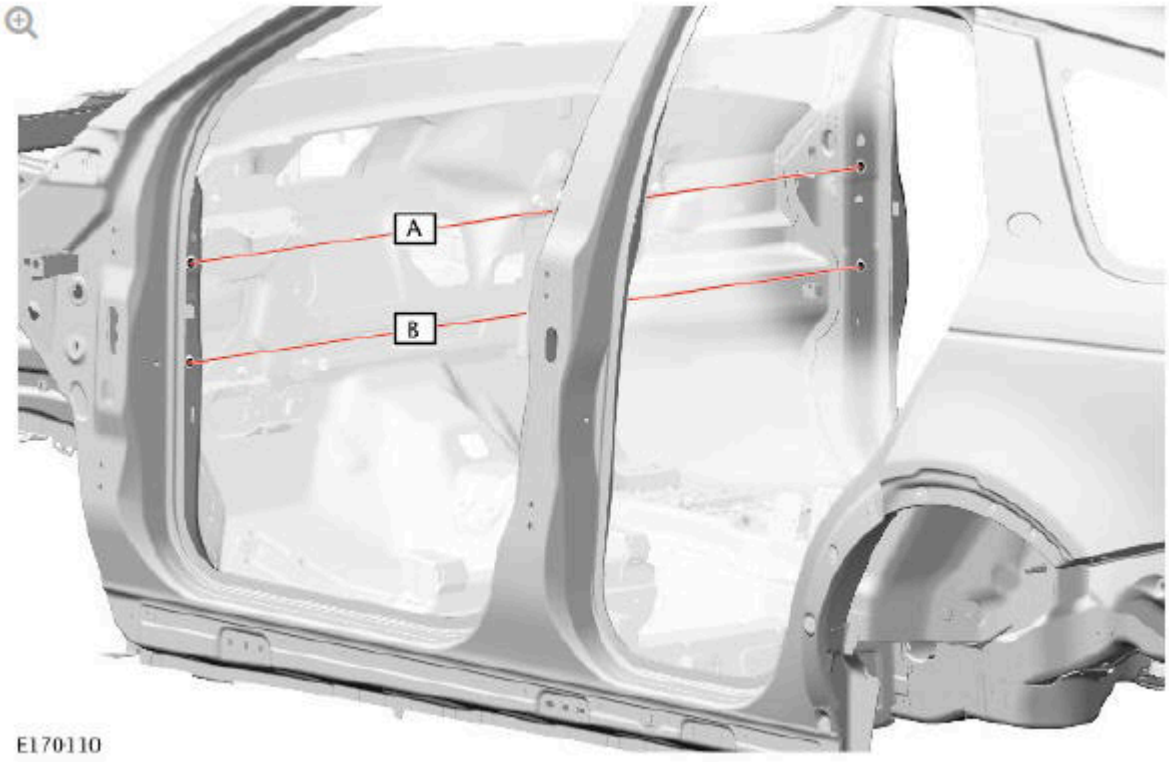
SIDE PANEL DIMENSIONS



ITEM	FROM	TO	DIMENSION
A	Front door bottom hinge upper fixing hole	Rear door bottom hinge upper fixing hole	1082.63
B	Front door bottom hinge upper fixing hole	Rear door top hinge upper fixing hole	1191.42
C	Front door top hinge upper fixing hole	Rear door bottom hinge upper fixing hole	1107.34
D	Front door top hinge upper fixing hole	Rear door top hinge upper fixing hole	1094.56
E	Rear door bottom hinge upper fixing hole	Wheelarch finisher retaining clip hole	927.35
F	Wheelarch finisher retaining clip hole	Rear door top hinge upper fixing hole	935.66

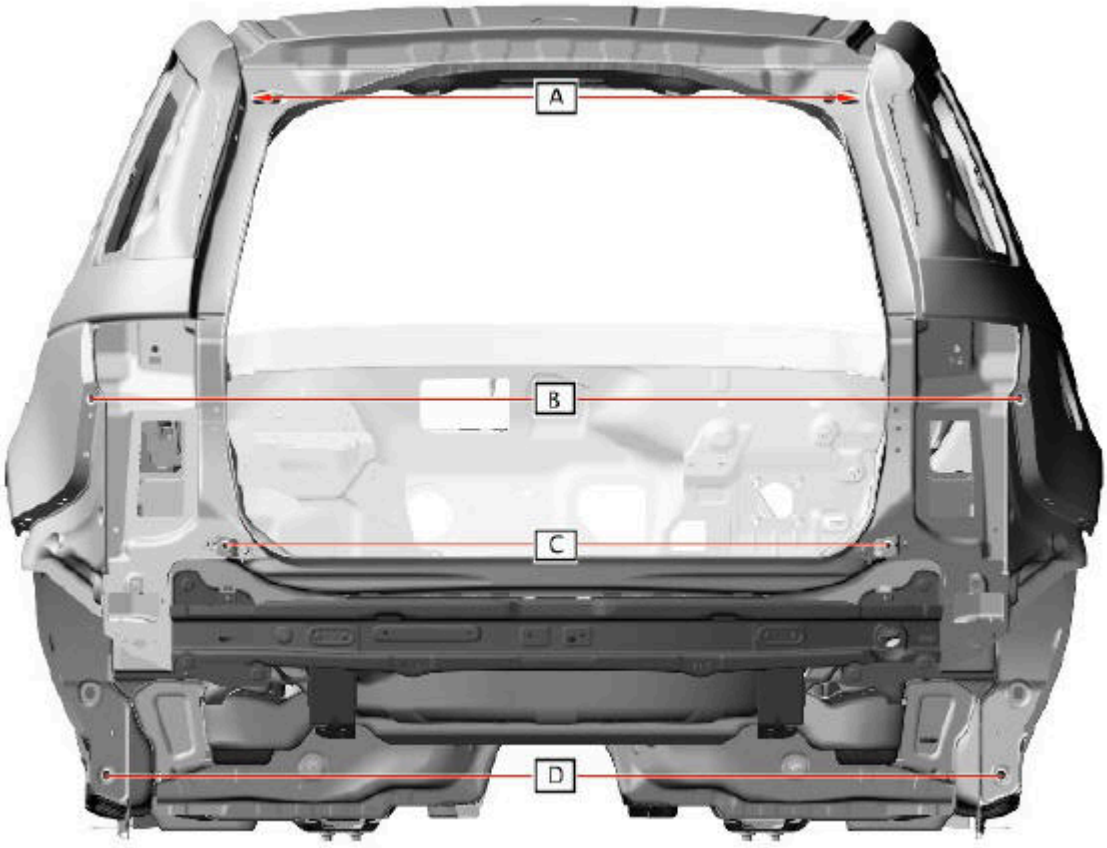


ITEM	FROM	TO	DIMENSION
A	Front seat belt retractor fixing hole	Front seat belt anchorage fixing hole	1619.14

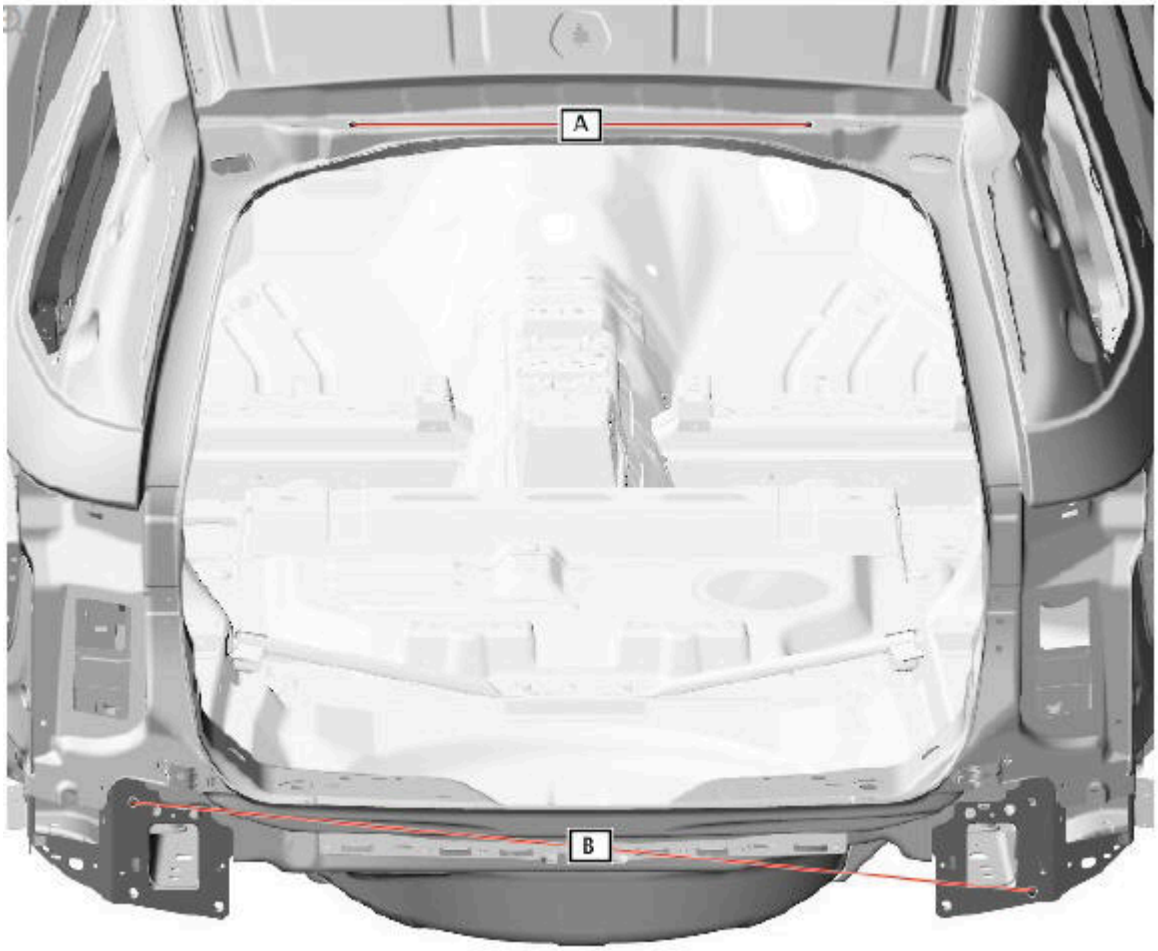


ITEM	FROM	TO	DIMENSION
A	Instrument panel carrier RH top fixing hole	Instrument panel carrier LH top fixing hole	1447.00
B	Instrument panel carrier RH bottom fixing hole	Instrument panel carrier LH bottom fixing hole	1447.00

REAR END BODY DIMENSIONS

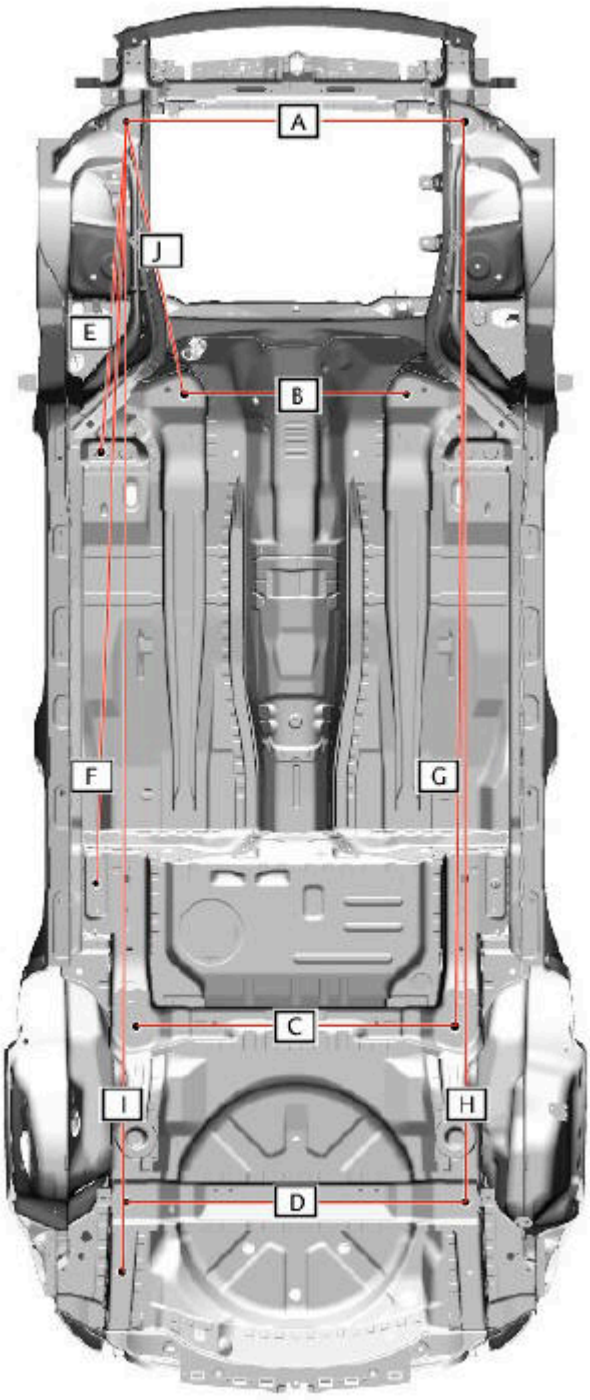


ITEM	FROM	TO	DIMENSION
A	RH wiring harness location hole	LH wiring harness location hole	980.70
B	RH rear bumper cover retaining bracket upper hole	LH rear bumper cover retaining bracket upper hole	1599.84
C	RH rear bumper cover retaining clip hole	LH rear bumper cover retaining clip hole	1143.37
D	RH rear wheelarch liner lower hole	LH rear wheelarch liner lower hole	1536

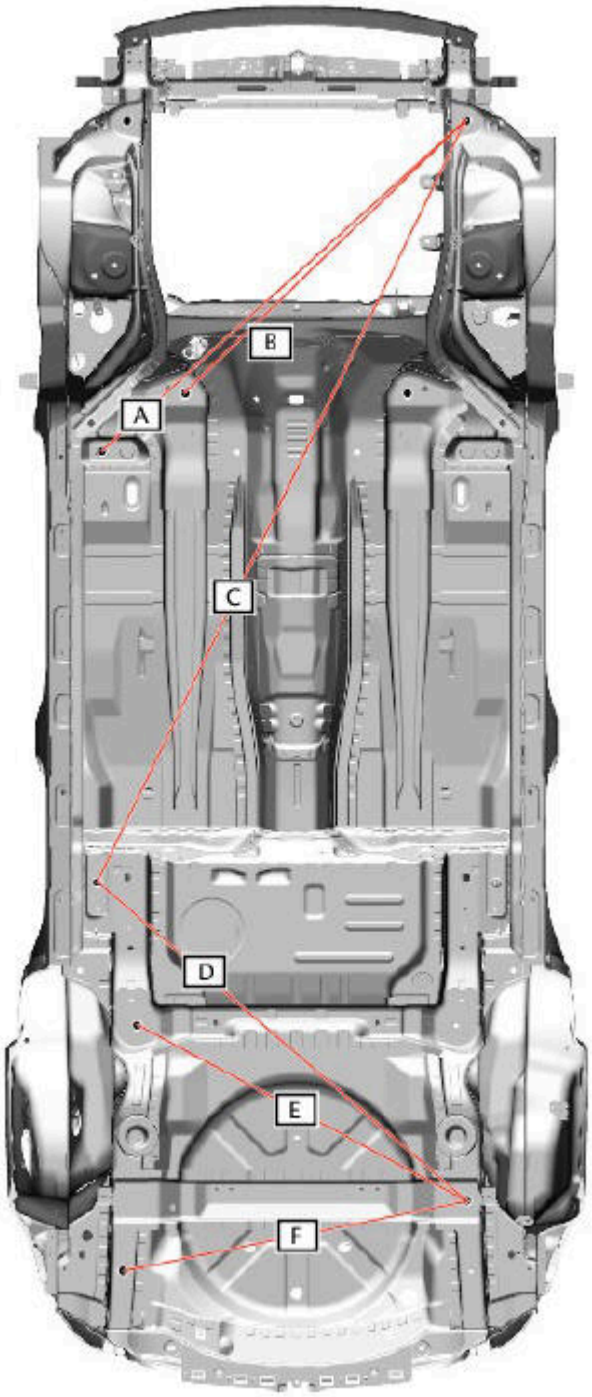


ITEM	FROM	TO	DIMENSION
A	RH liftgate hinge fixing hole	LH liftgate hinge fixing hole	640.00
B	RH rear bumper outer upper fixing hole	LH rear bumper outer lower fixing hole	1273.51

UNDER BODY DIMENSIONS


A
J
E
B
F
G
C
I
H
D

ITEM	FROM	TO	DIMENSION
A	Front subframe RH front fixing hole	Front subframe LH front fixing hole	1096.00
B	Front subframe RH rear fixing hole	Front subframe LH rear fixing hole	722.00
C	Rear subframe RH front fixing hole	Rear subframe LH front fixing hole	1030.00
D	Rear subframe RH rear fixing hole	Rear subframe LH rear fixing hole	1086.00
E	Front subframe RH front fixing hole	RH front floor outer tooling hole	1068.95
F	Front subframe RH front fixing hole	RH rear floor outer tooling hole	2460.97
G	Front subframe LH front fixing hole	Rear subframe LH front fixing hole	2922.19
H	Front subframe LH front fixing hole	Rear subframe LH rear fixing hole	3485.00
I	Front subframe RH front fixing hole	Rear towing eye forward fixing hole	3713.78
J	Front subframe RH front fixing hole	Front subframe RH rear fixing hole	899.65


B
A
C
D
E
F

ITEM	FROM	TO	DIMENSION
A	Front subframe RH front fixing hole	RH front floor outer tooling hole	1588.59
B	Front subframe LH front fixing hole	Front subframe RH rear fixing hole	1265.18
C	Front subframe RH front fixing hole	RH rear floor outer tooling hole	2733.77
D	RH rear floor outer tooling hole	Rear subframe RH rear fixing hole	1570.86
E	Rear subframe RH rear fixing hole	Rear subframe LH front fixing hole	1198.47
F	Rear subframe RH rear fixing hole	Rear towing eye forward fixing hole	1161.24

BODY SHELL REPLACEMENT TIMES

NOTES:

- *The following information shows the total time taken to replace a vehicles body shell. The time has been calculated using a base model variant. For example a two wheel drive vehicle without a roof opening panel.*
- *The times include all mechanical, electrical and trim (MET) items but do not include wheel alignment or paint times.*

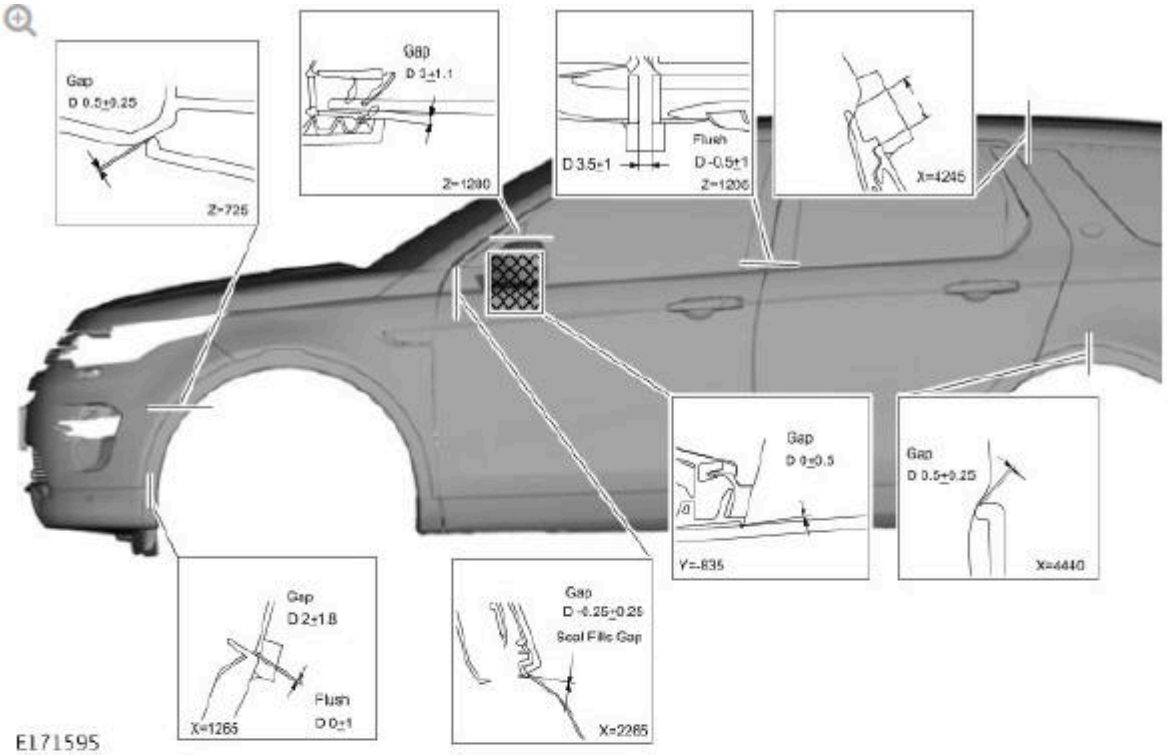
VEHICLE VARIANT	TIME
Discovery Sport	80.6

GAP AND PROFILE MEASUREMENTS

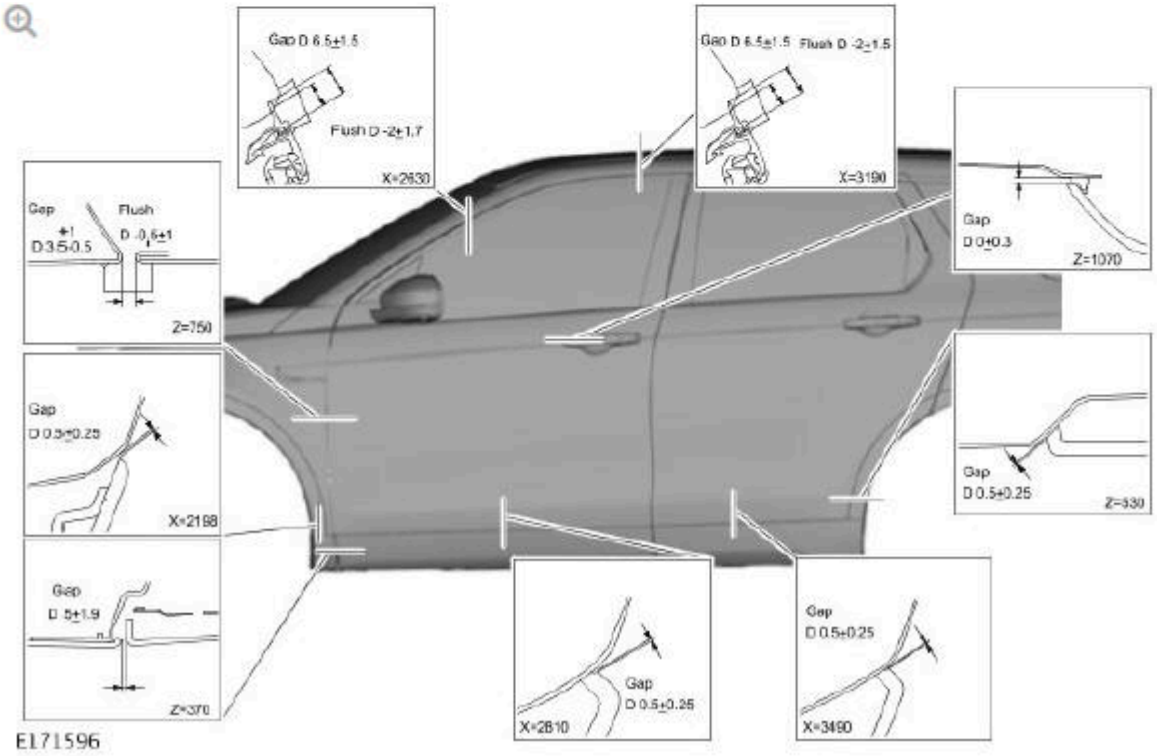
The following information is to be used as a guide to assist the technician in installing exterior body panels and trim items so as to achieve a correctly aligned and cosmetically acceptable vehicle.

NOTE:

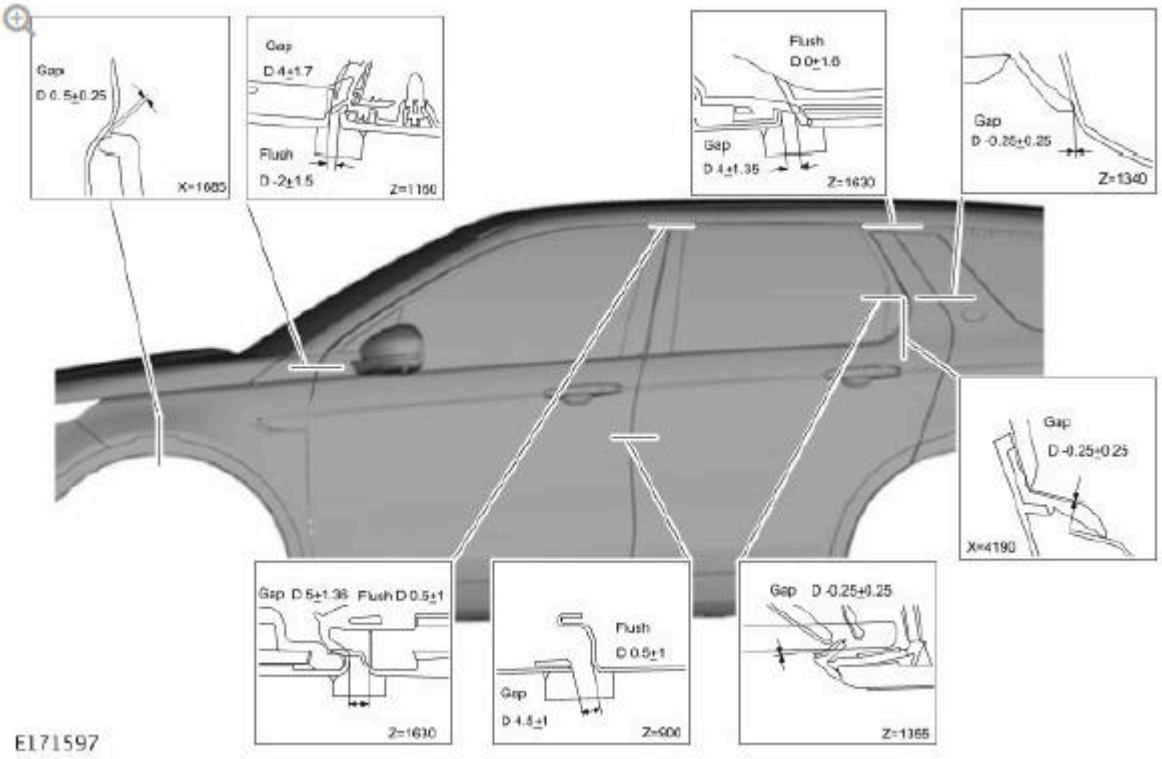
All dimensions shown are in millimetres (mm).



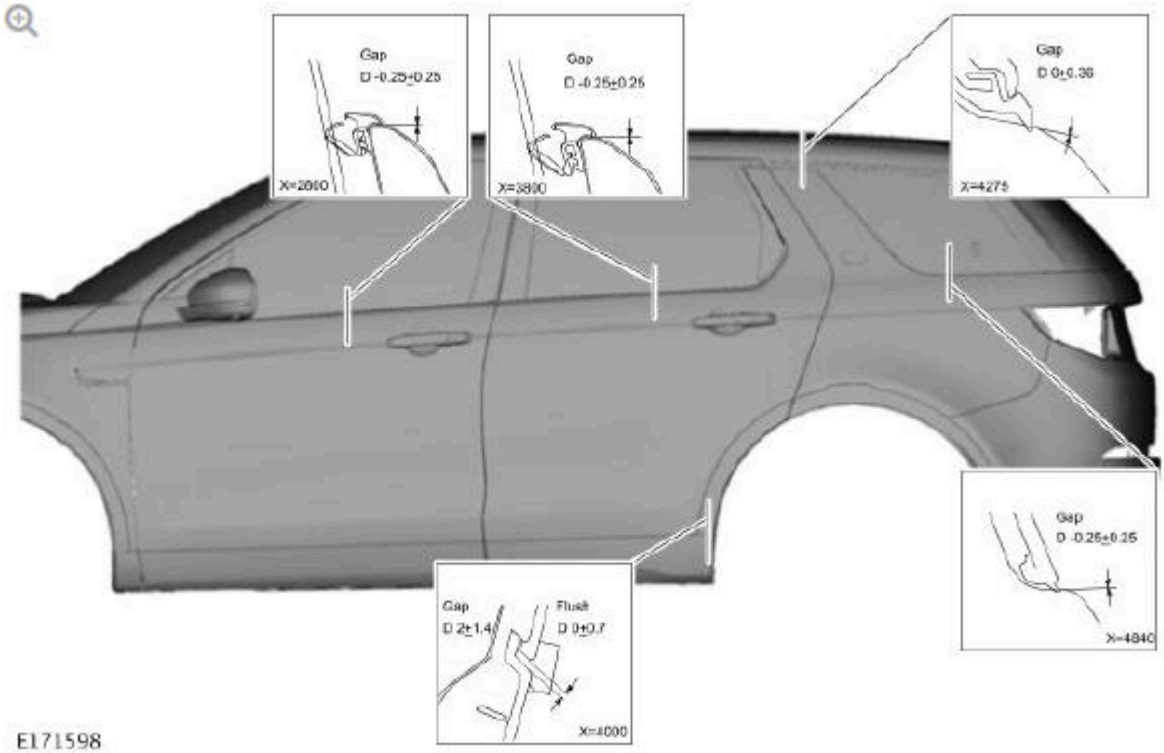
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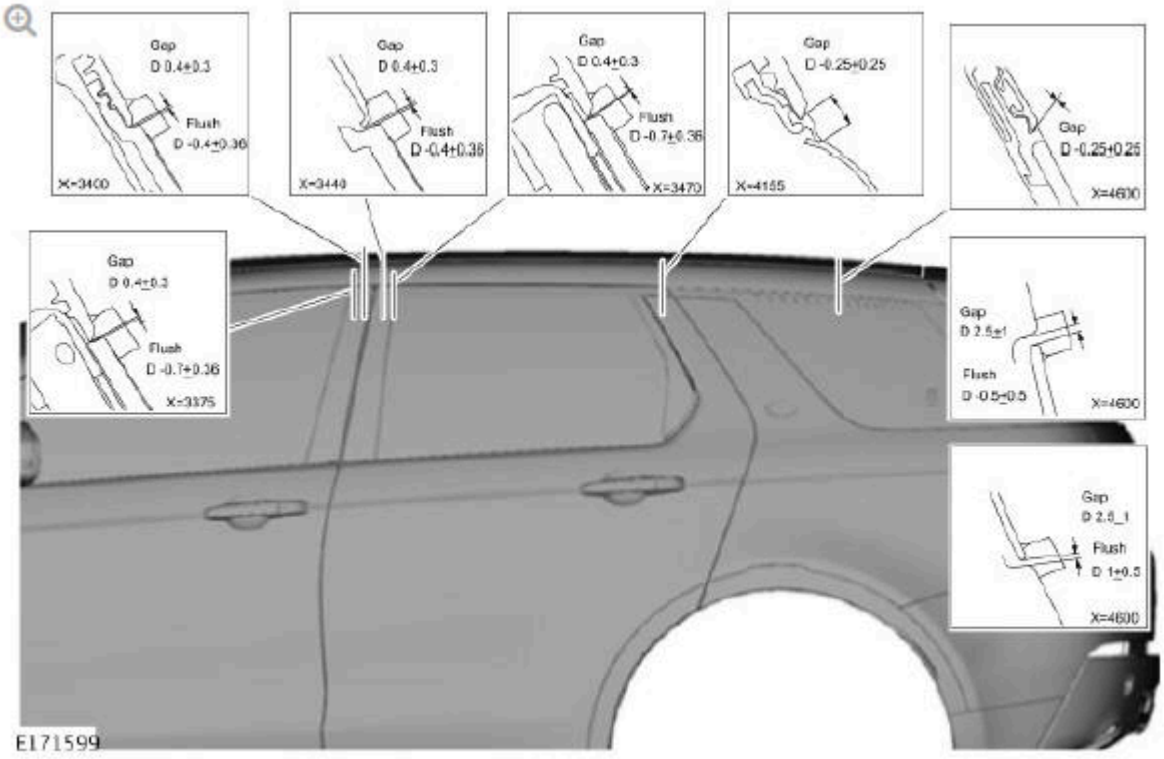
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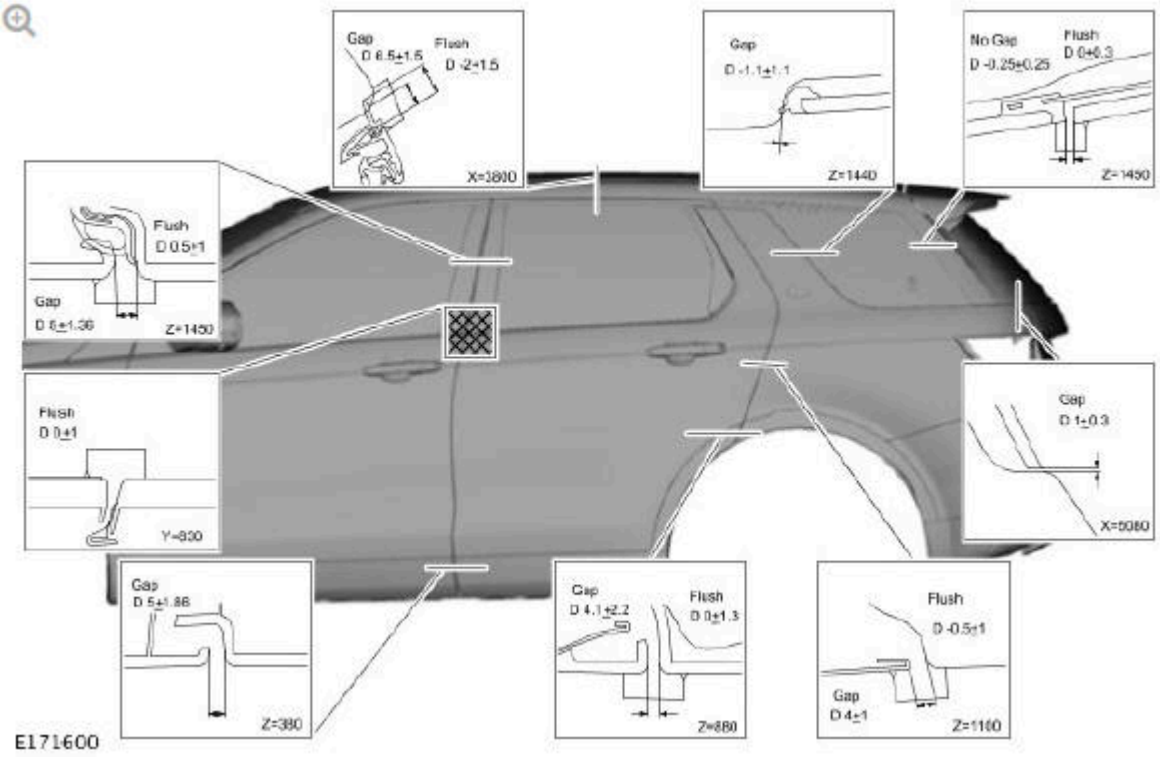


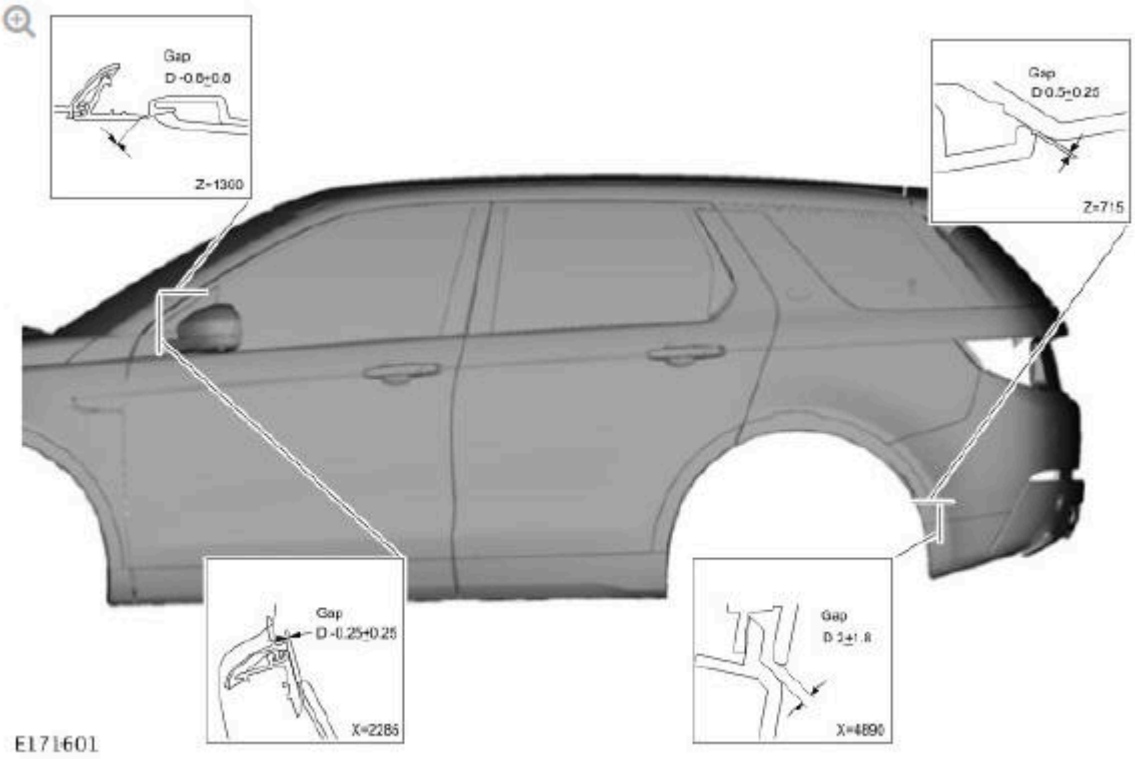
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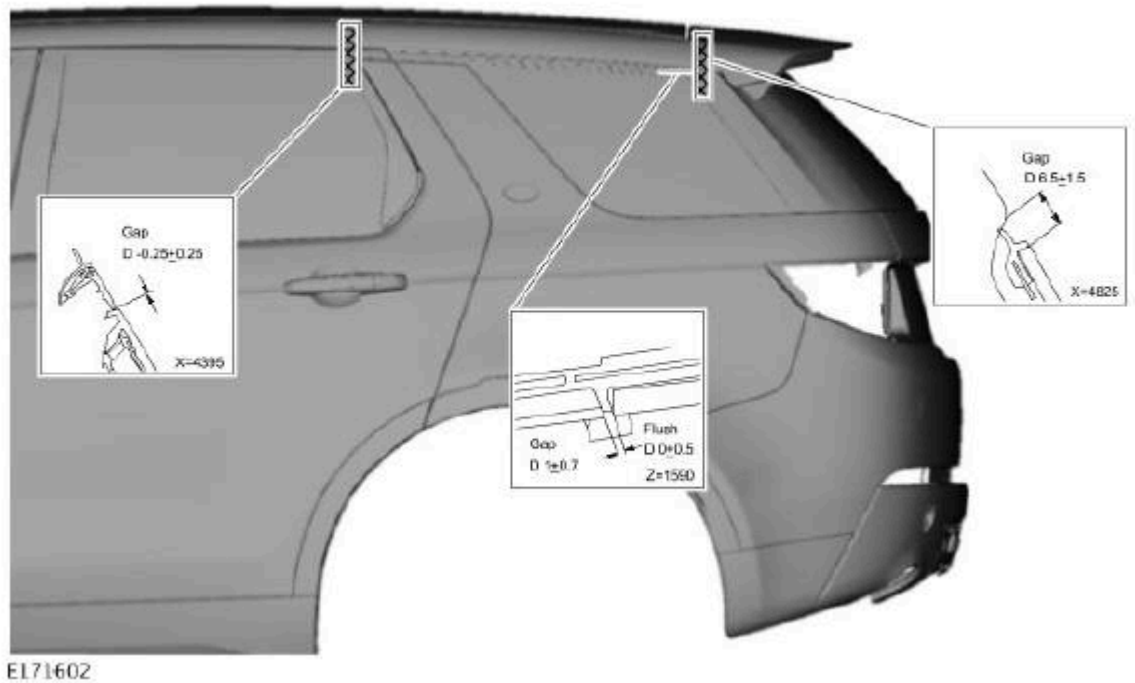
E171598


Gap
D 0.4±0.3
Flush
D -0.4±0.36
X=3400
Gap
D 0.4±0.3
Flush
D -0.4±0.36
X=3440
Gap
D 0.4±0.3
Flush
D -0.7±0.36
X=3470
Gap
D -0.25±0.25
X=4155
Gap
D -0.25±0.25
X=4600
Gap
D 0.4±0.3
Flush
D -0.7±0.36
X=3375
Gap
D 2.5±1
Flush
D -0.5±0.5
X=4600
Gap
D 2.5_1
Flush
D 1±0.5
X=4600
E171599

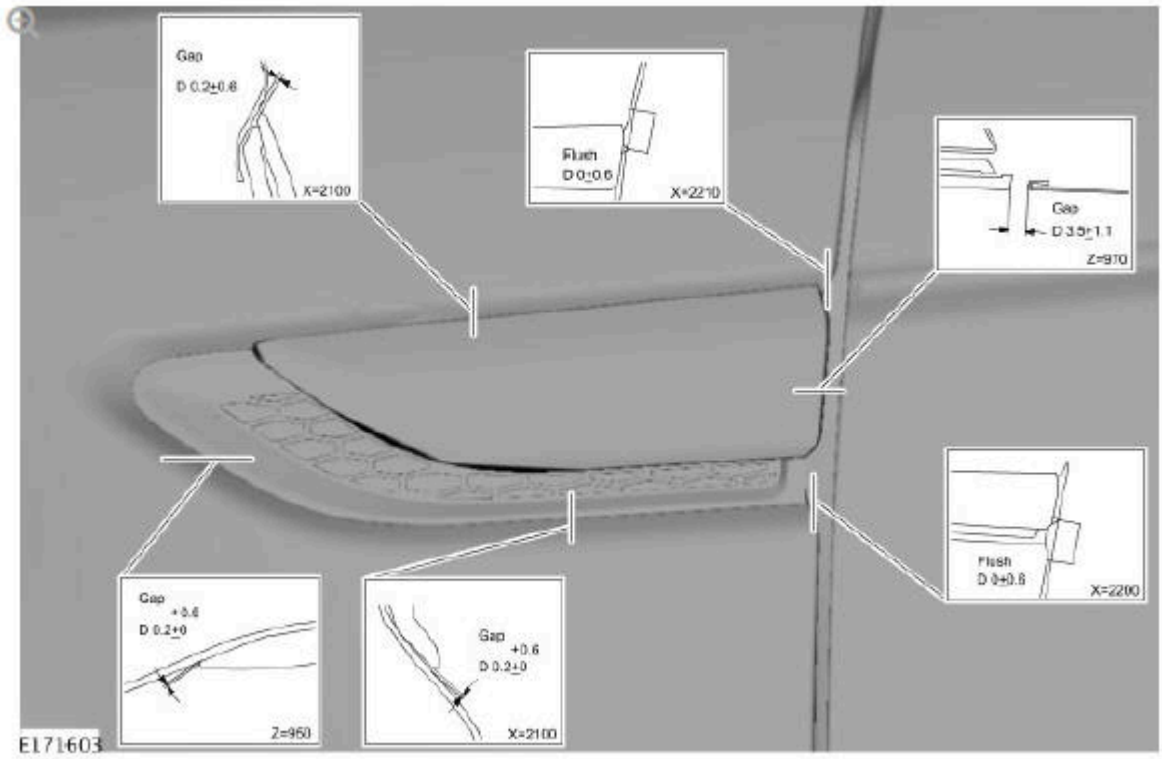

Gap
D 6.5±1.5
Flush
D -2±1.5
X=1800
Gap
D -1.1±1.1
Z=1440
No Gap
Flush
D -0.25±0.25
D 0±0.3
Z=1450
Flush
D 0.5±1
Gap
D 6±1.36
Z=1450
Flush
D 0±1
Y=830
Gap
D 1±0.3
X=5080
Gap
D 5±1.86
Z=380
Gap
D 4.1±2.2
Flush
D 0±1.3
Z=880
Flush
D -0.5±1
Gap
D 4±1
Z=1160
E171600

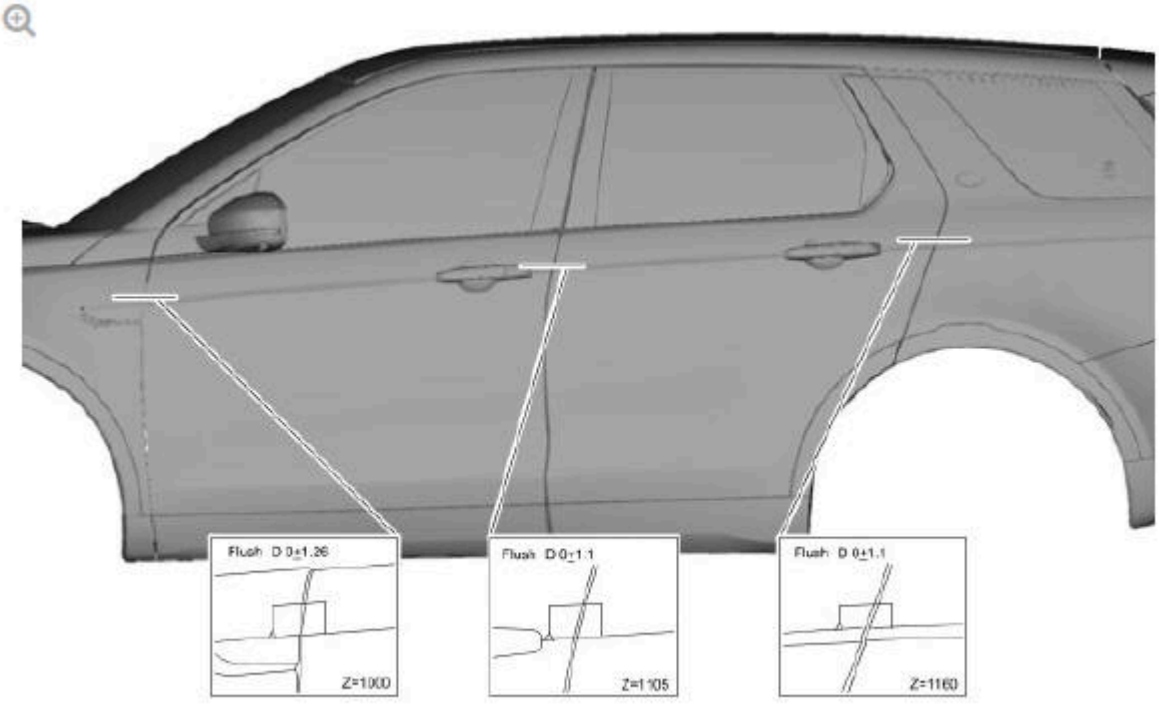


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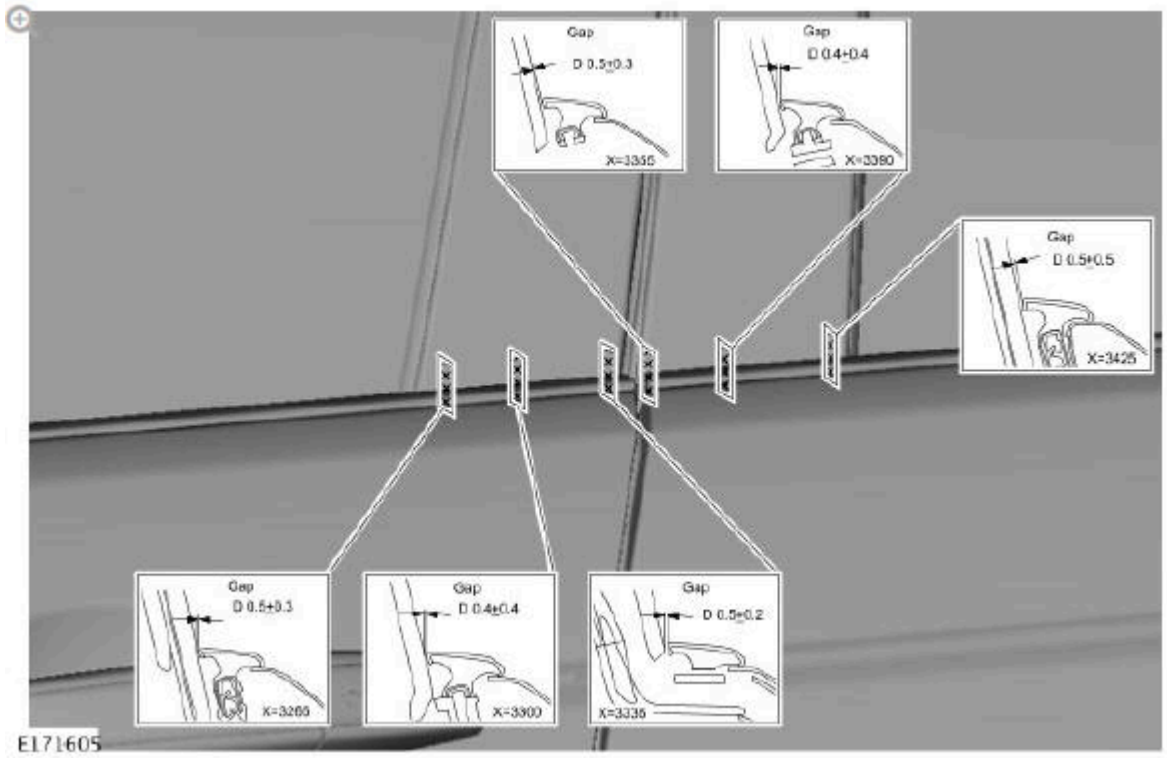


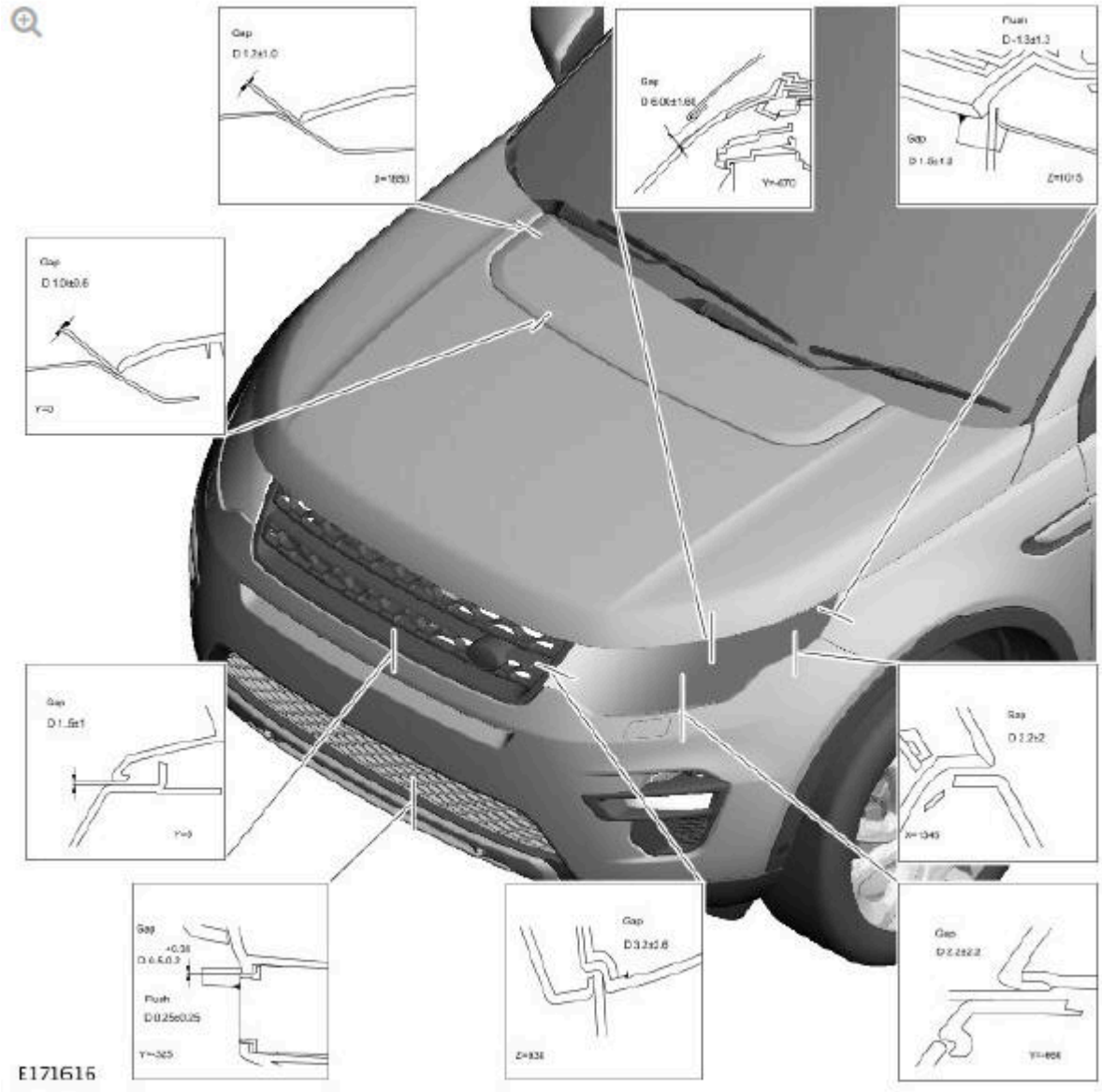
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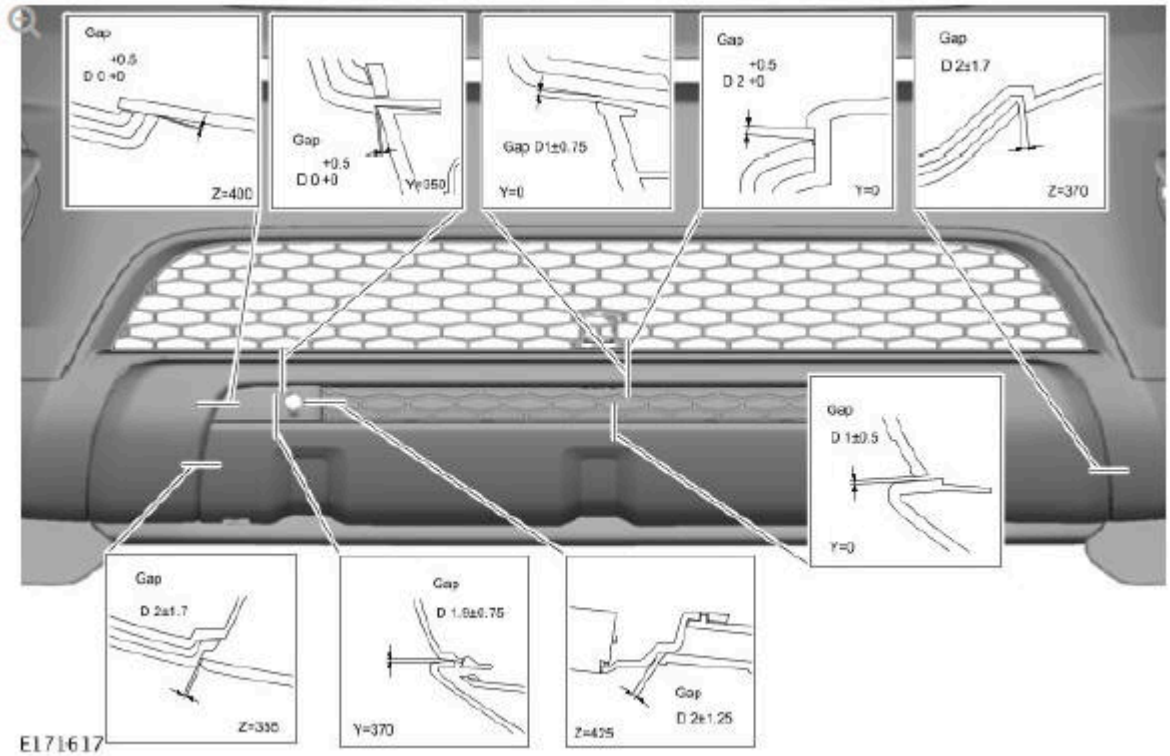

Gap
D 0.2±0.8
X=2100
Flush
D 0±0.6
X=2210
Gap
D 3.5±1.1
Z=970
Flush
D 0±0.6
X=2200
Gap
+0.6
D 0.2±0
Z=950
Gap
+0.6
D 0.2±0
X=2100
E171603

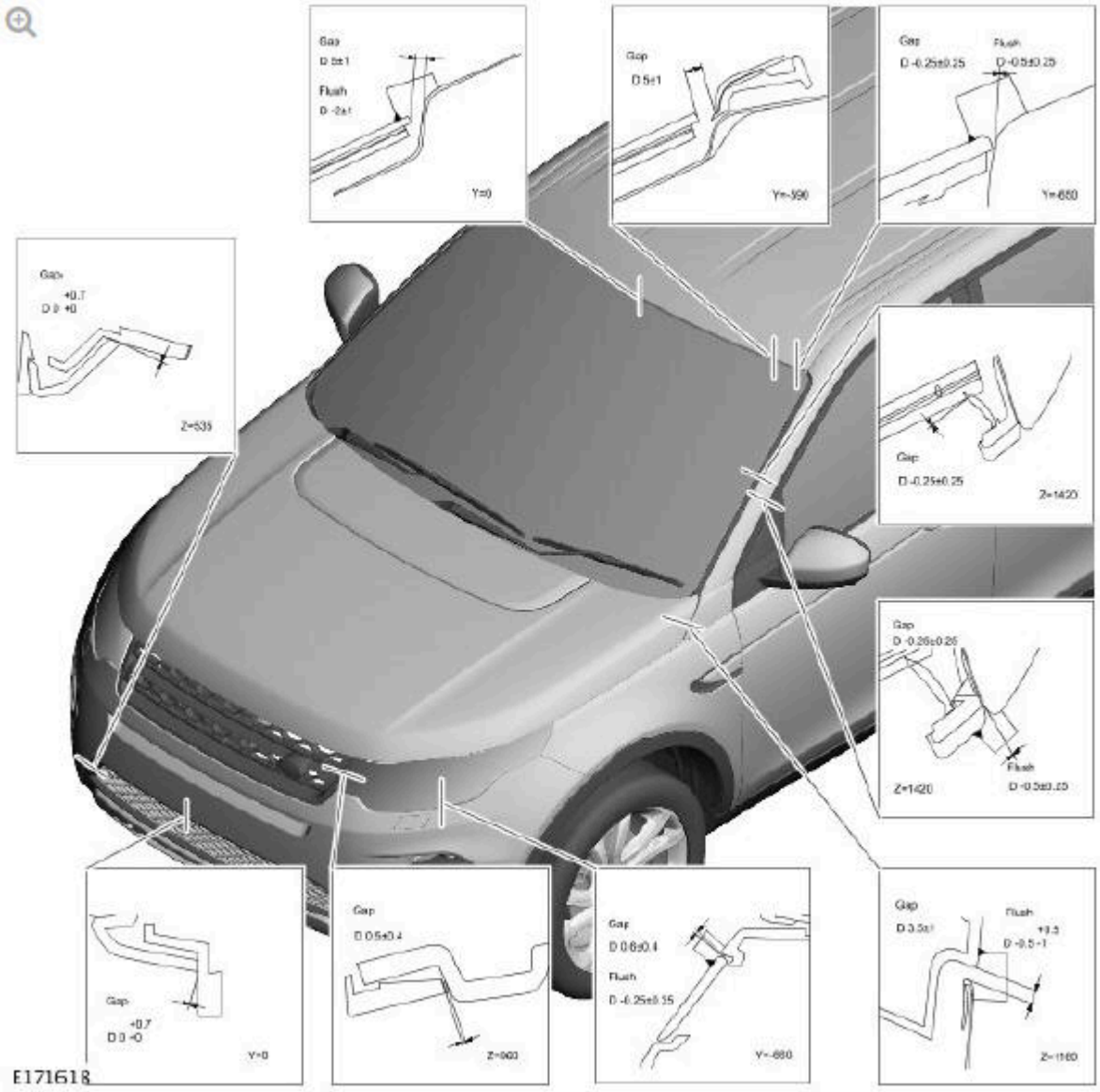

Flush D 0±1.26
Z=1000
Flush D 0±1.1
Z=1105
Flush D 0±1.1
Z=1160

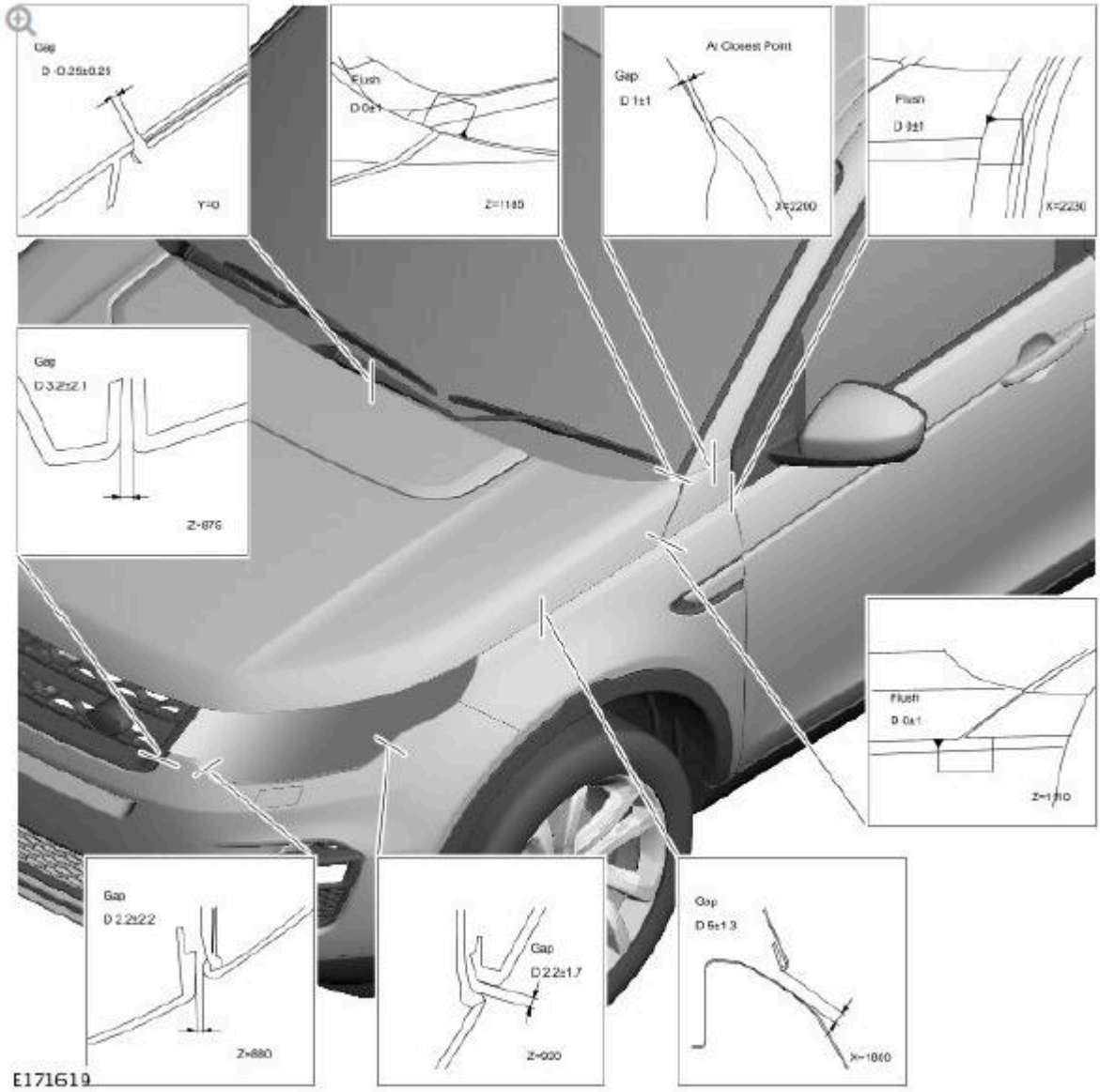
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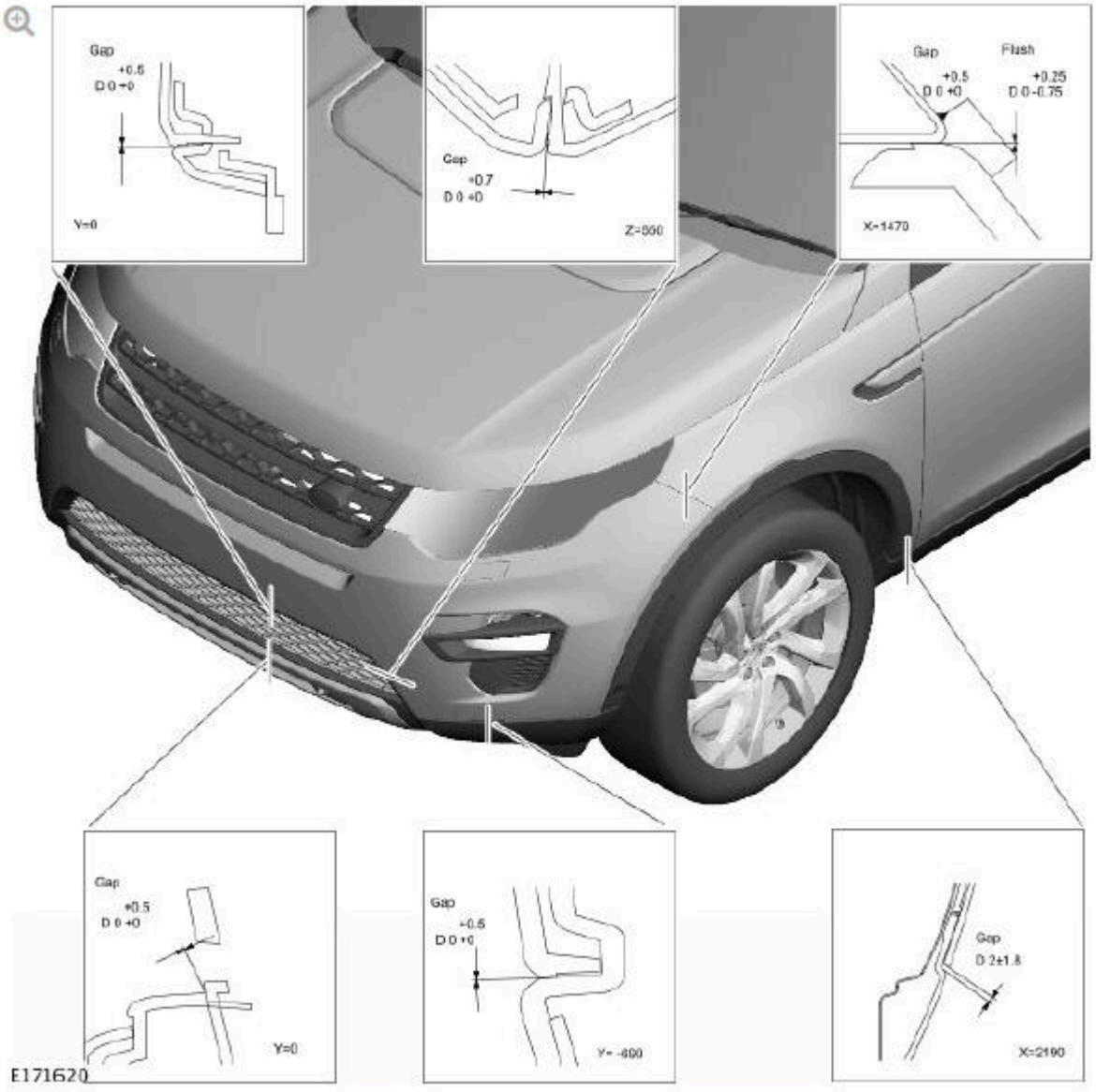

Gap
D 0.5±0.3
X=3355
Gap
D 0.4±0.4
X=3380
Gap
D 0.5±0.5
X=3425
Gap
D 0.5±0.3
X=3265
Gap
D 0.4±0.4
X=3300
Gap
D 0.5±0.2
X=3335
E171605

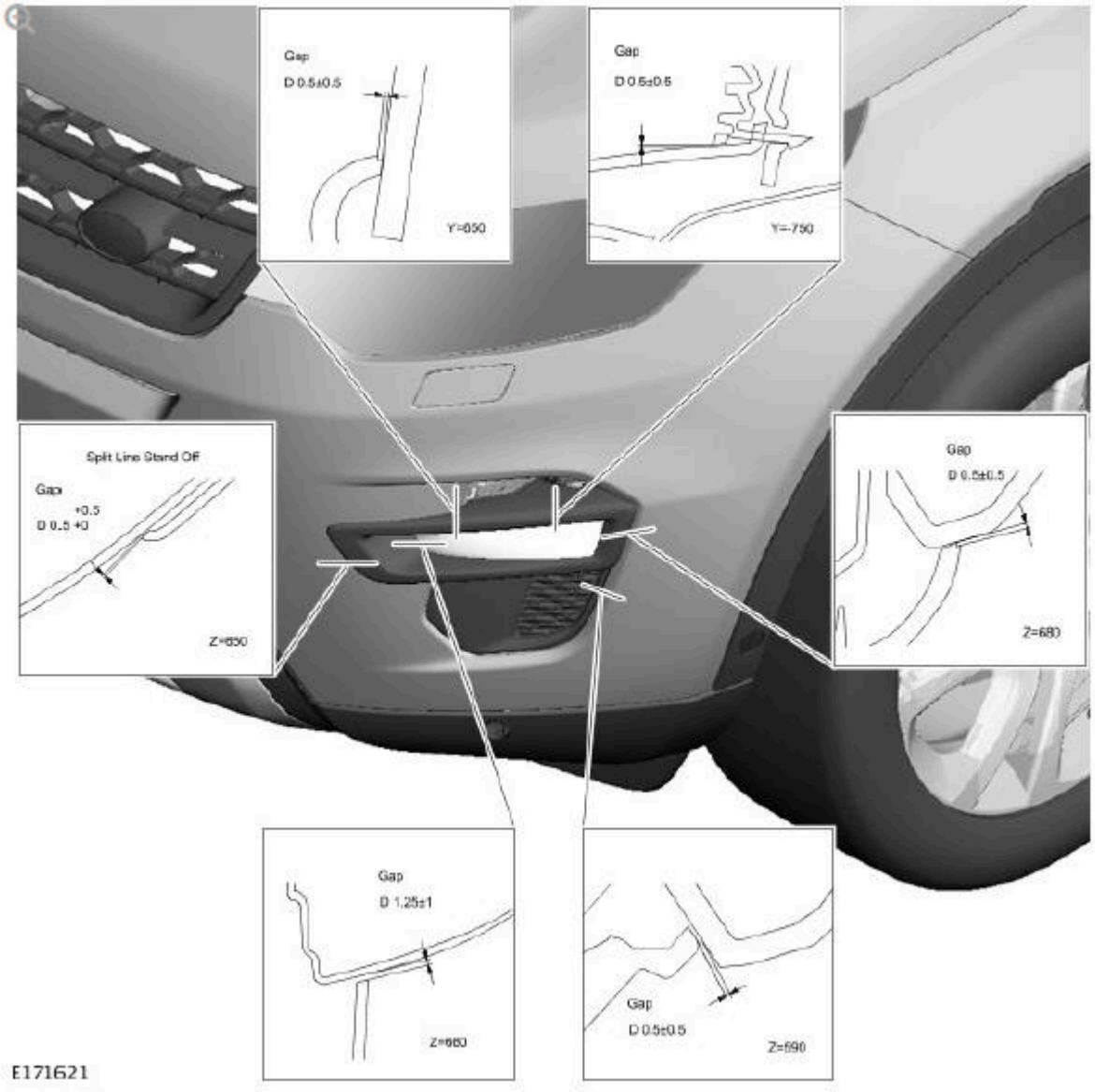

Gap
D 1.7±1.0
Gap
D 1.0±0.6
Y=0
Gap
D 1.5±1
Y=0
Gap
D 0.5±0.3
Push
D 0.25±0.05
Gap
D 3.2±2.6
Gap
D 2.2±2.2
Push
D-1.3±1.3
Gap
D 1.2±2
E171616

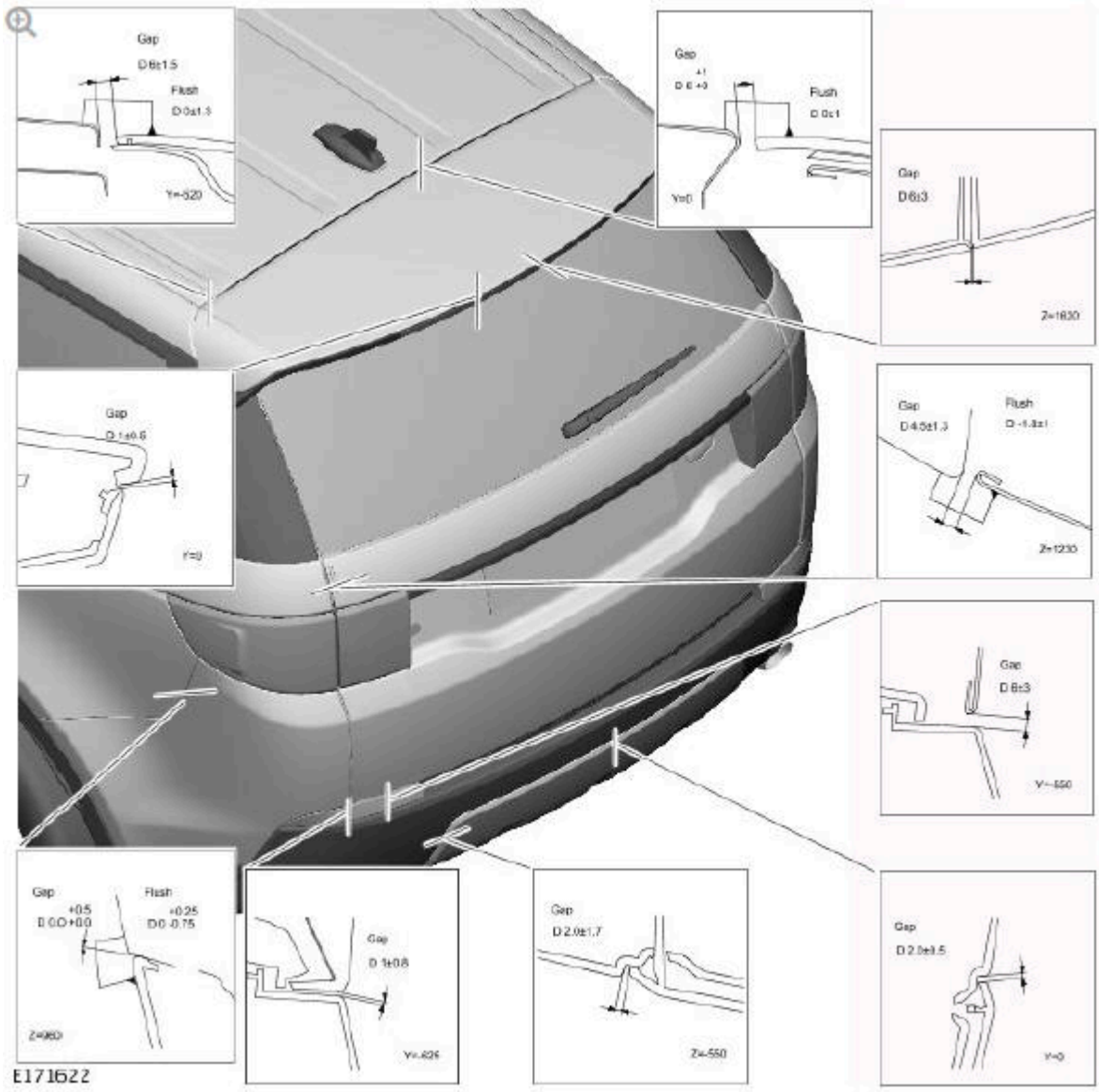

Gap
+0.5
D 0 +0
Z=400
Gap
+0.5
D 0 +0
Y=350
Gap D1±0.75
Y=0
Gap
+0.5
D 2 +0
Y=0
Gap
D 2±1.7
Z=370
Gap
D 1±0.5
Y=0
Gap
D 2±1.7
Z=335
Gap
D 1.5±0.75
Y=370
Gap
D 2±1.25
Z=425
E171617


Gap
D 5±1
Flush
D -2±1
Y=0
Gap
D 5±1
Y=-590
Gap
D -0.25±0.25
Flush
D -0.5±0.25
Y=650
Gap
+0.7
D 0 +0
Z=635
Gap
D -0.25±0.25
Z=1420
Gap
D -0.25±0.25
Flush
D -0.5±0.25
Z=1420
Gap
+0.7
D 0 -0
Y=0
Gap
D 0.5±0.4
Z=900
Gap
D 0.8±0.4
Flush
D -0.25±0.15
Y=-660
Gap
D 3.5±1
Flush
+0.5
D -0.5 -1
Z=1160
E171618

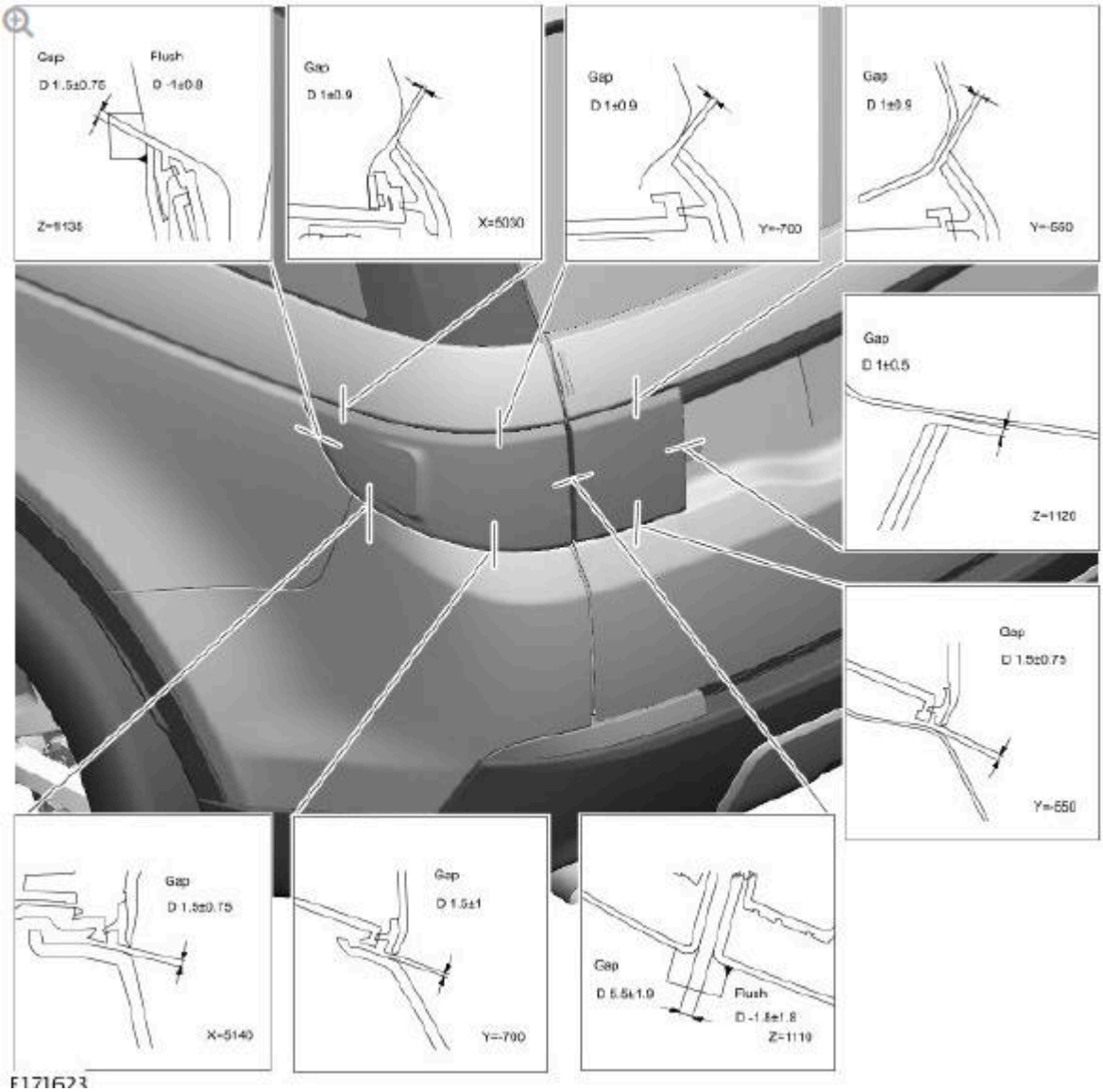

Gap
D -0.25±0.25
Y=0
Flush
D 0±1
Z=1145
At Closest Point
Gap
D 1±1
X=2200
Flush
D 0±1
X=2230
Gap
D 3.2±2.1
Z=875
Flush
D 0±1
Z=1210
Gap
D 2.2±2.2
Z=880
Gap
D 2.2±1.7
Z=930
Gap
D 5±1.3
X=1060
E171619

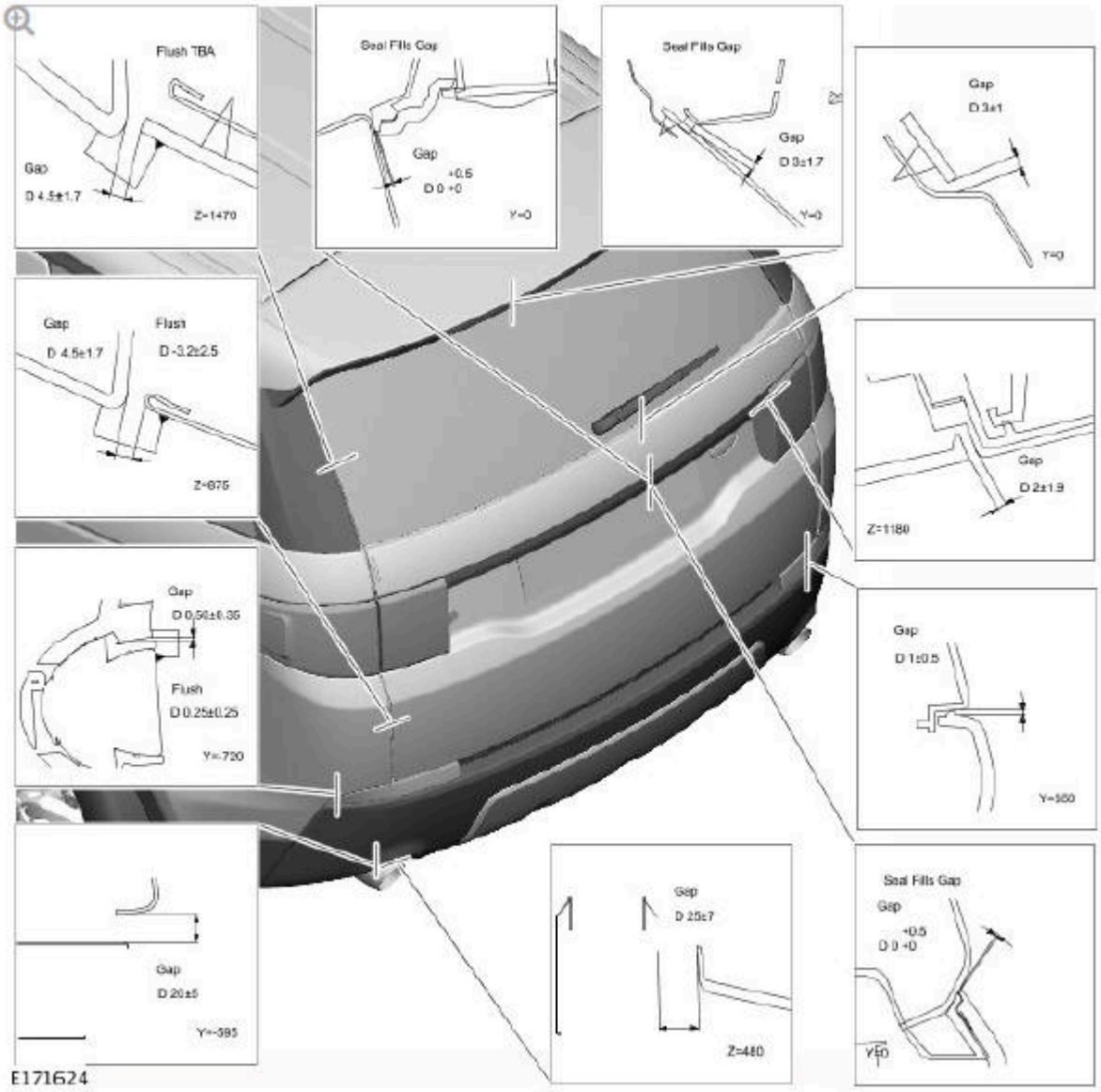

Gap
+0.5
D 0 +0
Y=0
Gap
+0.7
D 0 +0
Z=550
Gap
Flush
+0.5
D 0 +0
+0.25
D 0 -0.75
X=1470
Gap
+0.5
D 0 +0
Y=0
Gap
+0.5
D 0 +0
Y= -400
Gap
D 2±1.8
X=2190
E171620

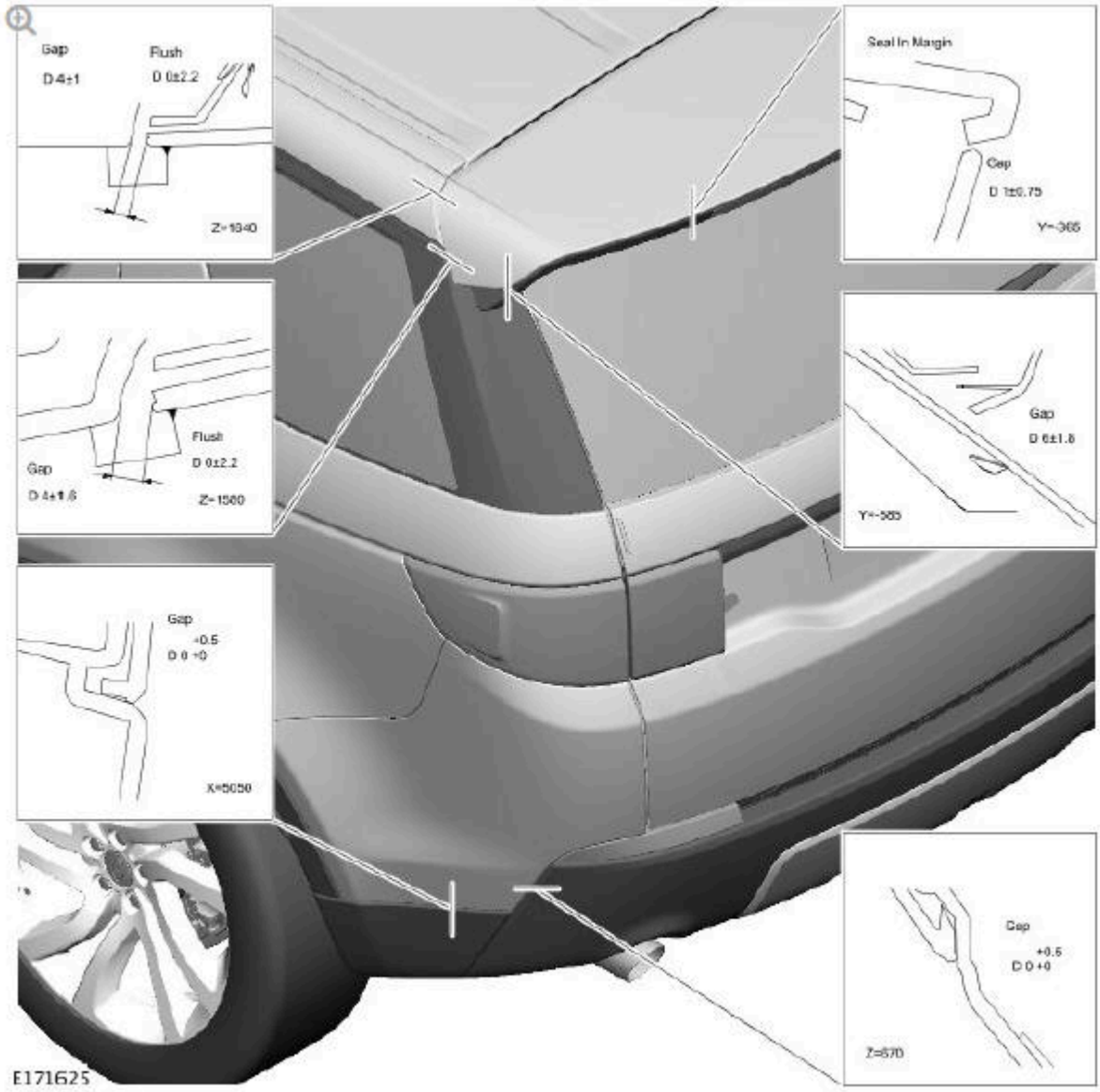

Gap
D 0.5±0.5
Y=650
Gap
D 0.5±0.5
Y=-750
Split Line Stand Off
Gap
+0.5
D 0.5 +0
Z=650
Gap
D 0.5±0.5
Z=680
Gap
D 1.25±1
Z=660
Gap
D 0.5±0.5
Z=690
E171621

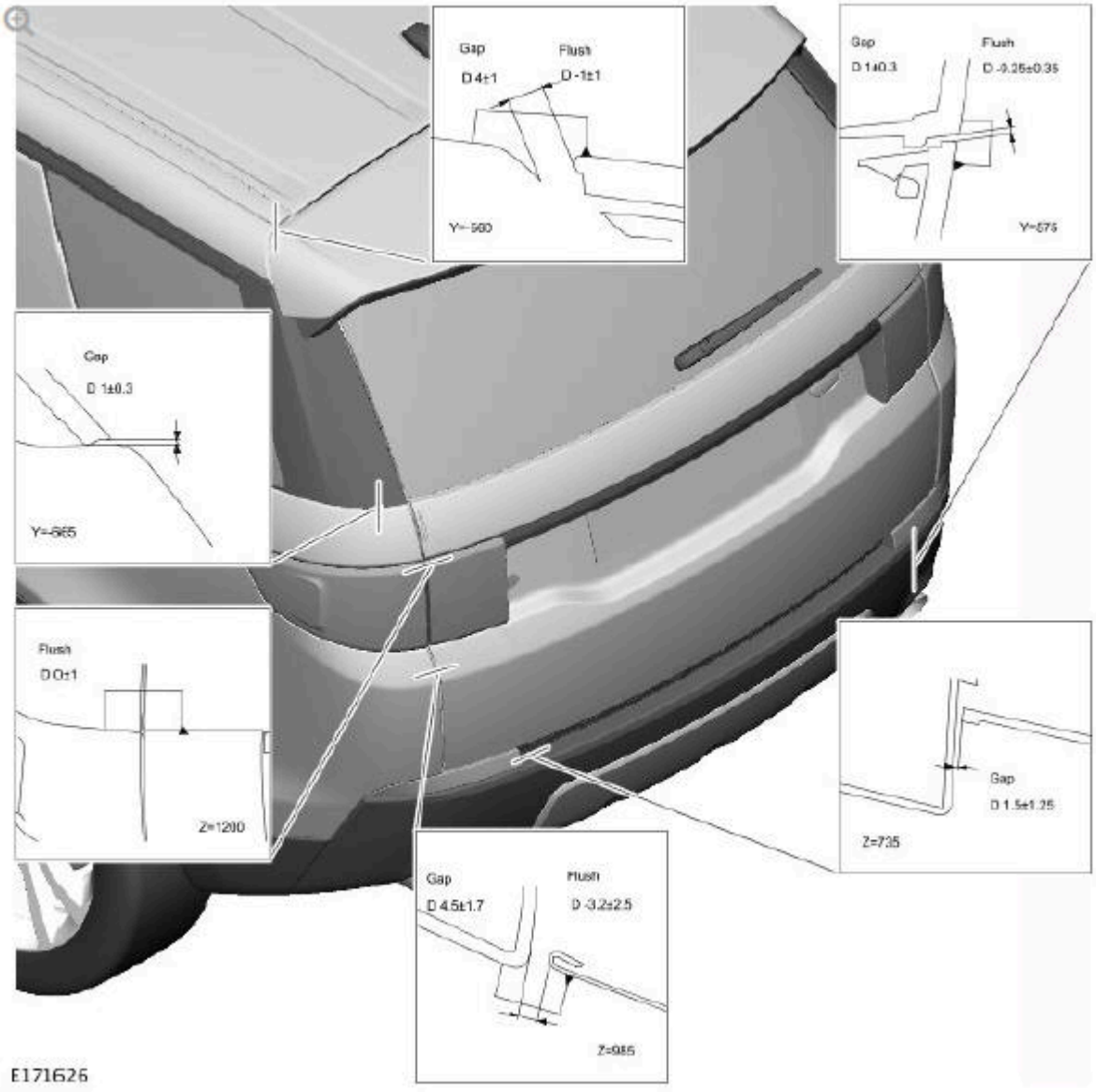

Gap
D 6±1.5
Flush
D 0±1.5
Y=-520
Gap
D 6 +3
Flush
D 0±1
Y=0
Gap
D 6±3
Z=1630
Gap
D 1±0.6
Y=0
Gap
D 4.5±1.3
Flush
D -1.8±1
Z=1230
Gap
D 6±3
Y=-550
Gap
+0.5
D 0.0+0.0
Flush
+0.25
D 0 -0.75
Z=960
Gap
D 1±0.8
Y=-924
Gap
D 2.0±1.7
Z=-550
Gap
D 2.0±3.5
Y=0

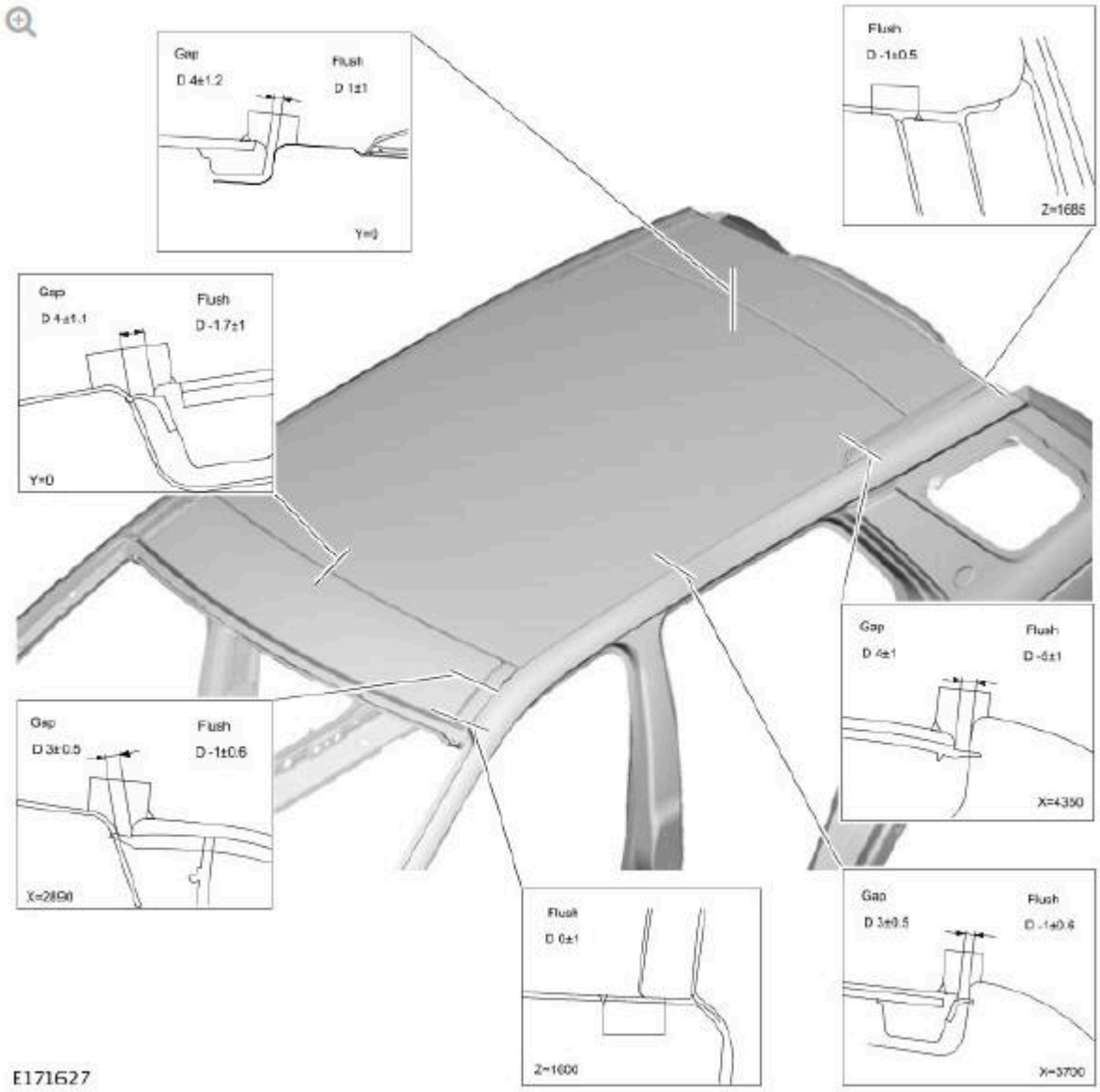
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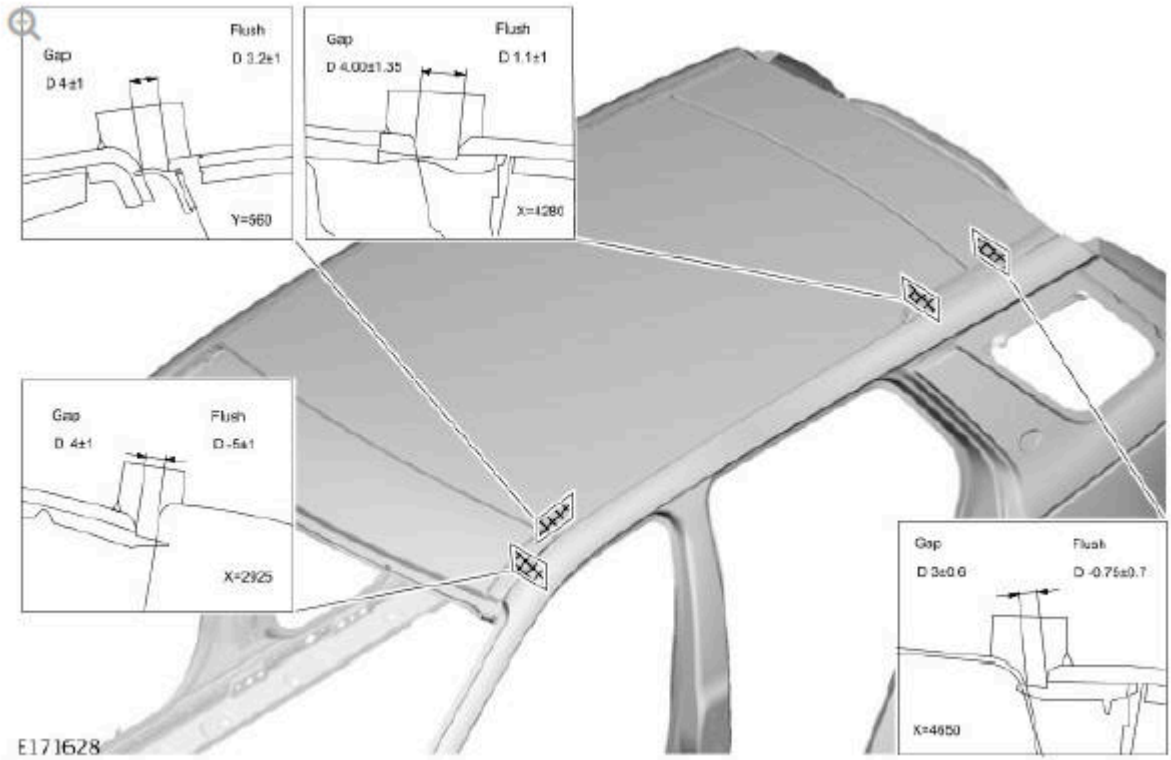

Gap
D 1.5±0.75
Flush
D -1±0.8
Z=5135
Gap
D 1±0.9
X=5030
Gap
D 1±0.9
Y=-700
Gap
D 1±0.9
Y=-550
Gap
D 1±0.5
Z=1120
Gap
D 1.5±0.75
Y=-550
Gap
D 1.5±0.75
X=5140
Gap
D 1.5±1
Y=-700
Gap
D 5.5±1.9
Flush
D -1.8±1.8
Z=1110
E171623

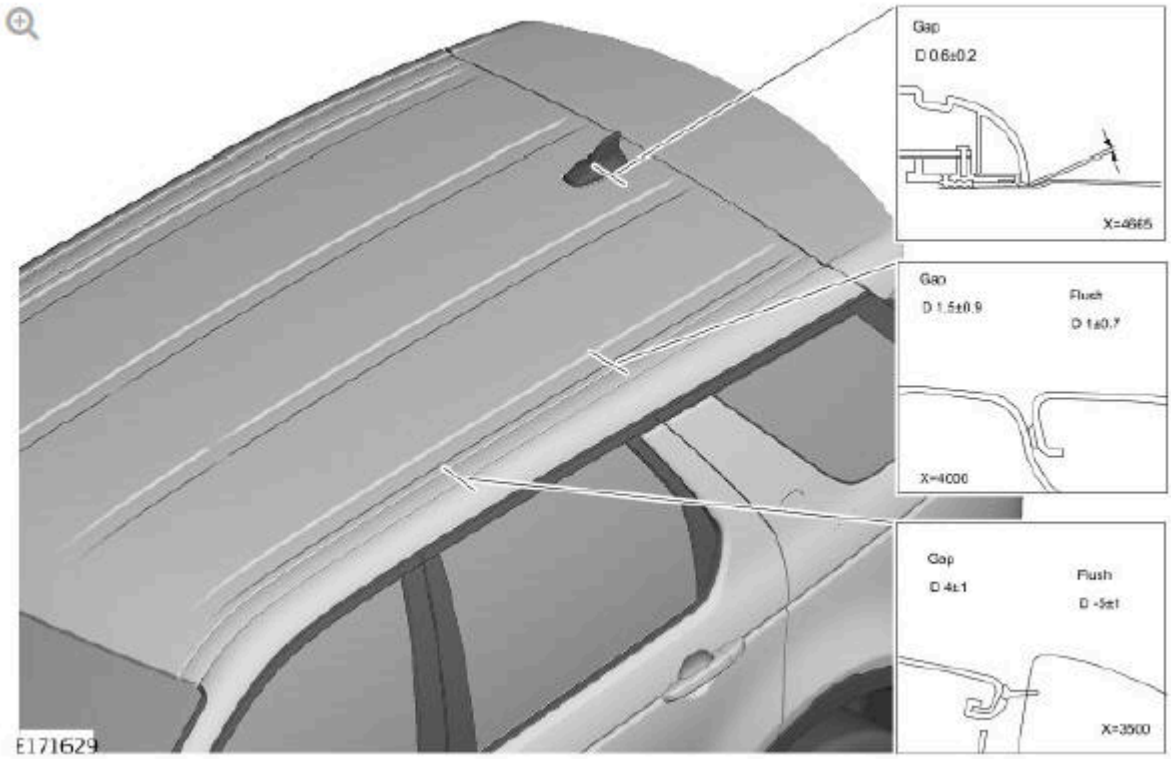

Flush TBA
Gap
D 4.5±1.7
Z=1470
Seal Fills Gap
Gap
+0.6
D 0 +0
Y=0
Seal Fills Gap
Gap
D 3±1.7
Y=0
Gap
D 3±1
Y=0
Gap
D 4.5±1.7
Flush
D -3.2±2.5
Z=675
Gap
D 2±1.9
Z=1180
Gap
D 0.50±0.35
Flush
D 0.25±0.25
Y=-720
Gap
D 1±0.5
Y=-550
Gap
D 20±5
Y=-385
Gap
D 25±7
Z=480
Seal Fills Gap
Gap
+0.5
D 0 +0
Y=0
E171624

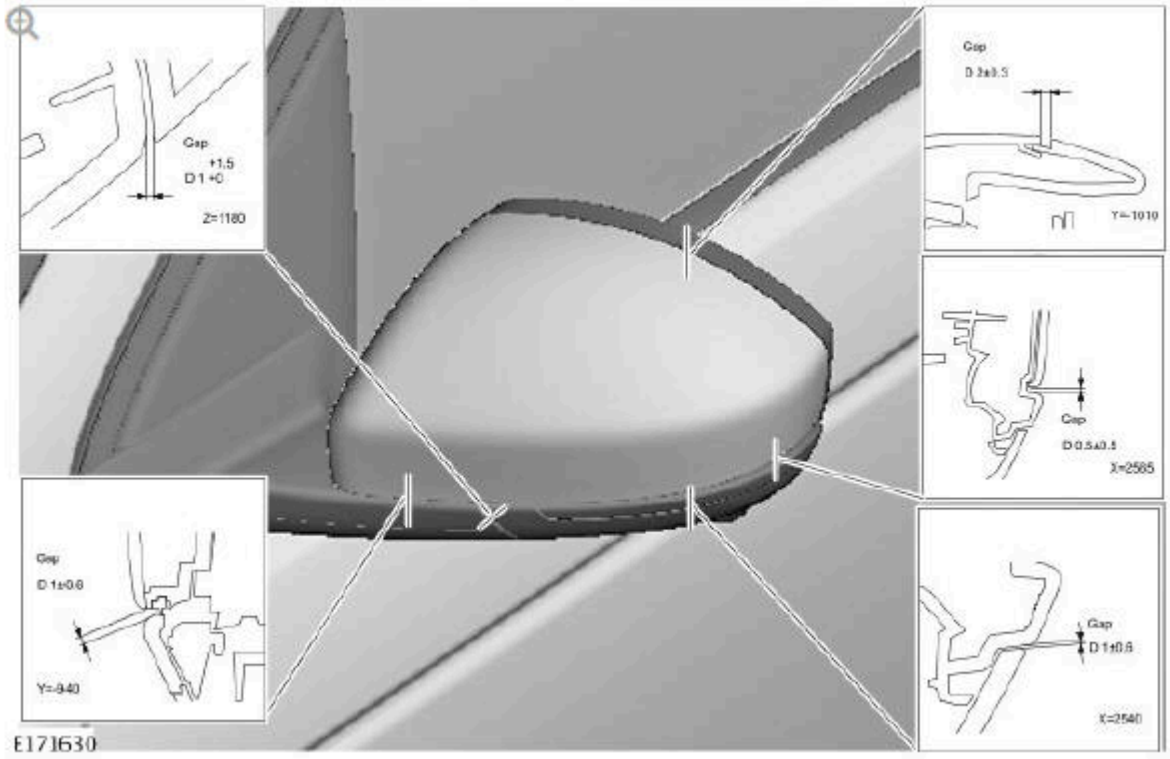

Gap
D 4±1
Flush
D 0±2.2
Z=1040
Seal In Margin
Cap
D 1±0.75
Y=-365
Flush
Gap
D 4±1.5
D 0±2.2
Z=1560
Gap
D 6±1.5
Y=-365
Gap
+0.5
D 0 +0
X=5050
Cap
+0.5
D 0 +0
Z=570
E171625


Gap
D 4±1
Flush
D -1±1
Y=-560
Gap
D 1±0.3
Flush
D -0.25±0.35
Y=575
Gap
D 1±0.3
Y=-565
Flush
D 0±1
Z=1200
Gap
D 1.5±1.25
Z=735
Gap
D 4.5±1.7
Flush
D -3.2±2.5
Z=985
E171626


Gap
D 4±1.2
Flush
D 1±1
Y=0
Flush
D -1±0.5
Z=1685
Gap
D 4±1.1
Flush
D -1.7±1
Y=0
Gap
D 4±1
Flush
D -5±1
X=4350
Gap
D 3±0.5
Flush
D -1±0.6
X=2850
Flush
D 0±1
Z=1600
Gap
D 3±0.5
Flush
D -1±0.6
X=3700
E171627


Gap
D 4±1
Flush
D 3.2±1
Y=560
Gap
D 4.00±1.35
Flush
D 1.1±1
X=4280
Gap
D 4±1
Flush
D -5±1
X=2925
Gap
D 3±0.6
Flush
D -0.75±0.7
X=4650
E171628


Gap
D 0.6±0.2
X=4665
Gap
D 1.5±0.9
Flush
D 1±0.7
X=4000
Gap
D 4±1
Flush
D -5±1
X=3500
E171629



ne

Body Repairs and General InformationVehicle Specific Information and Tolerance Checks Tailgate Alignment

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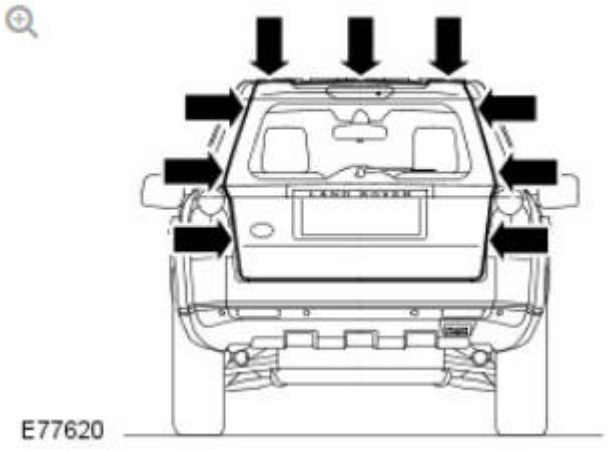
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Vehicle Specific Information and Tolerance Checks Tailgate Alignment

ADJUSTMENT

NOTE:

Some variation in the illustrations may occur, but the essential information is always correct.

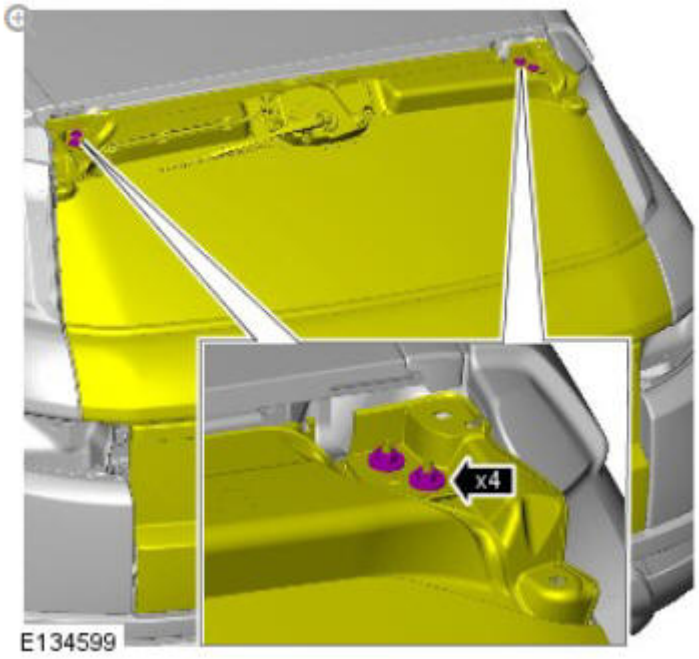


With the liftgate closed, check the alignment of the liftgate to the roof panel and bodyside panel. The liftgate should be central in its aperture.

Refer to: Body and Frame (501-26 Body Repairs - Vehicle Specific Information and Tolerance Checks, Description and Operation).

Remove the rear spoiler.

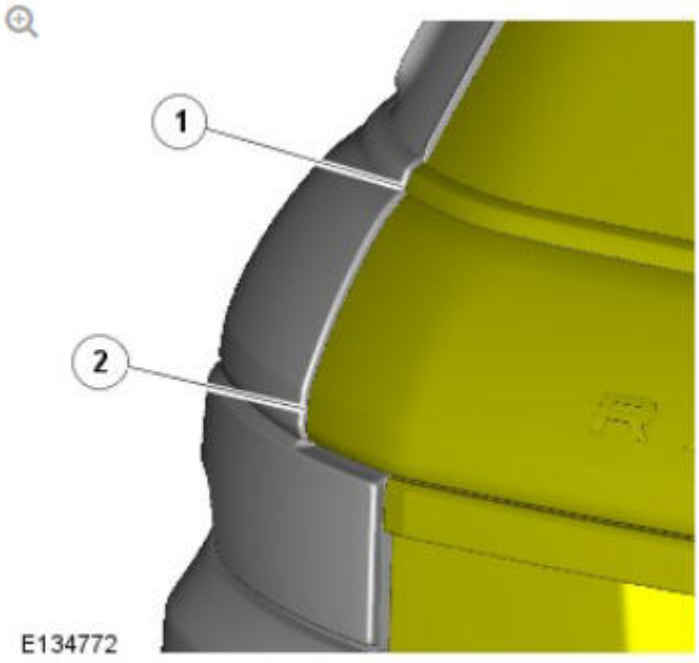
Refer to: Rear Spoiler (501-08 Exterior Trim and Ornamentation, Removal and Installation).



Loosen, but do not remove the liftgate hinge bolts.

NOTES:

- *Make sure that the tailgate is flush with the fender at point 1.*
- *Make sure that the tailgate is recessed by 1.5 mm in relation to the fender, at point 2.*



Position the liftgate central to the aperture.

Refer to: Body and Frame (501-26 Body Repairs - Vehicle Specific Information and Tolerance Checks, Description and Operation).

Tighten the liftgate hinge bolts.

Torque: 24 Nm

Install the spoiler.

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

Check for correct operation of the liftgate, and if necessary adjust the liftgate striker.

Refer to: Liftgate Striker Adjustment (501-14 Handles, Locks, Latches and Entry Systems, General Procedures).

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Vehicle Specific Information and Tolerance ChecksVehicle Specific Information and Tolerance Checks Rear Door Alignment

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Vehicle Specific Information and Tolerance Checks Rear Door Alignment

CHECK

Check all trims are located and fitted correctly before performing this procedure.

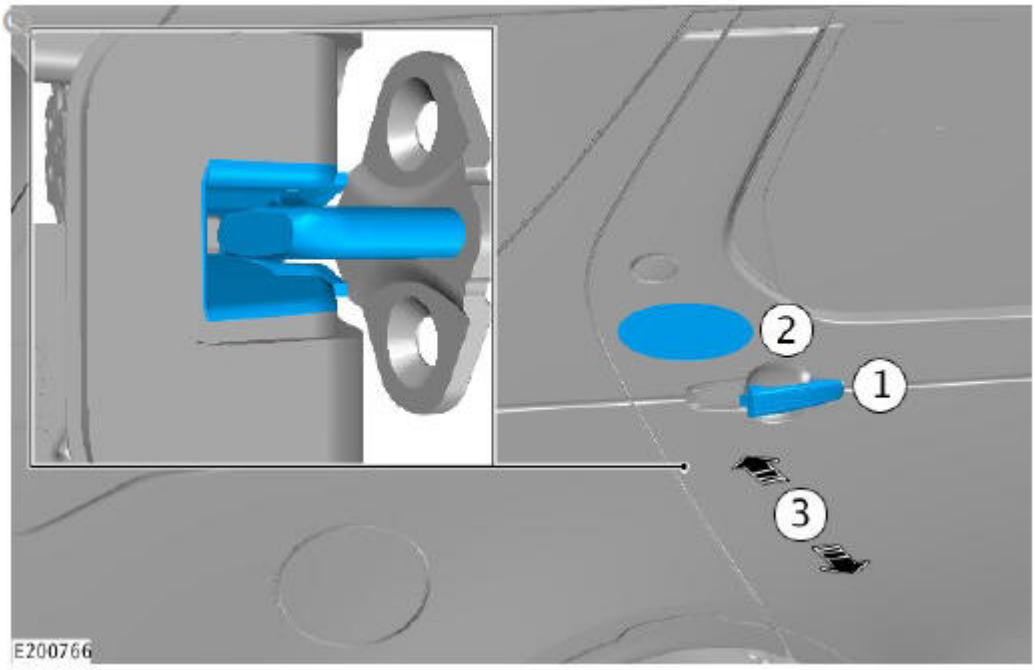
NOTE:

The rear quarter panel is a fixed point, all alignment checks must start from the rear quarter panel.

Check all vehicle gaps and profiles.

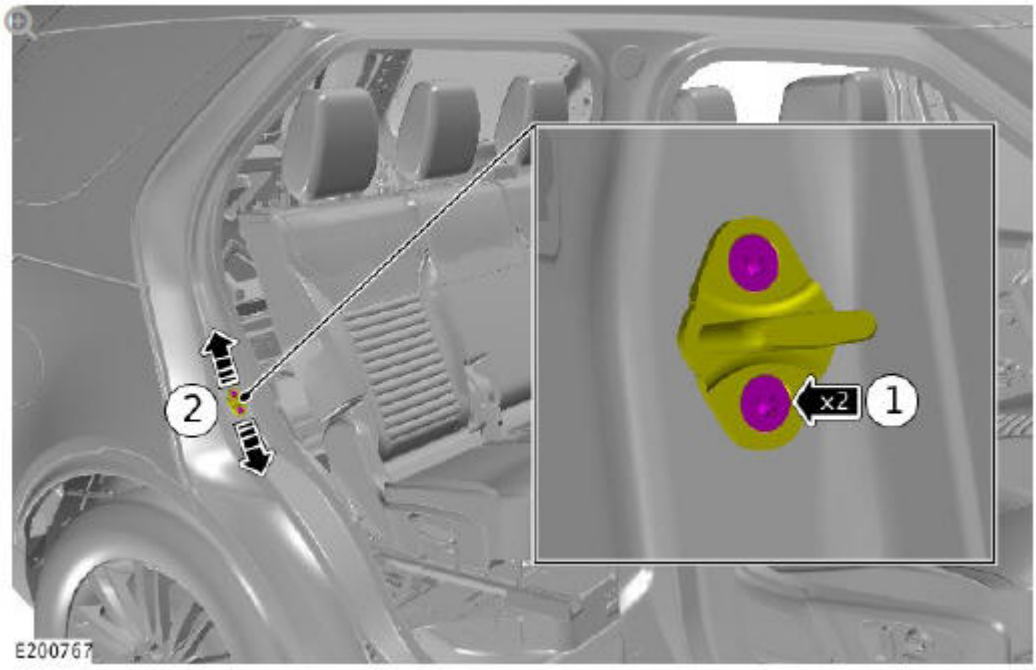
Vehicle specific and tolerance checks.

Refer to: Body and Frame (501-26 Body Repairs - Vehicle Specific Information and Tolerance Checks, Description and Operation).



1. Rear door striker initial check.
2. (1) - Keep the exterior door handle open.
3. (2) - Place hand in position illustrated to allow feel of the door latch to striker.
4. (3) - Move the rear door in and out to feel the latch on striker.

ADJUSTMENT



1. Rear door striker initial adjustment.

NOTE:

The striker plate is held in position by a spring loaded backing plate.

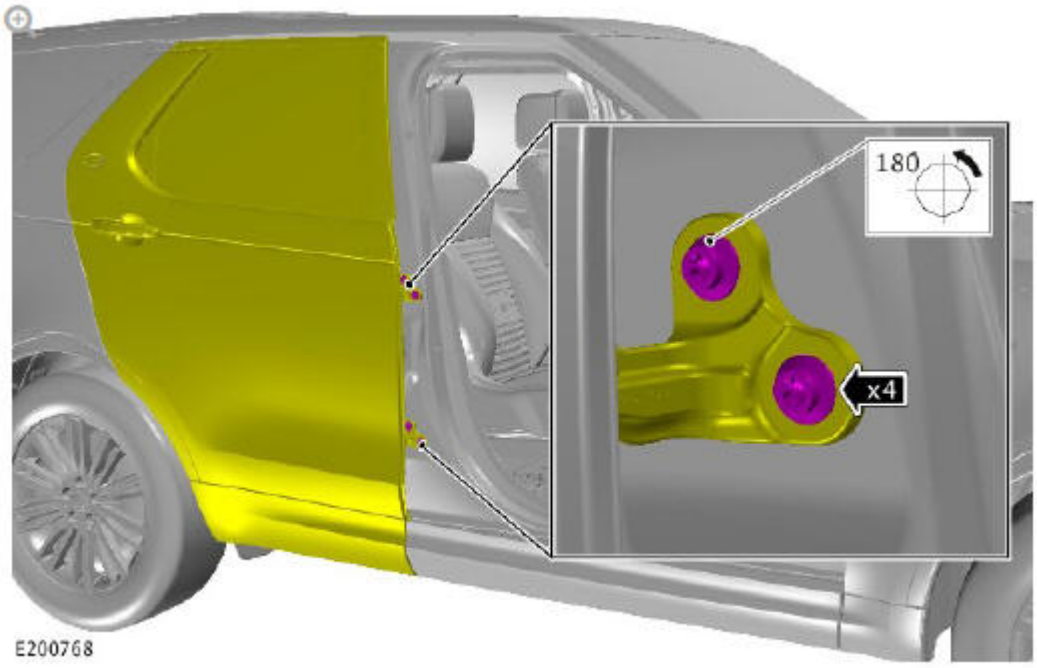
(1) Loosen the rear door striker retaining bolts. Do not fully remove.

NOTE:

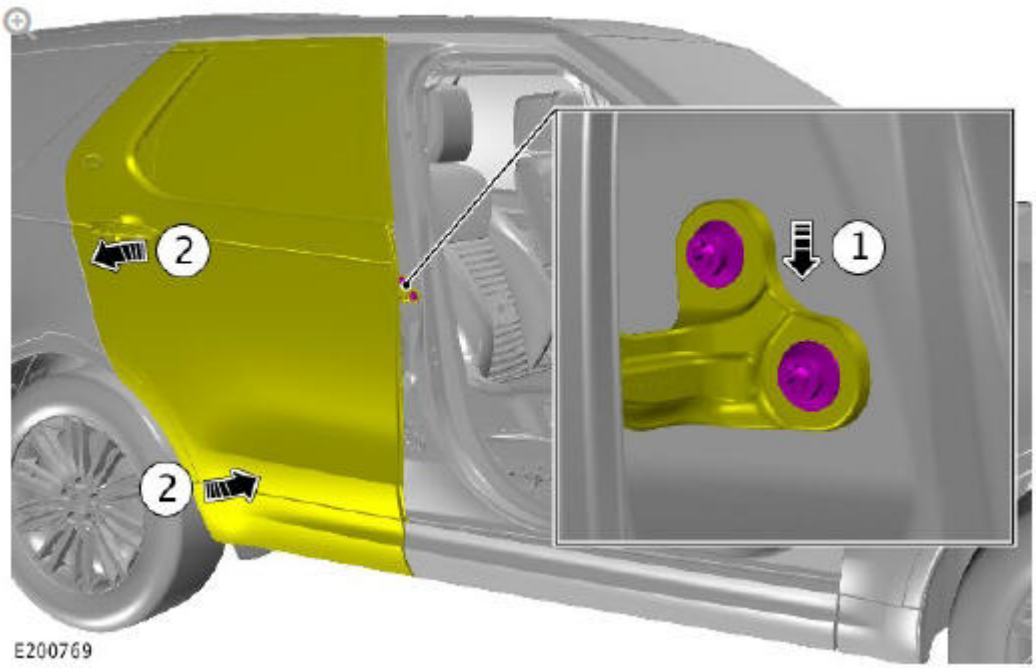
Using a suitable nylon block, break the seal on the rear door striker to allow more movement.

(2) Adjust the rear door striker upwards or downwards using a suitable nylon block to remove contact between striker and latch, re-check the door closure and re-adjust striker if required.

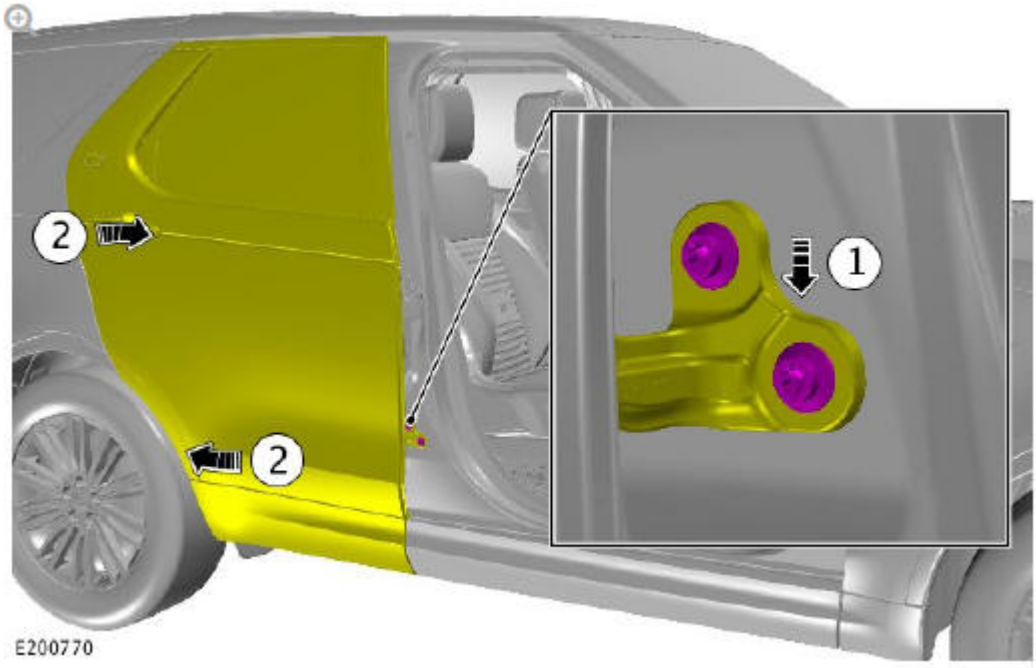
Do not tighten the rear door striker retaining bolts at this point.



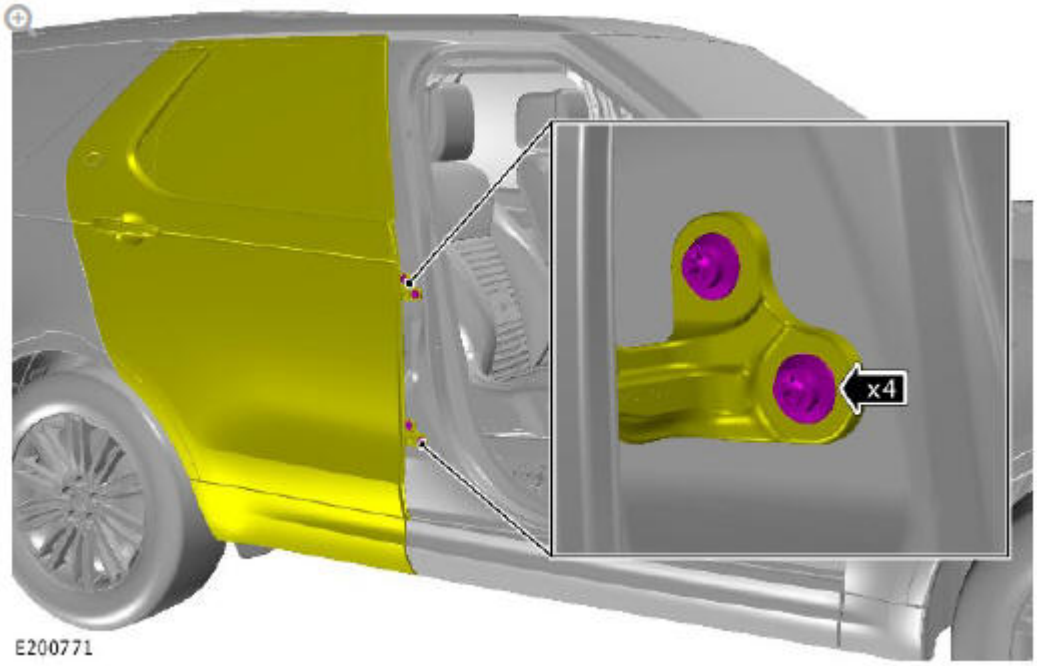
1. Door hinge to B-pillar adjustment.
2. Loosen the rear door hinge to B-pillar retaining bolts half turn only.



1. (1)Using a suitable nylon block adjust the upper door hinge as illustrated.
2. (2) The rear door will move in the directions illustrated.



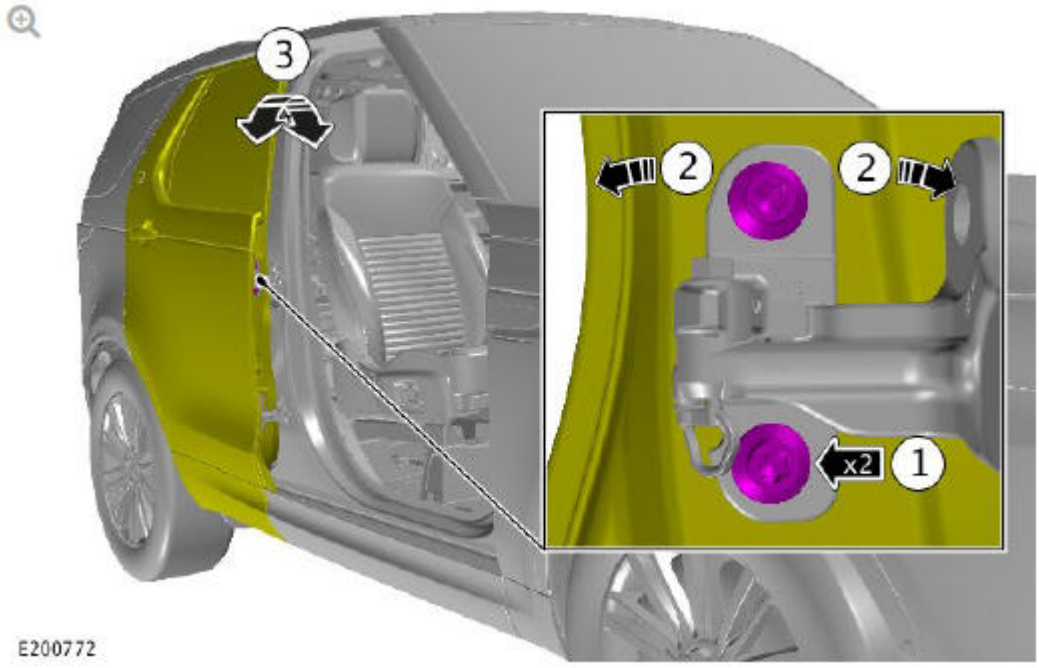
1. (1)Using a suitable nylon block adjust the lower door hinge as illustrated.
2. (2) The rear door will move in the directions illustrated.



Tighten the hinge to B-pillar retaining bolts.

Torque: 35 Nm

Re-check the rear door latch to striker and adjust if required.



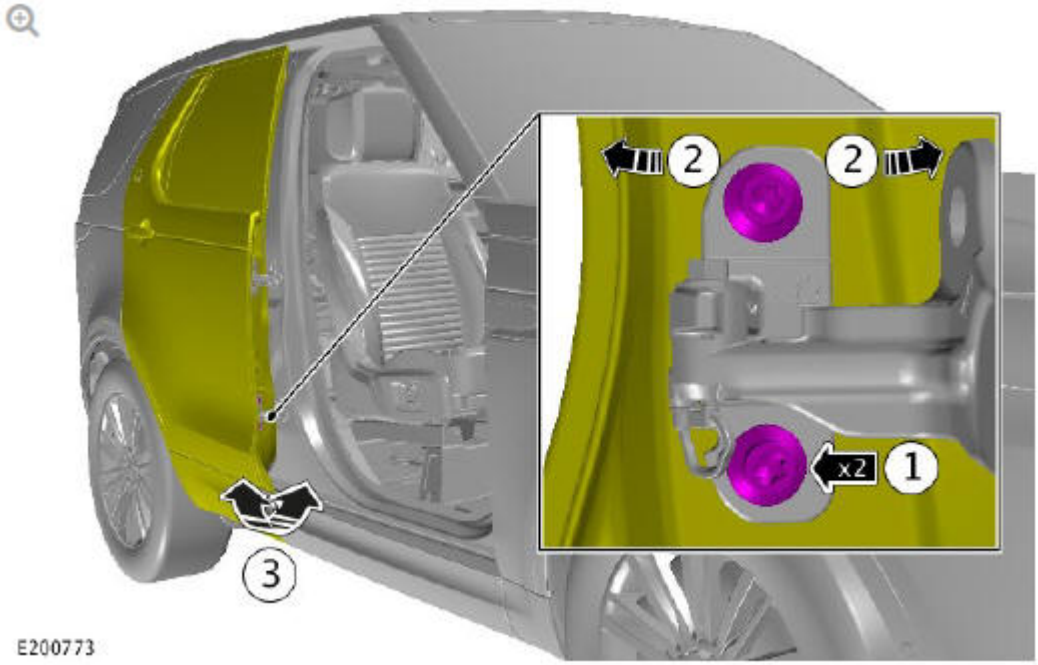
1. Upper rear door profile adjustment.

NOTES:

- *Adjustment to the upper part of the rear door will effect the profile of the lower part of the rear door.*
- *Upper retaining bolt is a shouldered bolt.*

2. (1) Loosen the rear door hinge to door retaining bolts. Do not fully remove.
3. (2) Adjust the door on the upper door hinge as illustrated.
4. (3)The rear door will move in the directions illustrated
5. Tighten the upper door hinge to door retaining bolts.

Torque: 35 Nm



1. Lower rear door profile adjustment.

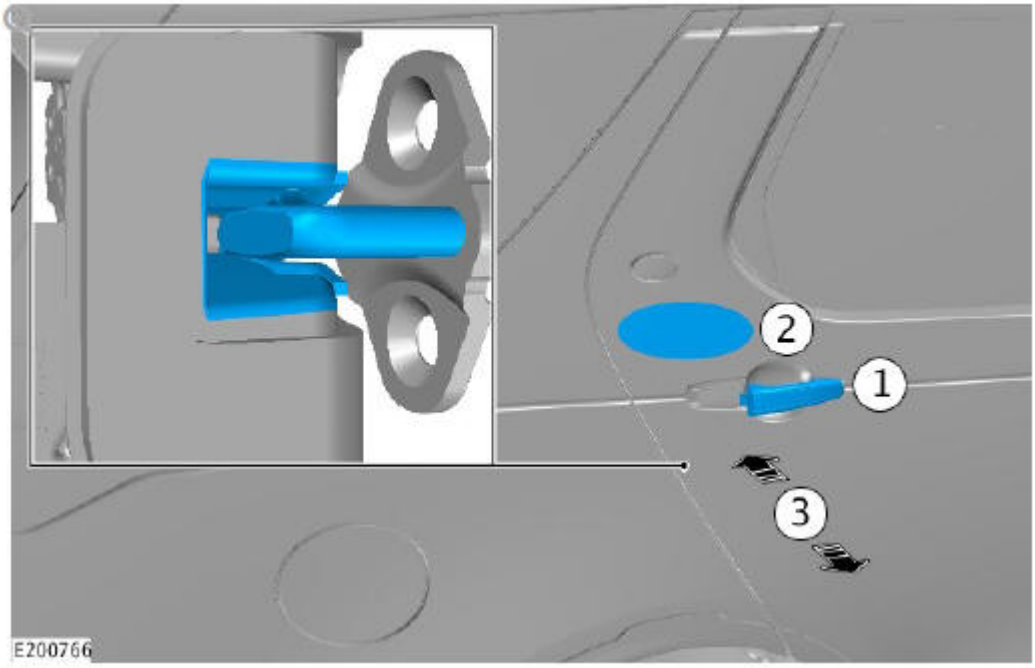
NOTES:

- *Adjustment to the lower part of the rear door will effect the profile of the upper part of the rear door.*
- *Lower retaining bolt is a shouldered bolt.*

2. (1) Loosen the rear door hinge to door retaining bolts. Do not fully remove.
3. (2) Adjust the door on the upper door hinge as illustrated.
4. (3)The rear door will move in the directions illustrated.

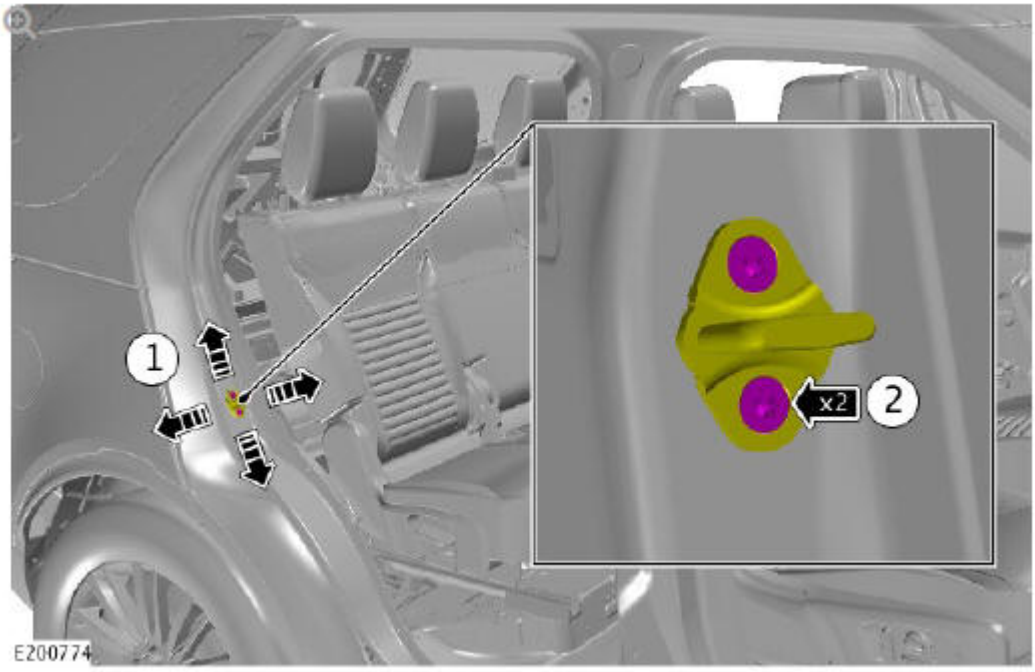
   Tighten the lower door hinge to door retaining bolts.

Torque: 35 Nm



1. Rear door striker final check.
2. (1) - Keep the exterior door handle open.
3. (2) - Place hand in position illustrated to allow feel of the door latch to striker.
4. (3) - Move the rear door in and out to feel the latch on striker.

ADJUSTMENT



1. Rear door striker final adjustment.
2. (1) Adjust the rear door striker as required using a suitable nylon block and re-check the door closure.
3. (2) Tighten the rear door striker retaining bolts

Torque: 25 Nm

CHECK

NOTE:

The rear quarter panel is a fixed point, all alignment checks must start from the rear quarter panel.

1. Re-check all vehicle gaps and profiles.
2. Vehicle specific and tolerance checks.

Refer to: Body and Frame (501-26 Body Repairs - Vehicle Specific Information and Tolerance Checks, Description and Operation).

Make sure all hinge retaining bolts that have been adjusted are touched up with paint.

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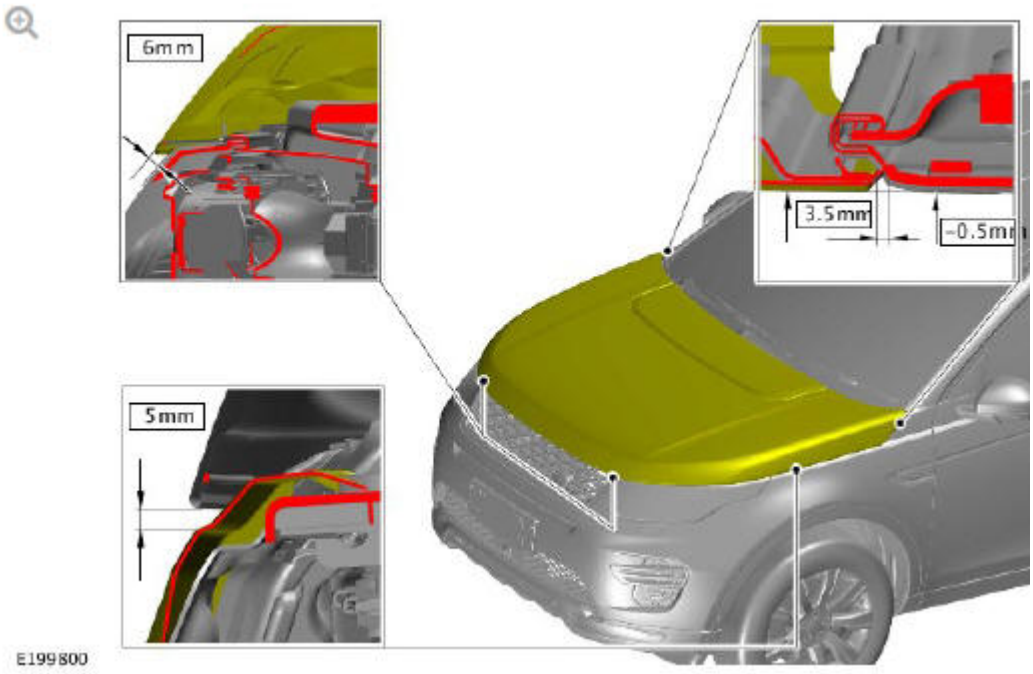
Vehicle Specific Information and Tolerance Checks Tailgate AlignmentVehicle Specific Information and Tolerance Checks Hood Alignment

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Автомобиль специальный информация и допуск проверки капот регулировка

Vehicle Specific Information and Tolerance Checks Hood Alignment

CHECK

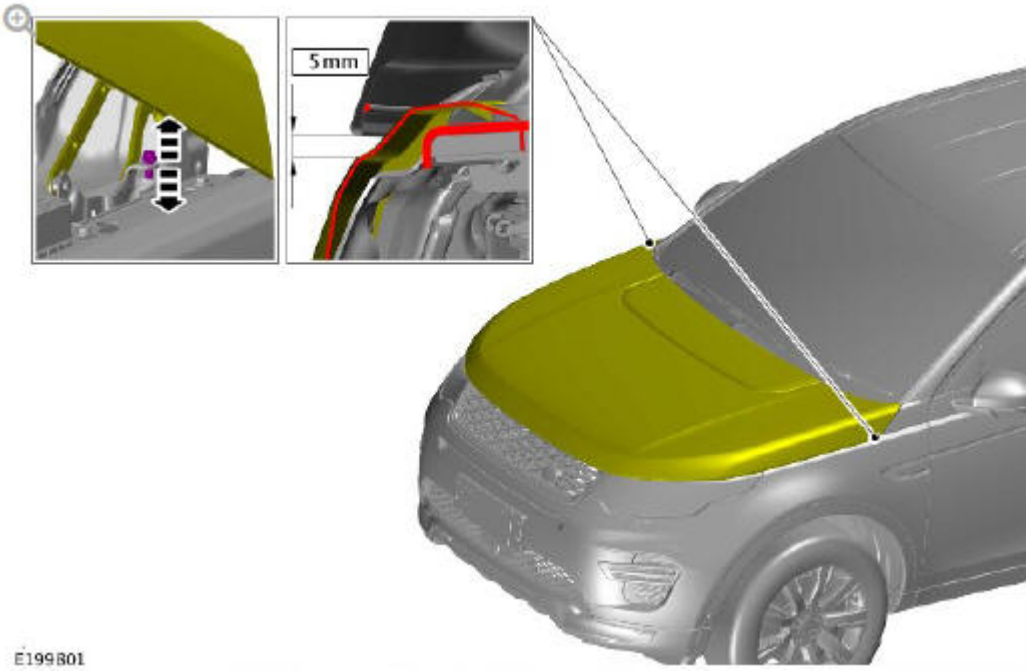


Check the gap and profiles of the hood are correct.

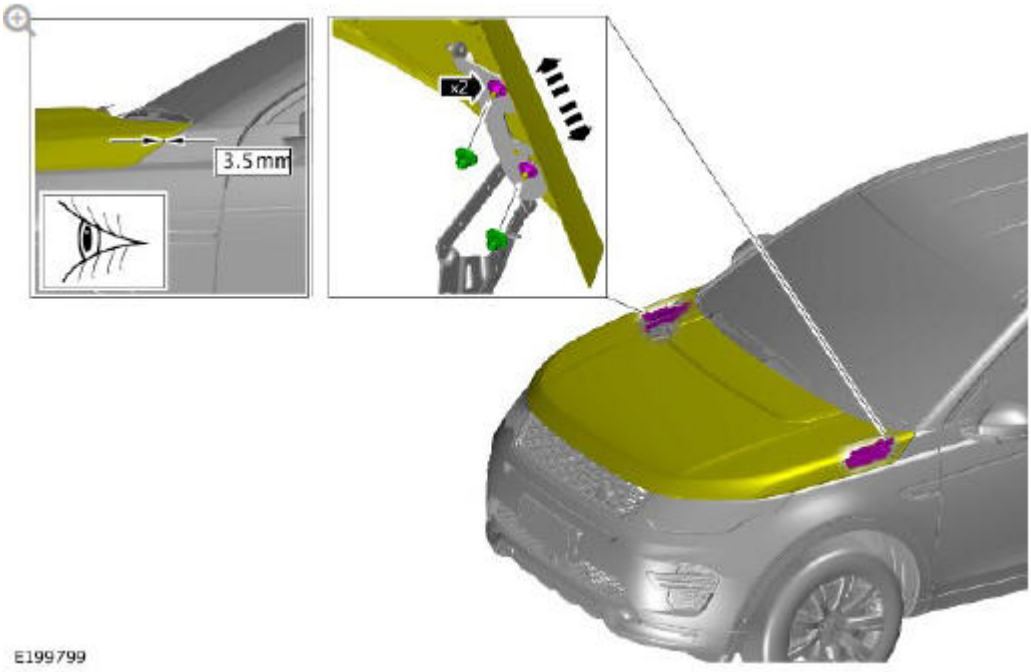
ADJUSTMENT

NOTE:

Carry out this step for both sides.

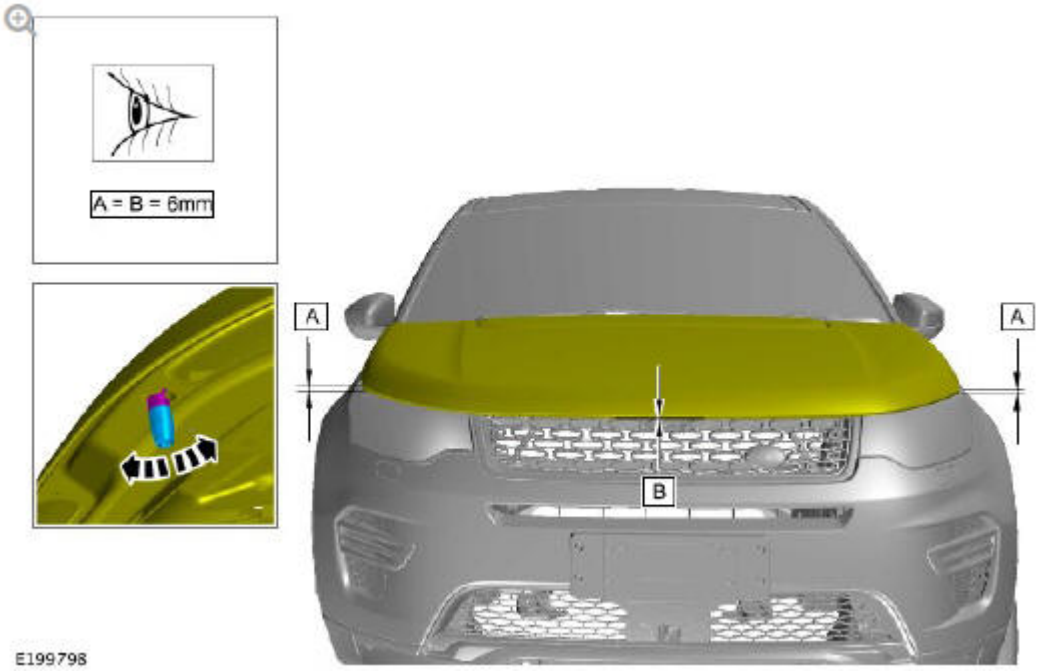


Align the hood gap and profile to the front fender as illustrated.

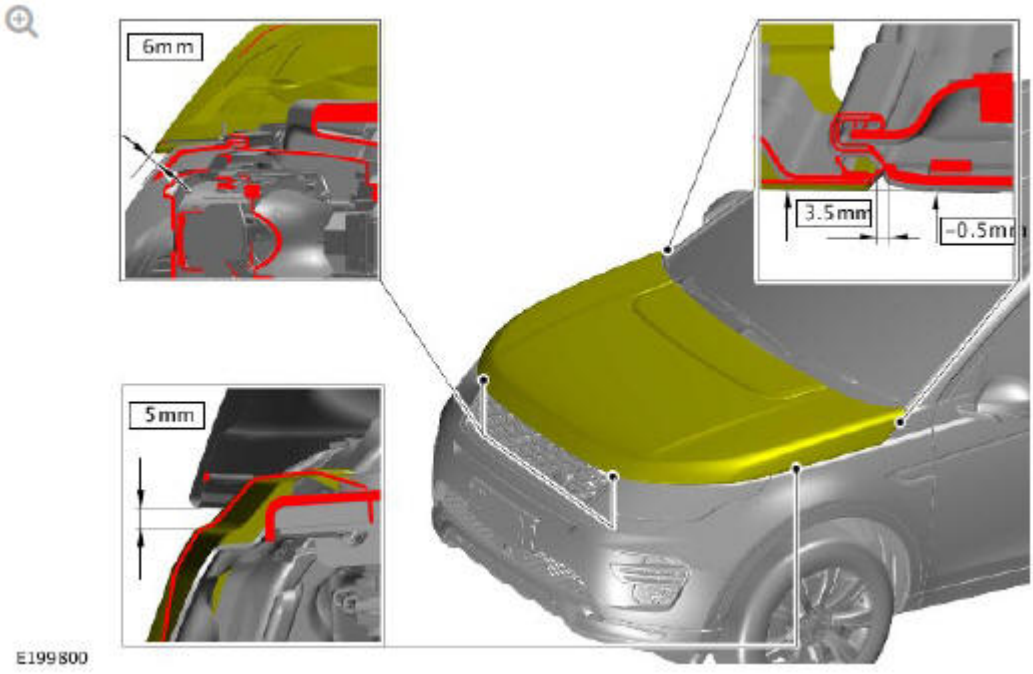


Align the hood gap and profile to the front door as illustrated.

Torque: 25 Nm



1. Align the hood gap and profile to the headlamps and the radiator grille as illustrated.
2. Check the operation and if necessary adjust the hood latches.



Check the gap and profiles of the hood are correct.

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Vehicle Specific Information and Tolerance Checks Rear Door AlignmentVehicle Specific Information and Tolerance Checks Front Door Alignment

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Автомобиль специальный информация и допуск проверки передний дверь регулировка

Vehicle Specific Information and Tolerance Checks Front Door Alignment

CHECK

1. Check all trims are located and fitted correctly before performing this procedure.

NOTE:

The rear quarter panel is a fixed point, all alignment checks must start from the rear quarter panel.

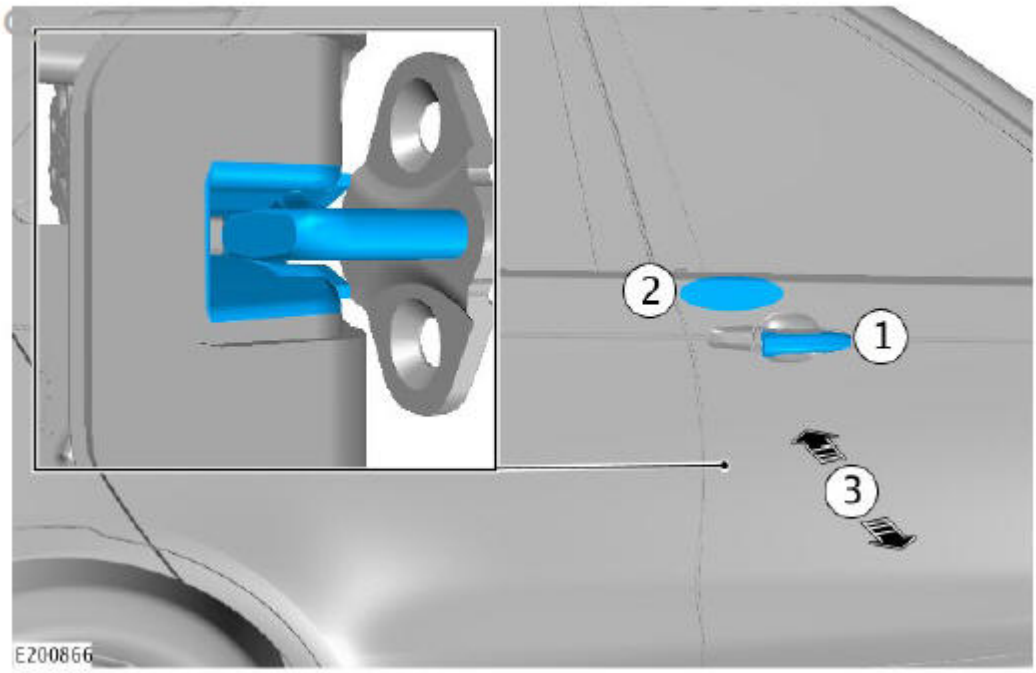
Check all vehicle gaps and profiles.

2. Vehicle specific and tolerance checks.

   Refer to: Body and Frame (501-26 Body Repairs - Vehicle Specific Information and Tolerance Checks, Description and Operation).

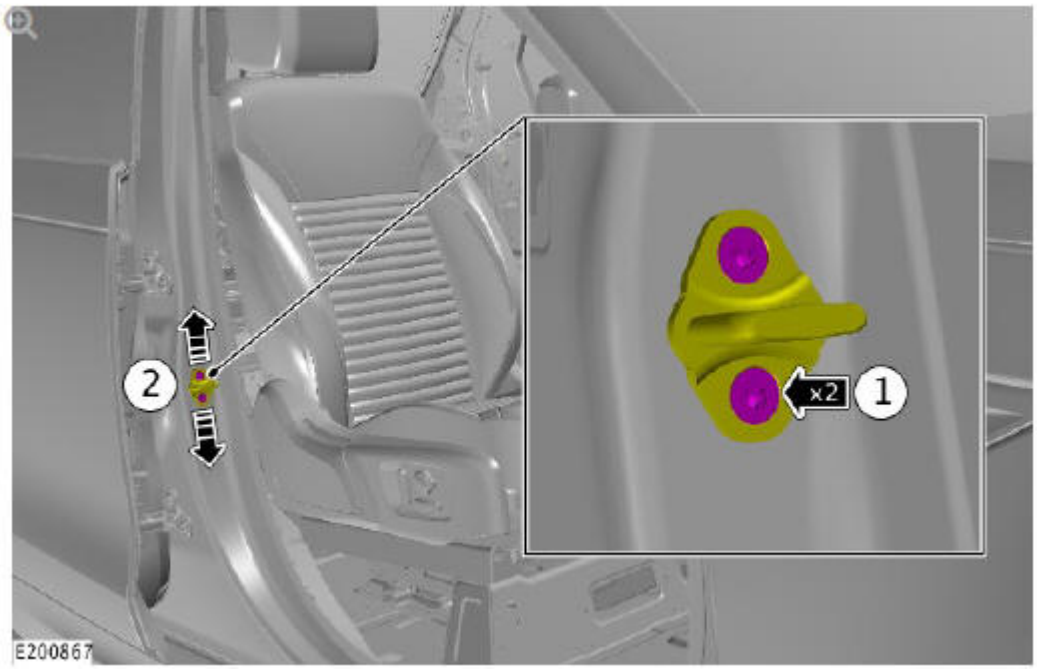
Remove the front fender to gain access to the front door hinge to A-pillar retaining bolts.

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



1. Front door striker initial check.
2. (1) - Keep the exterior door handle open.
3. (2) - Place hand in position illustrated to allow feel of the door latch to striker.
4. (3) - Move the front door in and out to feel the latch on striker.

ADJUSTMENT



1. Front door striker initial adjustment.
2. (1) Loosen the front door striker retaining bolts. Do not fully remove.

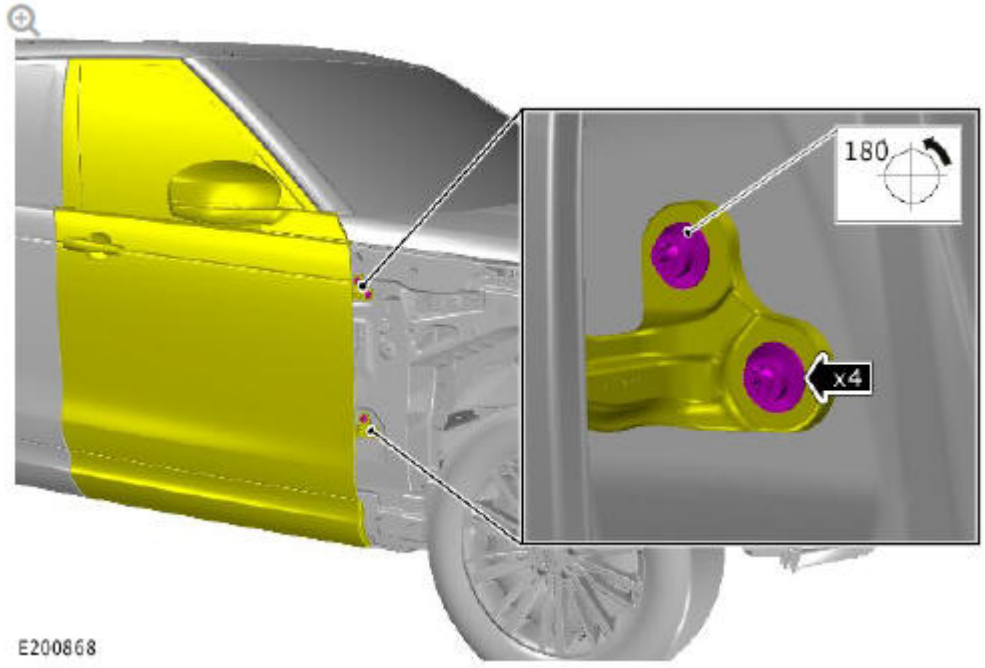
NOTE:

The striker plate is held in position by a spring loaded backing plate.

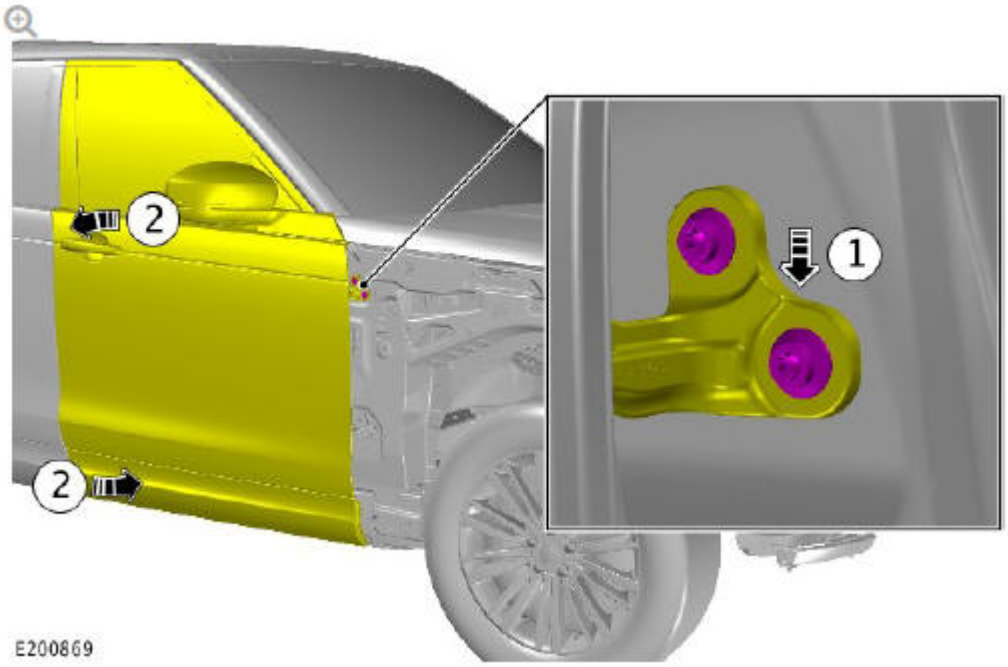
NOTE:

Using a suitable nylon block, break the seal on the front door striker to allow more movement.

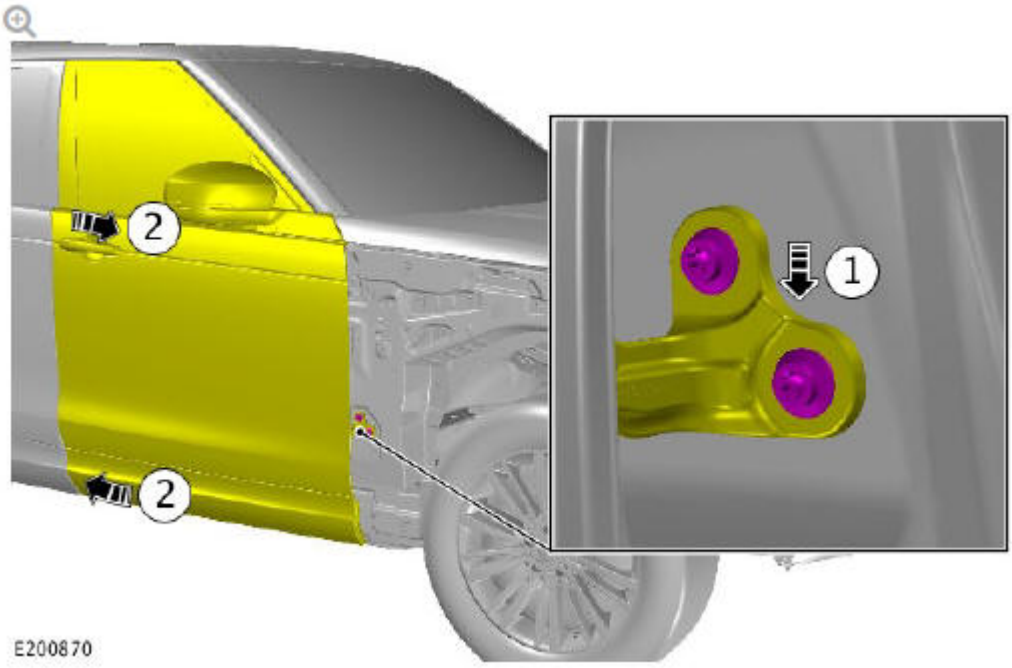
3. (2) Adjust the front door striker upwards or downwards using a suitable nylon block to remove contact between striker and latch. Re-check the door closure, re-adjust striker if required.
4. Do not tighten the front door striker retaining bolts at this point.



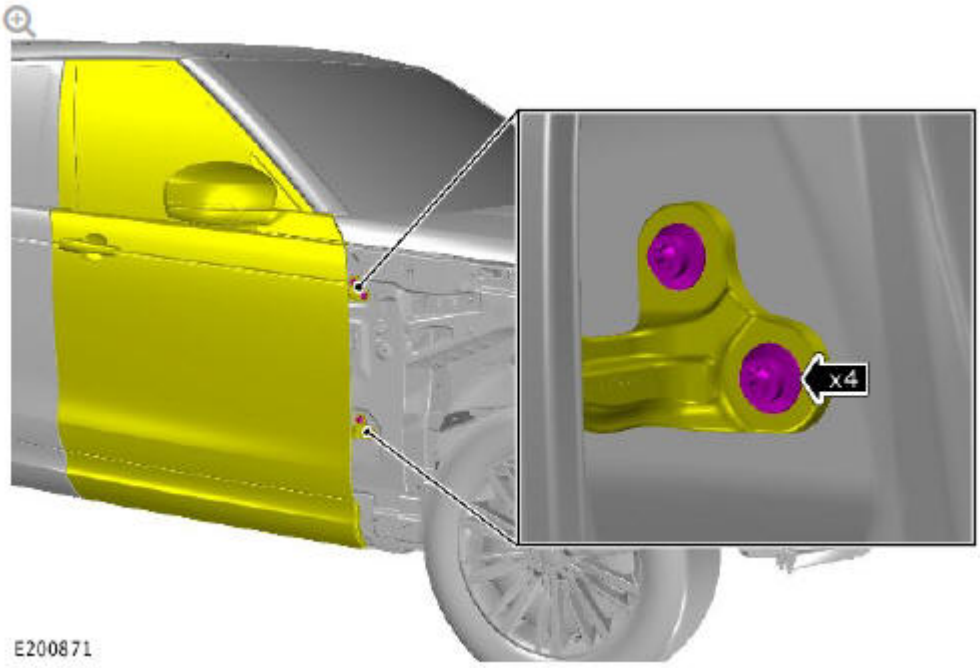
1. Door hinge to A-pillar adjustment.
2. Loosen the front door hinge to A-pillar retaining bolts half turn only.



1. (1)Using a suitable nylon block adjust the upper door hinge as illustrated.
2. (2) The front door will move in the directions illustrated.



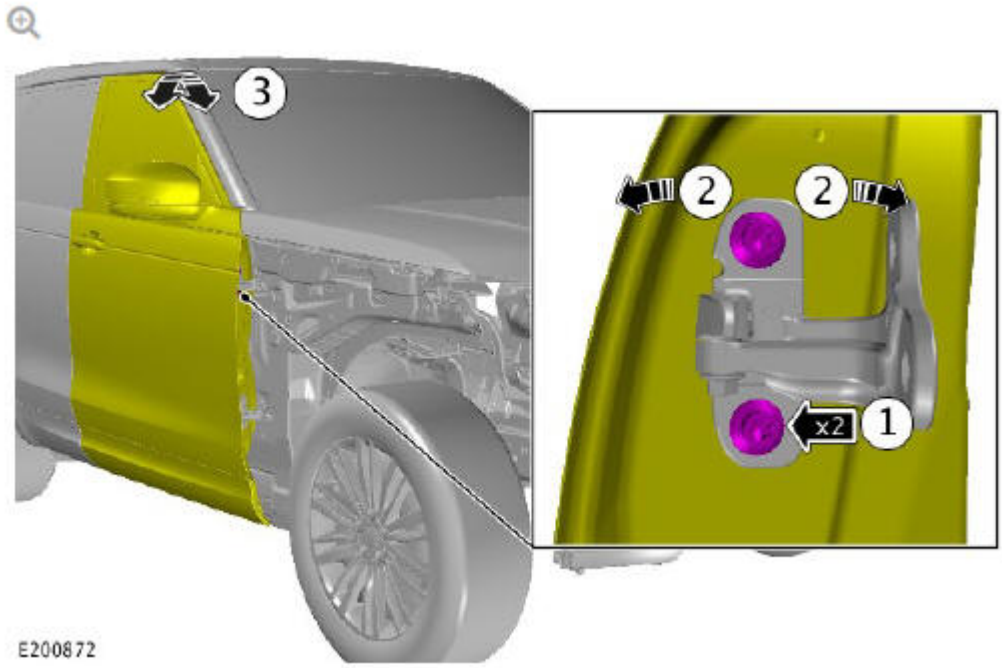
1. (1)Using a suitable nylon block adjust the lower door hinge as illustrated.
2. (2) The front door will move in the directions illustrated.



Tighten the hinge to A-pillar retaining bolts.

Torque: 35 Nm

Re-check the front door latch to striker and adjust if required.



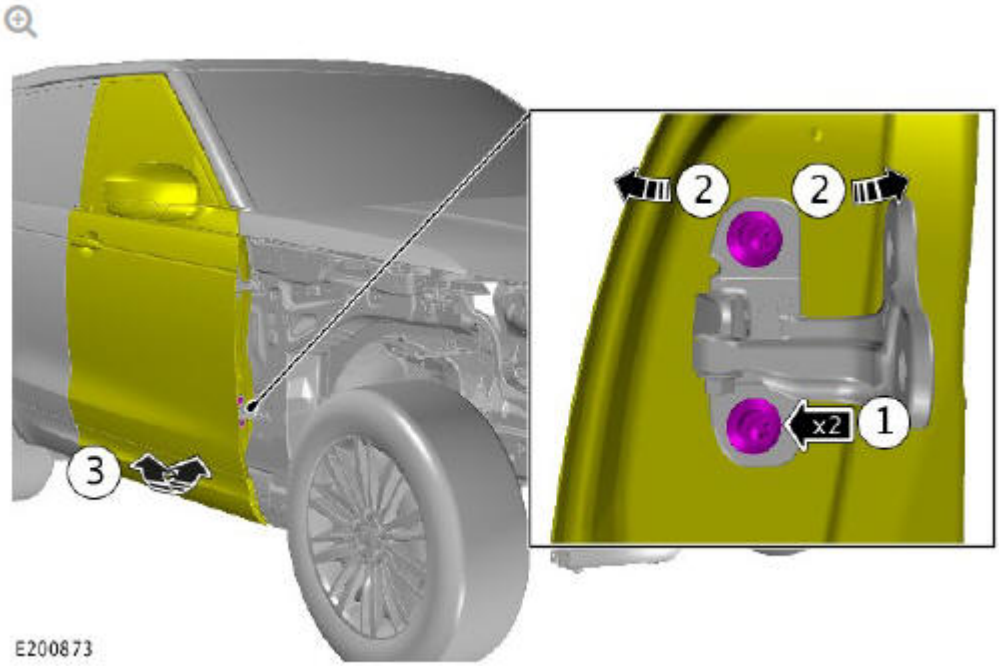
1. Upper front door profile adjustment.

NOTES:

- *Adjustment to the upper part of the front door will effect the profile of the lower part of the front door.*
- *Upper retaining bolt is a shouldered bolt.*

2. (1) Loosen the upper front door hinge to door retaining bolts. Do not fully remove
3. (2) Adjust the door on the upper door hinge as illustrated.
4. (3)The front door will move in the directions illustrated
5. Tighten the upper door hinge to door retaining bolts.

Torque: 35 Nm



1. Lower front door profile adjustment.

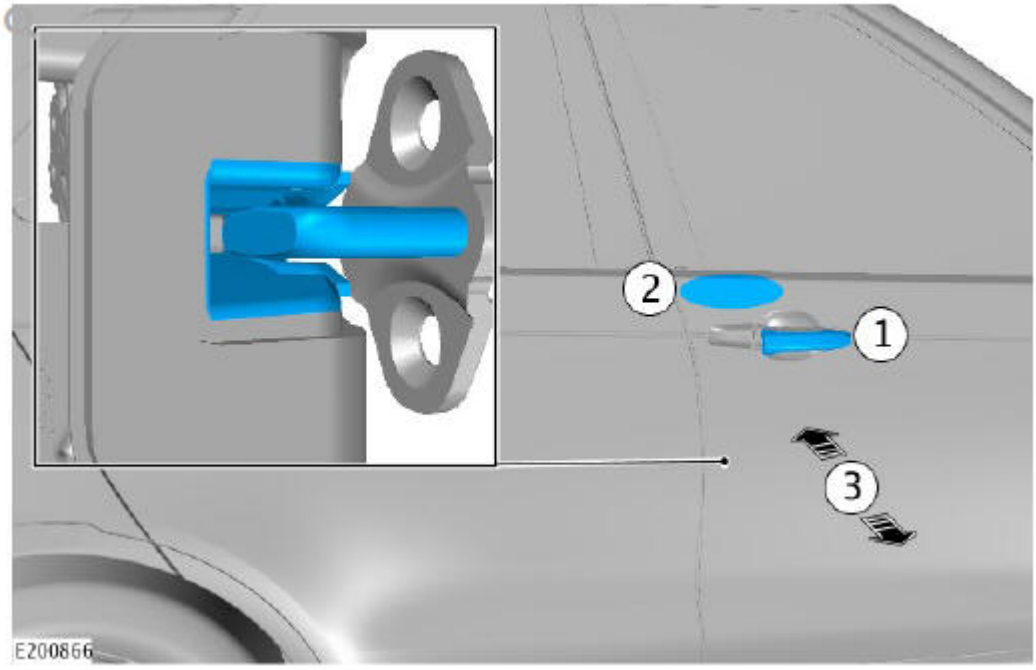
NOTES:

- *Adjustment to the lower part of the front door will effect the profile of the upper part of the front door.*
- *Lower retaining bolt is a shouldered bolt.*

2. (1) Loosen the lower front door hinge to door retaining bolts. Do not fully remove
3. (2) Adjust the door on the lower door hinge as illustrated.
4. (3)The front door will move in the directions illustrated.
5. Tighten the lower door hinge to door retaining bolts.

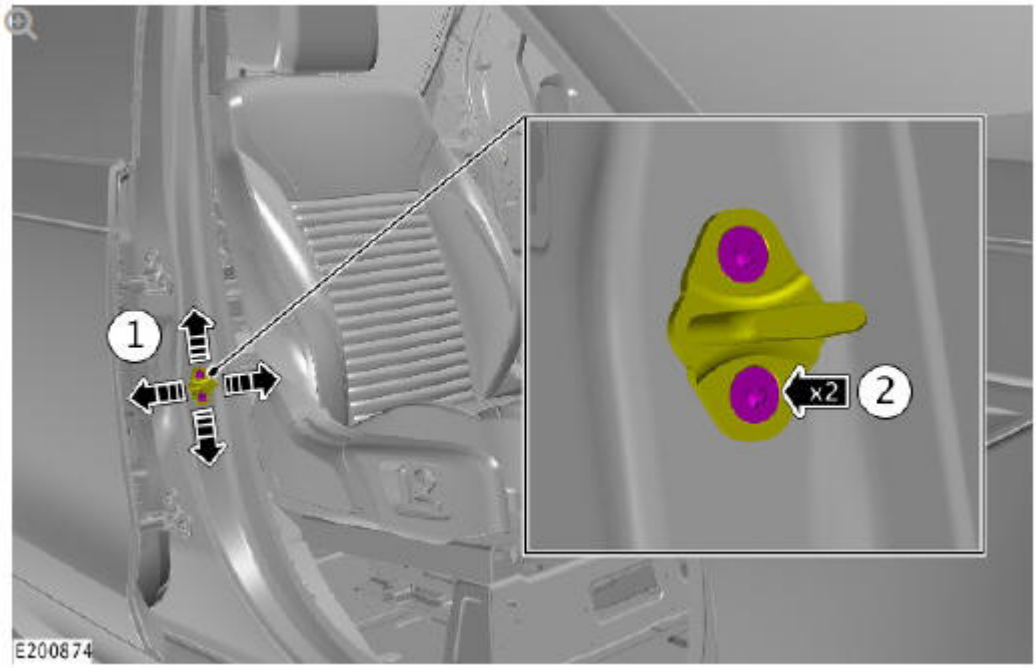
Torque: 35 Nm

CHECK



1. Front door striker final check.
2. (1) - Keep the exterior door handle open.
3. (2) - Place hand in position illustrated to allow feel of the door latch to striker.
4. (3) - Move the front door in and out to feel the latch on striker.

ADJUSTMENT



1. Front door striker final adjustment.
2. (1) Adjust the front door striker as required using a suitable nylon block and re-check the door closure.
3. (2) Tighten the front door striker retaining bolts

Torque: 25 Nm

CHECK

Install the front fender.

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

Check and adjust the fender alignment.

Refer to: Fender Alignment (501-26 Body Repairs - Vehicle Specific Information and Tolerance Checks, General Procedures).

NOTE:

The rear quarter panel is a fixed point, all alignment checks must start from the rear quarter panel.

1. Re-check all vehicle gaps and profiles
2. Vehicle specific and tolerance checks.

   Refer to: Body and Frame (501-26 Body Repairs - Vehicle Specific Information and Tolerance Checks, Description and Operation).

Make sure all hinge retaining bolts that have been adjusted are touched up with paint.

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Vehicle Specific Information and Tolerance Checks Hood AlignmentVehicle Specific Information and Tolerance Checks Fender Alignment

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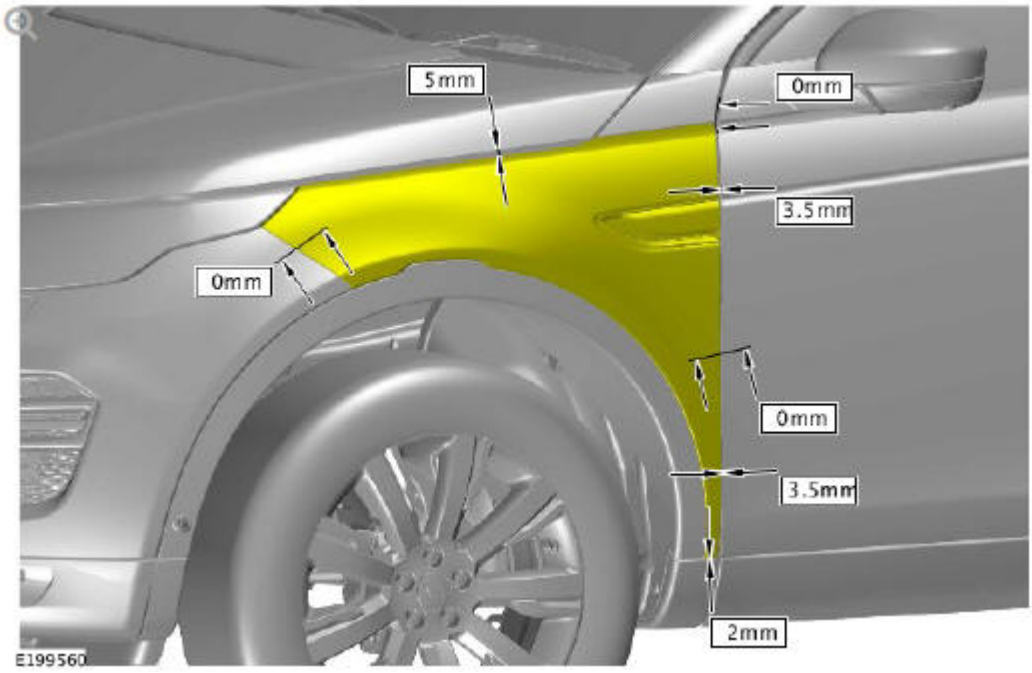
Автомобиль специальный информация и допуск проверки крыло регулировка

Vehicle Specific Information and Tolerance Checks Fender Alignment

CHECK

NOTE:

Left illustration shown, right is similar.



Check the gap and profiles of the fender are correct.

ADJUSTMENT

Remove the rocker panel moulding.

Refer to: Rocker Panel Moulding (501-08 Exterior Trim and Ornamentation, Removal and Installation).

WARNING:

Make sure to support the vehicle with axle stands.

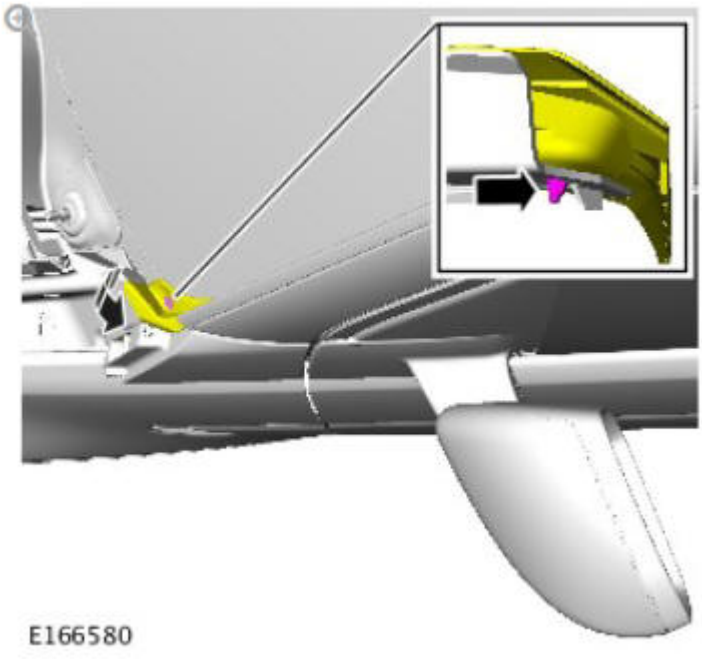
Raise and support the vehicle.

Remove the front bumper cover.

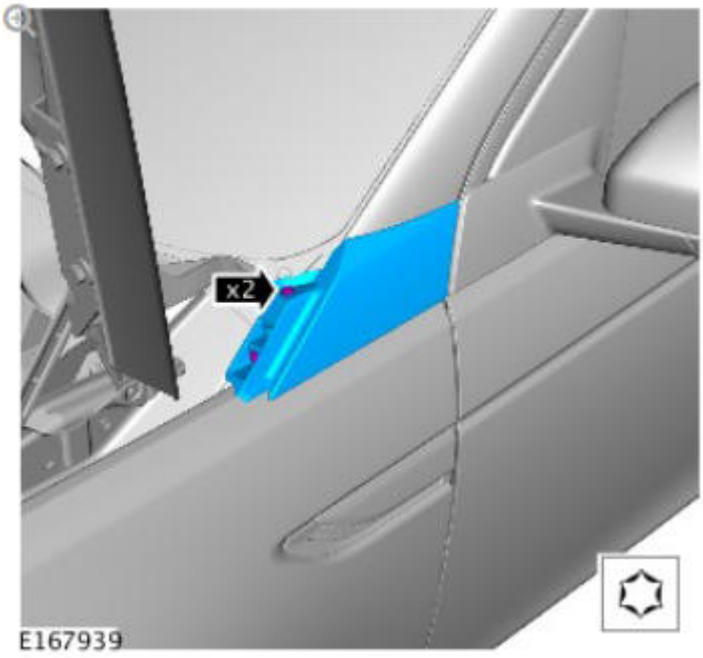
Refer to: Front Bumper Cover (501-19 Bumpers, Removal and Installation).

Remove the front fender trim panel.

Refer to: Front Fender Trim Panel (501-08 Exterior Trim and Ornamentation, Removal and Installation).

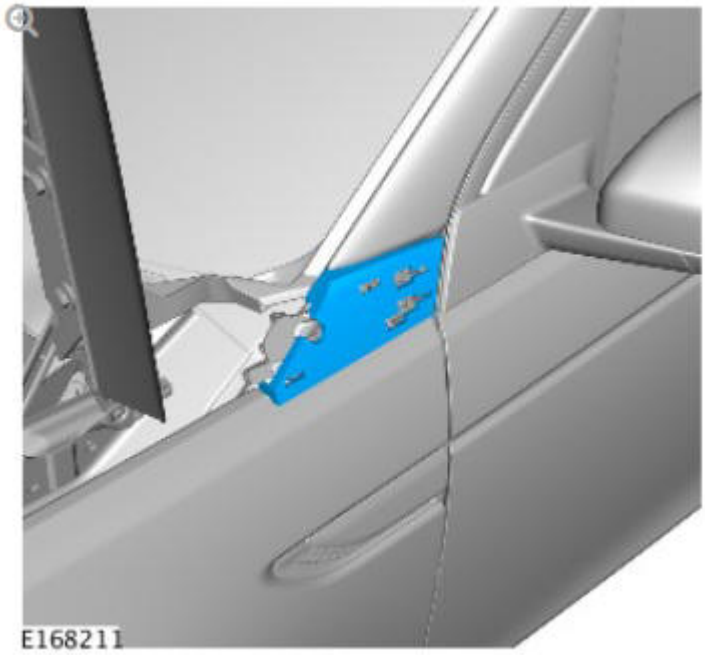


Release the windscreen finisher clip.

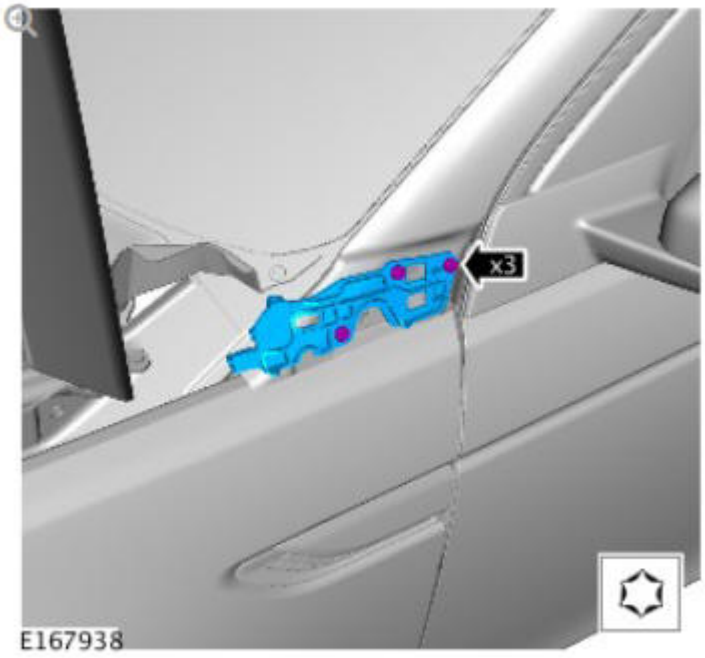


Remove the fender upper finisher.

Torque: 4.1 Nm



Remove the foam pad.

