41 Body

	Recommended working methods and tools	**41–0/3**
	Gaps of doors, engine hood and trunk lid	**41–0/4**
	Distances of window and door joints	**41–0/5**
	Frame control distances for BMW 8 Series / E 31	**41–0/6 to 0/11**
	Die-stamping chassis number	**41–0/12**
41 11 028	**Engine carrier (partial replacement in front of front axle), left – replace**	**41–11/1**

41 Body

41 11 043	Engine carrier, front, left (without wheel house) – replace	41–11/4
051	Engine carrier, left – replace	41–11/10
141	Side member cover, left or right (B-pillar partial replacement in front of A-pillar) – replace	41–11/15
41 14 021	Wheel house, front, left – replace (partial replacement)	41–14/1
41 34 041	Tail panel – replace	41–34/1

41 Body

41 35	294	Rear side panel, left or right – replace	41–35/1
	337	Rear side panel, left (partial replacement up to wheel house) – replace	41–35/5
	341	Rear side panel, left (partial replacement up to wheel house) and tail panel – replace	41–35/10
41 51	004	Front door, left or right – adjust	41–51/1
	101	Front door, left or right – replace	41–51/1

RECOMMENDED WORKING METHODS AND TOOLS

1. Cutting Out Damaged Parts:

Determine the location of mating surfaces with help of the replacement part before beginning with the work. Cut out damaged part roughly within the mating surfaces.

Caution!
Don't damage sheet metal located underneath.

Remove sealing compound, anti-drumming compound and, if applicable, paint to neutralize the connection points. Drill out spot welding. Make sure holes are drilled in the cut out part while drilling. Don't drill in the connection flanges remaining for installation of the new part.

Grind off welded seams with a disc grinder carefully. Heat brazed connections with an autogen gas torch (don't heat excessively!). Lift off scrap metal. Remove residual brazing solder with a steel brush. Straighten and grind all connection points thoroughly.

2. Installing New Parts:

Prepare connection points to pertinent repairing instructions.

Always perform repairs, which concern the suspension points of the engine, transmission, axles or running gear, on a straightening bench with the attach- ments belonging to the car type. There are also attachments for different body parts. Check curvature and dimensions of windshield and rear window by installing an original window. Refer to pertinent drawings for the gaps of doors, engine hood and trunk lid.

Coat mating surfaces intended for resistance spot welding with zinc dust paint. Only remove the protective paint from galvanized replacement parts. Drill 8 mm (0.315") dia. holes with same spacing as the drilled out welded spots in connec- tions not accessible for the spot welding tongs and insert gas plug weld.

Produce inert gas welded seams according to the part cut out.

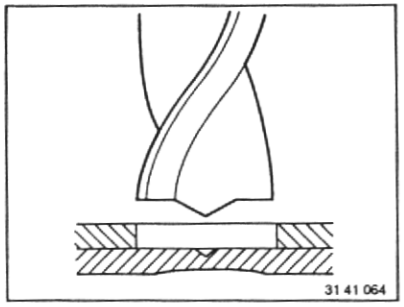
Produce brazed connections with as little as possible heat dispersion and without excessive heat. Procedures deviating from standard connections will be described in the repair manual. Grind down welded seams visible on outside surfaces.

Caution!
Don't grind down the sheet metal too thin.

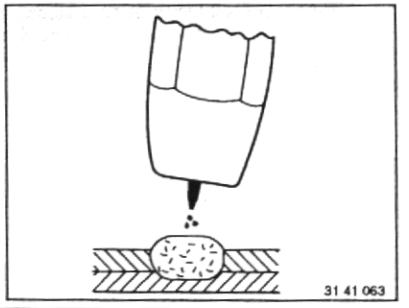
Straighten and tin out irregularities. Tinning out is supposed to prepare the surface to such an extent, that only a coat of fine filler has to be applied prior to spraying on paint.

Seal off all welding seams, which had been sealed in original state, with a body sealing compound. Replace damaged anti-drumming compound. Seal new sheet metal parts or the cavities, seams, creases and folds produced by new sheet metal parts with a body cavity sealing compound immediately.

Source of supply for workshop equipment, aids, sealing materials, cements and similar products: HWB (a Business Division of BMW AG).



Bezugsnachweis für Werkstatteinrichtung, Hilfsmittel, Dichtmaterial, Kleber und dergleichen: HWB (Ein Geschäftsbereich der BMW AG)

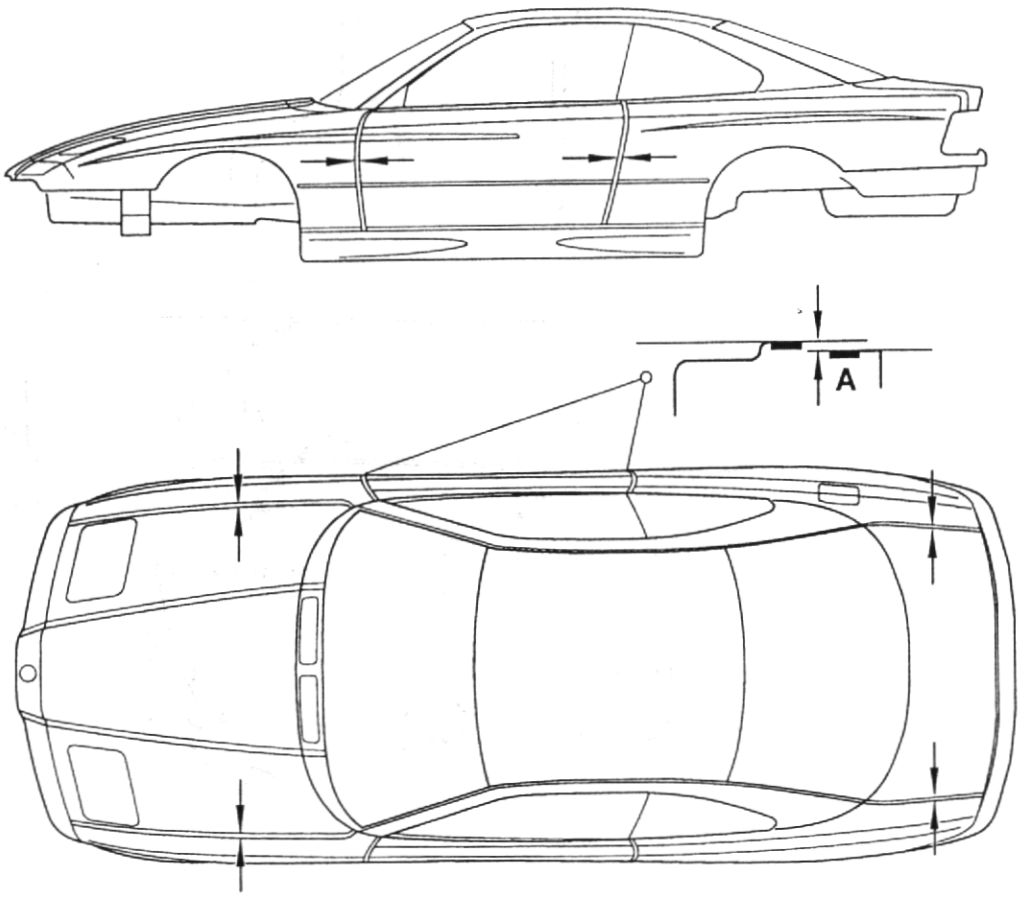


41-0/4

GAPS OF DOORS / ENGINE HOOD / TRUNK LID

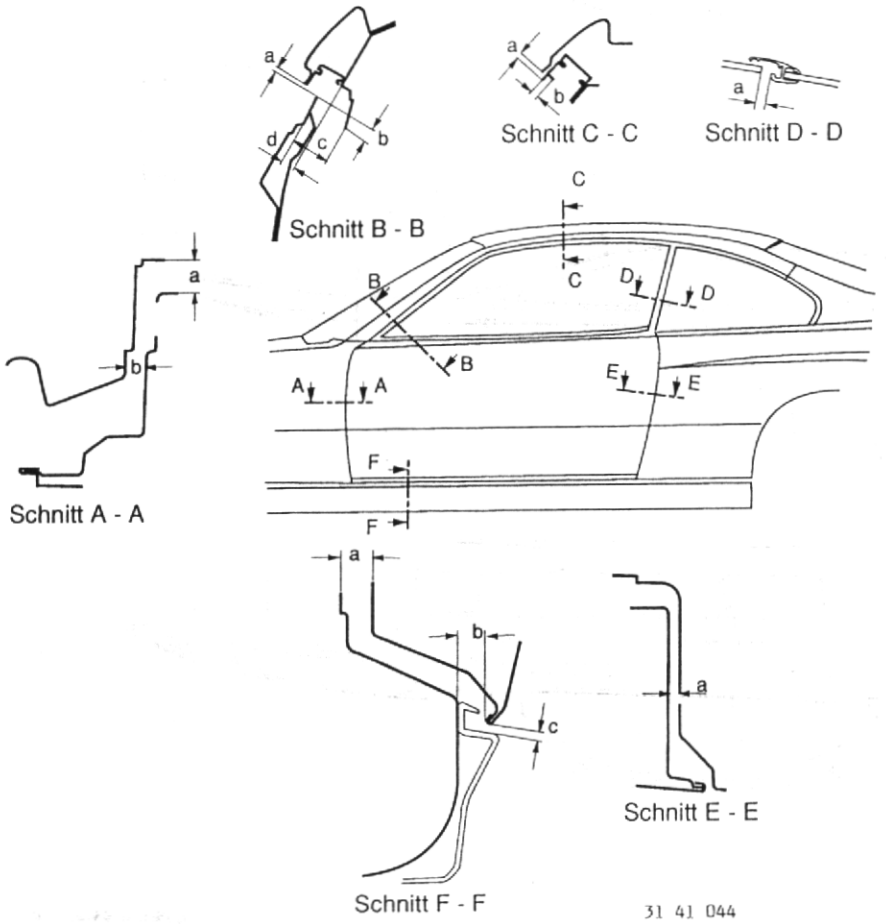
Door and hood/lid gaps: 5.5 + 0.5/– 1.0 mm.

Permissible parallel deviation: 1 mm.
Plane displacement A for each body part adjacent to the rear = max. 1 mm toward inside.



31 41 079

WINDOW AND DOOR GAPS



A - A

a = 25,1 $^{+1}_{-1,5}$

b = 17,8 $^{+1}_{-1,5}$

B - B

a = 3,9 $^{+1}_{-0,5}$

b = 11,4 $^{+0,5}_{-1}$

c = 31,7 $^{+0,5}_{-1}$

d = 14,8 $^{+0,5}_{-1}$

C - C

a = 3,1 $^{+1}_{-1}$

b = 2,4

D - D

a = 6,8 $^{+1}_{-0,5}$

E - E

a = 10,2 $^{+1}_{-1,5}$

F - F

a = 25,1 $^{+1}_{-1,5}$

b = 23,4 $^{+1}_{-1,5}$

c = 5,5 $^{+1}_{-0,5}$

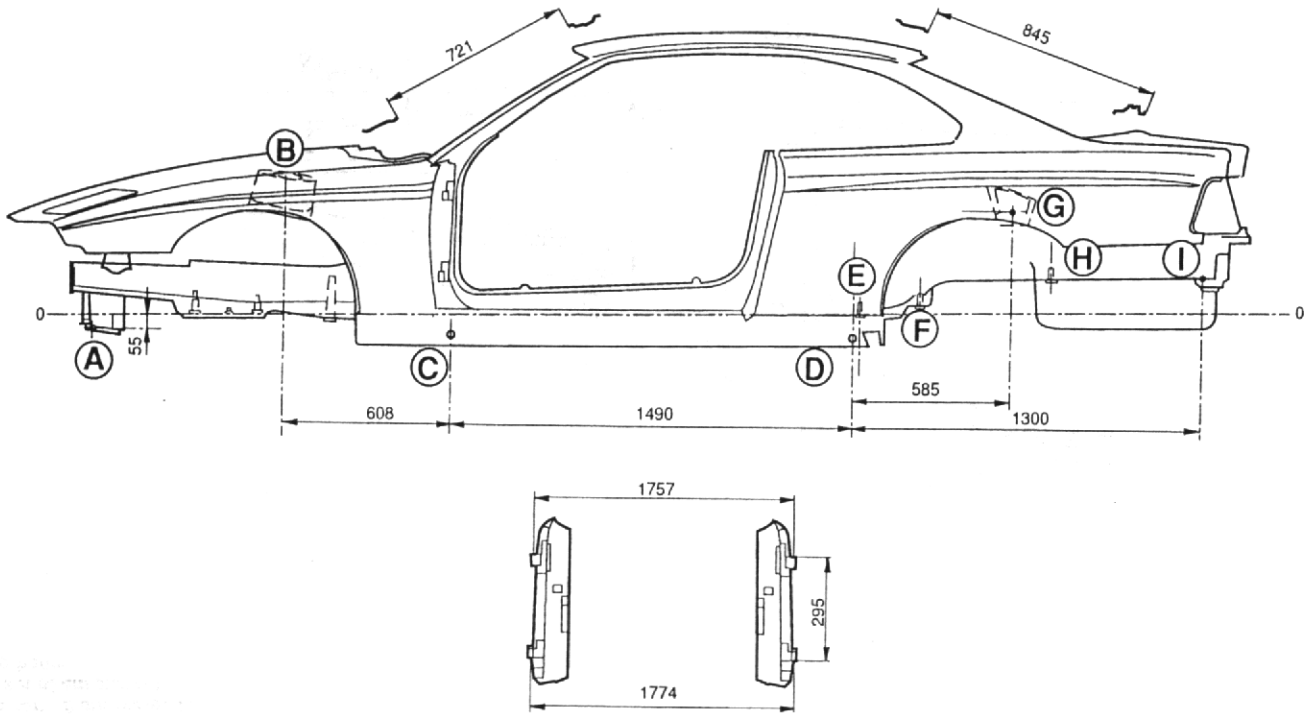
All dimensions in mm.

41-0/6

Frame Alignment Control Dimensions for BMW 8 / E 31 Series Cars

– Sheet 1 –
All dimensions in mm.

Note:
Only use the following values for a rough inspection.
Repair can only be carried out correctly with the approved set of attachments and a straightening bench.



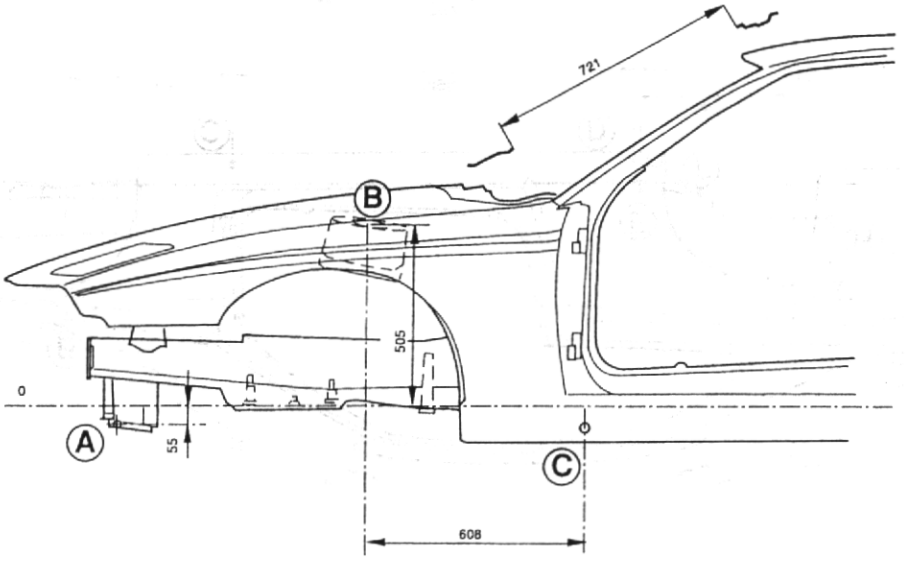
A = Cross member bore, front, 16 mm (0.630") dia.
B = Front axle take-up, front
C = Front axle take-up, center
D = Front axle spring strut
E = Thrust strut take-up
F = Engine carrier bore, rear, 6 mm (0.236") dia.
G = Rear axle take-up, side, outer trailing arm
H = Rear axle take-up, side, inner trailing arm
I = Rear axle take-up, side, front

41-0/7

Frame Alignment Control Dimensions for BMW 8 / E 31 Series Cars

– Sheet 2 –
All dimensions in mm.

Note:
Only use the following values for a rough inspection.
Repair can only be carried out correctly with the approved set of attachments and a straightening bench.



