

VOLVO

Service Manual

Fault tracing

Repairs

Maintenance

Section 8 (81)

Body repairs
740/760

1982-19. .



Appropriate protective clothing and goggles should be worn at all times when welding, using power tools etc.

This manual should only be used by experienced body repair technicians.

Volvos are sold in versions adapted for different markets. These adaptations depend on many factors including legal, taxation and market requirements.

This manual may therefore show illustrations and text which do not apply to cars in your country.

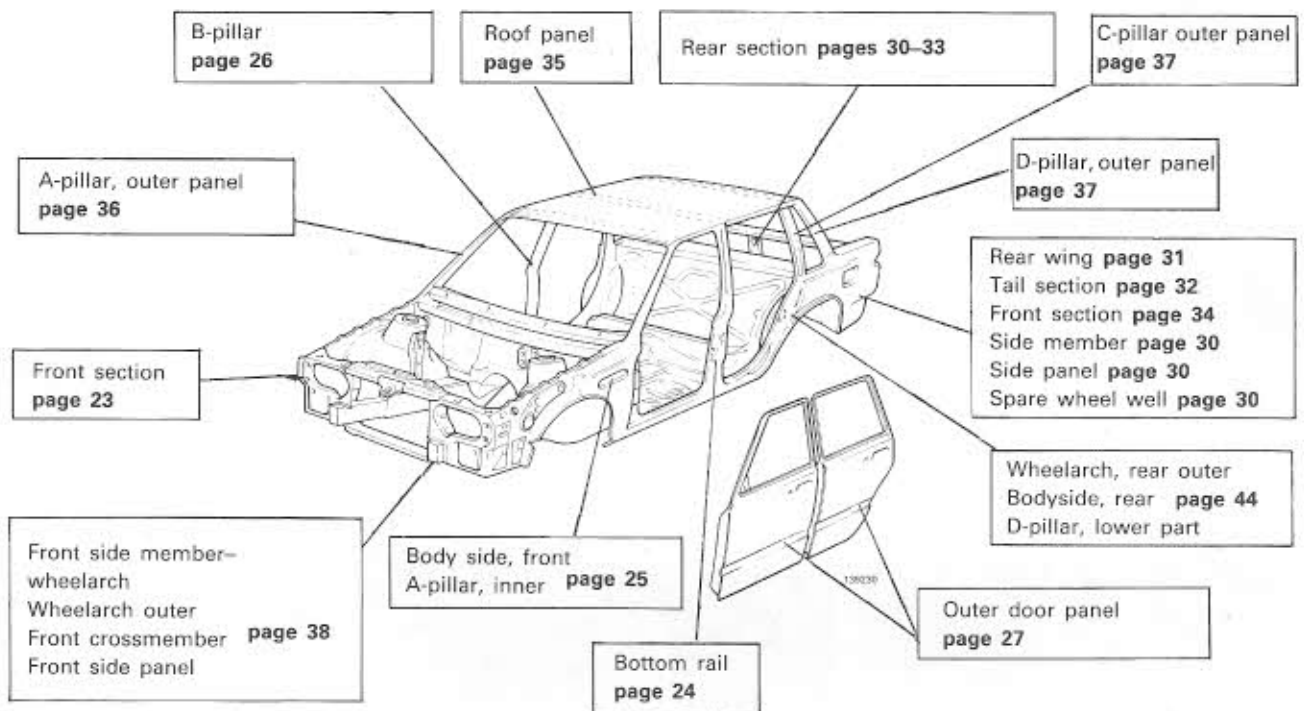
Volvo owners planning to export their cars to another country should investigate the applicable safety and exhaust emission requirements. In some cases it may be impossible to comply with these requirements.

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Body repair identification



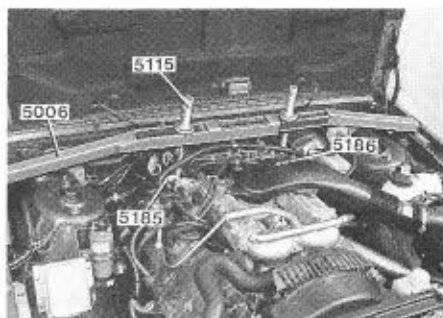
Order No.: TP 30468/2

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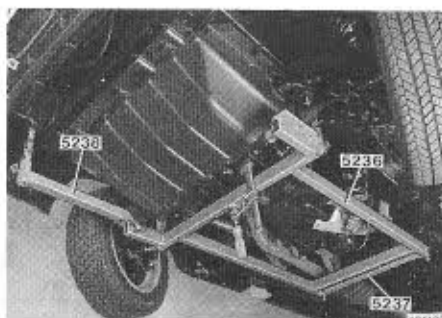
We reserve the right to make alterations without prior notification.

Special tools

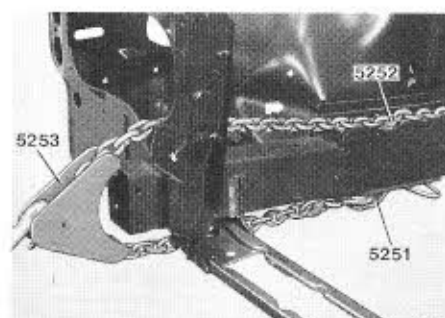
No	Description – Use
999 5006-5	Lifting tool for lifting rear of engine
999 5115-4	Hook for 5006 (2 X)
999 5185-7	Lifting eyes: extension to 5115, right side
999 5186-5	Lifting eyes: extension to 5115, left side
999 5236-8	Jig for aligning and replacement of front side numbers, used with 5237, 5238
999 5237-6	Fixture for 5236
999 5238-4	Jig arm for checking front section, front sidemember, used with 5236
999 5251-7	Chain attachment for front side member, used with 5252 and 5253
999 5252-5	Chain attachment for front side member, used with 5251 and 5253
999 5253-3	Chain yoke used with 5251 and 5252
999 5254-1	Chain attachment for ends of front and rear side members
999 5255-8	Chain attachment disc for aligning wheelarch turret position
998 5256-6	Chain attachment for rear side member, used also as counterhold
999 5257-4	Gauge rod between wheelarches, for alignment and replacement
998 9647-4	Spacer required to modify gauge rod for use on high and low suspension towers (turrets)
999 5258-2	U-bracket for front side member, used as counterhold and aligning sides
999 5964-5	Gauge rod used for wheelarch turrets



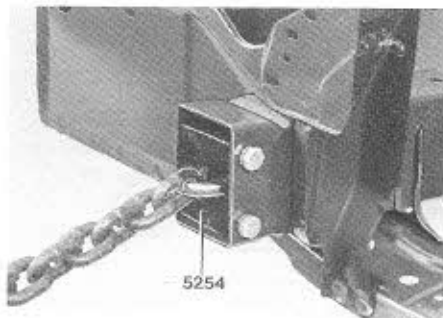
5006, 5115, 5185, 5186



5236, 5237, 5238



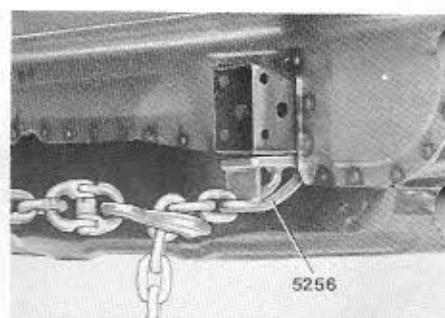
5251, 5252, 5253



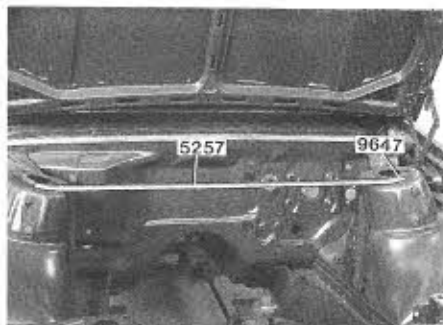
5254



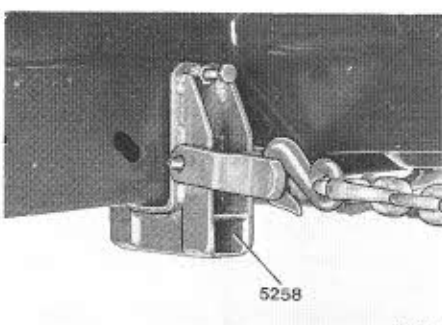
5255



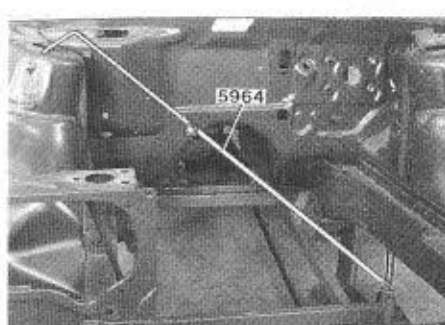
5256



5257, 9647



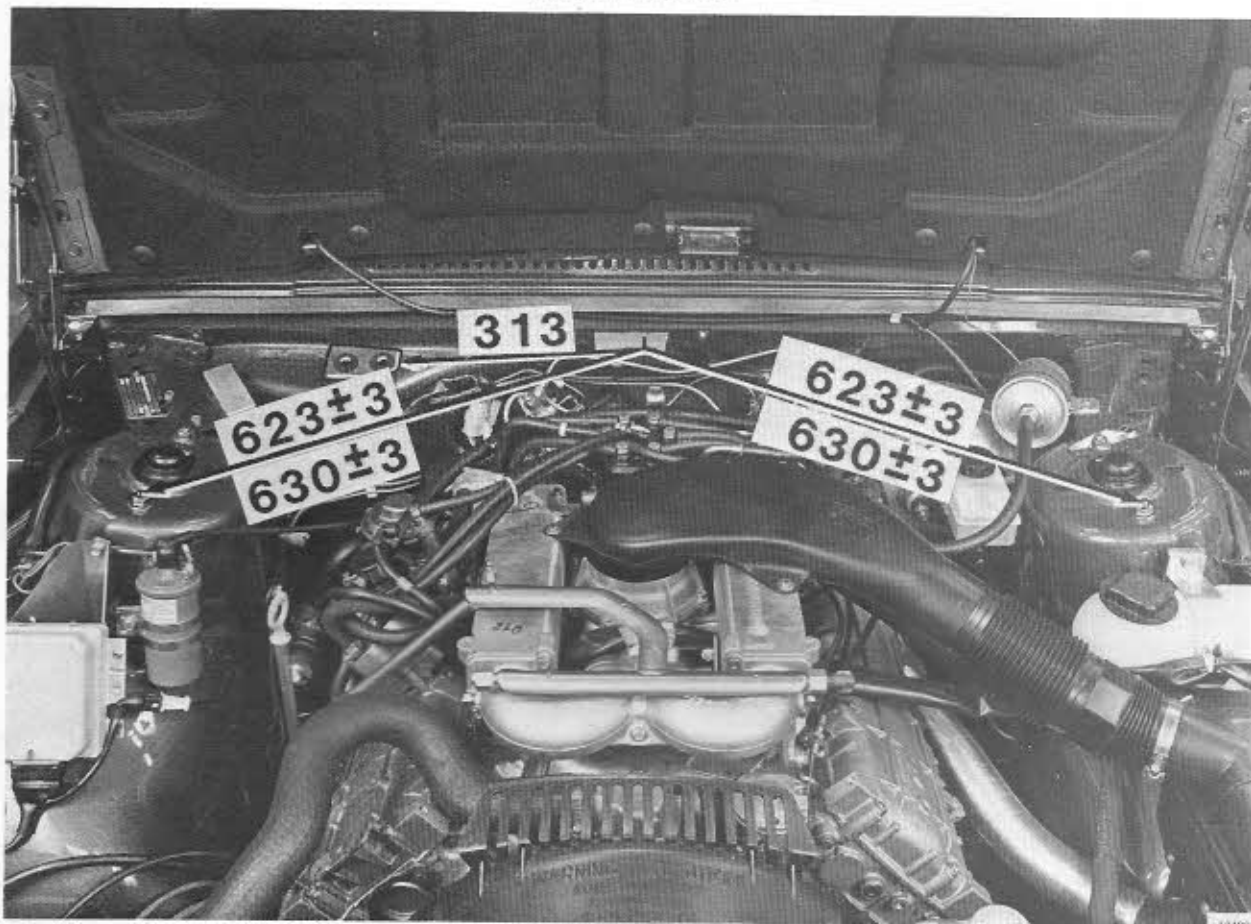
5258



5964

A. Checking wheelarch turret (suspension tower) position

(engine installed)



A1

Stick a piece of tape at approximately center of firewall.

Measure 313 mm (12.33 in) from edge of hole for evaporator mounting and mark up approx. 30 mm (1.18 in. from upper edge of firewall.

A2

Measure distance from this point to center of front bolt on wheelarch turret (tower)

Low turret (tower)	630 ± 3 mm (24.82 ± 0.12 in)
High turret (tower)	623 ± 3 mm (24.55 ± 0.12 in)



A3

If spring strut is not fitted

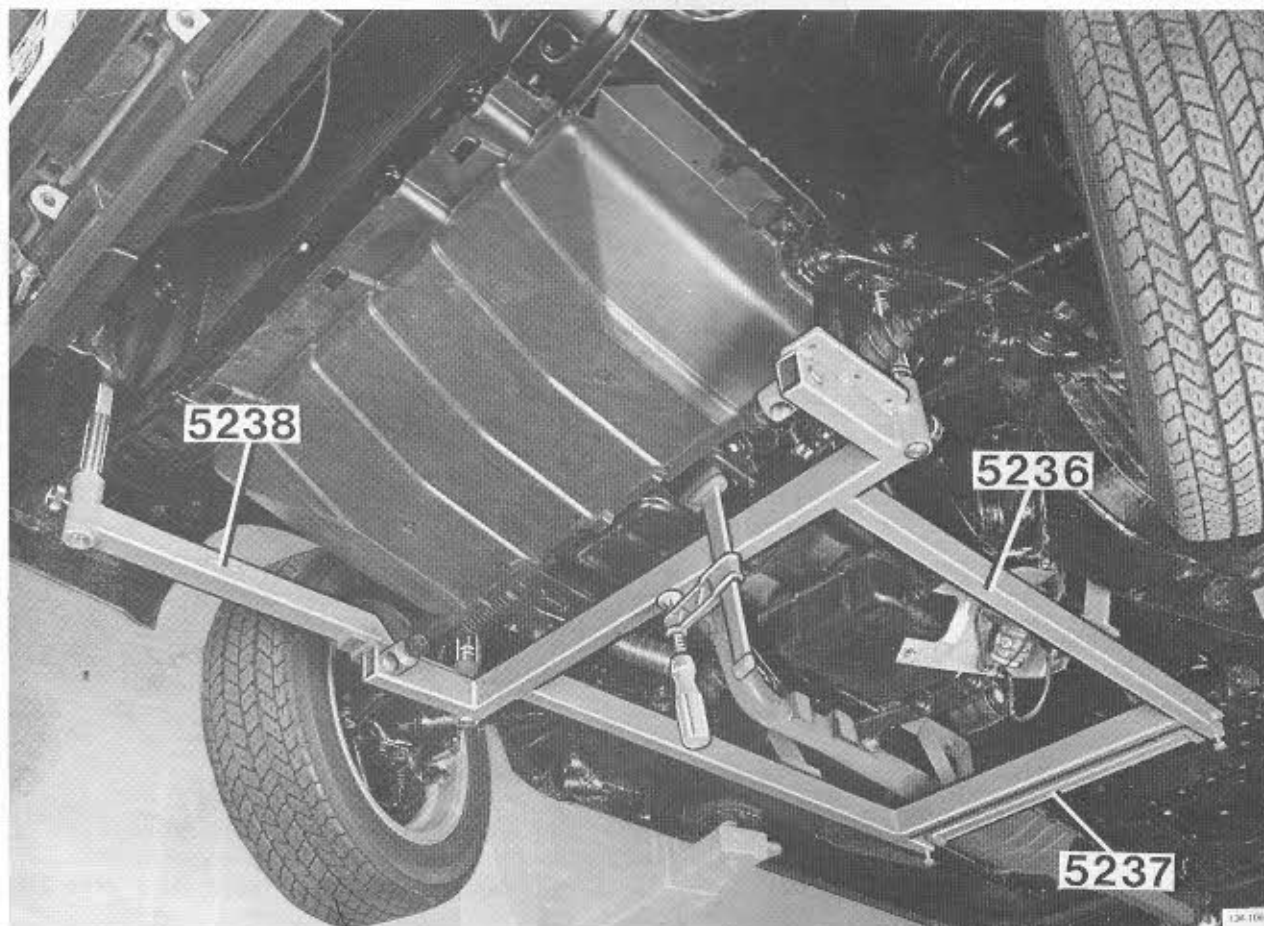
Measure distance from center of the hole.

Low turret (tower)	630 ± 3 mm (24.82 ± 0.12 in)
High turret (tower)	623 ± 3 mm (24.55 ± 0.12 in)

B. Checking front end alignment

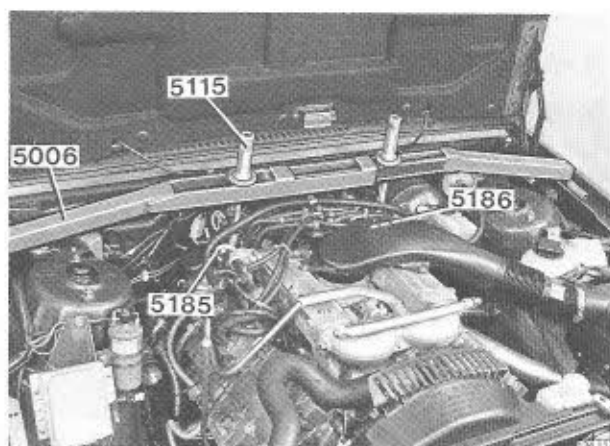
(engine installed)

Special tools: 5056, 2x5115, 5185, 5186, 5236, 5237, 5238



Note: The jigs must not be forced into position.

When aligning the body, the jig alignment pins should be lowered or alternatively the front section of the jig should be lowered down. The car should be supported on stands or a hoist. Note that the angle of the front end can vary depending on how the car is supported.



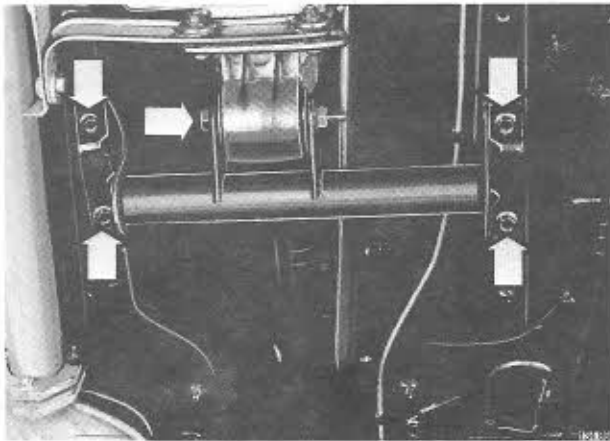
Attach fixture:

(Open bonnet/hood fully)

Attach to rear of engine, lifting tool 5006 and 2 hooks 5115 and lifting eyes 5185, and 5186.

B1

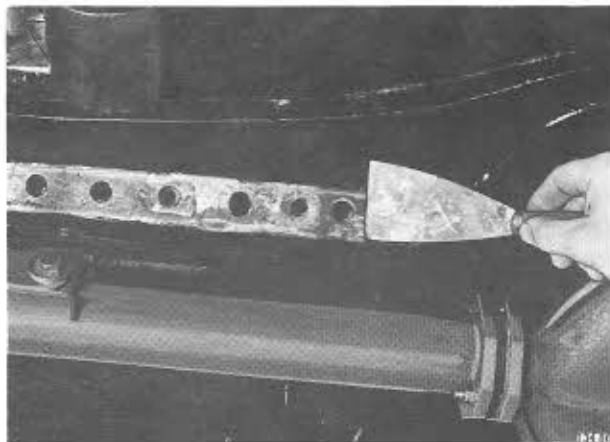
B2



Remove:

- engine splashguard (if vehicle is supported on stands)
- gearbox crossmember, see left.

B3



Clean surfaces for fixture 5237

Remove underseal (undercoating).

B4

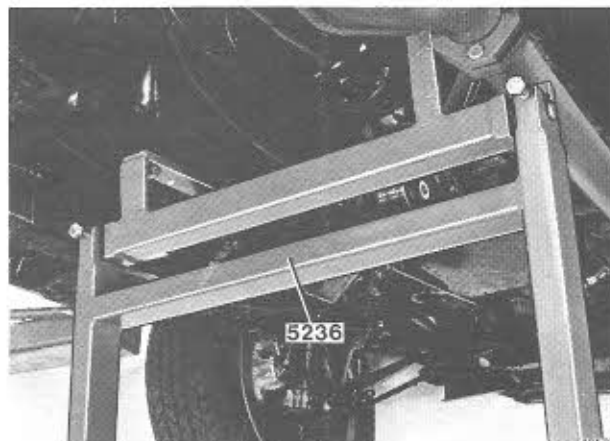


Attach 5237

Attach it first to the diagonal beam (make sure that the guide studs are located correctly).

Use bolts supplied with 5237.

B5



Attach jig 5236 to fixture 5237

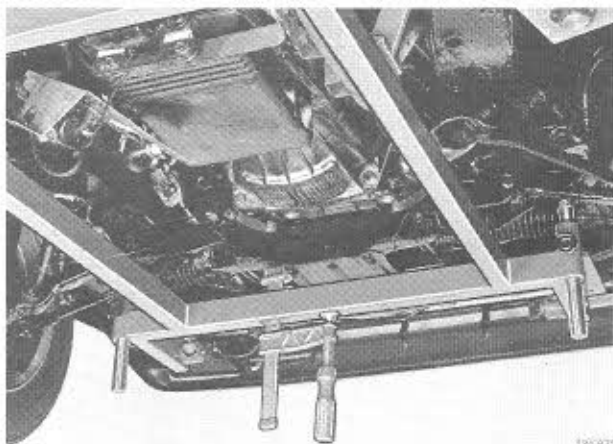
Attach jig to pins on fixture.

Tighten bolts by hand.

Make sure that pins bottom in forks.