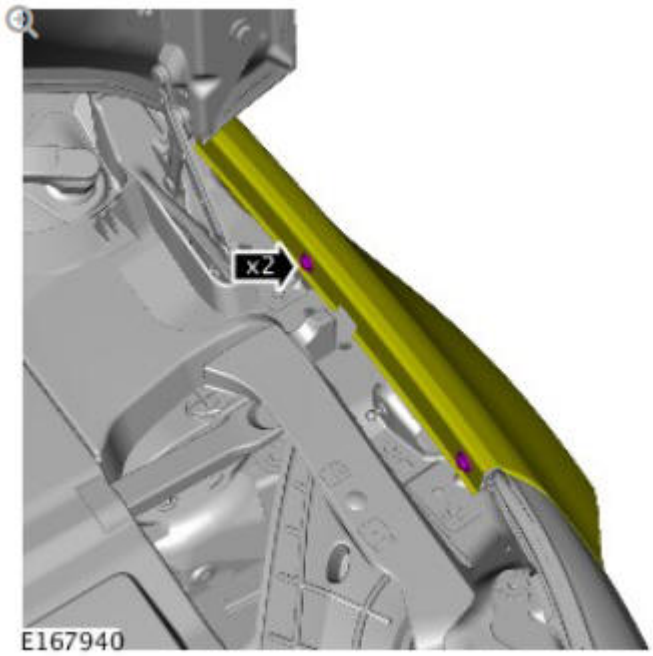


Remove the finisher bracket.

Torque: 4.1 Nm

NOTE:

Loosen the bolts, but do not remove.

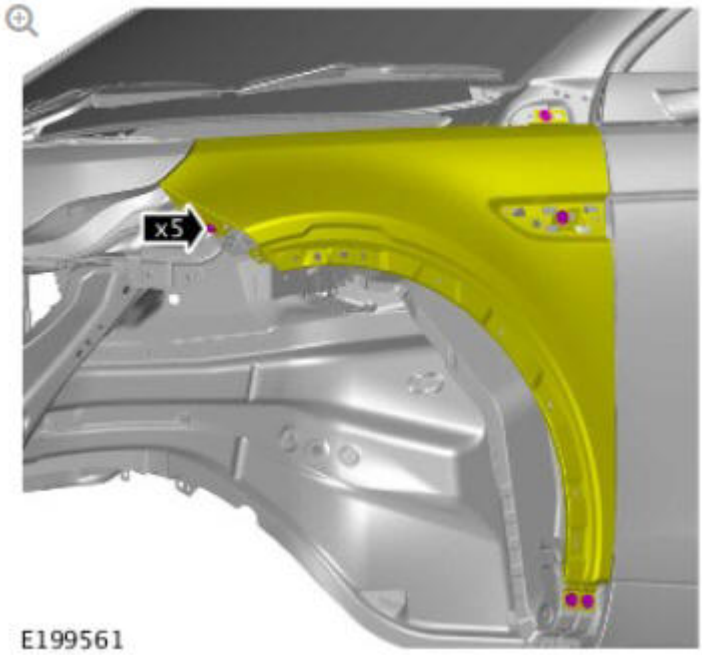


Loosen the two bolts.

Torque: 10 Nm

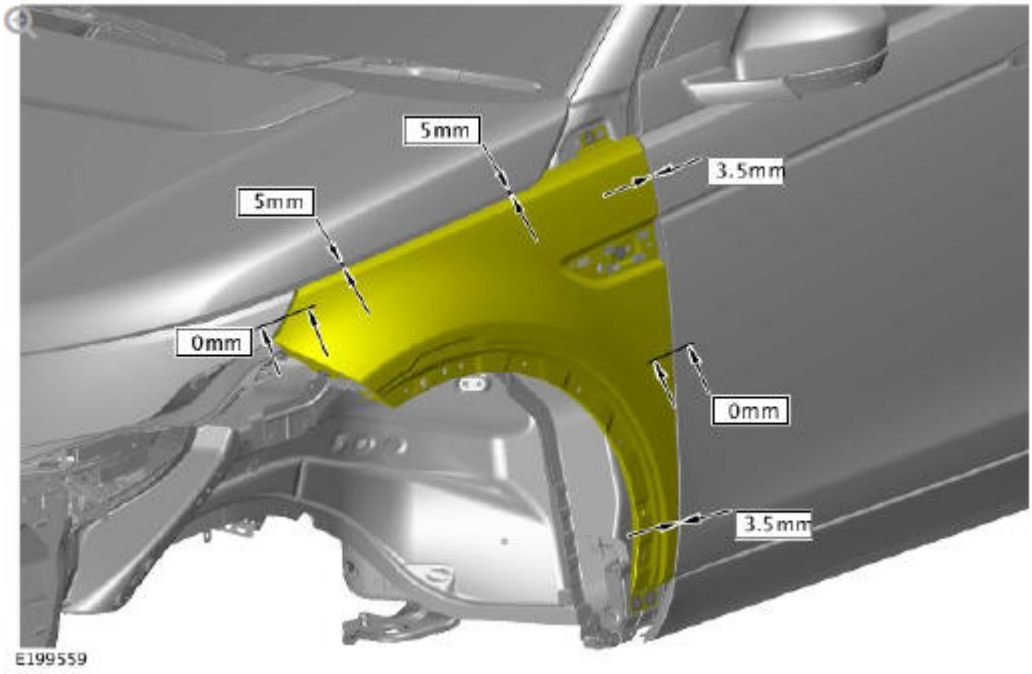
NOTE:

Loosen the bolts, but do not remove.

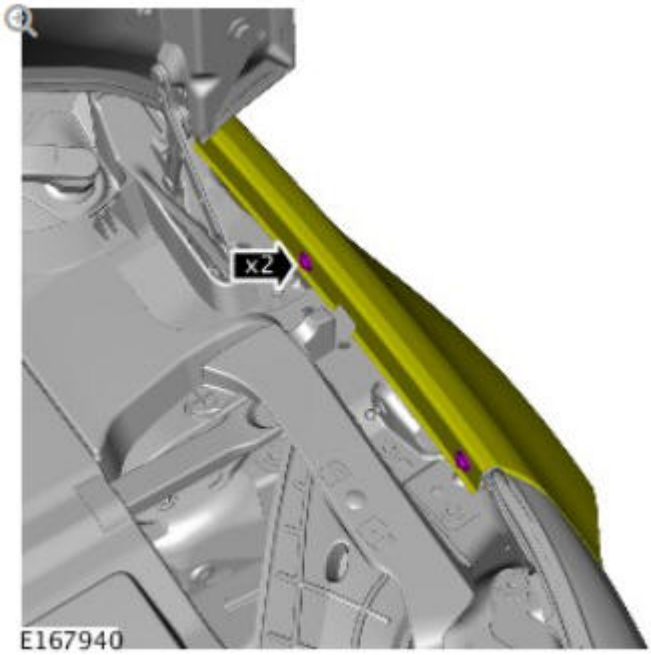


Loosen the five bolts.

Torque: 10 Nm

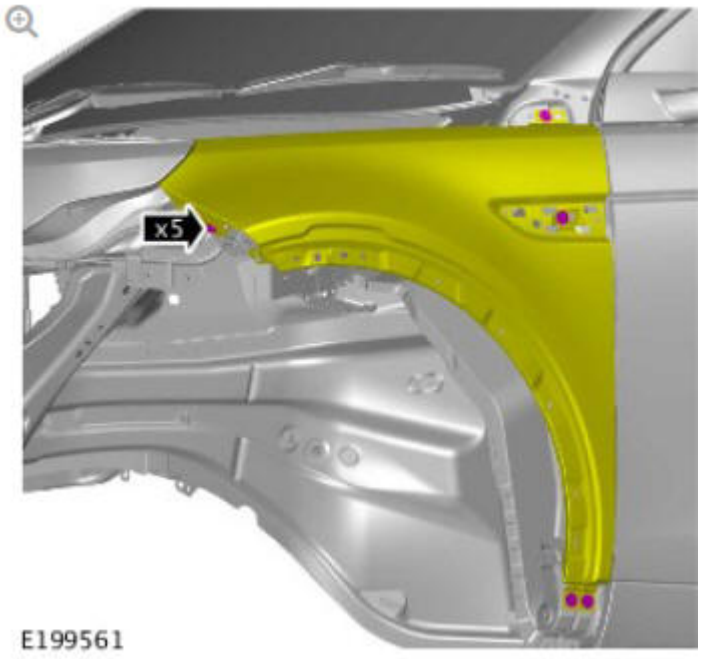


1. Align the fender gaps to the surrounding body panels as illustrated.
2. Set the fender profiles to the surrounding body panels as illustrated.



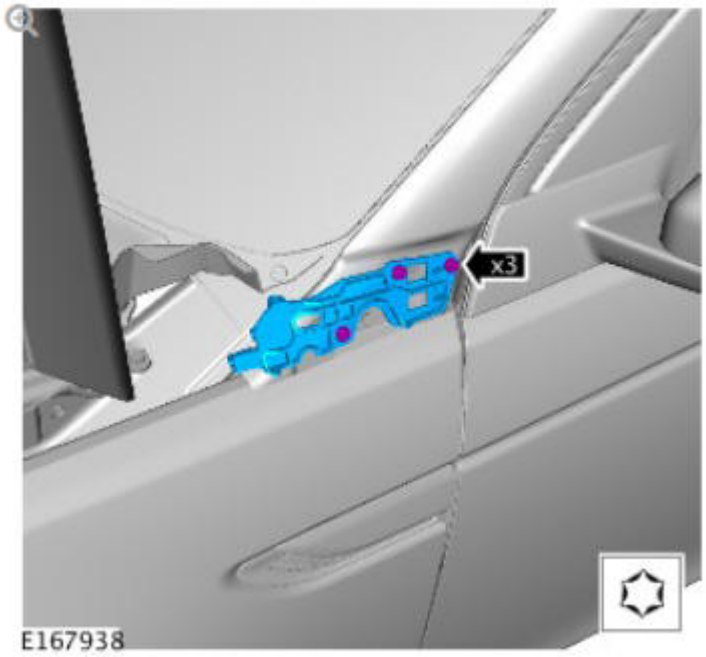
Tighten the two bolts.

Torque: 10 Nm



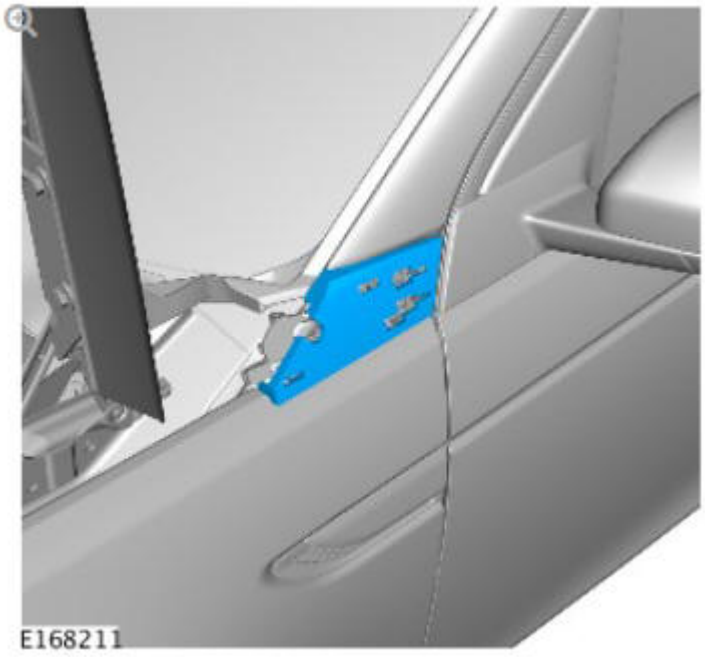
Tighten the five bolts.

Torque: 10 Nm

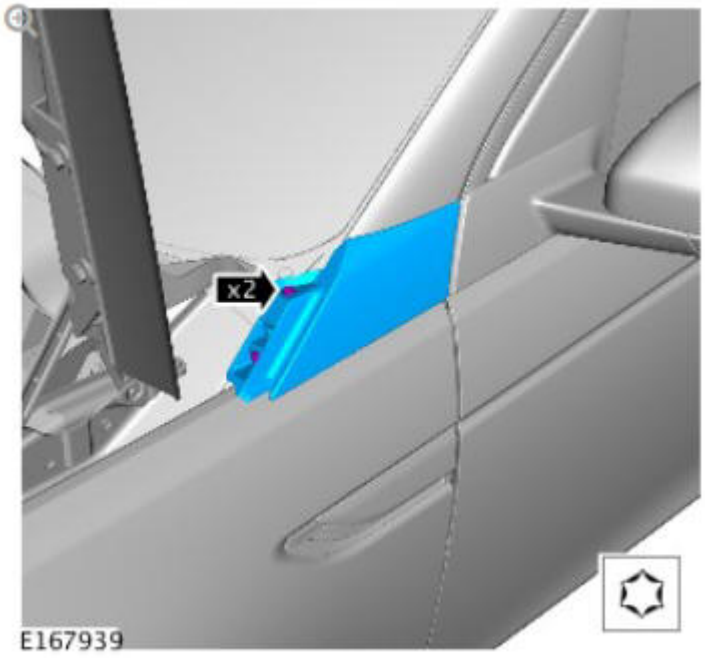


Install the finisher bracket.

Torque: 4.1 Nm

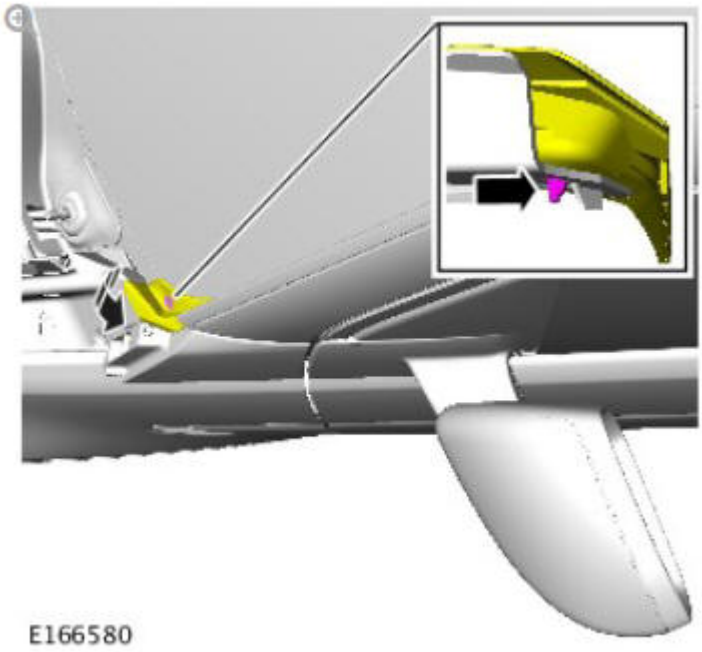


Install the foam pad.



Install the fender upper finisher.

Torque: 4.1 Nm



Install the windscreen finisher clip.

Close the hood.

Install the front fender trim panel.

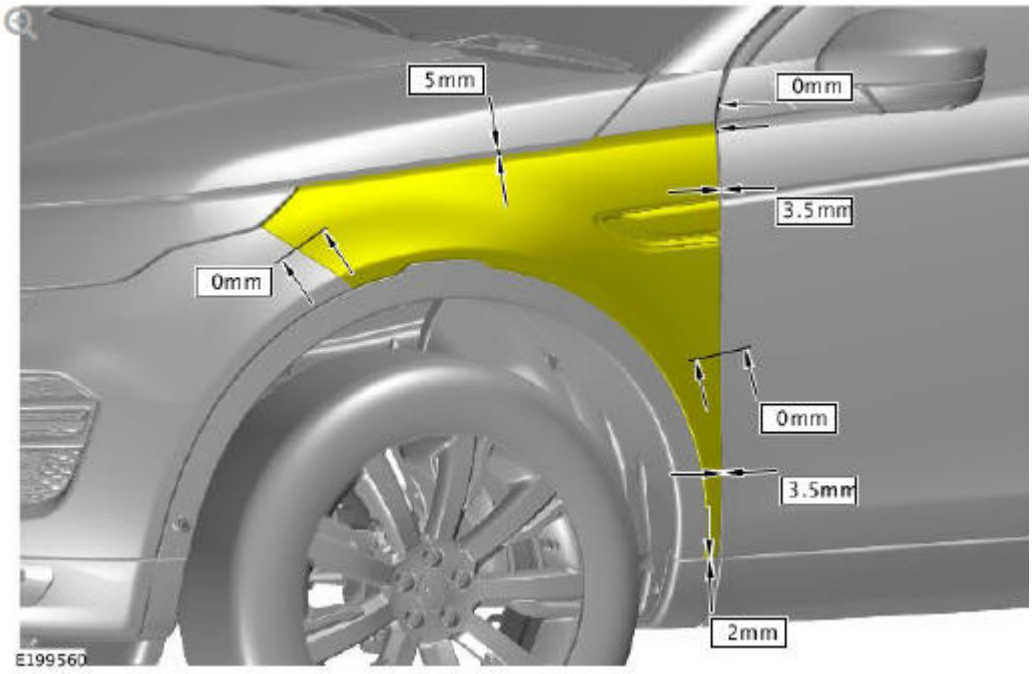
Refer to: Front Fender Trim Panel (501-08 Exterior Trim and Ornamentation, Removal and Installation).

Install the front bumper cover.

Refer to: Front Bumper Cover (501-19 Bumpers, Removal and Installation).

Install the rocker panel moulding.

Refer to: Rocker Panel Moulding (501-08 Exterior Trim and Ornamentation, Removal and Installation).



Check the gap and profiles of the fender are correct.

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Боковой панель ремонт кузовных панелей / описание и работа

Side Panel Sheet Metal Repairs / Description and Operation

GALVANIC CORROSION

For additional information, refer to: Corrosion Protection (501-25B, Description and Operation).

BODY SIDE SERVICE PANELS



E170400

ITEM	DESCRIPTION	MATERIAL
1	Side Panel	Steel
2	B-Pillar Outer Panel	Steel
3	B-Pillar Inner Panel	Steel
4	B-Pillar Reinforcement	Boron Steel
5	Rocker Panel and B Pillar Inner	Boron Steel
6	Rocker Panel and B-Pillar Outer Panel	Steel
7	Rocker Panel	Steel
8	A-Pillar Reinforcement	Steel
9	A-Pillar Outer Panel	Steel

TIME SCHEDULES , BODY SIDE SERVICE PANELS

The following information shows the total time taken to install single panels.

These times do not include removal of mechanical, electrical and trim, (MET), items or paint times.

The times shown are to be used as a guide only.

PANEL DESCRIPTION	REPAIR TIME
Side Panel	**24.70**
B-Pillar Outer Panel	**5.20**
B-Pillar Inner Panel	**16.60**
B-Pillar Reinforcement	**13.10**
Rocker Panel and B Pillar Inner	**13.90**
Rocker Panel and B-Pillar Outer Panel	**9.40**
Rocker Panel	**5.70**
A-Pillar Reinforcement	**8.70**
A-Pillar Outer Panel	**5.70**

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Vehicle Specific Information and Tolerance Checks Fender AlignmentSide Panel Sheet Metal Repairs Side Panel (G1770901)

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Боковой панель ремонт кузовных панелей боковой панель

Side Panel Sheet Metal Repairs Side Panel (G1770901)

- Side Panel Sheet Metal Repairs Side Panel (G1770901) - Removal
- Side Panel Sheet Metal Repairs Side Panel (G1770901) - Installation

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Side Panel Sheet Metal Repairs / Description and OperationSide Panel Sheet Metal Repairs Side Panel (G1770901) - Removal

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Боковой панель ремонт кузовных панелей боковой панель - снятие

Side Panel Sheet Metal Repairs Side Panel (G1770901) - Removal

REMOVAL

NOTE:

The side panel is installed in conjunction with:

- Front bumper cover
- Fender
- Fender splash shield
- Front fender mounting panel
- Windshield
- Front door
- Rear door
- Rocker panel moulding
- Roof moulding
- Headliner
- Side air curtain module
- Roof panel
- Roof front panel
- Roof rear panel
- Glass roof panel
- Rear quarter window glass
- Rear bumper cover
- Rear lamp assembly
- Front seat
- Rear seat cushion
- Instrument panel

- Liftgate
- Fuel tank filler pipe



The side panel is serviced as indicated.

2. Before commencing this procedure make sure that you are aware of all Health and Safety requirements.

   For additional information, refer to: Health and Safety Precautions (100-00 General Information, Description and Operation).

3. For further information on the methods, tools and fixings used in this procedure refer to the body repairs - general information section.

NOTE:

Any joints sealed as part of vehicle manufacture must be sealed as part of the repair.

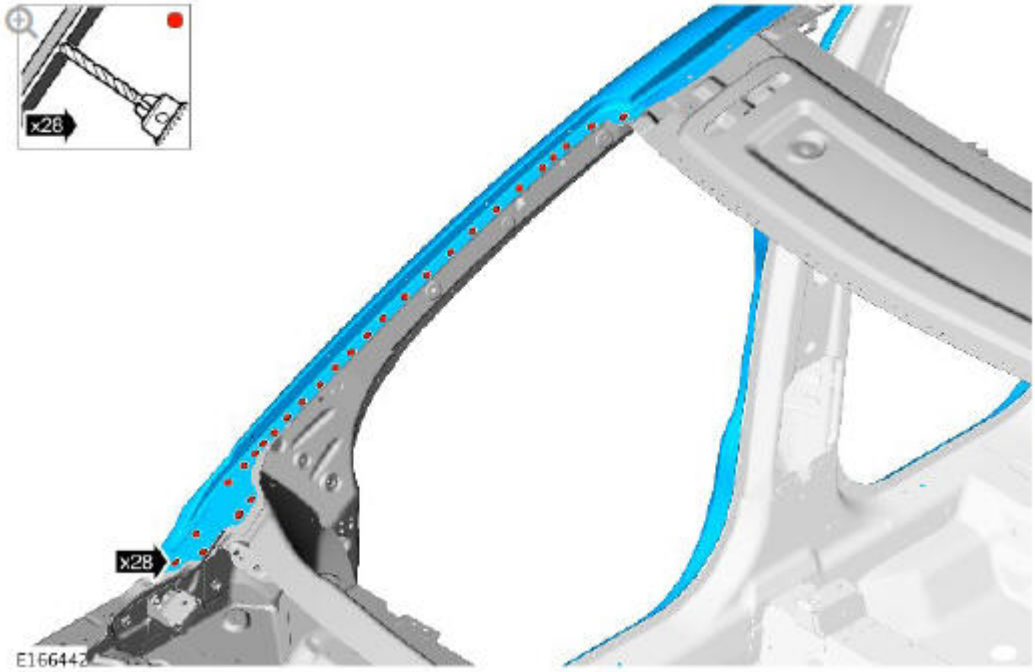
4. For additional information, refer to: Front Bumper Cover (501-19 Bumpers, Removal and Installation).
5. For additional information, refer to: Fender (501-02 Front End Body Panels, Removal and Installation).
6. For additional information, refer to: Fender Splash Shield (501-02 Front End Body Panels, Removal and Installation).
7. For additional information, refer to: Front Fender Mounting Panel (501-27 Front End Sheet Metal Repairs, Removal and Installation).
8. For additional information, refer to: Windshield Glass (501-11 Glass, Frames and Mechanisms, Removal and Installation).
9. For additional information, refer to: Front Door (501-03 Body Closures, Removal and Installation).
10. For additional information, refer to: Rear Door (501-03 Body Closures, Removal and Installation).
11. For additional information, refer to: Rocker Panel Moulding (501-08 Exterior Trim and Ornamentation, Removal and Installation).
12. For additional information, refer to: Roof Moulding (501-08 Exterior Trim and Ornamentation, Removal and Installation).
13. For additional information, refer to: Headliner (501-05 Interior Trim and Ornamentation, Removal and Installation).

14. For additional information, refer to: Side Air Curtain Module (501- 20B Supplemental Restraint System, Removal and Installation).
15. For additional information, refer to: Roof Panel (501-28 Roof Sheet Metal Repairs, Removal and Installation).
16. For additional information, refer to: Roof Front Panel (501-28 Roof Sheet Metal Repairs, Removal and Installation).
17. For additional information, refer to: Roof Rear Panel (501-28 Roof Sheet Metal Repairs, Removal and Installation).
18. For additional information, refer to: Glass Roof Panel (501-11 Glass, Frames and Mechanisms, Removal and Installation).
19. For additional information, refer to: Rear Quarter Window Glass (501-11 Glass, Frames and Mechanisms, Removal and Installation).
20. For additional information, refer to: Rear Bumper Cover (501-19 Bumpers, Removal and Installation).
21. For additional information, refer to: Outer Tail Lamp Assembly (417- 01 Exterior Lighting, Removal and Installation).
22. For additional information, refer to: Front Row Seat - Vehicles With: Power Seats (501-10 Seating, Removal and Installation).
23. For additional information, refer to: Rear Quarter Window Glass (501-11 Glass, Frames and Mechanisms, Removal and Installation).
24. For additional information, refer to: Instrument Panel - TD4 2.2L Diesel (501-12 Instrument Panel and Console, Removal and Installation) / Instrument Panel - GTDi 2.0L Petrol (501-12 Instrument Panel and Console, Removal and Installation).
25. For additional information, refer to: Liftgate (501-03 Body Closures, Removal and Installation).

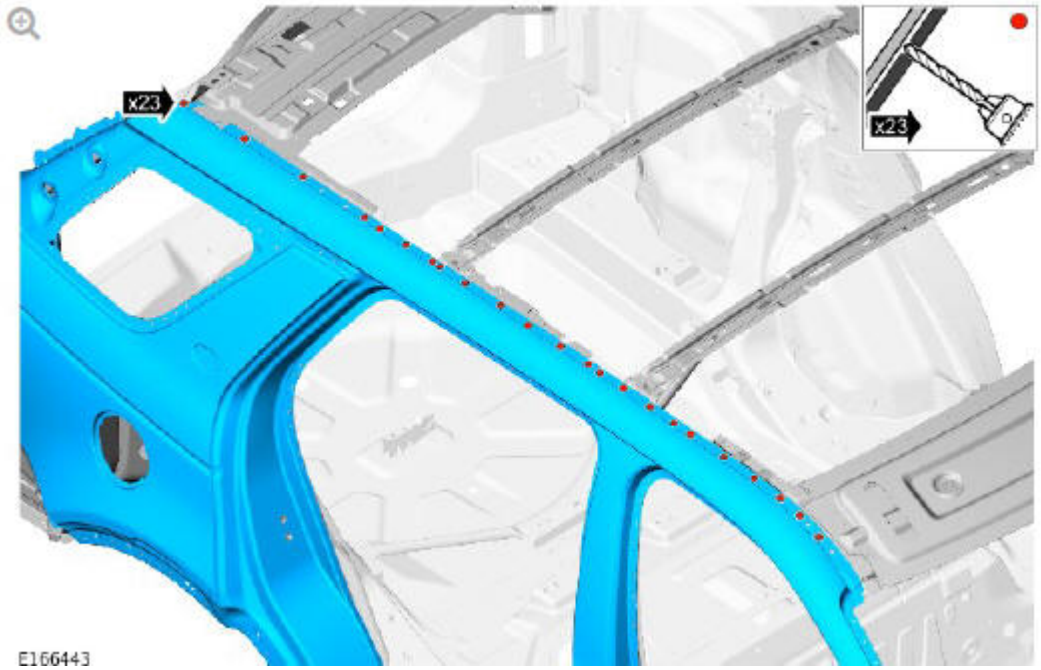
NOTE:

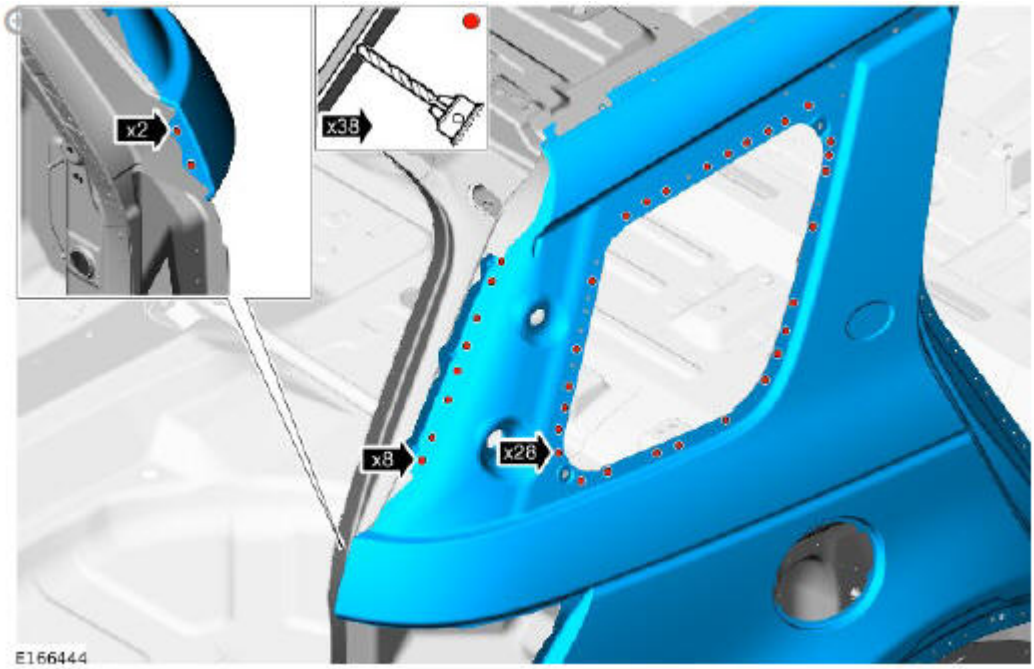
Right hand only.

26. For additional information, refer to: Fuel Tank Filler Pipe (310-01B Fuel Tank and Lines - INGENIUM I4 2.0L Diesel, Removal and Installation).
27. Release and position the floor carpet to one side.
28. Release and position the floor Noise, Vibration and Harshness (NVH) material to one side.
29. Release and position to one side the wiring harness along the inner quarter panel and back panel.
30. Release and position to one side the wiring harness on the A-pillar.
31. Remove the spot welds as indicated.



32. Remove the spot welds as indicated.

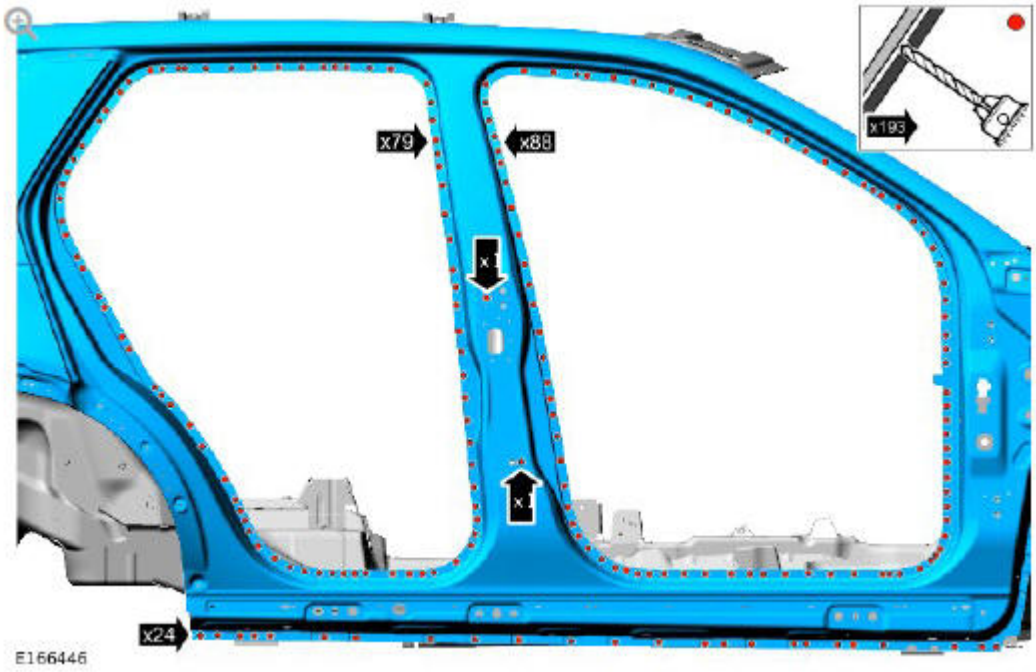




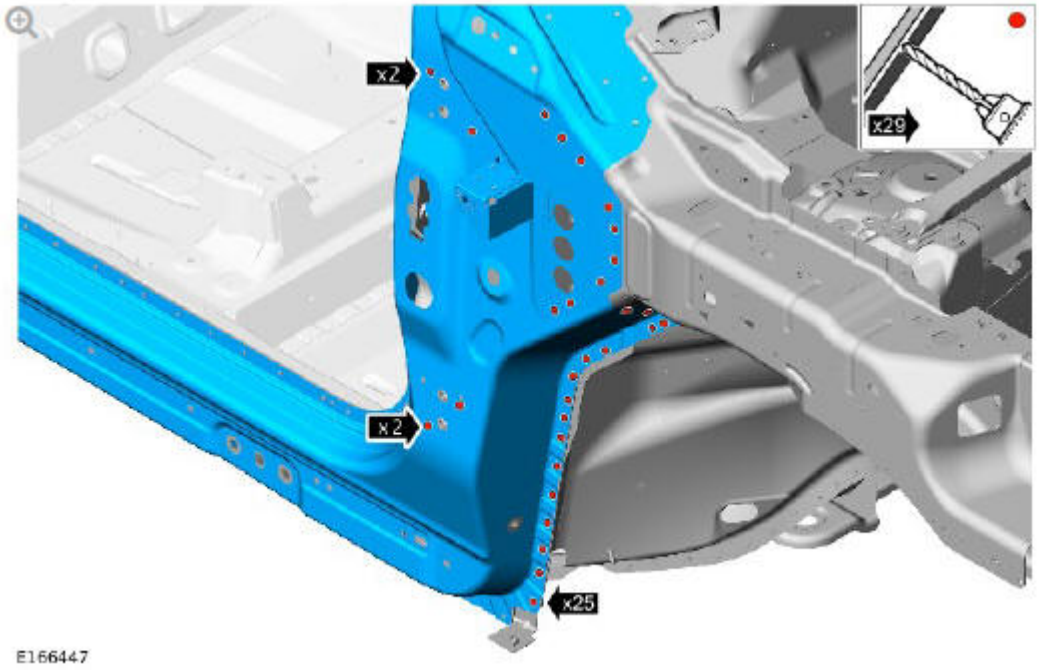
33. Remove the spot welds as indicated.



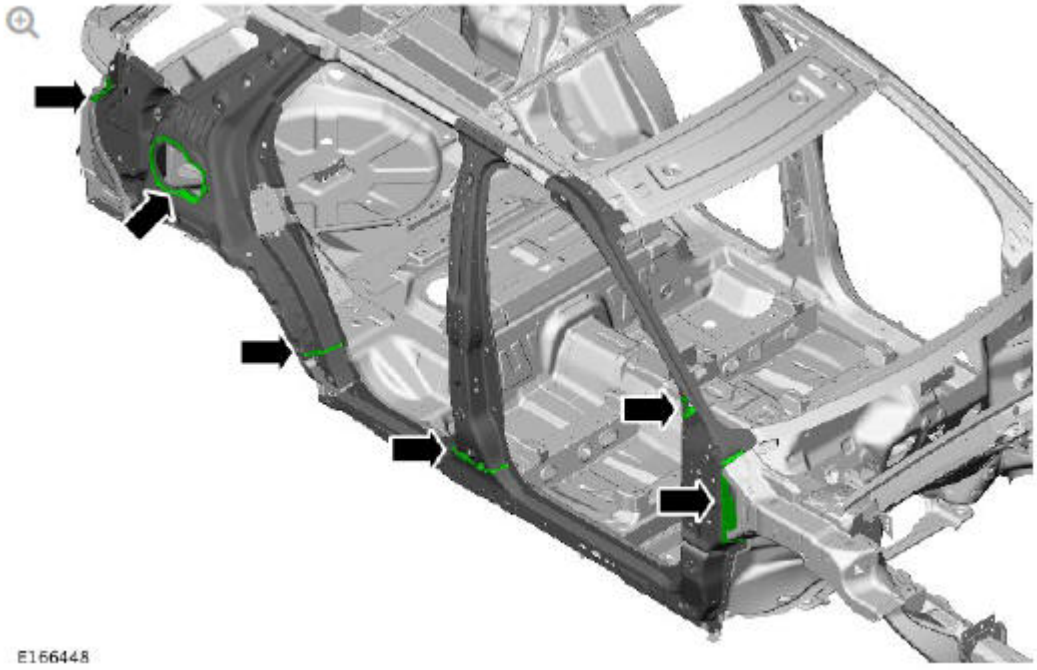
34. Remove the spot welds as indicated.



35. Remove the spot welds as indicated.



36. Remove the spot welds as indicated.



37. Carefully separate the side panel joints avoiding damage to the NVH components as indicated.

CAUTION:

This step requires the aid of another technician as the side panel is heavy.

38. Remove the side panel.

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Side Panel Sheet Metal Repairs Side Panel (G1770901)Side Panel Sheet Metal Repairs Side Panel (G1770901) - Installation

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Боковой панель ремонт кузовных панелей боковой панель - установка

Side Panel Sheet Metal Repairs Side Panel (G1770901) - Installation

Installation

NOTE:

Make sure that a zinc rich primer is applied to any bare metal surfaces.

1. Dress the flanges where necessary
2. Clean and prepare the panel surfaces.

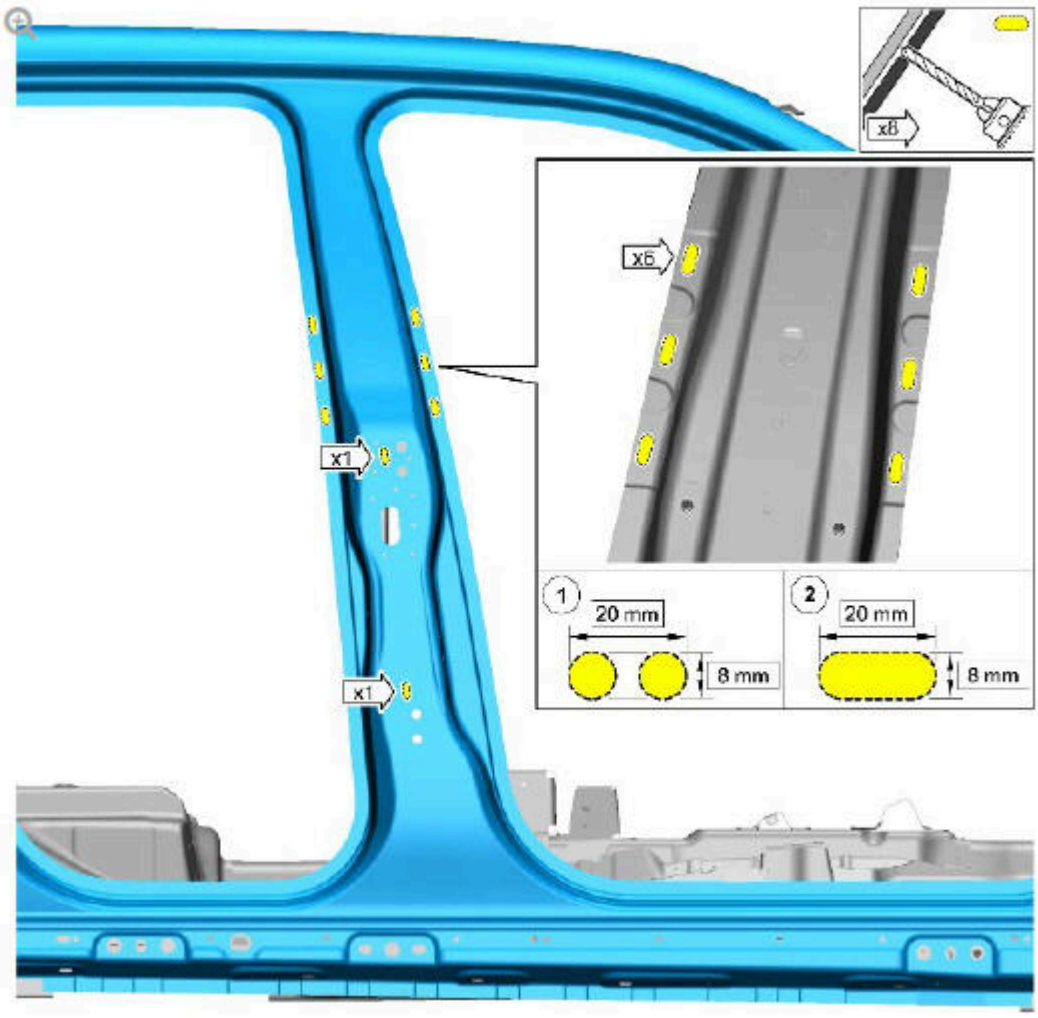
CAUTION:

This step requires the aid of another technician as the side panel is heavy.

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

NOTE:

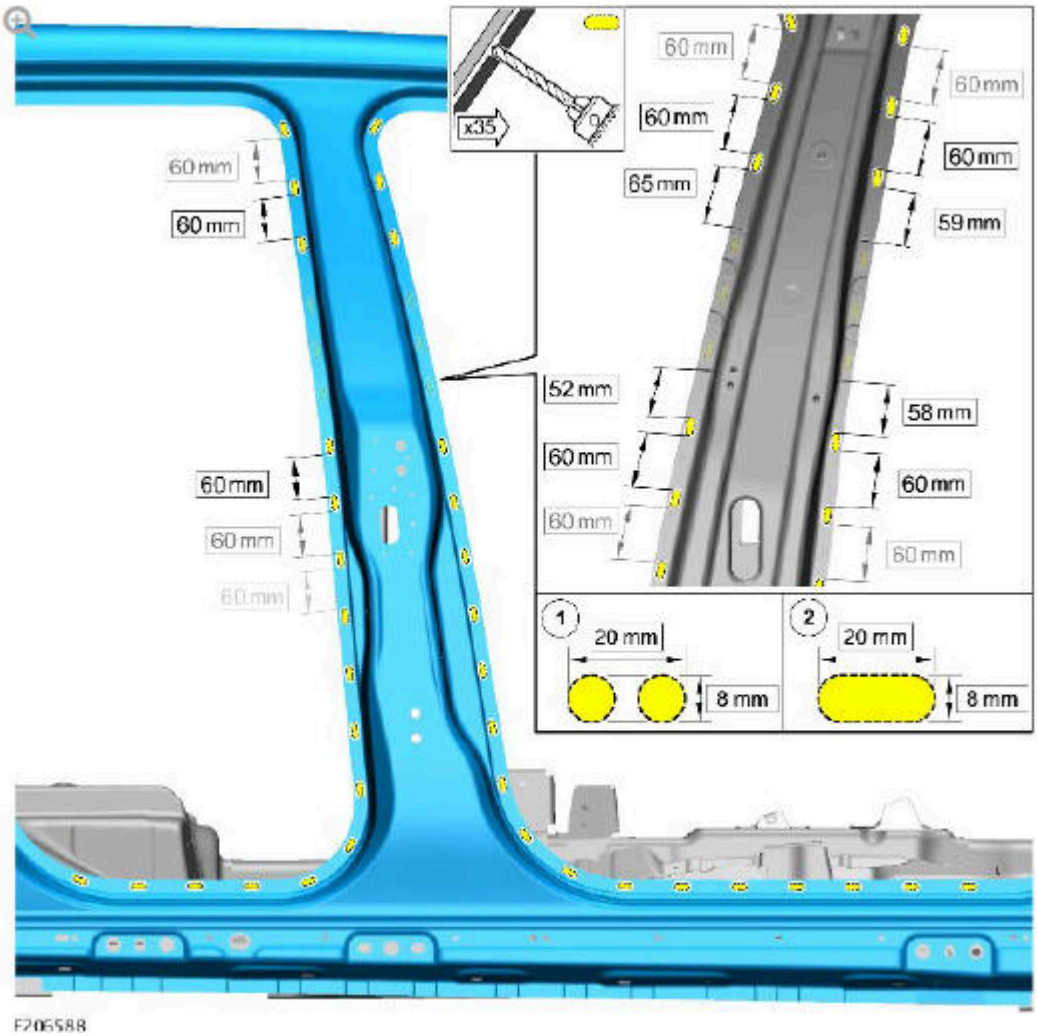
Follow steps 1 and 2 as shown to cut the MIG braze slots.



4. Mark the position and cut slots in the new side panel where the Metal Inert Gas (MIG) braze slot welds are to be installed as indicated.

NOTE:

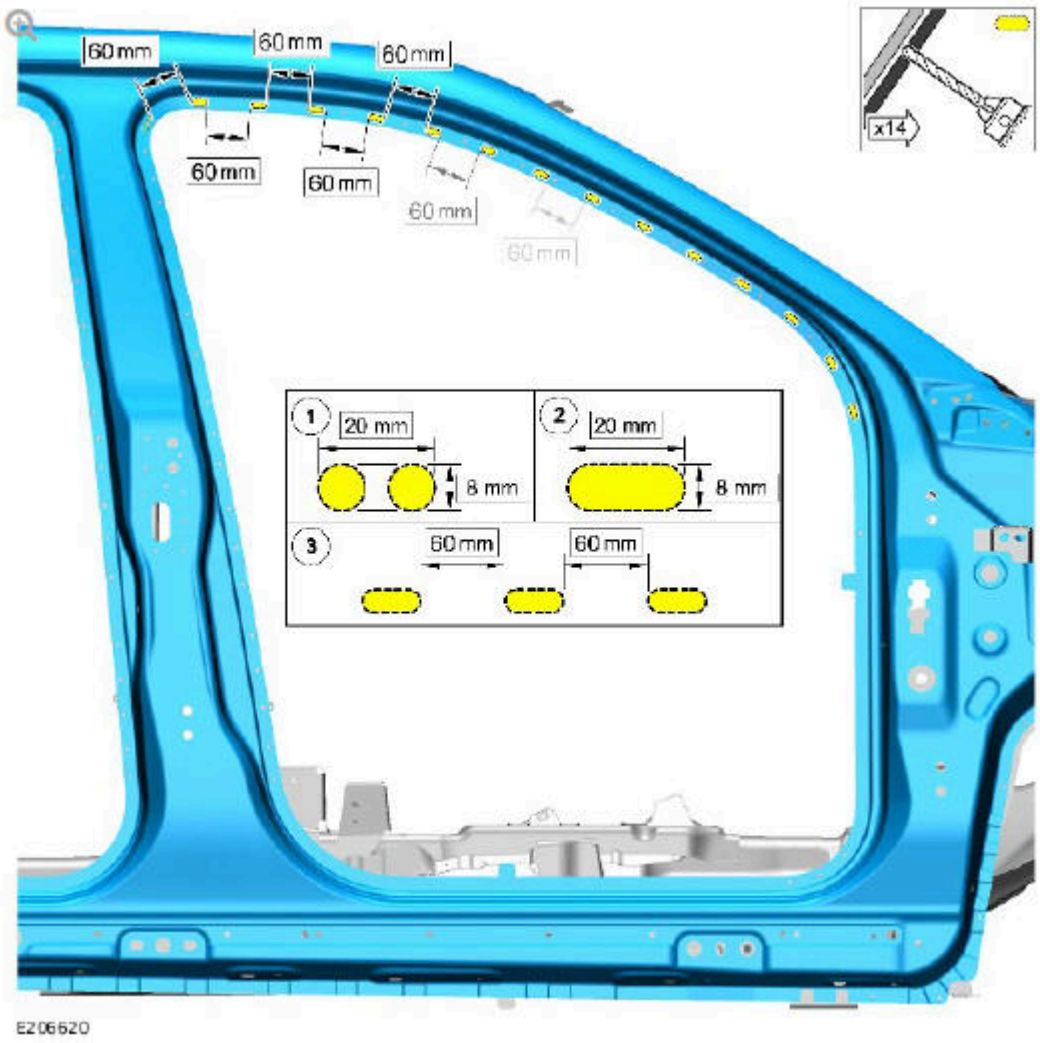
Follow steps 1 and 2 as shown to cut the MIG braze slots.



5. Mark the position and cut slots in the new side panel where the MIG braze slot welds are to be installed as indicated.

NOTE:

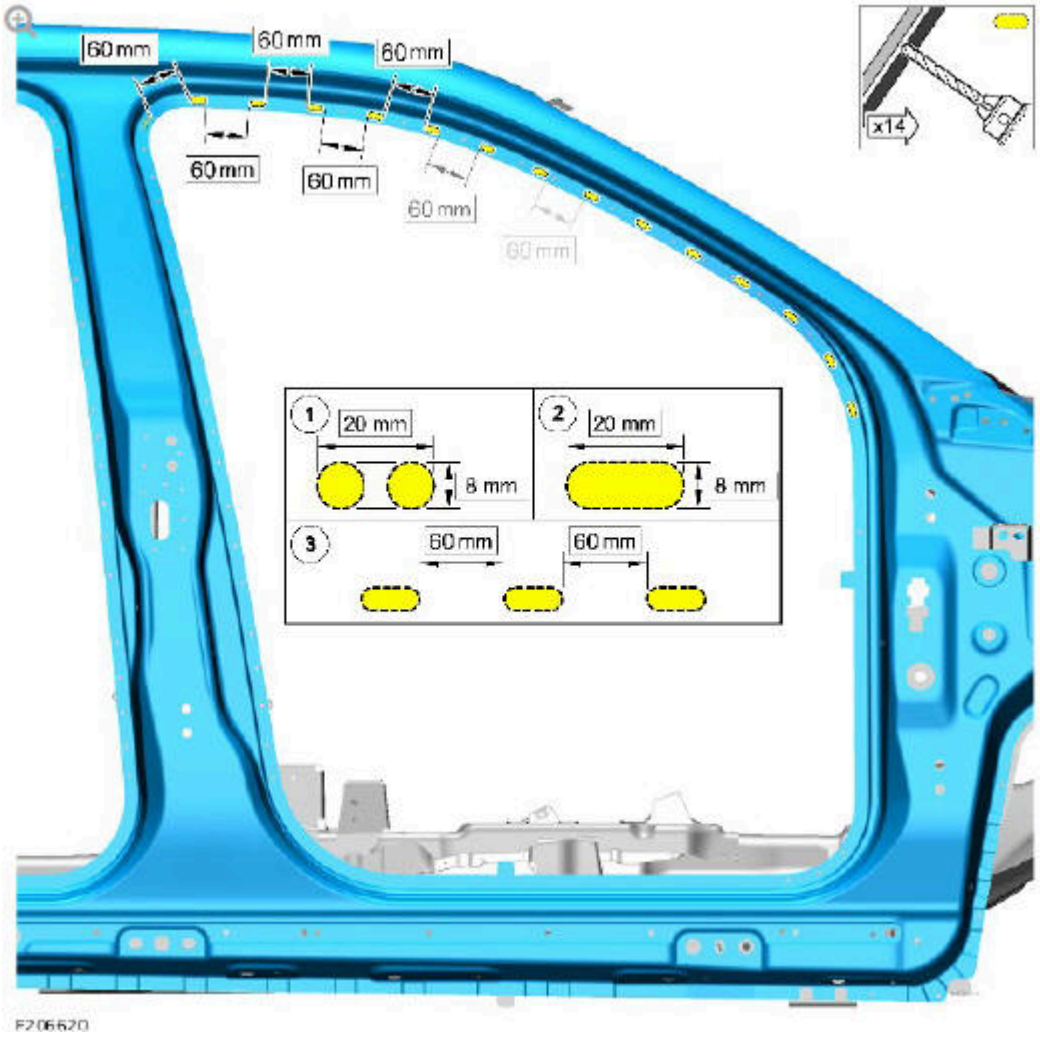
Follow steps 1 to 3 as shown to cut the MIG braze slots.



6. Mark the position and cut slots in the new side panel where the MIG braze slot welds are to be installed as indicated.

NOTE:

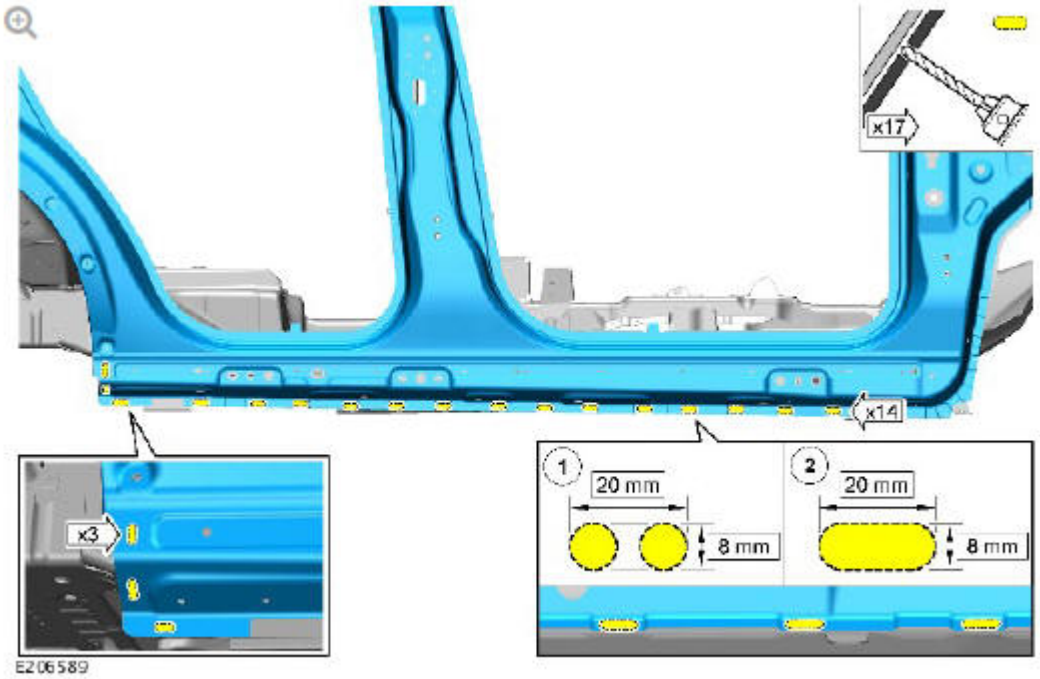
Follow steps 1 to 3 as shown to cut the MIG braze slots.



7. Mark the position and cut slots in the new side panel where the MIG braze slot welds are to be installed as indicated.

NOTE:

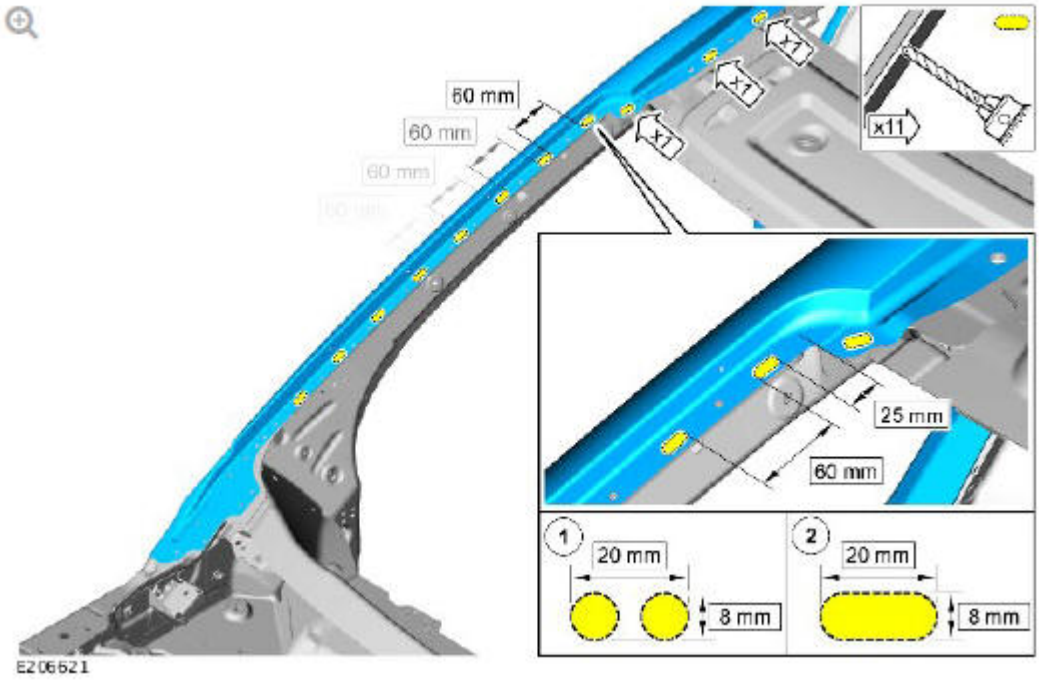
Follow steps 1 and 2 as shown to cut the MIG braze slots.



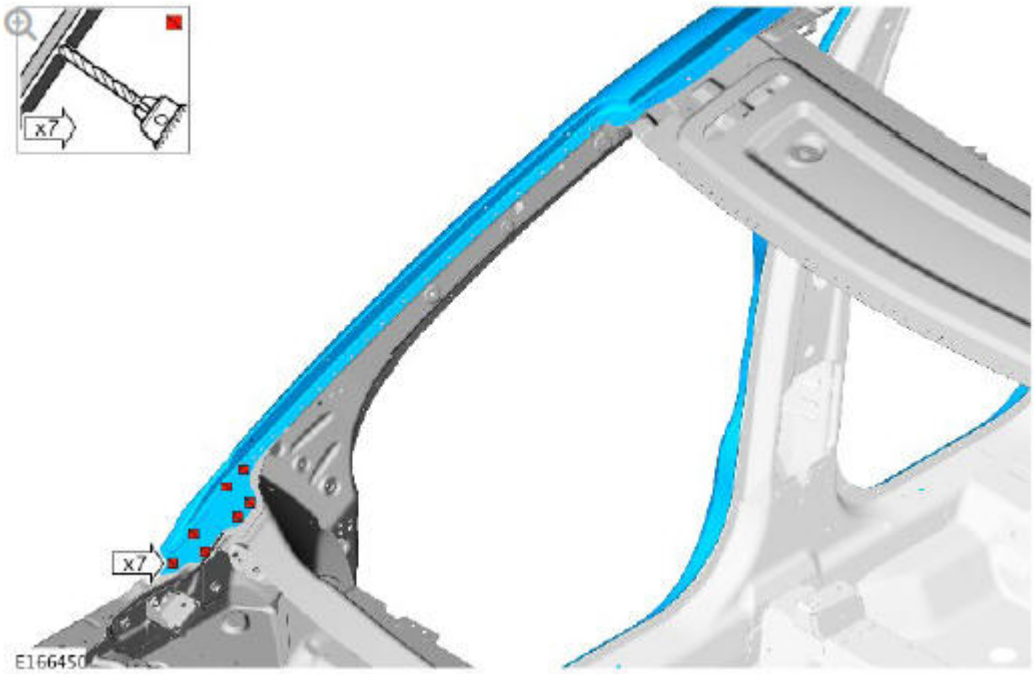
8. Mark the position and cut slots in the new side panel where the MIG braze slot welds are to be installed as indicated.

NOTE:

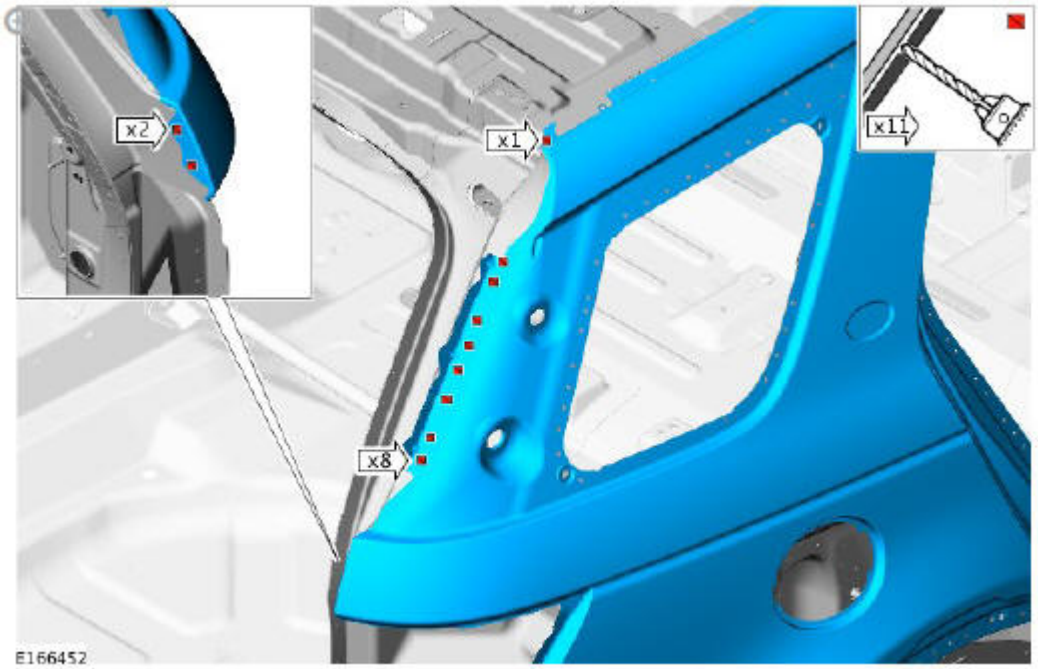
Follow steps 1 and 2 as shown to cut the MIG braze slots.



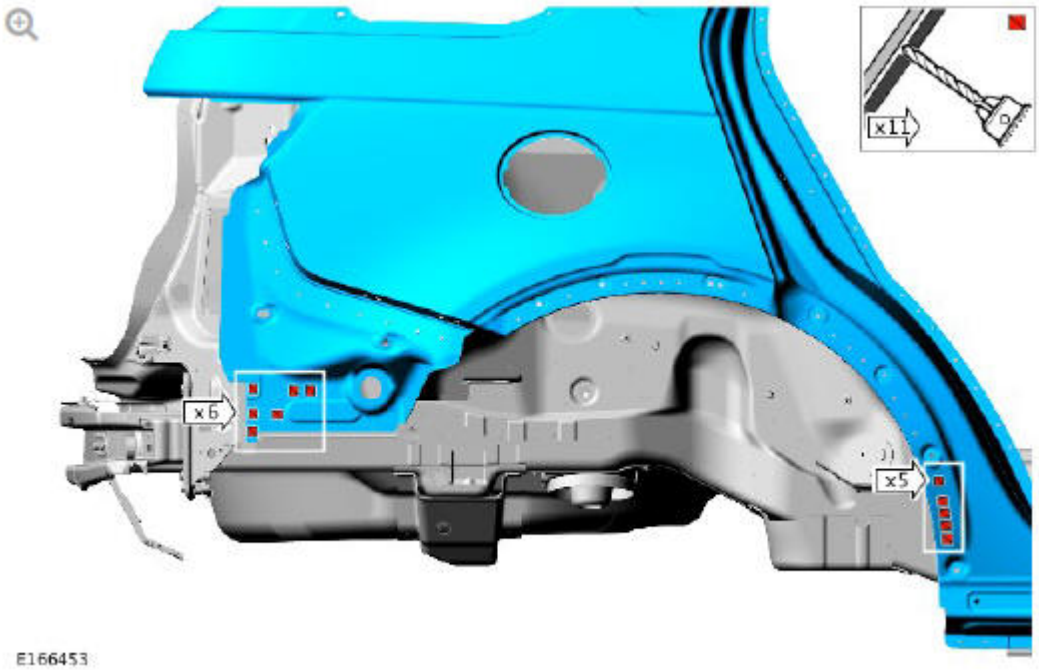
9. Mark the position and cut slots in the new side panel where the MIG braze slot welds are to be installed as indicated.



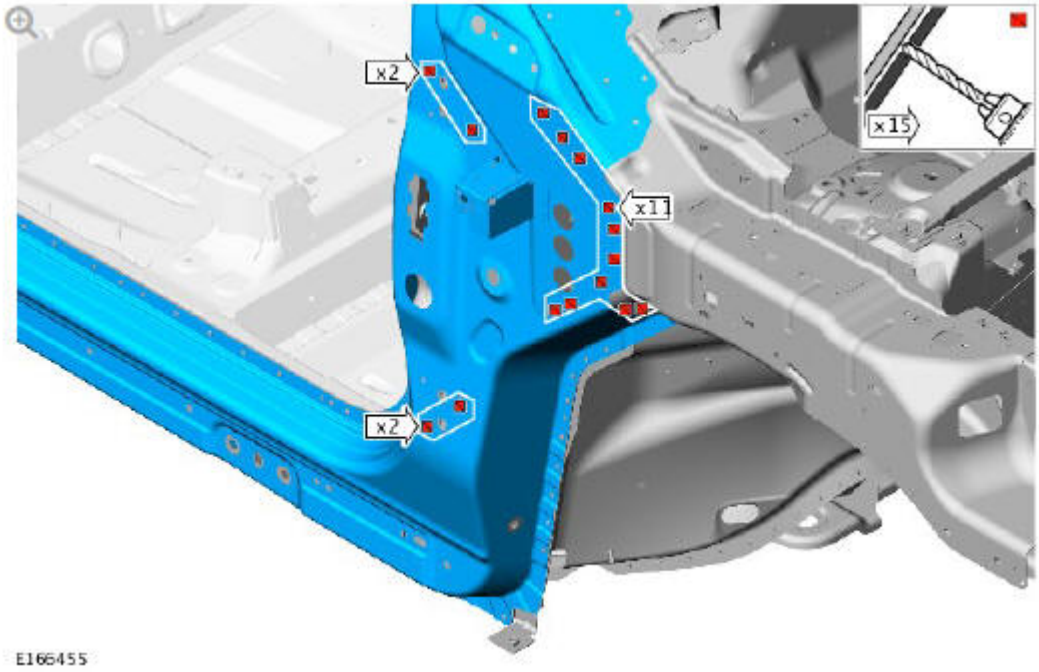
10. Drill holes in the new side panel where the MIG plug welds are to be installed as indicated.



11. Drill holes in the new side panel where the MIG plug welds are to be installed as indicated.



12. Drill holes in the new side panel where the MIG plug welds are to be installed as indicated.

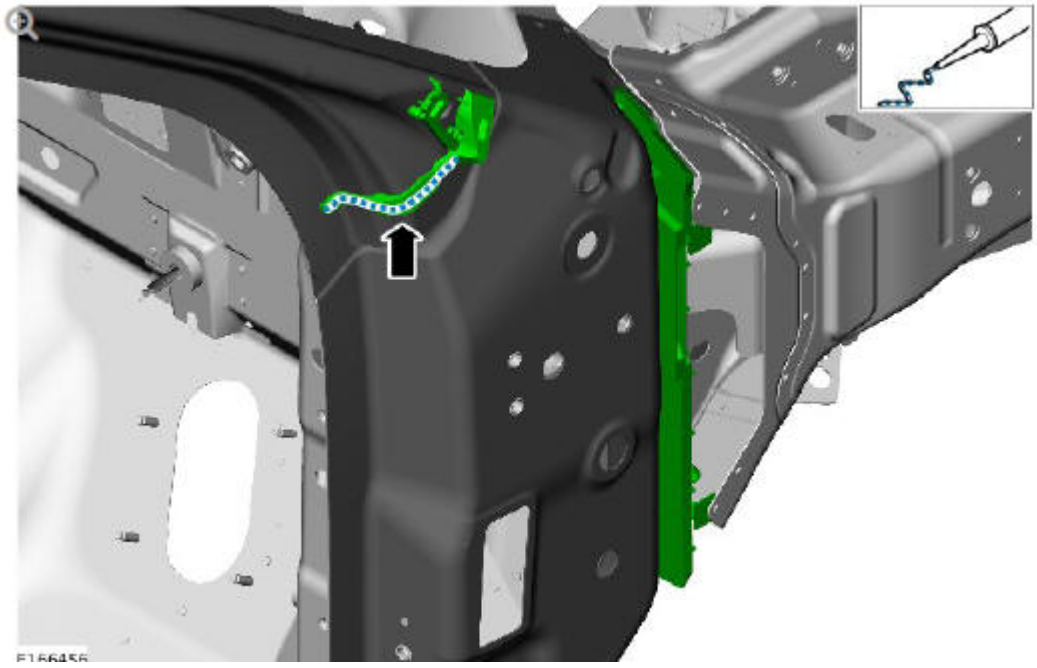


13. Drill holes in the new side panel where the MIG plug welds are to be installed as indicated.

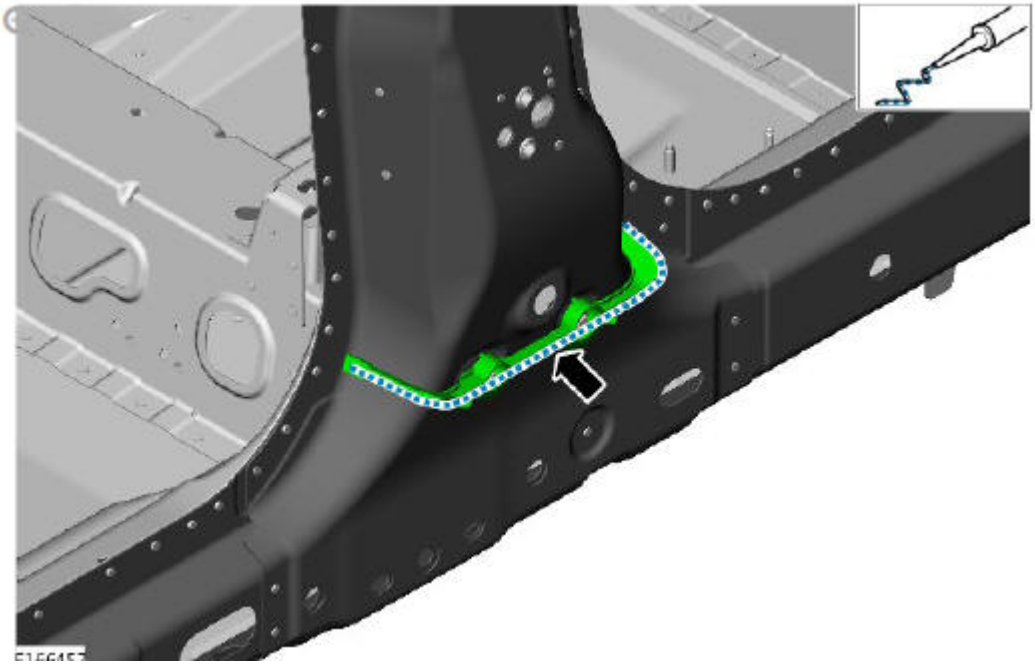
CAUTION:

<u>This step requires the aid of another technician as the side panel is heavy.</u>

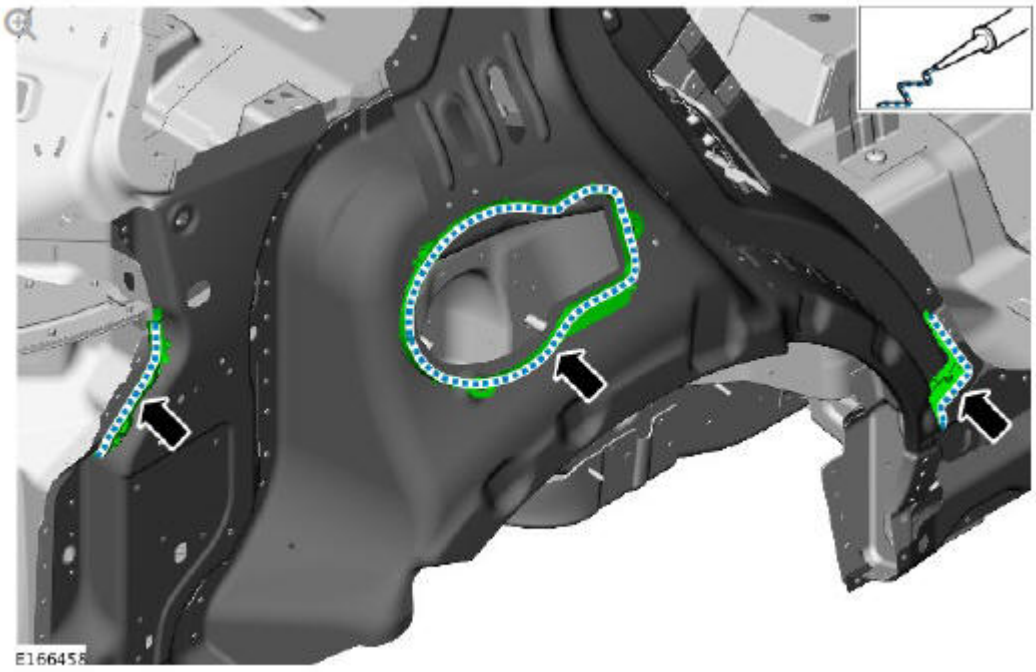
14. Remove the side panel.
15. Deburr the drilled slots and holes.
16. Clean and prepare the panel surfaces.



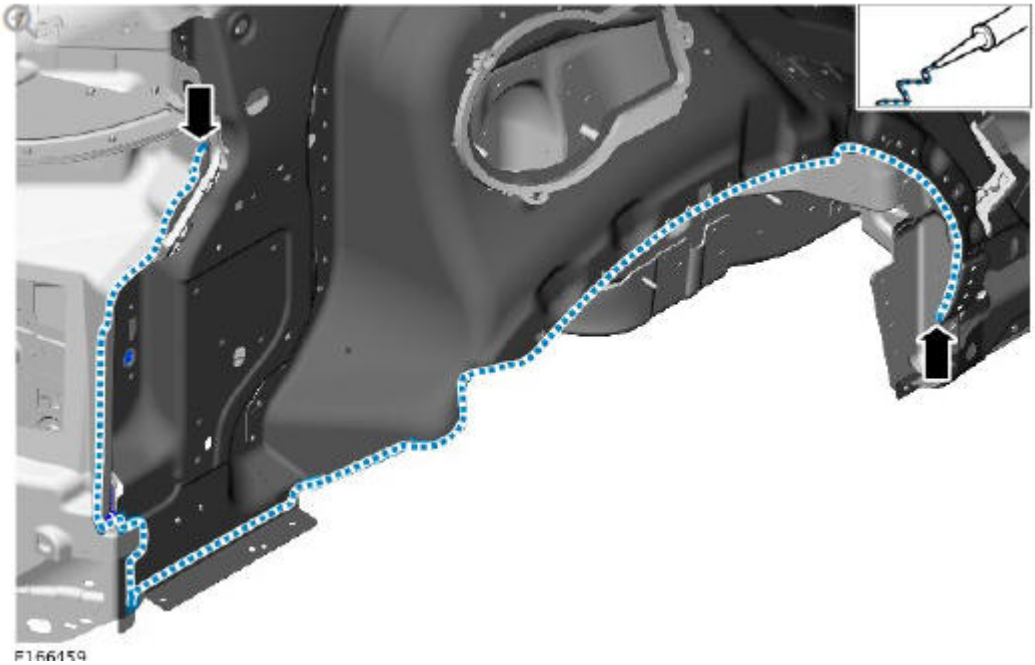
17. Apply a 5 mm bead of Land Rover recommended sealer to the Noise, Vibration and Harshness (NVH) components as indicated.



18. Apply a 5 mm bead of Land Rover recommended sealer to the NVH components as indicated.



19. Apply a 5 mm bead of Land Rover recommended sealer to the NVH components as indicated.

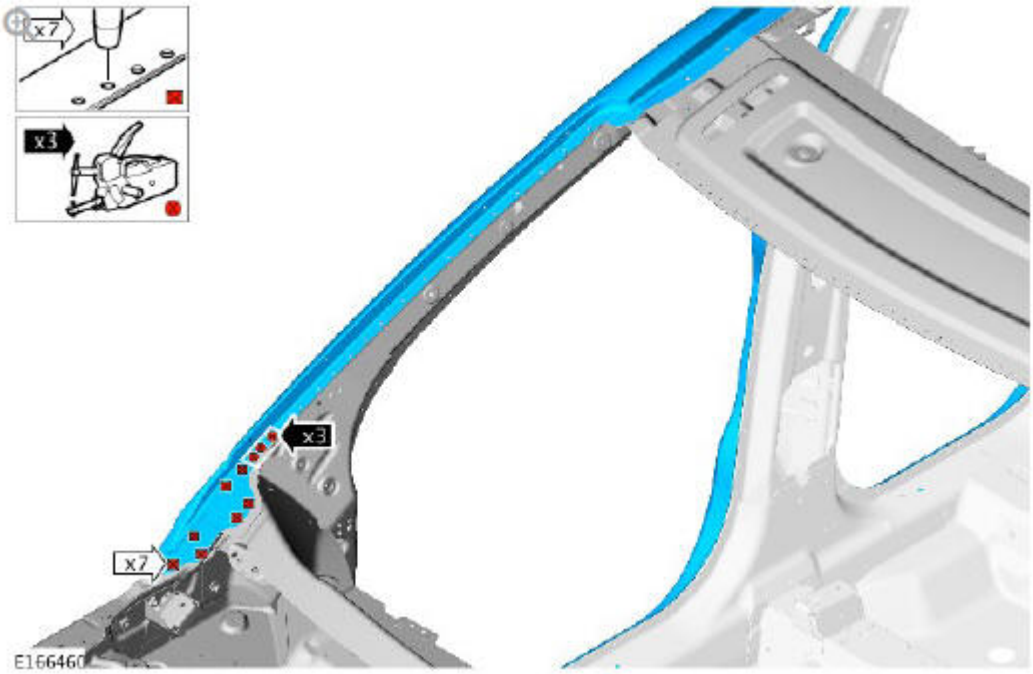


20. Apply a 5 mm bead of Land Rover recommended sealer to the vehicle assembly as indicated.

CAUTION:

<u>This step requires the aid of another technician as the side panel is heavy.</u>

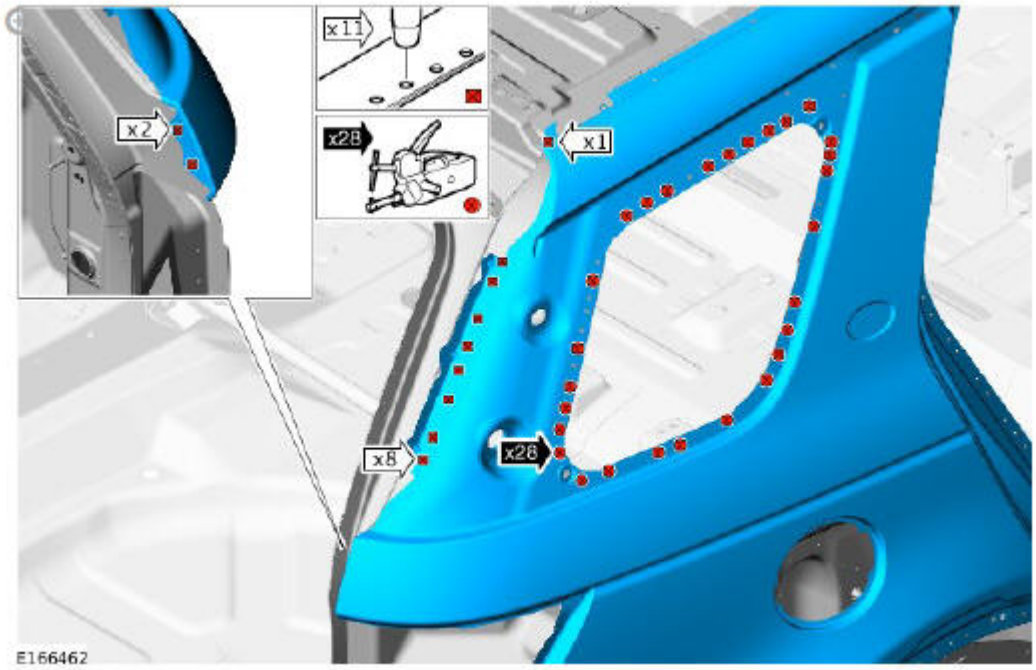
21. Offer up the new side panel and clamp into position. Check alignment, if correct, proceed to next step, if not, rectify and recheck before proceeding.



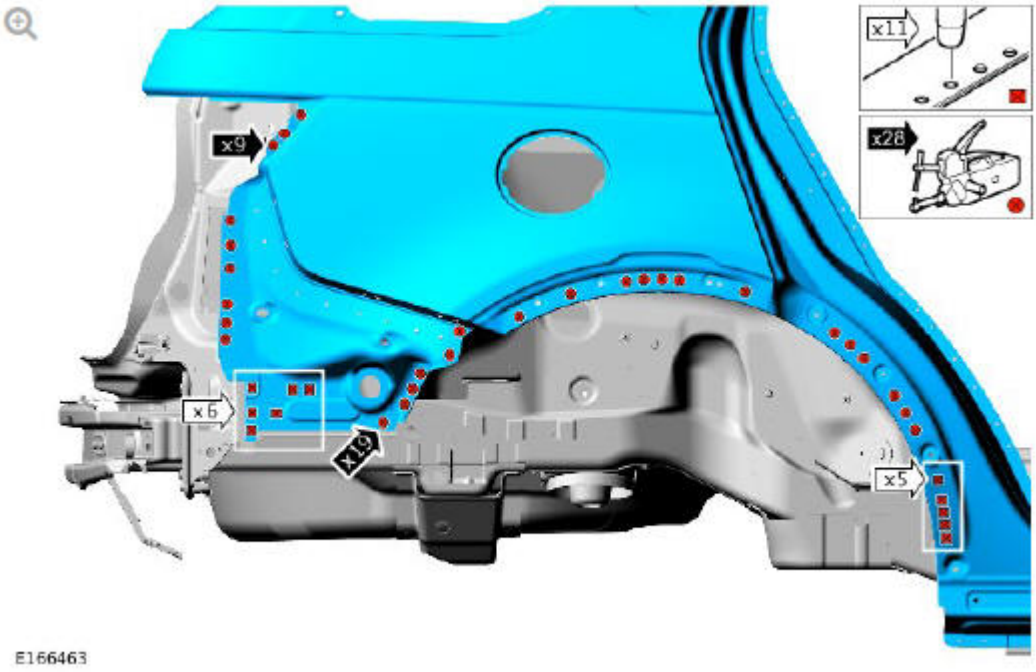
22. Install the spot and MIG plug welds as indicated.



23. Install the spot welds as indicated.



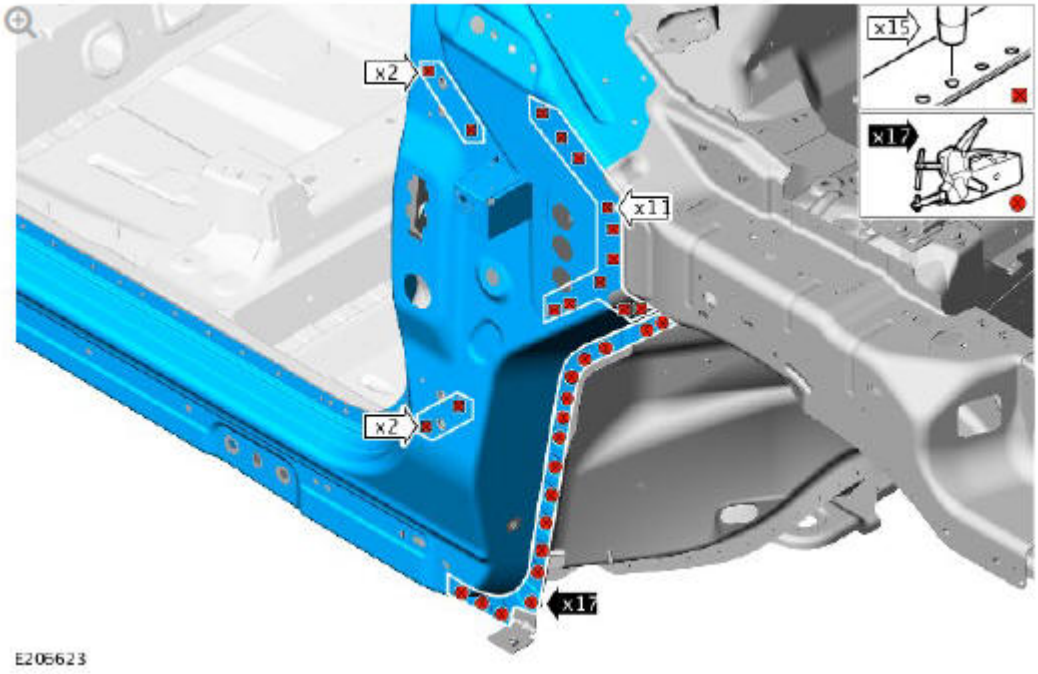
24. Install the spot and MIG plug welds as indicated.



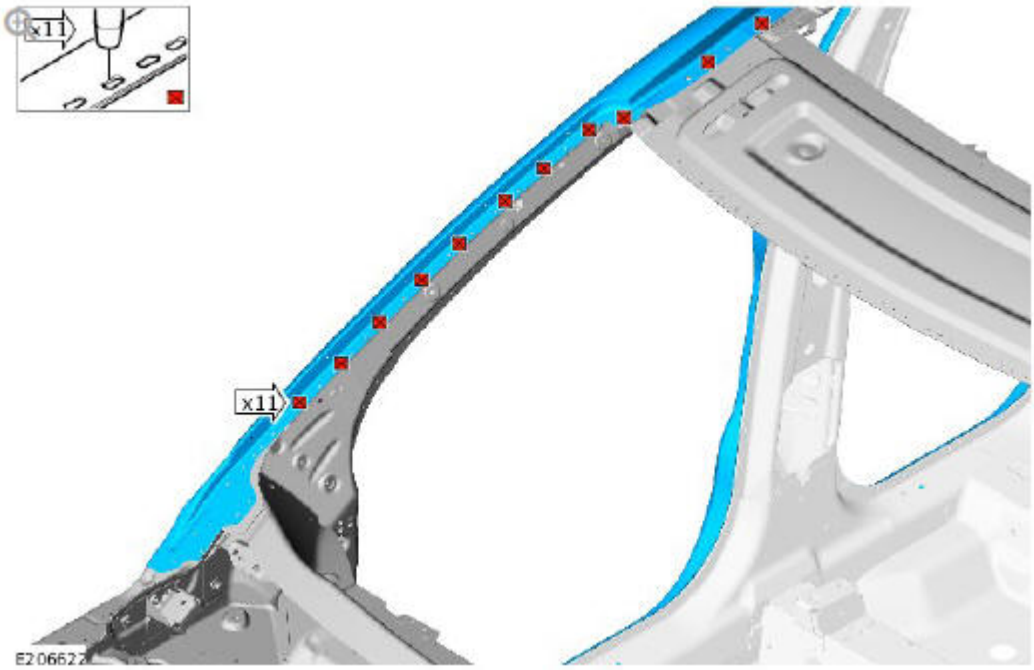
25. Install the spot and MIG plug welds as indicated.



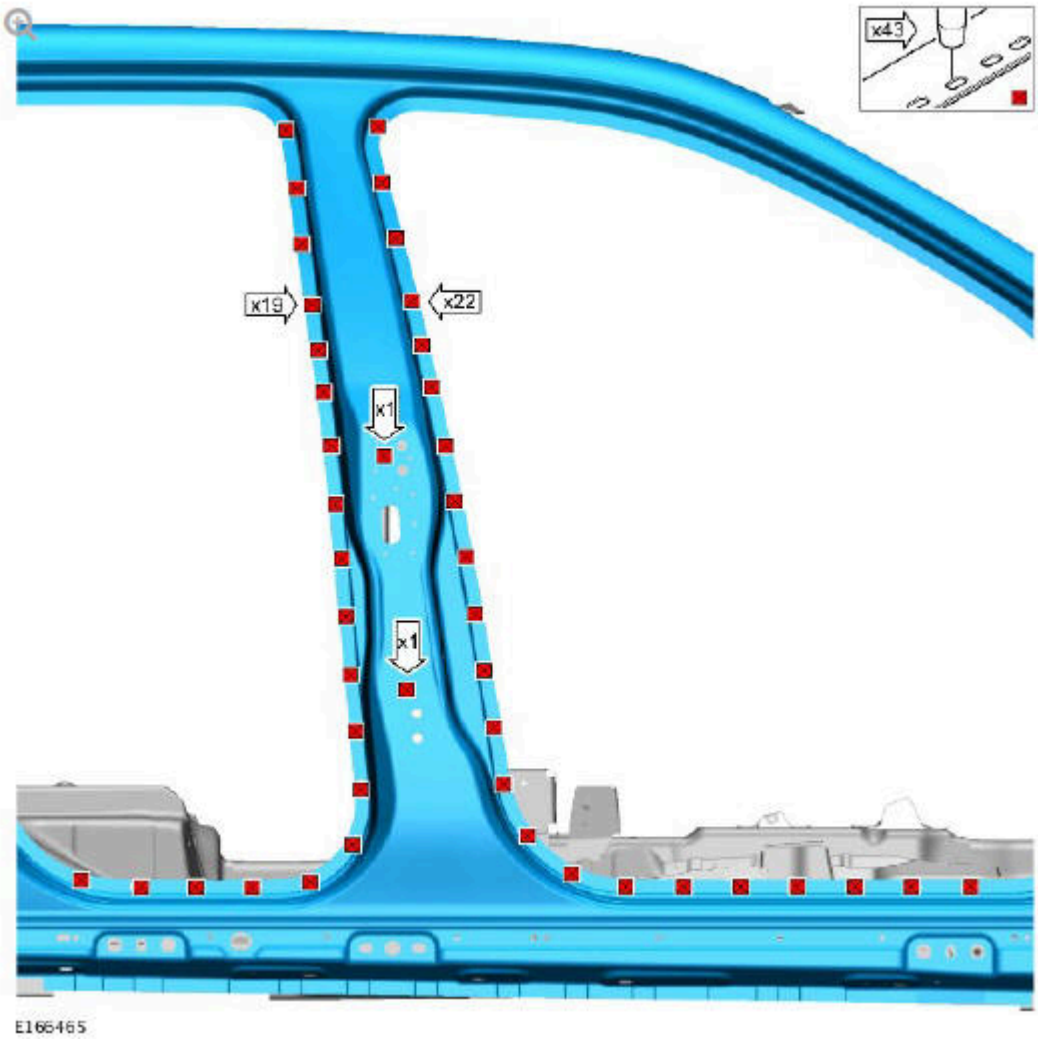
26. Install the spot welds as indicated.



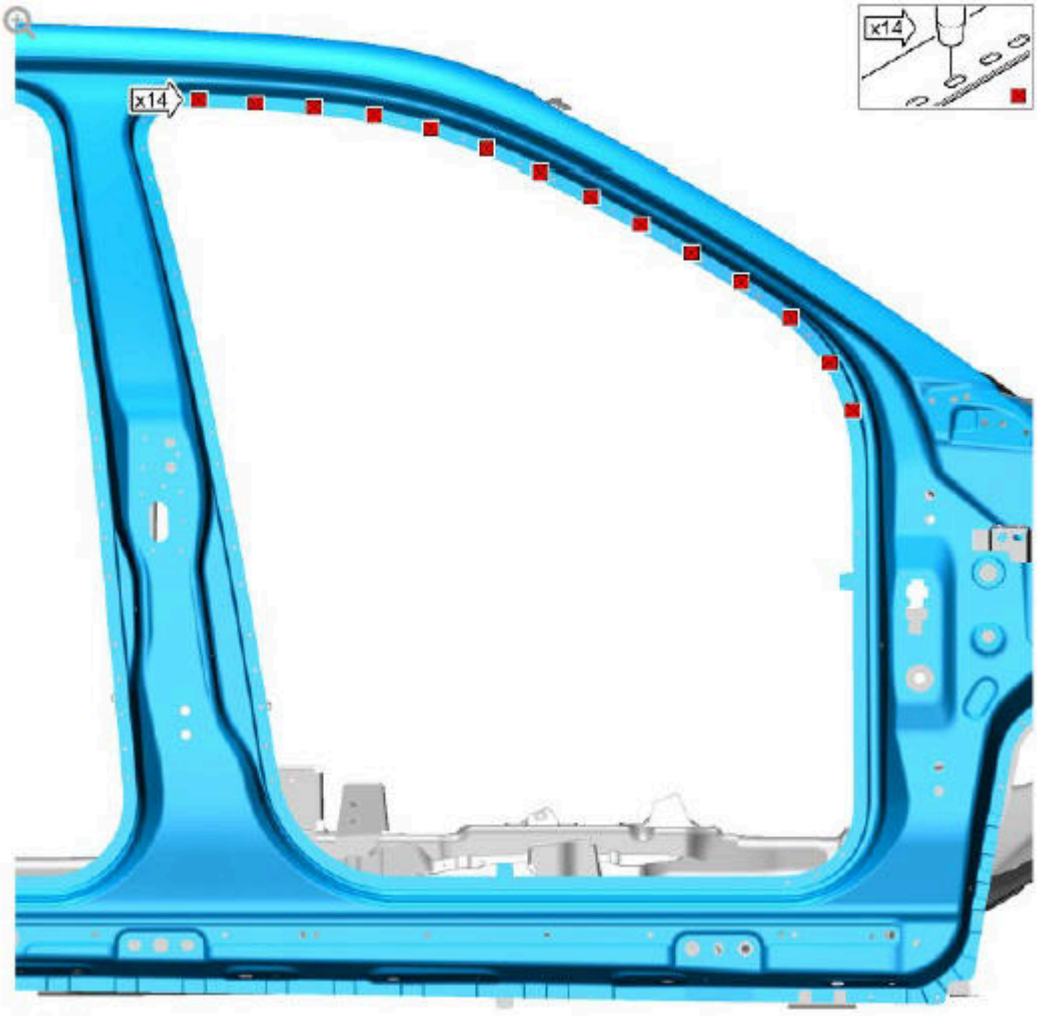
27. Install the spot and MIG plug welds as indicated.



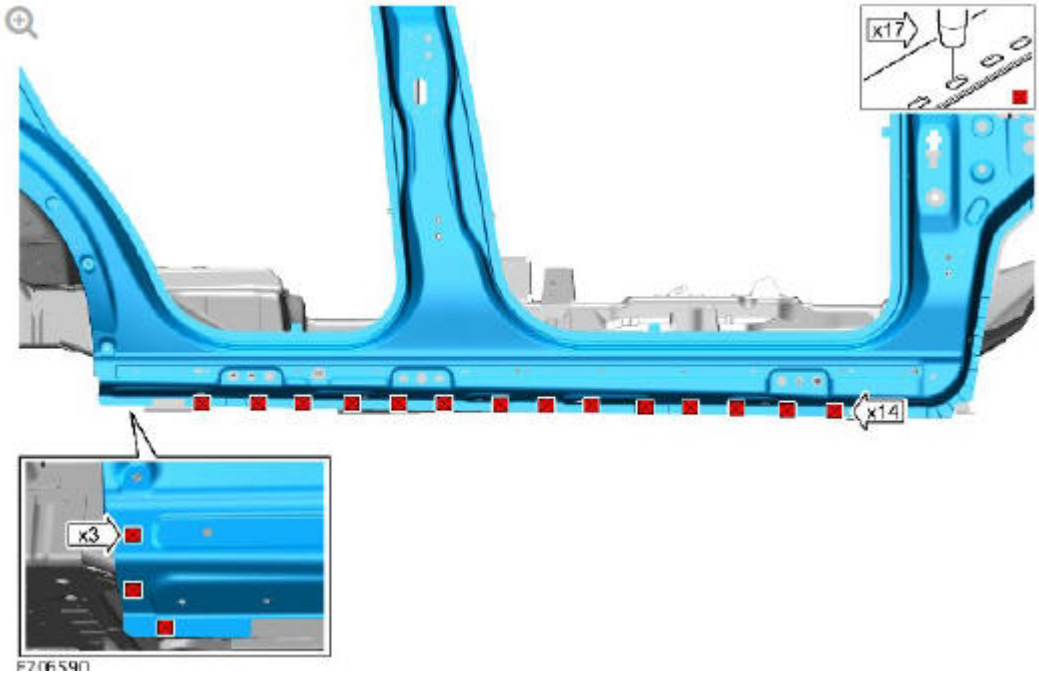
28. Install the MIG braze slot welds as indicated.



29. Install the MIG braze slot welds as indicated.



30. Install the MIG braze slot welds as indicated.



31. Install the MIG braze slot welds as indicated.
32. Dress all welded joints.

33. Apply a Land Rover recommended sealer and seal the panel flange edges of the MIG braze slot welds in the door aperture areas to prevent water ingress.
34. Make sure that any open or exposed panel joints are correctly sealed.
35. Make sure corrosion protection is applied to all areas affected by repair.
36. The installation of associated panels and components is the reversal of removal procedure.

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Side Panel Sheet Metal Repairs Side Panel (G1770901) - RemovalSide Panel Sheet Metal Repairs Rocker Panel and 'B' Pillar Outer Panel (G1770927)

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Боковой панель ремонт кузовных панелей порог и 'B' стойка кузова наружный панель

Side Panel Sheet Metal Repairs Rocker Panel and 'B' Pillar Outer Panel (G1770927)

- Side Panel Sheet Metal Repairs Rocker Panel and 'B' Pillar Outer Panel (G1770927) - Removal
- Side Panel Sheet Metal Repairs Rocker Panel and 'B' Pillar Outer Panel (G1770927) - Installation

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Side Panel Sheet Metal Repairs Side Panel (G1770901) - InstallationSide Panel Sheet Metal Repairs Rocker Panel and 'B' Pillar Outer Panel (G1770927) - Removal

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Боковой панель ремонт кузовных панелей порог и 'B' стойка кузова наружный панель - снятие

Side Panel Sheet Metal Repairs Rocker Panel and 'B' Pillar Outer Panel (G1770927) - Removal

NOTE:

The rocker panel and B-pillar outer is installed in conjunction with:

- *Front bumper cover*
- *Front fender*
- *Front fender splash shield*
- *Front door*
- *Rear door*
- *Front seat*
- *Rear seat cushion*
- *Cowl side trim panel*
- *B-Pillar lower trim panel*
- *B-pillar upper trim panel*
- *Front scuff plate trim panel*
- *Front safety belt retractor*
- *Rear quarter panel moulding*

- *Rocker panel moulding*
- *Headliner*
- *Side air curtain module*



1. The rocker panel and B-pillar outer is serviced as indicated.
2. Before commencing this procedure make sure that you are aware of all Health and Safety requirements.

   For additional information, refer to: Health and Safety Precautions (100-00 General Information, Description and Operation).

3. For further information on the methods, tools and fixings used in this procedure refer to the body repairs - general information section.

NOTES:

- *Any joints sealed as part of vehicle manufacture must be sealed as part of the repair.*
- *Make sure a zinc rich primer is applied to any bare metal surfaces.*

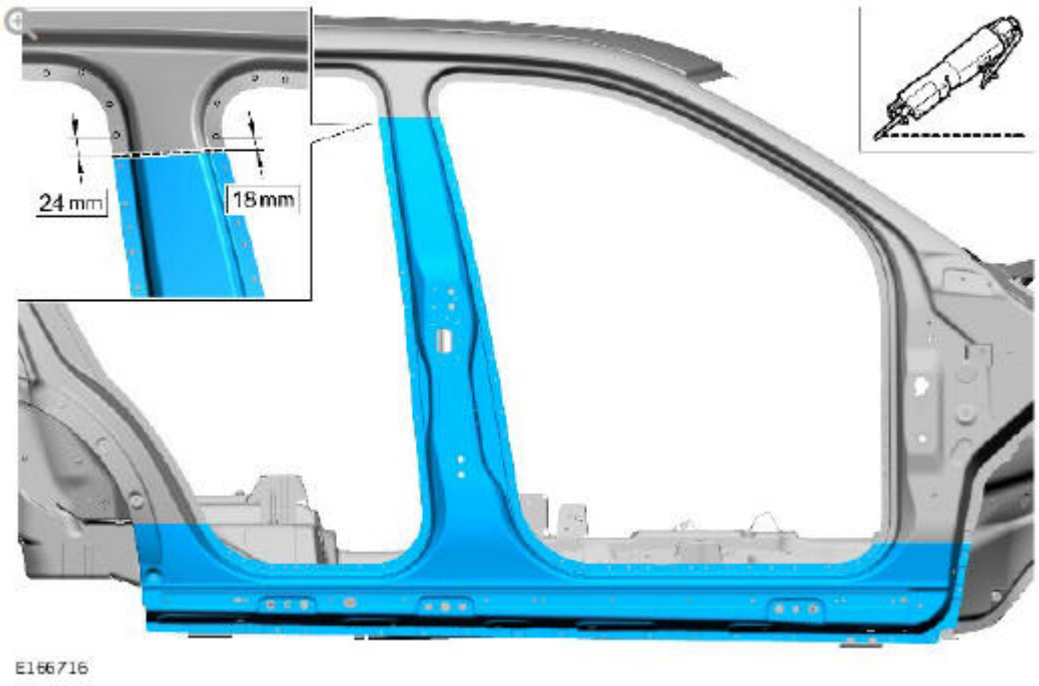
4. For additional information, refer to: Front Bumper Cover (501-19 Bumpers, Removal and Installation).
5. For additional information, refer to: Fender (501-02 Front End Body Panels, Removal and Installation).
6. For additional information, refer to: Fender Splash Shield (501-02 Front End Body Panels, Removal and Installation).
7. For additional information, refer to: Front Door (501-03 Body Closures, Removal and Installation).
8. For additional information, refer to: Rear Door (501-03 Body Closures, Removal and Installation).
9. For additional information, refer to: Front Row Seat - Vehicles With: Power Seats (501-10 Seating, Removal and Installation).
10. For additional information, refer to: Rear Seat (501-10 Seating, Removal and Installation).
11. For additional information, refer to: Cowl Side Trim Panel (501-05 Interior Trim and Ornamentation, Removal and Installation).
12. For additional information, refer to: 'B' Pillar Lower Trim Panel (501- 05 Interior Trim and Ornamentation, Removal and Installation).
13. For additional information, refer to: 'B' Pillar Upper Trim Panel (501- 05 Interior Trim and Ornamentation, Removal and Installation).

14. For additional information, refer to: Front Scuff Plate Trim Panel (501-05 Interior Trim and Ornamentation, Removal and Installation)
15. For additional information, refer to: Front Safety Belt Retractor (501-20A Seatbelt System, Removal and Installation).
16. For additional information, refer to: Rear Quarter Panel Moulding (501-08 Exterior Trim and Ornamentation, Removal and Installation).
17. For additional information, refer to: Rocker Panel Moulding (501-08 Exterior Trim and Ornamentation, Removal and Installation).
18. For additional information, refer to: Headliner (501-05 Interior Trim and Ornamentation, Removal and Installation).
19. For additional information, refer to: Side Air Curtain Module (501- 20B Supplemental Restraint System, Removal and Installation).
20. Release and position the floor carpet to one side.
21. Release and position the floor Noise, Vibration and Harshness (NVH) material to one side.
22. Release and position the bulkhead NVH material to one side.
23. Remove the upper and lower rear door hinges.
24. Remove the front door lower hinge.
25. Release and position the wiring harness along the B-pillar inner and inner rocker panel to one side.

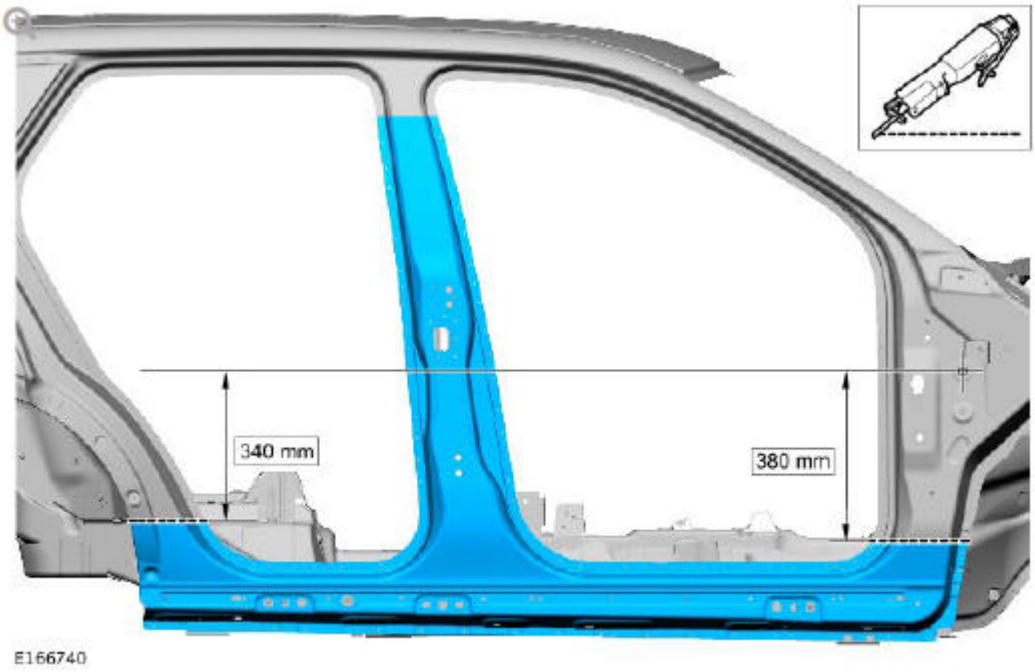
CAUTION:

Care should be taken not to cut through into the inner reinforcements.

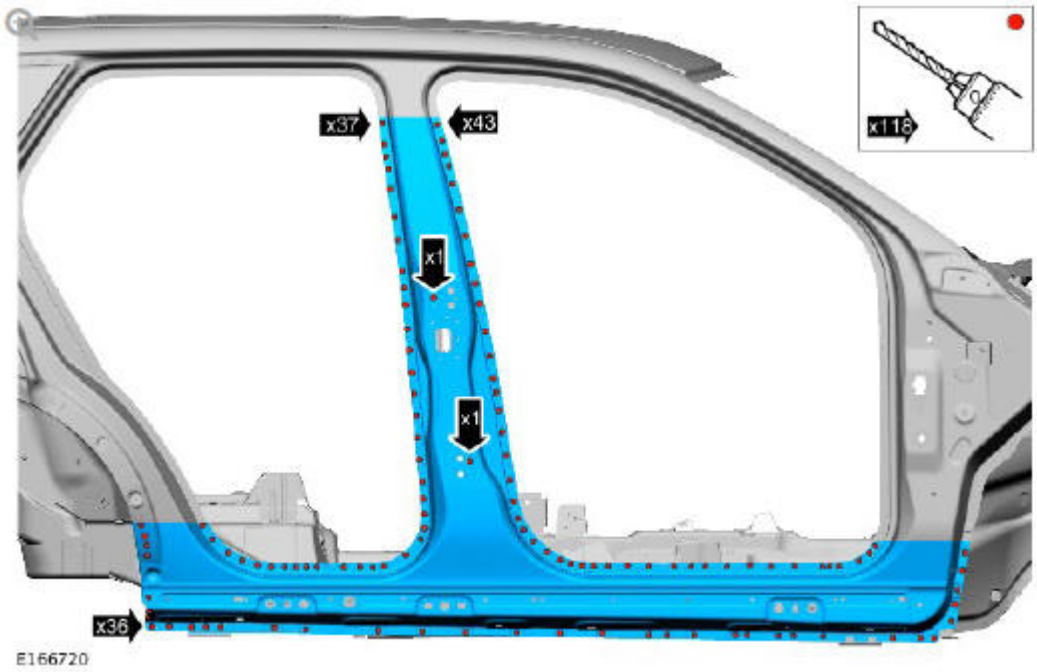
26. Measure, mark and cut where the Metal Inert Gas (MIG) butt joint is to be made as indicated.



27. Measure, mark and cut where the MIG butt joints are to be made as indicated.

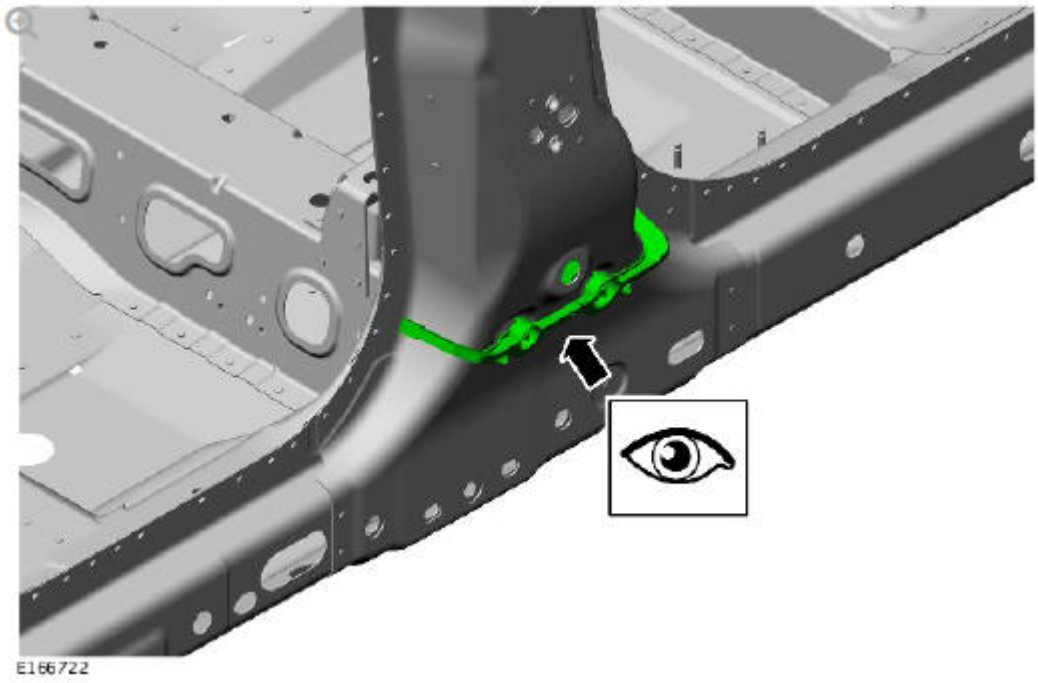


28. Remove the spot welds as indicated.



NOTE:

Avoid where possible damaging the NVH component located behind the rocker panel and B-pillar outer.



29. Carefully separate the joints and remove the rocker panel and Bpillar outer also releasing the NVH component as indicated.

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Side Panel Sheet Metal Repairs Rocker Panel and 'B' Pillar Outer Panel (G1770927)Side Panel Sheet Metal Repairs Rocker Panel and 'B' Pillar Outer Panel (G1770927) - Installation

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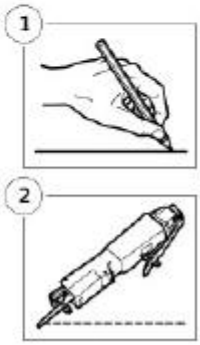
Боковой панель ремонт кузовных панелей порог и 'B' стойка кузова наружный панель - установка

Side Panel Sheet Metal Repairs Rocker Panel and 'B' Pillar Outer Panel (G1770927) - Installation

Installation

1. Dress the flanges where necessary.
2. Using the old rocker panel and B-pillar outer for reference measure, mark and cut the new rocker panel and B-pillar outer where the Metal Inert Gas (MIG) butt joints are to be made as indicated.



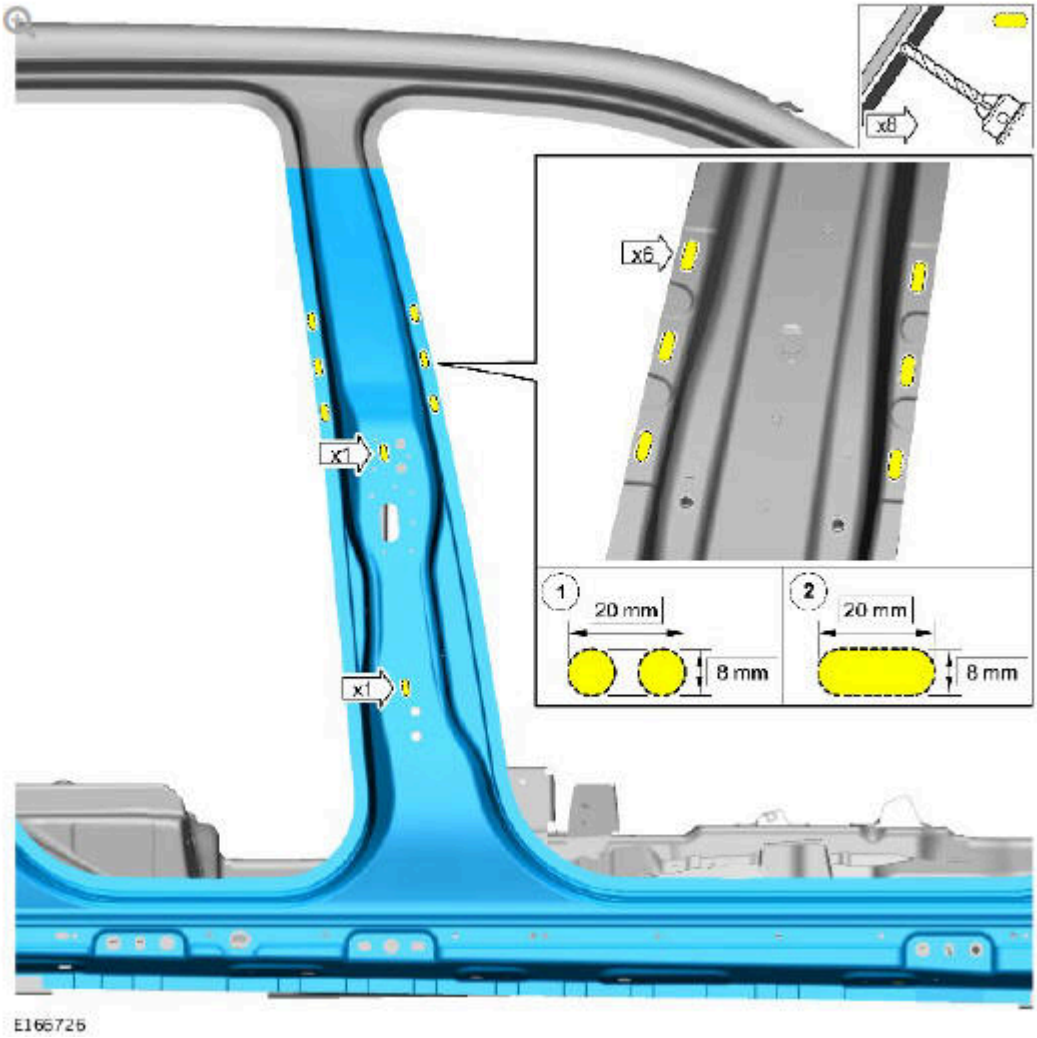


3. Offer up the new rocker panel and B-pillar outer and clamp into position. Check alignment if correct, proceed to next step, if not, rectify and recheck before proceeding.

NOTE:

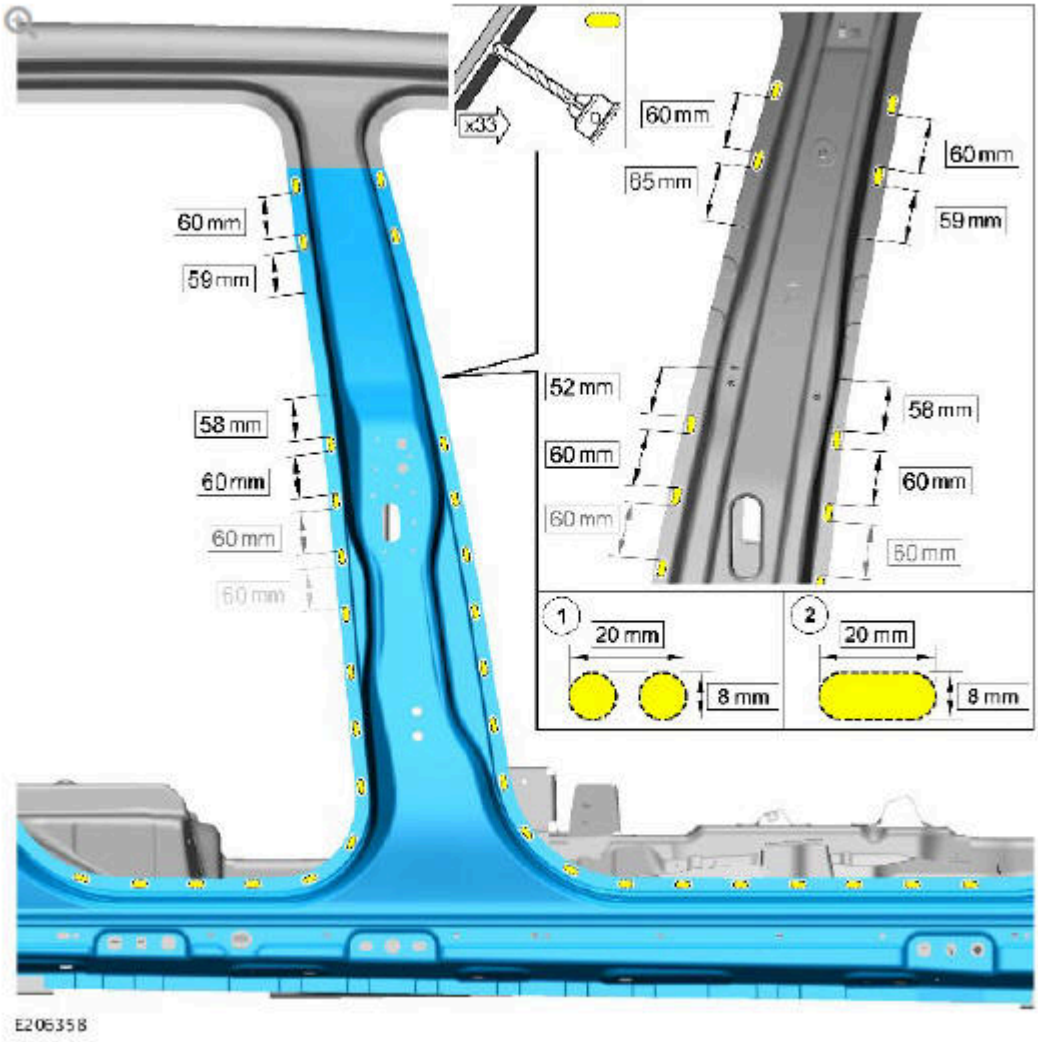
Follow Steps 1 and 2 as shown to cut the MIG braze slots.

4. Cut slots in the new rocker panel and B-pillar outer where the MIG braze slot welds are to be installed as indicated.



NOTE:

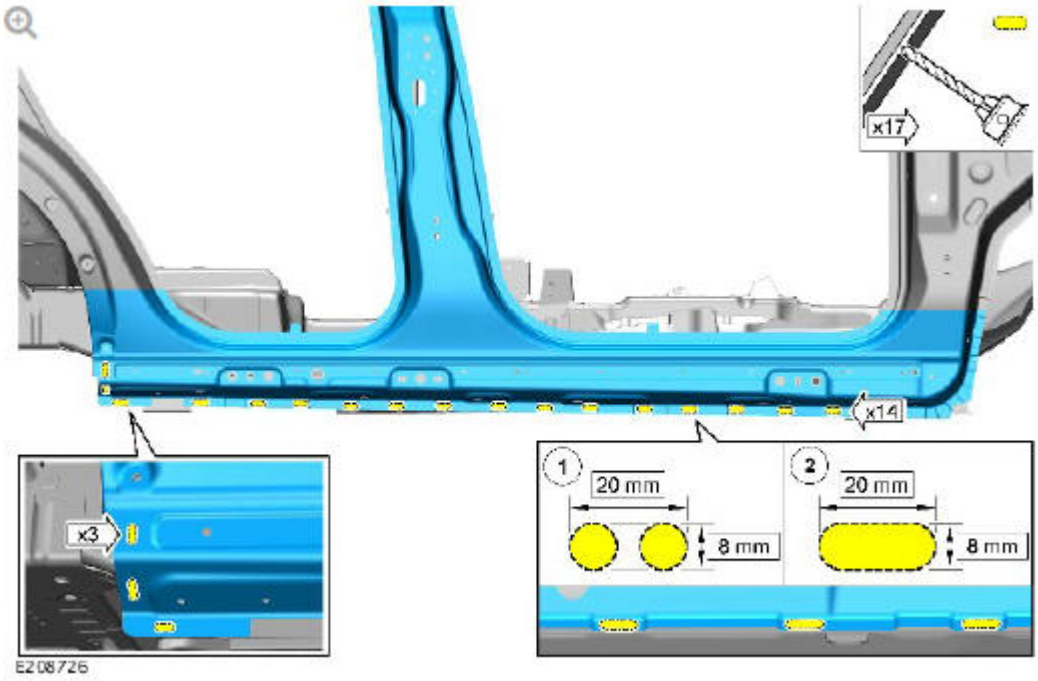
Follow Steps 1 and 2 as shown to cut the MIG braze slots.



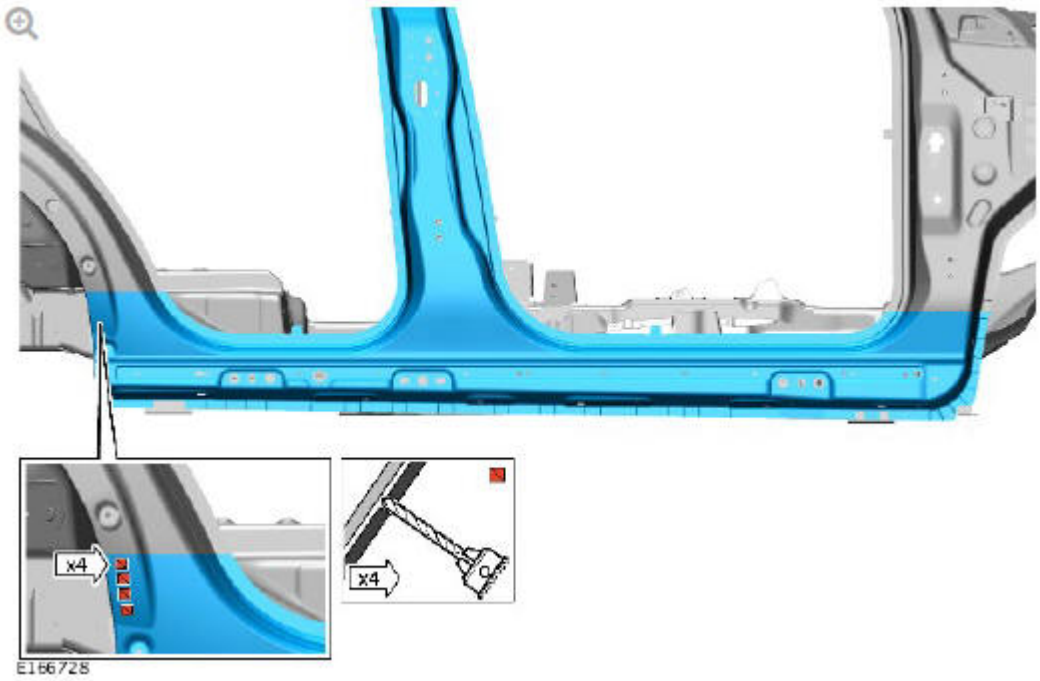
5. Cut slots in the new rocker panel and B-pillar outer where the MIG braze slot welds are to be installed as indicated.

NOTE:

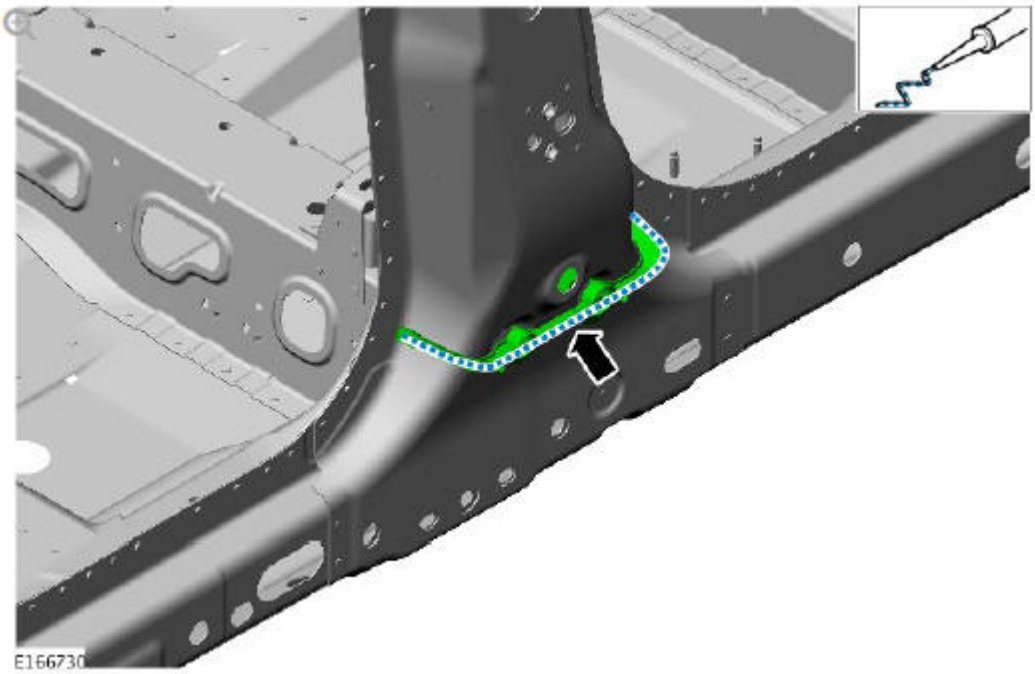
Follow Steps 1 and 2 as shown to cut the MIG braze slots.



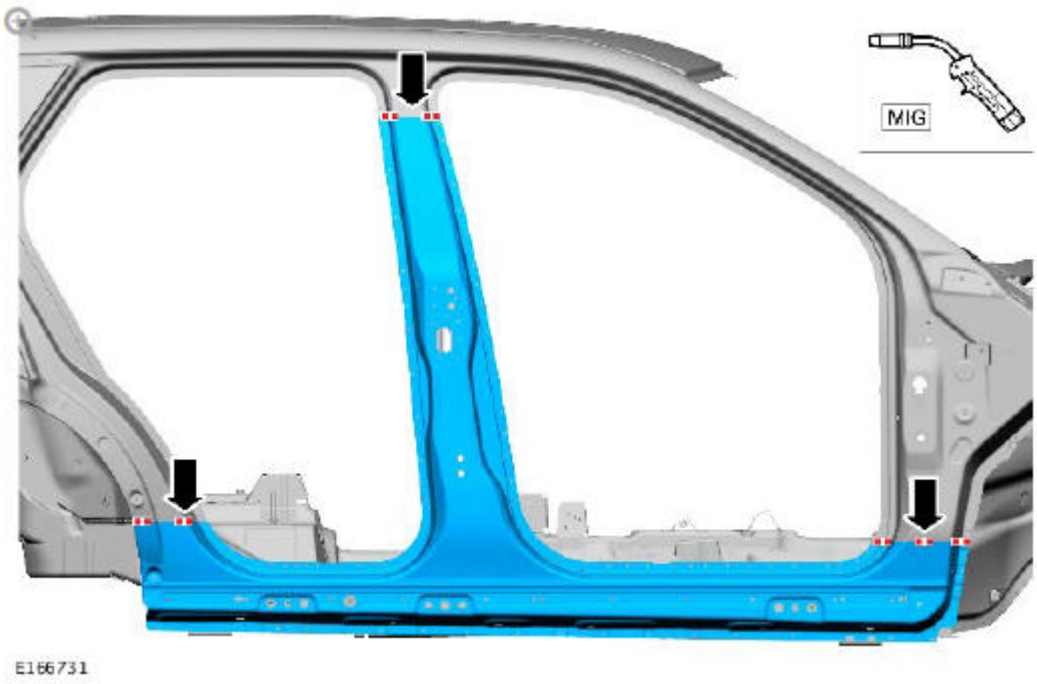
6. Cut slots in the new rocker panel and B-pillar outer where the MIG braze slot welds are to be installed as indicated.



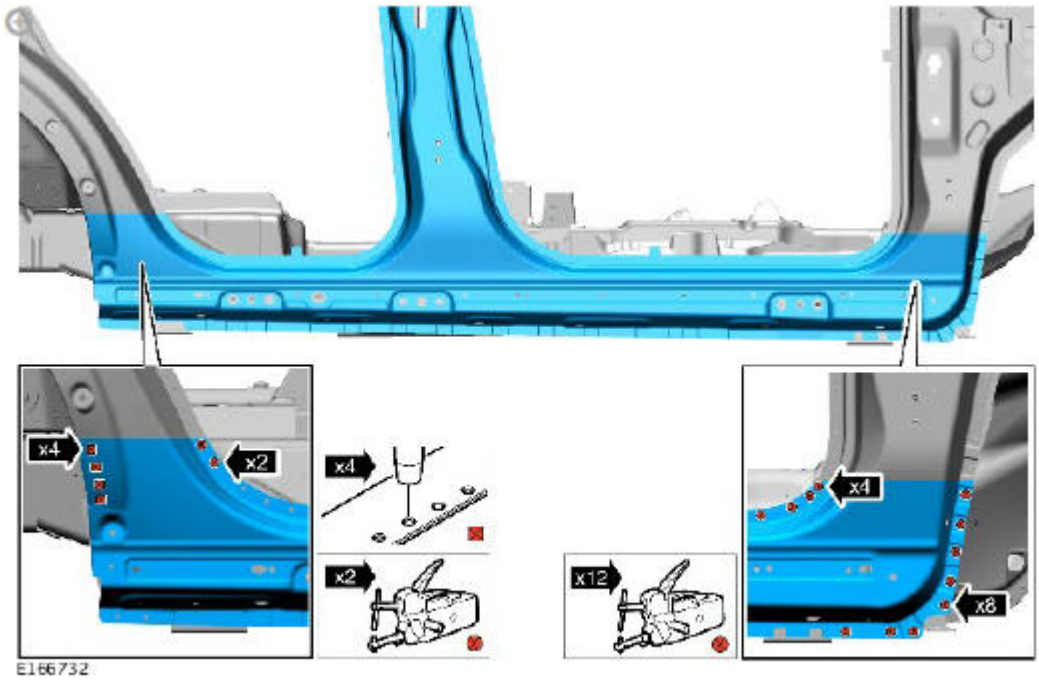
7. Drill holes in new rocker panel and B-pillar outer where the MIG plug welds are to be installed as indicated.
8. Remove the new rocker panel and B-pillar outer.
9. Deburr the drilled holes and slots.
10. Clean and prepare the panel surfaces including the Noise, Vibration and Harshness (NVH) component.
11. Apply a 5 mm bead of Land Rover recommended sealer to the NVH component as indicated.



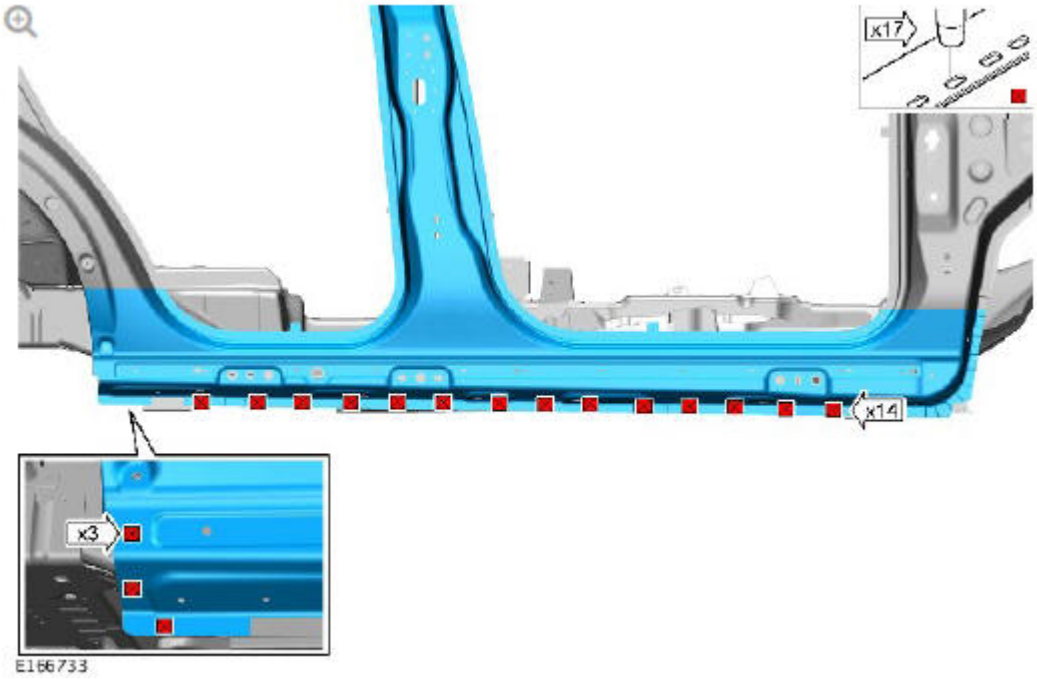
12. Offer up the new rocker panel and B-pillar outer and clamp into position. Check alignment if correct, proceed to next step, if not, rectify and recheck before proceeding.



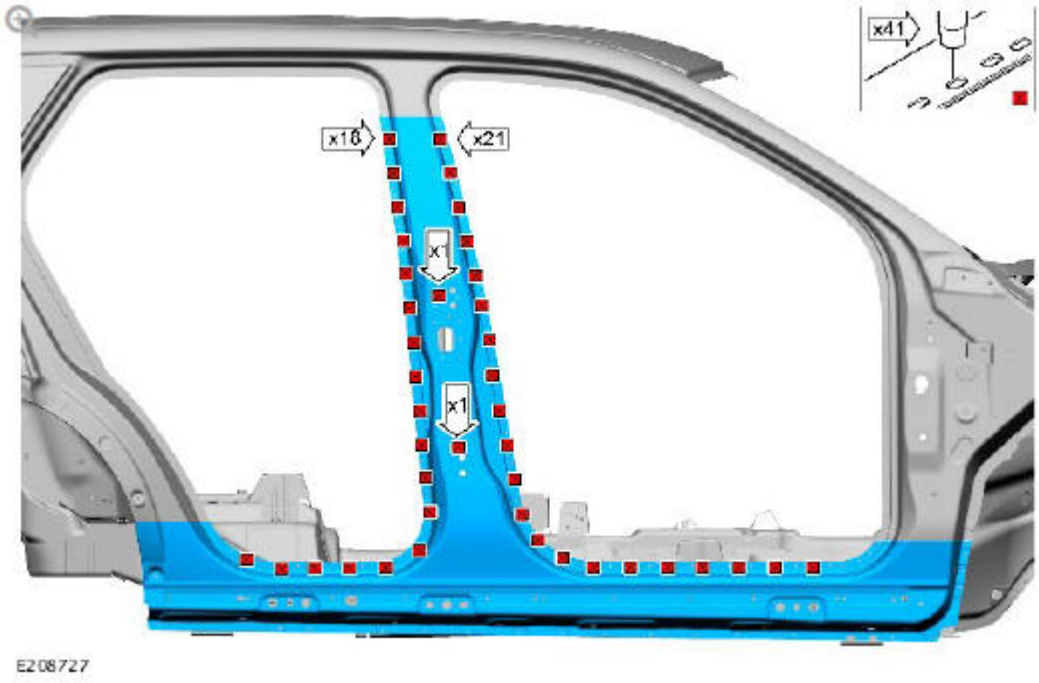
13. Tack MIG weld the butt joints as indicated.



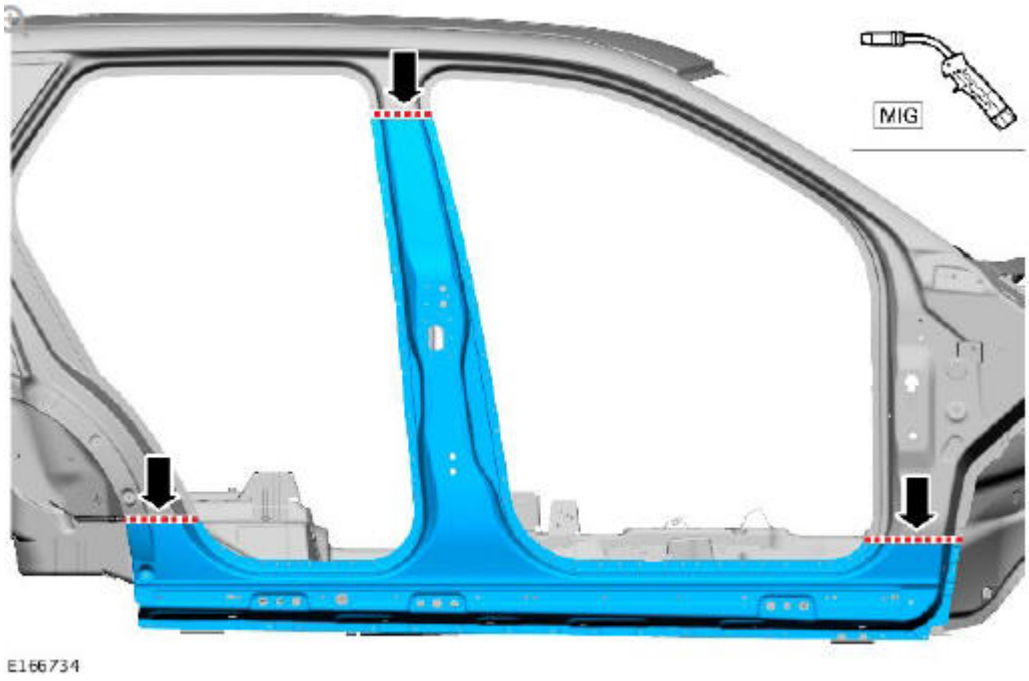
14. Install the spot and MIG plug welds as indicated.



15. Install the MIG braze slot welds as indicated.



16. Install the MIG braze slot welds as indicated.



17. MIG weld the butt joints as indicated.
18. Dress all welds.
19. Install the front door lower door hinge and tighten the bolts to 30 Nm.
20. Install the rear door upper and lower hinges and tighten the bolts to 30 Nm.
21. Apply a Land Rover recommended sealer and seal the panel flange edges of the MIG braze slot welds in the door aperture areas to prevent water ingress.
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. The installation of associated panels and components is the reversal of removal procedure.

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Side Panel Sheet Metal Repairs Rocker Panel and 'B' Pillar Outer Panel (G1770927) - RemovalSide Panel Sheet Metal Repairs Rocker Panel and B Pillar Inner (G1770926)

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Боковой панель ремонт кузовных панелей порог и В стойка кузова внутренний

Side Panel Sheet Metal Repairs Rocker Panel and B Pillar Inner (G1770926)

- Side Panel Sheet Metal Repairs Rocker Panel and B Pillar Inner (G1770926) - Removal
- Side Panel Sheet Metal Repairs Rocker Panel and B Pillar Inner (G1770926) - Installation

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Side Panel Sheet Metal Repairs Rocker Panel and 'B' Pillar Outer Panel (G1770927) - InstallationSide Panel Sheet Metal Repairs Rocker Panel and B Pillar Inner (G1770926) - Removal

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Боковой панель ремонт кузовных панелей порог и В стойка кузова внутренний - снятие

Side Panel Sheet Metal Repairs Rocker Panel and B Pillar Inner (G1770926) - Removal

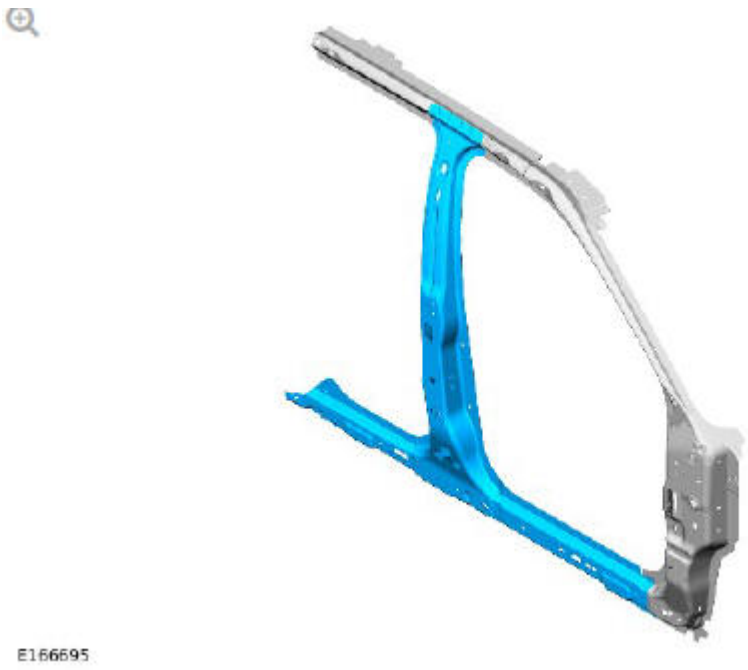
NOTE:

The rocker panel and B-pillar inner is installed in conjunction with:

- *Front fender*
- *Front door*
- *Rear door*
- *B-pillar outer panel*
- *Headliner*
- *Rocker panel*

NOTE:

The rocker panel and B-pillar inner is detached from the inner ring frame as it is not serviced separately



1. The rocker panel and B-pillar inner is serviced as indicated.
2. Before commencing this procedure make sure that you are aware of all Health and Safety requirements.

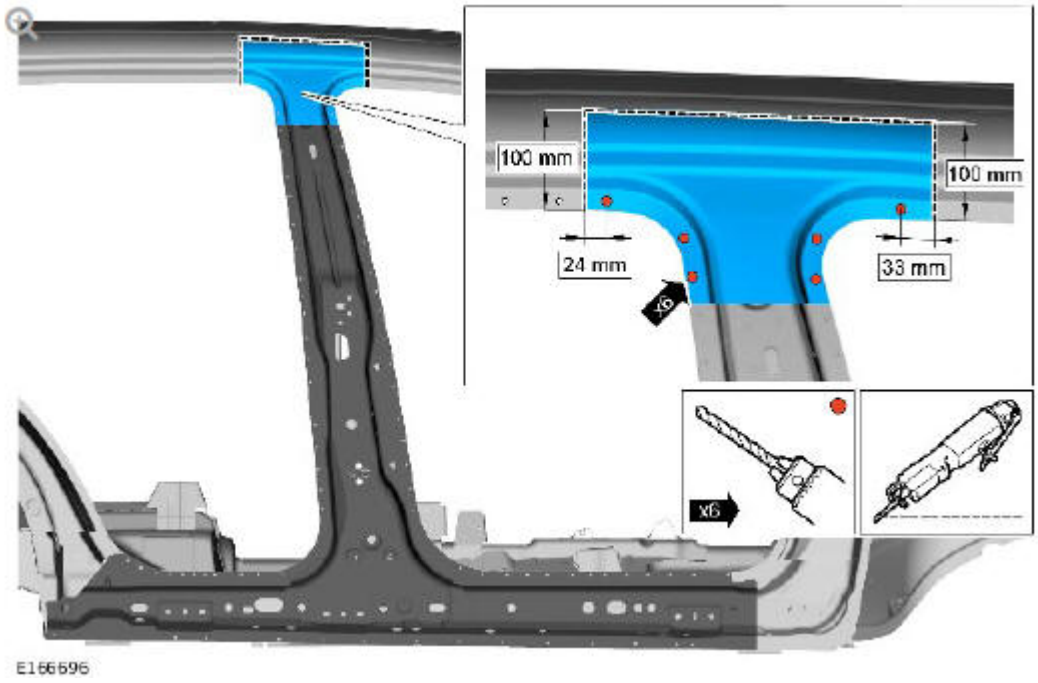
   For additional information, refer to: Health and Safety Precautions (100-00 General Information, Description and Operation).

3. For further information on the methods, tools and fixings used in this procedure refer to the body repairs - general information section.

NOTES:

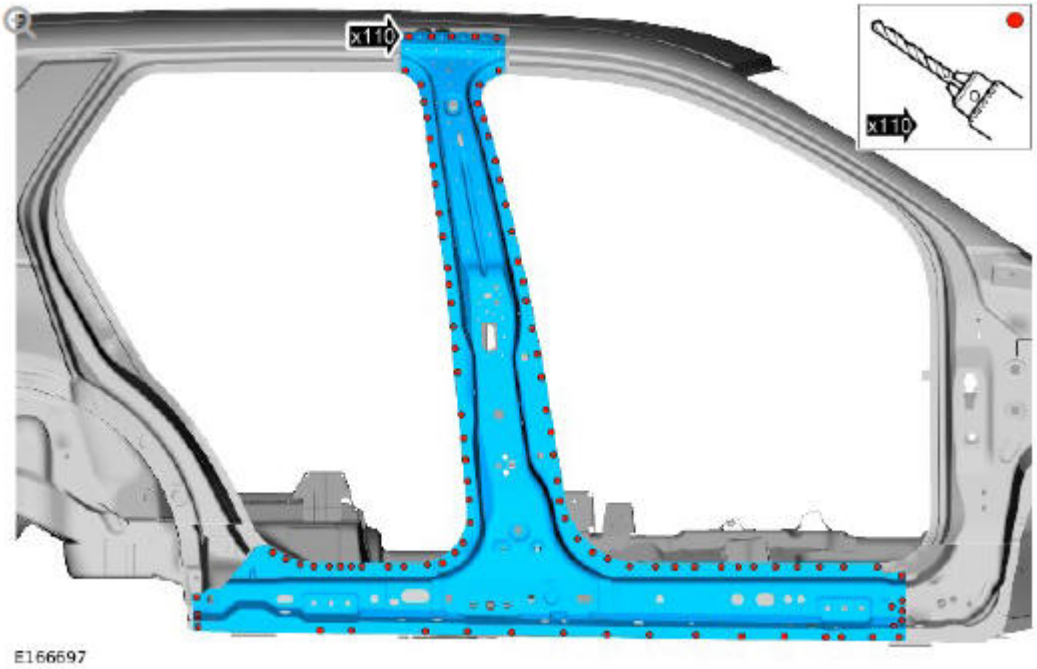
- *Any joints sealed as part of vehicle manufacture must be sealed as part of the repair.*
- *Make sure a zinc rich primer is applied to any bare metal surfaces.*

4. For additional information, refer to: Fender (501-02 Front End Body Panels, Removal and Installation).
5. For additional information, refer to: Front Door (501-03 Body Closures, Removal and Installation).
6. For additional information, refer to: Rear Door (501-03 Body Closures, Removal and Installation).
7. For additional information, refer to: 'B' Pillar Outer Panel (501-29 Side Panel Sheet Metal Repairs, Removal and Installation).
8. For additional information, refer to: Headliner (501-05 Interior Trim and Ornamentation, Removal and Installation).
9. For additional information, refer to: Rocker Panel (501-29 Side Panel Sheet Metal Repairs, Removal and Installation).
10. Release and position the floor carpet to one side.
11. Release and position the floor noise, vibration, harshness (NVH) material to one side.
12. Release and position the wiring harness to one side.
13. To install the rocker panel and B-pillar inner the B-pillar outer panel will require the following cuts to be made and spot welds to be removed as indicated.



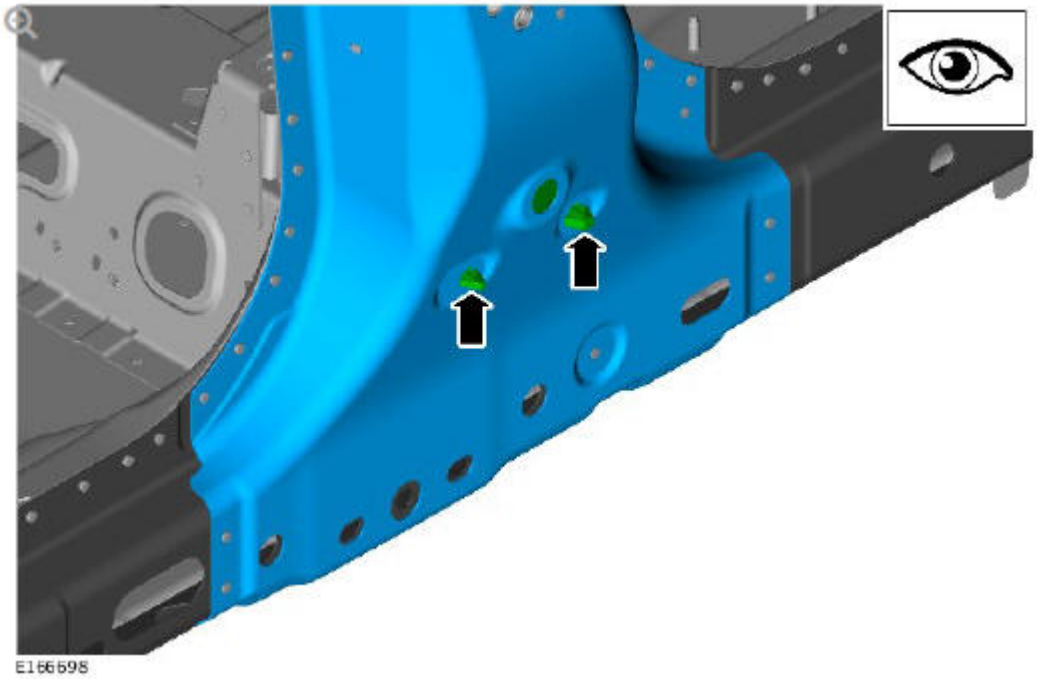
E166696

14. Remove the spot welds as indicated.



E166697

15. Carefully separate the joints and remove the panel, also releasing the Noise, Vibration and Harshness (NVH) component as indicated.



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Side Panel Sheet Metal Repairs Rocker Panel and B Pillar Inner (G1770926)Side Panel Sheet Metal Repairs Rocker Panel and B Pillar Inner (G1770926) - Installation

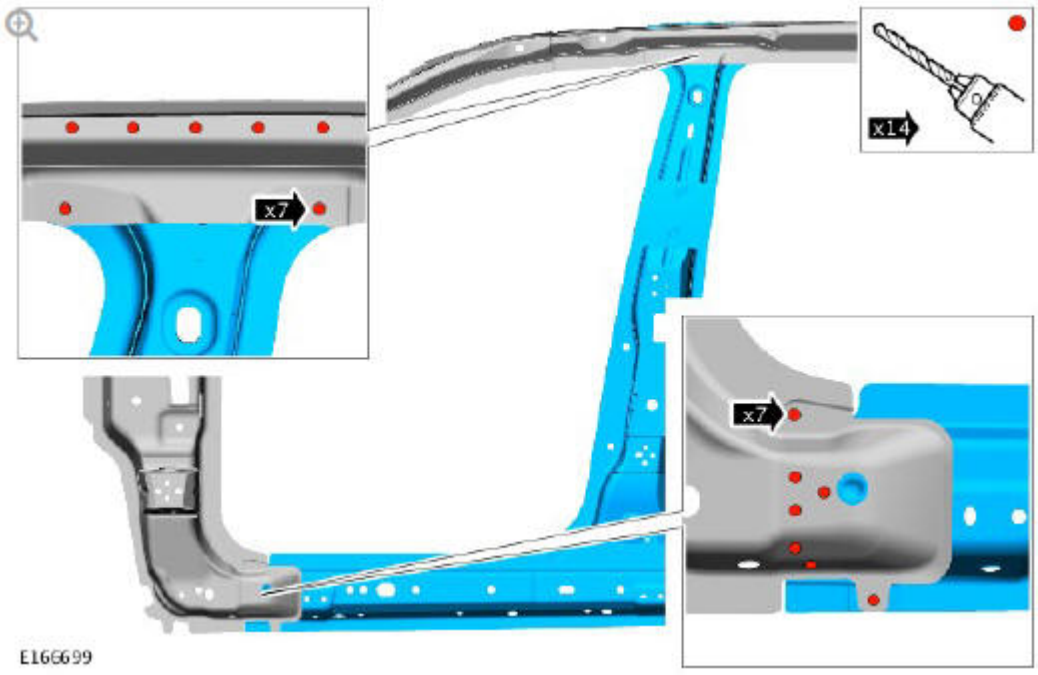
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Боковой панель ремонт кузовных панелей порог и В стойка кузова внутренний - установка

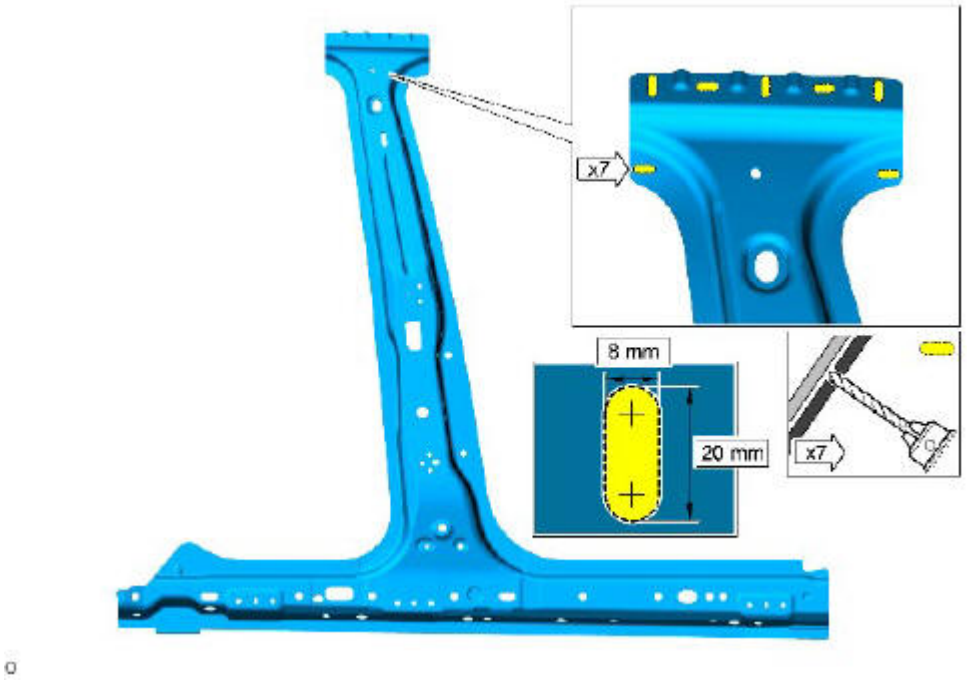
Side Panel Sheet Metal Repairs Rocker Panel and B Pillar Inner (G1770926) - Installation

Installation

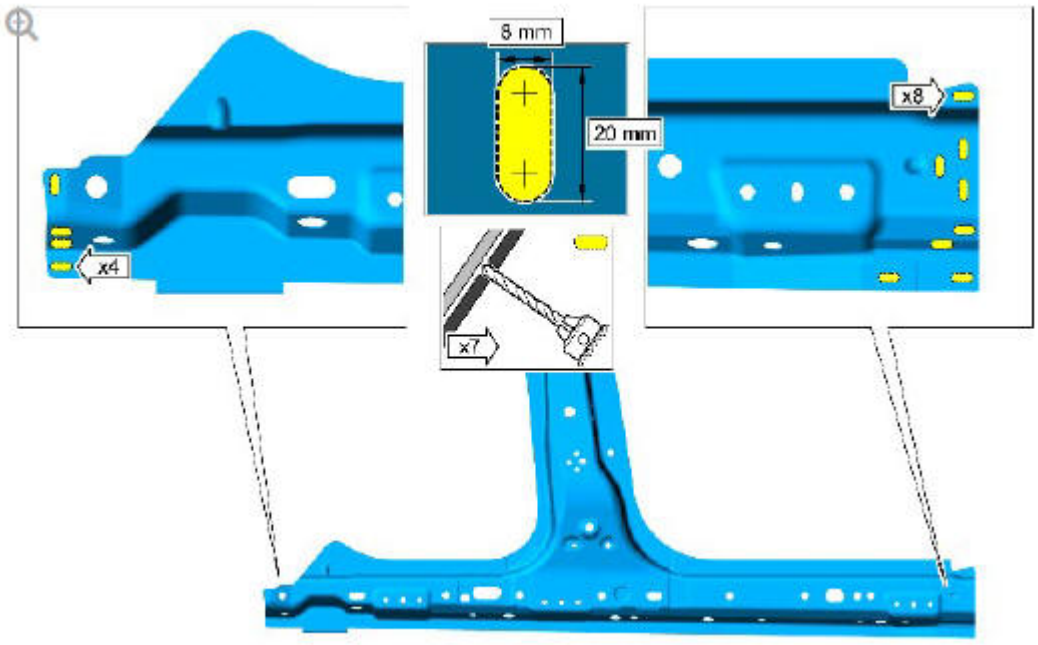
1. Dress the flanges where necessary.



2. Detach the rocker panel and B-pillar inner joints from the new ring frame as indicated.
3. Separate the joints and remove the rocker panel and B-pillar inner from the ring frame.
4. Deburr the drilled holes.
5. Clean and prepare the panel surfaces.
6. Offer up the new rocker panel and B-pillar inner and clamp into position. Check alignment, if correct, proceed to next step, if not, rectify and recheck before proceeding.
7. Cut slots in the new rocker panel and B-pillar inner where the Metal Inert Gas (MIG) braze slot welds are to be installed as indicated.



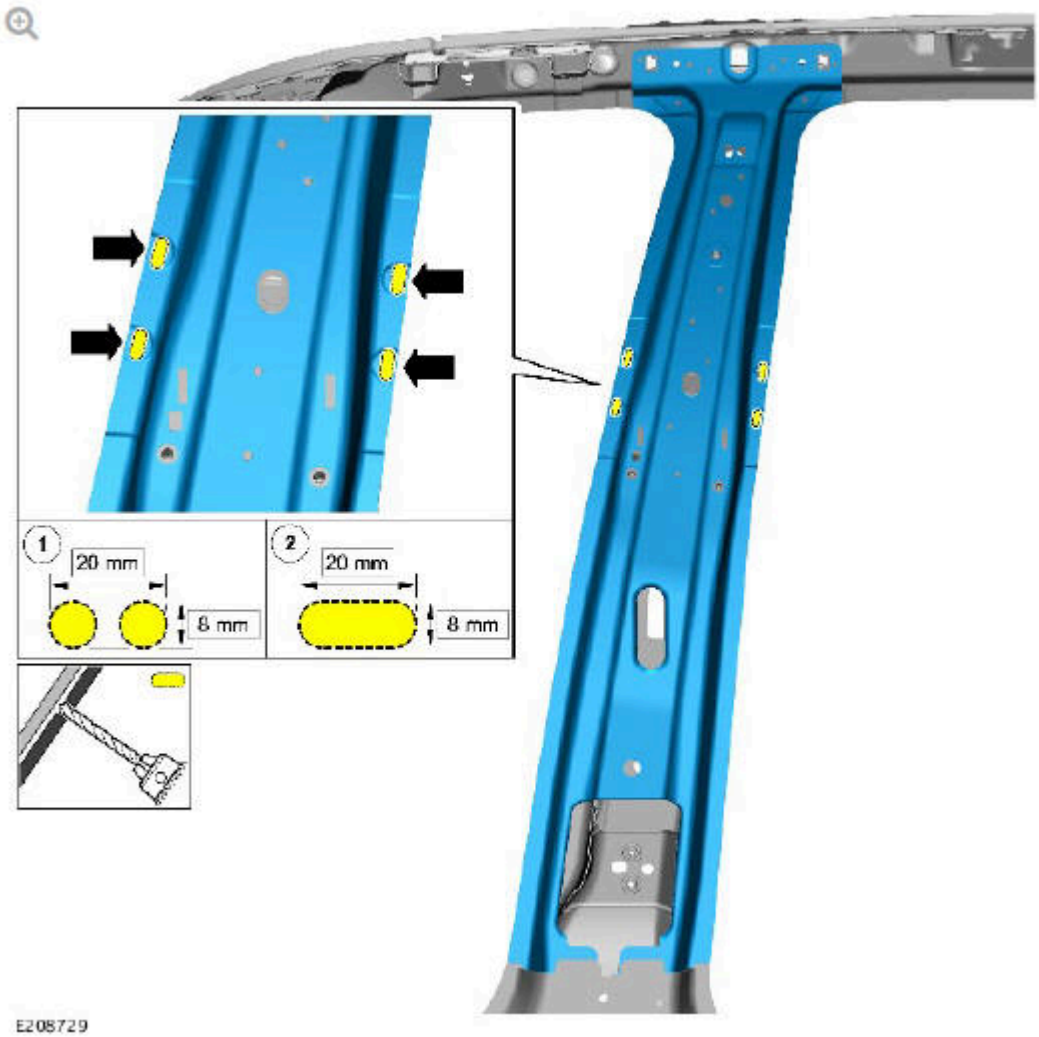
8. Cut slots in the new rocker panel and B-pillar inner where the MIG braze slot welds are to be installed as indicated.



E166701

NOTE:

Follow steps 1 and 2 as shown to cut the MIG braze slots.

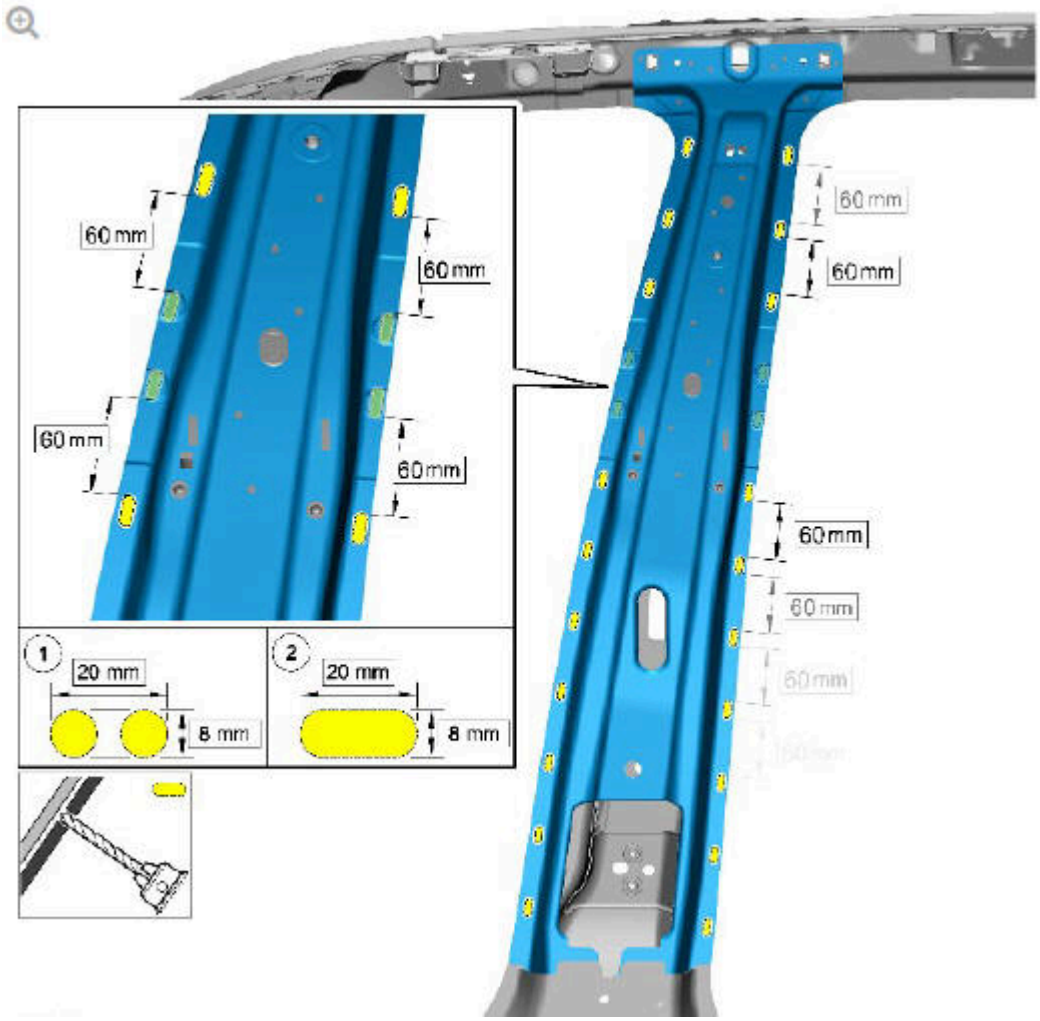


E208729

9. Cut slots in the B-pillar inner where the MIG braze slot welds are to be installed as indicated.

NOTE:

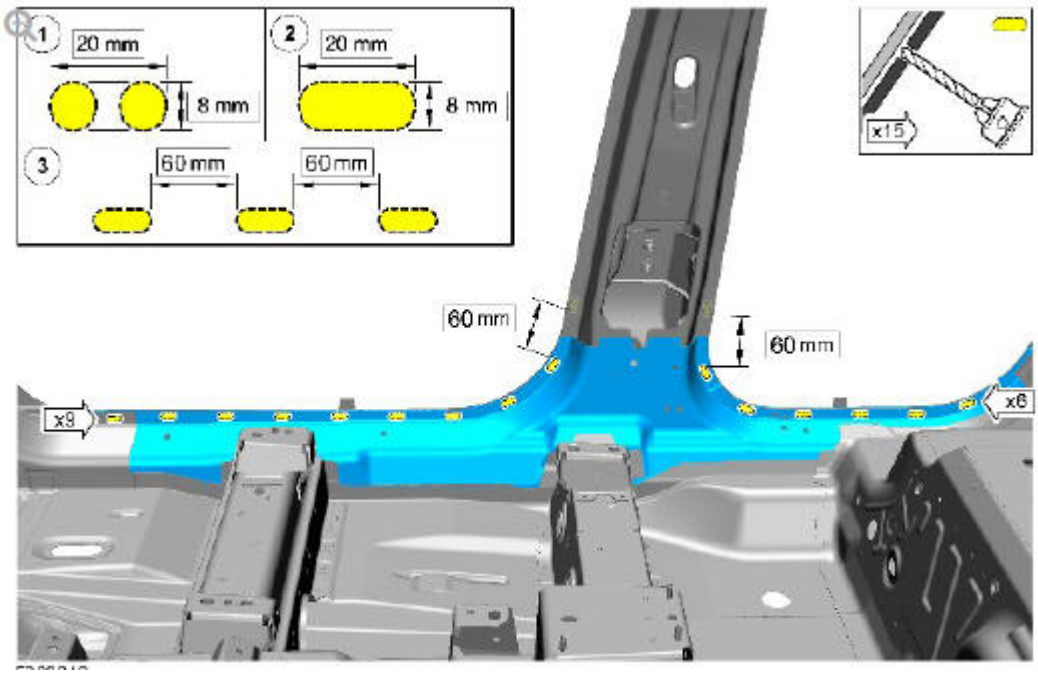
Follow steps 1 and 2 as shown to cut the MIG braze slots.



10. Cut slots in the B-pillar inner where the MIG braze slot welds are to be installed as indicated.

NOTE:

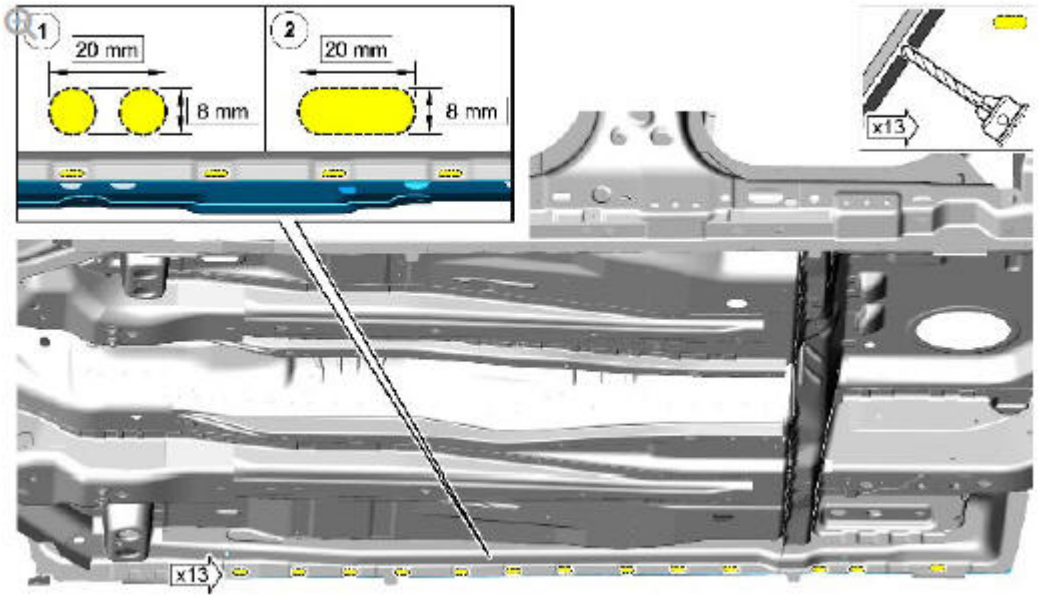
Follow steps 1 to 3 as shown to cut the MIG braze slots.



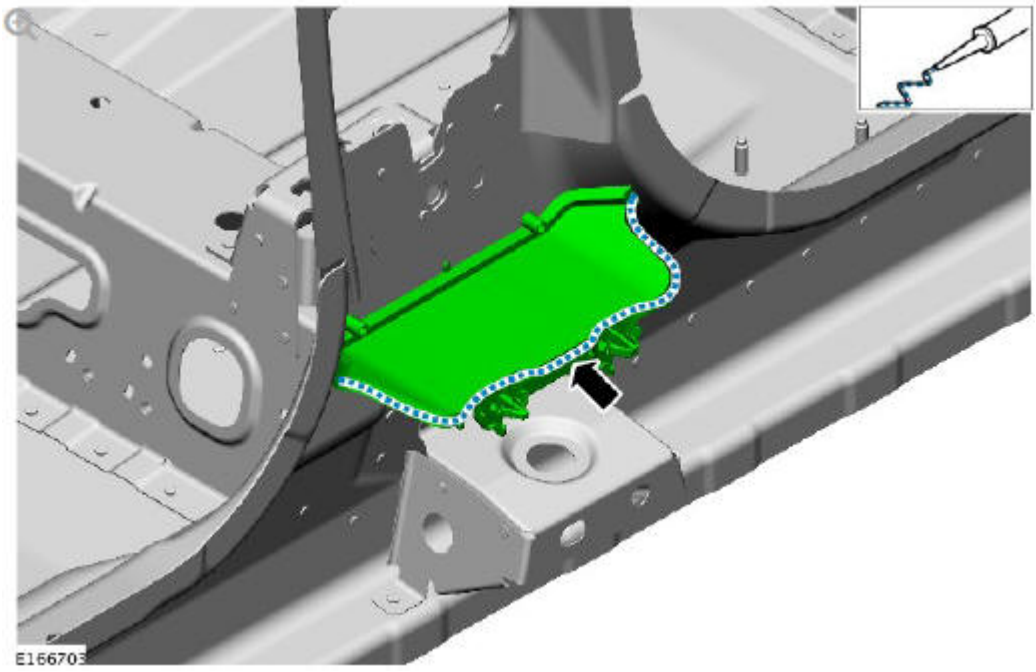
11. Cut slots in the new rocker panel and B-pillar inner where the MIG braze slot welds are to be installed as indicated.

NOTE:

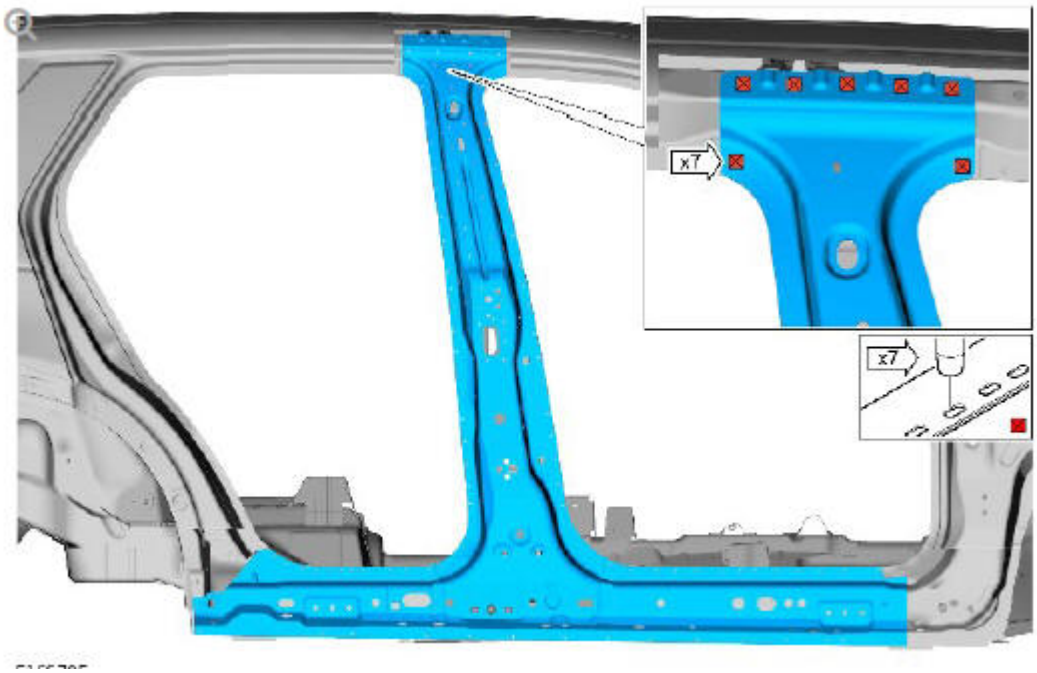
Follow steps 1 and 2 as shown to cut the MIG braze slots.



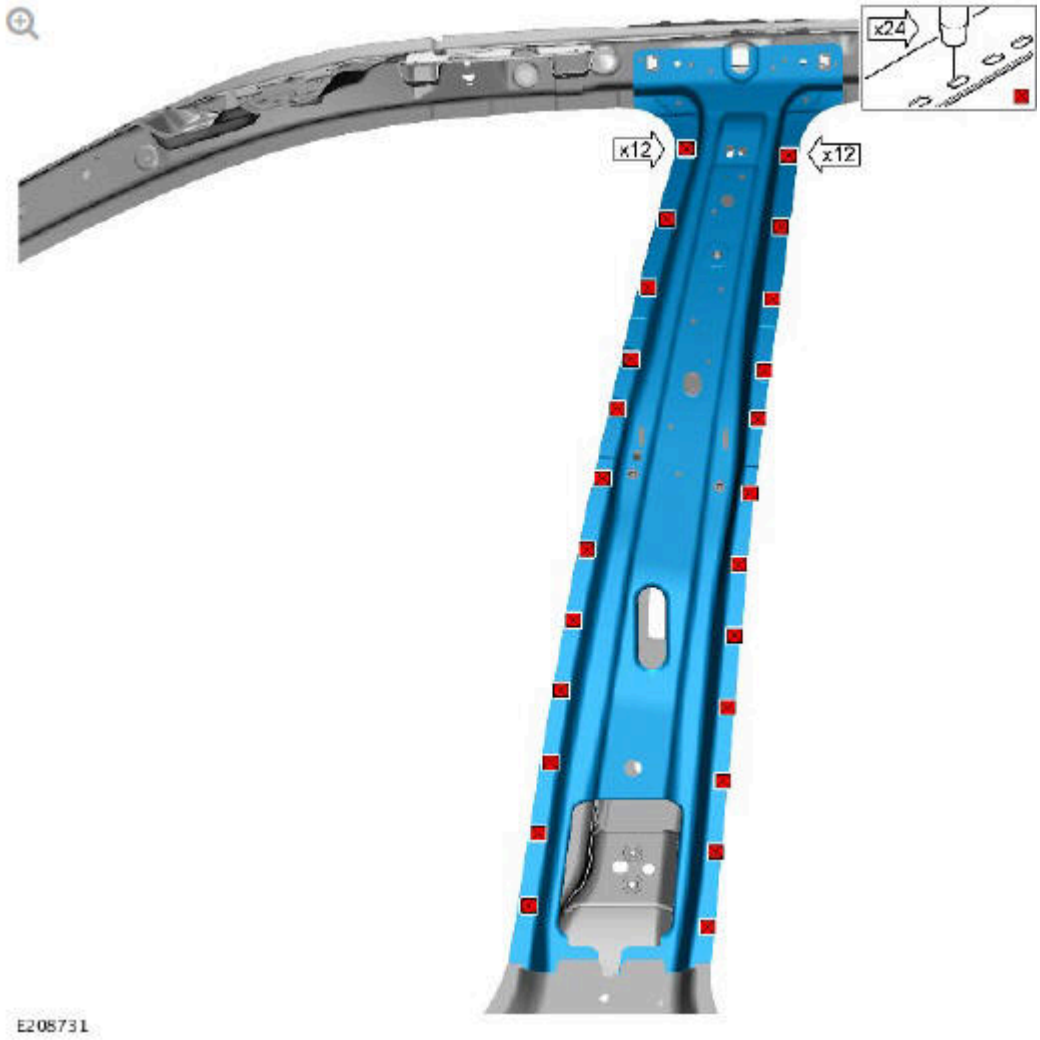
12. Cut slots in the rocker panel inner where the MIG braze slot welds are to be installed as indicated.
13. Remove the new rocker panel and B-pillar inner.
14. Deburr the drilled slots.
15. Clean and prepare the panel surfaces.



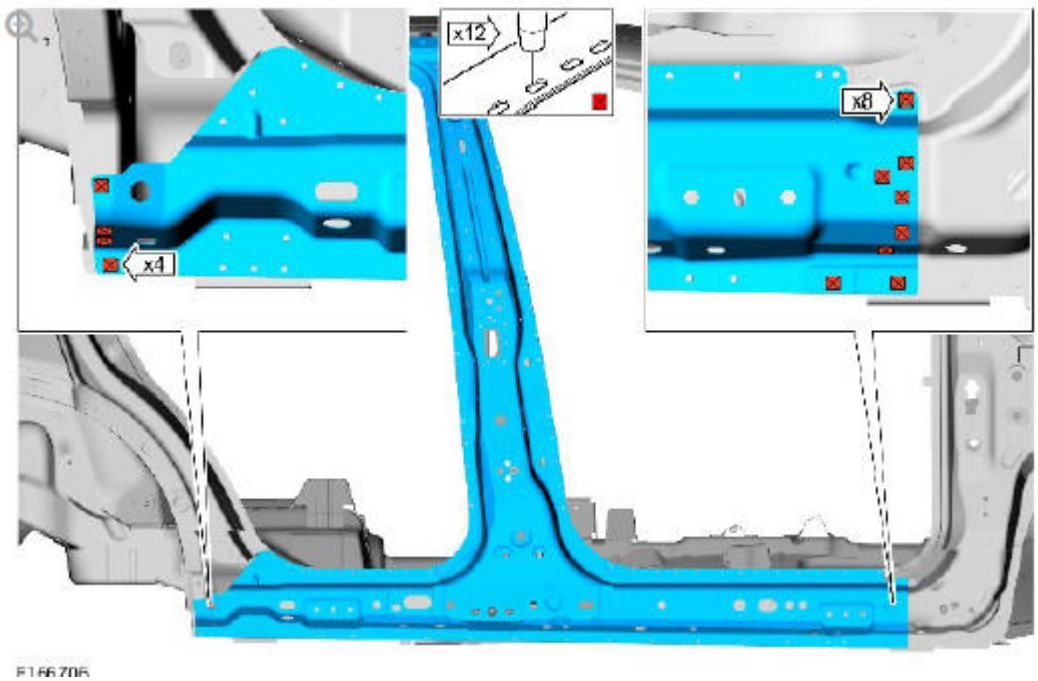
16. Apply a 5 mm bead of Land Rover approved sealer to the Noise, Vibration and Harshness (NVH) component as indicated.
17. Offer up the new rocker panel and B-pillar inner and clamp into position. Check alignment, if correct, proceed to next step, if not, rectify and recheck before proceeding.



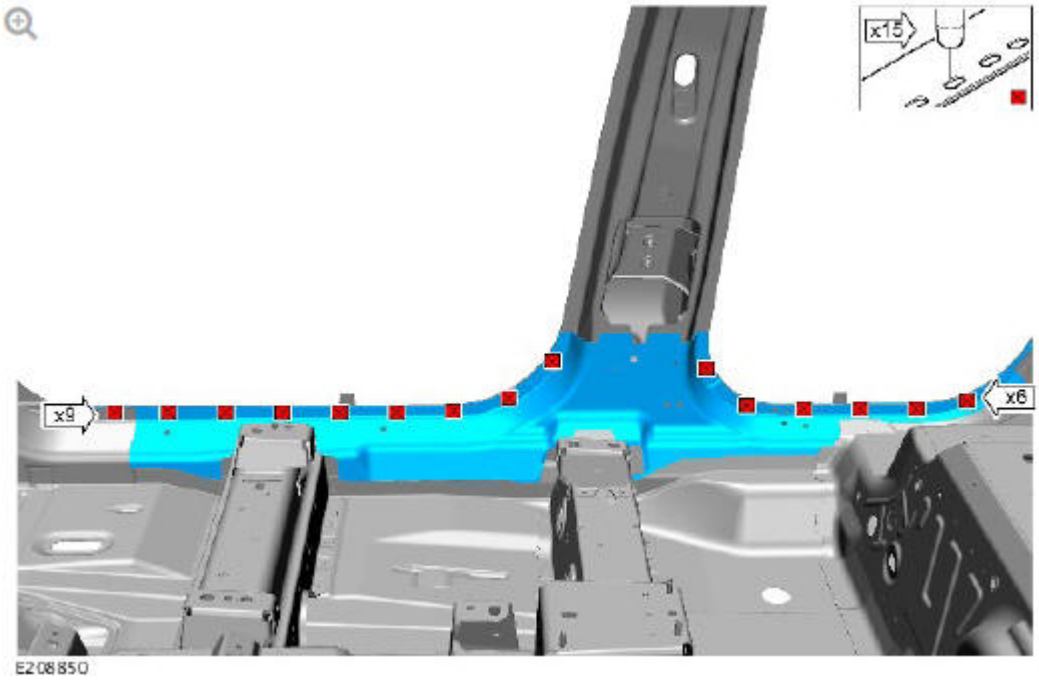
18. Install the MIG braze slot welds as indicated.



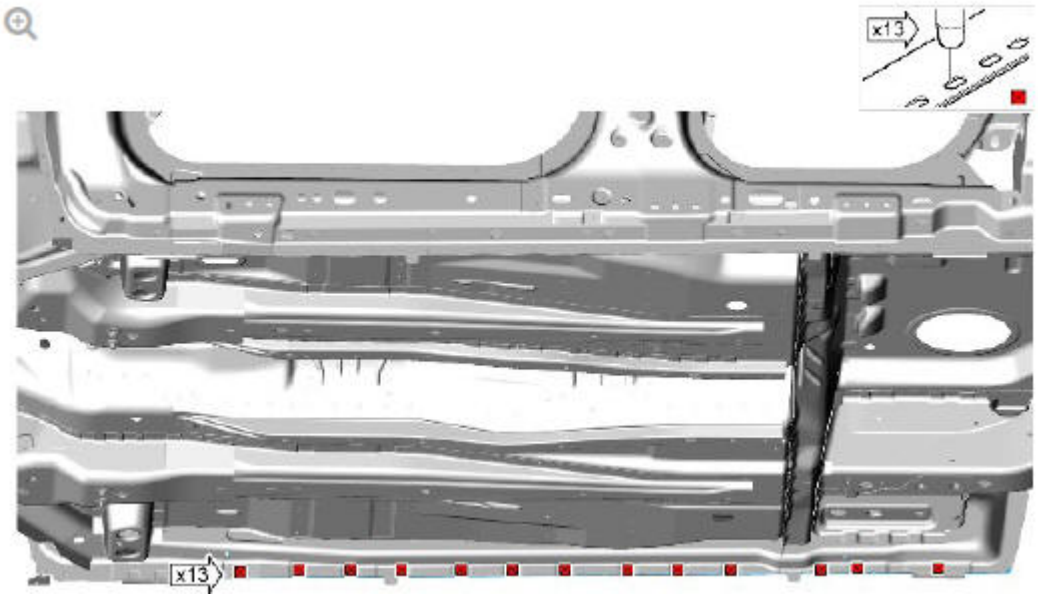
19. Install the MIG braze slot welds as indicated.



20. Install the MIG braze slot welds as indicated.



21. Install the MIG braze slot welds as indicated.



22. Install the MIG braze slot welds as indicated.
23. Dress all welded joints.
24. Make sure that any open or exposed panel joints are correctly sealed.
25. Make sure corrosion protection is applied to all areas affected by repair.
26. The installation of associated panels and components is the reversal of removal procedure.

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Side Panel Sheet Metal Repairs Rocker Panel and B Pillar Inner (G1770926) - RemovalSide Panel Sheet Metal Repairs Rocker Panel (G1770907)

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Боковой панель ремонт кузовных панелей порог

Side Panel Sheet Metal Repairs Rocker Panel (G1770907)

- Side Panel Sheet Metal Repairs Rocker Panel (G1770907) - Removal
- Side Panel Sheet Metal Repairs Rocker Panel (G1770907) - Installation

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Side Panel Sheet Metal Repairs Rocker Panel and B Pillar Inner (G1770926) - InstallationSide Panel Sheet Metal Repairs Rocker Panel (G1770907) - Removal

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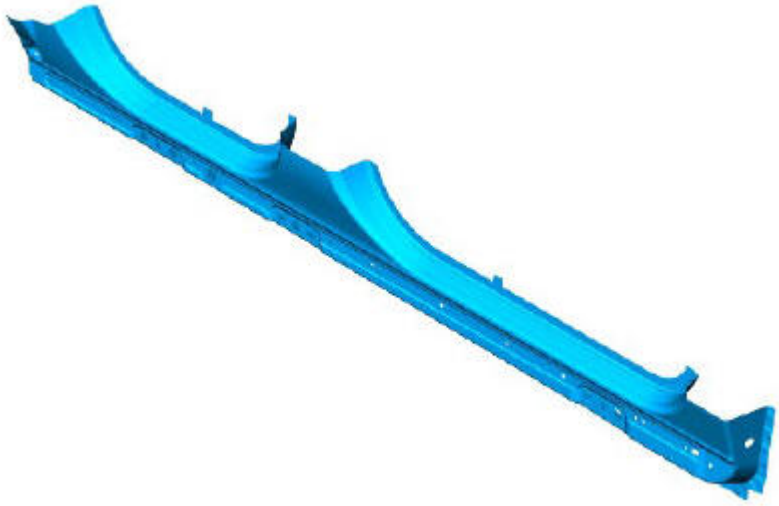
Боковой панель ремонт кузовных панелей порог - снятие

Side Panel Sheet Metal Repairs Rocker Panel (G1770907) - Removal

NOTE:

The rocker panel is installed in conjunction with:

- *Front bumper cover*
- *Front fender*
- *Front fender splash shield*
- *Front door*
- *Rear door*
- *front seat*
- *Rear seat cushion*
- *Cowl side trim panel*
- *B-Pillar lower trim panel*
- *Front scuff plate trim panel*
- *Front safety belt retractor*
- *Rear quarter panel moulding*
- *Rocker panel moulding*



1. The rocker panel is serviced as indicated.
2. Before commencing this procedure make sure that you are aware of all Health and Safety requirements.

