

INDEX

BODYSHELL INTRODUCTION

- Identification plates.....	1
- Vehicle lifting points.....	1
- Vehicle towing points.....	1
- Bodyshell description	1
- Type of body panels	4
- Diagram showing fitting of damper panels.....	4
- Diagram showing application of underbody protection (PVC)	5
- Diagram showing application of foam	5
- Diagram showing application of sound insulation panels.....	6
- Diagram showing plastic parts	6
- Production bodysheel painting cycle.....	7
- Bodywork renewal and painting cycles recommended for service network and set out in flat rate manual.....	8
- Introduction to removing and refitting operations.....	11
- Warnings for operators.....	17
- Warnings for welding.....	18

BODYSHELL MOVING COMPONENTS

- Doors	22
- Hinges.....	23
- Adjusting doors and hinges.....	23
- Front lid	24
- Front lid hinges	24
- Adjusting front lid and hinges.....	25
- Rear lid and hinges	26
- Dashboard supporting crossmember.....	28
- Battery supporting crossmember (Only for Boxer versions).....	28
- Light holder crossmember and frame	29
- Front wing	30
- Front tow hook.....	31
- Rear tow hook	31

BODYSHELL FIXED COMPONENTS

- Front crossmember	32
- Upper insertion	34
- Side bracket.....	37
- Partial external front side panel (Boxer versions)	39
- Partial internal and external front side panel (Boxer versions)	42
- Front side panel complete with front pillar removed (Boxer versions)	46
- Partial front side panel (Turbo diesel version).....	52
- Partial external front side panel (Turbo diesel version).....	54
- Partial internal and external side panel (Turbo diesel version).....	56
- Front pillar.....	58

- Underdoor panel	63
- Underdoor frame (with underdoor panel removed).....	67
- Rear wing	68
- Centre pillar (with rear wing removed)	74
- Internal side frame (with rear wing, centre pillar and roof removed).....	76
- Roof.....	80
- Rear ribs (with roof removed)	82
- (Partial) front opening frame	84
- Back	88
- Partial rear floor (with back removed).....	92
- Partial rear side members (with floor removed)	95
- Complete rear side members (with floor removed)	97
- Replacing nails.....	99

STRAIGHTENING THE BODYSHELL 100**DOORS**

- Front doors	104
- Lock striker	105
- Panel	105
- Door stop rod	109
- Window	110
- Window opening device.....	111
- Window front guide	112
- Window rear guide	112
- Lock device	112
- Lock barrel	113
- Outer handle	114
- Interior handle	115
- External rear view mirror (manually operated)	115
- External rear view mirror (manually operated)	116
- External rear view mirror trim (manually operated)	117
- External rear view mirror (electrically operated)	117
- External rear view mirror (electrically operated)	118
- External rear view mirror trim (electrically operated)	118
- External rear view mirror motors (electrically operated)	119
- Trim	119
- Window sliding seal	120
- Glass scraper seals	120
- Weatherstrip seal	120

(CONTINUED)

INDEX (CONT')

LIDS

- Front lid	121
- Bonnet lock safety device	122
- Bonnet lock	122
- Bonnet opening cable	123
- Bonnet stay	123
- Rear lid	124
- Lock striker	126
- Boot lock	127
- Lock barrel	128
- Telescopic struts	128

LIDS (Variants for '97 Versions)

- Lock striker	128/1
- Boot lid lock	128/1
- Lock barrel	128/1
- Replacing boot lid opening control cable	128/2

INTERNAL TRIM

- Bonnet lining	129
- Rear parcel shelf	129
- Luggage compartment lower lining	129
- Luggage compartment side linings	130
- Rear parcel shelf side mounting -brackets	130
- Luggage restraint	131
- Front seat belts	131
- Front seat belt height adjustment device	132
- Rear seat belts	133
- Rear seat (complete version)	134
- Rear seats (split version)	137
- Front seats	137
- Front seats (for versions with Side Bag)	146
- Side panels	146/12
- Glass trims	147
- Dashboard	148
- Glove compartment	151
- Floor covering	152
- Sun blinds	153
- Interior rear view mirror	154
- Passenger grab handles	154
- Driver's side plugs	155
- Front pillar covers	155
- Steering column half casings	155
- Air vent in dashboard	156
- Rear passenger footwell air vents	156

- Air supply ducts	157
- Roof panel (for versions with sun roof)	158
- Bonded roof (for versions without sun roof)	160
- Rear roof trim	161
- Running board	161
- Boot housing trim	162
- Side window lower trim	162
- Hinged opening window trim	162
- Services chamber trim	162
- Roof side trims	163
- Door trims	163
- Front footwell vent trims	163
- Centre console	163
- Air Bag	165
- Front seat belt pretensioners	172

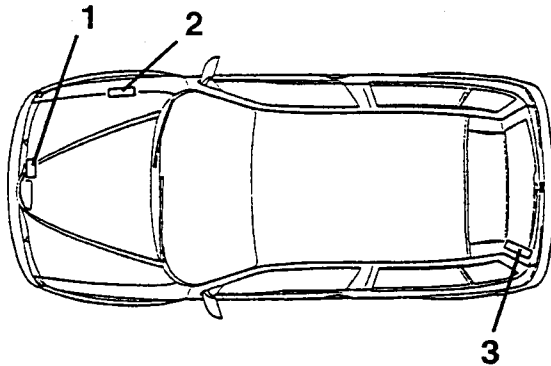
INTERIOR FITTINGS

(Variants for '97 Versions)

- Luggage restraint	175/1
- Fuse box cover	175/1
- Centre console	175/2
- Air vent in dashboard	175/3
- Front footwell air vent trims	175/3
- Dashboard	175/4

EXTERIOR FITTINGS

- Front bumper	176
- Rear bumper	177
- Underdoor panels	178
- Front mud guards	178
- Right rear mud guards	179
- Left rear mud guards	179
- Radiator grille	180
- Air intake grilles	180
- Bonnet grille	180
- Bonnet grille badge	181
- Fuel filler flap	181
- Window upper profile	182
- Passenger compartment air outlet grille	182
- Windscreen	183
- Hinged opening window	185
- Fixed rear window	186
- Rearscreen	188
- Sun roof (WEBASTO)	189
- Sun roof (INALFA)	206

IDENTIFICATION LABEL

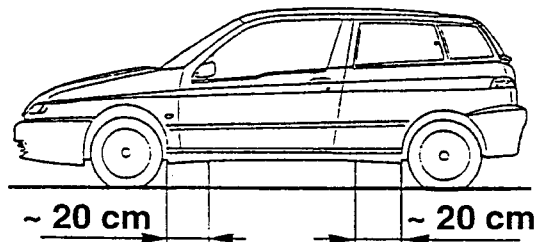
1. Identification label
2. Body label
3. Bodywork paint label

- For the identification codes see: GROUP 00.

CAR LIFTING POINTS

With arm lift or workshop jack.

- The car should be raised setting the ends of the arms or the jack in the areas illustrated.

**CAR TOW POINTS**

The car has two rings, one at the front and one at the rear, on the right-hand side of the bumpers.

The rear ring is covered by a lid that is opened by pushing on the edge.

Always strictly adhere to local regulations on the subject of towing.

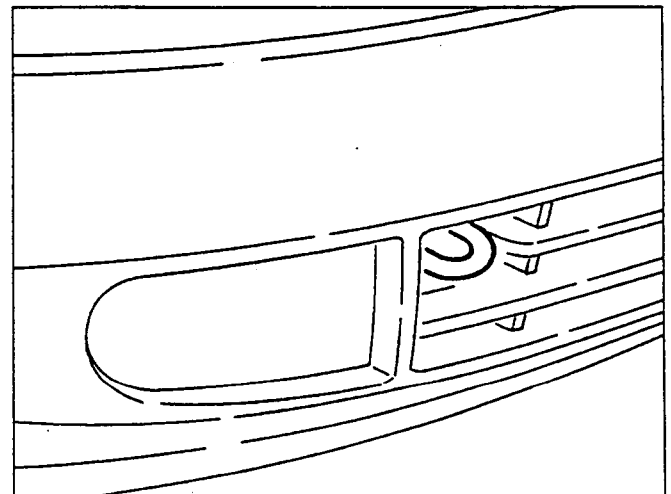
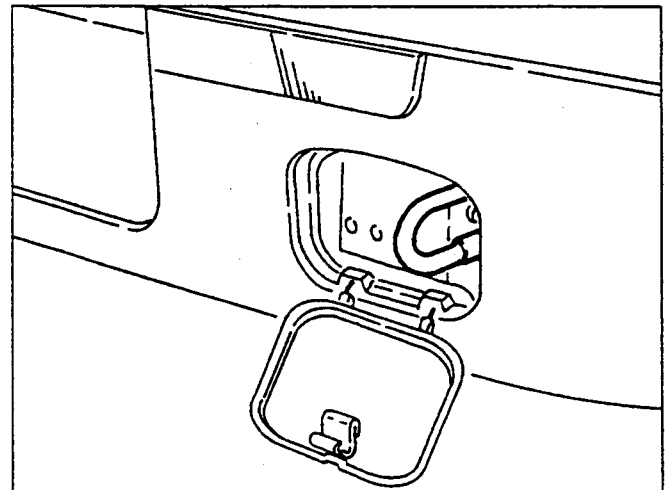
Before towing, the ignition switch of the towed car should be turned to MAR and then to STOP without removing it; this will prevent the steering from locking.

Remember that when the car is towed, the vacuum is not created in the servobrake system, therefore, considerably greater pressure on the brake pedal is required.

Additionally, when the engine is off, the power steering circuit is not operational, thus more effort is required on the steering wheel.

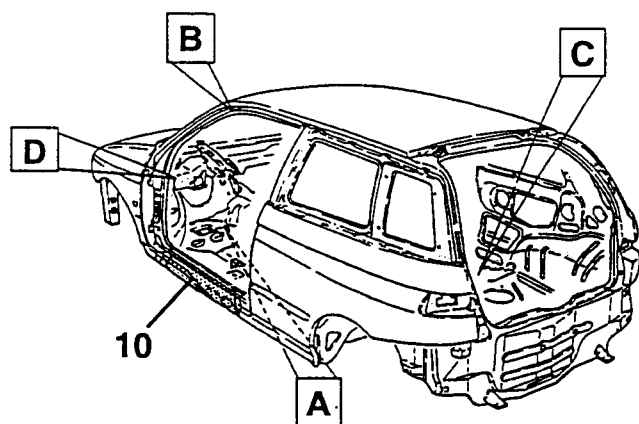
**WARNING:**

Absolutely never remove the ignition key from the lock; this will lock the steering.

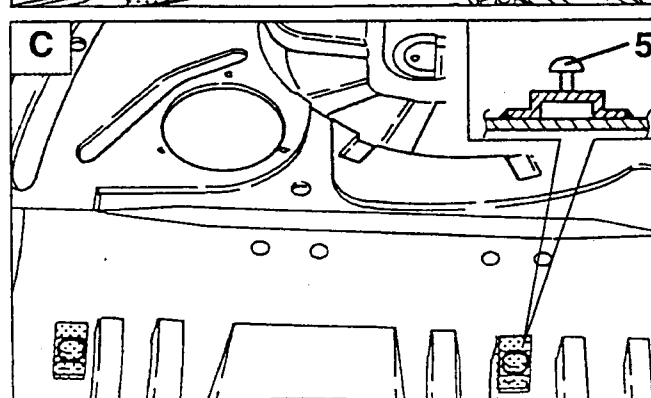
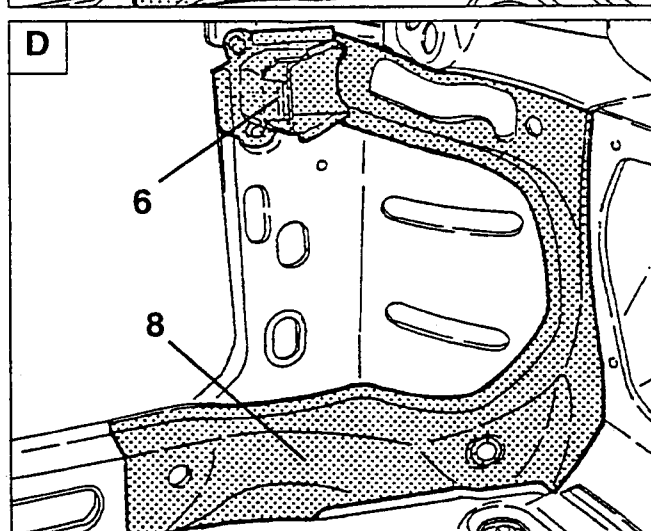
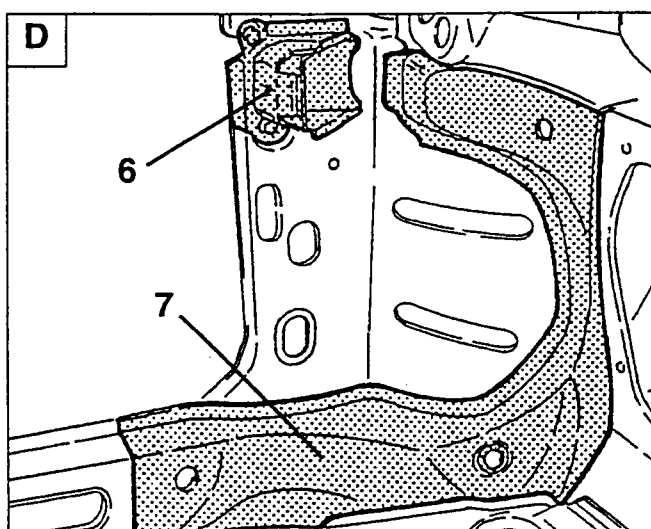
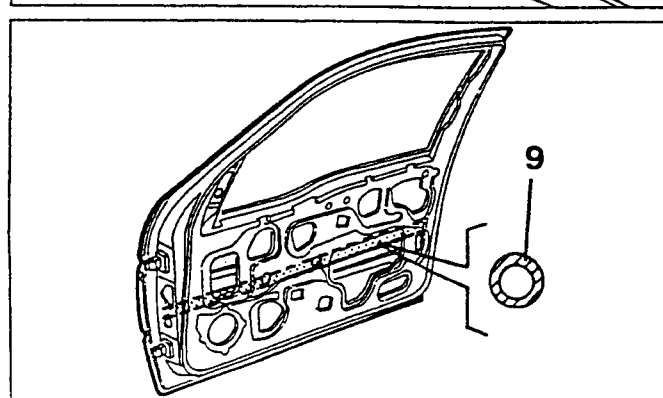
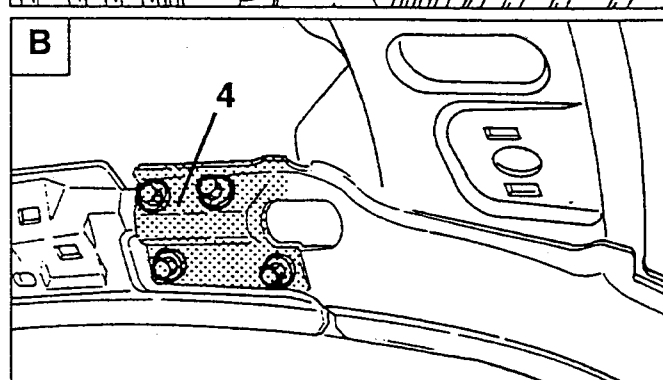
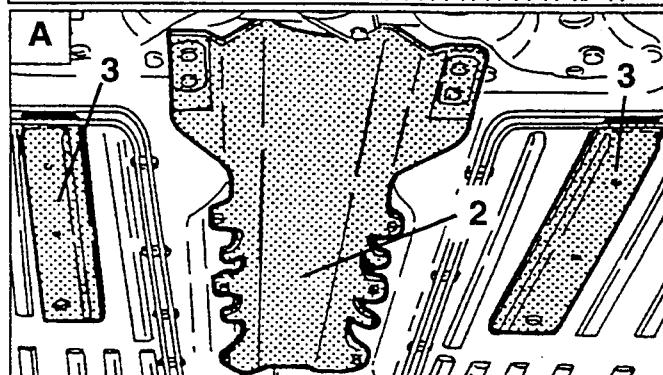
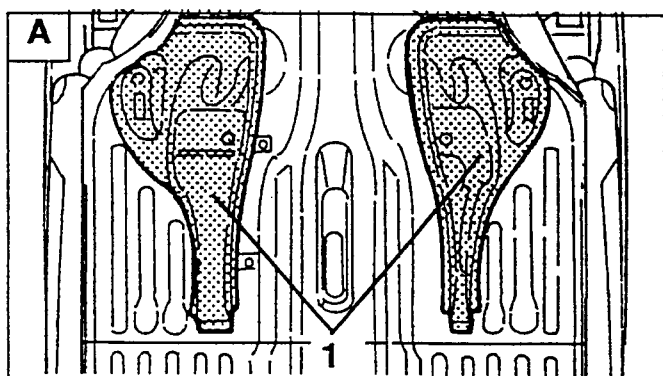
**DESCRIPTION OF BODY**

The body has been specifically studied to crumple in a controlled fashion during a collision whether from the front or from the side, absorbing the energy produced by the impact without compromising the spaces within the passenger compartment which are vital to the survival of its occupants.

To protect the passengers the floor, door sill rails, doors and front and central uprights have been reinforced in order to conform to future safety regulations.



1. Boxed parts under floor panel
(Boxer engines)
2. Gear lever support
(Turbodiesel engines)
3. Boxed parts under floor panel
(Turbodiesel engines)
4. Front pillar reinforcing
5. Rear seat cushion retaining hook
6. Dashboard crossmember support
7. Strut (Boxer engines)
8. Strut (Turbodiesel engines)
9. Door reinforcing bar
10. Reinforcing under door



In this way the model not only conforms to the EEC regulations in force at present but also with the severer ECE norms which are already in force in some states and which have been recently introduced in Italy but not as yet implemented.

To give an example, regulation ECE12 specifies that during a collision with a barrier at a speed of 48.3 kph, the steering wheel must not move towards the driver more than 12.7 cm. This vehicle offers a higher level of performance than that specified by the law with a horizontal, vertical and lateral movement of the steering wheel limited to less than 10 cm.

During a 55 kph frontal crash tests against a barrier with a 15° slope, special biomechanical crash-test dummies simulating the human body were used. These dummies are able to detect the shocks to which the organs of the human body are subject during collision in order to accurately establish the consequences of an impact.

The tests carried out on this model have made it possible to establish that under these impact conditions the survival of the driver and any passengers is guaranteed.

Also during lateral impact at 50 kph the crumple values and those relative to the deceleration of the

dummy are within the limits proposed by the EEVC regulation (collision with a 950 kg barrier which hits the vehicle at a speed of 50 kph exactly where the driver is sitting).

The table below gives the torsional and fleclional rigidity values.

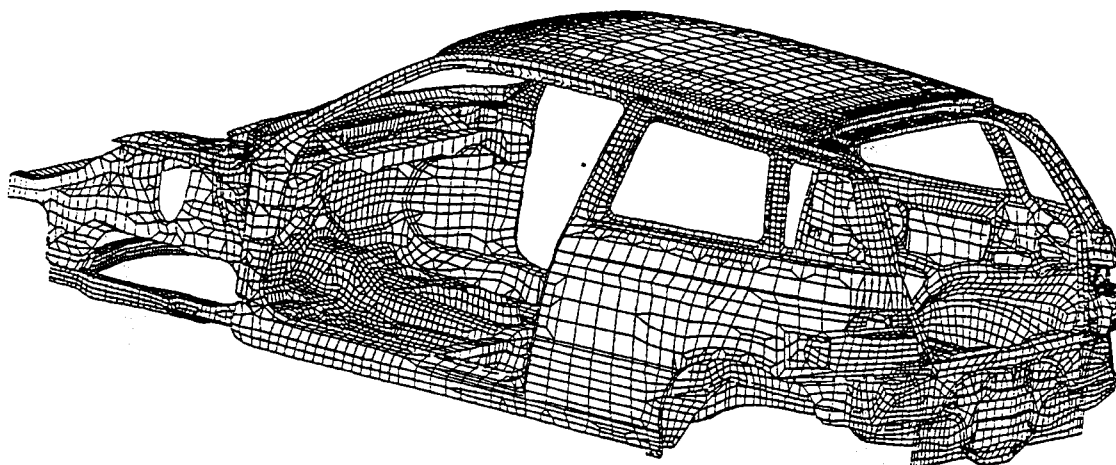
Torsional rigidity (kgm/mm)	Fleclional rigidity (kgm/mm)
1200 (1) 1400 (2)	580

(1) Turbodiesel engines

(2) Boxer engines

These higher rigidity values can be translated into advantages, for example:

- lesser vibration;
- lower noise levels;
- improved handling;
- greater resistance to breakage caused by uneven road surfaces;
- sensation of compactness of the vehicle;
- longer life of the vehicle in terms of overall quality.



TYPES OF SHEET METAL

The zinc treatment of the body panels guarantees a much higher degree of protection against attack by atmospheric agents in comparison to panels which are not treated.

The protective action of the zinc stems from the high reactivity of this metal with the chemical agents which form the atmosphere, combined with an equally high inertia levels of the compound which derives from it (zinc oxide).

The film of zinc oxide which forms on the parts of the sheet metal which come into contact with the atmosphere thus forms an efficient protective barrier against oxidation.

The film of protective zinc may be deposited:

- on two sides of the sheet metal when both surfaces are exposed to the atmosphere
- on only one side of the sheet metal. In this case the treated side faces outwards.

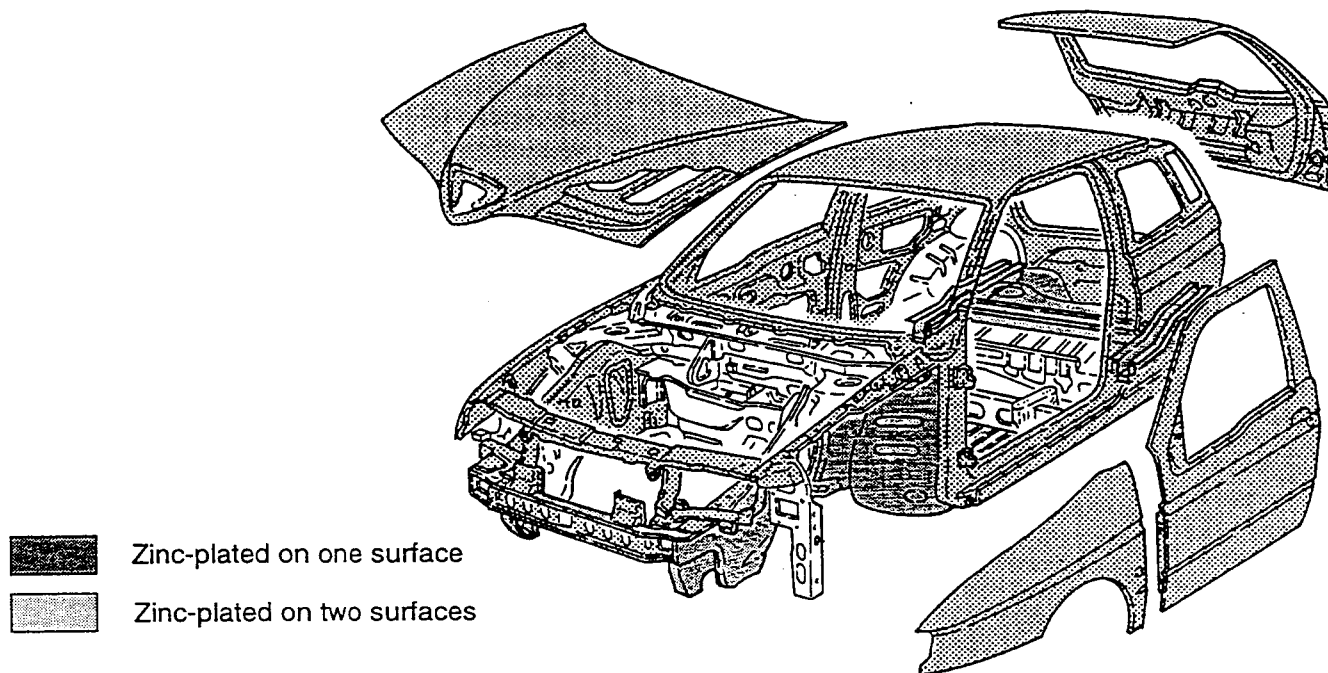
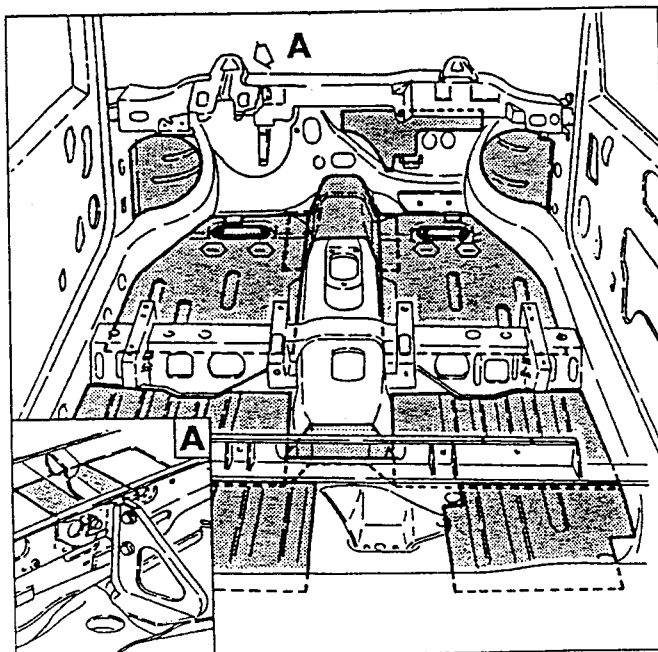
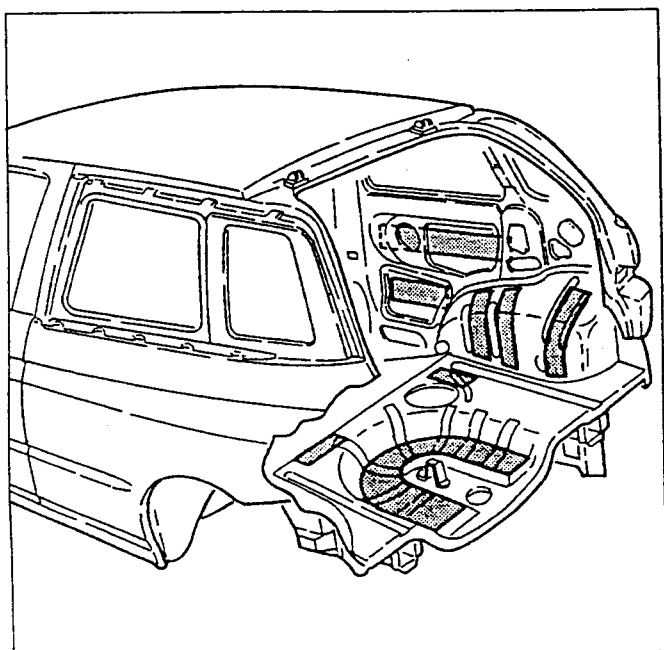
**CHART SHOWING APPLICATION OF DAMPING PANELS**

CHART SHOWING UNDERBODY PROTECTIVE COATING (PVC)

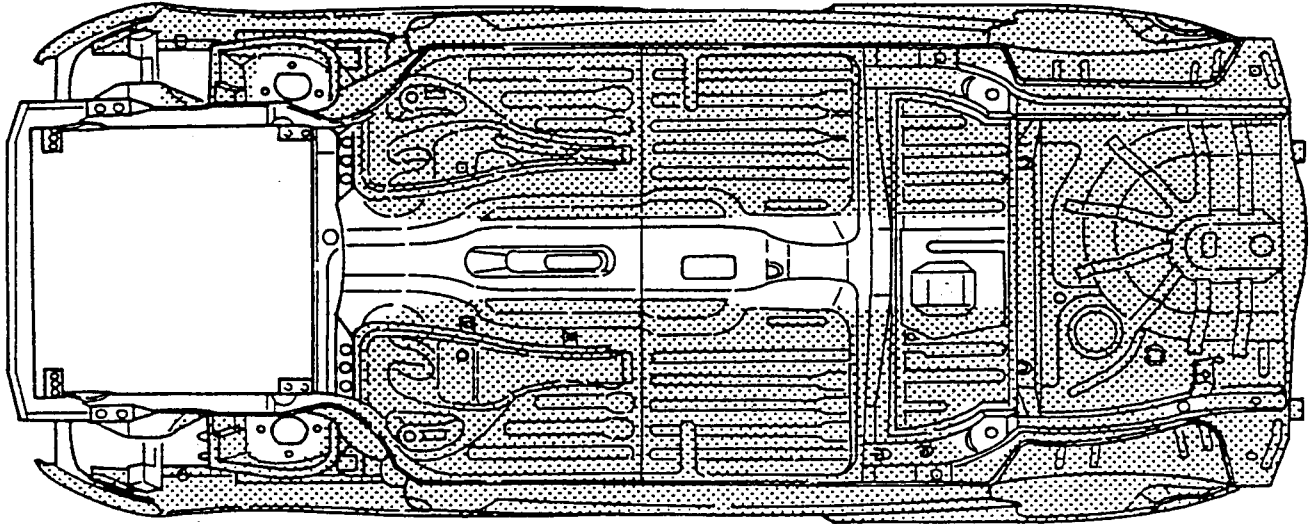


CHART SHOWING APPLICATION OF FOAM TREATMENT

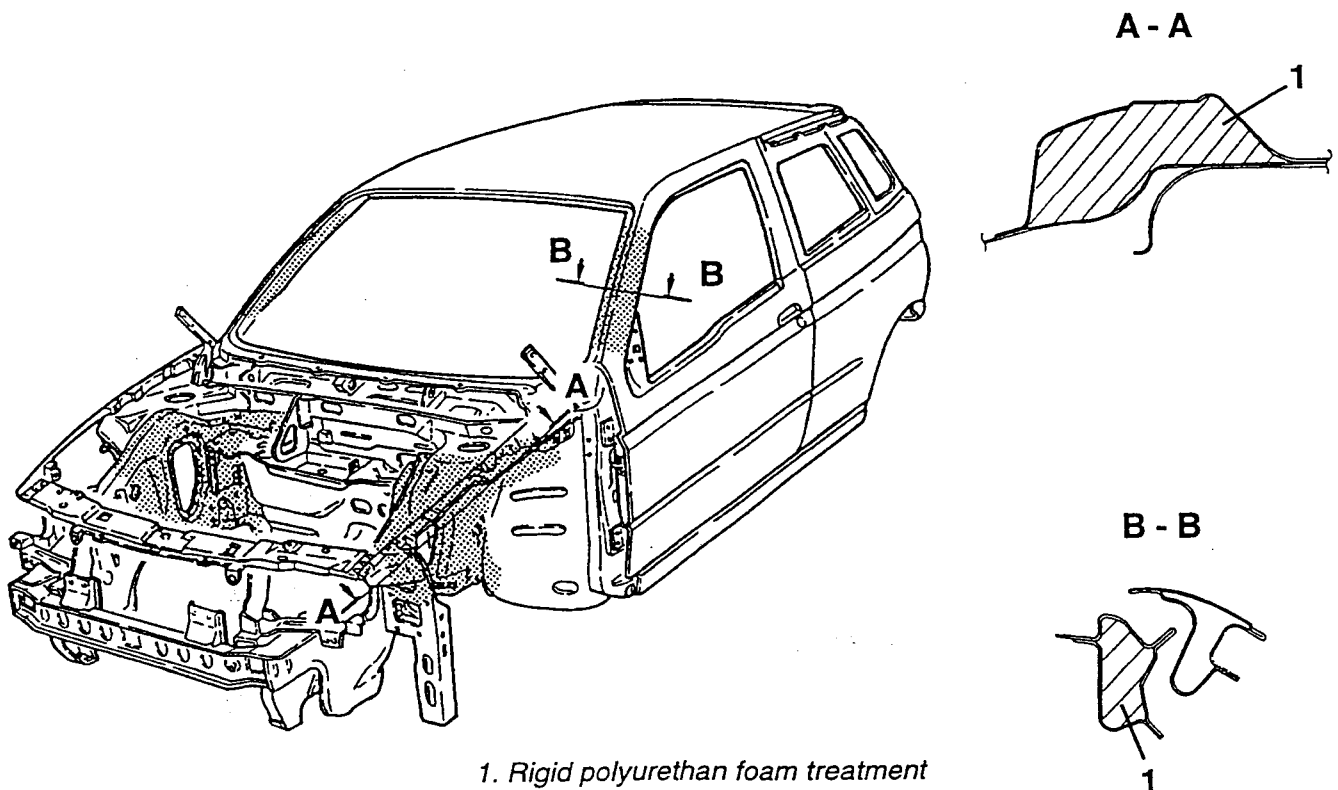
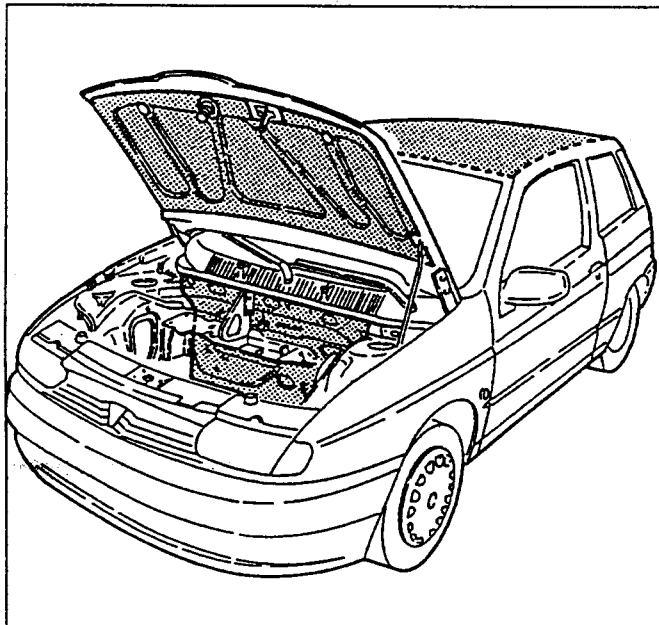
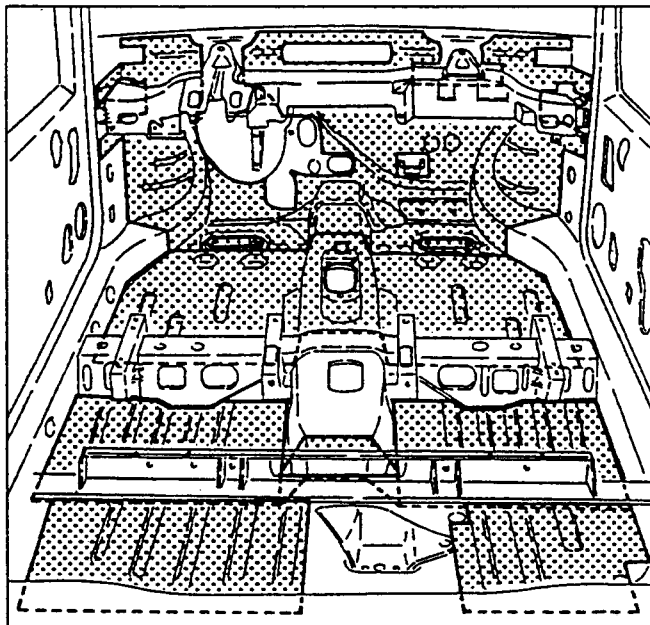
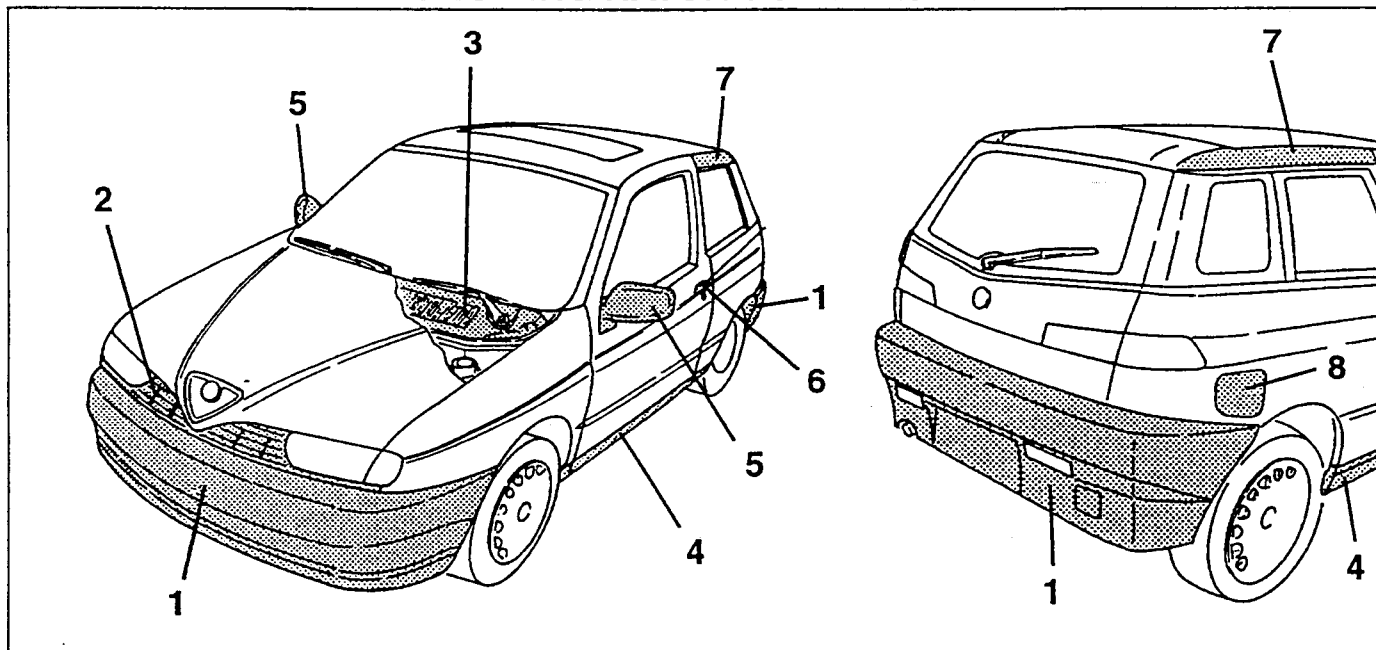
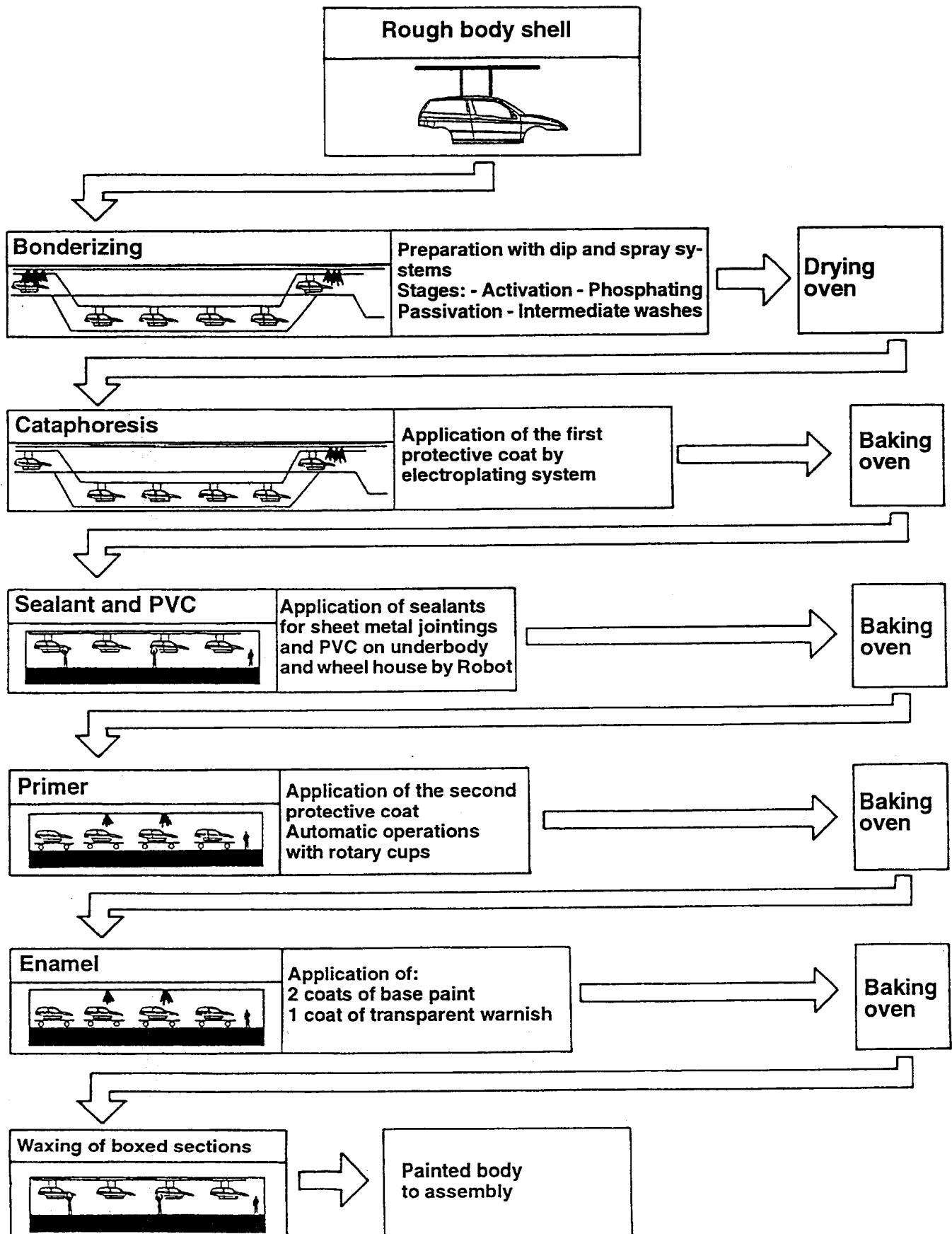


CHART SHOWING APPLICATION OF SOUND-PROOFING PANELS*Sound-absorbing**Sound-proofing***CHART SHOWING NATURE OF PLASTIC PARTS**

1. Front and rear bumpers - polypropylene
2. Radiator grille - thermohardened polyester
3. Grille under windscreen (Noryl)
4. Shaft cover - polypropylene
5. Door mirror - polycarbonate - ABS

6. Door handles - polyethylene - thermoplastic polyester
7. Roof rail cover - thermohardened polyester
8. Fuel flap - thermohardened polyester

BODY SHELL PAINTING CYCLE DURING PRODUCTION



BODYWORK RESTORATION AND PAINTING CYCLES SPECIFIED BY THE ASSISTANCE NETWORK AND INCLUDED IN THE FLAT-RATE MANUAL

The word "painting" means the operation of restoration carried out on a painted surface.

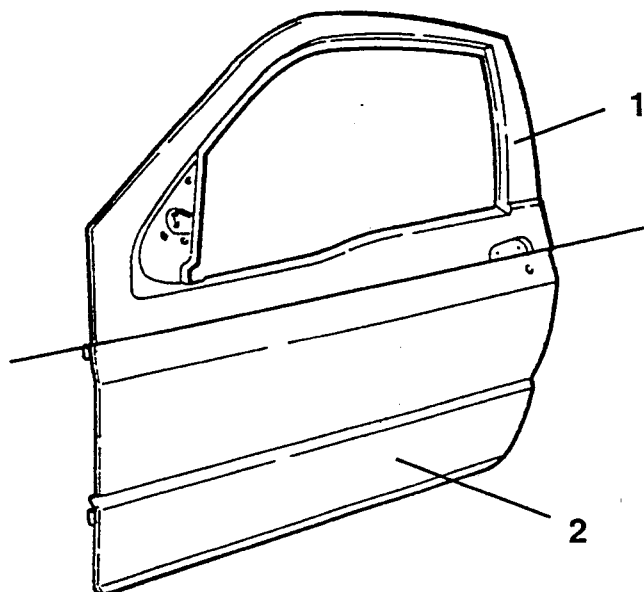
When a surface is only partially affected the operation is called "repainting cycle". Depending on the type of repair work to be carried out the following repainting cycles have been defined:

- Painting of replaced fixed metal sheet;
- Painting of replaced mobile metal sheet;
- Repainting of flawed metal sheet;
- Repainting of metal sheet with surface defect;
- Restoration of metal sheet without painting: dent removal.

For painting purposes it is important to define the term "panel".

To clarify this concept the door depicted in the diagram has been taken as an example.

The entire door is a panel but for reasons of convenience it can be divided into two areas: the upper area and the lower area. Area then, means a surface included between two borders.



1. Upper area

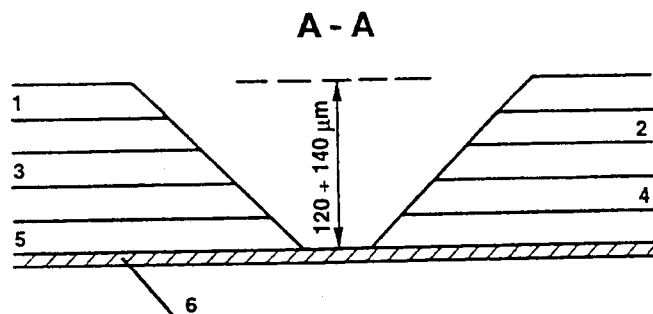
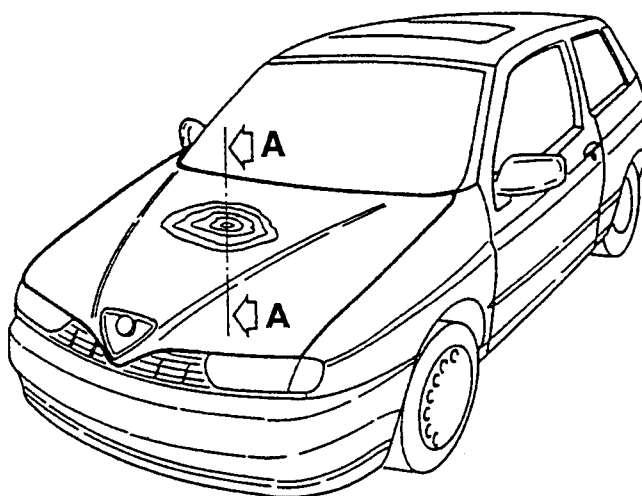
2. Lower Area

NOTE:

Metal sheeting supplied as a spare part is treated by cathaphoresis.

Preparation

Wash the affected part and asses the degree of damage. Sand the affected part with the grade of sandpaper most suited to the operation in hand.



1. Varnish
2. Paint
3. Undercoat

4. Cataphoresis (Primer)
5. Galvanization
6. Sheet metal

Thoroughly clean the affected areas with silicone-proof products.

Correction or Surfacing

Repair operations carried out on sheet metal usually involve a correction and/or surfacing phase.

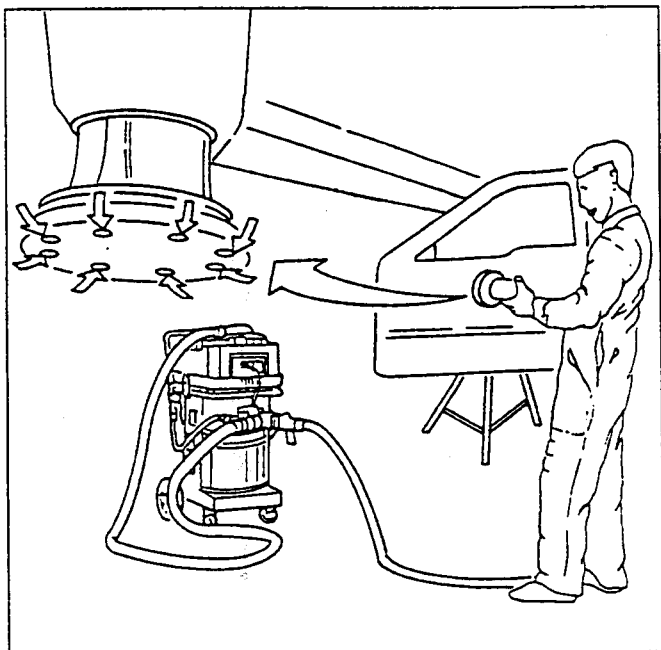
It is vitally important that the products are mixed before application. A coating which is sufficiently thick to cover the irregularities should be applied without exceeding the specified thickness.

INTRODUCTION

The procedures necessary for the repair and painting operations carried out on metal sheet supplied as a spare part are listed below.

Sanding

Dry sanding may be carried out by hand or using an electric or pneumatic sander fitted with the specified abrasive paper.



Masking

The areas surrounding the parts to be repaired should be masked with sheets of paper fixed to the surface with adhesive tape.

The importance of this operation should not be underestimated and should be carried out, as with all other operations, by taking all the necessary precautions to prevent repainting parts which are not affected.

Masking should be applied:

- before applying the primer;
- before applying the undercoat;
- before applying the layers of paint.

Application of Primer

The primer is applied to the bare metal surfaces as a protection against corrosion.

Sealing

Sealing is required in order to avoid penetration of water or humidity and is carried out by the application of different products.

Sealants are products that fill, insulate and protect and are applied to the joints between the metal panels.

Sealant should be applied with a brush or suitable spray gun.

Application of Undercoat

The undercoat due to its thickness ensures that the underlying layers are isolated. This intervention eliminates any imperfections of the layer beneath.

The undercoat must be prepared and applied following the indications given in the appropriate painting cycle.

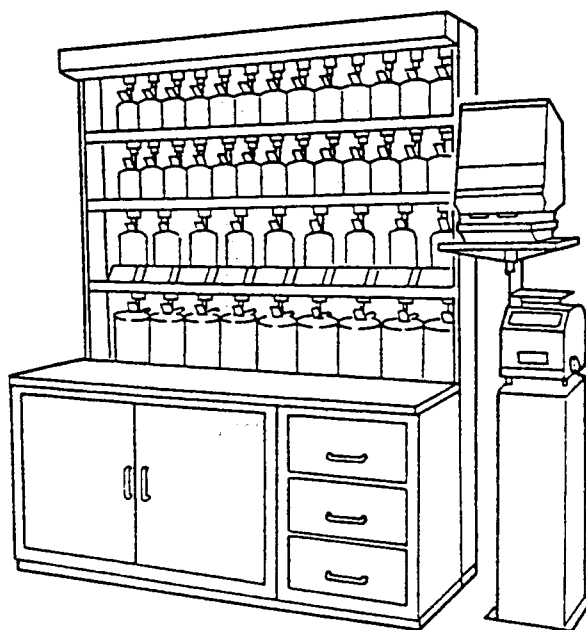
Sanding of Undercoat

Sanding is necessary, given the thickness of the undercoat, in order to eliminate any imperfections or irregularities in the sheet metal.

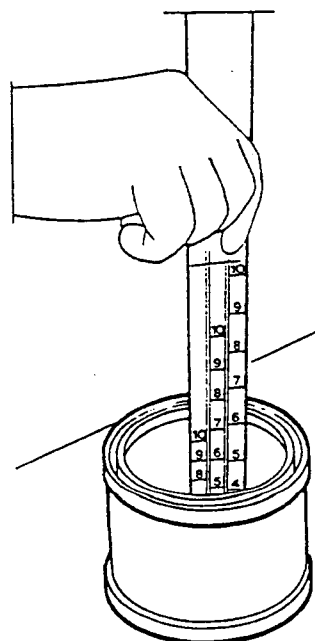
A spy coat should be applied in order to facilitate identification of any imperfections.

Preparation of the Paints

Consult the manufacturer's technical specifications before mixing the catalyst and thinner in the proportions relative to the preparation of the paint products.



Application of Paints



The required colour may be prepared by mixing the basic colours in the ratio indicated by the applicable colour formula. The enamels obtained in this way do not have the same viscosity values suitable for application and should therefore be mixed with a catalyst and thinned to the proportions indicated by the manufacturer using a rod-scale.

It is extremely important that the enamel is thinned correctly in order to avoid defects (running, pin-holing etc).

Before application check that the colour or the prepared paint corresponds exactly to the colour of the vehicle.

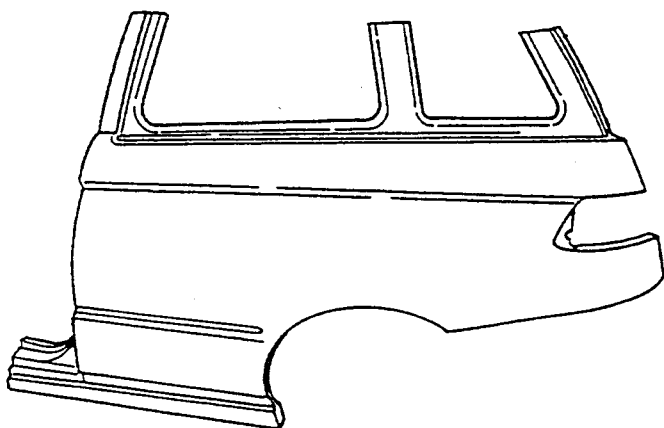
Waxing

Waxing is a supplementary protection for the boxed parts and serves to extend the protection against corrosion. It is applied through appropriate holes in the body.

Foam Treatment

Treatment with foam prevents the passage of air turbulence and sound- proofs the components treated in this way.

PAINTING OF REPLACED FIXED METAL SHEET (complete cycle)



The successive phases relative to the painting of replaced fixed metal sheet are as follows:

1. Preparation (washing, sanding and cleaning)
2. Surfacing
3. Sanding
4. Masking
5. Application of Primer (on bare metal)
6. Sealing
7. Application of undercoat
8. Sanding
9. Masking
10. Application of paints (paint and varnish)

- Wash the affected area, dry sand the cataphoresis, blow-off with compressed air, clean with a cloth soaked in a silicone-proof product and dry carefully.

- Surface any imperfections and leave to dry out.
- Sand, level the filler and carefully clean the treated areas.
- Mask the affected area, apply primer to the bare metal and allow to dry naturally.
- Apply the specified sealant to the mating surfaces and dry.
- Apply the undercoat and spy-coat (paint).
- Dry sand, remove the masking and blow-off with compressed air and clean with a silicone-proof product.
- Mask the area surrounding the sanded surfaces and adequately cover the remaining parts of the vehicle.
- Blow-off with compressed air and clean the surfaces with a tack-rag.
- Prepare and apply the paints (paint and varnish). For the flash-period between coats consult the manufacturers chart.

PAINTING OF REPLACED MOBILE METAL SHEET (complete cycle)

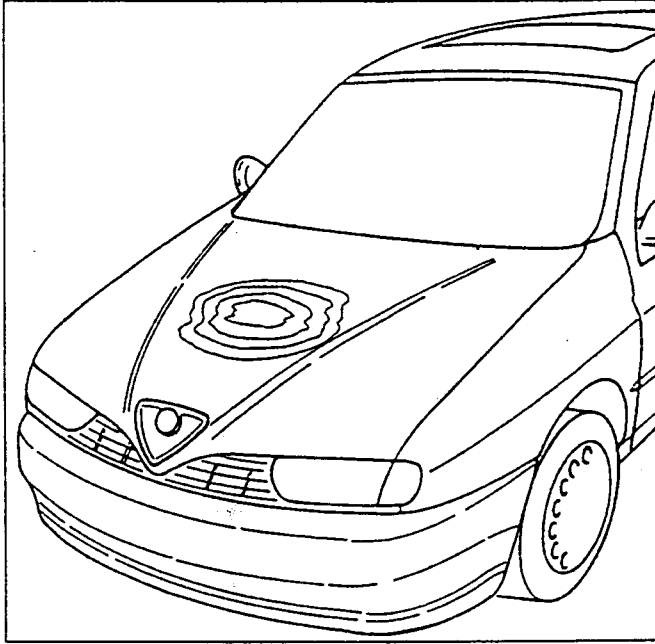
The successive phases relative to the painting of replaced mobile metal sheets are as follows:

1. Preparation (washing, sanding and cleaning)
2. Correction and/or surfacing if necessary
3. Sanding
4. Application of Primer (on bare metal)
5. Sealing
6. Application of undercoat
7. Sanding
8. Application of paints (paint and varnish)

- On a bench wash and dry sand the cataphoresis, blow-off with compressed air and clean with a cloth soaked in silicone-proof product, and allow to dry.
- Surface any imperfections and allow to dry completely.
- Sand, level the filler and carefully clean the treated surfaces.
- Apply the primer to the bare metal and allow to air-dry.
- Apply the specified sealant to the mating surfaces and dry.
- Apply the undercoat and spy-coat (paint)
- Dry sand, blow-off with compressed air and then clean with a silicone-proof product.
- Prepare and apply the paints (paint and varnish). (For the flash-period between coats consult the manufacturer's technical charts).

REPAINTING DAMAGED METAL SHEET

In the event of repairs being carried out on fixed or mobile parts, repair the defect in the metal and then proceed as described in PAINTING OF REPLACED FIXED METAL SHEET (complete cycle).

**REPAINTING METAL SHEET WITH A SURFACE DEFECT**

This cycle should be used in cases where the following anomalies occur:

- Water blistering
- Sagging
- Dulling
- Orange peel
- Dirt
- Transparency
- Roping
- Colour change
- Obvious touching-up
- Stripping
- Cissing
- Staining
- Roughness
- Chalking

The successive intervention phases relative to the surface painting operation of sheet metal are given below:

1. Preparation
2. Sanding (elimination of anomalies)
3. Dulling with scotch brite across the entire surface
4. Masking
5. Application of paints (paint and varnish)

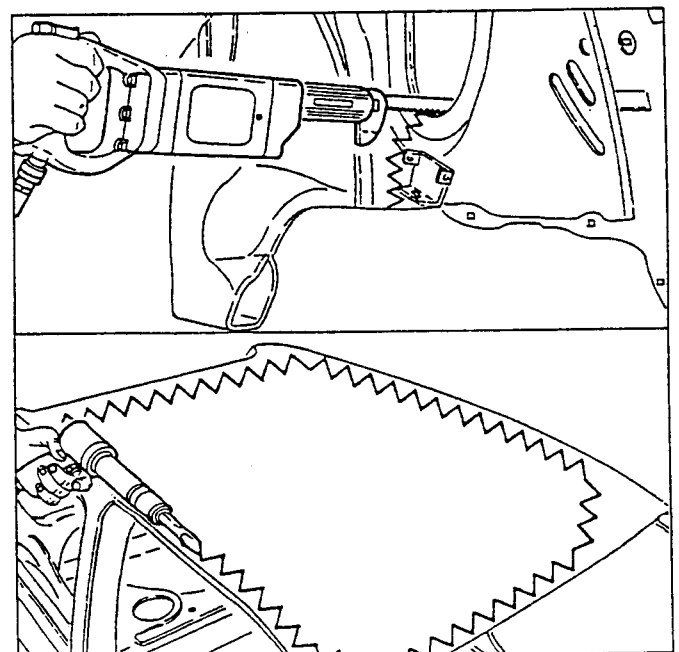
- Wash the affected areas, dry sand, clean with a cloth soaked in a silicone-proof product and dry carefully.
- Sand to eliminate the anomalies in the sheet metal.
- Dull the entire panel with brite.
- Mask the areas surrounding the sanded surfaces and suitably cover the remaining part of the vehicle.
- Blow-off with compressed air and clean the surfaces with a tack-rag.
- Prepare and apply the paints (paint and varnish). For the appropriate flash-period between coats consult the manufacturer's technical charts.

RESTORATION OF METAL SHEET WITHOUT REPAINTING (DENT REMOVAL)

This procedure enables small dents to be removed from the bodywork using suitable tools and avoids surfacing and painting therefore maintaining the initial characteristics of the metal sheet.

GENERAL INFORMATION REGARDING REMOVAL AND INSTALLATION**SYMBOLS**

The symbols regarding operations of cutting, welding/brazing, chamfering, the use of protective products, sealants, corrosion inhibitors etc. used in this manual are shown in the following diagrams:

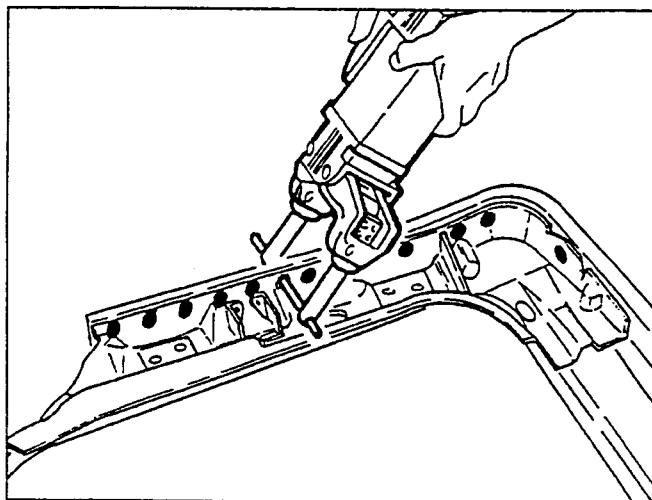
VVVVVVVVCut made with saw or
pneumatic chisel



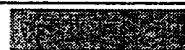
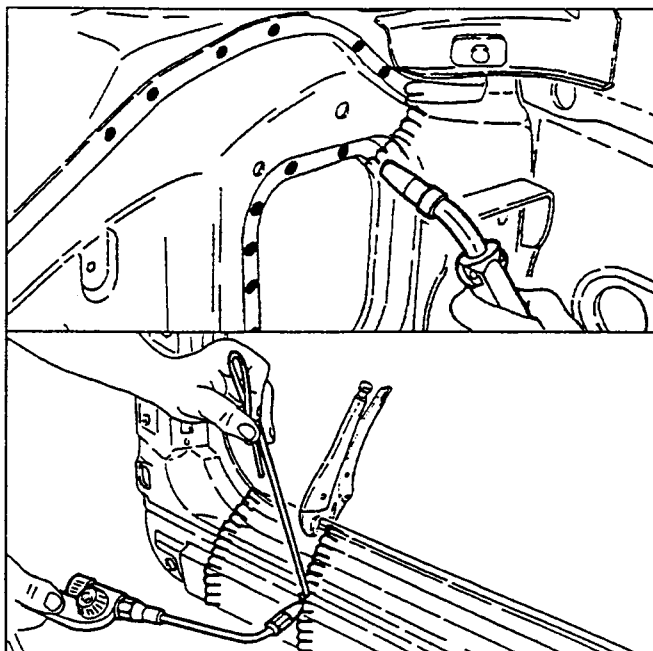
Spot welding

NOTE:

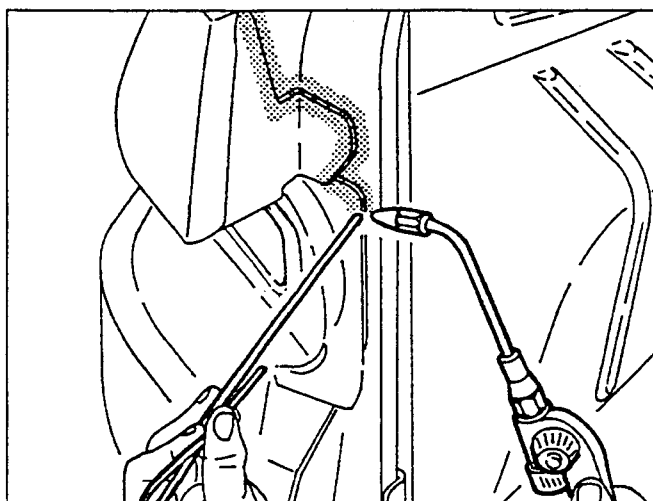
To make the diagrams clearer no symbols are used to make a distinction between welding of two sheets and that applied to three sheets.



Continuous MIG welding/for seams



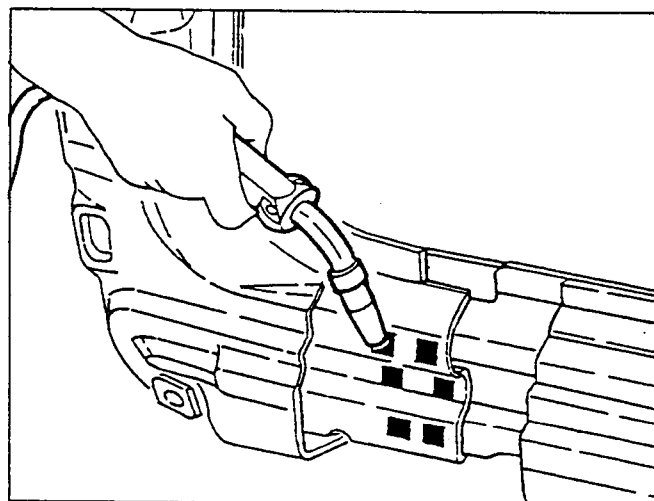
Braze-welding



Sealing



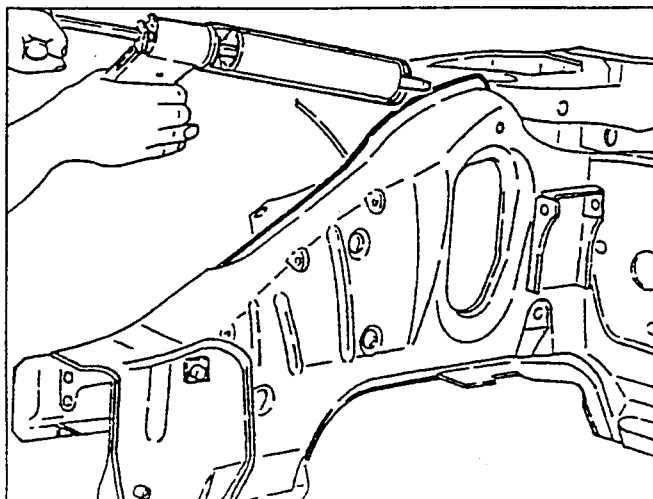
MIG welding for filling

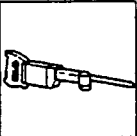
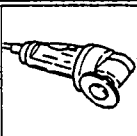

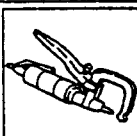
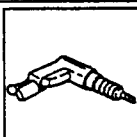
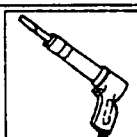

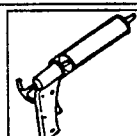
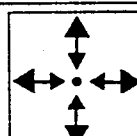
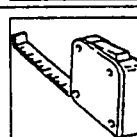
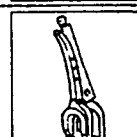



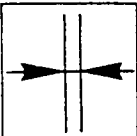
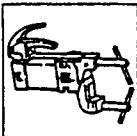
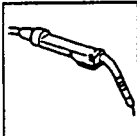
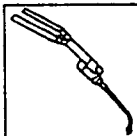
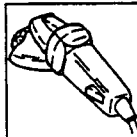

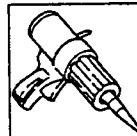




In order to condense the information relative to the operations described in the procedure for replacing components the following technique is used:

2 ● (6)

- number of welding points
- type of welding to be carried out
- progressive number of steps



CUT WITH JIG SAW	
CUT WITH CIRCULAR SAW	
CLEAN WITH ROTATING BRUSH	
REMOVAL OF WELDING POINTS WITH CHAMFERING MACHINE	
REMOVAL OF WELDING POINTS WITH DRILL	
DRILLING FOR MIG WELDING	
RELEASE OF SHEET METAL WITH CHISEL REMOVAL OF WELDING POINTS WITH CHISEL	
APPLICATION OF ELECTROWELDABLE PROTECTION	
APPLICATION OF HIGH-THICKNESS ELECTROWELDABLE PROTECTION	
CENTERING OF COMPONENTS	
MEASUREMENT	
ATTACHMENT OF COMPONENTS	

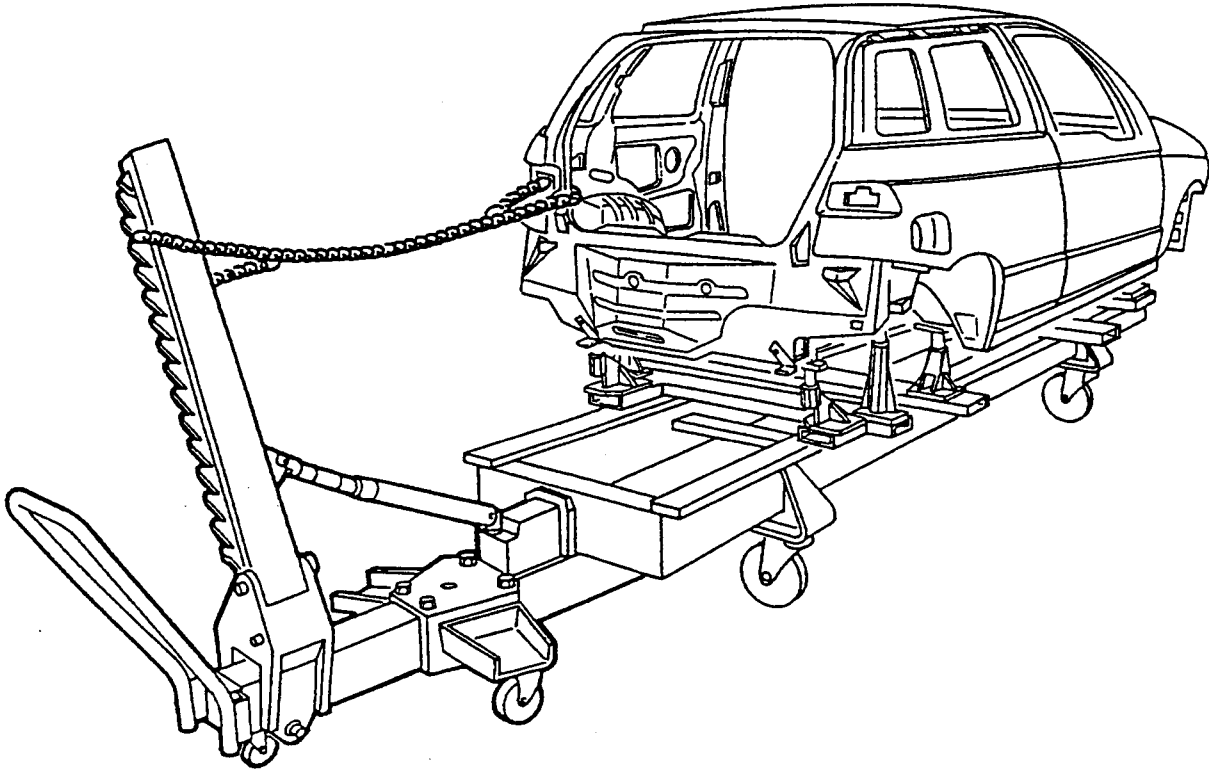
CHECKING OF GAPS	
SPOT WELDING	
MIG WELDING	
WELDING WITH OXYACETYLENE • TORCH	
GRIND	
APPLICATION OF RUST INHIBITORS	
APPLICATION OF SEALANTS	
APPLICATION OF UNDERBODY PROTECTION	
APPLICATION OF PAINTS	
APPLICATION OF WAX PROTECTION	
APPLICATION OF FOAM PROTECTION	

REMOVAL OF COMPONENTS

- a. Ensure that all the damaged parts have been identified by measuring the main squaring values. See "Body Squaring".
- b. Pull the body using a tool which is suitable to the extent of the damage and apply traction in the direction opposite to the impact. Removed parts can be re-used providing they meet the requirements listed in "Body Squaring".

WARNING:

Pay special attention when securing tension chains to the body in order to avoid accidental release during the operations.



- c. Cut away the damaged parts

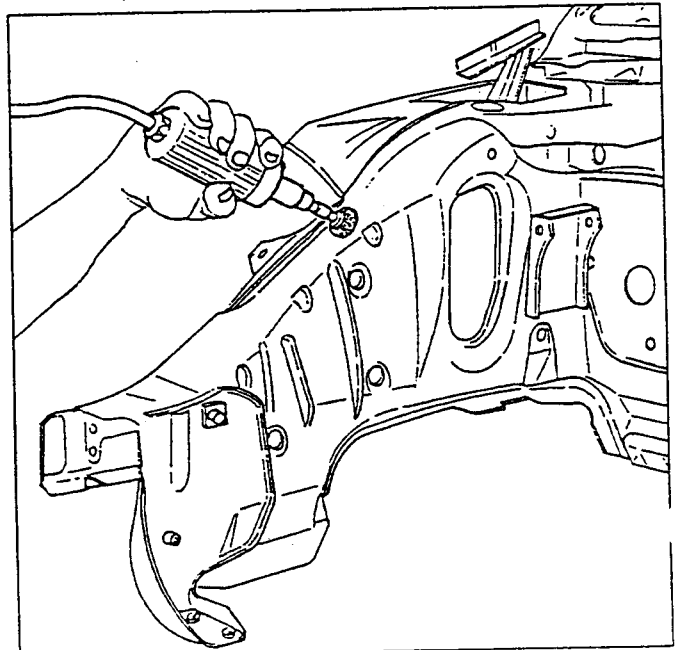
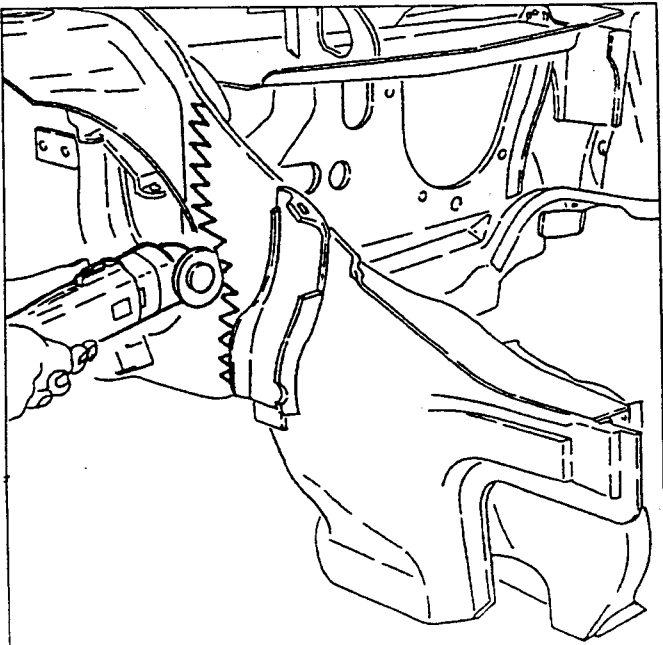
Tools required:

- Pneumatic saw
- Pneumatic chisel

- d. If the spot welds are not visible remove the paint with a wire brush.

Tools required:

- Rotating brush.



e. Punch each welding point where necessary to make a centering point for the drill bit.

Tools required:

- Hammer
- Graver.

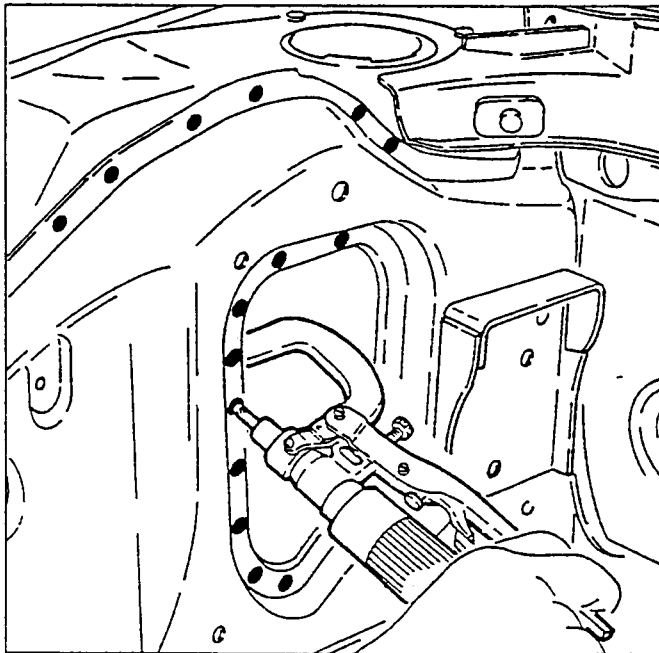
WARNING:

Centre punching of each welding point should be deep and exactly centered. An off-centre punch will not permit the welding point to be completely removed while a weak punch will not allow the drill bit to be securely guided.

f. Remove the spot welds using a chamfering machine or pneumatic drill.

Tools required:

- Spot-cutter
- Drill



NOTE:

Where it is not possible to use a spot-cutter or drill, use a chisel.

The chisel is particularly useful for spot-cutting thin sheet metal from thick sheet metal.



WARNING:

Use gloves and protective glasses.

WARNING:

- Position the chamfering machine over the centre of the spot to be removed.
- To facilitate the operation a cutting speed of approximately 1000 r.p.m. should be used.
- Adjust the milling depth by acting on the screw.

- Care should be taken to avoid drilling mating components. Plug any holes by welding.
- Holes can reduce component rigidity and give rise to water seepage.

g. Remove the traces of welding using a chisel.

Tools required:

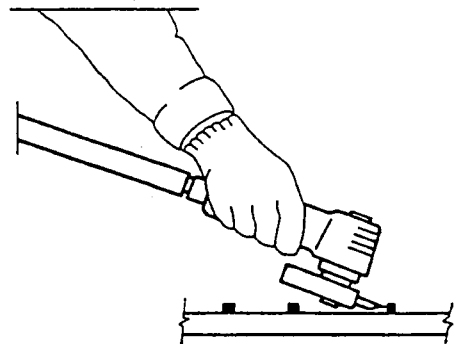
- Chisel
- Hammer.

