

This appears on two plates :

- one rectangular and one oval plate on the left hand cowl side.

The rectangular plate displays* :

At A : the manufacturer's name.

At B : the E.E.C. approval number comprising :

at B1 : the identification number of the country that granted the E.E.C. approval,

at B2 : the vehicle type approval number.

At C : the French official type number preceded by the manufacturer's international identification code (the code for Renault France for example is VF1).

At D : the chassis number.

At E : the gross vehicle weight.

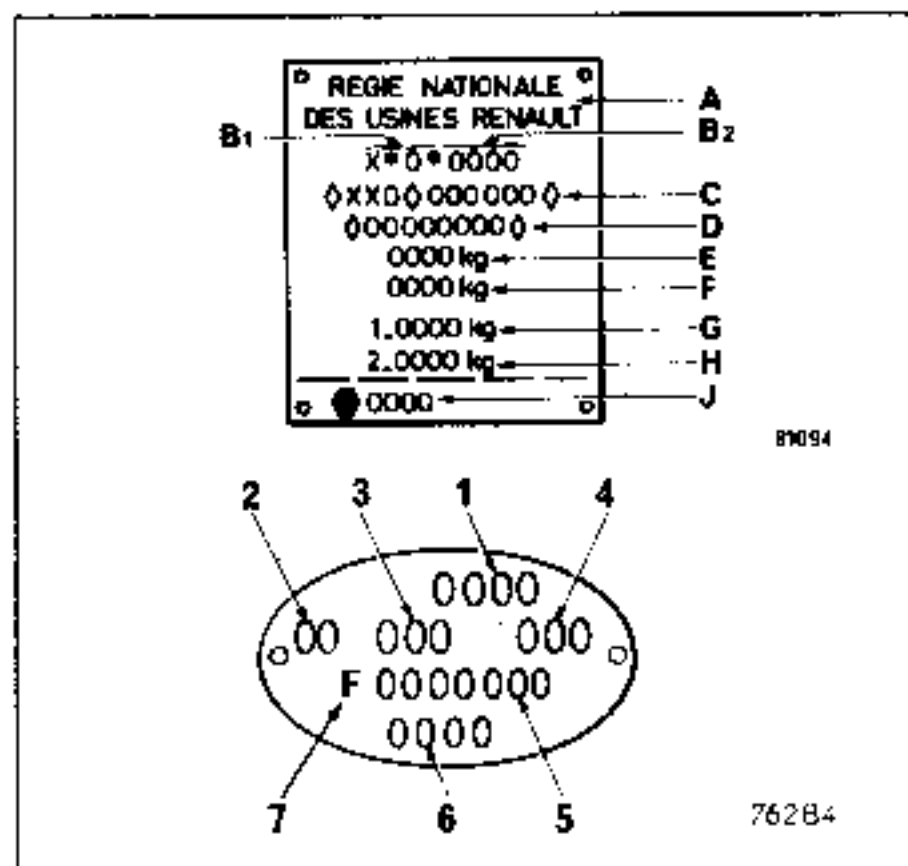
At F : the gross train weight.

At G : the maximum permissible front axle loading.

At H : the maximum permissible rear axle loading.

At J : the vehicle model year.

*Note : on some export models, certain of the items stated above may not appear, this being a description of all the details that may be shown on the plate.



The oval plate displays :

- at (1) : the manufacturer's symbol for the vehicle
- at (2) :
 - the first figure states the gearbox or automatic transmission type,
 - the second figure indicates the model grading,
- at (3) : is the basic version, depending on the market (see chart),
- at (4) : is an indication of any factory fitted option (sun roof, tinted windows)
- at (5) : the fabrication number,
- at (6) : the model year (certain markets only),
- at (7) : the factory at which the car was built, F = Flins

The meanings of the version numbers

Good road		Poor road		Special equipment	
Steering		Steering		Steering	
LH drive	RH drive	LH drive	RH drive	LH drive	RH drive
series 100	series 600	series 200	series 700	series 500	series 800

ESSENTIAL SPECIAL TOOLS

Cha.280-02	Trolley jack cross bar
Cha.408-01	Trolley jack adaptor
Cha.408-02	Trolley jack adaptor

If a trolley jack is used, so must suitable axle stands.

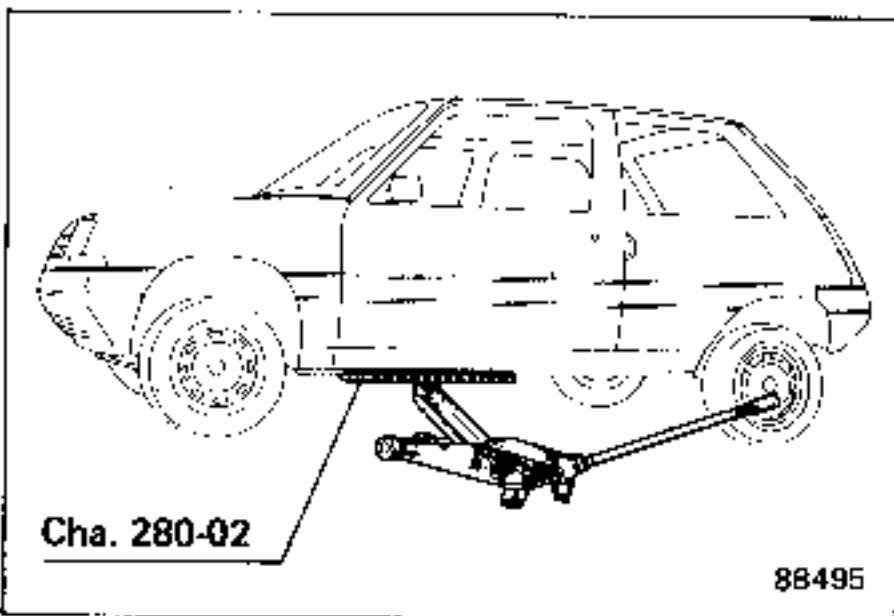
It is forbidden to lift the vehicle by taking the load under the front or rear suspension arms or under the front cross member, between the side members.

Depending on the trolley jack type, use adaptor Cha.408-01 or Cha.408-02 to mount cross bar Cha.280, Cha.280-01 or Cha.280-02.

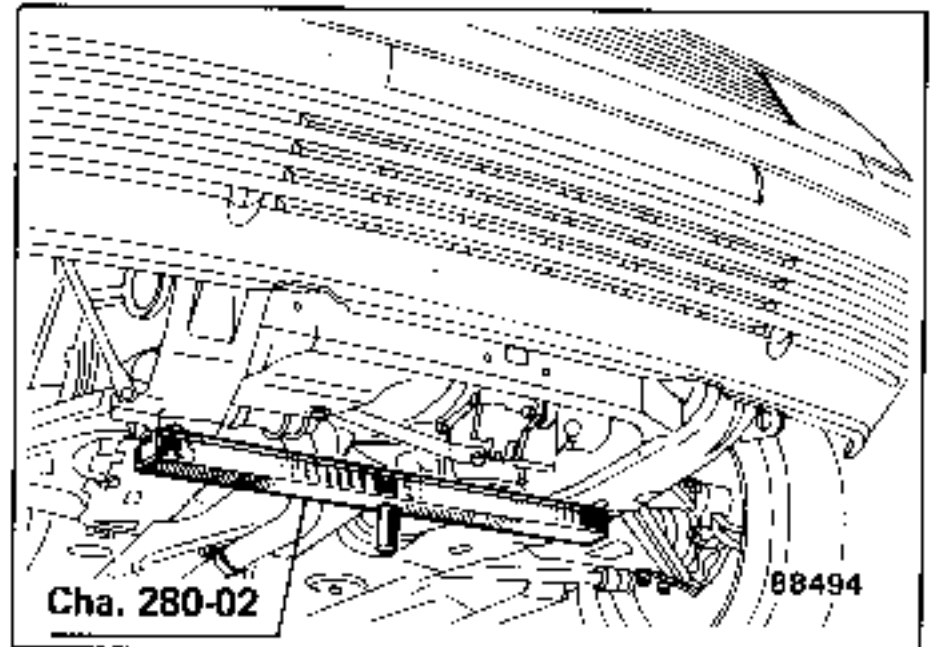
Whether lifting the front or the rear, take the load under the vehicle jacking points.

USING THE TROLLEY JACK FROM THE SIDE

- Use cross bar Cha.280-02.
- Take the load under the front door sill.
- Ensure that the panel flange locates correctly in the slot in the cross bar.



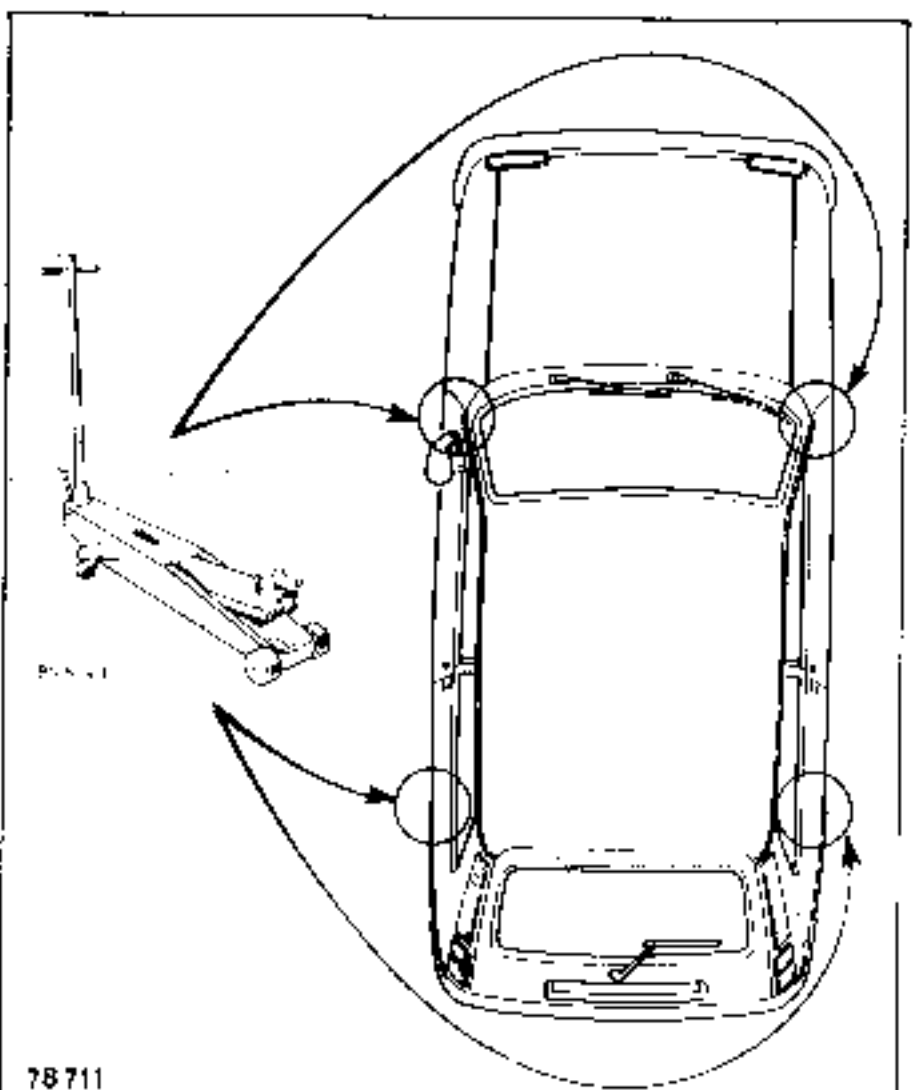
USING A TROLLEY JACK FROM THE FRONT



AXLE STANDS

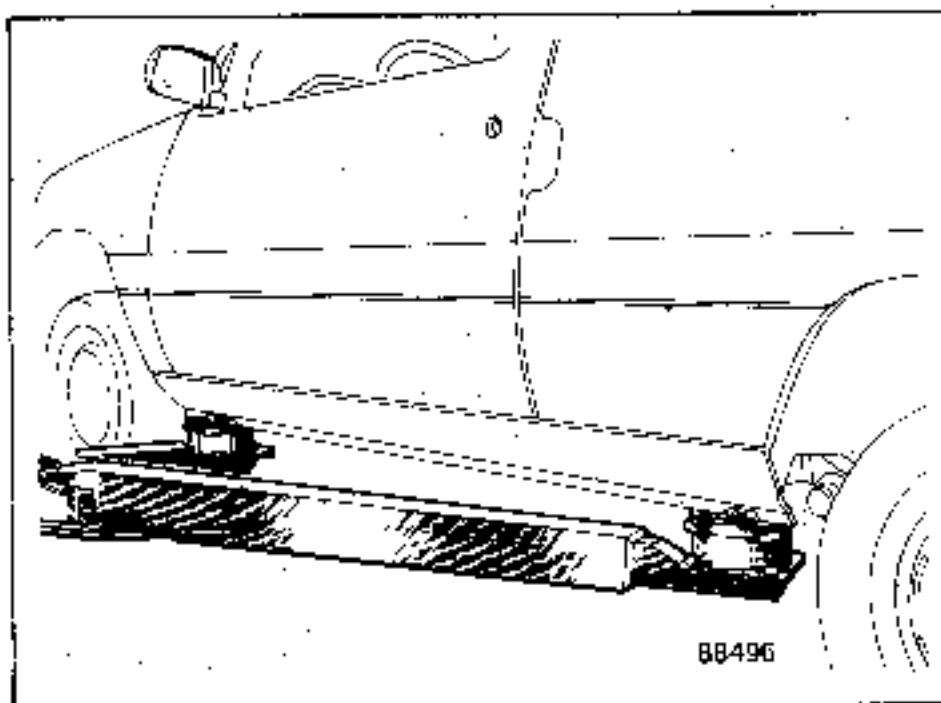
When the vehicle is supported on axle stands, they must be placed under the stiffeners at the jacking points provided for the vehicle's own jack.

To fit axle stands under the rear of the vehicle, lift it from the side.



SAFETY PRECAUTION

When using a two column lift, it is essential that the lifting pads remain under the jacking points. To ensure this, it is FORBIDDEN to remove any components that would cause a change in the weight distribution on such a lift.

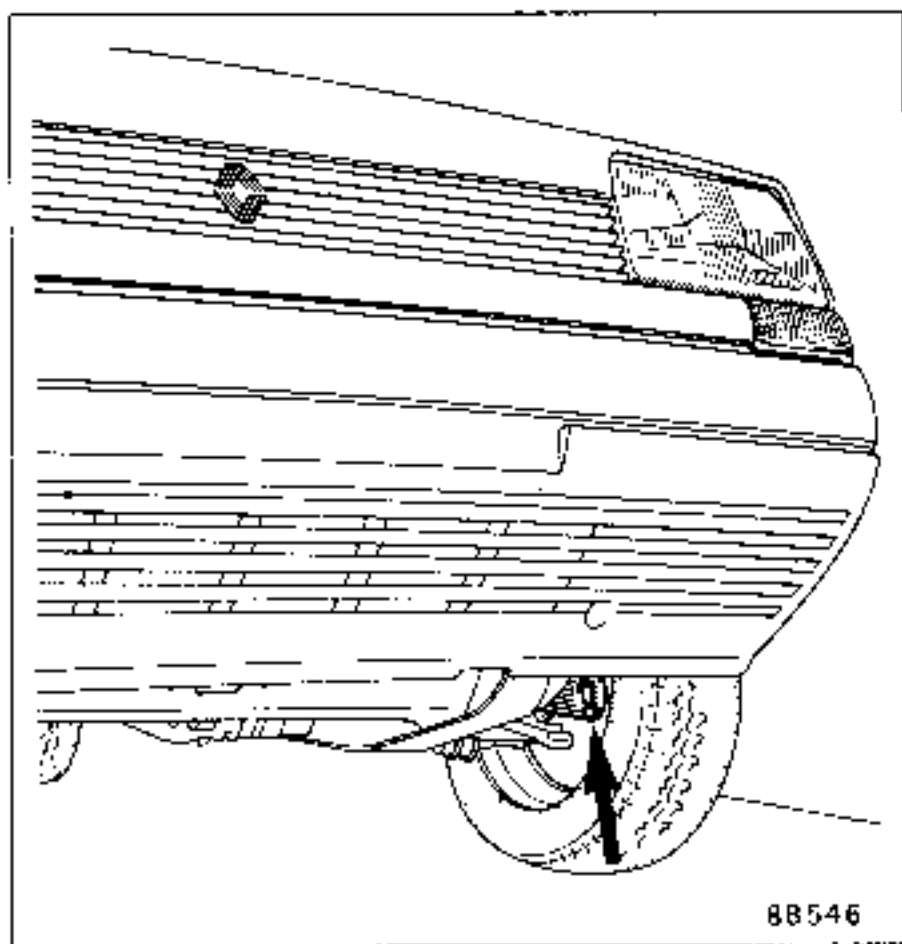


Place the lifting pads under the body sill flange in line with the vehicle jacking points.

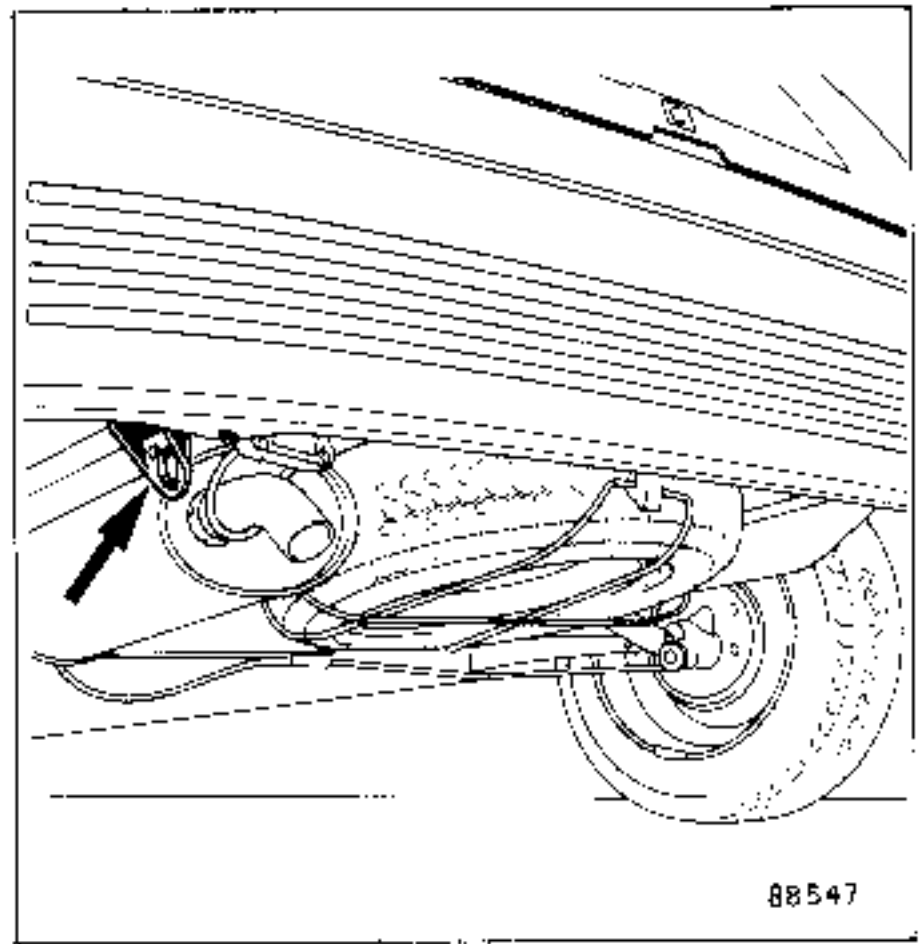
NEVER ATTACH THE TOW ROPE TO THE DRIVE SHAFT TUBES

The towing brackets are only to be used for towing the vehicle on the road. Under no circumstances are they strong enough to pull the vehicle out of a ditch, or any other similar emergency operation, or to lift the vehicle, whether directly or indirectly.

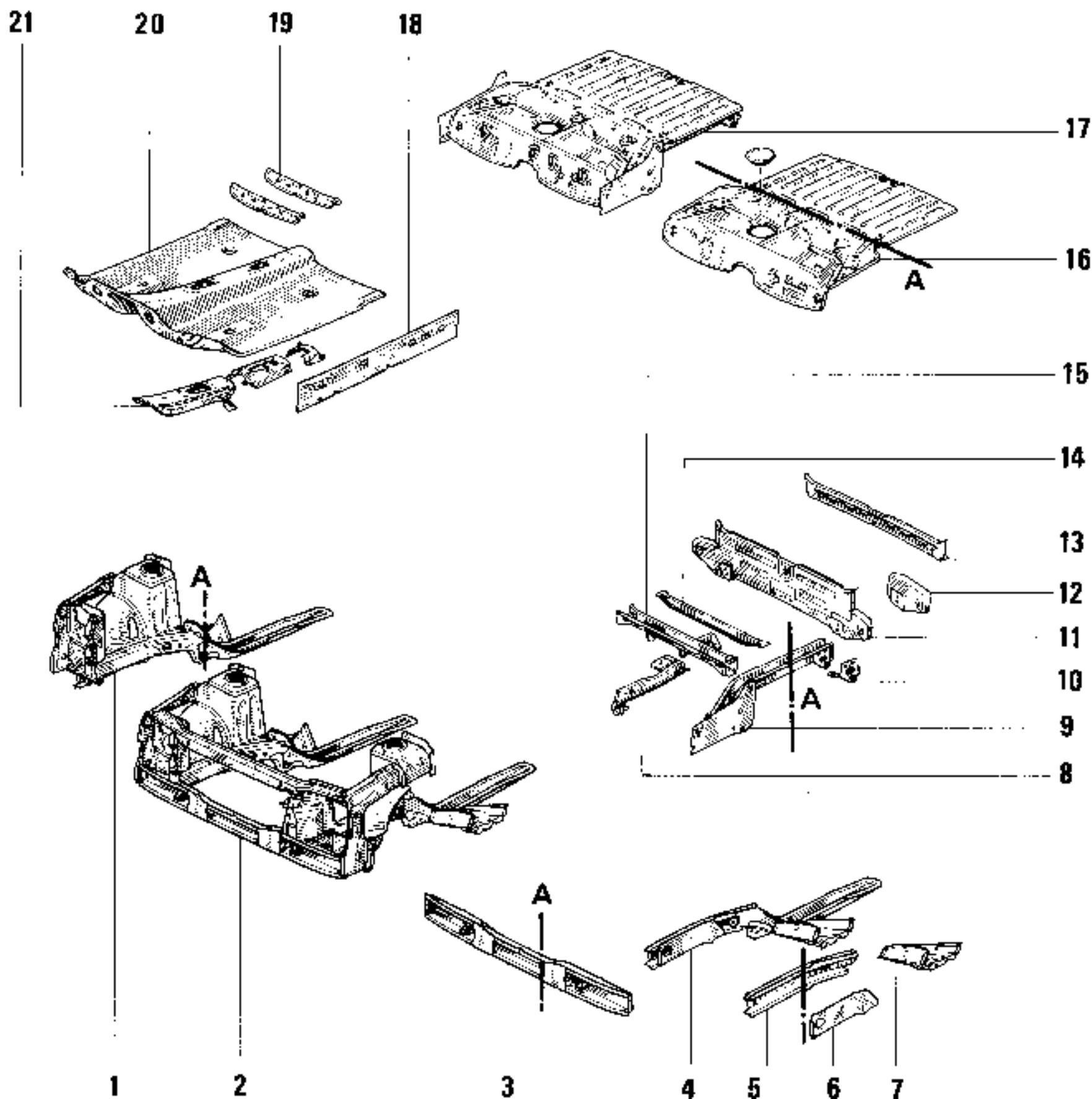
FRONT



REAR

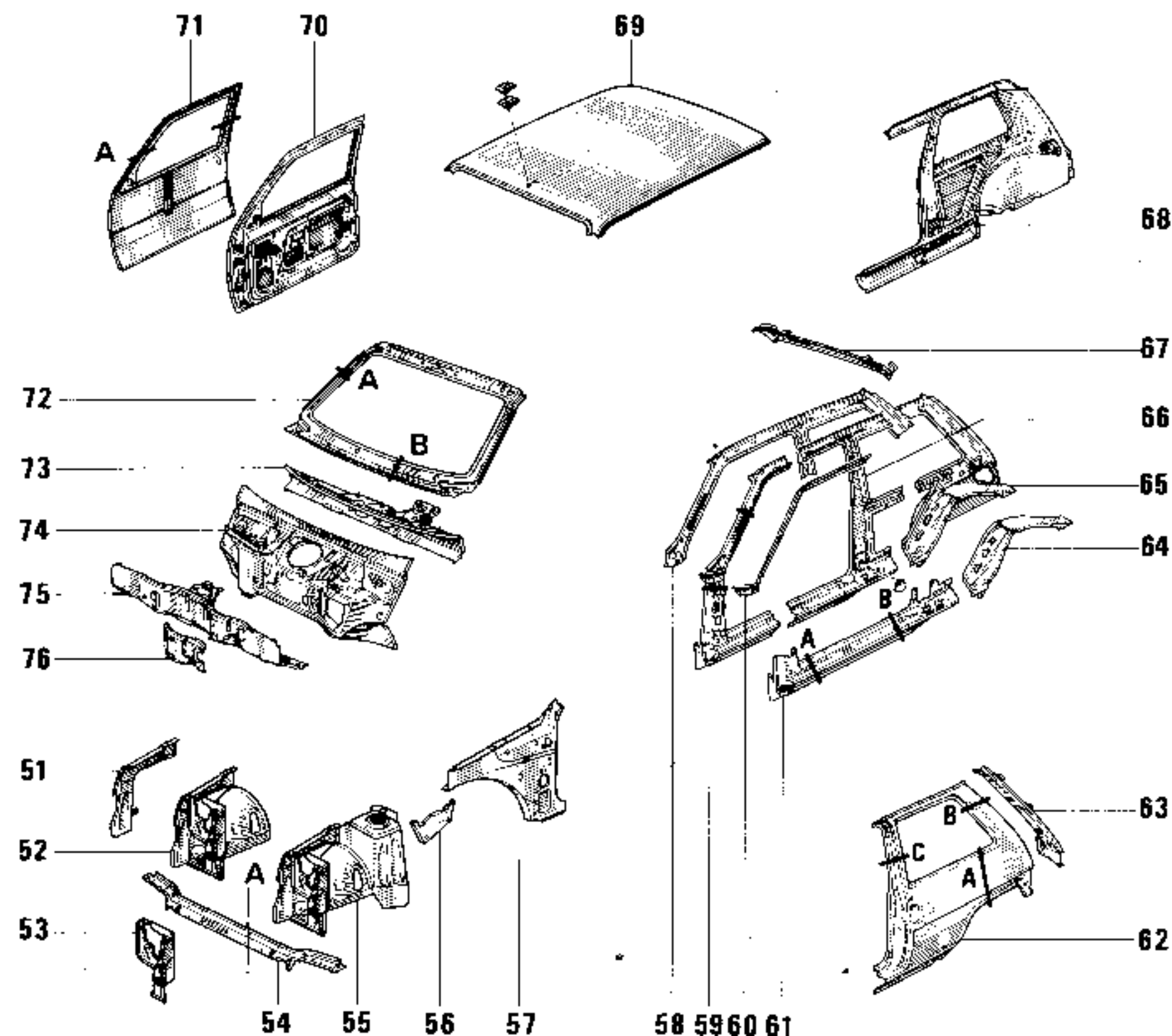


- | | |
|--|--------------------------------------|
| 1 - Front half section | 10 - Towing ring |
| 1A - Half section cut along line A | 11 - Rear end panel |
| 2 - Front end unit | 12 - Rear end panel side gusset |
| 3 - Front lower cross member | 13 - Rear end panel cross member |
| 3A - Cross member cut along line A | 14 - Rear floor transverse stiffener |
| 4 - Complete front side member | 15 - Cross member under rear floor |
| 5 - Half front side member | 16 - Stripped rear floor panel |
| 5A - Half front side member cut along line A | 16A - Floor panel cut along line A |
| 6 - Front side member closing panel | 17 - Rear floor panel assembly |
| 7 - Side cross member | 18 - Body sill closing panel |
| 8 - Rear floor stiffener | 19 - Cross members under front seat |
| 9 - Rear side member | 20 - Front floor panel |
| 9A - Side member cut along line A | 21 - Floor tunnel stiffener |



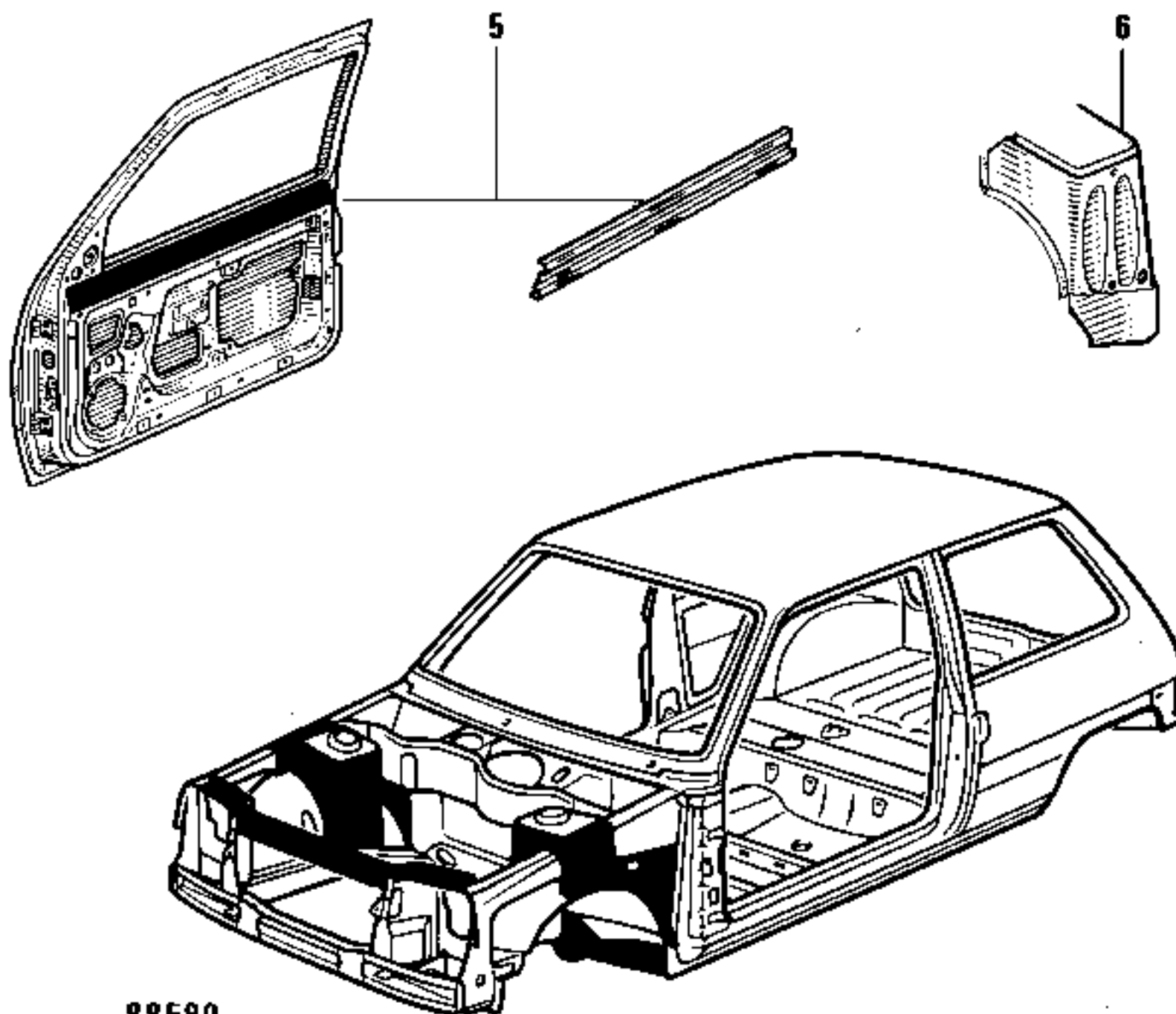
- 51 - Cowl side panel
- 52 - Simplified cowl panel assembly
- 53 - Headlight support panel
- 54 - Front upper cross member
- 54A - Cross member cut along line A
- 55 - Cowl side assembly
- 56 - Cowl side to scuttle connection
- 57 - Front door pillar lining
- 58 - Upper body side
- 59 - Front door pillar
- 59A - Door pillar cut along line A
- 59B - Door pillar cut along line B
- 60 - Front door frame cover
- 61 - Body sill
- 61A - Body sill cut along line A
- 61B - Body sill cut along line B
- 62 - Wing panel
- 62A - Wing panel
- 62B - Wing panel

- 62C - Wing panel
- 63 - Wing panel drip channel
- 64 - Wheel arch
- 65 - Wheel arch assembly
- 66 - Centre door pillar
- 67 - Rear roof cross member
- 68 - Half rear end assembly
- 69 - Roof
- 70 - Side door
- 71 - Door panel
- 71A - Door panel cut along line A
- 72 - Windscreen frame
- 72A - Windscreen frame cut along line A
- 72B - Windscreen frame cut along line B
- 73 - Windscreen lower cross member
- 74 - Scuttle
- 75 - Heater bulkhead
- 76 - Removable bulkhead (air conditioning)

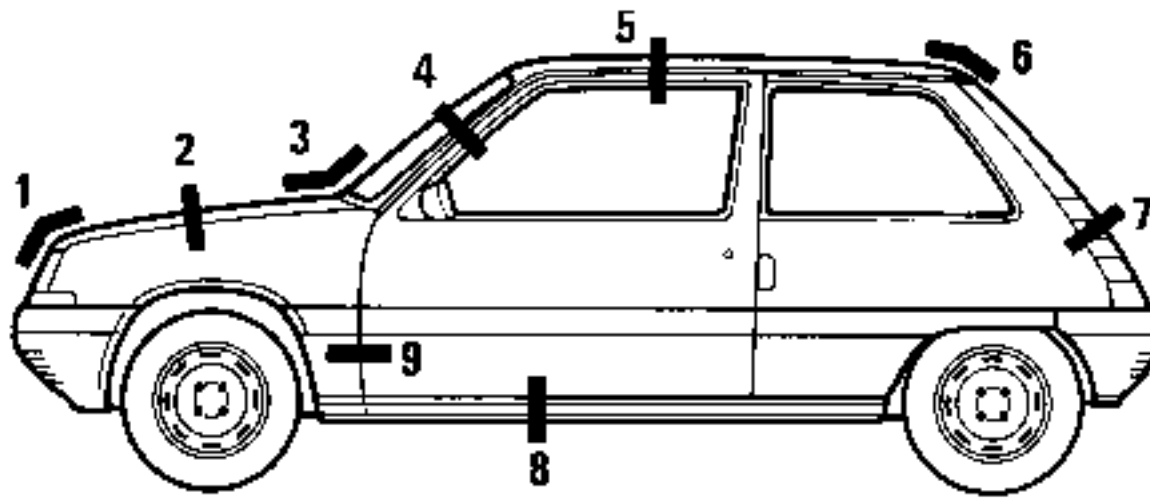


- 1 - Front upper cross member
- 2 - Side members under floor
- 3 - Side cross members

- 4 - Front door pillar lining
- 5 - Door waist stiffener
- 6 - Shock absorber turret



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"Cut with chisel".



"Free welds on strip".



"Cut with saw".
Reciprocating pneumatic saw.



"Grind off weld fillet or spots".
Straight grinder with plastic impregnated disc \varnothing 75, th. 1,8 to 3,2 mm.



"Grind off spot welds".
20 000 rpm straight grinder with spherical cutter \varnothing 10 or 16 mm.



"Cut out part by grinding flange" or "Grind down remaining spot weld traces"

Vertical grinder with rubber pad and fibre disc \varnothing 120 to 180 mm, grit size P 36.

Sizes and types of electrodes to be used for operation :



Plug welds with MAG gas envelope.



Fillet weld under MAG envelope.



Oxyacetylene welds.



Soft solder finishing
Torch with 300 nozzle, slipper + 33% tin solder + tallow.

Note : Soft solder finishing compensates, in a large part, for the risk of fusion distortion caused by welding.

Safety symbol : this means that the welding operation in question concerns one or more vital components of the vehicle.

Electroplastic mastic application.

This mastic is a current conductor and is placed between two sections to be spot welded. It seals the panelling and prevents spot welds corroding.

Zinc paint application.
This paint is to be applied to the joint faces of each of the parts to be welded. The paint is a current conductor and resists high temperatures. It provides corrosion protection around the spot welds.

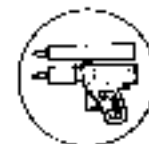
Extruded mastic fillet application :

- manual or pneumatic cartridge gun,
-- application to crimped areas and the joints between two components.

Spray mastic application :

- pressure gun,
- two pot anti-chipping and anti-corrosion mastic.

Inject into hollow sections with a cranked nozzle.

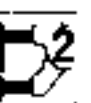


Inject into hollow sections with a straight nozzle.

Pressure gun with flexible end and various nozzles.



L = 100



L = 100 + ball joint



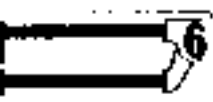
L = 100 + flat



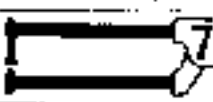
L = 250



L = 350 + ball joint



L = 330

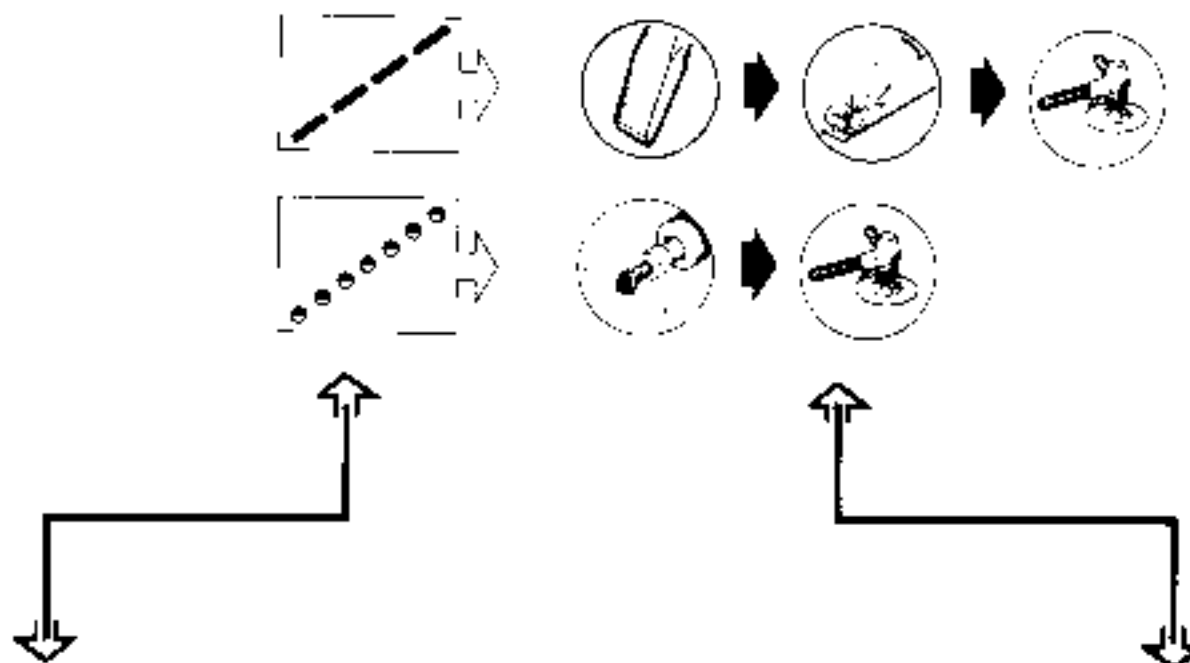
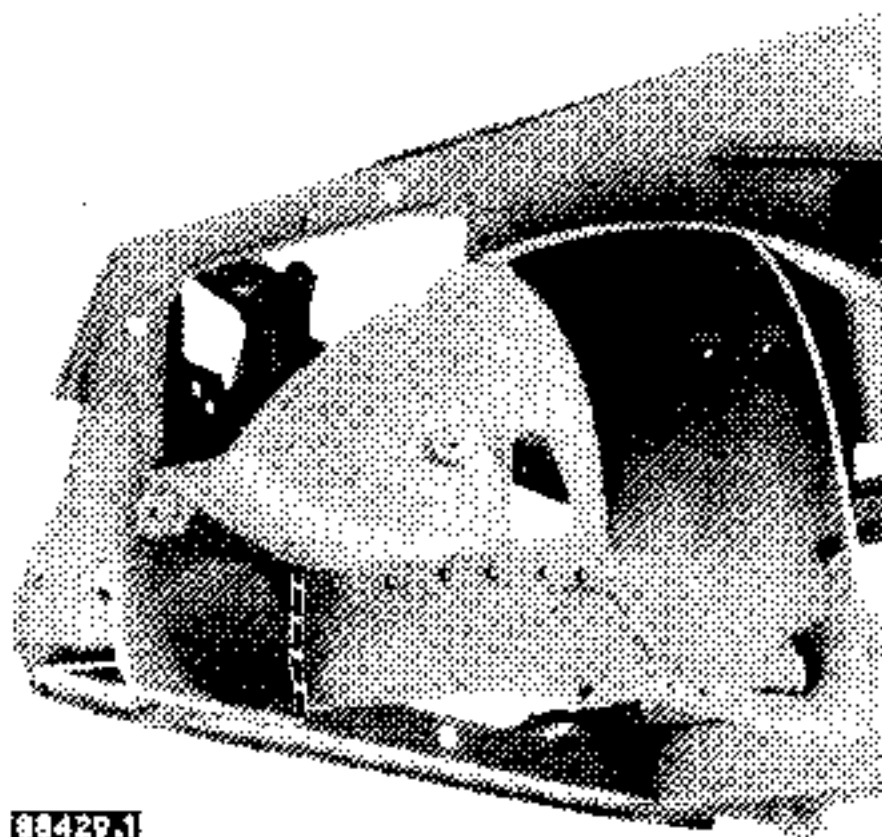


Gas tack welds under MAG gas envelope.



Note : to obtain a good quality weld we recommend using a gas consisting of Argon + 15% CO₂, which is considered as an active gas (MAG).

CUTTING - WELD SEPARATION



Operation symbol

This shows the type of operation and the exact point at which it is to be carried out.

Tool symbols

This shows the type of tooling to be used and their logical application at the points concerned.

Note : the operation of removing a strip of panelling and grinding down the remaining spot welds on the support panelling can only be carried out after the part to be replaced has been completely removed.

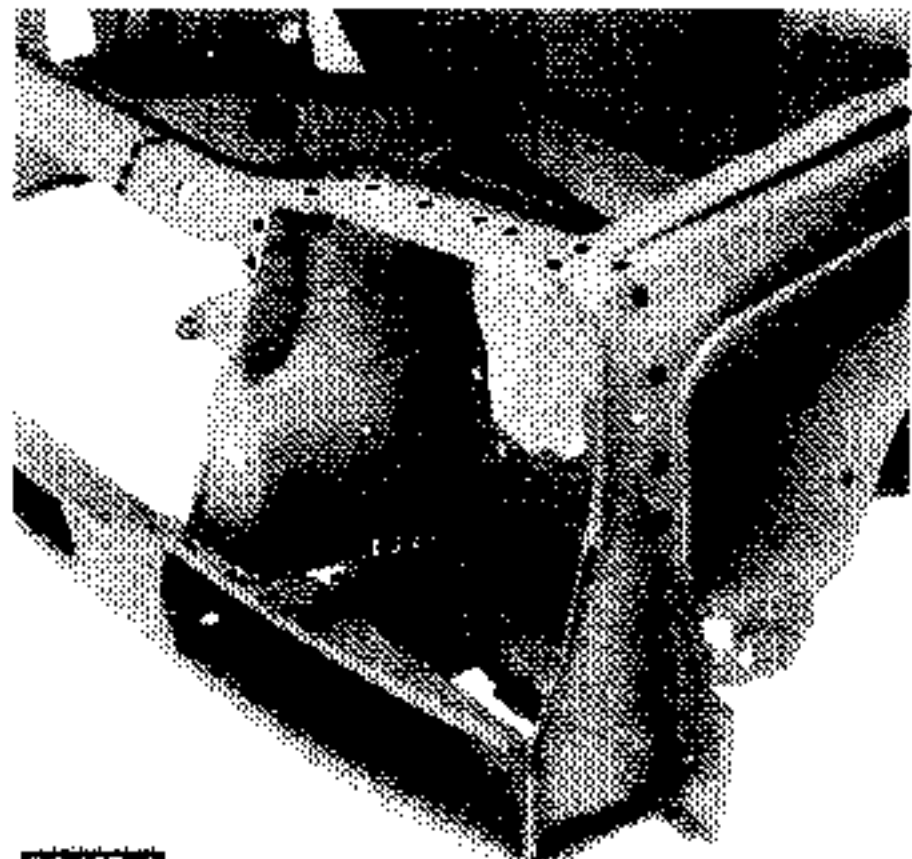
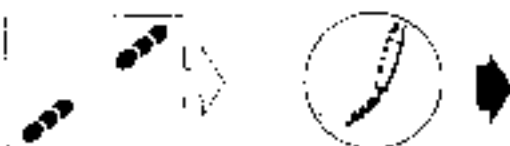
WELDING



D = 6 mm



e = 1,4 mm ; H 60 mm



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Operation symbol

This shows the type of operation and the exact point at which it is to be carried out.

Tool symbols

This shows the type of tooling to be used and their logical applications at the points concerned.

Note : the operations involved in protecting the spot welds (electroplastic mastic and zinc paint) are to be carried out before fitting the new part.



SAFETY SYMBOL

Instructions affected by current legislation concerning vital components are preceded by the symbol . The operator is to pay particular attention to these operations when carrying out work on the vehicle.

We should like to draw your attention, in particular, to welds classified as vital.

These welds are classified as "vital" following impact tests on vehicles and body endurance tests.

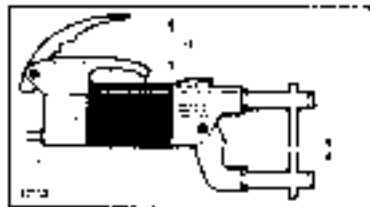
It is therefore very important that they should be carefully applied, under repair conditions, to return the structure to its original strength. Ensuring this will guarantee the quality and the safety of the repair.

We should like to remind you that all welds on seat belt stiffening points are also classified as vital.

All adjustments are to be confirmed by tests on panelling identical to that to be welded, the results being taken from the thinnest panelling used.

ELECTRIC SPOT WELDING

1 - Adjusting the pressure (dimension H)



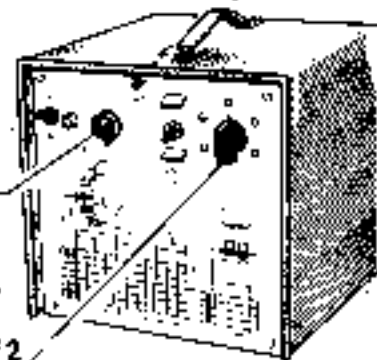
The corresponding values of (e) and (H) are stated under each drawing, at the operation concerned.

- Dimension H is adjusted by placing a thickness (e) which is the same as the actual thickness to be welded, between the electrodes. Dimension H is to be selected to allow for the thinnest of the panelling forming the joint to be welded.

- The thickness of the panelling (e) required to obtain the dimension (H) can be represented by a set of mechanic's feeler gauges (Eg. : Facom 804).

2 - Adjusting the welding current and time

This adjustment will have to be carried out to suit the current supply in your workshops. It is to be obtained by carrying out tests on samples of panelling identical to that used on the vehicle.



Norme RVUR 01 50 803						
e mm	0,5	0,7	0,8	1	1,1	1,3
H mm	4,5	5	5,5	5,5	6	6,5

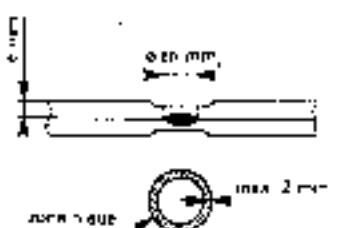
Place the welding time adjusting knob (1) on the 1st graduation.

Progressively increase the current strength by

turning knob (2) until the fusion point bursts,

then move back by one graduation.

Then, increase the welding time (knob 1) to obtain the spot ϕ shown in this chart.



3 - Note :

On this vehicle, certain of the parts are made from "high tensile steel". They require special adjustment of the spot welding gun, when compared with standard steel :

- Current : I - 20%
- Welding time T - 25%
- Pressure H + 50%

The figures, stated, for H allow for these special requirements.

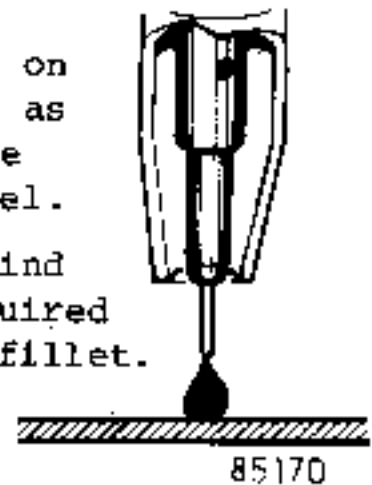
WELDING UNDER A MAG GAS ENVELOPE

1 - Continuous fillats

- Set the current knob on the figure estimated as being correct for the thickness of the steel.

- By trial and error find the power output required to obtain a uniform fillet.

- Turn the test piece over to check that the penetration is correct. If it is not, correct the current strength and redetermine the wire output required.



2 - Tack welds

The same adjustment method is to be used as for continuous welds but the current is to be increased by one point to make striking the tack easier.

Special points affecting stitched butt welds :

Setting up the panelling :

- Distance between stitches $d = 30e$ (thickness)

- Gap between the panel ends = thickness e.

Do not make stitches on the edges or in the corners of flanges to maintain a better control on the gap.



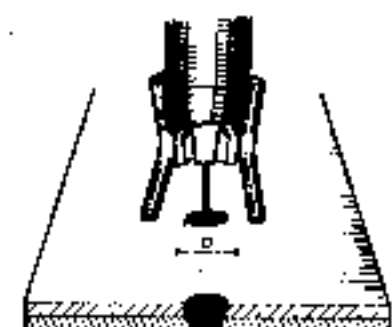
Welding :

Apply a series of stitch welds, straddling the gap. Leave 4 to 5 seconds between the stitches so that the blue area does not exceed 10 mm.



Special aspects of plug welding

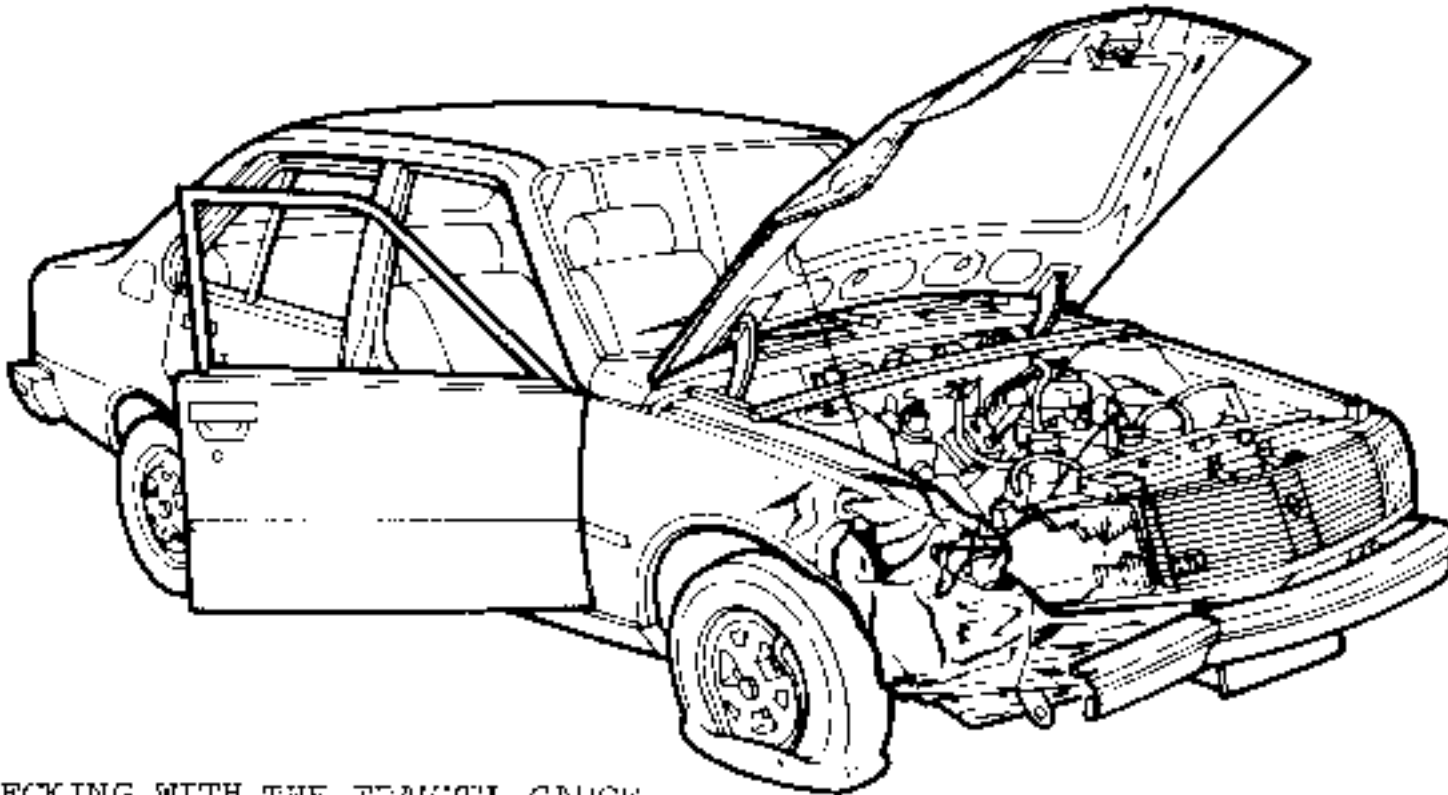
The weld is made by punching or drilling the upper panel and plug welding through it. Tests are to be carried out to obtain a flat plug.



A - CHECKING BEFORE REMOVING MECHANICAL UNITS

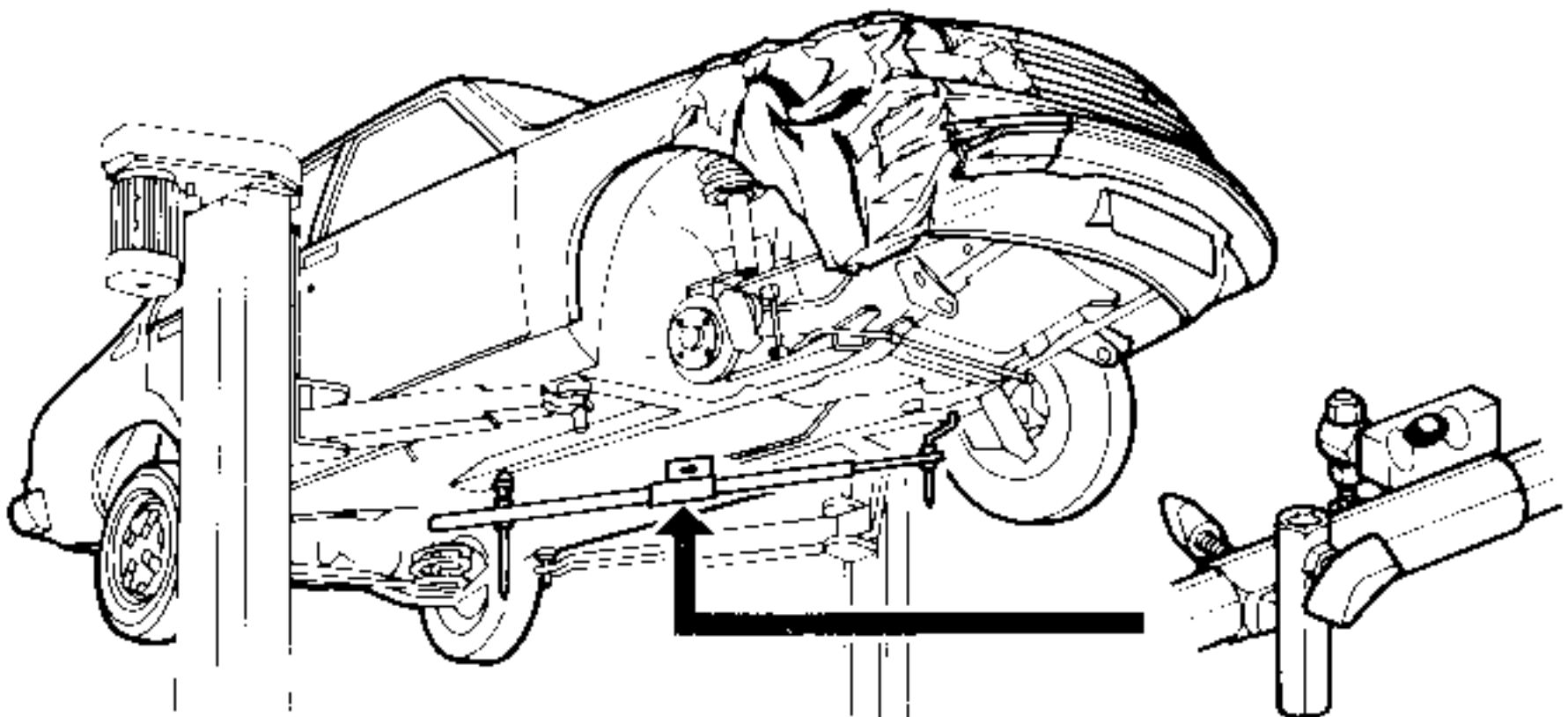
Before attempting a body repair on a car however slightly it may appear to have been damaged, a series of checks must be carried out.

VISUAL INSPECTION



CHECKING WITH THE TRAMMEL GAUGE

Amongst other things, these checks will show whether or not the sub-frame components have been subjected to extensive distortion. If this is the case, it will be essential to remove the mechanical units and carry out the repair on a body jig.



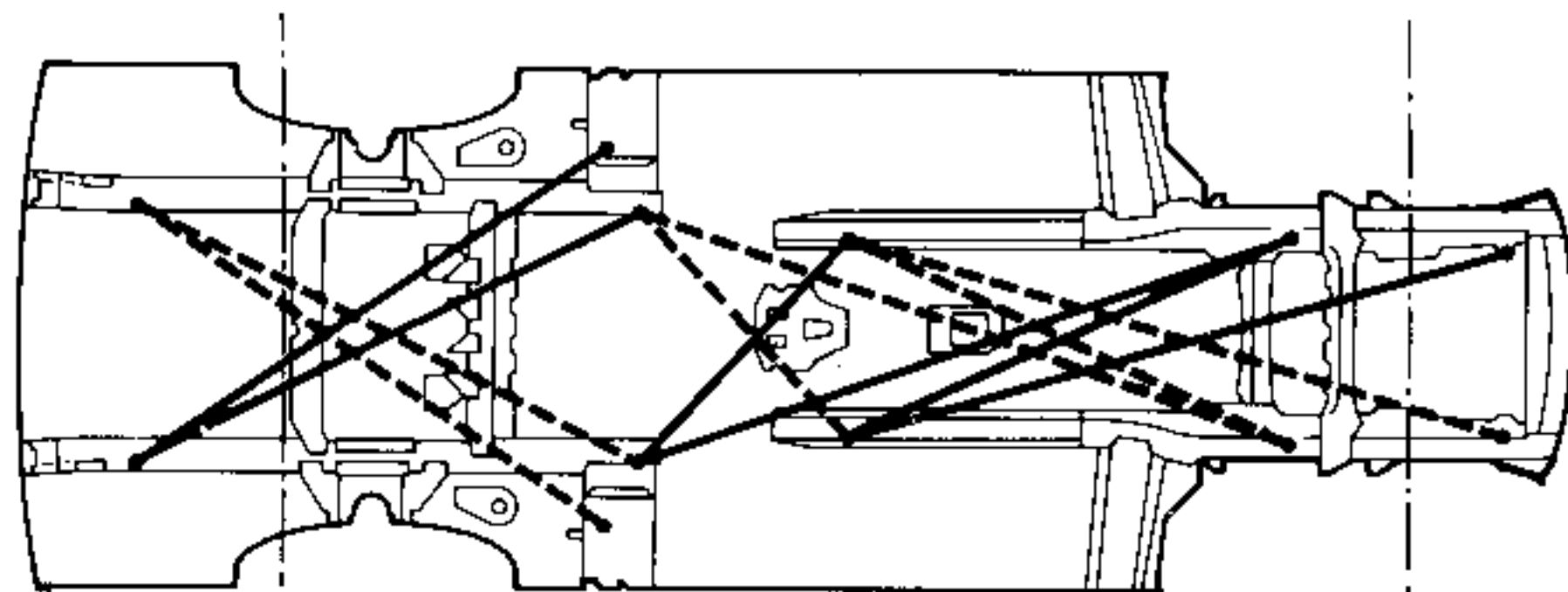
CHECKING THE AXLE GEOMETRY

If there is any doubt, these checks are to be followed up by a check on the front and rear axle geometry.

It is a basic principle that no welded body shell component is to be replaced without first checking that the sub-frame has not been distorted by the impact.

There are various traditional methods used to carry out a preliminary check on a damaged vehicle when visual inspection has left some doubt as to the extent of the damage and the repair operations to be undertaken.

CHECKING THE DATUM POINTS LAID DOWN BY THE DESIGN OFFICE FOR THE CONSTRUCTION OF THE BODY



ANY DISTORTION IN THIS AREA MAKES IT ESSENTIAL THAT A REPAIR SHOULD BE CARRIED OUT ON THE BODY JIG

Note : A diagnosis method is described in this manual under the heading :
BODY DAMAGE DIAGNOSIS.

B - STRAIGHTENING- REBUILDING - CHECKING ON BODY JIG

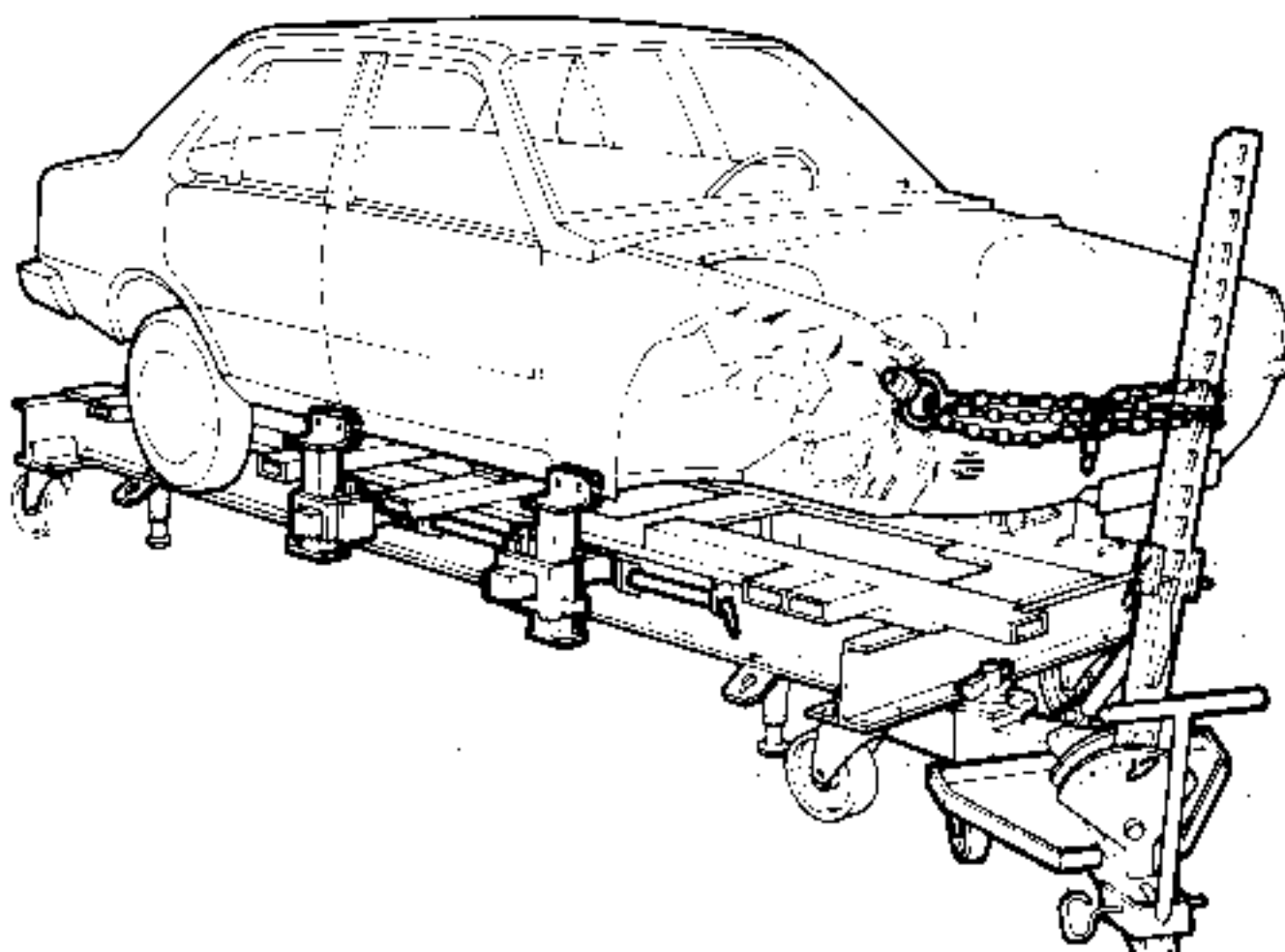
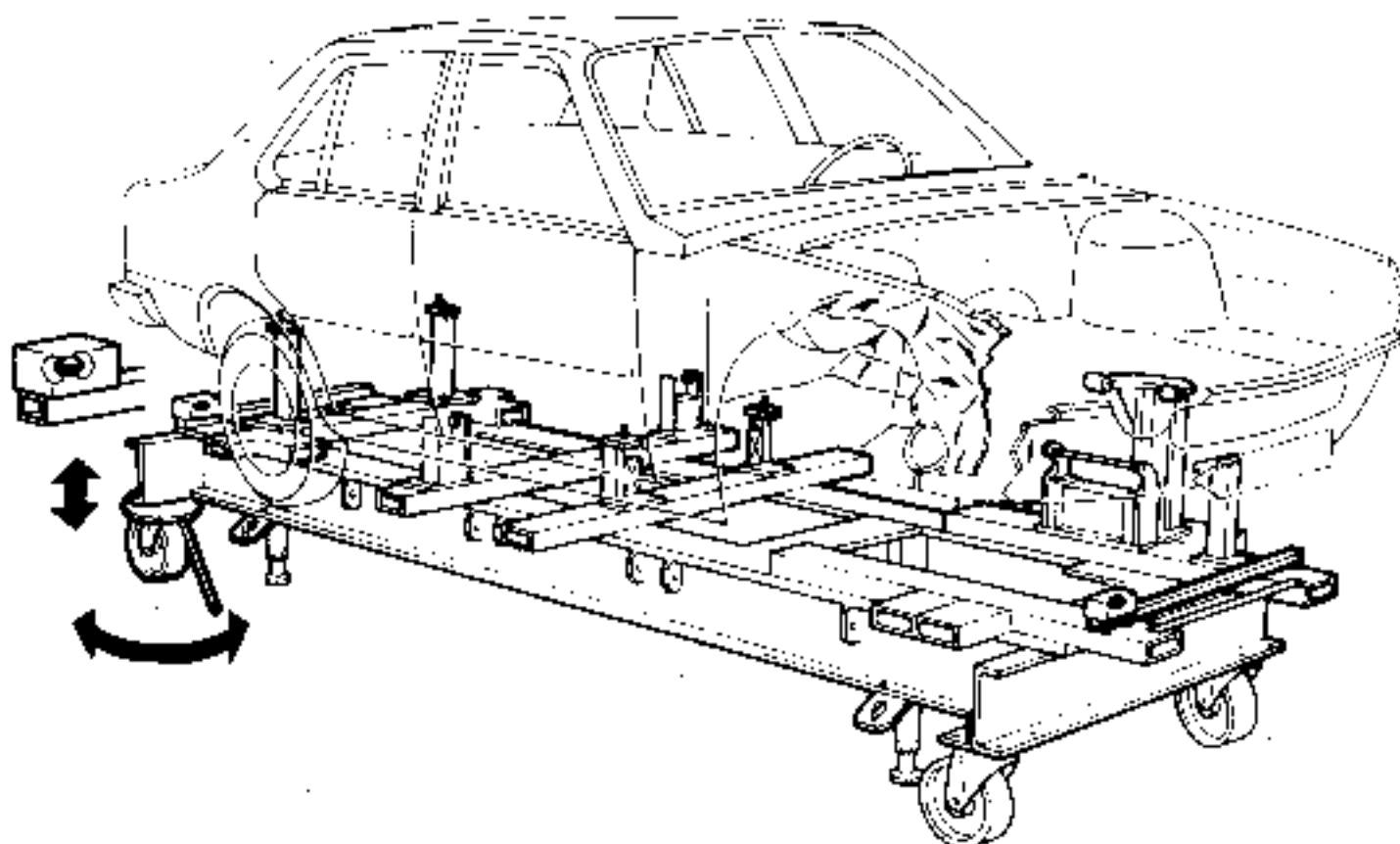
For reasons of SAFETY and to ensure that the repair is of good QUALITY,
it is FORBIDDEN :

- To replace a side member, a front end half assembly or unit, other than on the body jig.

The body jig ensures that the vehicle is rebuilt to its original manufacturing dimensions and that the front and rear axle components are correctly positioned.

it is FORBIDDEN :

- To apply tension to parts of a vehicle mounted on jig brackets without first anchoring the bodywork to the jig frame by means of at least two body sill clamps. These clamps are to be as near as possible to the area where tension is to be applied to prevent the jacking loads being carried on to the brackets as this could distort them.
- It is also very important, when bodywork has suffered damage involving the replacement of a welded component, to straighten out the component to be replaced before removing it so as to return the bodywork as nearly as possible to its original shape and thus relieve the adjacent components of the stresses set up by the distortion (see MR 501, F 001).



C - STRAIGHTENING BOX SECTIONS USING
INERTIA EQUIPMENT

When a body component has suffered little damage and thus does not require replacement, even partial, it can be repaired without the necessity for stripping or cleaning its internal face using inertia panel straightening equipment of the "Stud puller" type (see sheet 10-27 of MR 500**).



STRAIGHTENING METHOD

- Strip back the distorted area to the bare metal.
- Weld the studs supplied with the equipment in place (copper plated steel).
- Grip each stud with the inertia tool and return the distorted area as near as possible to its original shape.



- Cut the studs off flush with the panelling with wire cutters.
- Grind flush the remaining parts of the studs.
- Finish the area with soft solder and a torch fitted with a 300 nozzle, or a hot air unit (650°).

Note : welding the studs to a box section exposes, locally, the inside face of the unit. This is why, after external painting, a hollow section protection product must be injected into the inside of the unit (see paint section).



D - REPLACING WELDED COMPONENTS

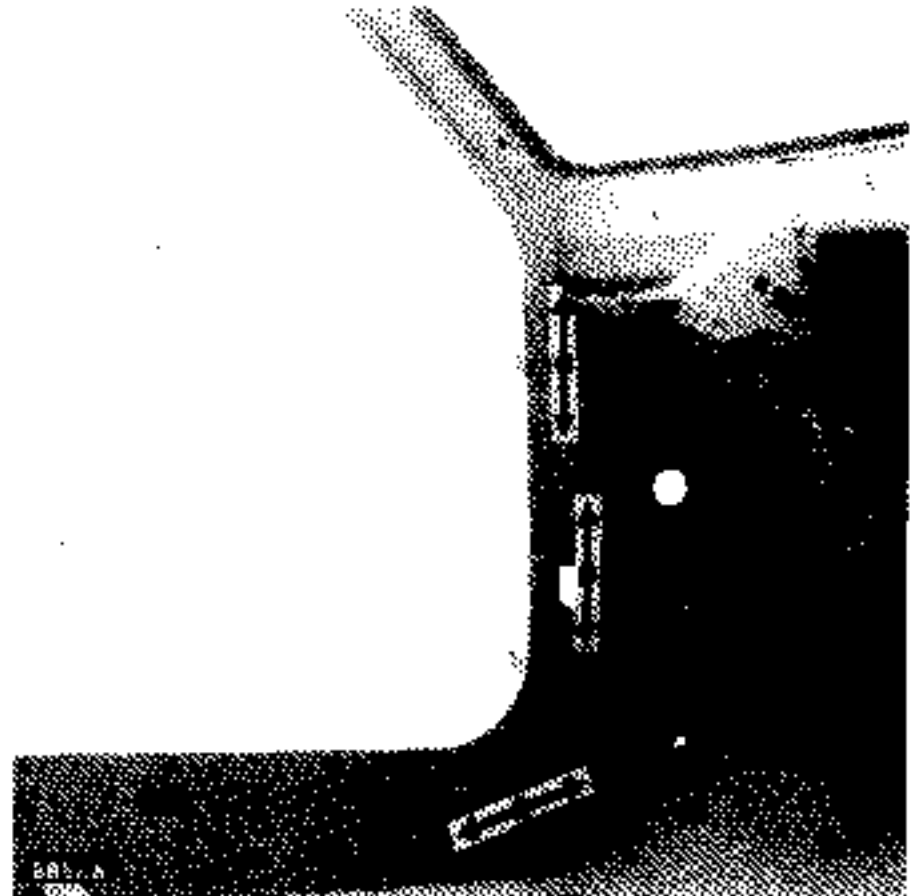
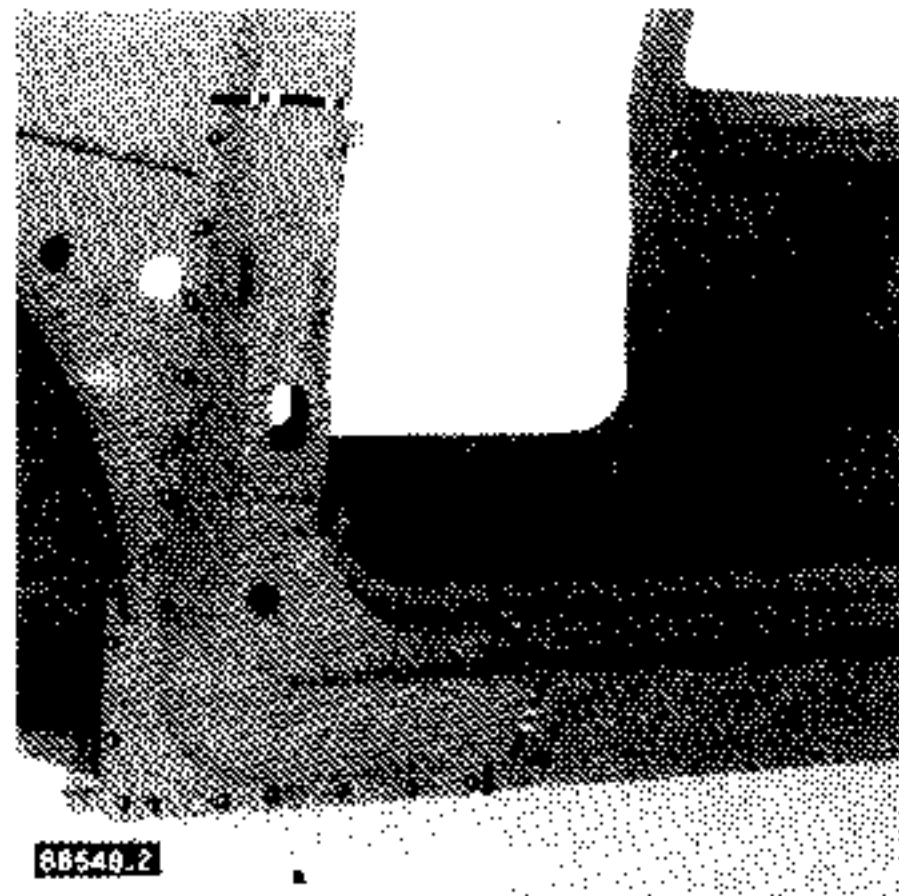
Operations involved in replacing welded components, and the lines along which they are to be cut, are defined to suit production requirements for the parts to be replaced and the following criteria :

FOR EXTERNAL BODY PANELS :

- The avoidance of extensive distortion during butt welding.
- Leaving clearance for panel beating tools and anti-corrosion protection equipment.

FOR SUB-FRAME COMPONENTS AND OUTER PANEL LININGS :

- The cut lines to be used during the repair of damaged components have been determined to reduce the risk of distortion of the passenger compartment and the side members outside the areas to which the mechanical units are secured (a risk arising from the fact that the areas heated by welding set up thermal distortion stresses).



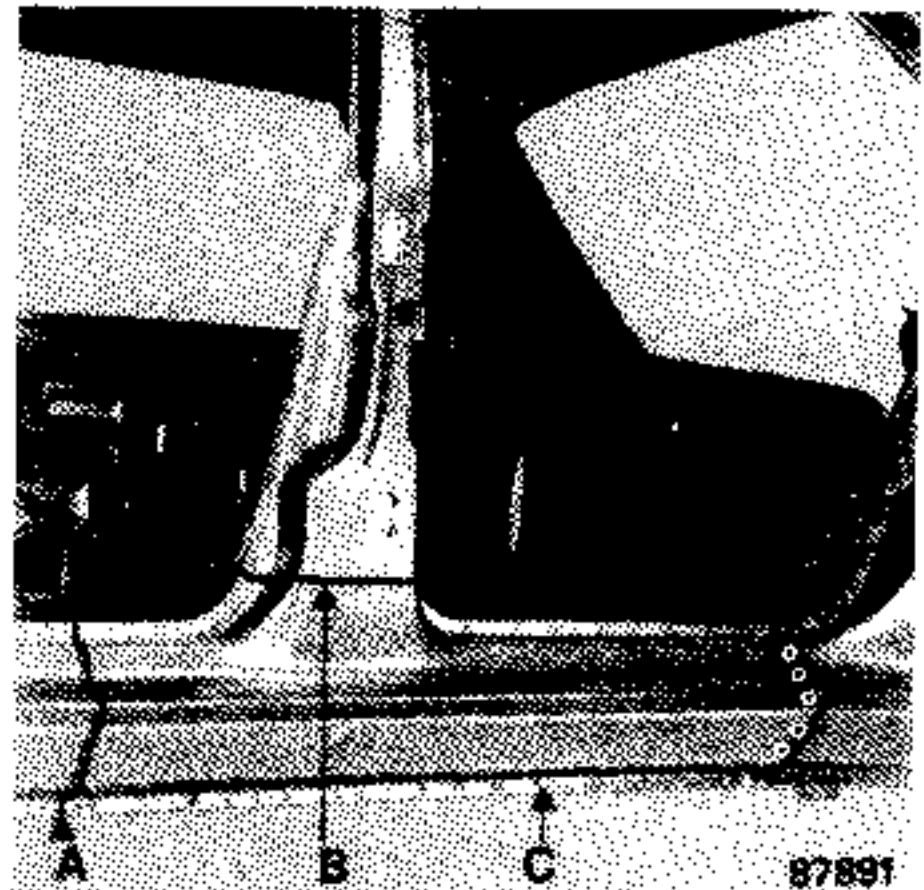
E - PROTECTING REPAIRED AREAS

It is very important that the internal and external protection should be re-applied, effectively, after repair or replacement of a body component, to avoid future problems and to obtain a specification that is identical to that of the original components, thus guaranteeing the quality of the repair.

Various different types of protection are to be used, depending on the case :

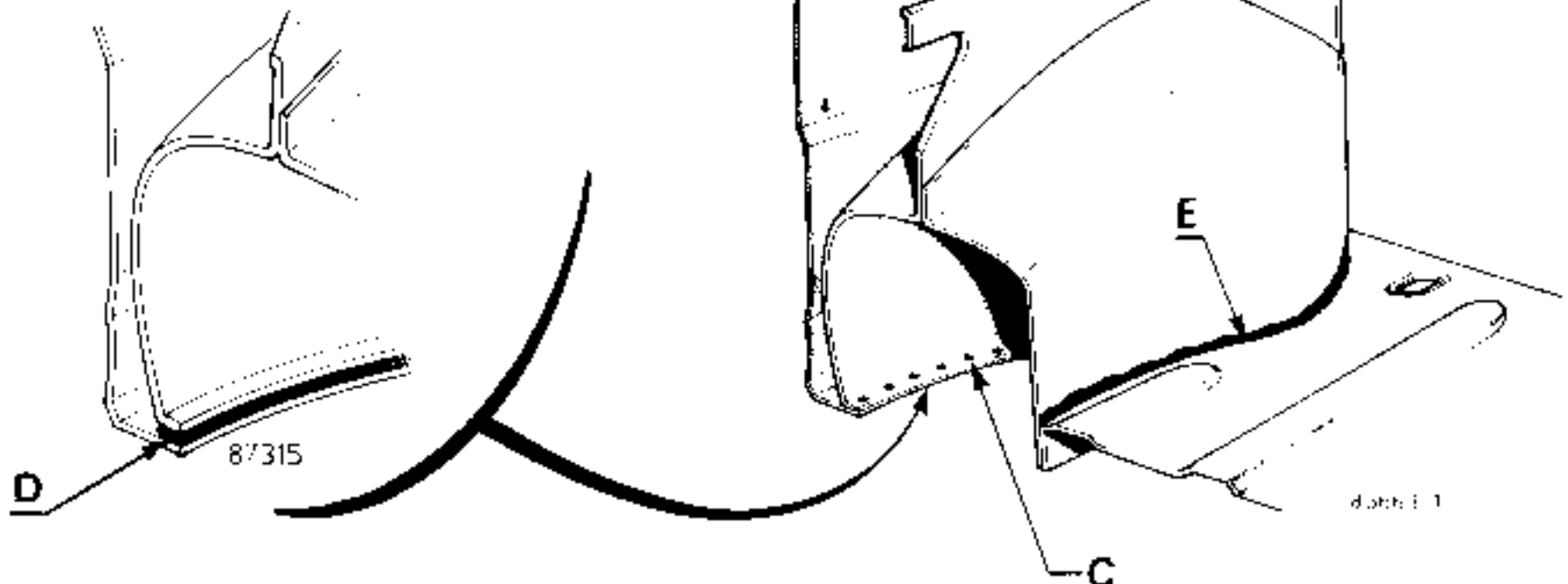
1. Butt welds (A) or (B)

- before welding : strip back the internal and external surfaces around the area to be welded,
- after welding : in accessible box sections, protect the weld area with chrome phosphate primer, applied with a brush followed by chrome phosphate surfacer and finish coat,
- after painting : in non-accessible box sections, inject a hollow section protection product into the unit.



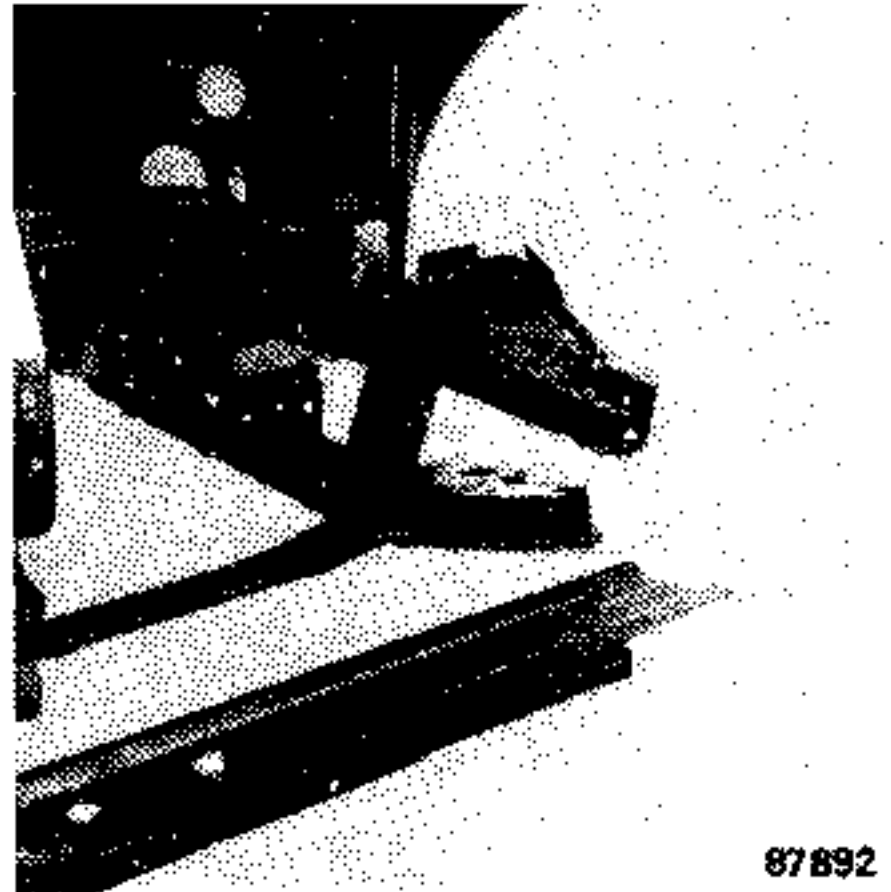
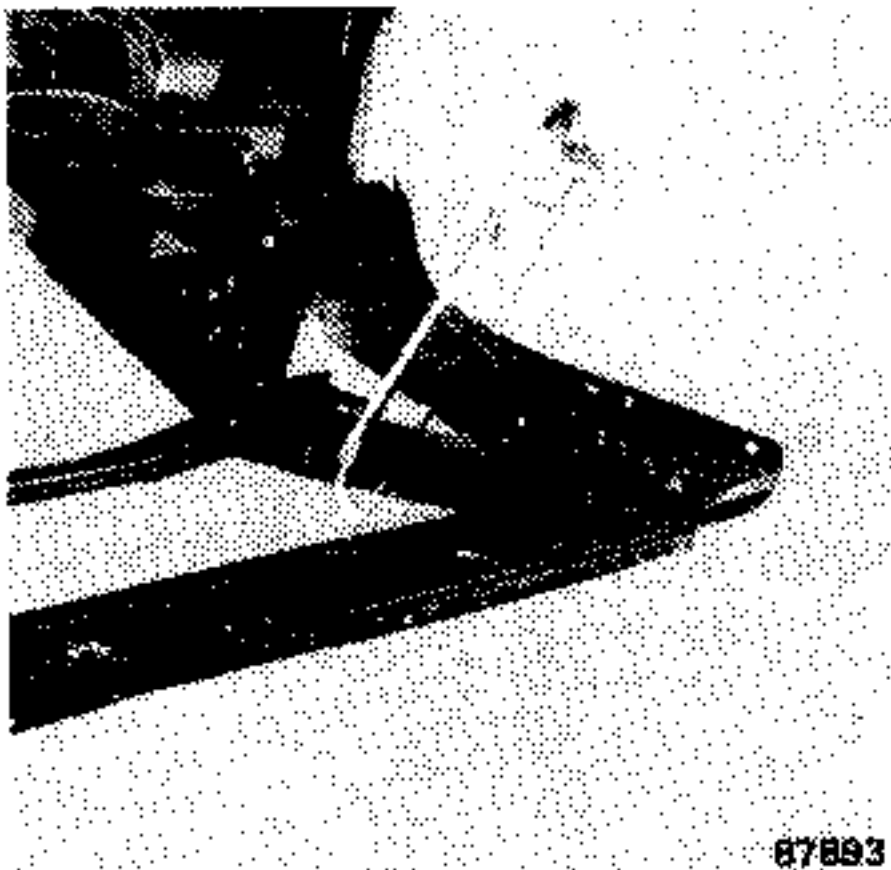
2. Electric spot welding (C)

- before welding : apply a fillet of electroplastic mastic (D) between the parts over the entire joint area,
- after welding : on areas which have been stripped back to the bare metal, apply a coat of chrome phosphate primer and then a fillet of 297 mastic at the joint between the parts (E), or spray a coat of anti-chipping mastic over the area.



For reasons of safety, it is FORBIDDEN :

- to cut and butt weld or to heat, to straighten them :
 - side members in those areas between the mechanical unit securing points and the passenger compartment (only the ends of the side members, in front of these points, can be replaced by butt welding),
 - the body pillars at the seat belt anchor points
 - to cut and butt weld any body component and its inner lining along the same line.
- Offset the joints by a few centimetres so that the thermal stresses set up by welding are widely distributed.

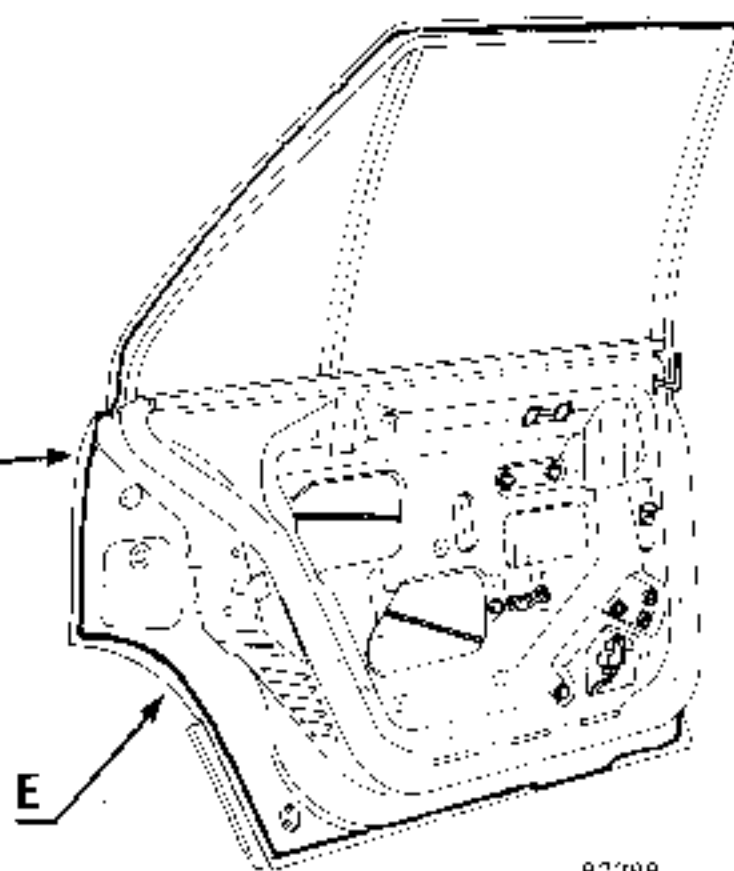
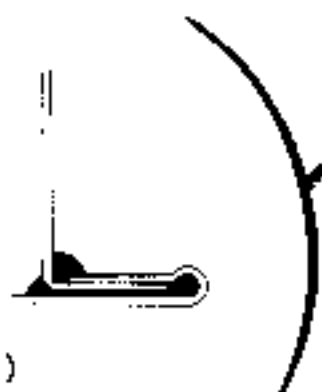


- to braze side members or any other of the body structural components (only external panelling is to be brazed at the points laid down in the methods described in this section).

When it is impossible to use spot welding, gas envelope welding methods can be applied (MIG or MAG) either in the form of plug welds or fillets (see welding section in the body repair handbook).

3. Crimped joints and panel joints

- protect crimped joints by an extruded fillet of anti-chipping mastic (E) or a strip of sprayed mastic (see paint section),
- protect the panel joints with a sprayed strip of anti-chipping mastic.

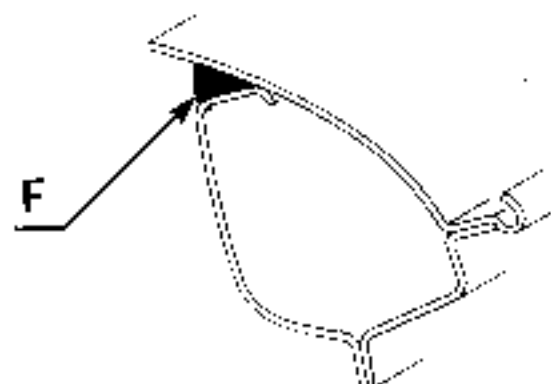


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4. Bonded panels (F)

- use only structural adhesive mastic (adhesive mastic type 514),
- this permits one to bond a stiffener to an external panel without any effect on the finish.

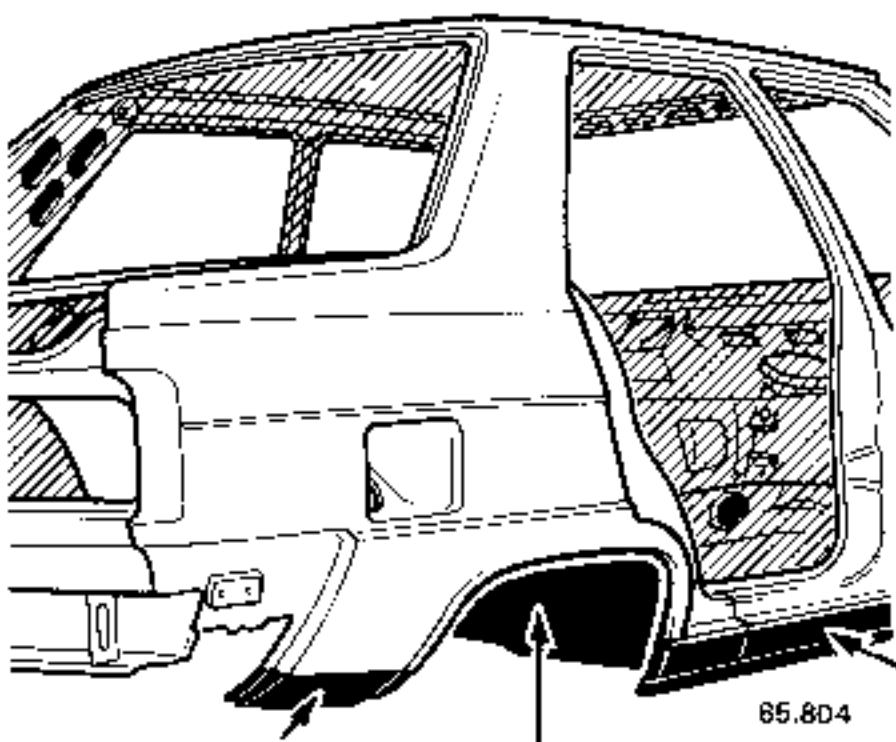
Examples : roof cross members, bonnet stiffeners, door panel to door body joints (before crimping).



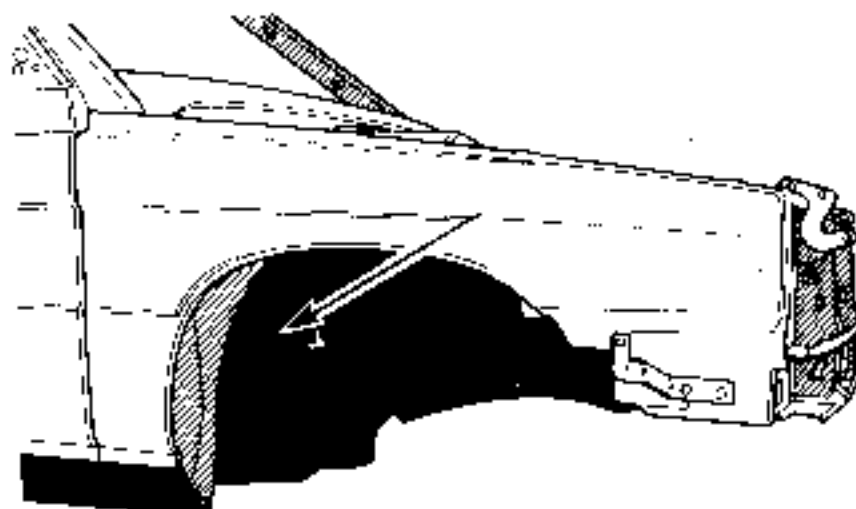
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5. Protection by spraying anti-chipping mastic

This is a two pot product (see paint section) and is to be used on all areas originally protected in this way : the front end panel, the radiator grille, the body sills, inside the front wings, front and rear wheel arches, the outer lower surfaces of the front and rear wings, to guarantee the quality of the repair.



85.804



85.803

F - EQUIPMENT AND LITERATURE

The panels can be cut at various points depending on the size of the part to be replaced.

They can be cut with :

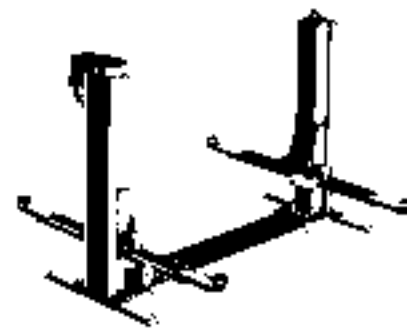
- hand snips, a pneumatic or hand hack saw or a pneumatic nibbler.

You will find all the necessary information on this equipment in MR 500** section 10.

Certain operations described on the following pages involve the use of neutral gas envelope welding equipment (MIG or MAG). We shall remind you of certain of the main features of this method (for more details on adjusting the equipment, see the booklet entitled "Bodywork checking and adjustment data") :

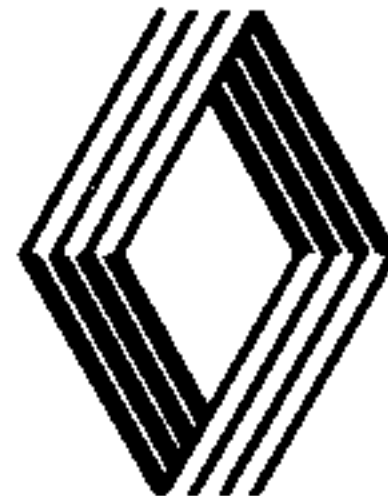
- We recommend that :
 - a few tests should be carried out before starting welding on sheet steel off-cuts of the same thickness to obtain the correct adjustment,
 - that a gas consisting of argon + 15% CO₂ should be used for the MAG operation.
- Using gas envelope welding equipment permits one, amongst other things, partially to replace components impossible, up to the present, unless one could gain access to the area to eliminate distortion caused by welding. This "straightening" or "planishing" that is essential when oxyacetylene butt welds are made, is not necessary with this method.

M.R.500 ★★



MATERIELS DE GARAGE
GARAGE EQUIPMENT
WERKSTUIGEN
VERKSTEDSE USTR
MATERIALES DE GARAGE
MATERIALI OFFICINA
GARAGE EQUIPMENT
VERKSTEDSE USTR
WERKSTUIGEN

RENAULT



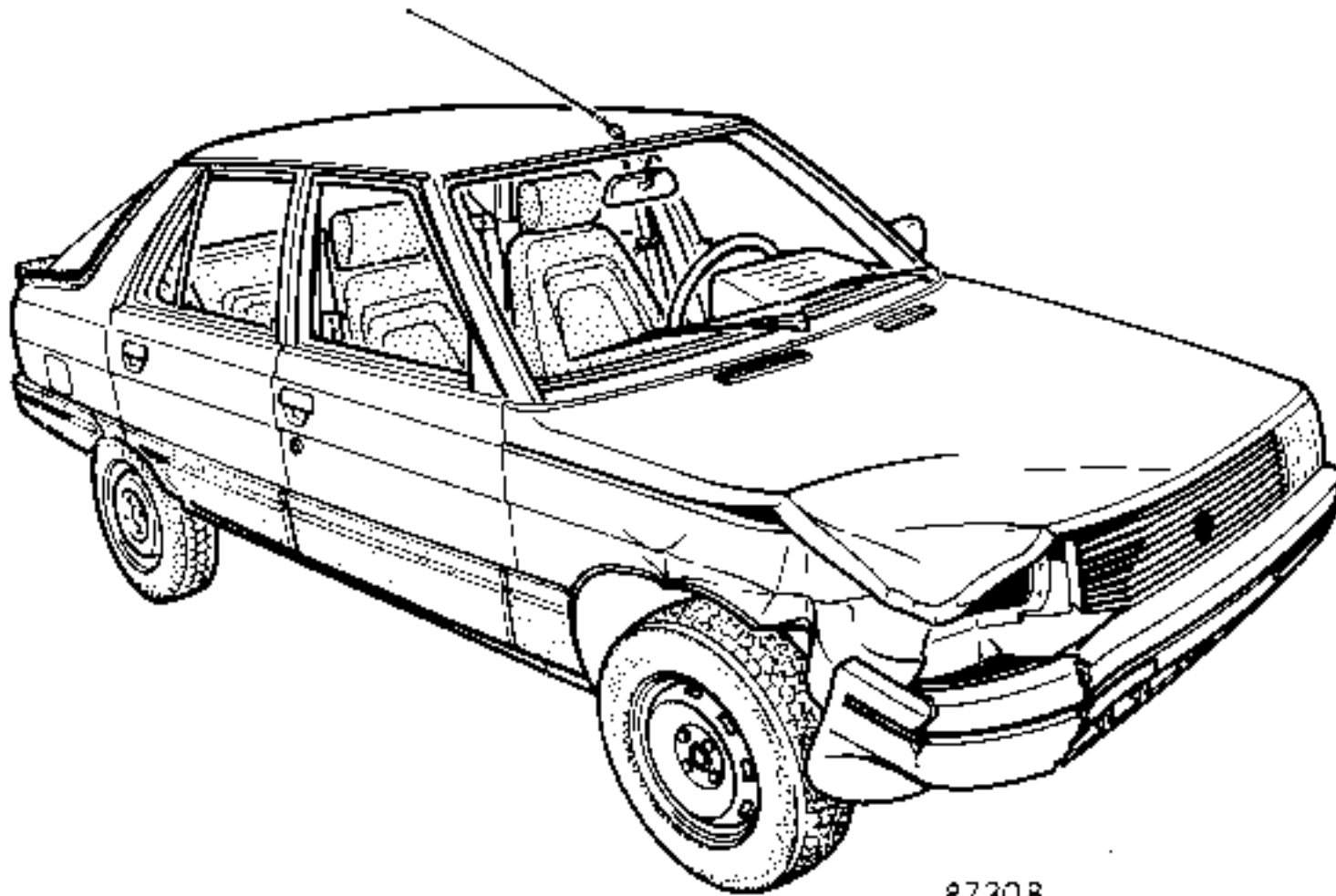
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M.R.501



CARROSSERIE-REPARATION
BODYWORK REPAIRING
KAROSSERIE-REPARATION
KAROSSERIE-REPARATION
CARROSSERIA-REPARAZIONE
CARROSSERIA-REPARAZIONE
KAROSSERIE-REPARATION
KAROSSERIE-REPARATION
KAROSSERIE-REPARATION
KAROSSERIE-REPARATION

RENAULT



87308

WHAT IS ACHIEVED BY THE DIAGNOSIS

Efficient diagnosis permits one :

- to estimate, quickly, the approximate cost of body repairs,
- to inform the customer of the length of time his vehicle is going to be off the road for repair,
- to provide guidance in the work to be carried out,
- to determine the number of hours so that the body shop work load can be efficiently organised.

THE USERS OF BODY DAMAGE DIAGNOSIS SYSTEMS

- The receptionist
- The estimator
- The operator
- The shop foreman or section leader
- The person responsible for buying in used cars

PERSONS CONCERNED

- Insurance inspectors
- The customer

HOW TO DIAGNOSE DAMAGE EFFICIENTLY

There are 3 ways, depending on the degree of accuracy required :

- 1 - VISUAL INSPECTION
- 2 - CHECKING WITH A TRAMMEL GAUGE (Car.759-02)
- 3 - CHECKING THE AXLE GEOMETRY (see the mechanical workshop manual)

Note : The areas to be inspected, visually, for sub-frame distortion are described as part of the rebuilding operation descriptions in each section.

Checking the side members :

Compare the diagonals

1A = 2B

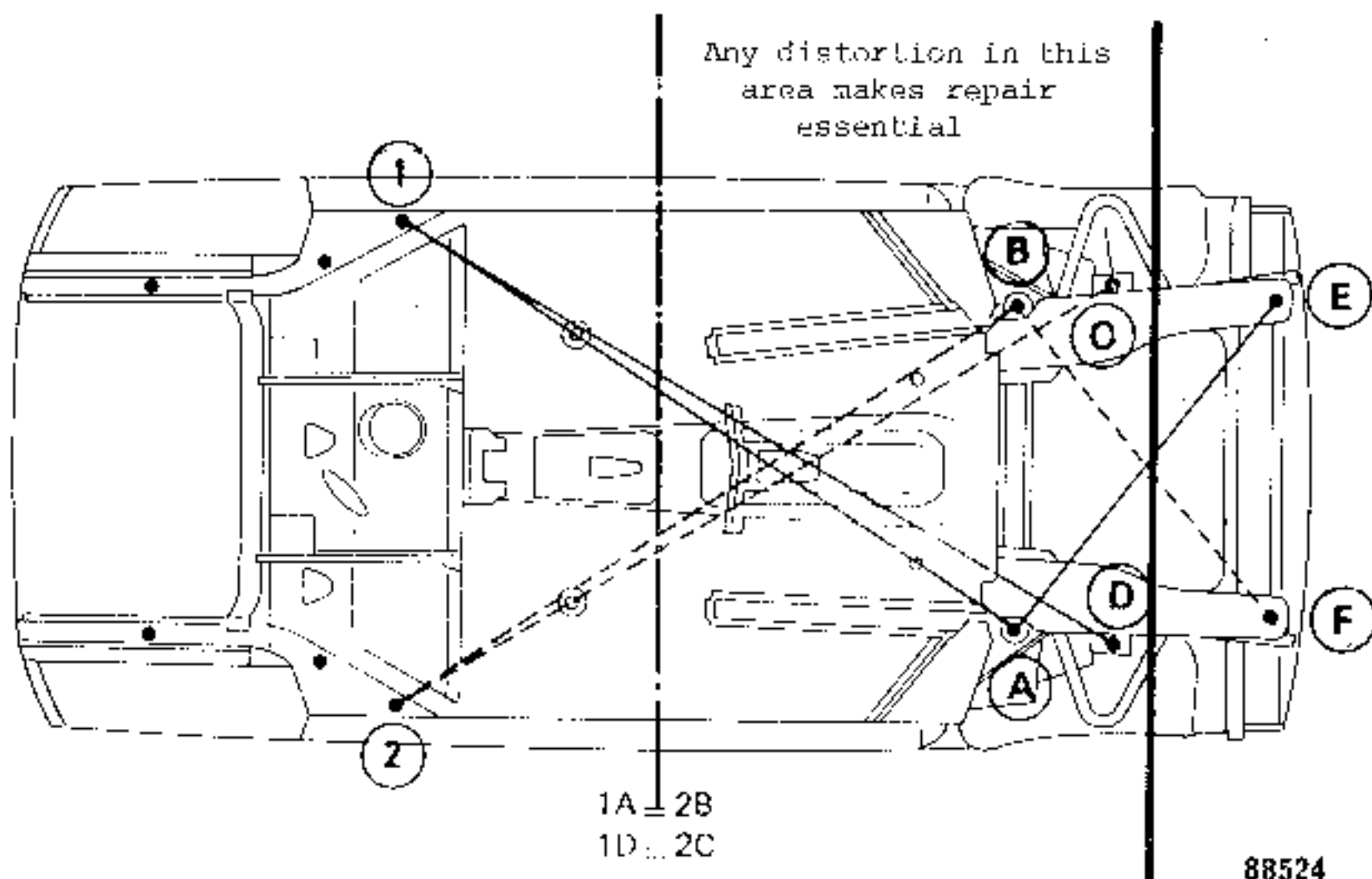
1D = 2C

If there is any difference, the vehicle is to be placed on the body jig.

If there is no difference, compare the diagonals :

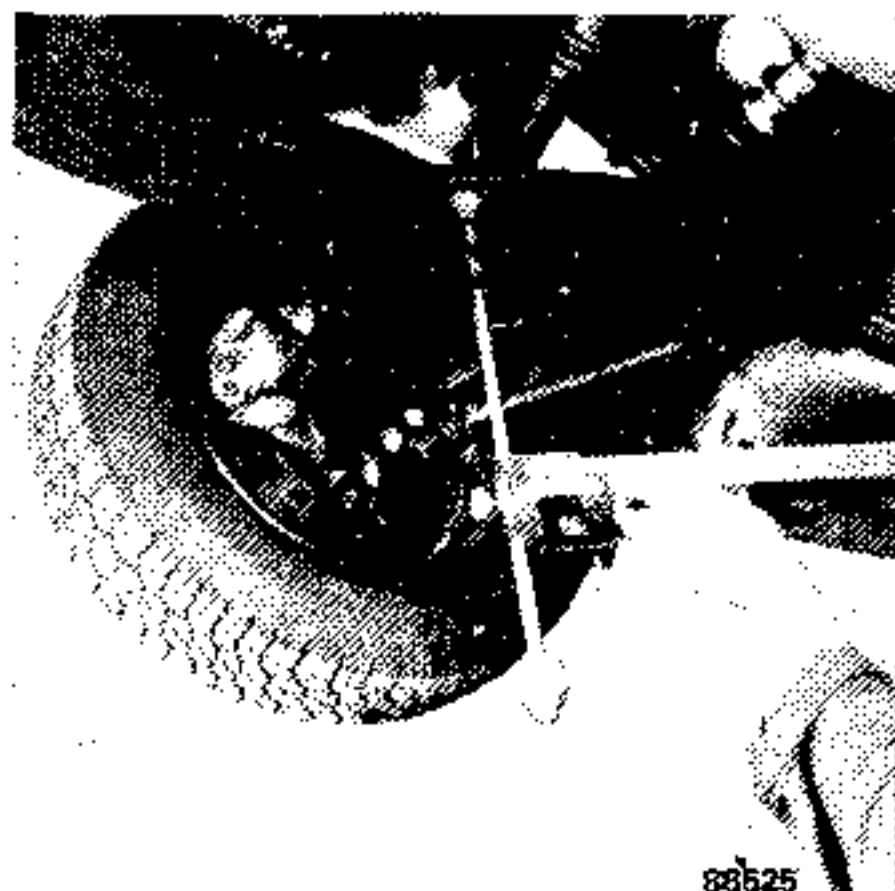
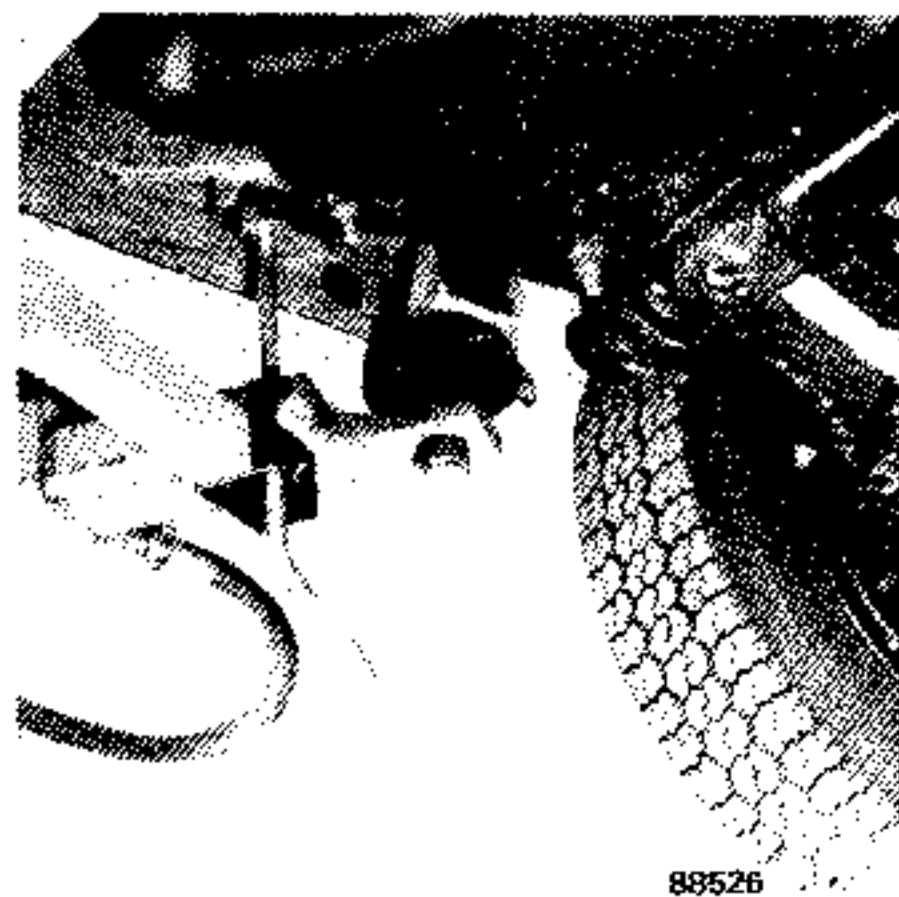
BF = AE

If there is any difference, the engine cradle must be replaced but it is not necessary to place the vehicle on the body jig.



points (1) and (2)

points D and C



Compare the diagonals :

A1 = B2

A3 = B4

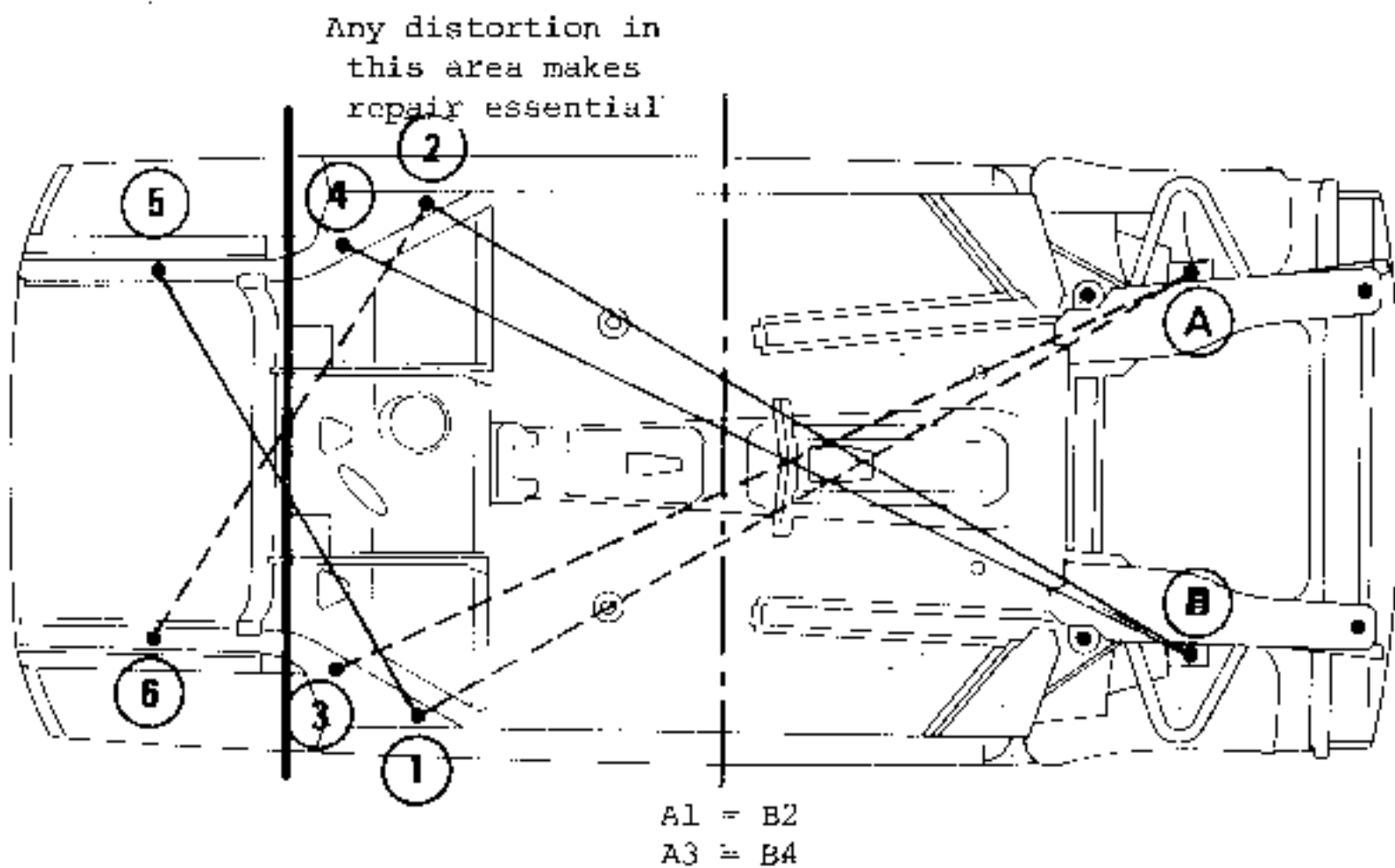
- If any difference is noted during the check, the vehicle will have to be placed on the body jig.

Compare the diagonals :

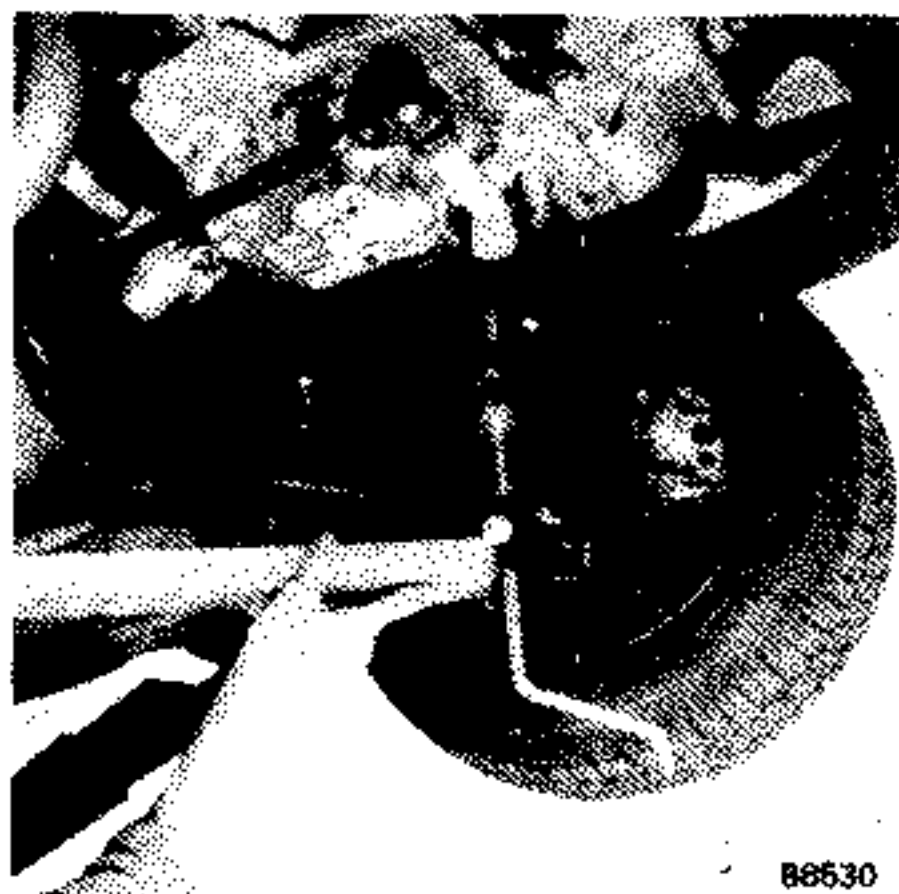
1 - 5 = 2 - 6

- If any difference is noted it is not necessary to place the vehicle on the body jig.

- But the axle geometry must be checked.



88524



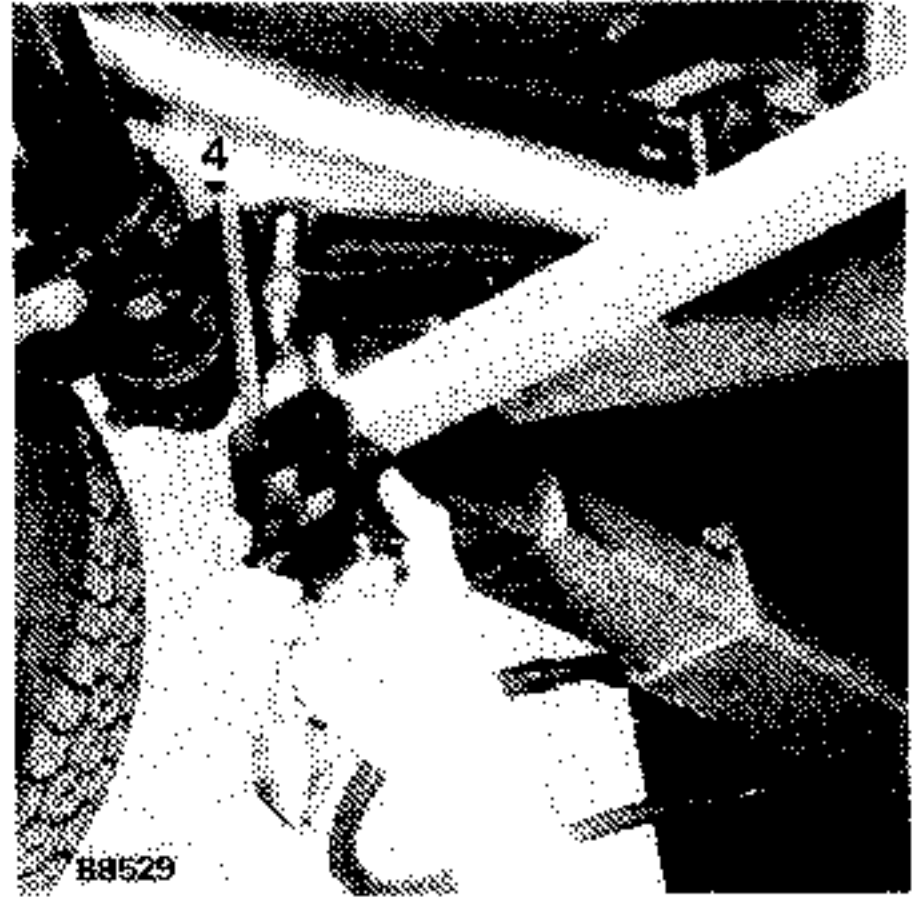
88530



88527

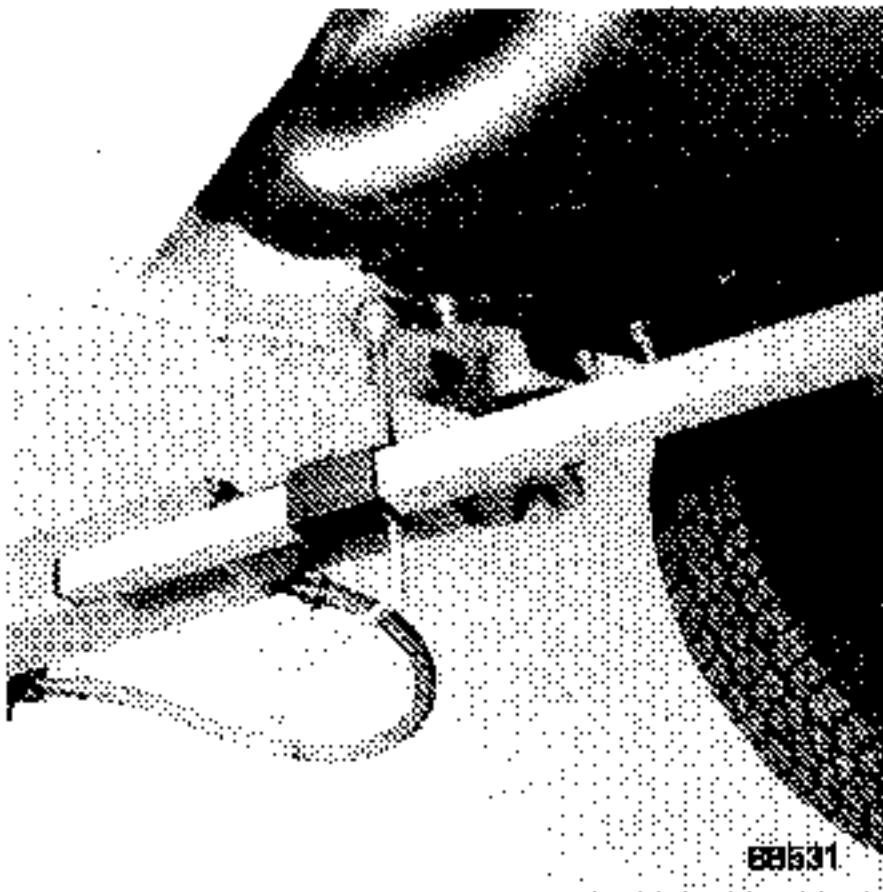
CHECKING THE DIAGONALS A1 = B2

DIAGNOSIS

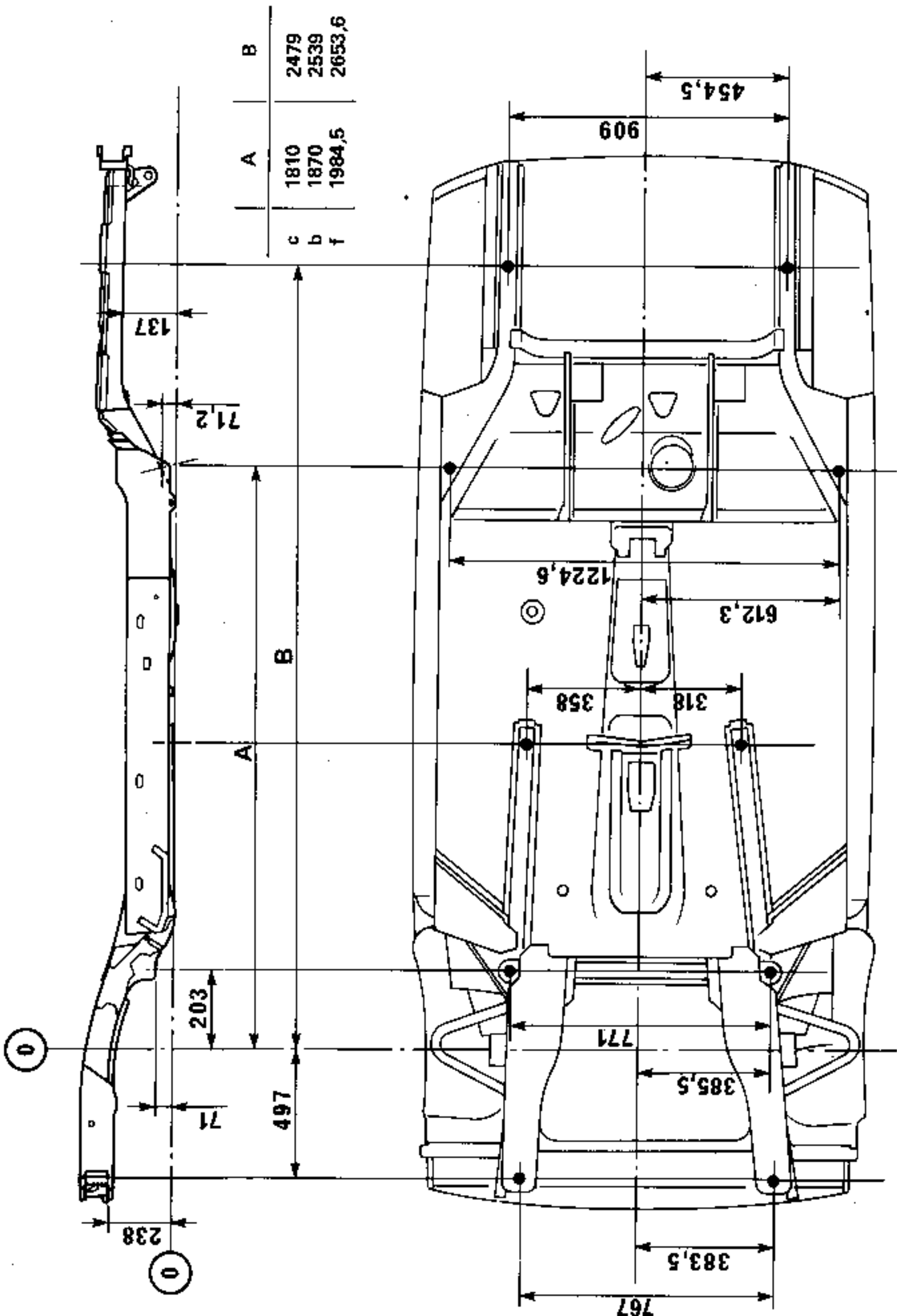


CHECKING THE DIAGONALS $A3 = B4$

The rear ends of the side members are checked by comparing diagonals $1 - 5 = 2 - 6$



CHECKING THE DIAGONALS $1 - 5 = 2 - 6$



Note : for : a description of the body jig,
the positions of the various holes,
converting old body jigs to the modular system,
anchoring and jacking systems,

SEE MR 501 bodywork section, section F 001

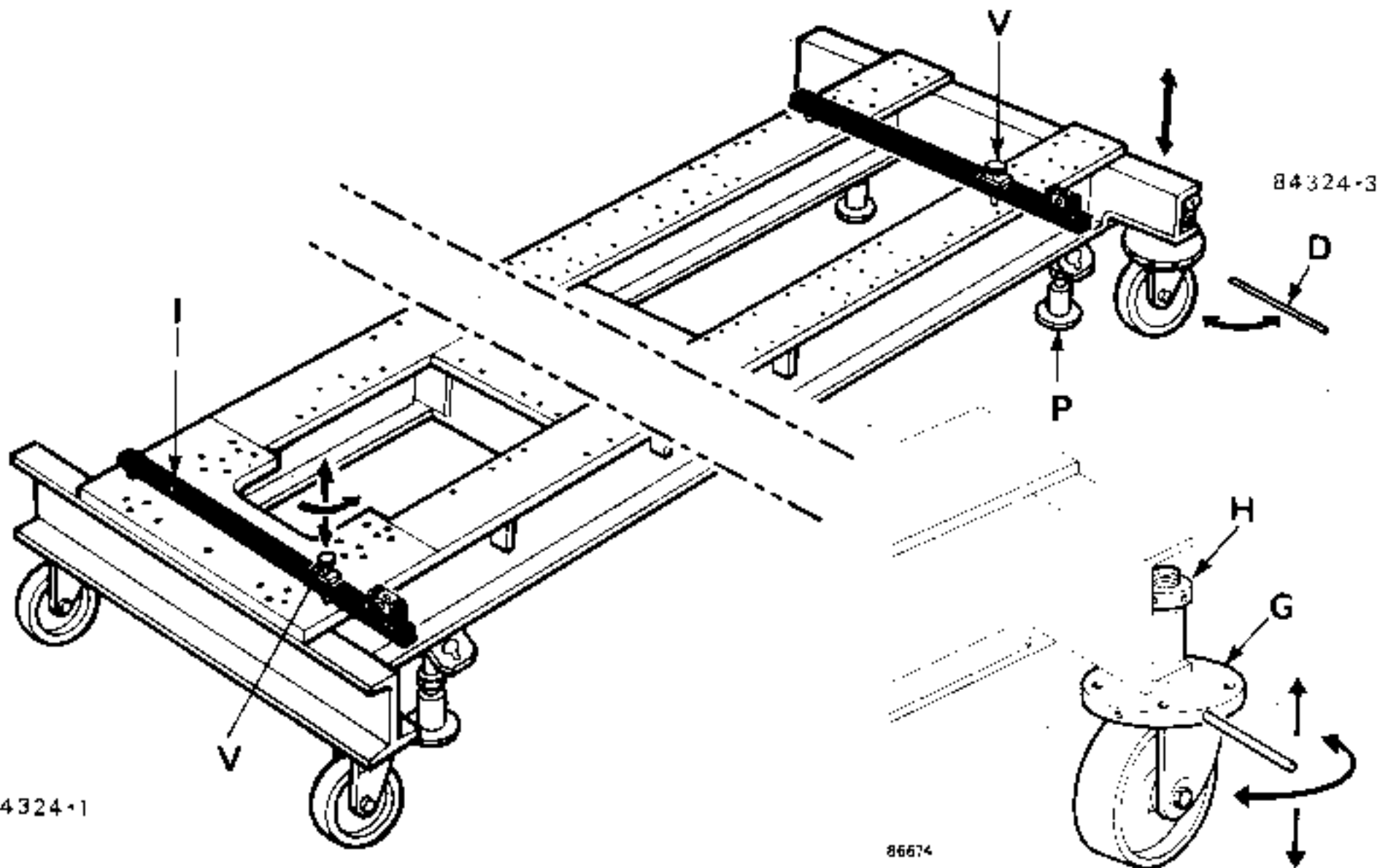
SETTING UP THE BODY JIG FOR USE

Important note

Before any checking, straightening or rebuilding operations on a vehicle mounted on its body jig, the jig itself must be set up without twist.

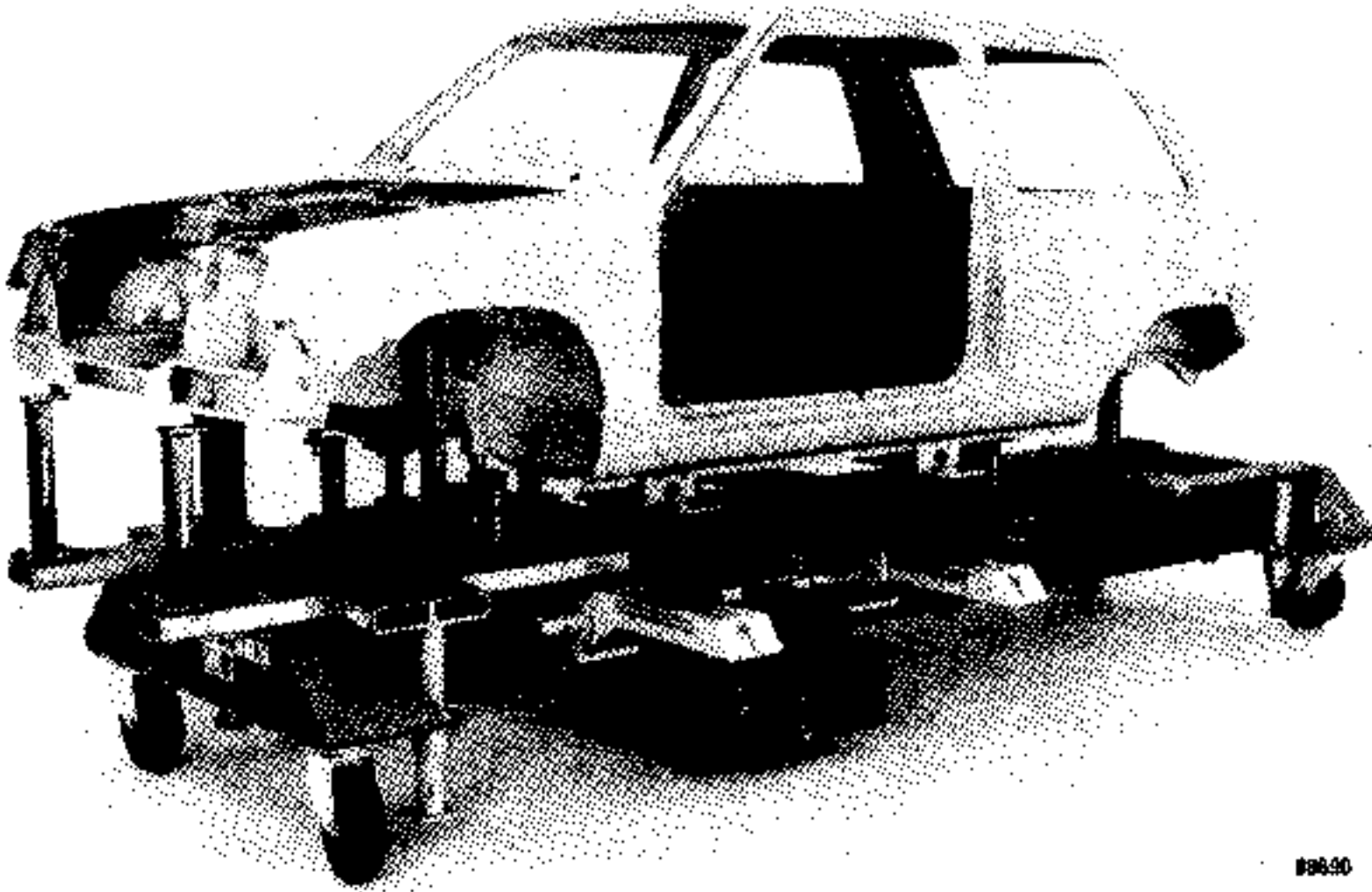
1. PREPARATION

- Place the jig brackets required for the repair to be carried out on the jig.
- Place the vehicle on the jig brackets, only the mechanical units around the area to be repaired need to be removed.
- Fit the anchor clamps.



2. STRAIGHTENING THE BODY JIG

- Place a straight-edge (1) on the front end of the machined part of the jig.
- Turn the screw (V) to bring the spirit level bubble between the two marks.
- Take the straight-edge to the rear machined area on the jig bench, leaving the straight-edge in the same position (with the adjusting screw V on the same side of the jig).
- Loosen the lock nut (H), on the rear wheel. This can be adjusted by inserting a tommy bar at (D).
- Turn the wheel flange (G) to bring the spirit level between the two marks.
- Recheck the other end and repeat these operations as described above if necessary.
- When the jig is level, tighten lock nut (H).
- Before using floor anchor points bring down the screw jacks (P) to take the load.



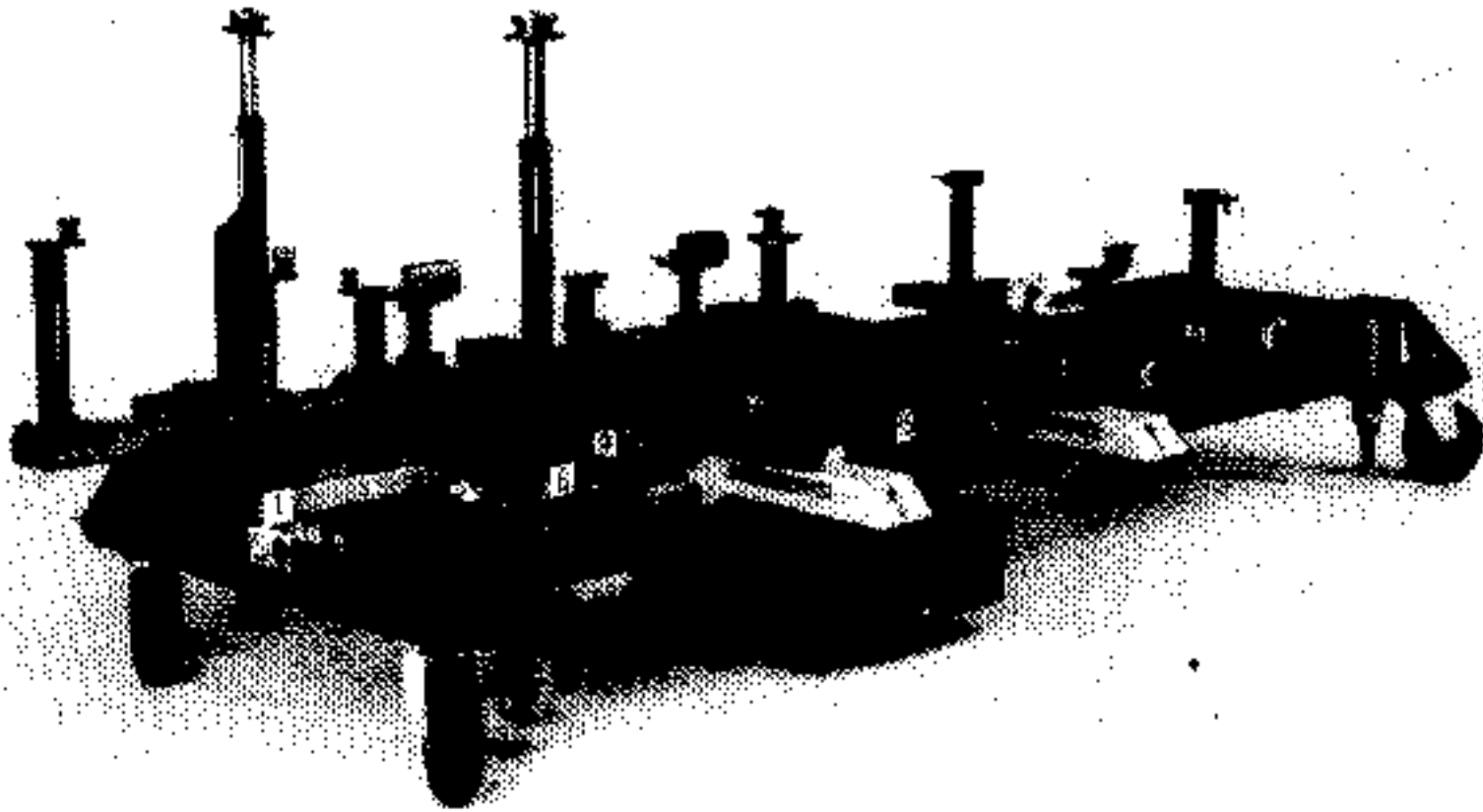
00000

Special adjustments to be carried out on body jig MUF 7 R.C.

- Body jig MUF 7 R.C. is levelled in the same way and with the same straight-edge as jig MUF 6 R.C., by turning the adjustable foot, no matter what working position is to be used.

3. REPAIR OPERATIONS

- Secure the anchor clamps to the body sills.
- Carry out the actual repair by straightening the distorted area.
- If the jig brackets are used, a permanent check is maintained.
- The body is rebuilt to the correct dimensions by positioning the components replaced on the jig brackets.

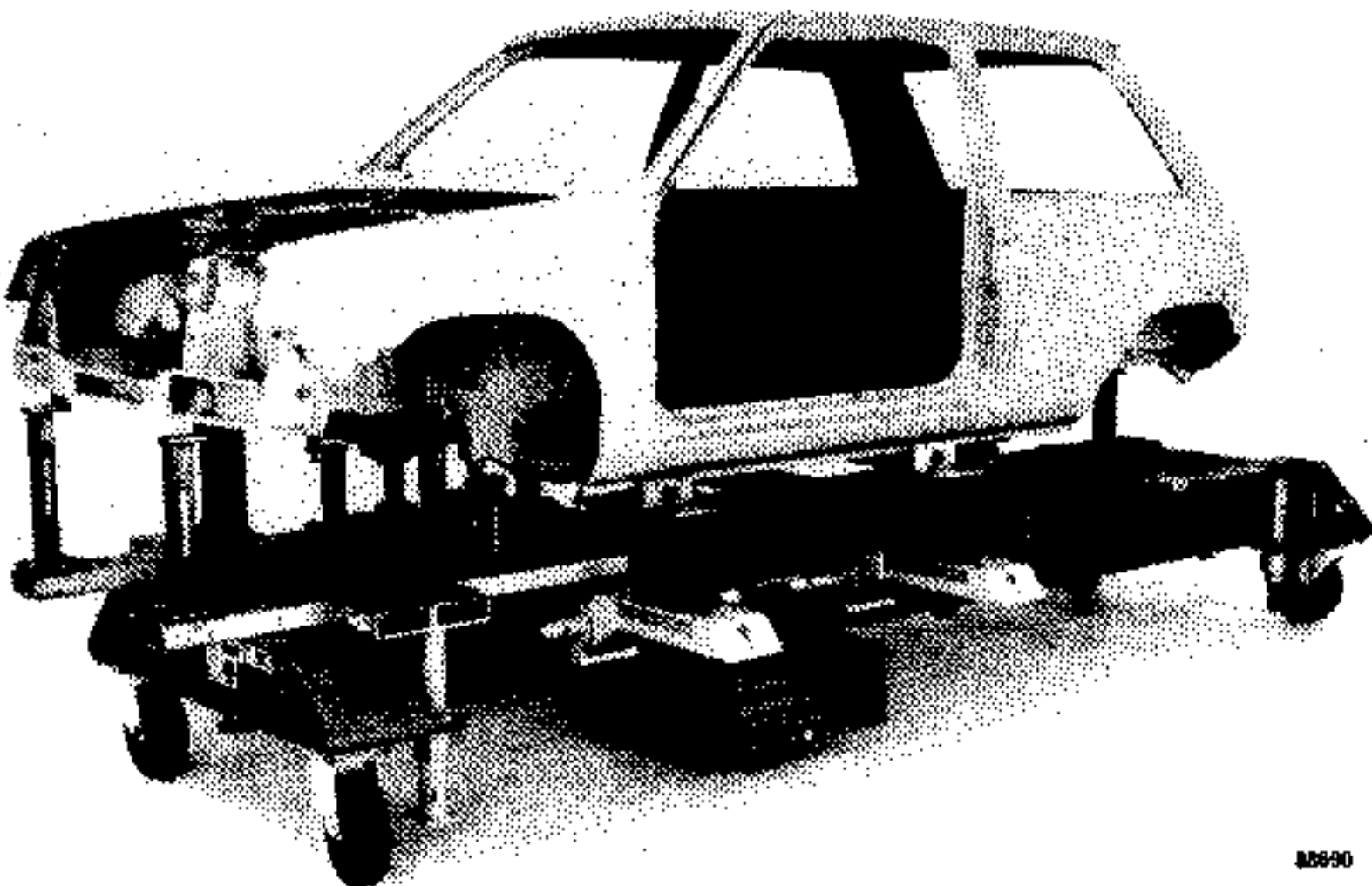


88691

Jig brackets Car. 1028 are designed to be used with the modular system and fit on the RENAULT - CELETTE MUF 6 R.C. or MUF 7 R.C. body jigs, equipped with CELETTE modular cross members.

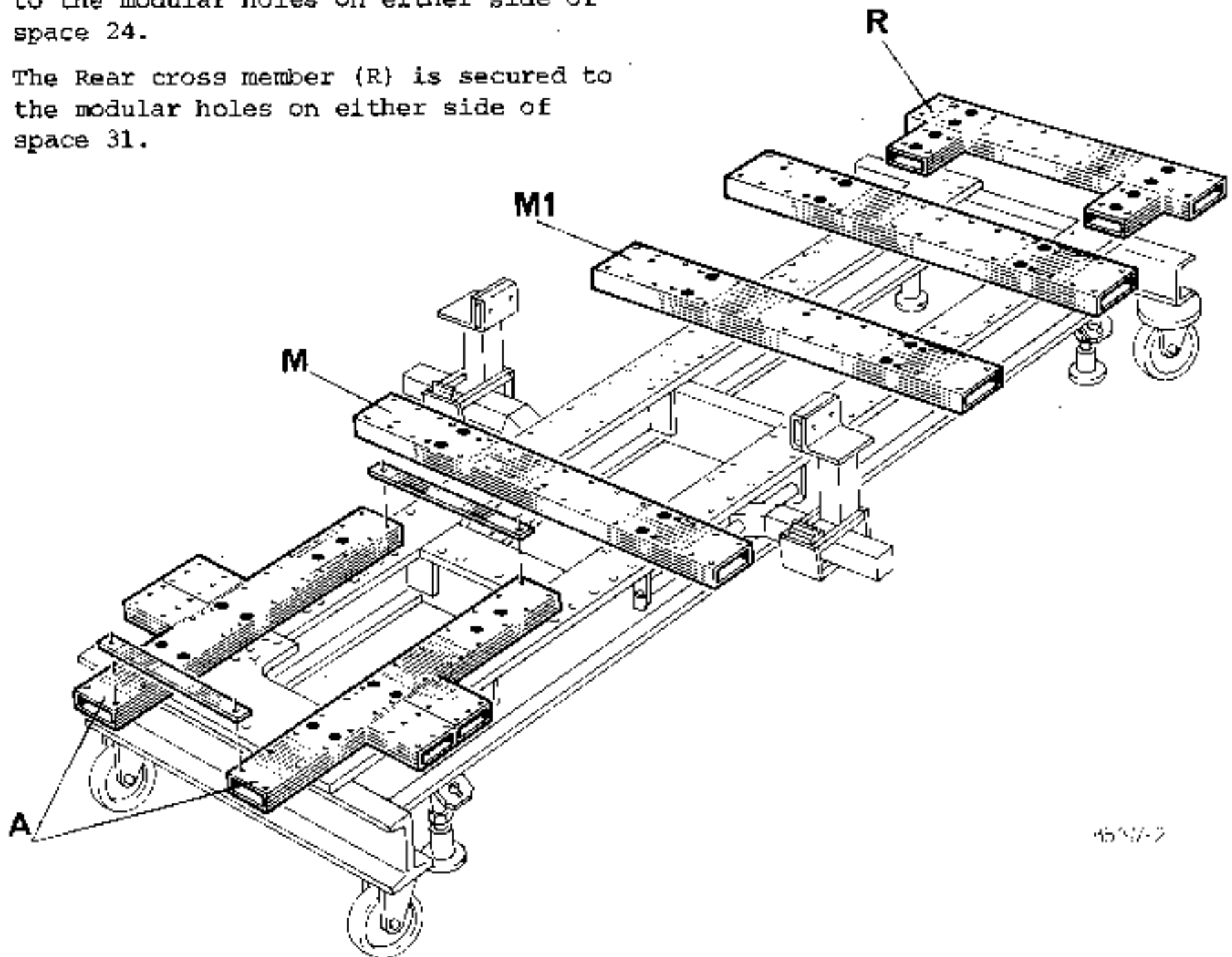
They can also be used on BLACKHAWK body jigs with modular cross members.

For the method of using these jig brackets on other body jigs, see MR 501, bodywork section - section F 001.