31 41 087 U

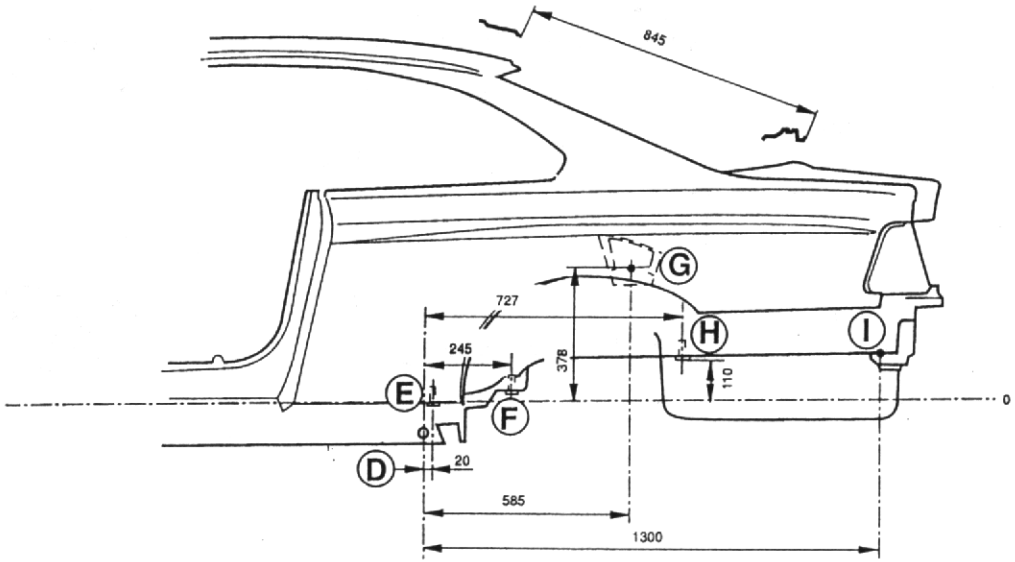
A = Cross member bore, front, 16 mm (0.630") dia.
B = Front axle take-up, front
C = Front axle take-up, center

41-0/8

Frame Alignment Control Dimensions for BMW 8 / E 31 Series Cars

– Sheet 3 –
All dimensions in mm.

Note:
Only use the following values for a rough inspection.
Repair can only be carried out correctly with the approved set of attachments and a straightening bench.



31 41 088 U

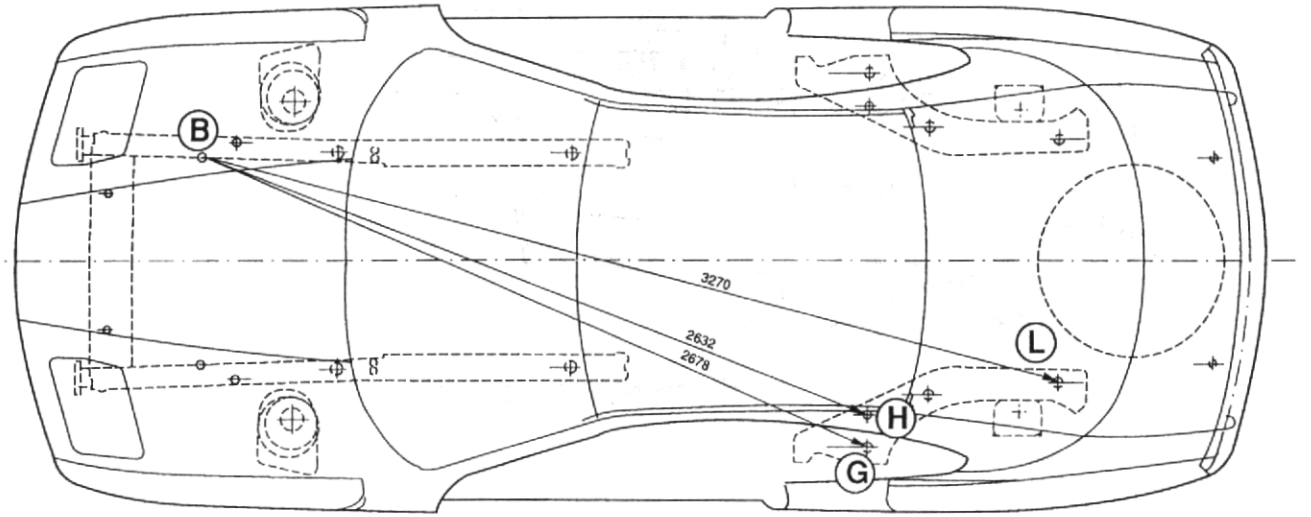
D = Front axle spring strut
E = Thrust strut take-up
F = Engine carrier bore, rear, 6 mm (0.236") dia.
G = Rear axle take-up, side, outer trailing arm
H = Rear axle take-up, side, inner trailing arm
I = Rear axle take-up, side, front

41-0/9

Frame Alignment Control Dimensions for BMW 8 / E 31 Series Cars

– Sheet 4 –
All dimensions in mm.

Note:
Only use the following values for a rough inspection.
Repair can only be carried out correctly with the approved set of attachments and a straightening bench.



31 41 090 U

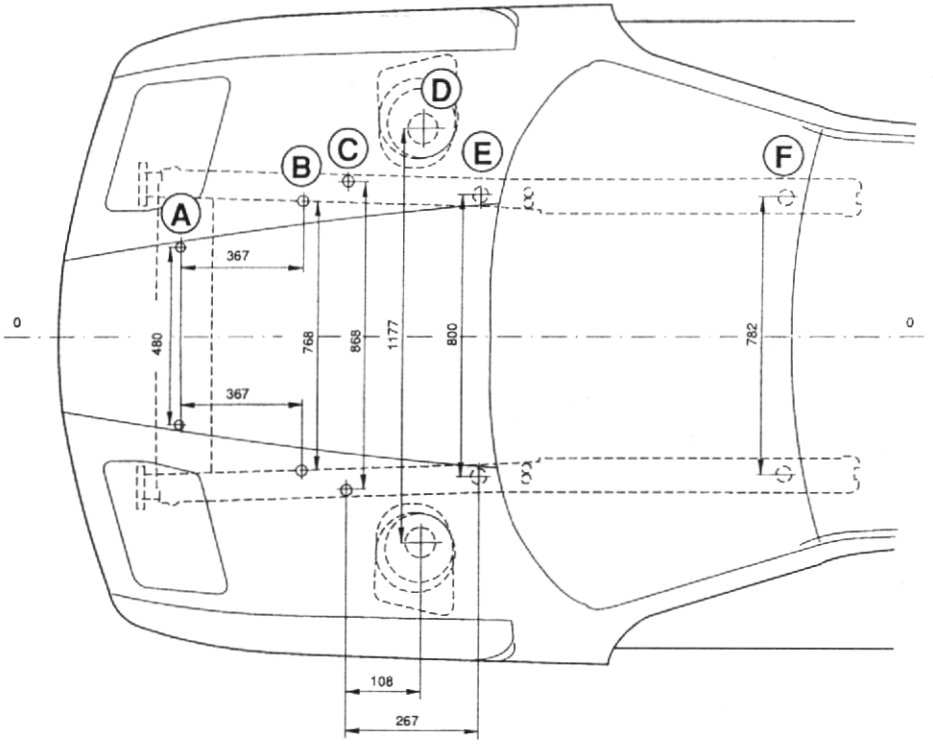
B = Front axle take-up, front
G = Rear axle take-up, side, outer trailing arm
H = Rear axle take-up, side, inner trailing arm
L = Rear axle take-up, side, rear

41-0/10

Frame Alignment Control Dimensions for BMW 8 / E 31 Series Cars

– Sheet 5 –
All dimensions in mm.

Note:
Only use the following values for a rough inspection.
Repair can only be carried out correctly with the approved set of attachments and a straightening bench.



31 41 091 U

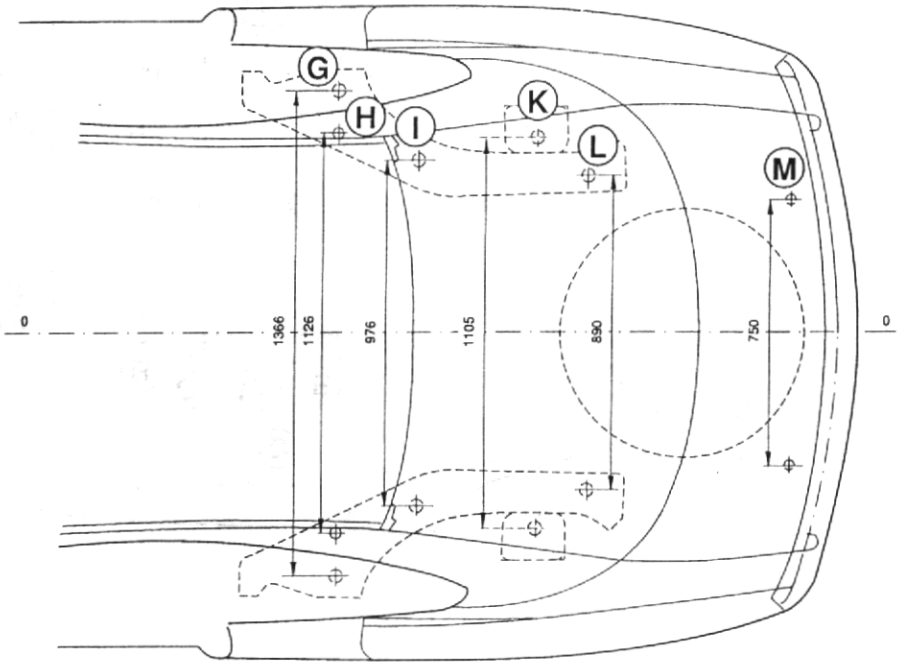
A = Cross member bore, front, 16 mm (0.630") dia.
B = Front axle take-up, front
C = Front axle take-up, center
D = Front axle spring strut
E = Thrust strut take-up
F = Engine carrier bore, rear, 6 mm (0.236") dia.

41-0/11

Frame Alignment Control Dimensions for BMW 8 / E 31 Series Cars

– Sheet 6 –
All dimensions in mm.

Note:
Only use the following values for a rough inspection.
Repair can only be carried out correctly with the approved set of attachments and a straightening bench.



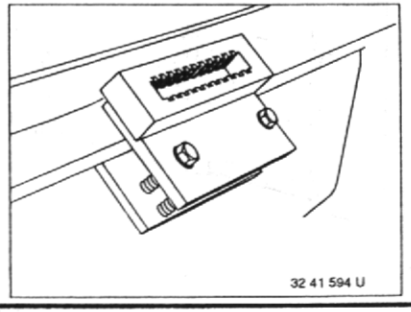
31 41 092 U

G = Rear axle take-up, side, outer trailing arm
H = Rear axle take-up, side, inner trailing arm
I = Rear axle take-up, side, front
K = Support for shock absorber
L = Rear axle take-up, side, rear
M = Cross member bore, rear, 12 mm (0.472") dia.

DIE STAMPING CHASSIS NUMBER

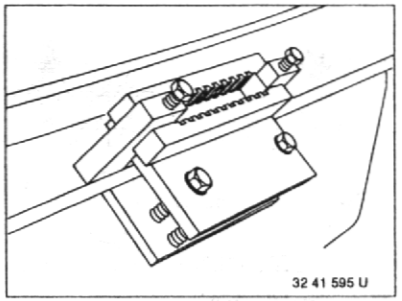
The chassis number must be die stamped again, if it had been removed during body repairs.

Note:
The chassis number can also be die stamped in a completely assembled car.

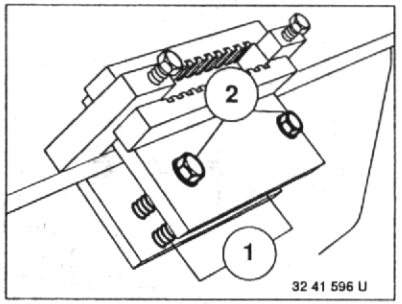

32 41 594 U

Set up Special Tool 41 1 001 and apply Special Tool 41 1 004 on the surface for the chassis number.

Assemble Special Tools 41 1 001 and 41 1 004 in such a manner that the latter faces the stamp guide.
Screw in bolts only far enough that the spacing brackets can be installed later.

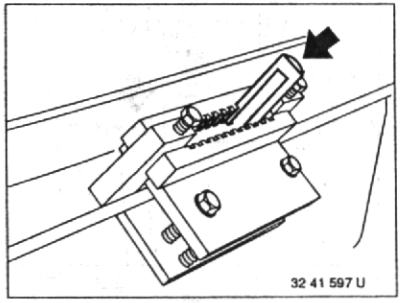

32 41 595 U

Install and clamp Special Tools 41 1 003 on left and right sides.

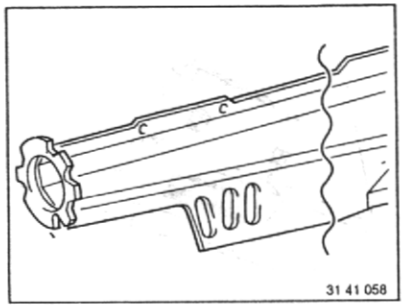


32 41 596 U

Align Special Tool 41 1 001 to be parallel with bolts (1).
Tighten bolts (2).


32 41 597 U

Place impact numbers 41 1 002 in Special Tool 41 1 001 and die stamp the chassis number.
Die stamp "+" in front of and behind the chassis number instead of the BMW emblem to indicate replacement of parts or body in a workshop.

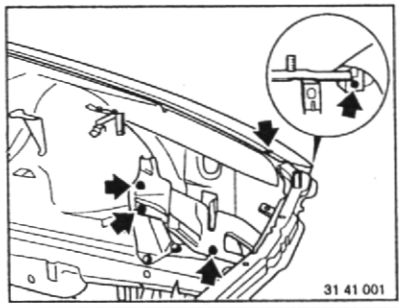


41 11 028 REPLACING LEFT ENGINE CARRIER (Partial Replacement in Front of Front Axle)

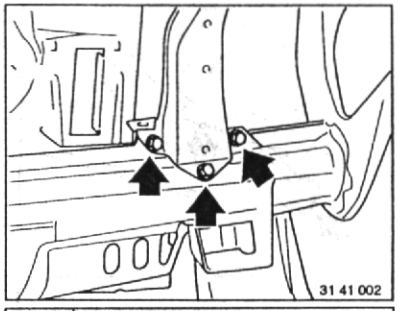
Refer to information on body repairs!

Remove or disconnect following parts.
- Body
- Headlight with console
- Radiator
- Power steering cooler
- Air conditioner condenser
- Fan cowl
- Air flow sensor and air cleaner
- Inside wheel house cover

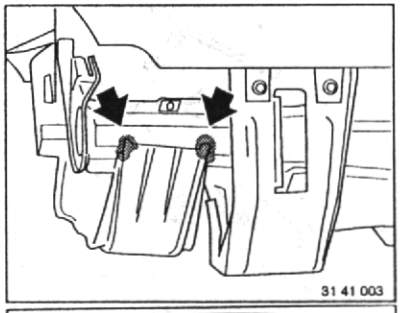
Remove or cover other parts of the car, which are located in the repair zone and could be subjected to heat, sparks or dust.



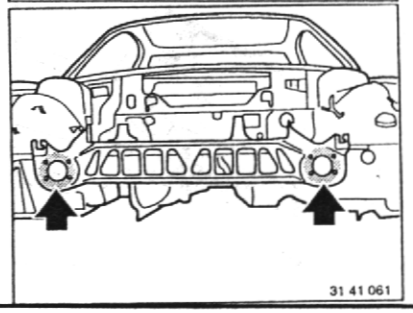
Unscrew holder for front bumper bracket.



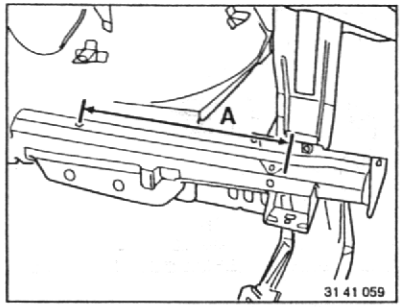
Unscrew bracket.



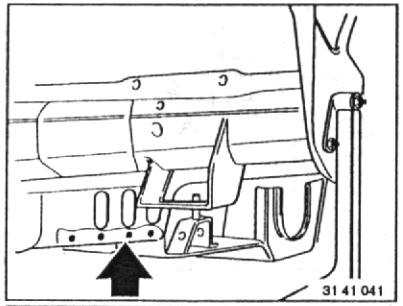
Grind off cross member welding seams.



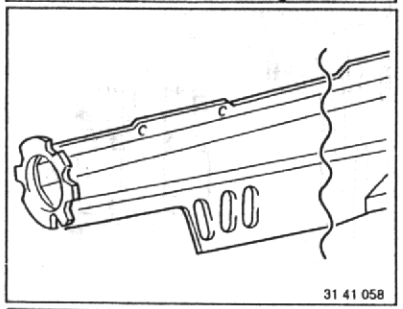
Drill off spot welding on front cross member between left and right engine carriers.



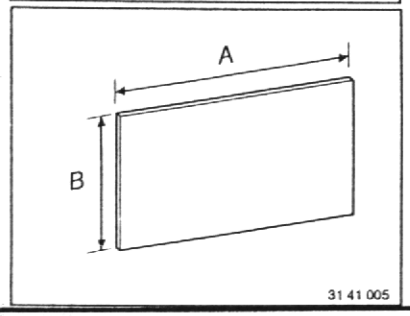
Mark cutting point of engine carrier, distance (A) = max. 355 mm (13.976").



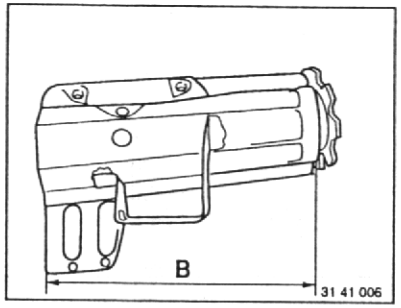
Drill off spot welding on ABS hydraulic control unit holder.