PREPARATION

a. Grind the metal sheet at the welding points using a sander.

Tools required:

- Grinding machine with brush
- Disk-sander.



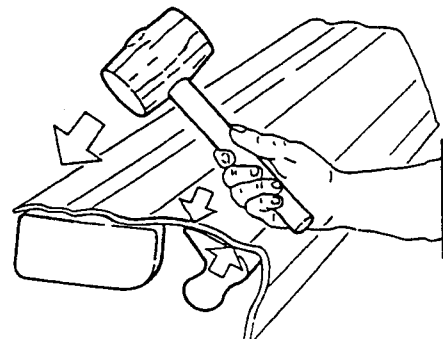
WARNING

- When using the sander care should be taken to avoid excessively reducing the thickness of the metal sheet as this may adversely affect welding strength.
- Thoroughly clean the metal dust from the ground surfaces and surrounding areas.
- Metal dust reduces welding strength from the ground surfaces and surrounding areas.
- Metal dust reduces welding strength and can lead to corrosion.

b. Straighten the buckled areas with a hammer and dolly block.

Tools required:

- Hammer
- Dolly block.



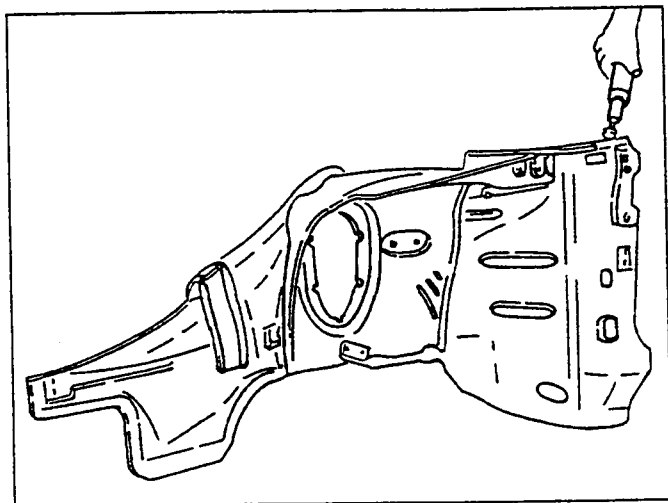
WARNING:

- Ensure that even the slightest buckling is removed, particularly on the inner panels or in hidden positions.
- If all buckling is not removed problems may arise during installation in addition to a reduction in strength due to the concentration of stresses.
- Carefully inspect the joint areas of each pillar.

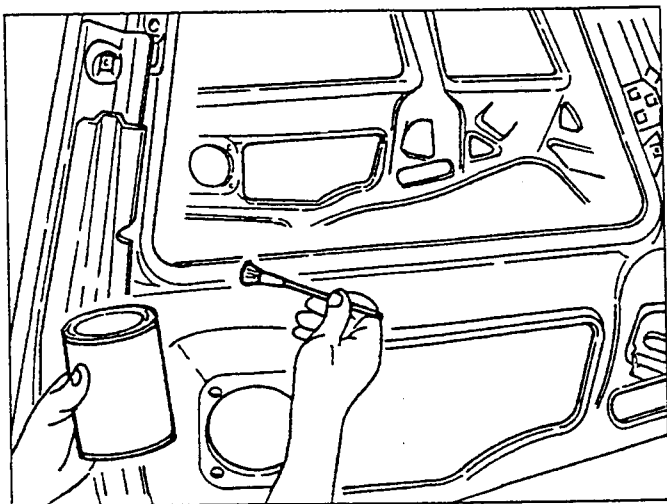
c. Remove all traces of paint from the welding surfaces.

Tools required:

- Belt sander
- Disk sander
- Rotating brush.



d. Apply electroweldable protection products to the edges of all the sheets that are to be spot welded.

**NOTE:**

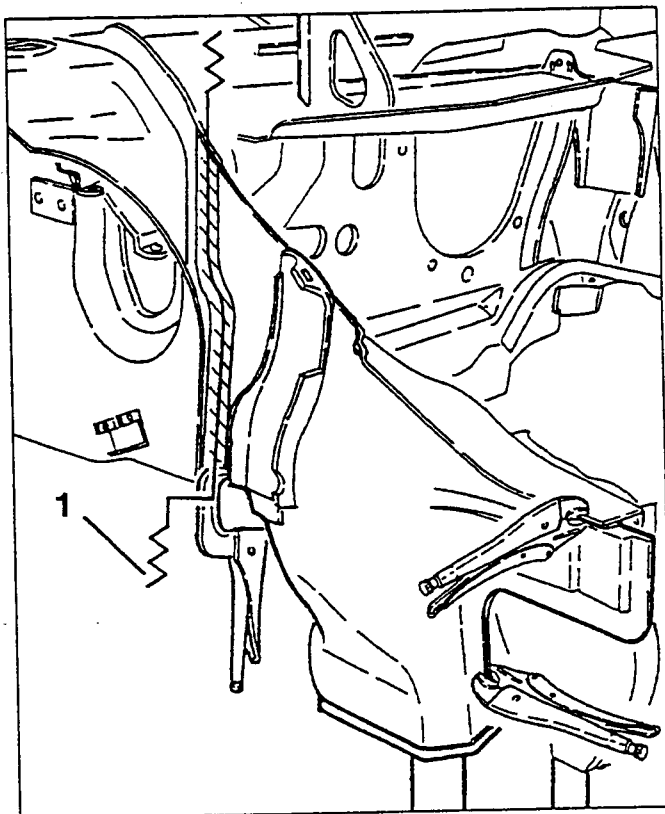
In some areas it may be necessary to apply very thick electroweldable protection to seal between the joints as well as acting as a protective coating.

e. When partially replacing a damaged sheet an overlap of approx. 50 mm should be maintained when

cutting away the unusable metal sheet in order to leave a wide enough area to permit bonding.

Tools required:

- Pneumatic saw
- Hand saw
- Scribe
- Shears.



1. Overlap

POSITIONING AND INSPECTION

a. Temporary installation of new components.

Tools required:

- Adjustable clamps
- Squaring tool (sighted)
- Chassis dimensional control system (Dime).

WARNING:

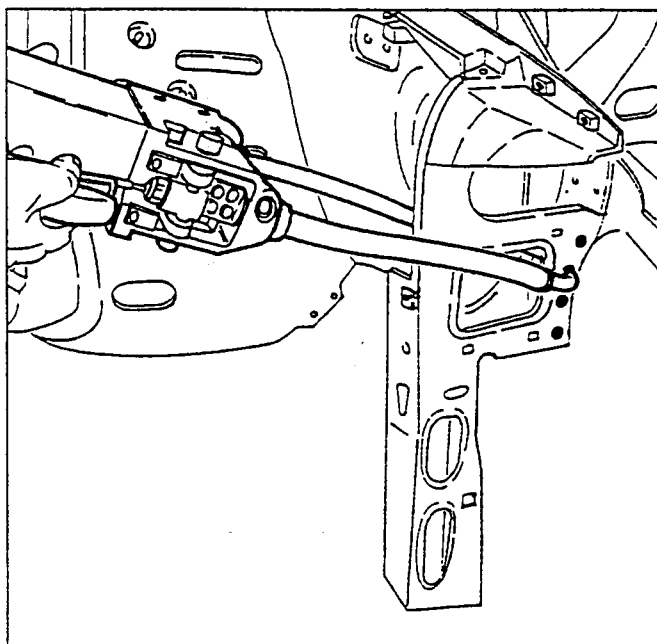
- Position the components as indicated in the diagrams in the "BODY SQUARING" paragraph.
- Draw together the edges of the sheets to be welded until they are in the correct position.
- Position mobile parts (doors, bonnet and boot lids) and check for proper installation by verifying gaps, parallelism and squaring.
- Secure the parts to be welded with clamps or a few spot welds.

WELDING AND FINISHING OF THE SHEET METAL

a. All welding should be carried out in strict accordance with the indications in "WELDING PRECAUTIONS".

Tools required:

- Spot welder
- MIG welder
- Oxyacetylene torch.

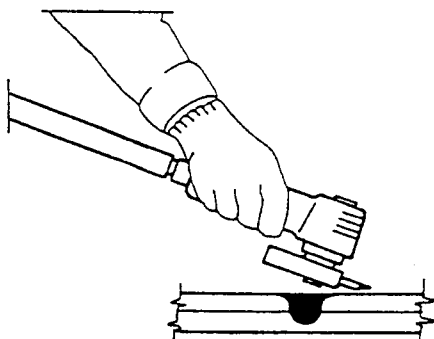


b. After welding remove the clamps used to hold the edges in place and remove the dents which may have been caused.

c. Sand the welds with a sander.

Tools required:

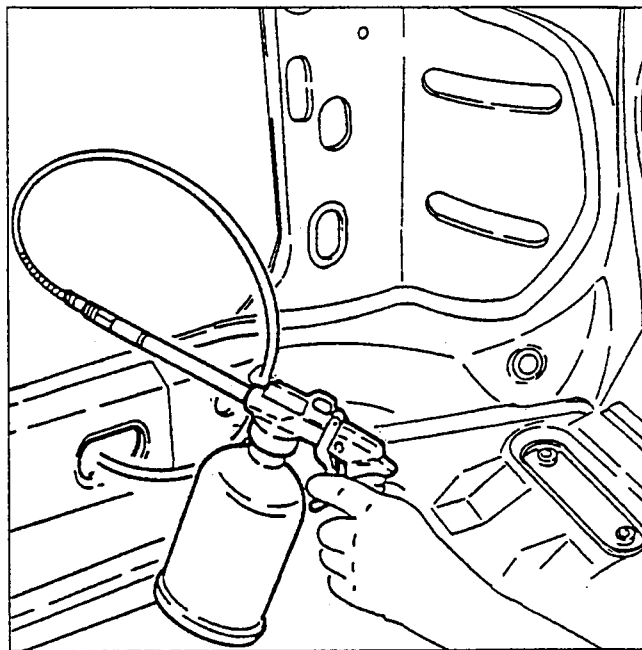
- Pneumatic sander
- Disk sander
- Grinding machine with milling cutter.

**WARNING:**

- When using the sander care should be taken to avoid excessively reducing the thickness of the metal sheet as this may adversely affect welding strength.
- Remove metal dust from the surfaces that have been smoothed and from the surrounding areas.
- Metal dust may cause corrosion.

PROTECTION

a. Apply a rust inhibitor to the components subject to MIG welding and oxyacetylene torch.

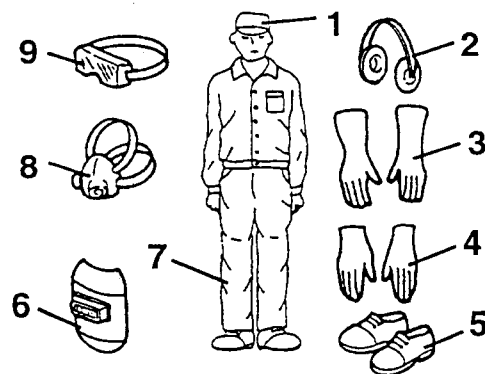


b. Apply the specified sealant to the joints in the metal.
c. Carry out the paint, wax and foam treat procedures (see specific paragraph).

INDICATIONS FOR OPERATORS**PREVENTION OF WORK ACCIDENTS**

a. Protective clothing.

- Depending on the nature of the work to be carried out ensure that adequate protective glasses, ear protectors and dust masks are worn. As a general rule work clothes, safety shoes and cap should always be worn while working.



1. Cap
2. Ear protectors
3. Welding gloves
4. Gloves
5. Safety shoes

6. Protective shield
7. Work clothes
8. Dust-mask
9. Protective glasses

b. Safety supports.

- After the vehicle has been raised ensure that safety supports are adequately positioned. Refer to "LIFTING POINTS" for the location of bearing points.

c. Inflammable materials.



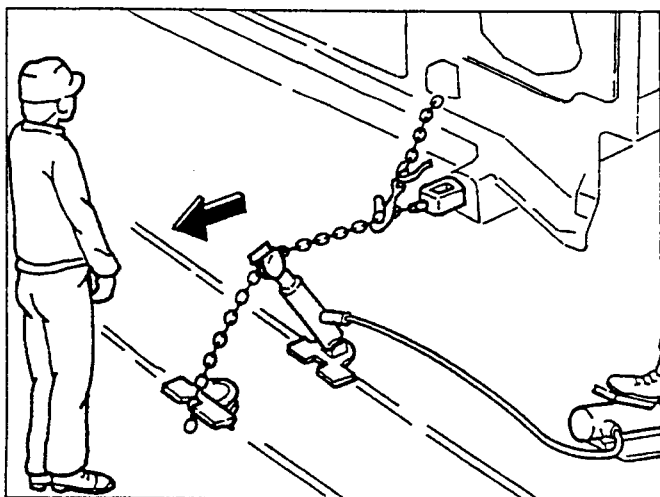
- Ensure that the negative lead is disconnected from the battery before undertaking repairs.
- In the event of needing to do any welding near the fuel tank, fuel vapour separator or fuel vapour filter, they must be removed from their housing.
- Plug the open ends of the fuel, brake fluid and fuel vapours hoses when they are disconnected.
- Remove the electronic control units before carrying out electric welding on the vehicle.

d. Work environment.

- To guarantee the safety of the operators the work environment should be well ventilated and lighted.
- As paints and sealants produce toxic gasses when heated it is advisable to use pneumatic chisels or saws instead of oxyhydrogen flame to cut and remove the damaged metal sheets.
- To remove the paint from the metal sheet a belt sander or rotating brush should be used.
- To contain the dust produced use a suction hood.

e. Vehicle bodywork straightener

- Ensure that the straightener is used in strict accordance with the procedures given in the Manufacturer's Instruction Manual.



WARNING:
During straightening of the damaged part never stand in front of the straightener in the direction of the tension load.

PROTECTION OF EXTERNAL COMPONENTS AND FURNISHINGS

a. Protection of furnishings

- Remove or cover the interior furnishings in the vehicle (upholstery, instruments, carpets).
- Cover glass, instruments, upholstery and carpets with heat resistant materials before attempting welding operations.

b. Protection of external components.

- When external components (bonnet, boot, mouldings, trimmings) are removed they must be adequately protected from scratching by using rags, protective tape or other materials.

WARNING

Painted surfaces which are even minimally scratched must be repaired as any scratching may lead to successive corrosion.

INDICATIONS FOR REPLACEMENT



The use of Alfa Romeo spare parts is recommended as these ensure the best results with regard to repairs and maintenance of vehicle serviceability.

INDICATIONS FRO WELDING

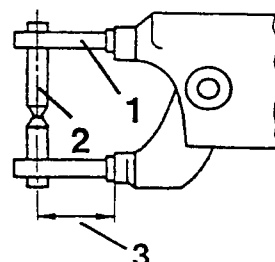
Before electric welding remove the electronic control units from the vehicle to avoid damaging them.

SPOT WELDING

The strength of spot-welds depends on the execution of the following inspections before welding operations begin:

a. Adjustment of the welding arm.

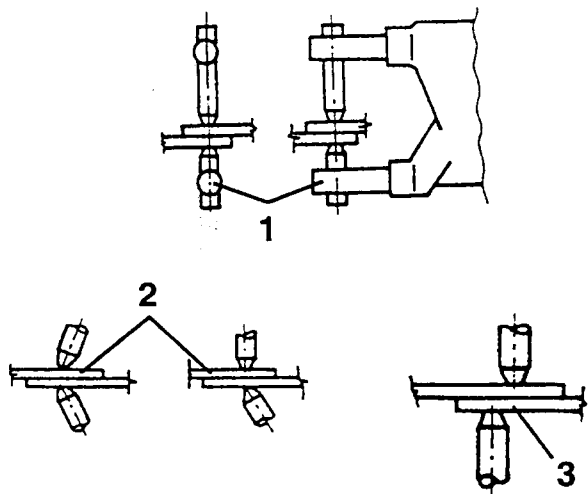
- Keep the arm as short as possible in order to maintain maximum loading between electrodes.
- Fully tighten the arm and electrodes so that they do not work loose during welding.



1. Welding arm
2. Tip of electrode
3. Minimum arm length

b. Alignment of electrodes.

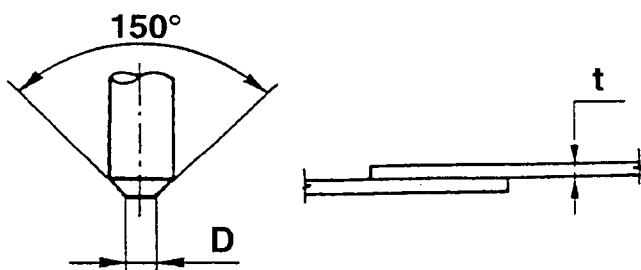
- Align the tips of the upper and lower electrodes. Any misalignment of the electrodes causes low pressure on the welding points resulting in a reduction in strength.



1. Correct alignment of arms
2. Incorrect position of arms
3. Incorrect length of arms

c. Diameter of electrode tip

- It is necessary to check the diameter of the electrode in order to obtain the necessary welding strength. Before beginning work ensure that the diameter of the tip (D) is adequate for the thickness of the metal sheet following the formula given. Remove all traces of burns or foreign bodies from the tips of the electrodes.



$$D = t + 3 \text{ (mm)}$$

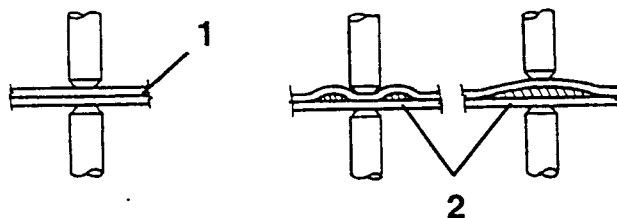
D = Diameter of the electrode tip
t = Thickness of sheet metal

Condition and preparation of the panels to be welded.

The presence of discontinuity, paint, rust or dust on panel edges prevents the flow of electricity and thus reduces welding strength. Before beginning welding check the condition of the mating surfaces and make any adjustments necessary.

a. Gaps between mating surfaces

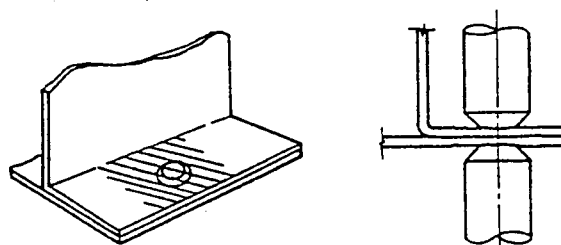
- Even a slight gap between the surfaces to be welded reduces the intensity of the flow of electricity resulting in welds which will be too small or weak. Before welding join the surfaces and when necessary, secure them with a clamp.



1. Correct mating of the surfaces to be welded
2. Incorrect mating - gap between the surfaces to be welded

b. Welding of metal surfaces.

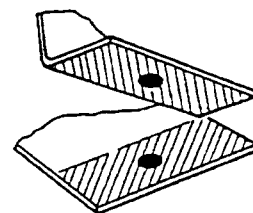
- To obtain the best results prepare the surfaces to be welded by removing all traces of impurities and foreign bodies (paint, dust, rust).



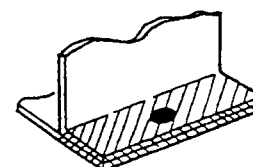
c. Corrosion prevention on metal surfaces.

- Coat the area to be welded with a high conductive corrosion inhibitor. The edges should also be coated with this product.

PRELIMINARY OPERATIONS



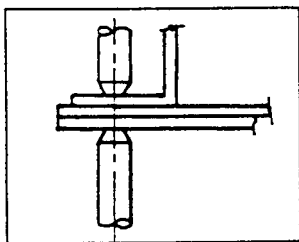
APPLY THE CORROSION INHIBITOR TO ALL THE SURFACES AND AROUND THE EDGES



Indications to be followed when spot welding.

a. Welding of three or more overlapping metal sheets.

- When three or more overlapping sheets are to be welded, welding should be repeated a second time.



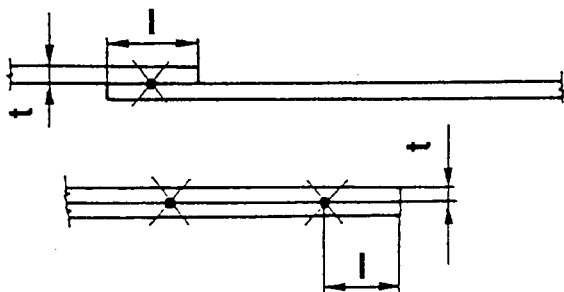
b. Number of spot-welds.

- Weld in accordance with the number of spots indicated in this manual.

c. Minimum distance between spot welds and the edge of the sheet metal.

- When welding near the edges of the metal sheet the values given in the following table should be used.

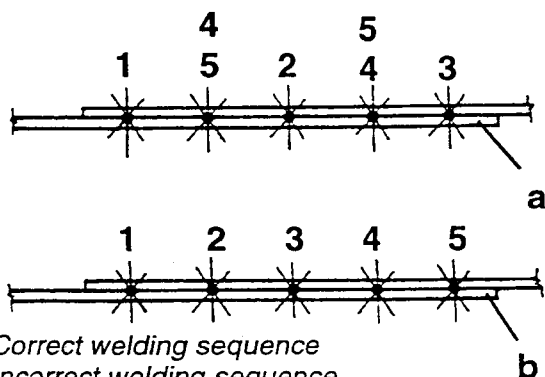
Thickness of sheet metal (t) mm	Minimum distance from the edge of the metal sheet (l) mm
0.6	11
0.8	11
1.0	12
1.2	14
1.6	16
1.8	17



Welding carried out too close to the edge will not be strong enough and sheets may warp.

d. Welding sequence.

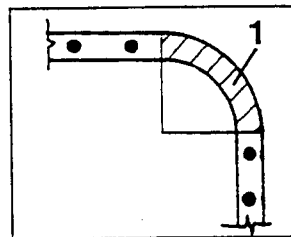
- Do not weld in one direction only as this results in weak welds due to electricity shunting. If the electrodes overheat and change colour interrupt the operation, leave them to cool and reshape the tips.



a. Correct welding sequence
b. Incorrect welding sequence

e. Welding on angled surfaces.

- Do not weld on angled surfaces as a concentration of voltage is created which can cause breakage.



1. Angular surfaces exempt from welding.

Examples:

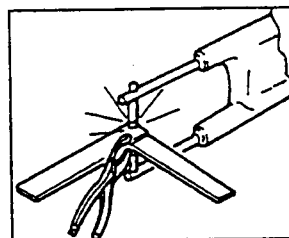
- Front pillar upper corner.
- Front part of rear wing.
- Front and rear window corners.

Inspecting the welding areas.

The spot-welding areas can be inspected either visually or by using a destructive method. This last method should be applied before and after welding. Spot-welds should be equally spaced and positioned at the centre of the flange.

a. Sample test to be carried out before welding.

- Prepare the samples using metal sheet of the same thickness as the parts to be welded and secure them so that they do not move during welding.



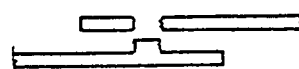
Carry out welding.

- Rotate the samples around the spot-weld until they detach and then inspect the break.
- The entire spot-weld should remain on one of the two samples and a circular hole should be on the other.

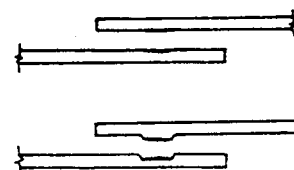
If this condition is not met welding conditions are incorrect.

Adjust the pressure, electricity and electricity flow time and other welding parameters and repeat the test until better results are obtained.

CORRECT WELDING
PARAMETERS

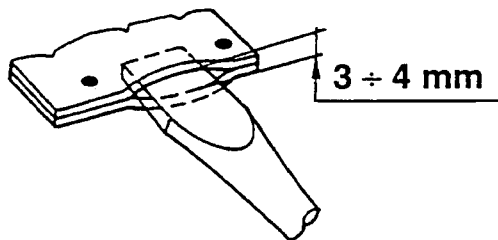


INCORRECT WELDING
PARAMETERS



b. Test to be carried out after welding using a hammer and chisel.

- Insert the point of a chisel between the welded sheets and lightly tap the chisel until a gap of 3-4 mm is obtained. If no warping is found then the welding is acceptable.

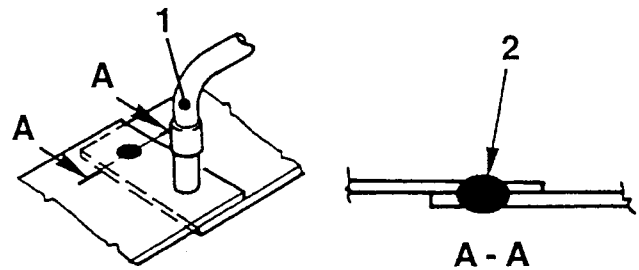


- If the gauge of the sheets is not equal the gap should be restricted to 1.5 - 2 mm.

- It should be remembered that the above values are for reference only.

- The gap can vary depending on the position of the spot-welds, length of the flange, thickness of the sheet, welding angle and other factors. To avoid breaking the spot-welds do not exceed these limits.

- Ensure that the damaged parts are repaired after testing.



1. Blowtorch

2. Welding point

b. Head-welding.

- Tack the two surfaces by welding intermittently in order to align correctly and prevent buckling. Fill the empty spaces with small welding seams.

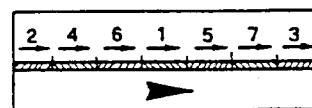
NOTE:

The correct gap is approx. 1 mm.

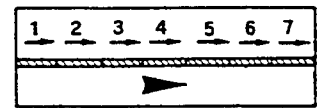
NOTE:

If welding is intermittent deformation is less. If welding is continuous deformation is greater.

- Do not weld a continuous seam as buckling may occur. In order to reduce buckling proceed as shown in the diagram.



CORRECT



INCORRECT

- After welding sand the weld following the shape of the part. If any holes are left in the weld fill them and then sand.

MIG WELDING

- Use MIG welding for parts where spot-welding cannot be used.

Conditions of the panel to be welded.

Remove all traces of foreign materials by sanding or brushing. Paint, rust or oil on the surface of the sheet may reduce the welding strength and cause blistering.

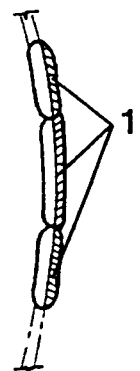
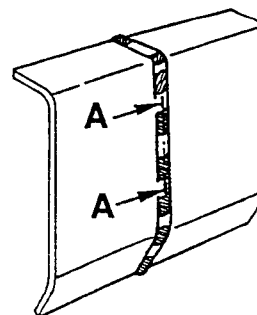
Welding indications.

a. Filler welding (of prepared holes).

- Drill a hole 5 to 6 mm in diameter on one of the sheets to be welded and secure the sheets together.

- Position the blowpipe at right-angles to the sheet and fill the hole. At each interruption in the welding process an oxide coating is formed on the surface which causes blistering. If this occurs remove the oxide with a brush.

- Ensure that the welding of the upper and lower sheets is perfect.



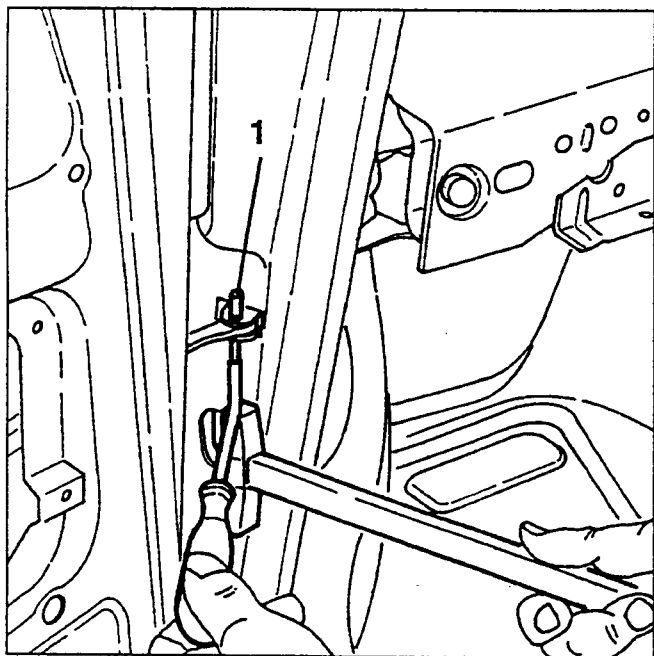
1. Part of the seam-weld to be flushed.

Inspecting filler-welds

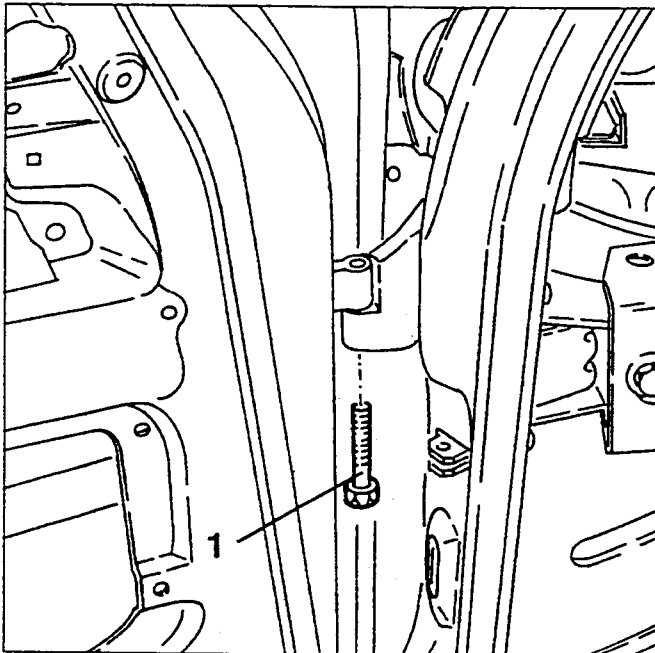
This procedure is similar to that previously described for spot-welding.

DOORS**REMOVAL AND REFITTING**

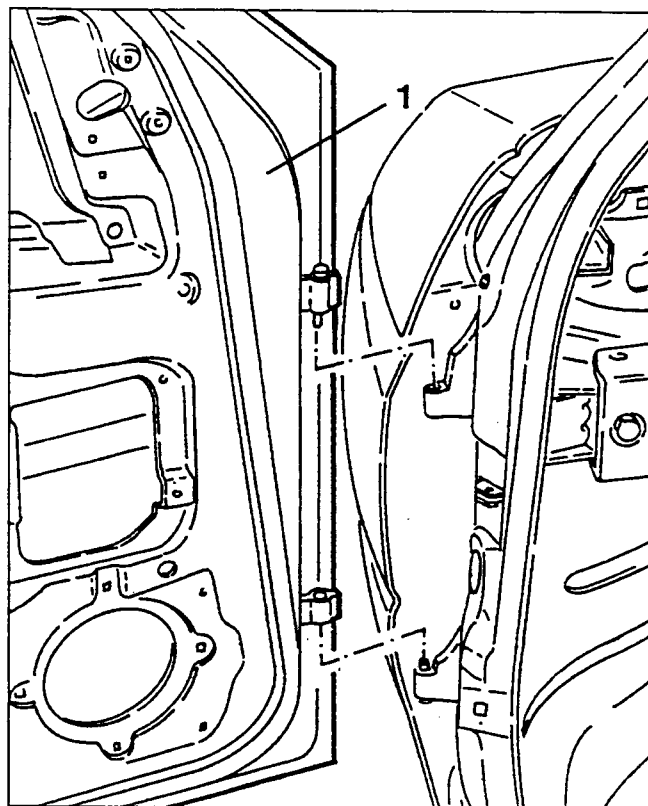
1. Remove the pin from the door check strap, half-close the door to back off the pin and then re-open the door.



1. Loosen the two screws securing the door to the hinge.



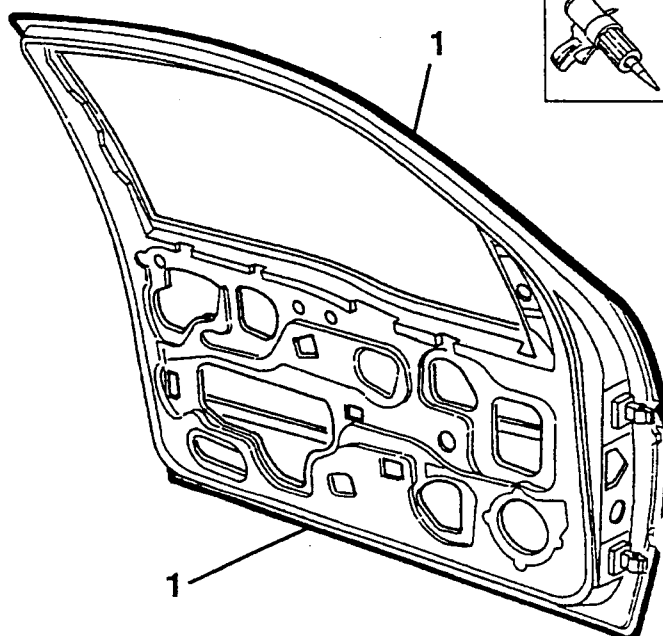
1. Lift the door unit the tapered pins of the hinges can be lifted from their seatings. Remove the door.



Refit the door by reversing the procedure followed for removal and note the following.

1. If a new door is being used apply the specified sealant along the inside edge of the door.

NOTE:
Check that the sound-proof panels are present inside the door panels.



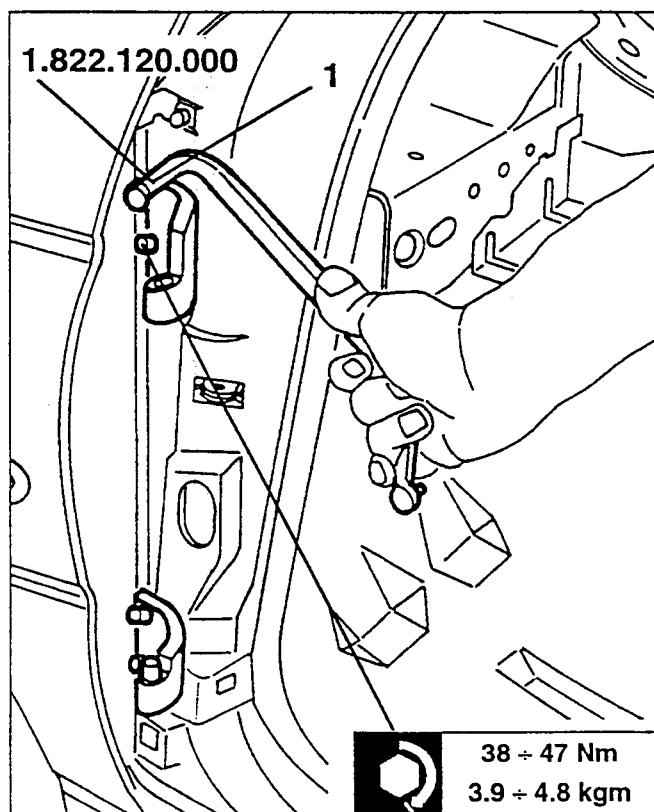
- If necessary adjust the door following the indications given in the relative paragraph.

HINGES

REMOVAL/REFITTING

- Remove the door (see specific paragraph)

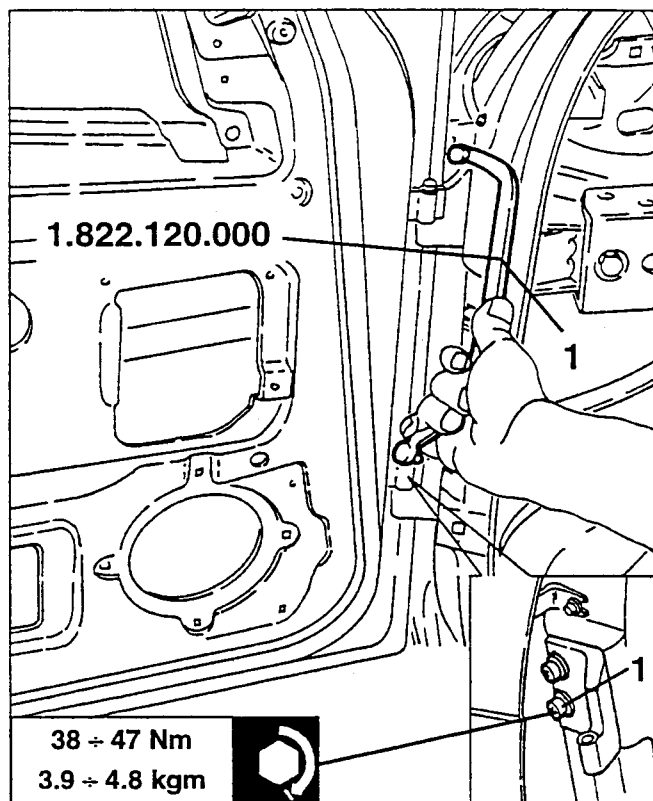
1. Using tool N° 1.822.120.000, loosen the two screws and remove the hinge.



Refit the hinges by reversing the procedure followed for removal and adjust the door as described in the relative paragraph.

ADJUSTING DOORS AND HINGES

1. Using tool no. 1.822.120.000, slacken the screws fastening the hinges to the pillar.

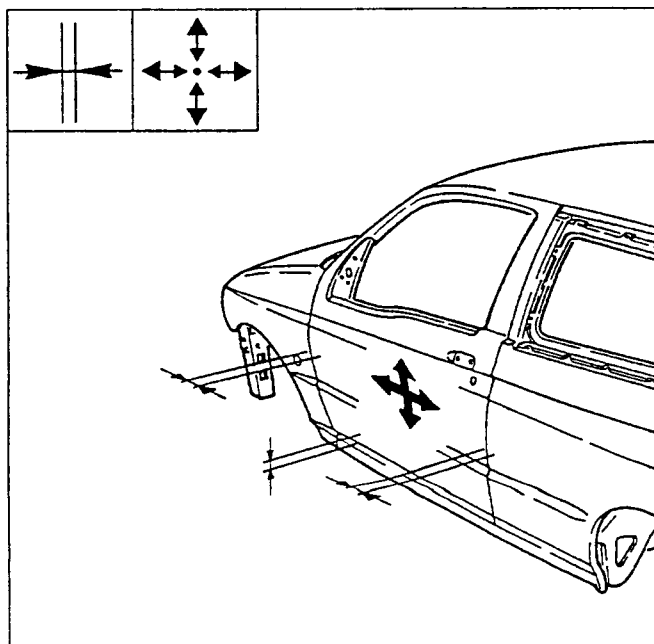


- Adjust the door longitudinally and in height checking that it mates correctly and the lights.

NOTE: Adjust the door maintaining the screws fastening the hinges to the door tightened in package.

- If necessary position shims under the hinges and under the door catch.

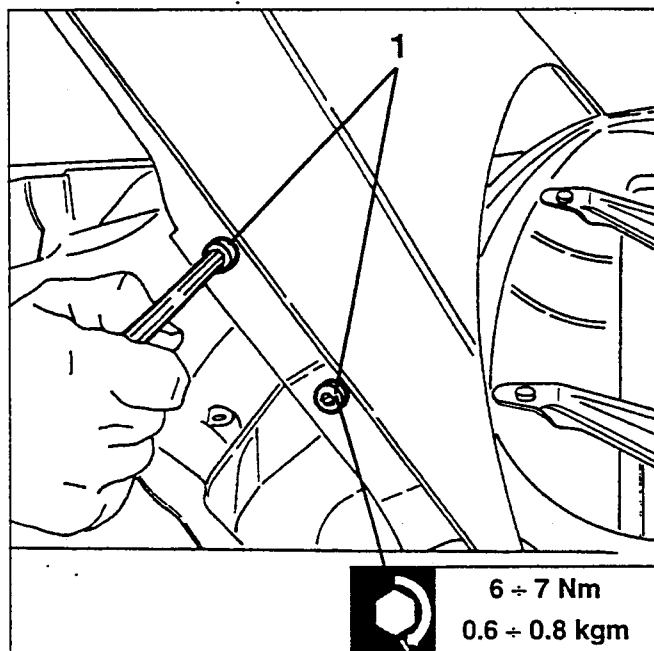
NOTE: To adjust the door the relative gaskets, lock and catch must be fitted.



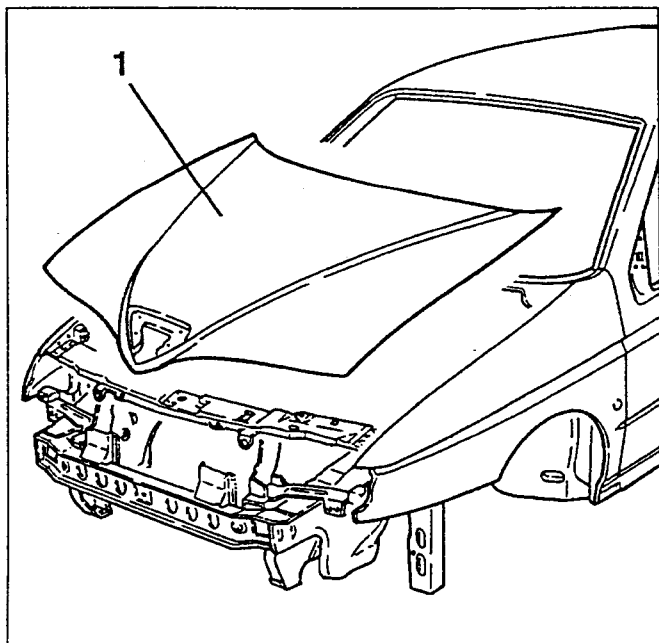
BONNET**REMOVAL/REFITTING**

- Open and suitably support the bonnet.

1. Loosen the two screws, on each side, securing the bonnet to the hinges.

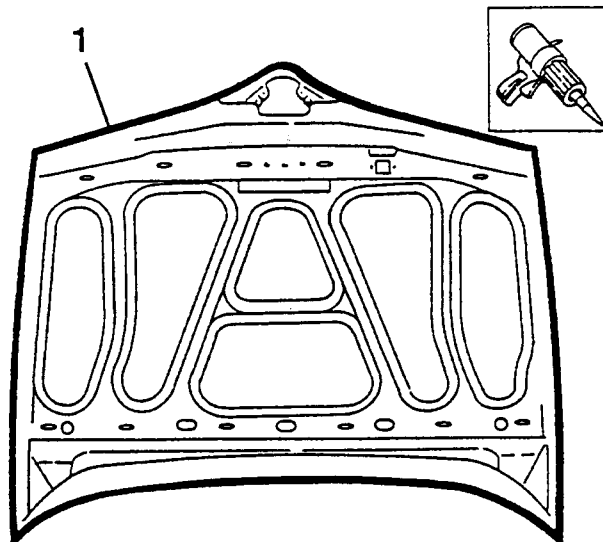


1. Remove the bonnet.



Refit the bonnet by reversing the procedure followed for removal and note the following.

1. If a new bonnet is being used apply the specified sealant around the inner edges of the bonnet.

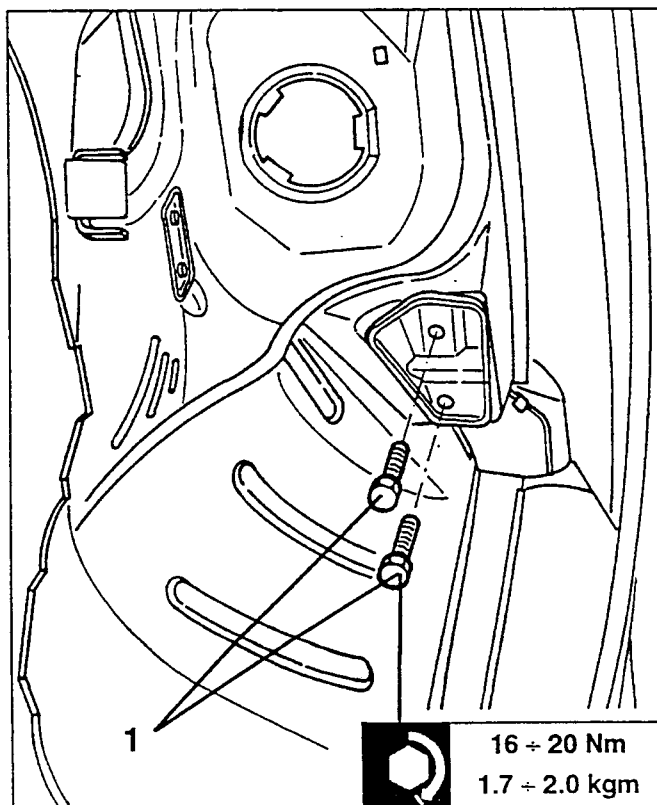


- If necessary adjust the bonnet as described in the relative paragraph.

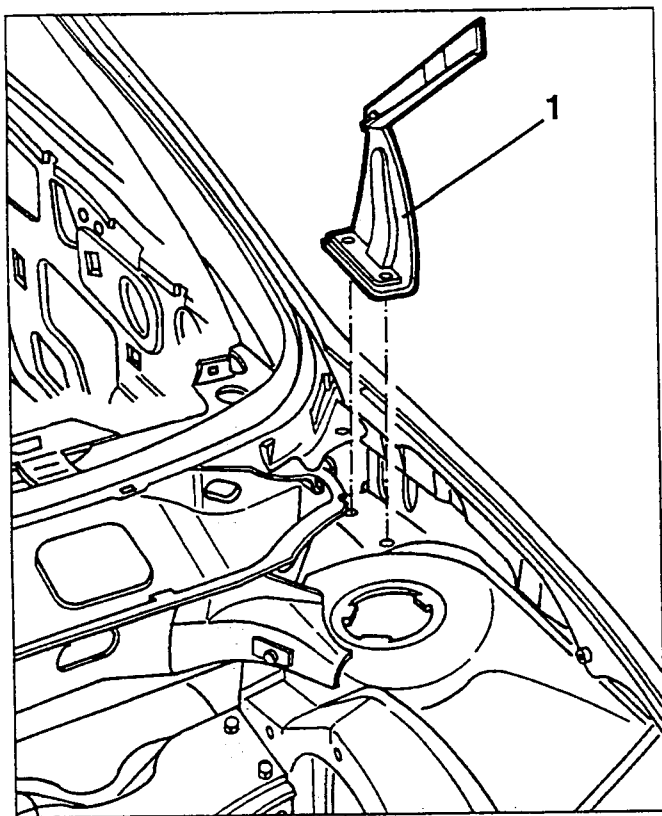
BONNET HINGES**REMOVAL/REFITTING**

- Remove the bonnet (see specific paragraph).

1. Working from the wheel housing, loosen the screws securing the hinge to the body.



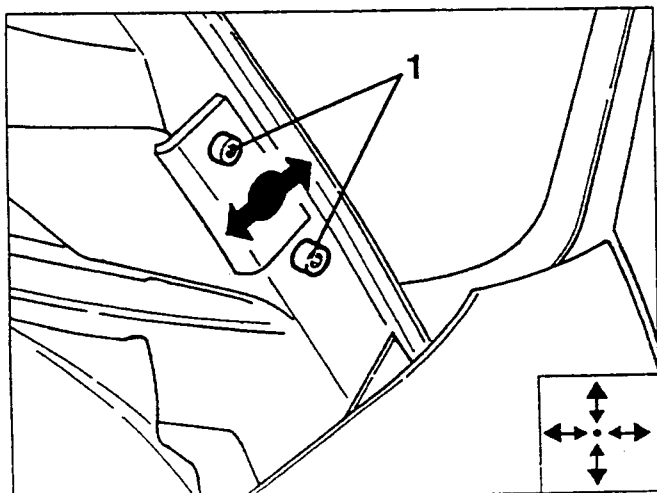
1. Remove the hinge.



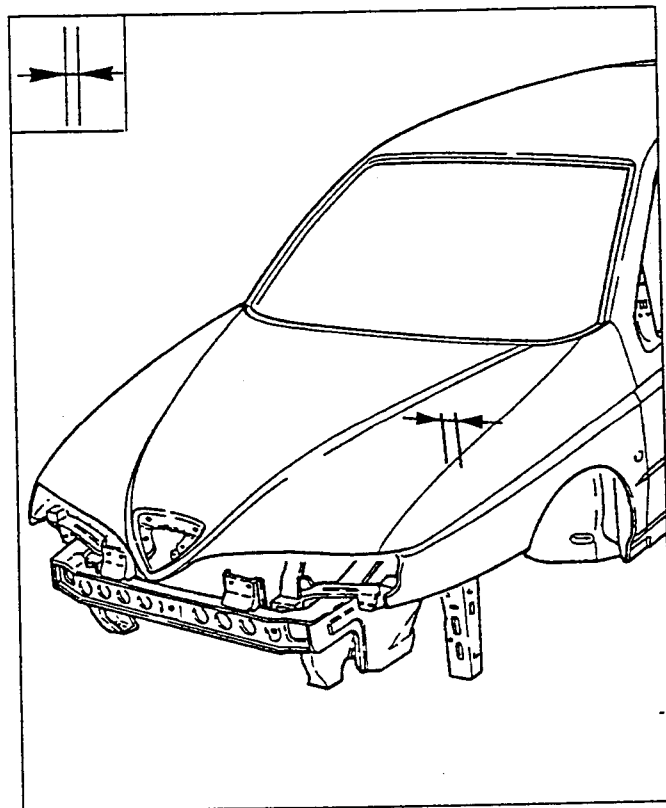
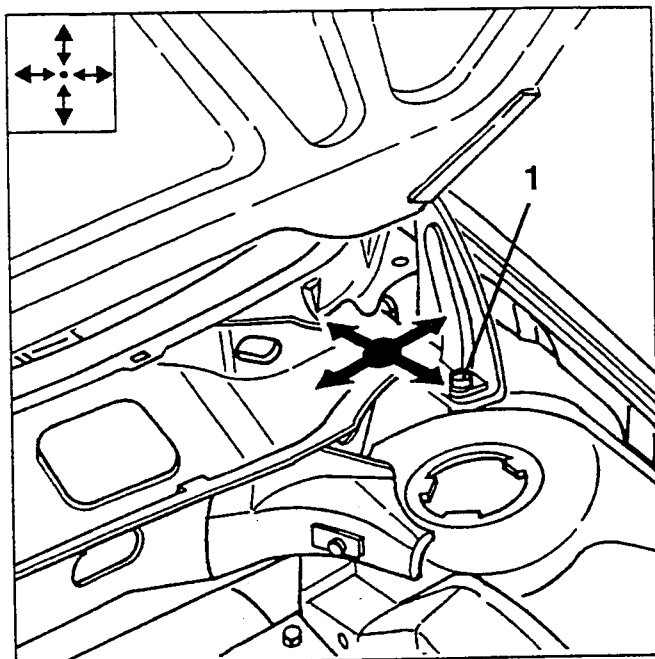
Refit the hinge by reversing the procedure followed for removal and adjust the bonnet as described in the relative paragraph.

ADJUSTING BONNET AND HINGES

1. Adjust the bonnet for height by acting on the screws securing it to the hinge.



1. Adjust the bonnet longitudinally and laterally by adjusting the screws securing the hinges to the body checking the alignment of the gaps.



NOTE:

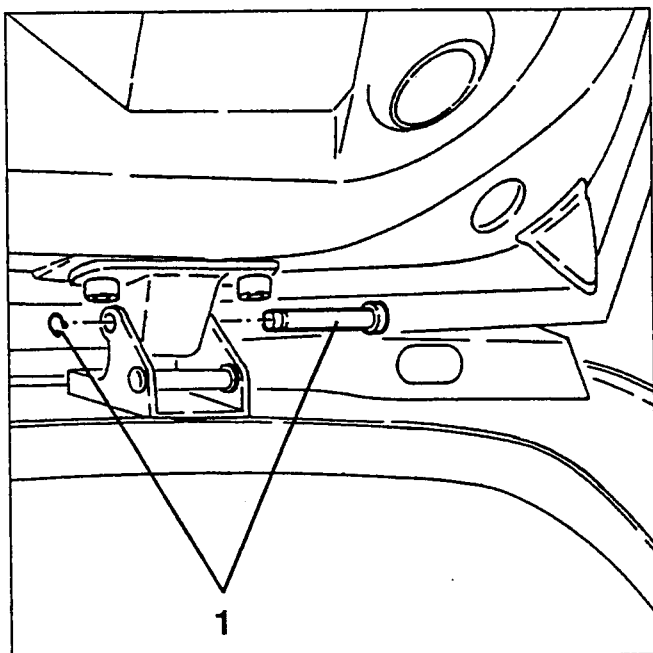
To adjust the bonnet the closure adjustment pin and the anti-vibration buffers must be installed.

BOOT AND HINGES

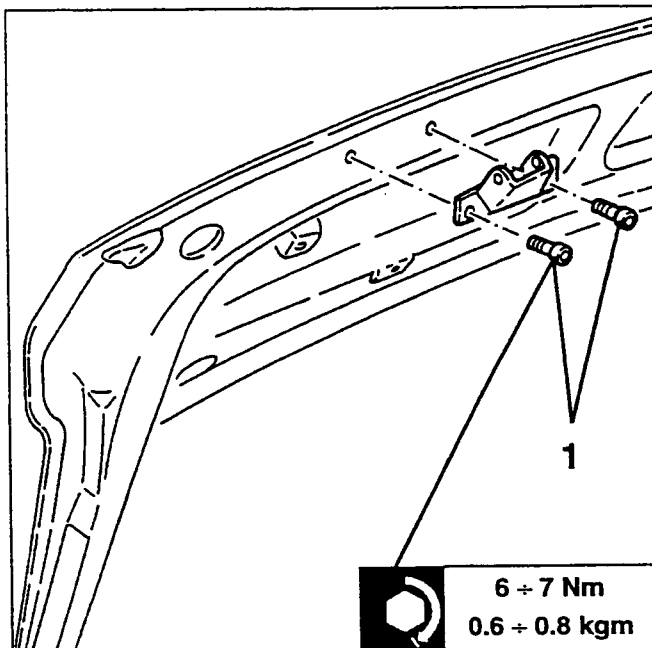
REMOVAL/REFITTING

- Open and suitably support the boot.

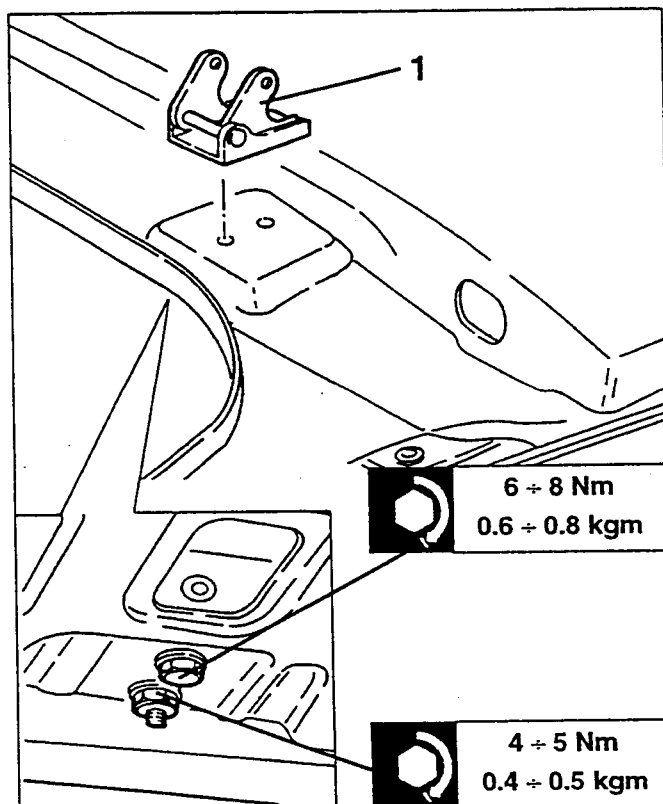
1. Remove the locking pin and withdraw the pins securing the hinge.



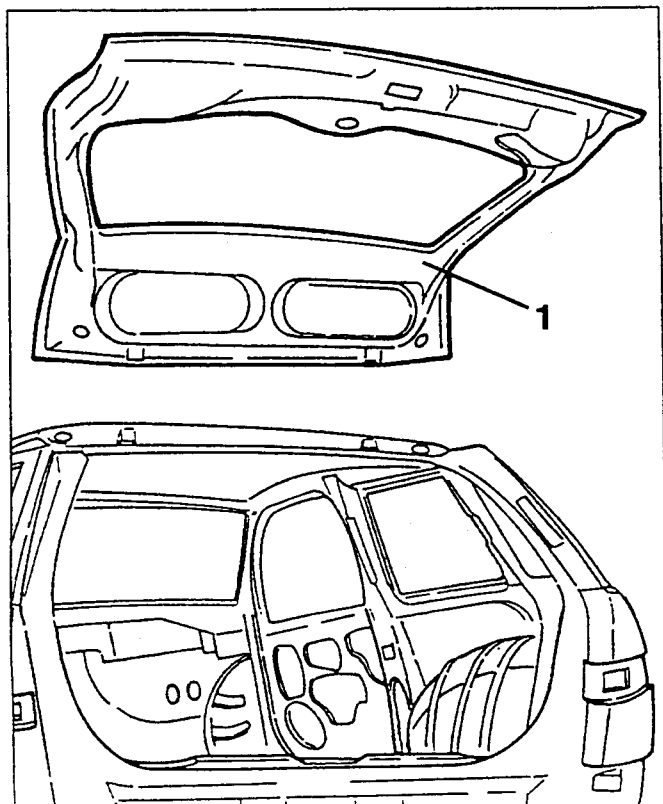
1. If necessary loosen the screws and remove the half-hinge from the boot.



1. If necessary loosen the screws and nuts and remove the half-hinge from the body.

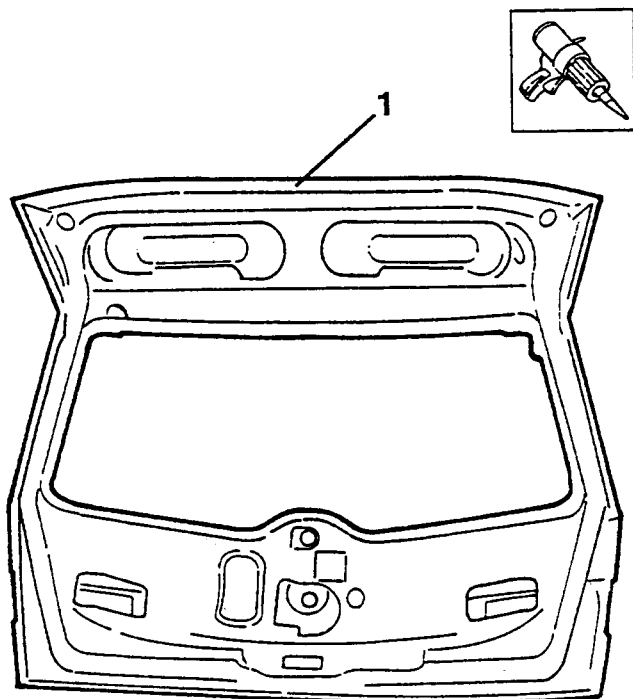


1. Remove the boot.



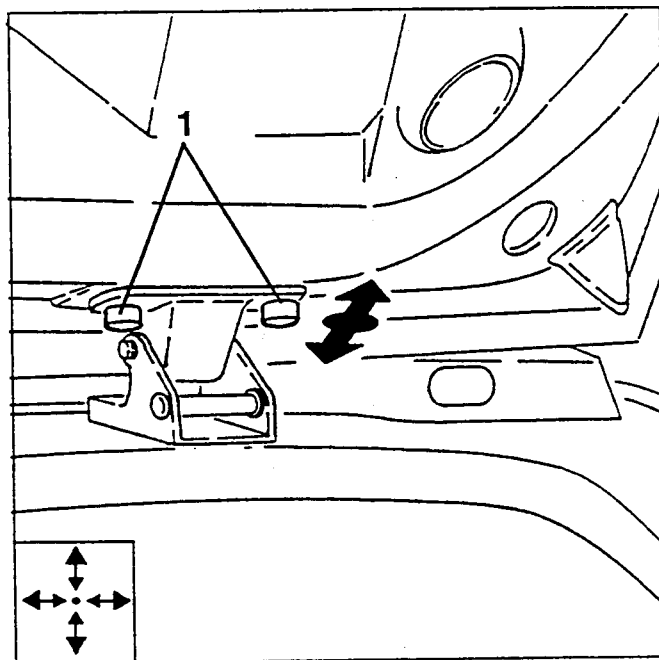
Refit the boot by reversing the procedure followed for removal and carry out the following:

1. If a new boot is being used apply the specified sealant along the internal edge of the boot before painting it.

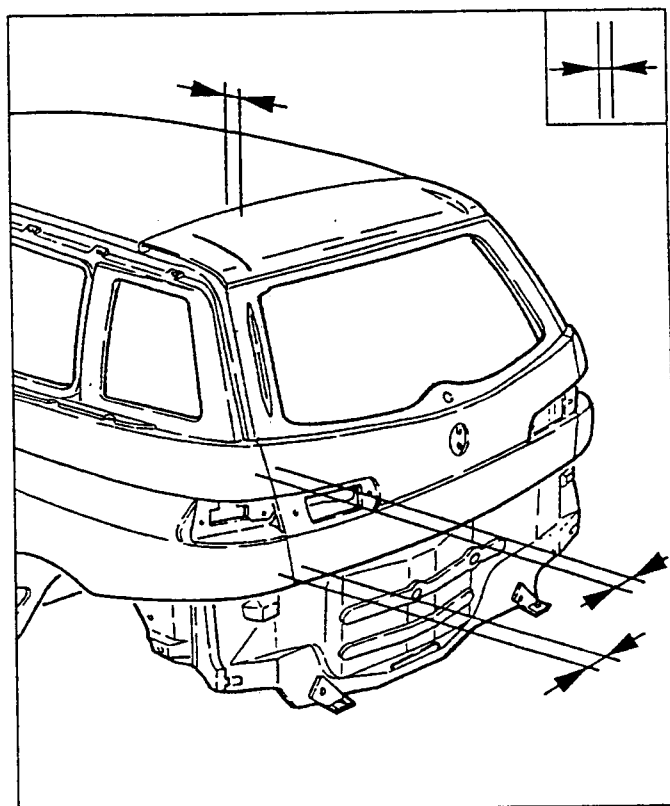
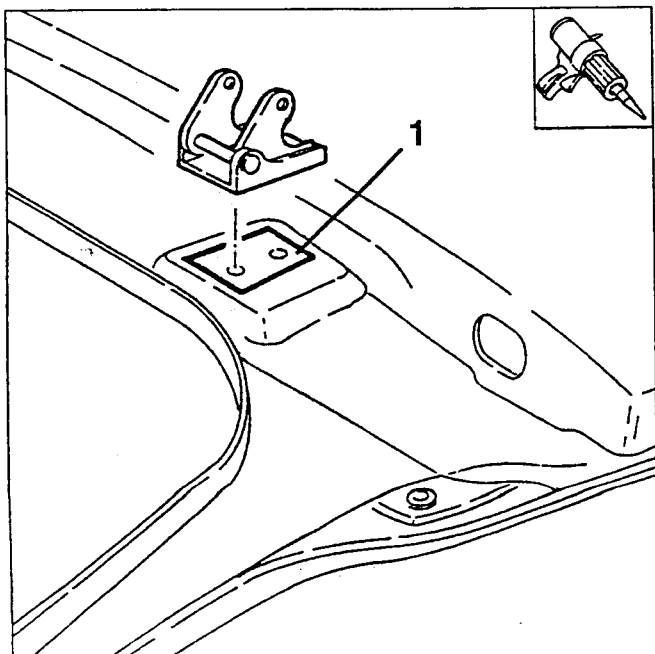


ADJUSTING THE BOOT

1. Adjust the boot longitudinally by acting on the screws securing it to the hinge and check the alignment of the gaps.



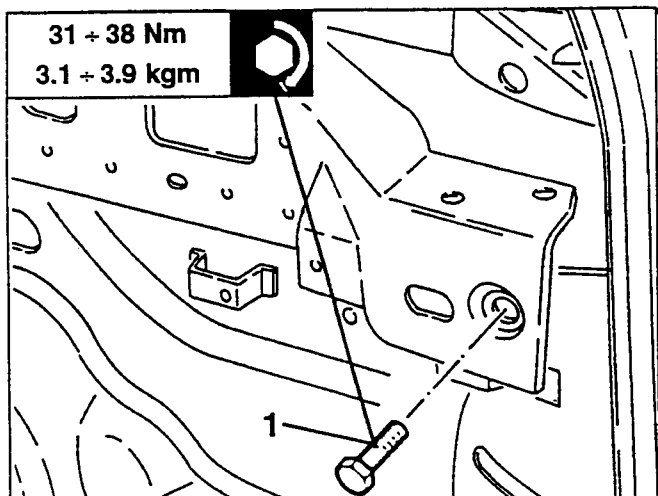
1. Apply the specified sealant when installing between the boot hinge and the body.



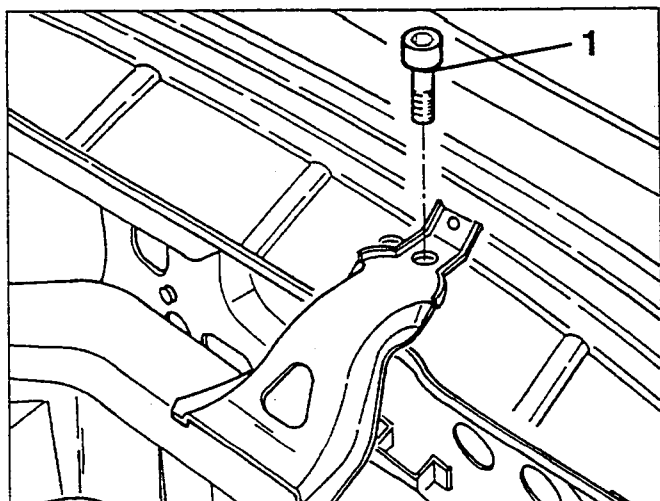
NOTE:
To adjust the boot correctly the gaskets, locks and telescopic support must be fitted.

**DASHBOARD SUPPORT
CROSSMEMBER****REMOVAL/REFITTING**

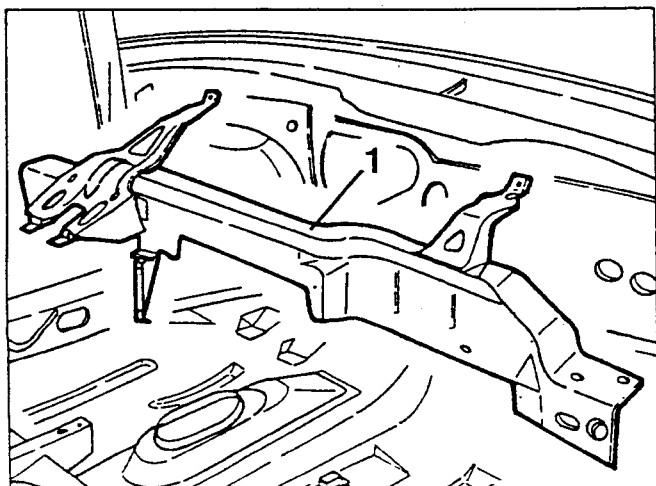
1. Loosen the two side screws securing the dashboard support crossmember.



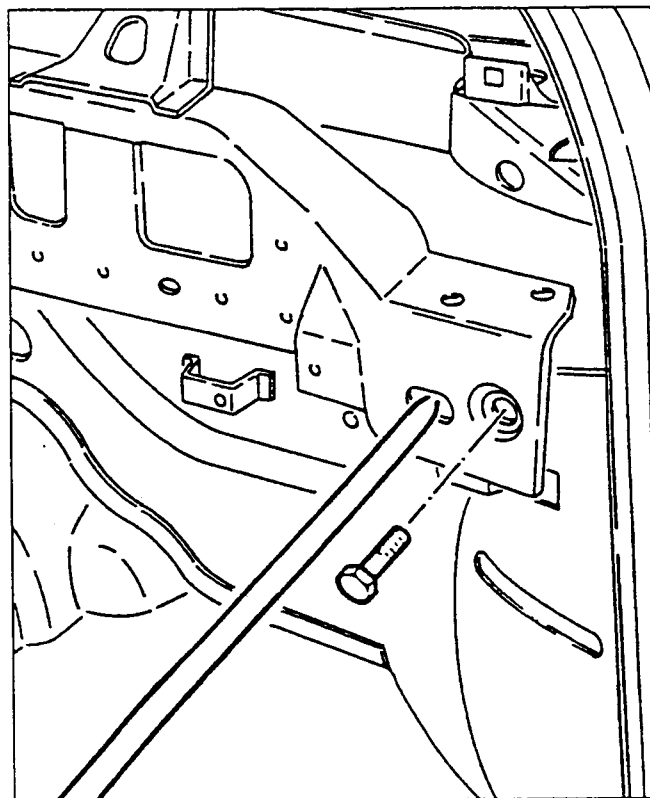
1. Loosen the two upper screws securing the dashboard support crossmember.



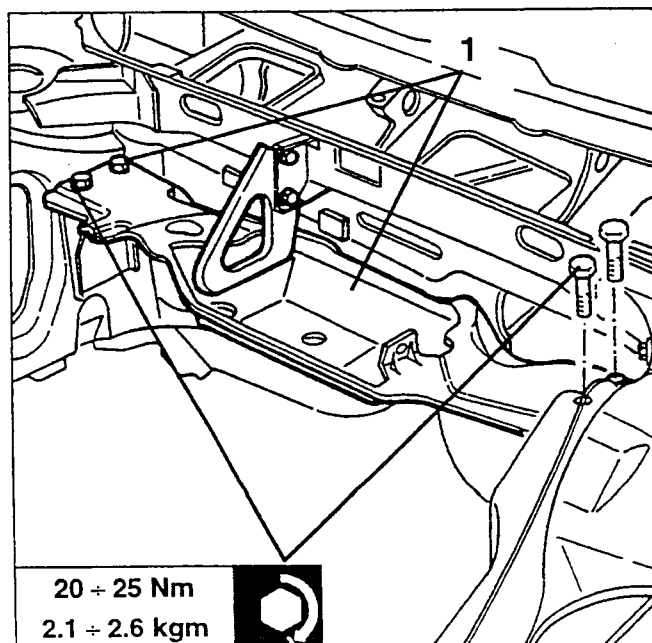
1. Remove the dashboard support crossmember.



When refitting, before tightening the screws securing the crossmember, position the centering pin in its slot.

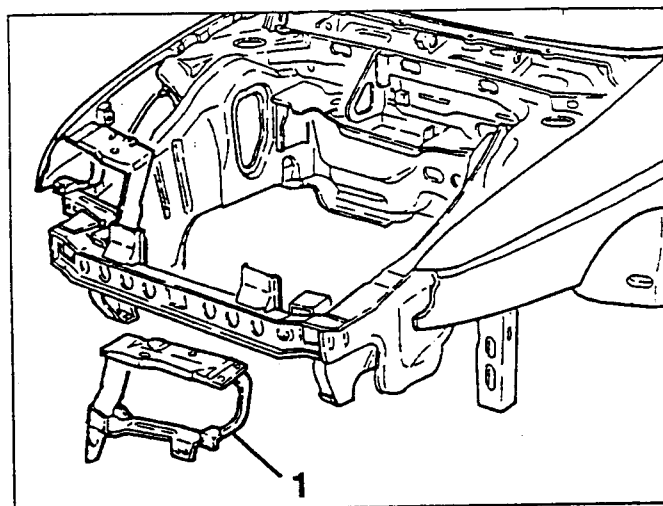
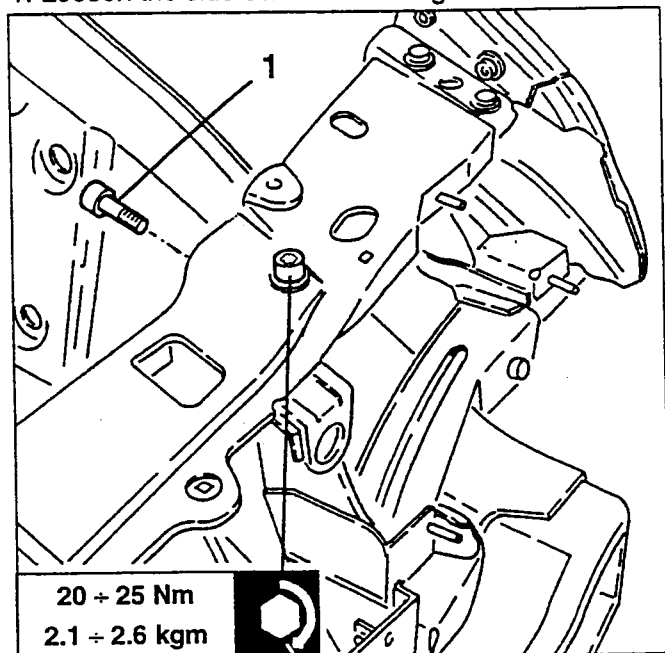
**BATTERY SUPPORT
CROSSMEMBER
(Only for Boxer versions)****REMOVAL/REFITTING**

1. Loosen the six screws and remove the battery support crossmember.



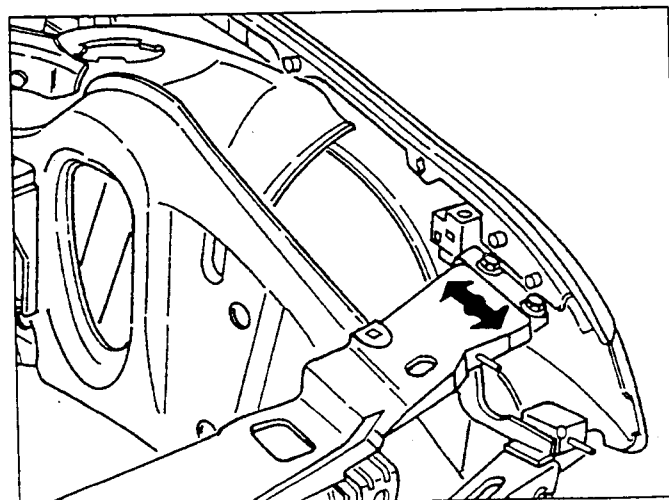
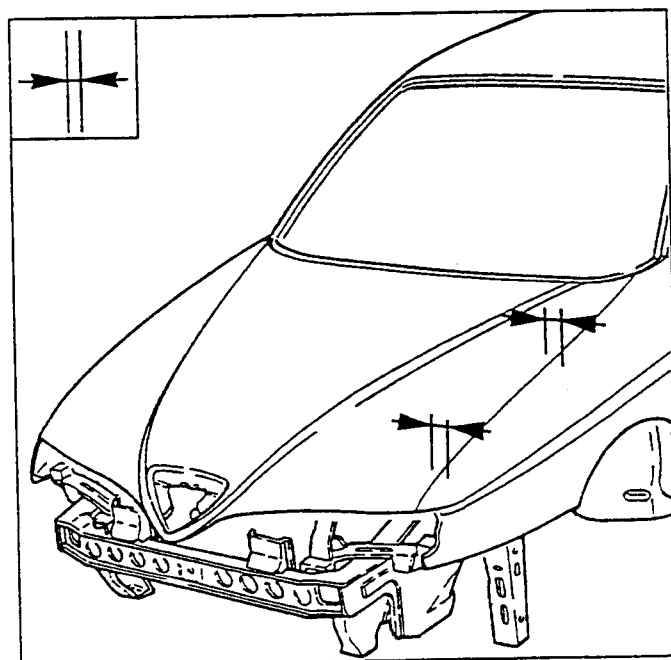
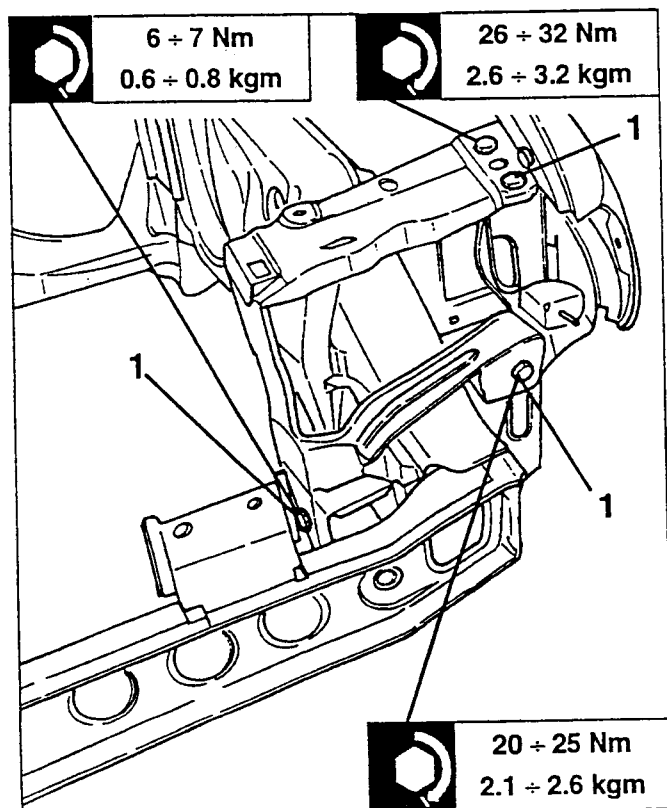
**HEADLIGHT CROSSRAIL
AND FRAME****REMOVAL/REFITTING**

1. Loosen the side screws securing the crossrail.



When refitting position the headlight frame and check the alignment and gaps between the bonnet and wing and adjusting the screws indicated in the diagram if necessary.