   For additional information, refer to: Health and Safety Precautions (100-00 General Information, Description and Operation).

3. For further information on the methods, tools and fixings used in this procedure refer to the body repairs - general information section.

NOTES:

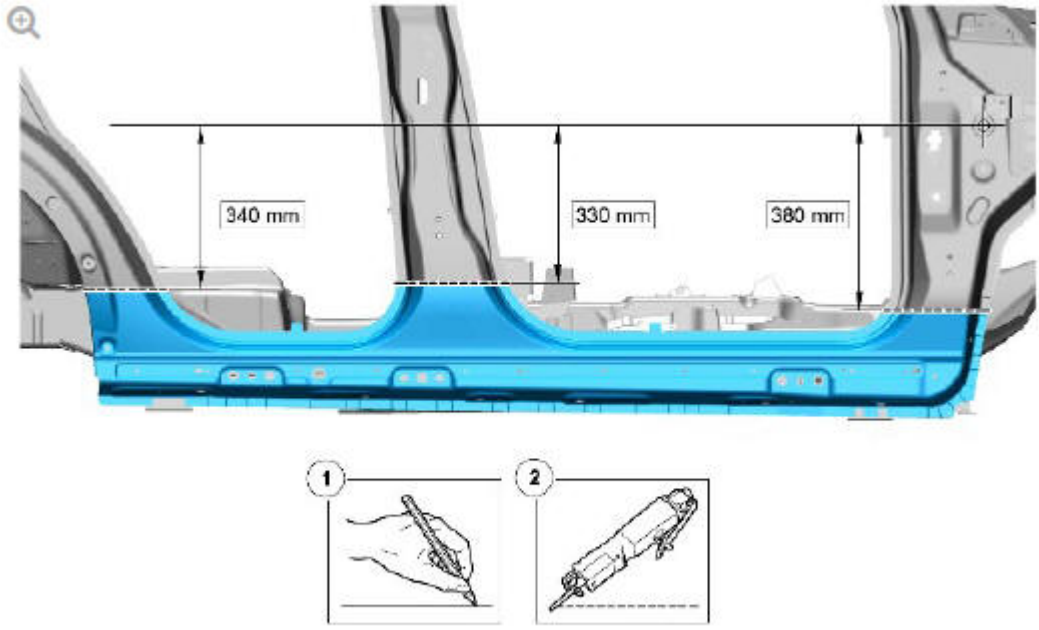
- *Any joints sealed as part of vehicle manufacture must be sealed as part of the repair.*
- *Make sure a zinc rich primer is applied to any bare metal surfaces.*

4. For additional information, refer to: Front Bumper Cover (501-19 Bumpers, Removal and Installation).
5. For additional information, refer to: Fender (501-02 Front End Body Panels, Removal and Installation).
6. For additional information, refer to: Fender Splash Shield (501-02 Front End Body Panels, Removal and Installation).
7. For additional information, refer to: Front Door (501-03 Body Closures, Removal and Installation).
8. For additional information, refer to: Rear Door (501-03 Body Closures, Removal and Installation).
9. For additional information, refer to: Front Row Seat - Vehicles With: Power Seats (501-10 Seating, Removal and Installation).
10. For additional information, refer to: Rear Seat (501-10 Seating, Removal and Installation).
11. For additional information, refer to: Cowl Side Trim Panel (501-05 Interior Trim and Ornamentation, Removal and Installation).
12. For additional information, refer to: 'B' Pillar Lower Trim Panel (501- 05 Interior Trim and Ornamentation, Removal and Installation).
13. For additional information, refer to: Front Scuff Plate Trim Panel (501-05 Interior Trim and Ornamentation, Removal and Installation).
14. For additional information, refer to: Front Safety Belt Retractor (501-20A Seatbelt System, Removal and Installation).
15. For additional information, refer to: Rear Quarter Panel Moulding (501-08 Exterior Trim and Ornamentation, Removal and Installation).
16. For additional information, refer to: Rocker Panel Moulding (501-08 Exterior Trim and Ornamentation, Removal and Installation).
17. Release and position the floor carpet to one side.

18. Release and position the floor Noise, Vibration and Harshness (NVH) material to one side.
19. Release and position the bulkhead NVH material to one side.
20. Release and position the wiring harness to one side
21. Remove the front door lower door hinge from the A pillar.
22. Remove the rear door lower door hinge from the B pillar.
23. Using a combination of the new rocker panel and the measurements mark out the position on the vehicle where the Metal Inert Gas (MIG) brazed butt joints are to be made. Cut through the panel as indicated.

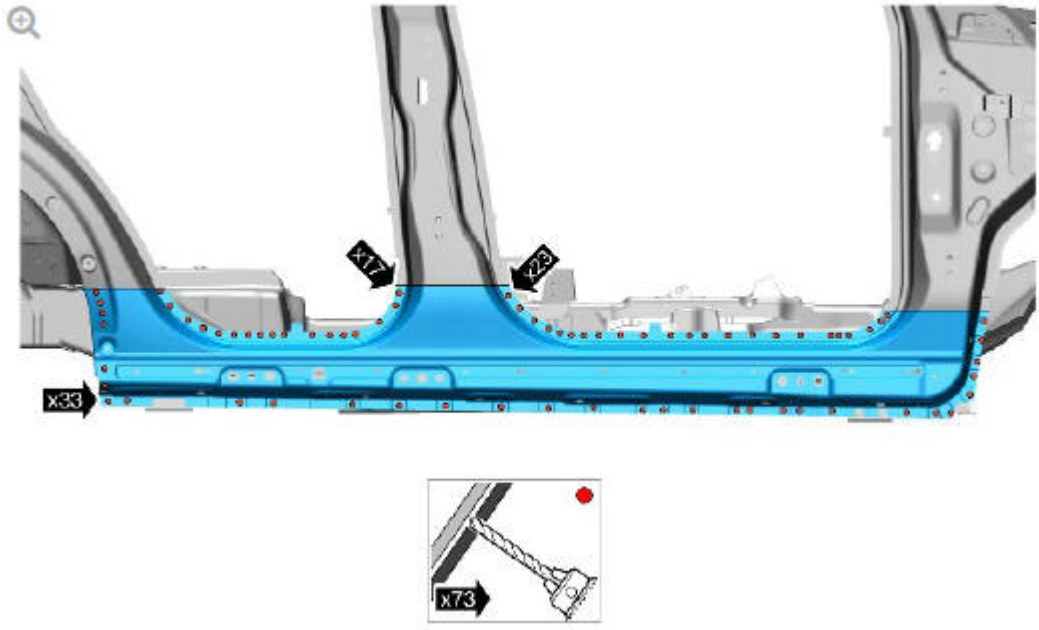
CAUTION:

<u>Care should be taken not to cut through into the inner reinforcements.</u>



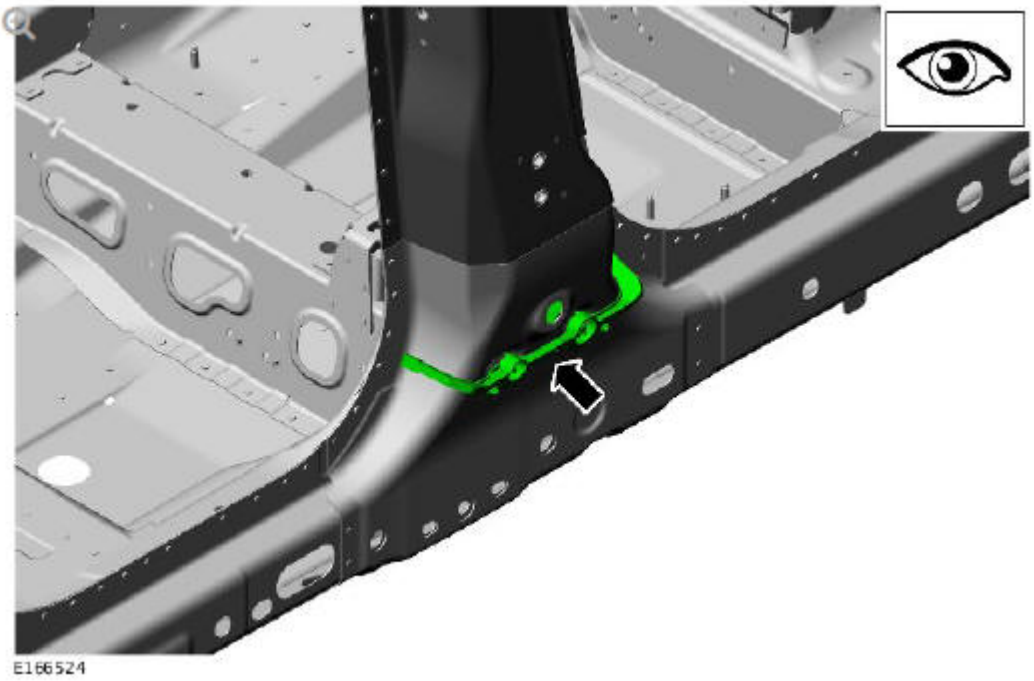
E166522

24. Remove the spot welds as indicated.



NOTE:

Avoid where possible damaging the NVH components located behind the rocker panel.



25. Separate the joints and remove the rocker panel, also releasing the NVH components as indicated.

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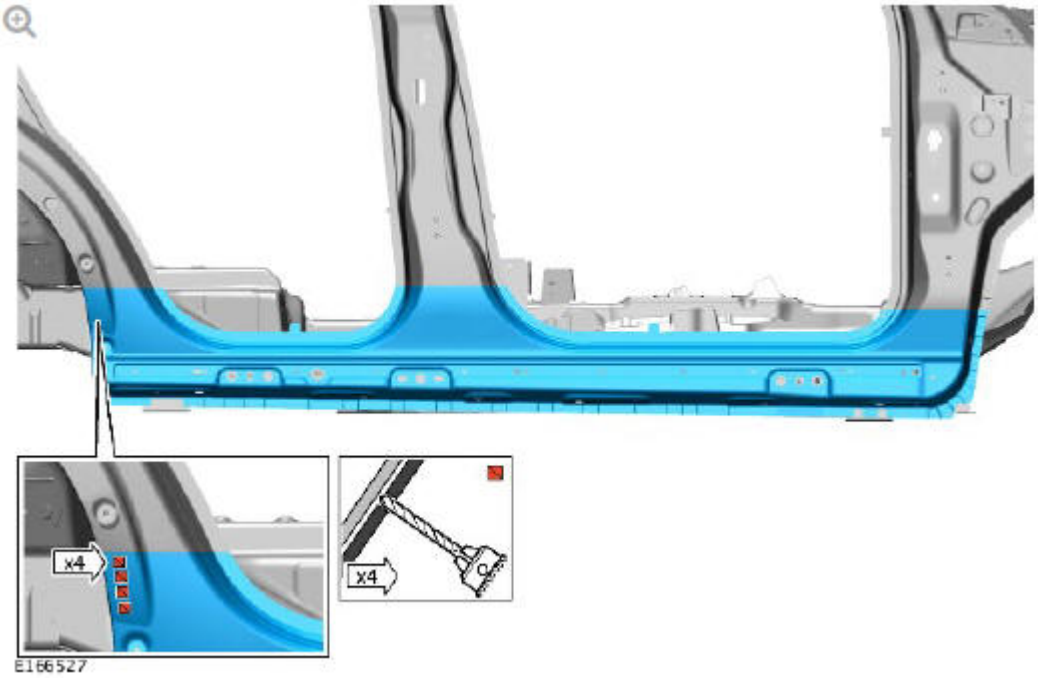
Side Panel Sheet Metal Repairs Rocker Panel (G1770907)Side Panel Sheet Metal Repairs Rocker Panel (G1770907) - Installation

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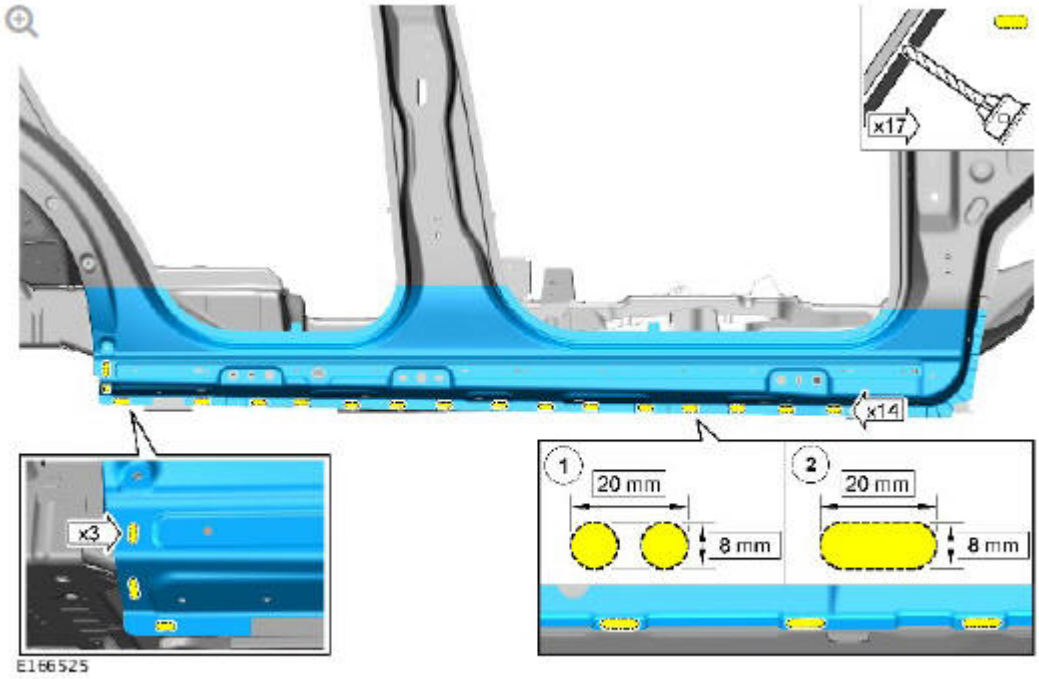
Боковой панель ремонт кузовных панелей порог - установка

Side Panel Sheet Metal Repairs Rocker Panel (G1770907) - Installation

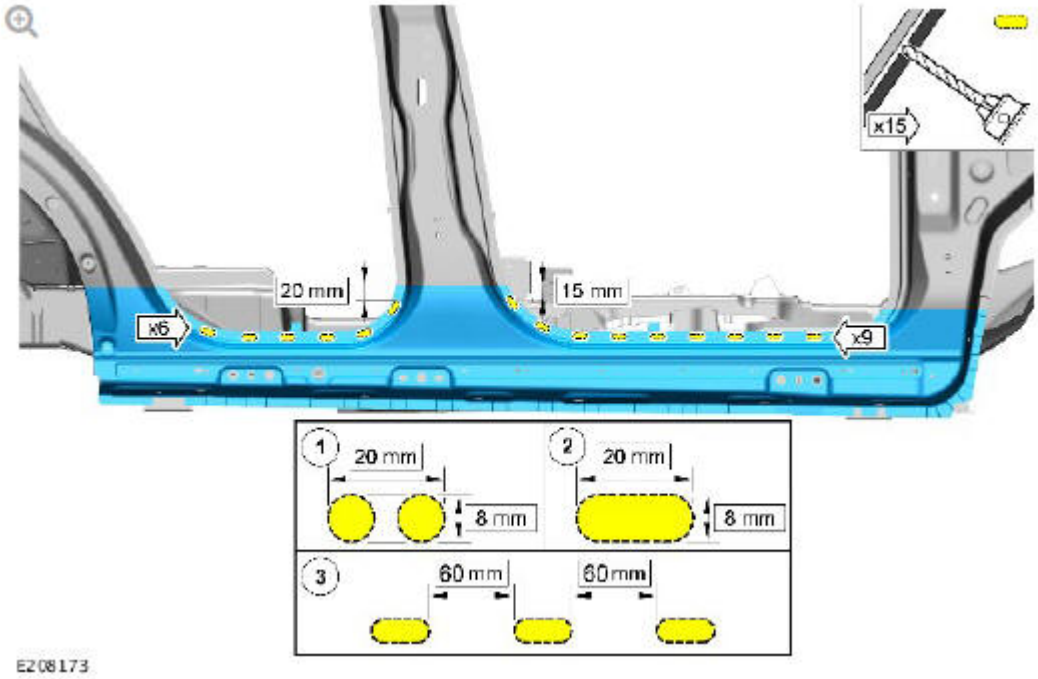
1. Dress the flanges where necessary.
2. Offer up the new rocker panel and clamp into position. Check alignment if correct, proceed to next step, if not, rectify and recheck before proceeding.



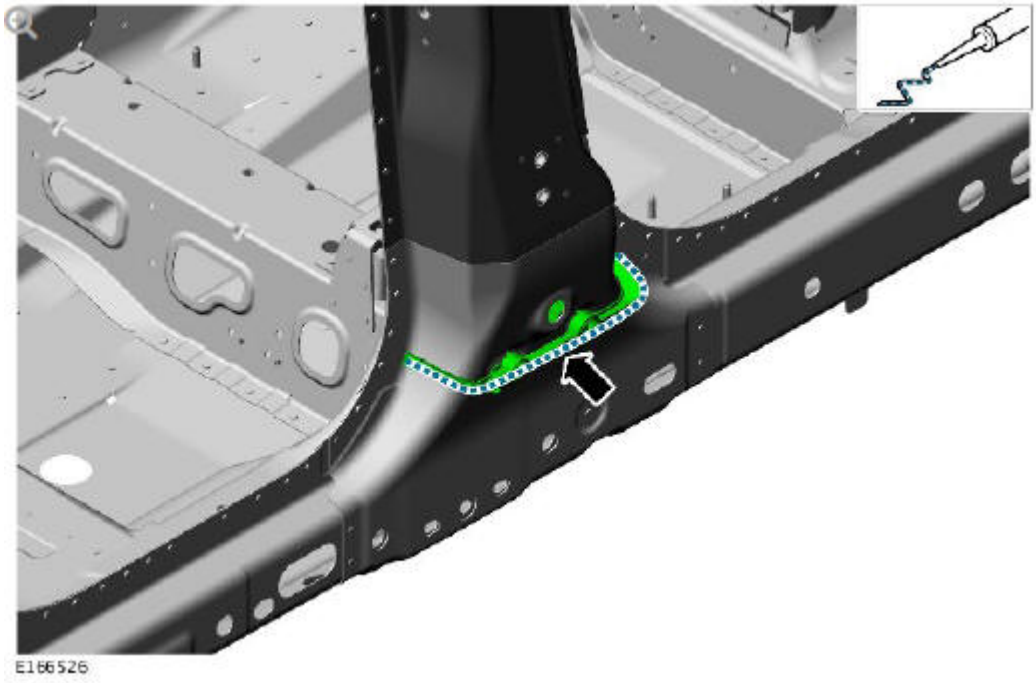
3. Drill holes in new rocker panel where the Metal Inert Gas (MIG) plug welds are to be installed as indicated.



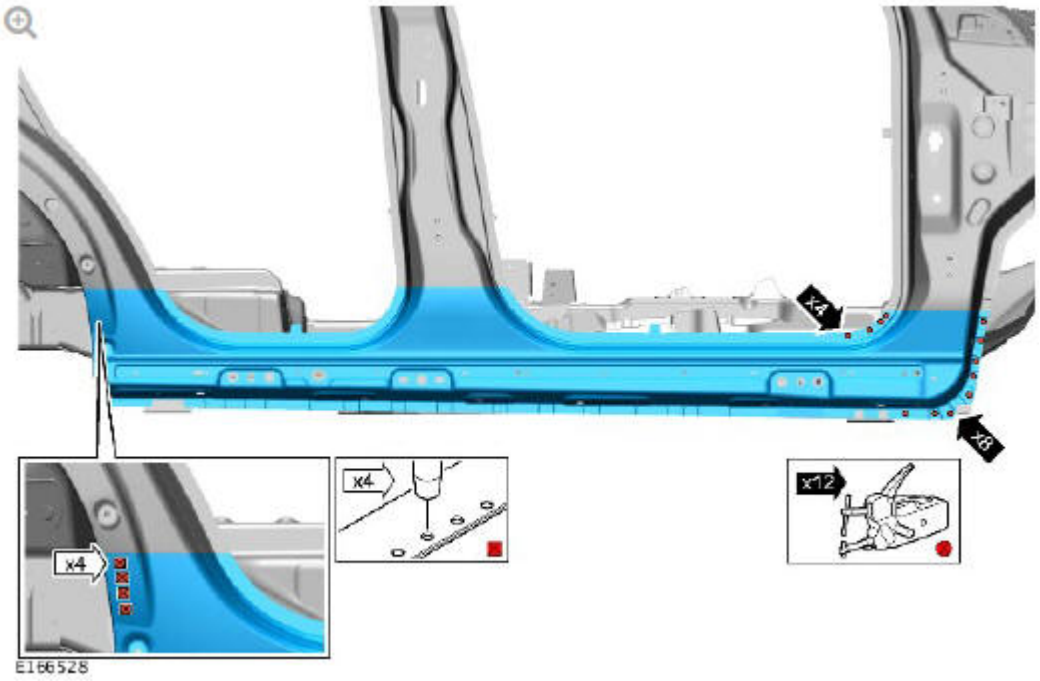
4. Cut slots in the new rocker panel where the MIG braze slot welds are to be installed as indicated.
5. Cut slots in the new rocker panel where the MIG braze slot welds are to be installed as indicated.



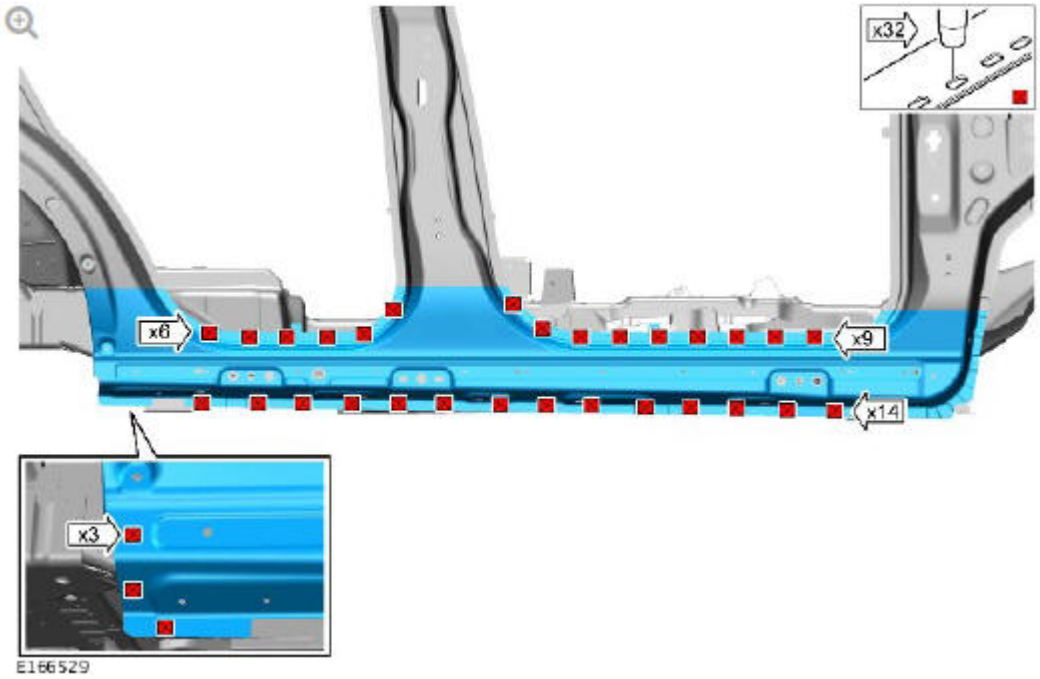
6. Remove the new rocker panel.
7. Deburr the drilled holes.
8. Clean and prepare the old and new panel joint surfaces including the Noise, Vibration and Harshness (NVH) components.
9. Apply a 5 mm bead of Land Rover recommended sealer to the NVH components as indicated.



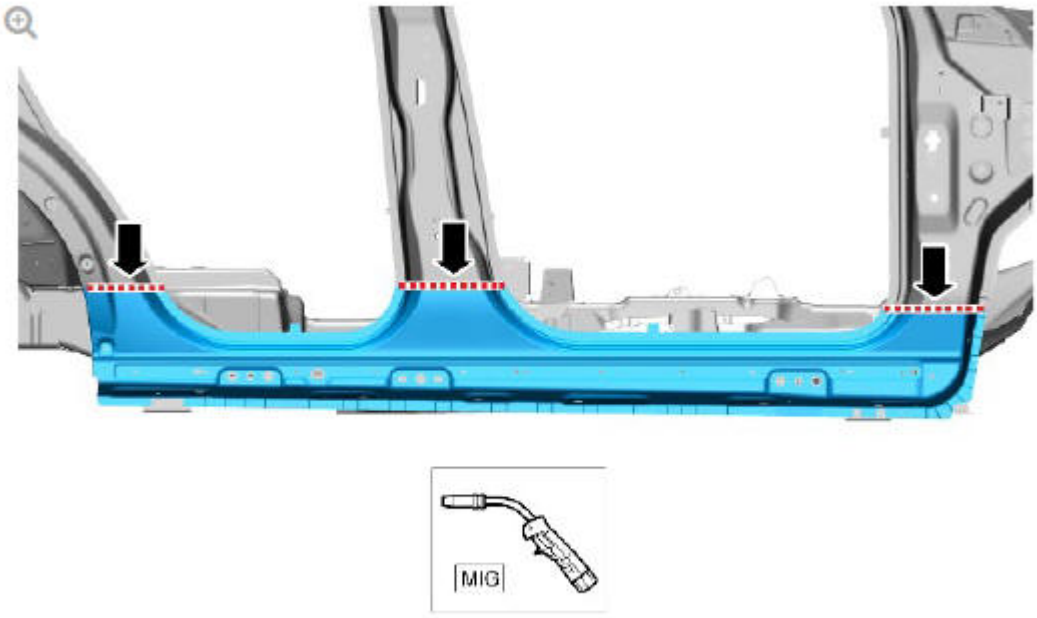
10. Offer up the new rocker panel and clamp into position. Check alignment if correct, proceed to next step, if not, rectify and recheck before proceeding.
11. Tack MIG weld the A pillar butt joint.
12. Tack MIG weld the B pillar butt joint.
13. Tack MIG weld the quarter panel butt joint.



14. Install the spot and MIG plug welds as indicated.



15. Install the MIG braze slot welds as indicated.



E166530

16. MIG weld the butt joints as indicated.
17. Dress all welds.
18. Install the front door lower door hinge and tighten the bolts to 30 Nm.
19. Install the rear door lower door hinge and tighten the bolts to 30 Nm.
20. Make sure that any open or exposed panel joints are correctly sealed.
21. Make sure corrosion protection is applied to all areas affected by repair.
22. The installation of associated panels and components is the reversal of removal procedure.

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Side Panel Sheet Metal Repairs Rocker Panel (G1770907) - RemovalSide Panel Sheet Metal Repairs B-pillar Reinforcement (G1770905)

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Боковой панель ремонт кузовных панелей B-стойка кузова усилитель

Side Panel Sheet Metal Repairs B-pillar Reinforcement (G1770905)

- Side Panel Sheet Metal Repairs B-pillar Reinforcement (G1770905) - Removal
- Side Panel Sheet Metal Repairs B-pillar Reinforcement (G1770905) - Installation

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Side Panel Sheet Metal Repairs Rocker Panel (G1770907) - InstallationSide Panel Sheet Metal Repairs B-pillar Reinforcement (G1770905) - Removal

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Боковой панель ремонт кузовных панелей B-стойка кузова усилитель - снятие

Side Panel Sheet Metal Repairs B-pillar Reinforcement (G1770905) - Removal

Removal

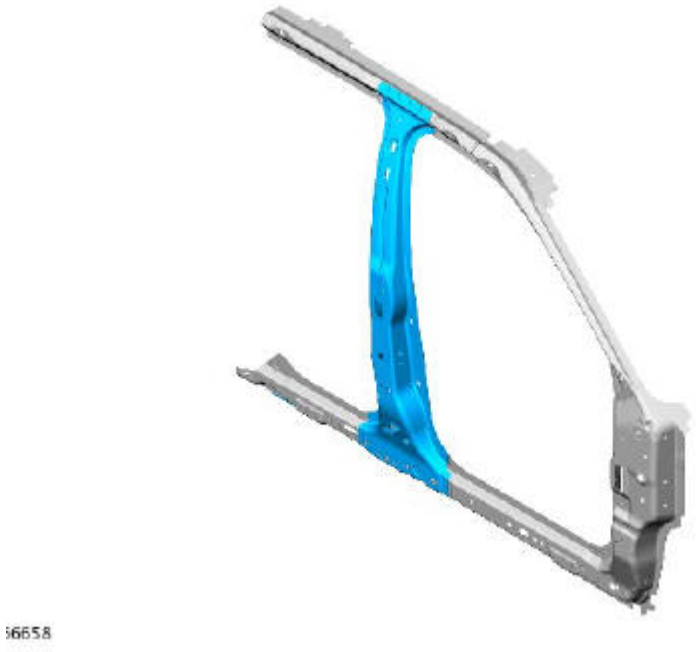
NOTE:

The B-pillar reinforcement is installed in conjunction with:

- *Front door*
- *Front fender*
- *Rear door*
- *B-pillar outer panel*
- *Headliner*
- *Rocker panel*

NOTE:

The B-pillar reinforcement is detached from the side panel reinforcement ring frame as it is not serviced separately.



The B-pillar reinforcement is serviced as indicated.

2. Before commencing this procedure make sure that you are aware of all Health and Safety requirements.

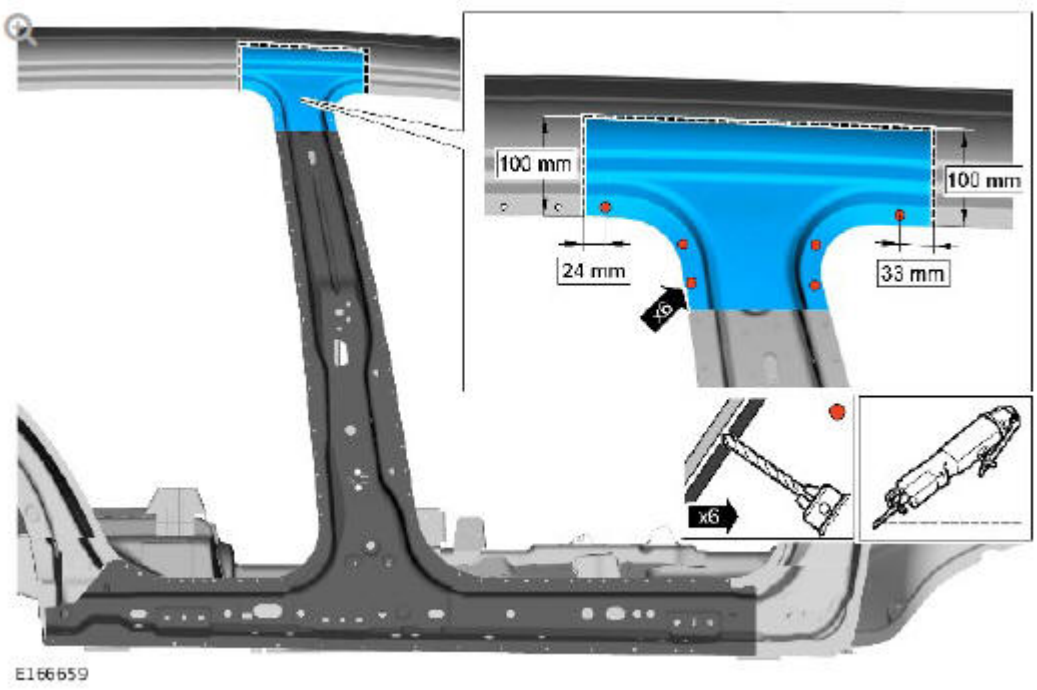
   For additional information, refer to: Health and Safety Precautions (100-00 General Information, Description and Operation).

3. For further information on the methods, tools and fixings used in this procedure refer to the body repairs - general information section.

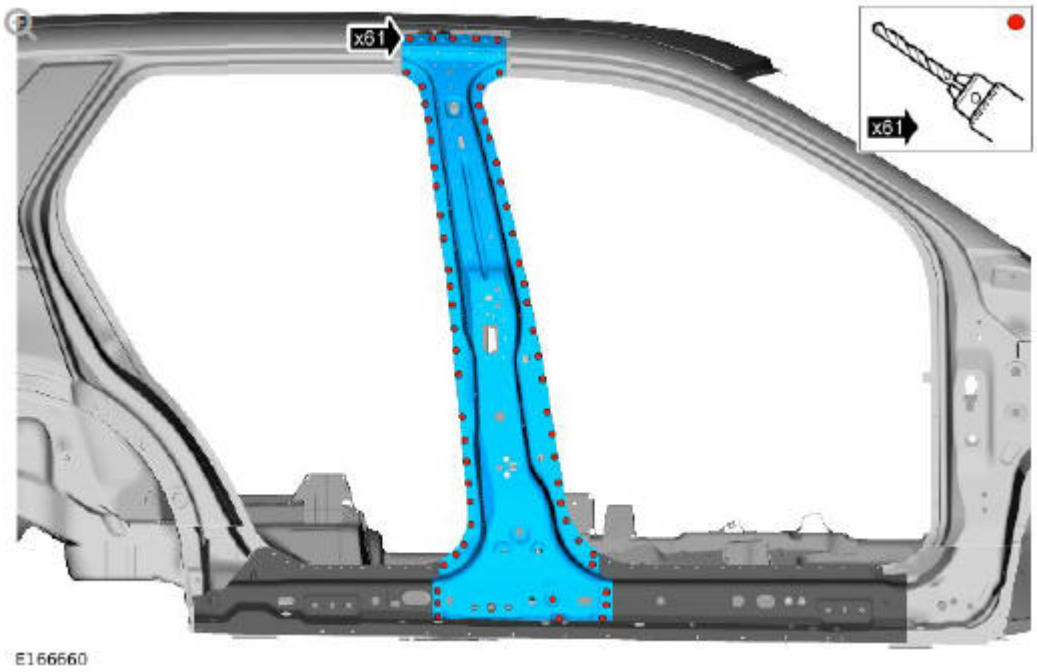
NOTES:

- *Any joints sealed as part of vehicle manufacture must be sealed as part of the repair.*
- *Make sure a zinc rich primer is applied to any bare metal surfaces.*

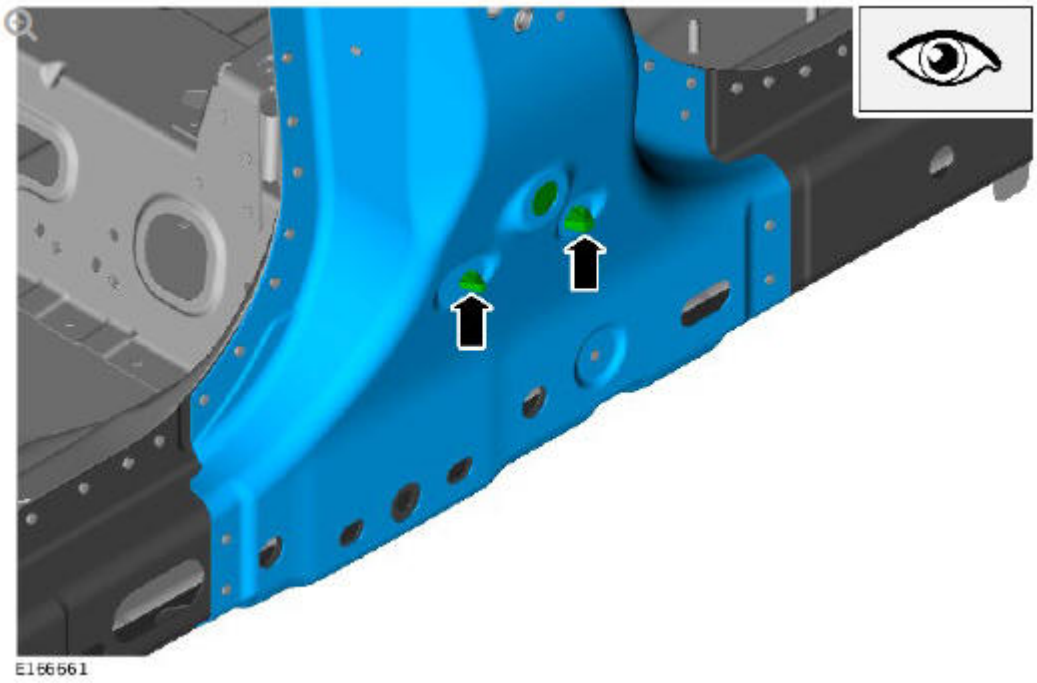
4. For additional information, refer to: Fender (501-02 Front End Body Panels, Removal and Installation).
5. For additional information, refer to: Front Door (501-03 Body Closures, Removal and Installation).
6. For additional information, refer to: Rear Door (501-03 Body Closures, Removal and Installation).
7. For additional information, refer to: 'B' Pillar Outer Panel (501-29 Side Panel Sheet Metal Repairs, Removal and Installation).
8. For additional information, refer to: Headliner (501-05 Interior Trim and Ornamentation, Removal and Installation).
9. For additional information, refer to: Rocker Panel (501-29 Side Panel Sheet Metal Repairs, Removal and Installation).
10. Release and position the floor carpet to one side.
11. Release and position the floor Noise, Vibration and Harshness (NVH) material to one side.
12. Release and position the wiring harness to one side.



13. To install the B-pillar reinforcement the B-pillar outer panel will require the following cuts and spot welds to be removed as indicated.



14. Remove the spot welds as indicated.



15. Carefully separate the joints and remove the panel. also releasing the NVH component as indicated.

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Side Panel Sheet Metal Repairs B-pillar Reinforcement (G1770905)Side Panel Sheet Metal Repairs B-pillar Reinforcement (G1770905) - Installation

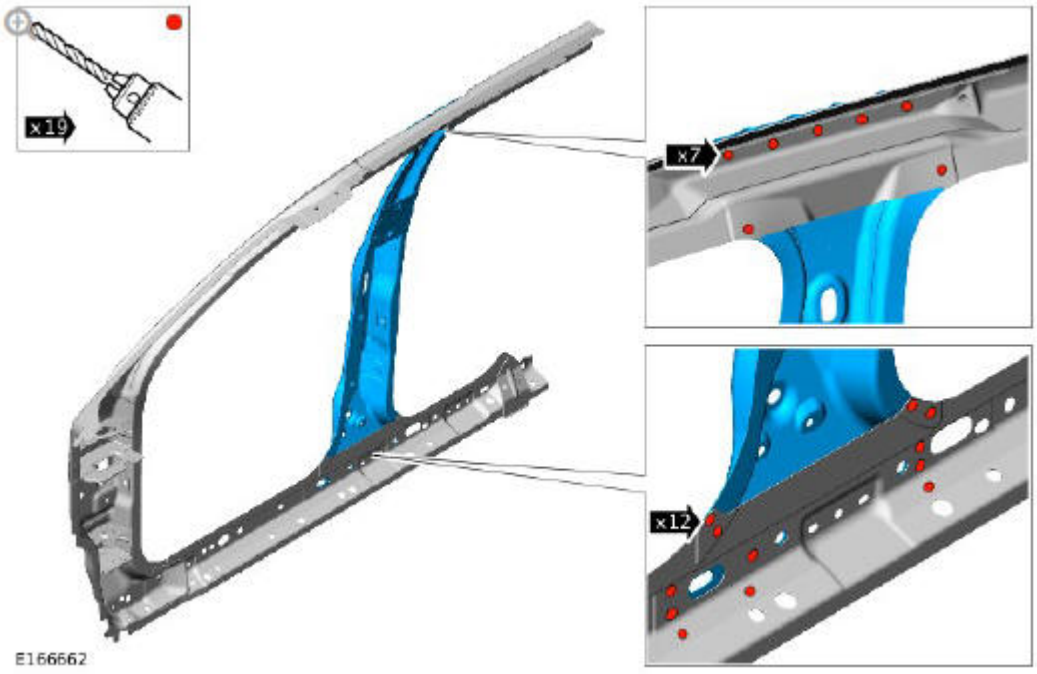
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Боковой панель ремонт кузовных панелей B-стойка кузова усилитель - установка

Side Panel Sheet Metal Repairs B-pillar Reinforcement (G1770905) - Installation

Installation

1. Dress the flanges where necessary.

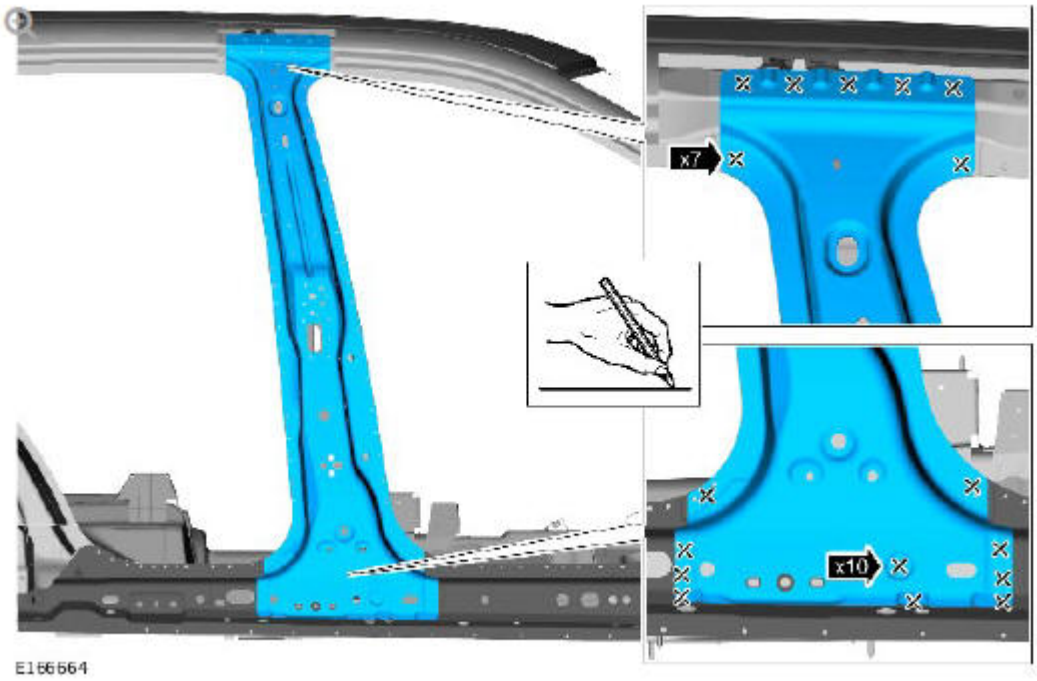


Detach the upper and lower B-pillar reinforcement spot welds from the new ring frame as indicated.

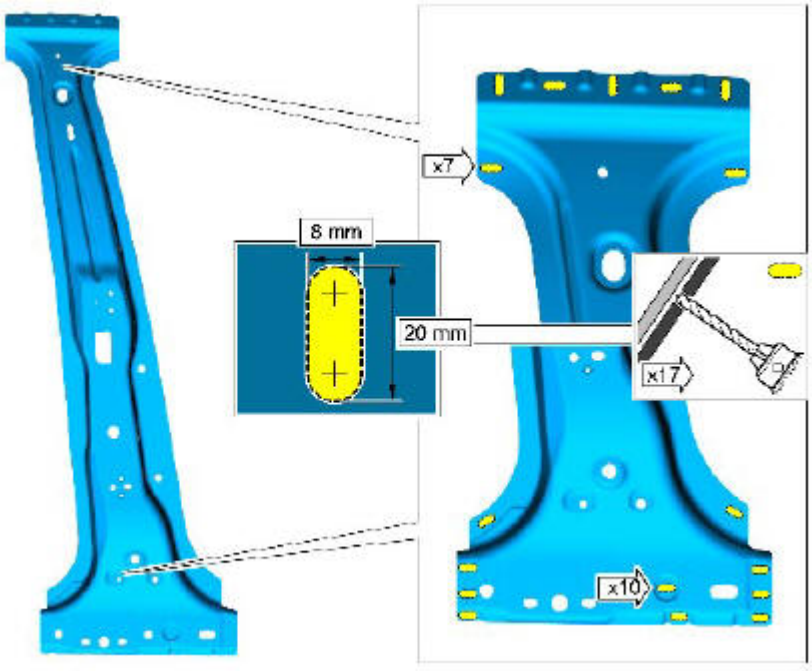


3. Separate the joints and remove the B-pillar reinforcement from the ring frame as indicated.
4. Offer up the new B-pillar reinforcement and clamp into position.

Check alignment, if correct, proceed to next step, if not, rectify and recheck before proceeding.



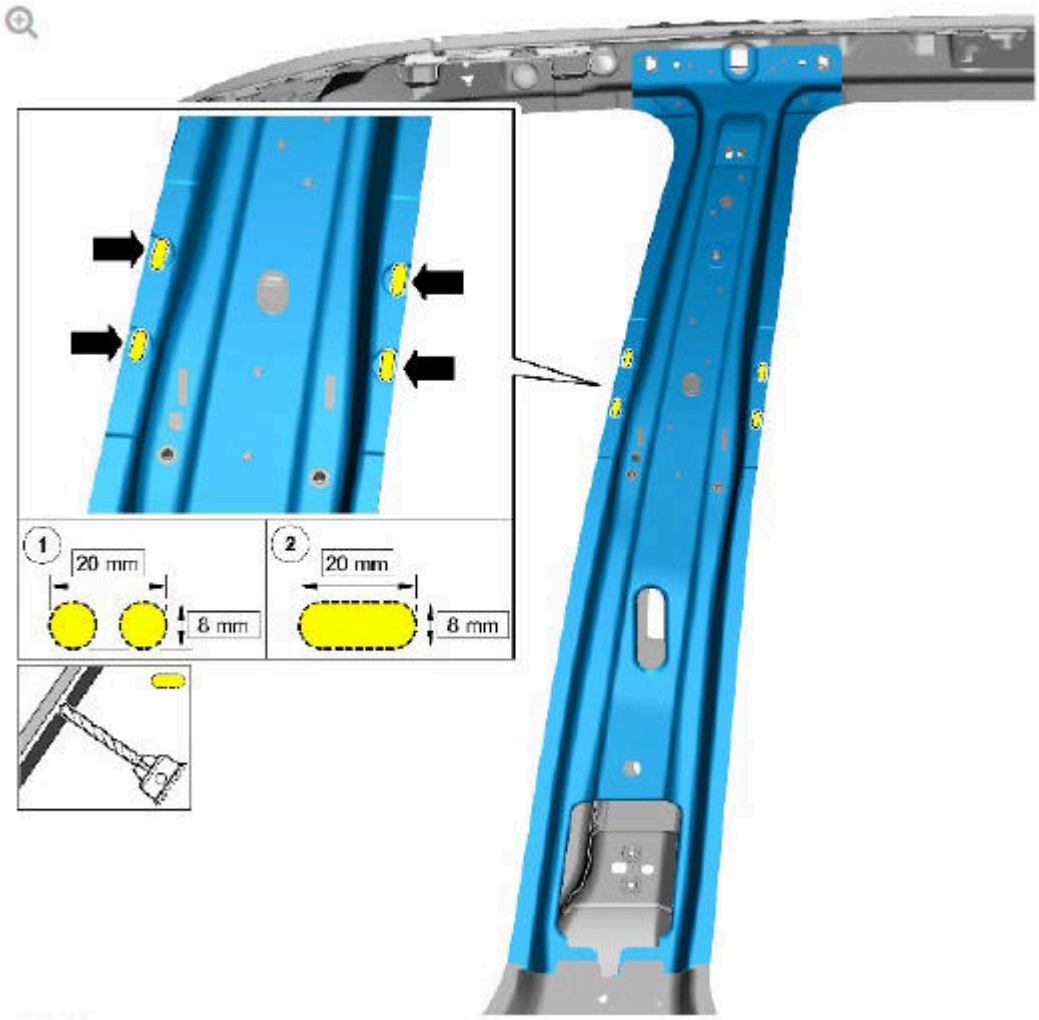
5. Mark the position where the upper and lower Metal Inert Gas (MIG) braze slots are to be made on the B-pillar reinforcement as indicated.
6. Remove the new B-pillar reinforcement.



7. Cut slots in the B-pillar reinforcement where the MIG braze slot welds are to be installed as indicated.

NOTE:

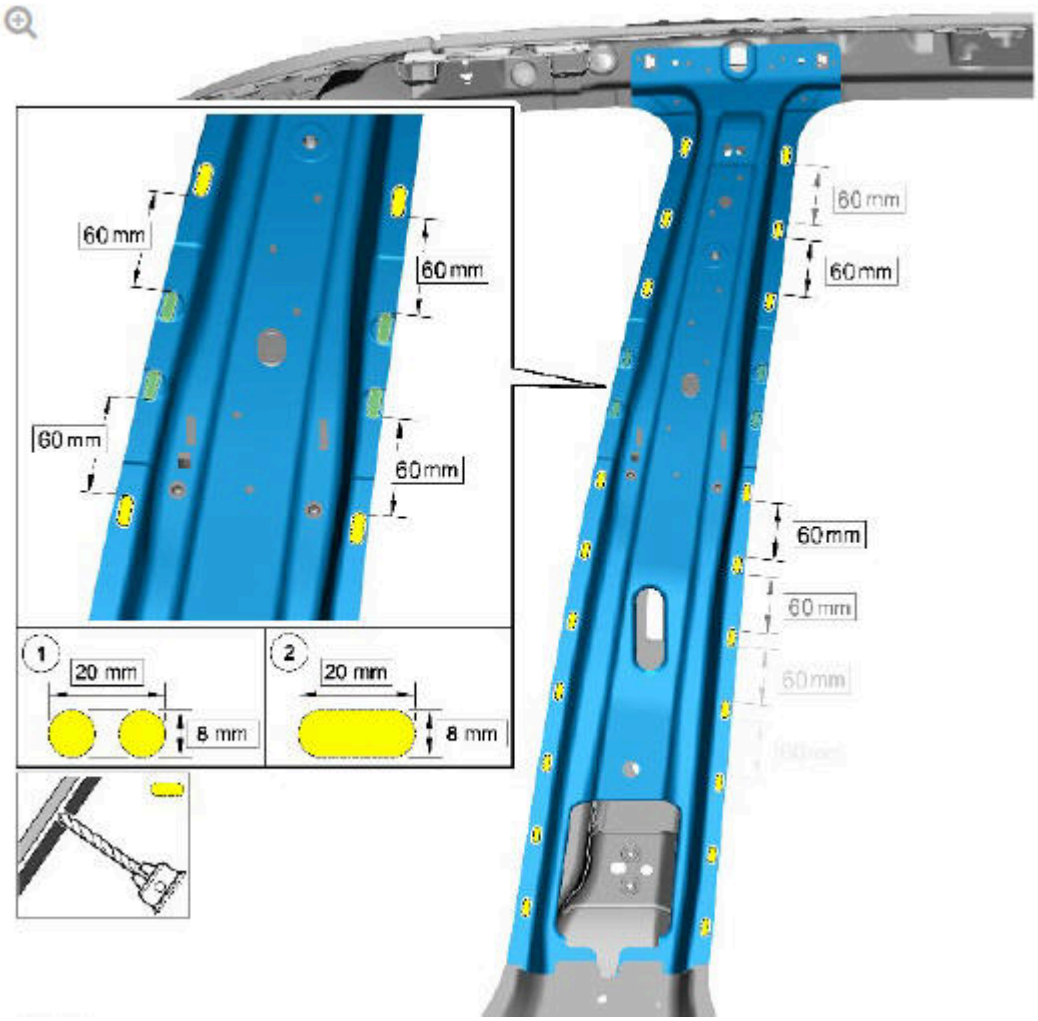
Follow Steps 1 and 2 as shown above to cut the MIG braze slots.



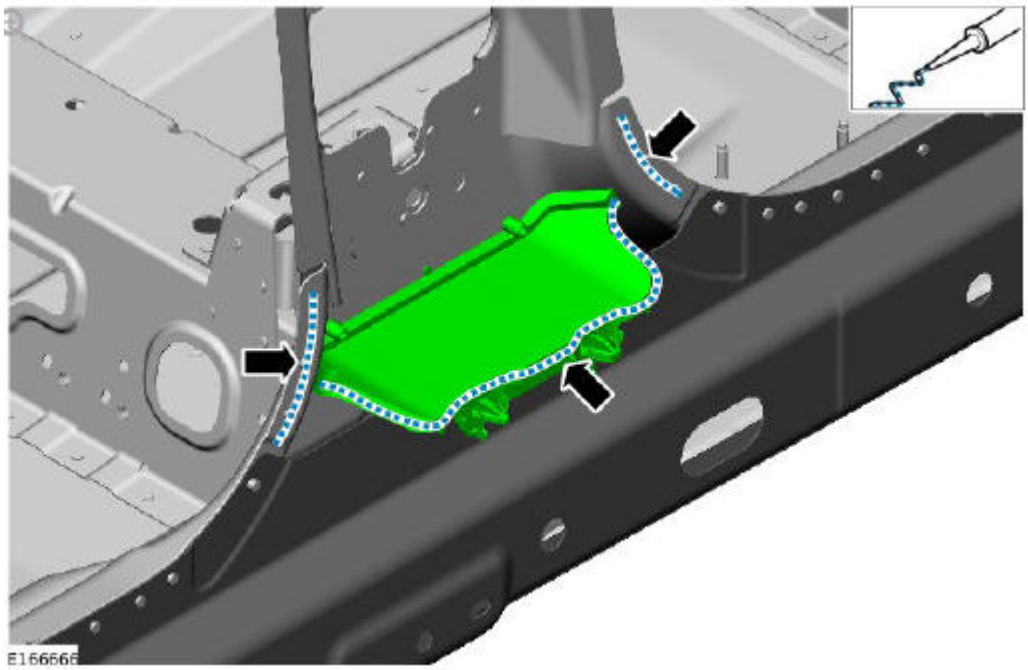
8. Cut slots in the B-pillar inner panel where the MIG braze slot welds are to be installed as indicated.

NOTE:

Follow Steps 1 and 2 as shown above to cut the MIG braze slots.



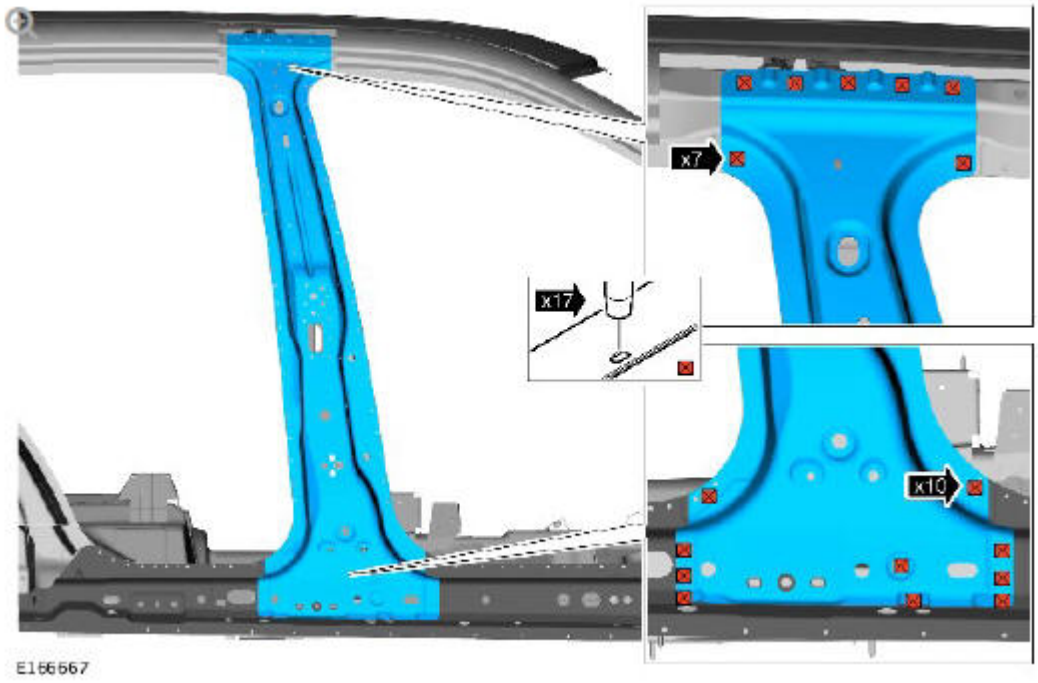
9. Cut slots in the B-pillar inner panel where the MIG braze slot welds are to be installed as indicated.
10. Deburr the drilled slots.
11. Clean and prepare the panel surfaces.



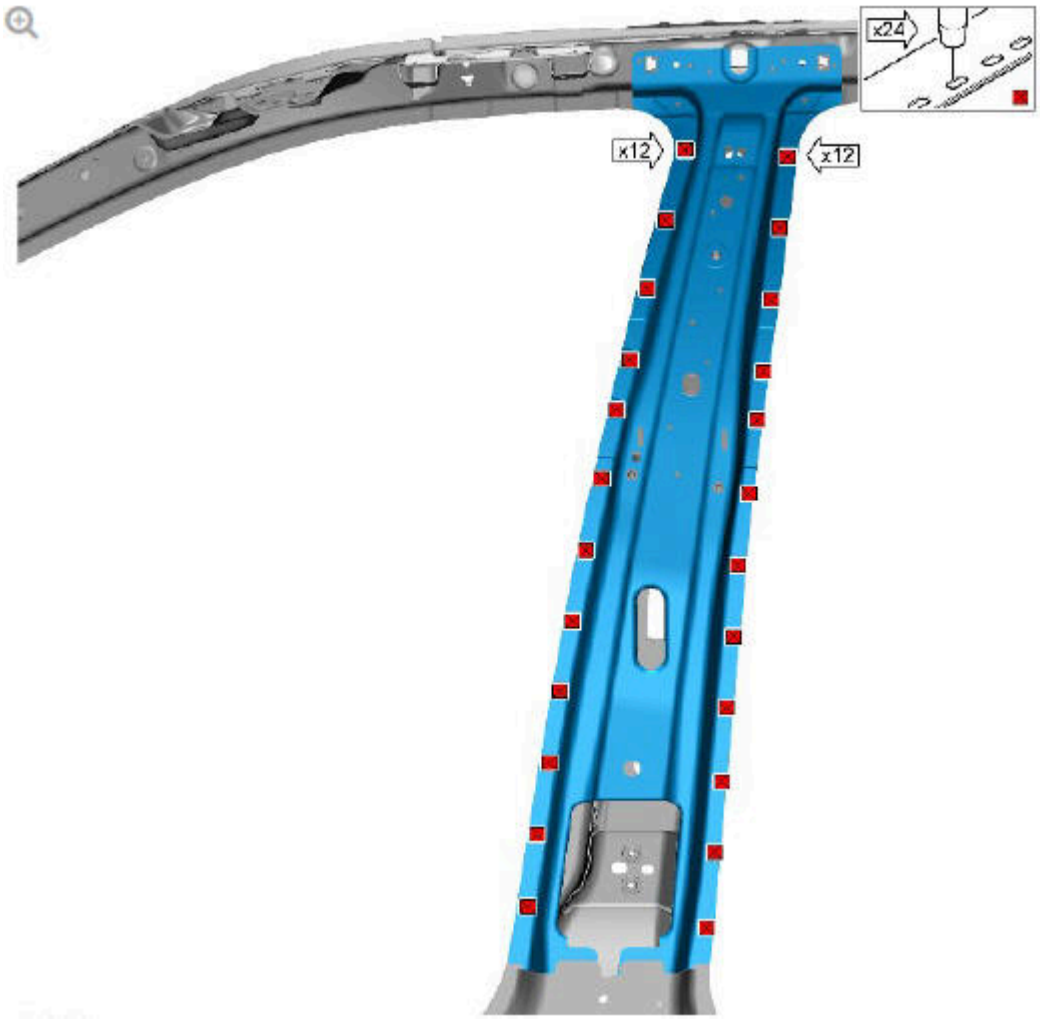
12. Apply a 5 mm bead of Land Rover approved sealer adhesive to the vehicle assembly and the Noise, Vibration and Harshness (NVH) component as indicated.

13. Offer up the new B-pillar reinforcement and clamp into position.

    Check alignment, if correct, proceed to next step, if not, rectify and recheck before proceeding.



14. Install the MIG braze the slot welds as indicated.



15. Install the MIG braze the slot welds as indicated.
16. Dress all welded joints.
17. Make sure that any open or exposed panel joints are correctly sealed.
18. Make sure corrosion protection is applied to all areas affected by repair.
19. The installation of associated panels and components is the reversal of removal procedure.

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Side Panel Sheet Metal Repairs B-pillar Reinforcement (G1770905) - RemovalSide Panel Sheet Metal Repairs B-pillar Inner Panel (G1770906) / Removal and Installation

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Боковой панель ремонт кузовных панелей B-стойка кузова внутренний панель / снятие и установка

Side Panel Sheet Metal Repairs B-pillar Inner Panel (G1770906) / Removal and Installation

REMOVAL

NOTE:

The B-pillar inner panel is installed in conjunction with:

- *Front fender*
- *Front door*
- *Rear door*
- *B-pillar outer panel*
- *Headliner*
- *Rocker panel*
- *Rocker panel and B-pillar inner*
- *B-pillar reinforcement*



1. The B-pillar inner panel is serviced as indicated.

2. Before commencing this procedure make sure that you are aware of all Health and Safety requirements.

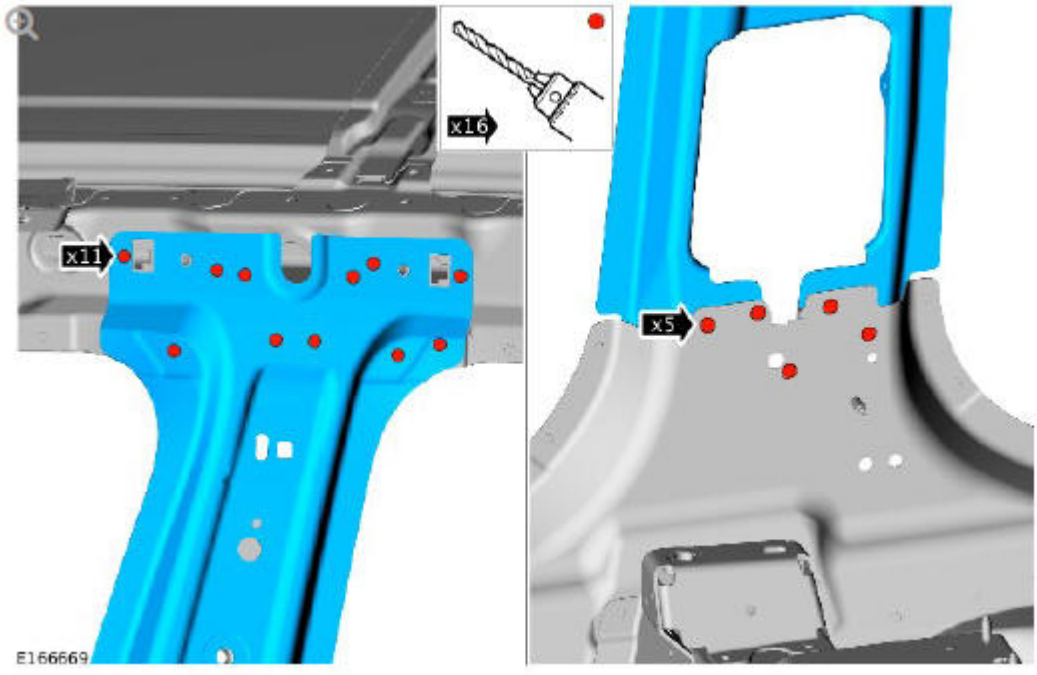
   For additional information, refer to: Health and Safety Precautions (100-00 General Information, Description and Operation).

3. For further information on the methods, tools and fixings used in this procedure refer to the body repairs - general information section.

NOTES:

- *Any joints sealed as part of vehicle manufacture must be sealed as part of the repair.*
- *Make sure a zinc rich primer is applied to any bare metal surfaces.*

4. For additional information, refer to: Fender (501-02 Front End Body Panels, Removal and Installation).
5. For additional information, refer to: Front Door (501-03 Body Closures, Removal and Installation).
6. For additional information, refer to: Rear Door (501-03 Body Closures, Removal and Installation).
7. For additional information, refer to: 'B' Pillar Outer Panel (501-29 Side Panel Sheet Metal Repairs, Removal and Installation).
8. For additional information, refer to: Headliner (501-05 Interior Trim and Ornamentation, Removal and Installation).
9. For additional information, refer to: Rocker Panel (501-29 Side Panel Sheet Metal Repairs, Removal and Installation).
10. For additional information, refer to: Rocker Panel and B Pillar Inner (501-29 Side Panel Sheet Metal Repairs, Removal and Installation).
11. For additional information, refer to: B-Pillar Reinforcement (501-29 Side Panel Sheet Metal Repairs, Removal and Installation).
12. Release and position the floor carpet to one side.
13. Release and position the floor noise, vibration, harshness (NVH) material to one side.
14. Release and position the wiring harness to one side.
15. Remove the spot welds as indicated.



16. Carefully separate the joints and remove the panel.

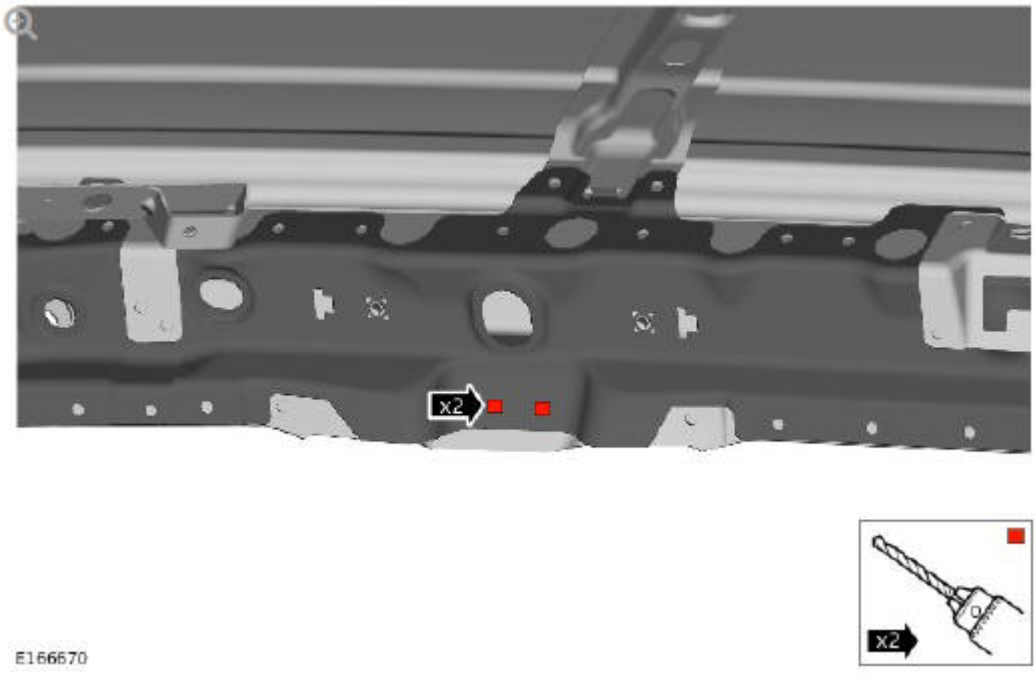
INSTALLATION

1. Dress the flanges where necessary.
2. Clean and prepare the panel surfaces.
3. Offer up the new B-pillar inner panel and clamp into position.

   Check alignment, if correct, proceed to next step. If not, rectify and recheck before proceeding.

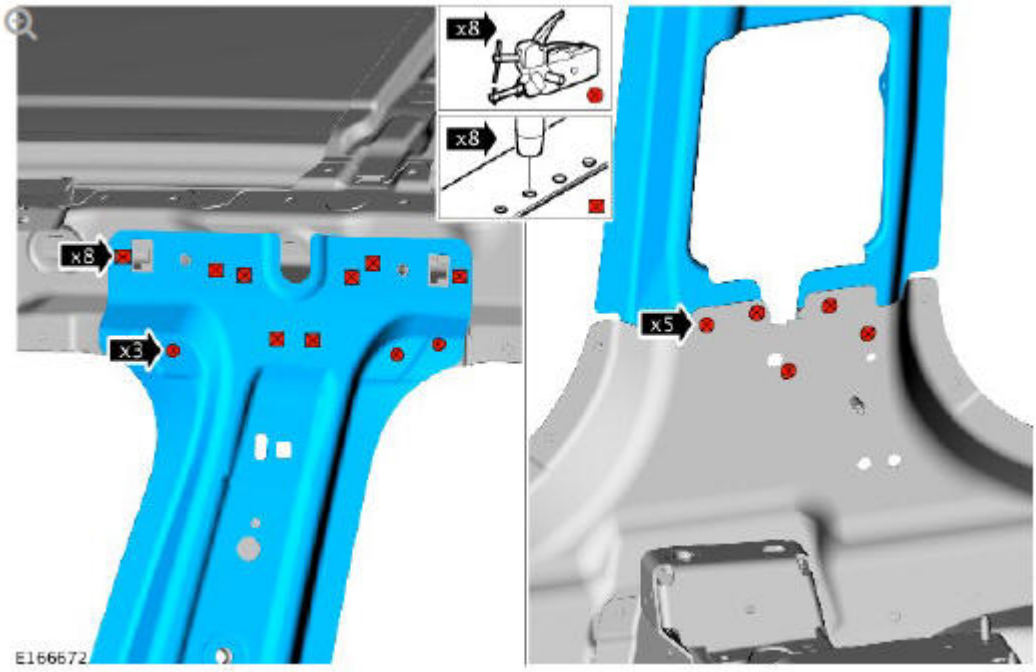


4. Drill holes where the MIG plug welds are to be installed as indicated.
5. Remove the B-pillar inner panel.
6. Deburr the drilled holes.



7. Drill holes in the roof reinforcement where the MIG plug welds are to be installed as indicated.
8. Deburr the drilled holes.
9. Offer up the new B-pillar inner panel and clamp into position.

   Check alignment, if correct, proceed to next step. If not, rectify and recheck before proceeding.



10. Install the spot and the MIG plug welds as indicated.
11. Dress all welds.
12. Make sure that any open or exposed panel joints are correctly sealed.
13. Make sure corrosion protection is applied to all areas affected by repair.
14. The installation of associated panels and components is the reversal of removal procedure.

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Side Panel Sheet Metal Repairs B-pillar Reinforcement (G1770905) - InstallationSide Panel Sheet Metal Repairs 'B' Pillar Outer Panel (G1770904)

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Боковой панель ремонт кузовных панелей 'B' стойка кузова наружный панель

Side Panel Sheet Metal Repairs 'B' Pillar Outer Panel (G1770904)

- Side Panel Sheet Metal Repairs 'B' Pillar Outer Panel (G1770904) - Removal
- Side Panel Sheet Metal Repairs 'B' Pillar Outer Panel (G1770904) - Installation

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Side Panel Sheet Metal Repairs B-pillar Inner Panel (G1770906) / Removal and InstallationSide Panel Sheet Metal Repairs 'B' Pillar Outer Panel (G1770904) - Removal

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Боковой панель ремонт кузовных панелей 'B' стойка кузова наружный панель - снятие

REMOVAL

NOTE:

In this procedure the B-pillar outer panel is installed in conjunction with:

- *Front door*
- *Rear door*
- *Front seat*
- *Rear seat cushion*
- *Front safety belt retractor*
- *Front scuff plate trim panel*
- *Rear scuff plate trim panel*
- *Headliner*
- *Side air curtain module*



1. The B-pillar outer panel is serviced as indicated.
2. Before commencing this procedure make sure that you are aware of all Health and Safety requirements.

   For additional information, refer to: Health and Safety Precautions (100-00 General Information, Description and Operation).

3. For further information on the methods, tools and fixings used in this procedure refer to the body repairs - general information section.

NOTES:

- *Any joints sealed as part of vehicle manufacture must be sealed as part of the repair.*
- *Make sure a zinc rich primer is applied to any bare metal surfaces*

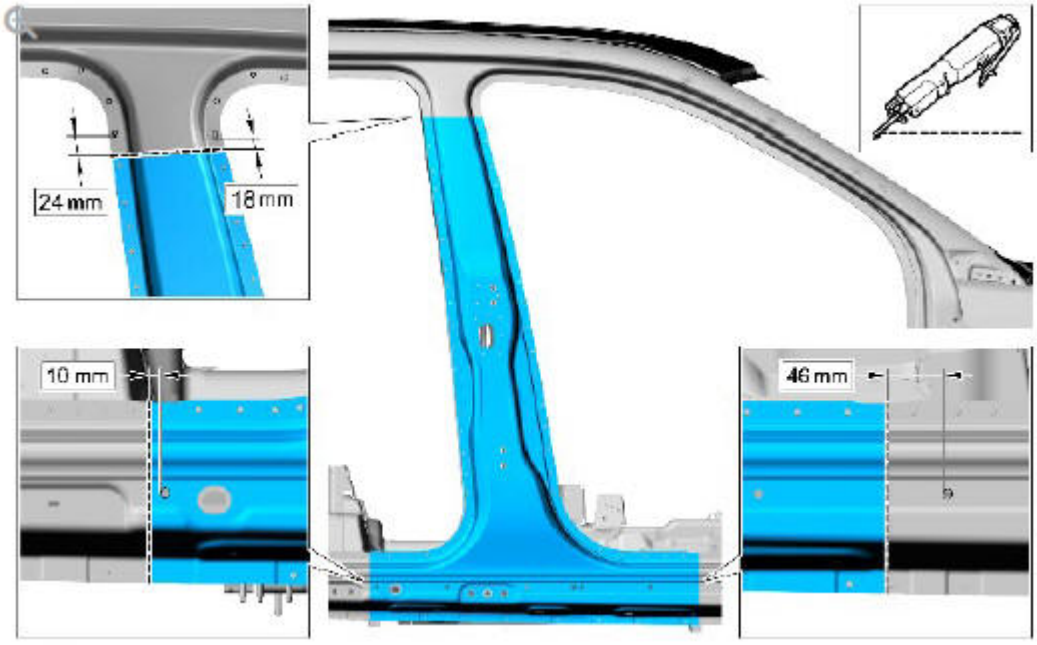
4. For additional information, refer to: Front Door (501-03 Body Closures, Removal and Installation).
5. For additional information, refer to: Rear Door (501-03 Body Closures, Removal and Installation).
6. For additional information, refer to: Front Row Seat - Vehicles With: Power Seats (501-10 Seating, Removal and Installation).

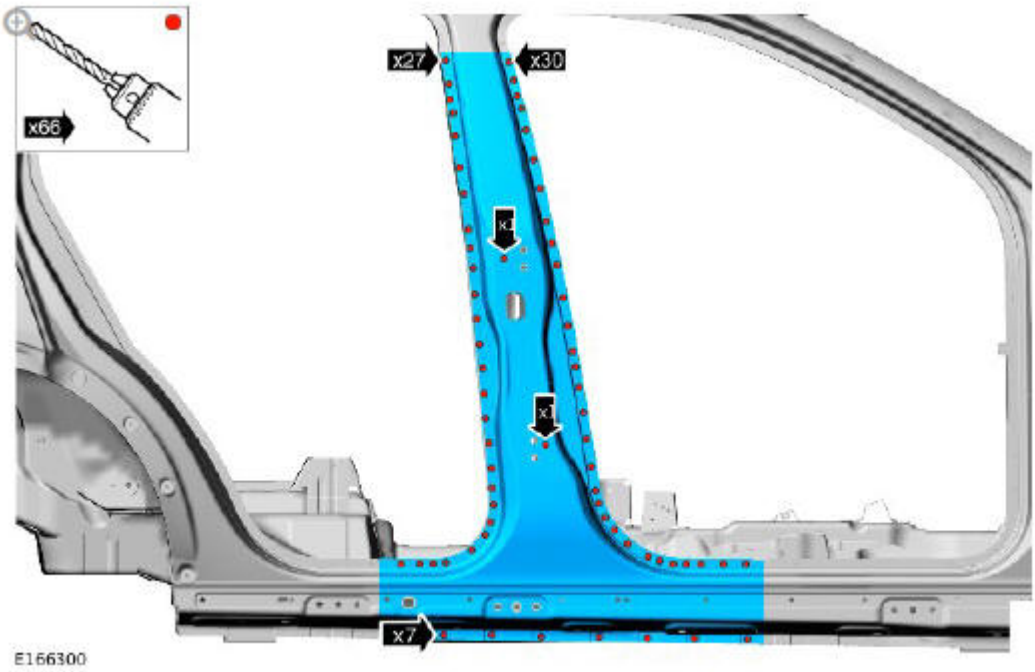
7. For additional information, refer to: Rear Seat (501-10 Seating, Removal and Installation).
8. For additional information, refer to: Front Safety Belt Retractor (501-20A Seatbelt System, Removal and Installation).
9. For additional information, refer to: Front Scuff Plate Trim Panel (501-05 Interior Trim and Ornamentation, Removal and Installation).
10. For additional information, refer to: Headliner (501-05 Interior Trim and Ornamentation, Removal and Installation).
11. For additional information, refer to: Side Air Curtain Module (501- 20B Supplemental Restraint System, Removal and Installation).
12. Position the floor carpet to one side.
13. Position the floor Noise, Vibration and Harshness (NVH) material to one side.
14. Remove the front door striker from the B-Pillar.
15. Remove the upper and lower rear door hinges.
16. Release and position to one side the wiring harness along the BPillar inner and inner rocker panel.

CAUTION:

Care should be taken not to cut through into the inner reinforcements.

17. Measure, mark and cut the B-pillar where the Metal Inert Gas (MIG) butt joints are to be made as indicated.

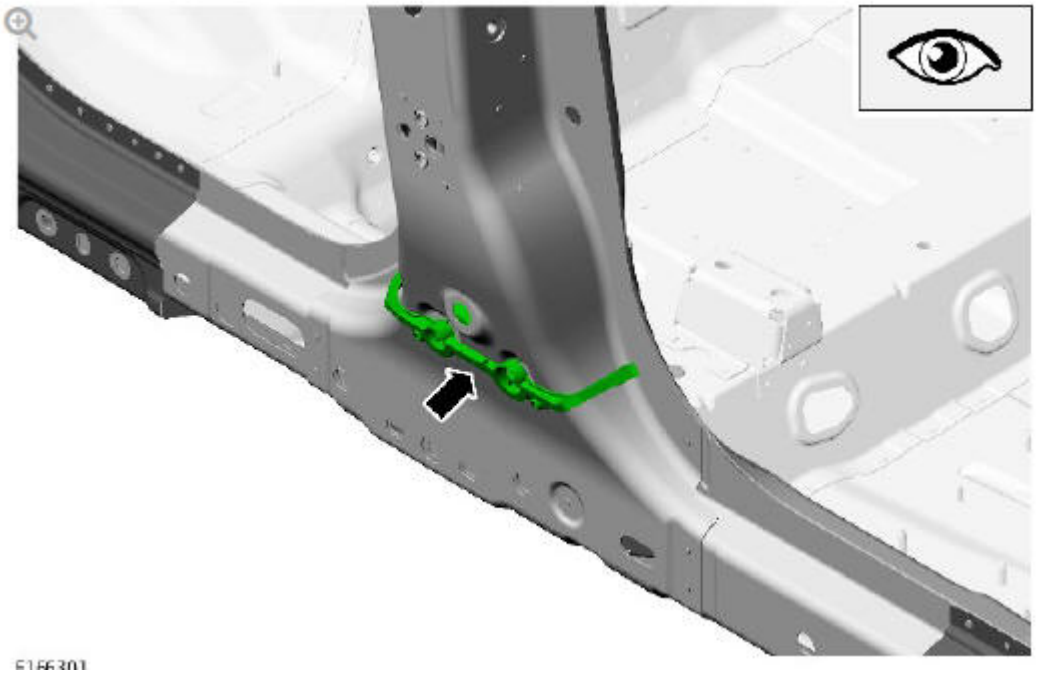




18. Remove the spot welds as indicated.

NOTE:

Avoid where possible damaging the NVH components located behind the B-pillar outer panel.



19. Carefully separate the joints and remove the old B-pillar outer panel and release the NVH component as indicated.

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Side Panel Sheet Metal Repairs 'B' Pillar Outer Panel (G1770904)Side Panel Sheet Metal Repairs 'B' Pillar Outer Panel (G1770904) - Installation

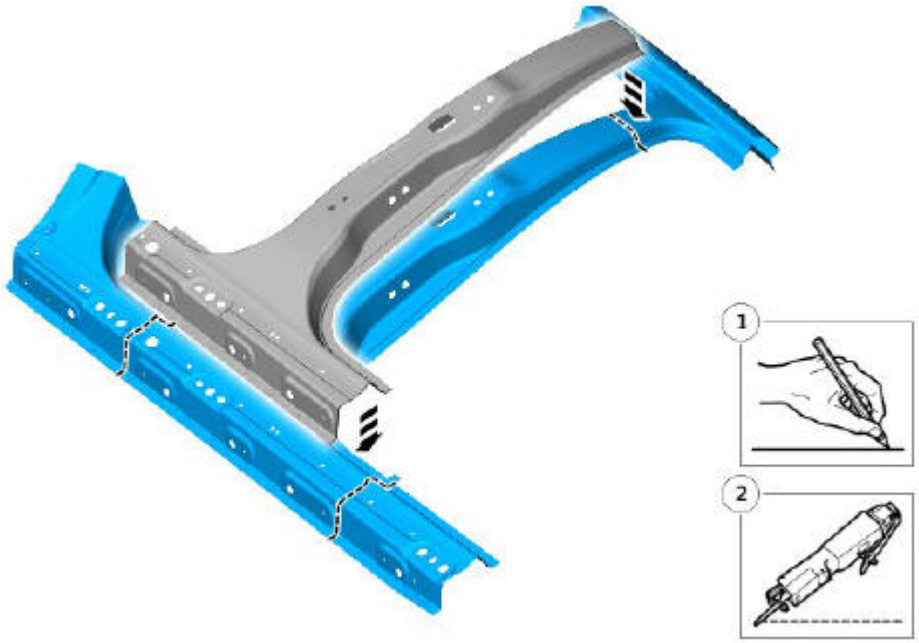
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Боковой панель ремонт кузовных панелей 'B' стойка кузова наружный панель - установка

Side Panel Sheet Metal Repairs 'B' Pillar Outer Panel (G1770904) - Installation

Installation

1. Dress the flanges where necessary

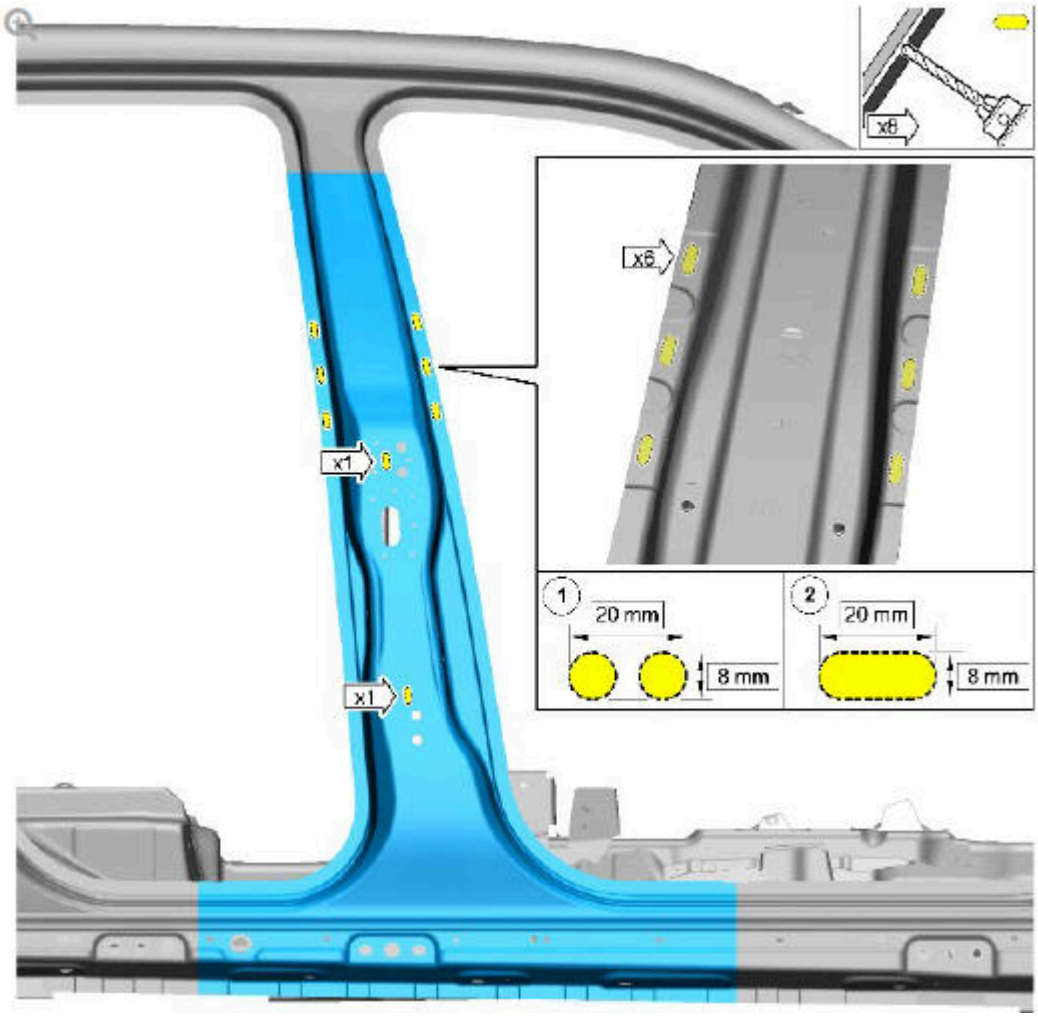


2. Using the old B-pillar outer panel for reference measure, mark and cut the new B-pillar outer panel where the Metal Inert Gas (MIG) welded butt joints are to be made as indicated.
3. Offer up the new B-pillar outer panel and clamp into position.

   Check alignment if correct, proceed to next step, if not, rectify and recheck before proceeding.

NOTE:

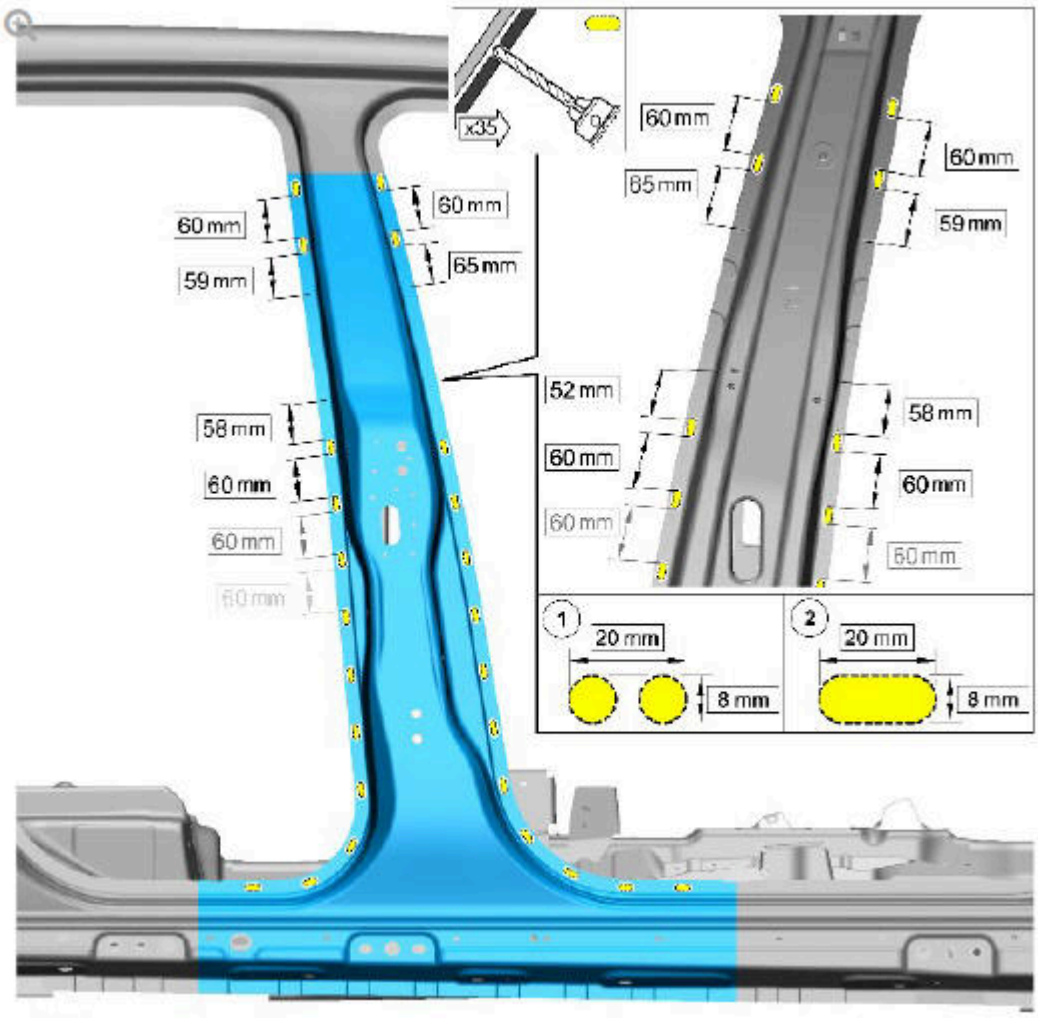
Follow Steps 1 and 2 as shown above to cut the MIG braze slots.



4. Cut slots in the new B-pillar outer panel where the MIG braze slot welds are to be installed as indicated.

NOTE:

Follow Steps 1 and 2 as shown above to cut the MIG braze slots.

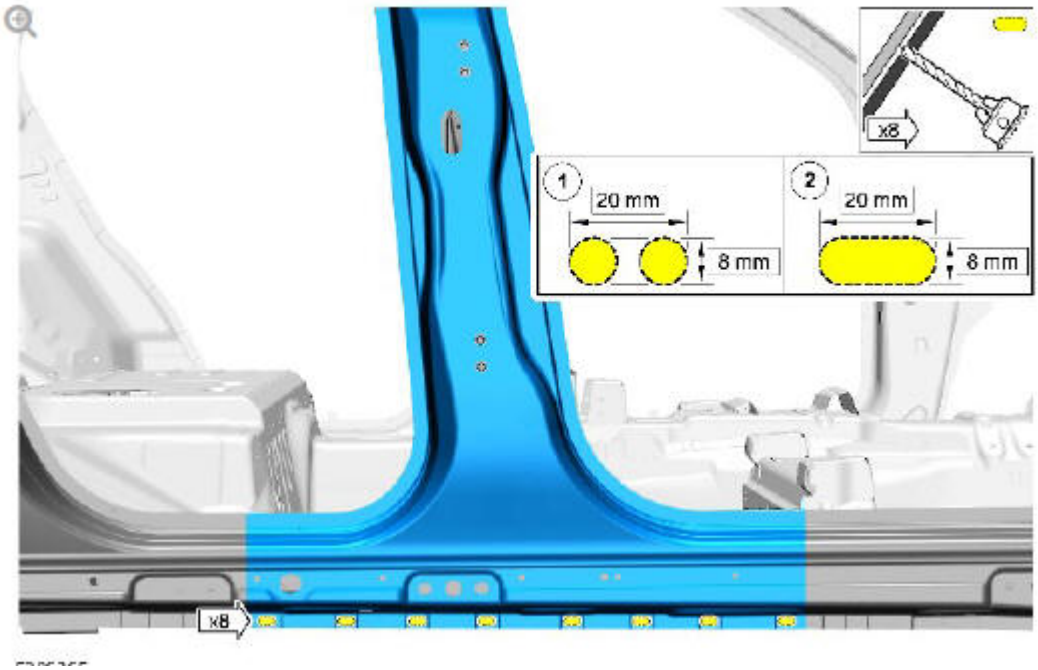


5. Cut slots in the new B-pillar outer panel where the MIG braze slot welds are to be installed as indicated.

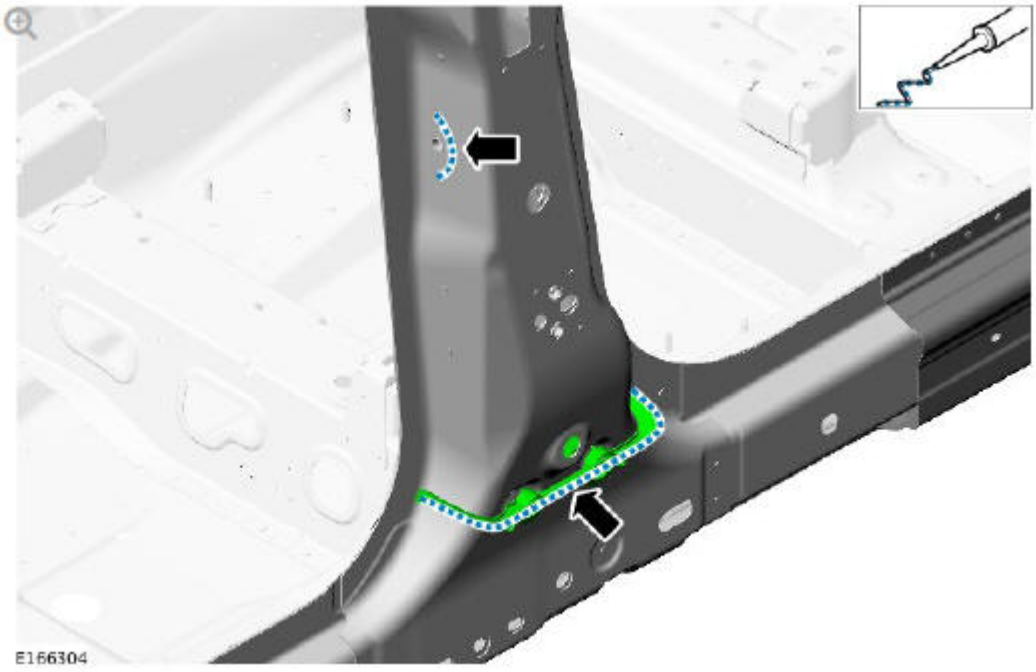
NOTE:

Follow Steps 1 and 2 as shown above to cut the MIG braze slots.

6. Cut slots in the new B-pillar outer panel where the MIG braze slot welds are to be installed as indicated.



7. Remove the new B-pillar outer panel.
8. Deburr the drilled holes.
9. Prepare the panel joint surfaces including the Noise, Vibration and Harshness (NVH) component

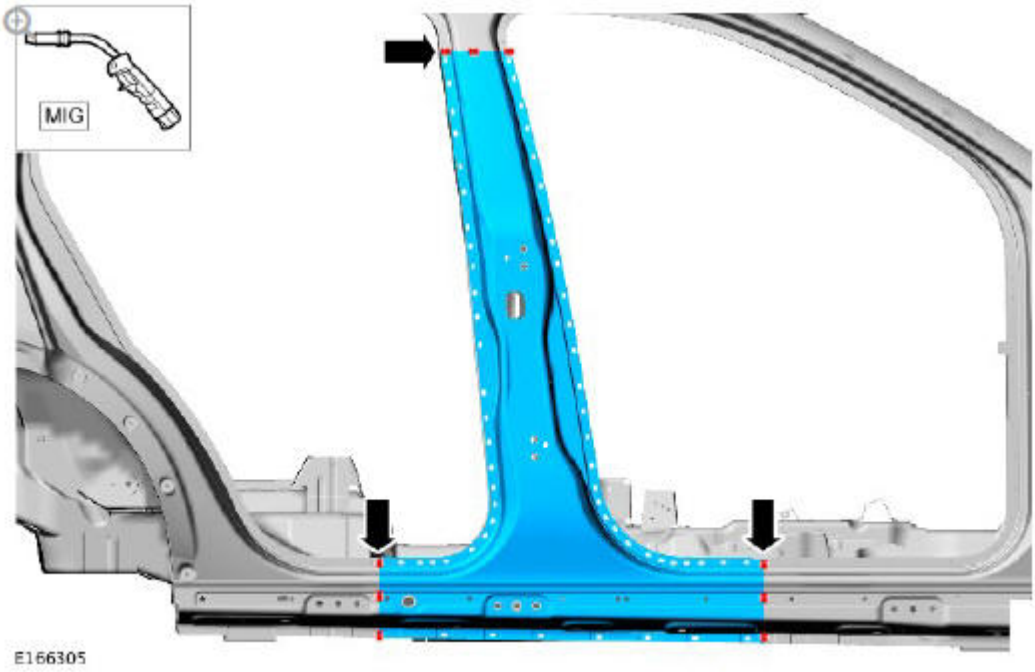


10. Apply a 5 mm bead of Land Rover approved sealer adhesive to the B-pillar and NVH component as indicated.
11. Offer up the new B-pillar outer panel and clamp into position.

    Check alignment if correct, proceed to next step, if not, rectify and recheck before proceeding.

NOTE:

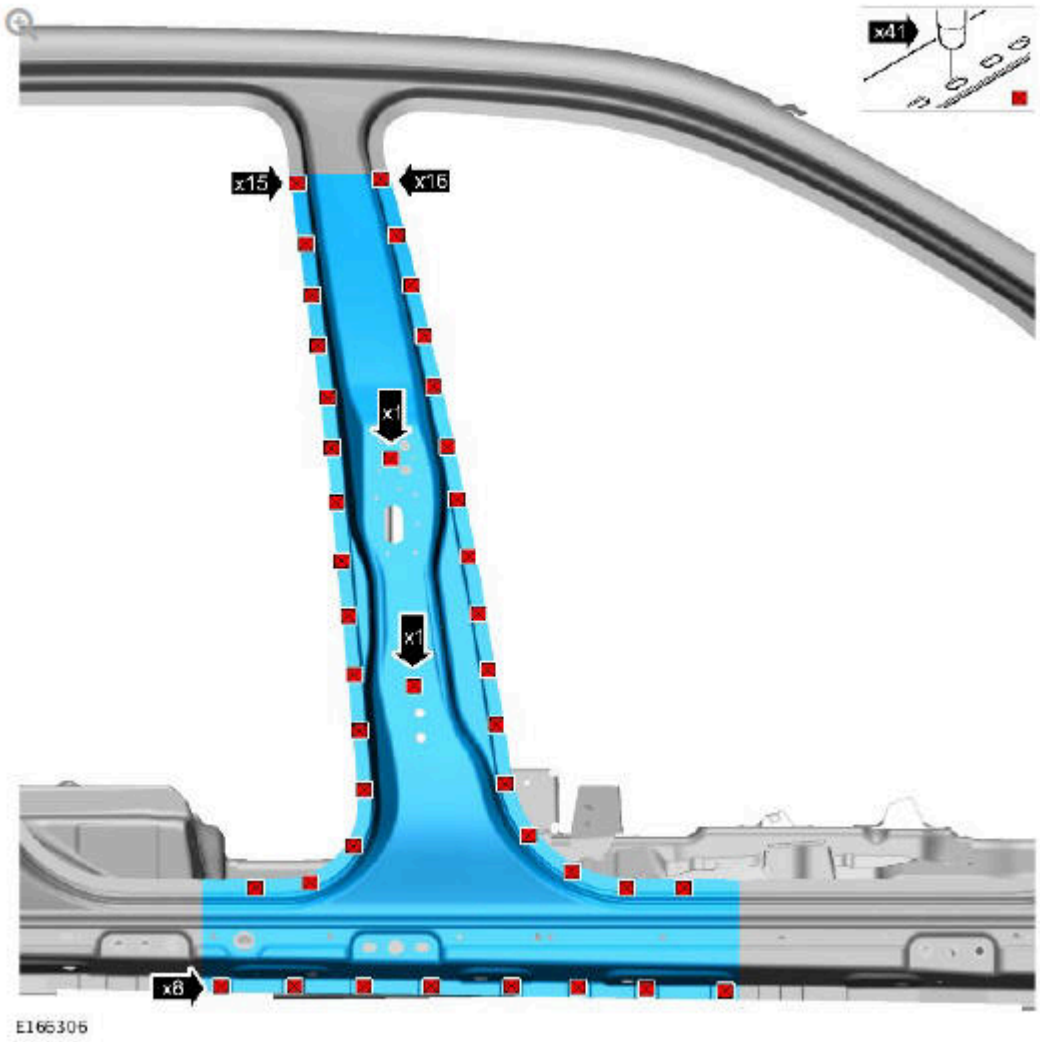
This joint must be MIG brazed due to the boron reinforcement



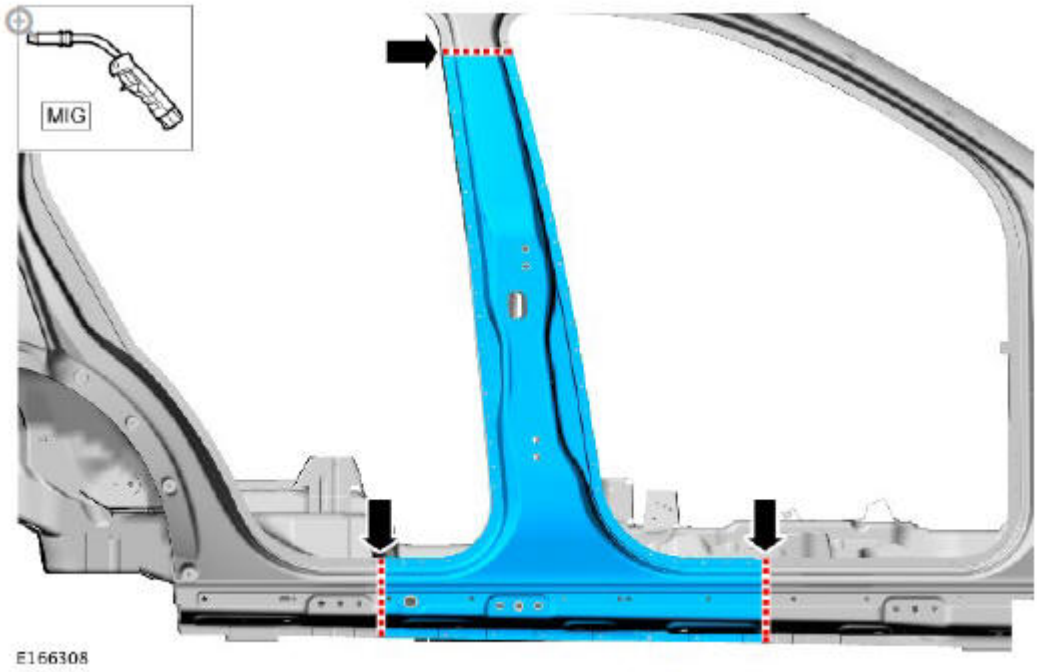
12. Tack MIG weld the butt joints as indicated.

NOTE:

This slots must be MIG brazed due to the boron reinforcement.



13. Install the MIG braze slot welds as indicated.



14. MIG weld the upper and lower butt joints as indicated.
15. Dress all welds.

16. Install the rear door hinges and tighten the bolts to 30 Nm.
17. Apply a Land Rover recommended sealer and seal the panel flange edges of the MIG braze slot welds in the door aperture area to prevent water ingress.
18. Make sure that any open or exposed panel joints are correctly sealed.
19. Make sure corrosion protection is applied to all areas affected by repair.
20. The installation of associated panels and components is the reversal of removal procedure.

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Side Panel Sheet Metal Repairs 'B' Pillar Outer Panel (G1770904) - RemovalSide Panel Sheet Metal Repairs 'A' Pillar Reinforcement (G1770903)

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Боковой панель ремонт кузовных панелей 'A' стойка кузова усилитель

Side Panel Sheet Metal Repairs 'A' Pillar Reinforcement (G1770903)

- Side Panel Sheet Metal Repairs 'A' Pillar Reinforcement (G1770903) - Removal
- Side Panel Sheet Metal Repairs 'A' Pillar Reinforcement (G1770903) - Installation

ne

Side Panel Sheet Metal Repairs 'B' Pillar Outer Panel (G1770904) - InstallationSide Panel Sheet Metal Repairs 'A' Pillar Reinforcement (G1770903) - Removal

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Боковой панель ремонт кузовных панелей 'A' стойка кузова усилитель - снятие

Side Panel Sheet Metal Repairs 'A' Pillar Reinforcement (G1770903) - Removal

Removal

NOTE:

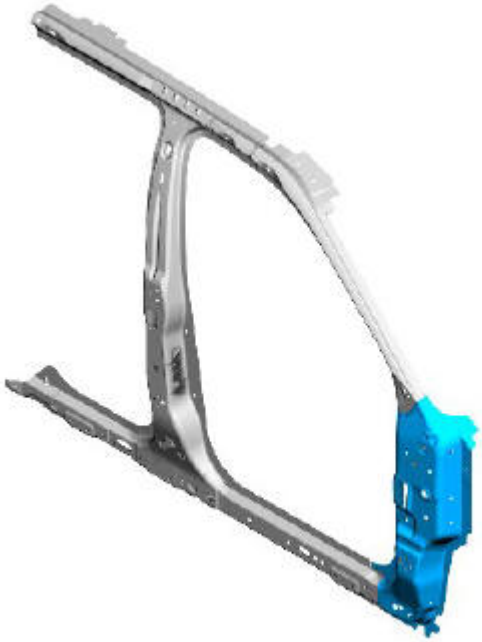
The A-pillar reinforcement is installed in conjunction with:

- *Front bumper cover*
- *Hood*
- *Front fender*
- *Fender splash shield*
- *Front door*
- *Instrument panel*
- *Windshield glass*
- *Headliner*
- *Side air curtain module*
- *Front scuff plate trim panel*
- *A-pillar trim panel*
- *A-pillar outer panel*

- *Front seat*

NOTE:

The A-pillar reinforcement is detached from the side panel reinforcement ring frame as it is not serviced separately.



1. The A-Pillar reinforcement is serviced as indicated.
2. Before commencing this procedure make sure that you are aware of all Health and Safety requirements.

   For additional information, refer to: Health and Safety Precautions (100-00 General Information, Description and Operation).
3. For further information on the methods, tools and fixings used in this procedure refer to the body repairs - general information section.

NOTES:

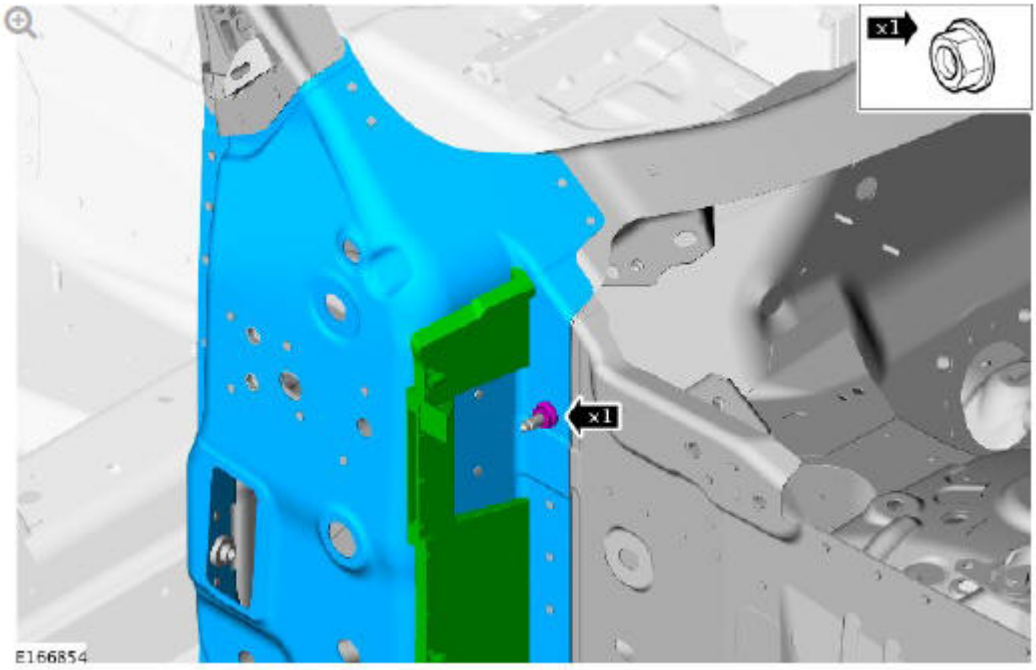
- *Any joints sealed as part of vehicle manufacture must be sealed as part of the repair.*
- *Make sure a zinc rich primer is applied to any bare metal surfaces.*
- *If the A-pillar reinforcement is damaged in the area adjacent to the rocker panel inner reinforcement then a new rocker panel inner reinforcement and B-pillar reinforcement panels must be installed.*

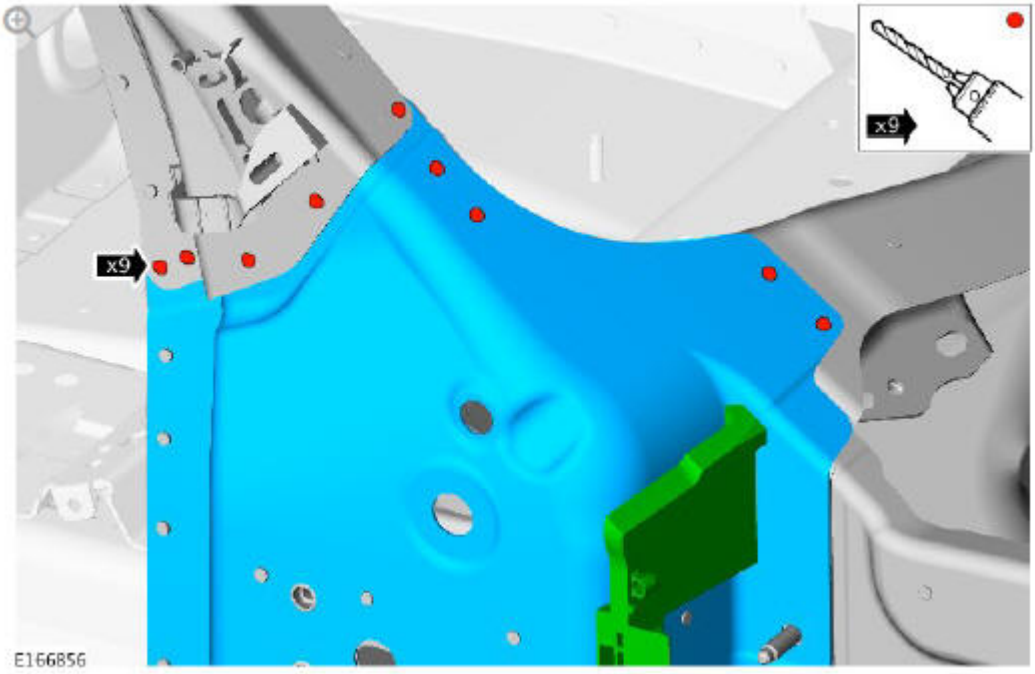
4. For additional information, refer to: Front Bumper Cover (501-19 Bumpers, Removal and Installation).
5. For additional information, refer to: Hood (501-02 Front End Body Panels, Removal and Installation).
6. For additional information, refer to: Fender (501-02 Front End Body Panels, Removal and Installation).
7. For additional information, refer to: Fender Splash Shield (501-02 Front End Body Panels, Removal and Installation).
8. For additional information, refer to: Fender Apron Panel (501-27 Front End Sheet Metal Repairs, Removal and Installation).
9. For additional information, refer to: Front Door (501-03 Body Closures, Removal and Installation).
10. For additional information, refer to: Instrument Panel - GTDi 2.0L Petrol (501-12 Instrument Panel and Console, Removal and Installation) / Instrument Panel - TD4 2.2L Diesel (501-12 Instrument Panel and Console, Removal and Installation).

11. For additional information, refer to: Windshield Glass (501-11 Glass, Frames and Mechanisms, Removal and Installation).
12. For additional information, refer to: Side Air Curtain Module (501- 20B Supplemental Restraint System, Removal and Installation).
13. For additional information, refer to: Front Scuff Plate Trim Panel (501-05 Interior Trim and Ornamentation, Removal and Installation).
14. For additional information, refer to: 'A' Pillar Trim Panel (501-05 Interior Trim and Ornamentation, Removal and Installation).
15. For additional information, refer to: 'A' Pillar Outer Panel (501-29 Side Panel Sheet Metal Repairs, Removal and Installation).
16. For additional information, refer to: Front Row Seat - Vehicles With: Power Seats (501-10 Seating, Removal and Installation).
17. Release and position the floor carpet to one side.
18. Release and position the floor noise, vibration, harshness (NVH) material to one side.
19. Release and position the wiring harness to one side.
20. Remove the retaining nut as indicated.

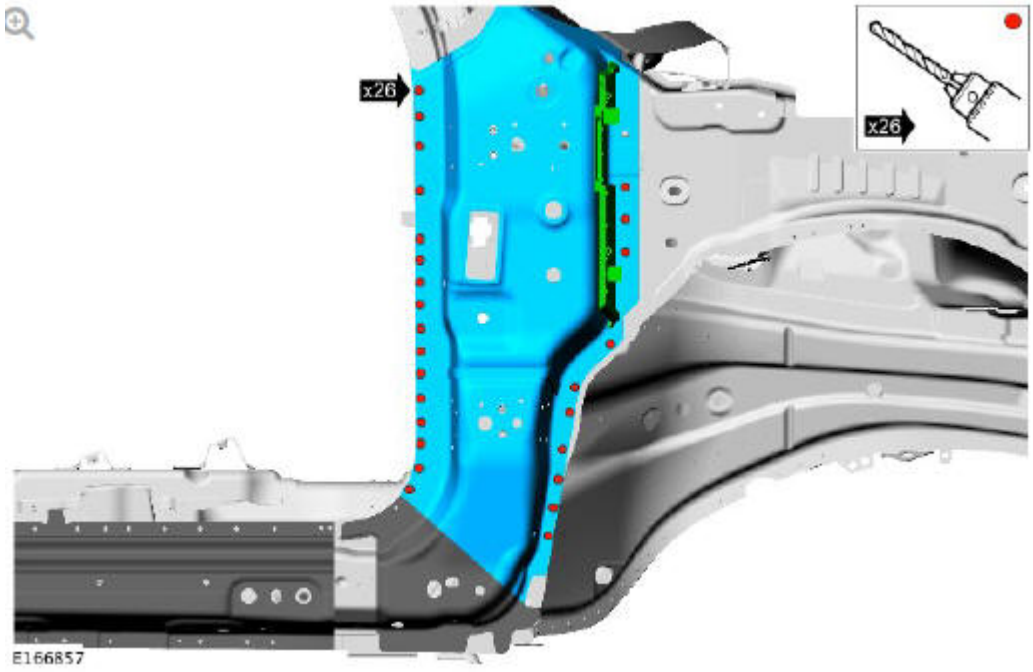
NOTE:

Do not discard the retaining nut as it is used in installation.





21. Remove the spot welds as indicated.

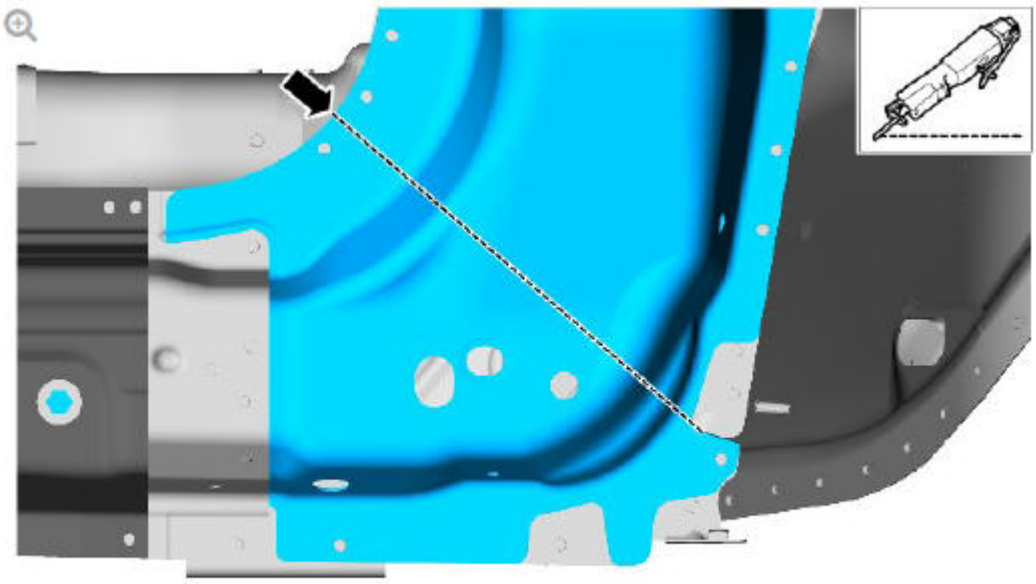


22. Remove the spot welds as indicated.

CAUTION:

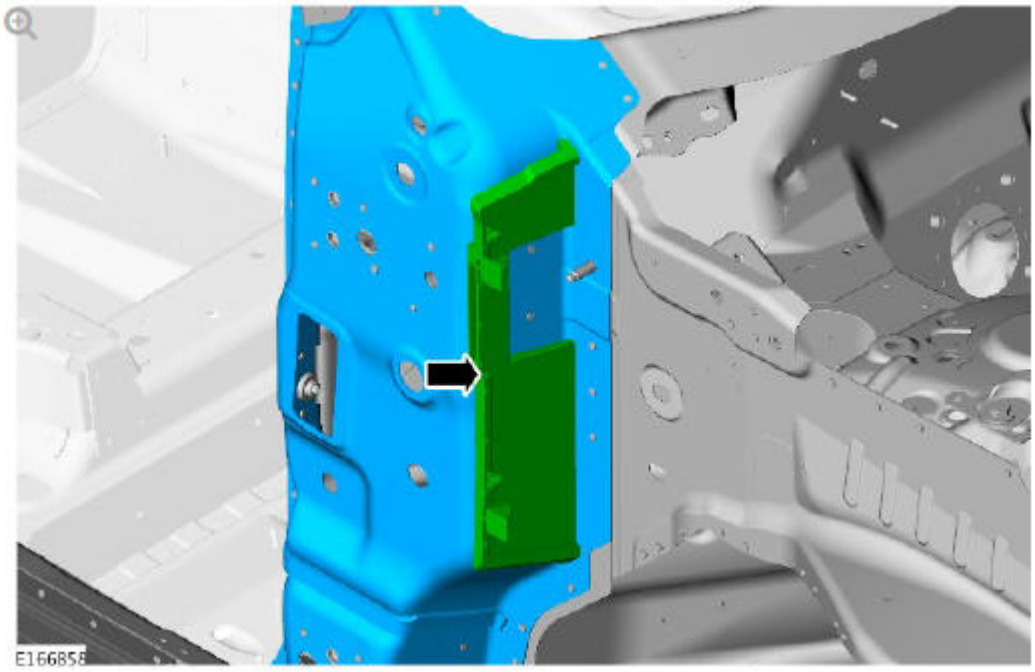
Care should be taken not to cut through into the inner panels.

23. Cut the A-pillar reinforcement where the metal inert gas (MIG) butt weld is to be installed as indicated.



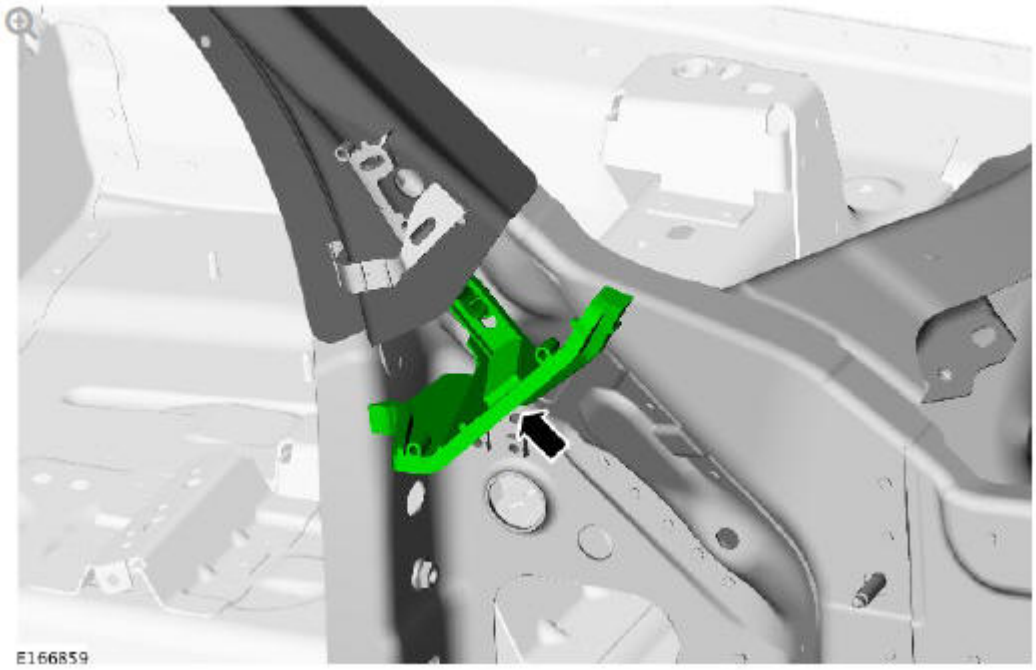
E166855

24. Remove the NVH component as indicated.



E166858

25. Carefully separate the joints and remove the A-pillar reinforcement, also releasing the NVH component as indicated.



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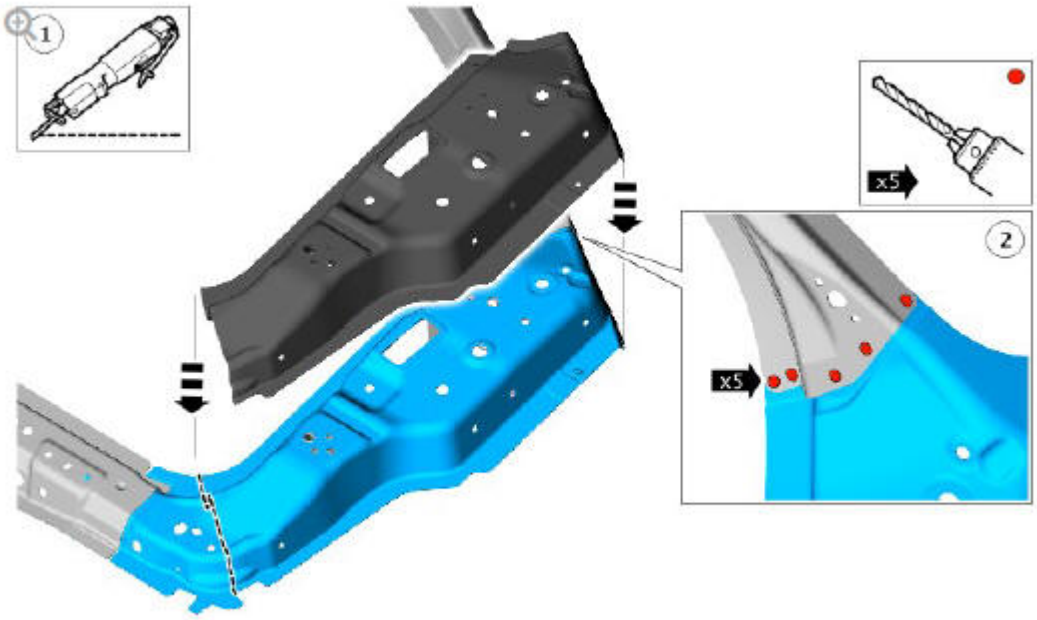
Side Panel Sheet Metal Repairs 'A' Pillar Reinforcement (G1770903)Side Panel Sheet Metal Repairs 'A' Pillar Reinforcement (G1770903) - Installation

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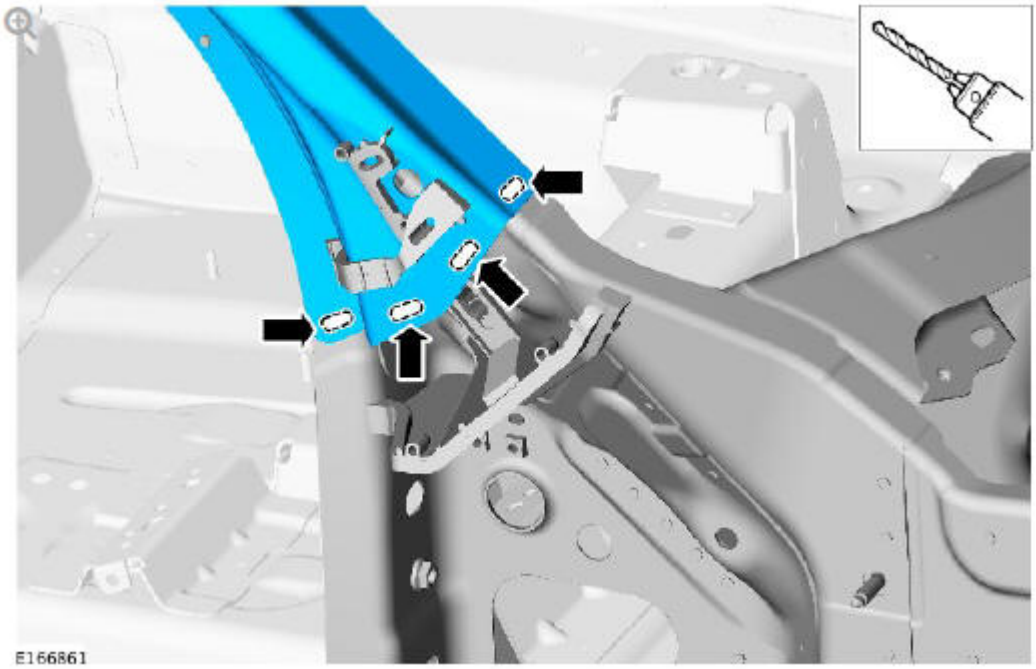
Боковой панель ремонт кузовных панелей 'A' стойка кузова усилитель - установка

Side Panel Sheet Metal Repairs 'A' Pillar Reinforcement (G1770903) - Installation

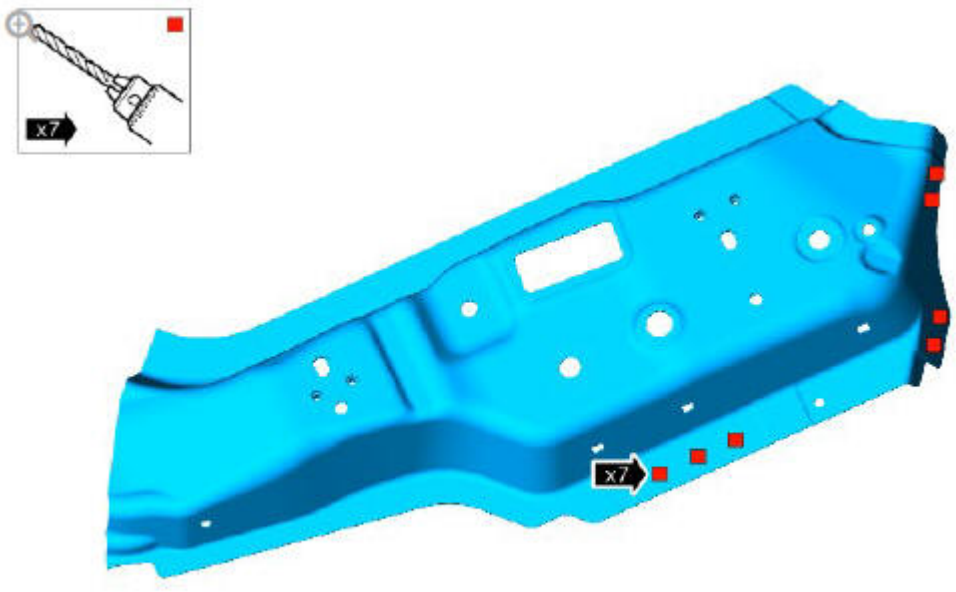
1. Dress the flanges where necessary.
2. Clean and prepare the panel surfaces.



3. Using the old A-pillar reinforcement as a guide, detach the new Apillar reinforcement from the ring frame as indicated.
4. Separate the joints and remove the A-Pillar reinforcement from the ring frame.



5. Cut slots in the A-pillar upper reinforcement where the MIG braze slot welds are to be installed as indicated.

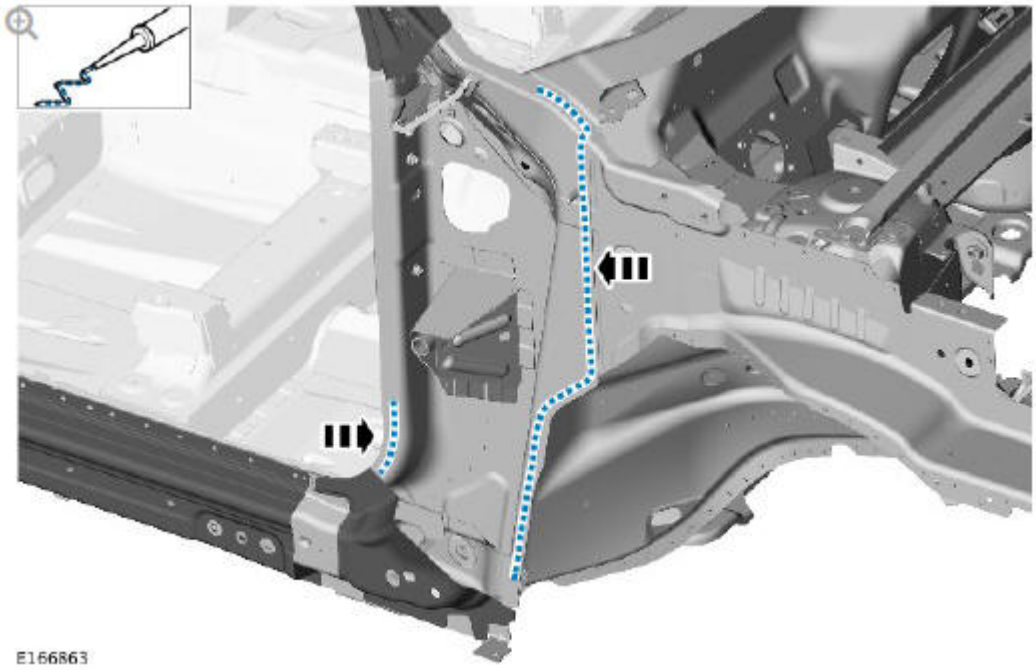


E166862

6. Drill holes in the new A-pillar reinforcement where the MIG plug welds are to be installed as indicated.
7. Deburr the drilled holes and slots.
8. Clean and prepare the panel surfaces including the NVH component.

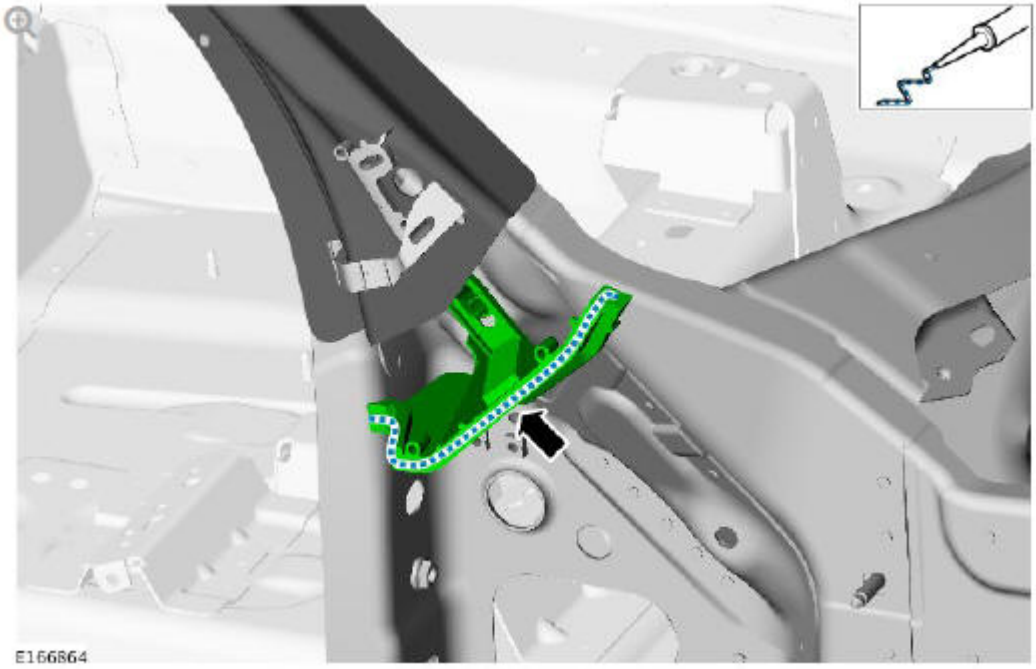
NOTE:

Make sure that the adhesive is 30mm away from any MIG plug welds to avoid contamination.



E166863

9. Apply a 5mm bead of Land Rover approved panel bonding adhesive as indicated.

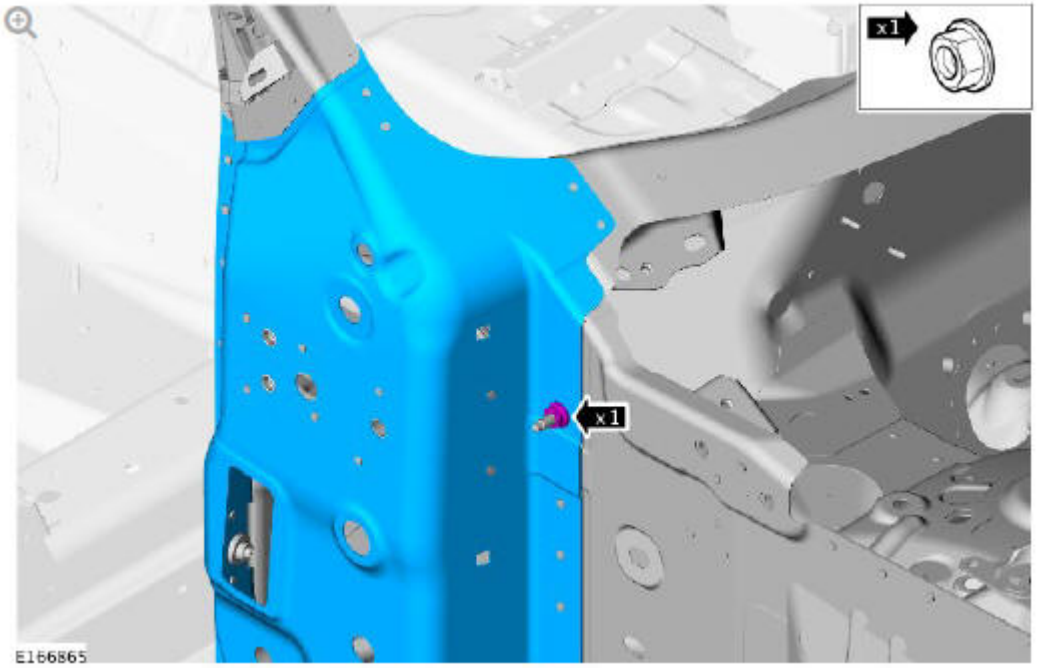


10. Apply a 5mm bead of Land Rover approved sealer adhesive to the NVH component as indicated.
11. Offer up the new A-pillar reinforcement and clamp into position.

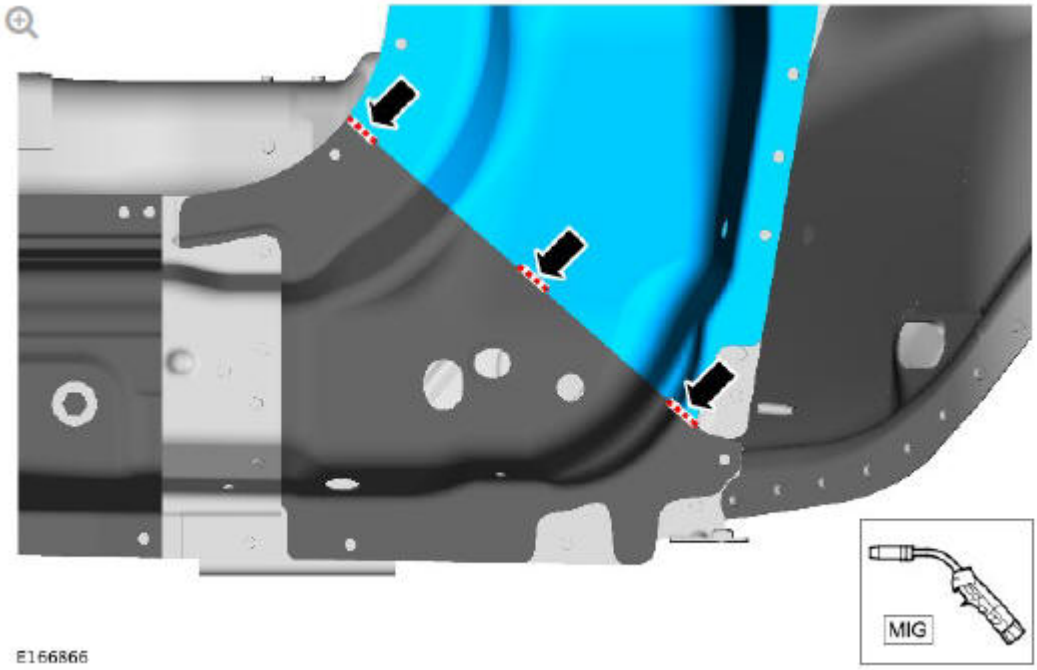
    Check alignment if correct, proceed to next step, if not, rectify and recheck before proceeding.

NOTE:

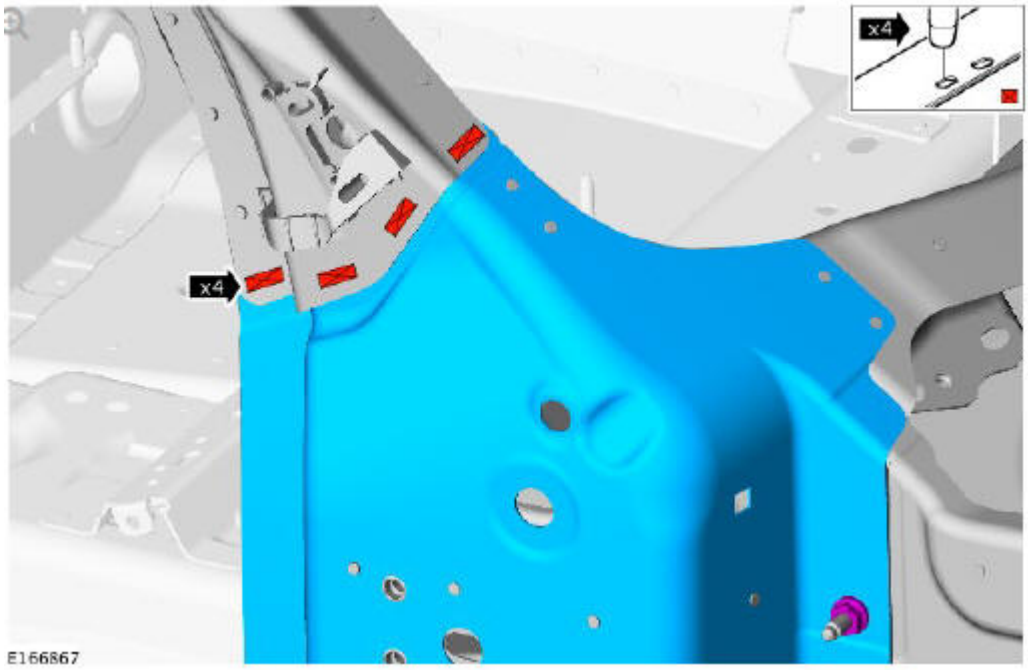
Do not fully tighten the retaining nut at this stage.

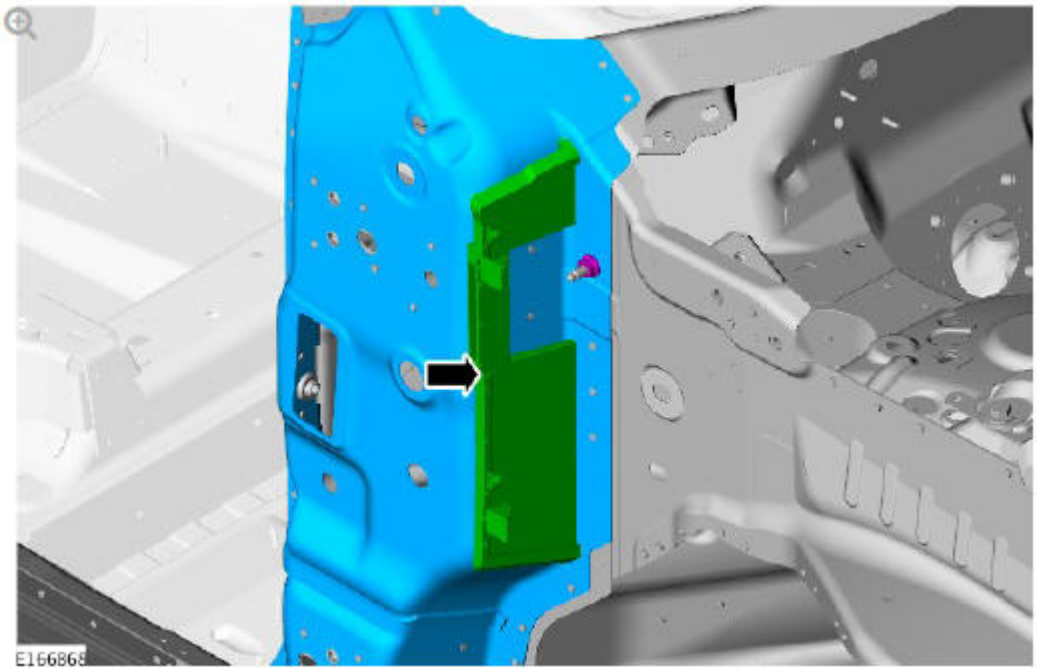


12. Install the retaining nut as indicated.



13. Tack MIG braze the butt joint as indicated.
14. MIG braze the slots as indicated.

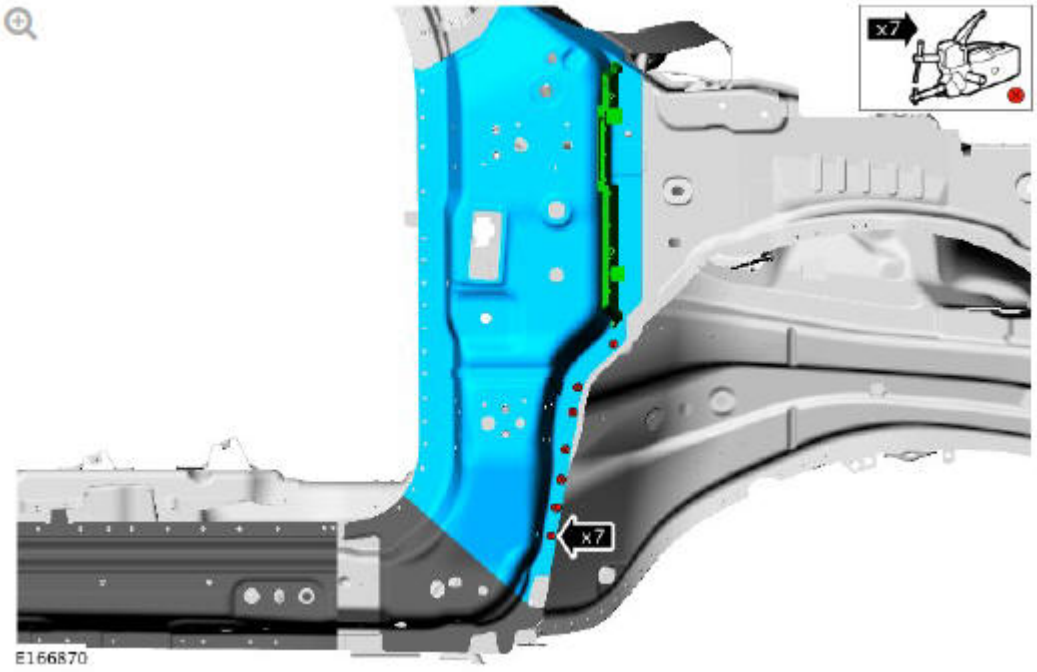




15. Install the NVH component as indicated.

NOTES:

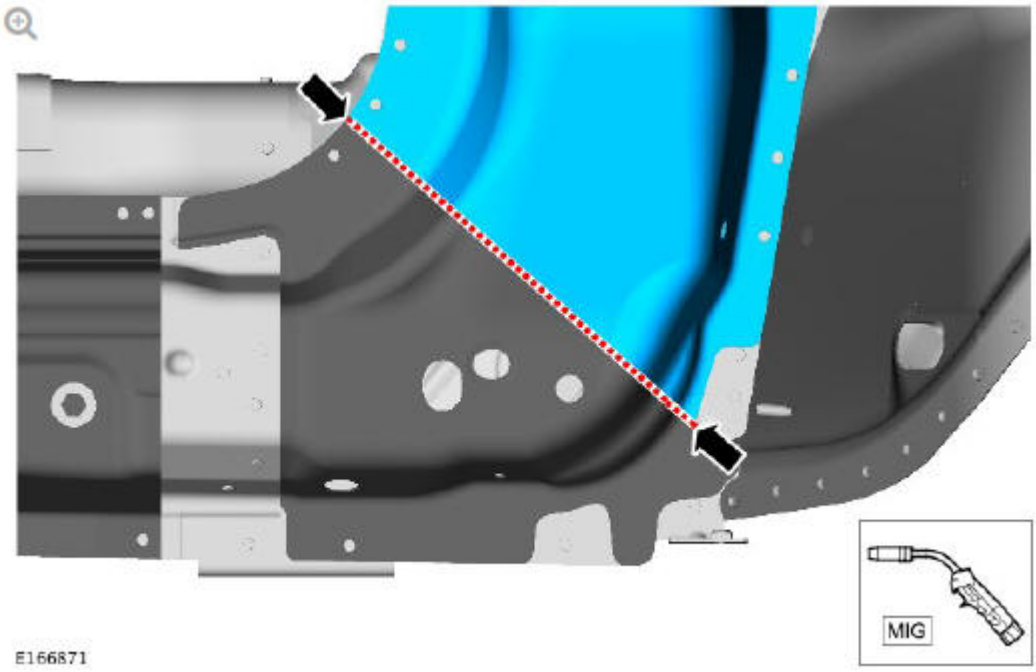
- *The A-pillar reinforcement is fully welded when the A-pillar outer panel is installed.*
- *This joint has to be fully spot welded as it contains adhesive.*



16. Install the spot welds as indicated.

NOTE:

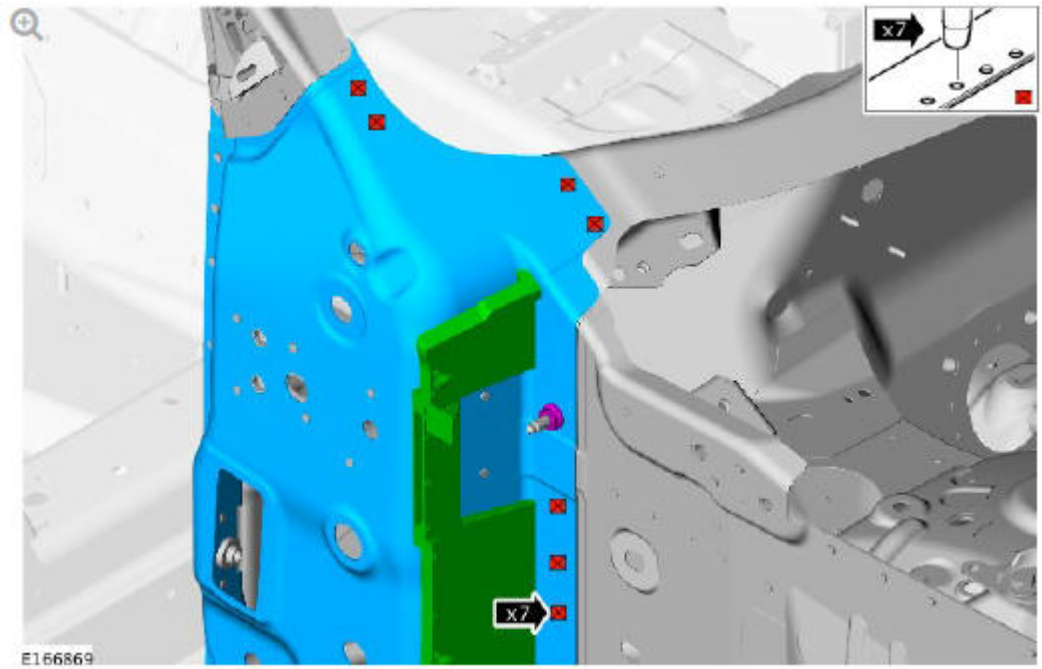
The A-pillar reinforcement is fully welded when the A-pillar outer panel is installed.



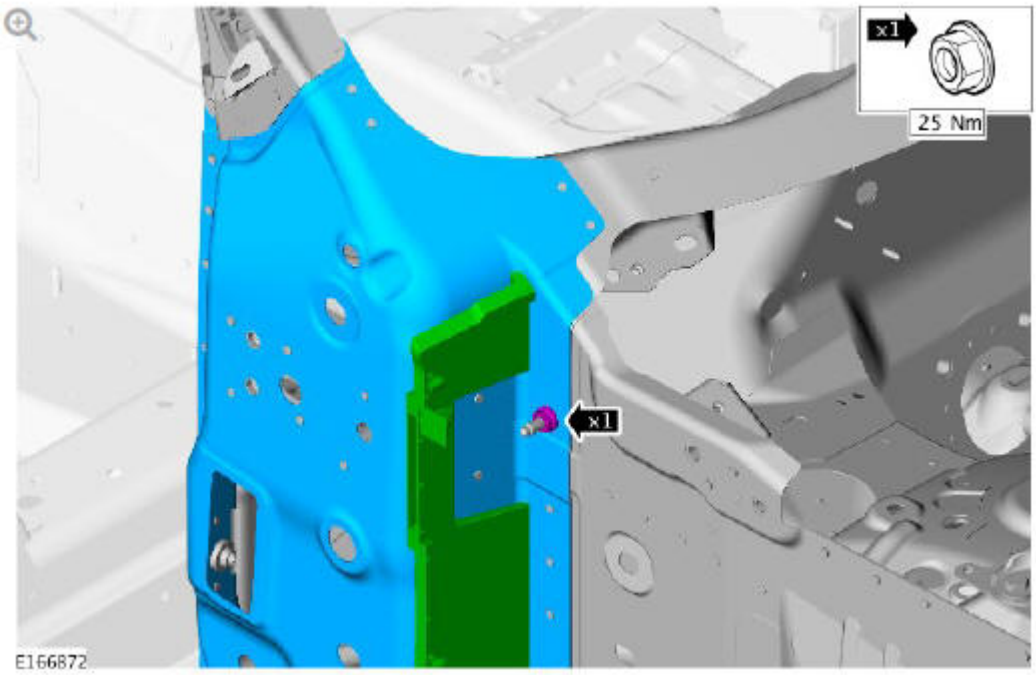
17. MIG braze the butt joint as indicated.

NOTE:

The A-pillar reinforcement is fully welded when the A-pillar outer panel is installed.



18. Install the MIG plug welds as indicated.



19. Tighten the retaining nut to 25Nm as indicated.
20. Dress all welded joints.
21. Make sure that any open or exposed panel joints are correctly sealed.
22. Make sure corrosion protection is applied to all areas affected by repair.
23. The installation of associated panels and components is the reversal of removal procedure.

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Side Panel Sheet Metal Repairs 'A' Pillar Reinforcement (G1770903) - RemovalSide Panel Sheet Metal Repairs 'A' Pillar Outer Panel (G1770902)

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Боковой панель ремонт кузовных панелей 'A' стойка кузова наружный панель

Side Panel Sheet Metal Repairs 'A' Pillar Outer Panel (G1770902)

- Side Panel Sheet Metal Repairs 'A' Pillar Outer Panel (G1770902) - Removal
- Side Panel Sheet Metal Repairs 'A' Pillar Outer Panel (G1770902) - Installation

ne

Side Panel Sheet Metal Repairs 'A' Pillar Reinforcement (G1770903) - InstallationSide Panel Sheet Metal Repairs 'A' Pillar Outer Panel (G1770902) - Removal

ne

Боковой панель ремонт кузовных панелей 'A' стойка кузова наружный панель - снятие

NOTE:

The A-pillar outer panel is installed in conjunction with:

- Front bumper cover
- Hood
- Front fender
- Fender splash shield
- Front door
- Instrument panel
- Windshield glass
- Headliner
- Side air curtain module
- Front scuff plate trim panel
- A-pillar trim panel
- Front seat



1. The A-pillar outer panel is serviced as indicated.
2. Before commencing this procedure make sure that you are aware of all Health and Safety requirements.

   For additional information, refer to: Health and Safety Precautions (100-00 General Information, Description and Operation).

3. For further information on the methods, tools and fixings used in this procedure refer to the body repairs - general information section.

NOTES:

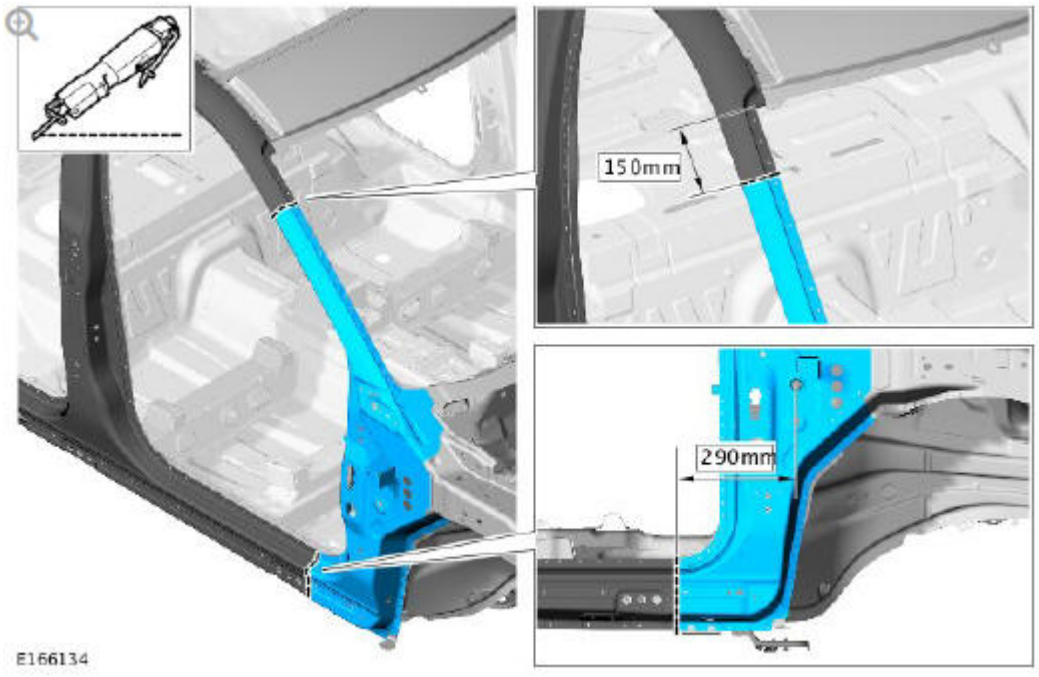
- *Any joints sealed as part of vehicle manufacture must be sealed as part of the repair.*
- *Make sure a zinc rich primer is applied to any bare metal surfaces.*

4. For additional information, refer to: Front Bumper Cover (501-19 Bumpers, Removal and Installation).
5. For additional information, refer to: Hood (501-02 Front End Body Panels, Removal and Installation).

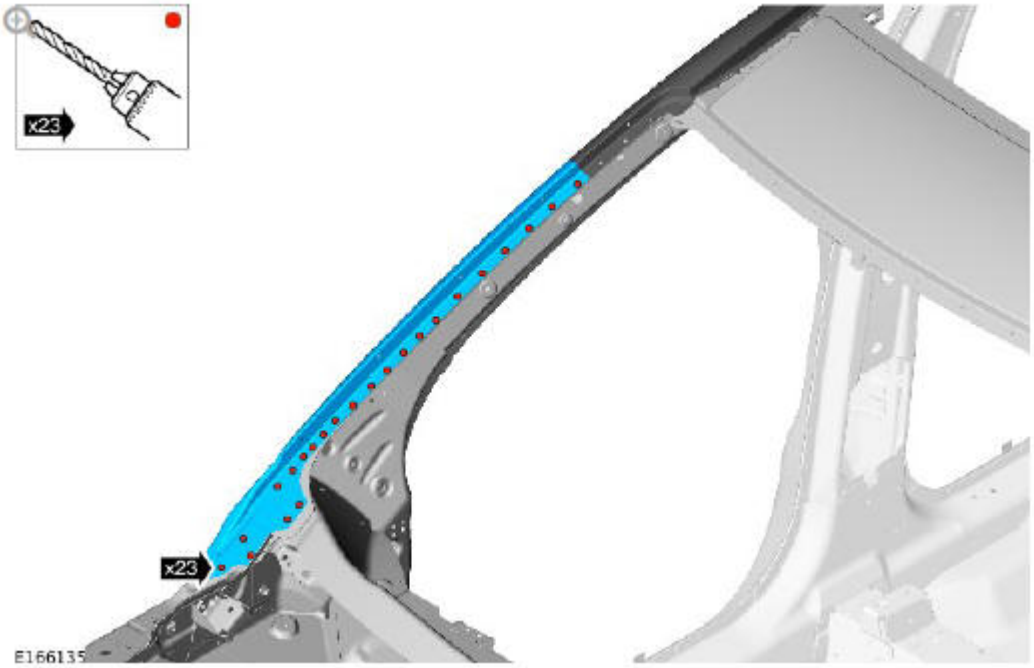
6. For additional information, refer to: Fender (501-02 Front End Body Panels, Removal and Installation).
7. For additional information, refer to: Fender Splash Shield (501-02 Front End Body Panels, Removal and Installation).
8. For additional information, refer to: Front Door (501-03 Body Closures, Removal and Installation).
9. For additional information, refer to: Instrument Panel - GTDi 2.0L Petrol (501-12 Instrument Panel and Console, Removal and Installation) / Instrument Panel - TD4 2.2L Diesel (501-12 Instrument Panel and Console, Removal and Installation).
10. For additional information, refer to: Windshield Glass (501-11 Glass, Frames and Mechanisms, Removal and Installation).
11. For additional information, refer to: Side Air Curtain Module (501- 20B Supplemental Restraint System, Removal and Installation).
12. For additional information, refer to: Front Scuff Plate Trim Panel (501-05 Interior Trim and Ornamentation, Removal and Installation).
13. For additional information, refer to: 'A' Pillar Trim Panel (501-05 Interior Trim and Ornamentation, Removal and Installation).
14. For additional information, refer to: Front Row Seat - Vehicles With: Power Seats (501-10 Seating, Removal and Installation).
15. Release and position the floor carpet to one side.
16. Release and position the floor Noise, Vibration and Harshness (NVH) material to one side.
17. Release and position the wiring harness along the A-pillar inner and inner rocker panel to one side.
18. Remove the upper and lower front door hinges from the A-pillar.

CAUTION:

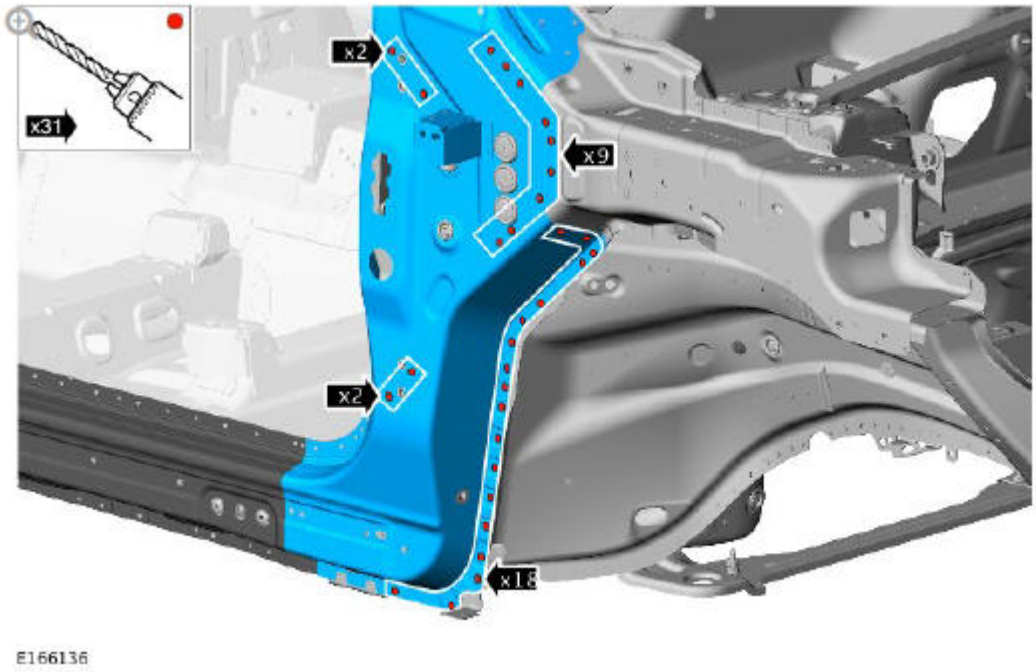
<u>Care should be taken not to cut through into the inner reinforcements.</u>



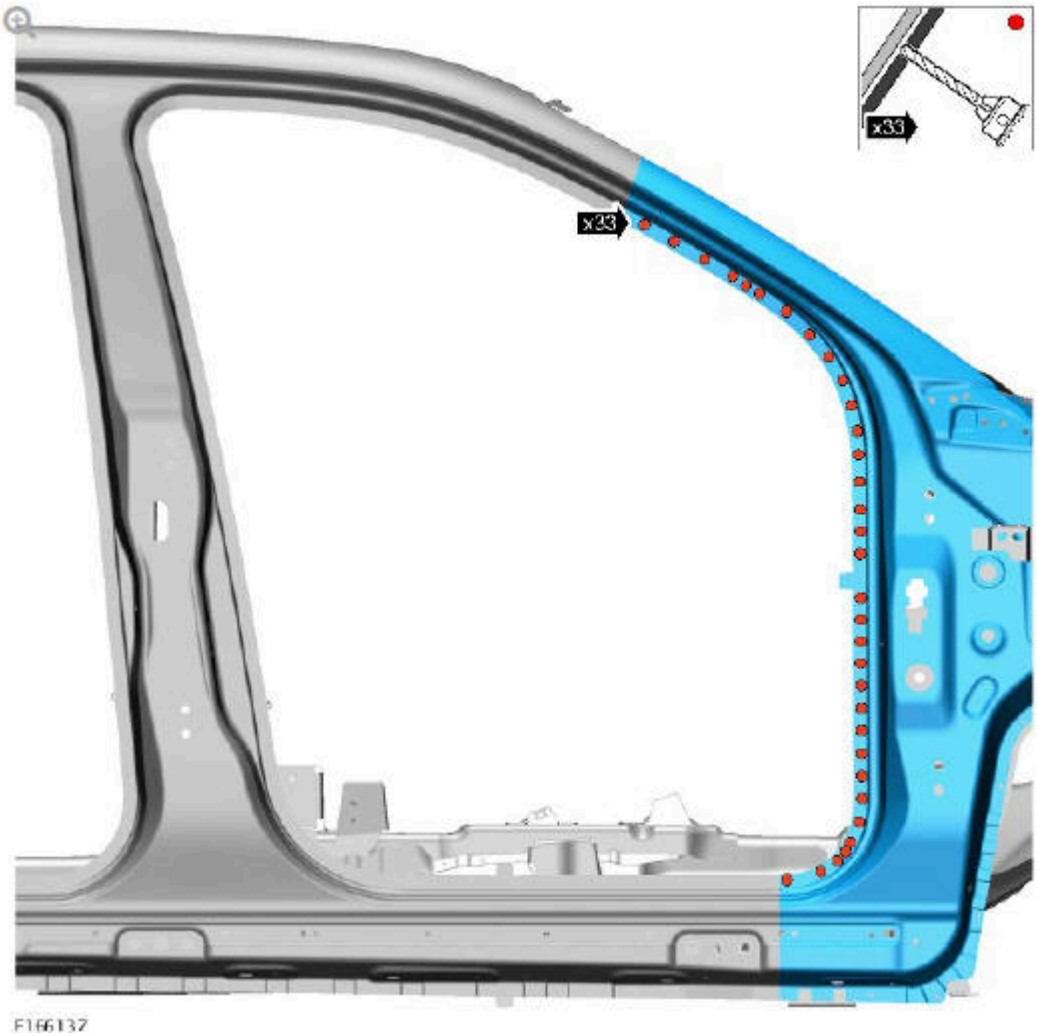
19. Mark out the positions where the A-pillar outer panel upper and lower Metal Inert Gas (MIG) butt joints are to be made. Cut through the panel as indicated.



20. Remove the spot welds as indicated.



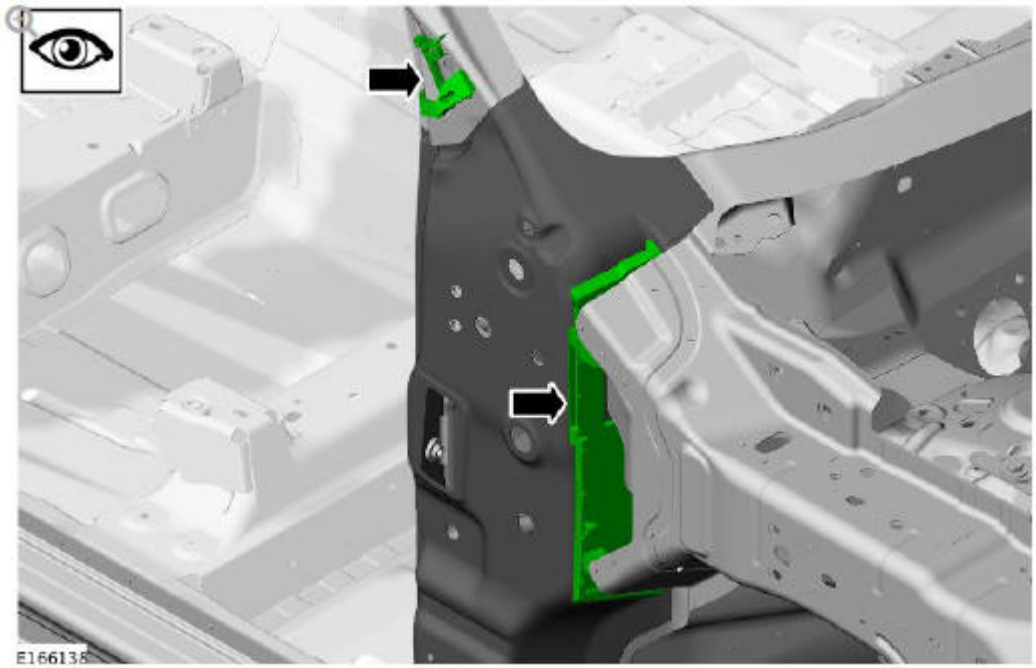
21. Remove the spot welds as indicated.



22. Remove the spot welds as indicated.

NOTE:

Avoid where possible damaging the NVH components located behind the A-pillar outer panel.



23. Carefully separate the joints and remove the panel.

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Side Panel Sheet Metal Repairs 'A' Pillar Outer Panel (G1770902)Side Panel Sheet Metal Repairs 'A' Pillar Outer Panel (G1770902) - Installation

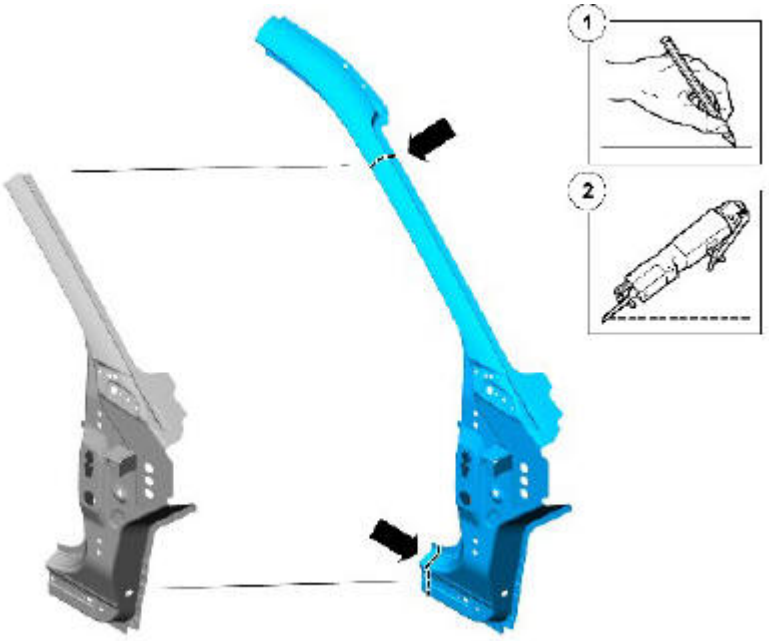
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Боковой панель ремонт кузовных панелей 'A' стойка кузова наружный панель - установка

Side Panel Sheet Metal Repairs 'A' Pillar Outer Panel (G1770902) - Installation

Installation

1. Dress the flanges where necessary.

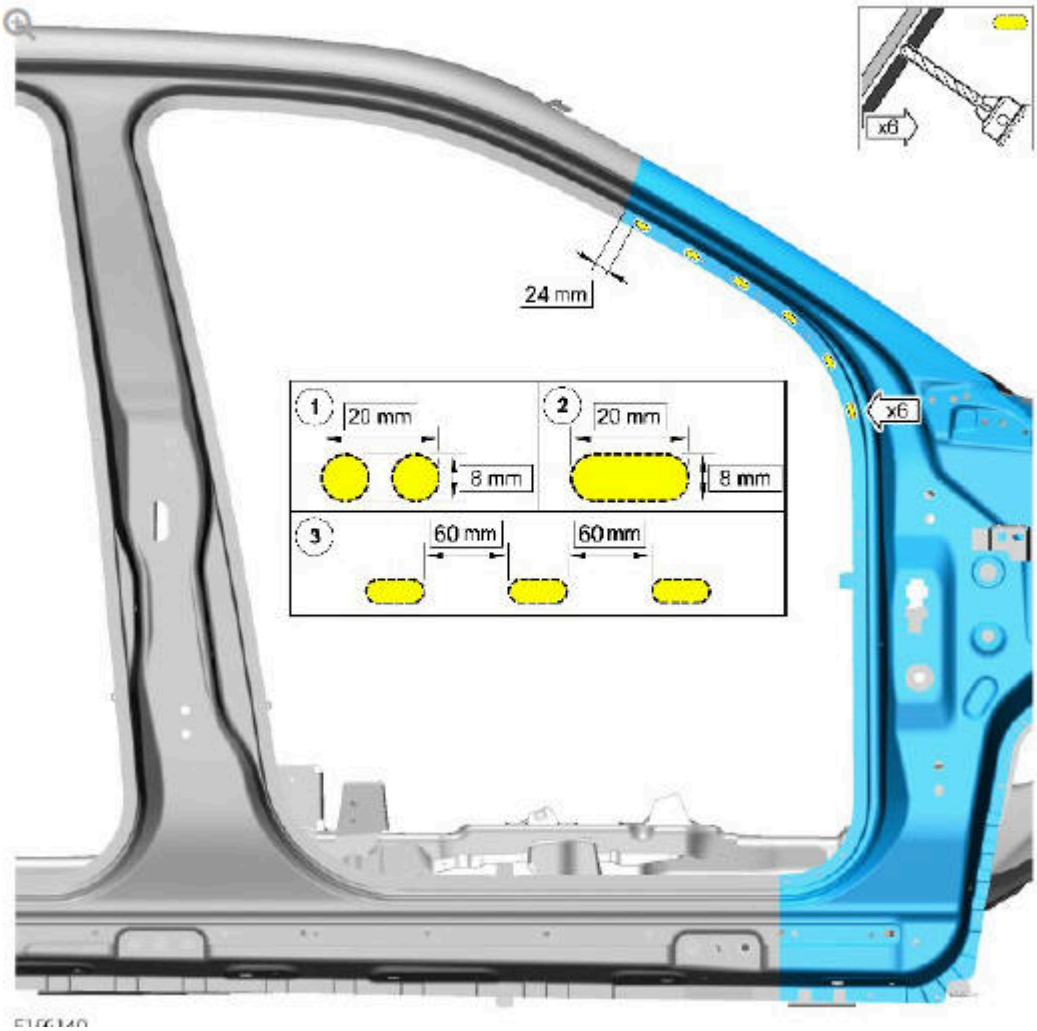


2. Mark out the position on the new A-pillar outer panel where the upper and lower Metal Inert Gas (MIG) welded butt joints are to be made. Cut through the new panel as indicated.
3. Offer up the new A-pillar outer panel and clamp into position.

   Check alignment if correct, proceed to next step, if not, rectify and recheck before proceeding.

NOTE:

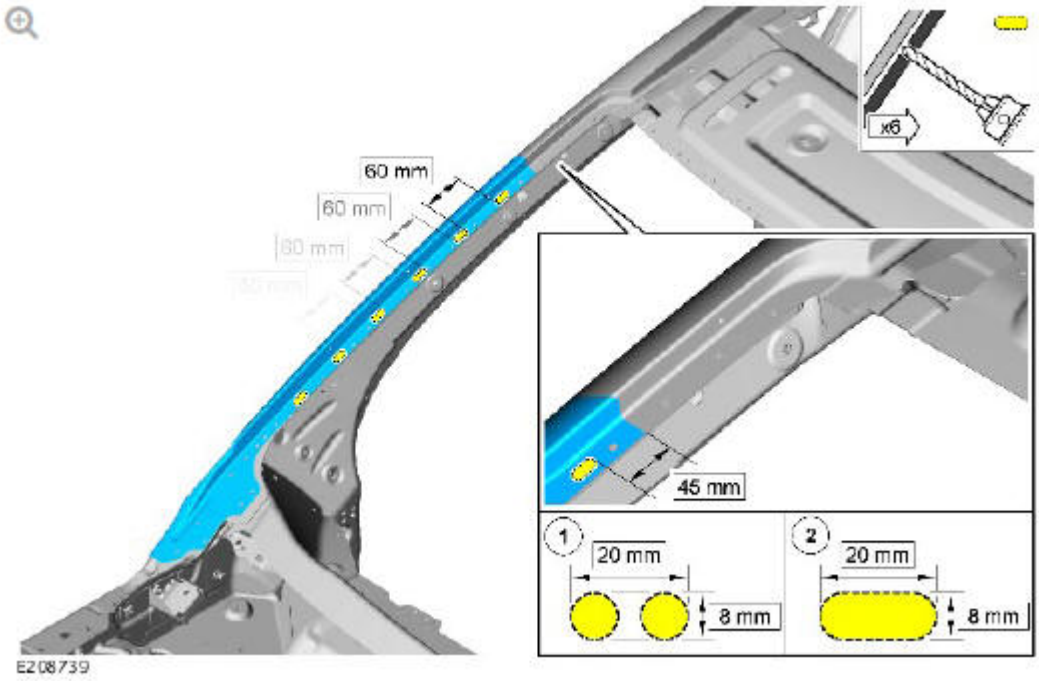
Follow Steps 1 to 3 as shown above to cut the MIG braze slots.



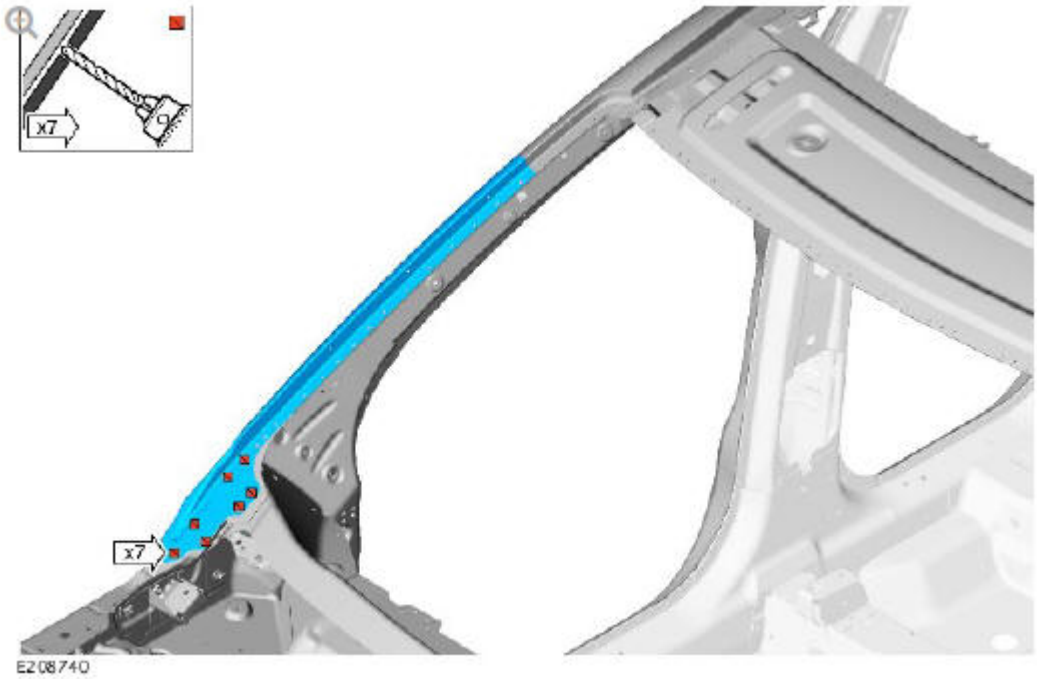
Cut slots in the new A-pillar outer panel where the MIG braze slot welds are to be installed as indicated.

NOTE:

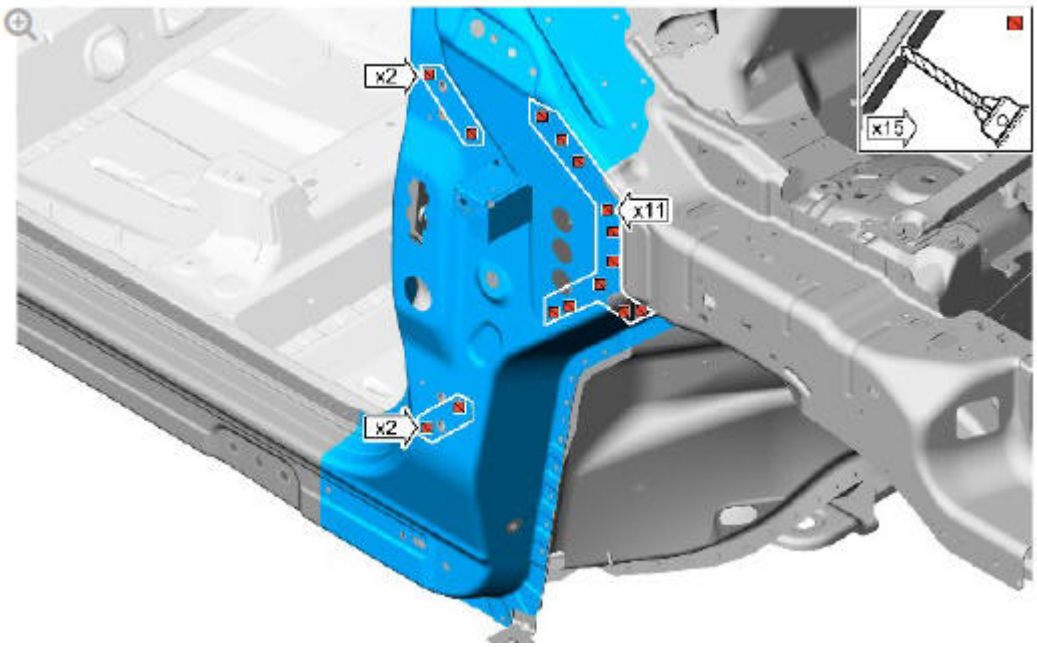
Follow Steps 1 and 2 as shown above to cut the MIG braze slots.



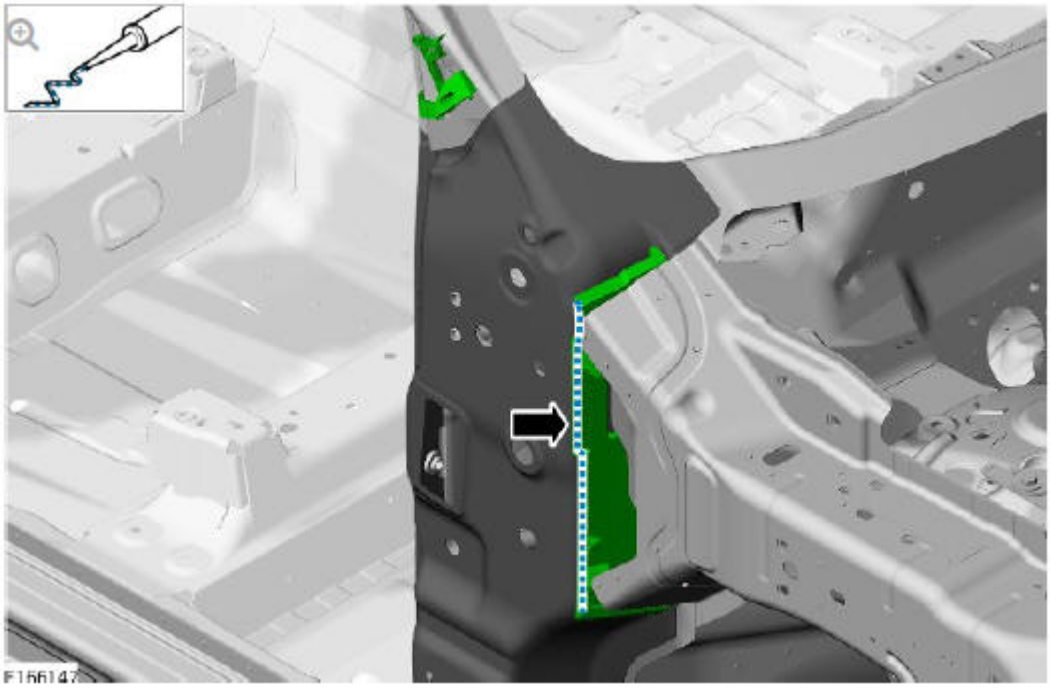
5. Cut slots in the new A-pillar outer panel where the MIG braze slot welds are to be installed as indicated.



6. Drill holes in new A-pillar outer panel where the MIG plug welds are to be installed as indicated.



7. Drill holes in new A-pillar outer panel where the MIG plug welds are to be installed as indicated.
8. Remove the new A-pillar outer panel.
9. Deburr the drilled holes.
10. Prepare the old and new panel joint surfaces including the Noise, Vibration and Harshness (NVH) components.
11. Apply a 5 mm bead of Land Rover approved sealer adhesive to the NVH components as indicated.