Cut off engine carrier.

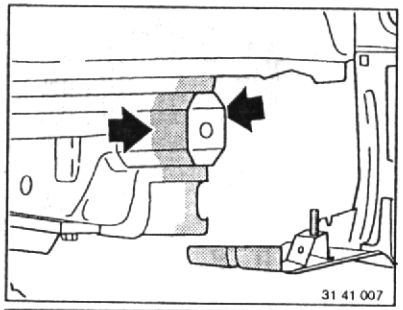


Produce reinforcement plates.
Change distances for new cutting point!
A = 60 mm (2.362")
B = 1 x 20 mm (0.787")
1 x 23 mm (0.906")
4 x 30 mm (1.181")
2 x 40 mm (1.575")

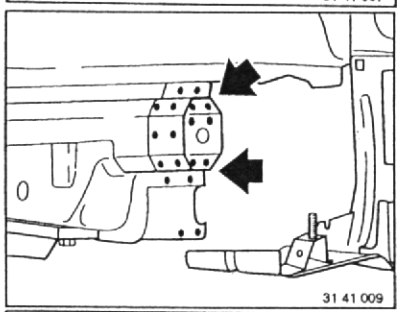


Cut new engine carrier section to distance B and fit.

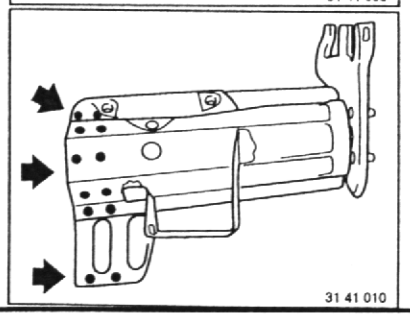
Distance (B) = at least 230 mm (9.055").



Clean surface for plug welding and mating surfaces on old and new engine carrier sections.
Clean mating surface for cross member bracket on wheel house.



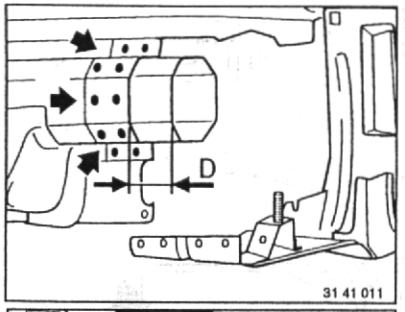
Drill holes for plug welding of reinforcement plates on the engine carrier.



Drill holes for plug welding of reinforcement plates on the engine carrier section.

Coat reinforcement plates with zinc dust paint.

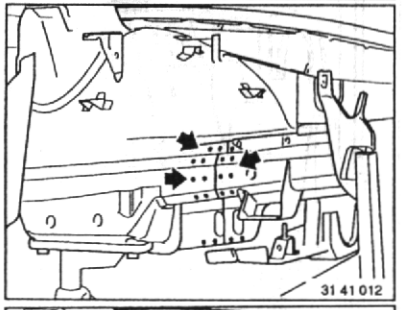
Grind connections smooth.



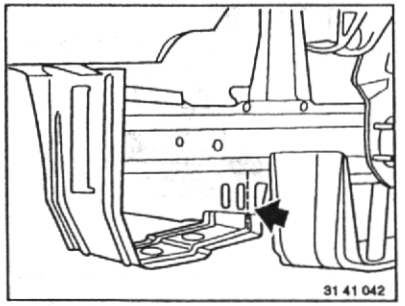
Slide reinforcement plates into old engine carrier 30 mm (1.181") deep, fit in to sequence and plug weld.

Distance (D) = 30 mm (1.181").

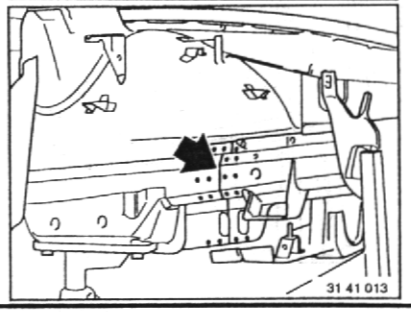
Uncover holes covered by reinforcement plates.



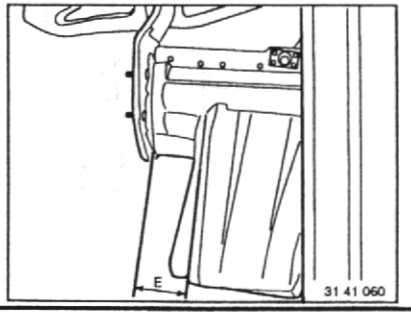
Fit in engine carrier section.
Plug weld, correcting the welded joint spacing if necessary.



Fit and plug weld bracket of ABS hydraulic control unit on the engine carrier.
Grind plug welded spots smooth.

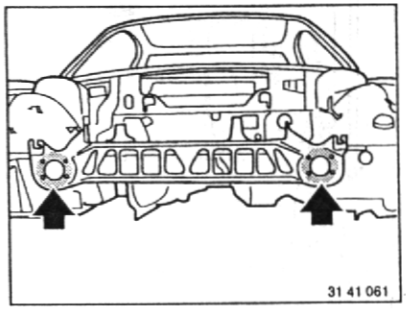


Weld both engine carrier sections in the welded joint.

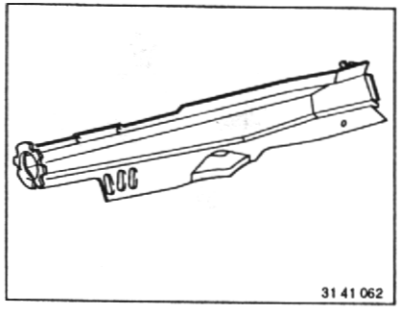


Fit and weld cross member.

Distance (E) = 54 mm (2.126").



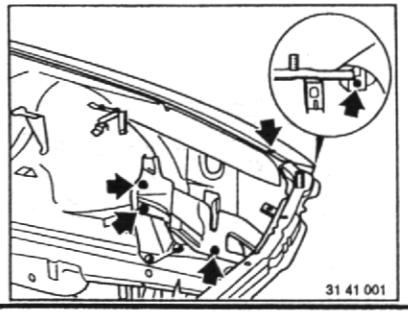
Weld front cross member between left and right engine carriers.



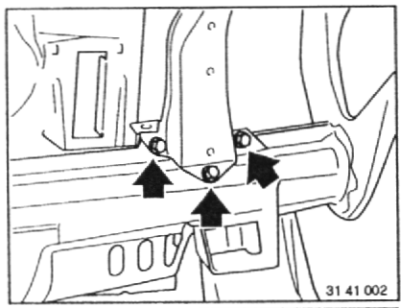
41 11 043 REPLACING LEFT FRONT ENGINE CARRIER
(Without Wheel House)

Refer to Introduction on page 41-0!

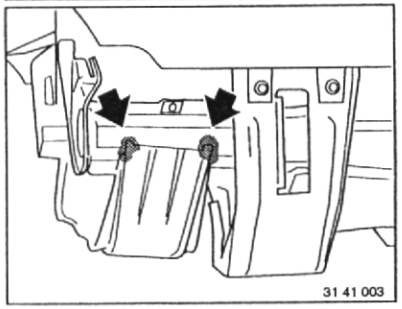
Remove or cover parts of car, which are located in the repair zone and could be subjected to heat, sparks or dust.



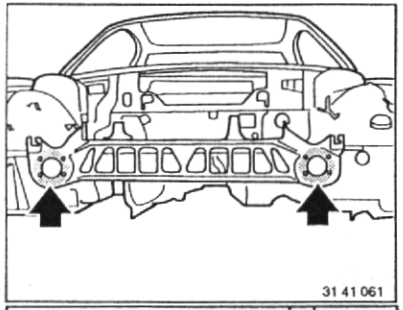
Unscrew holder for front bumper bracket.



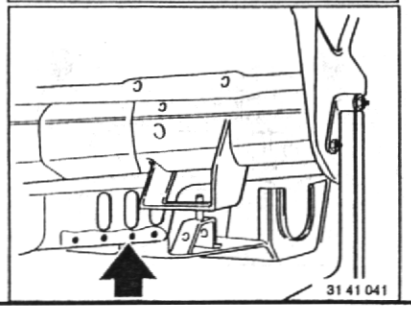
Unscrew bracket.



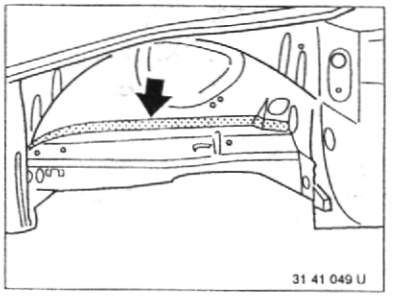
Grind off cross member welding seams.



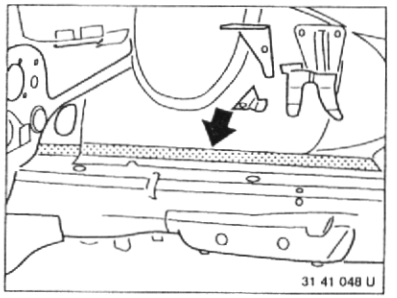
Drill off spot welding on front cross member between left and right engine carriers.
Take off cross member.



Drill off spot welding on holder for ABS hydraulic control unit.

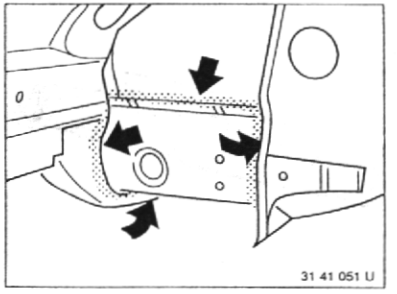


Clean mating surfaces in wheel house.

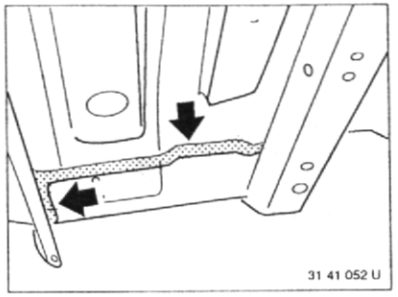


Clean mating surface in engine compartment.

Uncover firewall connection.



Uncover reinforcement connections between A-pillar and engine carrier in the wheel house.

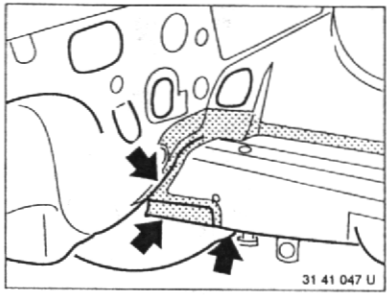


Uncover reinforcement connections between A-pillar and engine cover on underside.

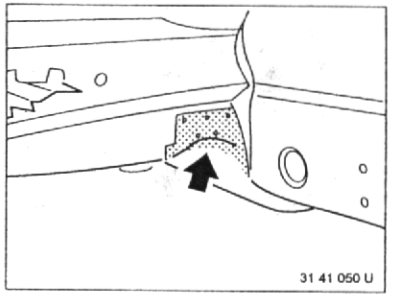
Drill off spot welding.

Cut off inert gas welding.

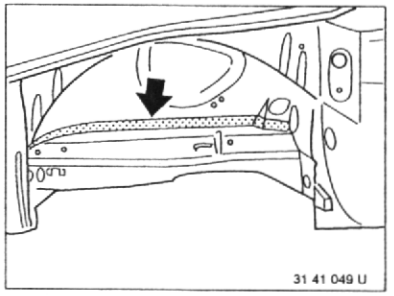
Remove scrap metal.
Clean welded surfaces.



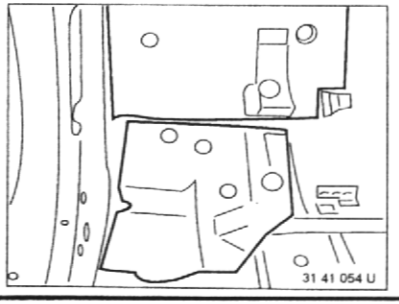
Drill off front engine carrier section spot welding on firewall and rear engine carrier section.



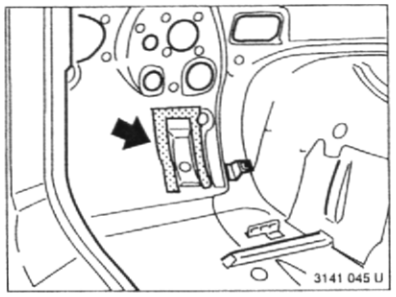
Drill off front engine carrier section spot welding on rear engine carrier section in the wheel house.



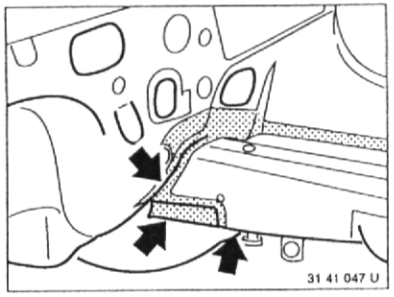
Drill off spot welding on wheel house.



Remove noise insulation sheet on inside of car.

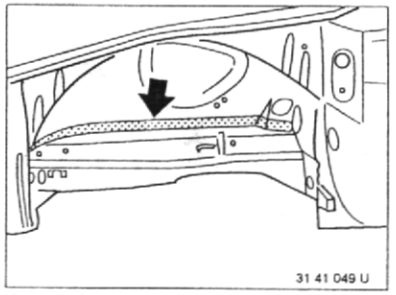


Drill off engine carrier spot welding on firewall from the passenger compartment.



Cut off engine carrier at point of connection.

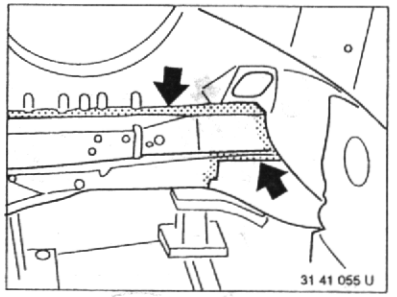
Straighten and grind mating surfaces.



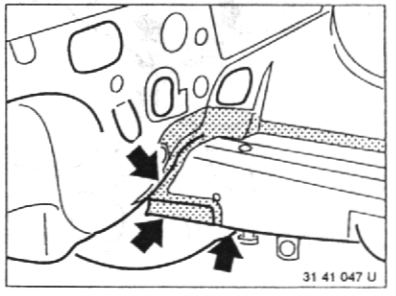
Clean mating surface in wheel house.

Clean welding surfaces on new part.

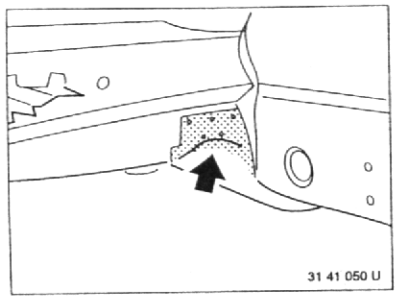
Coat welding surfaces with zinc dust paint.



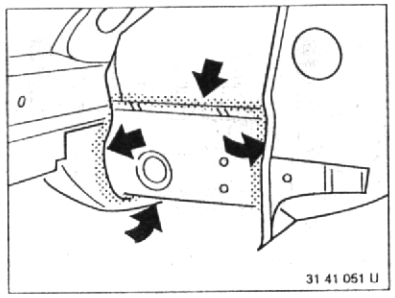
Fit in front engine carrier section on wheel house and rear engine carrier section.



Weld front engine carrier section on firewall and rear engine carrier section.



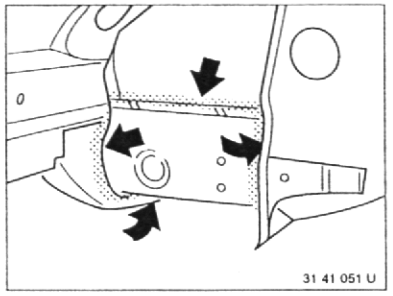
Weld front engine carrier section on rear engine carrier section in the wheel house.



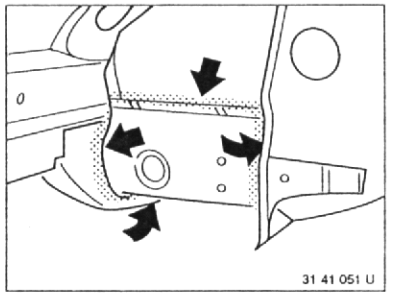
Fit in reinforcement between A-pillar and engine carrier.
Mark and clean welding surface.

Clean mating surfaces on reinforcement.

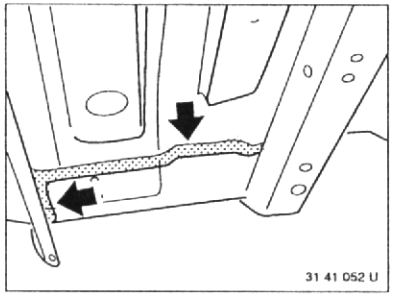
Drill holes in reinforcement for plug welding A-pill connection and floor plate assembly.



Fit in reinforcement between A-pillar and engine carrier.