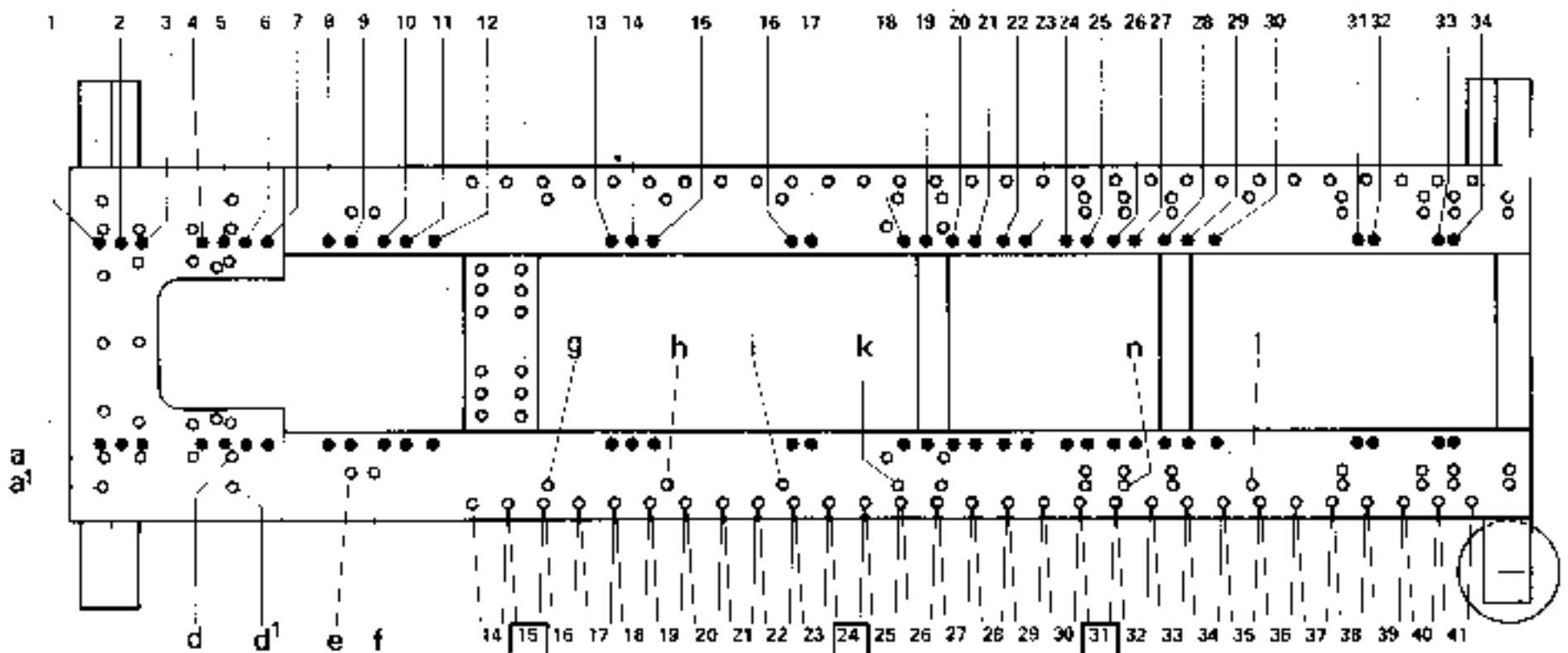


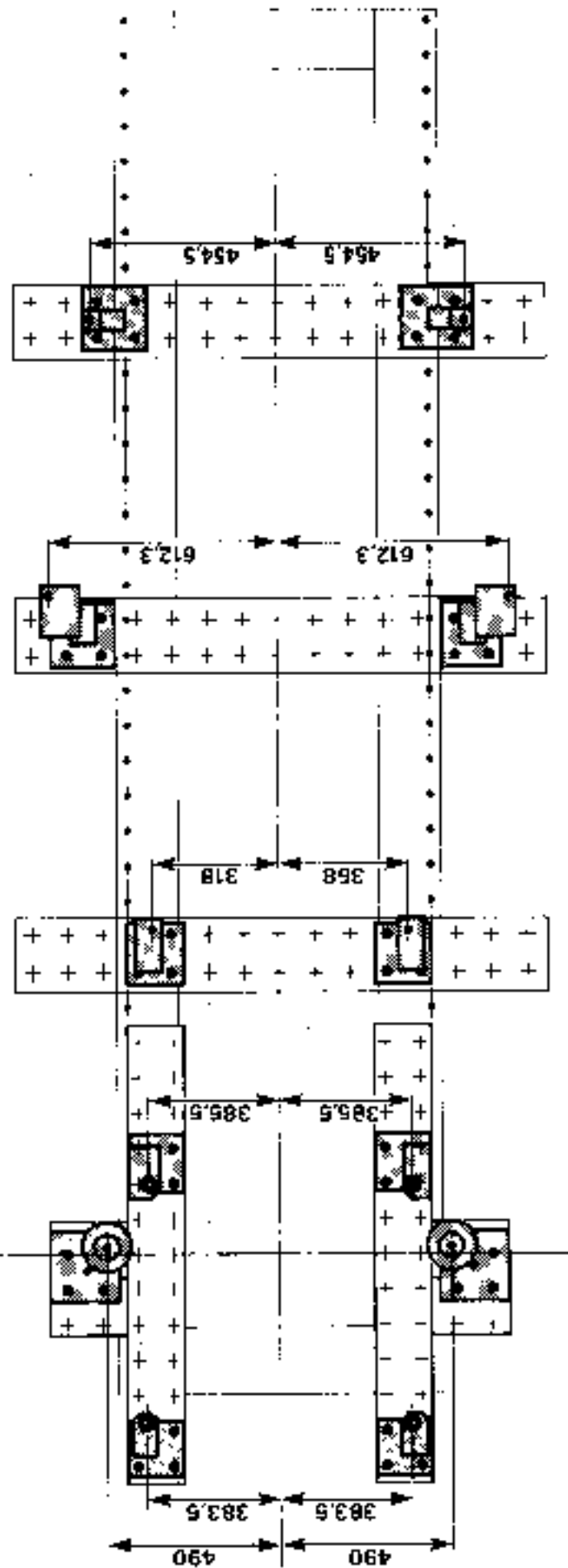
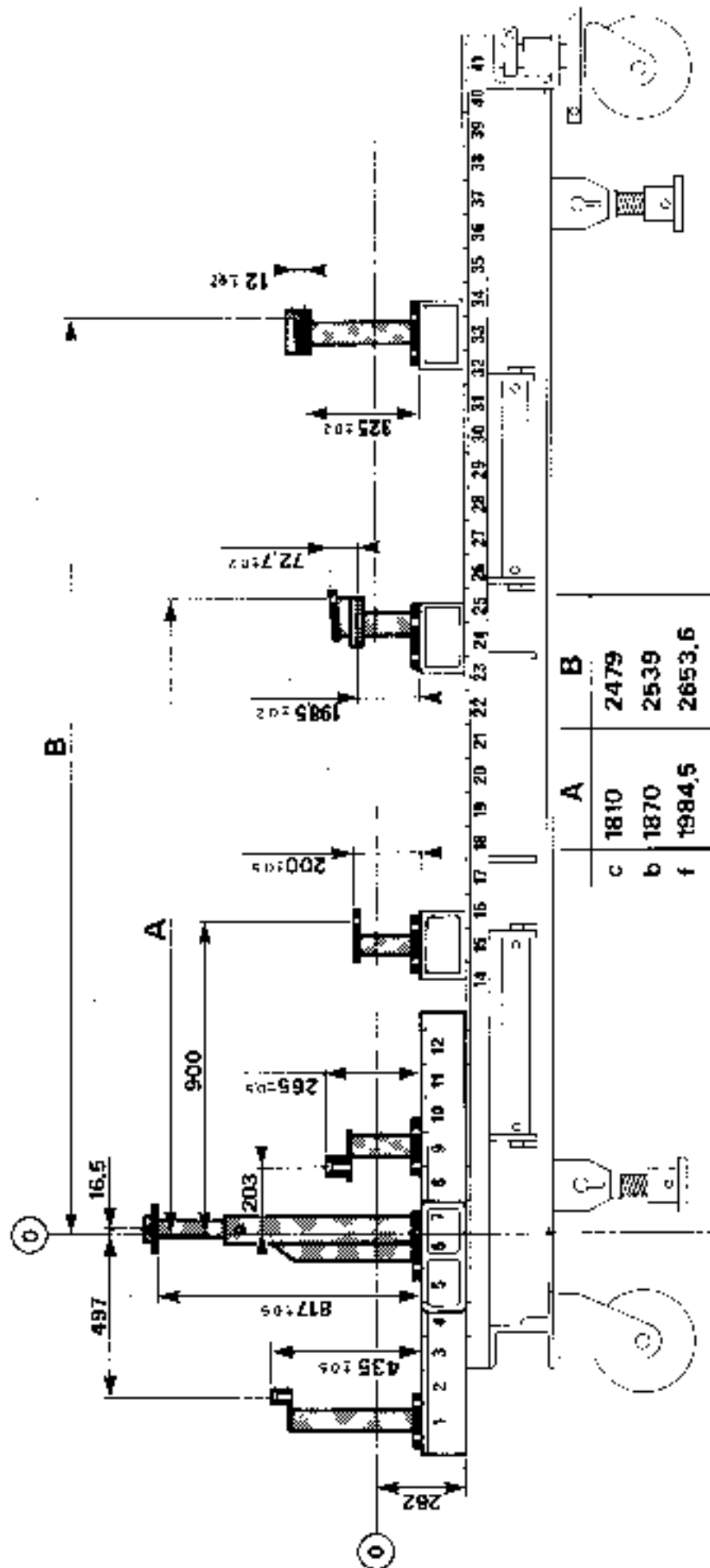
88690

- The Front cross members (A) are secured to holes a and a', d and d' and f on the jig.
- The Centre cross member (M) is secured to the modular holes on either side of space 15.
- The Centre cross member (M1) is secured to the modular holes on either side of space 24.
- The Rear cross member (R) is secured to the modular holes on either side of space 31.



45°N/2





1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41

c b f c b f

To make repair operations easier, we have designed jig brackets that permit one to place a vehicle on the jig without removing the FRONT or REAR mechanical units unless they are in the area to be repaired.

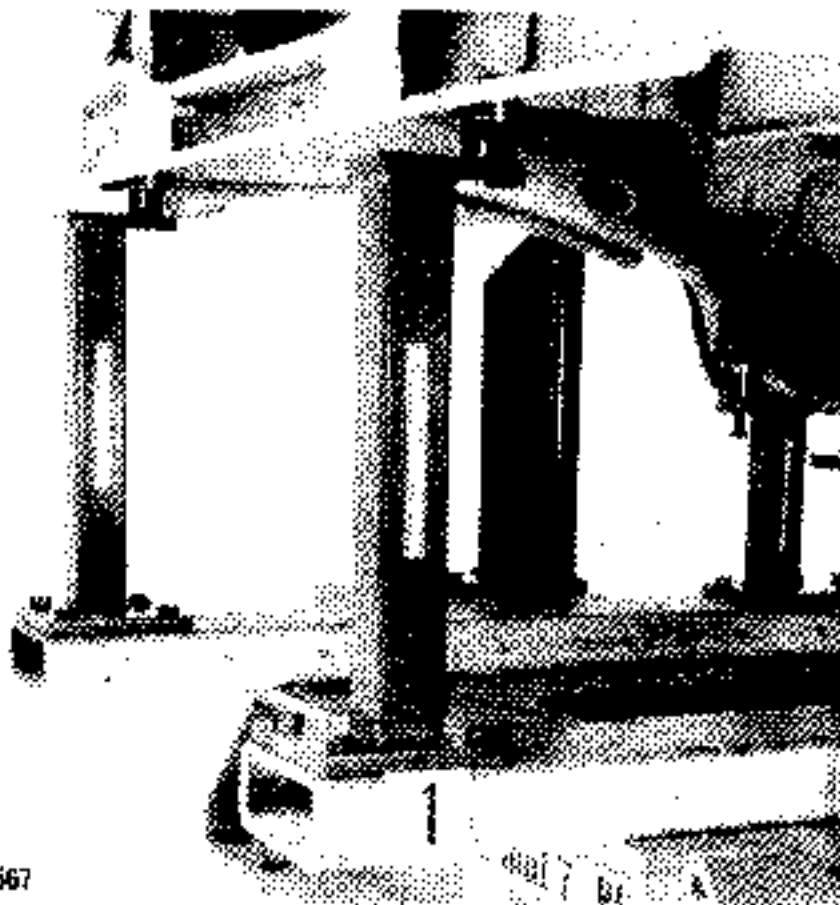
These jig brackets are designed to fit over the FRONT and REAR mechanical unit securing bolt heads or nuts, when the mechanical units are left in position and, furthermore, locate on the datum points that determined the original geometry, when the mechanical units are removed.

They can be used :

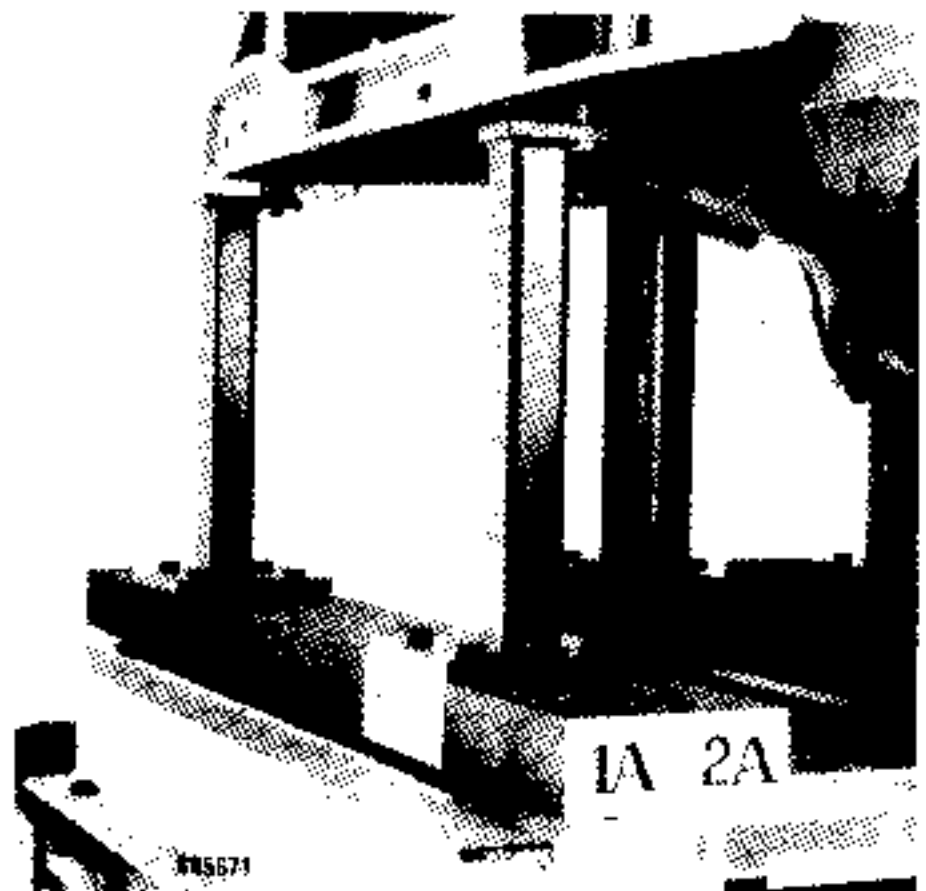
1. on CELETTE or RENAULT-CELETTE MUF 6 R.C. and MUF 7 R.C. body jigs equipped with CELETTE modular cross members,
2. on BLACKHAWK jigs, with modular hole positions, equipped with BLACKHAWK modular cross members.

JIG BRACKET No. 1

- When repairing front collision damage : with the mechanical units removed, this determines the position of the front end cross member, with the spacers in position.
- When repairing rear collision damage : this can be used with the mechanical units in position and the spacers (A) removed. They assist in aligning the vehicle on the jig. In this case the front bumper shield must be removed.



80567



80567

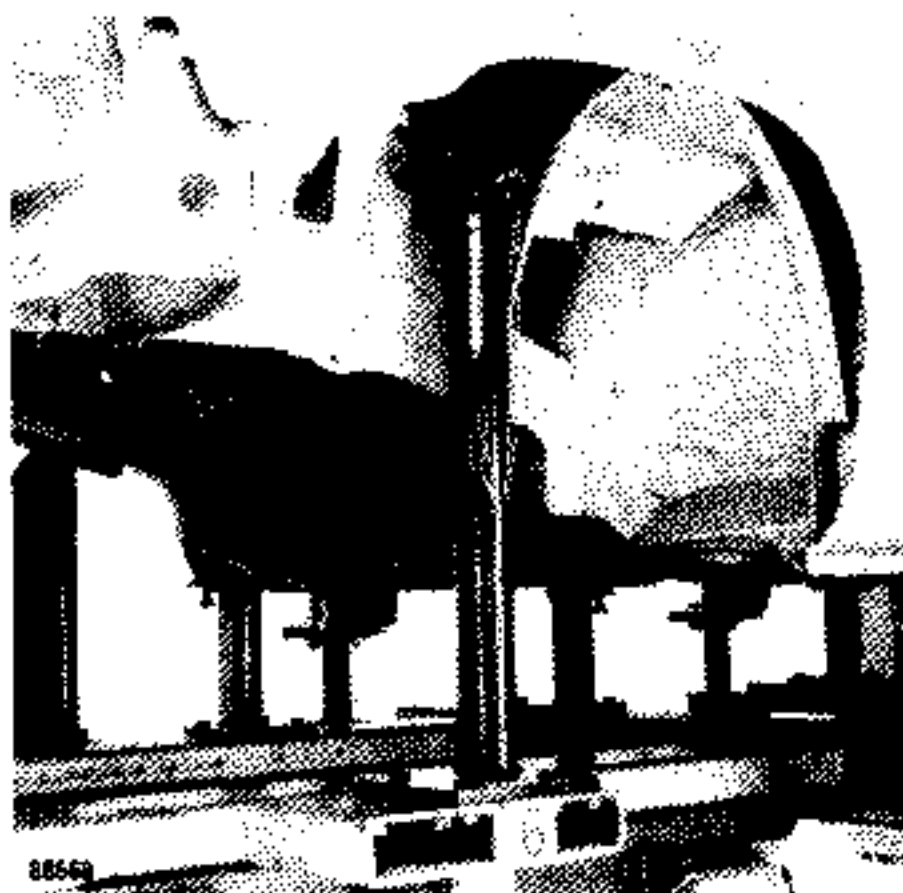
- On the CELETTE modular system, this support is secured to the end of the front cross members at space no. 1

- On the BLACKHAWK modular system, this support is secured to holes 3 and 4 in the front cross member positioned at the BLACKHAWK modular holes 1A and 2A.

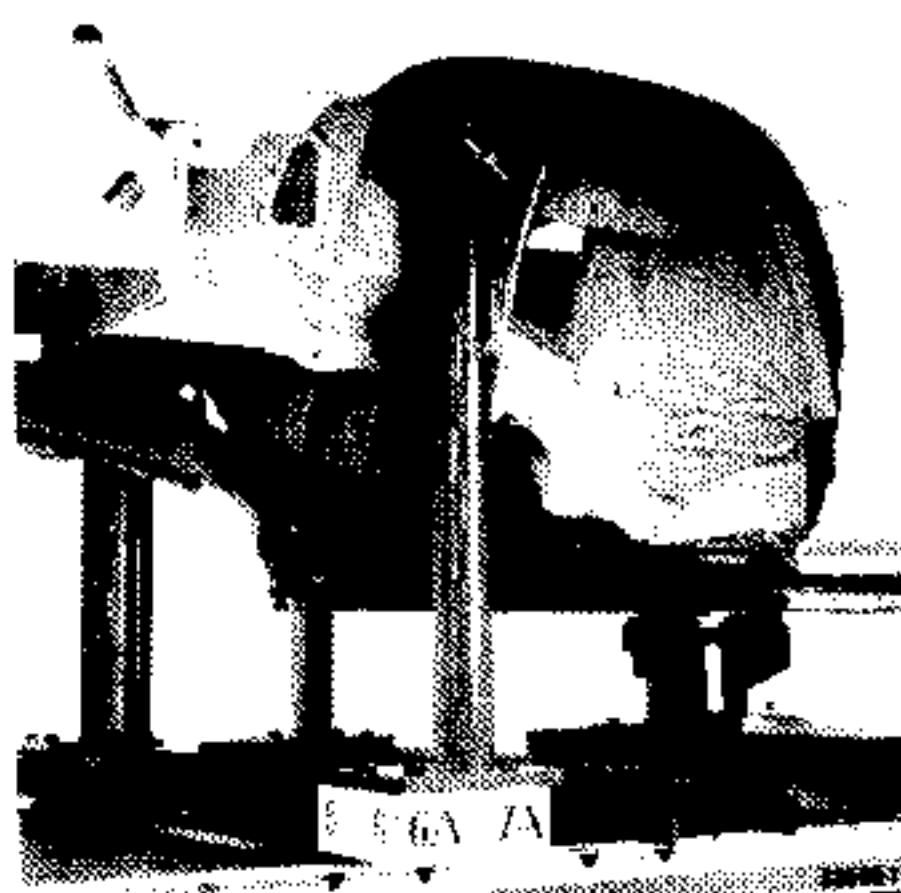
JIG BRACKET No. 2

This is used only for repairing front end collision damage with the mechanical units removed : it correctly locates the shock absorber turret when replacing a cowl side assembly (operation covered in the front end collision section).

Note : when straightening a cowl side, the upper part can be lowered by removing the pin.



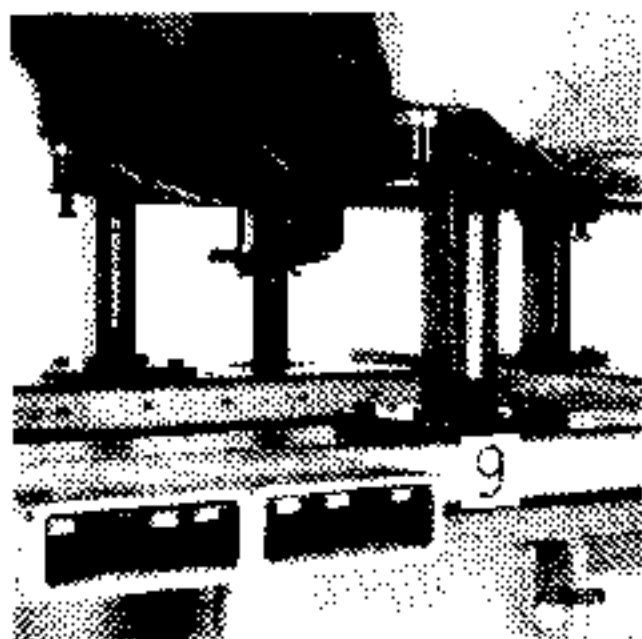
- On the CELETTE modular system, it is secured by 4 bolts to the front cross member extension, at space 6.



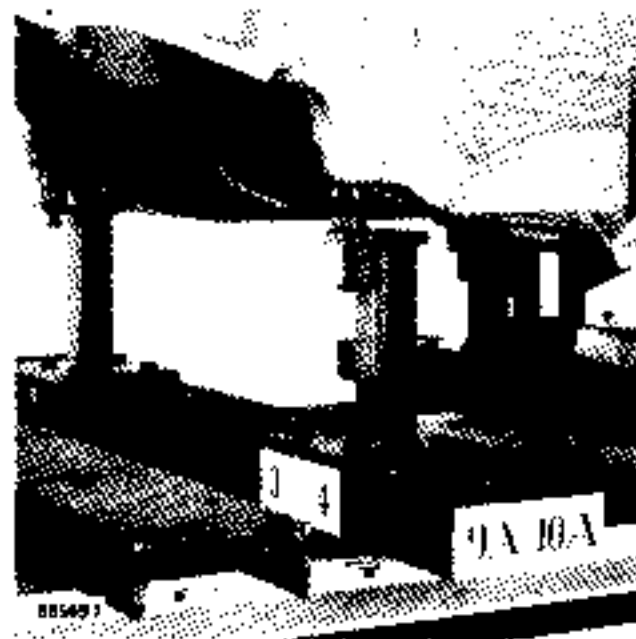
- On the BLACKHAWK modular system, it is secured to holes 5 and 6 on the front cross member, which is positioned at modular holes nos. 7A and 8A.

JIG BRACKET No. 3

- When repairing front collision damage : depending on the extent of the damage, with its spacers fitted, it permits one to align the vehicle on the jig or to position the side member (or front end unit).
- When repairing rear collision damage : it is used with the mechanical units in position and the spacers removed, to align the vehicle on the jig.



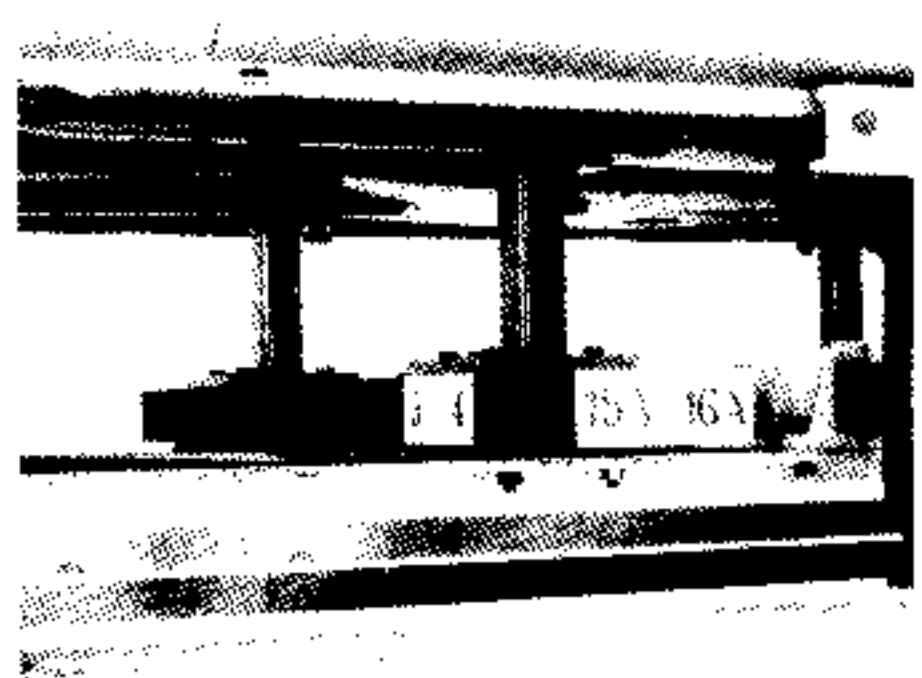
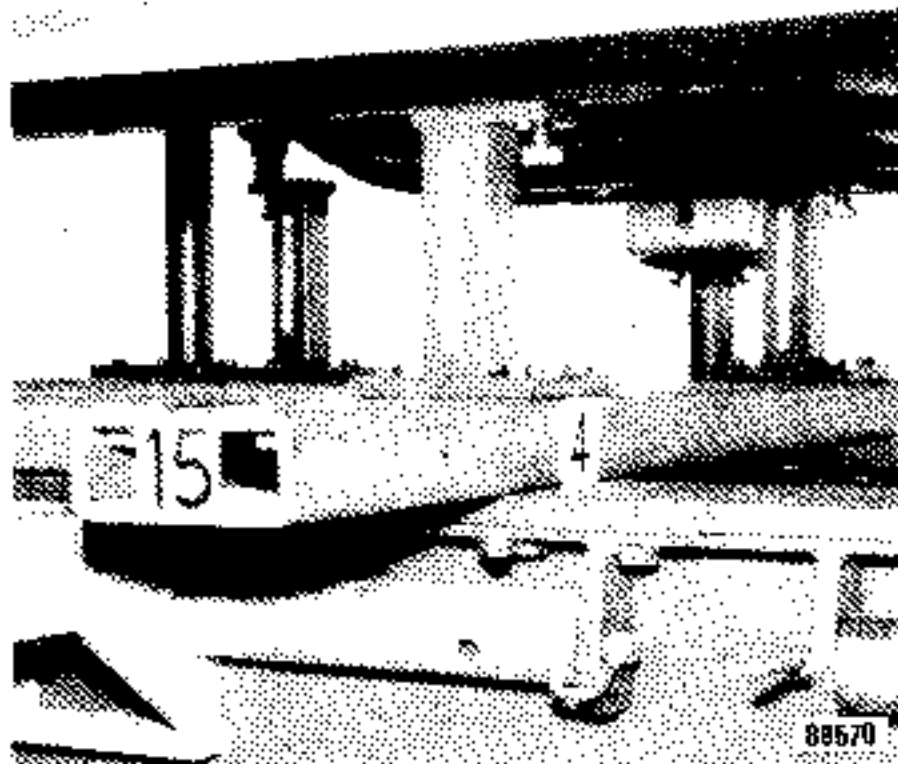
- On the CELETTE modular system, this support is secured to the front cross members at space no. 9.



- On the BLACKHAWK modular system this support is secured to holes 3 and 4 in the front cross member, positioned at BLACKHAWK modular holes 9A and 10A.

JIG BRACKET No. 4

- When repairing front collision damage : depending on the extent of the damage, this is used to align the vehicle on the jig or to position a side member (or a front end unit).
- When repairing rear collision damage : it helps to align the vehicle on the jig and support its weight.

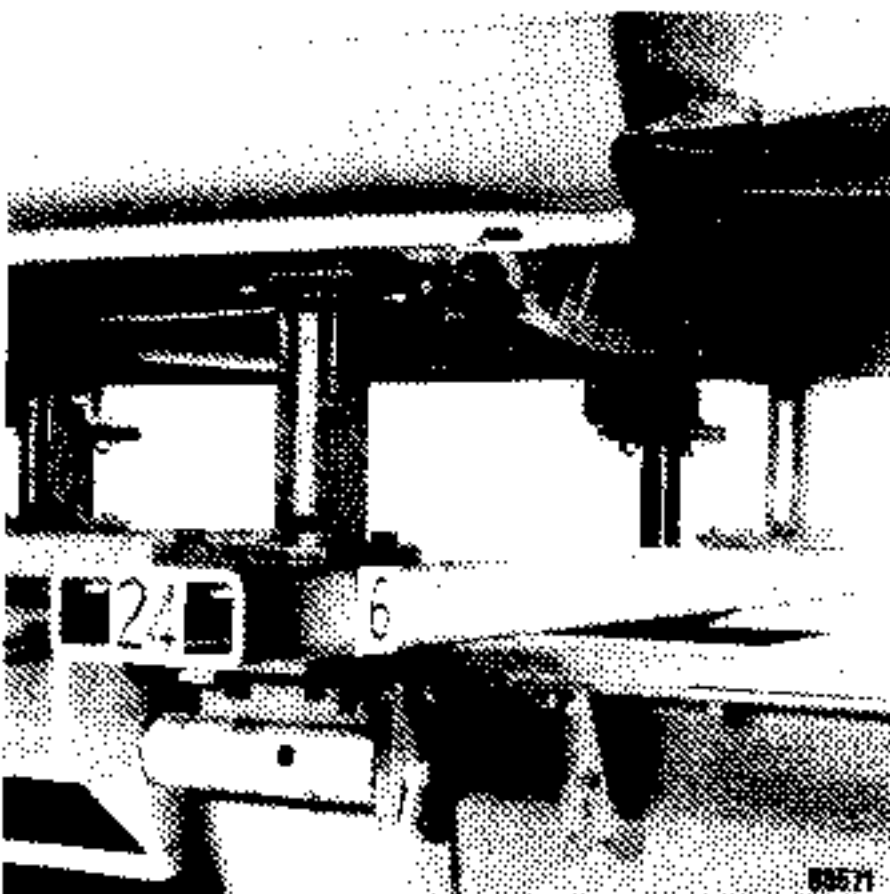


- On the CELETTE modular system, it is secured to cross member space no. 4, positioned at space no. 15 on the jig.

- On the BLACKHAWK modular system it is secured to holes 3 and 4 in the cross member, positioned at holes 15A and 16A on the jig.

JIG BRACKET No. 5

- When repairing front collision damage : it aligns the vehicle on the jig without removing the rear mechanical units.
- When repairing rear collision damage : depending on the extent of the damage, it aligns the vehicle on the jig or positions the side member (or the rear end unit).

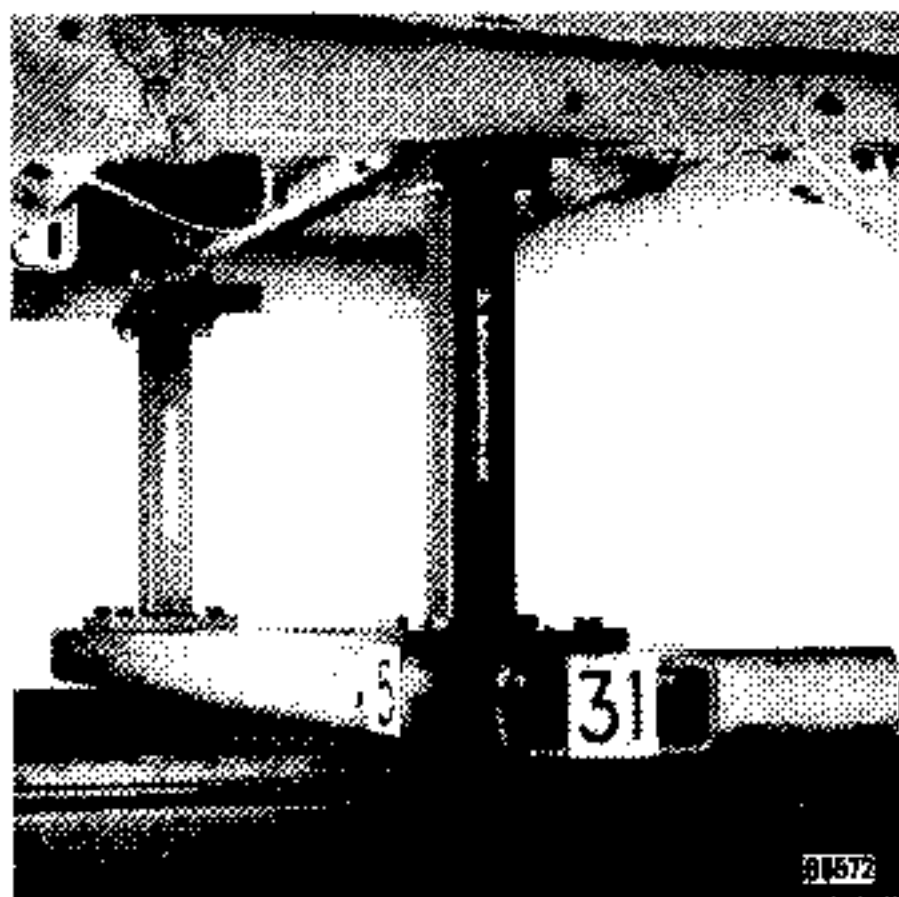


- On the CELETTE modular system it is secured to space no. 6 on the cross member positioned at space no. 24 on the jig

- On the BLACKHAWK modular system it is secured to holes 5 and 6 in the cross member positioned at modular holes 24A and 25A on the jig.

JIG BRACKET No. 6

- When repairing front collision damage : it assists in aligning the vehicle on the jig. Fitting it involves removing the exhaust (and the additional fuel tank on sports versions).
- When repairing rear collision damage : it positions the side member (or rear end unit).



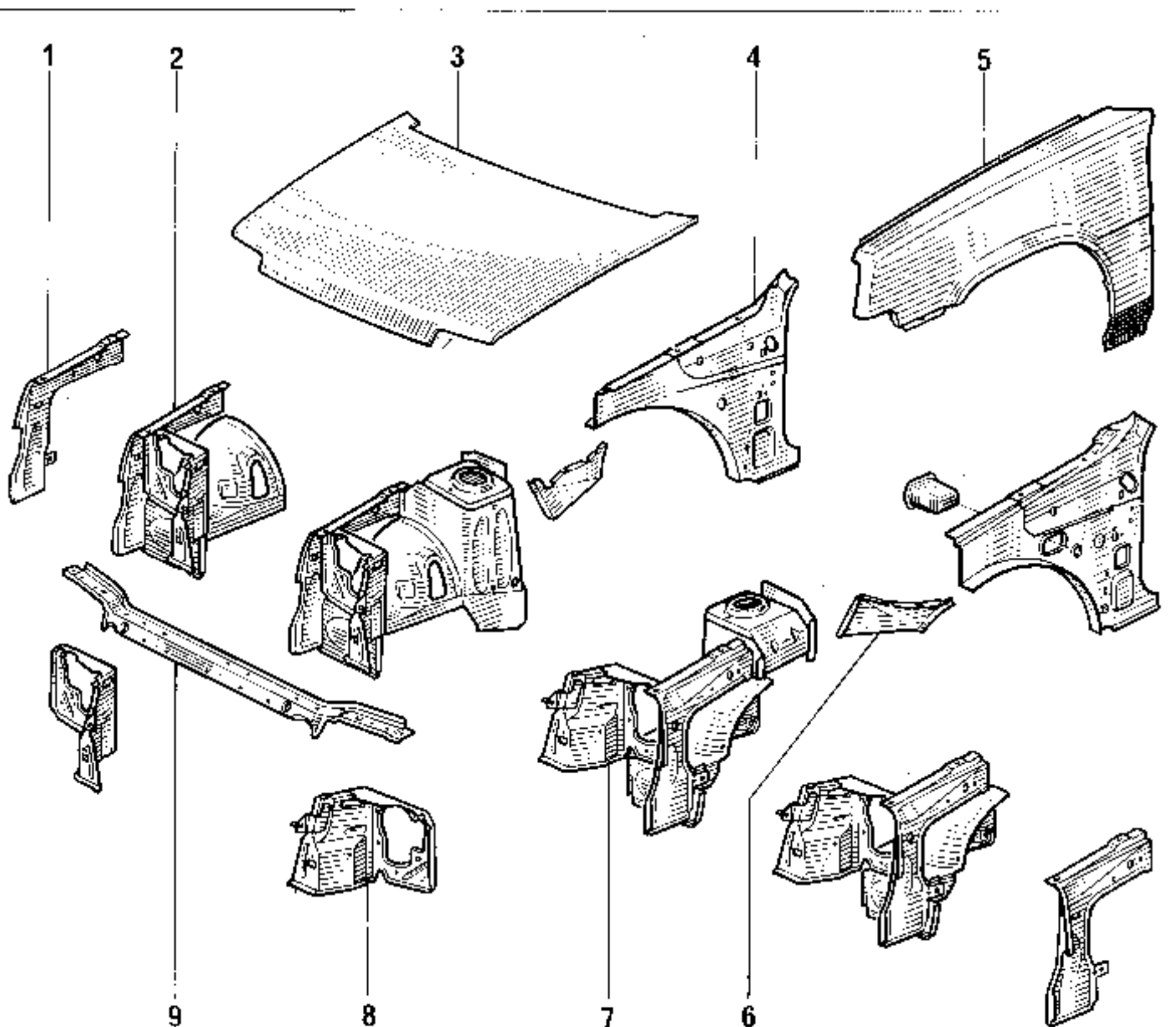
- On the CELETTE modular system it is secured to space no. 5 on the rear cross member positioned at space no. 31 on the jig.



- On the BLACKHAWK modular system it is secured to holes 4 and 5 in the cross member positioned at holes 31A and 32A on the jig.

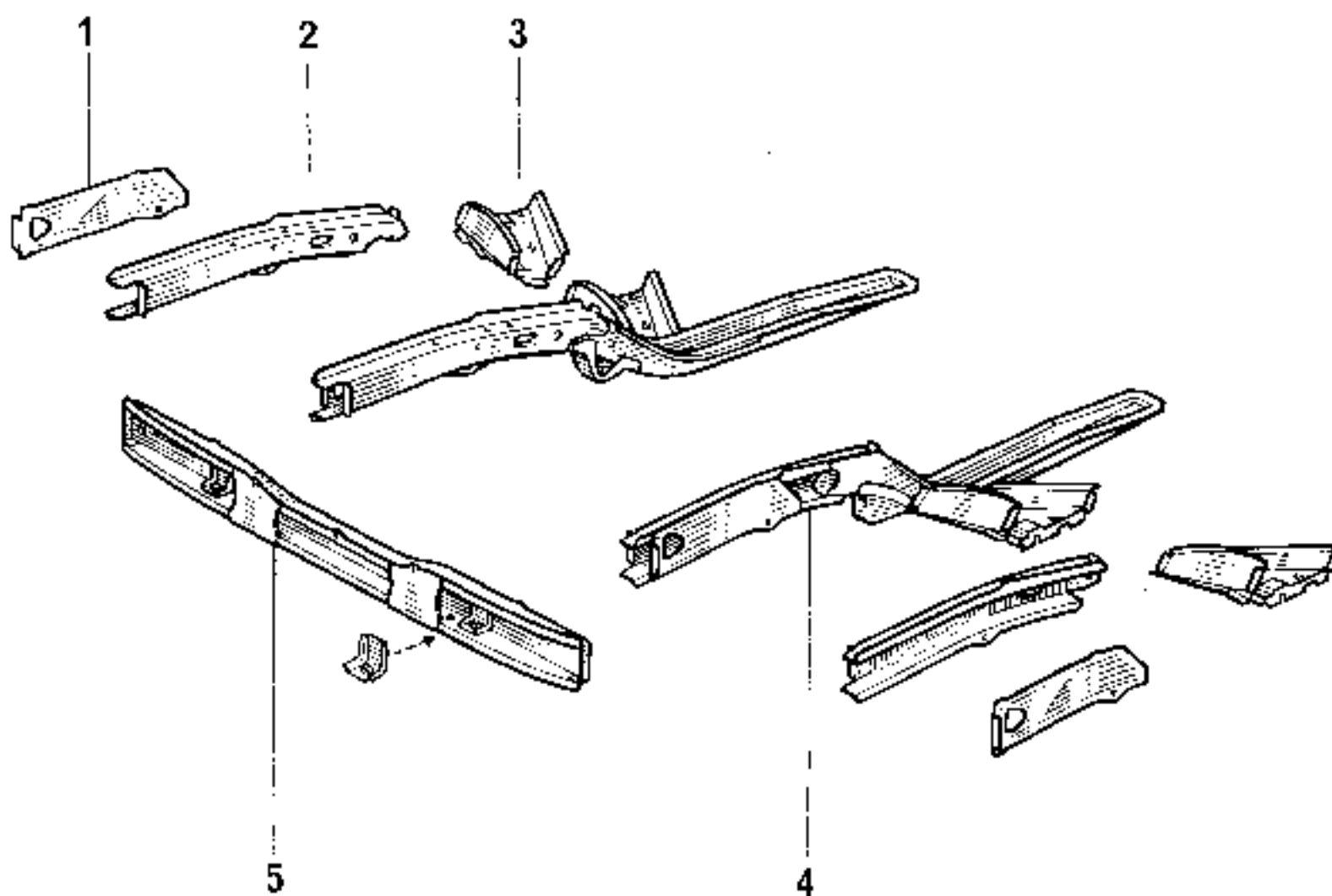
UPPER STRUCTURE

- 1 - cowl side panel
- 2 - simplified cowl side assembly
- 3 - bonnet
- 4 - door pillar lining
- 5 - front wing
- 6 - cowl side to shock absorber turret connection
- 7 - complete cowl side
- 8 - headlight support panel
- 9 - upper cross member



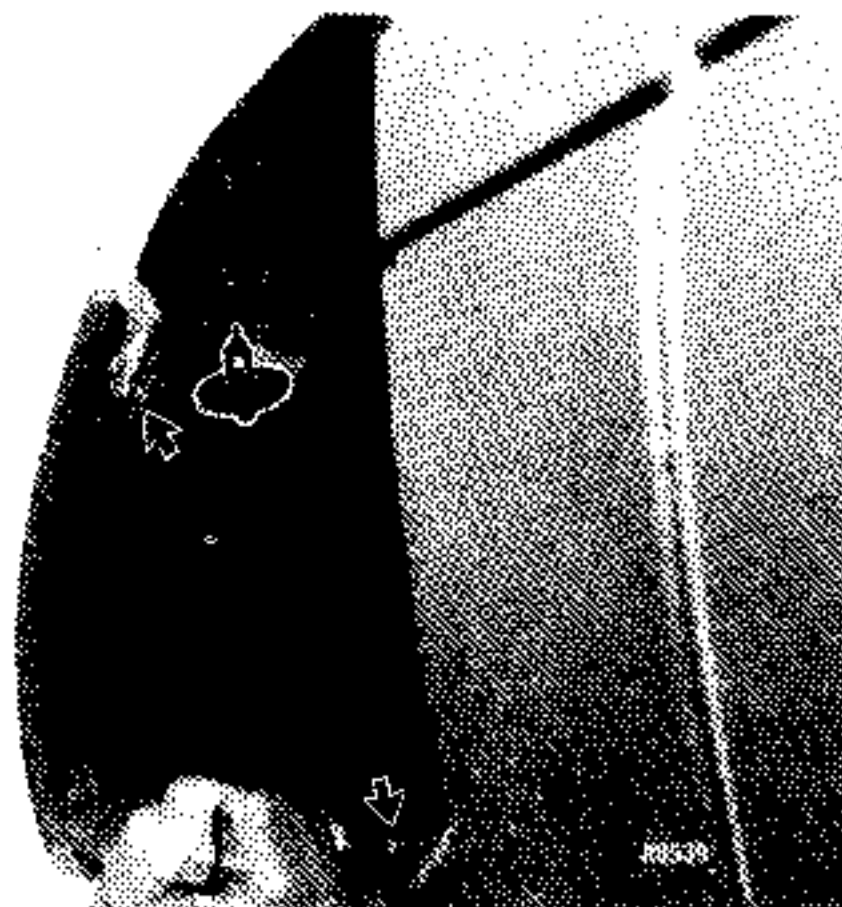
LOWER STRUCTURE

- 1 - side member closing panel
- 2 - side member front section
- 3 - side cross member
- 4 - complete side member
- 5 - lower cross member



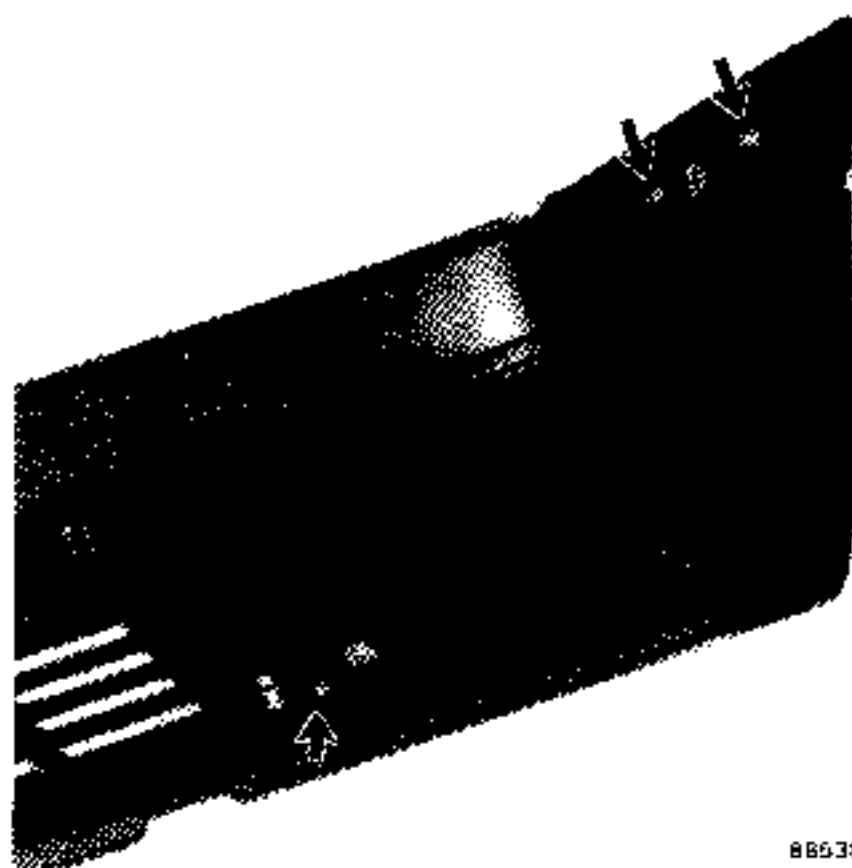
Removing

- Remove the four bumper shield securing bolts.



Stripping

- Take off the two side brackets and the two lower brackets.

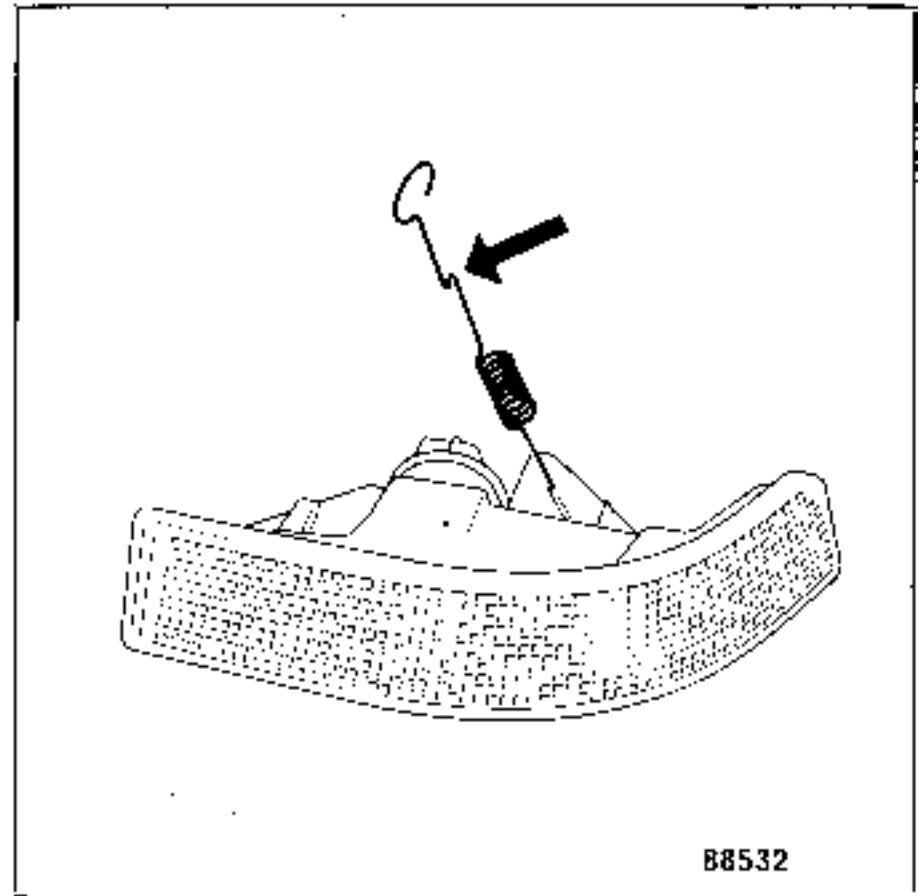


Refitting

Carry out the removing operations in reverse.

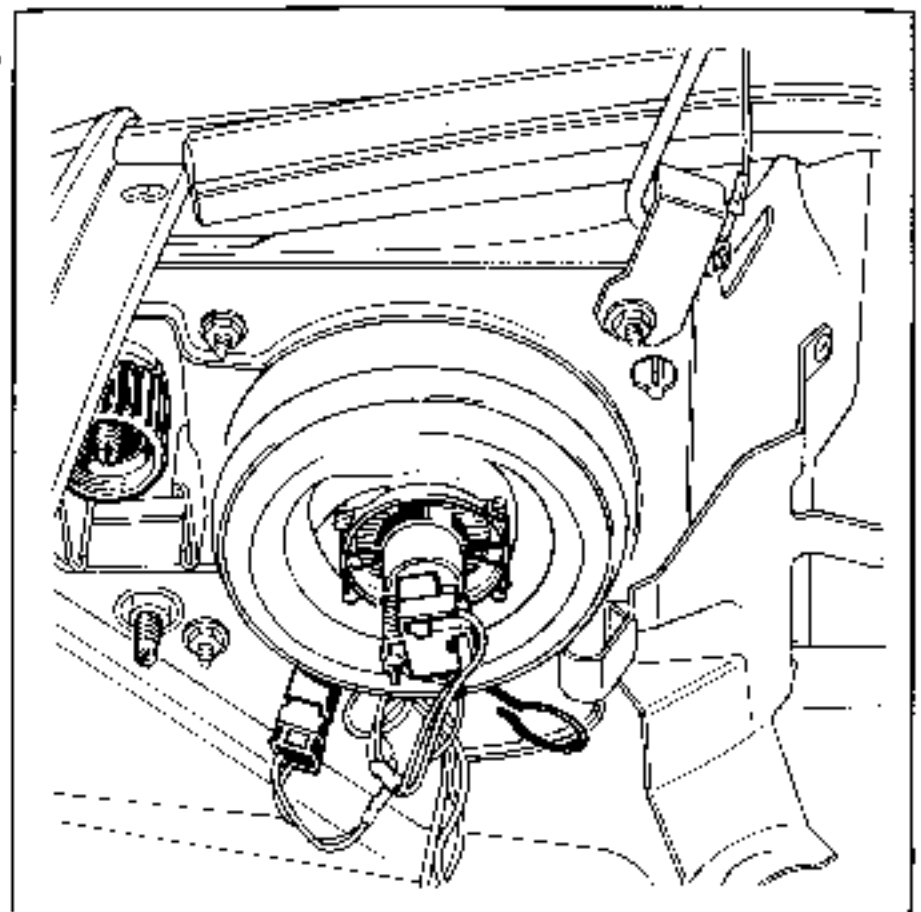
Removing

- Pull the ring on the direction indicator securing spring to remove the direction indicator.



- Remove the four headlight securing screws.

Note : The beam-unit cannot be dismantled.
Only the bulbs can be re-used, if in good condition.

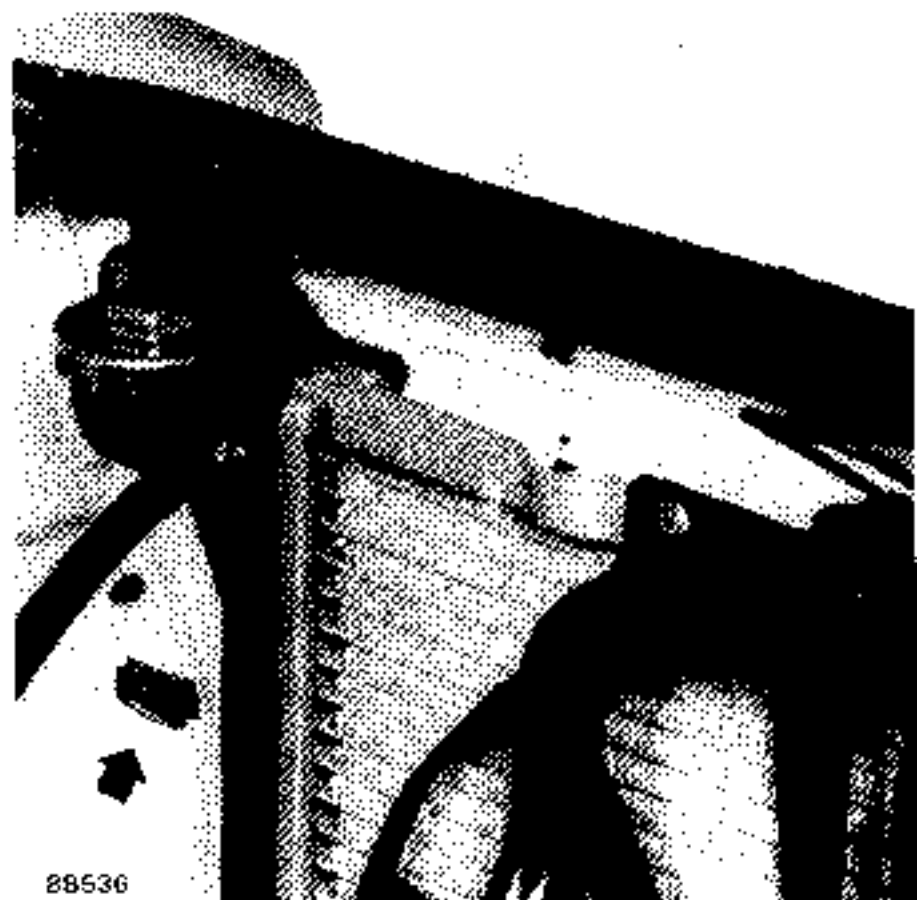


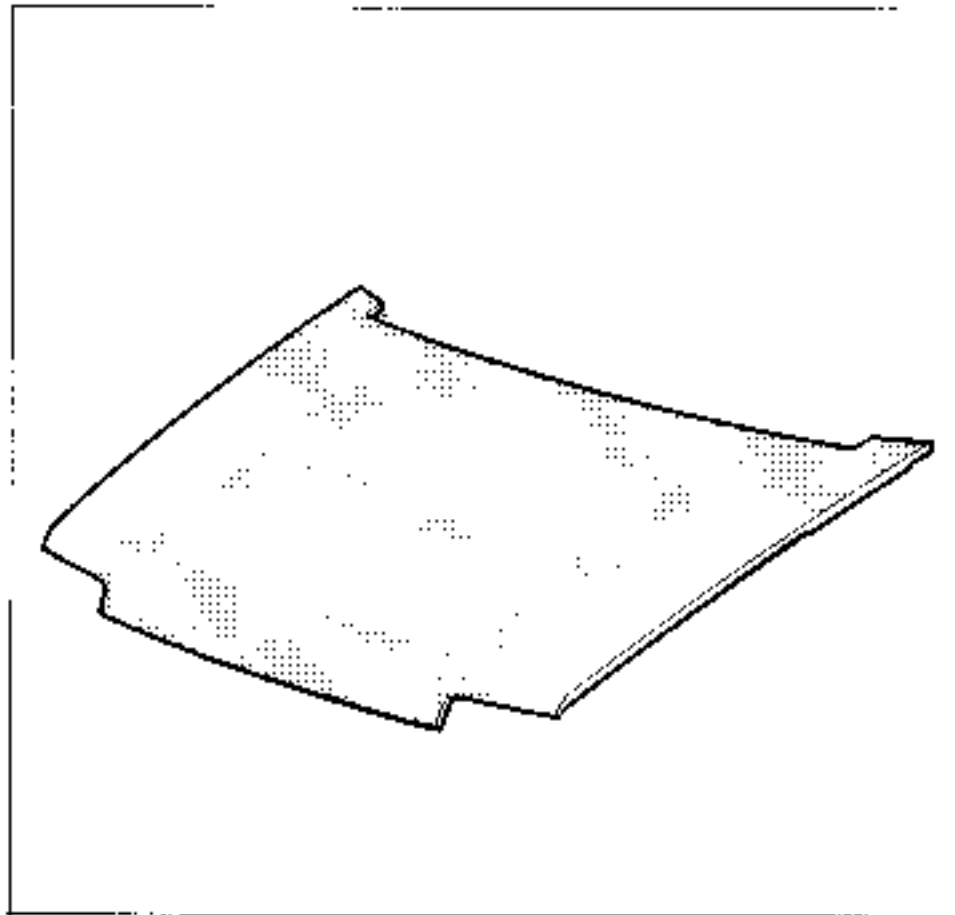
Removing

- Open the bonnet.
- Remove the upper securing screws using a cranked torx T wrench.



- Unclip the two lower fastenings.





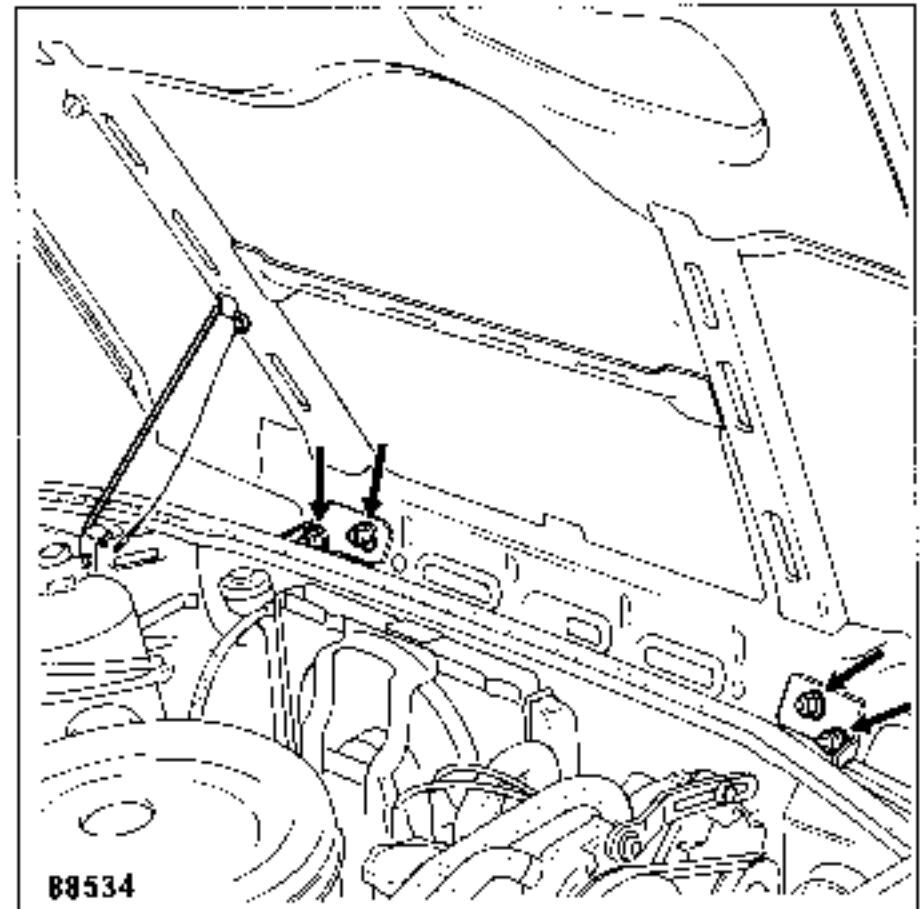
- Carry out paint sequence No. 5 (See "Painting" section).
- After painting, apply the hollow section protective treatment to the inside face of the area which has been repaired.

Removing

- Drill out the head of the rivet which secures the bonnet retaining cable to the headlight support panel, with a 6 mm drill.
- Remove the four bonnet securing bolts.

Stripping

- Take off : the prop,
the retaining cable,
the prop clip.



Refitting

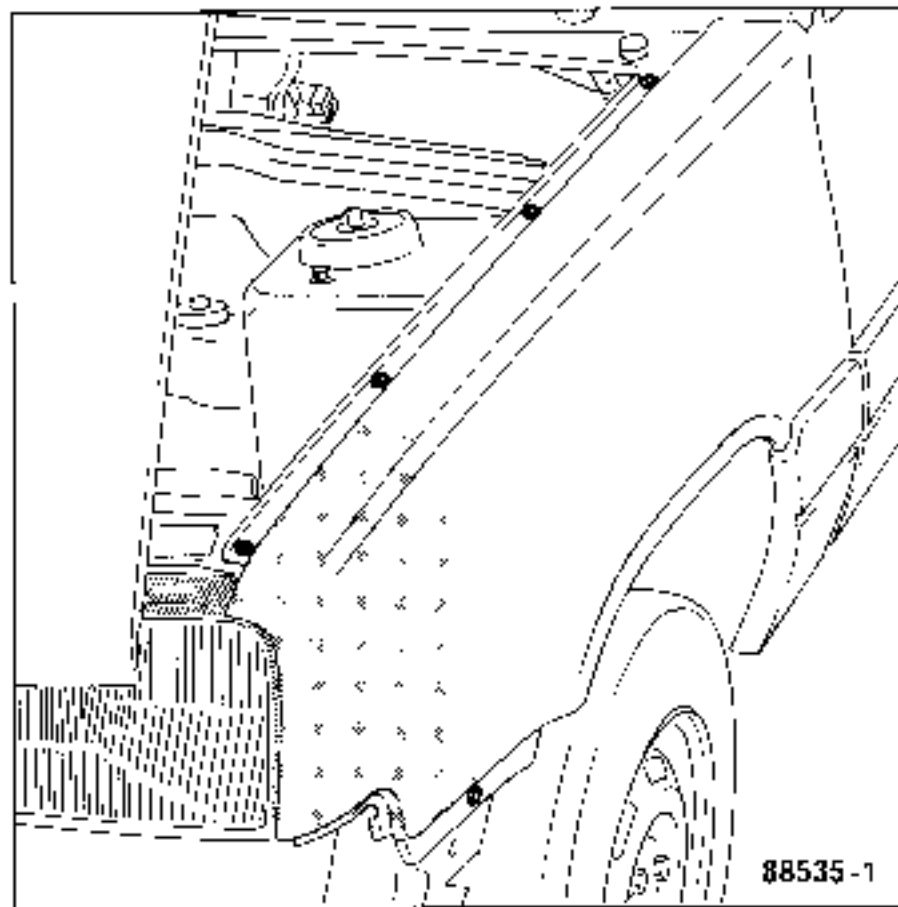
- Fit the accessories removed from the old bonnet to the new bonnet, fit the bonnet and screw up the securing bolts without tightening them.
- Secure the retaining cable to the headlight support panel.

Adjusting

- The clearances around the bonnet are adjusted at the four hinge securing bolts.
- Its height is adjusted :
 - at the front by shims between the hinges and the bonnet,
 - at the rear, at the clearances on the 2 lock securing bolts.



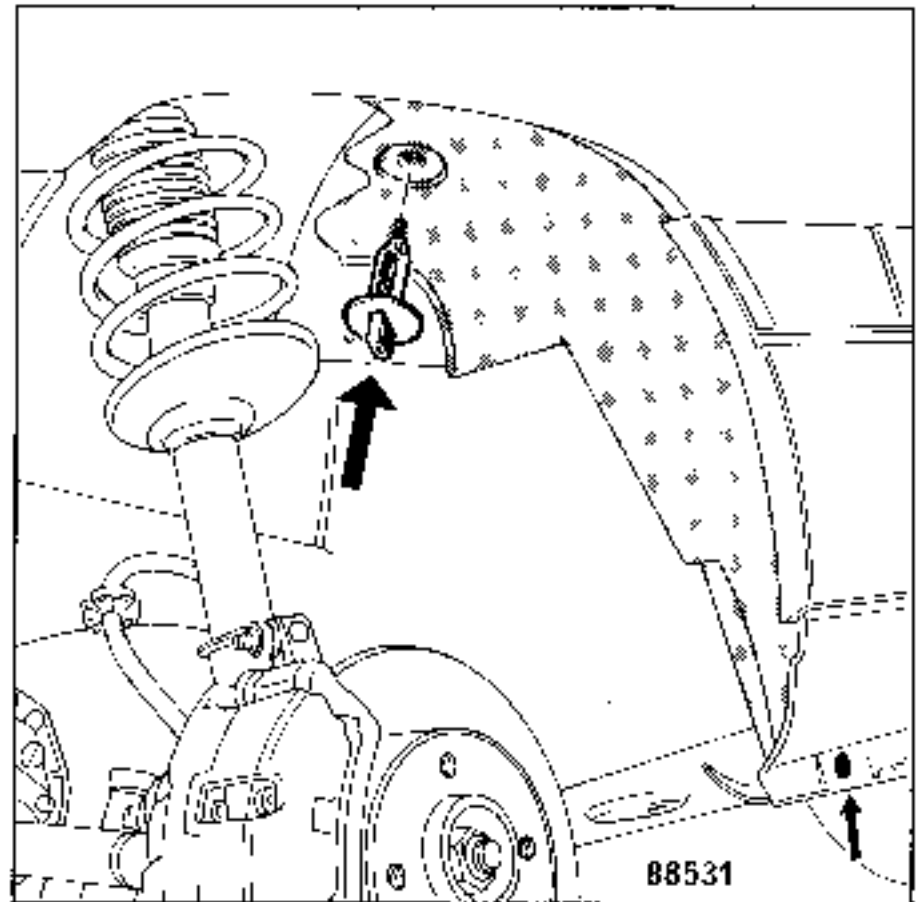
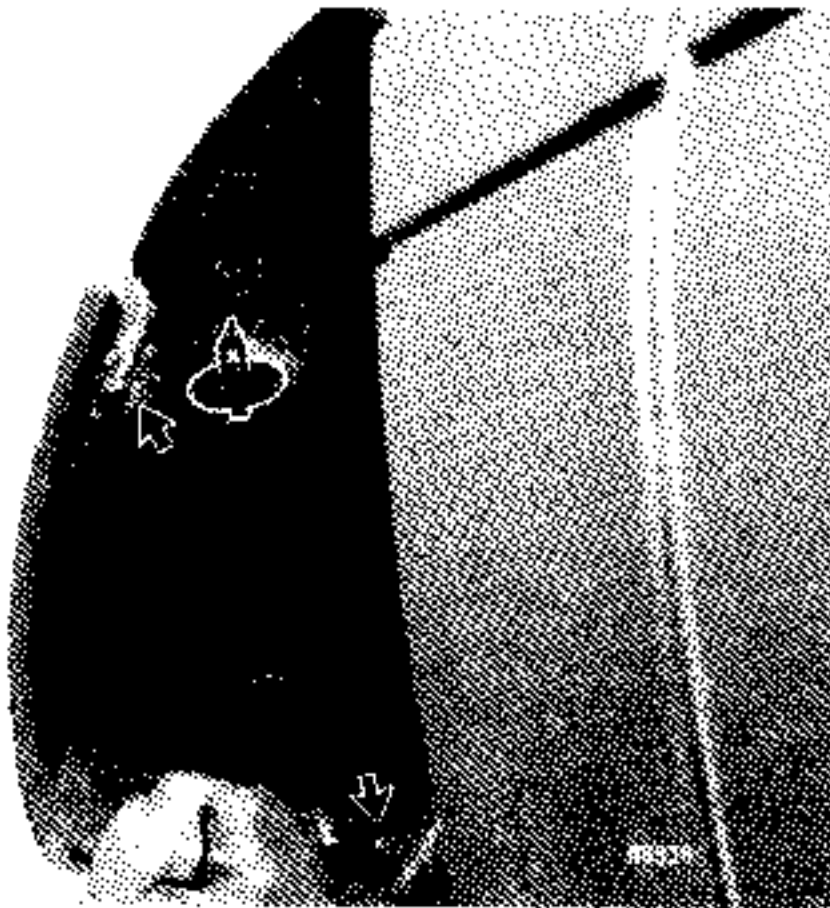
Note : Under no circumstances are the clearances round the bonnet to be adjusted at the lock. The lock adjustment is only for re-aligning the lock with its striker after the bonnet has been correctly adjusted at the hinges.



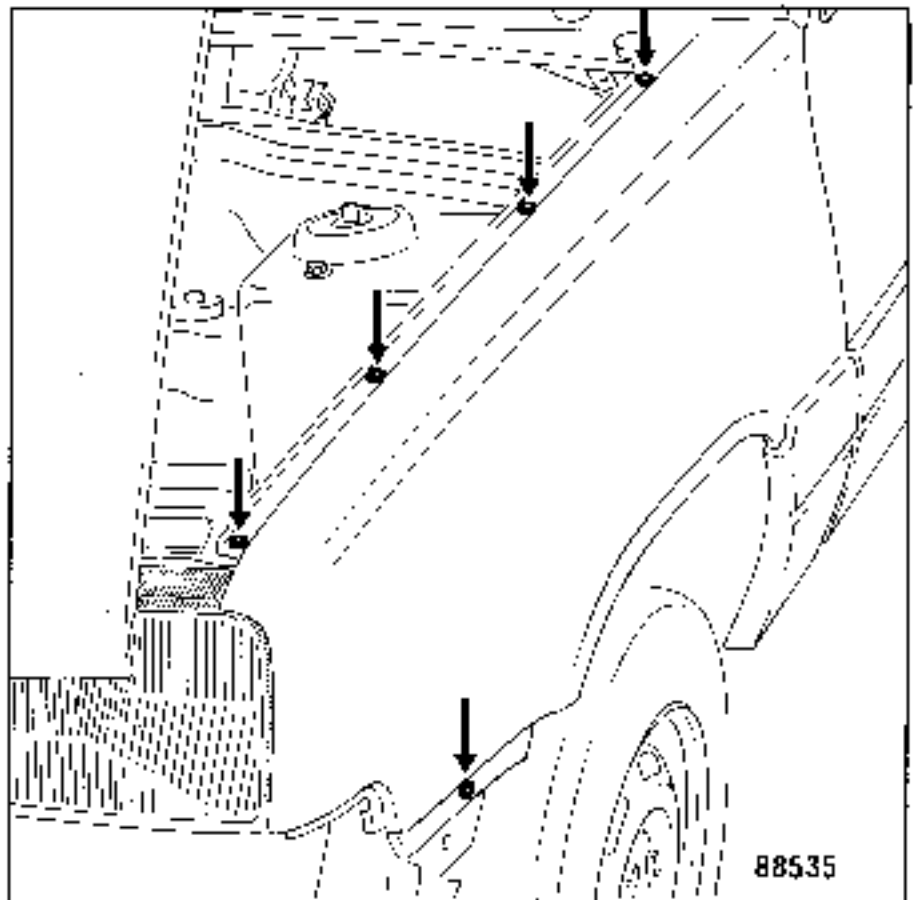
- Carry out paint sequence No. 5 (See "Painting" section).
- After painting, apply hollow section protective treatment to the inside face of the repaired area.

Removing

- Support the vehicle on axle stands and remove : the wheel and the bumper shield (see corresponding section).



- Remove the plastic protector.



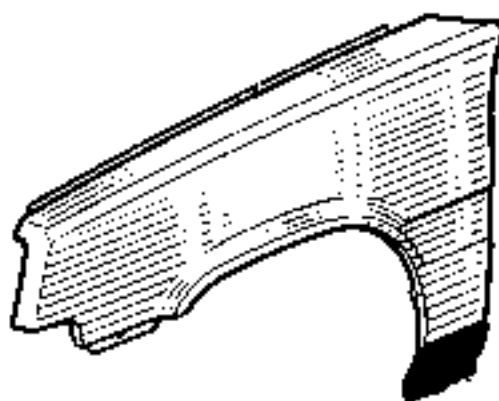
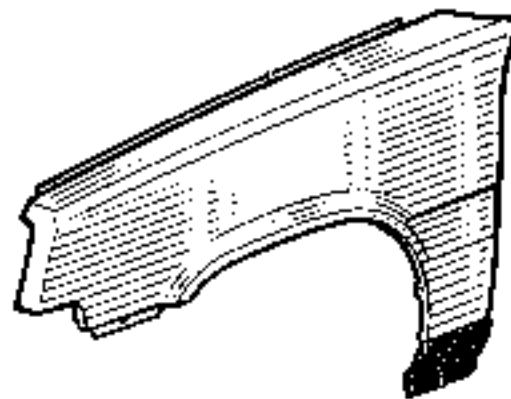
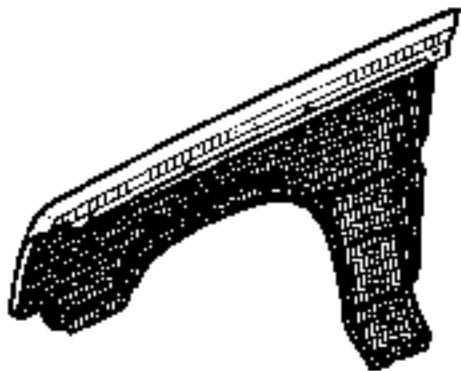
- Remove the securing bolts on the front door pillar and on the body sill.

- Drill out the rivets securing the wing to the wheel arch with a 6 mm Ø drill.

Note : If the wing is to be re-used, its upper edge will have to be freed from the wheel arch with a flame torch or a hot air gun.

PAINTING

Carry out paint sequence No. 1 (See "Painting" section).



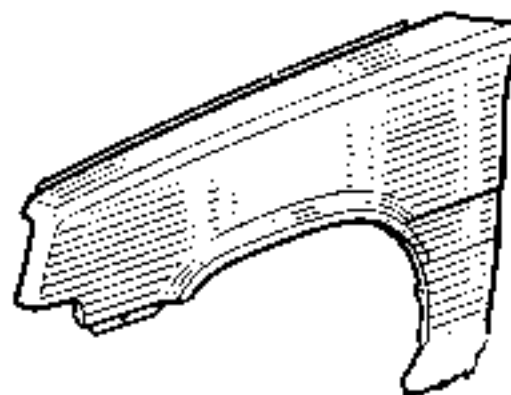
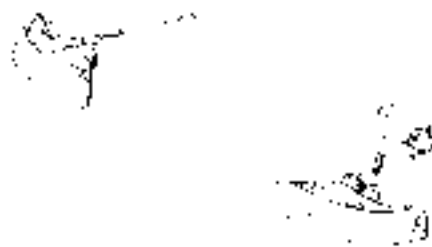
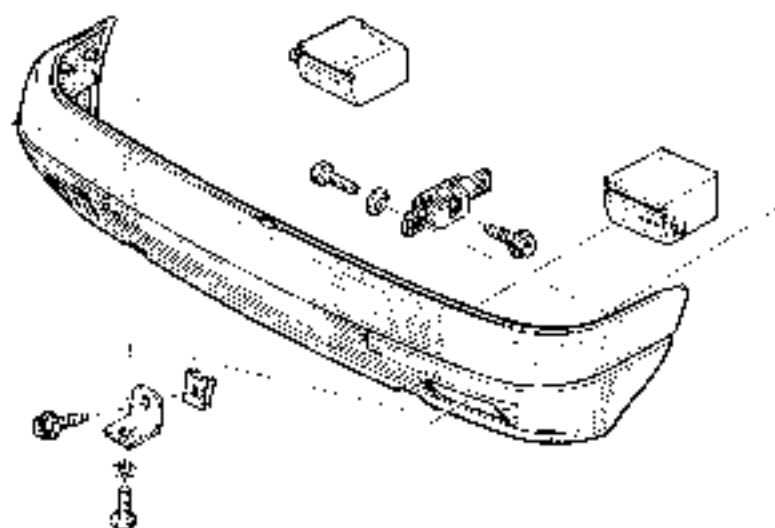
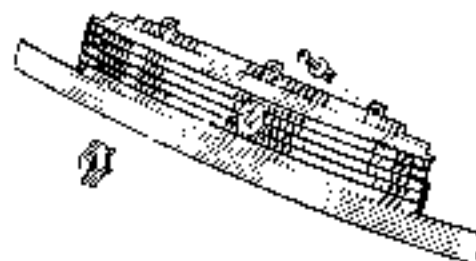
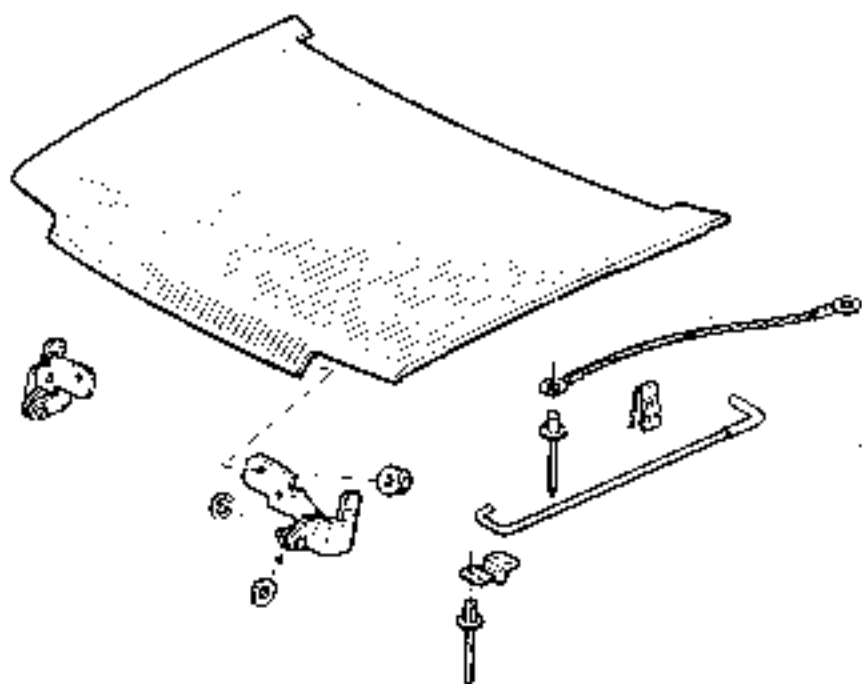
Note : We recommend that the wing should be refitted to the vehicle before its external surface is painted.

STRIPPING

Remove :

- the bonnet,
- the headlight,
- the direction indicator,
- the radiator grille,
- the bumper shield,
- the wing.

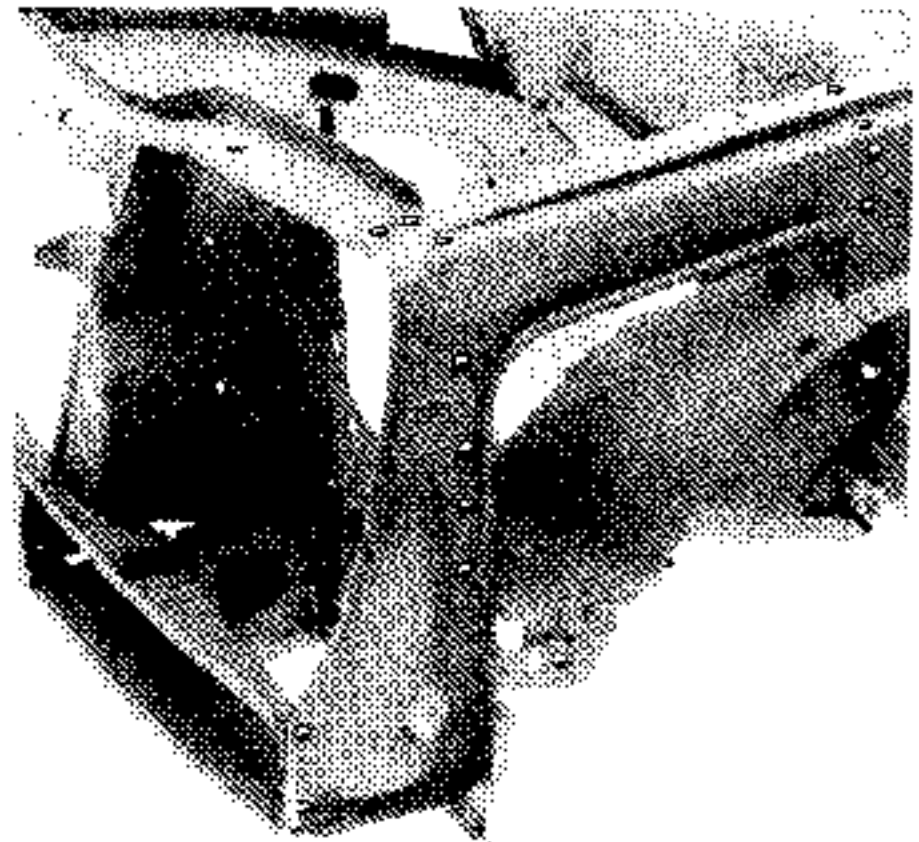
Note : For more details on removing the various parts, see the section dealing with the part in question.



CUTTING - JOINT SEPARATION



- Remove the damaged part by following the methods represented by the above symbols.
- Grind back the pieces of spot weld adhering to the support panels.



88416

PREPARATION PRIOR TO WELDING

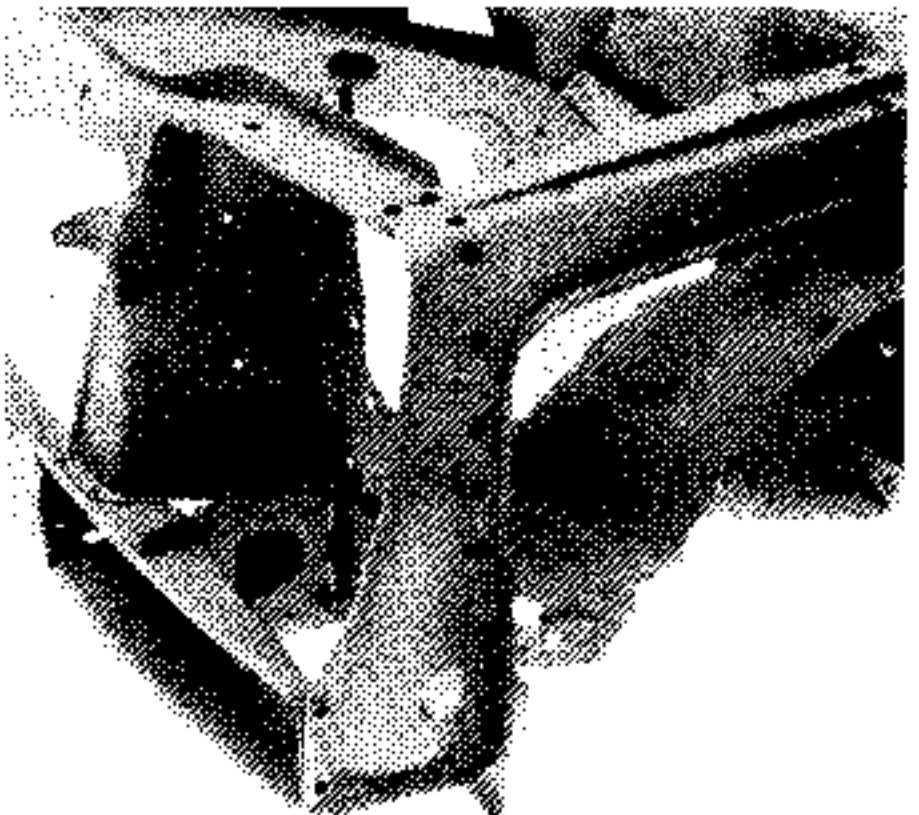
- Strip back, to the bare metal, the inner and outer faces of all the areas to be welded. (Both on the vehicle and on the new parts).
- Apply a coat of electroplastic mastic to the areas to be spot welded (see description of symbols at the beginning of this section).
- Adjust the new part and secure it with grip clamps.

WELDING

- Apply the spot welds. The corresponding values of (e) and (H) are given under each drawing.

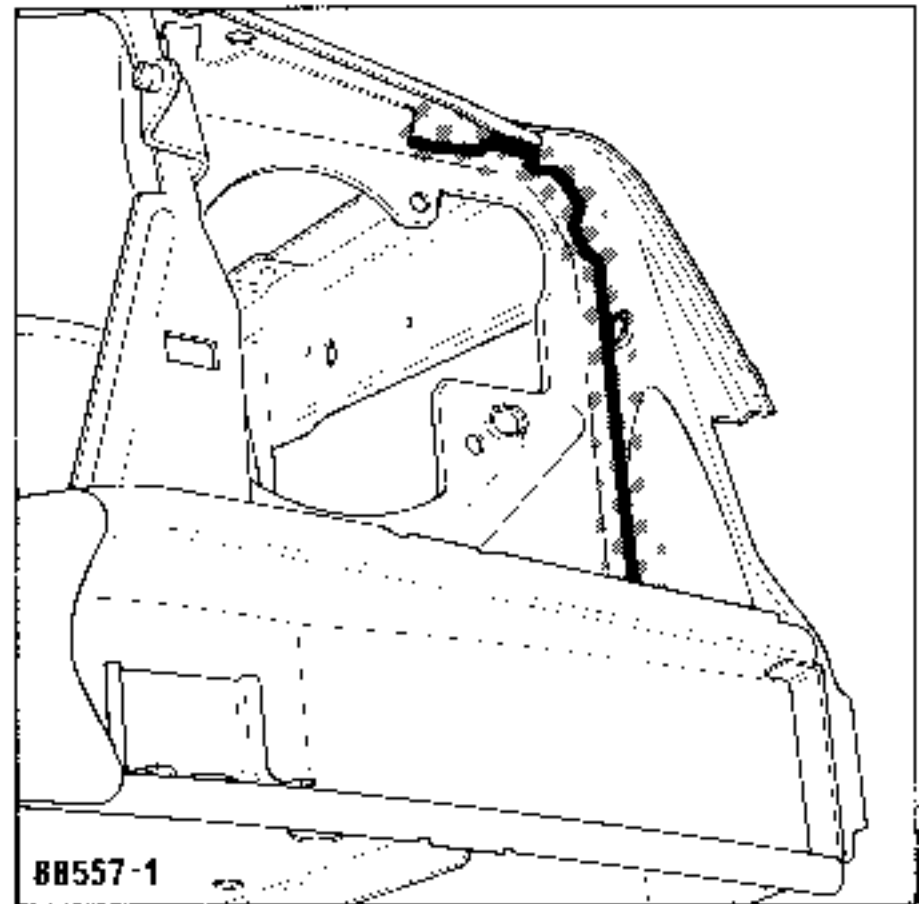
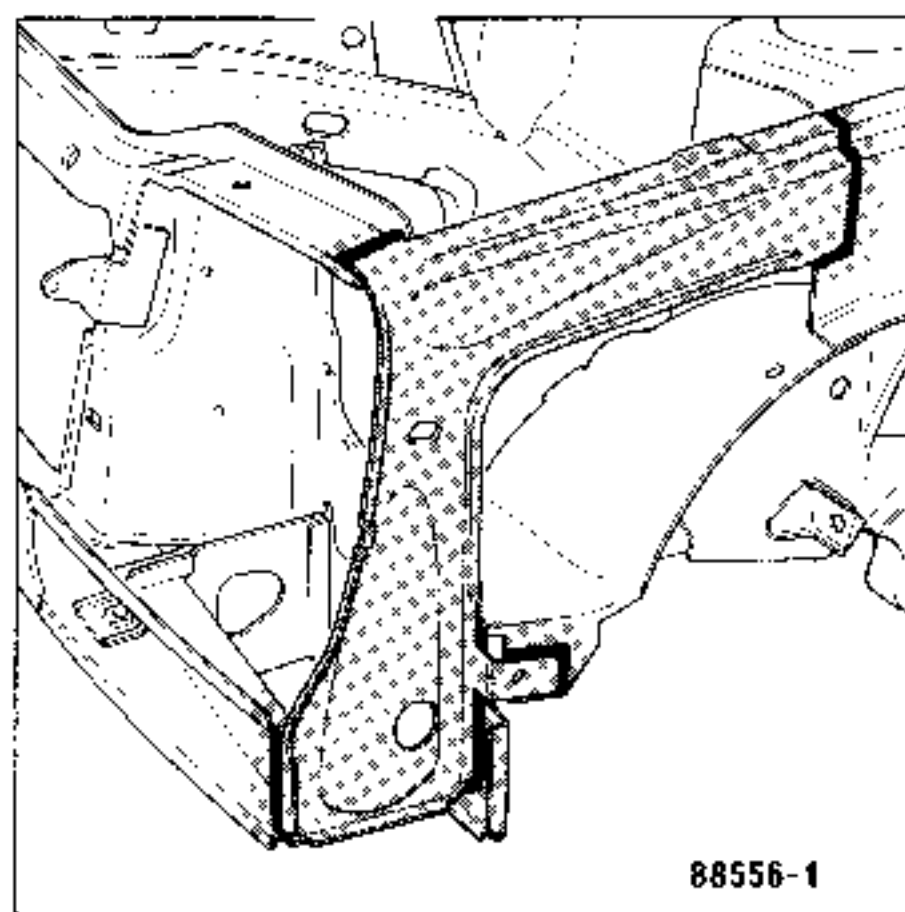


- e = 1,4 mm; H = 55 mm
- ◼ e = 2,2 mm; H = 50 mm

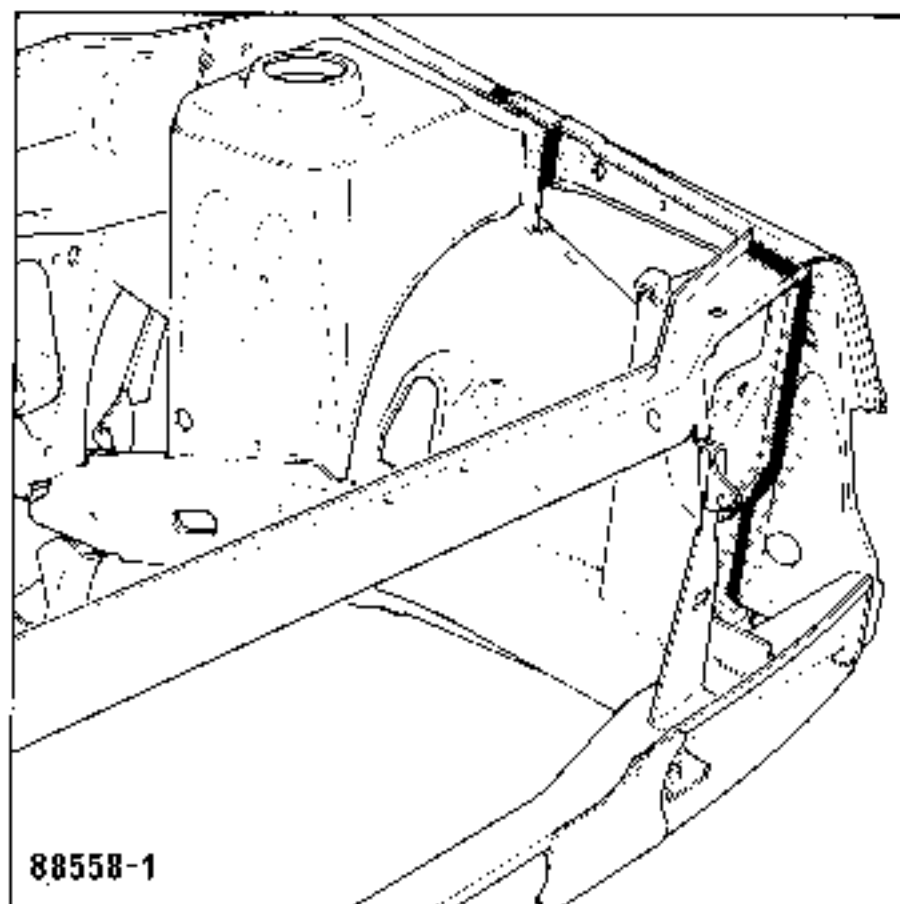


88416.1

PAINTING



- Carry out paint sequence No. 5 (see "Painting" section).

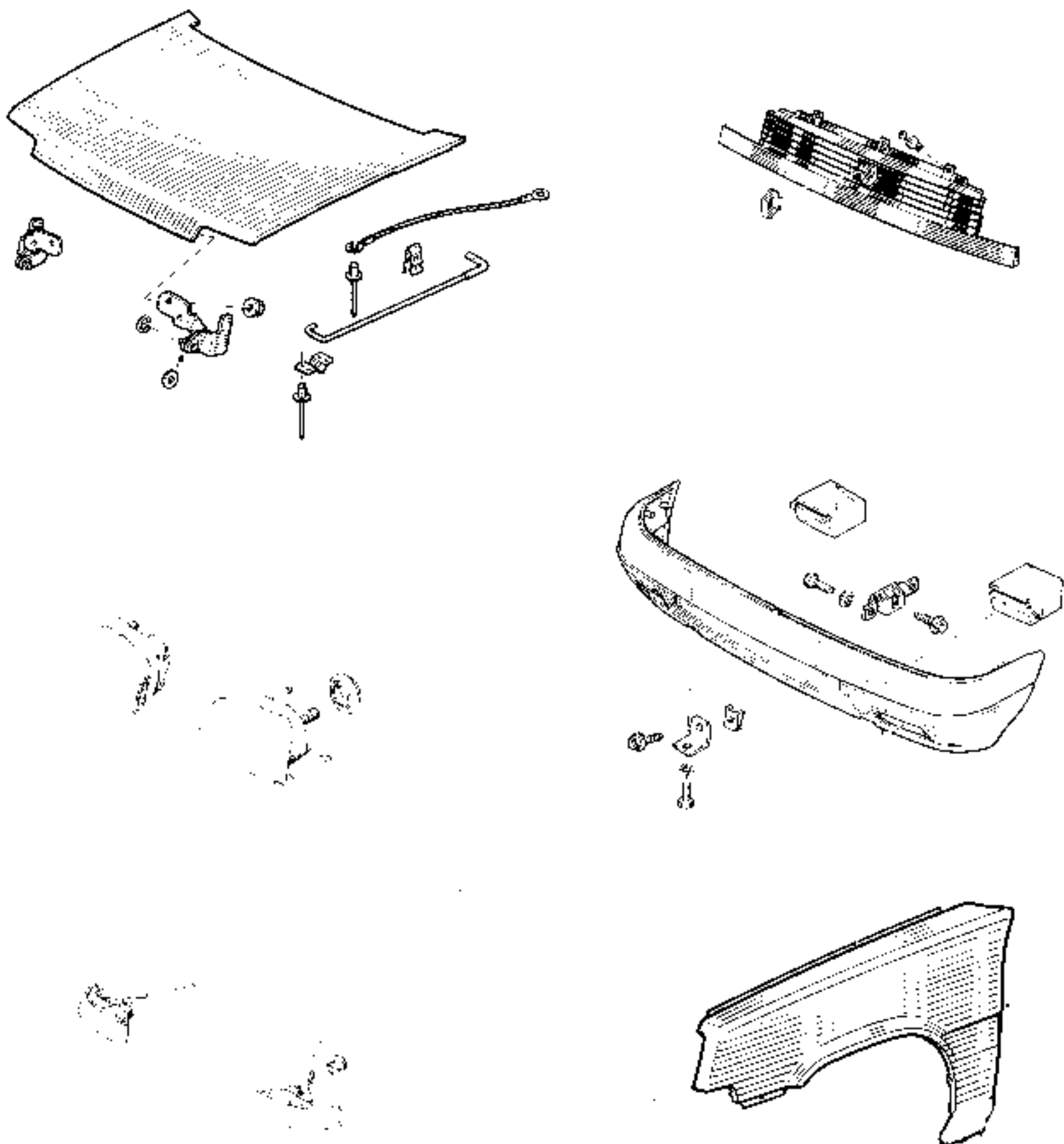


STRIPPING

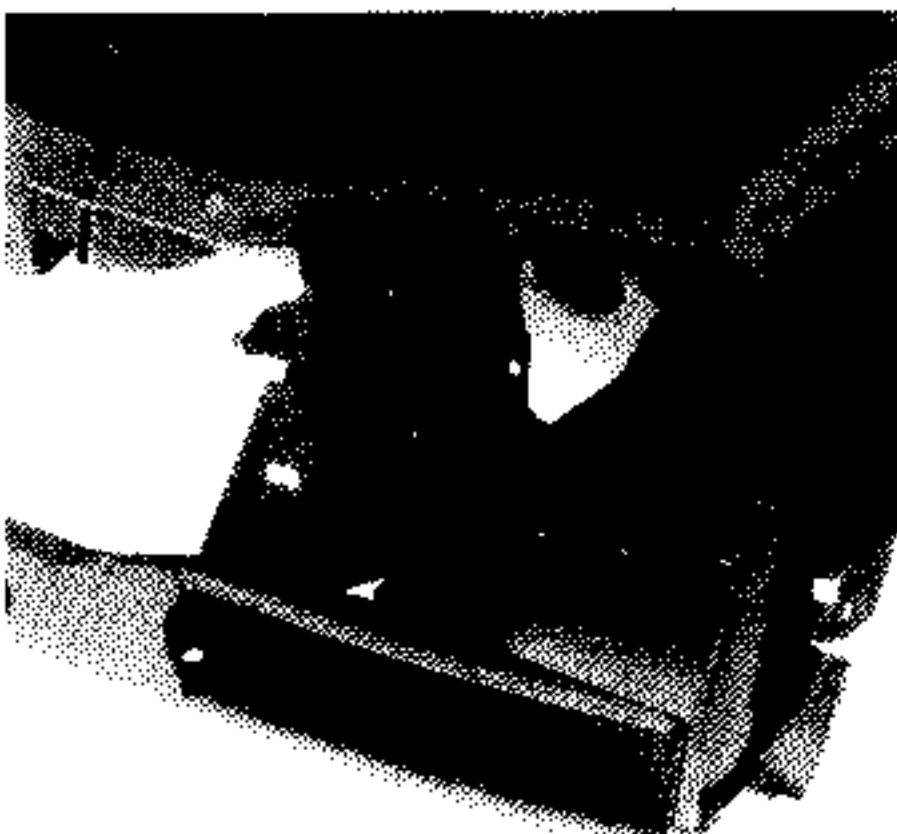
Remove :

- the bonnet,
- the headlight,
- the direction indicator,
- the radiator grille,
- the bumper shield,
- the wing.

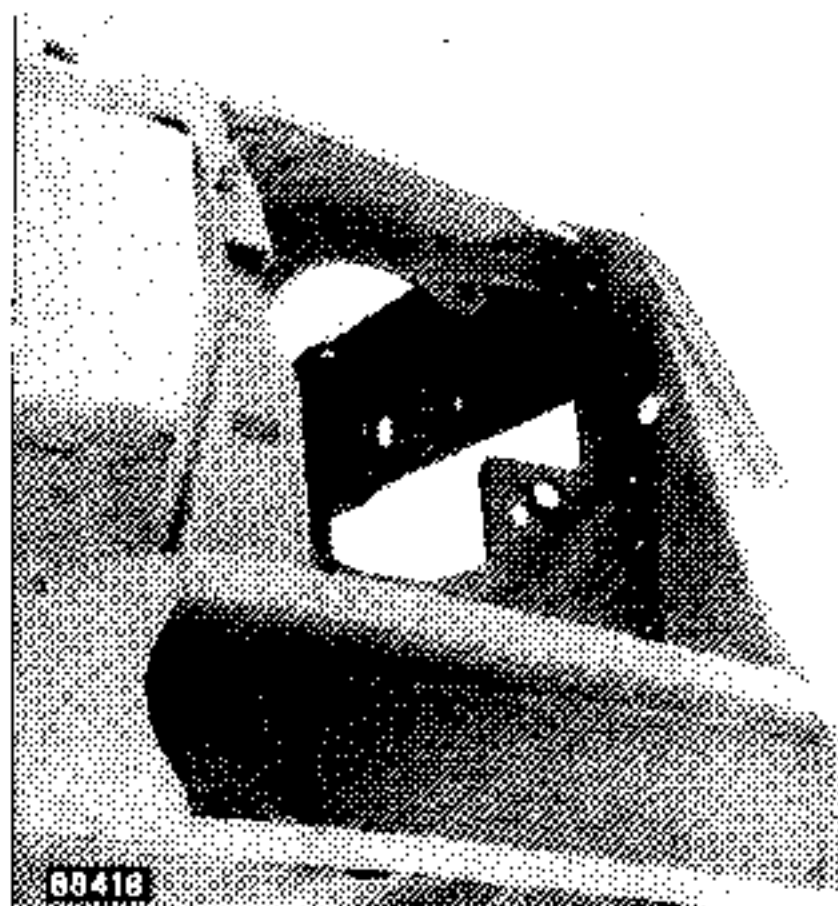
Note : for more details on removing the various parts, see the section that deals with the part in question.



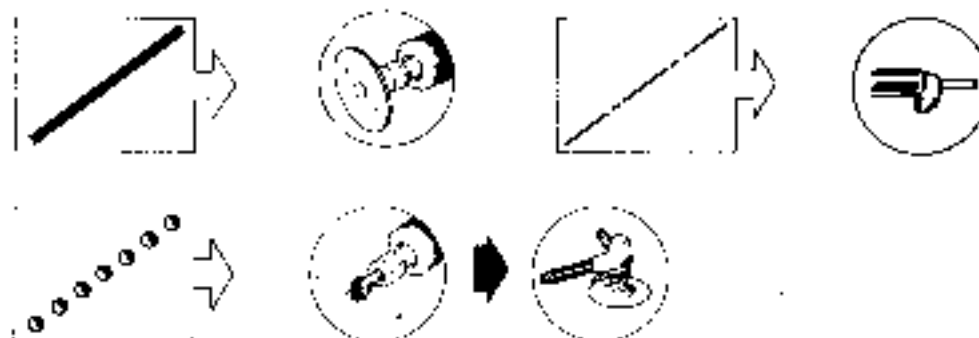
CUTTING - JOINT SEPARATION



68417



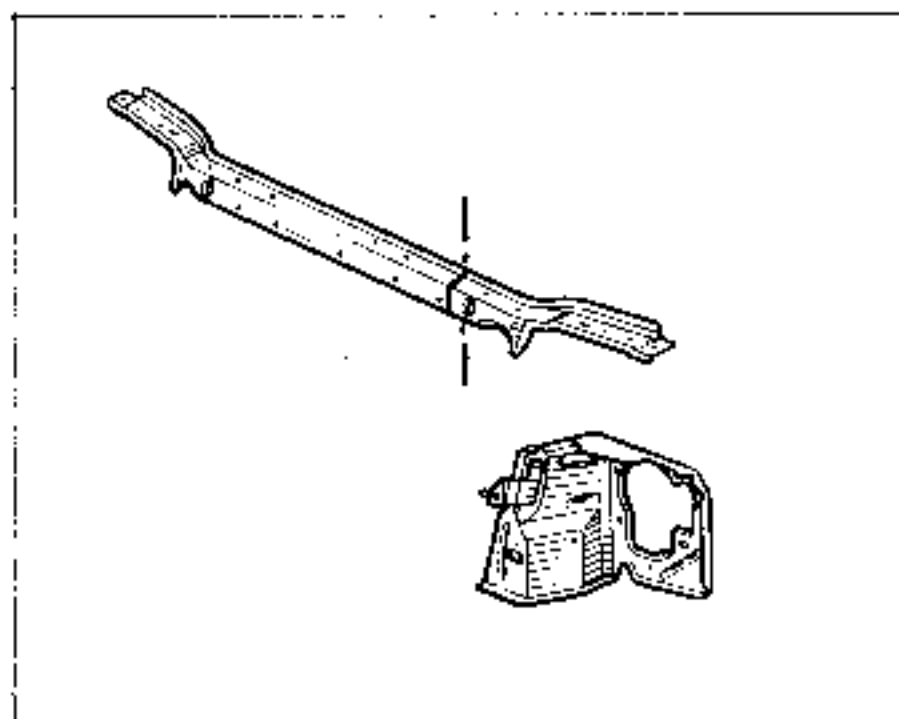
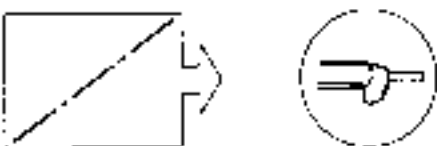
68418



- Remove the damaged part by following the methods represented by the above symbols (see description of symbols at the beginning of this section).
- Grind back the pieces of spot weld adhering to the support panels.

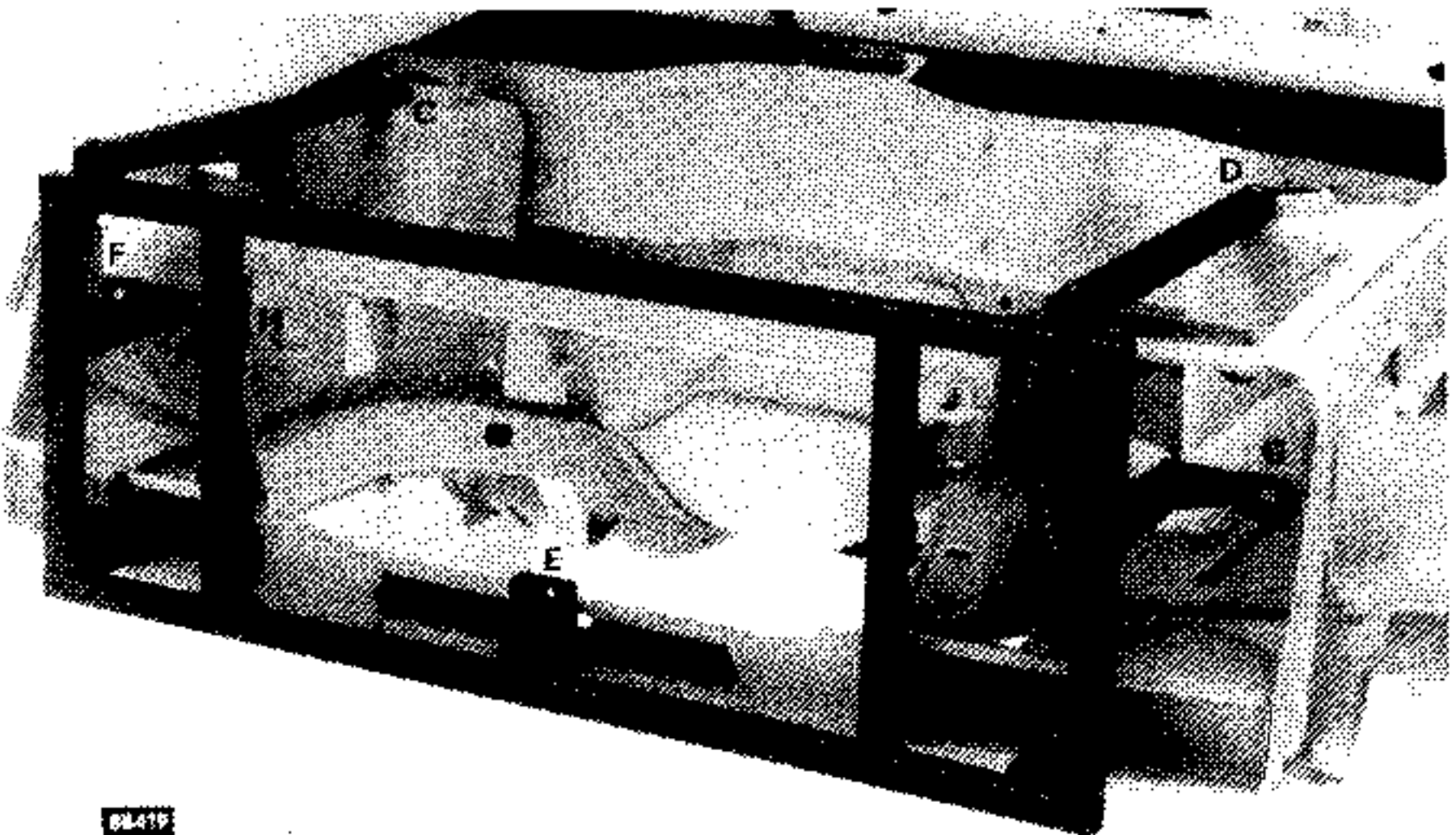
PREPARATION PRIOR TO WELDING

- Cut, from the new part, a length approximately 50 mm larger than the part cut out on the vehicle.

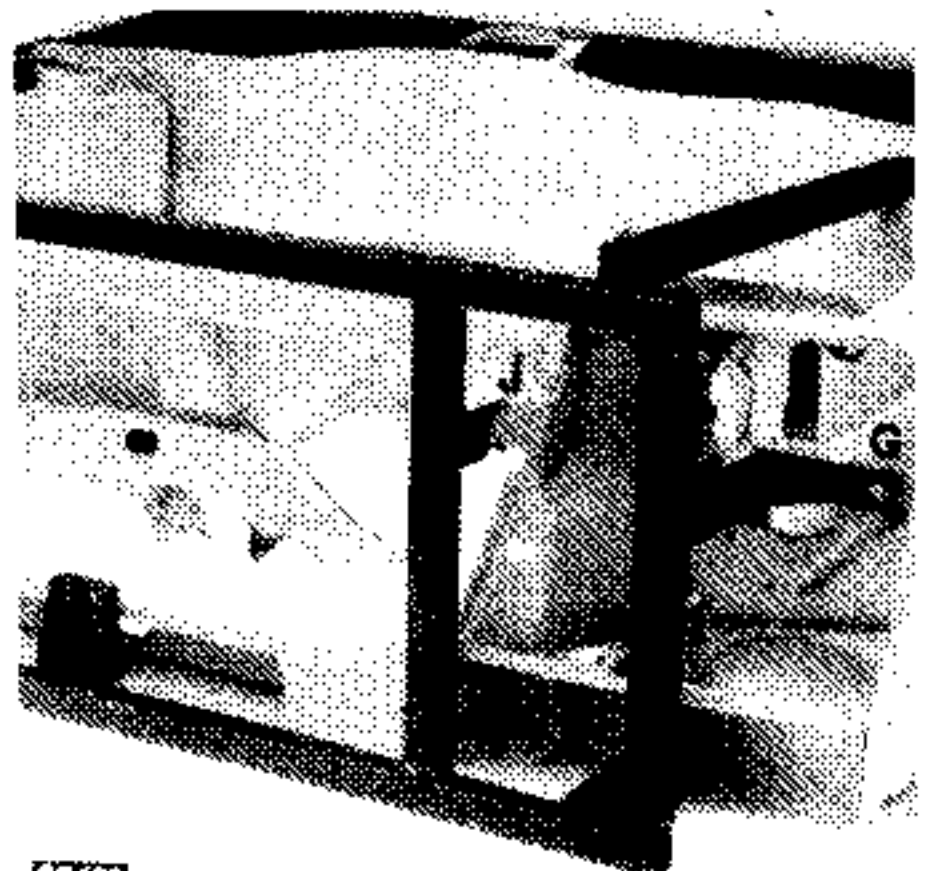


Fitting frame jig : Car.1027

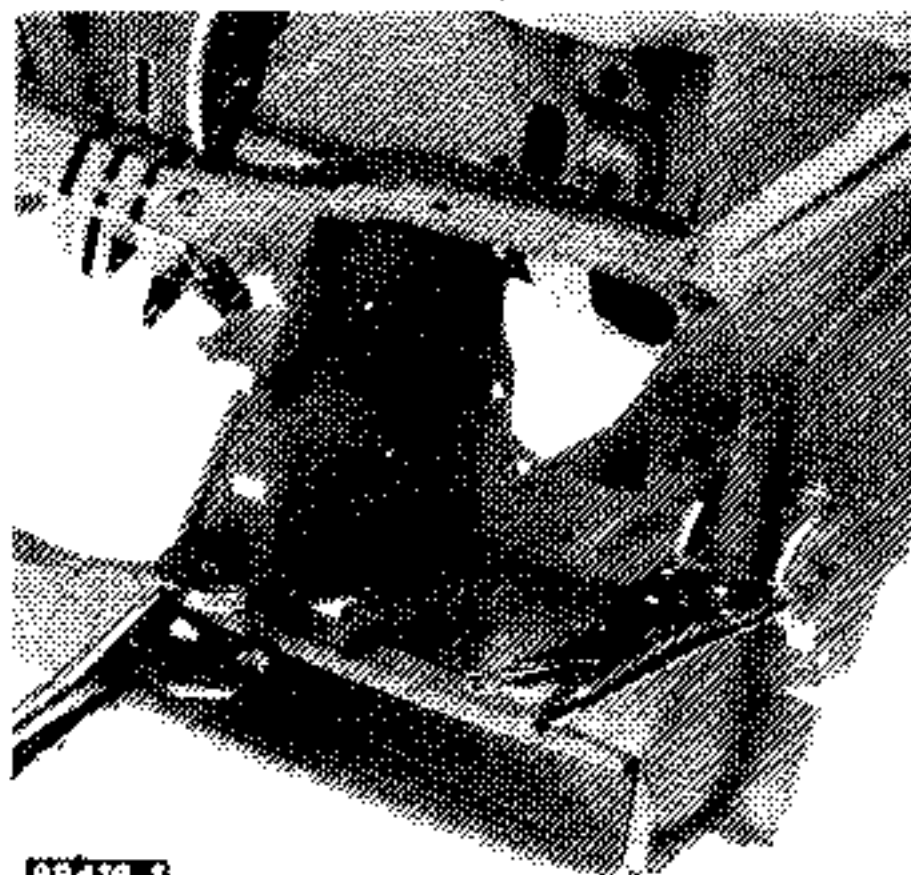
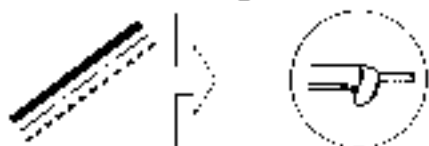
Points A-B-C-D-E are the jig locating points on the vehicle. Before fitting it ensure, with the trammel gauge, that these points are correctly positioned. When one of the points A or B cannot be used as a jig location (as is the case for this operation) use securing points G-J or F-H, depending on the side, instead.



Points F-G-H-J are the securing and locating points for the parts being replaced.



- Fit the new part so that it overlaps the original part, on the vehicle, and secure it with grip clamps.
- Saw through both thicknesses of metal simultaneously to make adjusting the joint easier.
- Strip back, to the bare metal, the inner and outer faces of all the areas to be welded. (Both on the vehicle and on the new part).
- Apply a coat of electroplastic mastic to the areas to be spot welded (see description of symbols at the beginning of this section).



88419.1

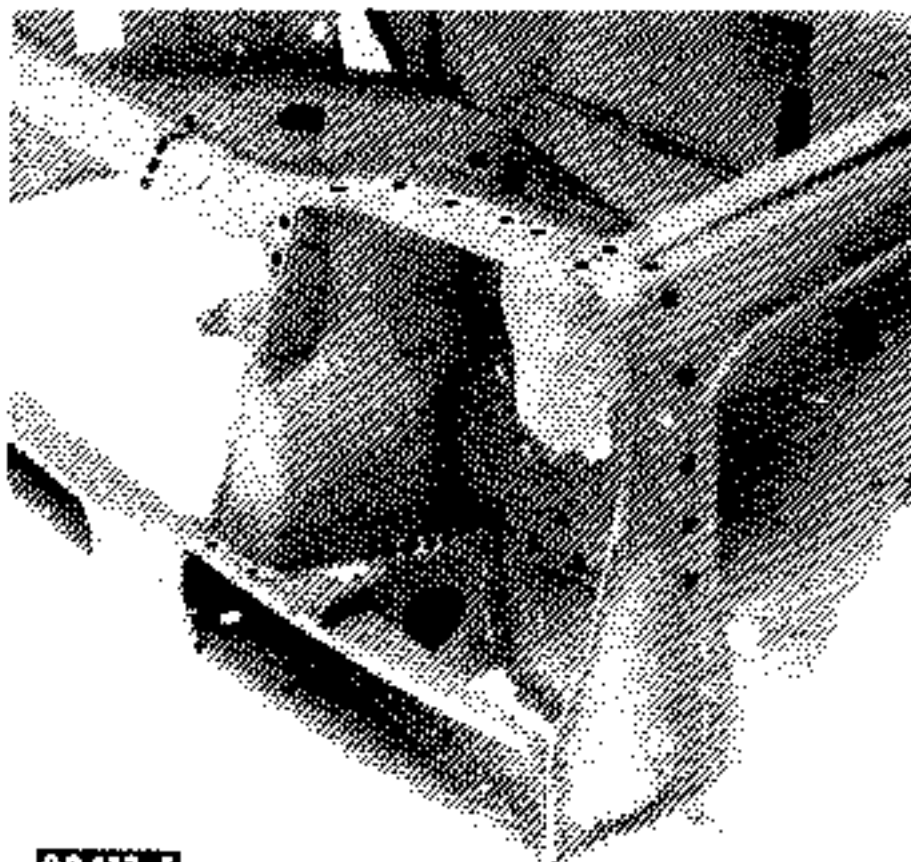
WELDING

- Tack the butt welds to secure them in place.
- Apply the spot welds. The corresponding values of (e) and (H) are given under each drawing.
- Apply the stitched fillets using the gas envelope welding process. (These joints may also be gas welded using a 75 to 100 nozzle).
- Grind flush the butt welds and fill them with soft solder.



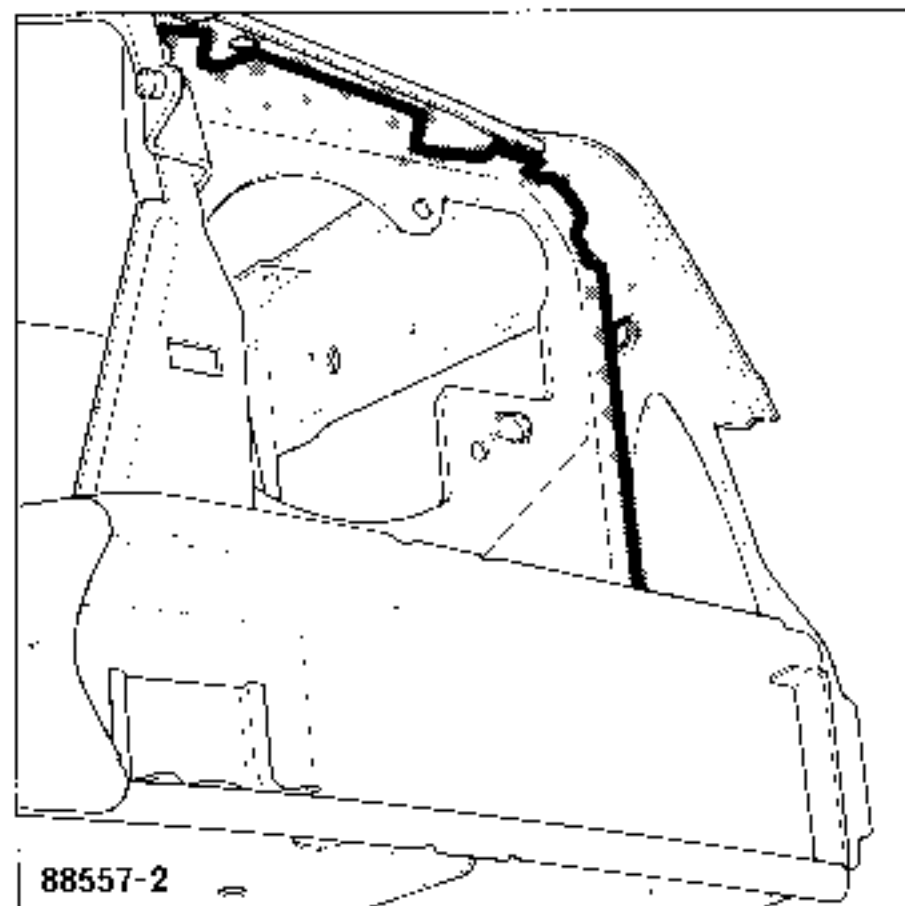
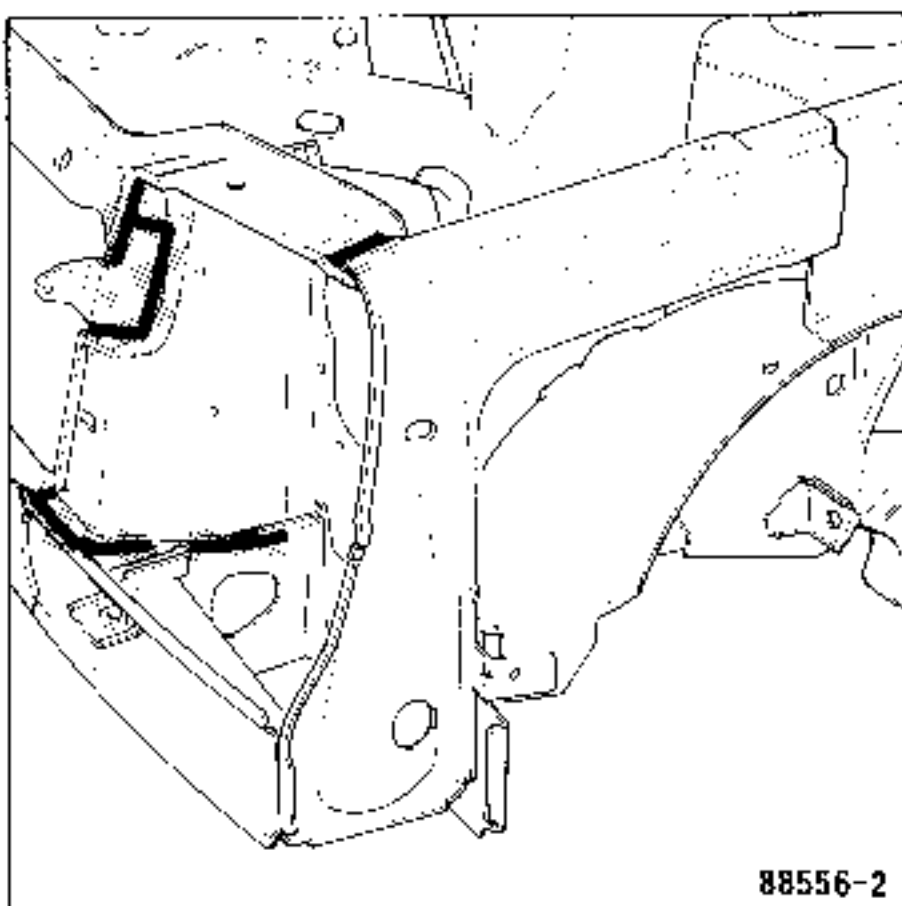
● : e - 2,2 mm; H - 50 mm

● : e - 1,4 mm; H - 55 mm

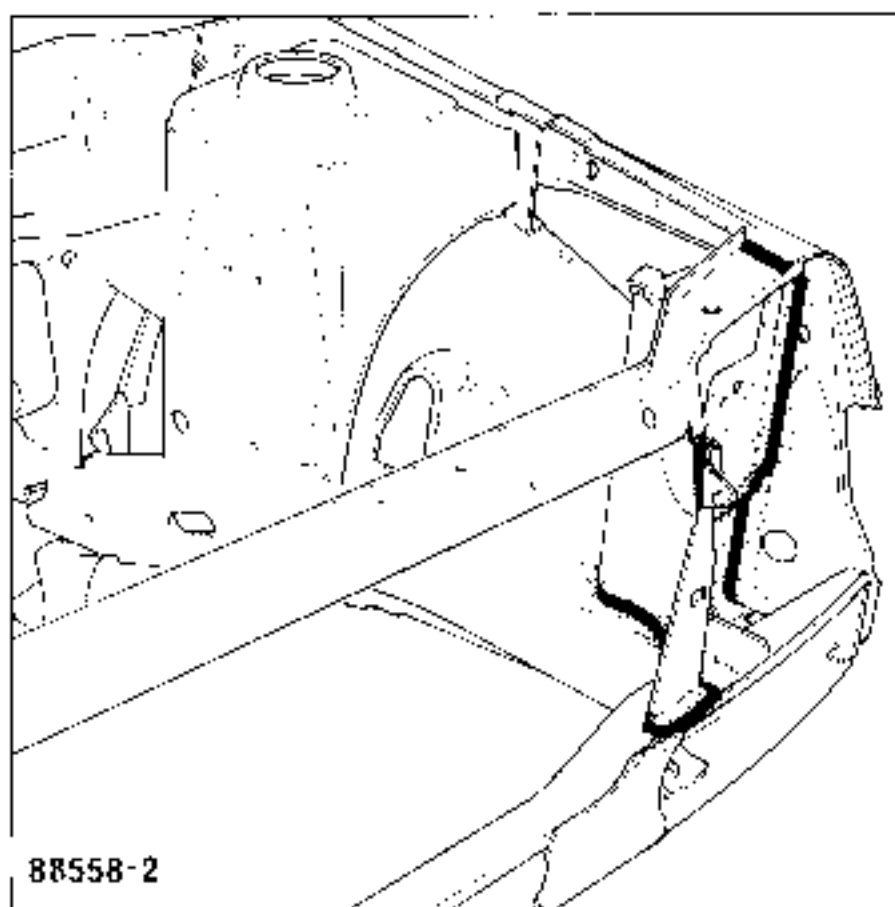
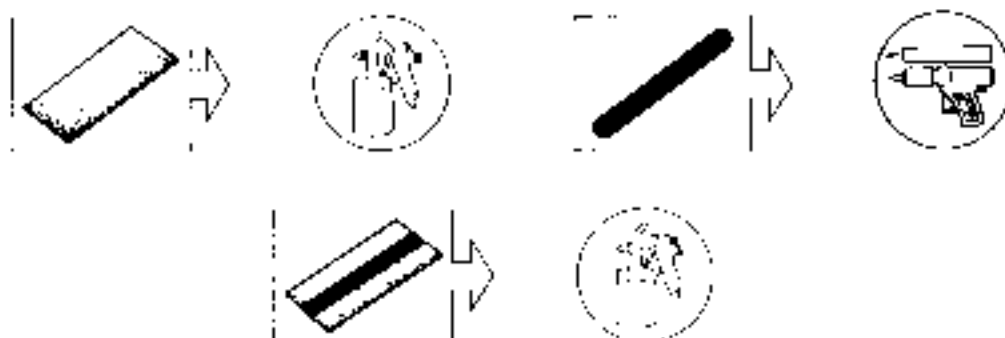


88417.1

PAINTING



- Carry out paint sequence No. 5 (see "Painting" section).

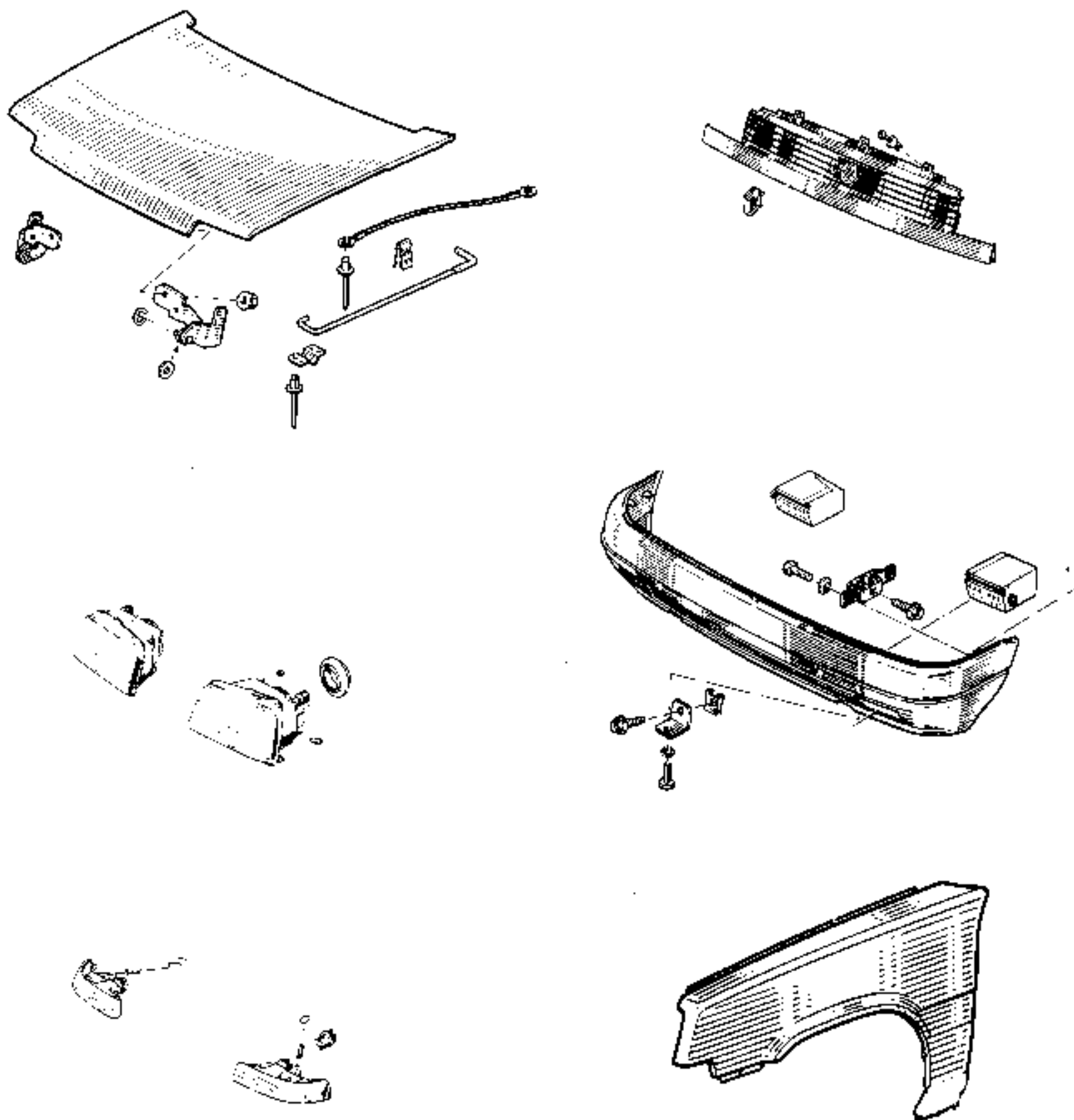


STRIPPING

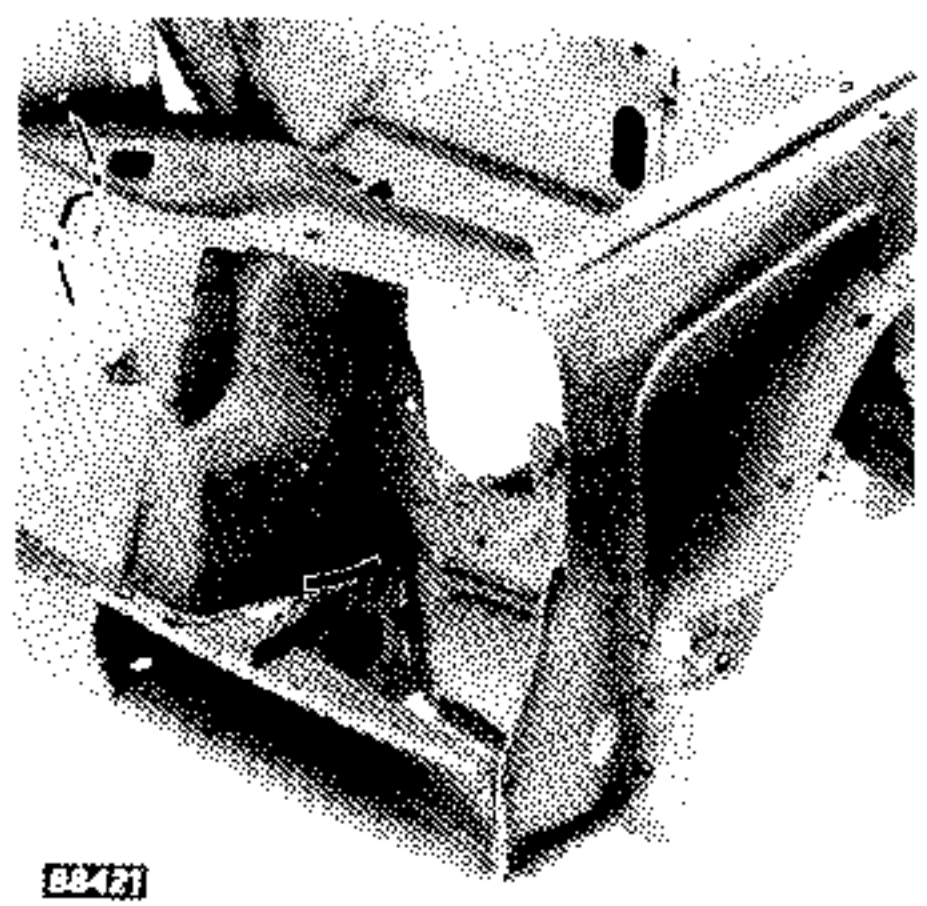
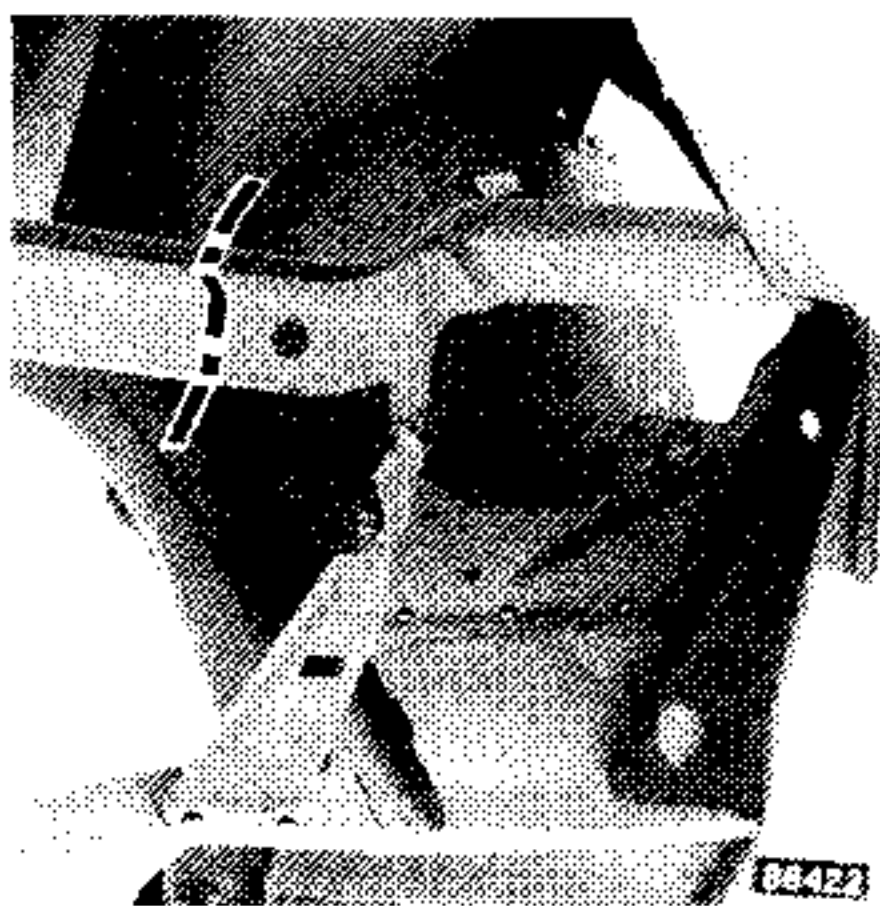
Remove :

- the bonnet,
- the radiator grille,
- the headlight,
- the direction indicator,
- the bumper shield,
- the wing.

Note : For more details on removing the various parts, see the section that deals with the part in question.



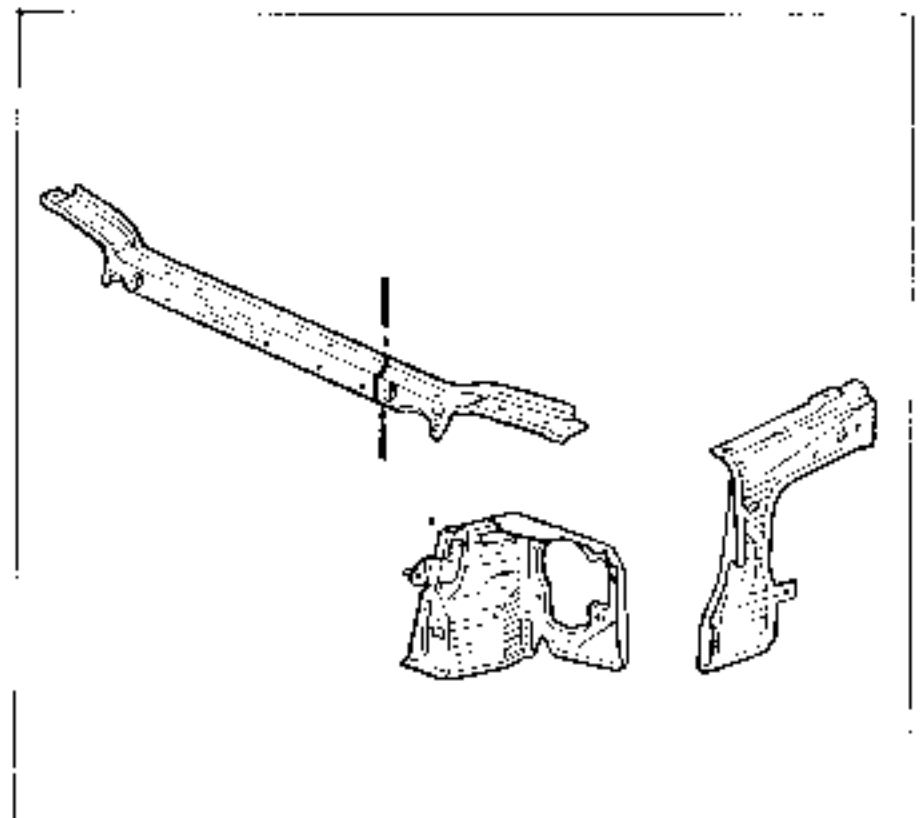
CUTTING - JOINT SEPARATION



- Remove the damaged part by following the methods represented by the above symbols (see the description of the symbols).
- Grind back the pieces of spot weld adhering to the support panels.

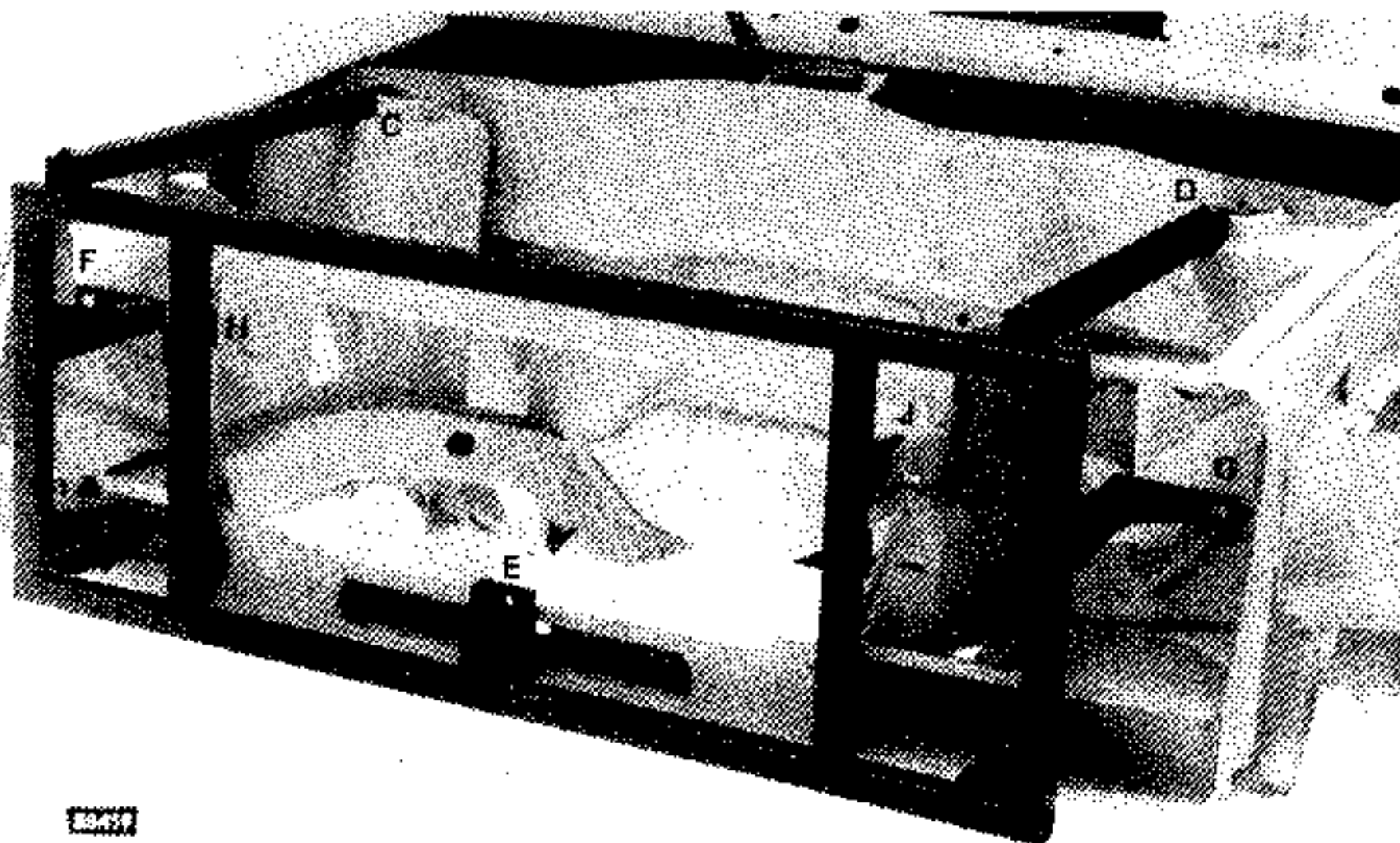
-PREPARATION PRIOR TO WELDING

- Cut a length from the new part approximately 50 mm larger than that cut out on the vehicle.



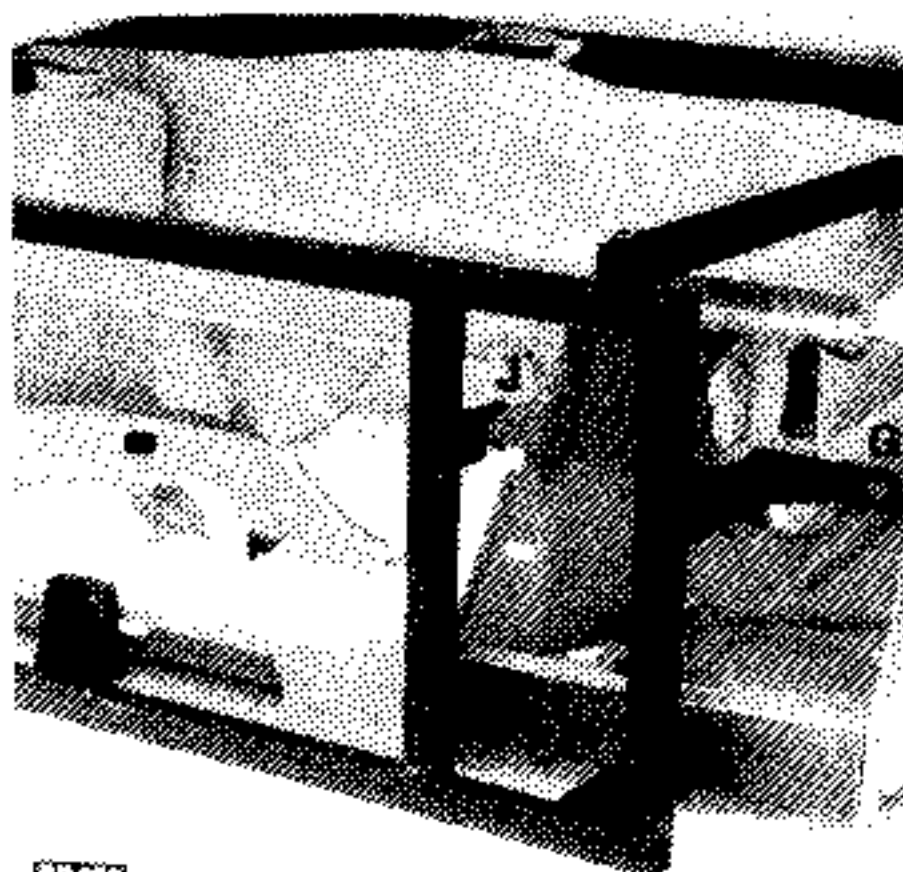
Fitting frame jig : Car. 1027

Points A-B-C-D-E are the jig locating points on the vehicle. Before fitting it ensure, with the trammel gauge, that these points are correctly positioned. When one of the points A or B cannot be used as a jig location (as is the case for this operation) use securing points G-J or F-H, depending on the side, instead.



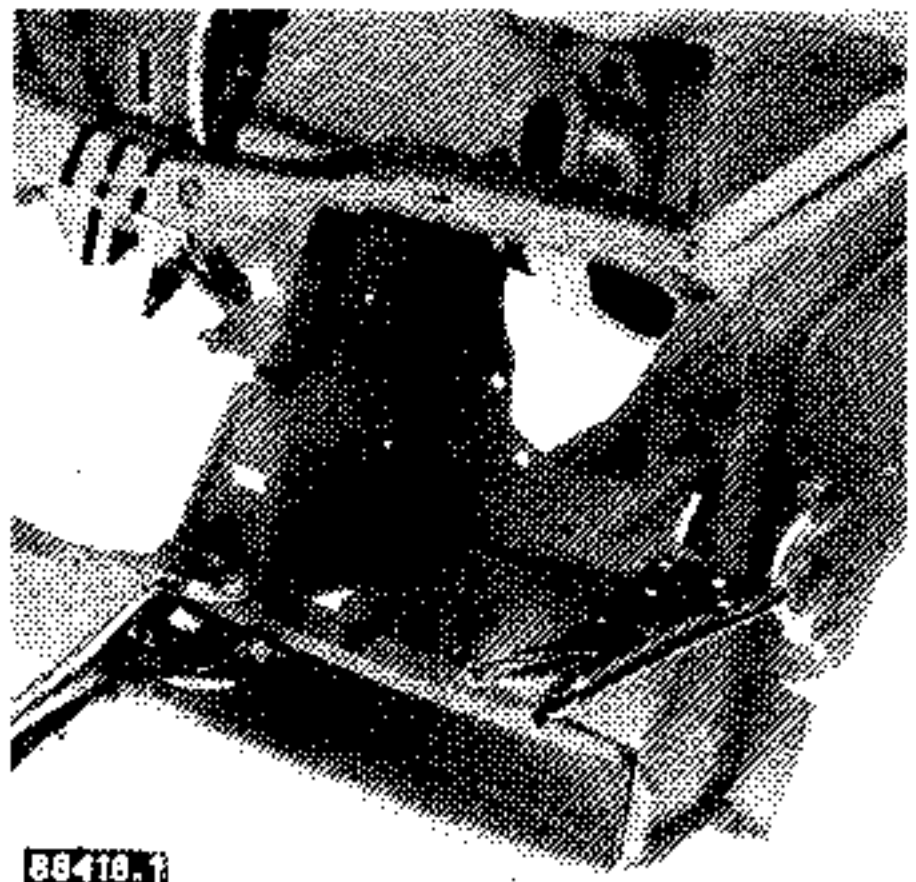
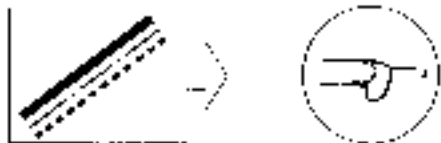
1027

Points F-G-H-J are the securing and locating points for the parts being replaced.