Group 81 Body

Checking front end alignment



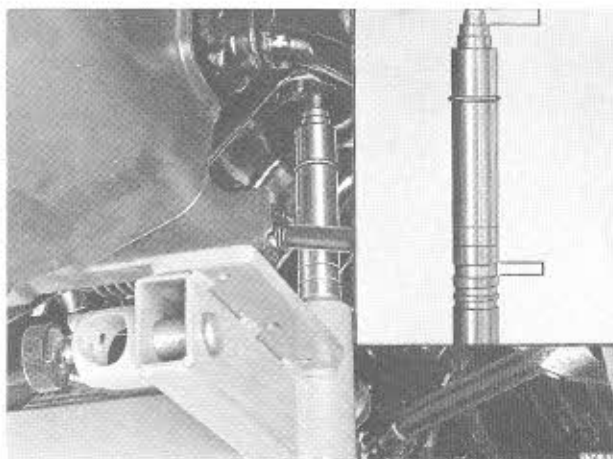
B6

Clean surfaces on front axle member where fixture 5236 contacts it.

Swing up the jig against the front axle member, there should be a flush contact.

Clamp the jig in this position.

Under no circumstances should the jig be held in position without the clamp.



B7

Check position of side members at front axle

Slide the alignment pin up into the side member.

The smallest diameter on the pin must fit into the side member.

The upper groove on the pin must be flush with the jig.



B8

Check alignment of front end of side members

Attach jig arm 5238 to jig 5236. Slide the alignment pin up into the front end of the side member.

The side member is correctly aligned if the groove shown on the left is visible. Due to variations in engine weight and method of support, pin positions down to the lowest mark are acceptable.

B9

Cars with air conditioning

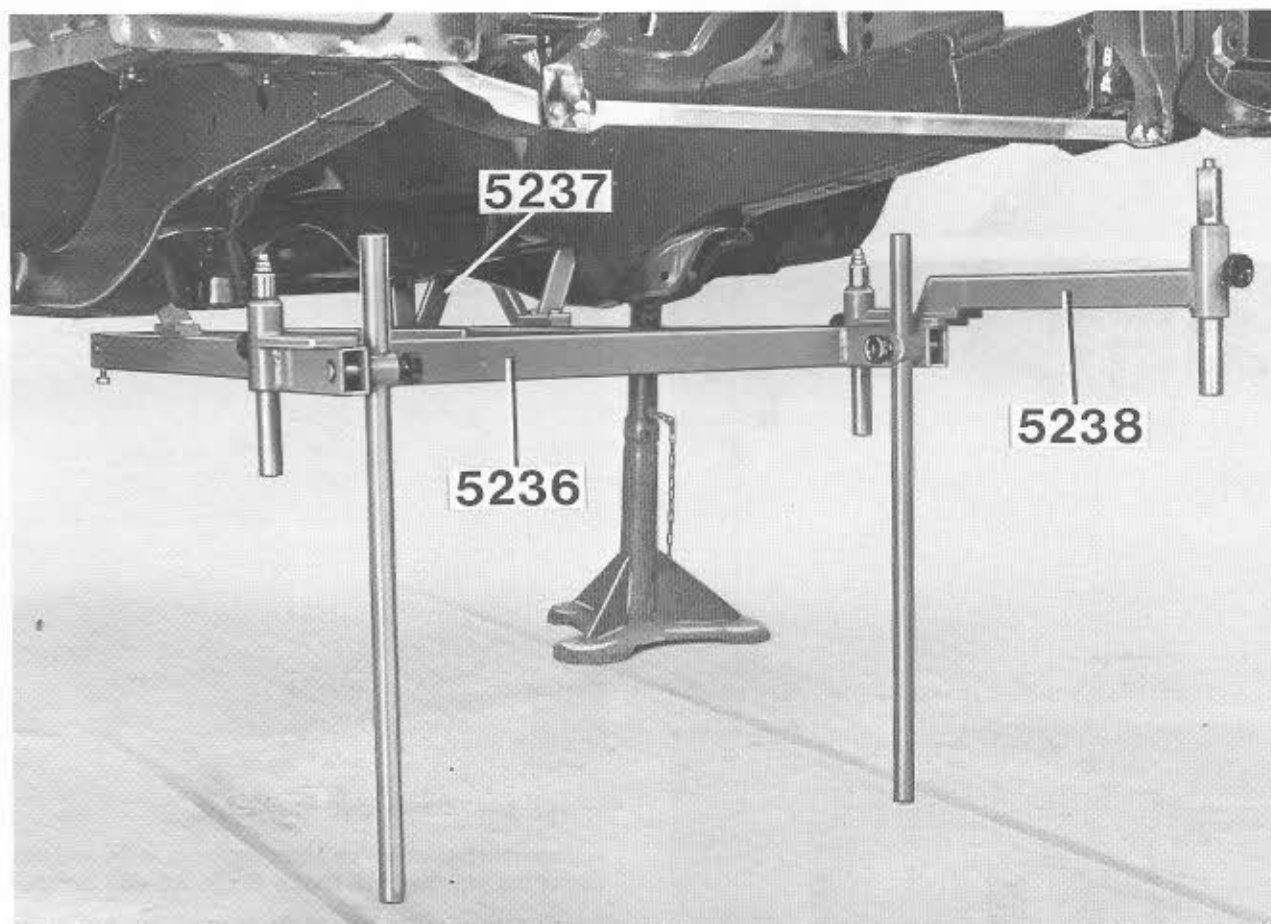
The alignment pin hole in the right hand side member is covered by the refrigerant tube to the condenser.

Therefore check the left hand side and use the alignment pin to sight the right hand side member.

C. Checking front end alignment

(engine removed)

Special tools: 5236, 5237, 5238, 5257, 5964, 9647



Note: The jigs must not be forced into position.

When aligning the body, the jig alignment pins should be lowered or alternatively the front section of the jig should be lowered down. The car should be supported on stands or a hoist. Note that the angle of the front end can vary depending on how the car is supported.



Clean surfaces for fixture 5237

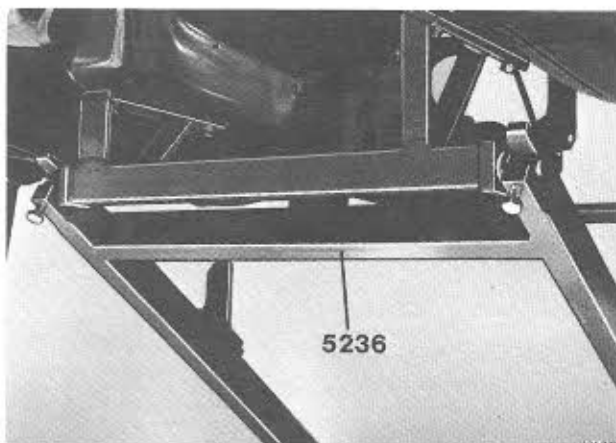
Remove underseal (undercoating).

Attach 5237.

Attach it first to the diagonal beam (make sure that the guide studs are located correctly).

Use the bolts supplied with 5237.

C1



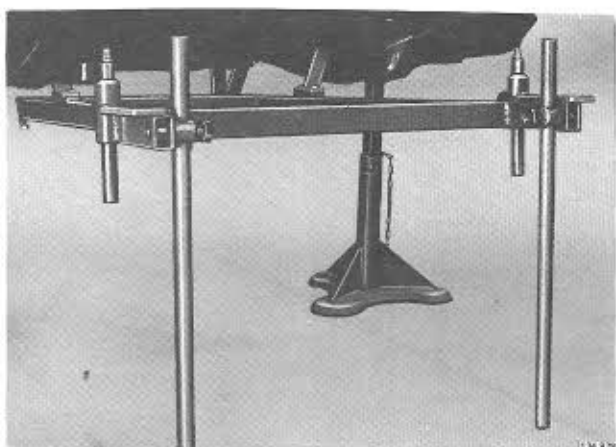
C2

Attach jig 5236 to fixture 5237

Attach jig to pins on fixture.

Tighten bolts by hand.

Make sure that pins bottom in forks.



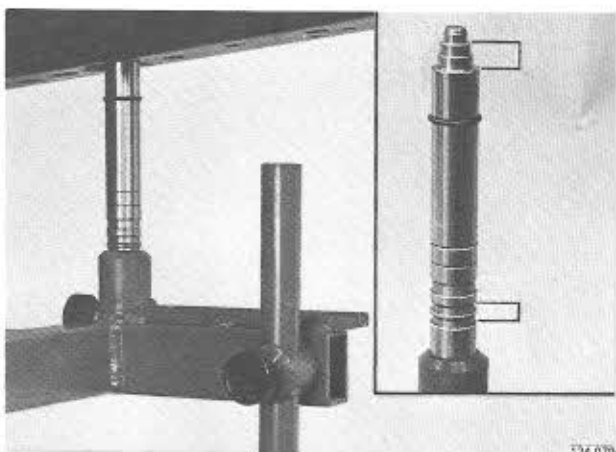
C3

Clean surfaces on front axle member where fixture 5236 contacts it

Grind off any welding slag.

Swing up the jig against the front axle member, there should be a flush contact.

Secure the jig in this position with the support stands.



C4

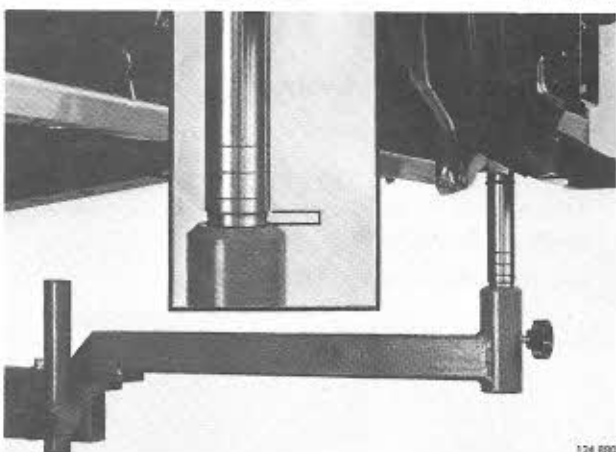
Check position of side members

Acceptable position: The center diameter at the end section of the alignment pin should fit into the side member.

Exact position: The largest diameter at the end of the alignment pin should fit into the side diameter.

The lower groove should be visible.

The exact position should be used when fitting a new side member.

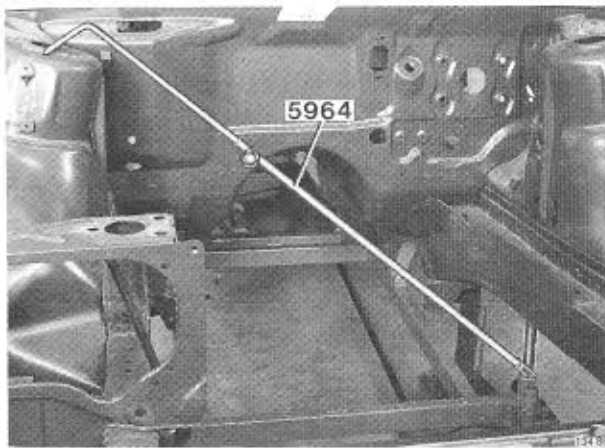


C5

Checking front end of side members

Attach jig arm 5238 to jig 5236.

The side member is correctly aligned if the groove shown on the left is visible.



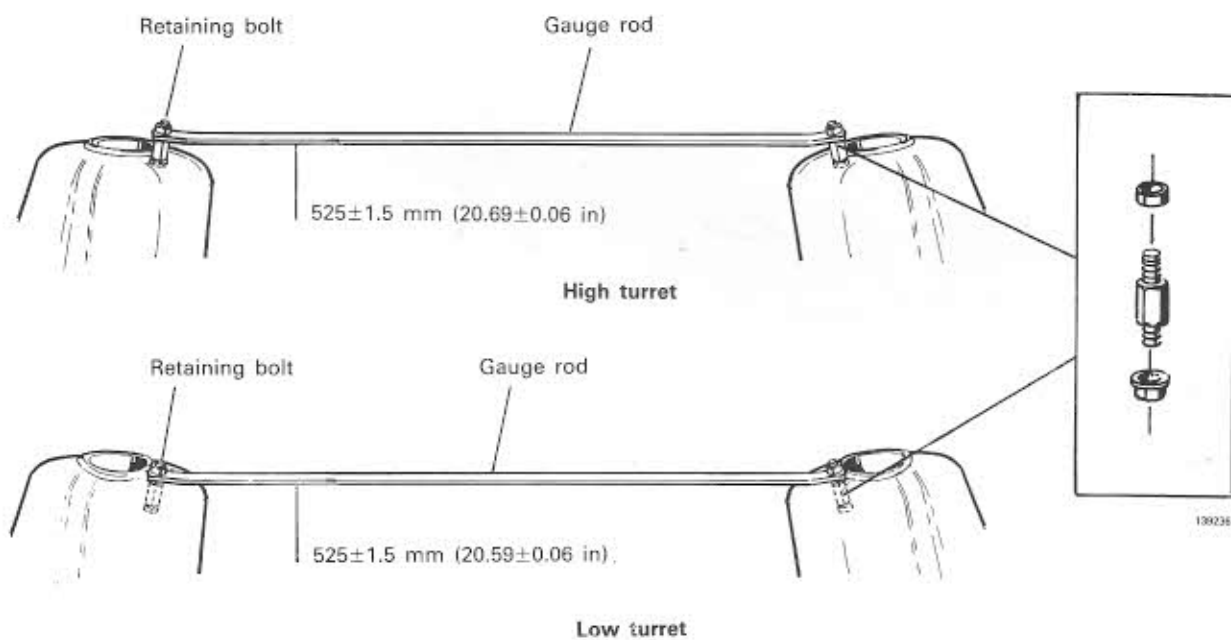
C6
Checking alignment of wheelarch turret (tower) using gauge rod 5964

Max deviation = 5 mm (0.20 in).



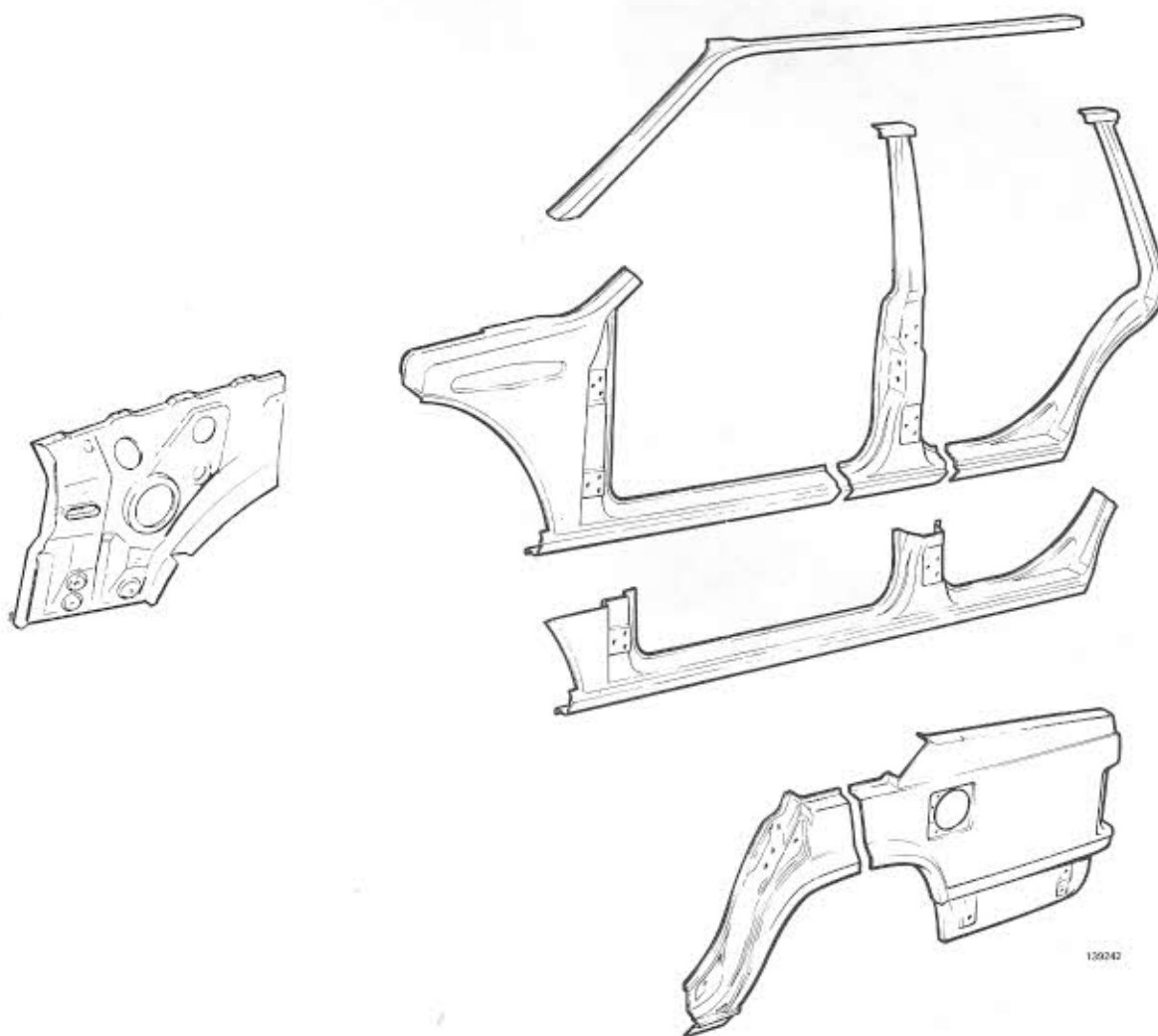
C7
Checking alignment of wheelarch turret (tower) using gauge rod 5257 and spacer 9647

Gauge rod can be used for both high and low turrets by adjusting position of retaining bolt as illustrated.

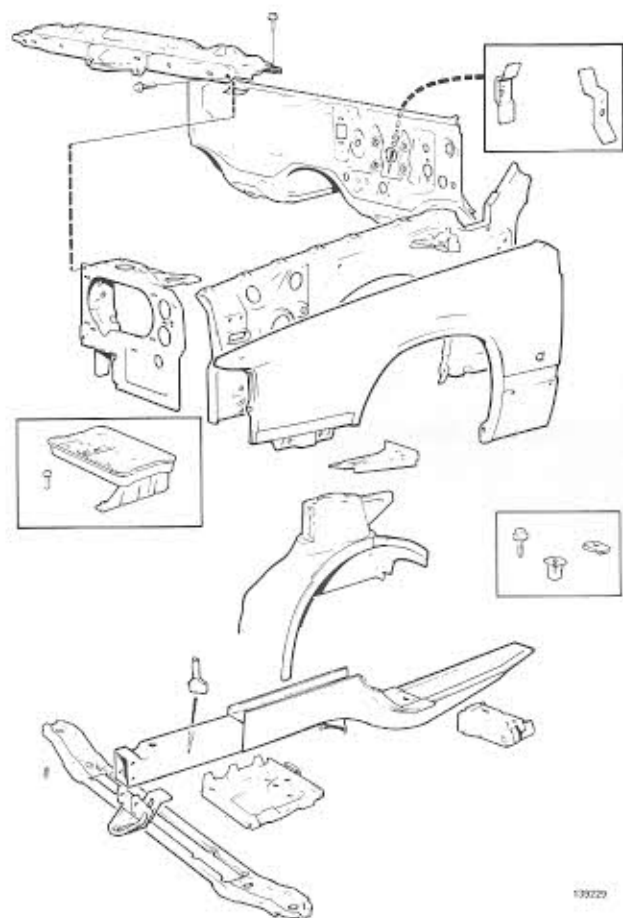


D. Prepressed parts

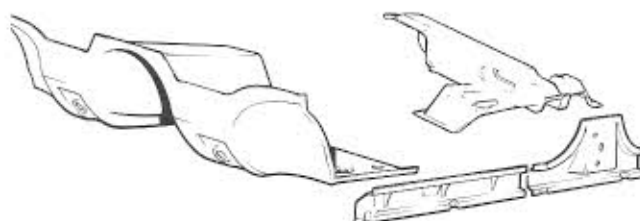
The parts shown below can be used to replace damaged bodywork sections.



E. Replacement parts



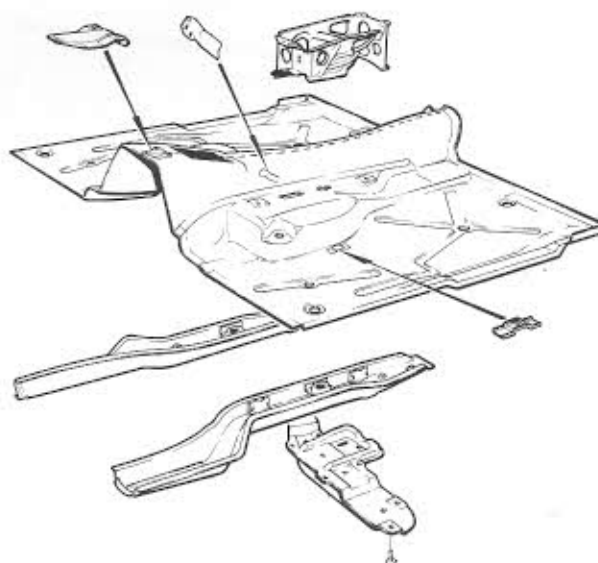
Front section including side member
and inner and outer wheelarches



Front floor section



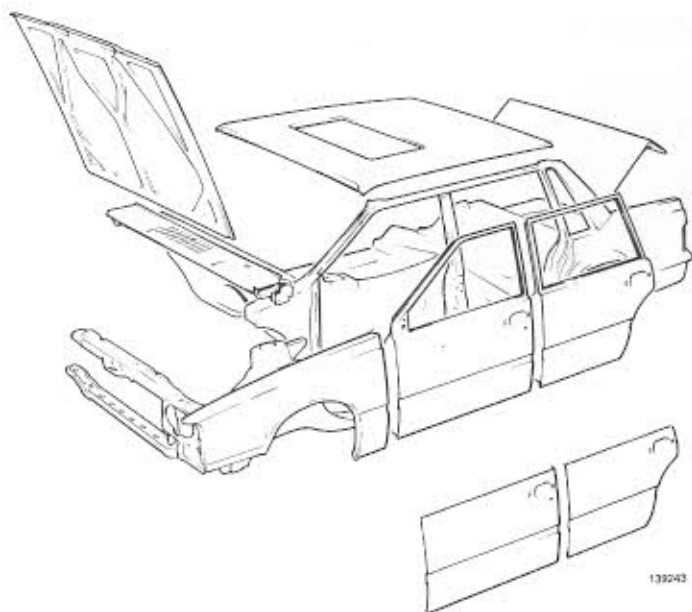
139237



134115

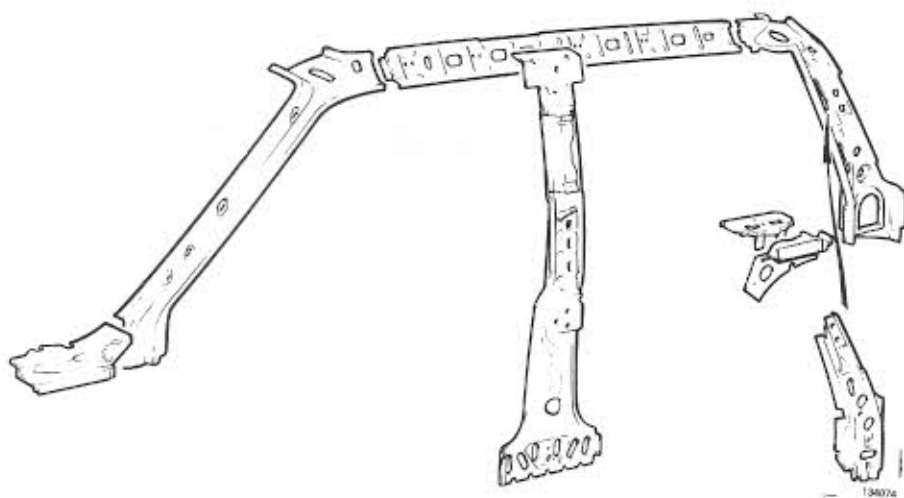
Pop rivet mounting brackets into position.