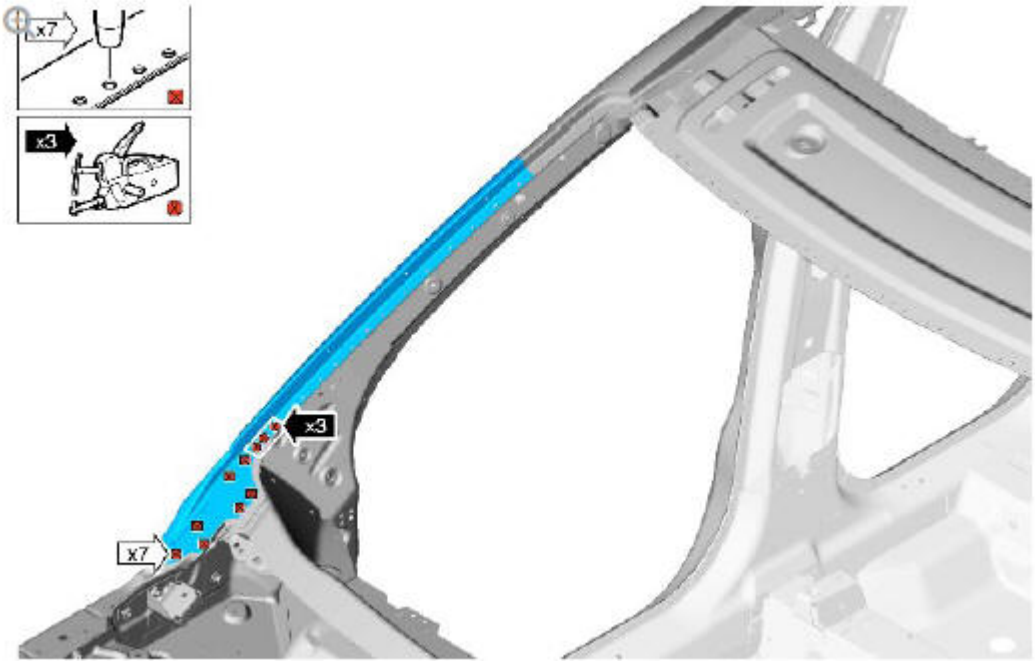


12. Offer up the new A-pillar outer panel and clamp into position.

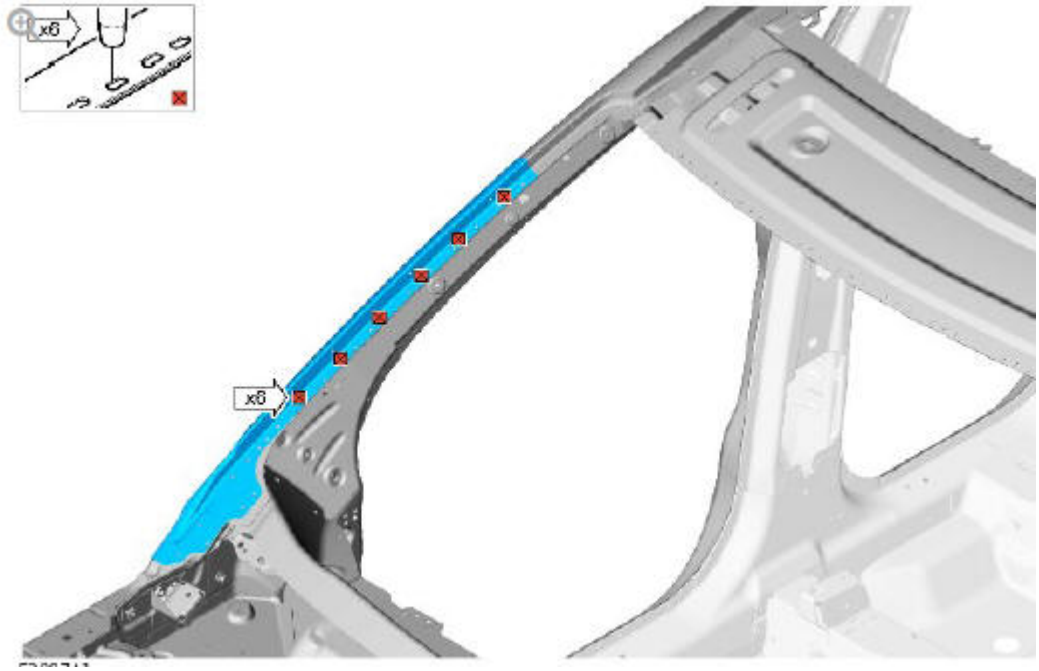
    Check alignment if correct, proceed to next step, if not, rectify and recheck before proceeding.

NOTE:

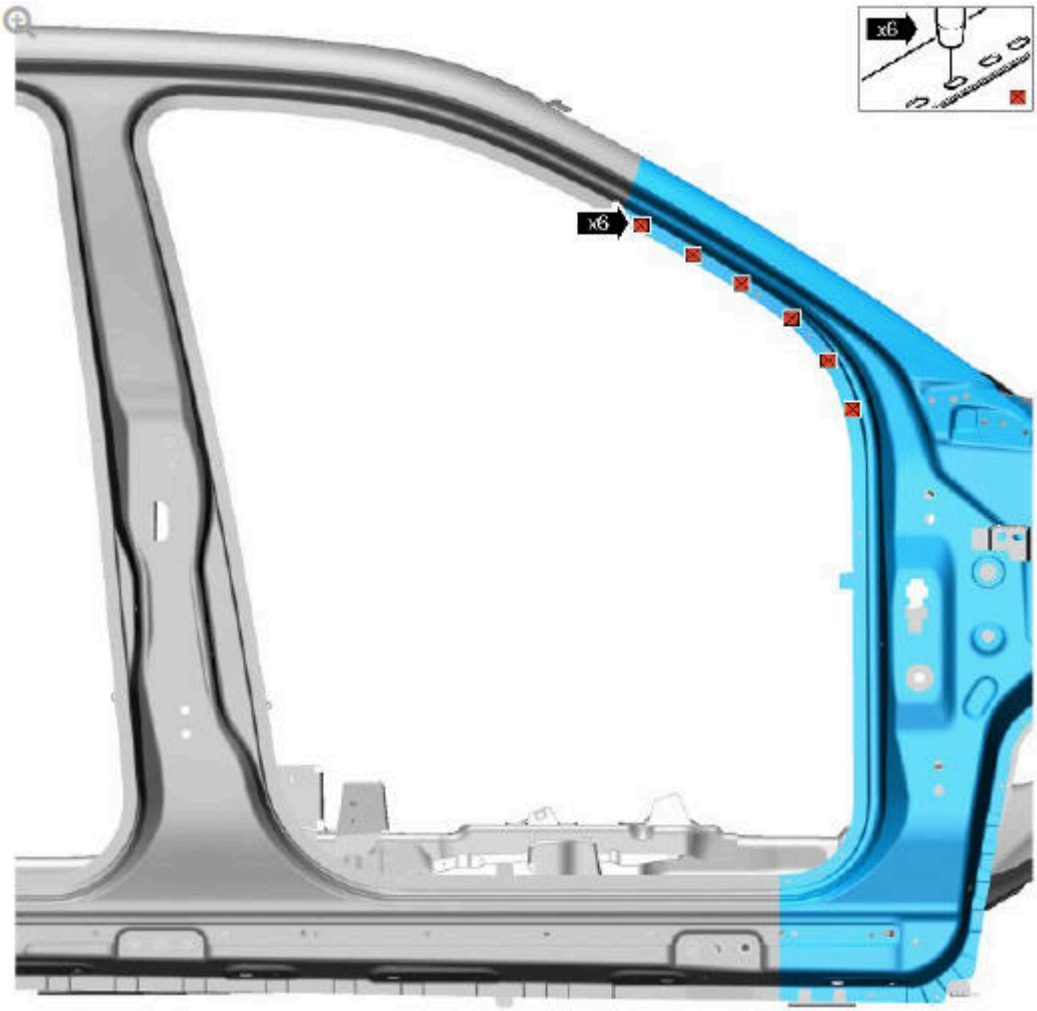
Make sure that spot welds are installed at least 5 mm away from existing spot welds on underlying panels.



13. Install the spot and MIG plug welds as indicated.



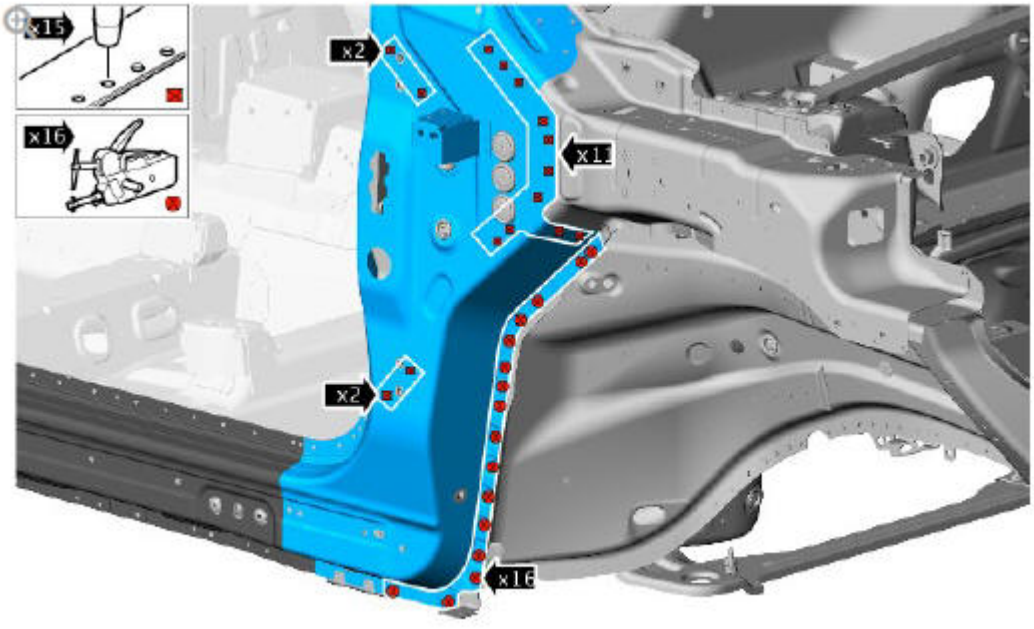
14. Install the MIG braze slot welds as indicated.



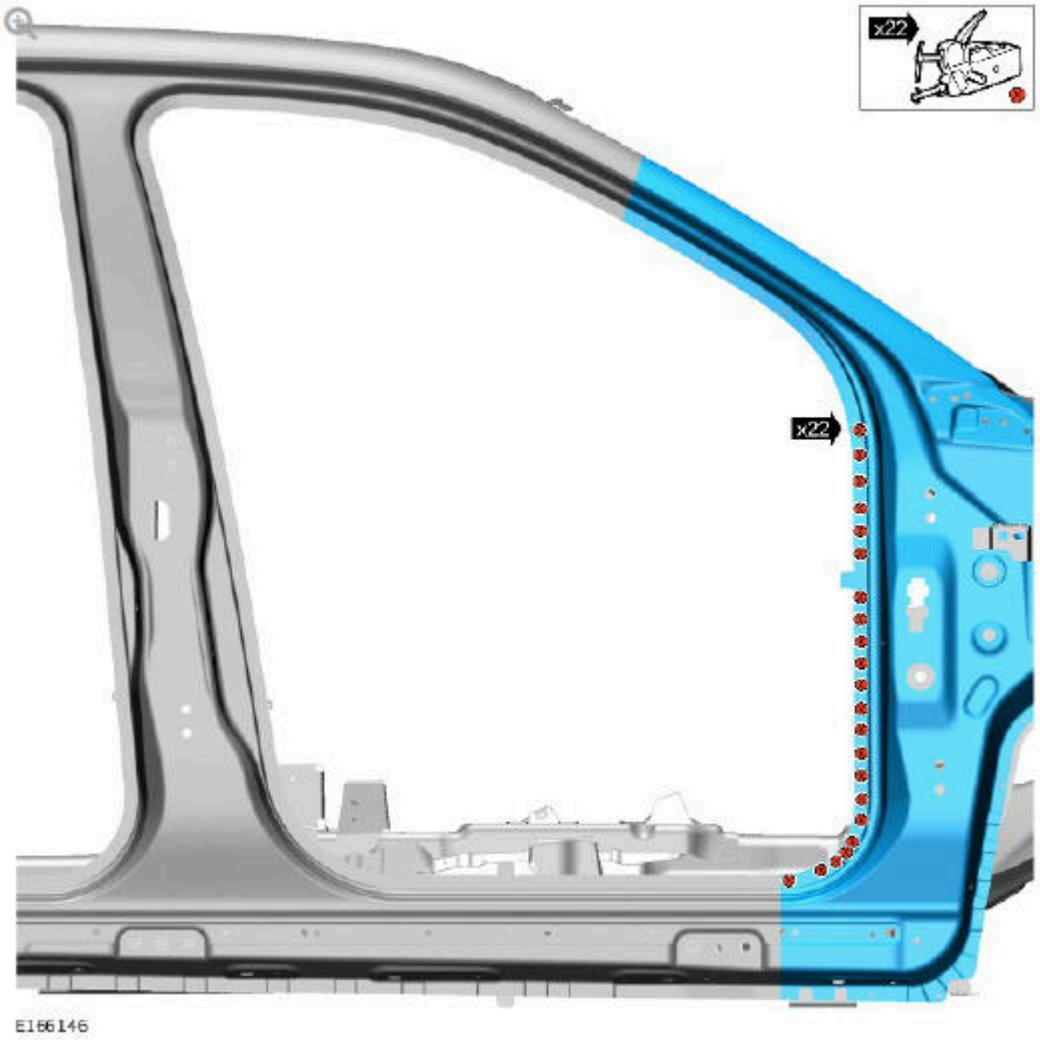
15. Install the MIG braze slot welds as indicated

NOTE:

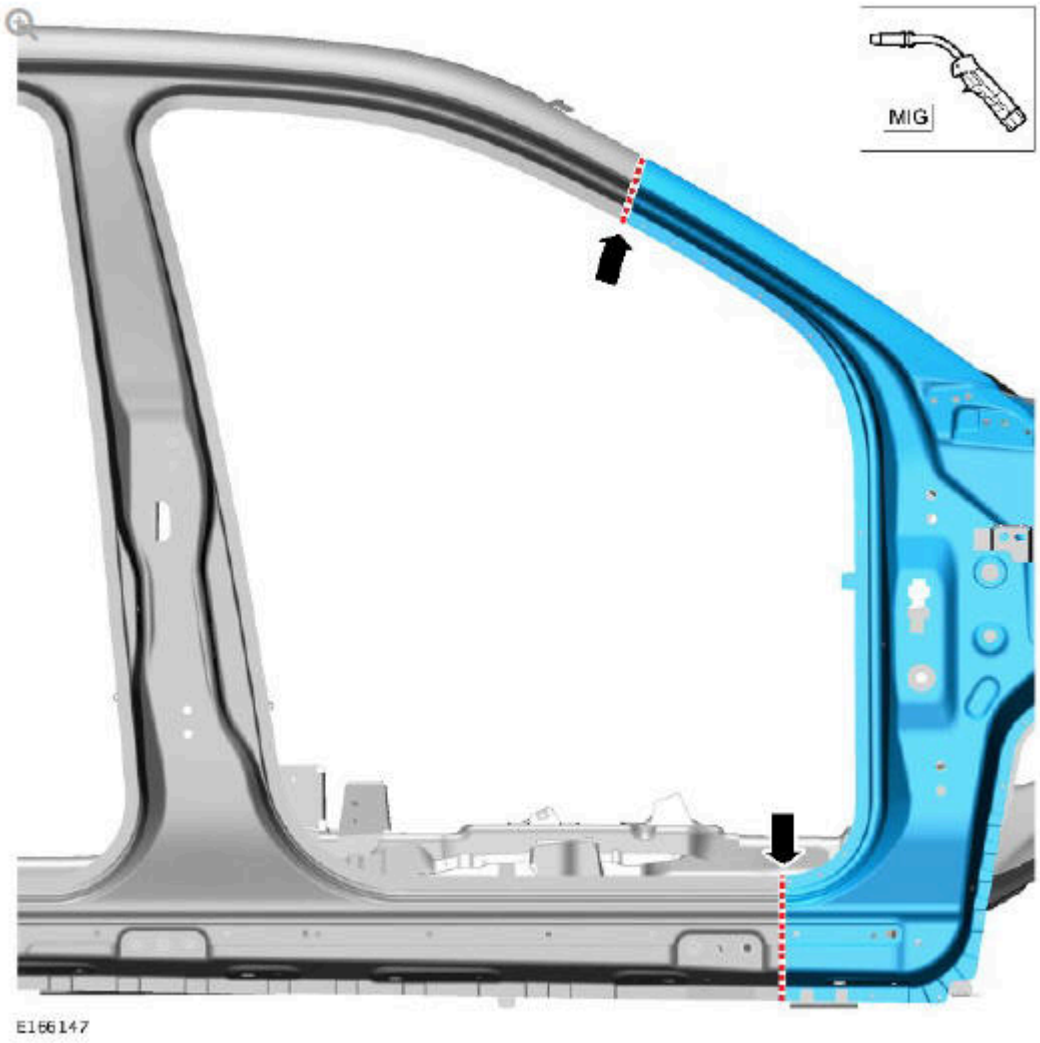
Make sure that spot welds are installed at least 5 mm away from existing spot welds on underlying panels.



16. Install the spot and MIG plug welds as indicated.



17. Install the spot welds as indicated.



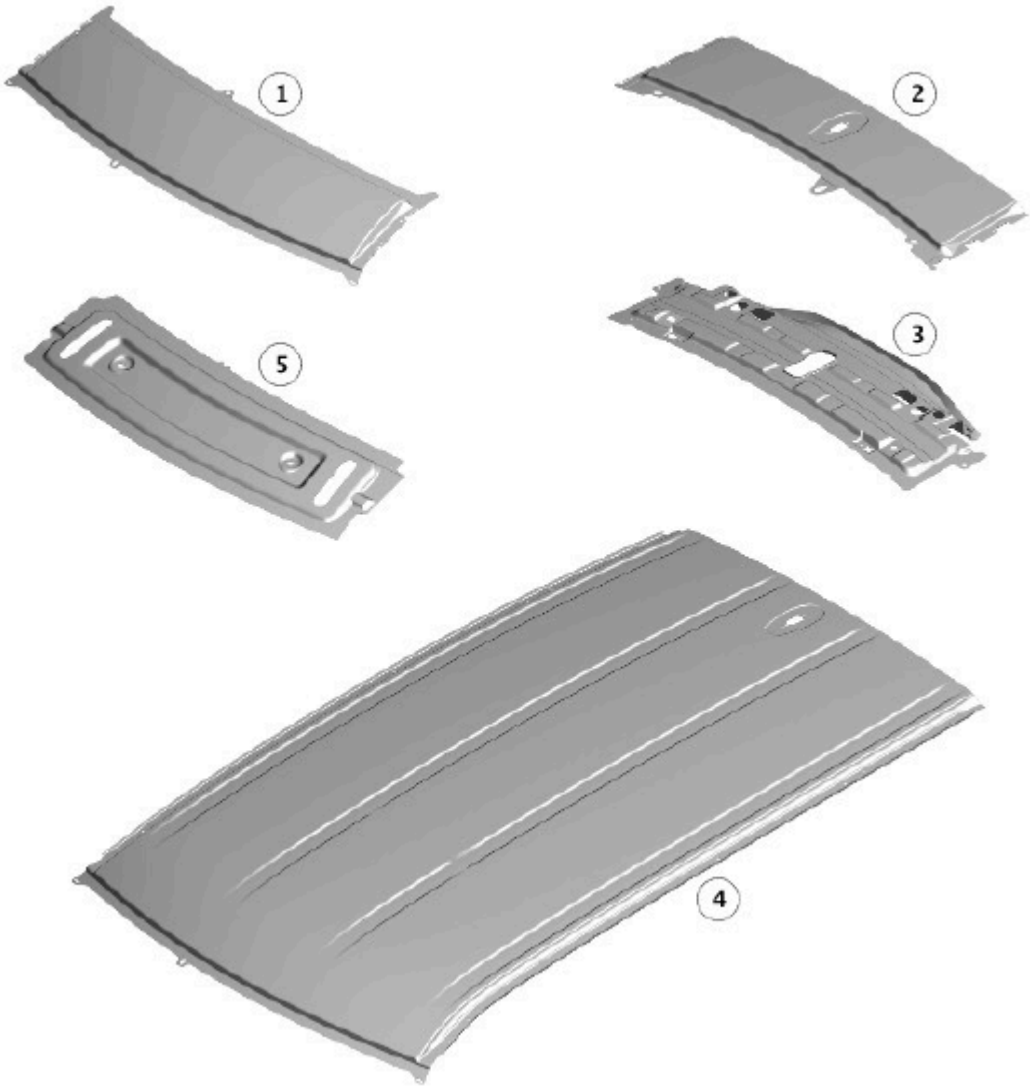
18. MIG weld the butt joints as indicated.
19. Dress all welds.
20. Install the door hinges and tighten the bolts to 30 Nm.
21. Apply a Land Rover recommended sealer and seal the panel flange edges of the MIG braze slot welds in the door aperture area to prevent water ingress
22. Apply a Land Rover recommended sealer and seal the front flange of the A-pillar outer above the fluting to prevent water ingress.
23. Make sure that any open or exposed panel joints are correctly sealed.
24. Make sure corrosion protection is applied to all areas affected by repair.
25. The installation of associated panels and components is the reversal of removal procedure.

Roof Sheet Metal Repairs / Description and Operation

GALVANIC CORROSION

For additional information, refer to: Corrosion Protection (501-25B Body Repairs - Corrosion Protection, Description and Operation).

ROOF SERVICE PANELS



ITEM	DESCRIPTION	MATERIAL
1	Roof Front Panel	Steel
2	Roof Rear Panel	Steel
3	Roof Rear Header Panel	Steel
4	Roof Panel	Aluminium
5	Windshield Header Panel	Steel

TIME SCHEDULES , ROOF SERVICE PANELS

The following information shows the total time taken to install single panels.

These times do not include removal of mechanical, electrical and trim, (MET), items or paint times.

The times shown are to be used as a guide only.

PANEL DESCRIPTION	REPAIR TIME
Roof Front Panel	1.60
Roof Rear Panel	2.50
Roof Rear Header Panel	11.50
Roof Panel	7.40
Windshield Header Panel	9.80

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Side Panel Sheet Metal Repairs 'A' Pillar Outer Panel (G1770902) - RemovalRoof Sheet Metal Repairs Windshield Header Panel (G1770878) / Removal and Installation

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Крыша ремонт кузовных панелей лобовое стекло поперечина панель / снятие и установка

Roof Sheet Metal Repairs Windshield Header Panel (G1770878) / Removal and Installation

REMOVAL

NOTE:

The windshield header panel is installed in conjunction with:

- Headliner
- Roof moulding
- Side air curtain module
- Roof panel
- Roof front panel
- Glass roof panel
- Windshield glass



1. The windshield header panel is serviced as indicated.
2. Before commencing this procedure make sure that you are aware of all Health and Safety requirements.

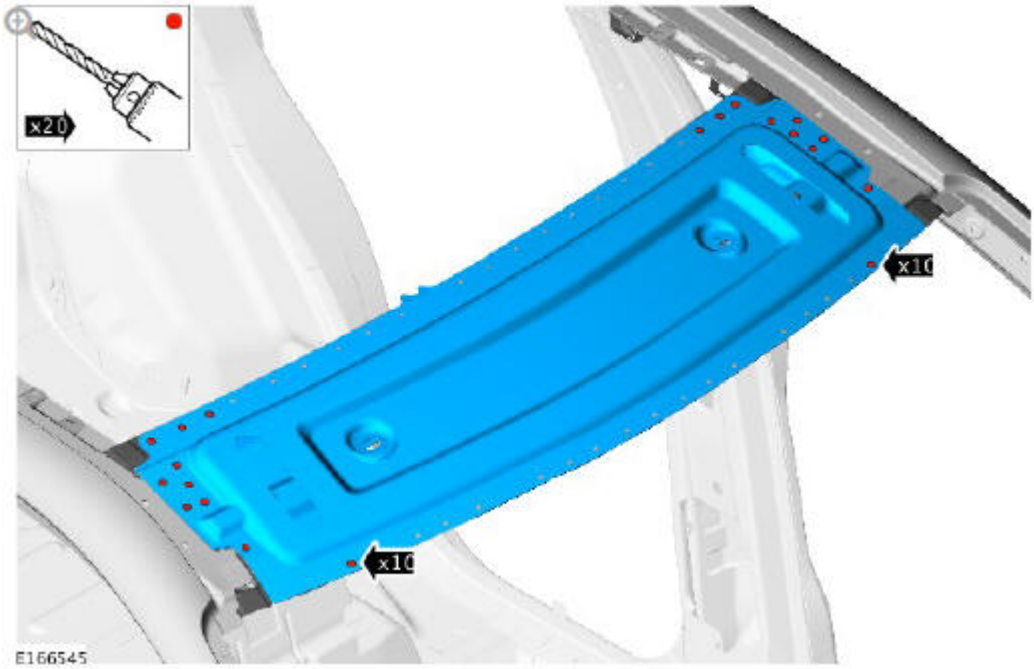
   For additional information, refer to: Health and Safety Precautions (100-00, Description and Operation).

3. For further information on the methods, tools and fixings used in this procedure refer to the body repairs - general information section.

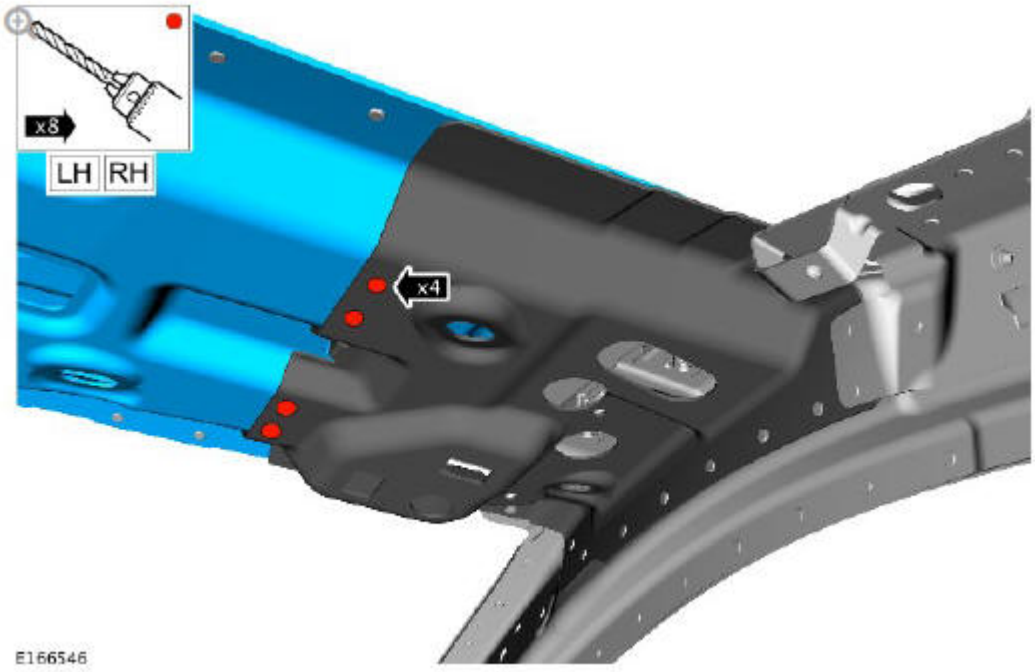
NOTES:

- *Any joints sealed as part of vehicle manufacture must be sealed as part of the repair.*
- *Make sure a zinc rich primer is applied to any bare metal surfaces.*

4. For additional information, refer to: Headliner (501-05, Removal and Installation).
5. For additional information, refer to: Roof Moulding - 5-Door (501- 08, Removal and Installation).
6. For additional information, refer to: Side Air Curtain Module (501- 20B, Removal and Installation).
7. For additional information, refer to: Roof Panel (501-28, Removal and Installation).
8. For additional information, refer to: Roof Front Panel (501-28, Removal and Installation).
9. For additional information, refer to: Glass Roof Panel (501-11, Removal and Installation).
10. For additional information, refer to: Windshield Glass (501-11, Removal and Installation).
11. Release and position the wiring harness to one side.
12. Remove the spot welds as indicated.



13. Remove the spot welds as indicated.

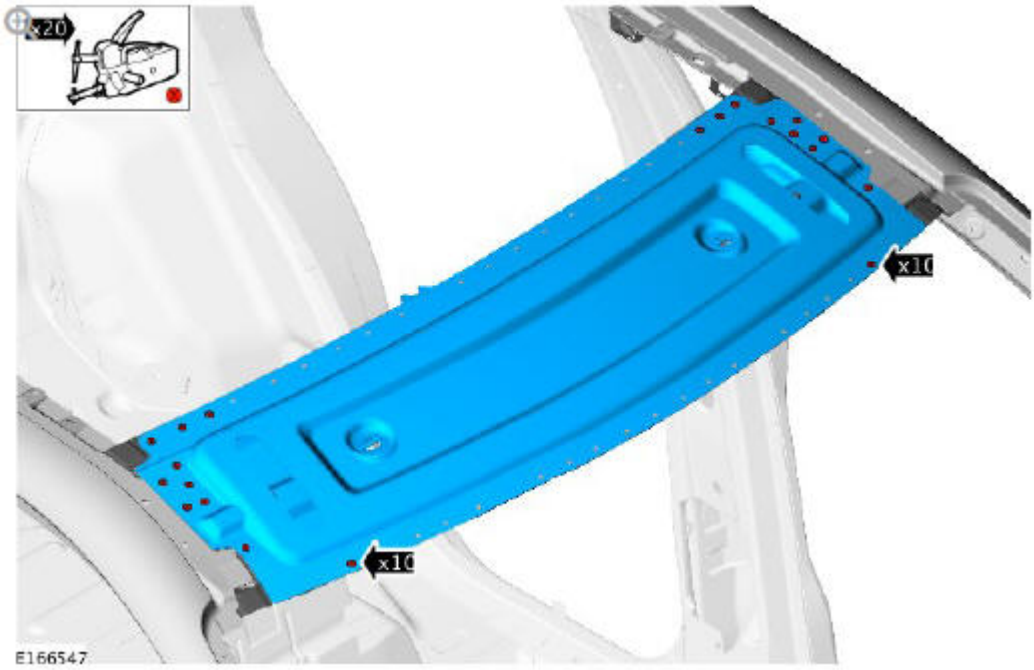


14. Carefully separate the joints and remove the windshield header panel.

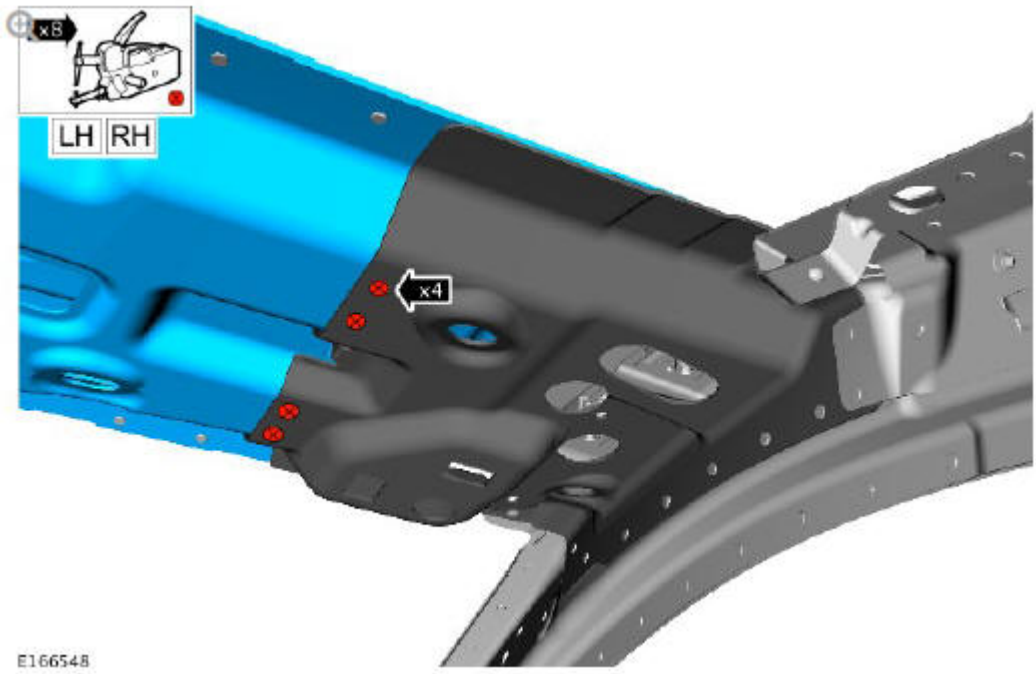
INSTALLATION

1. Dress flanges where necessary.
2. Clean and prepare the panel surfaces.
3. Offer up the new windshield header panel and clamp into position.

   Check alignment, if correct, proceed to next step, if not, rectify and recheck before proceeding.



4. Install the spot welds as indicated.



5. Install the spot welds as indicated.
6. Make sure that any open or exposed panel joints are sealed with a Land Rover recommended sealer.
7. Make sure corrosion protection is applied to all areas affected by repair.
8. The installation of associated panels and components is the reversal of removal procedure.

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Side Panel Sheet Metal Repairs 'A' Pillar Outer Panel (G1770902) - InstallationRoof Sheet Metal Repairs Roof Rear Panel (G1770883)

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Крыша ремонт кузовных панелей крыша задний панель

Roof Sheet Metal Repairs Roof Rear Panel (G1770883)

- Roof Sheet Metal Repairs Roof Rear Panel (G1770883) Removal
- Roof Sheet Metal Repairs Roof Rear Panel (G1770883) - Installation

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Roof Sheet Metal Repairs Windshield Header Panel (G1770878) / Removal and InstallationRoof Sheet Metal Repairs Roof Rear Panel (G1770883) Removal

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Крыша ремонт кузовных панелей крыша задний панель снятие

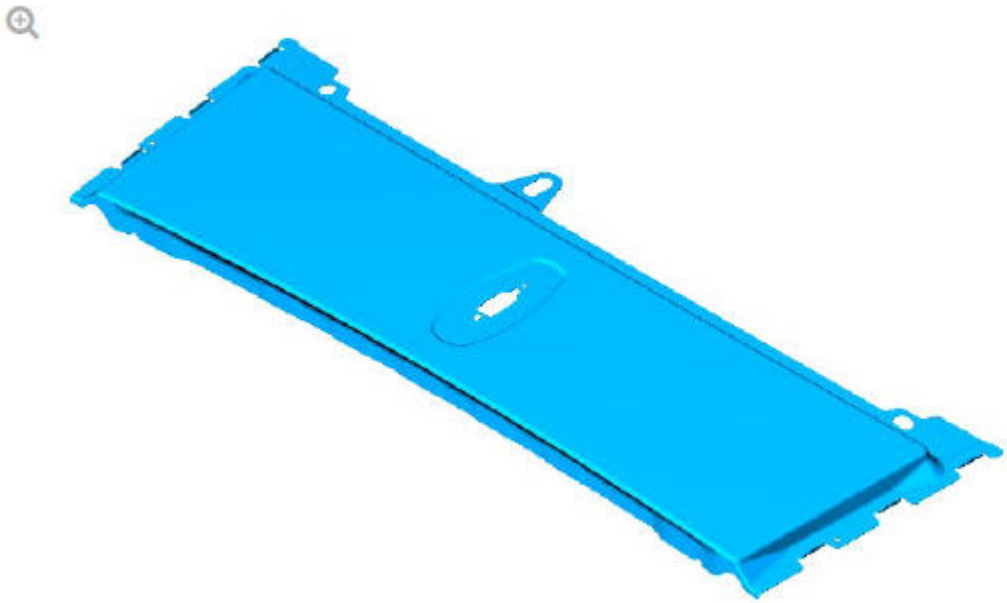
Roof Sheet Metal Repairs Roof Rear Panel (G1770883) Removal

Removal

NOTE:

The roof rear panel is installed in conjunction with:

- *Headliner*
- *Roof moulding*
- *Side air curtain module*
- *Glass roof panel*
- *Liftgate*



1. The roof rear panel is serviced as indicated.
2. Before commencing this procedure make sure that you are aware of all Health and Safety requirements.

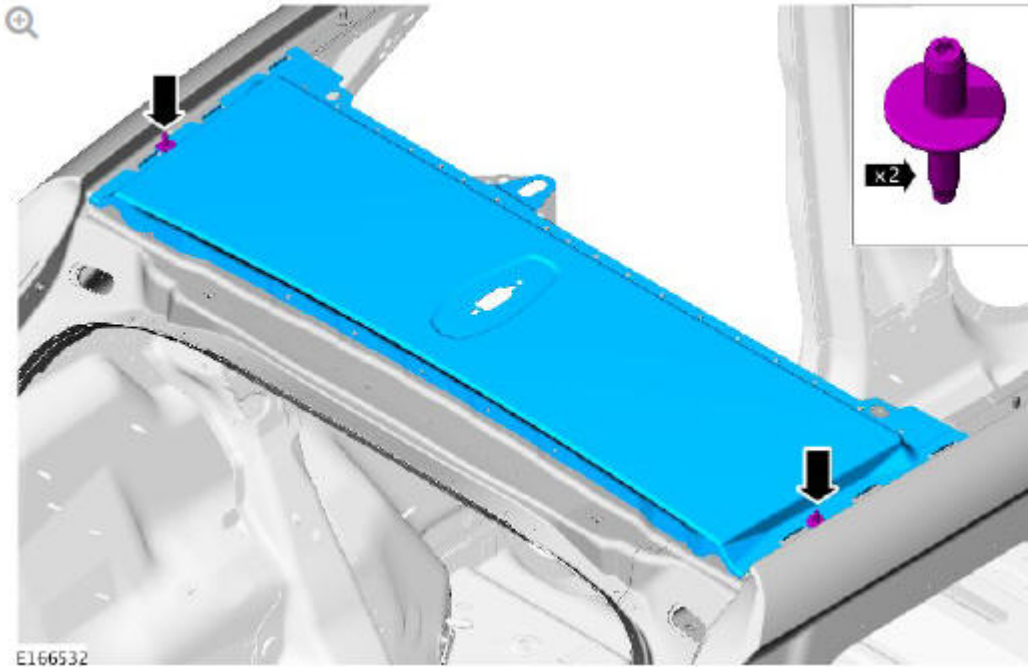
For additional information, refer to: Health and Safety Precautions (100-00, Description and Operation).

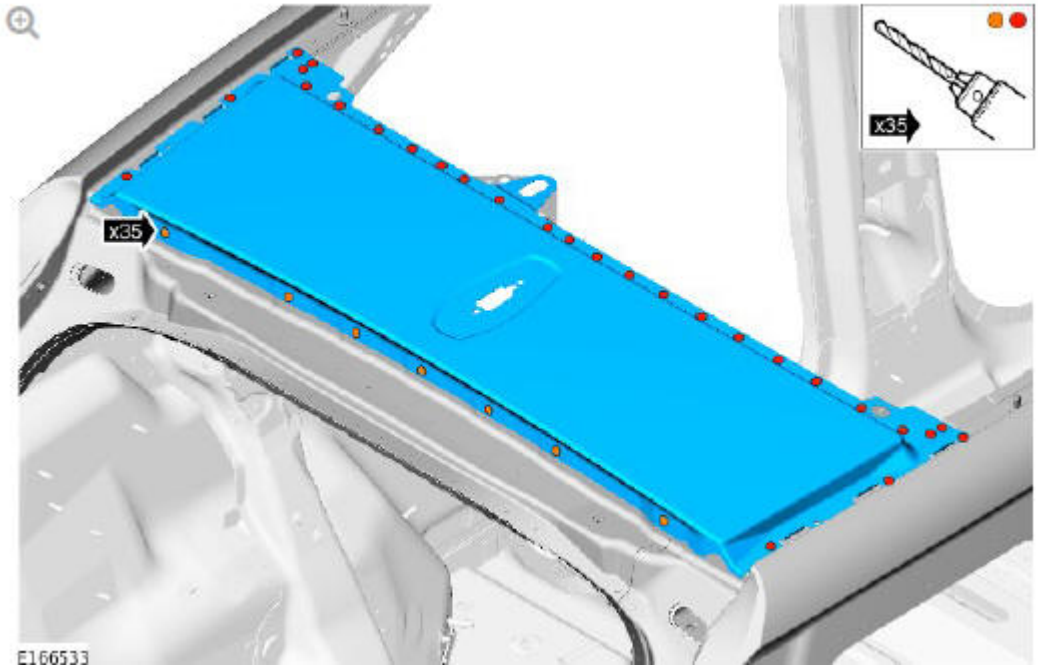
3. For further information on the methods, tools and fixings used in this procedure refer to the body repairs - general information section.

NOTES:

- *Where self piercing rivets (SPR) removal is instructed use either the approved SPR tool or a 5.3mm drill bit.*
- *Any joints sealed as part of vehicle manufacture must be sealed as part of the repair.*
- *New screw in roof studs must be installed in the installation of the roof rear panel.*
- *Make sure a zinc rich primer is applied to any bare metal surfaces.*

4. For additional information, refer to: Headliner (501-05, Removal and Installation).
5. For additional information, refer to: Roof Moulding - 5-Door (501- 08, Removal and Installation).
6. For additional information, refer to: Side Air Curtain Module (501- 20B, Removal and Installation).
7. For additional information, refer to: Glass Roof Panel (501-11, Removal and Installation).
8. For additional information, refer to: Liftgate (501-03, Removal and Installation).
9. Release and position the wiring harness to one side.
10. Remove the roof studs as indicated.





11. Remove the SPR's and the spot welds as indicated.
12. Carefully separate the joints and remove the roof rear panel.

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Roof Sheet Metal Repairs Roof Rear Panel (G1770883)Roof Sheet Metal Repairs Roof Rear Panel (G1770883) - Installation

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Крыша ремонт кузовных панелей крыша задний панель - установка

Roof Sheet Metal Repairs Roof Rear Panel (G1770883) - Installation

Installation

NOTE:

BSF installation involves using the Land Rover approved BSF installation tool and requires a hole diameter of 6.5mm.

1. Dress flanges where necessary.
2. Clean and prepare the panel surfaces.
3. Clean out the threads on the captive nut inserts where the new roof studs are to be installed.

NOTE:

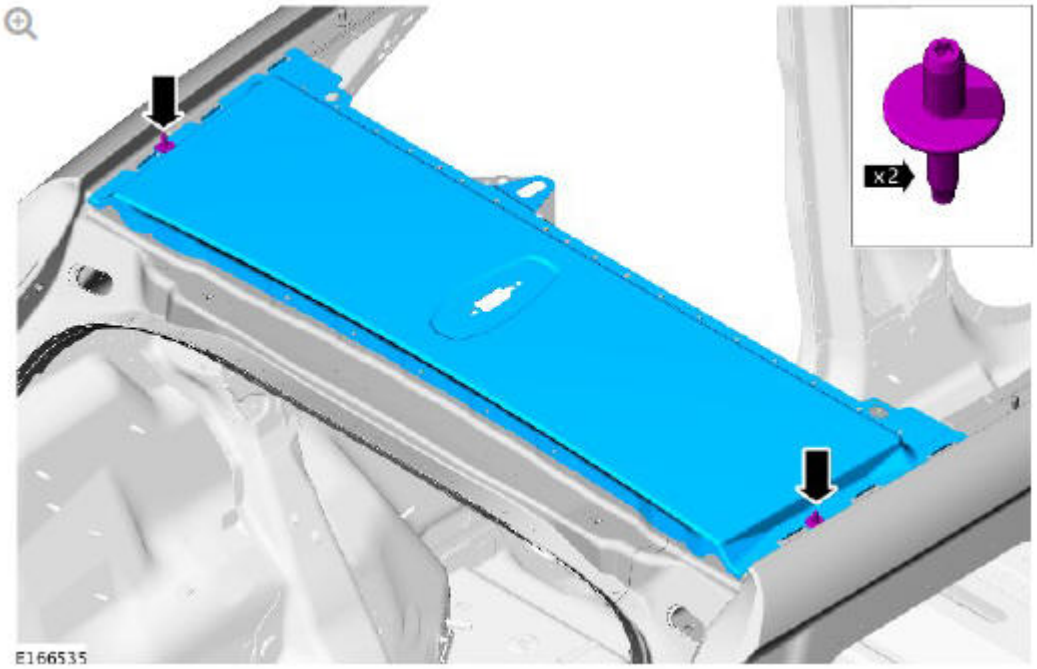
Mark the locations of removed rivet holes in the rear joint prior to fitment to aid installation of the new roof rear panel.



4. Using the old roof panel as a guide mark the position on the new roof panel where the holes for the BSF's are to be drilled as indicated.

NOTE:

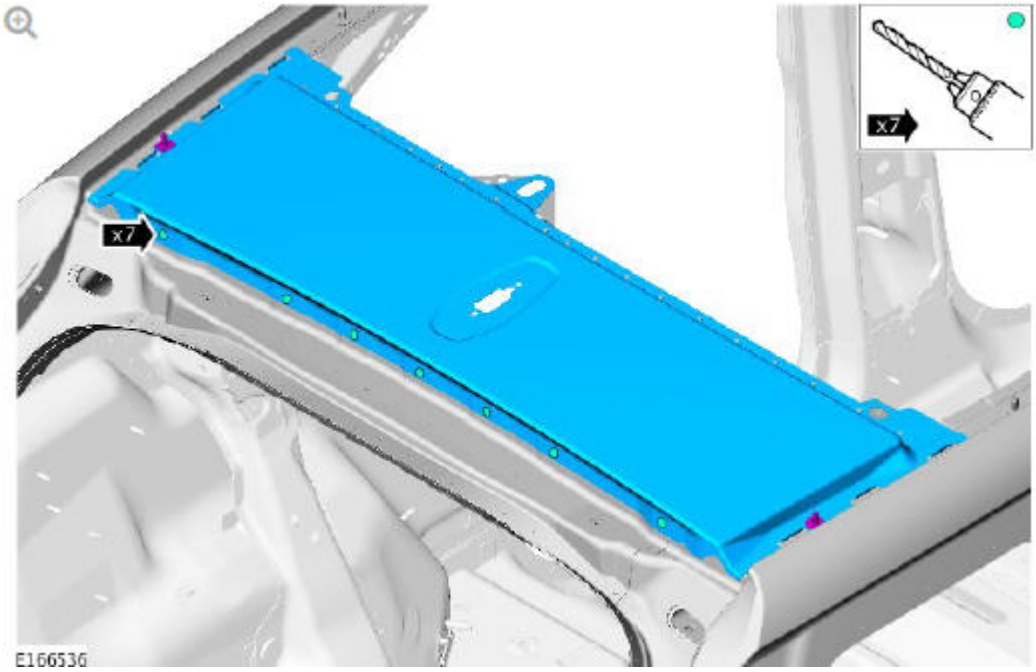
Do not fully tighten the roof studs at this stage.



5. Offer up the new roof rear panel, loosely install the roof studs and clamp into position. Check alignment if correct, proceed to next step, if not, rectify and recheck before proceeding as indicated.

NOTE:

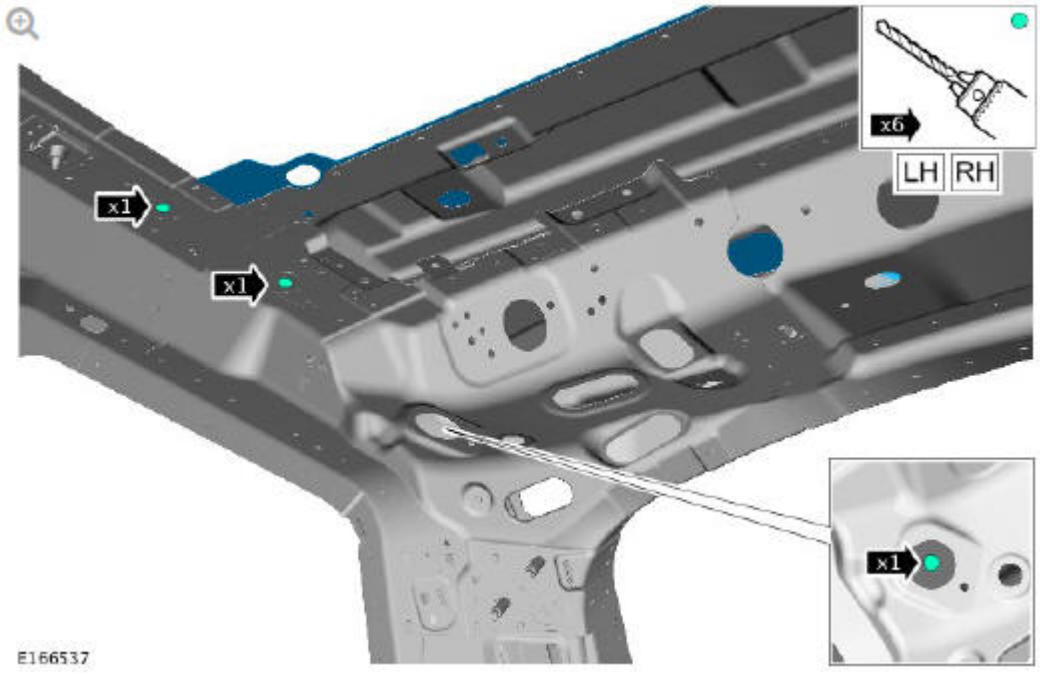
Make sure that the holes are drilled through the roof rear panel and the roof rear header panel.



6. Drill holes where the BSF's are to be installed as indicated.

NOTES:

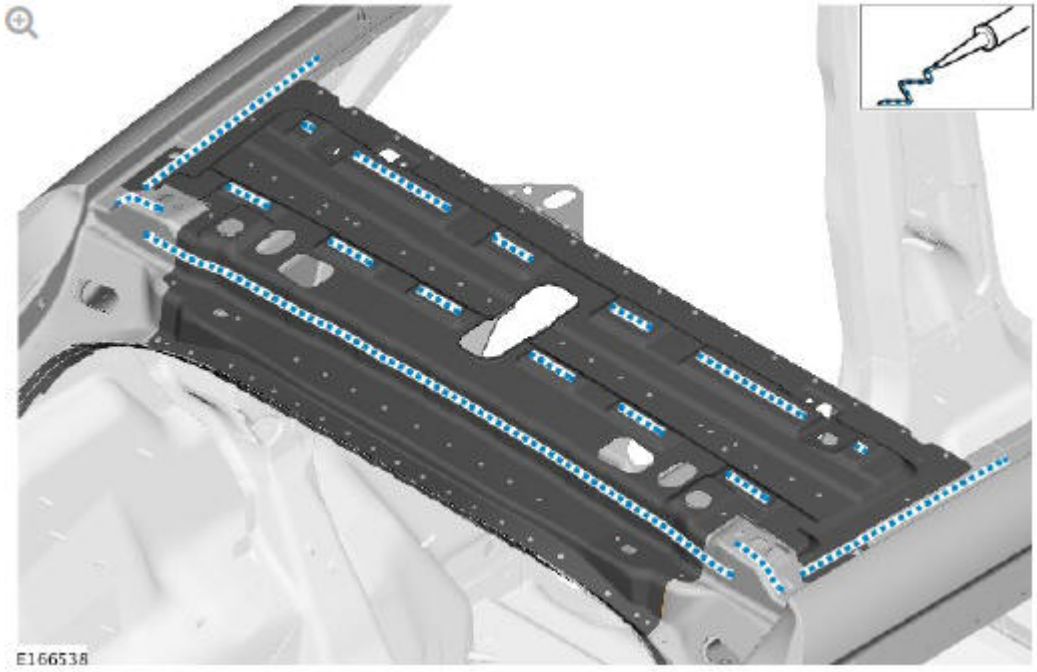
- *Make sure that the holes are drilled from inside the vehicle.*
- *Make sure that the holes are drilled in the same location as the SPR's.*



7. Drill holes where the BSF's are to be installed as indicated.
8. Remove the new roof rear panel.
9. Deburr the drilled holes.
10. Clean and prepare the panel surfaces.

NOTES:

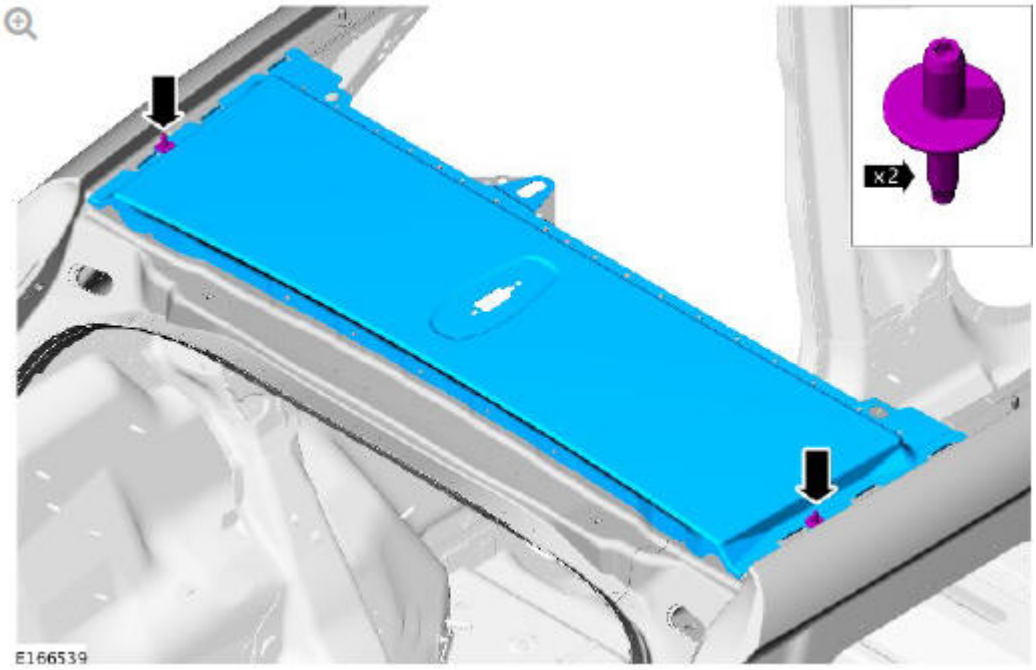
- *Care must be taken not to contaminate the captive nut threads where the roof studs are installed.*
- *Make sure a continuous bead of adhesive surrounds fixing holes.*



11. Apply a 5mm bead of Land Rover recommended sealer as indicated.
12. Offer up the new roof rear panel and clamp into position. Check alignment if correct, proceed to next step, if not rectify and recheck before proceeding.

NOTES:

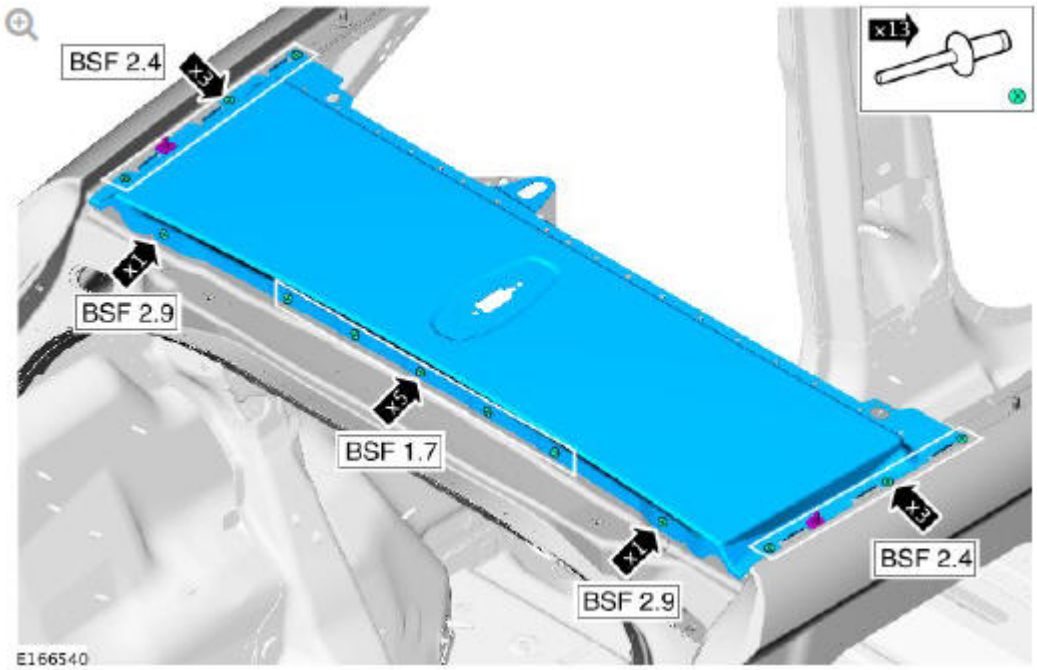
- *Make sure that new roof studs are installed.*
- *Do not fully tighten the roof studs at this stage.*



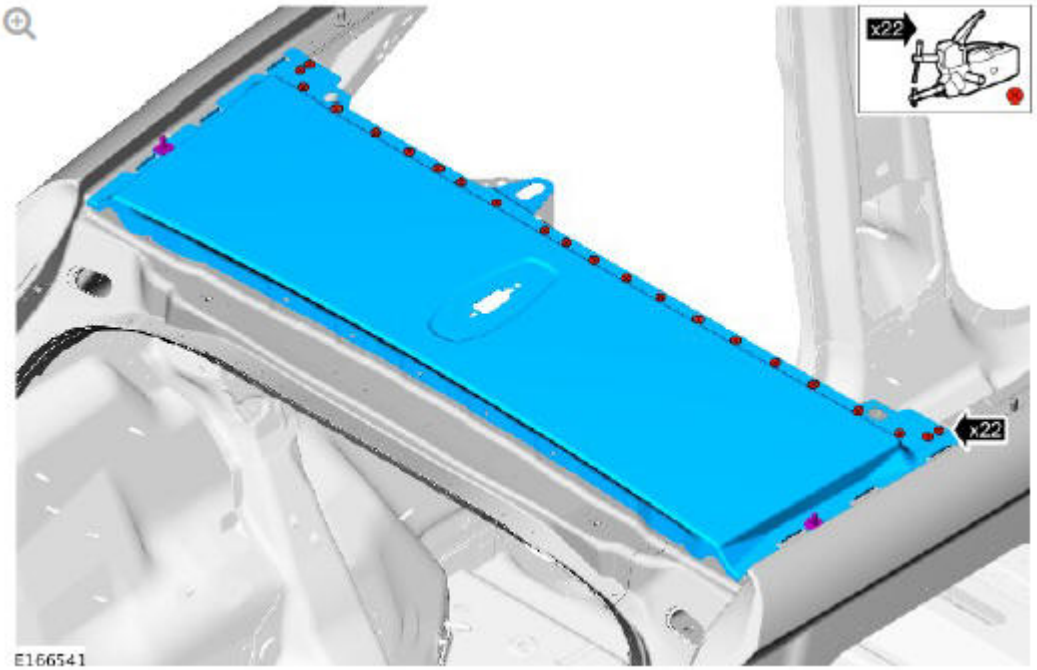
13. Install the roof studs as indicated.

NOTE:

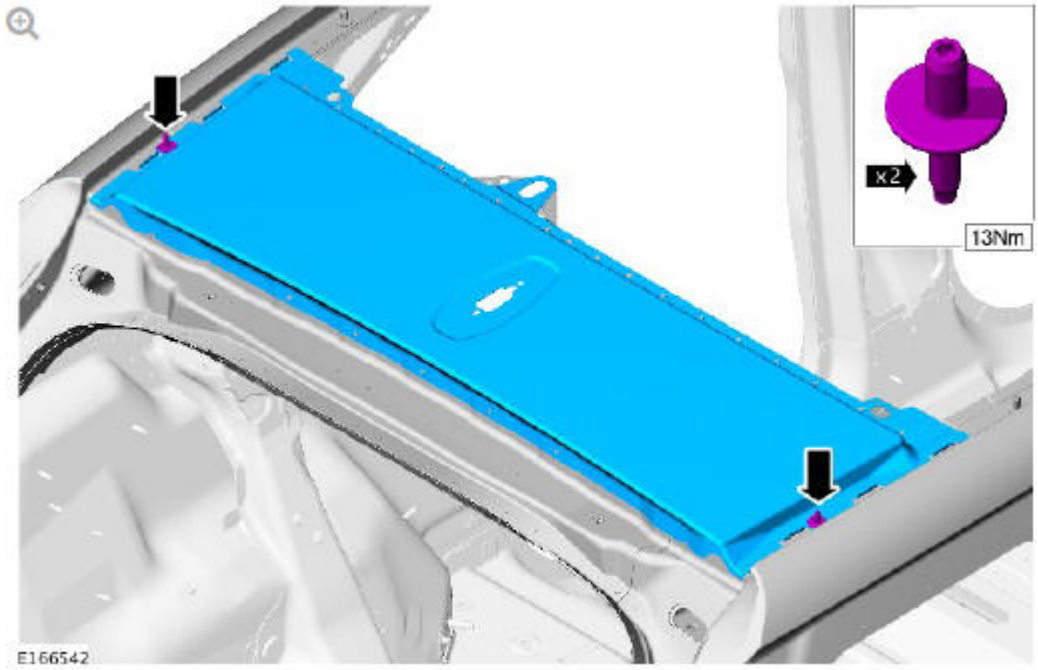
Make sure that the BSF's are installed from the outside.



14. Install the BSF's as indicated.



15. Install the spot welds as indicated.



16. Install the roof studs and tighten to 13Nm as indicated.

NOTE:

Make sure that all the rivet heads are sealed to prevent water ingress.

17. Apply a Land Rover recommended sealer to all installed rivet heads.
18. Remove any excess adhesive.
19. Make sure that any open or exposed panel joints are sealed with a Land Rover recommended sealer.
20. Make sure corrosion protection is applied to all areas affected by repair.
21. The installation of associated panels and components is the reversal of the removal procedure.

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Roof Sheet Metal Repairs Roof Rear Panel (G1770883) RemovalRoof Sheet Metal Repairs Roof Rear Header Panel (G1770882) / Removal and Installation

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Крыша ремонт кузовных панелей крыша задний поперечина панель / снятие и установка

Roof Sheet Metal Repairs Roof Rear Header Panel (G1770882) / Removal and Installation

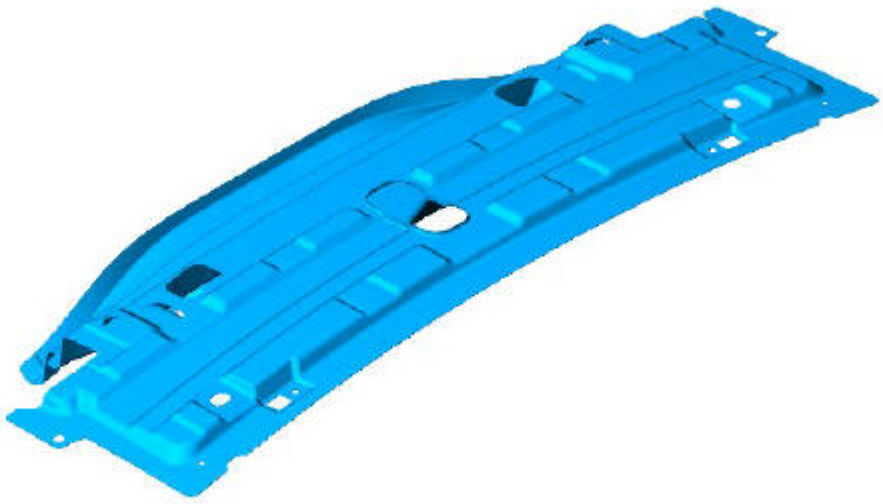
REMOVAL

NOTE:

The roof rear header panel is installed in conjunction with:

- *Headliner*
- *Roof moulding*
- *Side air curtain module*
- *Roof panel*
- *Roof rear panel*
- *Glass roof panel*

- *Liftgate*



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1. The roof rear header panel is serviced as indicated.
2. Before commencing this procedure make sure that you are aware of all Health and Safety requirements.

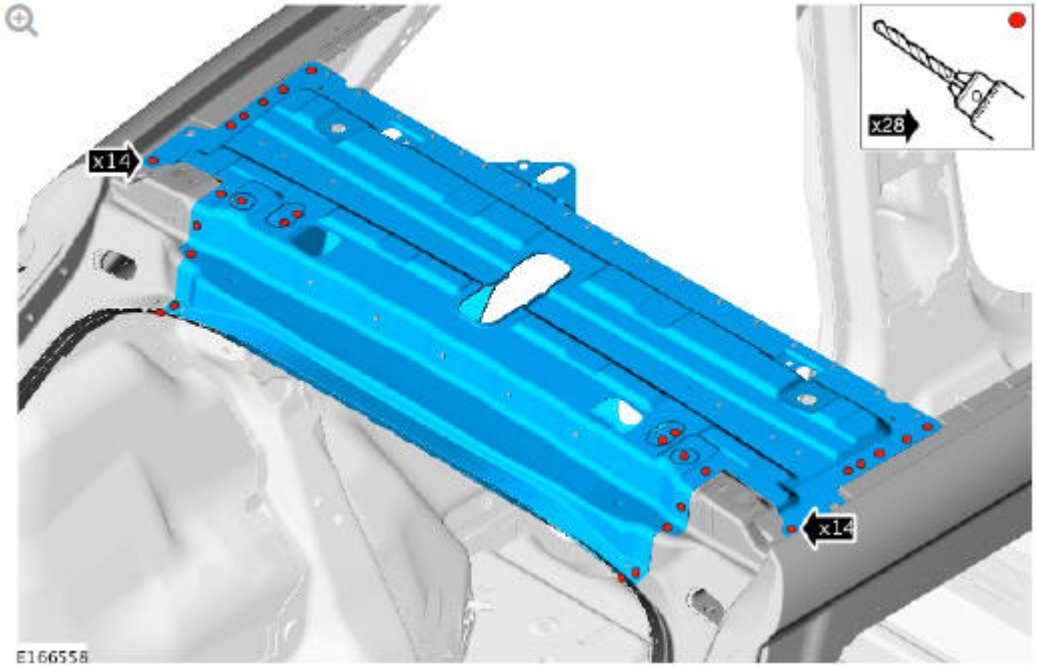
   For additional information, refer to: Health and Safety Precautions (100-00, Description and Operation).

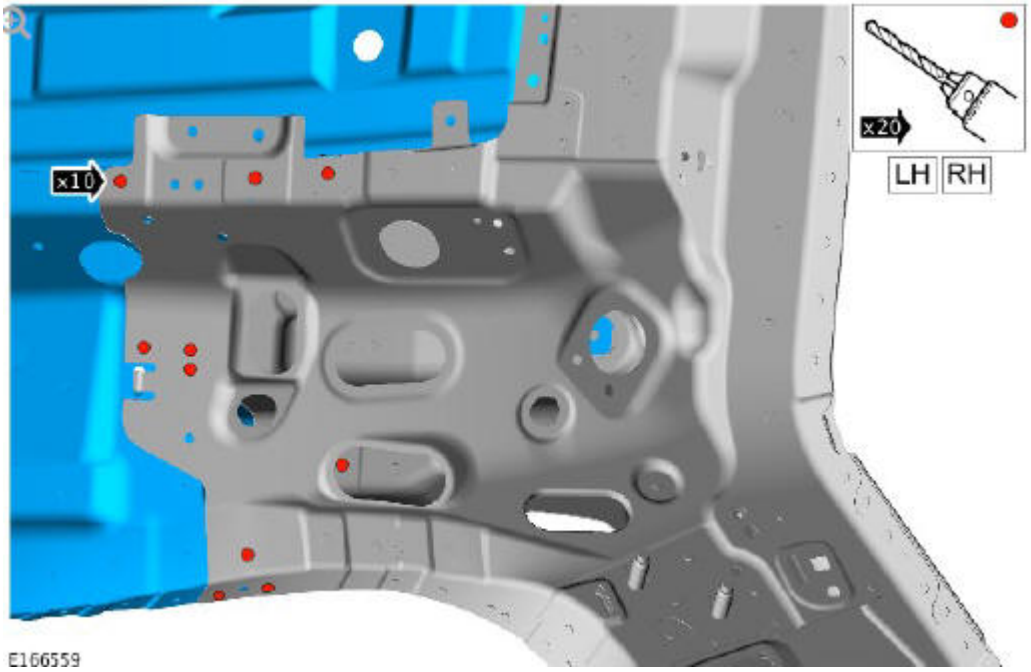
3. For further information on the methods, tools and fixings used in this procedure refer to the body repairs - general information section.

NOTES:

- *Any joints sealed as part of vehicle manufacture must be sealed as part of the repair.*
- *Make sure a zinc rich primer is applied to any bare metal surfaces.*

4. For additional information, refer to: Headliner (501-05, Removal and Installation).
5. For additional information, refer to: Roof Moulding - 5-Door (501- 08, Removal and Installation).
6. For additional information, refer to: Side Air Curtain Module (501- 20B, Removal and Installation).
7. For additional information, refer to: Roof Panel (501-28, Removal and Installation).
8. For additional information, refer to: Roof Rear Panel (501-28, Removal and Installation).
9. For additional information, refer to: Glass Roof Panel (501-11, Removal and Installation).
10. For additional information, refer to: Liftgate (501-03, Removal and Installation).
11. Release and position the wiring harness to one side.
12. Remove the spot welds as indicated.



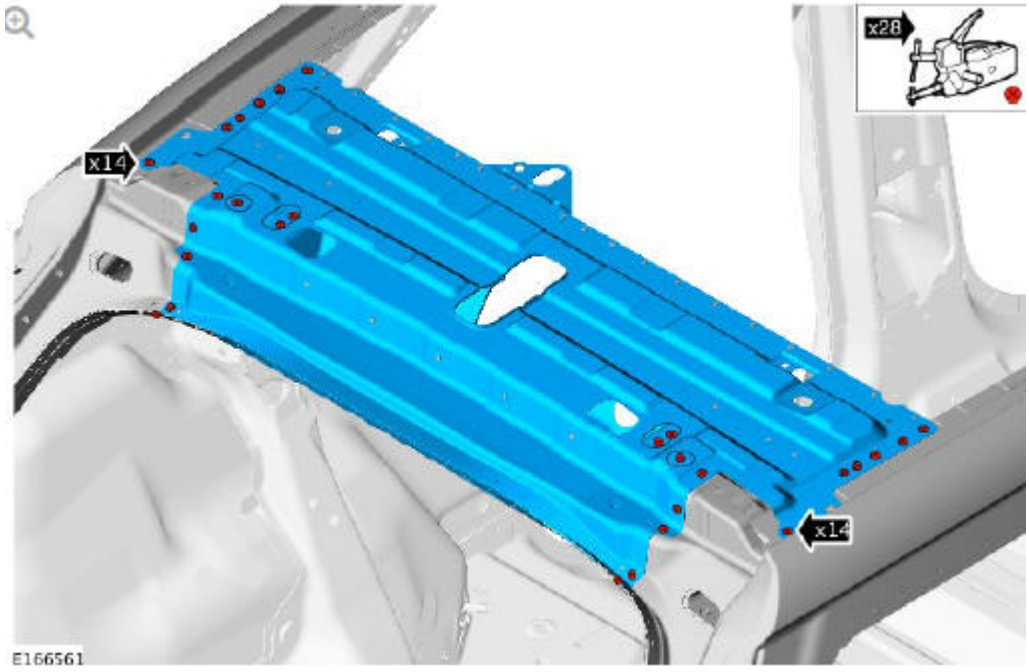


13. Remove the spot welds as indicated.
14. Carefully separate the joints and remove the roof rear header panel.

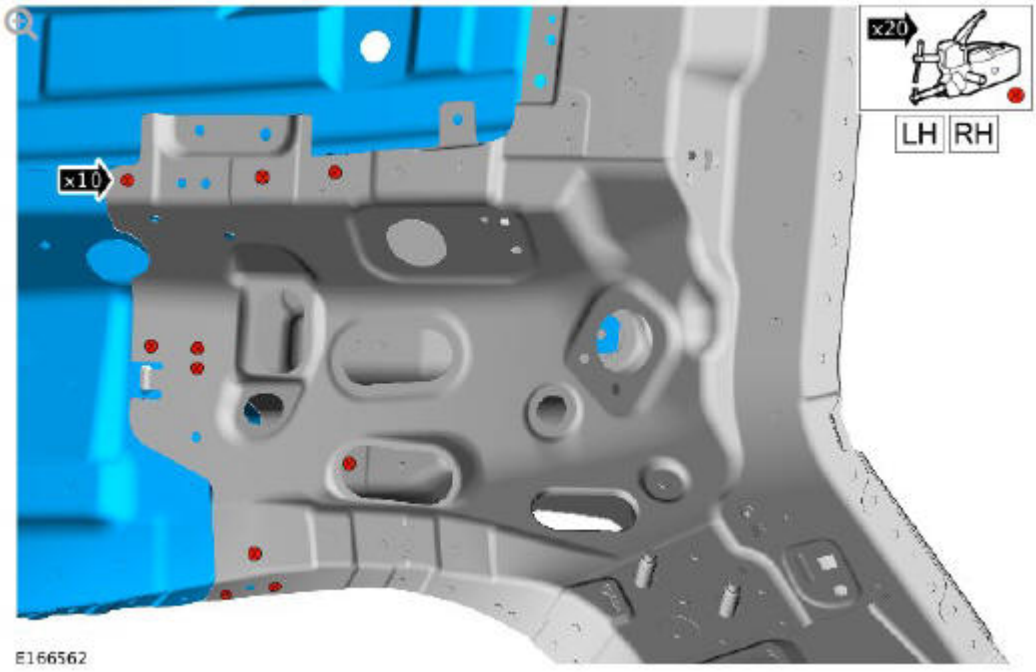
INSTALLATION

1. Dress flanges where necessary.
2. Clean and prepare the panel surfaces.
3. Offer up the new roof rear header panel and clamp into position.

   Check alignment, if correct, proceed to next step, if not rectify and recheck before proceeding.



4. Install the spot welds as indicated.



5. Install the spot welds as indicated.
6. Make sure that any open or exposed panel joints are sealed with a Land Rover recommended sealer.
7. Make sure corrosion protection is applied to all areas affected by repair.
8. The installation of associated panels and components is the reversal of removal procedure.

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Roof Sheet Metal Repairs Roof Rear Panel (G1770883) - InstallationRoof Sheet Metal Repairs Roof Panel (G1770876)

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Крыша ремонт кузовных панелей панель крыши

Roof Sheet Metal Repairs Roof Panel (G1770876)

- Roof Sheet Metal Repairs Roof Panel (G1770876) - Removal
- Roof Sheet Metal Repairs Roof Panel (G1770876) - Installation

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Roof Sheet Metal Repairs Roof Rear Header Panel (G1770882) / Removal and InstallationRoof Sheet Metal Repairs Roof Panel (G1770876) - Removal

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Крыша ремонт кузовных панелей панель крыши - снятие

Roof Sheet Metal Repairs Roof Panel (G1770876) - Removal

NOTE:

The roof panel is installed in conjunction with:

- *Windshield*
- *Headliner*
- *Front seat*
- *Rear seat cushion*
- *Side air curtain module*
- *Roof moulding*
- *Liftgate*
- *Antenna*



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.

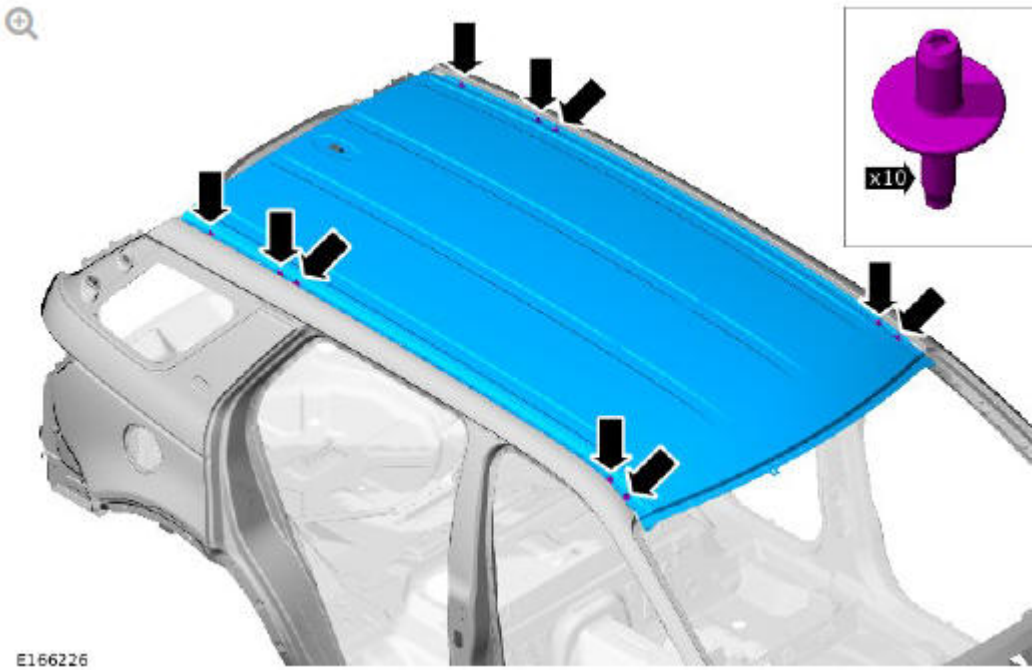
   For additional information, refer to: Health and Safety Precautions (100-00 General Information, Description and Operation).

3. For further information on the methods, tools and fixings used in this procedure refer to the body repairs - general information section.

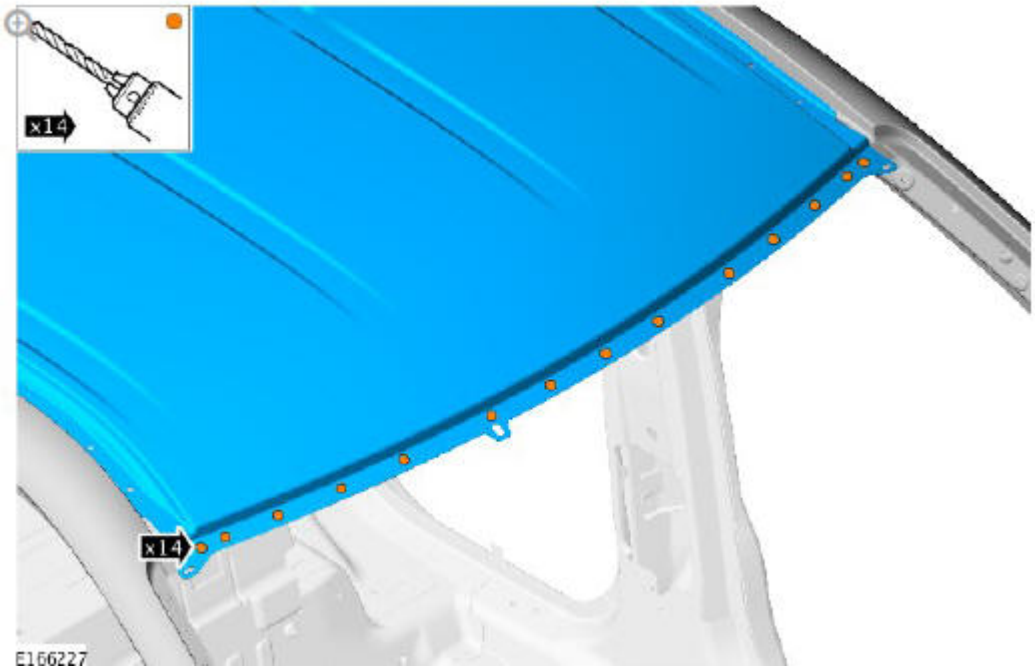
NOTES:

- *Where self piercing rivets (SPR) removal is instructed use either the approved SPR tool or 5.3mm drill bit.*
- *Any joints sealed as part of vehicle manufacture must be sealed as part of the repair.*
- *Make sure that the roof studs are replaced when installing the roof panel.*

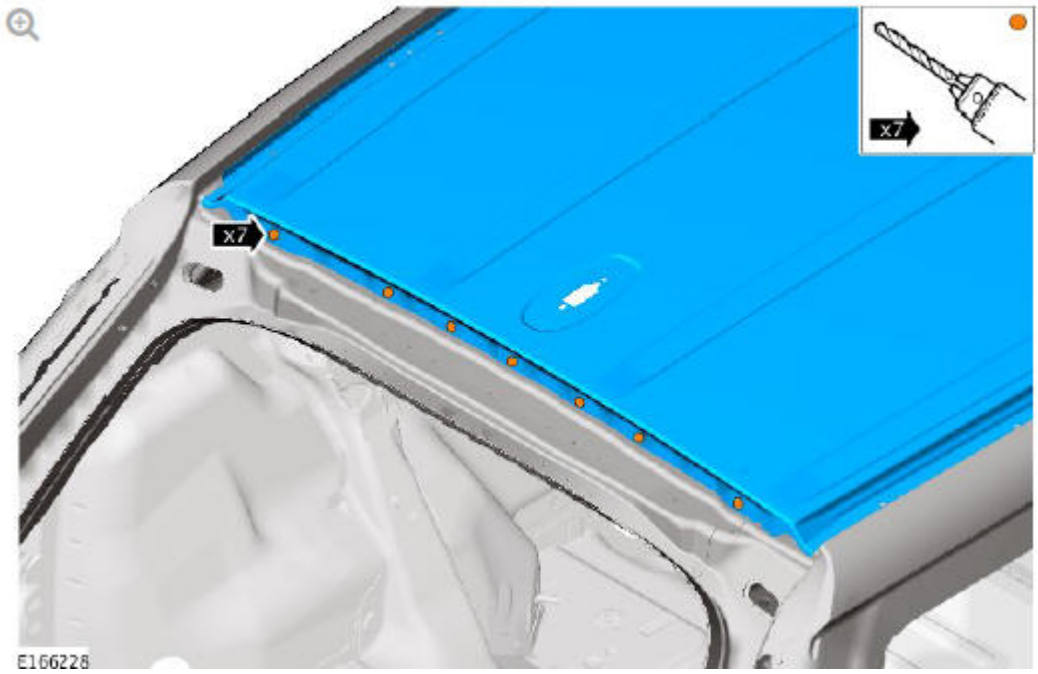
4. For additional information, refer to: Windshield Glass (501-11 Glass, Frames and Mechanisms, Removal and Installation).
5. For additional information, refer to: Headliner (501-05 Interior Trim and Ornamentation, Removal and Installation).
6. For additional information, refer to: Front Row Seat - Vehicles With: Power Seats (501-10 Seating, Removal and Installation).
7. For additional information, refer to: Rear Seat (501-10 Seating, Removal and Installation).
8. For additional information, refer to: Side Air Curtain Module (501- 20B Supplemental Restraint System, Removal and Installation).
9. For additional information, refer to: Roof Moulding (501-08 Exterior Trim and Ornamentation, Removal and Installation).
10. For additional information, refer to: Liftgate (501-03 Body Closures, Removal and Installation).
11. For additional information, refer to: Roof Pod (415-01 Information and Entertainment System, Removal and Installation).
12. Release and position the wiring harness to one side.
13. Make sure that all remaining interior trim items are adequately covered to protect from falling adhesive on installation.
14. Protect the paintwork of the upper body sides with appropriate tape or material.



15. Remove the roof studs as indicated.



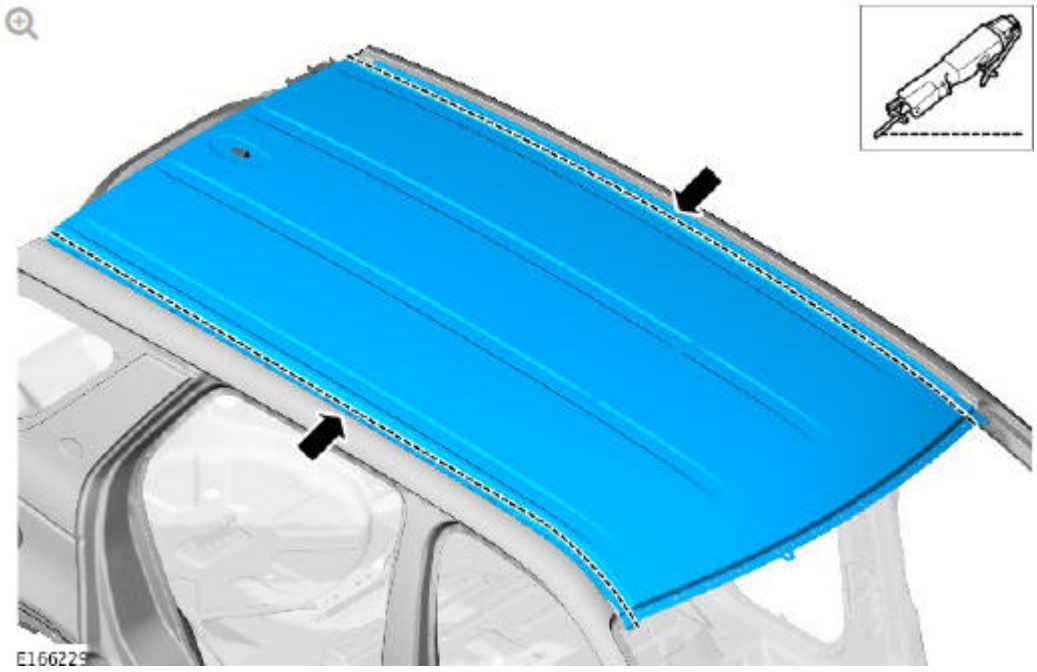
16. Remove the SPR's as indicated.



17. Remove the SPR's as indicated.

CAUTION:

Care should be taken not to cut through into the inner reinforcements or roof bows.

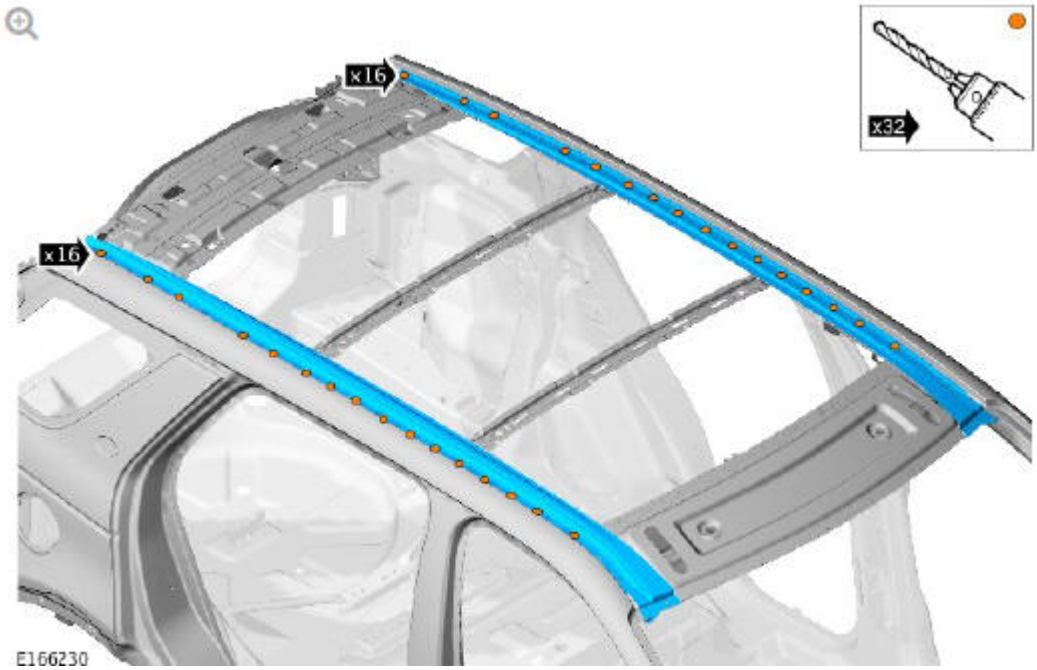


18. Using a suitable cutting tool remove the bulk of the roof panel as indicated.

CAUTION:

<u>This step requires the aid of another technician as the roof panel is heavy.</u>

19. Carefully separate the joints and remove the bulk of the old roof panel, also releasing the adhesive from the roof bows and reinforcements.



20. Remove the SPR's as indicated.
21. Carefully separate the joints and remove the remnants of the roof panel.

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Roof Sheet Metal Repairs Roof Panel (G1770876)Roof Sheet Metal Repairs Roof Panel (G1770876) - Installation

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Крыша ремонт кузовных панелей панель крыши - установка

Roof Sheet Metal Repairs Roof Panel (G1770876) - Installation

Installation

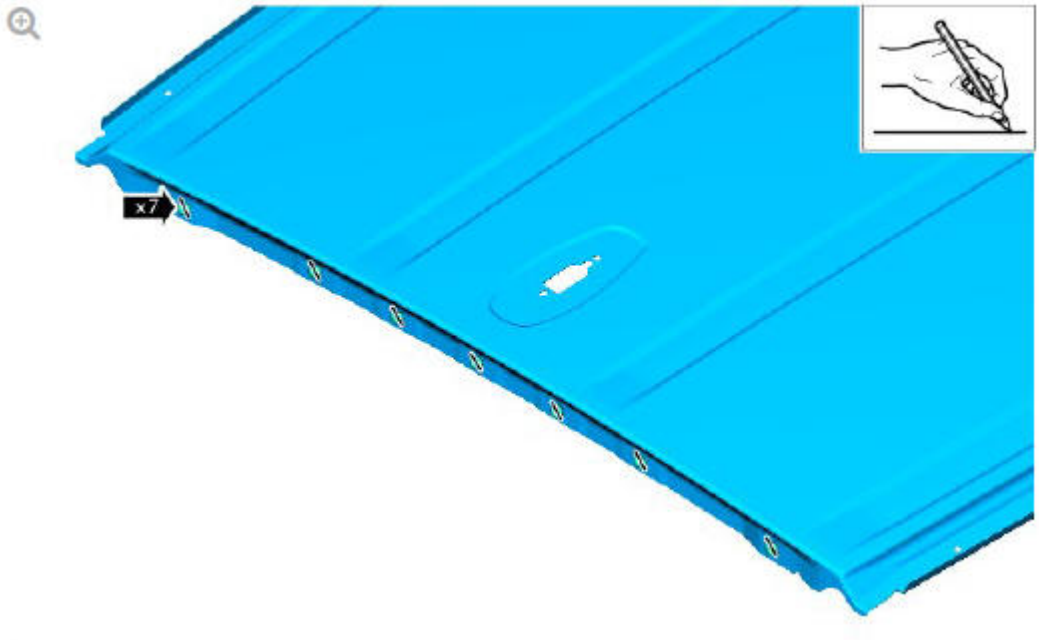
NOTE:

SPR installation requires using the Land Rover approved SPR tool.

1. Dress the flanges where necessary.
2. Clean and prepare the panel surfaces.
3. Clean out the threads on the captive nut inserts where the roof studs are installed.

NOTE:

Mark the locations of removed rivet holes in the rear joint prior to fitment to aid installation of the new roof panel.



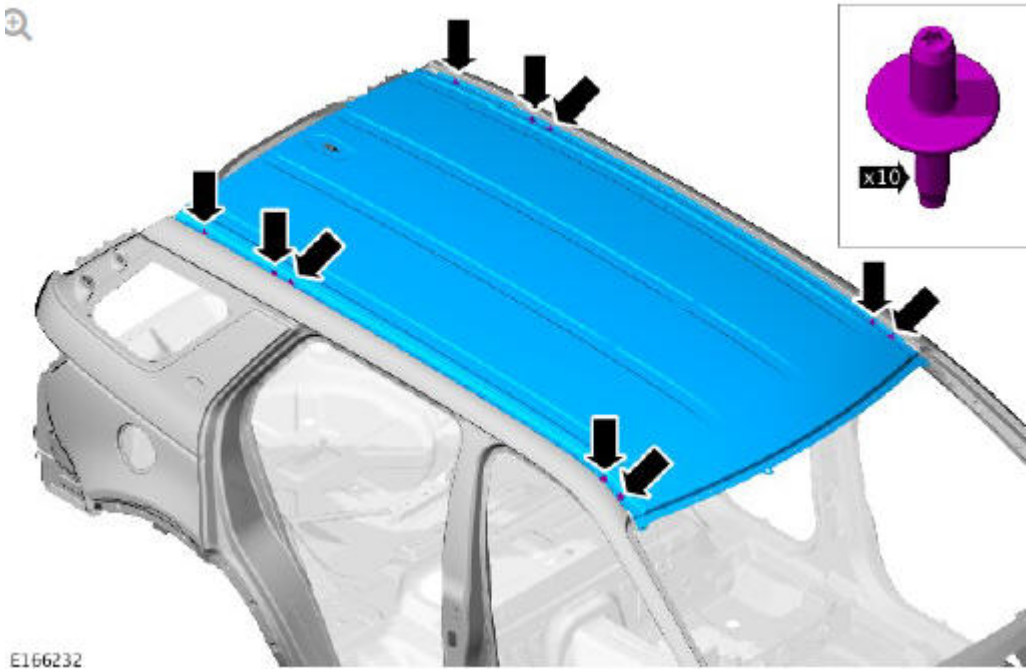
4. Using the old roof panel as a guide mark the position on the new roof panel where the holes for the BSF's are to be drilled as indicated.

CAUTION:

This step requires the aid of another technician as the roof panel is heavy.

NOTE:

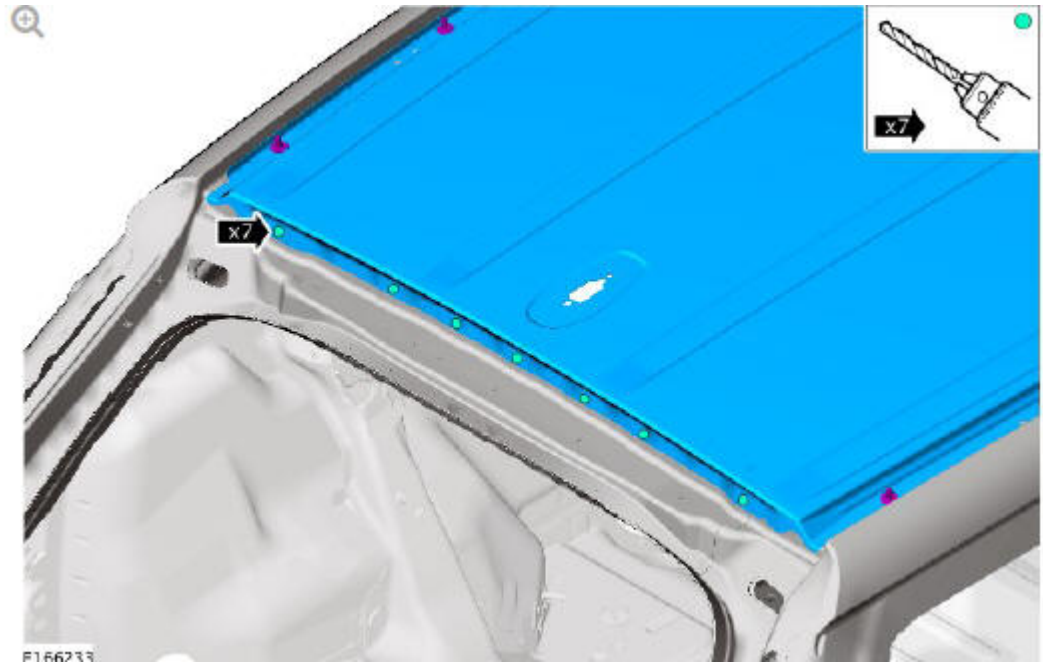
Do not fully tighten the roof studs at this stage.



5. Offer up the new roof panel, loosely install the screw in studs and clamp into position. Check alignment, if correct, proceed to next step, if not, rectify and recheck before proceeding as indicated.

NOTE:

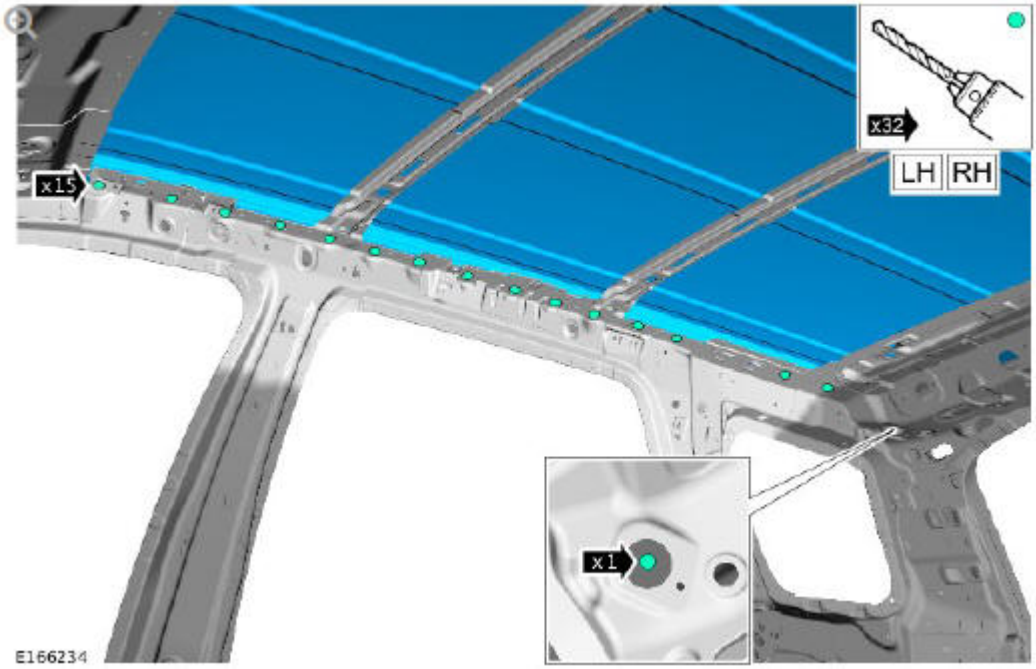
Make sure that the holes are drilled through the roof panel and the roof rear header panel.



6. Drill holes where the BSF's are to be installed as indicated.

NOTES:

- *Make sure that the holes are drilled from inside the vehicle.*
- *Make sure that the holes are drilled in the same location as the SPR's.*



7. Drill holes where the BSF's are to be installed as indicated.

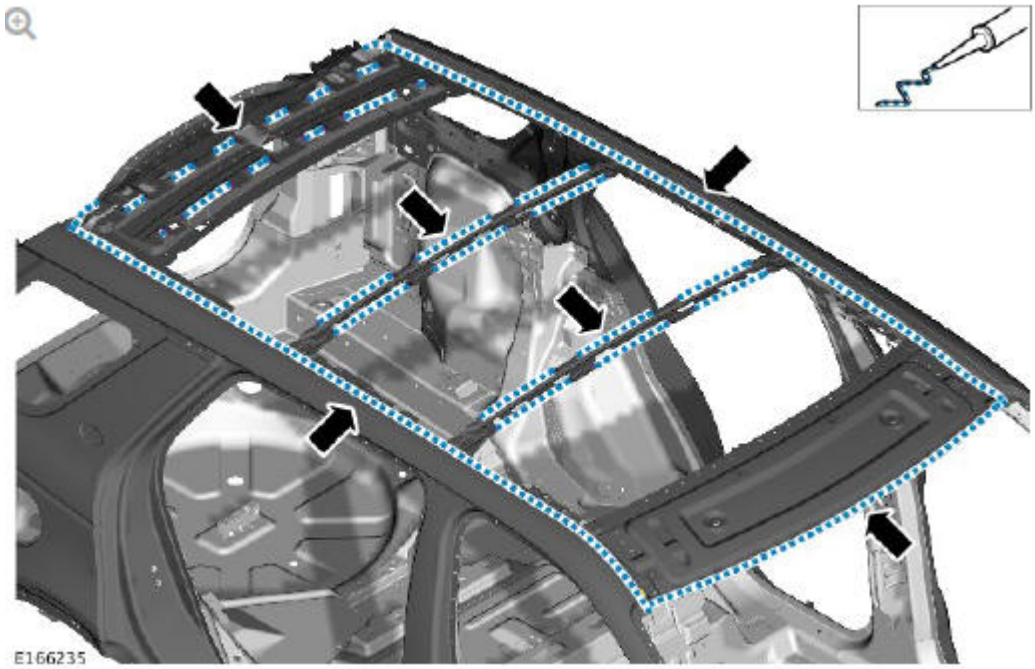
CAUTION:

<u>This step requires the aid of another technician as the roof panel is heavy.</u>

8. Remove the new roof panel.
9. Deburr the drilled holes.
10. Clean and prepare the panel surfaces.

NOTES:

- *Care must be taken not to contaminate the captive nut threads where the roof studs are installed.*
- *Make sure a continuous bead of adhesive surrounds fixing holes.*



11. Apply a 5mm bead of Land Rover recommended sealer as indicated.

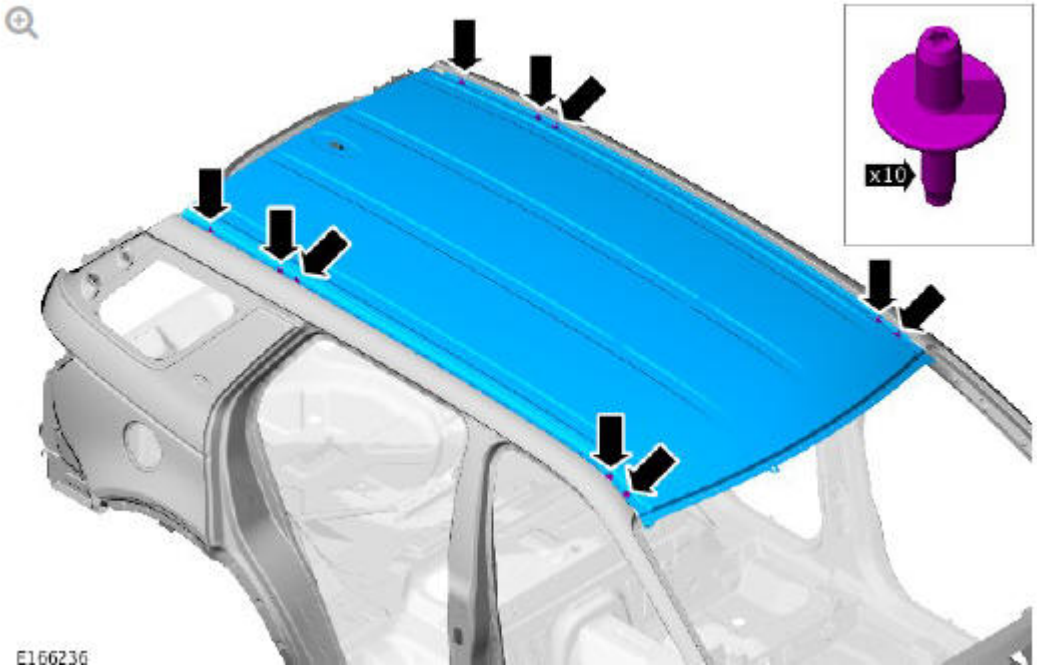
CAUTION:

<u>This step requires the aid of another technician as the roof panel is heavy.</u>

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

NOTES:

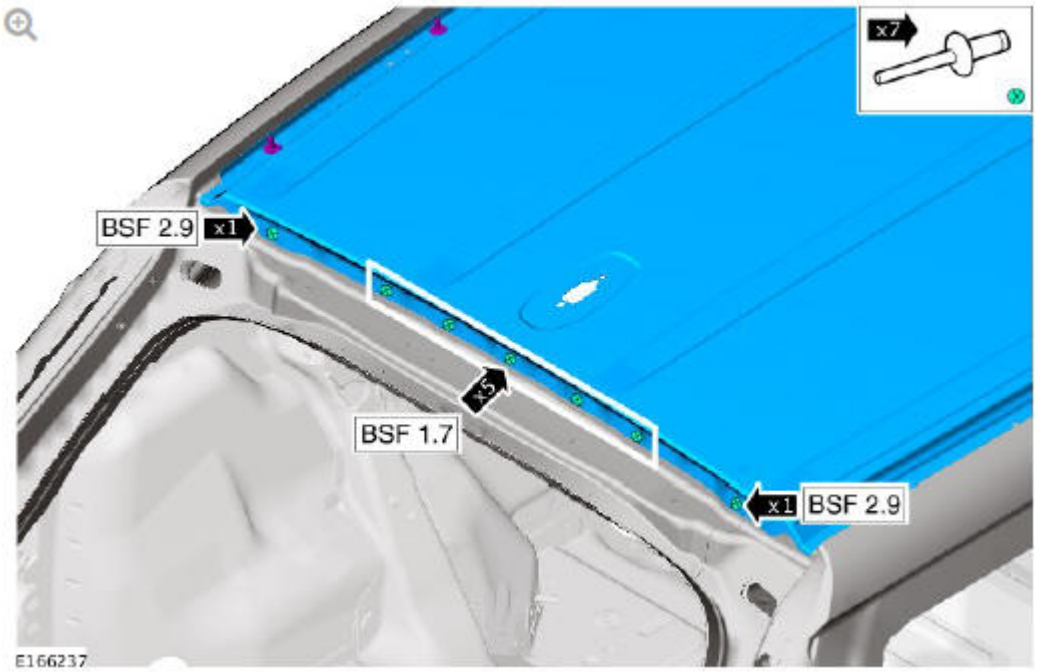
- *Make sure that new roof studs are installed.*
- *Do not fully tighten the roof studs at this stage.*



13. Install the roof studs as indicated.

NOTE:

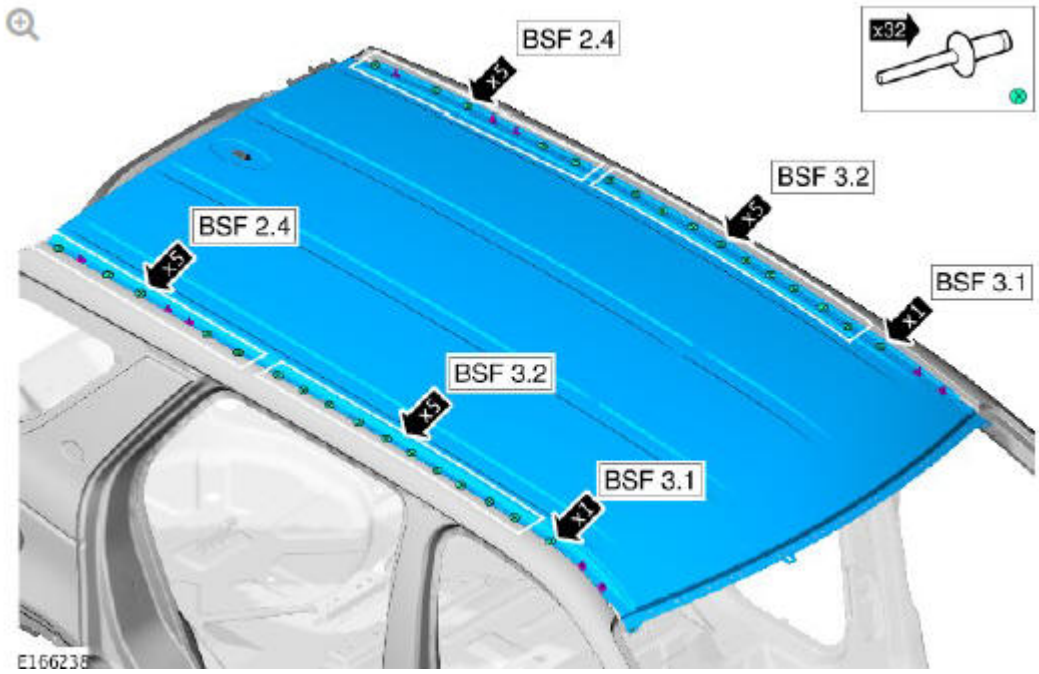
Make sure that the BSF's are installed from the outside.



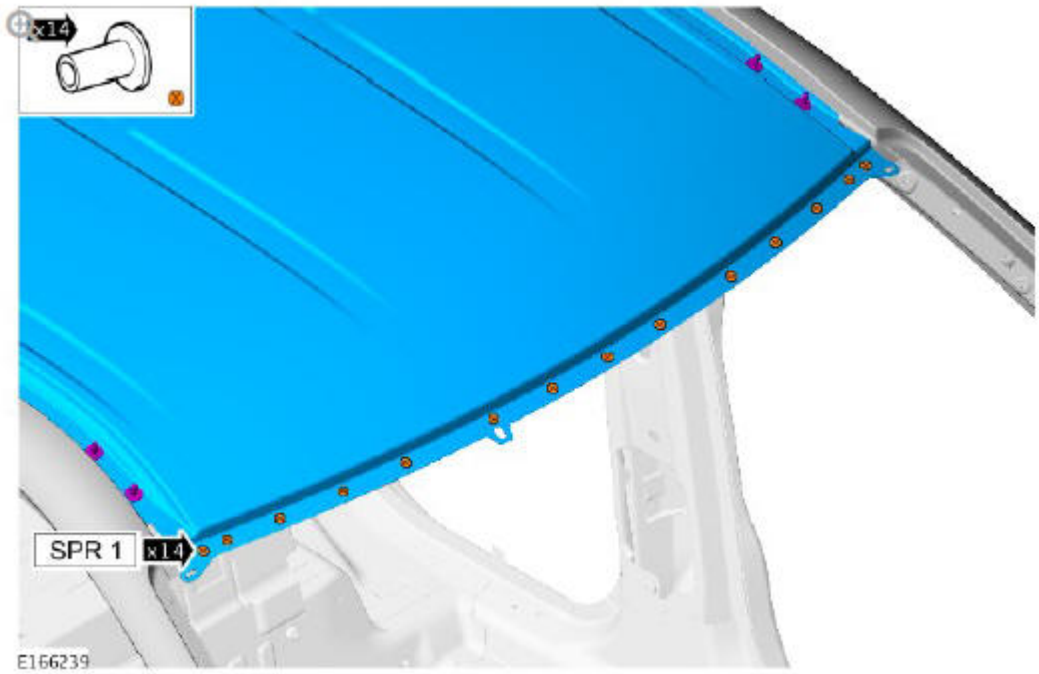
14. Install the BSF's as indicated.

NOTE:

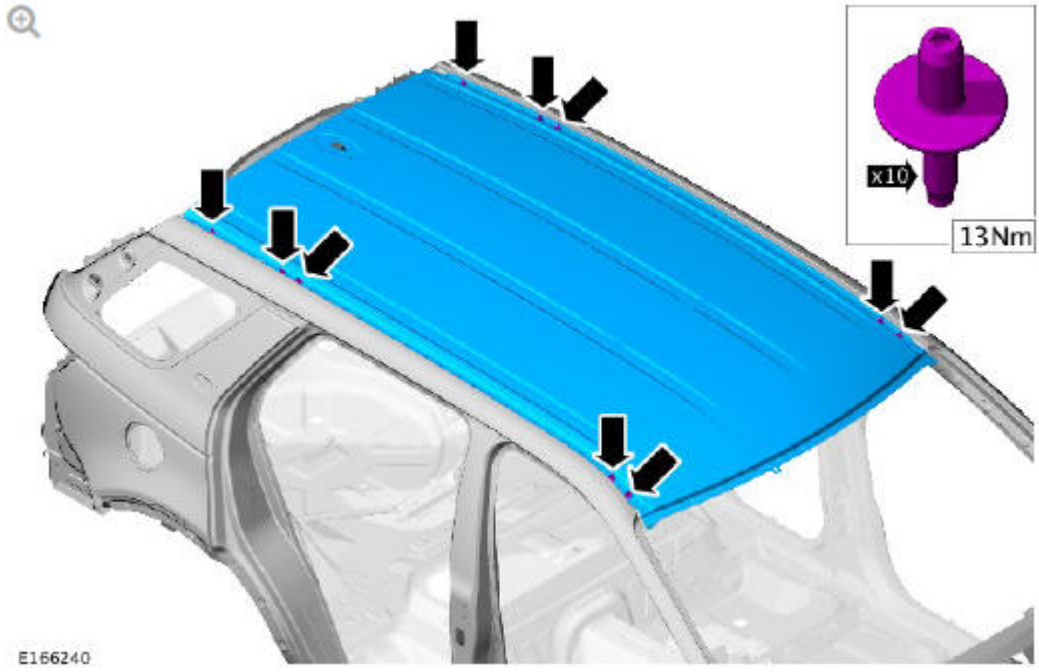
Make sure that the BSF's are installed from the outside.



15. Install the BSF's as indicated.



16. Install the SPR's as indicated.

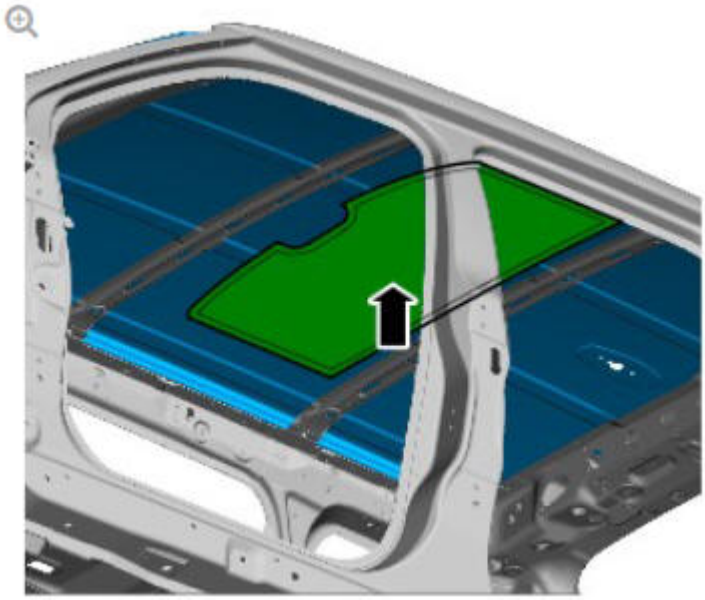


17. Tighten the roof studs to 13Nm as indicated.

NOTE:

Make sure that all the rivet heads are sealed to prevent water ingress.

18. Apply a Land Rover recommended sealer to all installed rivet heads.
19. Remove any excess adhesive.



20. Install a new noise, vibration and harshness (NVH) pad as indicated.
21. Make sure that any open or exposed panel joints are sealed with a Land Rover recommended sealer.
22. Make sure corrosion protection is applied to all areas affected by repair.
23. The installation of associated panels and components is the reversal of removal procedure.

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Roof Sheet Metal Repairs Roof Panel (G1770876) - RemovalRoof Sheet Metal Repairs Roof Front Panel (G1770881)

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Крыша ремонт кузовных панелей крыша передний панель

Roof Sheet Metal Repairs Roof Front Panel (G1770881)

- Roof Sheet Metal Repairs Roof Front Panel (G1770881) - Removal
- Roof Sheet Metal Repairs Roof Front Panel (G1770881) - Installation

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Roof Sheet Metal Repairs Roof Panel (G1770876) - InstallationRoof Sheet Metal Repairs Roof Front Panel (G1770881) - Removal

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Крыша ремонт кузовных панелей крыша передний панель - снятие

Roof Sheet Metal Repairs Roof Front Panel (G1770881) - Removal

NOTE:

The roof front panel is installed in conjunction with:

- Windshield
- Headliner
- Front seat
- Side air curtain module
- Glass roof panel



1. The roof front panel is serviced as indicated.
2. Before commencing this procedure make sure that you are aware of all Health and Safety requirements.

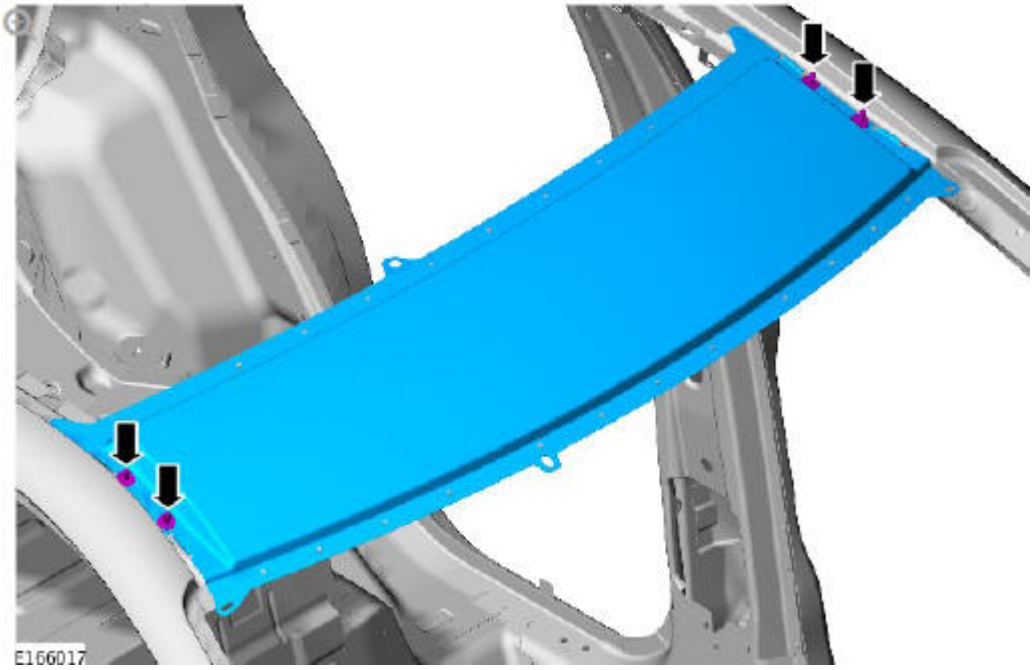
For additional information, refer to: Health and Safety Precautions (100-00, Description and Operation).

3. For further information on the methods, tools and fixings used in this procedure refer to the body repairs - general information section.

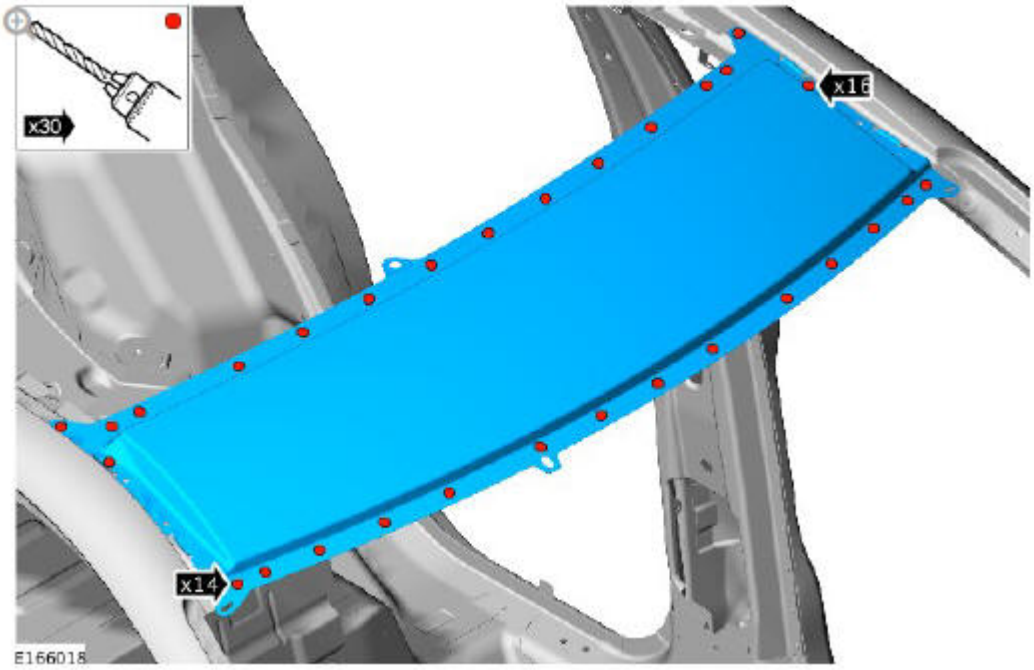
NOTES:

- *Where self piercing rivets (SPR) removal is instructed use either the approved SPR tool or 5.3mm drill bit.*
- *Any joints sealed as part of vehicle manufacture must be sealed as part of the repair.*
- *The four screw in studs must be replaced in the installation of the roof front panel.*
- *Make sure a zinc rich primer is applied to any bare metal surfaces.*

4. For additional information, refer to: Windshield Glass (501-11, Removal and Installation).
5. For additional information, refer to: Headliner (501-05, Removal and Installation).
6. For additional information, refer to: Front Seat (501-10, Removal and Installation).
7. For additional information, refer to: Side Air Curtain Module (501- 20B, Removal and Installation).
8. For additional information, refer to: Glass Roof Panel (501-11, Removal and Installation).
9. Release and position the wiring harness to one side.



10. Remove the roof studs as indicated.



11. Remove the SPR's and the spot welds as indicated.
12. Carefully separate the joints and remove the roof front panel.

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Roof Sheet Metal Repairs Roof Front Panel (G1770881)Roof Sheet Metal Repairs Roof Front Panel (G1770881) - Installation

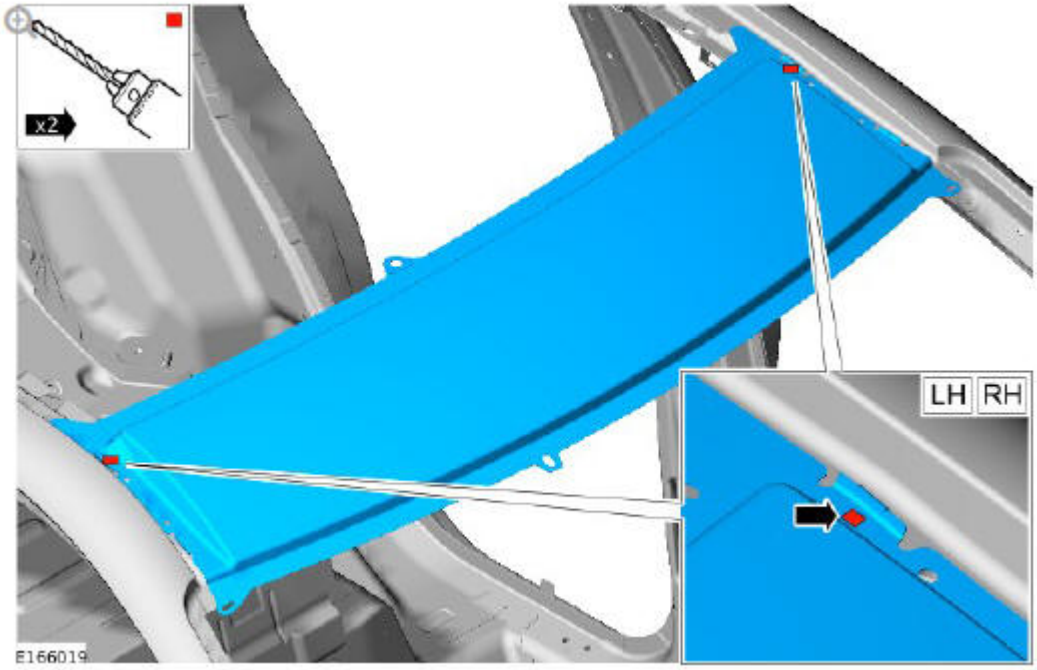
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Крыша ремонт кузовных панелей крыша передний панель - установка

Roof Sheet Metal Repairs Roof Front Panel (G1770881) - Installation

Installation

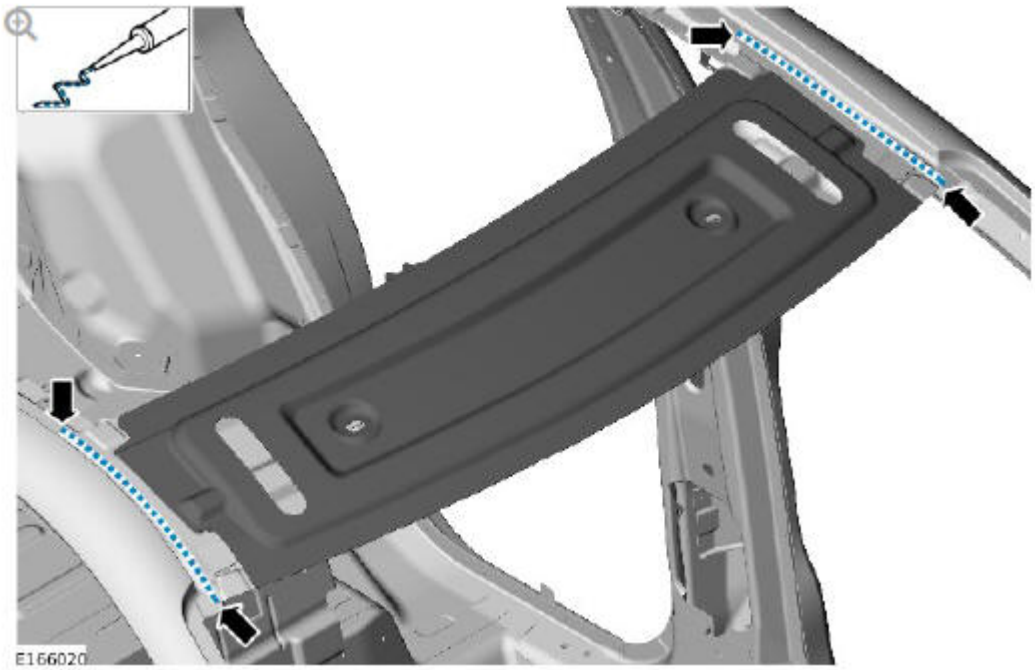
1. Dress flanges where necessary.
2. Clean and prepare the panel surfaces.
3. Clean out the threads on the captive nut inserts where the roof studs are installed.
4. Offer up the new roof front panel and clamp into position. Check alignment, if correct, proceed to next step, if not, rectify and recheck before proceeding.



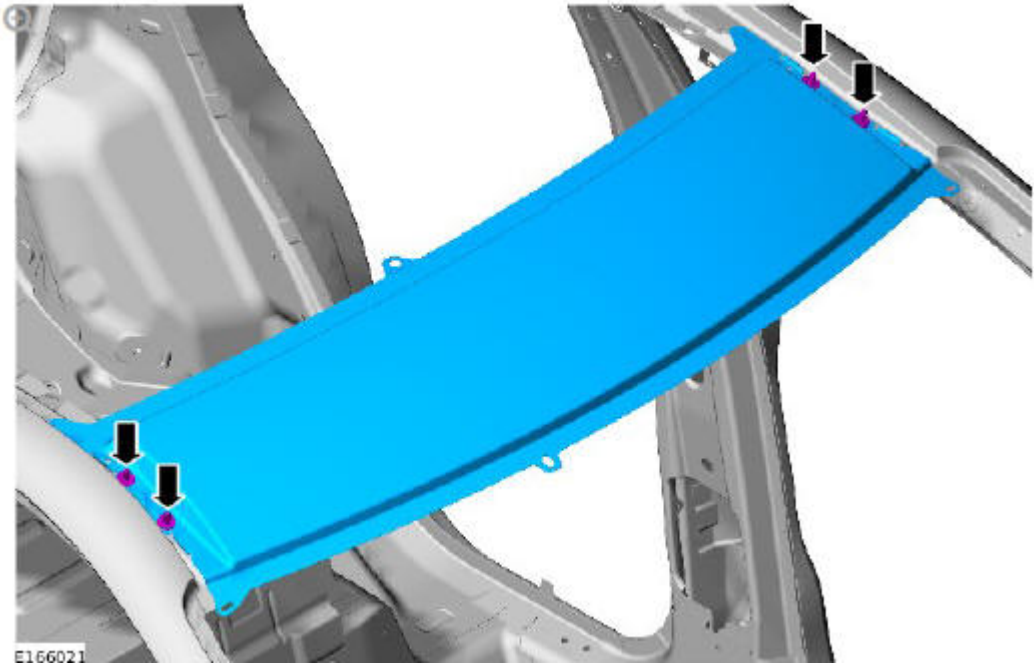
5. Using the old roof front panel for reference mark and drill the new roof front panel where the metal inert gas (MIG) plug welds are to be installed as indicated.
6. Remove the new roof front panel.
7. Deburr the drilled holes.
8. Clean and prepare the panel surfaces.

NOTES:

- *Care must be taken not to contaminate the captive nut threads where the roof studs are installed.*
- *Make sure a continuous bead of adhesive surrounds fixing holes.*



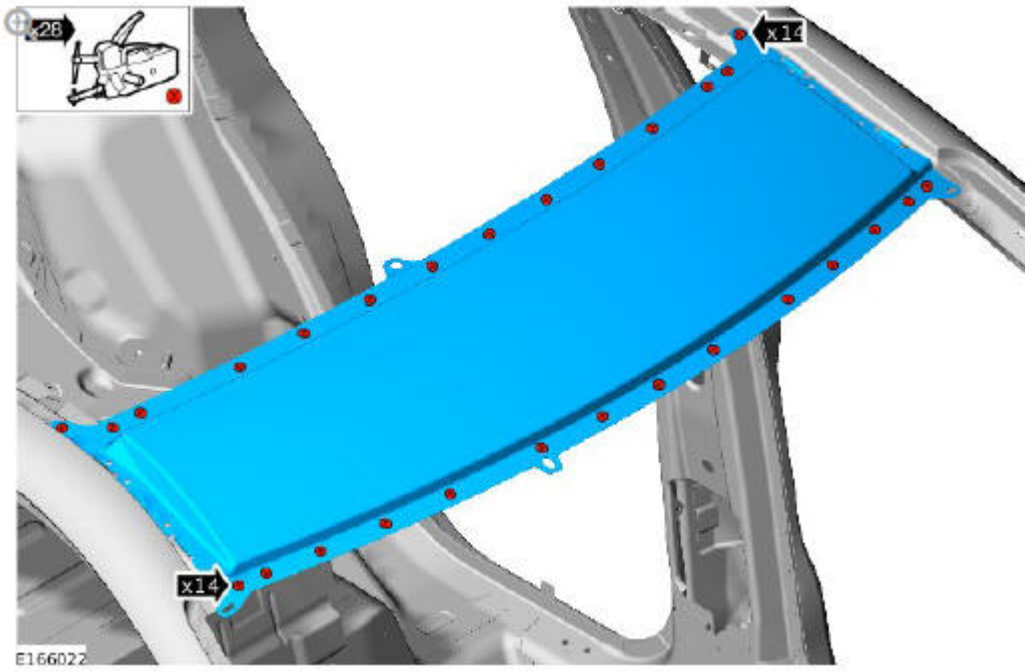
9. Apply a 5mm bead of Land Rover recommended bonding material as indicated.
10. Offer up the new roof front panel and clamp into position. Check alignment, if correct, proceed to next step, if not rectify and recheck before proceeding.



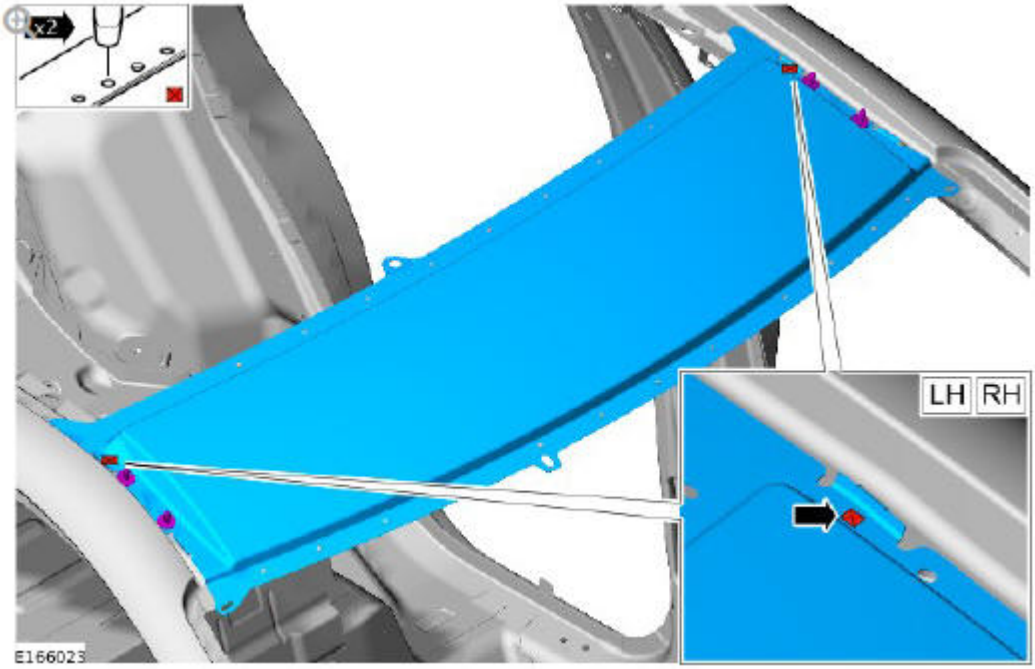
11. Install the new roof studs and tighten to 13Nm as indicated.

NOTE:

Make sure that the spot welds are installed adjacent to the removed SPR's.



12. Install the spot welds as indicated.



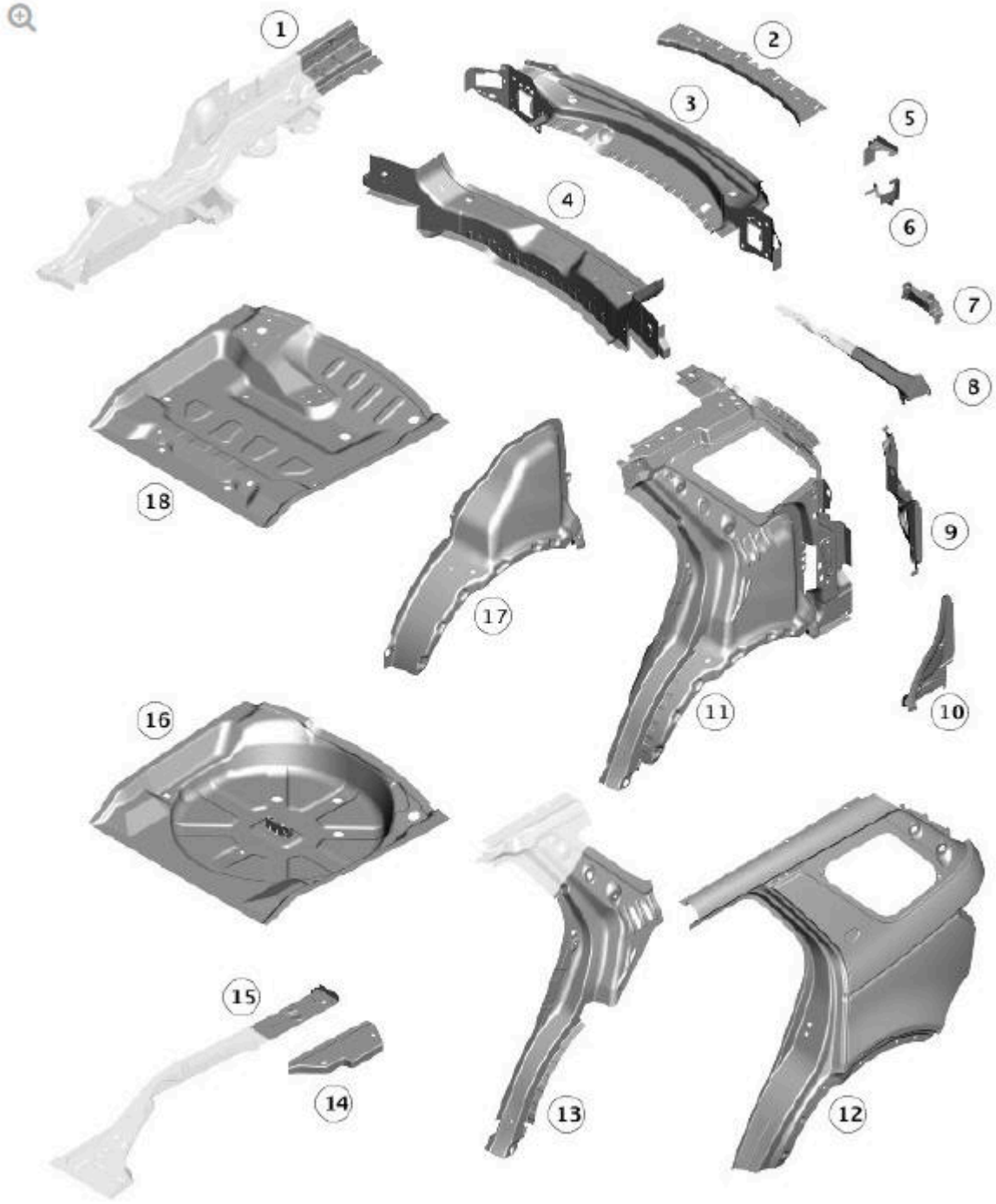
13. Install the MIG plug welds as indicated.
14. Remove any excess adhesive.
15. Dress all welded joints.
16. Make sure that any open or exposed panel joints are sealed with a Land Rover recommended sealer.
17. Make sure corrosion protection is applied to all areas affected by repair.
18. The installation of associated panels and components is the reversal of removal procedure.

Rear end Sheet Metal Repairs/ Description and Operation

GALVANIC CORROSION

For additional information, refer to: Corrosion Protection (501-25B, Description and Operation).

REAR END SERVICE PANELS


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ITEM	DESCRIPTION	MATERIAL
1	Rear Side Member Section	Steel
2	Rear Bumper Retaining Rail	Steel
3	Back Panel Outer	Steel
4	Back Panel Inner	Steel
5	Rear Bumper Mounting Upper	Steel
6	Rear Bumper Mounting Lower	Steel
7	Rear Side Member Lower Side Extension	Steel
8	Water Drain Panel	Steel
9	Rear Lamp Panel Outer	Steel
10	Quarter Panel Lower Extension	Steel
11	Inner Quarter Panel Assembly	Steel
12	Quarter Panel	Steel
13	Inner Quarter Panel Upper	Steel
14	Rear Floor Side Extension	Steel
15	Rear Side Member Closing Panel	Steel
16	Spare Wheel Well (Vehicles With 5 Seats)	Steel
17	Rear Wheelhouse Outer	Steel
18	Spare Wheel Well (Vehicles With 7 Seats)	Steel

TIME SCHEDULES , REAR END SERVICE PANELS

The following information shows the total time taken to install single panels.

These times do not include removal of mechanical, electrical and trim, (MET), items or paint times.

The times shown are to be used as a guide only.

PANEL DESCRIPTION	REPAIR TIME
Rear Side Member Section	24.70
Rear Bumper Retaining Rail	1.30
Back Panel Outer	7.40
Back Panel Inner	16.60
Rear Bumper Mounting Upper	15.70
Rear Bumper Mounting Lower	15.70
Rear Side Member Lower Side Extension	16.60
Water Drain Panel	10.10
Rear Lamp Panel Outer	9.40
Quarter Panel Lower Extension	1.60
Inner Quarter Panel Assembly	29.00
Quarter Panel	6.20
Inner Quarter Panel Upper	13.90
Rear Floor Side Extension	17.50
Rear Side Member Closing Panel	22.50
Spare Wheel Well (Vehicles With 5 Seats)	19.40
Rear Wheelhouse Outer	19.40
Spare Wheel Well (Vehicles With 7 Seats)	19.40

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Roof Sheet Metal Repairs Roof Front Panel (G1770881) - RemovalRear end Sheet Metal Repairs Water Drain Panel (G1770948) / Removal and Installation

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Задняя часть ремонт кузовных панелей вода слив панель / снятие и установка

Rear end Sheet Metal Repairs Water Drain Panel (G1770948) / Removal and Installation

REMOVAL

NOTE:

The water drain panel is installed in conjunction with:

- *Rear bumper cover*
- *Liftgate*
- *Quarter panel*
- *Rear lamp panel outer*



1. The water drain panel is serviced as indicated.
2. Before commencing this procedure make sure that you are aware of all Health and Safety requirements.

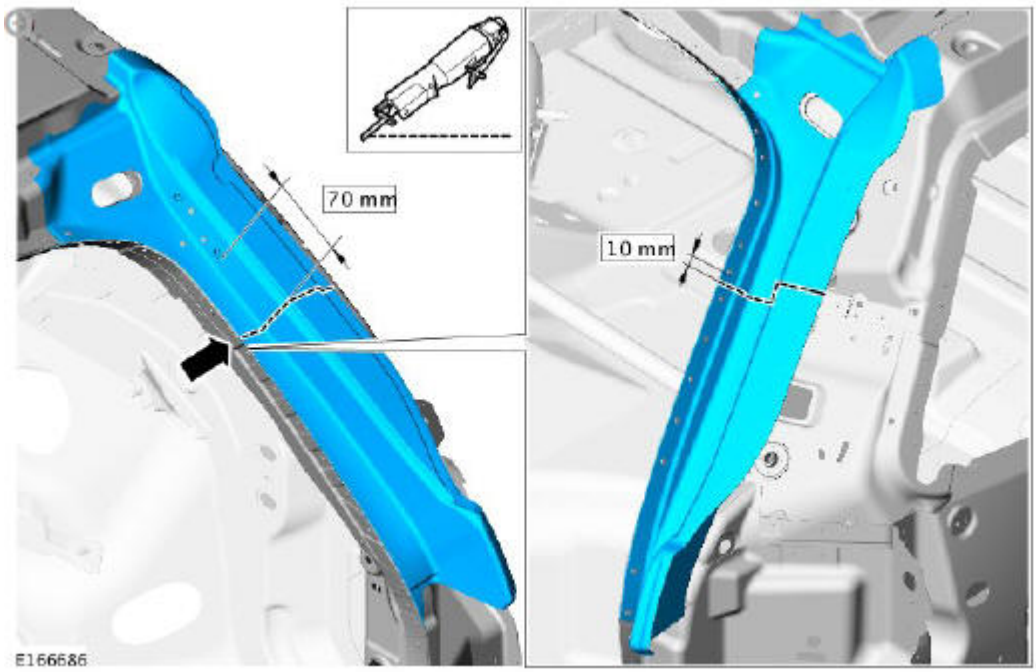
   For additional information, refer to: Health and Safety Precautions (100-00, Description and Operation).
3. For further information on the methods, tools and fixings used in this procedure refer to the body repairs - general information section.

NOTES:

- *Any joints sealed as part of vehicle manufacture must be sealed as part of the repair.*
- *Make sure a zinc rich primer is applied to any bare metal surfaces.*

CAUTION:

Care should be taken not to cut through into the inner reinforcements.



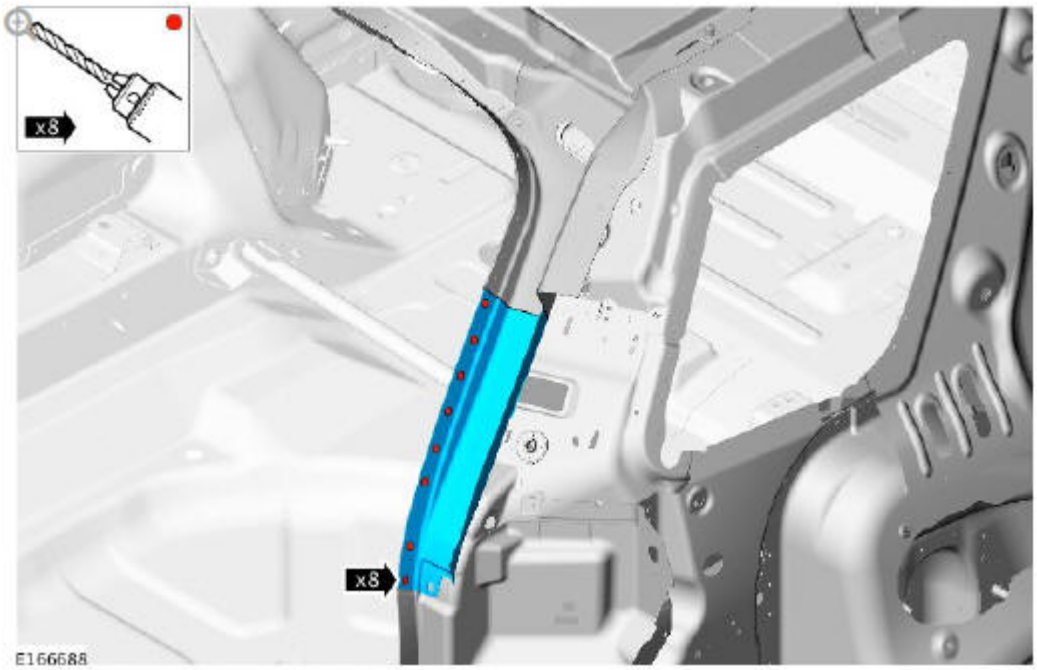
4. Using a combination of the new water drain panel and the measurements, mark the position on the vehicle where the metal inert gas (MIG) butt joint is to be made and cut the panel as indicated.

CAUTION:

Care should be taken not to cut through into the inner reinforcements.



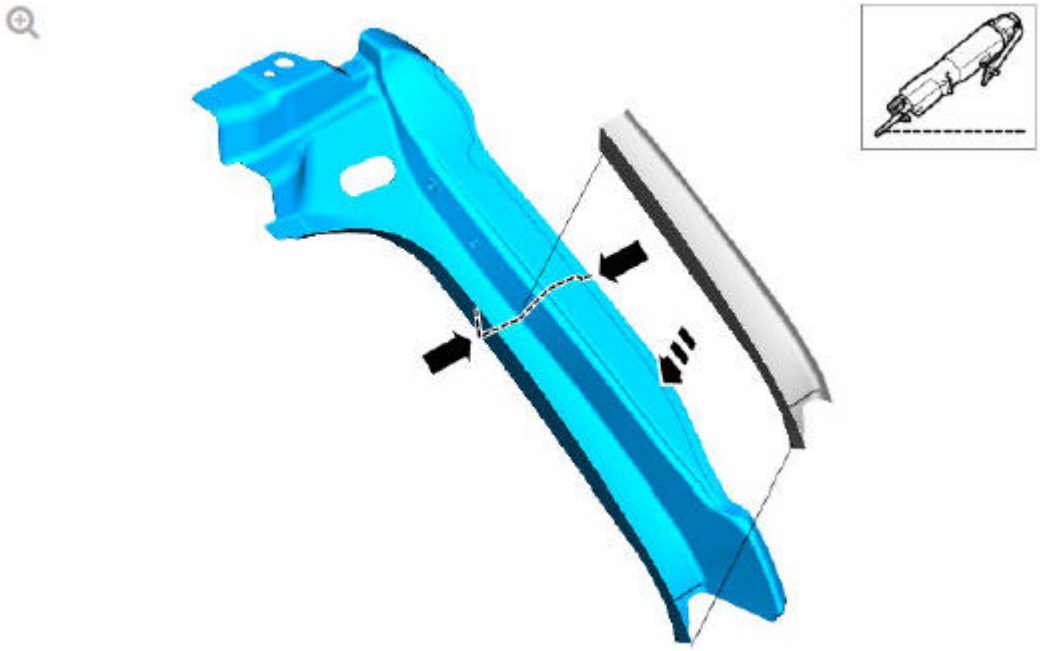
5. Using a suitable cutting tool remove the bulk of the water drain panel to allow the spot welds to be removed as indicated.



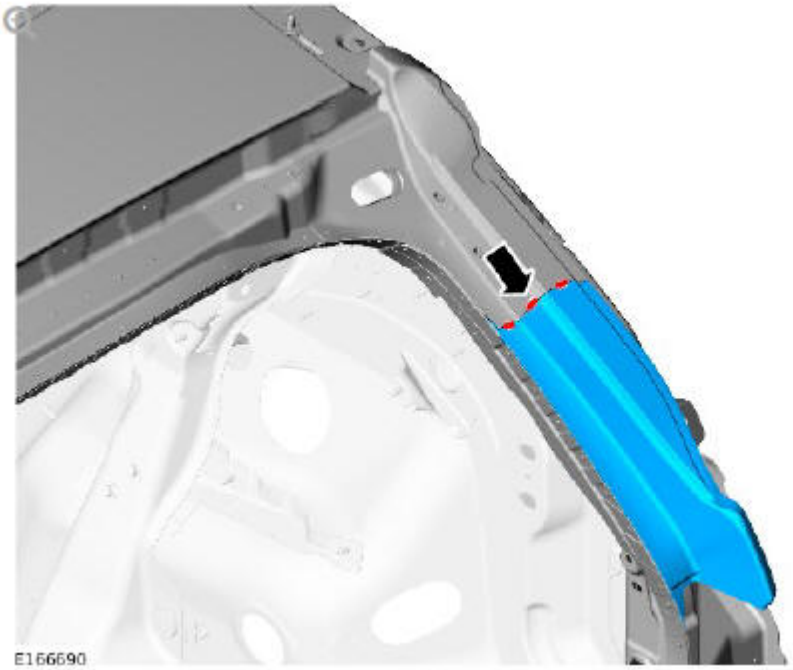
6. Remove the spot welds as indicated.
7. Separate the joints and remove the water drain panel.

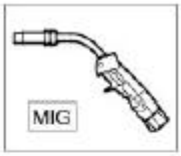
INSTALLATION

1. Dress flanges where necessary.
2. Clean and prepare the panel surfaces.

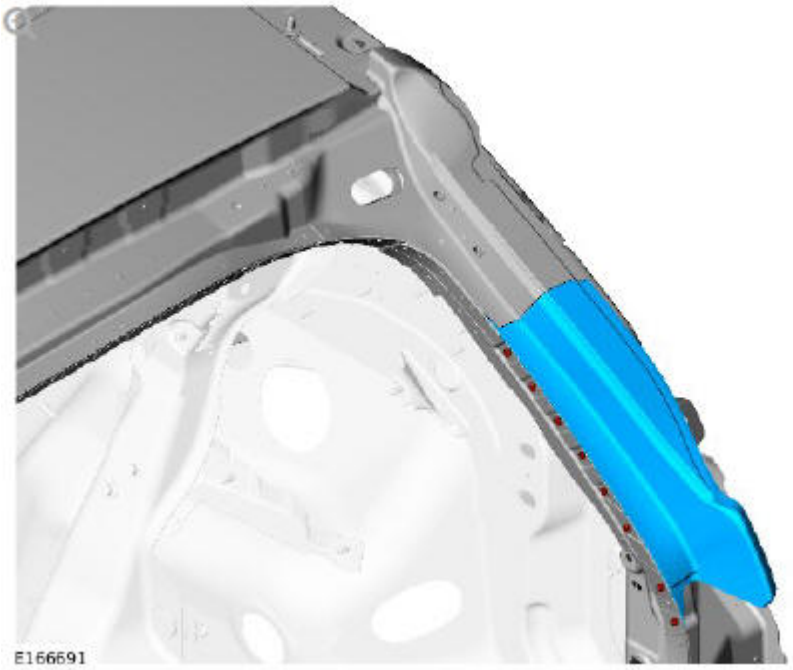


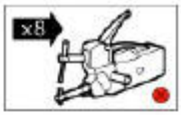
3. Using a combination of the old water drain panel and the measurements in the removal step, mark out the position on the new water drain panel where the MIG butt joint is to be made and cut the new panel as indicated.
4. Offer up the new water drain panel and clamp into position. Check alignment, if correct, proceed to next step, if not, rectify and recheck before proceeding.



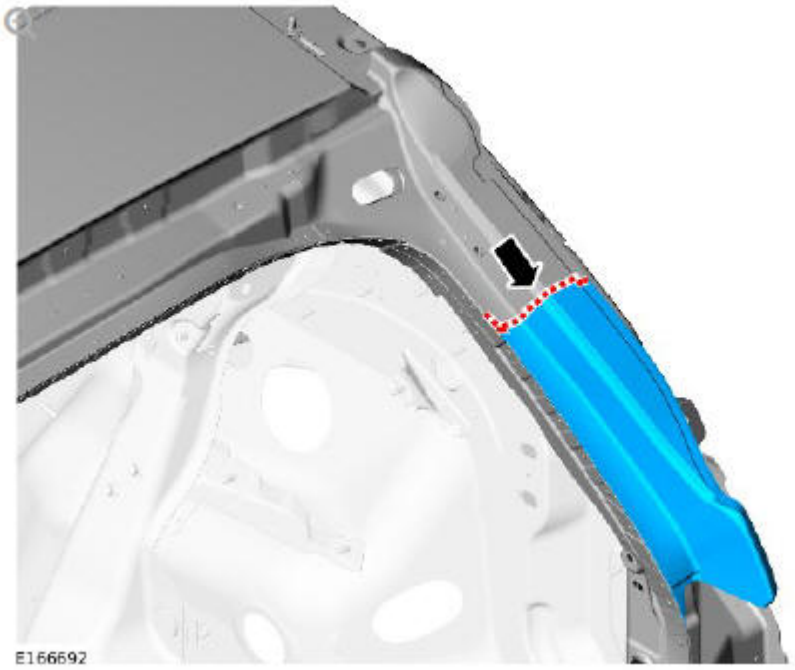


5. Tack MIG weld the butt joint as indicated.





6. Install the spot welds as indicated.



7. MIG weld the butt joint as indicated.
8. Dress all welds.
9. Make sure that any open or exposed panel joints are correctly sealed.
10. Make sure corrosion protection is applied to all areas affected by repair.
11. The installation of associated panels and components is the reversal of removal procedure.

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Roof Sheet Metal Repairs Roof Front Panel (G1770881) - InstallationRear end Sheet Metal Repairs Spare Wheel - Vehicles Without- 7 Seats (G1770929)

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Задняя часть ремонт кузовных панелей запасное колесо - автомобили без - 7 сиденья

Rear end Sheet Metal Repairs Spare Wheel - Vehicles Without- 7 Seats (G1770929)

- Rear end Sheet Metal Repairs Spare Wheel - Vehicles Without - 7 Seats (G1770929) - Removal
- Rear end Sheet Metal Repairs Spare Wheel - Vehicles Without - 7 Seats (G1770929) - Installation

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Rear end Sheet Metal Repairs Water Drain Panel (G1770948) / Removal and InstallationRear end Sheet Metal Repairs Spare Wheel - Vehicles Without - 7 Seats (G1770929) - Removal

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Задняя часть ремонт кузовных панелей запасное колесо - автомобили без - 7 сиденья - снятие

Rear end Sheet Metal Repairs Spare Wheel - Vehicles Without - 7 Seats (G1770929) - Removal

Removal

NOTE:

The spare wheel well is installed in conjunction with:

- *Rear bumper cover*
- *Rear bumper*
- *Rear bumper retaining rail*
- *D-pillar trim panel*
- *Back panel outer*
- *Back panel inner*
- *Exhaust system*
- *Fuel tank*
- *Rear subframe*



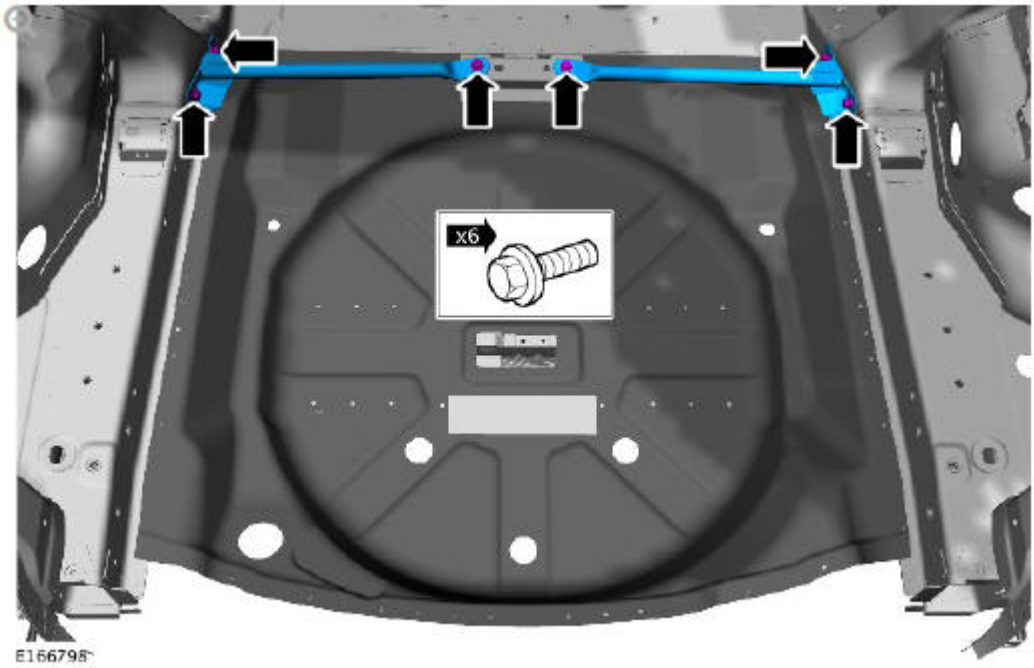
1. The spare wheel well is serviced as indicated.
2. Before commencing this procedure make sure that you are aware of all Health and Safety requirements.

   For additional information, refer to: Health and Safety Precautions (100-00 General Information, Description and Operation).
3. For further information on the methods, tools and fixings used in this procedure refer to the body repairs - general information section.

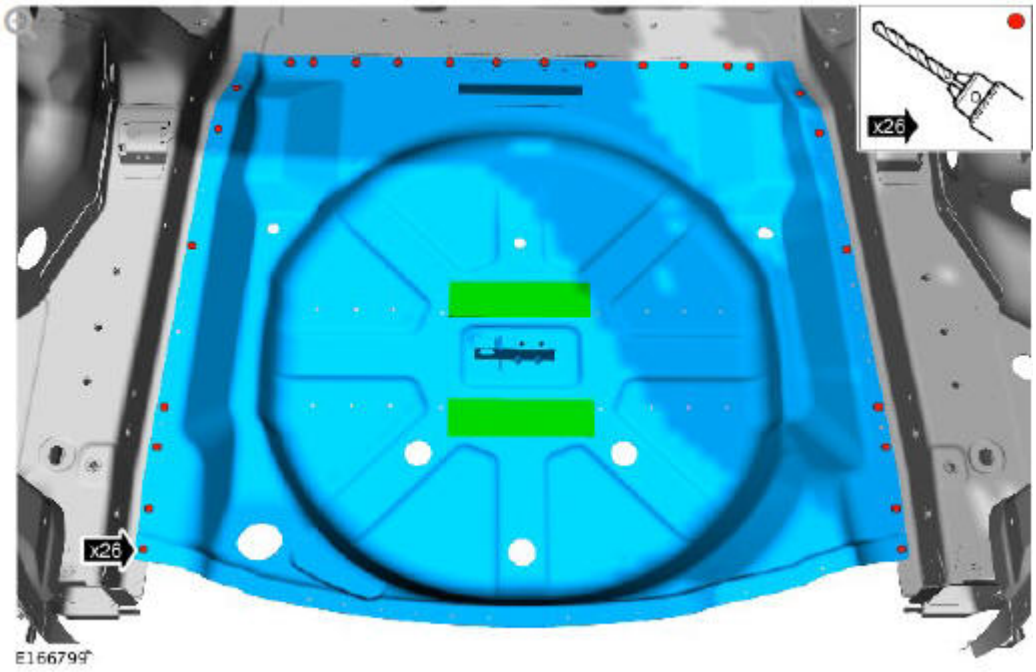
NOTES:

- *Any joints sealed as part of vehicle manufacture must be sealed as part of the repair.*
- *Make sure a zinc rich primer is applied to any bare metal surfaces.*

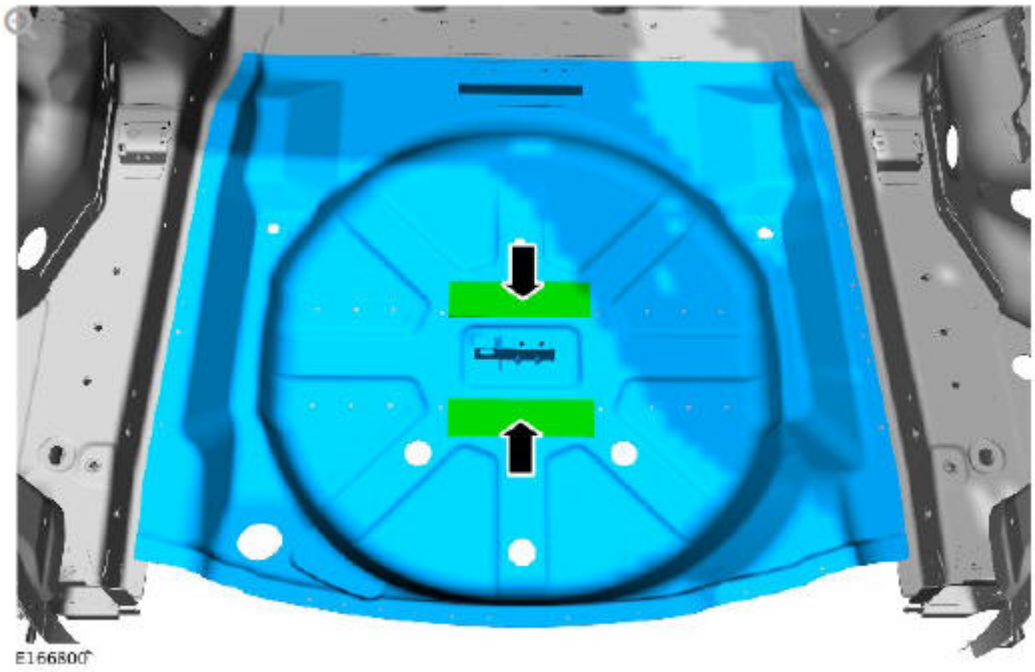
4. For additional information, refer to: Rear Bumper Cover (501-19 Bumpers, Removal and Installation).
5. For additional information, refer to: Rear Armature (501-19 Bumpers, Removal and Installation).
6. For additional information, refer to: Rear Bumper Retaining Rail (501-30 Rear End Sheet Metal Repairs, Removal and Installation).
7. For additional information, refer to: 'D' Pillar Trim Panel (501-05 Interior Trim and Ornamentation, Removal and Installation).
8. For additional information, refer to: Back Panel Outer (501-30 Rear End Sheet Metal Repairs, Removal and Installation).
9. For additional information, refer to: Back Panel Inner (501-30 Rear End Sheet Metal Repairs, Removal and Installation).
10. For additional information, refer to: Exhaust System (309-00A Exhaust System - GTDi 2.0L Petrol/GTDi 2.0L Petrol - SULEV, Removal and Installation) / Exhaust System (309-00B Exhaust System - TD4 2.2L Diesel, Removal and Installation).
11. For additional information, refer to: Fuel Tank (310-01A Fuel Tank and Lines - TD4 2.2L Diesel, Removal and Installation) / Fuel Tank (310-01B Fuel Tank and Lines - INGENIUM I4 2.0L Diesel, Removal and Installation).
12. For additional information, refer to: Rear Subframe - AWD (502-00 Uni-Body, Subframe and Mounting System, Removal and Installation).
13. Release and position the floor carpet to one side.
14. Release and position the floor noise, vibration, harshness (NVH) material to one side.
15. Release and position to one side the wiring harnesses.



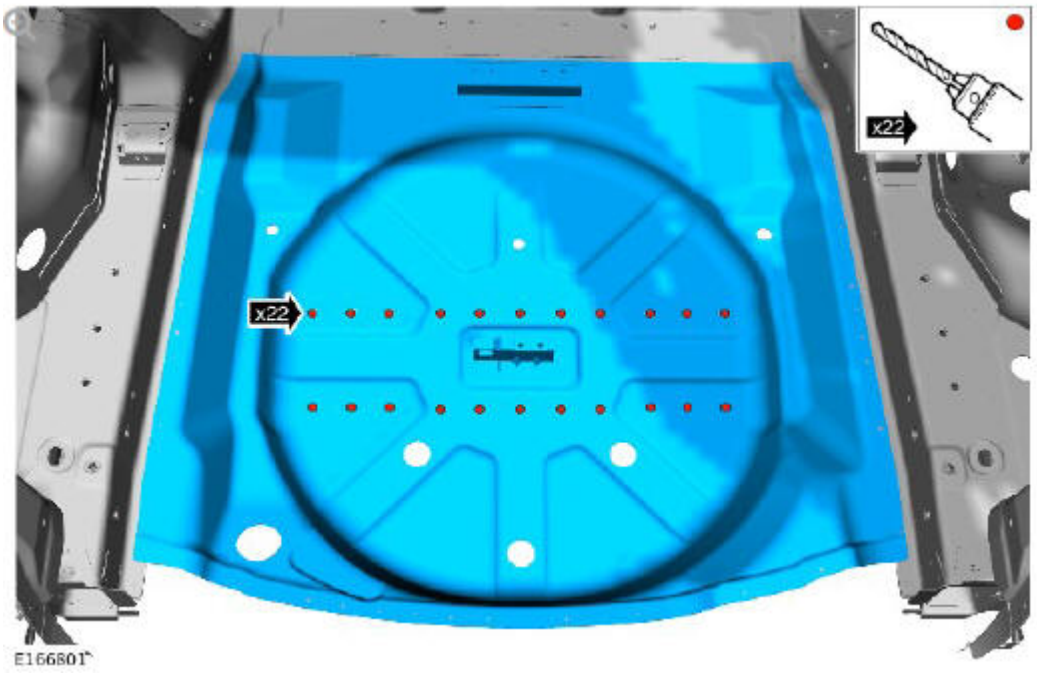
16. Remove the brackets and braces as indicated.



17. Remove the spot welds as indicated.



18. Remove the NVH material to reveal hidden spot welds as indicated.



19. Remove the spot welds as indicated.
20. Carefully separate the joints and remove the spare wheel well.

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Rear end Sheet Metal Repairs Spare Wheel - Vehicles Without- 7 Seats (G1770929)Rear end Sheet Metal Repairs Spare Wheel - Vehicles Without - 7 Seats (G1770929) - Installation

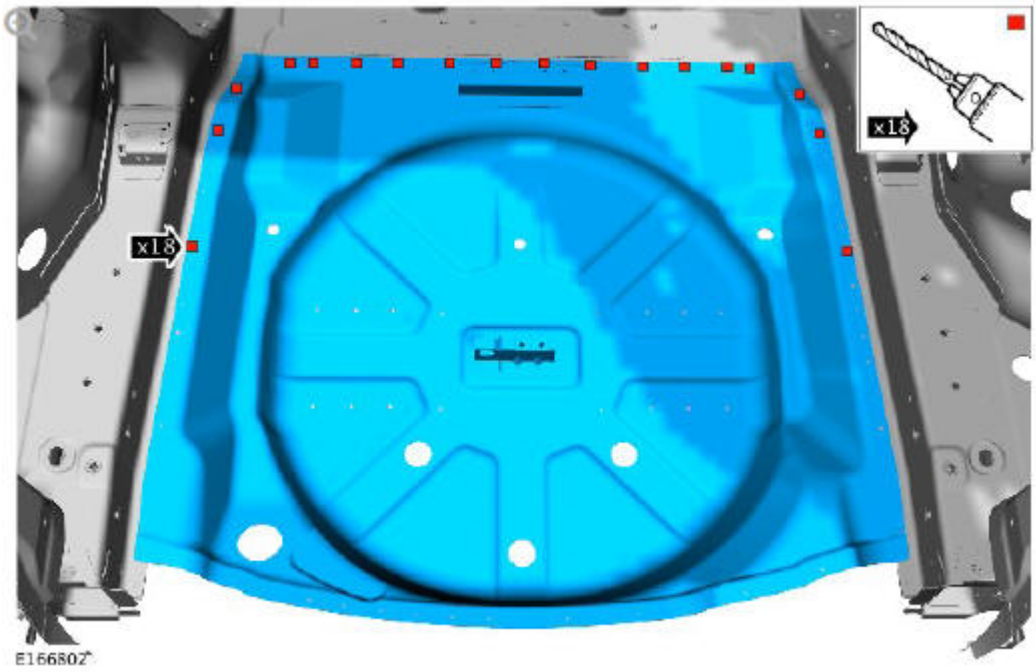
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Задняя часть ремонт кузовных панелей запасное колесо - автомобили без - 7 сиденья - установка

Rear end Sheet Metal Repairs Spare Wheel - Vehicles Without - 7 Seats (G1770929) - Installation

Installation

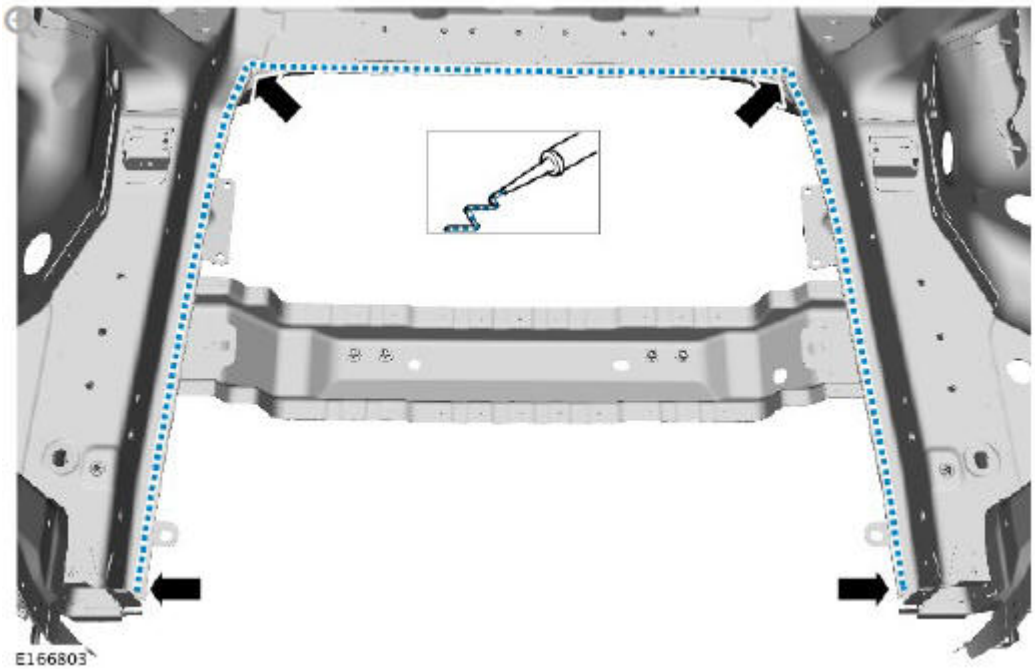
1. Dress the flanges where necessary.
2. Offer up the new spare wheel well and clamp into position. Check alignment, if correct, proceed to next step, if not, rectify and recheck before proceeding.



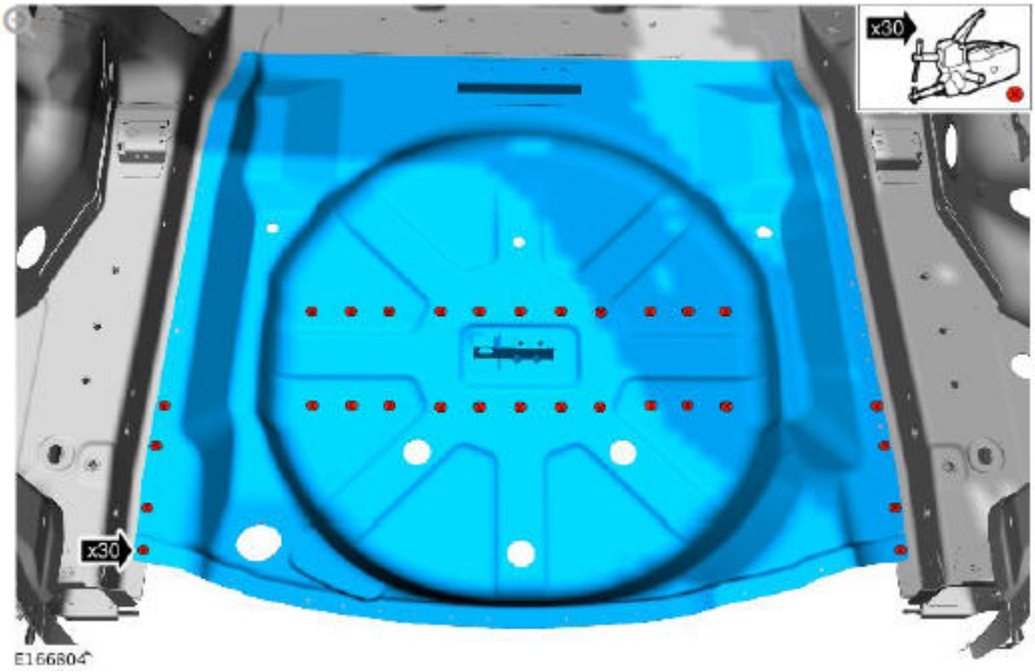
3. Drill holes where the MIG plug welds are to be installed as indicated.
4. Remove the spare wheel well.
5. Deburr the drilled holes.
6. Clean and prepare the panel surfaces.

NOTE:

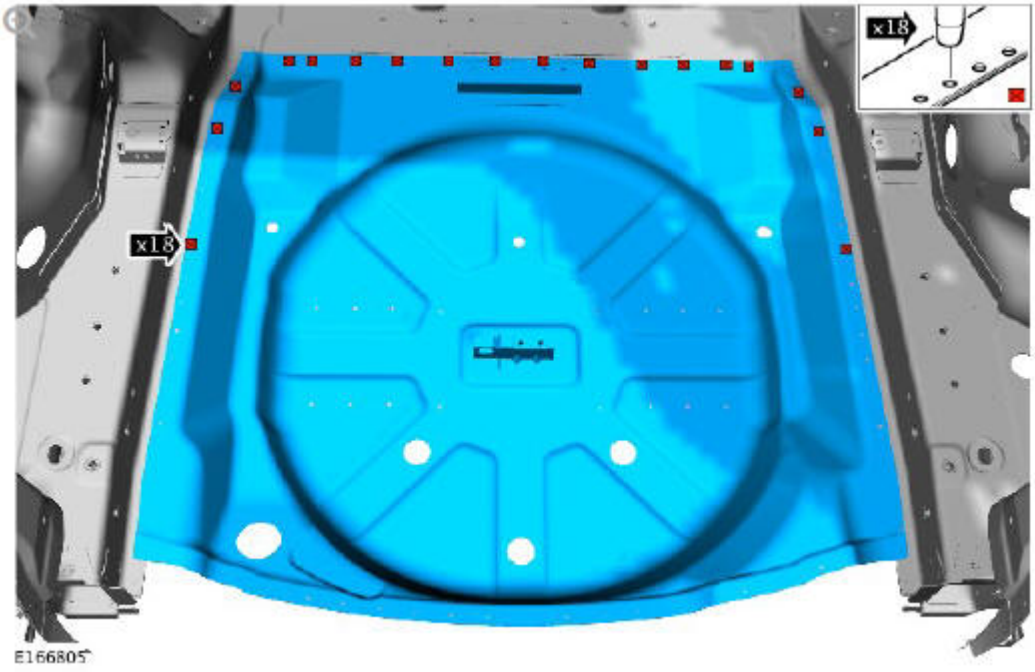
Make sure that the adhesive is 30mm away from any MIG plug welds to avoid contamination.



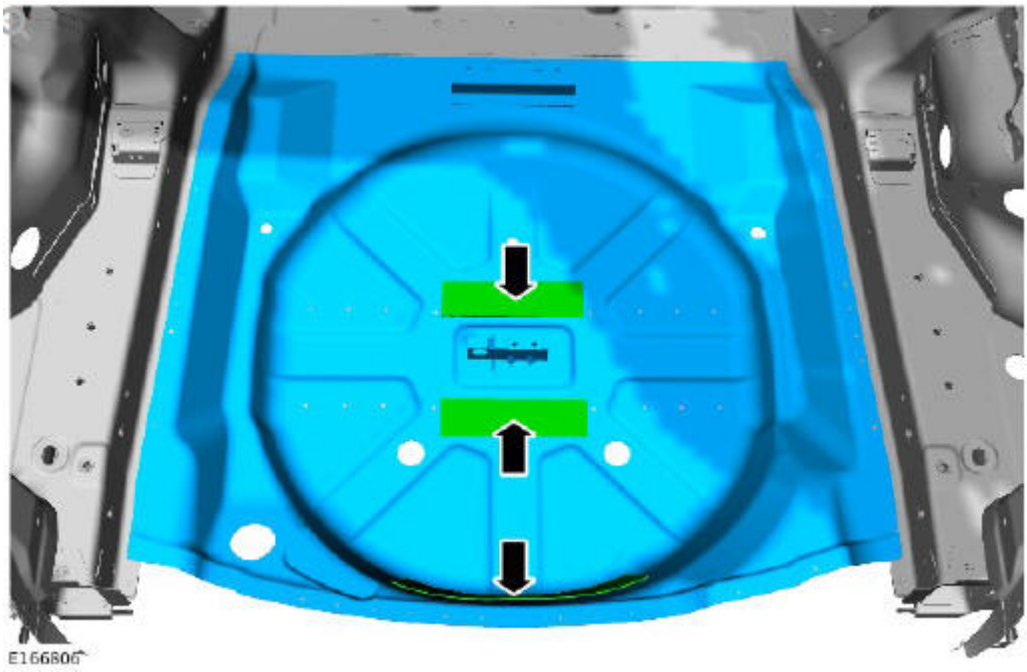
7. Apply a 5mm bead of Land Rover approved sealer as indicated.
8. Offer up the new spare wheel well and clamp into position. Check alignment, if correct, proceed to next step, if not, rectify and recheck before proceeding.



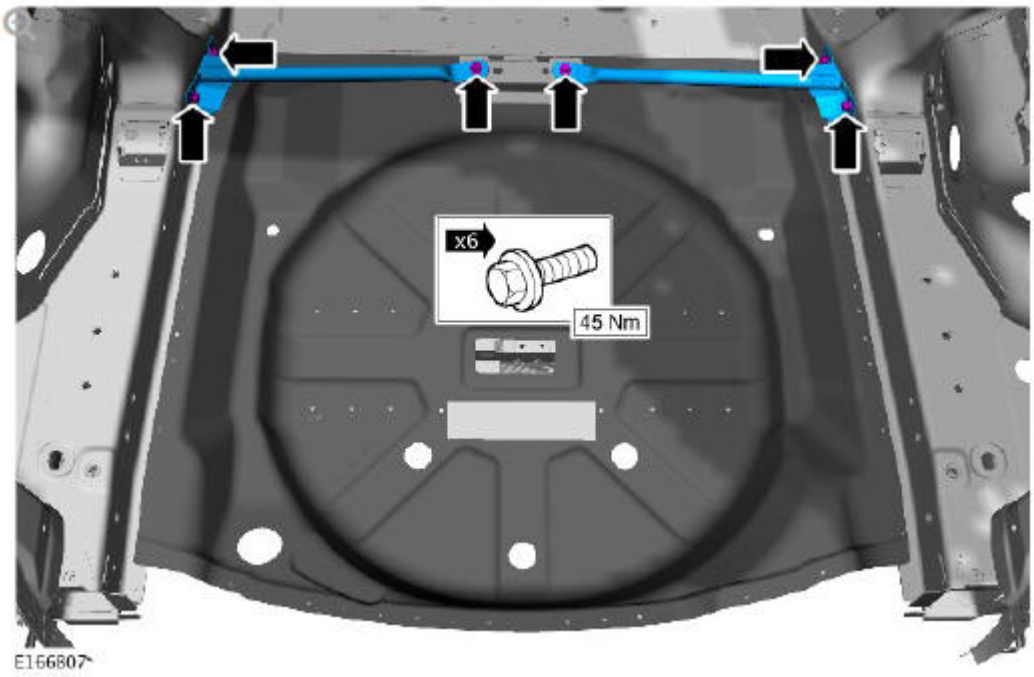
9. Install the spot welds as indicated.



10. Install the MIG plug welds as indicated.
11. Dress the MIG plug welds.



12. Install new NVH material as indicated.



13. Install the brackets and braces and tighten the bolts to 45Nm as indicated.
14. Make sure that any open or exposed panel joints are correctly sealed.
15. Make sure corrosion protection is applied to all areas affected by repair.
16. The installation of associated panels and components is the reversal of removal procedure.

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Rear end Sheet Metal Repairs Spare Wheel - Vehicles Without - 7 Seats (G1770929) - RemovalRear end Sheet Metal Repairs Spare Wheel - Vehicles Without- 7 Seats (G1770930)

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Задняя часть ремонт кузовных панелей запасное колесо - автомобили без - 7 сиденья

Rear end Sheet Metal Repairs Spare Wheel - Vehicles Without- 7 Seats (G1770930)

- Rear end Sheet Metal Repairs Spare Wheel - Vehicles Without - 7 Seats (G1770930) - Removal
- Rear end Sheet Metal Repairs Spare Wheel Well - Vehicles With- 7 seats (G1770930) - Installation

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Rear end Sheet Metal Repairs Spare Wheel - Vehicles Without - 7 Seats (G1770929) - InstallationRear end Sheet Metal Repairs Spare Wheel - Vehicles Without - 7 Seats (G1770930) - Removal

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Задняя часть ремонт кузовных панелей запасное колесо - автомобили без - 7 сиденья - снятие

Rear end Sheet Metal Repairs Spare Wheel - Vehicles Without - 7 Seats (G1770930) - Removal

Removal

NOTE:

The spare wheel well is installed in conjunction with:

- *Rear bumper cover*
- *Rear bumper*
- *Rear bumper retaining rail*
- *D-pillar trim panel*
- *Rear folding seats*
- *Back panel outer*
- *Back panel inner*
- *Exhaust system*
- *Fuel tank*
- *Rear subframe*
- *Occasional seats*



1. The spare wheel well is serviced as indicated.
2. Before commencing this procedure make sure that you are aware of all Health and Safety requirements.

   For additional information, refer to: Health and Safety Precautions (100-00 General Information, Description and Operation).

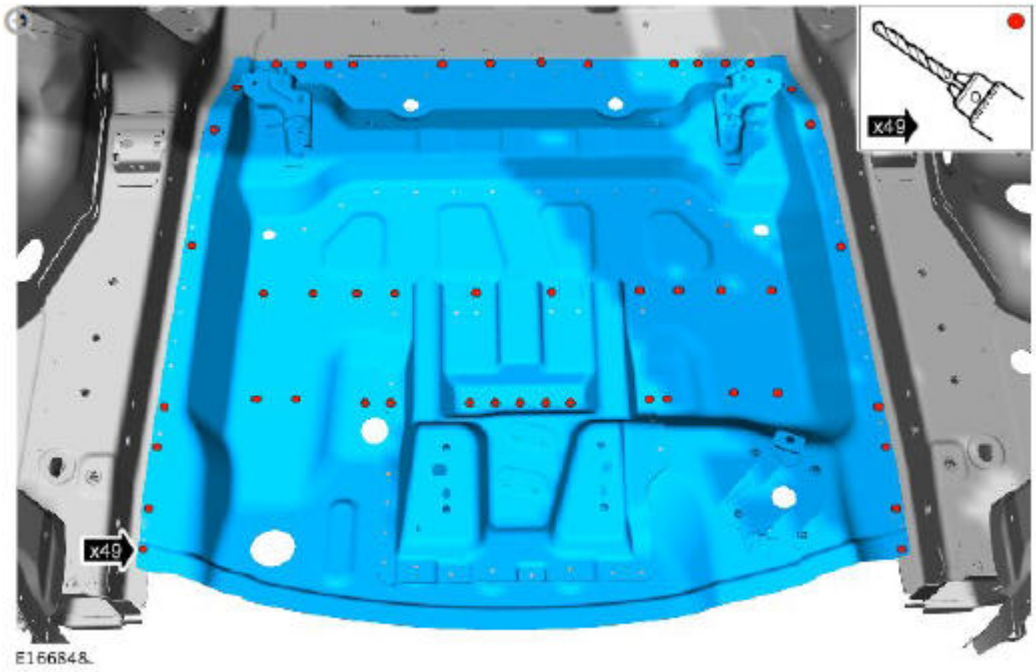
3. For further information on the methods, tools and fixings used in this procedure refer to the body repairs - general information section.

NOTES:

- *Any joints sealed as part of vehicle manufacture must be sealed as part of the repair.*
- *Make sure a zinc rich primer is applied to any bare metal surfaces.*

4. For additional information, refer to: Rear Bumper Cover (501-19 Bumpers, Removal and Installation).
5. For additional information, refer to: Rear Armature (501-19 Bumpers, Removal and Installation).
6. For additional information, refer to: Rear Bumper Retaining Rail (501-30 Rear End Sheet Metal Repairs, Removal and Installation).
7. For additional information, refer to: 'D' Pillar Trim Panel (501-05 Interior Trim and Ornamentation, Removal and Installation).
8. For additional information, refer to: Back Panel Outer (501-30 Rear End Sheet Metal Repairs, Removal and Installation).
9. For additional information, refer to: Back Panel Inner (501-30 Rear End Sheet Metal Repairs, Removal and Installation).
10. For additional information, refer to: Exhaust System (309-00A Exhaust System - GTDi 2.0L Petrol/GTDi 2.0L Petrol - SULEV, Removal and Installation) / Exhaust System (309-00B Exhaust System - TD4 2.2L Diesel, Removal and Installation).
11. For additional information, refer to: Fuel Tank (310-01A Fuel Tank and Lines - TD4 2.2L Diesel, Removal and Installation) / Fuel Tank (310-01B Fuel Tank and Lines - INGENIUM I4 2.0L Diesel, Removal and Installation).
12. For additional information, refer to: Rear Subframe - AWD (502-00 Uni-Body, Subframe and Mounting System, Removal and Installation).
13. Remove the occasional seats.
14. Release and position the floor carpet to one side.
15. Release and position the floor noise, vibration, harshness (NVH) material to one side.
16. Release and position to one side the wiring harnesses.