1027

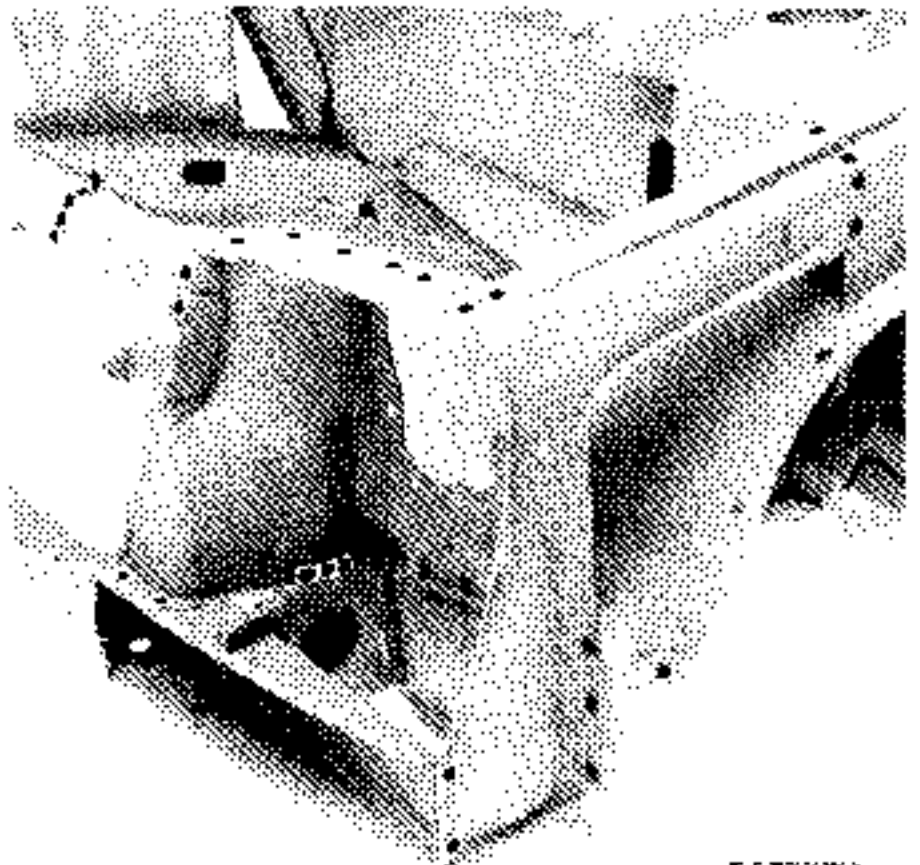
- Fit the new part so that it overlaps the original part, on the vehicle and secure it with grip clamps.
- Saw through both thickness of metal simultaneously to make adjusting the joint easier.
- Strip back, to the bare metal, the inner and outer faces of all the areas to be welded. (Both on the vehicle and on the new parts).
- Apply a coat of electroplastic mastic to the areas to be spot welded (see description of symbols at the beginning of this section).



88418.1

WELDING

- Tack weld all the butt joints to secure them in place.
- Apply the spot welds. The corresponding values of (e) and (H) are given under each drawing.
- Apply the stitched fillets using the gas envelope welding process. (These joints may also be gas welded using a 75 to 100 nozzle).
- Grind flush the spot welds and fill them with soft solder.

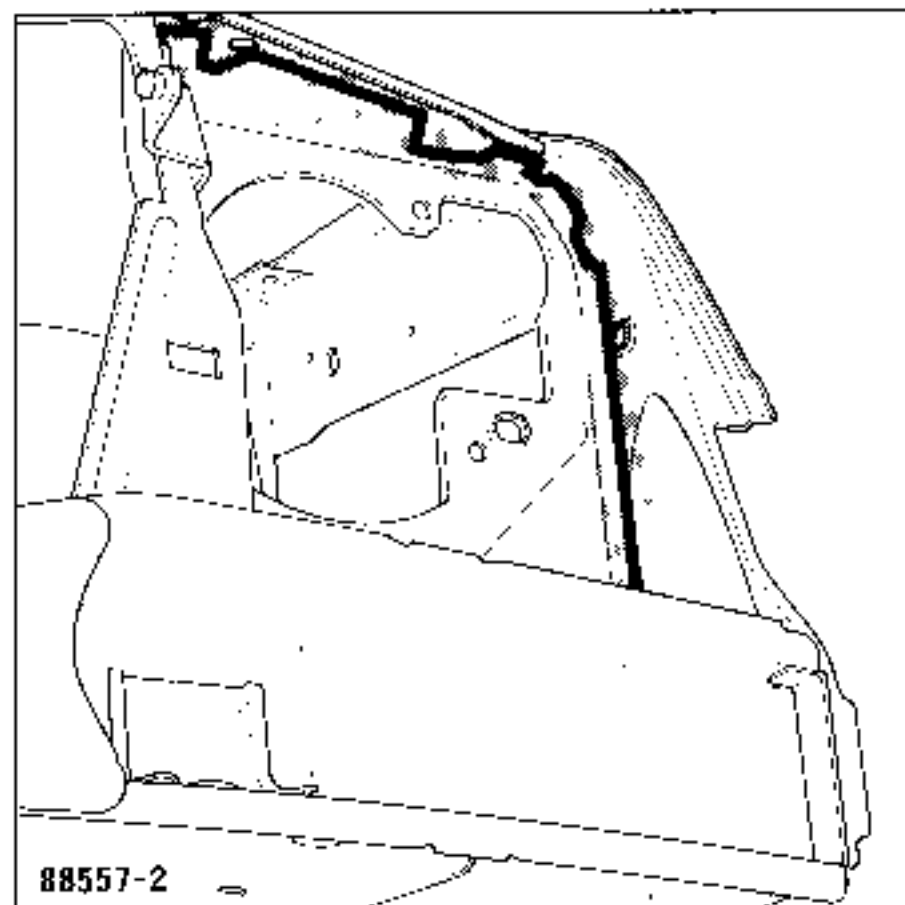
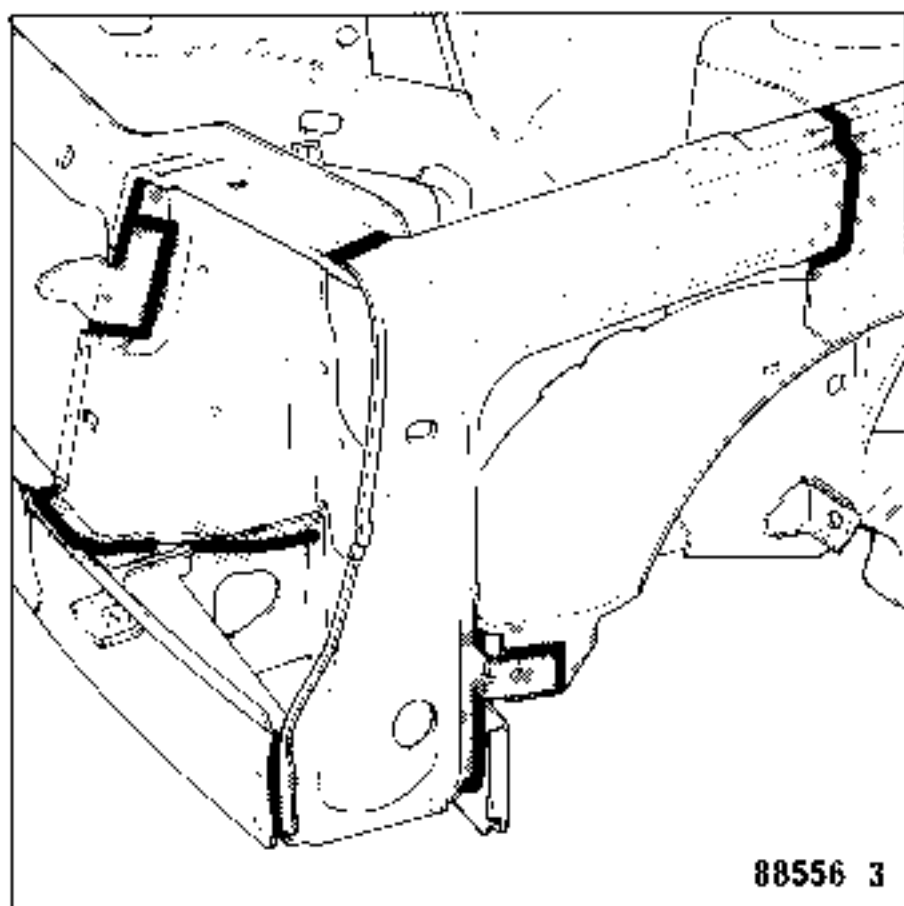


88418.1

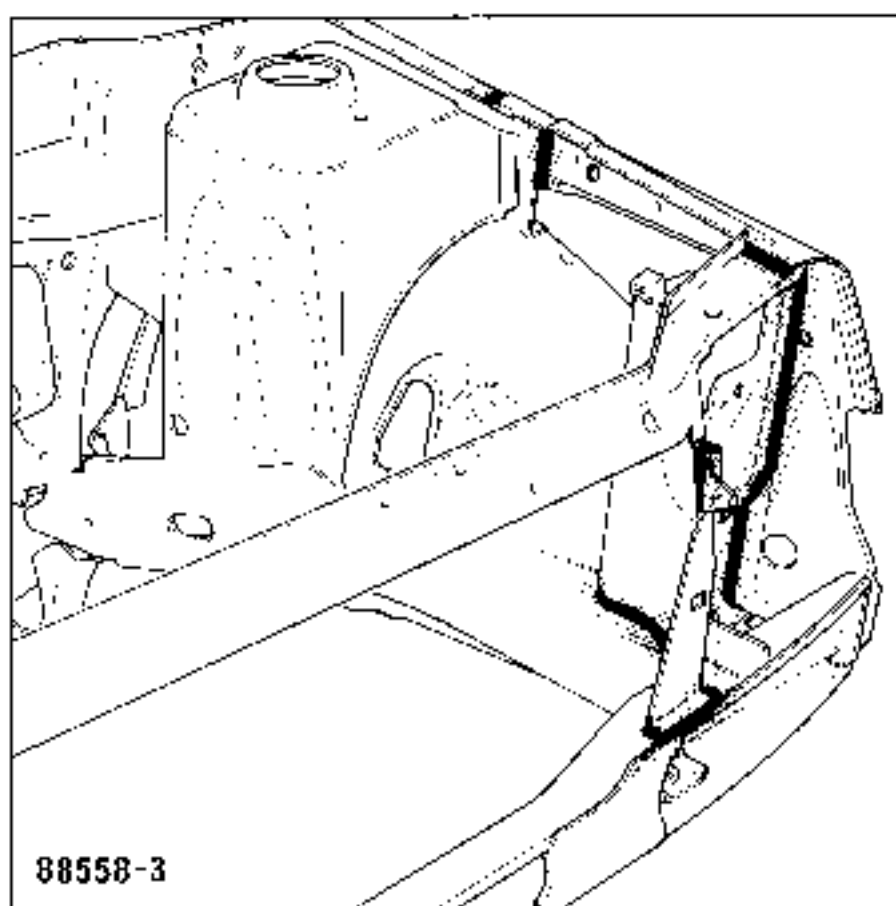


■ : e - 2,2 mm; H = 50 mm
 ● : e - 1,4 mm; H = 55 mm

PAINTING



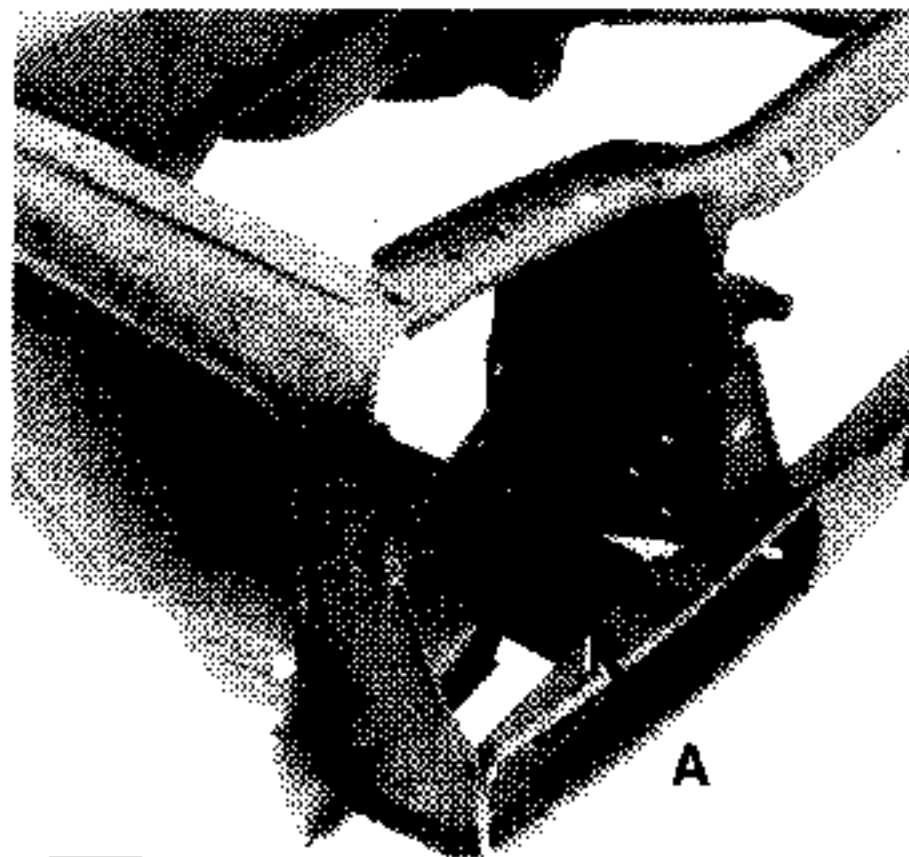
- Carry out paint sequence No. 5 (see "Painting" section).



DAMAGE DIAGNOSIS

The side member closing panel has an aperture at one end which acts as a "crumple point".

If the damage does not extend past this point, the end of the side member can be replaced (the operation is described in the next sub-section) or straightened and its closing panel replaced, as is the case for this operation.



88426

This operation can be carried out without the body jig, however it is very important to check that the engine cradle is square and, if it is not, to use a new cradle to align the end of the side member and to adjust the position of the cross member.

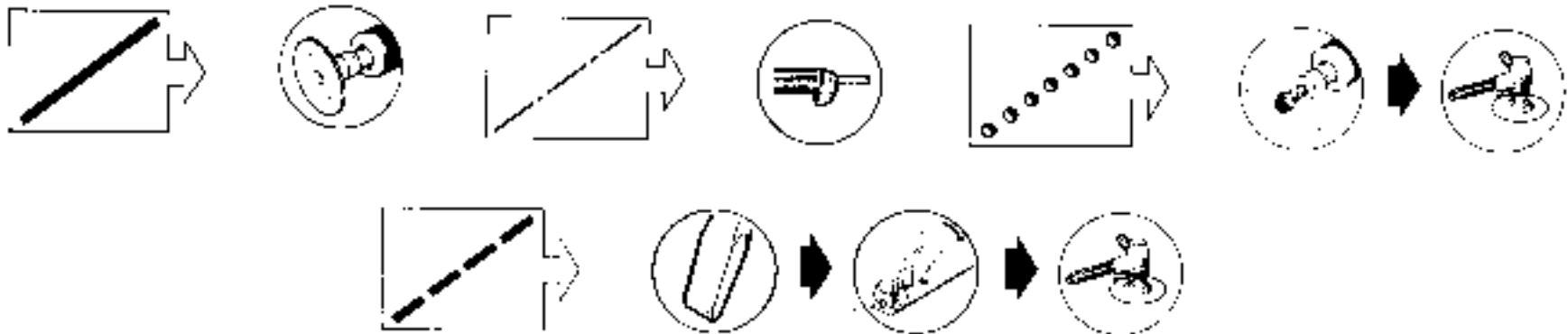
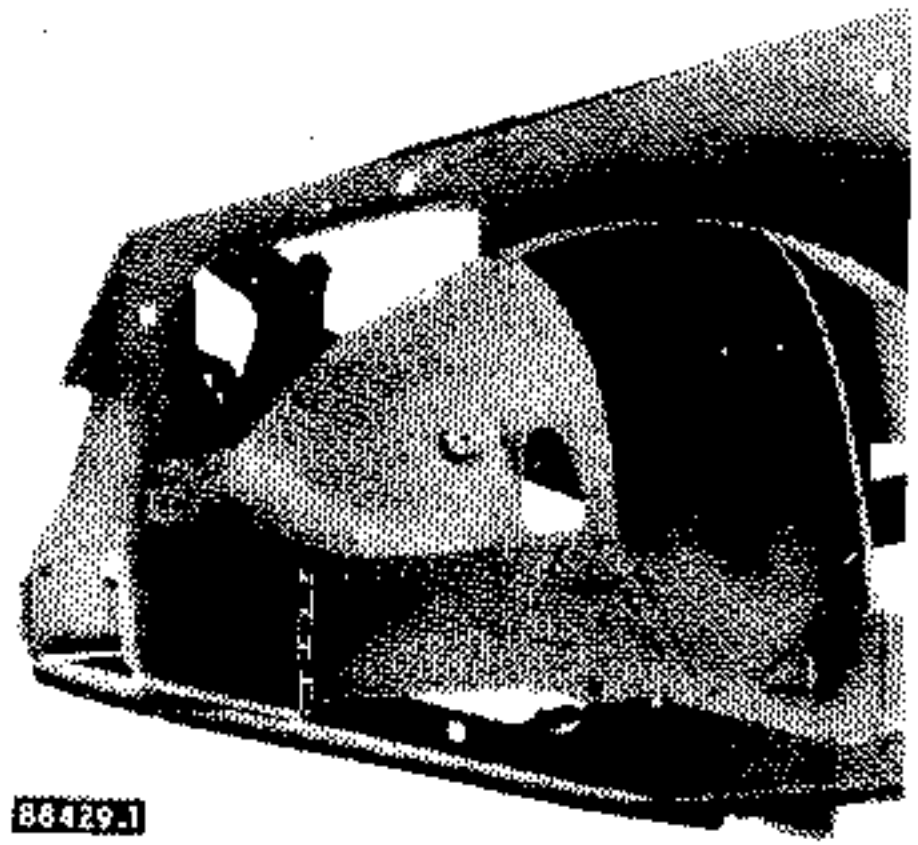
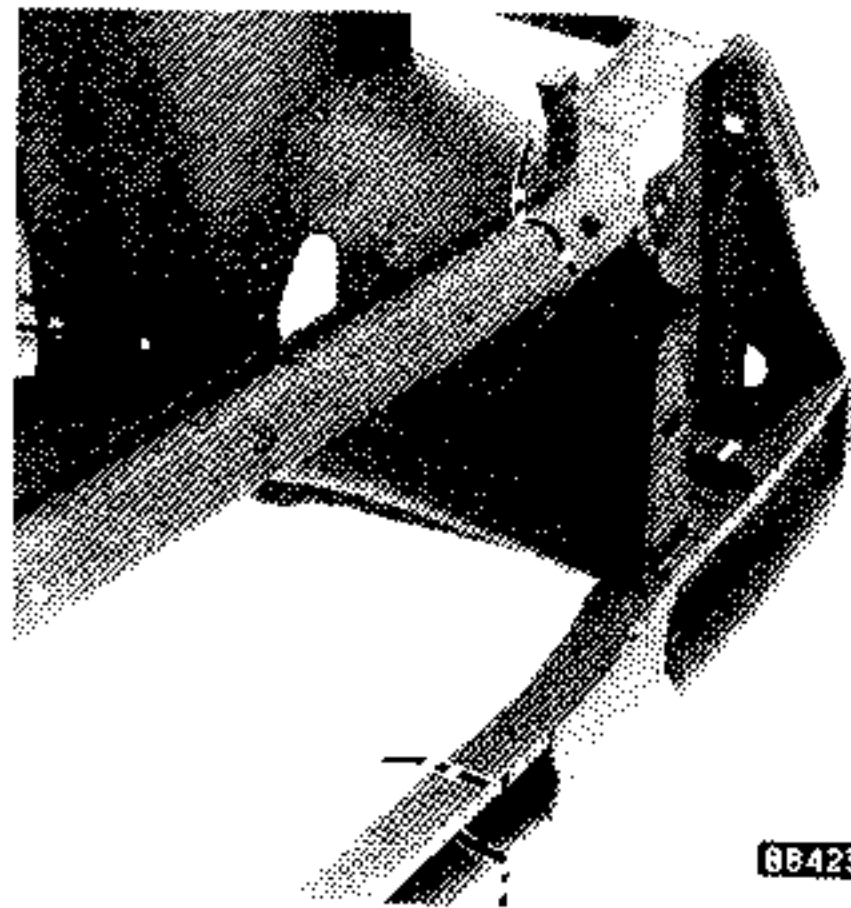
STRIPPING

Remove :

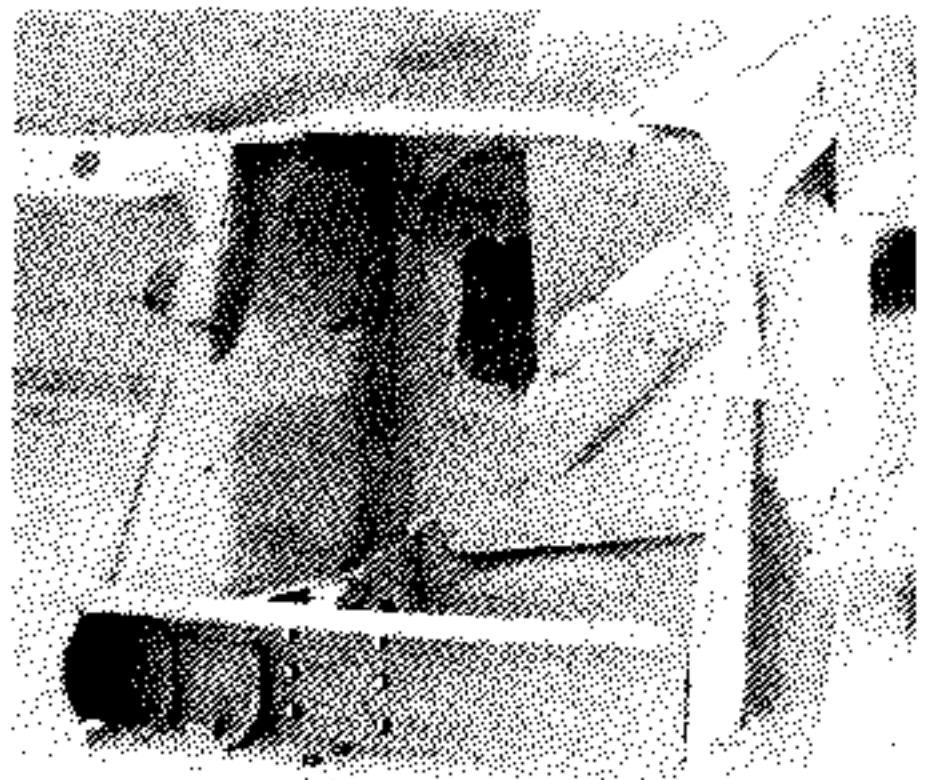
- | | |
|----------------------------|------------------------|
| - the bonnet, | - the radiator grille, |
| - the headlight, | - the bumper shield, |
| - the direction indicator, | - the wing. |

Note : For more details on removing the various parts, see the section that deals with the part in question.

CUTTING - JOINT SEPARATION

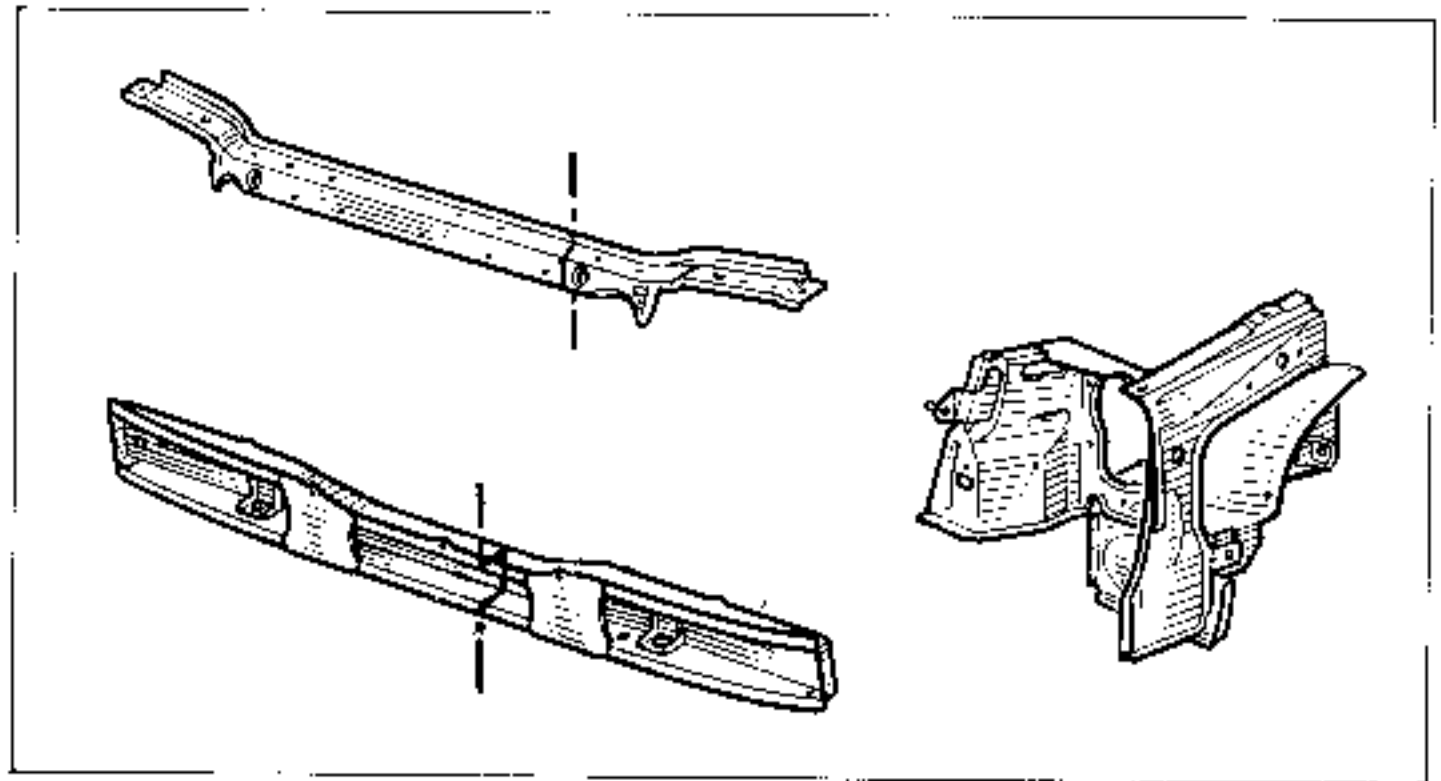


- Remove the damaged part by following the methods represented by the above symbols (see description of symbols).
- Grind back the pieces of spot weld adhering to the support panels.



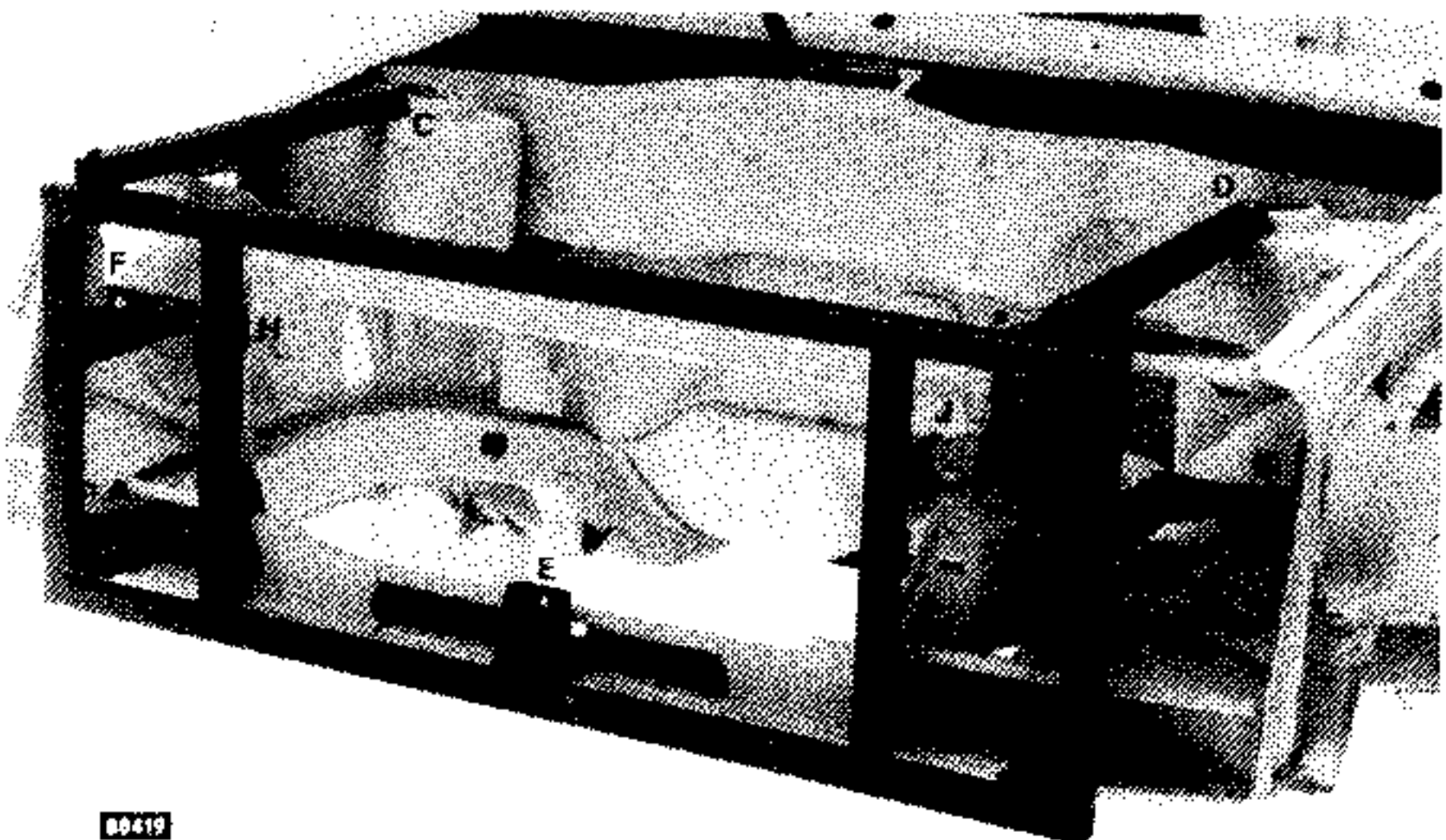
PREPARATION PRIOR TO WELDING

- Cut a piece, from the new part, approximately 50 mm larger than that cut out on the vehicle.

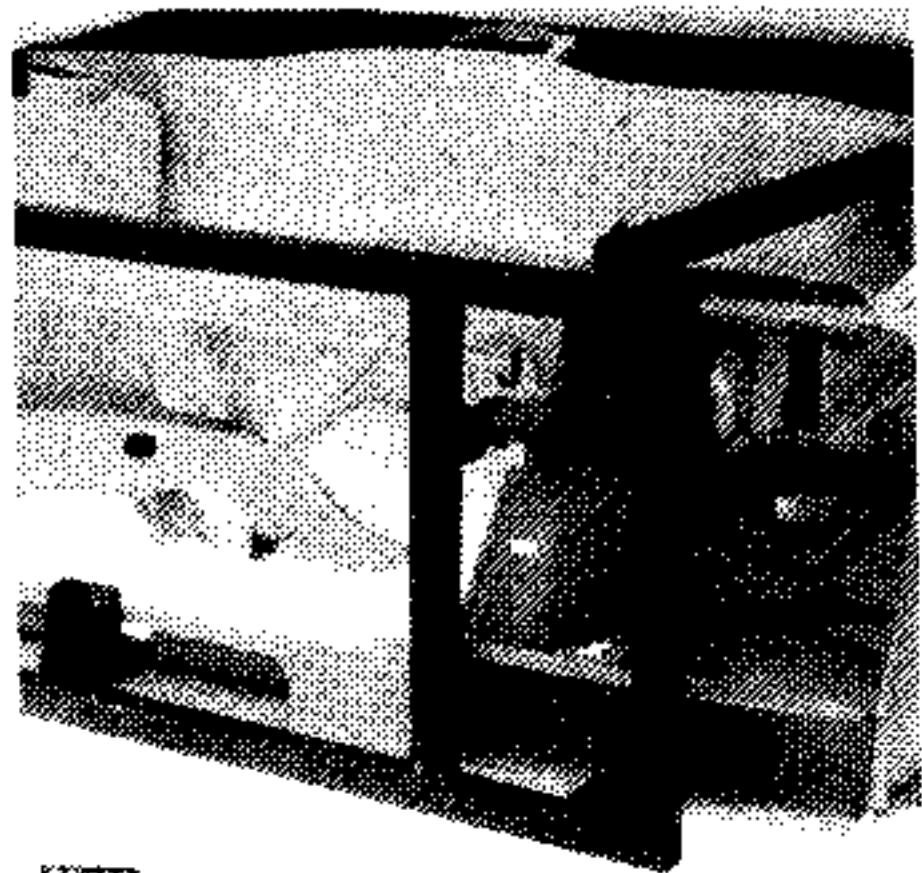


Fitting the front end frame jig :

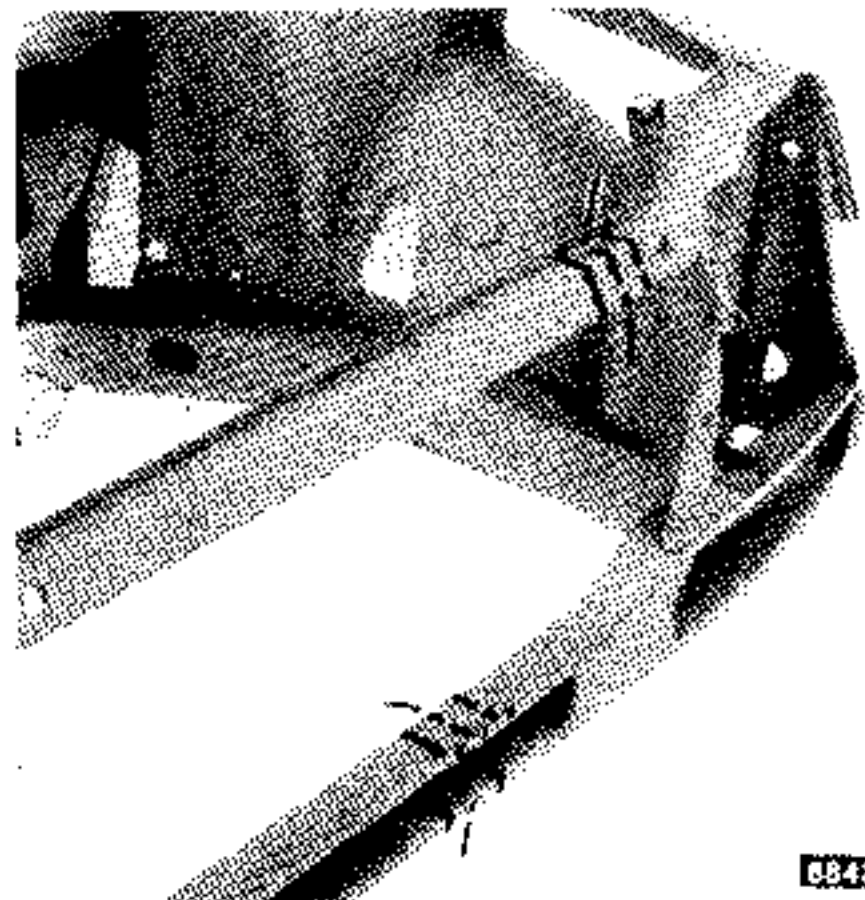
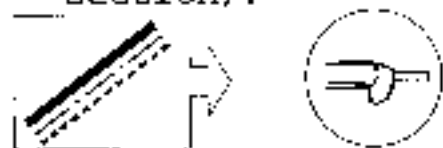
Points A-B-C-D-E are the jig locating points on the vehicle. Before fitting it ensure, with the trammel gauge, that these points are correctly positioned. When one of the points A or B cannot be used as a jig location (as is the case for this operation) use securing points G-J or F-H, depending on the side, instead.



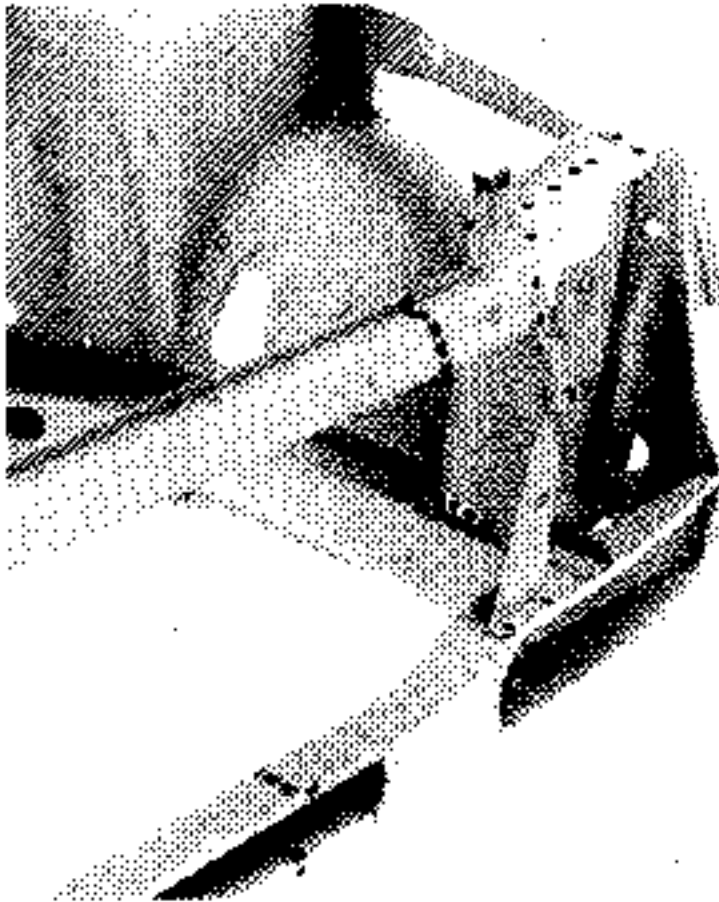
Points F-G-H-J are the securing and locating points for the parts being replaced.



- Fit the new part so that it overlaps the original part on the vehicle and secure it with grip clamps.
- Saw through both thicknesses of metal simultaneously to make adjusting the joint easier.
- Strip back, to the bare metal, the inner and outer faces of all the areas to be welded. (Both on the vehicle and on the new parts).
- Apply a coat of electroplastic mastic to the areas to be spot welded (see description of symbols at the beginning of this section).



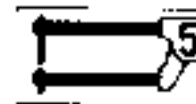
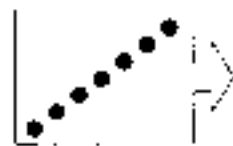
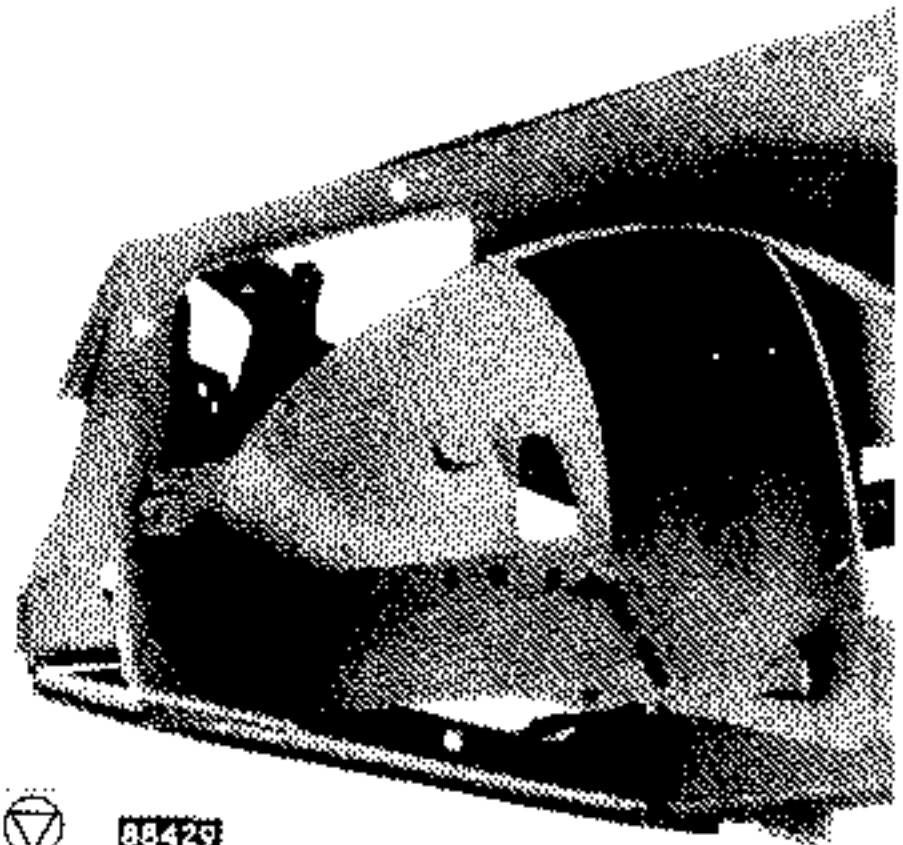
WELDING



88423.1



88429

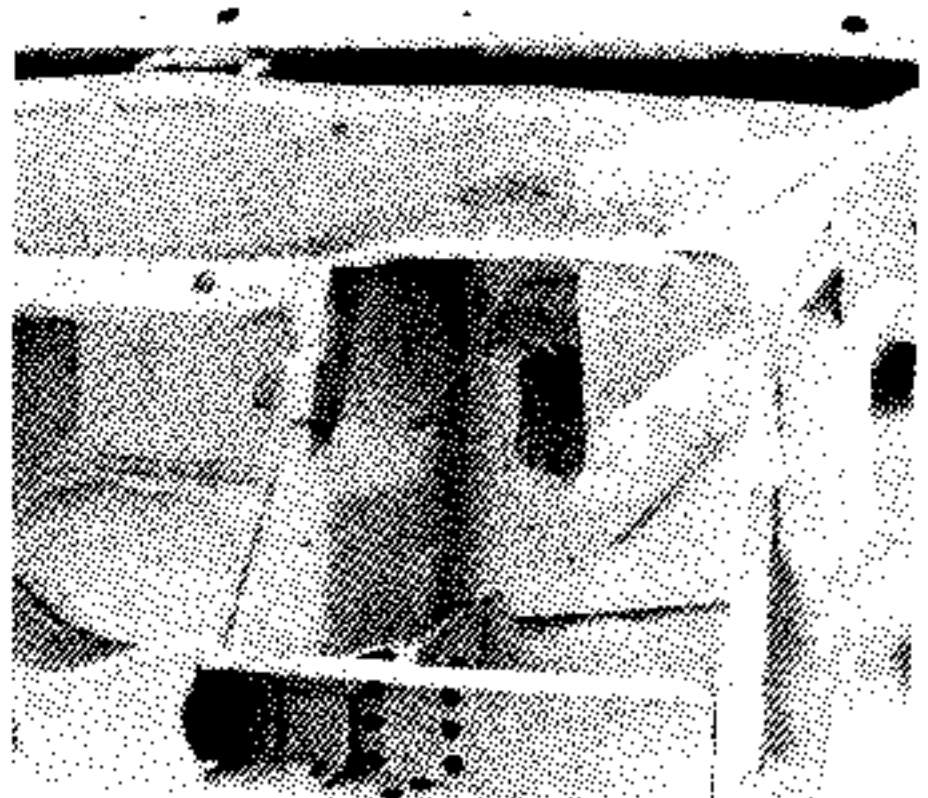


□ : e - 2,2 mm; H - 50 mm
● : e - 1,4 mm; H - 55 mm

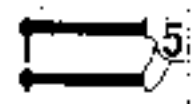


D: 5mm

- Tack weld the butt joints to secure them in place.
- Apply the spot welds. The corresponding values of (e) and (H) are given under each drawing.
- Apply the stitched fillets using the gas envelope welding process. (These joints may also be gas welded using a 75 to 100 nozzle).
- Apply the plug welds using the gas envelope welding process. To do this, drill holes in the top panel to the diameter D stated under the drawings.

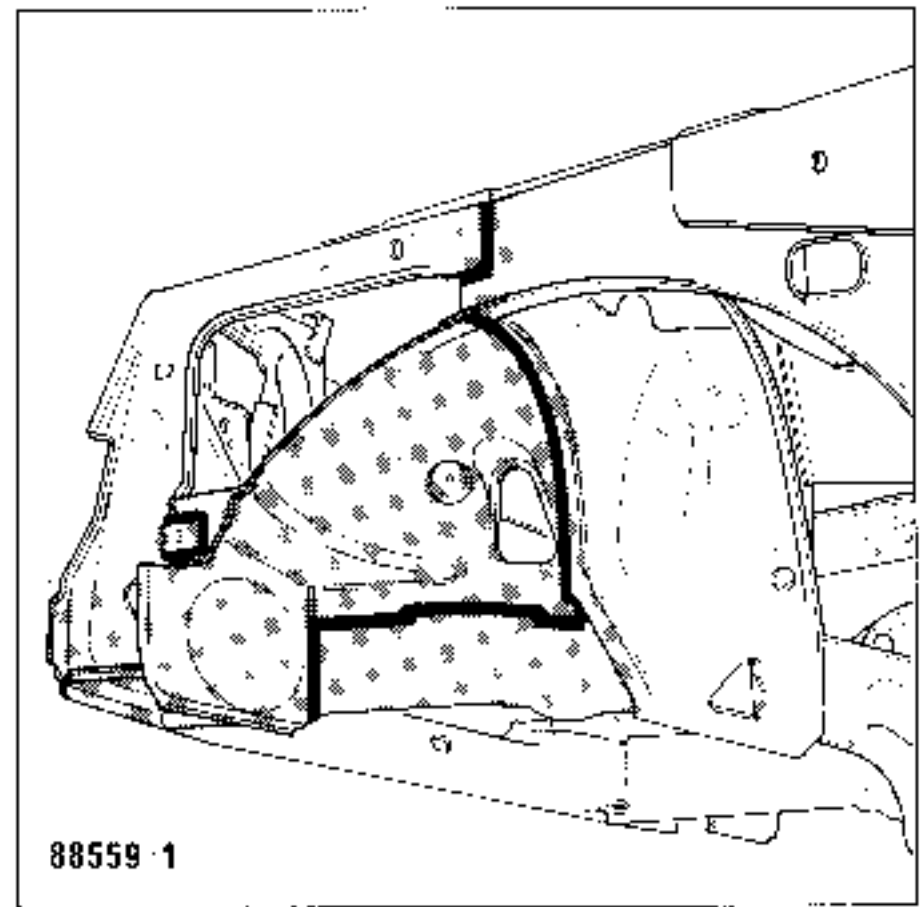
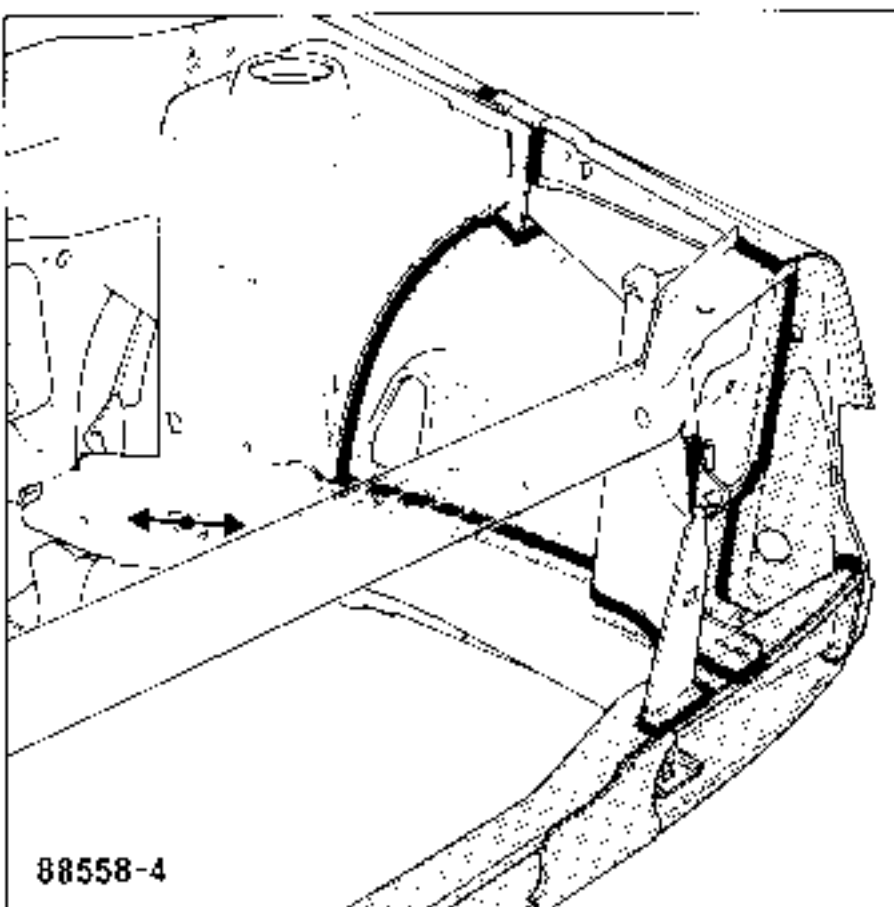


88431.1



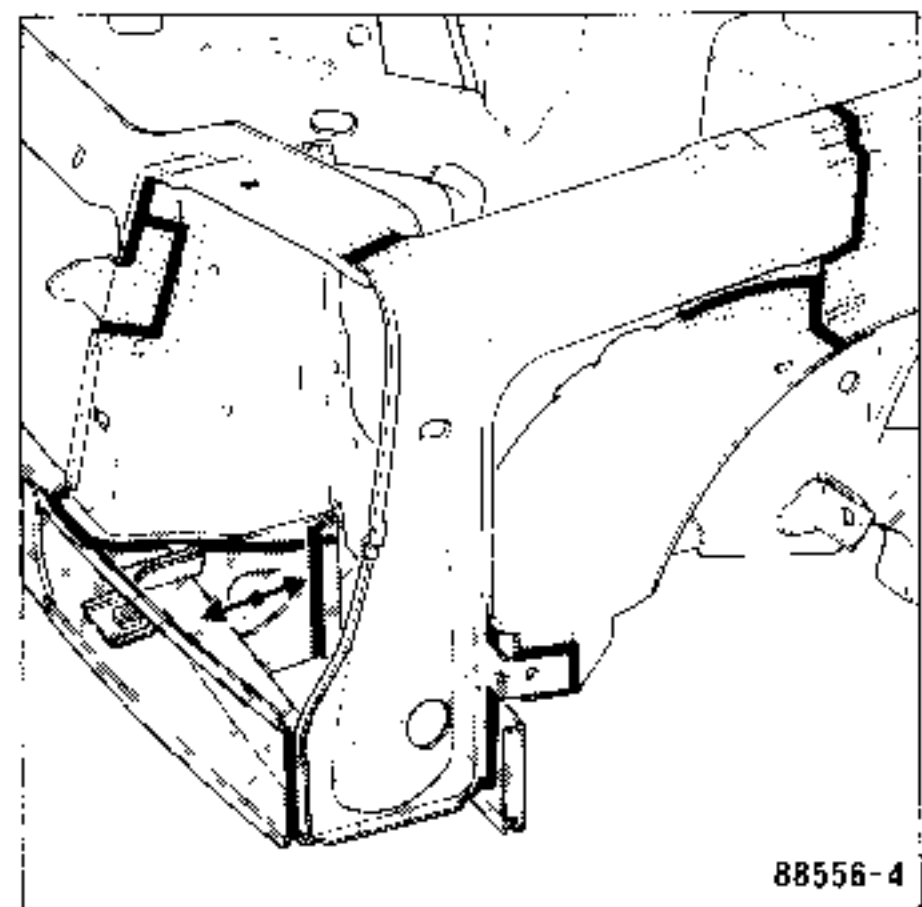
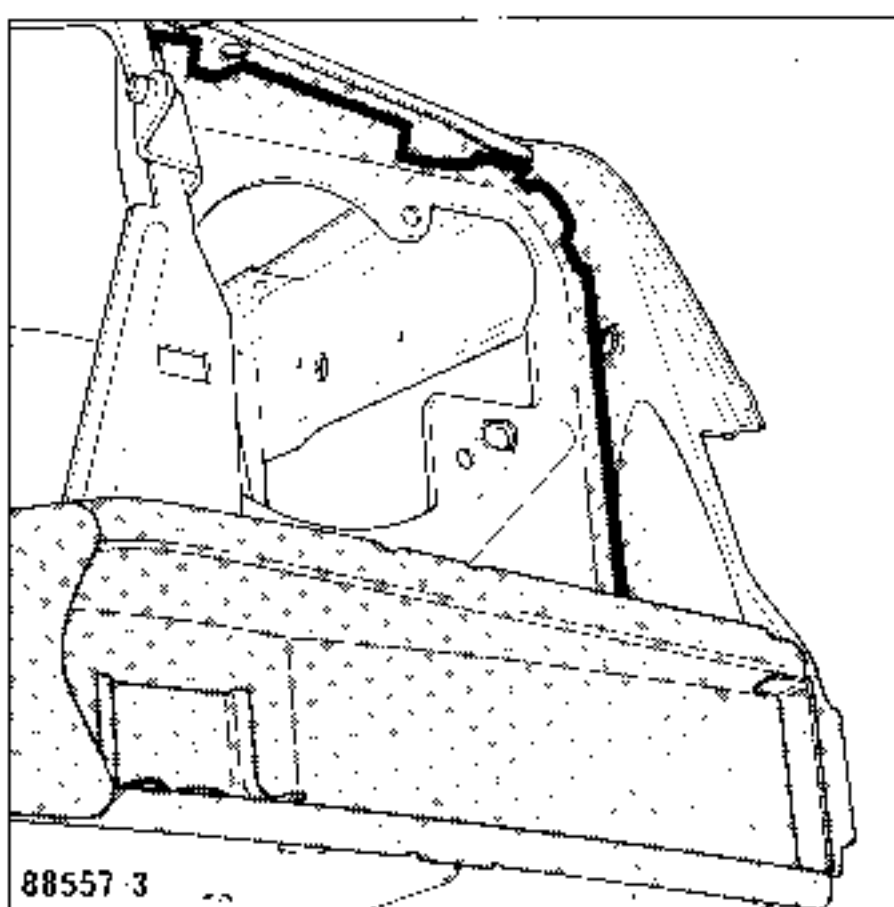
e = 2,2 mm
H = 50 mm

PAINTING



Carry out paint sequence No. 5 (see "Painting" section).

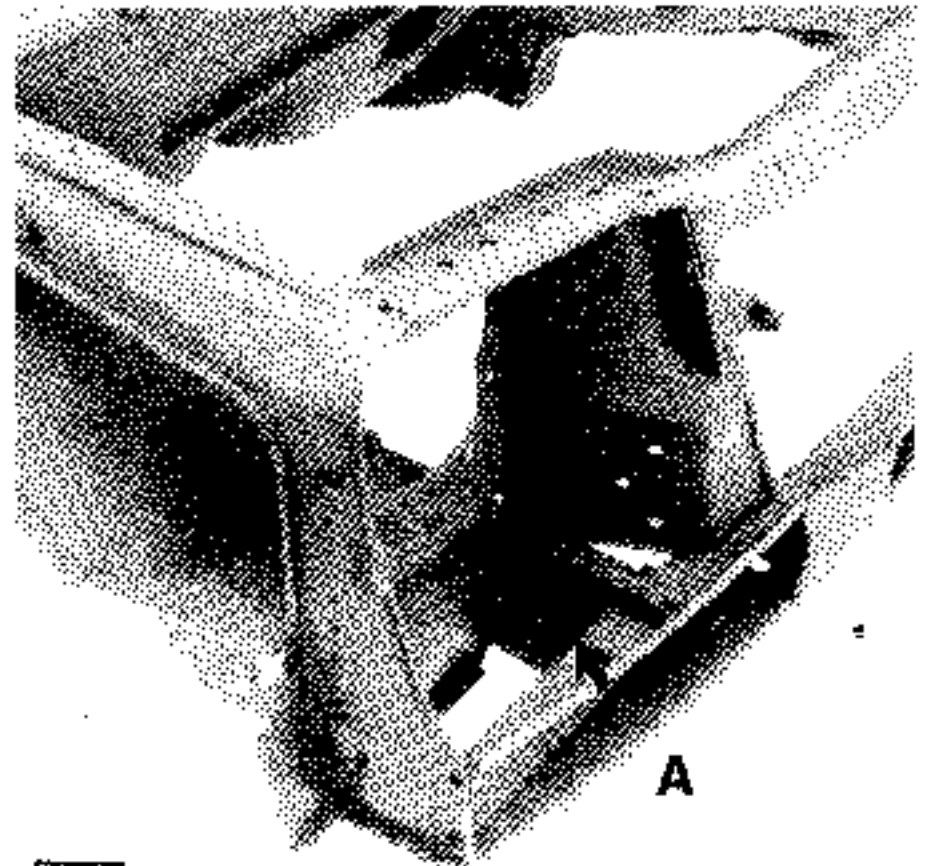
After painting apply hollow section protection treatment.



DAMAGE DIAGNOSIS

The side member closing panel has an aperture at one end which acts as a "crumple point". If the damage does not extend past this point, the end of the side member can be replaced.

This operation can be carried out without the body jig. However it is very important to check that the engine cradle is square and, if it is not, to use a new cradle to align the end of the side member and to adjust the position of the cross member.



BB426

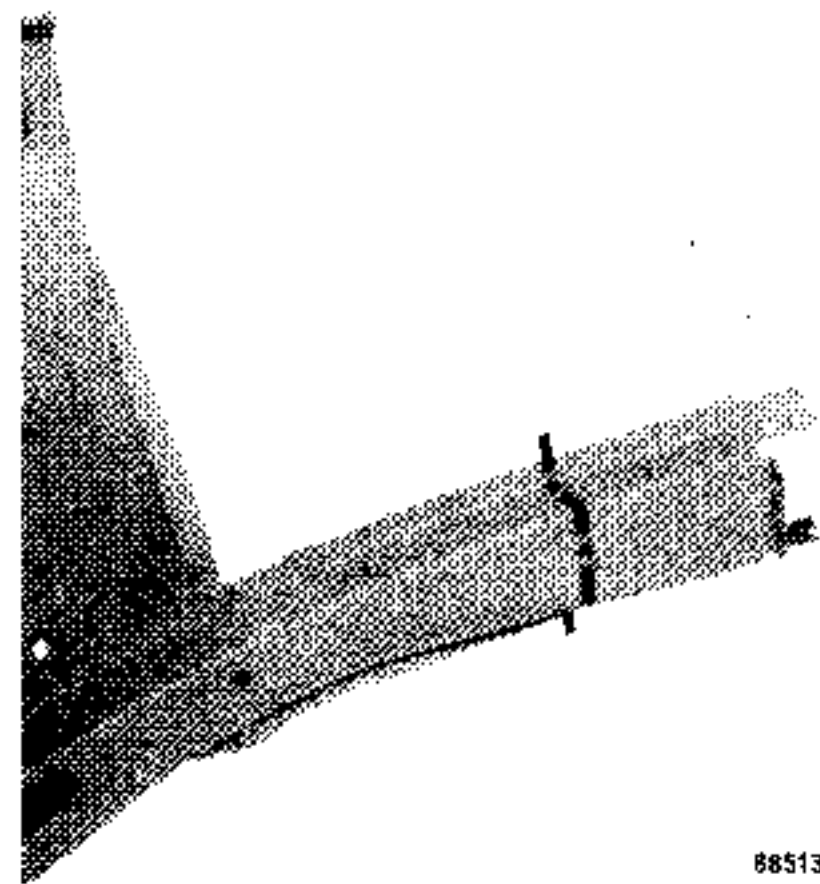
The side member can be cut at a number of different points, when partially replacing it. The operation described on the following pages uses the cut line which is the farthest back. Past this point the entire side member will have to be replaced, on the body jig.

STRIPPING

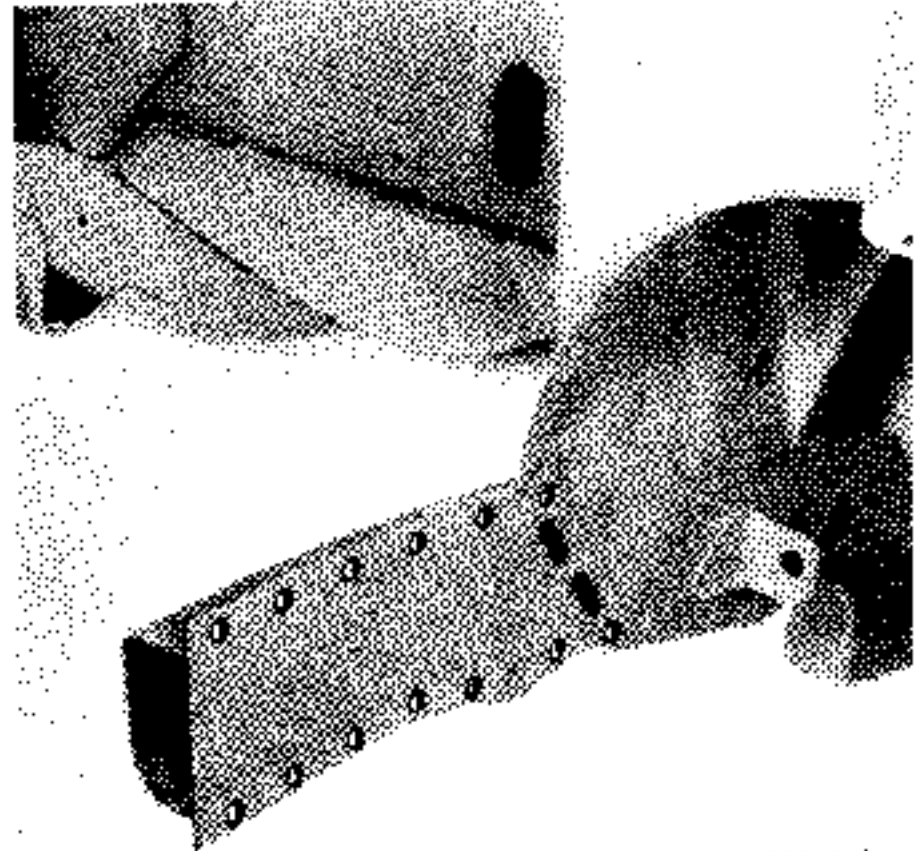
This is identical to the previous operation described.

CUTTING - JOINT SEPARATION

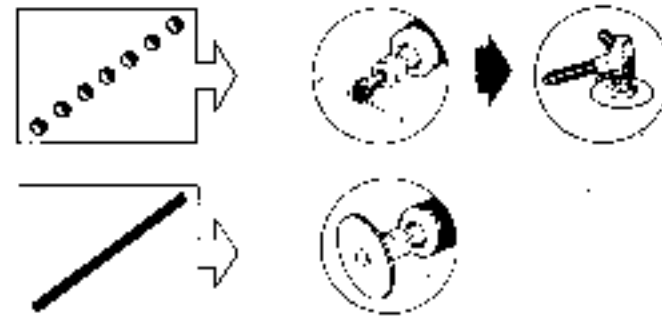
- Remove the upper section :
 - the simplified cowl side assembly,
 - parts of the upper and lower cross members,by following the instructions given in the preceeding sub-section.
- Remove the end of the side member as shown in the diagrams overleaf (see description of symbols).



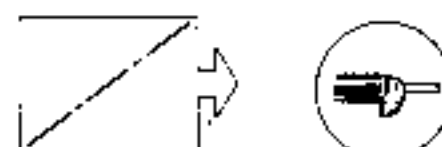
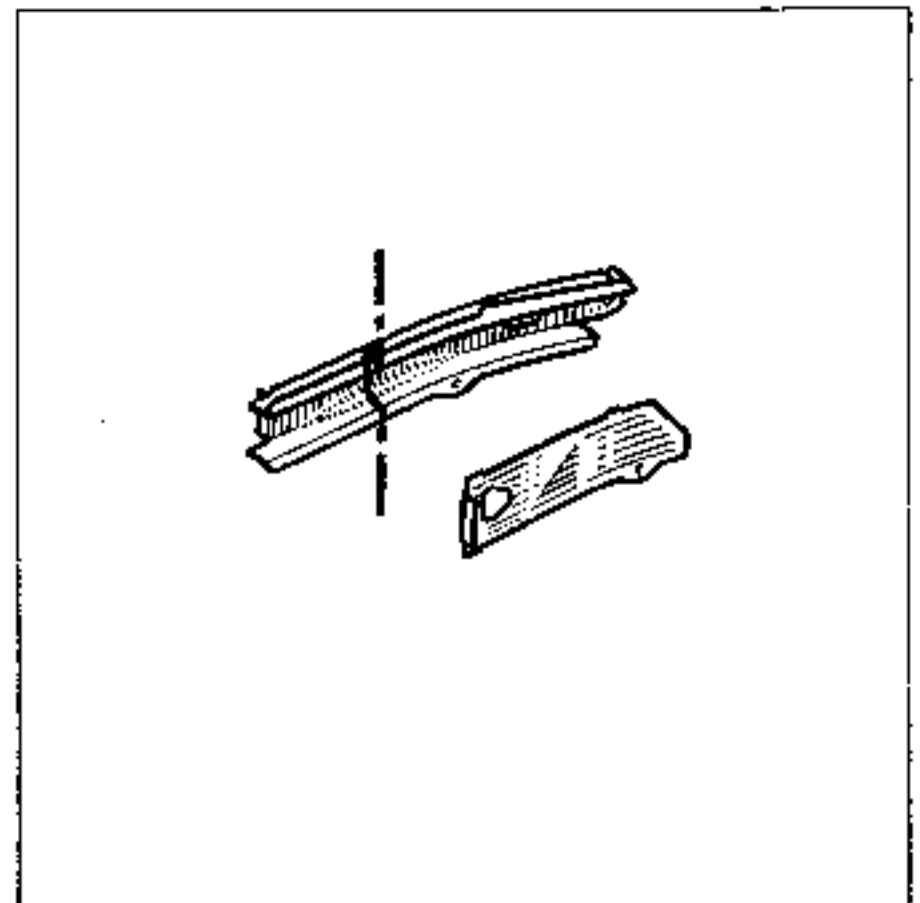
88513



88513.4



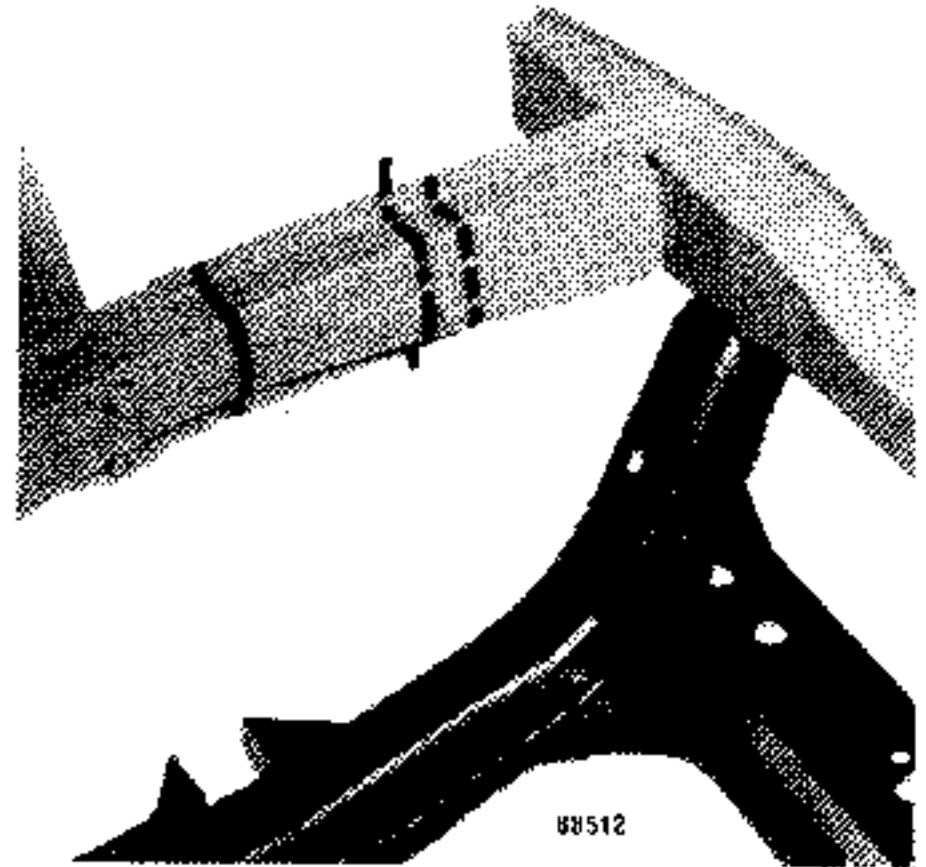
- Remove the damaged part by following the methods represented by the above symbols (see description of symbols).
- Grind back the pieces of spot weld adhering to the support panels.
- Cut a piece from the new part approximately 50 mm larger than that cut out of the vehicle.



- Fit the new engine cradle and lower cross member.
- Fit the new part so that it overlaps the original part on the vehicle and secure it in place with grip clamps.
- Saw through both thickness of metal simultaneously to make adjusting the joint easier.

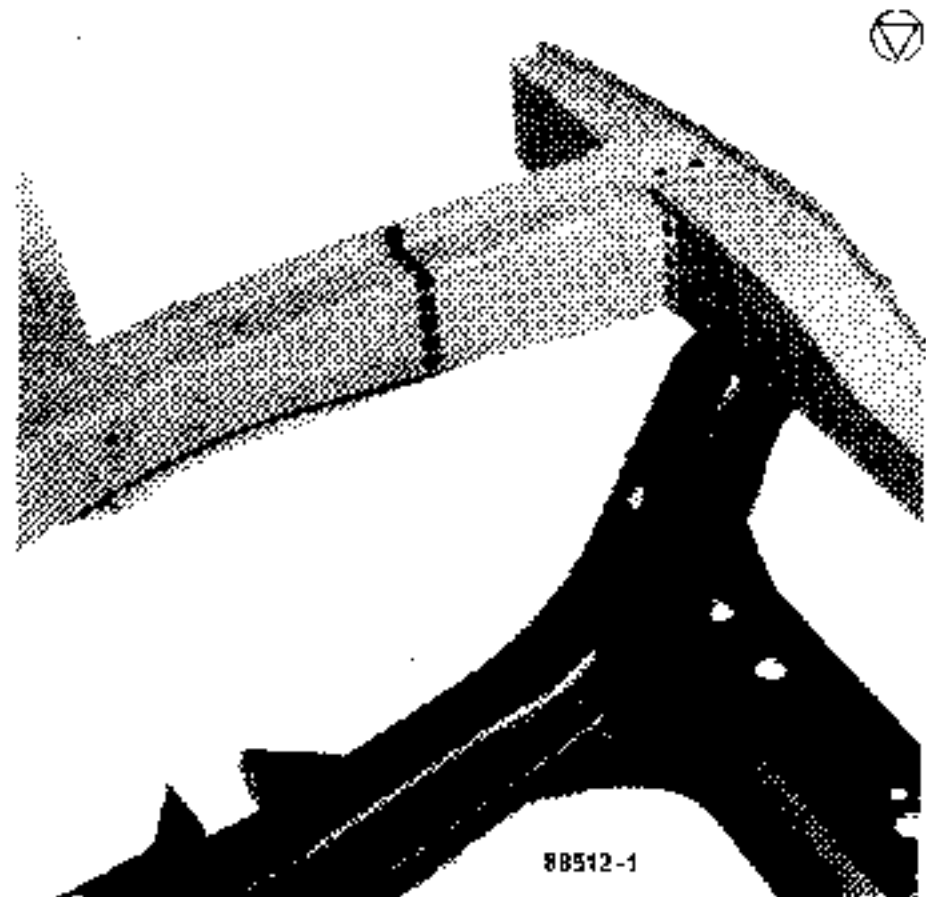
PREPARATION PRIOR TO WELDING

- Strip back, to the bare metal, the inner and outer faces of all the areas to be welded. (Both on the vehicle and on the new parts).
- Adjust the new part and secure it in place with grip clamps.



WELDING

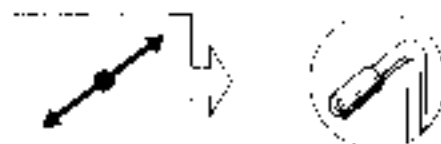
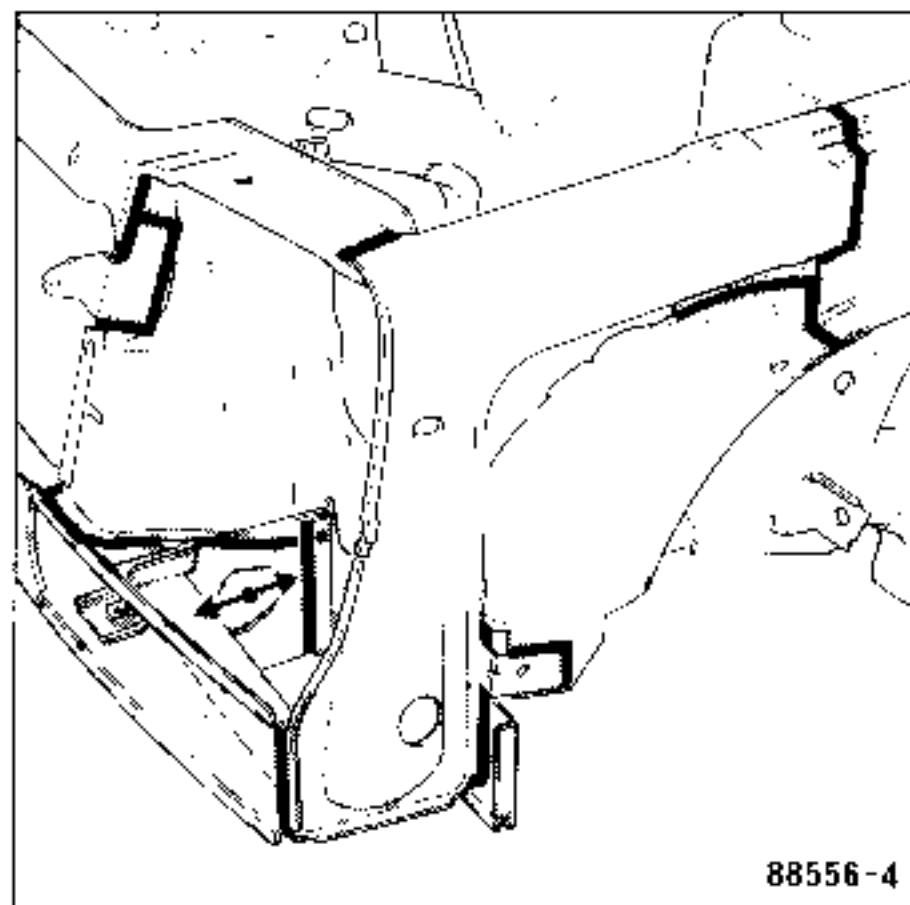
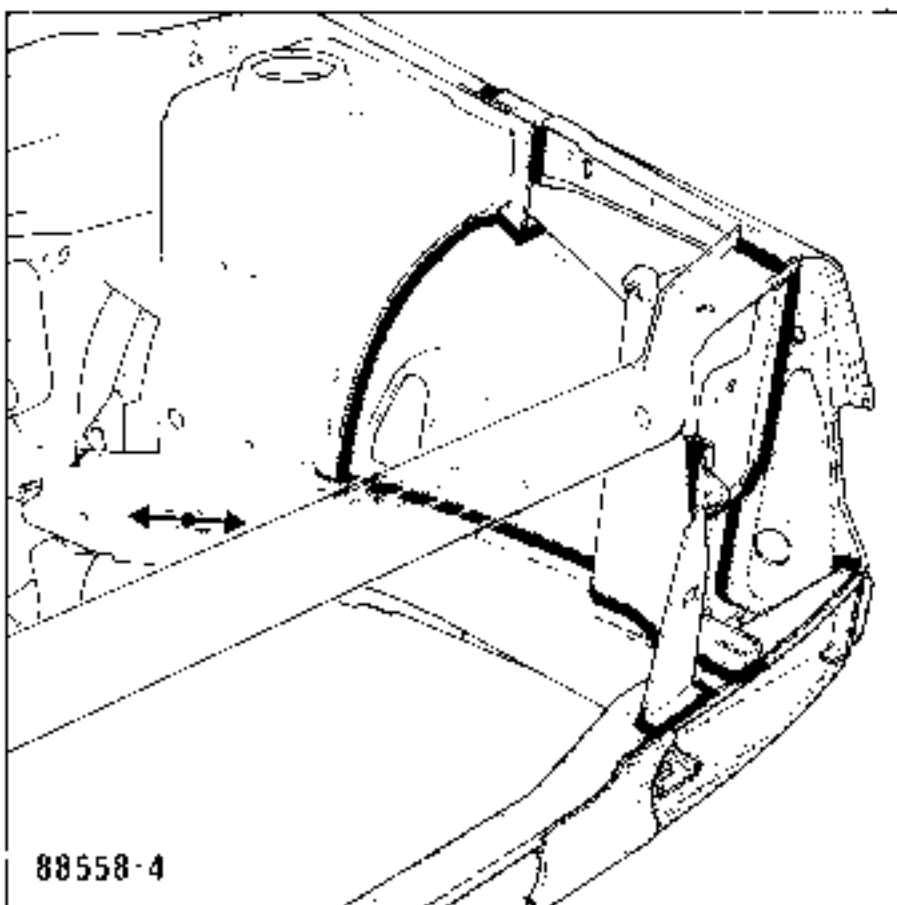
- Tack weld all the butt joints to secure them in place.
- Apply the spot welds. The corresponding values of (e) and (H) are given under each drawing.
- Apply the stitched fillets using the gas envelope welding process. (These joints may also be gas welded using a 75 to 100 nozzle).
- Grind flush the butt welds and fill them with soft solder.



e = 2,2 mm; H = 50 mm



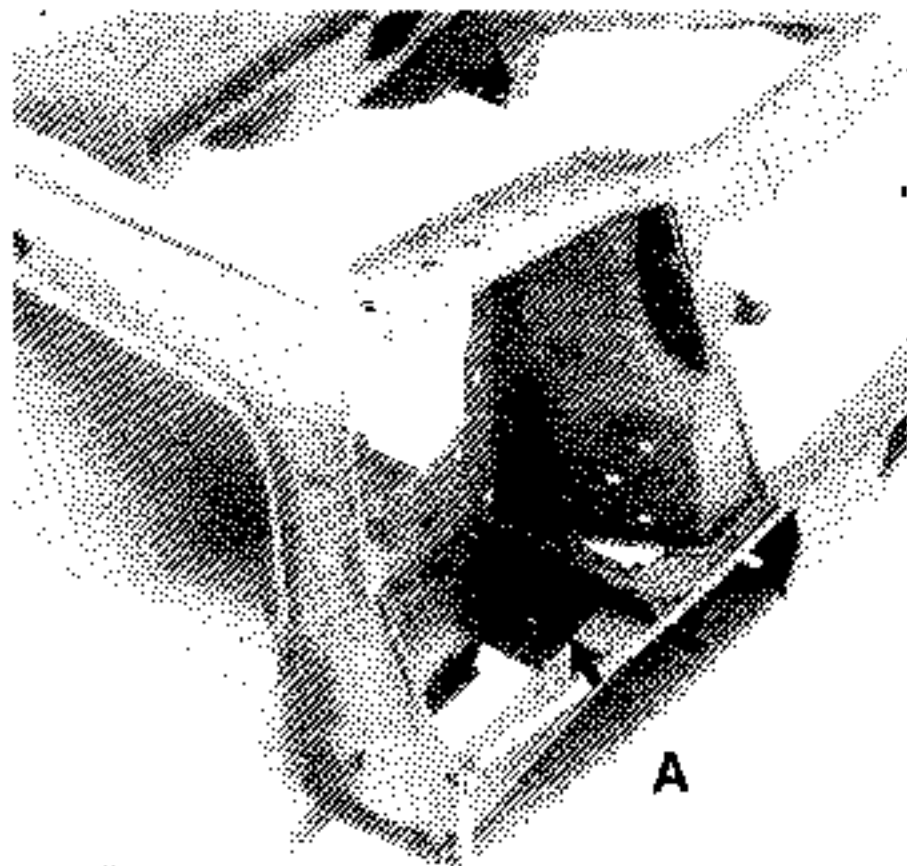
ANTI-CORROSION PROTECTION



After painting, and before refitting the other components, apply hollow section protective treatment.

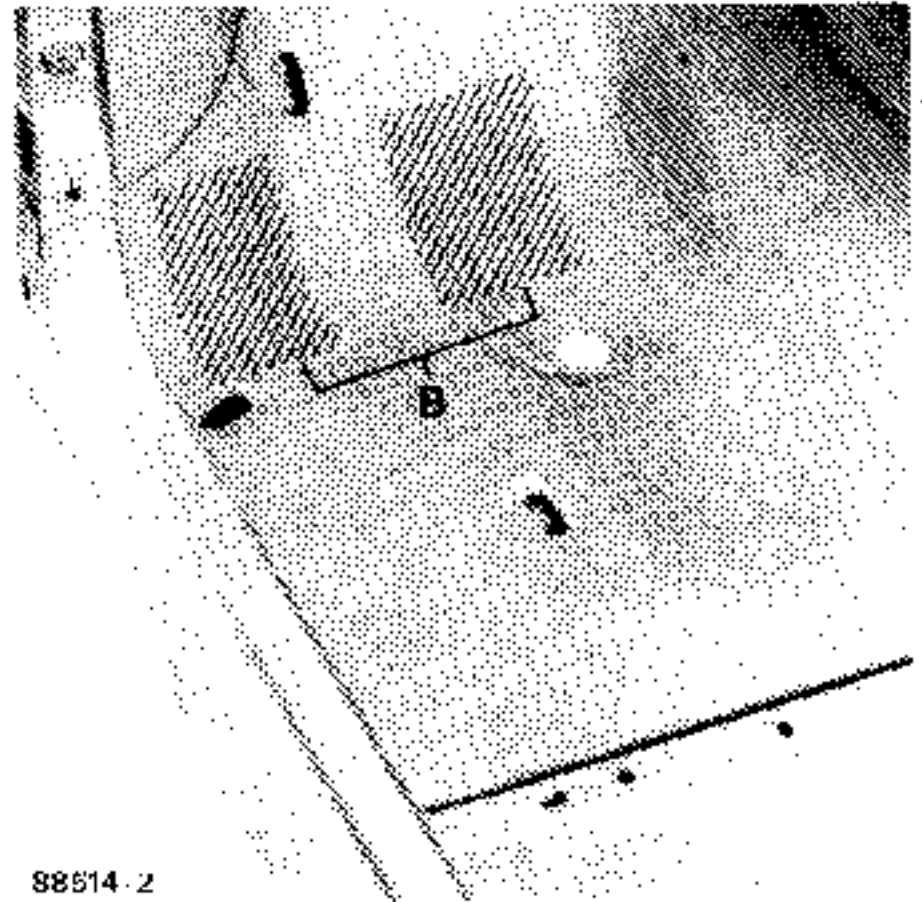
DAMAGE DIAGNOSIS

The side member closing panel has an aperture at one end which acts as a "crumple point". Depending on the extent of the damage past this point, either the end of the side member can be replaced or the entire side member using the body jig.



88426

Distortion in section A.
No distortion in section B : replace the side member front section.



88514-2

Distortion in section B : replace the complete side member.

STRIPPING

Support the vehicle on axle stands and remove :

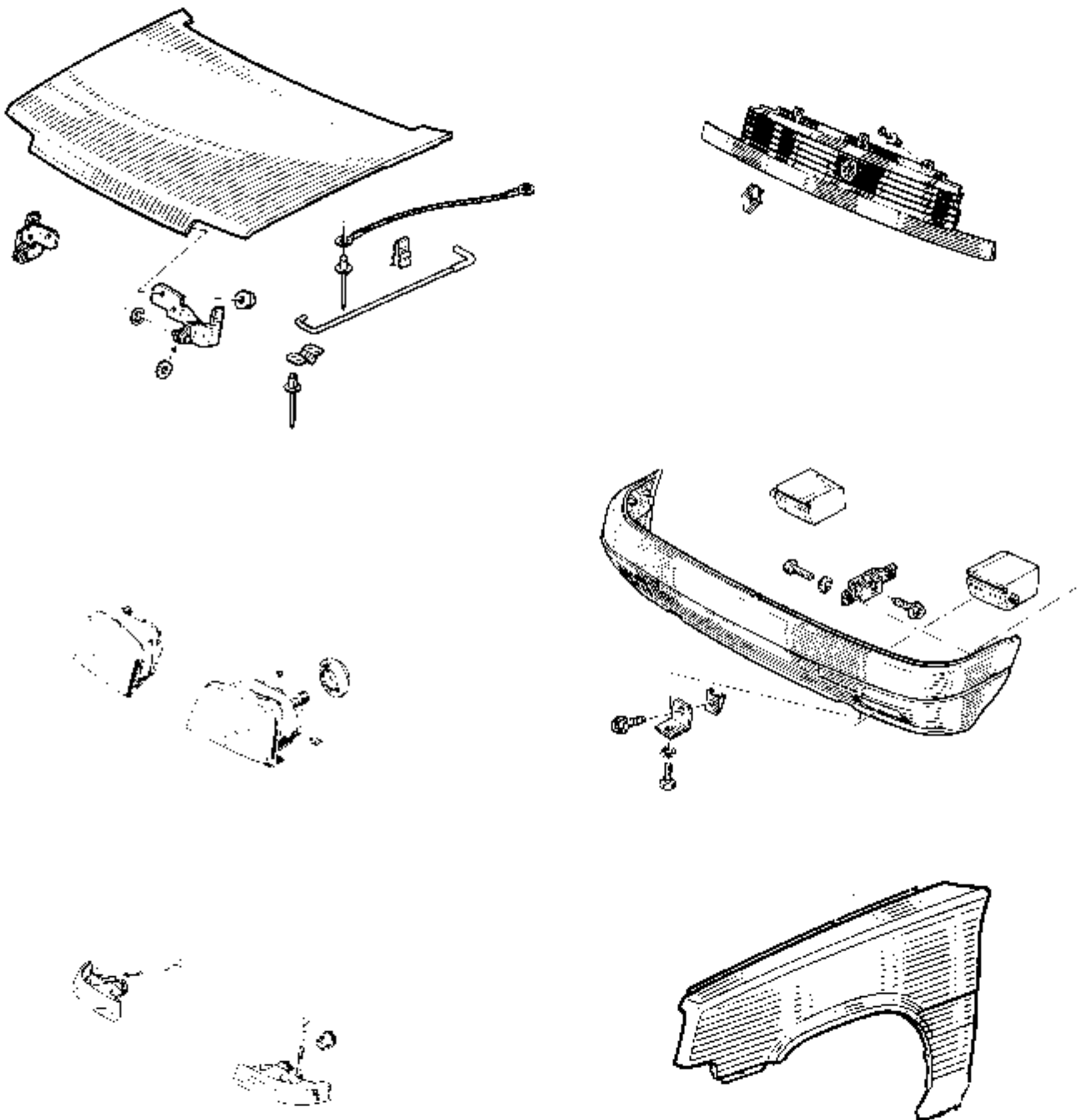
- the bonnet,
- the radiator grille,
- the headlights,
- the bumper shield,
- the wings,
- the power unit assembly (see mechanical workshop manual)

STRIPPING

Remove :

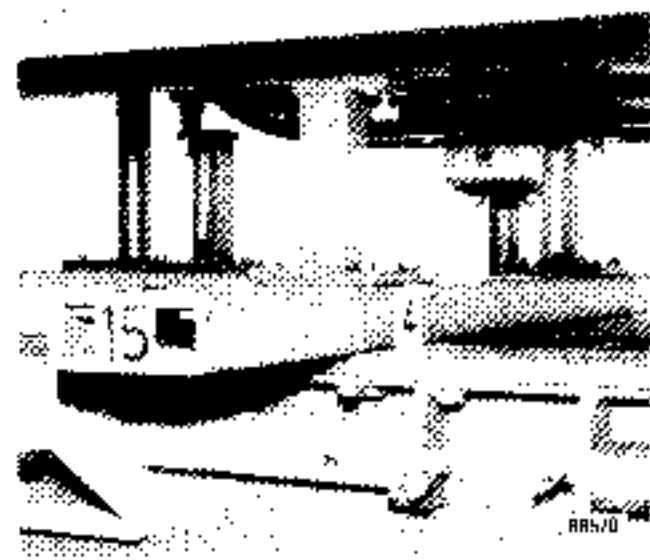
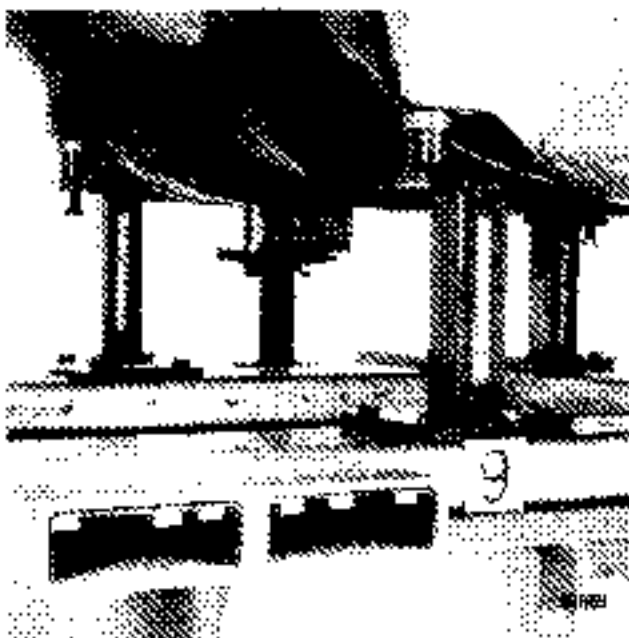
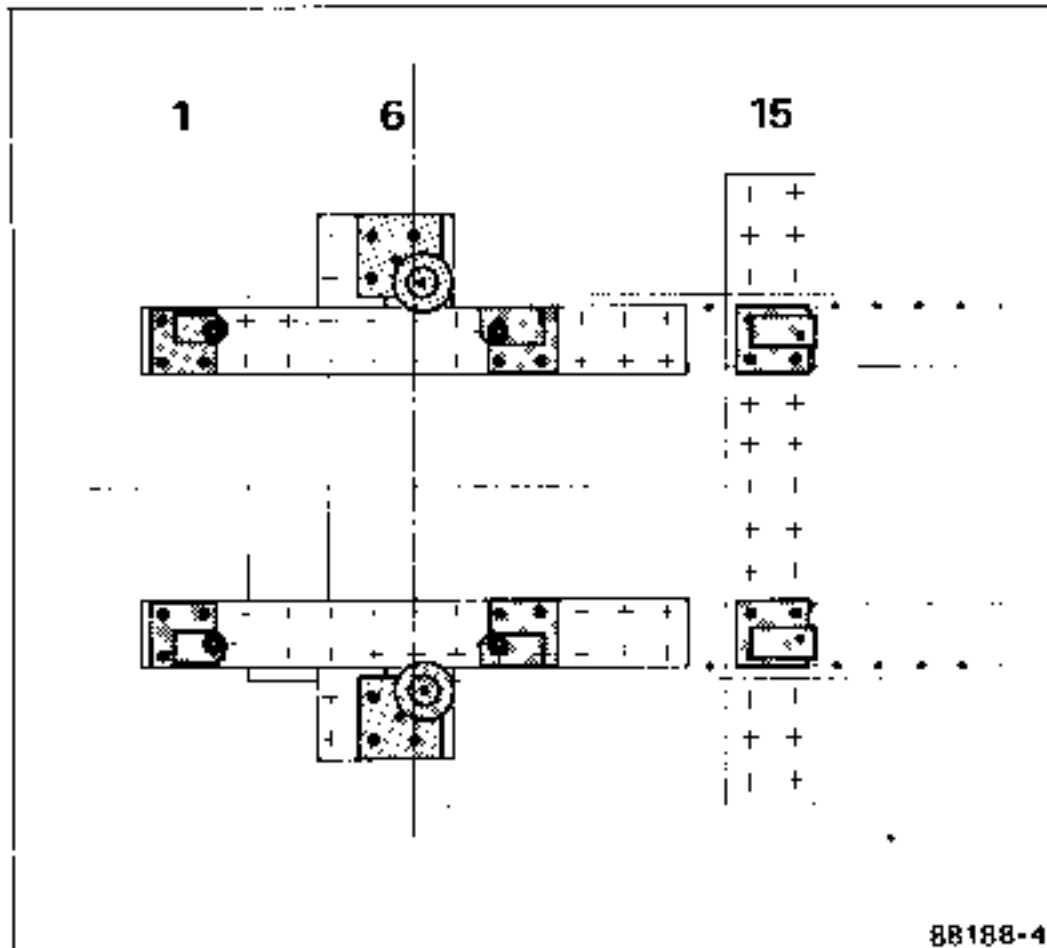
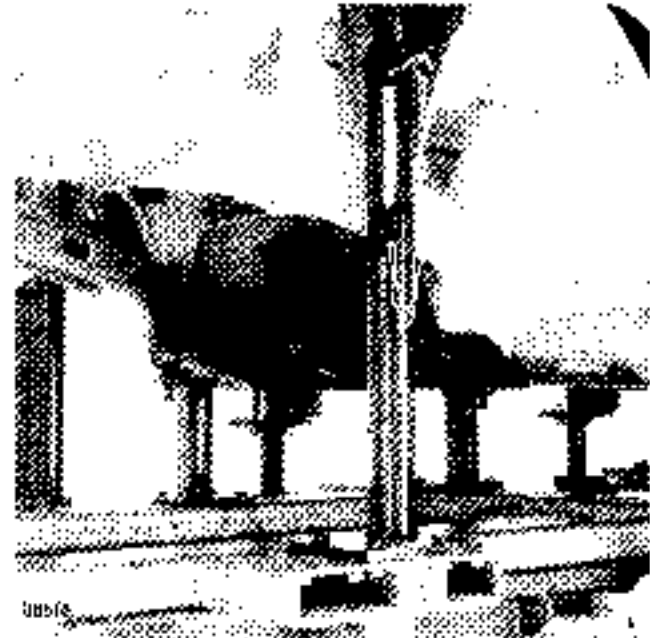
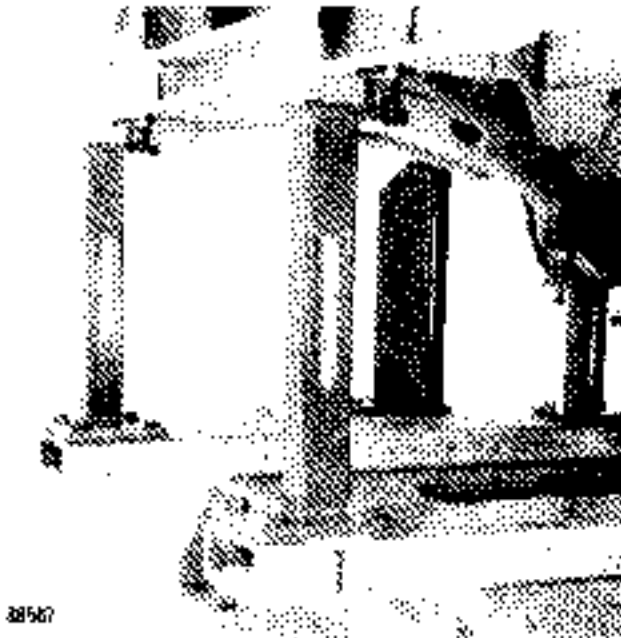
- the bonnet,
- the radiator grille,
- the headlight,
- the bumper shield,
- the direction indicator,
- the wing.

Note : For more details on removing the various parts, see the section that deals with the part in question.

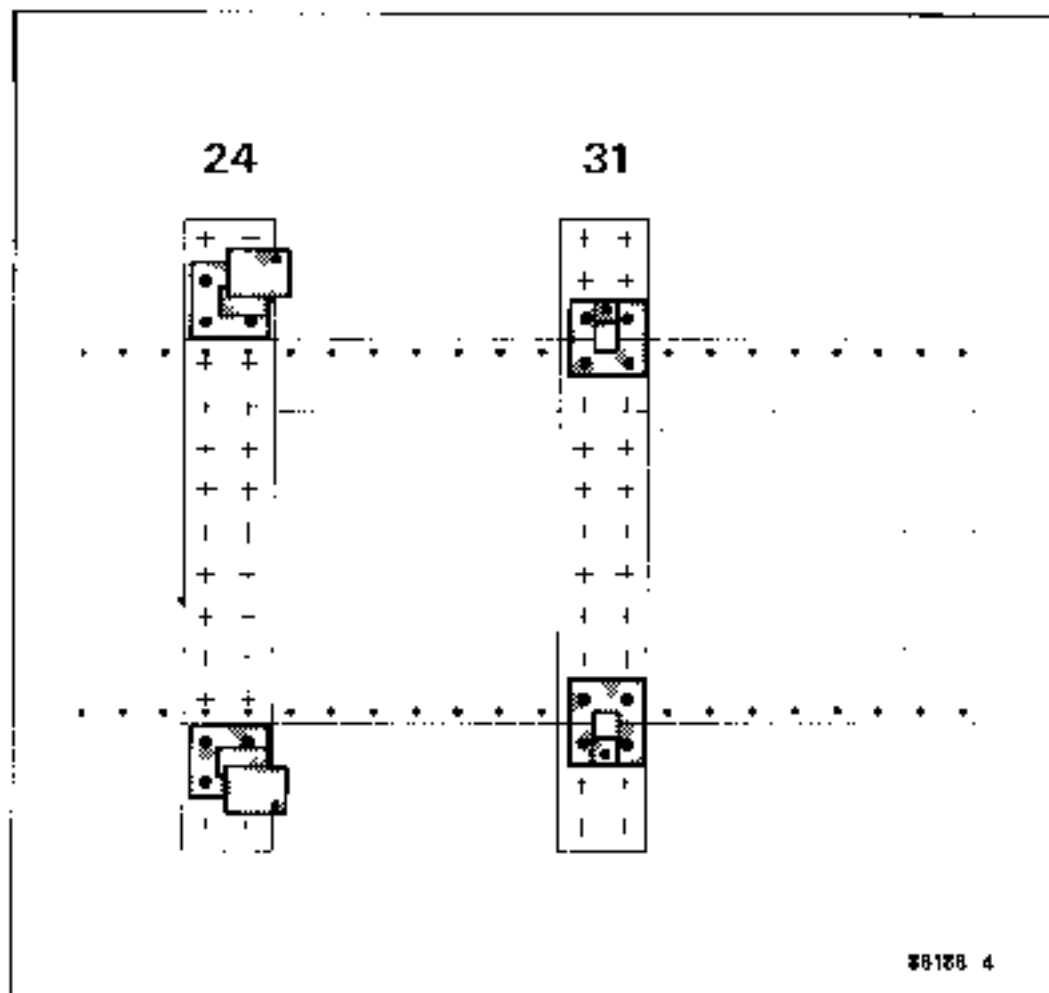
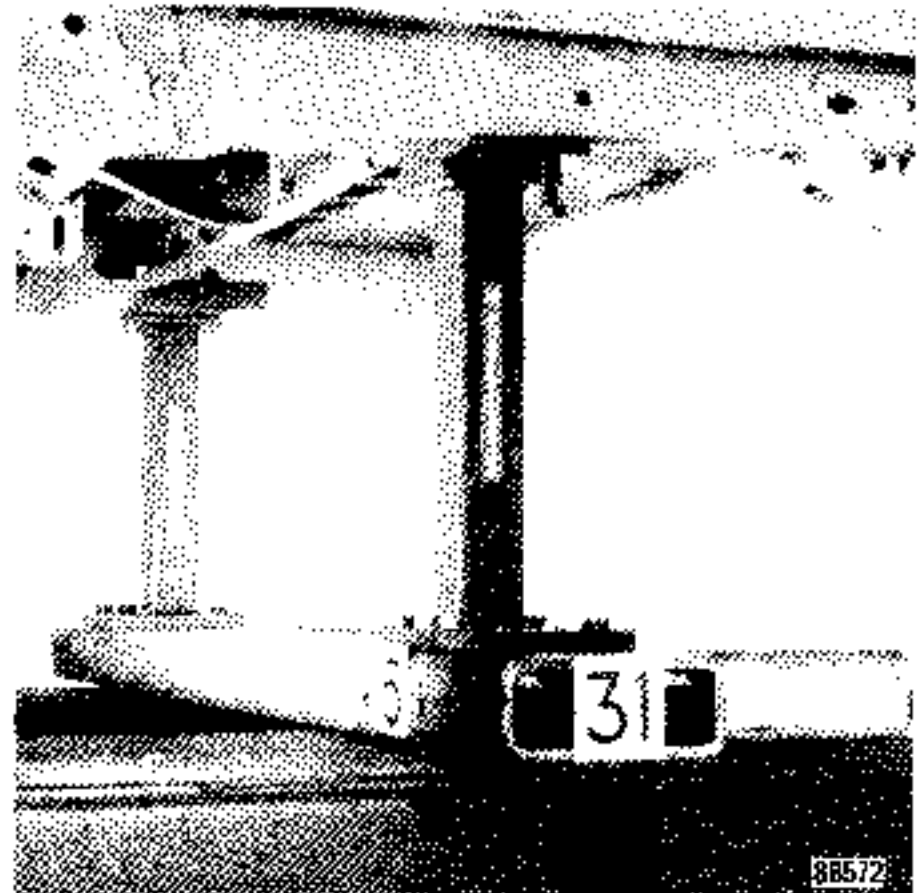
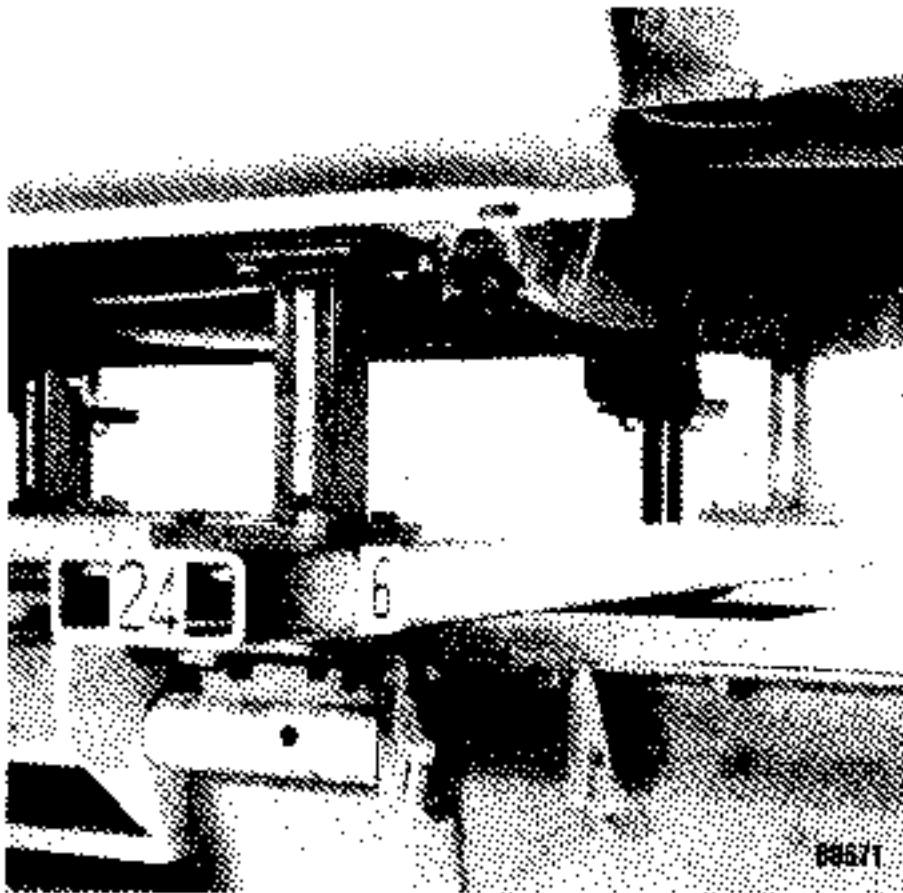


FITTING THE JIG BRACKETS TO THE BODY JIG

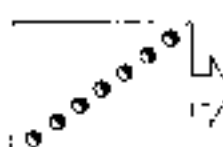
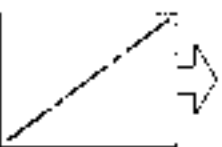
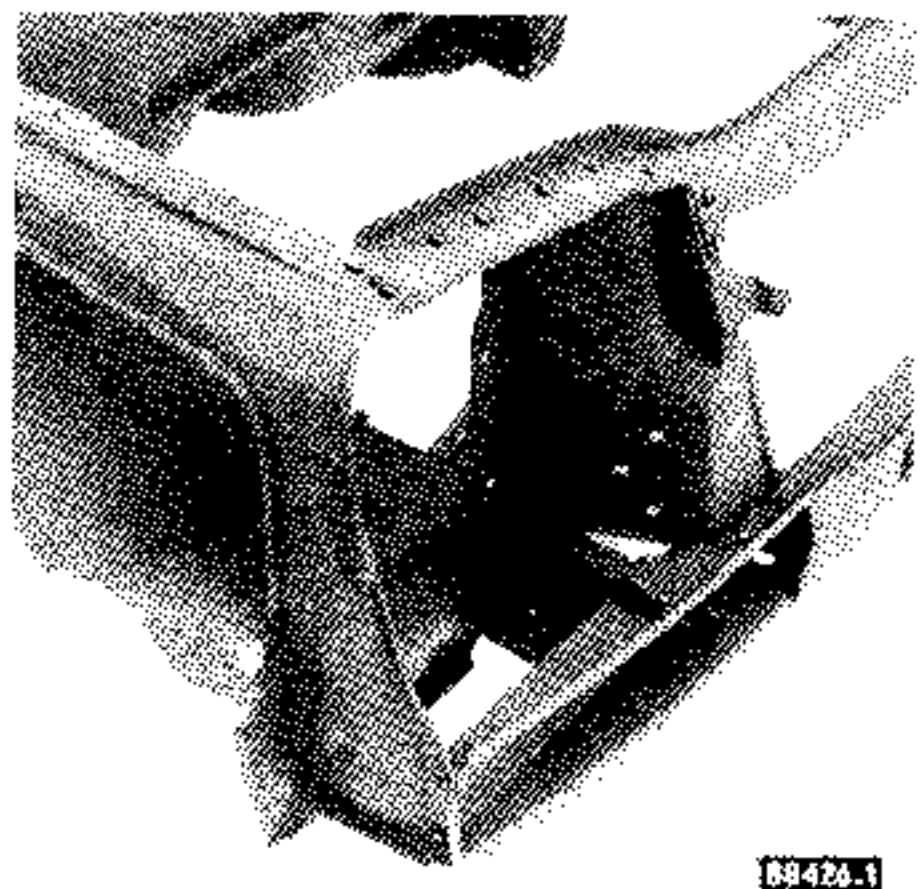
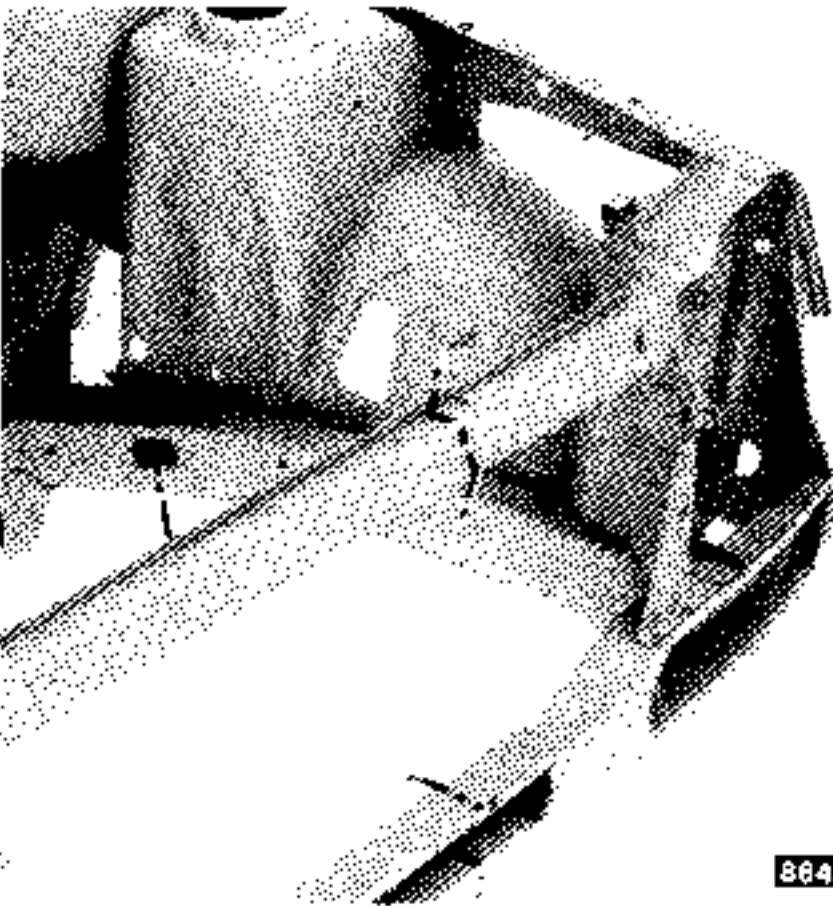
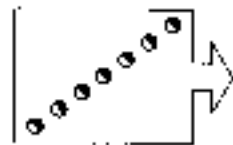
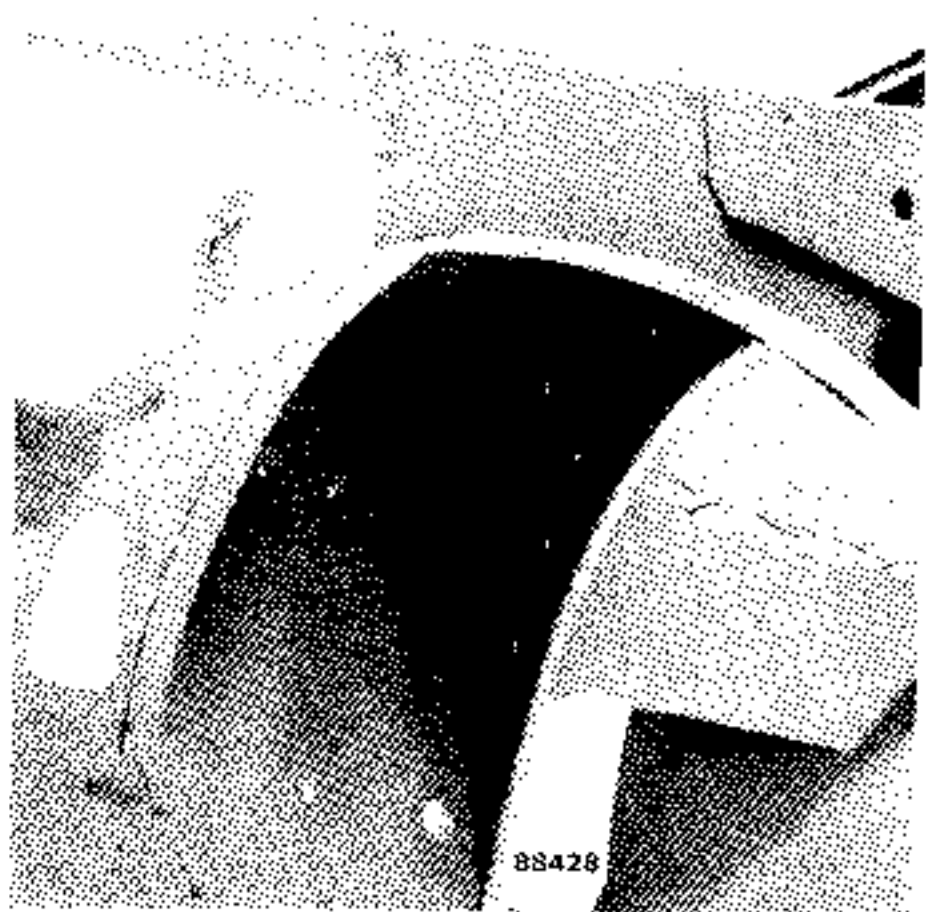
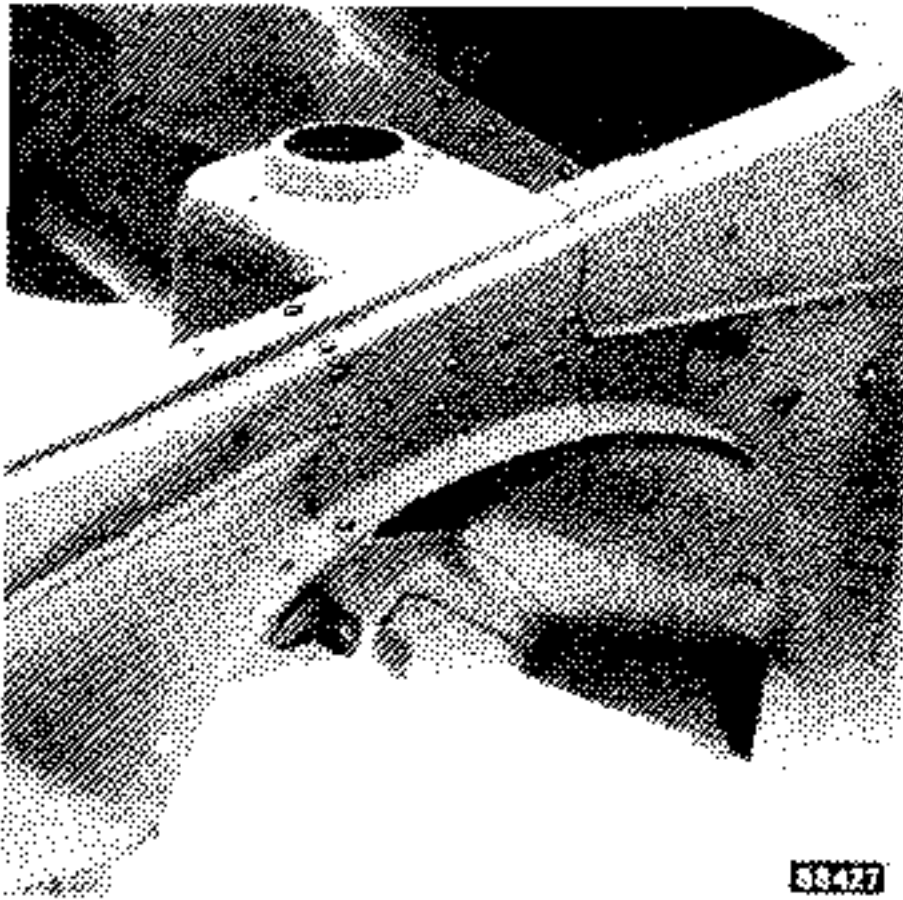
Front section :



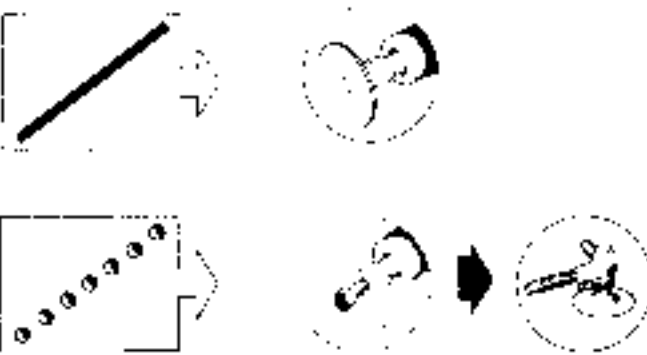
Rear section



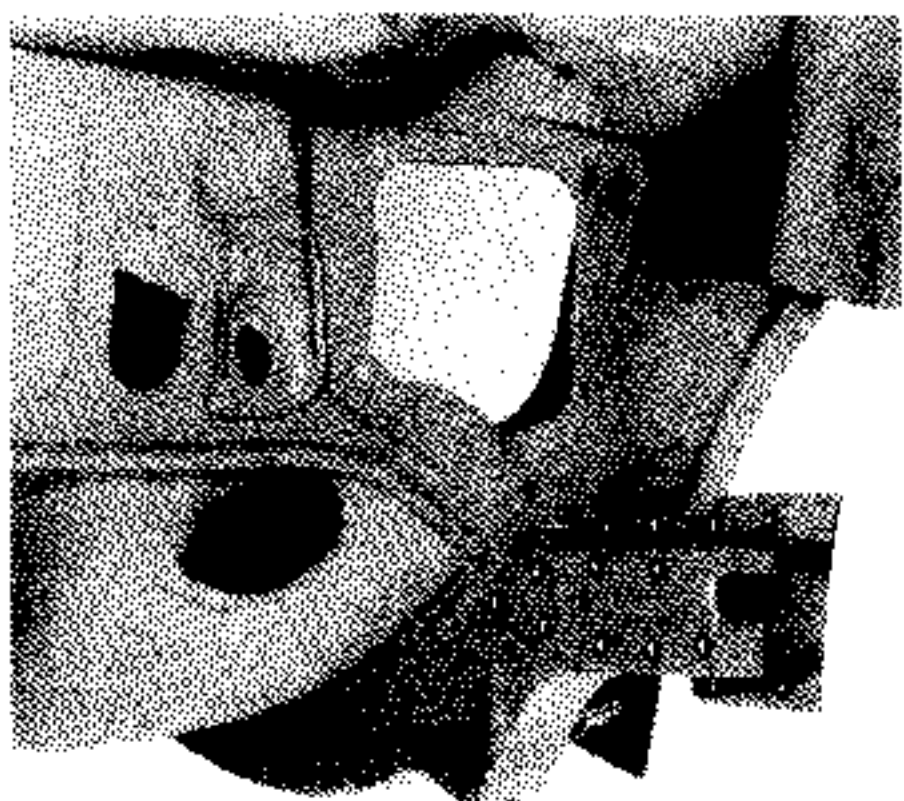
CUTTING - JOINT SEPARATION



- Remove the damaged part by following the methods represented by the above symbols (see description of symbols).
- Grind back the pieces of spot weld adhering to the support panels.

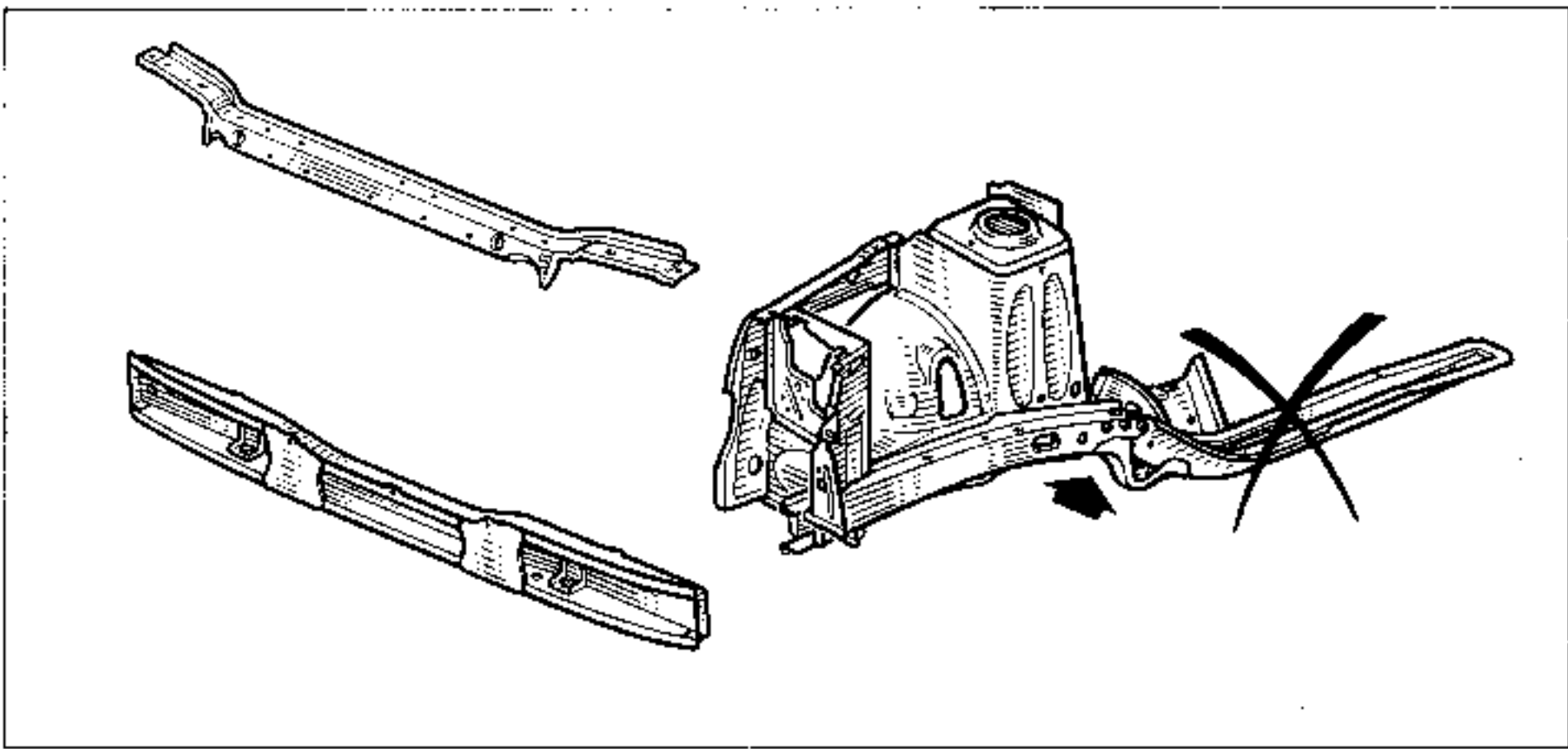


- Remove the remaining piece of the side member.



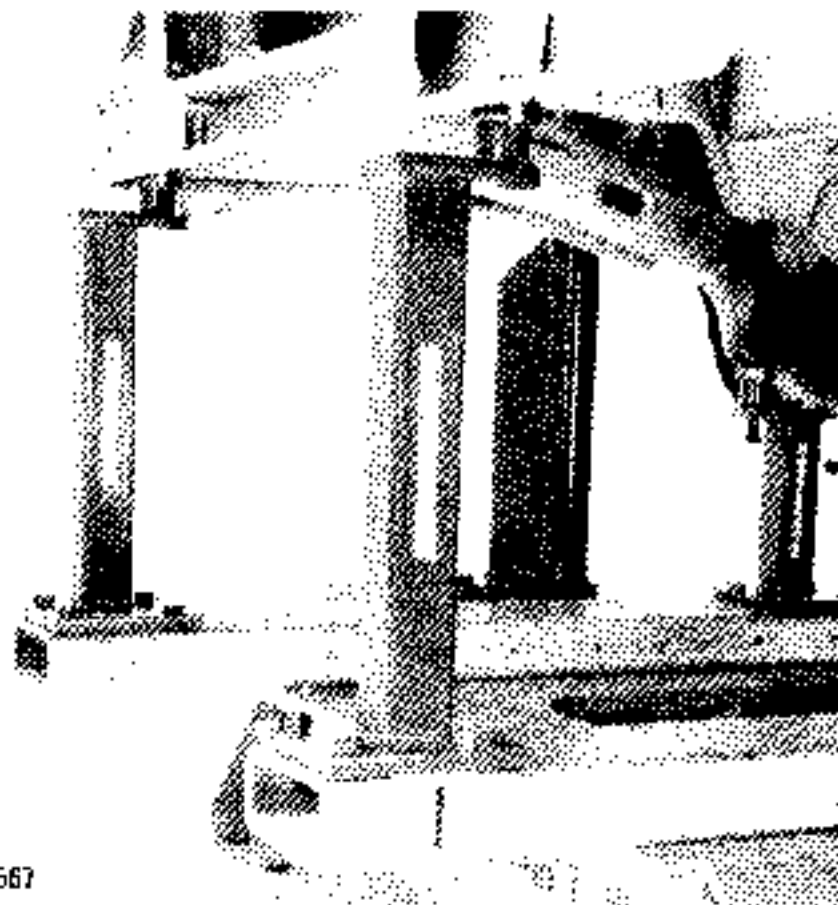
88513-2

PREPARATION PRIOR TO WELDING



- Free the rear part of the side member from the front half section.

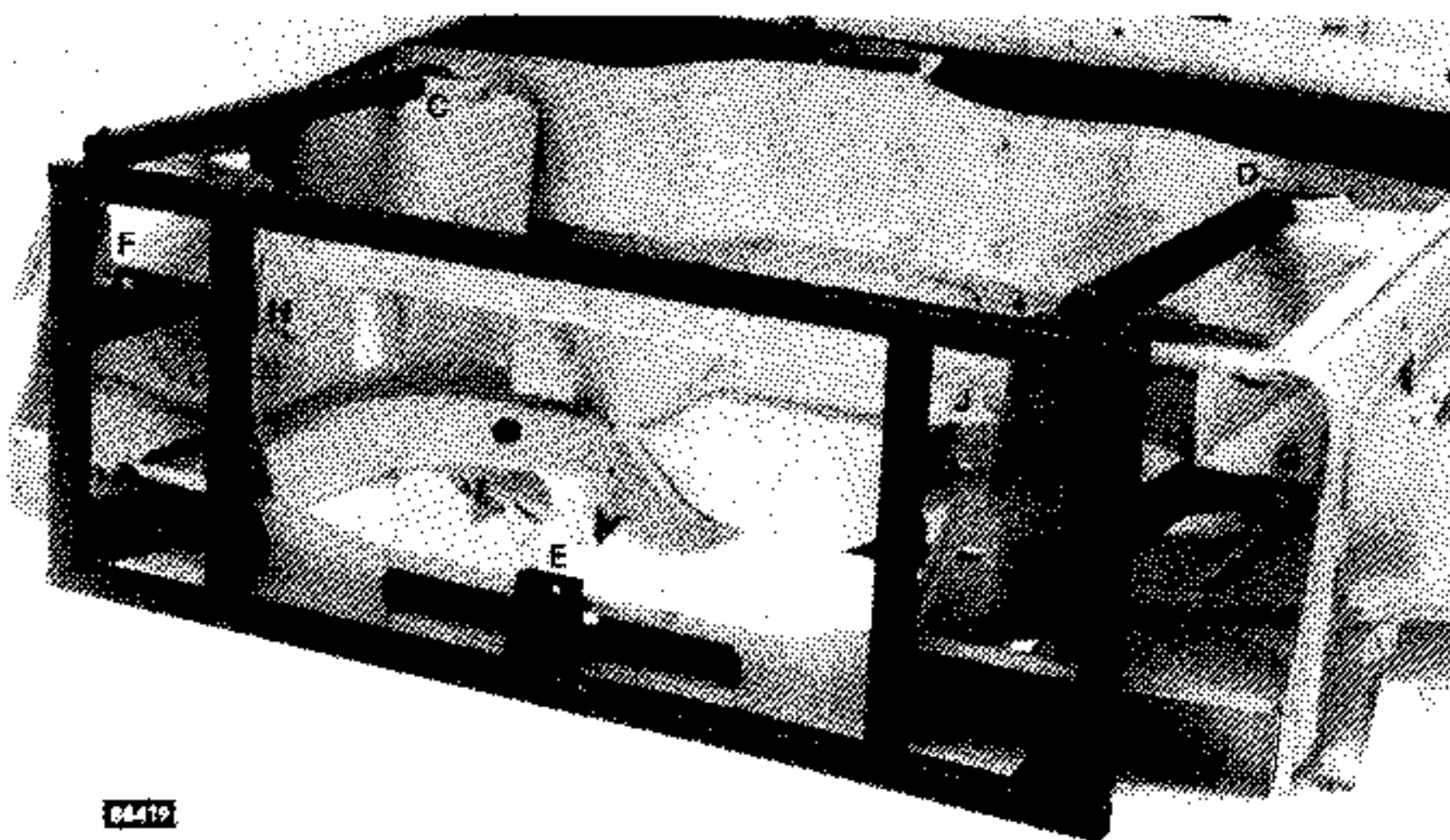
- Fit the jig brackets to the very front of the body jig.
- Strip back, to the bare metal, the inner and outer faces of all the areas to be welded. (Both on the vehicle and on the new parts).
- Apply a coat of electroplastic mastic to the areas to be spot welded (see description of symbols at the beginning of this section).
- Apply zinc paint to the area to be plug welded.
- Adjust the new part and secure it with grip clamps.



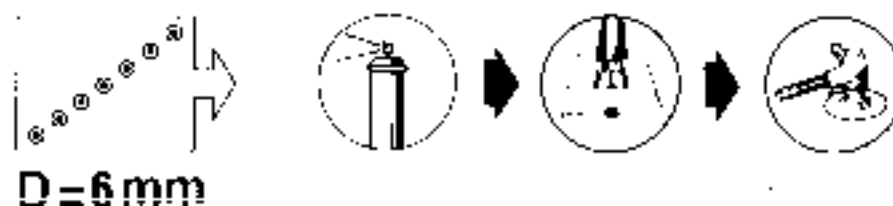
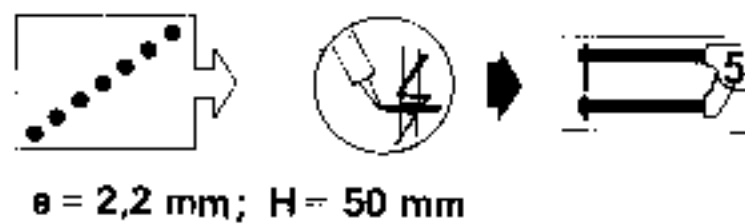
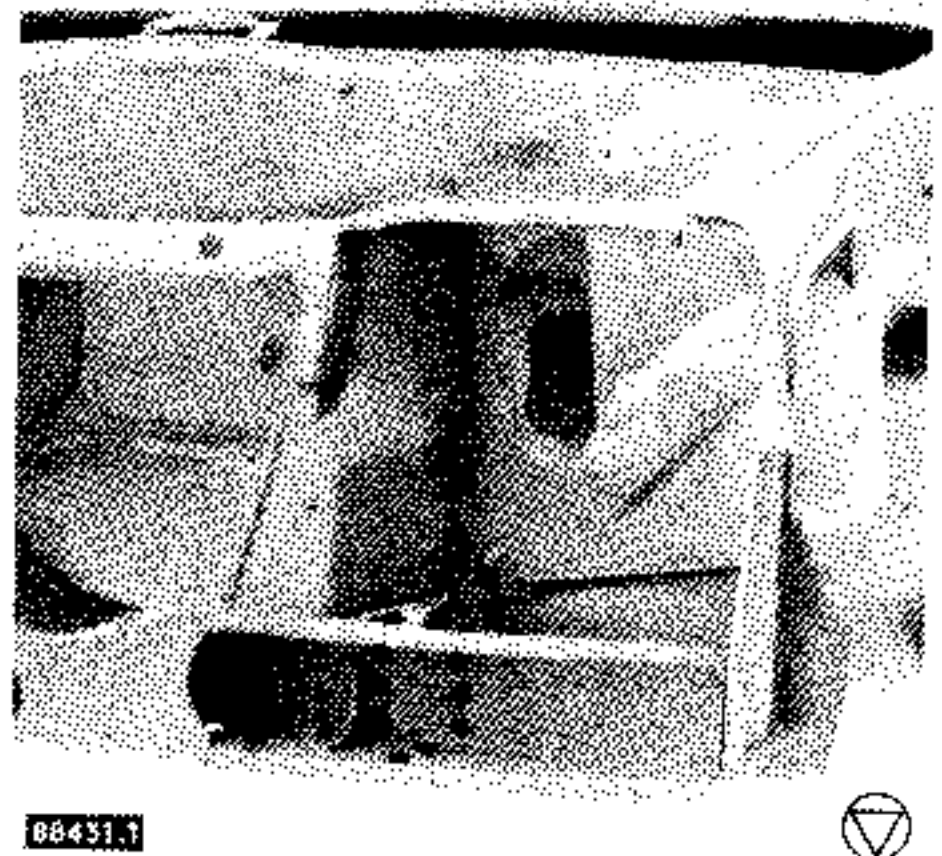
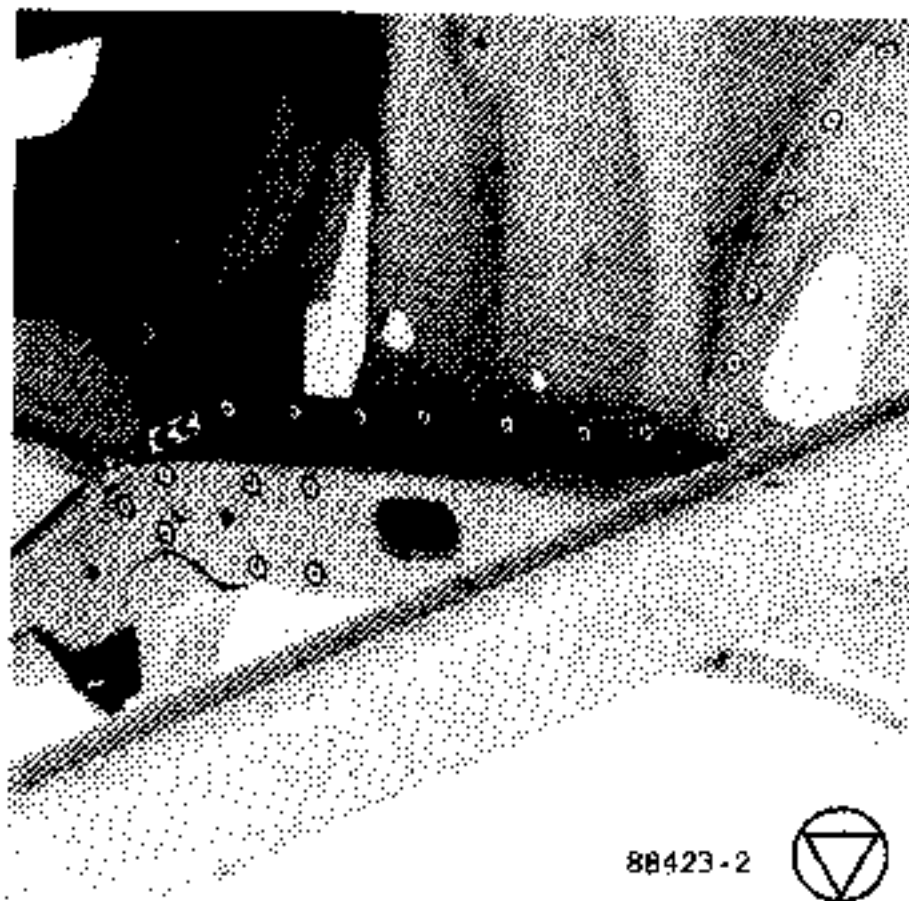
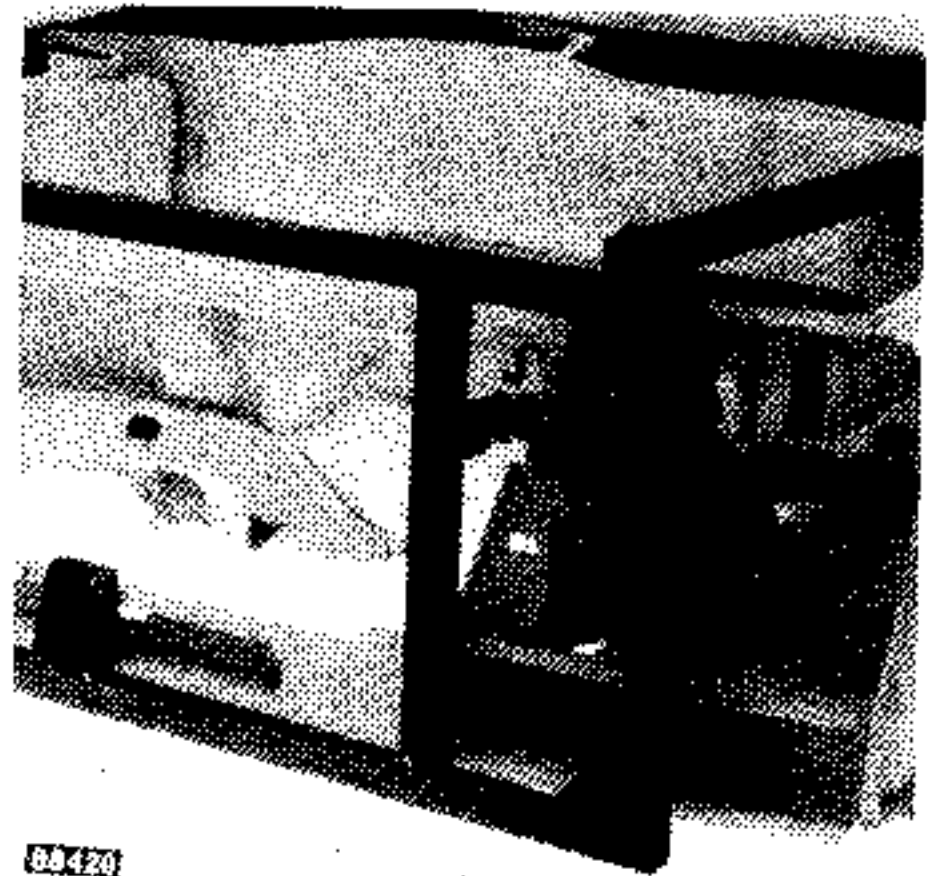
Fitting the front end frame jig :

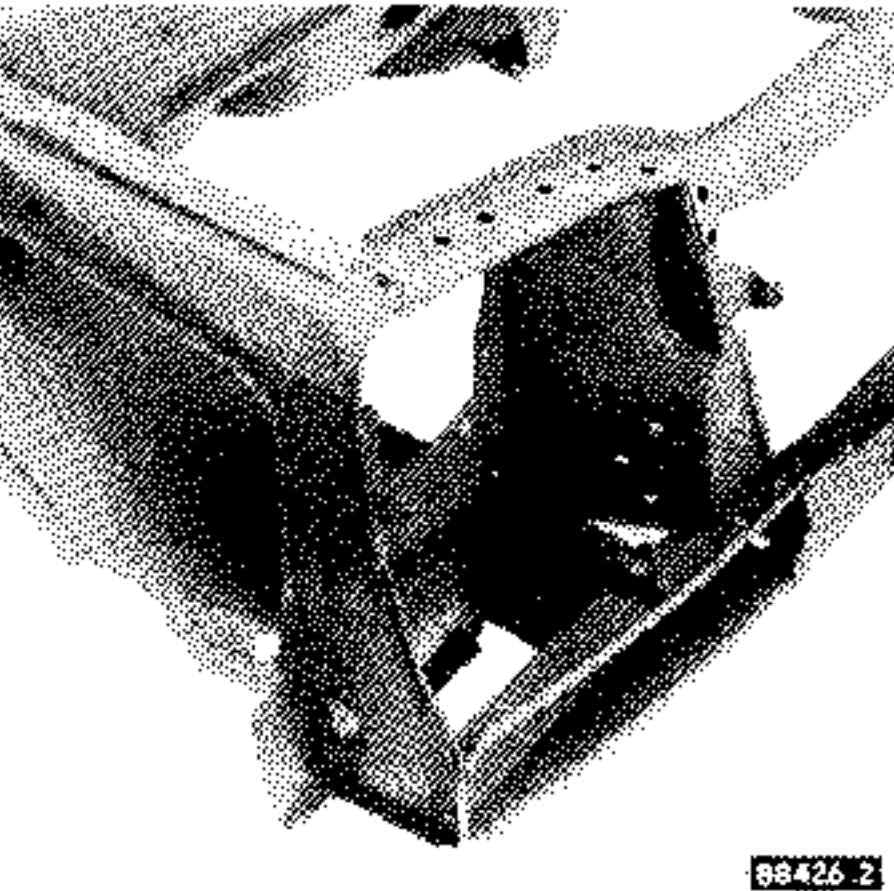
Points A-B-C-D-E are the jig locating points on the vehicle. Before fitting it ensure, with the trammel gauge, that these points are correctly positioned.

When one of the points A or B cannot be used as a jig location (as is the case for this operation) use securing points G-J or F-H, depending on the side, instead.

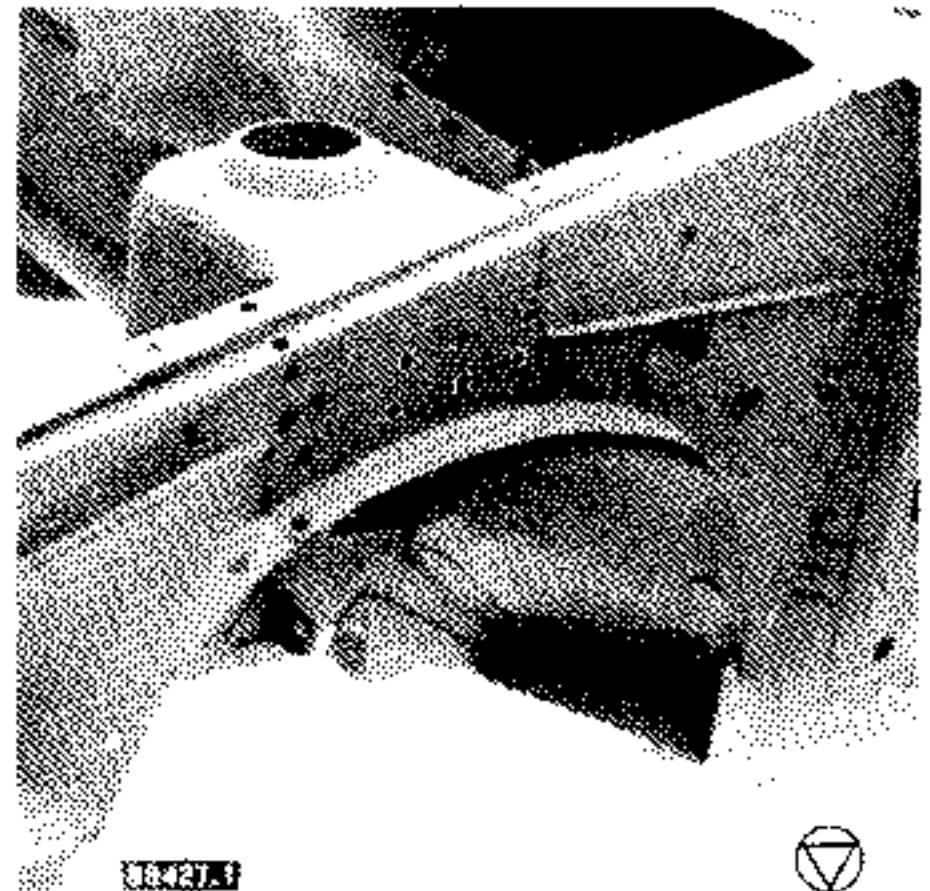


Points F-G-H-J are the securing and locating points for the parts being replaced.