Group 81 Body
Replacement parts



Bodyside, inner

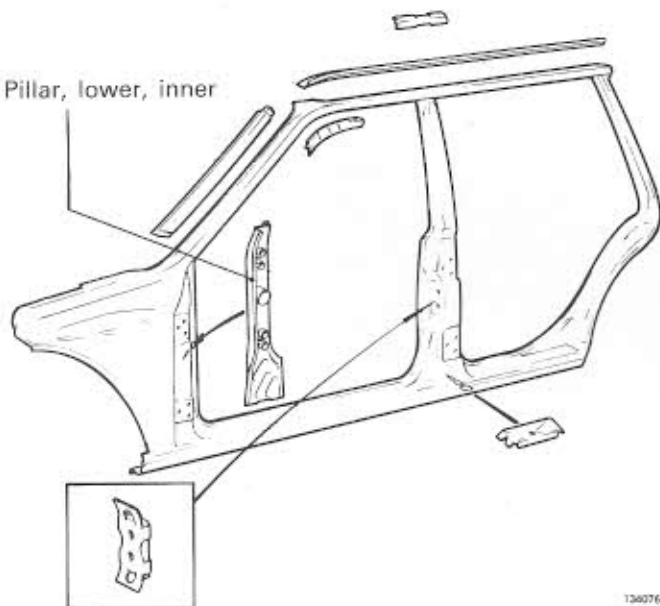
138043



138076

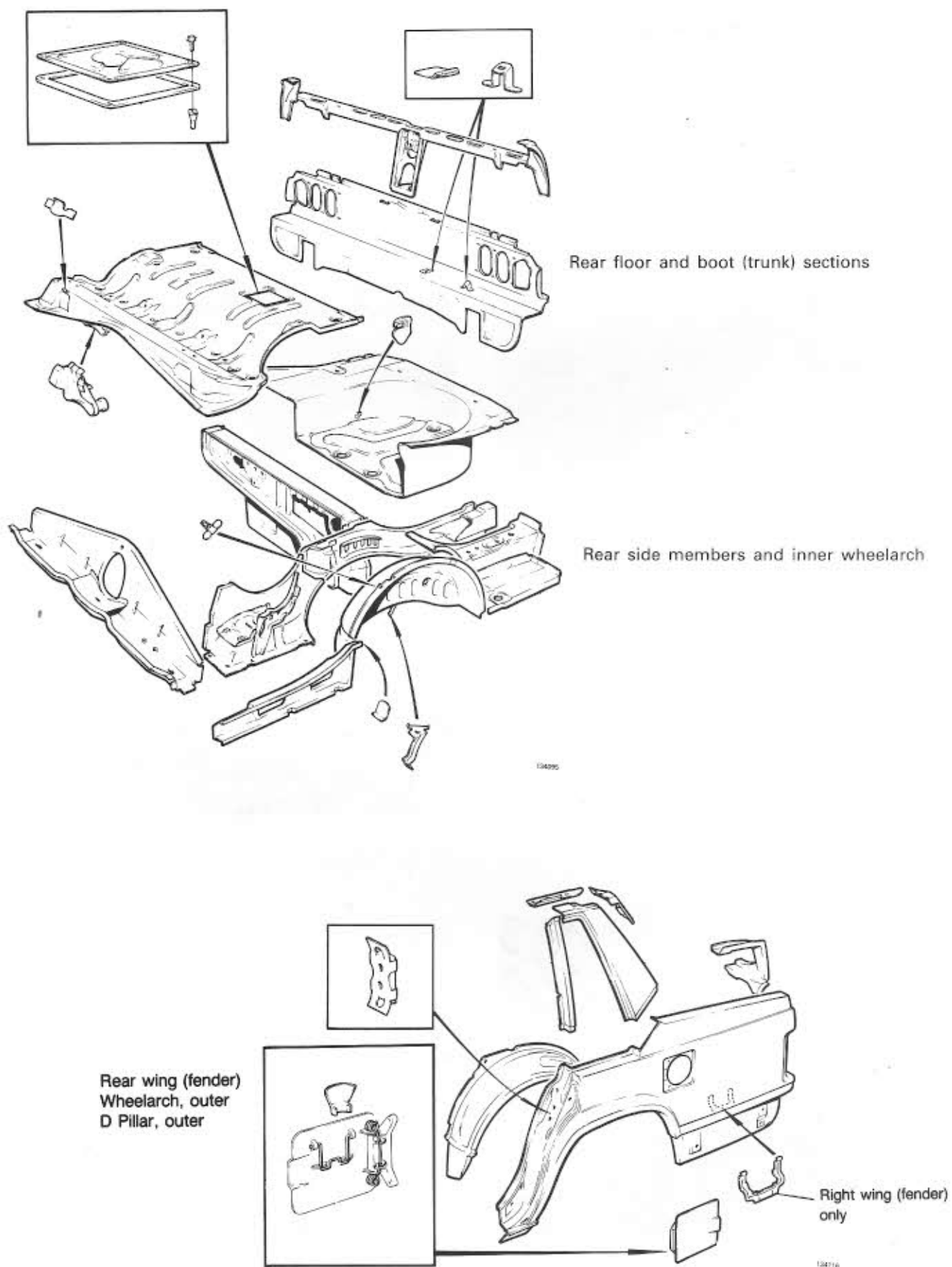
D Pillar, inner

A Pillar, lower, inner



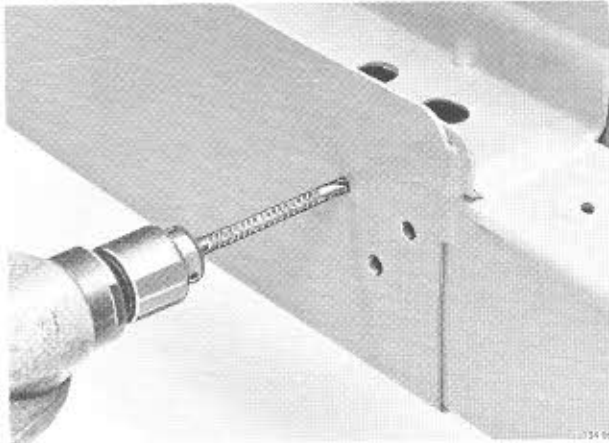
Bodyside, outer

138076



F. General repair procedures for replacement of panel work

Wear appropriate protective clothing and goggles when welding, using power tools etc.

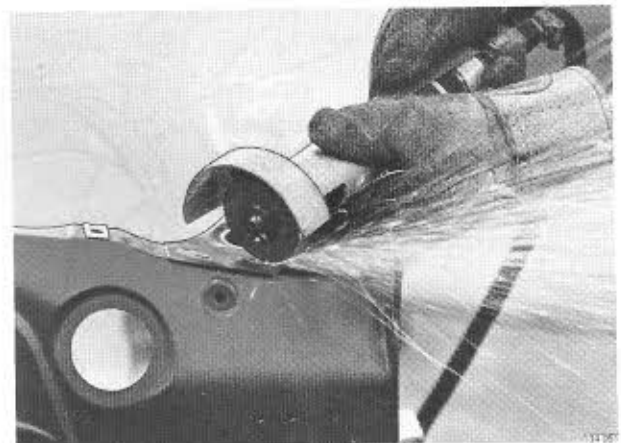


F1

Removal of welded joints

There are several methods which may be used:

1 Removing spot welds by drilling or grinding. Grinding off bead welds.



Using a power chisel to remove damaged sections.

F2

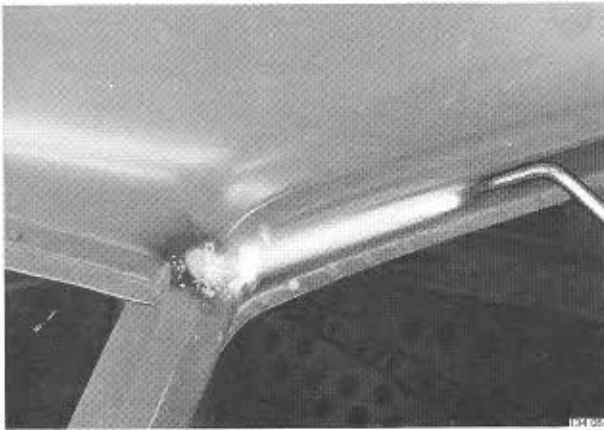
2 Removing section with a chisel

If the bead weld comprises a thin panel on top of a thick one, it may be possible to remove the weld directly without damaging the thick panel.

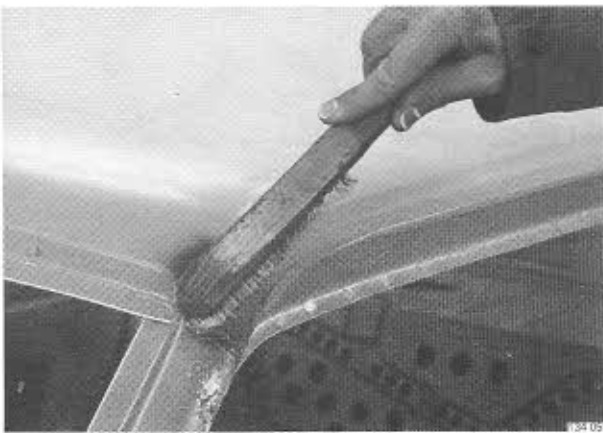
F3

Soldered seams

Remove solder prior to separating seams.



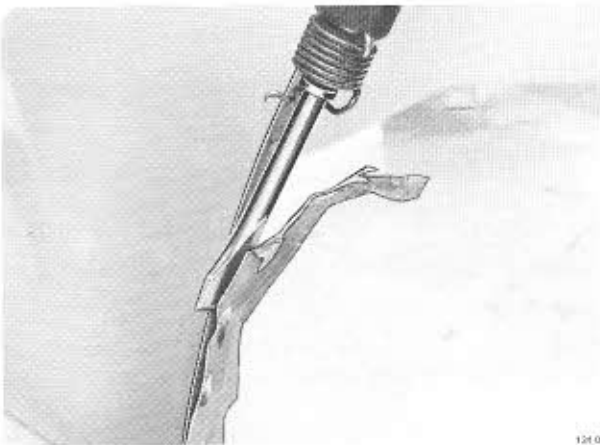
Use an oxy-acetylene flame to heat the seam, and remove the solder with a wire brush.



F4

After separating the joint

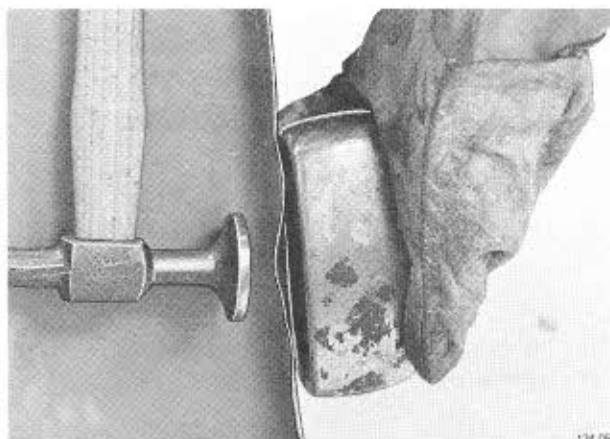
Trim the mating surfaces with a cutter.



F5

Grind-clean mating surfaces

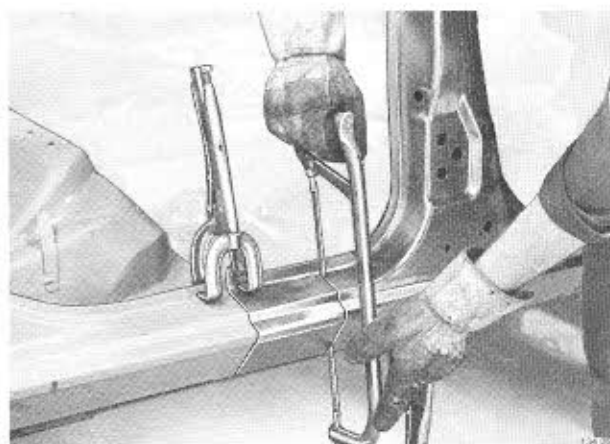




F6

Align flanges and other mating surfaces

Use a hammer and a dolly block.

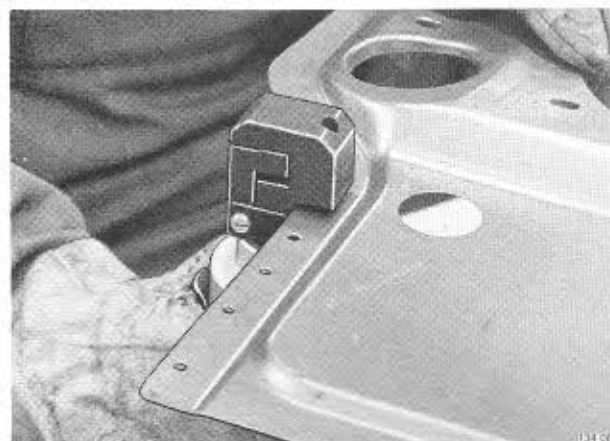


F7

Cut new section to size

Cut to approximately right size.

If possible, position the new section and cut through both panels at the same time.



F8

Punch holes in new section for plug welds

Punch or drill holes in upper panel.

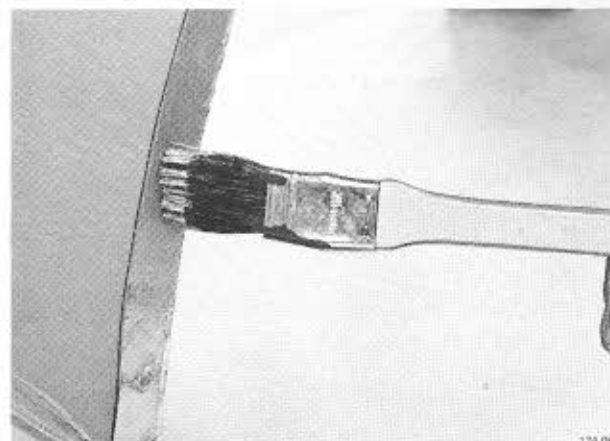
6 mm (0.24 in) for panels less than 1.5 mm (0.06 in) thick

8 mm (0.32 in) for panels more than 1.5 mm (0.06 in)

Space the holes approx. 25–35 mm (1.0–1.4 in) apart.

High Strength Steel

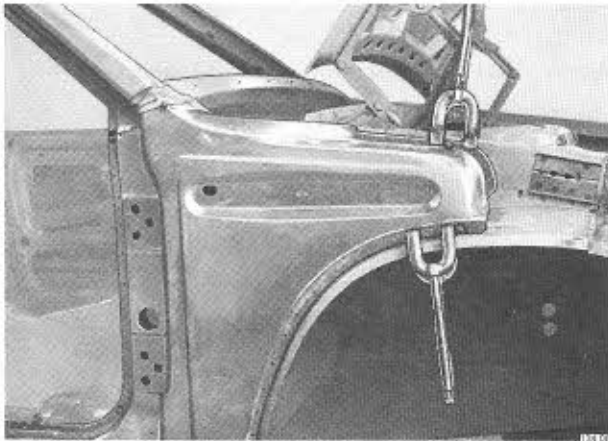
Slightly larger holes, placed 20 mm (0.79 in) apart, are required for HSS panels.



F9

Coat mating surfaces with weld primer

Metal surfaces must be bare and free from dirt. Grind-clean wherever necessary.



F10

Position new section and tack weld

Use welding type vice grips.

Keep number of spot welds to a minimum.



F11

Check fit

Make sure that the new part fits correctly; for instance by testing with doors, wings (fenders), boot (trunk) lid, bonnet (hood) etc.



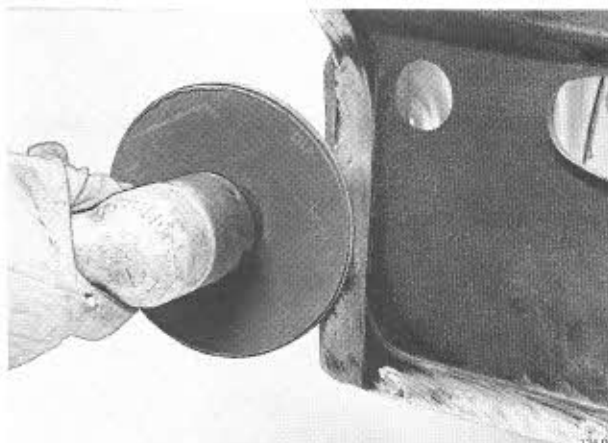
F12

Weld

Spot or bead weld the new section.

Refer to bodywork illustrations for recommended welding method.

Aluminum can be welded with appropriate welding equipment.



F13

Use a sanding disc to remove any high spots

Surrounding panel(s) must not be sanded.

F14

Drill holes

E.g. drill holes for any new mounting brackets required.

Diameter = 2.5 mm (0.1 in)

Holes must be drilled prior to painting

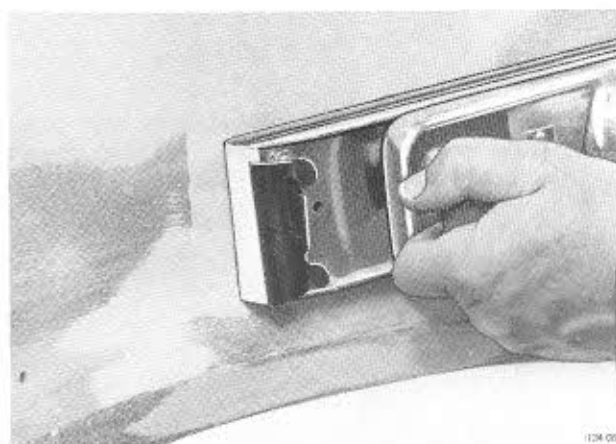


F15

Apply filler to joints and uneven sections

Use plastic body filler.
Apply with a plastic spreader.

Note: With some types of fillers it is necessary to apply a primer prior to the filler to improve rustproofing of surface.
(Refer to manufacturer's instructions.)



F16

Grind and file joint(s)

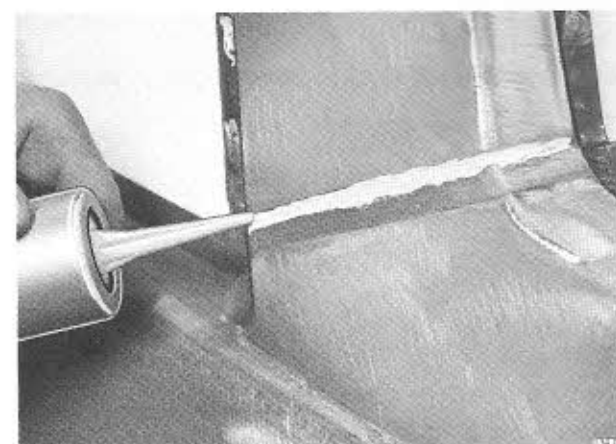
Depending on type of surface select a rough file, sanding disc or block.



F17

Sealing (caulking)

Smear surfaces with rustproofing primer to improve adhesion.



F18

Apply sealer

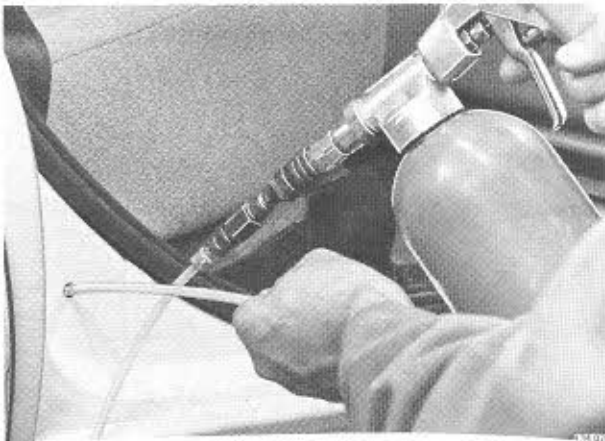
Use an air cement gun (caulking gun) with a suitable adapter.

(If rear door or trunk lid is replaced apply sealer to new part prior to installation.)

F19

Rustproofing

On completion of repair and after painting it is extremely important that the repaired surface is treated with a suitable rust proofing compound.



F20

The inside of panel sections should be sprayed with a low viscous rustproofing compound, so that all cavities and sections are coated. A power spray with a 360° nozzle and/or an angle nozzle is ideal. Withdraw the nozzle while spraying.



F21

The underbody and wheelarches etc. should be treated with a thicker rustproofing compound. Surfaces which are exposed to mechanical wear should be sprayed with an additional layer.



G. General repair instructions for aluminium parts

(Wear appropriate protective clothing and goggles when welding, using power tools etc.)