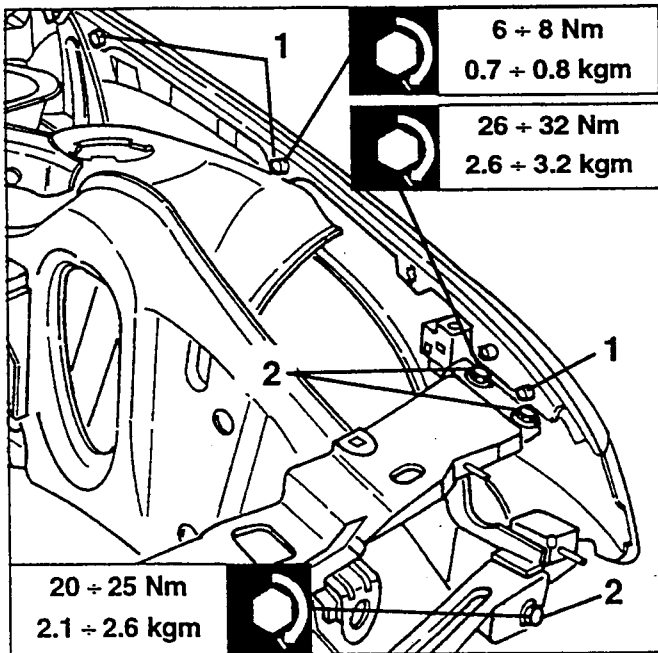
1. Loosen the screws securing the headlight frame.



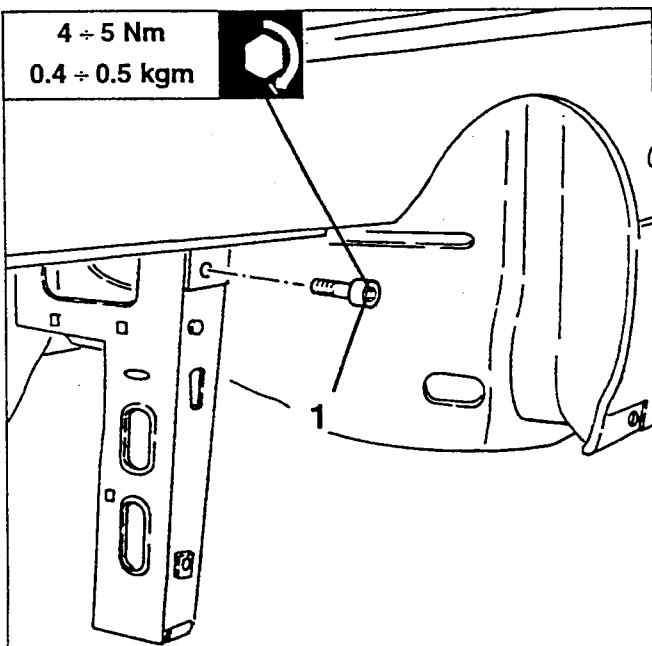
1. Remove the headlight frame.

FRONT WING

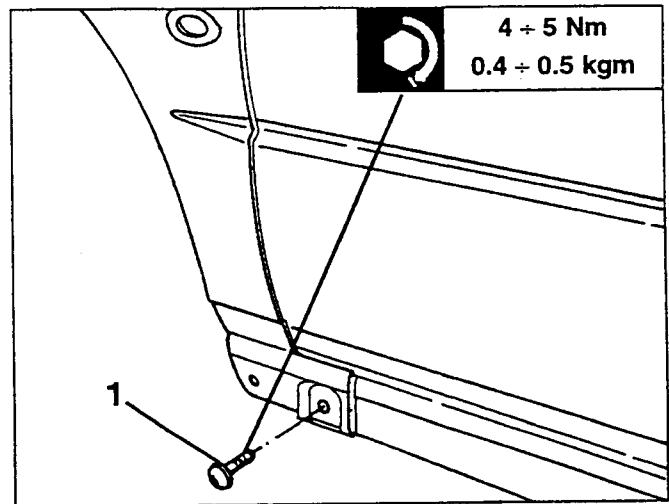
1. Loosen the four screws securing the wing to the upper panel.
2. Loosen the three screws securing the wing to the headlight frame.



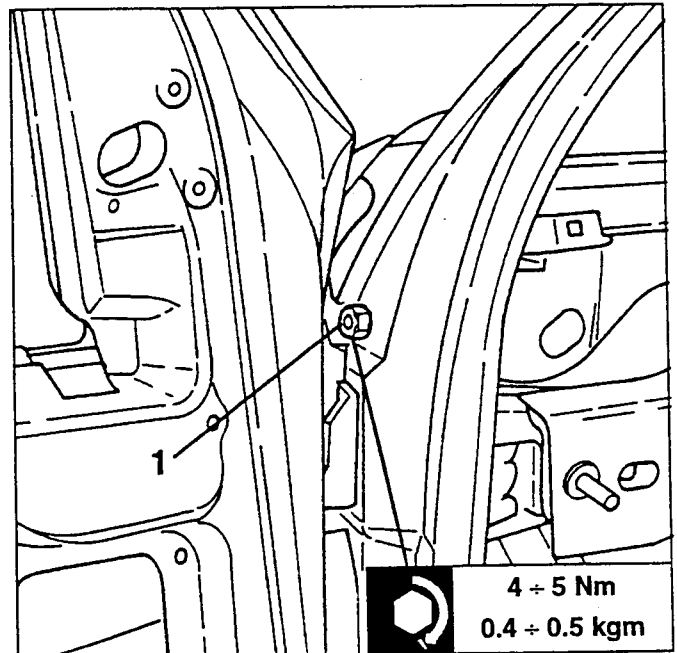
1. Loosen the screw securing the wing to the lateral shelf.



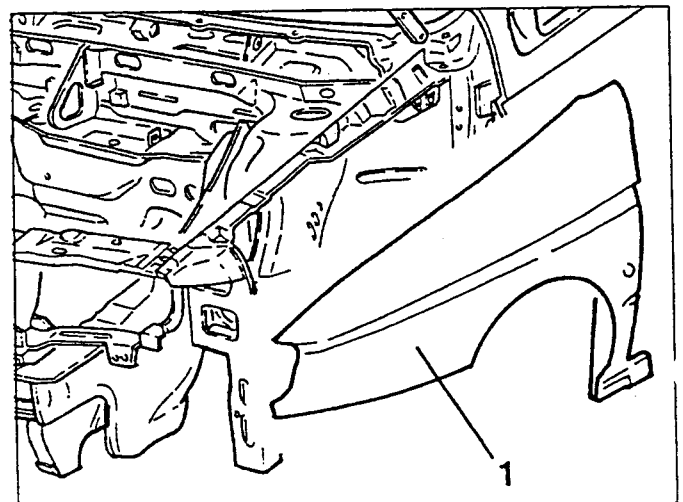
1. Loosen the screw securing the wing to the door sill.



1. Loosen the nut securing the wing to the side panel.



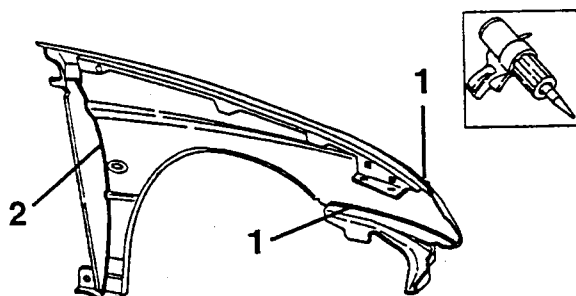
1. Cut the sealant and remove the front wing.



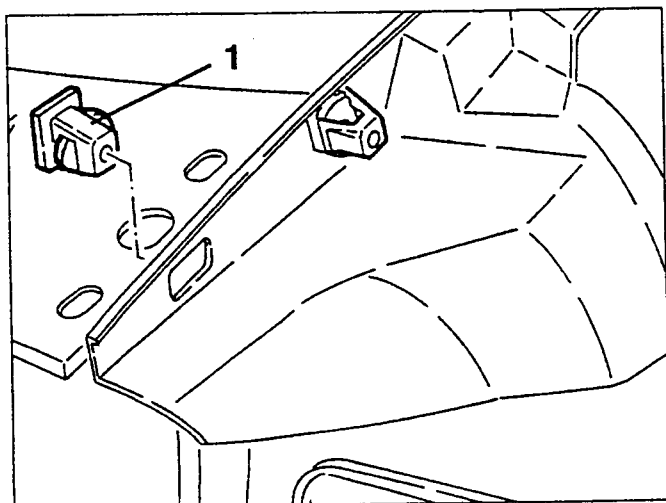
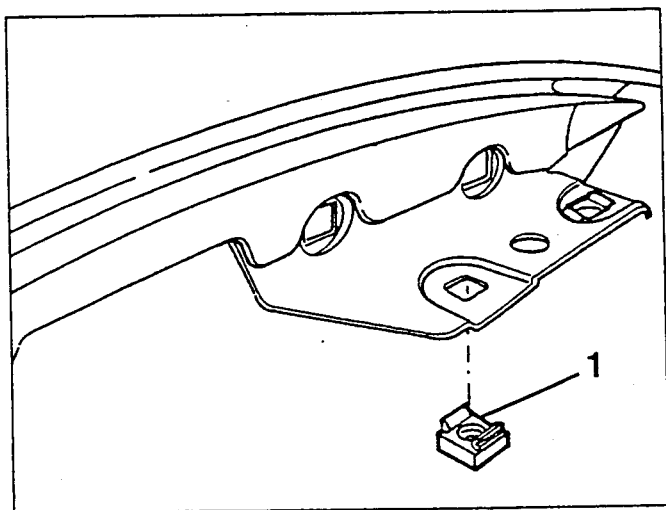


Refit the front wing by reversing the procedure followed for removal and note the following.

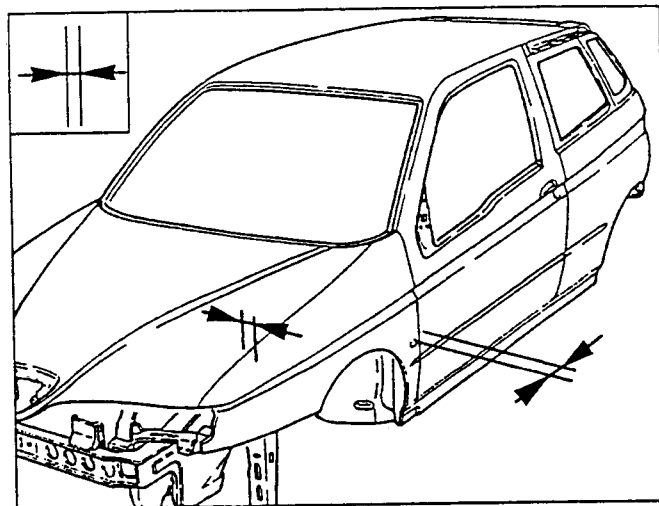
1. If a new front wing is being used, apply the specified sealant along the lines shown in the diagram before fitting.
2. Once the wing has been fitted apply the specified sealant along the lines indicated in the diagram.



1. Inspect the blocks and nuts for damage and replace if necessary.



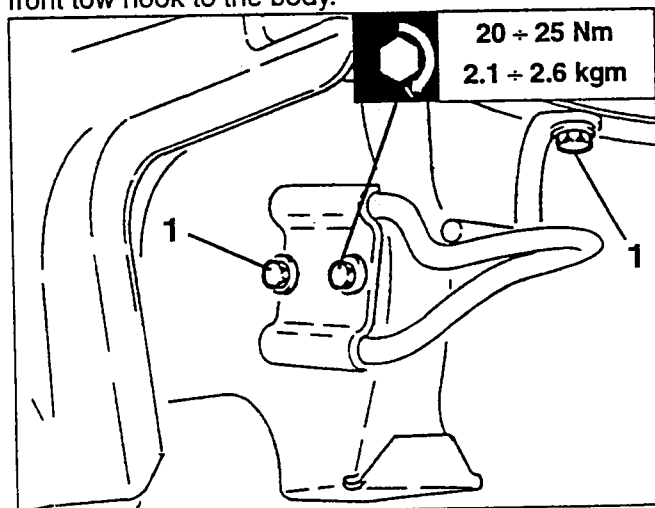
- Check the alignment and gaps between the front wing and the bonnet and door.



FRONT TOW HOOK

REMOVAL/REFITTING

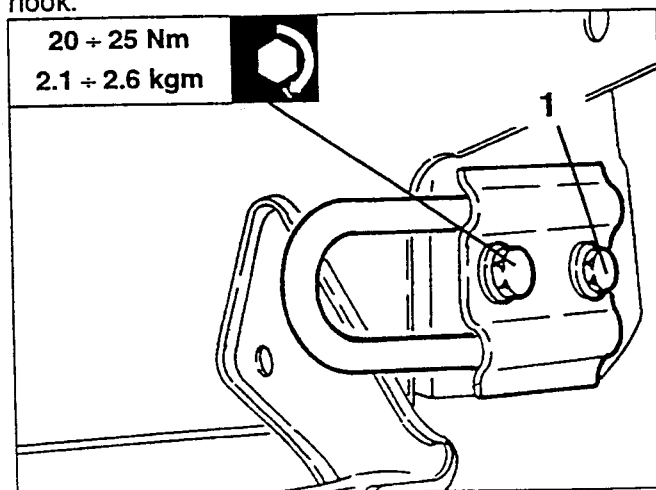
1. Loosen the three screws securing and remove the front tow hook to the body.



REAR TOW HOOK

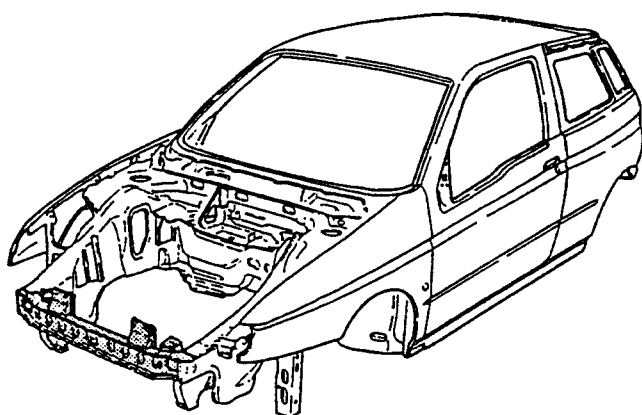
REMOVAL/REFITTING

1. Loosen the two screws and remove the rear tow hook.

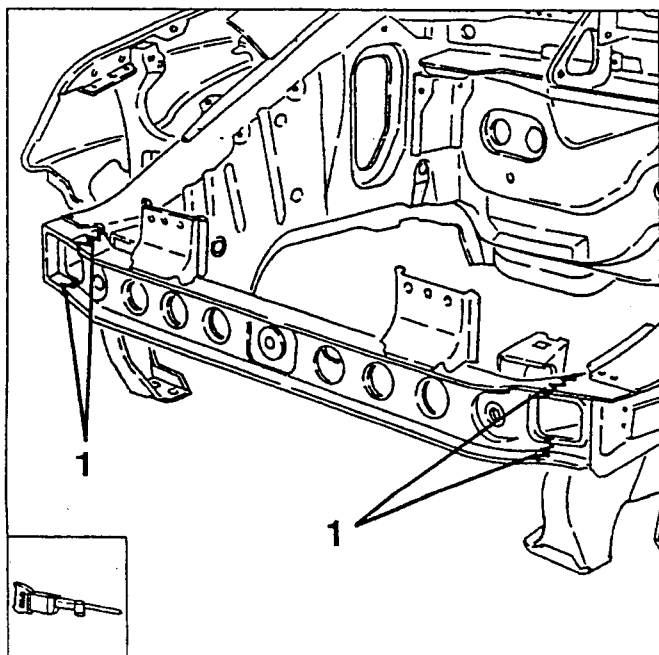


FRONT CROSSMEMBER**PRELIMINARY OPERATIONS**

- Disconnect the negative (-) cable from the battery and remove the control units.
- Remove the trim components, electrical and mechanical systems which could hinder the repair operations or get damaged during work (see specific paragraphs).
- Remove the following sheet metal parts:
 - radiator upper crossmember (see specific paragraph).
 - headlight housing frame (see specific paragraph).

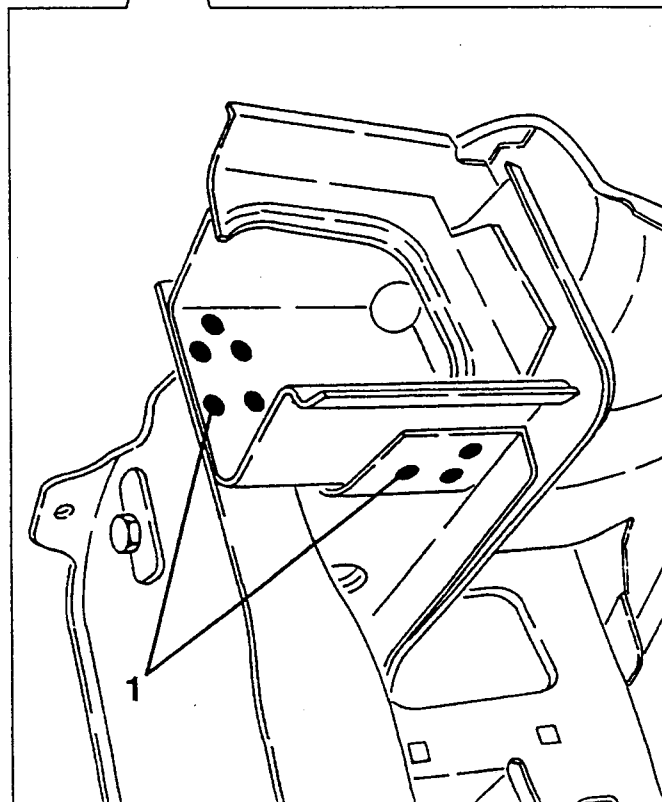
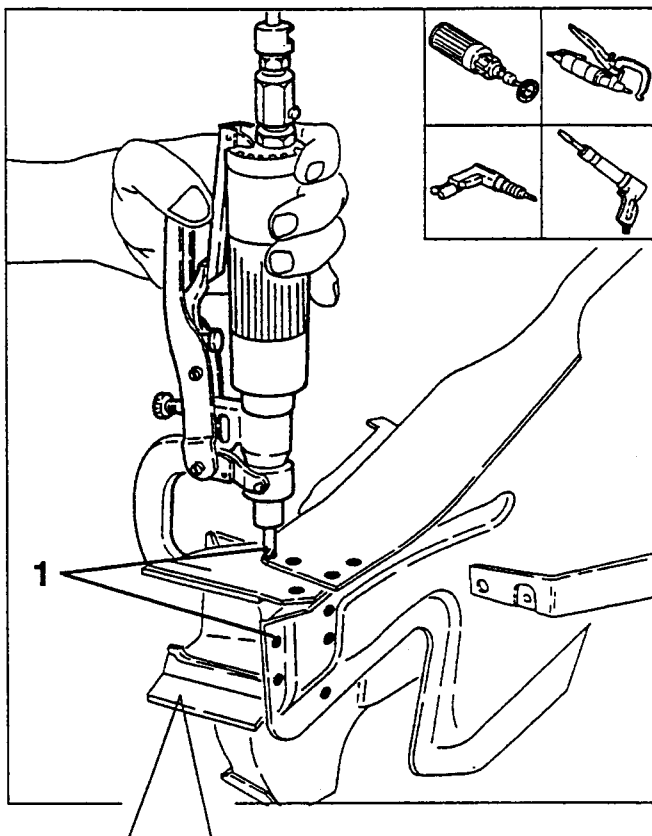
REMOVAL

1. Using a jig saw, cut following the lines shown in the diagram and remove the front crossmember.



- Using a rotating brush, clean the areas to be spot-cut to show up the welding points.

1. Using a chamfering machine, remove the accessible welding points, remove the remaining welding points using a drill or a chisel.

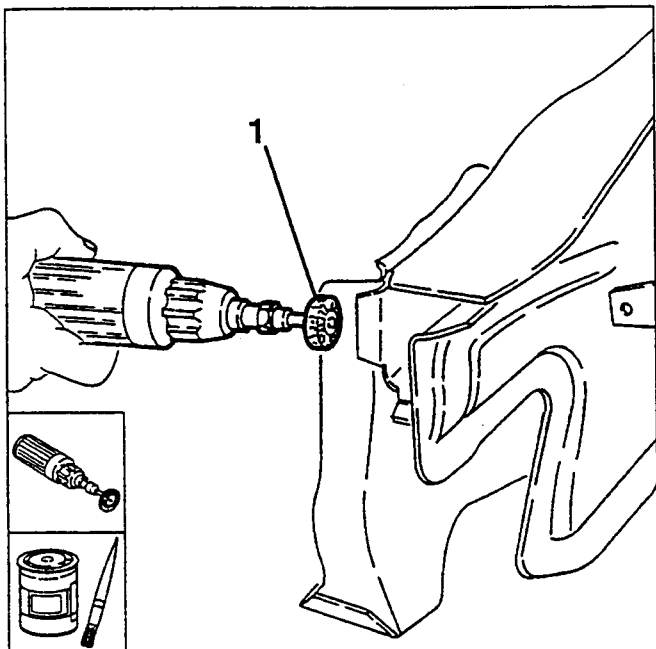


- Remove the side pieces from the front crossmember.

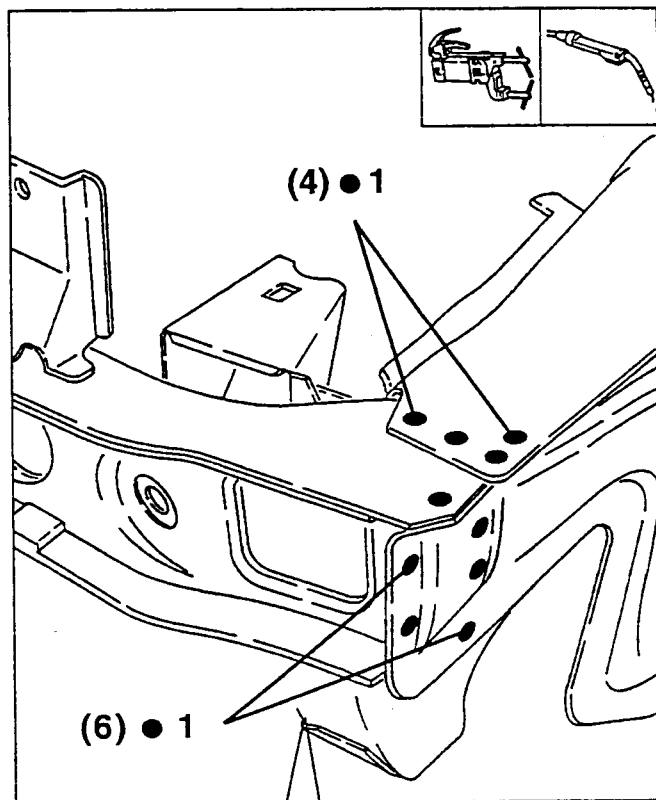
PREPARATION

1. Using a rotating brush, clean the areas which are to be spot welded.

- Apply the specified electroweldable protection product to the areas to be welded.

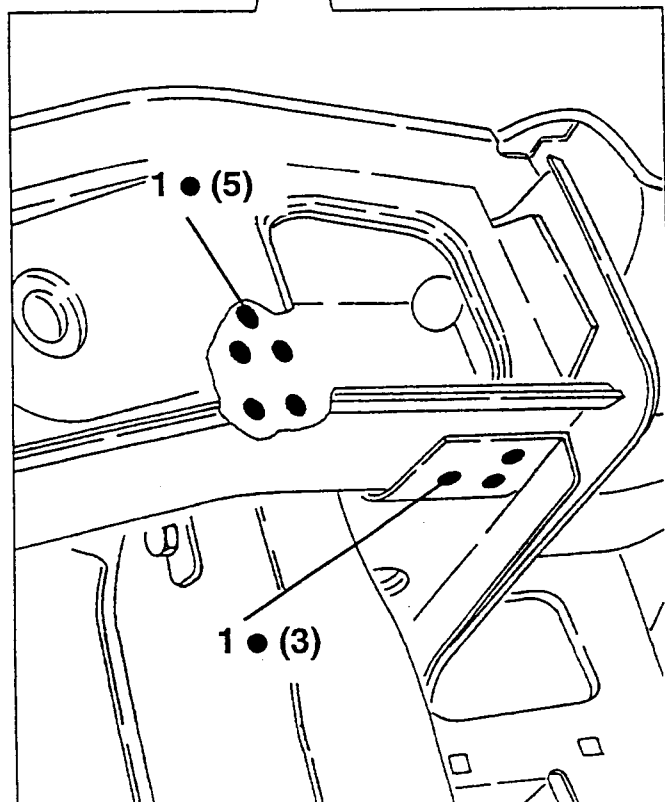
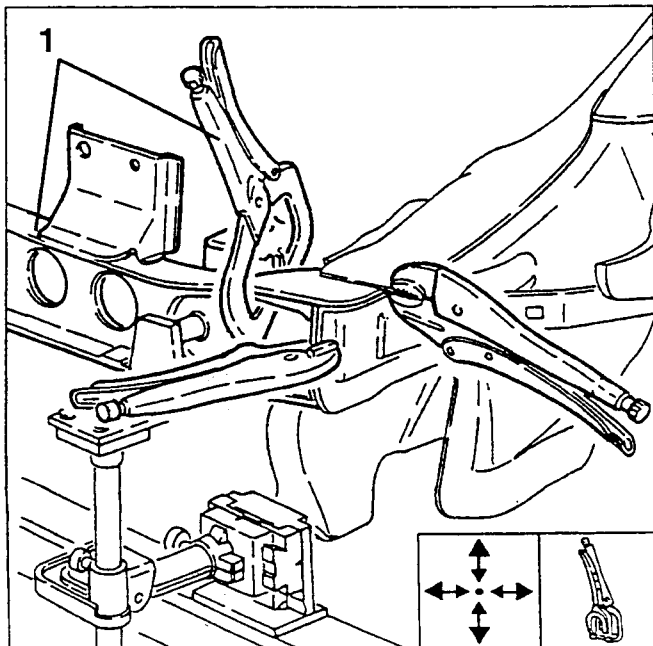
**WELDING AND FINISHING OF THE SHEET METAL**

1. Using a spot-welder or, where necessary, a MIG welder, proceed as shown in the diagram.

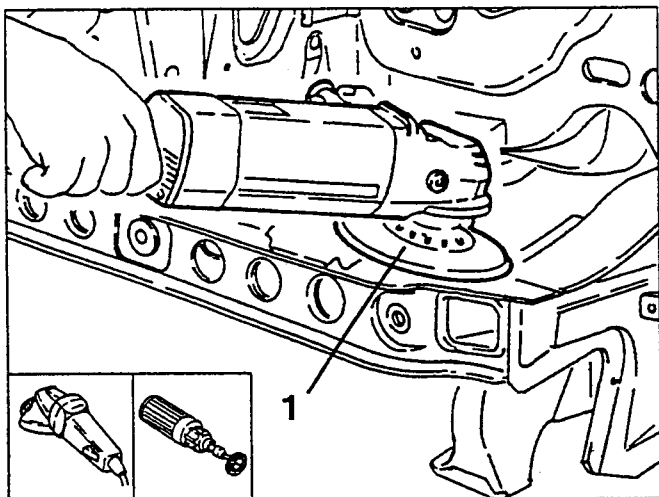
**POSITIONING**

1. Position the new crossmember by mating the edges to be welded and securing them with clamps.

NOTE:
Use a jig if necessary.



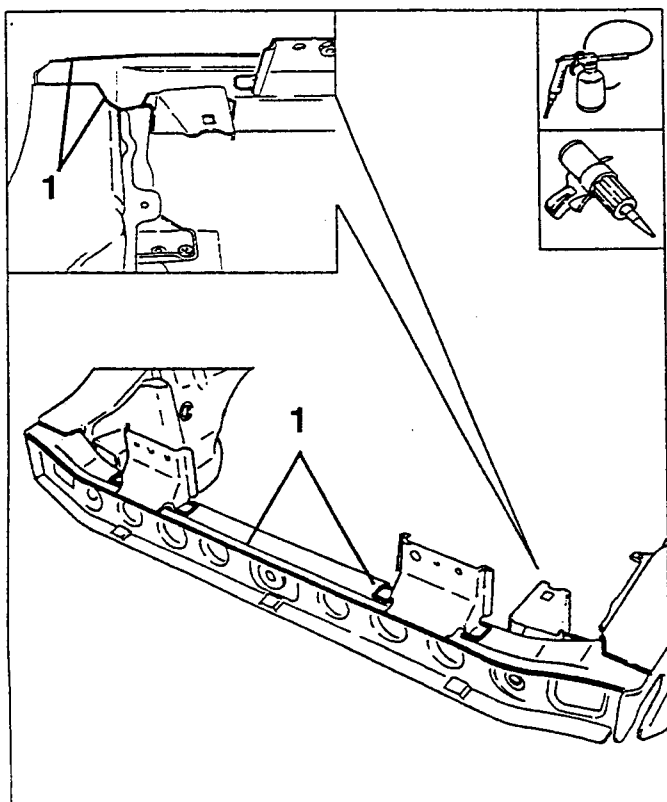
1. Using an abrasive grinding machine, remove and flush the residues left after welding.
- Using a rotating brush, clean the welded areas.



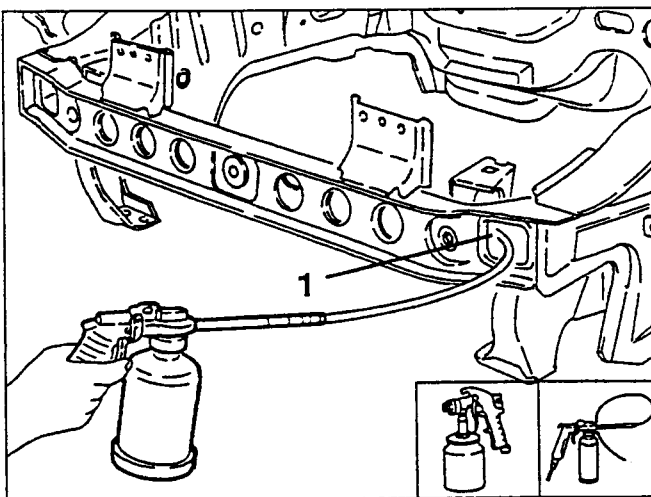
- Check that the components are correctly positioned after welding.

PROTECTION

- Apply the specified corrosion inhibitor to the areas which have been MIG welded.
- 1. Apply the specified sealant along the lines highlighted in the diagram.



- Proceed to the painting phase.
- 1. Wax-treat the boxed parts.



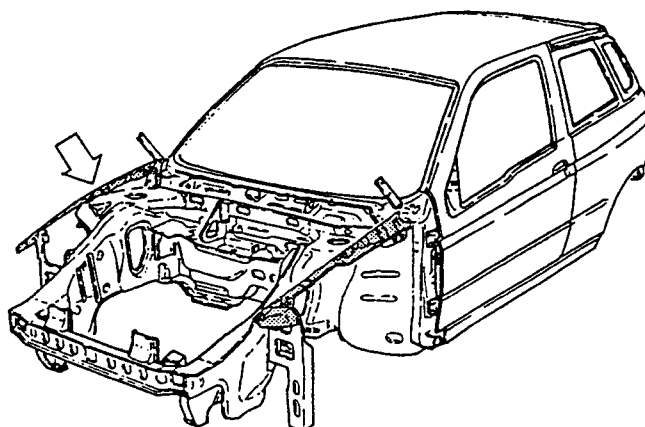
- Refit the components removed by reversing the procedure followed for removal.

UPPER PANEL

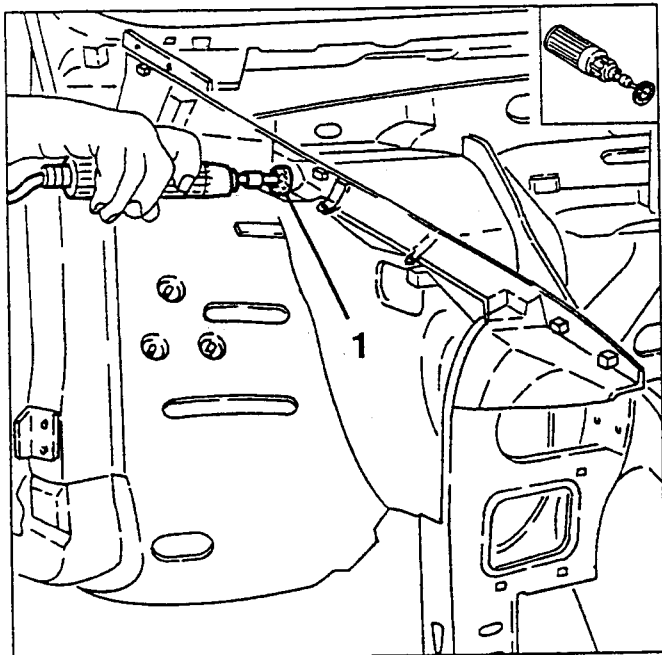
PRELIMINARY OPERATIONS

- Disconnect the negative (-) cable from the battery and remove the control units.
- Remove the trim components, electrical and mechanical systems which could hinder the repair operations or get damaged during work (see specific paragraphs).
- Remove the following sheet metal parts:
 - upper radiator crossmember (see specific paragraph).
 - headlight housing frame on affected side (see specific paragraph).
 - front wing on affected side (see specific paragraph).

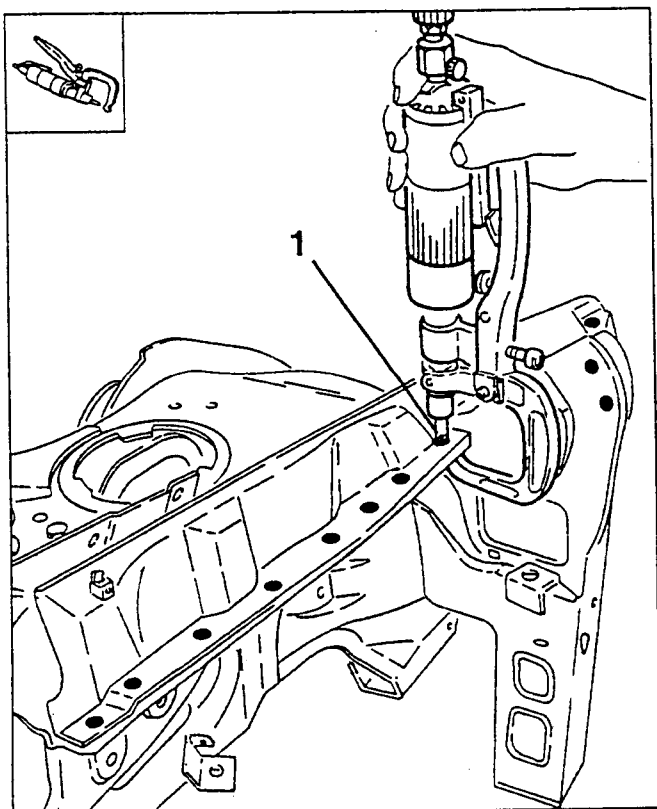
REMOVAL



1. Using a rotating brush, clean the areas to be spot-cut to show up the welding points.



1. Using a chamfering machine, remove the welding points.

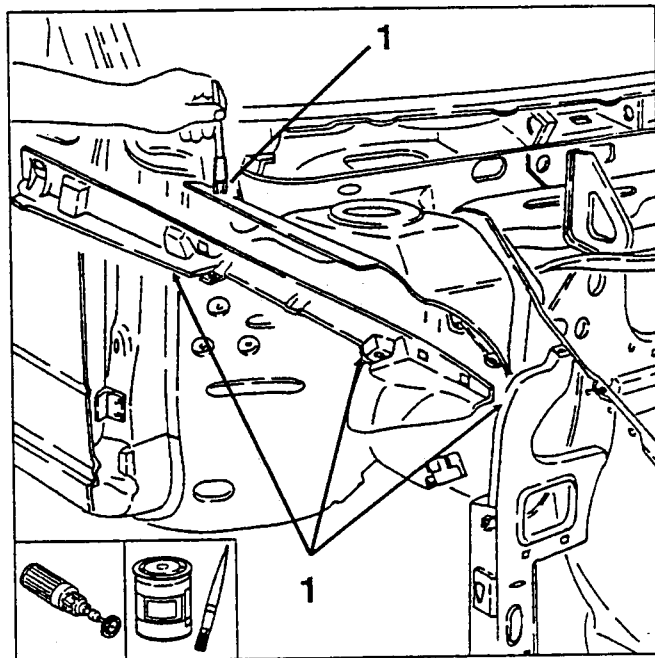


- Remove the upper panel and if necessary cut away the sealant.

PREPARATION

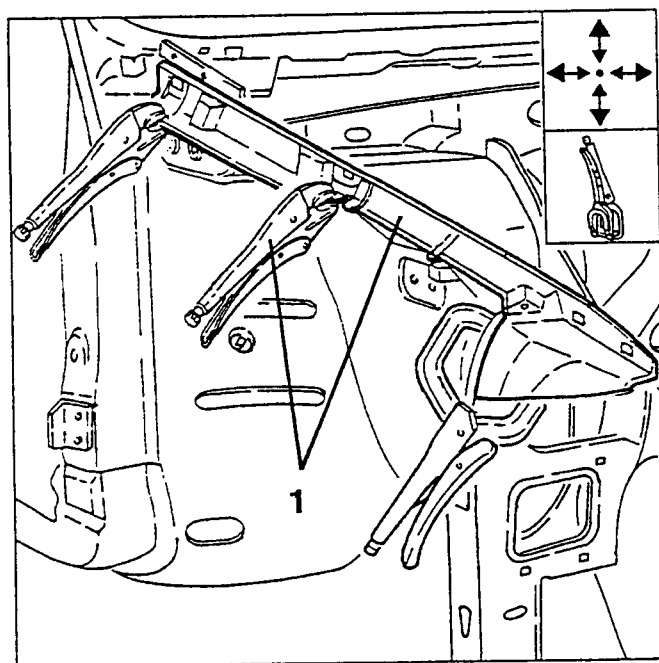
- Using a rotating brush, clean the areas which are to be welded.

1. Apply the specified electroweldable protection product to the areas to be spot-welded.



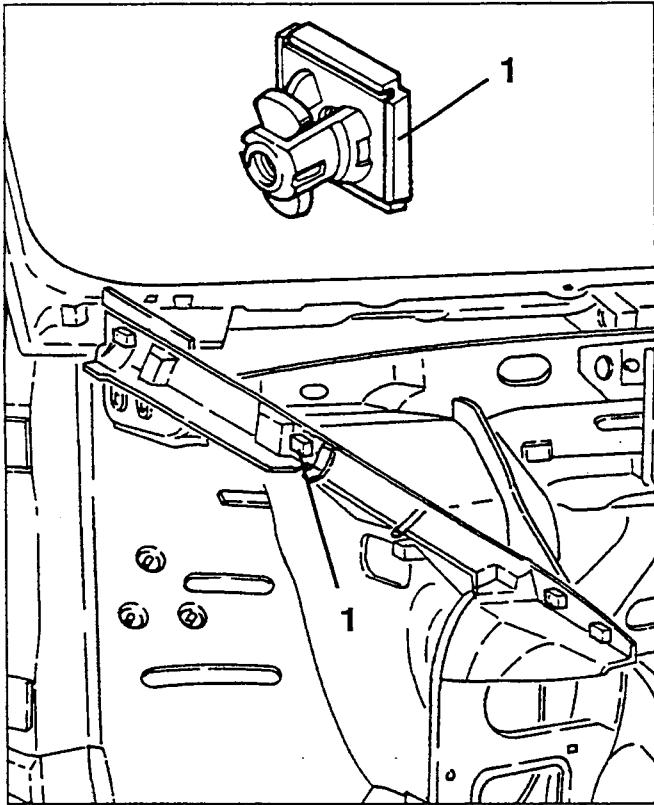
POSITIONING AND INSPECTION

1. Position the new upper panel joining together the edges to be welded and securing them with clamps.

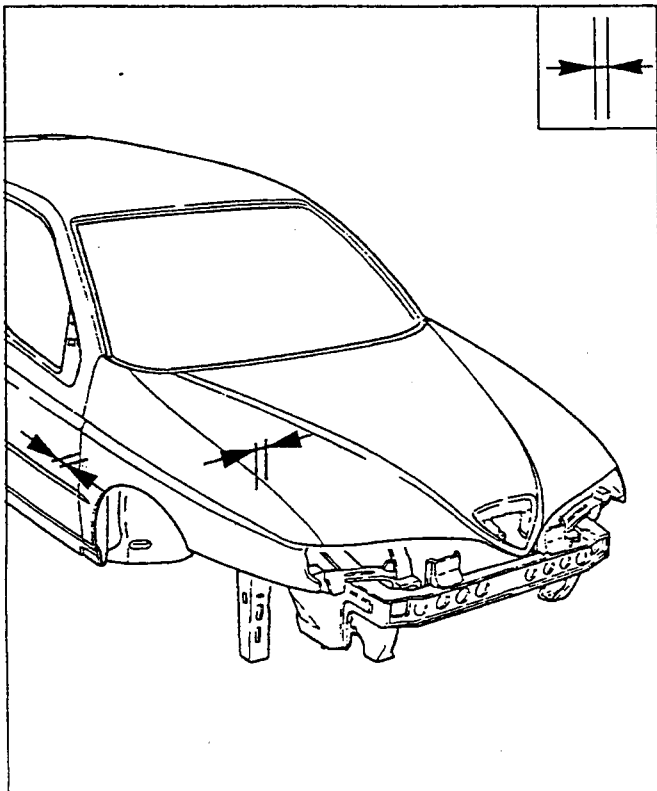


- Using screws temporarily fix the upper panel to the body.

1. Install the four blocks securing the front wing.

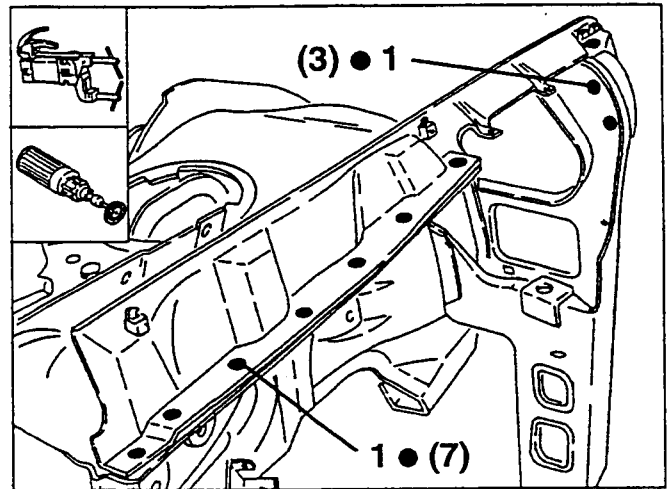


- Check parallelism, gaps and angles and refit the previously removed mobile components with their gaskets together with any parts which, once installed, make it possible to check the successful outcome of the operations.



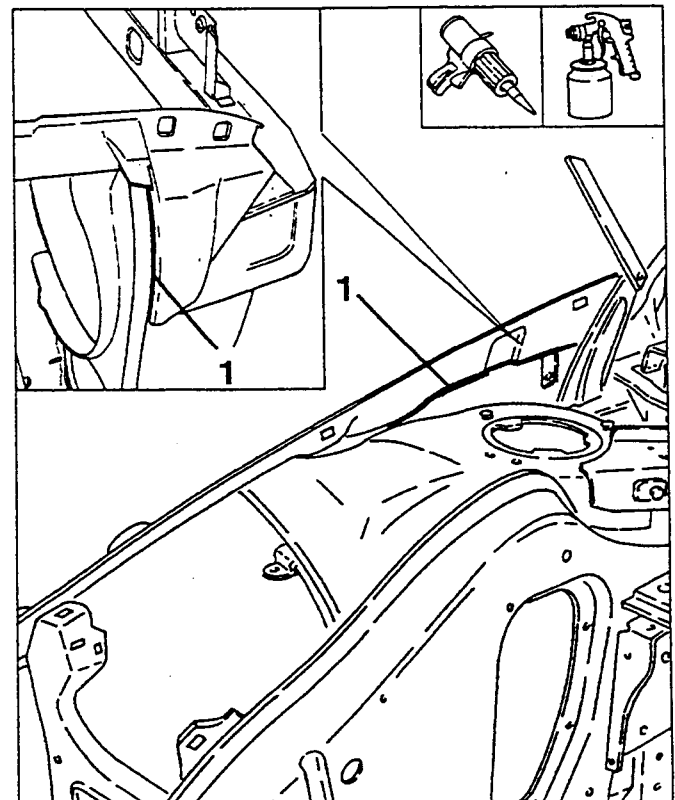
WELDING AND FINISHING OF THE SHEET METAL

1. Using a spot-welder, proceed as shown in the diagram.
- Using a rotating brush, clean the welded areas.



PROTECTION

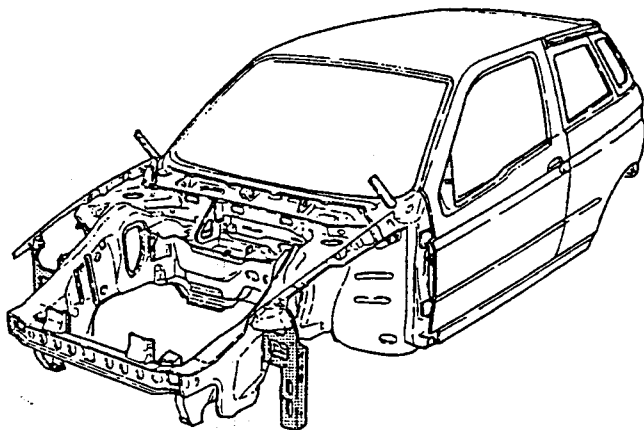
1. Apply the specified sealant along the lines highlighted in the diagram.
- Proceed to the painting phase.



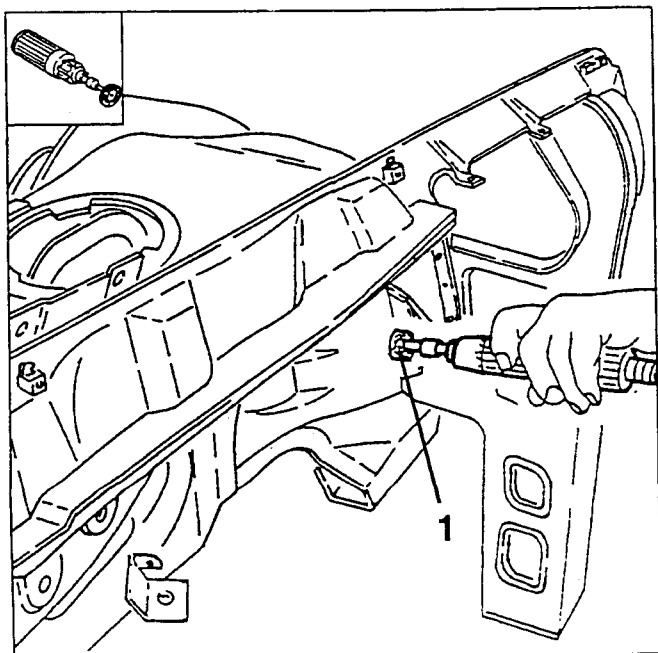
- Complete the refitting operation by reversing the procedure followed for removal and ensure that the gaps between the wing and the bonnet and the wing and the door are correctly adjusted.

SIDE PANEL**PRELIMINARY OPERATIONS**

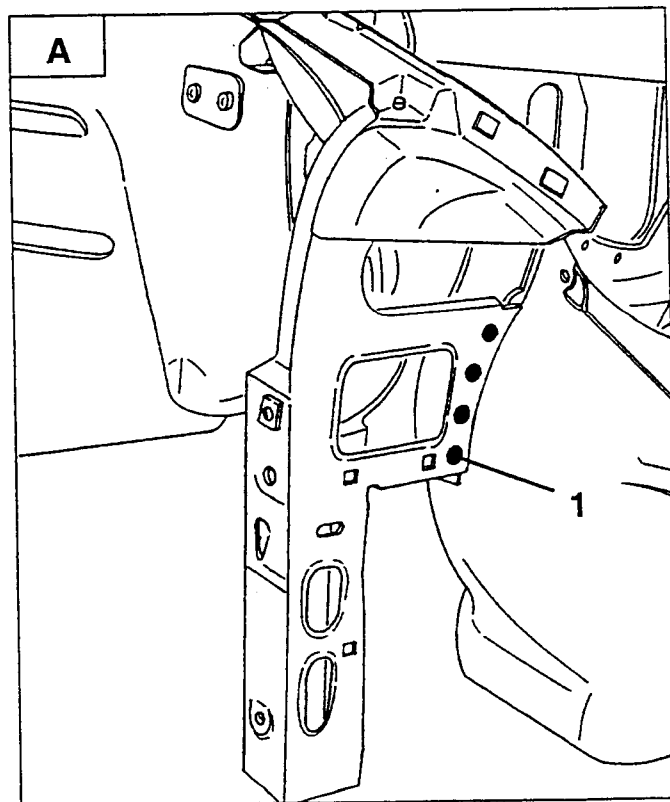
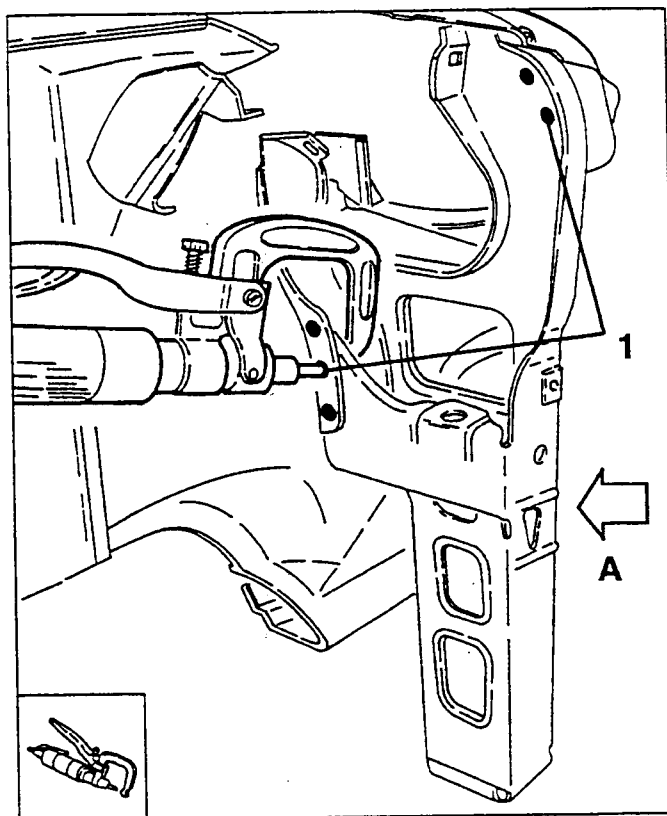
- Disconnect the negative (-) cable from the battery and remove the control units.
- Remove the trim components, electrical and mechanical systems which could hinder the repair operations or get damaged during work (see specific paragraphs).
- Remove the following sheet metal parts:
 - upper radiator crossmember (see specific paragraph).
 - headlight housing frame on affected side (see specific paragraph).
 - front wing on affected side (see specific paragraph).

REMOVAL

1. Using a rotating brush, clean the areas to be spot-cut to show up the welding points.



1. Using a chamfering machine, remove the welding points.

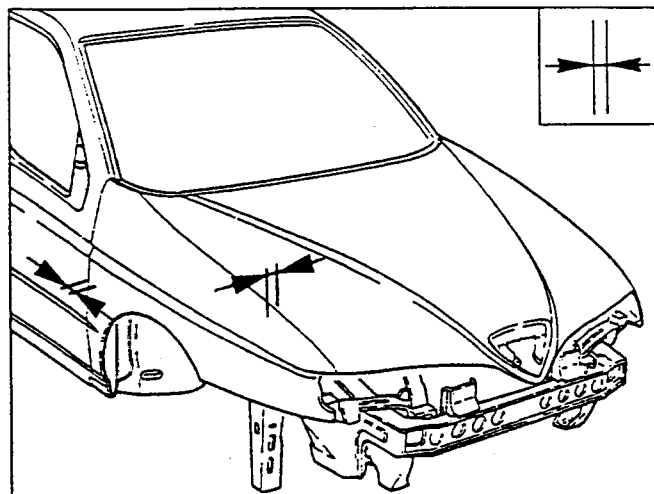
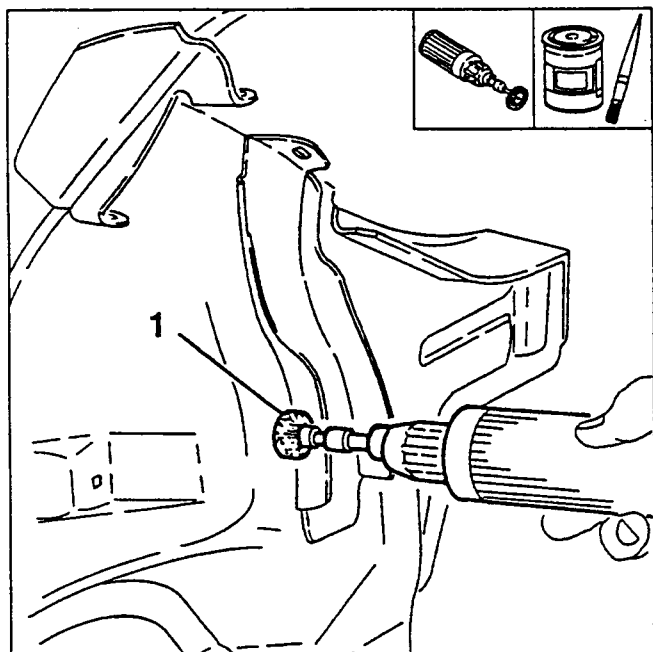


- Remove the side panel and where necessary cut away the sealant.

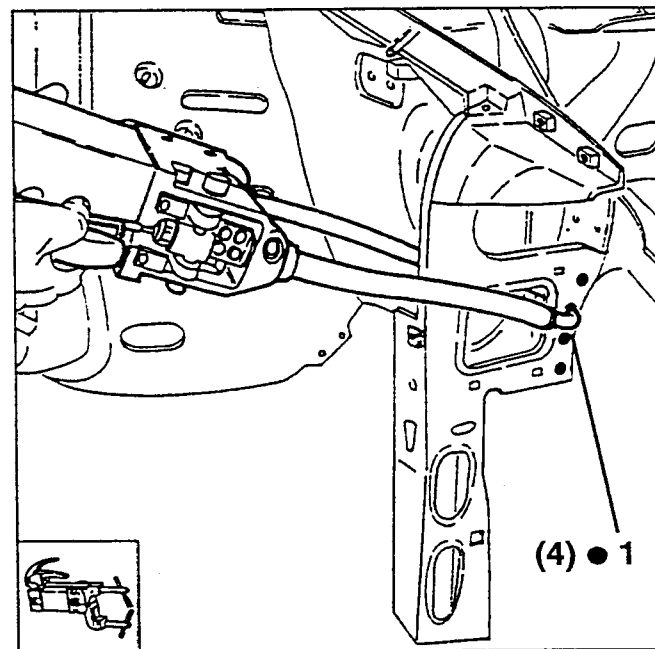
PREPARATION

1. Using a rotating brush, clean the areas which are to be welded.

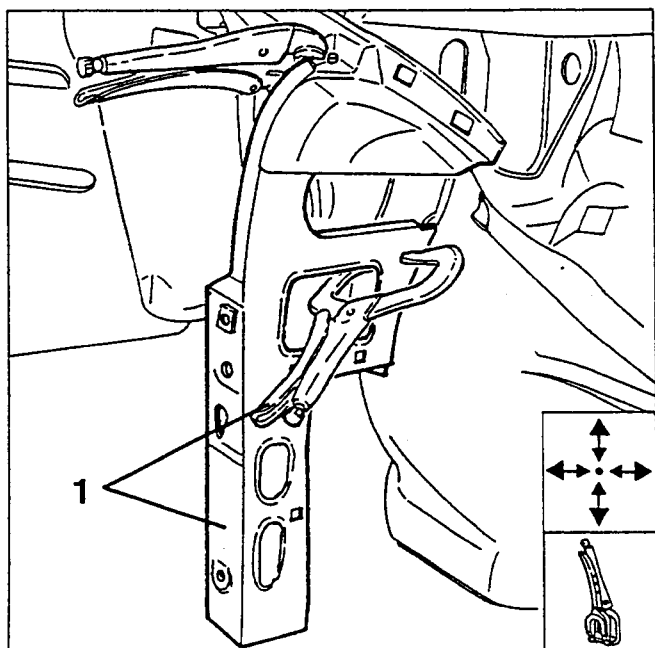
- Apply the specified electroweldable protection product to the areas to be spot-welded.

**WELDING AND FINISHING OF THE SHEET METAL**

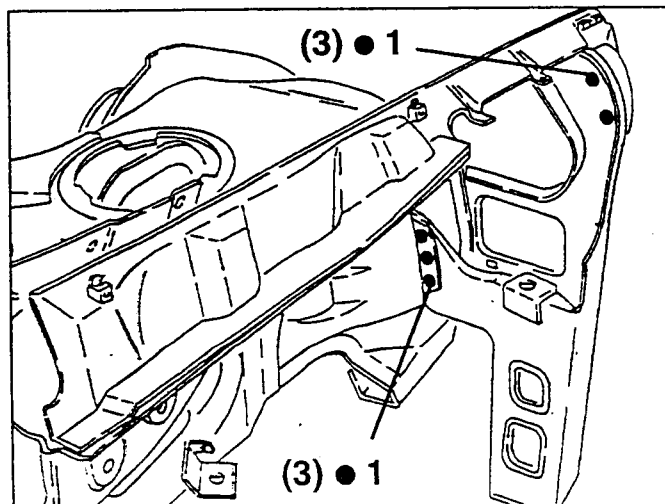
1. Using a spot-welder, proceed as shown in the diagram.

**POSITIONING AND INSPECTION**

1. Position the new side panel joining together the edges to be welded and secure it with clamps.

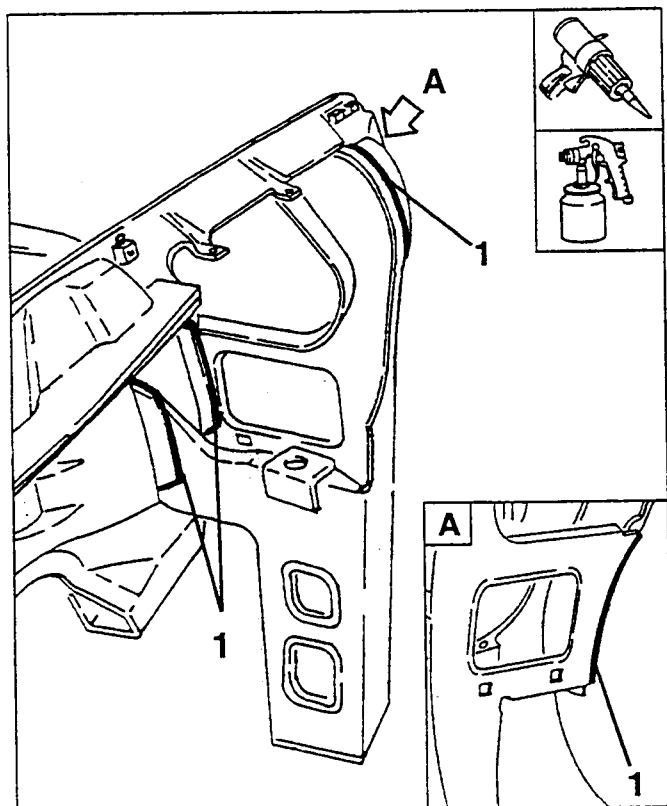


- Check parallelism, gaps and angles and refit the previously removed mobile components with their gaskets together with any parts which, once installed, make it possible to check the successful outcome of the operations.



PROTECTION

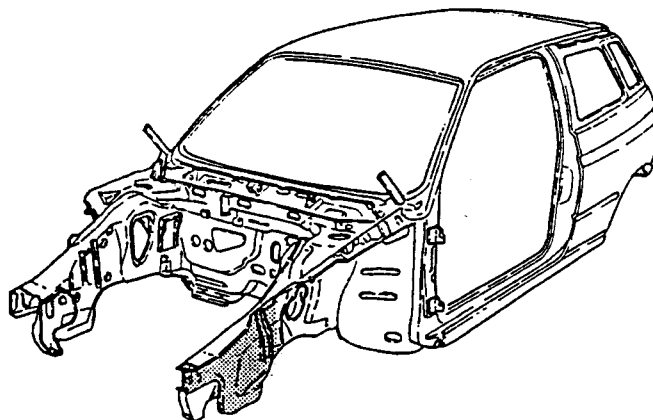
1. Apply the specified sealant along the lines highlighted in the diagram.
- Proceed to the painting phase.



- Refit the components removed by reversing the procedure followed for removal.

**FRONT SIDE PANEL -
EXTERNAL PART
(Boxer versions)**
PRELIMINARY OPERATIONS

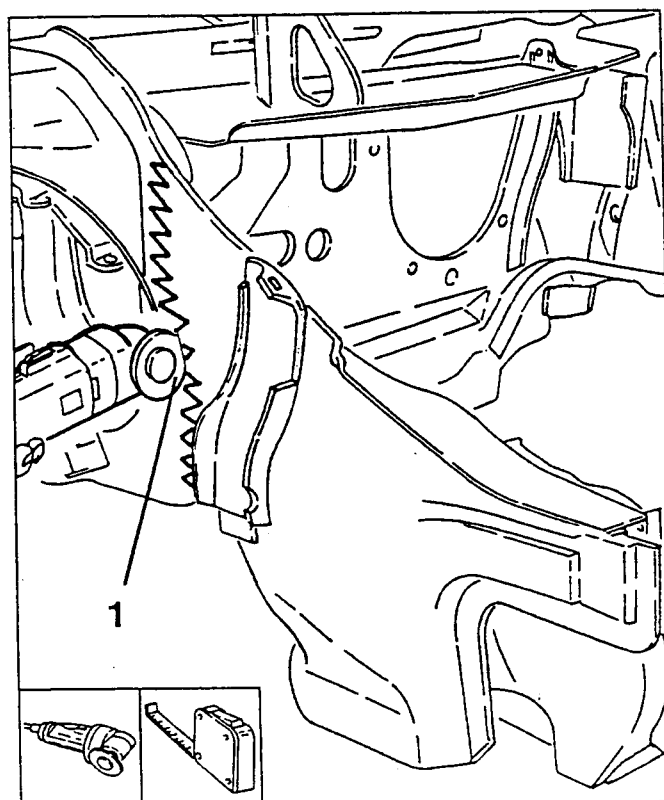
- Disconnect the negative (-) cable from the battery and remove the control units.
- Remove the trim components, electrical and mechanical systems which could hinder the repair operations or get damaged during work (see specific paragraphs).
- Remove the following sheet metal parts:
 - upper radiator crossmember (see specific paragraph).
 - headlight housing frame (see specific paragraph).
 - front wing on affected side (see specific paragraph).
 - front crossmember, if necessary (see specific paragraph).
 - upper panel on affected side (see specific paragraph).
 - side panel on affected side (see specific paragraph).

REMOVAL

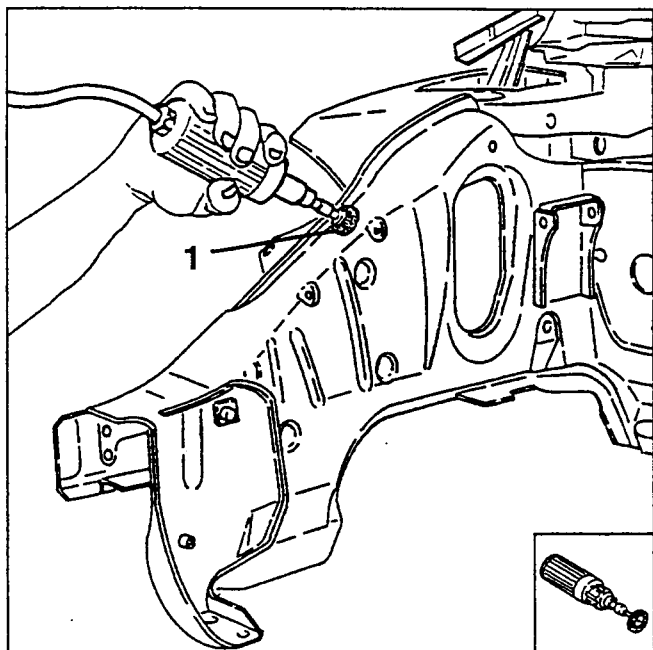
1. Using a circular saw, cut the external front side panel along the lines indicated in the diagram without damaging the underlying parts.

NOTE:

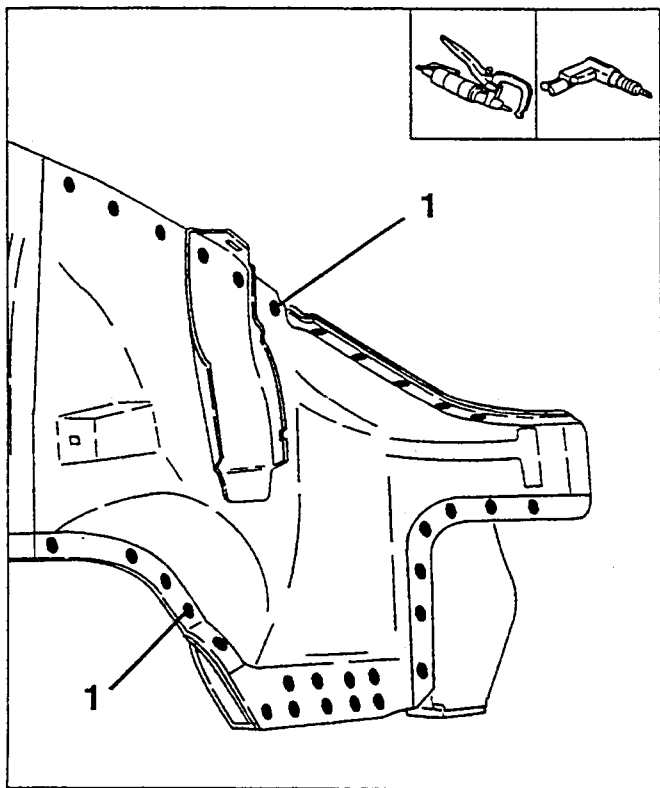
The cut on the side panel must be about 50 mm from the front suspension attachment pillar.



1. Using a rotating brush, clean the areas to be spot-cut to show the welding points.



1. Using a chamfering machine, remove the accessible welding points; remove the remaining welding points using a drill.

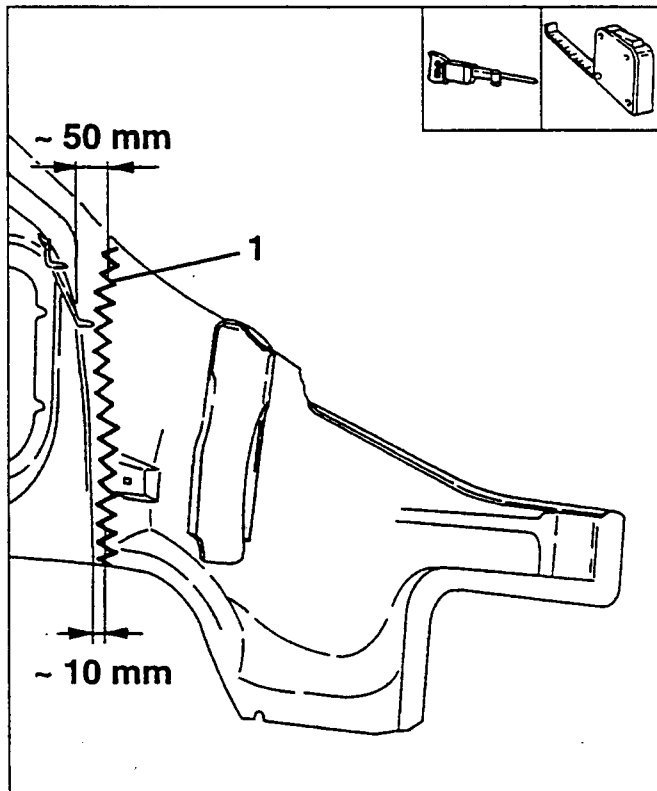


- Remove the partial front outer side panel, if necessary cutting away the sealant.

PREPARATION

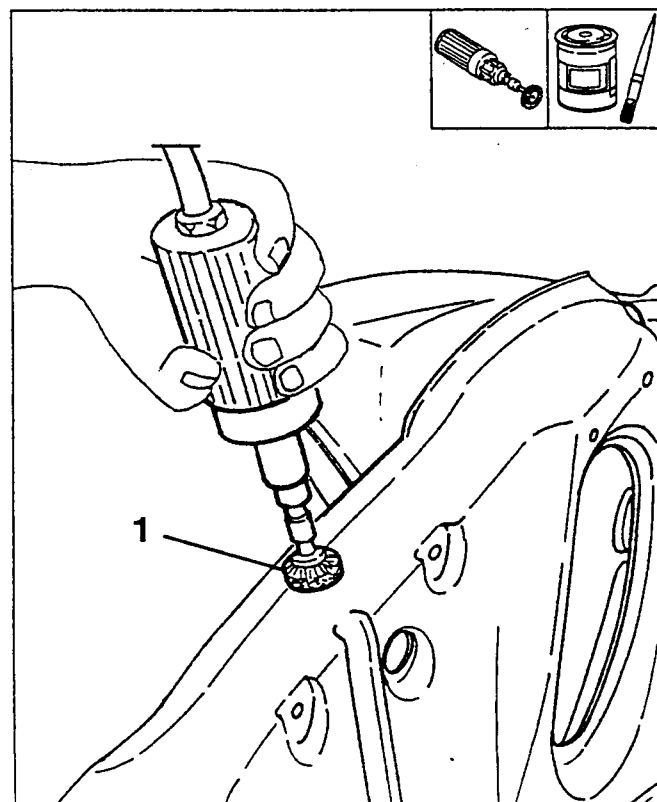
1. Working on a bench and using a jig saw cut the new

outer side panel to the dimensions indicated in the diagram in order to maintain the correct overlapping tolerances.



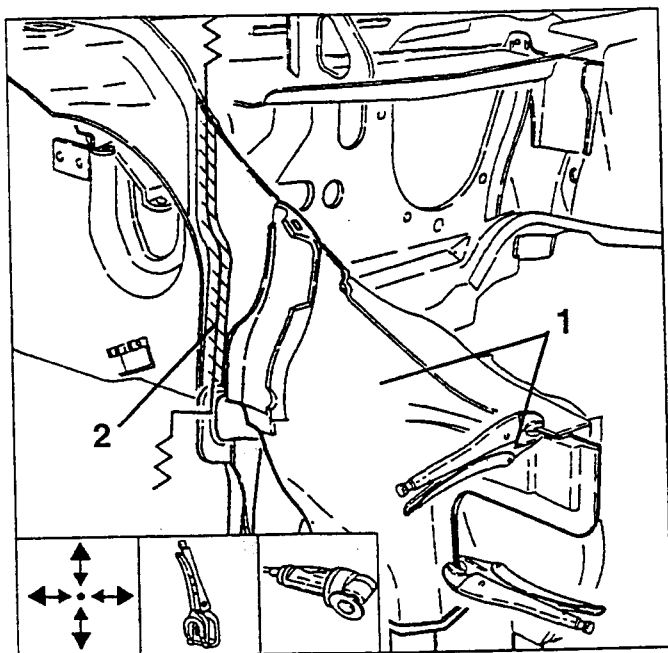
1. Using a rotating brush, clean the outer edge of the inner and outer side panels on both sides of the sheet metal.

- Apply the specified electroweldable protection product to the areas to be spot-welded.

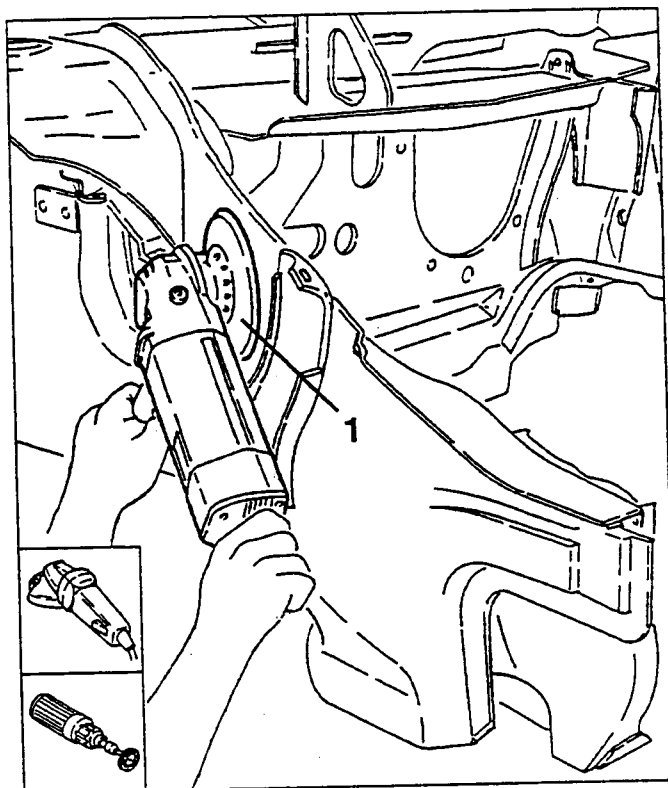


POSITIONING

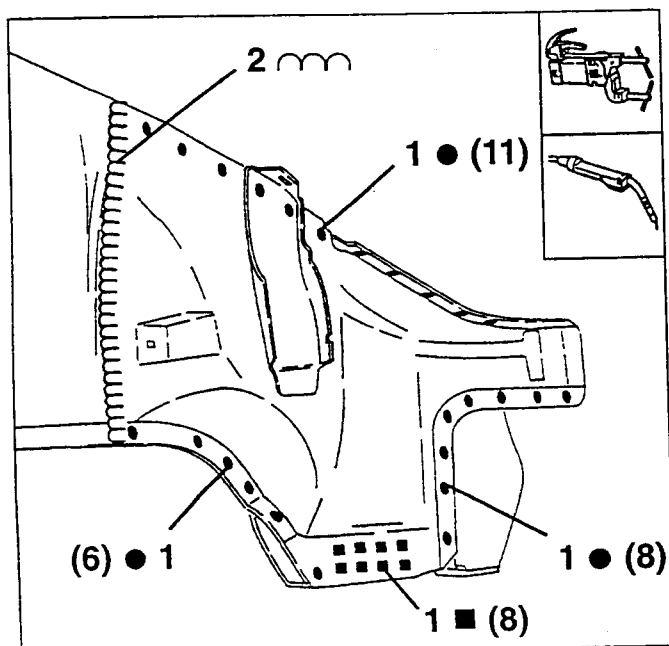
1. Using a jig, position the outer side panel and overlap as shown. Fix the panel with clamps and join together the edges to be welded.
2. Using a circular saw, trim the sheet metal and remove the excess.



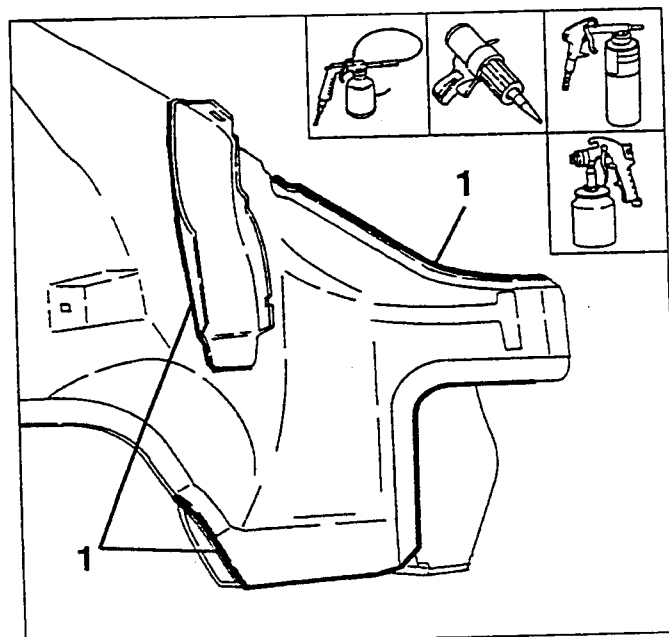
1. Using an abrasive grinding machine, remove and flush the residues left after welding.
- Using a rotating brush, clean the welded areas.

**WELDING AND FINISHING OF THE SHEET METAL**

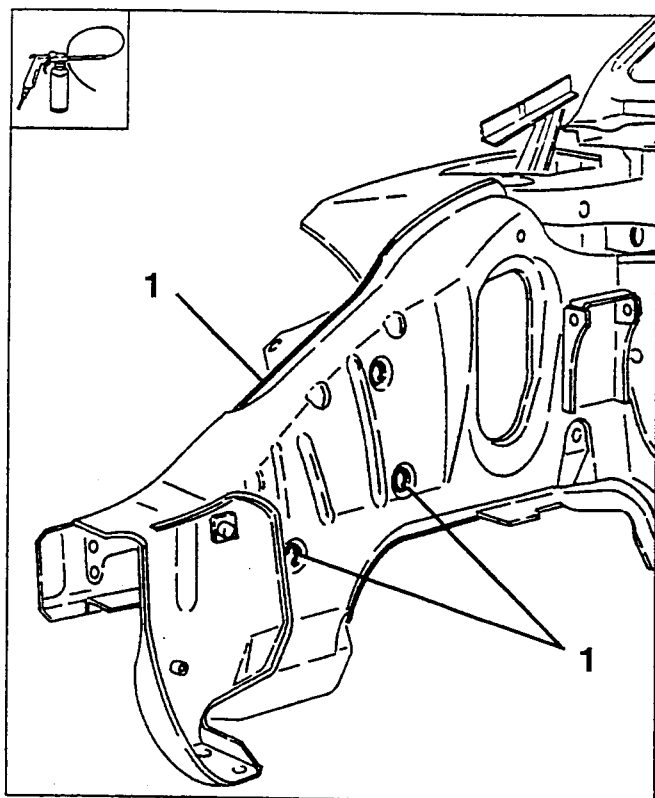
1. Using a spot-welder or, where necessary, a MIG welder, proceed as shown in the diagram.
2. Using a MIG welder, carry out seam welding.