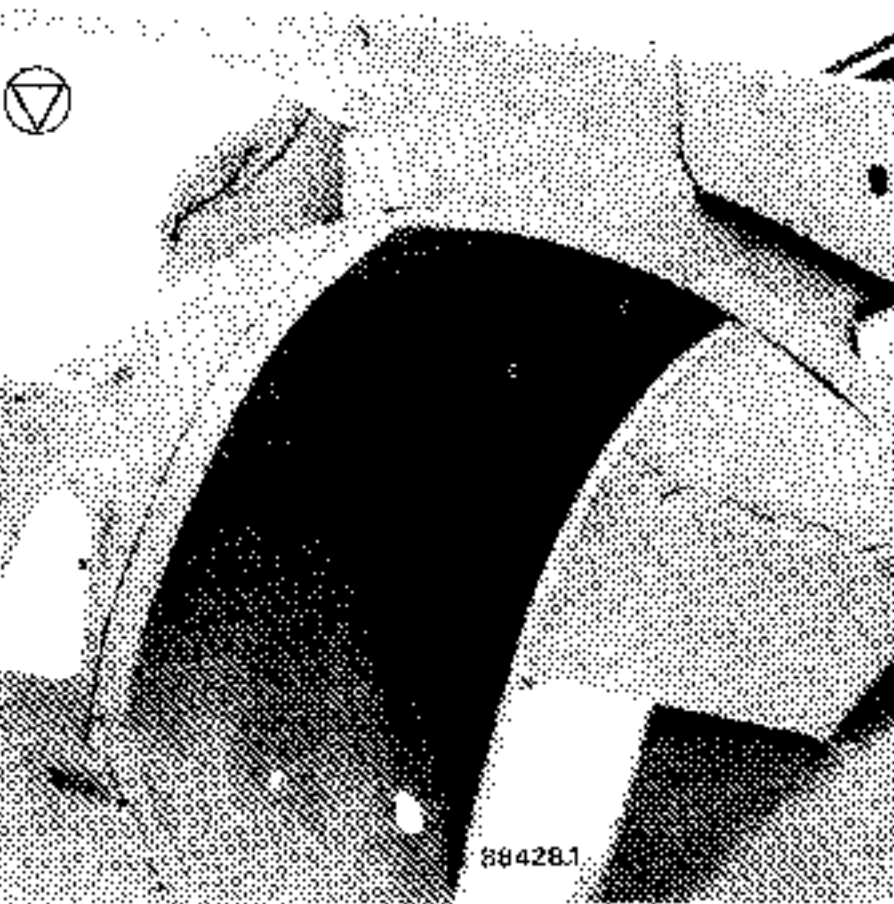
88426.2



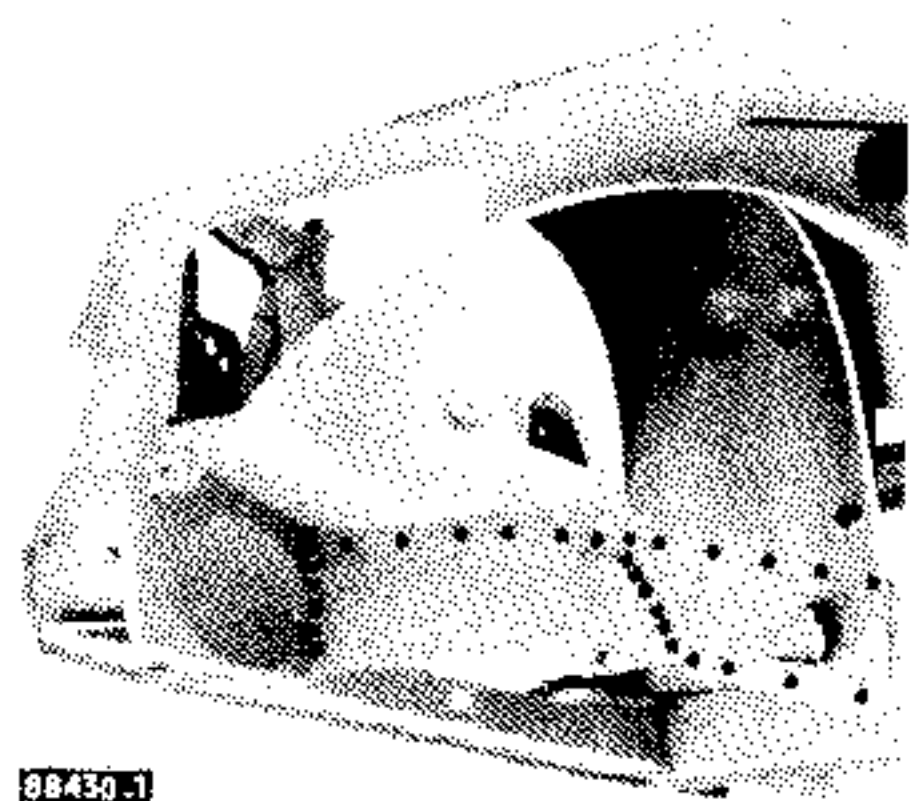
88427.1



□ $e = 2,2 \text{ mm}$; $H = 50 \text{ mm}$ — ● $e = 1,4 \text{ mm}$; $H = 55 \text{ mm}$



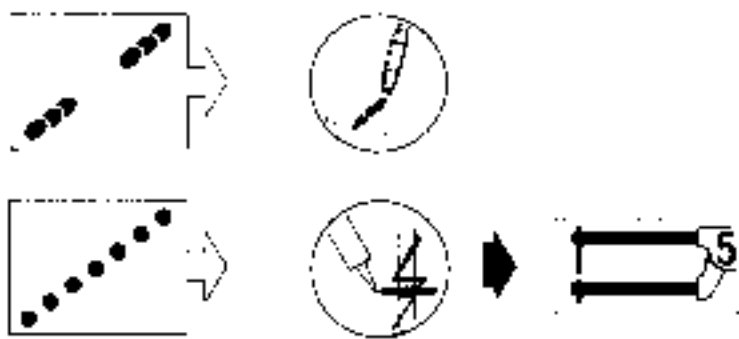
88428.1



88430.1

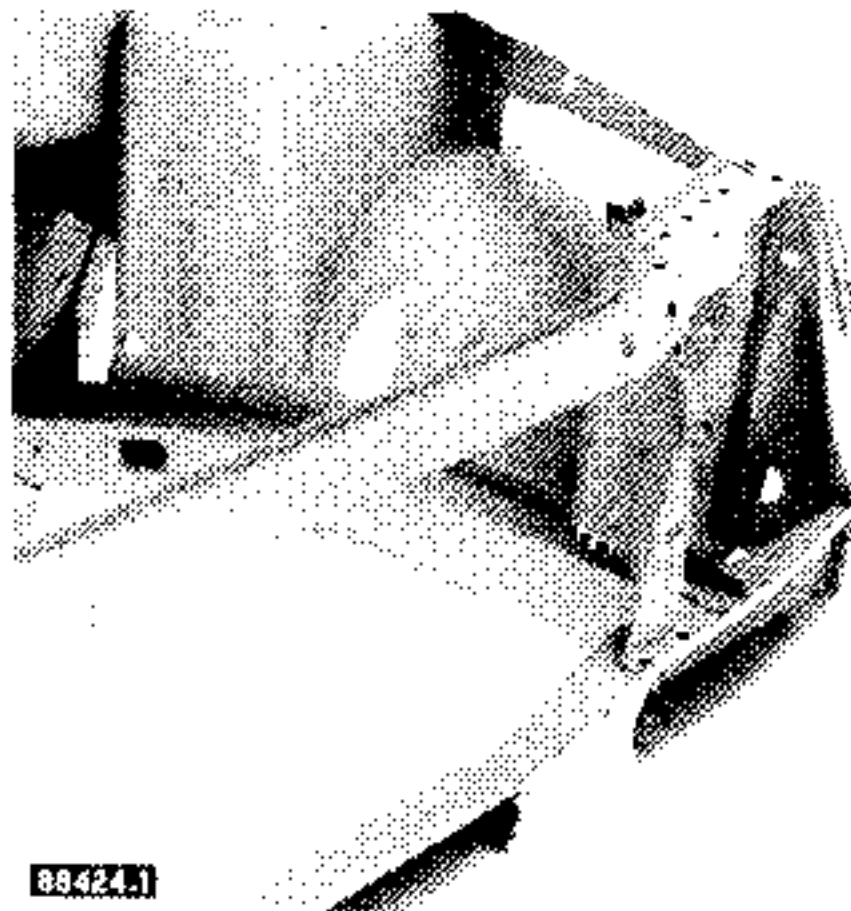


$e = 1,4 \text{ mm}$; $H = 55 \text{ mm}$



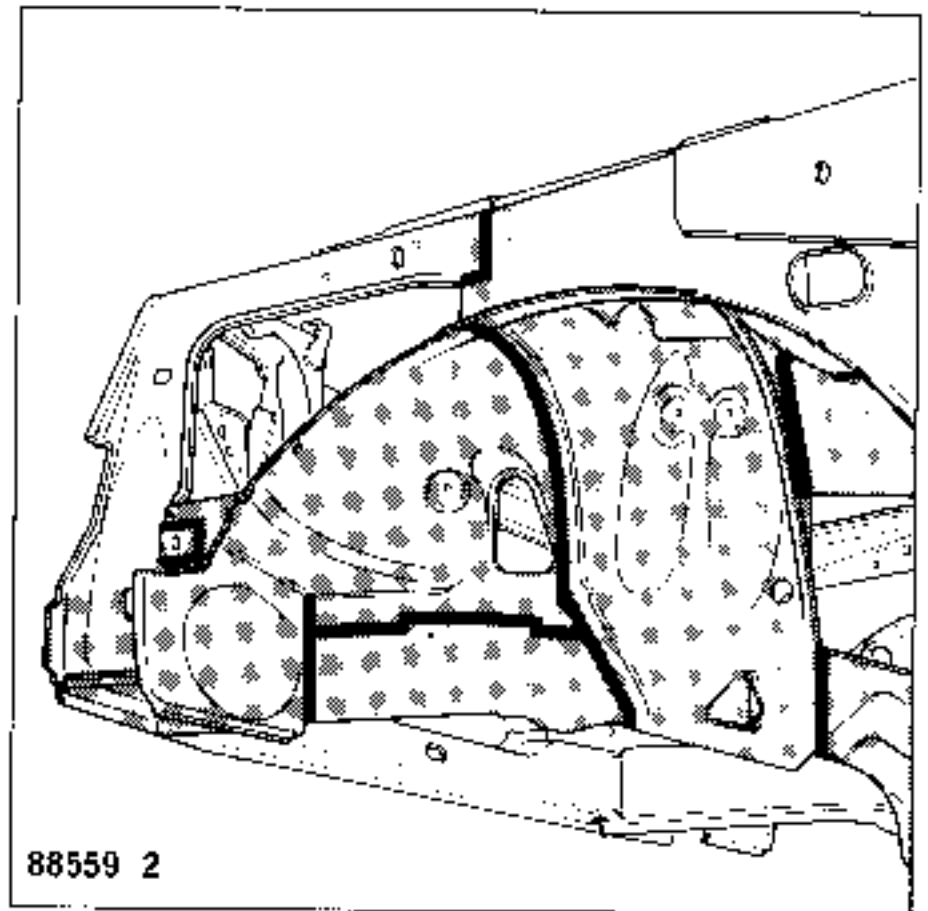
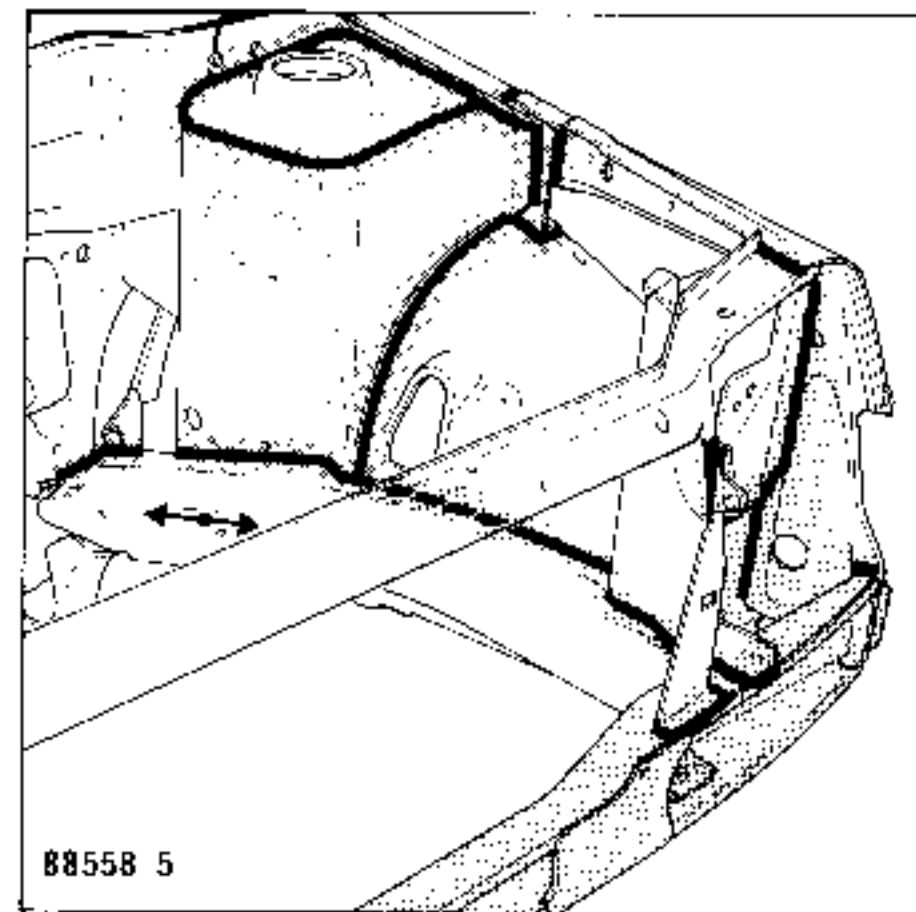
• $e = 1,4 \text{ mm}$; $H = 55 \text{ mm}$

■ $e = 2,2 \text{ mm}$; $H = 50 \text{ mm}$

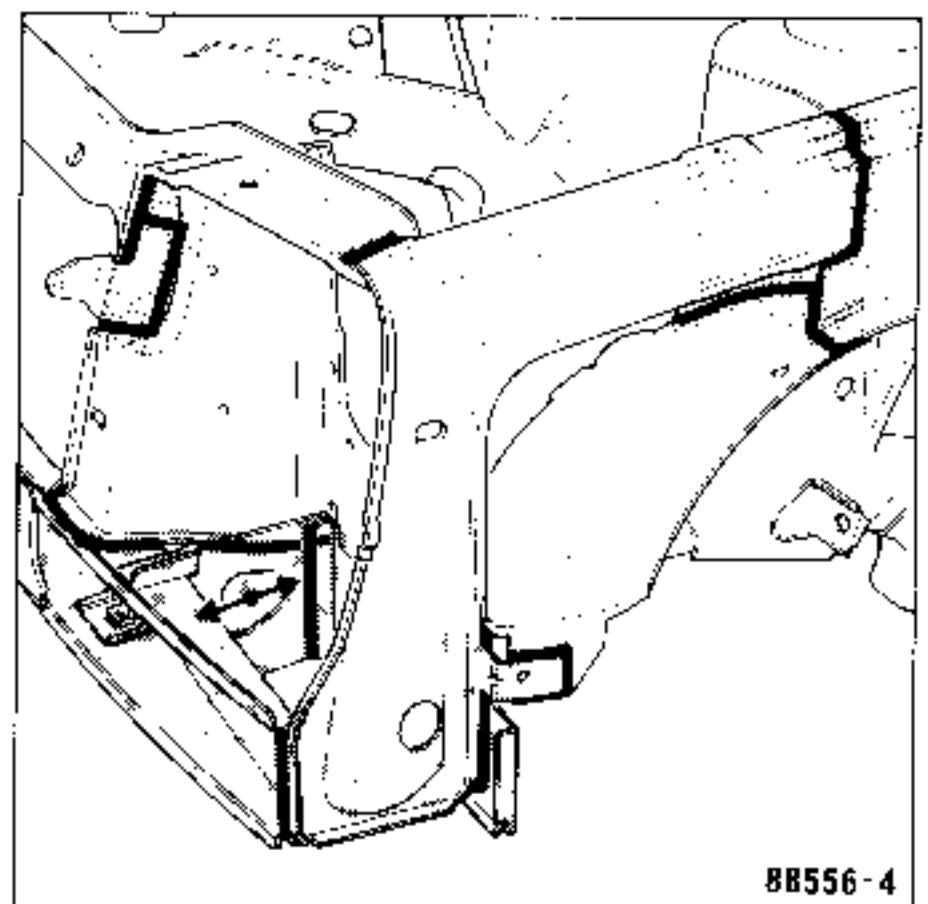
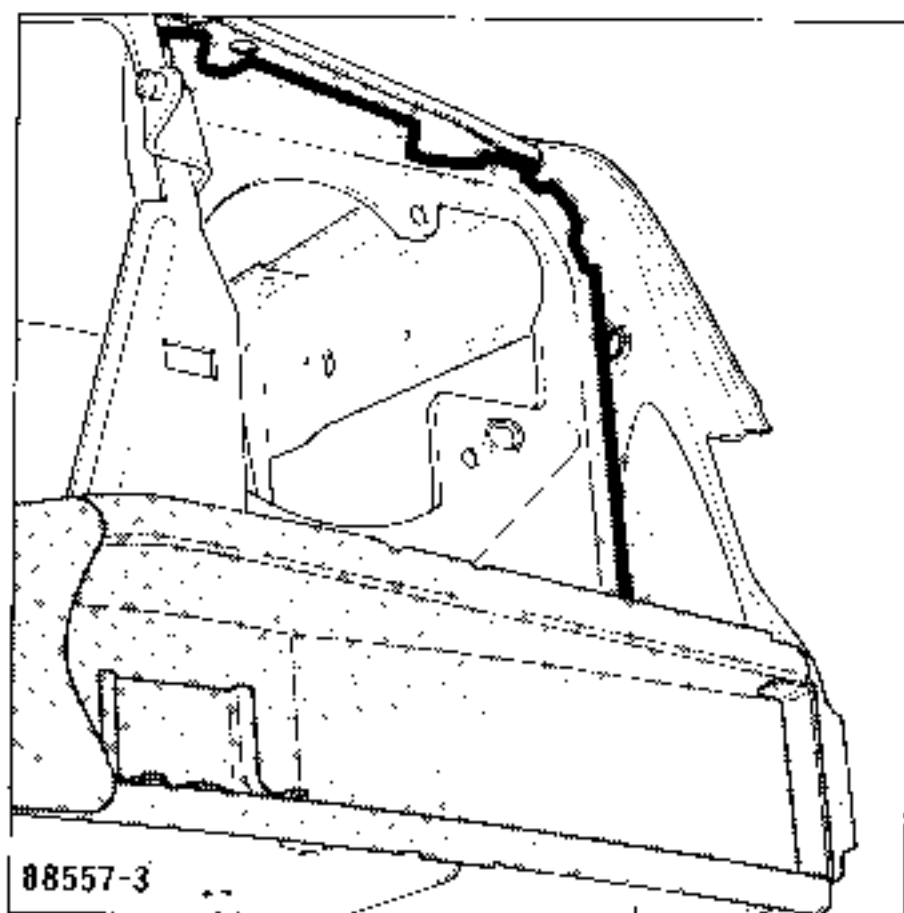


- Apply the spot welds. The corresponding values of (e) and (H) are given under each drawing.
- Apply the stitched fillets using the gas envelope welding process. (These joints may also be gas welded using a 75 to 100 nozzle).
- Apply the plug welds using the gas envelope process. To do so drill holes in the upper panel to the diameter shown under the drawings.

PAINTING



- Carry out paint sequence No. 5 (see "Painting" section).



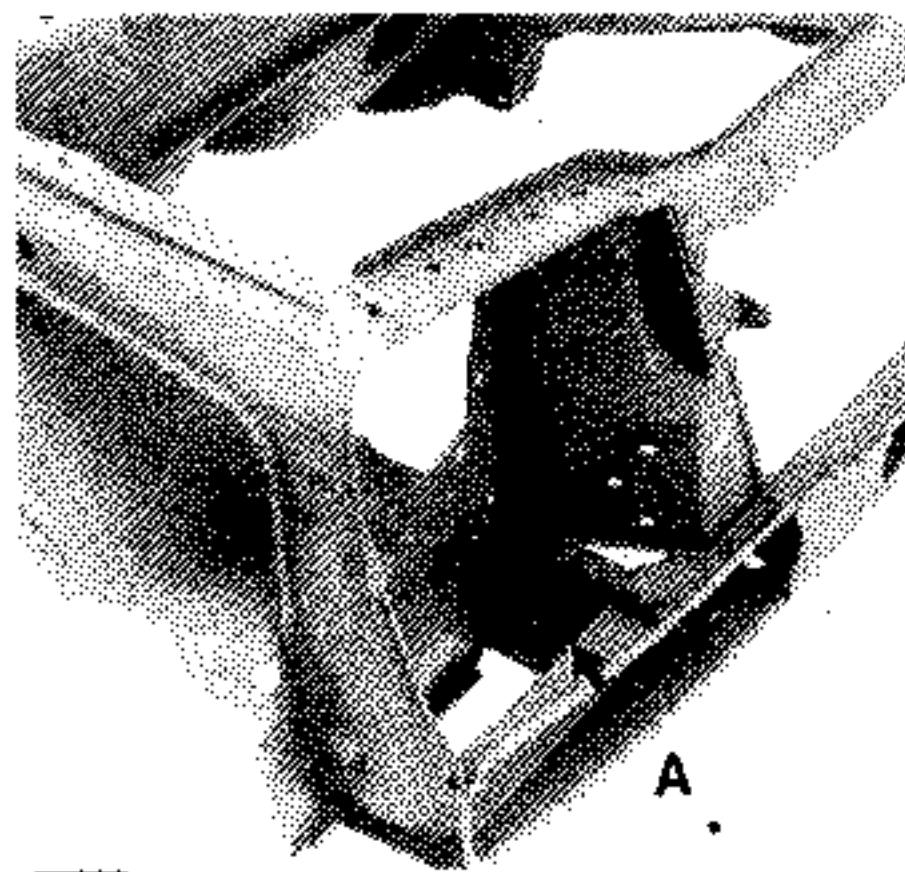
After painting, but before fitting the other components,
apply hollow section protective treatment.



Additional to above operation

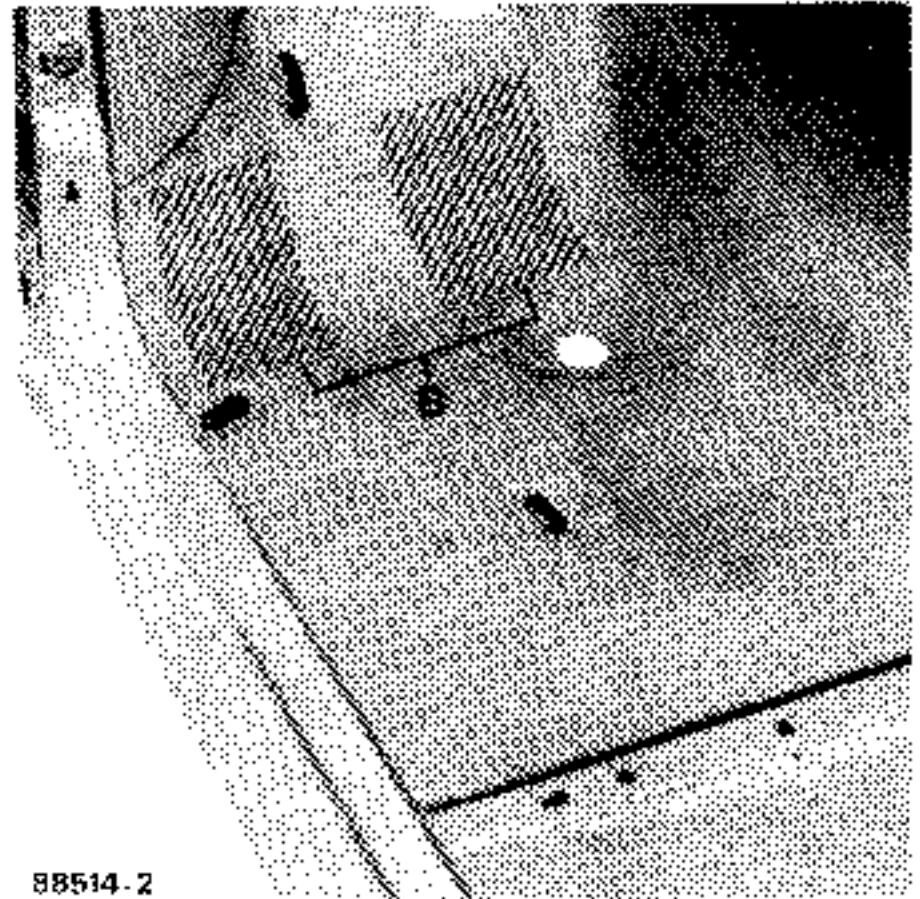
DAMAGE DIAGNOSIS

The side member closing panel has an aperture at one end which acts as a "crumple point". Depending on how far the damage extends past this point, either the front end of the side member can be replaced or the complete side member, using the body jig.



88426

Distortion in section A.
No distortion in section B : replace the side member front section.



88514-2

Distortion in section B : replace the complete side member.

STRIPPING

Support the vehicle on axle stands and remove :

- the bonnet,
- the radiator grille,
- the headlights,
- the bumper shield,
- the wings,
- the power unit assembly (see mechanical workshop manual).

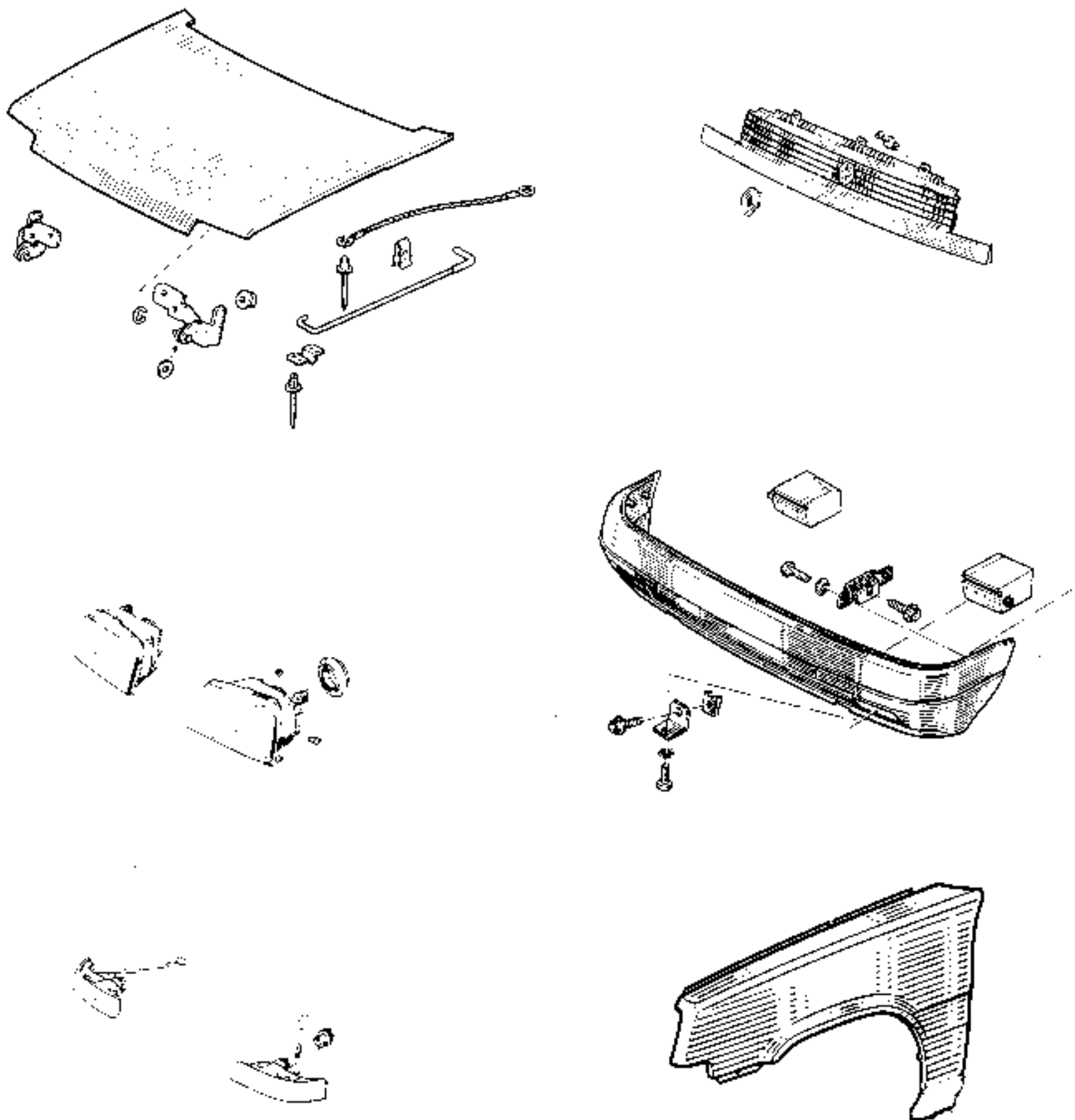
- the front seat on the side concerned,
- the rear seat cushion,
- the side trim on the side concerned,
- the centre console,
- the floor covering.

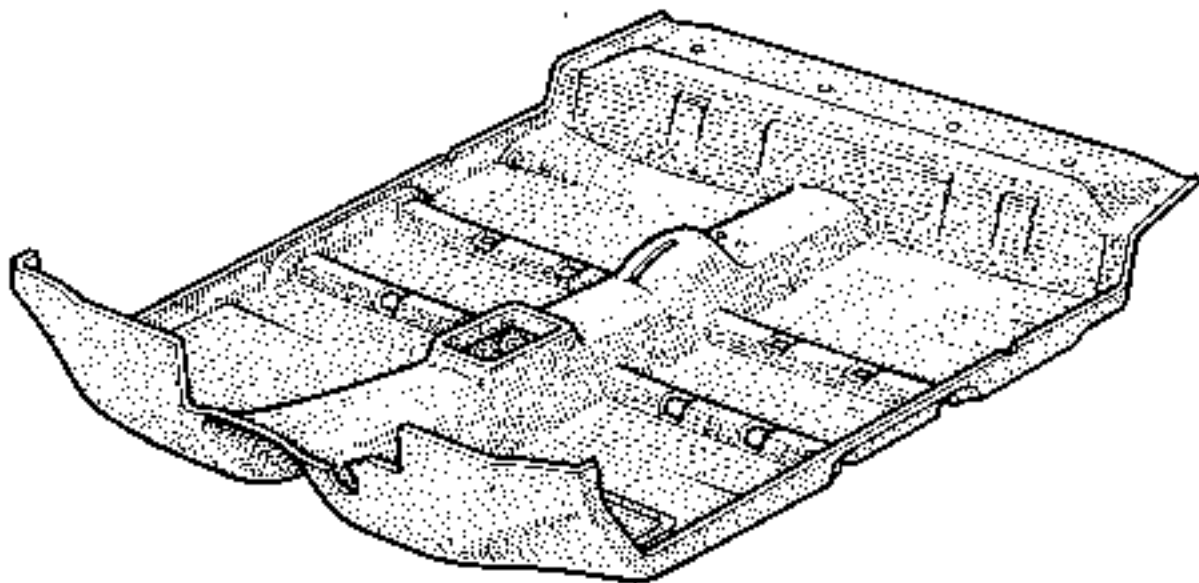
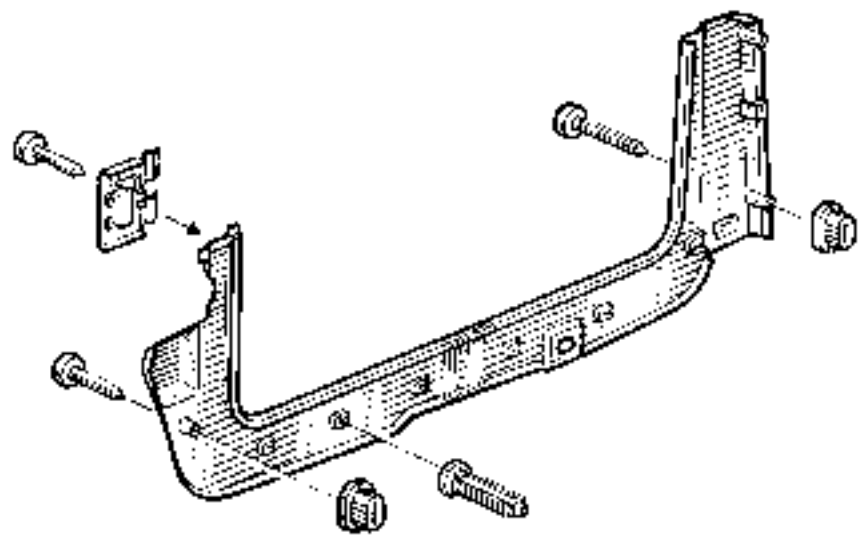
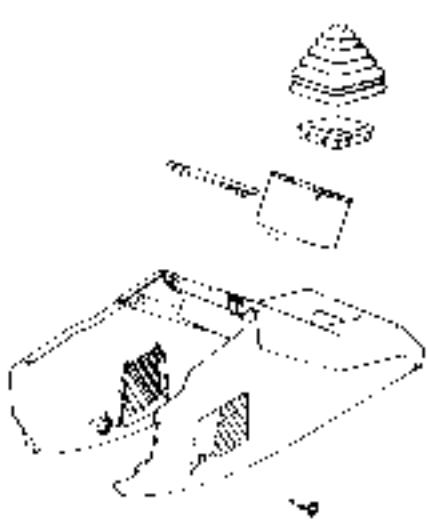
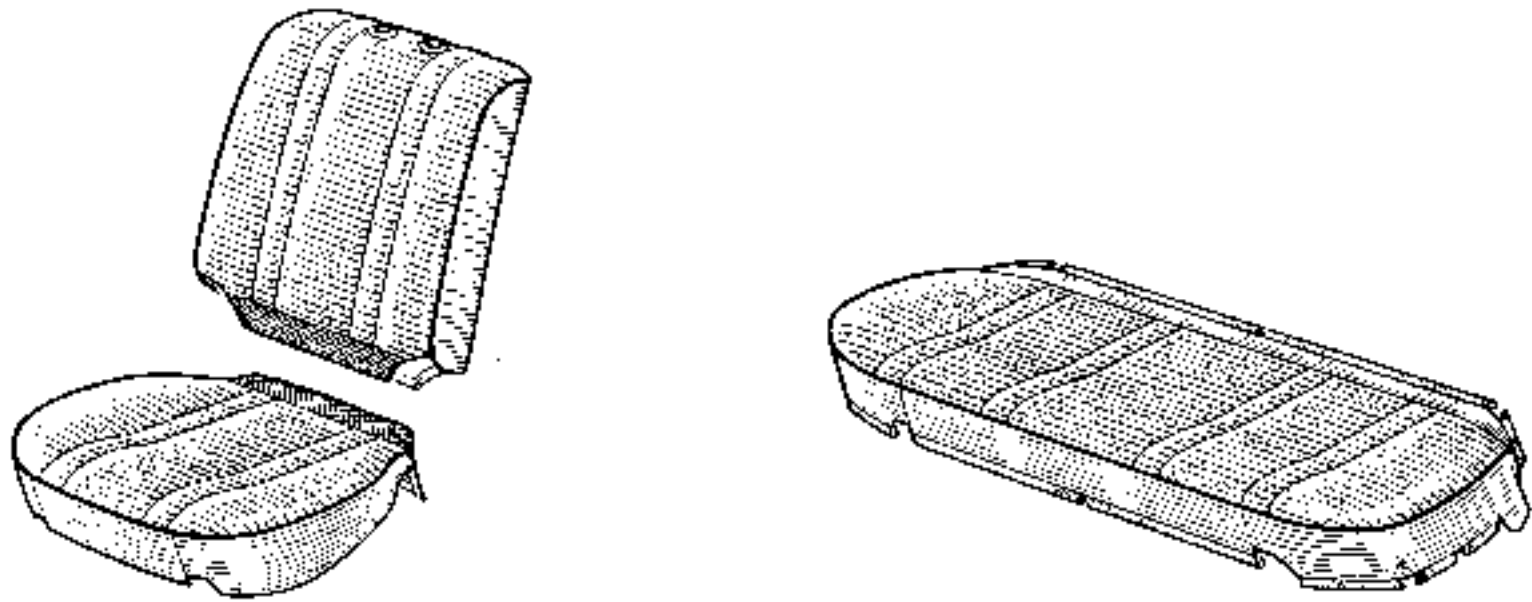
STRIPPING

Remove :

- the bonnet,
- the radiator grille,
- the headlight,
- the bumper shield,
- the direction indicator,
- the wing.

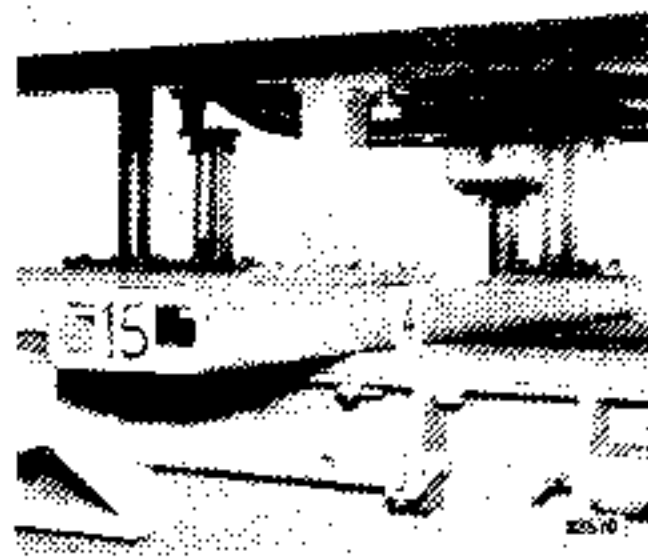
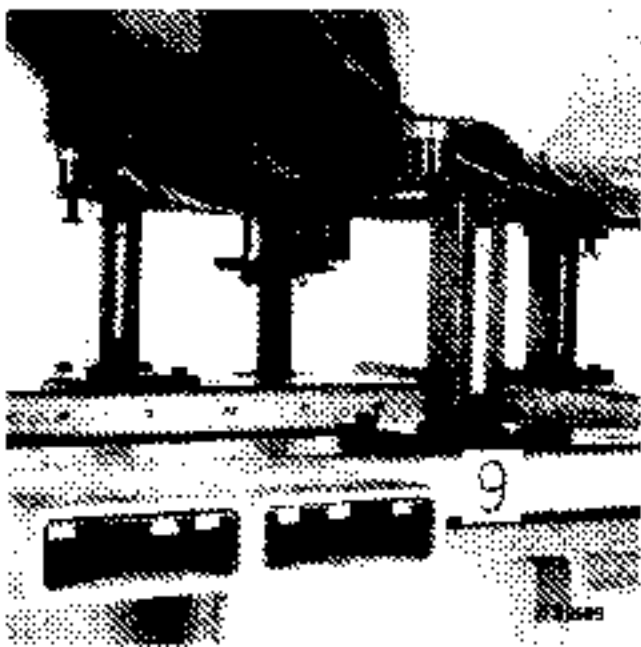
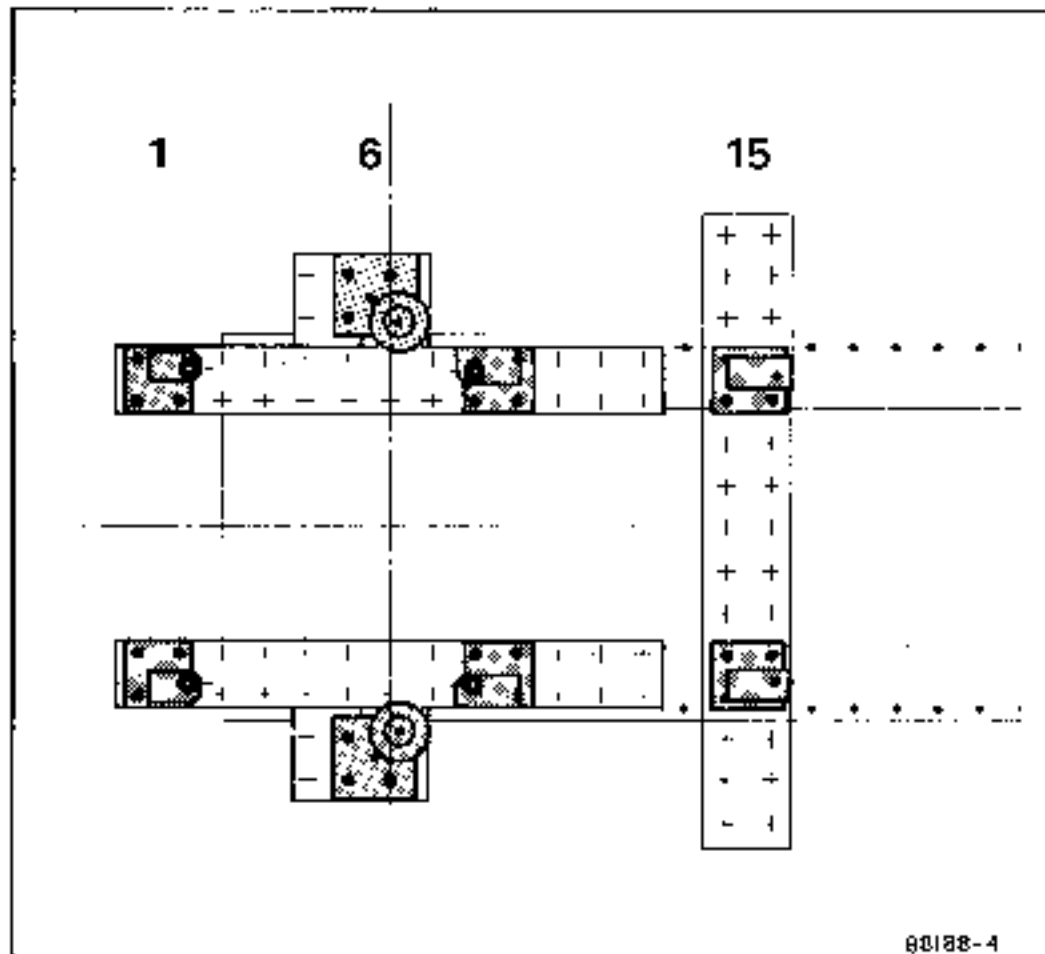
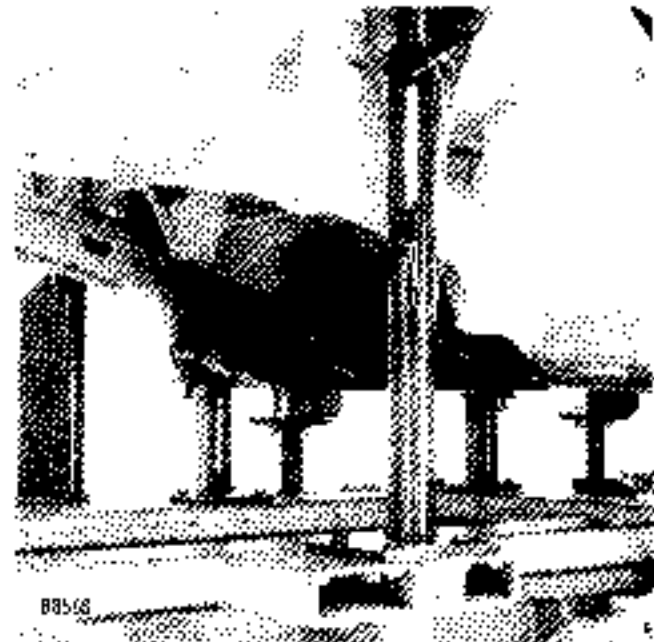
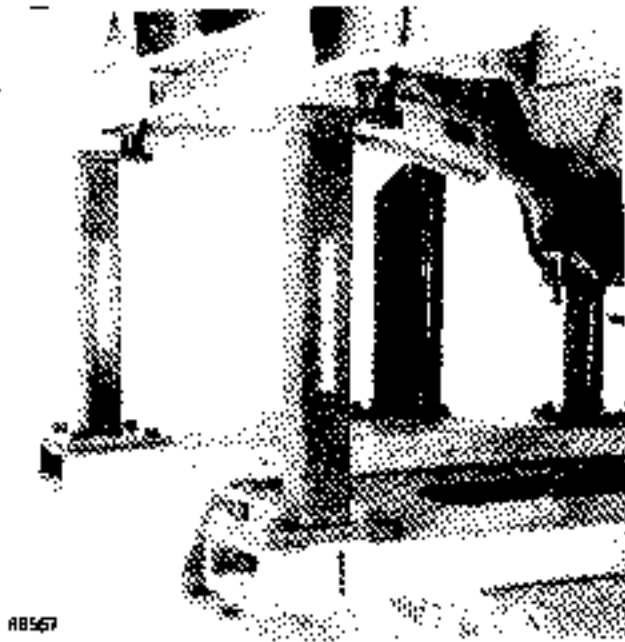
Note : For more details on removing the various parts, see the section that deals with the part in question.



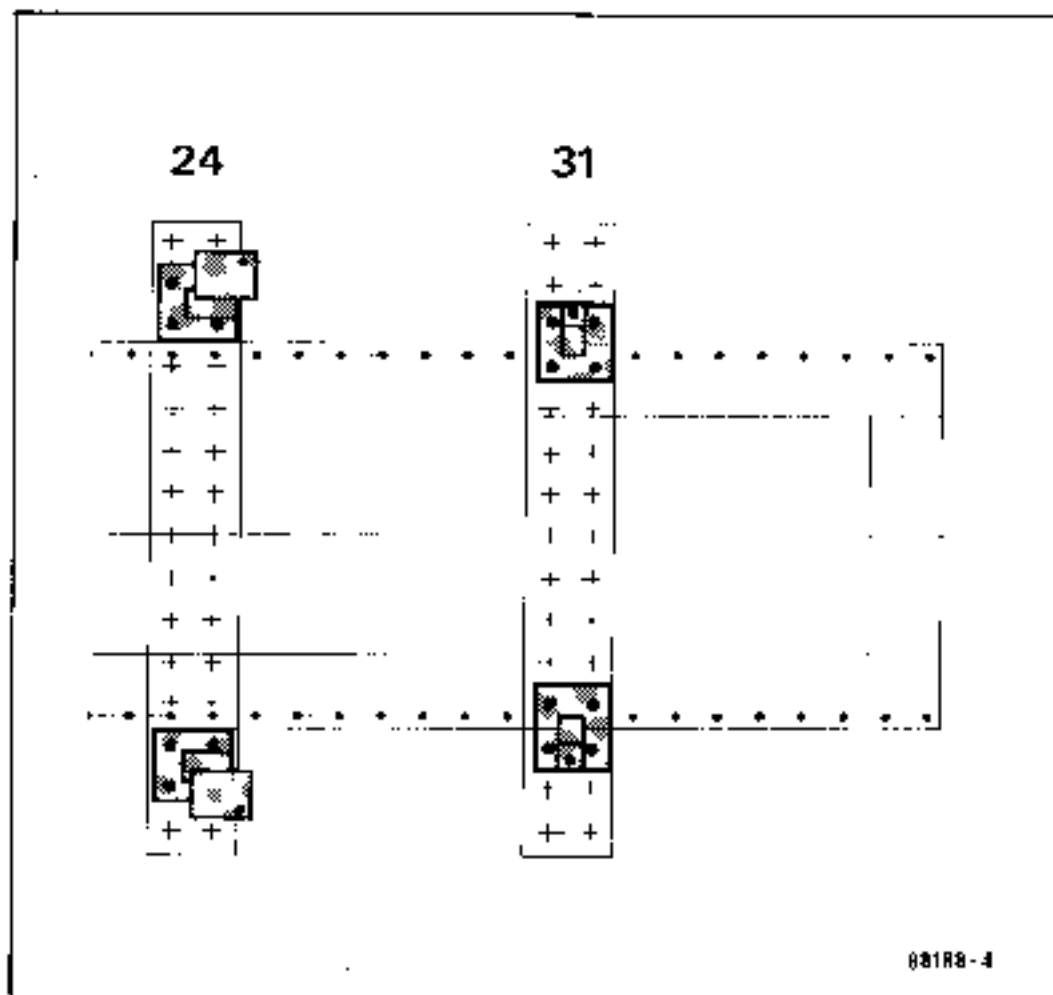
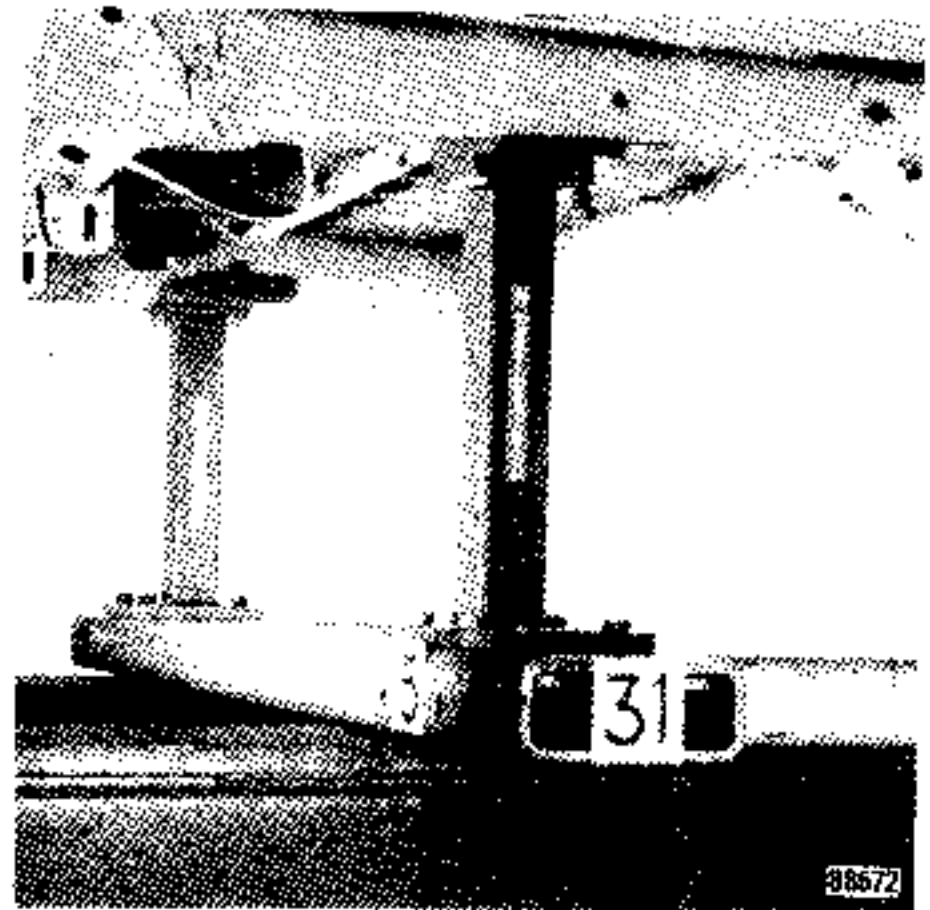
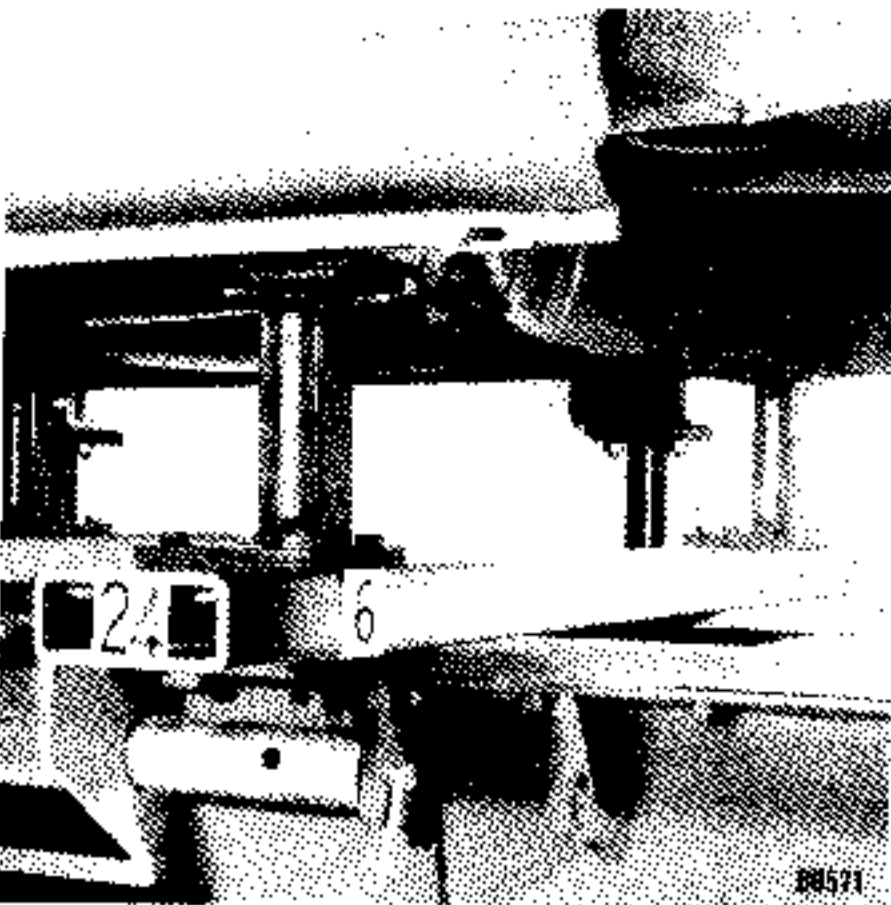


FITTING THE JIG BRACKETS TO THE BODY JIG

Front section :

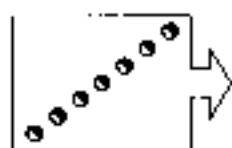
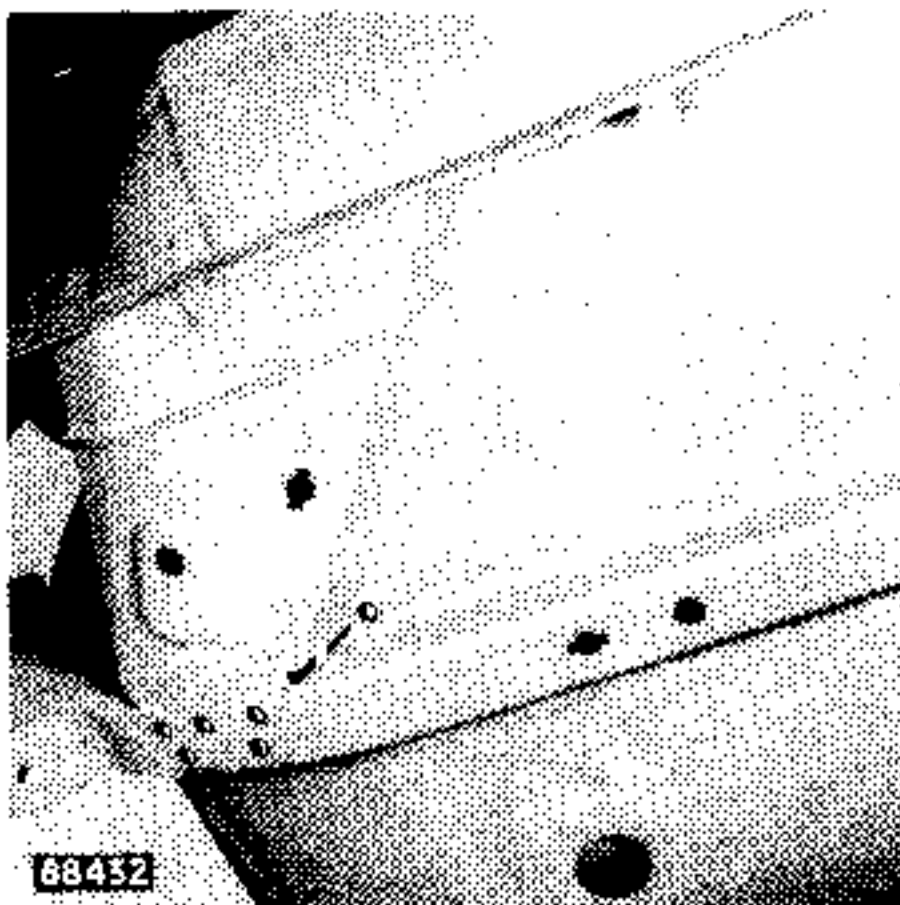
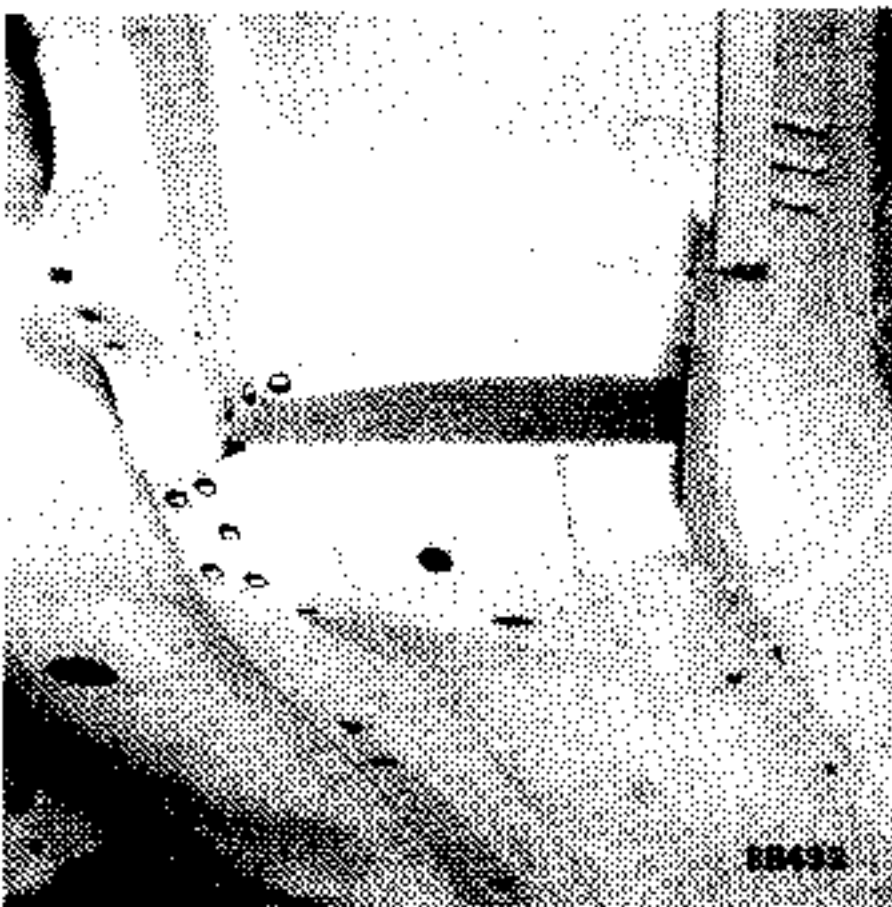


Rear section :



CUTTING - JOINT SEPARATION

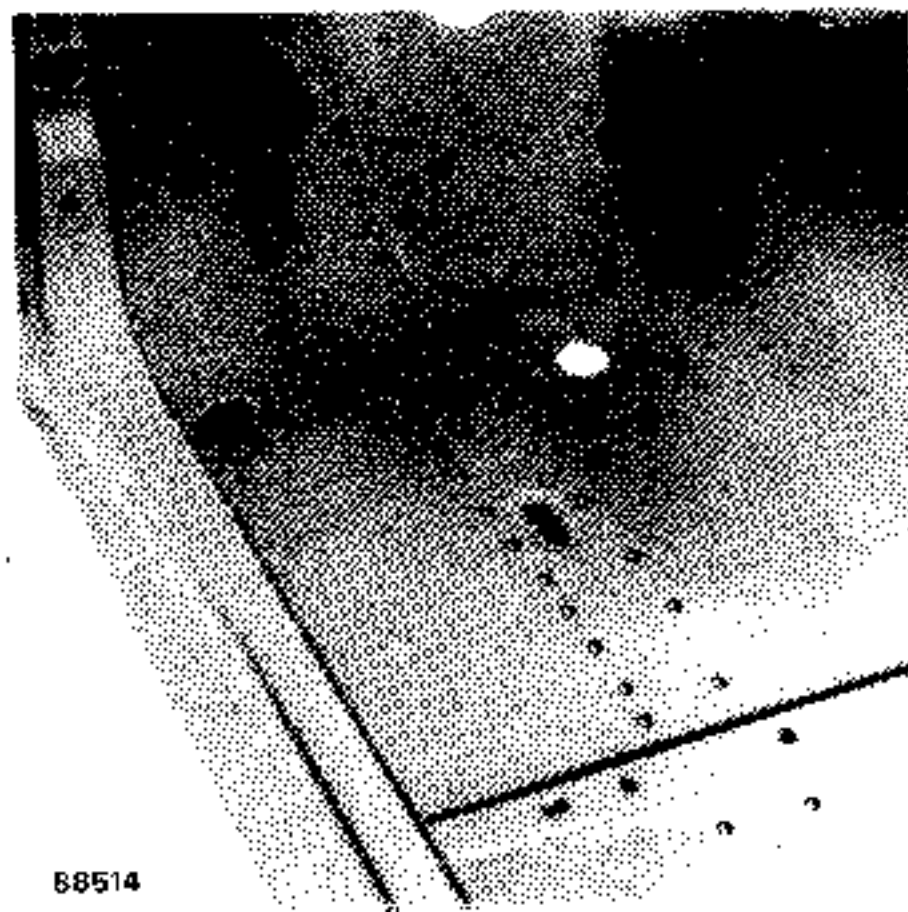
- Remove all the cowl side parts and the cross members by following the instructions given in the previous sub-section.
- Removing the underfloor side member :



- Remove the damaged part by following the methods represented by the above symbols (see description of symbols).
- Grind back the pieces of spot weld adhering to the support panels.

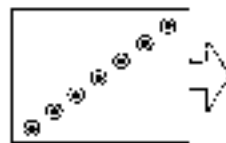
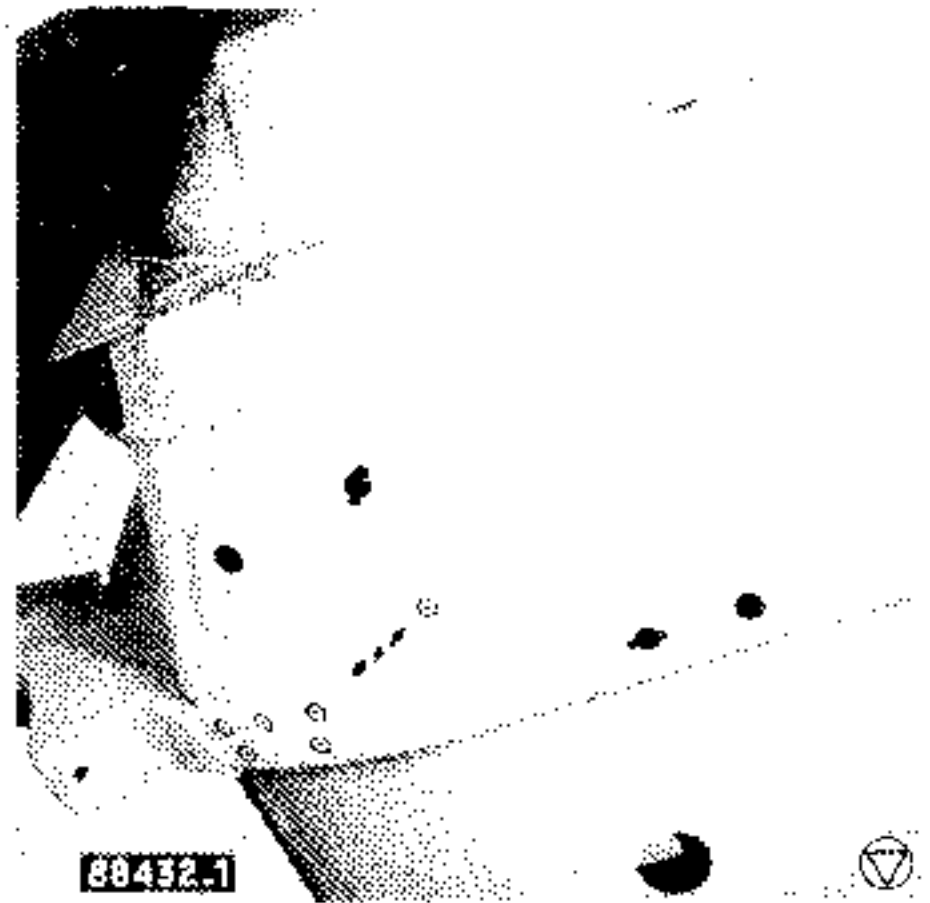
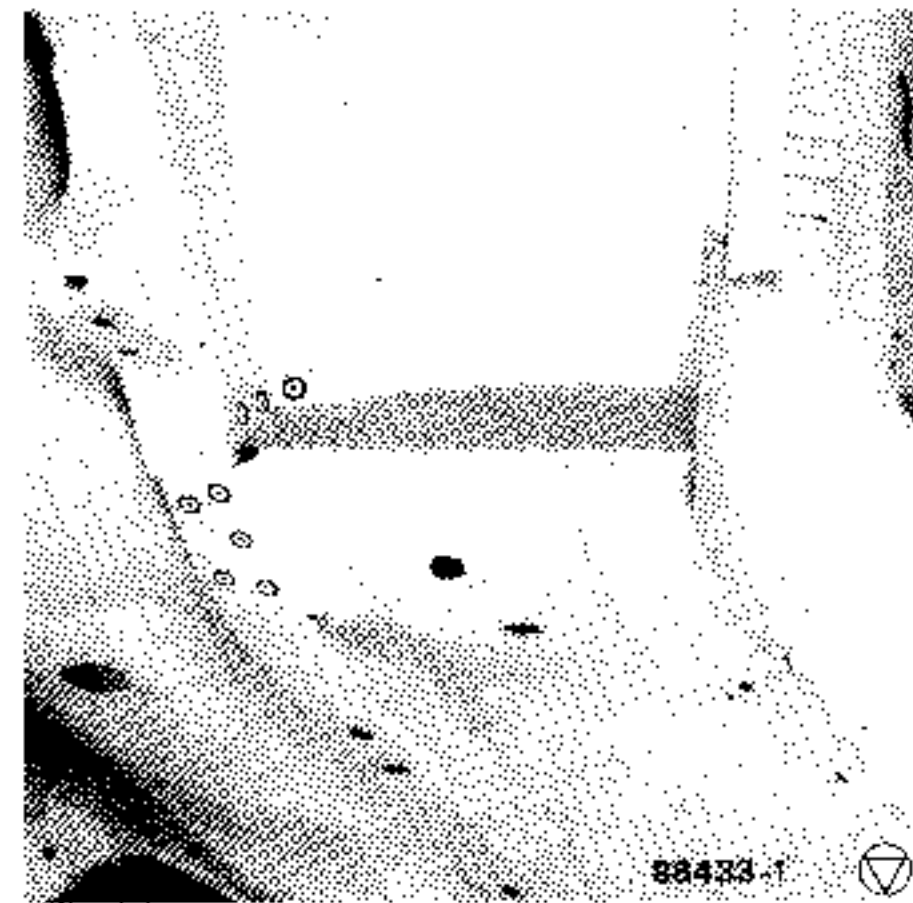
PREPARATION PRIOR TO WELDING

- Strip back, to the bare metal, the inner and outer faces of all the areas to be welded. (Both on the vehicle and on the new parts).
- Coat the parts to be plug welded with zinc paint.
- Adjust the new part and secure it with grip clamps.
- Fit the front end frame jig.

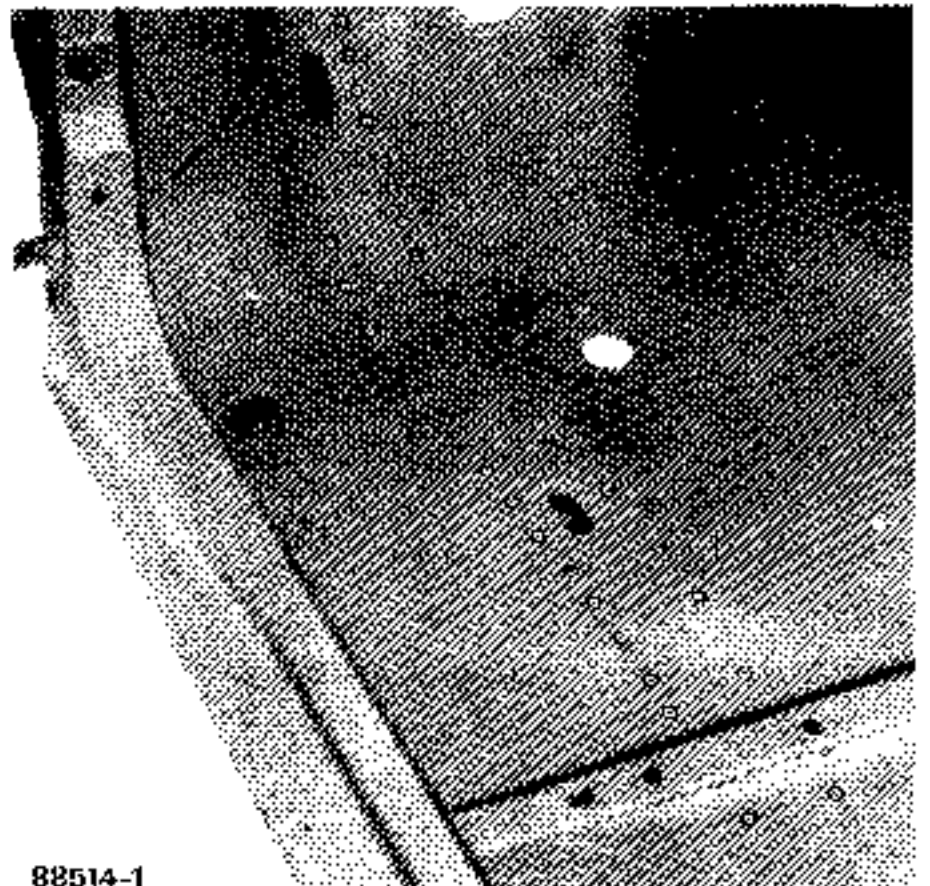


WELDING

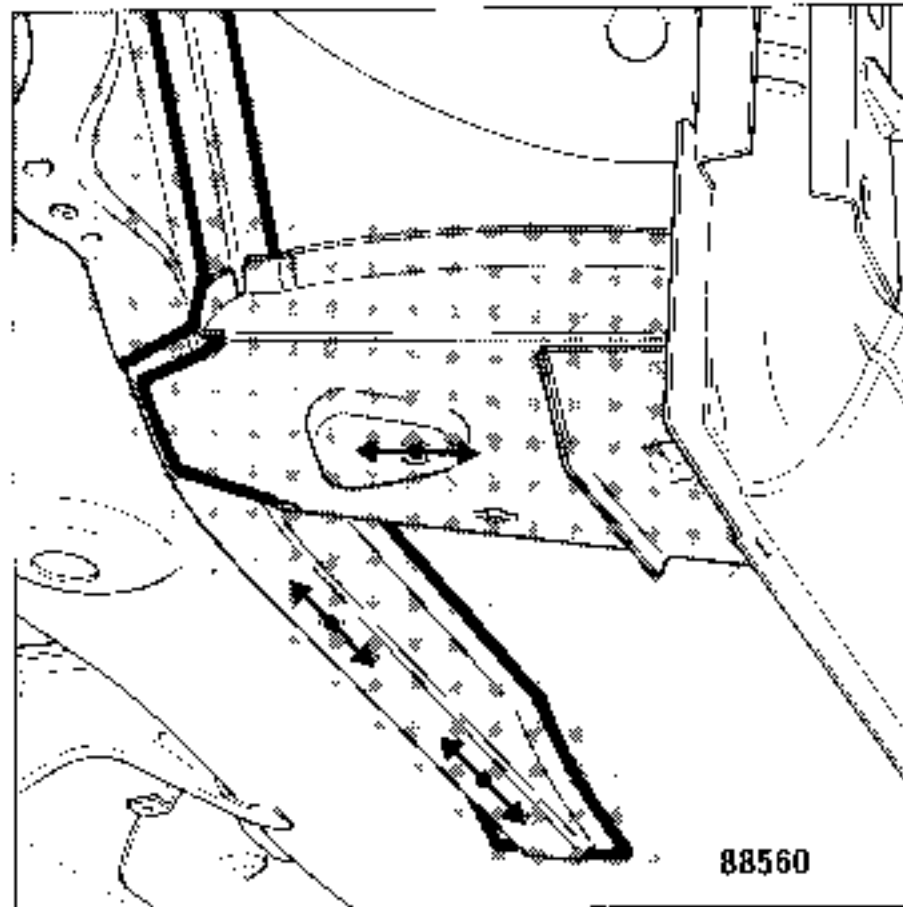
- Weld the cowl side parts and the cross members in place by following the instructions given in the previous sub-section.
- Welding the underfloor side member in place.



- Apply a number of plug welds, side by side, in a spiral pattern.



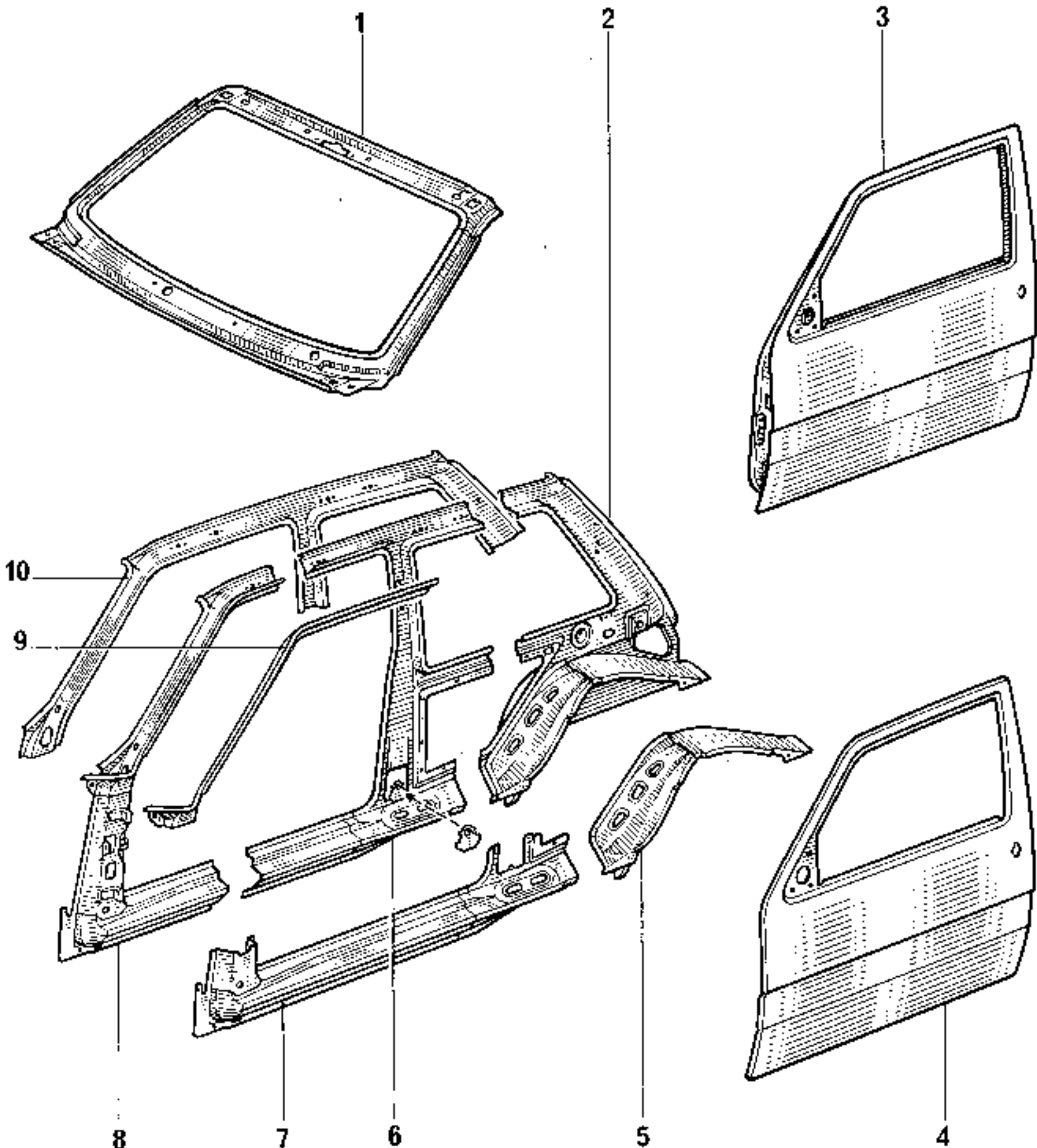
PAINTING



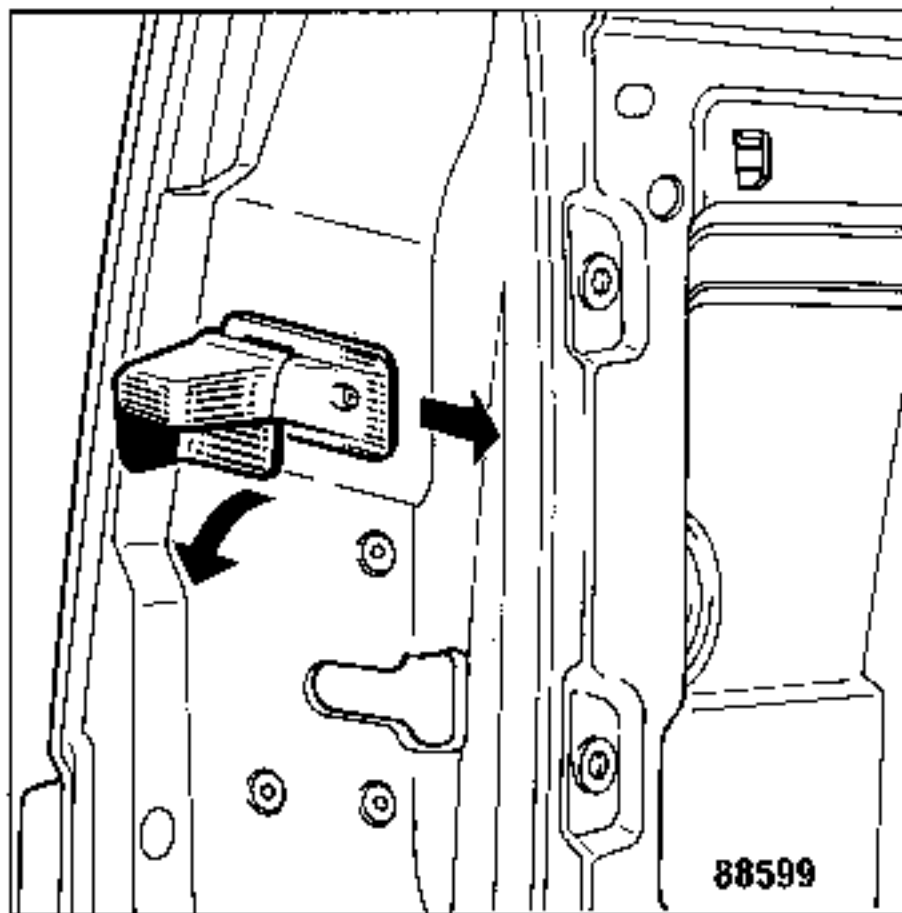
- Carry out paint sequence No. 5 (see "Painting" section).
- After painting, apply hollow section protective treatment.



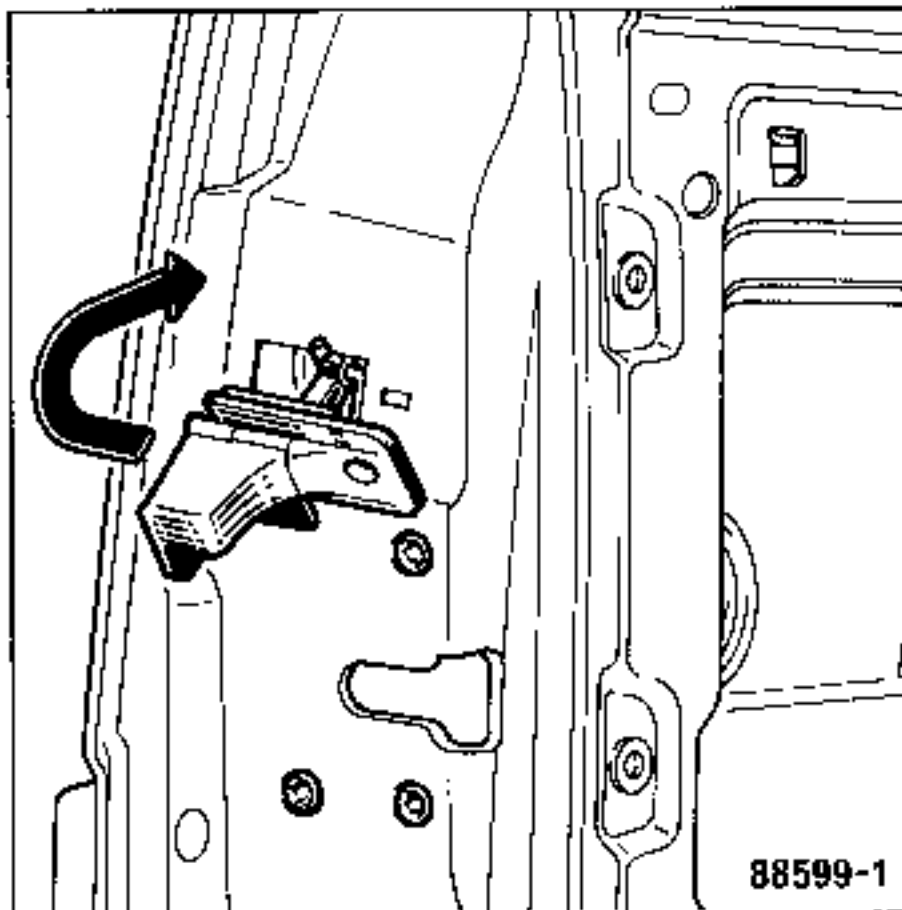
- | | |
|--------------------------|------------------------|
| 1 - windscreen frame | 6 - door pillar lining |
| 2 - quarter panel lining | 7 - body sill |
| 3 - complete door | 8 - front door |
| 4 - door panel | 9 - door frame cover |
| 5 - wheelarch | 10 - upper body side |



- Removing the latch mechanism.



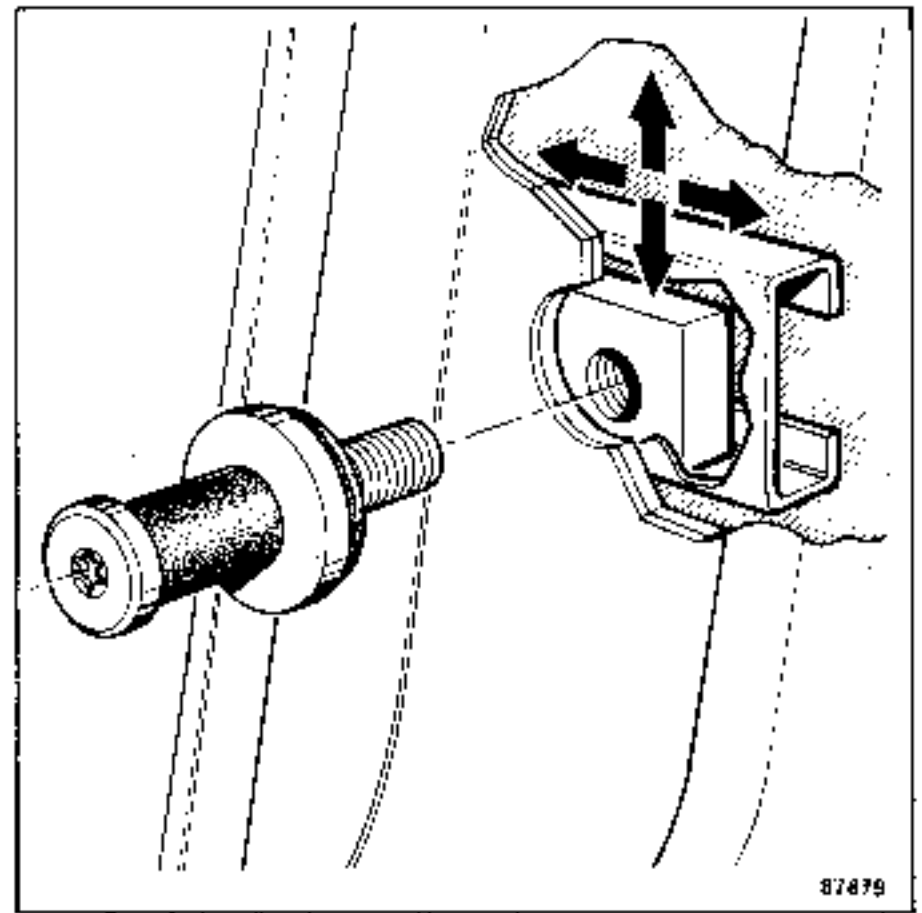
- Remove the door handle fastening and take it out as shown.



- Remove the handle as shown.
- Disconnect the lock connector.
- Unclip the links from the lock.
- Remove the lock fastenings and take out the lock through the aperture in the door.

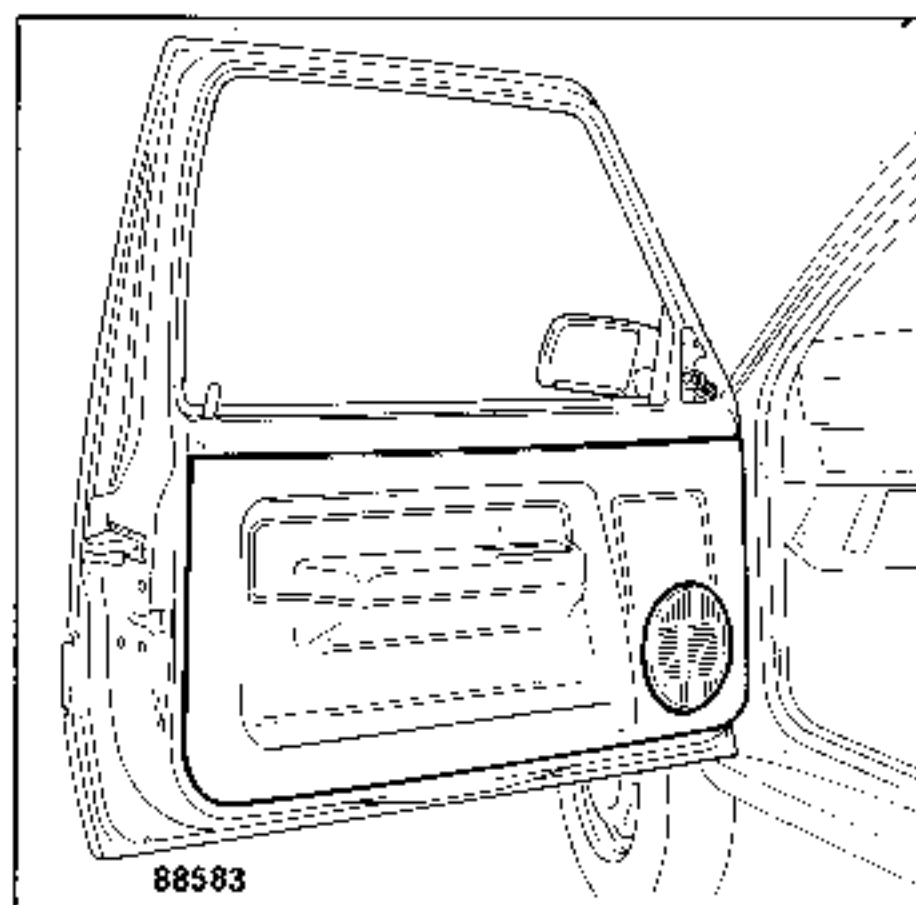
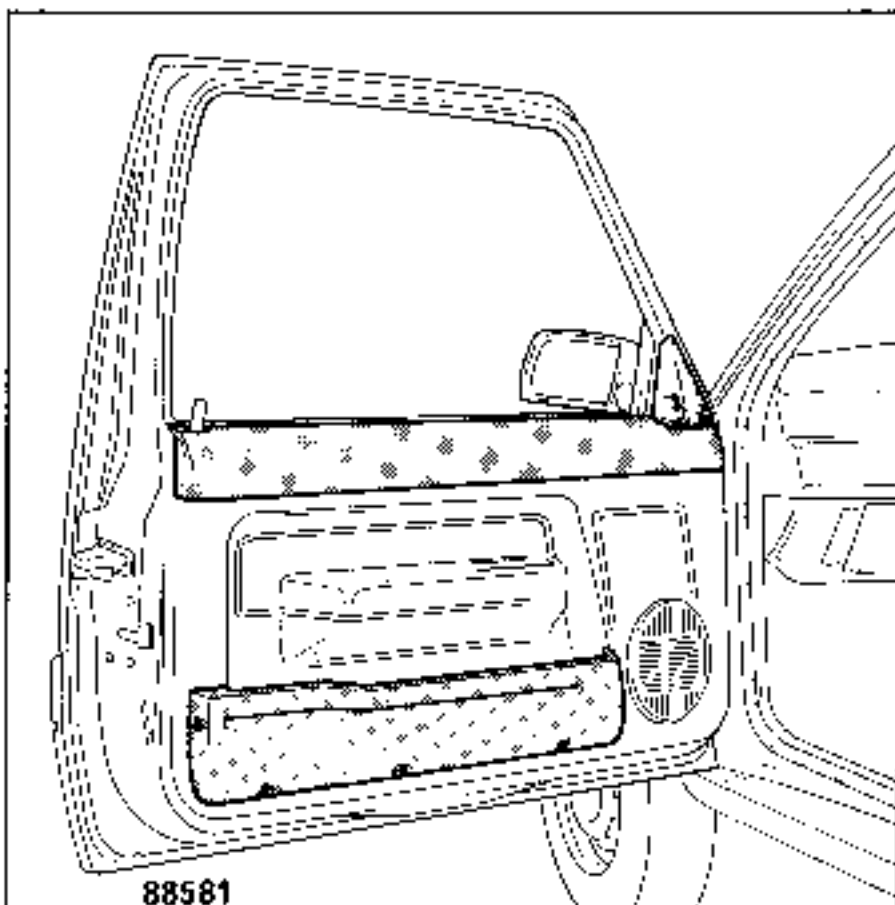
NOTE:

- The handle can be removed with the trim still in place.



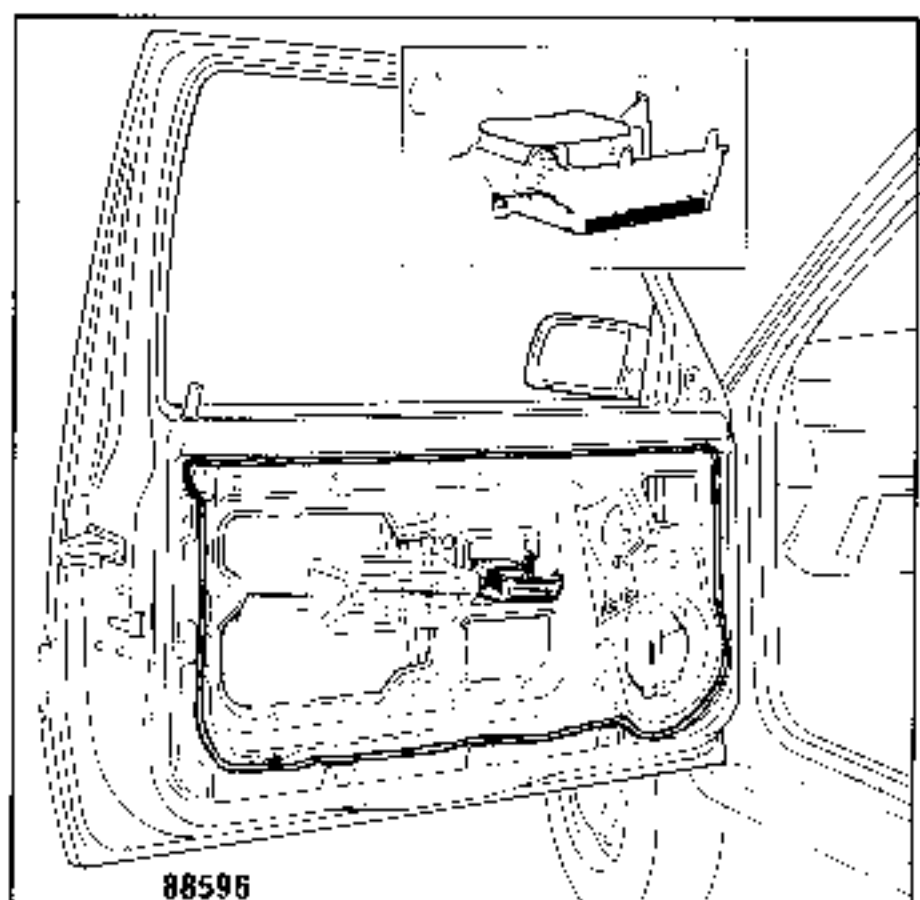
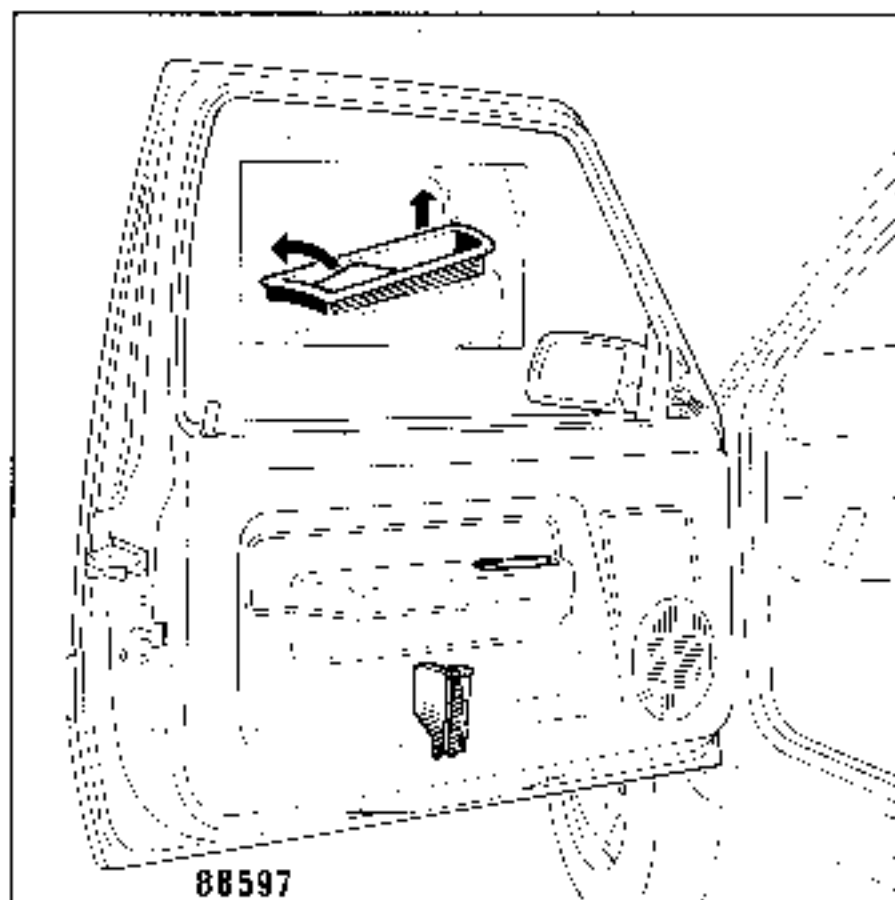
- The door latch is adjusted at the striker plate, using a "torx" type screwdriver.

- Remove the trim.



- Remove:
 - the rear view mirror control trim,
 - the upper trim strip,
 - the map pocket.

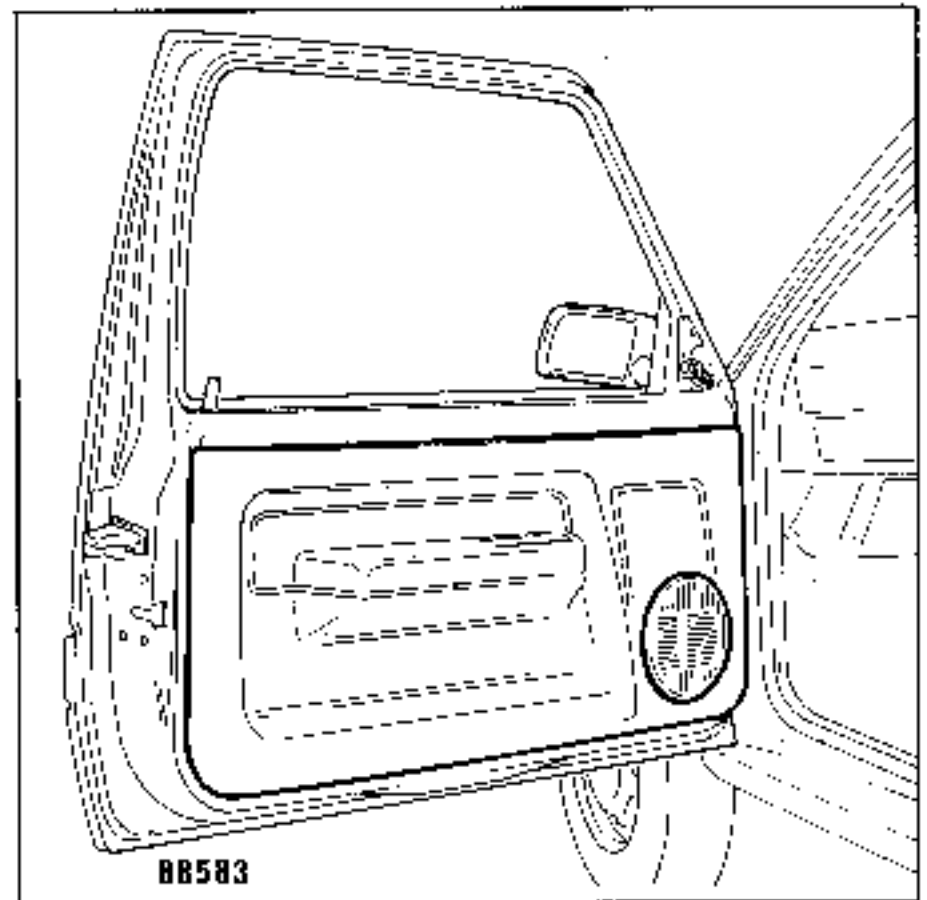
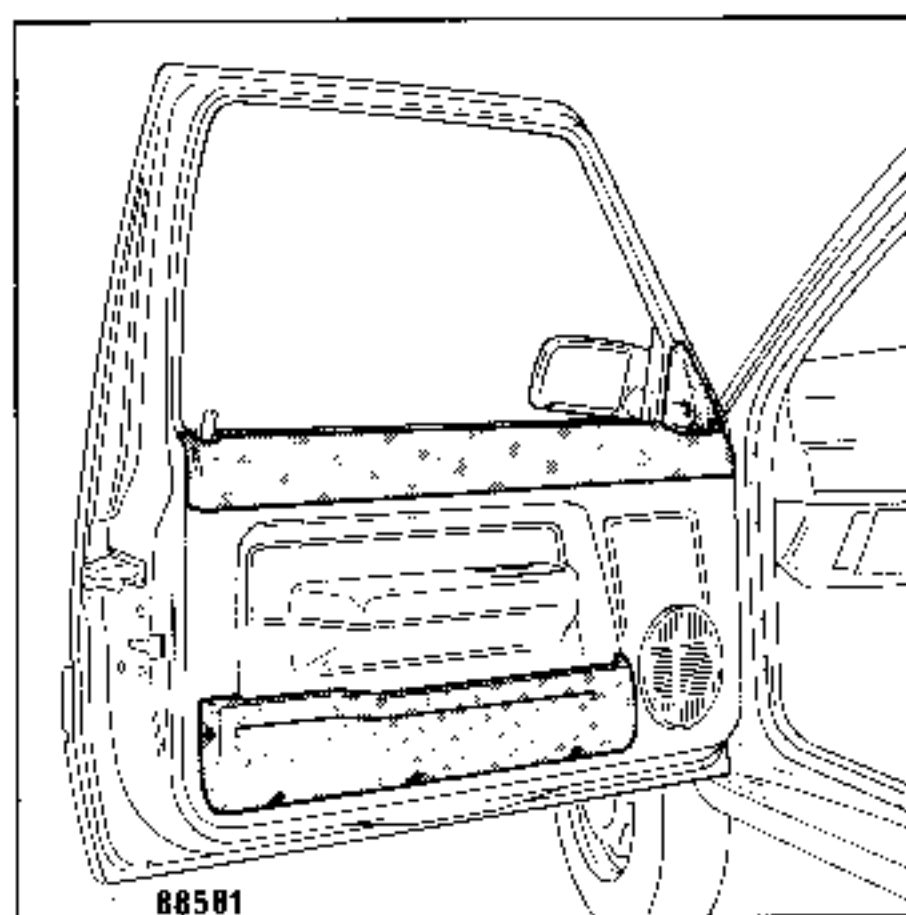
- Remove the trim with tool Facom D115.



- Remove:
 - the door handle bezel and the map pocket stiffener.

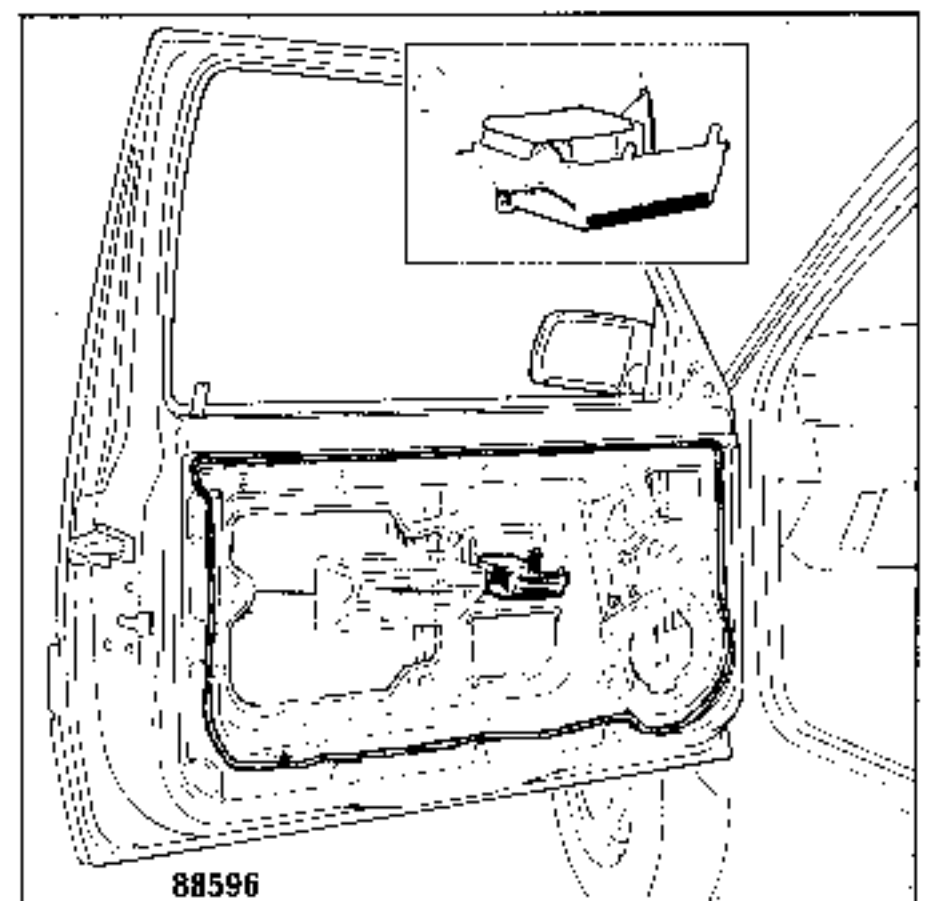
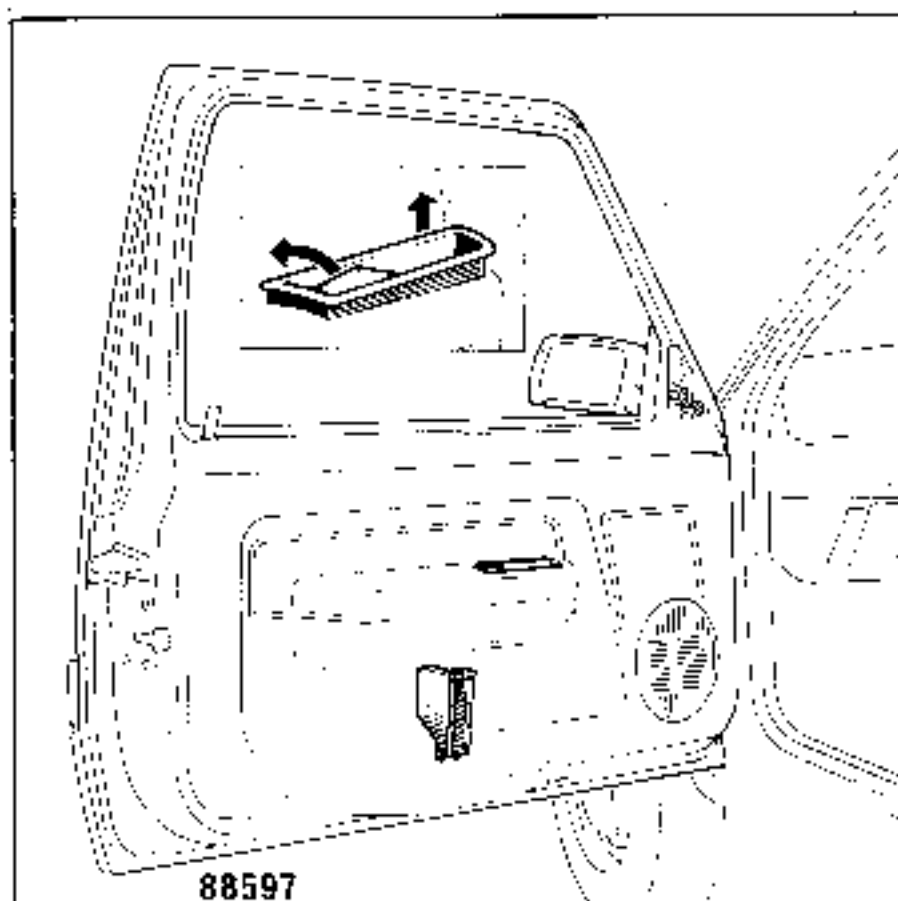
- Remove the handle and the vinyl sealing sheet.

- Remove the trim.



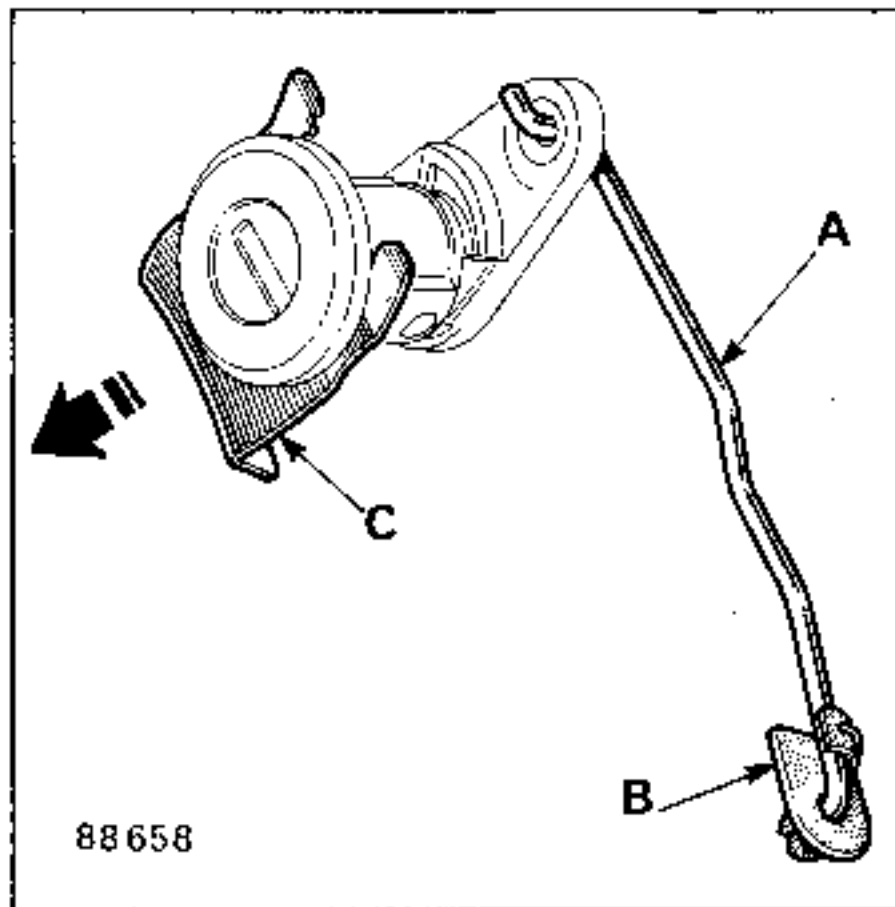
- Remove:
 - the rear view mirror control trim,
 - the upper trim strip,
 - the map pocket.

- Remove the trim, using tool Facom D115.



- Remove:
 - the door handle bezel and the map pocket stiffener.

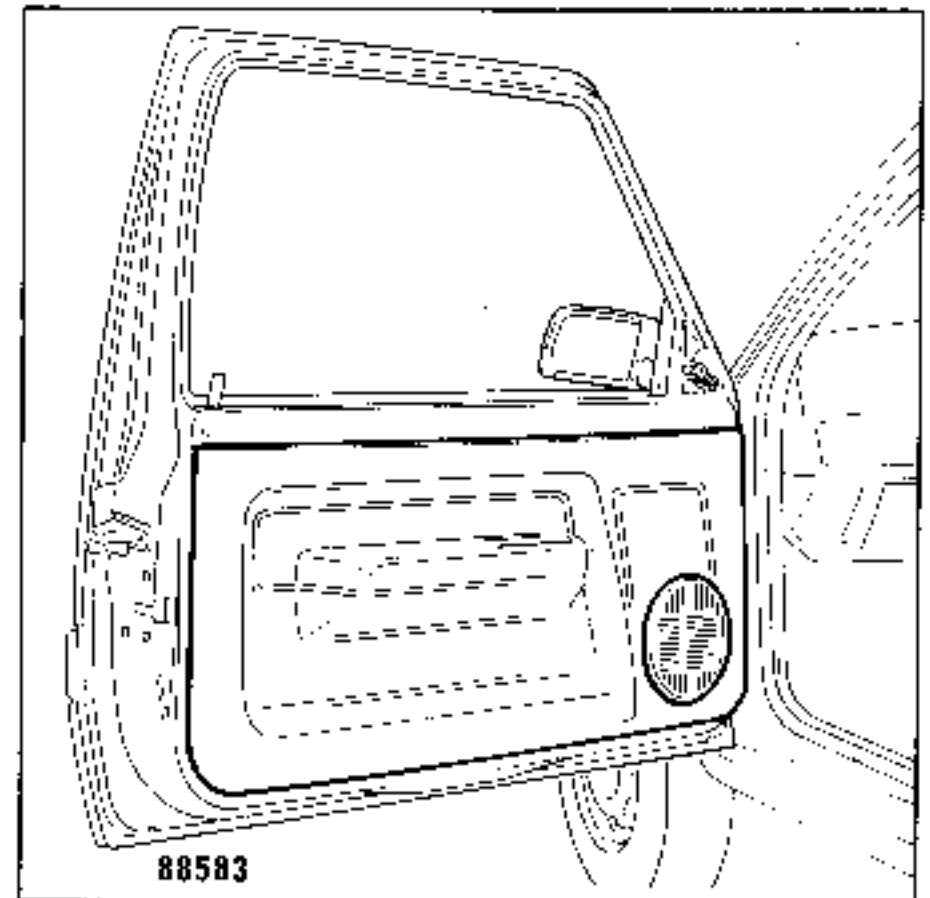
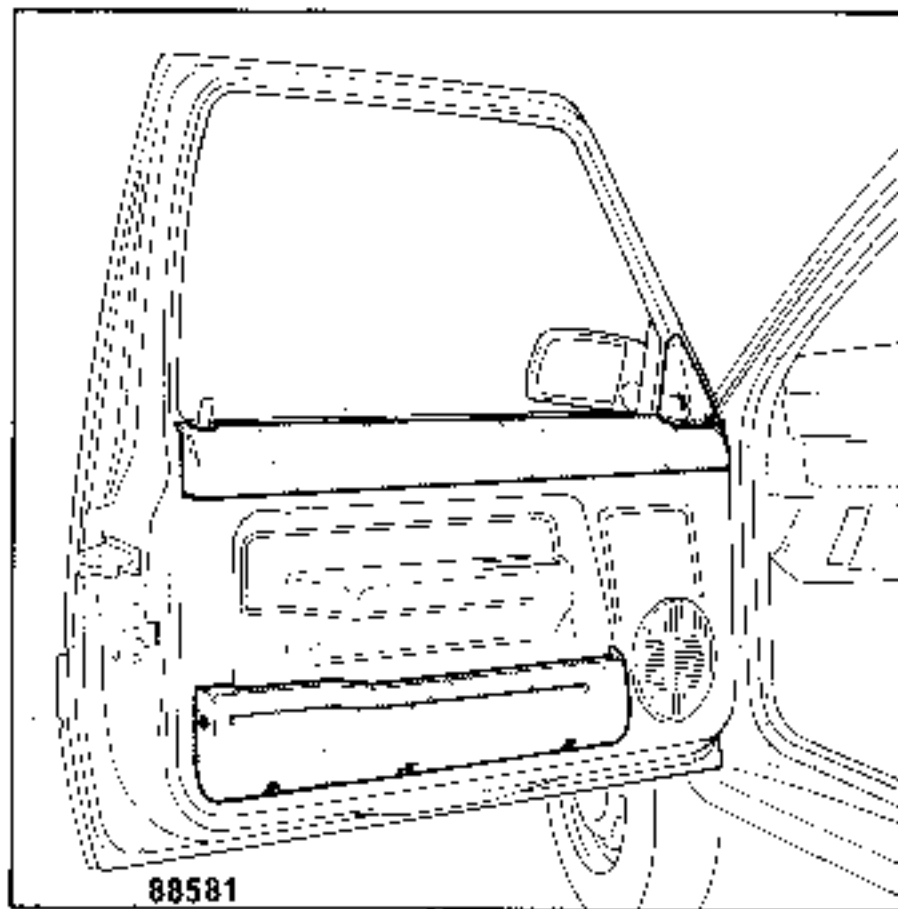
- Remove the handle and the vinyl sealing sheet.



- Unclip link (A) at clip (B), on the lock.
- Remove link (C).
- Take out the lock barrel from the outside of the door.

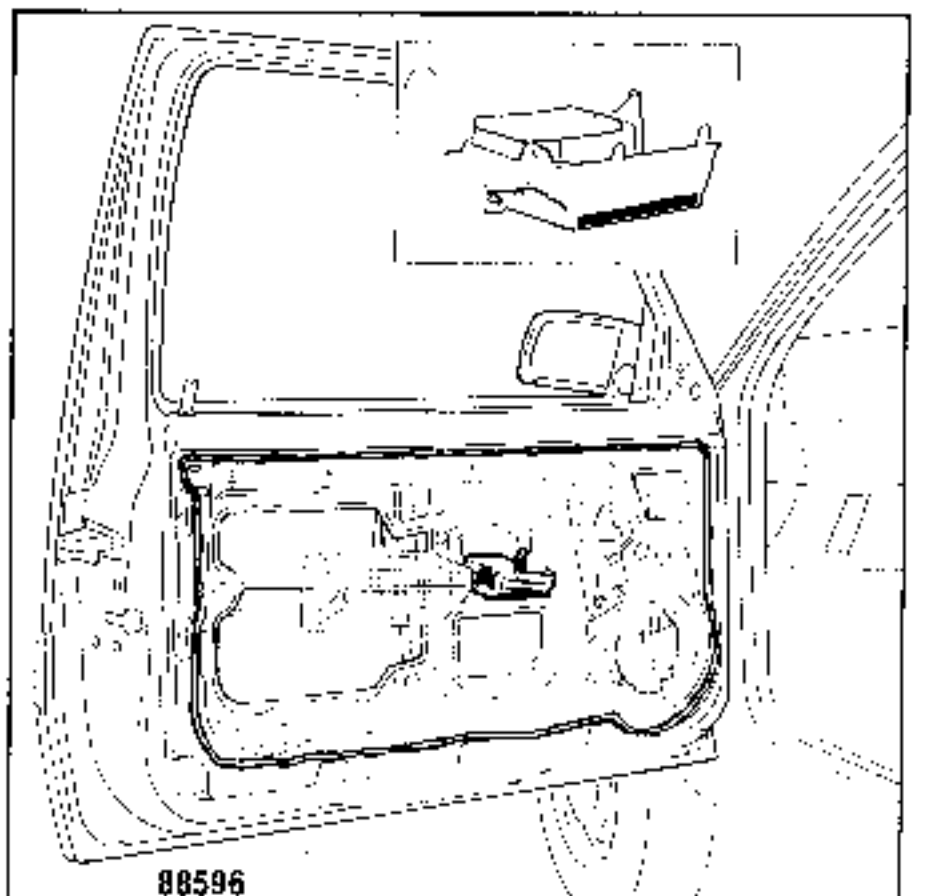
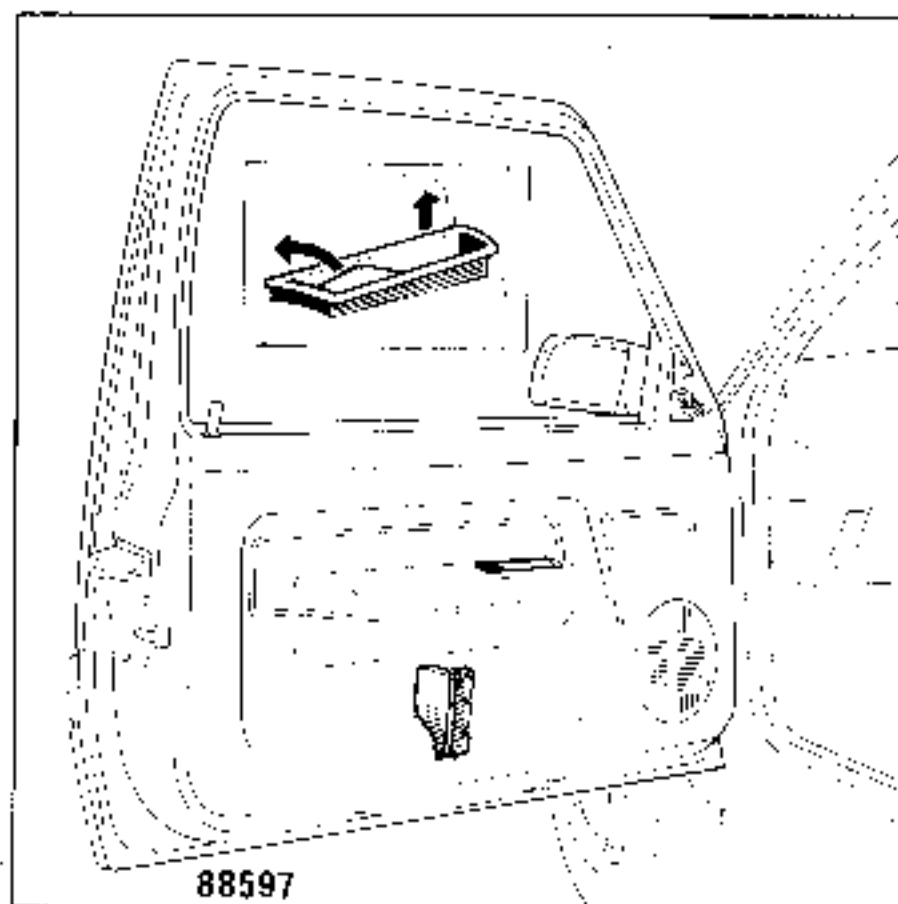
DOORS WITH ELECTRIC WINDERS

- Remove the trim.



- Remove:
 - the rear view mirror control trim,
 - the upper trim strip,
 - the map pocket.

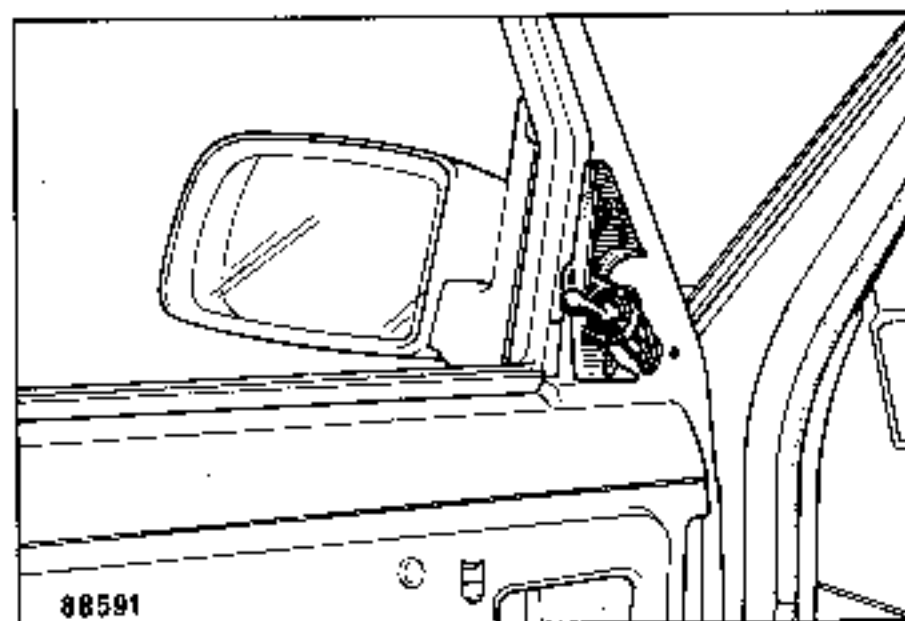
- Remove the trim using tool Facom D115.



- Remove: the door handle bezel and the map pocket stiffener.

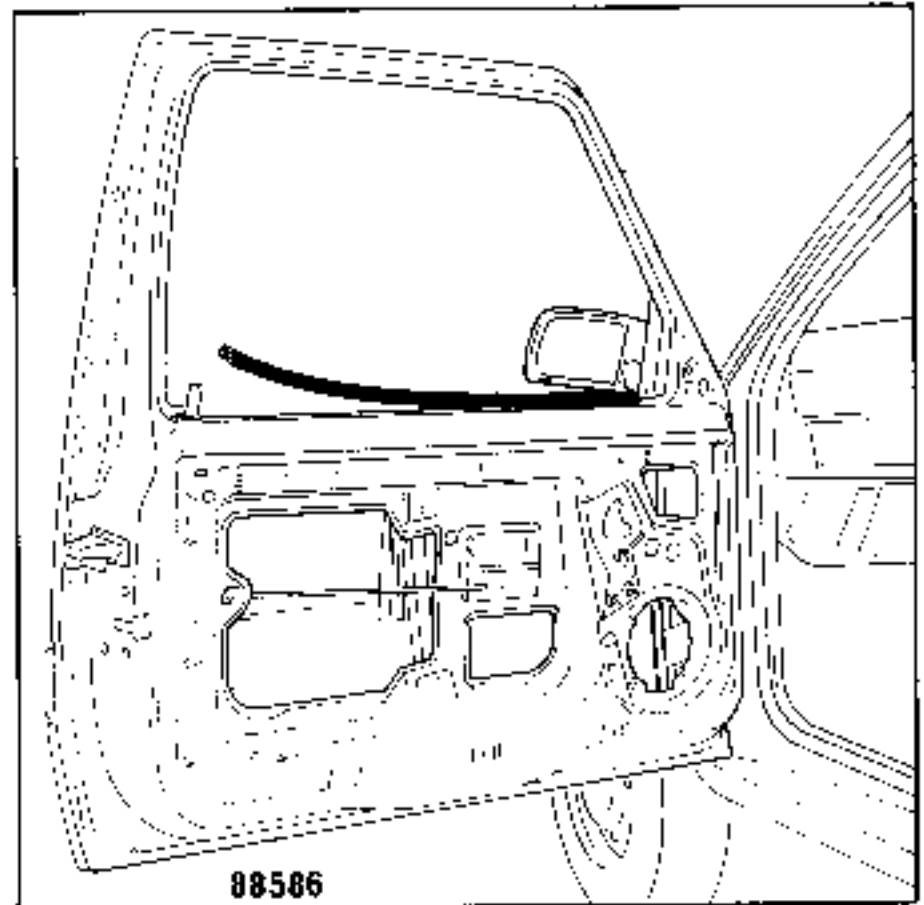
- Remove the door handle and the vinyl sealing panel.

- Removing the rear view mirror.



- Remove the rear view mirror control support fastenings.

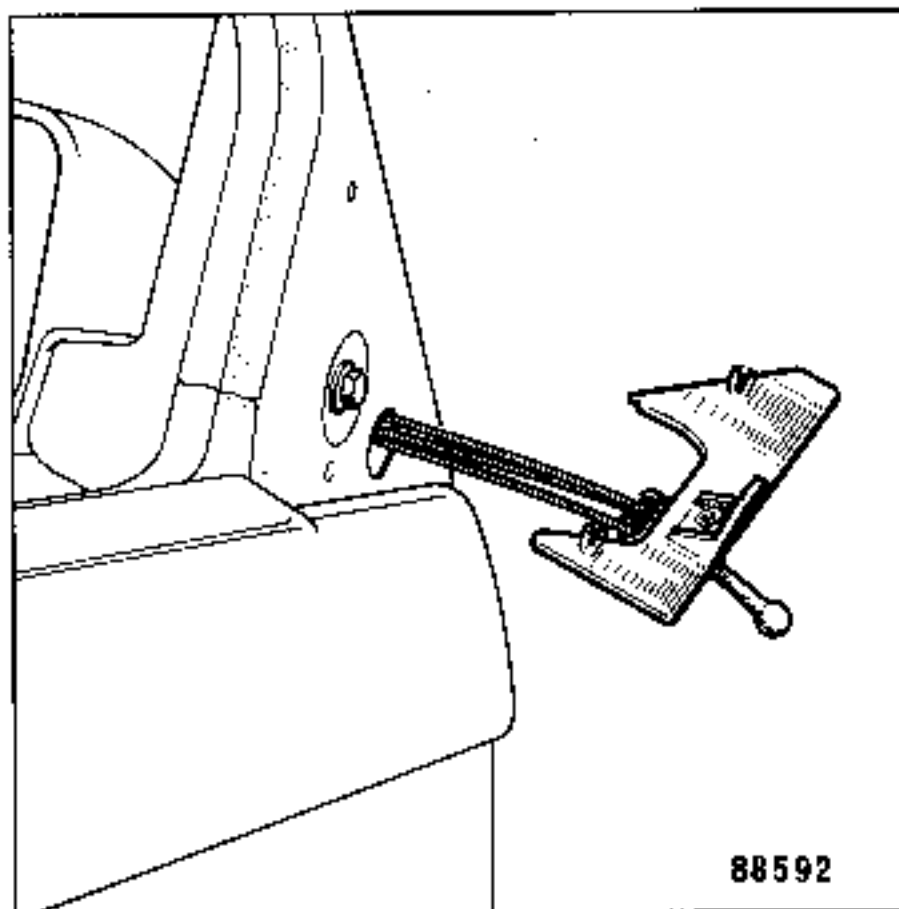
- Removing the window.



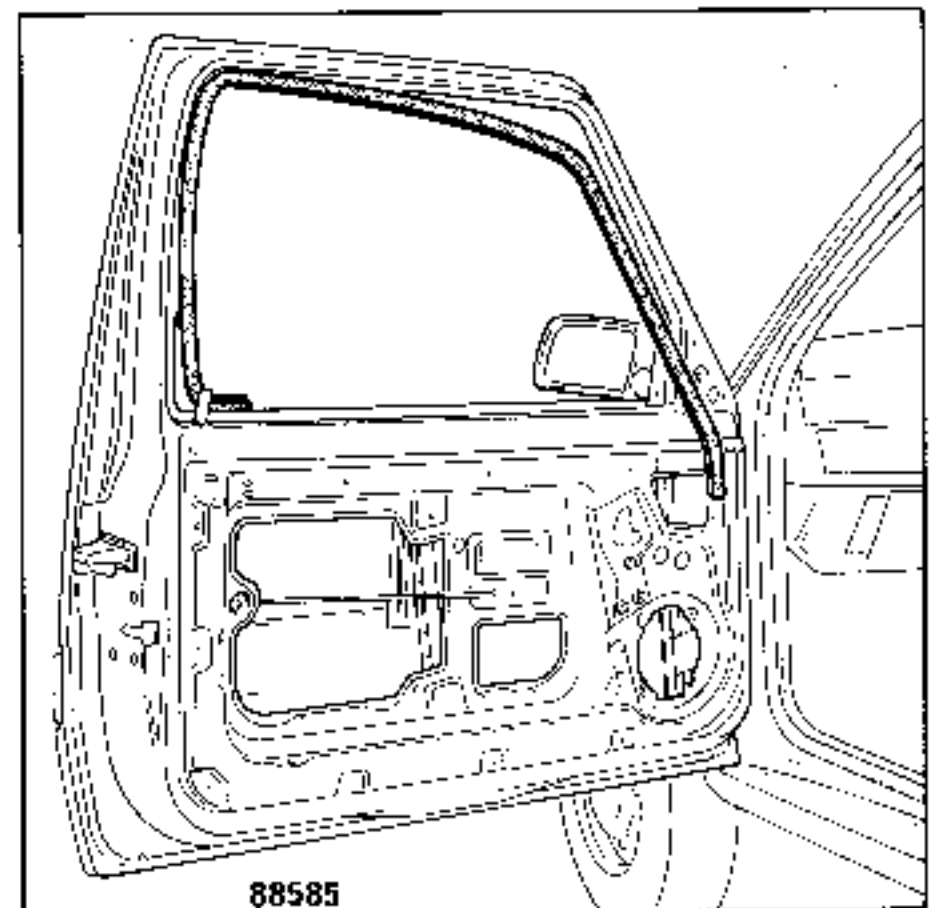
Wind down the window.

Remove the lower part of the inner wiper strip.

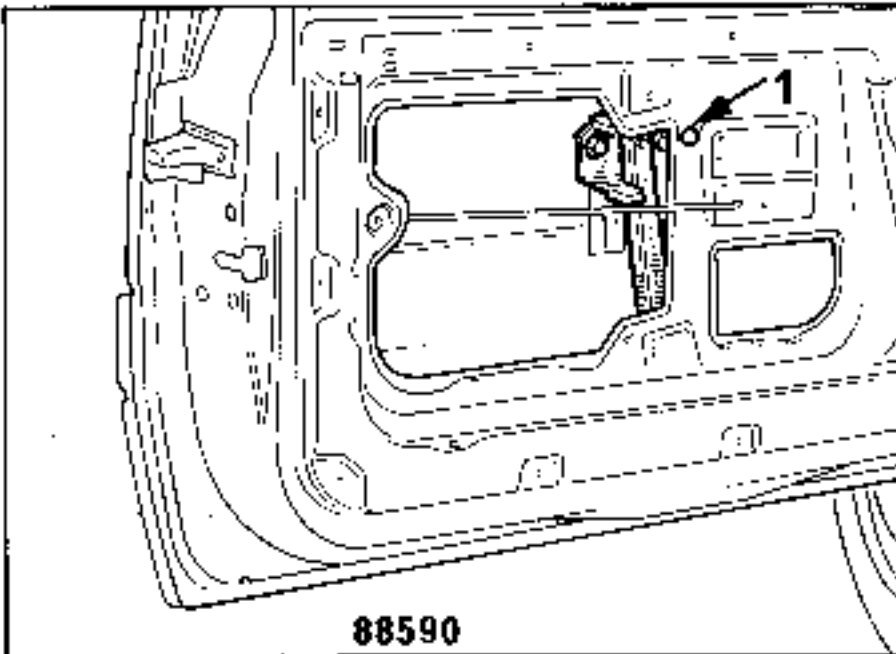
Warning: this part has a metal framework which is very fragile.



- Remove the rear view mirror control fastenings,
- Remove the mirror securing screw.

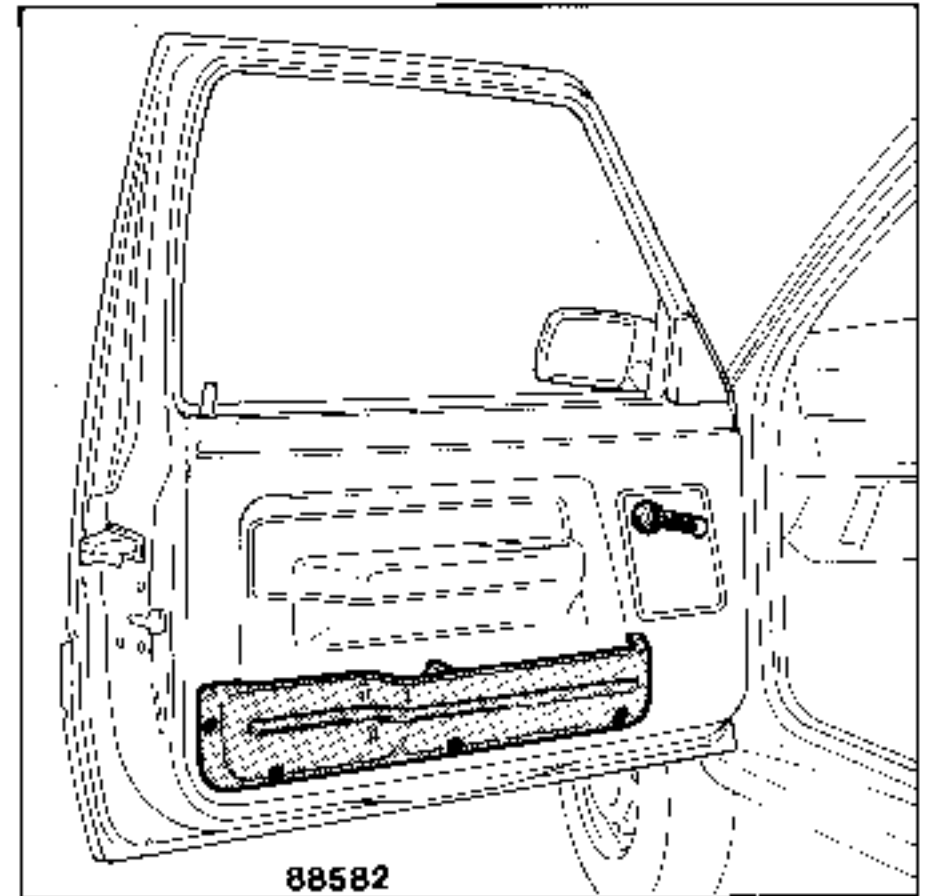


- Remove: - the upper part of the inner wiper strip,
 - the outer wiper strip.
- Take the same precautions as above.



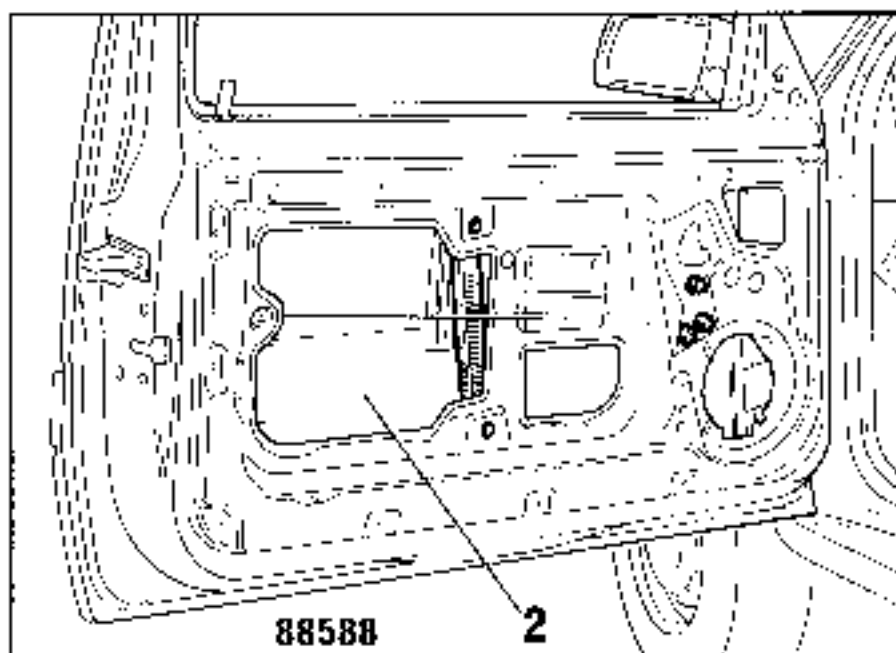
- Remove the motor fastenings (nuts).
- Take out the mechanism through aperture (2) in the door.

DOORS EQUIPPED WITH MANUAL WINDOW-WINDERS

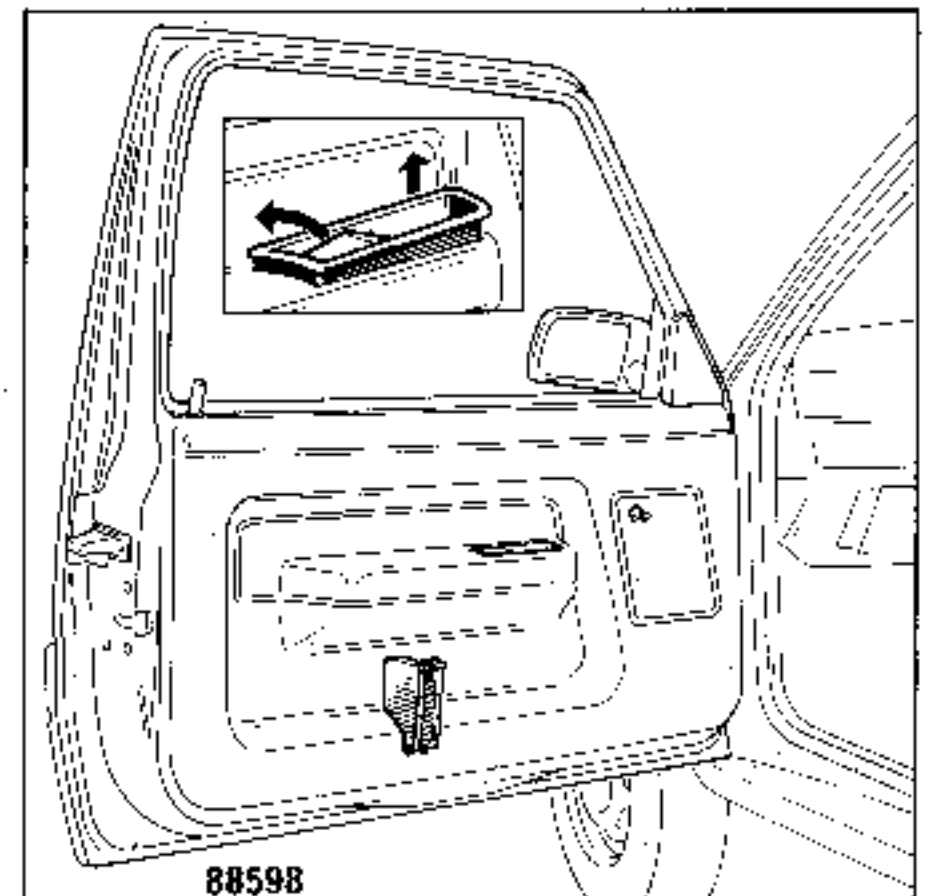


- Position the window so that the window support RH securing screw is in line with hole (1)
- Remove the 2 window support securing screws.
- Lower the window-winder mechanism and take out the window from outside the door.
- Removing the window-winder mechanism.

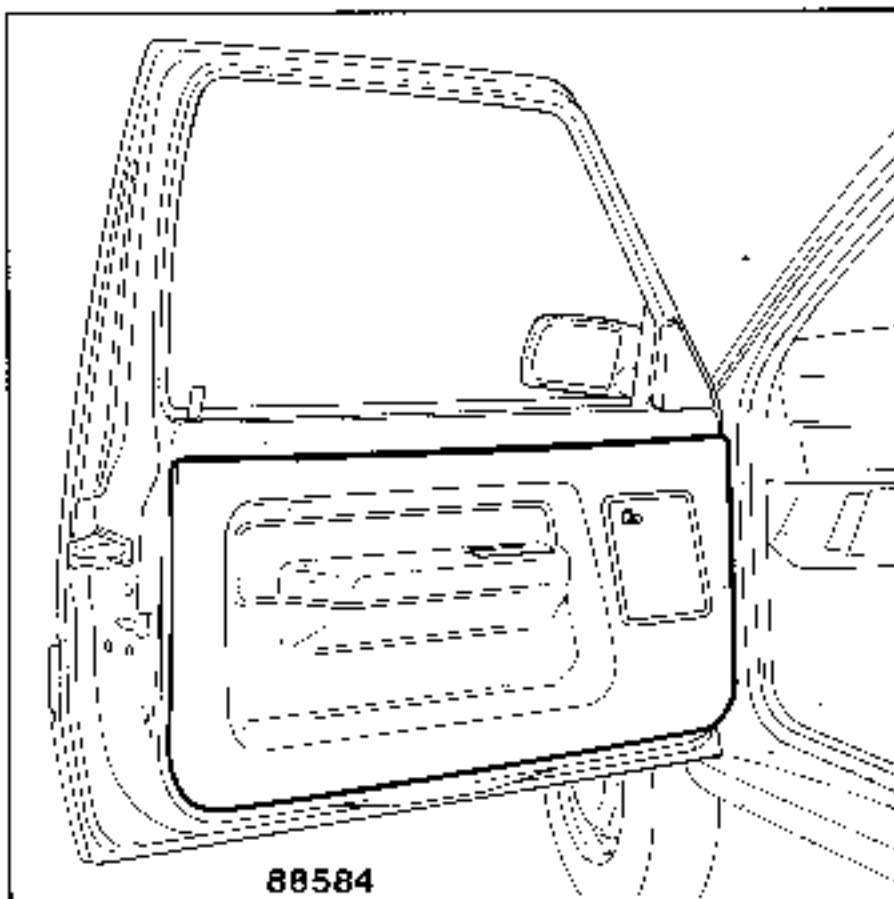
- Remove:
 - the map pocket.
 - the window-winder handle using tool Façom D115.



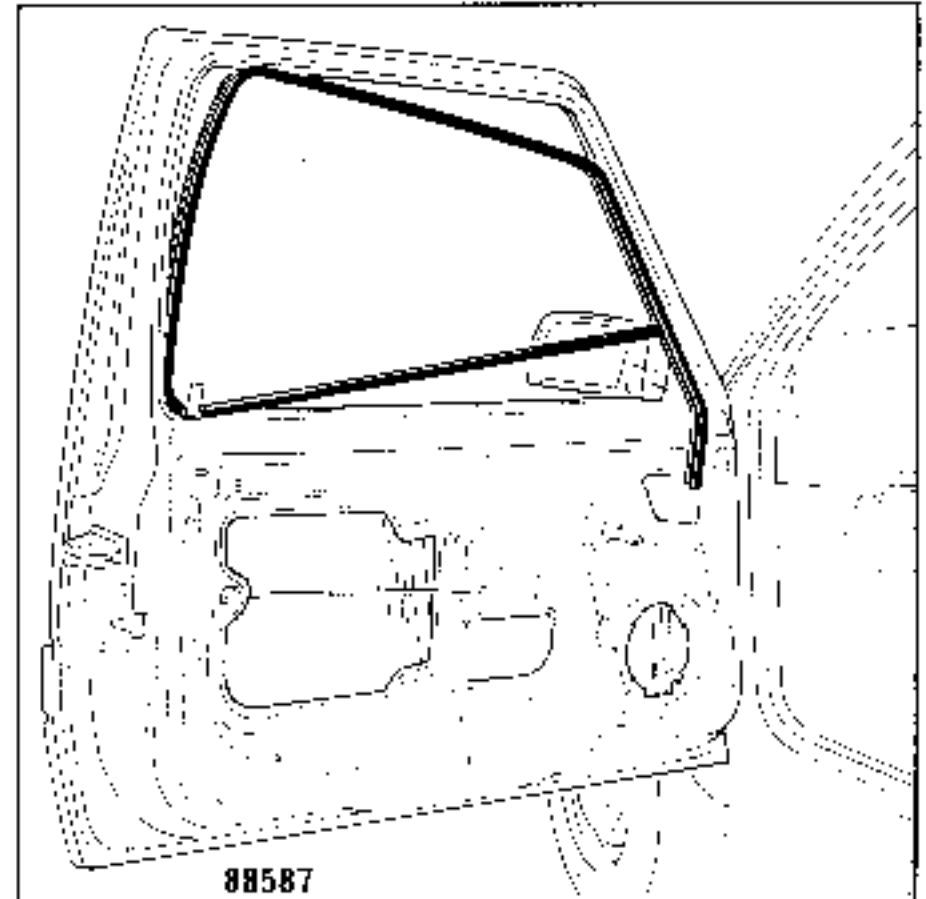
- Disconnect the connector from the motor.
- Remove the window-winder pillar fastenings (rivets).



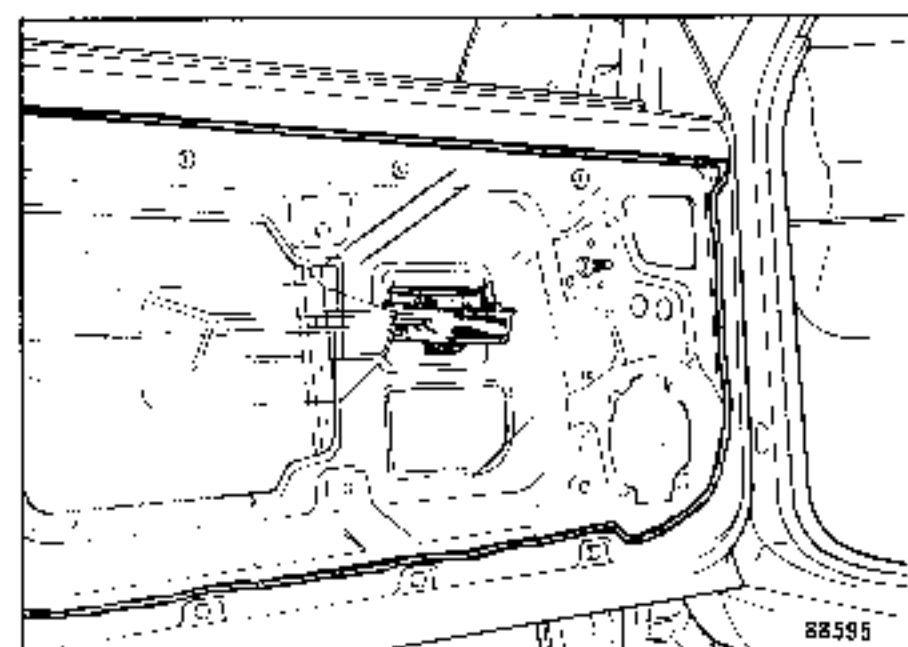
- Remove the door handle bezel and the map pocket stiffener.



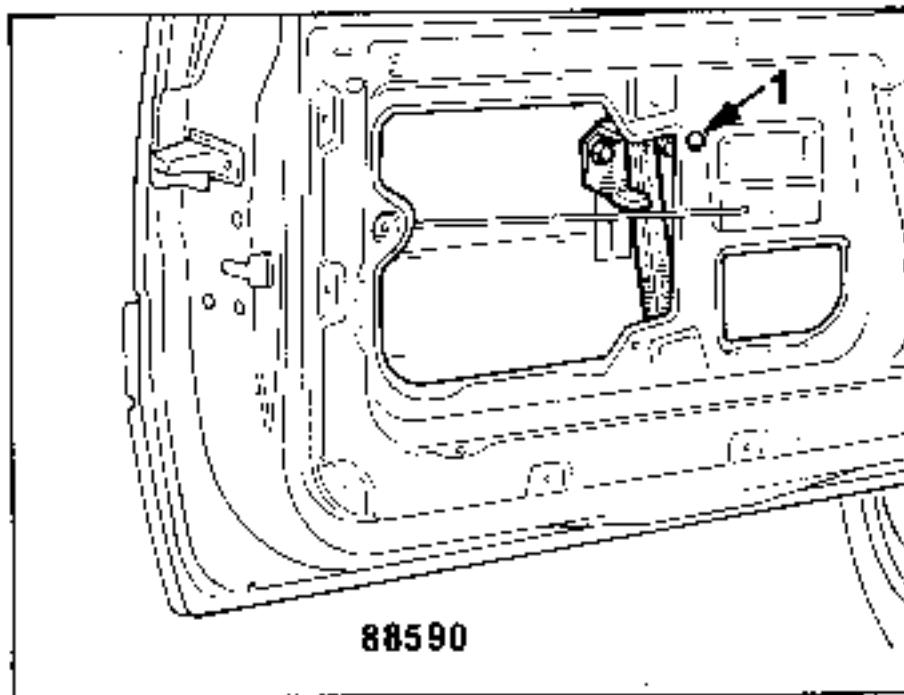
- Remove the trim, using tool Facom D115.



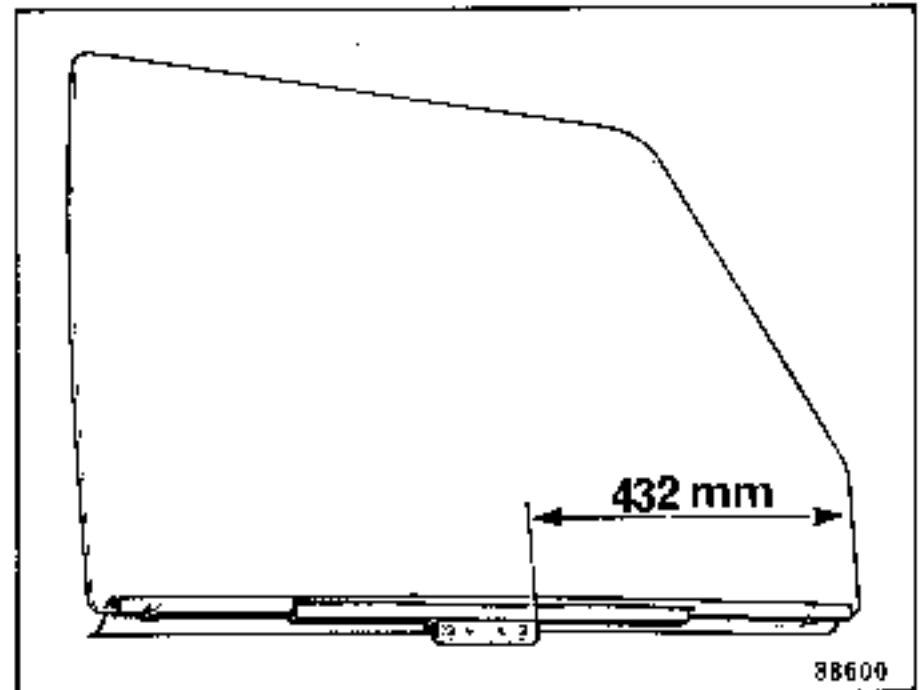
- Wind down the window.
- Remove the inner wiper strip, starting at the bottom end.
- Take care when removing the wiper. It has a metal centre which is very fragile.
- Continue the operation from the other end, finishing at the lower rear corner.
- Remove the rear view mirror.
- Remove the outer wiper strip, taking the same precautions as above.



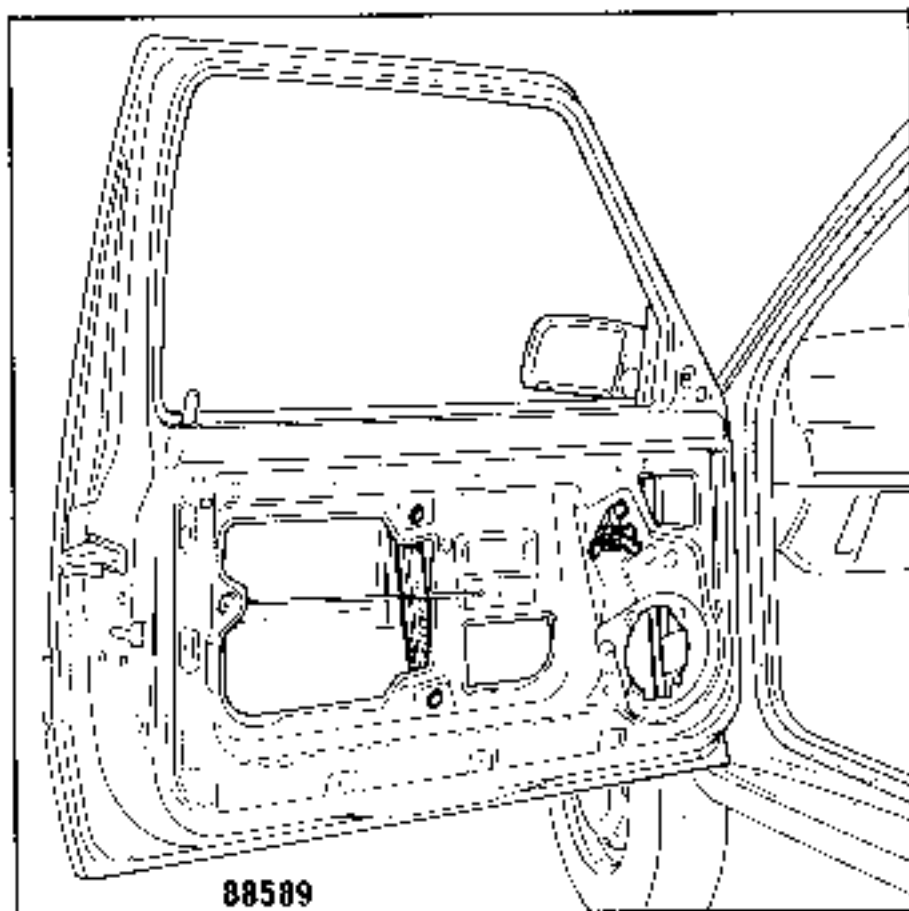
- Remove the handle as shown.
- Remove the vinyl sealing sheet and the cover from the rear view mirror fastenings.



- Position the window so that the window support RH securing screw is in line with hole (1)
- Remove the 2 window support securing screws.
- Lower the window-winder mechanism and take out the window from outside the door.



- If the window support is to be replaced, the new one is to be fitted in the position shown above.