G1

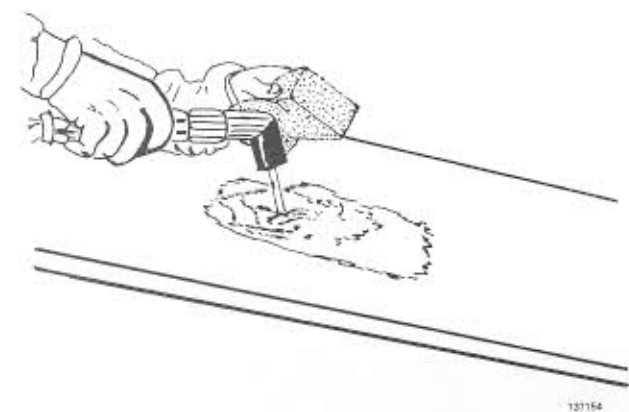
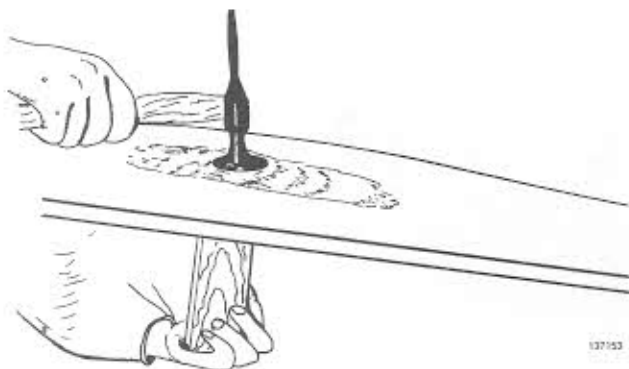
Welding

Not all welding equipment can be used to weld aluminum parts.

G2

Shaping

Great care must be taken when shaping aluminium sheet. If it is not possible to press out the damaged section by hand, a hammer and wooden dolly should be used – short light blows are best.



G3

Shrinking

Can be carried out electrically with a carbon rod, or with a gas flame. In both cases, repeated application of heat followed by rapid cooling should be carried out until original characteristics are obtained.

G4

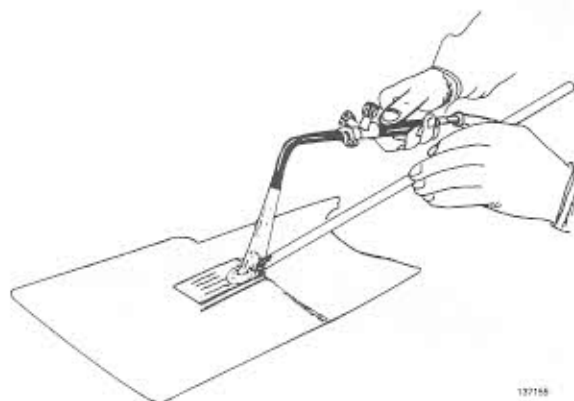
Soldering

Soft solder without flux can often be used to repair small holes. However, the method has its disadvantages – the application of heat causes high tensile stress in aluminum sheet which as a result must be shrunk to attain its original characteristics (a time consuming process).

Soft soldering method:

1. Thoroughly clean surface to be soldered.
2. Adjust torch to obtain a soft flame (LPG can be used instead) and apply heat until solder melts on contact with surface.

Thick layers of solder can now be applied to surface without difficulty.





G5

Grinding

To prevent heat damage use a low speed disc sander (approx. 1200 rpm) with disc No. 80.



G6

Filler

Apply filler to joints and uneven sections. Use plastic body filler. Apply with a plastic spreader.

Note: It may be necessary to apply primer to surface prior to filler. (Refer to manufacturers instructions.) Primer improves corrosion resistance.

H. High Strength Steel

HSS stands for High Strength Steel and refers to cold rolled steel plate which is especially designed for pressing. Its strength is obtained by using alloys (Vanadium, Niobium, Titanium, Phosphorous) or by thermal hardening.

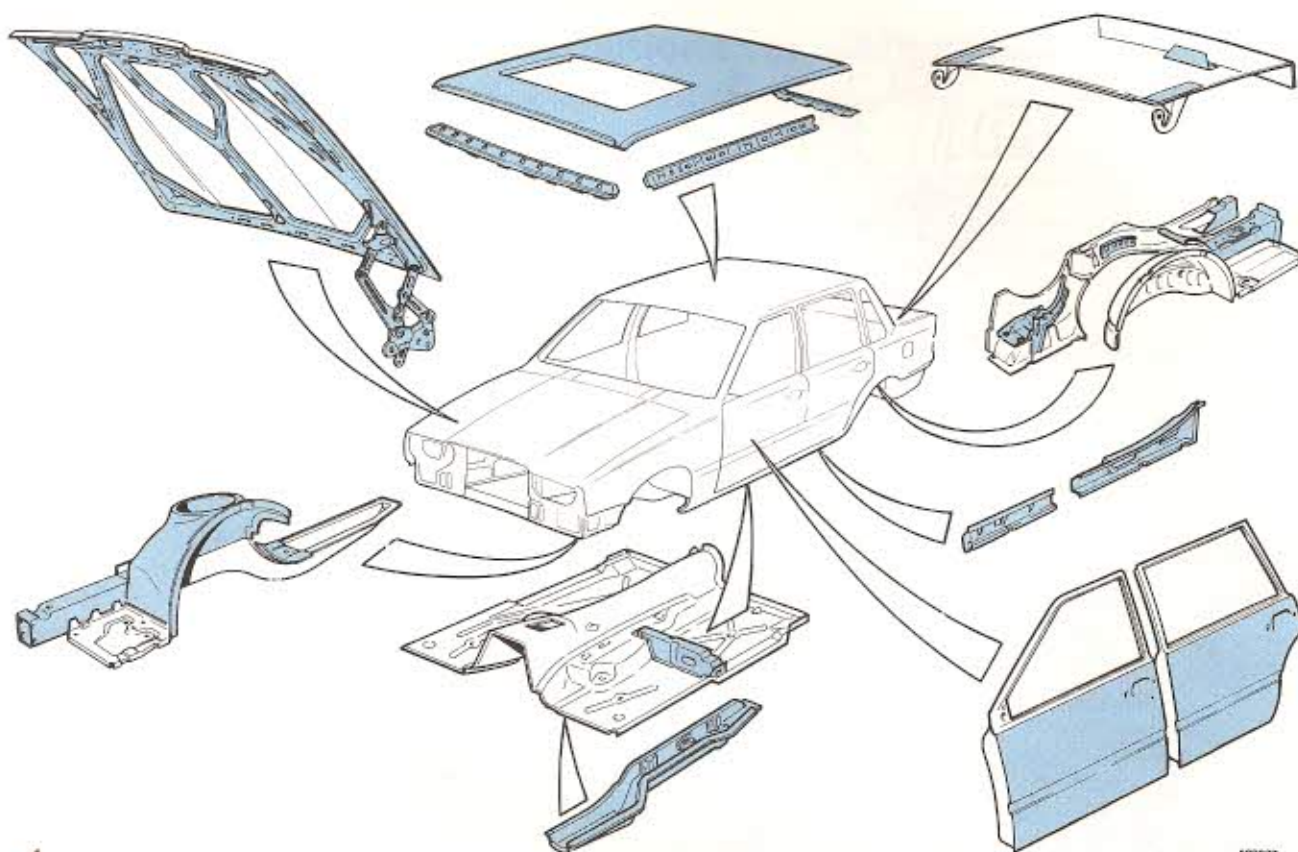
Compared with standard steel plate, HSS has a greater tensile strength. Consequently thinner panel sections can be used without any corresponding loss in strength. Moreover weight can be saved.

The tensile limit of HSS increases with temperature to a certain point, this helps when painting, but special care has to be taken when welding or panel beating as HSS can be difficult to reshape.

It is advisable to use MIG or spot welding equipment when repairing damaged sections to lessen the chances of overheating. Do not use oxy-acetylene welding equipment.

Similarly when reshaping or realigning panels on an alignment jig do not use an oxy-acetylene torch to heat HSS.

It is also important to follow instructions for joining body sections, given on the following pages.



HSS shown in blue (note that some parts were brought into production before 1985).

Body sections, welding

The illustrations in the following section are intended only as examples of how the different body sections may be welded. Preparing the body section, removing and refitting parts are not dealt with in this manual. The different types of welds which must be used for a certain body section are indicated in each illustration as well as the type of joint. Repair procedures and hints are also given.

Plug welds can be used in certain cases instead of spot welds, see page 16, F8-12.

Note: In some of the illustrations the Volvo body aligner is shown. The fixtures 5236-5238 can however be used instead.

Welding

The majority of the seams and joints are spot welded during the manufacture of the body.

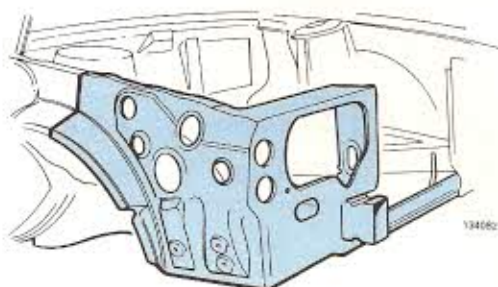
The equipment needed for this type of welding is awkward to operate and cannot be used in a normal workshop. When welding new panel sections, the original finish should be copied as far as possible to maintain strength characteristics and stability. To be able to do this the MIG (Metal inert gas) welding

method should be used. This method is easy to carry out and strong joints are formed.

Also a high concentrated melt is obtained at high energy conditions which prevents impurities weakening the joint. Moreover the heat dissipation is very small which minimizes the risk of damage to heat sensitive materials and also tensile stress formation.

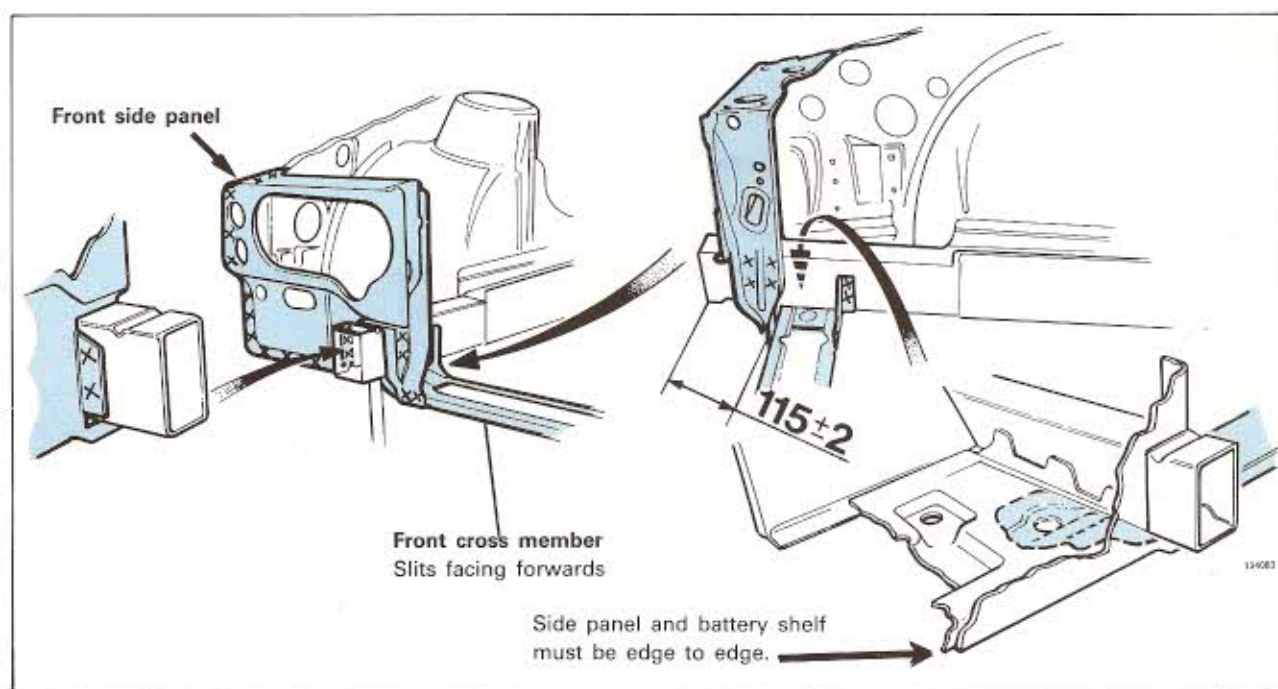
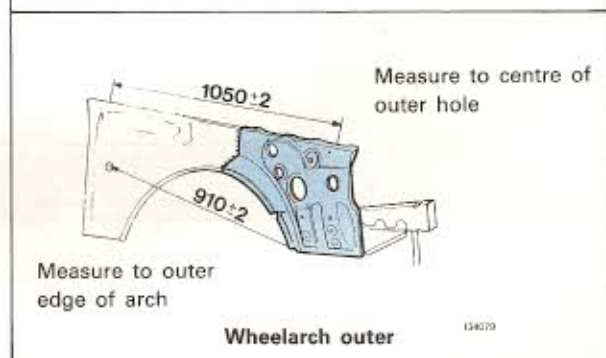
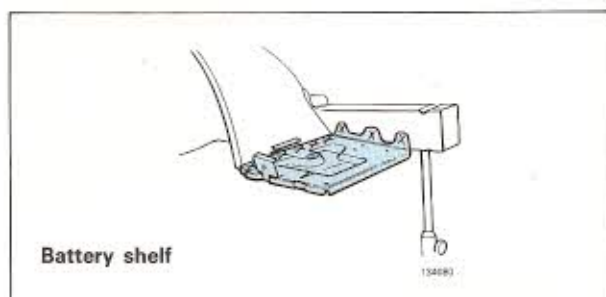
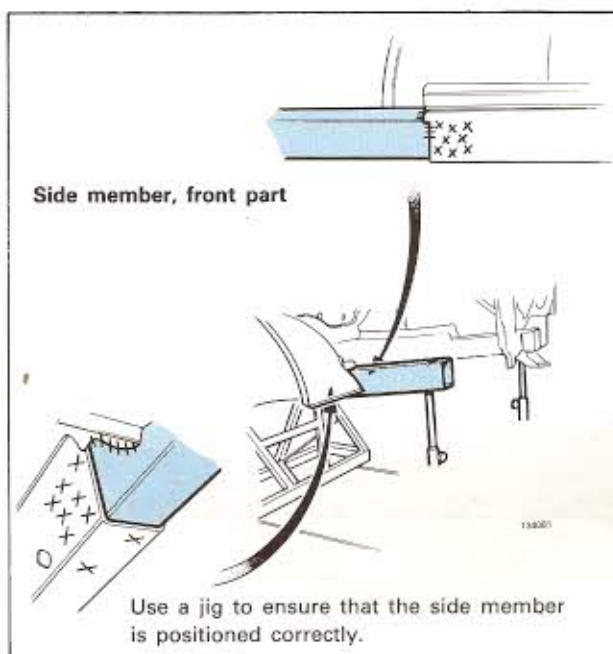
MIG welding is used for bead and spot welds.

I. Front section, right



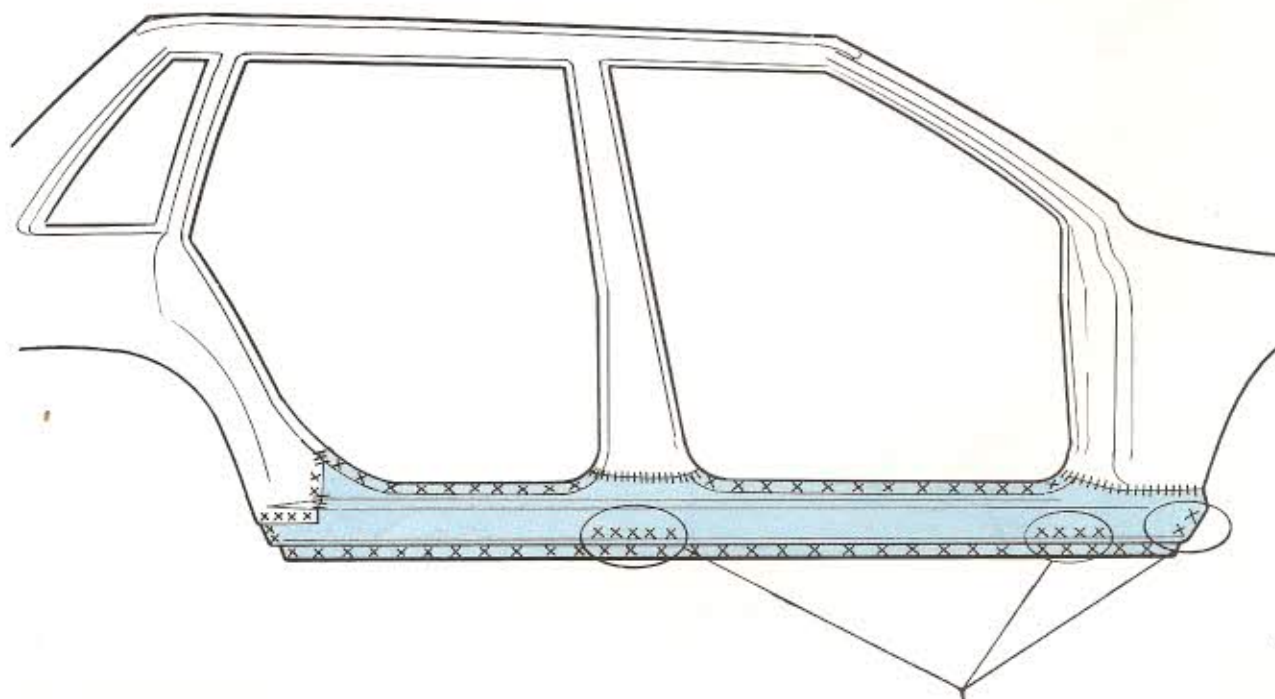
Side member front part, replacement
Battery shelf, replacement
Wheelarch outer, welding
Front side panel, replacement
Front cross member, replacement

Spot weld	XXXX
Bead weld	+++++



J. Bottom rail, outer (Use prepressed parts)

Spot weld	XXXX
Bead weld	



Note: If both inner and outer rails are replaced, displace joints by 100 mm (2.5 in).

Drill holes for plug welds

Removing

Grind off spot welds from reinforcement panel beneath B pillar (center) and lower bodyside.

Fitting

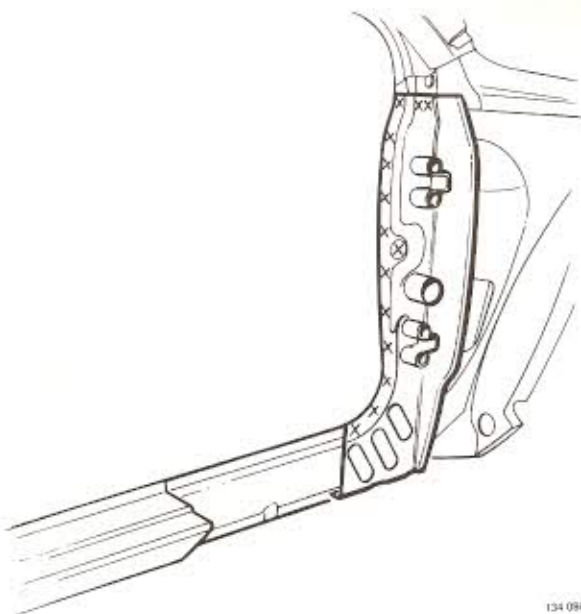
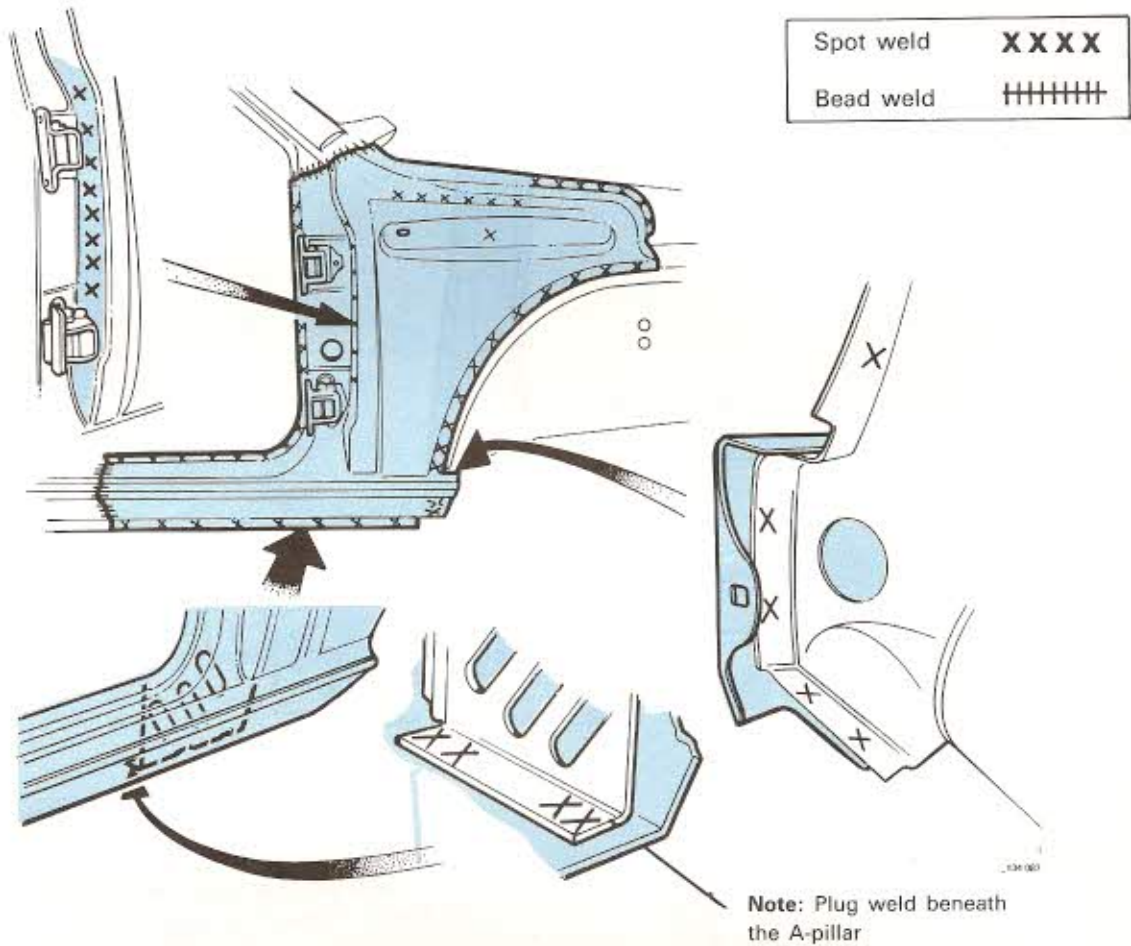
Test fit door before final welding

K. Body side, front section outer

Doors, front wing and upper section of body side front section removed

Use prepressed parts

K1



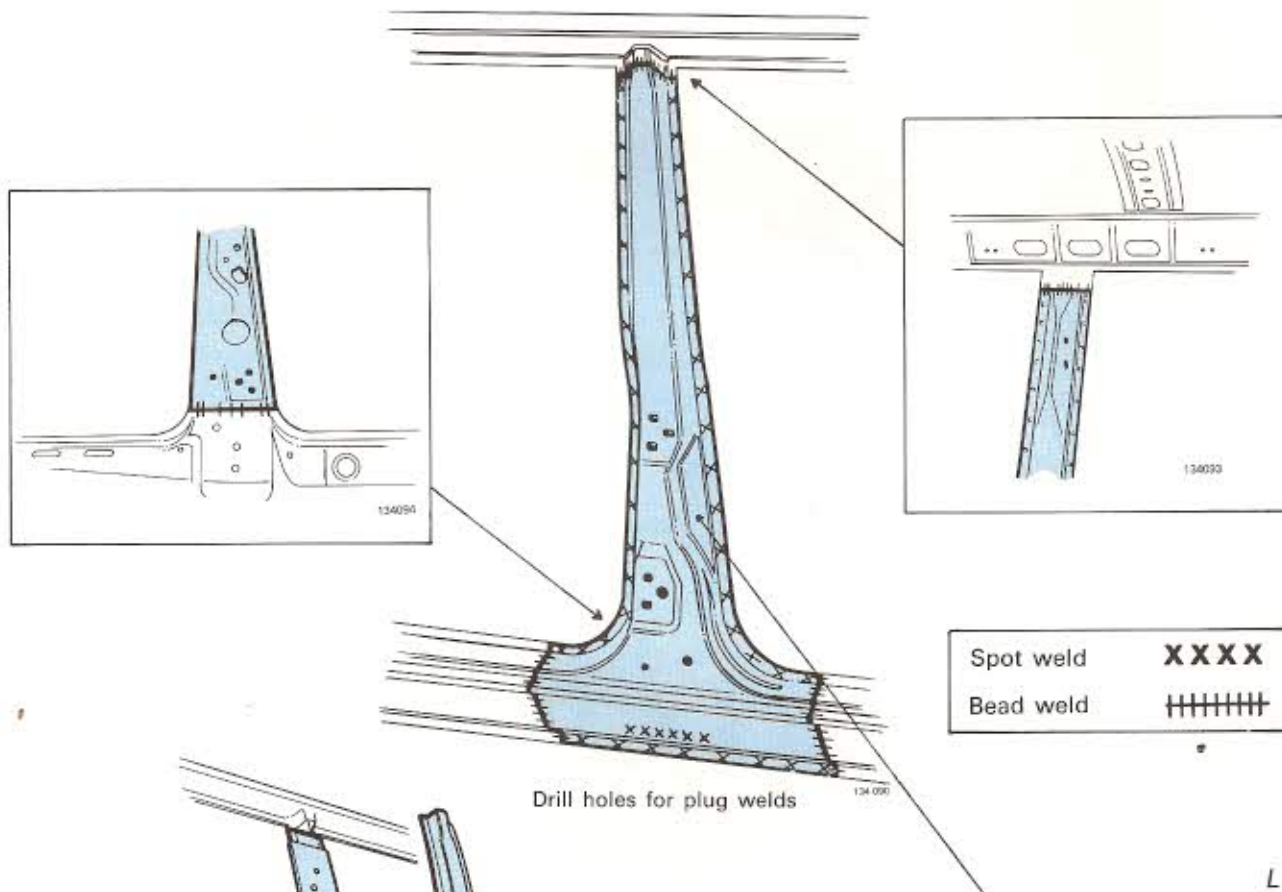
A-pillar inner, replacement

It may be necessary to replace the inner part of the A pillar when fitting a new body side front section.