**PROTECTION**

- Apply the specified corrosion inhibitor to the areas which have been MIG welded.
1. Apply the specified sealant around the edges of the joints of the side panel.
- Apply the specified underbody protection to the replaced areas.
 - Proceed to the painting phase.



1. Wax-treat the boxed parts through the holes shown in the diagram.



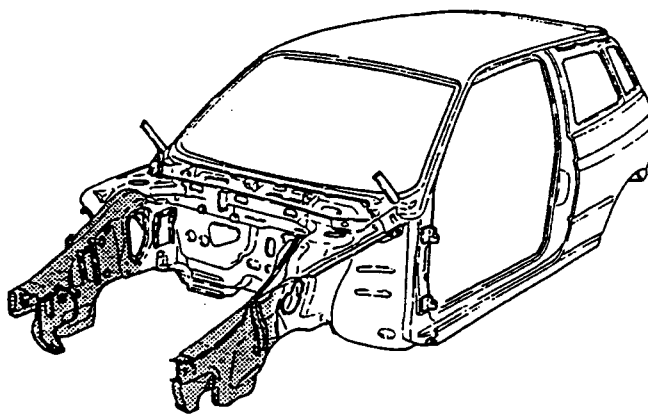
- Refit the components removed by reversing the procedure followed for removal.

FRONT SIDE PANEL - INTERNAL AND EXTERNAL PARTS (Boxer versions)

PRELIMINARY OPERATIONS

- Disconnect the negative (-) cable from the battery and remove the control units.
- Remove the trim components, electrical and mechanical systems which could hinder the repair operations or get damaged during work (see specific paragraphs).
- Remove the following sheet metal parts:
 - upper radiator crossmember (see specific paragraph).
 - headlight housing frame (see specific paragraph).
 - front wing on affected side (see specific paragraph)
 - front crossmember, if necessary (see specific paragraph).
 - upper panel on affected side (see specific paragraph).
 - side panel on affected side (see specific paragraph).
 - battery support crossmember (see specific paragraph).

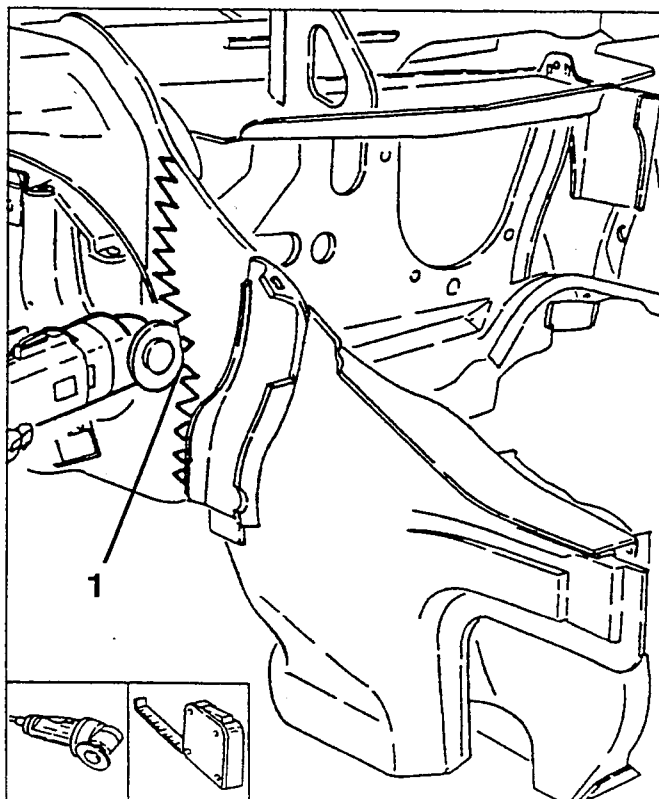
REMOVAL



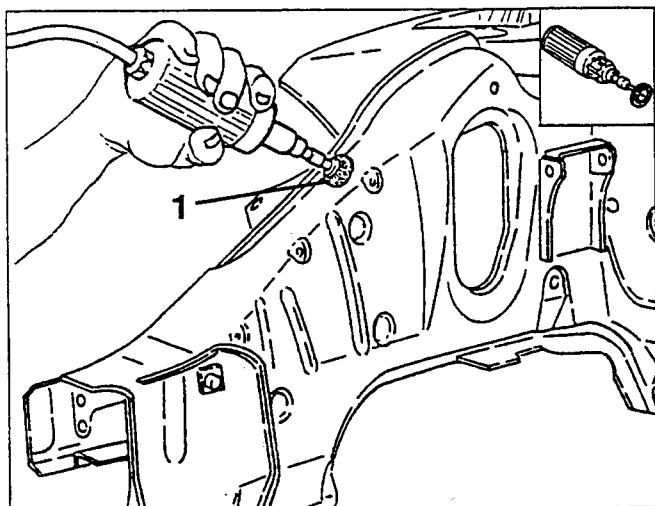
1. Using a circular saw, cut the outer front side panel along the lines shown in the diagram.

NOTE:

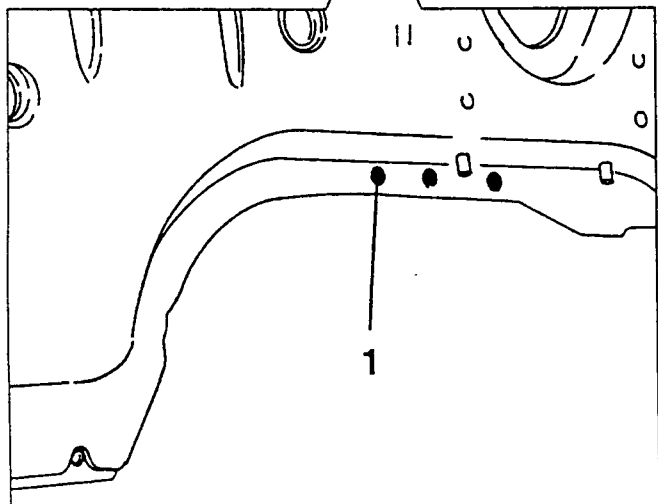
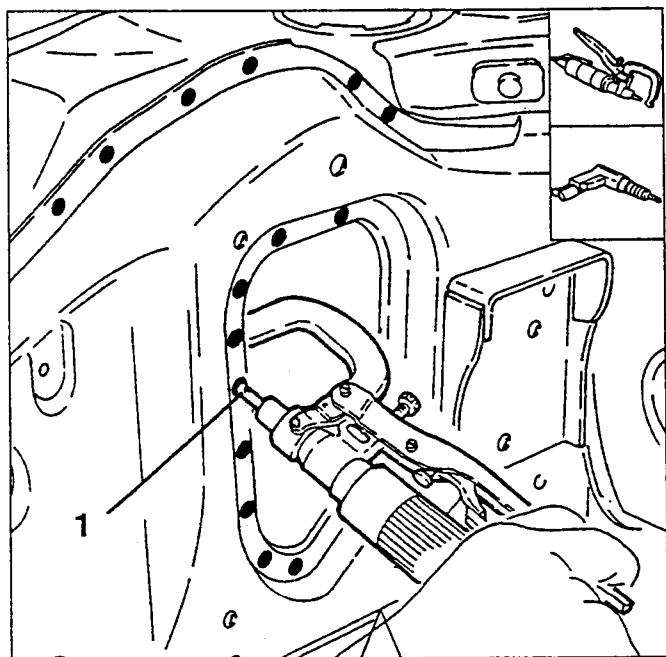
The cut on the side panel must be approx. 50mm from the front suspension attachment pillar.



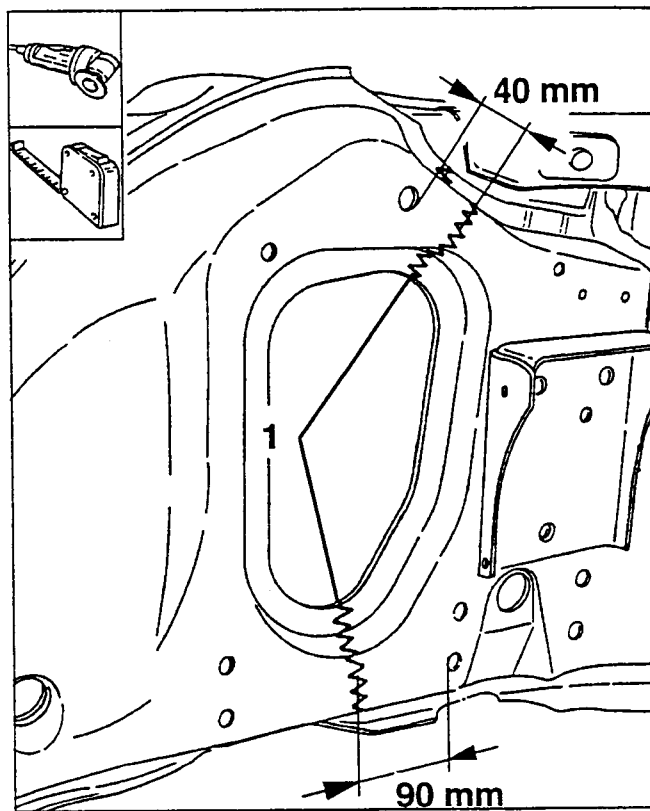
1. Using a rotating brush, clean the areas to be spot-cut to show up the welding points.



1. Using a chamfering machine, remove the accessible welding points; remove the remaining points using a drill.



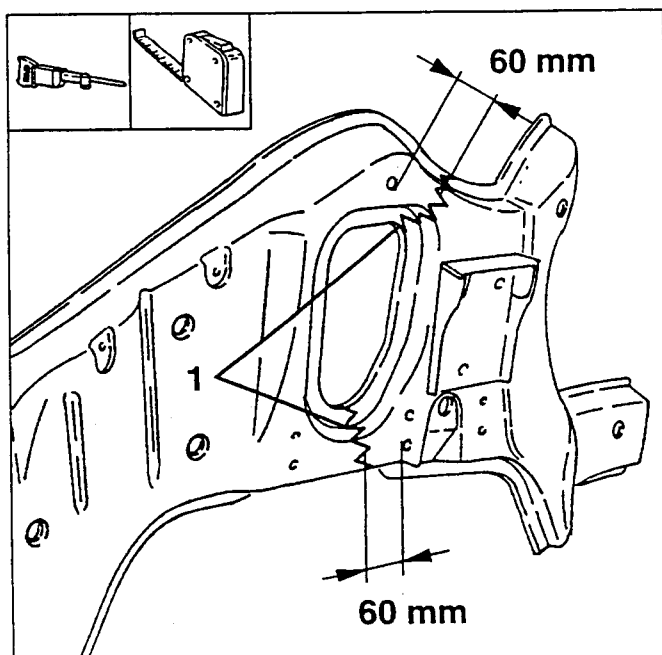
1. Using a circular saw, cut the inner part of the side panel to the dimensions indicated following the lines shown in the diagram taking care not to damage the external part of the side panel.



- If necessary cut away the sealant to remove the front partial side panel (internal and external).

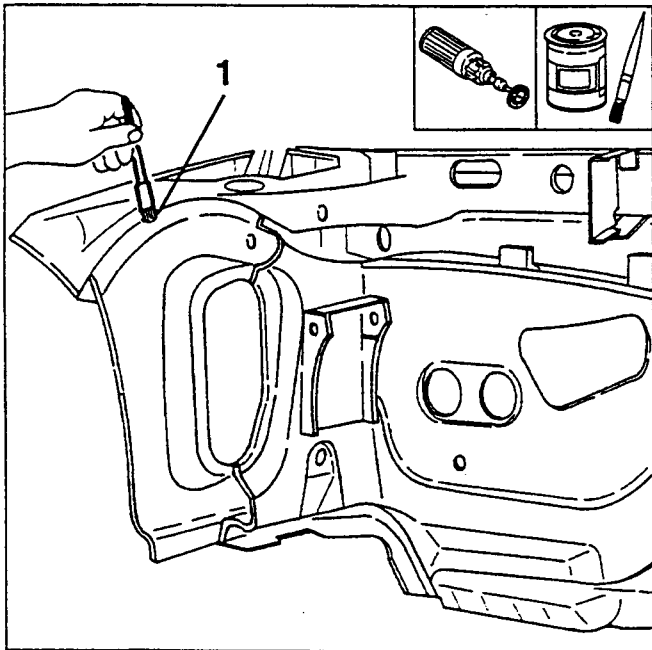
PREPARATION

1. Working on a bench using a jig saw, cut the new inner side panel to the dimensions given in the diagram to maintain the correct overlapping tolerances.



- Using a rotating brush, clean the areas which are to be welded and remove the foam treatment product from the area to be cut along approximately 30 mm to prevent burning during welding.

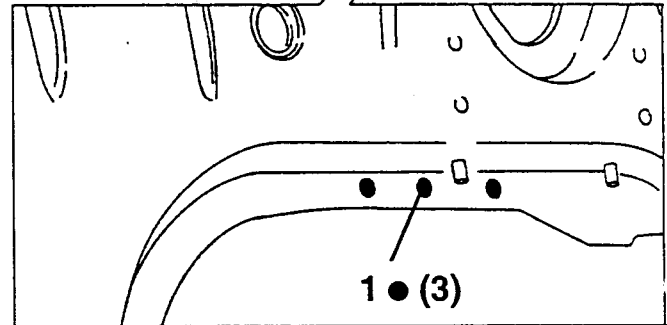
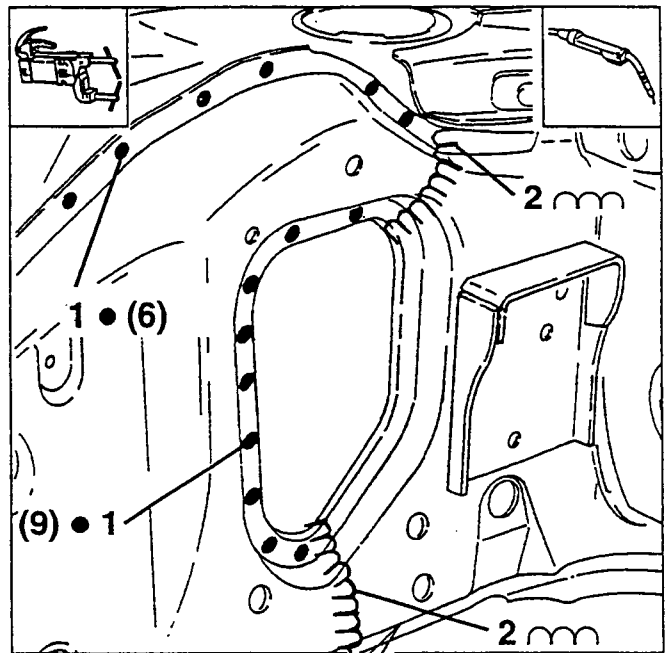
1. Apply the specified electroweldable protection product to the areas to be spot-welded.



WELDING AND FINISHING THE SHEET METAL

1. Using a spot-welder or, where necessary, a MIG welder, proceed as shown in the diagram.

2. Using a MIG welder, weld to seams.

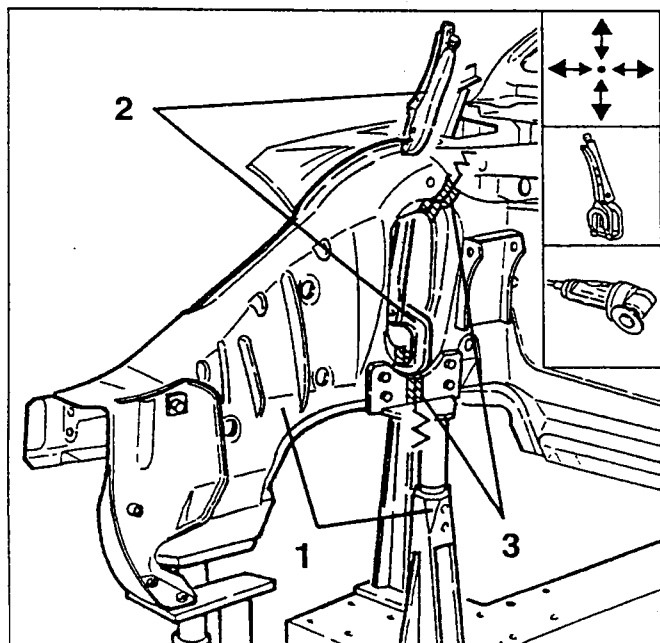


POSITIONING

1. Using a jig, correctly position the front inner partial side panel.

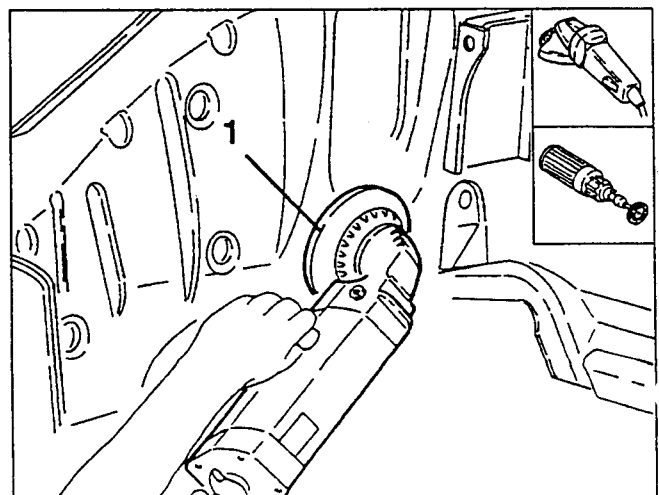
2. Overlap and secure the components to be welded in position using clamps, join together the edges and check alignment.

3. Using a circular saw, trim the sheet metal to eliminate the excess parts.



1. Using an abrasive grinding machine, remove and flush the residues left after welding.

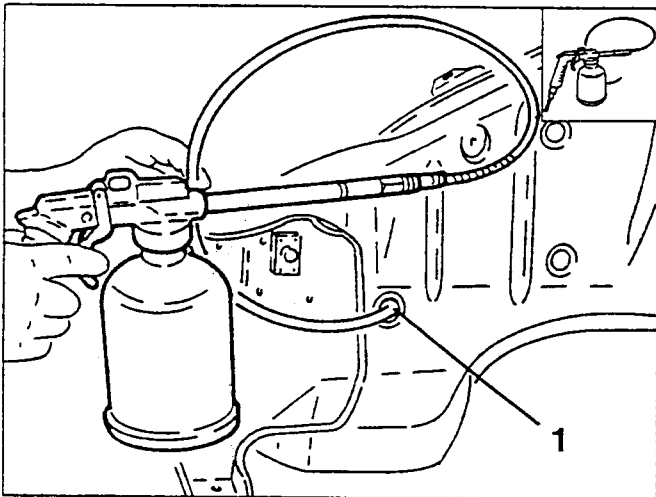
- Using a rotating brush, clean the welded areas.



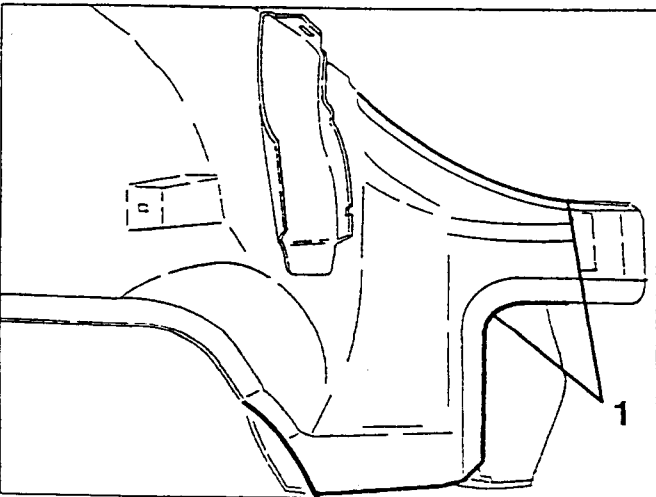
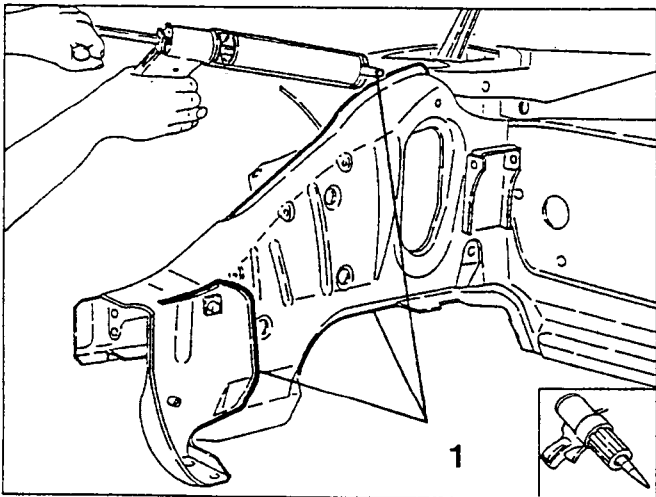
- Refit the partial outer side panel (see specific paragraph).

PROTECTION

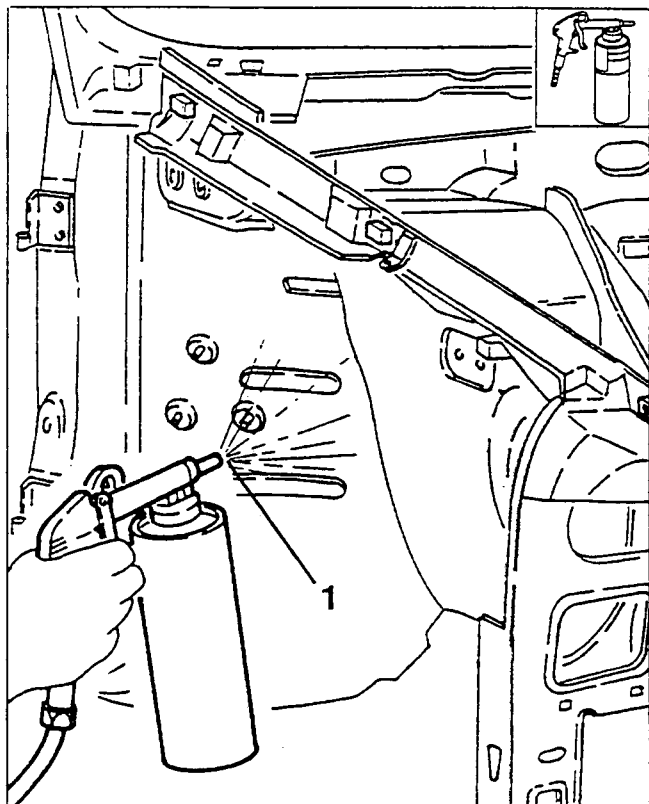
1. Apply the specified corrosion inhibitor to the areas which have been MIG welded.



1. Apply the specified sealant around the edges of the panel.

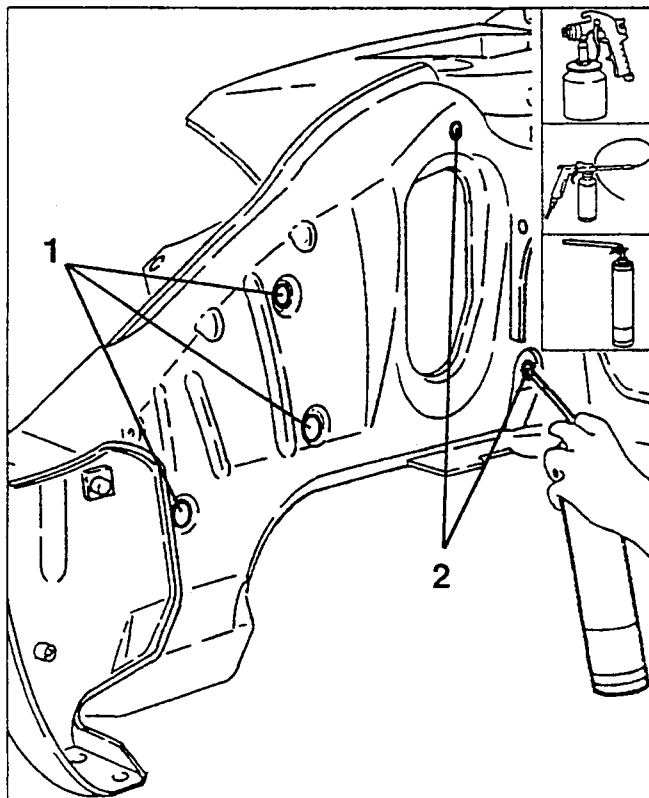


1. Apply the specified underbody protection to the replaced areas.



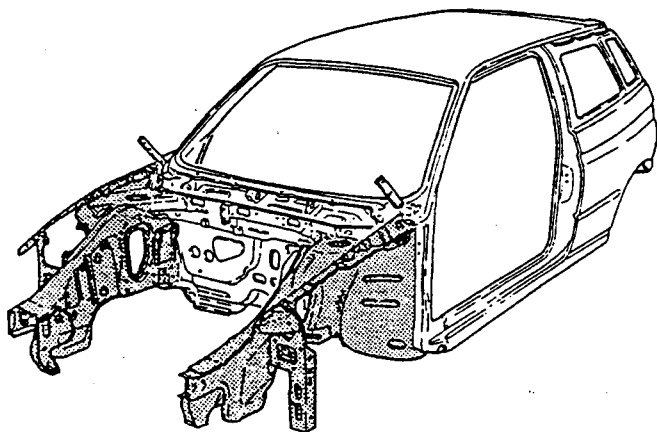
- Proceed to the painting phase.

1. Wax-treat the boxed parts through the holes shown in the diagram.
2. Foam-treat the boxed parts through the holes shown in the diagram.

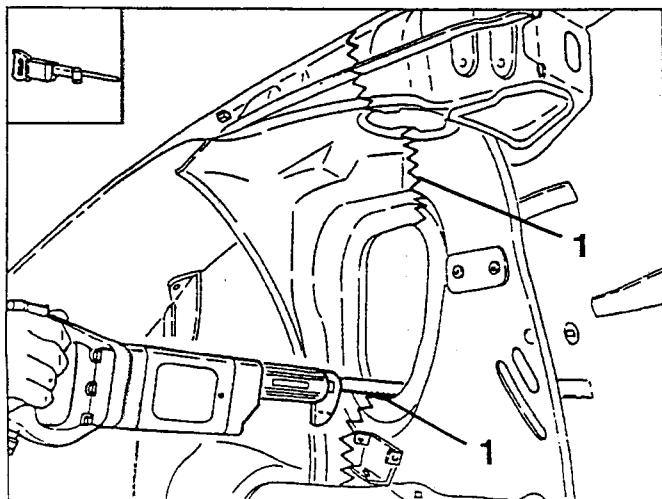


**COMPLETE FRONT SIDE PANEL
WITH FRONT PILLAR REMOVED
(Boxer versions)****PRELIMINARY OPERATIONS**

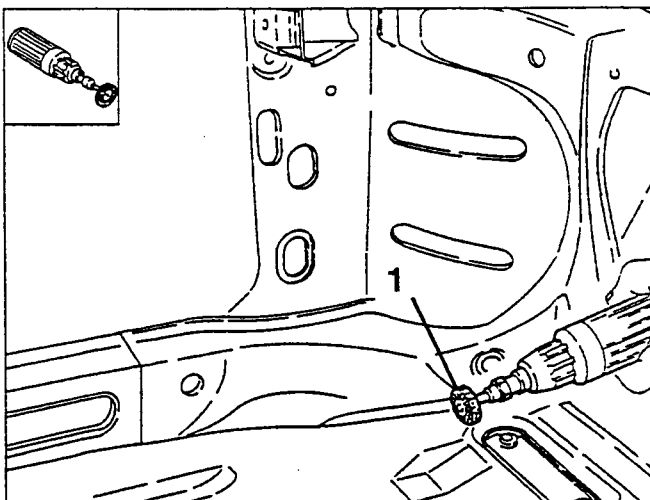
- Disconnect the negative (-) cable from the battery and remove the control units.
- Remove the trim components, electrical and mechanical systems which could hinder the repair operations or get damaged during work (see specific paragraphs).
- Remove the following sheet metal parts:
 - upper radiator crossmember (see specific paragraph).
 - headlight housing frame (see specific paragraph).
 - front crossmember (see specific paragraph).
 - battery support crossmember (see specific paragraph).
 - front bonnet hinge on affected side (see specific paragraph).
 - dashboard support crossmember (see specific paragraph).

REMOVAL

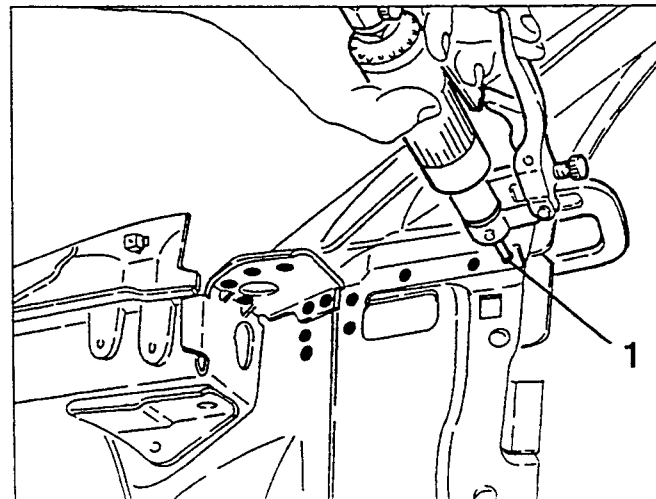
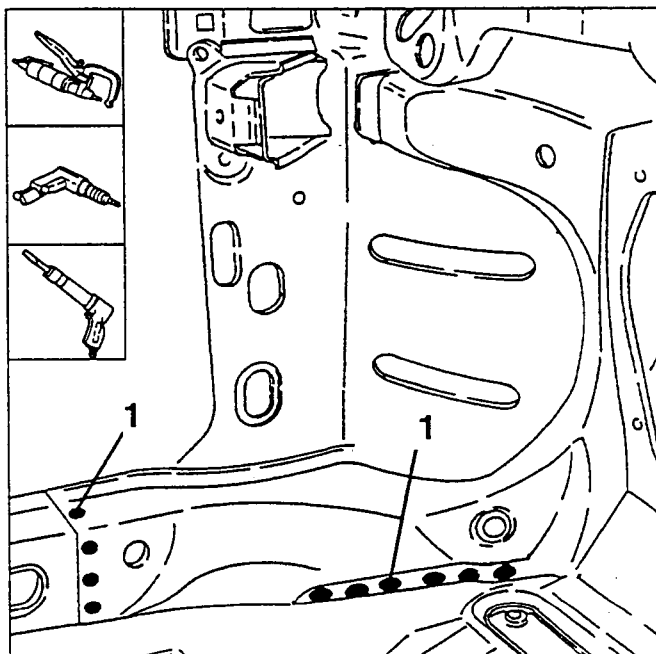
1. Using a jig saw, cut away the side panel as shown in the diagram.



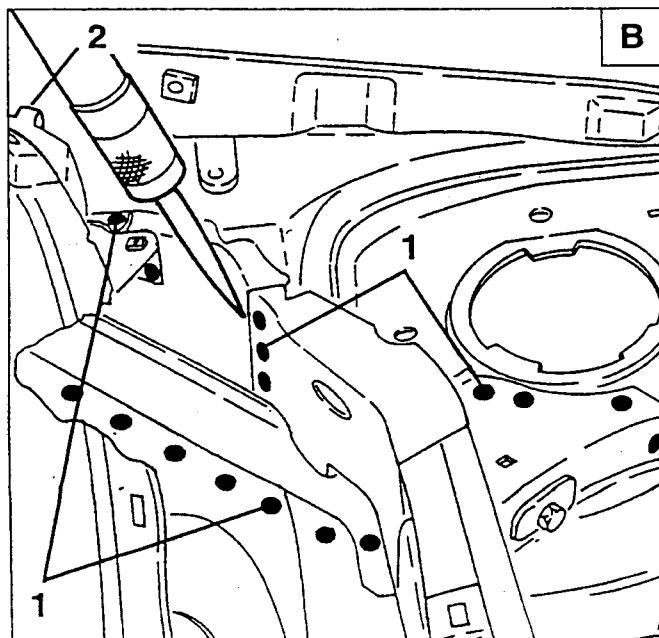
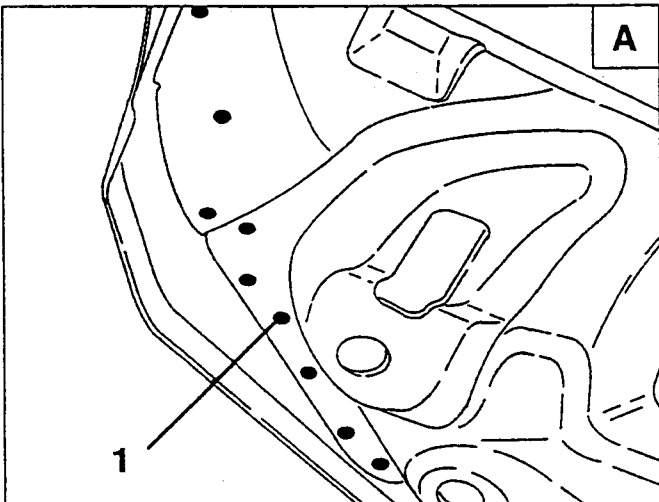
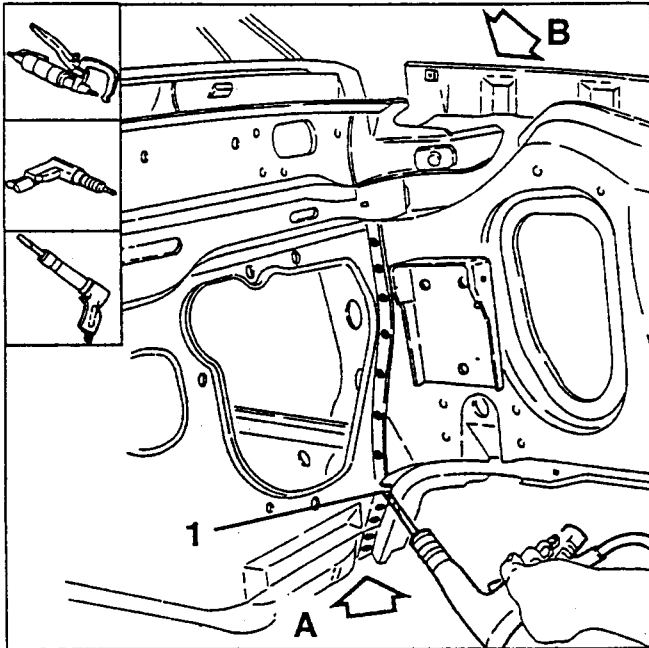
1. Using a rotating brush, clean the areas to be spot-cut to show up the welding points.



1. Using a chamfering machine, remove the accessible welding points; remove the remaining welding points using a drill or a chisel.



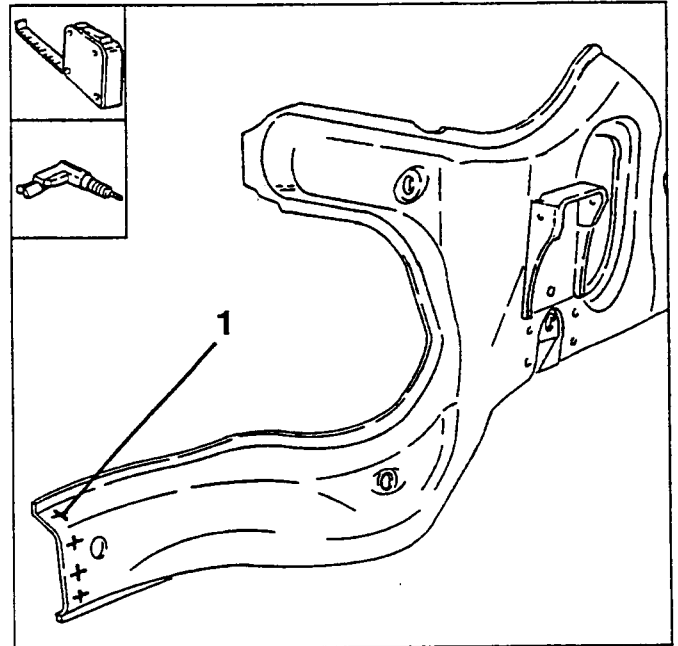
1. Using a chamfering machine remove the accessible welding points; remove the remaining welding points using a drill or a chisel.
2. Open the clinch tabs.



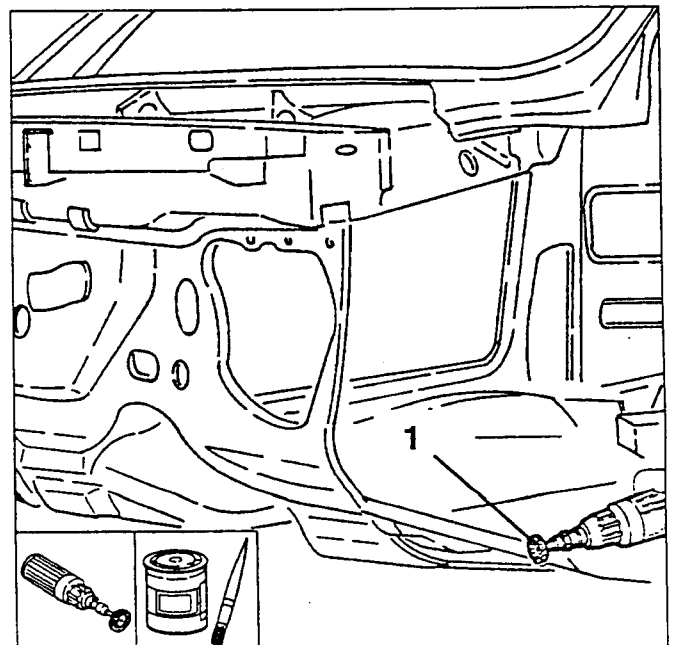
- Remove the complete front side panel cutting away the sealant if necessary.

PREPARATION OF THE INNER FRONT SIDE PANEL

1. Working on a bench, mark out and perforate the inner side panel with a 5 mm bit as shown in the diagram.

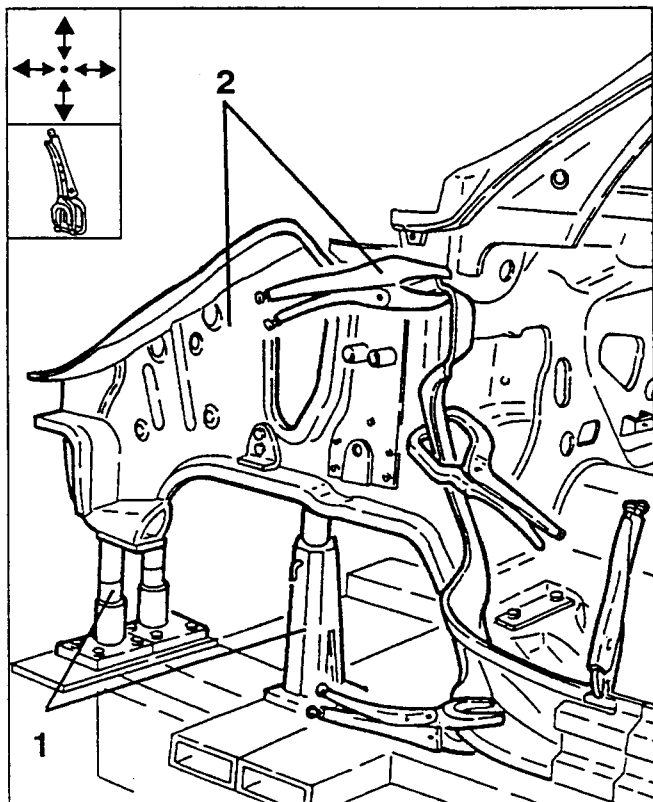


1. Using a rotating brush, clean the edge of the inner side panel and the areas to be welded.
- Apply the specified electroweldable protection product to the areas to be spot-welded.

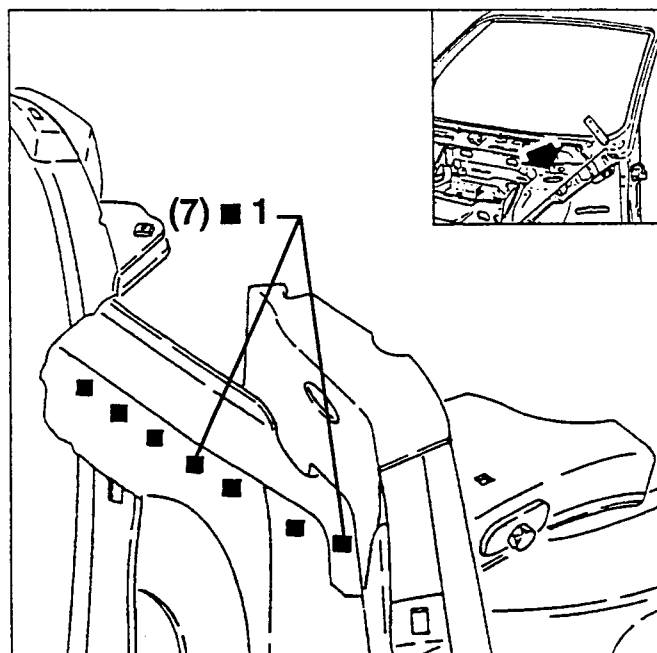
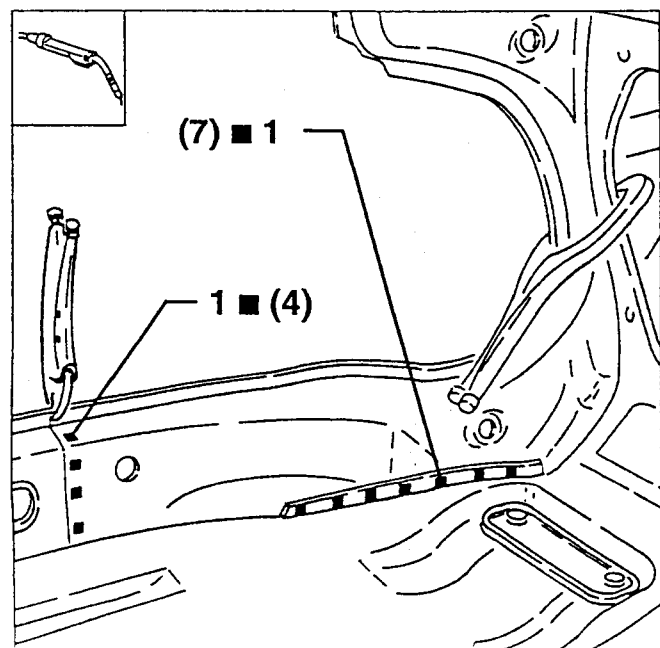


POSITIONING OF THE INNER FRONT SIDE PANEL

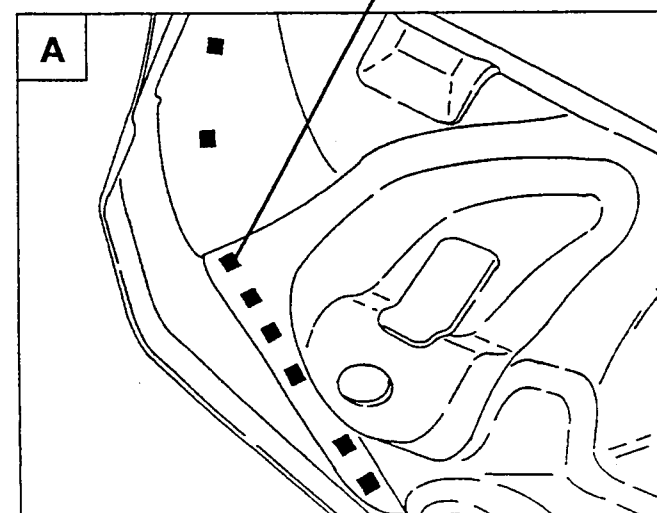
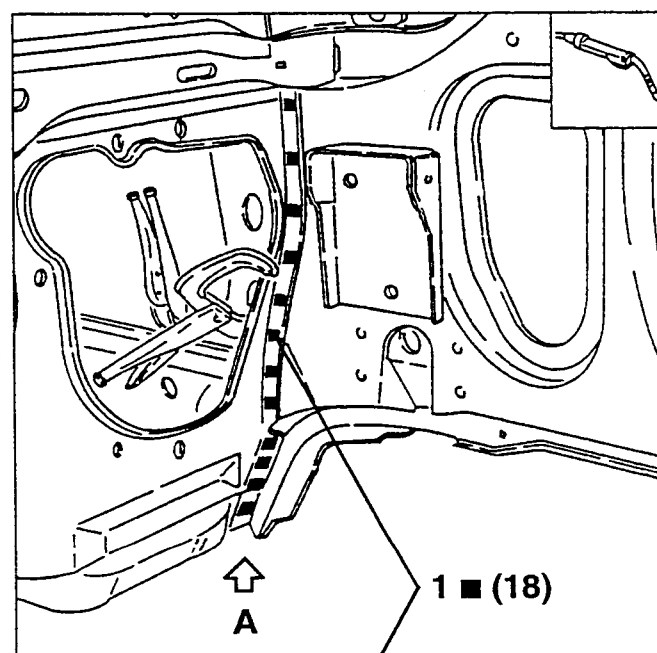
1. Using a jig, correctly position the inner side panel.
2. Lock the components to be welded into position using clamps, join together the edges and check alignment.

**WELDING AND FINISHING OF THE INNER FRONT SIDE PANEL**

1. Using a MIG welder, proceed as shown in the diagram.

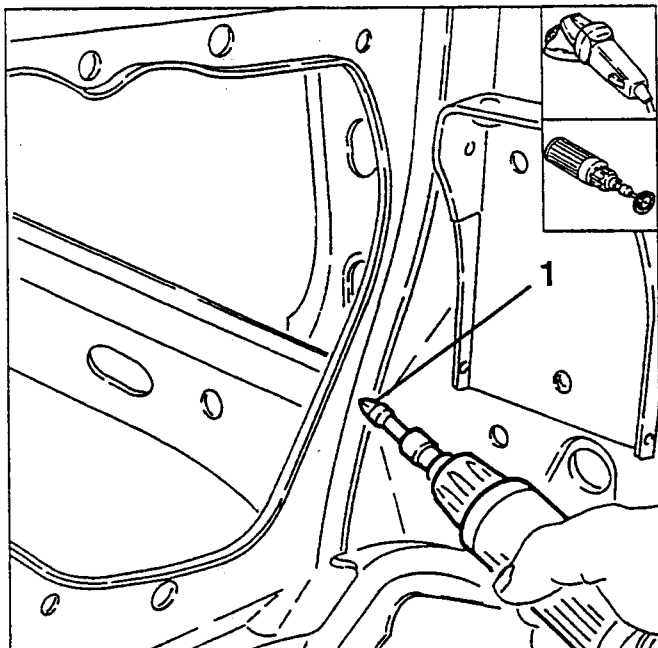


1. Using a MIG welder, proceed as shown in the diagram.



1. Using an abrasive grinding machine or a grinding machine with milling cutter on the which cannot be reached with the grind wheel, remove and flush the residues left after welding.

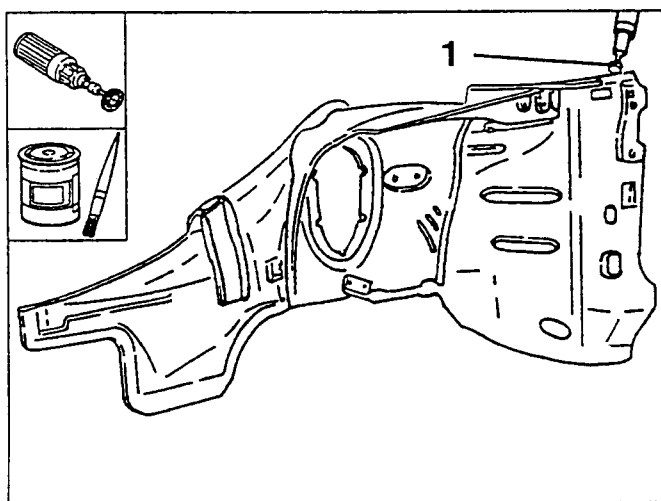
- Using a rotating brush, clean the welded areas.



PREPARATION OF THE OUTER FRONT SIDE PANEL

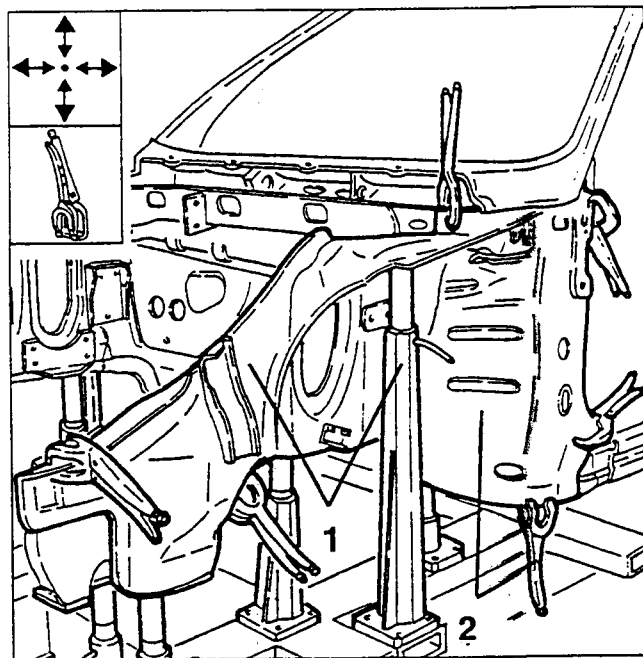
1. Using a rotating brush, clean the edges of the outer side panel and the areas to be welded.

- Apply the specified electroweldable protection product to the areas to be spot-welded.



POSITIONING OF THE OUTER FRONT SIDE PANEL

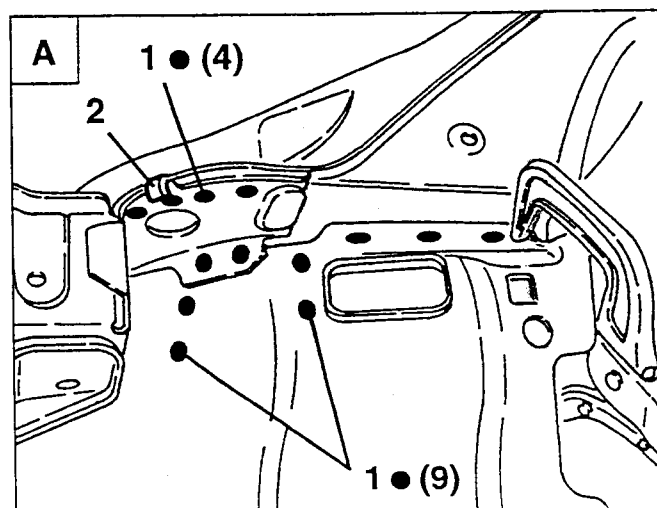
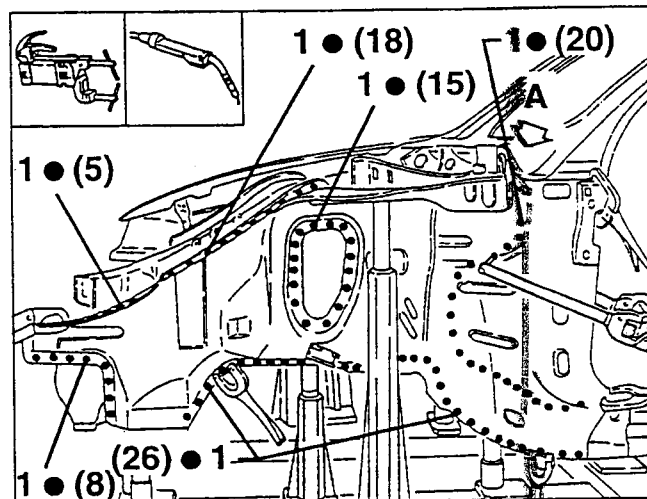
1. Using a jig correctly position the outer side panel.
2. Clamp the components to be welded into position, joint the edges together and check alignment.



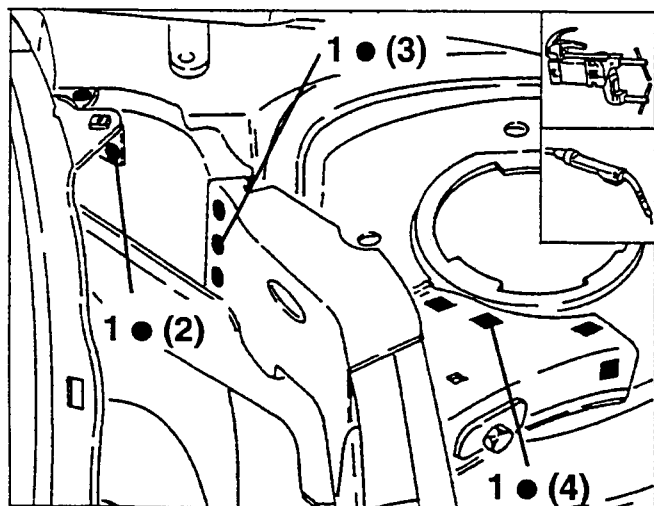
WELDING AND FINISHING OF THE OUTER FRONT SIDE PANEL

1. Using a spot-welder or, where necessary, a MIG welder, proceed as shown in the diagram.

2. Bend the tabs over.

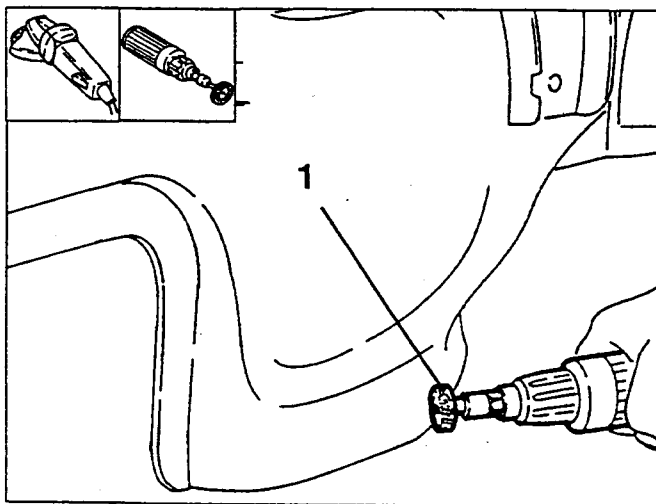


1. Using a spot-welder or, where necessary, a MIG welder, proceed as shown in the diagram.



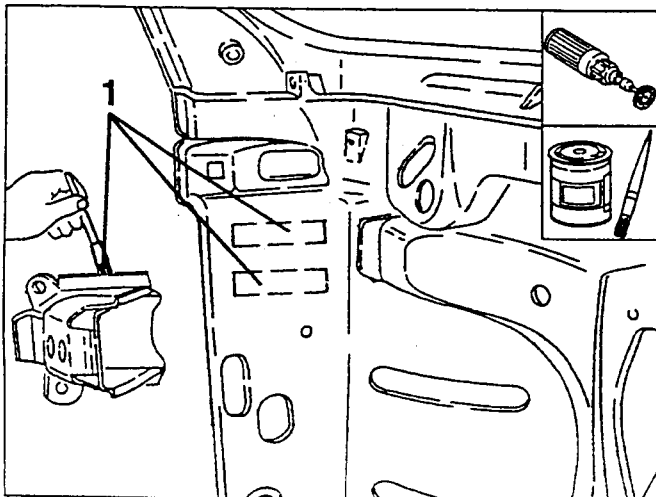
- Using an abrasive grinding machine remove and flush the residues left after welding.

1. Using a rotating brush, clean the welded areas.



- Using a rotating brush, clean the areas which are to be welded on the dashboard support crossmember bracket.

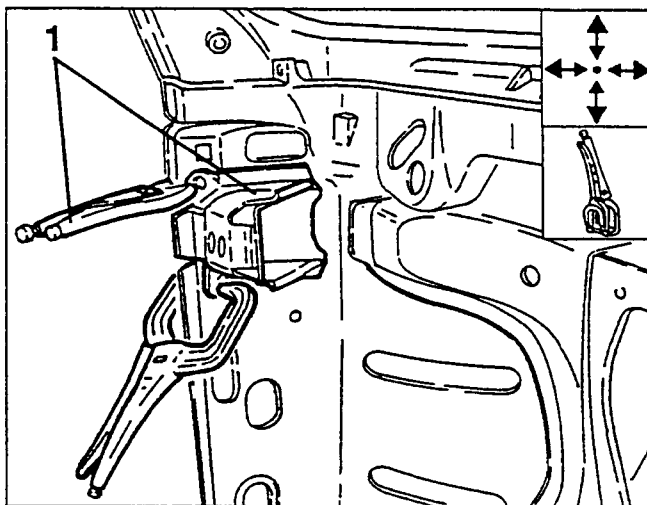
1. Apply the specified electroweldable protection product to the areas to be spot-welded.



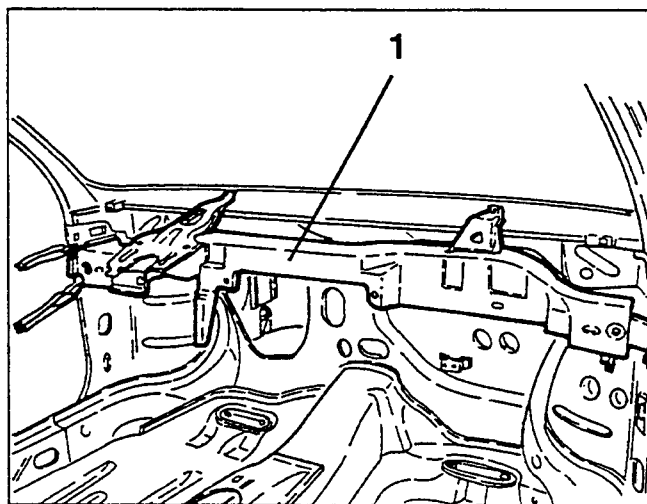
1. Position the dashboard crossmember support bracket and clamp it into position.

NOTE:

For the correct position of the bracket use the two special pins as shown in the diagram.

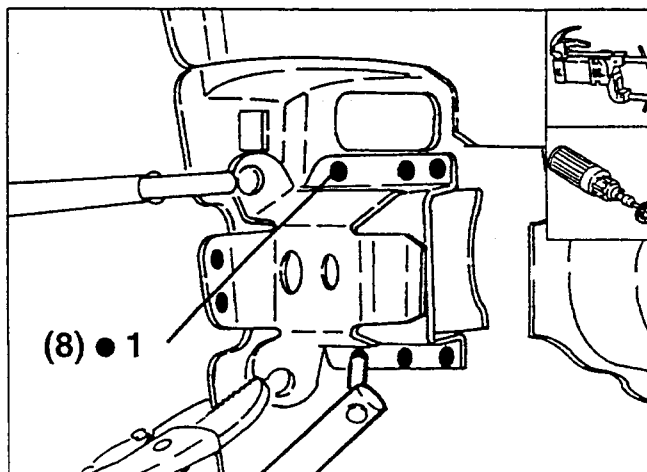


1. Temporarily install the dashboard crossmember to check the correct positioning of the support bracket and then remove it again.



1. Using a spot-welder, proceed as shown in the diagram.

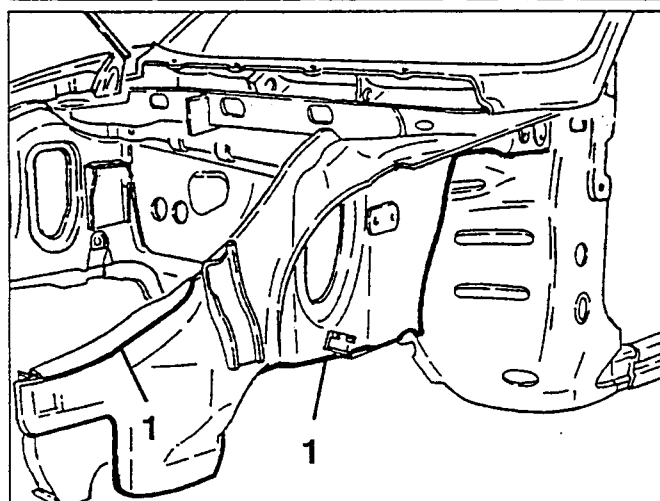
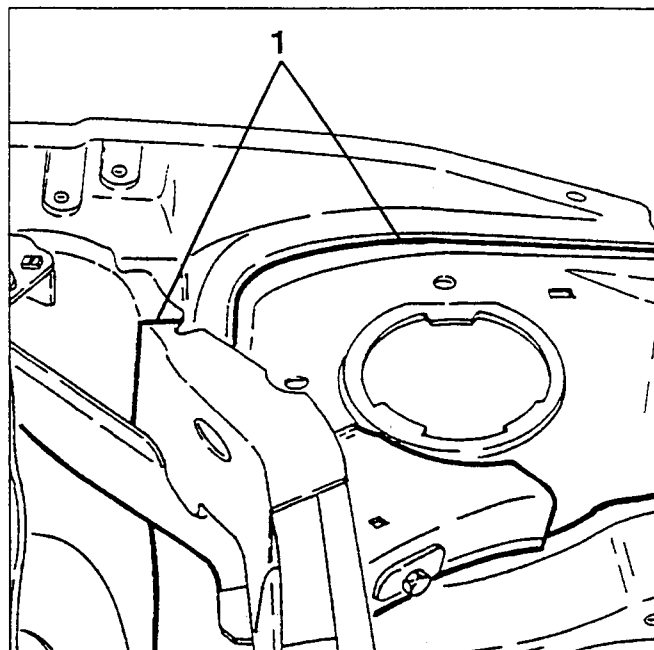
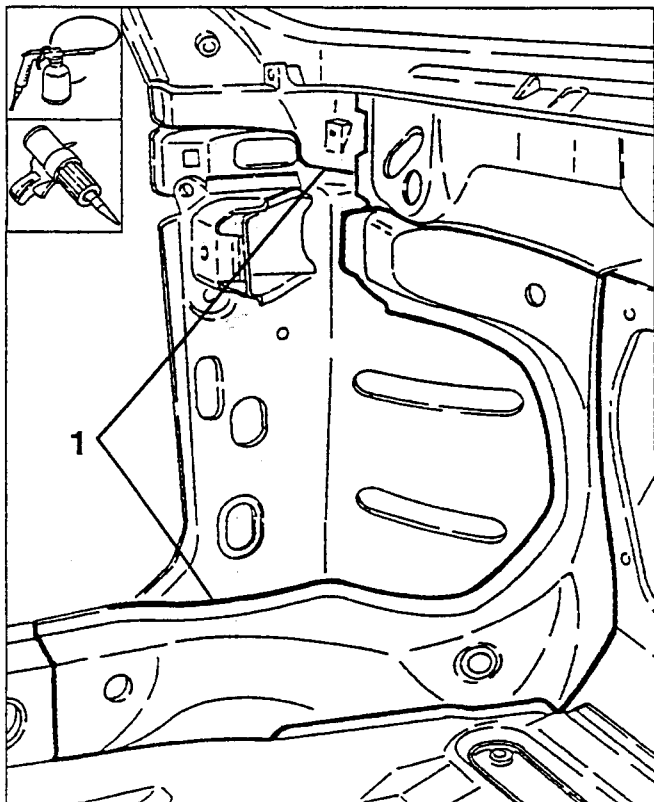
- Using a rotating brush, clean the welded areas.



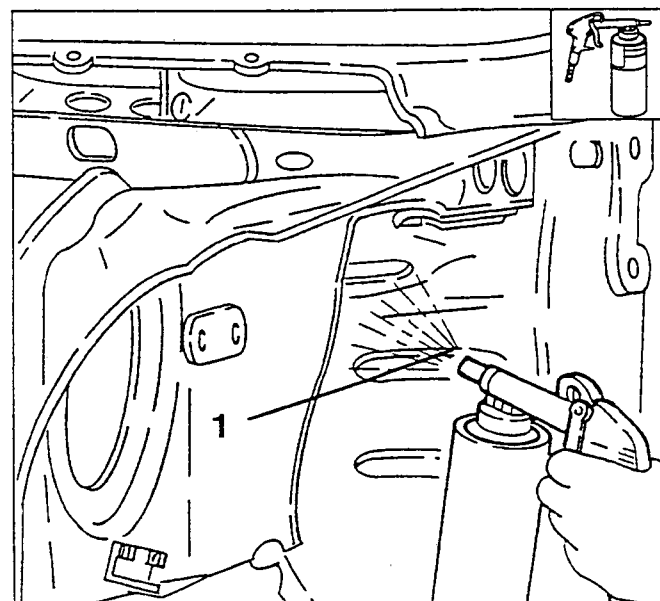
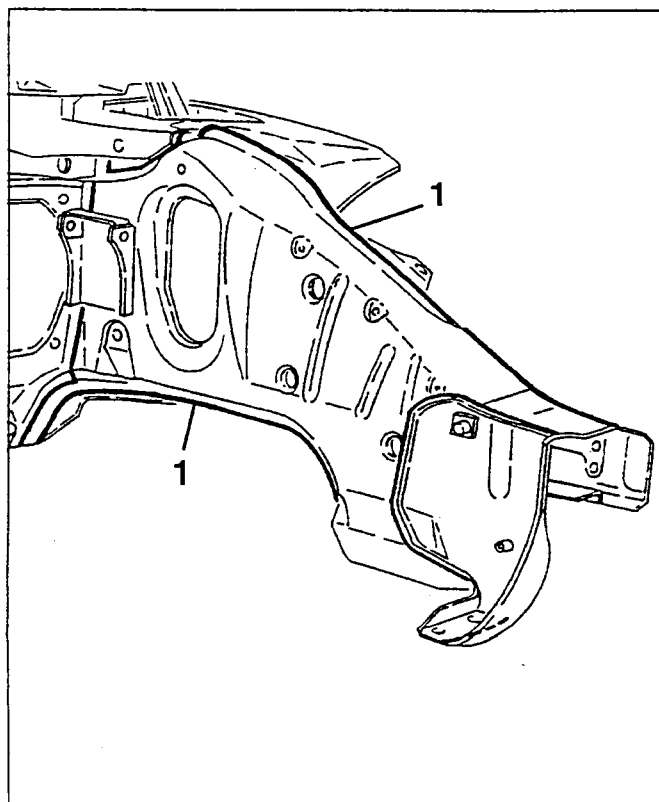
PROTECTION

- Apply the specified corrosion inhibitor to the areas to be welded MIG.

1. Apply the specified sealant to all the joints of the side panel.

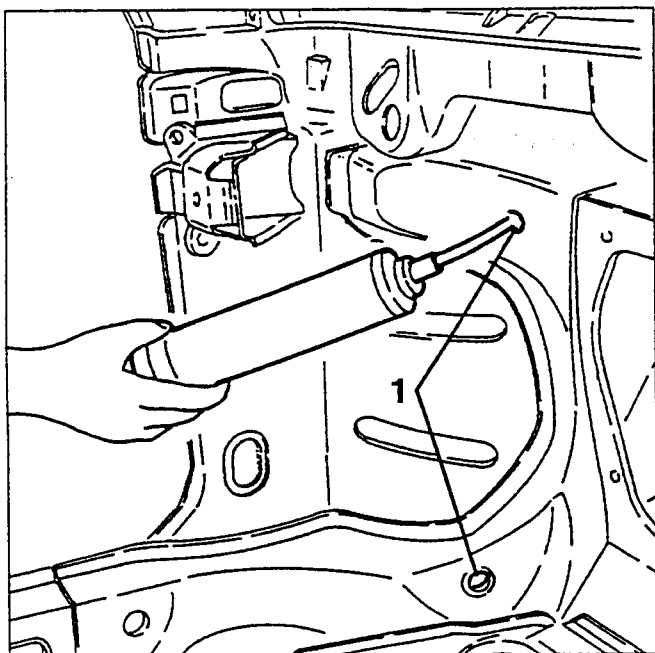


1. Apply the specified underbody protection to the replaced areas in the wheel housing.



- Proceed to the painting phase.
- Wax-treat the boxed parts.

1. Foam treat the boxed parts through the hole shown in the diagram.

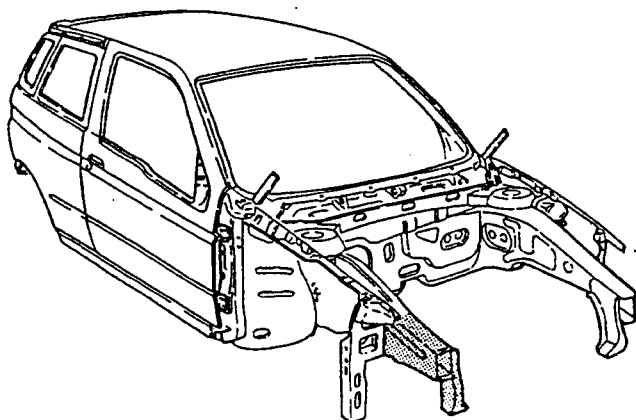


FRONT SIDE PANEL - PARTIAL (Turbodiesel version)

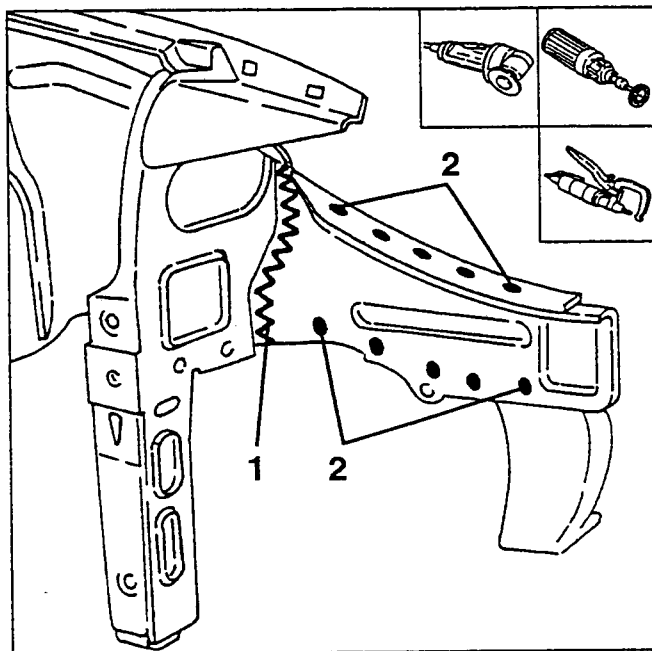
PRELIMINARY OPERATIONS

- Disconnect the negative (-) cable from the battery and remove the control units.
- Remove the trim components, electrical and mechanical systems which could hinder the repair operations or get damaged during work (see specific paragraphs).
- Remove the following sheet metal parts:
 - headlight housing frame (see specific paragraph).
 - front crossmember, (see specific paragraph).

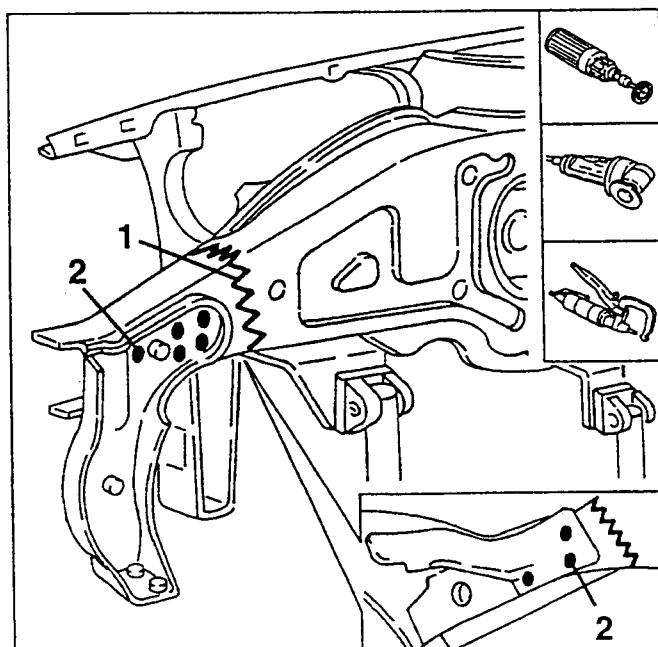
REMOVAL



1. Using a circular saw, cut the external panel along the lines indicated in the diagram without damaging the underlying parts.
- Using a rotating brush, clean the areas to be spot-cut to show up the welding points.
2. Using a chamfering machine, remove the welding points.



1. Using a circular saw, cut the internal panel along the lines indicated in the diagram without damaging the underlying parts.
- Using a rotating brush, clean the areas to be spot-cut to show up the welding points.
2. Using a chamfering machine, remove the welding points.



**PREPARING AND POSITIONING
THE INNER SIDE PANEL**

1. Using a jig to secure the radiator attachment bracket correctly position the partial inner side panel and check the value given in the figure below.

- Fix the side panel to the strut and check alignment and overlapping of the components.

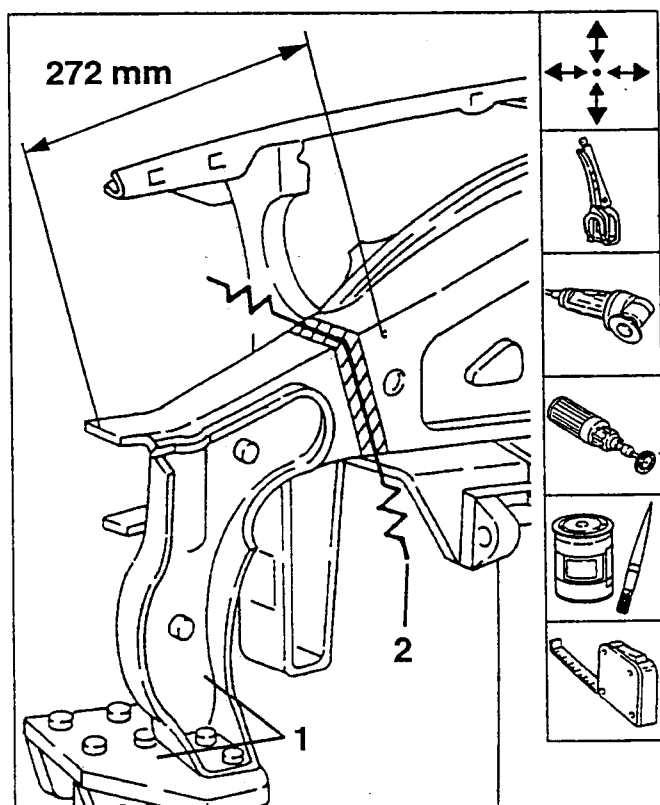
2. Using a circular saw, trim the sheet metal to eliminate the excess parts.

- Remove the inner side panel.

- Using a rotating brush, clean the areas which are to be welded.

- Apply the specified electroweldable protection product to the areas to be spot-welded.

- Position the inner side panel and check alignment.

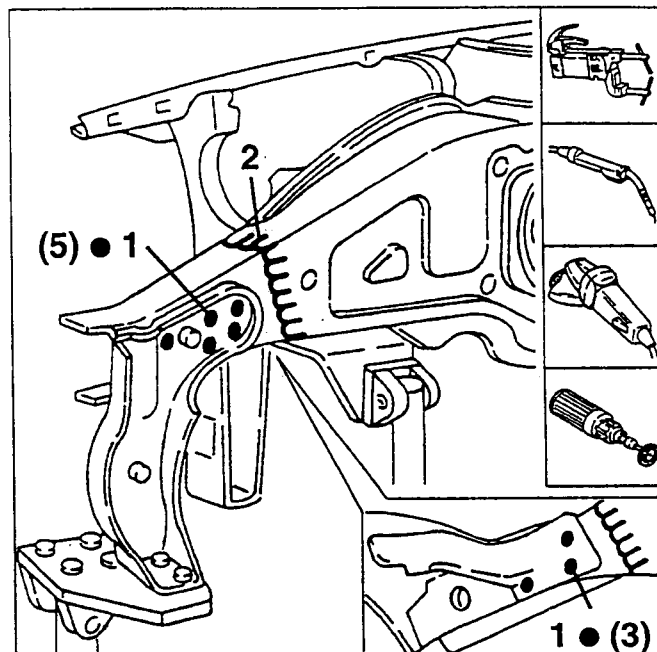
**WELDING AND FINISHING OF
THE INNER SIDE PANEL**

1. Using a spot-welder or, where necessary, a MIG welder, proceed as shown in the diagram.

2. Using a MIG welder, carry out seam welding.

- Using an abrasive grinding machine, remove and flush the residues left after welding.

- Using a rotating brush, clean the welded areas.

**PREPARING AND POSITIONING
THE OUTER SIDE PANEL**

- Working on a bench use a jig saw to cut the new outer side panel leaving enough material to allow for overlapping.

- Secure the outer side panel to the strut and to the inner side panel.