- Remove the window-winder pillar fastenings (rivets).
- Remove the window-winder gear securing rivet.
- Take out the mechanism through the aperture in the door.

PRODUCTS REQUIRED

KIT: (available from the Parts Department) Part Nos. 7701 202 273

7 - Cartridge of GURIT MASTIC Ref. GURIT BETASEAL 71 904 HV 2.

8 - Cartridge nozzle.

9 - Tin of glass primer Ref. GURIT 84 132 11.

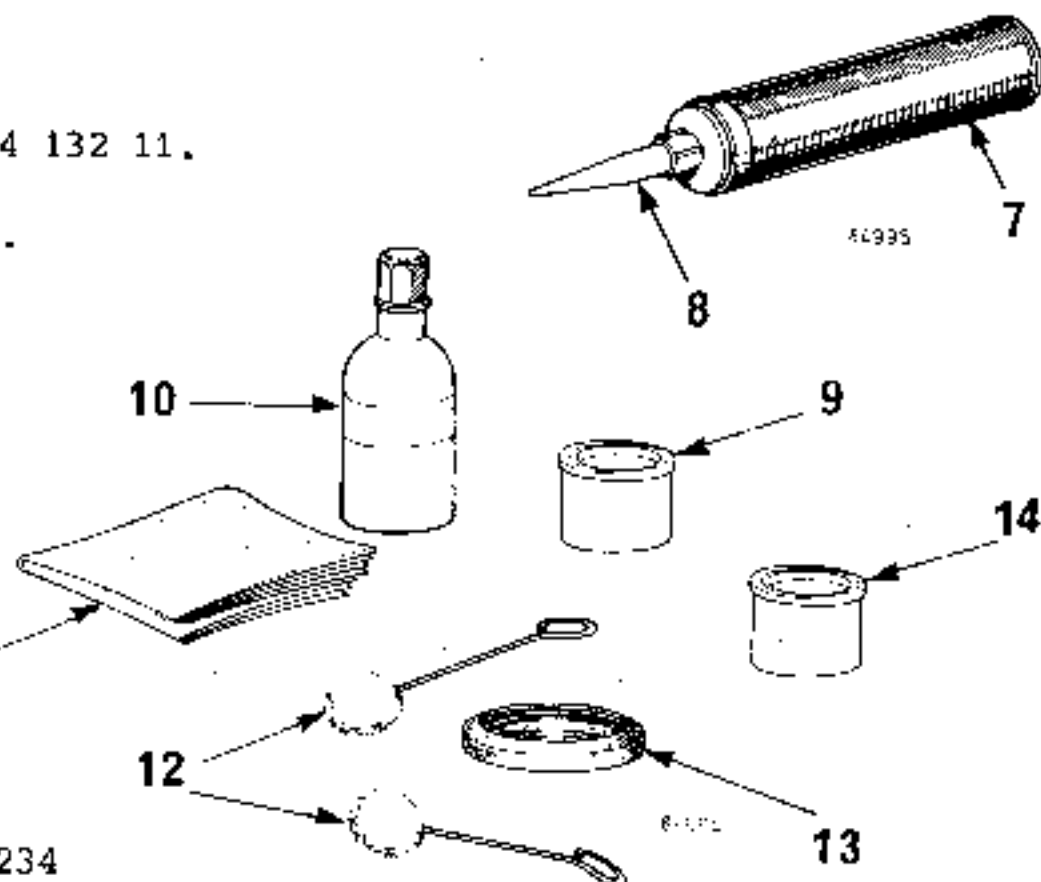
10 - Bottle of degreasing solvent Ref. GURIT VP 04 604.

11 - Cloth for degreasing solvent.

12 - Pads for primer.


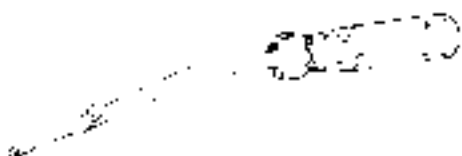
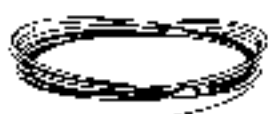


13 - Piano wire (steel).

14 - Can of primer for sheet steel Ref. GURIT 435-4611

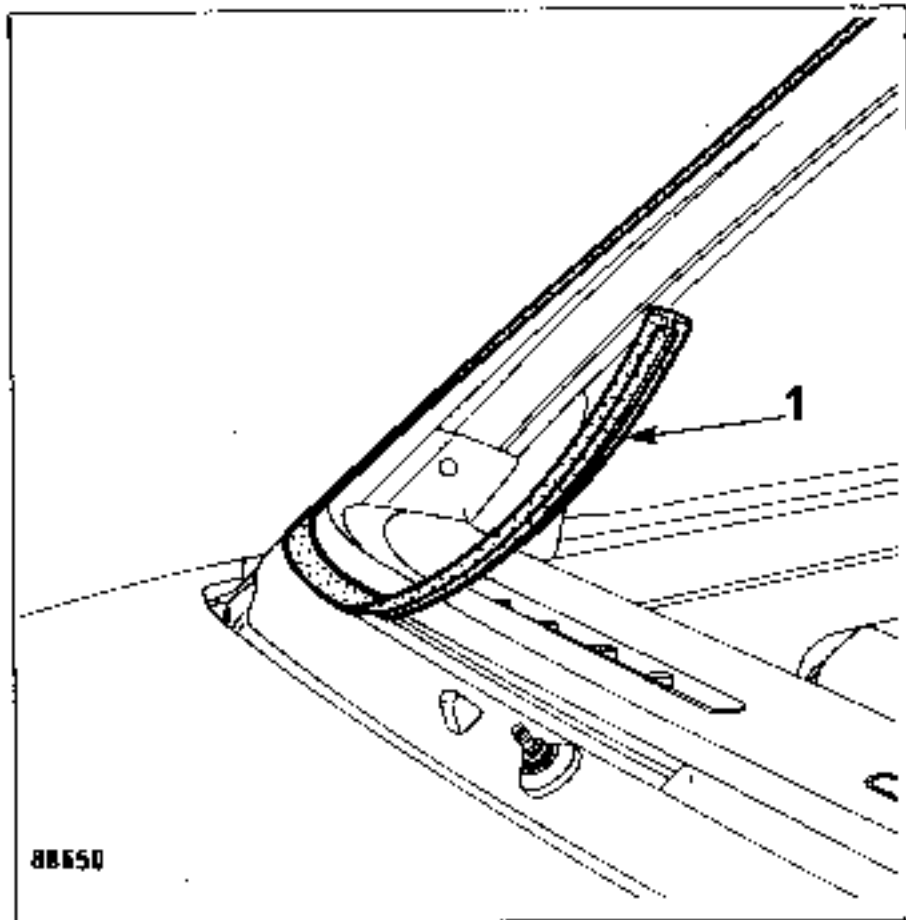


CARTRIDGE OF MASTIC + 1 NOZZLE
SUPPLIED SEPARATELY (available from
Parts Department) Part No. 77 01 202 234

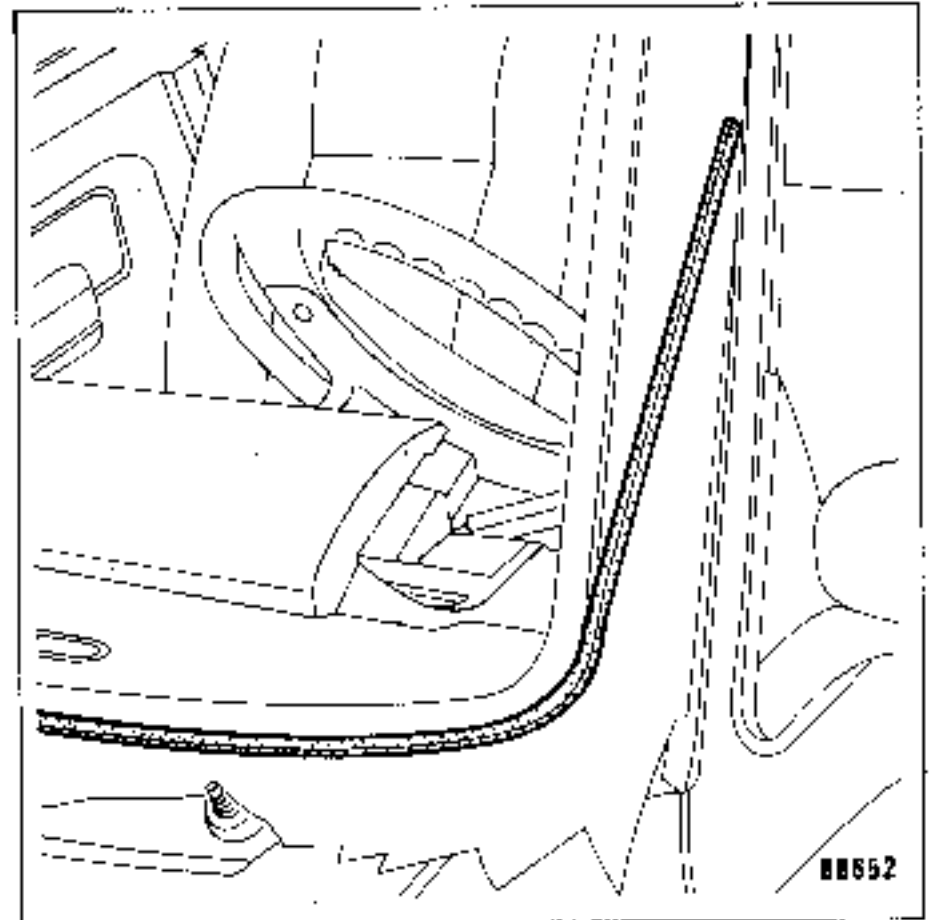
EQUIPMENT

	Supplier's Ref.	Approval No. MR 500 xx
Puller handle  87 270		
Pricking tool 		
Roll of piano wire 	STW 10351	55 70 00
Pair of suction pads for handling the windscreen  87 274	STW 10352	55 70 01
Wire puller needle 	REF. Renault: Car.1033	

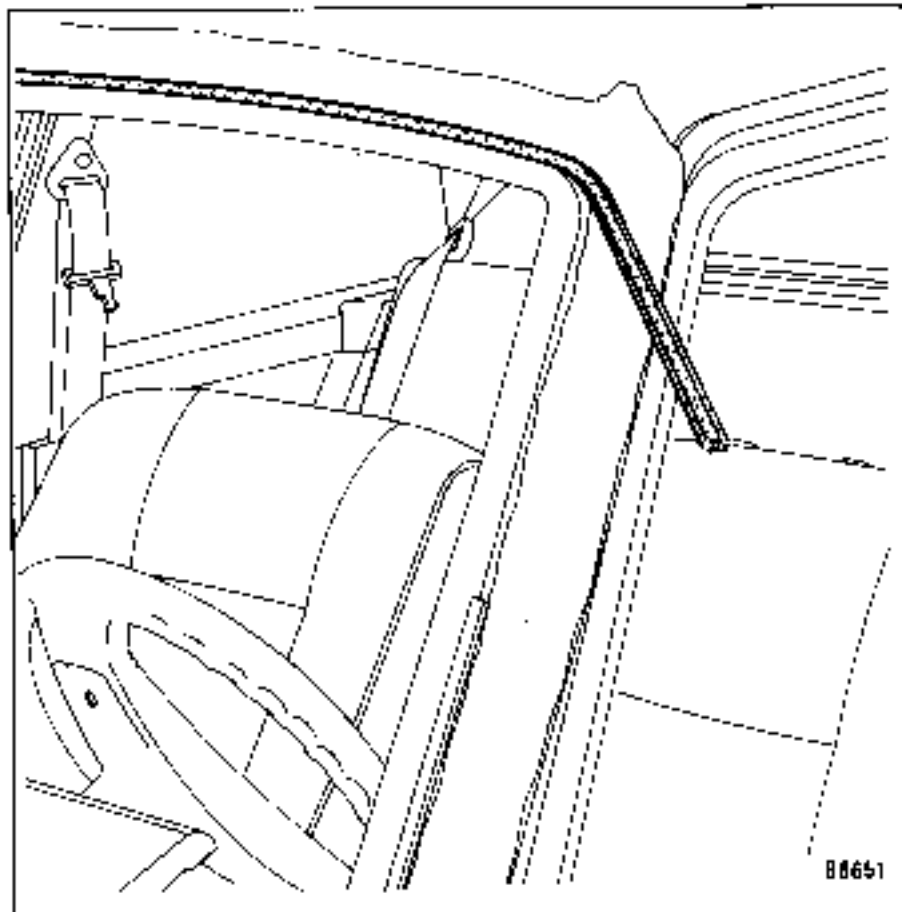
STRIPPING



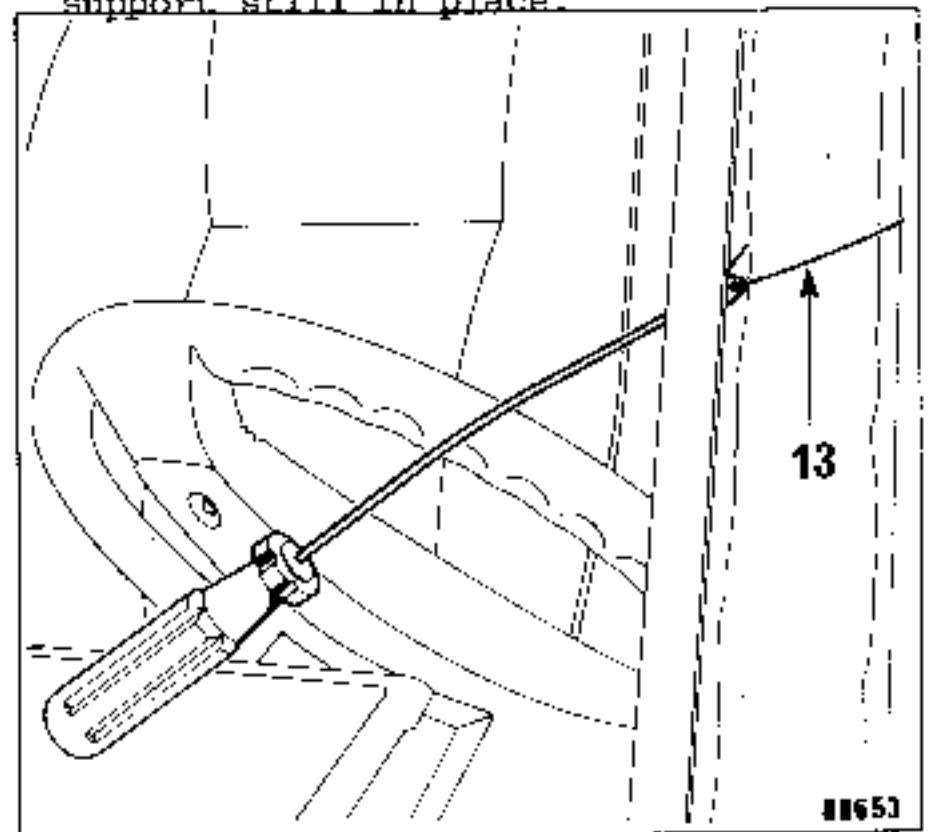
- Remove the windscreen wiper arms.
- Unclip the trim (1) from its support, starting at one of its ends which are at the bottom centre of the screen.
- Warning: the trim is very fragile.



- Remove the lower part of the surround section in the same way as the upper part.
- If the support is coated with mastic and will not come out of its location, do not force it (there is a risk of breaking the windscreen and damaging the windscreen frame).
- Continue the operation with the trim support still in place.



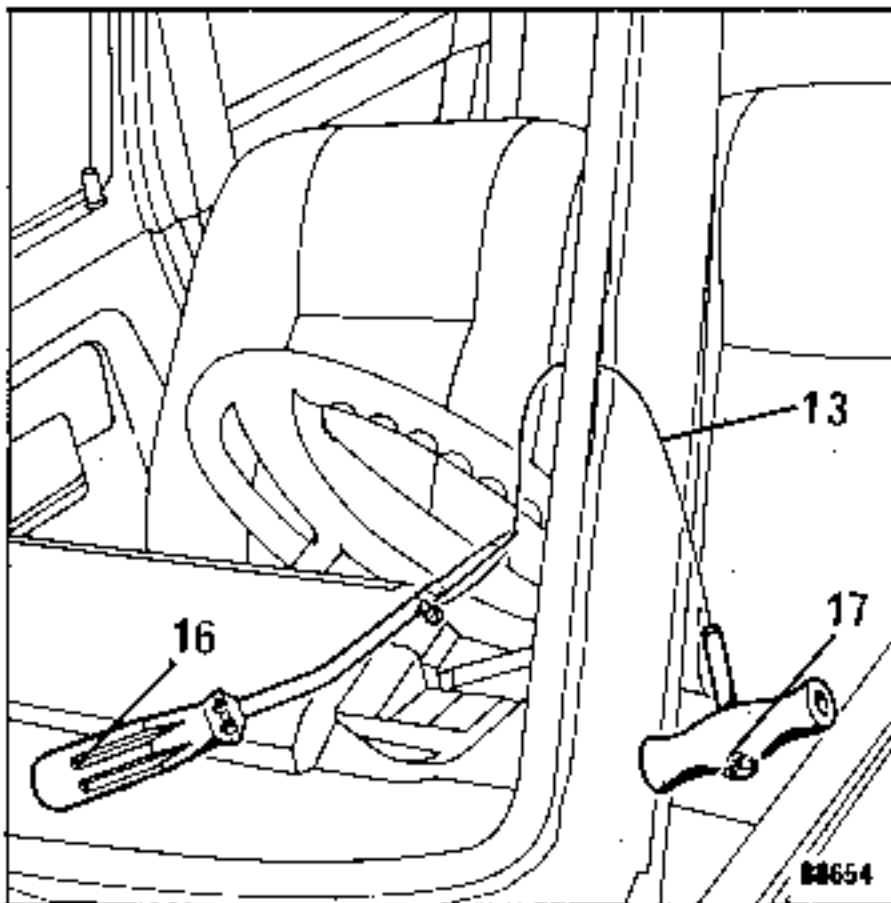
- Protect the windscreen frame with a strip of masking tape 50 mm wide.
- Remove the upper part of the trim support, starting at one end. Do not press down on the roof as this could cause distortion.



- Remove the anti-run seal or seals from inside the vehicle.
- Protect the facia panel with a dust sheet or by masking it.
- Mark the point, on the windscreen

periphery at which there is the largest clearance between the edge of the windscreen and the edge of its frame.

- From inside the vehicle, push the wire puller needle through the mastic fillet.
- Cut a length of wire (13) approximately 500mm long.
- Pass the wire through the hole made by the needle, from outside.
- From inside, pull the needle so that the wire passes through the mastic fillet.



- Secure the pricker tool to the inside end of the wire and the puller handle to the outside end.

One operator, inside the vehicle, is to force the pricket (16) into the mastic approximately 300mm from the point at which the wire has been passed through.

The other operator, outside, pulls on the handle (17), without lifting it, around the edge of the windscreen, to cut the mastic (1).

This operation is to be repeated at 300mm intervals until the mastic is cut around the entire windscreen.

- Take shorter cuts in the corners.
- The operator inside the vehicle is to continually watch the wire to ensure that it does not cut the trim.

There should be sufficient clearance between the windscreen pillar trim and the windscreen to insert the pricker.

If there is not, it can be forced in, although care must be taken not to damage the trim. If there really is not sufficient room, remove the trim.

The windscreen is now removed.

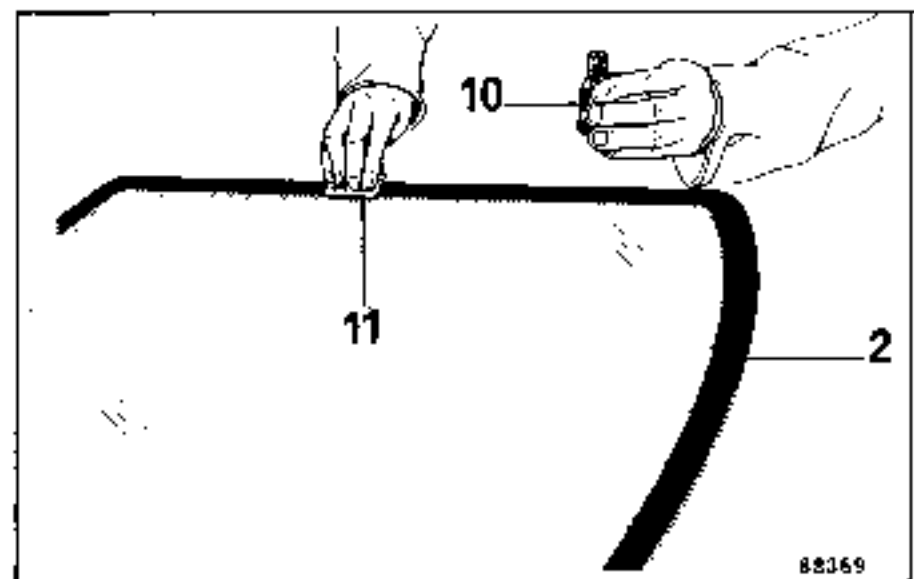
CLEANING THE WINDSCREEN APERTURE

- With a spatula, approximately 20 to 25mm wide, the edge of which has been sharpened, cut and smooth down the mastic to leave a thickness of approximately 0.5 to 1mm on the frame.
 - NOTE: Under no circumstances are you to cut back to the paint. It is essential that a film of mastic should be left on the frame to act as a bond for the new fillet.
 - Wipe the frame with a clean dry cloth.
 - Generally speaking, no cleaning or degreasing product should be used on the film of mastic.
- Under no circumstances is alcohol to be used. Exceptionally, the "S25" (heptane) solvent is acceptable.

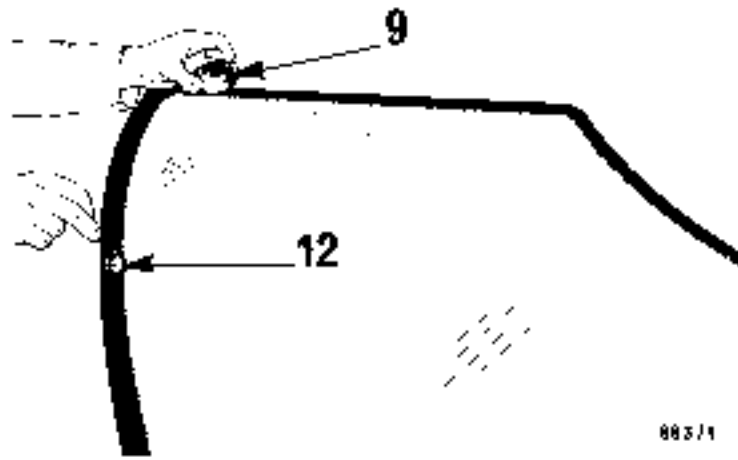
Part No. 7701 407 086: 0.5l.
7701 407 087: 0.25l.

PREPARING THE NEW WINDSCREEN

- Carefully clean the enamelled surface (2) around the entire periphery of the windscreen.
- Initially with, if possible, demineralized water and then a clean dry cloth.



Secondly, with a degreasing solvent (10) and cloth (11).



- Apply the glass primer (9) using pad (12) to the enamelled surface to within a few millimetres of the shaded area. After this operation, do not touch the cleaned area with the fingers.

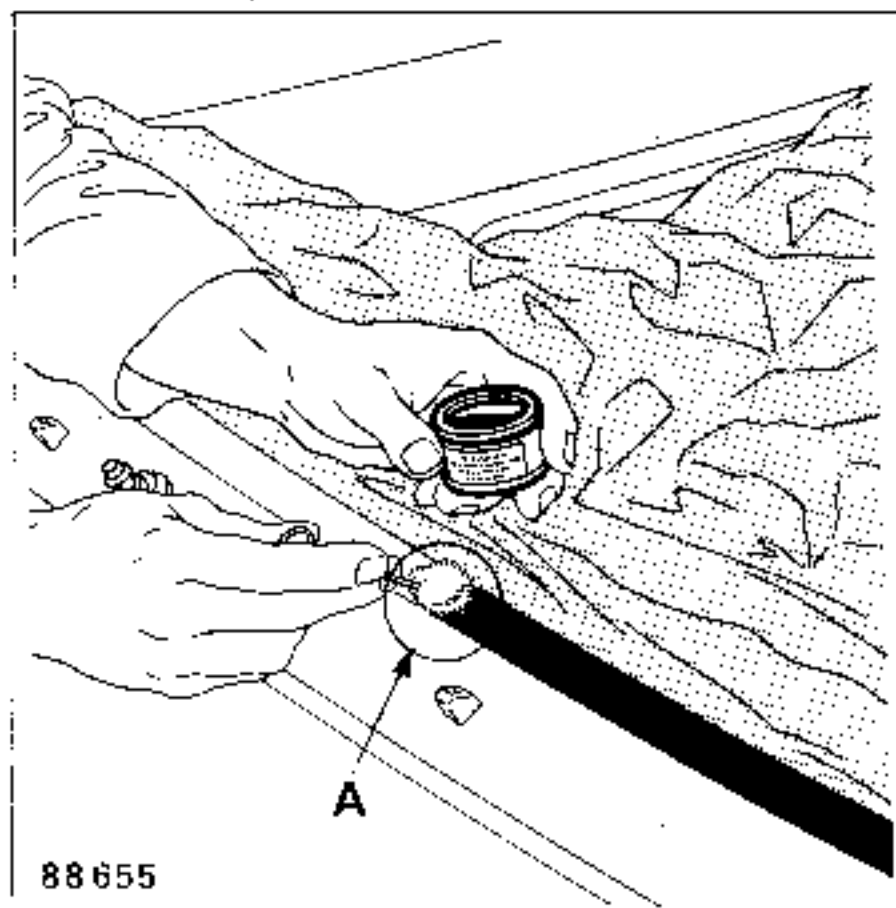
CLEANING A WINDSCREEN AFTER REMOVAL

- Using a sharpened spatula approximately 20mm wide, smooth down the remaining mastic, leaving a thickness of approximately 1mm. It is not necessary to remove all the mastic unless it comes unstuck by itself. Never damage the black enamel.

PREPARING A REMOVED WINDSCREEN

- When applicable, lightly degrease the area where the mastic has not adhered to the primer. Do not touch the remaining film of mastic.

PREPARING THE WINDSCREEN FRAME



- Mark the points at which the frame has been damaged back to the bare metal during removal or cleaning, and the points at which the mastic has not adhered to the paint.
- Using the same felt pad as for the windscreen, apply the sheet steel primer only to the areas concerned (detail A). Do not apply it to the film of mastic.

Note: It is absolutely forbidden to protect damaged areas with phosphate primer.

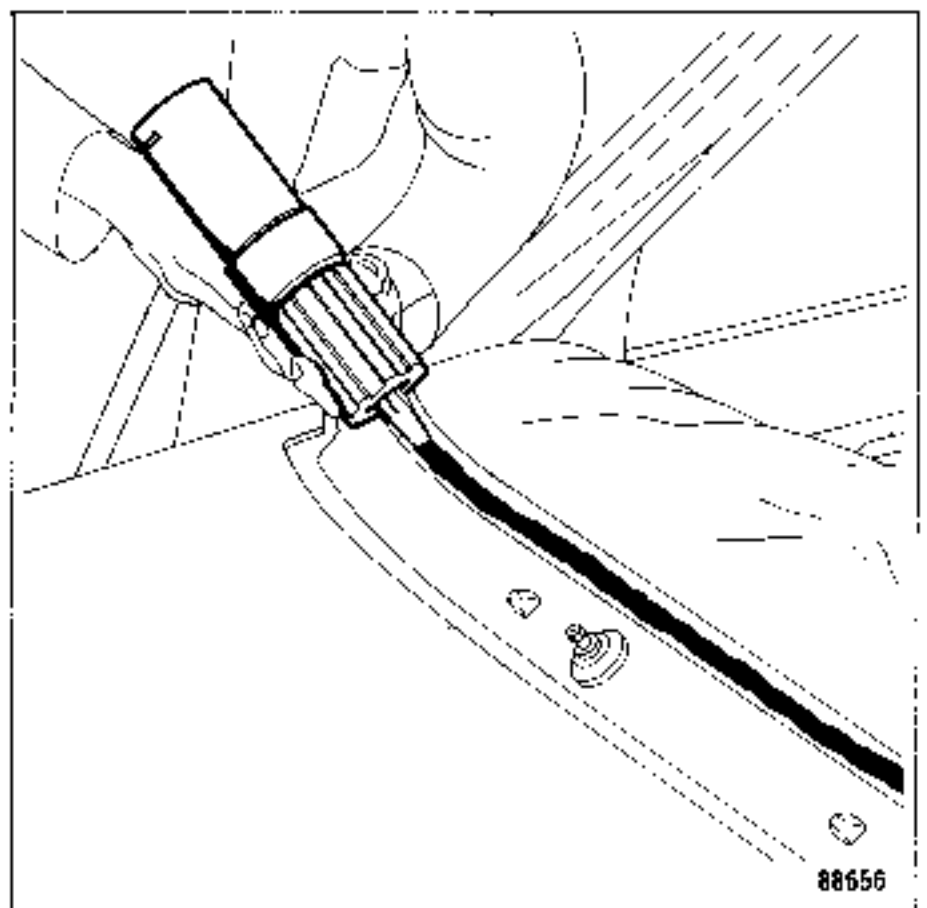
- Fit the new anti-run seal or seals to the aperture flange.

REFITTING

- With a rubber mallet or a tightly rolled cloth pad, push the trim support onto the windscreen, avoiding touching the primer with the fingers.

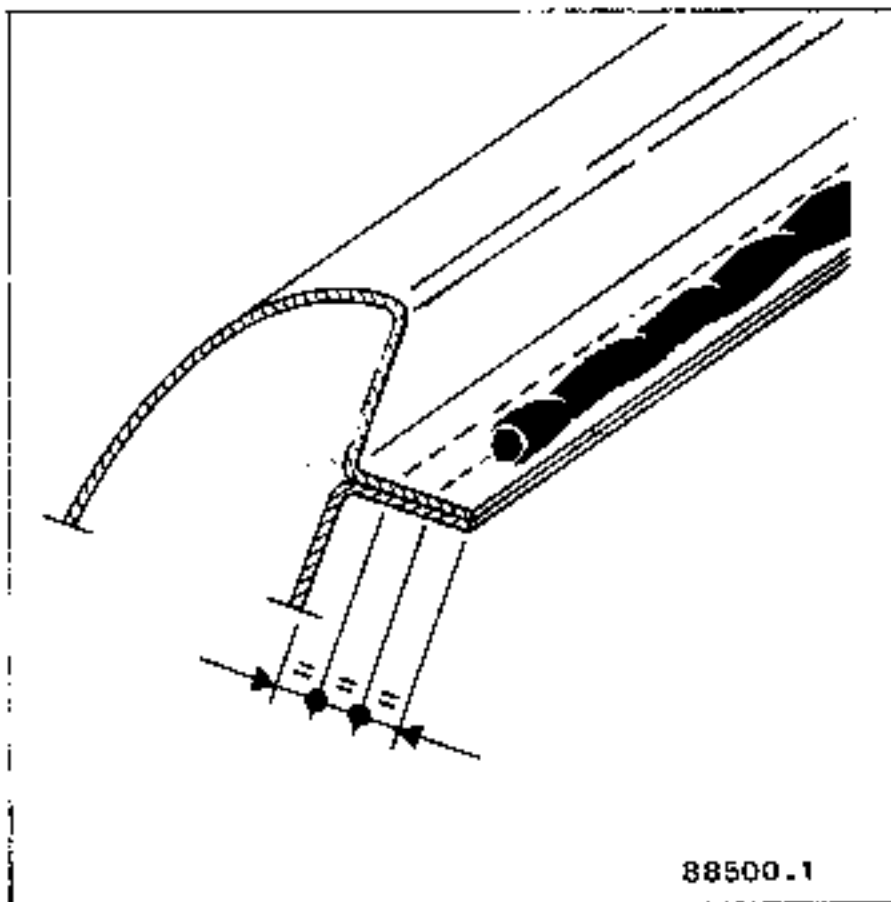
NOTE: Be ready, before fitting the seal, to apply a second cartridge of mastic (the part number for spare cartridges is given on page 2). If the two ends of the fillet cannot be joined during the first operation, it will be too late to order an additional cartridge.

- Clip the trim to its support before fitting the windscreen to the vehicle.



- Take the cartridge (7), pierce its diaphragm with a screwdriver and screw on nozzle (8).

- Remove the bottom of the cartridge and take out the damp absorbing material.
- With a pneumatic gun, apply a mastic fillet to the windscreen aperture, starting at the top, in the centre of the frame.



- The fillet is to be applied to the flange as shown in the above diagram.
- Make it as even as possible, except in the corners where it can be increased in diameter to 10 mm. Smooth out the joint at the ends of the fillet with a spatula.
- Fit the windscreen, using the suction pads, immediately after the application of the mastic, centralizing it in the windscreen aperture.
- With a tightly rolled ball of cloth, push the windscreen into its frame by tapping it evenly round its periphery until the trim is flush with the windscreen pillars and the roof.
- NOTE: Do not apply excessive force to any particular point (there is a risk of breakage).
- Immediately after fitting the windscreen, remove any excess mastic from both the inside and outside of the windscreen. If necessary, clean the paint and the windscreen, using only a clean cloth and "S27" (heptane).

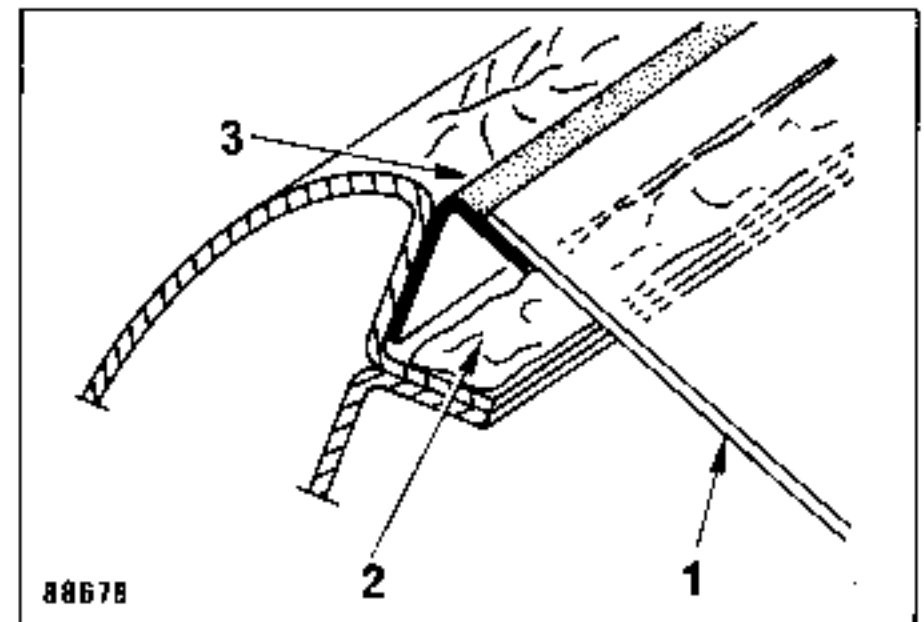
- The vehicle is not to be driven for approximately 2 1/2 to 3 hours. During this time, hold the windscreen in place with one or two straps.
- Refit the windscreen wiper arms.

NOTE:

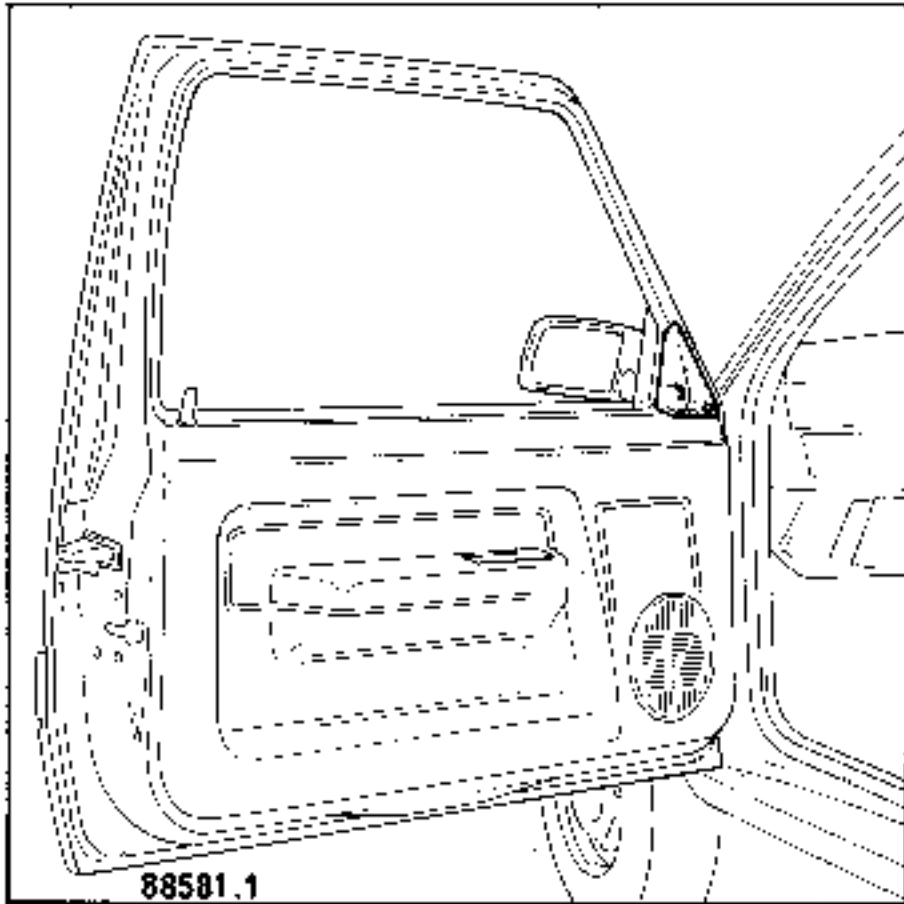
If the windscreen breaks on fitting.

- Leave it, if possible for 1 1/2 to 2 hours before removing it. The mastic will then have started to cure, and removing the windscreen will be a much cleaner operation than if carried out immediately.
- Fully protect the inside and outside of the vehicle.
- Apply the suction pads to the outside of the windscreen.
- One operator is to push the windscreen from the inside to free it whilst the other supports it from the outside.
- Repeat the operating sequence from cleaning the windscreen aperture, avoiding staining the vehicle with the mastic.

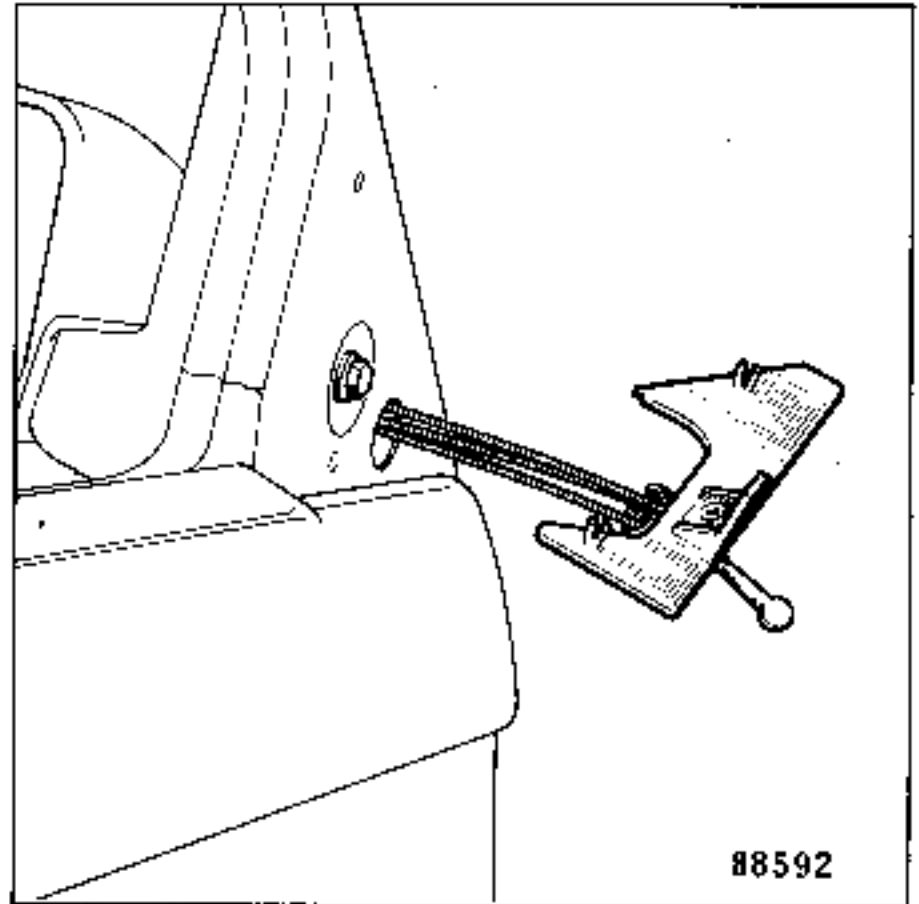
If the external parts of the windscreen frame have been damaged, we strongly recommend that the frame should be masked-off up to the edge of the windscreen flange. This will protect the mastic film from any paint overspray. Do not stick the adhesive tape to the remaining film of mastic.



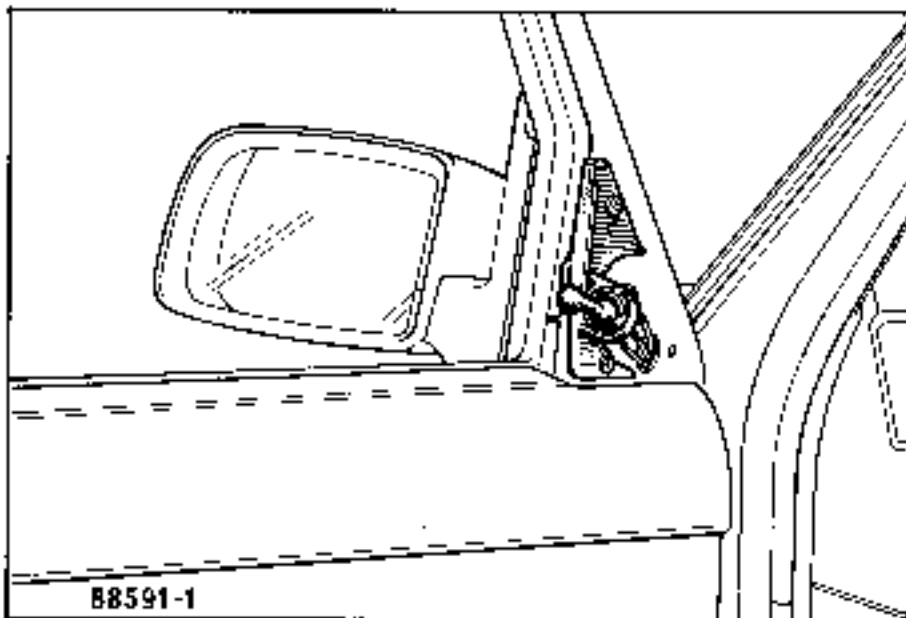
- 1 - masking paper
- 2 - mastic film
- 3 - masking tape



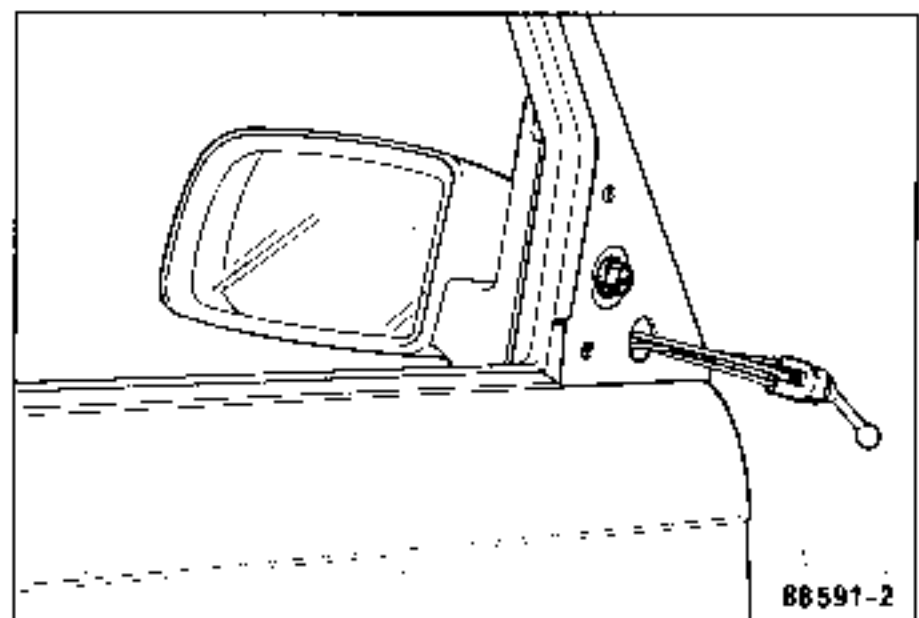
- Remove the rear view mirror control cover.



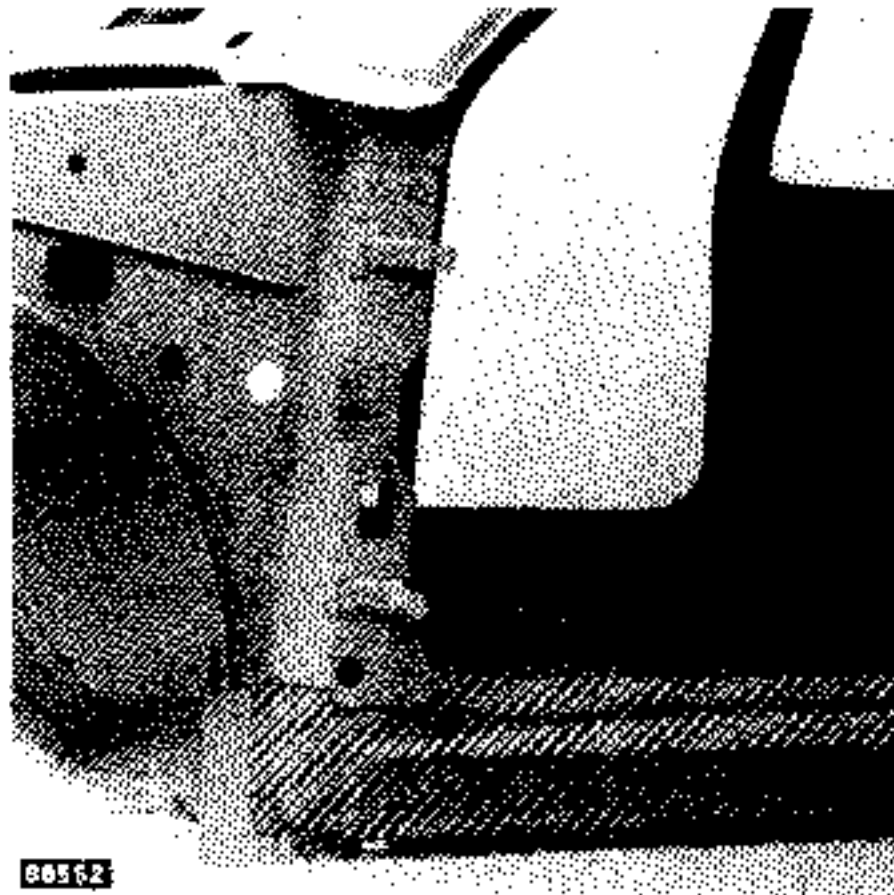
- Remove the control knob securing screw.



- Remove the 2 control support securing screws.



- Remove the mirror securing screw and take off the mirror and its control.



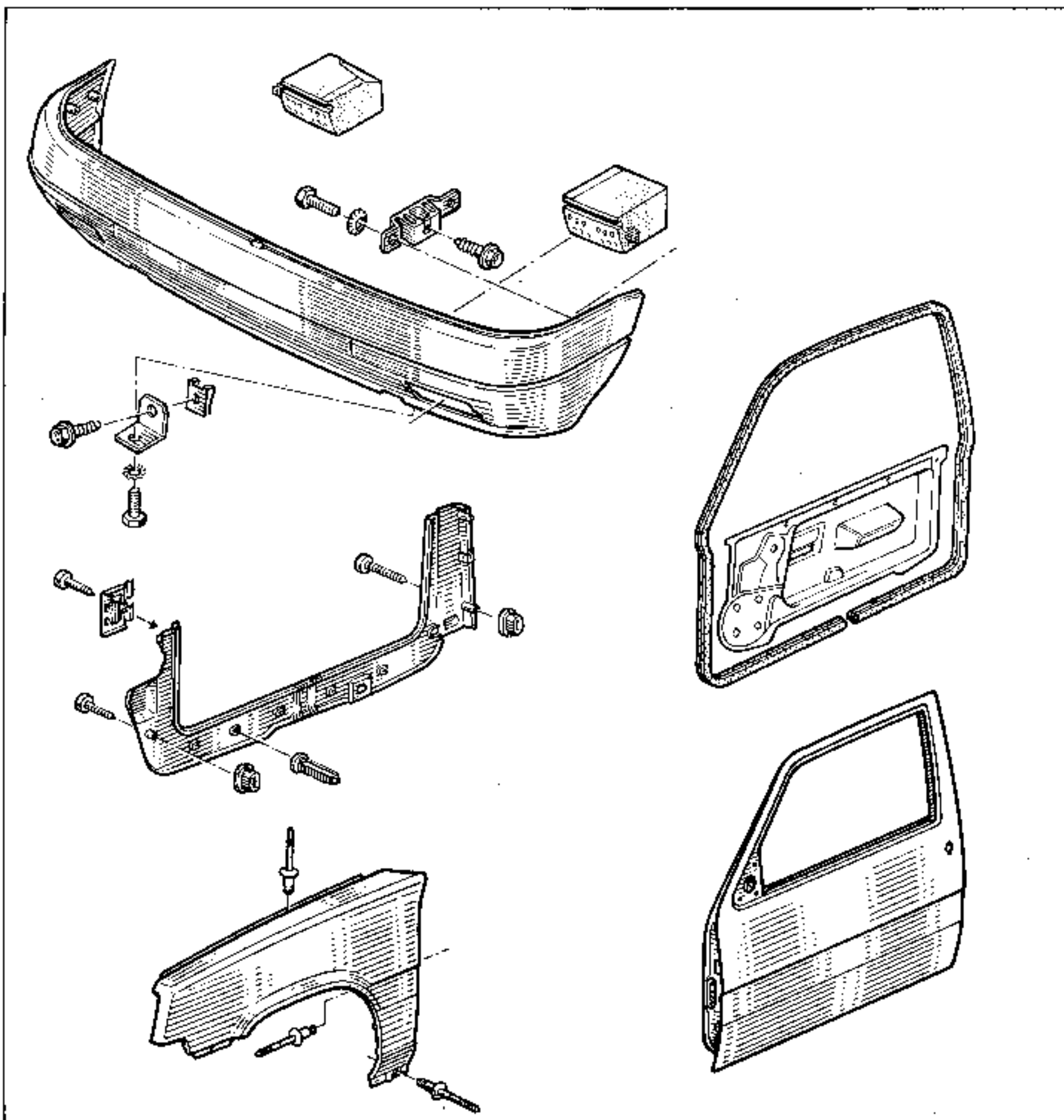
Carry out paint sequence no. 5 (see
"Painting" section).

After painting, apply hollow section
protective treatment.

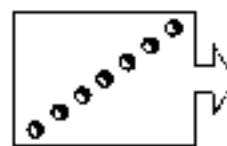
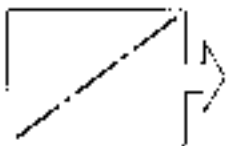
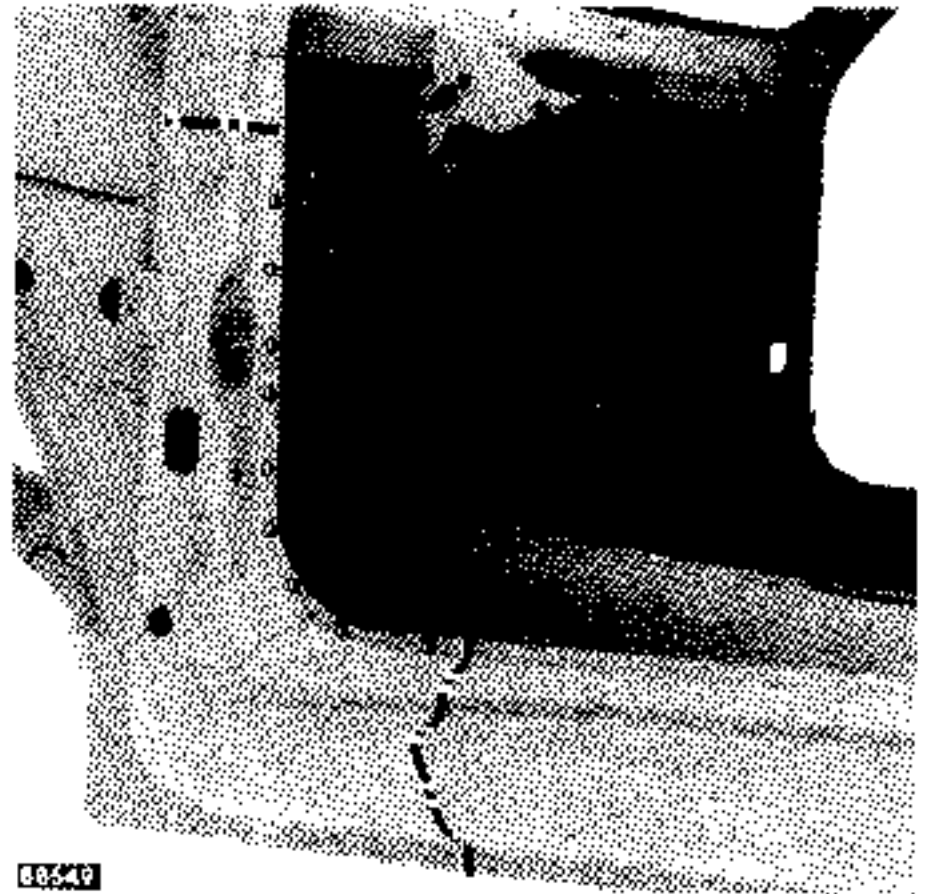
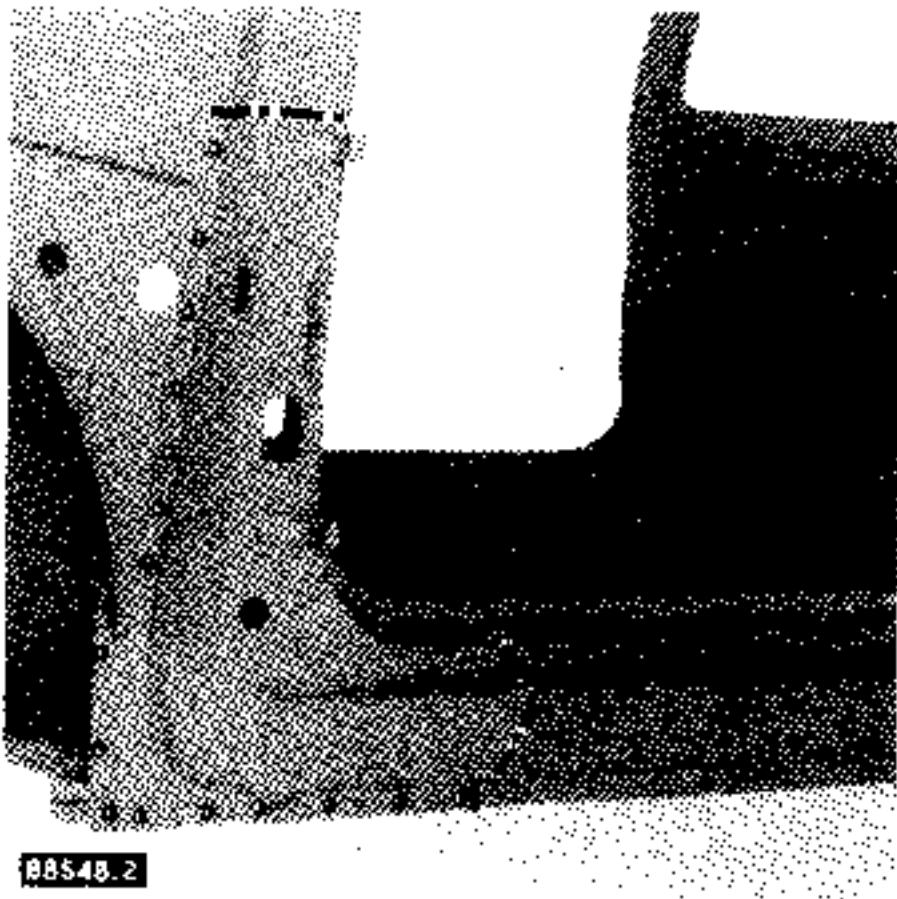
STRIPPING

Remove:

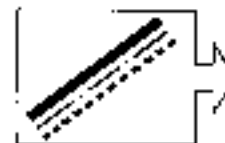
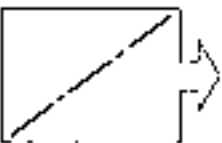
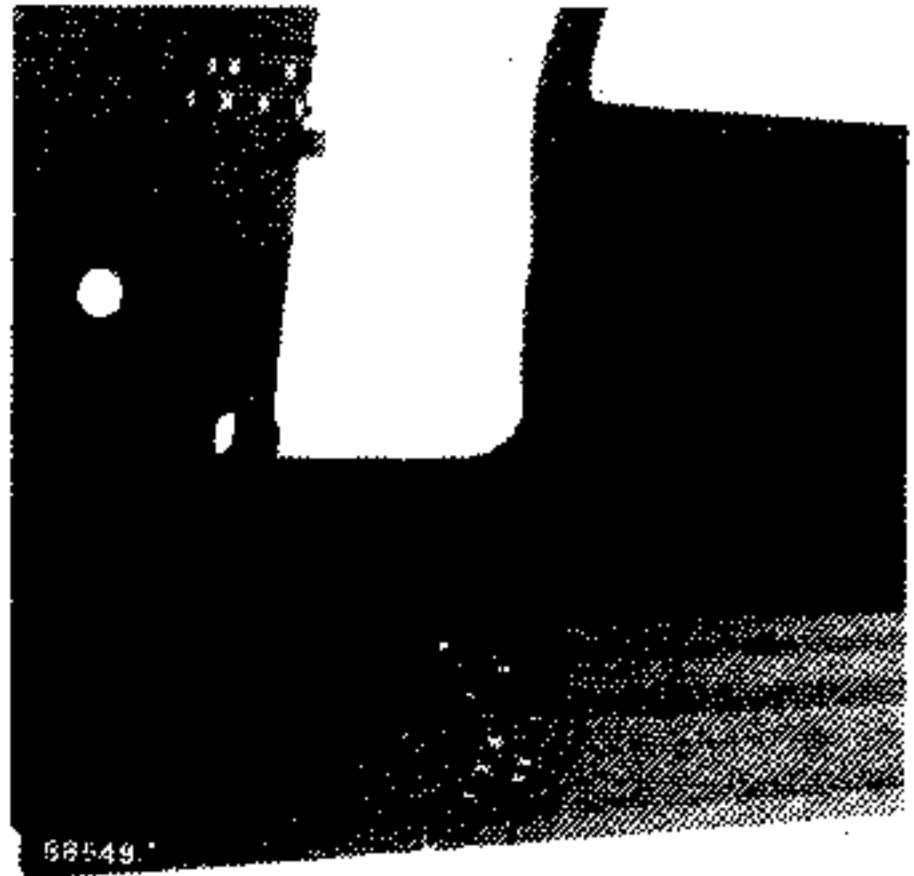
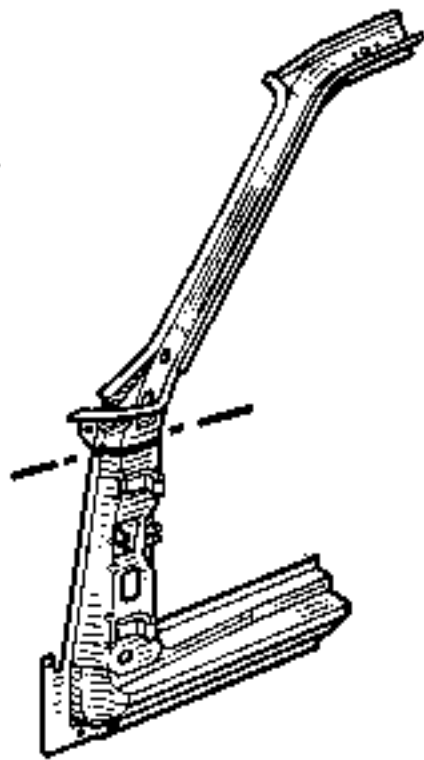
- the bumper shield
- the front wing
- the door
- the door pillar interior trim
- the door seal



CUTTING - JOINT SEPARATION



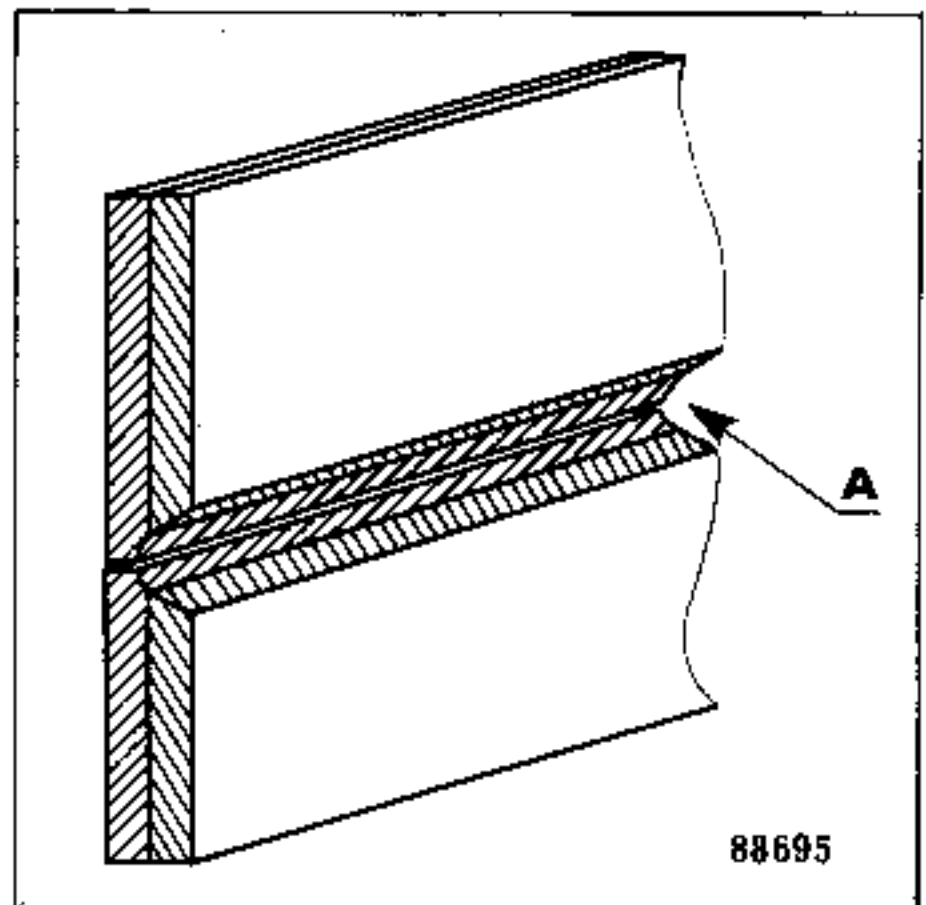
- Remove the damaged part by following the methods represented by the above symbols (see description of symbols).
- Grind back the pieces of spot weld adhering to the support panels.



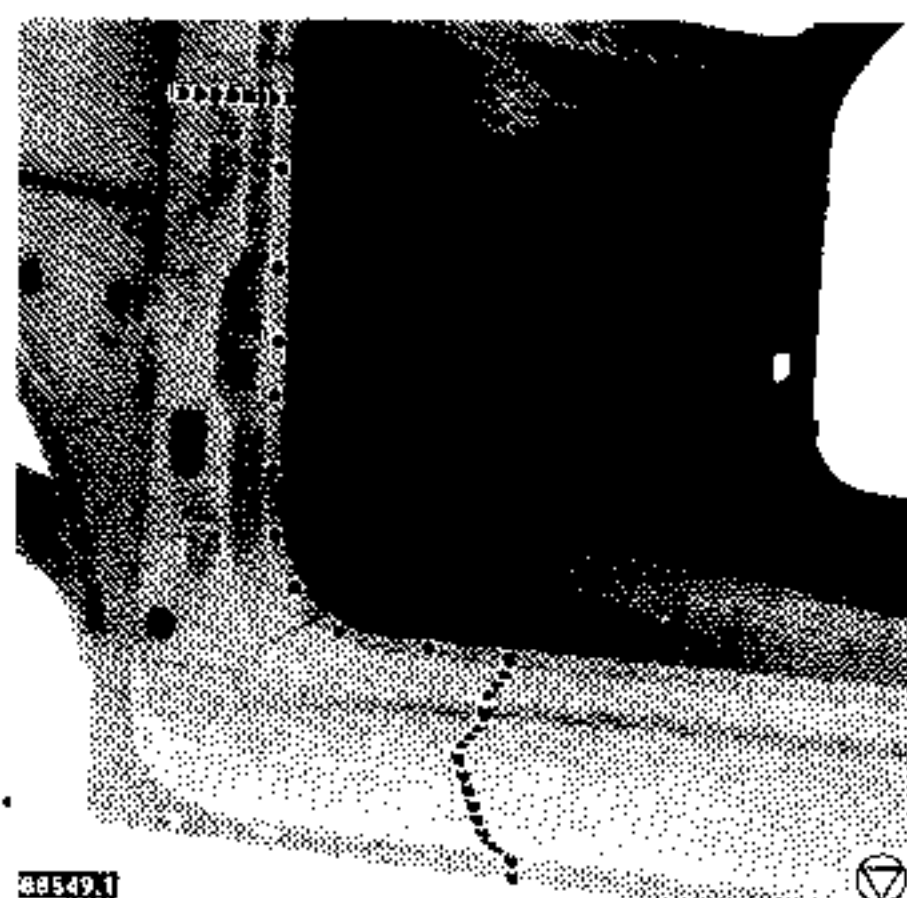
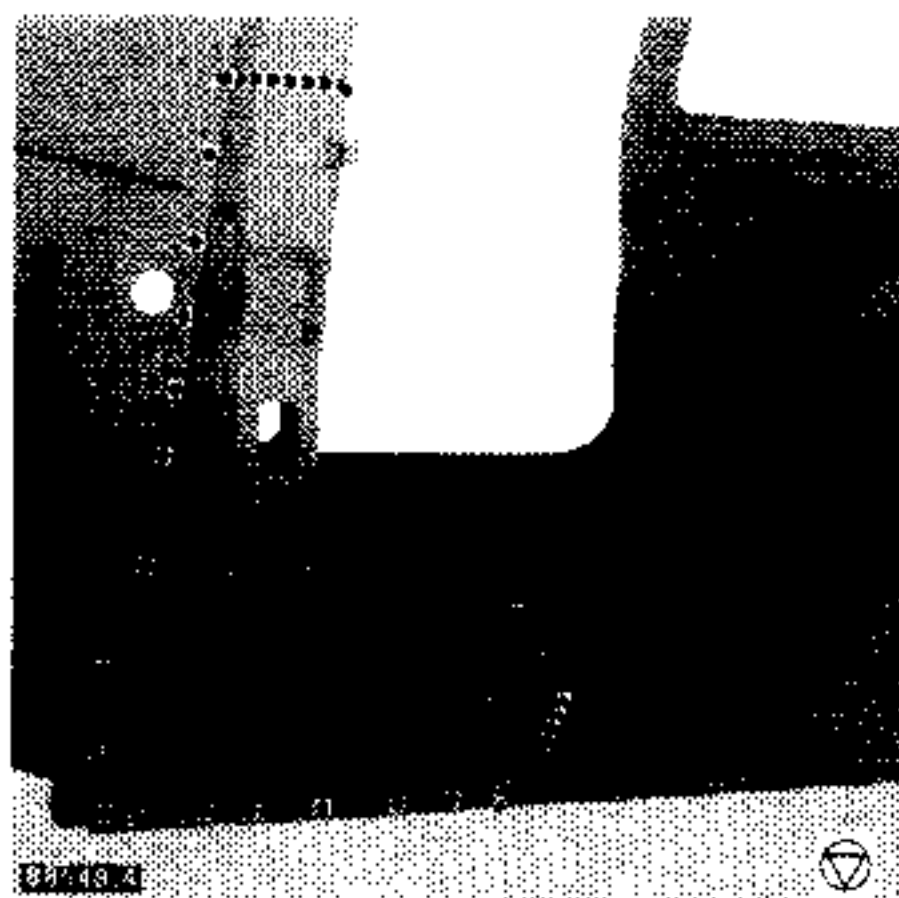
- Cut, from the new part, a length approximately 50 mm larger than that cut out on the vehicle.
- Fit the new part so that it overlaps the original part on the vehicle and secure it with grip clamps.
- Saw through both thicknesses of metal simultaneously to make adjusting the joint easier.

PREPARATION PRIOR TO WELDING

- Strip back, to the bare metal, the inner and outer faces of all the areas to be welded. (Both on the vehicle and on the new parts).
- Apply a coat of electroplastic mastic to the areas to be spot welded (see description of symbols).
- Adjust the new part and secure it with grip clamps.
- Grind a chamfer (A) at the upper cut on the pillar, using a bakelite grinding disc 3 mm thick, so that both thicknesses of metal are welded.



WELDING

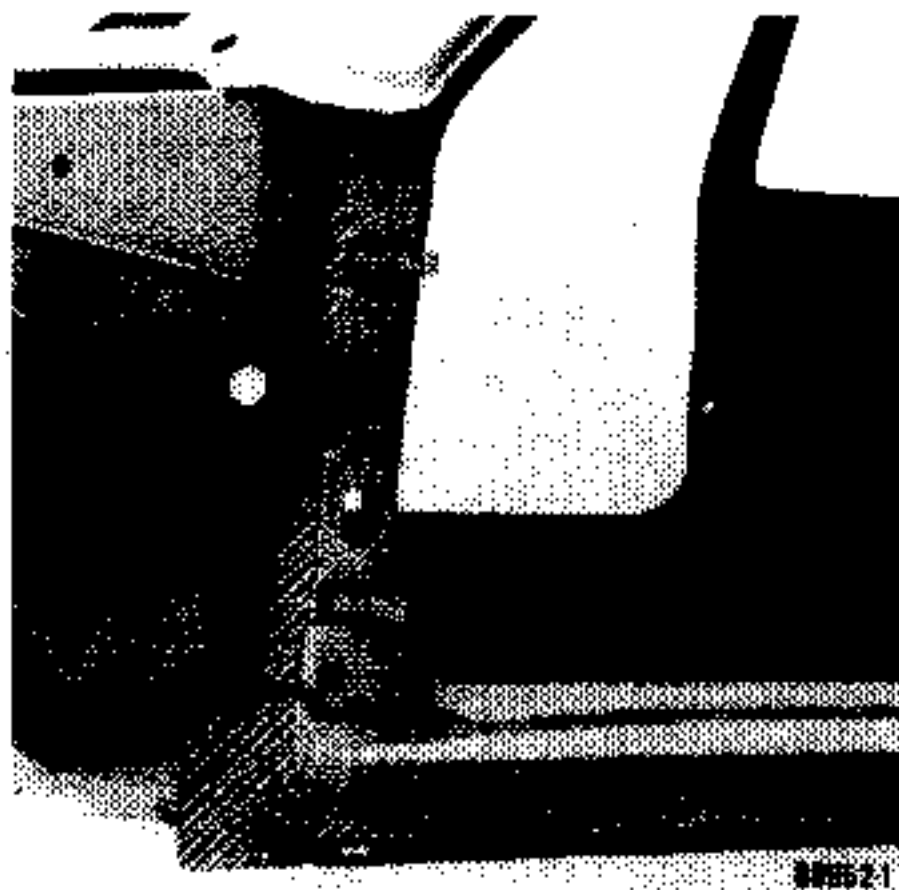
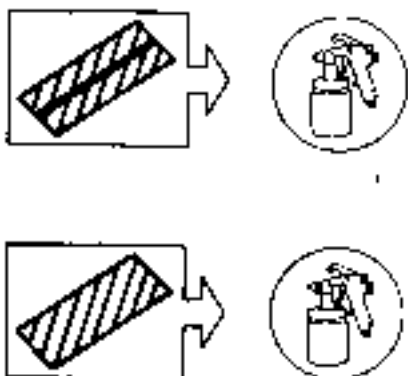


$$e = 1,4\text{mm}; \quad H = 55\text{mm}$$

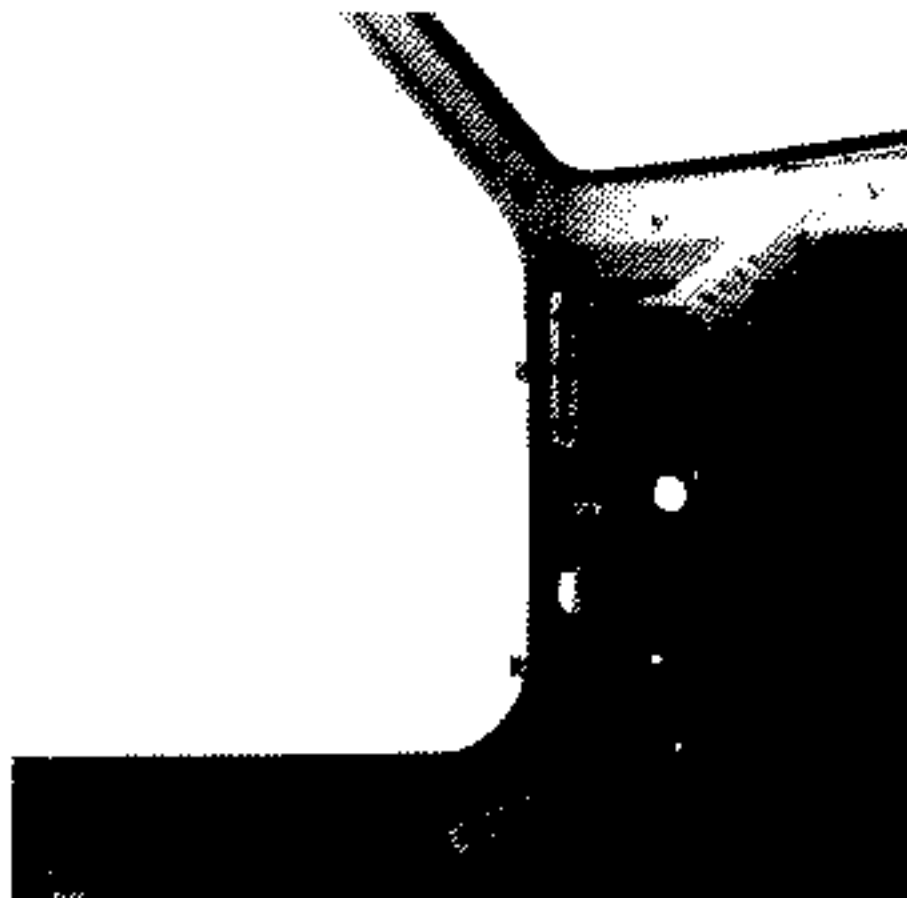
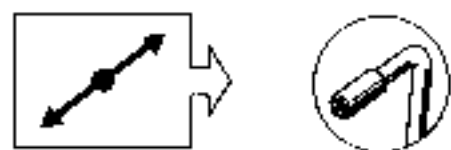
WELDING

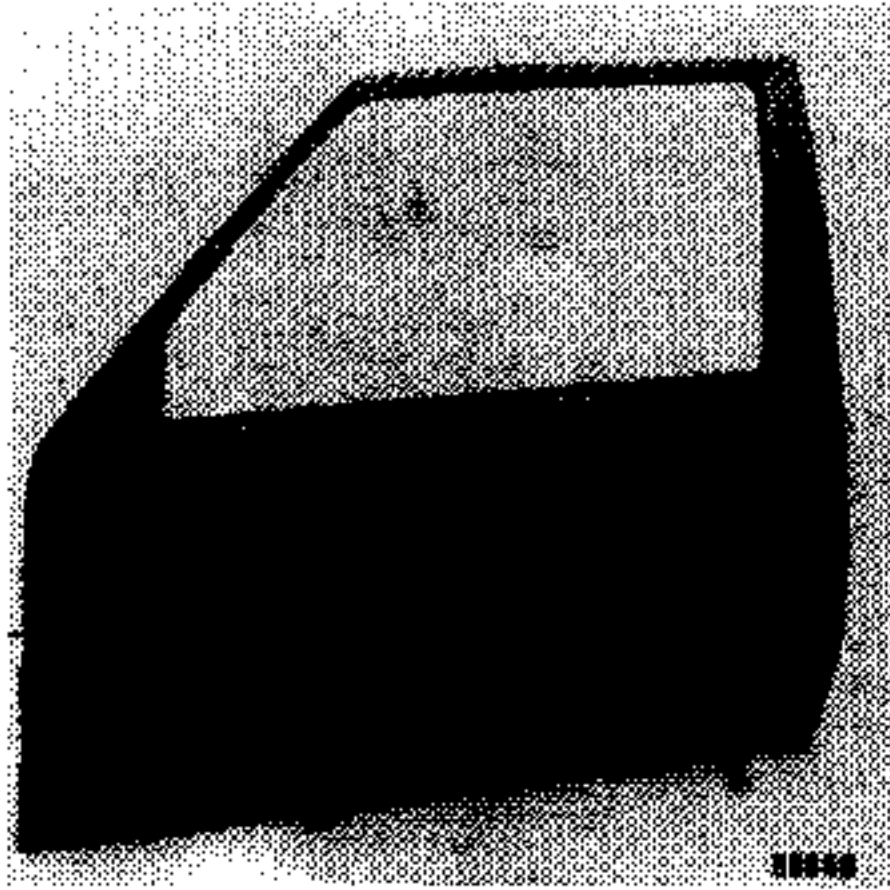
- Secure the butt joints with tack welds.
- Apply the spot welds. The corresponding values of (e) and (H) are given under each drawing.
- Apply the stitched fillets, using the gas envelope welding process. (These joints may also be gas welded, using a 75 to 100 nozzle).
- Grind flush the butt welds and fill them with soft solder.

PAINTING



- Carry out paint sequence No. 5 (see "Painting" section).
- After painting, apply hollow section protective treatment.





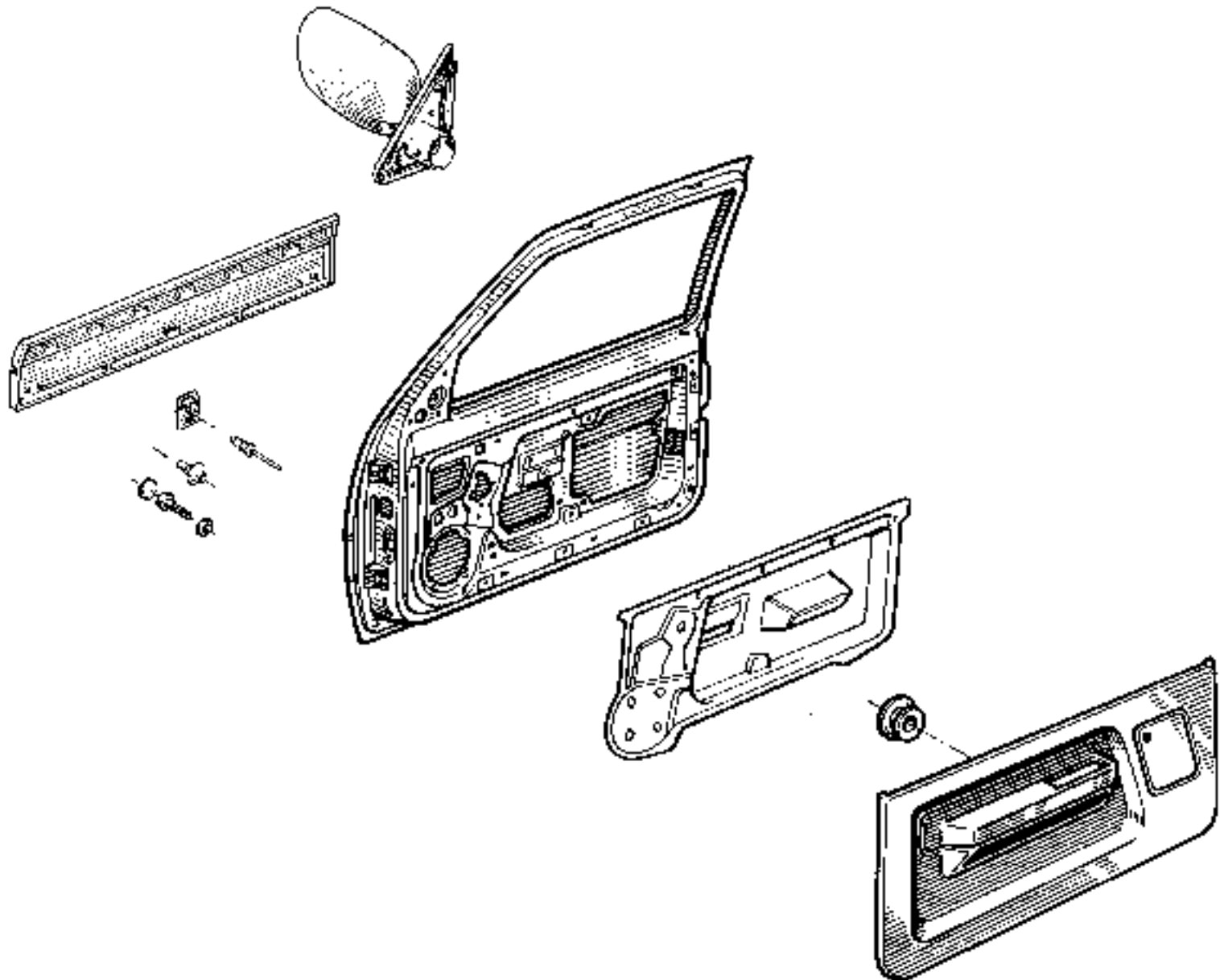
PAINTING

- Carry out paint sequence No. 5 (see "Painting" section).
- After painting, apply hollow section protective treatment.

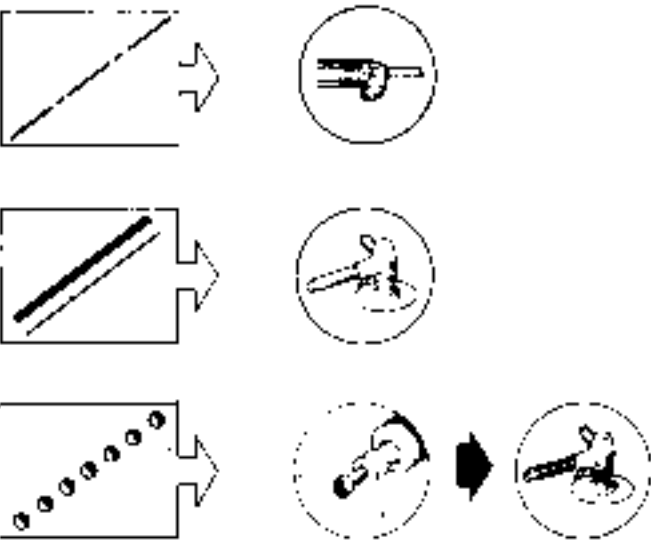
STRIPPING

- remove the trim from the door
- remove the external rear view mirror and the trim strip
- remove the door

Note: For more details on removing the various parts, see the section which deals with the part in question.

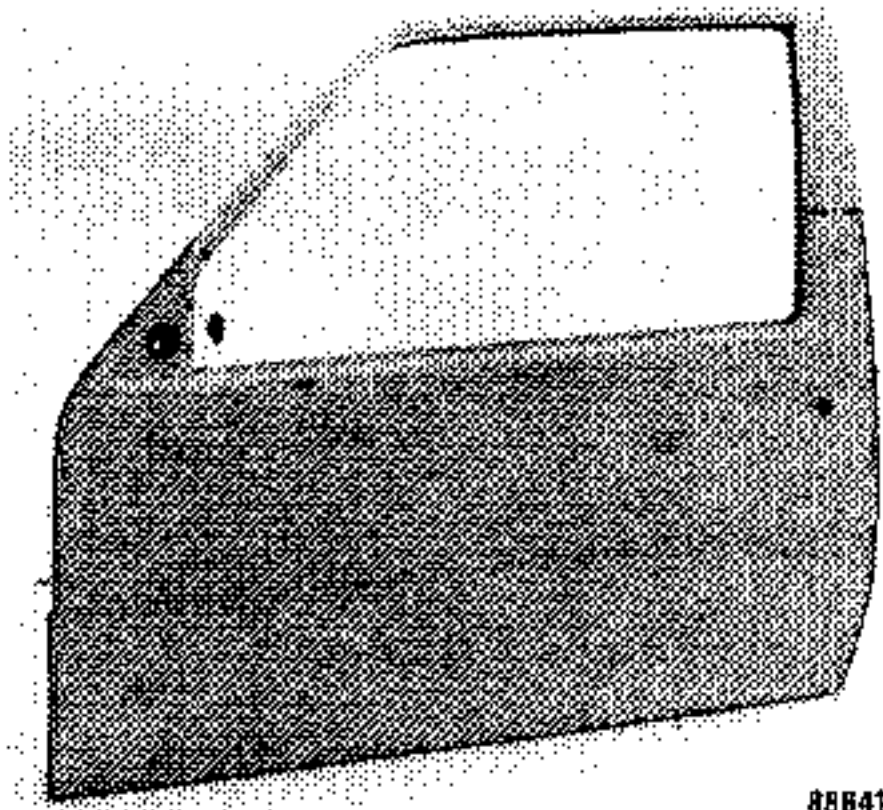


CUTTING - JOINT SEPARATION

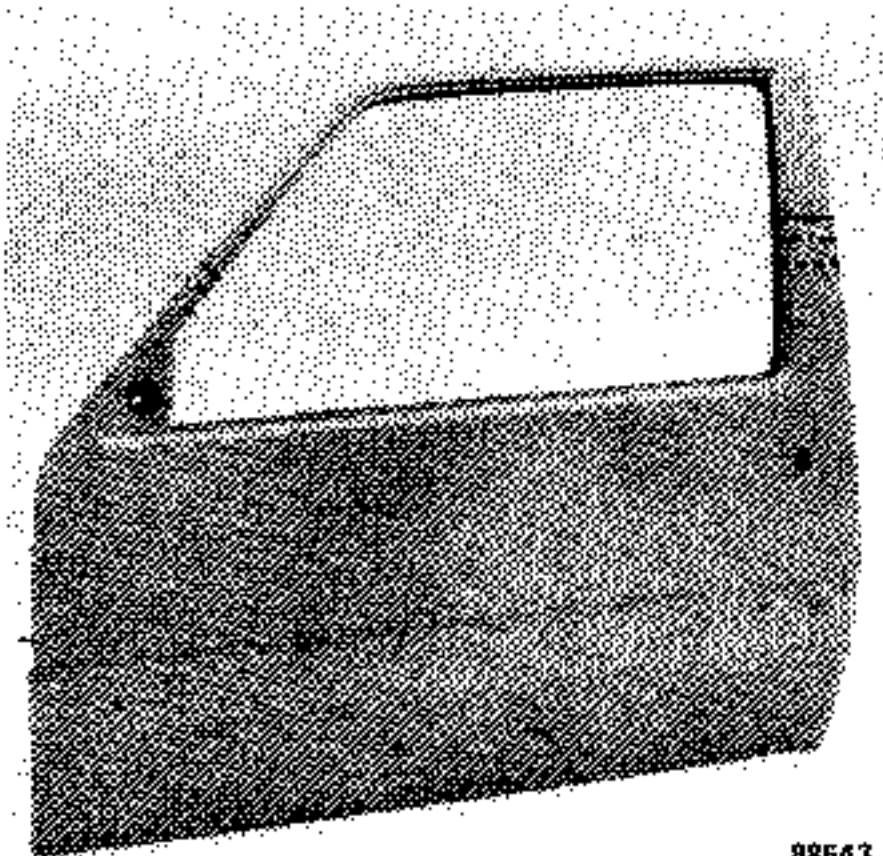


- Remove the damaged part by following the method represented by the above symbols (see description of symbols).
- Grind back the pieces of spot weld adhering to the support panels.
- Remove the strip of metal remaining on the inside of the door body.

- Cut, from the new part, a section approximately 50 mm larger than that cut out on the vehicle.
- Fit the new part so that it overlaps the original part on the vehicle and secure it with grip clamps.
- Saw through both thicknesses of metal simultaneously to make adjusting the joint easier.



88641

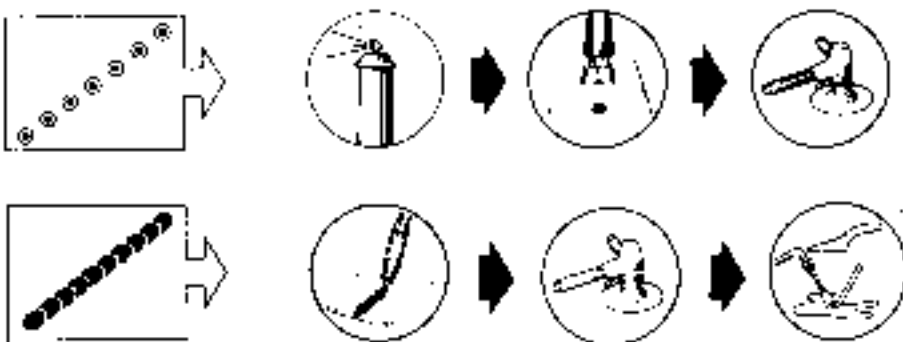
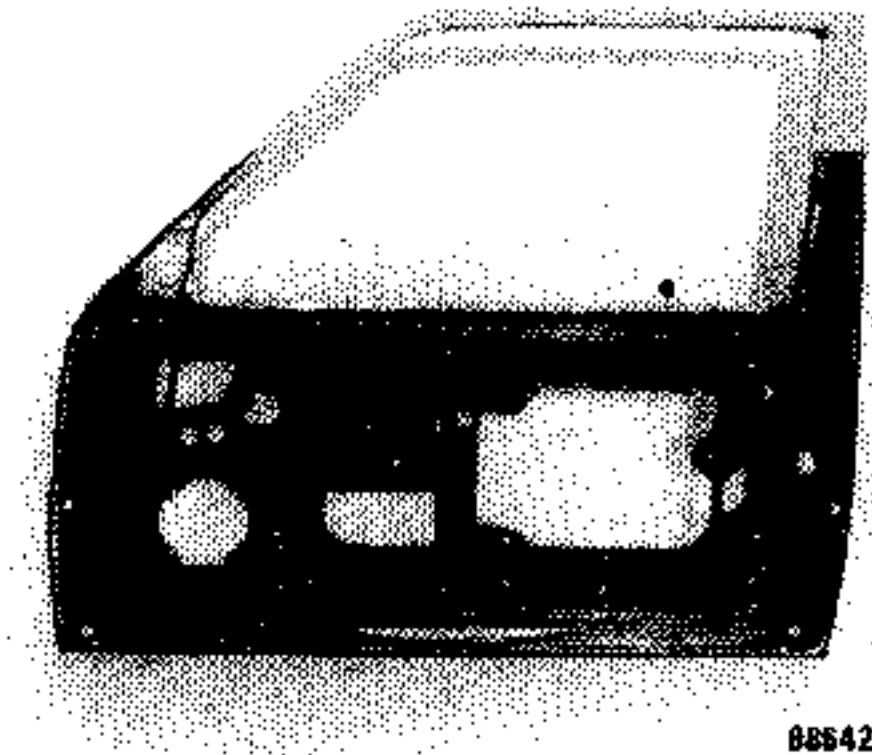


88643



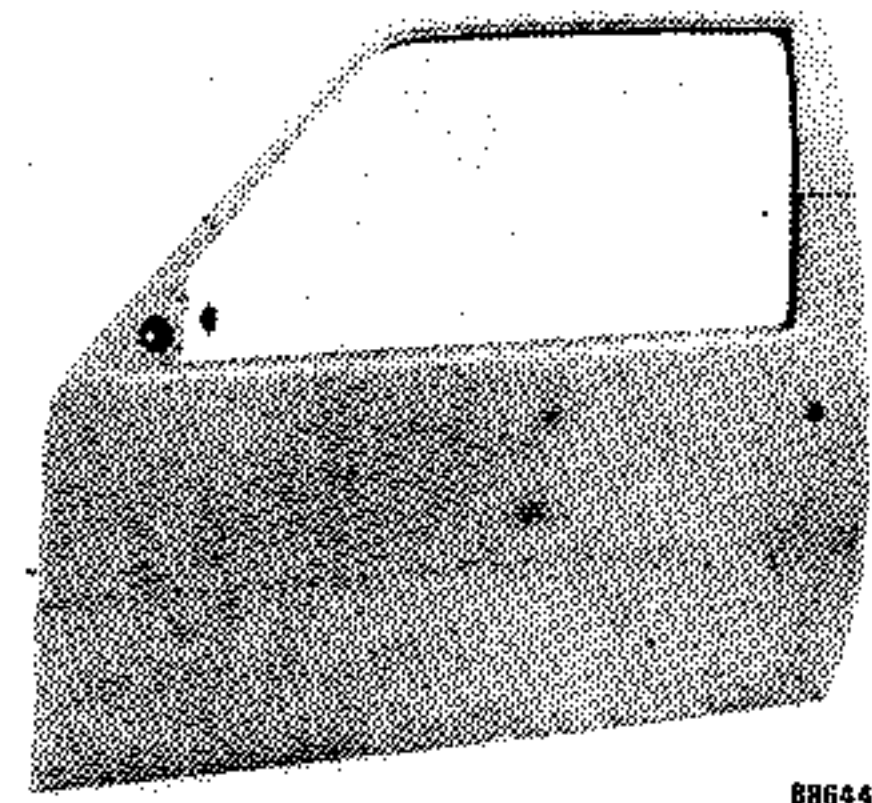
PREPARATION PRIOR TO WELDING

- Strip back, to the bare metal, the inner and outer faces of all the areas to be welded. (Both on the vehicle and on the new parts).
- Apply zinc paint to the areas to be plug welded.
- Adjust the new part and secure it with grip clamps.
- Crimp, evenly, round the periphery of the panel.

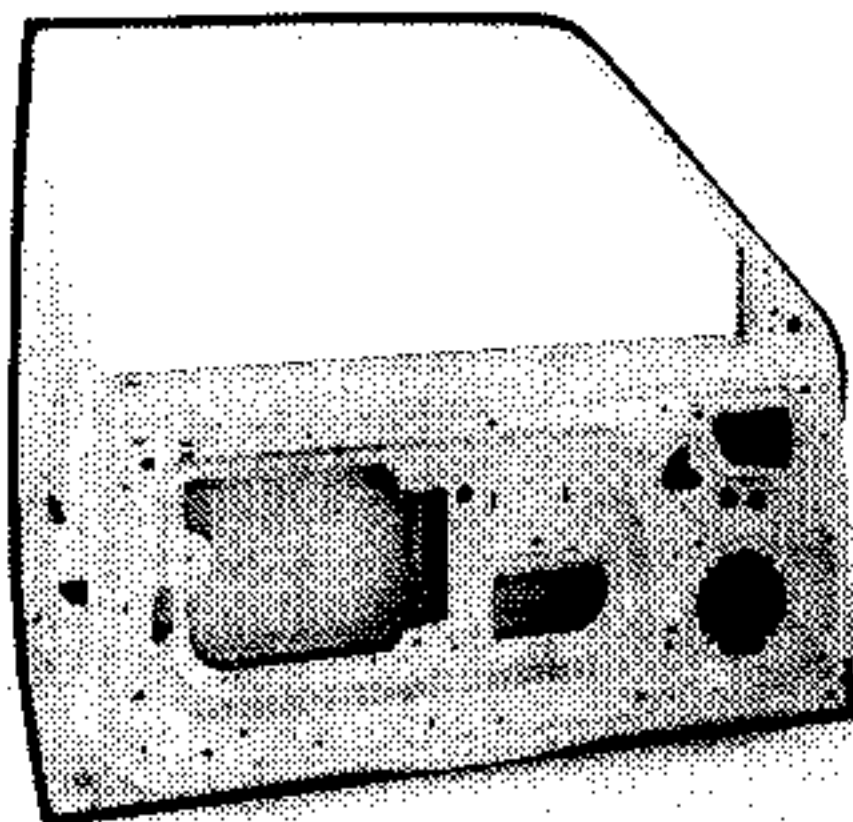


D = 4.5 mm

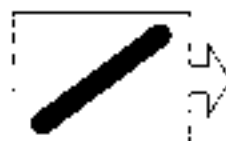
- Apply the plug welds, using the gas envelope welding process. To do this, drill holes in the upper panel to the diameter D stated under the drawings.
- Apply the stitched fillets, using the gas envelope welding process. (These joints may also be gas welded, using a 75 to 100 nozzle).
- Grind flush the butt welds and fill them with soft solder.



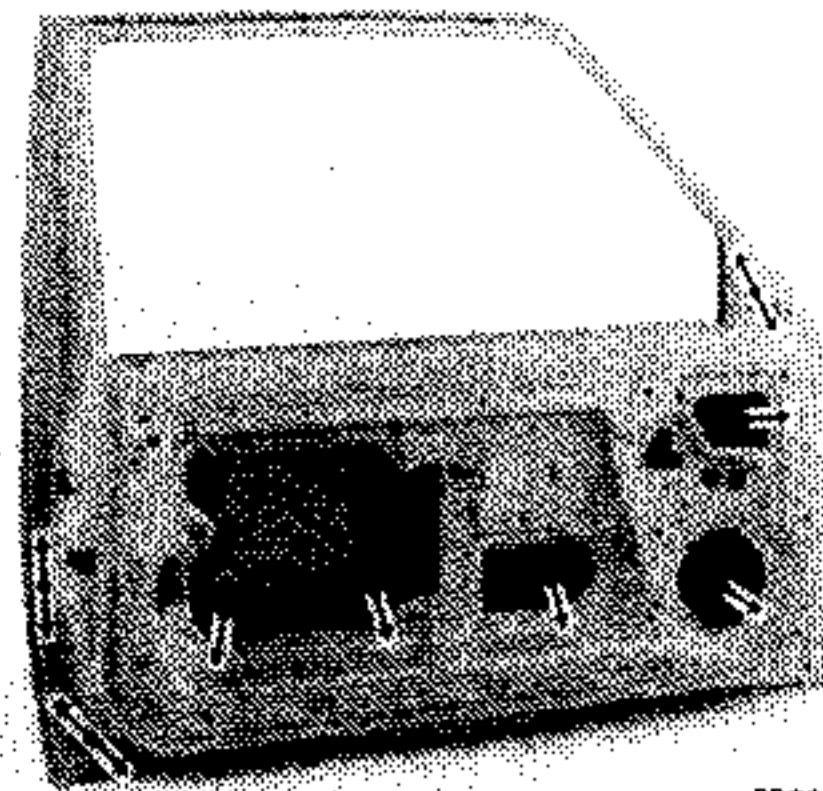
PAINTING



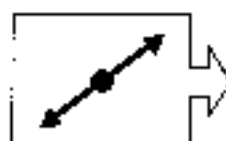
88646



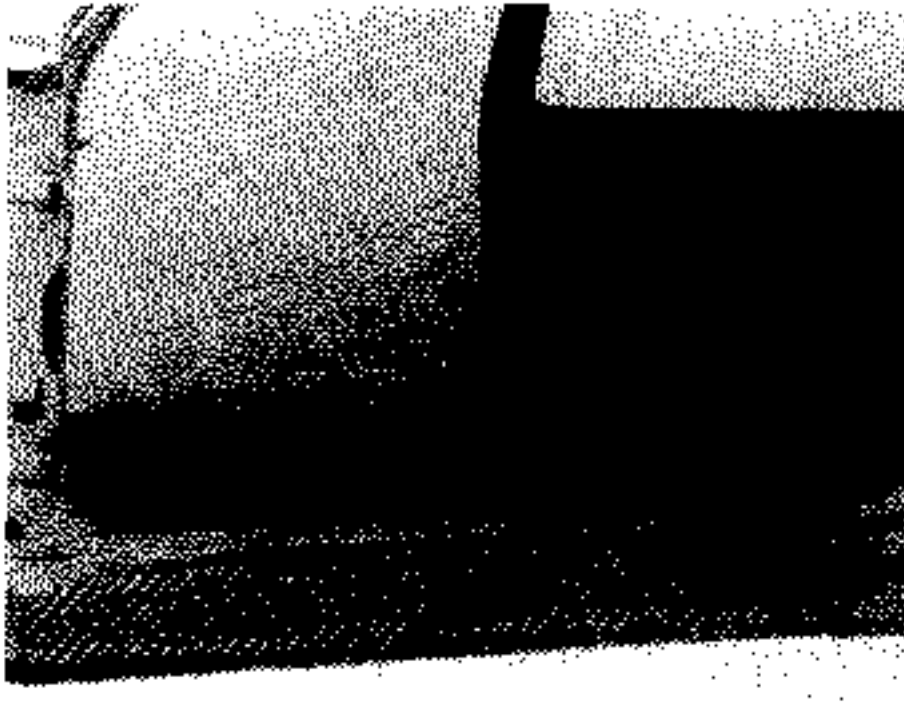
- Refit the door to the vehicle.
- Carry out paint sequence No. 1 (see "Painting" section).



88645



- After painting and refitting the trim, apply hollow section protective treatment.



88551



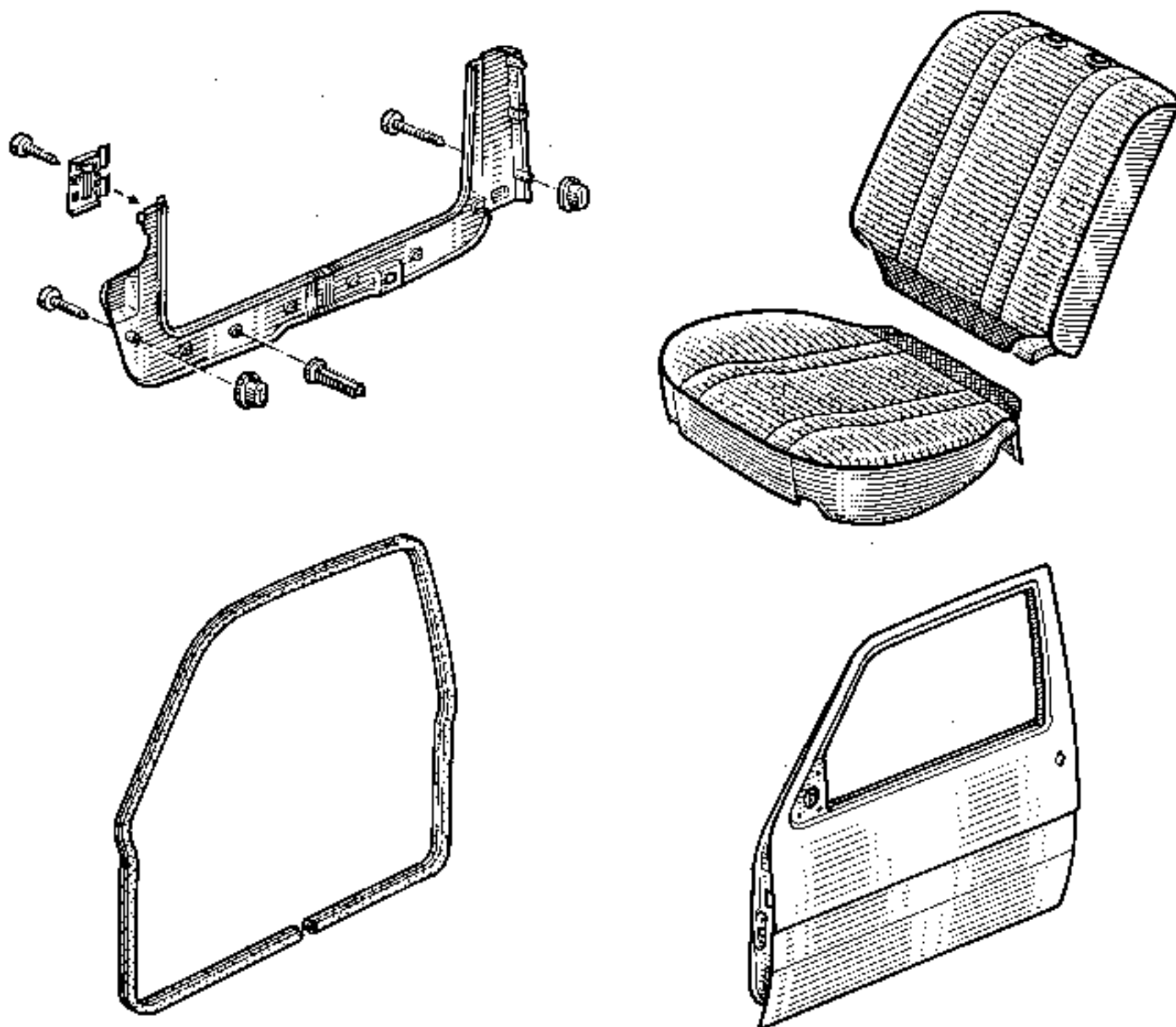
PAINTING

- Carry out paint sequence No. 3 (see "Painting" section).
- After painting, apply hollow section protective treatment to the inside face of the repaired area.

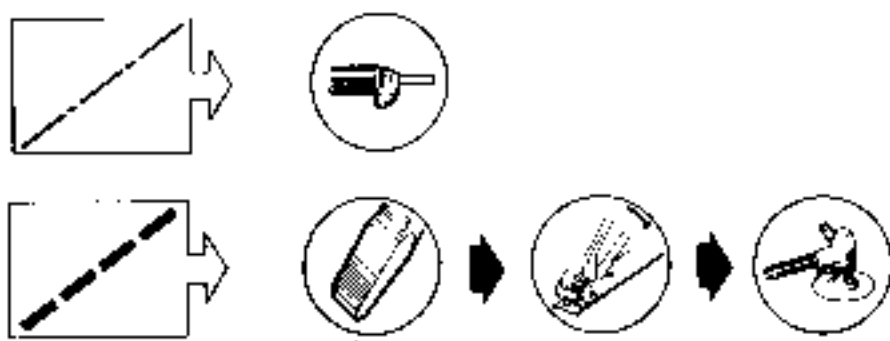
STRIPPING

- Remove:
 - the door
 - the front seat
 - the interior trim
 - the door seal
- Fold back the floor covering

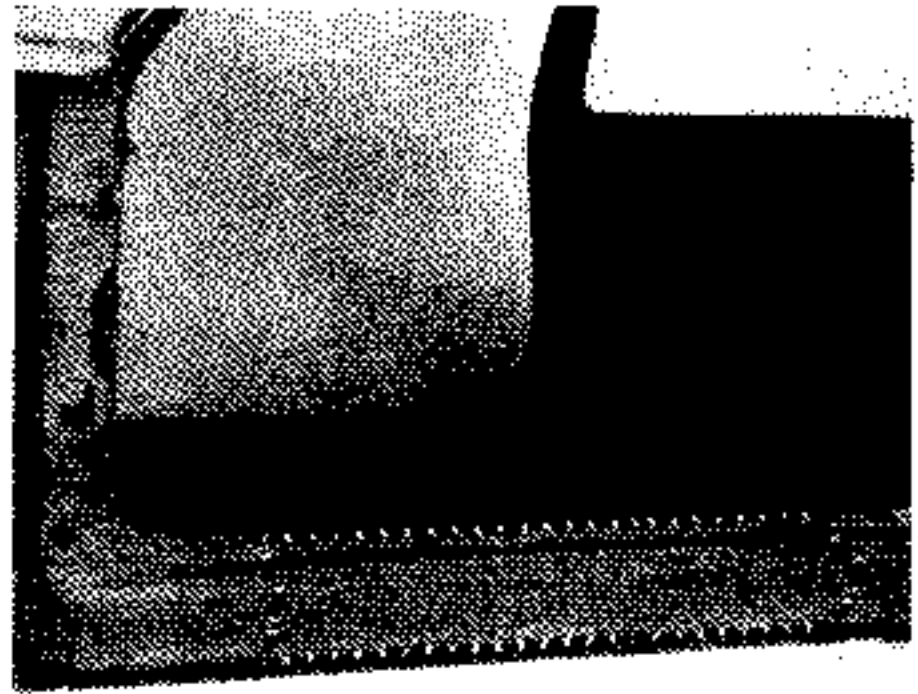
Note: For more details on removing the various parts, see the section which deals with the part in question.



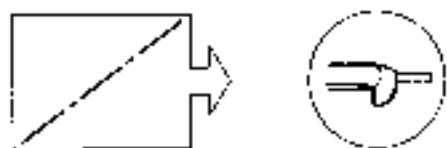
CUTTING - JOINT SEPARATION



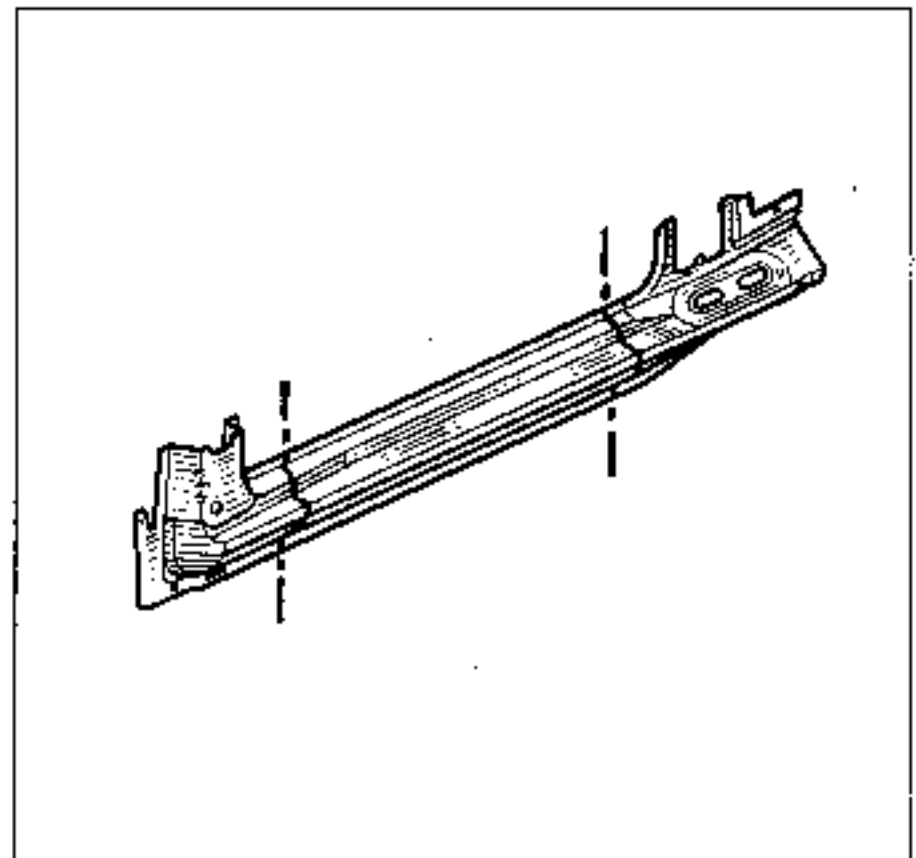
- Remove the damaged part by following the methods represented by the above symbols (see description of symbols).
- Grind back the pieces of spot weld adhering to the support panels.



Esses:

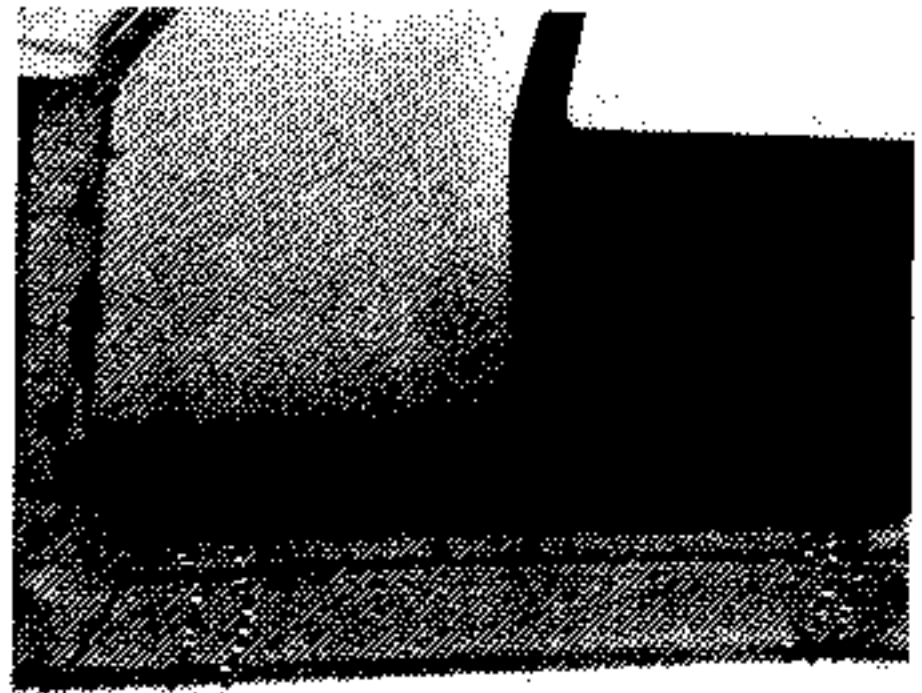


- Cut, from the new part, a section approximately 50 mm larger than that cut out on the vehicle.





- Fit the new part so that it overlaps the original part on the vehicle and secure it with grip clamps.
- Saw through both thicknesses of metal simultaneously to make adjusting the joints easier.

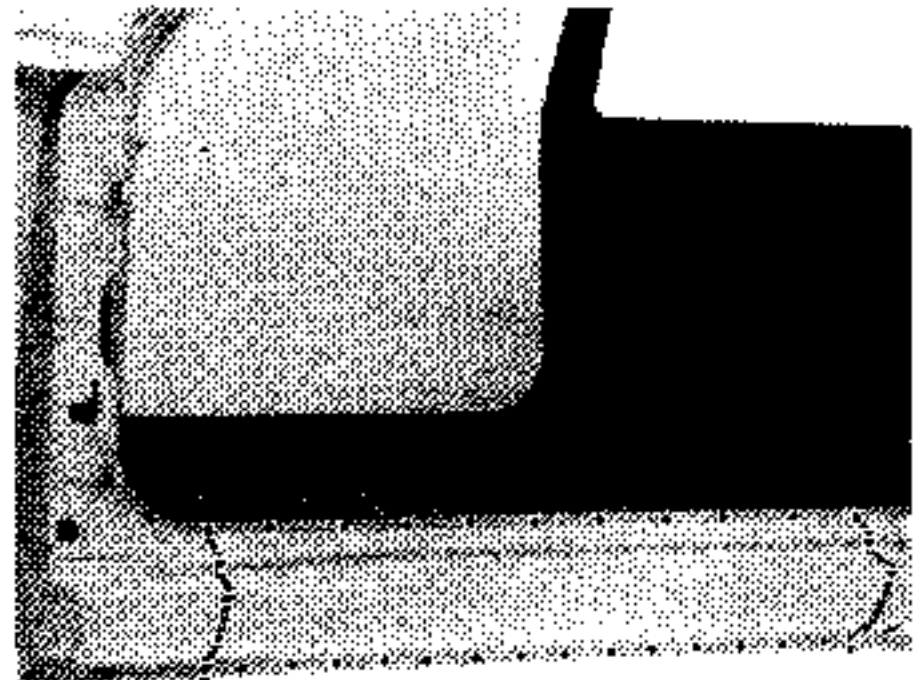


PREPARATION PRIOR TO WELDING

- Strip back, to the bare metal, the inner and outer faces of all the areas to be welded (both on the vehicle and on the new parts).
- Apply a coat of electroplastic mastic to the areas to be spot welded (see description of symbols).
- Adjust the new part and secure it with grip clamps.

WELDING

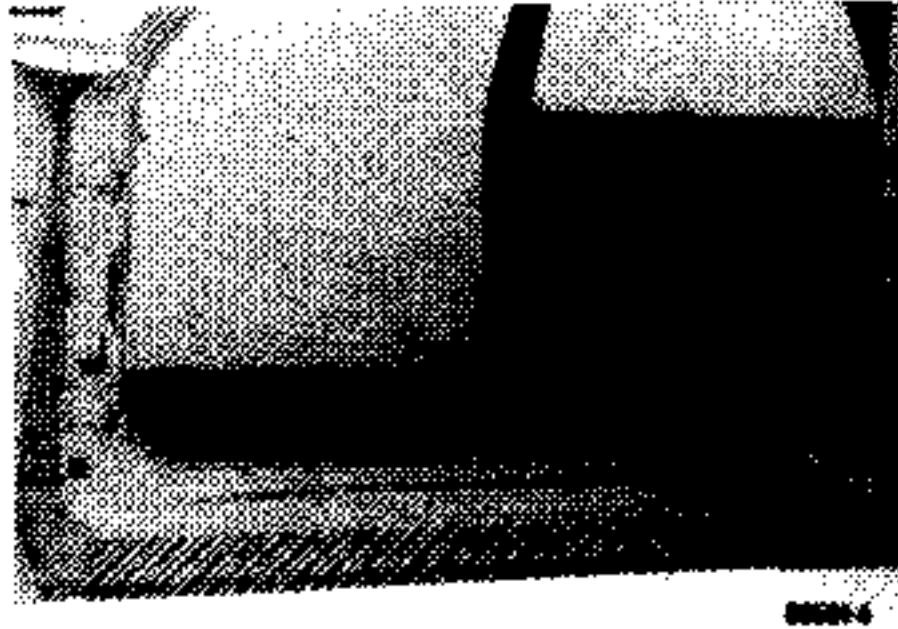
- Secure the butt joints by tack welding them.
- Apply the spot welds. The corresponding values of (e) and (H) are given under each drawing.
- Apply the stitched fillets, using the gas envelope welding process. (These joints may also be gas welded using a 75 to 100 nozzle).
- Grind flush the butt welds and fill them with soft solder.



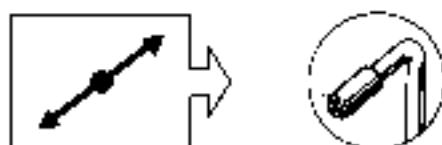
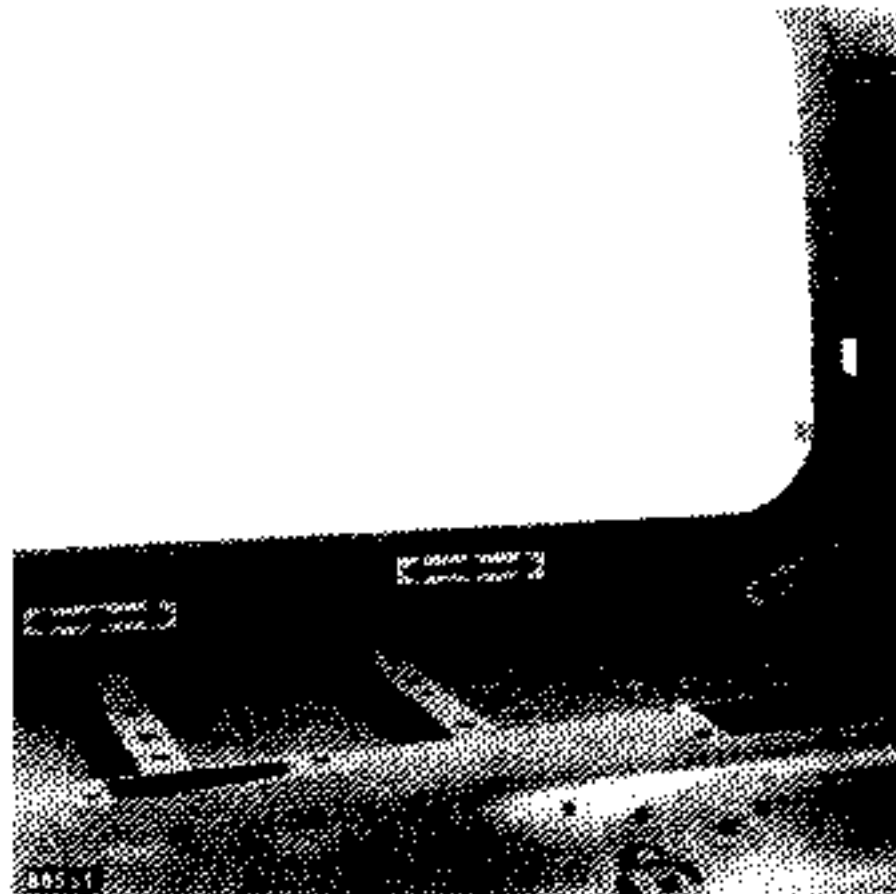
00551.2

e = 1.4 mm
H = 55 mm

PAINTING



- Carry out paint sequence No. 3 (see "Painting" section).



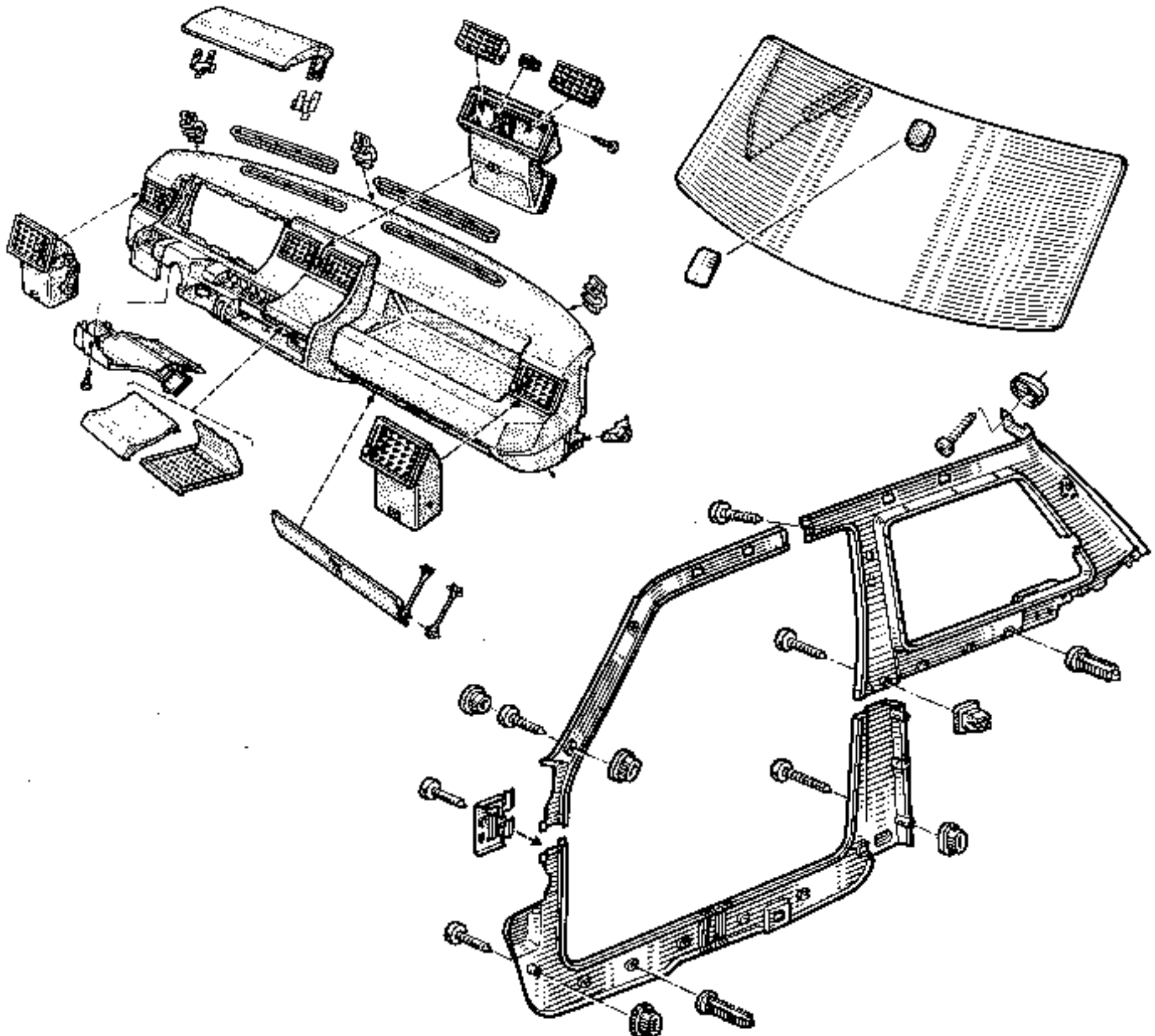
- After painting but before refitting the trim, apply hollow section protective treatment.

STRIPPING

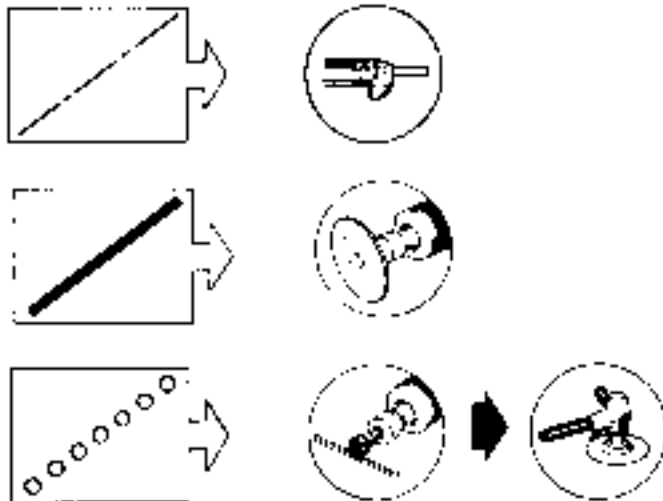
Remove:

- the facia panel
- the windscreen
- the windscreen frame and front door pillar trim.

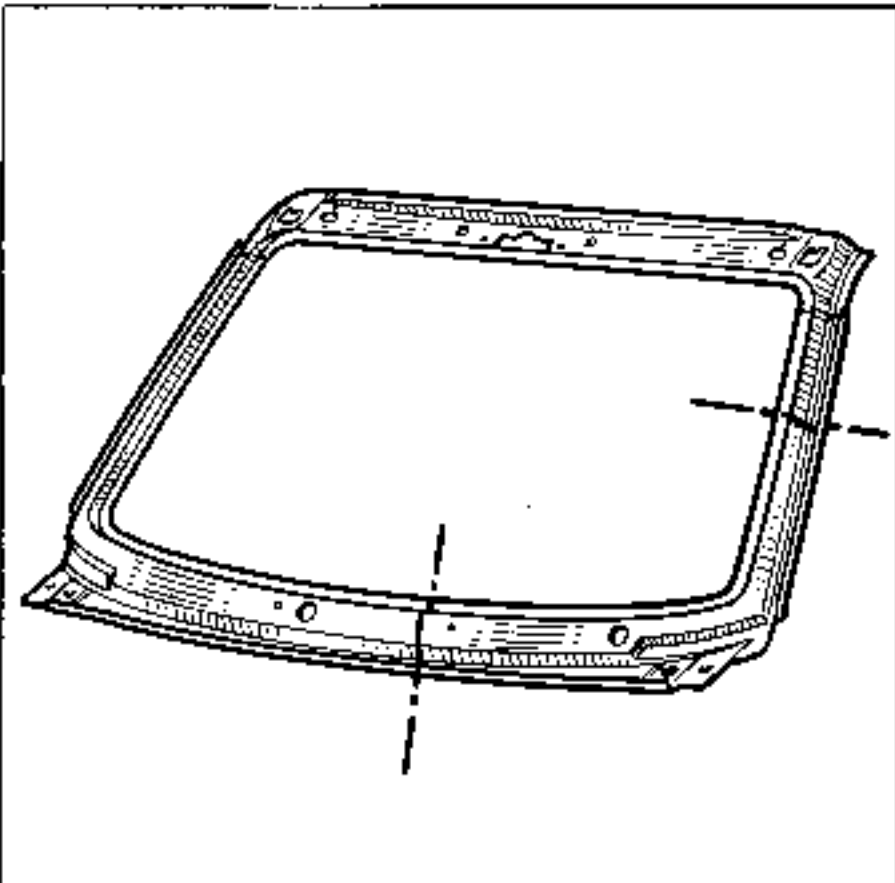
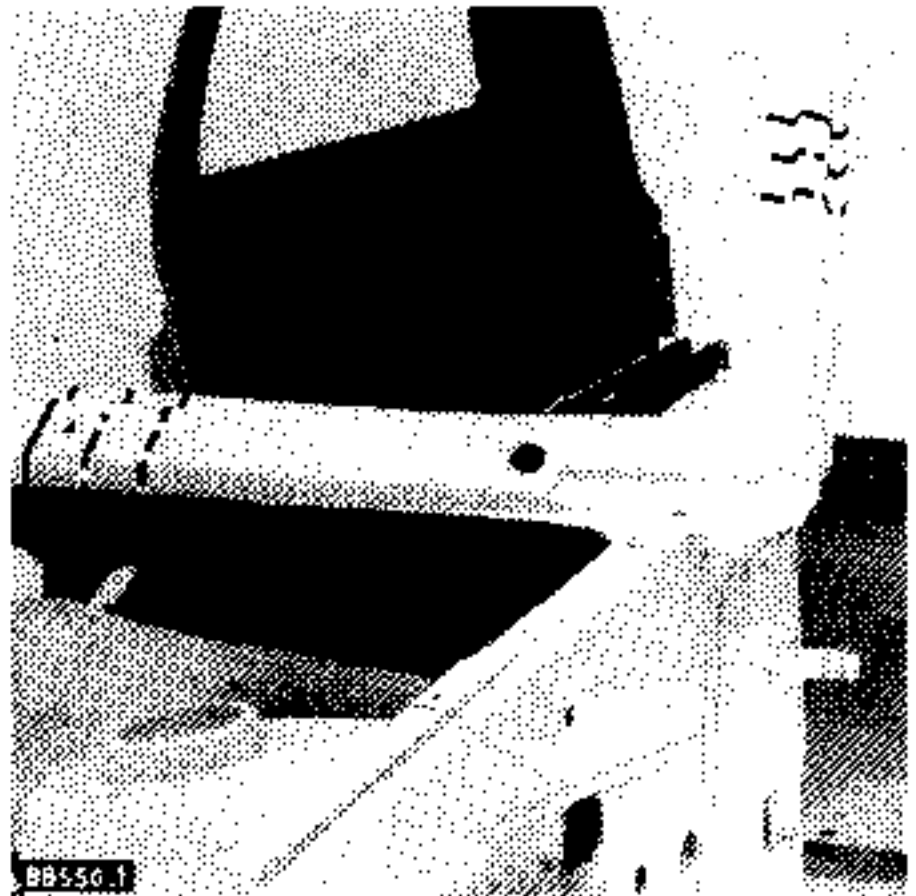
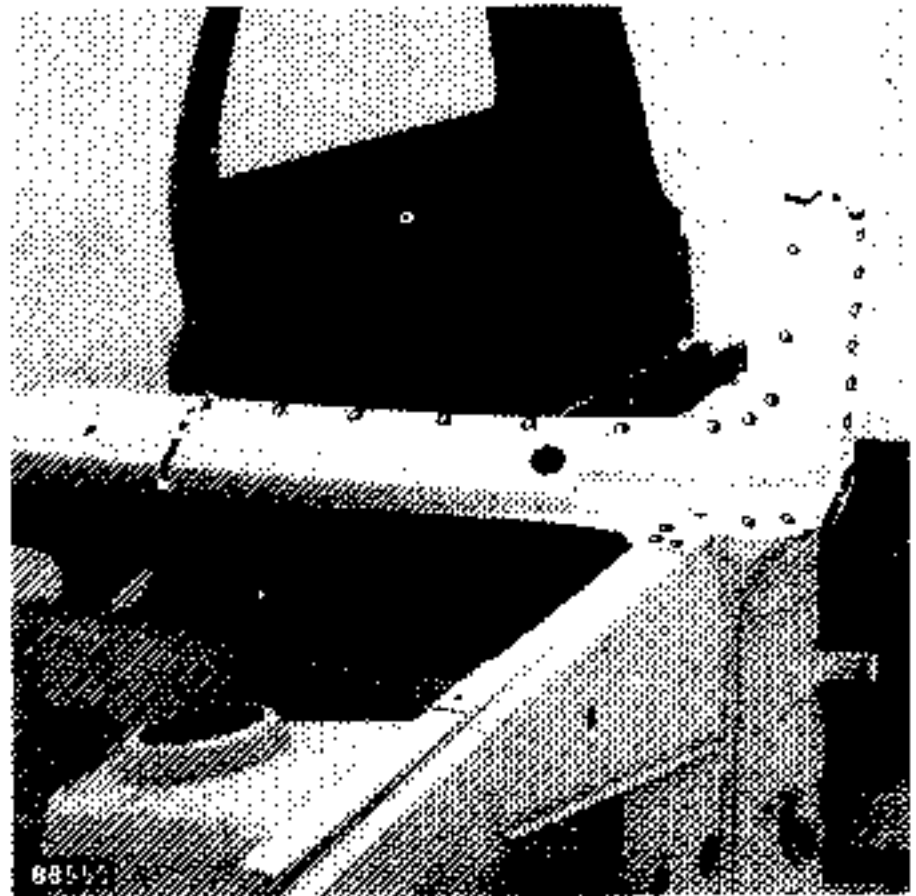
Note:- For more details on removing the various parts, see the section which deals with the parts in question.
- Place all these parts in a trolley bin.



CUTTING - JOINT SEPARATION



- Remove the damaged part by following the methods represented by the above symbols (see description of symbols).
- Grind back the pieces of spot weld adhering to the support panels.

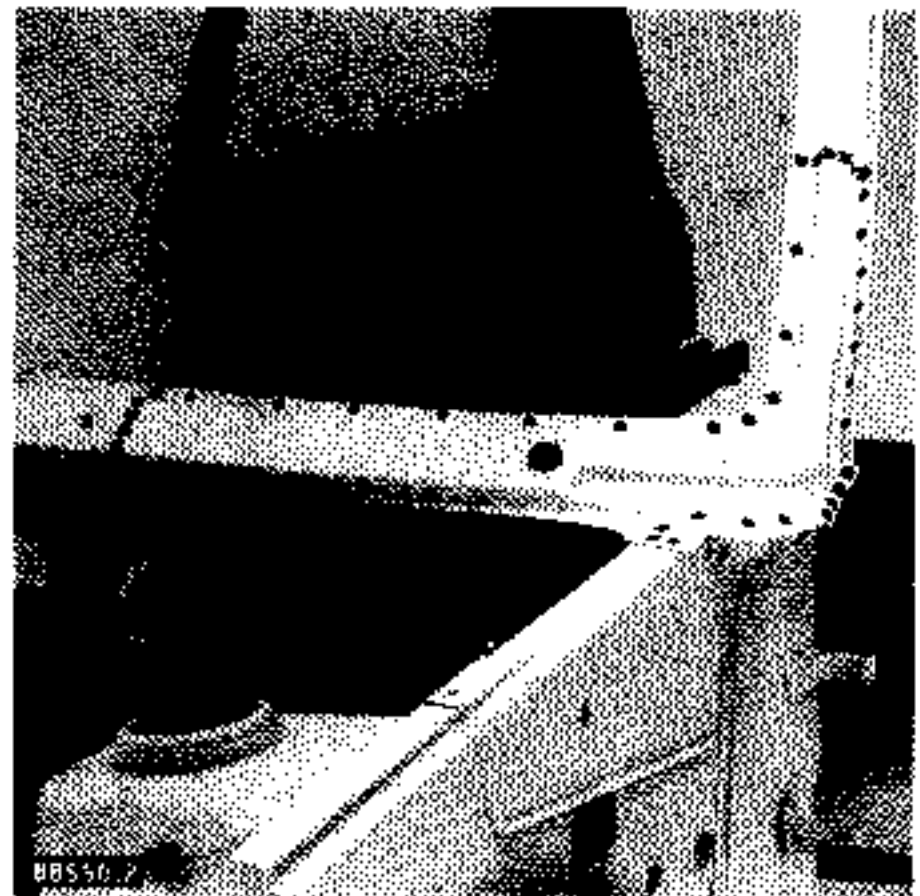
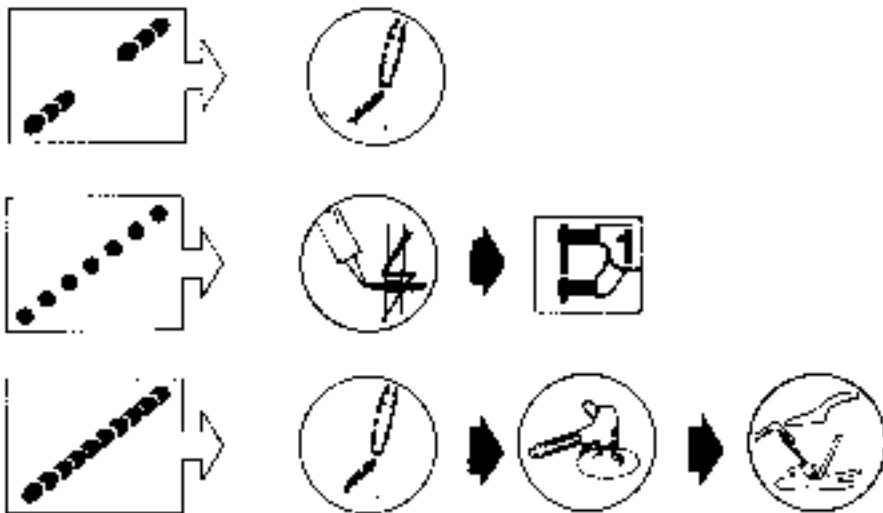


- Cut, from the new part, a section approximately 50 mm larger than that cut out on the vehicle.
- Fit the new part so that it overlaps the original part on the vehicle and secure it with grip clamps.
- Saw through both thicknesses of metal simultaneously to make adjusting the joints easier.

PREPARATION PRIOR TO WELDING

- Strip back, to the bare metal, the inner and outer faces of all the areas to be welded. (Both on the vehicle and on the new parts).
- Apply a coat of electroplastic mastic to the areas to be spot welded (see description of symbols).
- Adjust the new part and secure it with grip clamps.

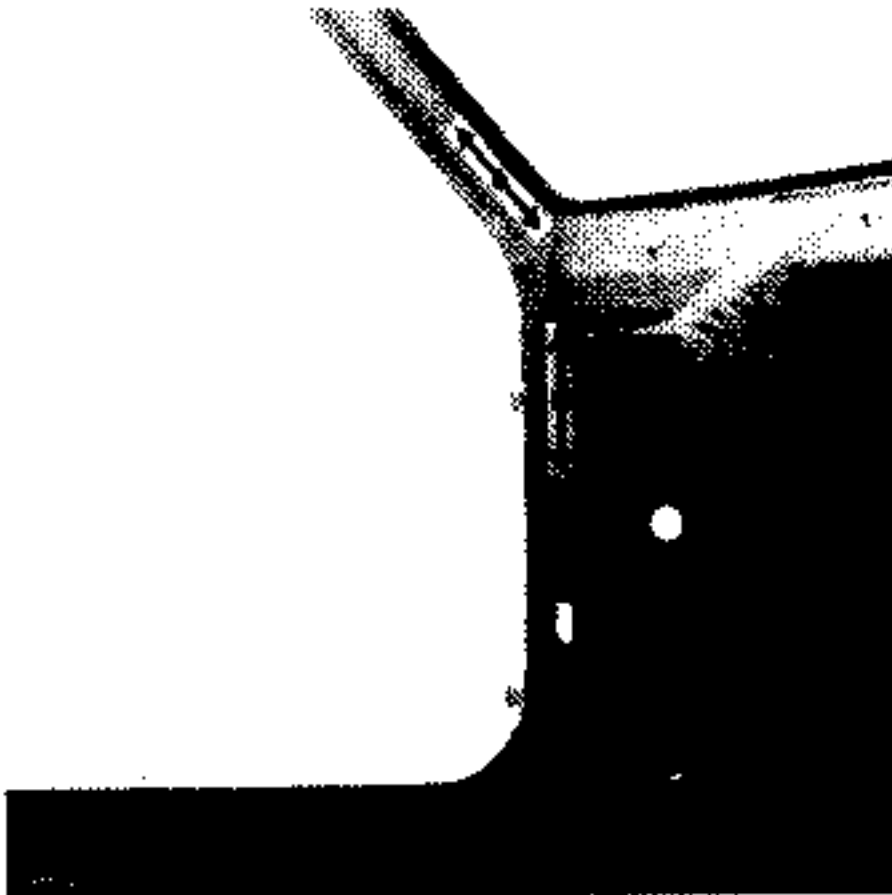
WELDING



- Secure the butt joints by tack welding them.
- Apply the spot welds. The corresponding values of (e) and (H) are given under each drawing.
- Apply the stitched fillets, using the gas envelope welding process. (These joints may also be gas welded, using a 75 to 100 nozzle).
- Grind flush the butt welds and fill them with soft solder.

PAINTING

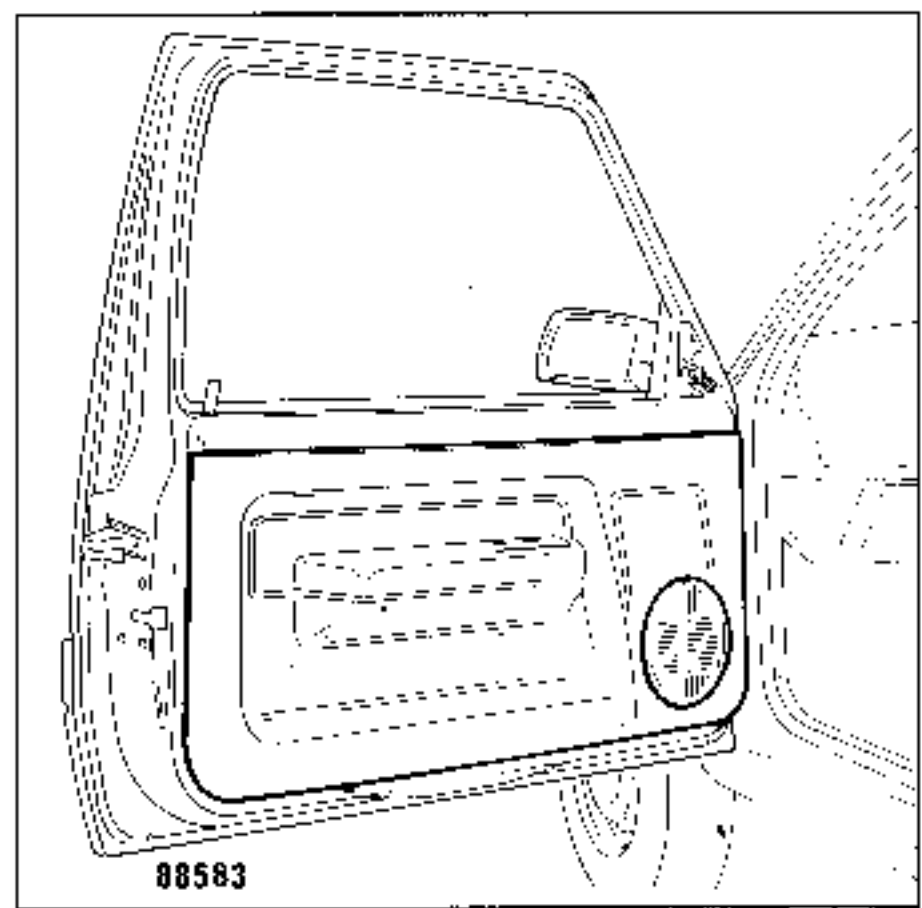
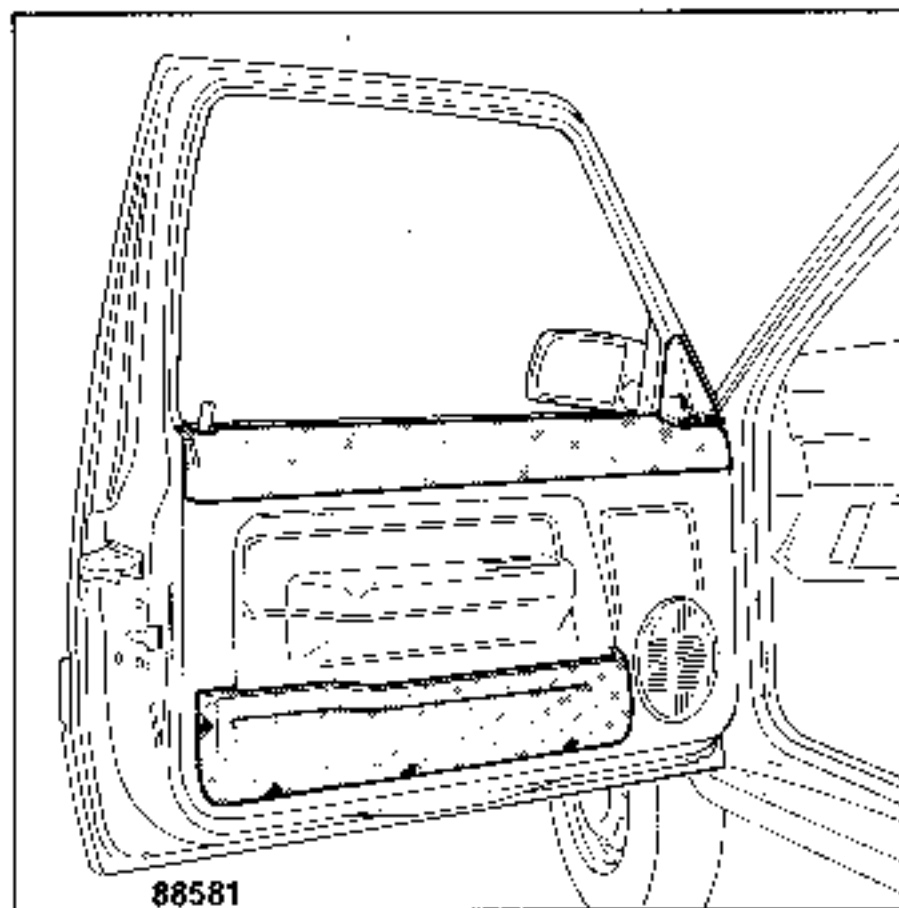
- Carry out paint sequence No. 3 (See "Painting" section).



- After painting, but before refitting the trim, apply hollow section protective treatment.

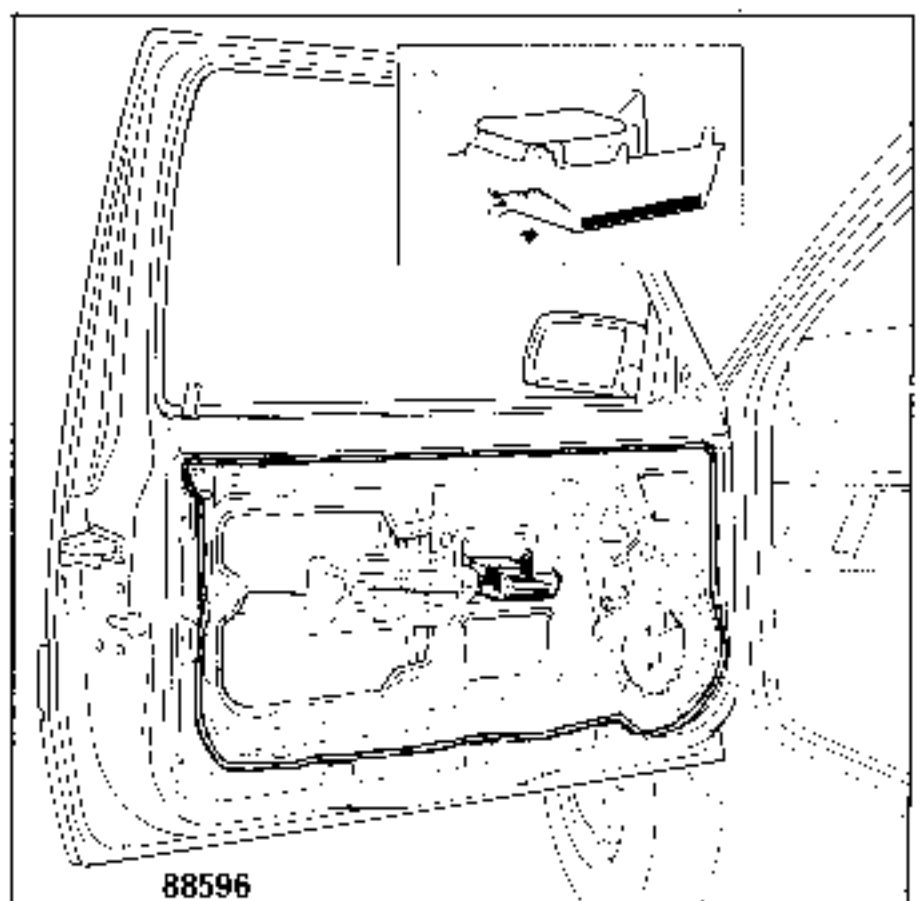
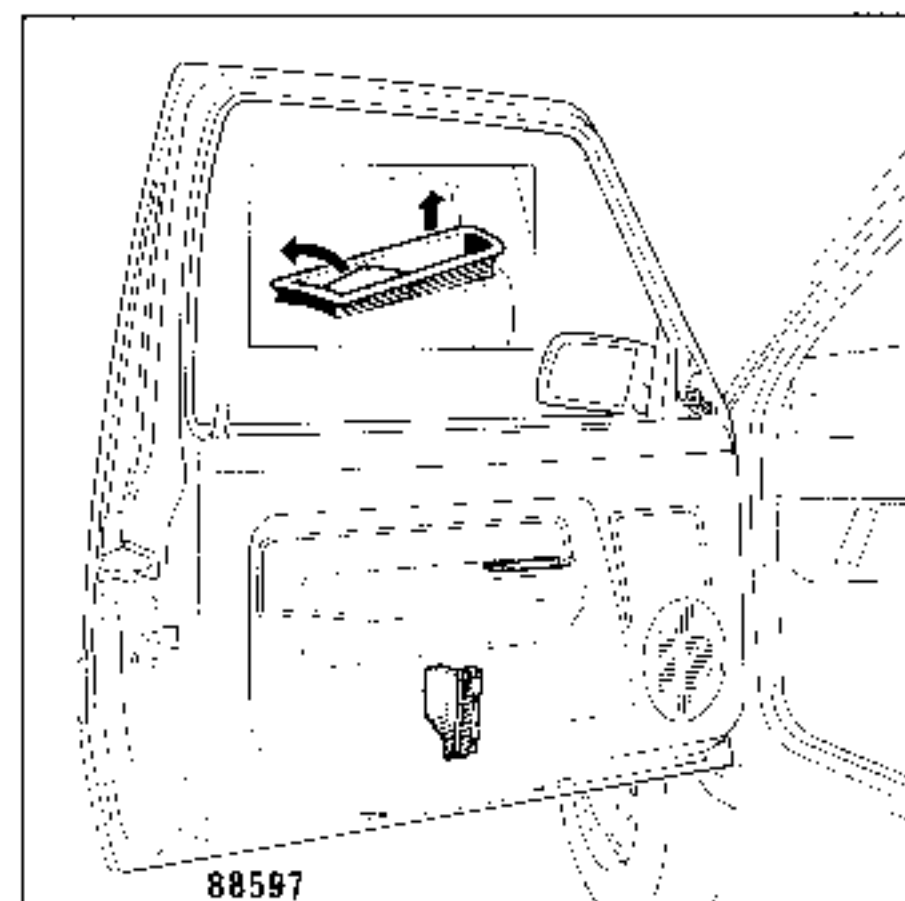


- Removing the trim.