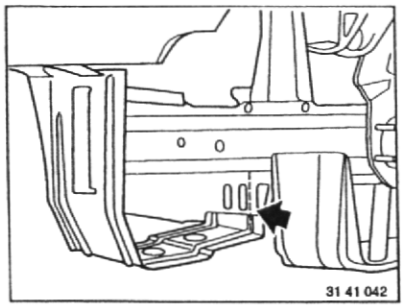


Weld reinforcement between A-pillar and engine carrier.

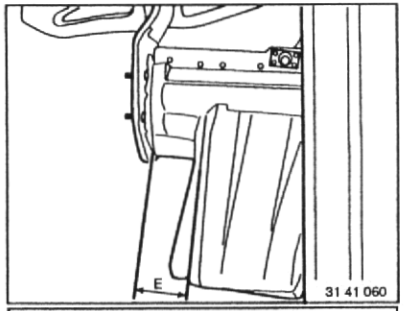


Weld reinforcement between A-pillar and engine carrier on the underside.

Grind welded surfaces smooth.

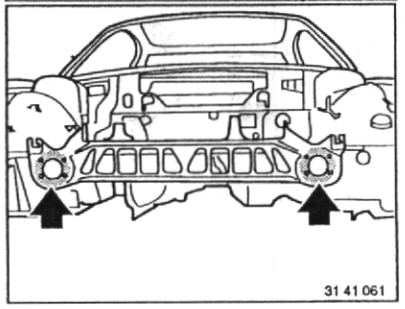


Fit in and weld holder for ABS hydraulic control unit on engine carrier.

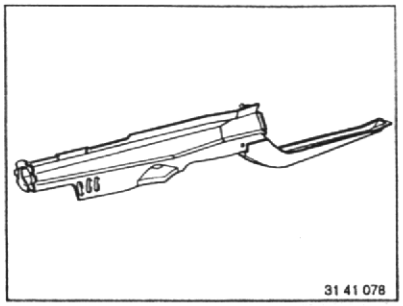


Fit in and weld cross member.

Distance (E) = 54 mm (2.126").



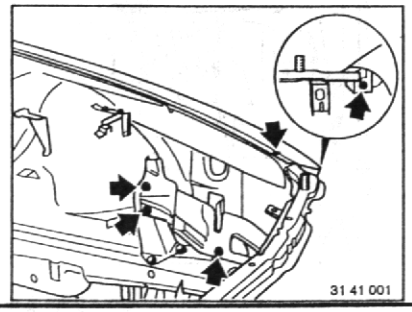
Weld front cross member between left and right engine carriers.



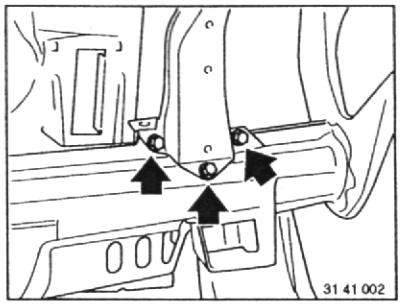
41 11 051 REPLACING LEFT ENGINE CARRIER

Refer to information on body repairs!

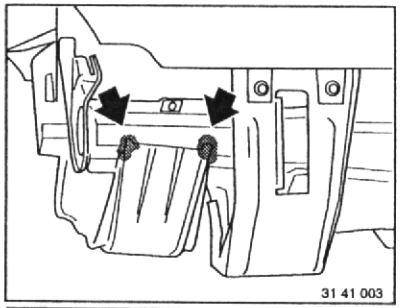
Remove or cover parts of car, which are located in the repair zone and could be subjected to heat, sparks or dust.



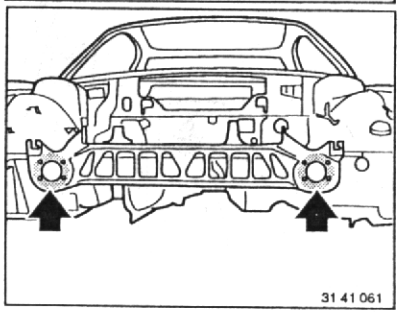
Unscrew holder for front bumper bracket.



Unscrew bracket.

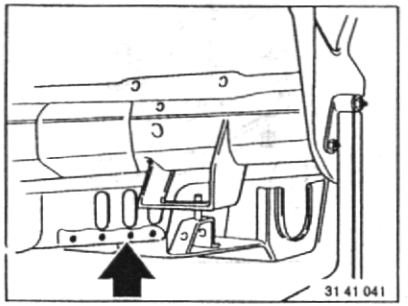


Grind off cross member welding seams.

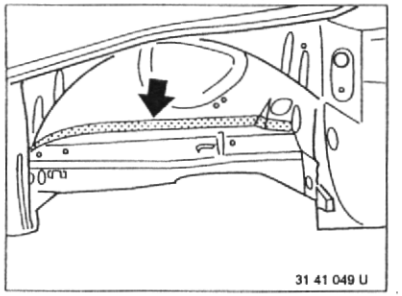


Drill off spot welding of front cross member between left and right engine carriers.

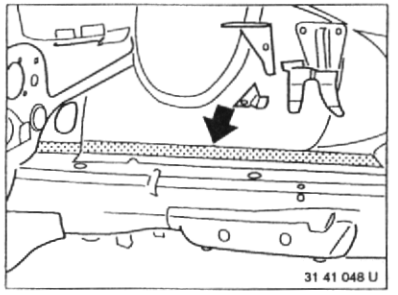
Take off cross member.



Remove scrap metal.
Clean welding surfaces.

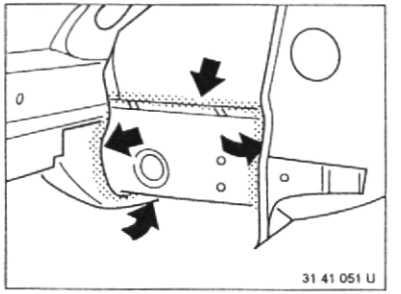


Drill off spot welding on wheel house.

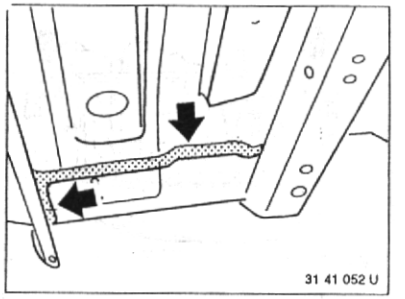


Remove noise insulation sheet on inside of car.

Drill off engine carrier spot welding on firewall from the passenger compartment.



Straighten mating surface in wheel house.

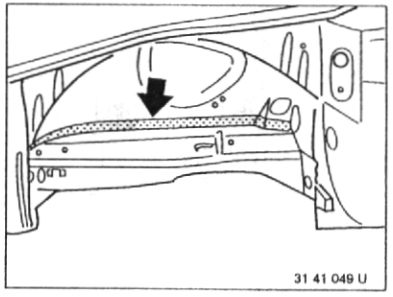


Straighten mating surface in engine compartment.

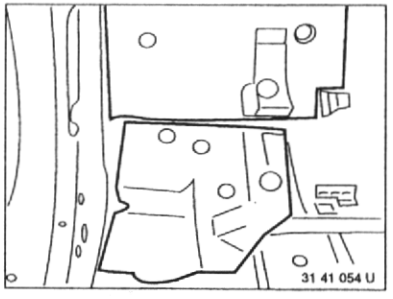
Clean welding surfaces on new part.

Coat welding surfaces with zinc dust paint.

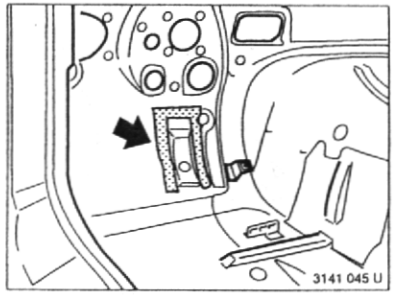
Drill off spot welding on holder for ABS hydraulic control unit.



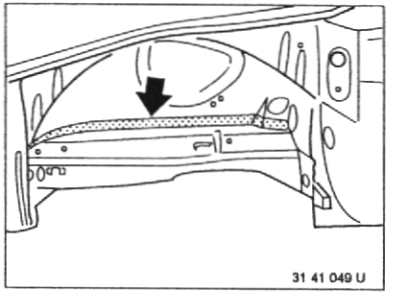
Clean mating surface in wheel house.



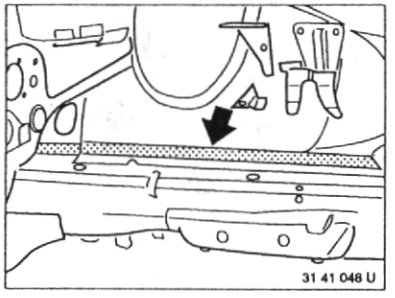
Clean mating surface in engine compartment.



Uncover firewall connection.



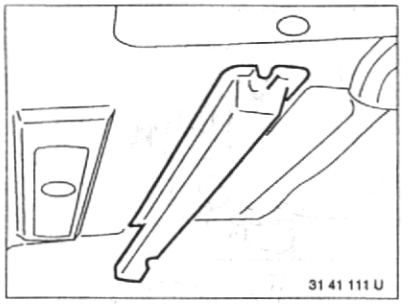
Uncover connections of reinforcement between A-pillar and engine carrier in the wheel house.



Uncover connections of reinforcement between A-pillar and engine carrier on underside.

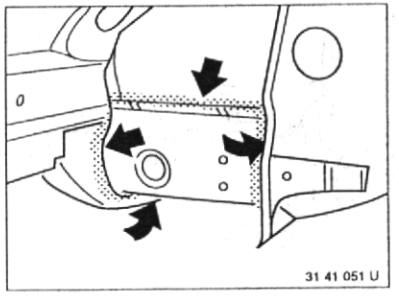
Drill off spot welding.

Cut off inert gas welded sections.



Drill holes for plug welding the A-pillar connection and floor plate assembly.

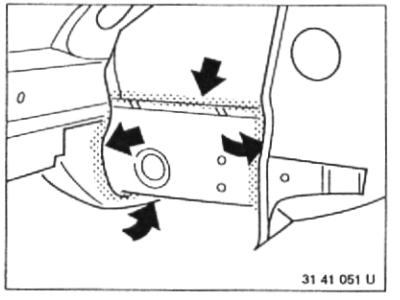
Fit in reinforcement between A-pillar and engine carrier.



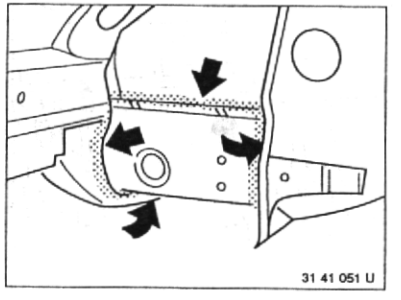
Weld reinforcement between A-pillar and engine carrier on underside.

Grind welded surfaces smooth.

Fit in engine carrier on straightening bench.

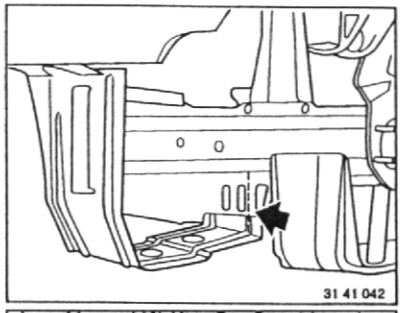


Weld engine carrier on firewall.

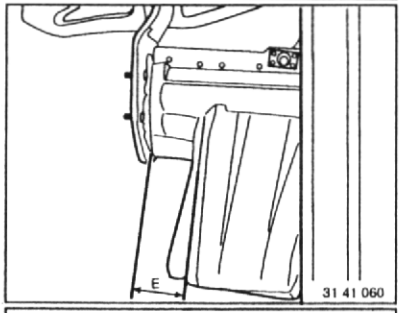


Fit in reinforcement between A-pillar and engine carrier.
Mark and clean welding surface.

Clean mating surfaces on reinforcement.

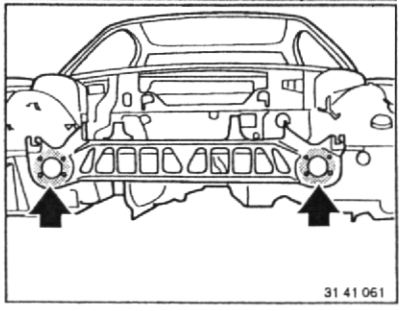


Fit in and weld holder for ABS hydraulic control unit on the engine carrier.

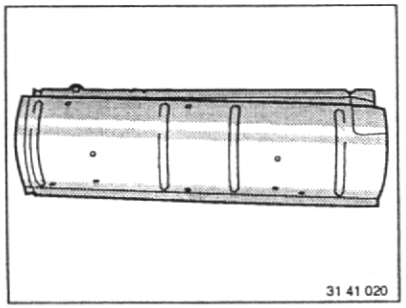


Fit in and weld cross member.

Distance (E) = 54 mm (2.126").



Weld front cross member between left and right engine carriers.



41 11 141 REPLACING COVER FOR LEFT OR RIGHT SIDE MEMBER (Partial Replacement of B-Pillar in Front of A-Pillar)

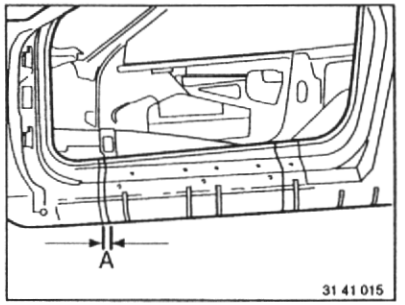
Refer to Introduction on page 41-0!

Remove or disconnect following parts.

- Seats, front and rear
- Outside side member plate
- Side member
- Rear side trim panel partially
- Wire harness cover
- Relay module

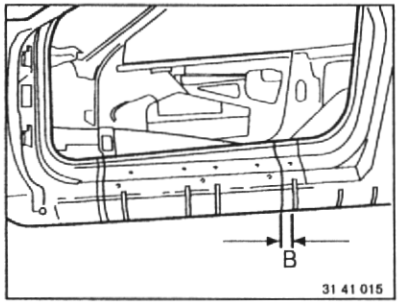
Remove or cover other parts of car, which are located in the repair zone and could be subjected to heat, sparks or dust.

Remove left door.



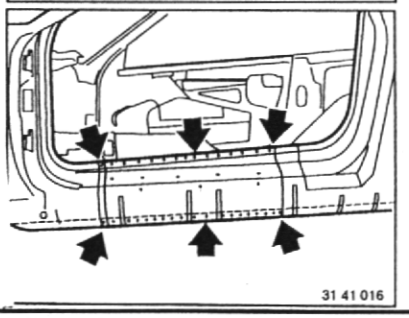
Cut out front section roughly.

Distance (A) = approx. 20 mm (0.787").

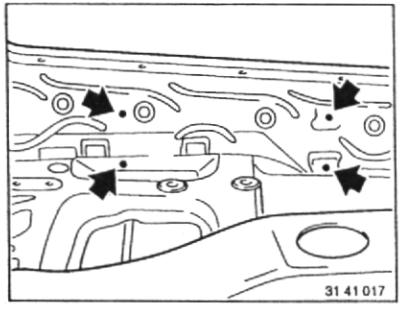


Determine location of rear cutting point with help of the new section; note the edging surface.
Cut off section.

Distance (B) to bead = approx. 25 mm (0.984").

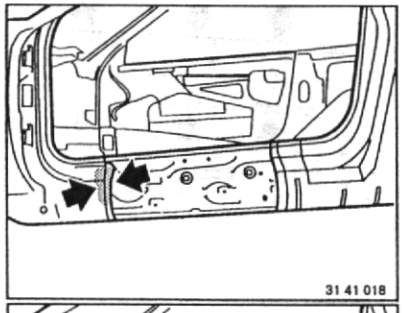


Drill off spot welding.

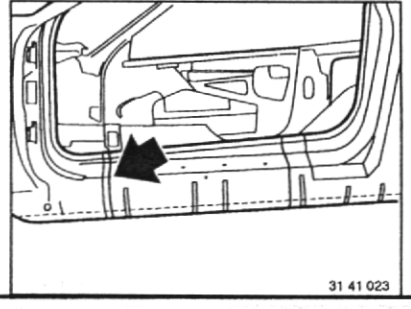


Drill offspot welding for reinforcement plates in the side mamber from the inside.

Take off side member.

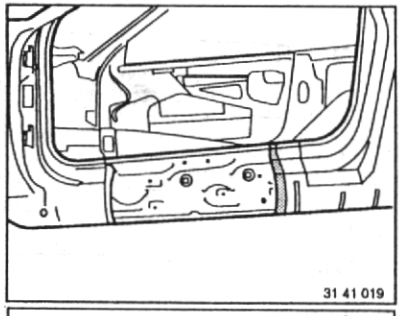


Drill off spot welding on remaining front section.

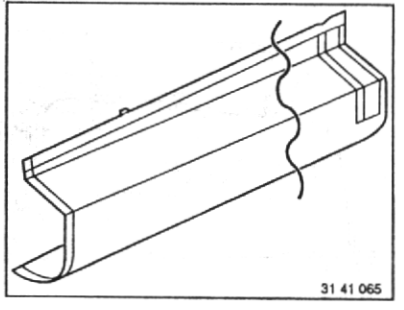


Remove brazing solder from connection between remaining front section and front mating surface.