K2

L. B-pillar

Use prepressed parts



L1

Chassis number

If right side pillar is replaced, stamp in chassis number before fitting new part.

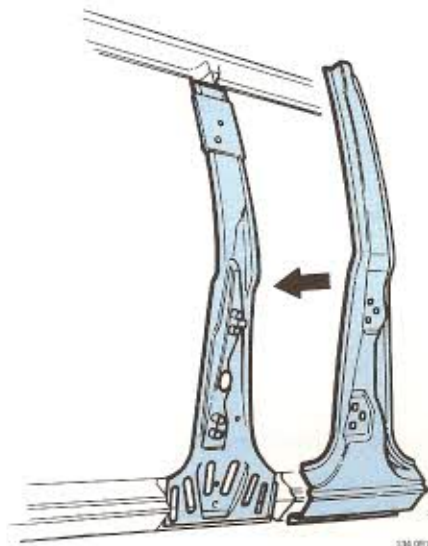
Recommended number size 7 mm (0.3 in)

L2

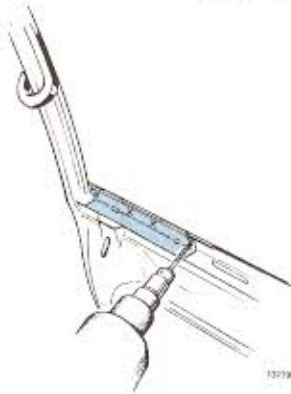
If inner and outer B-pillars are replaced displace joints by 100 mm (2.5 in).

L3

Transfer the nut plate (for door lock) to the new panel



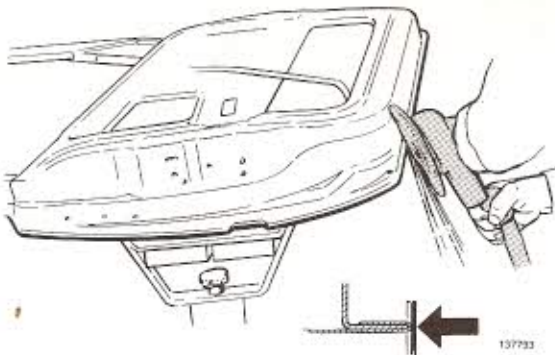
M. Outer door panel, replacement



M1

Removal of reinforcement panel (rear doors only)

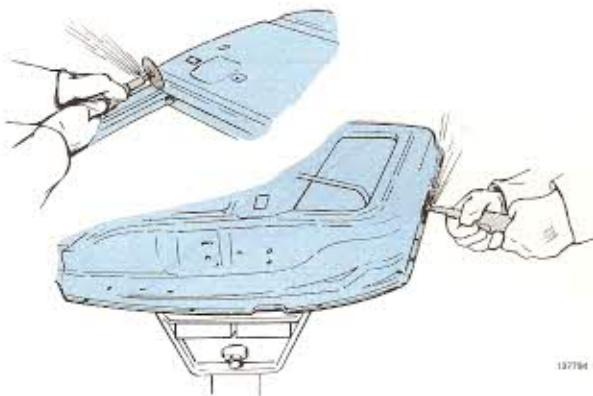
Drill out the spot wells on the top edge of the reinforcement panel at the rear of the door.



M2

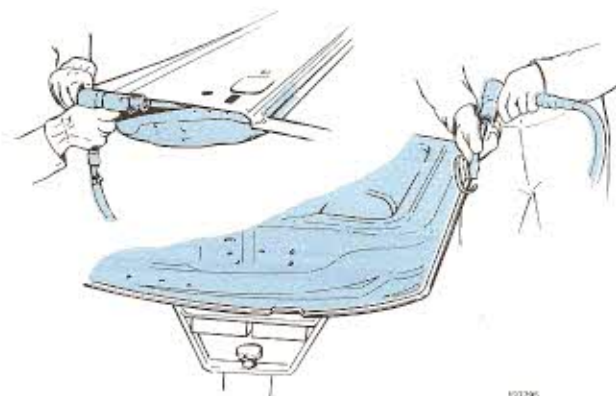
Removal of door panel (all doors)

Grind through the edge of the door panel.



M3

Grind down the spot welds on the edge of the door panel.



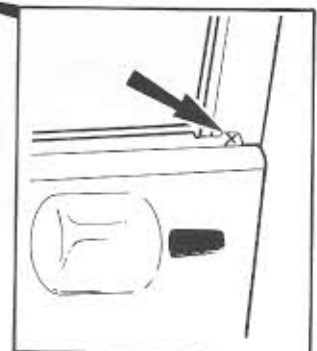
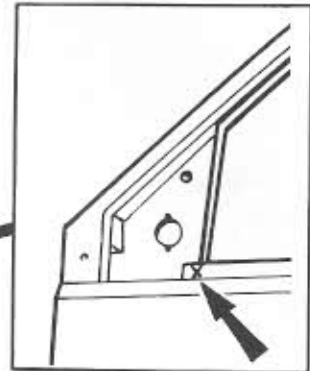
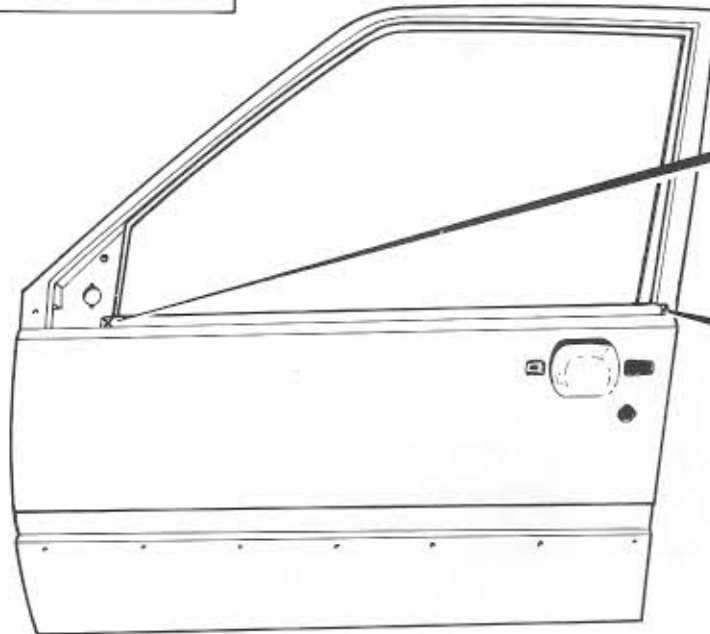
M4

Chisel free the edge of the door panel and remove the panel.

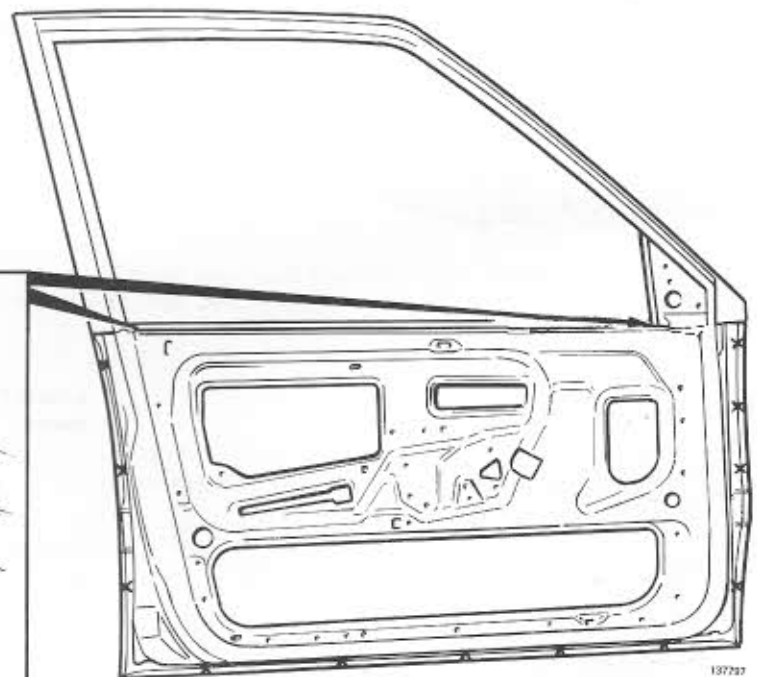
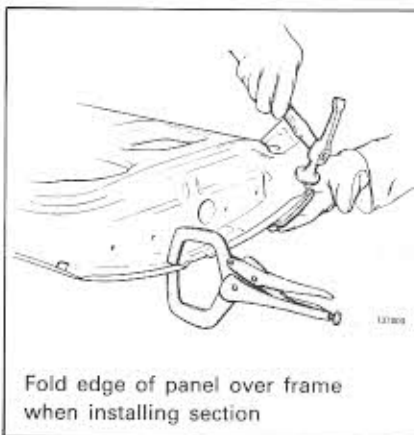


Front doors

Spot weld	XXXX
Bead weld	+++++



137756

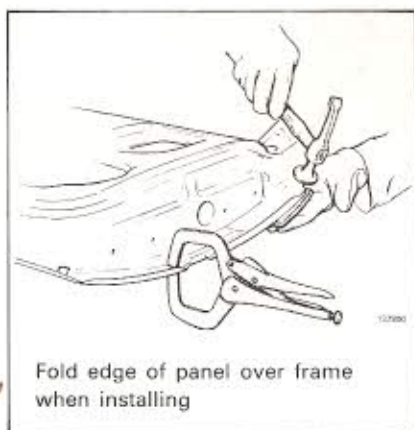
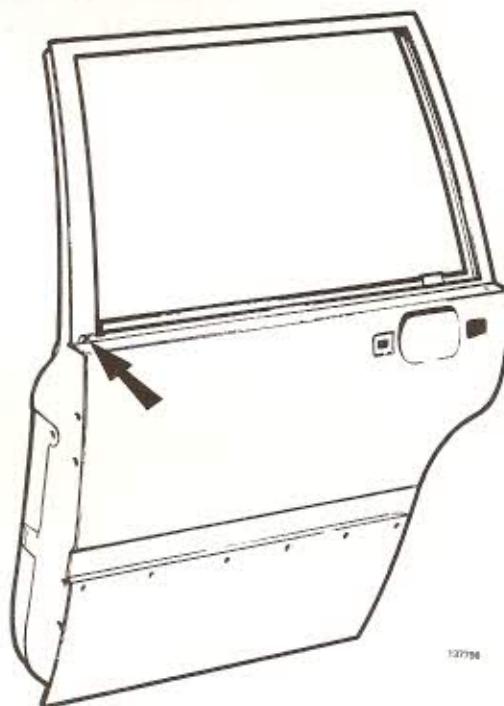


137757

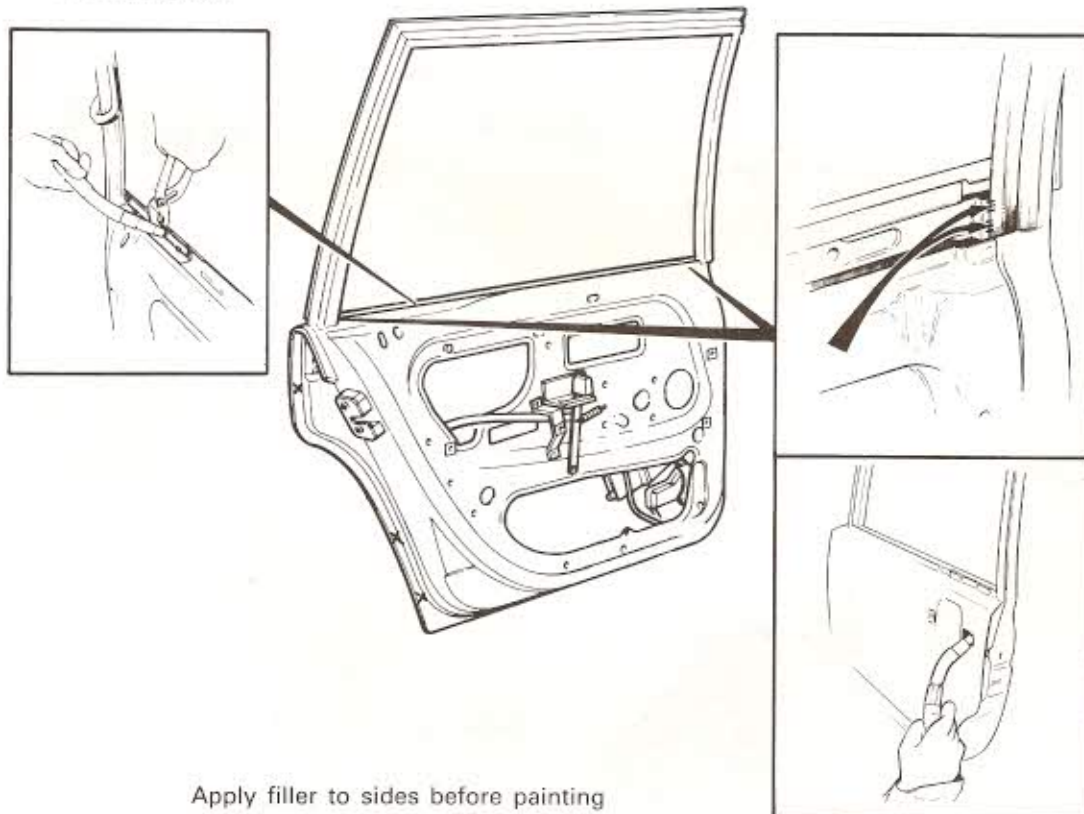
Apply filler to sides before painting.

Rear doors

Spot weld	XXXX
Bead weld	+++++



Secure reinforcement plate

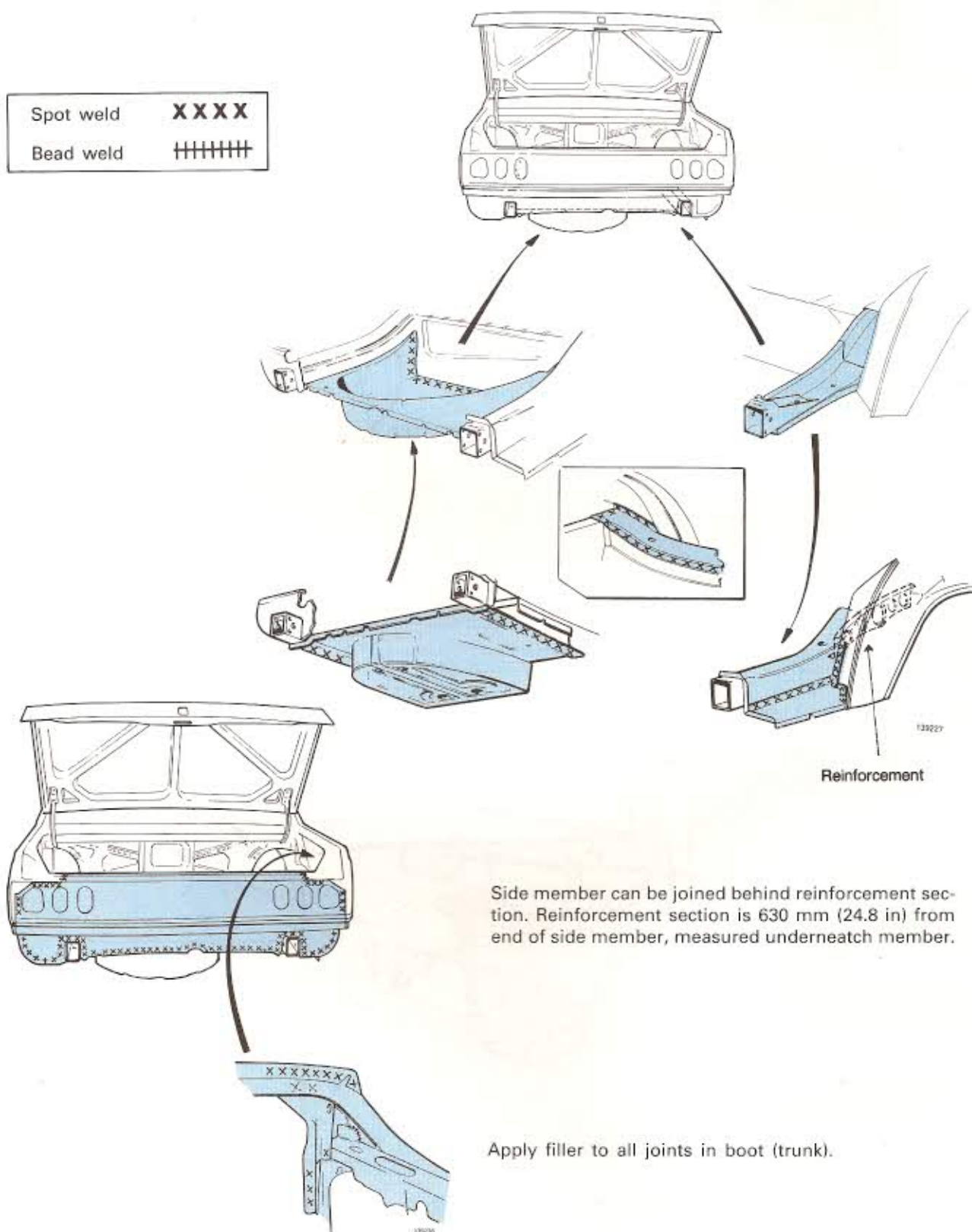


Apply filler to sides before painting

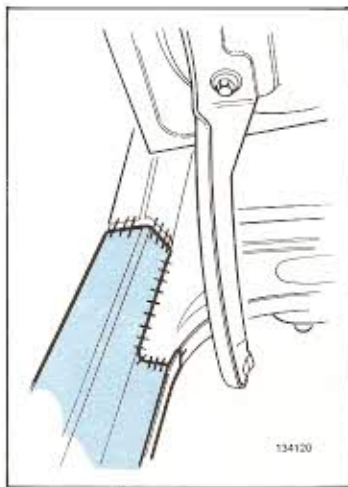
Side members, panels,
spare wheel well, tail section,
replacement

N. Side members, panels, replacement Spare wheel well, replacement Tail section, replacement

Spot weld	XXXXX
Bead weld	+++++



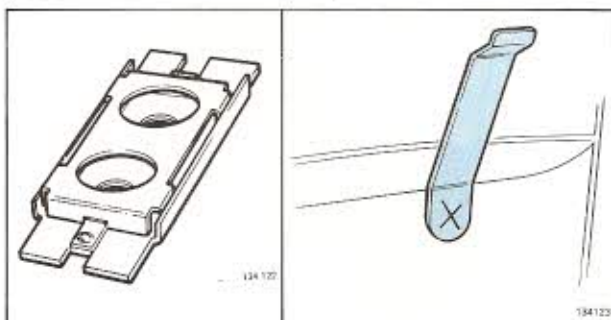
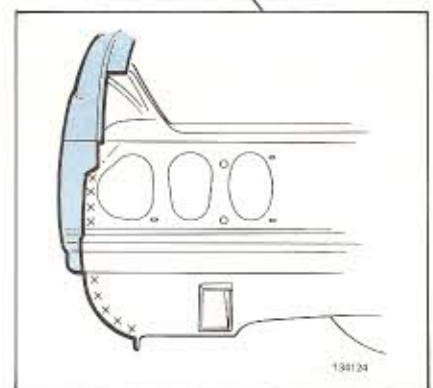
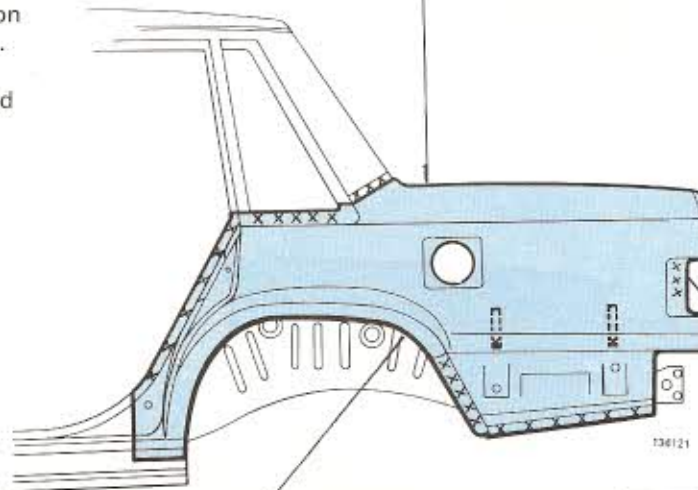
O. Rear wing, replacement



Carefully grind section nearest rear window.