- Remove:- the rear view mirror control trim,
- the upper trim strip,
- the map pocket.

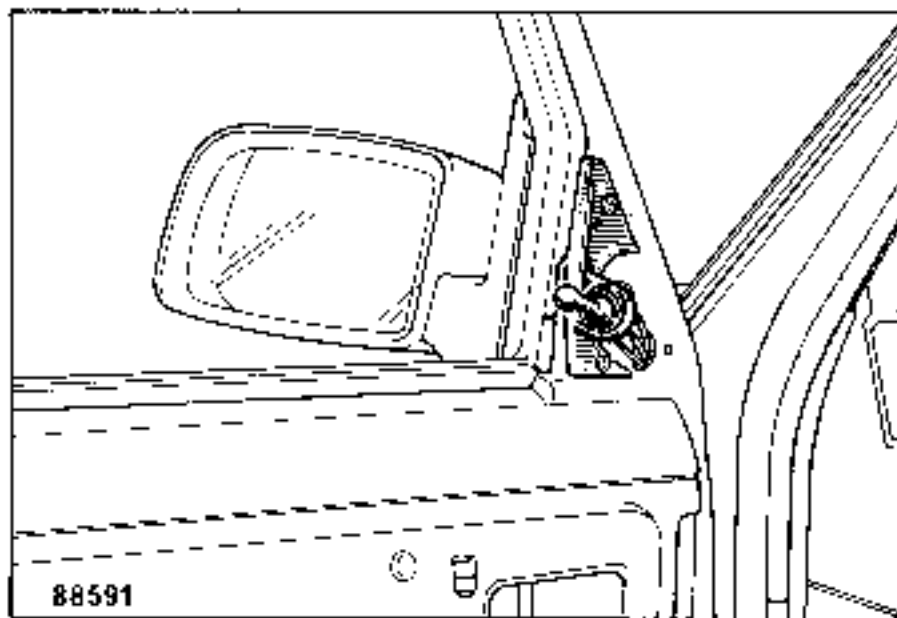
- Remove the trim, using tool Facom D115.



- Remove:- the door handle bezel and the map pocket stiffener.

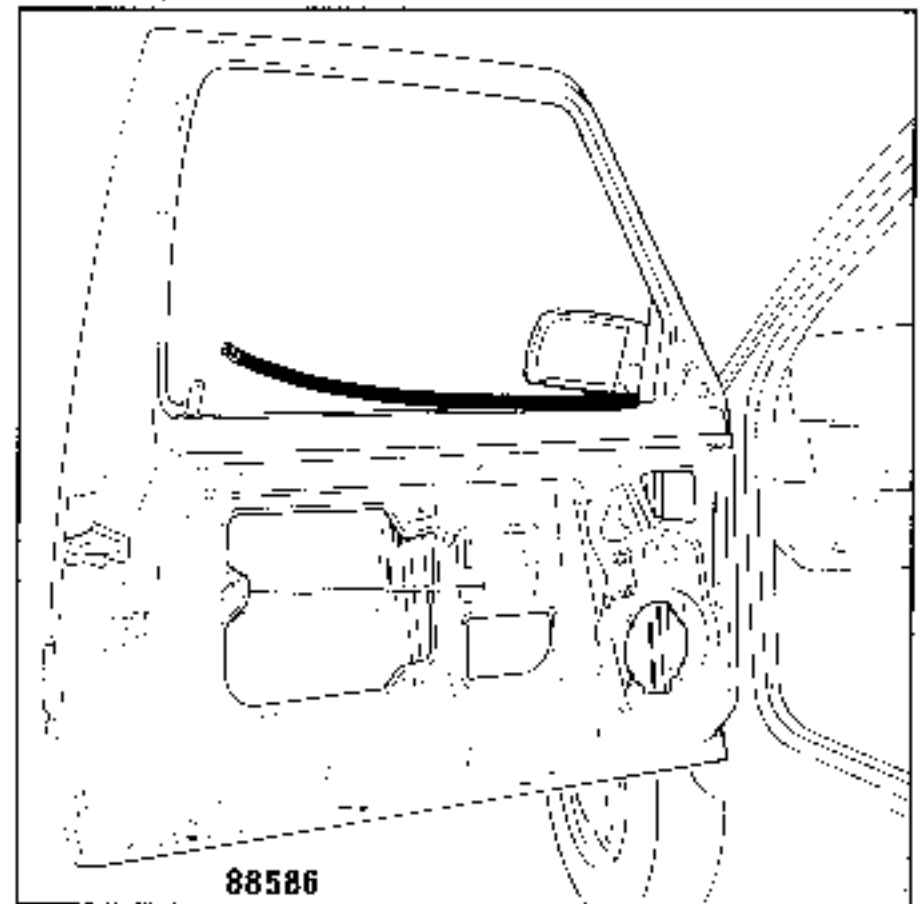
- Remove the door handle and the vinyl sealing sheet.

- Removing the rear view mirror.



- Remove the rear view mirror control support fastenings.

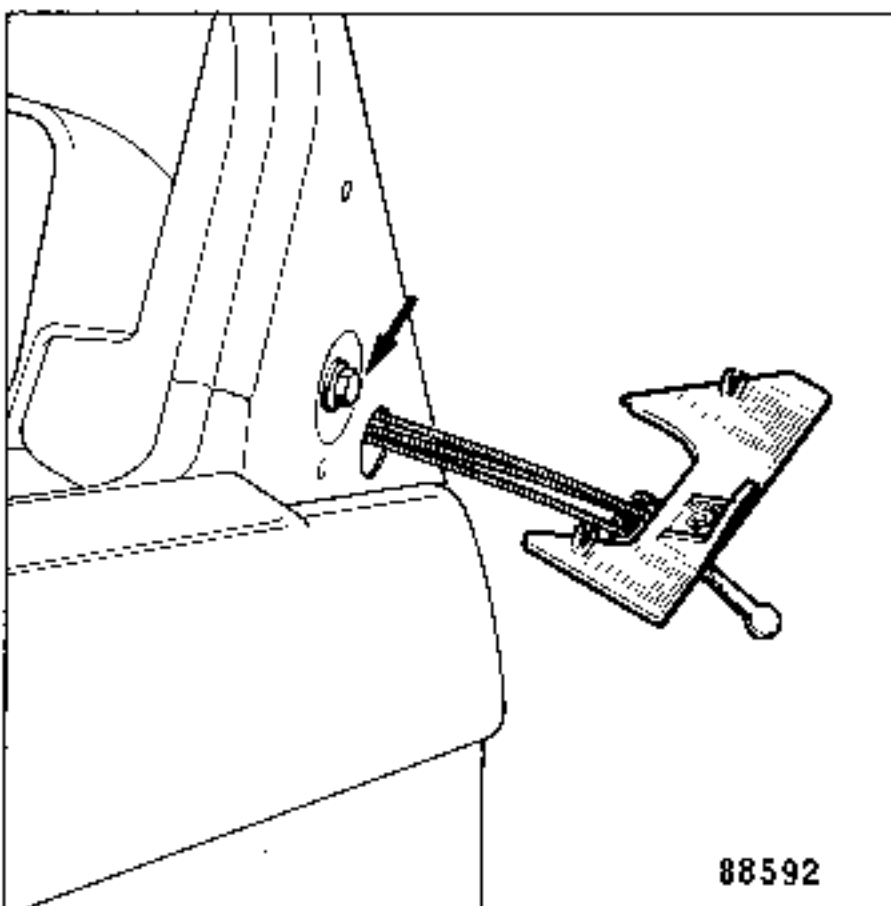
- Removing the window.



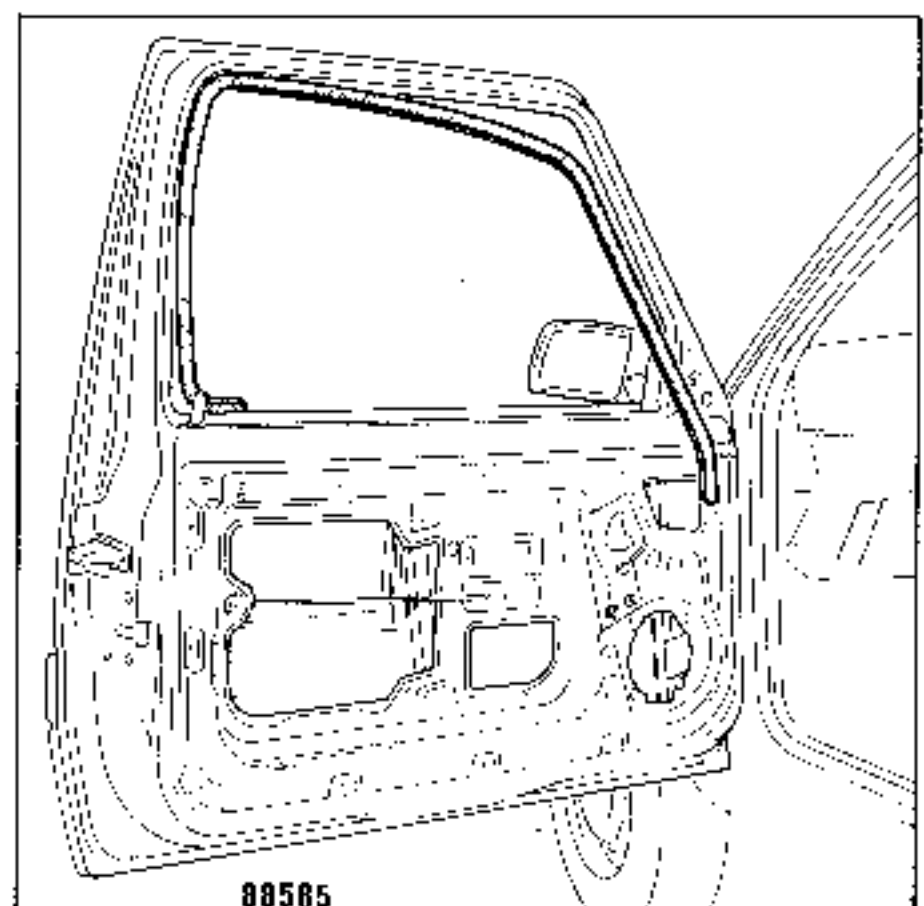
Wind down the window.

Remove the lower part of the inner wiper strip.

Take care: the strip has a metal centre and is very fragile.



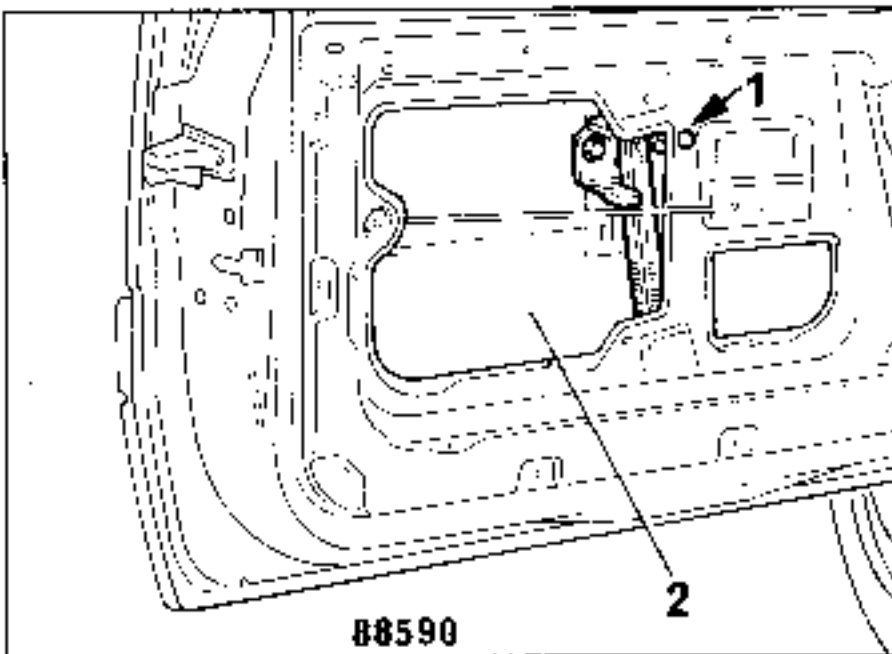
- Remove the rear view mirror control fastenings.
- Remove the mirror securing screw.



Remove:- the upper part of the inner wiper strip,

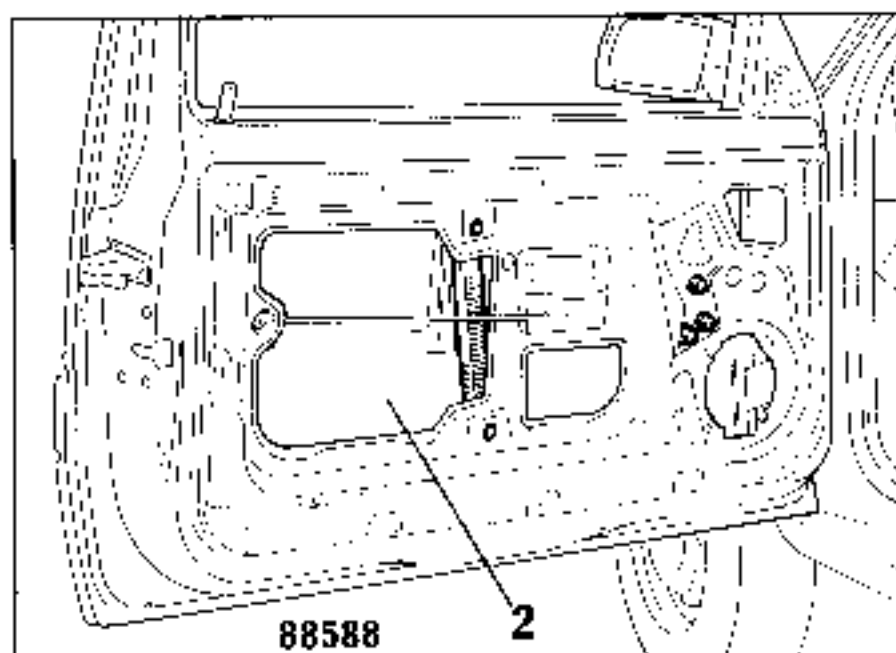
- the outer wiper strip.

Take the same precautions as for the preceding operation.



- Position the window so that the window support RH securing screw is in line with hole (1).
- Remove the 2 window support securing screws.
- Lower the window-winder mechanism and take out the window from the outside.

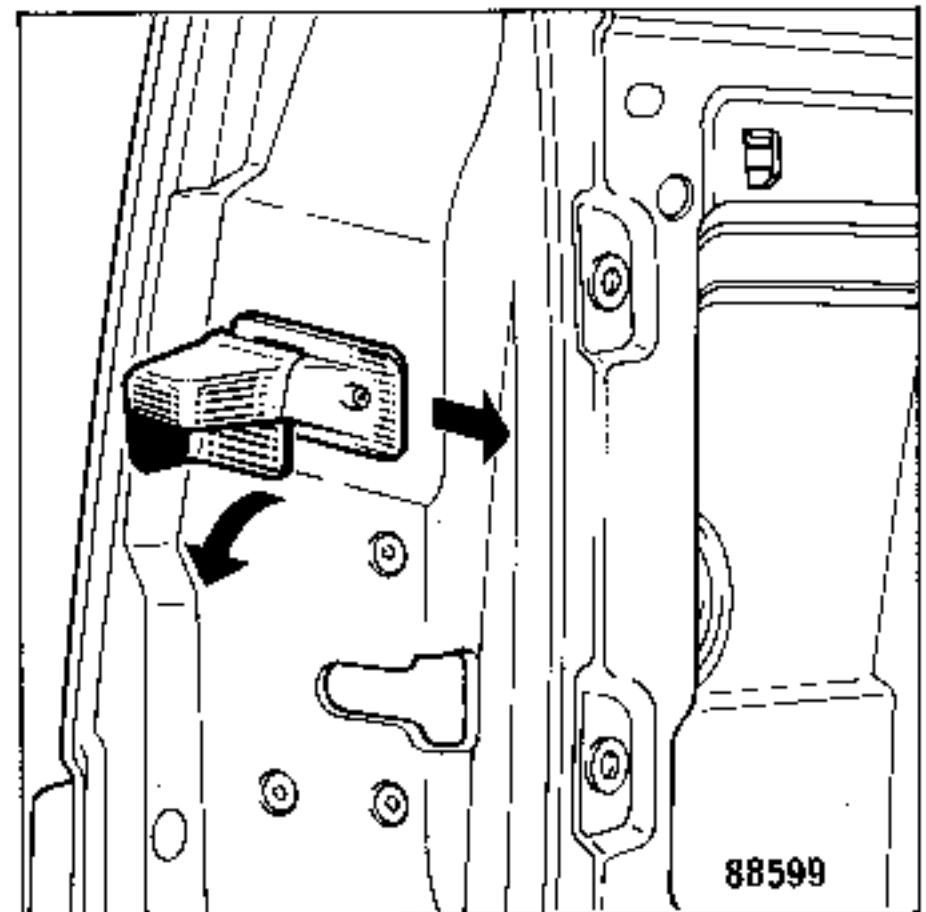
- Removing the window-winder mechanism.



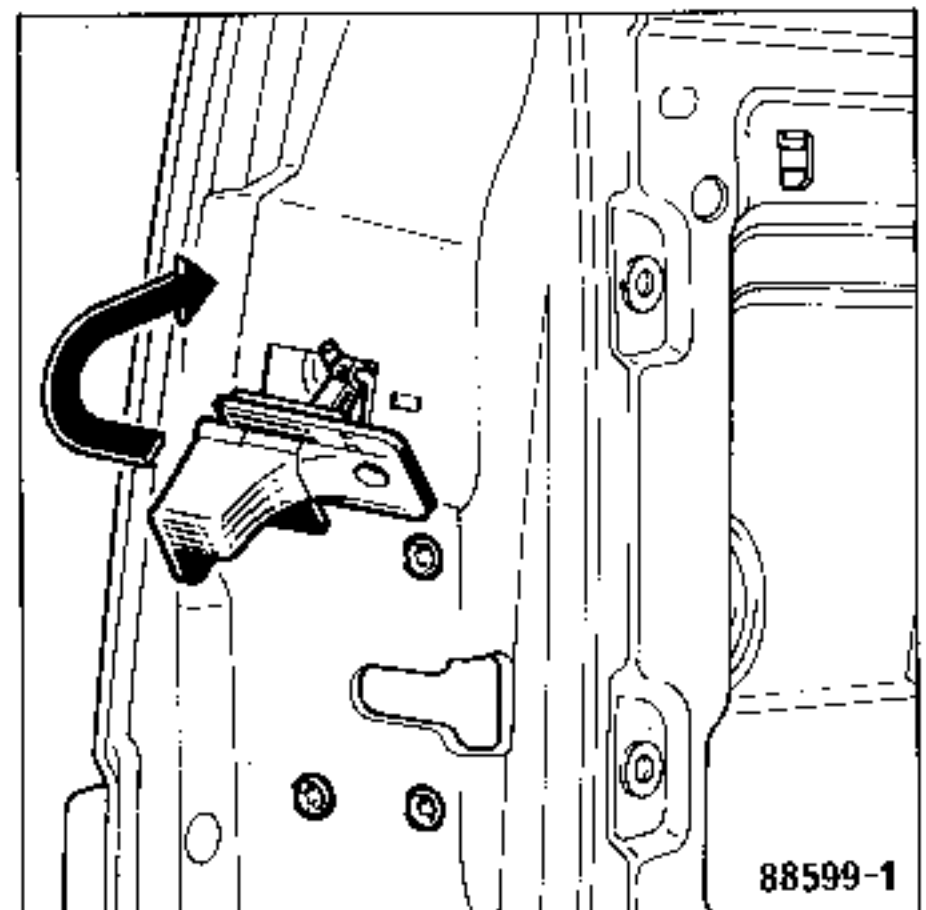
- Disconnect the connector from the motor.
- Remove the window-winder pillar fastenings (rivets).

- Remove the motor fastenings (nuts).
- Take out the mechanism through the aperture in the door (2).

Removing the latch mechanism.

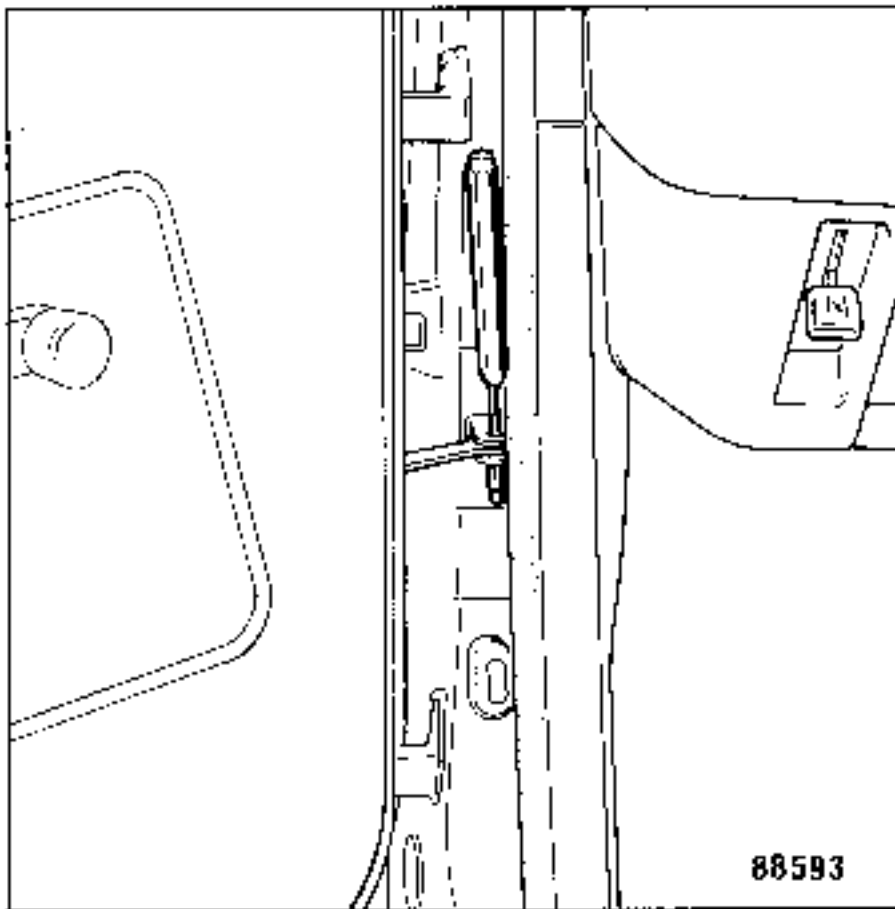


- Remove the door handle fastening and take it out as shown.

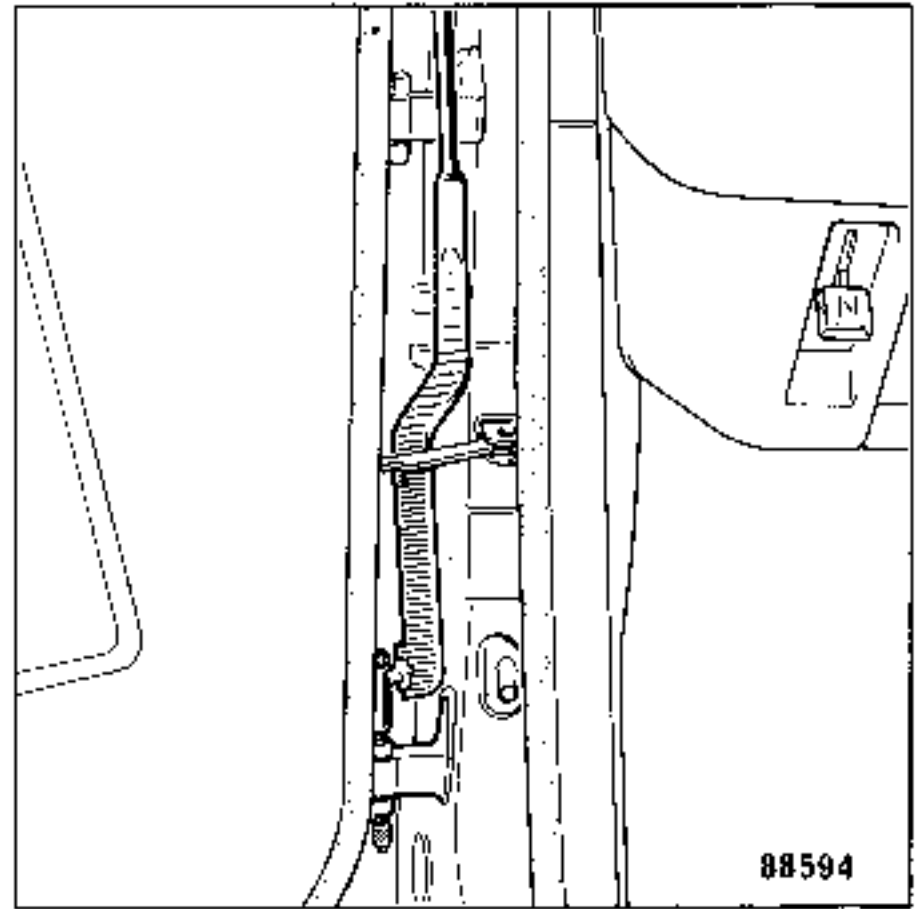


- Remove the handle as shown.
- Disconnect the door lock connector.
- Unclip the links from the lock.
- Remove the lock fastenings and take it out through the aperture in the door.

*Removing the door.



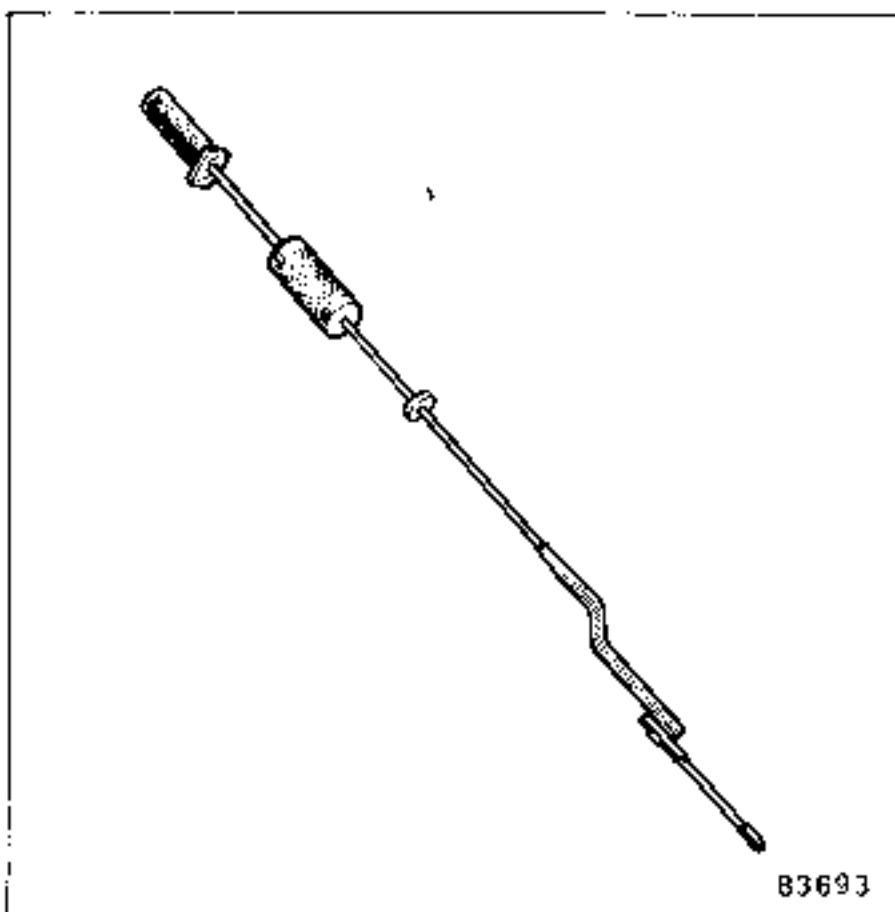
- Remove the door stop pin.
- Remove the electrical wiring from the door body.



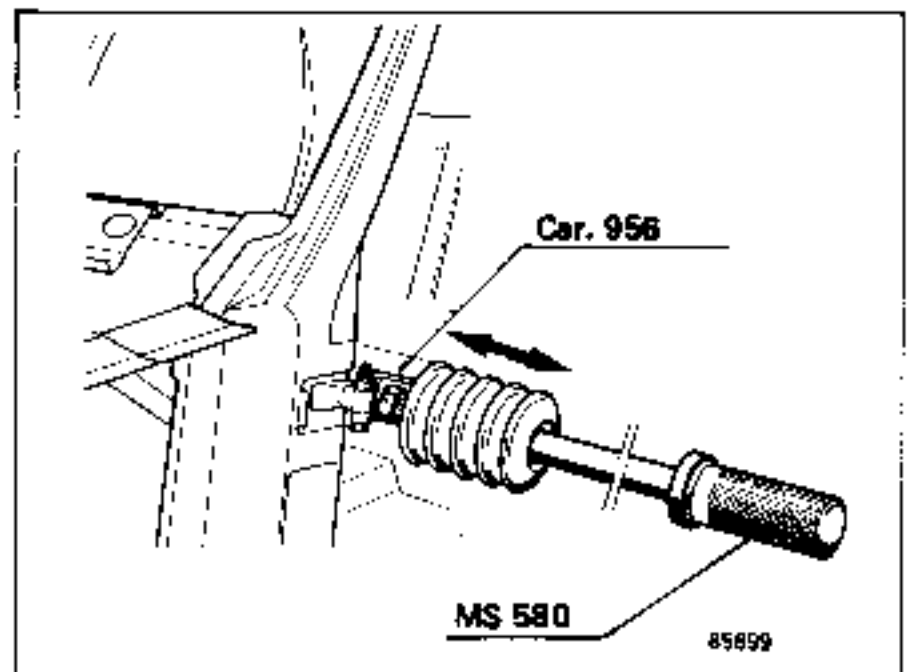
REFITTING

On this vehicle, the door hinges are welded to the body components.

Neither the clearances round the door nor its depth can be adjusted mechanically. When replacing a door, therefore, it must be offered-up to the body before painting to check its alignment and correct it if necessary.

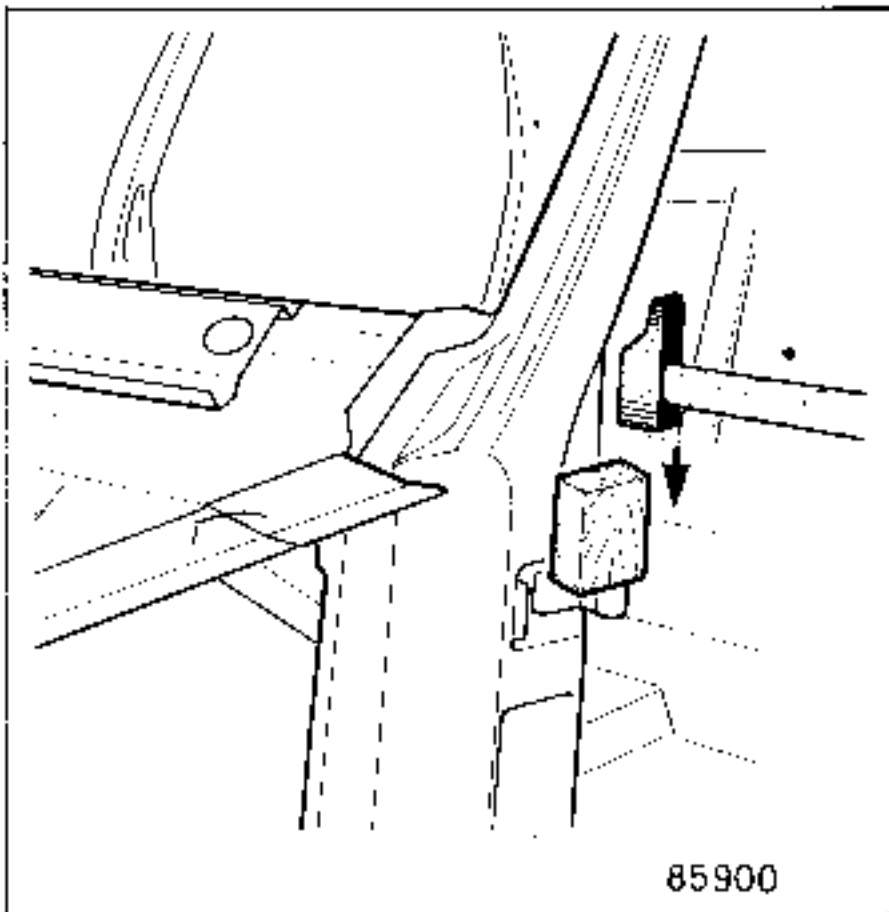


- Remove the door hinge pins with the special tool.



Adjusting the depth of the door:

This is adjusted by pushing or pulling one or two of the hinges, using tool Car.956 fitted to impact extractor MS.580.



85900

Adjusting the Door Upwards (or
Downwards):

This is done by lowering or lifting the
two male sections of the hinge by the
same amount (maximum 3 mm).
Refit the door to check it.

Lengthwise and Angular Adjustment:

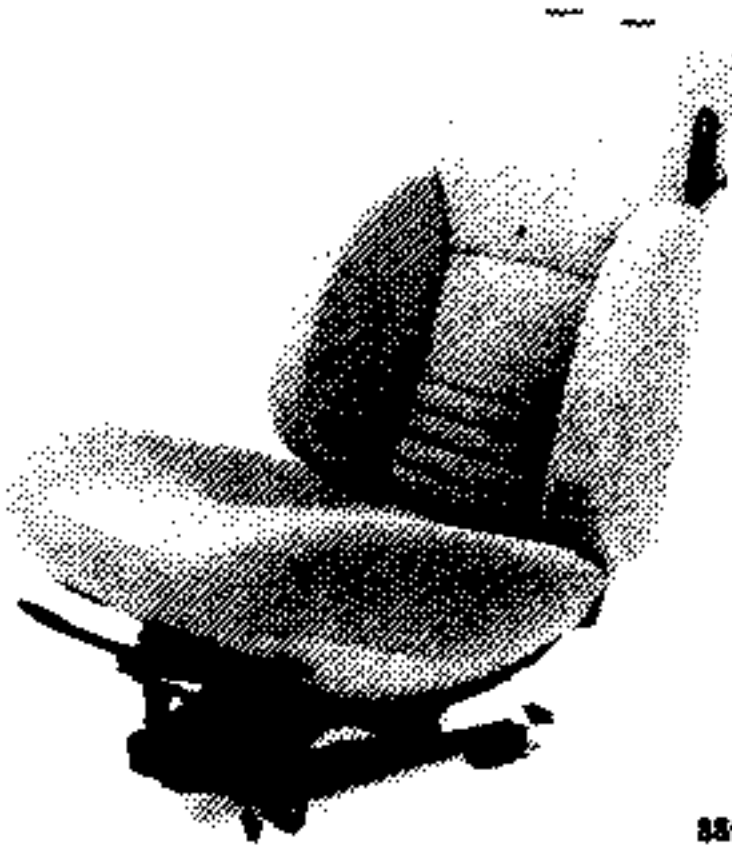
This is done by bending the male
sections of the hinges with a claw
lever.

WILMONDA Ref.:BHA

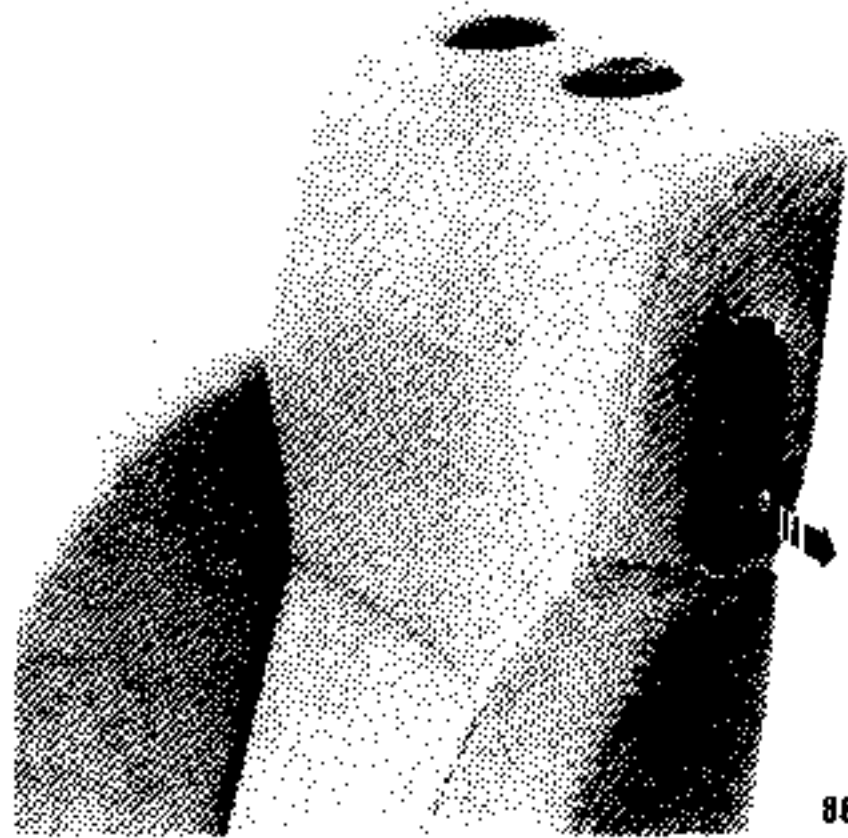
Note:

This adjustment can be carried out
without removing the door.

Stripping the Seat Back.



88616

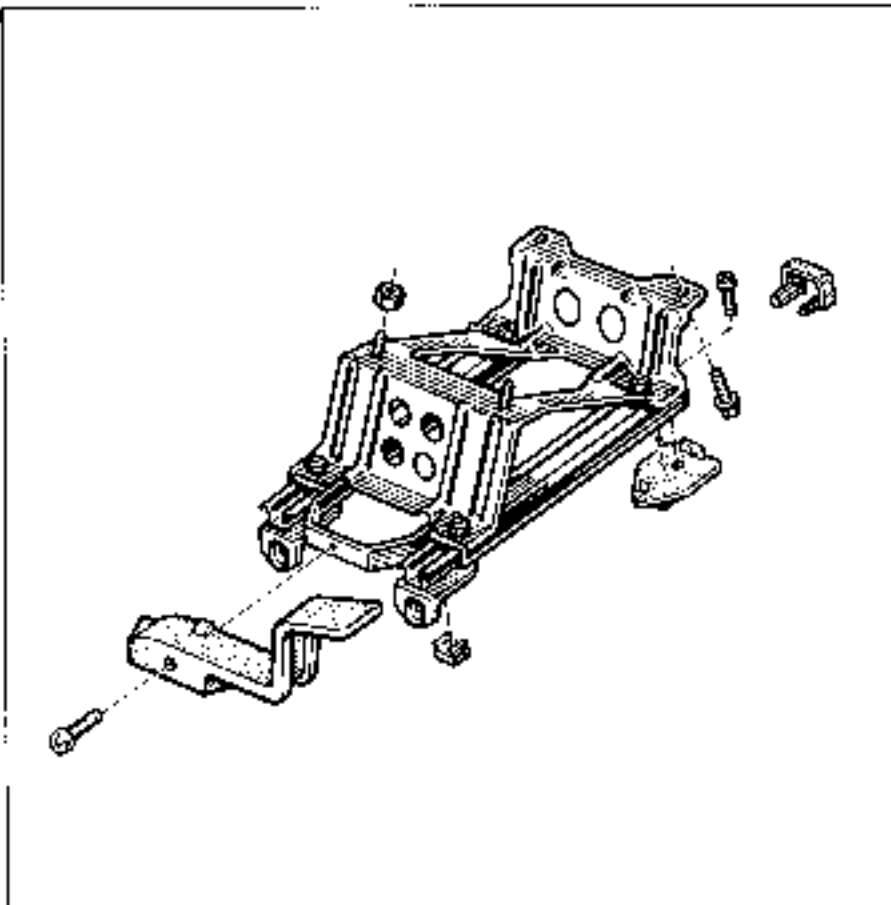


88617

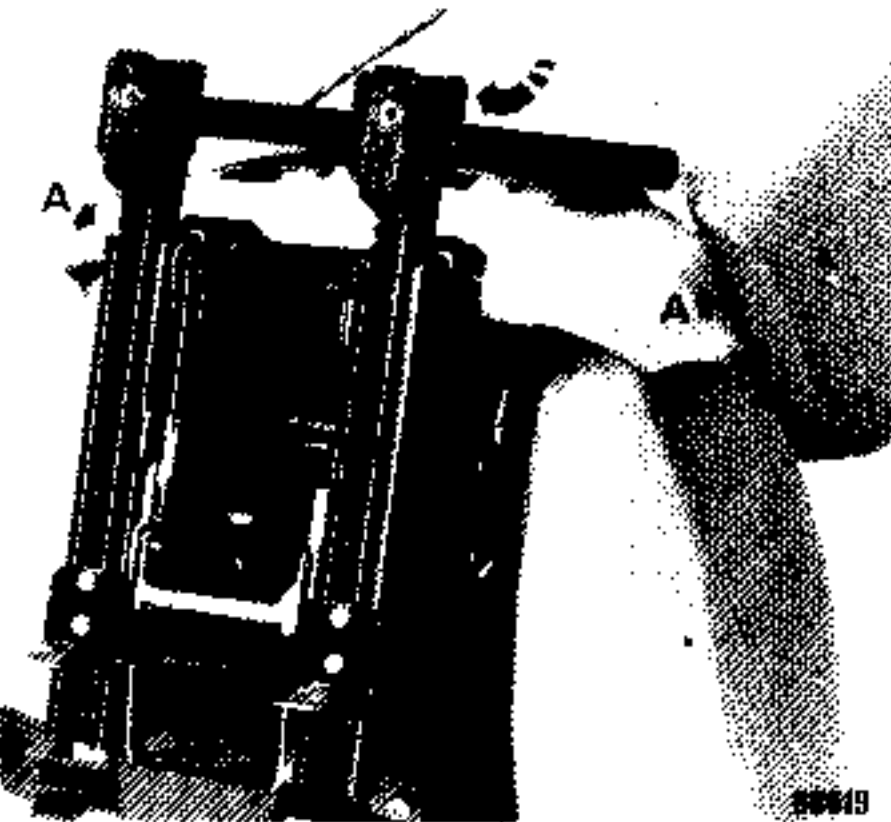
- Remove the seat after first removing the slide securing screws.

Remove:

- the 2 screws from the cover on the lever which allows the seat to fold forward.
- the lever, by pulling it.



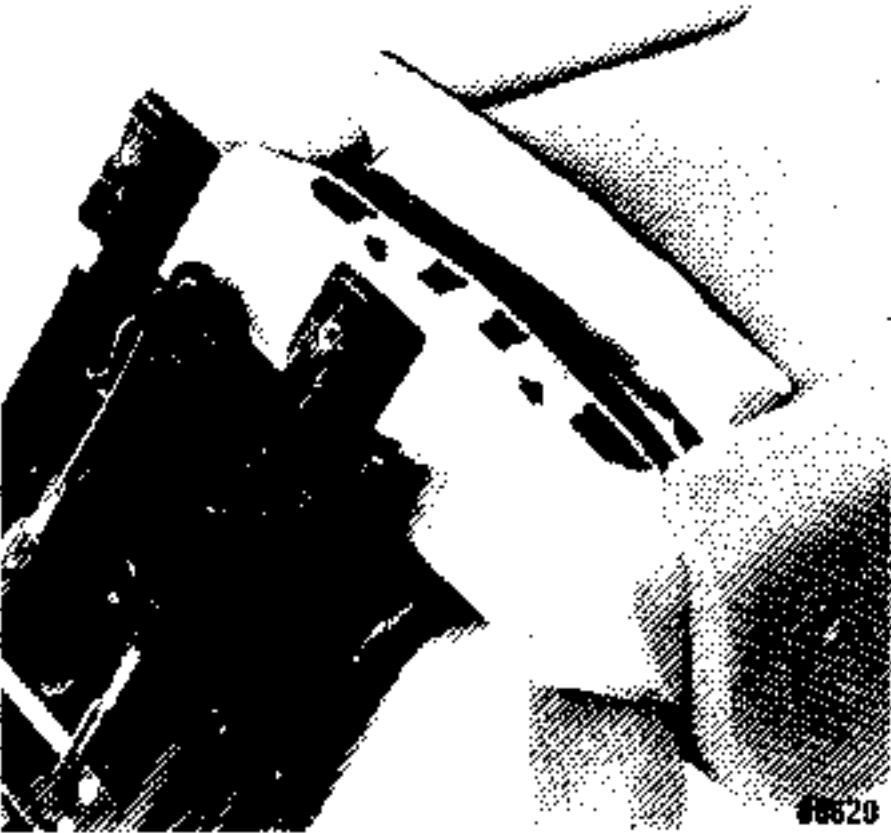
88618



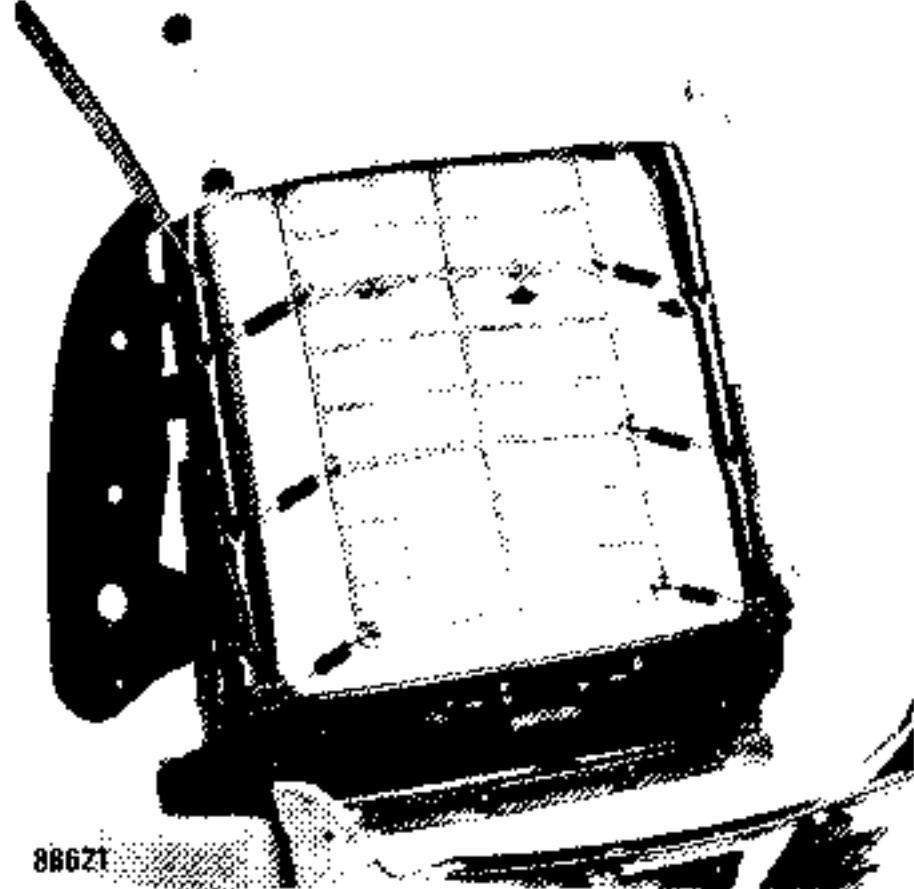
- Remove the two clips (A) from the bottom of the seat back.
- Unclip the tab which secures the bottom of the cover.



- Take out the side links from the lower section and fold the cover upwards.

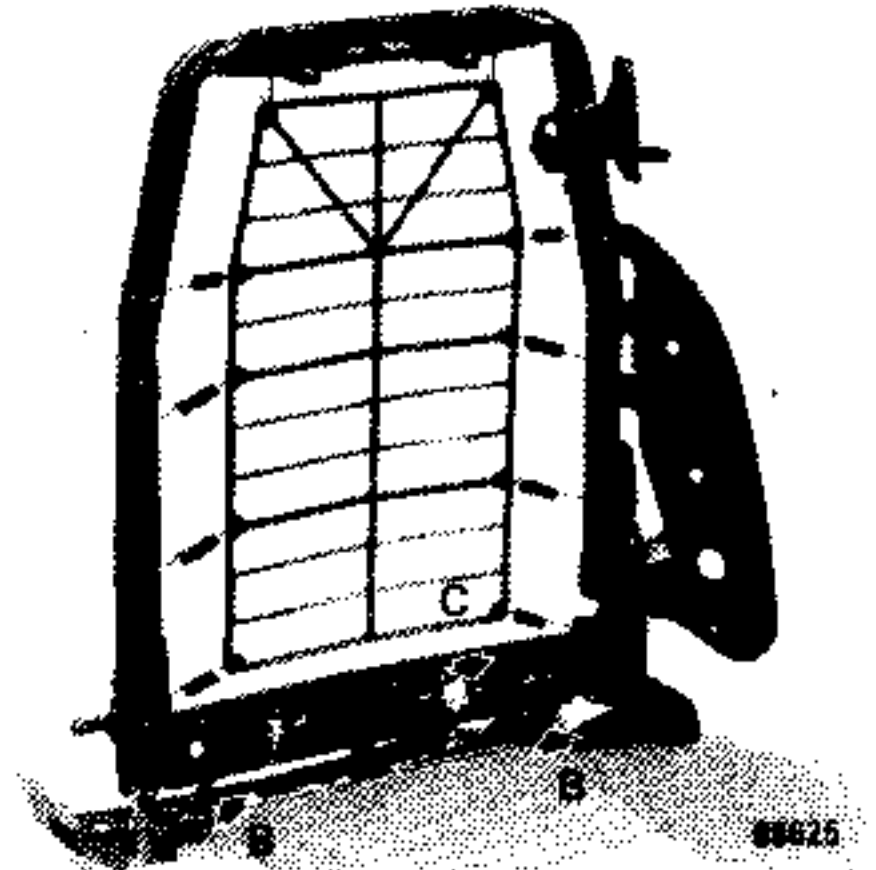
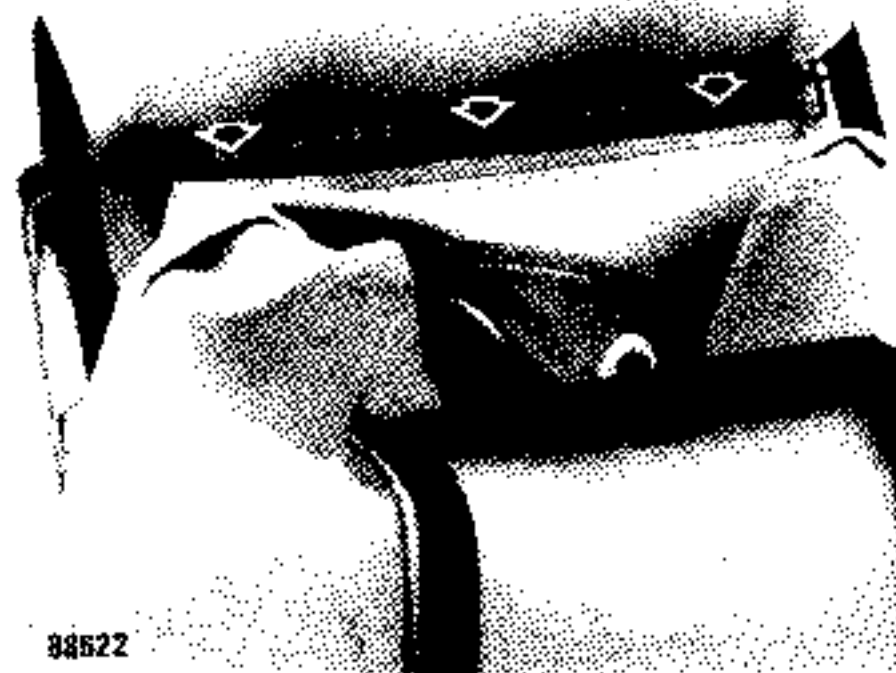


- Remove the two plastic rivets from the bottom of the cover.
- Unclip the two side covers and remove them.



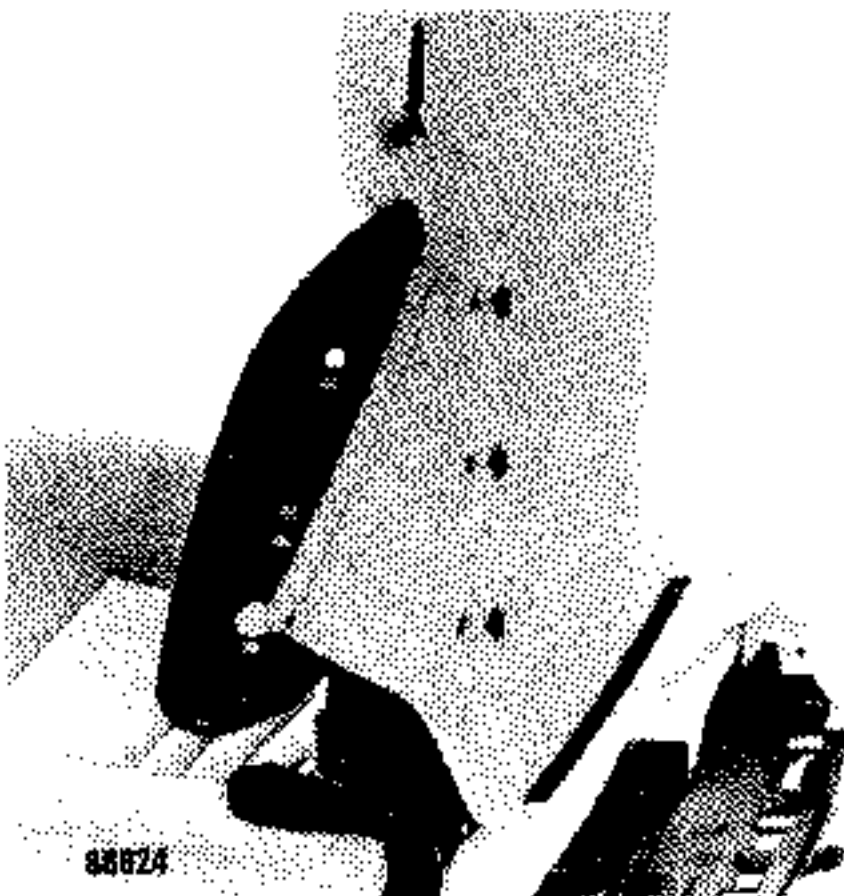
- Remove the clips which secure the cover to the seat back support.

- Adjusting the Seat Back.



- Remove the clips which secure the upper part of the seat back cover.
- Remove the seat back cover.

Special points, on refitting



- Place the cover over the seat, starting at the top of the seat back and securing it to the frame.
- When refitting the side sections, clip them to the seat back inner links through the holes in each side of the cover.

Noise from the Seat Back.

This is caused by excessive play in the seat back retaining hook. This play can be eliminated by unscrewing the 2 stops (B).

Seat Back Difficult to Lock.

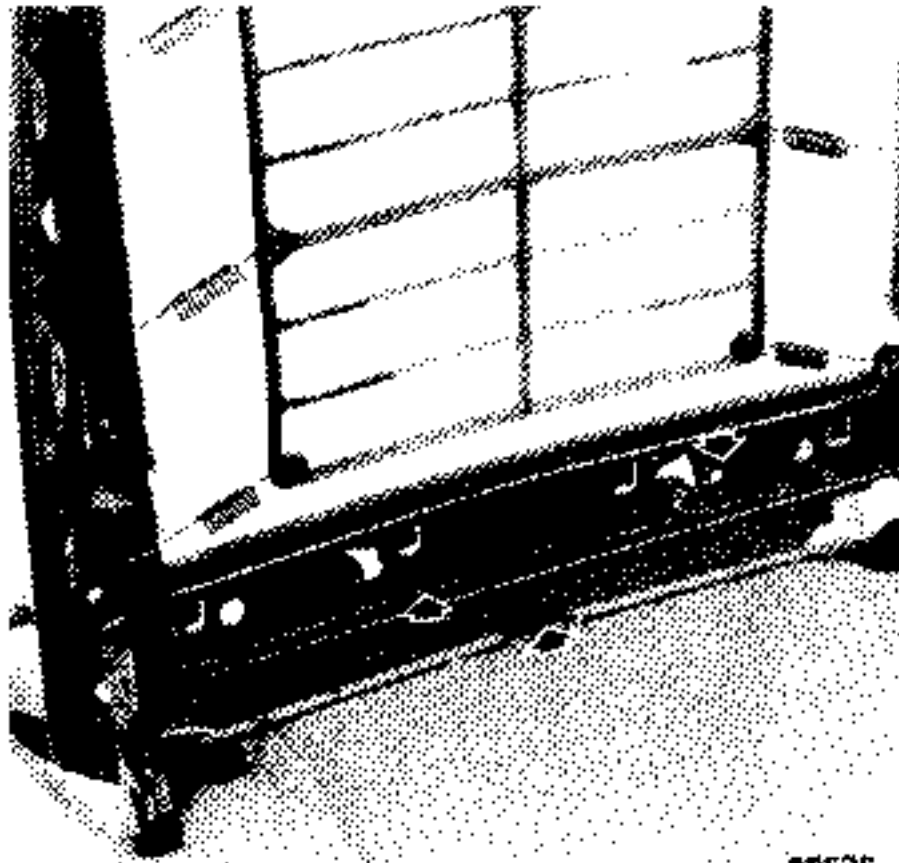
The stops (B) are too far out and are preventing the feedback locking hook from fully engaging.

If the stops (B) are screwed in, the lock will be able to engage properly.

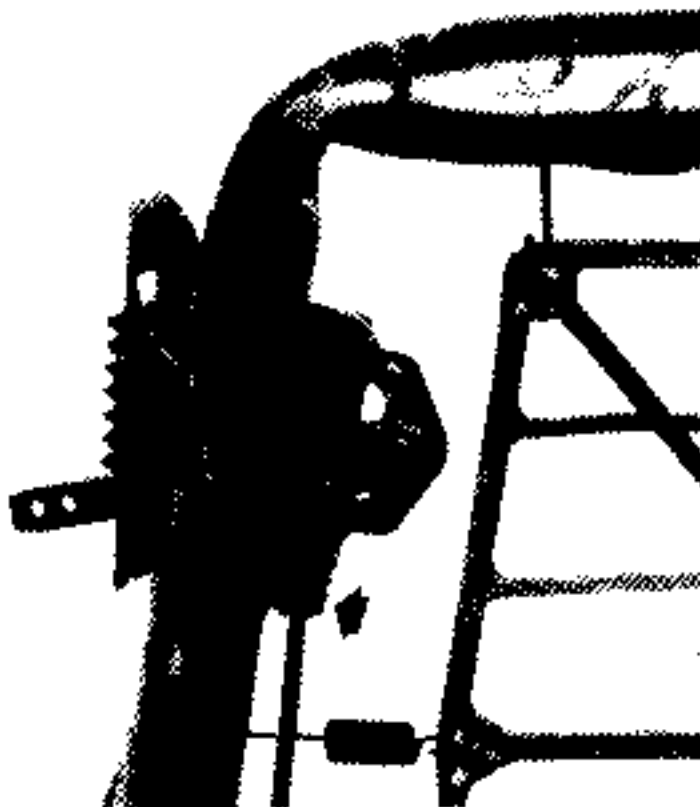
Impossible to Unlock the Seat Back.

The seat back lock release cable may be broken or the cable cover stop (C) out of place.

- Replacing the Seat Back Control Cable.

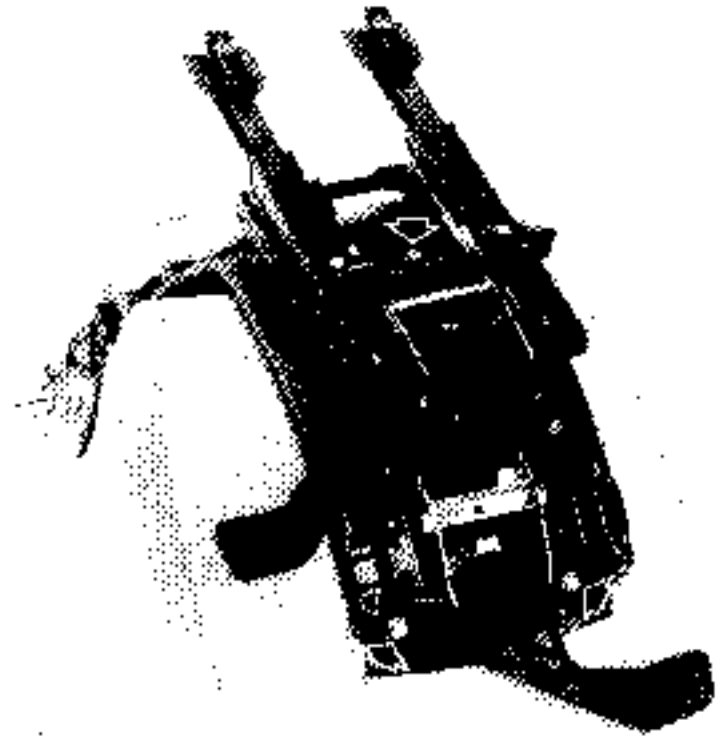


- Release the lock hook return spring.
- Take out the cable cover and stop from its location.
- Disconnect the end of the cable from the hook.

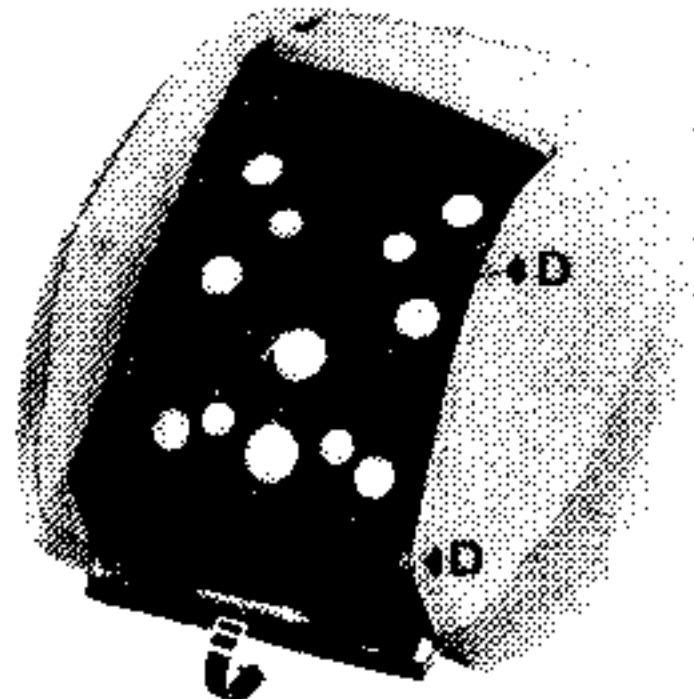


- Disconnect the cable cover and stop from its location.
- Disconnect the end of the lock control cable.

- Stripping the Cushion.

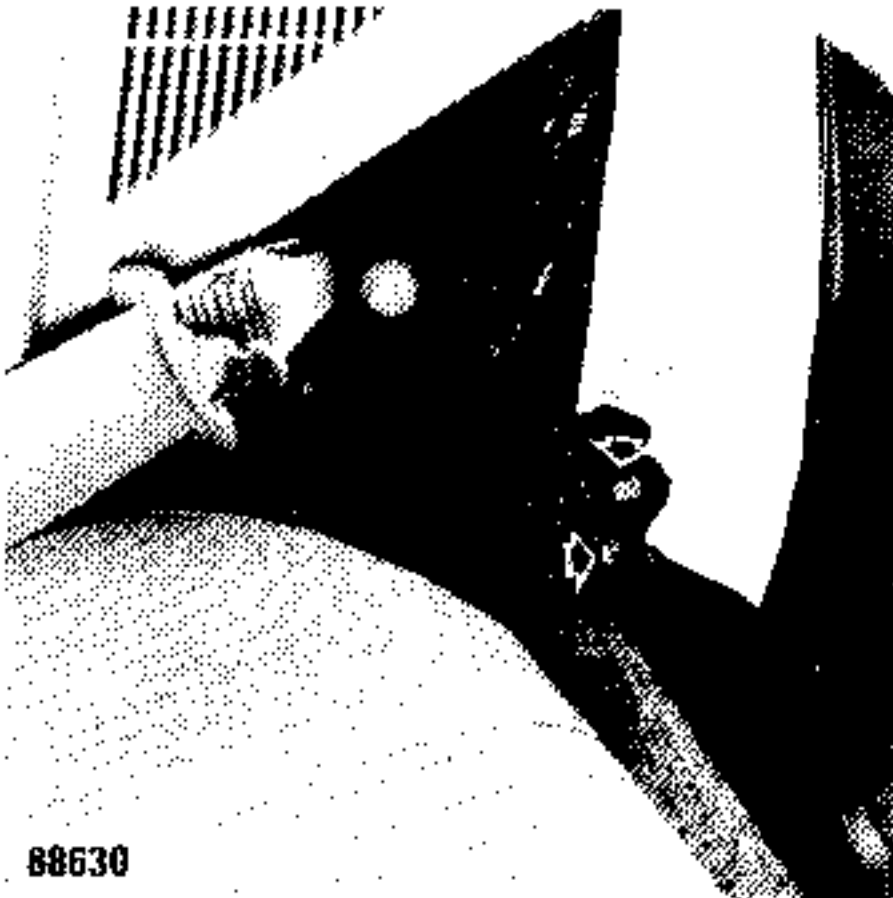


- Remove the three screws which secure the slide control to the cushion casing.



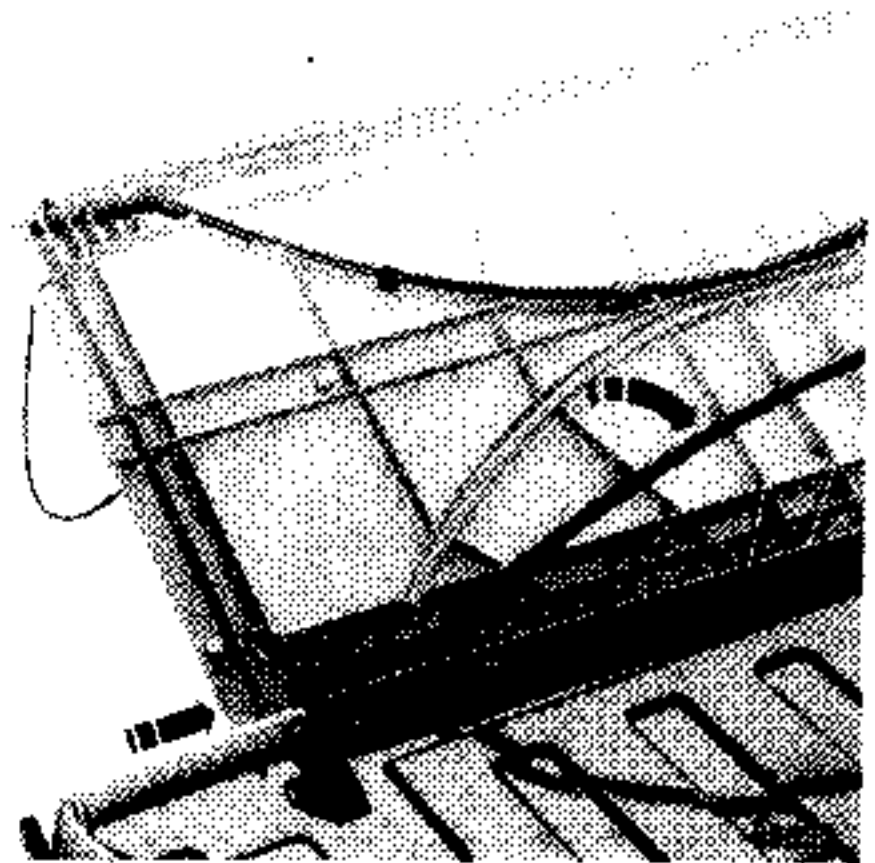
- Remove the four clips (D) which secure the cover to the casing.
- Free the cover front link with a screwdriver.
- Remove the two side links.
- Fold the cover over onto the cushion and cut the clips which maintain the shape of the centre of the cushion.
- These are hooked onto a link which is embedded in the foam.

- STRIPPING the rear seat back.

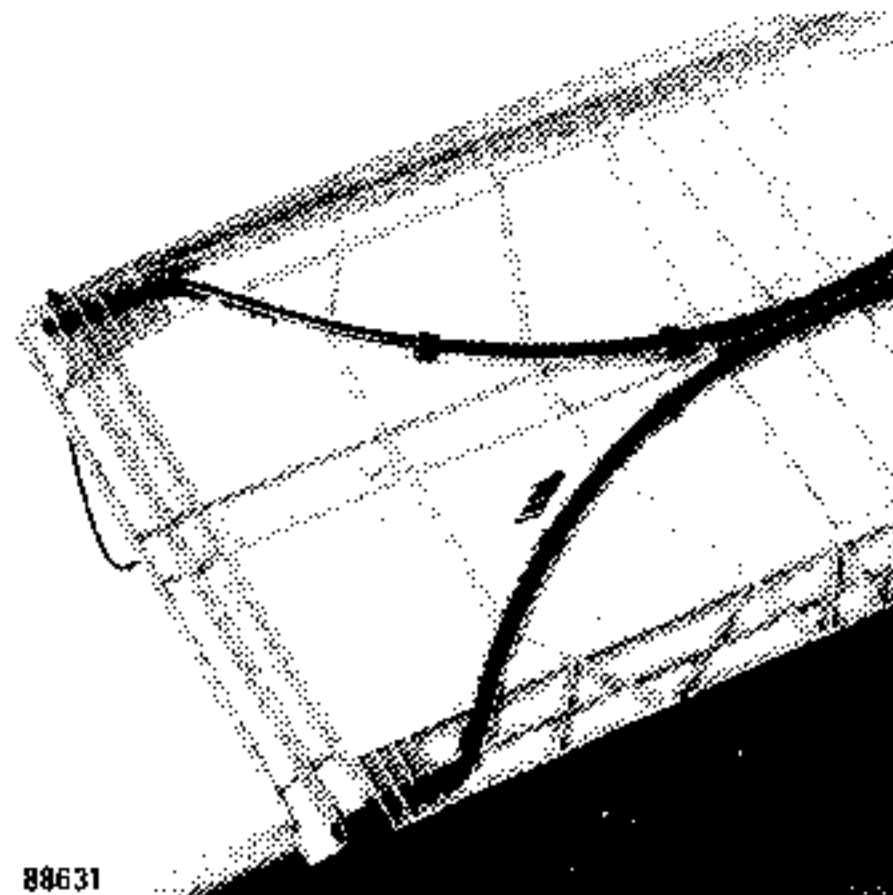


88630

- Tilt the seat cushion forwards.
- Remove the seat back side securing screws.

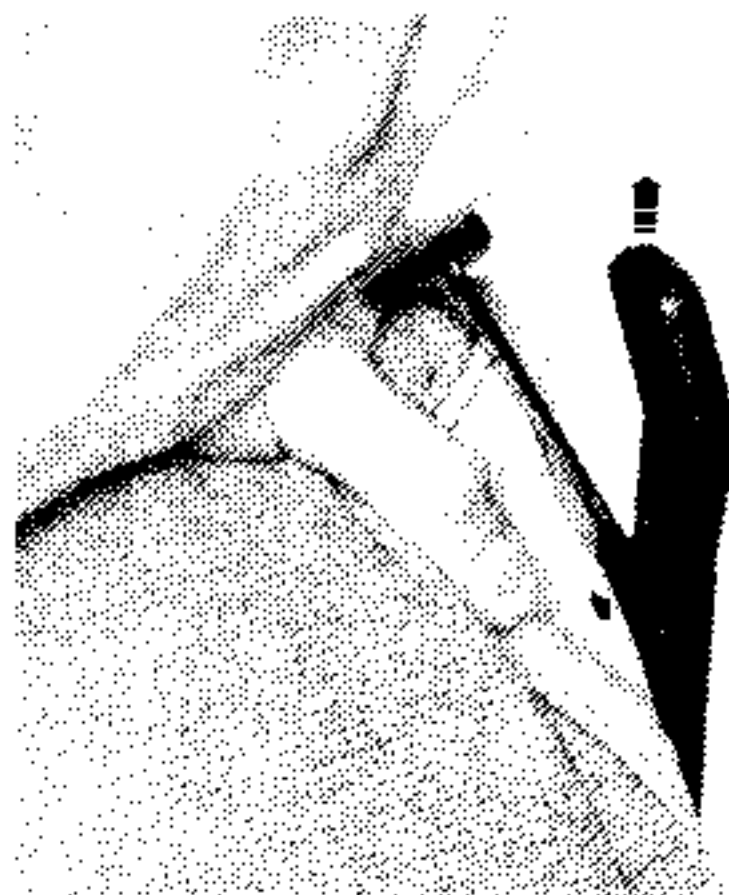


- Swing the hinge bar and push it to one side to free the parcel shelf from the seat back hinge.
- Carry out the same operations on the other side and take out the shelf.



88631

- Swing up the parcel shelf and remove the clips from the hinge bar by pulling it upwards.



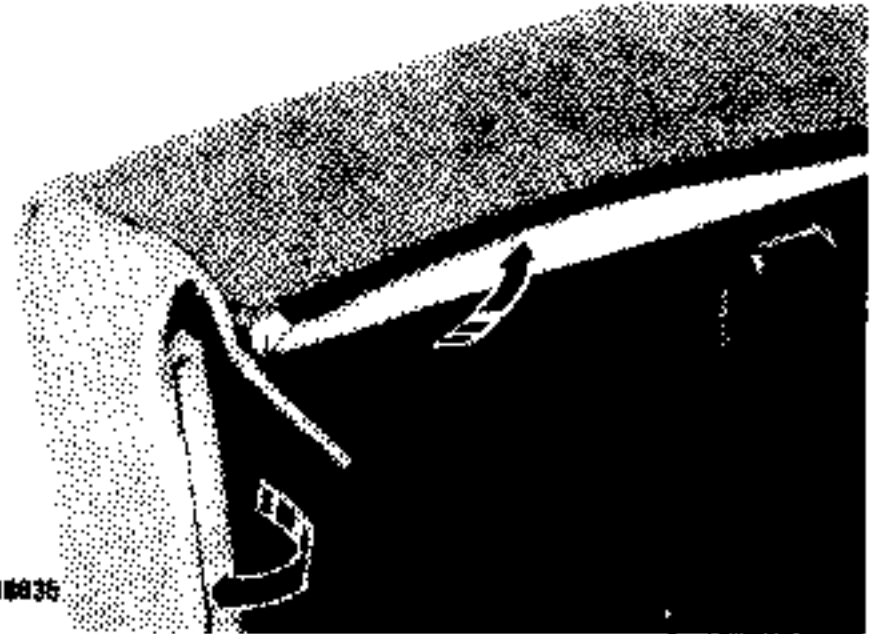
88633

- Unclip the side lock protectors with a screwdriver and remove them by pulling them upwards.



88E34

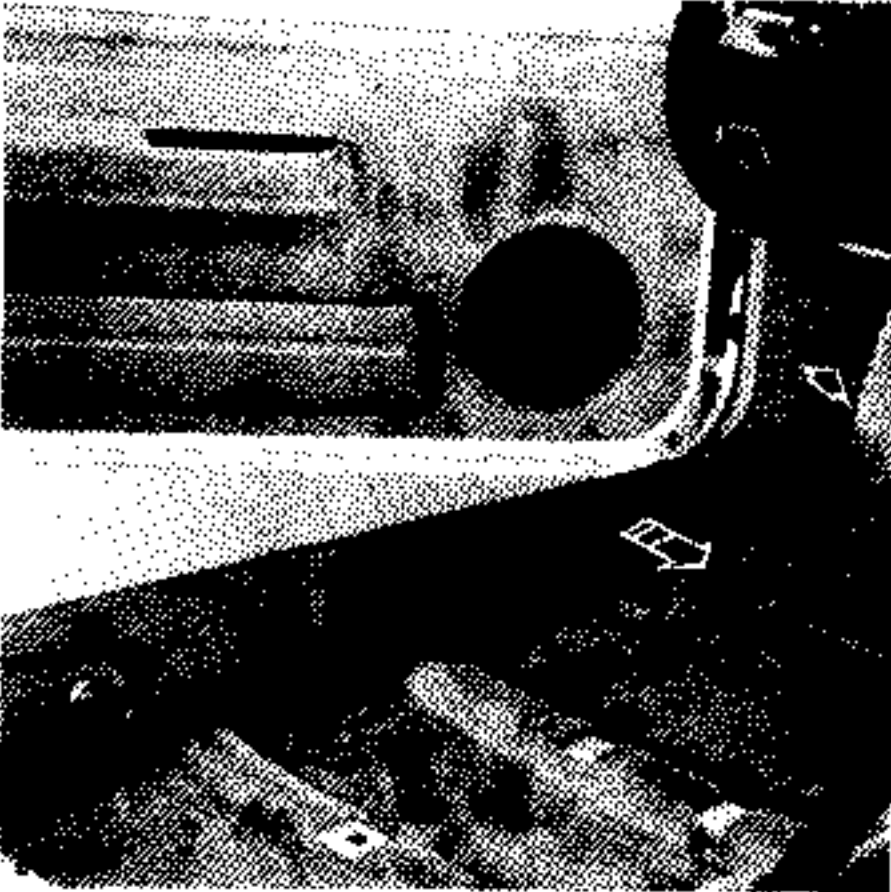
- Remove the two screws which secure the locks to either side of the rear seat back.



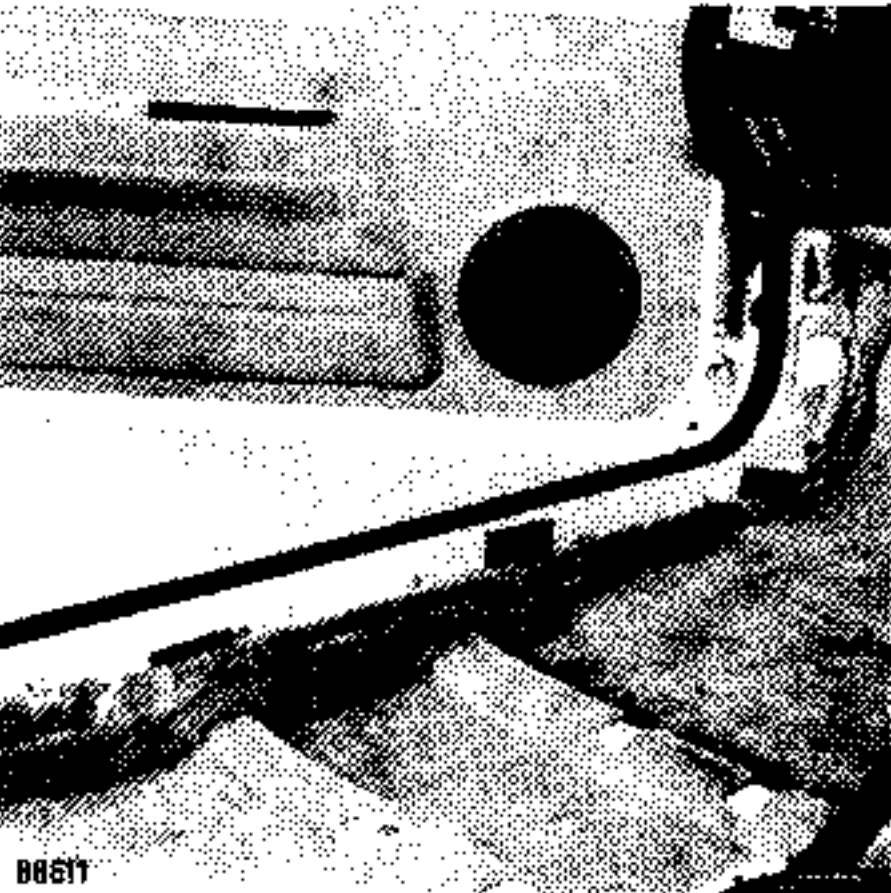
88E35

- Free the retaining tab from the top of the seat back.
- Free the trim from round the edge of the seat back and remove it.

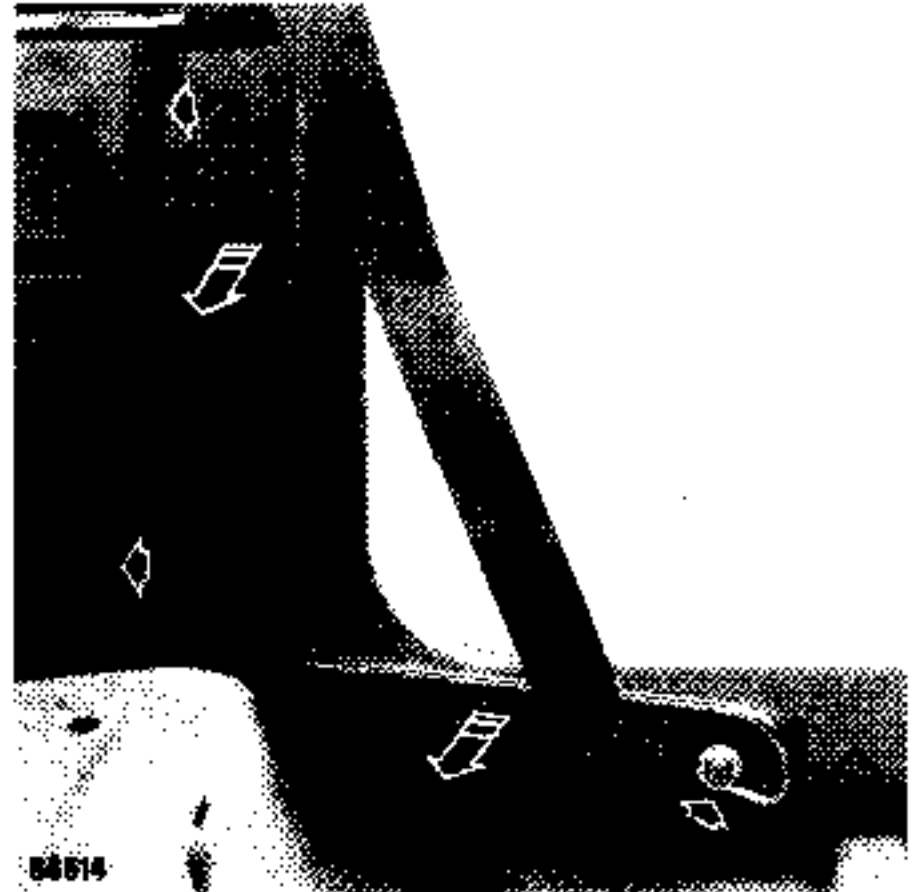
Note: Two-piece rear seats are stripped in exactly the same way except for the operations involved in removing the rear parcel shelf which, in this case, is not secured to the seat backs.



- Remove the body sill trim securing screws.
- Pull the trim to release it (it is secured by clips). The trim can pivot round its centre.



88617



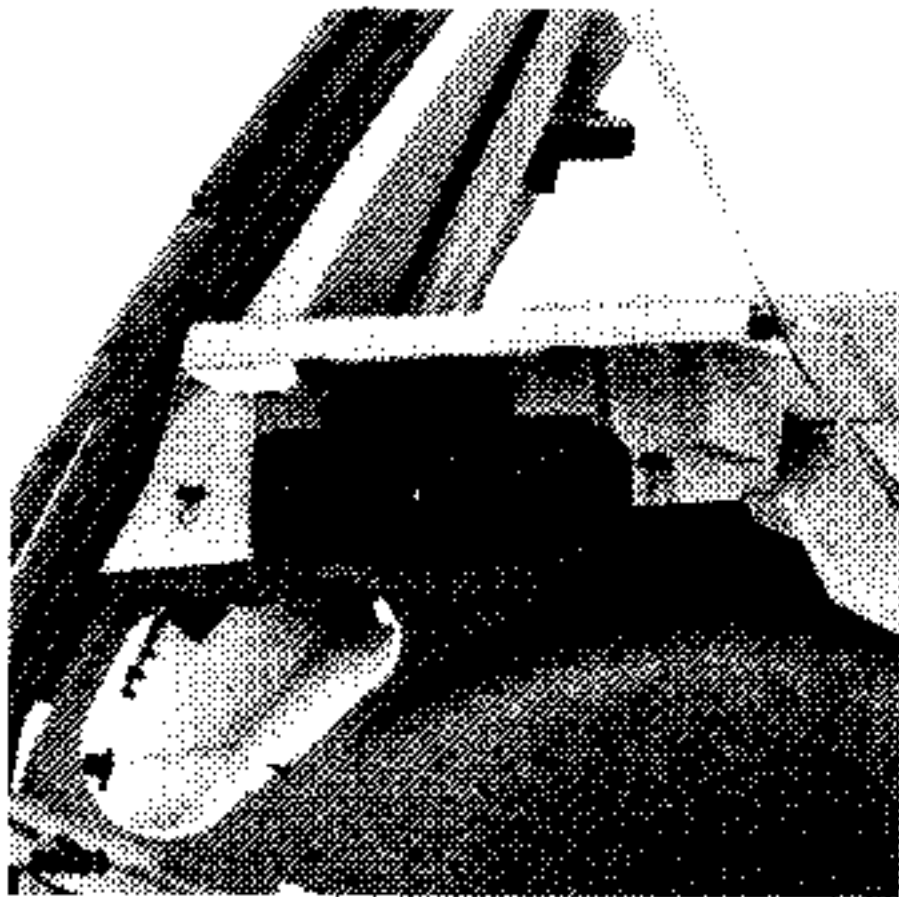
88614

- Remove the 2 rear door pillar trim securing screws.
- Remove the seat belt lower securing bolt.
- Pull the trim to release it (it is secured by clips).

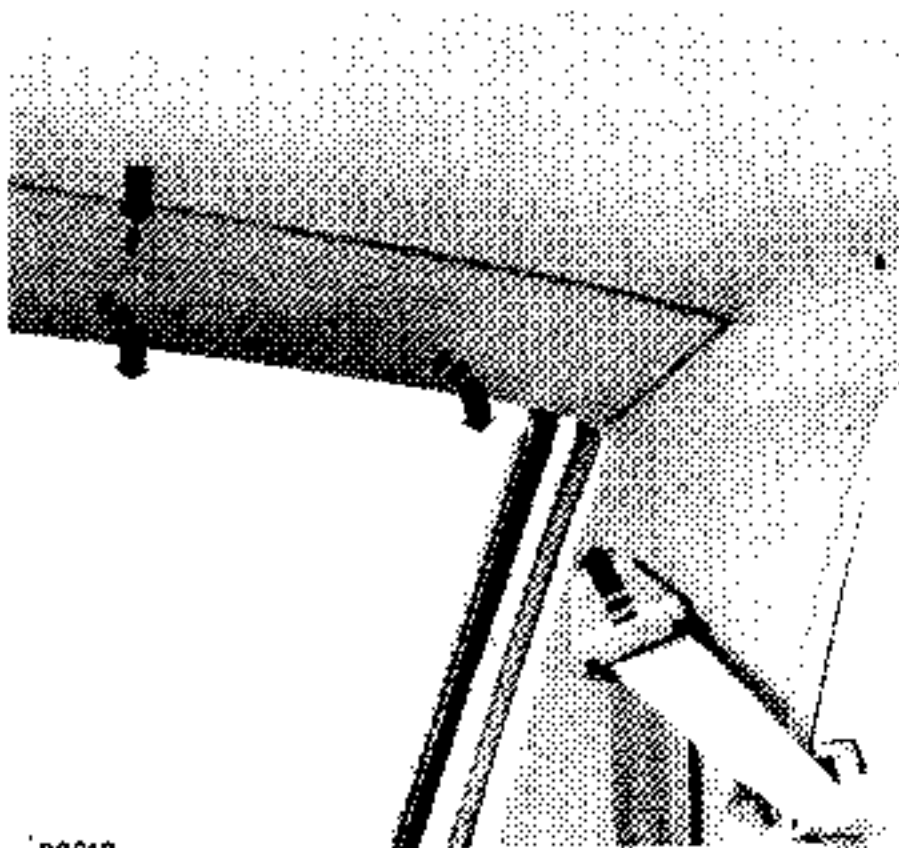


88617

- Remove the 2 screws which secure the upper part of the trim.

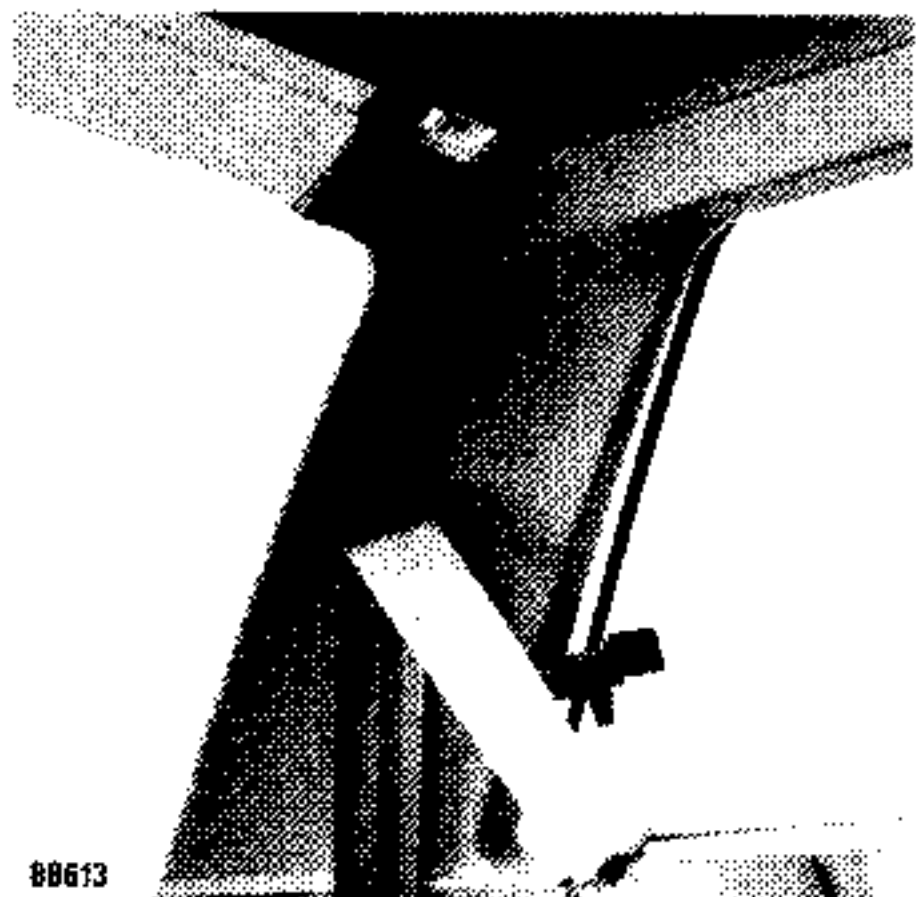


- Remove the 4 screws which secure the rear side shelf in place.



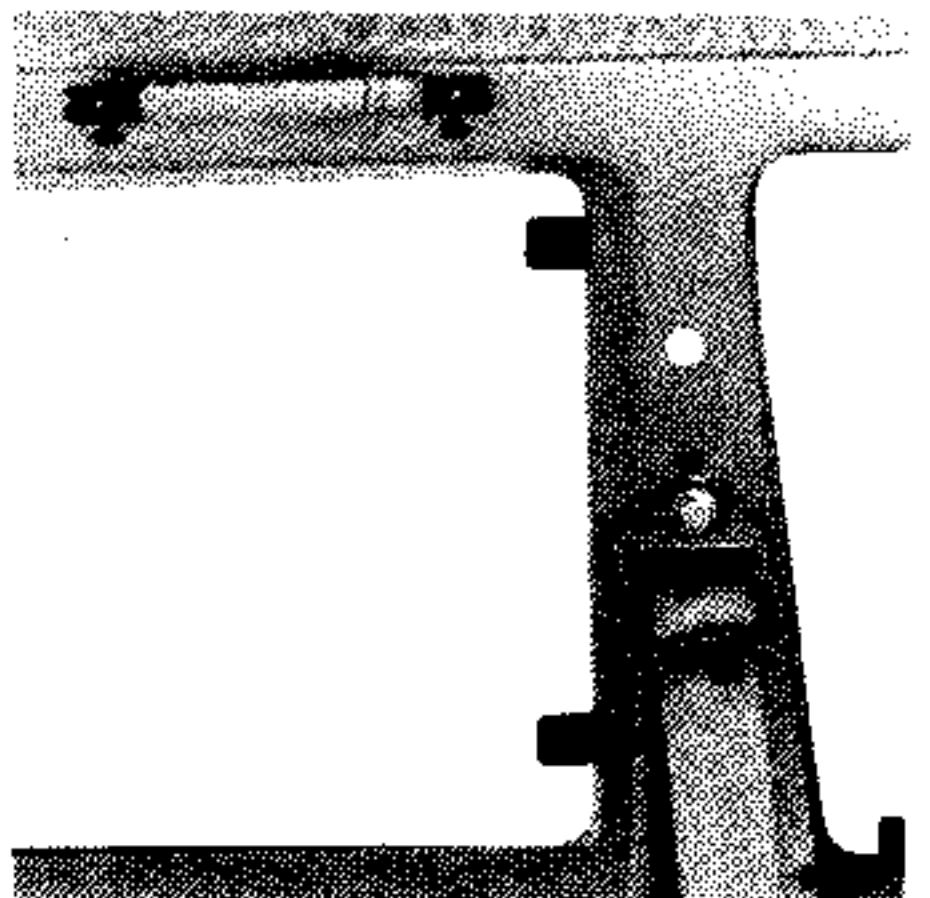
88612

- Remove the screws from the roof rear trim strip.
- Tilt it downwards to remove it.
- Remove the rear seat belt anchor point cover.

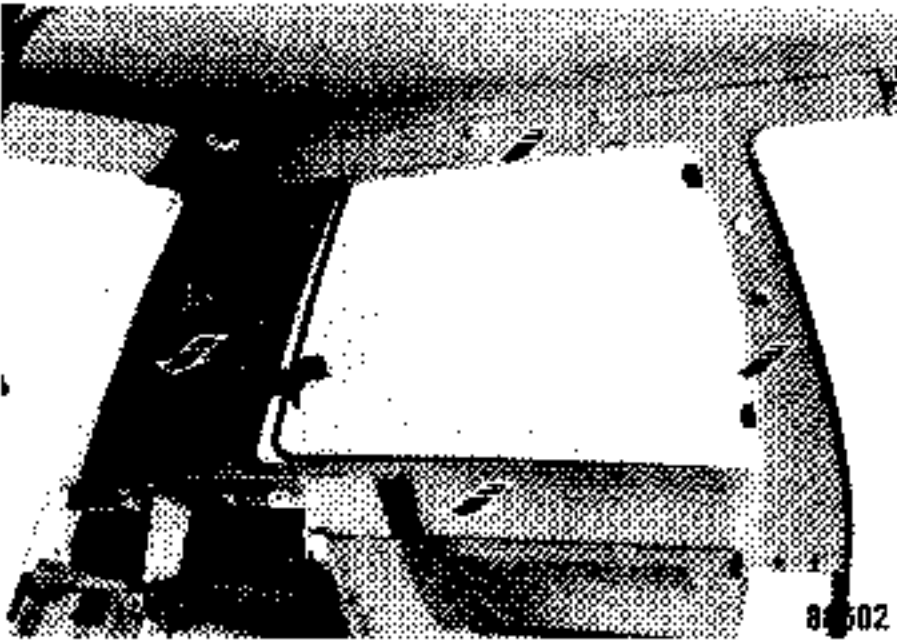


88613

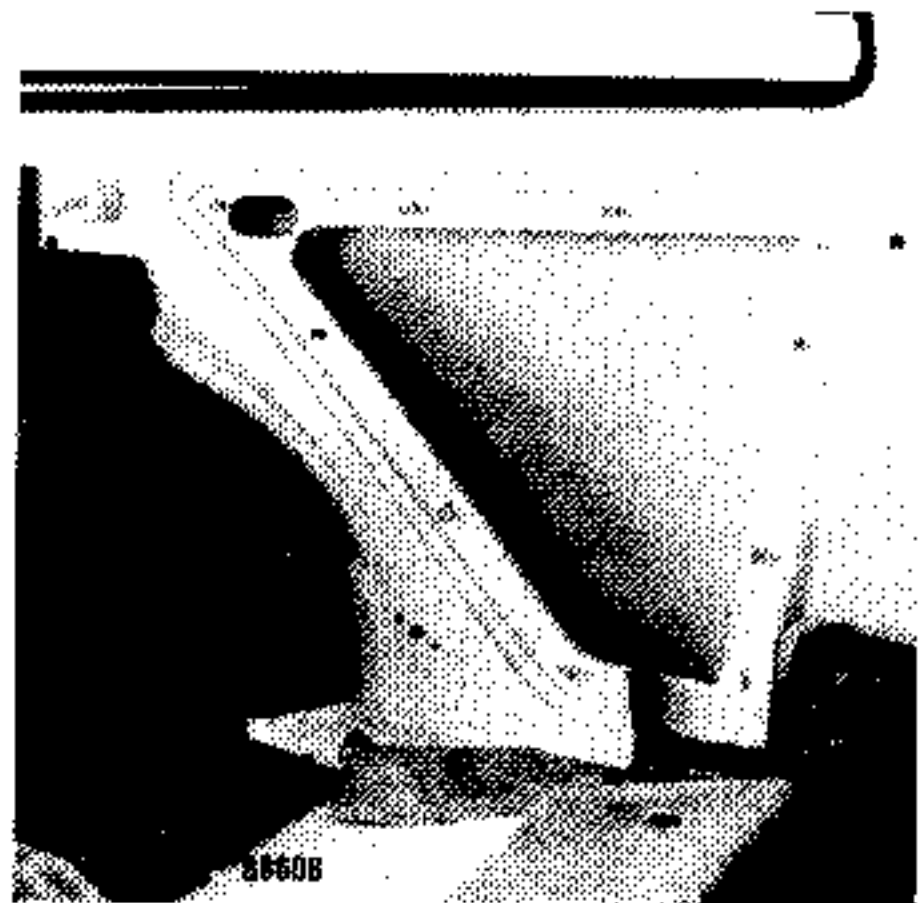
- Remove the rear seat belt securing bolt. Note the order in which the parts are assembled to refit them in the same order.
- Remove the side panel trim securing screw.

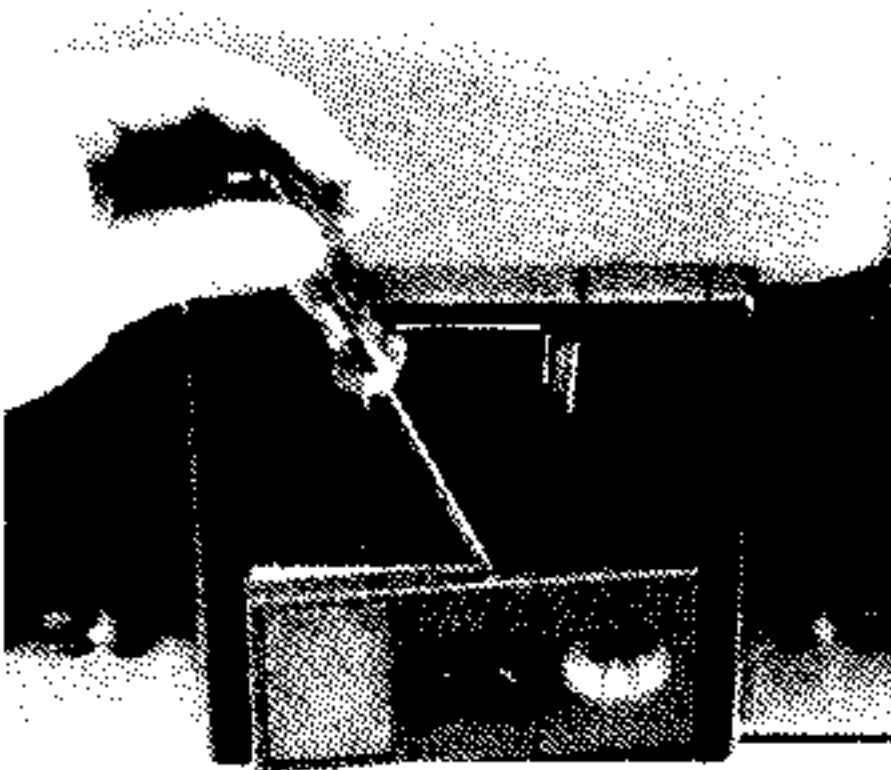


- Remove the 2 rear grab handle securing screws.
- Remove the front seat belt securing bolt.



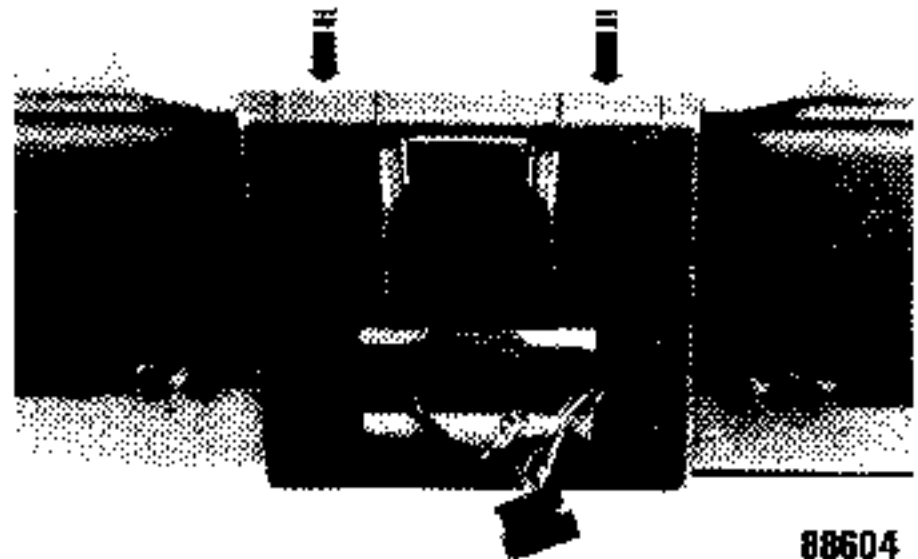
- Remove the side trim by pulling it.
- It is clipped into the window frame.





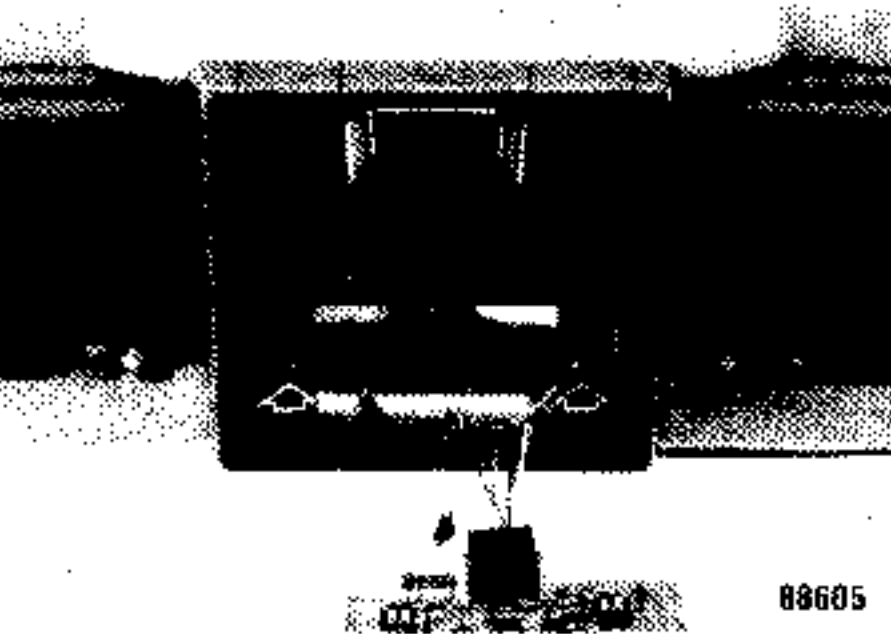
88606

- Unclip the light casing with a screwdriver.



88604

- Free the console from the head lining and disconnect the infra-red receiver.

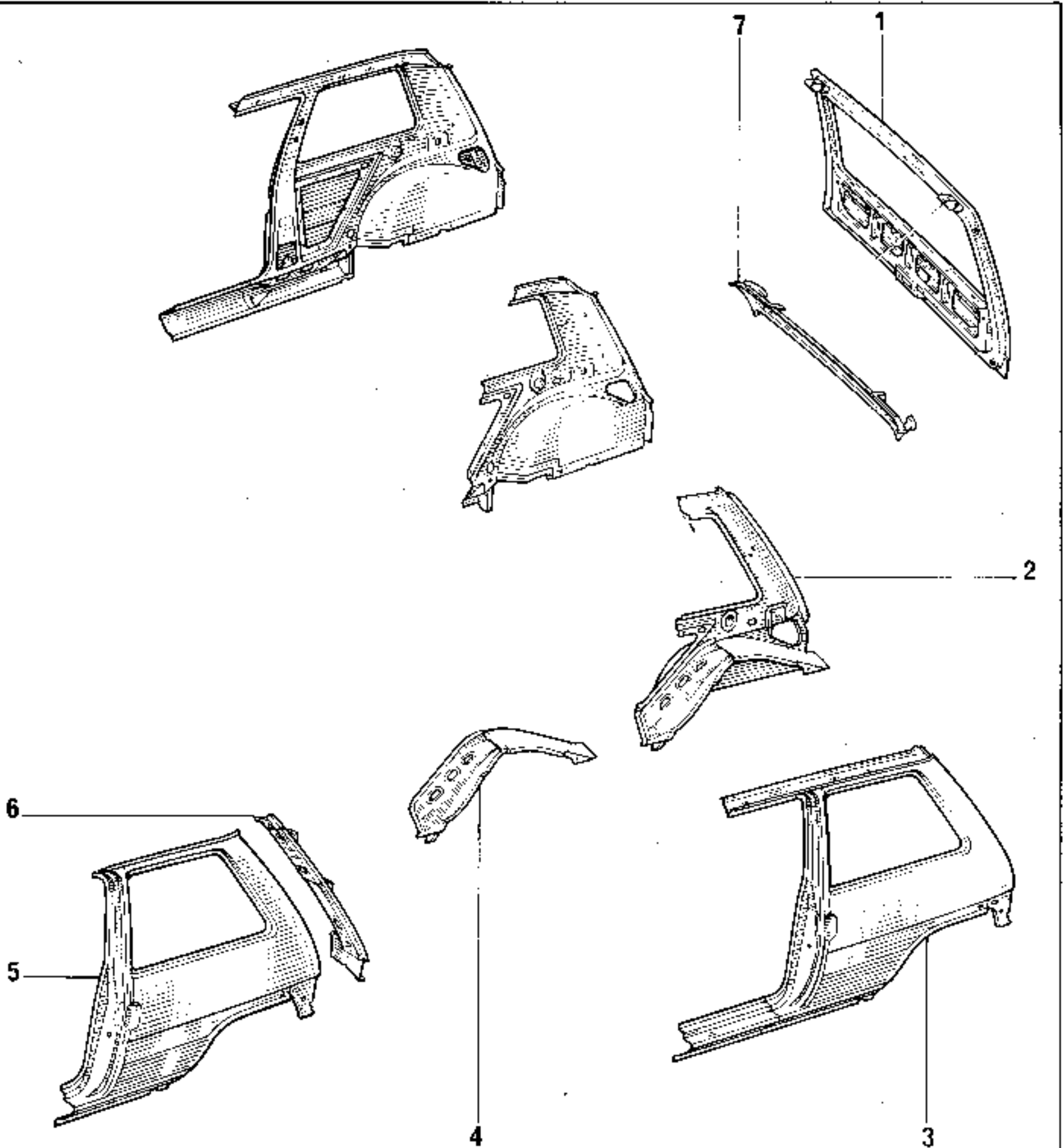


88605

- Disconnect the casing switch.
- Remove the 2 console securing screws.

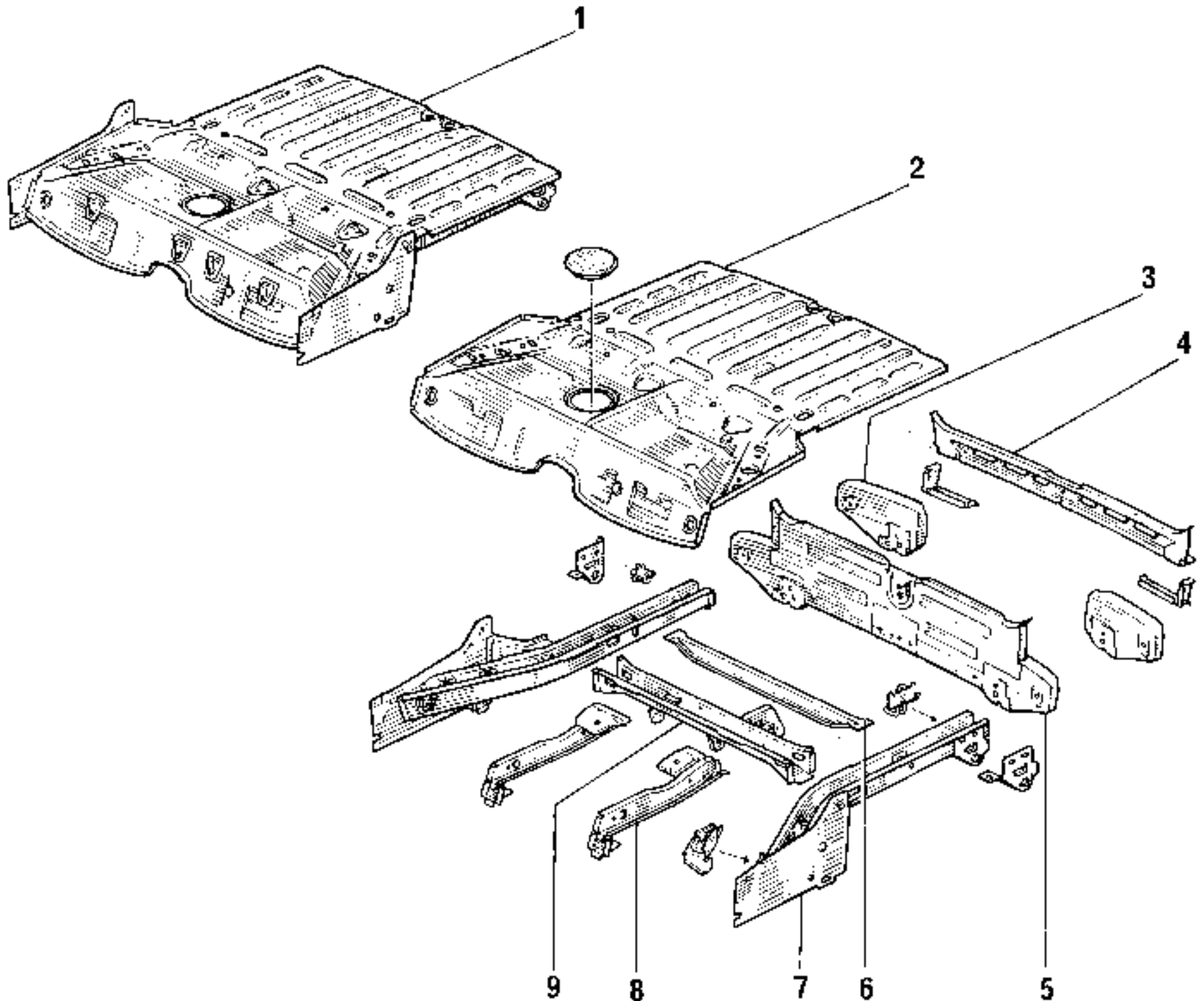
UPPER STRUCTURE

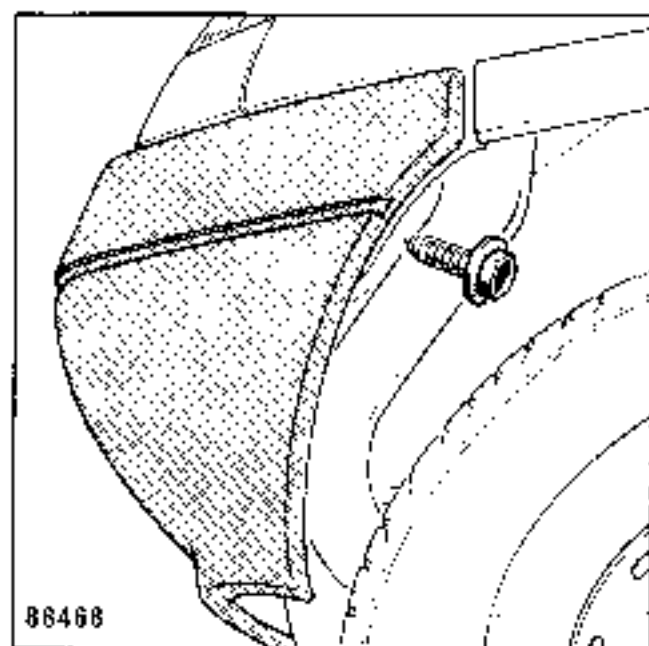
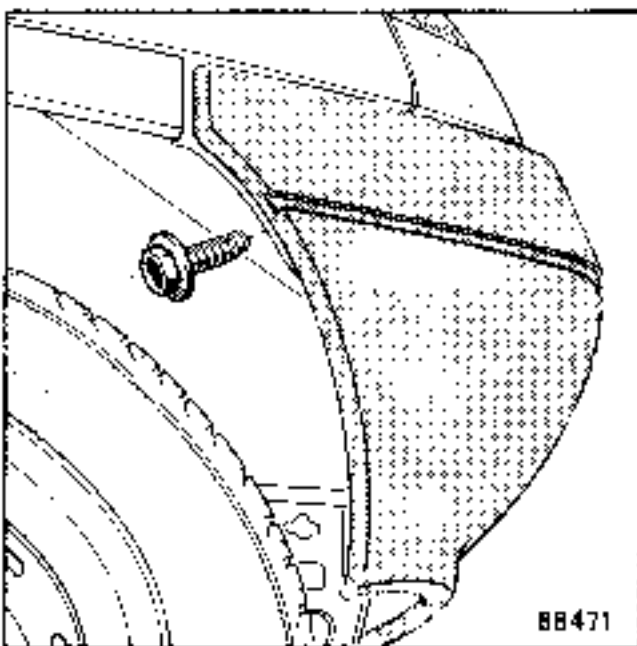
- 1-tail gate
- 2-wheel arch assembly
- 3-rear half section
- 4-wheel arch
- 5-wing panel
- 6-drip channel
- 7-roof cross member



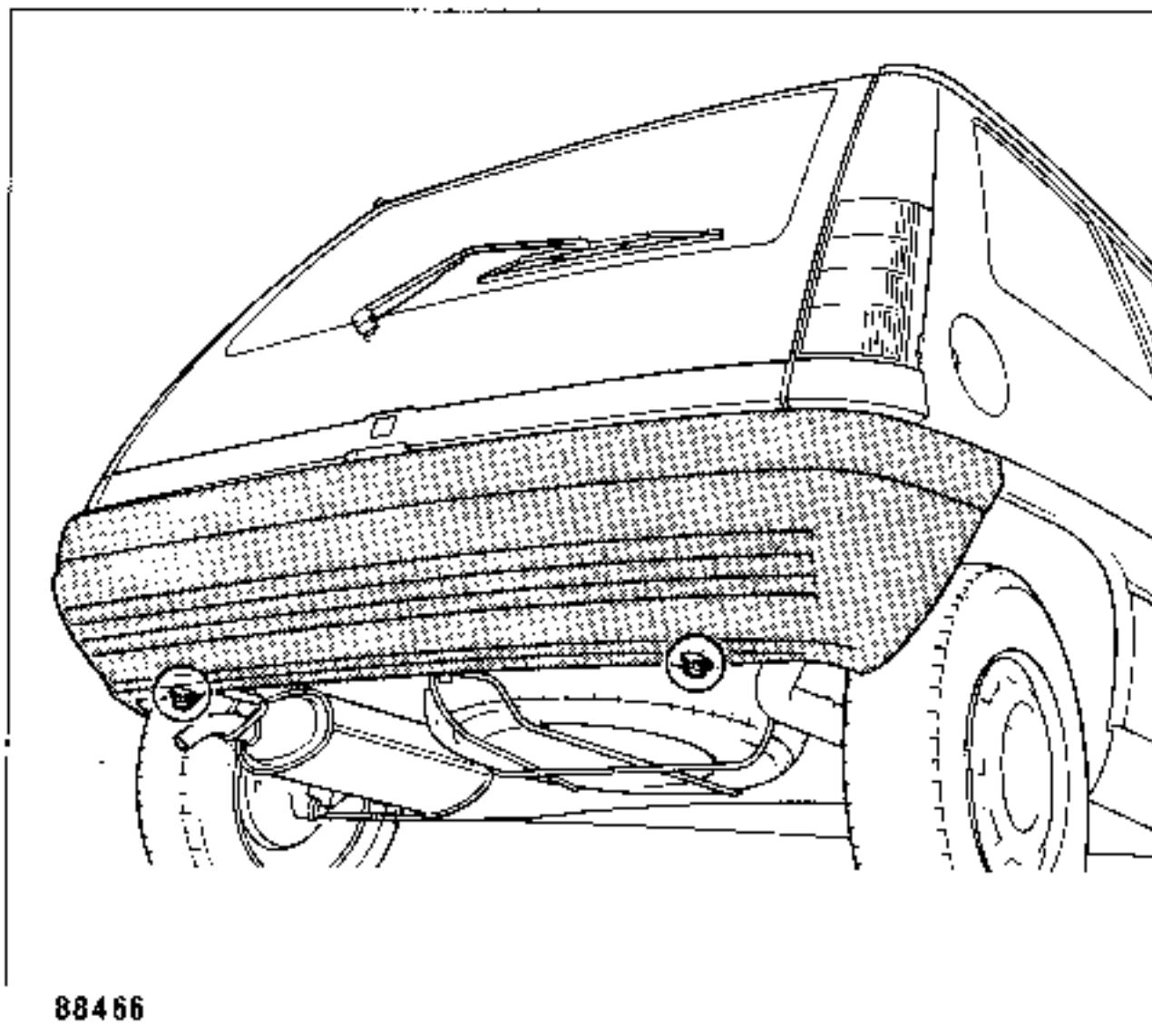
LOWER STRUCTURE

- 1-floor assembly (side members, cross members)
- 2-floor (without stiffeners)
- 3-rear end panel gusset
- 4-rear end panel cross member
- 5-rear end panel
- 6-floor stiffeners
- 7-side member
- 8-floor longitudinal member
- 9-floor cross member

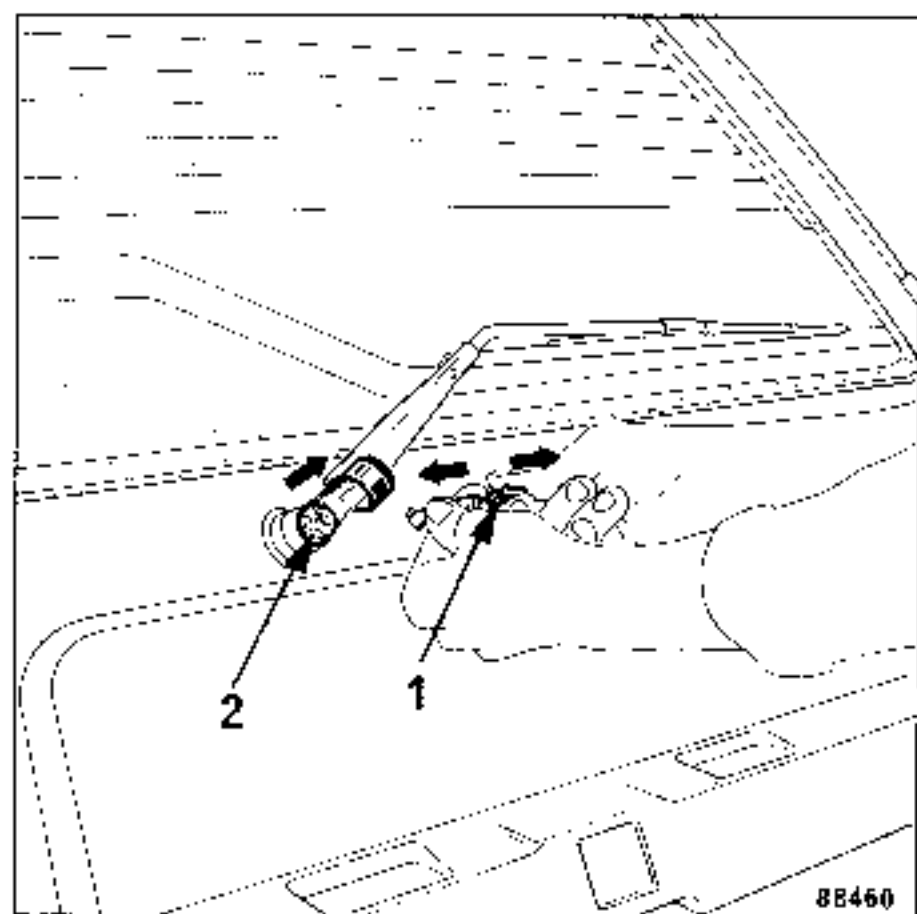




Remove the screws at the sides.

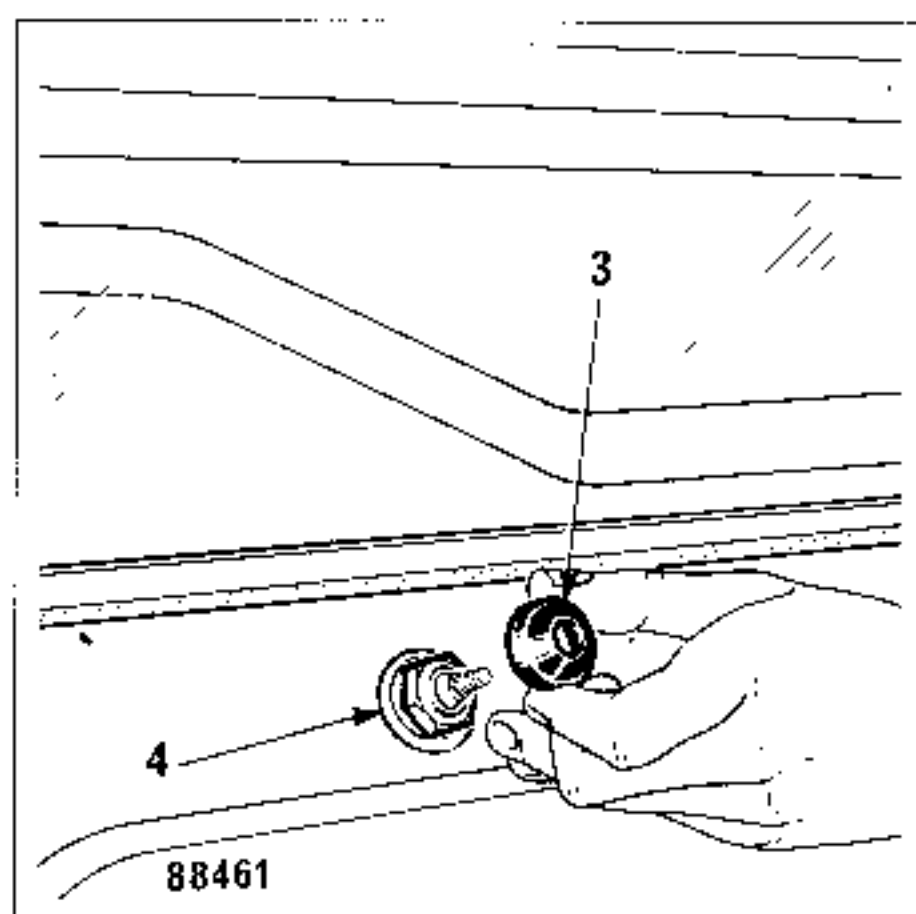


Remove the screws at the bottom and take off the bumper shield.

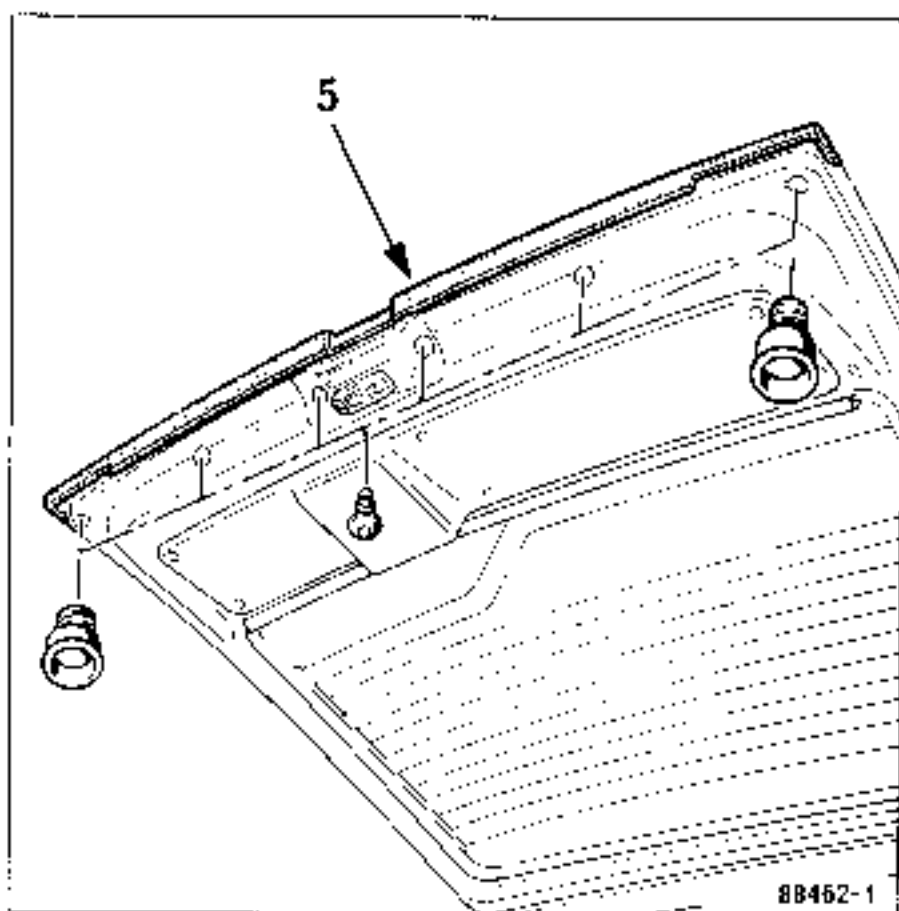


Remove the following parts :

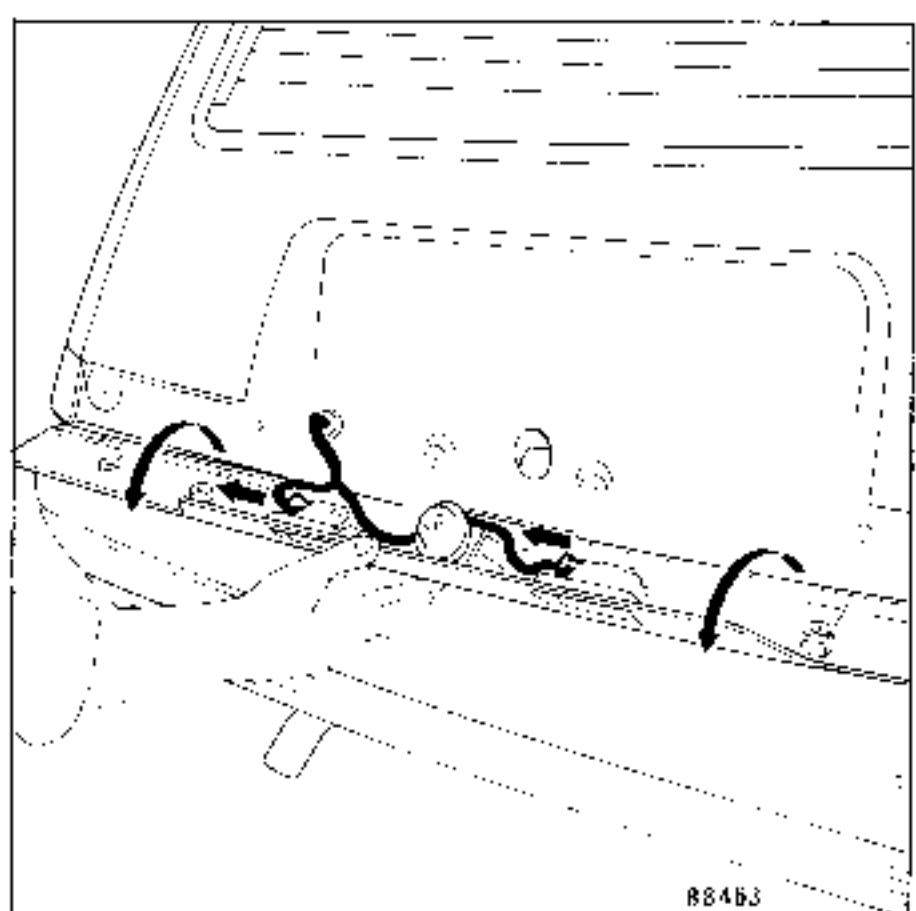
- the nozzle (1),
- the rear screen wiper arm (2),



- the nut cover (3),
- the nut (4) that holds the rear screen wiper in place.



Remove the tail gate trim (5).



Disconnect the number plate lights.

REPAIRING THE HEATING ELEMENT

The heating is silk screen printed on the inside face of the glass.

It can be repaired with a special varnish part no. 77 01 400 794.

NOTE :

When the break is not visible to the naked eye, it can be located with a voltmeter (see method described in the electrical section of the mechanical workshop manual).

REPAIRING

Clean, locally, the part to be repaired, to remove any dust or grease. It is preferable to use alcohol or a glass cleaner for this purpose. Wipe it with a clean dry cloth.

To obtain a neat repair, apply adhesive tape, such as cellotape, to either side leaving a gap of the same thickness as the conducting area.

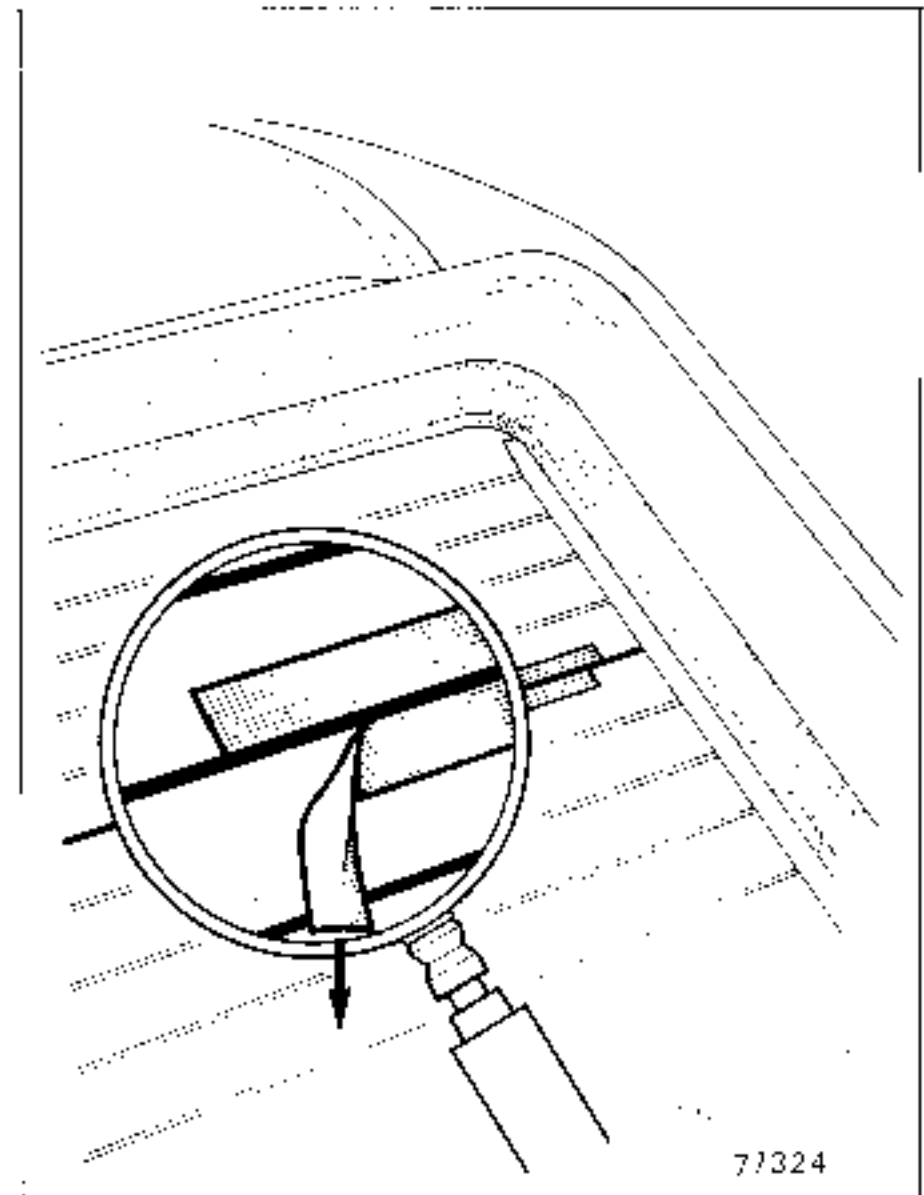
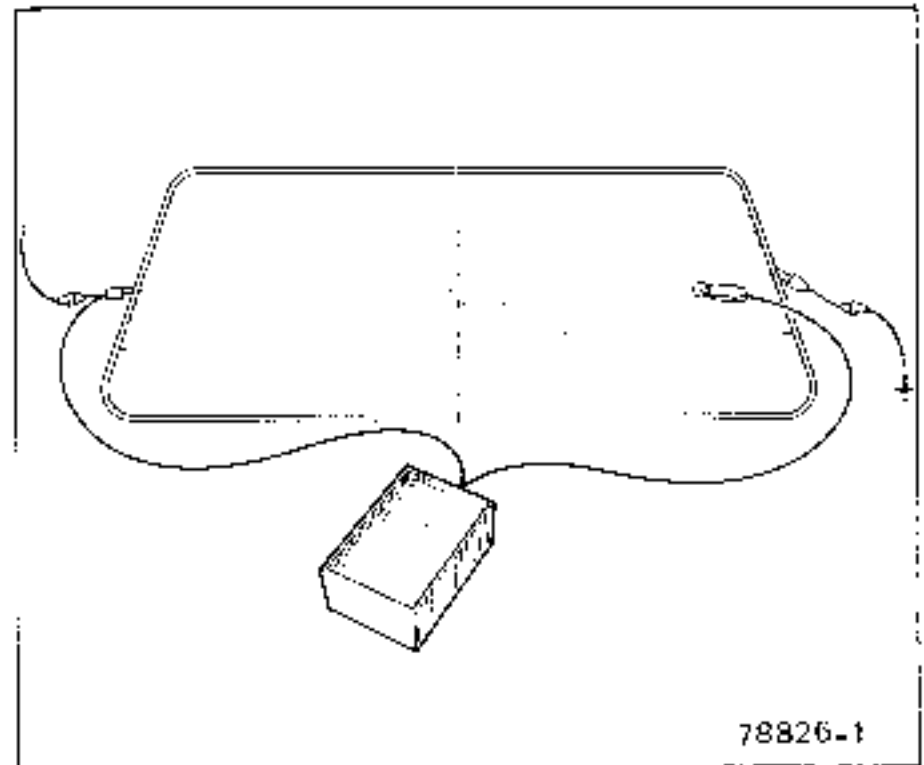
Before applying the varnish, shake the flask to avoid the silver particles being left as a deposit at the bottom of it.

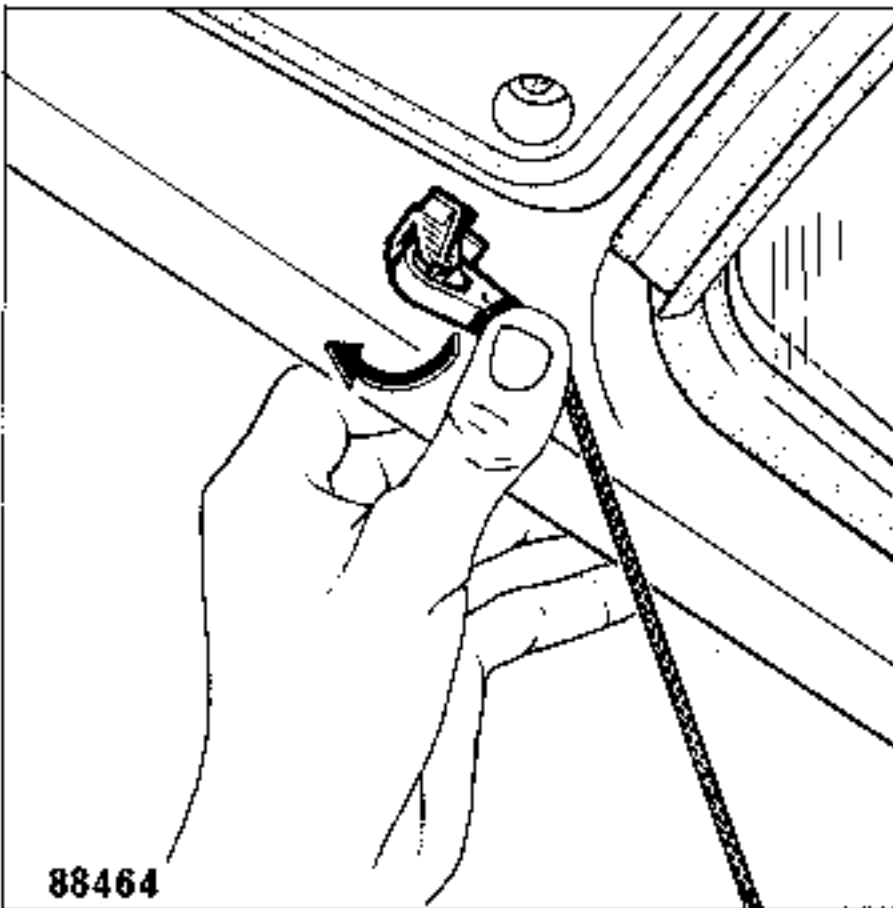
Touch up the element, with a small brush, ensuring that the coat is sufficiently thick. If more than one coat has to be applied, leave sufficient time between coats for them to dry and never apply more than three.

Any runs can be cleaned off with the point of a knife or a razor blade but leave the product to dry for several hours before doing so.

The adhesive tape which acted as guides, is not to be removed until approximately one hour after application.

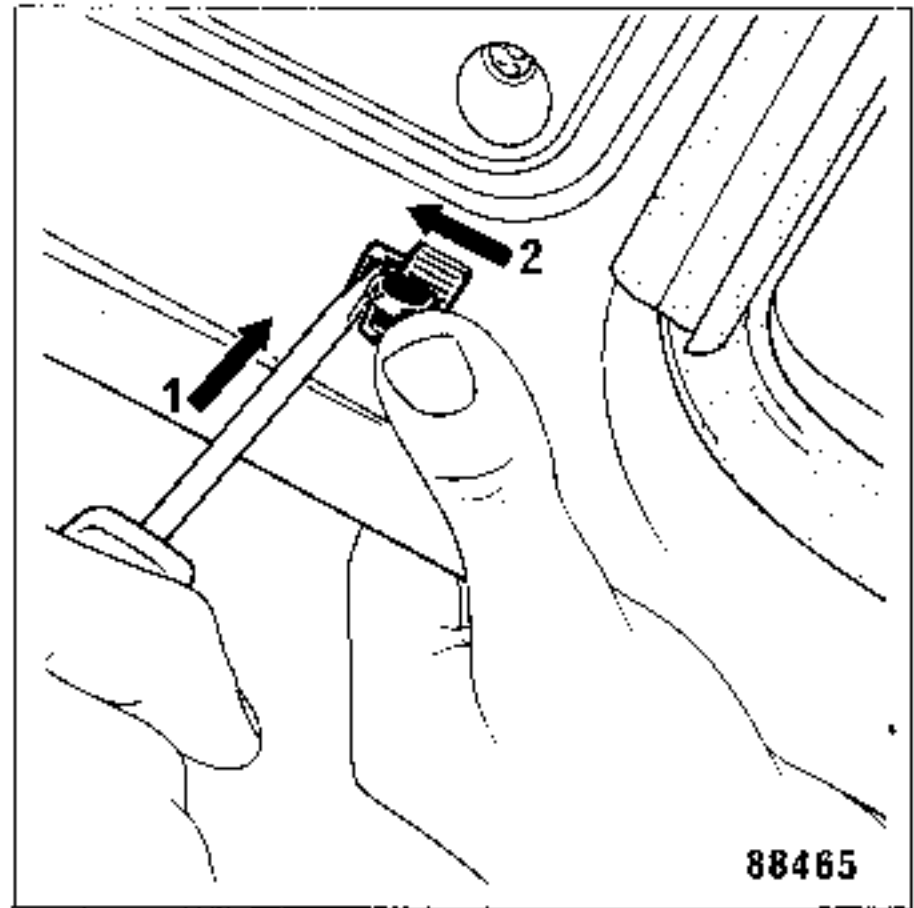
The tape is to be pulled off square with the element, in the direction shown by the arrow. The varnish, when applied at an ambient temperature of 20° C, is fully dry after three hours. At lower temperatures it takes slightly longer.



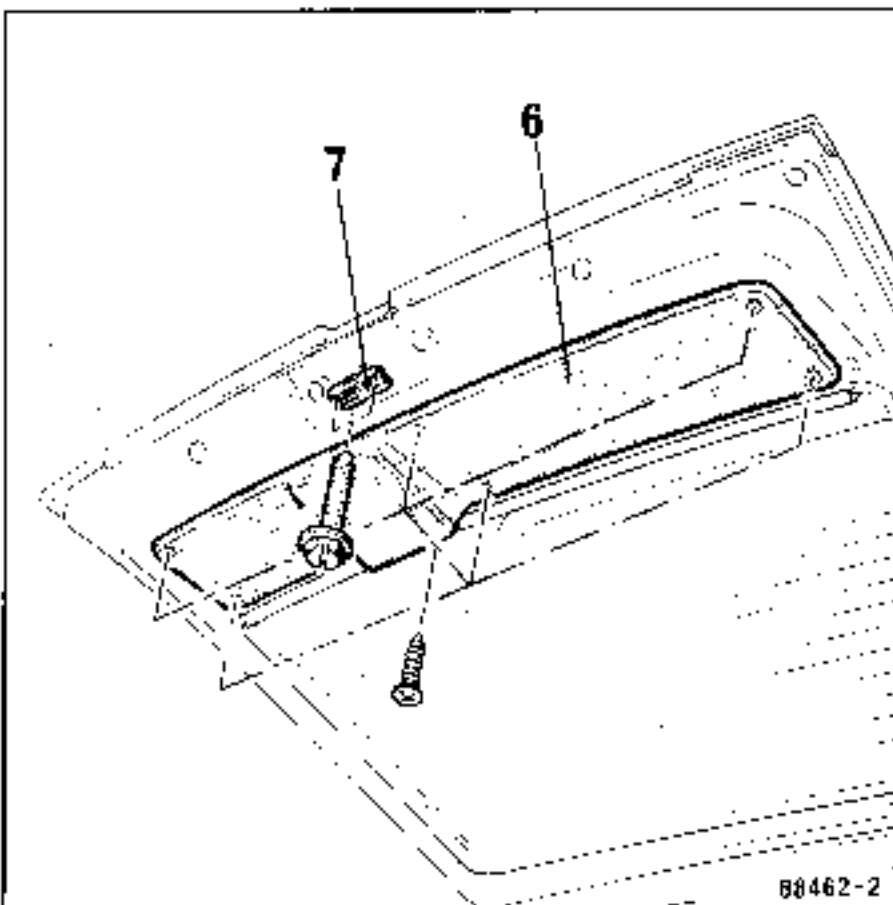


Unhook the cords from the rear parcel shelf.

- 1-push the ball joint parallel with the tail gate.
- 2-twist it to disconnect the ball joint.

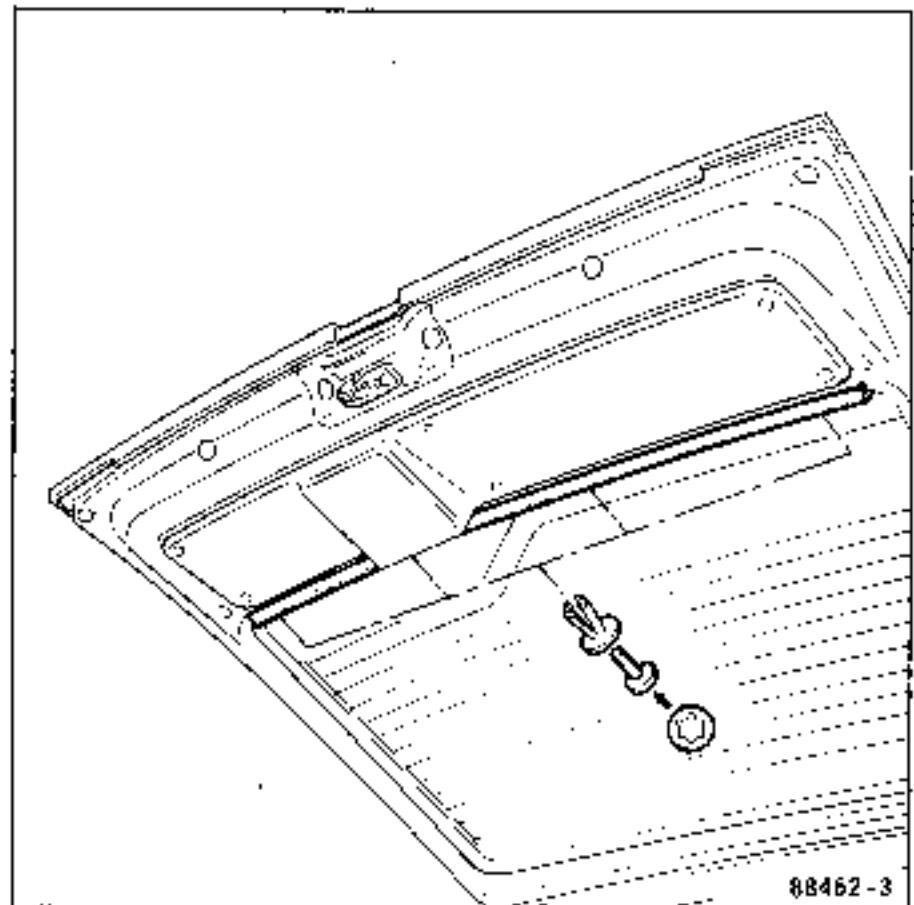


Remove the cord anchor points on the tail gate.