17. Remove the spot welds as indicated.



18. Carefully separate the joints and remove the spare wheel well.

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Rear end Sheet Metal Repairs Spare Wheel - Vehicles Without- 7 Seats (G1770930)Rear end Sheet Metal Repairs Spare Wheel Well - Vehicles With- 7 seats (G1770930) - Installation

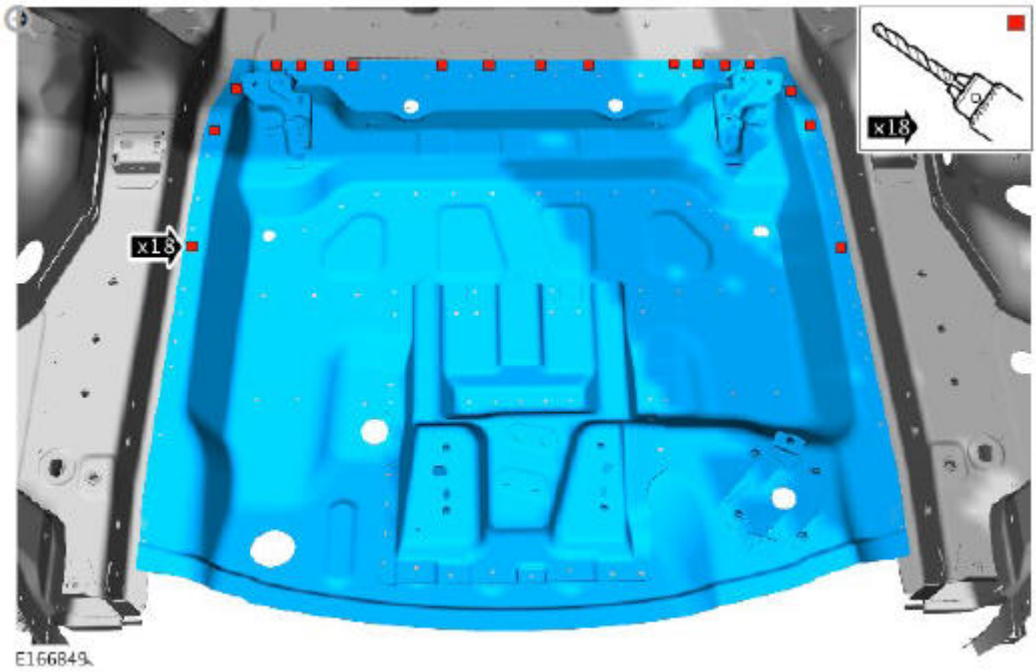
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Задняя часть ремонт кузовных панелей запасное колесо Well - автомобили с - 7 сиденья - установка

Rear end Sheet Metal Repairs Spare Wheel Well - Vehicles With- 7 seats (G1770930) - Installation

Installation

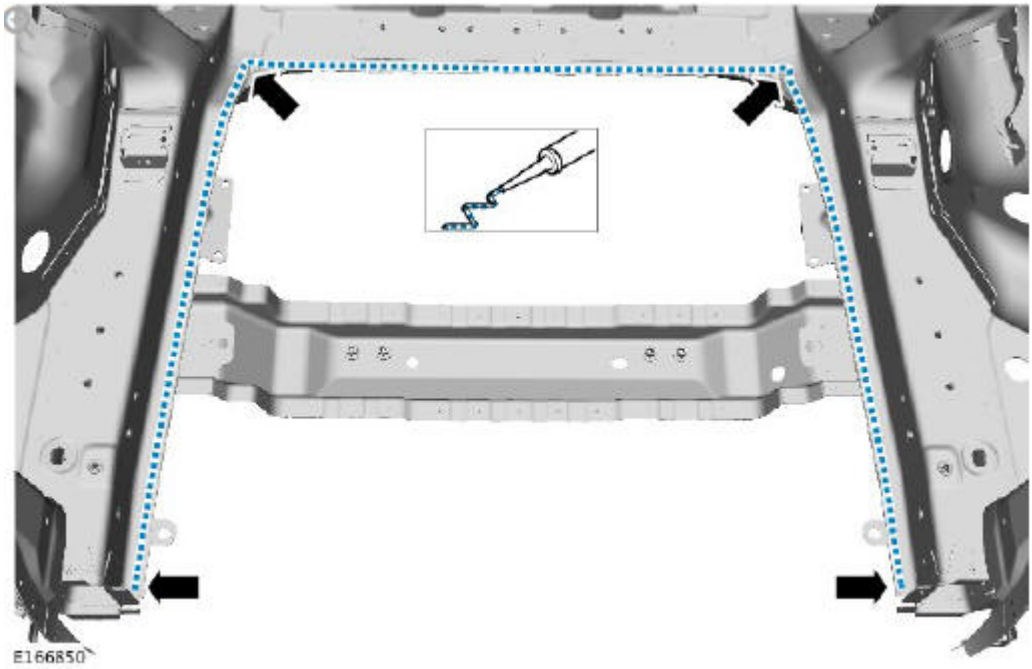
1. Dress the flanges where necessary.
2. Offer up the new spare wheel well and clamp into position. Check alignment, if correct, proceed to next step, if not, rectify and recheck before proceeding.



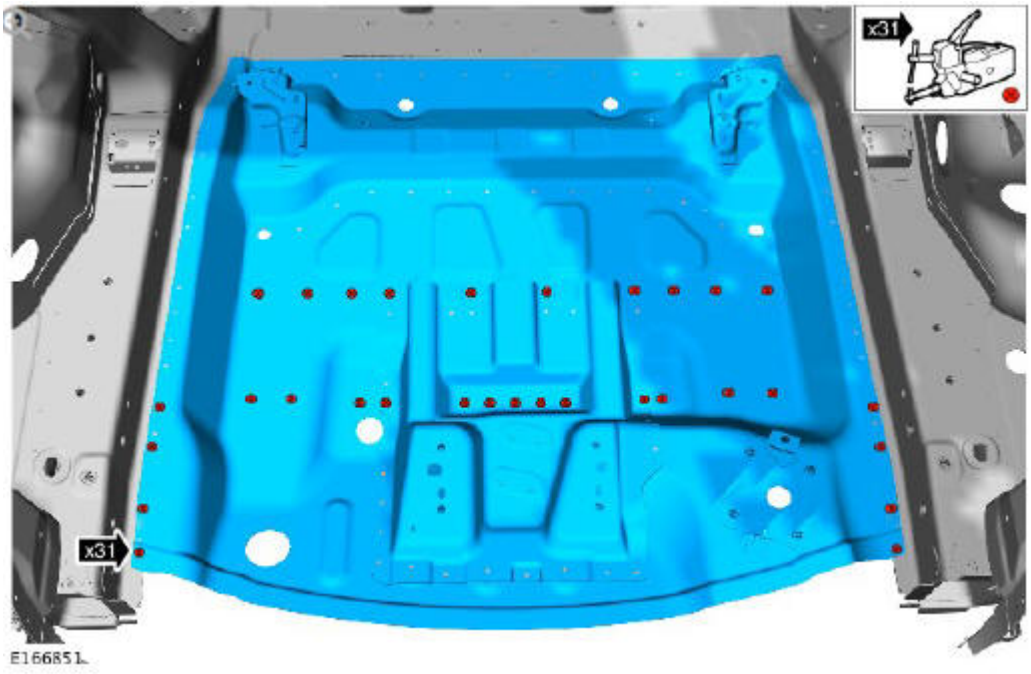
3. Drill holes the where the metal inert gas (MIG) plug welds are to be installed as indicated.
4. Remove the spare wheel well.
5. Deburr the drilled holes.
6. Clean and prepare the panel surfaces.

NOTES:

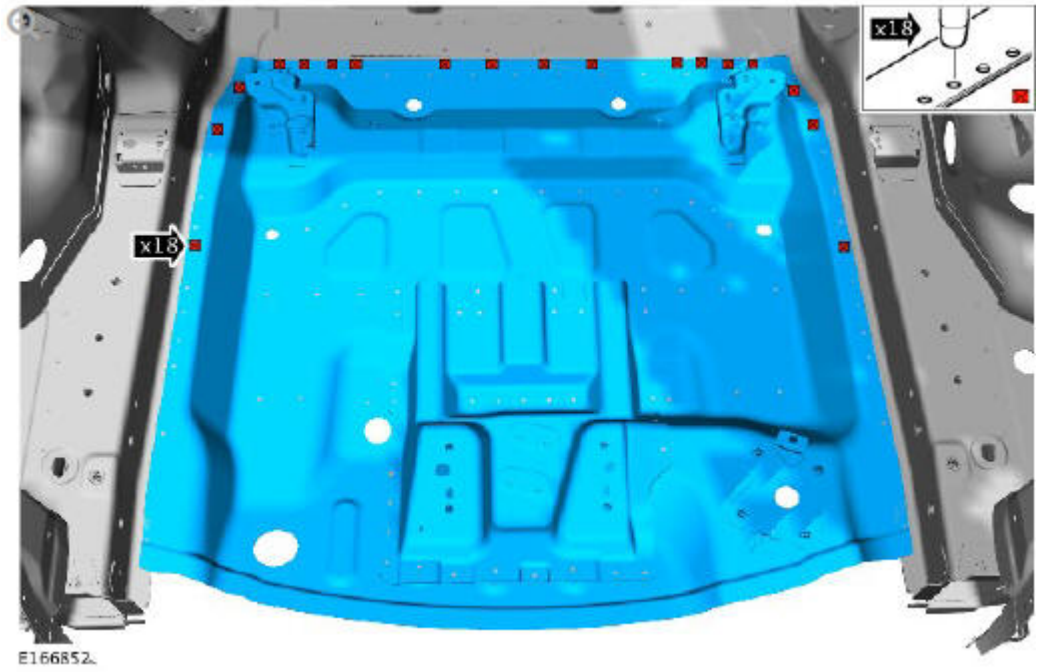
- *Make sure that the sealer is only applied where the spot welds are being installed.*
- *Make sure that the adhesive is 30mm away from any MIG plug welds to avoid contamination.*



7. Apply a 5mm bead of Land Rover approved sealer as indicated.
8. Offer up the new spare wheel well and clamp into position. Check alignment, if correct, proceed to next step, if not, rectify and recheck before proceeding.



9. Install the spot welds as indicated.



10. Install the MIG plug welds as indicated.

NOTE:

The components that are located/fixed to these weld studs must be offered up and cross checked for alignment prior to the installation of the weld studs to the new panel.

11. Prepare the spare wheel well and install the weld studs in their original locations.
12. Dress the MIG plug welds.
13. Make sure that any open or exposed panel joints are correctly sealed.
14. Apply a zinc rich primer to any bare metal surfaces at this stage.
15. The installation of associated panels and components is the reversal of removal procedure.

Rear end Sheet Metal Repairs Spare Wheel - Vehicles Without - 7 Seats (G1770930) - RemovalRear end Sheet Metal Repairs Rear Wheelhouse Outer (G1770944)

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Задняя часть ремонт кузовных панелей задний колёсная арка наружный

Rear end Sheet Metal Repairs Rear Wheelhouse Outer (G1770944)

- Rear end Sheet Metal Repairs Rear Wheelhouse Outer (G1770944) - Removal
- Rear end Sheet Metal Repairs Rear Wheelhouse Outer (G1770944) - Installation

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Rear end Sheet Metal Repairs Spare Wheel Well - Vehicles With- 7 seats (G1770930) - InstallationRear end Sheet Metal Repairs Rear Wheelhouse Outer (G1770944) - Removal

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Задняя часть ремонт кузовных панелей задний колёсная арка наружный - снятие

Rear end Sheet Metal Repairs Rear Wheelhouse Outer (G1770944) - Removal

Removal

NOTE:

The rear wheelhouse outer is installed in conjunction with:

- *Rear bumper cover*
- *Side panel*
- *Quarter panel*
- *Quarter panel lower extension*
- *Inner quarter panel upper*
- *Fuel tank filler pipe*
- *Rocker panel*



1. The rear wheelhouse outer s serviced as indicated.
2. Before commencing this procedure make sure that you are aware of all Health and Safety requirements.

   For additional information, refer to: Health and Safety Precautions (100-00, Description and Operation).

3. For further information on the methods, tools and fixings used in this procedure refer to the body repairs - general information section.

NOTES:

- *Any joints sealed as part of vehicle manufacture must be sealed as part of the repair.*

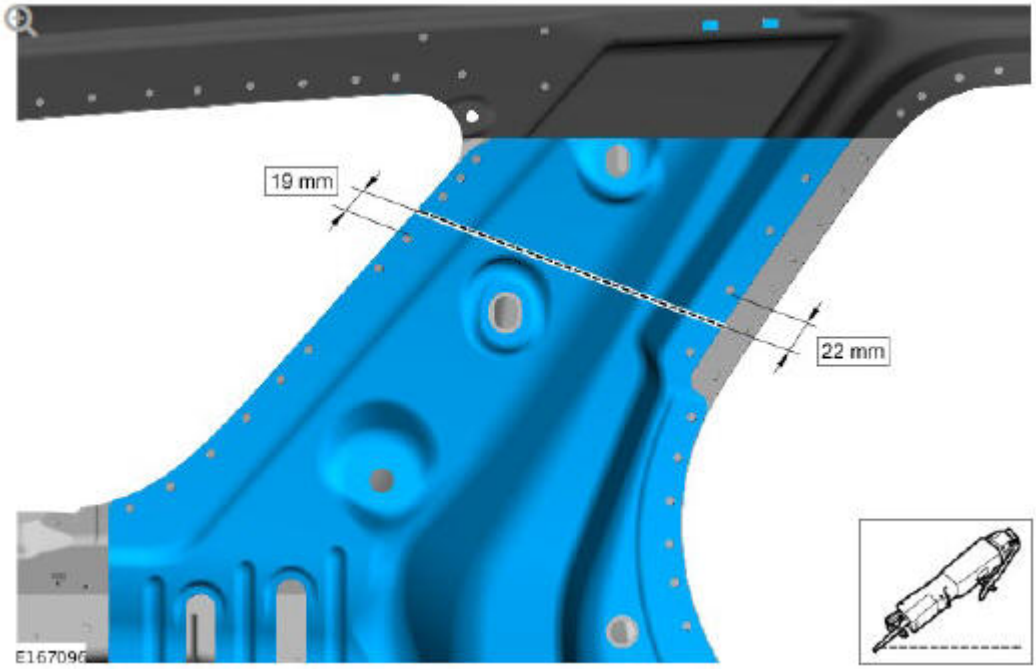
  Make sure a zinc rich primer is applied to any bare metal surfaces.

4. For additional information, refer to: Rear Bumper Cover (501-19, Removal and Installation).
5. For additional information, refer to: Side Panel (501-29, Removal and Installation).
6. For additional information, refer to: Quarter Panel (501-30, Removal and Installation).
7. For additional information, refer to: Quarter Panel Lower Extension (501-30, Removal and Installation).
8. For additional information, refer to: Inner Quarter Panel Upper (501-30, Removal and Installation).

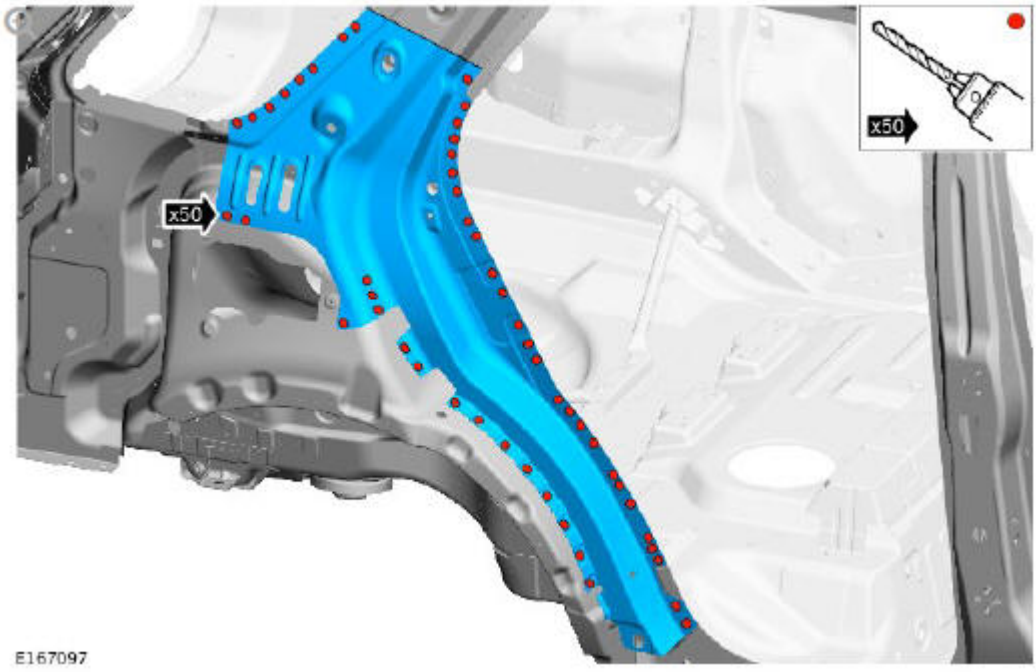
NOTE:

Right hand only.

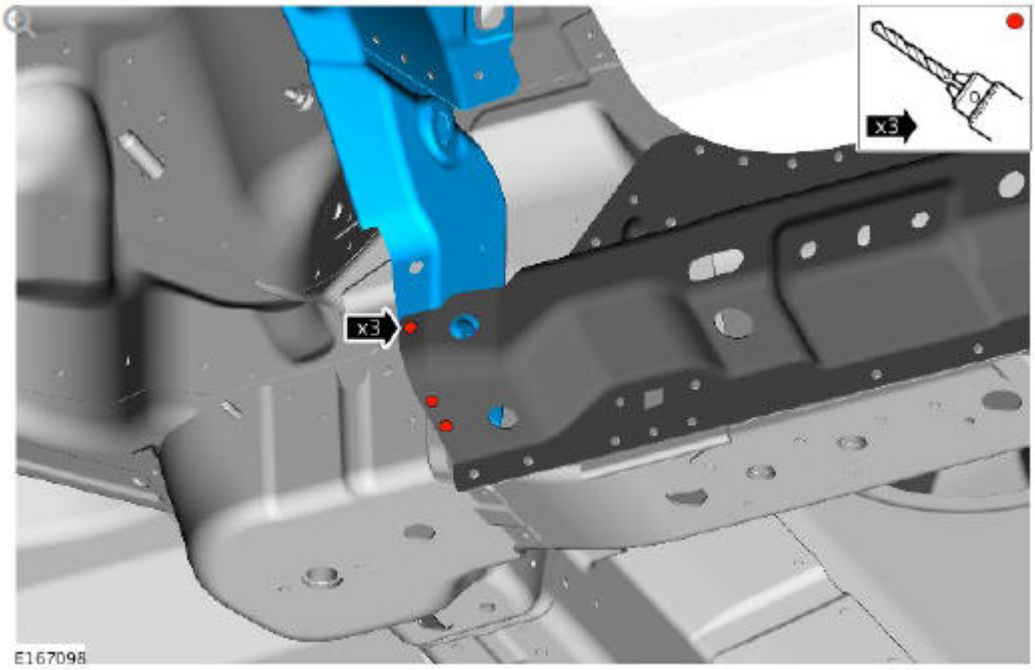
9. For additional information, refer to: Fuel Tank Filler Pipe (310-01A, Removal and Installation).
10. For additional information, refer to: Rocker Panel (501-29, Removal and Installation).



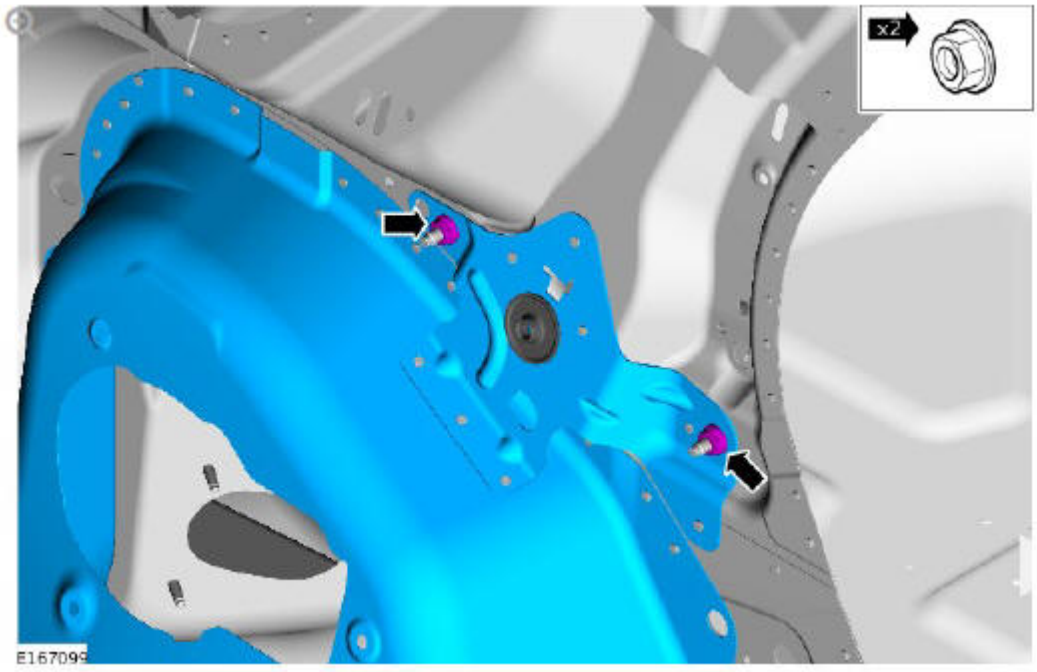
11. Cut the inner quarter panel upper as indicated.



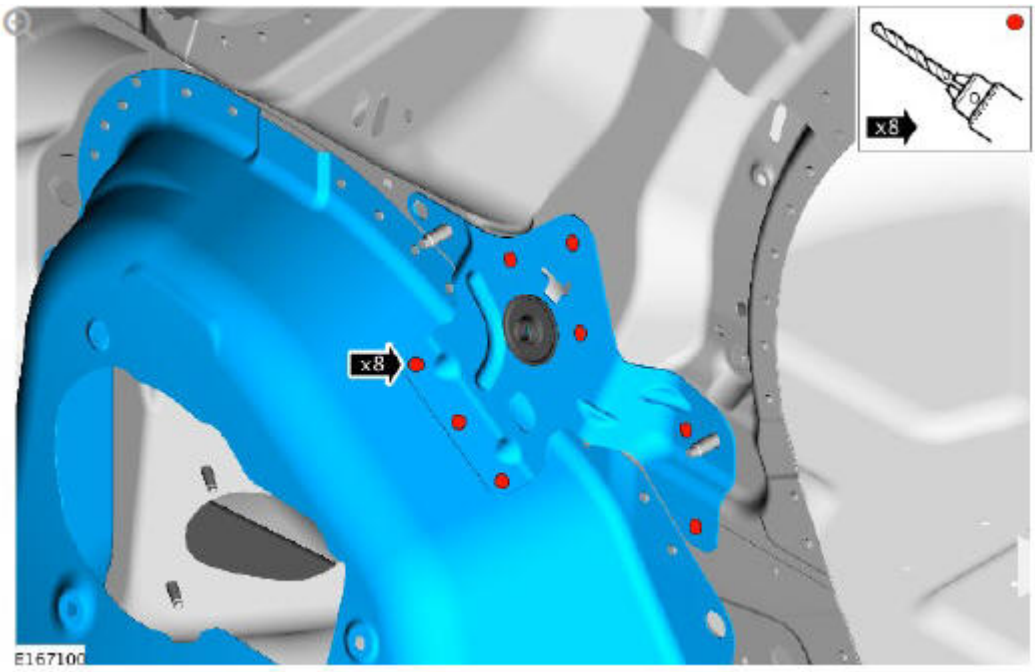
12. Remove the spot welds as indicated.
13. Carefully separate the joints and remove the inner quarter panel upper.



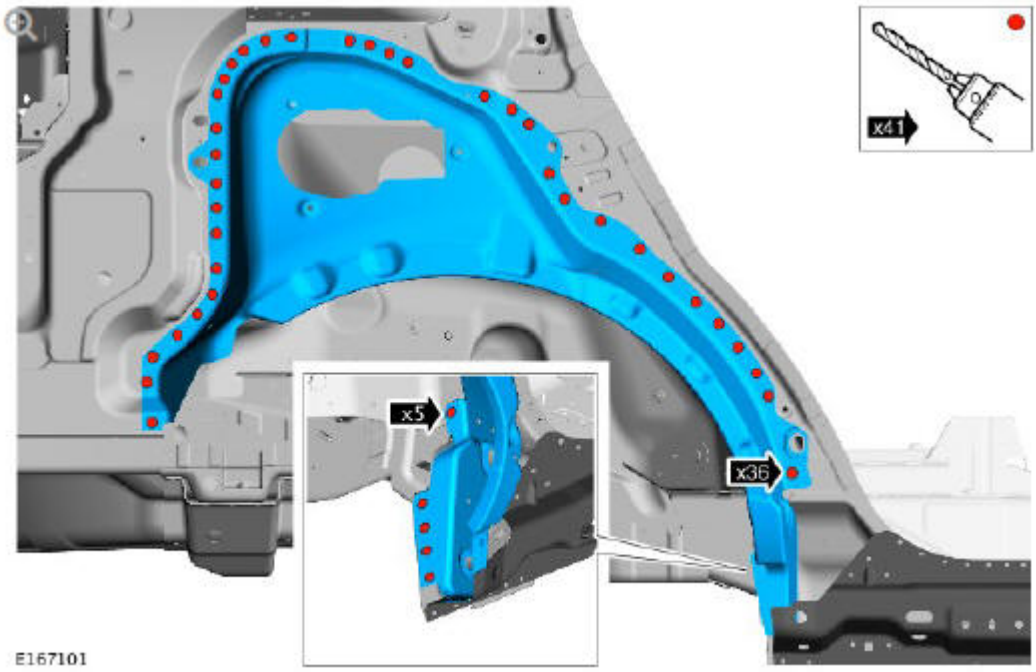
14. Remove the spot welds as indicated.



15. Remove the retaining nuts as indicated.



16. Remove the spot welds and remove the bracket to reveal hidden spot welds as indicated.



17. Remove the spot welds as indicated.
18. Carefully separate the joints and remove the rear wheelhouse outer.

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Rear end Sheet Metal Repairs Rear Wheelhouse Outer (G1770944)Rear end Sheet Metal Repairs Rear Wheelhouse Outer (G1770944) - Installation

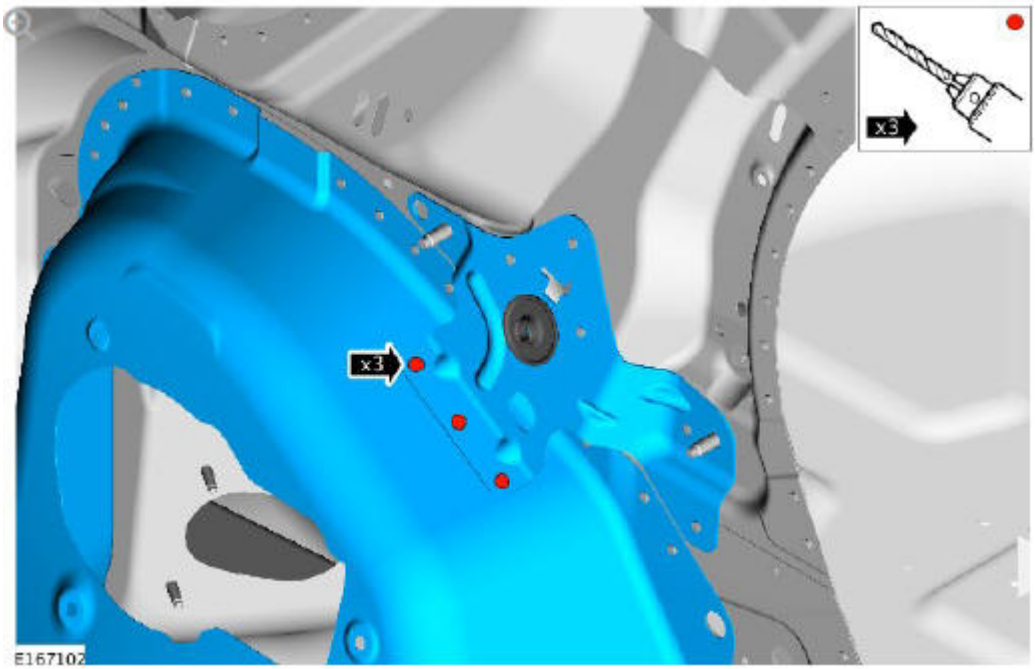
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Задняя часть ремонт кузовных панелей задний колёсная арка наружный - установка

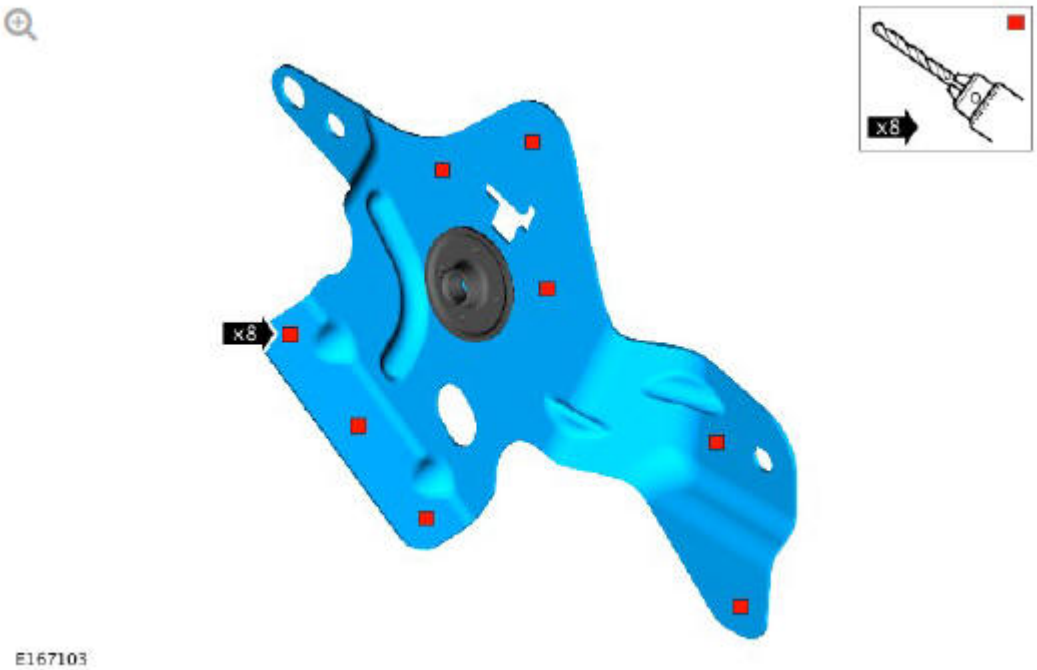
Rear end Sheet Metal Repairs Rear Wheelhouse Outer (G1770944) - Installation

Installation

1. Dress flanges where necessary.



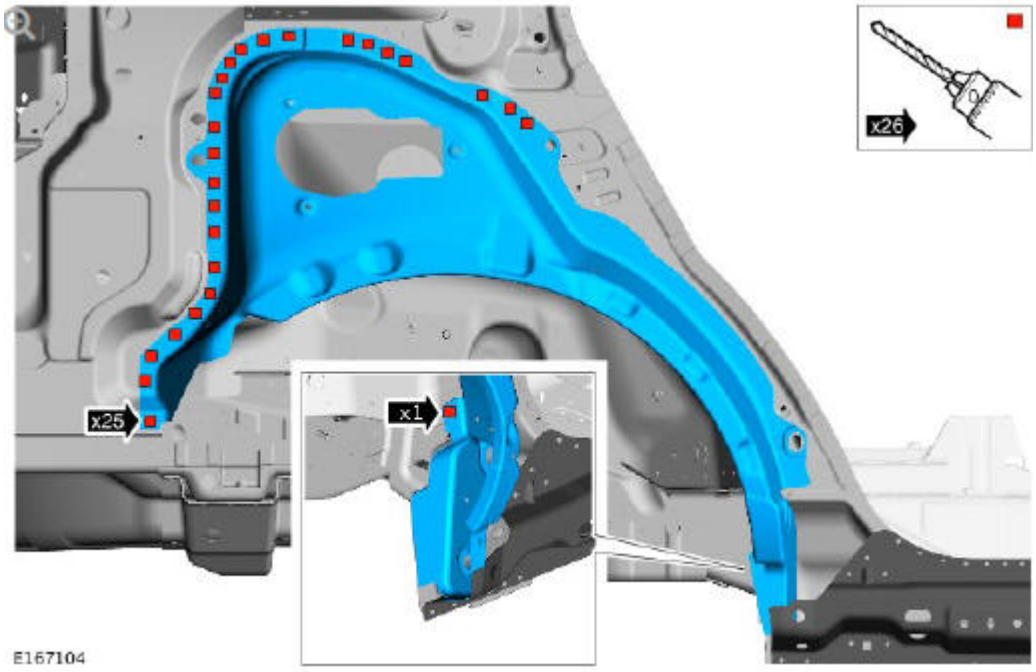
2. Remove the bracket from the new rear wheelhouse outer as indicated.



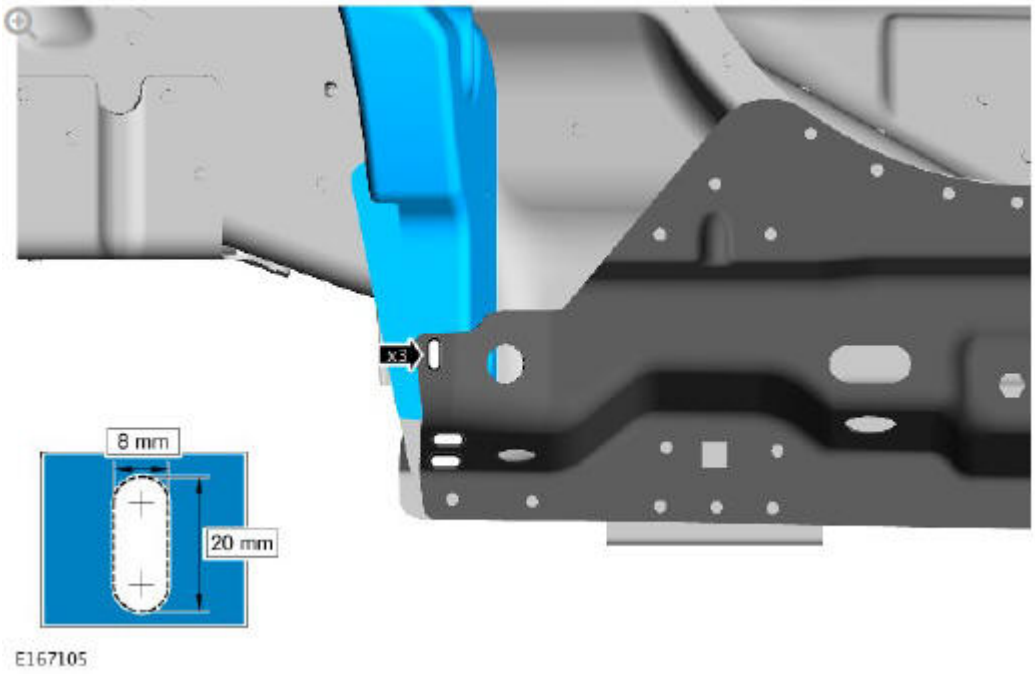
3. Drill holes where the metal inert gas (MIG) plug welds are to be installed as indicated.

4. Offer up the new rear wheelhouse outer and clamp into position.

   Check alignment if correct, proceed to next step, if not, rectify and recheck before proceeding.



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

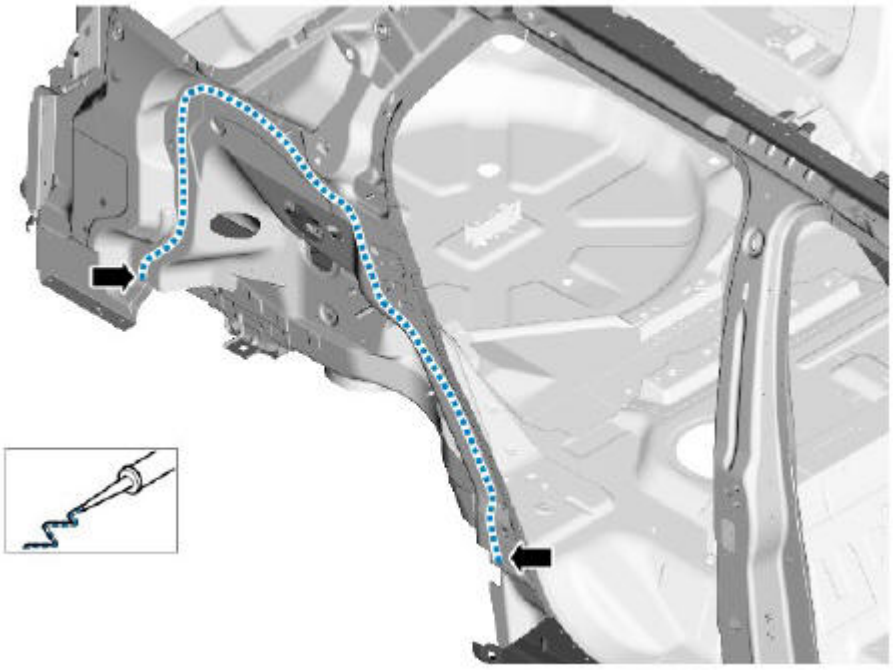


6. Cut slots in the rocker panel inner reinforcement where the MIG braze slot welds are to be installed as indicated.
7. Remove the rear wheelhouse outer.
8. Deburr the drilled holes.
9. Clean and prepare the old and new panel surfaces.

NOTE:

Make sure that the adhesive is 30mm away from any MIG plug welds to avoid contamination.

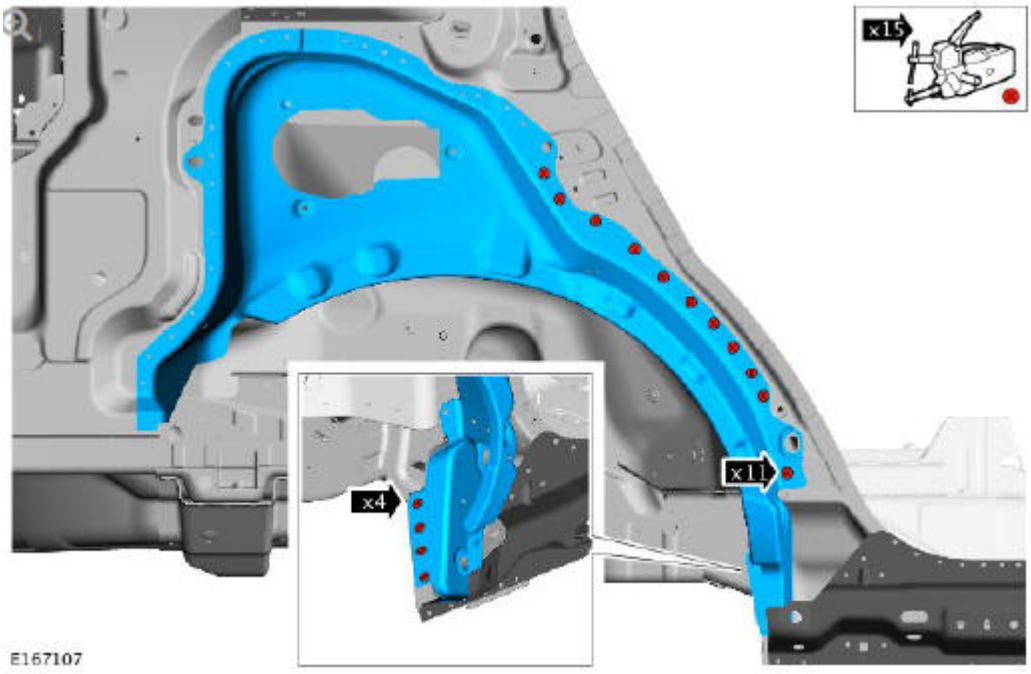
10. Apply a 5mm bead of Land Rover approved sealer as indicated.

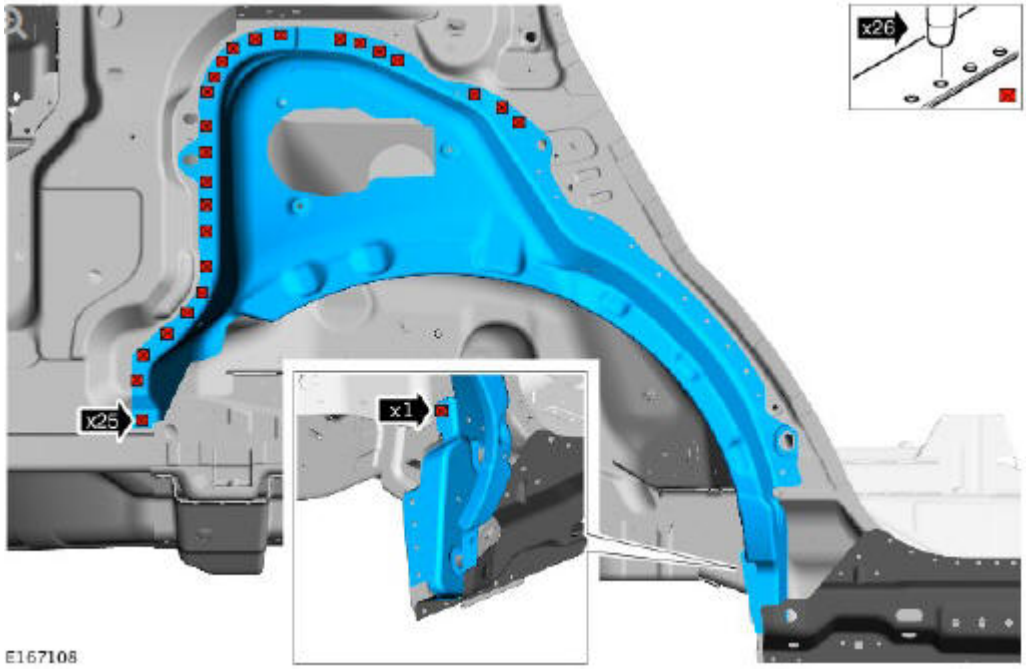


11. Offer up the new rear wheelhouse outer and clamp into position.

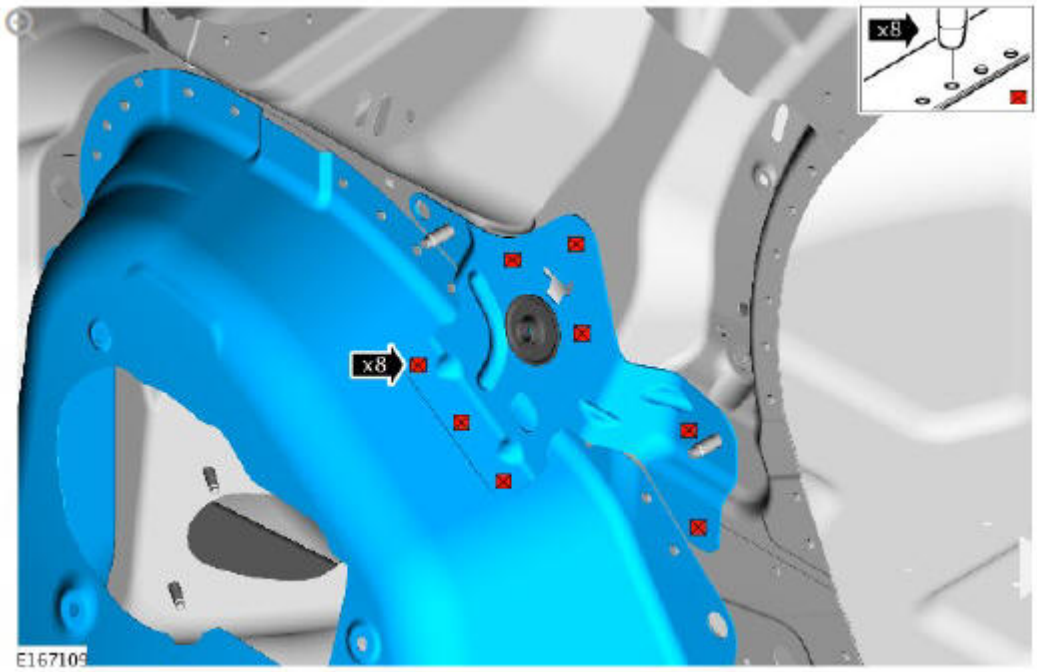
    Check alignment if correct, proceed to next step, if not, rectify and recheck before proceeding.

12. Install the spot welds as indicated.

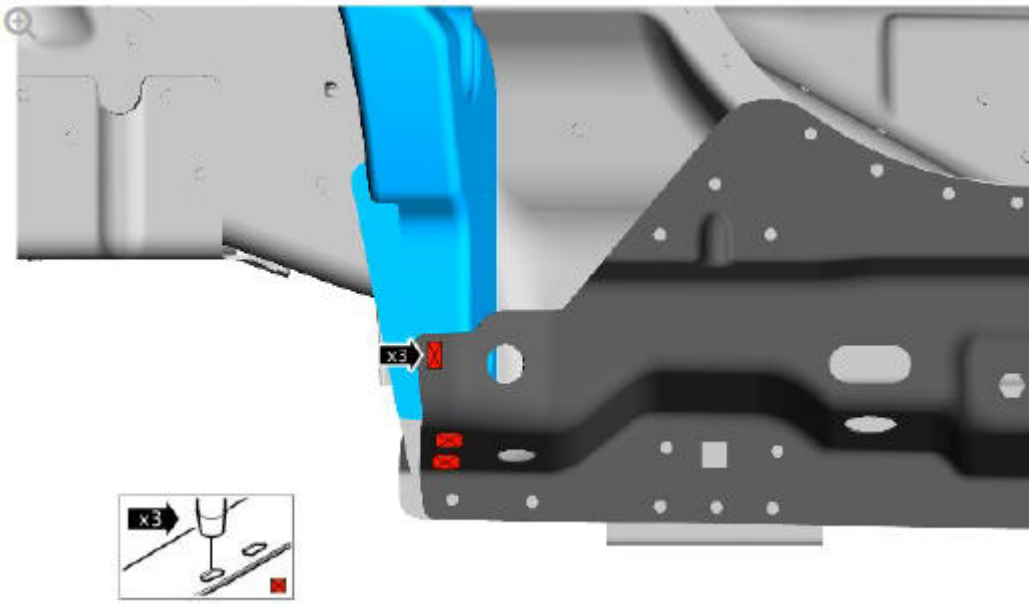




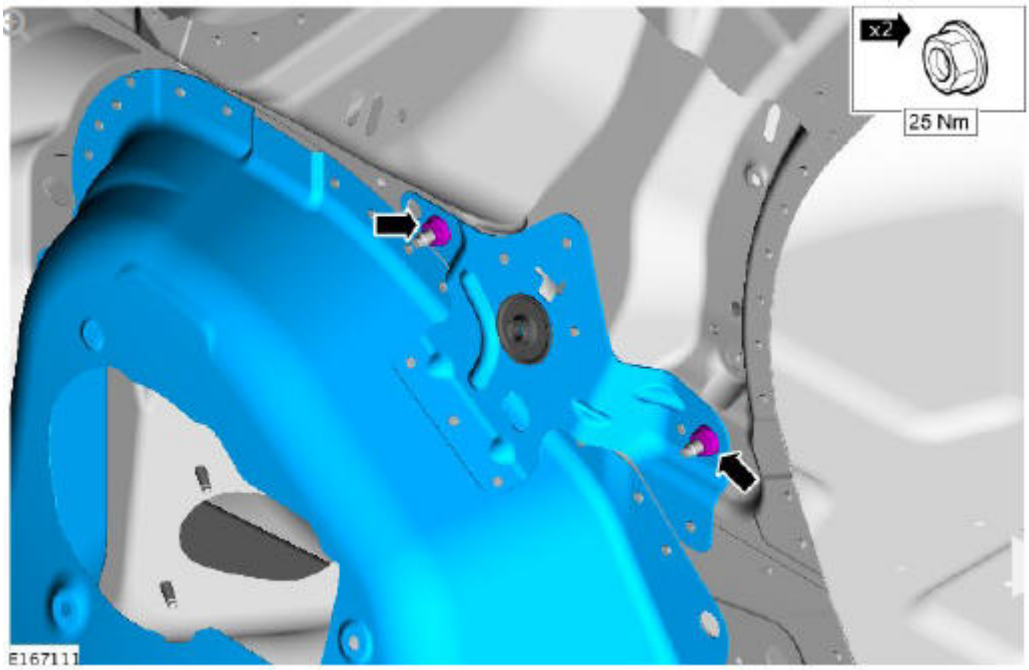
13. Install the MIG plug welds as indicated.
14. Offer up the new bracket and clamp into position. Check alignment if correct, proceed to next step, if not, rectify and recheck before proceeding.



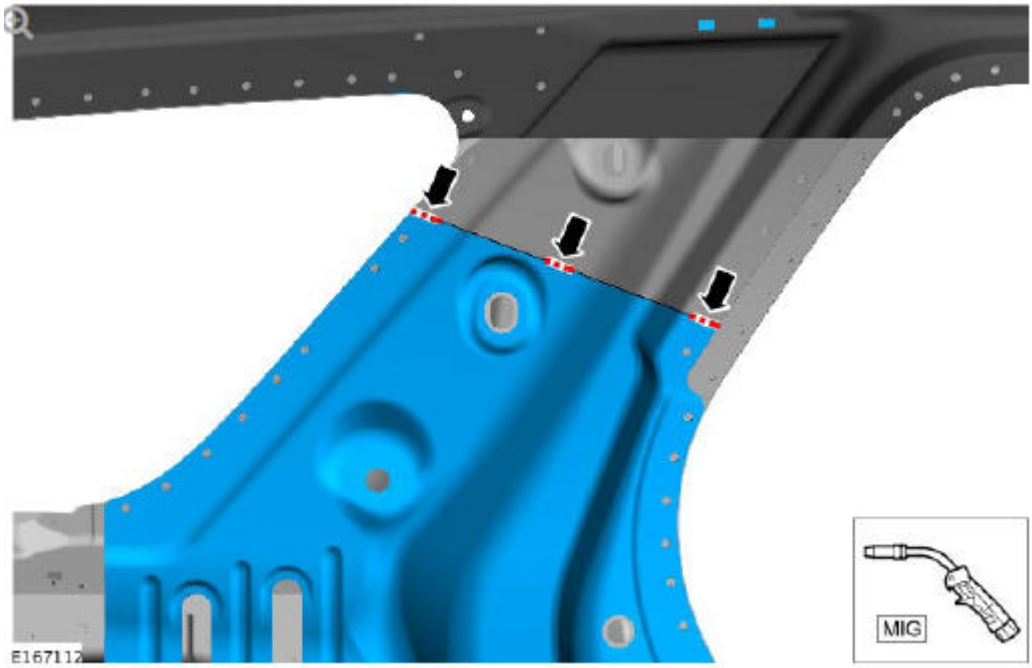
15. Install the MIG plug welds as indicated.



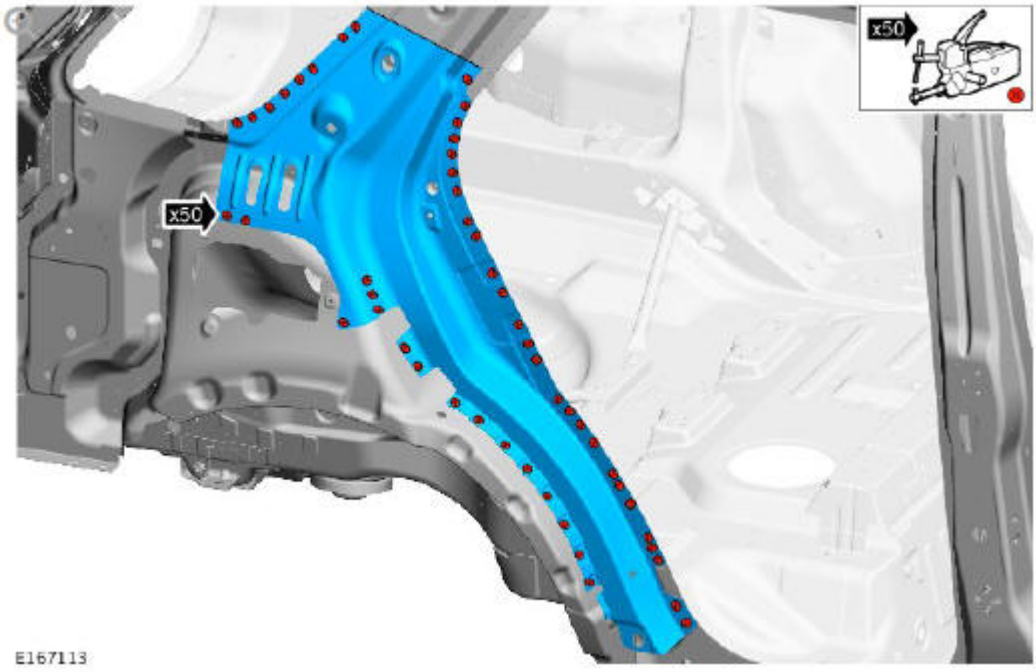
16. MIG braze the slots as indicated.
17. Dress the welds.



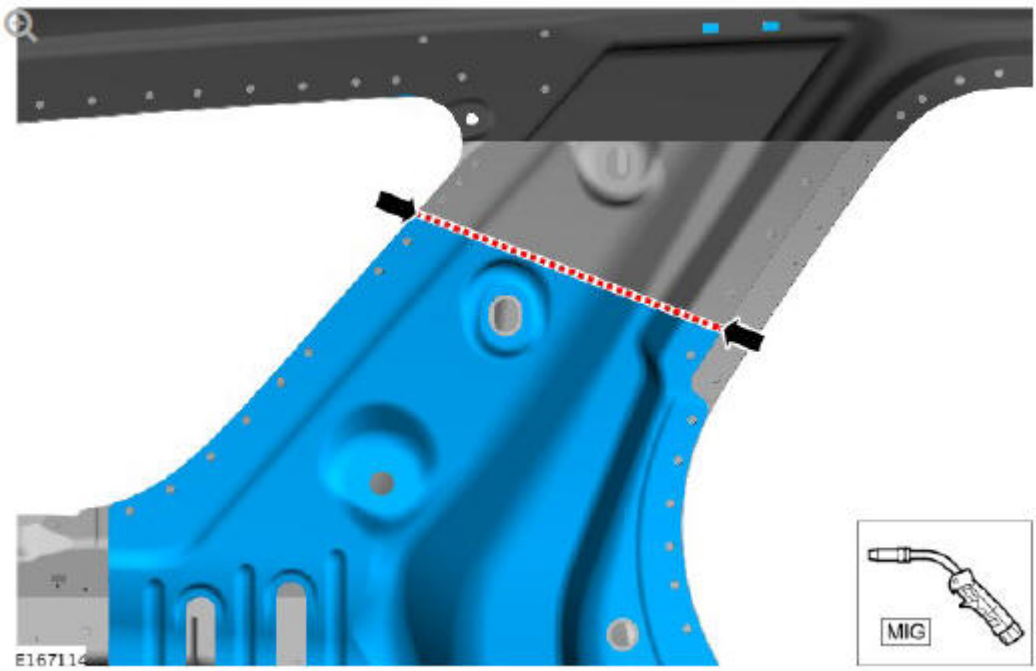
18. Install the retaining nuts and tighten to 25Nm as indicated.
19. Clean and prepare the inner quarter panel upper.
20. Offer up the inner quarter panel upper panel and clamp into position. Check alignment if correct, proceed to next step, if not, rectify and recheck before proceeding.



21. Tack MIG weld the inner quarter panel upper butt joint as indicated.



22. Install the spot welds as indicated.



23. MIG weld the butt joint as indicated.
24. Dress the butt weld.
25. Make sure that any open or exposed panel joints are correctly sealed.
26. Make sure corrosion protection is applied to all areas affected by repair.
27. The installation of associated panels and components is the reversal of the removal procedure.

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Rear end Sheet Metal Repairs Rear Wheelhouse Outer (G1770944) - RemovalRear end Sheet Metal Repairs Rear Side Member Section (G1770933)

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Задняя часть ремонт кузовных панелей задний боковой лонжерон секция

Rear end Sheet Metal Repairs Rear Side Member Section (G1770933)

- Rear end Sheet Metal Repairs Rear Side Member Section (G1770933) - Removal
- Rear end Sheet Metal Repairs Rear Side Member Section (G1770933) - Installation

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Rear end Sheet Metal Repairs Rear Wheelhouse Outer (G1770944) - InstallationRear end Sheet Metal Repairs Rear Side Member Section (G1770933) - Removal

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Задняя часть ремонт кузовных панелей задний боковой лонжерон секция - снятие

NOTE:

The rear side member section is installed in conjunction with:

- *Rear bumper*
- *Rear bumper retaining rail*
- *Rear lamp assembly*
- *Rear lamp panel outer*
- *Back panel outer*
- *Back panel inner*
- *Quarter panel lower extension*
- *Loadspace trim panel*
- *Spare wheel well*
- *Rear side member lower side extension*
- *Rear floor side extension*
- *Rear side member closing panel*
- *Rear bumper mounting upper*
- *Rear bumper mounting lower*
- *Rear subframe*
- *Fuel tank*

NOTE:

The rear side member section is detached from the rear side member service condition panel.



1. The rear side member section is serviced as indicated.
2. Before commencing this procedure make sure that you are aware of all Health and Safety requirements.

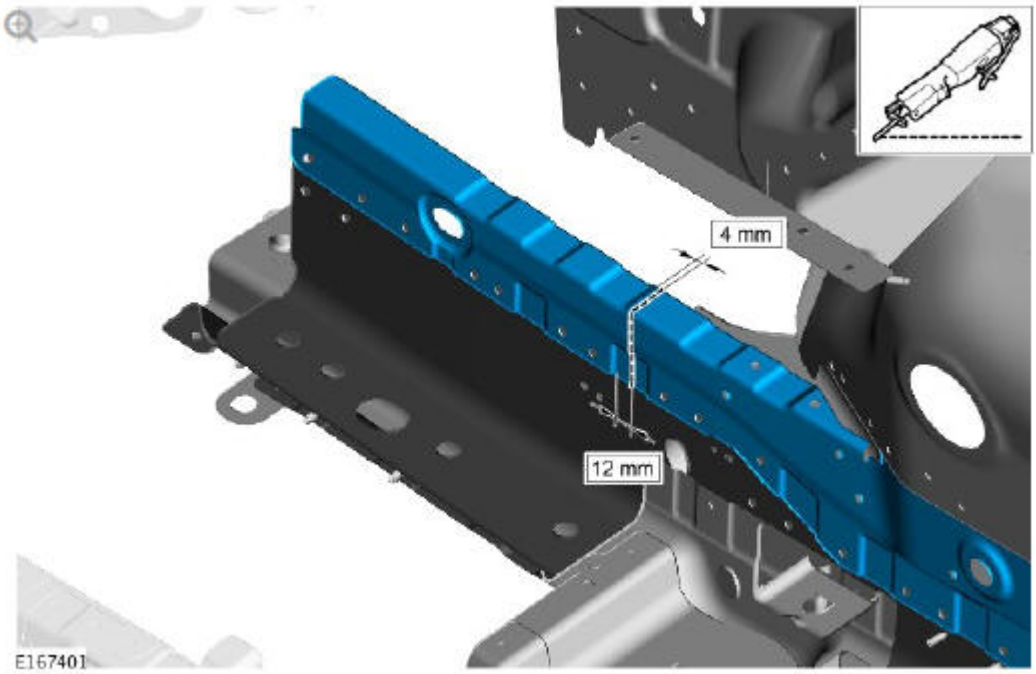
   For additional information, refer to: Health and Safety Precautions (100-00 General Information, Description and Operation).
3. For further information on the methods, tools and fixings used in this procedure refer to the body repairs - general information section.

NOTES:

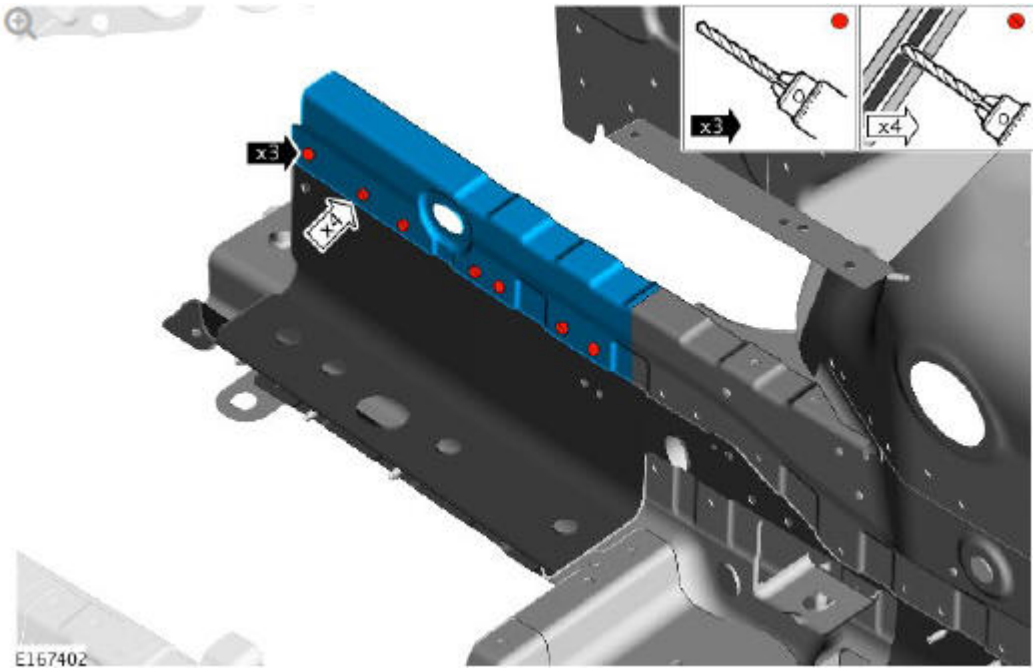
- *Any joints sealed as part of vehicle manufacture must be sealed as part of the repair.*

- *Make sure a zinc rich primer is applied to any bare metal surfaces.*
- *To make sure the vehicle is correctly aligned. It must be placed on a Land Rover approved alignment jig.*

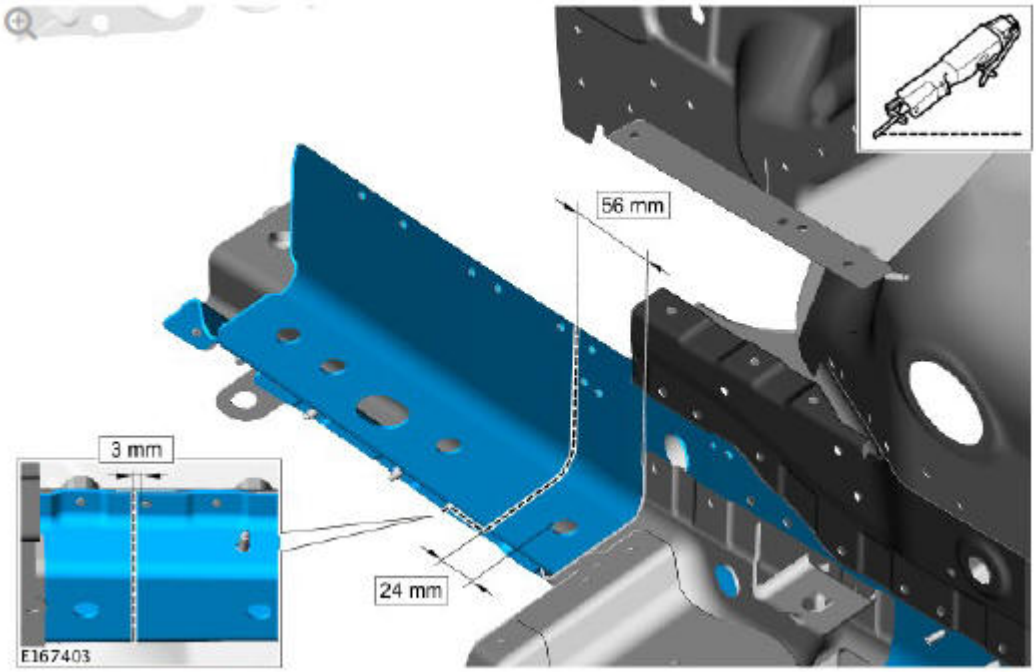
4. For additional information, refer to: Rear Bumper Cover (501-19 Bumpers, Removal and Installation).
5. For additional information, refer to: Rear Bumper (501-19 Bumpers, Removal and Installation).
6. For additional information, refer to: Rear Bumper Retaining Rail (501-30 Rear End Sheet Metal Repairs, Removal and Installation).
7. For additional information, refer to: Rear Lamp Assembly (417-01 Exterior Lighting, Removal and Installation).
8. For additional information, refer to: Rear Lamp Panel Outer (501-30 Rear End Sheet Metal Repairs, Removal and Installation).
9. For additional information, refer to: Back Panel Outer (501-30 Rear End Sheet Metal Repairs, Removal and Installation).
10. For additional information, refer to: Back Panel Inner (501-30 Rear End Sheet Metal Repairs, Removal and Installation).
11. For additional information, refer to: Quarter Panel Lower Extension (501-30 Rear End Sheet Metal Repairs, Removal and Installation).
12. For additional information, refer to: Loadspace Trim Panel (501-05 Interior Trim and Ornamentation, Removal and Installation).
13. For additional information, refer to: Spare Wheel Well - Vehicles Without: 7 Seats (501-30 Rear End Sheet Metal Repairs, Removal and Installation) / Spare Wheel Well - Vehicles With: 7 Seats (501-30 Rear End Sheet Metal Repairs, Removal and Installation).
14. For additional information, refer to: Rear Side Member Lower Side Extension (501-30 Rear End Sheet Metal Repairs, Removal and Installation).
15. For additional information, refer to: Rear Floor Side Extension (501- 30 Rear End Sheet Metal Repairs, Removal and Installation).
16. For additional information, refer to: Rear Side Member Closing Panel (501-30, Removal and Installation).
17. For additional information, refer to: Rear Bumper Mounting Upper (501-30, Removal and Installation).
18. For additional information, refer to: Rear Bumper Mounting Lower (501-30, Removal and Installation).
19. For additional information, refer to: Rear Subframe - AWD (502-00, Removal and Installation).
20. For additional information, refer to: Fuel Tank (310-01A, Removal and Installation) / Fuel Tank (310-01B, Removal and Installation).



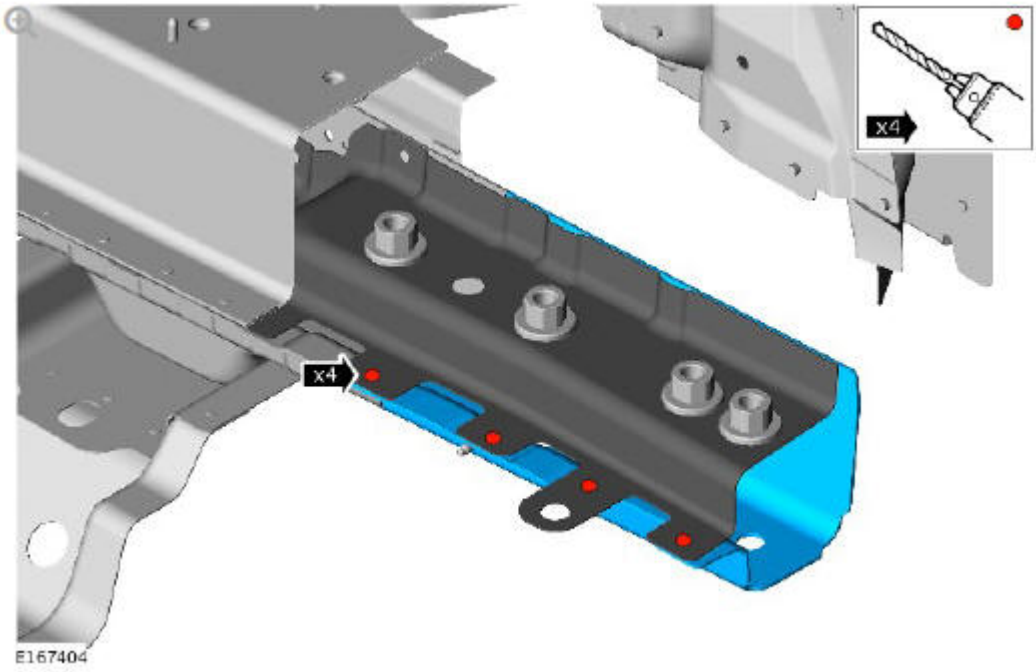
21. Mark measure and cut the rear side member outer reinforcement where the metal inert gas (MIG) butt joint is to be made as indicated.



22. Remove the spot welds as indicated.
23. Carefully separate the joints and remove the rear side member outer reinforcement.



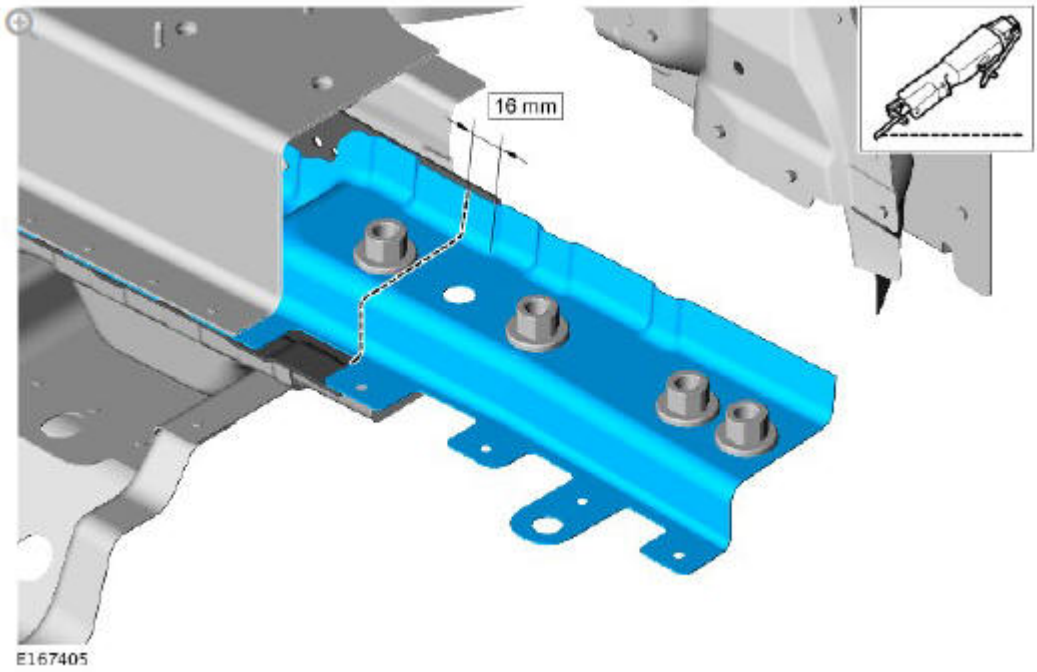
24. Mark measure and cut the rear side member section where the MIG butt joint is to be made as indicated.



25. Remove the spot as indicated.
26. Carefully separate the joints and remove the rear side member section.

CAUTION:

Care should be taken not to cut into the rear side member when cutting the rear side member inner reinforcement.



27. Mark measure and cut the rear side member inner reinforcement where the MIG butt joint is to be made as indicated.
28. Carefully separate the joints and remove the rear side member inner reinforcement.

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Rear end Sheet Metal Repairs Rear Side Member Section (G1770933)Rear end Sheet Metal Repairs Rear Side Member Section (G1770933) - Installation

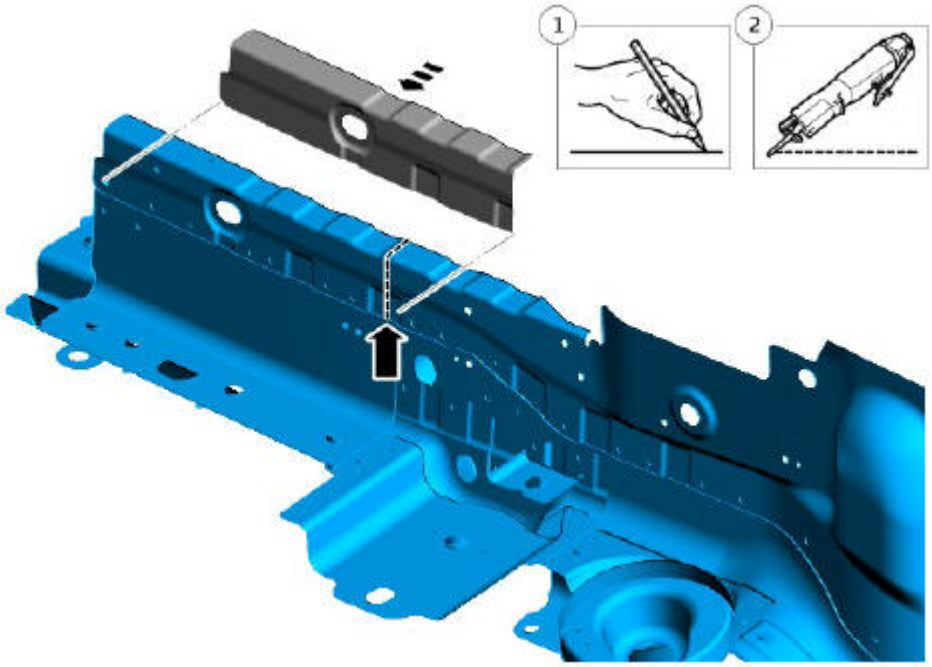
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Задняя часть ремонт кузовных панелей задний боковой лонжерон секция - установка

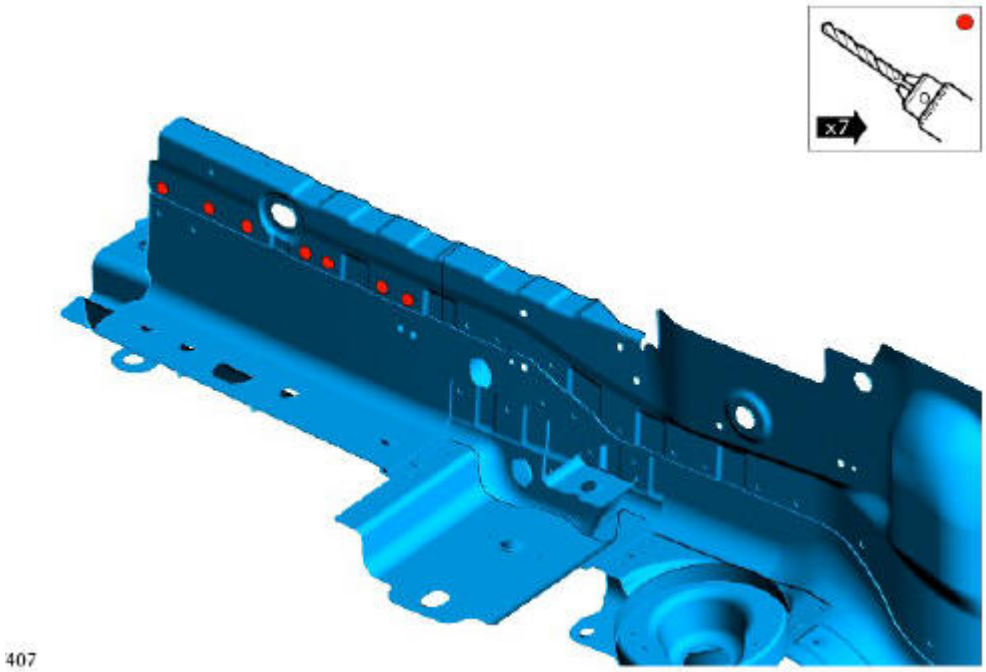
Rear end Sheet Metal Repairs Rear Side Member Section (G1770933) - Installation

Installation

1. Dress the flanges where necessary.



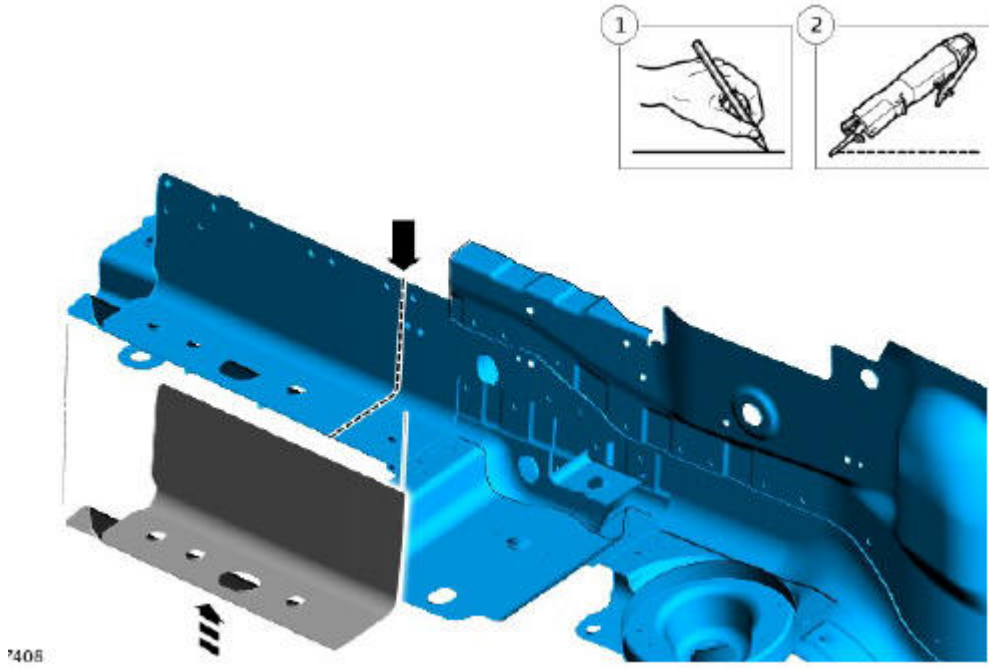
2. Using the old rear side member outer reinforcement and the measurements as a guide, cut the new rear side member outer reinforcement on the new rear side member service part as indicated.



3. Remove the spot welds and remove the rear side member outer reinforcement from the new rear side member as indicated.

CAUTION:

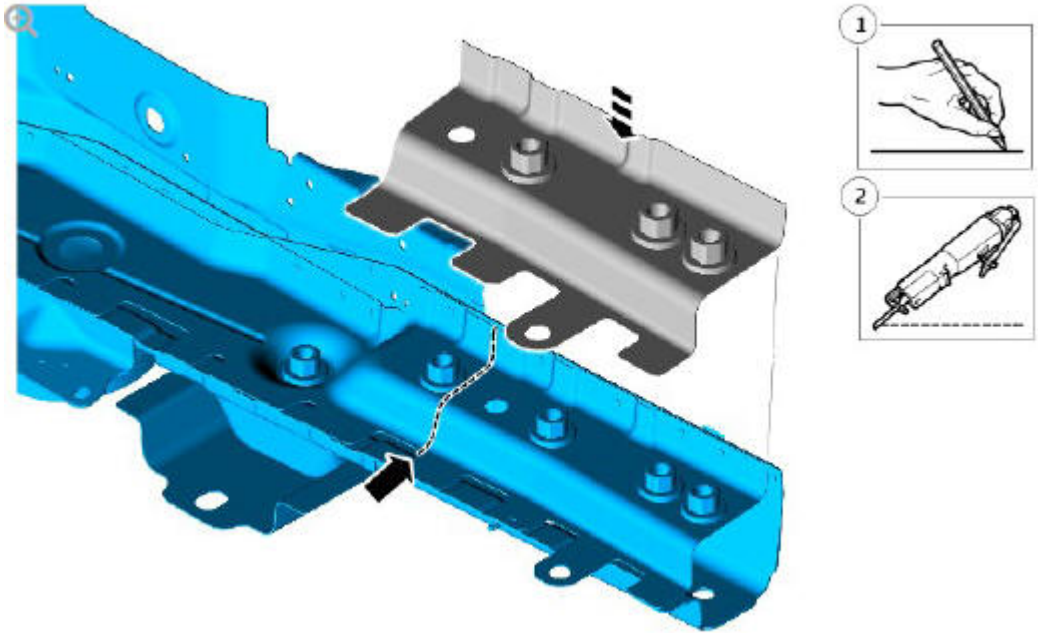
Care should be taken not to cut into the rear side member inner reinforcement when cutting the rear side member.



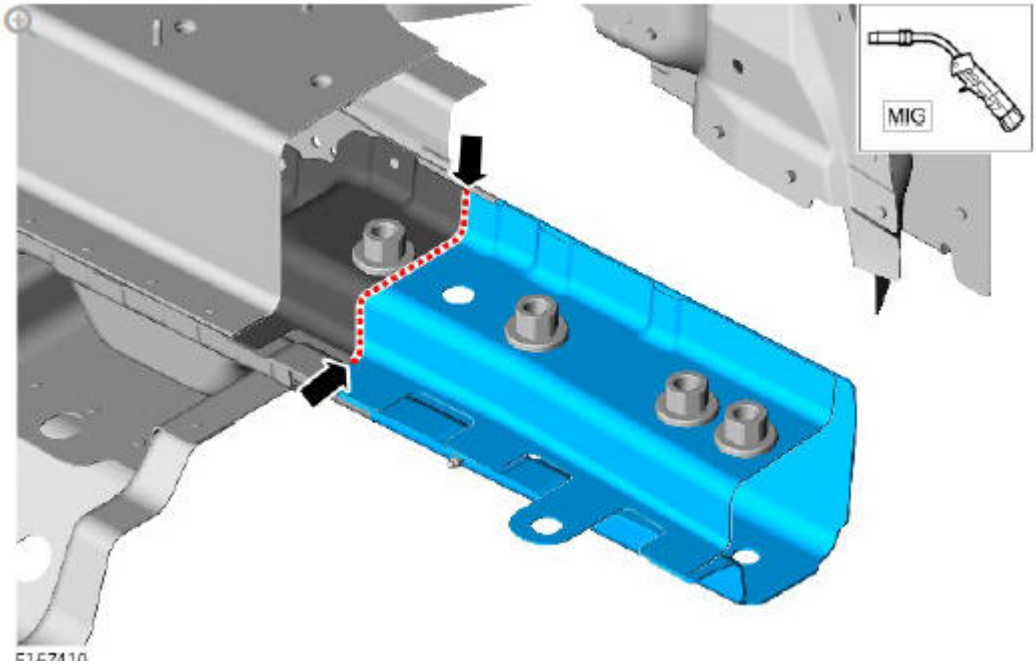
Using the old rear side member outer section and the measurements as a guide, cut and detach the new rear side member section from the new rear side member service part as indicated.

CAUTION:

Care should be taken not to cut into the rear side member when cutting the rear side member inner reinforcement.

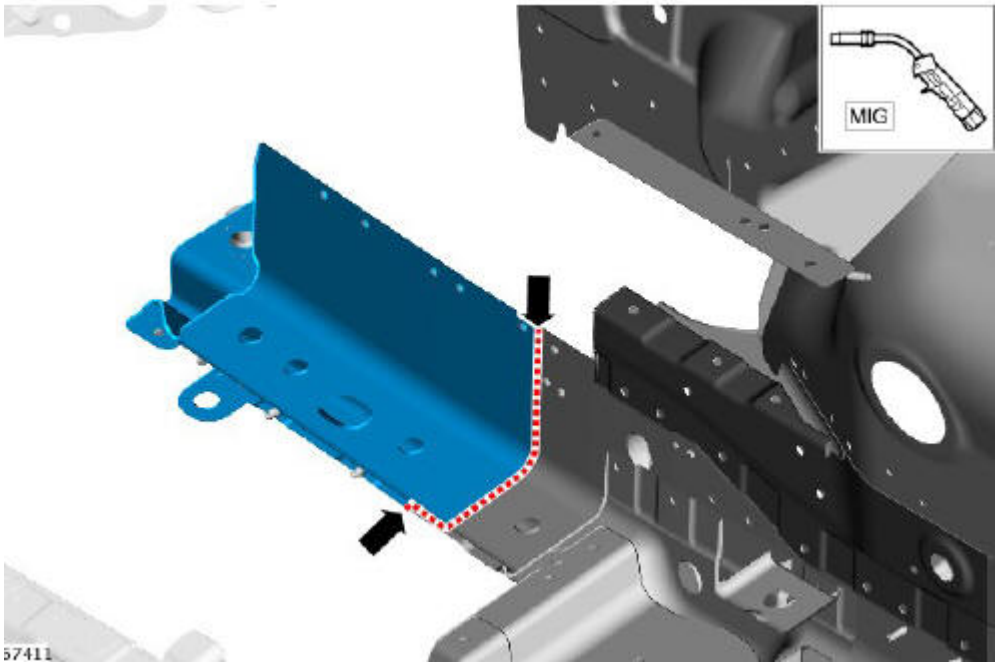


5. Using the old rear side reinforcement and the measurements as a guide, cut and detach the new rear side member inner reinforcement from the new rear side member service part as indicated.
6. Clean and prepare the panel surfaces
7. Offer up the new rear side member inner reinforcement and clamp into position. Check alignment if correct proceed to next step, if not, rectify and recheck before proceeding.

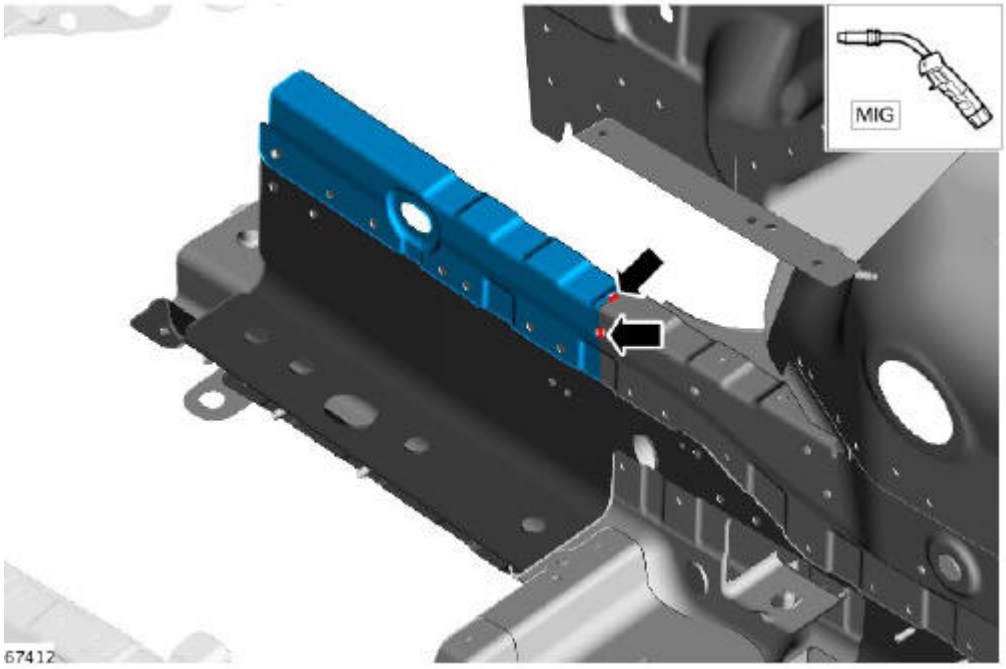


8. MIG weld the rear side member inner reinforcement butt joint as indicated.
9. Dress the rear side member inner reinforcement MIG welded butt weld.
10. Offer up the new rear side member section and clamp into position.

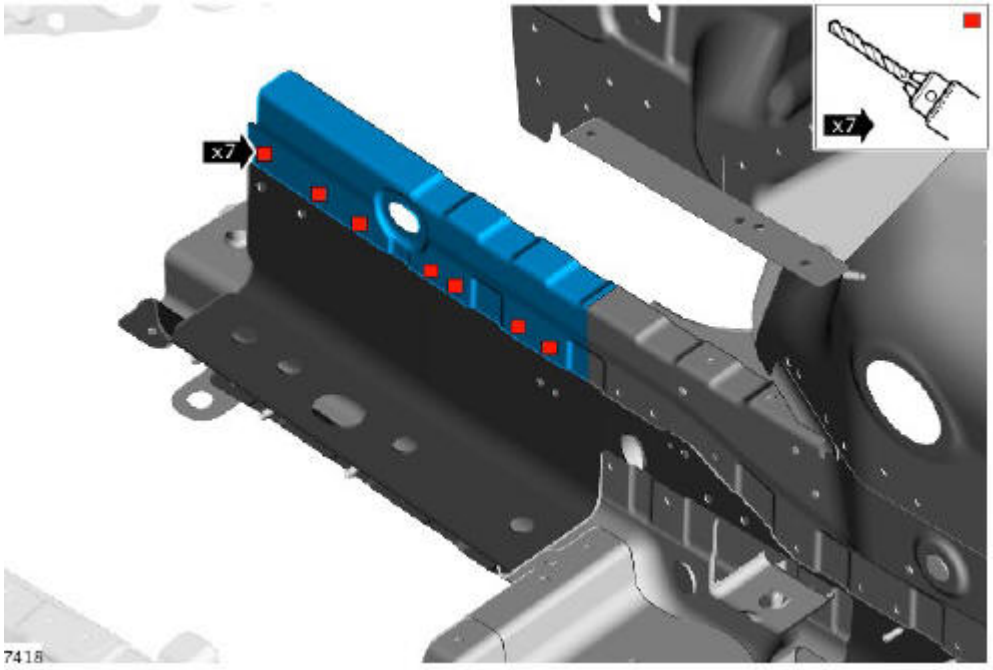
    Check alignment if correct proceed to next step, if not, rectify and recheck before proceeding.



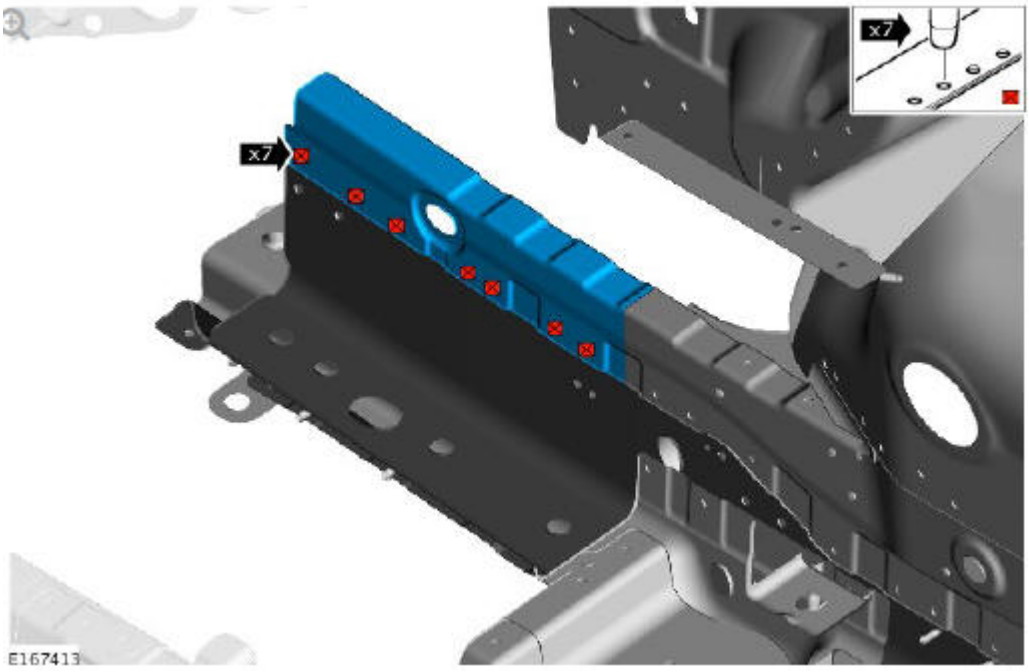
11. MIG weld the rear side member section butt joint as indicated.
12. Dress the rear side member section MIG welded butt weld.
13. Offer up the new rear side member outer reinforcement and clamp into position. Check alignment if correct proceed to next step, if not, rectify and recheck before proceeding.



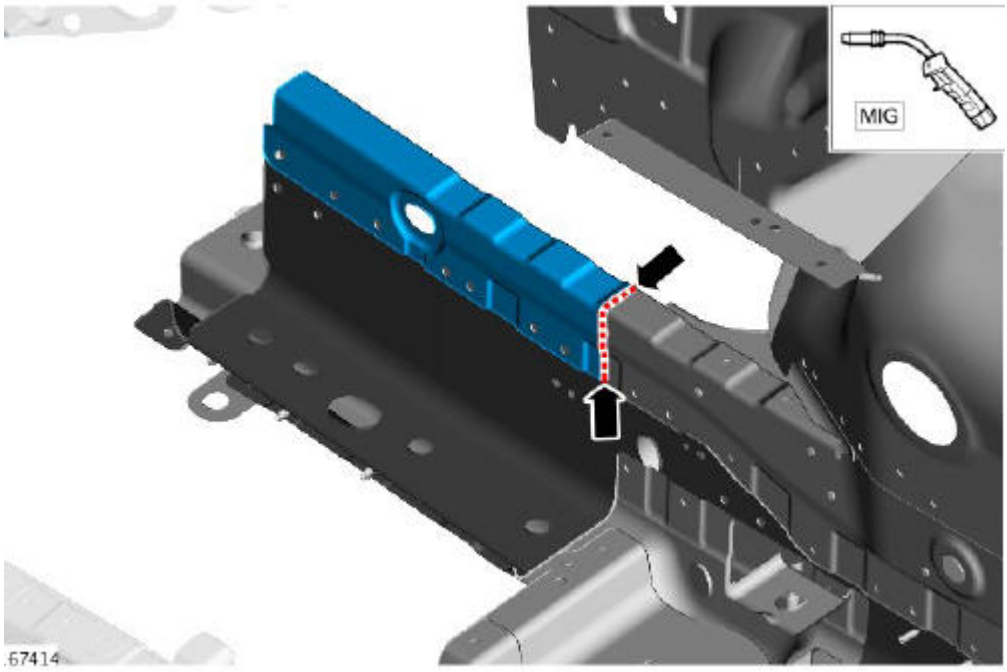
14. Tack MIG weld the rear side member outer reinforcement butt joint as indicated.



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



16. Install the MIG plug welds as indicated.



17. MIG weld the rear side member outer reinforcement butt joint as indicated.
18. Dress the rear side member outer reinforcement MIG butt weld.
19. Make sure that any open or exposed panel joints are correctly sealed.
20. Make sure corrosion protection is applied to all areas affected by repair.
21. The installation of associated panels and components is the reversal of removal procedure.

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Rear end Sheet Metal Repairs Rear Side Member Section (G1770933) - RemovalRear end Sheet Metal Repairs Rear Side Member Lower Side Extension (G1771166) / Removal and Installation

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Задняя часть ремонт кузовных панелей задний боковой лонжерон нижний боковой удлинитель / снятие и установка

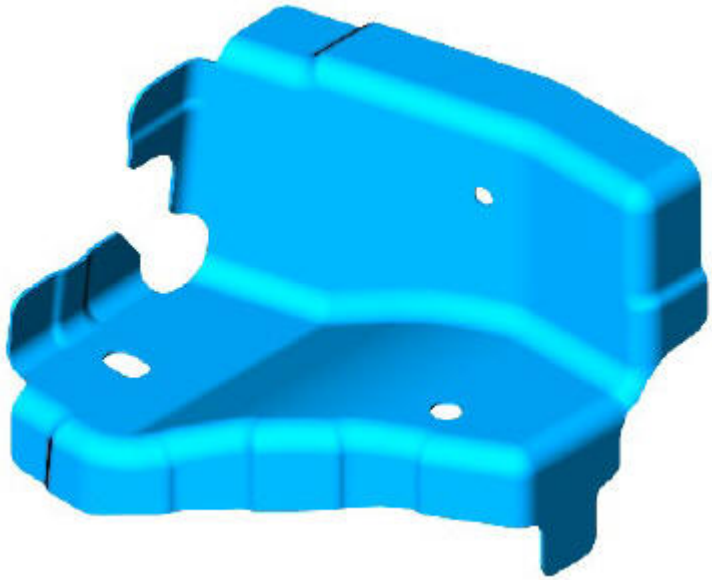
Rear end Sheet Metal Repairs Rear Side Member Lower Side Extension (G1771166) / Removal and Installation

REMOVAL

NOTE:

The rear side member lower side extension is installed in conjunction with:

- *Rear bumper cover*
- *Rear bumper*
- *Back panel outer*
- *Back panel inner*
- *Rear lamp panel outer*



1. The rear side member lower side extension is serviced as indicated.
2. Before commencing this procedure make sure that you are aware of all Health and Safety requirements.

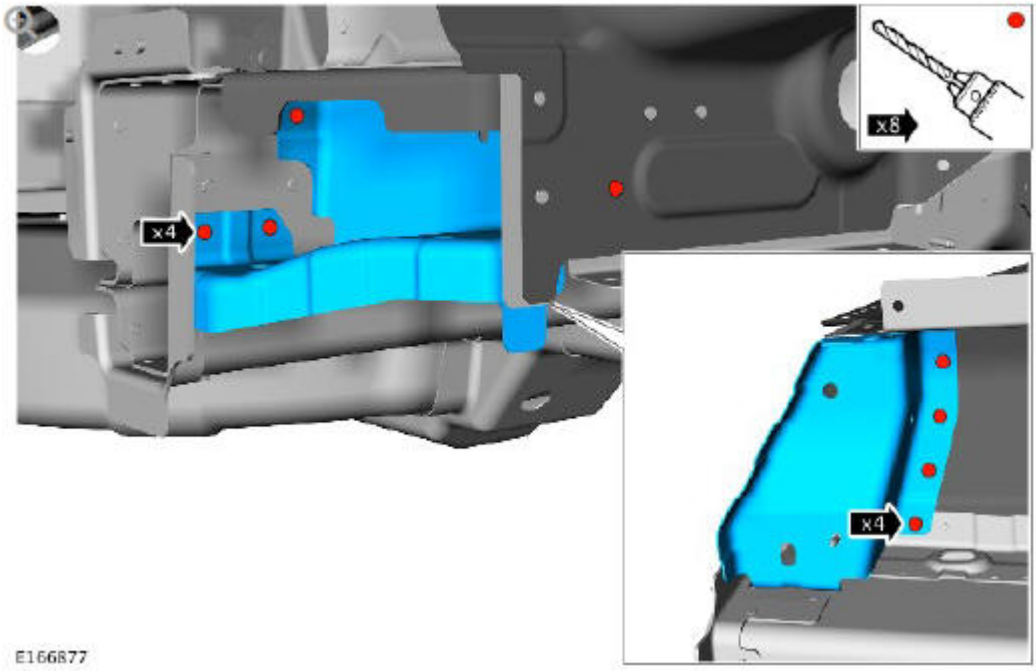
   For additional information, refer to: Health and Safety Precautions (100-00, Description and Operation).

3. For further information on the methods, tools and fixings used in this procedure refer to the body repairs - general information section

NOTES:

- *Any joints sealed as part of vehicle manufacture must be sealed as part of the repair.*
- *Make sure a zinc rich primer is applied to any bare metal surfaces.*

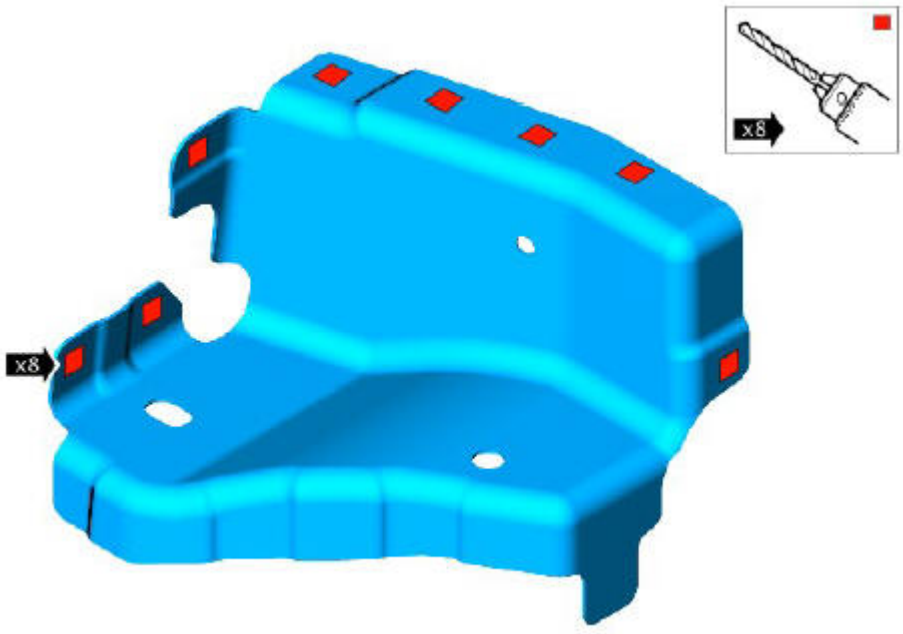
4. For additional information, refer to: Rear Bumper Cover (501-19, Removal and Installation).
5. For additional information, refer to: Rear Bumper (501-19, Removal and Installation).
6. For additional information, refer to: Back Panel Outer (501-30, Removal and Installation).
7. For additional information, refer to: Back Panel Inner (501-30, Removal and Installation).
8. For additional information, refer to: Rear Lamp Panel Outer (501- 30, Removal and Installation).



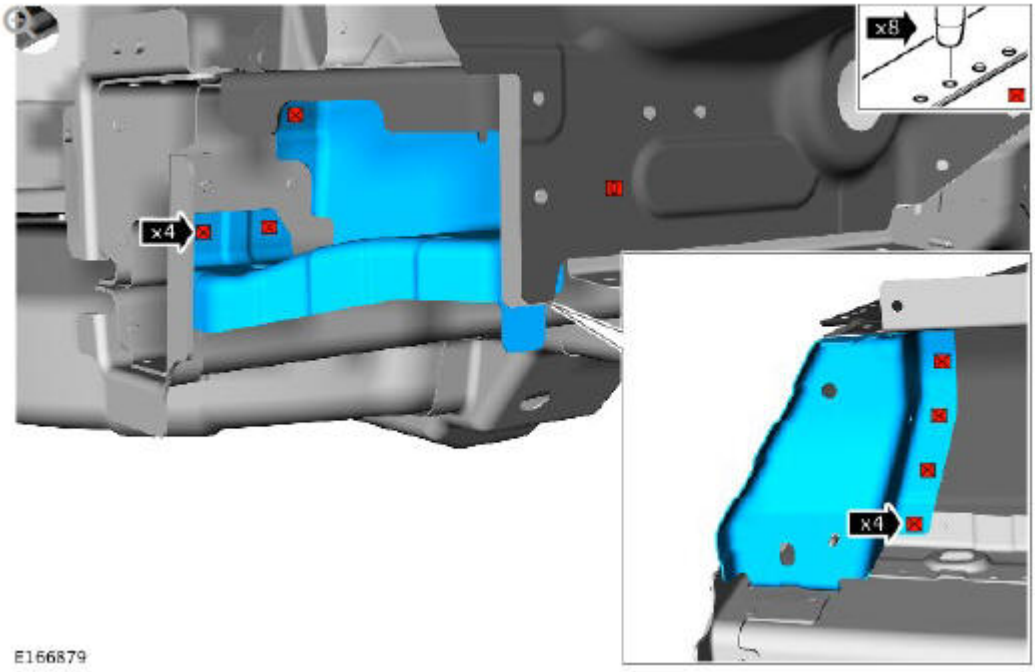
9. Remove the spot welds as indicated.
10. Carefully separate the joints and remove the panel.

INSTALLATION

1. Dress the flanges where necessary.



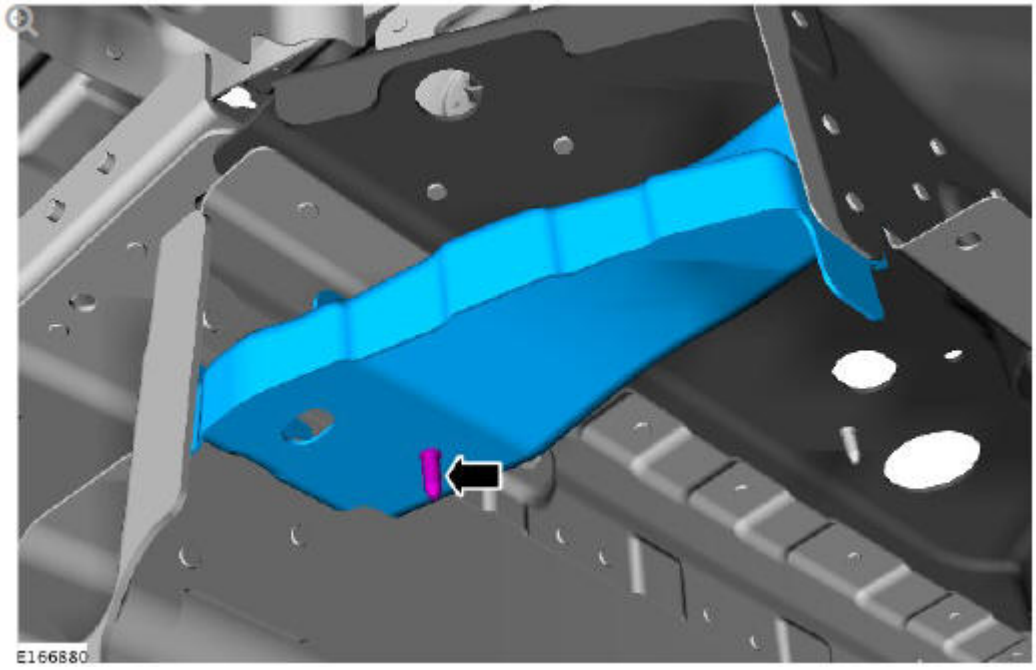
2. Drill holes in new rear side member lower side extension where the metal inert gas (MIG) plug welds are to be installed as indicated.
3. Deburr the drilled holes.
4. Clean and prepare the panel surfaces.
5. Offer up the new rear side member lower side extension and clamp into position. Check alignment if correct, proceed to next step, if not, rectify and recheck before proceeding.



6. Install the MIG plug welds as indicated.
7. Dress all welds.

NOTE:

The components that are located/installed to these weld studs must be offered up and cross checked for alignment prior to the installation of the weld studs to the new panel.



8. Prepare the new panel and install the weld studs in their original locations as indicated.
9. Make sure that any open or exposed panel joints are correctly sealed.
10. Make sure corrosion protection is applied to all areas affected by repair.
11. The installation of associated panels and components is the reversal of the removal procedure.

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Rear end Sheet Metal Repairs Rear Side Member Section (G1770933) - InstallationRear end Sheet Metal Repairs Rear Side Member Closing Panel (G1780740) / Removal and Installation

Задняя часть ремонт кузовных панелей задний боковой лонжерон закрывание панель / снятие и установка

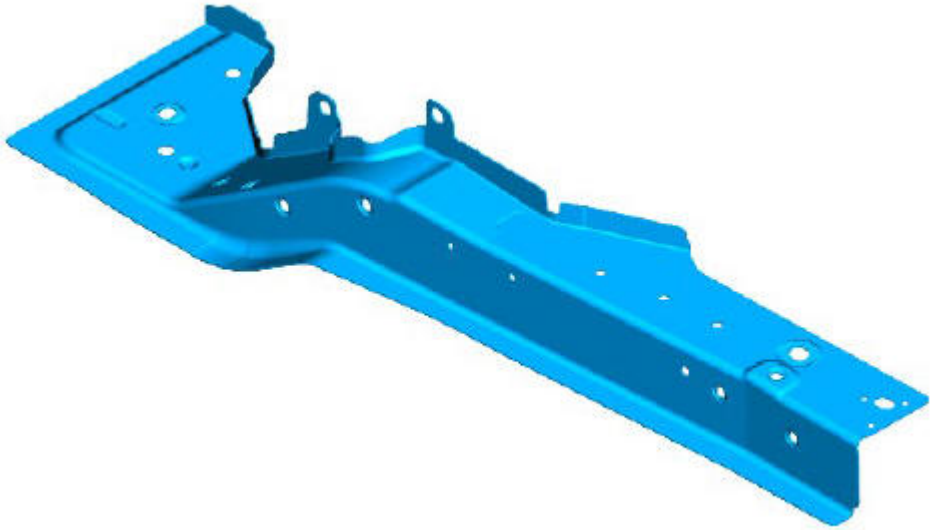
Rear end Sheet Metal Repairs Rear Side Member Closing Panel (G1780740) / Removal and Installation

REMOVAL

NOTE:

The rear side member closing panel is installed in conjunction with:

- *Rear bumper cover*
- *Rear bumper*
- *Rear lamp assembly*
- *Rear lamp panel outer*
- *Back panel outer*
- *Back panel inner*
- *Rear floor side extension*
- *Rear side member lower side extension*
- *Rear bumper mounting upper*
- *Spare wheel well*



1. The rear side member closing panel is serviced as indicated.
2. Before commencing this procedure make sure that you are aware of all Health and Safety requirements.

   For additional information, refer to: Health and Safety Precautions (100-00, Description and Operation).
3. For further information on the methods, tools and fixings used in this procedure refer to the body repairs - general information section.

NOTES:

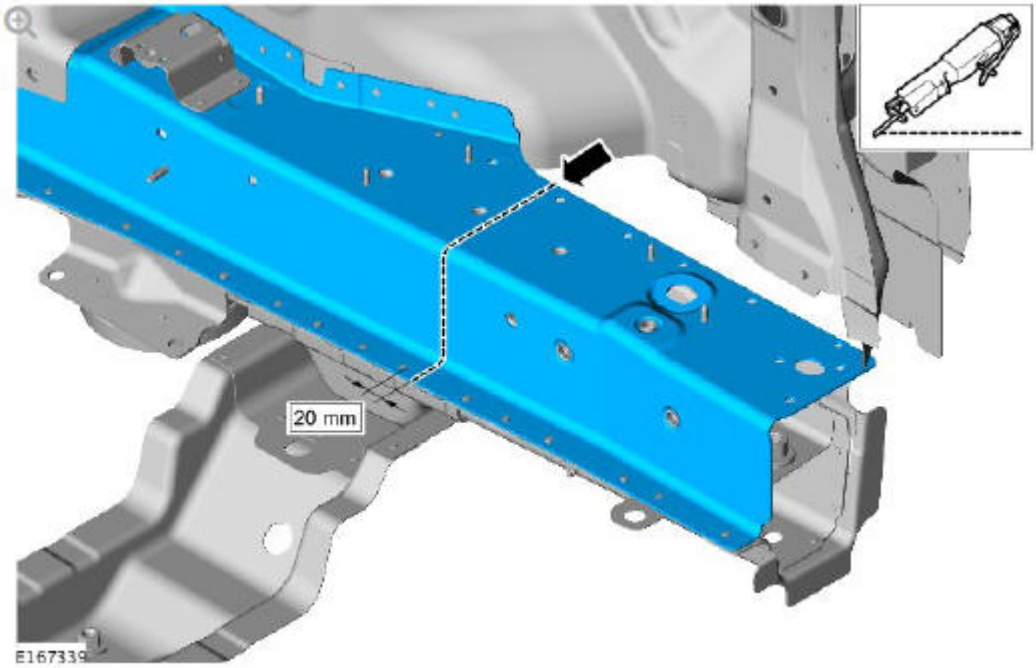
- *Any joints sealed as part of vehicle manufacture must be sealed as part of the repair.*

- *Make sure a zinc rich primer is applied to any bare metal surfaces.*
- *To make sure that the vehicle is correctly aligned, it must be placed on a Land Rover approved alignment jig.*

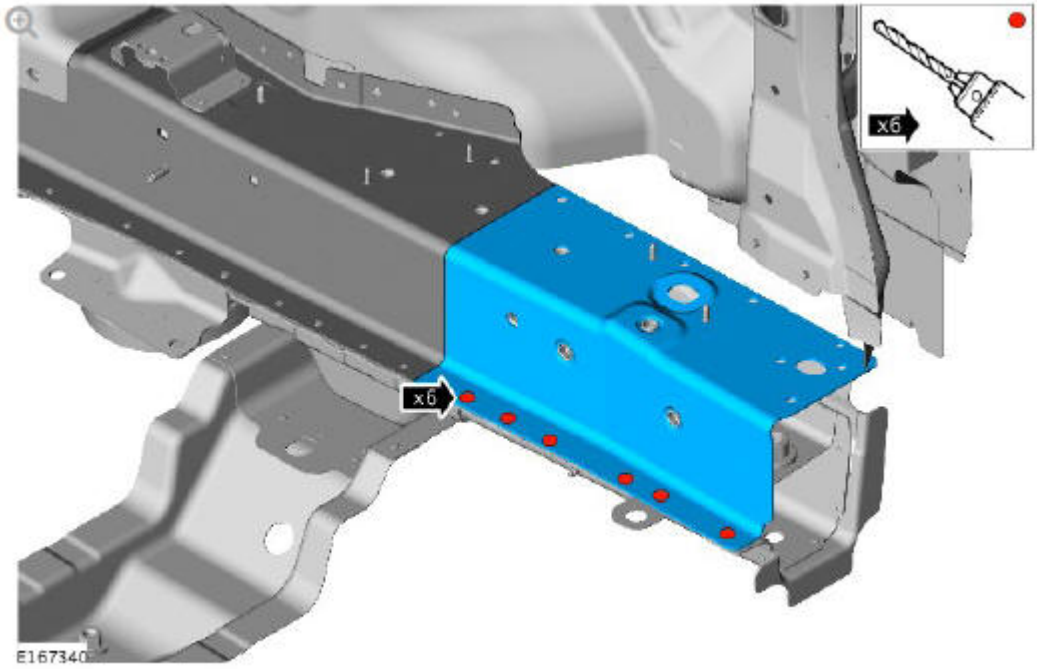
4. For additional information, refer to: Rear Bumper Cover (501-19, Removal and Installation).
5. For additional information, refer to: Rear Bumper (501-19, Removal and Installation).
6. For additional information, refer to: Rear Lamp Assembly (417-01, Removal and Installation).
7. For additional information, refer to: Rear Lamp Panel Outer (501- 30, Removal and Installation).
8. For additional information, refer to: Back Panel Outer (501-30, Removal and Installation).
9. For additional information, refer to: Back Panel Inner (501-30, Removal and Installation).
10. For additional information, refer to: Rear Floor Side Extension (501- 30, Removal and Installation).
11. For additional information, refer to: Rear Side Member Lower Side Extension (501-30, Removal and Installation).
12. For additional information, refer to: Rear Bumper Mounting Upper (501-30, Removal and Installation).
13. For additional information, refer to: Spare Wheel Well - Vehicles Without: 7 Seats (501-30, Removal and Installation) / Spare Wheel Well - Vehicles With: 7 Seats (501-30, Removal and Installation).

CAUTION:

Care should be taken not to cut through into the inner reinforcements.



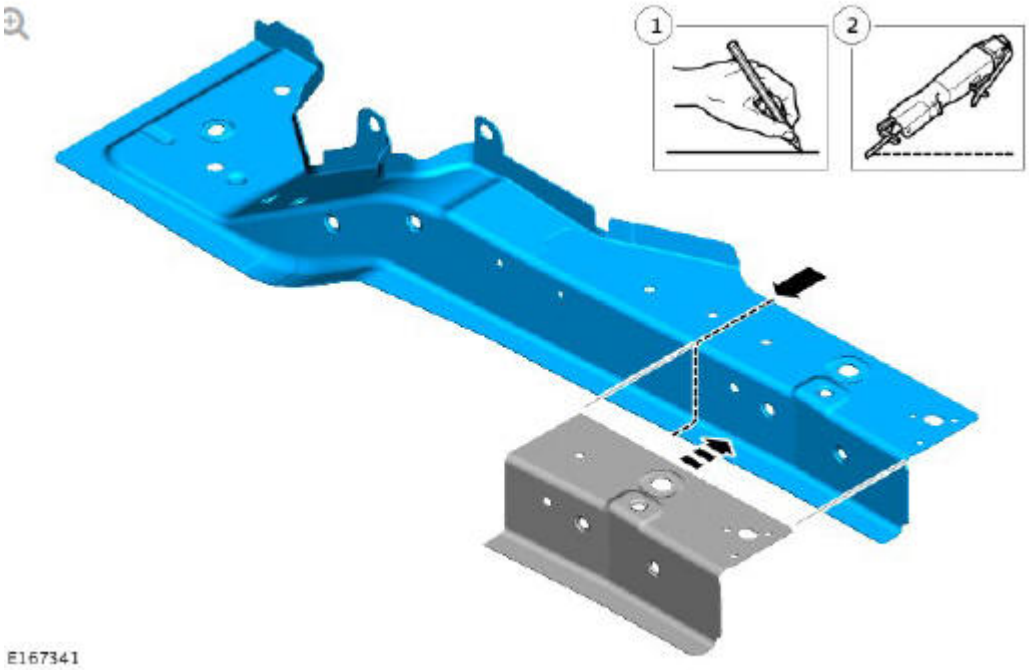
14. Using a combination of the new rear side member closing panel and the measurements mark the position where the metal inert gas (MIG) welded butt joint is to be made and cut the panel as indicated.



15. Remove the spot welds as indicated.
16. Carefully separate the joints and remove the panel.

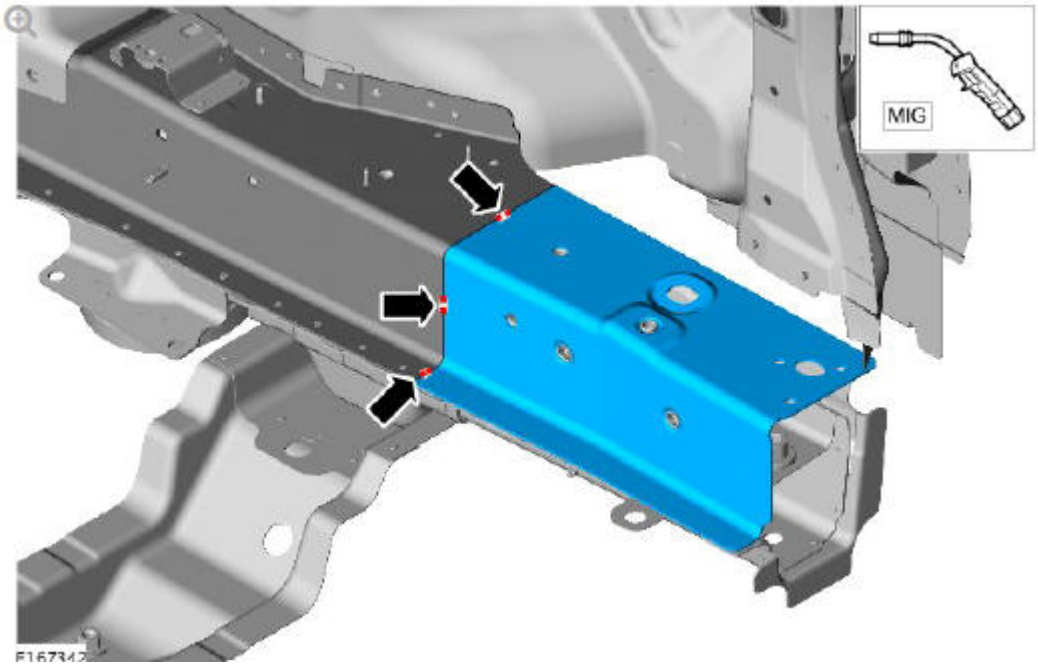
INSTALLATION

1. Dress the flanges where necessary..

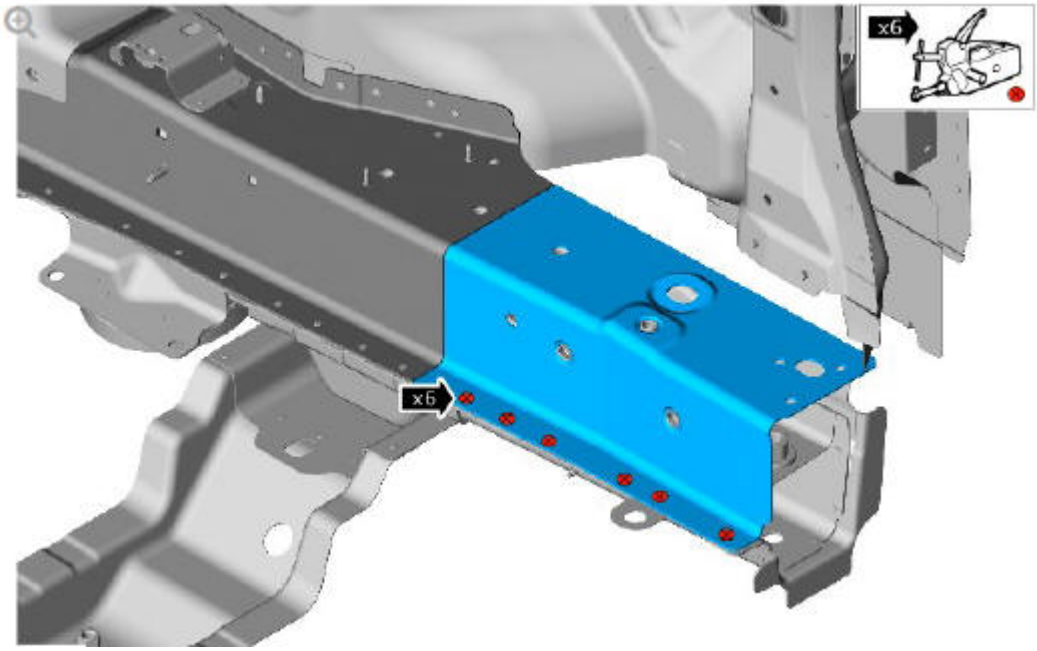


Using the old rear side member closing panel as a guide mark, measure and cut the new rear side member closing panel where the MIG butt joint is to be installed as indicated.

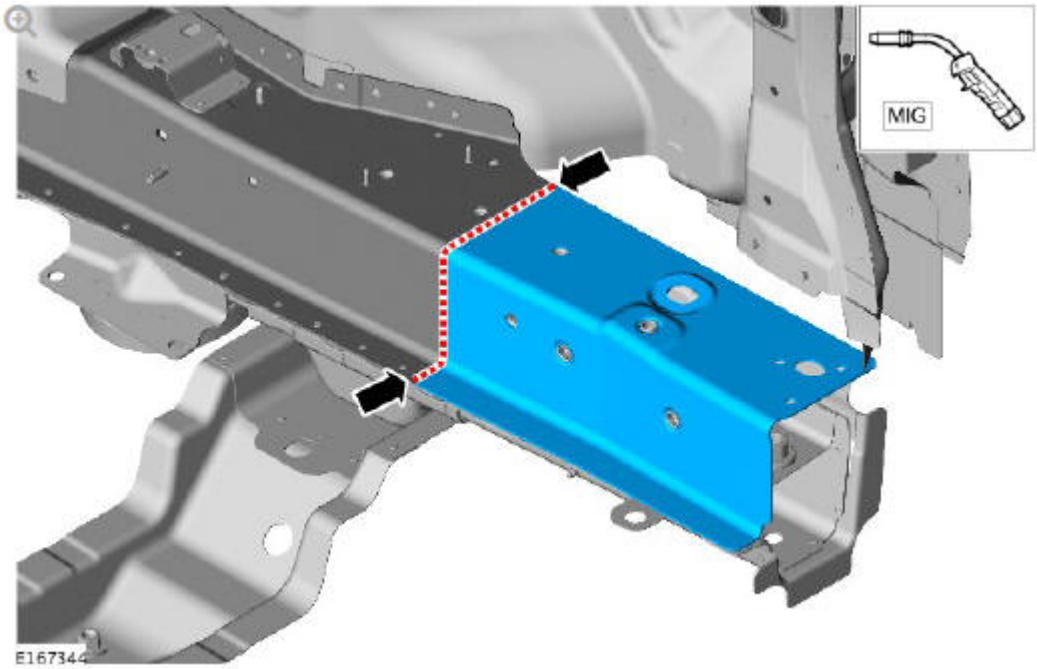
3. Clean and prepare the panel surfaces.
4. Offer up the new rear side member closing panel rear and clamp into position. Check alignment if correct, proceed to next step, if not, rectify and recheck before proceeding.



5. Tack MIG weld the rear side member closing panel butt joint as indicated.



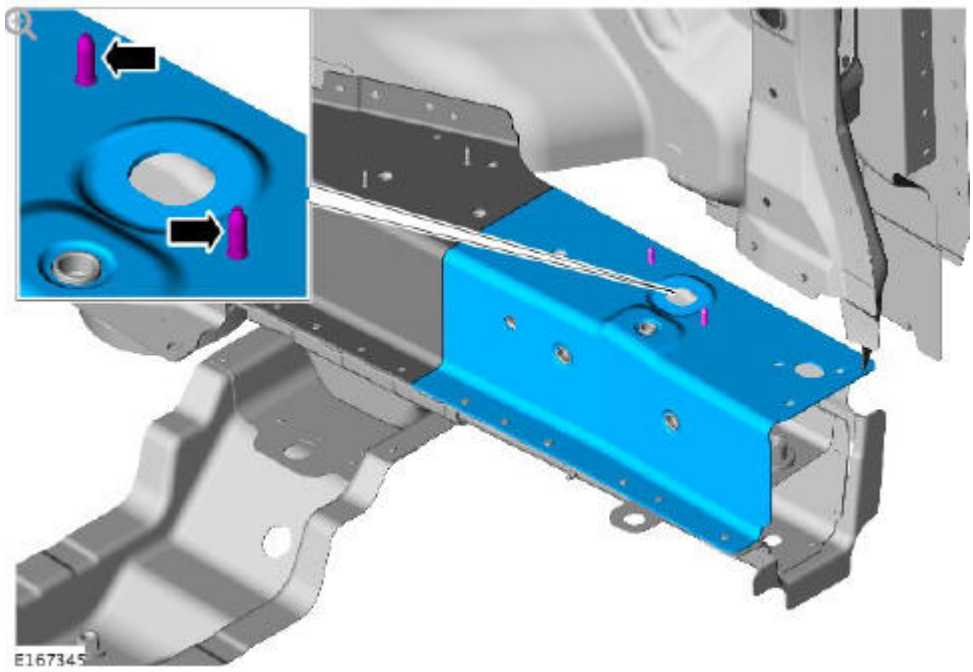
6. Install the spot welds as indicated.



7. MIG weld the butt joint as indicated.

NOTE:

The components that are located/installed to these weld studs must be offered up and cross checked for alignment prior to the installation of the weld studs to the new panel.



8. Prepare the new panel and install the weld studs in their original locations as indicated.
9. Dress the MIG welded butt weld.
10. Make sure that any open or exposed panel joints are correctly sealed.
11. Make sure corrosion protection is applied to all areas affected by repair.
12. The installation of associated panels and components is the reversal of removal procedure.

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Rear end Sheet Metal Repairs Rear Side Member Lower Side Extension (G1771166) / Removal and InstallationRear end Sheet Metal Repairs Rear Lamp Panel Outer (G1771163)

ne

Задняя часть ремонт кузовных панелей задний фонарь панель наружный

Rear end Sheet Metal Repairs Rear Lamp Panel Outer (G1771163)

- Rear end Sheet Metal Repairs Rear Lamp Panel Outer (G1771163) - Removal
- Rear end sheet metal repairs rear lamp panel outer (G1771163) - Installation

ne

Rear end Sheet Metal Repairs Rear Side Member Closing Panel (G1780740) / Removal and InstallationRear end Sheet Metal Repairs Rear Lamp Panel Outer (G1771163) - Removal

ne

Задняя часть ремонт кузовных панелей задний фонарь панель наружный - снятие

Rear end Sheet Metal Repairs Rear Lamp Panel Outer (G1771163) - Removal

Removal

NOTE:

The rear lamp panel outer is installed in conjunction with:

- *Rear bumper cover*
- *Rear bumper*
- *Rear lamp assembly*
- *Quarter panel*
- *Quarter panel lower extension*
- *Side panel*
- *Loadspace trim panel*



1. The rear lamp panel outer is serviced as indicated.
2. Before commencing this procedure make sure that you are aware of all Health and Safety requirements.

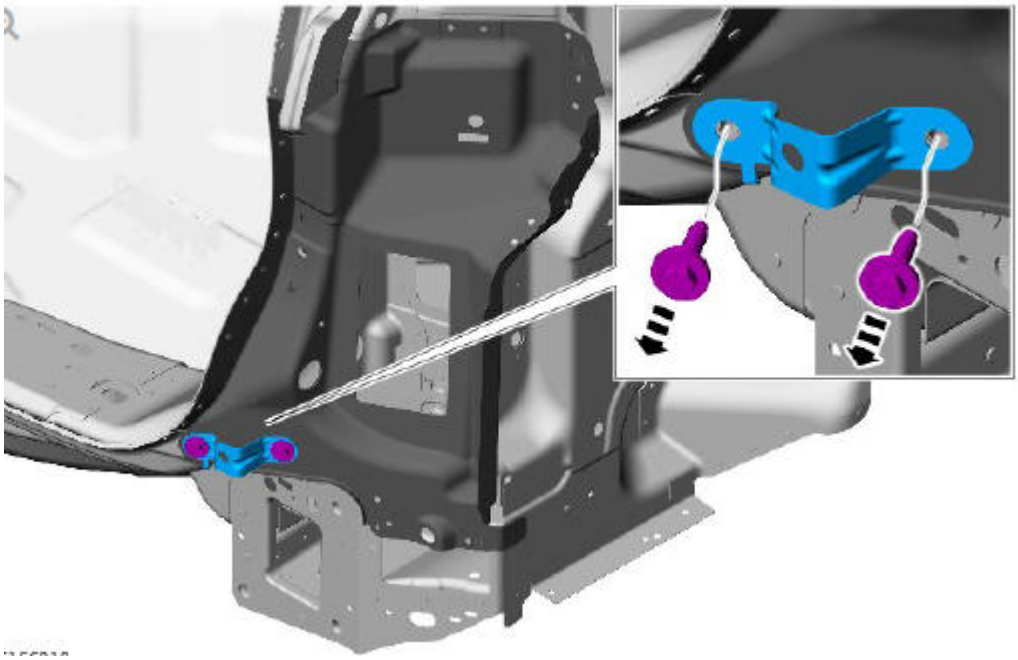
   For additional information, refer to: Health and Safety Precautions (100-00, Description and Operation).

3. For further information on the methods, tools and fixings used in this procedure refer to the body repairs - general information section.

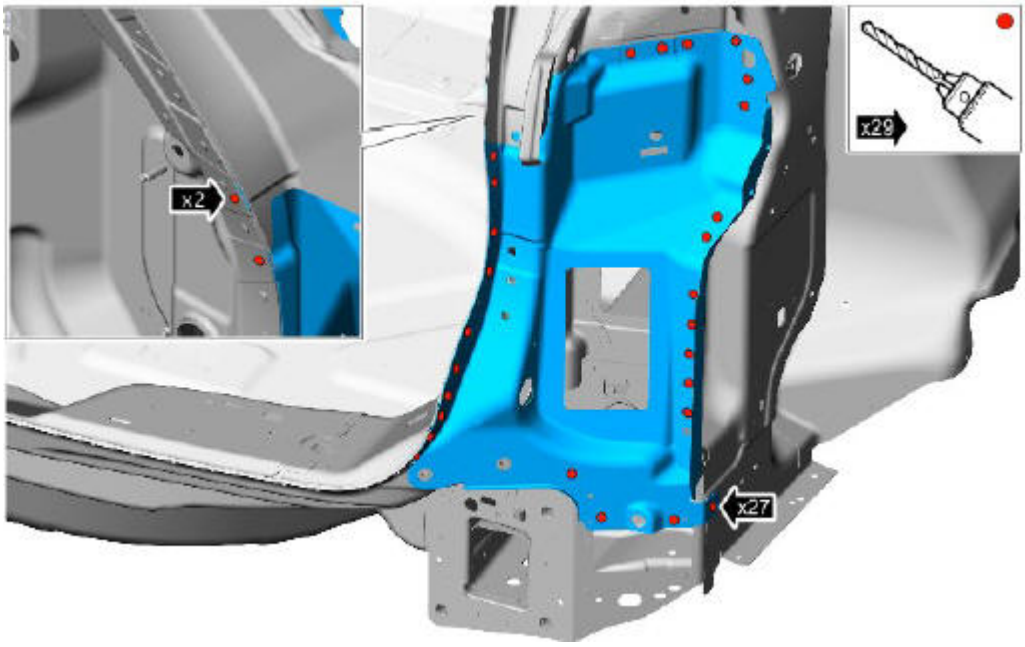
NOTES:

- *Any joints sealed as part of vehicle manufacture must be sealed as part of the repair.*
- *Make sure a zinc rich primer is applied to any bare metal surfaces.*

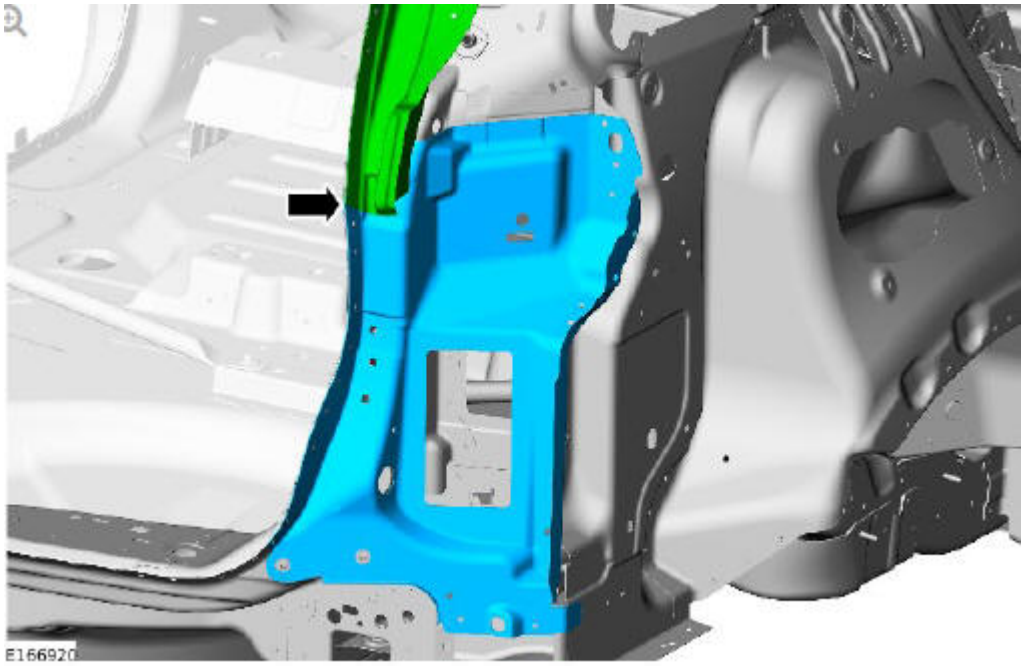
4. For additional information, refer to: Rear Bumper Cover (501-19, Removal and Installation).
5. For additional information, refer to: Rear Bumper (501-19, Removal and Installation).
6. For additional information, refer to: Rear Lamp Assembly (417-01, Removal and Installation).
7. For additional information, refer to: Quarter Panel (501-30, Removal and Installation).
8. For additional information, refer to: Quarter Panel Lower Extension (501-30, Removal and Installation).
9. For additional information, refer to: Side Panel (501-29, Removal and Installation).
10. For additional information, refer to: Loadspace Trim Panel (501-05, Removal and Installation).



11. Remove the liftgate mounting buffers as indicated



12. Remove the spot welds as indicated.



13. Carefully build an expansion space between the rear lamp panel outer and the water drain panel to aid panel removal as indicated.
14. Carefully separate the joints and remove the rear lamp panel outer.

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Rear end Sheet Metal Repairs Rear Lamp Panel Outer (G1771163)Rear end sheet metal repairs rear lamp panel outer (G1771163) - Installation

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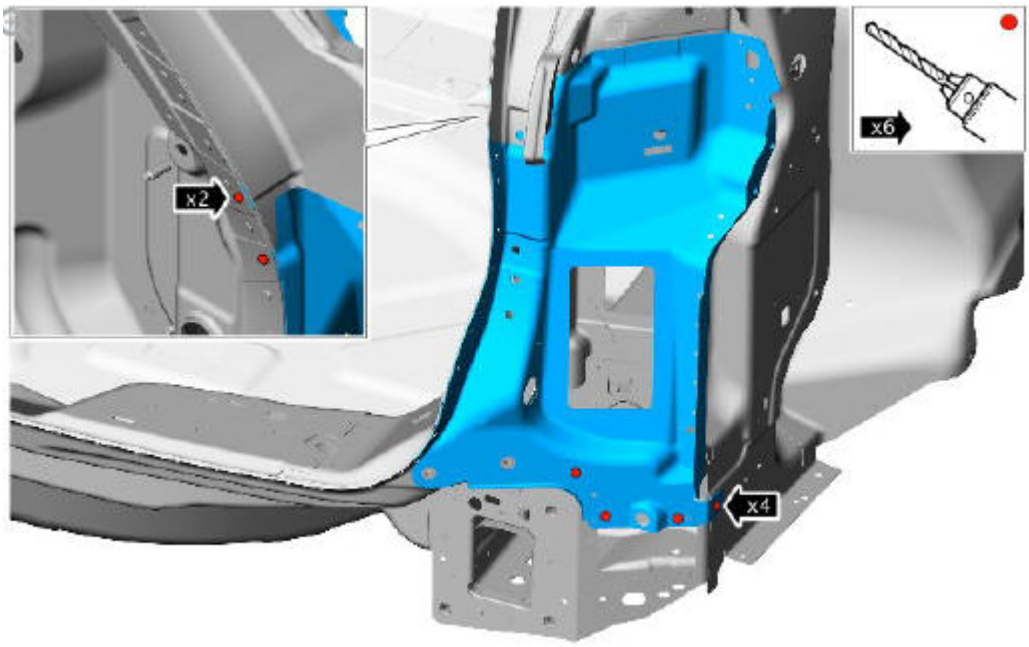
Задняя часть ремонт кузовных панелей задний фонарь панель наружный - установка

Rear end sheet metal repairs rear lamp panel outer (G1771163) - Installation

Installation

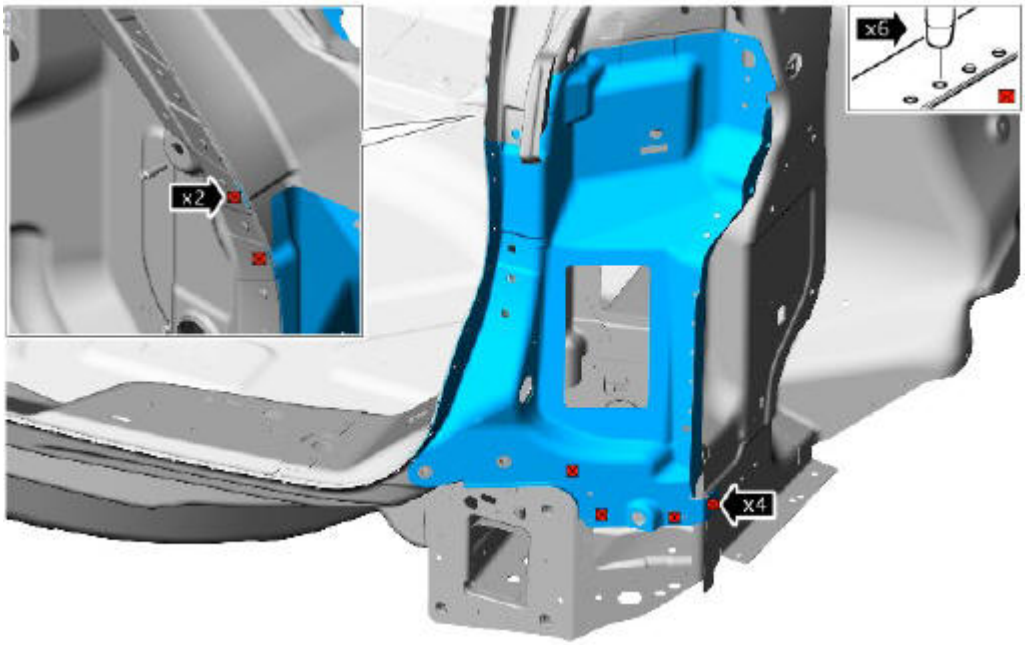
1. Dress the flanges where necessary.
2. Offer up the new rear lamp panel outer and clamp into position.

   Check alignment, if correct, proceed to next step, if not, rectify and recheck before proceeding.

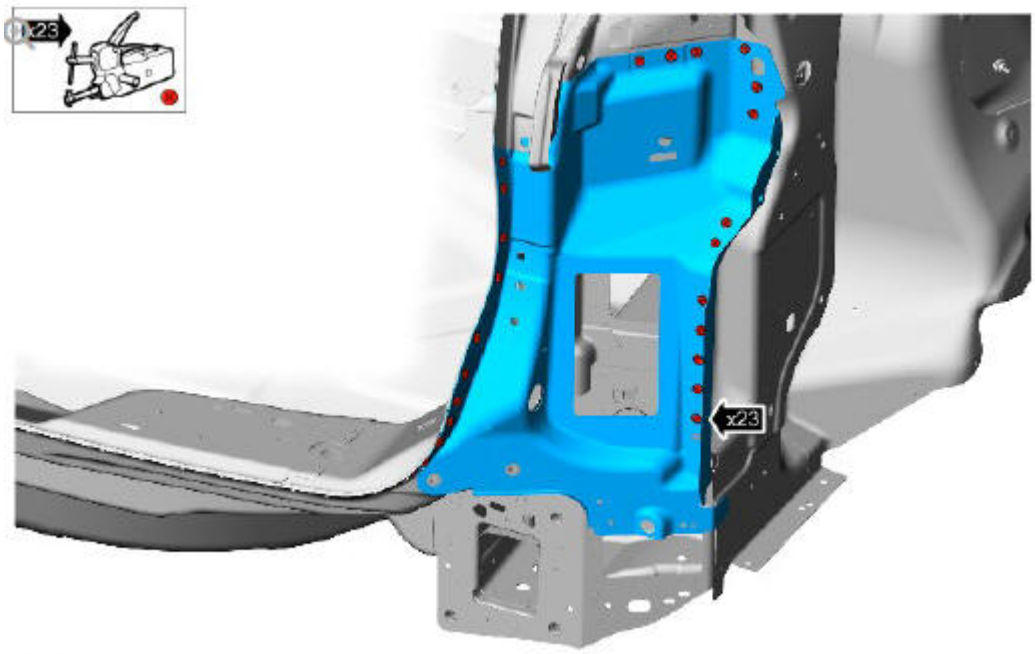


3. Drill holes in the rear lamp panel outer where the metal insert gas (MIG) plug welds are to be installed as indicated.
4. Remove the rear lamp panel outer.
5. Deburr the drilled holes.
6. Clean and prepare the panel surfaces.
7. Offer up the new rear lamp panel outer and clamp into position.

   Check alignment, if correct, proceed to next step, if not, rectify and recheck before proceeding.



8. Install the MIG plug welds as indicated.



9. Install the spot welds as indicated.
10. Dress all welds.
11. Install the liftgate mounting buffers and tighten the bolts to 25Nm.
12. Make sure that any open or exposed panel joints are correctly sealed.
13. Make sure corrosion protection is applied to all areas affected by repair.
14. The installation of associated panels and components is the reversal of removal procedure.

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Rear end Sheet Metal Repairs Rear Lamp Panel Outer (G1771163) - RemovalRear end Sheet Metal Repairs Rear Floor Side Extension (G1770934)

ne

Задняя часть ремонт кузовных панелей задний пол боковой удлинитель

Rear end Sheet Metal Repairs Rear Floor Side Extension (G1770934)

- Rear end Sheet Metal Repairs Rear Floor Side Extension (G1770934) - Removal
- Rear end Sheet Metal Repairs Rear Floor Side Extension (G1770934) - Installation

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Rear end sheet metal repairs rear lamp panel outer (G1771163) - InstallationRear end Sheet Metal Repairs Rear Floor Side Extension (G1770934) - Removal

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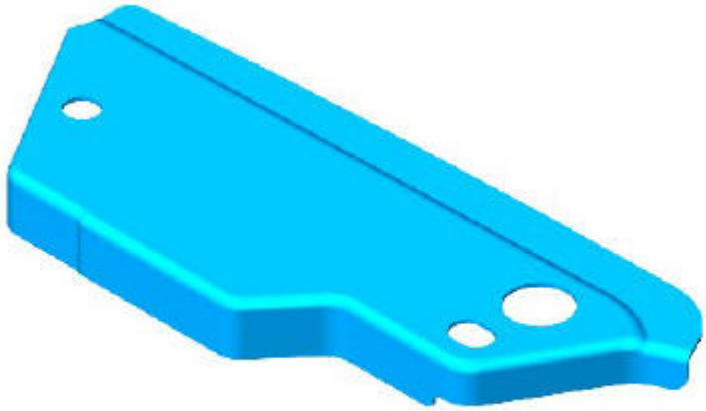
Задняя часть ремонт кузовных панелей задний пол боковой удлинитель - снятие

Removal

NOTE:

The rear floor side extension is installed in conjunction with:

- *Rear bumper cover*
- *Rear bumper*
- *Back panel outer*
- *Back panel inner*
- *Rear lamp panel outer*
- *Rear side member lower side extension*



1. The rear floor side extension is serviced as indicated.
2. Before commencing this procedure make sure that you are aware of all Health and Safety requirements.

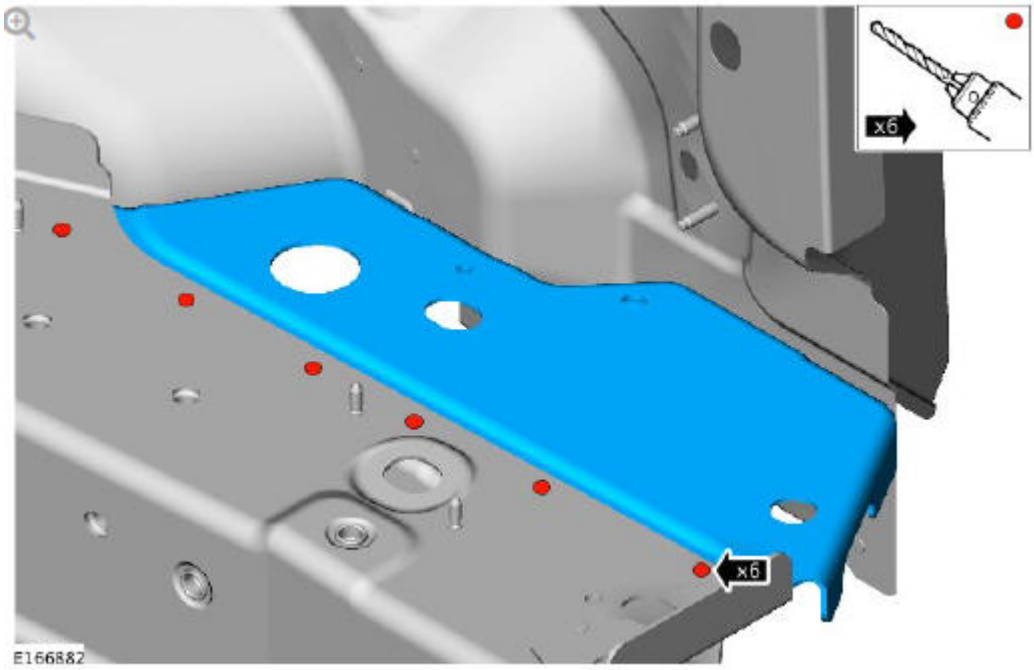
   For additional information, refer to: Health and Safety Precautions (100-00, Description and Operation).

3. For further information on the methods, tools and fixings used in this procedure refer to the body repairs - general information section.

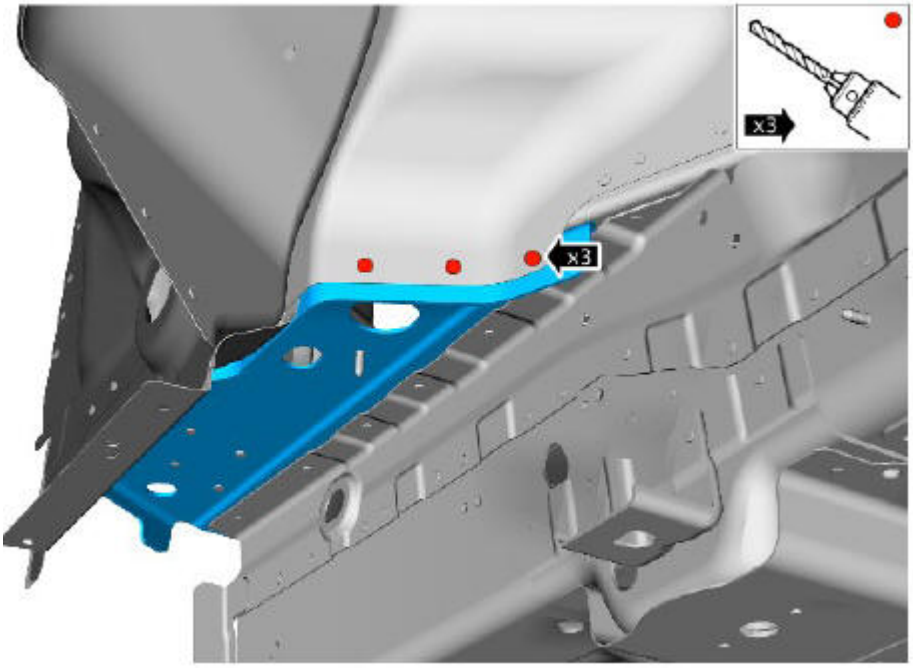
NOTES:

- *Any joints sealed as part of vehicle manufacture must be sealed as part of the repair.*
- *Make sure a zinc rich primer is applied to any bare metal surfaces.*

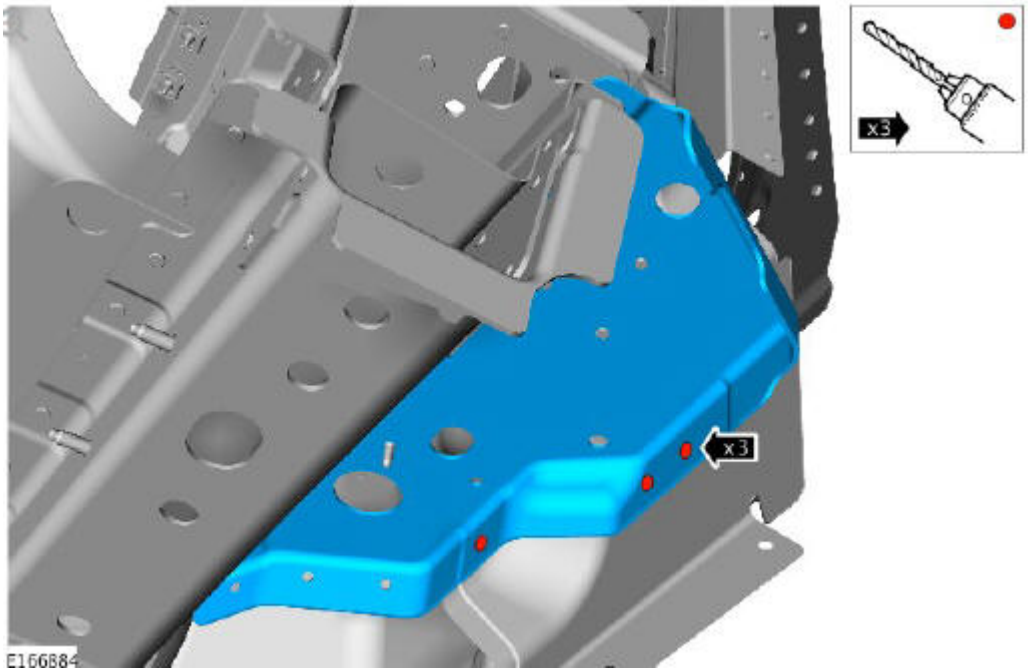
4. For additional information, refer to: Rear Bumper Cover (501-19, Removal and Installation).
5. For additional information, refer to: Rear Bumper (501-19, Removal and Installation).
6. For additional information, refer to: Back Panel Outer (501-30, Removal and Installation).
7. For additional information, refer to: Back Panel Inner (501-30, Removal and Installation).
8. For additional information, refer to: Rear Lamp Panel Outer (501- 30, Removal and Installation).
9. For additional information, refer to: Rear Side Member Lower Side Extension (501-30, Removal and Installation).



10. Remove the spot welds as indicated.



11. Remove the spot welds as indicated.



12. Remove the spot welds as indicated.
13. Carefully separate the joints and remove the panel.

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Rear end Sheet Metal Repairs Rear Floor Side Extension (G1770934)Rear end Sheet Metal Repairs Rear Floor Side Extension (G1770934) - Installation

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Задняя часть ремонт кузовных панелей задний пол боковой удлинитель - установка

Rear end Sheet Metal Repairs Rear Floor Side Extension (G1770934) - Installation

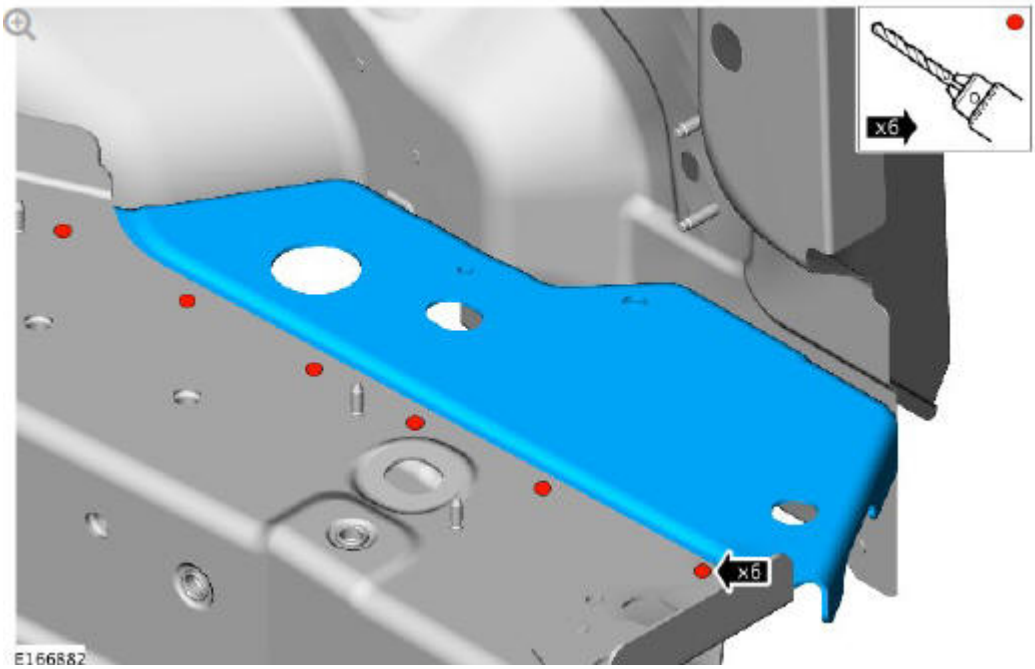
Installation

1. Dress the flanges where necessary.
2. Offer up the new rear floor side extension and clamp into position.

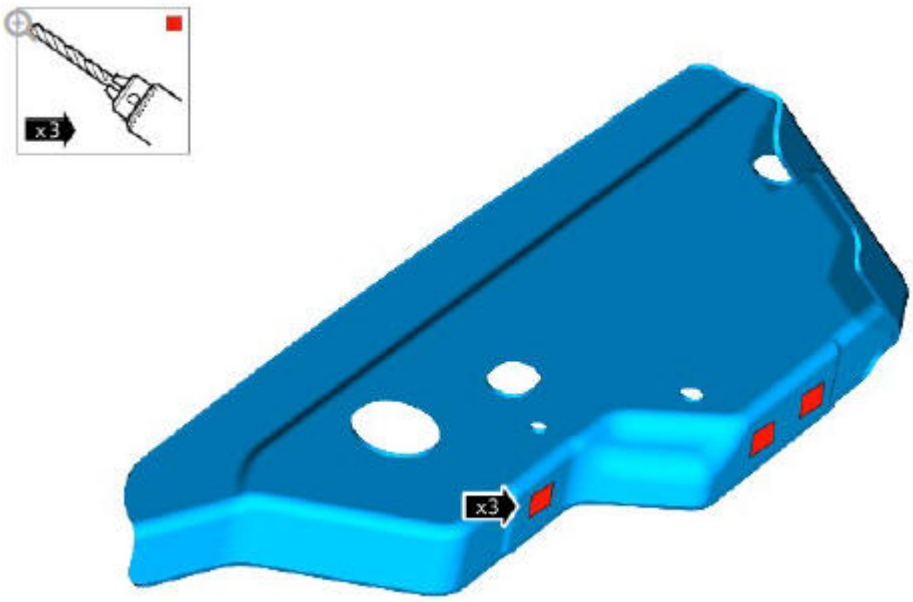
   Check alignment if correct, proceed to next step, if not, rectify and recheck before proceeding.

NOTE:

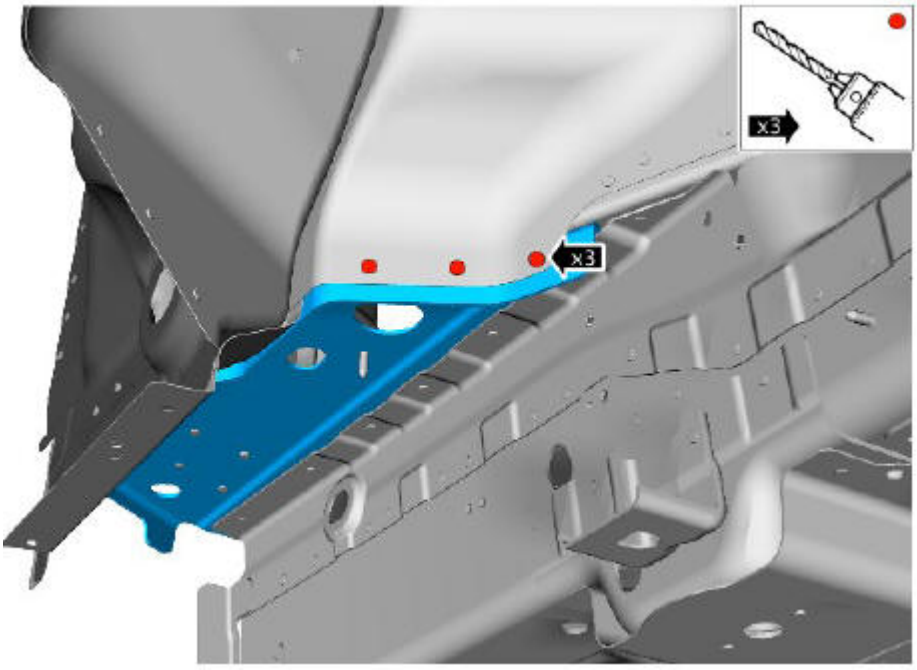
Make sure the holes are drilled through the side member and the rear floor side extension.



3. Drill holes where the metal inert gas (MIG) plug welds are to be installed as indicated.

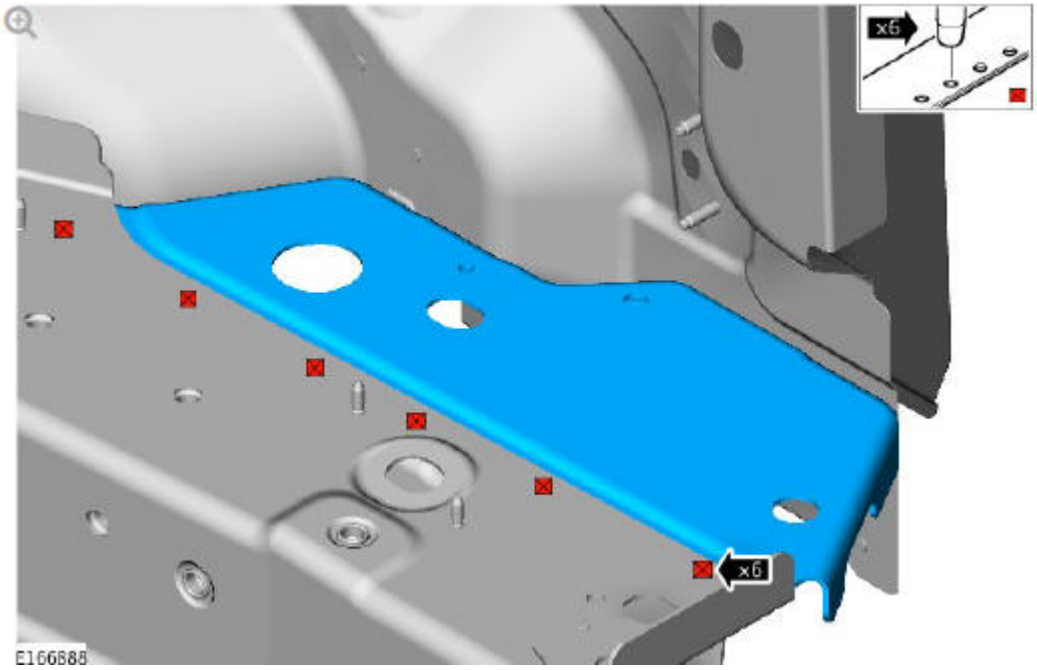


4. Drill holes where the MIG plug welds are to be installed as indicated.

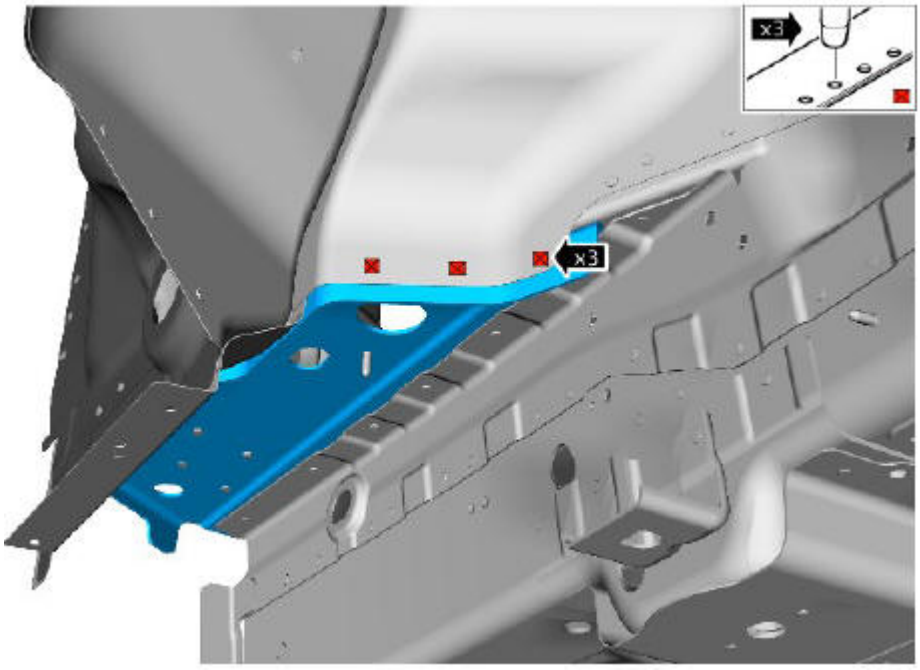


5. Drill holes where the MIG plug welds are to be installed as indicated.
6. Deburr the drilled holes.
7. Clean and prepare the panel surfaces.
8. Offer up the new rear floor side extension and clamp into position.

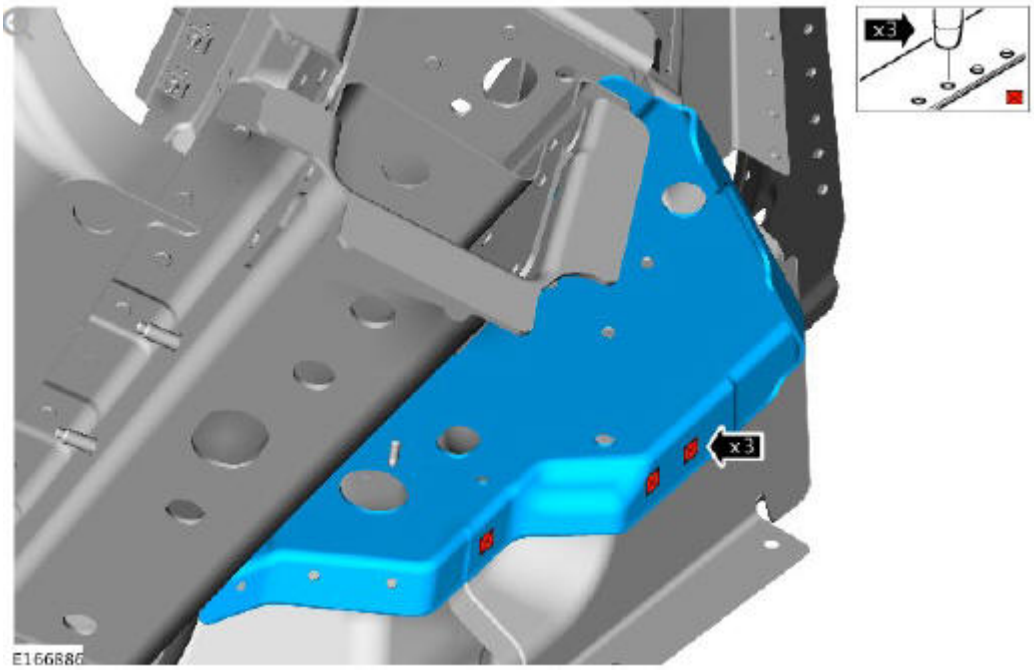
   Check alignment if correct, proceed to next step, if not, rectify and recheck before proceeding



9. Install the MIG plug welds as indicated.



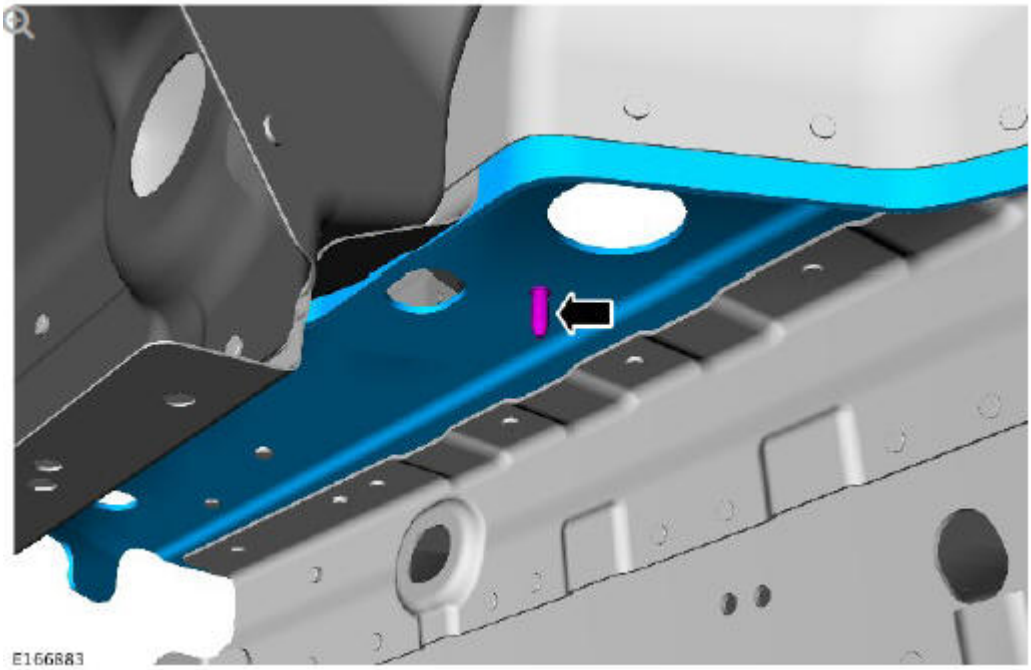
10. Install the MIG plug welds as indicated.



11. Install the MIG plug welds as indicated.

NOTE:

The components that are located/installed to these weld studs must be offered up and cross checked for alignment prior to the installation of the weld studs to the new panel.



12. Prepare the new panel and install the weld studs in their original locations as indicated.
13. Make sure that any open or exposed panel joints are correctly sealed.
14. Make sure corrosion protection is applied to all areas affected by repair.
15. The installation of associated panels and components is the reversal of removal procedure.

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Rear end Sheet Metal Repairs Rear Floor Side Extension (G1770934) - RemovalRear end Sheet Metal Repairs Rear Bumper Retaining Rail (G1770947) / Removal and Installation

ne

Задняя часть ремонт кузовных панелей задний бампер Retaining лонжерон / снятие и установка

Rear end Sheet Metal Repairs Rear Bumper Retaining Rail (G1770947) / Removal and Installation

REMOVAL

NOTE:

The rear bumper retaining rail is installed in conjunction with:

- *Rear bumper cover*
- *Rear bumper*



1. The rear bumper retaining rail is serviced as indicated.
2. Before commencing this procedure make sure that you are aware of all Health and Safety requirements.

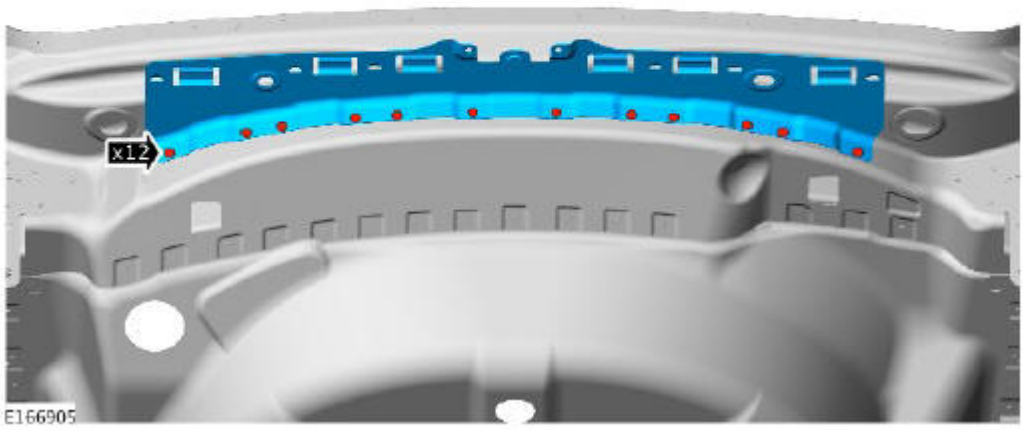
   Refer to: Health and Safety Precautions (100-00, Description and Operation).
3. For further information on the methods, tools and fixings used in this procedure refer to the body repairs - general information section.

NOTES:

- *Any joints sealed as part of vehicle manufacture must be sealed as part of the repair.*
- *Make sure a zinc rich primer is applied to any bare metal surfaces.*

4. Refer to: Rear Bumper Cover (501-19, Removal and Installation).
5. Refer to: Rear Bumper (501-19, Removal and Installation).





6. Remove the spot welds as indicated.
7. Carefully separate the joints and remove the panel.

NOTES:

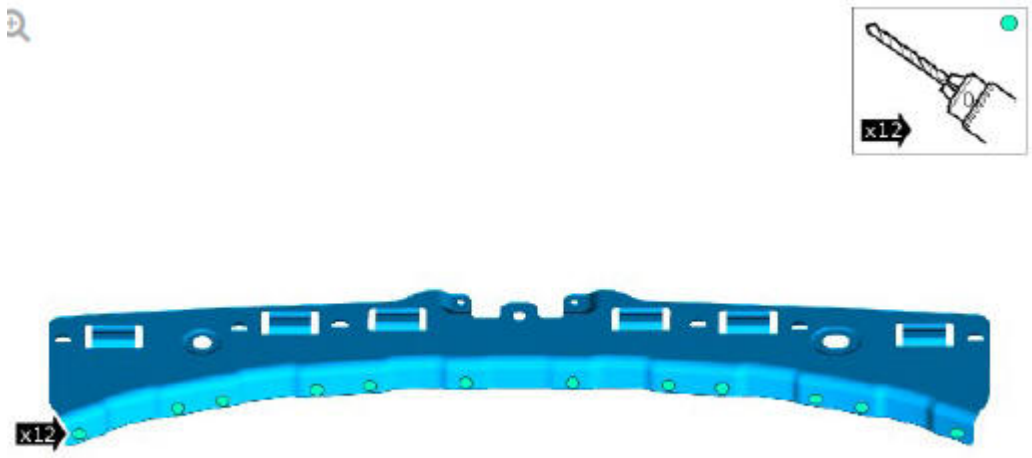
- *Any joints sealed as part of vehicle manufacture must be sealed as part of the repair.*
- *Make sure a zinc rich primer is applied to any bare metal surfaces.*

INSTALLATION

NOTE:

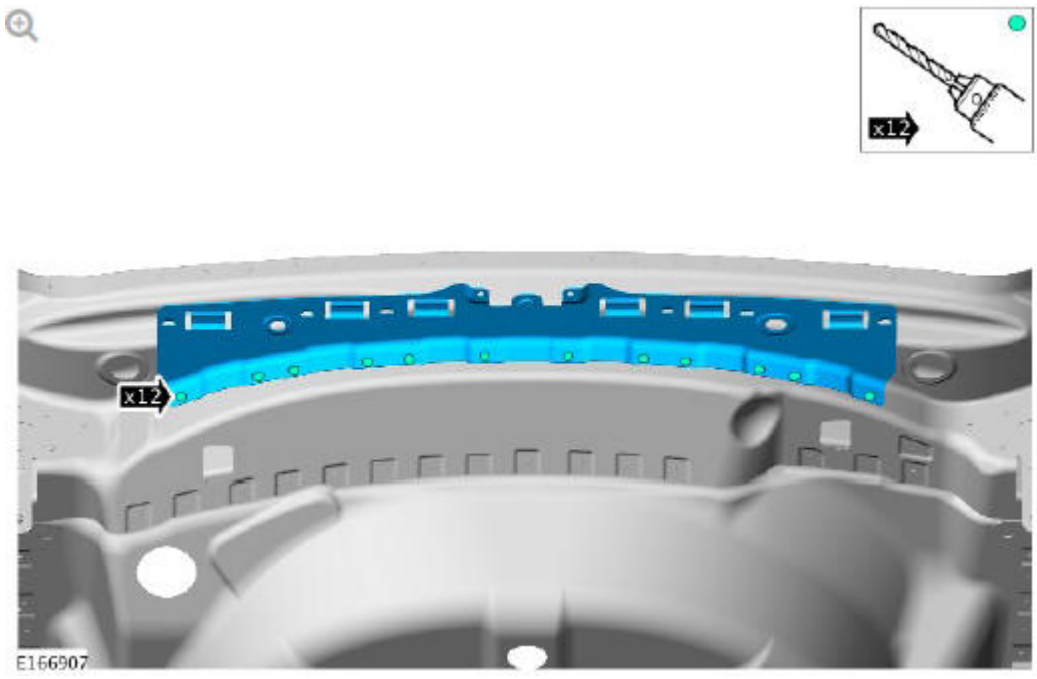
Breakstem fastener (BSF) installation involves using the Land Rover approved BSF installation tool and requires a hole diameter of 6.5mm.

1. Dress the flanges where necessary.



2. Drill holes in the new bumper retaining rail where the BSF's are to be installed as indicated.
3. Offer up the new rear bumper retaining rail and clamp into position.

   Check alignment, if correct, proceed to next step, if not, rectify and recheck before proceeding.

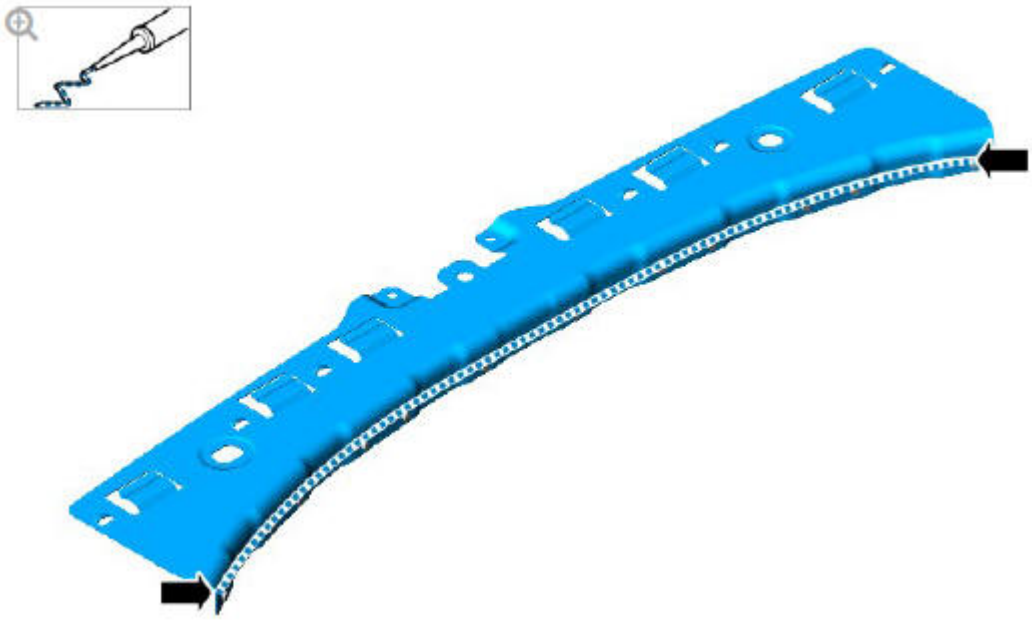


4. Drill holes in the back panel outer where the BSF's are to be installed as indicated.
5. Remove the bumper retaining rail.
6. Deburr the drilled holes.

7. Clean and prepare the panel surfaces.

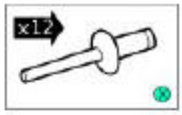
NOTE:

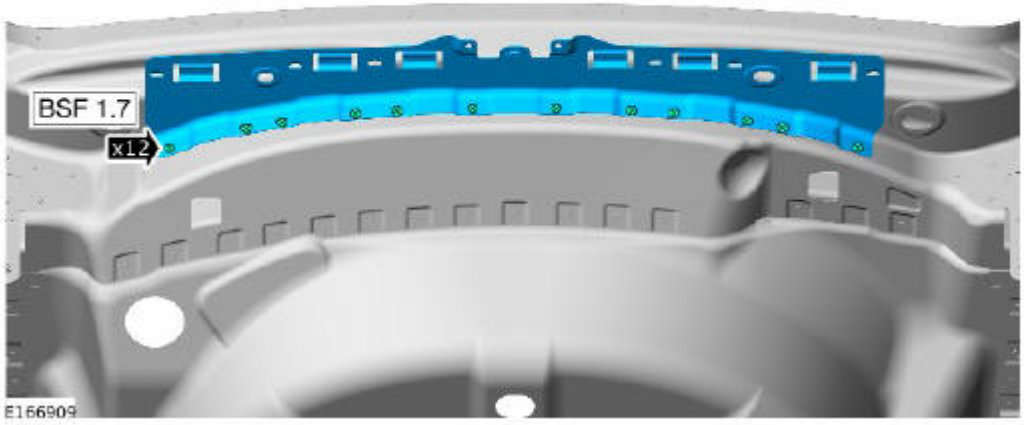
Make sure a continuous bead of sealer surrounds fixing holes.



8. Apply a 5mm bead of Land Rover approved to the rear bumper retaining rail as indicated.
9. Offer up the new rear bumper retaining rail and clamp into position.

   Check alignment, if correct, proceed to next step, if not, rectify and recheck before proceeding.





10. Install the BSF's as indicated.
11. Make sure that any open or exposed panel joints are correctly sealed.
12. Make sure corrosion protection is applied to all areas affected by repair.
13. The installation of associated panels and components is the reversal of removal procedure.

Rear end Sheet Metal Repairs Rear Floor Side Extension (G1770934) - InstallationRear end Sheet Metal Repairs Rear Bumper Mounting Upper (G1780738) / Removal and Installation

ne

Задняя часть ремонт кузовных панелей задний бампер крепление верхний / снятие и установка

Rear end Sheet Metal Repairs Rear Bumper Mounting Upper (G1780738) / Removal and Installation

REMOVAL

NOTE:

The rear bumper mounting upper is installed in conjunction with:

- *Rear bumper cover*
- *Rear bumper*
- *Rear lamp assembly*
- *Rear lamp panel outer*
- *Back panel outer*



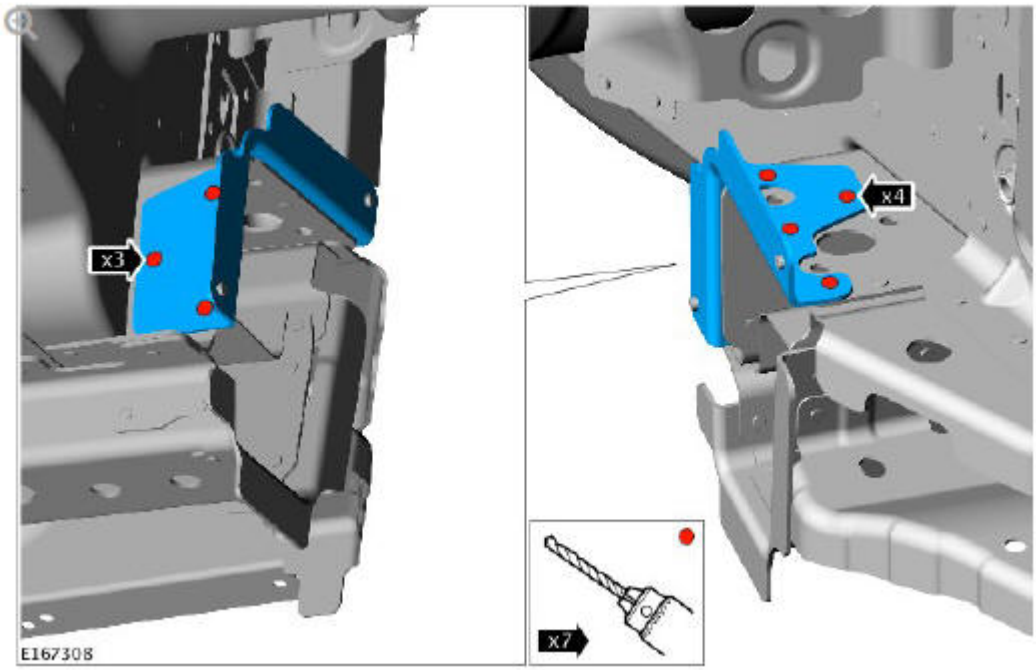
1. The rear bumper mounting upper is serviced as indicated.
2. Before commencing this procedure make sure that you are aware of all Health and Safety requirements.

   For additional information, refer to: Health and Safety Precautions (100-00, Description and Operation).
3. For further information on the methods, tools and fixings used in this procedure refer to the body repairs - general information section.

NOTES:

- *Any joints sealed as part of vehicle manufacture must be sealed as part of the repair.*
- *Make sure a zinc rich primer is applied to any bare metal surfaces.*

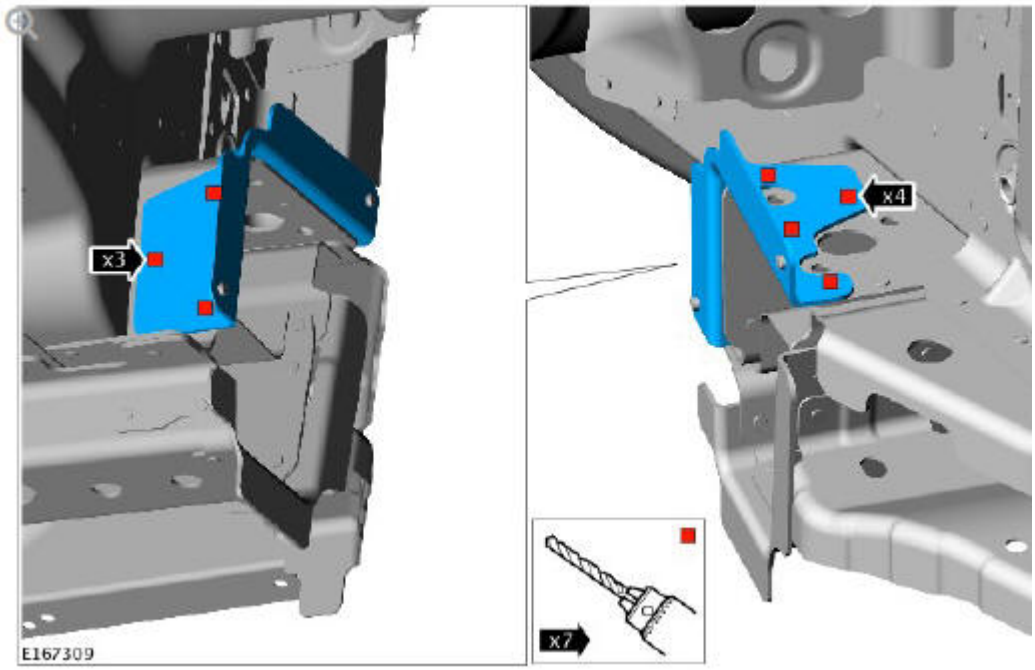
4. For additional information, refer to: Rear Bumper Cover (501-19, Removal and Installation).
5. For additional information, refer to: Rear Bumper (501-19, Removal and Installation).
6. For additional information, refer to: Rear Lamp Assembly (417-01, Removal and Installation).
7. For additional information, refer to: Rear Lamp Panel Outer (501- 30, Removal and Installation).
8. For additional information, refer to: Back Panel Outer (501-30, Removal and Installation).



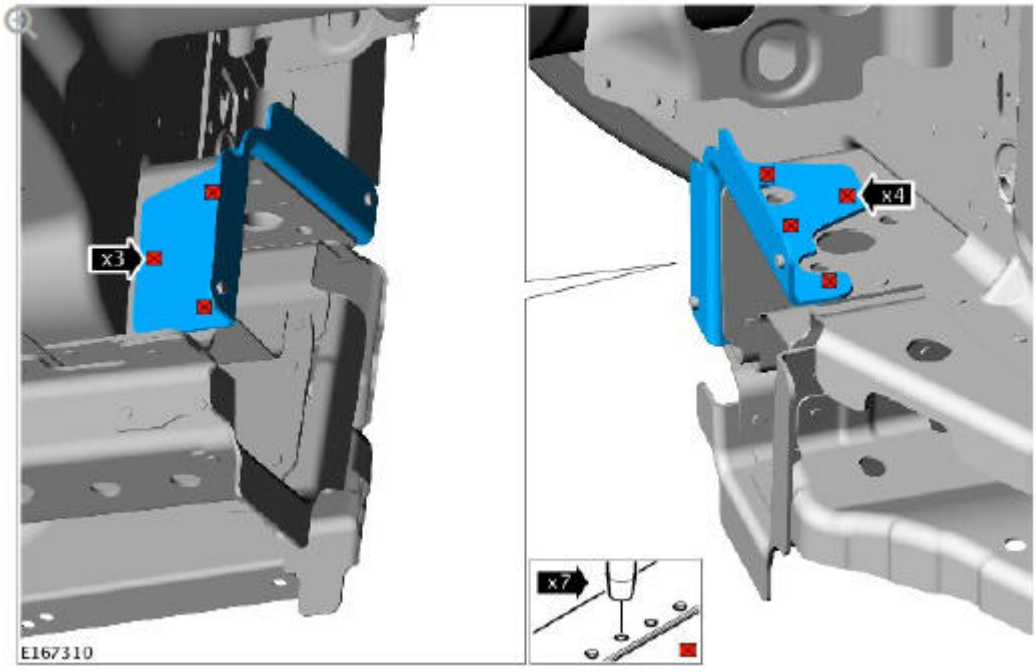
9. Remove the spot welds as indicated.
10. Carefully separate the joints and remove the rear bumper mounting upper.