Scoring marks should not be evident.

Spot weld	XXXXX
Bead weld	+++++



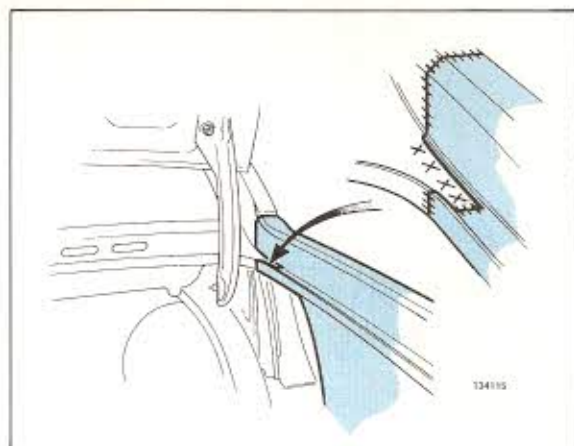
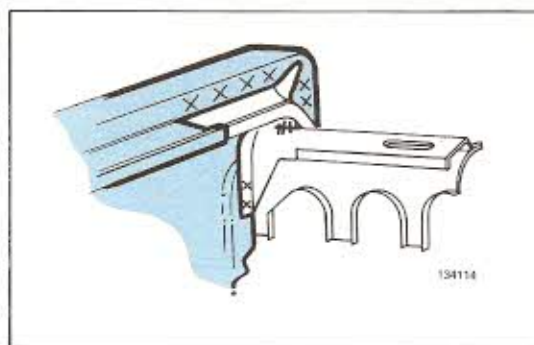
01

Transfer the nut plate (for door lock) and cable clip (for cable harness) to the new wing

Nut plate and clip shown on left.

P. Rear wing, rear section, welding

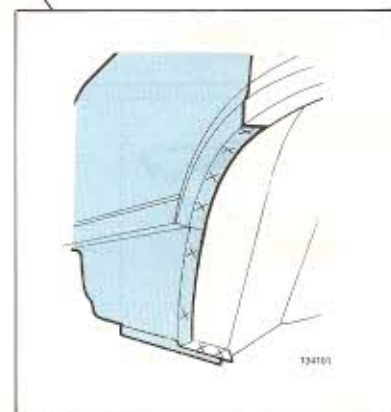
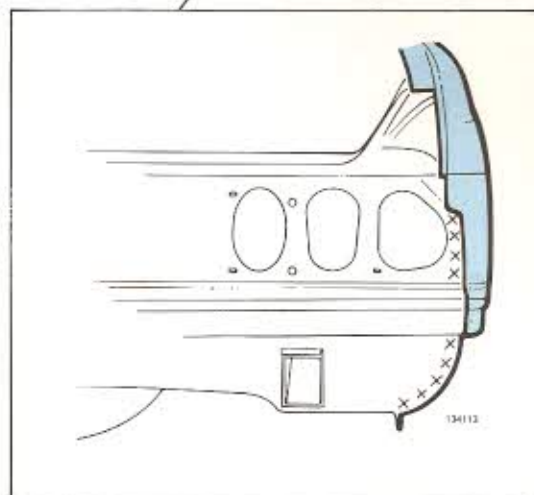
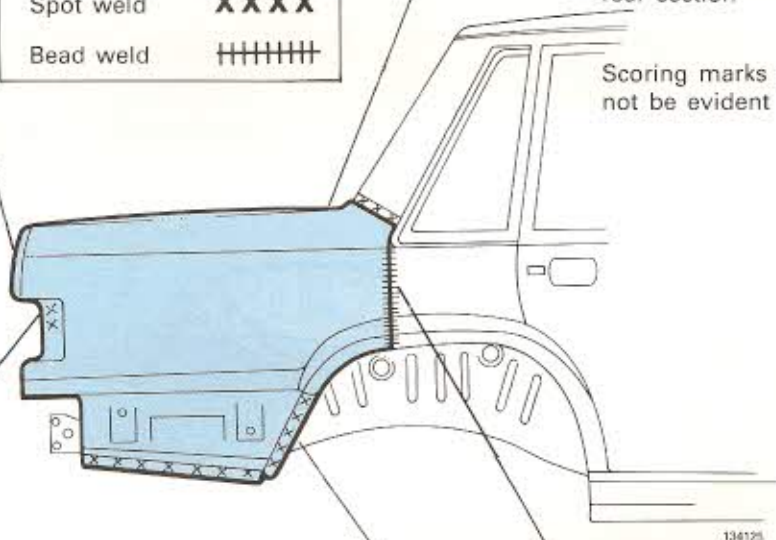
Use prepressed parts



Spot weld	XXXX
Bead weld	+++++

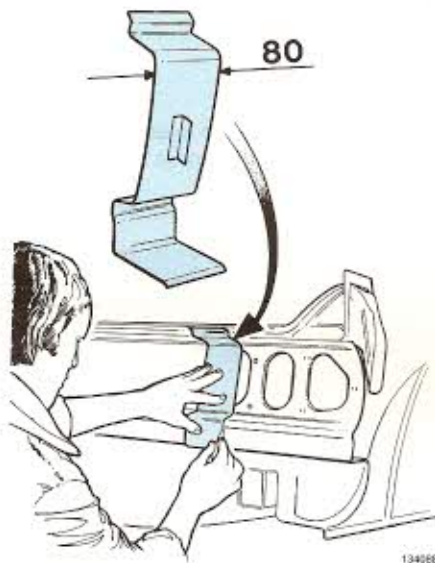
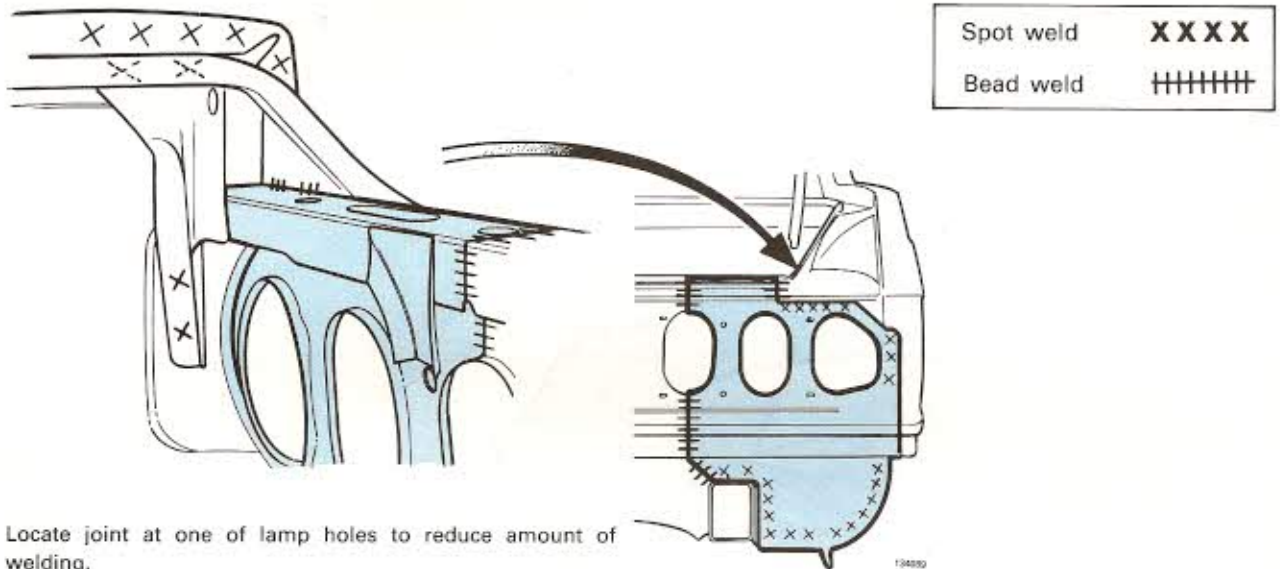
Carefully grind rear section

Scoring marks should not be evident



Q. Part of rear section, welding

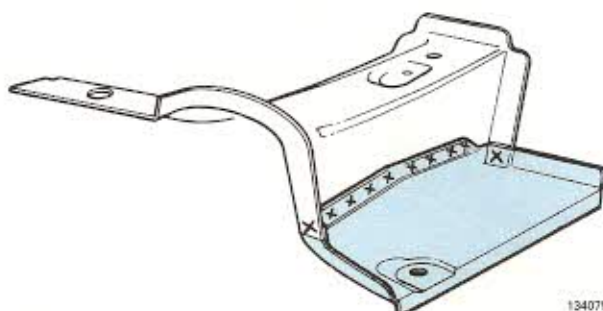
(Often necessary when replacing the rear wing fender)



Q1

Template

A template can be made of the shape of the rear section, see left. Place the stop in the center of the template. This helps when marking out the center for the lamp opening.

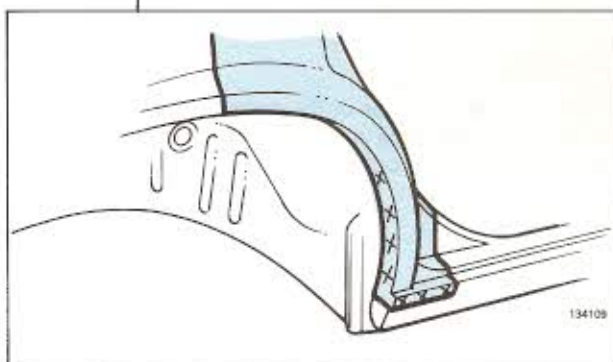
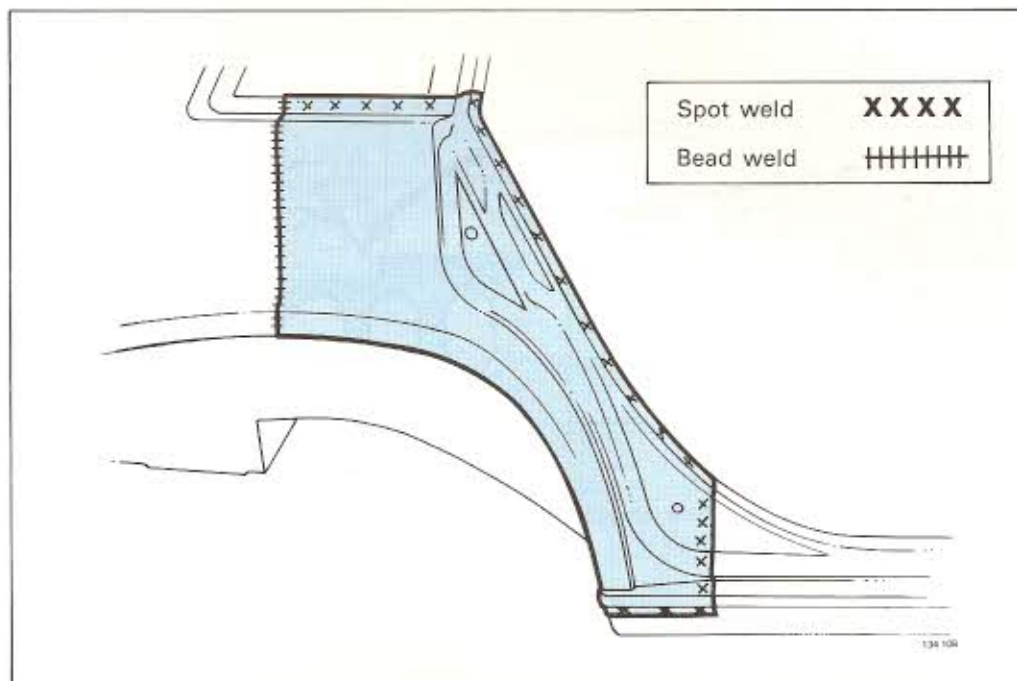


Q2

Side panel boot (trunk) floor, replacement

R. Rear wing (fender), front section, welding

Use prepressed parts



The wing (fender) should be welded at a suitable point beneath the rear window. Prepare the joint for bead welding (butt weld).



Transfer the nut plate and cable to the new part

R1

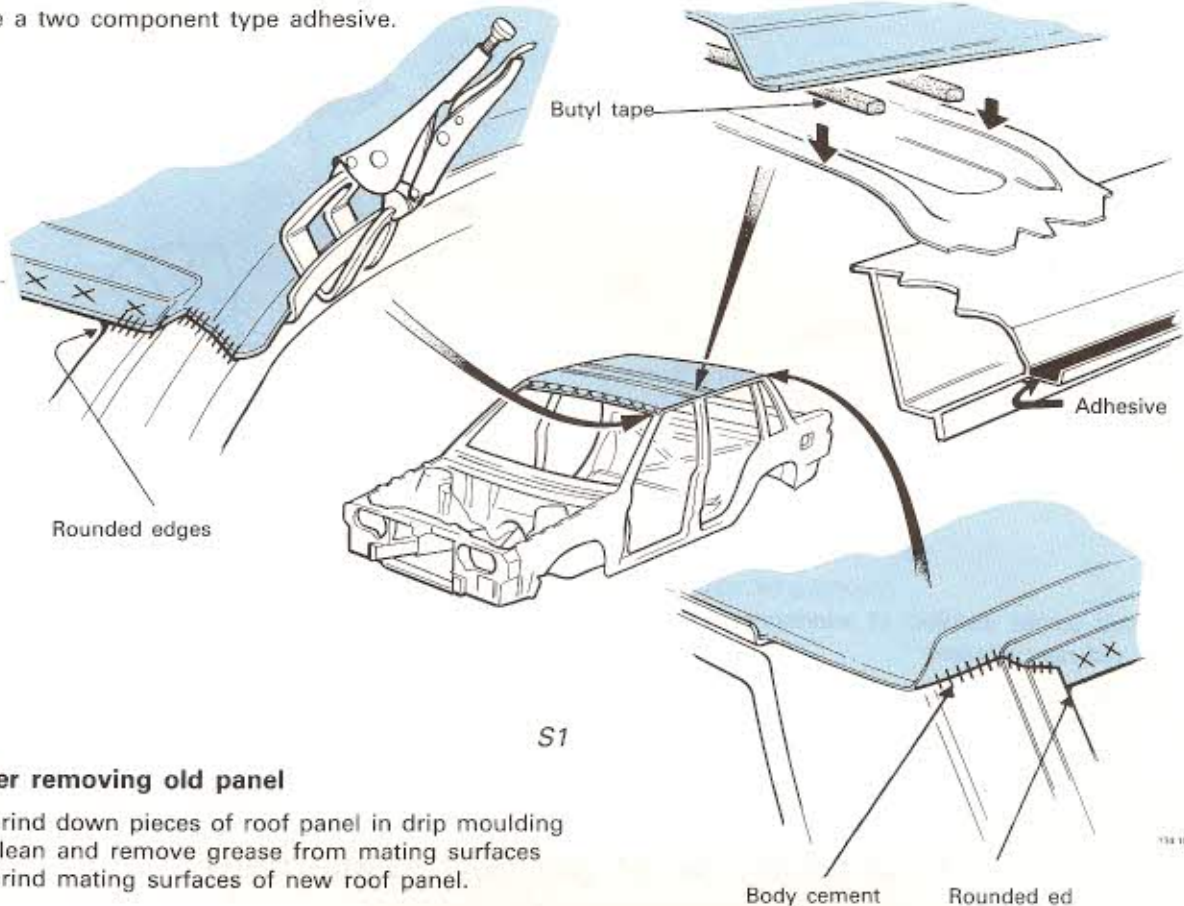
S. Roof panel

Replacement panel sections must not be used to repair a damaged roof. A new roof must be fitted where necessary.

On replacement, the roof panel can be cemented to the drip moulding to avoid distortion when welding.

Use a two component type adhesive.

Spot weld	XXXX
Bead weld	+++++



S1

After removing old panel

- Grind down pieces of roof panel in drip moulding
- Clean and remove grease from mating surfaces
- Grind mating surfaces of new roof panel.

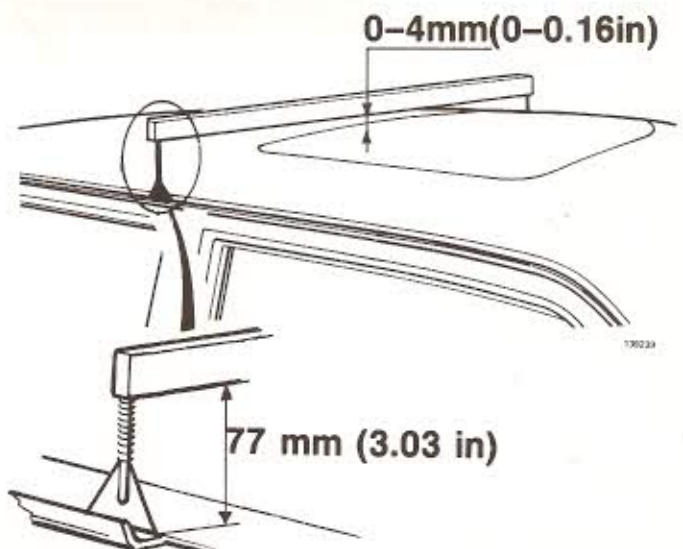
S2

Check roof panel

(This is especially important if a sun roof is fitted)

Make an alignment jig (use a 20x50x1300 mm = 3/4x2x51 in piece of wood, 2 wood screws welded to triangular support pieces as illustrated).

When sliding the jig over the roof panel the clearance must not exceed 4 mm (0.16 in). The distance from the bottom of the cross piece to the bottom of the triangular support should be 77 mm (3.03 in). Wood screw centre to centre dimension should be 1278 mm (50.35 in).



S3

Install butyl tape on roof cross member

(Not vehicles with sun roof)

Apply insulation paper to new sun roof

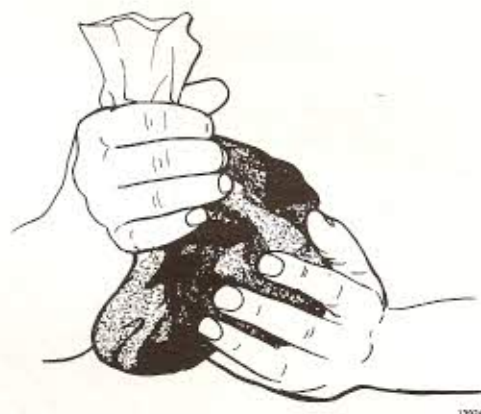
Place paper between roof cross members.

S4

S5

Mix adhesive

Pour a tin of adhesive and a tin of hardener into a strong plastic bag. Tie a knot in the bag and knead the contents until thoroughly mixed and colour does not change. If only small quantities of adhesive are required, refer to manufacturers mixing instructions.



133243

S6

Apply adhesive to drip moulding

Cut hole in bottom of bag and squeeze out a 5 mm (0.2 in) strip of adhesive along drip moulding. Lift on the roof panel and locate it with welding type vice clips.



133240

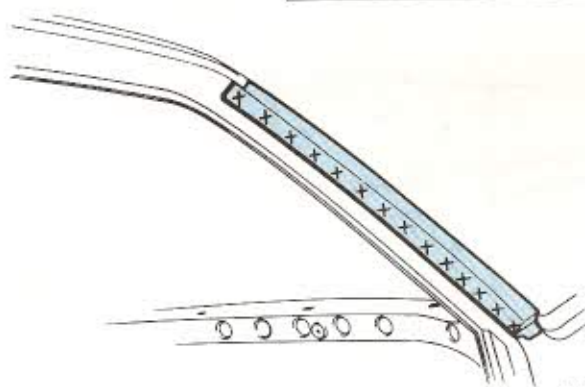
S7

Spot weld upper section of windscreen (windshield) and rear window

Carefully grind front and rear sections.
No scoring marks should be evident.

T. A-pillar, outer panel, replacement

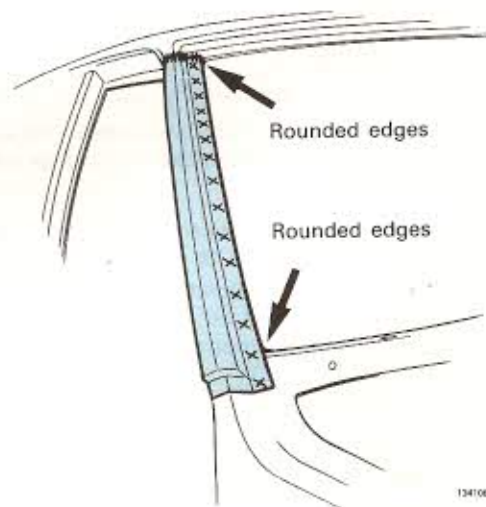
Spot weld	XXXXX
Bead weld	+++++



134105

Note: The joint with the roof gutter is soldered.

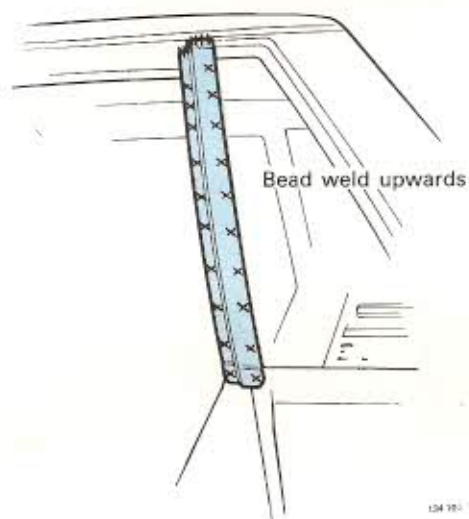
Track weld on the new panel and test its location in relation to the door and front wing (fender) before spot welding.