Straighten front and rear mating surfaces.
Straighten inside of side member panel.
Clean mating surfaces.



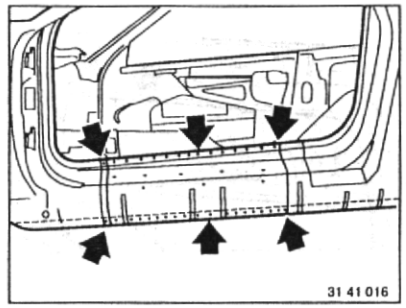
Shoulder rear mating surface.



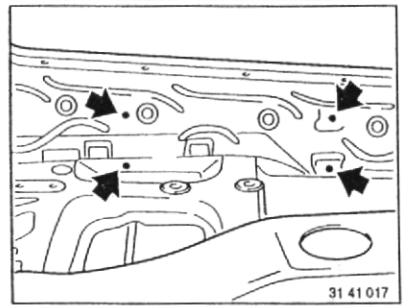
Cut new part to size.

Fit in new part.
Clean welding surfaces on new part.
Drill and deburr holes for plug welding (take location from old part).

Coat welding surfaces with zinc dust paint.
Fit in and clamp new part.

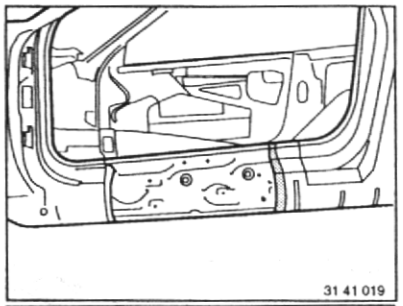


Tack weld new part.

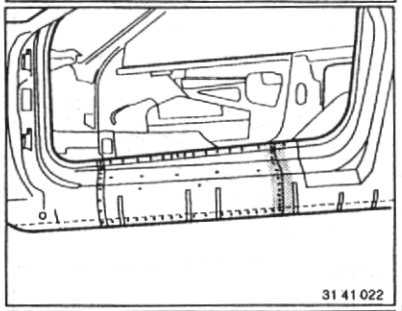


Plug weld new part.

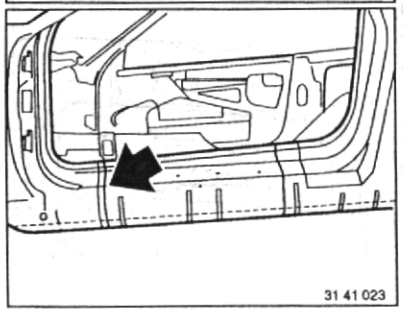
Grind welding spots smooth.



Clean rear seam for floating.

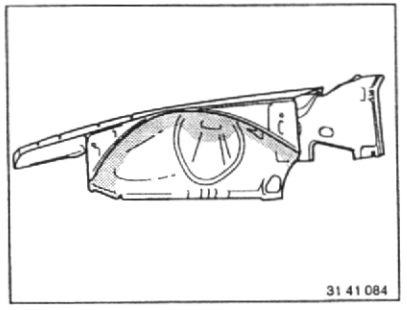


Float rear seam.
Grind floated seam smooth.



Clean front seam for brazing.
Braze front seam.
Grind front seam smooth.

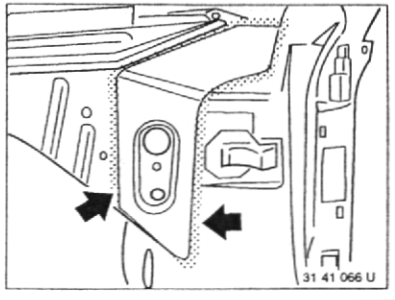
Seal off seams.
Coat side member surface with Body-Plast.



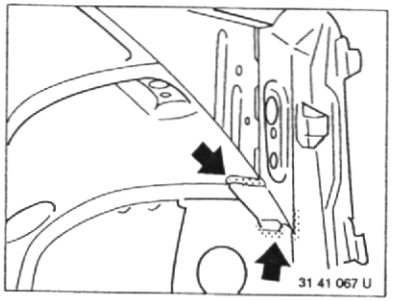
41 14 021 REPLACING LEFT FRONT WHEEL HOUSE
– Partial Replacement –

Refer to information on body repairs!

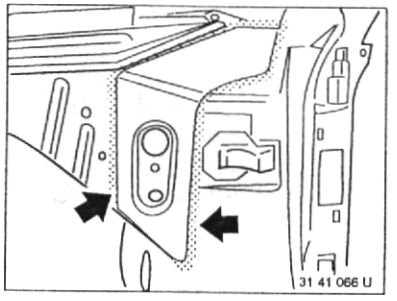
Remove or cover parts of car which are located in the repair zone and could be subjected to heat, sparks or dust.



Uncover end plate connections on A-pillar.

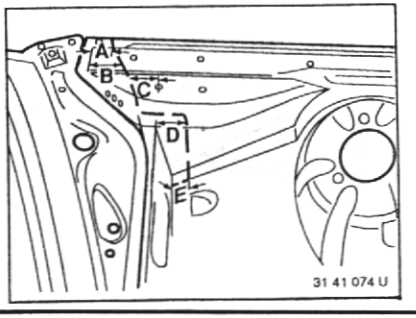


Uncover end plate connections in wheel house.



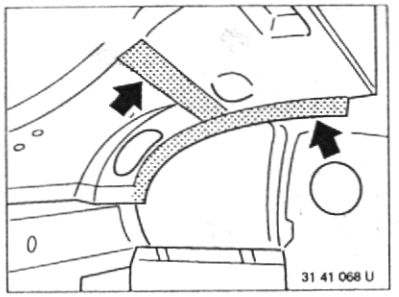
Drill off welding spots and grind off welding seams.

Drill off welding spots.

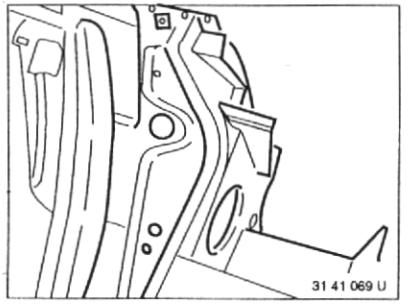


Determine and mark cutting points for partial replacement, and clean.

Distance A = 30 mm (1.181")
Distance B = 35 mm (1.378")
Distance C = 20 mm (0.787")
Distance D = 35 mm (1.378")
Distance E = 35 mm (1.378")



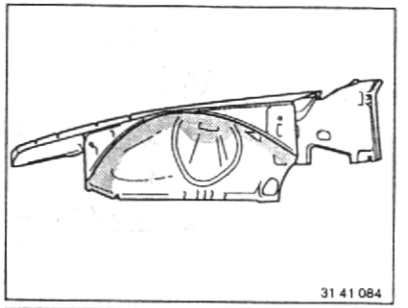
Clean partial replacement mating surfaces on firewall.



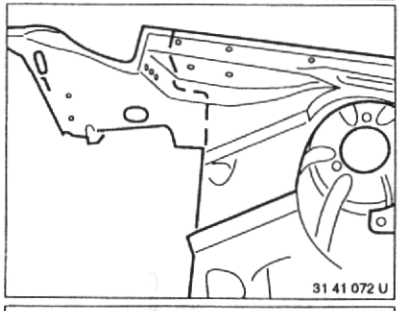
Cut off partial replacement section.

Take off wheel house.

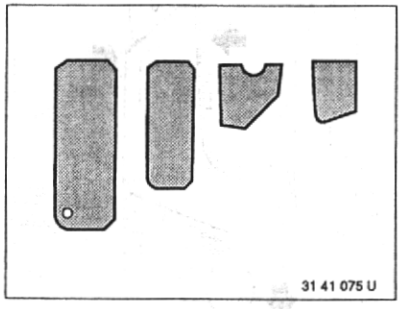
Clean mating surfaces.



Cut new wheel house to size roughly.



Fit in wheel house.
Determine and mark cutting point.

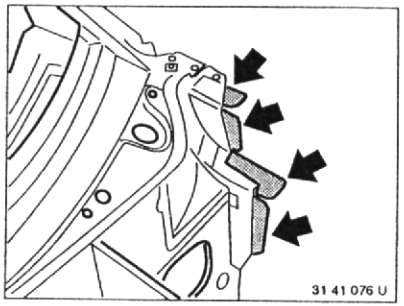


Make up reinforcements (depending on cut).
Make sure of sufficient overlapping – at least 30 mm (1.181") each.

Drill holes for plug welding in reinforcements.

Clean wheel house mating surfaces.

Coat welding surfaces with zinc dust paint.

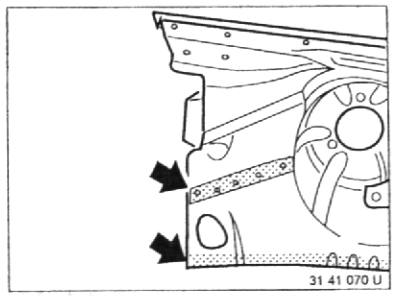


Fit in wheel house.
Mark and drill holes for plug welding.

Weld reinforcements on body.

Tack weld wheel house, aligning mating surfaces if necessary.

Grind off welding spots smooth.



Weld wheel house.

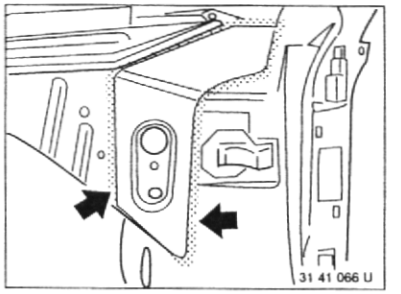
Clean mating surfaces between wheel house and equipment carrier.

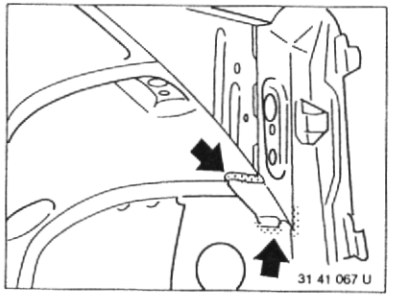
Grind welding seams smooth.

Clean welding surfaces on end plate and body.

Fit in end plate.

Tack weld end plate.



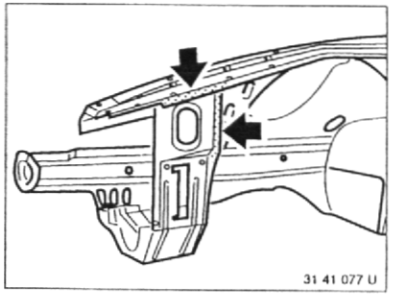


Weld end plate on A-pillar.

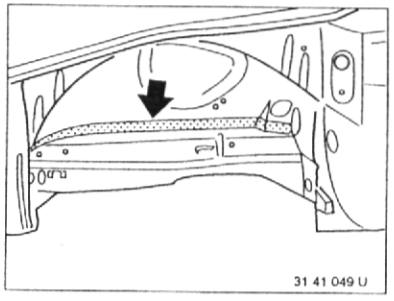
Weld end plate in wheel house.

Grind welding surfaces smooth.

Braze shouldered surface.
Grind brazed surface smooth.

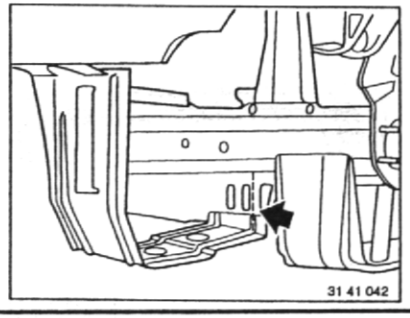


Fit in and weld holder for ABS hydraulic control unit on wheel house.

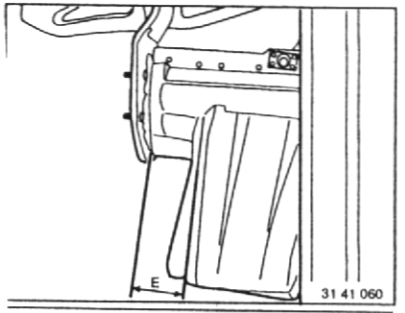


Plug weld wheel house on engine carrier.

Grind welding surfaces smooth.

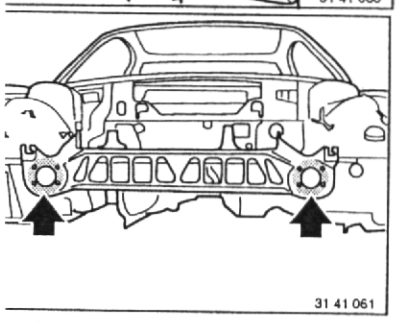


Fit in and weld holder for ABS hydraulic control unit on engine carrier.

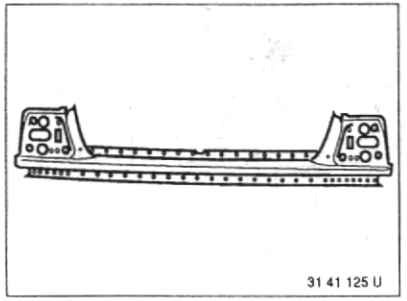


Fit in and weld cross member.

Distance (E) = 54 mm (2.126").



Weld front cross member between left and right engine carriers.



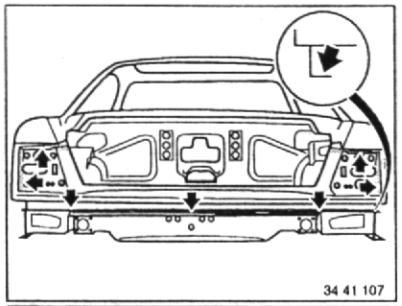
41 34 041 REPLACING TAIL PANEL

Remove or cover other parts of car which are located in the reapair zone and could be subjected to heat, sparks or dust.

Refer to information on body repairs!

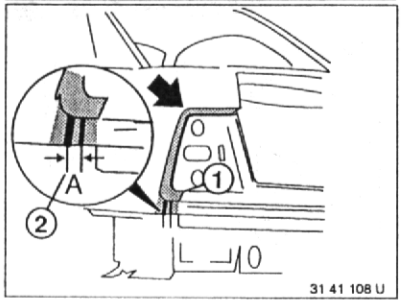
Remove or disconnect following parts.

- Bumper with impact absorbers
- Complete trunk floor cover
- Batteries
- Car jack
- Tail lights
- Trunk seal
- Wire harness partially
- Spare wheel
- Extraction slots
- Spare wheel well trim panel
- Central ground connection
- Lock in tail panel



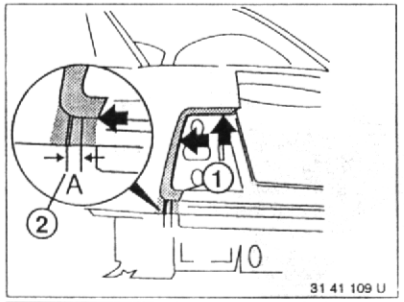
Clean mating surfaces.

Note:
Trunk lid was removed in picture for better illustration.



Important!
1 = Tail panel mating surface (brazed)
2 = Bead in rear side panel

Distance (A) = approx. 20 mm (0.787").

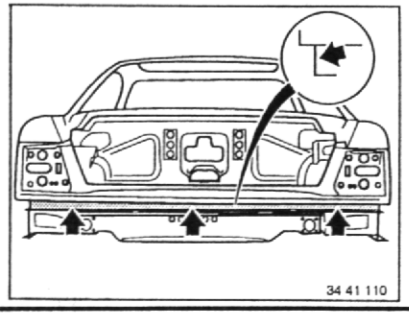


Cut out tail panel roughly in the tail light area with a pneumatic saw.

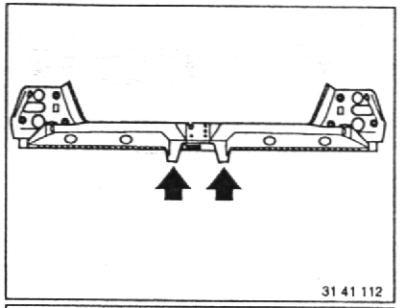
Important!
Cut in front of the tail panel mating surface (1).

1 = Tail panel mating surface (brazed)
2 = Bead in rear side panel

Distance (A) = approx. 20 mm (0.787").

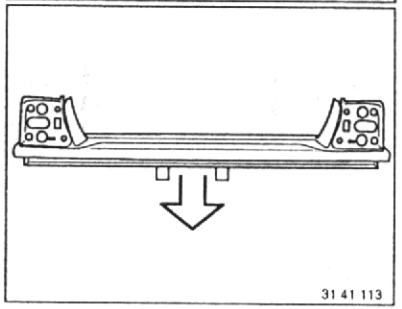


Chisel off tail panel roughly on the outside of the trunk floor connection.

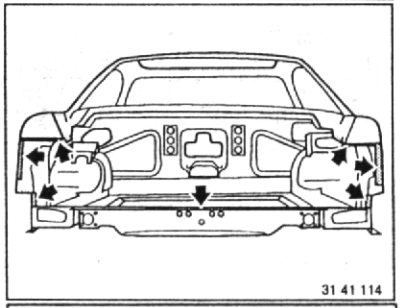


Cut off mating surfaces of inside reinforcements of the tail panel on the trunk floor.

Note:
Tail panel was removed in picture for better illustration; view from trunk.