INSTALLATION

1. Dress the flanges where necessary.
2. Offer up the new rear bumper mounting upper and clamp into position. Check alignment if correct, proceed to next step, if not, rectify and recheck before proceeding.



3. Drill holes in the new rear bumper mounting upper where the metal inert gas (MIG) plug welds are to be installed as indicated.
4. Remove the rear bumper mounting upper.
5. Deburr the drilled holes.
6. Clean and prepare the panel surfaces.
7. Offer up the new rear bumper mounting upper and clamp into position. Check alignment if correct, proceed to next step, if not, rectify and recheck before proceeding.



8. Install the MIG plug welds as indicated.
9. Dress the MIG plug welds.
10. Make sure that any open or exposed panel joints are correctly sealed.
11. Make sure corrosion protection is applied to all areas affected by repair.
12. The installation of associated panels and components is the reversal of removal procedure.

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Rear end Sheet Metal Repairs Rear Bumper Retaining Rail (G1770947) / Removal and InstallationRear end Sheet Metal Repairs Rear Bumper Mounting Lower (G1780739) / Removal and Installation

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Задняя часть ремонт кузовных панелей задний бампер крепление нижний / снятие и установка

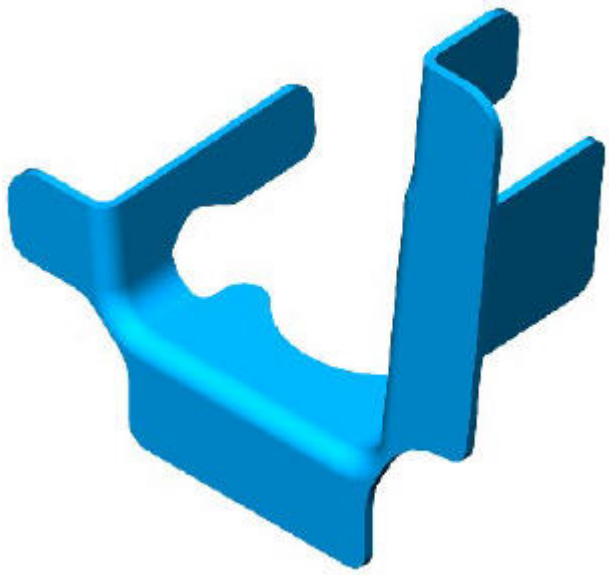
Rear end Sheet Metal Repairs Rear Bumper Mounting Lower (G1780739) / Removal and Installation

REMOVAL

NOTE:

The rear bumper mounting lower is installed in conjunction with:

- *Rear bumper cover*
- *Rear bumper*
- *Rear lamp assembly*
- *Rear lamp panel outer*
- *Back panel outer*



1. The rear bumper mounting lower is serviced as indicated.
2. Before commencing this procedure make sure that you are aware of all Health and Safety requirements.

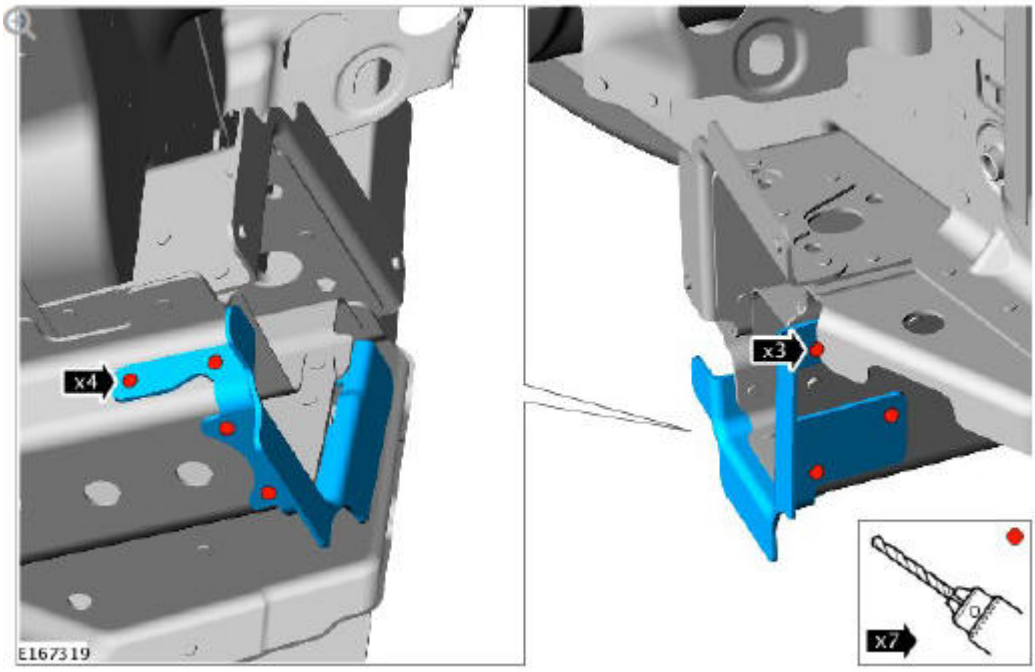
   For additional information, refer to: Health and Safety Precautions (100-00, Description and Operation).
3. For further information on the methods, tools and fixings used in this procedure refer to the body repairs - general information section.

NOTES:

- *Any joints sealed as part of vehicle manufacture must be sealed as part of the repair.*

- *Make sure a zinc rich primer is applied to any bare metal surfaces.*

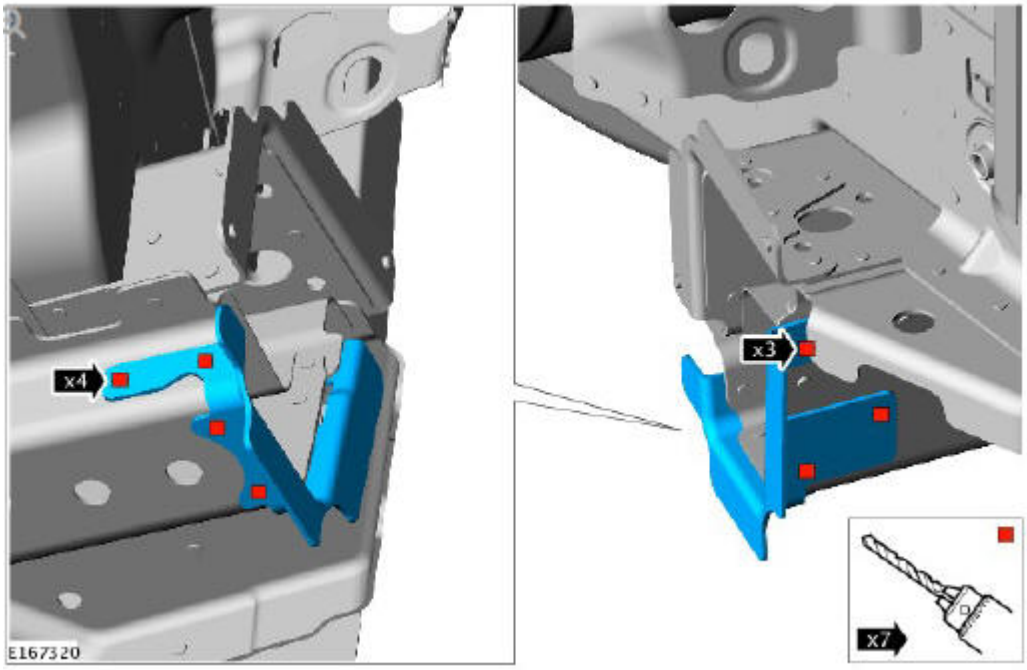
4. For additional information, refer to: Rear Bumper Cover (501-19, Removal and Installation).
5. For additional information, refer to: Rear Bumper (501-19, Removal and Installation).
6. For additional information, refer to: Rear Lamp Assembly (417-01, Removal and Installation).
7. For additional information, refer to: Rear Lamp Panel Outer (501- 30, Removal and Installation).
8. For additional information, refer to: Back Panel Outer (501-30, Removal and Installation).
9. For additional information, refer to: Rear Side Member Lower Side Extension (501-30, Removal and Installation).



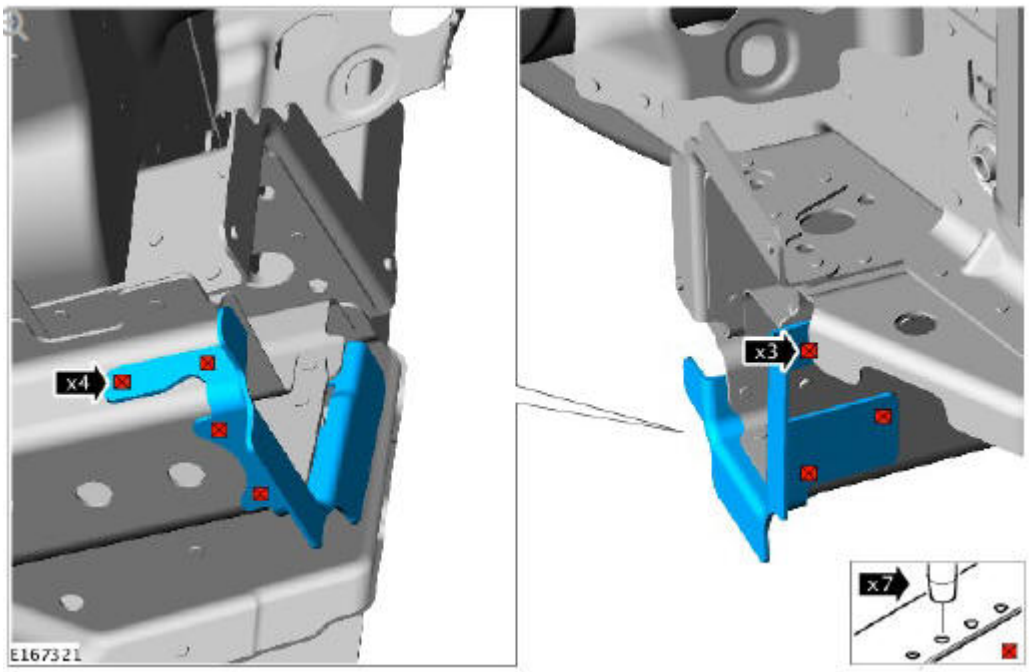
10. Remove the spot welds as indicated.
11. Carefully separate the joints and remove the rear bumper mounting lower.

INSTALLATION

1. Dress the flanges where necessary.
2. Offer up the new rear bumper mounting lower and clamp into position. Check alignment, if correct, proceed to next step, if not, rectify and recheck before proceeding.



3. Drill holes in the new rear bumper mounting lower where the metal inert gas (MIG) plug welds are to be installed as indicated.
4. Remove the rear bumper mounting lower.
5. Deburr the drilled holes.
6. Clean and prepare the panel surfaces
7. Offer up the new rear bumper mounting lower and clamp into position. Check alignment, if correct, proceed to next step, if not, rectify and recheck before proceeding.



8. Install the MIG plug welds as indicated.
9. Dress the MIG plug welds.
10. Make sure that any open or exposed panel joints are correctly sealed.
11. Make sure corrosion protection is applied to all areas affected by repair.
12. The installation of associated panels and components is the reversal of removal procedure.

Задняя часть ремонт кузовных панелей боковина кузова нижний удлинитель / снятие и установка

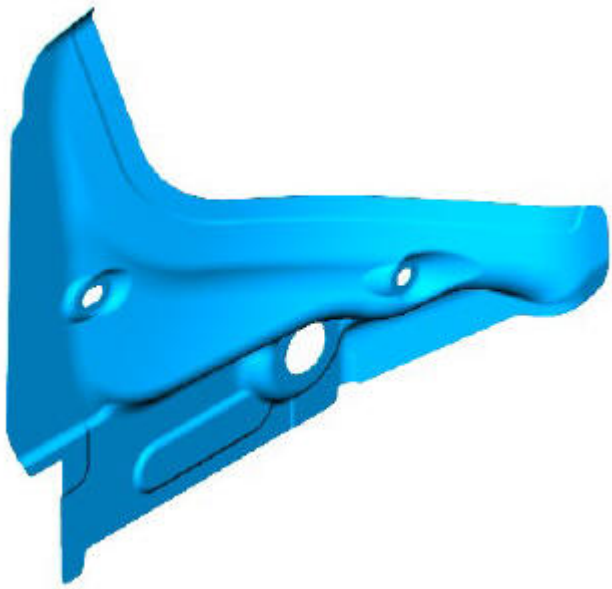
Rear end Sheet Metal Repairs Quarter Panel Lower Extension (G1771164) / Removal and Installation

REMOVAL

NOTE:

The quarter panel lower extension is installed in conjunction with:

- *Rear bumper cover*
- *Rear lamp assembly*



1. The quarter panel lower extension is serviced as indicated.
2. Before commencing this procedure make sure that you are aware of all Health and Safety requirements.

   For additional information, refer to: Health and Safety Precautions (100-00, Description and Operation).

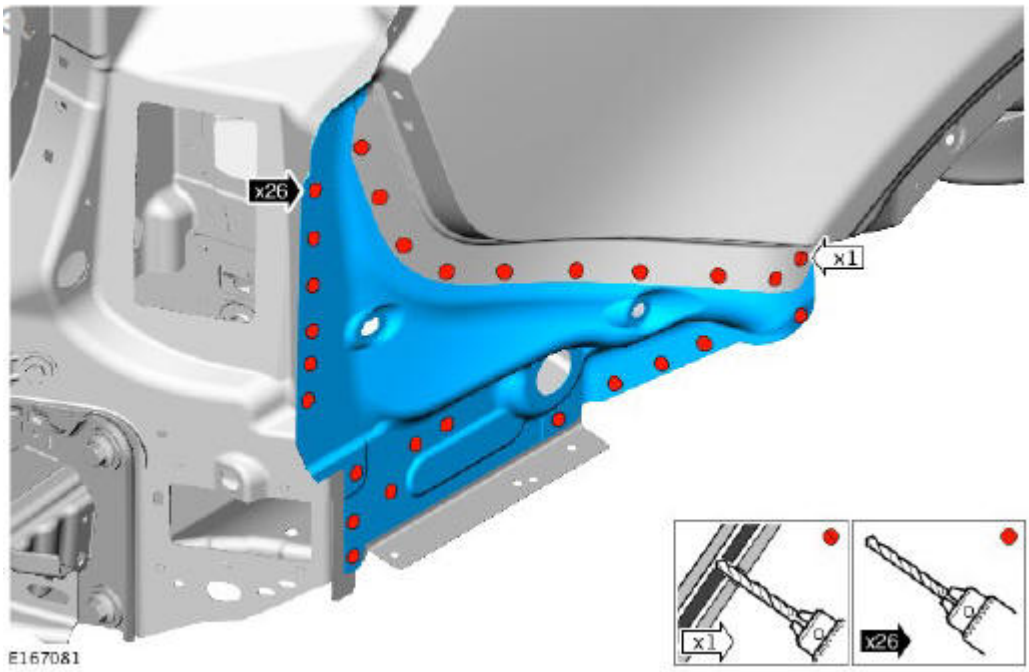
3. For further information on the methods, tools and fixings used in this procedure refer to the body repairs - general information section.

NOTES:

- *Any joints sealed as part of vehicle manufacture must be sealed as part of the repair.*
- *Make sure a zinc rich primer is applied to any bare metal surfaces.*

4. For additional information, refer to: Rear Bumper Cover (501-19, Removal and Installation).
5. For additional information, refer to: Rear Lamp Assembly (417-01, Removal and Installation).

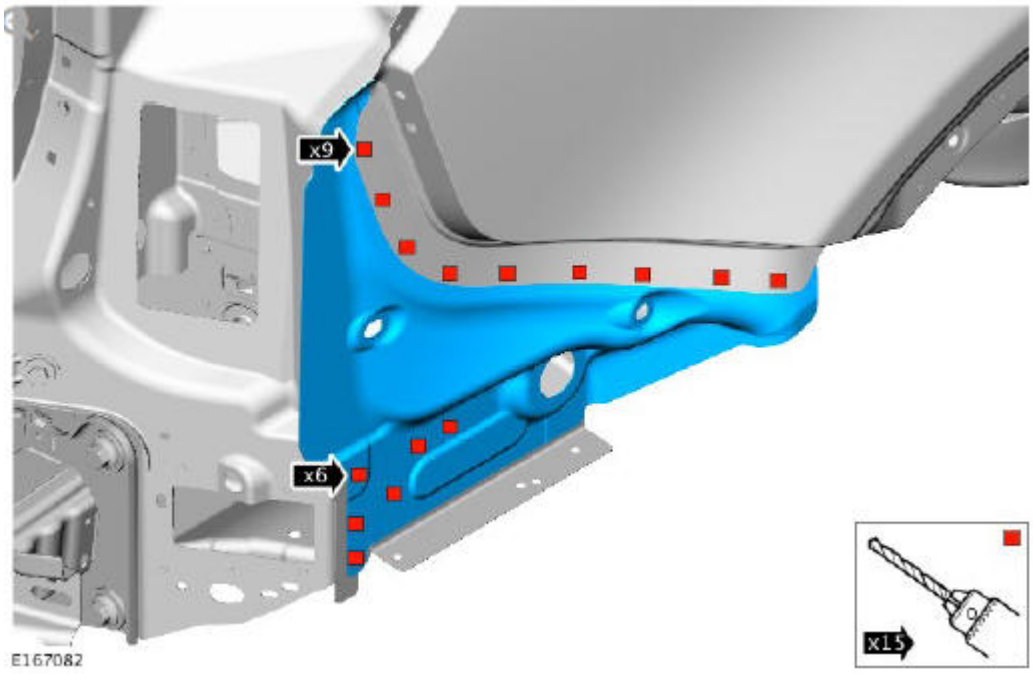
6. For additional information, refer to: Loadspace Trim Panel (501-05, Removal and Installation).



7. Remove the spot welds as indicated.
8. Carefully separate the joints and remove the quarter panel lower extension.

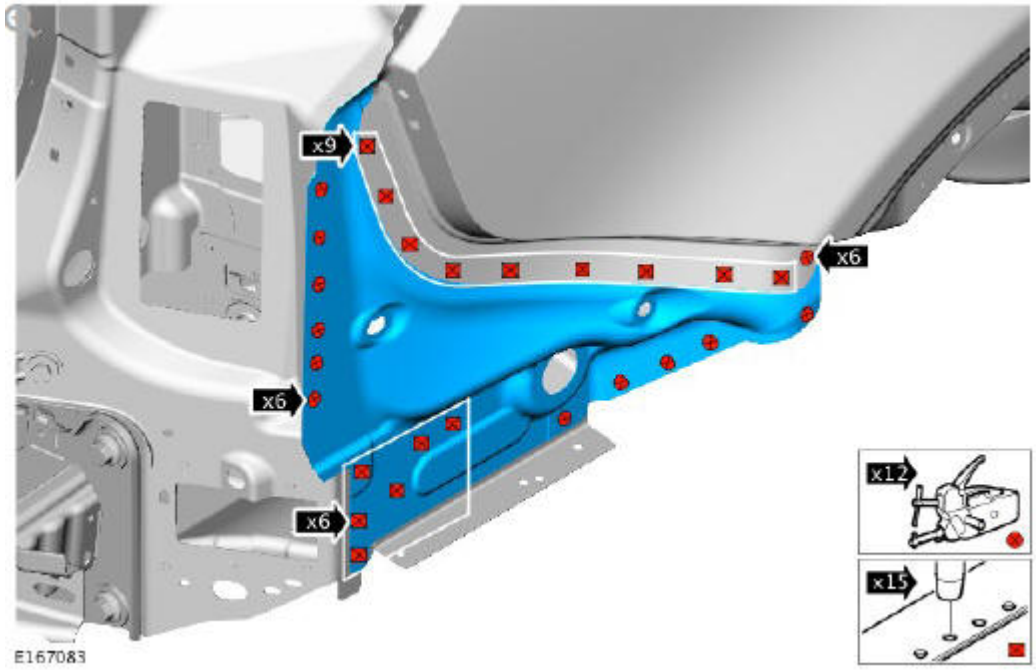
INSTALLATION

1. Dress the flanges where necessary.
2. Offer up the new quarter panel lower extension and clamp into position. Check alignment, if correct proceed to next step, if not, rectify and recheck before proceeding.



3. Drill holes where the metal inert gas (MIG) plug welds are to be installed as indicated.
4. Remove the quarter panel lower extension.
5. Deburr the drilled holes.
6. Clean and prepare the panel surfaces.

7. Offer up the new quarter panel lower extension and clamp into position. Check alignment, if correct proceed to next step, if not, rectify and recheck before proceeding.



8. Install the spot and MIG plug welds as indicated.
9. Dress all welded joints.
10. Make sure that any open or exposed panel joints are correctly sealed.
11. Make sure corrosion protection is applied to all areas affected by repair.
12. The installation of associated panels and components is the reversal of removal procedure.

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Rear end Sheet Metal Repairs Rear Bumper Mounting Lower (G1780739) / Removal and InstallationRear end Sheet Metal Repairs Quarter Panel (G1770932)

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Задняя часть ремонт кузовных панелей боковина кузова

Rear end Sheet Metal Repairs Quarter Panel (G1770932)

- Rear end Sheet Metal Repairs Quarter Panel (G1770932) - Removal
- Rear end Sheet Metal Repairs Quarter Panel (G1770932) - Installation

ne

Rear end Sheet Metal Repairs Quarter Panel Lower Extension (G1771164) / Removal and InstallationRear end Sheet Metal Repairs Quarter Panel (G1770932) - Removal

ne

Задняя часть ремонт кузовных панелей боковина кузова - снятие

Removal

NOTE:

The quarter panel is installed in conjunction with:

- *Rear door*
- *Rocker panel moulding*
- *Roof moulding*
- *Headliner*
- *Side air curtain module*
- *Rear quarter window glass*
- *Rear bumper cover*
- *Rear lamp assembly*
- *Rear seat cushion*
- *Liftgate*
- *Fuel tank filler pipe*
- *Rear safety belt retractor*



1. The quarter panel is serviced as indicated.
2. Before commencing this procedure make sure that you are aware of all Health and Safety requirements.

   For additional information, refer to: Health and Safety Precautions (100-00 General Information, Description and Operation).
3. For further information on the methods, tools and fixings used in this procedure refer to the body repairs - general information section.

NOTES:

- *Any joints sealed as part of vehicle manufacture must be sealed as part of the repair.*
- *Make sure a zinc rich primer is applied to any bare metal surfaces.*
- *Make sure that the rocker panel butt joint is metal inert gas (MIG) brazed due to the location of the boron reinforcements.*

4. For additional information, refer to: Rear Door (501-03 Body Closures, Removal and Installation).
5. For additional information, refer to: Rocker Panel Moulding (501-08 Exterior Trim and Ornamentation, Removal and Installation).
6. For additional information, refer to: Roof Moulding (501-08 Exterior Trim and Ornamentation, Removal and Installation).
7. For additional information, refer to: Headliner (501-05 Interior Trim and Ornamentation, Removal and Installation).
8. For additional information, refer to: Side Air Curtain Module (501- 20B Supplemental Restraint System, Removal and Installation).
9. For additional information, refer to: Rear Quarter Window Glass (501-11 Glass, Frames and Mechanisms, Removal and Installation).
10. For additional information, refer to: Rear Bumper Cover (501-19 Bumpers, Removal and Installation).
11. For additional information, refer to: Outer Tail Lamp Assembly (417- 01 Exterior Lighting, Removal and Installation).
12. For additional information, refer to: Rear Seat (501-10 Seating, Removal and Installation).
13. For additional information, refer to: Liftgate (501-03 Body Closures, Removal and Installation).

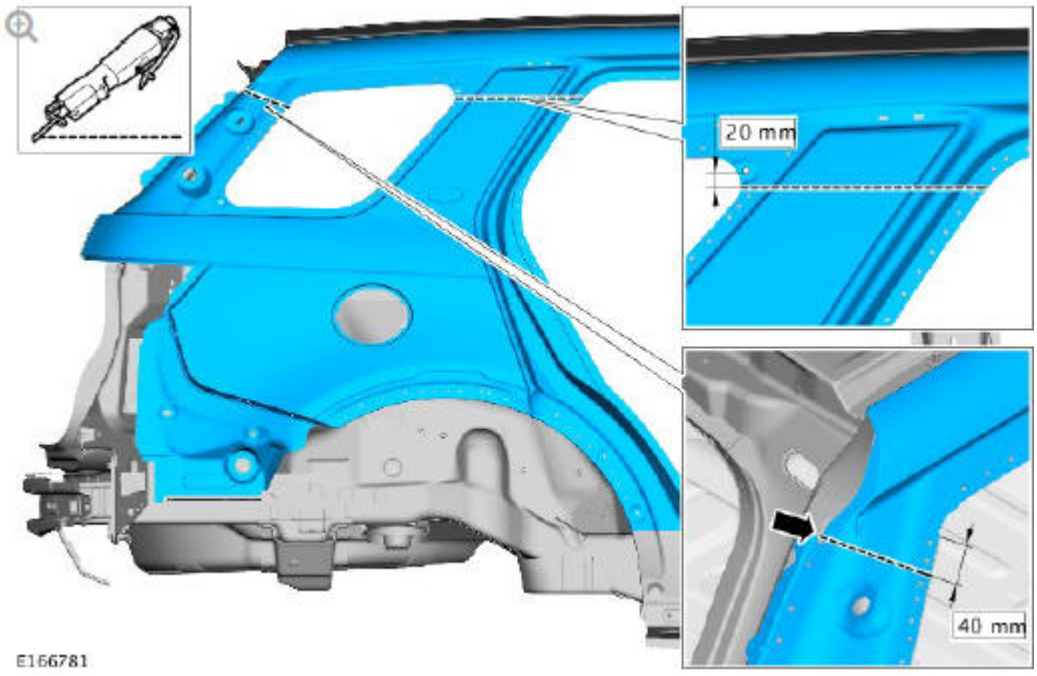
NOTE:

Right hand only.

14. For additional information, refer to: Fuel Tank Filler Pipe (310-01B Fuel Tank and Lines - INGENIUM I4 2.0L Diesel, Removal and Installation).
15. For additional information, refer to: Rear Safety Belt Retractor (501- 20A Seatbelt System, Removal and Installation).
16. Release and position the floor carpet to one side.
17. Release and position the floor noise, vibration, harshness (NVH) material to one side.
18. Release and position to one side the wiring harness along the inner quarter panel and rocker panel.

CAUTION:

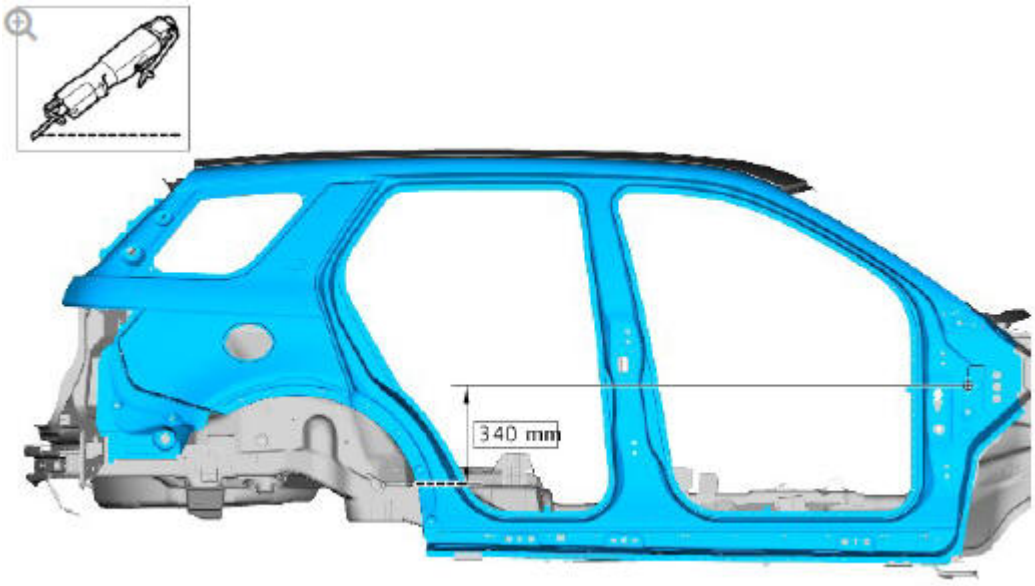
<u>Care should be taken not to cut through into the inner reinforcements.</u>



19. Mark and cut the quarter panel where the MIG welded butt joint are to be made as indicated.

CAUTION:

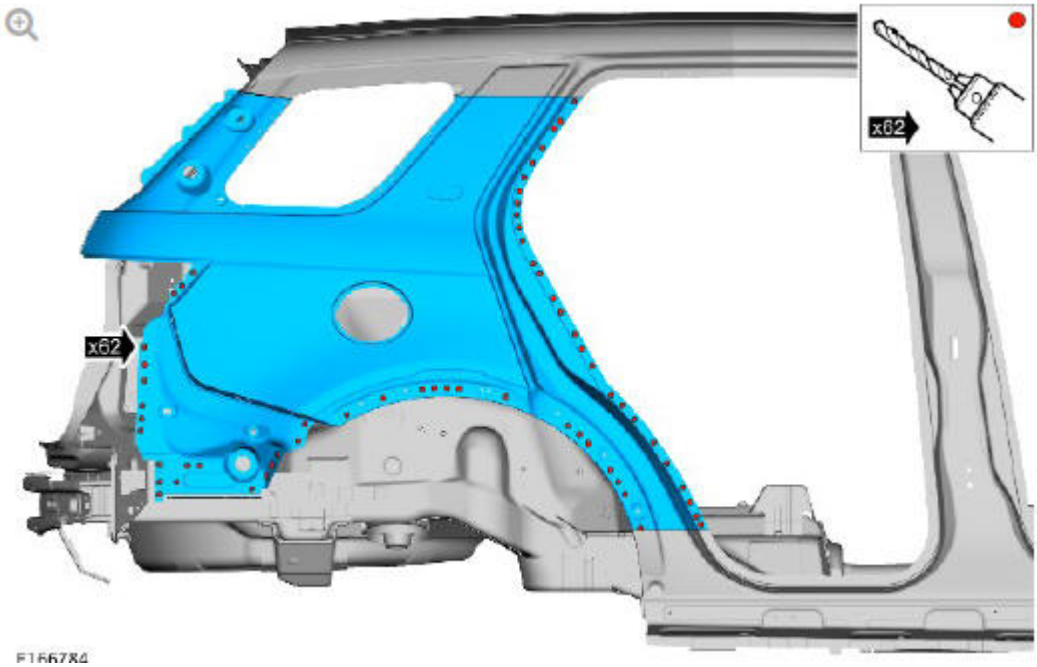
<u>Care should be taken not to cut through into the inner reinforcements.</u>



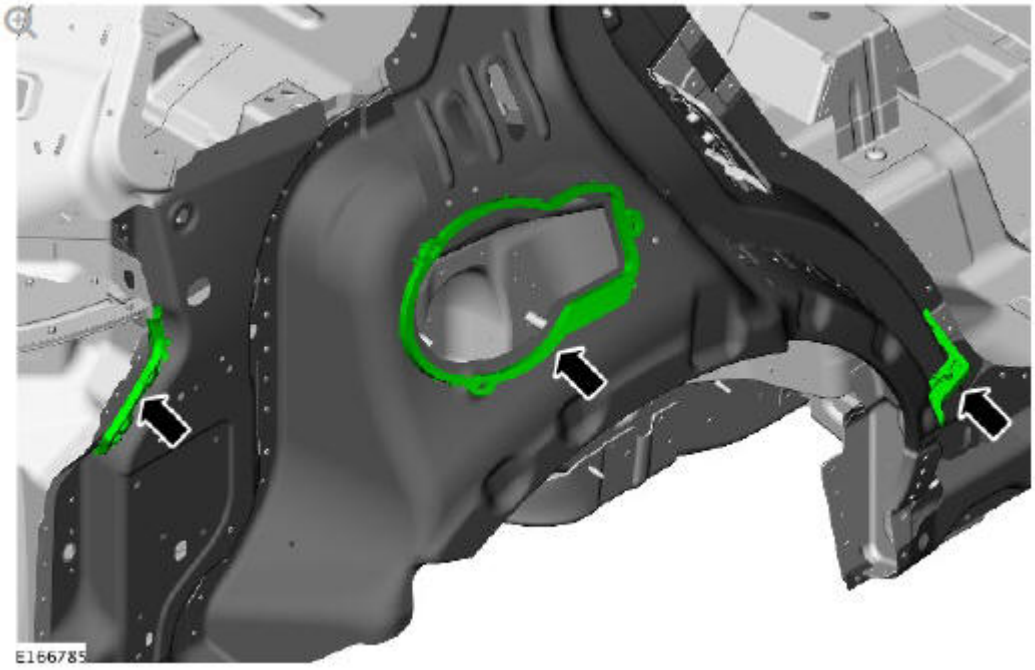
20. Mark and cut the quarter panel where the MIG welded butt joint is to be made as indicated.



21. Remove the spot welds as indicated.



22. Remove the spot welds as indicated.



23. Carefully separate the quarter panel joints avoiding damage to the NVH components as indicated.

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Rear end Sheet Metal Repairs Quarter Panel (G1770932)Rear end Sheet Metal Repairs Quarter Panel (G1770932) - Installation

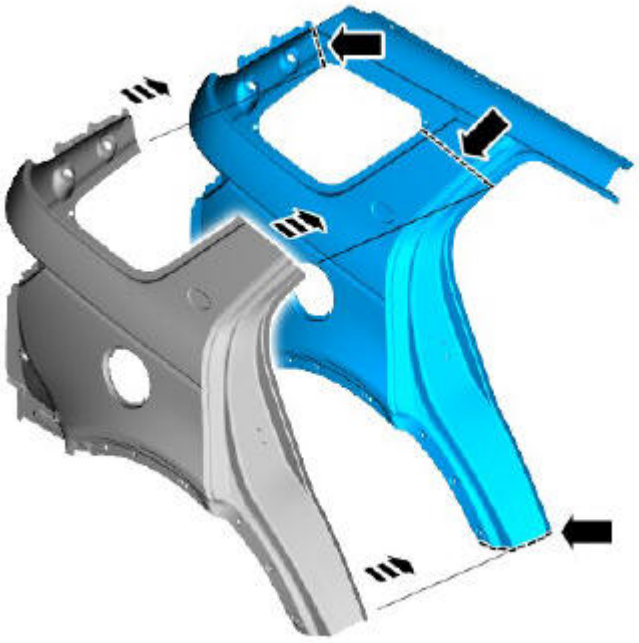
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Задняя часть ремонт кузовных панелей боковина кузова - установка

Rear end Sheet Metal Repairs Quarter Panel (G1770932) - Installation

Installation

1. Dress the flanges where necessary
2. Clean and prepare the panel surfaces.



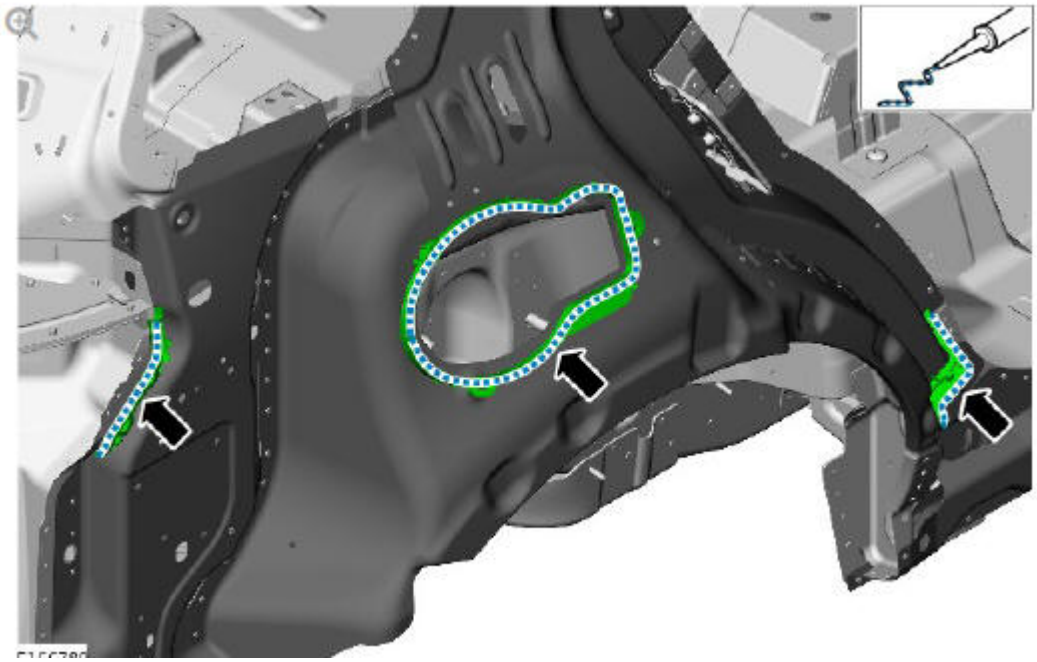
3. Using the old quarter panel for reference, mark and cut the new quarter panel where the MIG welded butt joints are to be made as indicated.
4. Offer up the new quarter panel and clamp into position. Check alignment, if correct, proceed to next step, if not, rectify and recheck before proceeding.



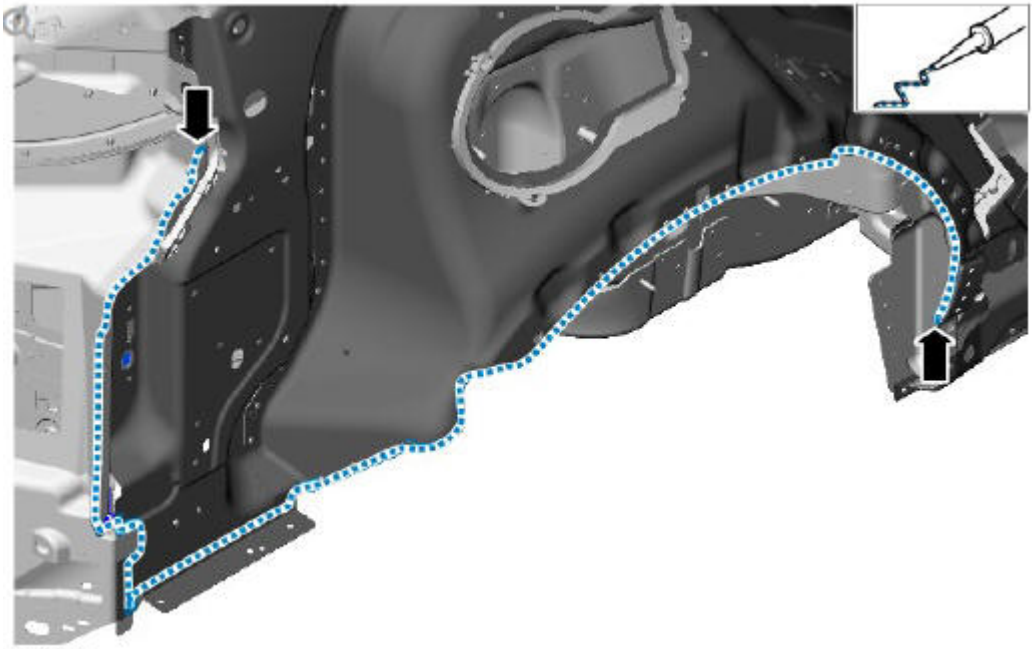
5. Drill holes in the quarter panel where the MIG plug welds are to be installed as indicated.



6. Drill holes in the quarter panel where the MIG plug welds are to be installed as indicated.
7. Remove the new quarter panel.
8. Deburr the drilled holes.
9. Deburr the drilled holes.



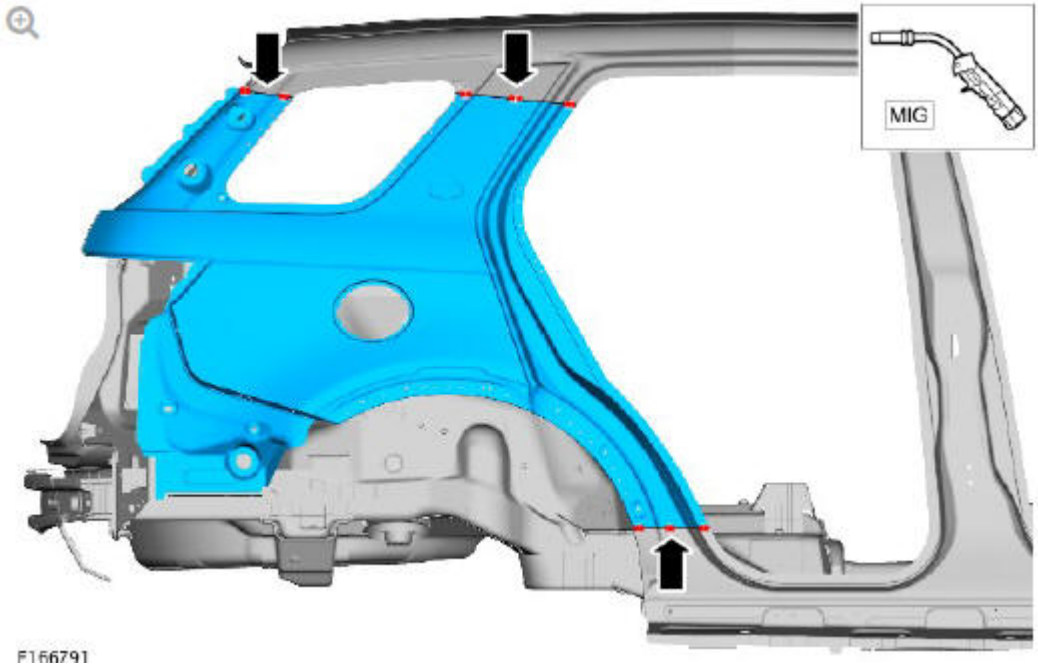
10. Apply a 5mm bead of Land Rover recommended sealer to the NVH components as indicated.


E166790

11. Apply a 5mm bead of Land Rover recommended sealer to the vehicle assembly as indicated.
12. Offer up the new quarter panel and clamp into position. Check alignment, if correct, proceed to next step, if not, rectify and recheck before proceeding.

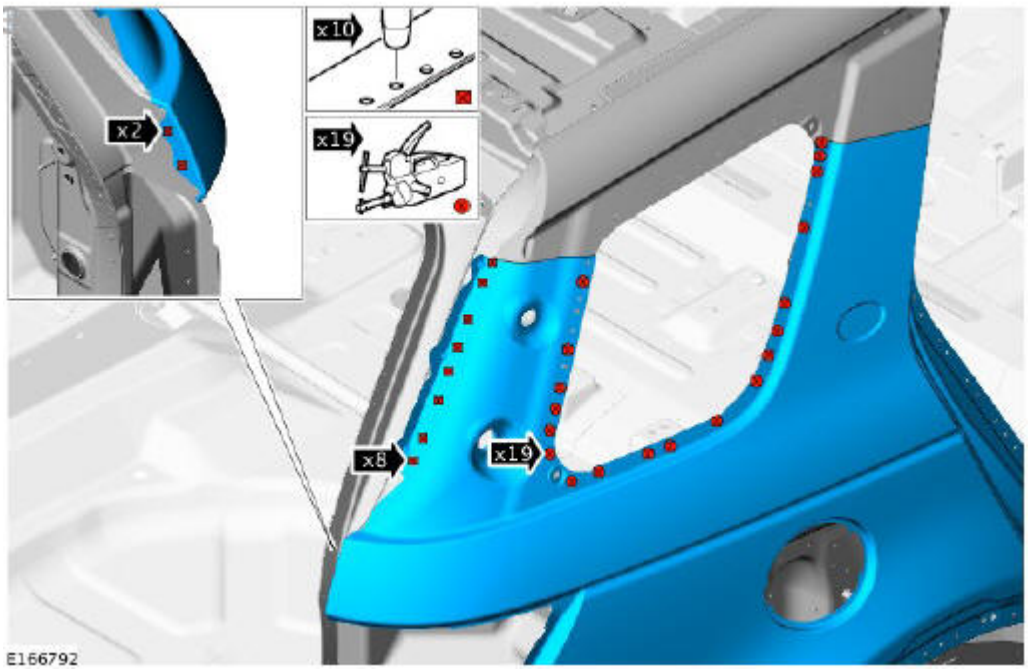
NOTE:

Make sure that the rocker panel butt joint is MIG brazed due to the location of the boron reinforcements.

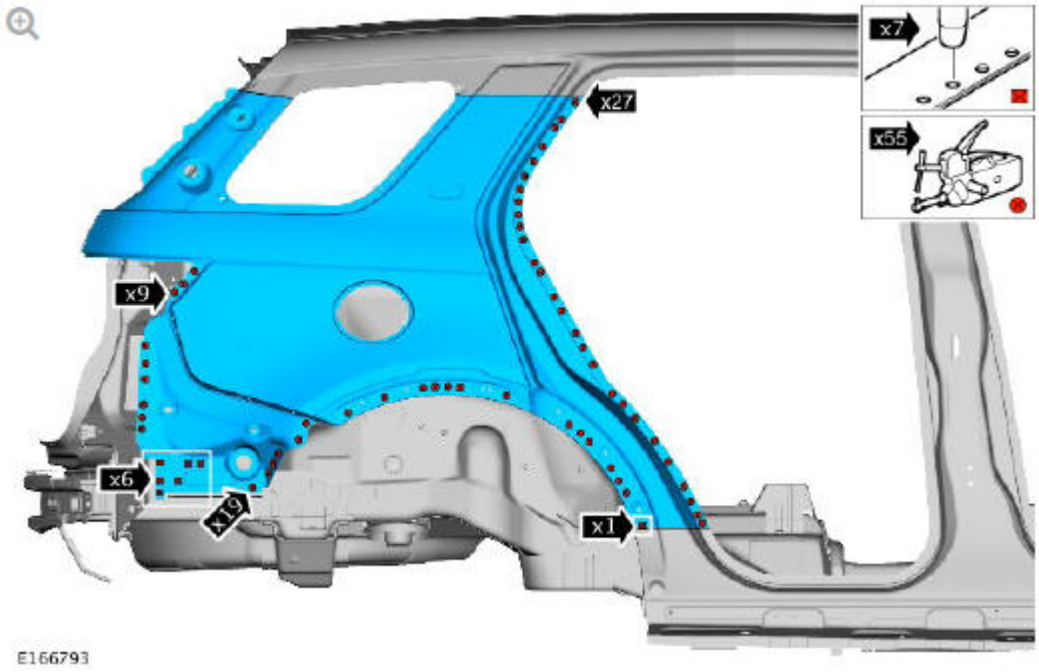


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13. Tack MIG weld and braze the butt joints as indicated.



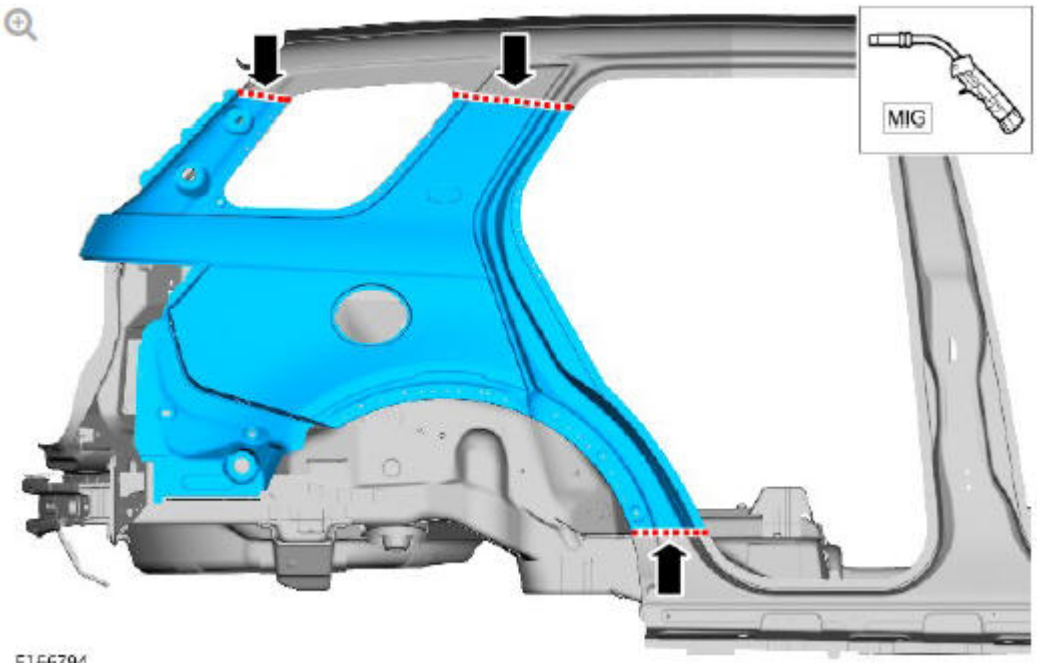
14. Install the spot welds as indicated.



15. Install the spot and MIG plug welds as indicated.

NOTE:

Make sure that the rocker panel butt joint is MIG brazed due to the location of the boron reinforcements.



16. MIG weld and braze the butt joints as indicated.
17. Dress all welded joints.
18. Make sure that any open or exposed panel joints are correctly sealed.
19. Make sure corrosion protection is applied to all areas affected by repair.
20. The installation of associated panels and components is the reversal of removal procedure.

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Rear end Sheet Metal Repairs Quarter Panel (G1770932) - RemovalRear end Sheet Metal Repairs Inner Quarter Panel Upper (G1770949)

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Задняя часть ремонт кузовных панелей внутренний боковина кузова верхний

Rear end Sheet Metal Repairs Inner Quarter Panel Upper (G1770949)

REMOVAL

NOTE:

The inner quarter panel upper is installed in conjunction with:

- *Rear bumper cover*
- *Side panel*
- *Quarter panel*
- *Fuel tank filler pipe*
- *Rocker panel*



1. The inner quarter panel upper is serviced as indicated.
2. Before commencing this procedure make sure that you are aware of all Health and Safety requirements.

   For additional information, refer to: Health and Safety Precautions (100-00, Description and Operation).

3. For further information on the methods, tools and fixings used in this procedure refer to the body repairs - general information section.

NOTES:

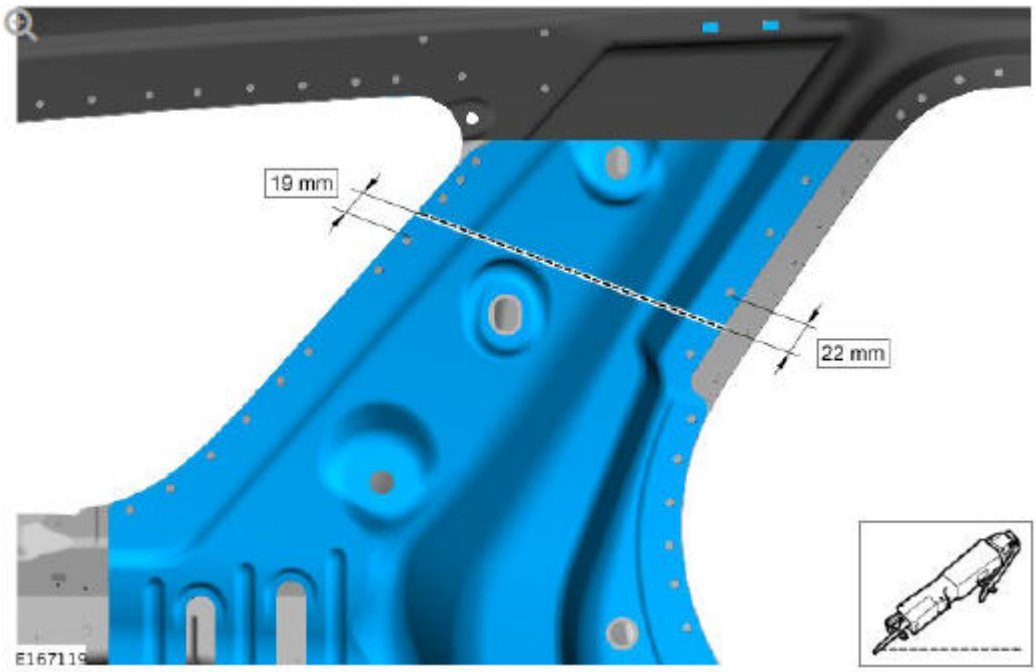
- *Any joints sealed as part of vehicle manufacture must be sealed as part of the repair.*
- *Make sure a zinc rich primer is applied to any bare metal surfaces.*

4. For additional information, refer to: Rear Bumper Cover (501-19, Removal and Installation).
5. For additional information, refer to: Side Panel (501-29, Removal and Installation).
6. For additional information, refer to: Quarter Panel (501-30, Removal and Installation).

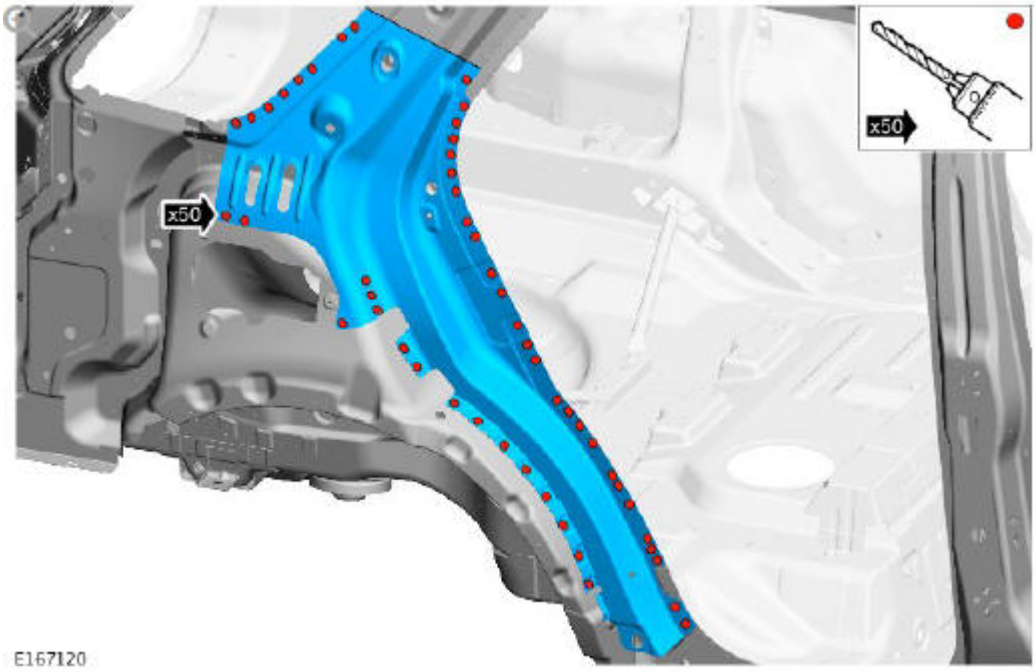
NOTE:

Right hand only.

7. For additional information, refer to: Fuel Tank Filler Pipe (310-01A, Removal and Installation).
8. For additional information, refer to: Rocker Panel (501-29, Removal and Installation).



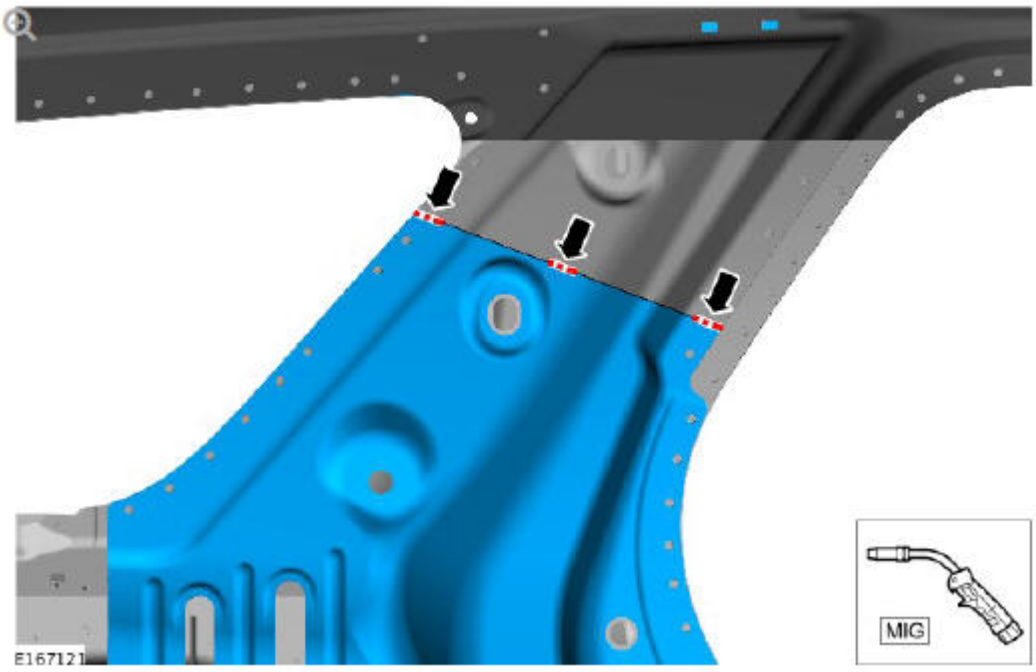
9. Mark and cut the inner quarter panel upper as indicated.



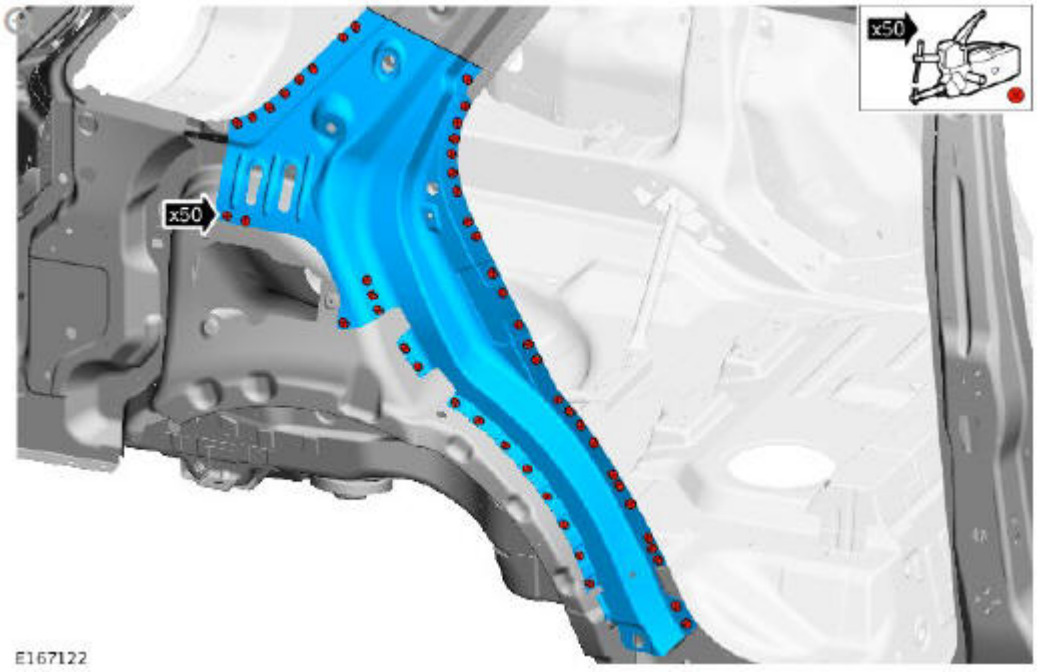
10. Remove the spot welds as indicated.
11. Carefully separate the joints and remove the inner quarter panel upper.

INSTALLATION

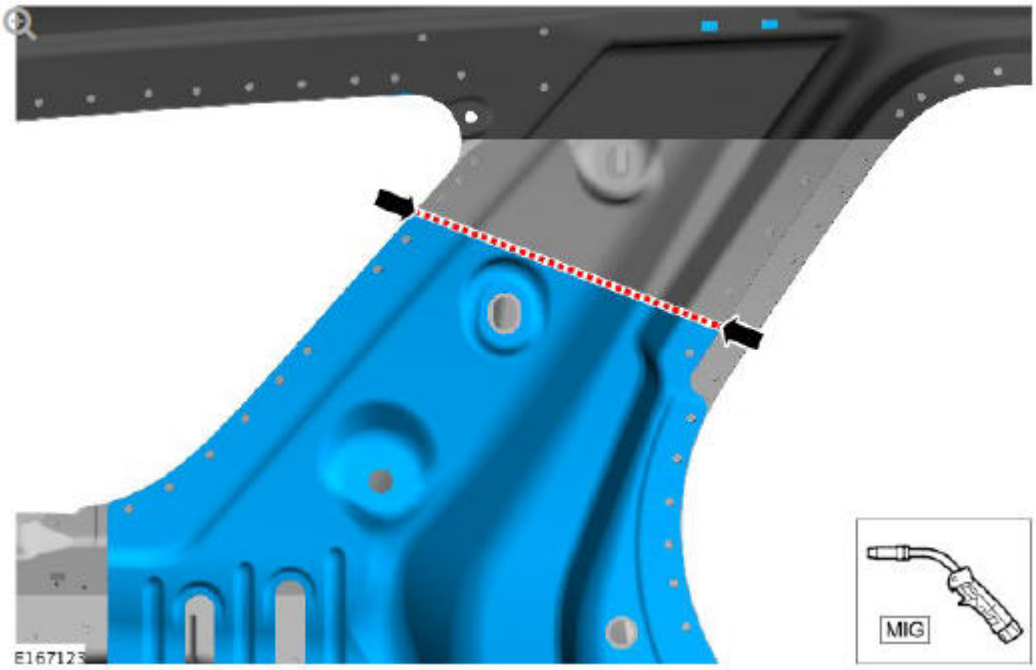
1. Dress flanges where necessary.
2. Clean and prepare the panel surfaces.
3. Using the old inner quarter panel upper as a guide, mark and cut the new inner quarter panel upper where the metal inert gas (MIG) butt weld is to be installed.
4. Offer up the new inner quarter panel upper and clamp into position. Check alignment if correct, proceed to next step, if not, rectify and recheck before proceeding.



5. Tack MIG weld the inner quarter panel upper butt joint as indicated.



6. Install the spot welds as indicated.



7. MIG weld the butt joint as indicated.
8. Dress the butt weld.
9. Make sure that any open or exposed panel joints are correctly sealed.
10. Make sure corrosion protection is applied to all areas affected by repair.
11. The installation of associated panels and components is the reversal of removal procedure

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Rear end Sheet Metal Repairs Quarter Panel (G1770932) - InstallationRear end Sheet Metal Repairs Inner Quarter Panel Assembly (G1770950)

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Задняя часть ремонт кузовных панелей внутренний боковина кузова в сборе

Rear end Sheet Metal Repairs Inner Quarter Panel Assembly (G1770950)

- Rear end Sheet Metal Repairs Inner Quarter Panel Assembly (G1770950) - Removal
- Rear end Sheet Metal Repairs Inner Quarter Panel Assembly (G1770950) - Installation

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Rear end Sheet Metal Repairs Inner Quarter Panel Upper (G1770949)Rear end Sheet Metal Repairs Inner Quarter Panel Assembly (G1770950) - Removal

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Задняя часть ремонт кузовных панелей внутренний боковина кузова в сборе - снятие

Removal

NOTE:

The inner quarter panel assembly is installed in conjunction with:

- *Rear bumper cover*
- *Side panel*
- *Quarter panel*
- *Quarter panel lower extension*
- *Fuel tank*
- *Fuel tank filler pipe*
- *Rocker panel*
- *Roof rear panel*
- *Roof panel*
- *Glass roof panel*
- *Rear subframe*
- *Liftgate*



1. The inner quarter panel assembly is serviced as indicated.
2. Before commencing this procedure make sure that you are aware of all Health and Safety requirements.

   For additional information, refer to: Health and Safety Precautions (100-00 General Information, Description and Operation).
3. For further information on the methods, tools and fixings used in this procedure refer to the body repairs - general information section.

NOTES:

- *Any joints sealed as part of vehicle manufacture must be sealed as part of the repair.*
- *Make sure a zinc rich primer is applied to any bare metal surfaces.*

- *To make sure that the vehicle is correctly aligned, it must be placed on a Land Rover approved alignment jig.*

4. For additional information, refer to: Rear Bumper Cover (501-19 Bumpers, Removal and Installation).
5. For additional information, refer to: Side Panel (501-29 Side Panel Sheet Metal Repairs, Removal and Installation).
6. For additional information, refer to: Quarter Panel (501-30 Rear End Sheet Metal Repairs, Removal and Installation).
7. For additional information, refer to: Quarter Panel Lower Extension (501-30 Rear End Sheet Metal Repairs, Removal and Installation).
8. For additional information, refer to: Fuel Tank (310-01A, Removal and Installation).

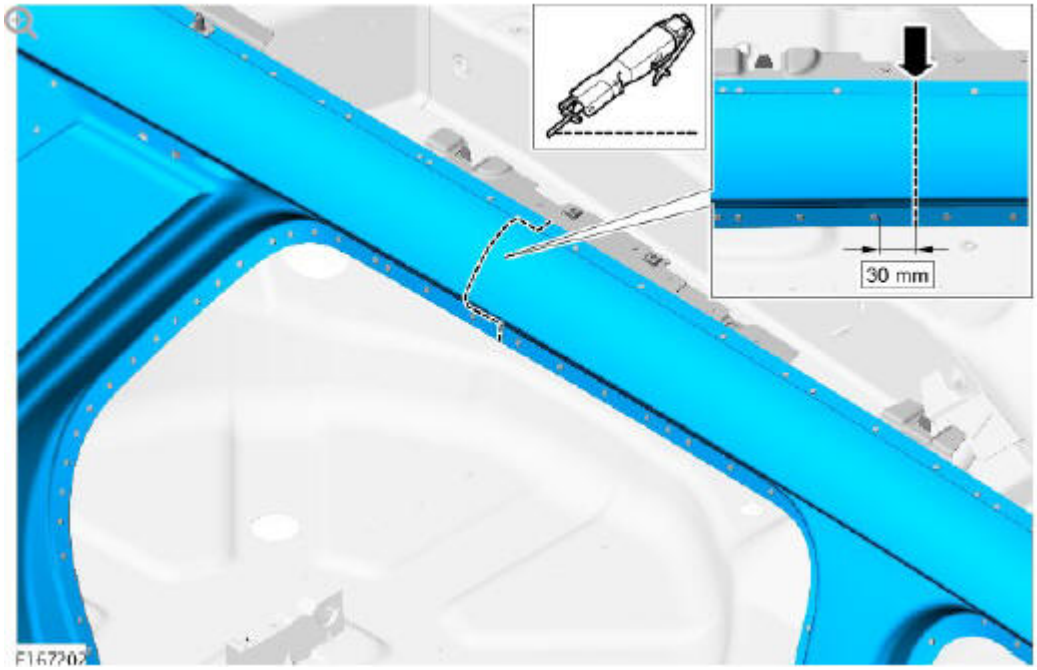
NOTE:

Right hand only.

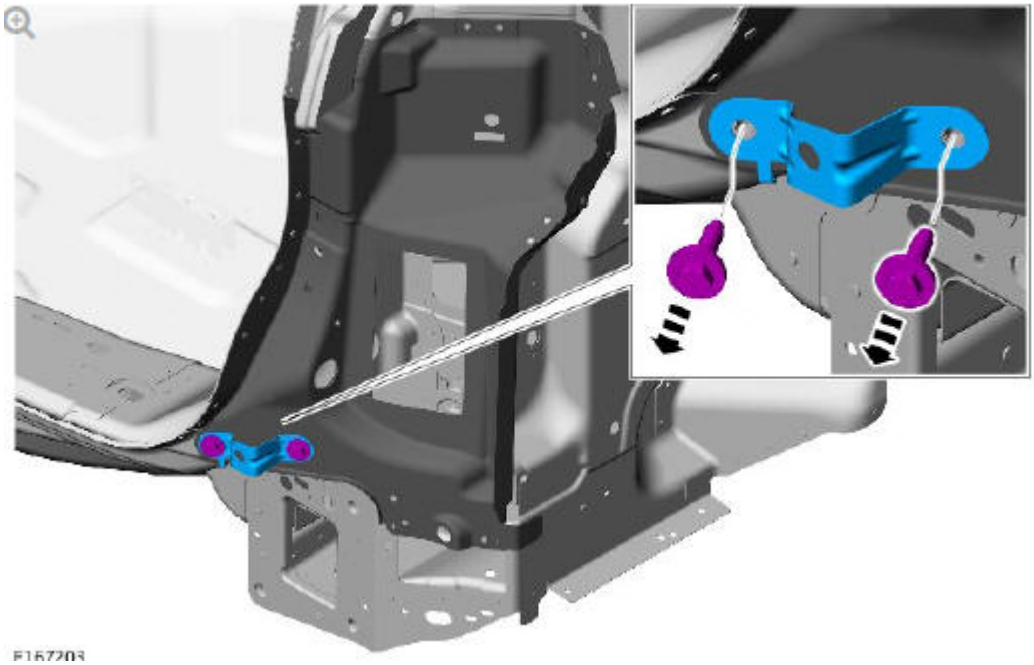
8. For additional information, refer to: Fuel Tank Filler Pipe (310-01 Fuel Tank and Lines - TD4 2.2L Diesel, Removal and Installation).
9. For additional information, refer to: Rocker Panel (501-29 Side Panel Sheet Metal Repairs, Removal and Installation).
10. For additional information, refer to: Roof Rear Panel (501-28 Roof Sheet Metal Repairs, Removal and Installation).
11. For additional information, refer to: Roof Panel (501-28 Roof Sheet Metal Repairs, Removal and Installation).
12. For additional information, refer to: Glass Roof Panel (501-11 Glass, Frames and Mechanisms, Removal and Installation).
13. For additional information, refer to: Rear Subframe - AWD (502-00,Removal and Installation).
14. For additional information, refer to: Liftgate (501-03 Body Closures, Removal and Installation).
15. Remove the occasional seats.
16. Release and position the floor carpet to one side.
17. Release and position the floor noise, vibration, harshness (NVH) material to one side.
18. Release and position to one side the wiring harness along the inner quarter panel and back panel.

NOTE:

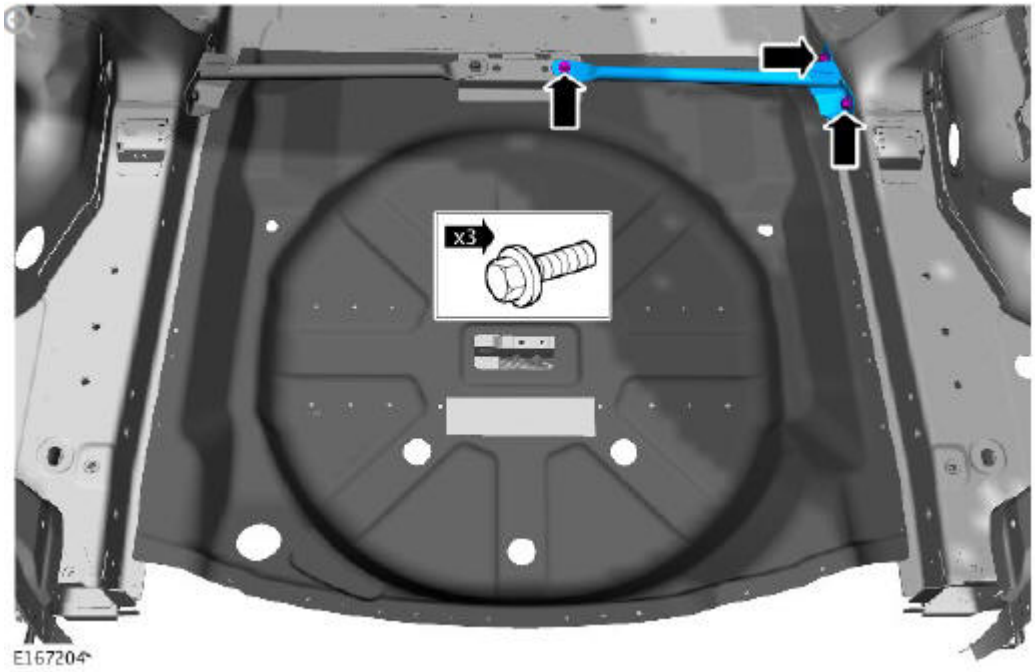
The quarter panel will require the following cut to be made to allow installation of the inner quarter panel assembly.



20. Mark and cut the quarter panel as indicated.



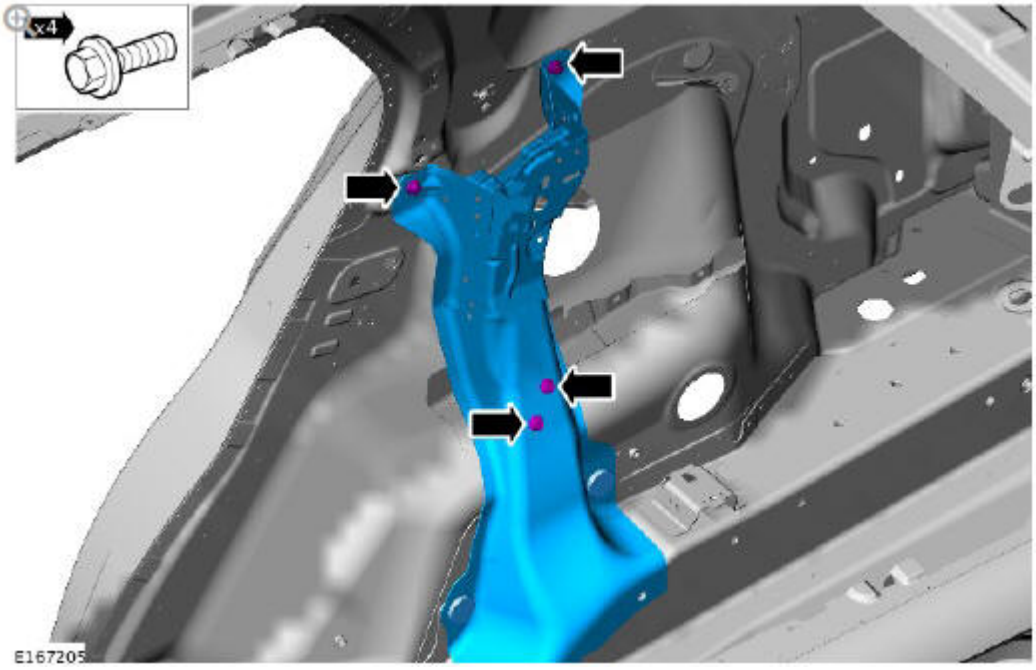
21. Remove the liftgate buffer as indicated.



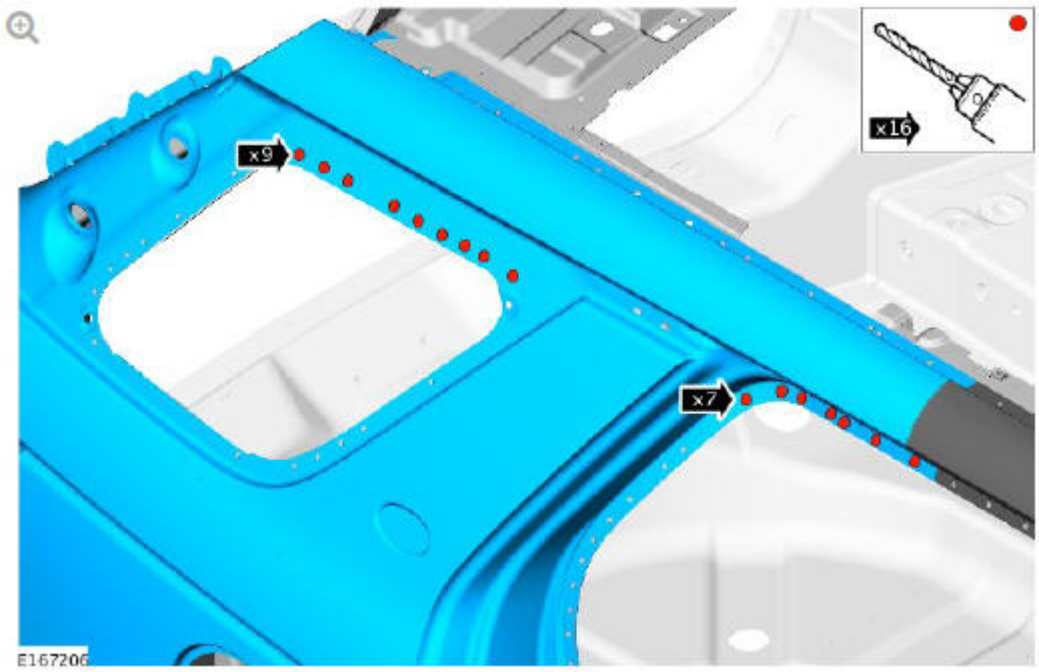
22. Remove the rear floor brace and bracket as indicated.

NOTE:

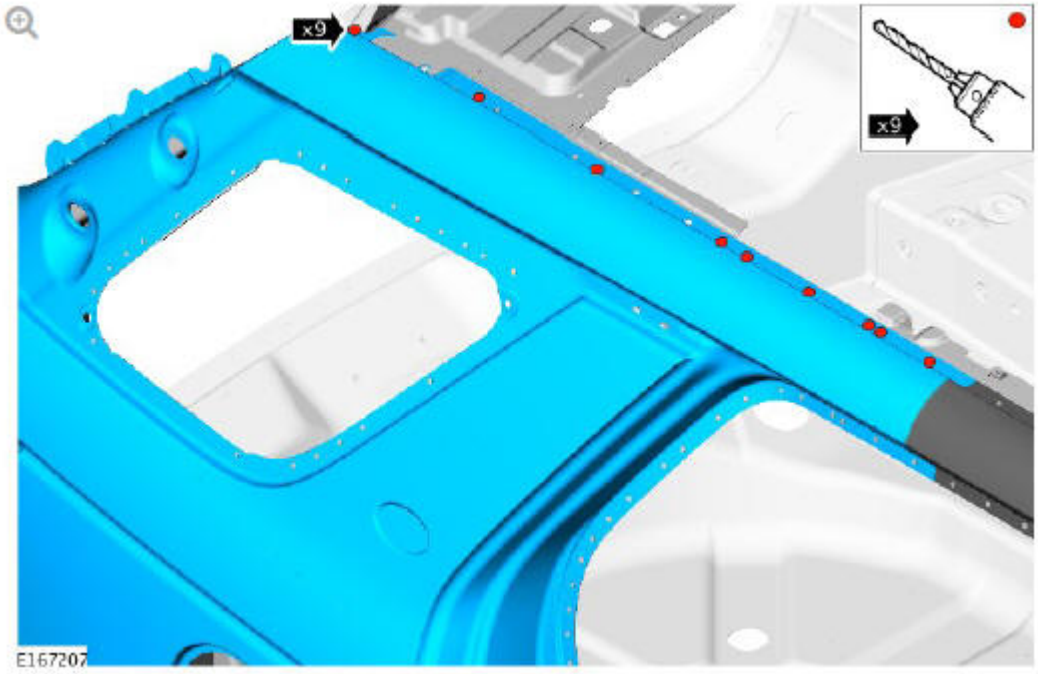
Do not discard the bracket as it is used in installation.



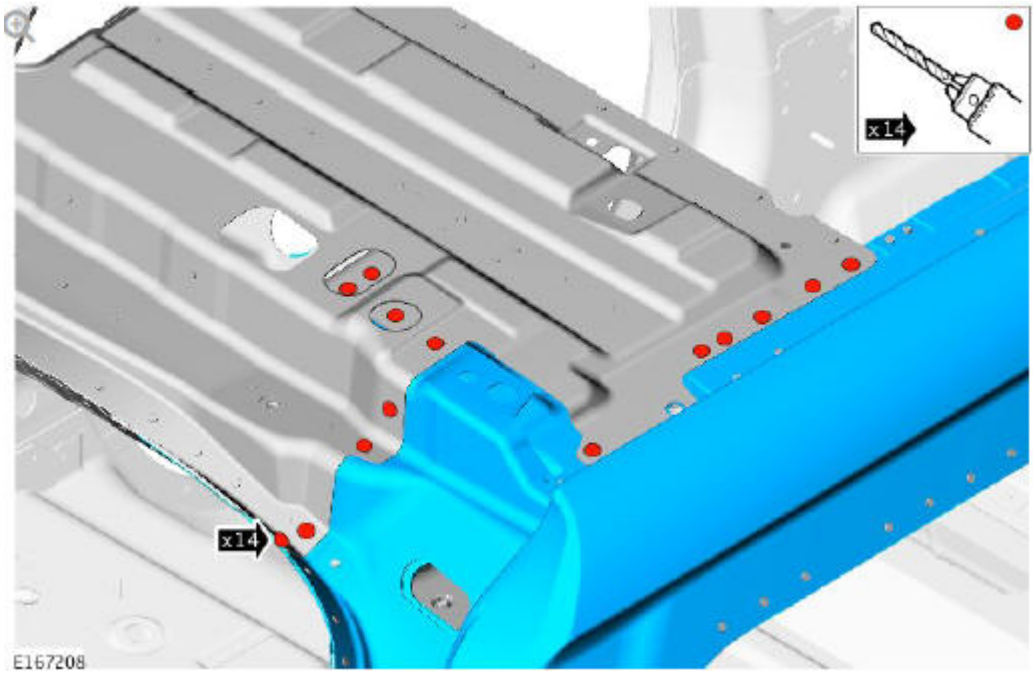
23. Remove the bolts and the bracket as indicated.



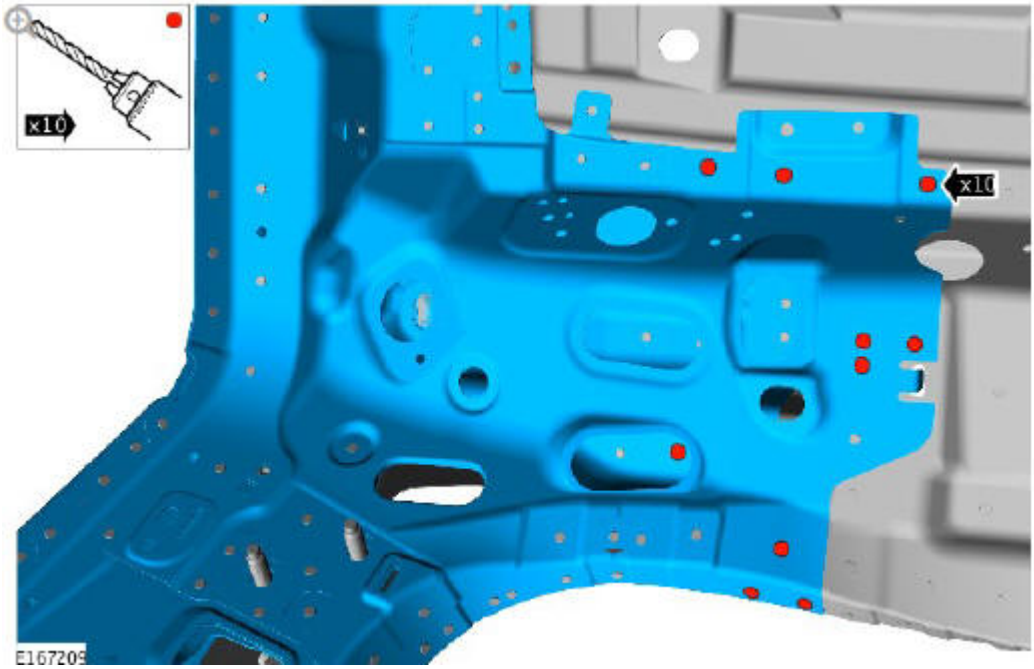
24. Remove the spot welds as indicated.



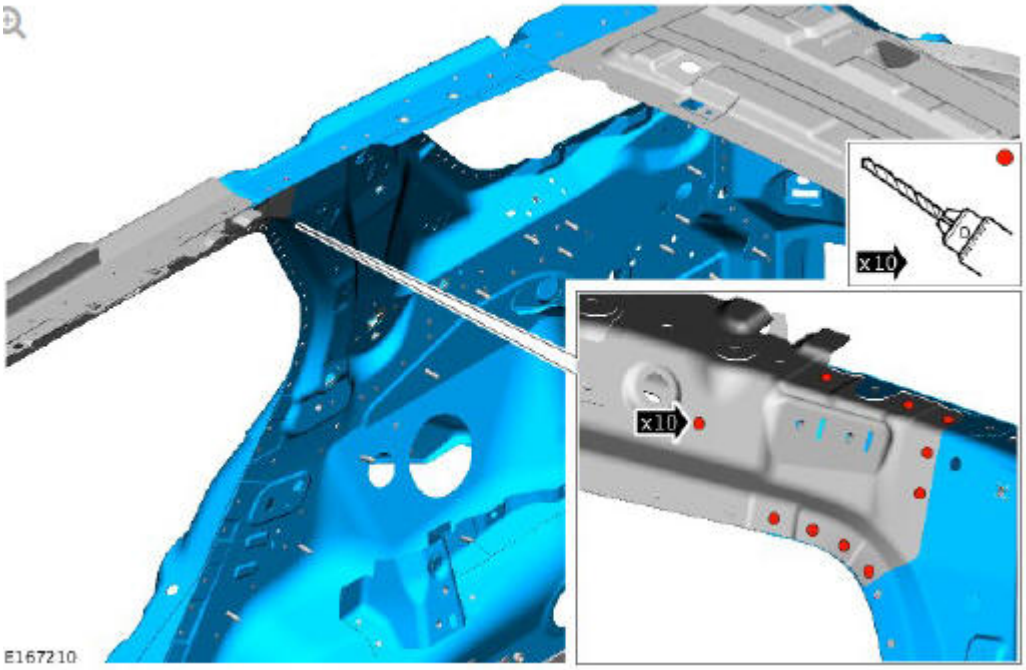
25. Remove the spot welds as indicated.



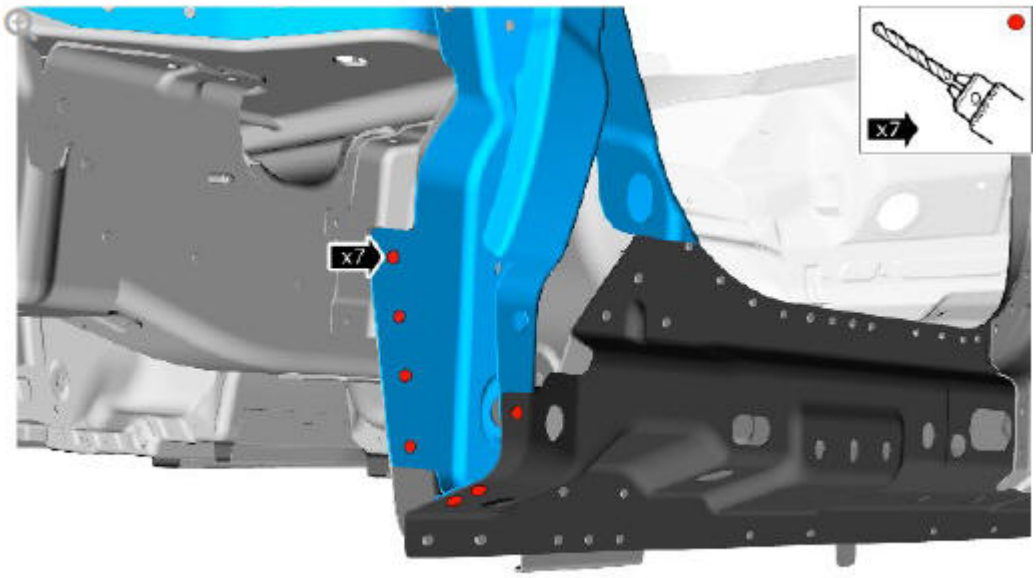
26. Remove the spot welds as indicated.



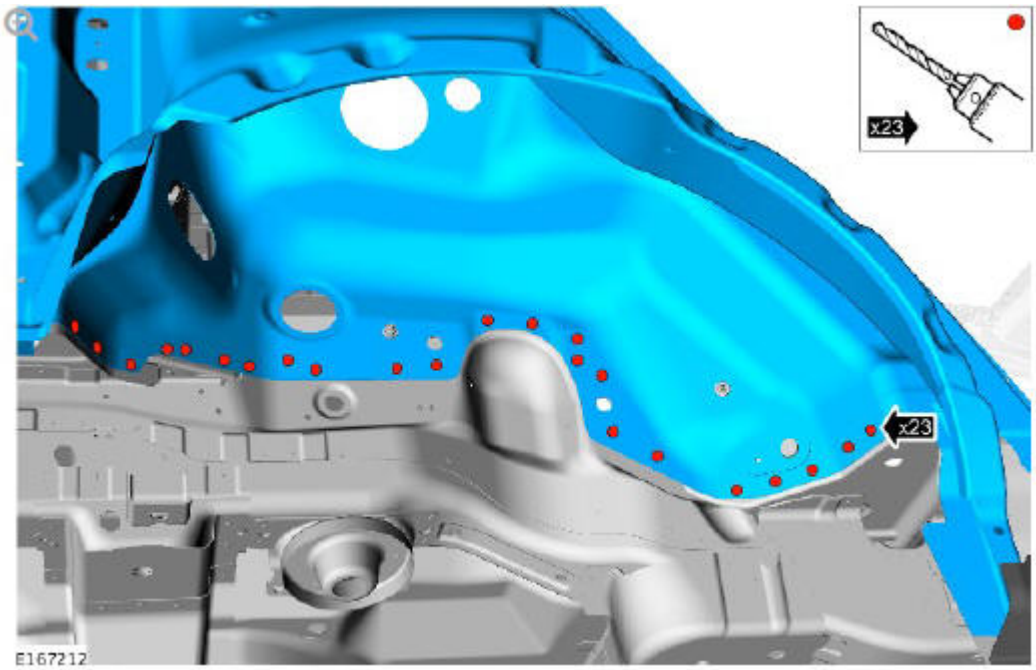
27. Remove the spot welds as indicated.



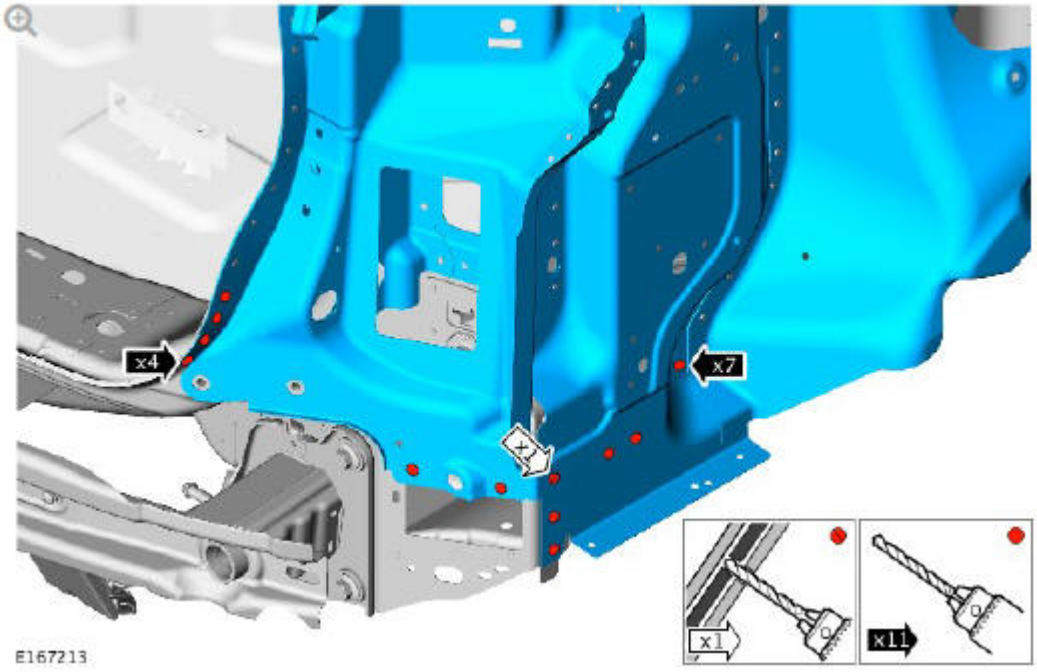
28. Remove the spot welds as indicated.



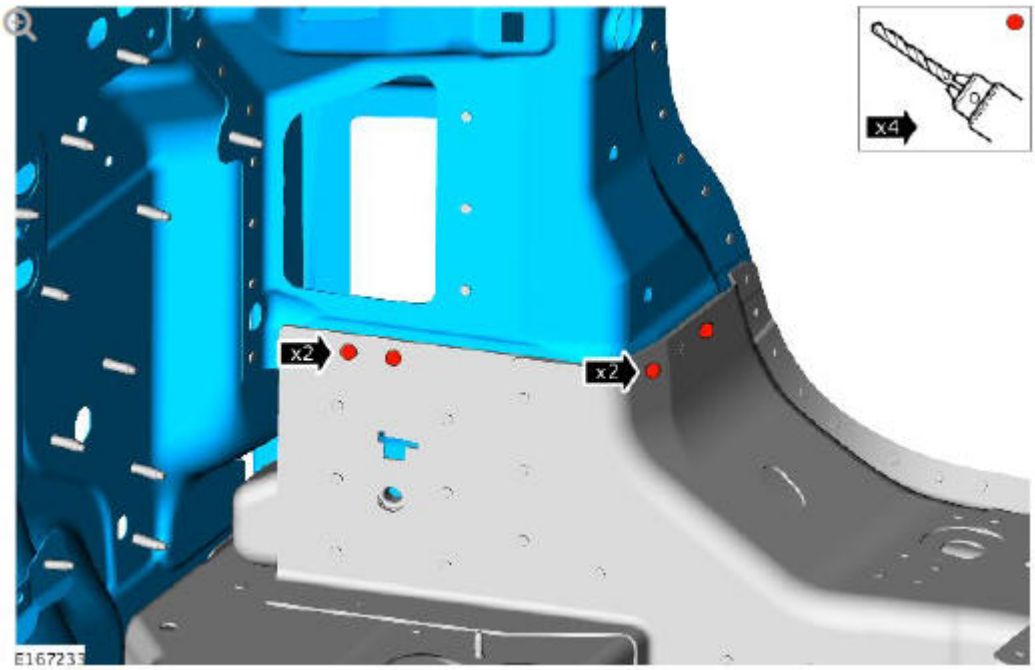
29. Remove the spot welds as indicated.



30. Remove the spot welds as indicated.



31. Remove the spot welds as indicated.



32. Remove the spot welds as indicated.

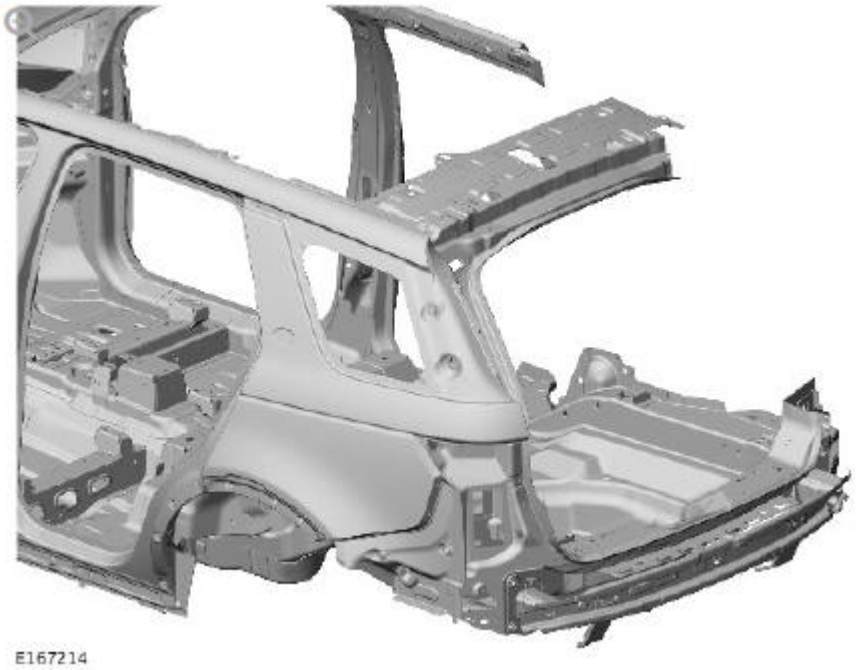
CAUTION:

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

33. Carefully separate the joints and remove the inner quarter panel assembly.

CAUTION:

Once the inner quarter panel assembly has been removed support is required to hold the upper panels in position until the new inner quarter panel assembly has been installed.



34. Make sure that the upper panels are supported.

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Rear end Sheet Metal Repairs Inner Quarter Panel Assembly (G1770950)Rear end Sheet Metal Repairs Inner Quarter Panel Assembly (G1770950) - Installation

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Задняя часть ремонт кузовных панелей внутренний боковина кузова в сборе - установка

Rear end Sheet Metal Repairs Inner Quarter Panel Assembly (G1770950) - Installation

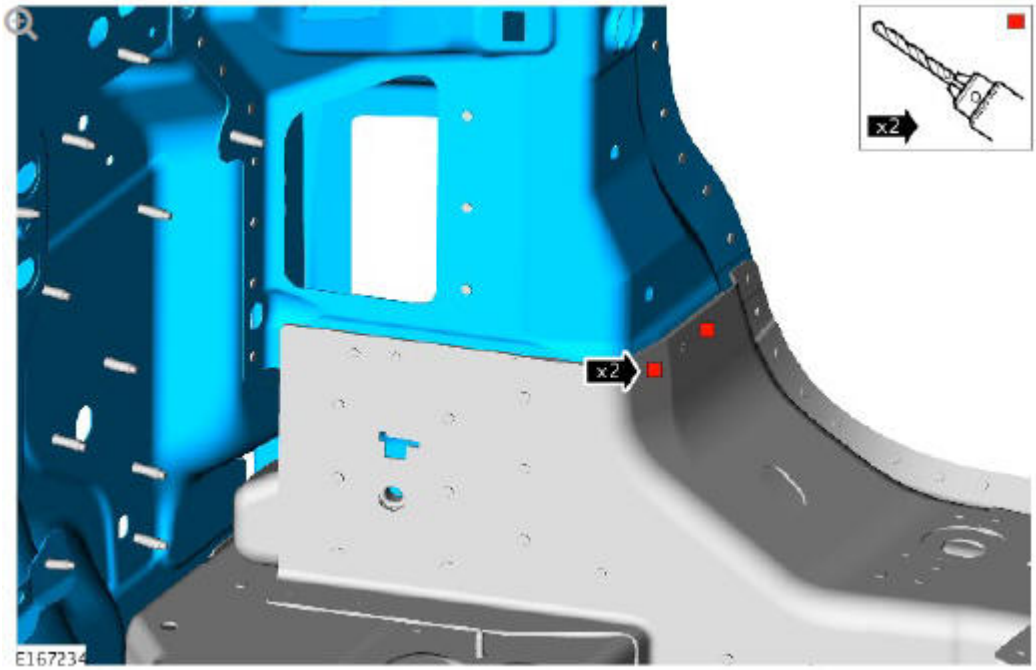
Installation

1. Dress the flanges where necessary.

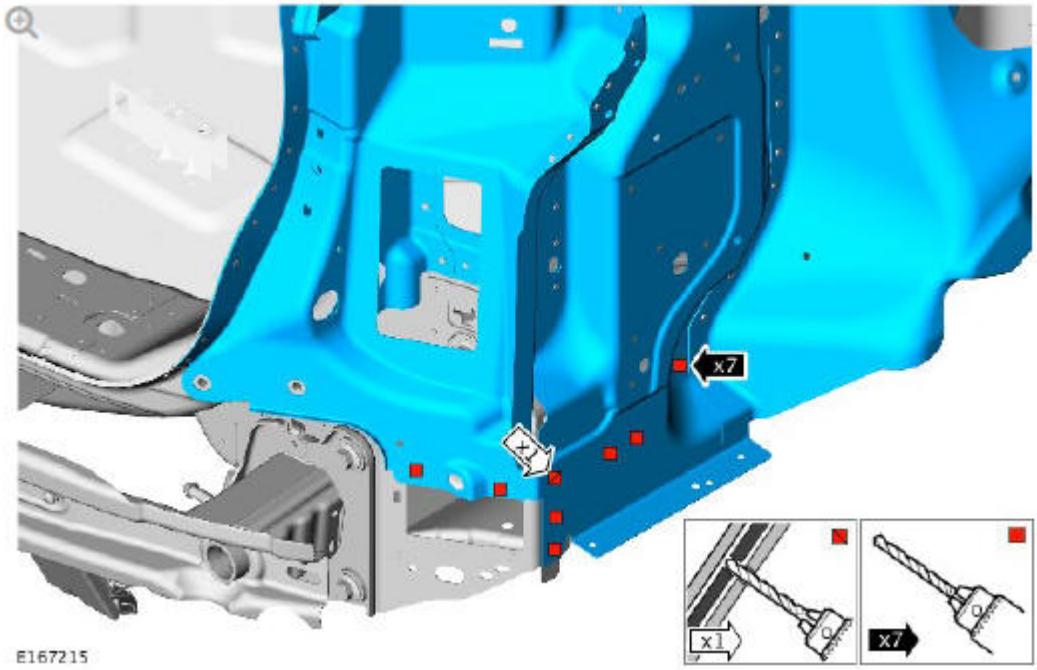
CAUTION:

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

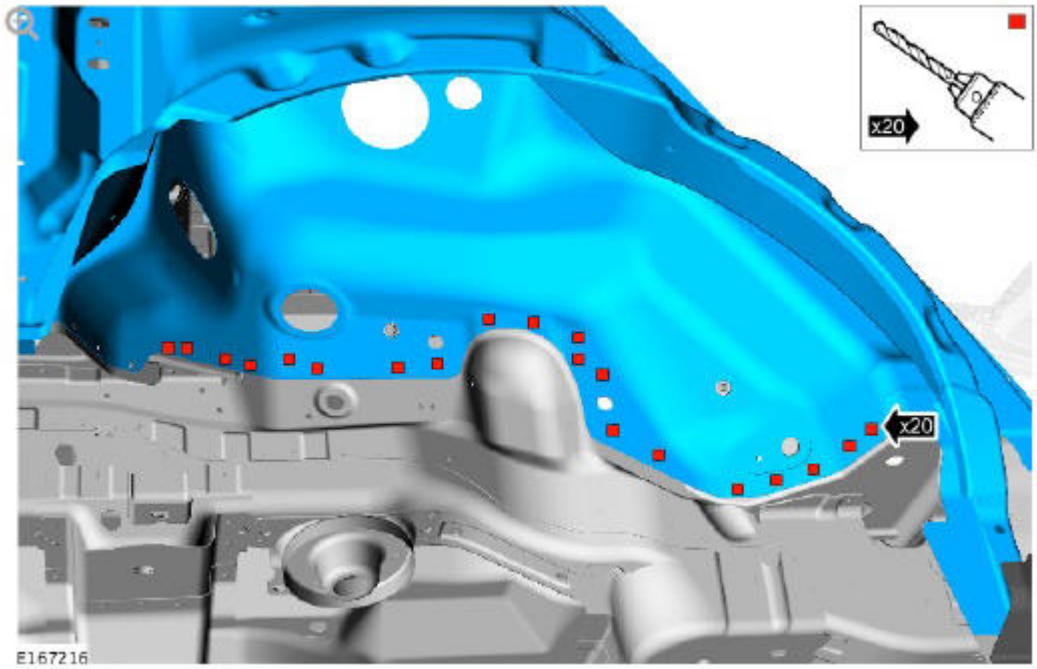
2. Offer up the new inner quarter panel assembly and clamp into position. Check alignment, if correct proceed to next step, if not, rectify and recheck before proceeding.



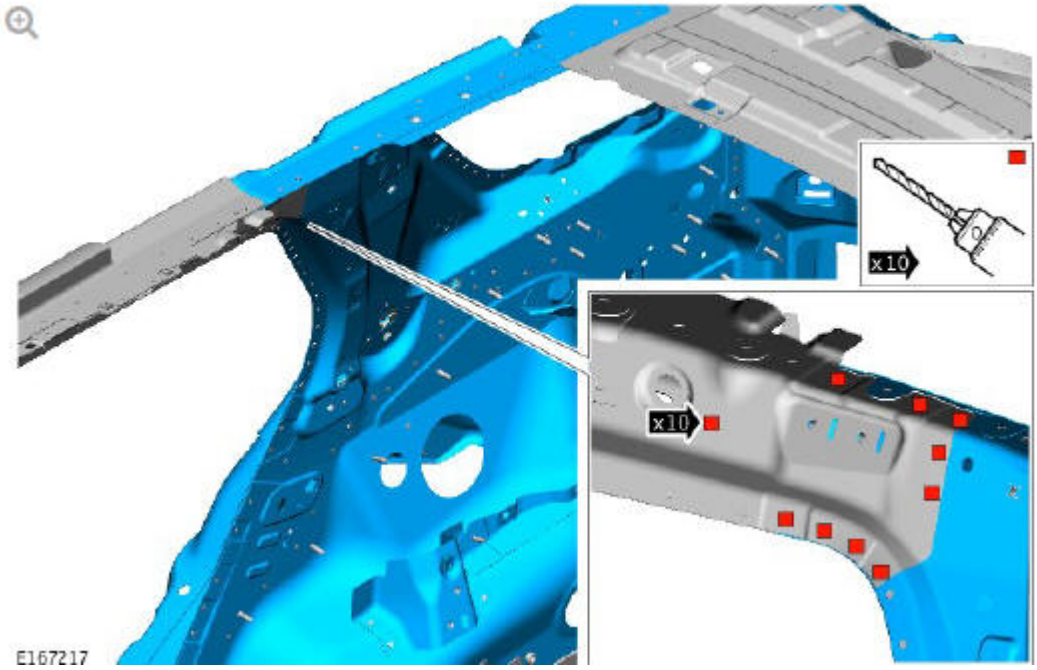
3. Drill holes where the metal inert gas (MIG) plug welds are to be installed as indicated.



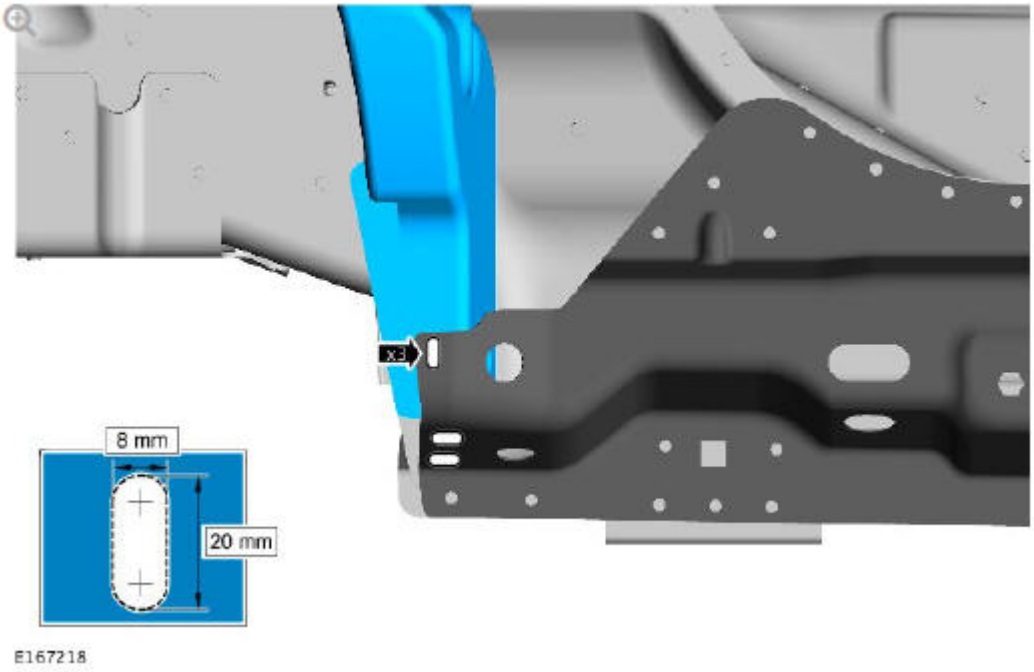
4. Drill holes where the MIG plug welds are to be installed as indicated.



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



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



7. Cut slots where the MIG braze slot welds are to be installed as indicated.

CAUTION:

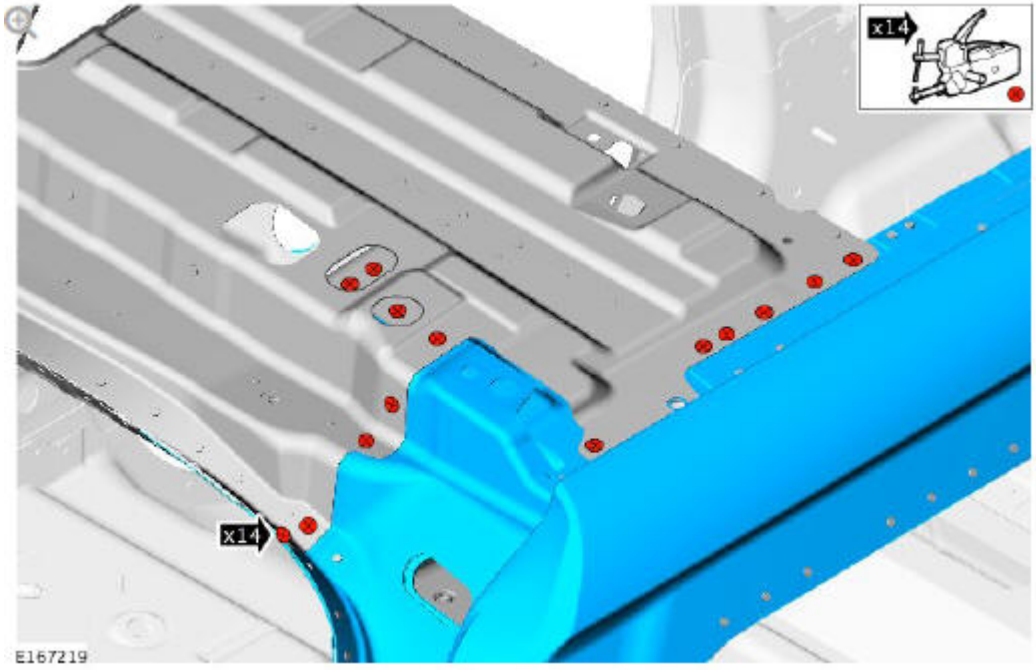
<u>This step will require the aid of another person as the panel will be heavy.</u>

8. Remove the inner quarter panel assembly.
9. Deburr the drilled holes.
10. Clean and prepare the panel surfaces.

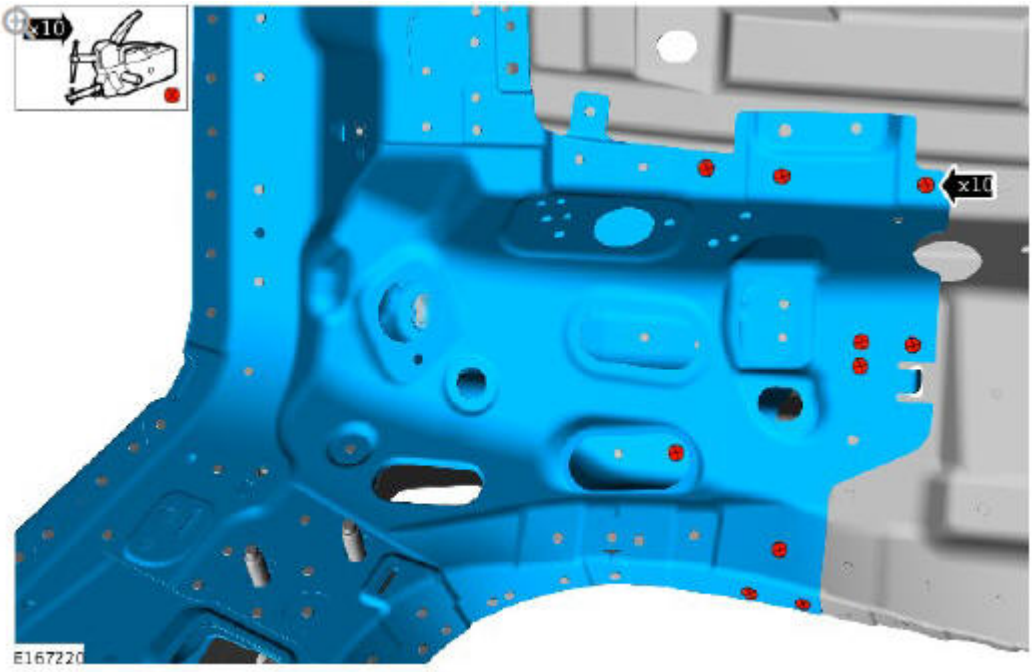
CAUTION:

<u>This step will require the aid of another person as the panel will be heavy.</u>

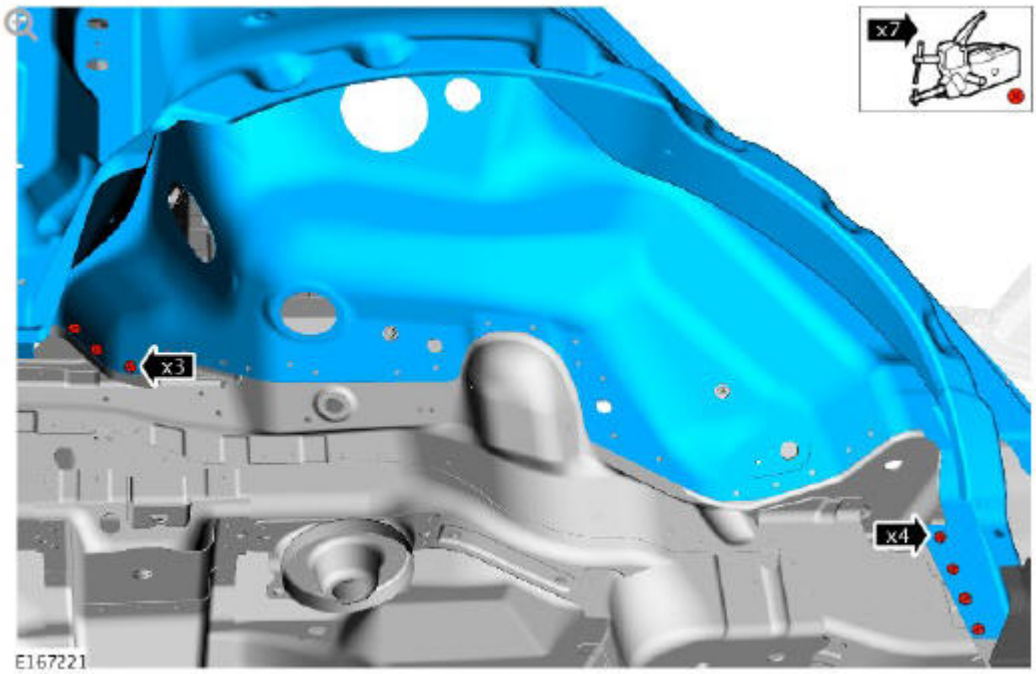
11. Offer up the new inner quarter panel assembly and clamp into position. Check alignment, if correct proceed to next step, if not, rectify and recheck before proceeding.



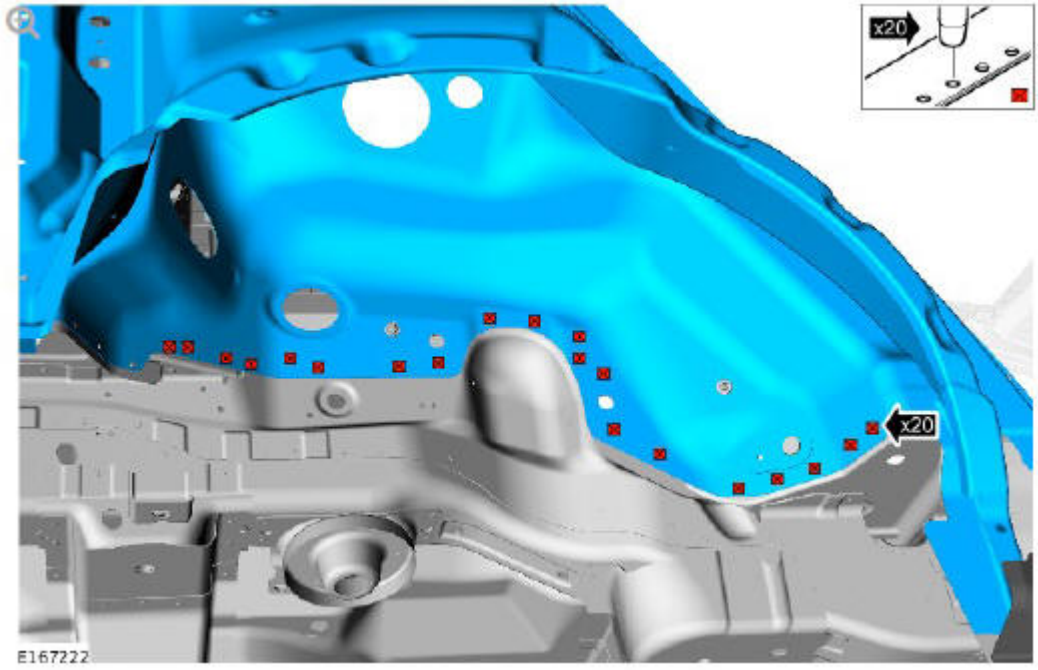
12. Install the spot welds as indicated.



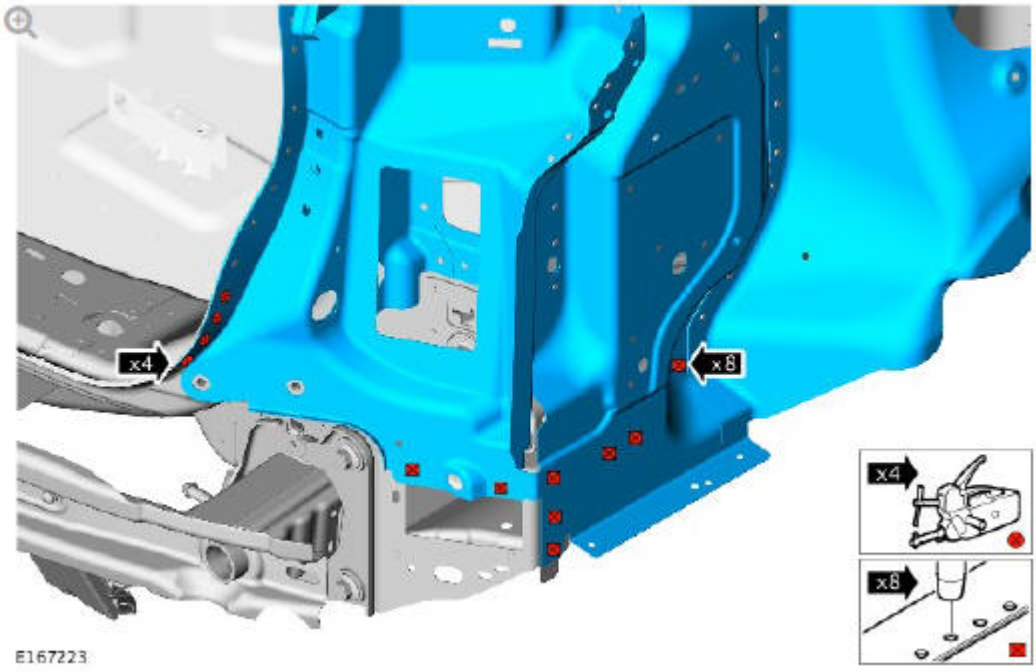
13. Install the spot welds as indicated.



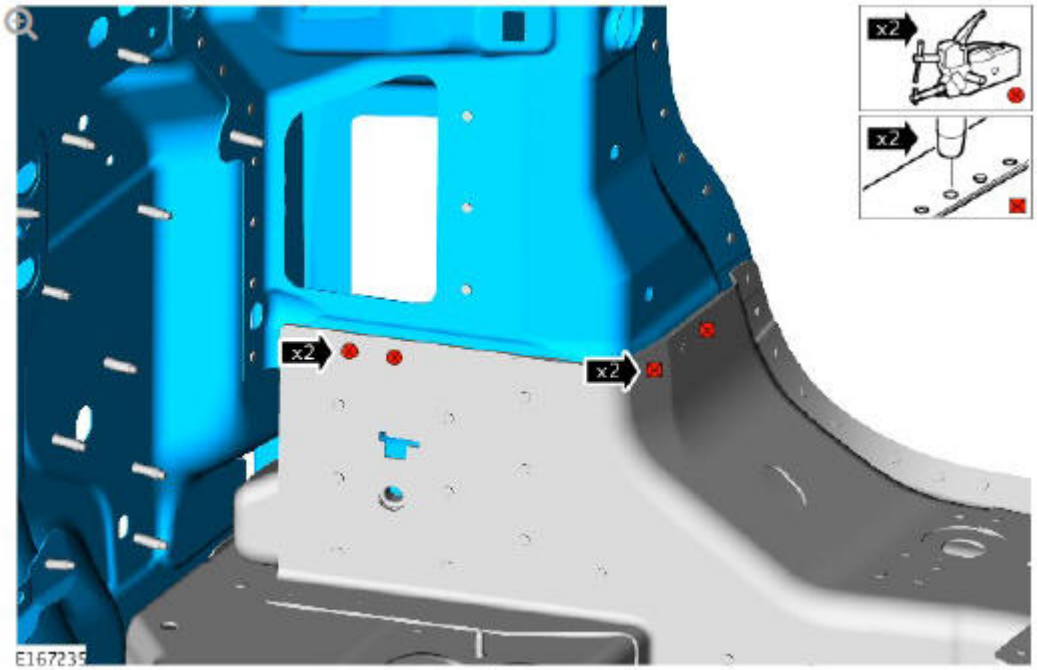
14. Install the spot welds as indicated.



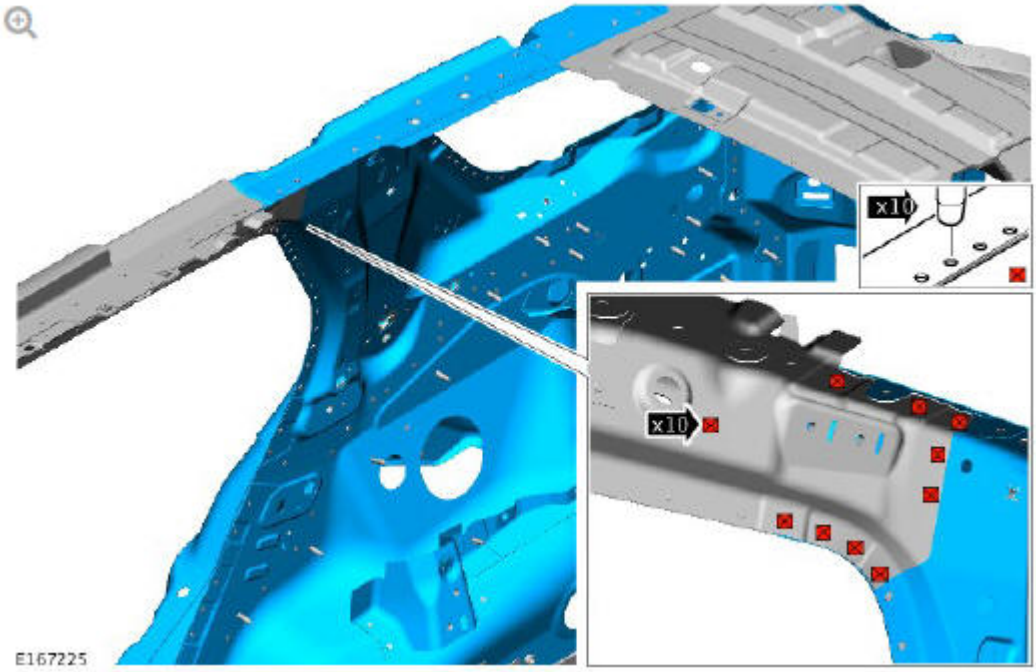
15. Install the MIG plug welds as indicated.



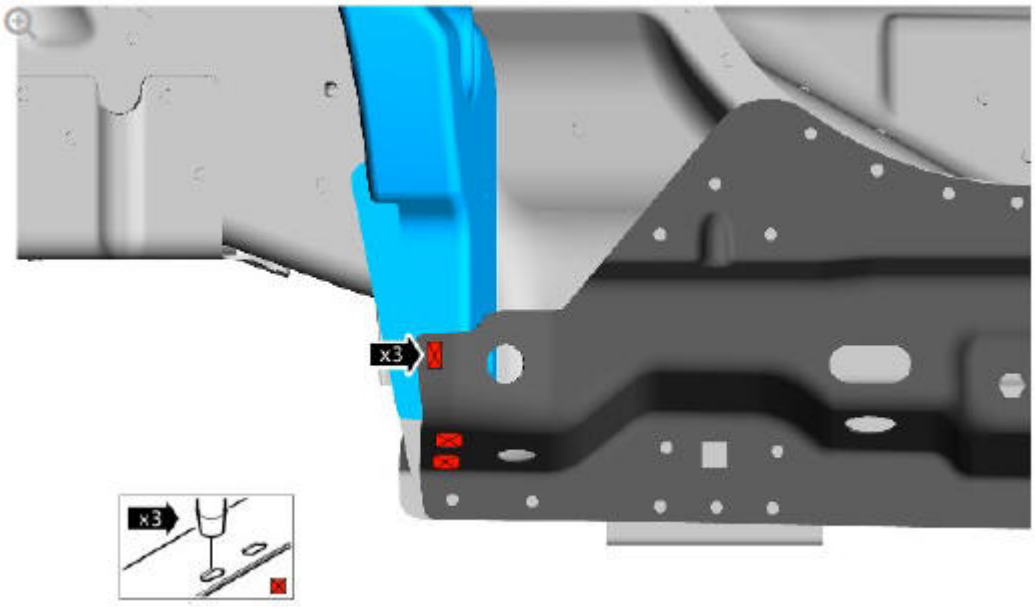
16. Install the MIG plug and the spot welds as indicated.



17. Install the MIG plug and the spot welds as indicated.



18. Install the MIG plug welds as indicated.



19. MIG braze the slots as indicated.

NOTE:

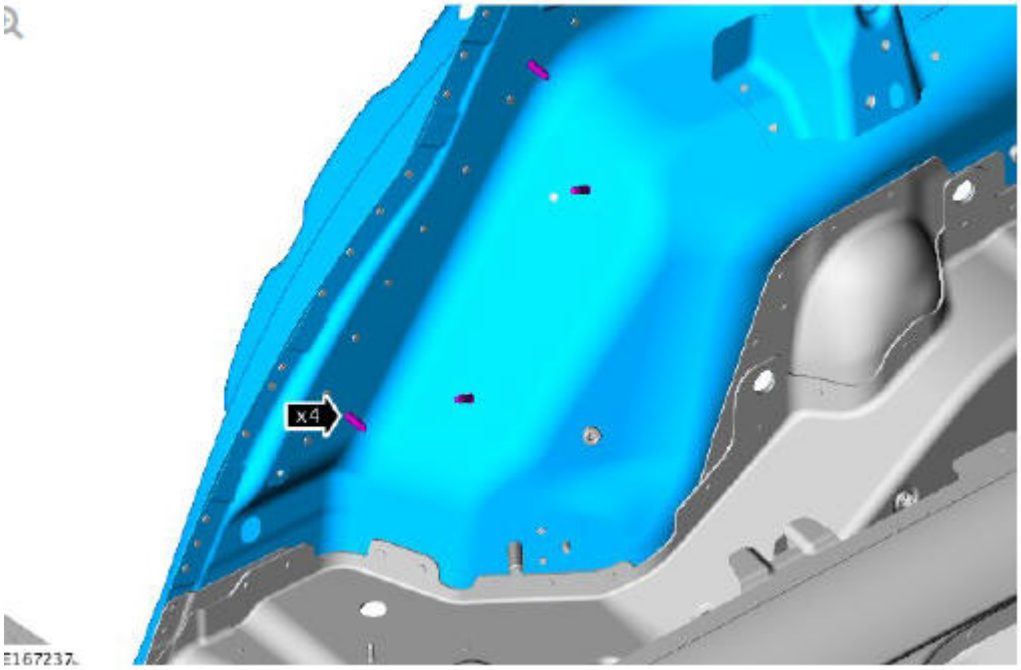
The components that are located/installed to these weld studs must be offered up and cross checked for alignment prior to the installation of the weld studs to the new panel.



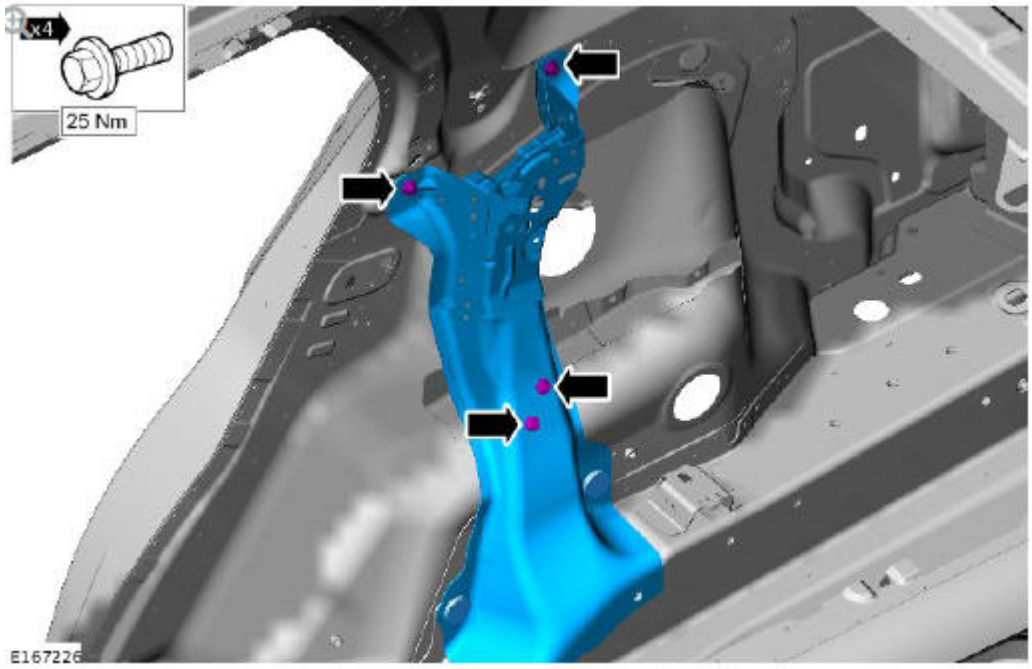
20. Prepare the new panel and install the weld studs in their original locations as indicated.

NOTE:

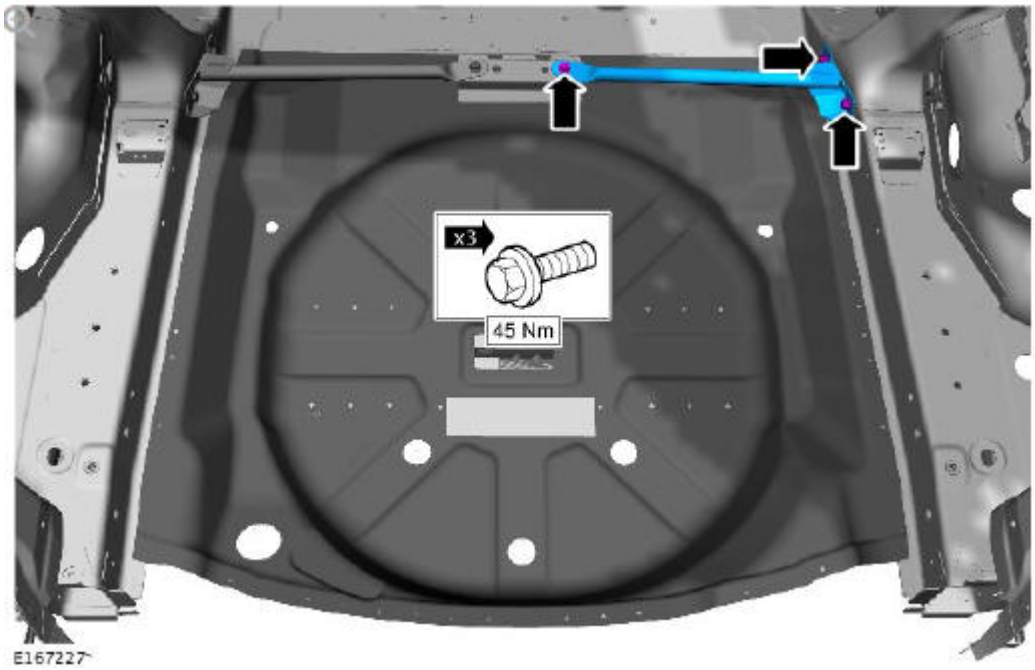
The components that are located/installed to these weld studs must be offered up and cross checked for alignment prior to the installation of the weld studs to the new panel.



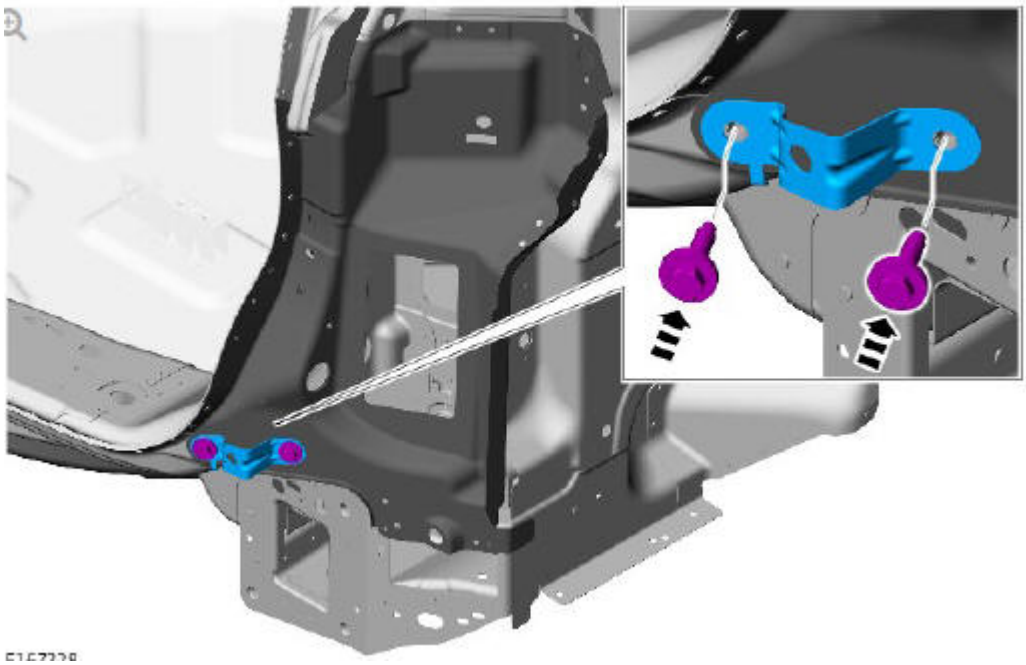
21. Prepare the new panel and install the weld studs in their original locations as indicated.
22. Dress all welds.



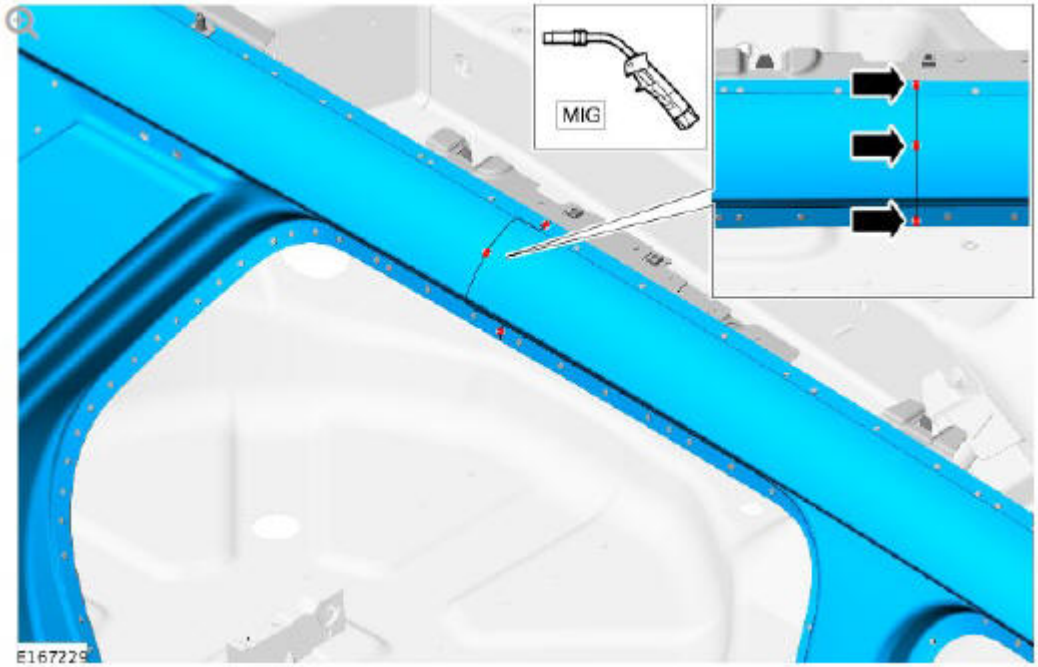
23. Install the bracket and tighten the bolts to 25Nm as indicated.



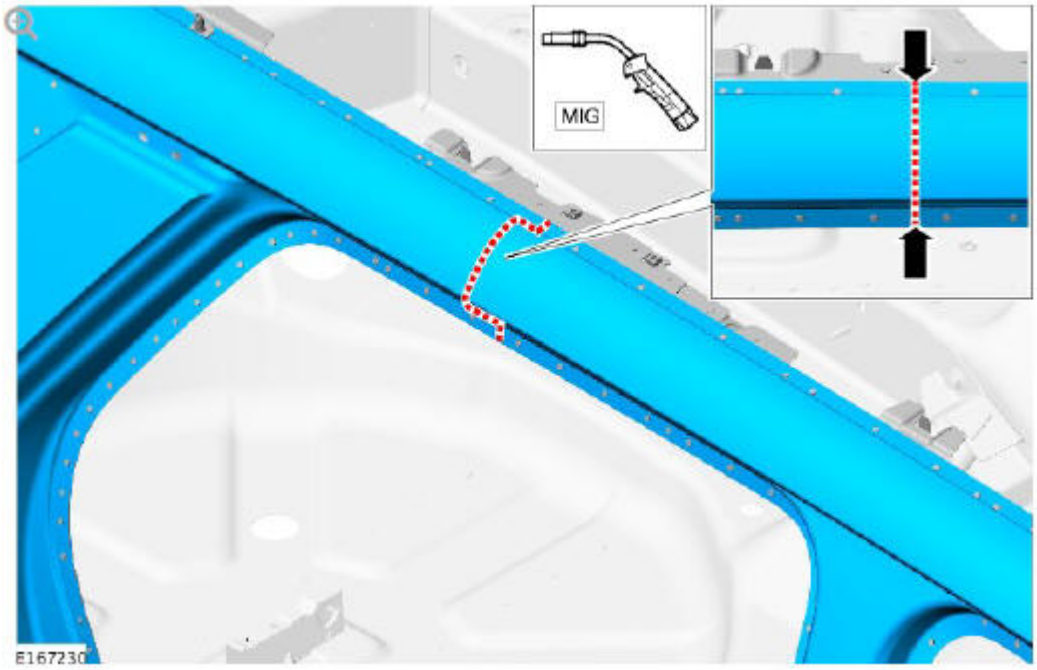
24. Install the r3



25. Install the liftgate buffer and tighten the bolts to 25Nm as indicated.
26. Install the quarter panel.



27. Tack MIG weld the quarter panel butt joint as indicated.
28. Install the quarter panel MIG and spot welds.



29. Mig weld the quarter panel butt joint as indicated.
30. Make sure that any open or exposed panel joints are sealed with a Land Rover recommended sealer.
31. Make sure corrosion protection is applied to all areas affected by repair.
32. The installation of associated panels and components is the reversal of removal procedure.

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Rear end Sheet Metal Repairs Inner Quarter Panel Assembly (G1770950) - RemovalRear end Sheet Metal Repairs Back Panel Outer (G1770946)

ne

Задняя часть ремонт кузовных панелей задняя часть панель наружный

Rear end Sheet Metal Repairs Back Panel Outer (G1770946)

- Rear end Sheet Metal Repairs Back Panel Outer (G1770946) - Removal
- Rear end Sheet Metal Repairs Back Panel Outer (G1770946) - Installation

ne

Rear end Sheet Metal Repairs Inner Quarter Panel Assembly (G1770950) - InstallationRear end Sheet Metal Repairs Back Panel Outer (G1770946) - Removal

ne

Задняя часть ремонт кузовных панелей задняя часть панель наружный - снятие

Rear end Sheet Metal Repairs Back Panel Outer (G1770946) - Removal

Removal

NOTE:

The back panel outer is installed in conjunction with:

- *Rear bumper cover*
- *Rear bumper*
- *Rear bumper retaining rail*
- *Rear lamp assembly*
- *Quarter panel lower extension*
- *Loadspace trim panel*



1. The back panel outer is serviced as indicated.
2. Before commencing this procedure make sure that you are aware of all Health and Safety requirements.

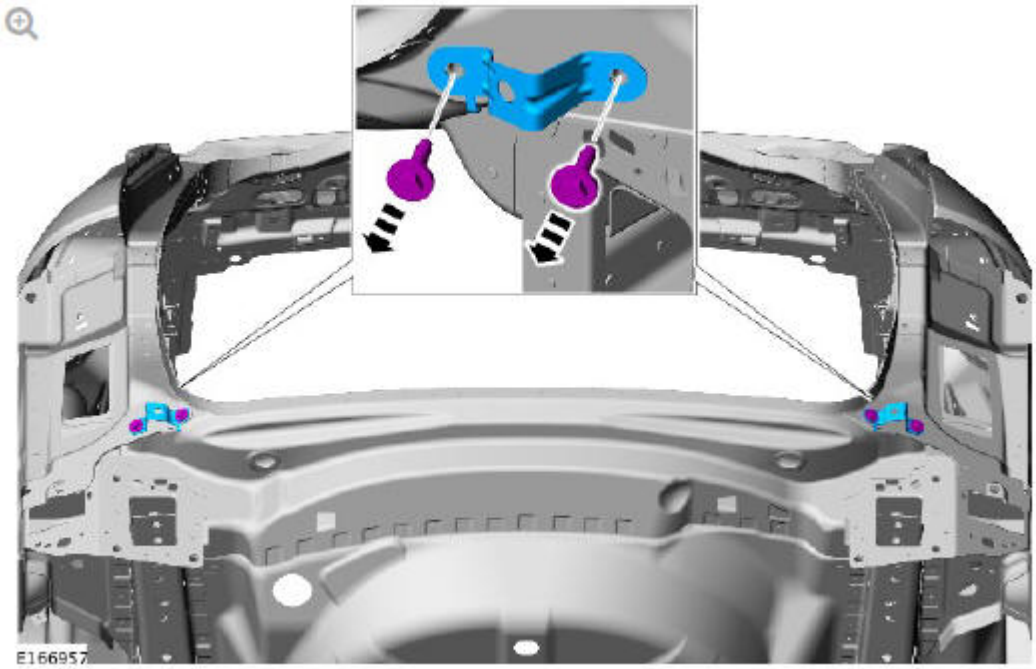
   For additional information, refer to: Health and Safety Precautions (100-00, Description and Operation).

3. For further information on the methods, tools and fixings used in this procedure refer to the body repairs - general information section.

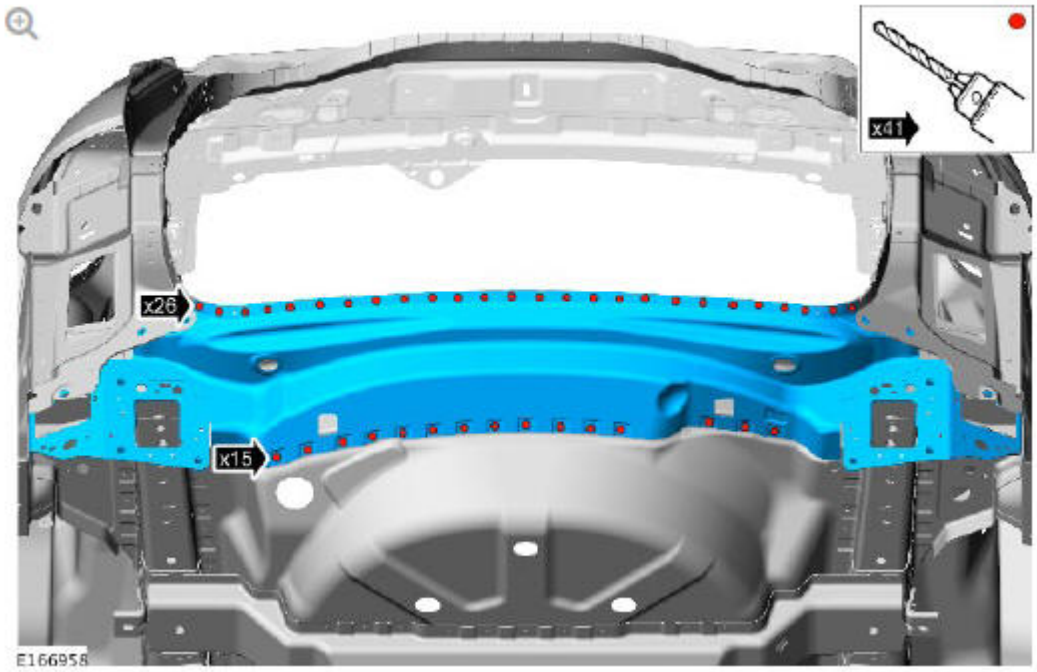
NOTES:

- *Any joints sealed as part of vehicle manufacture must be sealed as part of the repair.*
- *Make sure a zinc rich primer is applied to any bare metal surfaces.*

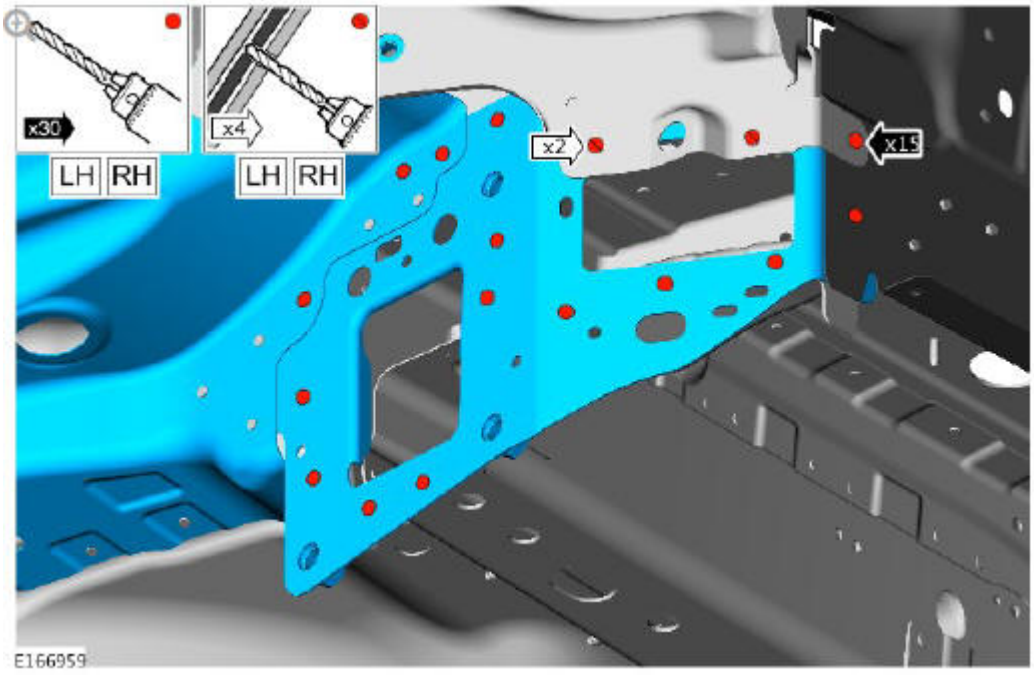
4. For additional information, refer to: Rear Bumper Cover (501-19, Removal and Installation).
5. For additional information, refer to: Rear Bumper (501-19, Removal and Installation).
6. For additional information, refer to: Rear Bumper Retaining Rail (501-30, Removal and Installation).
7. For additional information, refer to: Rear Lamp Assembly (417-01, Removal and Installation).
8. For additional information, refer to: Quarter Panel Lower Extension (501-30, Removal and Installation).
9. For additional information, refer to: Loadspace Trim Panel (501-05, Removal and Installation).



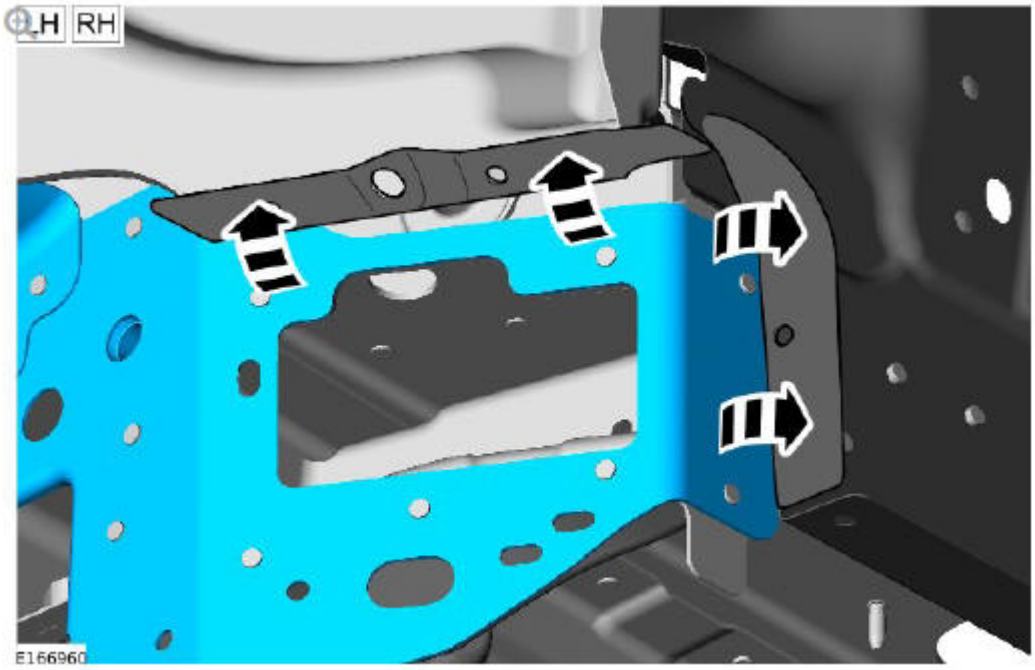
10. Remove the liftgate mounting buffers as indicated.



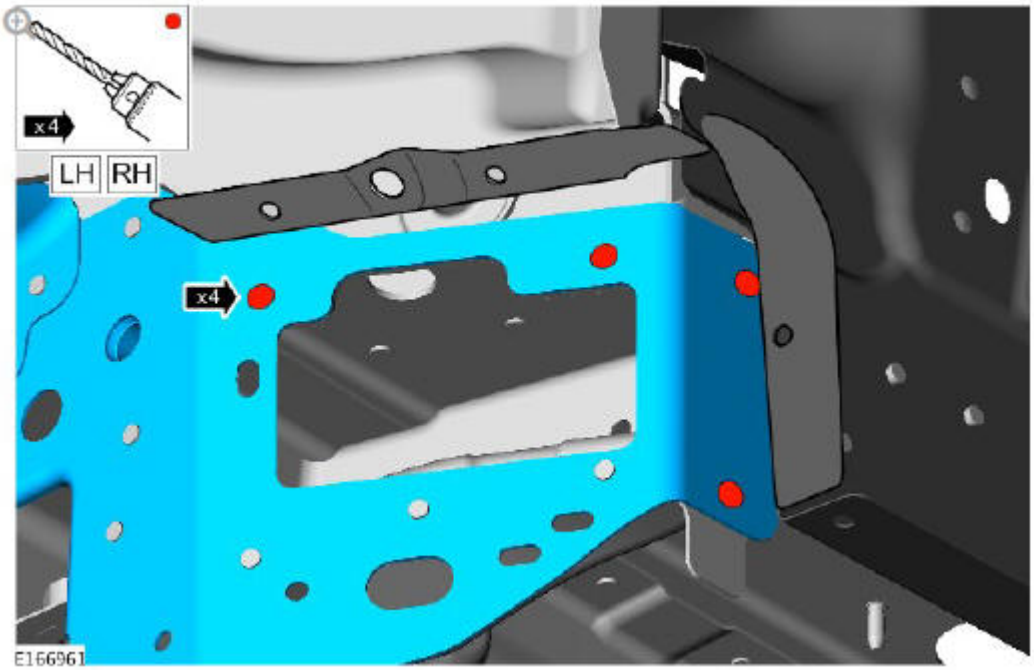
11. Remove the spot welds as indicated.



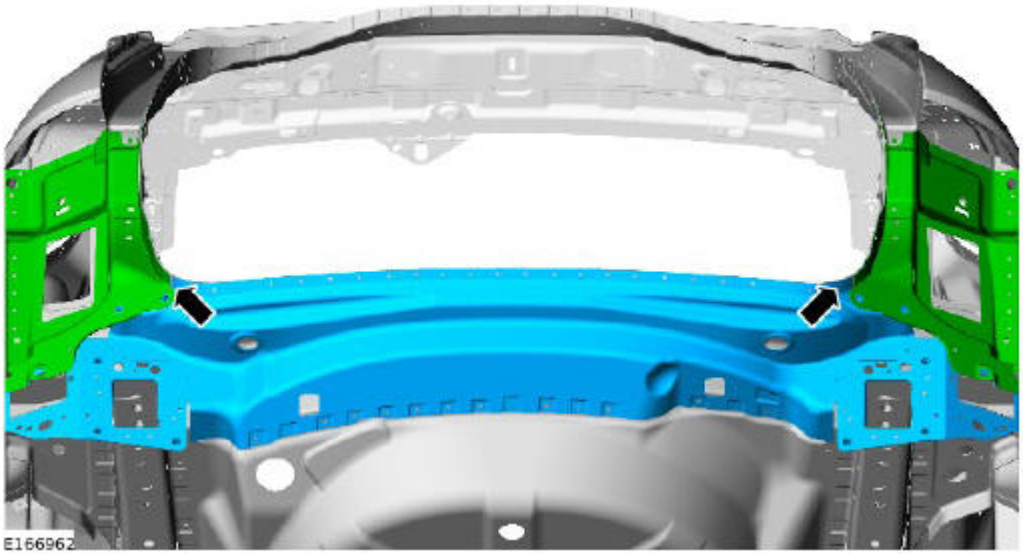
12. Remove the spot welds as indicated.



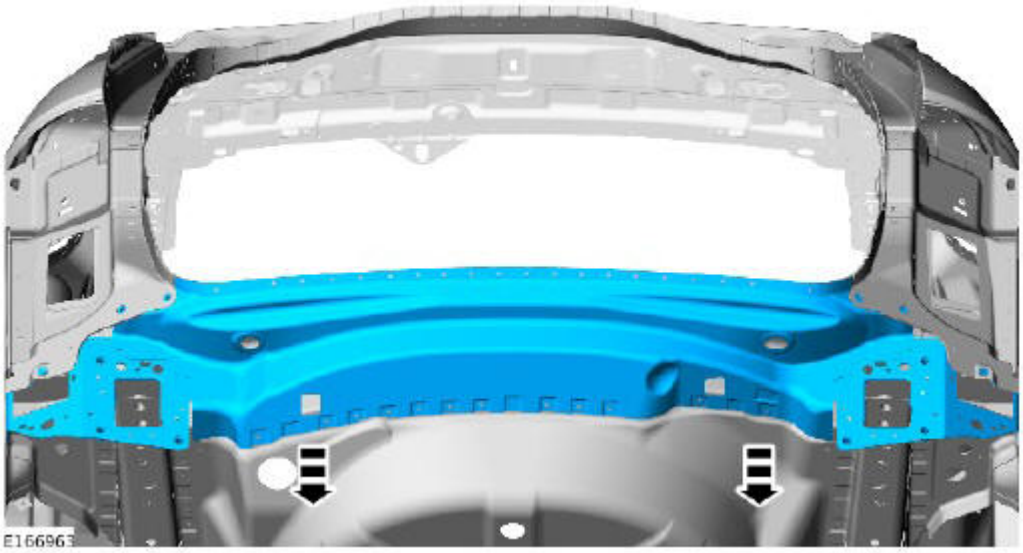
13. Fold back the edges of the panels to reveal hidden spot welds as indicated.



14. Remove the spot welds as indicated.



15. Carefully build an expansion space between the rear lamp panel outer and back panel outer as indicated.



16. Carefully separate the joints and pull down the back panel outer to remove it as indicated.

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Rear end Sheet Metal Repairs Back Panel Outer (G1770946)Rear end Sheet Metal Repairs Back Panel Outer (G1770946) - Installation

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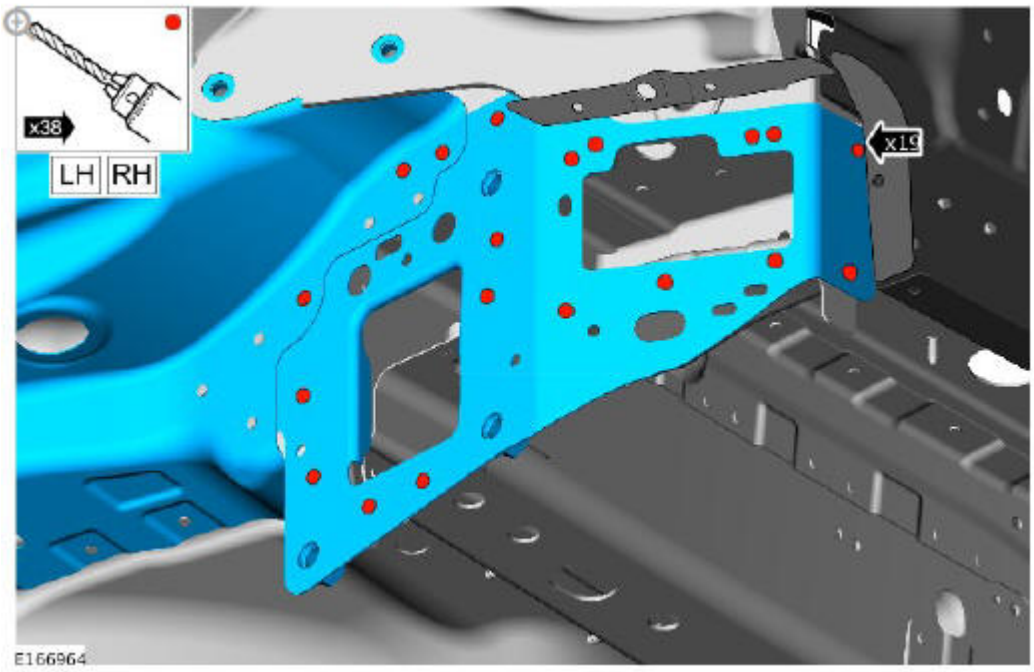
Задняя часть ремонт кузовных панелей задняя часть панель наружный - установка

Rear end Sheet Metal Repairs Back Panel Outer (G1770946) - Installation

INSTALLATION

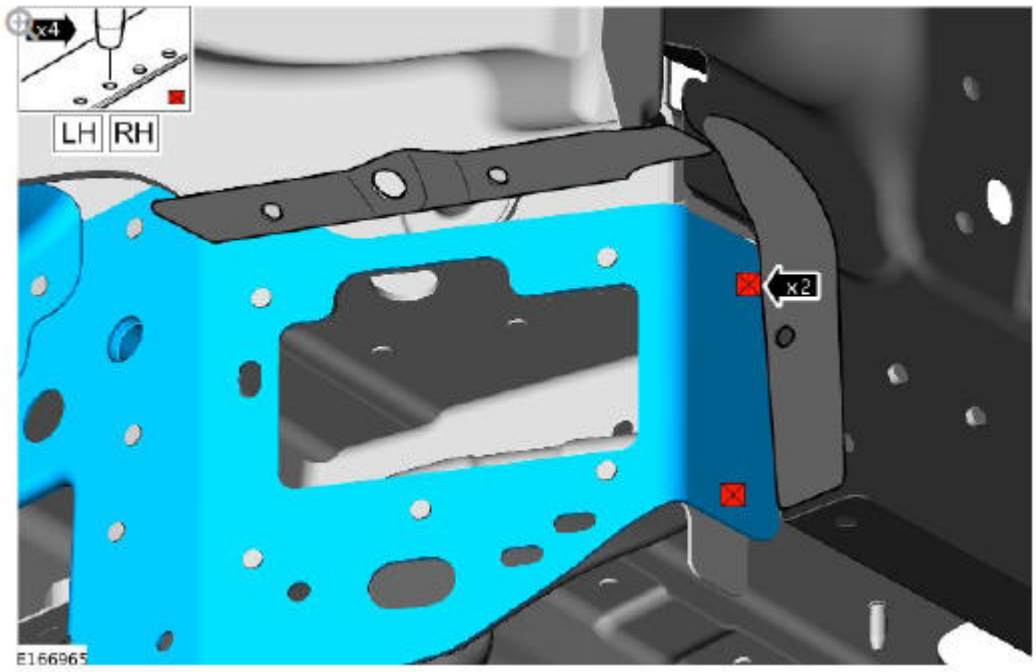
1. Dress the flanges where necessary.
2. Offer up the new back panel outer panel and clamp into position.

   Check alignment, if correct, proceed to next step, if not, rectify and recheck before proceeding.

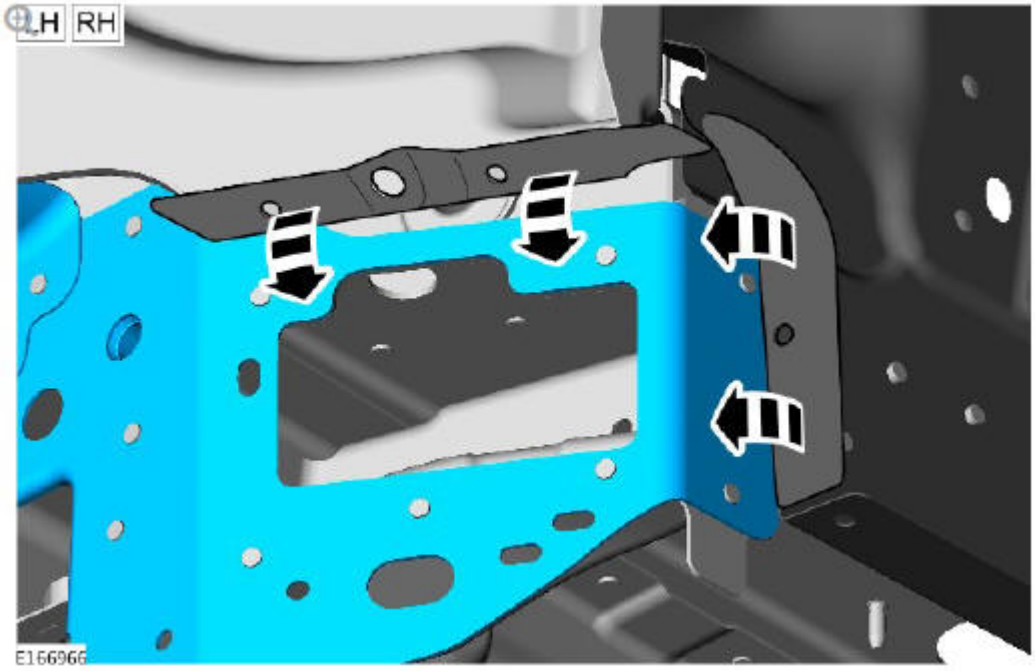


3. Drill holes where the MIG plug welds are to be installed as indicated.
4. Remove the back panel outer.
5. Deburr the drilled holes.
6. Clean and prepare the panel surfaces.
7. Offer up the new back panel outer panel and clamp into position.

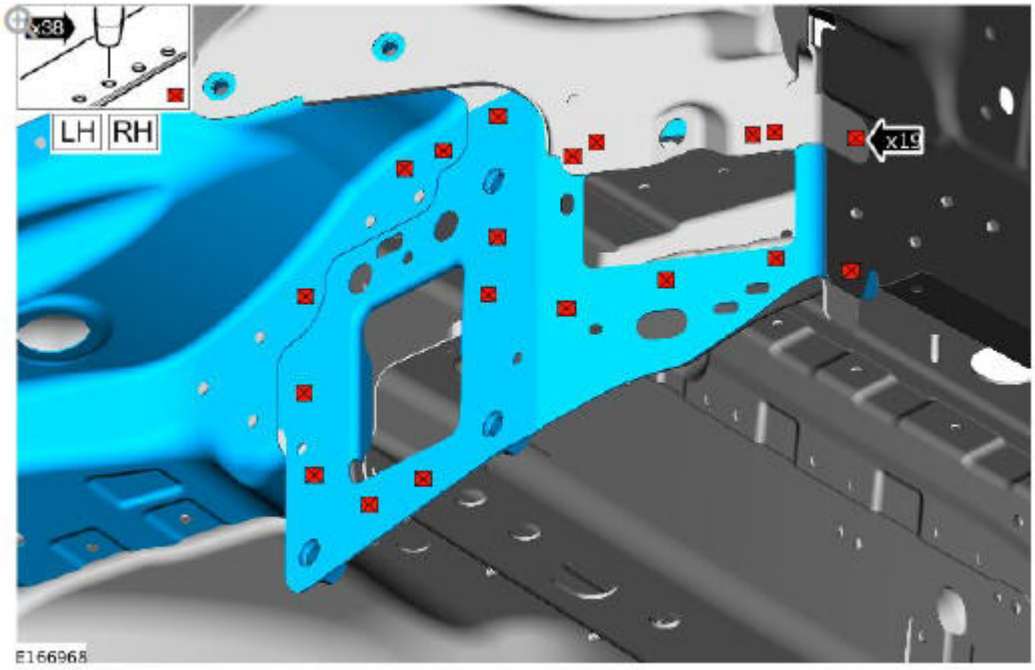
   Check alignment, if correct, proceed to next step, if not, rectify and recheck before proceeding.



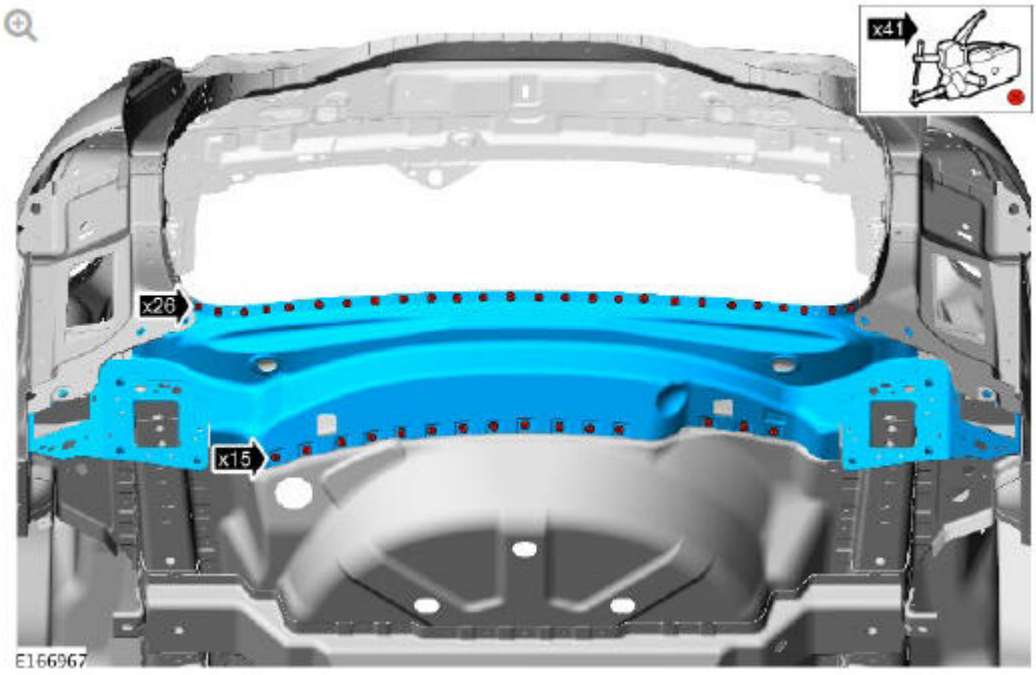
8. Install the MIG plug welds as indicated.
9. Dress the welds.



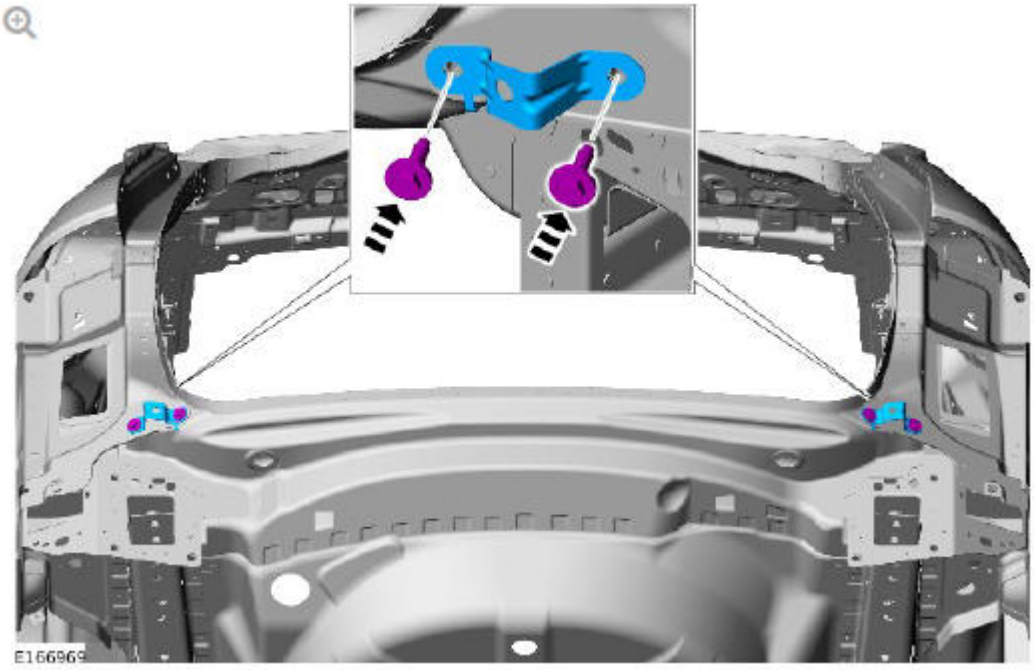
10. Fold back the edges of the panels as indicated.



11. Install the MIG plug welds as indicated.



12. Install the spot welds as indicated



13. Install the liftgate mounting buffers and tighten the bolts to 25Nm as indicated.
14. Dress all welds.
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 repair.
17. The installation of associated panels and components is the reversal of removal procedure.

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Rear end Sheet Metal Repairs Back Panel Outer (G1770946) - RemovalRear end Sheet Metal Repairs Back Panel Inner (G1770945)

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Задняя часть ремонт кузовных панелей задняя часть панель внутренний

Rear end Sheet Metal Repairs Back Panel Inner (G1770945)

- Rear end Sheet Metal Repairs Back Panel Inner (G1770945) - Removal
- Rear end Sheet Metal Repairs Back Panel Inner (G1770945) - Installation

ne

Rear end Sheet Metal Repairs Back Panel Outer (G1770946) - InstallationRear end Sheet Metal Repairs Back Panel Inner (G1770945) - Removal

ne

Задняя часть ремонт кузовных панелей задняя часть панель внутренний - снятие

Rear end Sheet Metal Repairs Back Panel Inner (G1770945) - Removal

Removal

NOTE:

The back panel inner is installed in conjunction with:

- *Rear bumper cover*
- *Rear bumper*
- *Rear bumper retaining rail*
- *Rear lamp assembly*
- *Rear lamp panel outer*
- *Back panel outer*
- *Quarter panel lower extension*
- *Loadspace trim panel*



1. The back panel inner is serviced as indicated.
2. Before commencing this procedure make sure that you are aware of all Health and Safety requirements.

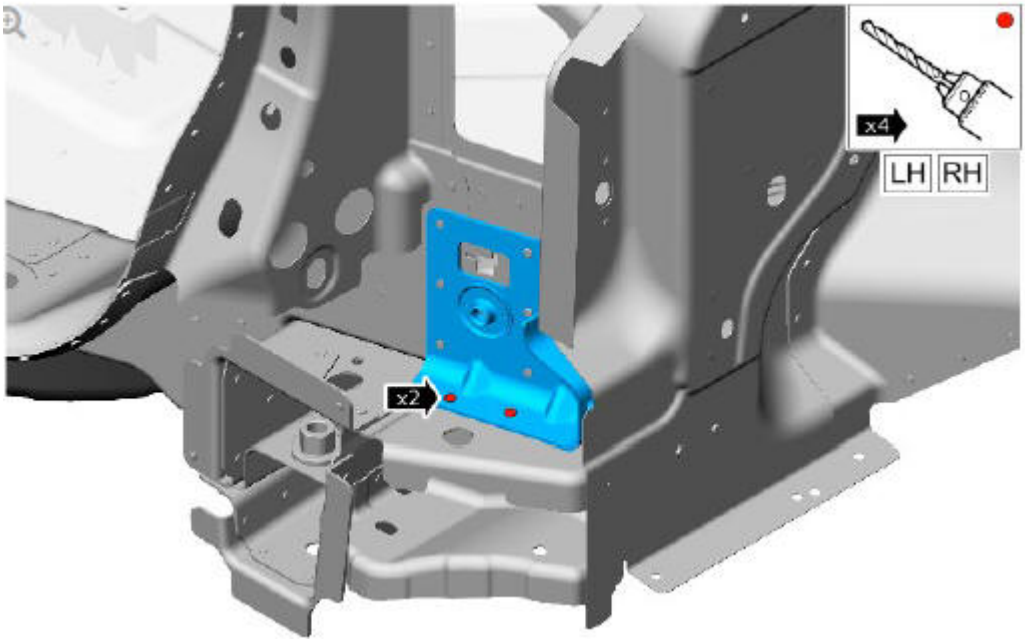
   For additional information, refer to: Health and Safety Precautions (100-00, Description and Operation).

3. For further information on the methods, tools and fixings used in this procedure refer to the body repairs - general information section.

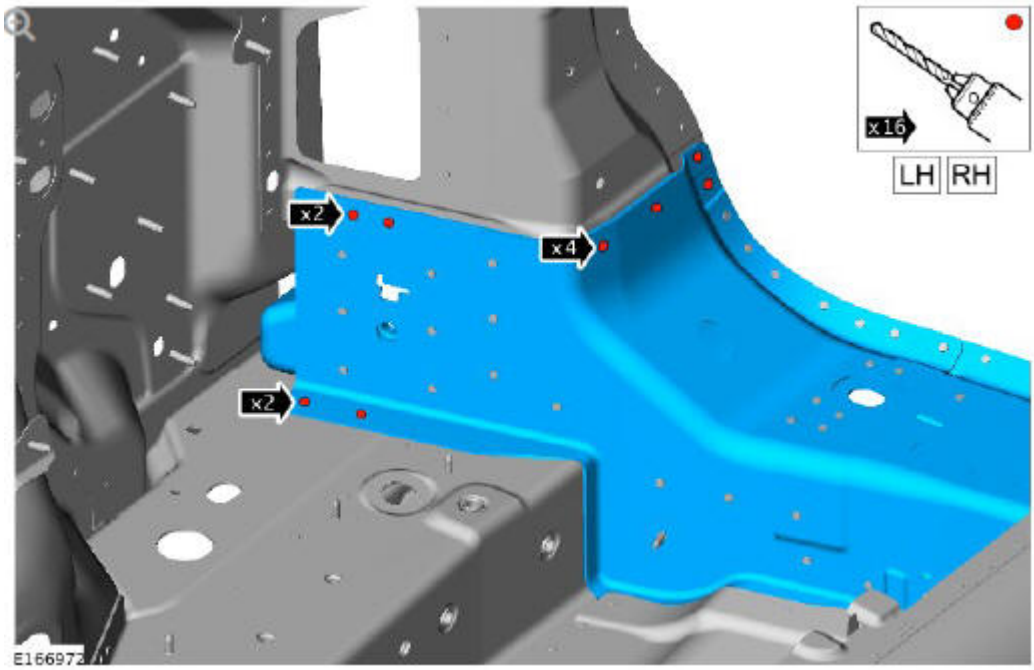
NOTES:

- *Any joints sealed as part of vehicle manufacture must be sealed as part of the repair.*
- *Make sure a zinc rich primer is applied to any bare metal surfaces.*

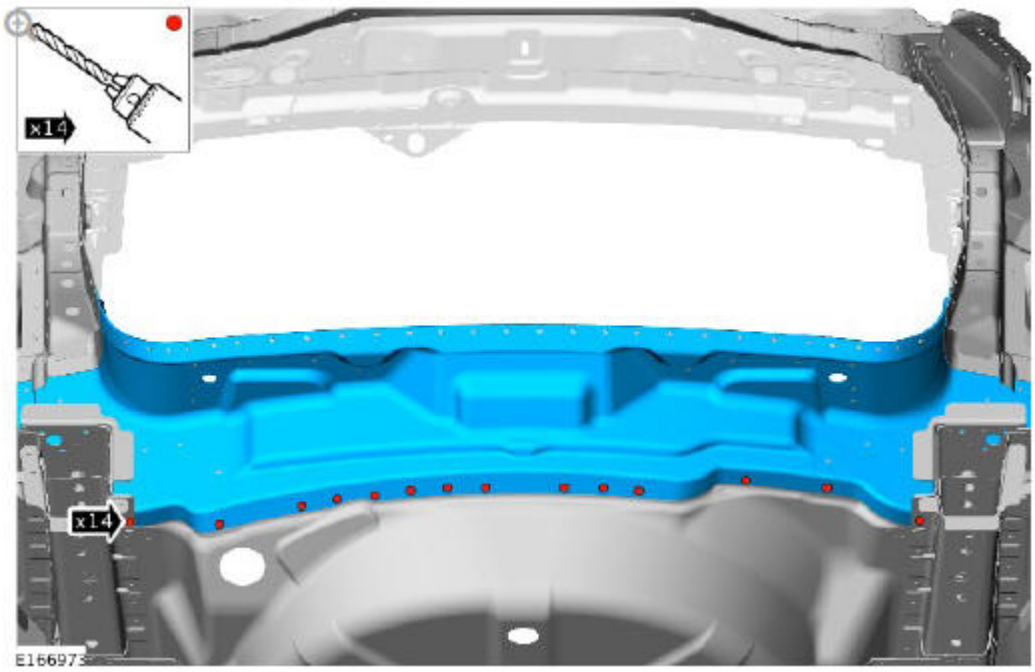
4. For additional information, refer to: Rear Bumper Cover (501-19, Removal and Installation).
5. For additional information, refer to: Rear Bumper (501-19, Removal and Installation).
6. For additional information, refer to: Rear Bumper Retaining Rail (501-30, Removal and Installation).
7. For additional information, refer to: Rear Lamp Assembly (417-01, Removal and Installation).
8. For additional information, refer to: Rear Lamp Panel Outer (501- 30, Removal and Installation).
9. For additional information, refer to: Back Panel Outer (501-30, Removal and Installation).
10. For additional information, refer to: Quarter Panel Lower Extension (501-30, Removal and Installation).
11. For additional information, refer to: Loadspace Trim Panel (501-05, Removal and Installation).



12. Remove the spot welds as indicated.



13. Remove the spot welds as indicated.



14. Remove the spot welds as indicated.
15. Carefully separate the joints and remove the back panel inner.

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Rear end Sheet Metal Repairs Back Panel Inner (G1770945)Rear end Sheet Metal Repairs Back Panel Inner (G1770945) - Installation

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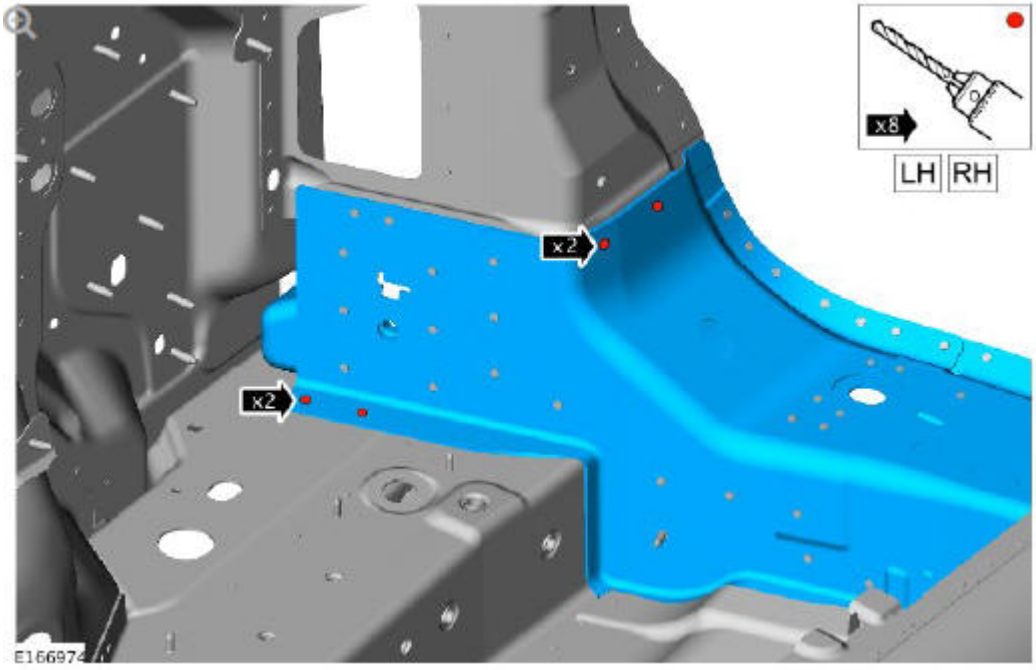
Задняя часть ремонт кузовных панелей задняя часть панель внутренний - установка

Rear end Sheet Metal Repairs Back Panel Inner (G1770945) - Installation

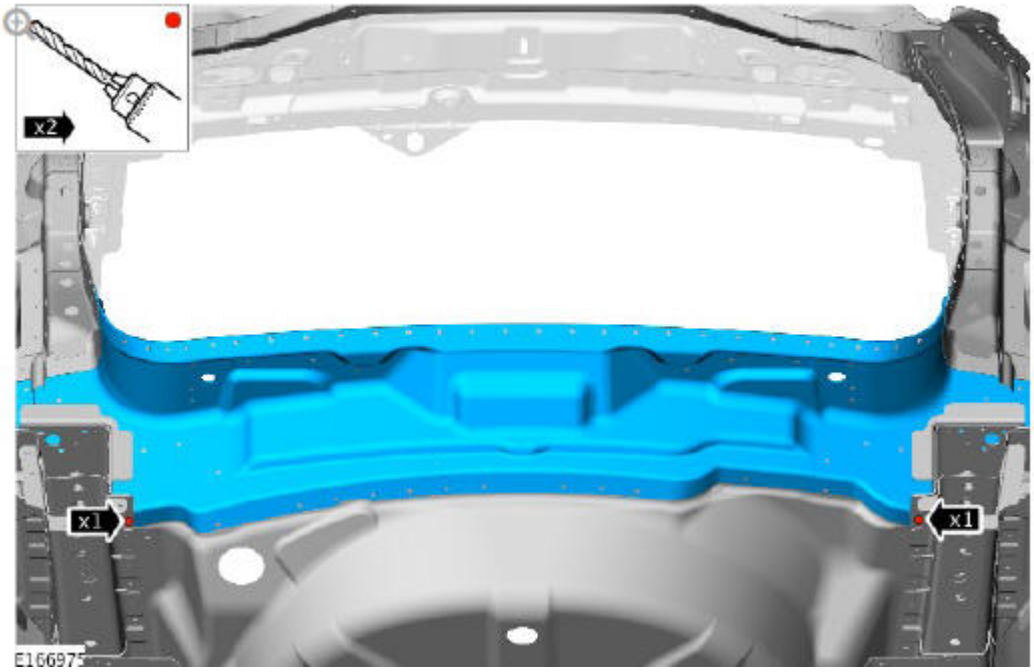
Installation

1. Dress the flanges where necessary.
2. Offer up the new back panel inner panel and clamp into position.

   Check alignment, if correct, proceed to next step, if not, rectify and recheck before proceeding.