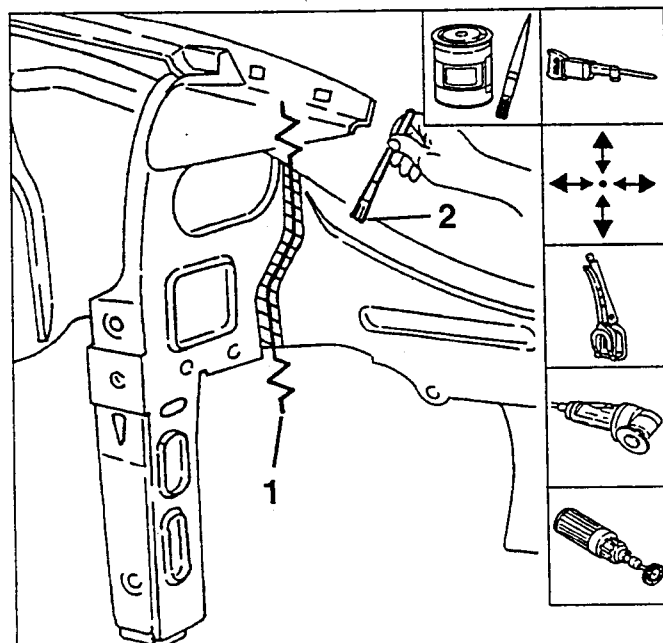
1. Using a circular saw, trim the sheet metal to eliminate the excess parts.

- Remove the outer side panel.

- Using a rotating brush, clean the areas which are to be welded.

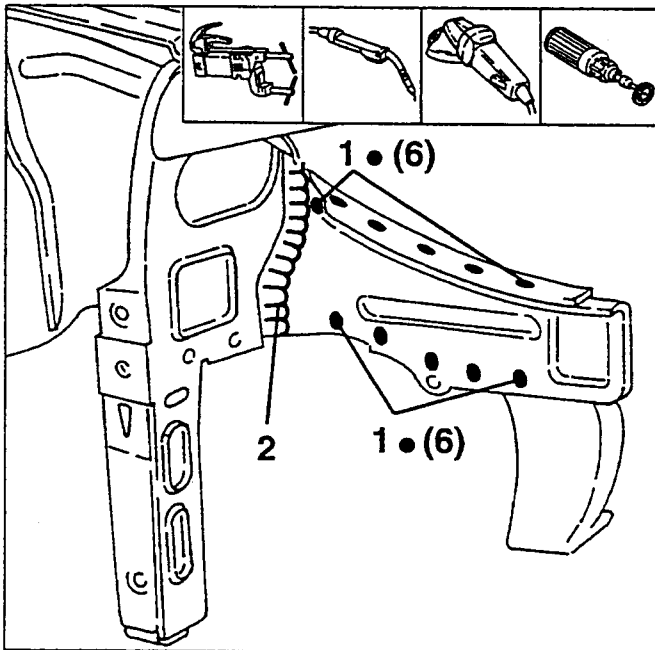
2. Apply the specified electroweldable protection product to the areas to be spot-welded.

- Position the outer side panel and check alignment.

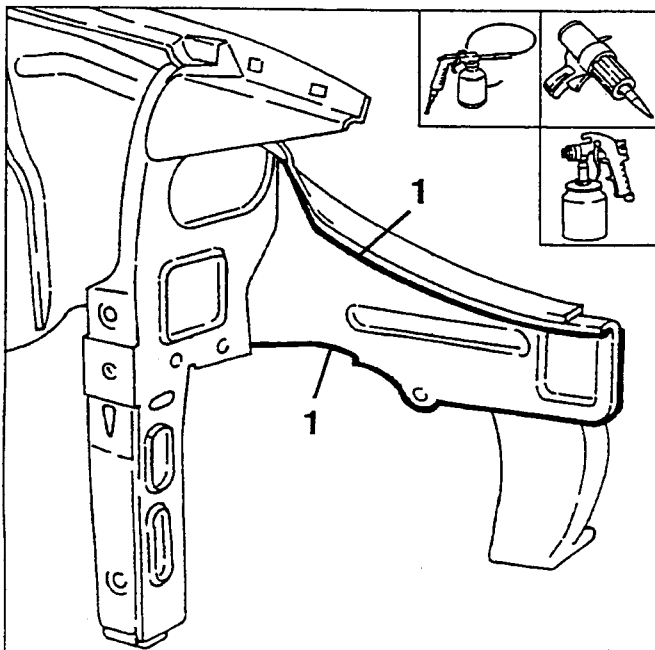


**WELDING AND FINISHING OF
THE OUTER SIDE PANEL**

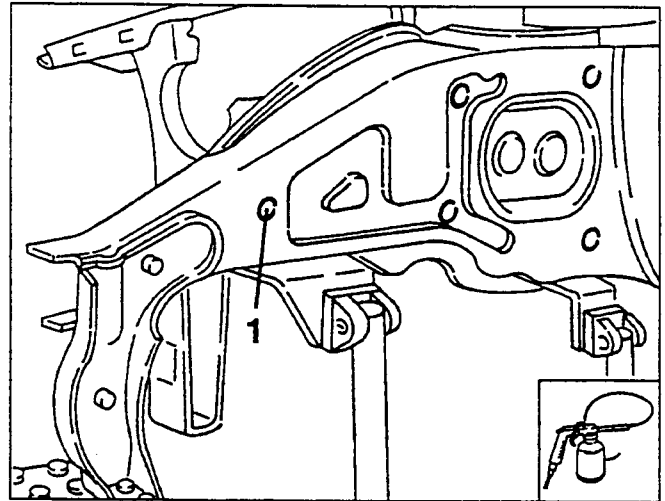
1. Using a spot-welder or, where necessary, a MIG welder, proceed as shown in the diagram.
 2. Using a MIG welder, carry out seam welding.
- Using an abrasive grinding machine, remove and flush the residues left after welding.
 - Using a rotating brush, clean the welded areas.

**PROTECTION**

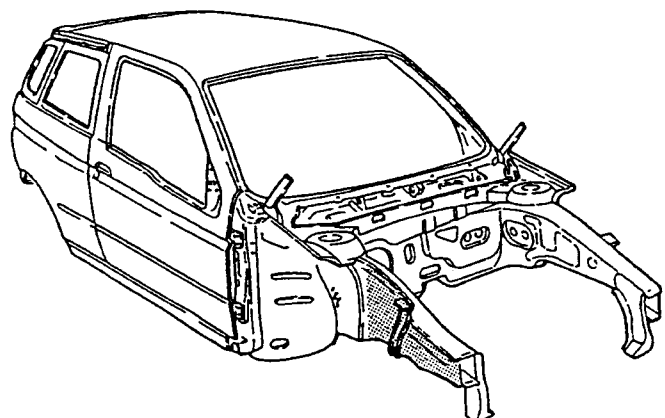
- Apply the specified corrosion inhibitor to the areas to be welded MIG.
1. Apply the specified sealant along the lines highlighted in the diagram.
- Proceed to the painting phase.



- Centre the boxed parts through the hole shown in the diagram.

**FRONT SIDE PANEL -
EXTERNAL PARTIAL
(Turbodiesel version)****PRELIMINARY OPERATIONS**

- Disconnect the negative (-) cable from the battery and remove the control units.
- Remove the trim components, electrical and mechanical systems which could hinder the repair operations or get damaged during work (see specific paragraphs).
- Remove the following sheet metal parts:
 - front wing of relative side (see specific paragraph).
 - front cross-member if necessary (see specific paragraph).
 - upper panel on relative side (see specific paragraph).
 - side shelf on relative side (see specific paragraph).

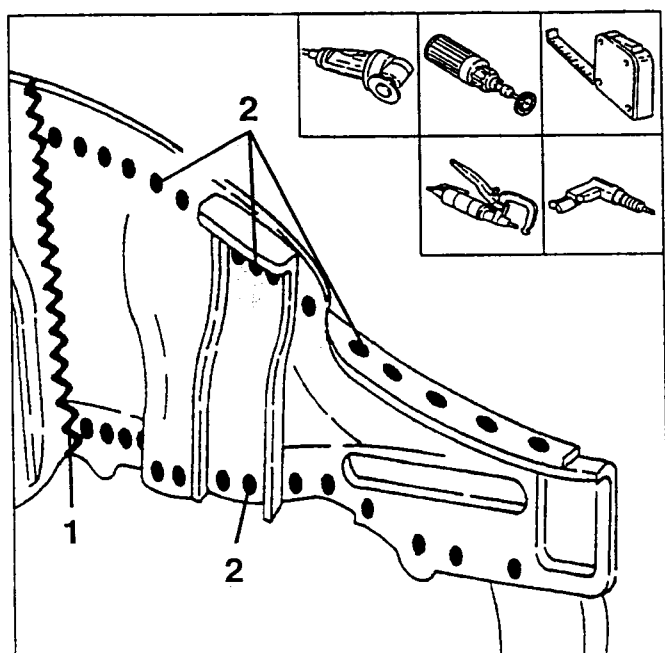
REMOVAL

1. Using a circular saw, cut the outer front side panel along the line shown in the diagram without damaging the underlying parts.

NOTE:

The cut on the side panel must be approx. 50mm from the front suspension attachment pillar.

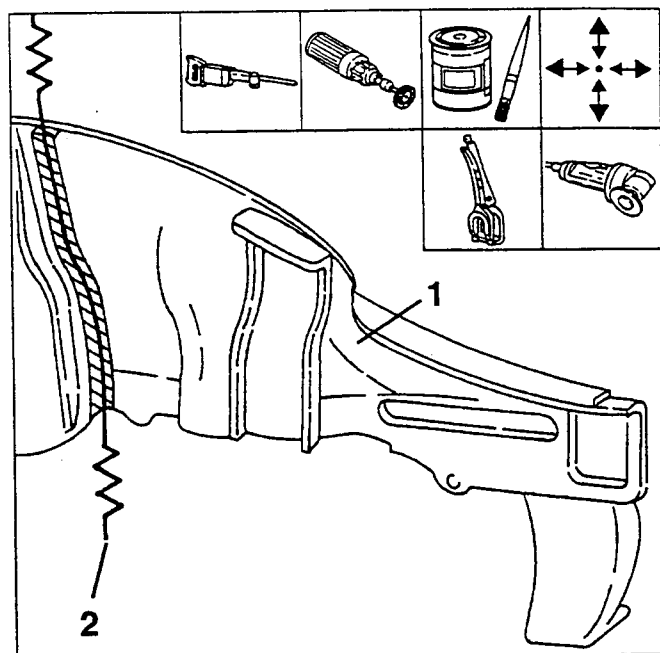
- Using a rotating brush, clean the areas to be spot-cut to show up the welding points.
- 2. Using a spot cutter remove the accessible welds. Remove the remaining welds using a drill.



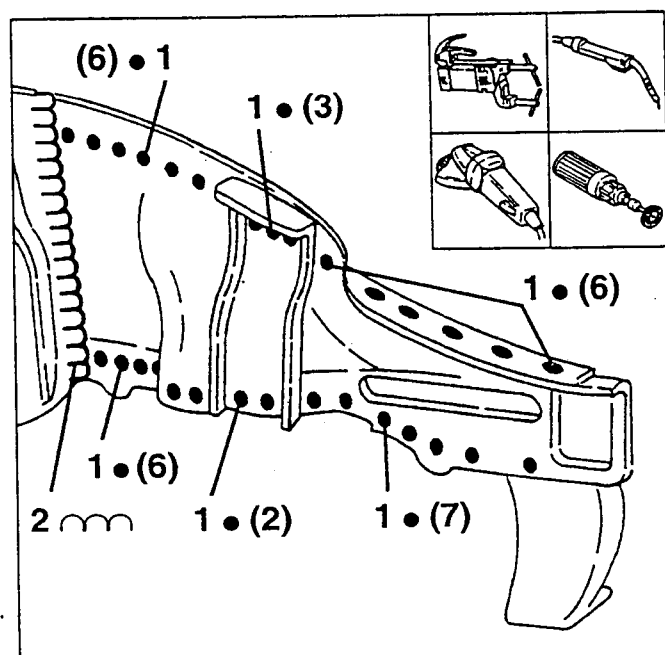
- Remove the outer partial front side panel and if necessary cut the sealant.

PREPARING AND POSITIONING

- Working on a bench use a jig saw to cut the new outer side panel allowing enough material for overlapping.
- Using a rotating brush clean around the edges of the inner and outer side panels on both sides of the sheet metal.
- Apply the specified electroweldable protection product to the areas to be spot-welded.
- 1. Position the outer side panel and overlap as shown in the diagram. Secure it using clamps and mate the edges to be welded.
- 2. Using a circular saw, trim the sheet metal to eliminate the excess parts.

**WELDING AND FINISHING OF THE SHEET METAL**

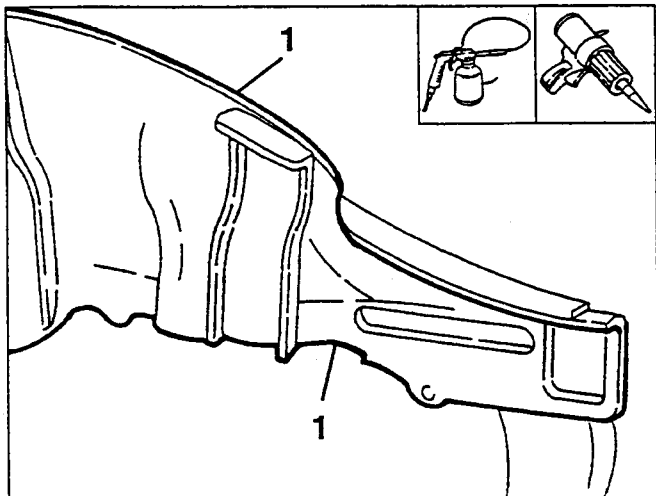
- 1. Using a spot-welder or, where necessary, a MIG welder, proceed as shown in the diagram.
- 2. Using a MIG welder, carry out seam welding.
- Using an abrasive grinding machine, remove and flush the residues left after welding.
- Using a rotating brush, clean the welded areas.



PROTECTION

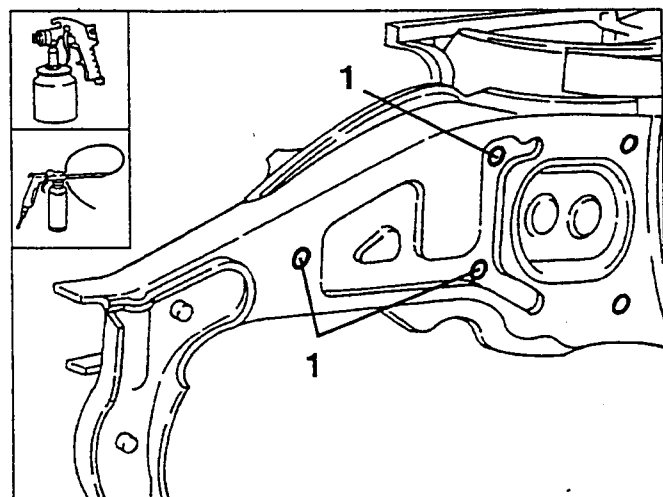
- Apply the specified corrosion inhibitor to the areas to be welded MIG.

1. Apply the specified sealant along the lines highlighted in the diagram.



- Proceed to the painting phase.

1. Centre the boxed parts through the holes shown in the diagram.



FRONT SIDE PANEL - INTERNAL AND EXTERNAL PARTIAL (Turbodiesel version)

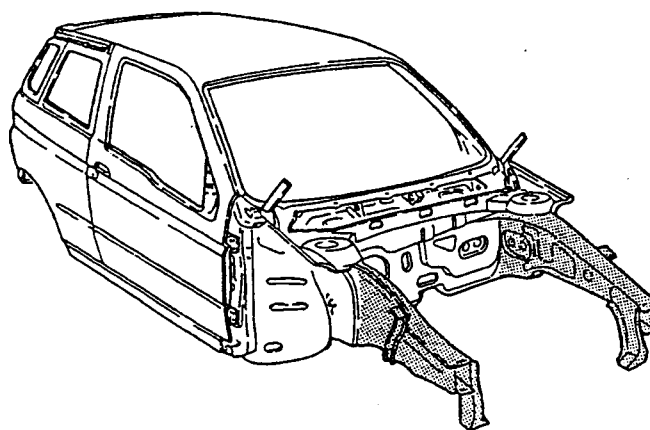
PRELIMINARY OPERATIONS

- Disconnect the negative (-) cable from the battery and remove the control units.

- Remove the trim components, electrical and mechanical systems which could hinder the repair operations or get damaged during work (see specific paragraphs).

- Remove the following sheet metal parts:

- front wing of relative side (see specific paragraph).
- front cross-member if necessary (see specific paragraph).
- upper panel on relative side (see specific paragraph).
- side shelf on relative side (see specific paragraph).

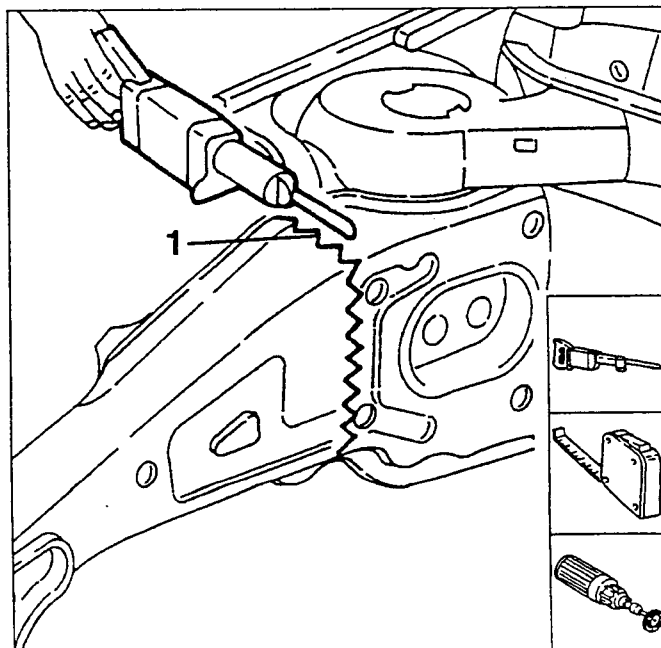
REMOVAL

1. Using a jig saw cut the inner and outer front side panels along the line shown in the diagram.

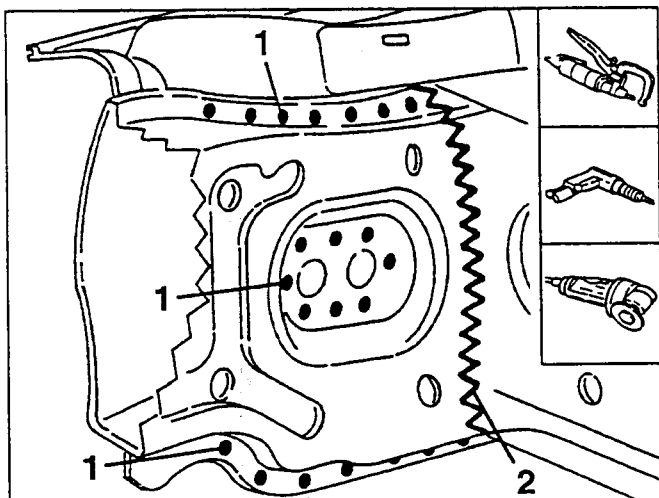
NOTE:

The cut on the side panel must be approx. 50mm from the front suspension attachment pillar.

- Using a rotating brush, clean the areas to be spot-cut to show up the welding points.

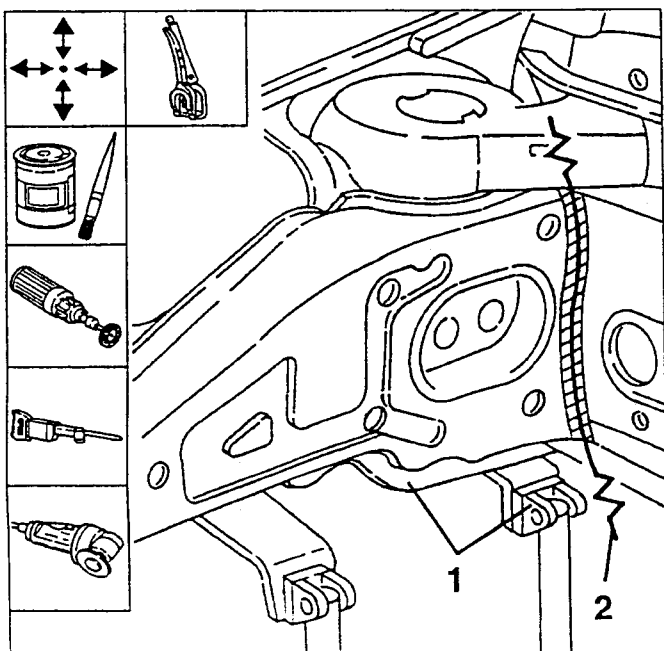


1. Using a spot cutter remove the accessible welds. Remove the remaining welds using a drill.
2. Using a circular saw, cut the inner side panel along the line shown in the diagram without damaging the underlying parts.



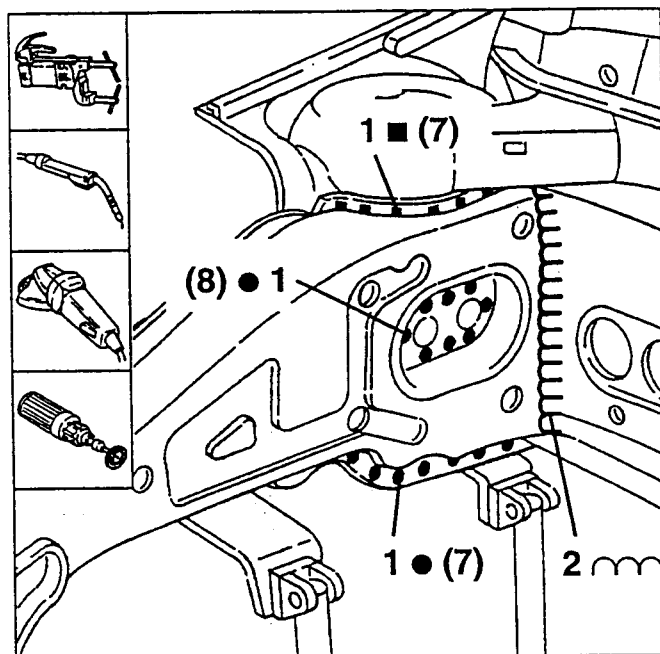
PREPARING AND POSITIONING

- Working on a bench use a jig saw to cut the new inner side panel allowing enough material for overlapping.
 - Using a rotating brush clean around the edges of the inner and outer side panels on both sides of the sheet metal.
 - Apply the specified electroweldable protection product to the areas to be spot-welded.
1. Using a jig correctly position the partial inner side panel and overlap as shown in the diagram; secure it with clamps and mate the edges to be welded.
 2. Using a circular saw, trim the sheet metal to eliminate the excess parts.



WELDING AND FINISHING OF THE SHEET METAL

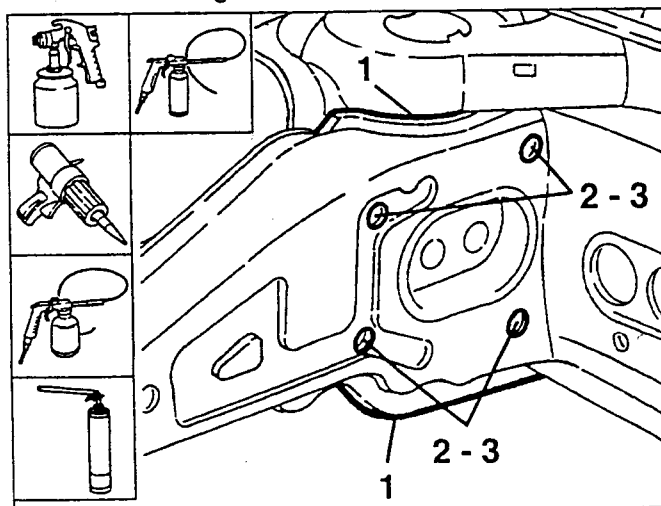
1. Using a spot-welder or, where necessary, a MIG welder, proceed as shown in the diagram.
 2. Using a MIG welder, carry out seam welding.
- Using an abrasive grinding machine, remove and flush the residues left after welding.
 - Using a rotating brush, clean the welded areas.



- Mount the partial outer side panel (see specific paragraph)

PROTECTION

- Apply the specified corrosion inhibitor to the areas to be welded MIG.
1. Apply the specified sealant along the join with the side panel.
- Proceed to the painting phase.
2. Centre the boxed parts through the holes shown in the diagram.
 3. Foam treat the boxed parts through the holes shown in the diagram.

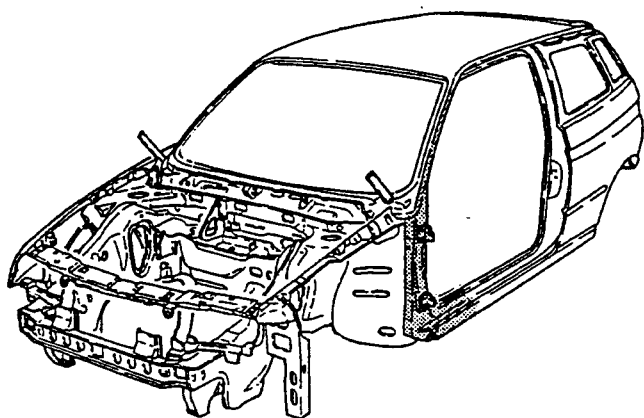


FRONT PILLAR

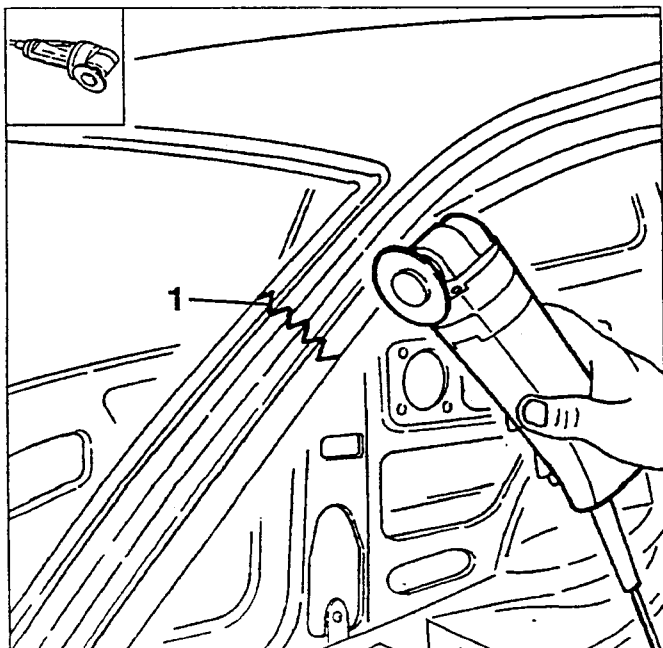
PRELIMINARY OPERATIONS

- Disconnect the negative (-) cable from the battery and remove the control units.
- Remove the trim components, electrical and mechanical systems which could hinder the repair operations or get damaged during work (see specific paragraphs).
- Remove the following sheet metal parts:
 - bonnet (see specific paragraph).
 - door on affected side (see specific paragraph).
 - front wing on affected side (see specific paragraph).

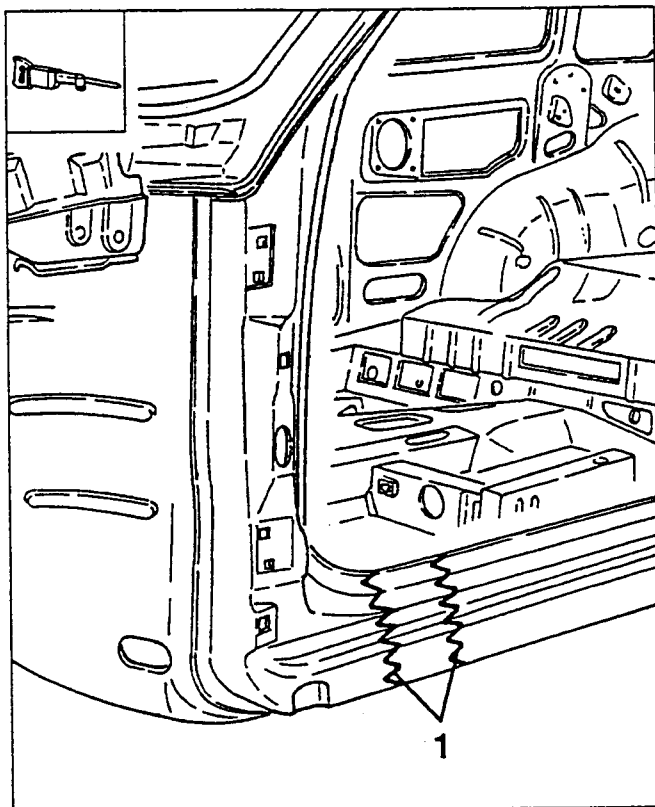
REMOVAL



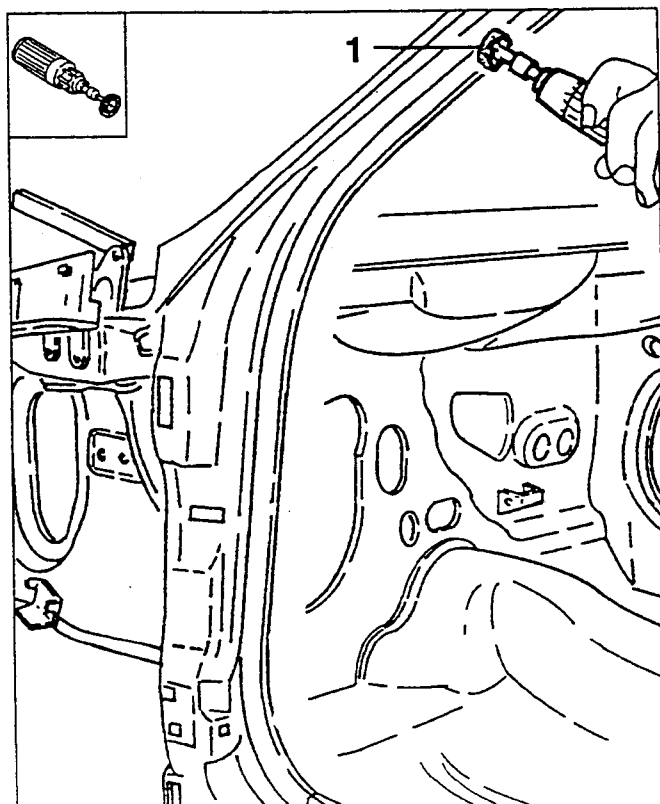
1. Using a circular saw, cut following the lines shown in the diagram, without damaging the underlying parts.



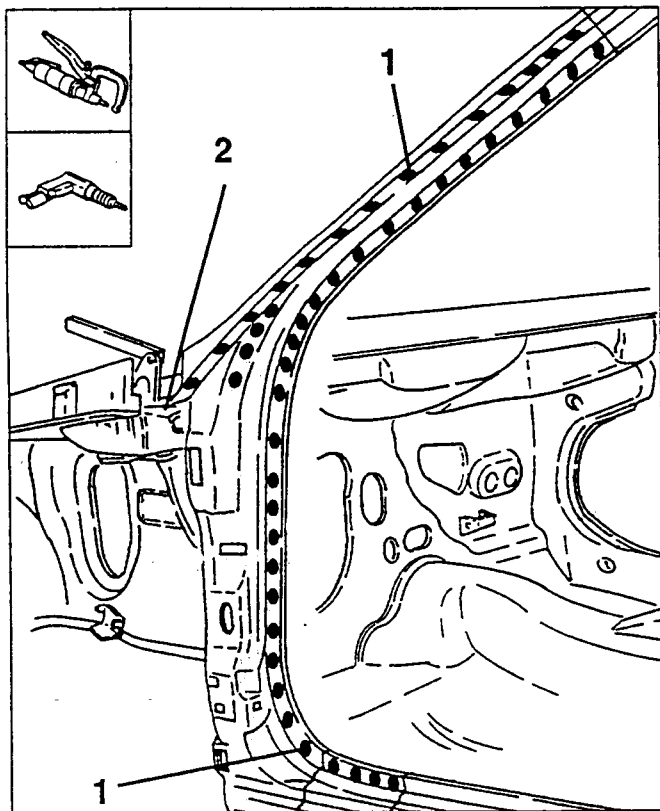
1. Using a jig saw, cut following the lines shown in the diagram, without damaging the underlying parts.



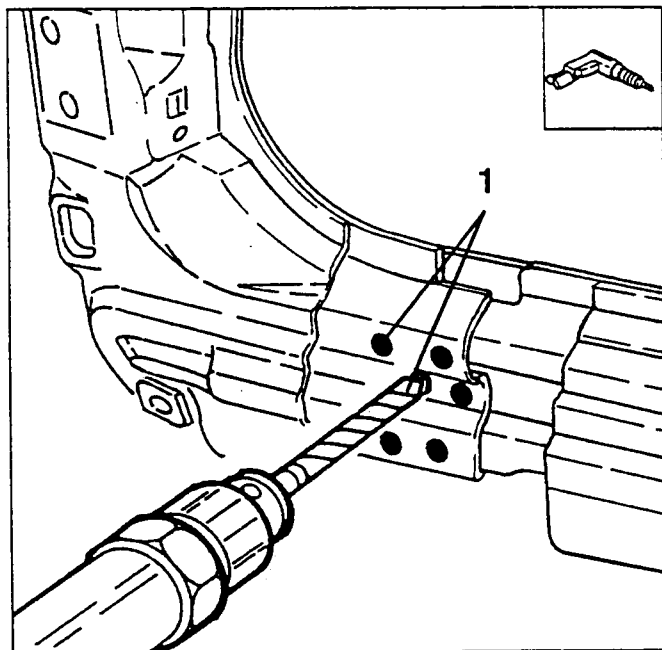
1. Using a rotating brush, clean the areas to be spot-cut to show up the welding points.



1. Using a chamfering machine, remove the accessible welding points, remove the remaining welding points using a drill.
2. Open the clinch tabs.

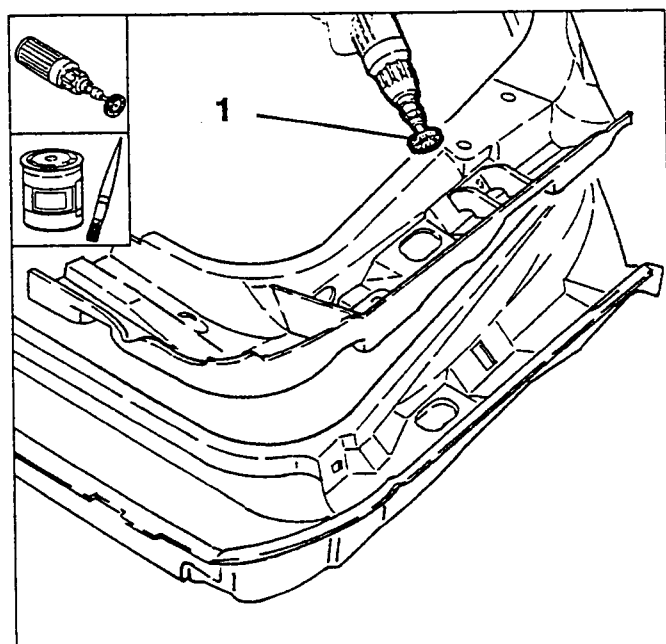


1. Using a drill, remove the welding points.
- Remove the front pillar complete with frame cutting the sealant if necessary.



PREPARATION

- Working on a bench prepare for the installation of the front pillar and frame as follows:
 1. Using a rotating brush, clean the areas which are to be welded.
- Apply the specified electroweldable protection product to the areas to be spot-welded.



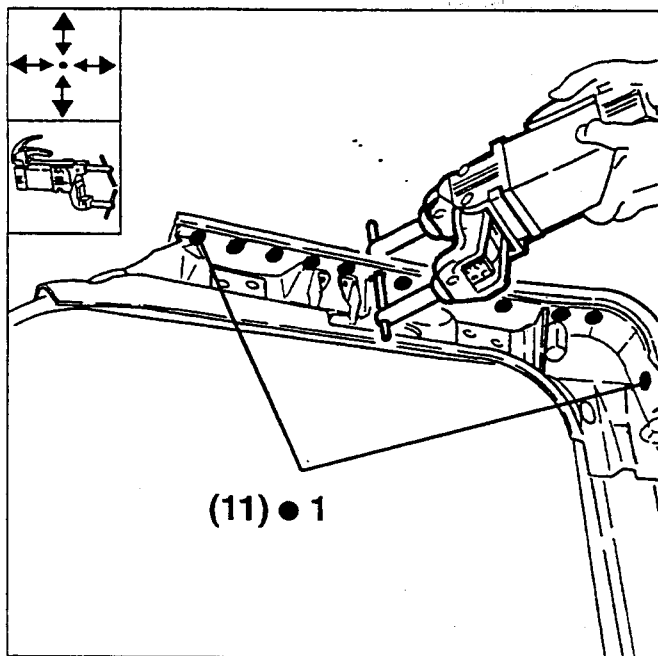
- Remove the plug from the door sill to gain access to the welding points on the front pillar frame.

- Position the frame in on the pillar and lock the components in place.

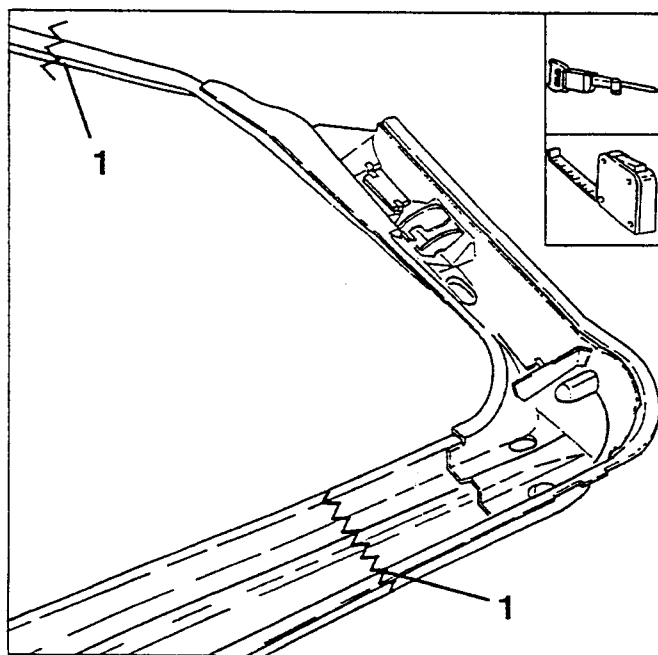
NOTE:

Check centering of the hinge attachment hole to check the position.

1. Using a spot-welder, proceed as shown in the diagram.

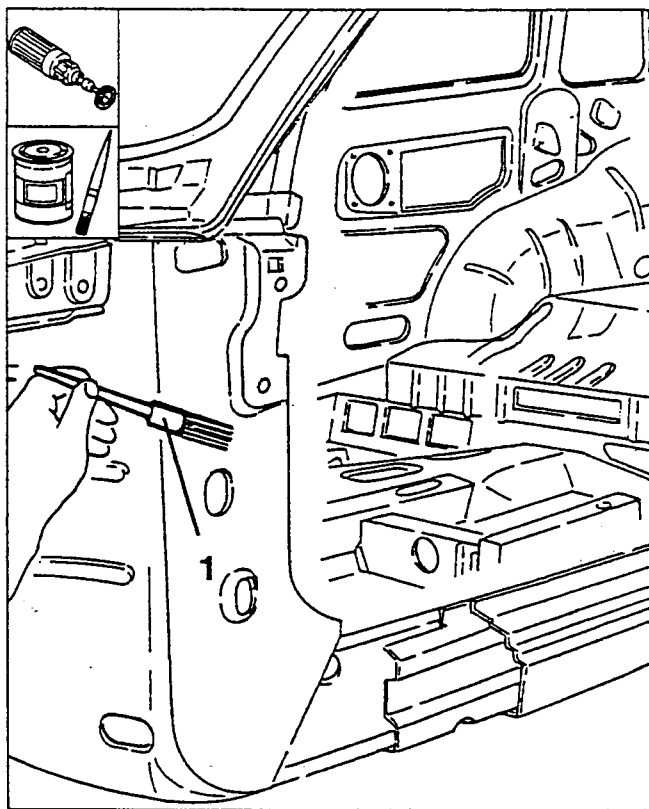


1. Working on a bench cut the new front pillar with a jig saw ensuring that enough margin is left for overlapping.

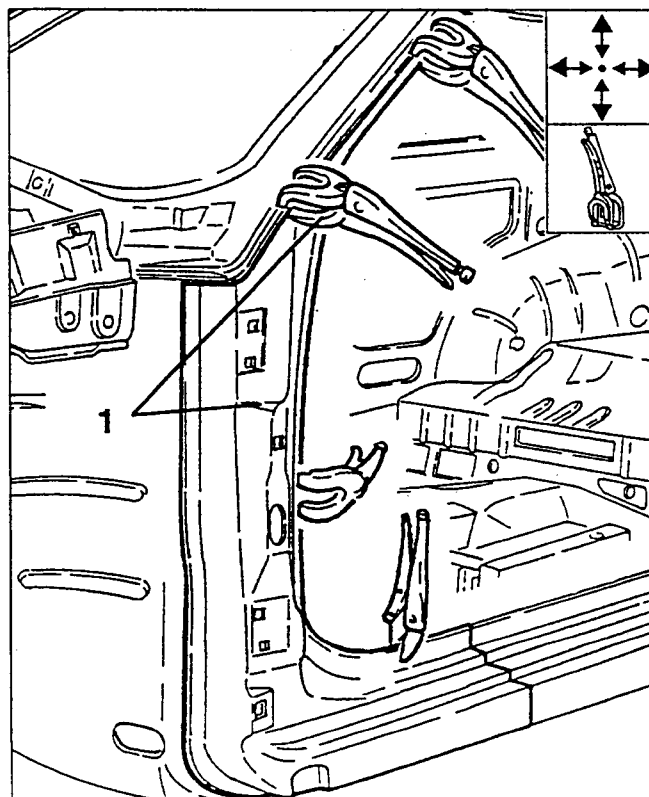


- Using a rotating brush, clean the areas which are to be welded on the vehicle and on the pillar.

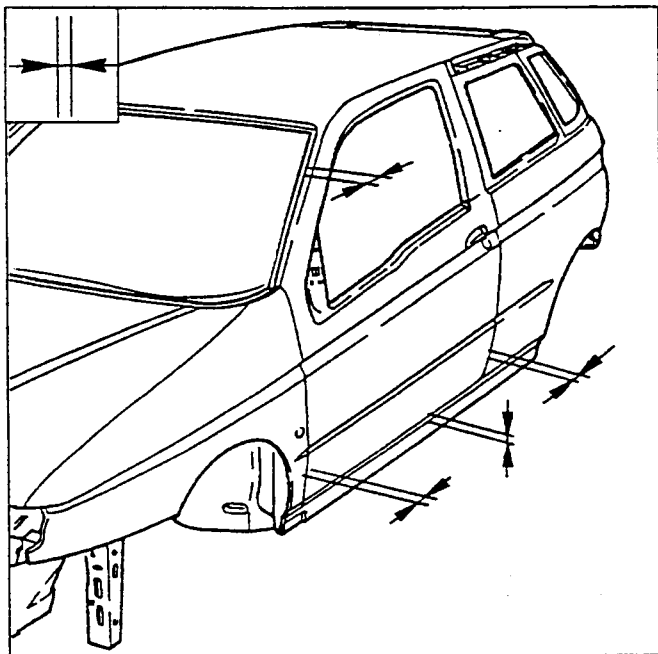
1. Apply the specified electroweldable protection product to the areas to be spot-welded.

**POSITIONING AND INSPECTION**

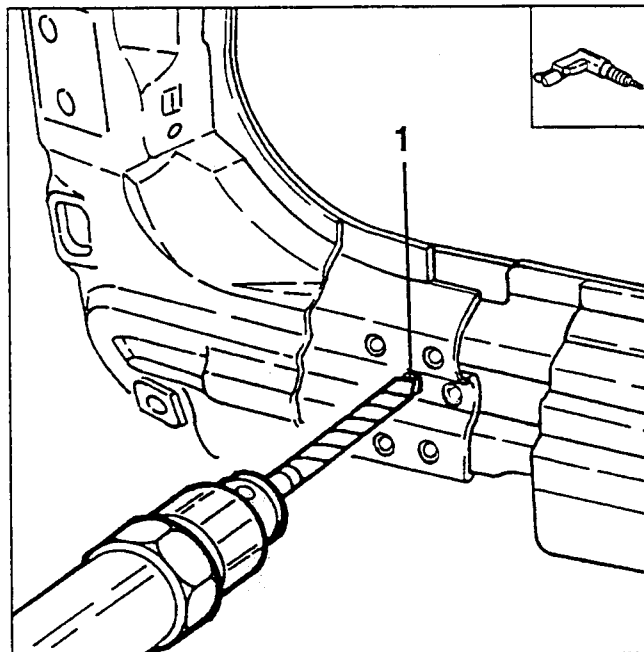
1. Position the front pillar complete with frame joining together the edges to be welded and securing them with clamps.



- Temporarily fix the front pillar with screws and remove the previously installed clamps.
- Check parallelism, gaps and angles and refit the previously removed mobile components with their gaskets together with any parts which, once installed, make it possible to check the successful outcome of the operations.

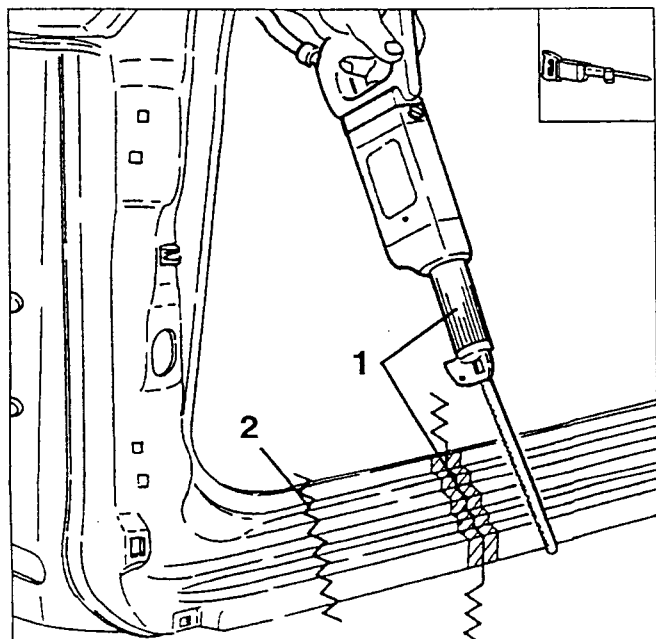


1. Using a drill, perforate with a 5 mm bit on the front pillar frame in order to permit welding.

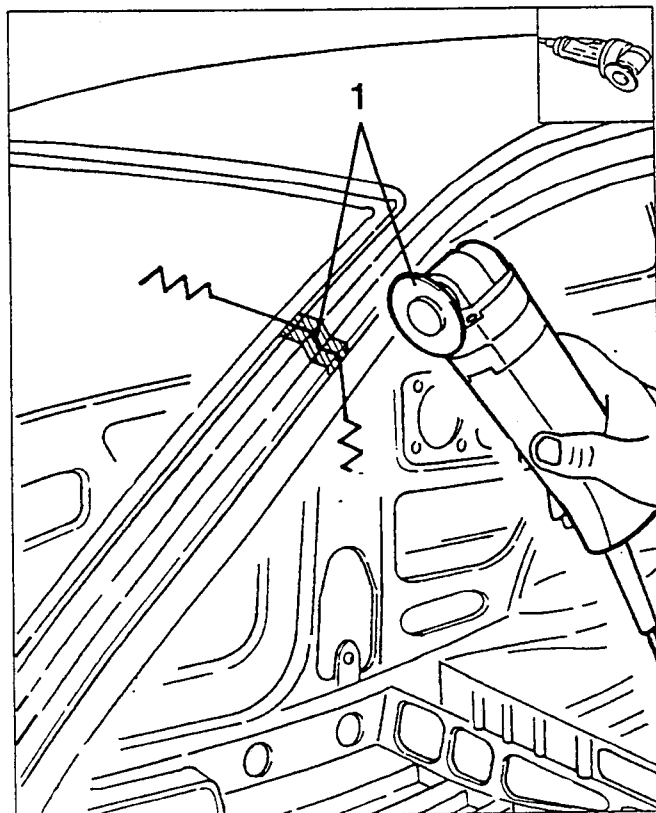


- Remove the components installed previously to check the correct position of the pillar.

1. Using a jig saw, trim the lower sheet metal panels removing the excess parts without damaging the underlying sheeting.
2. Using a jig saw, make another cut as shown in the diagram to create a plug to allow access to the welding on the pillar.

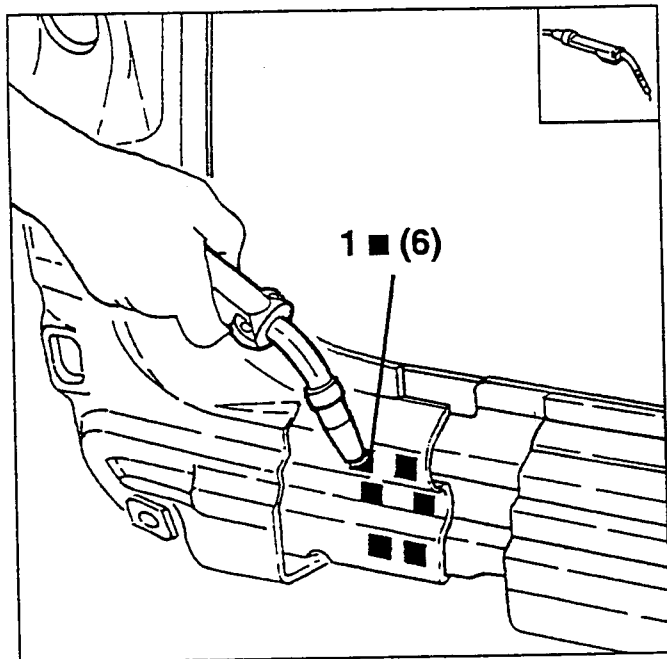


1. Using a circular saw, trim the upper sheet metal panels removing the excess parts without damaging the underlying sheeting.

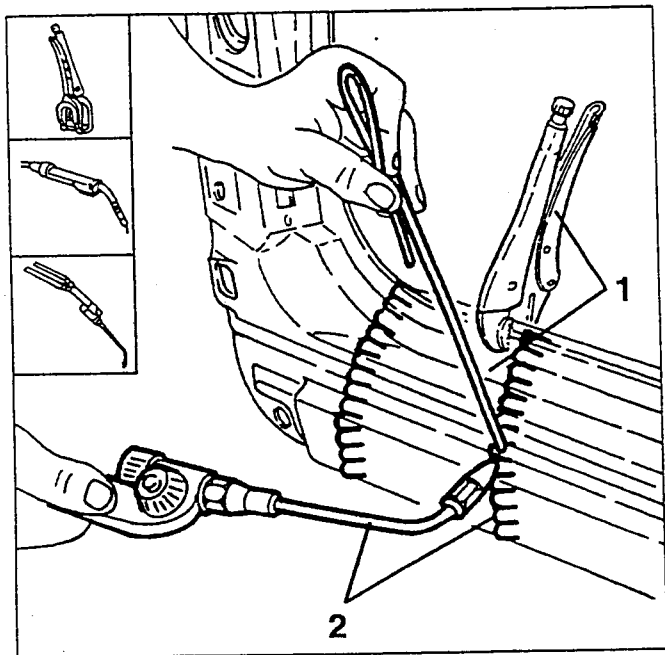


**WELDING AND FINISHING
OF THE SHEET METAL**

1. Using a MIG welder, proceed as shown in the diagram.

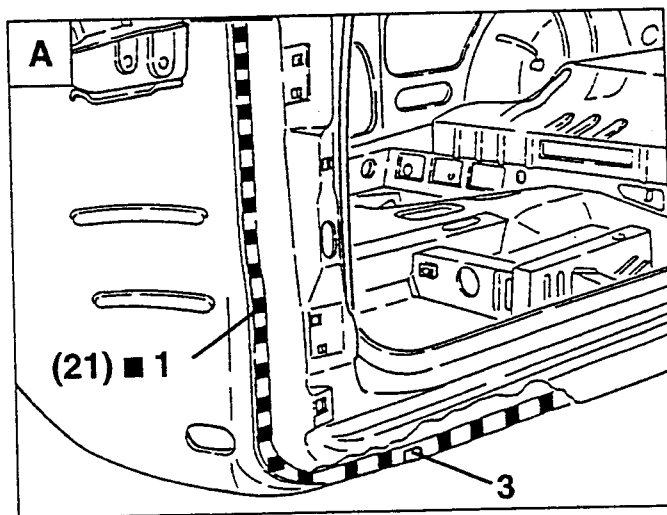
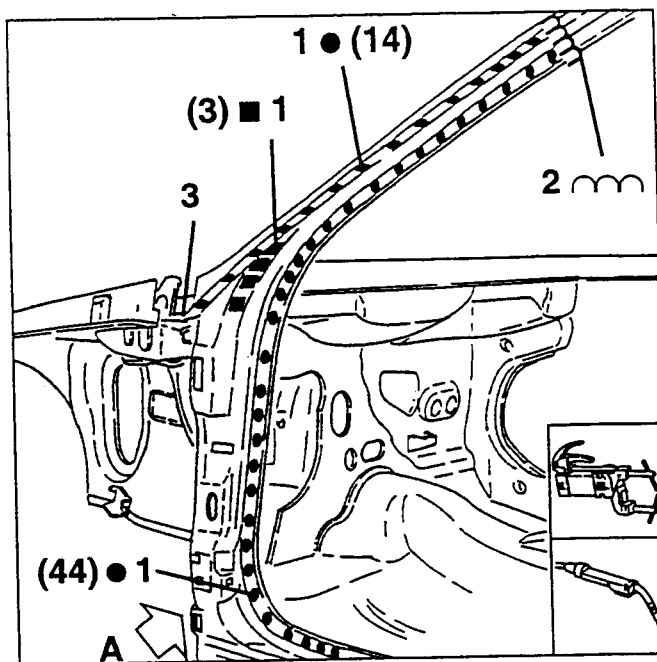


1. Install the previously created plug and fix it in position with clamps.
2. Using a MIG welder or an oxyacetylene torch weld as shown in the diagram.



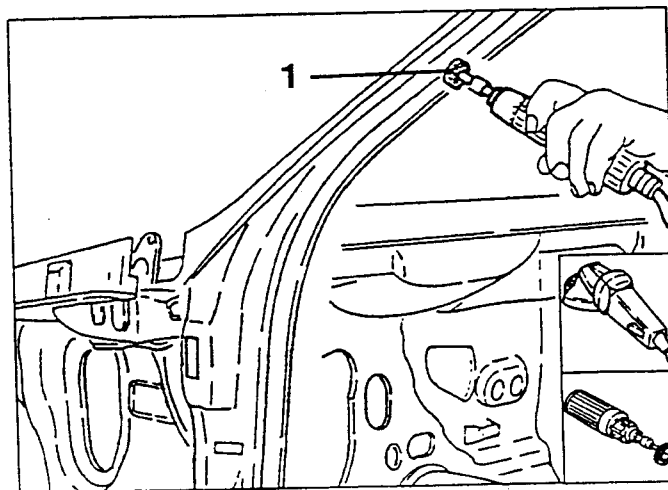
1. Using a spot-welder or, where necessary, a MIG welder, proceed as shown in the diagram.
2. Using a MIG welder, weld a seam.

3. Bend the clinch tabs.



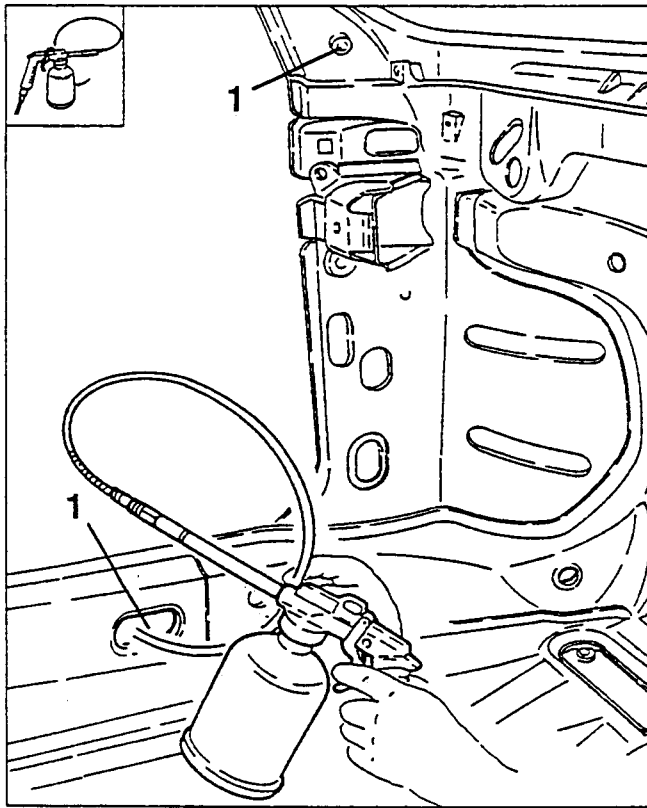
- Using an abrasive grinding machine, remove and flush the residues left after welding.

1. Using a rotating brush, clean the welded areas.



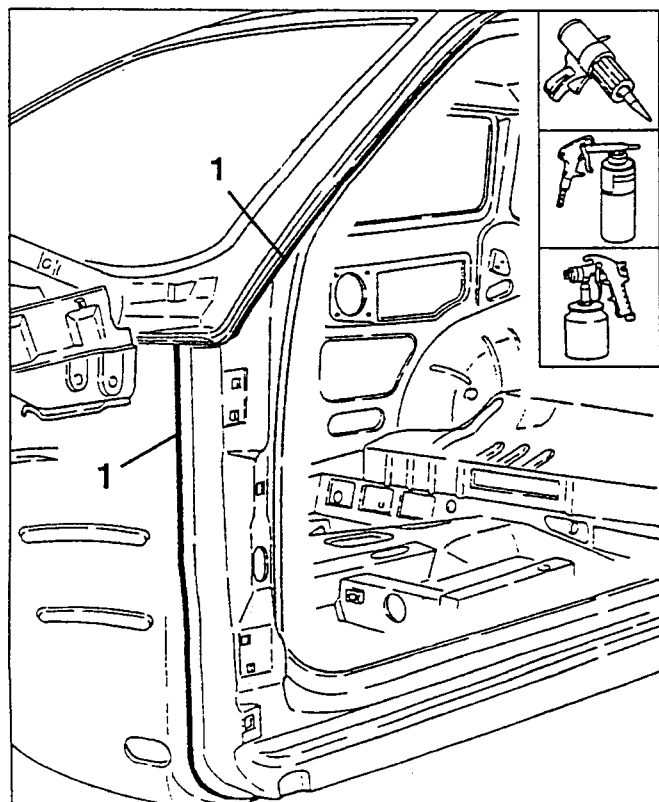
PROTECTION

1. Apply the specified corrosion inhibitor to the areas to be welded MIG, through the holes shown in the diagram.



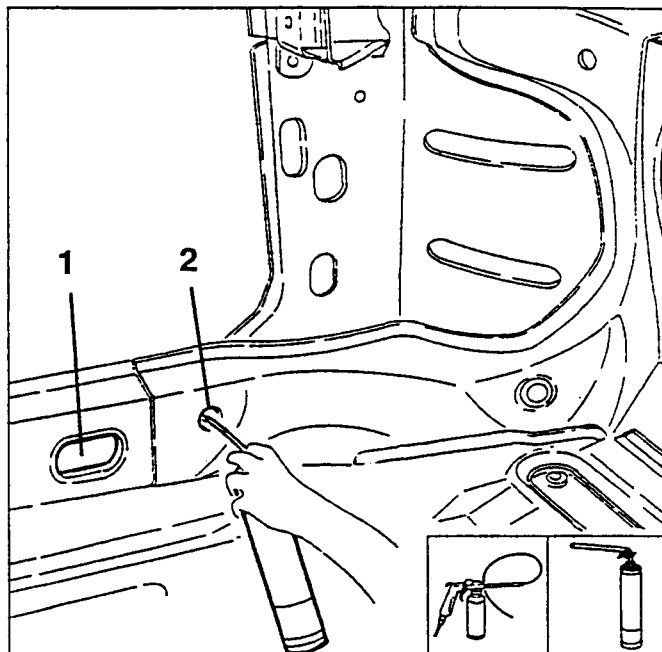
1. Apply the specified sealant along the lines highlighted in the diagram.

- Apply the specified underbody protection to the replaced areas.
- Proceed to the painting phase.

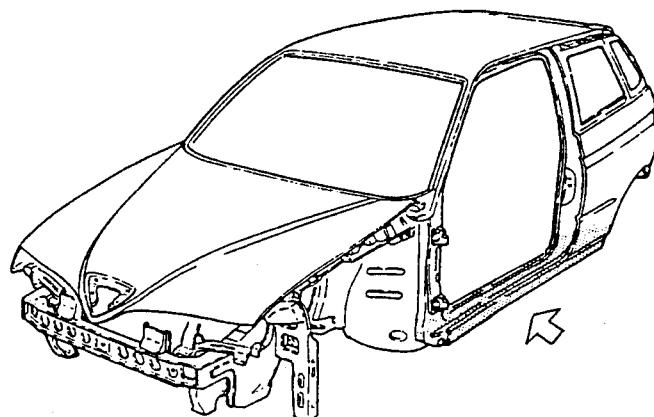


1. Wax treat the boxed parts through the hole shown in the diagram.

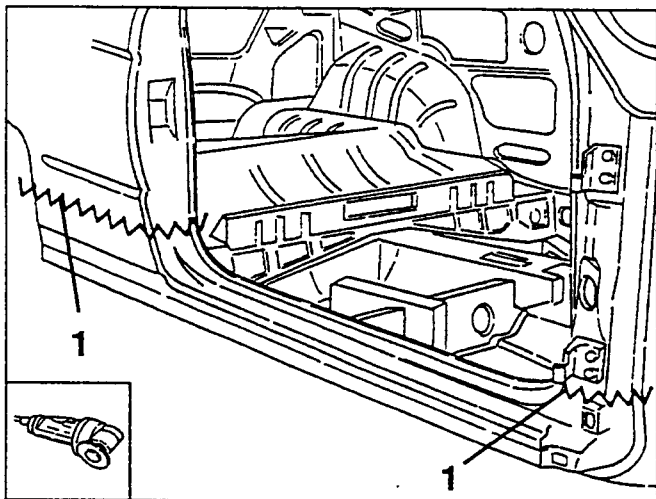
2. Foam treat the boxed parts through the hole shown in the diagram.

**DOOR SILL RAIL****PRELIMINARY OPERATIONS**

- Disconnect the negative (-) cable from the battery and remove the control units.
- Remove the trim components, electrical and mechanical systems which could hinder the repair operations or get damaged during work (see specific paragraph).
- Remove the following sheet metal parts:
 - door on affected side (see specific paragraph).
 - front wing on affected side (see specific paragraph).

REMOVAL

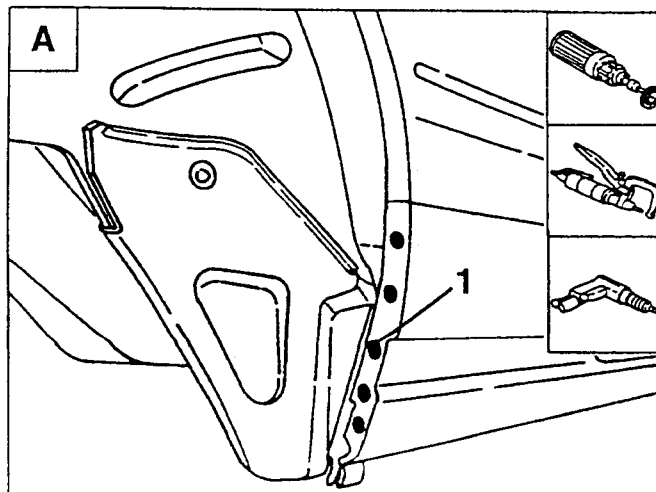
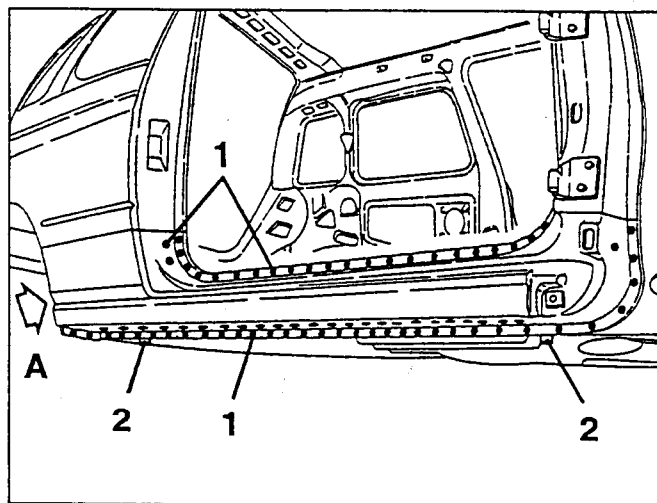
1. Using a circular saw, cut following the lines shown in the diagram, without damaging the underlying areas.



- Using a rotating brush, clean the areas to be spot-cut to show up the welding points.

1. Using a chamfering machine, remove the accessible welding points; remove the remaining welding points using a drill.

2. Open the clinch tabs.

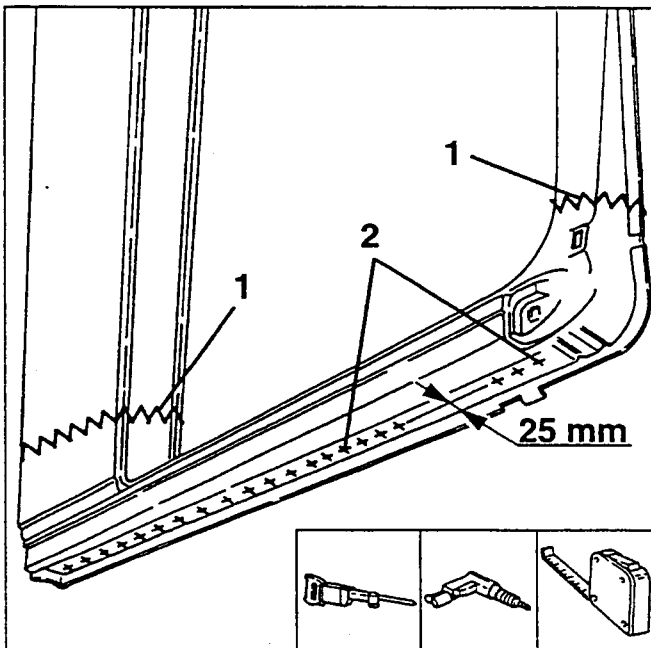


- Remove the door sill rail cutting away the sealant if necessary.

PREPARATION

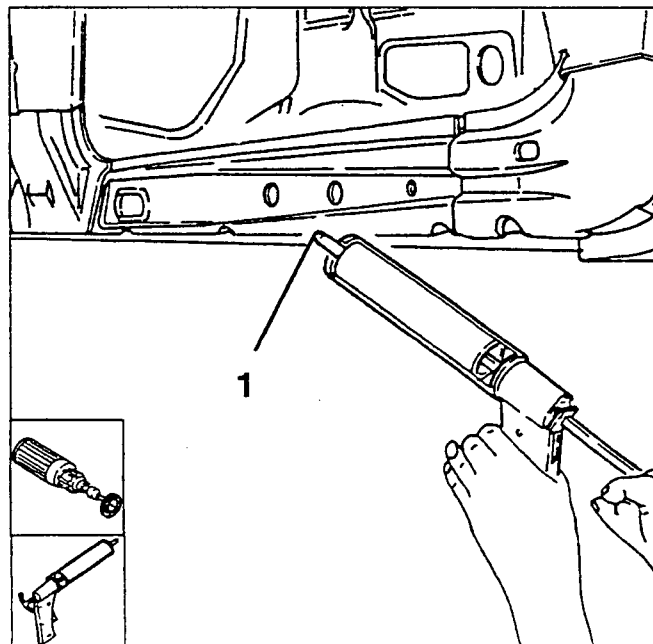
1. Working on a bench with a jig saw cut the new door sill rail allowing enough or overlapping.

2. Trace out the rail and drill with a 5 mm bit as shown in the diagram.

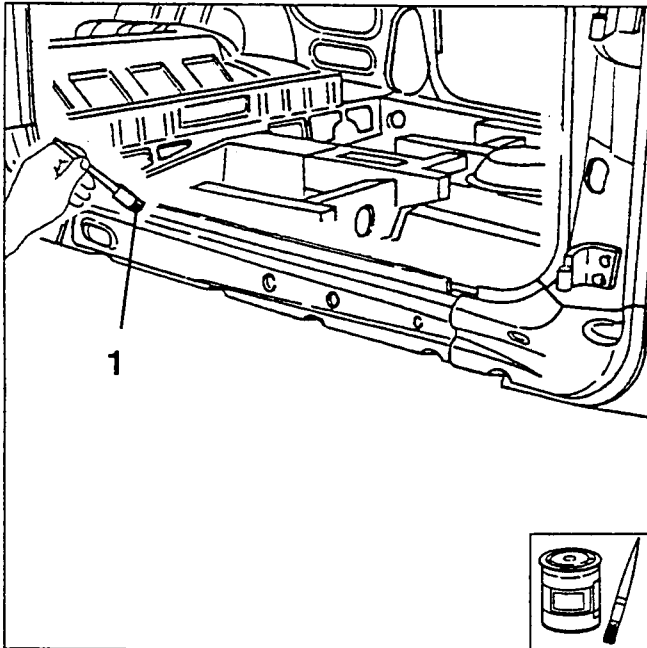


- Using a rotating brush, clean the areas which are to be welded.

1. Apply a thick layer of electroweldable protection to the lower part of the door sill rail and in the rear wheel housing.

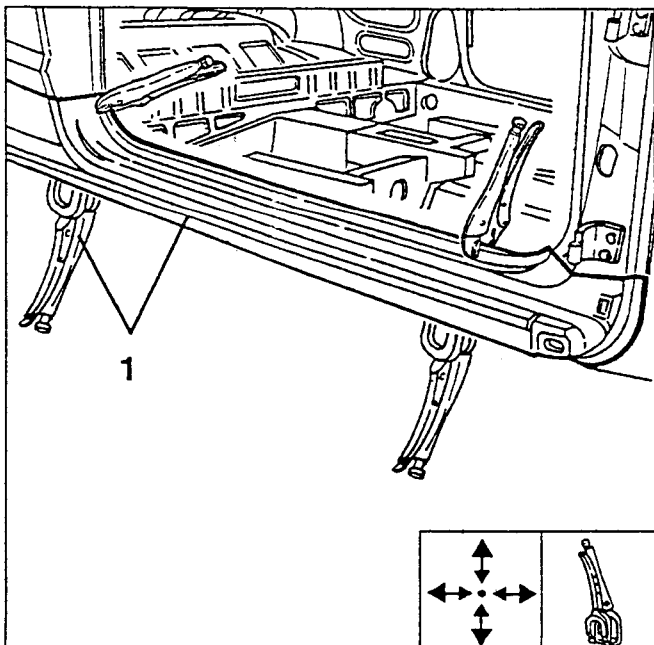


1. Apply electroweldable protection with a brush to the remaining areas to be spot welded.



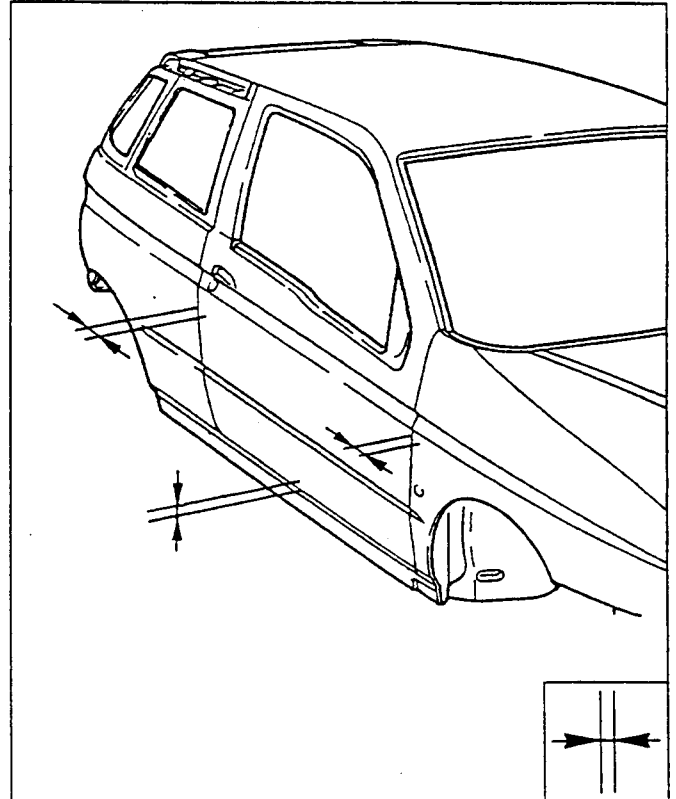
POSITIONING AND INSPECTION

1. Position the door sill rail joining together the edges to be welded and securing them with clamps.



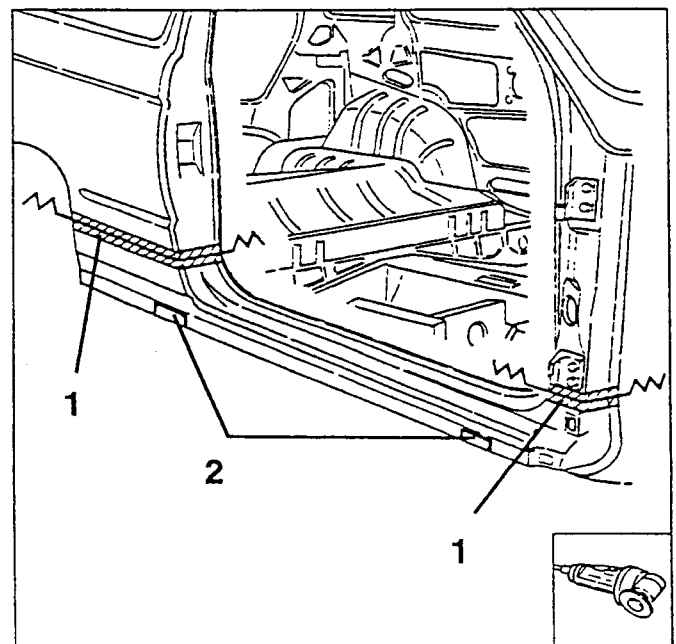
- Temporarily fix the door sill rail with screws and then remove the previously fitted clamps.

- Check parallelism, gaps and angles and refit the previously removed mobile components with their gaskets together with any parts which, once installed, make it possible to check the successful outcome of the operations.



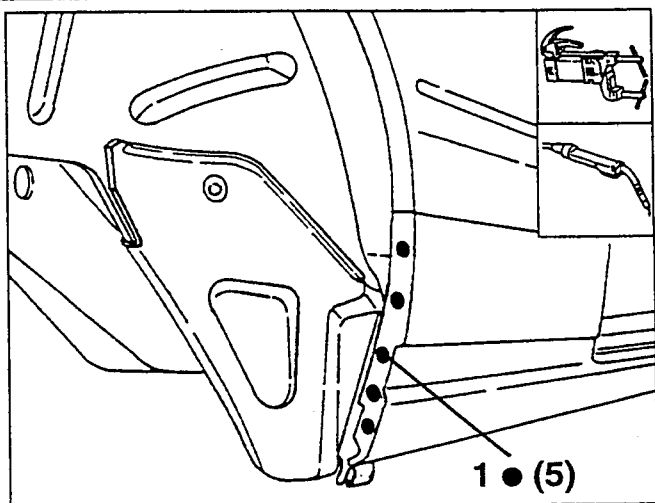
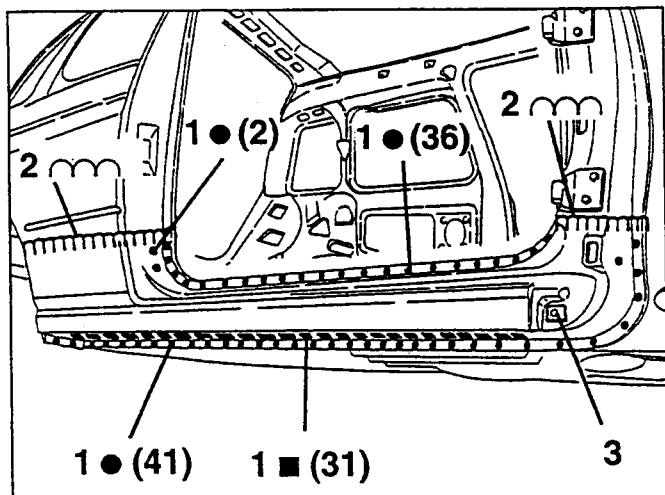
- Remove the components installed to check the correct position of the door sill rail.

1. Using a circular saw, trim the sheet metal and remove the excess parts without damaging the underlying parts.
2. Bend the clinch tabs.