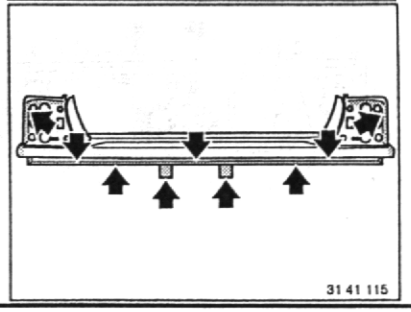
Take off tail panel.



Remove scrap metal.

Note:
Trunk lid was removed in picture for better illustration.

Clean and straighten welding surfaces.

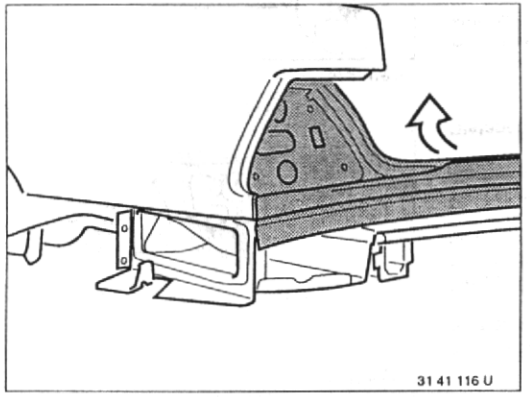


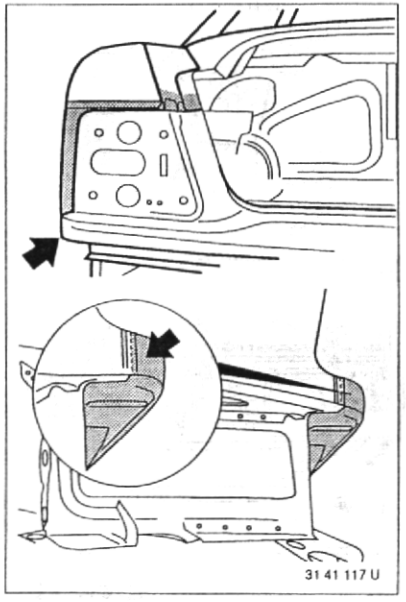
Clean and coat welding surfaces on new part with zinc dust paint:

- Trunk floor connection
- Wheel house extension
- Tail light assembly
- Inside reinforcements on trunk floor

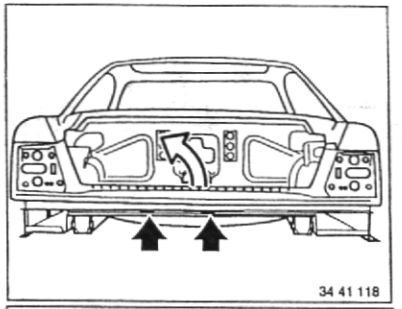
Fit in tail panel.

Installation:
Insert tail panel from below at an angle.

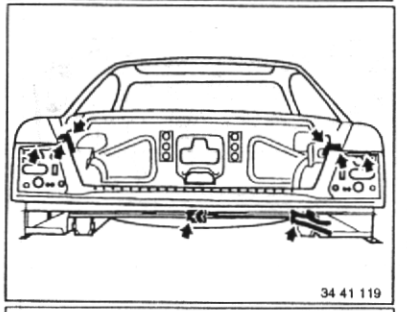




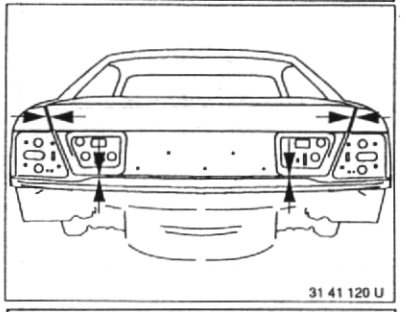
Check for correct seating of tail panel at tail light assemblies!



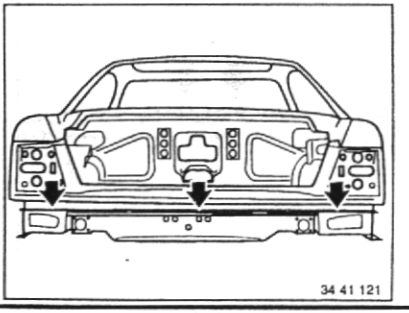
Guide inside reinforcements into trunk floor.
Turn tail panel to correct position.



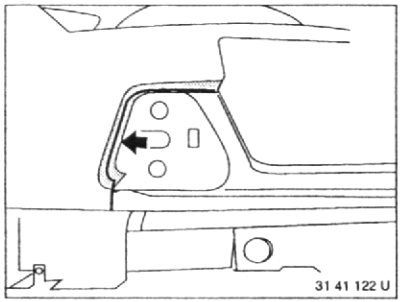
Straighten mating surfaces on tail light assemblies.
Clamp tail panel in position with pliers, using braze solder spots if necessary.



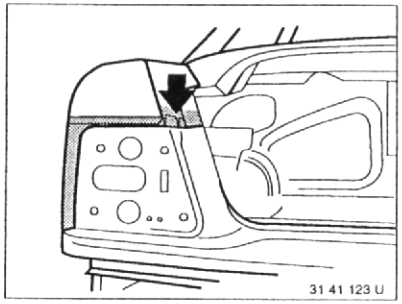
Align tail panel with the trunk lid.



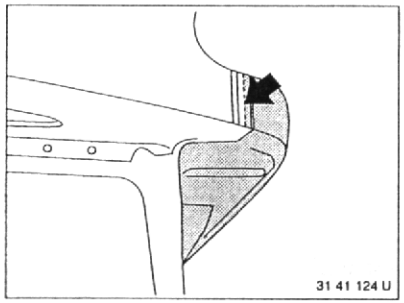
Spot weld tail panel on trunk floor plate.



Spot weld tail panel at tail light assem- n blies.

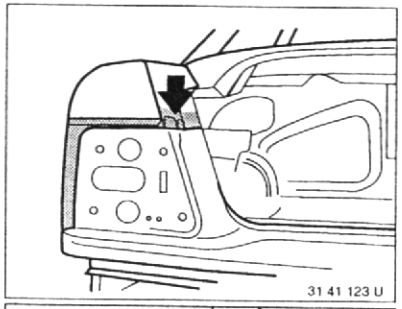


Braze water drain and tail light assembly transition.

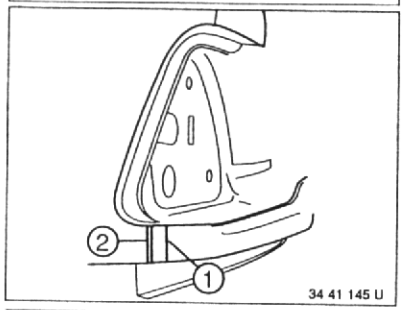


Braze connection between tail panel and rear side panel.

Grind welded and brazed surfaces smooth.

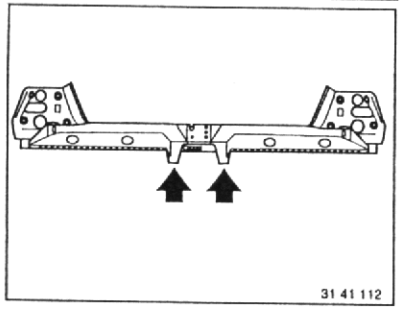


Tin and grind mating surface in water drain smooth.



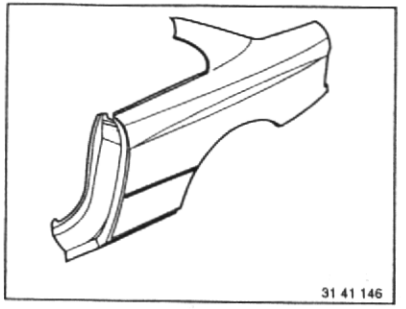
Tin and grind mating surface on side panel smooth.

1 = Tail panel mating surface (brazed)
2 = Bead in rear side panel



Weld inside reinforcements of tail panel.

Note:
Tail panel was removed in picture for better illustration; view from trunk.



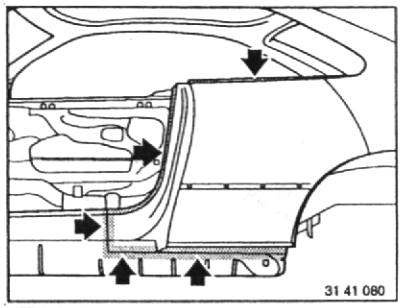
41 35 294 REPLACING LEFT OR RIGHT REAR SIDE PANEL

Remove or cover other parts of car which are located in the repair zone and could be subjected to heat, sparks or dust.

Refer to information on body repairs!

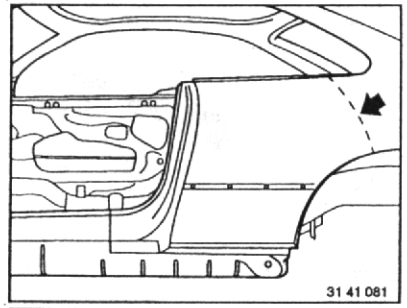
Remove or disconnect following parts.

- Bumper with impact absorbers
- Complete trunk floor cover
- Battery
- Car jack
- Tail light assembly
- Trunk seal
- Wire harness partially
- Spare wheel
- Lock in tail panel
- Extraction slot
- Spare wheel well trim panel
- Rear wheel
- Central ground connection
- Left bottom hinge
- Trunk lid

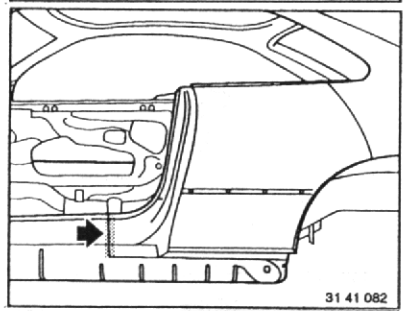


Clean mating surfaces.

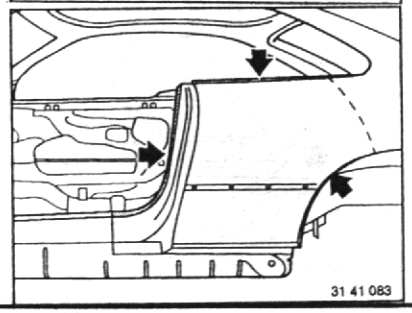
- Door opening
- Side member
- Window line
- Wheel house



Determine and mark cutting line.
Cut off along cutting line.

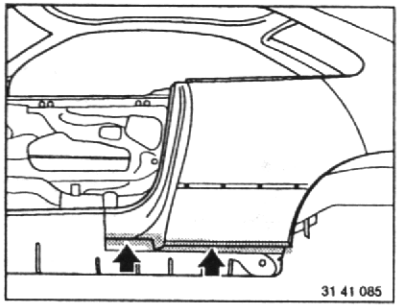


Remove brazing solder.



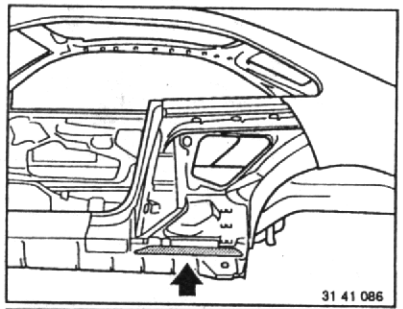
Drill off welding spots.

- Door opening
- Window line
- Wheel house

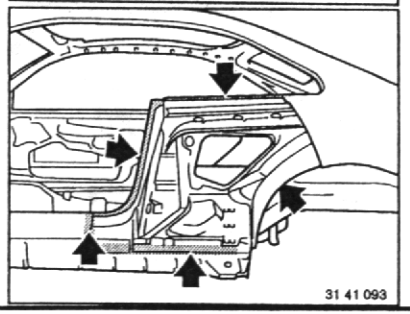


Cut off side member/side panel connection roughly with a sheet metal chisel.

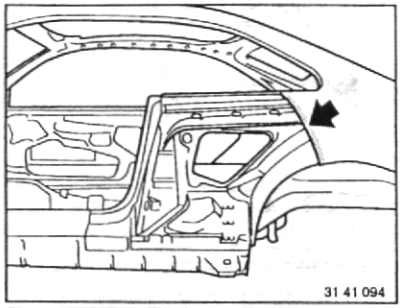
Take off side panel.



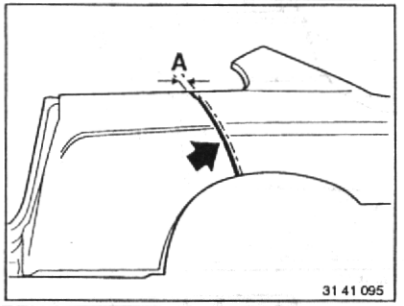
Remove scrap metal.



Grind (clean) mating surfaces.
Straighten mating surfaces (wheel house).
Remove undercoating on edge of wheel house.



Clean shouldered surfaces for partial replacement (side panel).

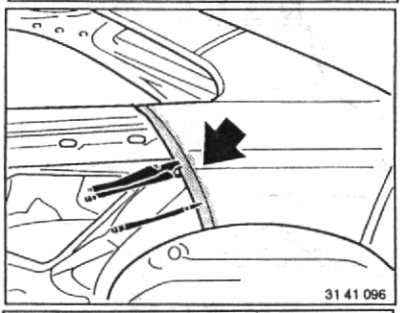


Mark cutting line on new side panel.

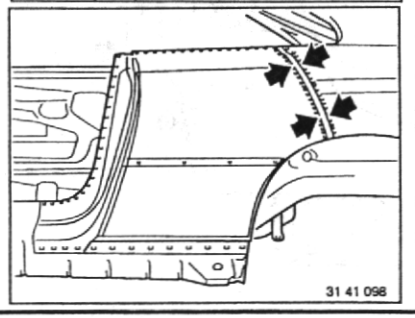
Note:
Consider width for reinforcement. Reinforcement is produced from new side panel.

A = 40 mm (1.575") wide.

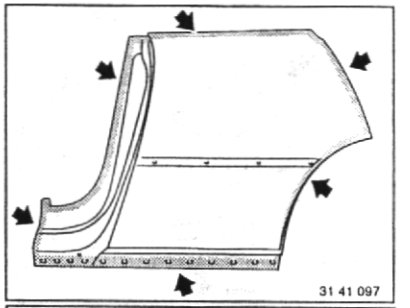
Cut out reinforcement and cut off section not required.



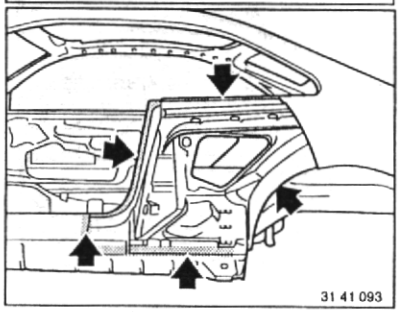
Fit in reinforcement on side panel and drill holes for plug welding.
Fit in and tack weld reinforcement.
Notch at beads.
Plug weld reinforcement.



Fit in partial replacement section.
Check gaps.
Note door gap!



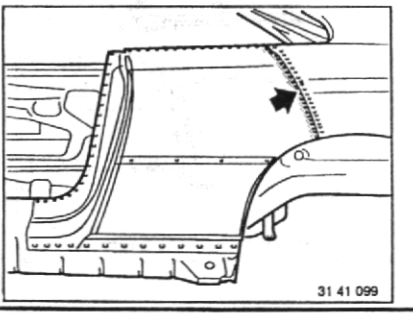
Clean welding surfaces on partial replacement section.
Drill holes for plug welding in partial replacement section.



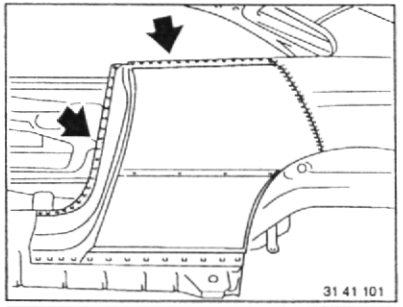
Coat welding surfaces with zinc dust paint.

- Door opening
- Window line
- Side member
- Entrance
- Wheel house

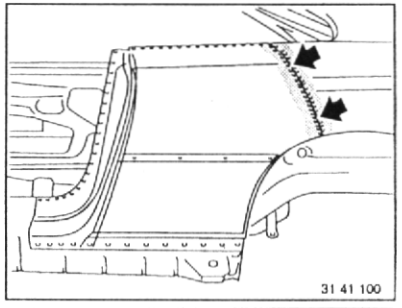
Fit in partial replacement section.



Plug weld reinforcement on partial replacement section at the side panel mating surface.

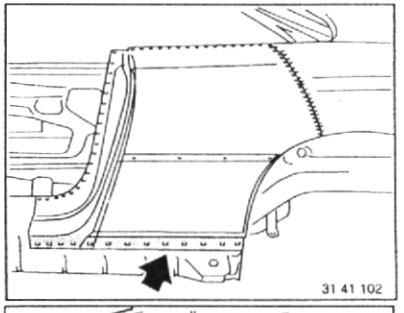


Spot weld partial replacement section along window line.
Only tack weld in door opening.
Align in door opening.
Spot weld in door opening.