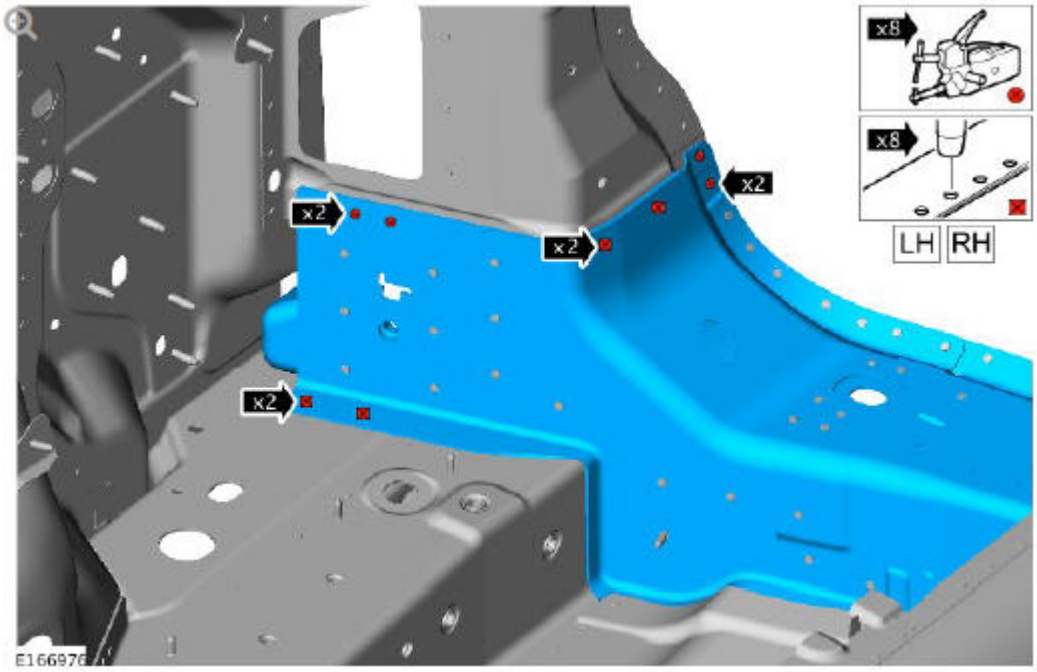


3. Drill holes where the metal inert gas (MIG) plug welds are to be installed as indicated.

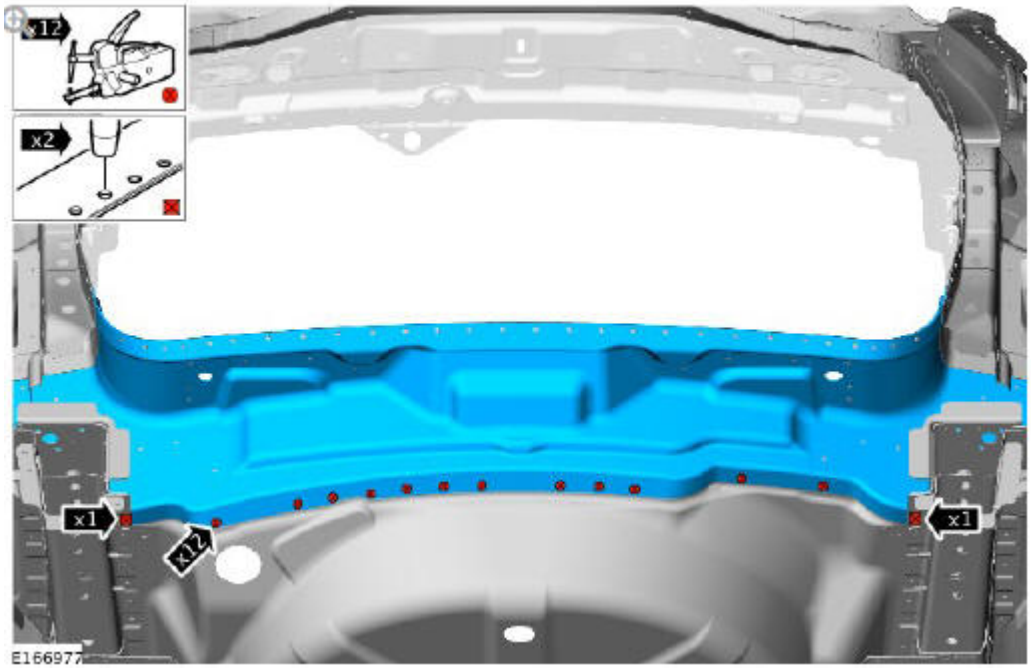


4. Drill holes where the MIG plug welds are to be installed as indicated.
5. Remove the back panel inner.
6. Deburr the drilled holes
7. Clean and prepare the panel surfaces.
8. Offer up the new back panel inner panel and clamp into position.

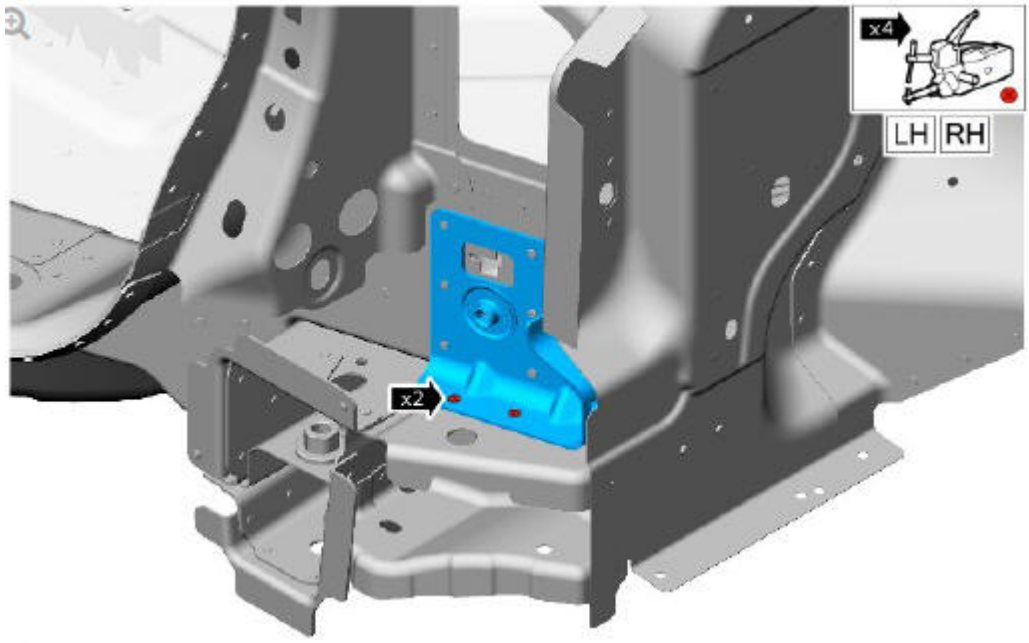
Check alignment, if correct, proceed to next step, if not, rectify and recheck before proceeding.



9. Install the spot and MIG plug welds as indicated.



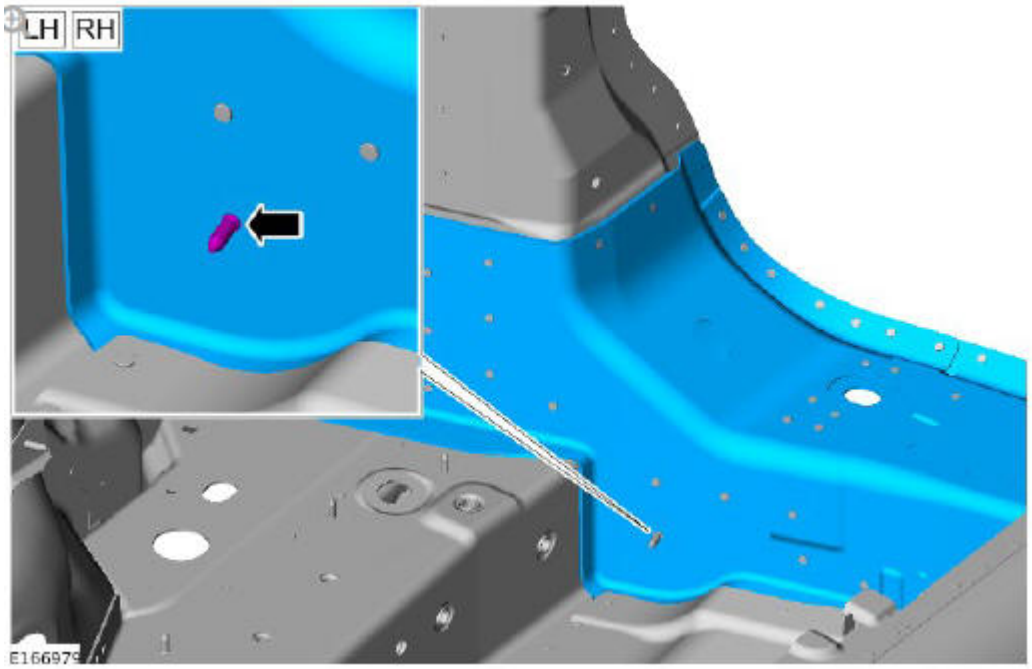
10. Install the spot and MIG plug welds as indicated.



11. Install the spot welds as indicated.

NOTE:

The components that are located/fixed to these weld studs must be offered up and cross checked for alignment prior to the installation of the weld studs to the new panel.



12. Prepare the new panel and install the weld studs in their original locations as indicated.
13. Make sure that any open or exposed panel joints are correctly sealed.
14. Make sure corrosion protection is applied to all areas affected by repair.
15. The installation of associated panels and components is the reversal of removal procedure.

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Rear end Sheet Metal Repairs Back Panel Inner (G1770945) - RemovalGeneral Information / Diagnosis and Testing

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Общая информация / диагностика и проверка

General Information / Diagnosis and Testing

Inspection and verification

CAUTION:

Diagnosis by substitution from a donor vehicle is NOT acceptable.

Substitution of control modules does not guarantee confirmation of a fault, and may also cause additional faults in the vehicle being tested and/or the donor vehicle.

NOTES:

- *If the control module or a component is suspect and the vehicle remains under manufacturer warranty, refer to the Warranty Policy and Procedures manual, or determine if any prior approval programme is in operation, prior to the installation of a new module/component.*
- *Check DDW for open campaigns. Refer to the corresponding bulletins and SSMs which may be valid for the specific customer complaint and carry out the recommendations as required.*
- *Check and rectify basic faults before beginning diagnostic routines involving pinpoint tests.*

1. Verify the customer concern.
2. Visually inspect for obvious signs of mechanical or electrical damage.

Visual Inspection

MECHANICAL

- Incorrectly aligned door(s)
- Obstruction within door aperture or door latch
- Door latches and strikers
- Door frame seal(s)
- Door aperture seal(s)
- Door hinges

3. If an obvious cause for an observed or reported concern is found, correct the cause (if possible) before proceeding to the next step
4. If the cause is not visually evident, verify the symptom and refer to the Symptom Chart.

SYMPTOM CHART

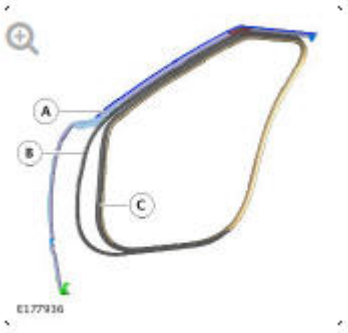
SYMPTOM	POSSIBLE CAUSES	ACTION
▪ Squeak/creak from the front or rear door(s)	▪ Obstruction within door aperture or door latch ▪ Incorrect door striker-Alignment/adjustment ▪ Door frame seal coating ▪ Worn/damaged door frame seal(s) ▪ Worn/damaged door aperture seal(s) ▪ Paint wear	▪ Remove the obstruction within the door aperture or latch as necessary ▪ Check/adjust the door striker as necessary ▪ GO to Pinpoint Test A. ▪ Check and replace the worn or damaged door frame seals as necessary ▪ Check and replace the worn or damaged door aperture seals as necessary ▪ Check and repair the door frame/aperture paint damage as necessary
▪ Squeak/creak/rattles from the instrument panel area ▪ Squeak/creak/rattles from the first row seating area ▪ Squeak/creak/rattles from the second row seating area ▪ Squeak/creak/rattles from the around the vehicle doors ▪ Squeak/creak/rattles from the bodyshell ▪ Squeak/creak/rattles from the rear cargo area ▪ Squeak/creak/rattles from the tailgate exterior area	▪ See table below	▪ Check the repair action described in the table below

PINPOINT TESTS

PINPOINT TEST A : SQUEAK/CREAK FROM THE FRONT OR REAR DOOR(S)

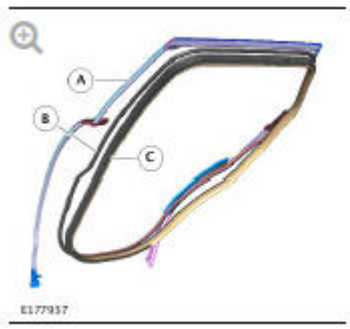
TEST CONDITIONS/ DETAILS/RESULTS/ACTIONS

A1: LOCATING DOOR FRAME NOISE



1. Obtain a complete description of the customer concerns or suspected condition

- Front Door
- Seal A - Margin Seal (outer door frame seal)
- Seal B - Door Frame Weatherstrip - Primary Seal (this seal is bonded to the door)
- Seal C - Secondary Seal (this seal is mounted to the door aperture)



2. Verify the customer concern by carrying out a road test, as closely as possible reproducing the drive/road conditions under which the noise occurs

- Rear Door
- Seal A - Margin Seal (outer door frame seal)
- Seal B - Door Frame Weatherstrip - Primary Seal (this seal is bonded to the door)
- C - Secondary Seal (this seal is mounted to the door aperture)

3. Try to establish if the noise is coming from the front or rear door(s), above or below the waist line?

Is the noise coming from the front door(s) **Yes** Front door noise GO to A2.

No Rear door noise GO to A7.

A2: FRONT DOOR FRAME ALIGNMENT - MARGIN SEAL

1. Check the front and rear above waistline door frame B pillar finisher alignment, the front B pillar finisher to rear B finisher should be flush +-1.5mm. The opening gap between both finishers is 5mm +-1.5mm

If the noise coming from the front door frame margin seal.

Is the door striker/alignment correct? **Yes**

No If the B pillar alignment is not correct, adjust the door striker. Road test the vehicle to confirm if the noise has stopped

A3: FRONT DOOR FRAME - MARGIN SEAL

1. Apply suitable tape to the inner face of the front door frame finisher, on the area which contacts the rear door frame margin seal
2. Carry out a road test, as closely as possible reproducing the drive/road conditions under which the noise occurs

Has the tape stopped the noise coming from the front door frame margin seal? **Yes** If the tape has stopped the noise, apply four coats of AC602/2 to the rear door frame margin seal, allowing drying time between coats Remove the tape from the front door finisher and clean.

Road test the vehicle to confirm if the noise has stopped At this point it is advisable to apply the coating, to the opposite front door frame margin seal

No

A4: FRONT DOOR FRAME - MARGIN TOP SEAL

1. Apply suitable tape to the front body aperture, on the area which contacts the front door frame top margin seal
2. Carry out a road test, as closely as possible reproducing the drive/road conditions under which the noise occurs

Has the tape stopped the noise coming from the front door frame top margin seal? **Yes** Apply coating AC612/21 (liquid) 50ml pump spray to the flock coating on the front door frame top margin seal Remove the tape from the front body aperture and clean.

Road test the vehicle to confirm if the noise has stopped At this point it is advisable to apply the coating, to the opposite front door frame top margin seal **No**

A5: FRONT DOOR APERTURE - SECONDARY SEAL

1. Apply suitable tape to the front door frame inner trim, on the area which contacts the front door aperture secondary seal
2. Carry out a road test, as closely as possible reproducing the drive/road conditions under which the noise occurs

Has the tape stopped the noise coming from the front door aperture secondary seal?

Yes

Apply four coats of AC602/2 to the front door aperture secondary seal allowing drying time between coats Remove the tape from the front door frame inner trim and clean. Road test the vehicle to confirm if the noise has stopped At this point it is advisable to apply the coating, to the opposite front door aperture secondary seal

No

A6: FRONT DOOR WEATHERSTRIP - PRIMARY SEAL (THIS SEAL IS BONDED TO THE DOOR)

1. Apply suitable tape to the front door aperture, on the area which contacts the front door frame weatherstrip
2. Carry out a road test, as closely as possible reproducing the drive/road conditions under which the noise occurs

Has the tape stopped the noise coming from the front door weatherstrip?

Yes

Apply four coats of AC602/2 to the front door frame weatherstrip allowing drying time between coats Remove the tape from the front door frame aperture and clean. Road test the vehicle to confirm if the noise has stopped At this point it is advisable to apply the coating, to the opposite front door frame weatherstrip

No

The front door squeak/creak checks are now complete, If the noise is still evident, suspect the rear door(s)

A7: REAR DOOR FRAME - MARGIN TOP SEAL

1. Apply suitable tape to the rear door top aperture, on the area which contacts the rear door frame top margin seal
2. Carry out a road test, as closely as possible reproducing the drive/road conditions under which the noise occurs

Has the tape stopped the noise coming from the rear door frame top margin seal?

Yes

Apply coating AC612/21 (liquid) 50ml pump spray to the flock coating on the rear door frame top margin seal Remove the tape from the rear door aperture and clean.

Road test the vehicle to confirm if the noise has stopped

At this point it is advisable to apply the coating, to the opposite rear door frame top margin seal

No

A8: REAR DOOR APERTURE - SECONDARY SEAL

1. Apply suitable tape to the rear door frame inner trim, on the area which contacts the rear door aperture secondary seal
2. Carry out a road test, as closely as possible reproducing the drive/road conditions under which the noise occurs

Has the tape stopped the noise coming from the rear door aperture secondary seal?

Yes

Apply four coats of AC602/2 to the rear door aperture secondary seal allowing drying time between coats Remove the tape from the rear door frame inner trim and clean. Road test the vehicle to confirm if the noise has stopped At this point it is advisable to apply the coating, to the opposite rear door aperture secondary seal

No

A9: REAR DOOR WEATHERSTRIP - PRIMARY SEAL (THIS SEAL IS BONDED TO THE DOOR)

1. Apply suitable tape to the rear door aperture, on the area which contacts the rear door frame weatherstrip
2. Carry out a road test, as closely as possible reproducing the drive/road conditions under which the noise occurs

Has the tape stopped the noise coming from the rear door?

Yes

Apply four coats of AC602/2 to the rear door frame weatherstrip allowing drying time between coats Remove tape from the rear door frame aperture and clean.

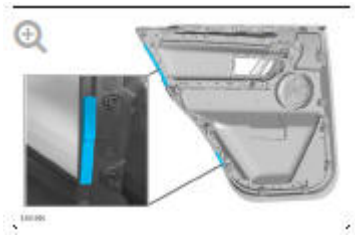
Road test the vehicle to confirm if the noise has stopped At this point it is advisable to apply the coating, to the opposite rear door frame weatherstrip

No

Check if the rear door pad is making contact with the bodyshell

A10: REAR DOOR PAD MAKING CONTACT WITH BODYSHELL

1. Check if the rear door pad is making contact with the bodyshell



Is the rear door pad making contact with the bodyshell?

Yes

Apply felt tape from S&R kit as barrier between door pad edge and bodyshell. Apply as per illustration

No

The side door squeak/creak tests are now complete. If the noise is still evident, it may be necessary to repeat some tests under different road conditions

Further diagnostics for various Squeaks / rattles / vibrations

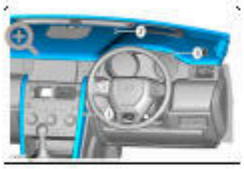
There are numerous possibilities for squeaks & rattles and every effort should be made to replicate the customer concern to inform the appropriate repair. This may include a test drive with the customer to identify exactly where in the vehicle a condition arises and under what driving conditions To help with the identification and isolation of suspect squeaks & rattles, first remove from the vehicle all items that are not supplied as built; e.g.

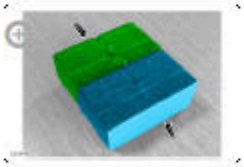
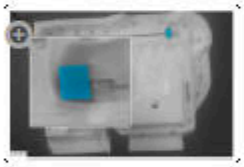
CDs, keys, customer's bags, coins, etc. Empty all compartments such as glove box, glasses case, door pockets, etc. Ensure all vehicle accessories are secure; i.e. lifting jack, wrench, etc.

Ask the customer for details of the concern taking note of the driving/vehicle conditions present (i.e. Does the concern occur on particular road surfaces? Is it noted on cold start or when the engine is warm? What vehicle speeds are implicated?) and then try to replicate it. Try to record any sound with the customer present and confirming the issue. Then, when the vehicle is at the service centre, test drive the vehicle with two people in the vehicle, one driving and the other seated as close as possible to the reported location of the concern (NOTE: take care to adhere to safe driving practices at all times. i.e. in a seat with seatbelt secured). The person diagnosing the issue should then try to pin point the localised area of concern more precisely

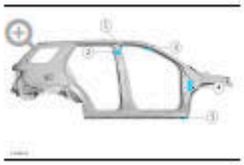
LOCATING AND ADDRESSING SQUEAK / RATTLE / VIBRATION ISSUES

Use the table below to facilitate investigations and repairs in the event of customer reports of squeaks/rattles/vibrations

GLOBAL LOCATION OF CONCERN	DETAILED LOCATION/NATURE OF CONCERN	ACTION
▪ L550 Instrument Panel Area Squeaks & Rattles 	▪ 1 - Centre stack creak by centre vents ▪ 2 - BCM/CJB trim panel rattle ▪ 3 - Cross car beam A-post bodyshell creak	▪ 1 - Follow instructions in LTB00888 ▪ 2 - Follow instructions in LTB01022 ▪ 3 - Follow instructions in LTB00889
▪ L550 First Row Seating Area Squeaks & Rattles 	▪ 1 - Front centre console side trim 7mm fixing missing or loose ▪ 2 - Armrest creak/rattle	▪ 1- Check the security and integrity of the front centre console fixings and rectify as required REFER to: (501-12 Instrument Panel and Console) **Floor Console Upper Section** (Removal

		and Installation), Floor Console (Removal and Installation). ▪ 2 - Follow instructions in LTB00999
▪ L550 Second Row Seating Area Squeaks & Rattles   	▪ 1 - Frame creak ▪ 2 - Pin chirp ▪ 3 - Seat cover to rear quarter noise ▪ 4 - Seat cushion clip rattle	▪ 1 - Follow instructions in LTB00878 ▪ 2 - Follow instructions in LTB00998 ▪ 3 - Follow instructions in LTB00866 ▪ 4 - Attach two foam blocks (two foam blocks - Part No: LRO78349 - should be joined together) to the area under the seat cushion (as shown)
▪ L550 Door Squeaks & Rattles 	▪ 1 - Swarf deposits on front door mid-range speakers. To aid investigation, please use audio files (and pdf instruction document) that can be downloaded onto a standard USB storage device. The files may be accessed at: ftp://dms.diagnosticdelivery.com/Sound_Files/	▪ 1 - Check for swarf deposits on speaker (see illustration).

	▪ 2 - Wiring looms crossing over main door speakers ▪ 3 - Seat cushion clip rattle	If swarf is present, first test speaker in hand with

		audio playing and then remove swarf and retest to confirm the noise has stopped ▪ 2 - Re-route looms to correct position as required REFER to: (418-02 Wiring Harnesses) Front Door Wiring Harness (Removal and Installation), Rear Door Wiring Harness (Removal and Installation). ▪ 3 - Follow instructions in LTB00846
▪ L550 Bodyshell Squeaks & Rattles 	▪ 1 - Upper B-post/cant rail ▪ 2 - Middle B-post/seat belt anchor bracket ▪ 3 - Front roof ditch/header ▪ 4 - Instrument panel cross car beam ▪ 5 - A-post jacking point	▪ For concerns 1 and 2, follow instructions in LTB00827 ▪ For concern 3, follow instructions in LTB00827

		and LTB00889 ■ For concerns 4 and 5, follow instructions in LTB00889
■ L550 Rear Cargo Area Interior Squeaks & Rattles 	■ 1 - Tailgate interior trim not secured	■ 1 - Follow instructions in LTB00801
■ L550 Tailgate Exterior Squeaks & Rattles 	■ 1 - Tailgate lamp creaks on bodyshell ■ 2 - Tailgate latch rattles against striker	■ 1 - Follow instructions in LTB00890 ■ 2 - Adjust the tailgate bump stops. Wind the bump stops out to remove play in the tailgate

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Rear end Sheet Metal Repairs Back Panel Inner (G1770945) - InstallationFront end Sheet Metal Repairs

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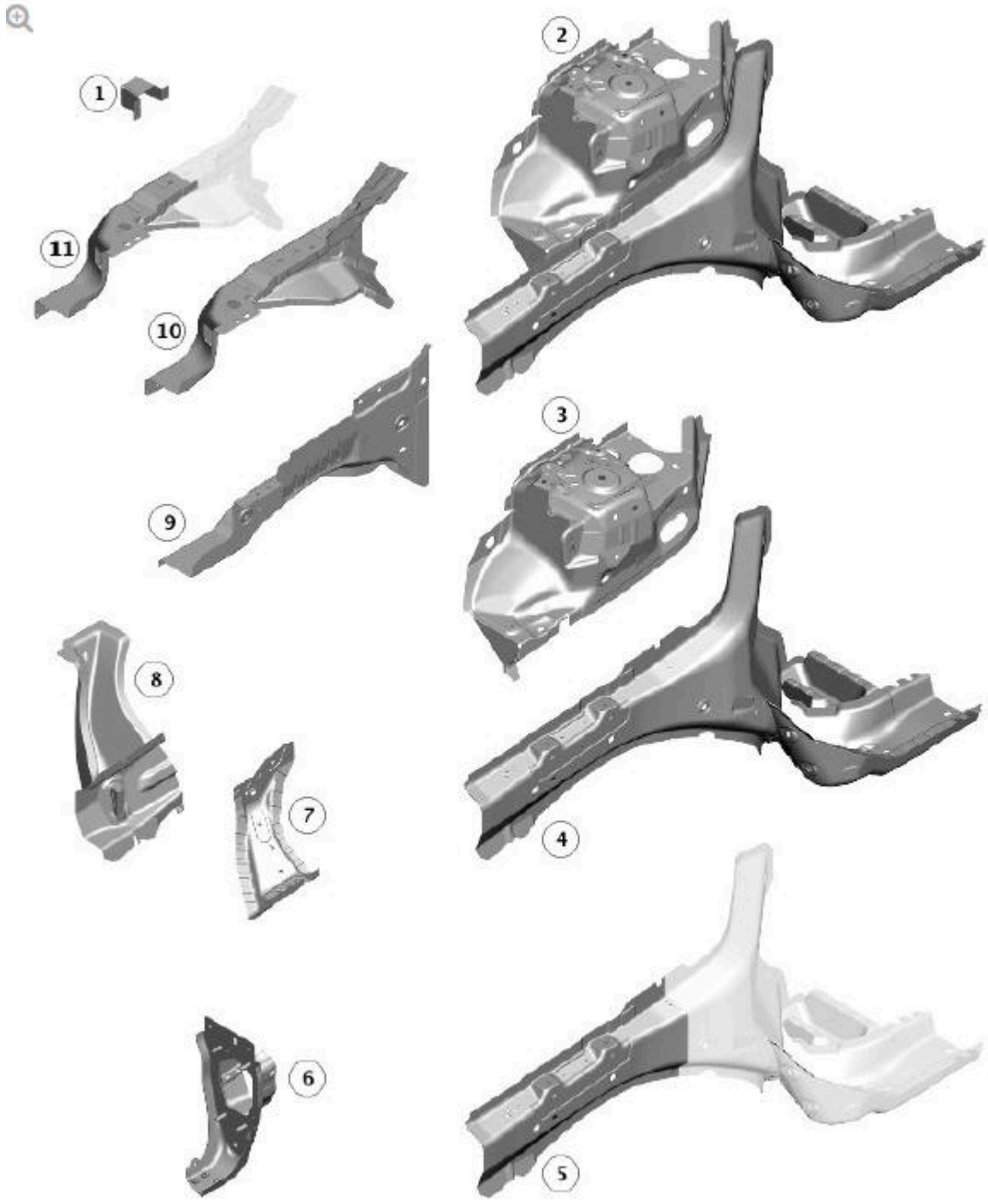
Передняя часть ремонт кузовных панелей

Front end Sheet Metal Repairs

GALVANIC CORROSION

For additional information, refer to: Corrosion Protection (501-25B Body Repairs - Corrosion Protection, Description and Operation).

FRONT END SERVICE PANELS



ITEM	DESCRIPTION	MATERIAL
1	Front Fender Mounting Panel	Steel
2	Front Side Member and Suspension Top Mount Assembly	Steel
3	Suspension Top Mount	Steel
4	Front Side Member	Steel
5	Front Side Member Section	Steel
6	Front Bumper Mounting	Steel
7	Fender Apron Lower Panel	Steel
8	Fender Apron Panel Front Reinforcement	Steel
9	Fender Apron Panel Reinforcement	Steel
10	Fender Apron Panel	Steel
11	Fender Apron Panel Front Section	Steel

TIME SCHEDULES , FRONT END SERVICE PANELS

The following information shows the total time taken to install single panels.

These times do not include removal of mechanical, electrical and trim, (MET), items or paint times.

The times shown are to be used as a guide only.

PANEL DESCRIPTION	REPAIR TIME
Front Fender Mounting Panel	0.20
Front Side Member and Suspension Top Mount Assembly	15.70
Suspension Top Mount	13.90
Front Side Member	11.50
Front Bumper Mounting	0.70
Fender Apron Lower Panel	16.60
Fender Apron Panel Front Reinforcement	14.80
Fender Apron Panel Reinforcement	8.70
Fender Apron Panel	6.80
Fender Apron Panel Front Section	3.30

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General Information / Diagnosis and TestingFront end Sheet Metal Repairs Suspension Top Mount (G1770868)

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Передняя часть ремонт кузовных панелей подвеска верх опора

Front end Sheet Metal Repairs Suspension Top Mount (G1770868)

- Front end Sheet Metal Repairs Suspension Top Mount (G1770868) - Removal
- Front end Sheet Metal Repairs Suspension Top Mount (G1770868) - Installation

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Front end Sheet Metal RepairsFront end Sheet Metal Repairs Suspension Top Mount (G1770868) - Removal

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Передняя часть ремонт кузовных панелей подвеска верх опора - снятие

Front end Sheet Metal Repairs Suspension Top Mount (G1770868) - Removal

Removal

NOTE:

The suspension top mount is installed in conjunction with:

- *Front bumper cover*
- *Front bumper*
- *Hood*
- *Hood latch panel*
- *Front fender*
- *Front fender splash shield*
- *Fender apron panel*
- *Fender apron panel reinforcement*
- *Instrument panel*
- *Cowl side trim panel*
- *Front seat*
- *Engine*
- *Transmission*
- *Front shock absorber and spring assembly*
- *Front subfame*
- *Secondary bulkhead*
- *Anti-lock brake system (ABS) module*
- *Brake booster*
- *Brake pedal and bracket*

NOTE:

The service panel is serviced not fully spot welded.



1. The suspension top mount is serviced as indicated.
2. Before commencing this procedure make sure that you are aware of all Health and Safety requirements.

   For additional information, refer to: Health and Safety Precautions (100-00 General Information, Description and Operation).
3. For further information on the methods, tools and fixings used in this procedure refer to the body repairs - general information section.

NOTES:

- *Any joints sealed as part of vehicle manufacture must be sealed as part of the repair.*
- *Make sure a zinc rich primer is applied to any bare metal surfaces.*
- *To make sure the vehicle is correctly aligned it must be placed a Land Rover approved alignment jig.*

4. For additional information, refer to: Front Bumper Cover (501-19 Bumpers, Removal and Installation).
5. For additional information, refer to: Front Armature (501-19 Bumpers, Removal and Installation).
6. For additional information, refer to: Hood (501-02 Front End Body Panels, Removal and Installation).
7. For additional information, refer to: Hood Latch Panel (501-02 Front End Body Panels, Removal and Installation).
8. For additional information, refer to: Fender (501-02 Front End Body Panels, Removal and Installation).
9. For additional information, refer to: Fender Splash Shield (501-02 Front End Body Panels, Removal and Installation).
10. For additional information, refer to: Fender Apron Panel (501-27 Front End Sheet Metal Repairs, Removal and Installation).
11. For additional information, refer to: Fender Apron Panel Reinforcement (501-27 Front End Sheet Metal Repairs, Removal and Installation).
12. For additional information, refer to: Instrument Panel - TD4 2.2L Diesel (501-12 Instrument Panel and Console, Removal and Installation) / Instrument Panel - GTDi 2.0L Petrol (501-12 Instrument Panel and Console, Removal and Installation).
13. For additional information, refer to: Cowl Side Trim Panel (501-05 Interior Trim and Ornamentation, Removal and Installation).
14. For additional information, refer to: Front Row Seat - Vehicles With: Power Seats (501-10 Seating, Removal and Installation).
15. For additional information, refer to: Engine - Vehicles With: M66 6- Speed Manual Transmission AWD/M66 6-Speed Manual Transmission FWD (303-01A Engine - TD4 2.2L Diesel, Removal) / Engine - Vehicles With: 9HP48 9-Speed Automatic Transmission - AWD (303-01A Engine - TD4 2.2L Diesel, Removal) / Engine - Vehicles With: M66 6-Speed Manual Transmission AWD/M66 6- Speed Manual Transmission FWD (303-01A Engine - TD4 2.2L Diesel, Installation) / Engine - Vehicles With: 9HP48 9-Speed Automatic Transmission - AWD (303-01A Engine - TD4 2.2L Diesel, Installation).
16. For additional information, refer to: Transmission - GTDi 2.0L Petrol/GTDi 2.0L Petrol - SULEV (307-01 Automatic Transmission/Transaxle, Removal) / Transmission - TD4 2.2L Diesel (307-01 Automatic Transmission/Transaxle, Removal) / Transmission - GTDi 2.0L Petrol/GTDi 2.0L Petrol - SULEV (307-01 Automatic Transmission/Transaxle, Installation) / Transmission - TD4 2.2L Diesel (307-01 Automatic Transmission/Transaxle, Installation).
17. For additional information, refer to: Front Subframe (502-00, Removal and Installation).
18. For additional information, refer to: Secondary Bulkhead Centre Panel - TD4 2.2L Diesel (501-02 Front End Body Panels, Removal and Installation) / Secondary Bulkhead Centre Panel - GTDi 2.0L Petrol (501-02 Front End Body Panels, Removal and Installation).

NOTE:

Right hand only.

19. For additional information, refer to: Anti-Lock Brake System Module (206-09A Anti-Lock Control, Removal and Installation).
20. For additional information, refer to: Brake Booster (206-07 Power Brake Actuation, Removal and Installation).
21. For additional information, refer to: Brake Pedal and Bracket (206- 06, Removal and Installation).

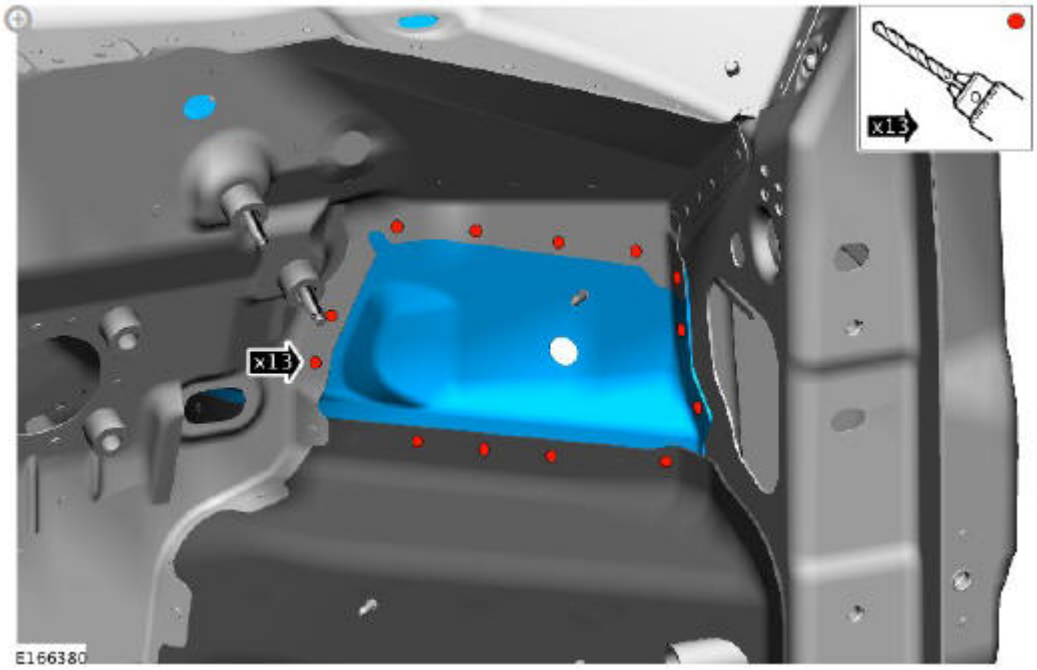
NOTE:

Left hand only.

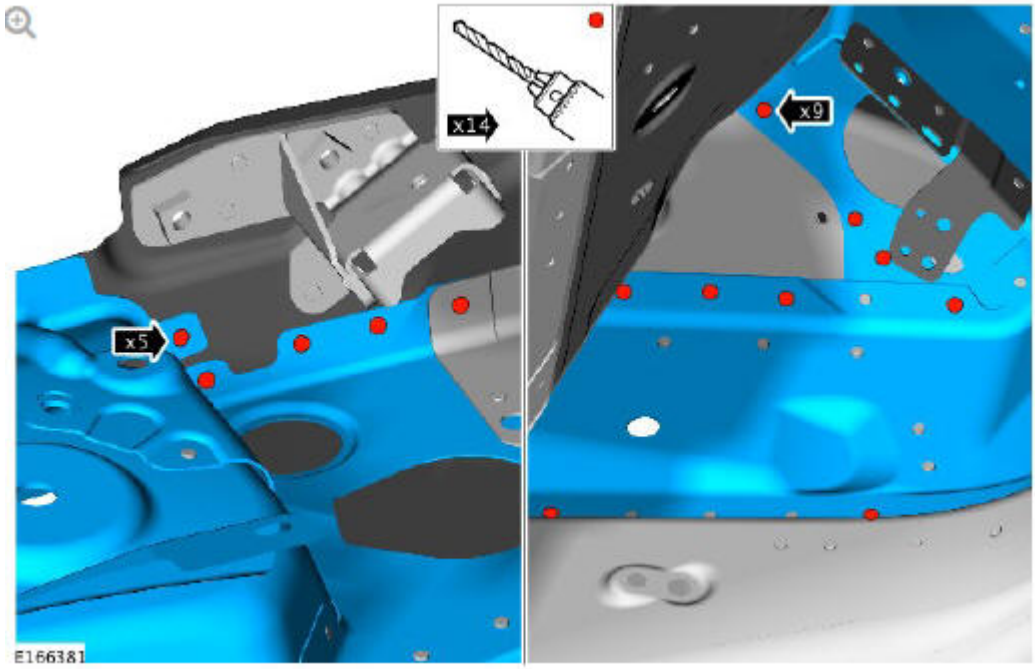
22. Release the battery junction box (BJB) and position to one side.
23. Position the floor carpet to one side.
24. Position the floor noise, vibration, harshness (NVH) material to one side.
25. Release and position the brake pipes to one side.
26. Release and position the wiring harness to one side.

NOTE:

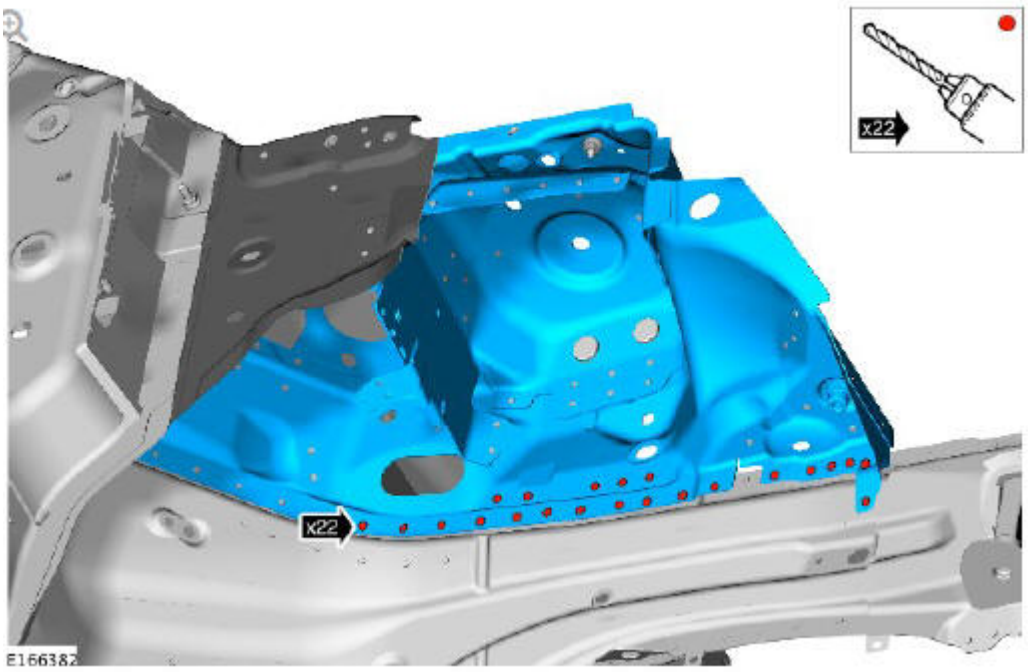
Make sure that the spot welds are drilled from the inside.



27. Remove the spot welds as indicated.



28. Remove the spot welds as indicated.



29. Remove the spot welds as indicated.

CAUTION:

This step requires the aid of another technician as the suspension top mount is heavy.

30. Separate the joints and remove the suspension top mount.

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Front end Sheet Metal Repairs Suspension Top Mount (G1770868)Front end Sheet Metal Repairs Suspension Top Mount (G1770868) - Installation

ne

Передняя часть ремонт кузовных панелей подвеска верх опора - установка

Front end Sheet Metal Repairs Suspension Top Mount (G1770868) - Installation

Installation

NOTE:

Make sure that the drilled out spot welds are installed with metal inert gas (MIG) plug welds in the same quantities.

1. Using the old suspension top mount for reference prepare the new suspension top mount in the areas where it is not fully welded and install the spot welds.

CAUTION:

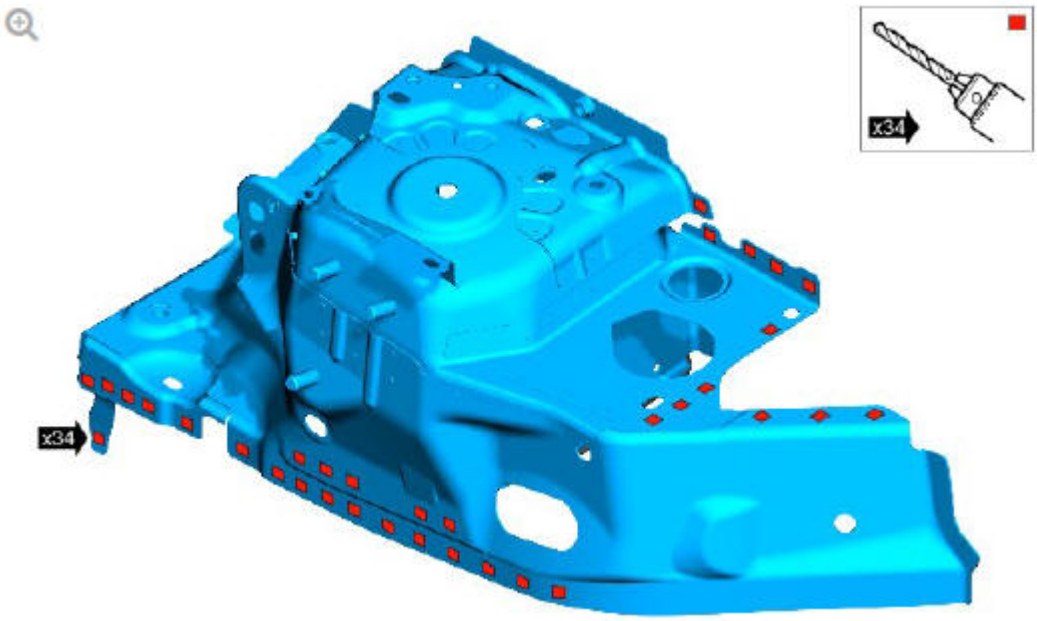
This step requires the aid of another technician as the suspension top mount is heavy.

2. Offer up the new suspension top mount and clamp into position.

   Check alignment if correct, proceed to next step, if not, rectify and recheck before proceeding.

NOTE:

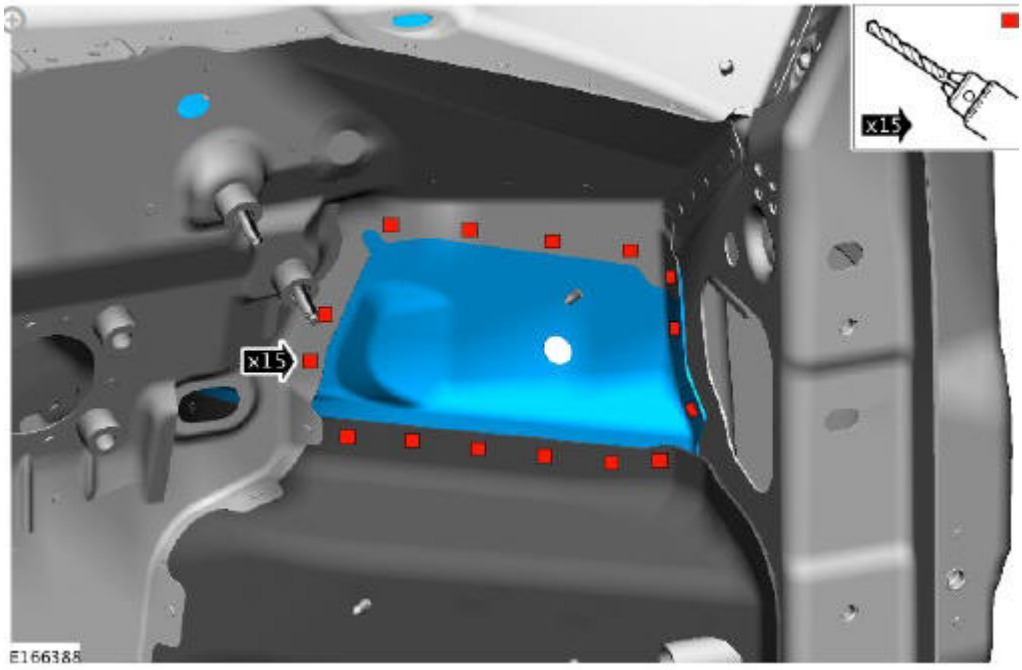
Make sure that the drilled out spot welds are installed with MIG plug welds in the same quantities.



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

NOTE:

Make sure that the drilled out spot welds are installed with MIG plug welds in the same quantities.



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

CAUTION:

<u>This step requires the aid of another technician as the suspension top mount is heavy.</u>

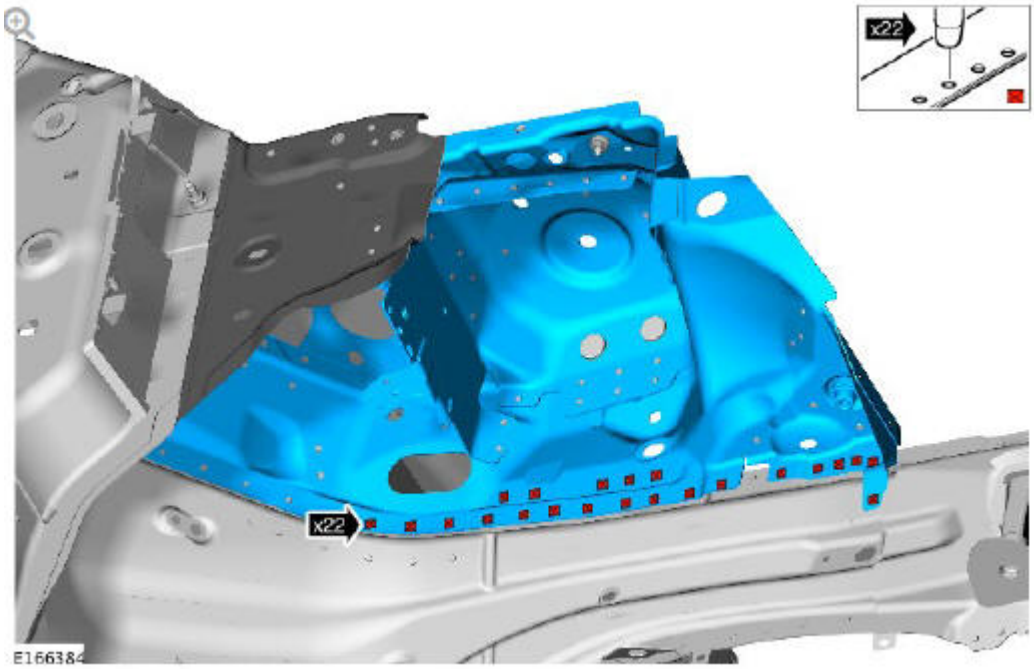
5. Remove the suspension top mount.
6. Deburr the drilled holes.
7. Clean and prepare the panel surfaces.

CAUTION:

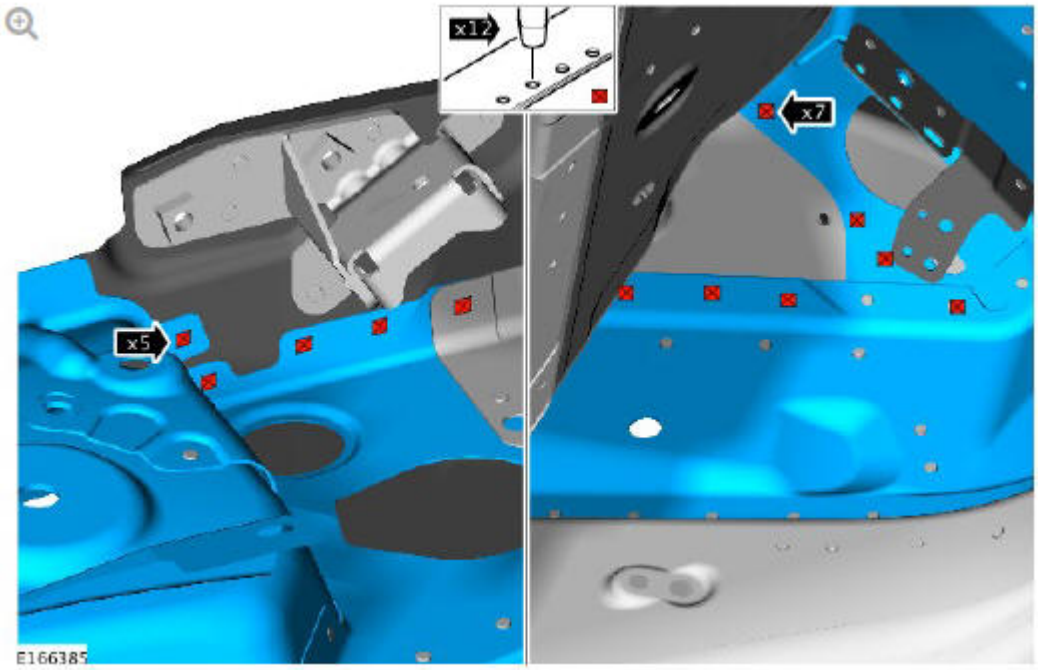
<u>This step requires the aid of another technician as the suspension top mount is heavy.</u>

8. Offer up the new suspension top mount and clamp into position.

   Check alignment if correct, proceed to next step, if not, rectify and recheck before proceeding.



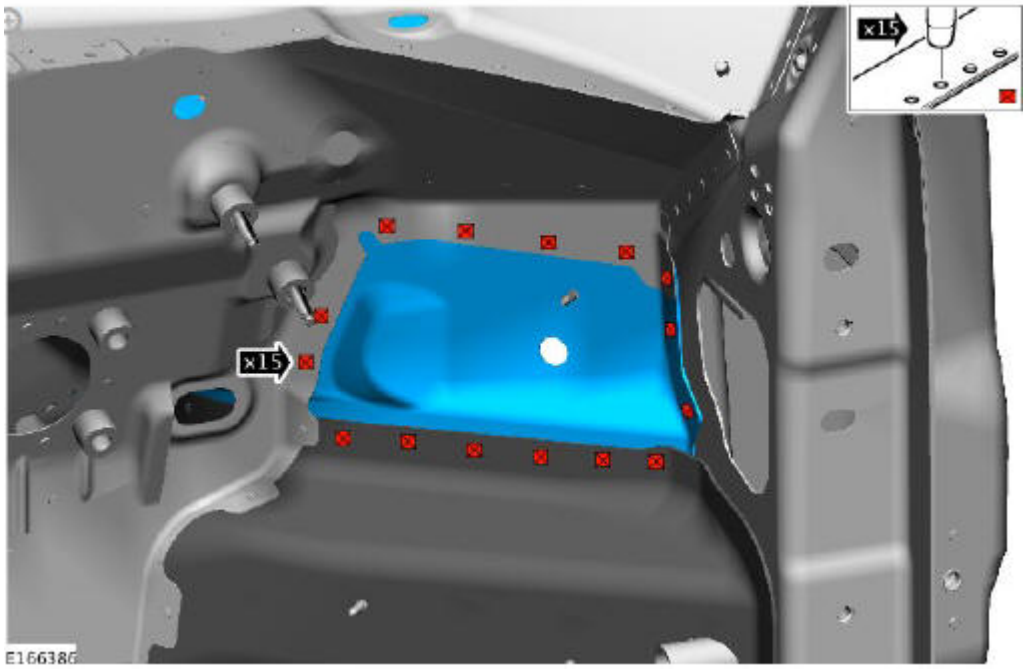
9. Install the MIG plug welds as indicated.



10. Install the MIG plug welds as indicated.

NOTE:

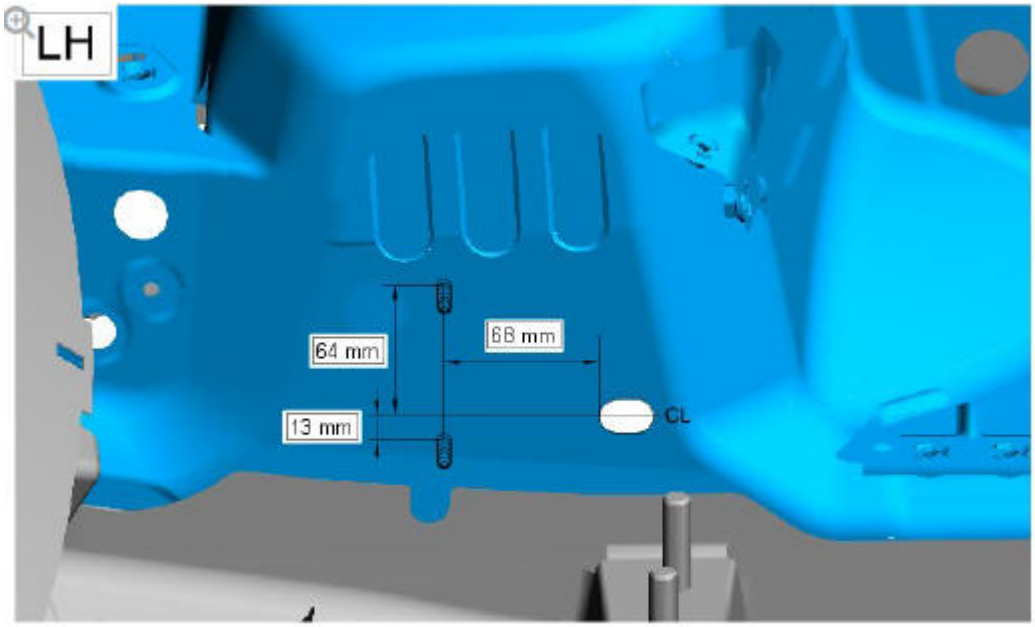
Make sure that the MIG plug welds are installed from the inside of the vehicle.



11. Install the MIG plug welds as indicated.
12. Dress all welded joints.

NOTES:

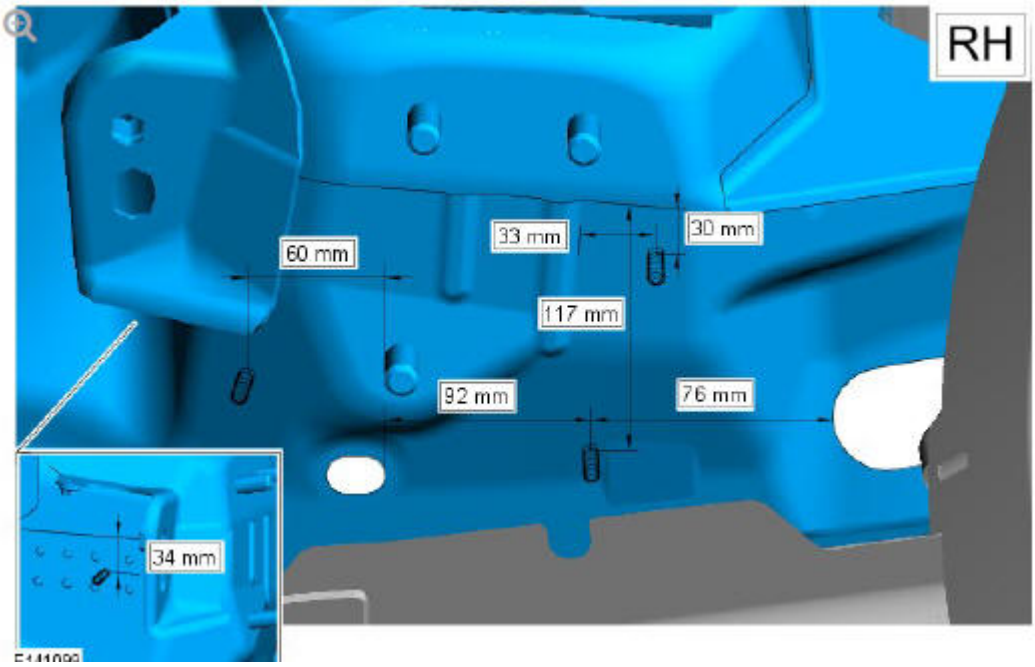
- *Left hand only.*
- *The measurements provided in the graphic are to be used as a guide only. The components that are located/installed to these weld studs must be offered up and cross checked for alignment prior to the installation of the weld studs to the new panel.*



13. Prepare the new suspension top mount and install the weld studs in their original locations.

NOTES:

- *Right hand only.*
- *The measurements provided in the graphic are to be used as a guide only. The components that are located/installed to these weld studs must be offered up and cross checked for alignment prior to the installation of the weld studs to the new panel.*



14. Prepare the new suspension top mount and install the weld studs in their original locations.
15. Make sure that any open or exposed panel joints are sealed with a Land Rover recommended sealer.
16. Make sure corrosion protection is applied to all areas affected by repair.
17. The installation of associated panels and components is the reversal of removal procedure.

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Front end Sheet Metal Repairs Suspension Top Mount (G1770868) - RemovalFront end Sheet Metal Repairs Front Side Member and Suspension Top Mount Assembly (G1770869)

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Передняя часть ремонт кузовных панелей передний боковой лонжерон и подвеска верх опора в сборе

Front end Sheet Metal Repairs Front Side Member and Suspension Top Mount Assembly (G1770869)

- Front end Sheet Metal Repairs Front Side Member and Suspension Top Mount Assembly (G1770869) - Removal
- Front end Sheet Metal Repairs Front Side Member and Suspension Top Mount Assembly (G1770869) - Installation

ne

Front end Sheet Metal Repairs Suspension Top Mount (G1770868) - InstallationFront end Sheet Metal Repairs Front Side Member and Suspension Top Mount Assembly (G1770869) - Removal

ne

Передняя часть ремонт кузовных панелей передний боковой лонжерон и подвеска верх опора в сборе - снятие

Front end Sheet Metal Repairs Front Side Member and Suspension Top Mount Assembly (G1770869) - Removal

Removal

NOTE:

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

- *Front bumper cover*
- *Front bumper*
- *Front bumper mounting*
- *Hood*
- *Hood latch panel*
- *Radiator*
- *Condenser*
- *Front fender*
- *Fender splash shield*
- *Fender apron panel*
- *Fender apron panel reinforcement*
- *Engine*
- *Transmission*
- *Shock absorber and spring assembly*
- *Front subframe*
- *Secondary bulkhead*



1. The front side member and suspension top mount assembly is serviced as indicated and installed in conjunction with the full front side member panel.
2. Before commencing this procedure make sure that you are aware of all Health and Safety requirements.

For additional information, refer to: Health and Safety Precautions (100-00 General Information, Description and Operation).

3. For further information on the methods, tools and fixings used in this procedure refer to the body repairs - general information section.

NOTES:

- *Any joints sealed as part of vehicle manufacture must be sealed as part of the repair.*
- *Make sure a zinc rich primer is applied to any bare metal surfaces.*
- *To make sure that the vehicle is correctly aligned, it must be placed on a Land Rover approved alignment jig.*

4. For additional information, refer to: Front Bumper Cover (501-19 Bumpers, Removal and Installation).
5. For additional information, refer to: Front Armature (501-19 Bumpers, Removal and Installation).
6. For additional information, refer to: Hood (501-02 Front End Body Panels, Removal and Installation).
7. For additional information, refer to: Hood Latch Panel (501-02 Front End Body Panels, Removal and Installation).
8. For additional information, refer to: Radiator (303-03A Engine Cooling - TD4 2.2L Diesel, Removal and Installation) / Radiator (303-03B Engine Cooling - INGENIUM I4 2.0L Diesel, Removal and Installation).
9. For additional information, refer to: Condenser - GTDi 2.0L Petrol/GTDi 2.0L Petrol - SULEV (412-01 Climate Control, Removal and Installation) / Condenser - TD4 2.2L Diesel (412-01 Climate Control, Removal and Installation).
10. For additional information, refer to: Fender (501-02 Front End Body Panels, Removal and Installation).
11. For additional information, refer to: Fender Splash Shield (501-02 Front End Body Panels, Removal and Installation).
12. For additional information, refer to: Fender Apron Panel (501-27 Front End Sheet Metal Repairs, Removal and Installation).
13. For additional information, refer to: Fender Apron Panel Reinforcement (501-27 Front End Sheet Metal Repairs, Removal and Installation).
14. For additional information, refer to: Engine - Vehicles With: M66 6- Speed Manual Transmission AWD/M66 6-Speed Manual Transmission FWD (303-01A Engine - TD4 2.2L Diesel, Removal) / Engine - Vehicles With: M66 6-Speed Manual Transmission AWD/M66 6-Speed Manual Transmission FWD (303-01A Engine - TD4 2.2L Diesel, Installation) / Engine - Vehicles With: 9HP48 9- Speed Automatic Transmission - AWD (303-01A Engine - TD4 2.2L Diesel, Removal) / Engine - Vehicles With: 9HP48 9-Speed Automatic Transmission - AWD (303-01A Engine - TD4 2.2L Diesel, Installation) / Engine (303-01C Engine - GTDi 2.0L Petrol/GTDi 2.0L Petrol - SULEV, Removal) / Engine (303-01C Engine - GTDi 2.0L Petrol/GTDi 2.0L Petrol - SULEV, Installation).
15. For additional information, refer to: Transmission - GTDi 2.0L Petrol/GTDi 2.0L Petrol - SULEV (307-01 Automatic Transmission/Transaxle, Removal) / Transmission - TD4 2.2L Diesel (307-01 Automatic Transmission/Transaxle, Removal) / Transmission - GTDi 2.0L Petrol/GTDi 2.0L Petrol - SULEV (307-01 Automatic Transmission/Transaxle, Installation) / Transmission - TD4 2.2L Diesel (307-01 Automatic Transmission/Transaxle, Installation).
16. For additional information, refer to: Shock Absorber and Spring Assembly (204-01 Front Suspension, Removal and Installation).
17. For additional information, refer to: Front Subframe (502-00, Removal and Installation).
18. For additional information, refer to: Secondary Bulkhead Centre Panel - TD4 2.2L Diesel (501-02 Front End Body Panels, Removal and Installation).

NOTE:

Left hand only.

19. Release the battery junction box and position to one side.

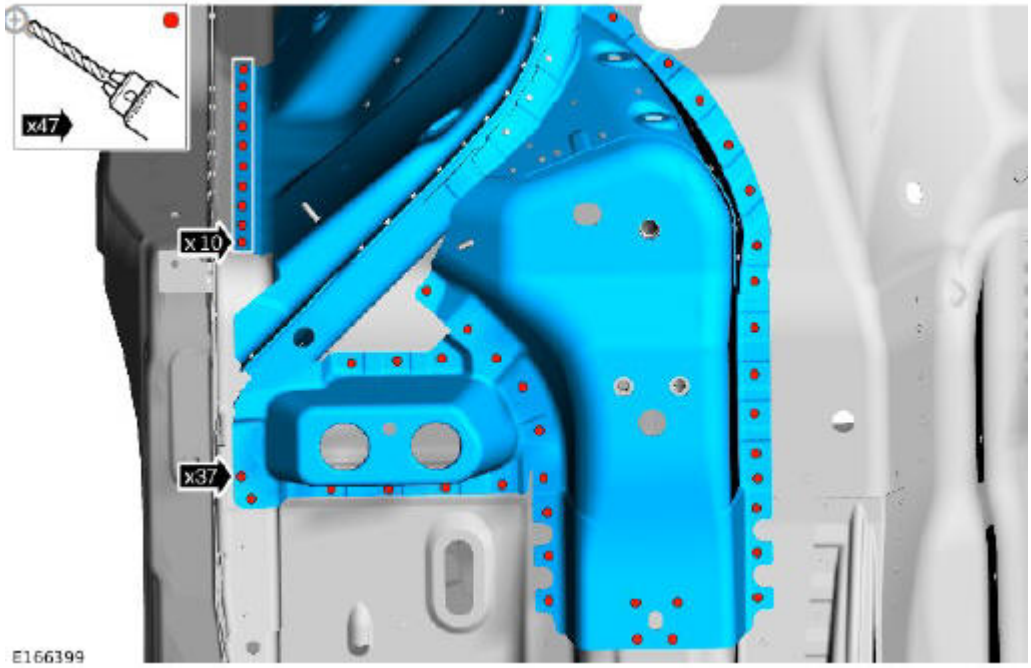
NOTE:

Right hand only.

20. Remove the front side member noise, vibration and harshness (NVH) material.
21. Release the brake pipes and position to one side.
22. Release the wiring harnesses at the a-pillar, bulkhead and the side member and position to one side.

NOTE:

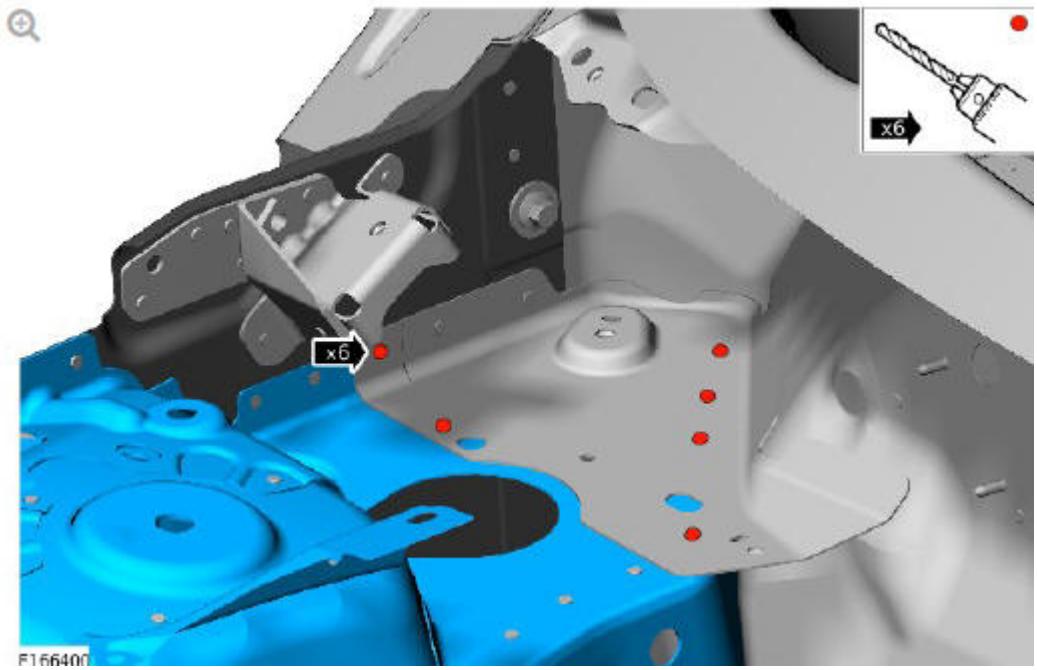
Where access is limited use a belt sander to sand down the spot welds in these areas.



23. Remove the spot welds as indicated.

NOTE:

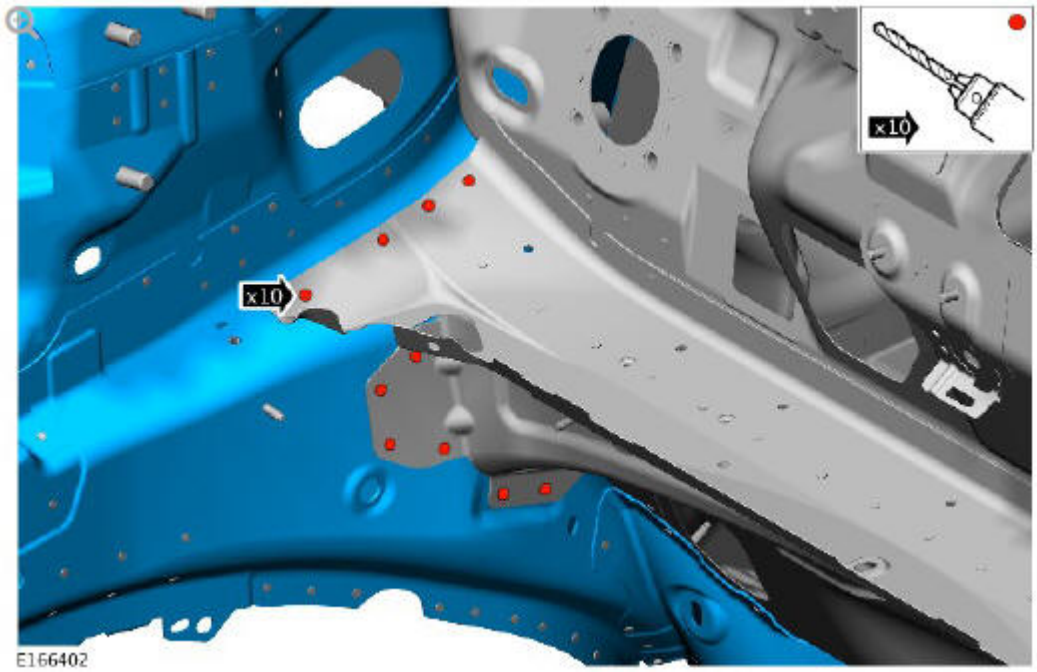
Where access is limited use a belt sander to sand down the spot welds in these areas.



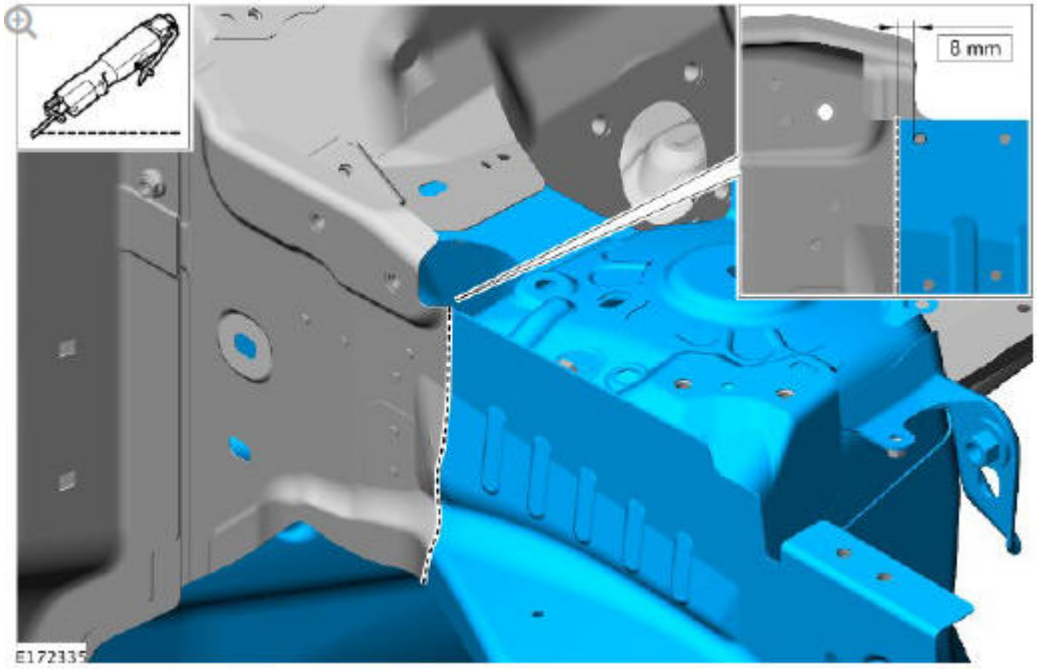
24. Remove the spot welds as indicated.

NOTE:

Where access is limited use a belt sander to sand down the spot welds in these areas.



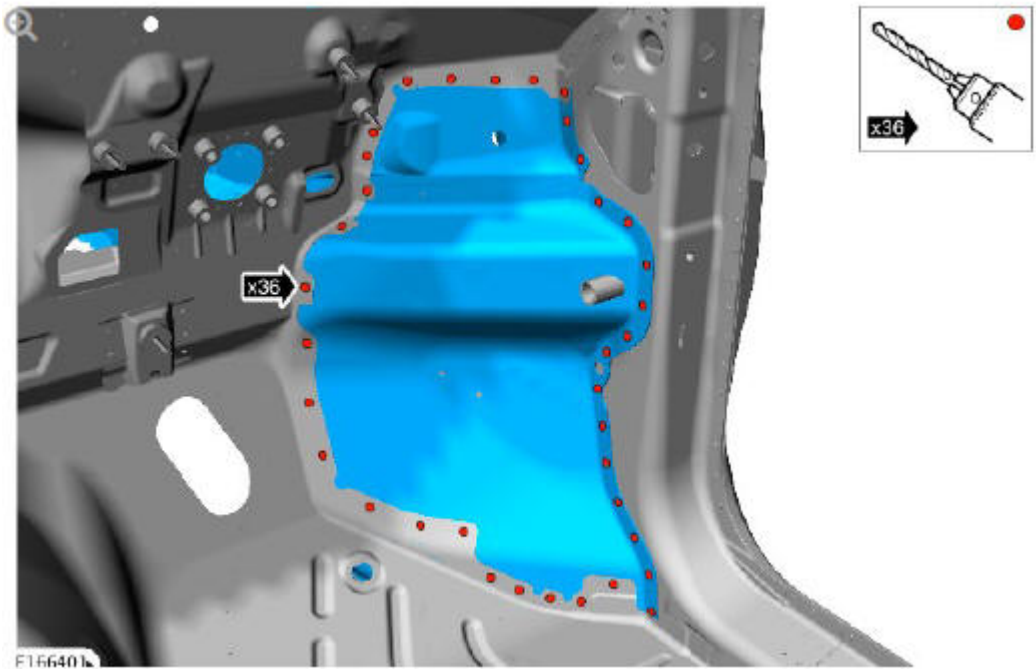
25. Remove the spot welds as indicated.



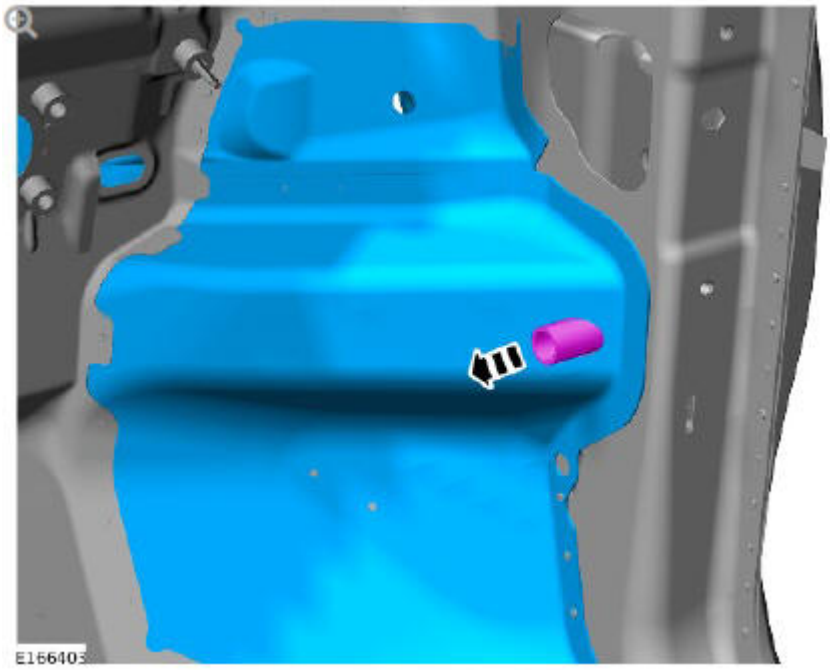
26. Measure and cut the fender apron panel reinforcement as indicated.

NOTE:

Make sure that the spot welds are drilled from the inside to enable the joint to be metal inert gas (MIG) plug welded on installation.



27. Remove the spot welds as indicated.



28. Remove the tube from the A-pillar as indicated.

NOTE:

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

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

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Front end Sheet Metal Repairs Front Side Member and Suspension Top Mount Assembly (G1770869)Front end Sheet Metal Repairs Front Side Member and Suspension Top Mount Assembly (G1770869) - Installation

ne

Передняя часть ремонт кузовных панелей передний боковой лонжерон и подвеска верх опора в сборе - установка

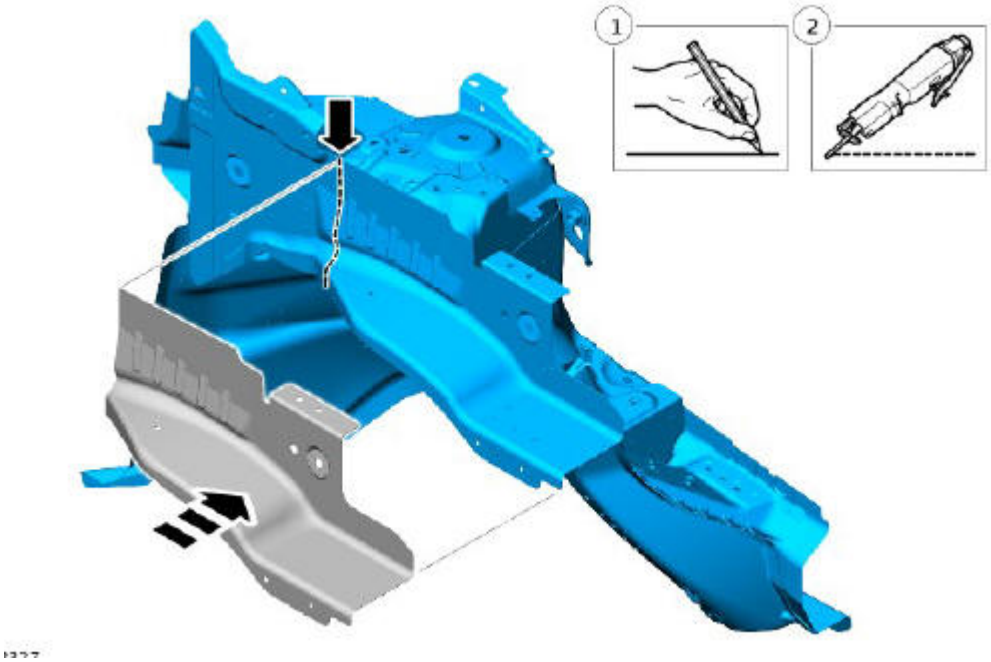
Front end Sheet Metal Repairs Front Side Member and Suspension Top Mount Assembly (G1770869) - Installation

Installation

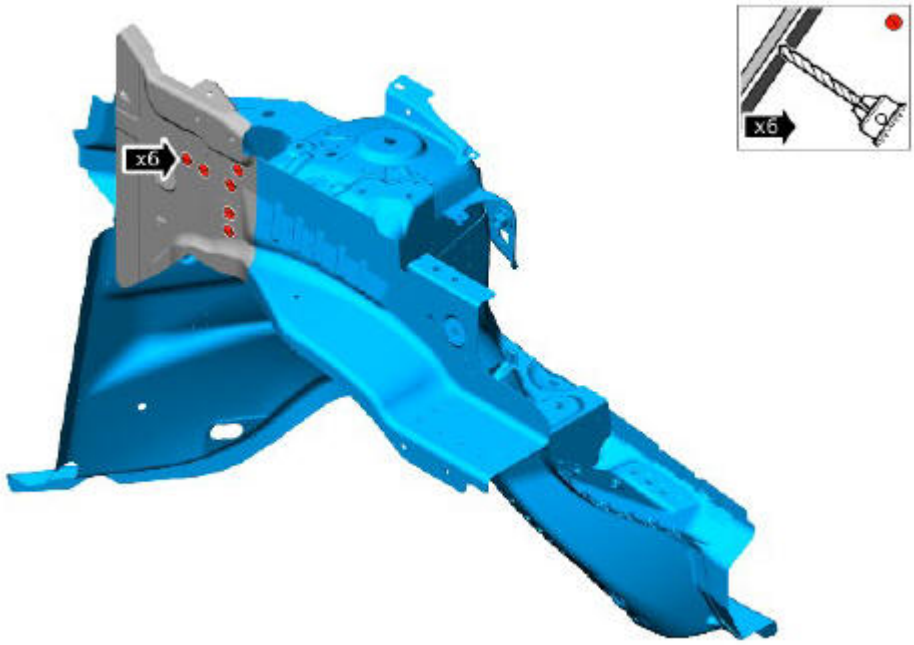
NOTE:

Make sure that the drilled out spot welds are replaced with MIG plug welds in the same quantities.

1. Dress the flanges where necessary.



2. Using the old fender apron panel reinforcement as a guide measure and cut the new fender apron panel reinforcement that is attached to the new front side member and suspension top mount assembly as indicated.



3. Remove the spot welds and detach the rear section of the fender apron panel reinforcement from the new front side member and suspension top mount as indicated.

NOTE:

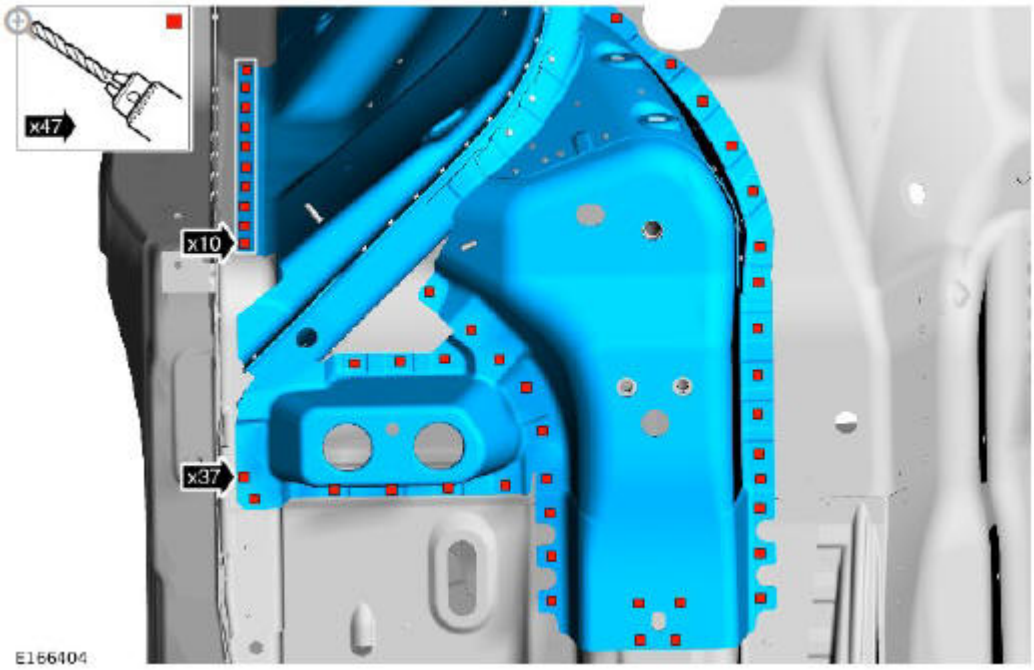
This step will require the aid of another person as the panel will be heavy.

4. Offer up the new front side member and suspension top mount assembly and the new front side member and clamp into position.

   Check alignment if correct proceed to next step, if not, rectify and recheck before proceeding.

NOTE:

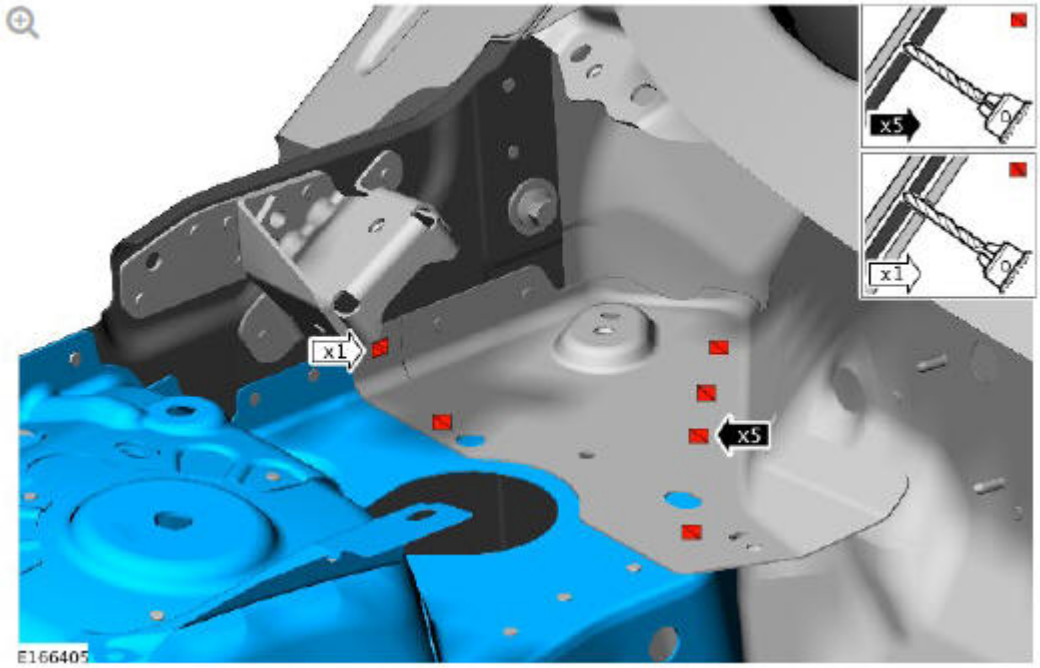
Make sure that the drilled out spot welds are replaced with MIG plug welds in the same quantities.



5. Using the old panels as a guide mark and drill the new panels where the MIG plug welds are to be installed as indicated.

NOTE:

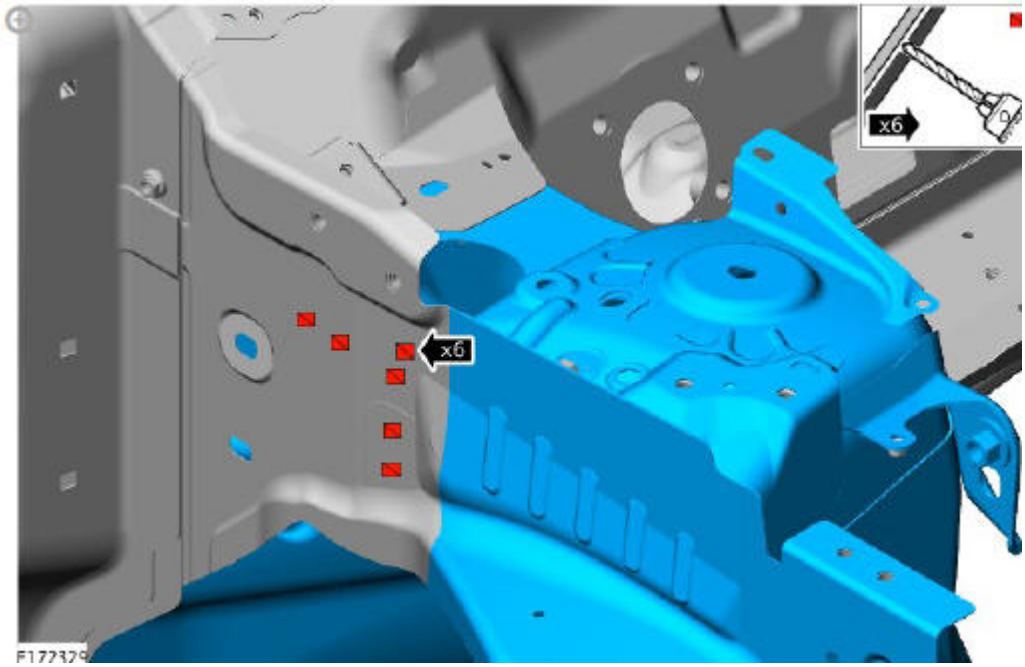
Make sure that the drilled out spot welds are replaced with MIG plug welds in the same quantities.



6. Using the old panels as a guide mark and drill the new panels where the MIG plug welds are to be installed as indicated.

NOTE:

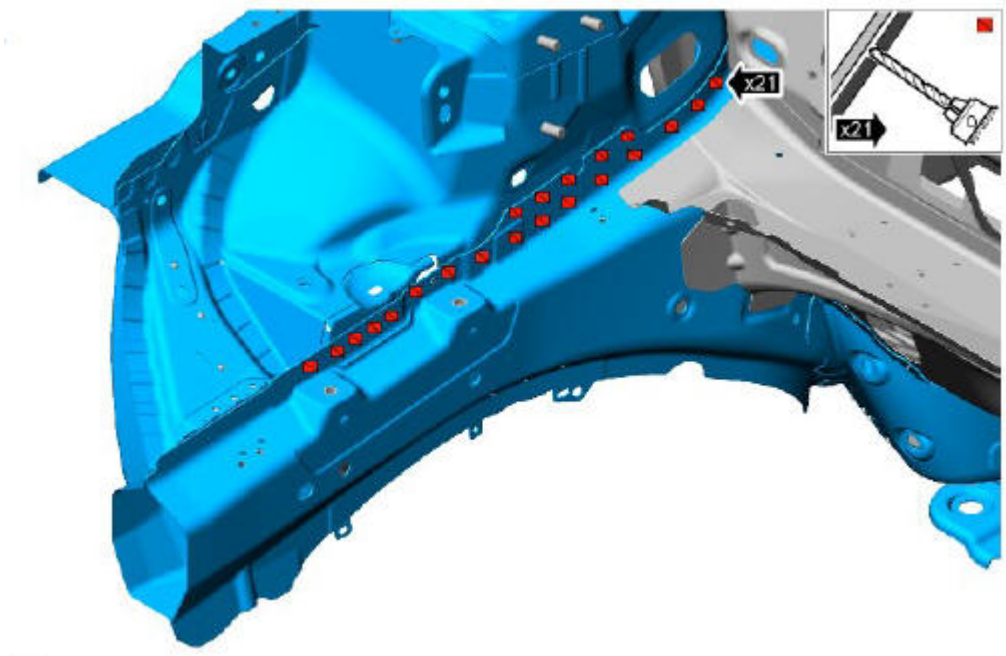
Make sure that the drilled out spot welds are replaced with MIG plug welds in the same quantities.



7. Using the old panels as a guide mark and drill the new panels where the MIG plug welds are to be installed as indicated.

NOTE:

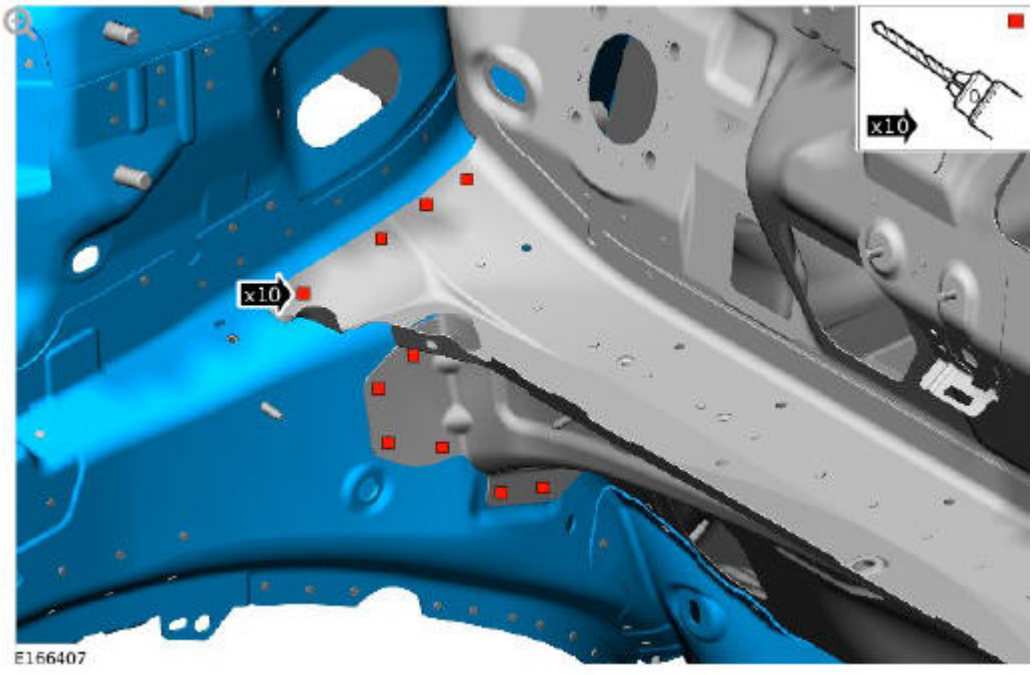
Make sure that the drilled out spot welds are replaced with MIG plug welds in the same quantities.



8. Using the old panels as a guide mark and drill the new panels where the MIG plug welds are to be installed as indicated.

NOTE:

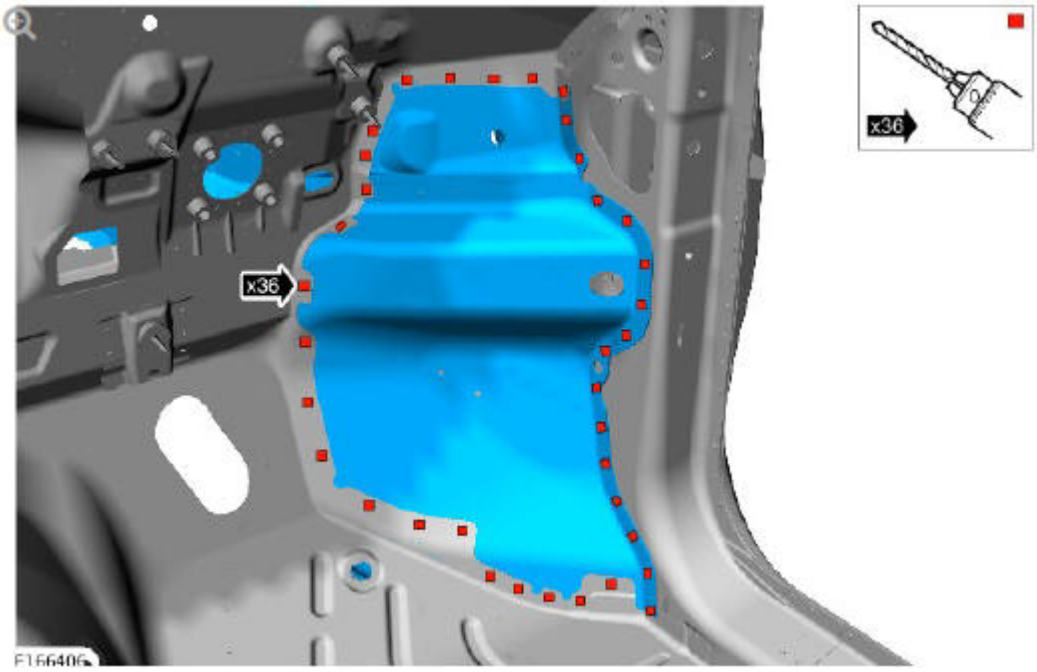
Make sure that the drilled out spot welds are replaced with MIG plug welds in the same quantities.



9. Using the old panels as a guide mark and drill the new panels where the MIG plug welds are to be installed as indicated.

NOTE:

Make sure that the drilled out spot welds are replaced with MIG plug welds in the same quantities.



10. Using the old panels as a guide mark and drill the new panels where the MIG plug welds are to be installed as indicated.

NOTE:

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

11. Remove the new front side member and suspension top mount assembly and the new front side member.
12. Deburr the drilled holes.
13. Clean and prepare the panel surfaces.

NOTE:

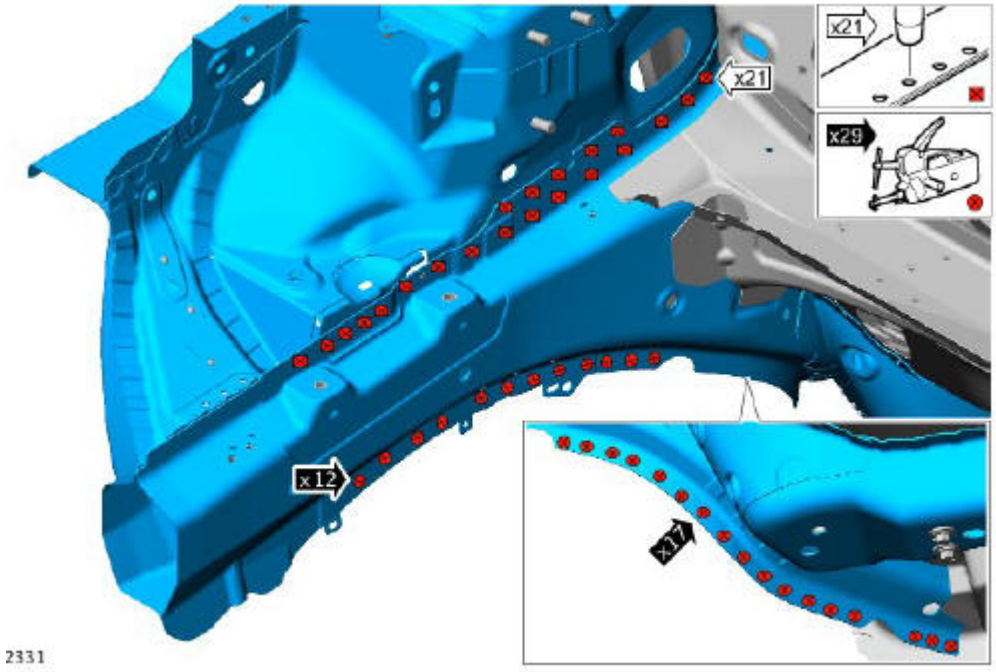
This step will require the aid of another person as the panel will be heavy.

14. Offer up the new front side member and suspension top mount assembly and the new front side member and clamp into position.

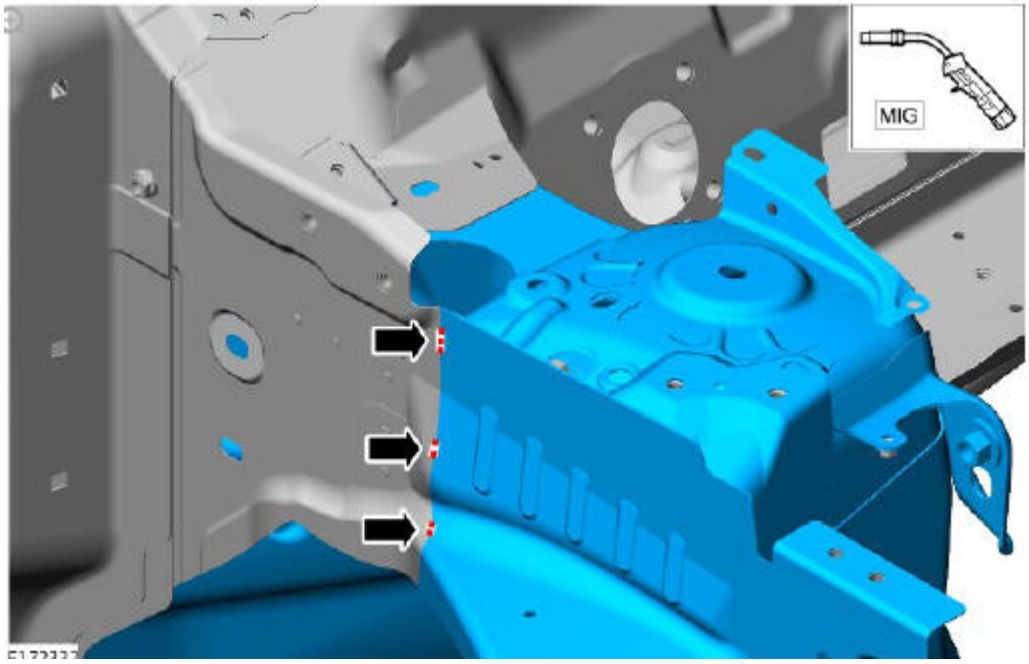
    Check alignment if correct proceed to next step, if not, rectify and recheck before proceeding.

NOTE:

Make sure that the drilled out spot welds are replaced with MIG plug welds in the same quantities.



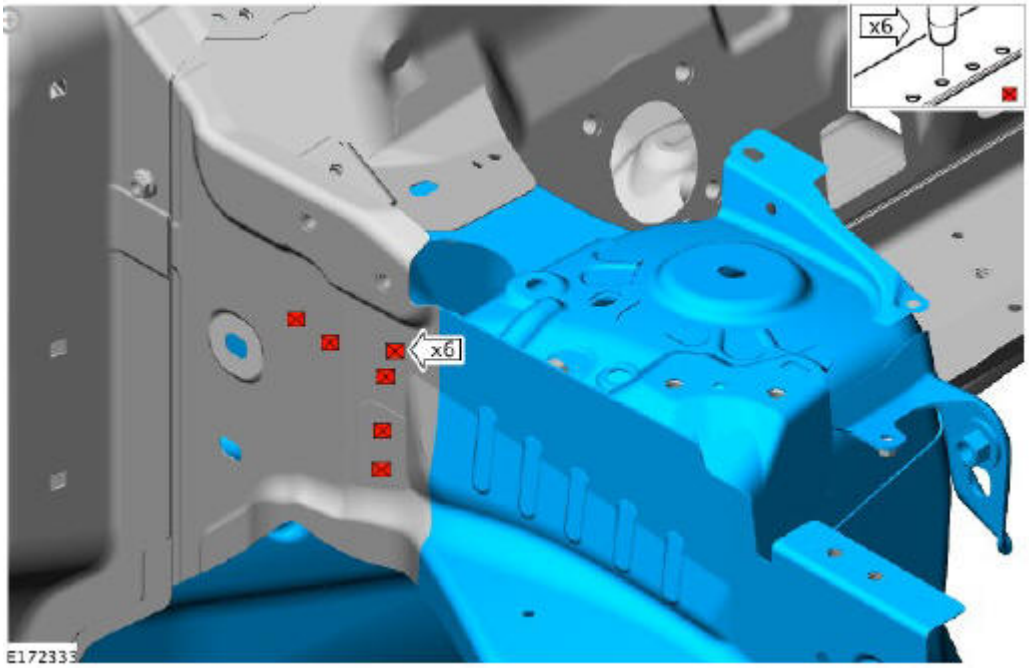
15. Install the spot and MIG plug welds as indicated.



16. Tack MIG weld the fender apron panel reinforcement butt joint as indicated.

NOTE:

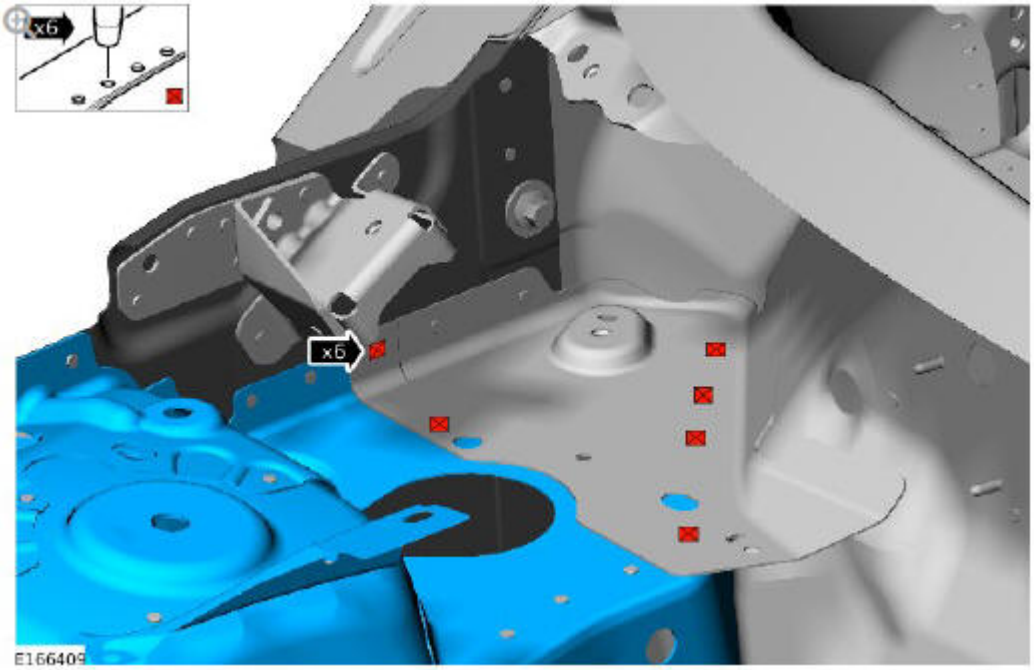
Make sure that the drilled out spot welds are replaced with MIG plug welds in the same quantities.



17. Install the MIG plug welds as indicated.

NOTE:

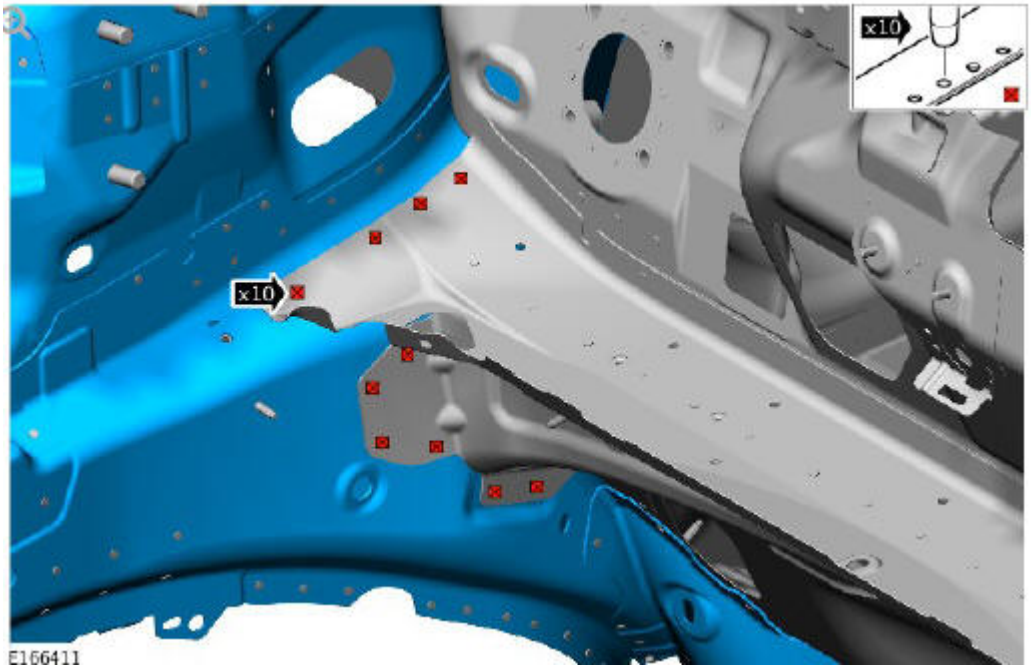
Make sure that the drilled out spot welds are replaced with MIG plug welds in the same quantities.



18. Install the MIG plug welds as indicated.

NOTE:

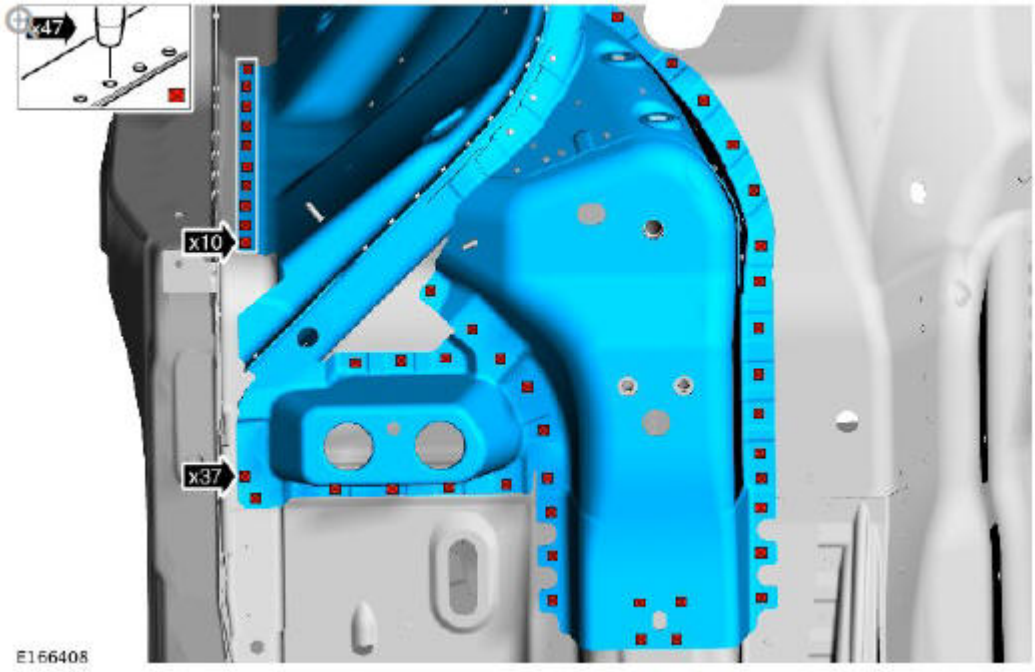
Make sure that the drilled out spot welds are replaced with MIG plug welds in the same quantities.



19. Install the MIG plug welds as indicated.

NOTE:

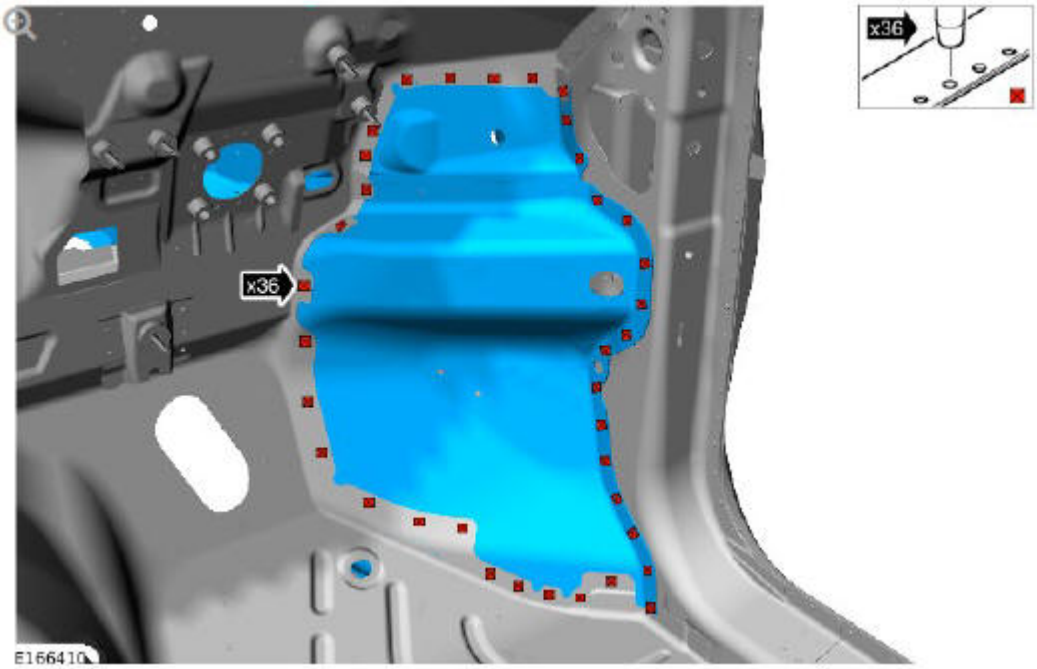
Make sure that the drilled out spot welds are replaced with MIG plug welds in the same quantities.



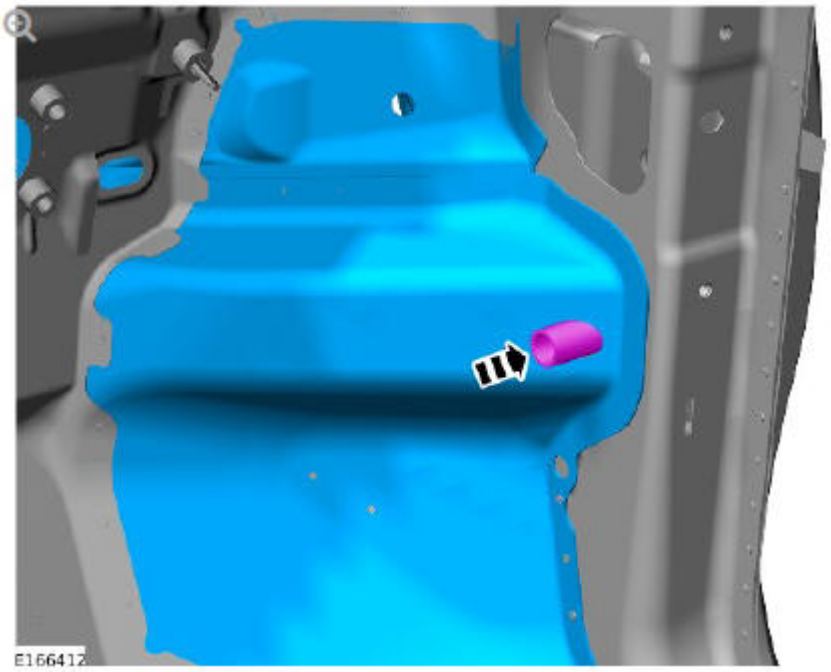
20. Install the MIG plug welds as indicated.

NOTE:

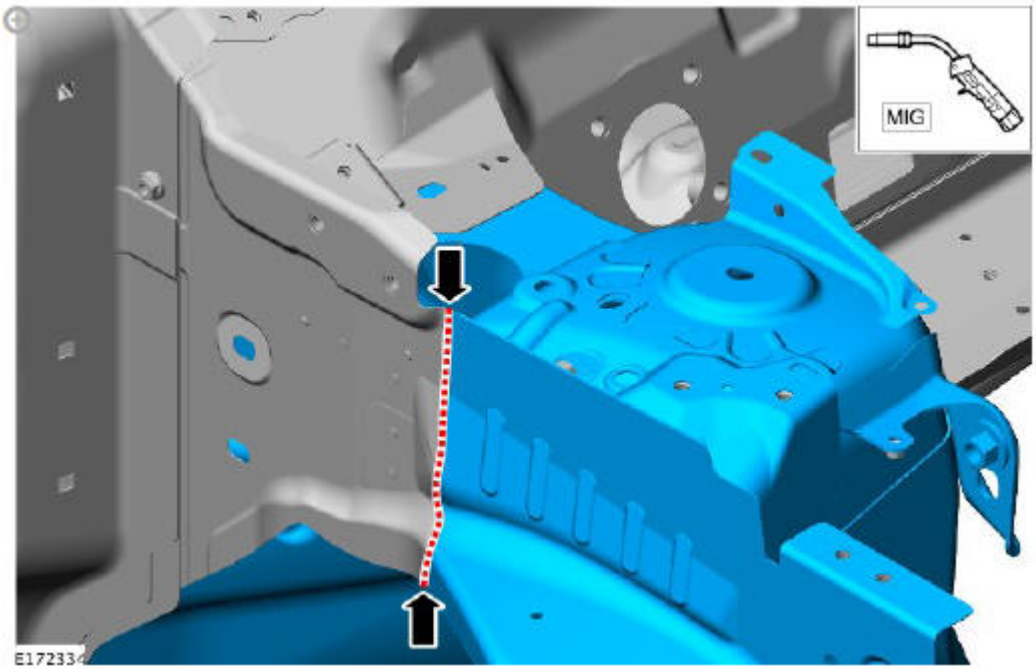
Make sure that the drilled out spot welds are replaced with MIG plug welds in the same quantities.



21. Install the MIG plug welds as indicated.



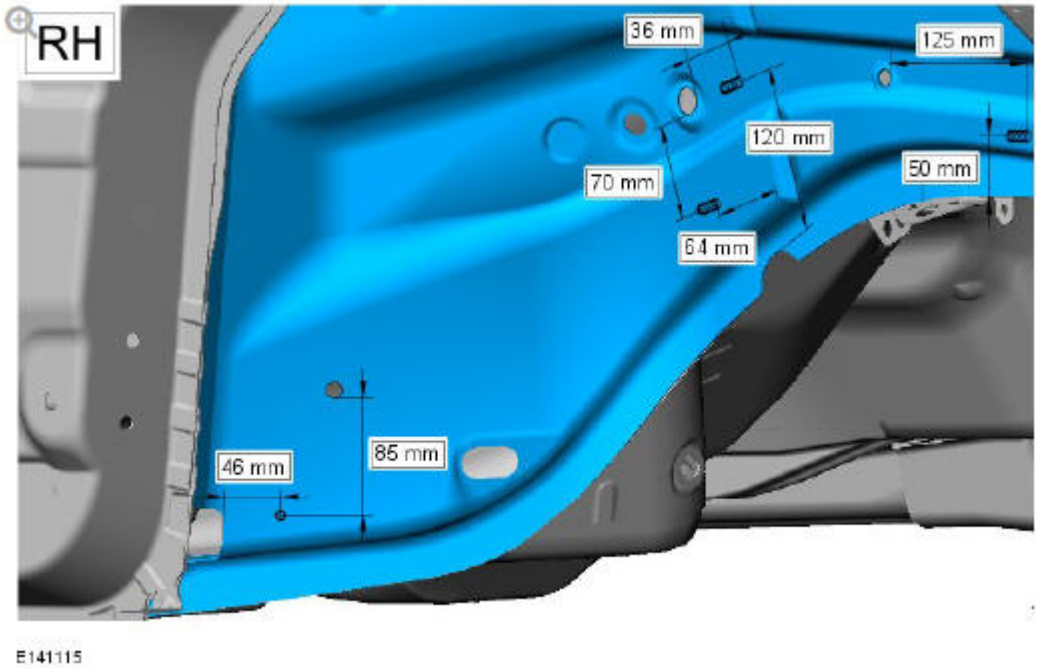
22. Install the A-pillar tube as indicated.



23. MIG weld the fender apron panel reinforcement butt joint as indicated.

NOTES:

- *Right hand only.*
- *The measurements provided in the graphic are to be used as a guide only, the components that are located/fixed to these weld studs must be offered up and cross checked for alignment prior to the installation of the weld studs to the new panel.*

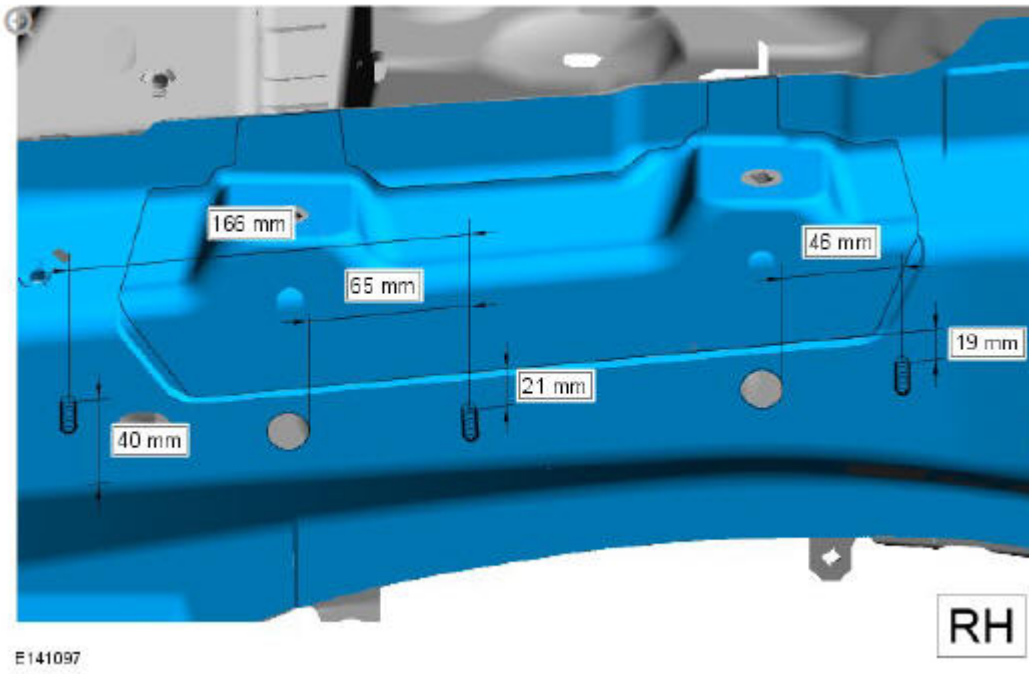


24. Prepare the new front side member and suspension top mount assembly and install the weld studs in their original locations as indicated.

NOTES:

- *Right hand only.*
- *The measurements provided in the graphic are to be used as a guide only, the components that are located/fixed to these weld studs must be offered up and cross checked for alignment prior to the*

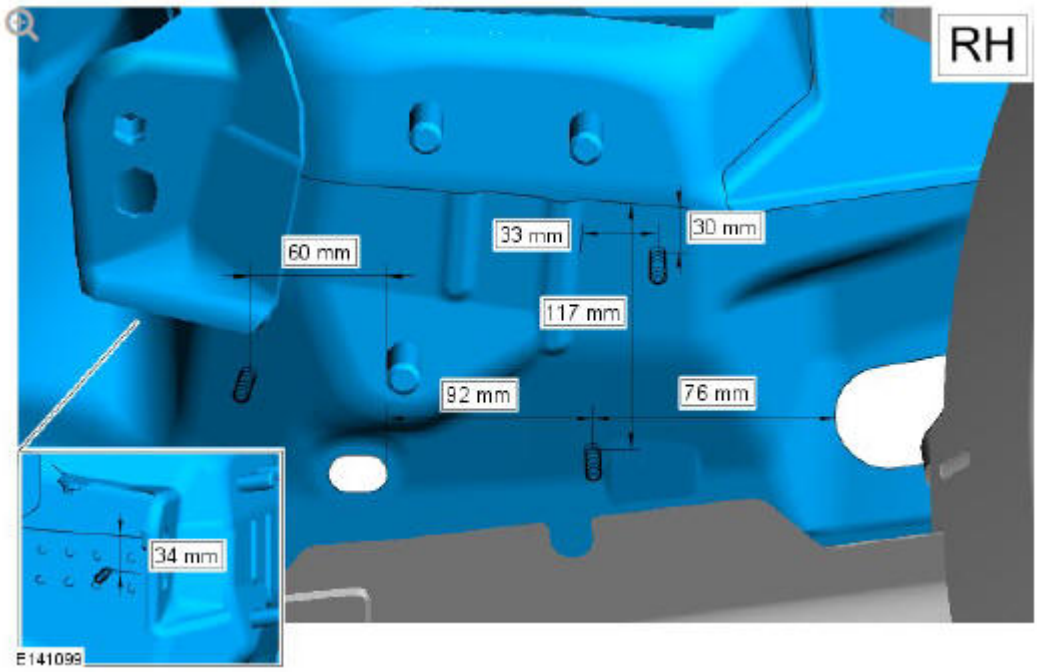
installation of the weld studs to the new panel.



25. Prepare the new front side member and suspension top mount assembly and install the weld studs in their original locations as indicated.

NOTES:

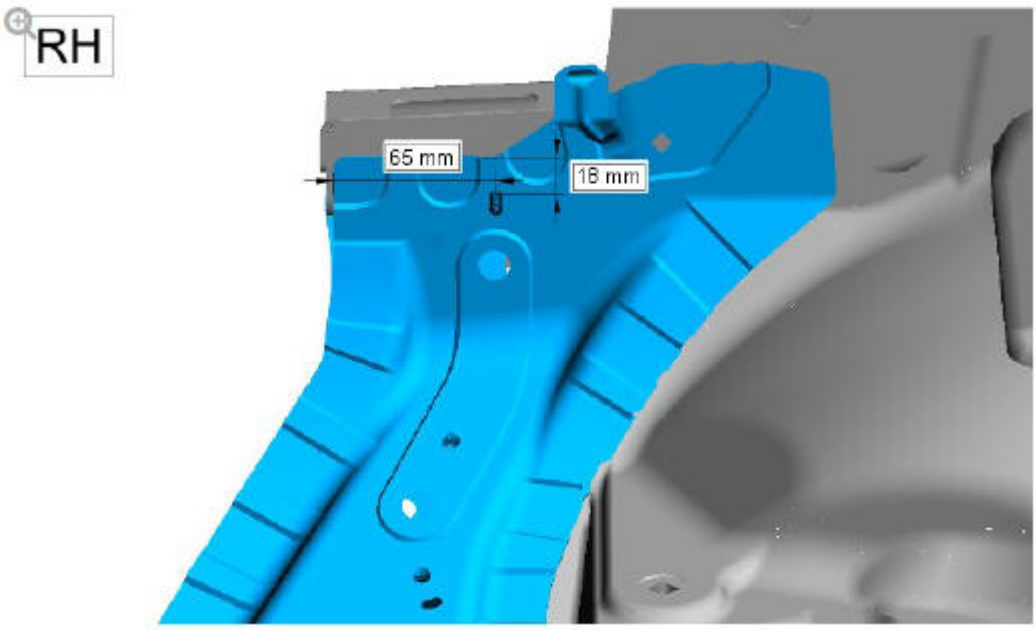
- *Right hand only.*
- *The measurements provided in the graphic are to be used as a guide only, the components that are located/fixed to these weld studs must be offered up and cross checked for alignment prior to the installation of the weld studs to the new panel.*



26. Prepare the new front side member and suspension top mount assembly and install the weld studs in their original locations as indicated.

NOTES:

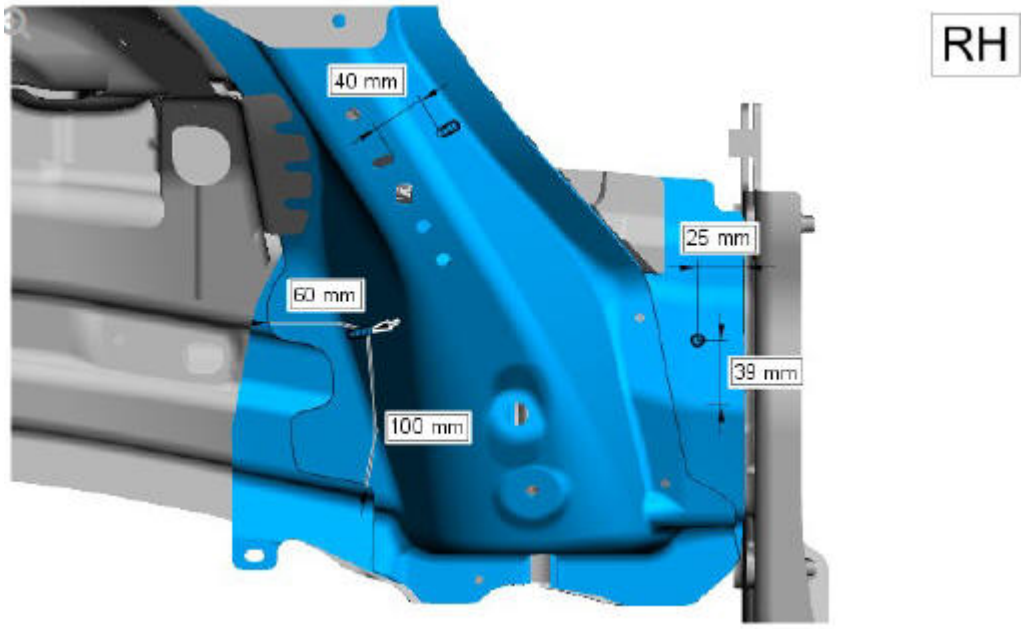
- *Right hand only.*
- *The measurements provided in the graphic are to be used as a guide only, the components that are located/fixed to these weld studs must be offered up and cross checked for alignment prior to the installation of the weld studs to the new panel.*



27. Prepare the new front side member and suspension top mount assembly and install the weld studs in their original locations as indicated.

NOTES:

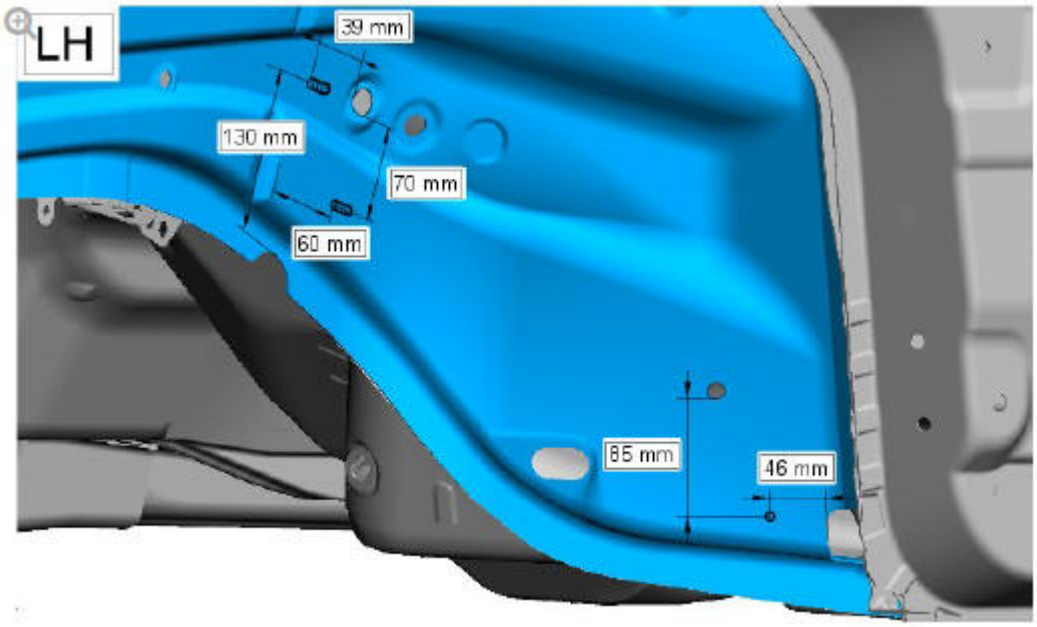
- *Right hand only.*
- *The measurements provided in the graphic are to be used as a guide only, the components that are located/fixed to these weld studs must be offered up and cross checked for alignment prior to the installation of the weld studs to the new panel.*



28. Prepare the new front side member and suspension top mount assembly and install the weld studs in their original locations as indicated.

NOTES:

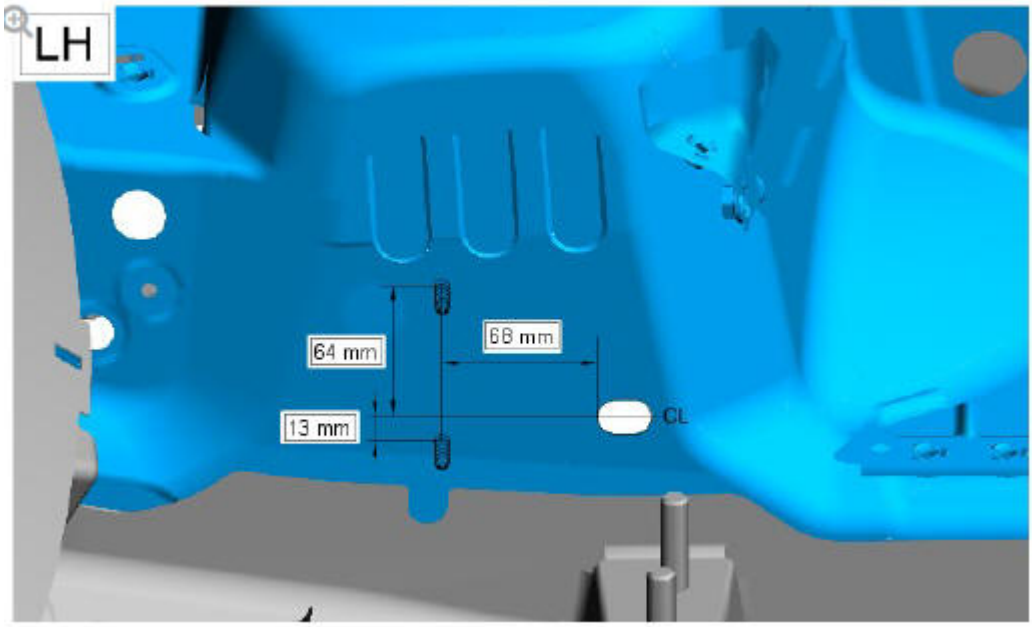
- *Left hand only.*
- *The measurements provided in the graphic are to be used as a guide only, the components that are located/fixed to these weld studs must be offered up and cross checked for alignment prior to the installation of the weld studs to the new panel.*



29. Prepare the new front side member and suspension top mount assembly and install the weld studs in their original locations as indicated.

NOTES:

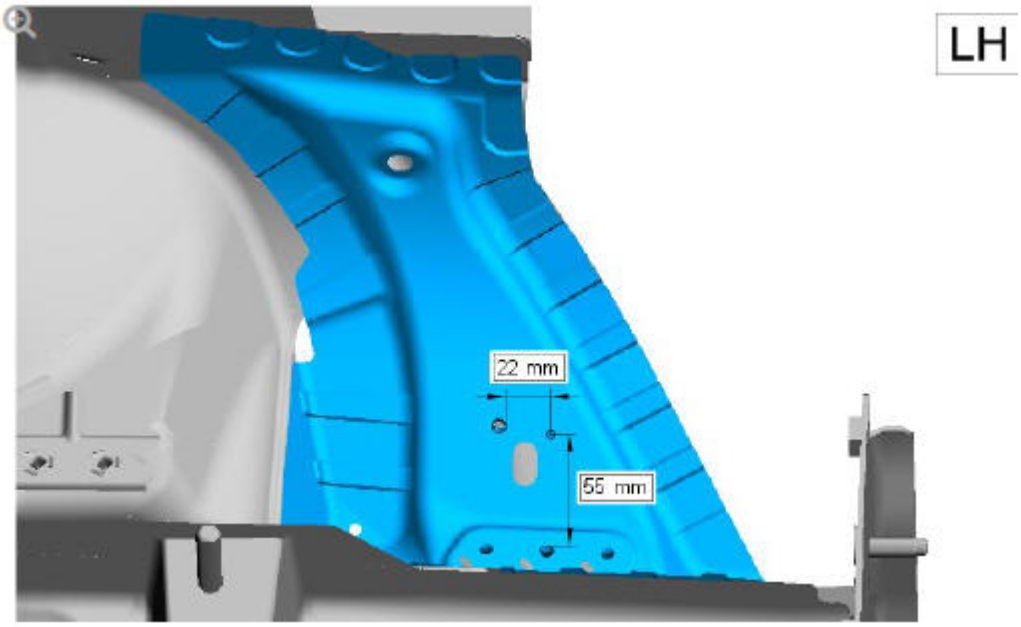
- *Left hand only.*
- *The measurements provided in the graphic are to be used as a guide only, the components that are located/fixed to these weld studs must be offered up and cross checked for alignment prior to the installation of the weld studs to the new panel.*



30. Prepare the new front side member and suspension top mount assembly and install the weld studs in their original locations as indicated.

NOTES:

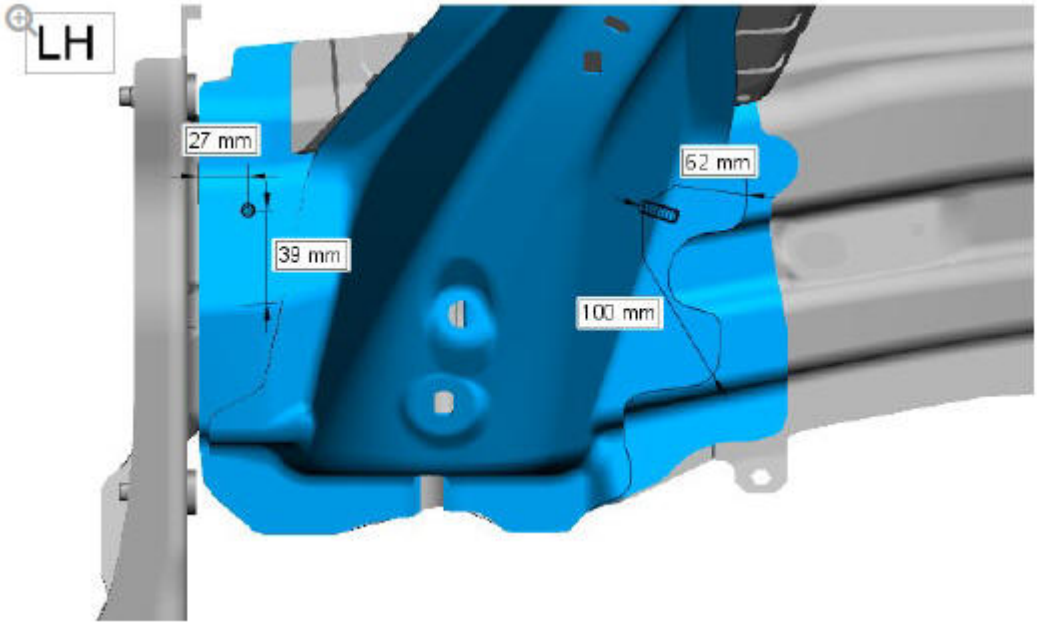
- *Left hand only.*
- *The measurements provided in the graphic are to be used as a guide only, the components that are located/fixed to these weld studs must be offered up and cross checked for alignment prior to the installation of the weld studs to the new panel.*



31. Prepare the new front side member and suspension top mount assembly and install the weld studs in their original locations as indicated.

NOTES:

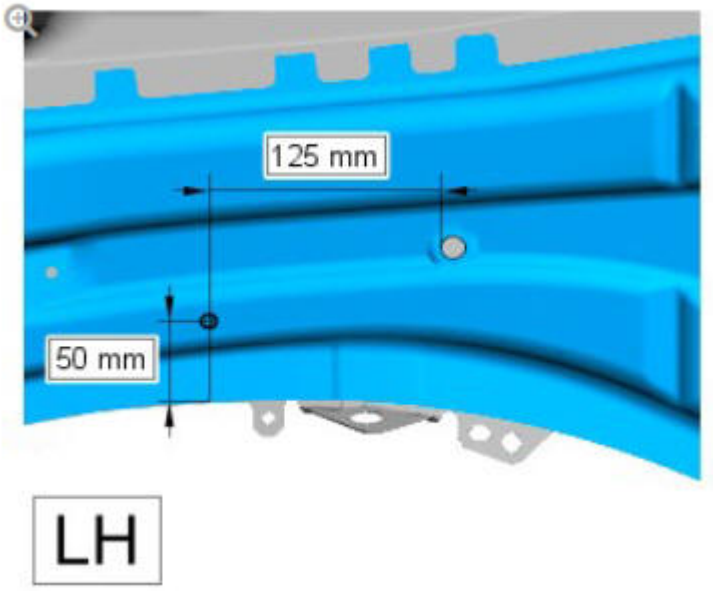
- *Left hand only.*
- *The measurements provided in the graphic are to be used as a guide only, the components that are located/fixed to these weld studs must be offered up and cross checked for alignment prior to the installation of the weld studs to the new panel.*



32. Prepare the new front side member and suspension top mount assembly and install the weld studs in their original locations as indicated.

NOTES:

- *Left hand only.*
- *The measurements provided in the graphic are to be used as a guide only, the components that are located/fixed to these weld studs must be offered up and cross checked for alignment prior to the installation of the weld studs to the new panel.*



33. Prepare the new front side member and suspension top mount assembly and install the weld studs in their original locations as indicated.
34. Dress the butt welds.
35. Make sure that any open or exposed panel joints are sealed with a Land Rover recommended sealer.
36. Make sure corrosion protection is applied to all areas affected by repair.
37. The installation of associated panels and components is the reversal of removal procedure.

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Front end Sheet Metal Repairs Front Side Member and Suspension Top Mount Assembly (G1770869) - RemovalFront end Sheet Metal Repairs Front Side Member (G1770867) /Removal and Installation

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Передняя часть ремонт кузовных панелей передний боковой лонжерон / снятие и установка

Front end Sheet Metal Repairs Front Side Member (G1770867) /Removal and Installation

REMOVAL

NOTE:

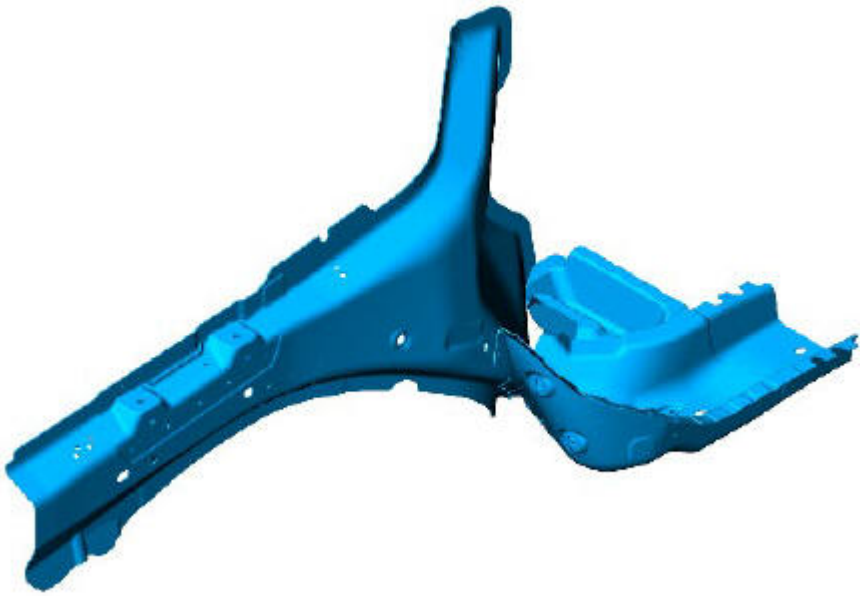
The front side member is installed in conjunction with:

- *Front bumper*
- *Front bumper mounting*
- *Hood*
- *Hood latch panel*
- *Radiator*

- *Condenser*
- *Front fender*
- *Fender splash shield*
- *Fender apron panel*
- *Fender apron panel reinforcement*
- *Engine*
- *Transmission*
- *Front suspension*
- *Front subframe*
- *Secondary bulkhead*

NOTE:

The service panel is serviced not fully spot welded.



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.

   For additional information, refer to: Health and Safety Precautions (100-00 General Information, Description and Operation).
3. For further information on the methods, tools and fixings used in this procedure refer to the body repairs - general information section.

NOTES:

- *Any joints sealed as part of vehicle manufacture must be sealed as part of the repair.*
- *Make sure a zinc rich primer is applied to any bare metal surfaces.*
- *To make sure that the vehicle is correctly aligned it must be placed on a Land Rover approved alignment jig.*

4. For additional information, refer to: Front Bumper Cover (501-19 Bumpers, Removal and Installation).
5. For additional information, refer to: Front Armature (501-19 Bumpers, Removal and Installation).
6. For additional information, refer to: Hood (501-02 Front End Body Panels, Removal and Installation).

7. For additional information, refer to: Hood Latch Panel (501-02 Front End Body Panels, Removal and Installation).
8. For additional information, refer to: Radiator (303-03A Engine Cooling - TD4 2.2L Diesel, Removal and Installation) / Radiator (303-03B Engine Cooling - INGENIUM I4 2.0L Diesel, Removal and Installation).
9. For additional information, refer to: Condenser - GTDi 2.0L Petrol/GTDi 2.0L Petrol - SULEV (412-01 Climate Control, Removal and Installation) / Condenser - TD4 2.2L Diesel (412-01 Climate Control, Removal and Installation).
10. For additional information, refer to: Fender (501-02 Front End Body Panels, Removal and Installation).
11. For additional information, refer to: Fender Splash Shield (501-02 Front End Body Panels, Removal and Installation).
12. For additional information, refer to: Fender Apron Panel (501-27 Front End Sheet Metal Repairs, Removal and Installation).
13. For additional information, refer to: Fender Apron Panel Reinforcement (501-27 Front End Sheet Metal Repairs, Removal and Installation).
14. For additional information, refer to: Engine - Vehicles With: M66 6- Speed Manual Transmission AWD/M66 6-Speed Manual Transmission FWD (303-01A Engine - TD4 2.2L Diesel, Removal) / Engine - Vehicles With: M66 6-Speed Manual Transmission AWD/M66 6-Speed Manual Transmission FWD (303-01A Engine - TD4 2.2L Diesel, Removal) / Engine - Vehicles With: 9HP48 9-Speed Automatic Transmission - AWD (303-01A Engine - TD4 2.2L Diesel, Removal) / Engine - Vehicles With: 9HP48 9-Speed Automatic Transmission - AWD (303-01A Engine - TD4 2.2L Diesel, Removal) / Engine (303-01B, Removal) / Engine (303-01B, Installation).
15. For additional information, refer to: Front Subframe (502-00, Removal and Installation).
16. For additional information, refer to: Secondary Bulkhead Centre Panel - TD4 2.2L Diesel (501-02 Front End Body Panels, Removal and Installation) / Secondary Bulkhead Centre Panel - GTDi 2.0L Petrol (501-02 Front End Body Panels, Removal and Installation).

NOTE:

Left hand only.

17. Release the battery junction box (BJB) and position to one side.

NOTE:

Right hand only.

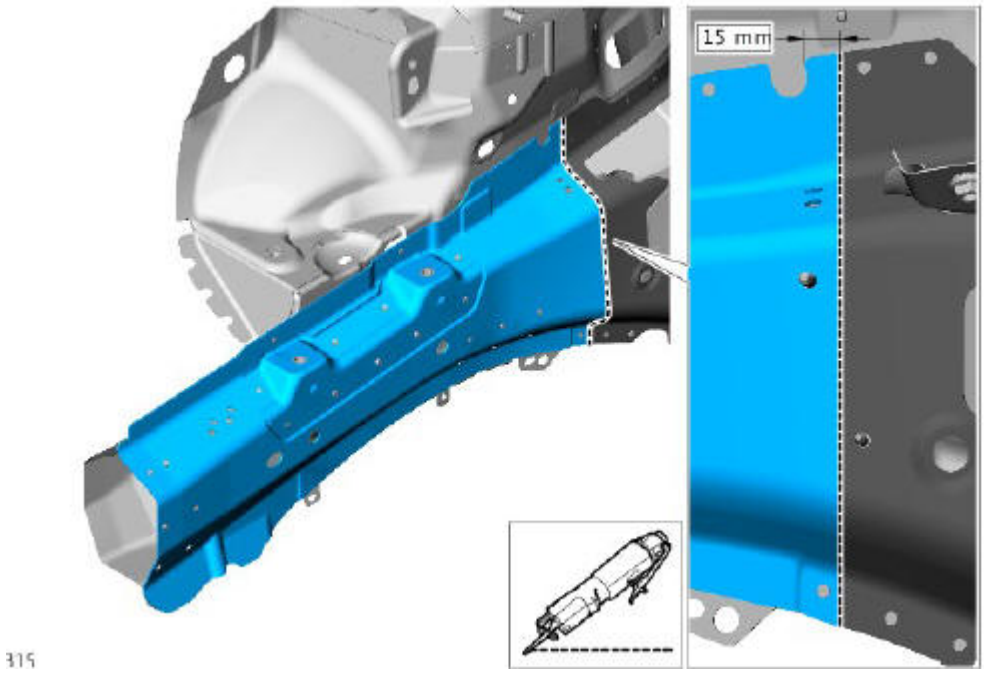
18. Remove the front side member noise, vibration and harshness (NVH) material.
19. Release the brake pipes and position to one side.
20. Release the wiring harness and position to one side.

CAUTION:

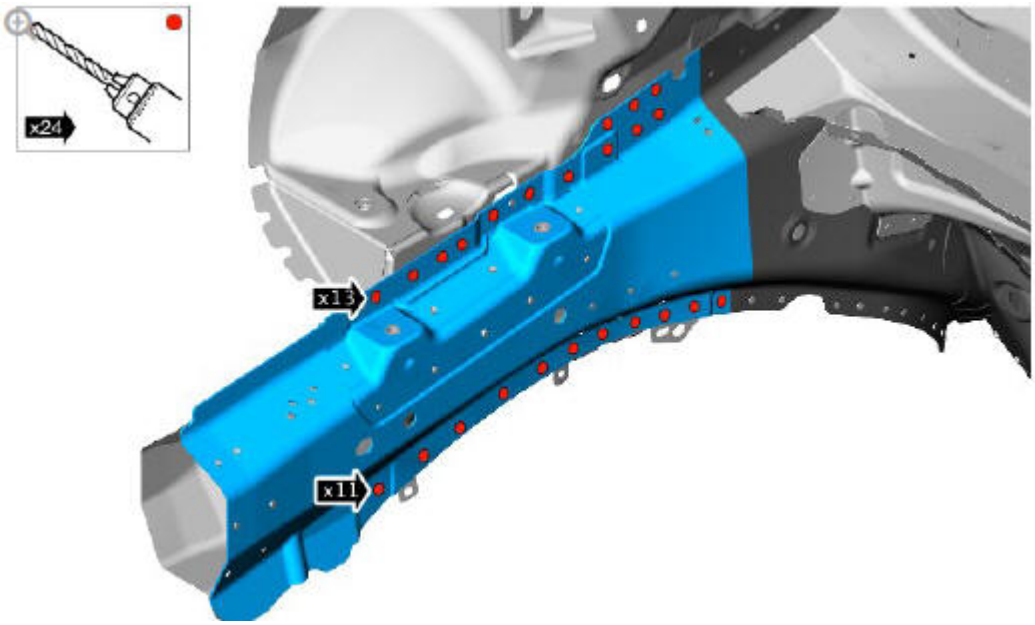
Care should be taken not to cut through into the inner reinforcements.

NOTE:

The left hand and right hand front side member joint locations are both 15mm forward of the laser weld.



21. Mark out the position where the front side member metal inert gas (MIG) butt joint is to be made and cut through the front side member as indicated.



22. Remove the spot welds as indicated.

NOTE:

Retain old front side member section for reference on installation.

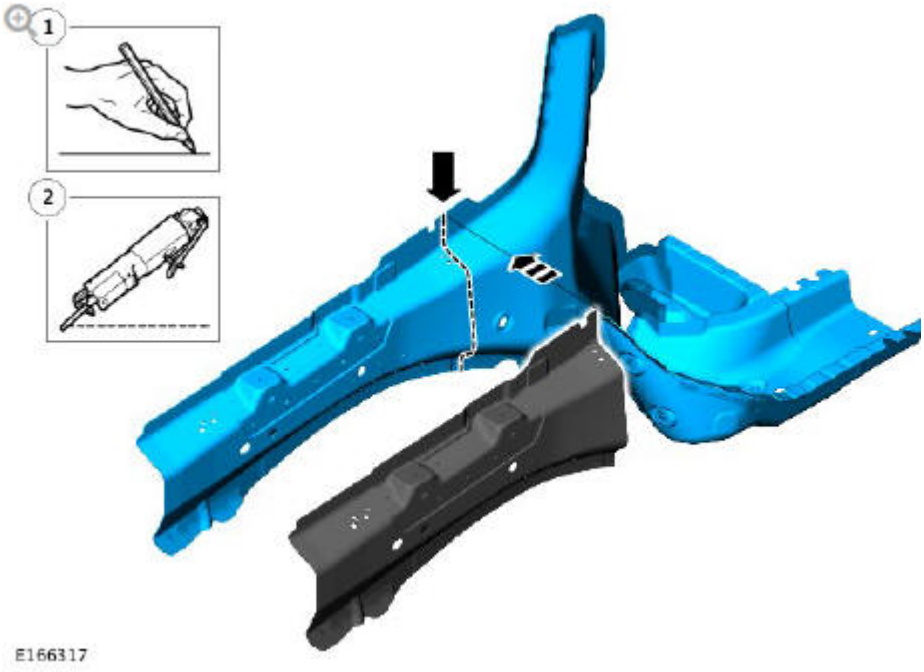
23. Carefully separate the joints and remove the front side member from the vehicle assembly.

INSTALLATION

1. Dress flanges where necessary.

NOTE:

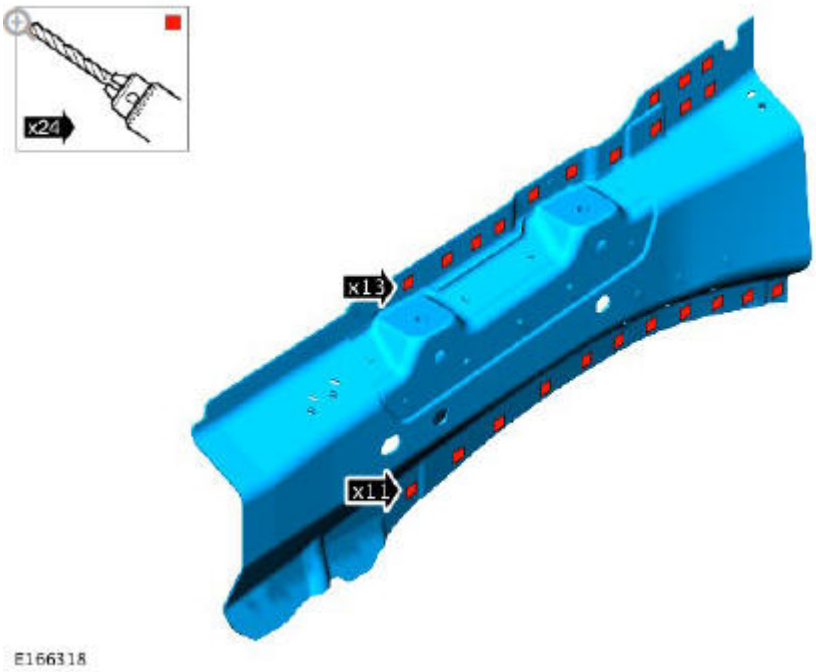
The left hand and right hand front side member joint locations are both 15mm forward of the laser weld.



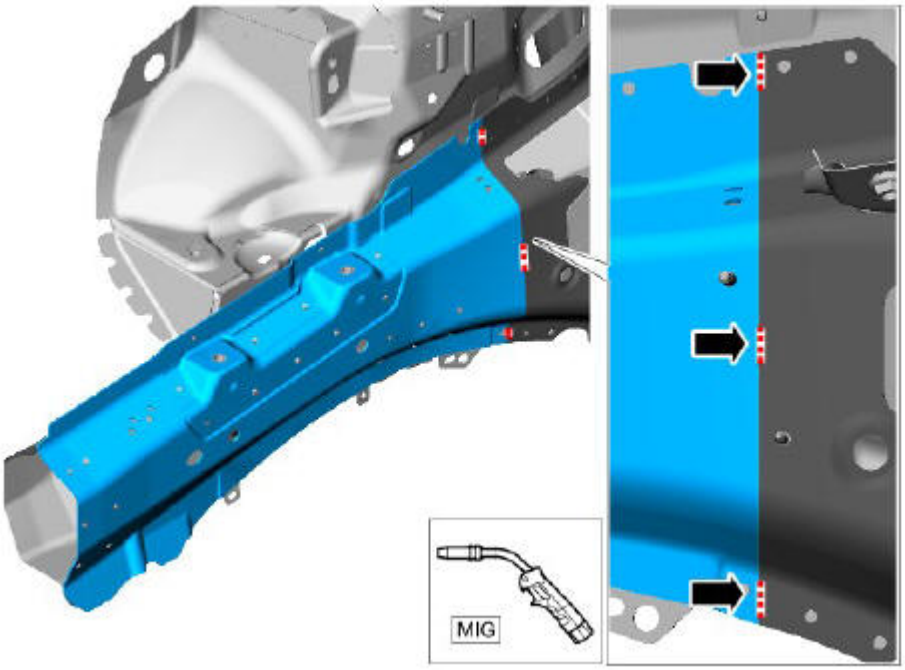
2. Using the old front side member as a guide mark out the position where the front side member MIG butt joint is to be made. Cut through the new front side member as indicated.

NOTE:

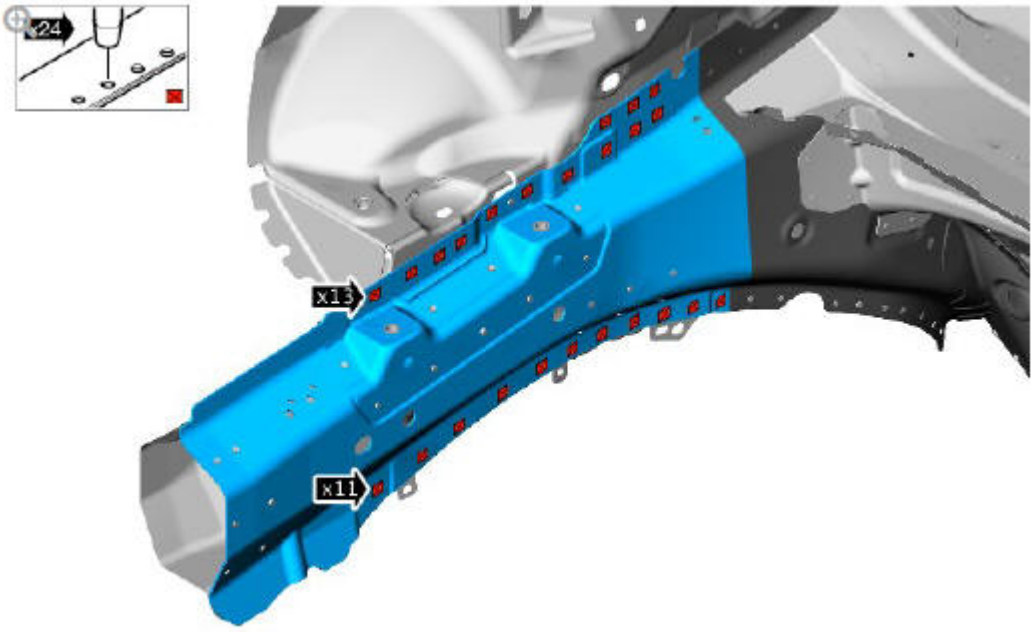
The drilled out spot welds must be installed with MIG plug welds in the same quantities.



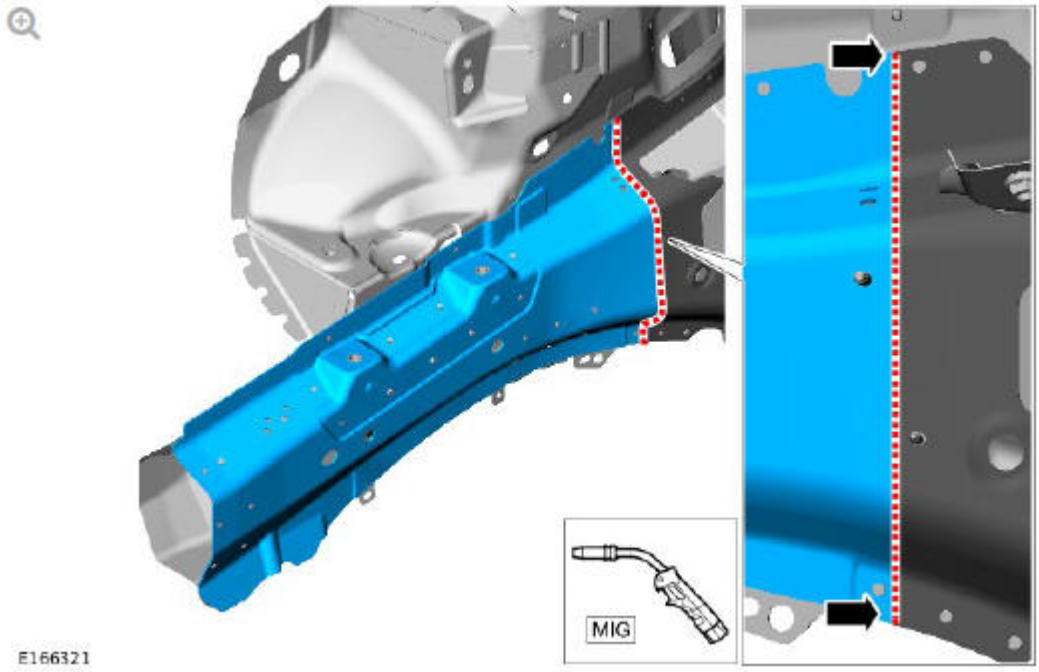
3. Using the old front side member as a guide drill holes in the new front side member where the MIG plug welds are to be installed as indicated.
4. Deburr the drilled holes.
5. Clean and prepare the panel surfaces.
6. Offer up the new front side member and clamp into position. Check alignment if correct, proceed to next step, if not, rectify and recheck before proceeding.



7. Tack MIG weld the front side member butt joint as indicated.



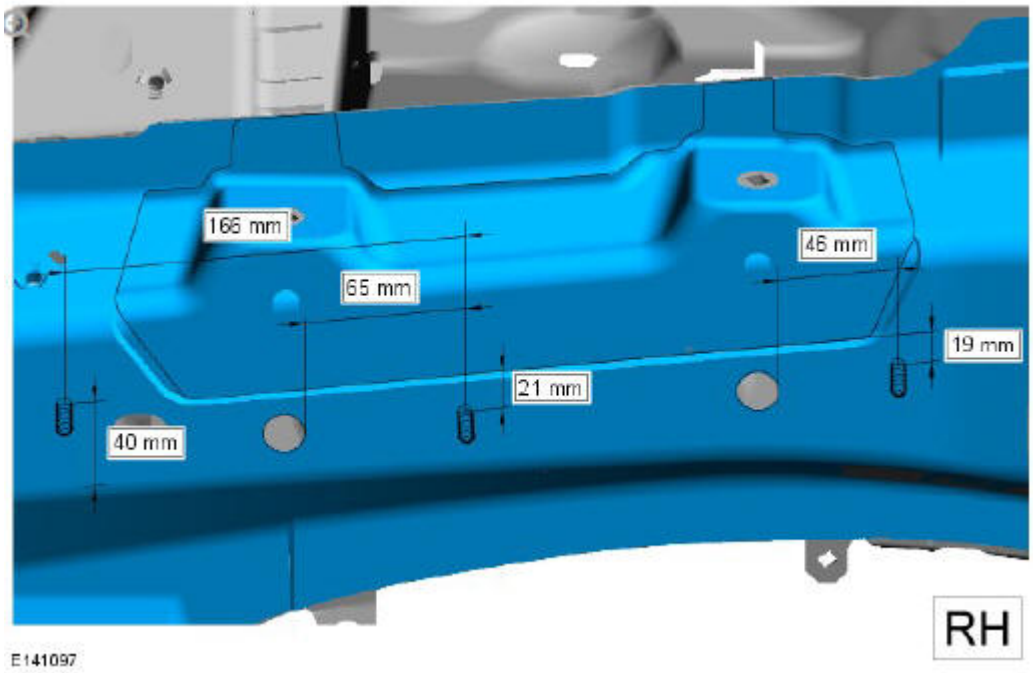
8. Install the MIG plug welds as indicated.



9. MIG weld the front side member butt joint as indicated.

NOTES:

- *Right hand only.*
- *The measurements provided in the graphic are to be used as a guide only. The components that are located/installed to these weld studs must be offered up and cross checked for alignment prior to the installation of the weld studs to the new panel.*



10. Prepare the new front side member and install the weld studs in their original locations as indicated.
11. Dress all welded joints.
12. Make sure that any open or exposed panel joints are sealed with a Land Rover recommended sealer.
13. Make sure corrosion protection is applied to all areas affected by repair.
14. The installation of associated panels and components is the reversal of removal procedure.

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Front end Sheet Metal Repairs Front Side Member and Suspension Top Mount Assembly (G1770869) - InstallationFront end Sheet Metal Repairs Front Fender Mounting Panel (G1770874) / Removal and Installation

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Передняя часть ремонт кузовных панелей передний крыло крепление панель / снятие и установка

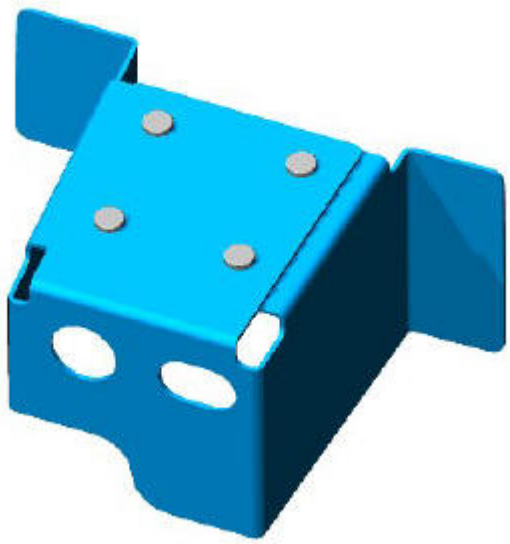
Front end Sheet Metal Repairs Front Fender Mounting Panel (G1770874) / Removal and Installation

REMOVAL

NOTE:

The front fender mounting panel is installed in conjunction with:

- *Front fender*
- *Front door*



1. The front fender mounting panel is serviced as indicated.
2. Before commencing this procedure make sure that you are aware of all Health and Safety requirements.

   For additional information, refer to: Health and Safety Precautions (100-00, Description and Operation).

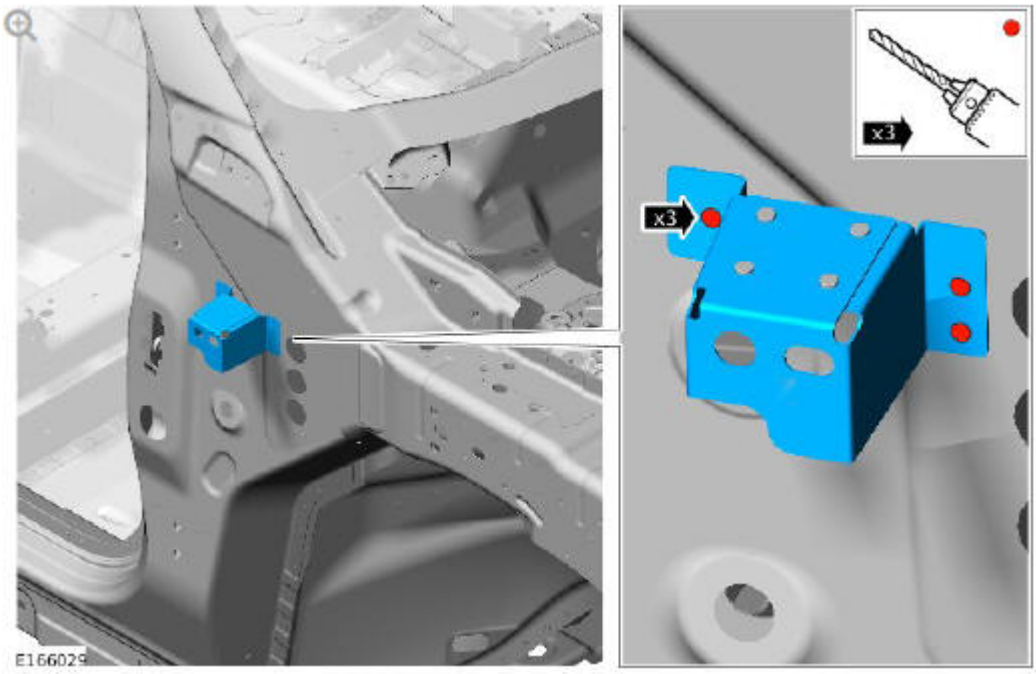
3. For further information on the methods, tools and fixings used in this procedure refer to the body repairs - general information section.

NOTES:

- *Any joints sealed as part of vehicle manufacture must be sealed as part of the repair.*
- *Make sure a zinc rich primer is applied to any bare metal surfaces.*

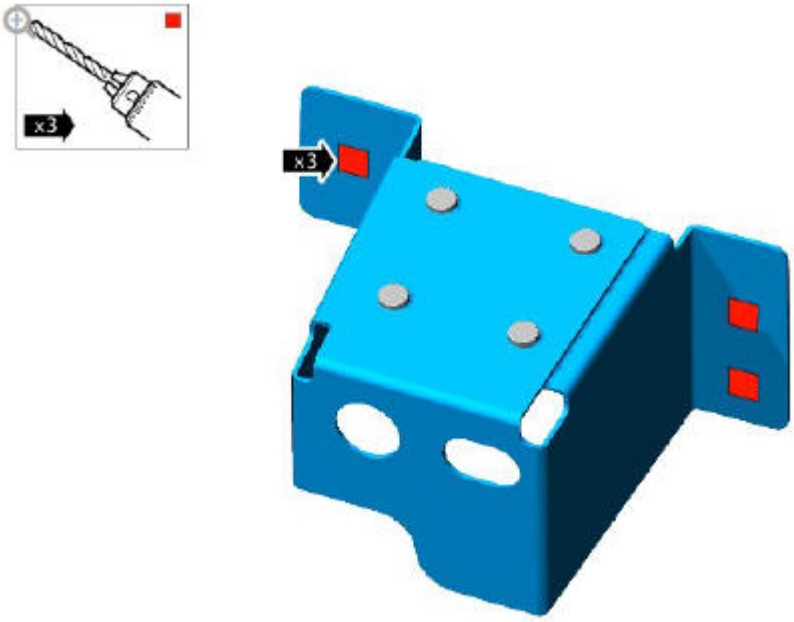
4. For additional information, refer to: Fender (501-02, Removal and Installation).
5. For additional information, refer to: Front Door (501-03, Removal and Installation).

Drill

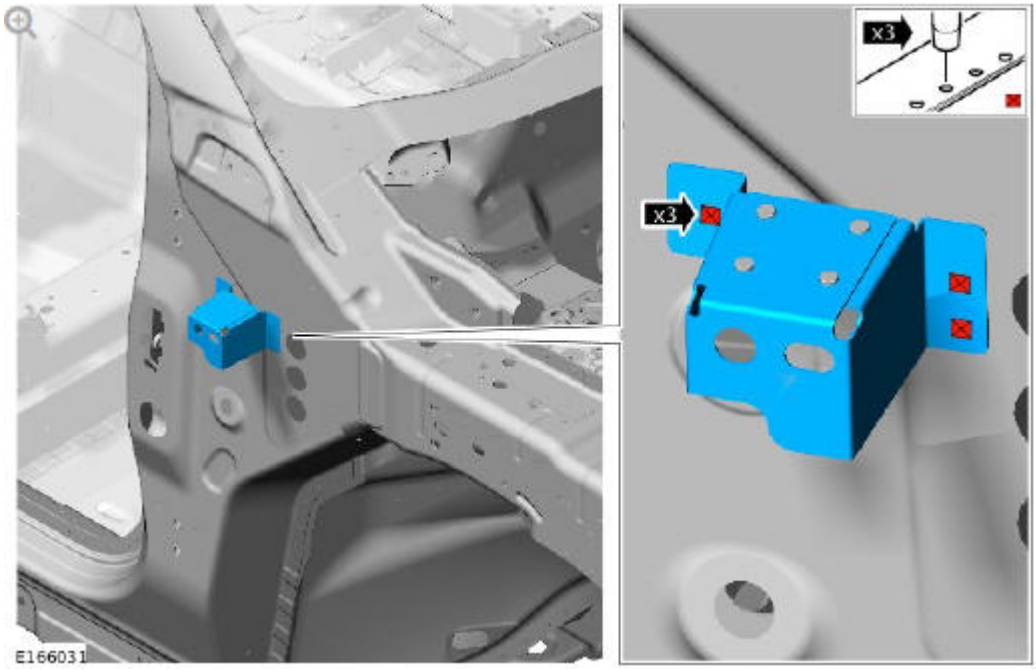


6. Drill out the spot welds as indicated.
7. Separate the joint and remove the panel.

INSTALLATION



1. Using the old front fender mounting panel for reference drill holes in the new front fender mounting panel where the metal inert gas (MIG) plug welds are to be installed as indicated.
2. Offer up the new front fender mounting panel and clamp into position. Check alignment, if correct, proceed to next step, if not, rectify and recheck before proceeding.



3. Install the MIG plug welds as indicated.
4. Dress the welds.
5. Make sure that any open or exposed panel joints are correctly sealed.
6. Make sure corrosion protection is applied to all areas affected by repair.
7. The installation of associated panels and components is the reversal of removal procedure.

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Front end Sheet Metal Repairs Front Side Member (G1770867) /Removal and InstallationFront end Sheet Metal Repairs Front Bumper Mounting (G1775677) / Removal and Installation

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Передняя часть ремонт кузовных панелей передний бампер крепление / снятие и установка

Front end Sheet Metal Repairs Front Bumper Mounting (G1775677) / Removal and Installation

REMOVAL

NOTE:

The front bumper mounting is installed in conjunction with:

- *Front bumper cover*
- *Front bumper*
- *Hood latch panel*
- *Radiator*
- *Windshield washer reservoir*



1. The front bumper mounting is serviced as indicated
2. Before commencing this procedure make sure that you are aware of all Health and Safety requirements.

   For additional information, refer to: Health and Safety Precautions (100-00 General Information, Description and Operation).

3. For further information on the methods, tools and fixings used in this procedure refer to the body repairs - general information section.

NOTES:

- *Any joints sealed as part of vehicle manufacture must be sealed as part of the repair.*
- *Make sure a zinc rich primer is applied to any bare metal surfaces.*
- *To make sure the vehicle is correctly aligned. It must be placed on a Land Rover approved alignment jig.*

4. For additional information, refer to: Front Bumper Cover (501-19 Bumpers, Removal and Installation).
5. For additional information, refer to: Front Armature (501-19 Bumpers, Removal and Installation).
6. For additional information, refer to: Hood Latch Panel (501-02 Front End Body Panels, Removal and Installation).
7. For additional information, refer to: Radiator (303-03A Engine Cooling - TD4 2.2L Diesel, Removal and Installation).

NOTE:

Right hand only.

8. For additional information, refer to: Windshield Washer Reservoir (501-16 Wipers and Washers, Removal and Installation).

NOTE:

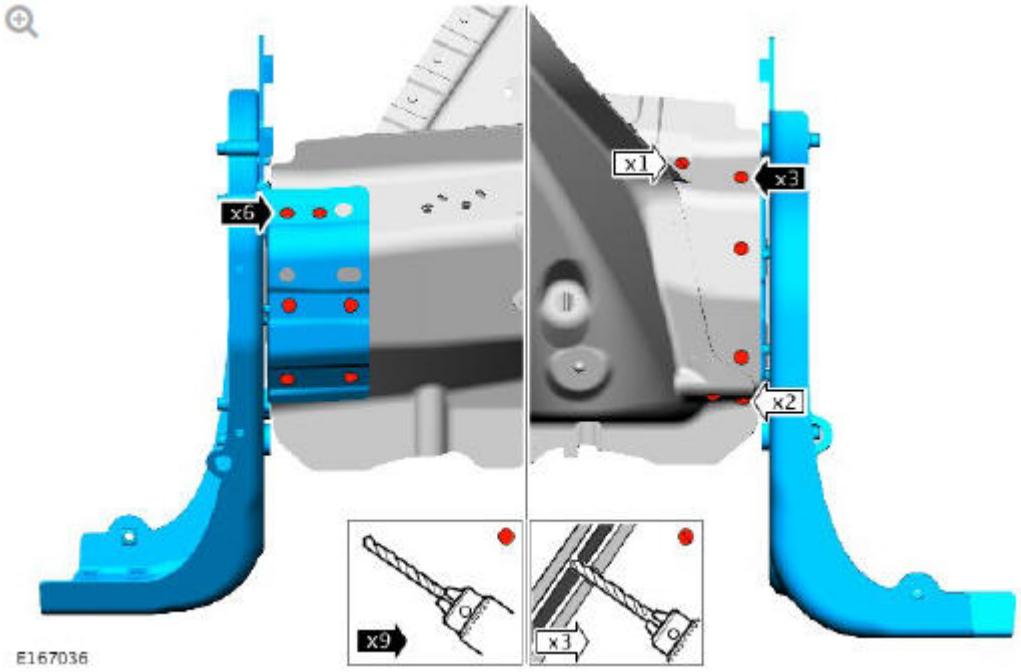
Left hand only.

9. For additional information, refer to: Air Cleaner Intake Pipe (303- 12C Intake Air Distribution and Filtering - GTDi 2.0L Petrol/GTDi 2.0L Petrol - SULEV, Removal and Installation).

NOTE:

Right hand only.

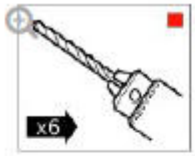
10. Release and position the noise, vibration, harshness (NVH) material to one side.
11. Release and position the wiring harness to one side.

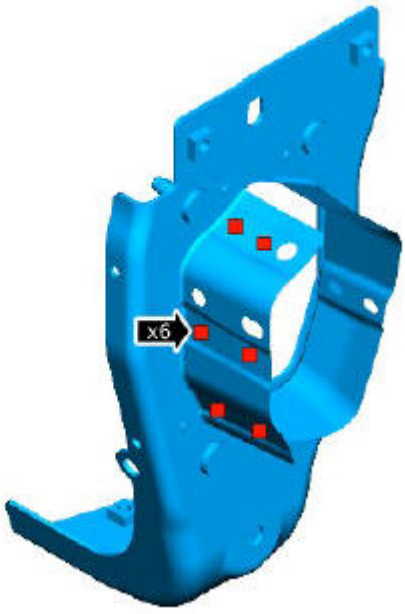


12. Remove the spot welds as indicated.
13. Carefully separate the joints and remove the front bumper mounting.

INSTALLATION

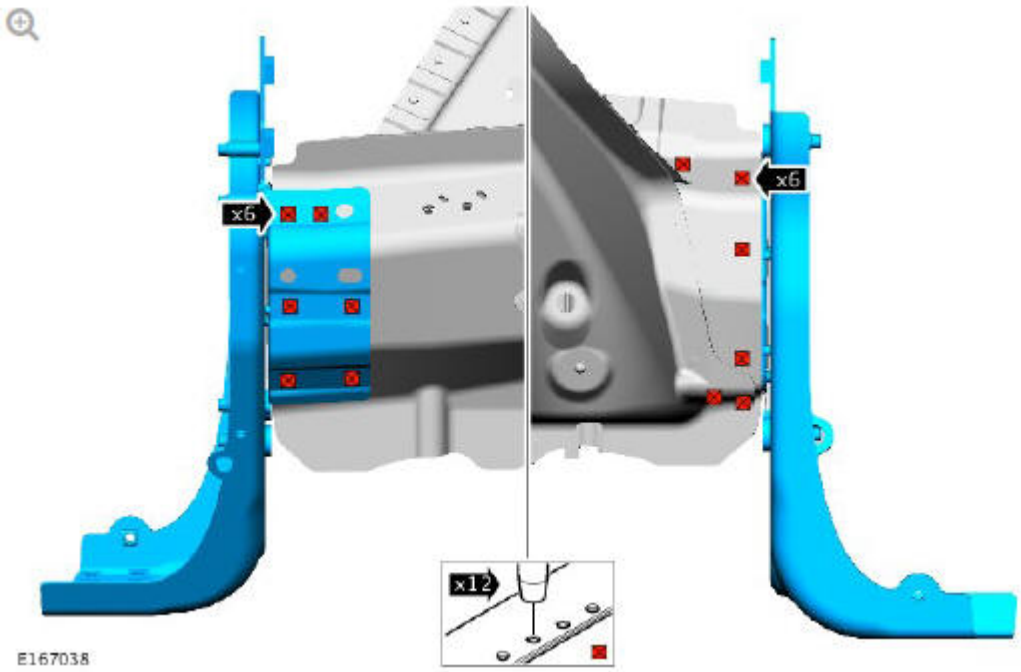
1. Dress the flanges where necessary.





2. Drill holes in the new front bumper mounting where the metal inert gas (MIG) plug welds are to be installed as indicated.
3. Deburr the drilled holes.
4. Clean and prepare the old and new panel surfaces.
5. Offer up the new front bumper mounting and clamp into position.

Check alignment if correct, proceed to next step, if not, rectify and recheck before proceeding.



6. Install the MIG plug welds as indicated.
7. Dress all welds.
8. Make sure that any open or exposed panel joints are correctly sealed.
9. Make sure corrosion protection is applied to all areas affected by repair.
10. The installation of associated panels and components is the reversal of removal procedure.

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Front end Sheet Metal Repairs Front Fender Mounting Panel (G1770874) / Removal and InstallationFront end Sheet Metal Repairs Fender Apron Panel Reinforcement (G1770870) / Removal and Installation

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Передняя часть ремонт кузовных панелей крыло фартук панель усилитель / снятие и установка

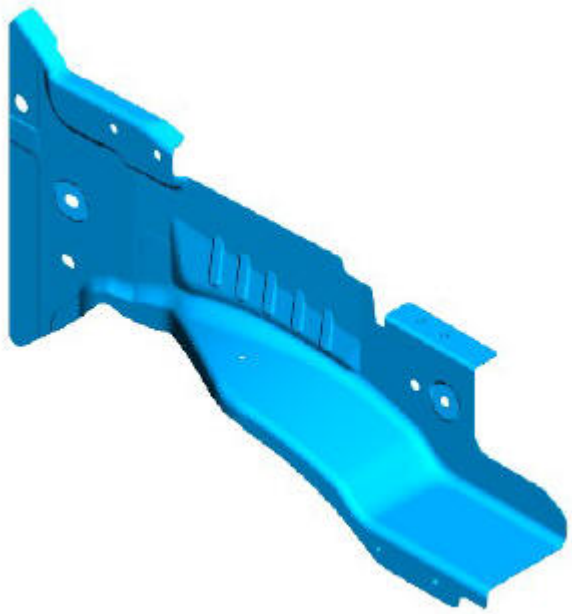
Front end Sheet Metal Repairs Fender Apron Panel Reinforcement (G1770870) / Removal and Installation

REMOVAL

NOTE:

The fender apron panel reinforcement is installed in conjunction with:

- *Front bumper cover*
- *Hood*
- *Hood hinge*
- *Hood latch panel*
- *Front fender*
- *Front fender splash shield*
- *Fender apron panel*



1. The fender apron panel reinforcement is serviced as indicated.
2. Before commencing this procedure make sure that you are aware of all Health and Safety requirements.

   For additional information, refer to: Health and Safety Precautions (100-00, Description and Operation).

3. For further information on the methods, tools and fixings used in this procedure refer to the body repairs - general information section.