134106

Carefully grind window aperture.
Do not leave any scoring marks.

U. C-pillar, outer panel, replacement

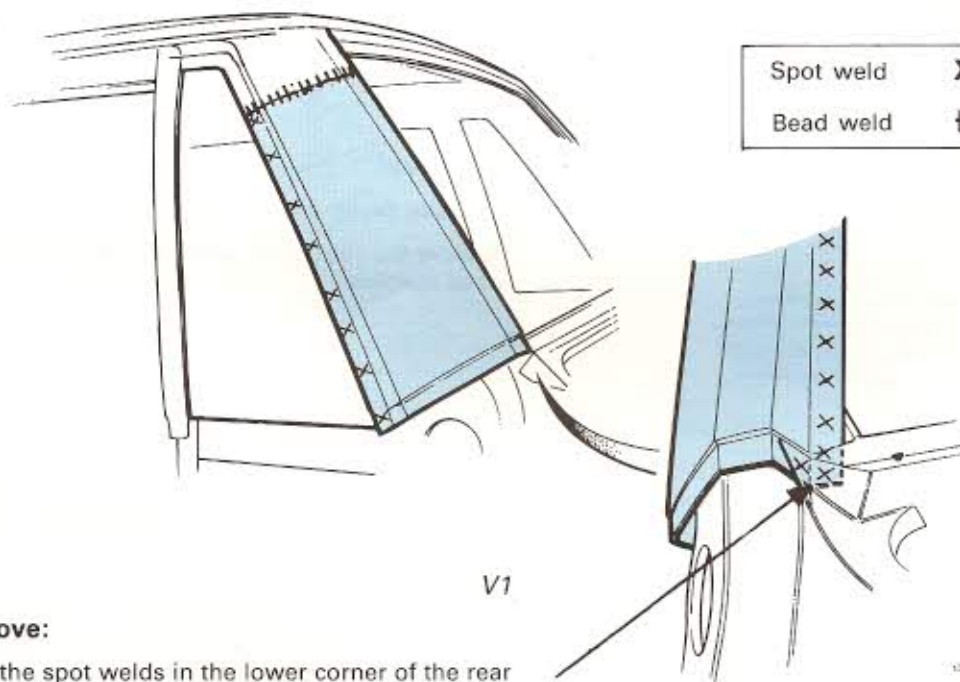


Spot weld XXXX

Bead weld ++++++

V. D-pillar, outer panel, welding

(May be necessary when replacing rear wing fender)



Spot weld XXXX

Bead weld ++++++

To remove:

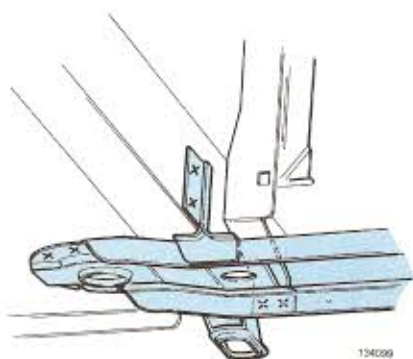
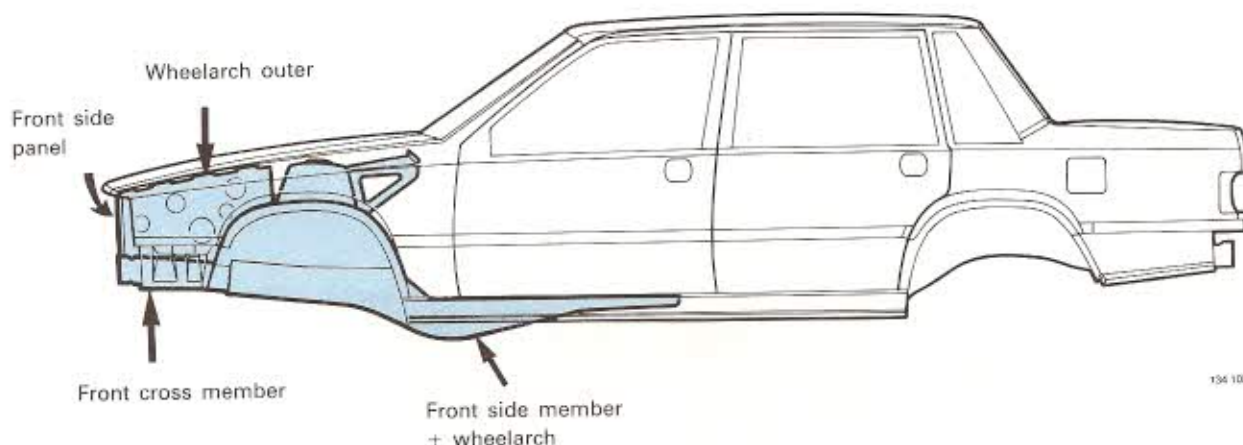
Drill out the spot welds in the lower corner of the rear window aperture. (Not enough space for grinder.)

V2

To install:

Carefully grind rear window section. Do not leave any scoring marks.

X. Front side member and wheelarch, replacement wheelarch, welding Front cross member and side panel, replacement



X1

Removal

Remove front cross member

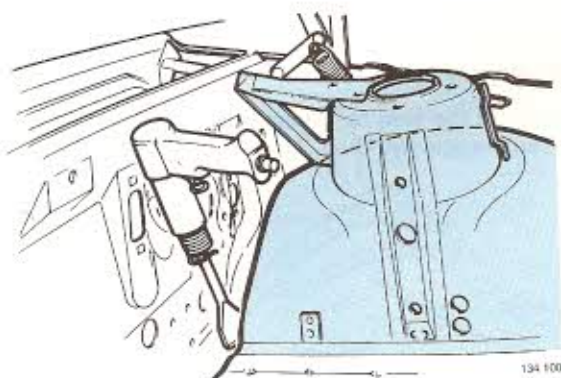
Remove the spot welds by drilling or grinding. Cut off cross member.



X2

Remove outer wheelarch

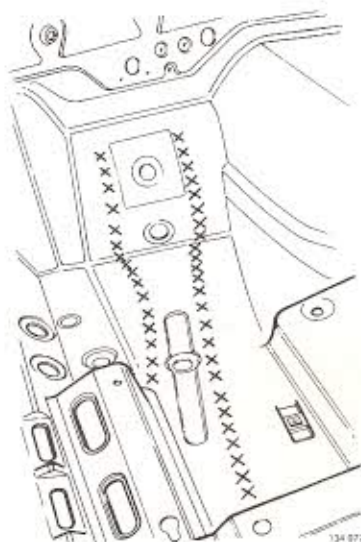
Use a saw or chisel.
Cut in front of the bonnet (hood) spring mounting.



X3

Remove inner wheelarch and stay with a power chisel

Free inner wheelarch from the firewall and outer wheelarch and also the stay between the spring turret (tower) and firewall

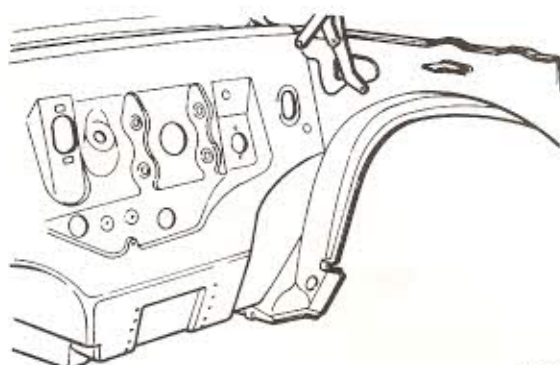


X4

Remove soundproofing from floor and firewall

Cut free the soundproofing to expose the spot welds.

Drill out spot welds from inside of car.



Engine compartment
with side member and
wheelarch removed.

X5

From under car:

Remove underseal from rear section of side member and drill out spot welds which have not already been drilled from inside the car.

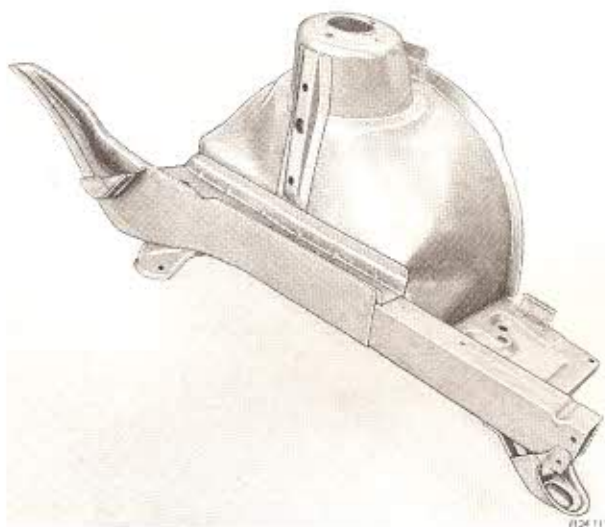
X6

Jack up front end

Chisel off the side member from the floor, jacking point and if necessary the firewall.

Remove any remains of the spot welds by chiselling and grinding.

Align all mating surfaces.



X7

Installation

Clip holes in the side member-wheelarch for the spot welds and apply welding primer to all mating surfaces.

X8

Align side member-wheelarch and lower front end of car

Pull the car towards the floor with a turnbuckle connected between the jacking point and floor.

At the same time press the side member towards the car floor with a floor jack, see fig.

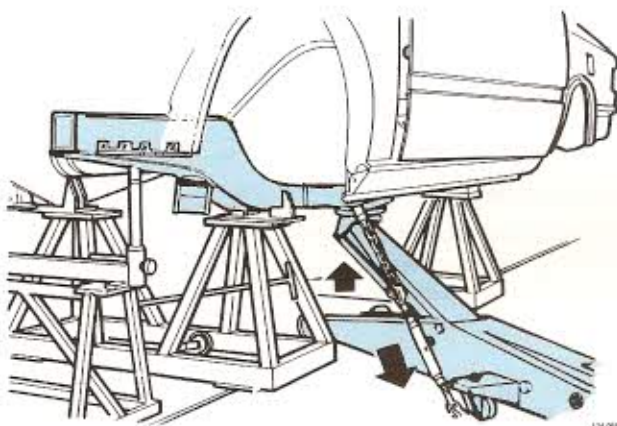


Illustration shows the Volvo Body Aligner

X9

Check alignment of side member using jig and alignment pins

Use e.g. jig 5236.

X10

Check distance between left and right spring turret

Use gauge rod 5257.

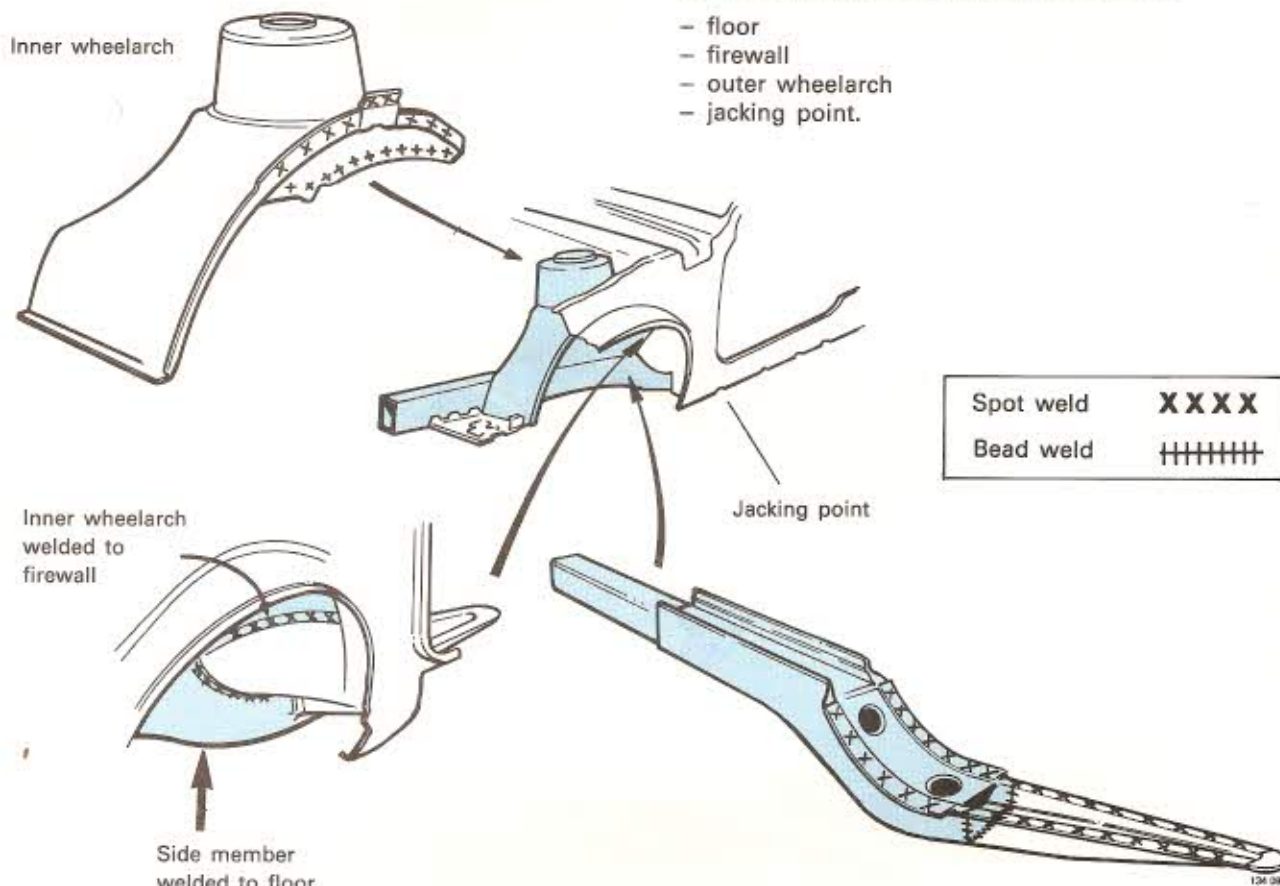
X11

Tack weld side member-wheelarch and check alignment

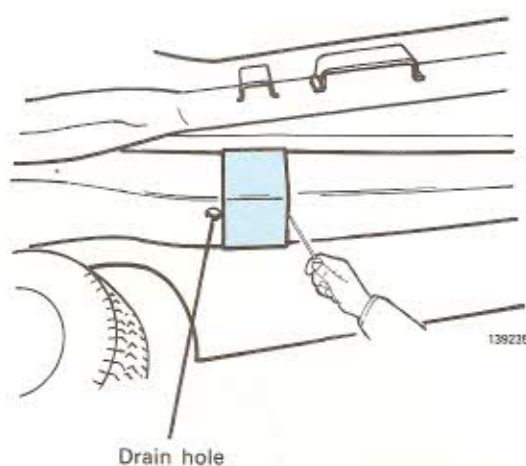
X12

Spot weld side member-wheelarch to:

- floor
- firewall
- outer wheelarch
- jacking point.



Side member can be joined behind reinforcement piece.

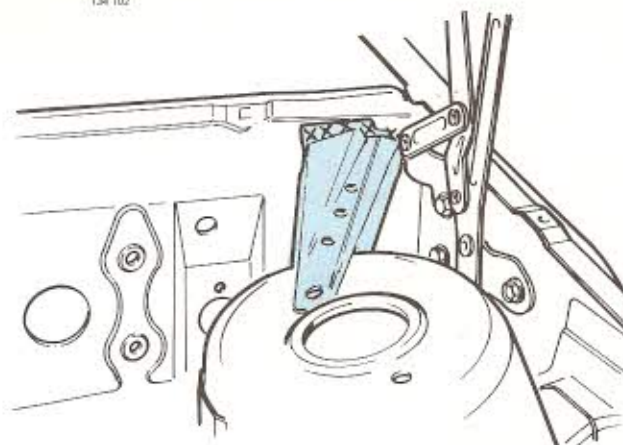
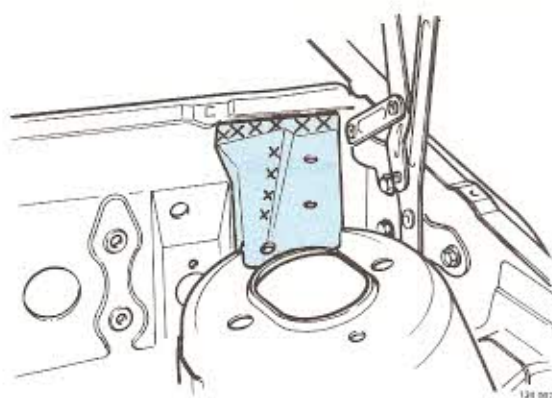
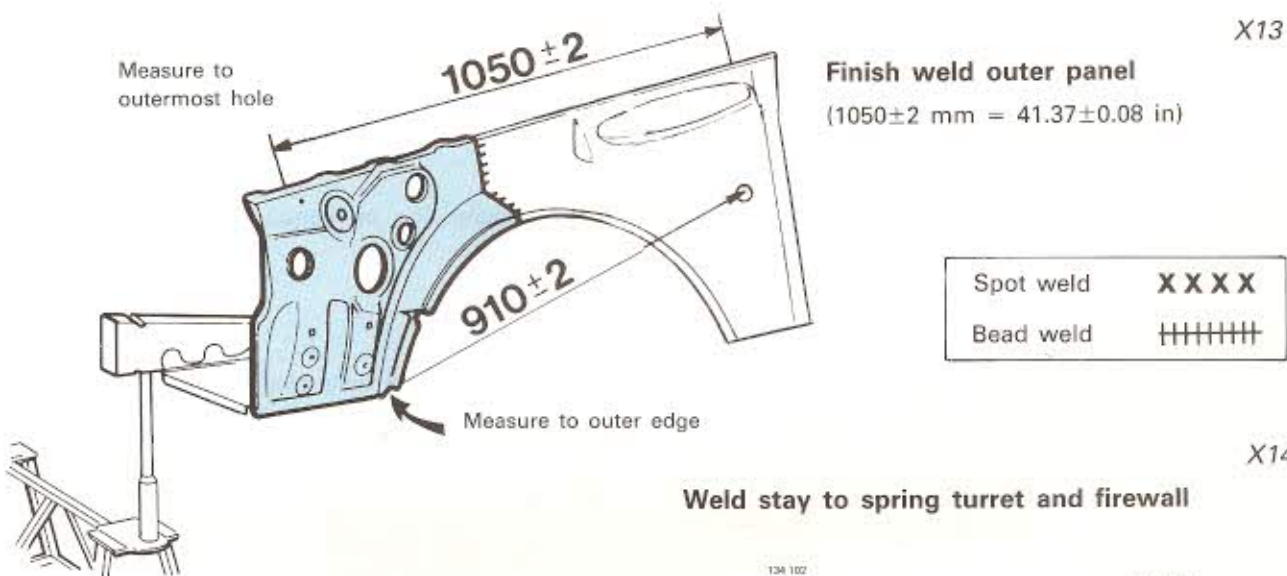
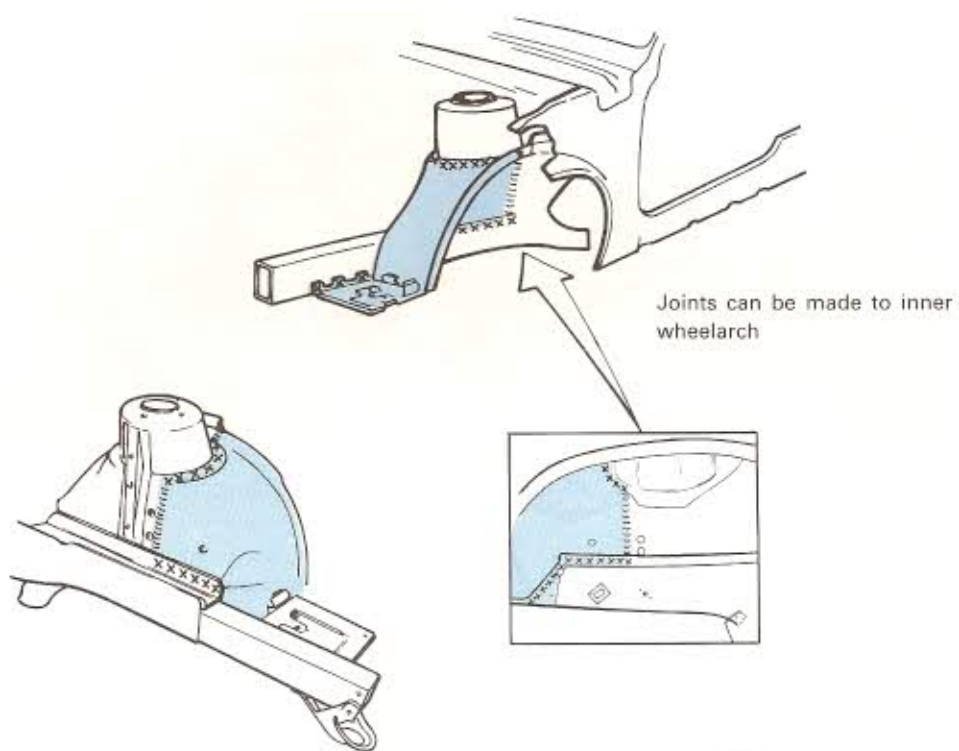


Cut a piece of sheet metal (width 100 mm = 3.9 in) to size as follows: place panel in line with drain hole and mark out the side member and panel. (The panel section can be used for the right and left side members by simply turning it.)