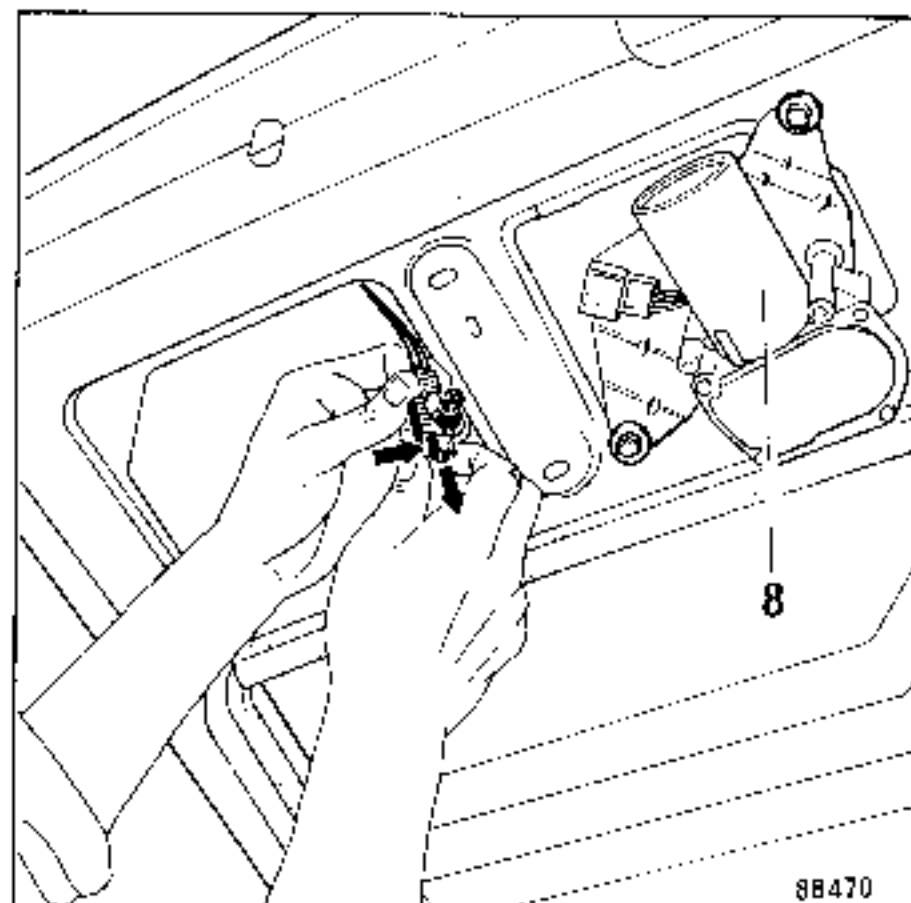
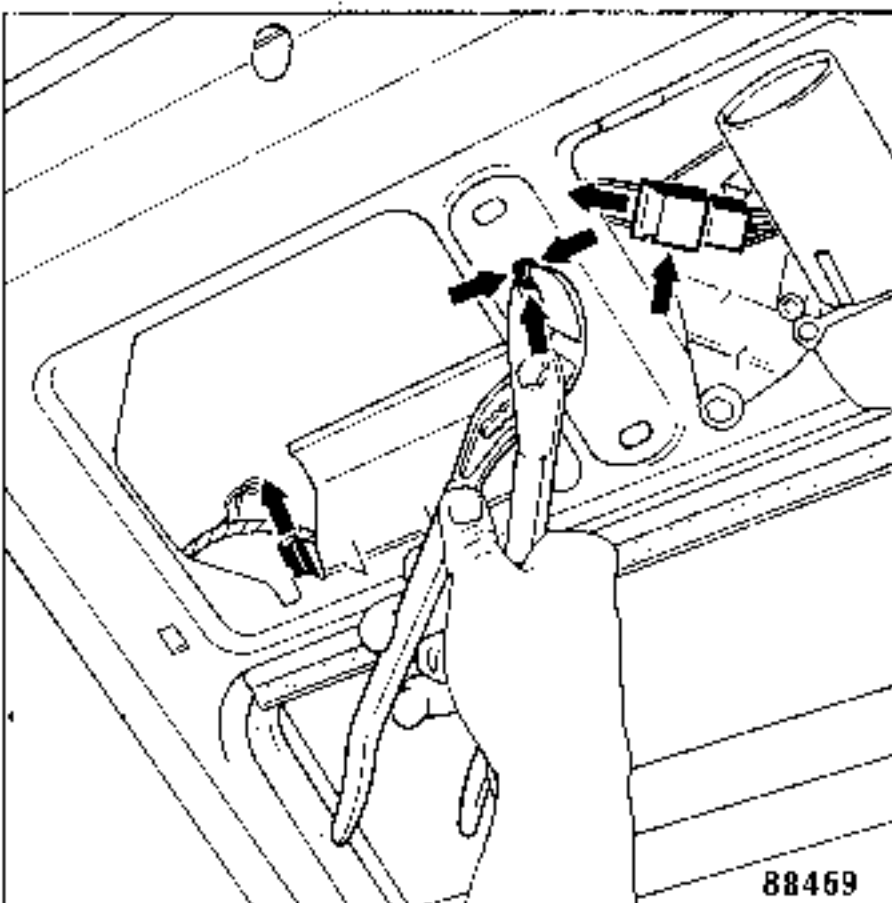


Remove the following components :

- the plastic trim (6),
- the lock (7).



Remove the lower seal.

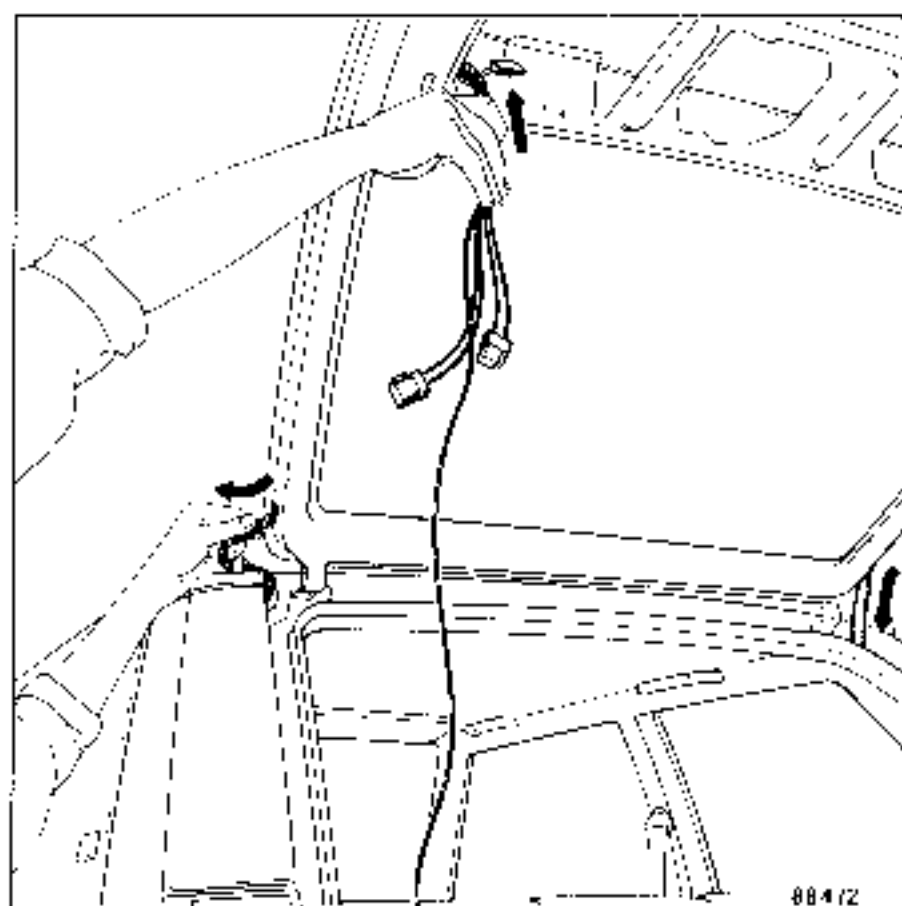


Disconnect the following electrical terminals :

- the rear screen wiper terminal,
- the heated rear screen terminals, with a pair of pliers, freeing the number plate light terminal,

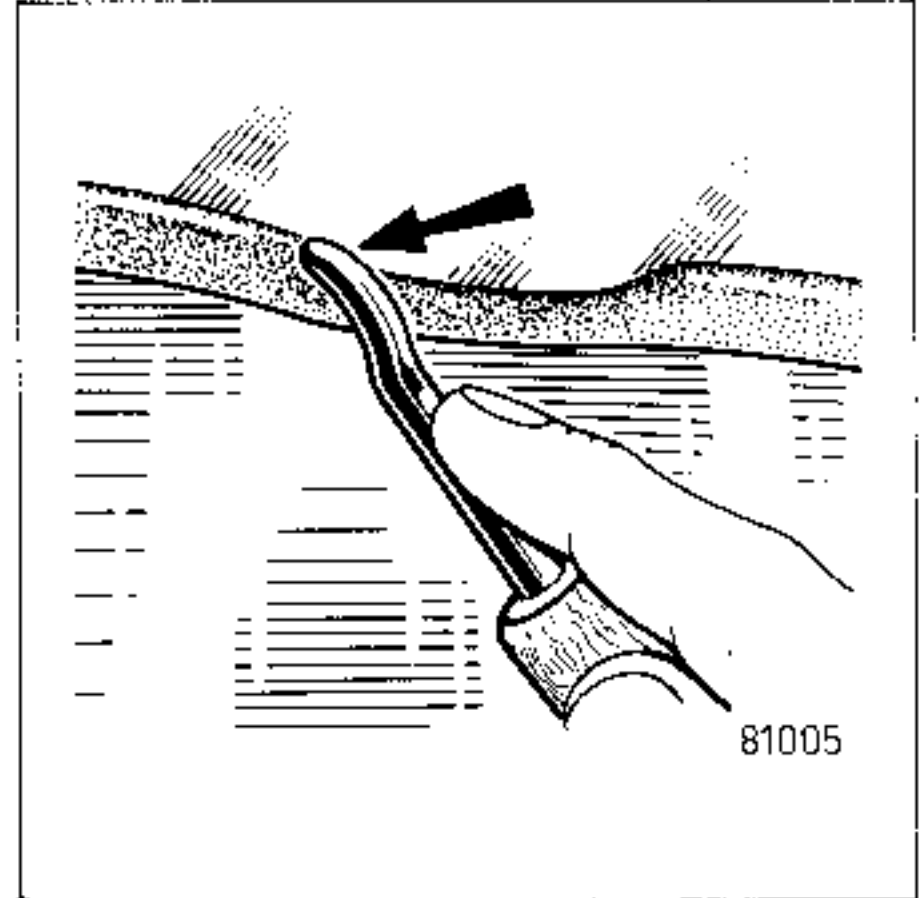
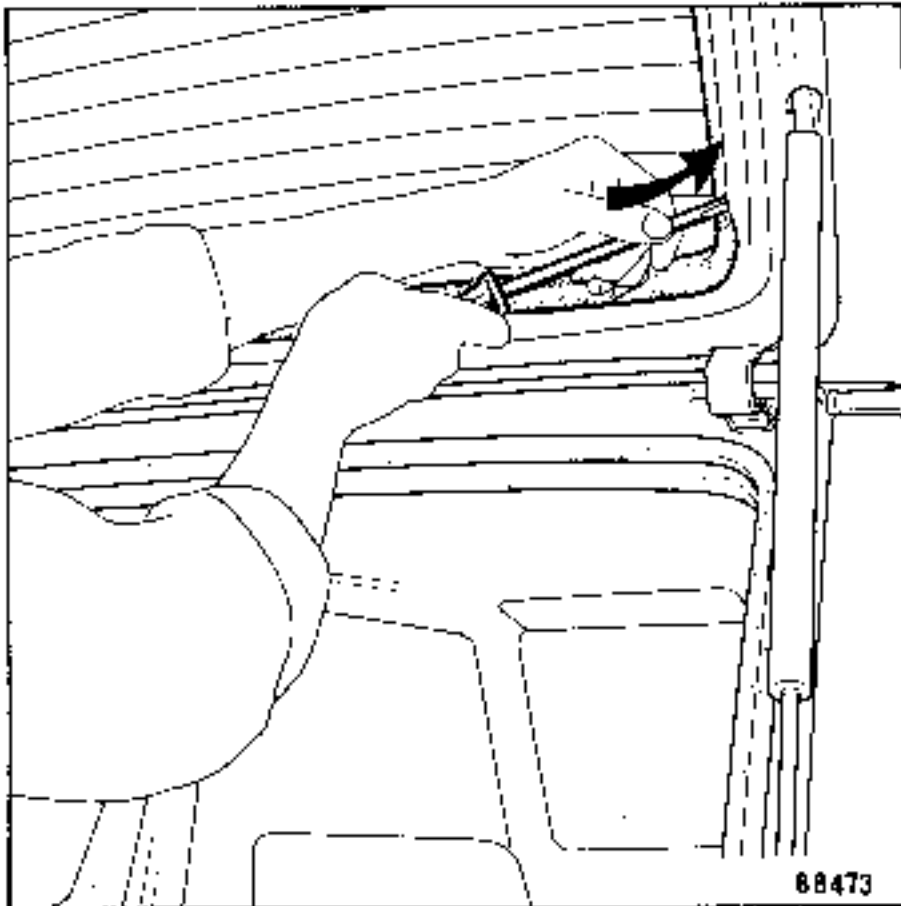
- the number plate light terminal.

Remove the rear screen wiper motor (8).



Remove the wiring and the rear screen washer pipe from the tail gate uprights.

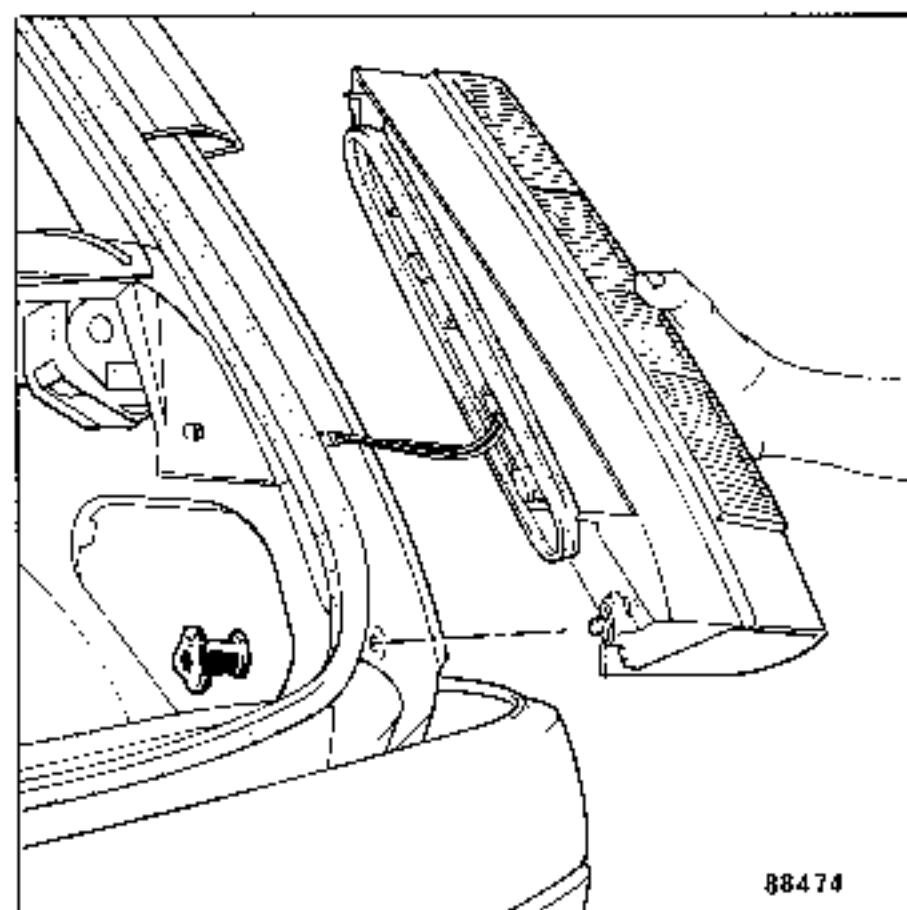
Remove the rear screen.



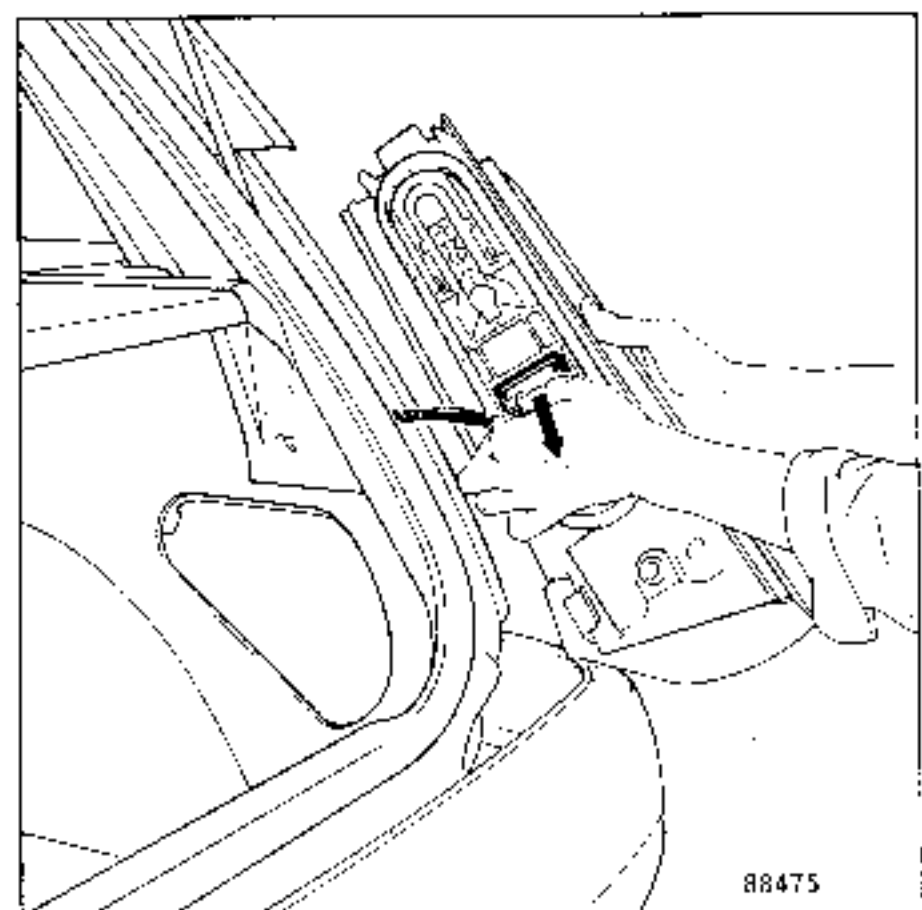
If the rear screen is broken and all or part of it is still in position, removing the tail gate and cleaning up afterwards will be made easier by sticking a sheet of paper to either side of the broken glass.

Using a spoon ended spatula or a flat screwdriver with rounded edges, push the inner lip of the seal under the rear screen flange, starting at the top.

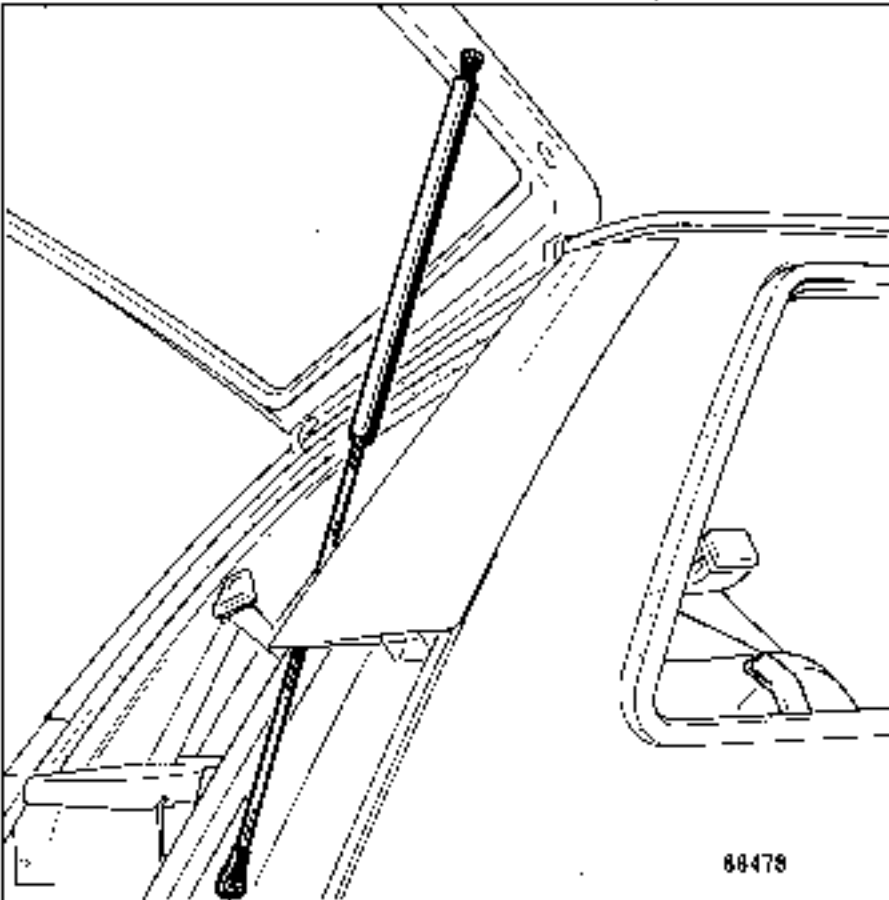
Remove the rear screen and its seal.



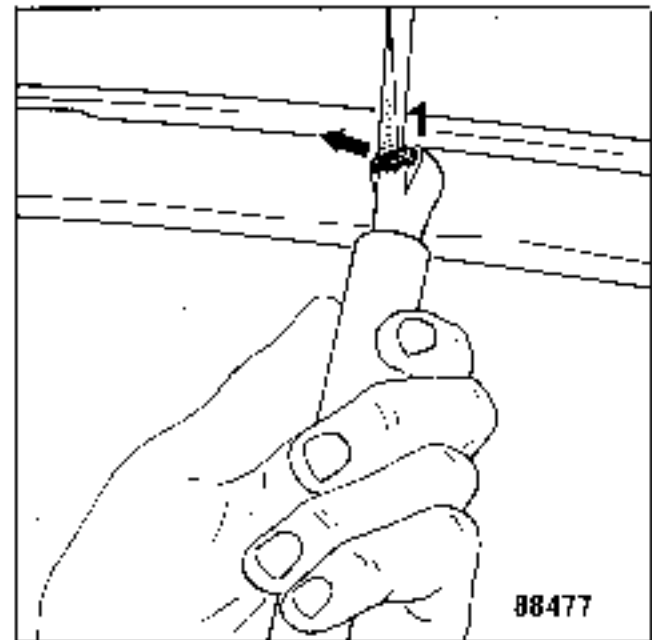
Remove the rear light assembly.



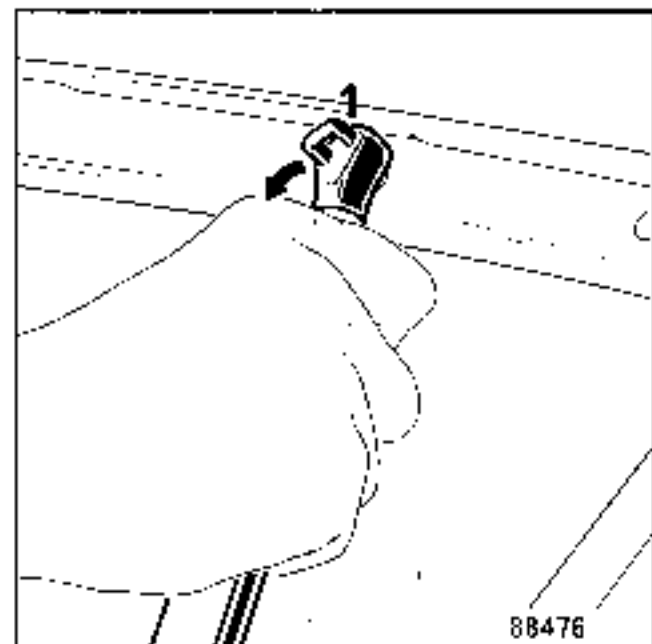
Disconnect its connector.



Remove the gas strut.



Lift tab (1) with a flat screwdriver.



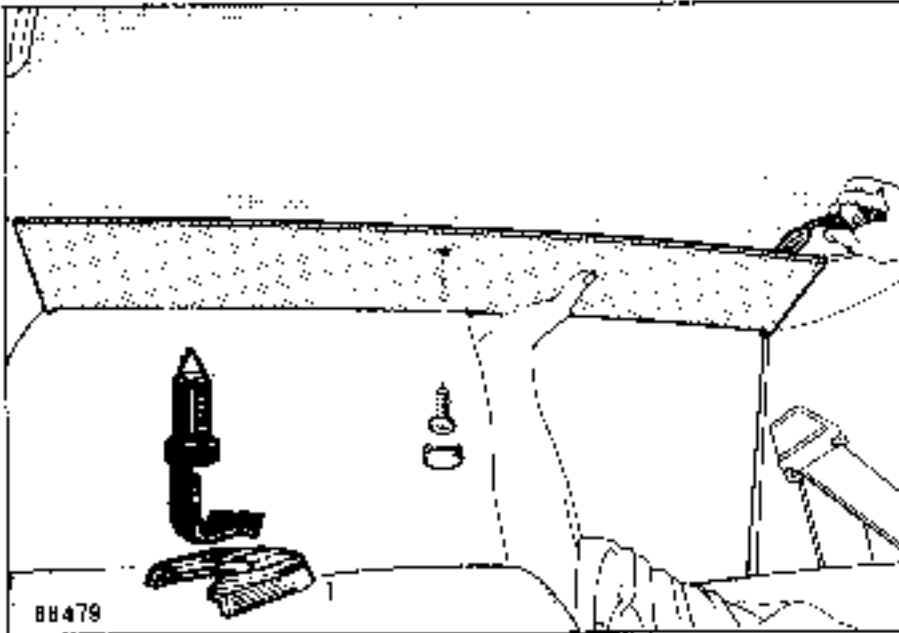
Disconnect the gas strut from the ball joint

Precautions to be taken with gas struts.

The cylinder and, in particular, the piston rod are to be protected from any possible damage or penetration by foreign bodies (protect it from scoring, traces of paint or grease on the piston rod). The consequence would be damage to the seal over a given period.

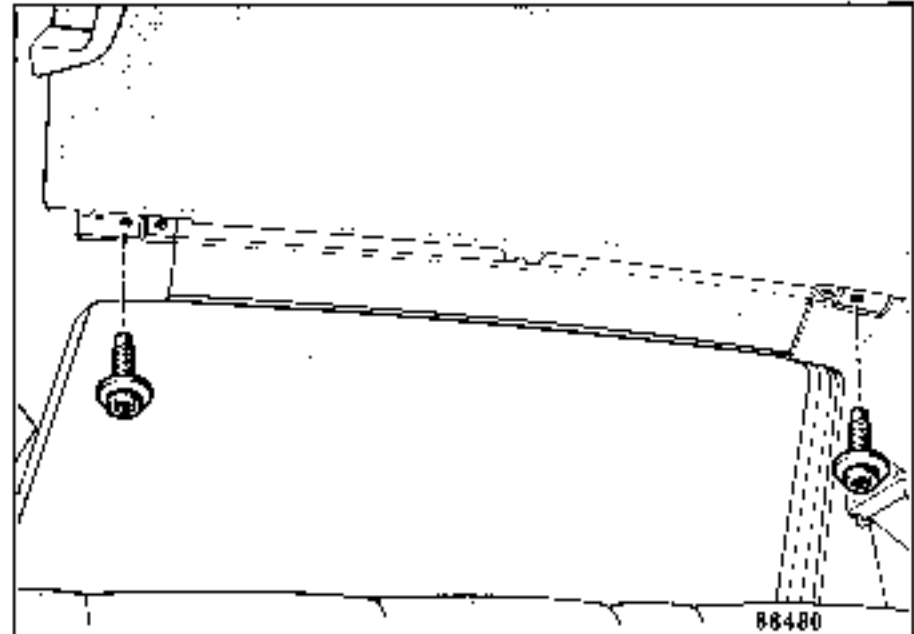
The gas strut system is not to be subjected to temperatures of 120° C for more than 20 minutes. Take all the necessary precautions, therefore, to protect them against heat exposure when using infra-red panels.

The gas struts are pressurised to a high pressure. We strongly advise you not to attempt to dismantle them;



Removing the roof cross member trim.

Remove the cover and the screw.



Removing the tail gate.

Remove the 2 screws at the sides and remove the tail gate from its frame.

END OF OPERATION.

If the tail gate is to be replaced, take off the plastic trim clips and the wiring.

Before painting the new tail gate, drill the holes for the rear screen wiper bearing and its nozzle, if the vehicle is to be fitted with one (for the dimensions see the section dealing with repairing the tail gate).

PAINTING

- Carry out paint sequence no. 1 (see "Painting" section). Refit the tail gate after having repainted its inside surfaces.

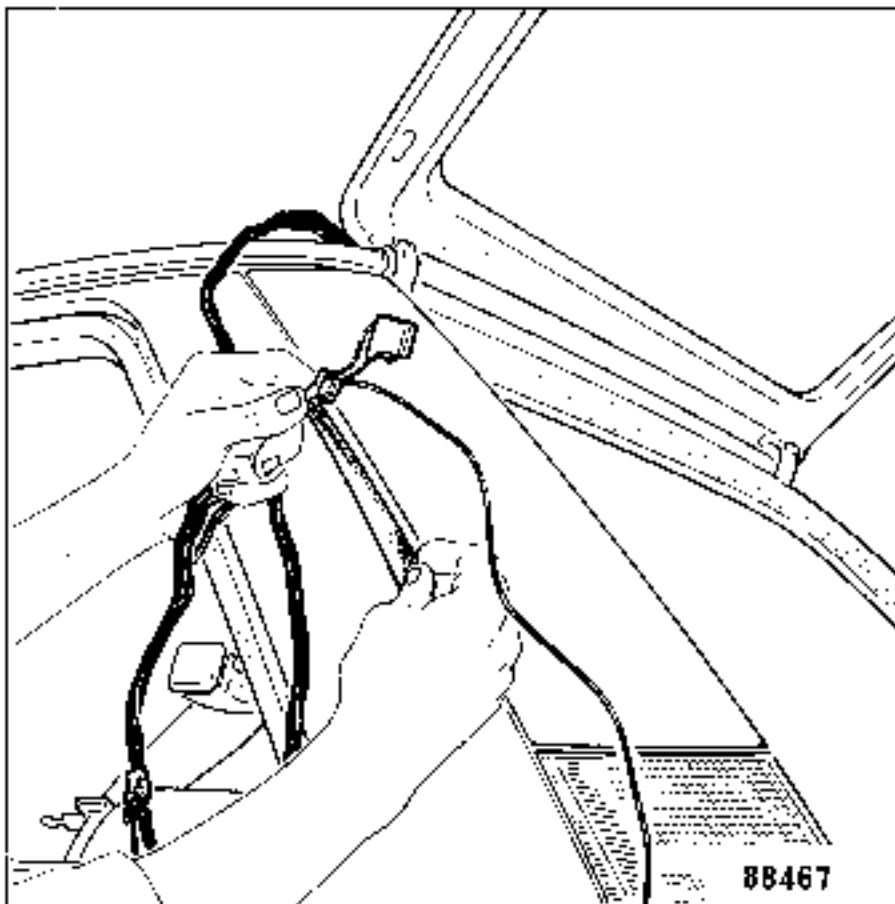
Adjusting the tail gate

- The tail gate is to be adjusted before refitting the gas strut.
- Use the slots in the roof cross member to adjust the clearances round the tail gate.
- To adjust its height, place shims between the hinge and the roof cross member.
- To adjust so that it is flush with the sides, use the clearance at the tail gate striker plate, on the rear end panel.

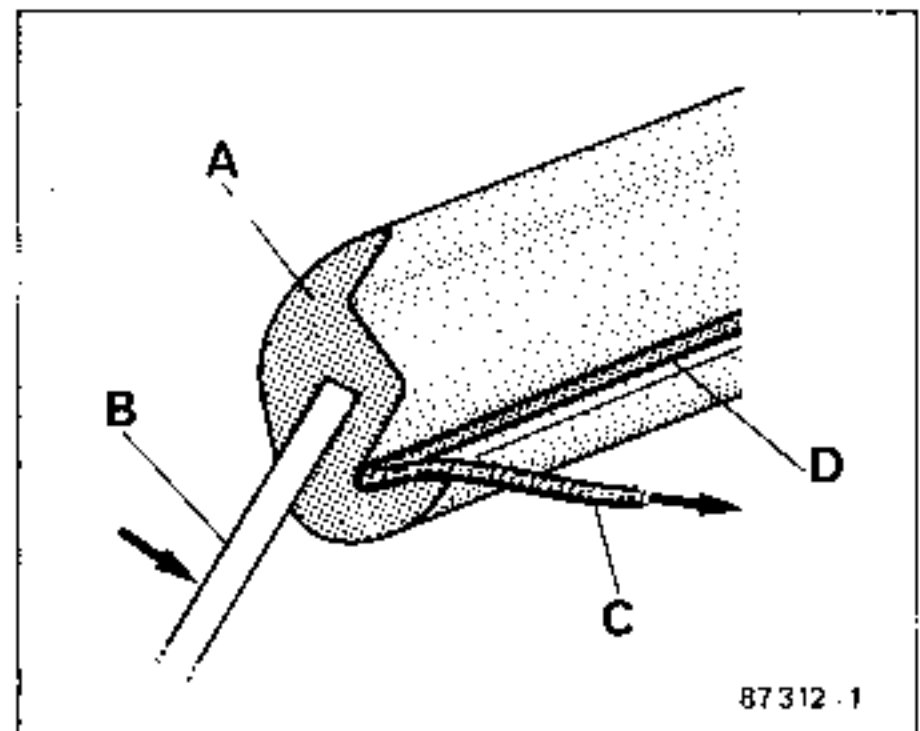
Paint the outside of the tail gate.

After painting and before refitting the trim inject hollow section protection compound into the holes already in the tail gate.

PRECAUTIONS TO BE TAKEN WHEN FITTING THE WIRING



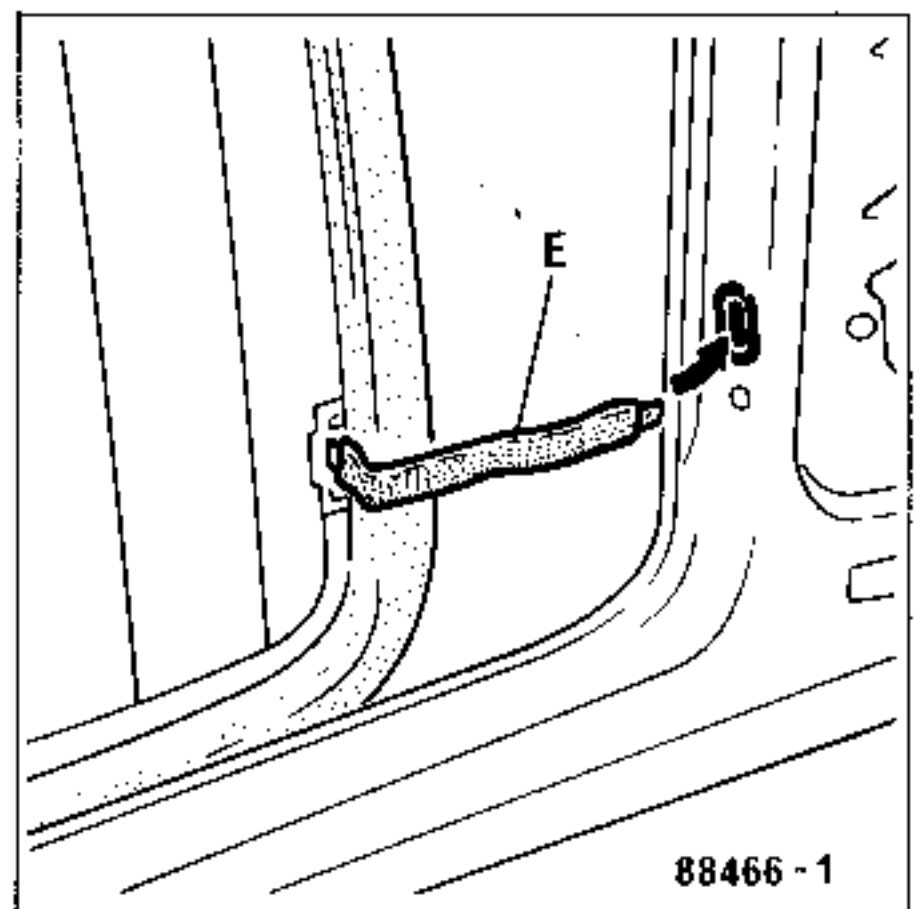
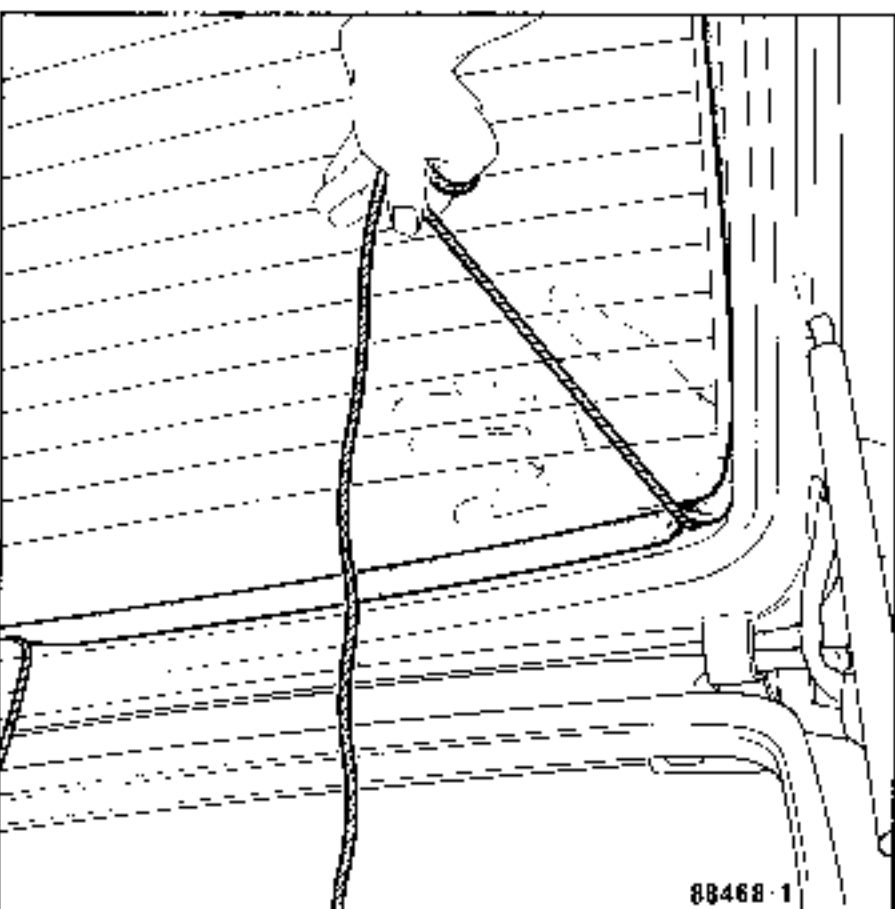
Wrap the connector blocks with adhesive tape to assist them to pass through the upright.



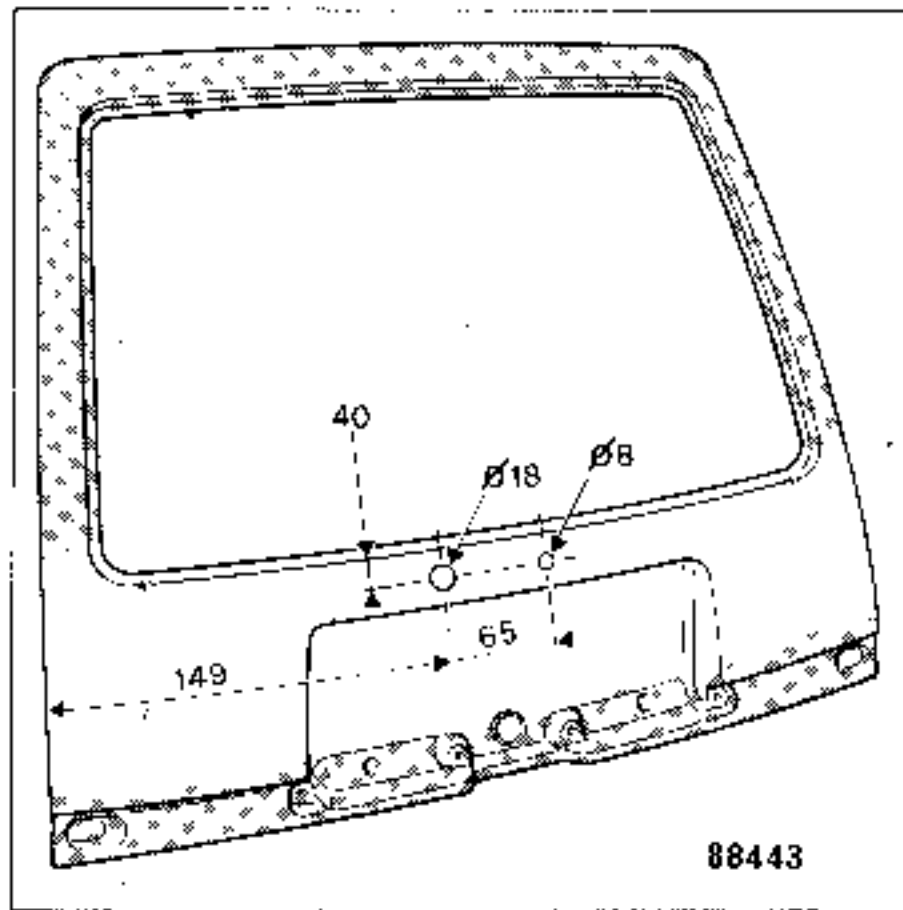
Refitting the rear screen.

Fit the rubber seal (A) to the screen (B) and insert the cord (C) into groove (D) so that its ends hang out of the groove at the bottom of the screen.

Cross the ends of the cord by approximately 200 mm.



Place the assembly against the tail gate frame (take care with the heating element connectors (E) (passing the ends of the cord into the car and push the screen assembly firmly downwards from under the tail gate, which should be open. Start pulling one end of the cord to place the lip on the seal over the panelling flange. As the cord is pulled out, push the rear screen to help it to enter. When the cord is at the centre of the screen, repeat these operations, pulling the other end of the cord (take care with the heating element connectors (E) when pulling out the cord).

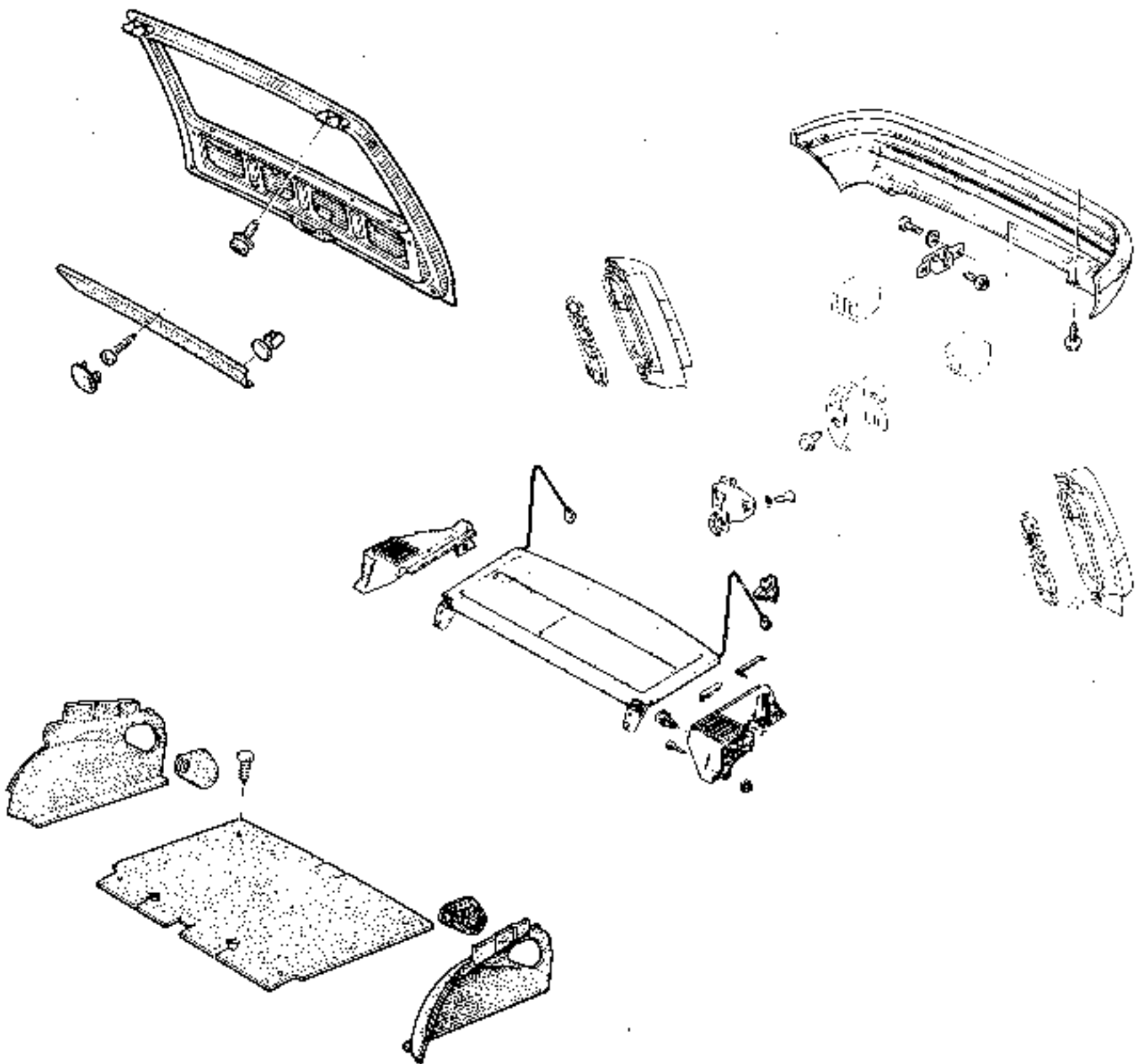


PAINTING

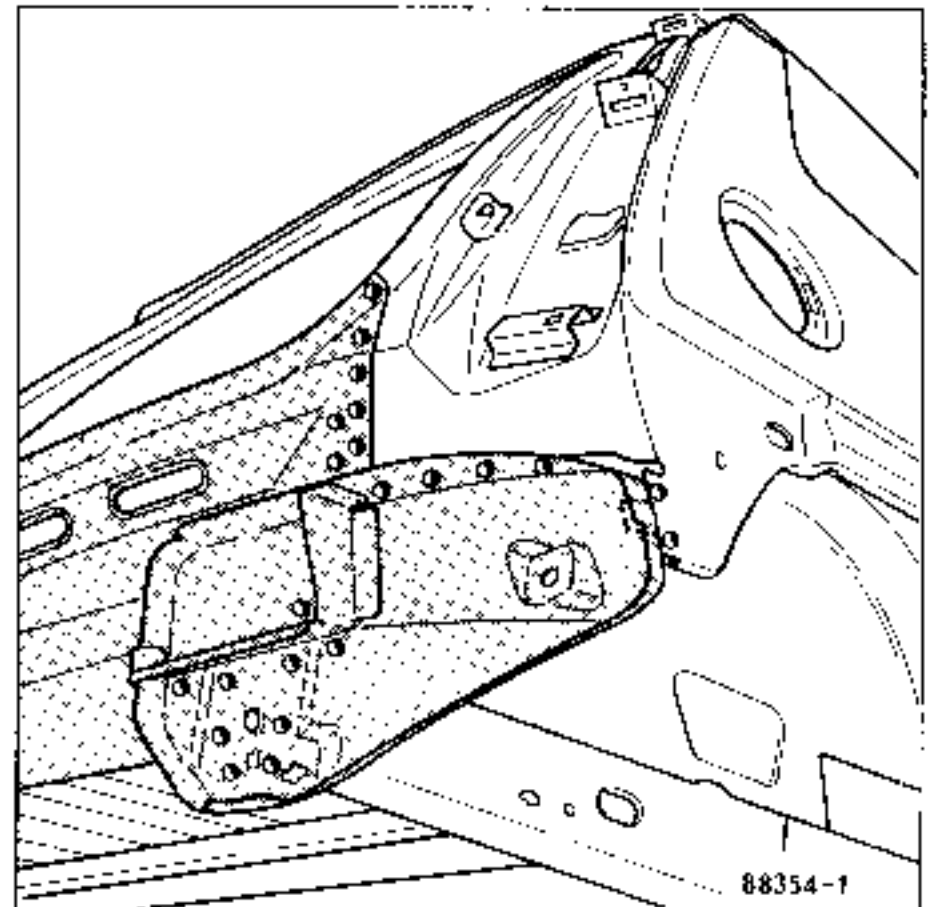
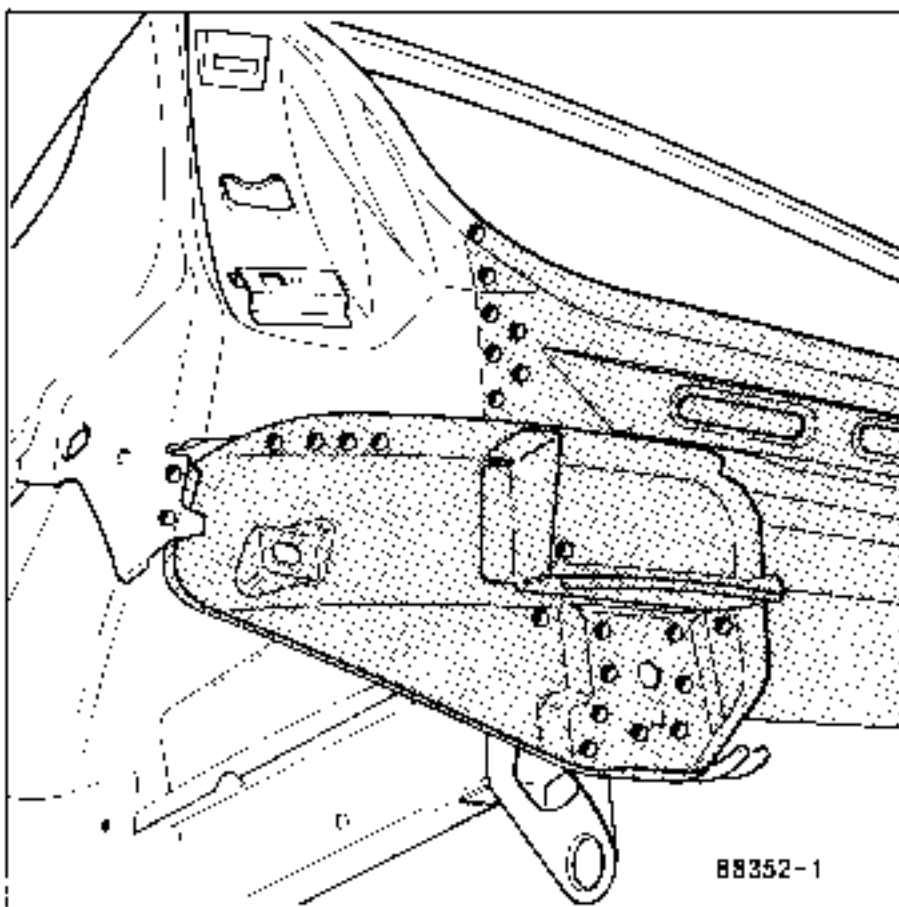
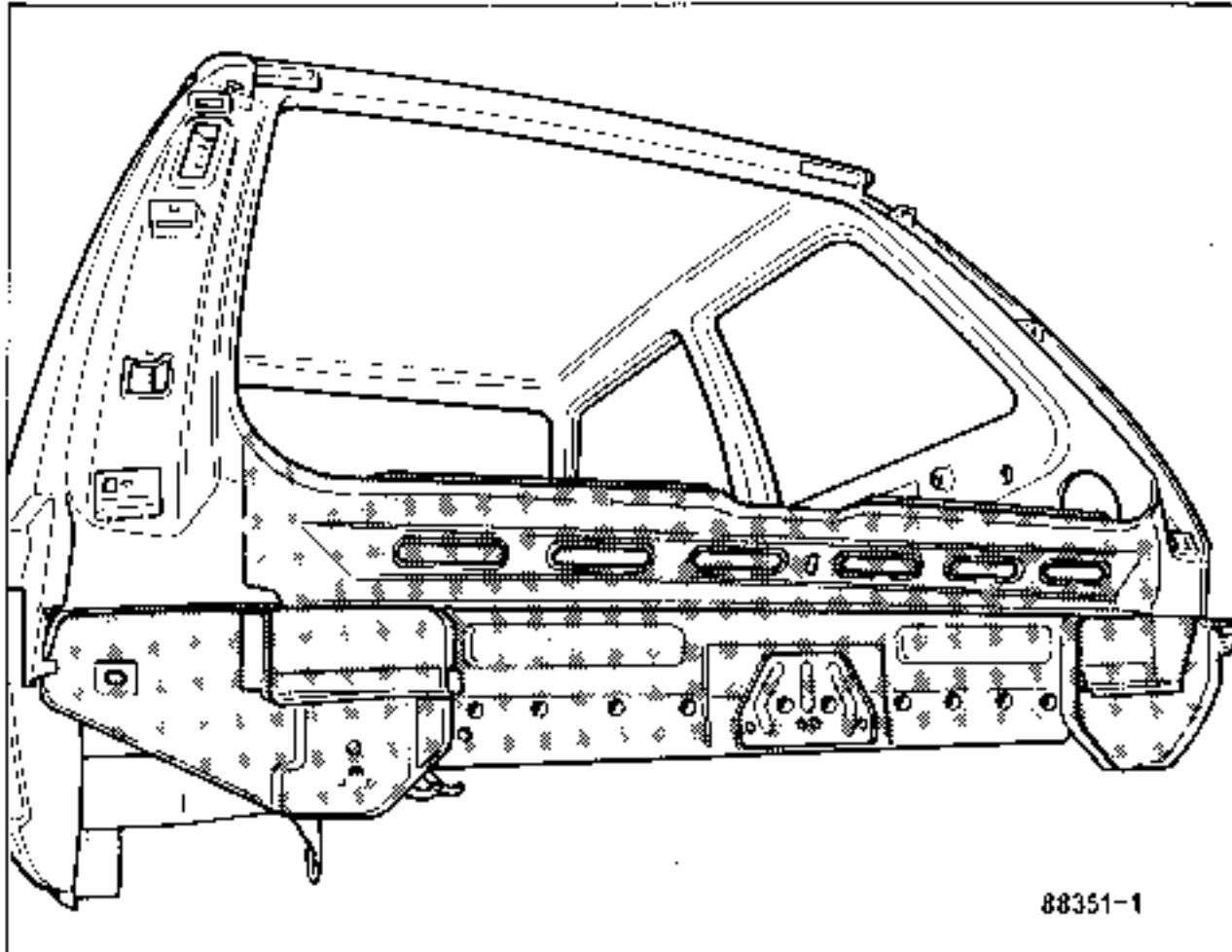
- Before painting, apply hollow section protective treatment to the inside face of the repaired area.
- Carry out paint sequence No. 5 (see "Painting" section).

STRIPPING

All these parts are to be placed in a trolley bin.



CUTTING - JOINT SEPARATION



NOTE :

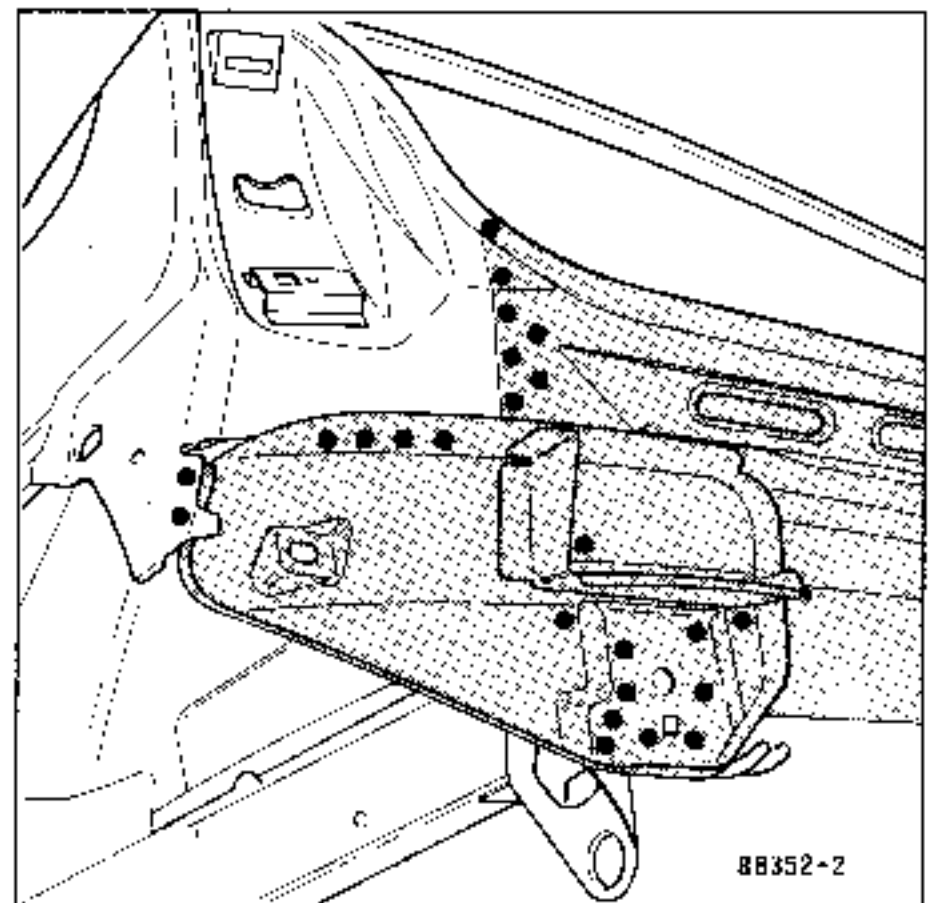
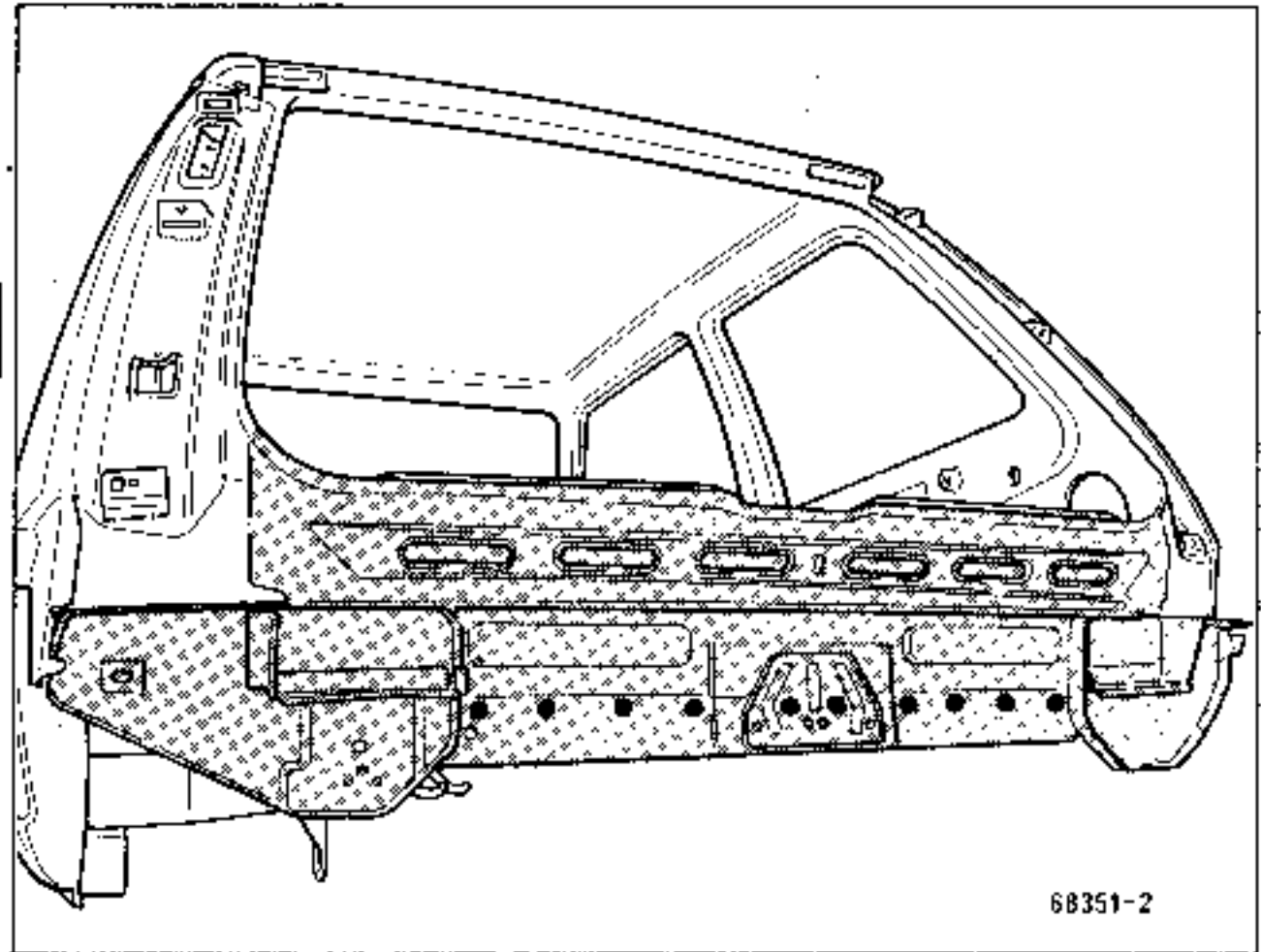
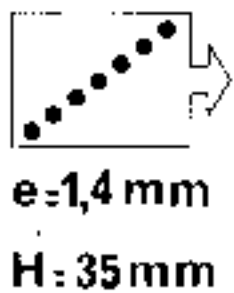
Carry out the cutting and joint separation on the side to be replaced.

- Remove the damaged part by following the methods represented by the above symbols (see description of symbols).

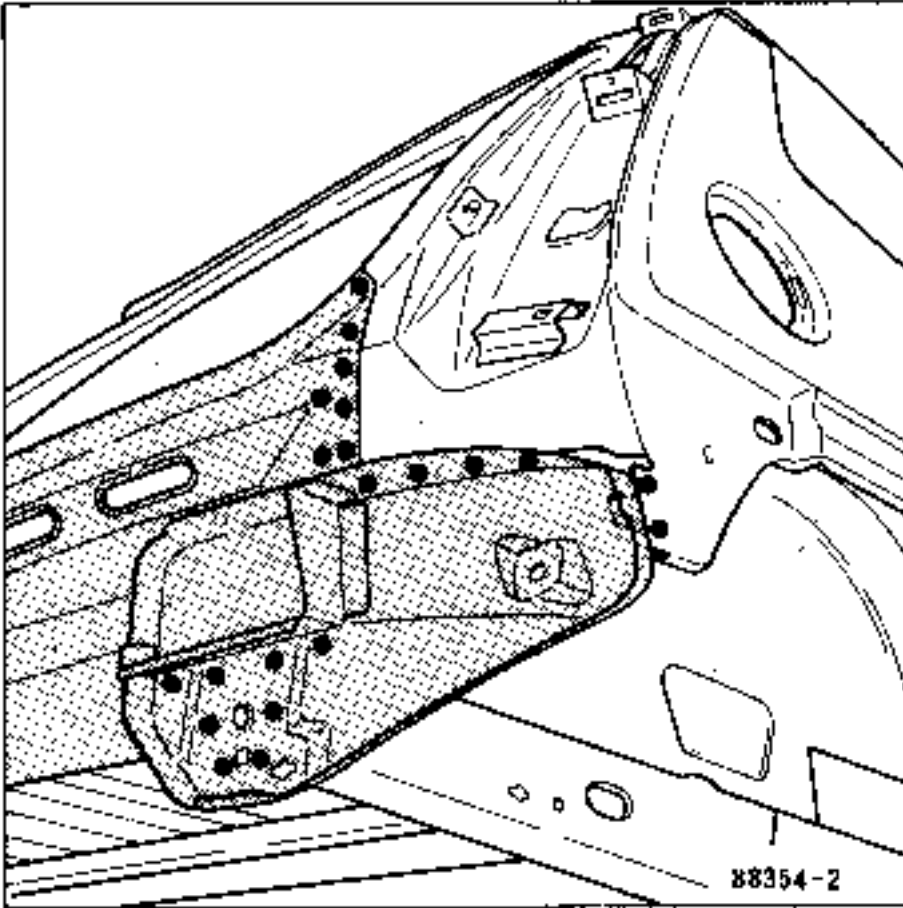
PREPARATION PRIOR TO WELDING

- Strip back, to the bare metal, the inner and outer faces of all the areas to be welded (both on the vehicle and on the new parts).
- Apply a coat of electroplastic mastic to the areas to be spot welded (see description of symbols at the beginning of this section).
- Adjust the new part and secure it with grip clamps.

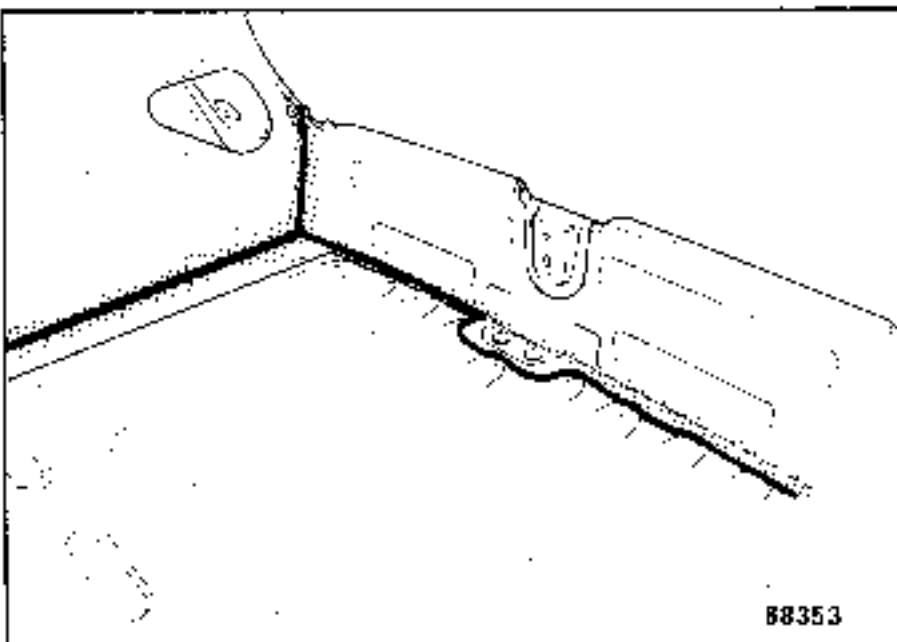
WELDING

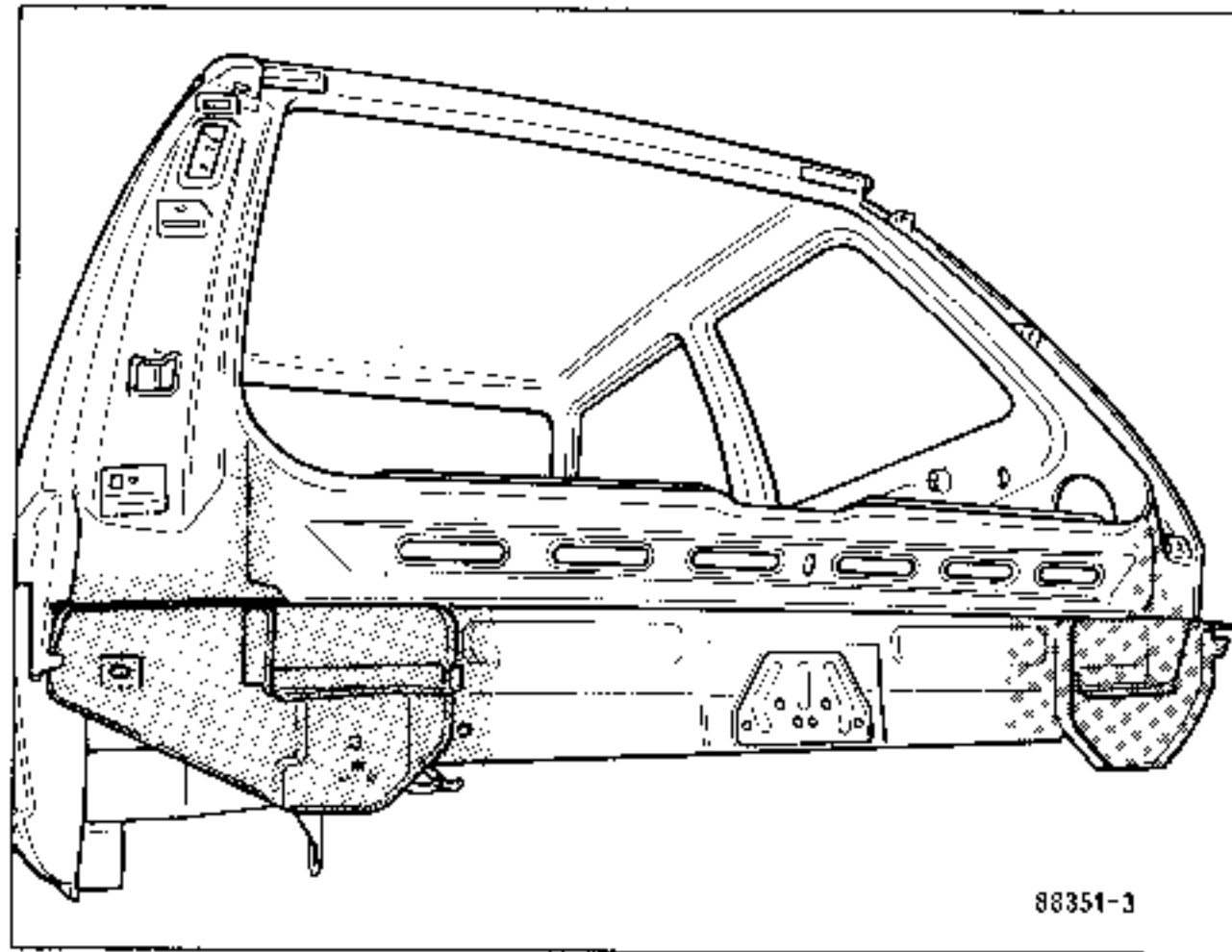


- Apply the spot welds. The corresponding values of (e) and (H) are given under each drawing.

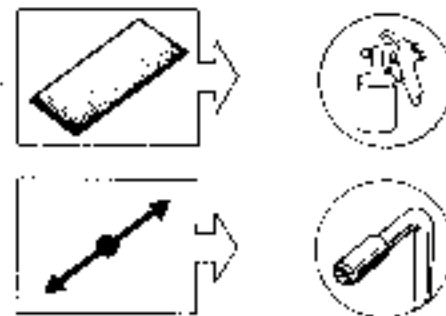
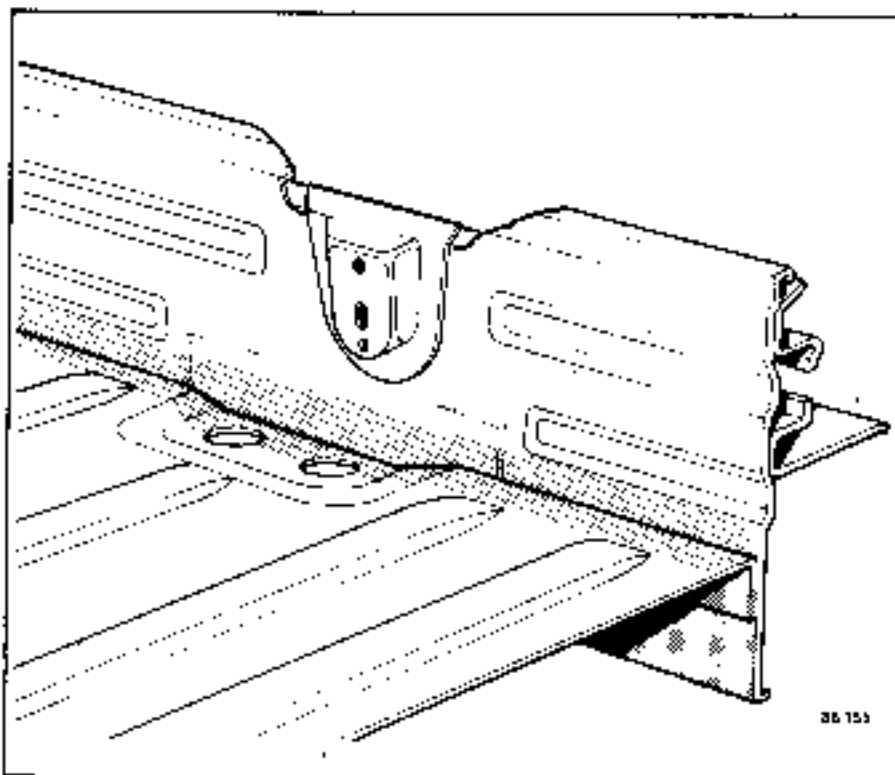


PAINTING

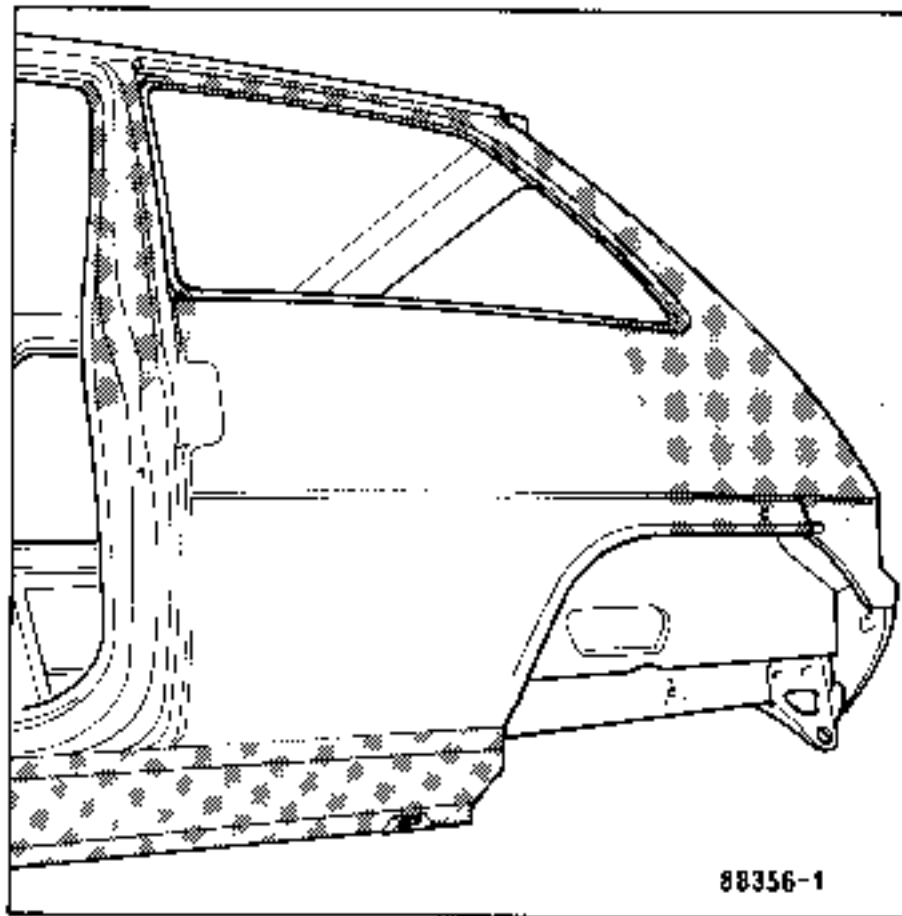




Spray anti-chipping mastic on the joint between the floor and the rear end panel.



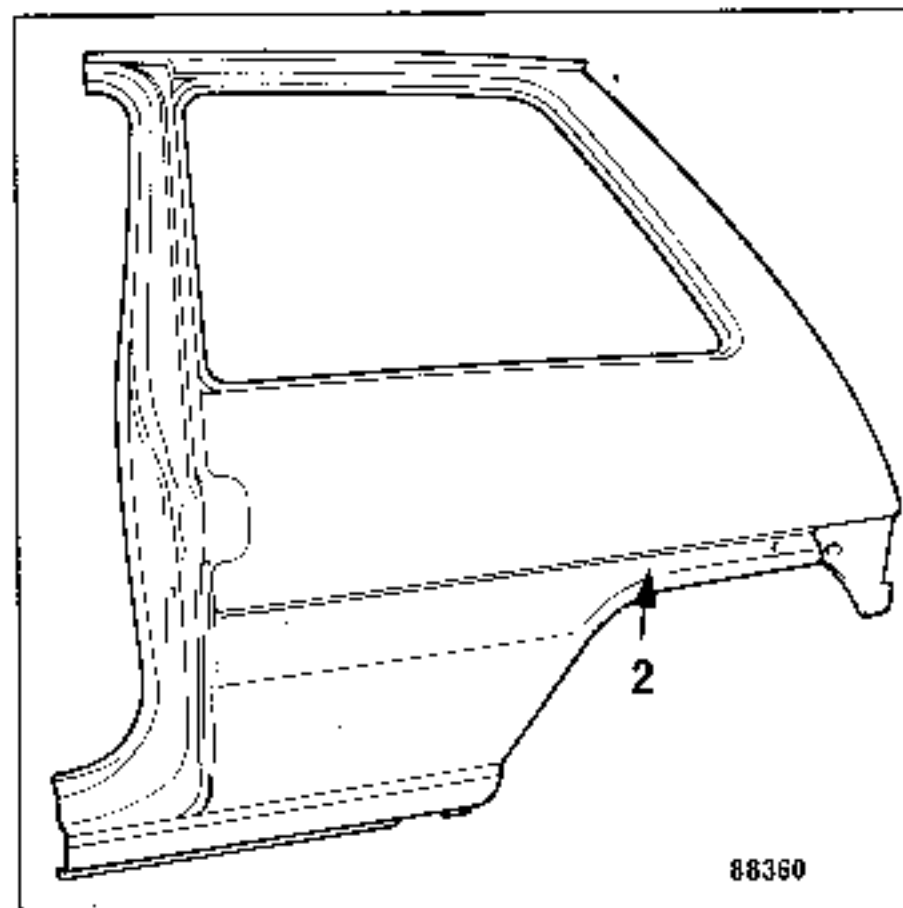
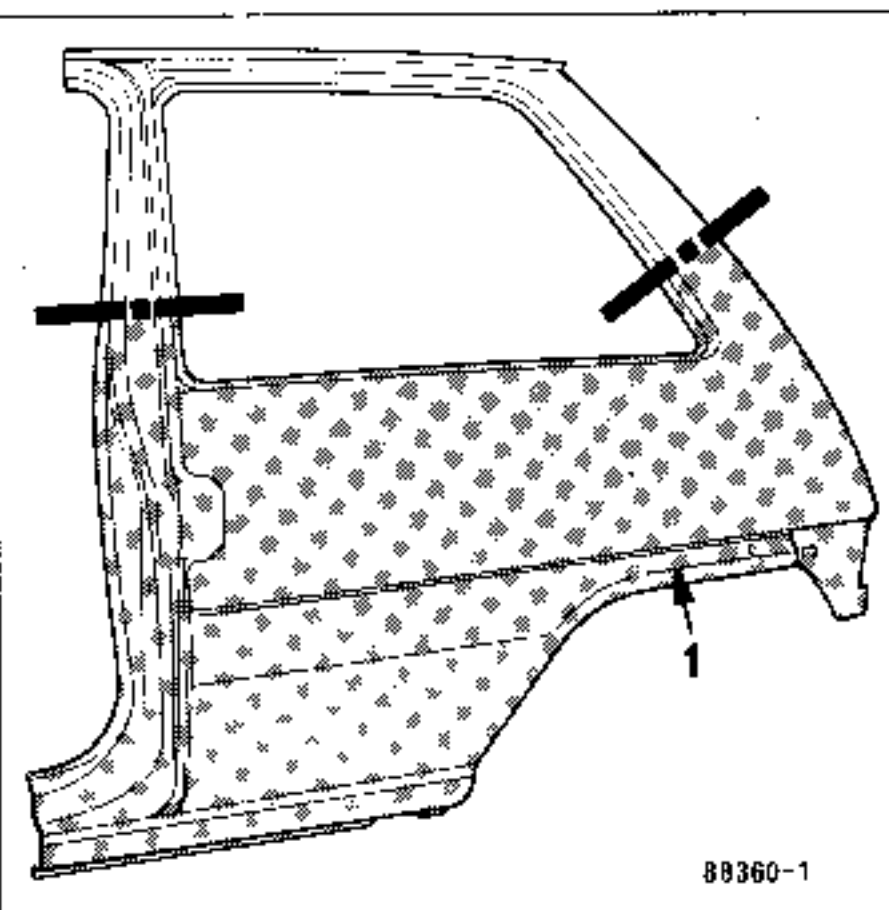
Carry out paint sequence No. 5 (See "Painting" section) followed by paint sequence No. 3.



- Before painting, apply hollow section protective treatment to the inside face of the repaired area.

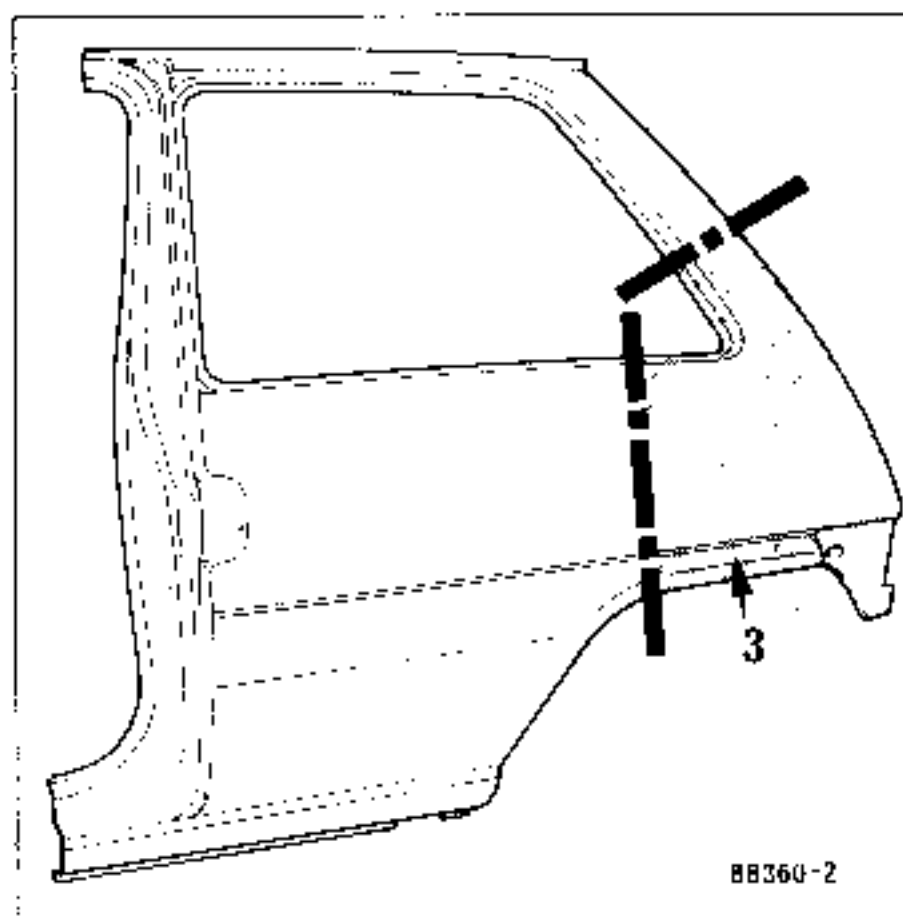
Carry out paint sequence No. 5.

There are several ways of replacing the panel, depending on the extent of the damage :



1 - Partial replacement by cutting at the door pillars 20 mm below the seat belt anchor points.

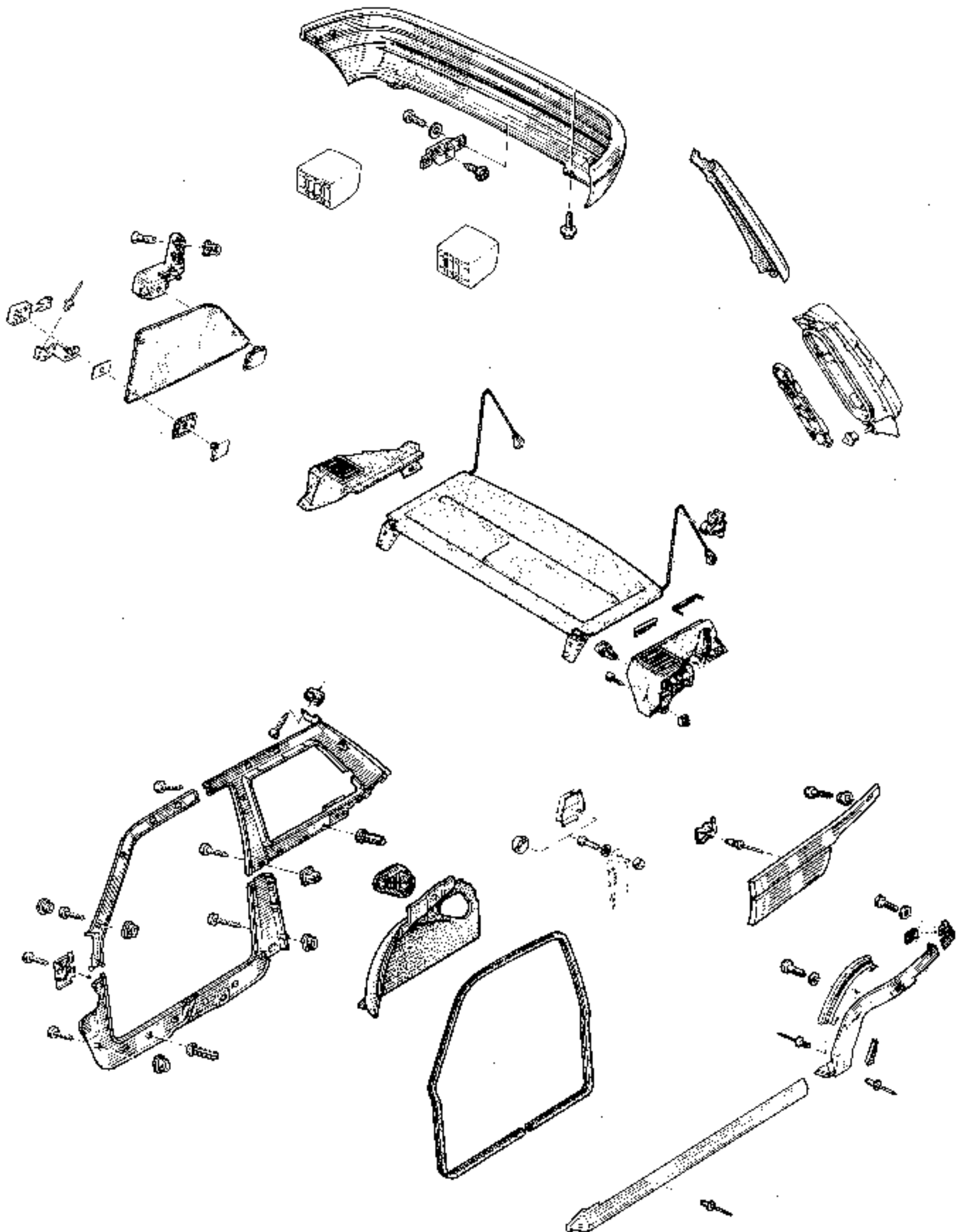
2 - Complete replacement.



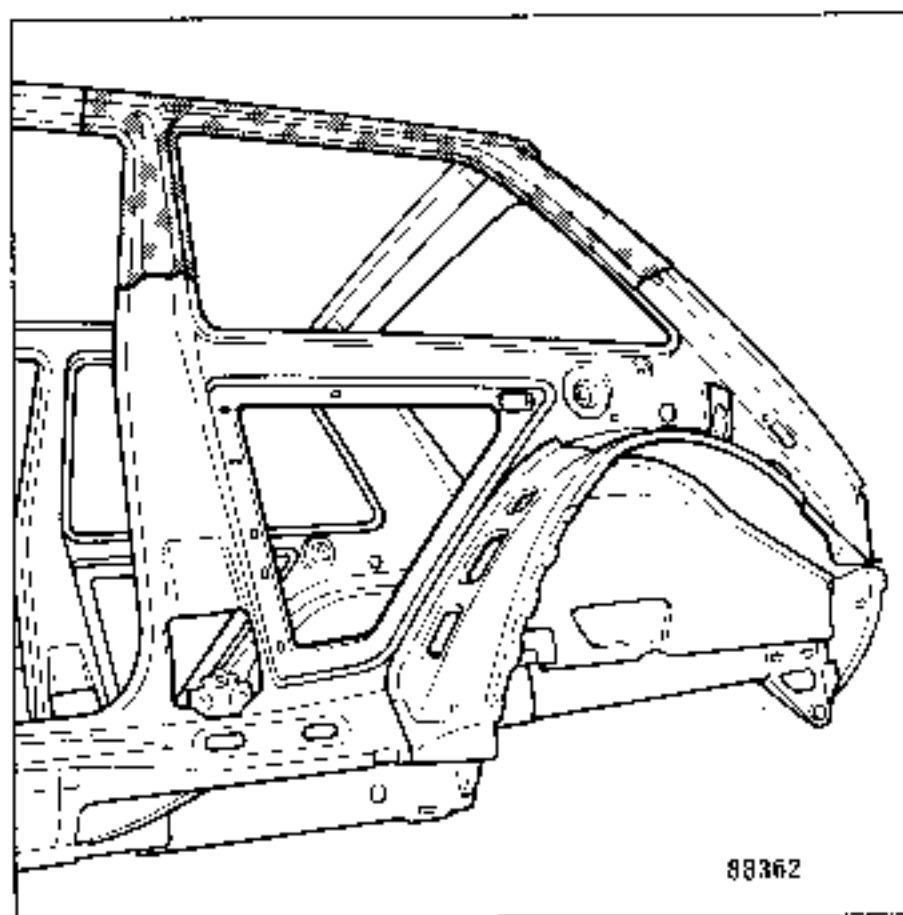
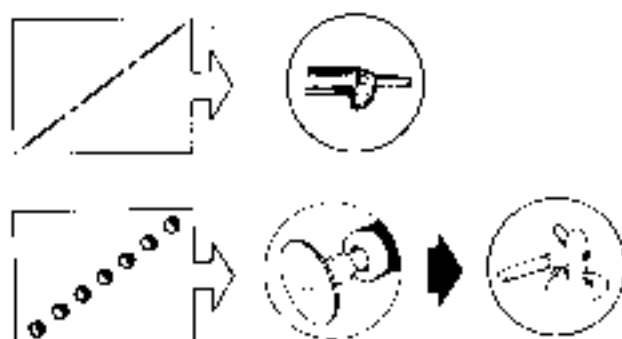
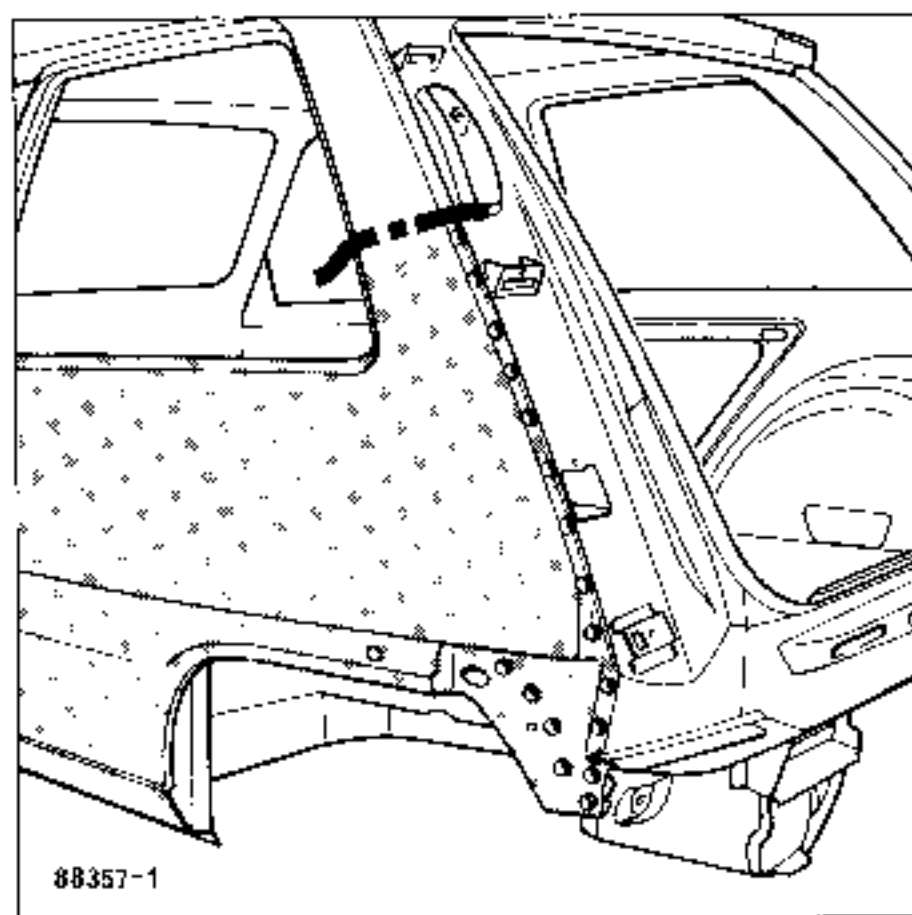
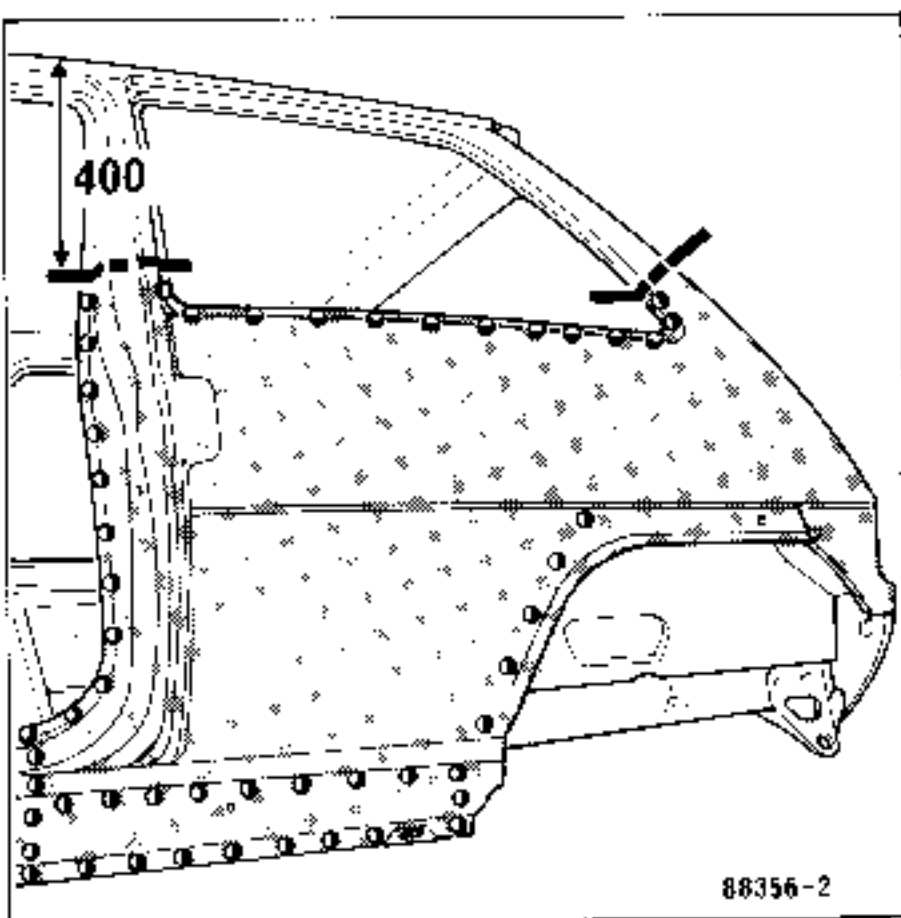
3 - Partial replacement of rear section.

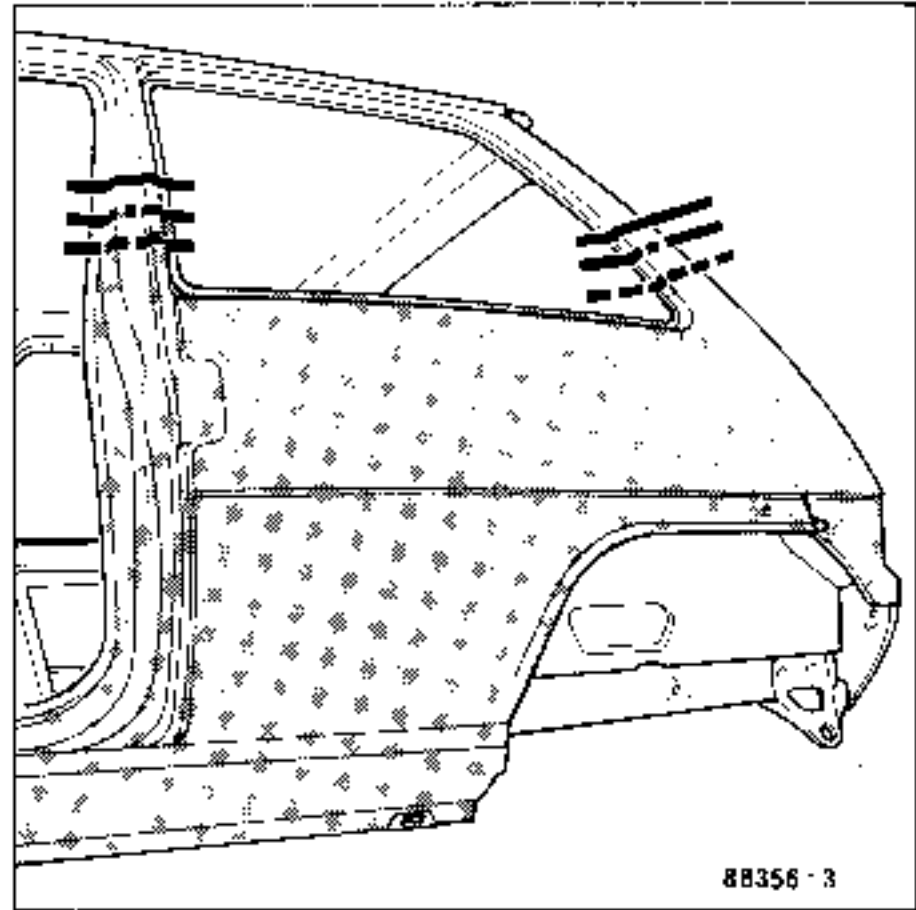
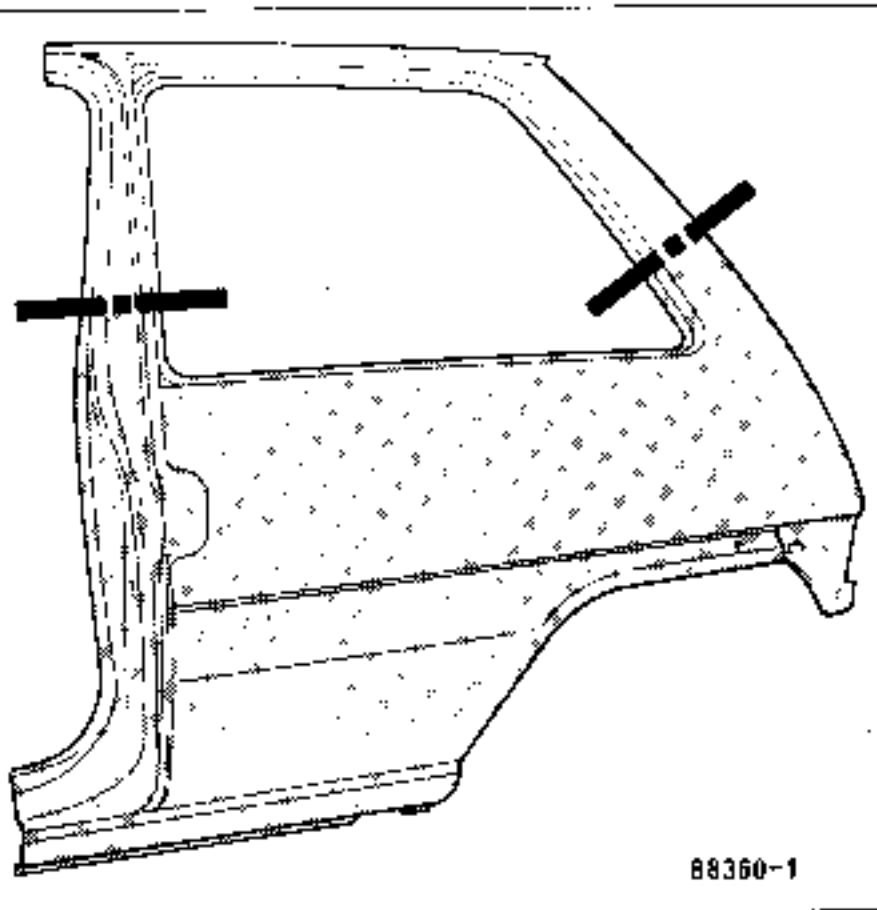
STRIPPING

All these parts are to be placed in a bin trolley.



CUTTING - JOINT SEPARATION





PREPARING THE PANEL

- Cut a section from the new part approximately 50 mm larger than that cut out on the vehicle.

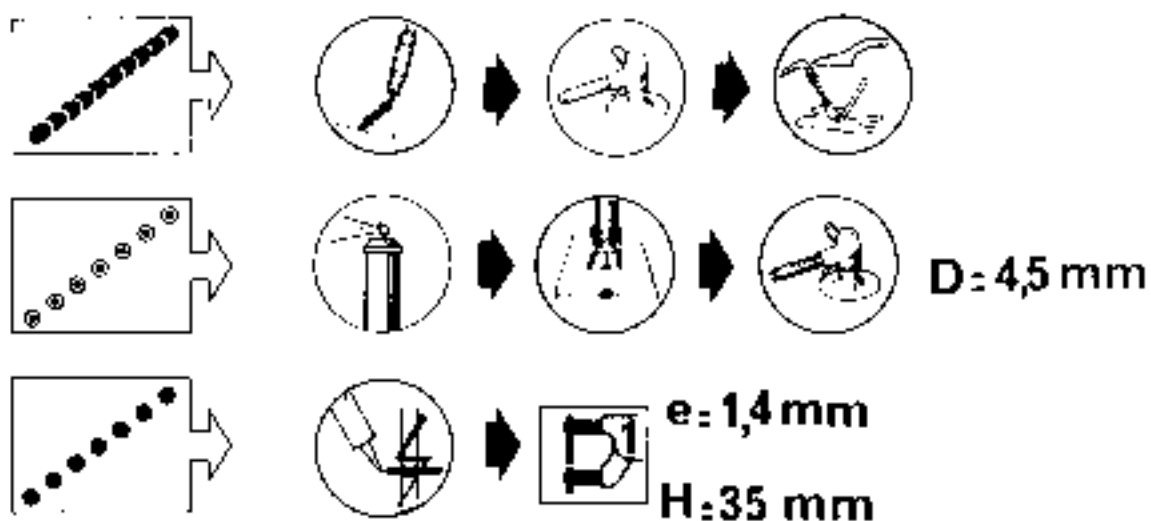
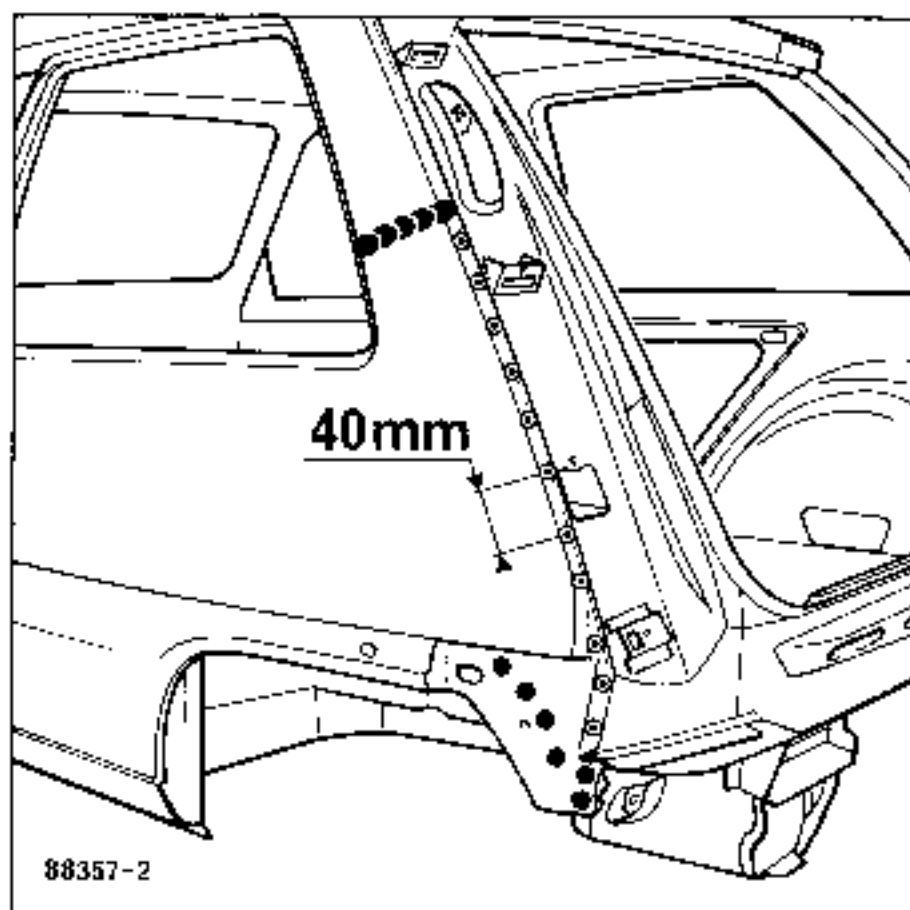
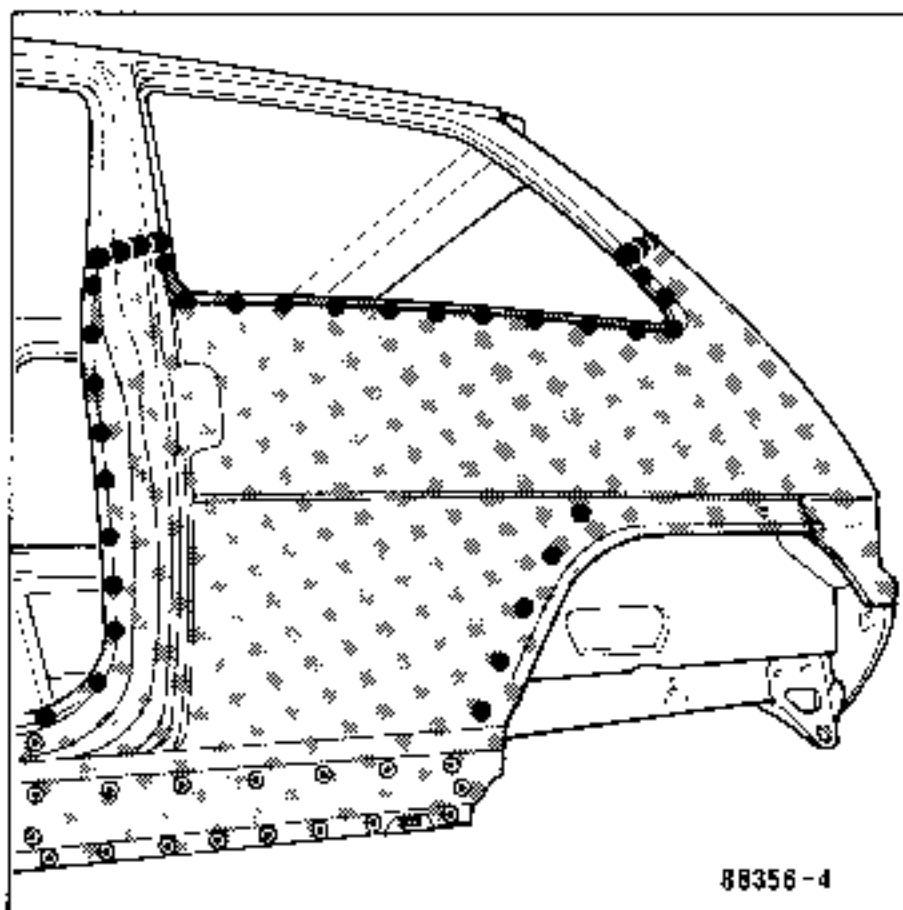


- Fit the new part so that it overlaps the original part, on the vehicle, and secure it in place with grip clamps.
- Adjust it to fit the door.
- Saw through both thicknesses of metal simultaneously to make adjusting the joints easier.
- Remove the new section and take off those parts remaining on the vehicle at the points where the sections overlap.

PREPARATION PRIOR TO WELDING

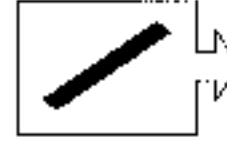
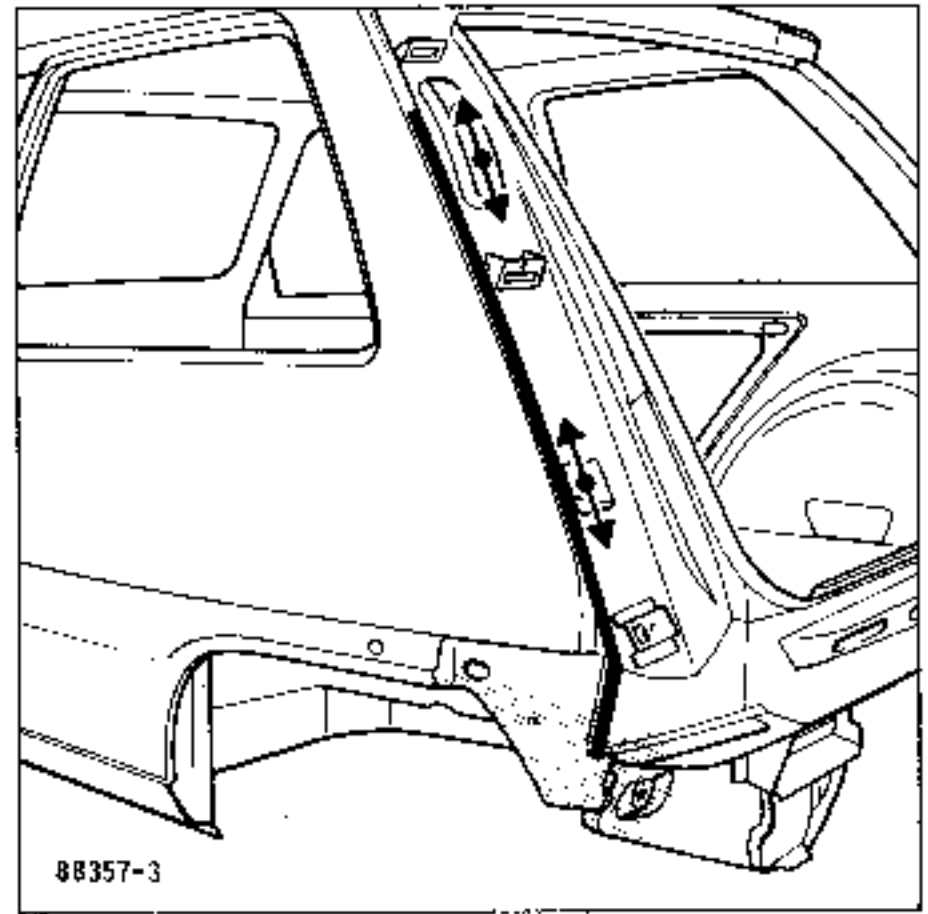
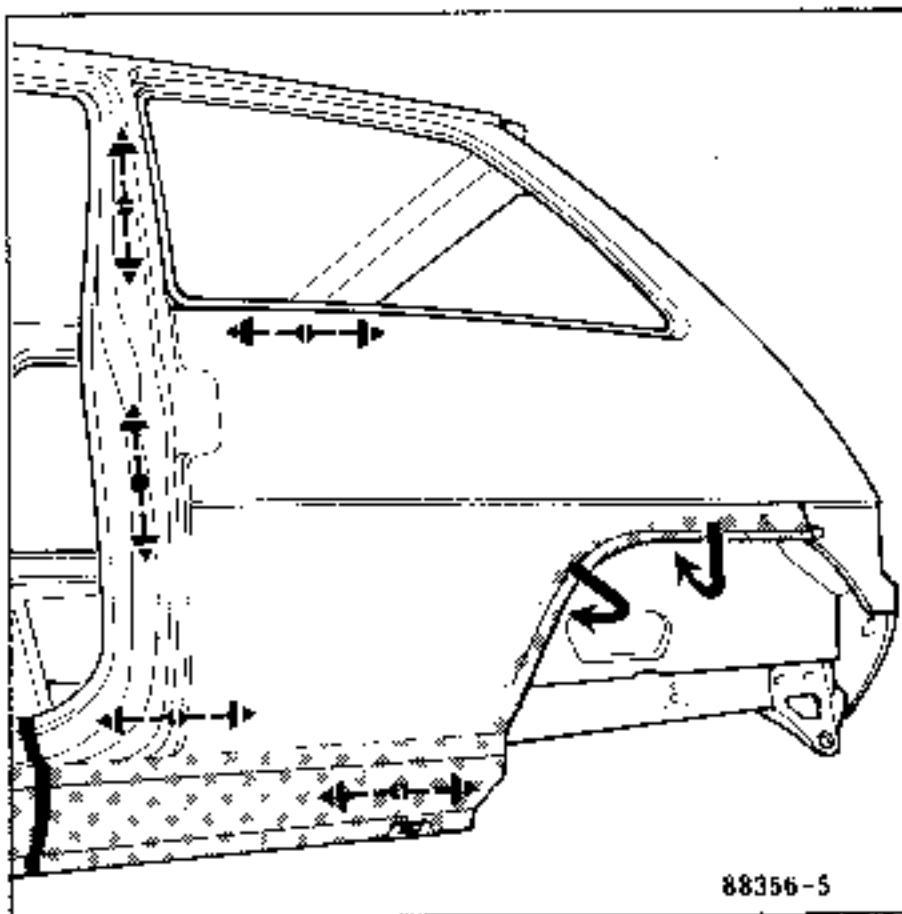
- Strip back, to the bare metal, the inner and outer faces of all the areas to be welded. (Both on the vehicle and on the new parts).
- Apply a coat of electroplastic mastic to the areas to be spot welded (see description of symbols at the beginning of this section).
- Apply zinc paint to the areas to be plug welded.
- Adjust the new part and secure it with grip clamps.

WELDING



- Tack weld the butt joints to secure them in place.
- Apply the spot welds. The corresponding values of (e) and (H) are given under each drawing.
- Apply the stitched fillets, using the gas envelope welding process. (These joints may also be gas welded using a 75 to 100 nozzle).
- Apply the plug welds using the gas envelope welding process. To do this, drill holes in the upper panel to the diameter D shown under the drawings.
- Grind flush the butt welds and fill them with soft solder.
- The soft solder can be applied using a 650° hot air gun.

PAINTING



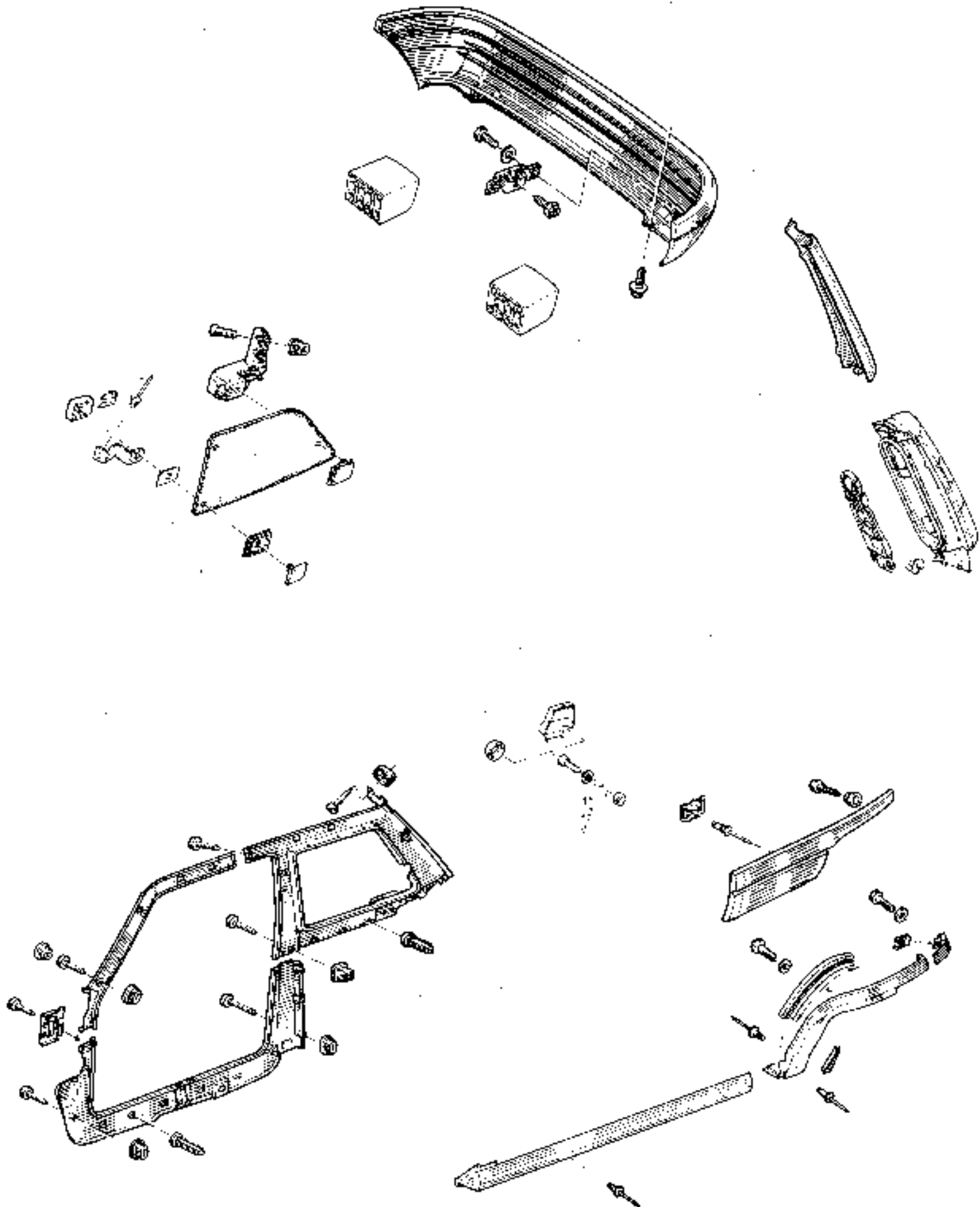
Carry out paint sequence No. 5 (See "Painting" section) and then paint sequence No. 3.

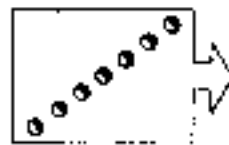
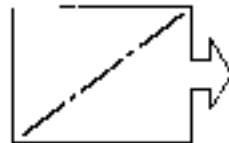
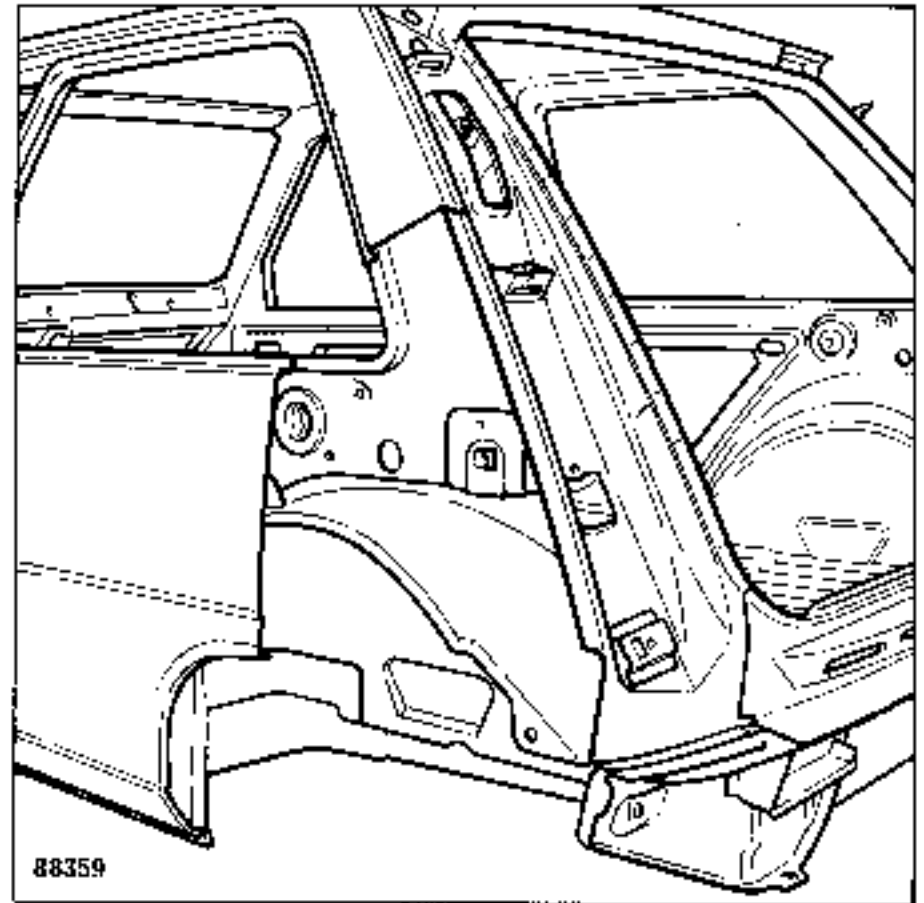
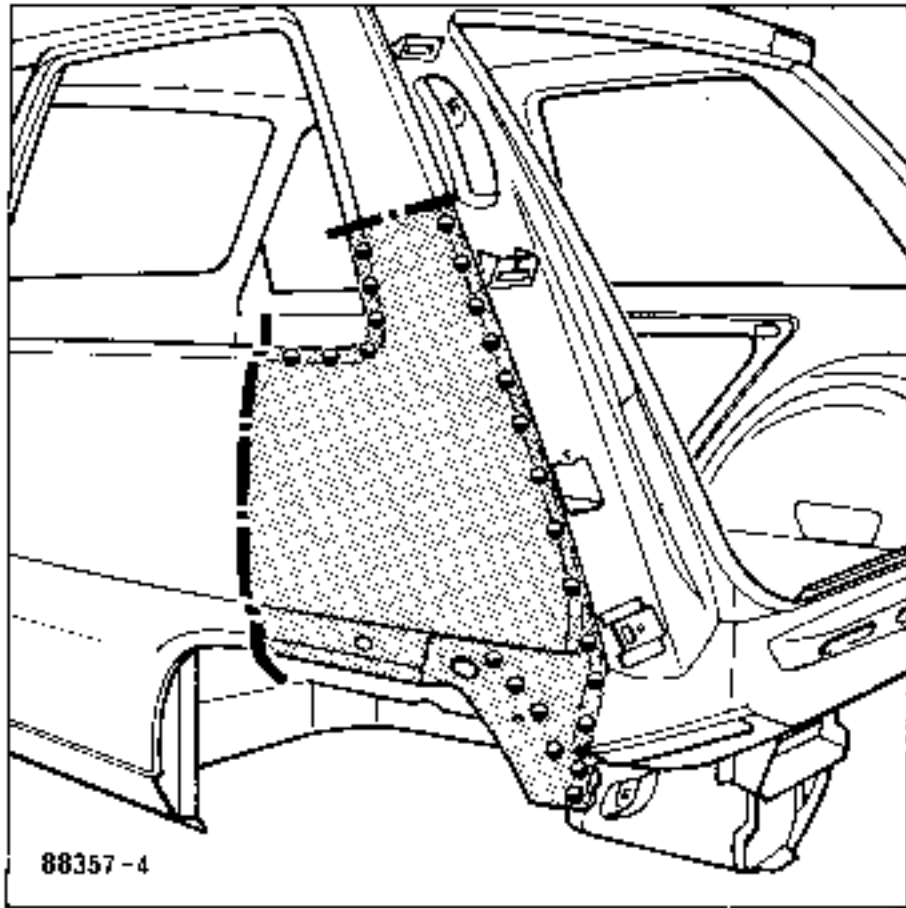


After painting apply hollow section protective treatment through the internal holes in line with the welds.

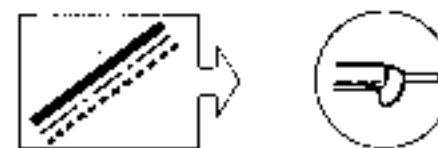
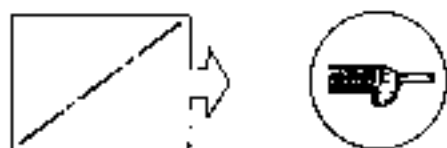
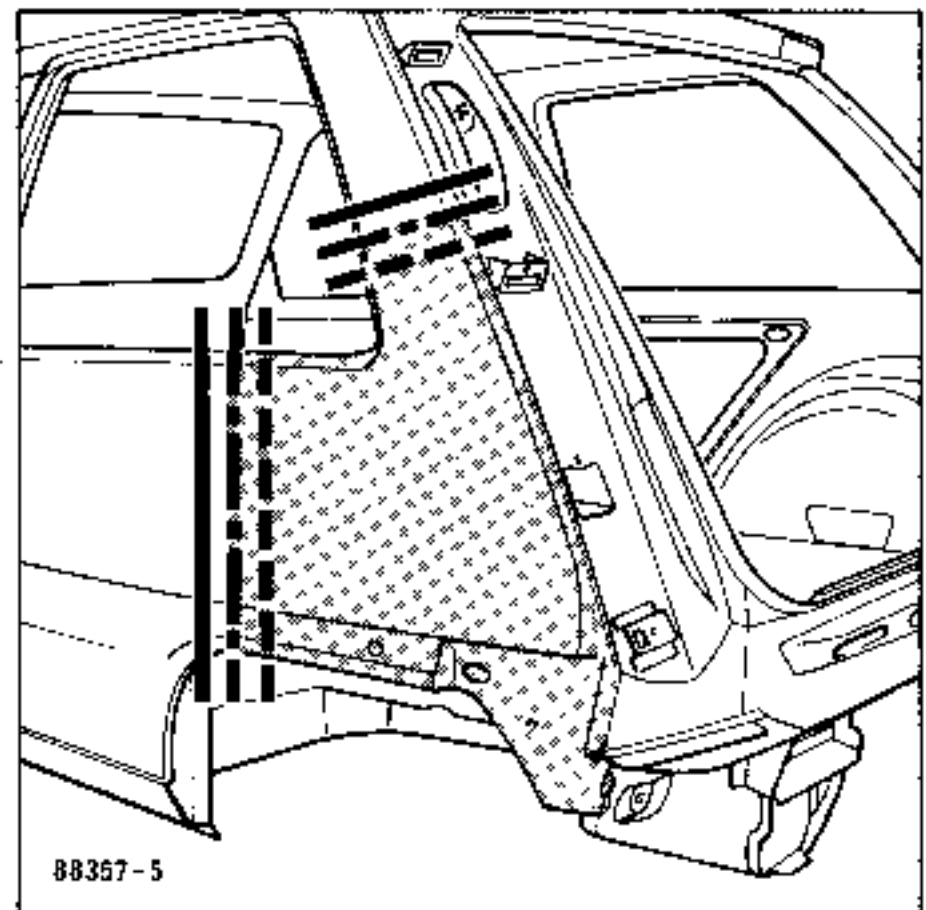
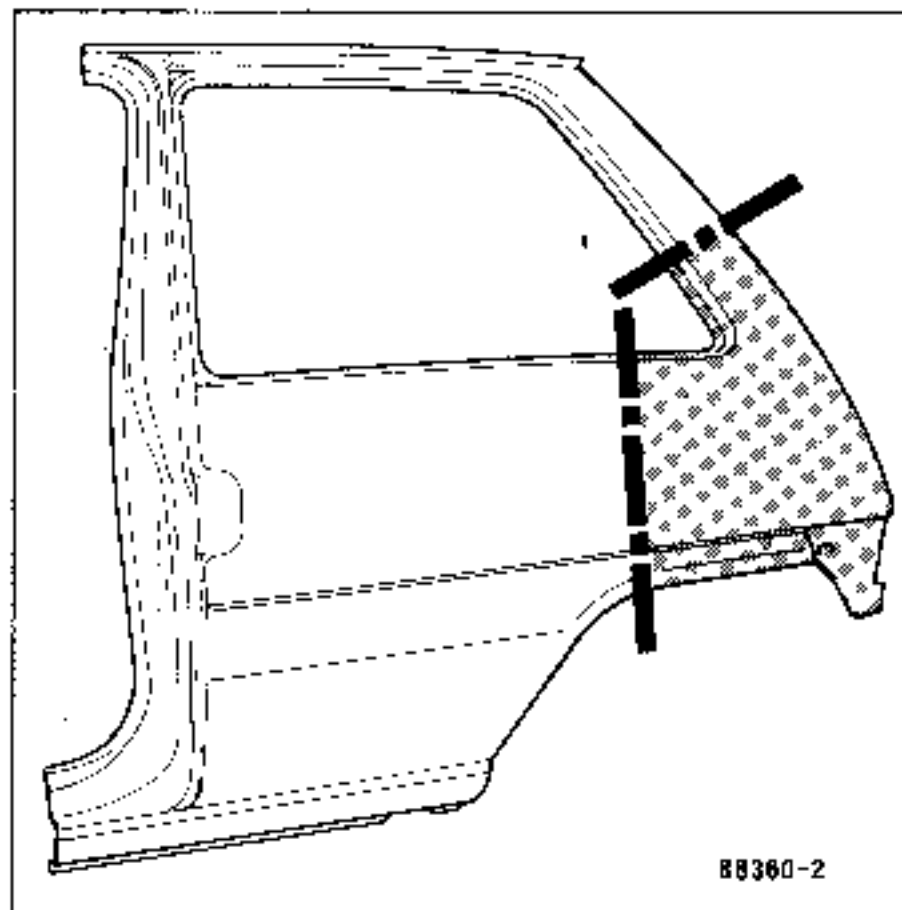
STRIPPING

All these parts are to be placed in a trolley bin.





- Remove the damaged part by following the methods represented by the above symbols (see description of symbols).



PREPARING THE PANEL

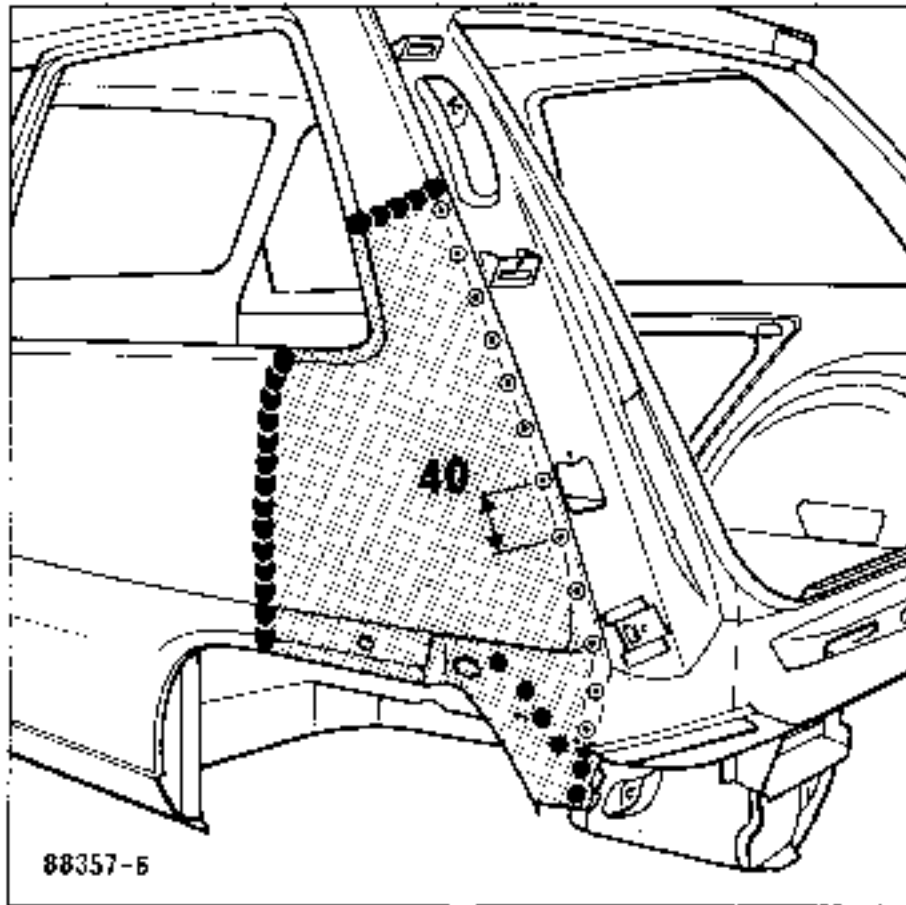
- Cut a section, from the new part, approximately 50 mm larger than that cut out on the vehicle.

- Fit the new part so that it overlaps the original part on the vehicle and secure it with grip clamps.
- Saw through both thickness of metal simultaneously to make adjusting the joints easier.
- Remove the new section and take off the parts remaining on the vehicle in the overlapping areas.

PREPARATION PRIOR TO WELDING

- Strip back, to the bare metal, the inner and outer faces of all the areas to be welded. (Both on the vehicle and on the new parts).
- Apply a coat of electroplastic mastic to the areas to be spot welded (see description of symbols at the beginning of this section).
- Apply zinc paint to the areas to be plug welded.
- Adjust the new part and secure it with grip clamps.

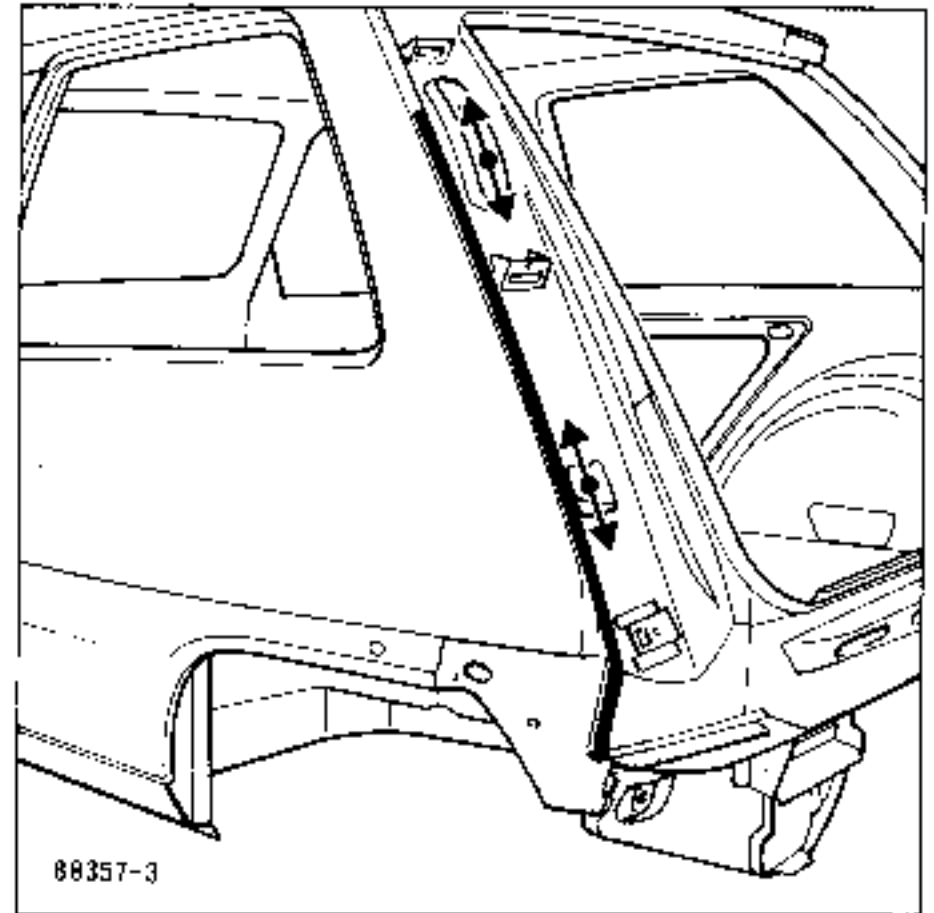
WELDING



D=4,5mm

- Apply the stitched fillets using the gas envelope welding process. (These joints may also be gas welded using a 75 to 100 nozzle).
- Apply the plug welds, using the gas envelope welding process. To do this, drill holes in the upper panel to the diameter D stated under the drawings.

PAINTING

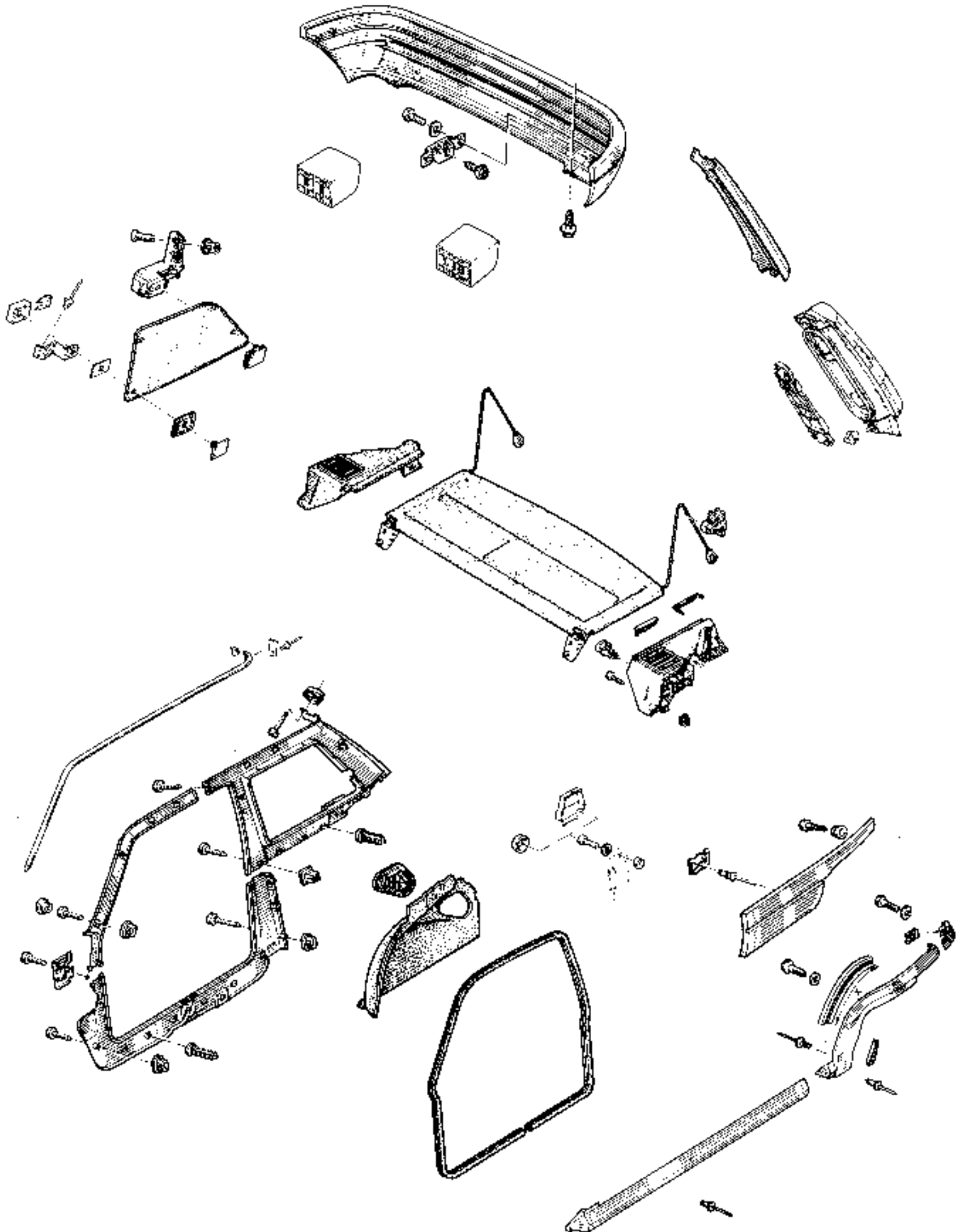


- Carry out paint sequence No. 5 (see "Painting" section).
- After painting, apply hollow section protective treatment.

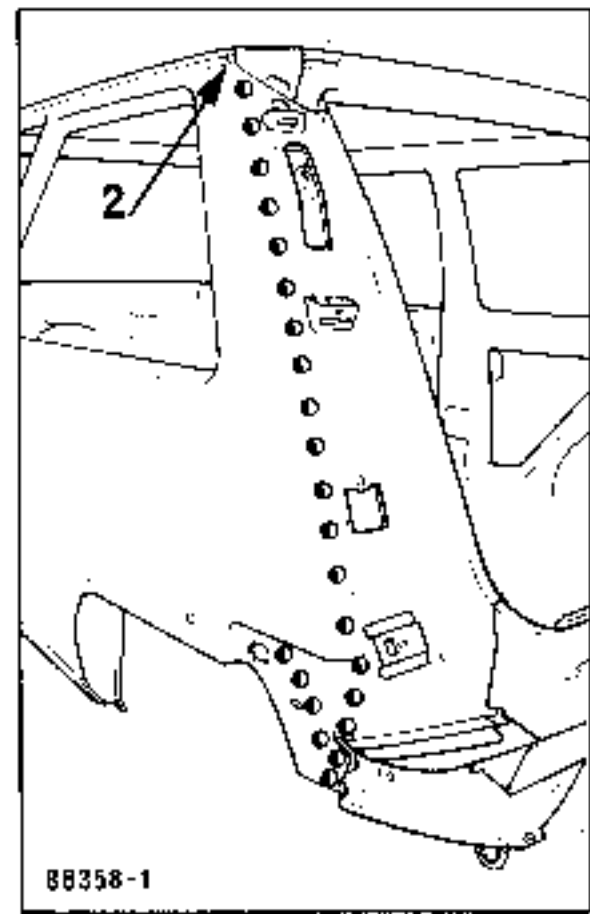
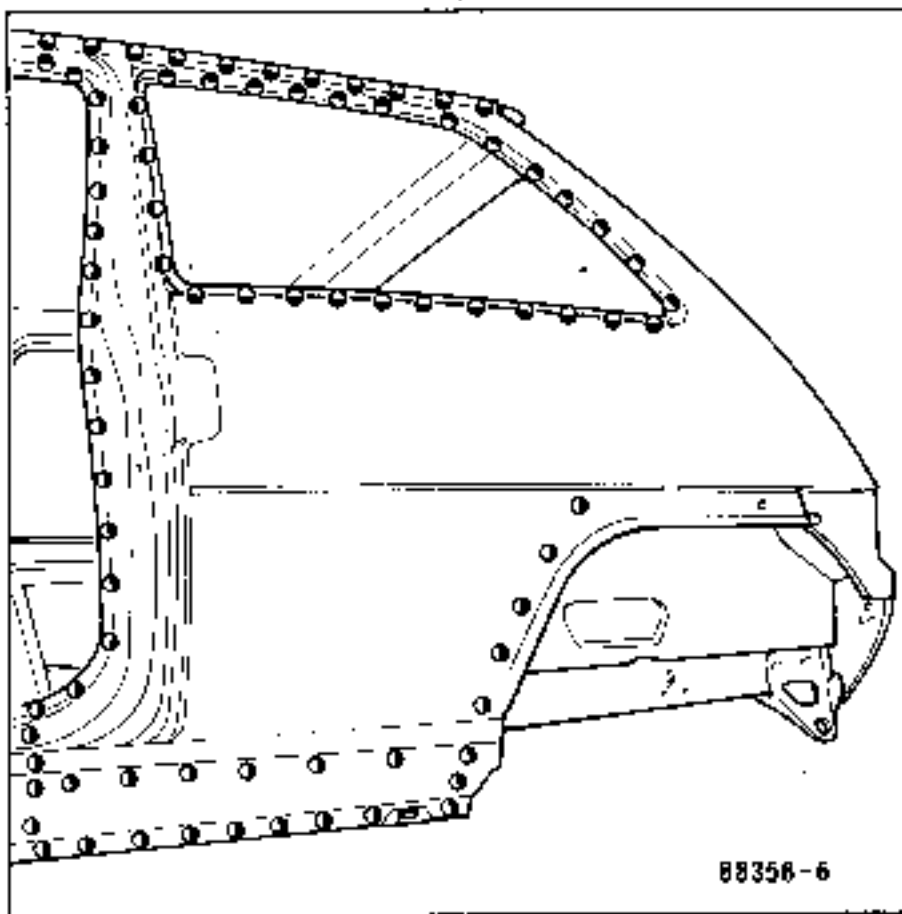


STRIPPING

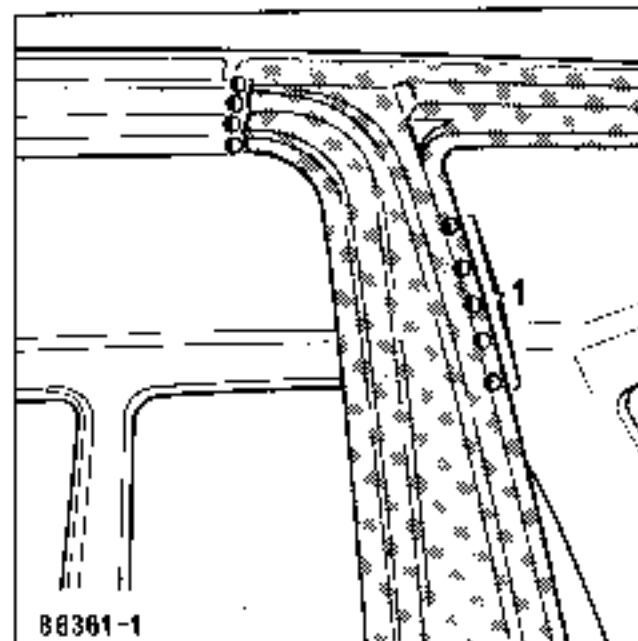
All these parts are to be placed in a trolley bin.



JOINT SEPARATION



Grind back the brazed fillet (2).