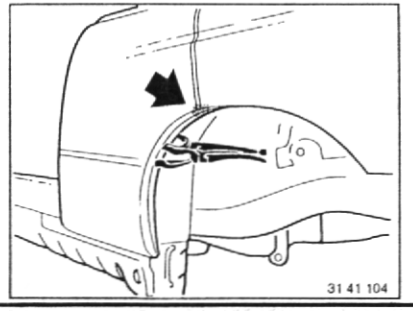


Spot weld at side panel mating surface with the spots so close together that this produces a welded seam.

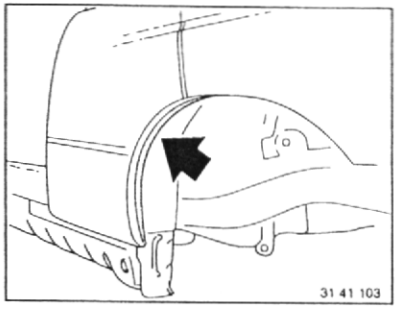
Important!
Always wait until a spot has cooled off slightly before producing an adjacent spot.
Danger of distortion!



Plug weld the side member / side panel connection through the provided holes.

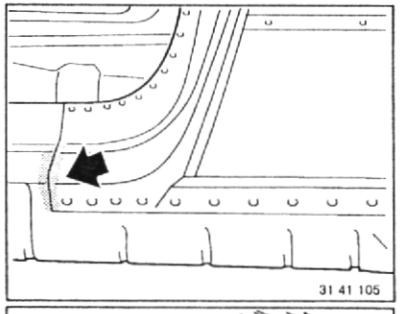


Straighten wheel house (cringe edge).
Inert gas weld mating surface in wheel house.
Grind mating surface smooth.

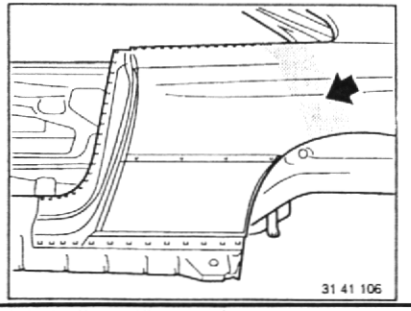


Spot weld wheel house.

Grind mating surfaces smooth.



Clean brazing surface on entrance.
Tin brazed surface on entrance.



Tin partial replacement section connection.
Smooth brazed surfaces.

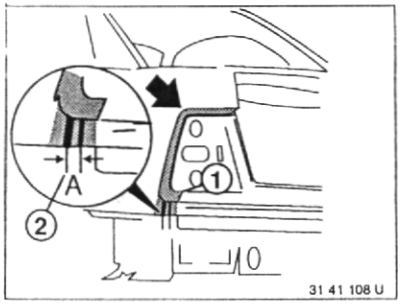
41 35 337 REPLACING REAR SIDE PANEL (Partial Replacement Up to Wheel House)

Refer to information on body repairs!

Remove or disconnect following parts.

- Trunk lid

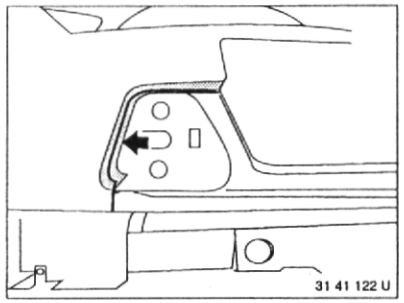
Remove or cover other parts of car which are located in the reapair zone and could be subjected to heat, sparks or dust.



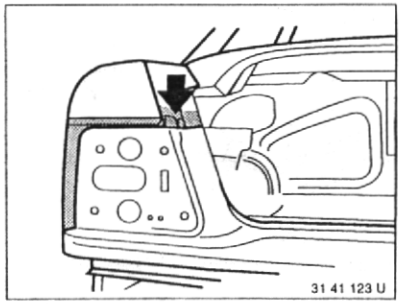
Clean mating surfaces.

Important!
1 = Tail panel mating surface (brazed)
2 = Bead in rear side panel

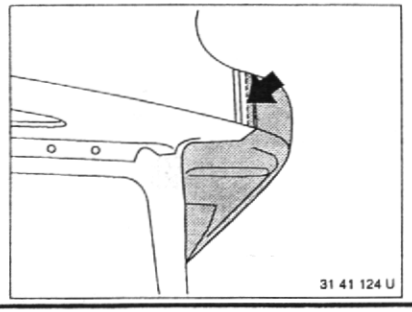
Distance (A) = approx. 20 mm (0.787").



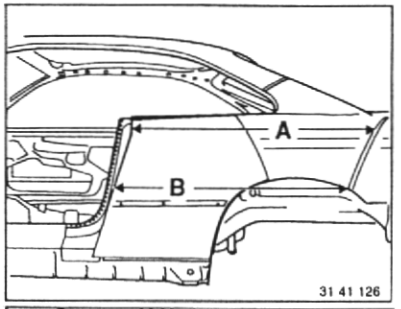
Drill off welding spots in lamp holder.



Grind off brazed surfaces in water drain and lamp holder transition.

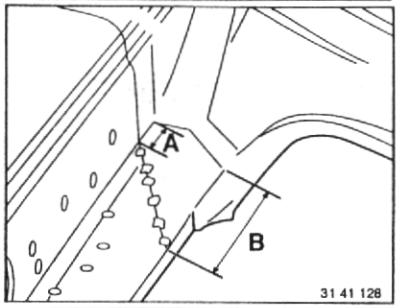


Grind off brazed surface on tail panel mating surface.



Determine and mark cutting line.

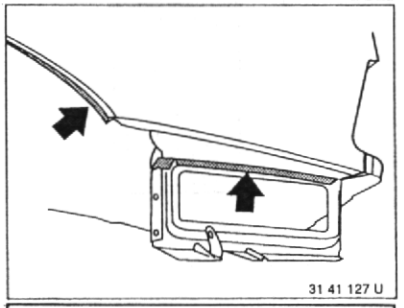
Distance A= approx. 1170 mm (46.063")
Distance B= approx. 1040 mm (40.905")



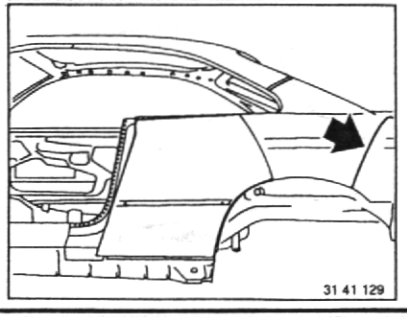
Determine and mark cutting line.

Important!
Make sure of sufficient distance to the window.

Distance A = approx. 30 mm (1.181")
Distance B = approx. 85 mm (3.346")

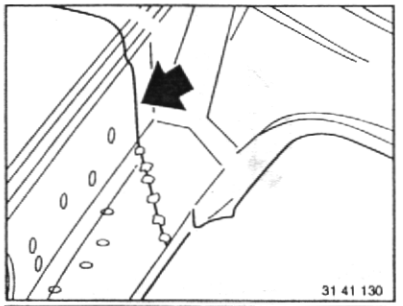


Remove undercoating on mating surfaces.
Cut off wheel house extension along cutting line roughly.
Drill off wheel house welding spots.



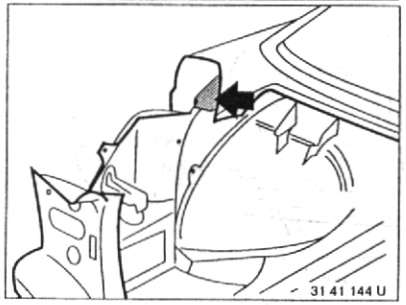
Cut off side panel along marked cutting line.

Important!
Don't cut through reinforcements.



Cut off side panel along marked cutting line in the water drain.

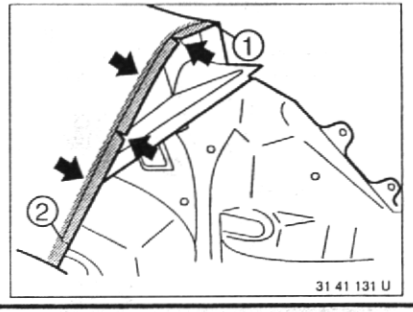
Important!
Don't cut through reinforcements.



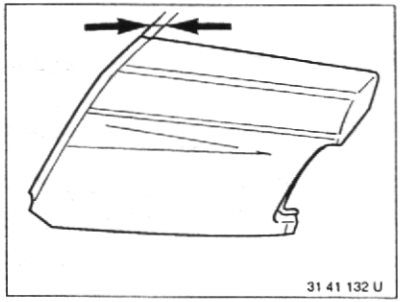
Location of reinforcements in the water drain.

Important!
Don't cut through reinforcements.

Take off side panel.
Remove scrap metal.
Clean and straighten mating surfaces (wheel house extension).

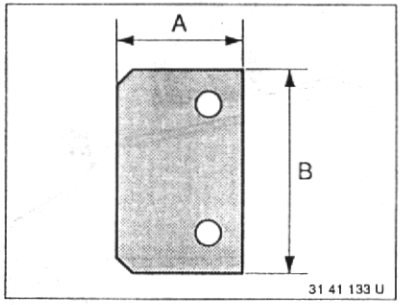


Shoulder side panel from point 1 to point 2; notch along edges.



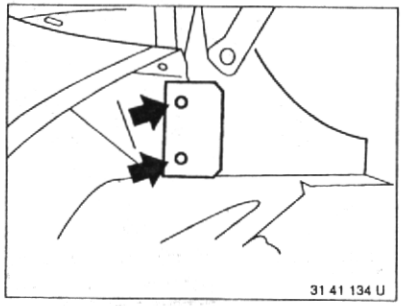
Mark cutting line on new side panel and cut off partial replacement section roughly.

Important!
Consider the shouldered distance on the old side panel.



Produce reinforcement for the side water drain connection and drill holes for plug welding.

Distance A = approx. 30 mm (1.181")
Distance B = approx. 50 mm (1.969")

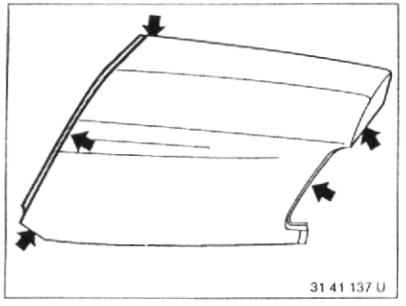


Fit in and plug weld reinforcement.
Make sure of sufficient overlapping – at least 15 mm (0.591") each.

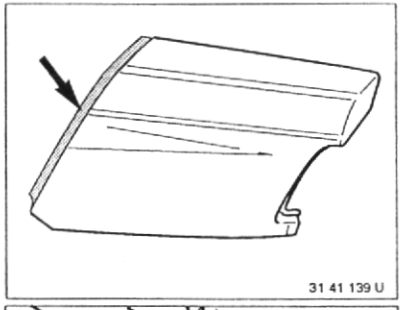
Produce reinforcement for lower water drain connection.

Distance A = approx. 20 mm (0.787")
Distance B = approx. 35 mm (1.378")
Distance C = approx. 50 mm (1.969")
Distance D = approx. 75 mm (2.953")
Distance E = approx. 20 mm (0.787")

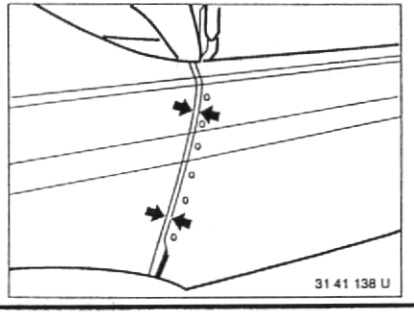
Fit in new part.



Clean welding surface on new part.
Coat welding surfaces with zinc dust paint.

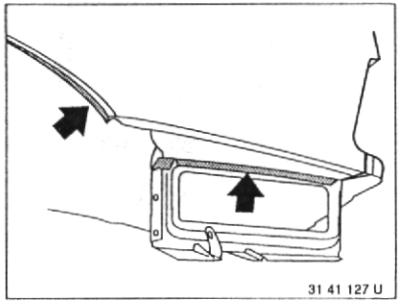


Drill holes for plug welding.

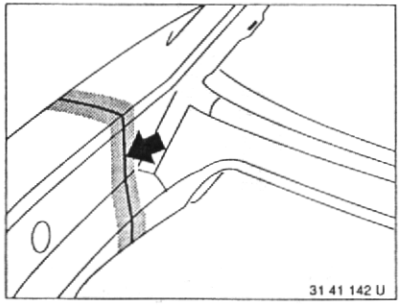


Fit in new part, checking for uniform joint width.

Plug weld shouldered edge of side panel partial replacement section.

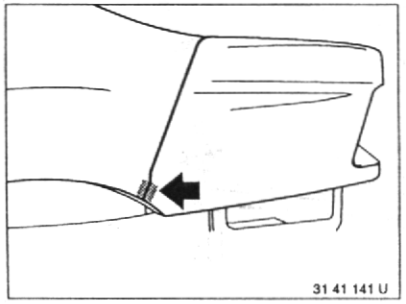


Spot weld on wheel house extension and in wheel house.



Spot weld side and bottom of water drain connection.
Place welding spots so close together that a welded seam is produced.

Important!
Protect rear window zone against excessive heat, as rear window could then leak.
Let one welded spot cool off before producing an adjacent spot.

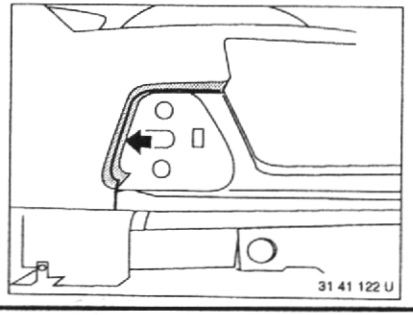


Butt weld wheel house edge.

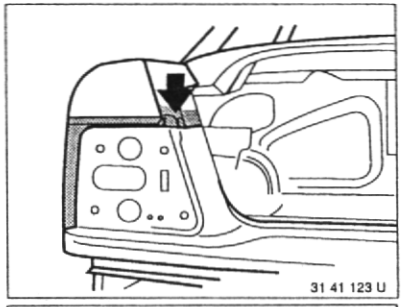
Spot weld edge of side panel partial replacement section with the spots so close together that a welded seam is produced.

Important!
Always let spots cool off before producing an adjacent spot.
Danger of distortion!

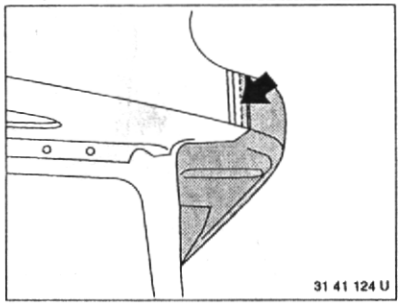
Straighten mating surfaces.



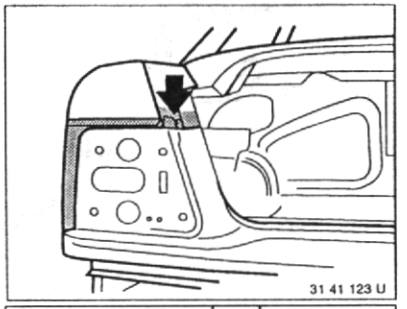
Spot weld in side member.



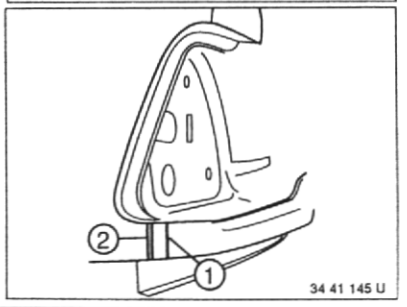
Braze water drain and lamp holder transition.



Braze tail panel and rear side panel connection.



Tin and grind down mating surface in water drain.



Tin and grind down mating surface on side panel.

1 = Tail panel mating surface (brazed)
2 = Bead in rear side panel

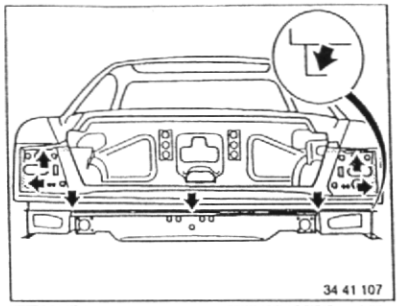
41 35 341 REPLACING LEFT REAR SIDE PANEL (Partial Replacement Up to Wheel House) AND TAIL PANEL

Remove or cover other parts of car which are located in the repair zone and could be subjected to heat, sparks or dust.

Refer to information on body repairs!

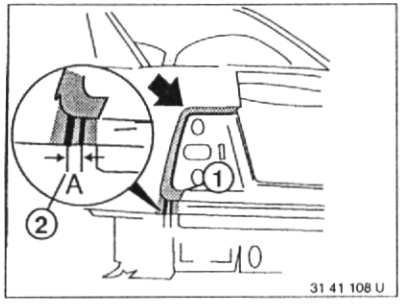
Remove or disconnect following parts.