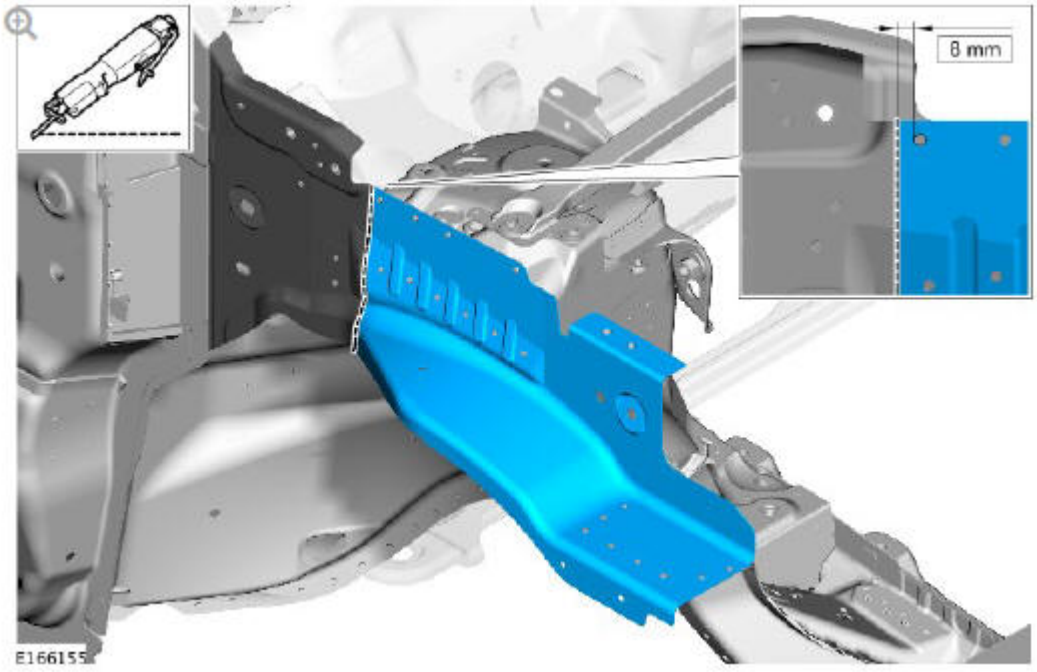
NOTES:

- *Any joints sealed as part of vehicle manufacture must be sealed as part of the repair.*
- *Make sure a zinc rich primer is applied to any bare metal surfaces.*

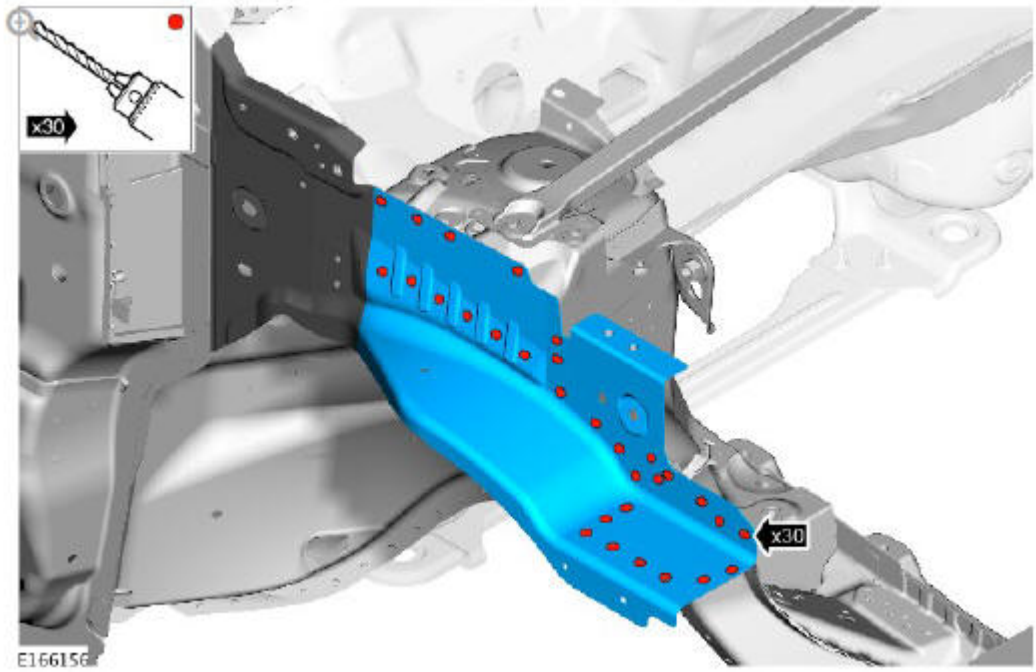
4. For additional information, refer to: Front Bumper Cover (501-19, Removal and Installation).
5. For additional information, refer to: Hood (501-02, Removal and Installation).
6. Remove the hood hinge.
7. For additional information, refer to: Hood Latch Panel (501-02, Removal and Installation).
8. For additional information, refer to: Fender (501-02, Removal and Installation).
9. For additional information, refer to: Fender Splash Shield (501-02, Removal and Installation).
10. For additional information, refer to: Fender Apron Panel (501-27, Removal and Installation).
11. Release and position the wiring harness to one side.

CAUTION:

Care should be taken not to cut through into the inner panels.



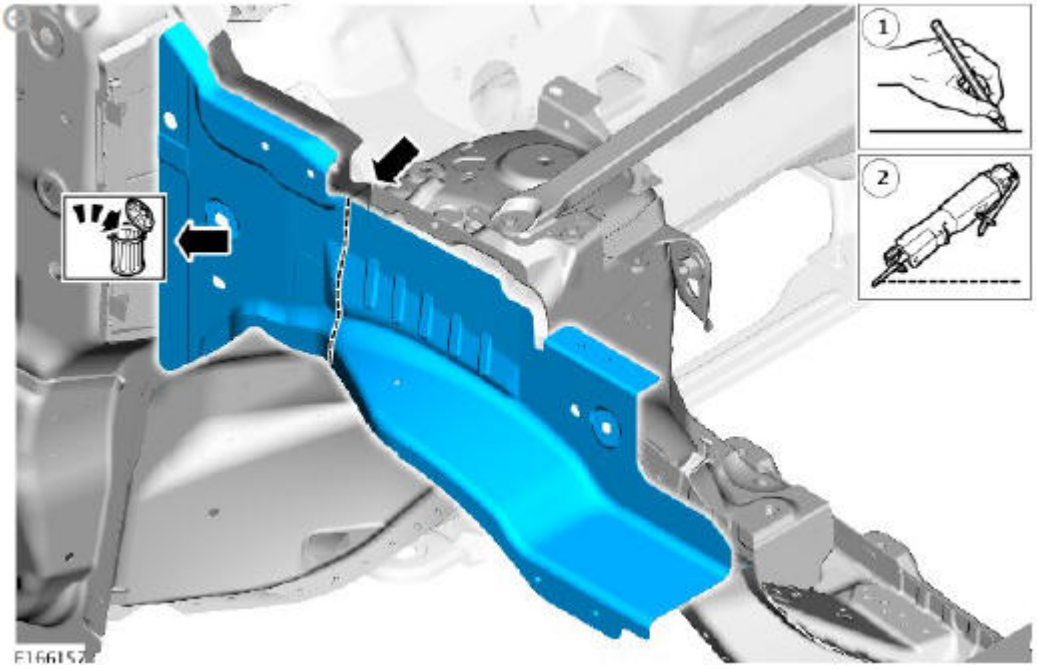
12. Measure, mark and cut the fender apron panel reinforcement as indicated.



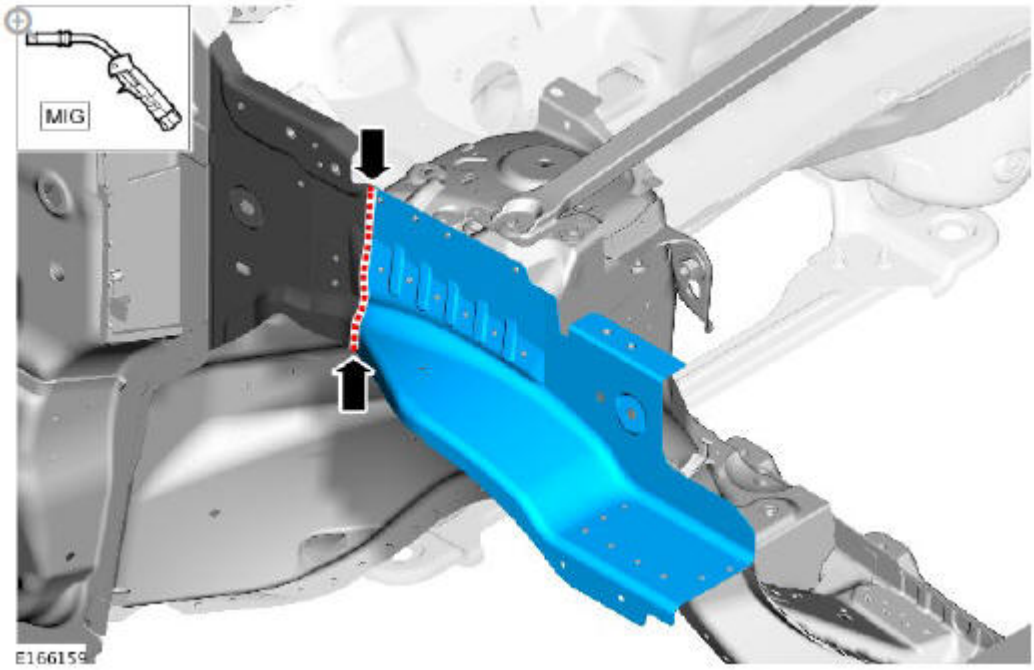
13. Remove the spot welds as indicated.
14. Separate the joints and remove the fender apron panel reinforcement.

INSTALLATION

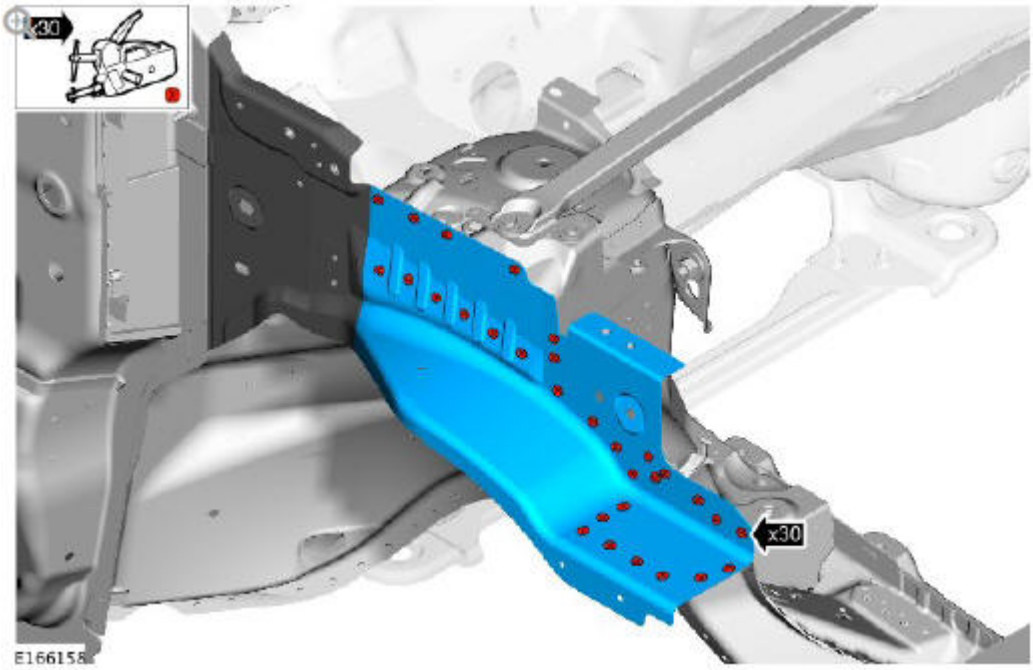
1. Dress the flanges where necessary.
2. Offer up the new fender apron panel reinforcement and clamp into position. Check alignment, if correct proceed to next step, if not, rectify and recheck before proceeding.



3. Mark out the position on the new fender apron panel reinforcement service panel, where the metal inert gas (MIG) butt weld joint is to be made and cut the panel at the point indicated.
4. Remove the new fender apron panel reinforcement.
5. Clean and prepare the panel surfaces.
6. Offer up the new fender apron panel reinforcement and clamp into position. Check alignment, if correct proceed to next step, if not, rectify and recheck before proceeding.
7. MIG tack weld the butt joint.



8. MIG weld the butt joint as indicated.



9. Install the spot welds as indicated.
10. Dress all welded joints.
11. Install the hood hinges and tighten the bolts to 30Nm.
12. Make sure that any open or exposed panel joints are correctly sealed.
13. Make sure corrosion protection is applied to all areas affected by repair.
14. The installation of associated panels and components is the reversal of removal procedure.

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Front end Sheet Metal Repairs Front Bumper Mounting (G1775677) / Removal and InstallationFront end Sheet Metal Repairs Fender Apron Panel Front Section (G1775681)

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Передняя часть ремонт кузовных панелей крыло фартук панель передний секция

Front end Sheet Metal Repairs Fender Apron Panel Front Section (G1775681)

- Front end Sheet Metal Repairs Fender Apron Panel Front Section (G1775681) - Removal
- Front end Sheet Metal Repairs Fender Apron Panel Front Section (G1775681) - Installation

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Front end Sheet Metal Repairs Fender Apron Panel Reinforcement (G1770870) / Removal and InstallationFront end Sheet Metal Repairs Fender Apron Panel Front Section (G1775681) - Removal

ne

Передняя часть ремонт кузовных панелей крыло фартук панель передний секция - снятие

Front end Sheet Metal Repairs Fender Apron Panel Front Section (G1775681) - Removal

REMOVAL

NOTE:

The fender apron panel front section is installed in conjunction with:

- *Front bumper cover*
- *Hood*
- *Hood hinge*
- *Hood latch panel*
- *Front fender*
- *Fender splash shield*



1. The fender apron panel is serviced as indicated.
2. Before commencing this procedure make sure that you are aware of all Health and Safety requirements.

   For additional information, refer to: Health and Safety Precautions (100-00, Description and Operation).

3. For further information on the methods, tools and fixings used in this procedure refer to the body repairs - general information section.

NOTES:

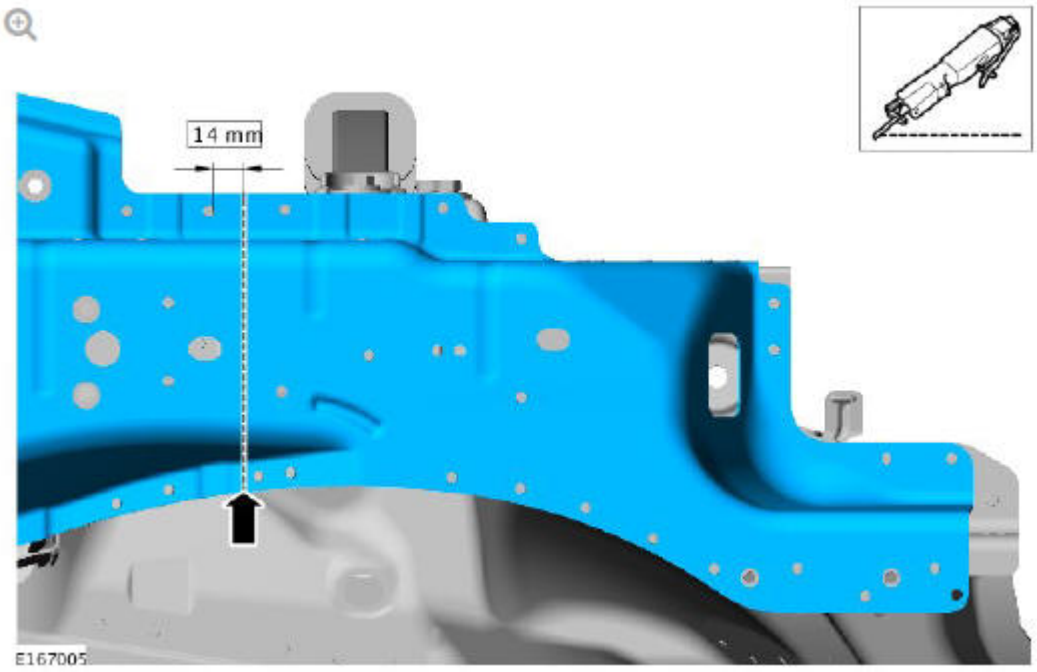
- *Any joints sealed as part of vehicle manufacture must be sealed as part of the repair.*
- *Make sure a zinc rich primer is applied to any bare metal surfaces.*

4. For additional information, refer to: Front Bumper Cover (501-19, Removal and Installation).

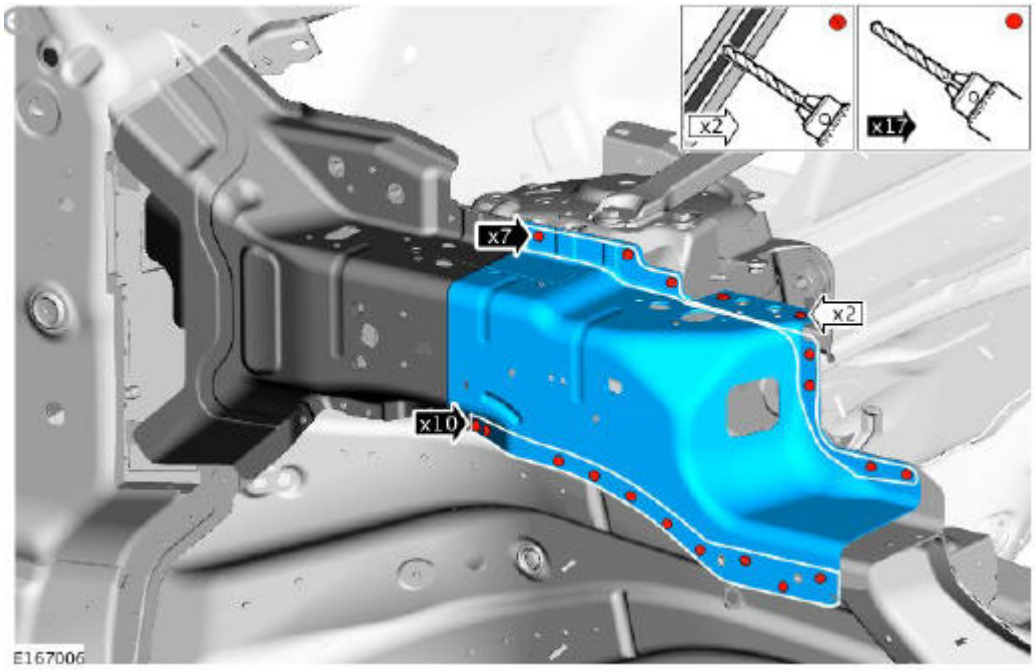
5. For additional information, refer to: Hood (501-02, Removal and Installation).
6. Remove the hood hinges.
7. For additional information, refer to: Hood Latch Panel (501-02, Removal and Installation).
8. For additional information, refer to: Fender (501-02, Removal and Installation).
9. For additional information, refer to: Fender Splash Shield (501-02, Removal and Installation).

CAUTION:

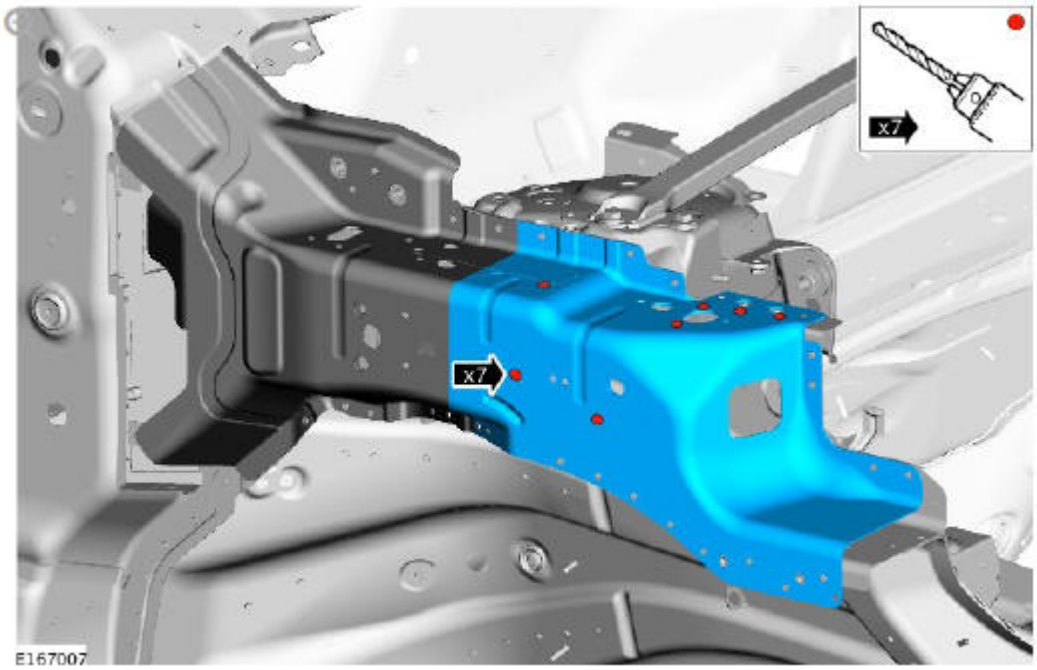
Care should be taken not to cut through into the inner reinforcements.



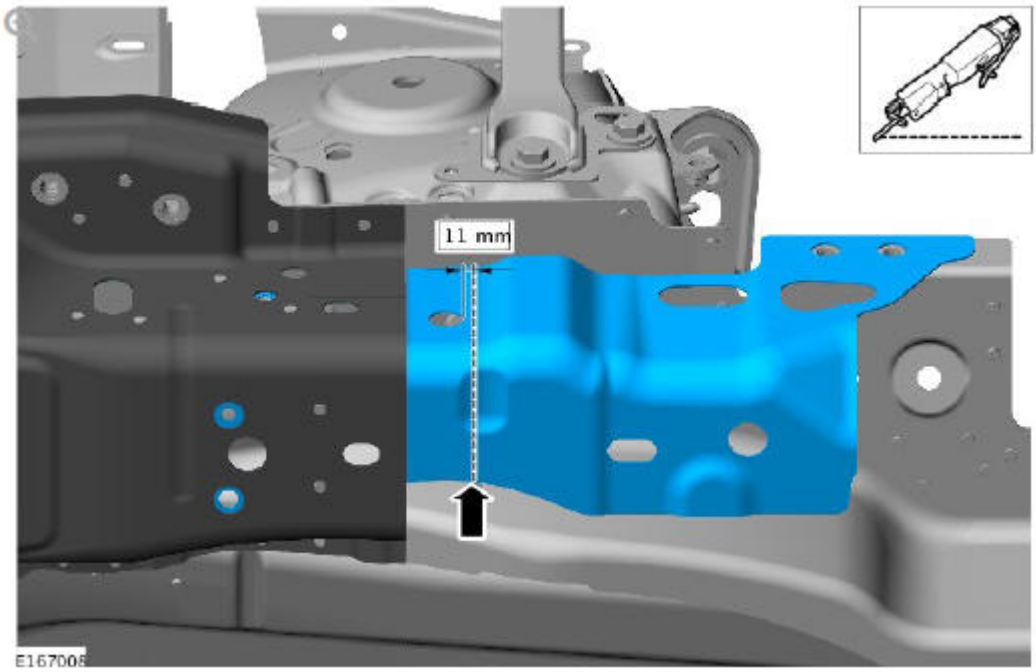
10. Using a combination of the new fender apron panel and the measurements mark out the position on the vehicle where the metal inert gas (MIG) welded butt joint is to be made and cut the panel as indicated.



11. Remove the spot welds as indicated.



12. Remove the spot welds as indicated.
13. Carefully separate the joints and remove the fender apron panel.



14. Mark, measure and cut the fender apron panel reinforcement where the MIG welded butt joint is to be made and cut the panel as indicated.
15. Carefully separate the joints and remove the fender apron panel reinforcement.

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Front end Sheet Metal Repairs Fender Apron Panel Front Section (G1775681)Front end Sheet Metal Repairs Fender Apron Panel Front Section (G1775681) - Installation

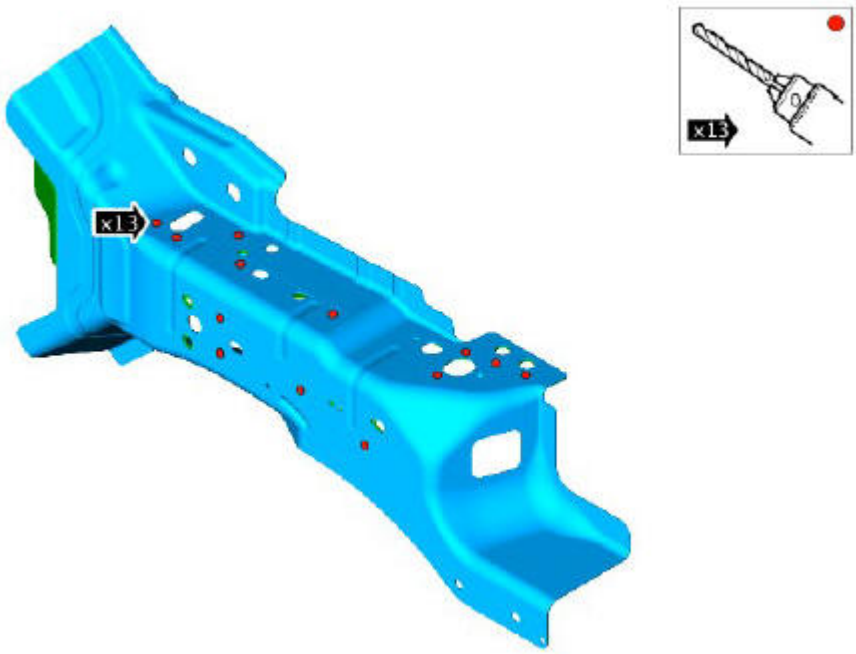
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Передняя часть ремонт кузовных панелей крыло фартук панель передний секция - установка

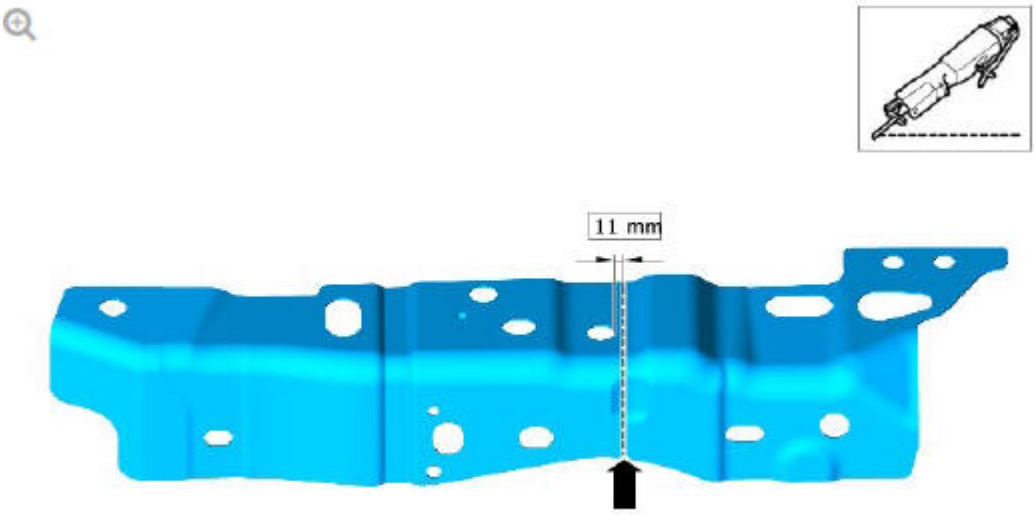
Front end Sheet Metal Repairs Fender Apron Panel Front Section (G1775681) - Installation

Installation

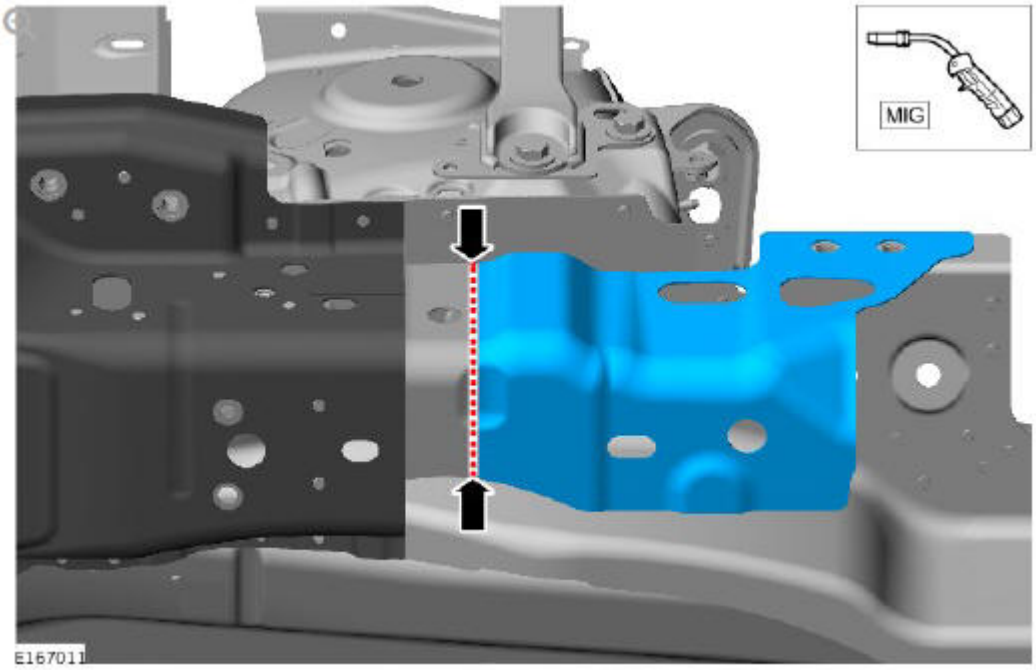
1. Dress flanges where necessary.



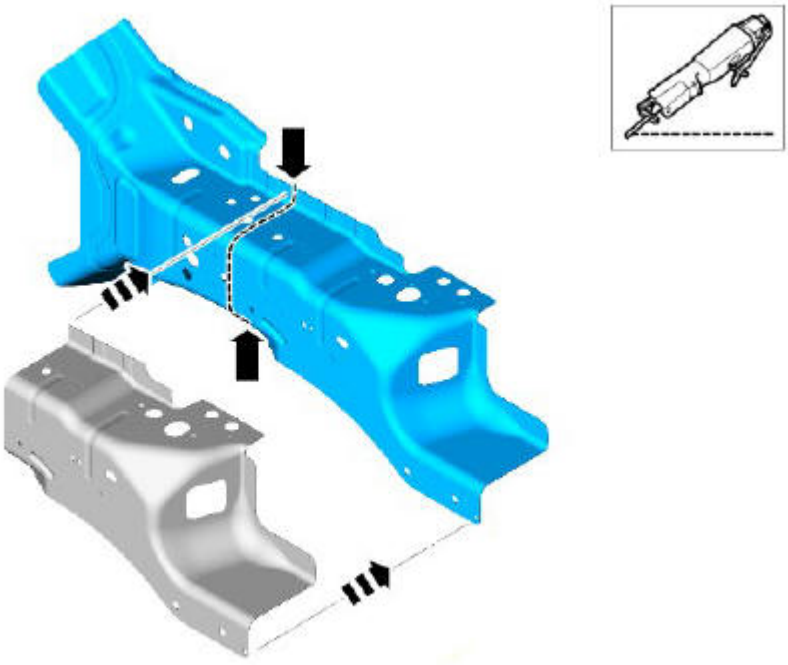
2. Remove the spot welds from the new fender apron panel as indicated.
3. Carefully separate the fender apron panel from the reinforcement.



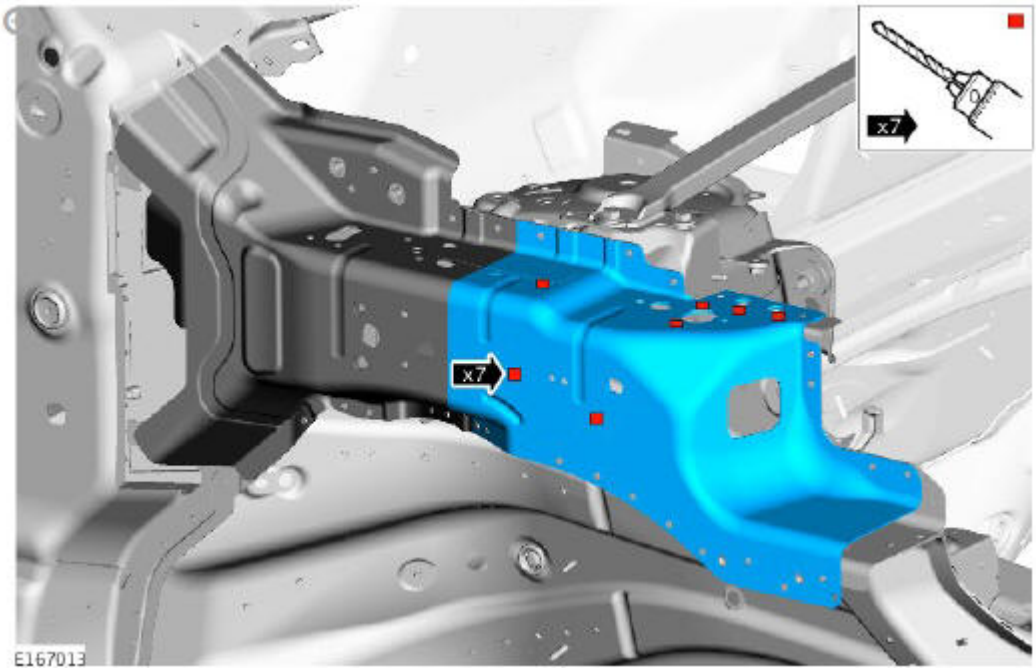
4. Mark, measure and cut the new fender apron panel reinforcement as indicated.
5. Offer up the new fender apron panel reinforcement and clamp into position. Check alignment if correct proceed to next step, if not, rectify and recheck before proceeding.



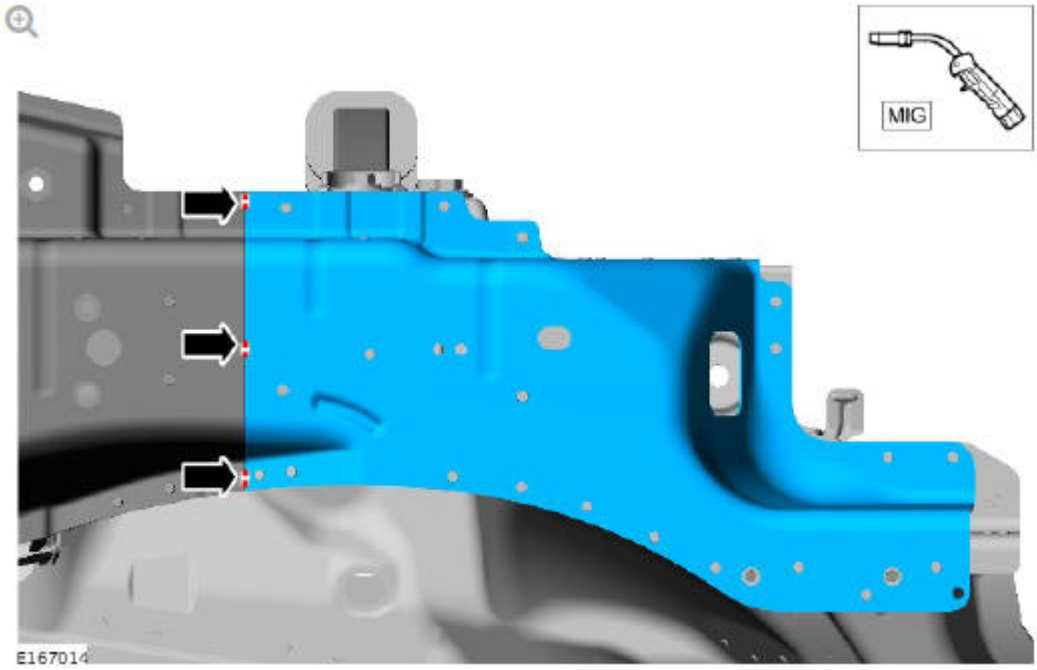
6. MIG weld the fender apron panel reinforcement butt joint as indicated.
7. Dress the weld.



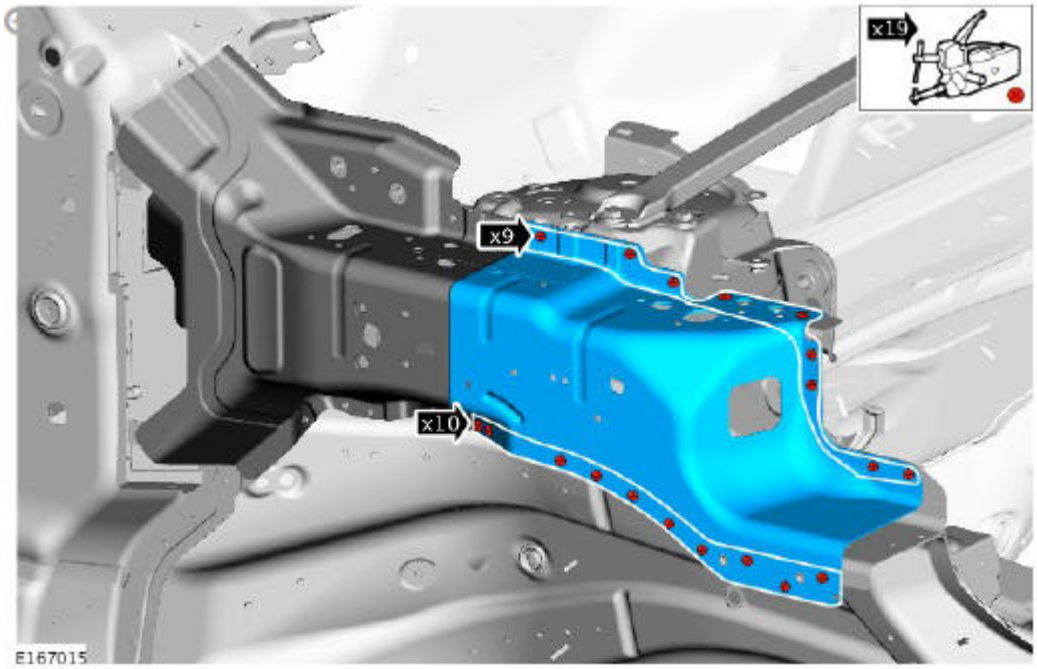
8. Using the old fender apron panel as a guide mark, measure and cut the new fender apron panel as indicated.
9. Offer up the new fender apron panel front section and clamp into position. Check alignment if correct proceed to next step, if not, rectify and recheck before proceeding.



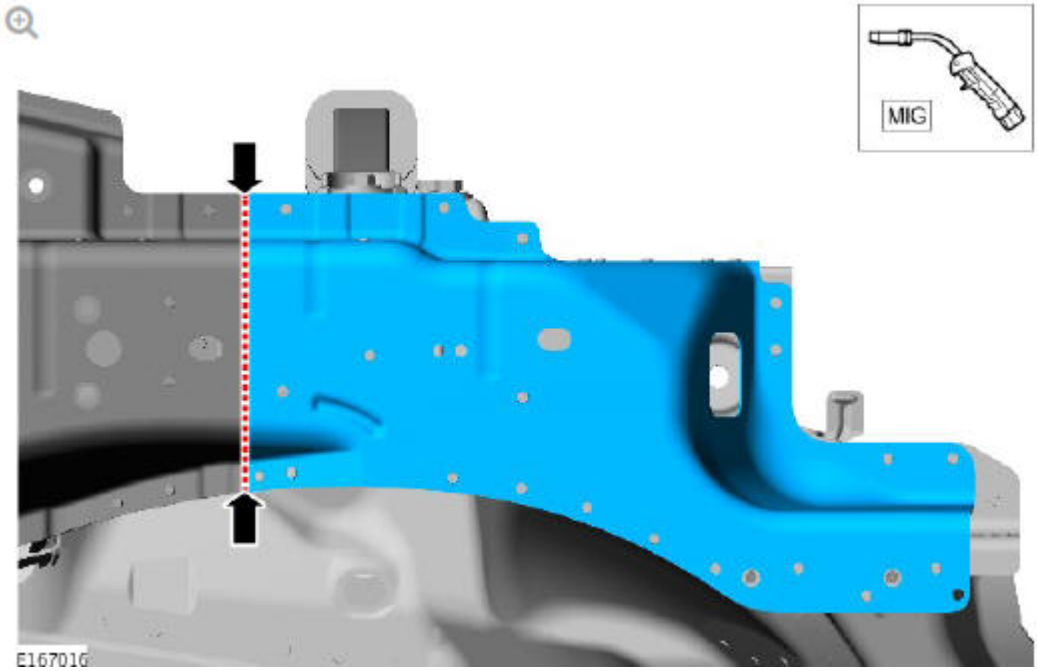
10. Drill holes where MIG plug welds are to be installed as indicated.
11. Remove the fender apron panel.
12. Deburr the drilled holes.
13. Clean and prepare the panel surfaces.
14. Offer up the new fender apron panel front section and clamp into position. Check alignment if correct proceed to next step, if not, rectify and recheck before proceeding.



15. Tack MIG weld the fender apron panel front section butt joint as indicated.



16. Install the spot welds as indicated.



17. MIG weld the butt joint as indicated.
18. Dress all welds.
19. Make sure that any open or exposed panel joints are correctly sealed.
20. Make sure corrosion protection is applied to all areas affected by repair.
21. The installation of associated panels and components is the reversal of removal procedure.

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Front end Sheet Metal Repairs Fender Apron Panel Front Section (G1775681) - RemovalFront end Sheet Metal Repairs Fender Apron Panel Front Reinforcement (G1775679)

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Передняя часть ремонт кузовных панелей крыло фартук панель передний усилитель

Front end Sheet Metal Repairs Fender Apron Panel Front Reinforcement (G1775679)

- Front end Sheet Metal Repairs Fender Apron Panel Front Reinforcement(G1775679) - Removal
- Front end Sheet Metal Repairs Fender Apron Panel Front Reinforcement (G1775679) - Installation

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Front end Sheet Metal Repairs Fender Apron Panel Front Section (G1775681) - InstallationFront end Sheet Metal Repairs Fender Apron Panel Front Reinforcement(G1775679) - Removal

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Передняя часть ремонт кузовных панелей крыло фартук панель передний усилитель - снятие

Front end Sheet Metal Repairs Fender Apron Panel Front Reinforcement(G1775679) - Removal

Removal

NOTE:

The fender apron panel front reinforcement is installed in conjunction with:

- *Front bumper cover*
- *Front bumper*
- *Hood latch panel*
- *Fender*
- *Fender splash shield*
- *Front bumper mounting*
- *Front side member*
- *Front subframe*
- *Engine*
- *Transmission*
- *Coolant expansion tank*
- *Condenser*



1. The fender apron panel front reinforcement is serviced as indicated.
2. Before commencing this procedure make sure that you are aware of all Health and Safety requirements.

   For additional information, refer to: Health and Safety Precautions (100-00 General Information, Description and Operation).

3. For further information on the methods, tools and fixings used in this procedure refer to the body repairs - general information section.

NOTES:

- *Any joints sealed as part of vehicle manufacture must be sealed as part of the repair.*
- *Make sure a zinc rich primer is applied to any bare metal surfaces.*
- *To make sure the vehicle is correctly aligned. It must be placed on a Land Rover approved alignment jig.*

4. For additional information, refer to: Front Bumper Cover (501-19 Bumpers, Removal and Installation).
5. For additional information, refer to: Front Armature (501-19 Bumpers, Removal and Installation).
6. For additional information, refer to: Hood Latch Panel (501-02 Front End Body Panels, Removal and Installation).
7. For additional information, refer to: Fender (501-02 Front End Body Panels, Removal and Installation).
8. For additional information, refer to: Fender Splash Shield (501-02 Front End Body Panels, Removal and Installation).
9. For additional information, refer to: Front Bumper Mounting (501- 27 Front End Sheet Metal Repairs, Removal and Installation).
10. For additional information, refer to: Front Side Member (501-27 Front End Sheet Metal Repairs, Removal and Installation).
11. For additional information, refer to: Front Subframe (502-00, Removal and Installation).
12. For additional information, refer to: Engine - Vehicles With: M66 6- Speed Manual Transmission AWD/M66 6-Speed Manual Transmission FWD (303-01A Engine - TD4 2.2L Diesel, Removal) / Engine - Vehicles With: M66 6-Speed Manual Transmission AWD/M66 6-Speed Manual Transmission FWD (303-01A Engine - TD4 2.2L Diesel, Installation) / Engine - Vehicles With: 9HP48 9- Speed Automatic Transmission - AWD (303-01A Engine - TD4 2.2L Diesel, Removal) / Engine - Vehicles With: 9HP48 9-Speed Automatic Transmission - AWD (303-01A Engine - TD4 2.2L Diesel, Installation) / Engine (303-

01C Engine - GTDi 2.0L Petrol/GTDi 2.0L Petrol - SULEV, Removal) / Engine (303-01C Engine - GTDi 2.0L Petrol/GTDi 2.0L Petrol - SULEV, Installation).

NOTE:

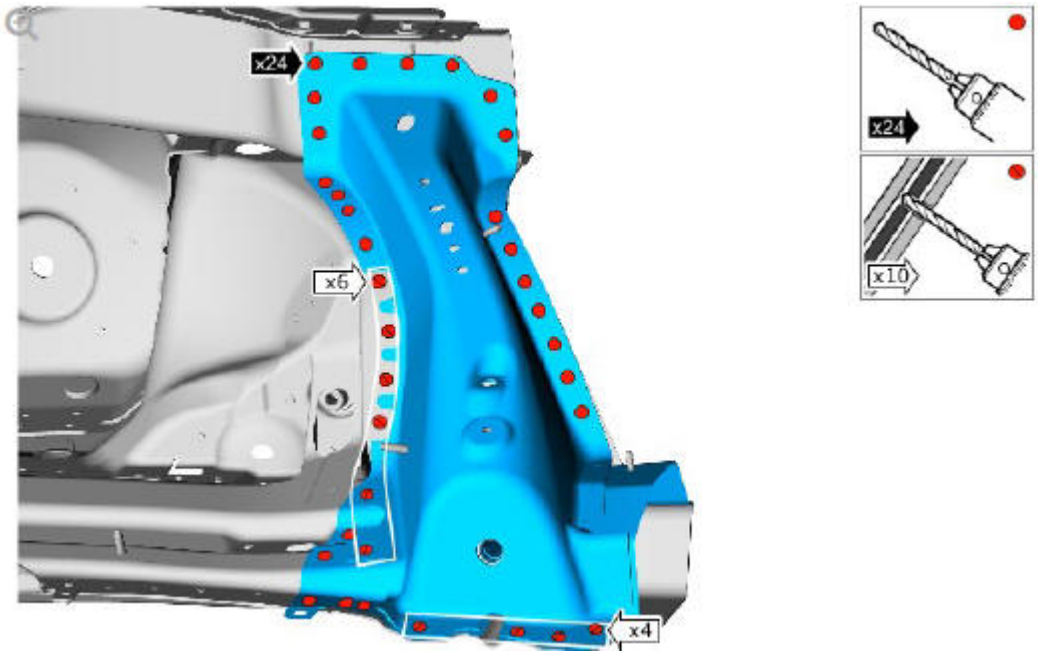
Right hand only.

13. For additional information, refer to: Coolant Expansion Tank (303- 03B Engine Cooling - INGENIUM I4 2.0L Diesel, Removal and Installation).
14. For additional information, refer to: Condenser - GTDi 2.0L Petrol/GTDi 2.0L Petrol - SULEV (412-01 Climate Control, Removal and Installation) / Condenser - TD4 2.2L Diesel (412-01 Climate Control, Removal and Installation).

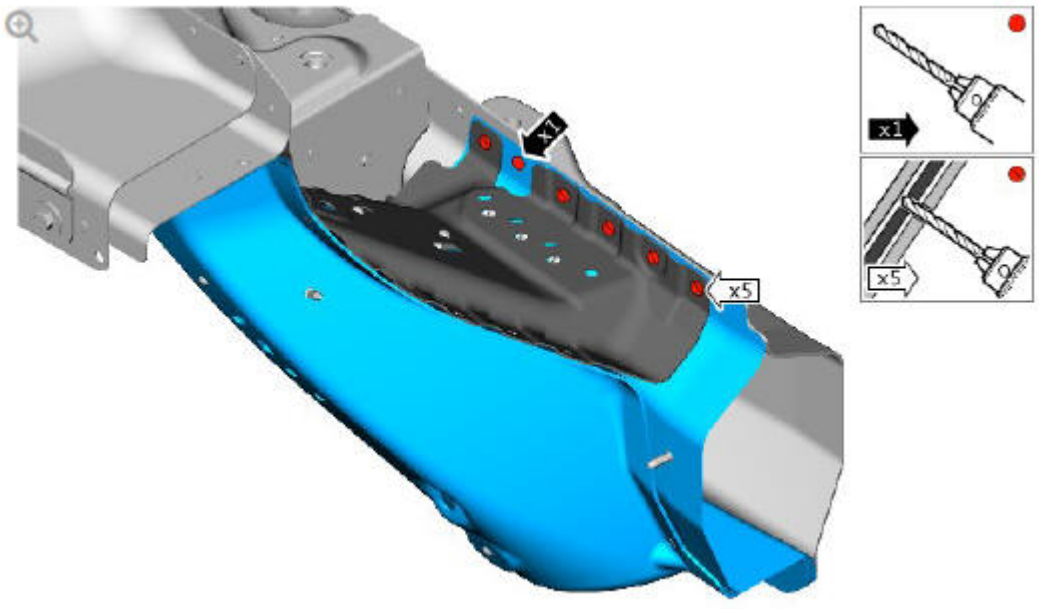
NOTE:

Right hand only.

15. Remove the air conditioning (A/C) pipes from the fender apron panel.



16. Remove the spot welds as indicated.



17. Remove the spot welds as indicated.
18. Carefully separate the joints and remove the fender apron panel front reinforcement.

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Front end Sheet Metal Repairs Fender Apron Panel Front Reinforcement (G1775679)Front end Sheet Metal Repairs Fender Apron Panel Front Reinforcement (G1775679) - Installation

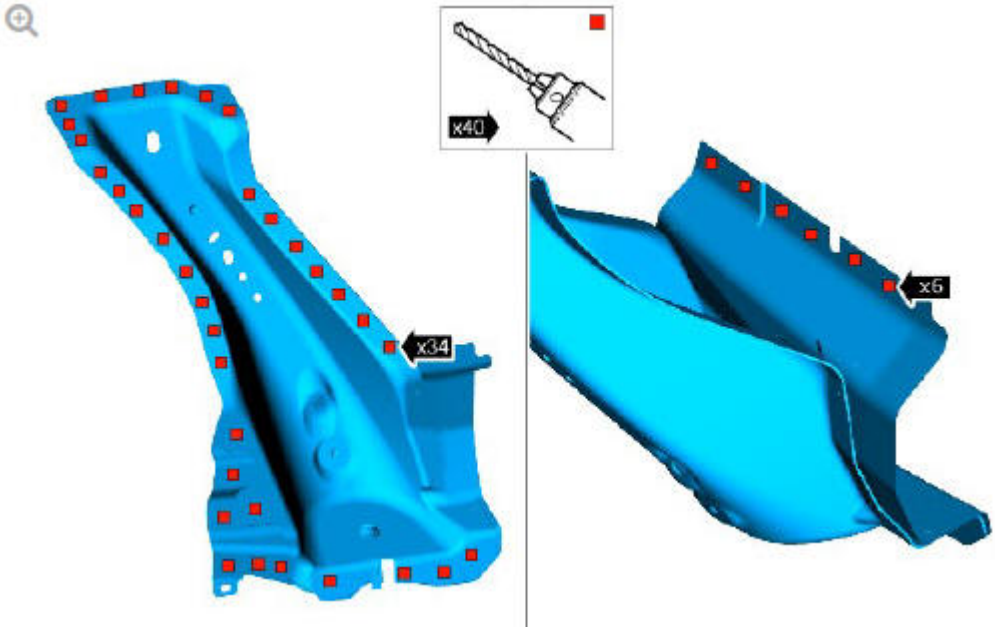
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Передняя часть ремонт кузовных панелей крыло фартук панель передний усилитель - установка

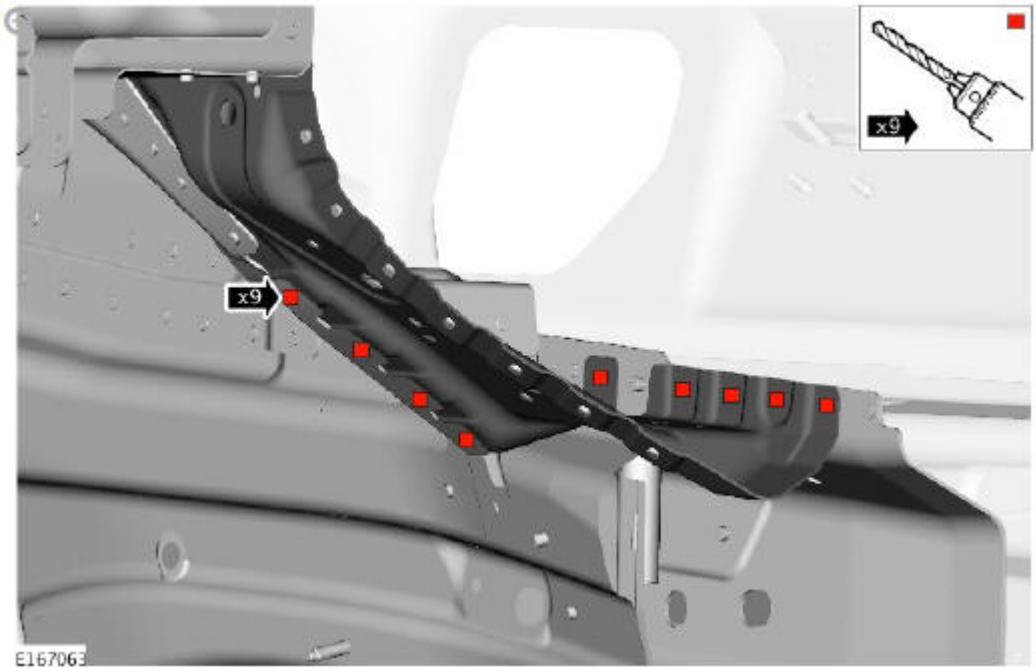
Front end Sheet Metal Repairs Fender Apron Panel Front Reinforcement (G1775679) - Installation

Installation

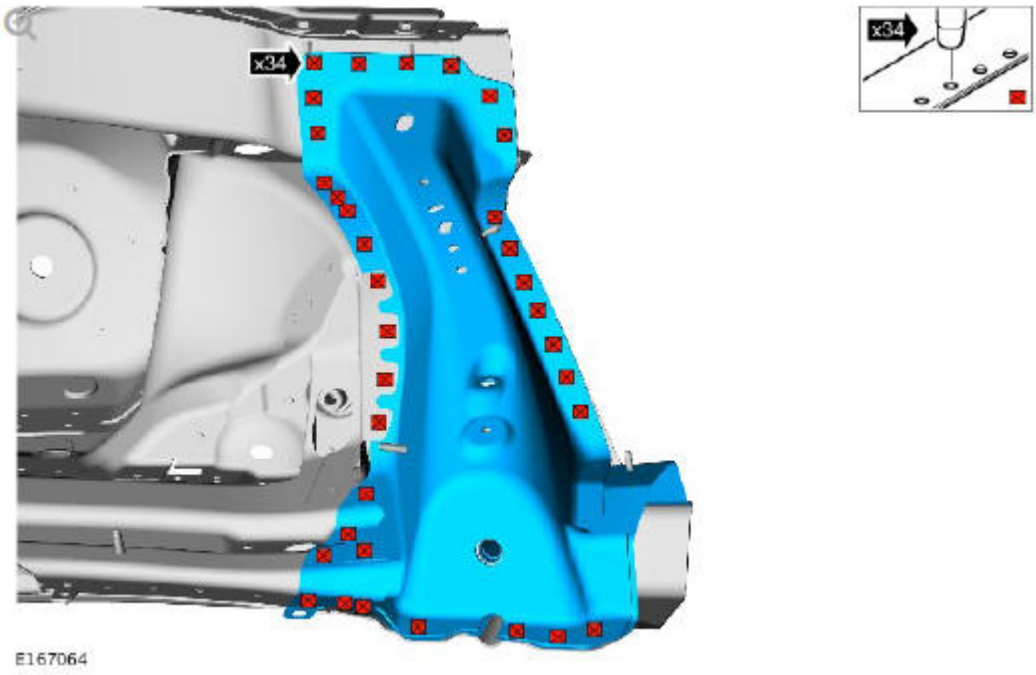
1. Dress flanges where necessary.



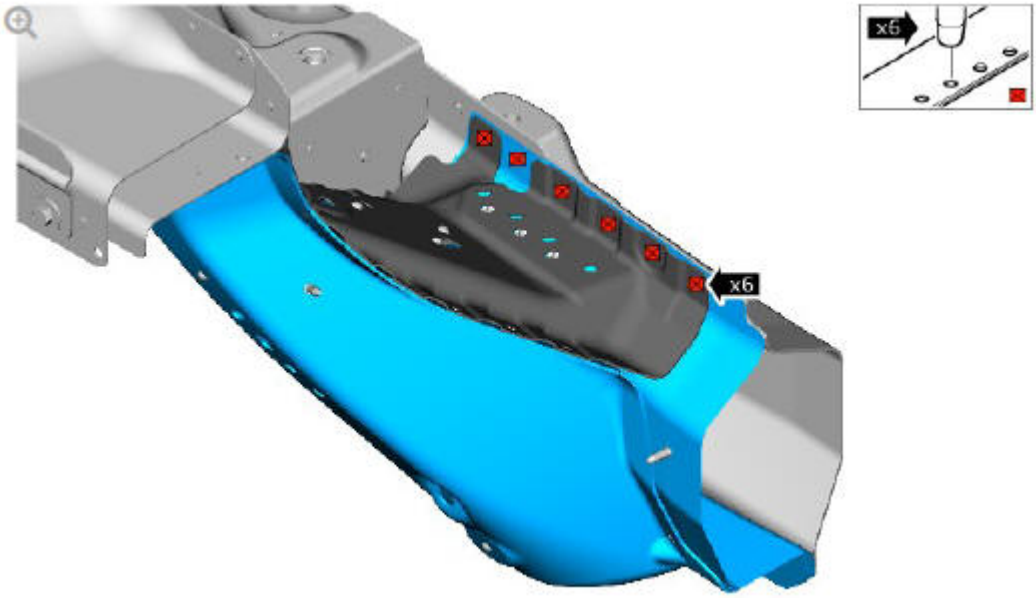
2. Using the old fender apron panel front reinforcement as a guide, drill holes in the new fender apron panel front reinforcement where the metal inert gas (MIG) plug welds are to be installed as indicated.



3. Drill holes where the MIG plug welds are to be installed as indicated.
4. Deburr the drilled holes.
5. Clean and prepare the old and new panel surfaces.
6. Clean and prepare the old and new panel surfaces.



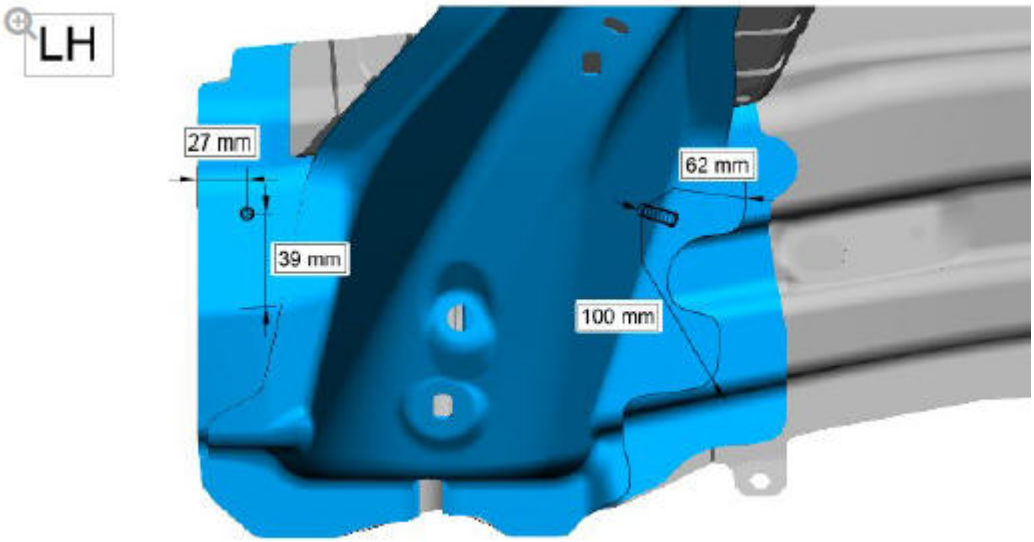
7. Install the MIG plug welds as indicated.



8. Install the MIG plug welds as indicated.
9. Dress all welded joints.

NOTES:

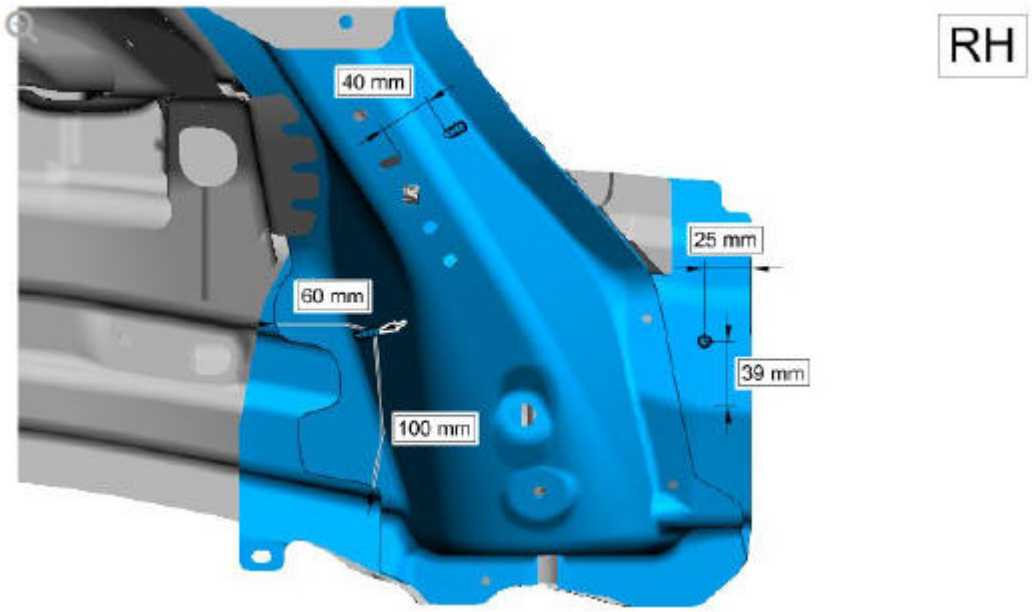
- *Left hand only.*
- *The measurements provided in the graphic are to be used as a guide only, the components that are located/installed to these weld studs must be offered up and cross checked for alignment prior to the installation of the weld studs to the new panel.*



10. Prepare the new panel and install the weld studs in their original locations.

NOTES:

- *Right hand only.*
- *The measurements provided in the graphic are to be used as a guide only, the components that are located/installed to these weld studs must be offered up and cross checked for alignment prior to the installation of the weld studs to the new panel.*



11. Prepare the new panel and install the weld studs in their original locations.
12. Make sure that any open or exposed panel joints are sealed with a Land Rover recommended sealer.
13. Make sure corrosion protection is applied to all areas affected by repair.
14. The installation of associated panels and components is the reversal of removal procedure.

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Front end Sheet Metal Repairs Fender Apron Panel Front Reinforcement(G1775679) - RemovalFront end Sheet Metal Repairs Fender Apron Panel (G1770873) / Removal and installation

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Передняя часть ремонт кузовных панелей крыло фартук панель / снятие и установка

Front end Sheet Metal Repairs Fender Apron Panel (G1770873) / Removal and installation

REMOVAL

NOTE:

The fender apron panel is installed in conjunction with:

- *Front bumper cover*
- *Hood*
- *Hood hinge*
- *Hood latch panel*
- *Front fender*
- *Fender splash shield*
- *Front door*
- *A-pillar outer panel*



1. The fender apron panel is serviced as indicated.
2. Before commencing this procedure make sure that you are aware of all Health and Safety requirements.

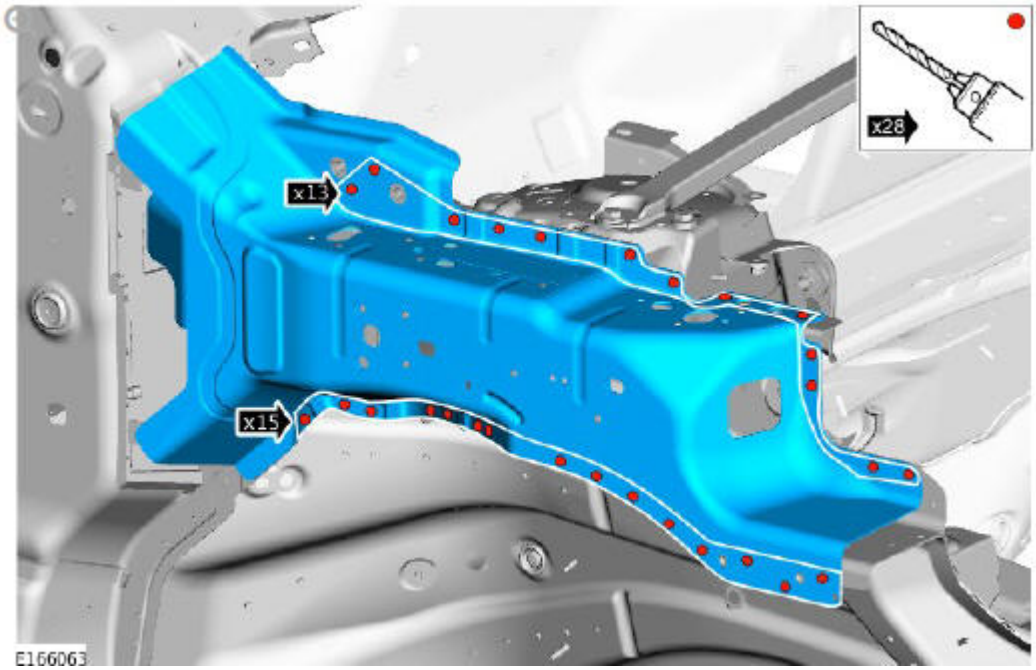
   For additional information, refer to: Health and Safety Precautions (100-00, Description and Operation).

3. For further information on the methods, tools and fixings used in this procedure refer to the body repairs - general information section.

NOTES:

- *Any joints sealed as part of vehicle manufacture must be sealed as part of the repair.*
- *Make sure a zinc rich primer is applied to any bare metal surfaces.*

4. For additional information, refer to: Front Bumper Cover (501-19, Removal and Installation).
5. For additional information, refer to: Hood (501-02, Removal and Installation).
6. Remove the hood hinges.
7. For additional information, refer to: Hood Latch Panel (501-02, Removal and Installation).
8. For additional information, refer to: Fender (501-02, Removal and Installation).
9. For additional information, refer to: Fender Splash Shield (501-02, Removal and Installation).
10. For additional information, refer to: Front Door (501-03, Removal and Installation).
11. For additional information, refer to: A-Pillar Outer Panel (501-29, Removal and Installation).

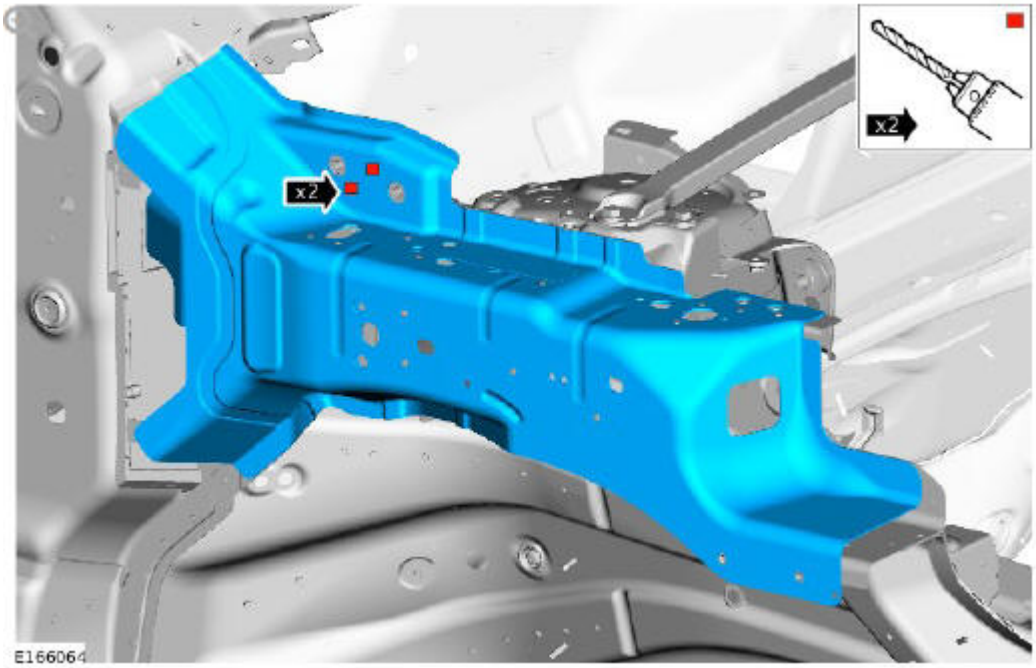


12. Remove the spot welds as indicated.
13. Separate the joints and remove the fender apron panel.

INSTALLATION

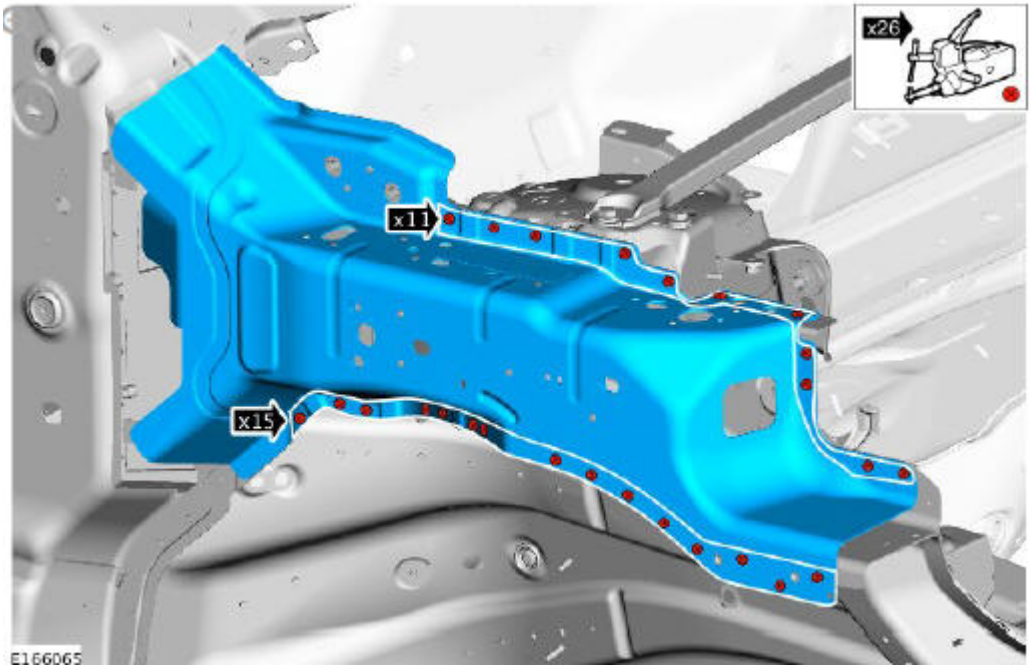
1. Dress flanges where necessary.
2. Offer up the new fender apron panel and clamp into position.

   Check alignment, if correct proceed to next step, if not, rectify and recheck before proceeding.

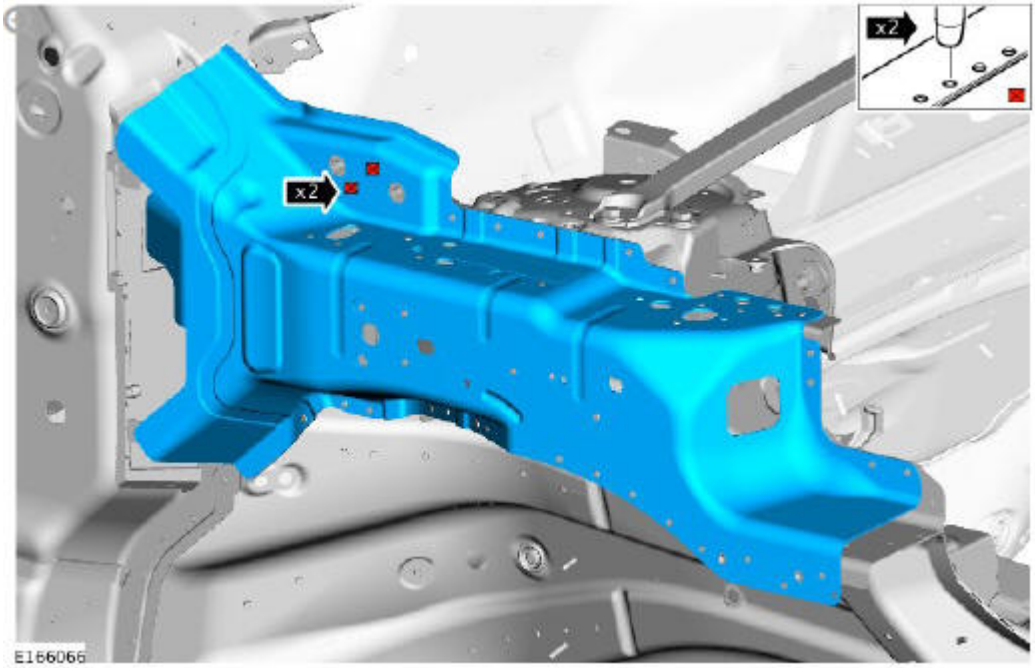


3. Drill holes for the installation of the metal inert gas (MIG) plug welds as indicated.
4. Remove the new fender apron panel.
5. Deburr the drilled holes.
6. Clean and prepare the panel surfaces.
7. Offer up the new fender apron panel and clamp into position.

   Check alignment, if correct proceed to next step, if not, rectify and recheck before proceeding.



8. Install spot welds as indicated.



9. Install the MIG plug welds as indicated.
10. Dress the MIG plug welds.
11. Make sure that any open or exposed panel joints are correctly sealed.
12. Make sure corrosion protection is applied to all areas affected by repair.
13. The installation of associated panels and components is the reversal of removal procedure.

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Front end Sheet Metal Repairs Fender Apron Panel Front Reinforcement (G1775679) - InstallationFront end Sheet Metal Repairs Fender Apron Lower Panel (G1775678) / Removal and Installation

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Передняя часть ремонт кузовных панелей крыло фартук нижний панель / снятие и установка

Front end Sheet Metal Repairs Fender Apron Lower Panel (G1775678) / Removal and Installation

Front end sheet metal repairs fender apron lower panel (G1775678) - Removal

Removal

NOTE:

The fender apron lower panel is installed in conjunction with:

- *Front bumper cover*
- *Front bumper*
- *Hood latch panel*
- *Fender apron panel front reinforcement*



1. The fender apron lower panel is serviced as indicated.
2. Before commencing this procedure make sure that you are aware of all Health and Safety requirements.

   For additional information, refer to: Health and Safety Precautions (100-00, Description and Operation).
3. For further information on the methods, tools and fixings used in this procedure refer to the body repairs - general information section.

NOTES:

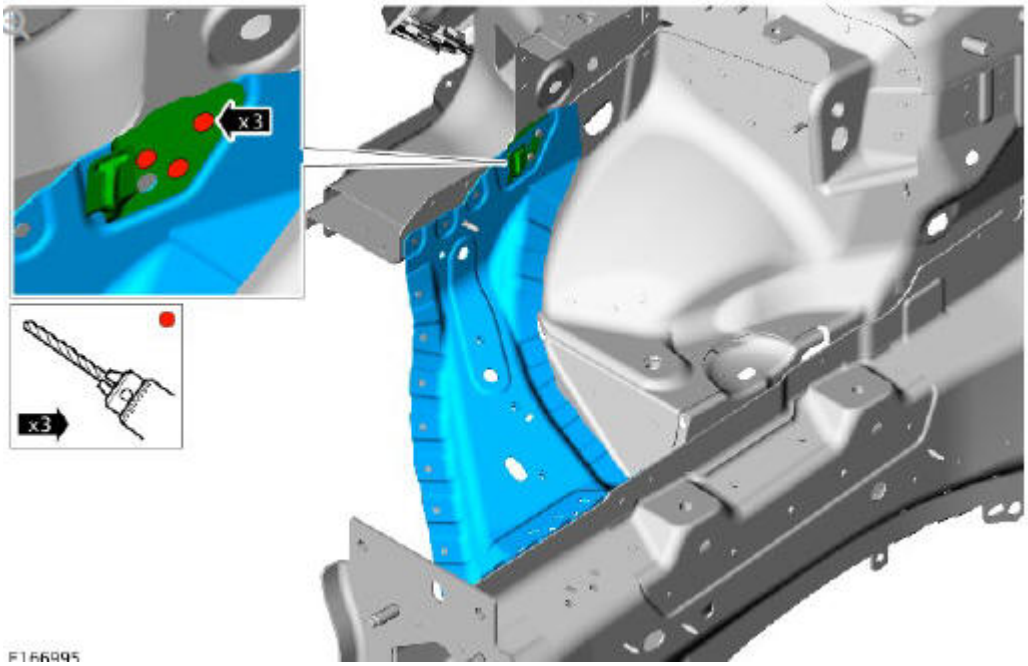
- *Any joints sealed as part of vehicle manufacture must be sealed as part of the repair.*
- *Make sure a zinc rich primer is applied to any bare metal surfaces.*

4. For additional information, refer to: Front Bumper Cover (501-19, Removal and Installation).
5. For additional information, refer to: Front Bumper (501-19, Removal and Installation).

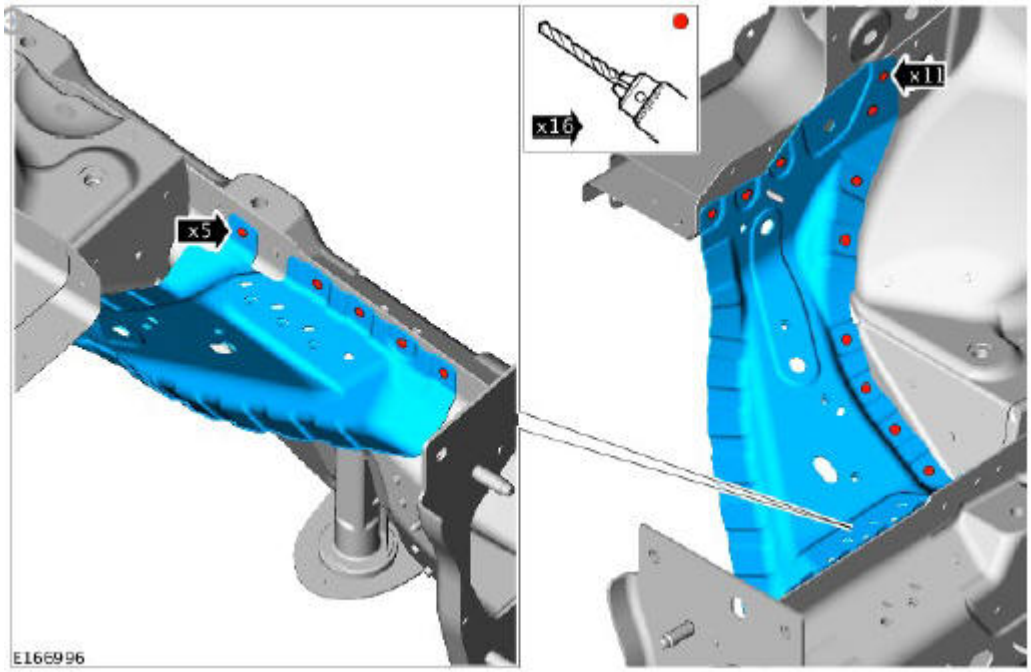
6. For additional information, refer to: Hood Latch Panel (501-02, Removal and Installation).
7. For additional information, refer to: Fender Apron Panel Front Reinforcement (501-27, Removal and Installation).

NOTES:

- *Right hand only.*
- *Do not discard the retaining bracket as it is used on installation.*



8. Remove the spot welds and remove air cleaner retaining bracket as indicated.



9. Remove the spot welds as indicated.
10. Carefully separate the joints and remove the fender apron lower panel.

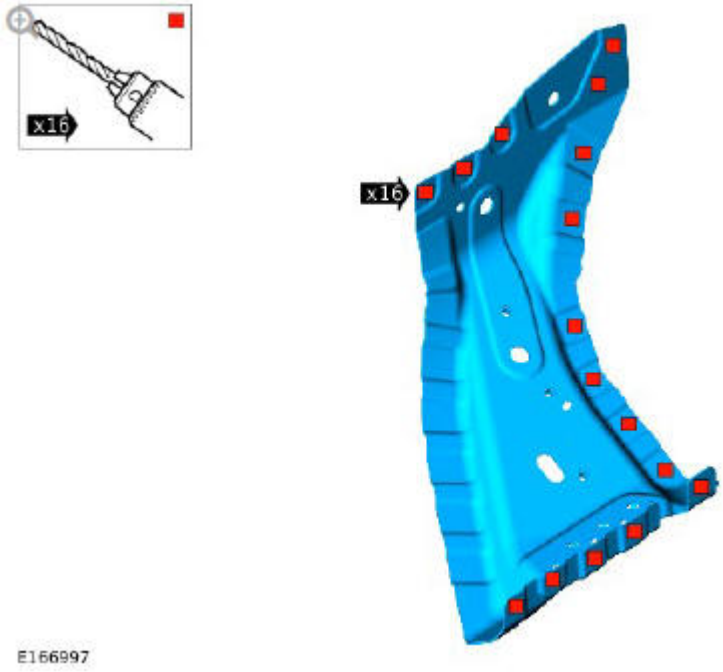
Front end sheet metal repairs fender apron lower panel (G1775678) - Installation

Installation

1. Dress flanges where necessary.

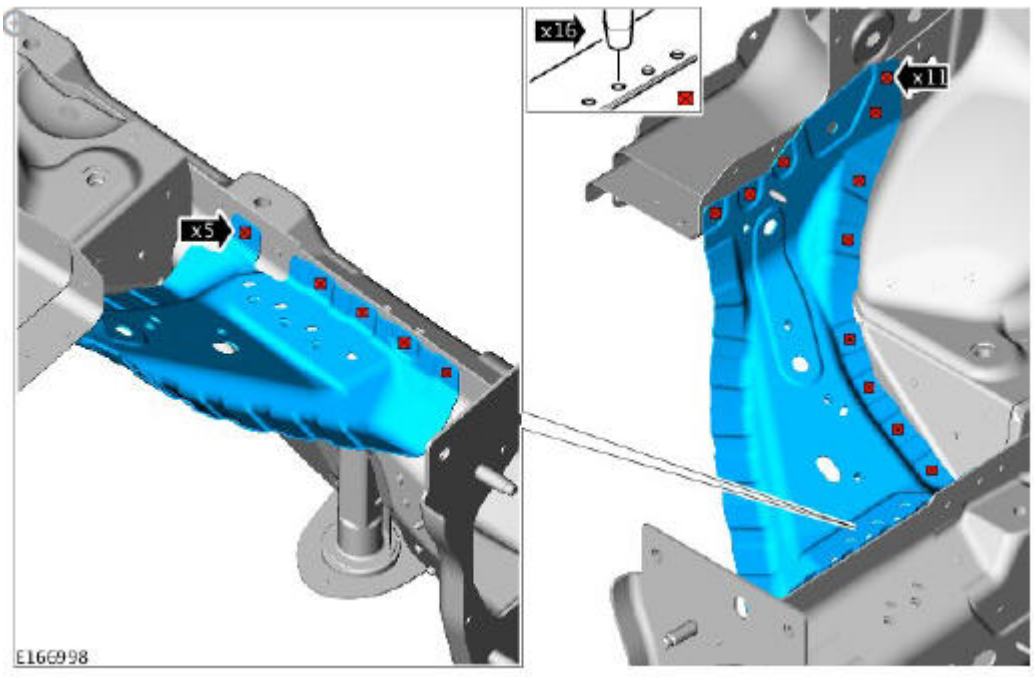
NOTE:

The drilled out spot welds must be installed with MIG plug welds in the same quantities.



2. Using the old fender apron lower panel as a guide, drill holes in the new fender apron lower panel where the metal inert gas (MIG) plug welds are to be installed as indicated.
3. Deburr the drilled holes.
4. Clean and prepare the old and new panel joint surfaces.
5. Offer up the new fender apron lower panel and clamp into position.

   Check alignment if correct, proceed to next step, if not, rectify and recheck before proceeding



6. Install the MIG plug welds as indicated.

NOTE:

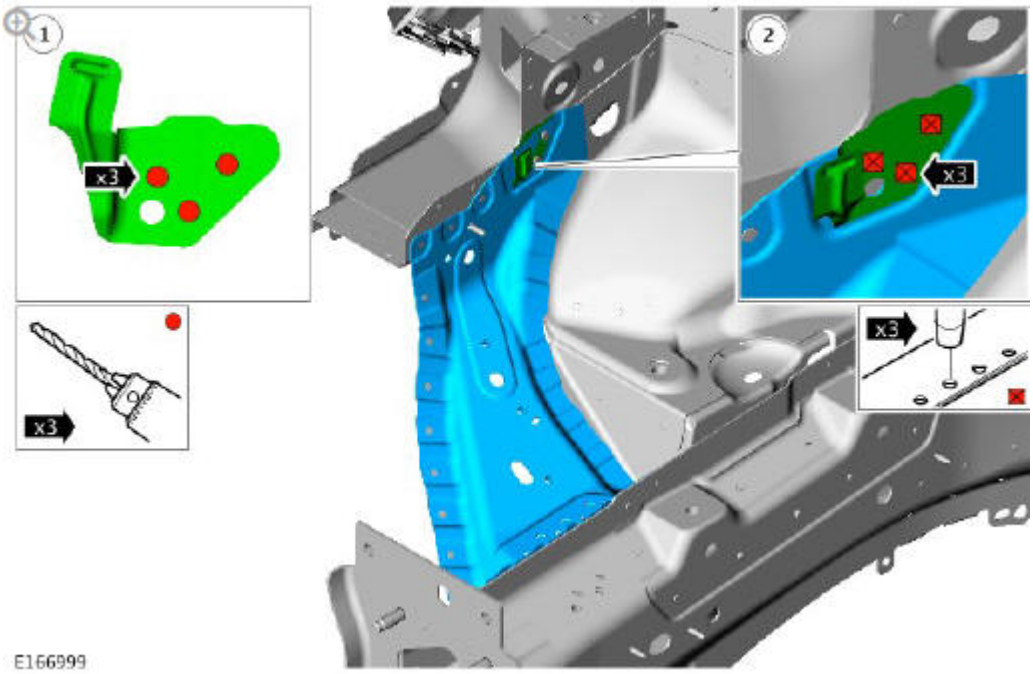
Right hand only.

7. Offer up the air cleaner retaining bracket and clamp into position.

   Check alignment if correct, proceed to next step, if not, rectify and recheck before proceeding.

NOTE:

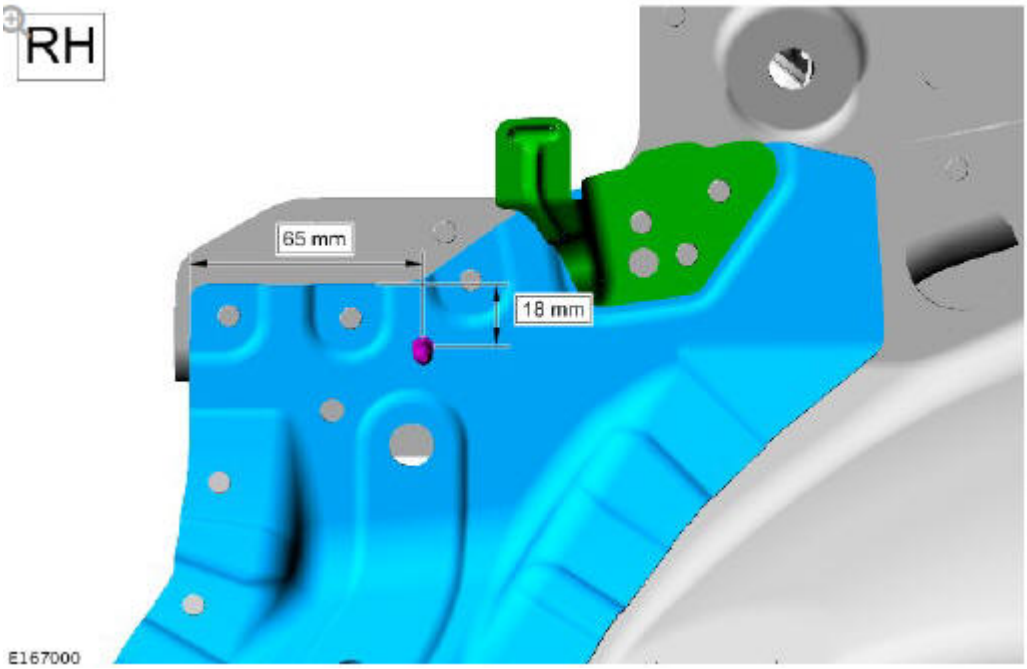
Right hand only.



8. Install the air cleaner retaining bracket as indicated.

NOTES:

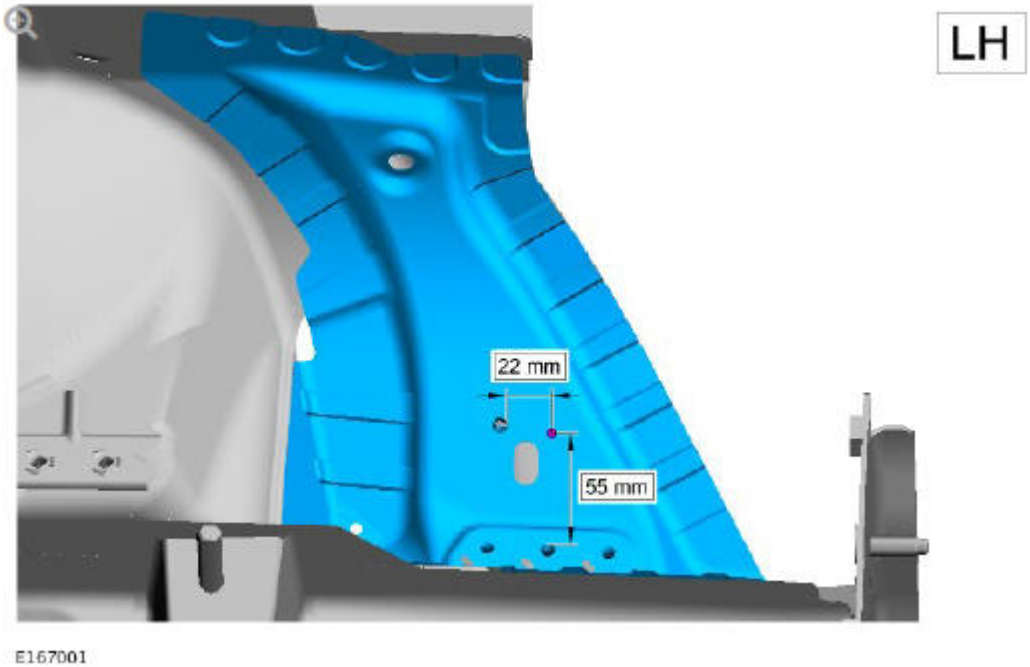
- *Right hand only.*
- *The measurements provided in the graphic are to be used as a guide only, the components that are located/installed to these weld studs must be offered up and cross checked for alignment prior to the installation of the weld studs to the new panel.*



9. Prepare the new panel and install the weld studs in their original locations as indicated.

NOTES:

- *Left hand only.*
- *The measurements provided in the graphic are to be used as a guide only, the components that are located/installed to these weld studs must be offered up and cross checked for alignment prior to the installation of the weld studs to the new panel.*



10. Prepare the new panel and install the weld studs in their original locations as indicated.
11. Dress all welded joints.
12. Make sure that any open or exposed panel joints are correctly sealed.
13. Make sure corrosion protection is applied to all areas affected by repair.
14. The installation of associated panels and components is the reversal of removal procedure.

Front end Sheet Metal Repairs Fender Apron Panel (G1770873) / Removal and installationBody Repairs - General Information

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Кузов ремонт - общая информация

Body Repairs - General Information

- Body Repairs - General Information - Introduction
- High Strength Steels
- Accident Damage and Diagnosis
- Body Measurements
- Self-piercing Rivet (SPR)
- Torx Screw and Rivnut
- Panel Beating
- Safety Measures
- Bonded Glazing

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Front end Sheet Metal Repairs Fender Apron Lower Panel (G1775678) / Removal and InstallationBody Repairs - General Information - Introduction

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Кузов ремонт - общая информация - Introduction

Body Repairs - General Information - Introduction

The body plays a significant role in the increasing trend of ever more rapidly changing model variants. The different customer groups are strongly influenced by the design and shape of the body. At the same time the stability of the body plays the most important part in ensuring passenger and driver safety. Lightweight construction, alternative materials, composite materials, plastics and appropriate joining processes are all design features that characterize modern Land Rover vehicle bodies.

In terms of manufacturing technology, modern safety cell bodies can be produced almost without any problems. Land Rover guarantee high quality standards by ensuring that mechanical strength properties are tried and tested in numerous computer simulations, crash tests, by testing materials and by employing sophisticated manufacturing technologies. In the event of repairs it is vital that the production quality standards are upheld. This requires a well-equipped workshop, and places particular emphasis on the qualifications of the workshop technicians. Up-to-date knowledge of current manufacturing technologies and continuous training on new repair methods and techniques are vital for high-quality body repairs. The model-specific repair manuals and the general repair techniques provide valuable support when undertaking body repairs.

Always follow the repair instructions published in this manual. Failure to observe this instruction can result in serious impairment of vehicle safety. All specified safety requirements must be met after the work has been carried out.

Accident damage and diagnosis

General notes

- Exact diagnosis of the extent of the damage enables proper repair planning
- All body repairs must be carried out in accordance with the guidelines in this Body Repair Manual
- The stability and strength properties of the body must be taken into account during body repairs. The body has exact defined deformation patterns that must not be affected by any repair work
- For instance, the crumple zones absorb the bulk of the impact energy. If any unprofessional repair techniques or methods are used in these areas then this can pose a fundamental threat to vehicle safety

Hidden damage

- As well as looking at external indicators like flaked off paint, it is vital to check for hidden body damage or deformation that is not visible from the outside. Large attached parts like bumpers and inner fenders often need to be removed to allow accurate assessment of damage to underlying body parts
- Gap dimensions offer another alternative for diagnosis by visual inspection. If any changes or misaligned edges are apparent, then this usually indicates that the dimensions of the affected part are incorrect

GALVANIC CORROSION AND HOUSEKEEPING

Galvanic corrosion is the cross-contamination of dissimilar metals, in this case aluminum and steel. Avoidance of galvanic corrosion is an important issue to be considered in the repair of aluminum bodied vehicles.

Precautions to prevent the contamination of exposed bare aluminum surfaces should be taken. Good housekeeping and cleanliness should be adopted throughout repairs and especially prior to welding, pre-treatment and adhesive bonding. The repair environment requires control and protection from dust and debris from conventional steel body repairs. All equipment must be clearly identified and used solely on aluminum. Tools should be kept clean and in good order. Steel fastenings are coated to prevent galvanic corrosion. Fastenings should be examined during repairs and where damaged or suspect must be renewed. The use of graphite, penetrating oil, or copper based anti-seize compounds upon the steel fixings is not recommended.

For additional information, refer to: Corrosion Protection (501-25B Body Repairs - Corrosion Protection, Description and Operation).

VEHICLE DESIGN

The body

The body is manufactured like a conventional monocoque. Two monosides are welded to the floor, roof and bulkheads, creating a strong, single structure. Dual Phase (DP), Bake Hardened (BH) and BORON (VHSS) steels are used in the side panel reinforcements. DP steel is also used for the rear of the front side member, for added strength in front and side impacts. The roof structure can accommodate a glass roof panel. When a glass roof is not fitted, the outer roof panel is a single large aluminum pressing with styled swages to add strength.

The safety of the driver and the passengers is paramount for every body design. There are two key safety aspects in the body:

- Safety passenger cell
- Crumple zones

Safety passenger cell

- Stable pillars, rocker panel and door profiles.
- Side impact protection in the doors.
- Doors are designed to open even in the event of extreme deformation.

Crumple zone

- Dynamic absorption of deforming forces.
- Protection of the passenger cell.

VEHICLE DESIGN

Bodyshell



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Body Repairs - General InformationHigh Strength Steels

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Верхний Strength Steels

High Strength Steels

Most modern vehicles are constructed from a number of different steels, partly to obtain an optimized body, (collision, safety, rigidity, fuel economy, etc.).

Steels are divided into several groups according to their tensile and yield strength, that is to say the force necessary to bring about plastic deformation of the material.

Yield Summary

Yield is the strength at which the metal changes from elastic to plastic in behavior, the point of no return.

Tensile Summary

Tensile strength is the breaking strength of a material when subjected to a tensile (stretching) force, the point of no return.

Dual Phase (DP) steel falls into both the VHSS and EHSS classifications, dependent on grade of DP.

STEEL TYPE	YIELD STRENGTH
Mild Steel (MS)	Maximum Yield point up to 180 MPa
High Strength Steel (HSS)	Steel With a Yield Point up to 280 MPa
Very High Strength Steel (VHSS)	Steel With a Yield Point up to 380 MPa
Extra High Strength Steel (EHSS)	Steel With a Yield Point up to 800 MPa
Ultra High Strength Steel (UHSS)	Steel With a Yield Point greater than 800 MPa

Welding Ultra High Strength Steel

Ultra high strength steel requires welding equipment which can achieve the following equipment settings.

Spot Welding

Information to follow.

MIG Brazing

When mig-brazing use the following type of welder meeting the specifications shown: Fronius Trans Plus Synergic 2700 4 R/Z/AL MIG Welder, with CuSi3 (DIN 1733) 1.0mm filler wire with setting parameters 4, which is 92 Amps, Wire feed 4.6 m/min. Shielding gas L1 = pure Argon (DIN 439).

NOTES:

- *The addition of Boron, for the side panel reinforcement "ring frame", and DP600 to the rear of the front side member, gives the body greater strength in a front or side impact.*
- *Steel, (including Bake Hardened (BH) and High Strength Low Alloy (HSLA), these are used in seat belt anchorages, hinge reinforcements and various small brackets and mountings*
- *The size of the slots are to be 20mm x 8mm and 30mm apart. Slots should be installed in accordance with this spacing. Where this is not possible, due to the indents in the panel, the slot should be made in the location of the original spot weld.*
- *Mig brazing is carried out at a temperature of 650°C to 950°C. To avoid degradation of the ultra high strength steel material properties, the temperature must be below 950°C.*

Dress the surface of the weld cap (brazed slot) with 60/80 grit belt sanders.

ALUMINUM PANEL INFORMATION

The design of the modern motor vehicle attempts to overcome two conflicting needs:

- Fuel economy - lighter, aerodynamic and fuel sensitive technology
- High levels of comfort - this often equates to higher specifications and more accessories

Aluminum alloy is the ideal material to meet these demands; it provides a lighter vehicle body. Aluminum is different from traditional steel, with the correct knowledge and suitable tools it is easily repaired.

There are two aluminum alloys discussed in this manual, the attributes detailed in the following table should be considered when deciding to repair or replace:

600 SERIES	
Material Description	600 Series is a Magnesium/Silicon/Copper aluminum alloy
Location on Vehicle	Roof
Attributes	High dent resistance
Reparability	Yes - Light damage only
Heat During Repair	Yes - **caution** material sensitive to heat. Range: 140 - 160°C Ideal panel temperature: **150°C**
Notes	Equipment: Hot air gun. Use panel temperature indicator strips

PLASTICS AND COMPOSITE

Plastics: Used in the front fender and in front fender support bracket.

Composite: Used in tailgate.

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Body Repairs - General Information - IntroductionAccident Damage and Diagnosis

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Accident повреждение и Diagnosis

Accident Damage and Diagnosis

General notes

- Exact diagnosis of the extent of the damage enables proper repair planning.
- All body repairs must be carried out in accordance with the guidelines in this Body Repair Manual.
- The stability and strength properties of the body must be taken into account during body repairs. The body has exact defined deformation patterns that must not be affected by any repair work.
- For instance, the crumple zones absorb the bulk of the impact energy. If any unprofessional repair techniques or methods are used in these areas then this can pose a fundamental threat to vehicle safety.

Hidden damage

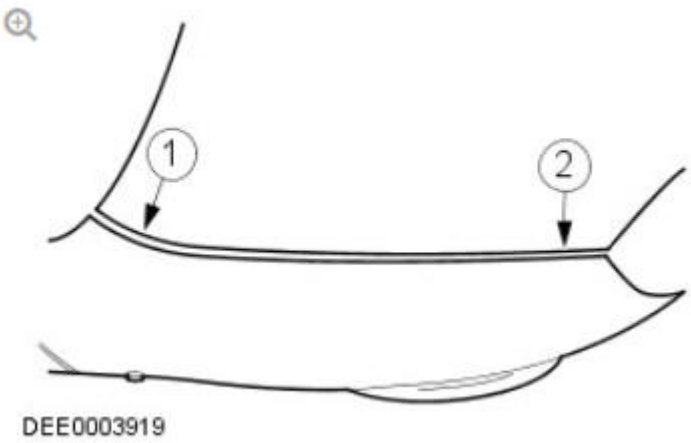
As well as looking at external indicators like flaked off paint, it is vital to check for hidden body damage or deformation that is not visible from the outside. Large attached parts like bumpers and inner fenders often need to be removed to allow accurate assessment of damage to underlying body parts.

Gap dimensions

Gap dimensions offer another alternative for diagnosis by visual inspection.

If any changes or misaligned edges are apparent, then this usually indicates that the dimensions of the affected part are incorrect.

Changes in gap dimension



1. Gap too wide
2. Gap too small

IMPACT EFFECTS ON THE BODY

NOTE:

Vehicle components like drive shafts and trailer attachments transfer forces. If a vehicle is subjected to a rear impact then all connected body parts and mechanical components (e.g. transmission mountings) should be thoroughly checked. Electronic components should be checked to ensure that they still operate correctly.

Furthermore it is possible to deduce the overall extent of damage from the direction and magnitude of the impact forces. This does however require extensive body-specific knowledge.

If, for instance, an impact occurs at the front left-hand side member, then the right-hand side member is usually also affected as a result of the rigid body-shell design (crossmember). Often the length of this side member will not have changed, but because of the rigid body-shell design it may have moved from its original position (often only by a very small amount). If any visual deviations are present this can usually be detected by checking the gap dimensions between door and fender or by checking for changes in dimension.

In the case of more severe impacts, the front part of the body cannot absorb all of the impact energy, and the passenger cell is also deformed.

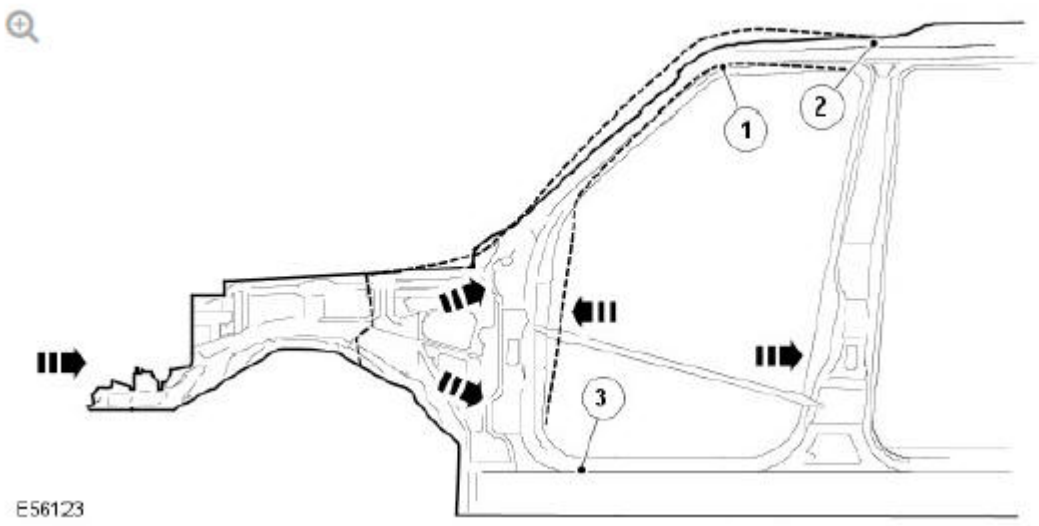
Here the impact energy is transferred via the side member to the A-pillar (see diagram). This results in deformations in the area of the roof and the door rocker panel.

The body reacts quite differently to side impacts where there is hardly any crumple zone. As the passenger cell is extremely stable, there are comparatively few local deformations at the site of the impact. However, the impact forces are transferred to the entire vehicle floor, which often results in so-called "banana damage", where the vehicle is bent into a banana shape.

Impact energy is transferred via the side member to the A-pillar

NOTE:

Damage exaggerated for clarity.



1. Deformation area - roof rail
2. Deformation area - roof
3. Deformation area - door rocker panel

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High Strength SteelsBody Measurements

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Кузов Measurements

Body Measurements

Measuring options

- Comparison measurements can also be made on the outside of the body.

  Depending on the damage, comparison measurements and diagonal measurements can be carried out using compass, telescopic rod, tape measure or ruler.

NOTE:

The same reference points must be chosen on both sides when checking for changed dimensions (e.g. bores, edges, beads/swage lines etc.).

All of the important external body dimensions are listed in Tolerance Checks.

For additional information, refer to: Body and Frame (501-26 Body Repairs - Vehicle Specific Information and Tolerance Checks, Description and Operation).

- Measurements with a measuring/straightening jig.
- A measuring/straightening jig is required for accurate measurements of the body. The measuring systems are categorized by their means of operation:
- Mechanical measuring system.
- Optical measuring system

Quick and accurate measuring results can be obtained using computerized measuring systems.

A minimum of three intact measuring points on the body are required for measurements of length, width and height dimensions.

In some cases this may mean making the measuring points accessible. All of these measuring systems can be used to make body measurements, provided all the equipment is available.

PLANNING A REPAIR

The following decisions have to be made before the repairs are started:

- Does the vehicle need to be put on a straightening jig, or can it be straightened by other means?
- Does the body need to be measured?
- Do aggregates like engine or axles need to be removed?

NOTE:

It is preferable to repair body parts rather than to renew them, as this keeps the complete body-shell intact.

Which body parts need to be renewed?

- Which body parts can be repaired?

BATTERY CARE STANDARDS

To ensure the correct maintenance actions are carried out before and during a repair.

For additional information, refer to: Battery Care Requirements (414-00 Battery and Charging System - General Information, Description and Operation).

OBTAINING SPARE PARTS

The availability of service parts often determines how easily the body repairs can be carried out. The following procedure is recommended:

- Obtain all the data for the vehicle, including type, vehicle identification number, trim code, engine identification letters, initial registration etc.
- Establish all of the metal parts that need to be renewed.
- Establish all of the attached parts that need to be renewed, including small parts like rivets, clips etc.

STRAIGHTENING REPAIRS

WARNING:

The use of heat when pulling to straighten body panels, (such as side members), is not recommended. Longitudinal pulling, (hot or cold), is also not recommended. A small amount of side to side pull is permissible, (cold).

When any type of pulling or straightening operation is performed it is important to observe for any movement in adjacent panels.

A panel must retain its strength and integrity, if there is any doubt the panel must be renewed.

Straightening repairs are often required to restore the body to its original shape after an accident. This can be done with:

- Alignment jigs.
- Universal straightening and measuring jigs.
- Welding jig system.

The following points must be followed to ensure that the repairs are carried out professionally and that all the dimensions are correct after the repairs have been carried out.

Structure:

- The repair sequence depends on the individual repair plan (taking any necessary disassembly work into account).
- Clean the attachment areas.
- Anchor the vehicle free of stress on the relevant system.
- Support the aggregates to take strain off the body.
- Decide on at least three measuring/mounting points that are undamaged and as far apart as possible (for basic adjustment).
- Check the dimensions of the measuring/mounting points

Straightening:

Check dimensions and gaps continuously during straightening.

NOTE:

Check dimensions and gaps continuously during straightening.

A body is always straightened in the opposite direction to that of the impact. Always carry out straightening repairs with the complete body shell assembled (do not cut out any parts beforehand). Carry out the straightening work in several stages. This prevents the risk of over stretching or of welded joints tearing out. During the individual straightening steps, relieve tension by striking with an aluminum hammer while the part is subjected to a tensile load (in the area of predetermined folding points, dents, welded joins etc.).

Special features:

- Ultra high strength steel cannot be straightened due to its brittleness and must always be replaced.

Fixings

There are two groups of fixings used, other than conventional nuts and bolts. It is important that the correct procedures are followed for the removal and replacement of these fixings and, where applicable, the correct tools are used.

- Self-Piercing Rivet (SPR)
- Breakstem Fastener (BSF)

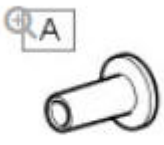
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Accident Damage and DiagnosisSelf-piercing Rivet (SPR)

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Self-piercing Rivet (SPR)

Self-piercing Rivet (SPR)



E74390

Self-Piercing Rivets are available in various sizes dependent on the size of the stack of panels to which they are fitted. A stack refers to the combined gauge of the panels being riveted.

NOTE:

It is important to identify and select the correct size fixing by referencing this table prior to installation.

SPR TYPE NO.	LR PART NUMBER	RIVET LENGTH	RIVET APPLICATION FORCE	DIE DESCRIPTION	DIE (SPX / AVDEL PART NO)
1	LR043556	5mm	40kN	PIP	78230-050088

Pip die - Jaguar/Land Rover SPR repair kit, SPX/Avdel part number 78230- 050088.



Flat bottom die - Jaguar/Land Rover SPR repair kit, SPX/Avdel part number 78230-050809.



CAUTION:

Operating the SPR installation tool with no SPR or material in position will damage the tool die.

Removal

The ESN50 is the approved removal tool for Self Piercing Fixings. The ESN50 can be used with an optional, larger, 200mm C frame for improved access. Where tool access is impossible, drill out the remnant using a 5.3mm Cryobit drill bit. Remove all debris.

Installation

The ESN50 is the approved installation tool for Self Piercing Fixings. Where the original panel is being refitted, the new fixings should be placed adjacent to the original. Only where the ESN50 cannot be used, or

there is insufficient space on the panel, should the fixings be replaced with Breakstem Fastener Type As, unless the repair method dictates otherwise.



Using the ESN50

Make sure there is access for the ESN50 on both sides of the fixing to be removed/installed, including the optional C frame if required.

Removal: Align the plunger and anvil over the fixing and depress the trigger. Depressing the trigger will allow the plunger to act on the fixing and remove it from the panel.

NOTE:

Prior to replacing a self-piercing fixing, a test, using identical materials from waste panels, should be performed, to make sure that all settings are correct and an acceptable joint has been achieved.

Installation: Load new fixing into ESN50. Align the ESN50 over the fixing position and depress the trigger. As the trigger is depressed the ESN50 will clamp itself onto the work piece and install the fixing.

Removal of service SPR

Service SPR's will require the service anvil to have an internal diameter of 9mm, as shown in graphic E152490.



ITEM	DESCRIPTION
A	9mm

BREAKSTEM FASTENERS

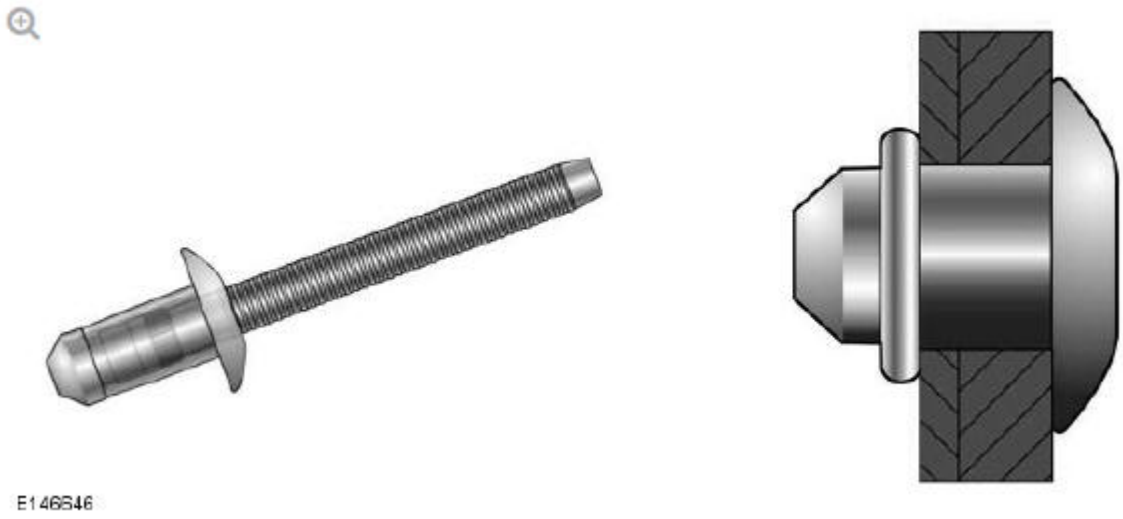
Breakstem Fasteners are used in repair if the joint/stack cannot be accessed from both sides or require a greater load.

- Breakstem fasteners will cope with joint/stack sizes of 1.5mm to 10.8mm.
- A pre-drilled 6.5mm hole will be required before fitment.
- To identify the correct size and part number of structural breakstem fasteners to be used in repair always refer to TOPIx.

Where original rivet holes cannot be used replacement rivets should be positioned close to the original rivet location/hole location.

When riveting, the first location of the first replacement panel is close to the original rivet placement, not in the centre. The same process is followed by the next replacement, again not in the centre between the rivets.

BREAKSTEM FASTENER



Breakstem Fasteners have the following benefits:

- Exceptional shear and tensile strength
- Large blind side bearing area against the rear sheet
- Interference lock formed by a splined stem
- Spreads the tail bearing/clamp load on the rear sheet
- Provides strong, vibration resistant joints
- No loose stems

When the repair procedure requires the fitment of a breakstem fastener the stack size is identified within the repair procedures (millimetres).

Removal

Breakstem Fastener used in production are removed by removing the centre of the fixing using a 4mm punch. Once the centre has been removed, drill out the remnant using a 6.5mm Cryobit drill bit. Remove all

debris.

Aftermarket Breakstem Fastener are removed in the same way as Breakstem Fastener used in production.

Installation

The Genesis G4 is the approved installation tool for Breakstem Fastener .

Prior to replacement make sure the fixing hole has been drilled to 6.5mm, using a Cryobit drill bit and all debris has been removed.



Using the Genesis G4

Make sure the fixing hole has been drilled to 6.5mm and all debris has been removed. Check that you have the correct size breakstem fastener for replacement and insert it into the Genesis G4. Use the weight of the Genesis G4 to apply light pressure as the breakstem fastener is inserted into its hole. Depress the trigger which will tighten the breakstem fastener in the hole, the wasted stud will be ejected into the Genesis G4 once a predetermined pressure is reached.

When the repair procedure requires the fitment of a breakstem fastener the stack size is identified within the repair procedure (millimetres). The table below identifies the correct breakstem fastener to the stack size.

BREAKSTEM FASTENER TYPE	PART NUMBER	GRIP RANGE
BSF A	LR044284	1.5 mm to 3.5 mm
BSF B	LR044283	2.8 mm to 4.8 mm

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Body MeasurementsTorx Screw and Rivnut

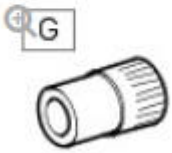
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Torx винт и Rivnut

Torx Screw and Rivnut



E74399



E74397

A Torx Screw and Rivnut are used where the fitment of a Breakstem

Fastener Type A would give a poor cosmetic appearance. There are also occasions where the Torx Screw and Rivnut replaces a Breakstem Fastener Type B, where there is no access for the Genesis G4. The Rivnut acts as the thread.

DESCRIPTION	LAND ROVER SERVICE NUMBER
Rivnut (G)	TBC
Torx Screw (J)	TBC

Removal

The removal of the Torx Screw is carried out using a T30 Torx Driver. The Rivnut is not an original fixing.

Installation



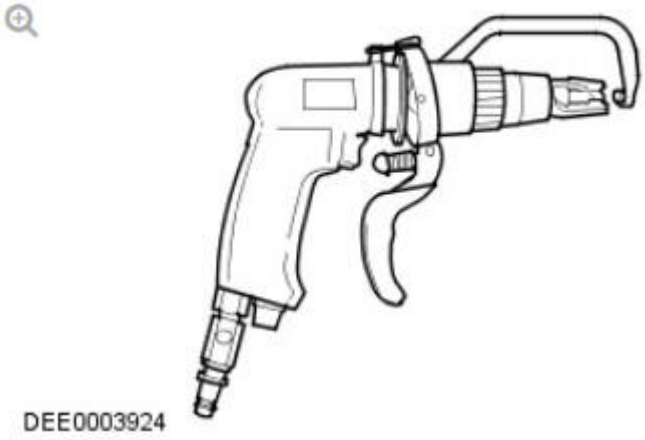
E72042

The Torx Screw is installed using a T30 Torx Driver. The Rivnut is installed using the Wurth HES412 Rivet Nut Thread Setter, (Part No: 964948900).

CUTTING OUT BODY PARTS

Depending on how the parts are joined/connected, different tools are suitable for cutting/separating body parts.

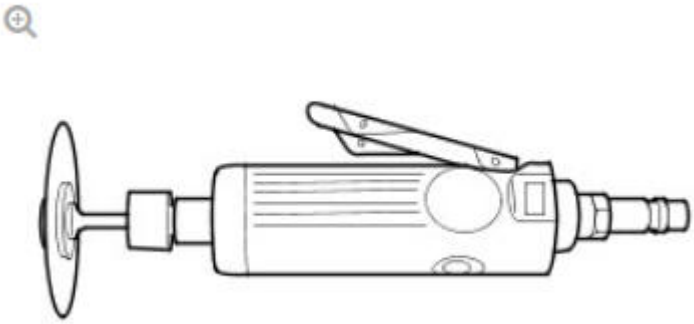
Spot-weld mill



NOTES:

- *All other parts like interior equipment, window glass etc. must be protected against flying sparks.*
- *Ensure that the milling depth is set correctly to prevent the remaining flange from being weakened.*

Rod sander

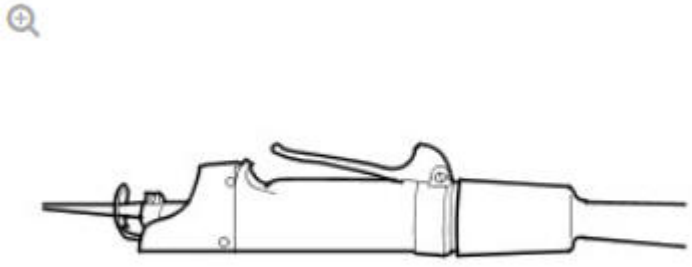


NOTE:

Wear protective clothing. Protect any vulnerable body or glass areas against flying sparks. Remove explosive materials from the vicinity.

Any spot welds that are inaccessible for the spot-weld mill (diameter > 8 mm) should be ground out using a rod sander. The same applies to MIG spot welds or seams.

Short stroke saw

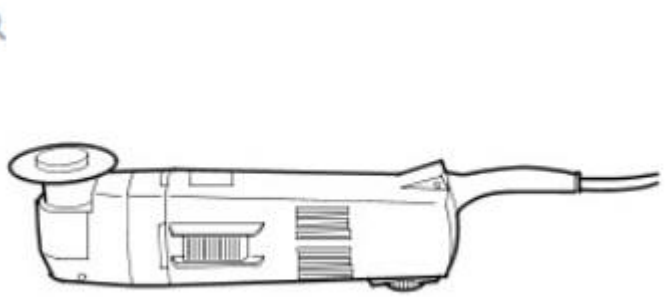


NOTE:

Underlying metal parts, wiring harnesses, hoses etc. must not be damaged - remove them beforehand if necessary.

Body saws are particularly versatile and are therefore very suitable for making severance cuts on body parts.

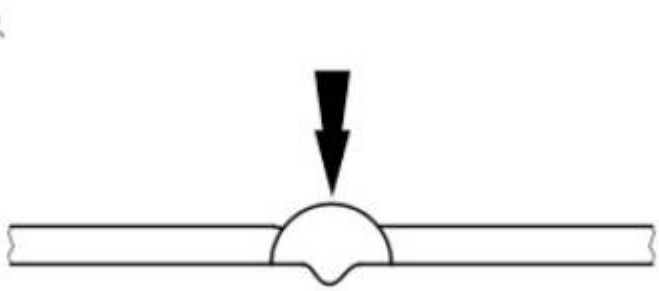
Reciprocating saw



In addition to the short stroke saw, the reciprocating saw can be used. With this, it is possible to make narrow and straight cuts to an exact depth.

CARRYING OUT THE REPAIRS

Butt joint



NOTE:

The severance cut should always be kept as short as possible on sectional replacement. Only cut at the severance lines shown in the repair chapters.

Do not make any cuts near reinforcements or pre-determined folding lines.

Prepare parts remaining on the vehicle/new parts.

Do not use a welding torch to remove paint residue (the heat could cause the metal to deform).

- Reshape the adjoining surface of any dented body parts that are to remain on the vehicle using a hammer and a counterhold (ensure that the old part matches the shape of the new part). Grind off left over spot welds or seams with an angle grinder.
- Cut the new parts to shape.
- If necessary punch or drill holes for mig plug welding.

NOTE:

Do not use a welding torch to remove paint residue (the heat could cause the metal to deform).

- Grind all joining flanges to bare metal on both sides. Do not use an angle grinder for this purpose (this could weaken the metal and damage the zinc layer). Suitable tools: rotating wire brush, belt sander or plastic disc.
- Apply welding primer liberally to all weld flanges.
- The primer must be well stirred before use.

NOTE:

When using aerosols, take care not to contaminate adjacent parts with spray mist.

It must be ensured that the new part fits exactly to the specified dimensions. Suitable equipment:

- Alignment jig.
- Universal measuring system.
- Jig system.
- Ruler or tape measure.
- Compass.
- Frame dimensions can be found in the model-specific repair manuals

NOTE:

Any attached body parts that require accurate alignment and fitting must be incorporated in this step; for instance bumpers, seals, headlamps, rear lamps and lock assembly components. If this is not done carefully it may result in water leaks, wind noises and substantial follow-on work.

Ensure that edges line up with adjacent parts and check that gaps are consistent (compare left and right-hand sides). Make sure that the shape of the vehicle is retained.

Secure the new part

NOTE:

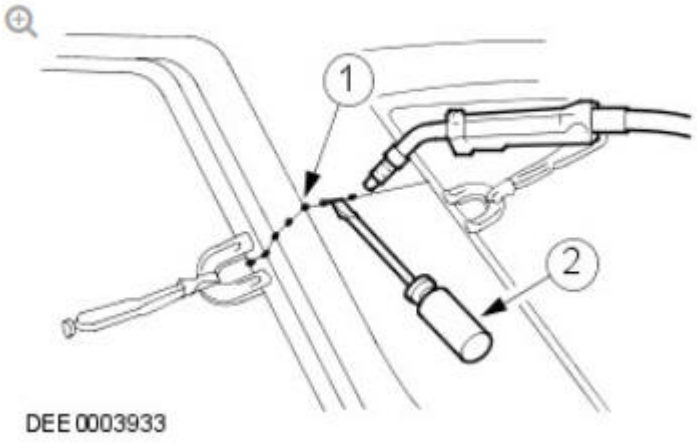
The need for subsequent follow-on work can be significantly reduced if aligning and tack-welding are carried out with due care.

Depending on accessibility the following methods for securing are available:

- Grip pliers (set of).
- Screw clamp (set of).
- Self-tapping screws.
- Tack welds.

Use a staking tool or a screwdriver to ensure that the edges of sectional replacements of profiled parts line up. The edge is then tack welded to ensure that it lines up.

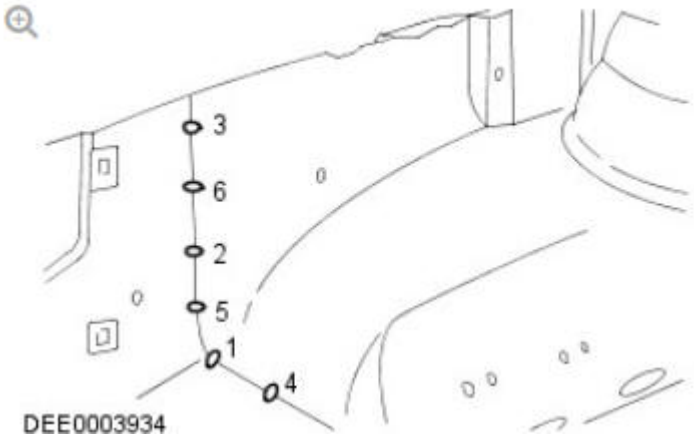
Aligning and tack weld



1. Tack welds
2. Using a screwdriver to align

- Longer joins are usually tack welded to prevent the panel from warping. It is important to carry out the tack welds in the correct sequence (see diagram).
- Weld in the new part following the instructions in the repair manual.

Correct tack welding sequence



Follow on repairs/corrosion protection

This step basically covers the following work: See corrosion protection section for cavity wax application areas.

- Grinding welded seams.
- Priming any bare metal.
- Sealing welded seams.
- Applying underbody protection.
- Sticking damping matting in place.
- Filling cavities with cavity wax.

NOTE:

See corrosion protection section for cavity wax application areas.

- Cavity wax (after painting).

Панель Beating

Panel Beating

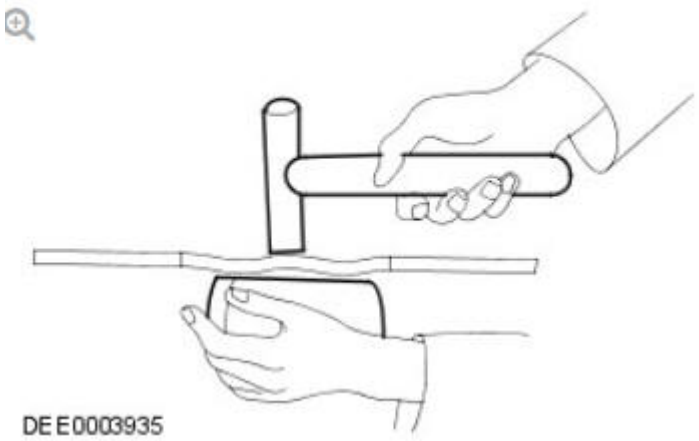
Fundamentals of panel beating

- Before carrying out any sectional replacements or complete replacements of body panels, always check carefully whether the damaged panel(s) can be rectified by panel beating.
- Panel beating is usually the easiest and most economical method of repairing a damaged panel.

Examples of applications of different panel beating techniques: aluminum hammer and mallet.

- Advantage: Low risk of over-stretching the panel.
- Used for repairs of small dents on panels that are accessible from both sides.
- These two panel beating tools are usually used for "finishing repairs".

Fine straightening with an aluminum hammer and a universal dolly



HEAT-TREATMENT OF PANELS

- It is usually inevitable that some parts of the body panels show excess material as a result of mechanical strain. If there are any areas of excess material this will cause localized instabilities due to differences in tension.

  These localized instabilities can be stabilized by applying heat-treatment techniques.

NOTE:

This does not apply to high-strength low alloy steel, ultra high strength steel and aluminum.

- Rule: Flattening panels by heat-treatment reduces the amount of excess material by more than they were originally stretched.

Different heat-treatment techniques.

NOTE:

Different heat-treatment techniques are used depending on the amount of excess material.

Flattening using a flame.

- A welding torch is used if the material excess extends over a larger area (torch size 0.5 - 1.0 mm). Use a soft flame.
- The surface of the metal is briefly spot-heated and then immediately cooled with a wet sponge.
- Requirement: Ability to handle a welding torch safely and knowledge of annealing colors of steel.
- Advantage: No damage to the surface of the metal.

Flattening using a flame, supported by hammer and counterhold.

The flattening effect is increased by speeding up the heating and cooling stages.

NOTE:

The flattening effect is increased by speeding up the heating and cooling stages.

If the material excess is concentrated, then the flattening effect can be increased after heating by carefully using an aluminum or wooden hammer.

- Requirement: Ability to recognize material tension by feeling the surface that is to be flattened.

Flattening using a carbon electrode.

- If panel areas are only accessible from one side, or the panel is only slightly destabilized, then the preferred method is flattening using a carbon electrode.
- Requirement: Bare metal surface.
- Disadvantage: Scarring and hardening of the surface.

Flattening using a copper electrode.

- Small, sharp dents that face outwards can be worked on with a copper electrode.

Flattening using a flame and body files.

When applied correctly, this method can be used with all the attached parts still in place (roof headlining, wiring harnesses etc.).

NOTE:

When applied correctly, this method can be used with all the attached parts still in place (roof headlining, wiring harnesses etc.).

Small, soft dents (only slight stretching): Working at the edges of the dent in an inward spiral pattern, the dent is heated with an oxyacetylene torch (torch size 1 - 2 mm, excess gas flame) to approx.

250° C.

- Working rapidly with a body file extracts heat from the edge area until the dent is flattened. Preferably alternate between two files. This increases the amount of heat that can be extracted.

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Torx Screw and RivnutSafety Measures

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Безопасность Measures

Safety Measures

- The electronic control modules (ECM) fitted to vehicles make it advisable to follow suitable precautions prior to carrying out welding repair operations. Harsh conditions of heat and vibration may be

generated during these operations which could cause damage to the modules. In particular, it is essential to follow the appropriate precautions when disconnecting or removing the airbag RCM.
- Do not allow electronic modules or lines to come into contact with the ground connection or the welding electrode.
- Seat belt anchorages are a safety critical. When making repairs in these areas, it is essential to follow design specifications. Note that extra strength low alloy steel may be used for seat belt anchorages. Where possible, the original production assembly should be used, complete with its seat belt anchorages, or the cut line should be so arranged that the original seat belt anchorage is not disturbed.
- All welds within 250mm (9.842) of seat belt anchorages must be carefully checked for weld quality, including spacing of spot welds.
- Remove the battery before carrying out welding work in its vicinity.
- Utmost care must be taken when welding near the fuel tank or other components that contain fuel. If the tank filler neck or a fuel line must be detached to allow access for welding work, then the fuel tank must be drained and removed.
- Never weld, on components of a filled air conditioning system. The same applies if there is a risk of the air conditioning system heating up.
- Connect the ground connection of the electrical welder directly to the part that is to be welded. Ensure that there are no electrically insulating parts between the ground connection and the welding point.
- Adjacent vehicle parts and adjacent vehicles must be shielded against flying sparks and heat.

RESISTANCE SPOT WELDING

Where resistance spot welds have been used in production, they must be reproduced with new spot welds in replacement where possible. All such reproduction spot welds should be spaced 25 to 30mm apart.

Setting up the equipment and coordinating the welding parameters.

Equipment:

- Follow the equipment manufacturer's instructions for the equipment settings.
- Select the correct electrode arms (as short as possible).
- Align the electrode arms and tips exactly.
- Electrode tips should be convex (rough shaping with a file, fine shaping with a sanding block).

Body:

- Ensure that the flanges to be joined lie perfectly flat to one another.
- Prepare a bare metal joint surface (inside and outside).

Notes on technique/method:

- Carry out a test weld on a sample piece of the material coated in welding paste.
- If any metal parts are located between the electrode arms then there will be a loss of induction and therefore power (adjust current setting).
- The power needs to be adjusted for high-strength low alloy steel.
- Repeated welding on old welding points often leads to poor quality welds.
- Keep the electrode tips as near as possible to an angle of 90º to the contact surface.
- Keep the pressure on the electrodes for a short period after finishing the weld.
- The electrodes work best if their shape is convex. Clean the contact surface of the electrodes regularly.

Resistance spot welding panels where the total thickness is 3 mm or more

For all repairs to modern Land Rover vehicles, spot-welding equipment should be suitable for reliable welding of zinc-plated, high-strength and high-tensile steels in three or more layers, up to 5 mm total thickness. If these requirements are not fulfilled, plug welding must be used for safety reasons. The electrical

specifications (current, resistance, heat) of the spotwelding equipment have different validity, depending upon the type of equipment. Therefore, it is essential that the manufacturer's instructions are observed with regard to the actual welding performance.

MIG/MAG WELDING

Setting up the equipment and coordinating the welding parameters.

- Any joins that are MIG/MAG welded in production must also be MIG/MAG welded during repairs. Also during repairs, some resistance spot welds need to be replaced by plug welds.
- If access is difficult, or if a suitably powerful spot welder (see above) for total panel thicknesses of 3 mm or more is not available, resistance spot welding must be partially replaced by plug welding during repairs. In this case, the increased time needed and the correspondingly more demanding corrosion protection requirements, must be taken into account.
- Welding repairs can only be carried out properly if the equipment is set up correctly and all the welding parameters are co-ordinated.

Equipment:

- Set up the equipment as directed by the manufacturer.
- The hoses must be untwisted.
- The core must be free of abraded rod particles.
- The gas and current nozzles must be free of slag and scale residue.
- Pay attention to the quality of the welding rod and the throughput of gas.

Body:

- Ensure that the joint surface is perfect.
- Prepare a bare metal joint surface.
- Maintain the correct gaps (formation of roots).

Notes on technique/method:

The increased application of heat during MIG welding destroys the welding primer/zinc layer over a much larger area than during resistance spot welding, as a result of which much more care needs to be taken when applying anti-corrosion protection afterwards.

A test weld should always be carried out to ensure that the welded joint is not just a surface connection.

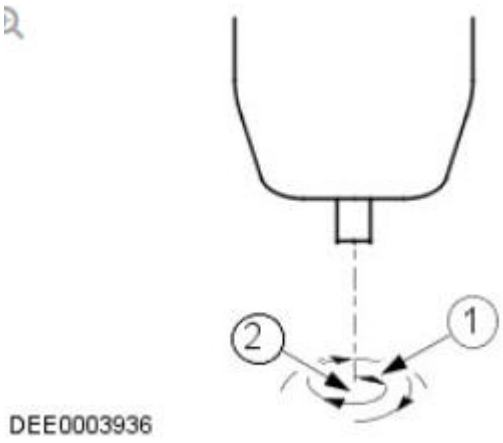
NOTES:

- *The increased application of heat during MIG welding destroys the welding primer/zinc layer over a much larger area than during resistance spot welding, as a result of which much more care needs to be taken when applying anti-corrosion protection afterwards.*
- *A test weld should always be carried out to ensure that the welded joint is not just a surface connection.*

Attach the ground cable right next to the welding point (ensure that good contact is made).

During plug welding start welding on the lower panel to ensure adequate penetration.

Plug welding



1. Welding direction: circular pattern working from the inside outwards
2. Welding starting point: center of hole on lower panel

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Panel BeatingBonded Glazing

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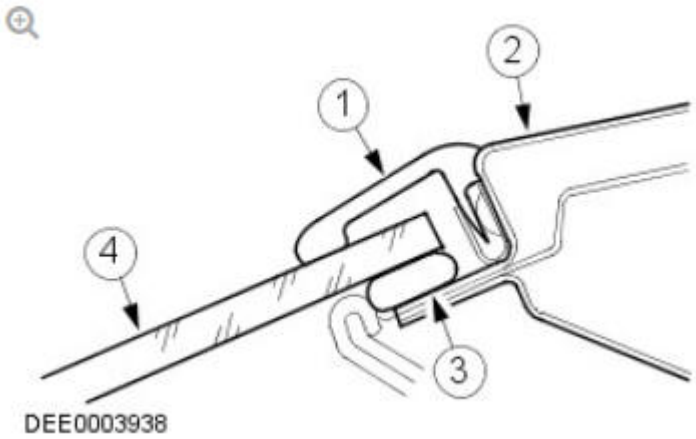
Bonded Glazing

Bonded Glazing

- The windscreen, side and rear windows are bonded directly onto the window frames on the body and liftgate.
- The windows are bonded primarily for reasons of adhesive strength.

  Bonded glazing provides additional torsional stiffness to the body.

Adhesive bonding of bonded windows



1. Rubber strip
2. Window frame
3. Adhesive
4. Window glass

REMOVING AND INSTALLING BONDED WINDOWS

Safety measures

The following safety measures must always be followed to prevent personal injury:

- Wear protective gloves and arm protection.
- Wear protective goggles.

Preparations

- Before cutting out a bonded window, undo and remove any attached parts in the cutting area that are at risk, e.g. trim panels and decorative strips, as well as all electrical connections.
- Mask any painted areas that are adjacent to the window.
- Cut off any surplus adhesive, as this makes it easier to cut out the window.
- Secure vertical windows against dropping out.

Cutting out the window

- Cut into the adhesive bead at easily accessible points using the cutting tool.
- Carefully guide the cutting tool around the window, cutting through the adhesive bead.
- Avoid touching the window frame and the body flange.
- Use cup suction tools to lift the cut-out window out of the window aperture.

General preparations for bonding

- Follow the manufacturer's instructions.
- Cut back the remaining adhesive bead on the metal flange to a residual height of about 1mm. Do not touch or clean the cut surface afterwards.
- Carefully rectify any paint damage (apply primer and top coat).
- Renew the window stops as necessary.

Bonding the window glass

- Apply an even bead of adhesive to the window or to the body flange.
- Insert the window glass into the window aperture and center it (2 technicians required).
- Check the gaps.

NOTE:

Open the windows and doors while the window is left to dry and do not move the vehicle (slamming doors creates excess pressure which could cause the window to become loose).

Use adhesive tape to prevent the window from falling out or slipping.

Finishing operations

Reconnect all electrical connections and check that the components operate correctly.

Install the attached parts and check that the fit is accurate and secure

- Carry out a visual inspection to ensure that the gaps and joints are even.

Thoroughly clean the window glass.

PROTECTIVE EQUIPMENT AND SAFETY AT WORK

- Various safety measures and legal requirements must be met when carrying out repairs. All regulations relating to health and safety at work must be followed.

Welding safety precautions

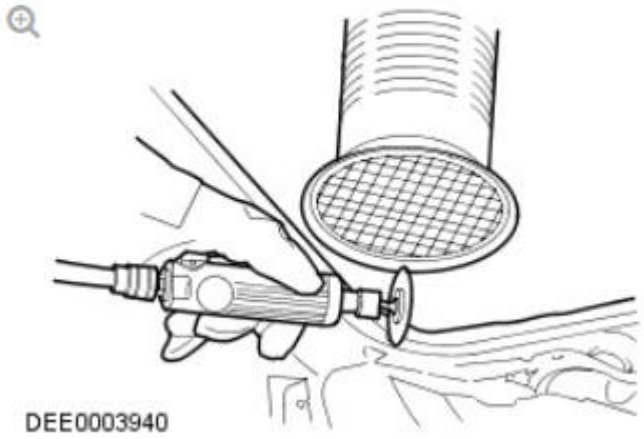
The following safety precautions must be observed to prevent the risk of personal injury:

- Safety hood (face protection).
- Welding shield.
- Safety gloves.
- Safety shoes.
- Extraction unit for welding smoke.

Welding should always be carried out in well ventilated areas. A fire extinguisher must also always be within reach.

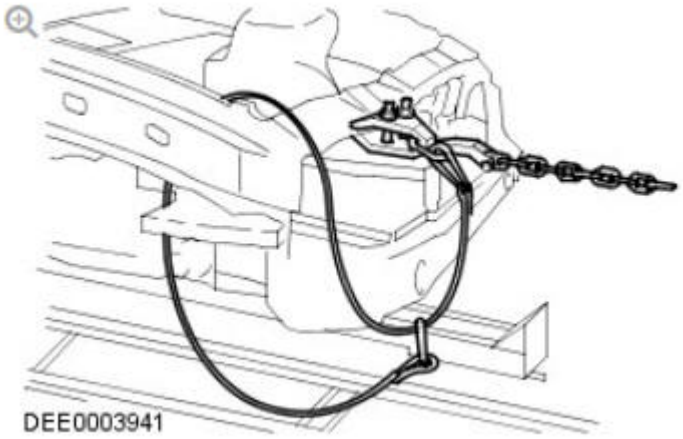
General body repair safety measures

Extraction unit



- Sealing compound, underbody protection etc. must not be burned off with a naked flame. This would produce toxic gases. If for instance PVC is burned, then gases containing hydrochloric acid are produced. For this reason a suitable extraction unit should always be used when performing grinding, welding or soldering work.
- Always ensure good ventilation when working with materials that contain solvents, wear breathing equipment and use an extraction unit.
- Ear defenders should always be worn when cutting, grinding or straightening metal, as the noise levels can reach or even exceed 85 - 90 dB(A).
- Take care not to look directly into any laser measuring systems, for instance used to measure the under body.
- When removing components from a vehicle mounted on a lifting ramp, watch out for a shift in its center-of-gravity. When first placing the vehicle on the ramp, take into account that it may need to be secured against tipping over.
- Chains and chain clamps must be secured with safety ropes during straightening work.

Safety rope



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Safety MeasuresBody Repairs - Corrosion Protection

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Кузов ремонт - коррозия Protection

Body Repairs - Corrosion Protection

- Galvanic Corrosion
- Partial Renewal
- Approved Service Materials for Repair
- Expanding Foam Acoustic Seals

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Bonded GlazingGalvanic Corrosion

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Galvanic коррозия

Galvanic Corrosion

Galvanic corrosion is the cross-contamination of dissimilar metals, in this case aluminium and steel. Avoidance of galvanic corrosion is an important issue to be considered in the repair of aluminium bodied vehicles.

Precautions to prevent the contamination of exposed bare aluminium surfaces should be taken. Good housekeeping and cleanliness should be adopted throughout repairs and especially prior to welding, pre-treatment, (Pyrosil), and adhesive bonding.

The repair environment requires control and protection from dust and debris from conventional steel body repairs. All equipment must be clearly identified and used solely on aluminium.

Tools should be kept clean and in good order. Steel fastenings are coated to prevent galvanic corrosion. Fastenings should be examined during repairs and where damaged or suspect must be renewed.

The use of graphite, penetrating oil, or copper based anti-seize compounds upon the steel fixings is not recommended.

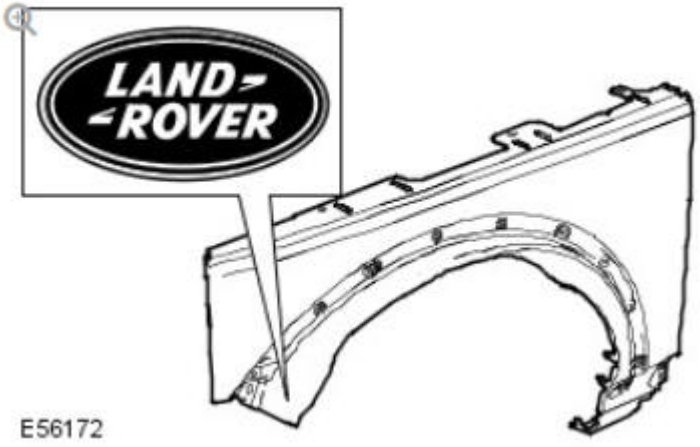
Where the original equipment surface protection (paint), is removed it must be repainted to the recommended standard.

Only Land Rover original bodywork components and Land Rover approved repair materials (sealer, paint etc.) are to be used for bodywork repairs.

GENERAL

The corrosion protection provided in production must be carefully maintained and/or reproduced during and after body repair work. It is only then that the long-term warranty against penetrative corrosion damage can be assured.

Land Rover Original Parts



All Land Rover bodywork components have a cathodic base coating.

Individual bodywork components are zinc plated on one or both sides (in different areas depending on vehicle model).

Together with elastic paint coating, this guarantees an optimum, highly resistant protection against corrosion caused by the impact of small objects such as gravel.

NOTE:

If possible, the individual protective layers (zinc, cathodic base coat) on Land Rover bodywork components must not be damaged or destroyed by sanding or other mechanical operations.

If hairline cracks at "bodywork connection areas" appear after reshaping work (e.g. at door hinges), it must be ensured that the corrosion protection provided in production is recreated. The complete paint covering must be re-created if necessary. The same applies to reshaping work on heavily profiled bodywork components (e.g. floor pan). Renew or touch-up the paint coating, sealing beads and underbody protection as necessary.

After repair, any interior surfaces which are no longer visible or accessible must be primed before cavity wax is applied. To be certain of an even coating on inner surfaces, careful application of spray (twice, with drying time in-between) must be carried out throughout the whole cavity.

If bodywork panels are strongly heated during repair work, this will invariably result in damage to or even destruction of the applied corrosion protection material. The effectiveness of the cavity protection material is reduced if heating occurs. Reworking of the affected areas is therefore vital.

Welded areas should be made good before corrosion protection is applied.

The corrosion protection measures to be taken when bodywork components are renewed are described on the following pages.

CORROSION PROTECTION OF NEW COMPONENTS

All new components must be inspected for transport or storage damage such as scratches or dents. The following operations may be necessary, depending on the extent of damage:

Undamaged New Component

- Do not grind the cathodic primer.
- Lightly sand using a Scotchbrite pad for paint preparation
- Thoroughly clean with silicone remover and rub dry.

Slightly Damaged New Component

- Sand out scratches.
- Finely sand the surrounding surface.
- Thoroughly clean with silicone remover and rub dry.
- Apply corrosion protection primer to bare areas.

Damaged New Components (bumps and dents)

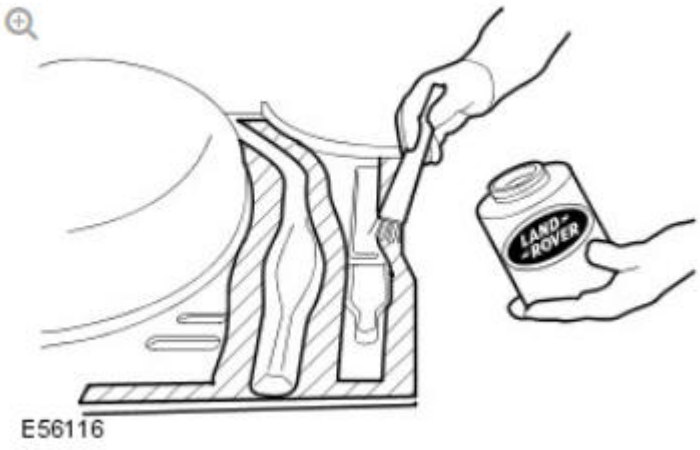
- Beat out the dented area and sand down to bare metal.
- Apply polyester filler (only onto bare metal).
- Apply filler.
- Lightly sand the whole component.
- Thoroughly clean with silicone remover and rub dry.
- Apply corrosion protection primer to bare areas.

The clinched flanges on the hood, doors, tailgate and liftgate must be sealed with clinched flange sealer, if this is not already applied.

WELD COMPONENTS

Use a stripping disc to remove the cathodic primer on the inside and outside of the area to be welded. The stripped area should be kept as small as possible, retaining as much of the cathodic primer as possible, taking care not to damage the zinc coating.

Apply Welding Primer



NOTE:

The welding zinc primer must be stirred well or shaken before application.

Clean the repair area thoroughly (silicone remover).

Apply welding primer evenly to all weld flanges (old and new components).

NOTE:

The welding primer must be allowed to dry before welding is carried out.

All weld beads must be ground down after all welding is completed, taking care not to weaken the welded joint.

Any unevenness at the joint must be made good.

If necessary, spot weld missing weld studs into position.

The vehicle must be completely cleaned of sanding dust and metal swarf to reduce the risk of corrosion.

Clean and prime all internal areas and those to be sealed.

NOTE:

The primer must be dry before sealing mastic or underbody protection is applied. Do not use thinners when applying sealing mastic (thinners may remove cathodic primers and mastic will not dry).

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Body Repairs - Corrosion ProtectionPartial Renewal

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Частичный Renewal

Partial Renewal

The procedure to follow when partially renewing components is the same as described in the section "Welded Components".

The main difference when components are partially, rather than completely renewed, concerns the preparation of butt or lap joints.

- When bodywork components are cut through, attention must be paid to the adequate removal of the paint and zinc coatings on inner areas. This specially applies to areas which are difficult to access internally.
- It is important for the weld quality that the inner area is bare metal. Zinc and paint residues in the weld area burn and cause serious hole formation during welding.
- If the zinc layer and the paint coating are not removed, the zinc and paint will burn during welding. The soot produced prevents satisfactory cavity protection.

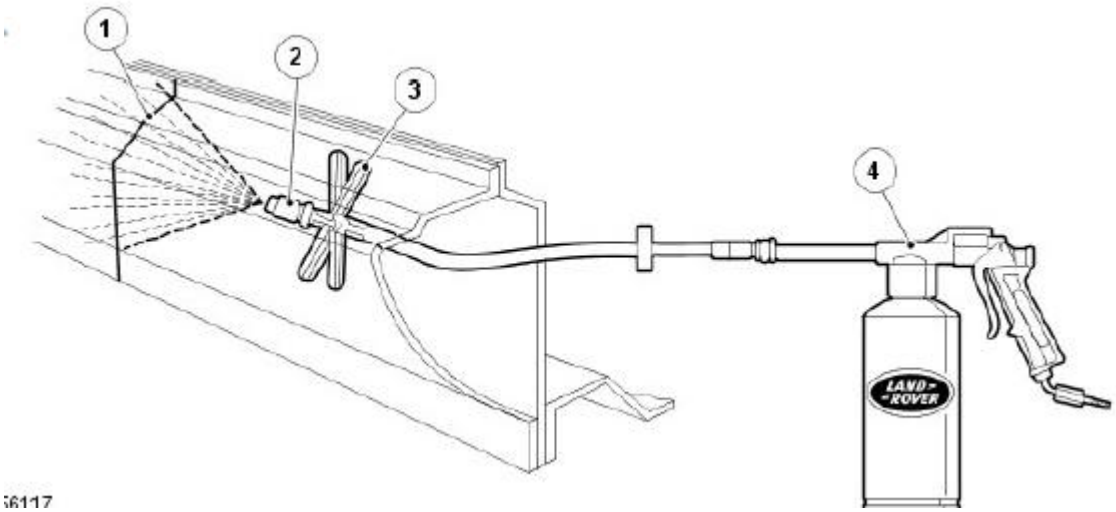
Procedure

- The paint layer must be removed for a width of 30 mm from the line of the weld using a rotating tress wire brush.
- This operation must be carried out on both the new and the old parts of the bodywork.
- Depending on the bodywork component, a 10 mm width of the underlying zinc layer must also be removed along the weld line.

NOTE:

A flat scraper or a wire brush can be used instead of the rotating brush if the cavity is small. Do not use an angle grinder, which would reduce panel integrity and may weaken the structure.

Application of Cavity Wax Protection on a Door Rocker Panel After Partial Repair



1. Weld bead
2. Spray head
3. Distance maintainer
4. Spray gun

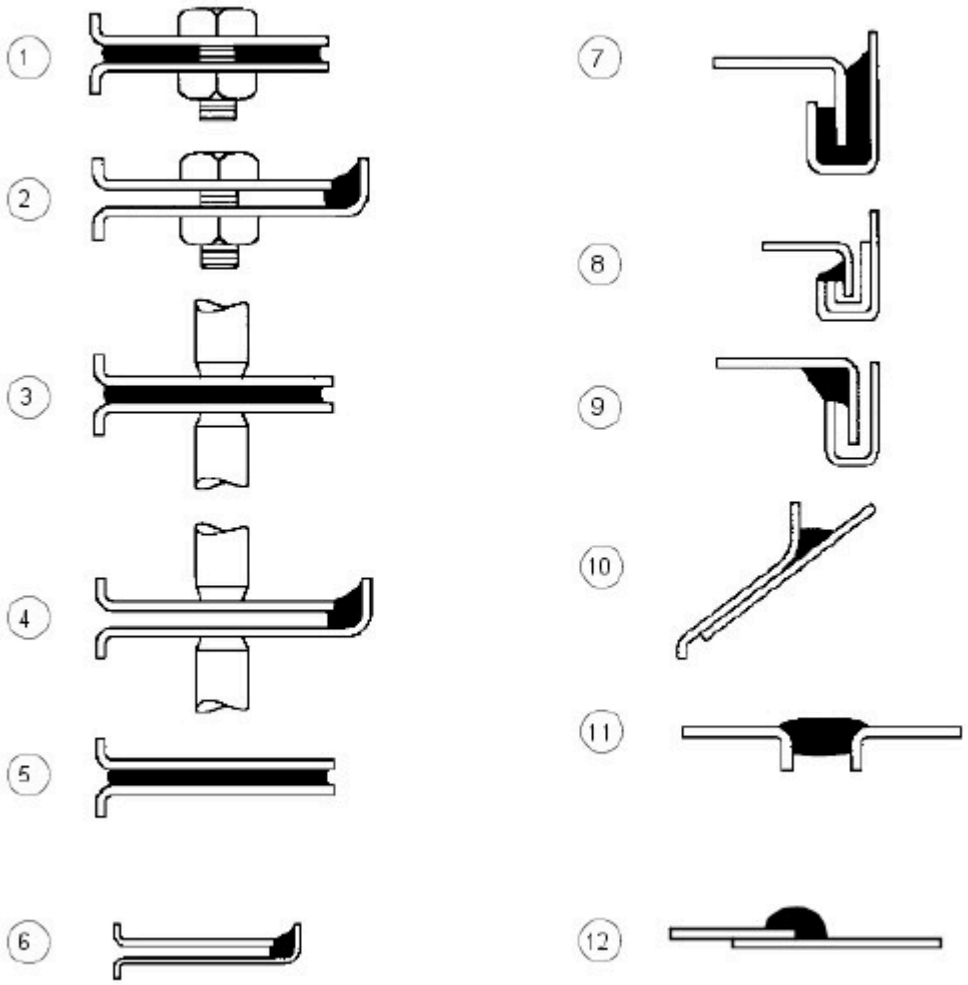
Classification of the different corrosion protection measures for dent removal

CORROSION PROTECTION METHOD	EXTERIOR SURFACES	ACCESSIBLE INNER SURFACES	INACCESSIBLE INNER SURFACES
Painting	X	X	
Cavity protection			X

Classification of Different Corrosion Protection Measures for Installation of New Components

CORROSION PROTECTION METHOD	WELD FLANGES BEFORE WELDING IN PLACE (CONTACT SURFACES)	ALL BARE SANDED AREAS	WELD FLANGE AREA ACCESSIBLE	WELD FLANGE AREA NOT ACCESSIBLE
Welding primer	X			
Painting		X	X	
Clinched flange protection			X	
Cavity protection				X

BODY SEALING MATERIALS



1. Between Panels - Bolted

2. Panel Edge Bolted
3. Between Panels - spot welded
4. Panel edges - spot welded
5. Between panels - bonded
6. Panel edges - bonded
7. Clinch joints - type A
8. Clinch joints - type B
9. Clinch joints - type C
10. Gaps between panels - type A
11. Gaps between panels - type B
12. Lap joint

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Galvanic CorrosionApproved Service Materials for Repair

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Approved обслуживание материалы для Repair

Approved Service Materials for Repair

If any of these items are not available check with the supplier/manufacturer of these products for a superseded equivalent.

DESCRIPTION - USAGE	SUPPLIER	PRODUCT NUMBER
Sealing	-	-
Polyurethane cartridge extruded seam sealer - grey - **this is not a weld through product**	3M	08684
Polyurethane cartridge extruded seam sealer - white - **this is not a weld through product**	3M	08689
Polyurethane cartridge extruded seam sealer - black - **this is not a weld through product**	3M	08694
Polyurethane sachet 310ml - grey - **this is not a weld through product**	3M	08782
Polyurethane sachet 310ml - white - **this is not a weld through product**	3M	08787
Polyurethane sachet 310ml - black - **this is not a weld through product**	3M	08789
Polyurethane sachet 600ml - grey - **this is not a weld through product**	3M	08783
Polyurethane sachet 600ml - white - **this is not a weld through product**	3M	08788

Polyurethane sachet 600ml - black - **this is not a weld through product**	3M	08793
Sprayable seam sealer 2K polyurethane 150ml - grey	3M	08823
Sprayable seam sealer 2K polyurethane 250ml - grey	3M	08800
Sprayable seam sealer MS polymer grey	3M	08851
Super seam sealer can - grey	3M	08537
Super seam sealer - brush	3M	08540
Butyl cartridge highly flexible for joints greater than 3mm - grey	3M	08645
Terostat 9100/9200 (1K PUR) adhesive sealant - white	Teroson	1400223
Terostat 9100/9200 (1K PUR) adhesive sealant - grey	Teroson	1400230
Terostat 9100/9200 (1K PUR) adhesive sealant - black	Teroson	1400356
Terolan light vehicle body sealant	Teroson	TBA
Terostat 9320SF sprayable seam sealant - grey	Teroson	1357960
Terostat 9320SF sprayable seam sealant - black	Teroson	1358054
Terostat 9320SF sprayable seam sealant - ochre	Teroson	1358059
Terolan special sealant brushable	Teroson	799671
Terostat II sprayable sealant band	Teroson	TBA
Terostat VII round profile plastic sealing band	Teroson	142216
Terostat IX putty	Teroson	TBA
Breakstem fastener sealant	Teroson Wurth	IK PUR 11272C 0893-2251
MS Polymer Sealing	Teroson	-
MS Polymer caulkable sealer - white	3M	08855
Terostat 9120SF - white	Teroson	1358213
Terostat 9120SF - black	Teroson	1358214
Terostat 9120SF - grey	Teroson	1358216

Terostat 9220 (MS Polymer) adhesive sealant - black		265673
Seam Sealing Light	-	-

Drip Chek clear	3M	08401
Drip Chek grey	3M	08531
Silicone Sealant	-	-
Loctite 595 - transparent	Loctite	229141
Loctite 5940 - black	Loctite	229142
Body Caulking	-	-
Body caulking	3M	08568
Structural Adhesive	-	-
Two component epoxy adhesive	3M	08122
Aluminium to steel adhesive	3M	7260
Manual applicator gun	3M	08190
Panel Bonding Adhesive	-	-
Panel bonding adhesive + (nozzle 08193)	3M	08115
Requires manual applicator gun + nozzle	3M	08117
Tape and Film	-	-
Acrylic tape PT1100 double sided - 6mm x 40m	3M	80318
Acrylic tape PT1100 double sided -9mm x 20m	3M	80319
Acrylic tape PT1100 double sided 12mm x 20m	3M	80320
Acrylic tape PT1100 double sided 19mm x 20m	3M	80322
Acrylic tape PT1100 double sided 25mm x 20m	3M	80323
Polyolefin adhesion promoter	3M	05917
Abrasion resistance film	3M	08210
Abrasion resistance film	3M	08219
Sealing Tape and Primer	-	-
Terotape seam sealing tape 8mm x 6mm	Teroson	451119
Terotape seam sealing tape 10mm x 16mm	Teroson	845115

Terokal 150 primer aerosol	Teroson	267078
Cavity Wax	-	-

Body shultz coatings - black - 1L can	3M	08861
Body shultz coatings - black - 500ml aerosol	3M	08877
Inner cavity wax aerosol (transparent)	3M	08909
Inner cavity wax aerosol (amber)	3M	08901
Inner cavity wax 1L can (amber)	3M	08911
Inner cavity wax 1L can (transparent)	3M	08919
Inner cavity wax 10L drum (amber)	3M	08921
Inner cavity wax 10L drum (transparent)	3M	08929
Terotex HV 200 extra spray - 1L can	Teroson	TBA
Terotex HV 200 extra spray - 10L tin	Teroson	TBA
Terotex HV 200 extra spray - 60L barrel	Teroson	TBA
Terotex HV 400 1L can	Teroson	784176
Terotex HV 400 10L tin	Teroson	784149
Terotex HV 400 60L barrel	Teroson	784190
Teroson cavity spray 500ml aerosol	Teroson	794224
Underbody Wax	-	-
Terotex wax black 1L can	Teroson	794862
Protective wax	Teroson	TBA
Underbody Coating	-	-
Bodyguard stonechip coating (textured) can - black	3M	08868
Bodyguard stonechip coating (textured) can - white	3M	08878
Bodyguard stonechip coating (textured) can - grey	3M	08879
Bodyguard stonechip coating (flat) can - black	3M	08158
Bodyguard stonechip coating (flat) can - grey	3M	08159
Anti chip coating smooth - grey	3M	08886
Terotex record 2000HS underbody coating - black	Teroson	767197

Terotex record 2000HS underbody coating - grey	Teroson	767198
Terotex super 3000 aqua anti chip compound - light	Teroson	1335491

Terotex super 3000 aqua anti chip compound - grey	Teroson	882415
Trim Adhesive	-	-
Auto adhesive - aerosol - clear (trim)	3M	08080
Auto adhesive - brushable - clear (trim)	3M	08150
Contact adhesive - aerosol - amber	3M	08090
Corrosion Protection	-	-
Zinc spray	3M	50410
Zinc spray	Teroson	333170
Anti Corrosive Agent	-	-
Terotex HV 350 1L can	Teroson	793958
Terotex HV 350 10L can	Teroson	793960
Terotex HV 350 60L barrel	Teroson	793957
Sound Deadening	-	-
Sound deadening sheets	3M	08840
Terodem SP 100 alu	Teroson	150012
Terodem SP 200	Teroson	TBA
Terodem SP 300 50 x 50	Teroson	150055
Terodem SP 300 100 x 50	Teroson	150054
Flexible Part Repair	-	-
Flexible part repair material (FPRM)	3M	05900
Adhesives / Thread Locking	-	-
Lock N Seal 243 thread locking	Loctite	1370534
Lock N Seal 243 thread locking	Loctite	1370570
243 Medium Strength Threadlocker - 50ml	Loctite	1335885
Stud 'N' Bearing Fit 270	Loctite	1370589
Stud 'N' Bearing Fit 270	Loctite	1370658

270 high strength threadlocker - 50ml	Loctite	1335900
Pipe sealant 577	Loctite	229342
572 low strength slow cure pipe seal	Loctite	229360
Pipe sealant 55	Loctite	270153
Gasket	-	-
574 multi gasket - 50ml	Loctite	267437
Copper 5920 - 80ml	Loctite	1126645
Silicone copper	Loctite	142502
Loctite 5910 high performance silicone - 80ml	Loctite	1126633
Loctite 5910 high performance silicone - 300m	Loctite	142491
3020 gasket adhesive	Loctite	458645
NVH Baffle	-	-
Sikabaffle 278	SIKA	TBA

APPROVED SERVICE MATERIAL SUPPLIER - CONTACT DETAILS

3M

- 3M United Kingdom PLC
- 3M Centre
- Cain Road
- Bracknell
- Berkshire
- RG12 8HT
- Telephone (01344) 858000

Cooper Pegler

- Burgess Hill
- Sussex
- RH 15 9LA

Sika Ltd

- Watchmead
- Welwyn Garden City
- Hertfordshire
- AL7 1BQ

SATA Spray Equipment

- Minden Industrial equipment
- 16 Greyfriars Road
- Moreton Hall
- Bury St Edmunds
- Suffolk
- IP32 7DX

Henkel Loctite Adhesives Limited

- Technologies House
- Wood Lane End
- Hemel Hempstead
- Hertfordshire
- HP2 4RQ

Teroson

- Henkel Ltd
- Apollo Court
- 2 Bishops Square Business Park
- Hatfield
- Hertfordshire
- AL10 9EY

UNDERBODY SEALER

Under floor areas and the front part of the spare wheel well are treated with a plastisol PVC underbody sealer. This material is not suitable for retreatment.

When repairing areas of underbody sealer, strip the factoryapplied underbody sealer back to a suitable break point. Ensure that a clean metal surface is exposed and that the edge of the existing adheres soundly to the panel.

Apply new underbody sealer between primer and surface paint operations.

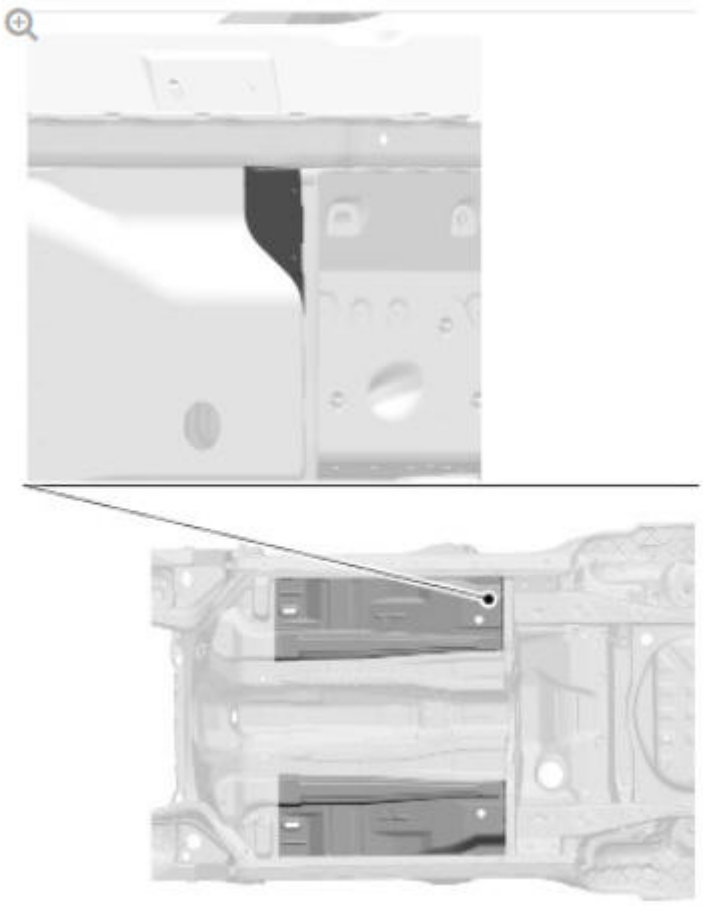
Apply seam sealer as necessary before application of underbody sealer.

Ensure that blanking plugs and grommets in the floor pan (except those used for wax injection) are fitted before underbody sealer application. Refit any heat-fusible plugs which have been disturbed in repair with the aid of a hot air blower, or replace with rubber grommets

CAUTION:

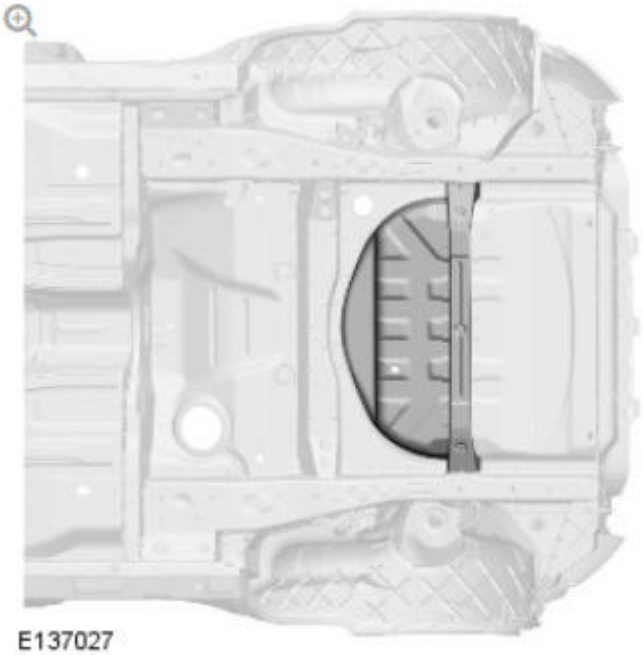
Ensure that suspension units, wheels, tires, power unit, drive shafts, exhaust and brakes (including all mounting points) are shielded prior to application of fresh underbody sealer.

Area of Underbody Sealer Application - Floor Pan



E137026

Area of Underbody Sealer Application - Spare Wheel Well



E137027

PRECAUTIONS DURING BODY REPAIRS AND HANDLING

Take care when handling the vehicle in the workshop. Underbody sealers, seam sealers, underbody wax and body panels may be damaged if the vehicle is carelessly lifted.

PROPRIETARY ANTI-CORROSION TREATMENTS

The application of proprietary anti corrosion treatments in addition to the factory-applied treatment could invalidate the corrosion warranty and should be discouraged. This does not apply to approved, compatible, preservative waxes which may be applied on top of existing coatings.

FITTING APPROVED ACCESSORIES

When fitting accessories ensure that the vehicle corrosion protection is not affected, either by breaking the protective coating or by introducing a moisture trap.

Do not screw self-tapping screws directly into body panels. Fit suitable plastic inserts to the panel beforehand. Always ensure that the edges of holes drilled into panels, chassis members and other body parts are protected with a suitable zinc rich or acid etch primer, and follow with a protective wax coating brushed onto the surrounding area.

Do not attach painted metal surfaces of any accessory directly to the vehicle's bodywork unless suitably protected. Where metal surfaces are bolted together always interpose a suitable interface material such as weldable zinc rich primer, extruded strip, or zinc tape.

STEAM CLEANING

Due to the high pressure/temperature generated by steam cleaning equipment, there is a risk that certain adhesives and corrosion prevention material may become softened or liquified.

Take care not to allow the steam jet to dwell on one area, and keep the nozzle at least 300mm from the panel surface.

CAUTION:

Do not remove wax or lacquer from underbody areas during repairs.

INSPECTION DURING MAINTENANCE SERVICING

It is a requirement of the corrosion warranty that the vehicle is inspected for corrosion by a Land Rover Authorised Repairer during a routine service, to ensure that the factory-applied protection remains effective.

Rectify any bodywork damage or evidence of corrosion found during inspection as soon as is practicable, both to minimise the extent of the damage and to ensure the long term effectiveness of the factory-applied corrosion prevention treatment.

UNDERBODY PROTECTION REPAIRS

Whenever body repairs have been carried out, ensure that full sealing and corrosion protection treatments are reinstated. This applies both to the damaged areas and also to areas where protection has been indirectly impaired, as a result either of accident damage or repair operations.

Remove corrosion protection from the damaged areas before straightening or panel beating. This applies in particular to panels coated with wax, PVC underbody sealer, sound deadening pads etc.

CAUTION:

Do not use oxy-acetylene to remove corrosion prevention material.

Large volumes of fumes and gases are liberated by these materials when they burn.

The most common method of removal is by means of a hot air blower with an integral scraper. High temperatures can be generated with this equipment which may cause fumes. Take care during its use.

STRUCTURAL ADHESIVE

CAUTION:

When separating a joint with metal to metal adhesive, it is important to avoid distortion. Heat gradually until the bond weakens sufficiently to permit panel separation - do not apply excessive heat.

NOTE:

When spot welding through metal to metal adhesive, take particular care to adjust the equipment setting to ensure a suitable weld.

Metal to metal adhesive is applied to critical joint areas during factory assembly. The material used is a high temperature, heat cured, nitrile phenolic which serves to bond two metal surfaces and also to seal the joint against ingress of dust, moisture and fumes. This material is not suitable for service use and, during repair, should be substituted by an approved structural adhesive. For panel specific information and to identify the areas of structural adhesive application in repair, refer to the relevant sheet metal removal and installation procedure.

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Partial RenewalExpanding Foam Acoustic Seals

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Expanding Foam Acoustic уплотнители

Expanding Foam Acoustic Seals

Expanding foam acoustic seals are used in various closed-sections of the body to improve vehicle refinement. The seals are installed during the vehicle body manufacture and expand during the paint process up to ten times original size, thus locking them into position. They are located such that they prevent noise accentuation along a section and reflect air borne noise away from the cabin.

The seals have spilt functionality depending on location. The seals located at the base of the body pillars have a primary function of preventing water ingress when wading. Their secondary function is to prevent noise and dust ingress.

The seal around the fuel filler has a primary function of preventing both fuel and water ingress. With a secondary function of preventing noise and dust ingress.

The remaining seals primary function is to prevent noise accentuation along a section and reflect air borne noise away from the cabin.

Another advantage of the seals is that they marginally increase the overall stiffness of the body and its structural performance in case of a crash.

The seals are manufactured from an expandable polymer.

Replacing Expanding Foam Acoustic Seals

As paint oven temperatures used in a repair workshop are significantly lower than those that are used during manufacture of the vehicle, (the temperatures are not sufficient to expand the foam), a different process and aftersales material is required to replicate the foam in repair.

If a repair disturbs the expanding foam acoustic seal it must be reinstated. If access allows, (whether a new seal is fitted or the original is reused), acoustic foam should be injected after paint refinishing. If access is not possible, or it is not practical to apply expanding foam due to the nature of the repair, a suitable flexible PU sealer should be applied around the seal and the corresponding body panel/s prior to assembly. In all cases

the application of foam / sealer should form a seal between the expanding foam acoustic seal and any adjacent panelwork.

SEAM SEALER

A heat cured, PVC based sealant is applied to specific joint seams during factory assembly. This material is not suitable for service use and during repair and should be substituted by an approved aftersales seam sealer.

NOTE:

Where seams are inaccessible following the reassembly or fitting of components, ensure that a paste-type seam sealer is applied to such seams. Certain seams also become inaccessible after the completion of panel repairs. In such instances apply seam sealer and paint before final assembly.

Apply seam sealers after the application of primer and before the application of top coat. The sealer must form a continuous bead, with the profile of the bead dependent on the type of seam. If the seam sealer is applied with a brush take particular care to maintain the required coverage of the seam.

Ensure that all accessible repair seams are sealed following a repair.

Damage to a vehicle often flexes areas of the body remote from the impact.

As a result the seam sealer in these areas may be disturbed by subsequent straightening and repair operations. Check all seams in the vicinity of the area undergoing repair for evidence of cracked seam sealer, then clean out as required and apply fresh seam sealer using the following procedure:

- Clean the affected seam and re-treat any exposed metal areas with a suitable etch phosphate primer.
- Treat affected area with an etch-acid primer.
- Apply appropriate seam sealer as necessary. apply appropriate color coat (and under body sealer as applicable).

Provided access is adequate, apply seam sealer to both sides of a repair joint. Where access is limited to one side only, (e.g. box section), treat the inaccessible affected box member with cavity wax.

CAVITY WAX

After repairs, always re-treat these areas with an approved cavity wax. In addition, treat all interior surfaces which have been disturbed during repairs whether they have been treated in production or not. This includes all box members, cavities and door interiors.

Before wax injection, ensure that the cavity to be treated is free from any contamination or foreign matter. Where necessary, clear out any debris.

Ensure that cavity wax is applied after the final paint process and before refitting any trim components.

During application ensure that the wax covers all flanges and seam areas and that it is adequately applied to all repaired areas of both new and existing panels.

It should be noted that new panel assemblies and complete body shells are supplied without wax injection treatment. Ensure that such treatment is carried out after repairs.

Effective cavity wax protection is vital. Always observe the following points:

- Complete all paint refinish operations before wax application.
- Check the spray pattern of injection equipment.
- Mask all areas not to be waxed.
- Remove body fixings, such as seat belt retractors, if contamination is at all likely.
- Move door glasses to fully closed position before treating door interiors.
- Treat body areas normally covered by trim before refitting items.

- Check that body and door drain holes are clear after the protective wax has dried.
- Keep all equipment clean, especially wax injection nozzles.

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Approved Service Materials for RepairBody Closure Noise Vibration and Harshness Sealing

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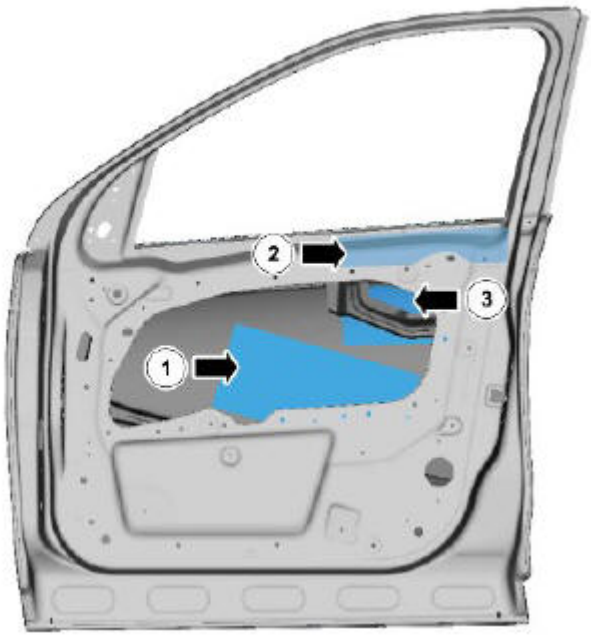
Кузов Closure шум вибрация и Harshness Sealing

Body Closure Noise Vibration and Harshness Sealing

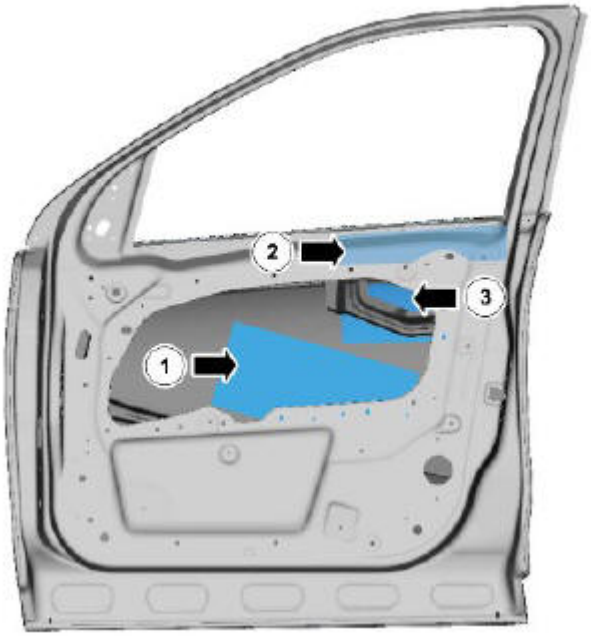
ACTIVATION

NOTE:

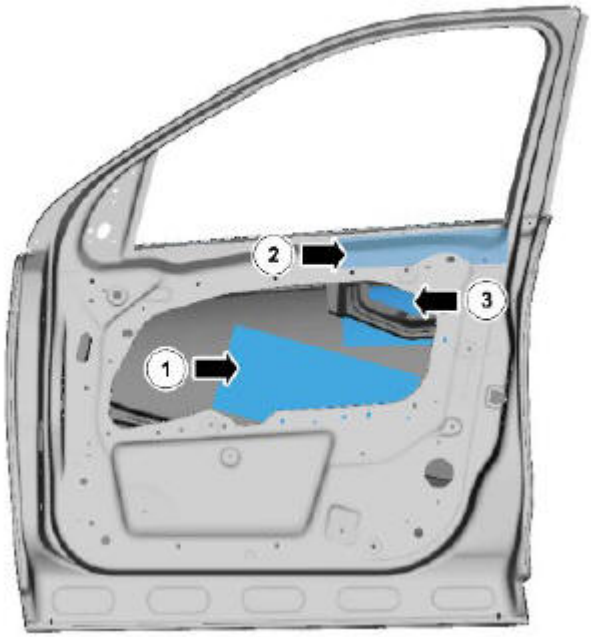
If the door is not supplied with the Noise Vibration and Harshness (NVH) pad and seam sealant bead then follow this procedure.



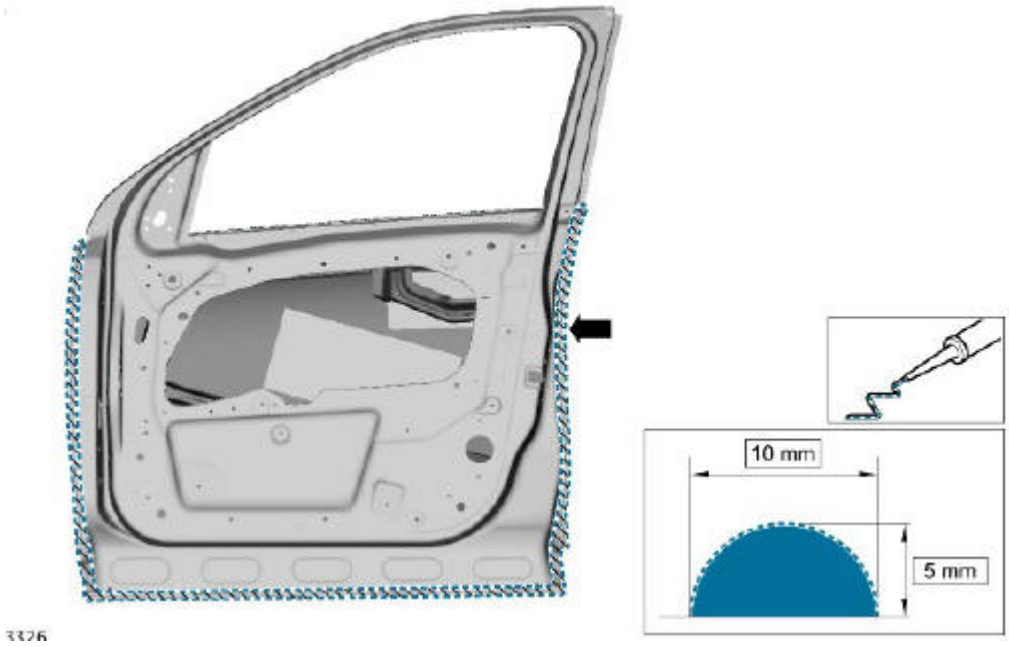
1. Install a 400 mm x 180 mm Noise, Vibration and Harshness (NVH) pad as indicated.



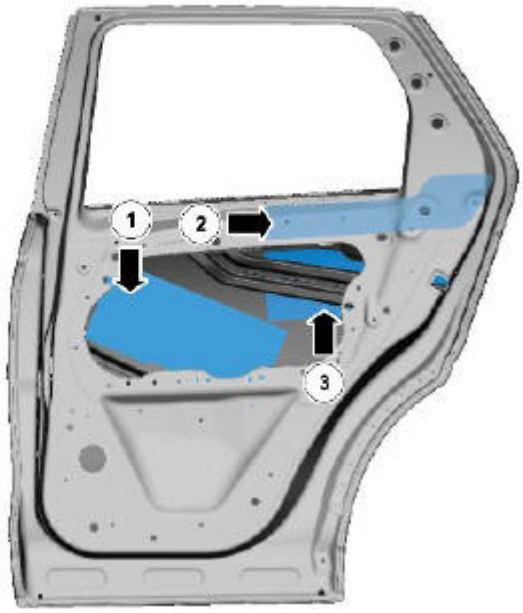
2. Install a 365 mm x 130 mm Noise, Vibration and Harshness (NVH) pad as indicated.



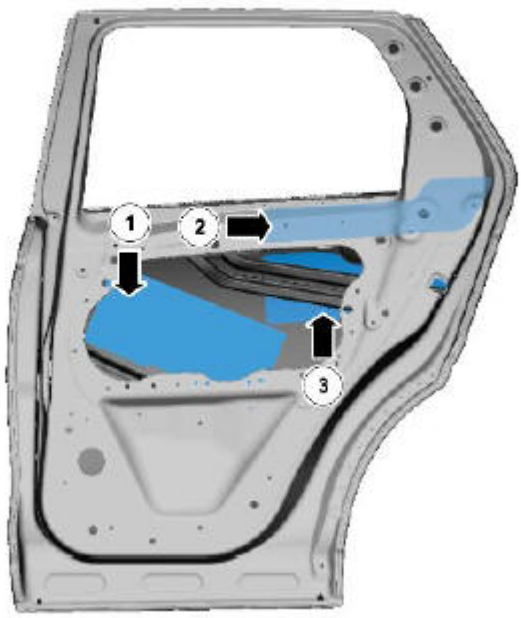
3. Install a 390 mm x 83 mm Noise, Vibration and Harshness (NVH) pad as indicated.



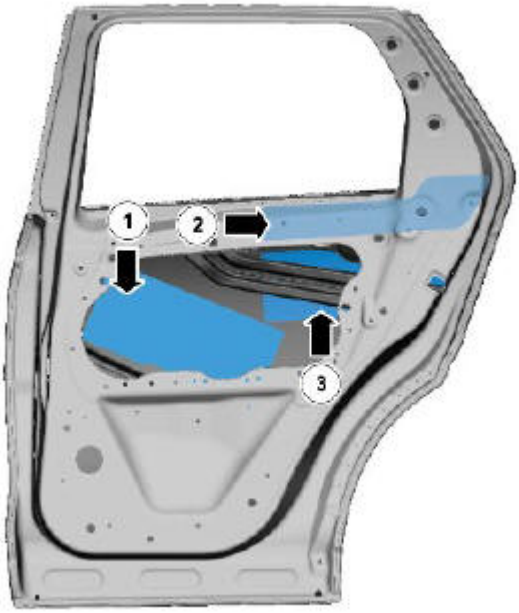
4. Apply the seam sealant to the door as indicated.



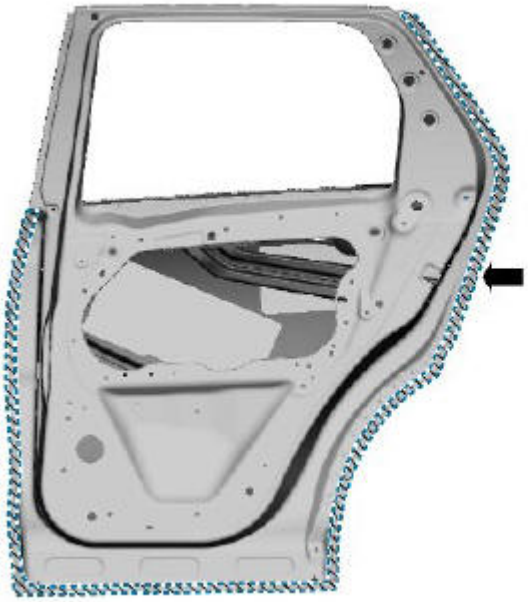
5. Install a 400 mm x 180 mm Noise, Vibration and Harshness (NVH) pad as indicated.

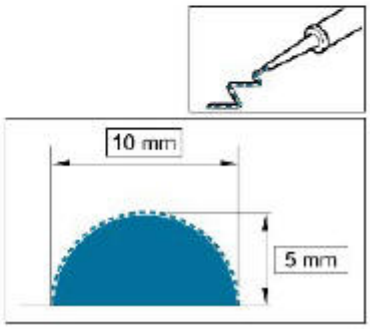


6. Install a 365 mm x 125 mm Noise, Vibration and Harshness (NVH) pad as indicated.



7. Install a 405 mm x 83 mm Noise, Vibration and Harshness (NVH) pad as indicated.





8. Apply the seam sealant to the door as indicated.

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Expanding Foam Acoustic SealsBumpers

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