Group 81 Body

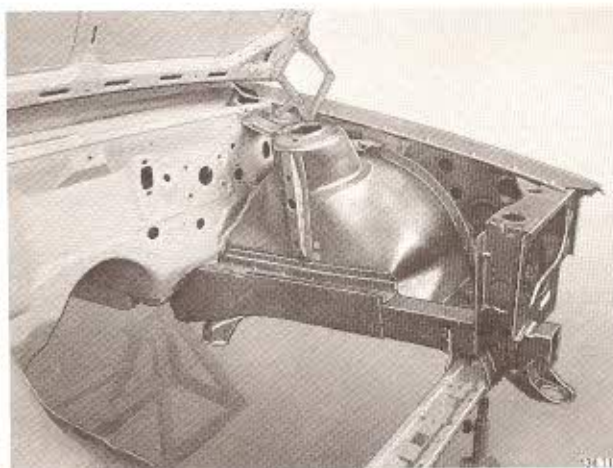
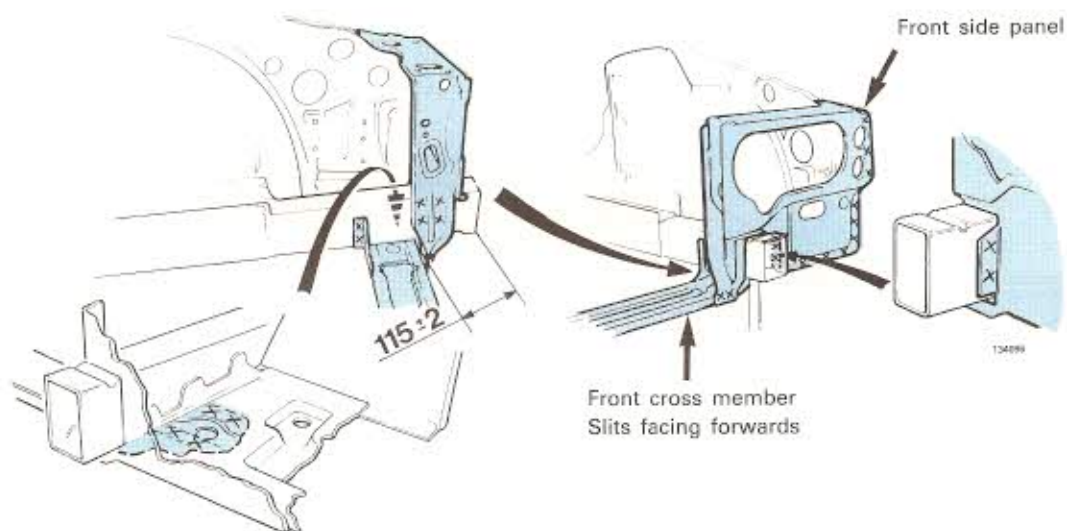
Front side member and wheelarch, fitting



X15

Align and weld the front side panel and front cross member

Grind all welds.



X16

Apply sealer (caulk)

Apply rustproofing primer, wash primer and hardener to surfaces which are to be sealed.

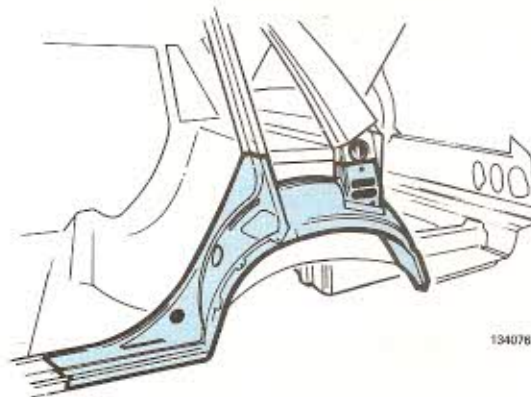
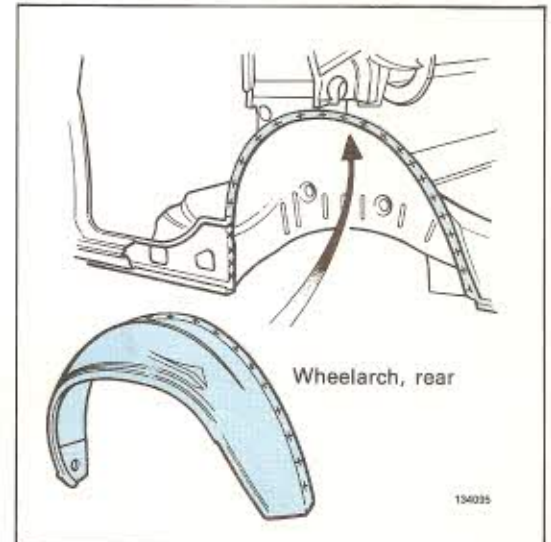
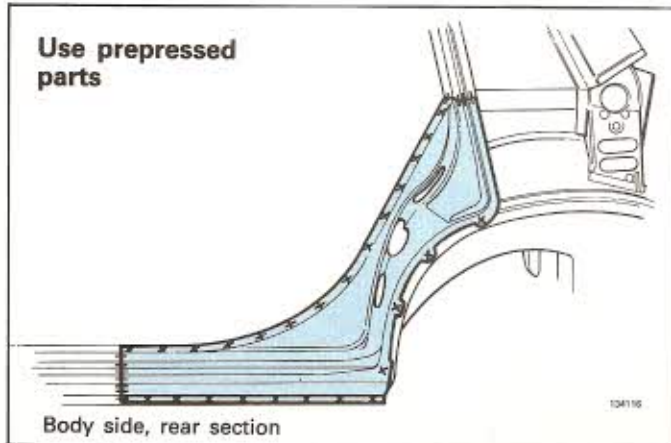
Apply filler to joints beneath wheelhouse:

- outer and inner wheelhouses
- outer wheelhouse and firewall
- wheelhouse and side member
- around suspension tower.

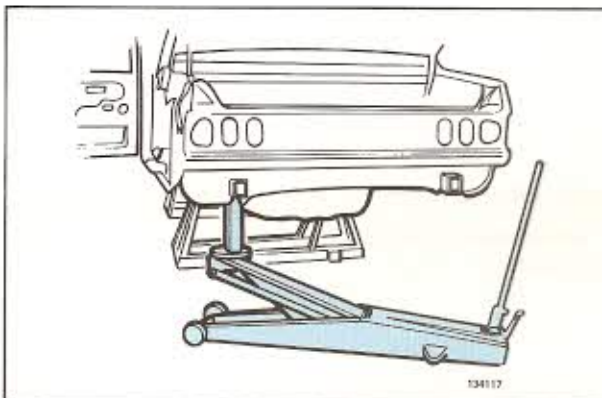
Apply filler to joints on engine compartment side:

- wheelhouse and bulkhead
- suspension tower
- front and rear of battery shelf.

Y. Wheelarch, rear outer, replacement Body side, rear section, welding D-pillar, lower section, welding



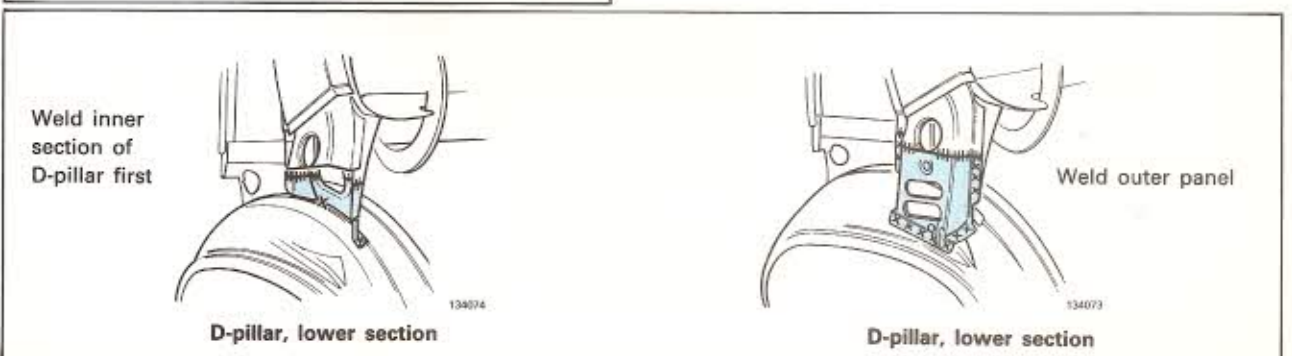
Spot weld	XXXX
Bead weld	+++++



Note:

Before welding the lower section of the D-pillar to the outer wheelarch, the position of the rear side member must be checked/adjusted to conform to specification.

Fold edge down to provide space for tank filler tube.



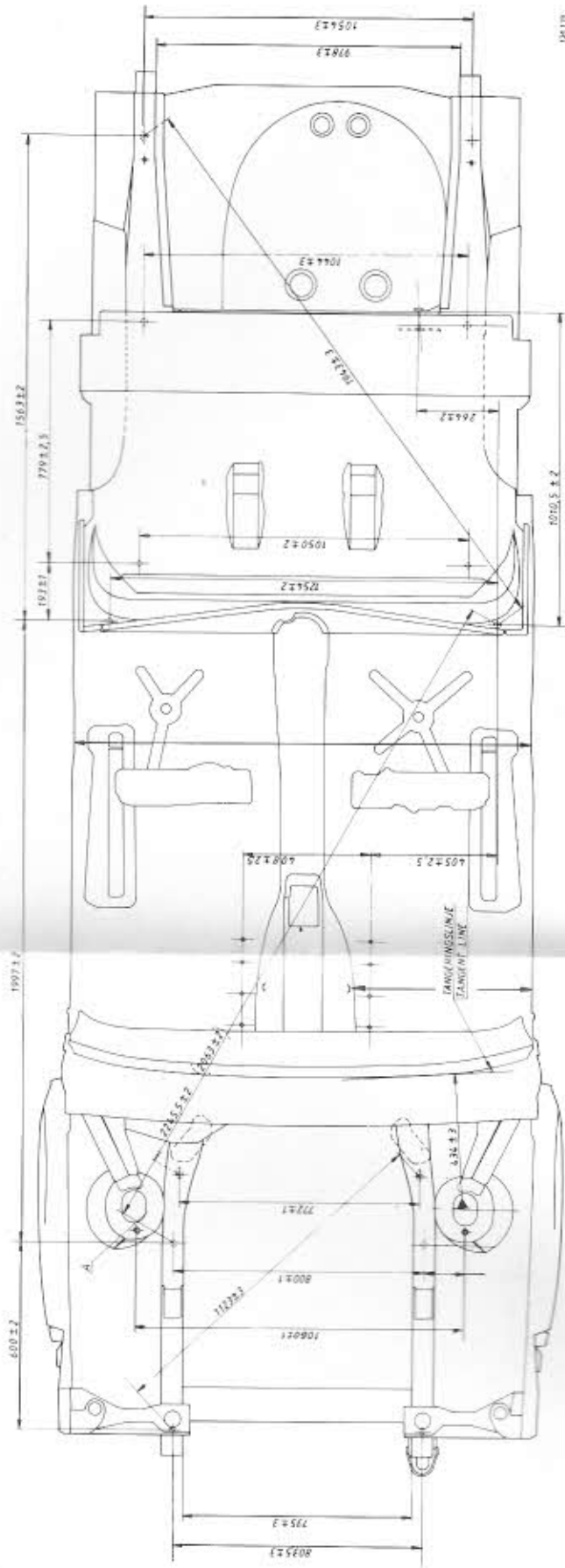
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B-pillar	T	36	Roof panel, replacement	S1-7	35
C-pillar, outer panel replacement	U	37	Rustproofing	F19-21	19
Door panel	M	27	Side panel, boot (trunk) floor	N, Q2	30,33
D-pillar			front	I	23
lower section, welding	Y	44	Side member		
outer plate, replacement	V	37	front section, replacement	I	23
Front cross member	X	43	complete, replacement	X1-16	38
Front end, alignment check			Soldering	F3	15
engine installed	B1-B9	4	Spare parts	E	11
engine removed	C1-6	7	Special tools		2
Front section	G	21	Welded joints, cutting	F1-2	14
Front side panel	X15	43	Welding primer	F9	16
High strength steel		21	Wheelarch turret (tower)		
Nut plate			alignment check		
(for door locks)	L3	26	(engine installed)	A-3	3
			Wheelarch		
			front, outer, welding	X13	42
			+ sidemember, replacement	X1-16	38
			rear outer, replacement	Y	44
			Windscreen (windshield) pillar		
			(A-pillar) outer		
			panel replacement	T	36

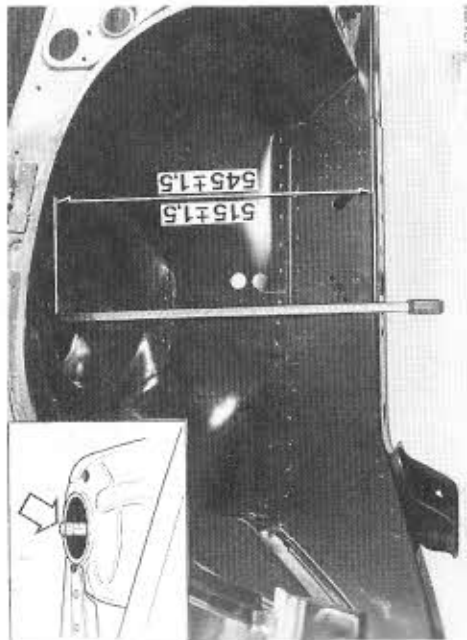


High suspension tower = 515 ± 2 mm (20.29 ± 0.08 in)
Low suspension tower = 530 ± 2 mm (20.88 ± 0.08 in)

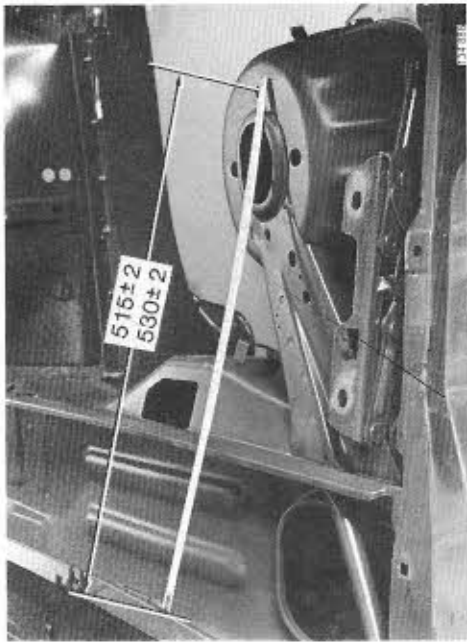
C=High suspension tower
D=Low suspension tower



Alignment of wheelhouse



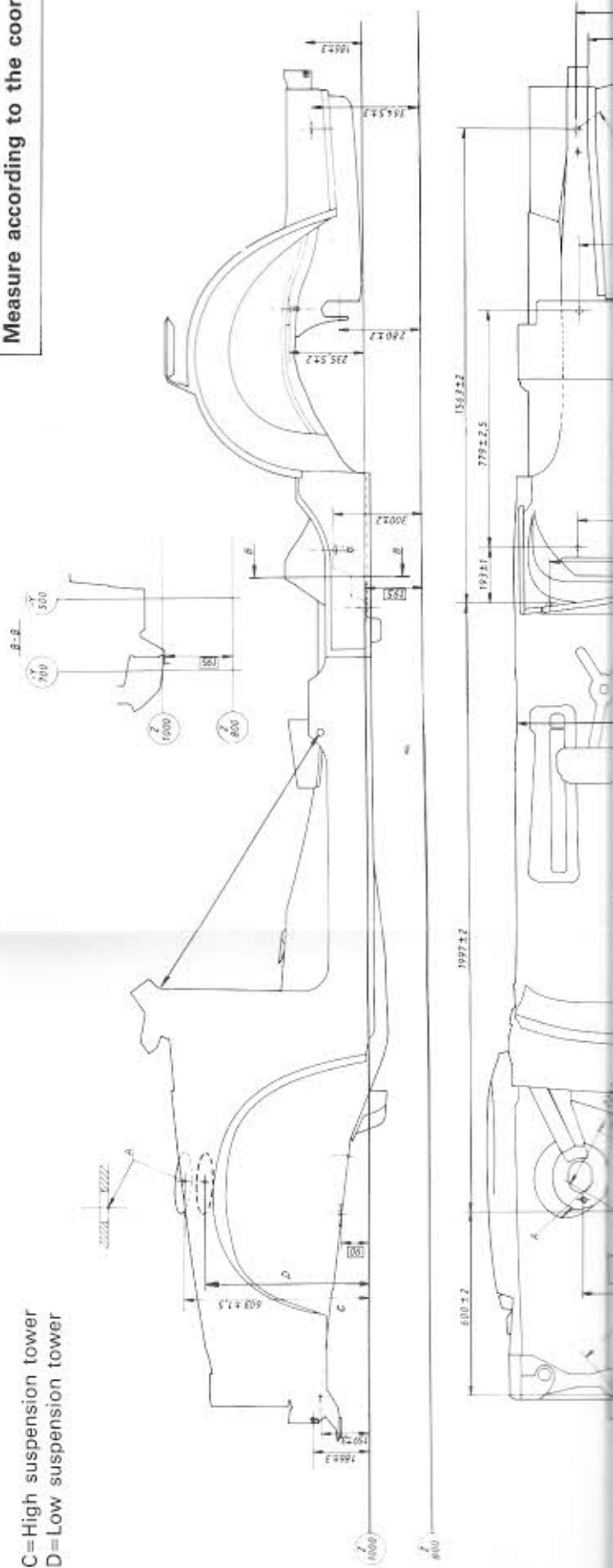
High suspension tower 545 ± 1.5 mm (21.47 ± 0.06 in)
 Low suspension tower 515 ± 1.5 mm (20.29 ± 0.06 in)



Shortest distance
 most suitable

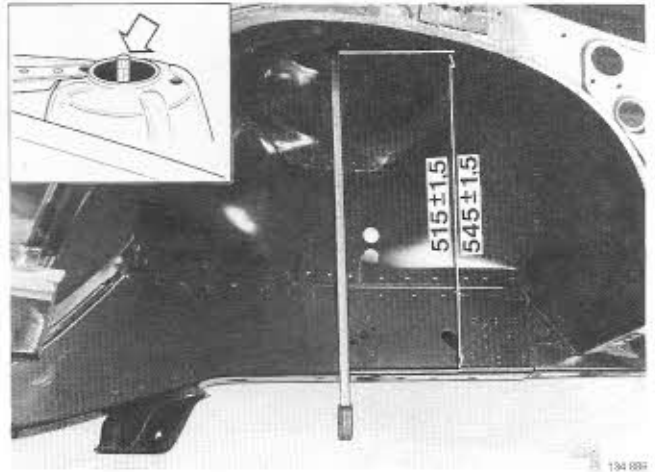
High suspension tower = 515 ± 2 mm (20.29 ± 0.08 in)
 Low suspension tower = 530 ± 2 mm (20.88 ± 0.08 in)

Measure according to the coordination system

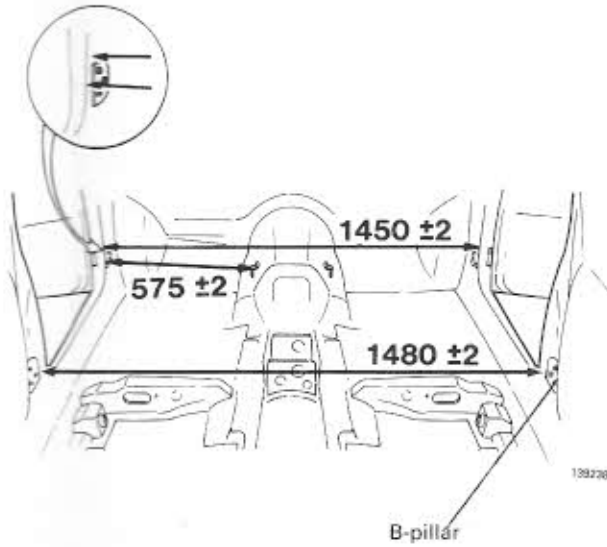


C=High suspension tower
 D=Low suspension tower

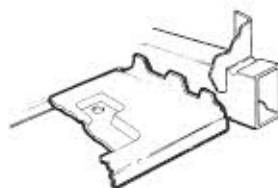
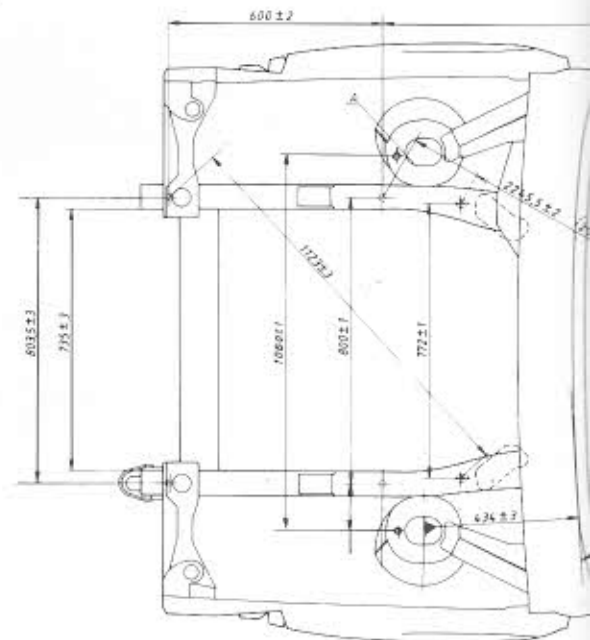
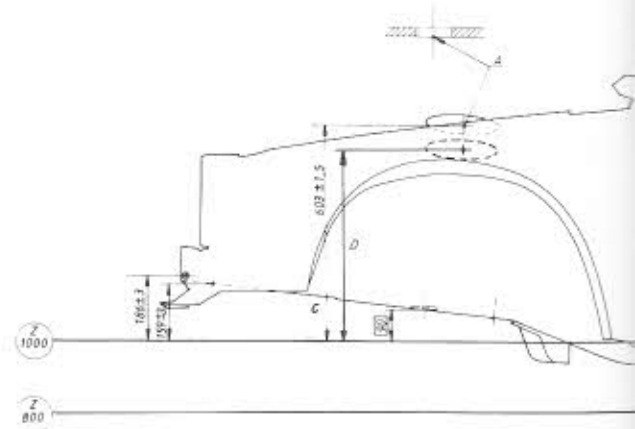
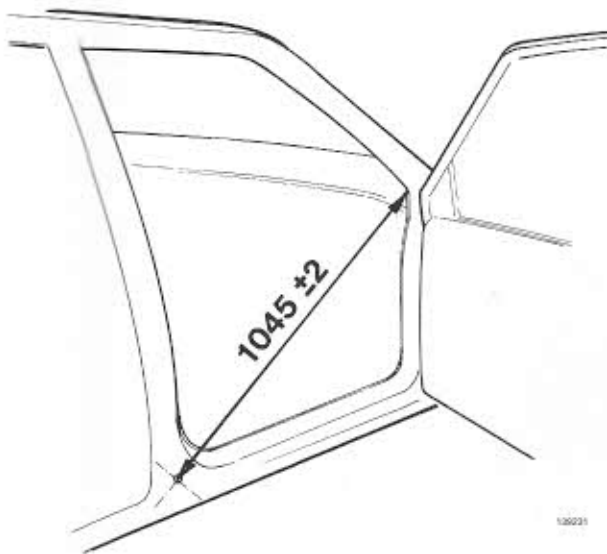
Alignment of wheelhouse



High suspension tower 545 ± 1.5 mm (21.47 ± 0.06 in)
 Low suspension tower 515 ± 1.5 mm (20.29 ± 0.06 in)



C=High suspension tower
 D=Low suspension tower



Bottom of battery shelf should be edge to edge with bottom of member (test with straight edge).

TP 30468/2

6000.4.85

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