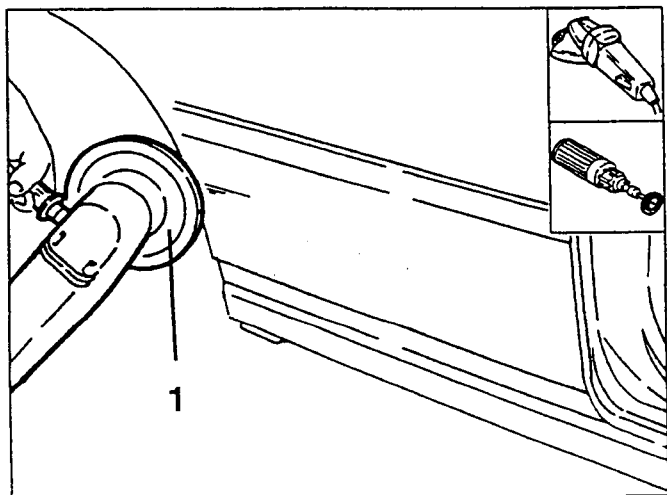


**WELDING AND FINISHING
OF THE SHEET METAL**

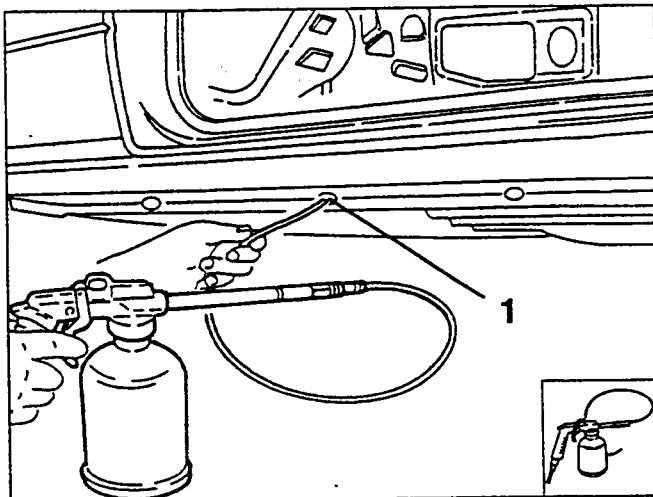
1. Using a spot-welder or, where necessary, a MIG welder, proceed as shown in the diagram.
2. Using a MIG welder, seam weld as shown in the diagram
3. Install the block securing the wing.



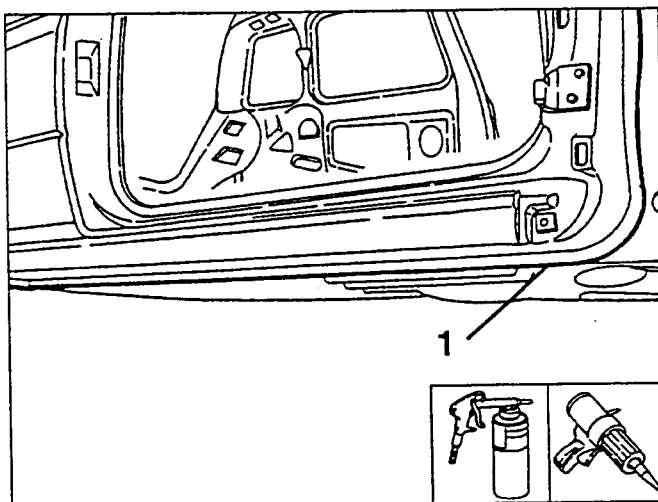
1. Using an abrasive grinding machine, remove and flush the residues left after welding.
- Using a rotating brush, clean the welded areas.

**PROTECTION**

1. Apply the specified corrosion inhibitor to the areas to be welded MIG.

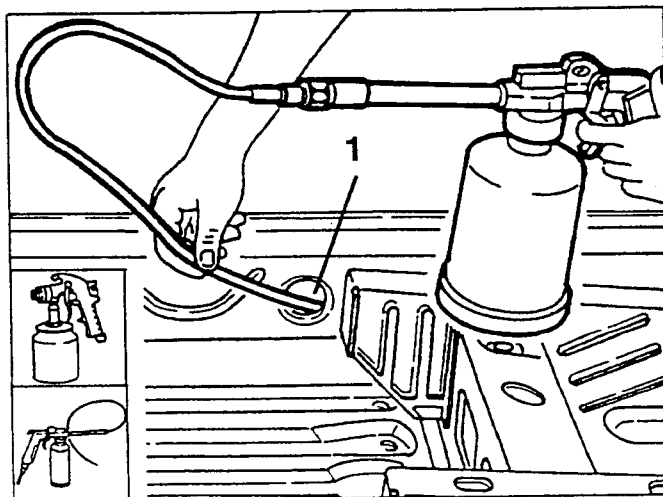


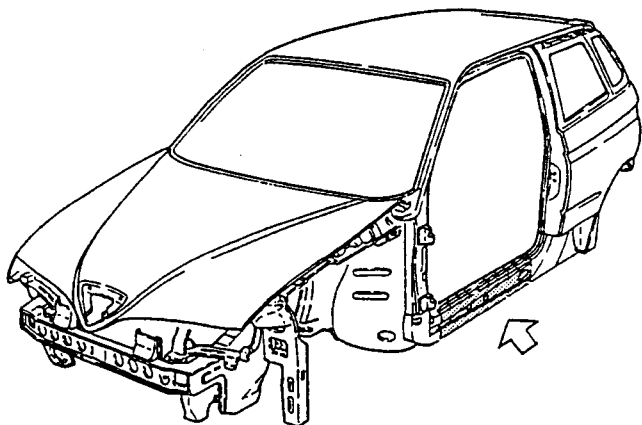
1. Apply the specified sealant along the lines highlighted in the diagram.
- Apply the specified underbody protection to the replaced areas.



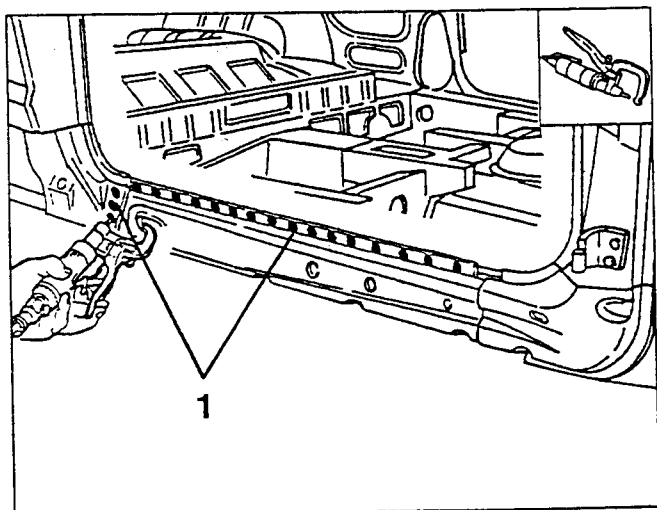
- Proceed to the painting phase.

1. Wax treat the boxed parts through the hole shown in the diagram.

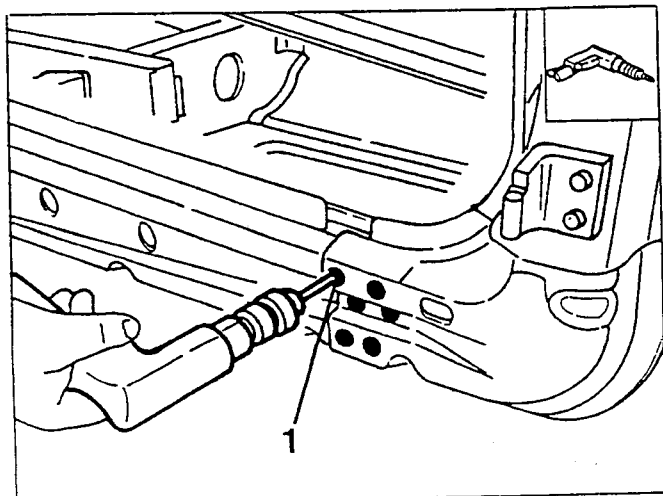


**DOOR SILL FRAME
(WITH DOOR SILL REINFORCING
REMOVED)****REMOVAL**

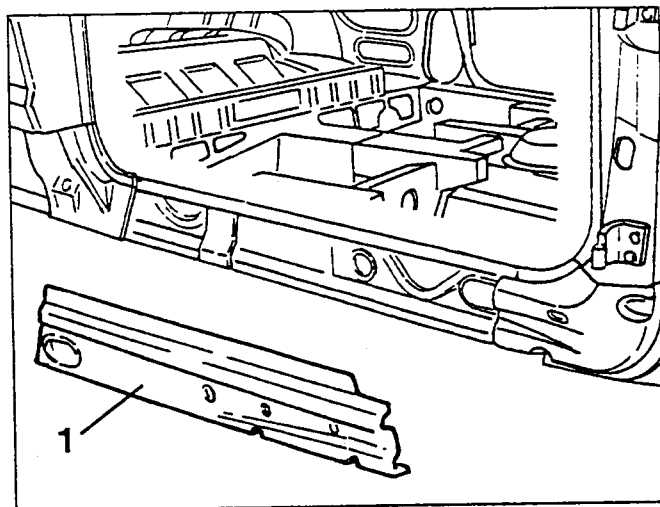
1. Using a spot cutter, remove the welding points shown in the diagram.



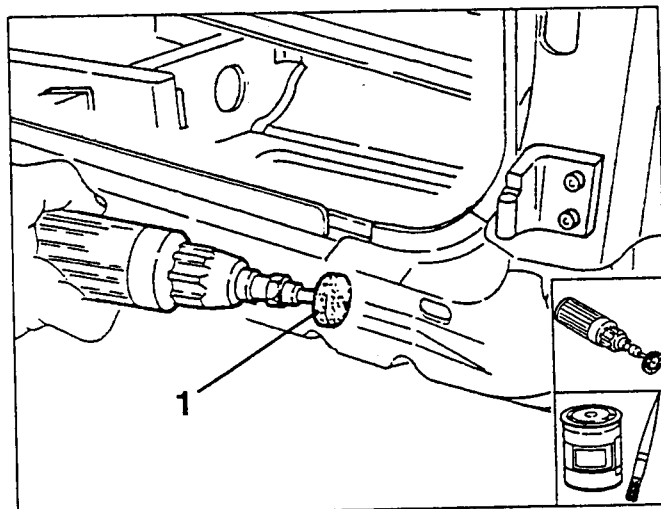
1. Using a drill, remove the welding points shown in the diagram.



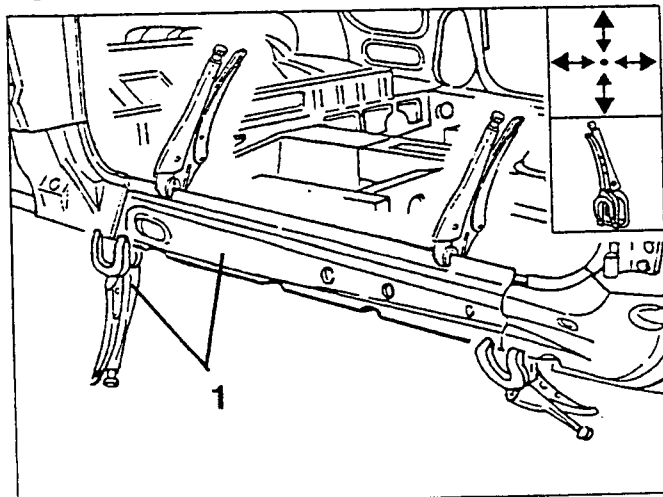
1. Remove the door sill frame.

**PREPARATION**

1. Using a rotating brush, clean the area to be welded.
- Apply the specified electroweldable protection to the areas to be spot welded.

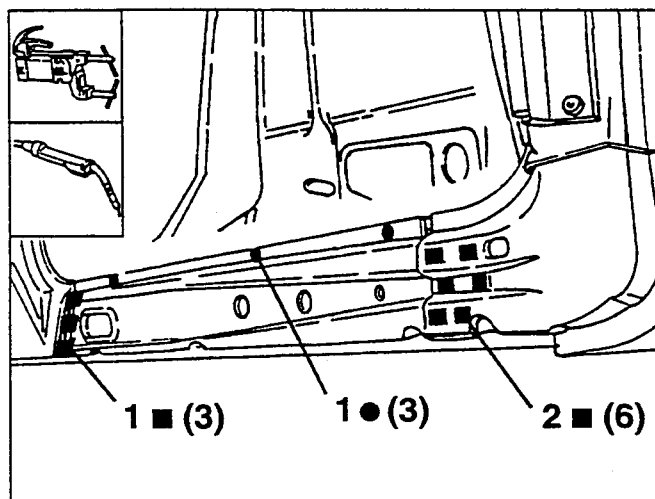
**POSITIONING**

1. Position the door sill frame and join the edges together and secure with clamps.



**WELDING AND FINISHING
THE SHEET METAL**

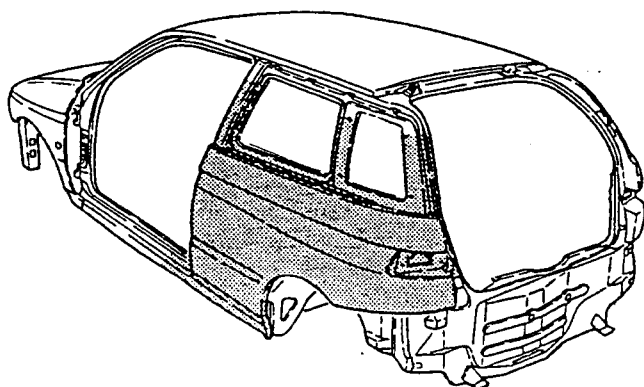
1. Using a spot welder, tack the door sill frame as shown in the diagram.
2. Using a MIG welder, proceed as shown in the diagram.



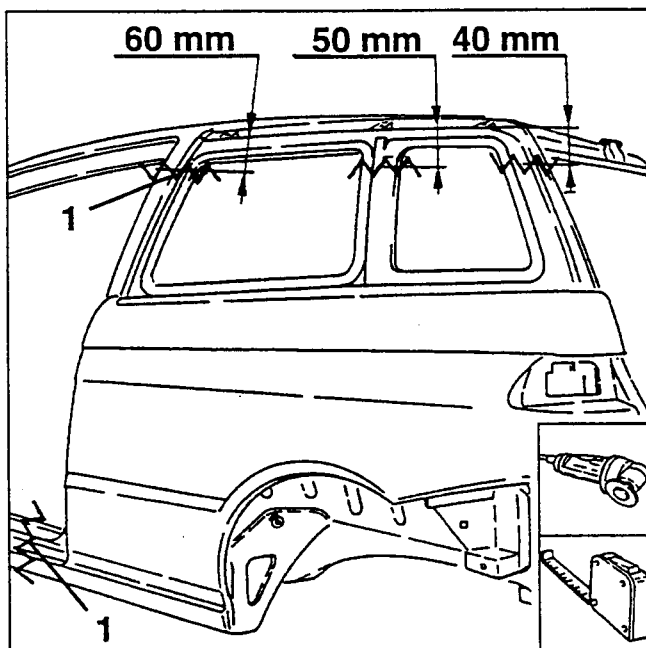
- Refit the reinforcing of the door sill proceeding as described in the relative paragraph.

REAR WING**PRELIMINARY OPERATIONS**

- Disconnect the negative (-) cable from the battery and remove the electronic control units.
- Remove the trim components, electrical and mechanical system which could hinder the repair operations or get damaged during work (see specific paragraphs)
- Remove the following sheet metal parts:
 - door on affected side (see specific paragraph).
 - front wing on affected side (see specific paragraph).

REMOVAL

1. Using a circular saw, cut following the lines indicated in the diagram, without damaging the underlying components.

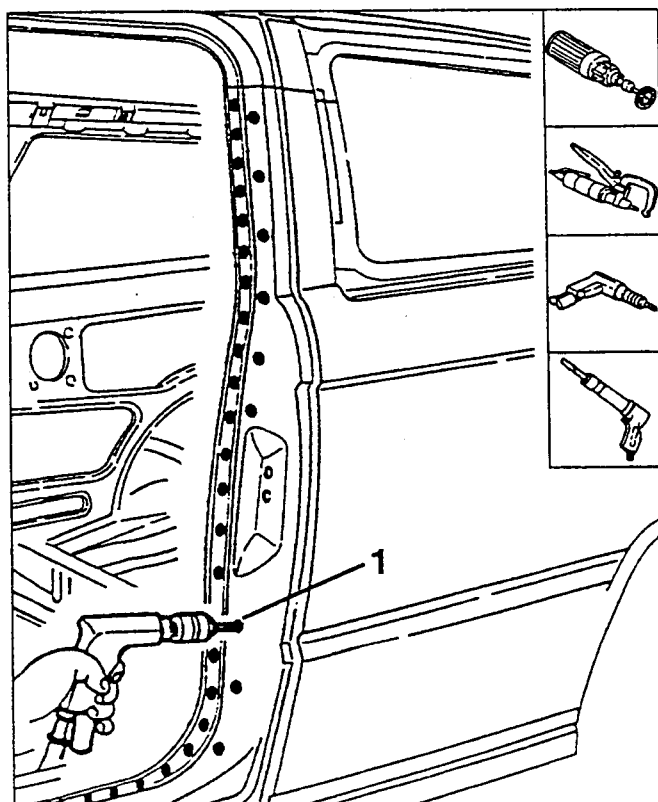


- Using a rotating brush, clean the areas to be spot-cut to highlight the welding points.

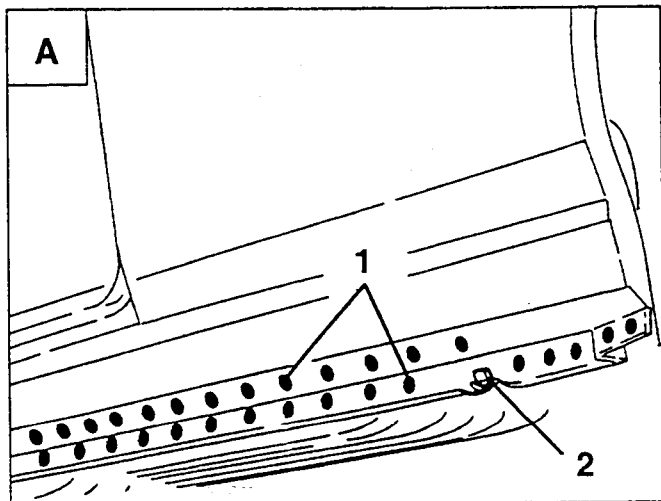
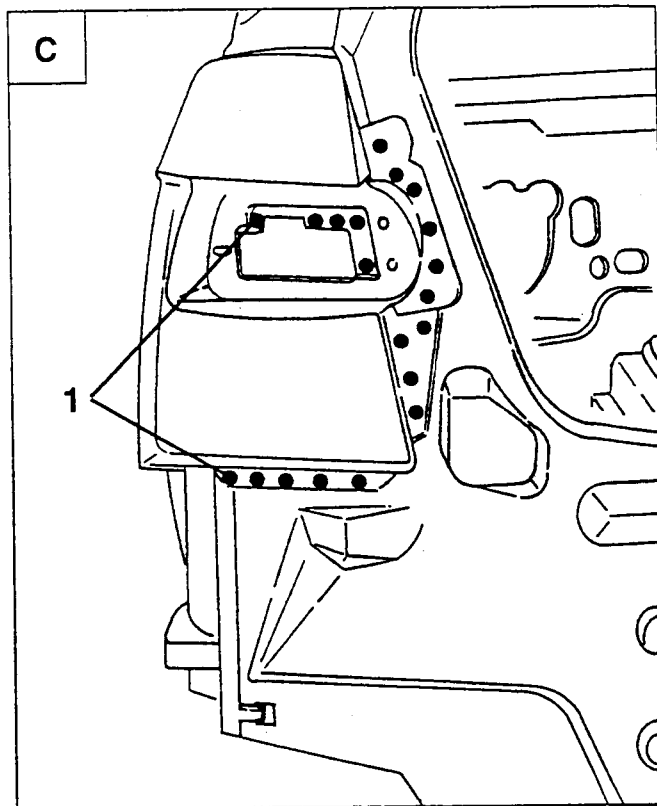
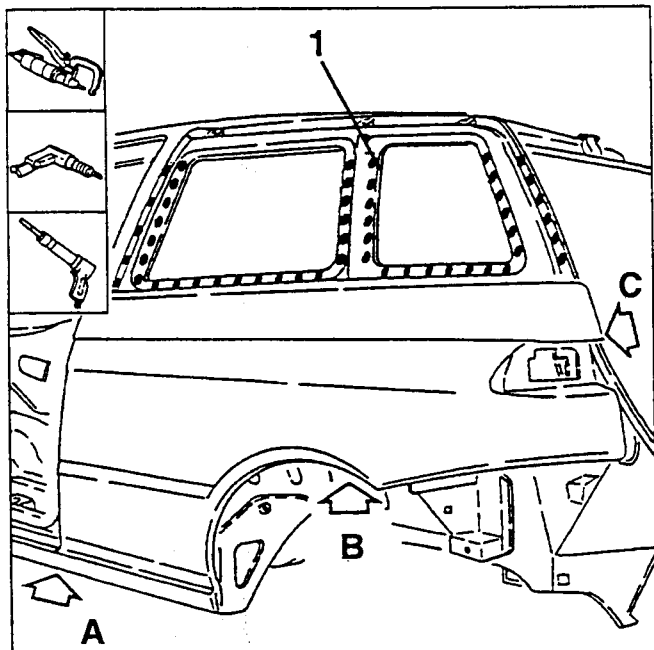
1. Using a spot cutter, remove the accessible welding points; remove the remaining welding points using a drill or a chisel.

NOTE:

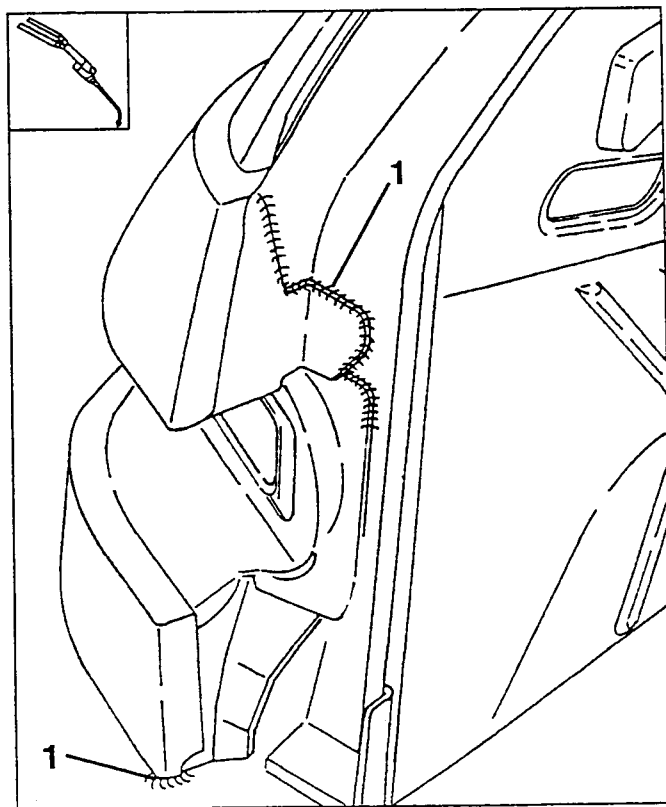
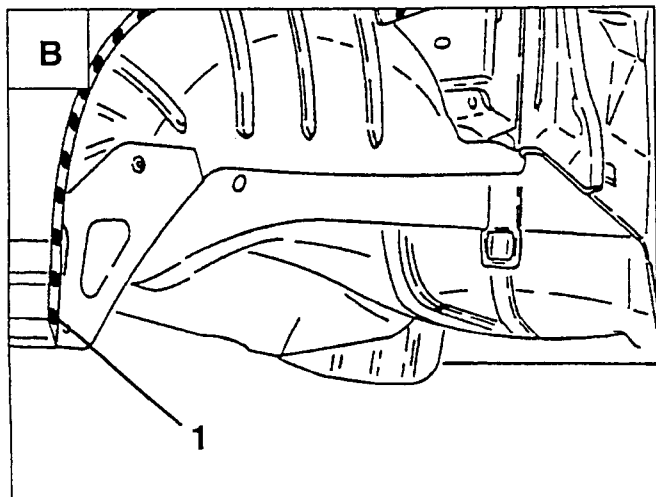
If necessary free the sheet metal to facilitate the spot cutting operations



1. Using a spot cutter, remove the accessible welding points; remove the remaining points using a drill or a chisel.
2. Open the clinch tabs.

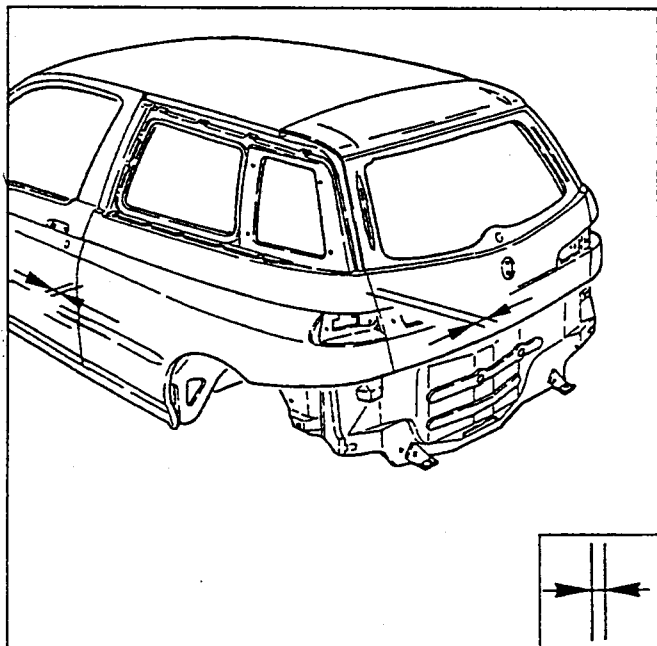


1. Using an oxyacetylene torch, unweld and remove the rear areas of the wing.

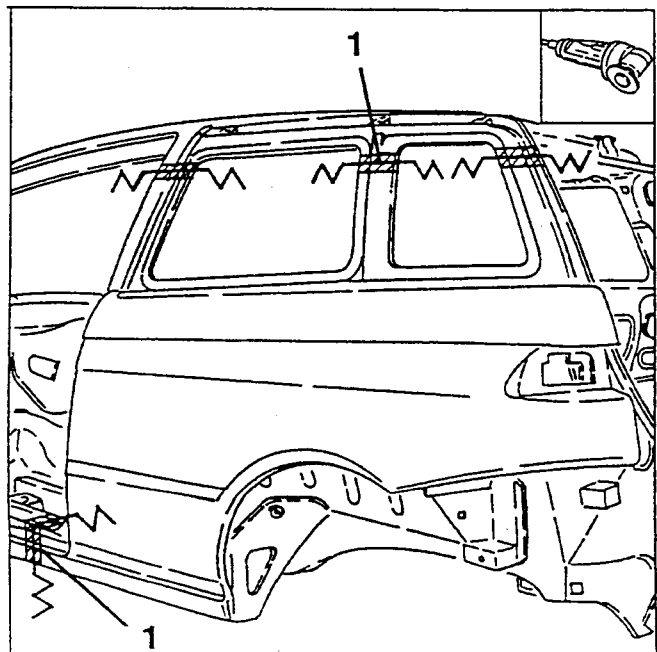


PREPARATION AND INSPECTION

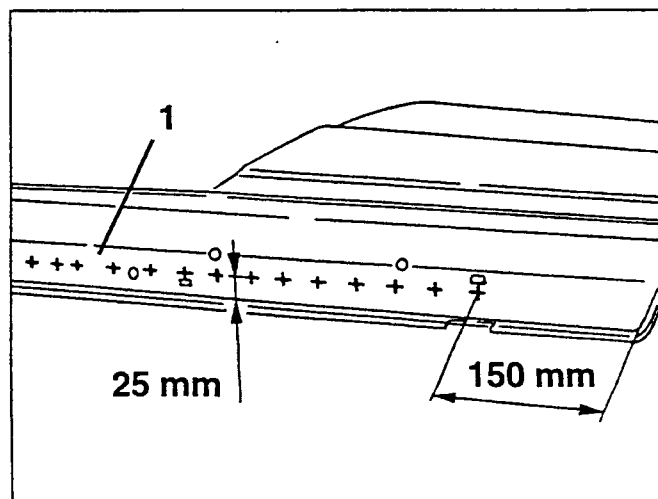
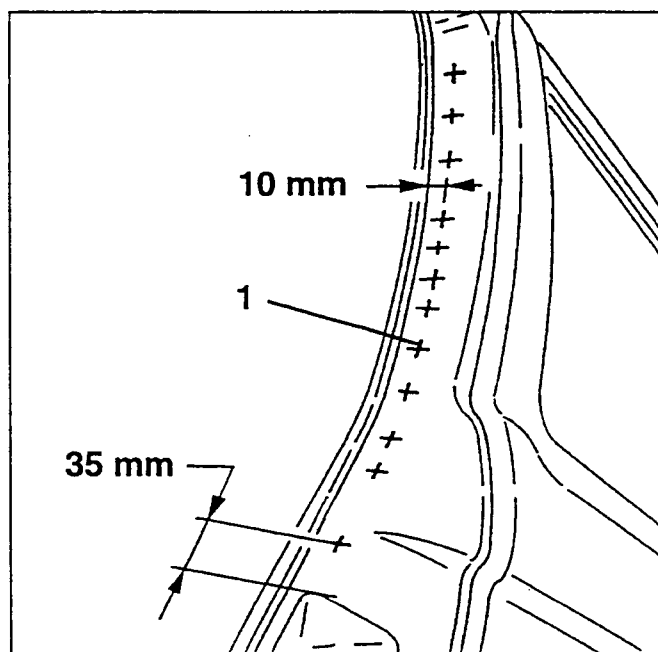
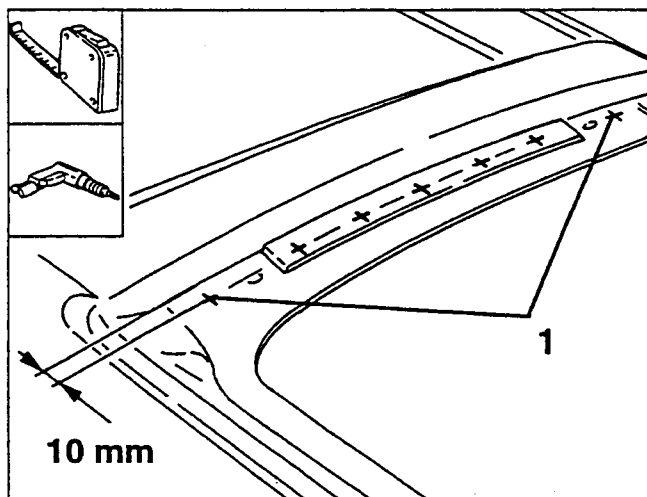
- Working on a bench with a jig saw cut the new rear wing, remembering to leave enough margin for overlapping.
- Temporarily install the rear wing.
- Check parallelism, gaps and angles and refit the mobile components removed previously with their gaskets and the parts which, when fitted, permit verification of the success of the operations.

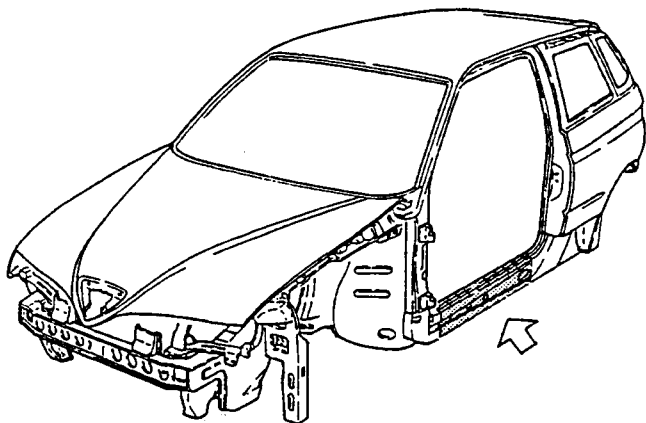


- Remove the components installed to check the correct positioning of the rear wing.
1. Using a circular saw, trim the excess sheet metal parts without damaging the underlying components.

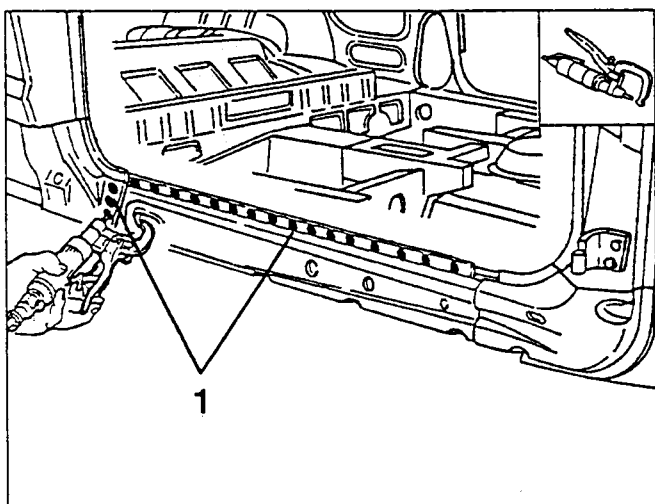


1. Remove the wing and, working on a bench trace out and perforate using a drill and Ø 5 mm bit, as shown in the diagram.

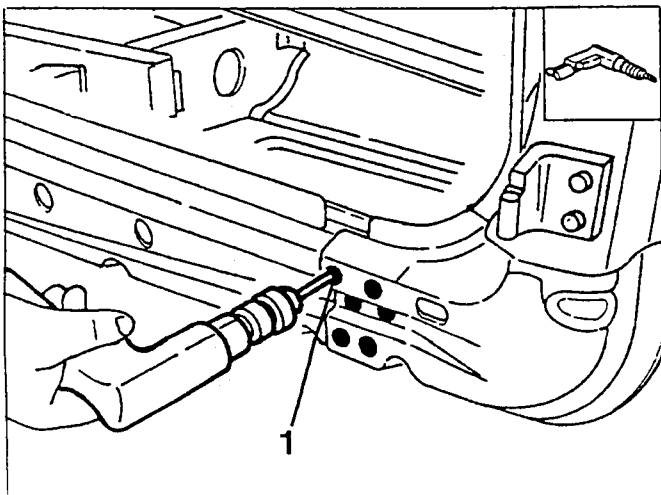


**DOOR SILL FRAME
(WITH DOOR SILL REINFORCING
REMOVED)****REMOVAL**

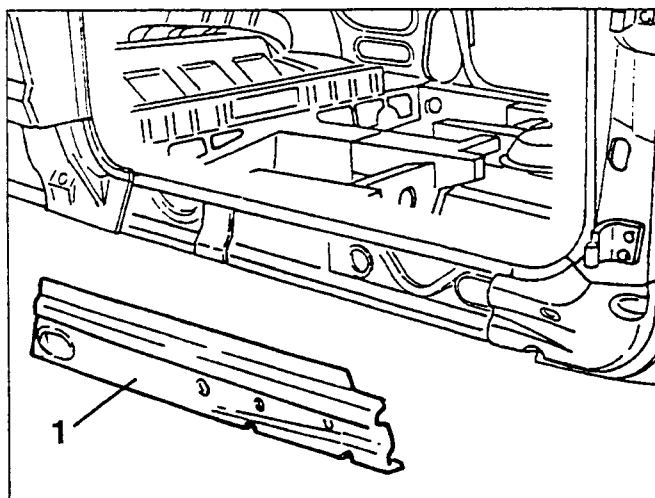
1. Using a spot cutter, remove the welding points shown in the diagram.



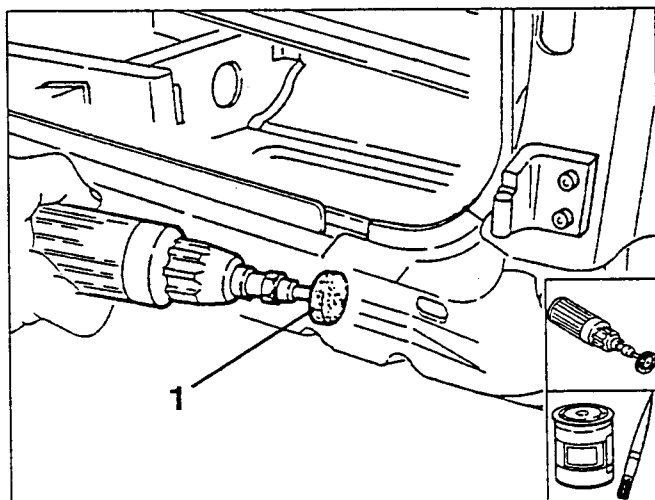
1. Using a drill, remove the welding points shown in the diagram.



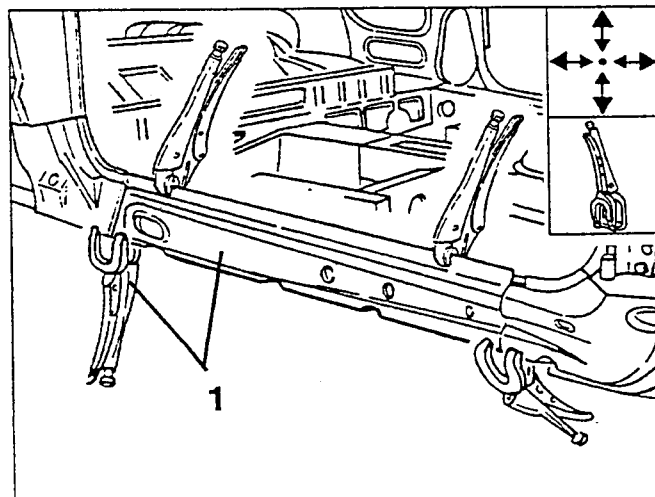
1. Remove the door sill frame.

**PREPARATION**

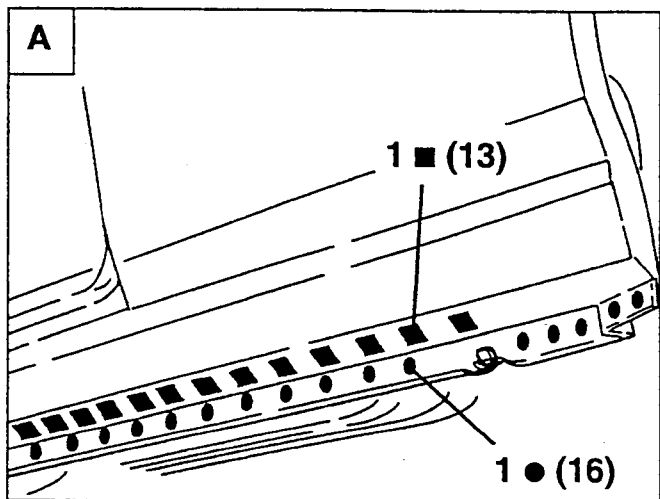
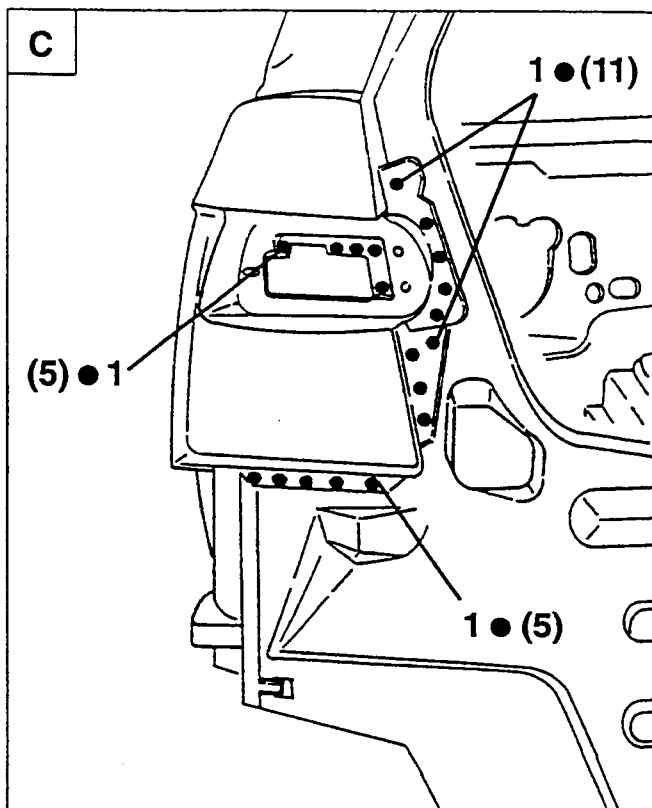
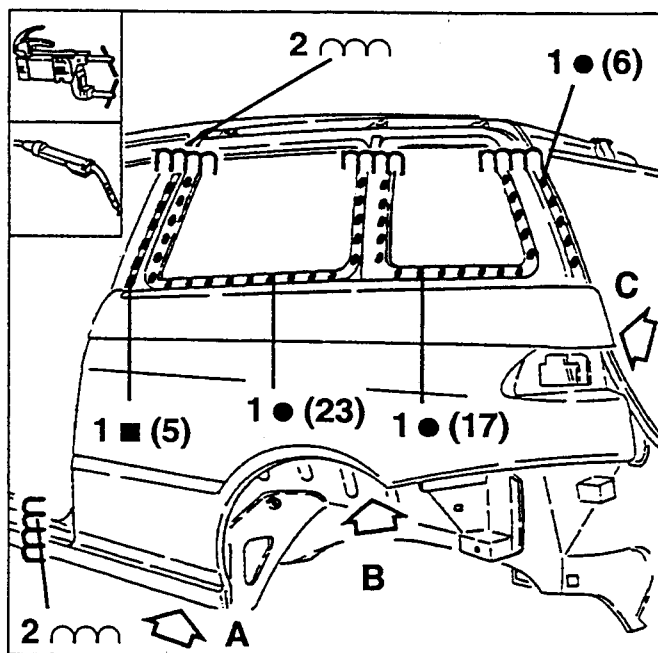
1. Using a rotating brush, clean the area to be welded.
- Apply the specified electroweldable protection to the areas to be spot welded.

**POSITIONING**

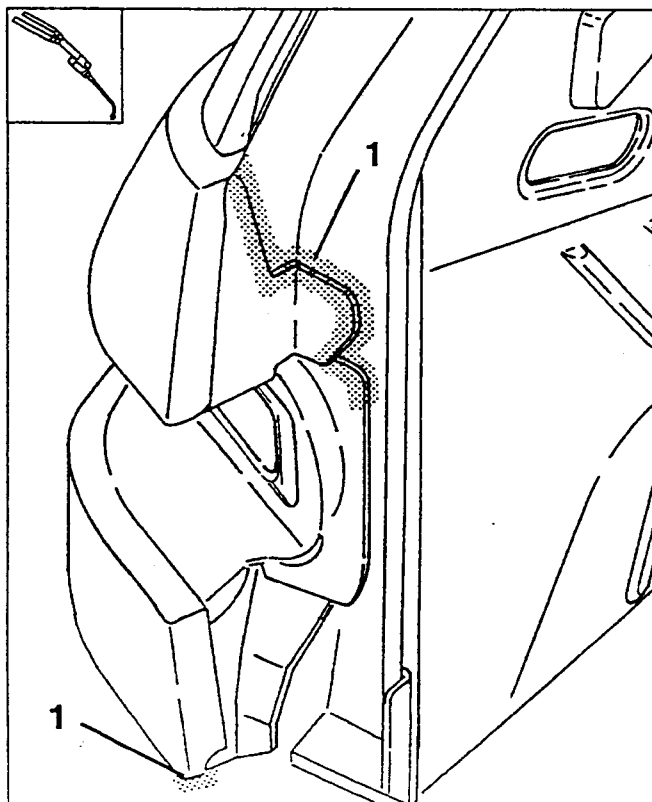
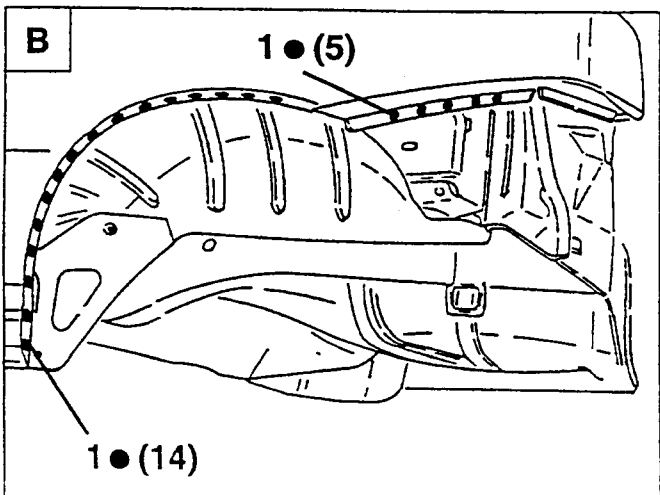
1. Position the door sill frame and join the edges together and secure with clamps.



1. Using a spot welder or, where necessary, a MIG welder, proceed as shown in the diagram.
2. Using a MIG welder, weld a seam as shown in the diagram.

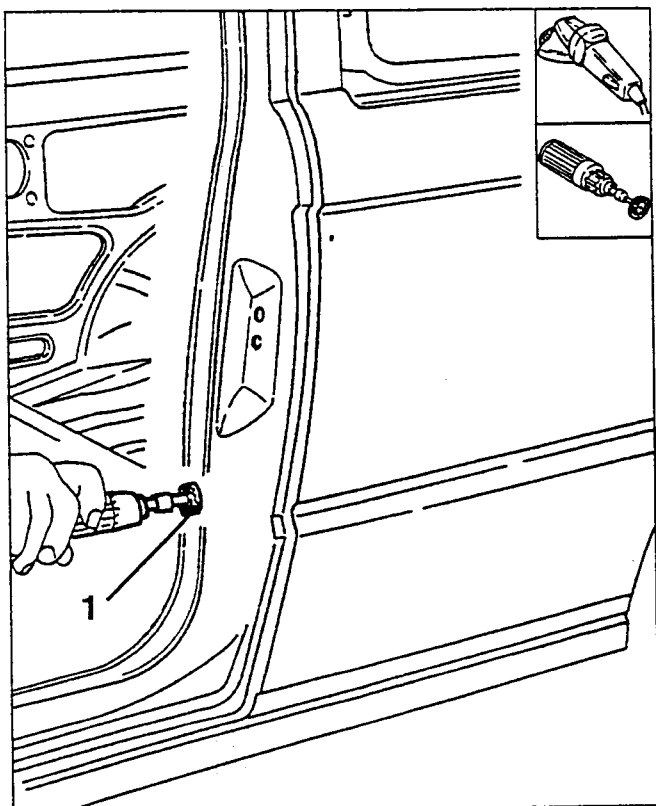


1. Using an oxyacetylene torch, brass braze-weld as shown in the diagram.

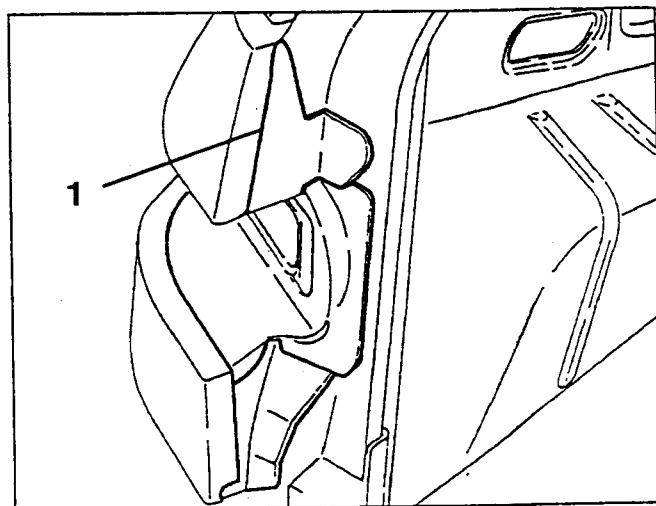
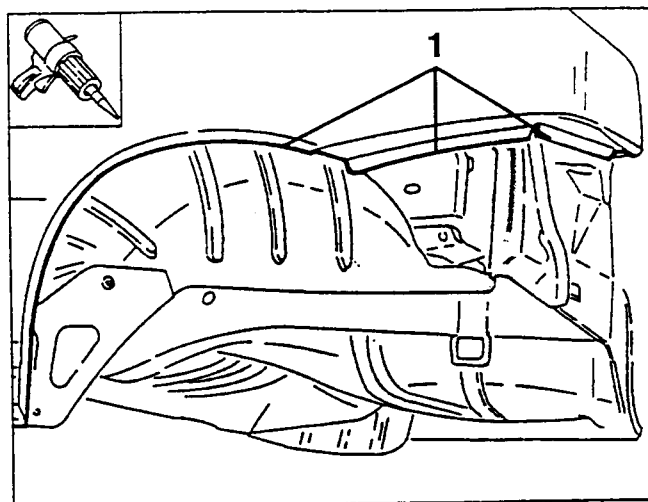


- Using an abrasive grinding wheel, remove and flush the residues left by welding.

1. Using a rotating brush, clean the welded areas.



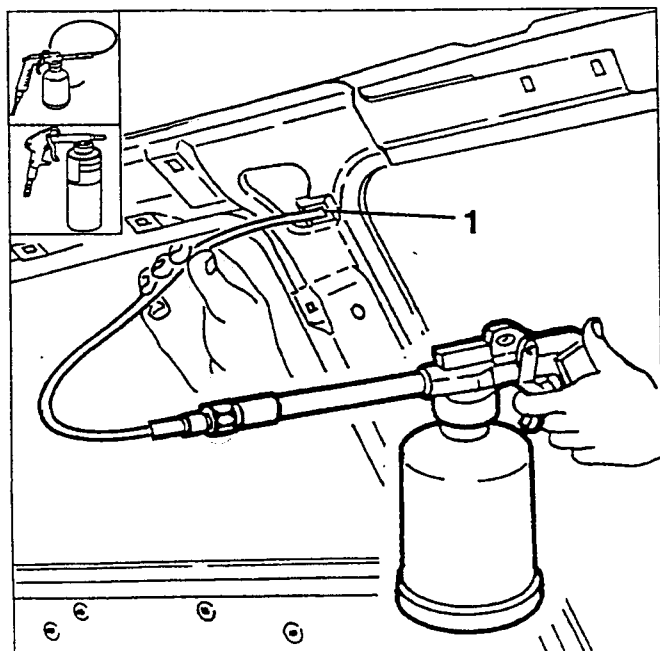
1. Apply the specified sealant to the joints in the metal sheet of the rear wing.



PROTECTION

1. Apply the specified corrosion inhibitor to the areas to be MIG welded and braze-welded.

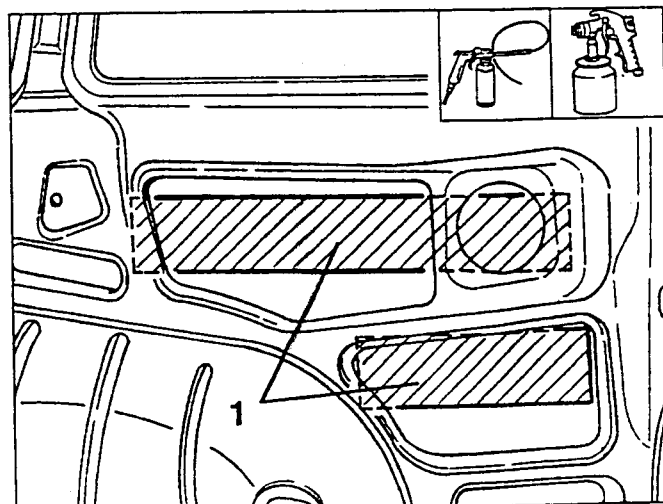
- Apply the underbody protection in the new areas of the wheel housing.

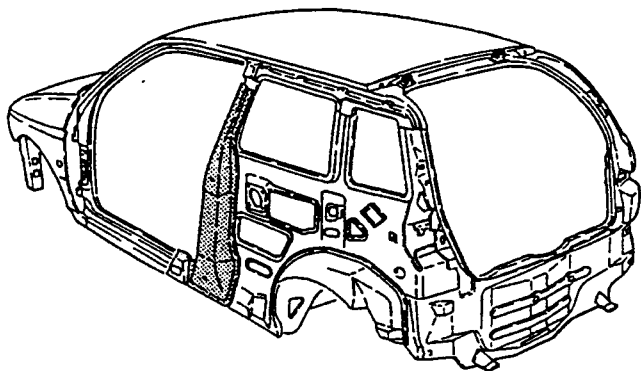


1. Apply the sound-proof panels to the rear wing as shown in the diagram.

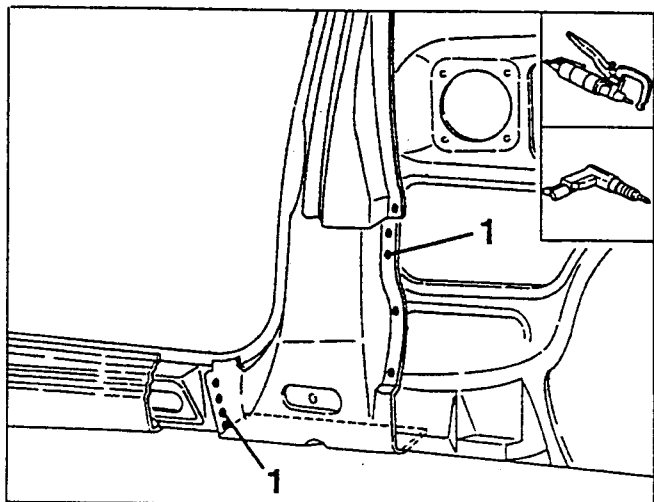
- Proceed to the painting phase.

- Proceed to the wax-treatment phase.

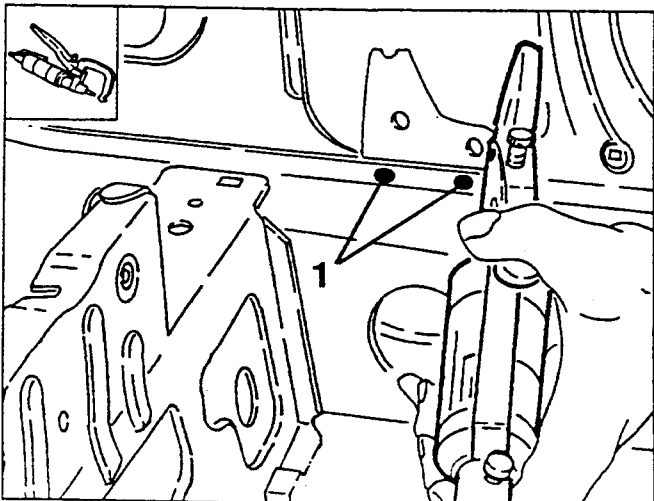


**CENTRAL PILLAR
(WITH REAR WING REMOVED)****REMOVAL**

1. Using a spot cutter, remove the accessible welding points; remove the remaining welding points using a drill.



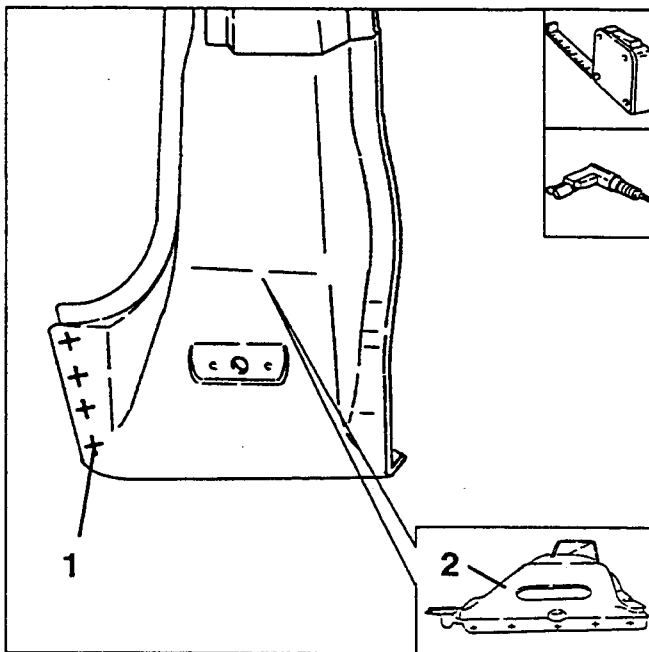
1. Using a spot cutter, remove the welding points shown in the diagram.



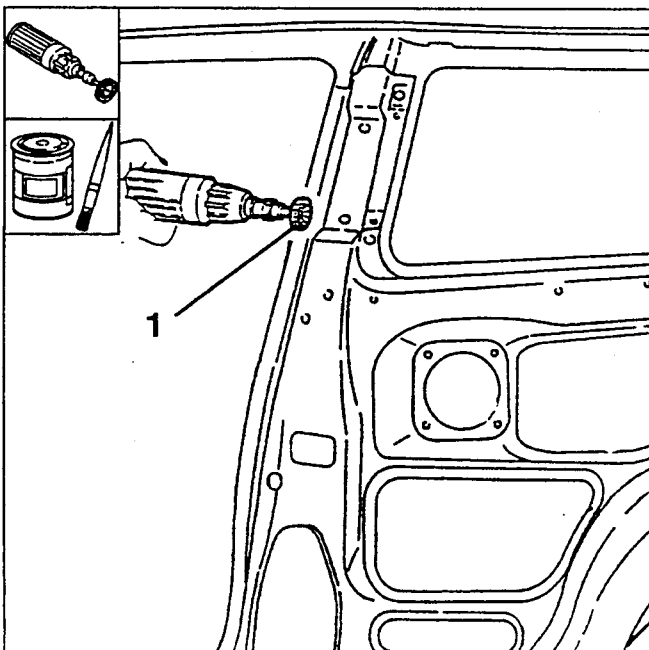
- Remove central pillar.

PREPARATION

1. Working on a bench trace out and perforate the new pillar with a drill and \varnothing 5 mm bit, as shown in the diagram.
2. Trace as shown in the figure for subsequent assembly with the wheel arch.



1. Using a rotating brush, clean the area to be welded.
- Apply the specified electroweldable protection to the areas to be spot welded.

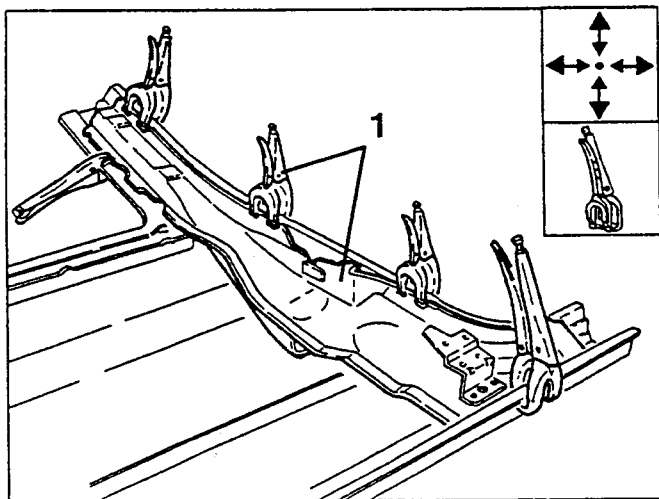


1. Position the new pillar on the rear wing and fix it with clamps.

- Fix the pillar to the wing using screws and then remove the clamps.

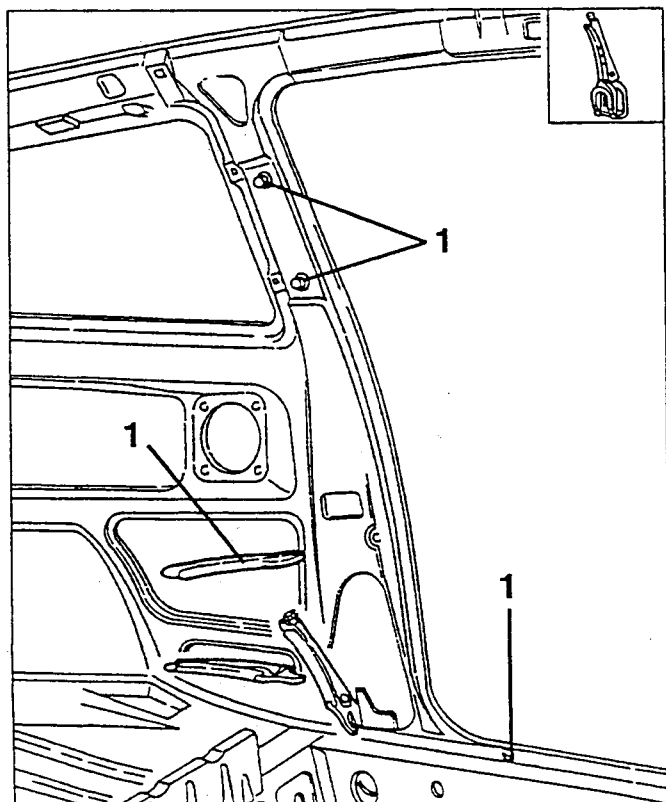
NOTE:

Take the centering of the plate for attaching the door catch as a reference point for the installation of the pillar on the rear wing.



POSITIONING

1. Install the assembled rear wing and pillar and secure it with clamps from the inside and with the two screws attaching the upper seatbelt attachment and a self-tapping screw.

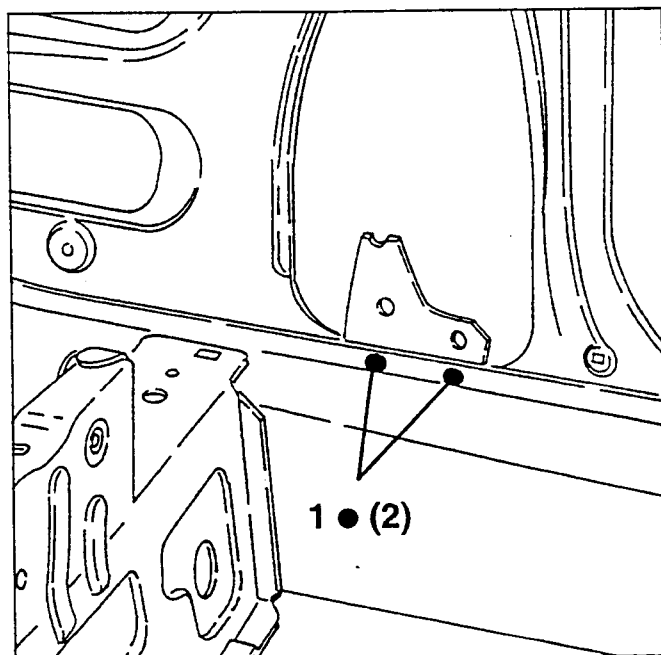
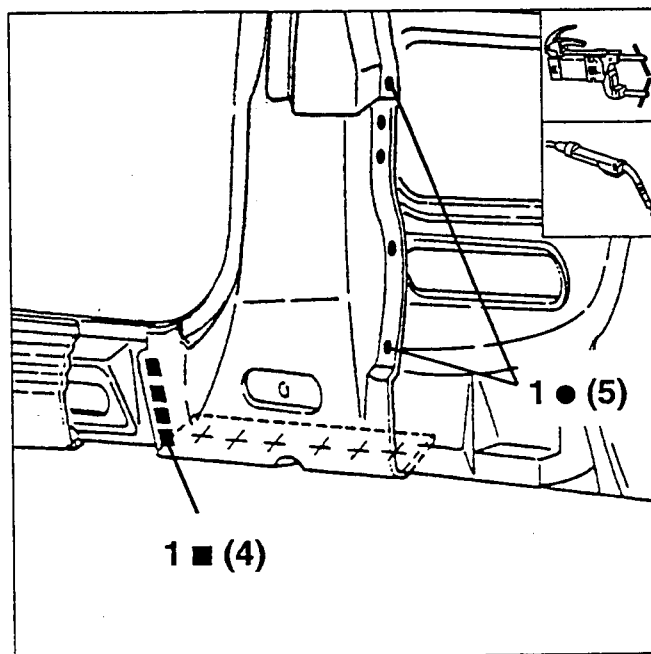


- Check alignment of the door with its seals and parts which when installed make it possible to check the outcome of the operations.

- Remove the rear wing leaving the pillar in its correct position.

WELDING AND FINISHING THE SHEET METAL

1. Using a spot welder or, where necessary, a MIG welder, proceed as shown in the diagram.

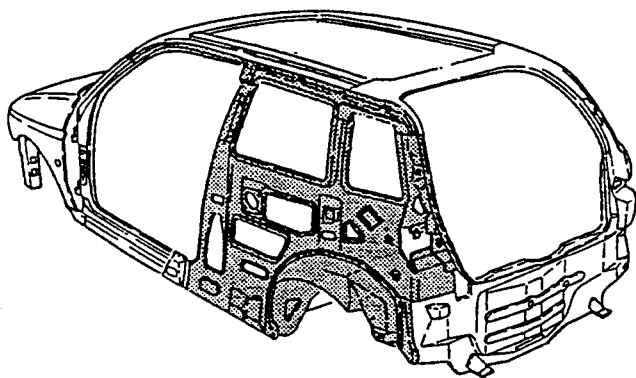


- Using an abrasive grinding wheel, remove and flush the residues left by welding.

- Using a rotating brush, clean the welded areas.

INNER SIDE PANEL FRAME (WITH REAR WING, CENTRAL PILLAR AND ROOF PANEL REMOVED)

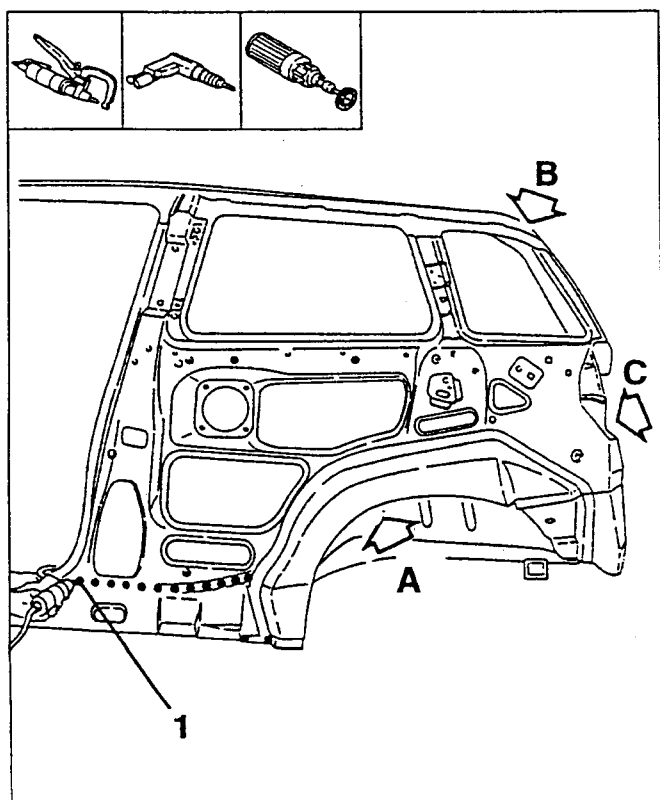
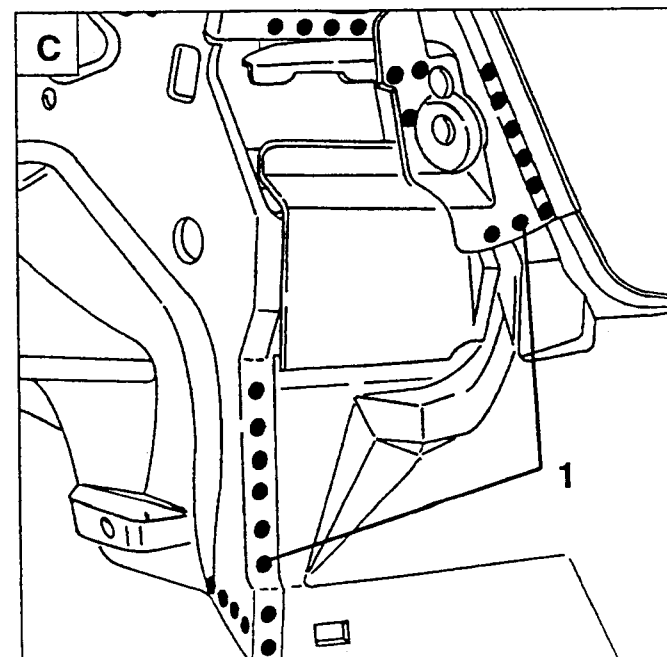
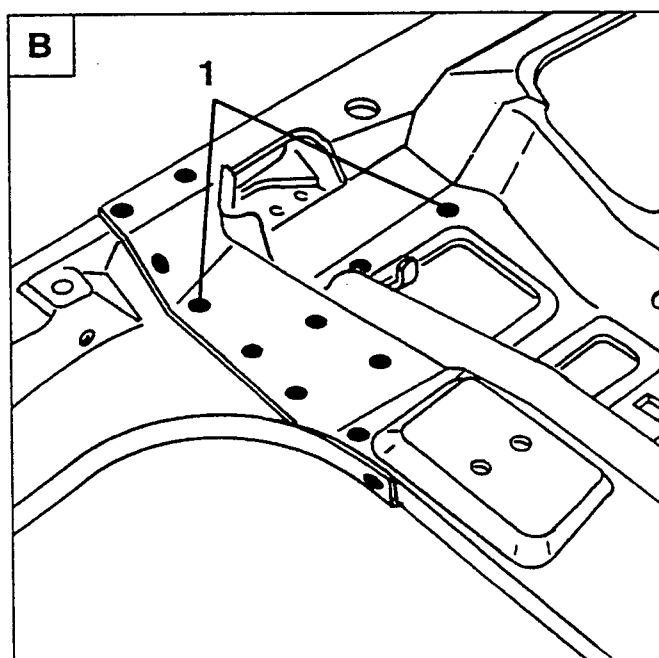
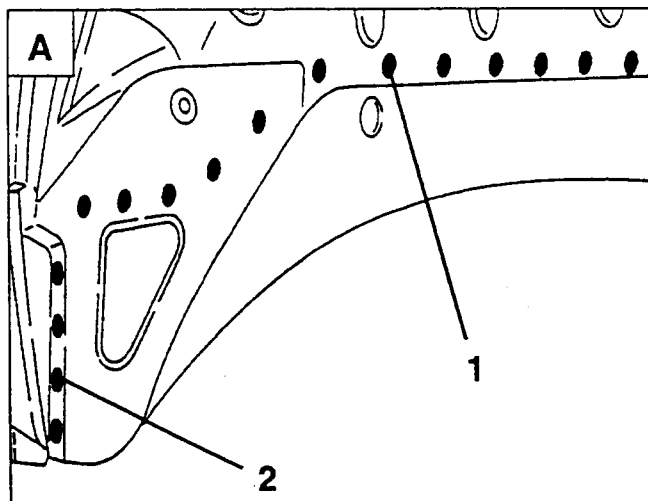
REMOVAL



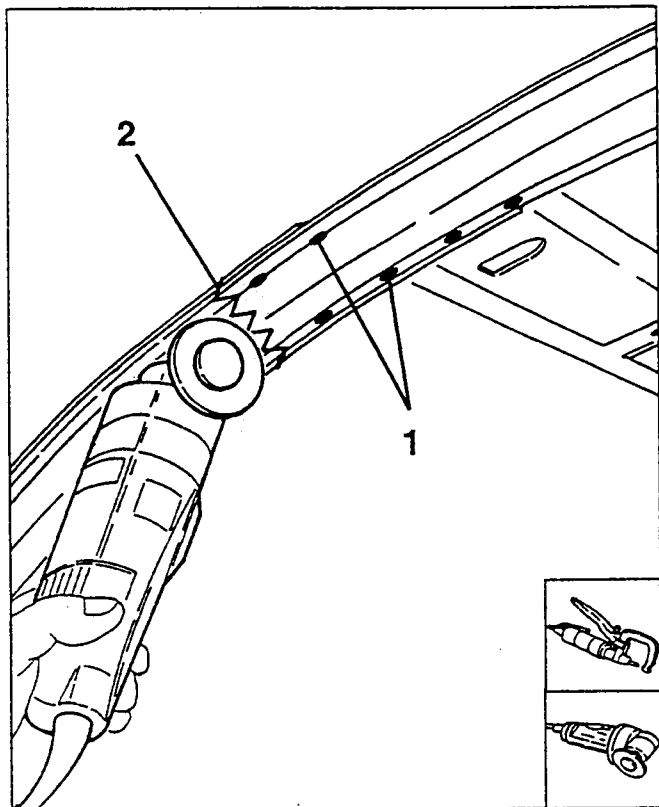
- Using a rotating brush, clean the areas to be spot-cut to highlight the welding points.

1. Using a spot cutter, remove the accessible welding points; remove the remaining welding points using a drill.

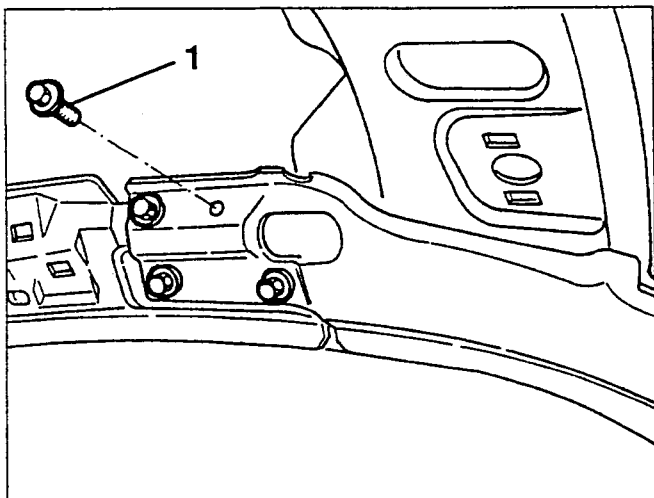
2. Using a drill, remove the welding points indicated after freeing the sheet metal to permit access.



1. Using a spot cutter, remove the welding points shown in the diagram.
2. Using a circular saw, cut following the lines indicated in the diagram without damaging the underlying components.



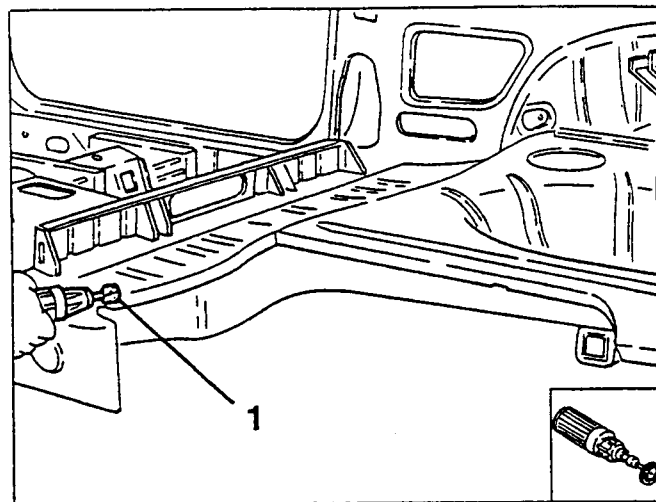
1. Loosen the four screws securing the inner frame of the side panel and the front windscreen frame.



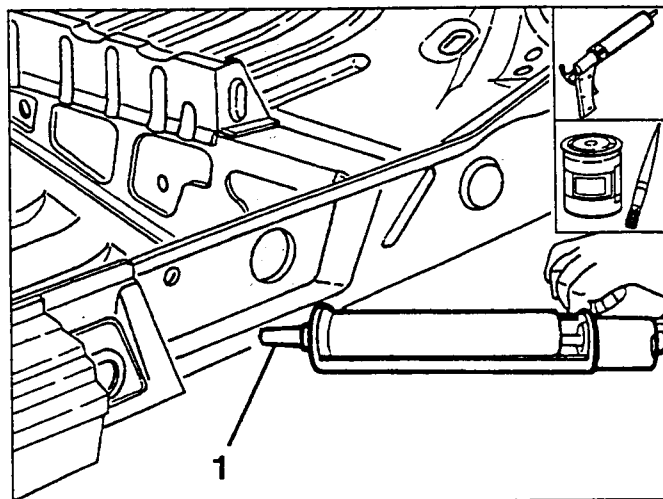
- Remove the complete inner side panel frame after opening the clinch tabs.

PREPARATION

1. Using a rotating brush, clean the area to be welded.

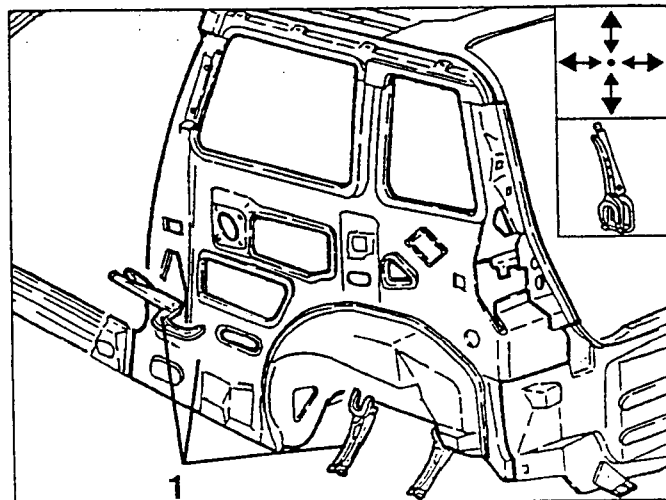


1. Apply a thick layer of electroweldable protection to the entire lower part of the side panel inner frame mating surfaces and with a brush to the remaining areas to the spot welded.