- Bumper with impact absorbers
- Complete trunk cover
- Batteries
- Car jack
- Tail lights
- Trunk seal
- Wire harness partially
- Spare wheel
- Lock in tail panel
- Extraction slots
- Spare wheel well trim panel
- Rear wheel
- Central ground connection
- Bottom left hinge
- Trunk lid



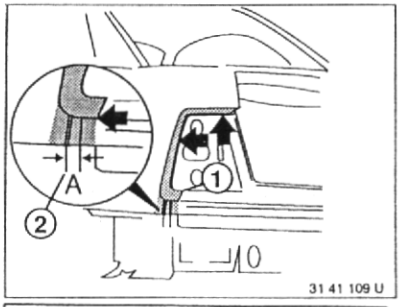
Clean mating surfaces.

Note:
Trunk lid was removed in picture for better illustration.



Important!
1 = Tail panel mating surface (brazed)
2 = Bead in rear side panel

Distance A = approx. 20 mm (0.787")

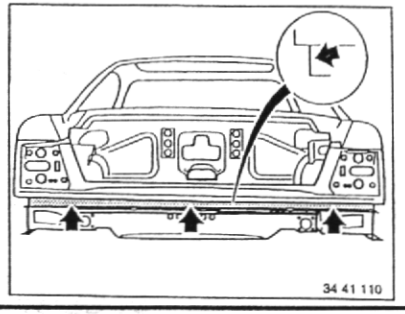


Cut out tail panel in the tail light area roughly with a pneumatic saw.

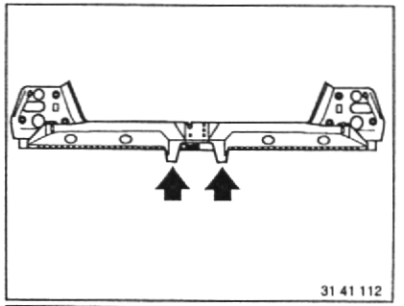
Important!
Cut in front of tail panel mating surface (1).

1 = Tail panel mating surface (brazed)
2 = Bead in rear side panel

Distance A = approx. 20 mm (0.787")

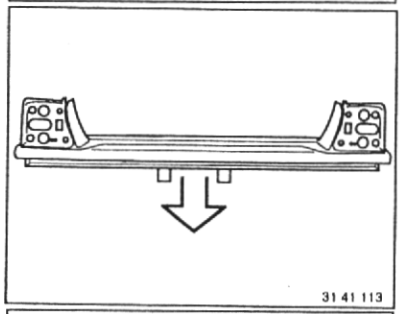


Chisel off tail panel roughly on the outside of the trunk floor plate connection.

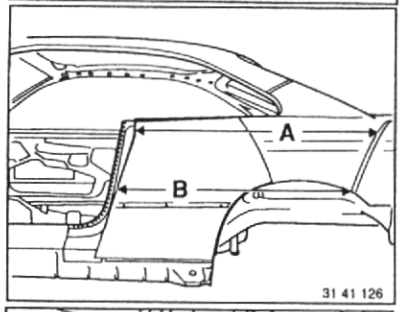


Cut off connecting plate of inside tail panel reinforcements on the trunk floor plate.

Note:
Tail panel was removed in picture for better illustration; view from trunk.

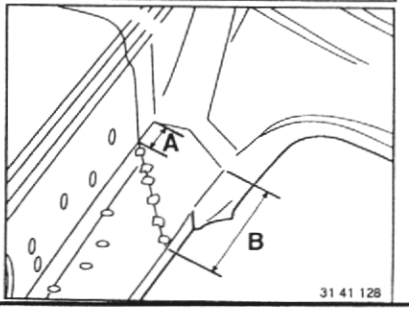


Take off tail panel.



Determine and mark cutting line.

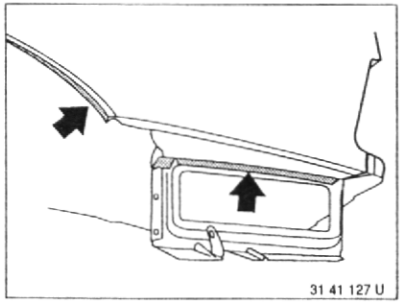
Distance A = approx. 1170 mm (46.063")
Distance B = approx. 1040 mm (40.945")



Determine and mark cutting line.

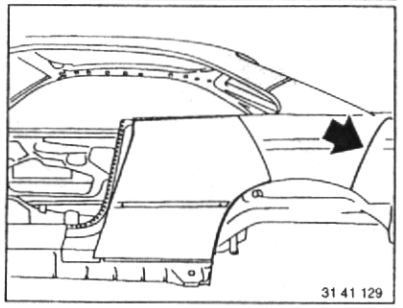
Important!
Make sure of sufficient distance to window!

Distance A = approx. 30 mm (1.181")
Distance B = approx. 85 mm (3.346")



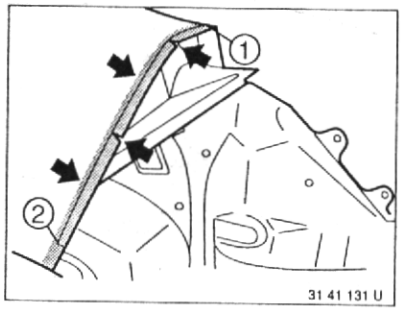
Removing undercoating from mating surfaces.
Cut off wheel house extension roughly along cutting line.
Drill off wheel house welding spots.

Take off side panel.
Remove scrap metal.
Clean and straighten mating surfaces.

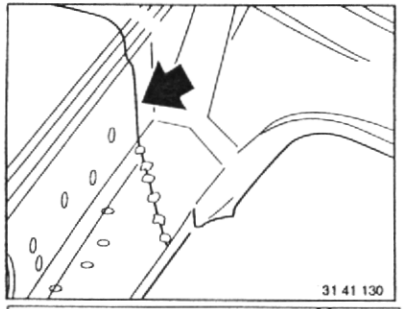


Cut off side panel along marked cutting line.

Important!
Don't cut through reinforcements.

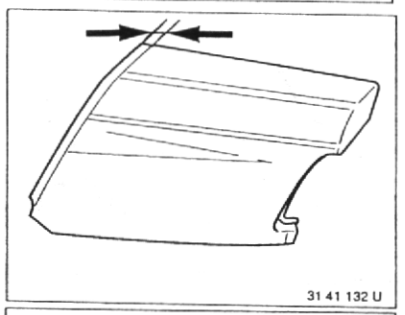


Shoulder side panel from point 1 to point 2; notch the edges.



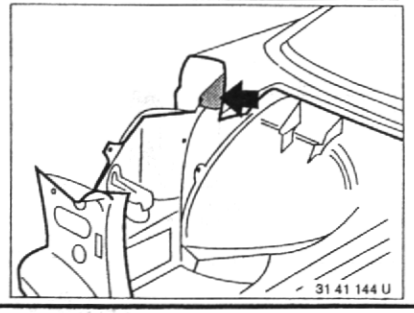
Cut off side panel along marked cutting line in the water drain.

Important!
Don't cut through reinforcements.



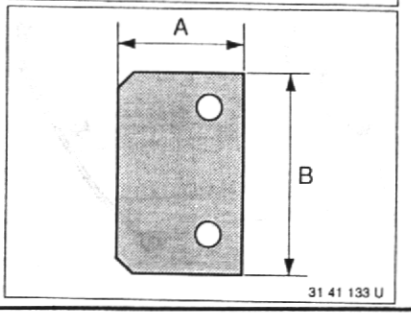
Mark cutting line on new side panel and cut off partial replacement section roughly.

Important!
Check shouldered distance on old side panel section still on car.



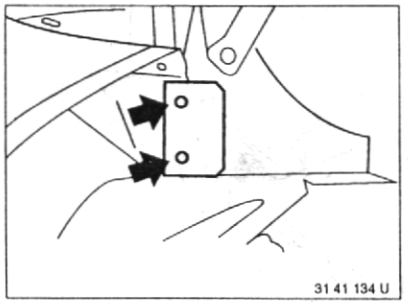
Location of reinforcements in the water drain.

Important!
Don't cut through reinforcements.



Produce reinforcement for side water drain connection and drill holes for plug welding.

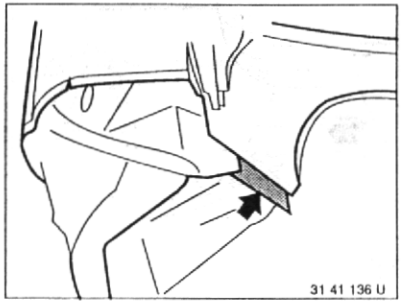
Distance A = approx. 30 mm (1.181")
Distance B = approx. 50 mm (1.969")



Fit in and plug weld reinforcement.
Make sure of sufficient overlapping – at least 15 mm (0.591") each.

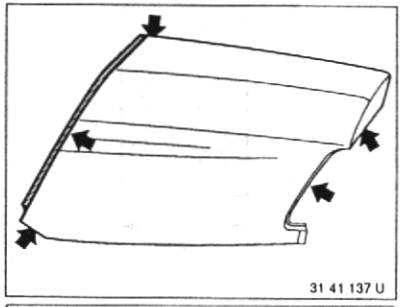
Produce reinforcement for bottom water drain connection.

Distance A = approx. 20 mm (0.787")
Distance B = approx. 35 mm (1.378")
Distance C = approx. 50 mm (1.969")
Distance D = approx. 75 mm (2.953")
Distance E = approx. 20 mm (0.787")

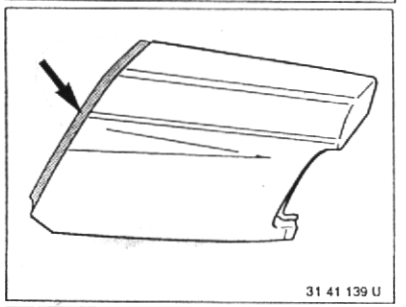


Fit in and spot weld reinforcement.
Make sure of sufficient overlapping!

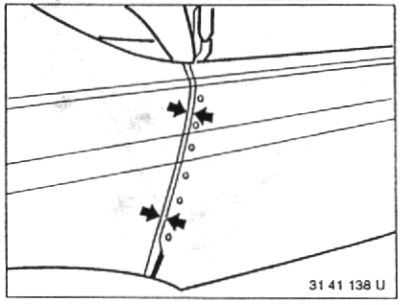
Fit in new part.



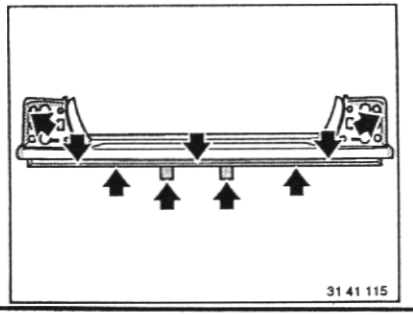
Clean welding surfaces on new part.
Coat welding surfaces with zinc dust paint.



Drill holes for plug welding.



Fit in new part, checking for uniform joint width.



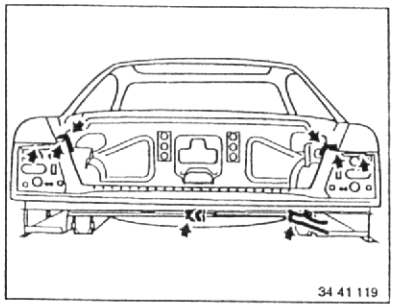
Clean welding surfaces on tail panel.

- Trunk floor plate
- Wheel house extension
- Tail light assemblies
- Inner reinforcements on trunk floor

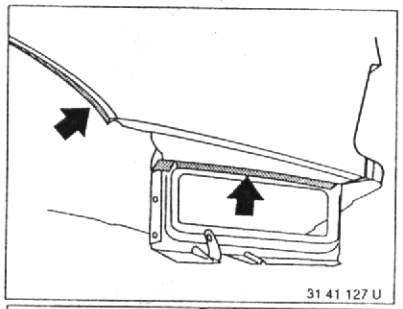
Spot weld along edge of side panel partial replacement section, placing the welded spots so close together that a welded seam is produced.

Important!
Always let a welded spot cool off slightly before producing an adjacent spot.
Danger of distortion!

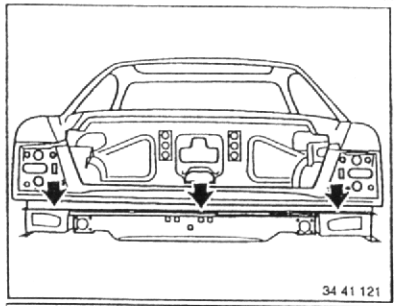
Braze tail panel and rear side panel connection.



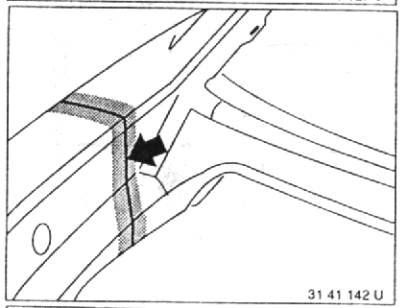
Straighten mating surfaces.



Tin and grind down mating surface in the water drain.

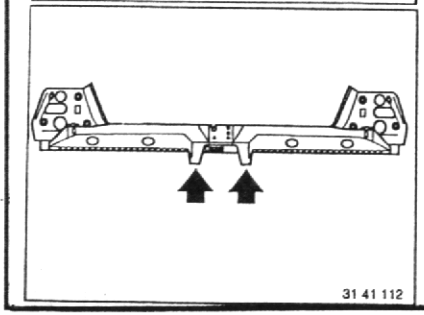


Spot weld in lamp holder.

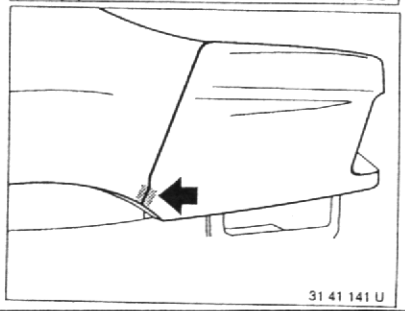


Tin and grind down mating surface on the side panel.

1 = Tail panel mating surface (brazed)
2 = Bead in rear side panel



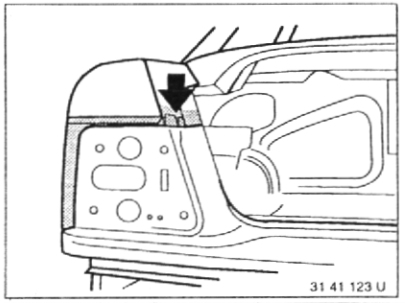
Braze water drain and lamp holder transition.



Fit in tail panel and rear side panel partial replacement section.

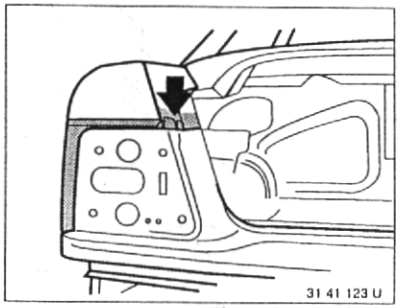
Straighten mating surfaces on tail light assemblies.
Hold tail panel in position with clamps, using brazing spots if necessary.

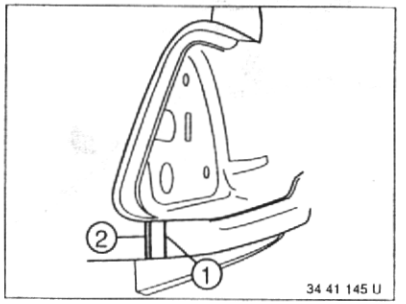
Spot weld tail panel on trunk floor plate.



Weld inner reinforcements of tail panel.

Note:
Tail panel was removed in picture for better illustration; view from trunk.





Plug weld along shouldered edge of side panel partial replacement section.

Spot weld on wheel house extension and in wheel house.

Spot weld side and bottom of water drain connection, placing spots so close together that a welded seam is produced.

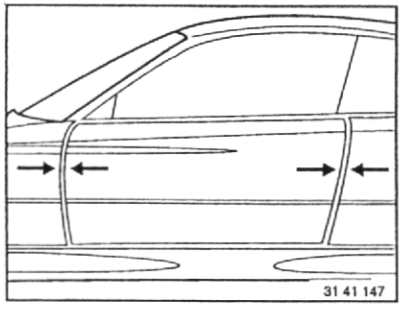
Important!
Protect rear window zone against excessive heat, as otherwise the rear window could leak.
Let a welded spot cool off slightly before producing an adjacent spot.

Butt weld along edge of wheel house.

41 51 004 ADJUSTING LEFT OR RIGHT FRONT DOOR

Car must be parked on level floor.

Note:
Only make adjustments on a completely assembled door.
A door with attachments has a different installed position as a door without attachments.
Check adjustment of side window after adjusting the door.



Door gaps = 5.5 + 0.5/– 1.0 mm (0.217 + 0.020/– 0.039").
Max. permissible deviation in parallel = 1 mm (0.039").
Max. plane offset of each adjacent body part toward rear = 1 mm (0.039") toward inside.

41 51 101 REPLACING LEFT OR RIGHT FRONT DOOR

Remove pin for retaining hook.
Remove and disconnect wire plug.
Remove door.

Transfer the following parts.
- Door trim panel and inside trim panel
- Control unit and wire harness
- Window recess strip, outside mirror, rear rubber cover, recess cover strip and bracket for trim panel
- Side window glass, window regulator and window guides
- Door lock and door handle
- Rubbing strip on outside of door
- Door retarder
- Rubber seals

Install and adjust door after transferring parts – see 41 51 004.