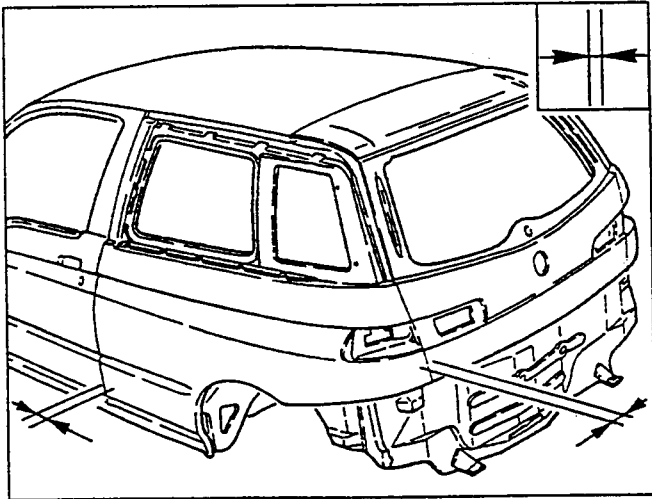


POSITIONING AND INSPECTION

1. Position the side panel inner frame and join the edges together and secure with clamps and the four front screws connecting the front windscreen frame and the clinch tabs.

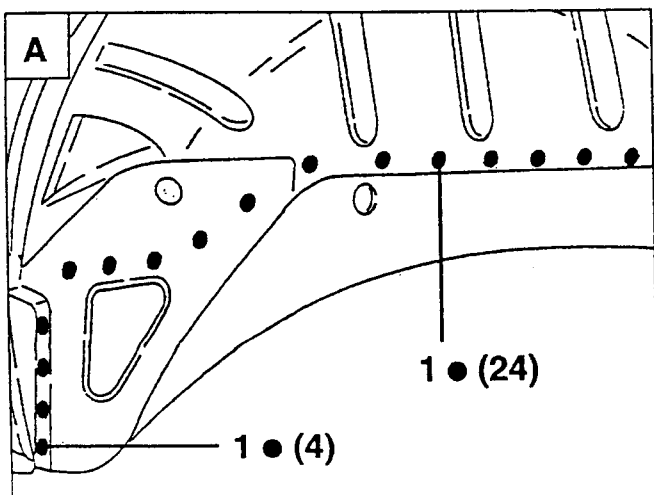
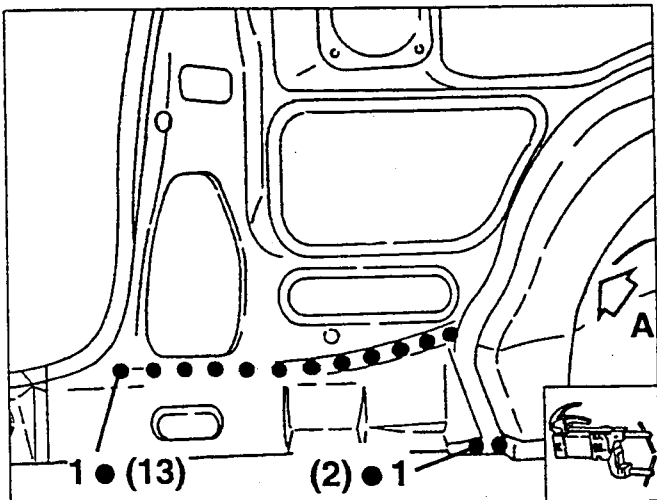


- Check parallelism, gaps and angles and refit the mobile components removed previously with their gaskets and the parts which, when fitted, permit verification of the success of the operations.



WELDING AND FINISHING THE SHEET METAL

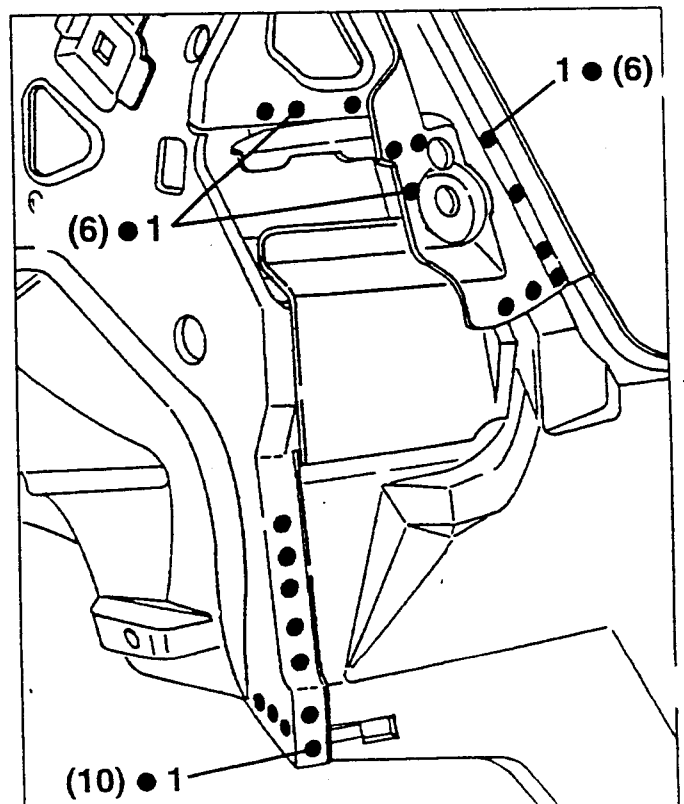
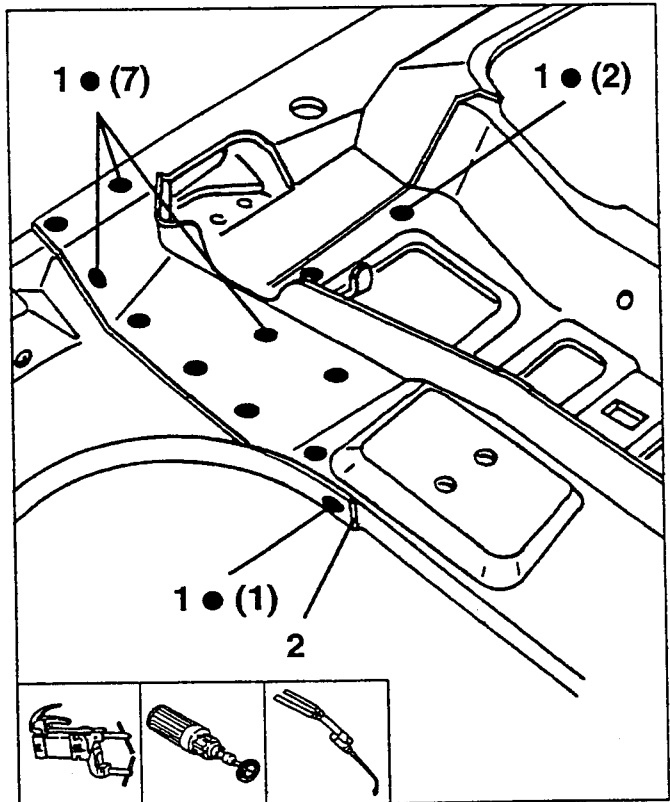
1. Using a spot welder, proceed as shown in the diagram.



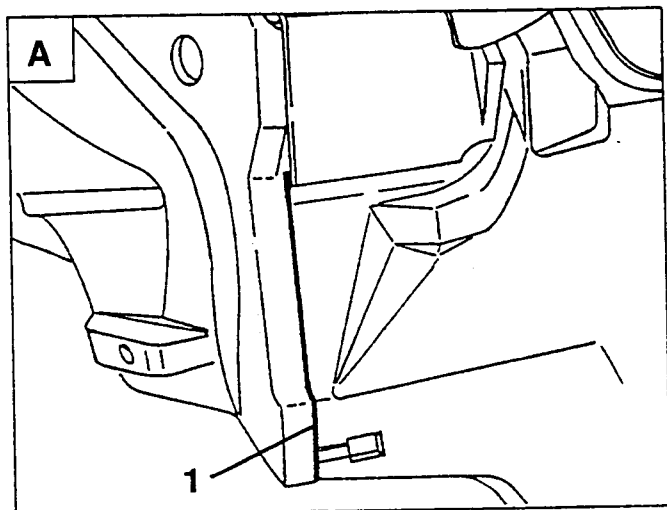
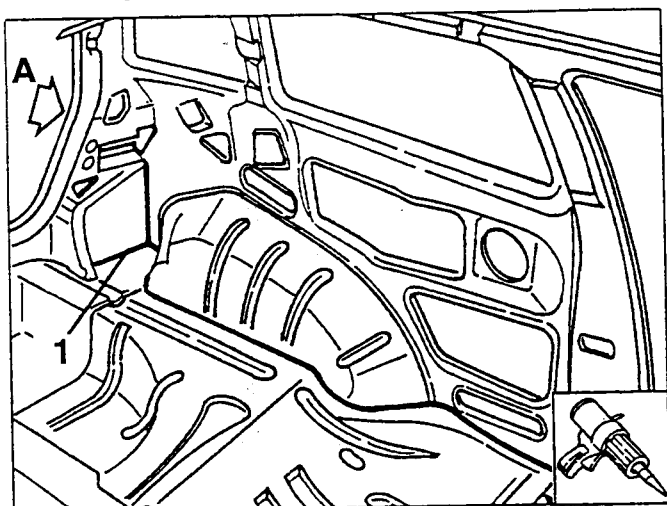
1. Using a spot welder, proceed as shown in the diagram.

- Using a rotating brush, clean the welded areas.

2. Using an oxyacetylene torch, brass braze-weld as shown in the diagram.

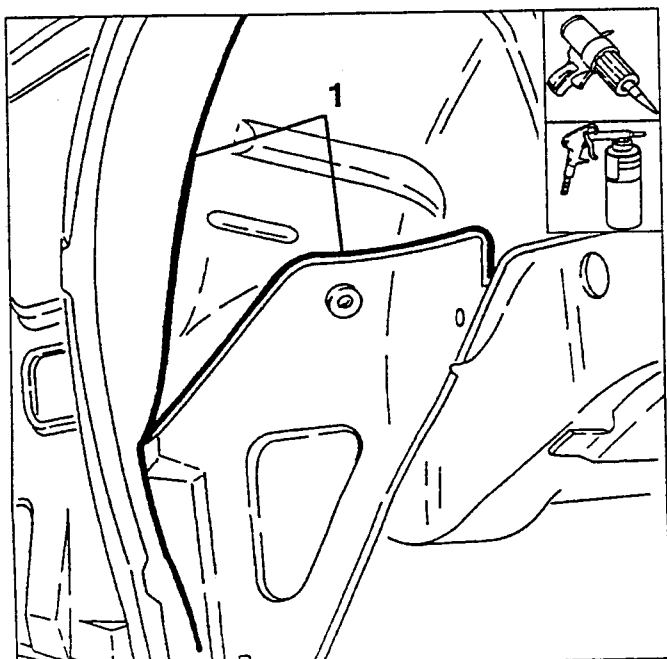


1. Apply the specified sealant along the lines shown in the diagram.



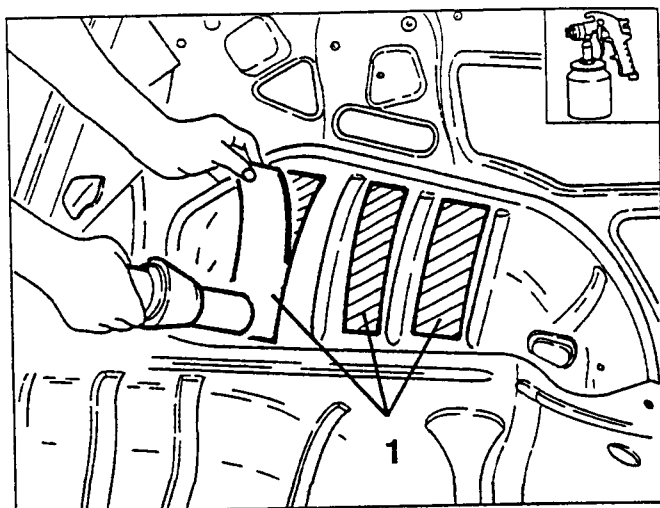
1. Apply the specified sealant along the lines shown in the diagram.

- Apply the specified underbody protection in the new areas of the wheel housing.



1. Apply the sound-proof panels as shown in the diagram.

- Proceed to the painting phase.

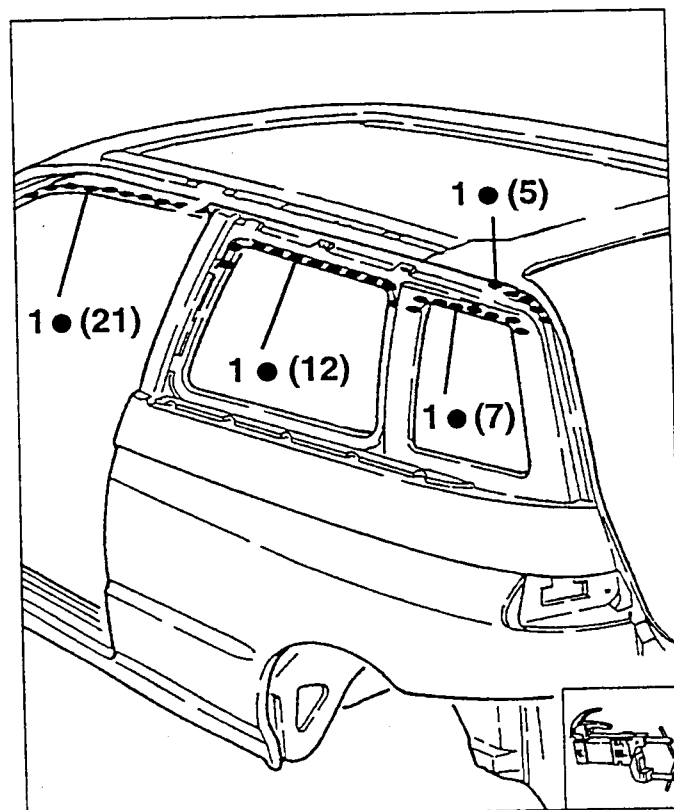


- Complete the refitting operations as described in the procedures for "central pillar" and Rear wing" ensuring that the following steps are added as this is a complete replacement of the rear wing and not a partial replacement.

1. Using a spot welder, proceed as shown in the diagram.

NOTE:

Due to the above it is not necessary to seam weld the lower to the upper parts of the wing.

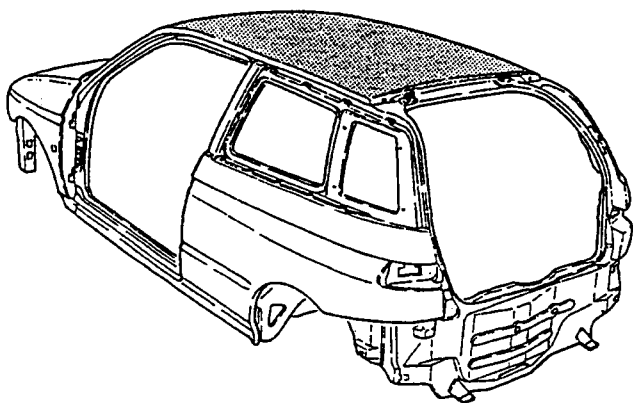


ROOF PANEL

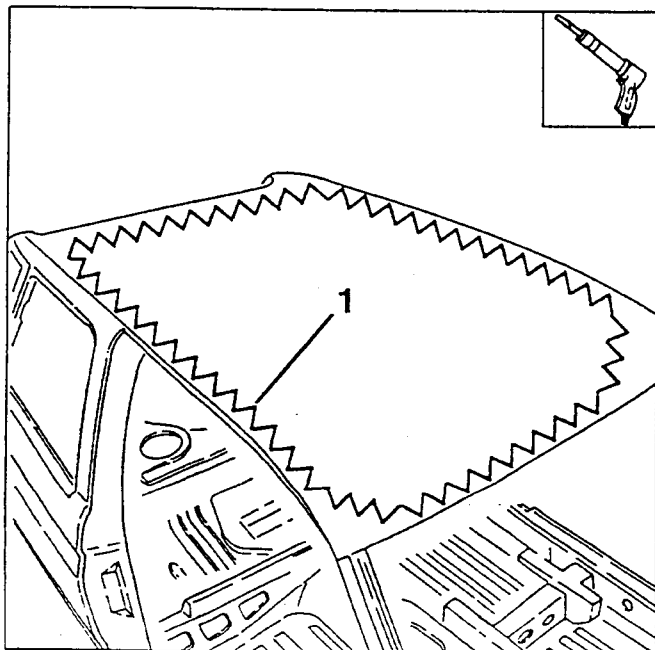
PRELIMINARY OPERATIONS

- Disconnect the negative (-) cable from the battery and remove the electronic control units.
- Remove the trim components, electrical and mechanical system which could hinder the repair operations or get damaged during work (see specific paragraphs).
- Remove the following sheet metal parts:
 - windscreen (see specific paragraph).
 - boot (see specific paragraph).
 - doors (see specific paragraph).

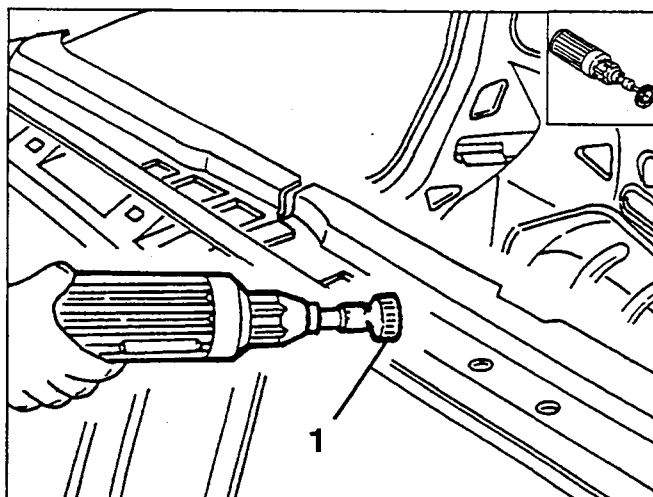
REMOVAL



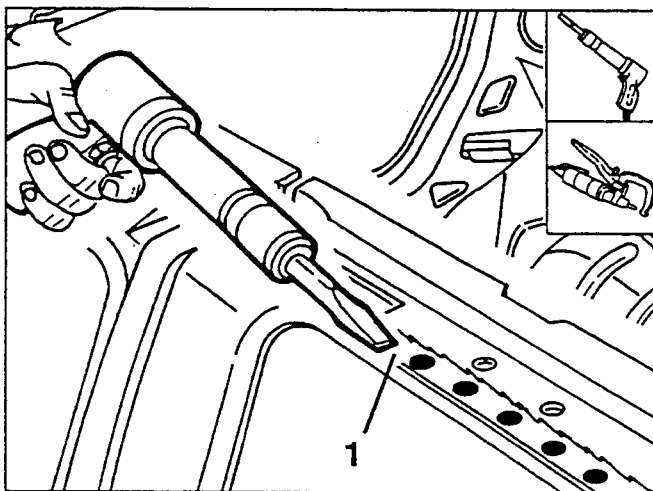
1. Using a chisel free the roof panel as shown in the diagram.



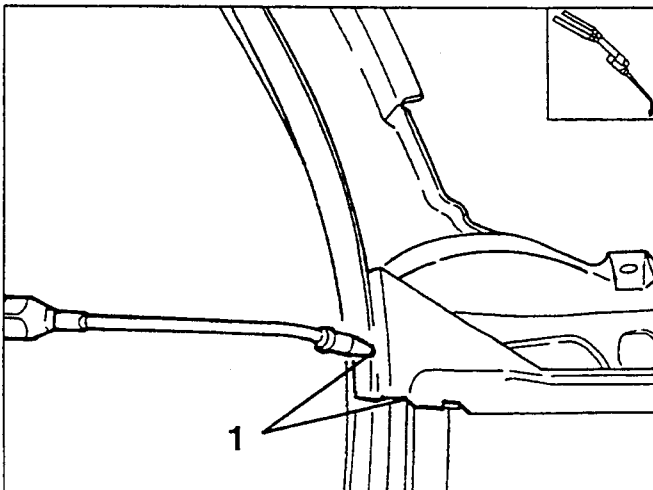
1. Using a rotating brush, clean the edge of the roof panel to highlight the welding points.



1. Using a chisel or spot cutter, remove the welding points from the edges of the roof panel remaining on the body.



1. Using an oxyacetylene torch, unweld the roof panel from the pillars and remove the edges of the panel.

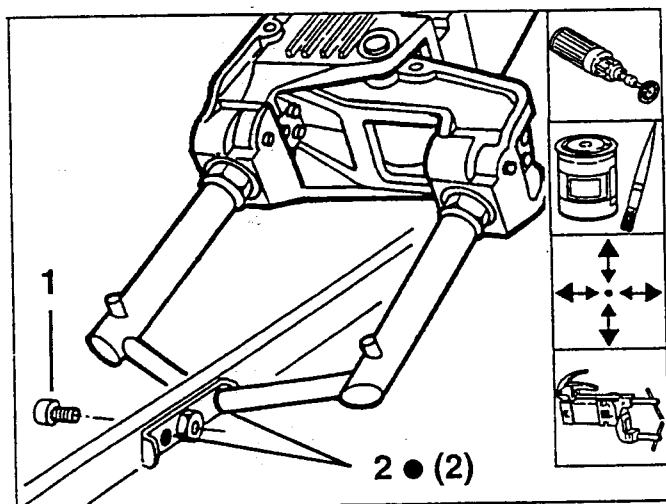


PREPARATION

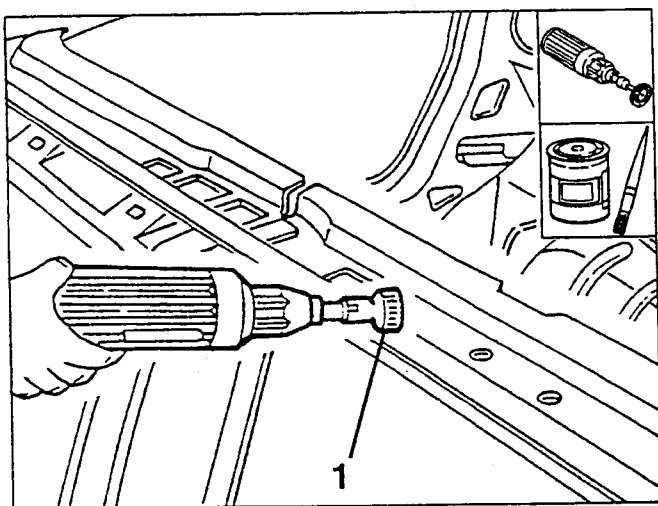
Install the four brackets securing the roof-rack to the new panel as follows:

- Using a rotating brush, clean the area to be welded.
- Apply the specified electroweldable protection to the areas to be spot welded.

1. Position the bracket using the attachment pin as a centering device.
2. Using a spot welder, proceed as shown in the diagram.

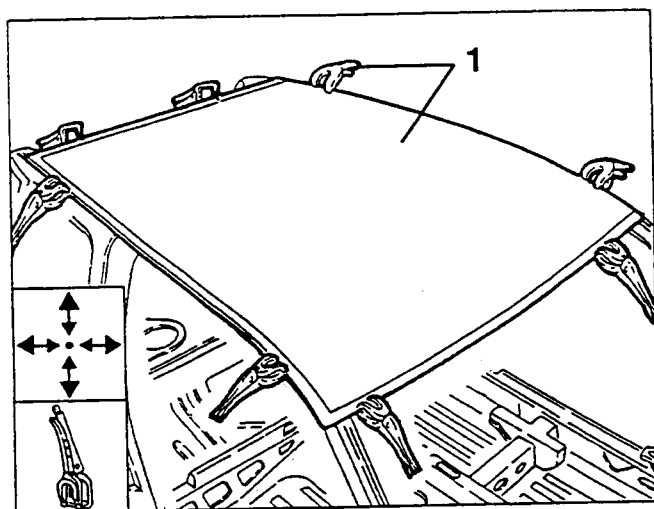


1. Using a rotating brush, clean the area to be welded along the edge of the new roof panel and the body.
- Apply the electroweldable protection to the areas to be spot welded.

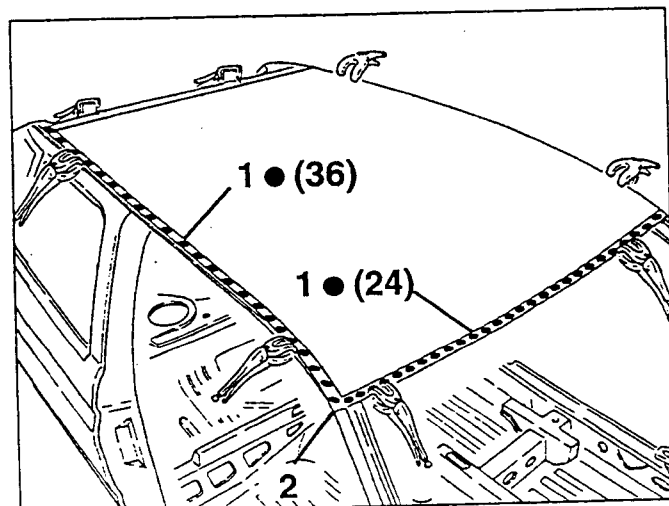
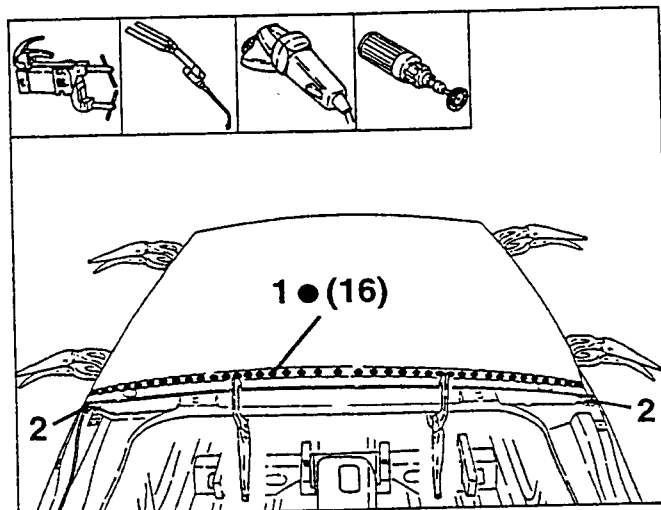
**POSITIONING AND INSPECTION**

1. Position the roof panel and join the edges to be welded together and fix using clamps.
- Check parallelism, gaps and angles and refit the mobile components removed previously with their

gaskets and the parts which, when fitted, permit verification of the success of the operations.

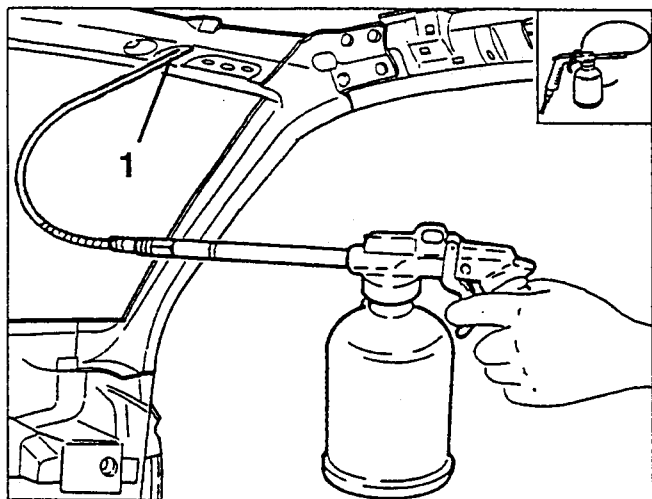


1. Using a spot welder, proceed as shown in the diagram.
2. Using an oxyacetylene torch, brass braze-weld the four corners of the roof panel to the pillars.
- Using an abrasive grinding wheel, remove and flush the residues left by welding.
- Using a rotating brush, clean the welded areas.

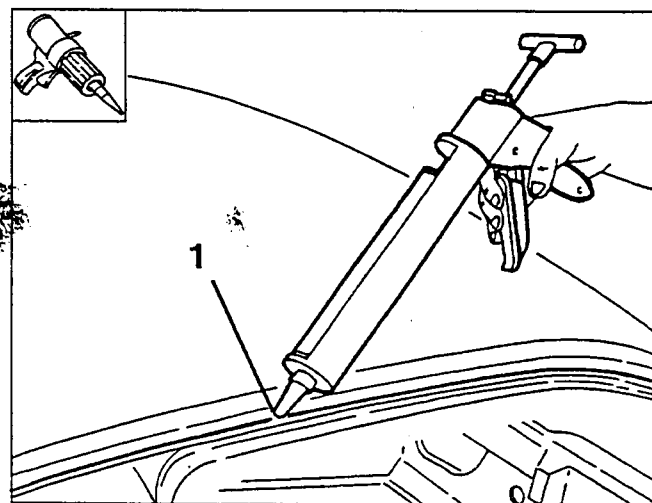


PROTECTION

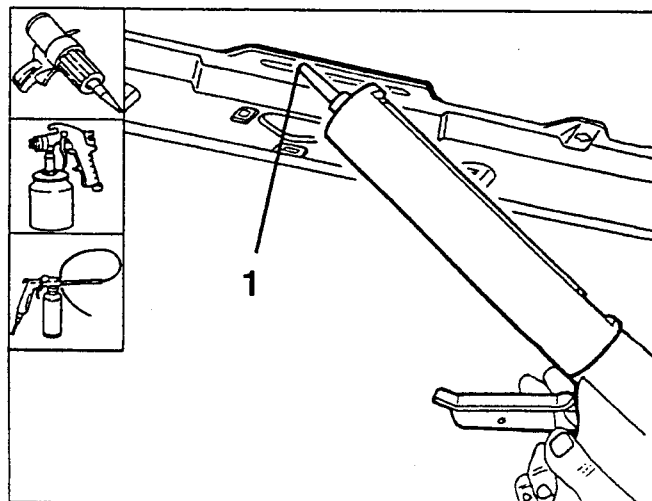
1. Apply the specified corrosion inhibitor to the areas to be braze welded.



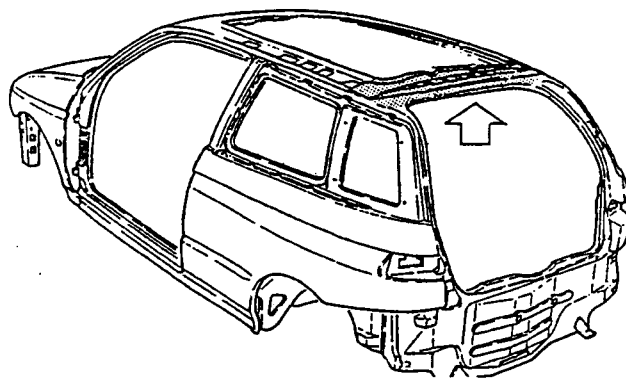
1. Apply the specified sealant along the side edge of the roof panel.



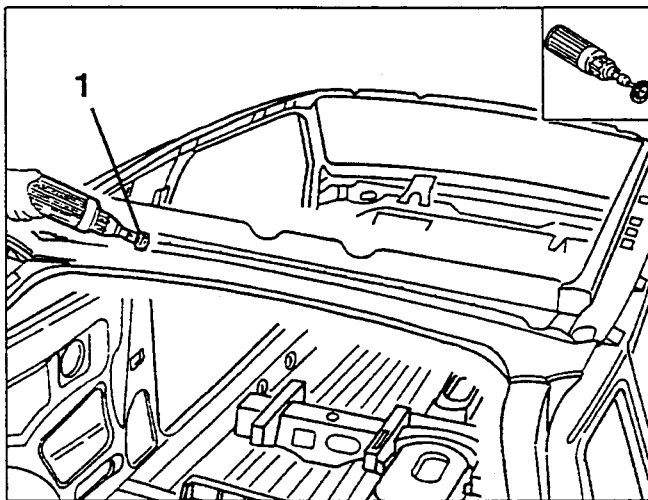
1. Apply the specified sealant to the front inner part of the roof panel along the lines shown in the diagram.



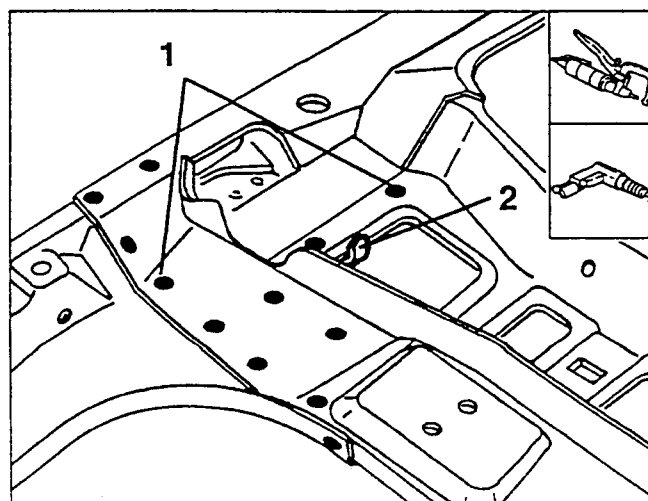
- Proceed to the painting phase.
- Proceed to the wax-treatment phase for the areas to which have been braze welded.

**REAR HOOPS
(WITH ROOF PANEL REMOVED)****REMOVAL**

1. Using a rotating brush, clean the areas to be spot-cut to highlight the welding points.



1. Using a spot cutter, remove the accessible welding points, remove the remaining welding points using a drill.
2. Open the clinch tabs.



- Remove the rear hoops cutting away the sealant if necessary

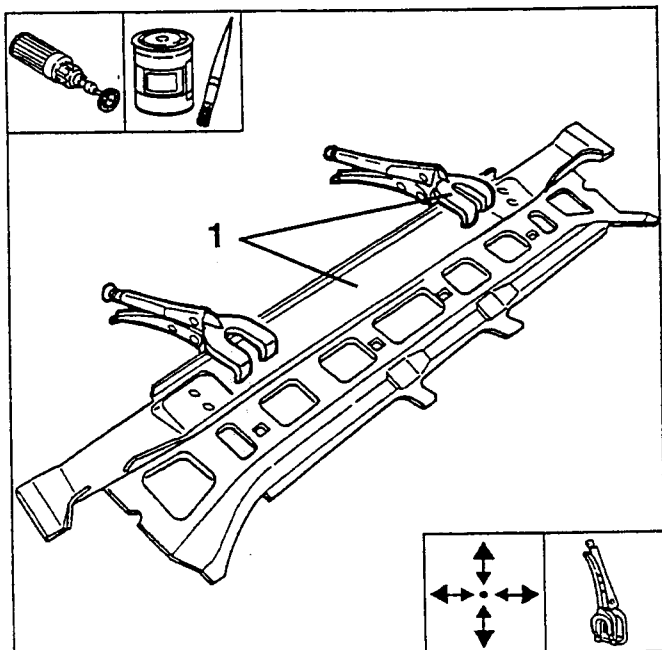
- Apply the electroweldable protection to the areas to be spot welded.

PREPARATION

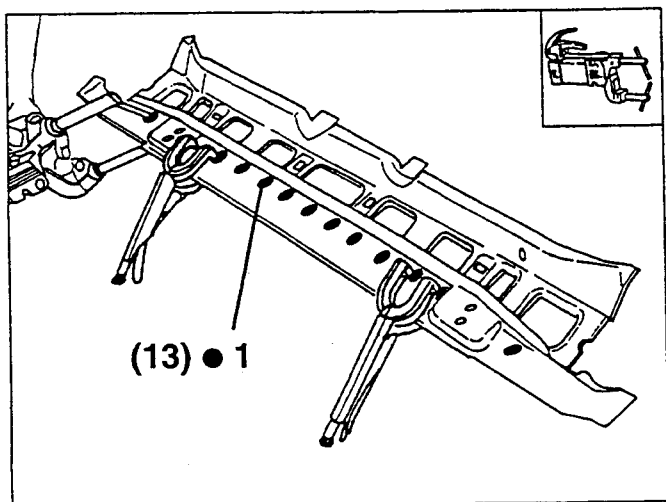
Assemble the rear hoops as follows:

- Using a rotating brush clean the area to be welded.
- Apply the specified electroweldable protection to the areas to be spot welded.

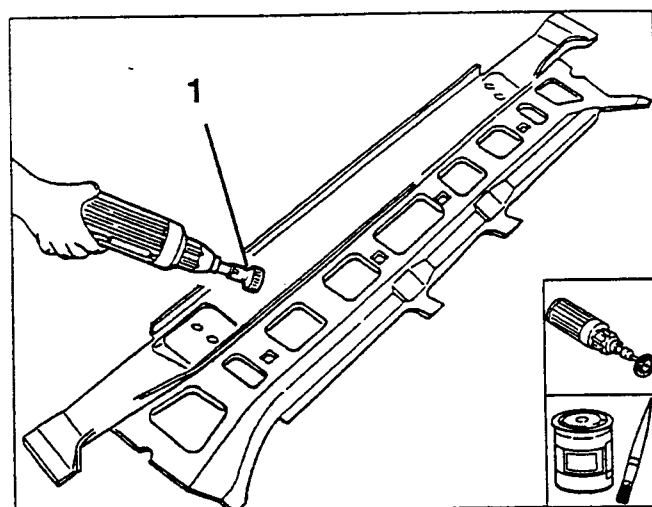
1. Assemble the two hoops joining together the edges to be welded and fix them with clamps and using the matching of the attachment holes for the boot with the appropriate pins as a reference.



1. Using a spot welder, proceed as shown in the diagram.

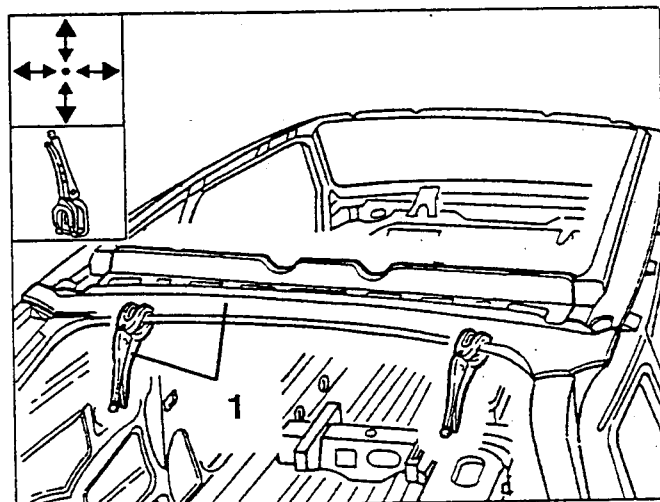


1. Using a rotating brush, clean the area to be welded.

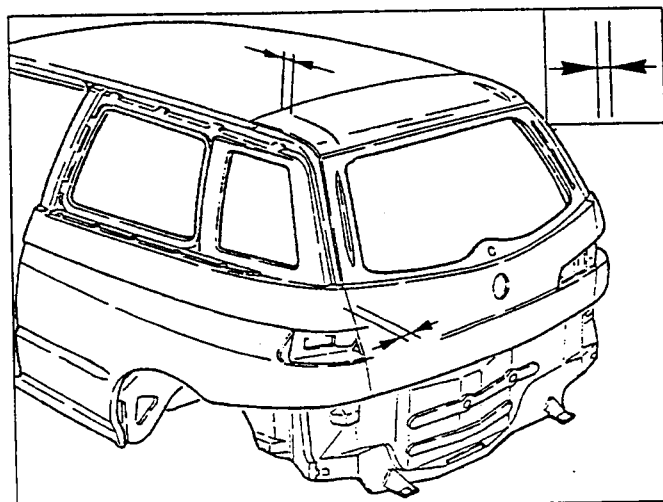


POSITIONING AND INSPECTION

1. Position the assembled hoops bringing the edges together and secure them with clamps.

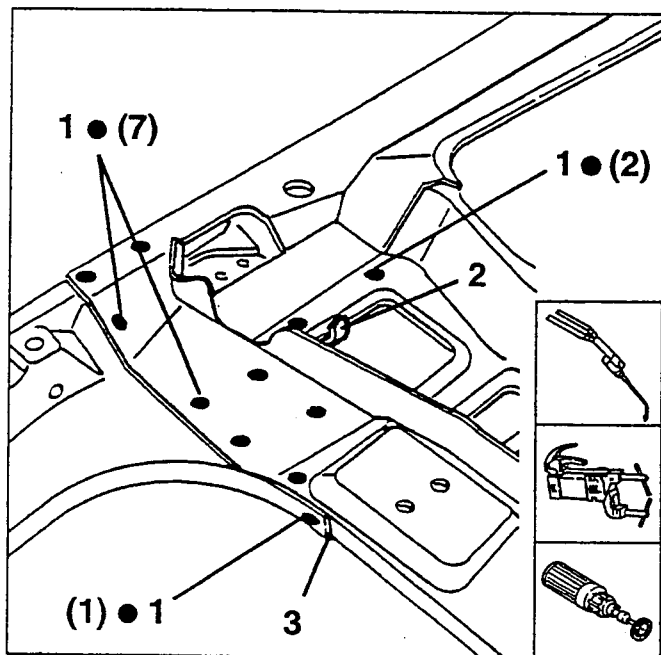


- Check parallelism, gaps and angles and refit the mobile components removed previously with their gaskets and the parts which, when fitted, permit verification of the success of the operations.

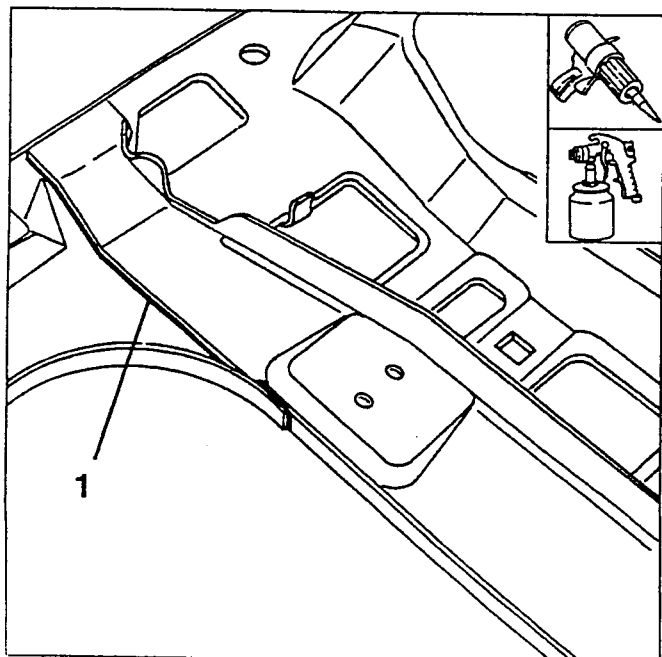


**WELDING AND FINISHING
THE SHEET METAL**

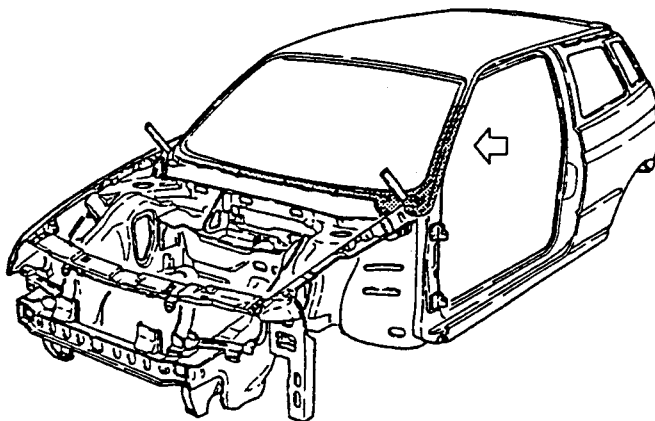
1. Using a spot welder, proceed as shown in the diagram.
 2. Bend the clinch tabs.
 3. Using an oxyacetylene torch, brass braze-weld as shown in the diagram.
- Using a rotating brush, clean the welded areas.

**PROTECTION**

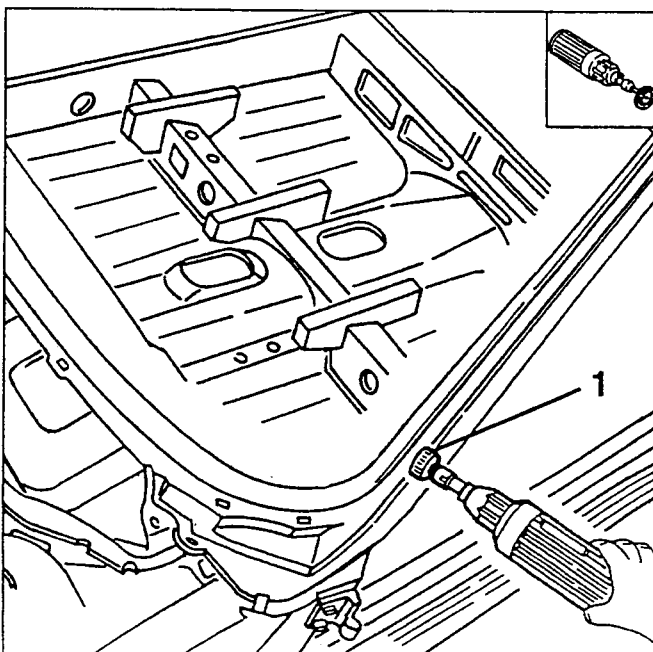
1. Apply the specified sealant along the lines shown in the diagram.
- Proceed to the painting phase.

**FRONT WINDSCREEN FRAME
(PARTIAL)****PRELIMINARY OPERATIONS**

- Disconnect the negative (-) cable from the battery and remove the electronic control units.
- Remove the trim components, electrical and mechanical system which could hinder the repair operations or get damaged during work (see specific paragraphs).
- Remove the following sheet metal parts:
 - bonnet (see specific paragraph).
 - door on affected side (see specific paragraph).
 - front wing (see specific paragraph).
 - dashboard support crossmember (see specific paragraph).

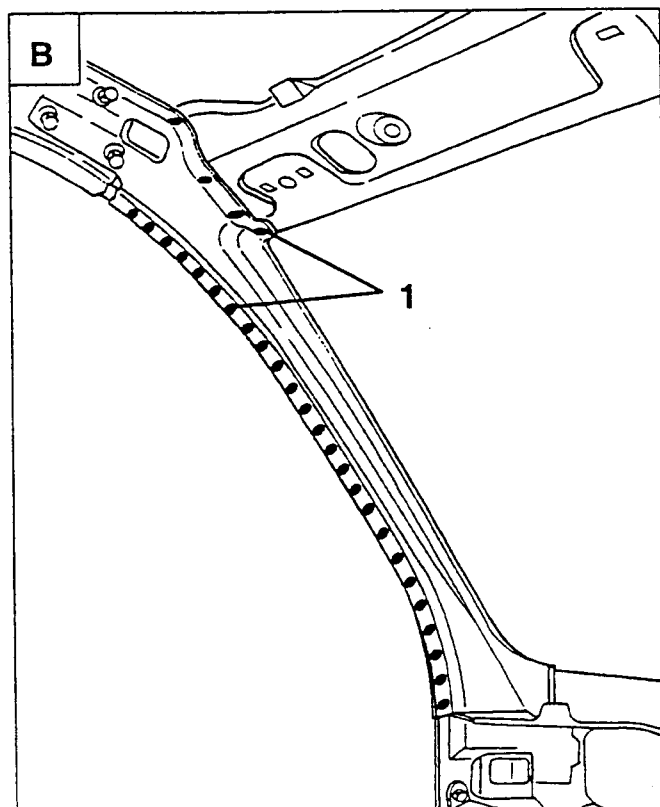
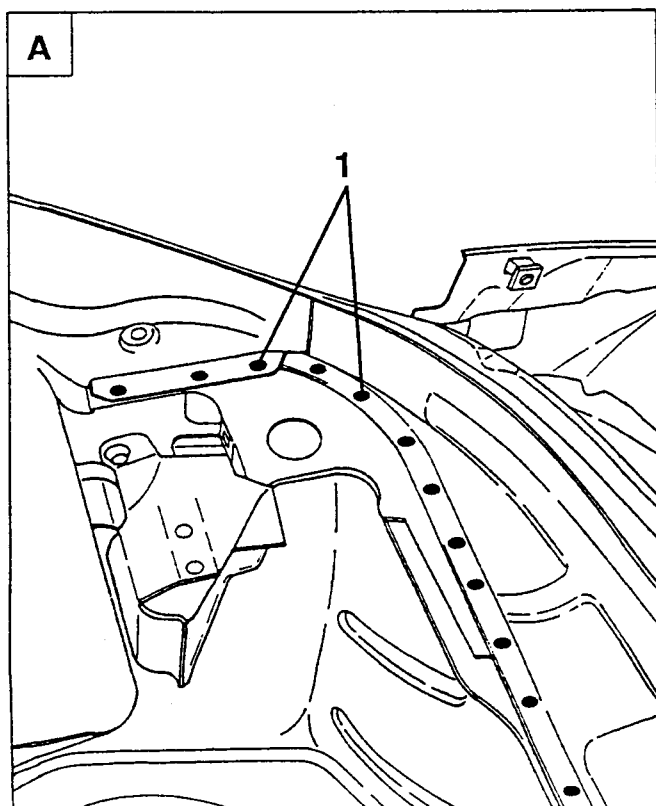
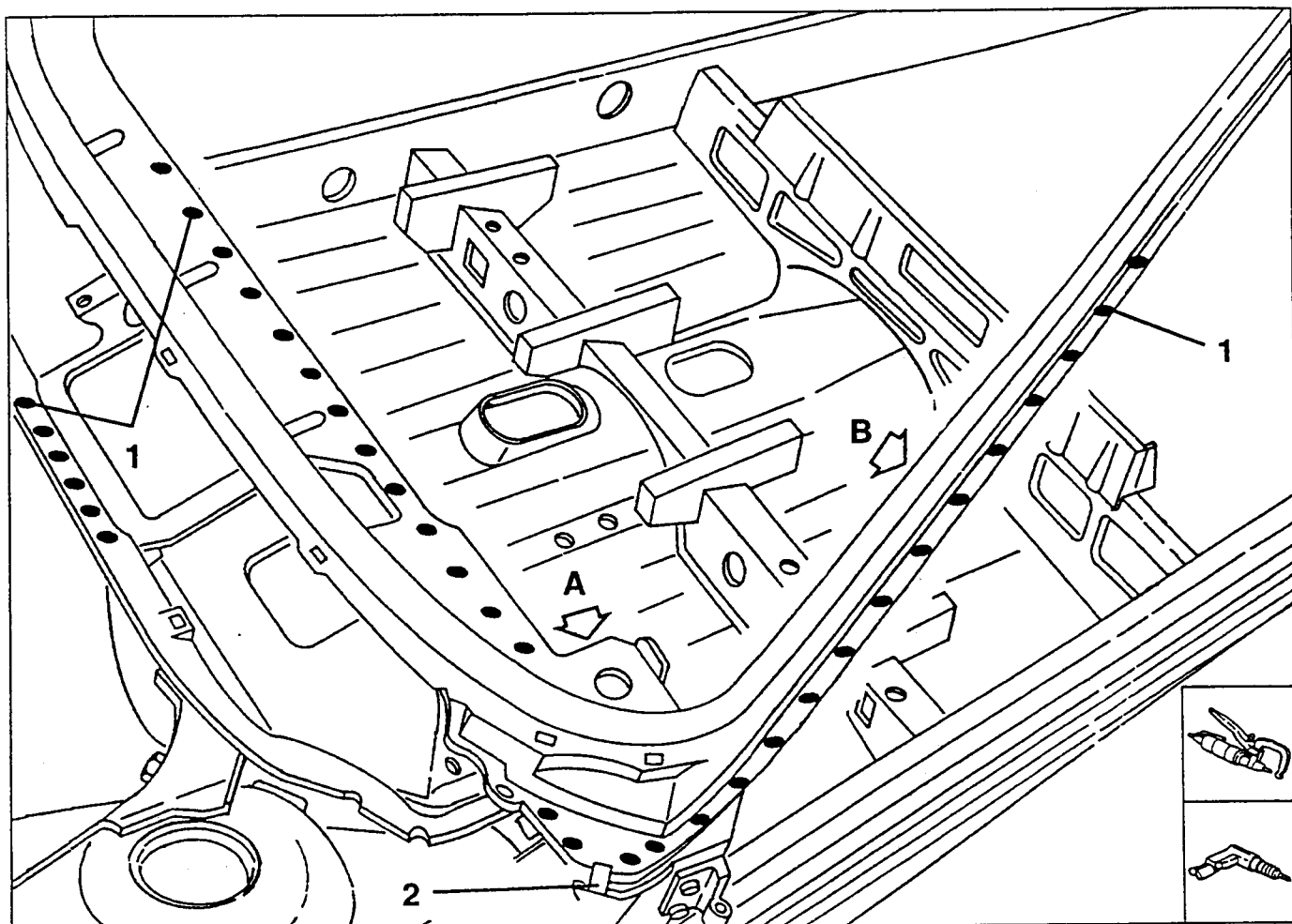
REMOVAL

1. Using a rotating brush, clean the areas to be spot-cut to highlight the welding points.

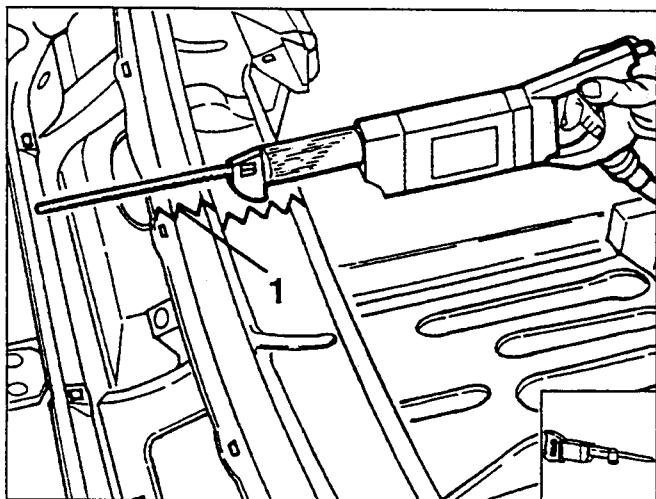


1. Using a spot cutter, remove the accessible welding points; remove the remaining welding points using a drill.

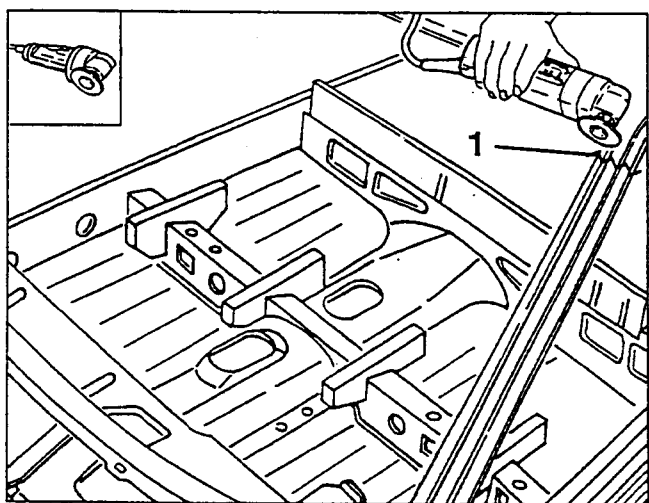
2. Open the clinch tab .



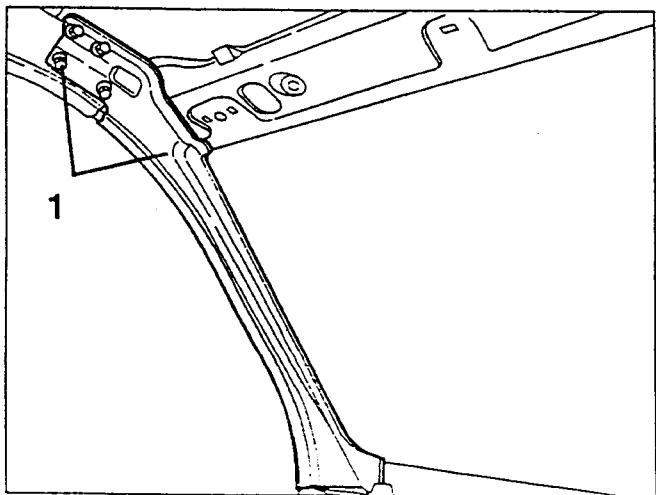
1. Using a jig saw, cut the windscreen frame following the indications given in the diagram without damaging the underlying components.



1. Using a circular saw, cut the front windscreen frame following the lines indicated in the diagram without damaging the underlying components.



1. Loosen the four screws securing the inner side panel frame to the front windscreen frame and remove the windscreen frame removing the sealant if necessary.

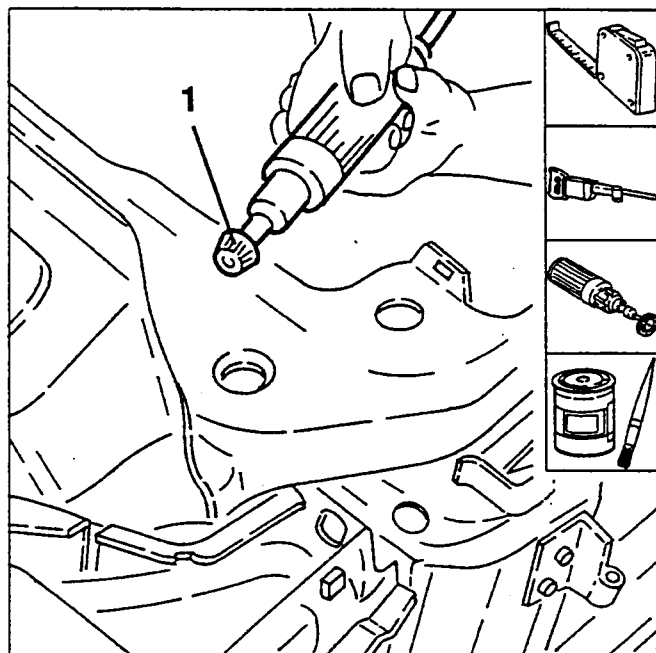


PREPARATION

- Working on a bench cut the new front windscreen frame ensuring that enough material is left for overlapping.

1. Using a wire brush, clean the area to be welded.

- Apply the specified electroweldable protection to the areas to be spot welded.

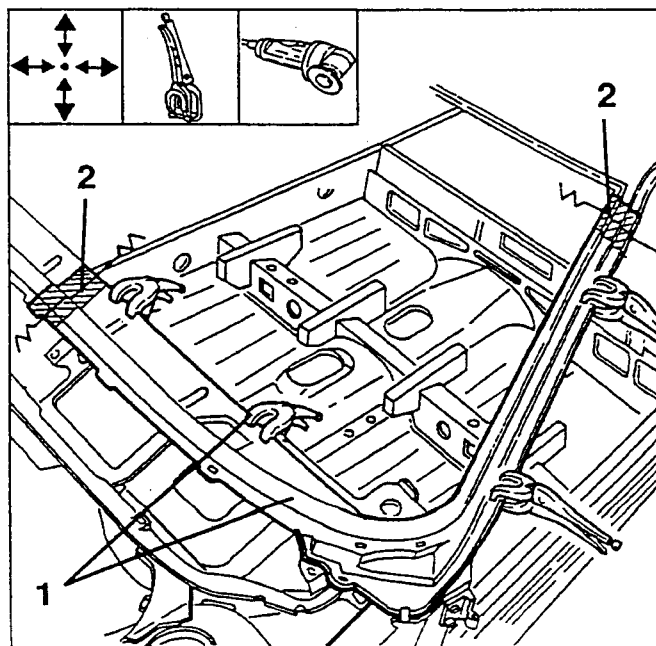


POSITIONING

1. Position the front windscreen frame and join the edges together and secure with clamps and the four screws securing the inner side panel frame.

- Using the windscreen, check positioning the front windscreen frame

2. Using a circular saw, trim the excess sheet metal parts.

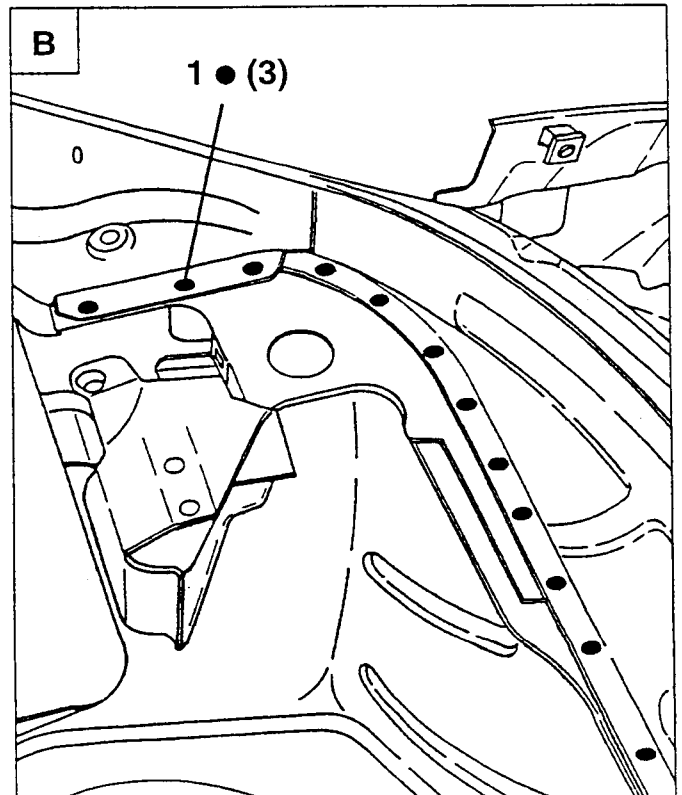
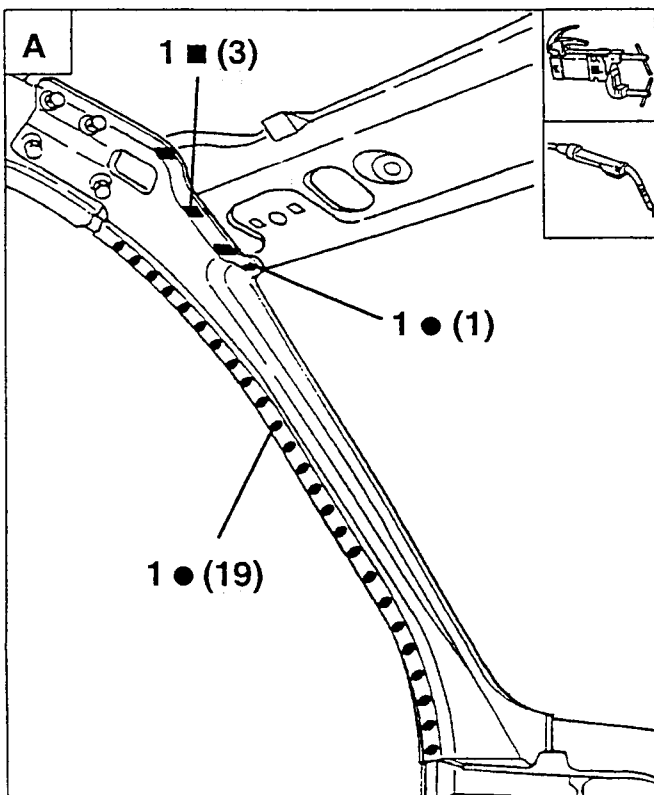
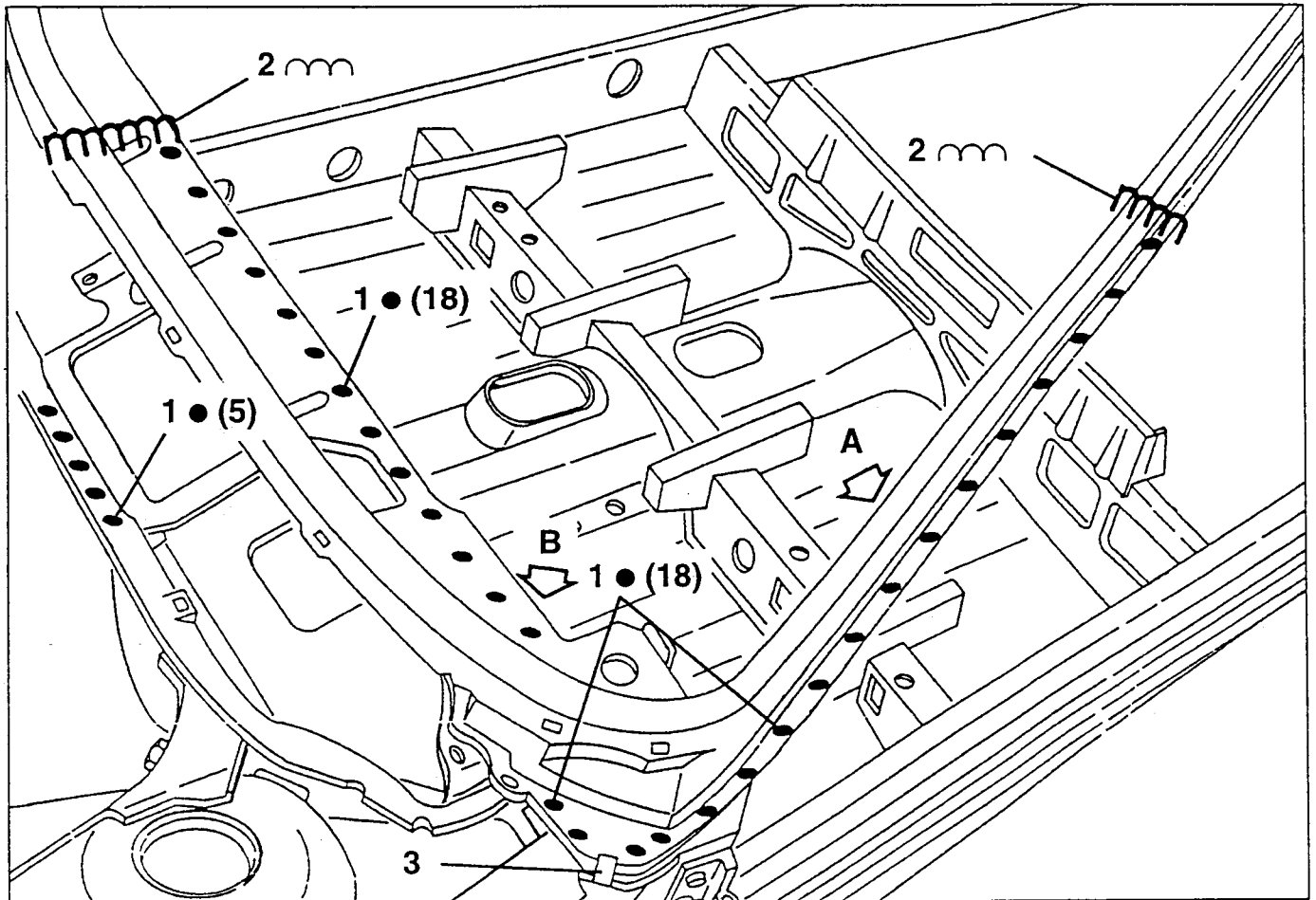


**WELDING AND FINISHING
THE SHEET METAL**

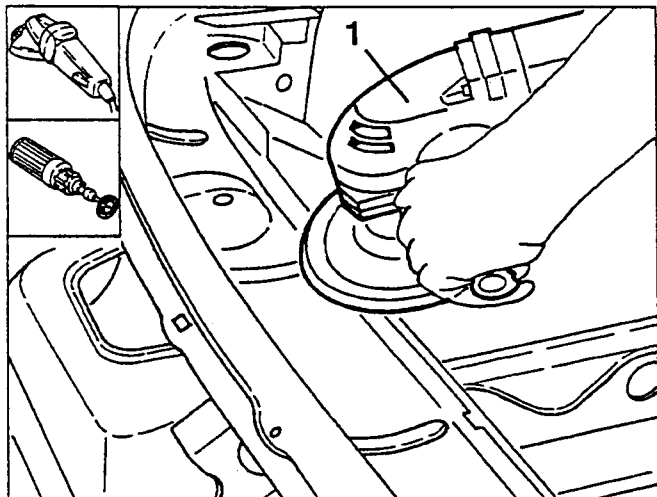
1. Using a spot welder or, where necessary, a MIG welder, proceed as shown in the diagram.

2. Using a MIG welder, weld a seam as shown in the diagram.

3. Bend the clinch tabs.

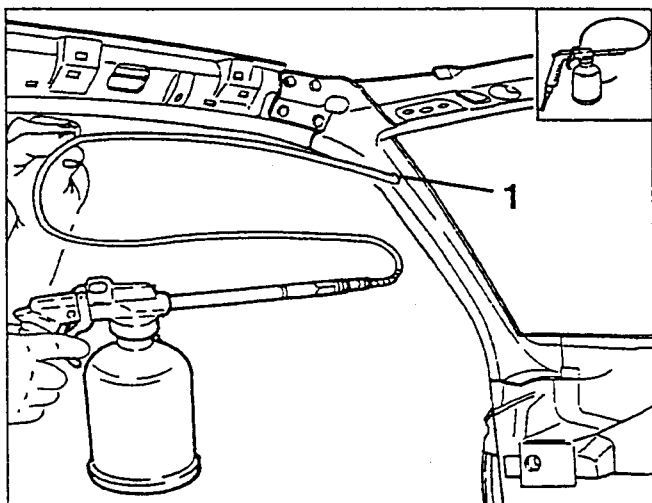


1. Using an abrasive grinding wheel, remove and flush the residues left by welding.
- Using a rotating brush clean the welded areas.

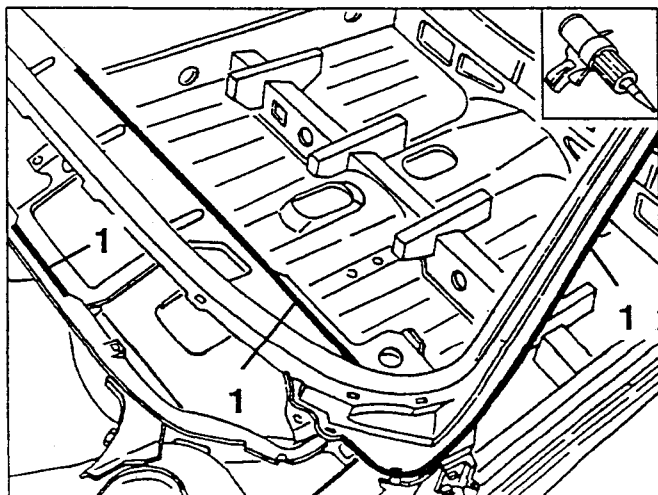


PROTECTION

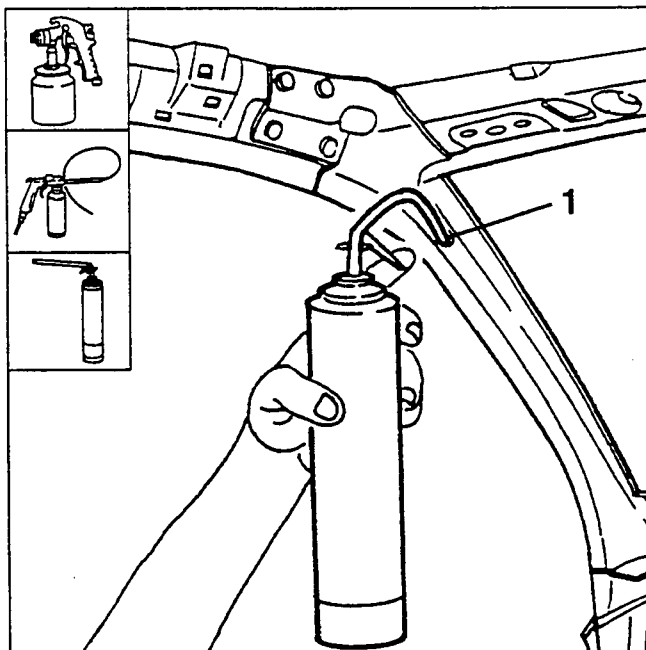
1. Apply the specified corrosion inhibitor to the areas to be MIG welded.



1. Apply the specified sealant along the lines shown in the diagram.



- Proceed to the painting phase.
- Proceed to the wax-treatment phase for the boxed parts.
- 1. Proceed to the foam treatment phase for the front pillar as shown in the diagram.

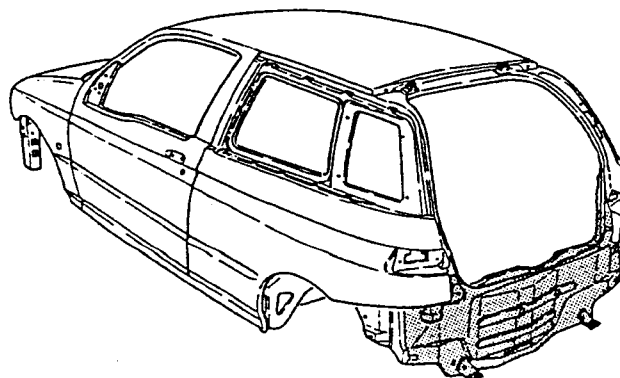


RIB

PRELIMINARY OPERATIONS

- Disconnect the negative (-) cable from the battery and remove the electronic control units.
- Remove the trim components, electrical and mechanical system which could hinder the repair operations or get damaged during work (see specific paragraphs).
- Remove the following sheet metal parts:
 - boot (see specific paragraph).

REMOVAL

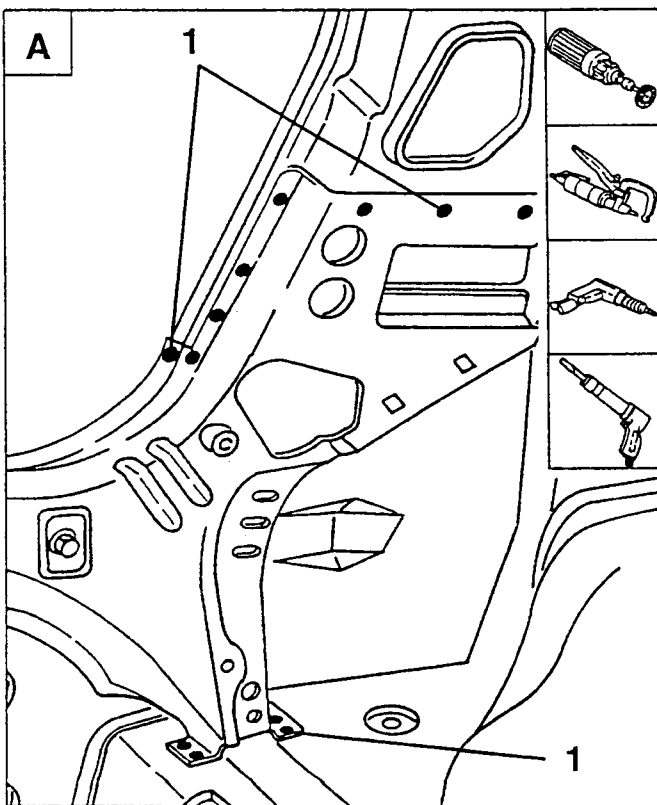
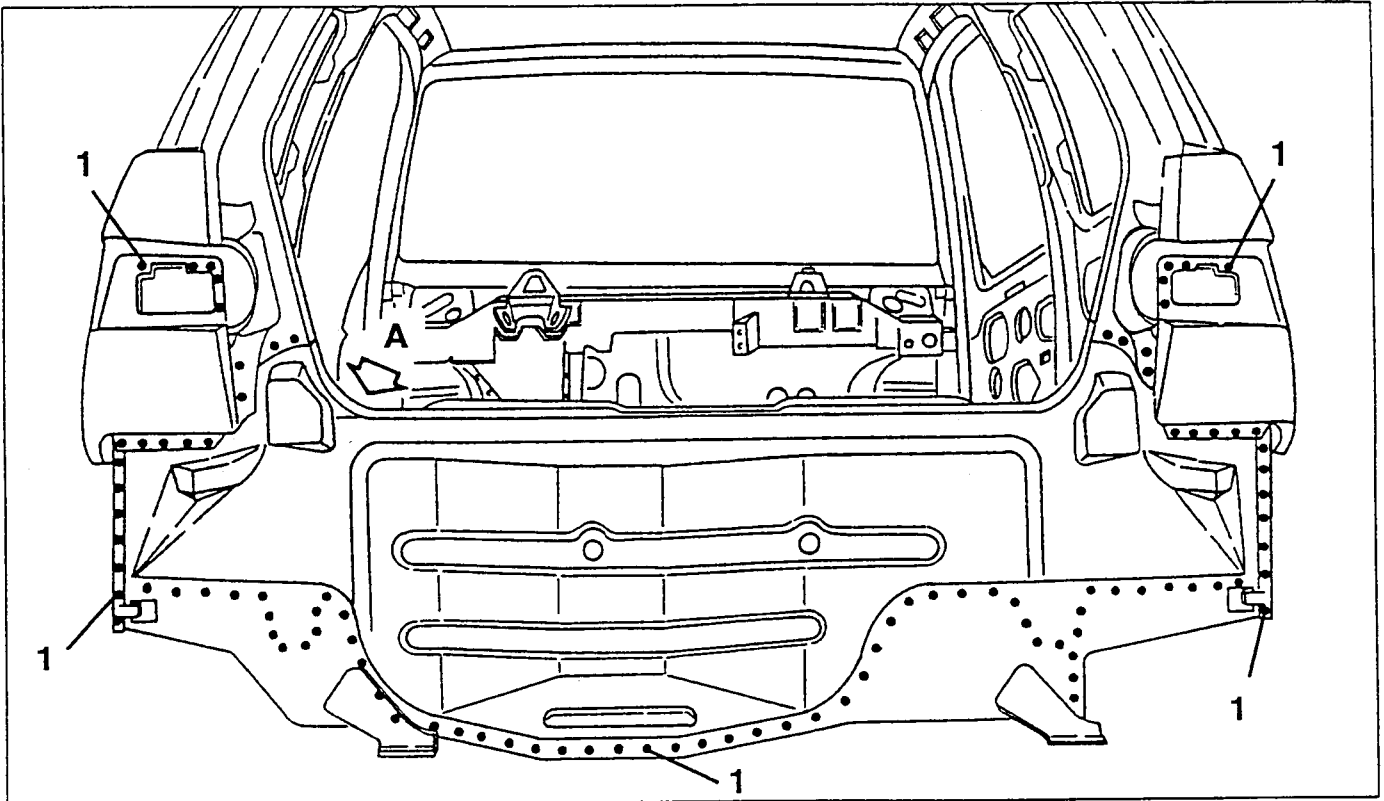


- Using a rotating brush clean the areas to be spot-cut to highlight the welding points.

1. Using a spot cutter, remove the accessible welding points; remove the remaining points using a drill or a chisel.

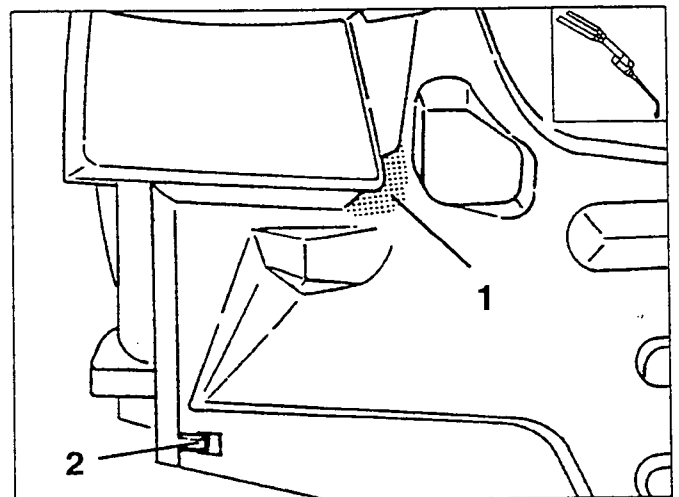
NOTE:

If necessary free the sheet metal.



1. Using an oxyacetylene torch, unweld the braze welds shown in the diagram.

2. Open the clinch tabs and remove the rib cutting the sealant if necessary.

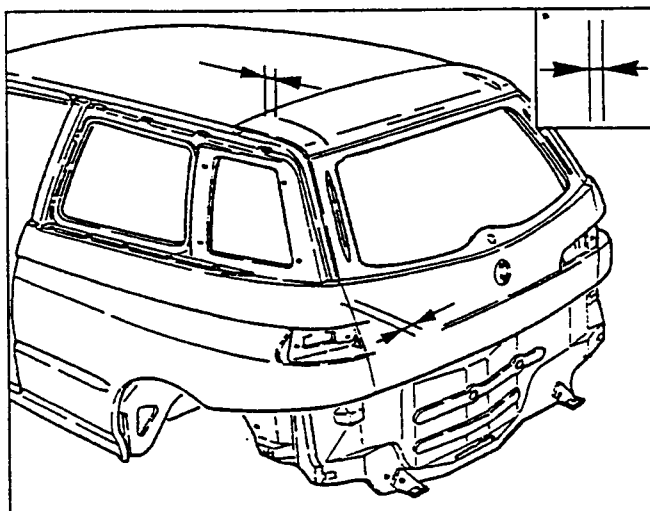
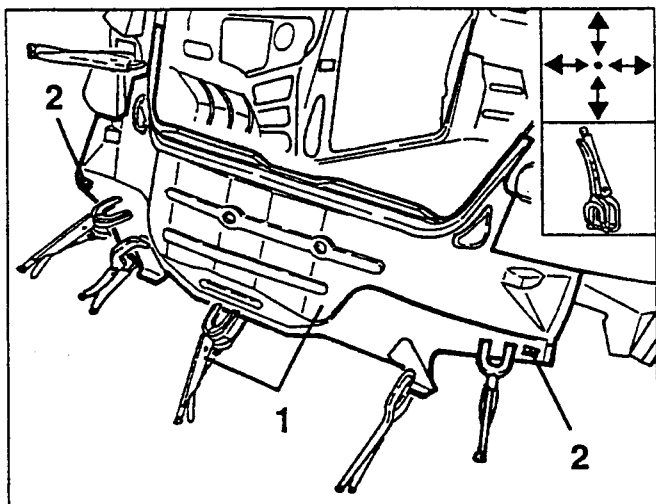
**PREPARATION**

- Using a rotating brush, clean the area to be welded.
- Apply a thick layer of electroweldable protection to the entire lower part of the floor-rib mating surfaces.
- Apply the electroweldable protection with a brush to the remaining areas to the spot welded.

POSITIONING AND INSPECTION

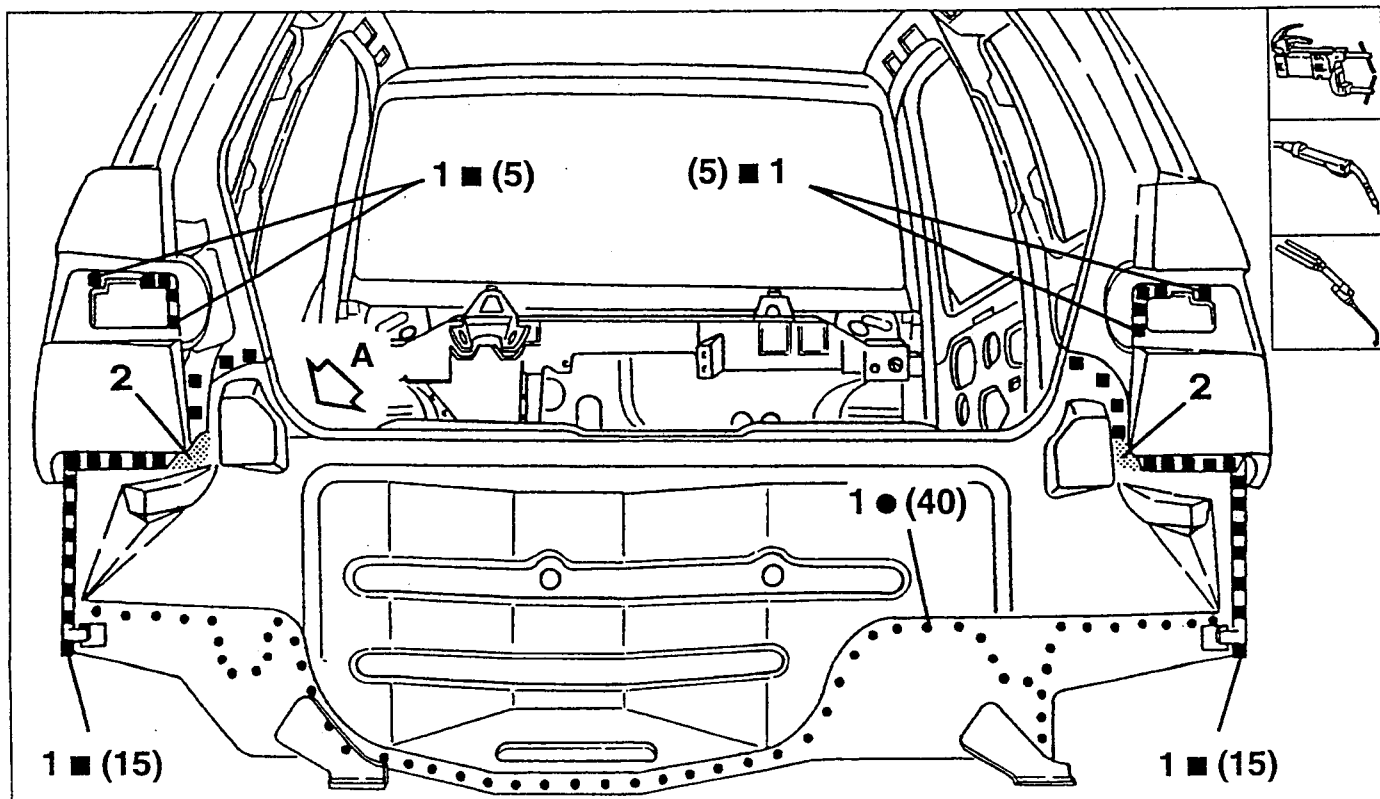
1. Install the rib ensuring that the upper tabs are bent just enough to facilitate positioning. Join the edges to be welded and fix with clamps.
2. Bend the clinch tabs.

- Check parallelism, gaps and angles and refit the mobile components removed previously with their gaskets and the parts which, when fitted, permit verification of the success of the operations.

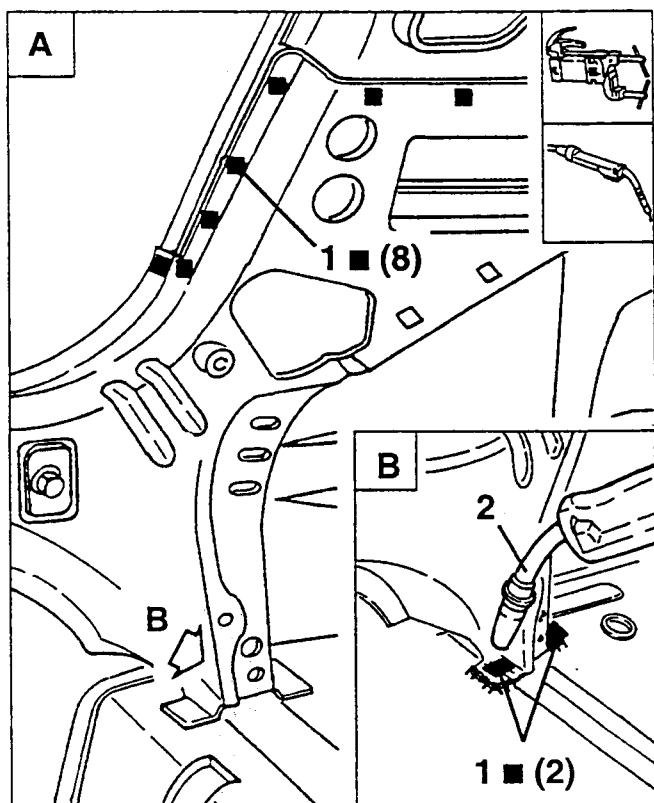
**WELDING AND FINISHING THE SHEET METAL**

1. Using a spot welder or, where necessary, a MIG welder, proceed as shown in the diagram.

2. Using an oxyacetylene torch brass braze-weld as shown in the diagram.

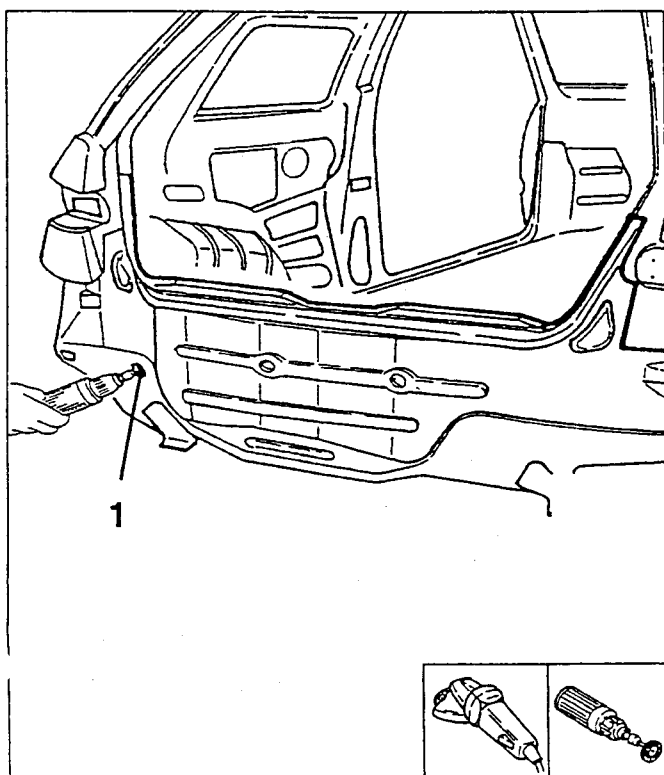


1. Using a spot welder or, where necessary, a MIG welder, proceed as shown in the diagram.
2. Using a MIG welder, weld a seam as shown in the diagram.



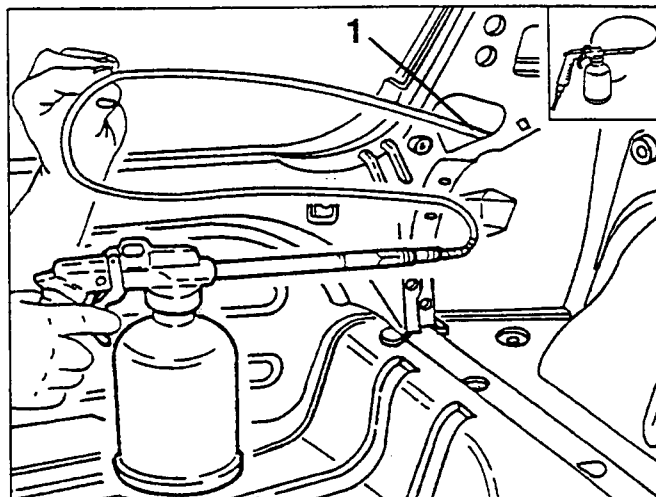
- Using an abrasive grinding wheel, remove and flush the residues left by welding.

1. Using a rotating brush, clean the welded areas.

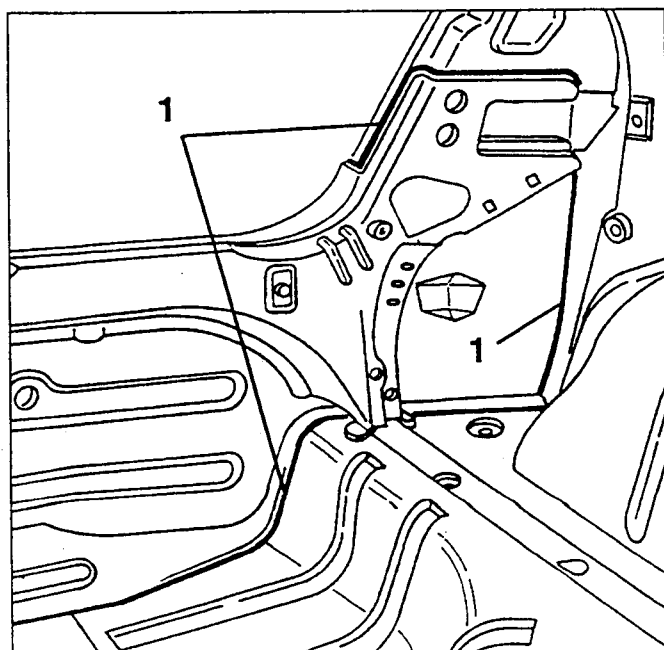
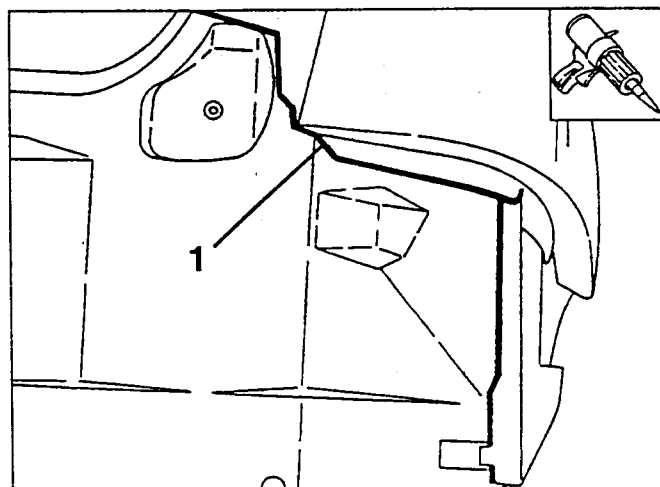


PROTECTION

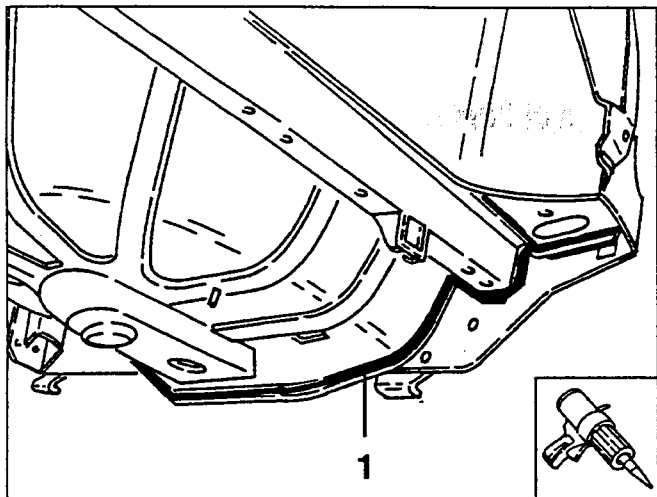
1. Apply the specified corrosion inhibitor to the areas which have been MIG welded.



1. Apply the specified sealant along the lines shown in the diagram.

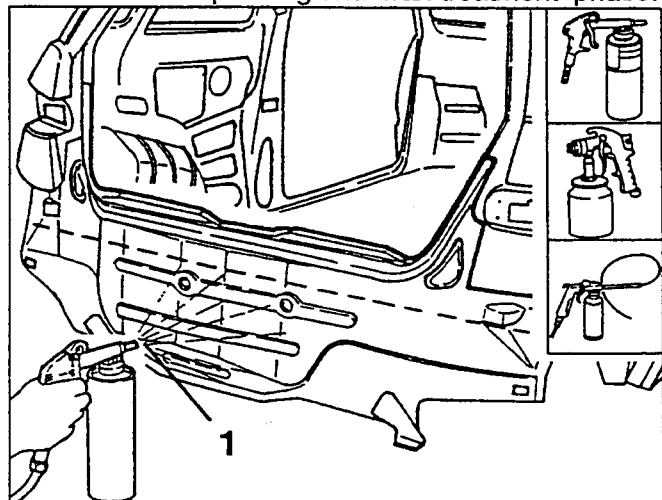


1. Working from under the car, apply the specified sealant along the lines shown in the diagram.



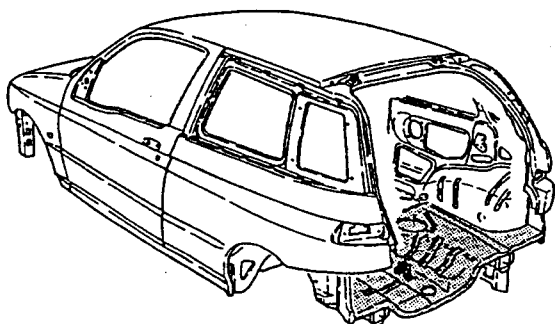
1. Apply the specified underbody sealant to the new areas and on the rib spreading it up to the line shown in the diagram.

- Proceed to the painting and wax-treatment phase.



REAR PARTIAL FLOOR PANEL (WITH RIB REMOVED)

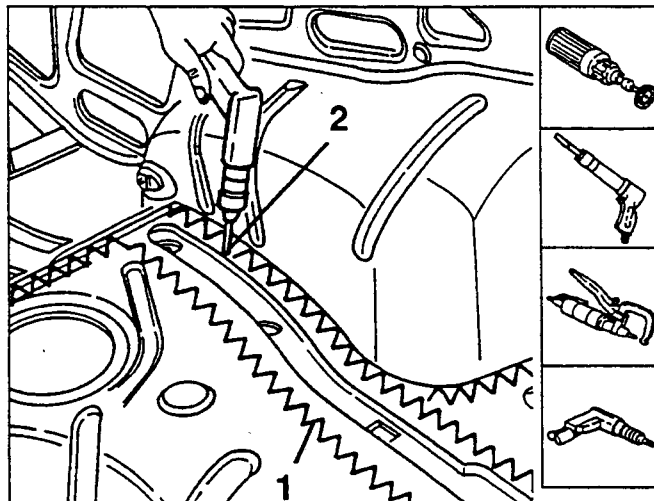
REMOVAL



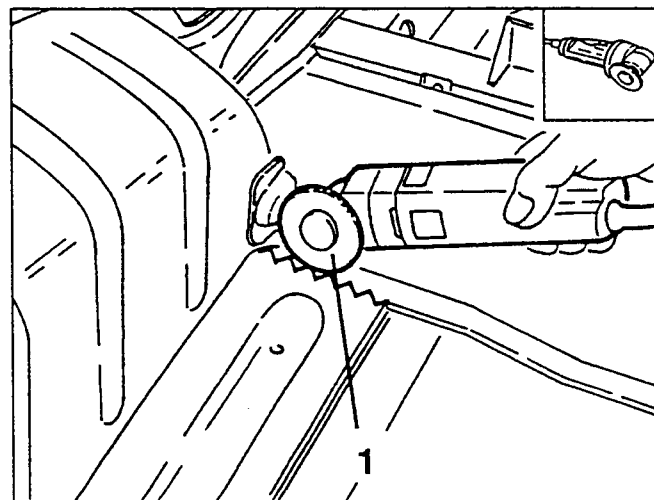
1. Using a chisel free the floor panel as shown in the diagram and remove the sheet metal.

- Using a rotating brush, clean the areas to be spot-cut to highlight the welding points.

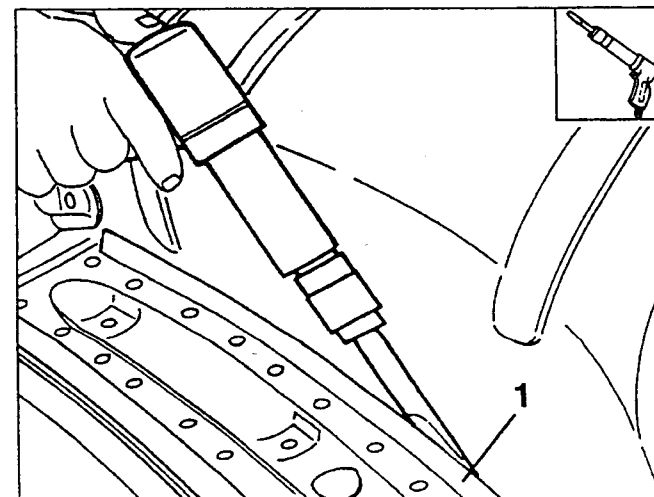
2. Using a spot cutter, remove the accessible welding points, remove the remaining welding points using a drill or a chisel.



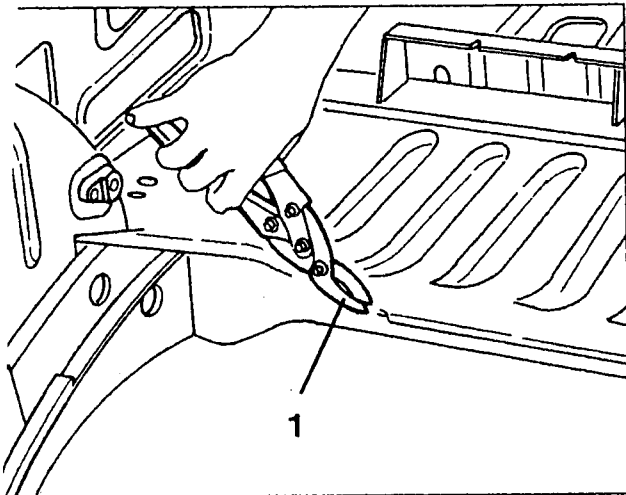
1. Using a circular saw, cut the side edges of the floor panel to be removed as shown in the diagram.



1. Using a chisel remove the side edges of the rear partial floor panel.

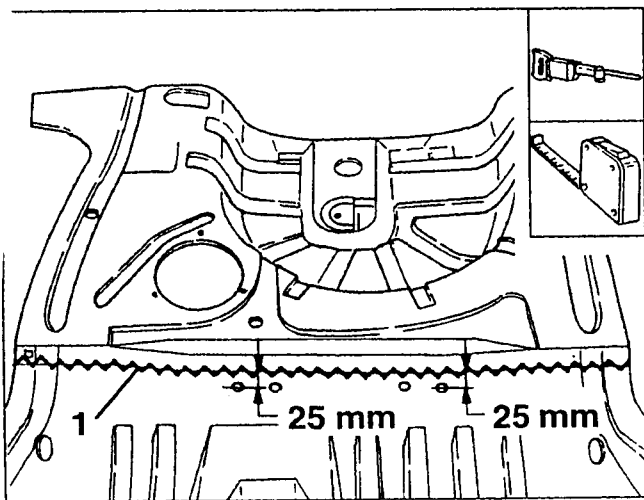


Using shears trim the floor panel so that it is flush with the frame.



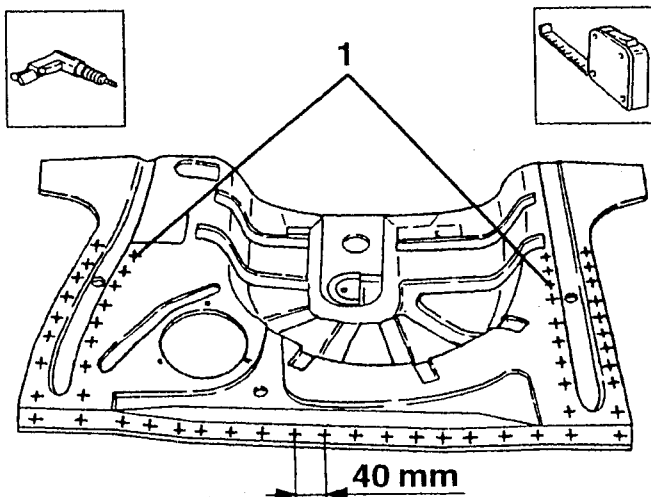
REPARATION

Working on a bench trace out and cut the new floor panel to the dimensions given in the diagram.

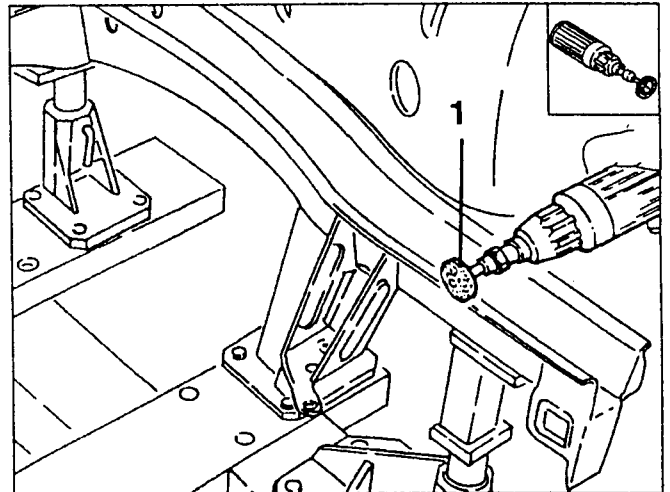


- Using shears trim the cut on the partial rear floor panel.

1. Trace out and drill the partial rear floor using a drill and a $\varnothing 5$ mm bit and leaving space between the holes as shown in the diagram.

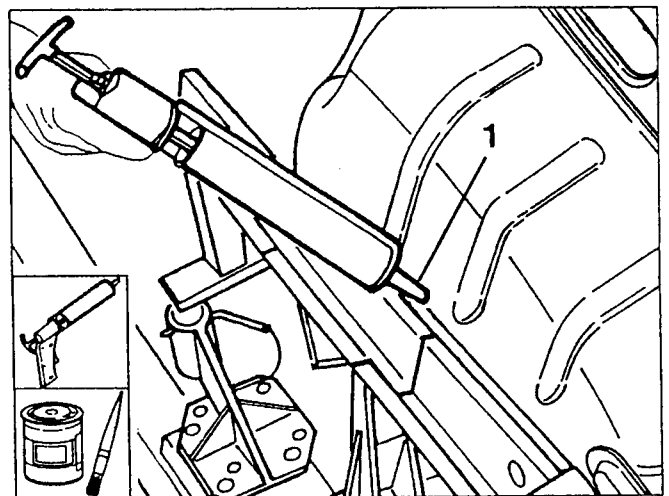


1. Using a rotating brush, clean the area to be welded.



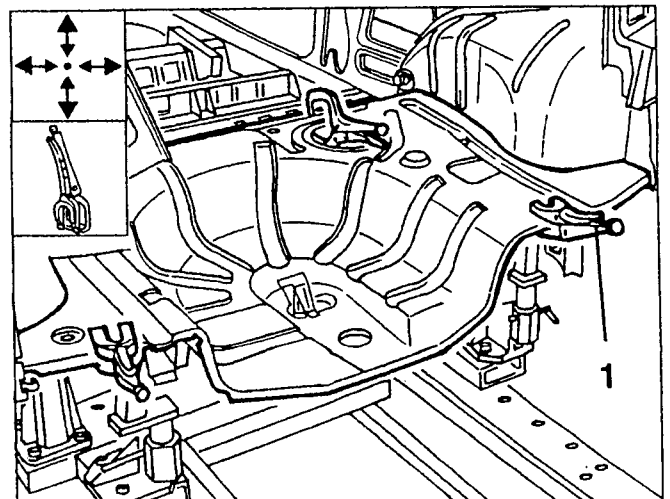
1. Apply a thick layer of electroweldable protection to the area indicated in the diagram.

- Apply the electroweldable protection with a brush to the remaining areas to the spot welded.



POSITIONING

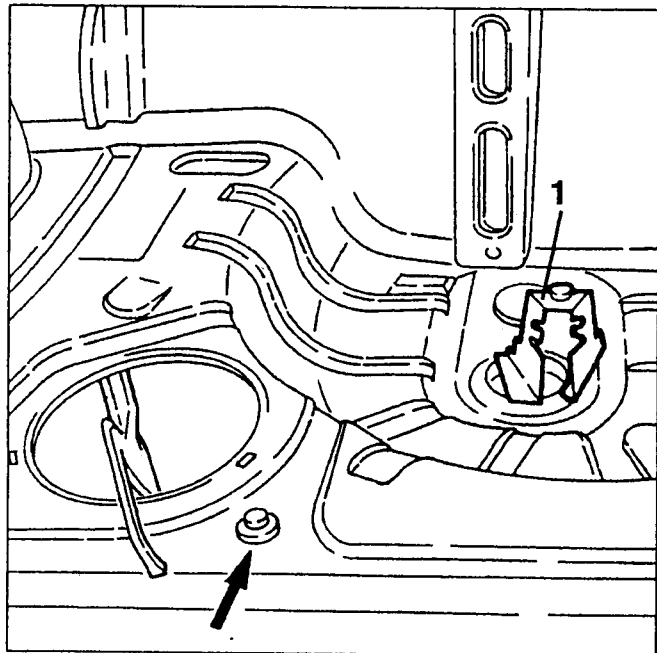
1. Position the partial rear floor panel and join the edges to be welded together and fix using clamps.



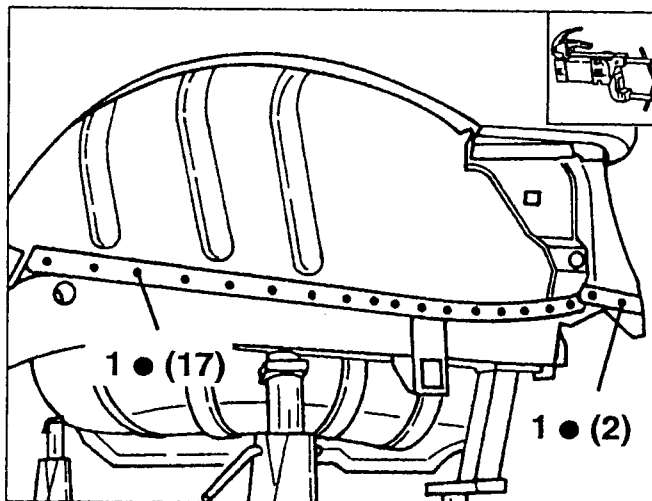
1. Position the well support as indicated in the diagram.

NOTE:

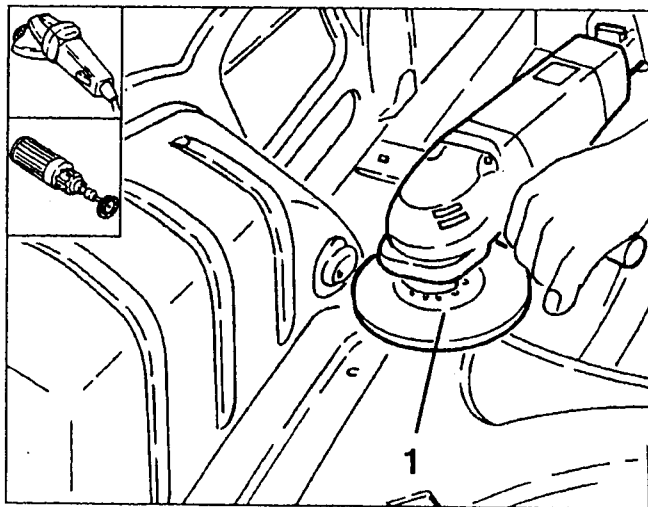
Check the correct position of the partial rear floor panel using a screw in the hole indicated in the diagram as a reference point.



1. Using a spot welder, proceed as shown in the diagram.

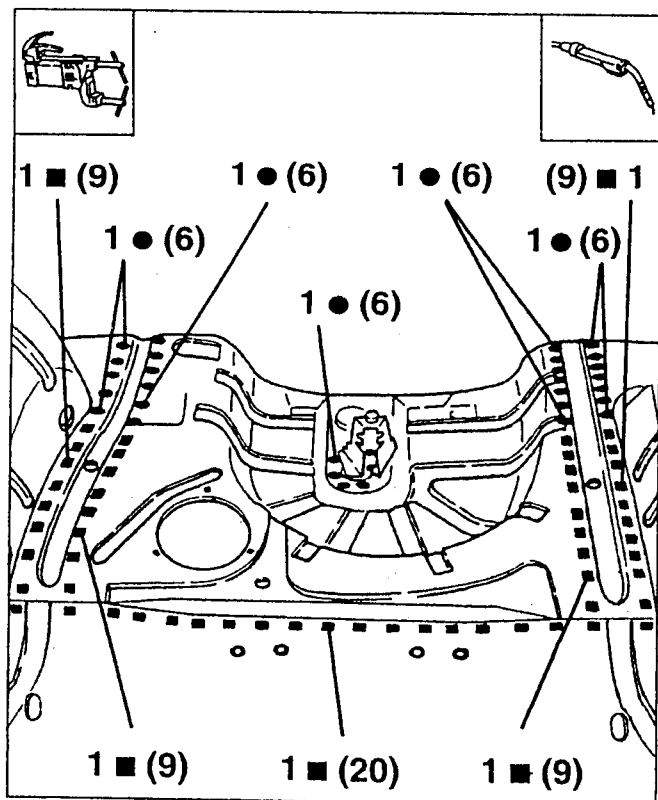


1. Using an abrasive grinding wheel, remove and flush the residues left by welding.
- Using a rotating brush, clean the welded areas.

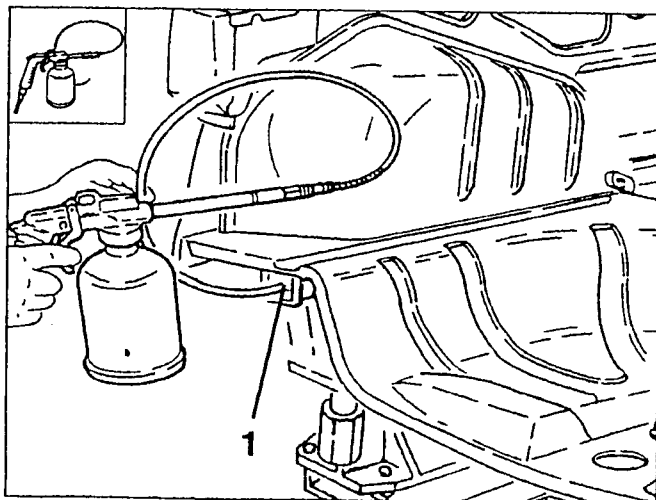


WELDING AND FINISHING THE SHEET METAL

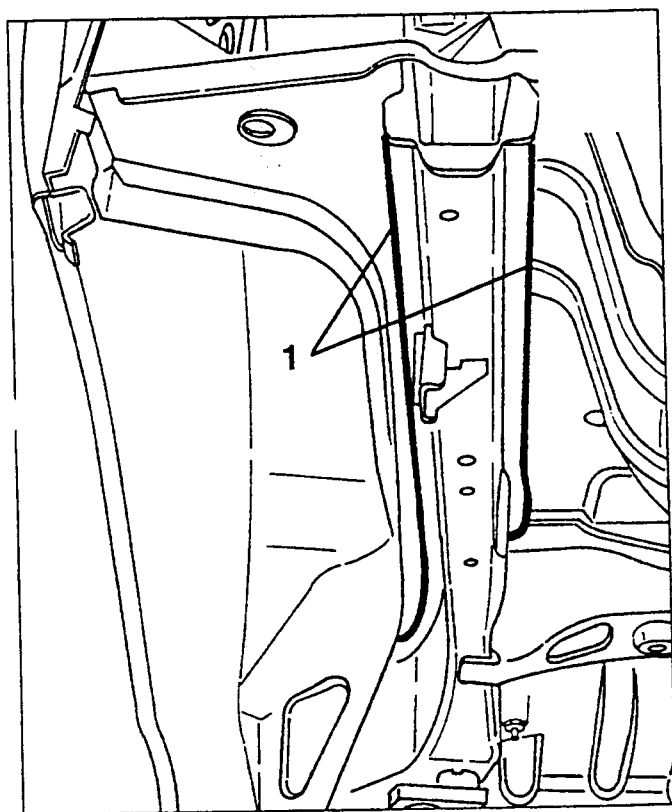
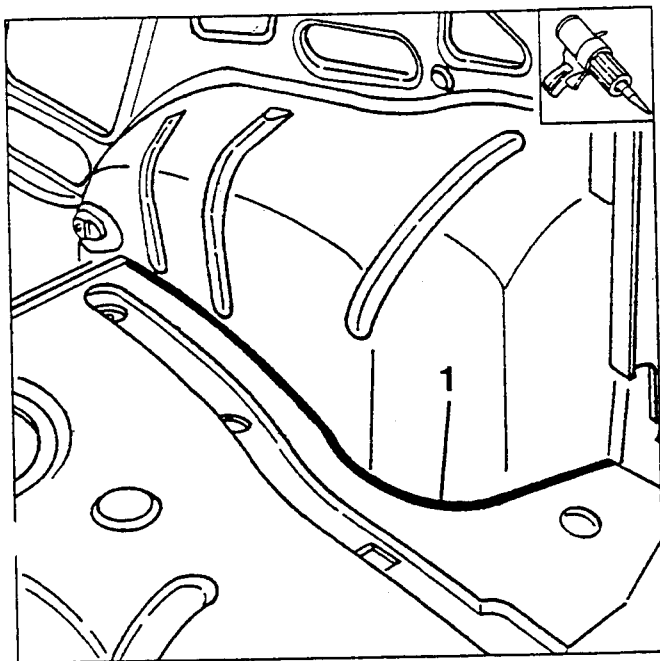
1. Using a spot welder or, where necessary, a MIG welder, proceed as shown in the diagram.



1. Apply the specified corrosion inhibitor to the areas to be MIG welded.

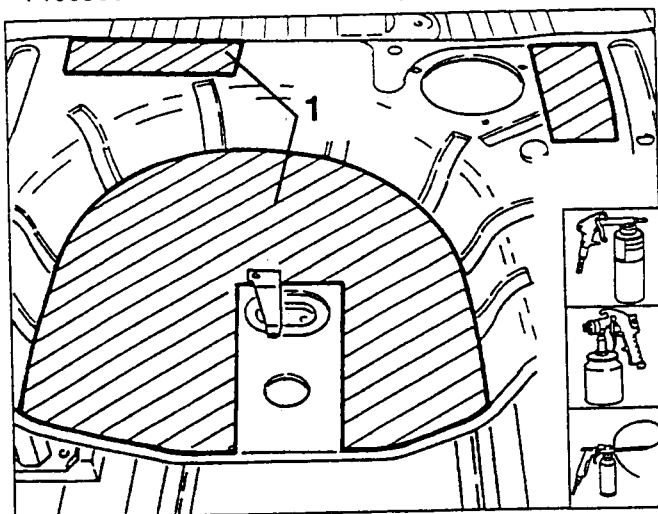


. Apply the specified sealant along the lines shown in the diagram.



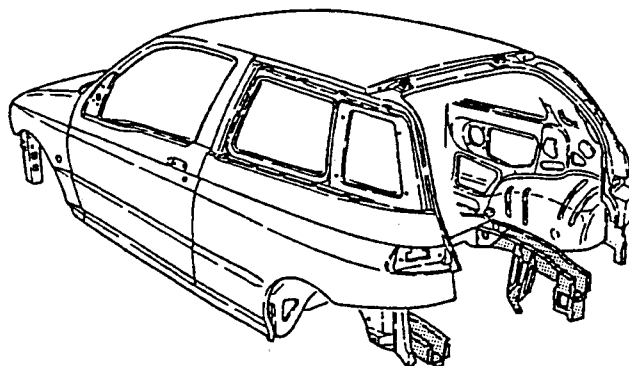
1. Apply the sound-proof panels as shown in the diagram.
- Apply the specified underbody protection to the under-floor areas.
- Proceed to the painting phase.

- Proceed to the wax-treatment phase.

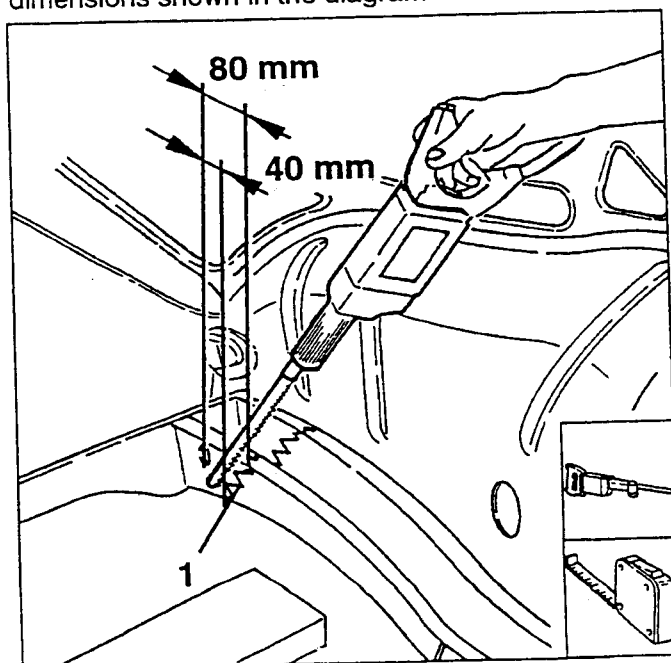


PARTIAL REAR CROSS-MEMBERS (WITH FLOOR REMOVED)

REMOVAL



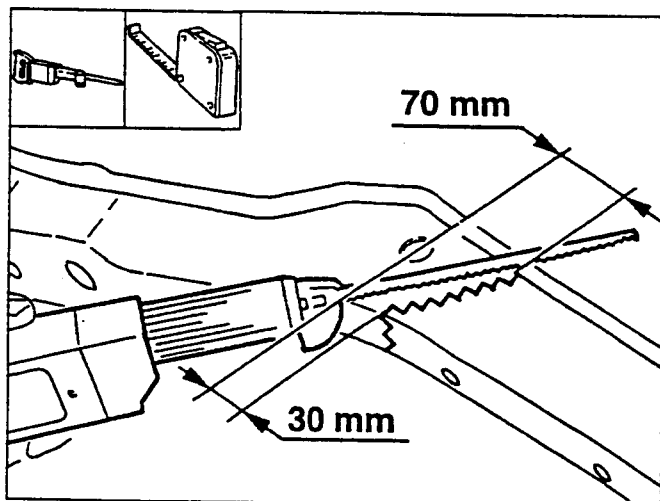
1. Using a jig saw, cut the cross-member to the dimensions shown in the diagram



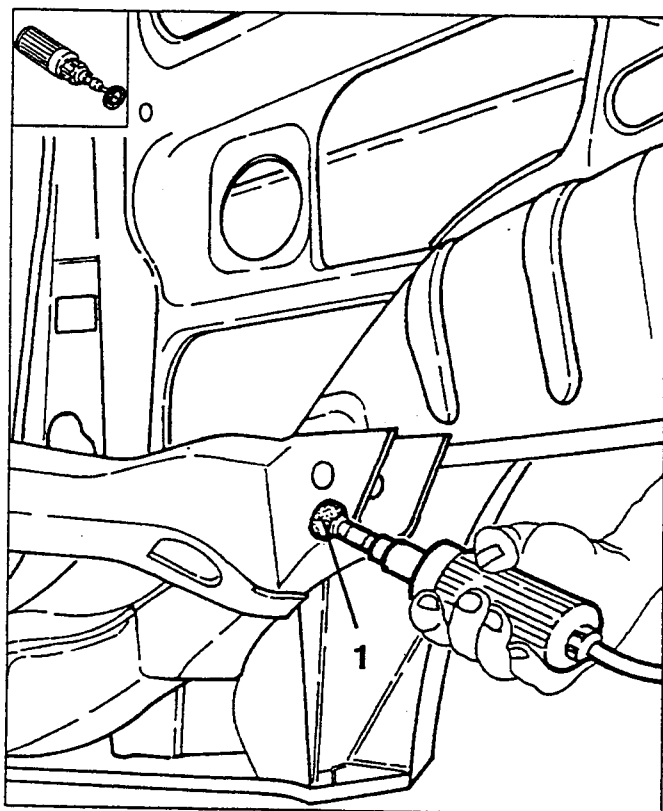
- Remove the partial rear cross-member.

PREPARATION

1. Working on a bench and using a jig saw cut the new cross-member to the dimensions shown in the diagram.

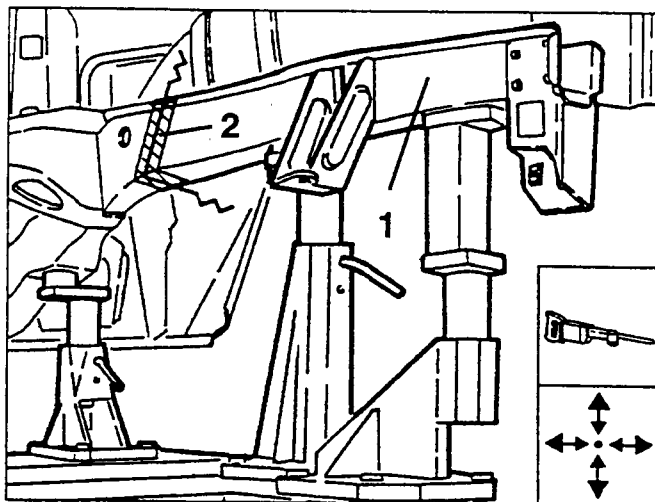


1. Using a rotating brush, clean the area to be welded.

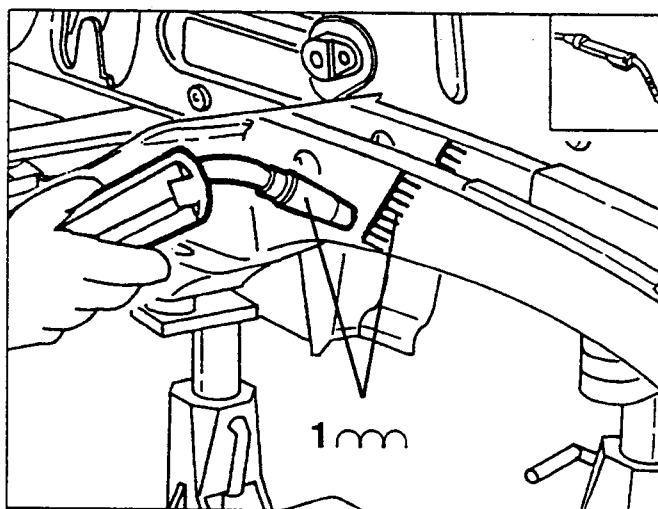
**POSITIONING**

1. Using a jig, correctly position the partial rear cross-member remembering to allow for overlapping.

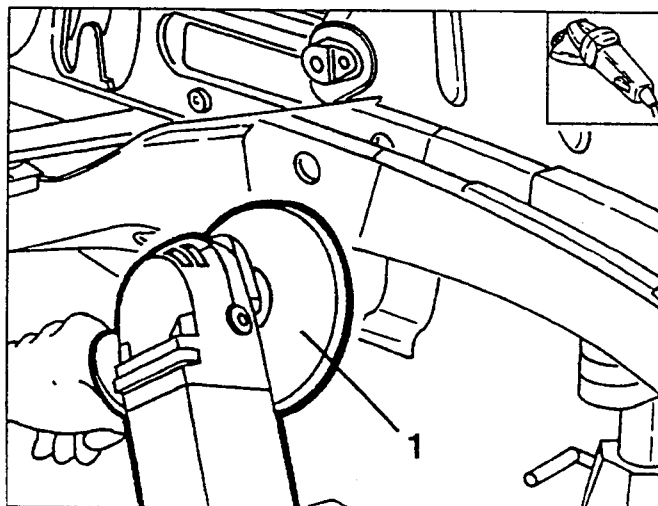
2. Using a jig saw, trim the excess sheet metal parts.

**WELDING AND FINISHING THE SHEET METAL**

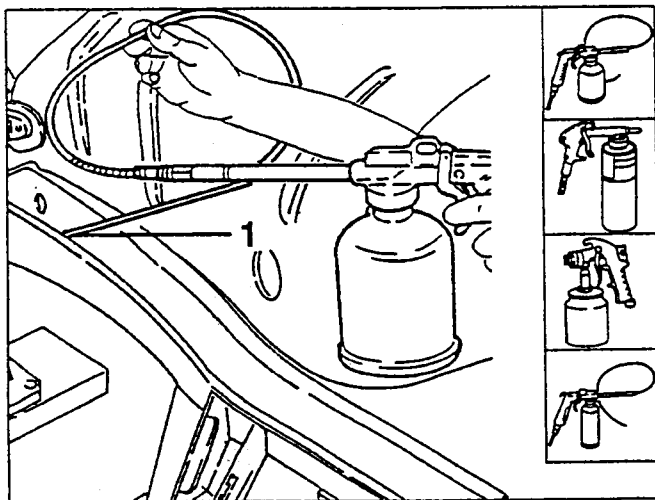
1. Using a MIG welder, proceed as shown in the diagram.



1. Using an abrasive grinding wheel, remove and flush the residues left by welding.

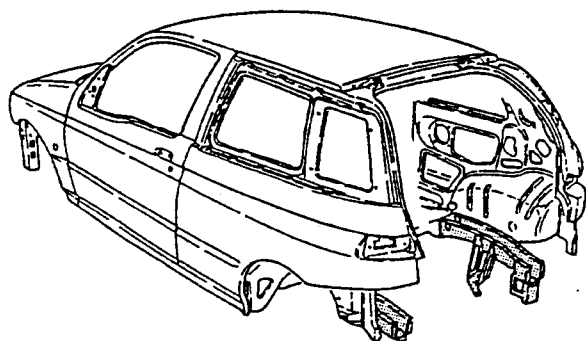


1. Apply the specified corrosion inhibitor to the areas to be welded.
- Apply the underbody protection to the new areas.
 - Proceed to the painting phase.
 - Proceed to the wax-treatment phase.

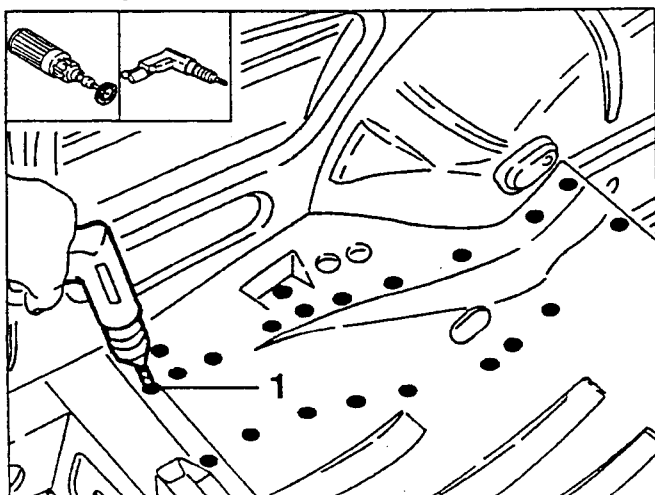


COMPLETE REAR CROSS-MEMBERS (WITH FLOOR REMOVED)

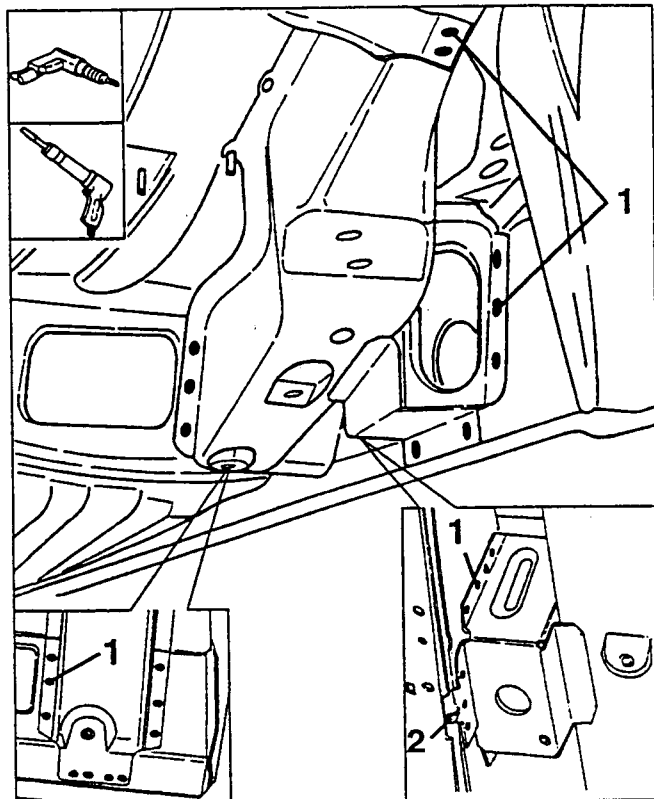
REMOVAL



- Using a rotating brush, clean the areas to be spot-cut to highlight the welding points.
 - Remove the sound-proofing carpets from the floor.
1. Using a drill, spot cut the welding points as shown in the diagram.

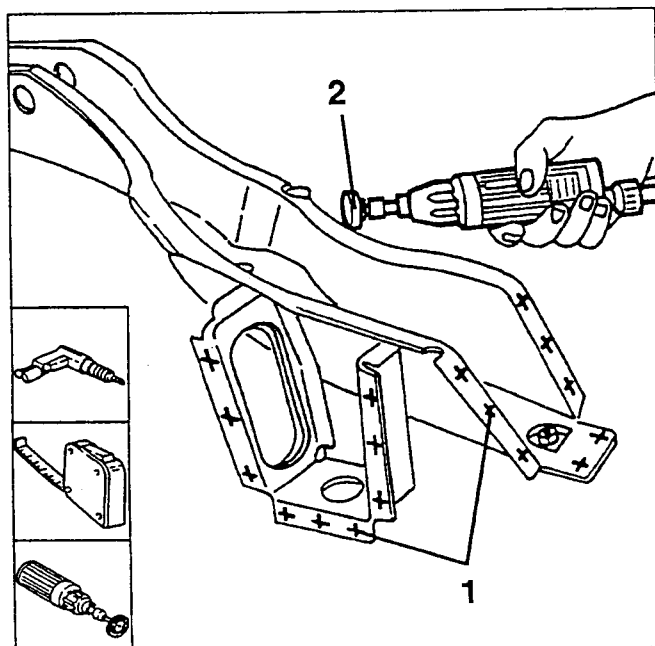


1. Using a drill or, where necessary, a chisel, spot cut as shown in the diagram.
2. Remove cross-member after opening the clinch tab.



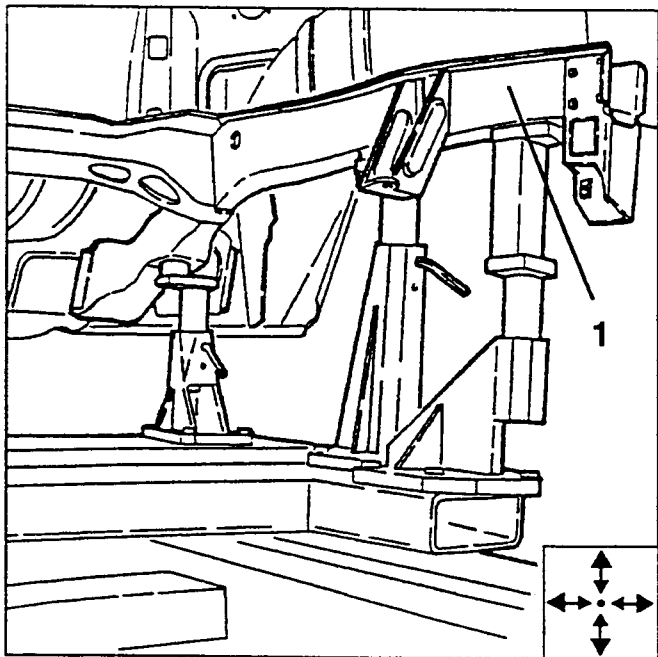
PREPARATION

1. Working on a bench trace out and perforate the cross-member with a drill and Ø 5 mm bit, as shown in the diagram.
2. Using a rotating brush, clean the area to be welded.

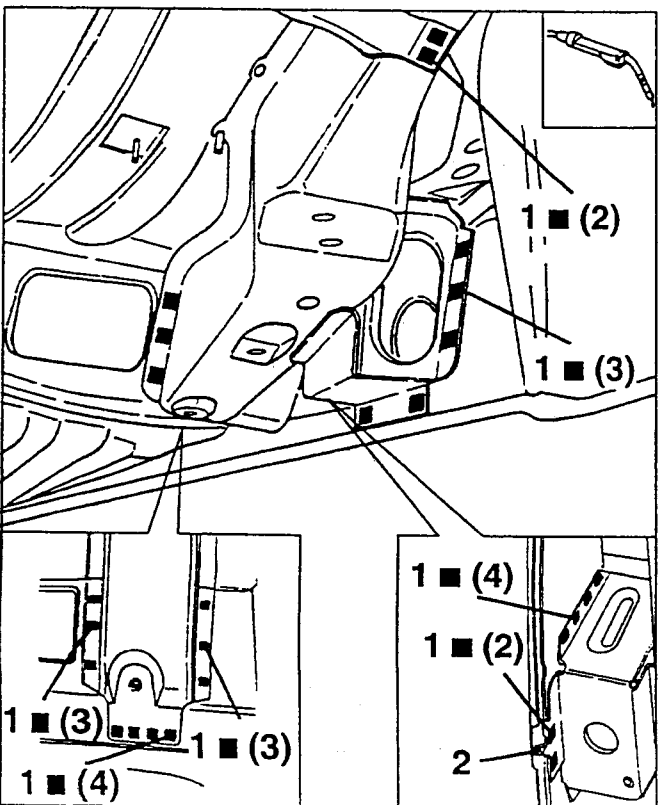


POSITIONING

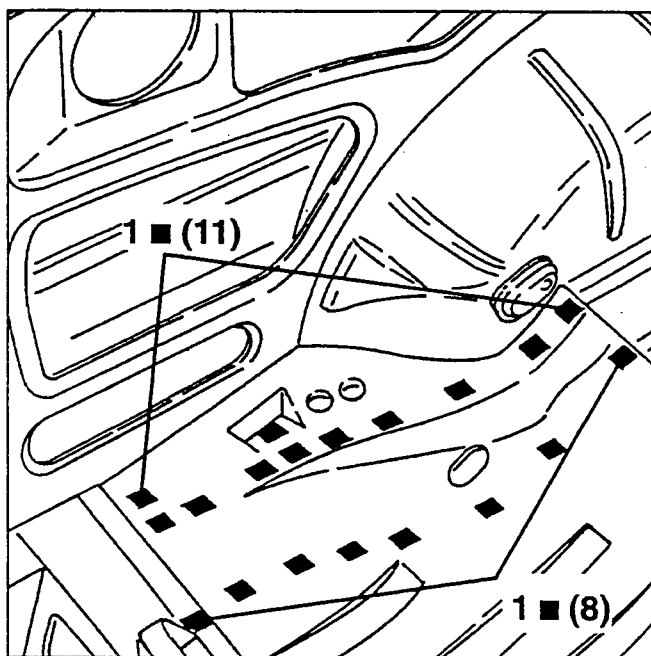
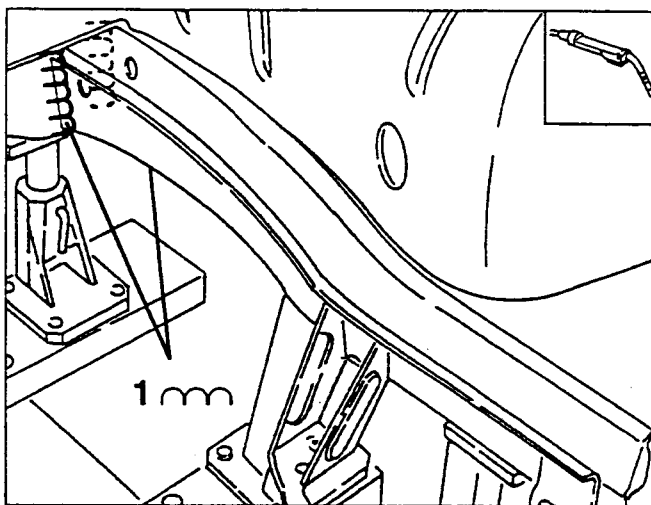
1. Install the cross-member using a jig to position it. Join the edges to be welded.

**WELDING AND FINISHING THE SHEET METAL**

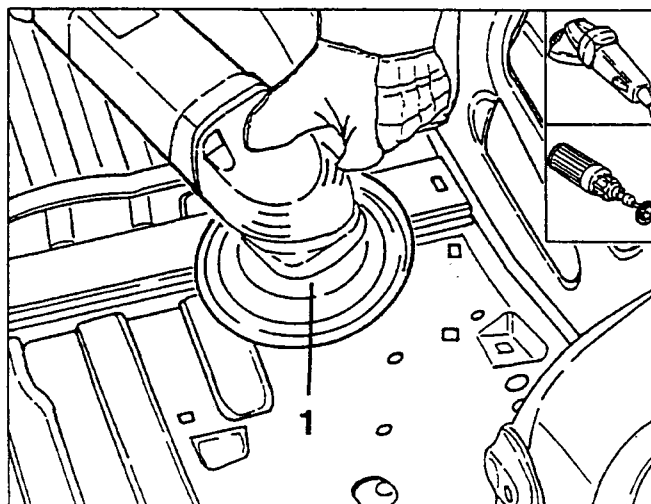
1. Using a MIG welder, proceed as shown in the diagram.
2. Bend the clinch tabs.



1. Using a MIG welder, proceed as shown in the diagram.

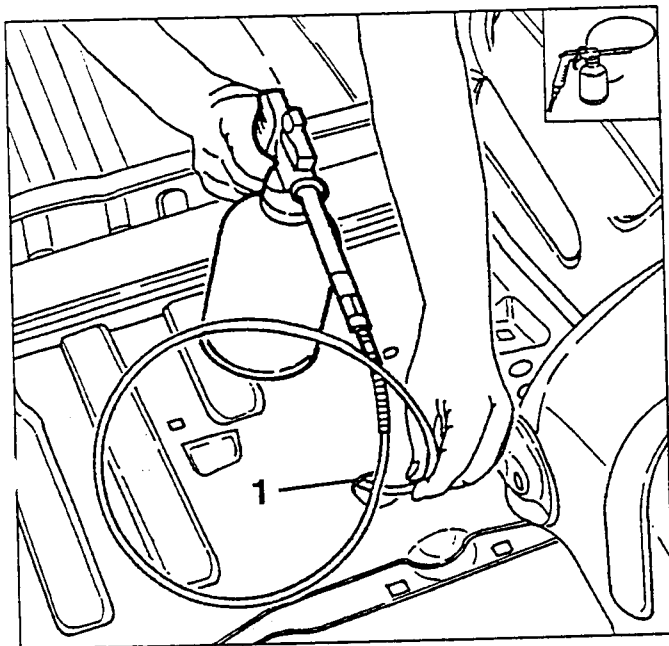


1. Using an abrasive grinding wheel, remove and flush the residues left by welding.
- Using a rotating brush, clean the welded areas.

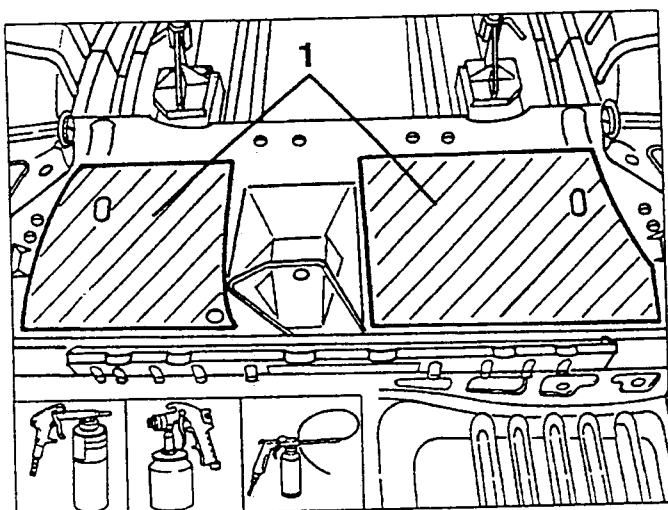


PROTECTION

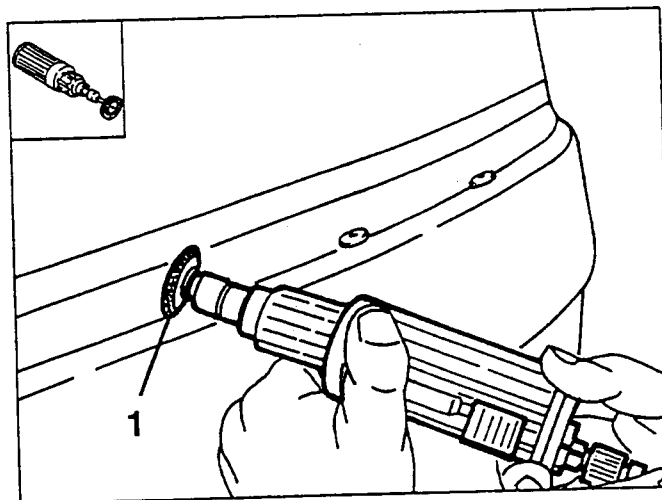
1. Apply the specified corrosion inhibitor to the areas which have been MIG welded.



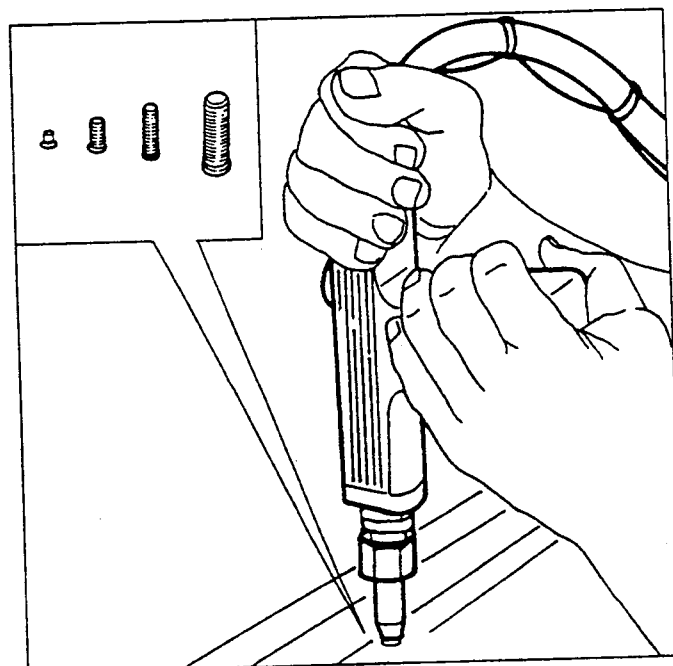
- Apply underbody protection to the new areas.
 - Proceed to the painting phase.
 - Proceed to the wax-treatment phase.
1. Refit the sound-proofing carpets as shown in the diagram.

**REPLACING NAILS**

- Suitably protect the surrounding areas or the area to be replaced.
1. Using a rotating brush clean the affected areas.



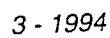
- Insert a nail of the correct size in the gun.
- Install the nail in place of the one removed.



- Sand and respray the new areas.

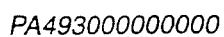
Specific for Boxer versions

	L	L ^I	L ^{II}	L ^{III}	L ^{IV}	L ^V	L ^{VI}	L ^{VII}	L ^{VIII}	T	T ^I	T ^{II}	T ^{III}	T ^{IV}	T ^V	T ^{VI}	H	H ^I
Lower radiator attachments	1	940 ± 1	740 ± 1	60						9	948 ± 1.5	651 ± 1					216	195
Dashboard cross-member and steering column attachments	2	1200	40							520 ± 1								
Front suspension frame side attachment	3	835 ± 1	125 ± 0.5							70	808 ± 1							
Front suspension frame front attachment	4	818 ± 1	53.5							70							234	
Front suspension attachments	5	28.4	79	206.35 ± 1						178 ± 0.5	89	11	279.4 ± 1	156	4.54	28.58	74	42
Front suspension frame rear attachment	6	625 ± 1.2	145 ± 0.2	60.5	710 ± 1					308							24 ± 0.5	
Rear suspension attachments	7	1084	132.25 ± 1	25	976	11	55 ± 0.5	12	42 ± 0.5	987 ± 0.5	43	422 ± 1	58	2269 ± 2			118	
Gearbox centering holes	8									50								
Holes for exhaust pipe support bracket	9	495 ± 1	280 ± 1	150						612 ± 1	250	345	455				49.2	
Holes for flexible support	10	84.5	147							19								
Hand brake attachments	11	90								233								
Fuel tank attachments	12	140	55	420	260	228				750	472	96	152				141 ± 1.5	116



Specific for Turbodiesel versions

	L	L ^I	L ^{II}	L ^{III}	L ^{IV}	L ^V	L ^{VI}	L ^{VII}	L ^{VIII}	T	T ^I	T ^{II}	T ^{III}	T ^{IV}	T ^V	T ^{VI}	H	H ^I
Lower radiator attachments	1	115 ± 0.5	940 ± 1	740 ± 1	60					9	948 ± 1.5						216	195
Dashboard cross-member and steering column attachments	2	1200	40							520 ± 1								
Gearbox attachments	3	830	28	60						372 ± 1	128	2	9	132				
Engine attachments	4	1013.5	55	35.5	30					5	131							
Front suspension attachments	5	28.4	79	206.35 ± 1						178 ± 0.5	89	11	279.4 ± 1	156	4.54	28.58	74	42
Suspension crossmember attachment	6	145 ± 0.2	83	625 ± 1.2	710 ± 1	948 ± 1	938	5	60.5	358 ± 1	270 ± 1	308					24 ± 0.5	
Rear suspension attachments	7	1084	132.25 ± 1	25	976	11	55 ± 0.5	12	42 ± 0.5	43	422 ± 1	58	2269 ± 2				118	
Gearbox centering holes	8									50								
Holes for exhaust pipe support bracket	9	495 ± 1	280 ± 1	150						612 ± 1	250	345	455				49.2	
Holes for flexible support	10	84.5	147							18								
Hand brake attachments	11	90								233								
Fuel tank attachments	12	140	55	420	260	228				750	472	96	152				141 ± 1.5	116

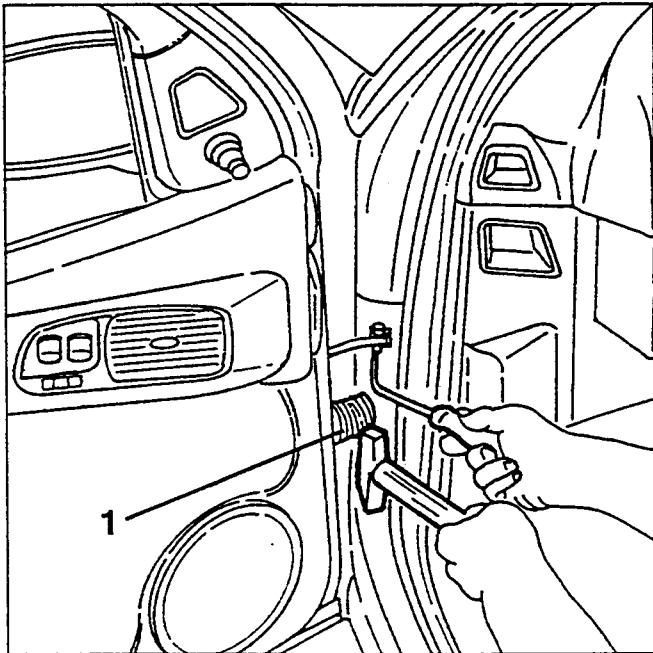


FRONT DOORS**REMOVAL AND REFITTING****NOTE:**

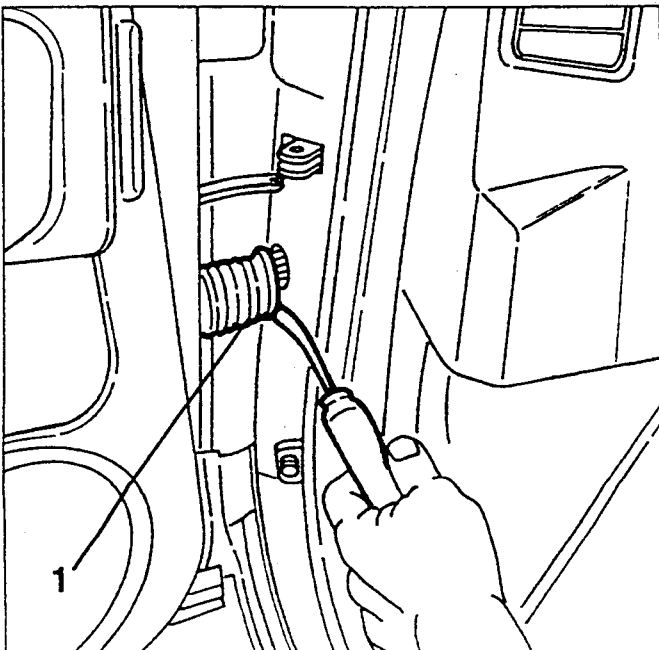
When removing or refitting avoid damaging the paintwork.

- Disconnect the negative (-) lead from the battery.

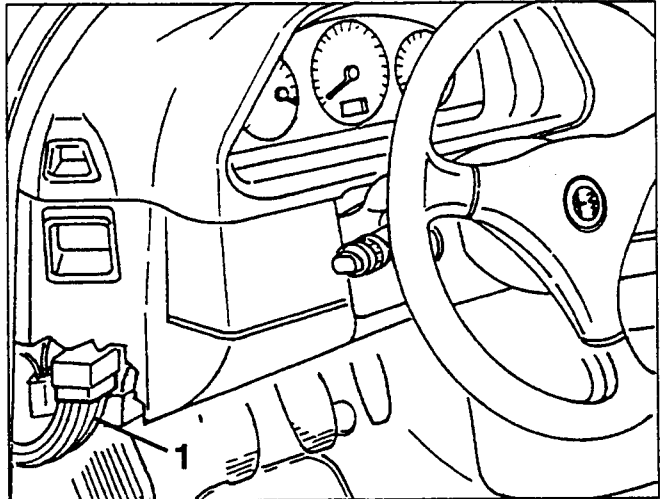
1. Using a suitable tool withdraw and remove the pin from the door check strap, half-close the door to back-off the rod and then open the door again.



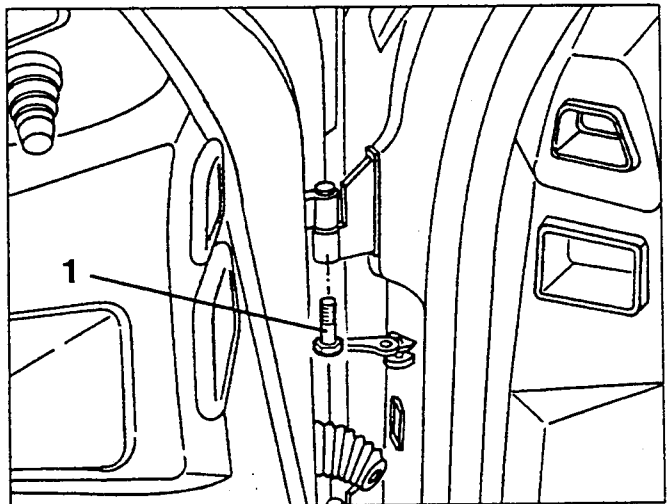
1. Disconnect the cable runner from the front pillar.



1. Working under the dashboard trim, disconnect the electrical connection from the door wiring and withdraw the pillar.



1. Loosen the two screws securing the door to the hinge.



1. Raise the door until the tapered pins of the hinges can be removed from their seatings and then remove the door.