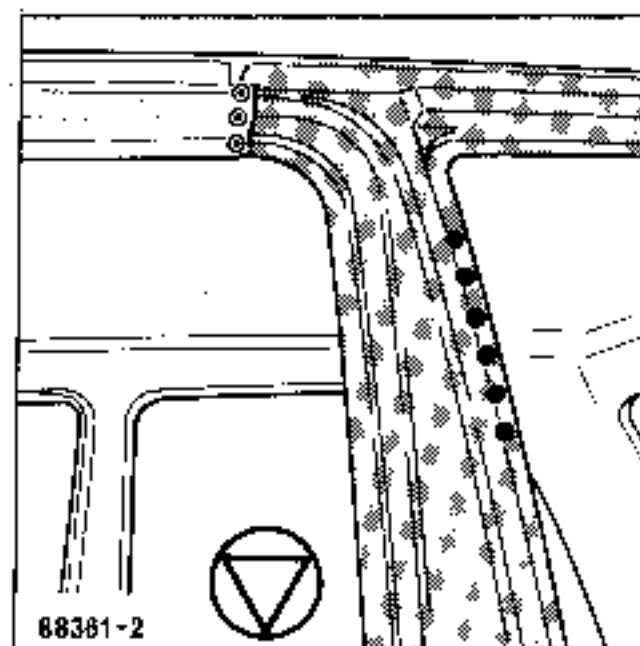
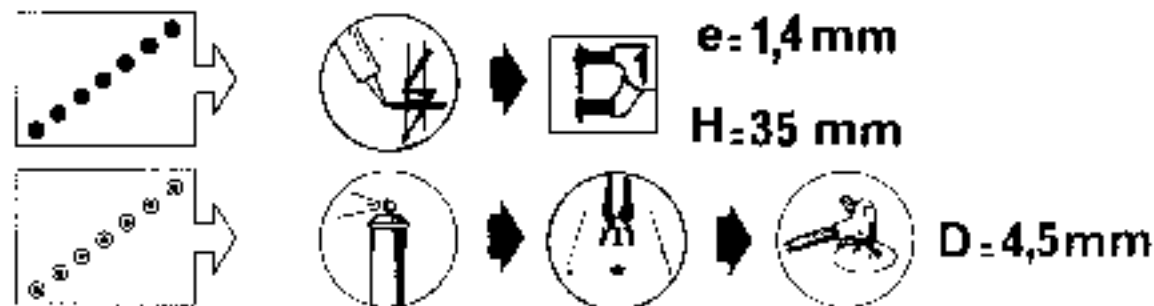
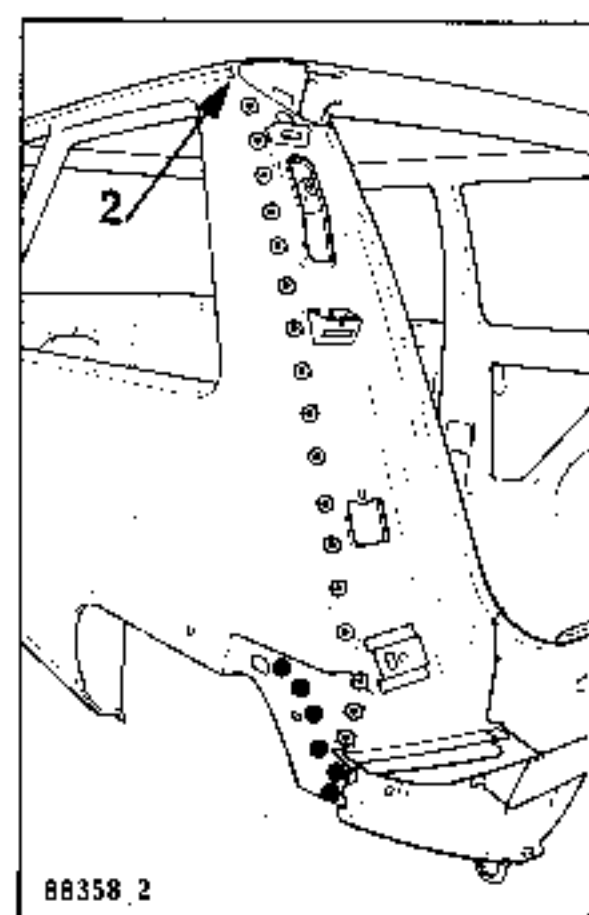
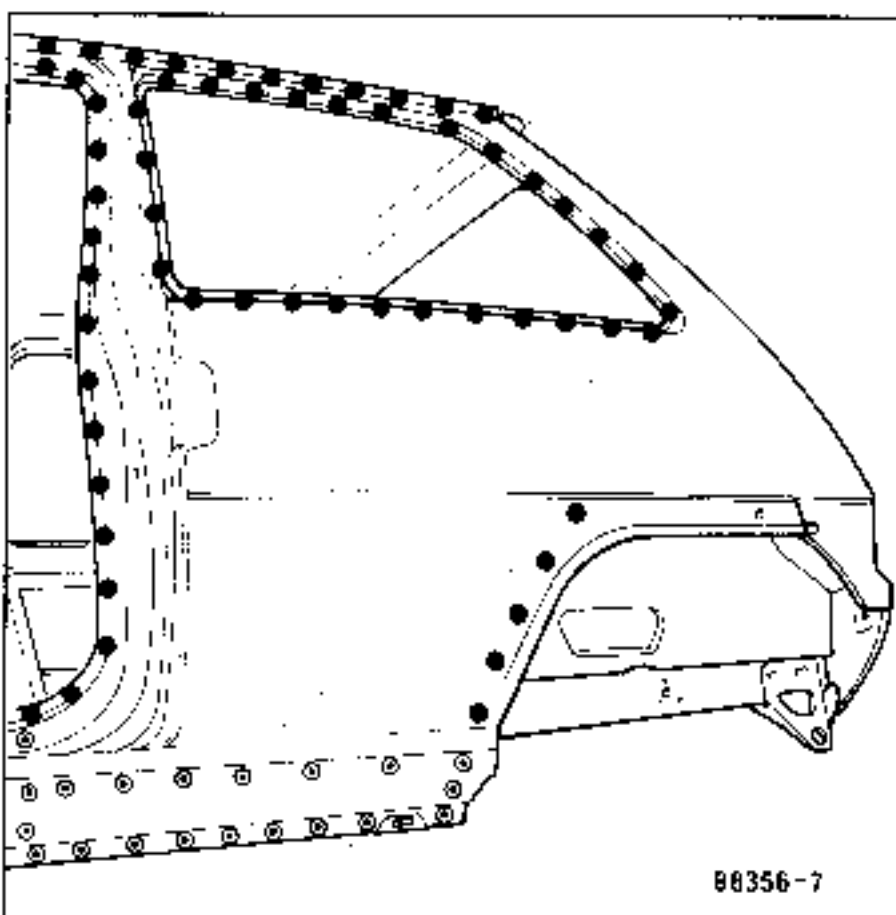
NOTE :

Drill through two thicknesses in the seat belt anchor area (1).

The new part is supplied complete with the seat belt anchor point.

- Remove the damaged part by following the methods represented by the above symbols (see description of symbols).

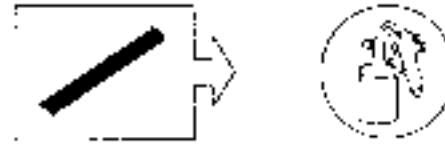
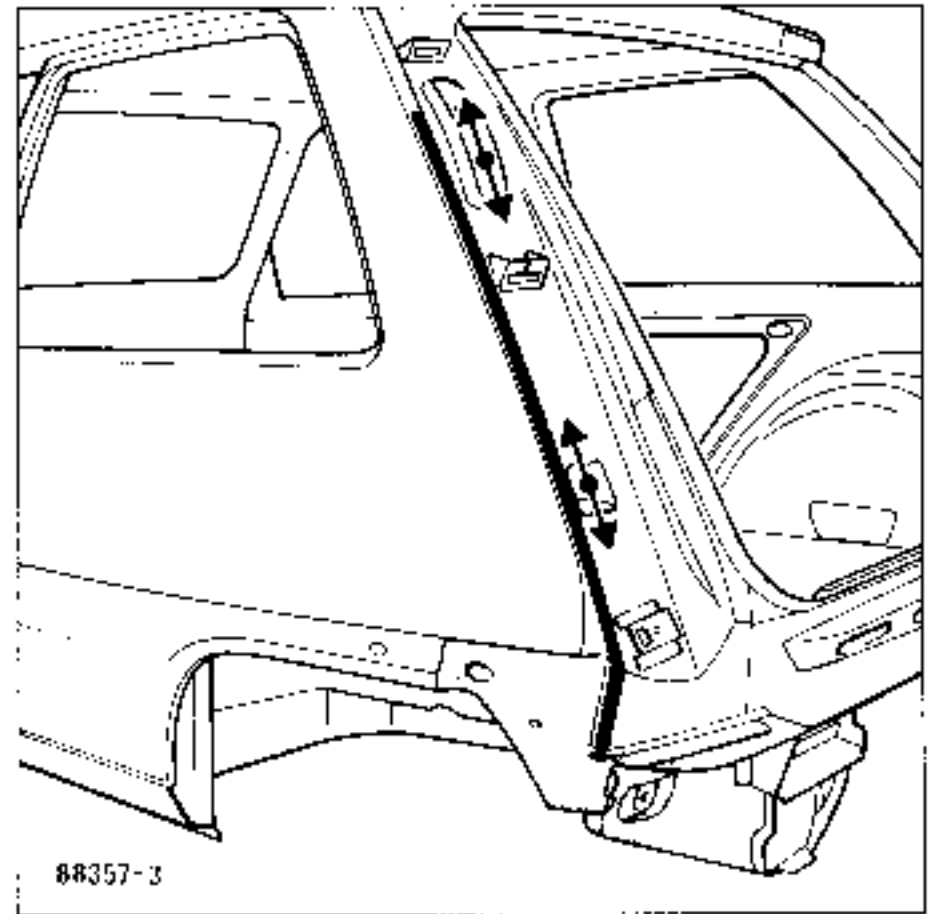
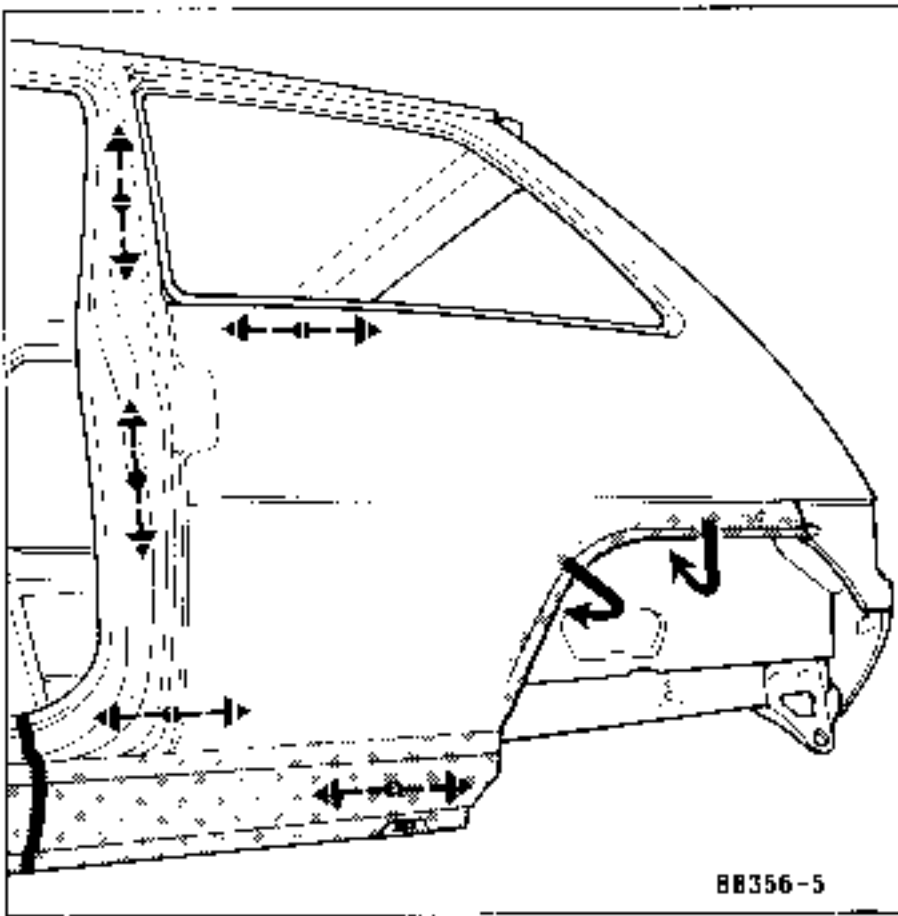
WELDING



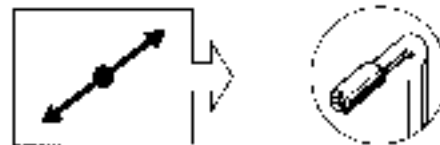
PREPARATION PRIOR TO WELDING.

- Strip back, to the bare metal, the inner and outer faces of all the areas to be welded. (Both on the vehicle and on the new parts).
- Apply a coat of electroplastic mastic to the areas to be spot welded (see description of symbols at the beginning of this section).
- Apply zinc paint to the areas to be plug welded.
- Adjust the new part and secure it with grip clamps.

PAINTING



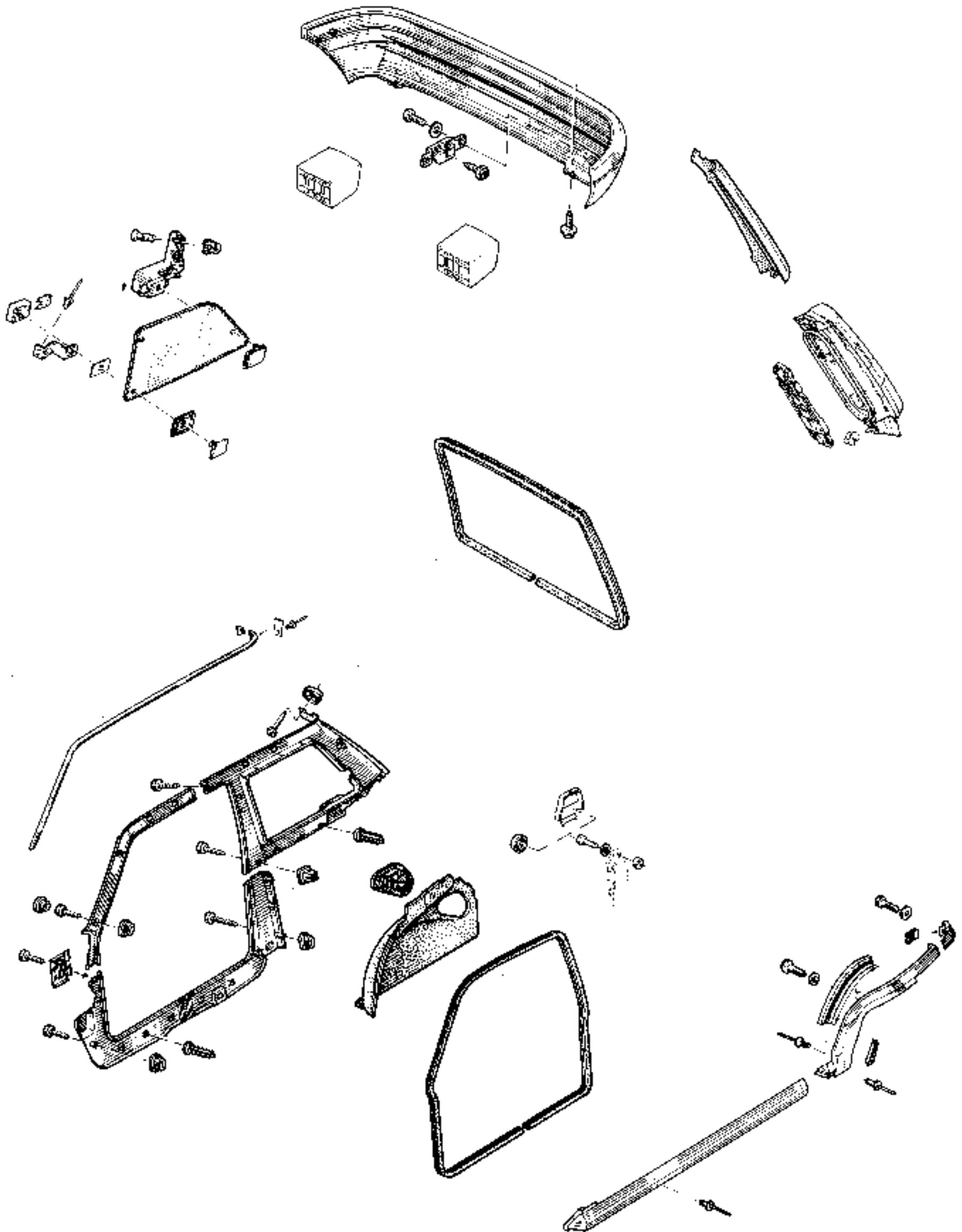
Carry out paint sequence No. 5 (See "Painting" section) and then paint sequence No. 3.



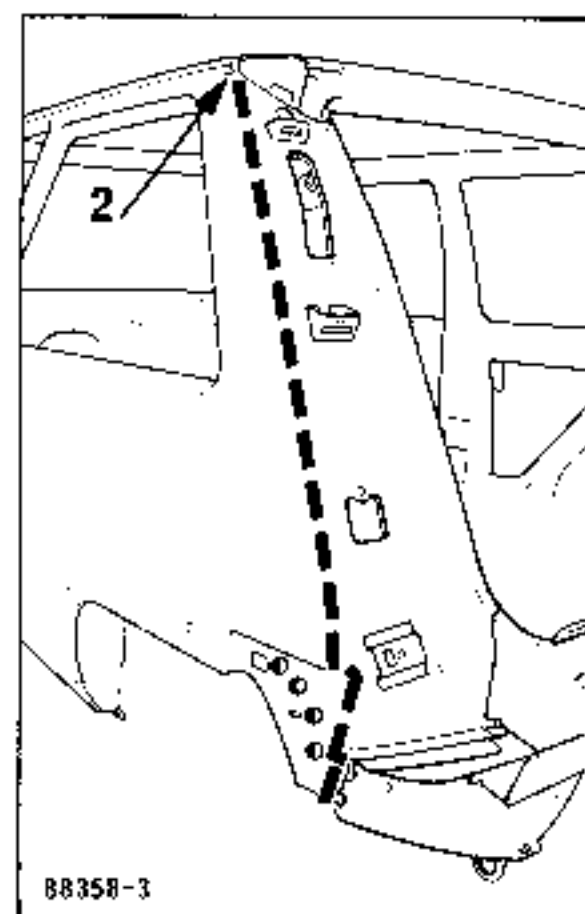
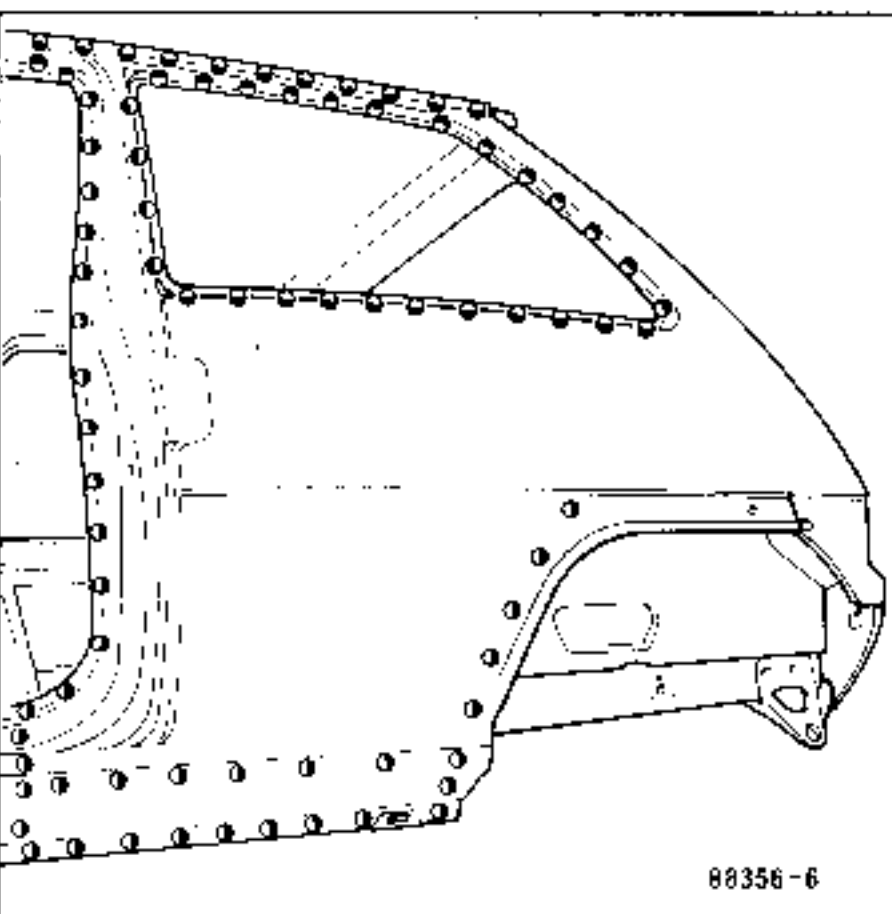
After painting, apply hollow section protective treatment through the internal holes in line with the welded areas.

STRIPPING

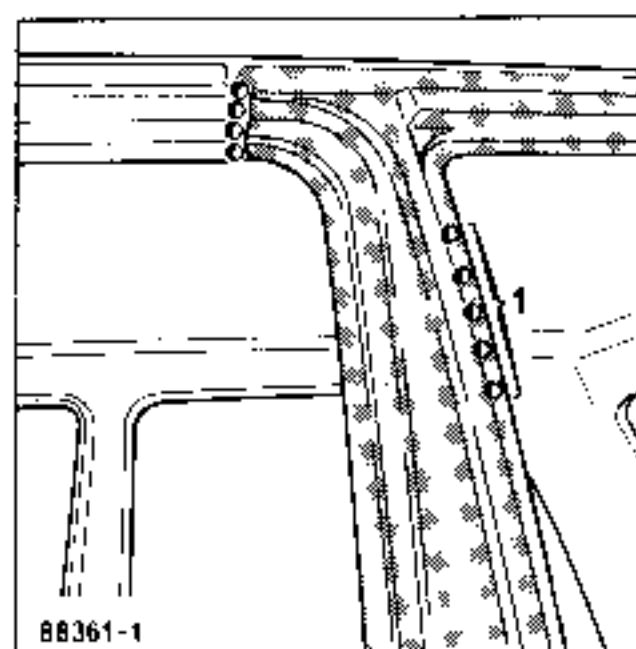
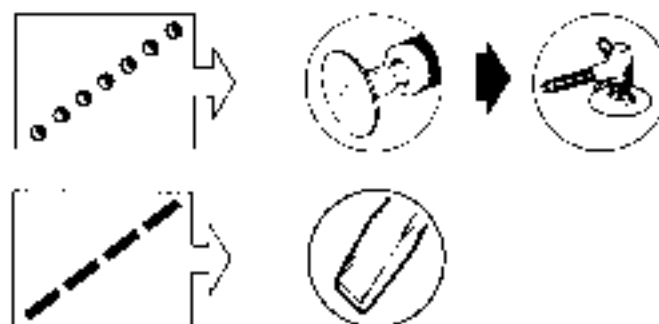
All these parts are to be placed in a trolley bin



CUTTING - JOINT SEPARATION



Grind back the brazed fillet (2).

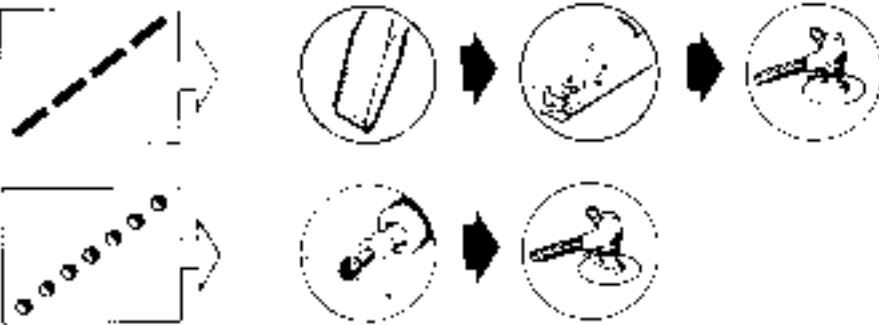
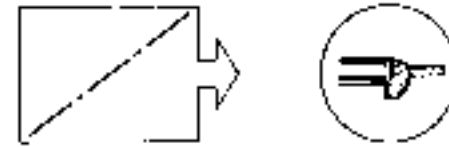
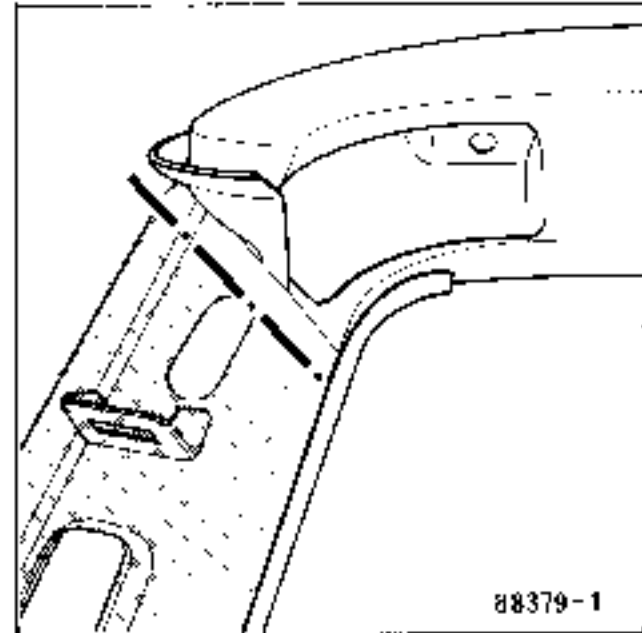
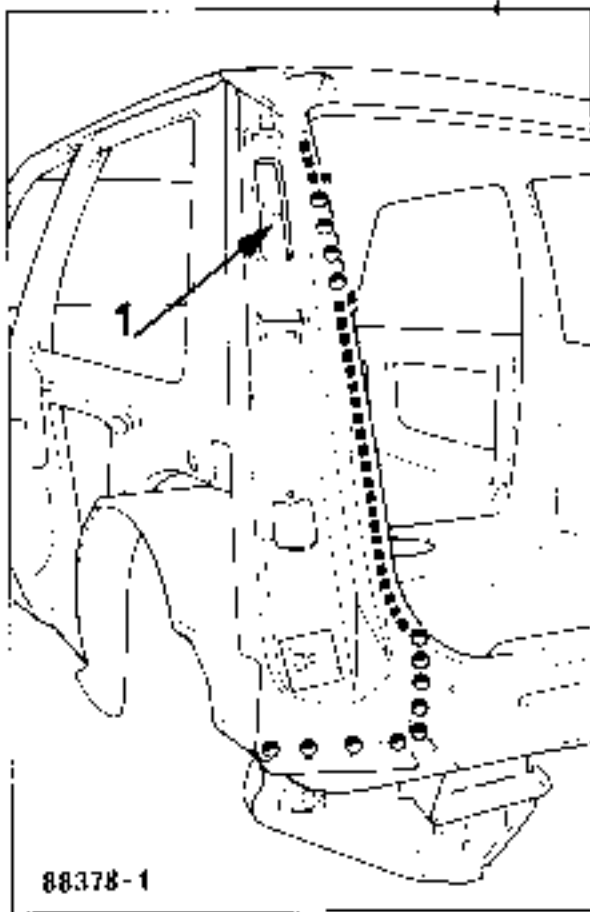


NOTE :

Drill through two thicknesses in the area around the seat belt anchor point (1).

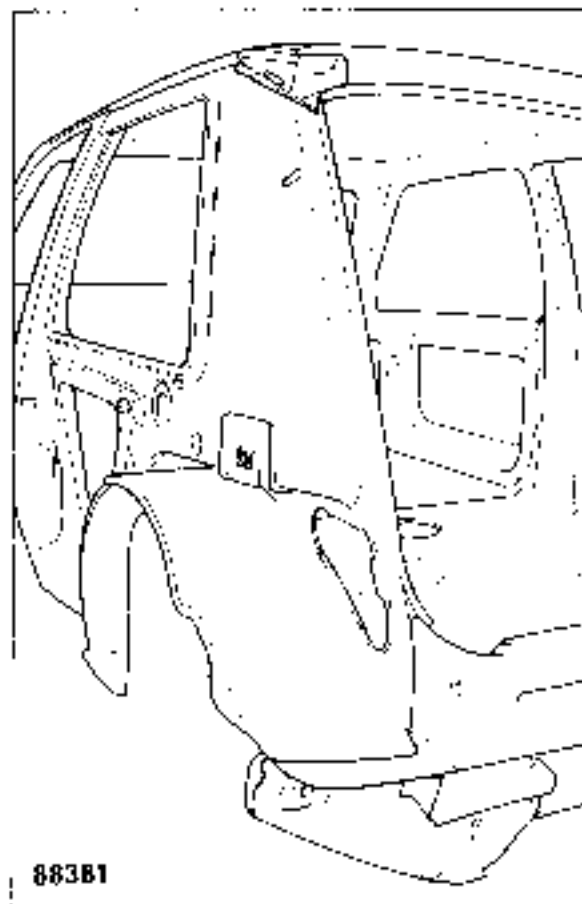
The new part is supplied with the seat belt anchor point already fitted.

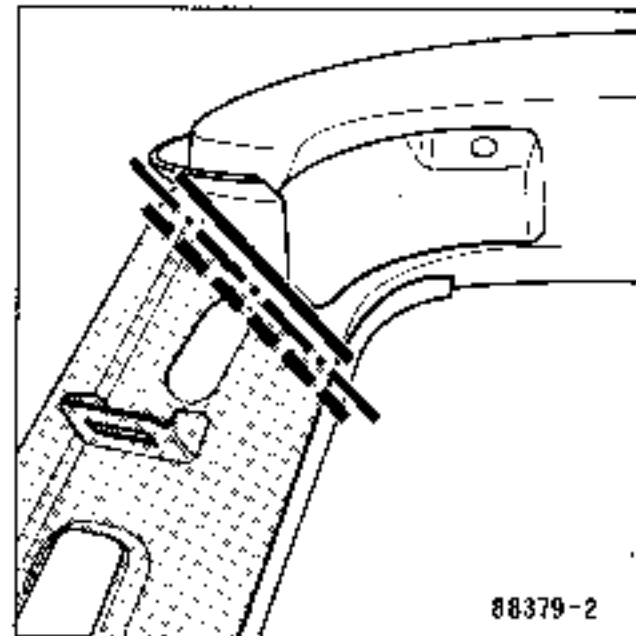
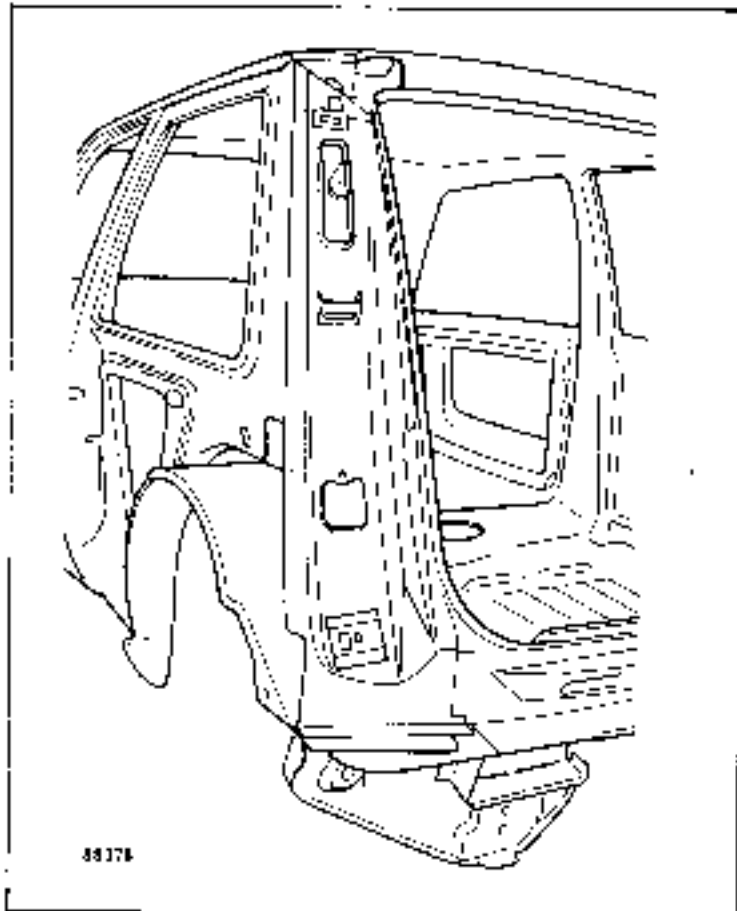
- Remove the damaged part by following the methods represented by the above symbols (see description of symbols).



NOTE :

Drill out and remove the drip channel and seat belt anchor point assembly (1).





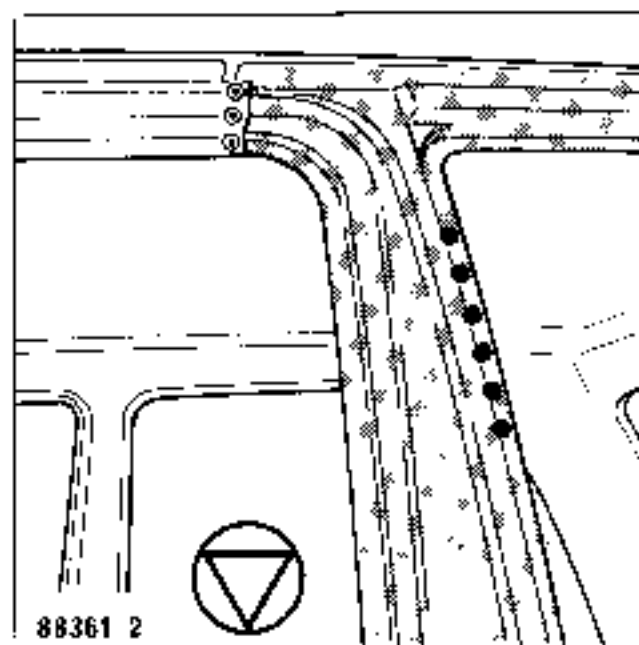
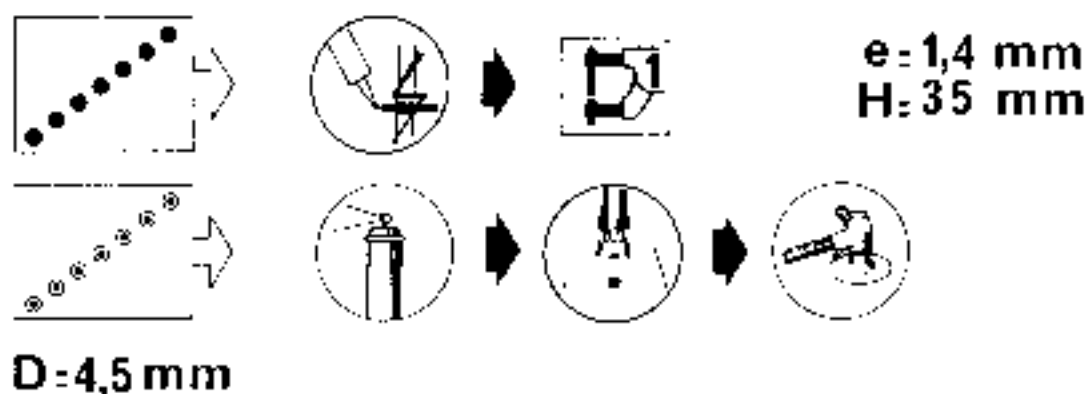
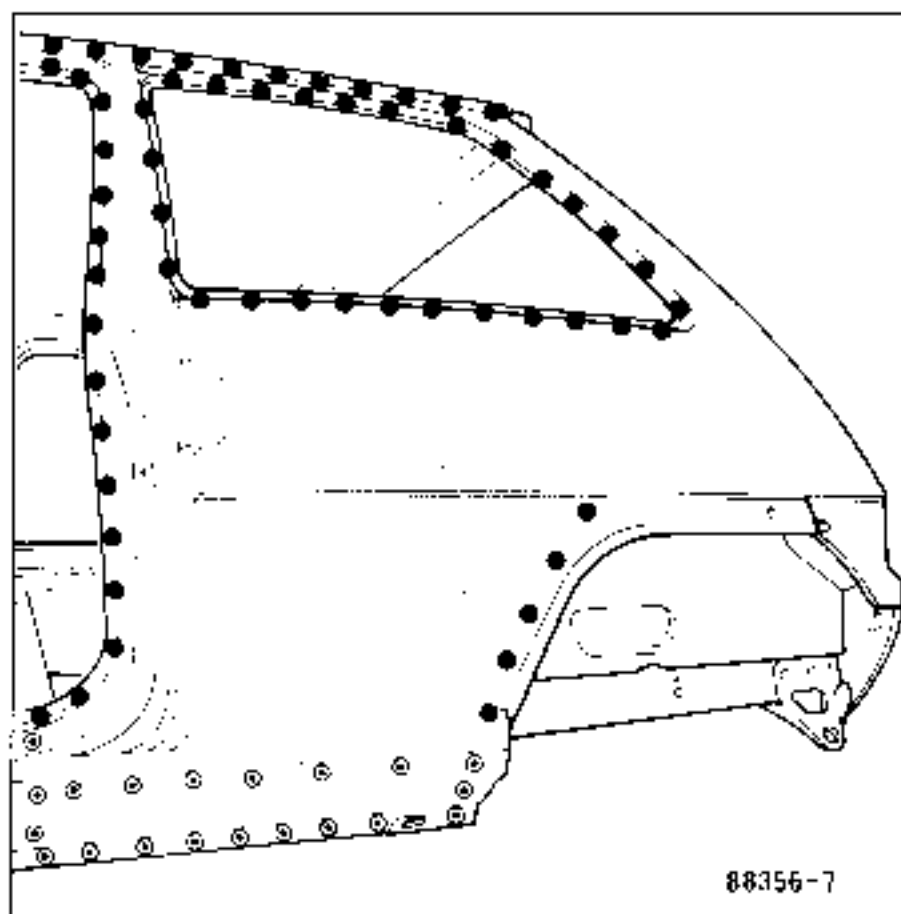
Cut a section from the new part 20 mm larger than the section cut out on the vehicle.

- Fit the new part so that it overlaps the original part on the vehicle and secure it with grip clamps.
- Adjust the wing panel and the tail gate.
- Saw through both thicknesses of metal simultaneously to make adjusting the joints easier.
- Remove the new section and take off the parts remaining on the vehicle, at the overlapping areas.

PREPARATION PRIOR TO WELDING

- Strip back, to the bare metal, the inner and outer faces of all the areas to be welded. - (Both on the vehicle and on the new parts).
- Apply a coat of electroplastic mastic to the areas to be spot welded (see description of symbols at the beginning of this section).
- Apply zinc paint to the areas to be plug welded.

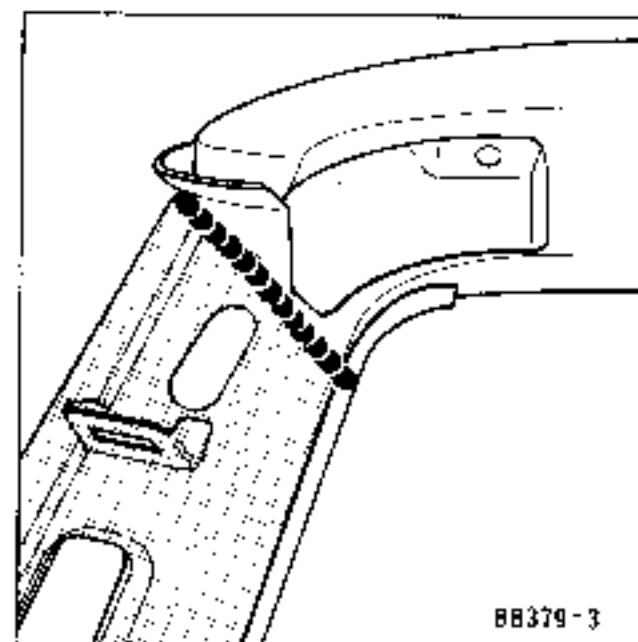
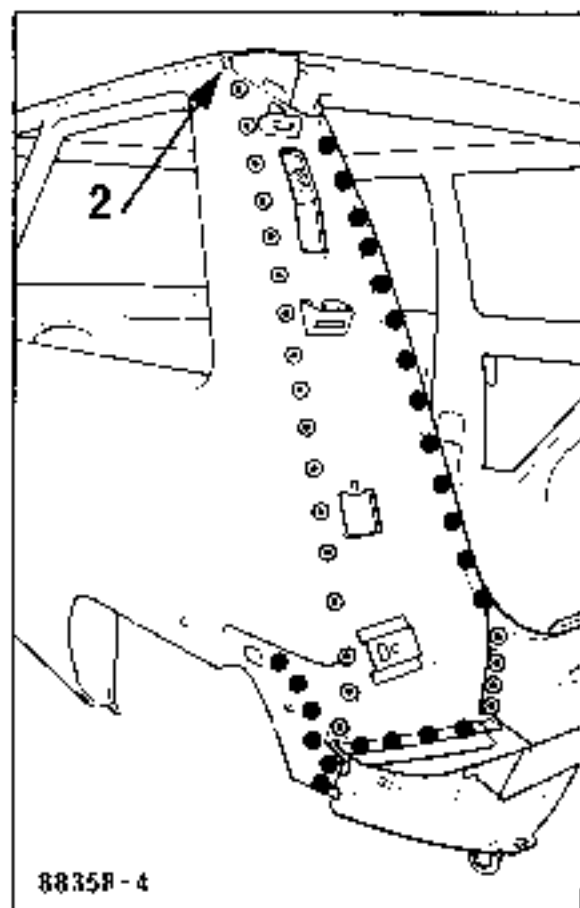
WELDING



PREPARATION PRIOR TO WELDING

- Strip back, to the bare metal, the inner and outer faces of all the areas to be welded. (Both on the vehicle and on the new parts).
- Apply a coat of electroplastic mastic to the areas to be spot welded (see description of symbols at the beginning of this section).
- Apply zinc paint to the areas to be plug welded.
- Adjust the new part and secure it with grip clamps.

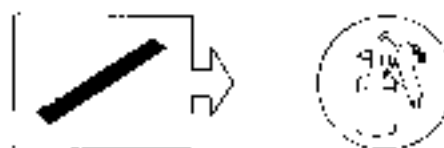
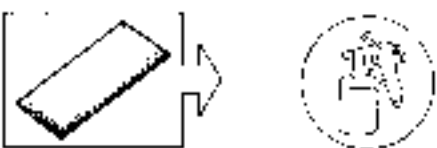
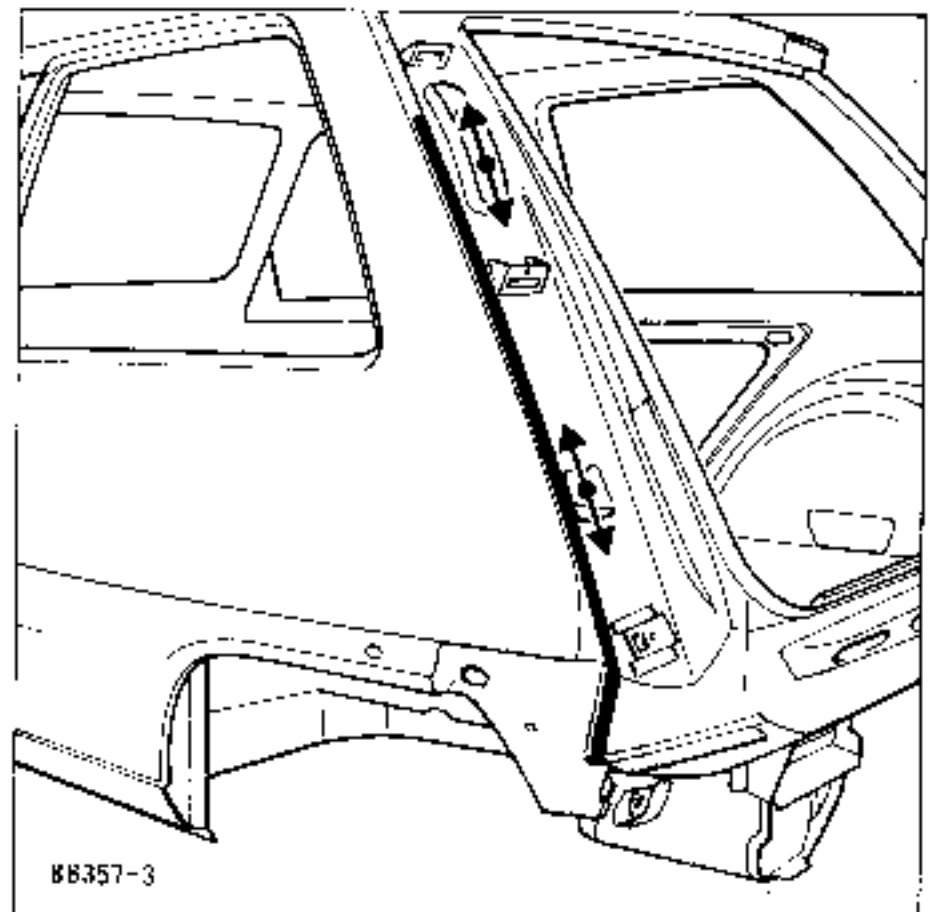
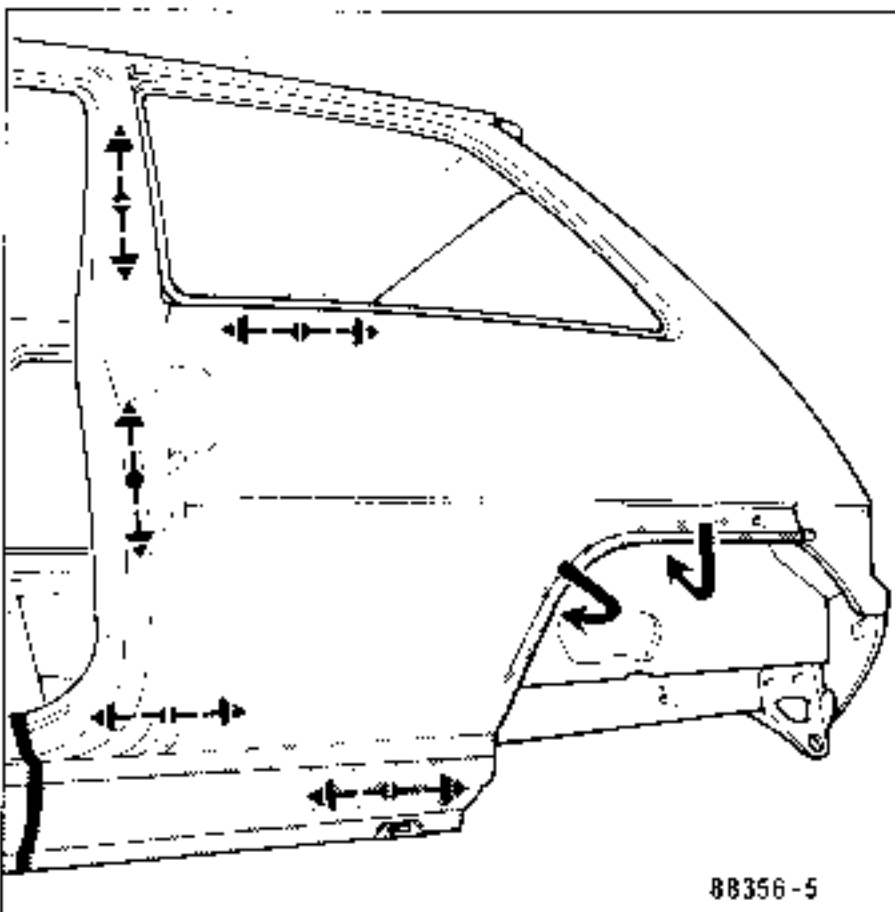
WELDING



Apply a brazed fillet in the corner (2).

- Apply the stitched fillets using the gas envelope welding process. (These joints may also be gas welded using a 75 to 100 nozzle).
- Apply plug welds using the gas envelope welding process. To do this, drill holes in the upper panel to the diameter D stated under the drawings.

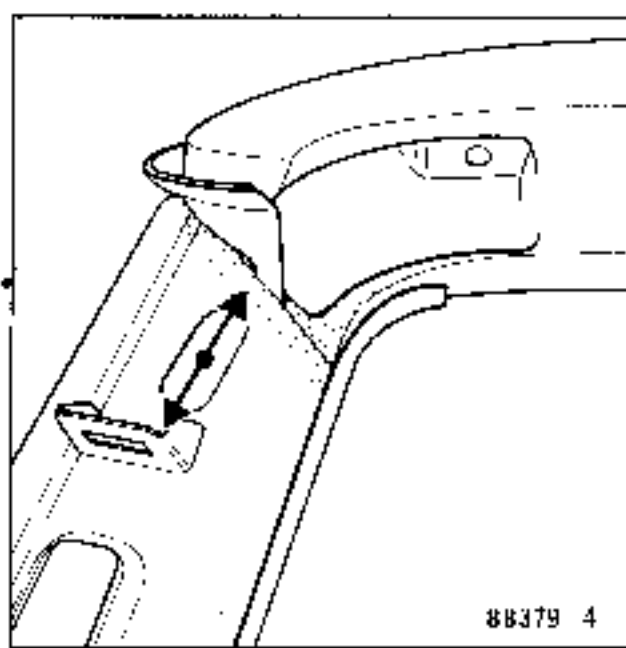
PAINTING



Carry out paint sequence No. 5 (See "Painting" section) followed by paint sequence No. 3.

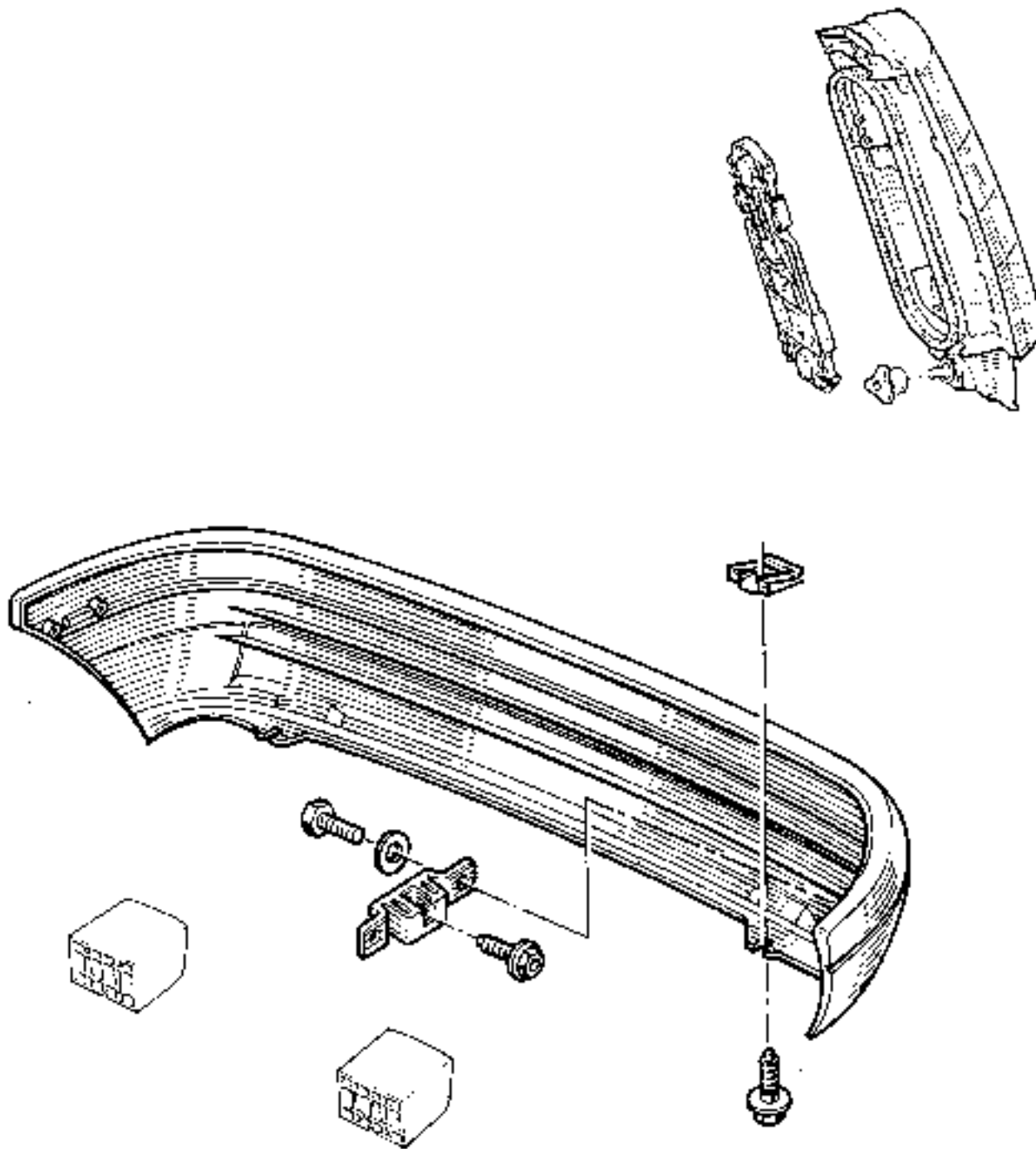


After painting, apply hollow section protective treatment through the interior holes in line with the welded areas.

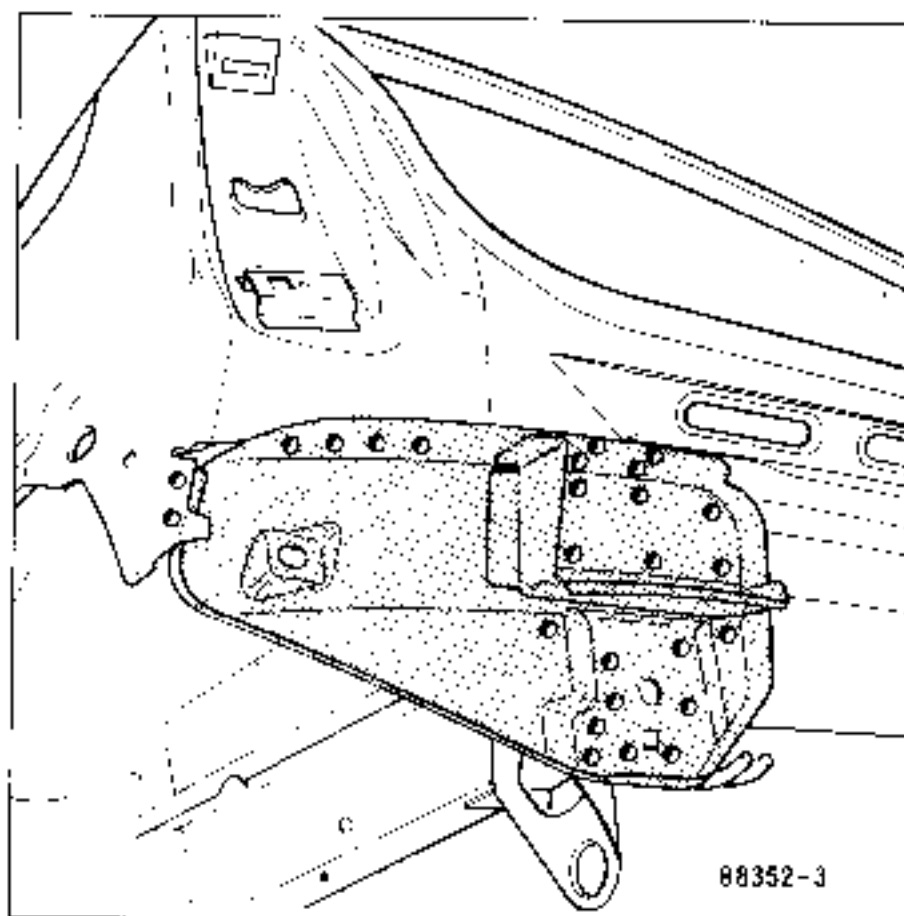


STRIPPING

All these parts are to be placed in a bin trolley.



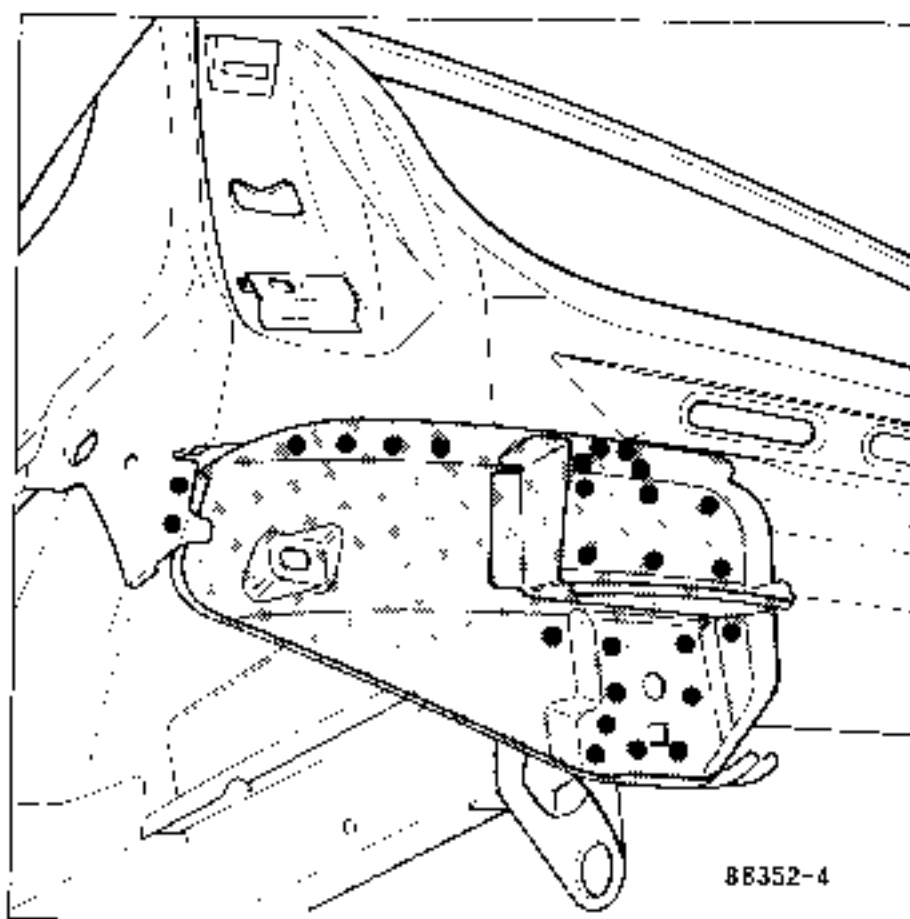
ANTI-CORROSION PROTECTION



- Remove the damaged part by following the methods represented by the above symbols (see description of symbols).

PREPARATION PRIOR TO WELDING

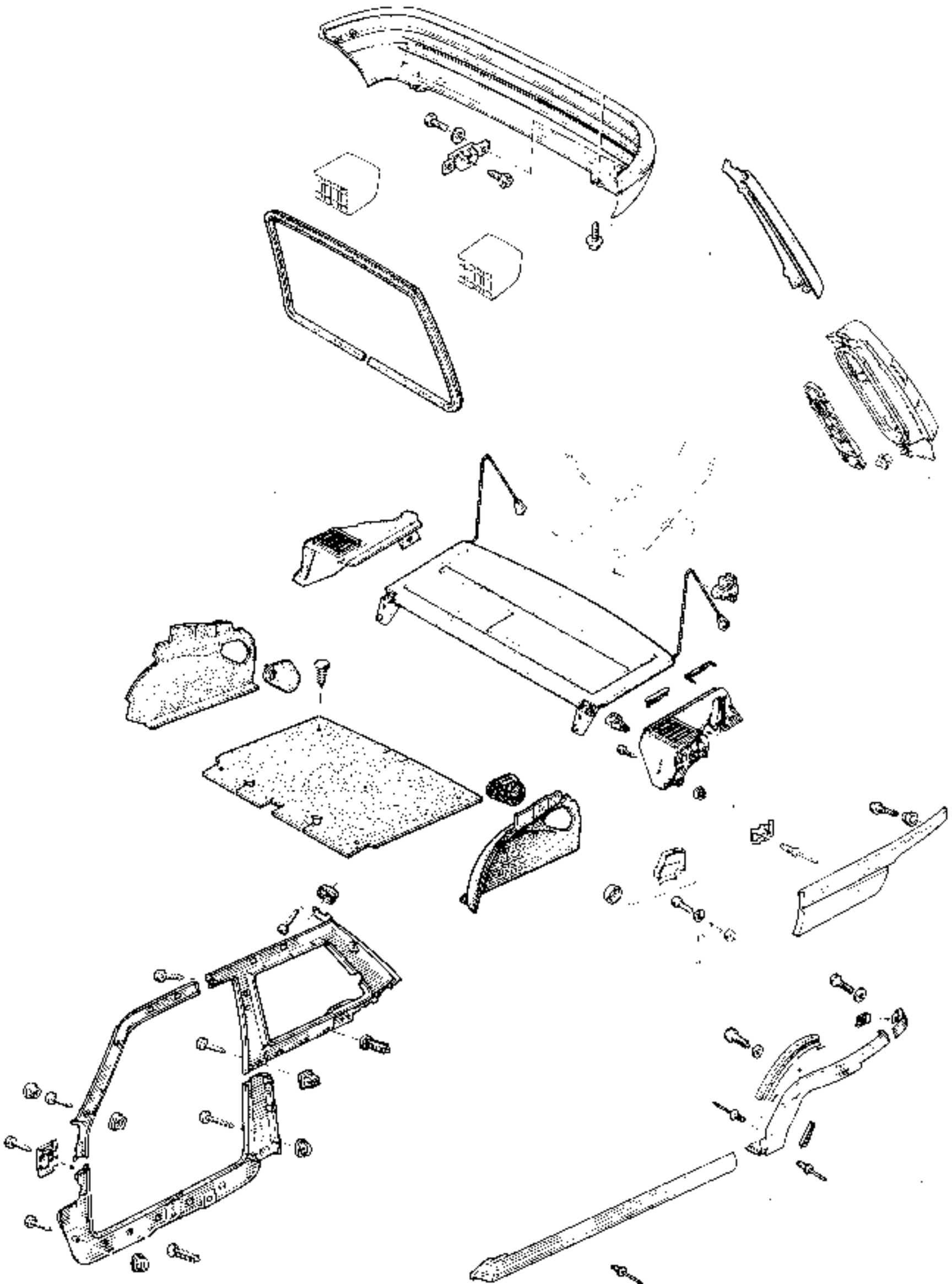
- Strip back, to the bare metal, the inner and outer faces of all the areas to be welded. (Both on the vehicle and on the new parts).
- Apply a coat of electroplastic mastic to the areas to be spot welded (see description of symbols at the beginning of this section).
- Adjust the new part and secure it with grip clamps.
- Apply the spot welds. The corresponding values of (e) and (H) are given under each drawing.



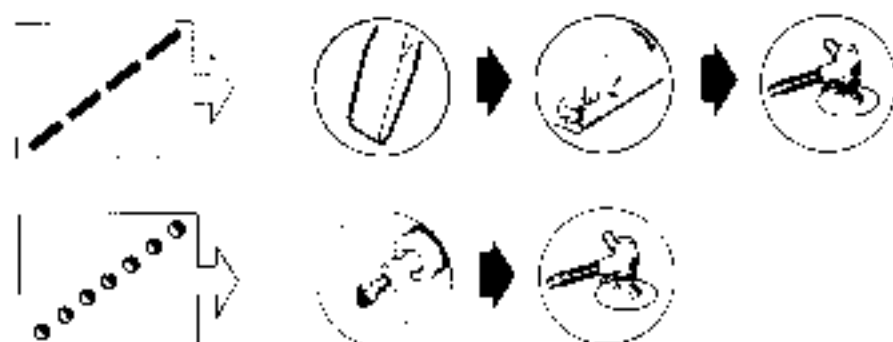
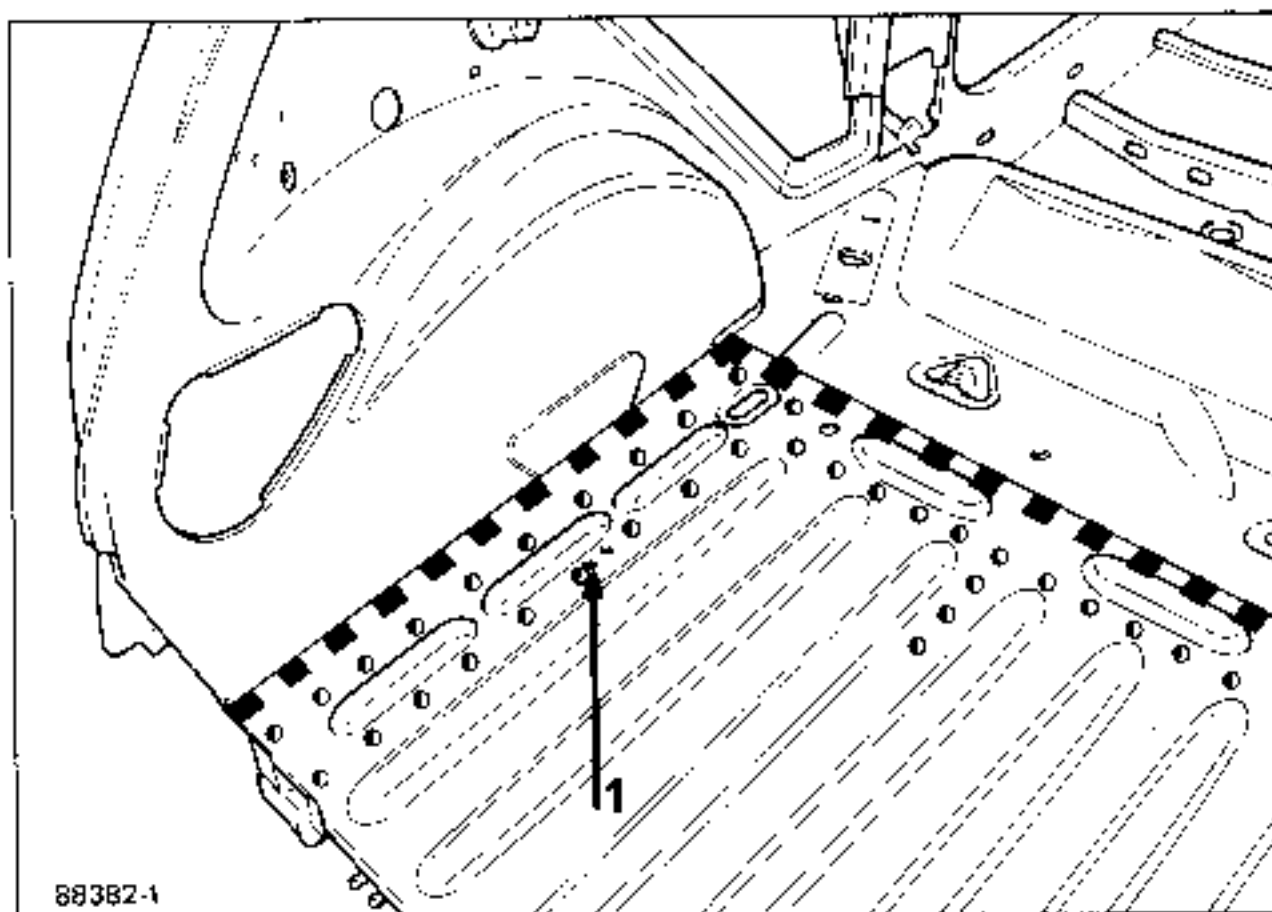
This operation can be combined with the following operations :
partially or completely replacing the wing panel and drip channel.

STRIPPING

All these parts are to be placed in a bin trolley.

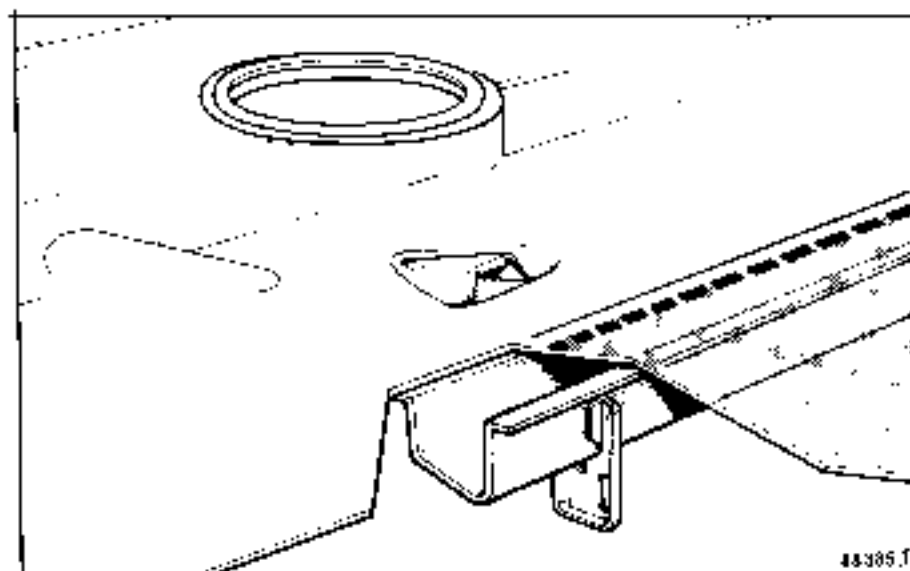


CUTTING - JOINT SEPARATION



NOTE :

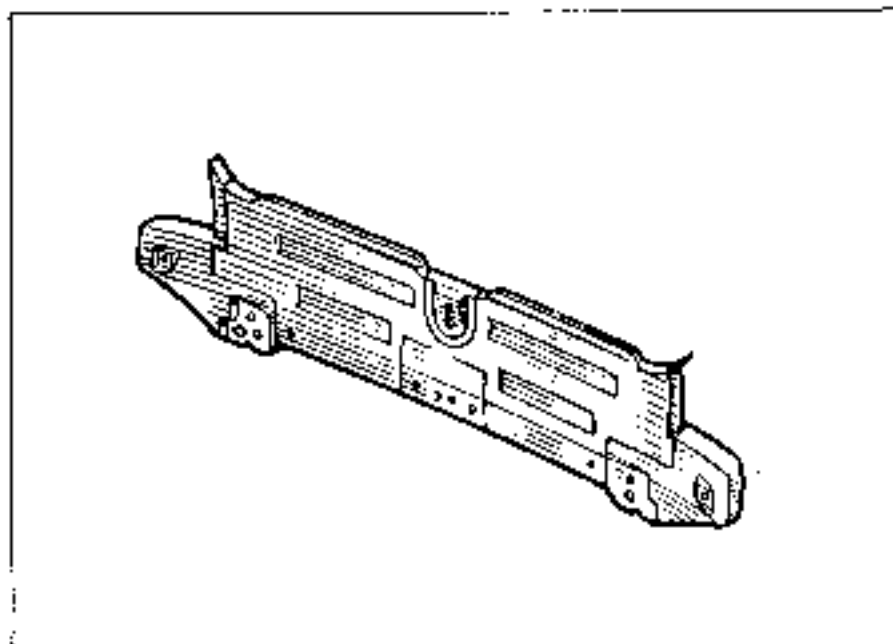
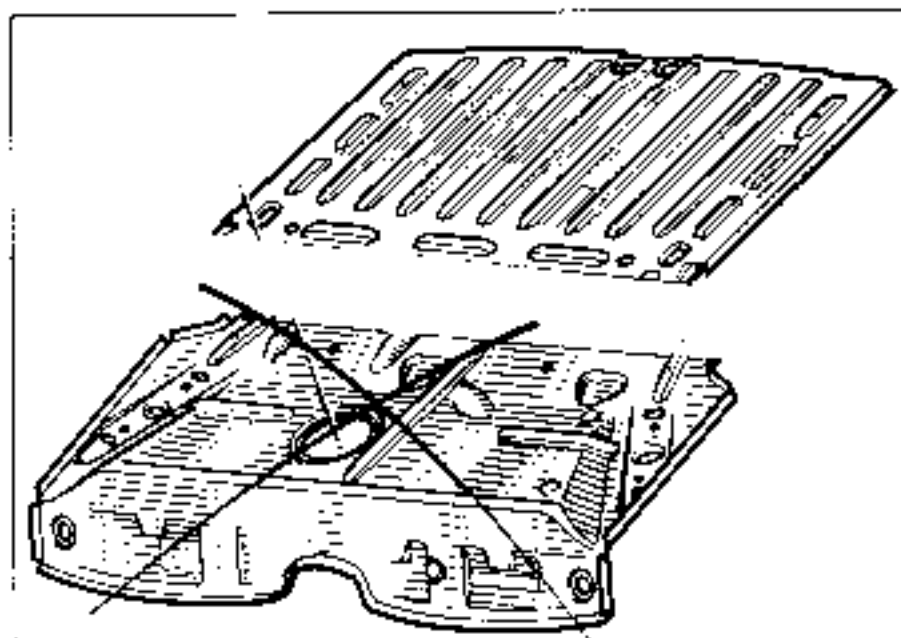
Remove the floor panel and its stiffener (1).



- Remove the damaged part by following the methods represented by the above symbols (see description of symbols).

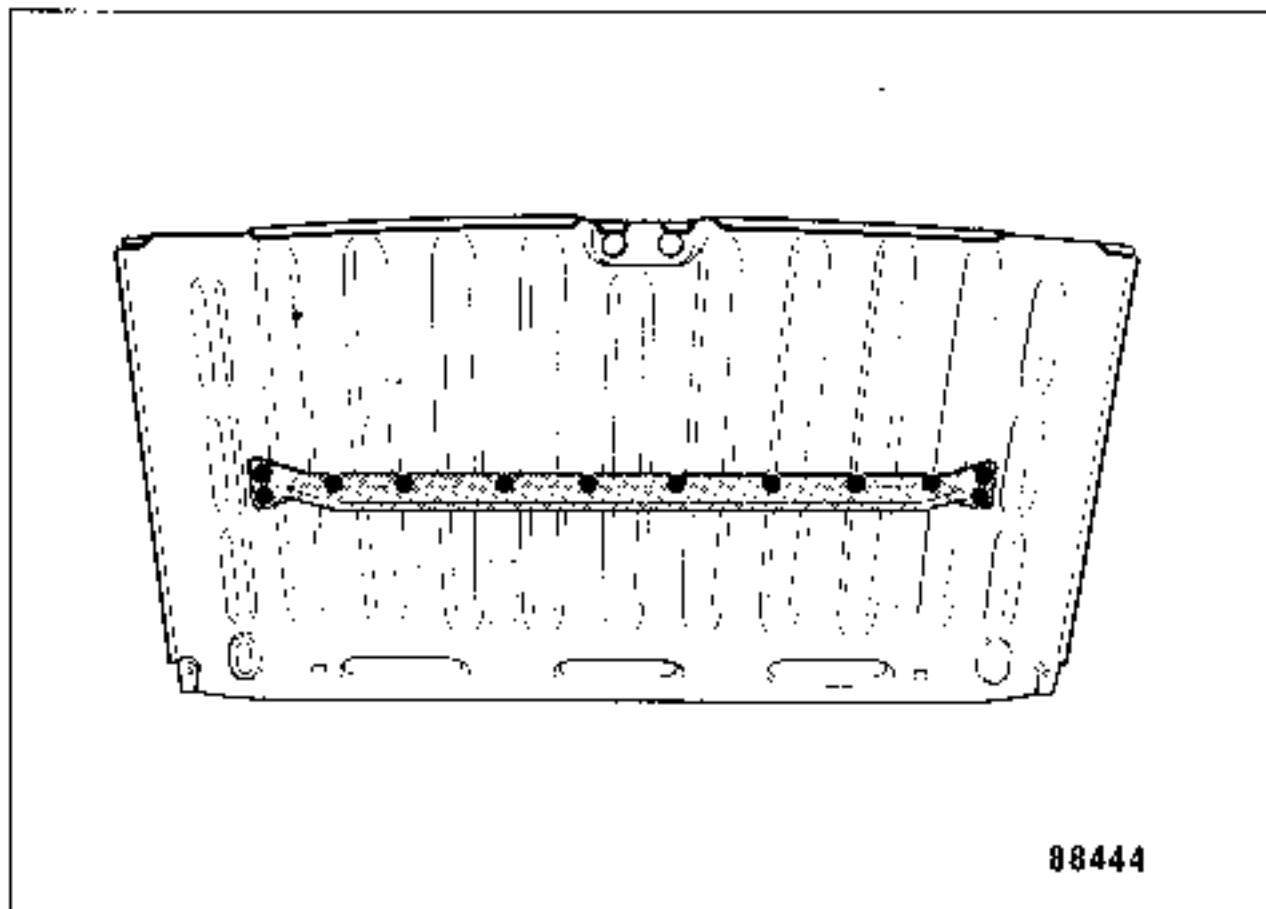
PREPARATION PRIOR TO WELDING

- Strip back, to the bare metal, the inner and outer faces of all the areas to be welded.



Cut, from the new part, a section 20 mm larger than that cut out on the vehicle.

- Apply a coat of electroplastic mastic to the areas to be spot welded (see description of symbols at the beginning of this section).
- Apply zinc paint to the areas to be plug welded.

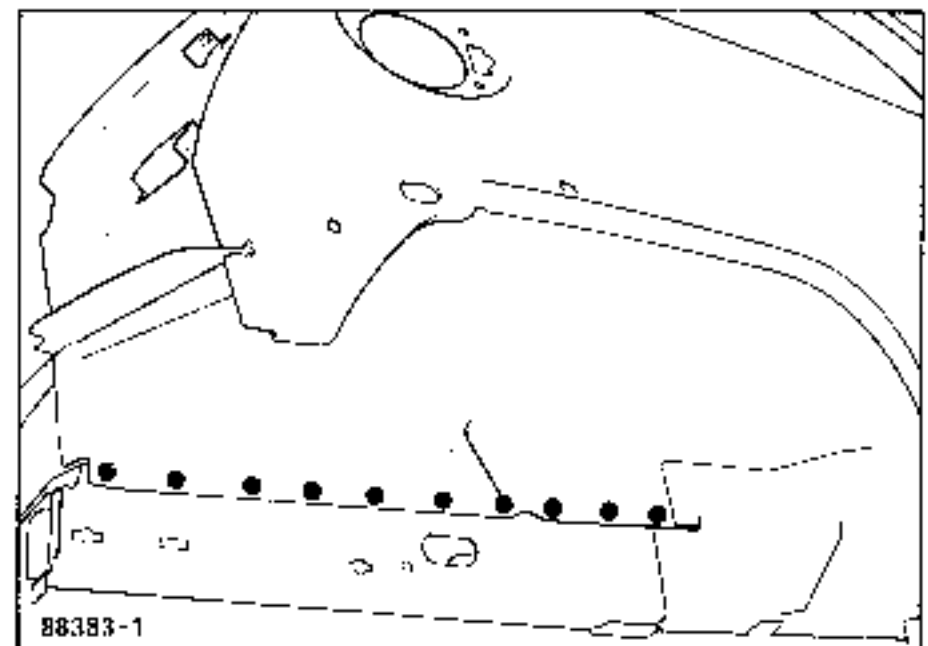
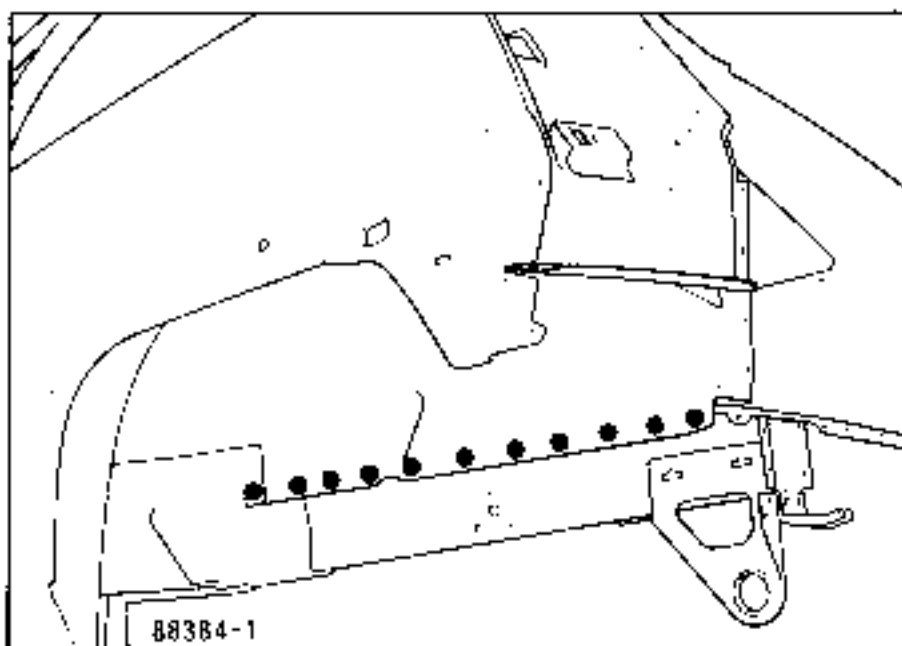
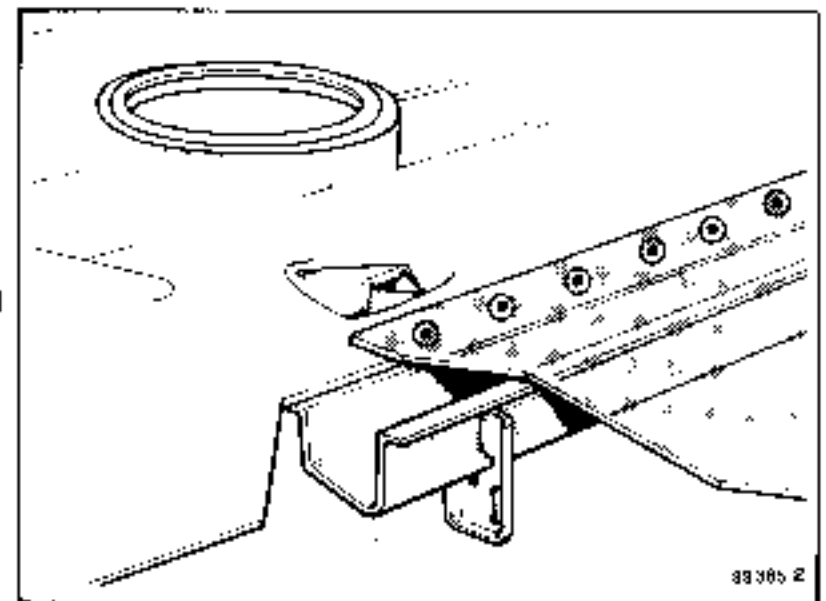
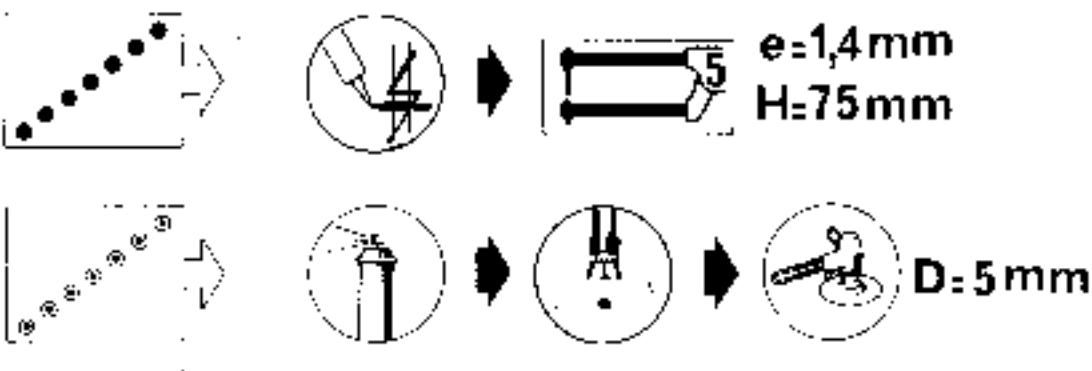
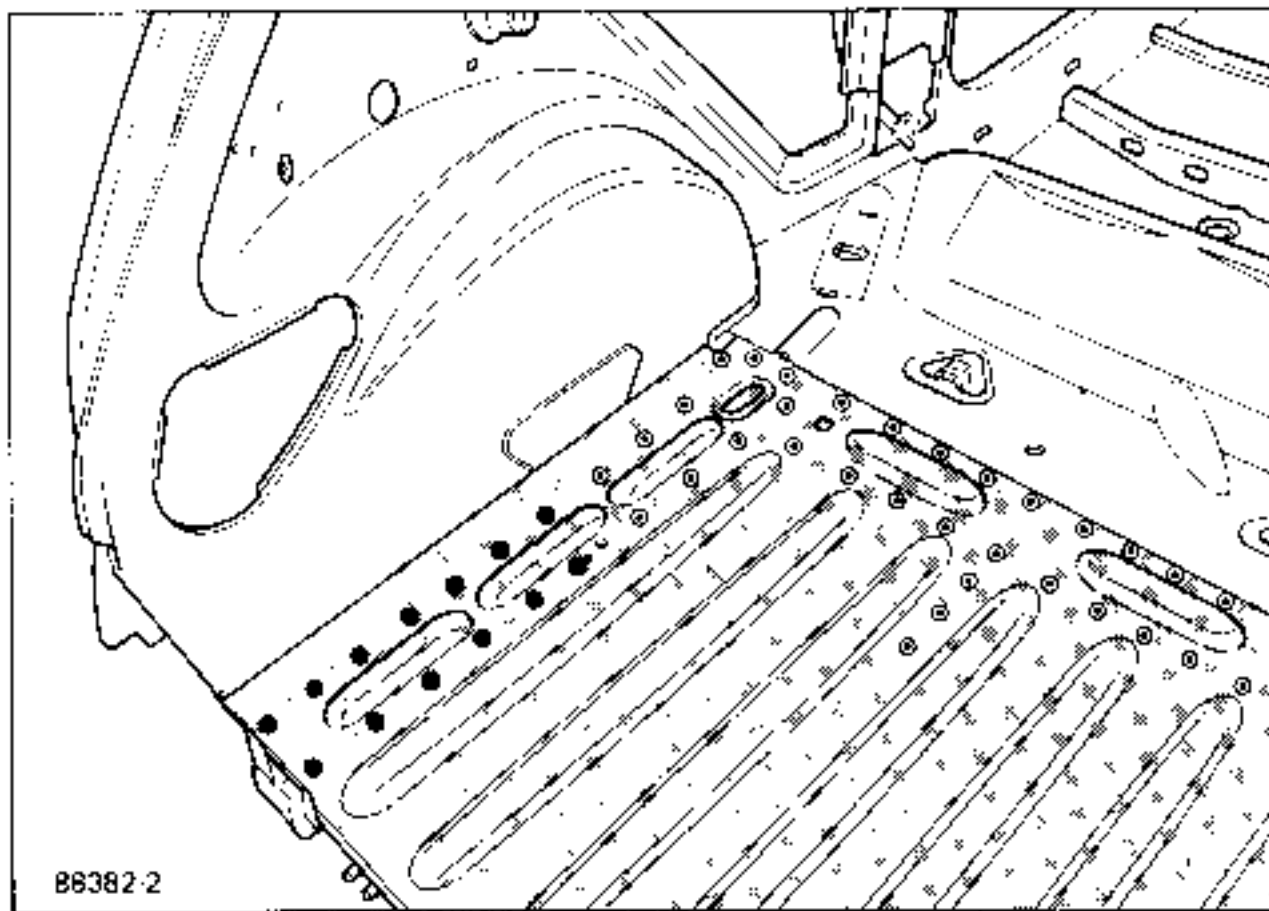


Weld the stiffener to the new floor panel.



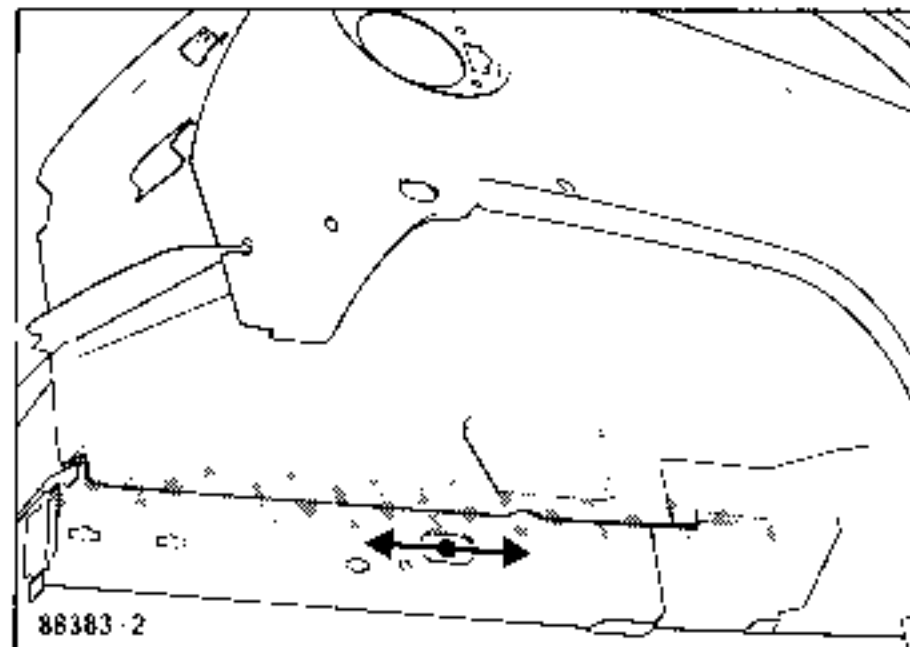
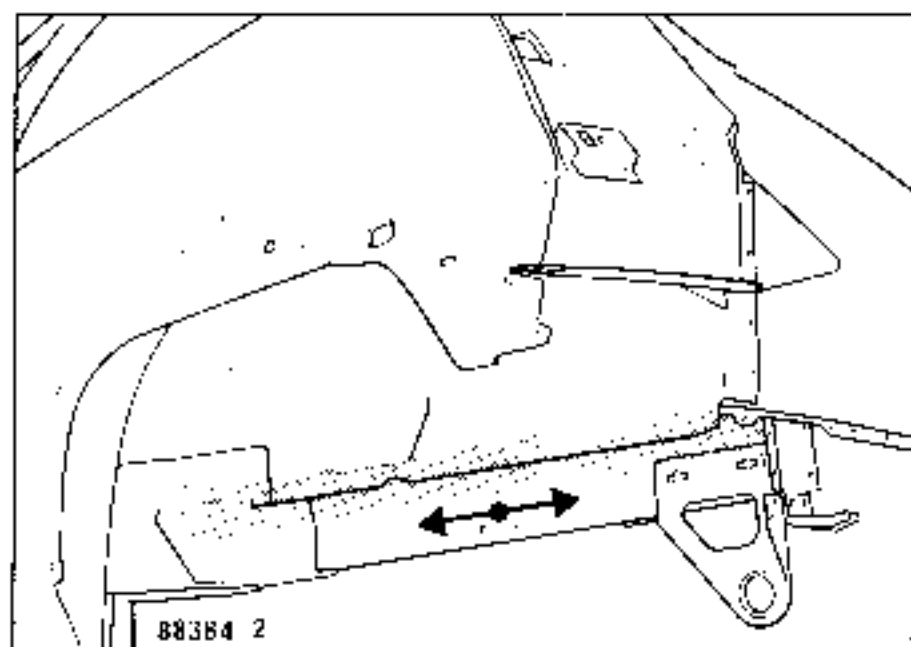
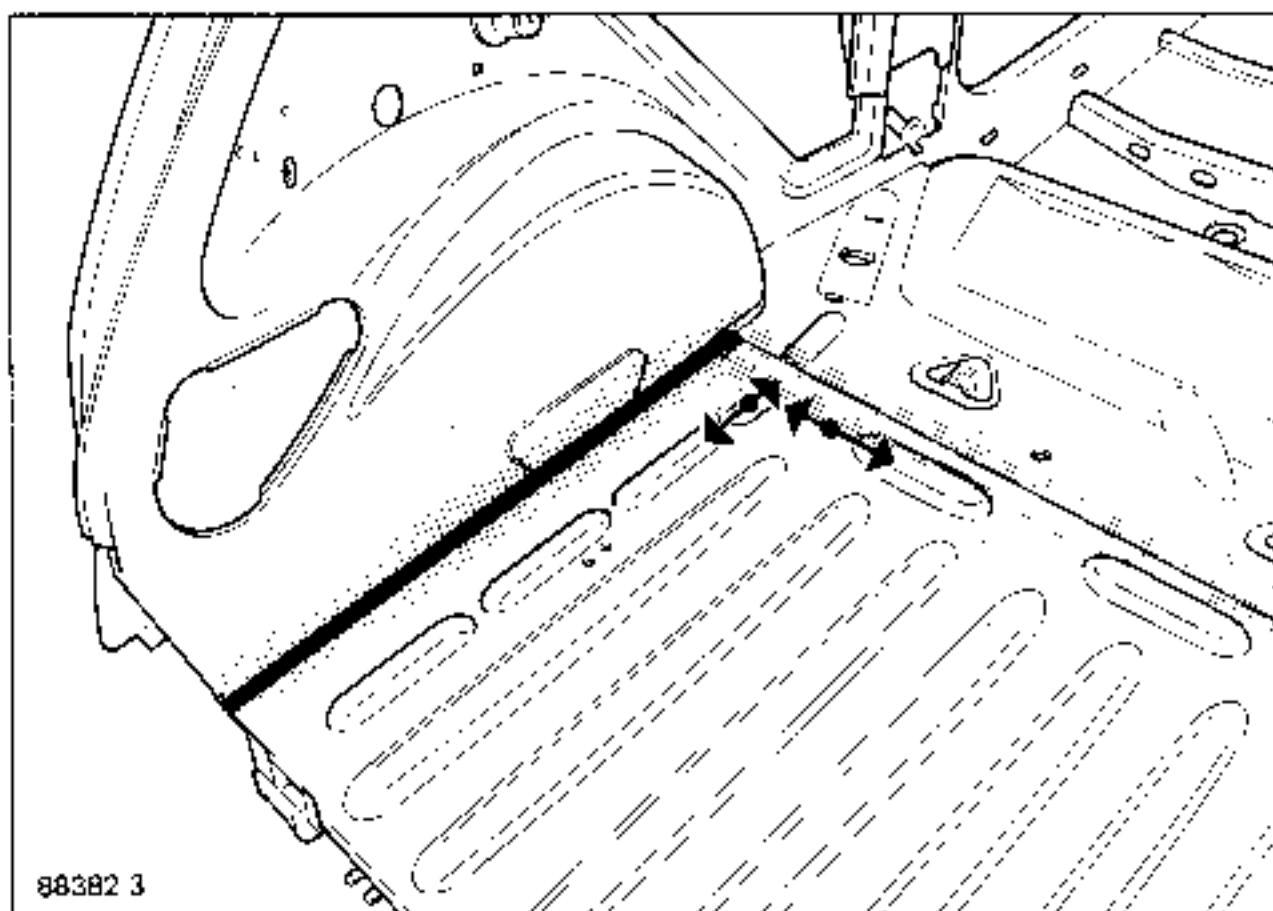
- Adjust the new part and secure it with grip clamps.
- Apply the spot welds. The corresponding values of (e) and (H) are given under each drawing.

WELDING



(See the section "Replacing the Rear End Panel" for the continuation of this operation).

PAINTING



Carry out paint sequence No. 5 (see "Painting" section) followed by paint sequence No. 3.



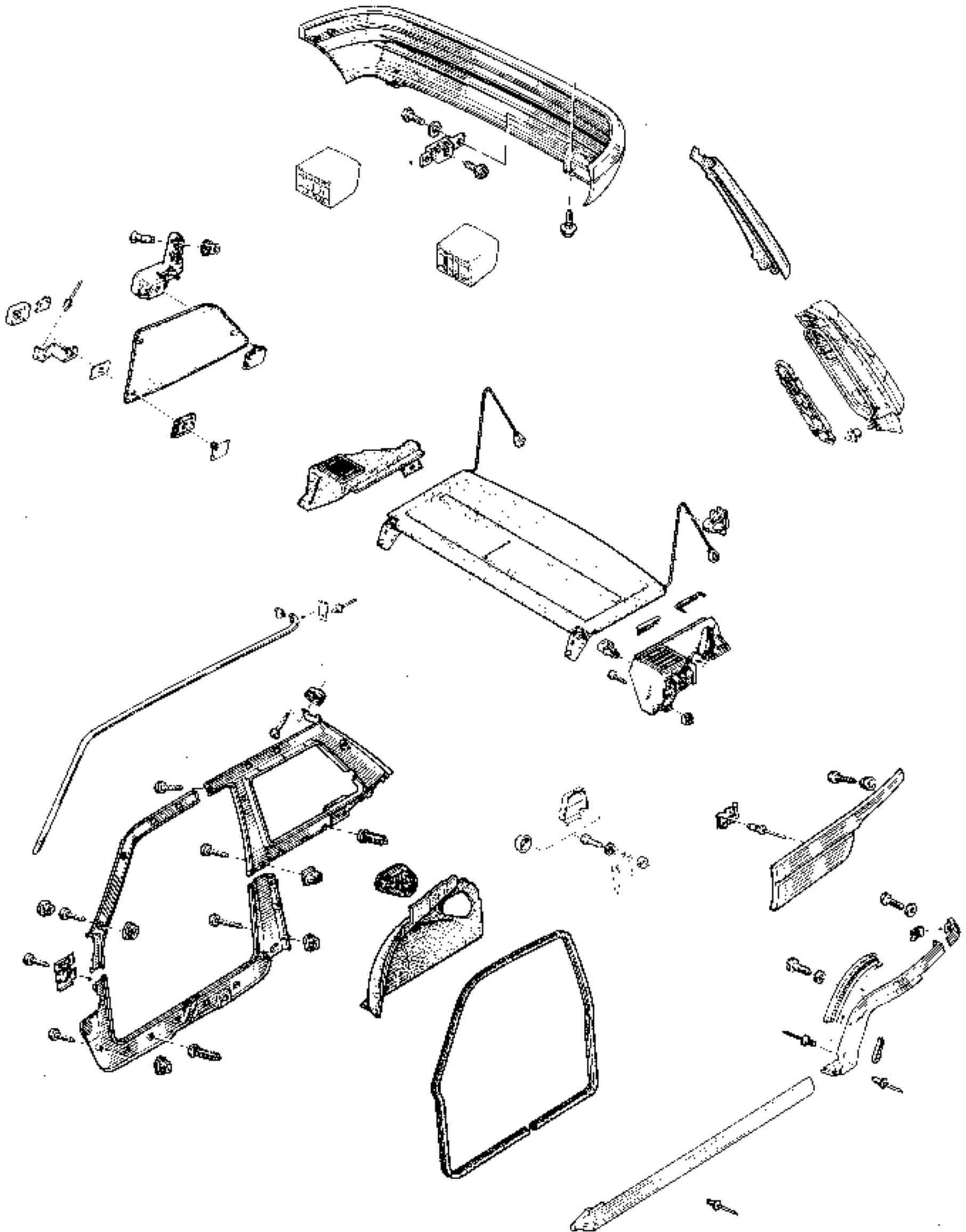
Spray anti-chipping mastic to the underside of the floor.

- After painting, apply the hollow section protective treatment in the side members and the cross member.

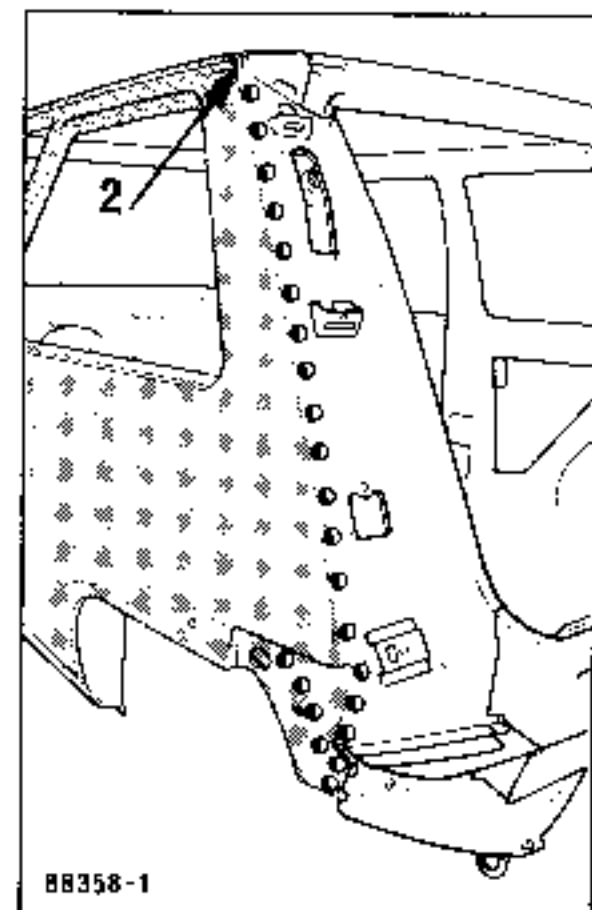
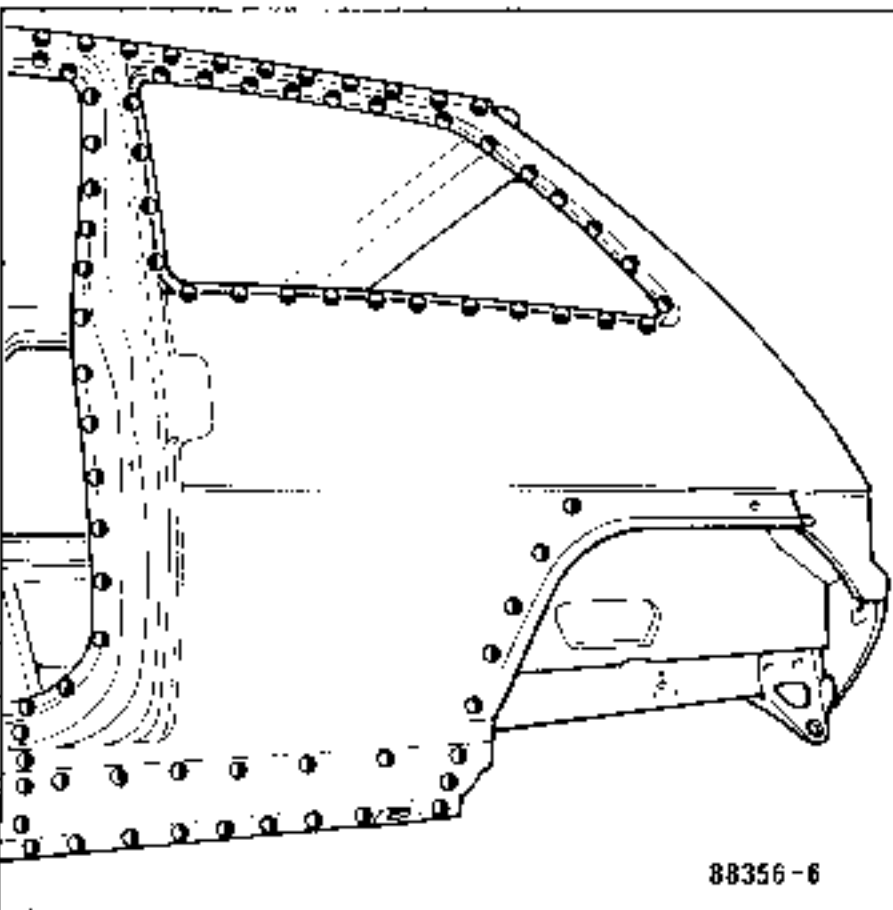


STRIPPING

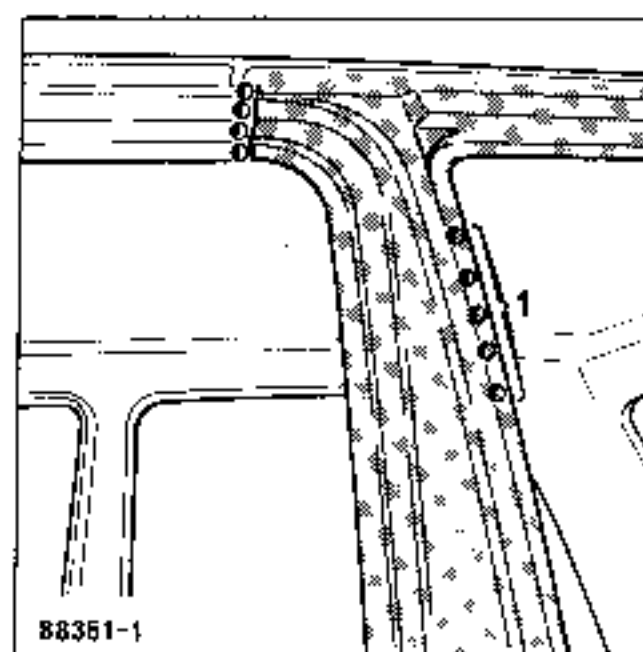
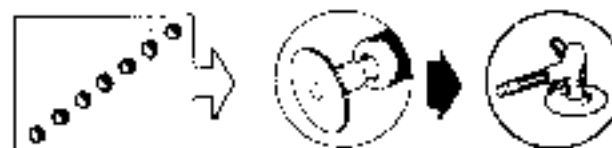
All these parts are to be placed in a trolley bin.



REMOVING THE WING PANEL



Grind back the brazed joint (2).



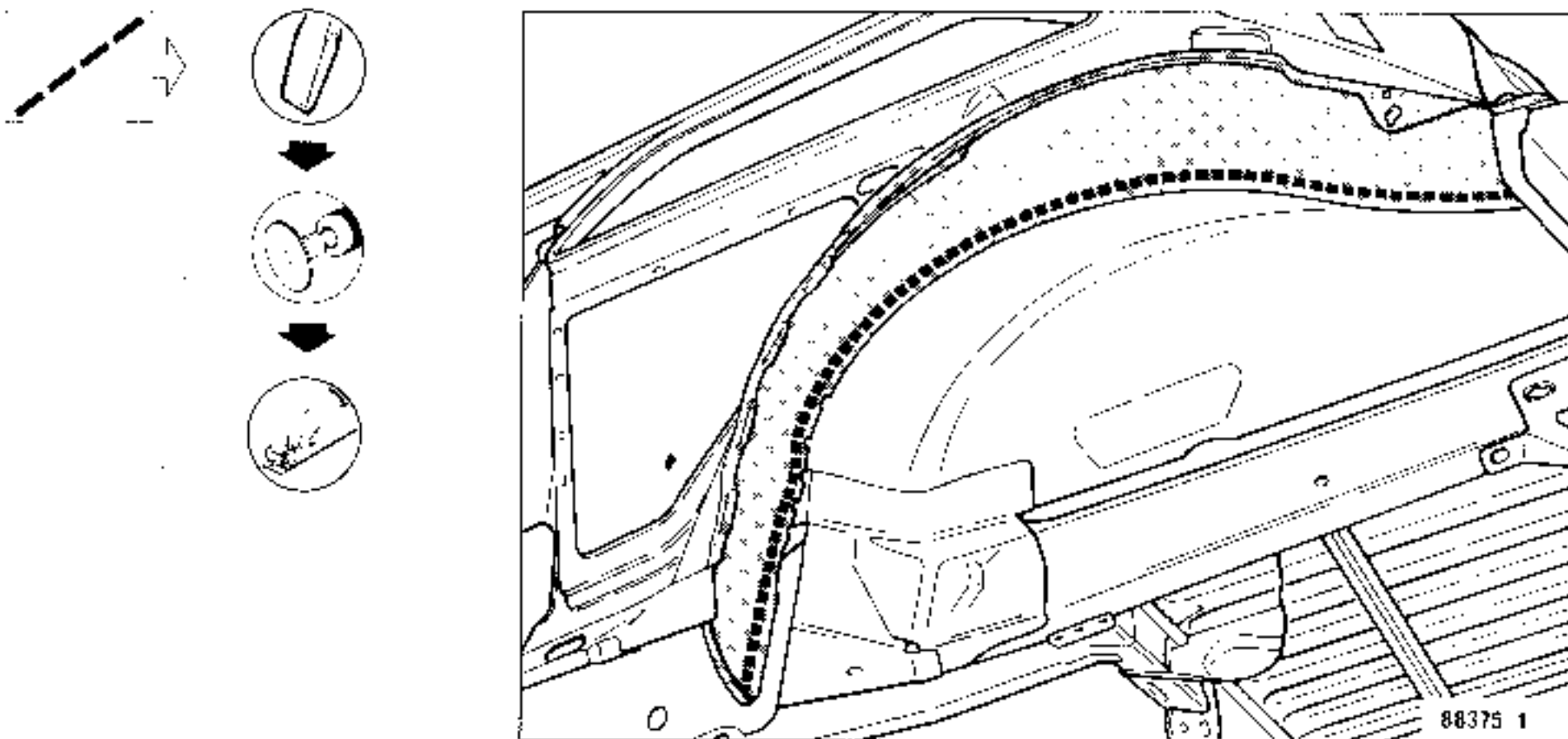
NOTE :

Drill through two thicknesses in the area round the seat belt anchor point (1).

The new part is supplied with the anchor point already fitted.

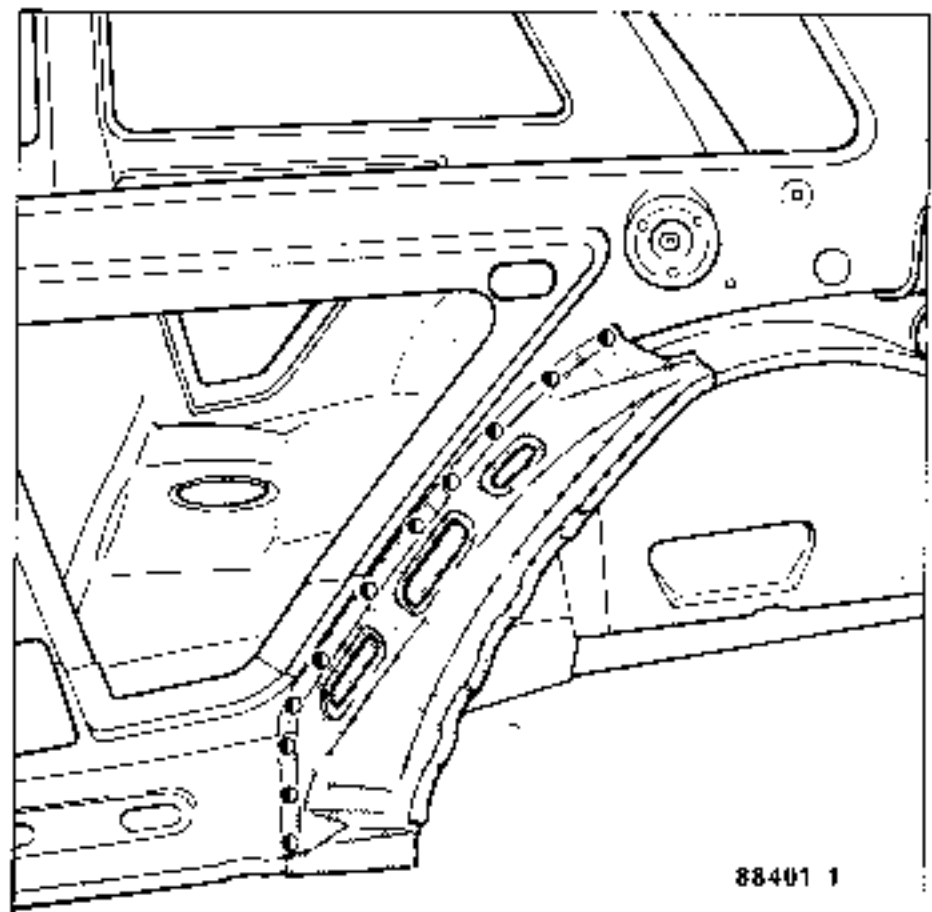
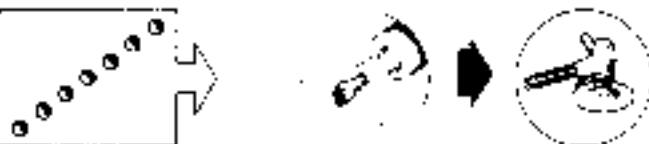
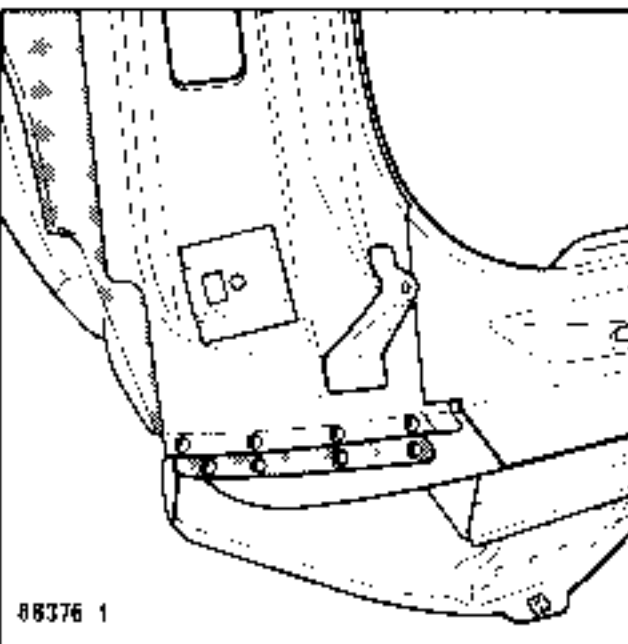
- Remove the damaged part by following the methods represented by the above symbols (see description of symbols).

CUTTING - FREEING THE WHEEL ARCH



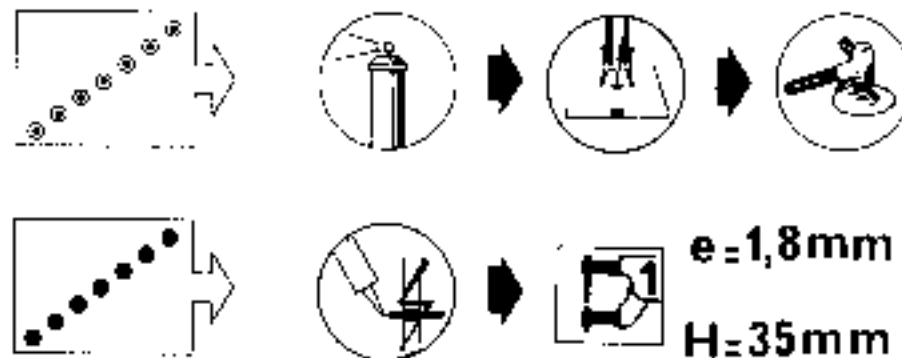
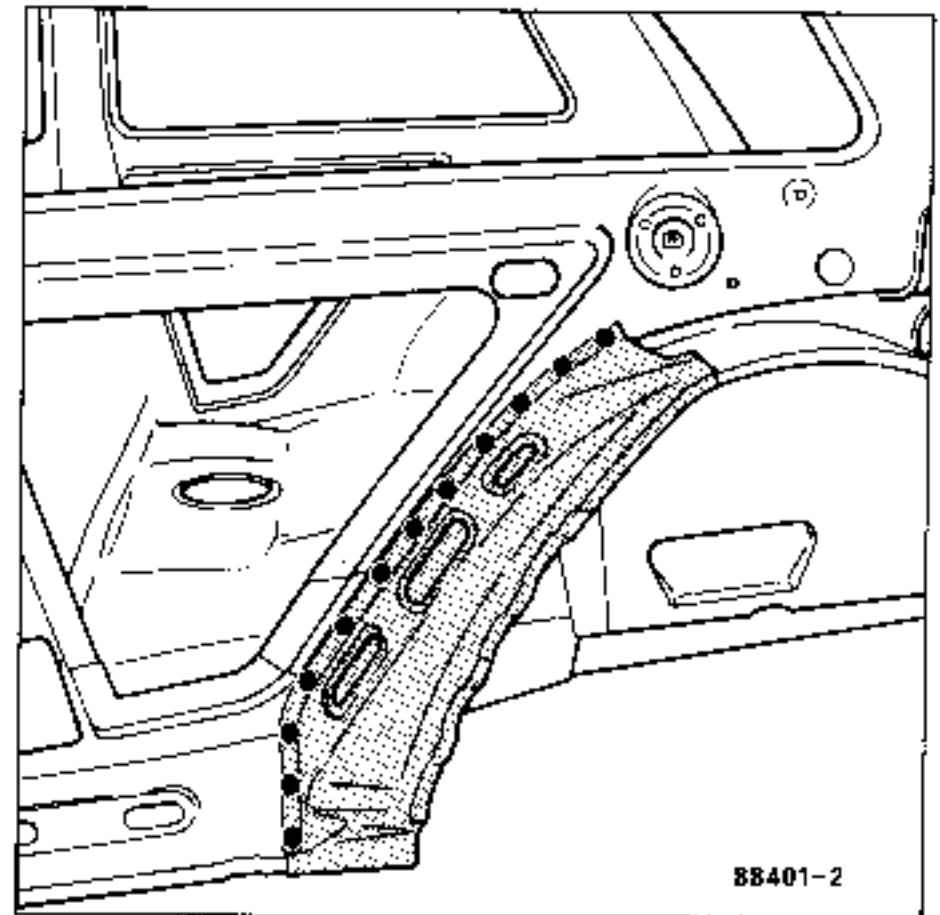
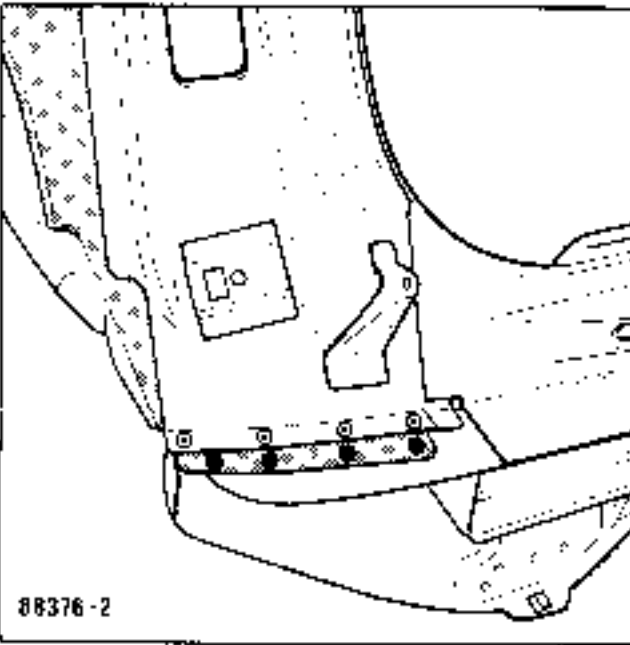
NOTE :

So as not to distort the support panel, use a 76 mm Ø grinding wheel 3,2 mm thick to grind back the spot welds on the strips of panelling remaining on the vehicle.



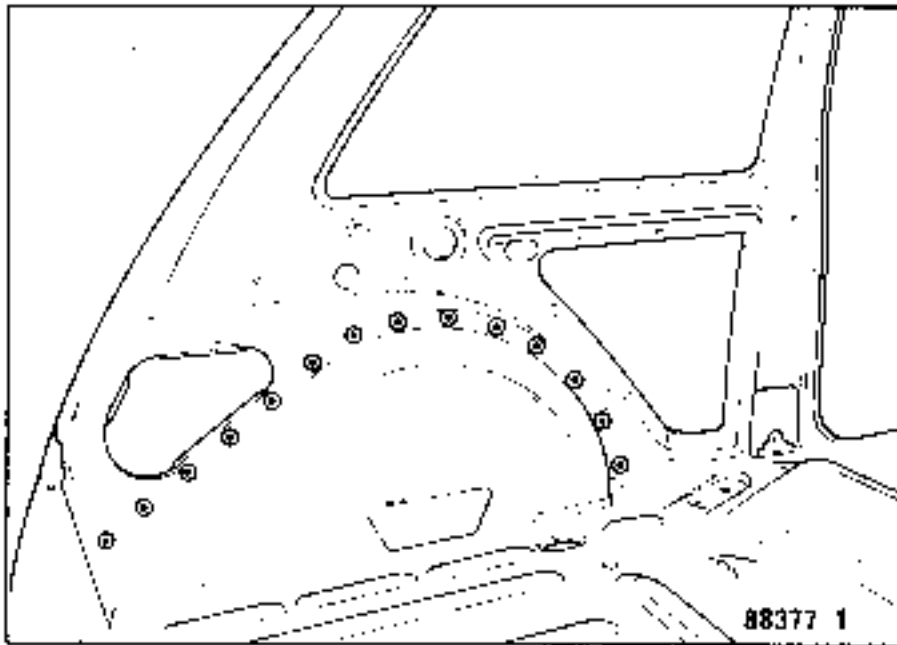
- Remove the damaged part by following the methods represented by the above symbols (see description of symbols).

WELDING

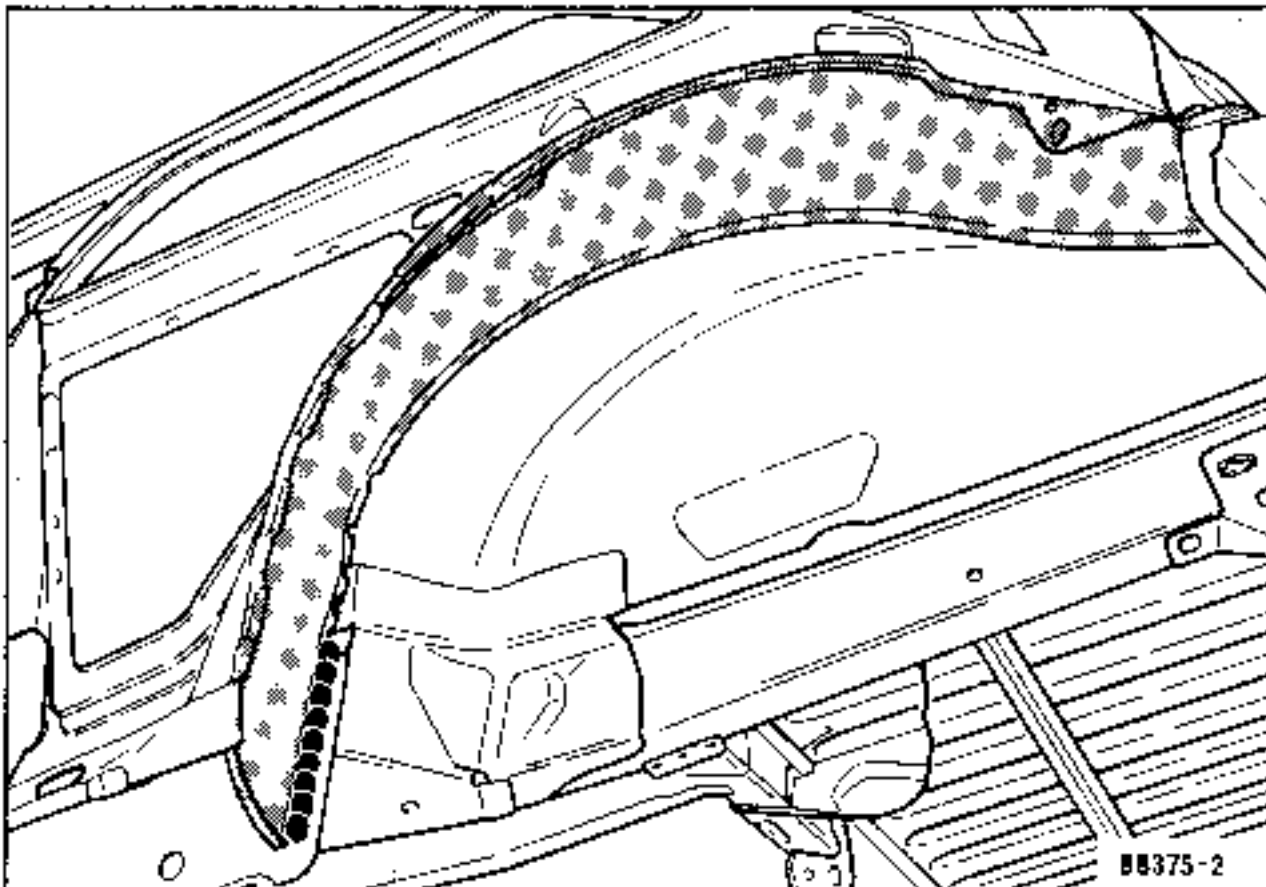


PREPARATION PRIOR TO WELDING

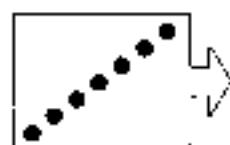
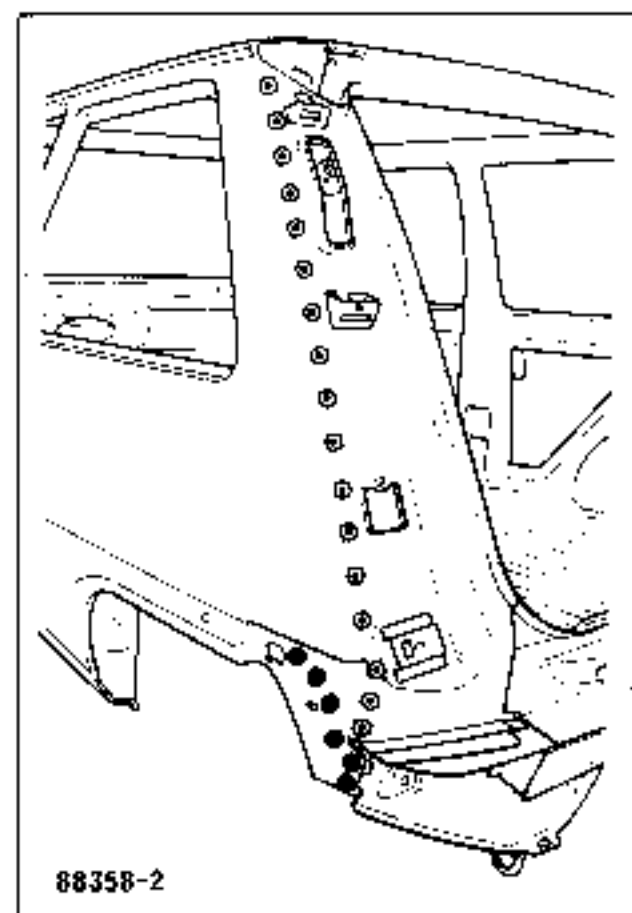
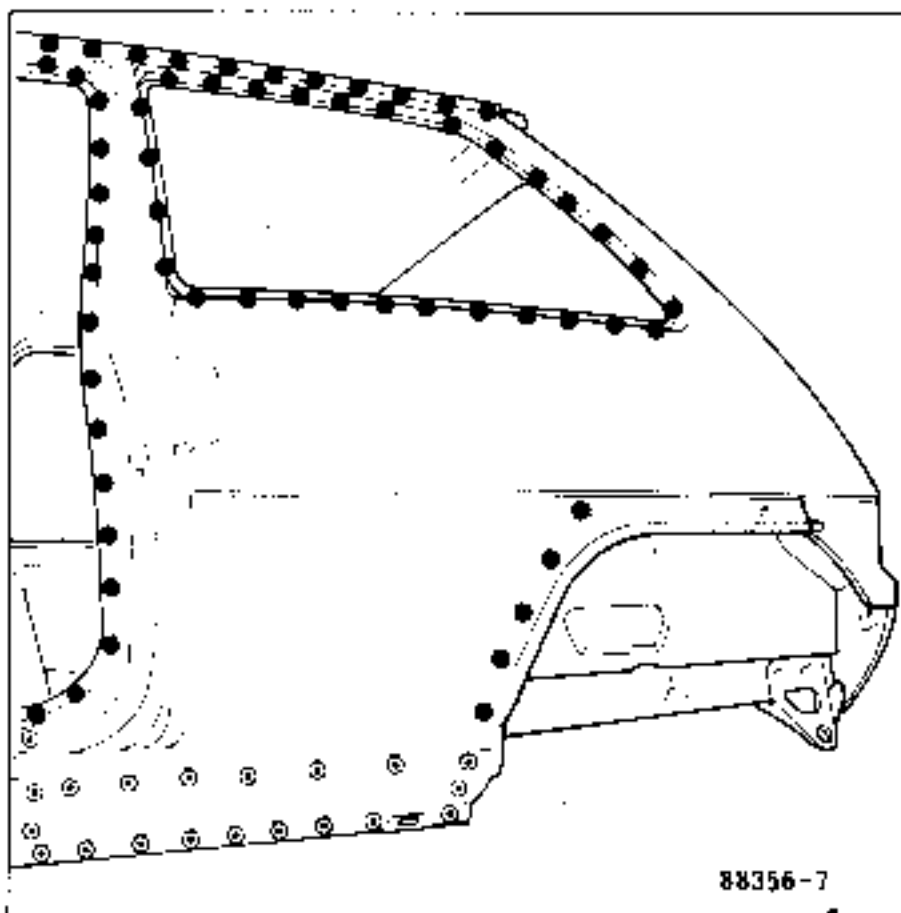
- Strip back, to the bare metal, the inner and outer faces of all the areas to be welded. (Both on the vehicle and on the new parts).
- Apply a coat of electroplastic mastic to the areas to be spot welded (see description of symbols at the beginning of this section).
- Apply zinc paint to the areas to be plug welded.
- Adjust the new part and secure it with grip clamps.



D = 4,5mm



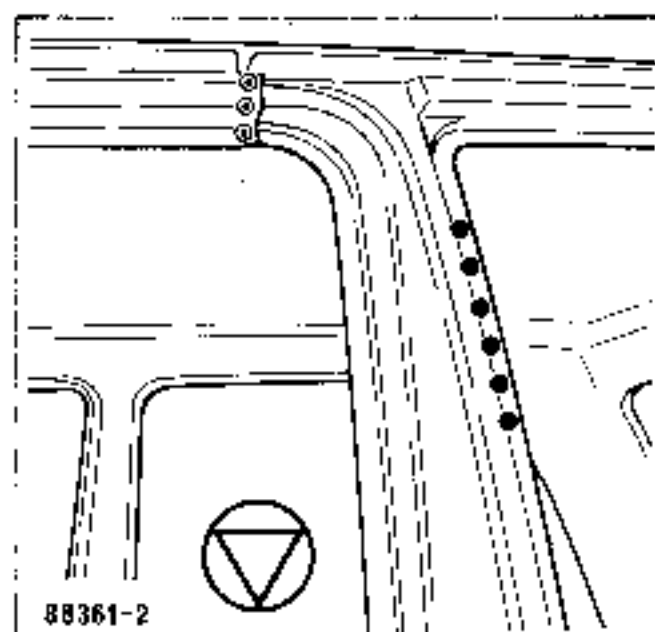
WELDING



$e = 1,4 \text{ mm}$
 $H = 35 \text{ mm}$



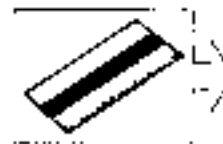
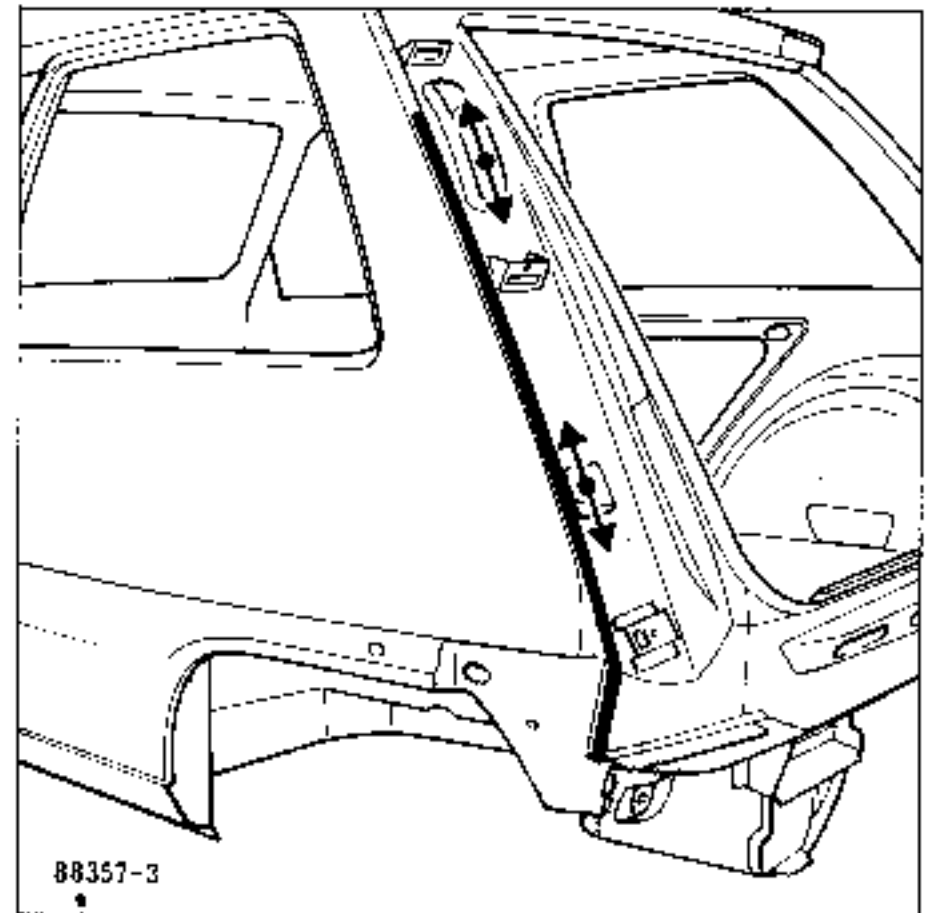
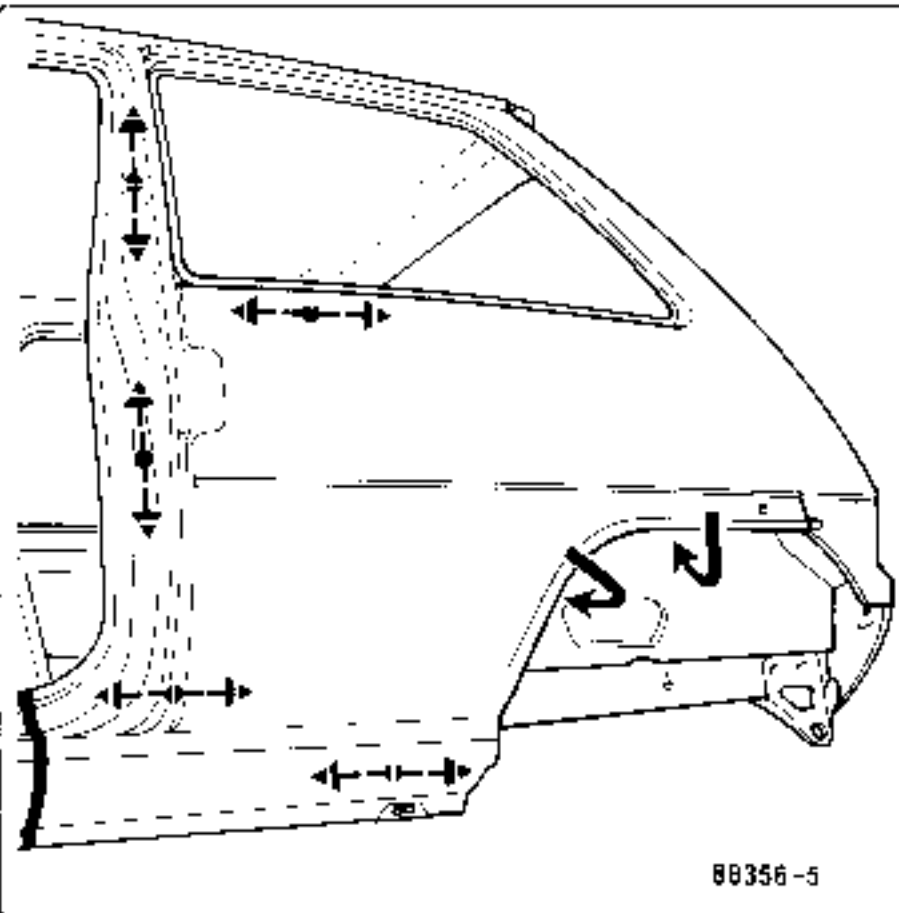
$D = 4,5 \text{ mm}$



PREPARATION PRIOR TO WELDING

- Strip back, to the bare metal, the inner and outer faces of all the areas to be welded. (Both on the vehicle and on the new parts).
- Apply a coat of electroplastic mastic to the areas to be spot welded (see description symbols at the beginning of this section).
- Apply zinc paint to the areas to be plug welded.
- Adjust the new part and secure it with grip clamps.

PAINTING



Carry out paint sequence No. 5 (See "Painting" section) followed by paint sequence No. 3



After painting apply hollow section protective treatment through the inside holes near the areas which have been welded.

NOTE :

It is important to spray anti-chipping mastic under the new wheel arch.

DAMAGE DIAGNOSIS

Compare the following diagonals :

A1 - B2

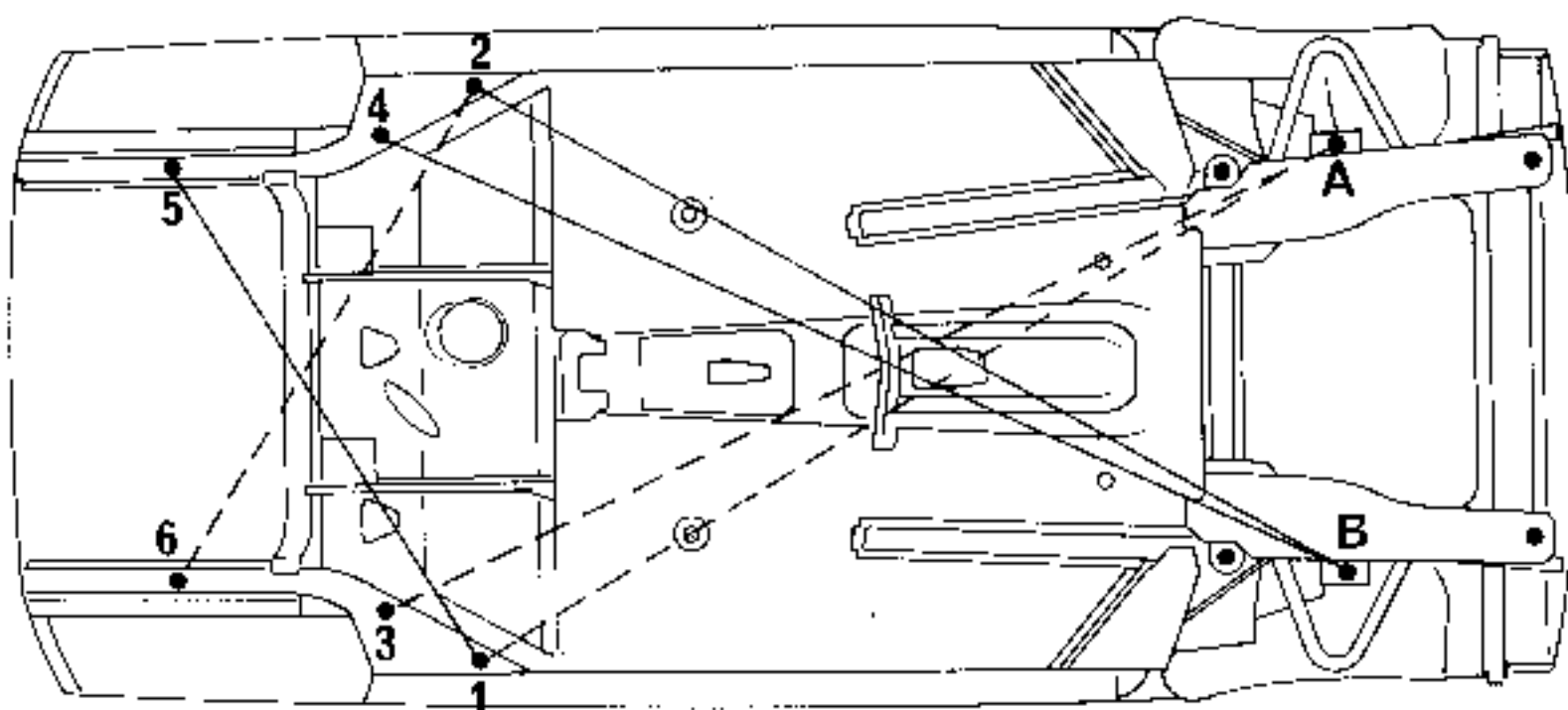
A3 = B4

- If any difference is noted during this check, the vehicle must be placed on the body jig.

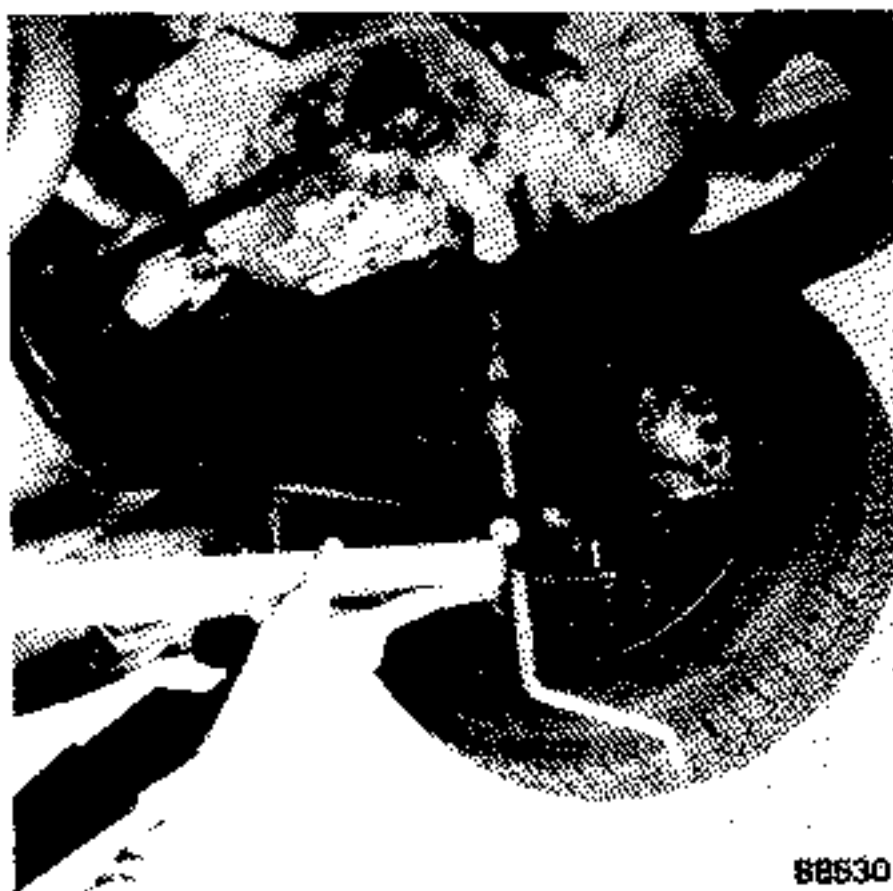
Compare the diagonals :

1-5 = 2-6

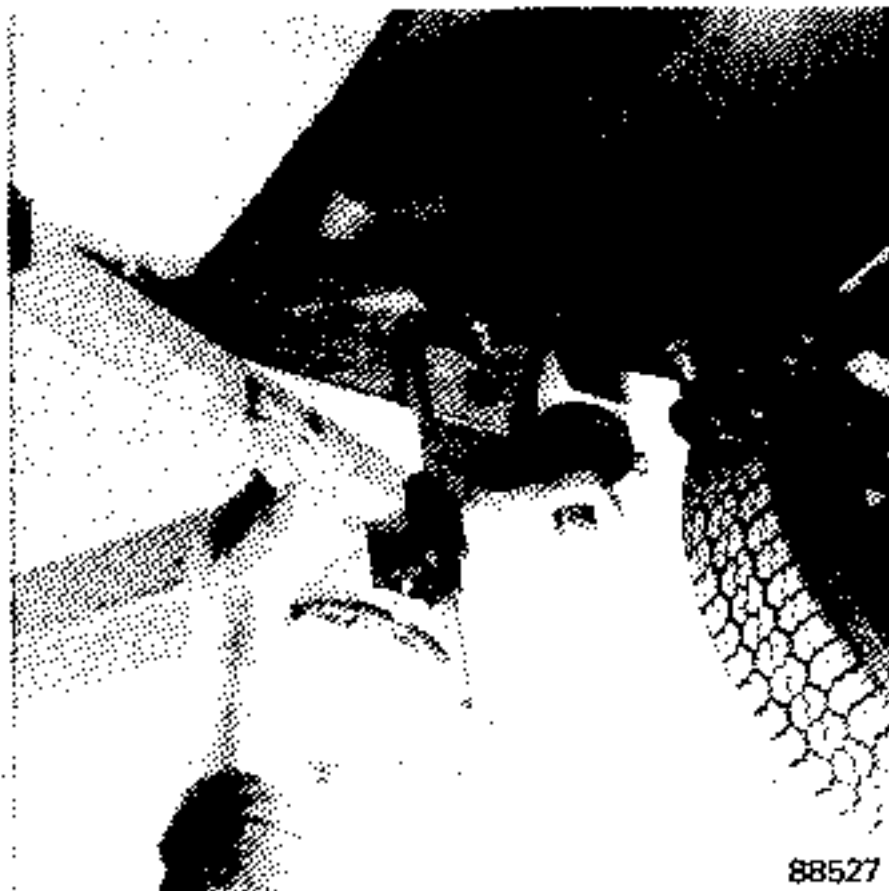
- If any difference is noted, it is not necessary to place the vehicle on the body jig.
- But it is necessary to check the axle geometries.



88524



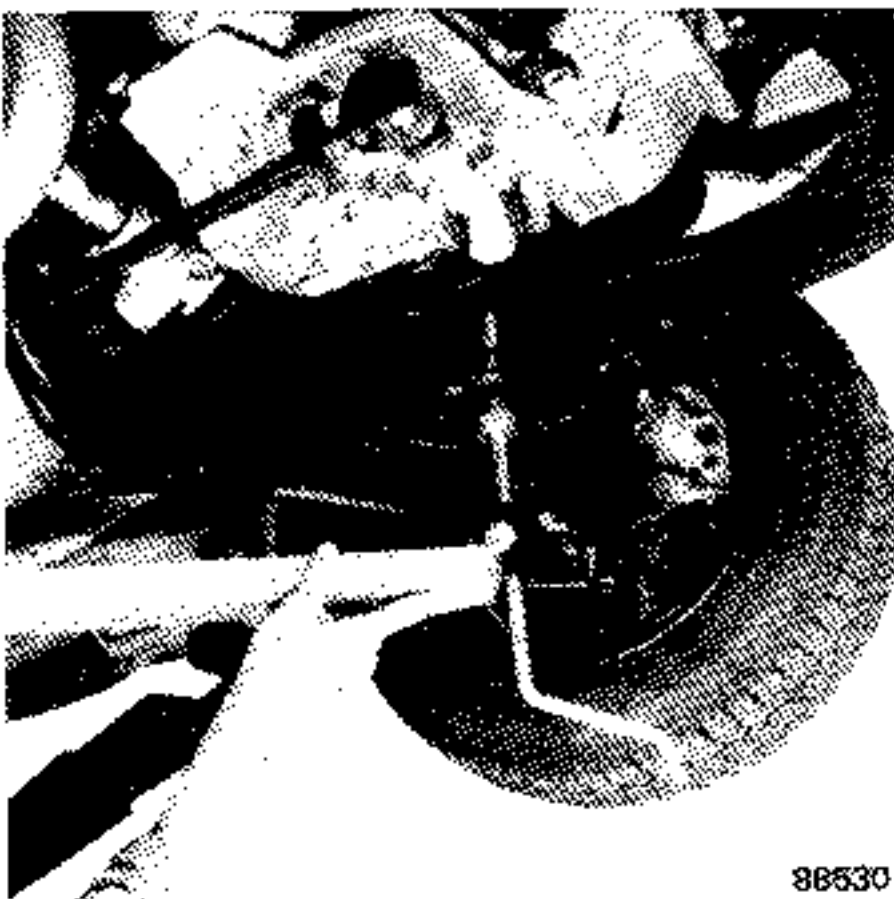
88530



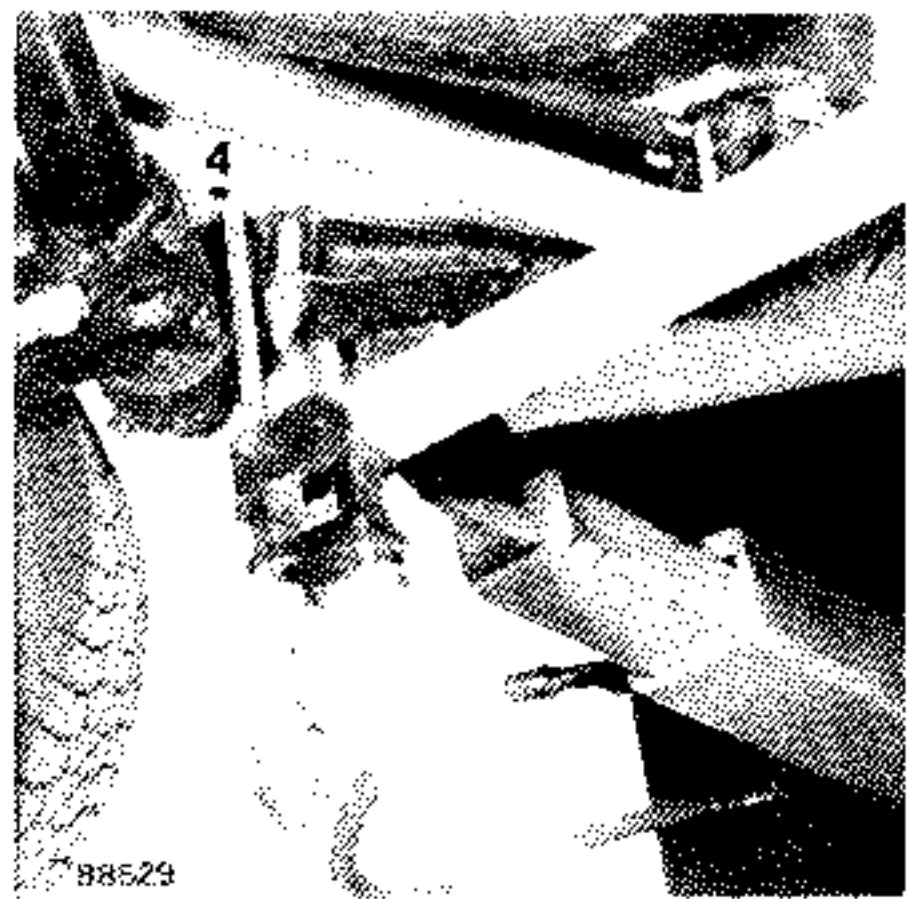
88527

CHECKING THE DIAGONALS A1 = B2

DAMAGE DIAGNOSIS



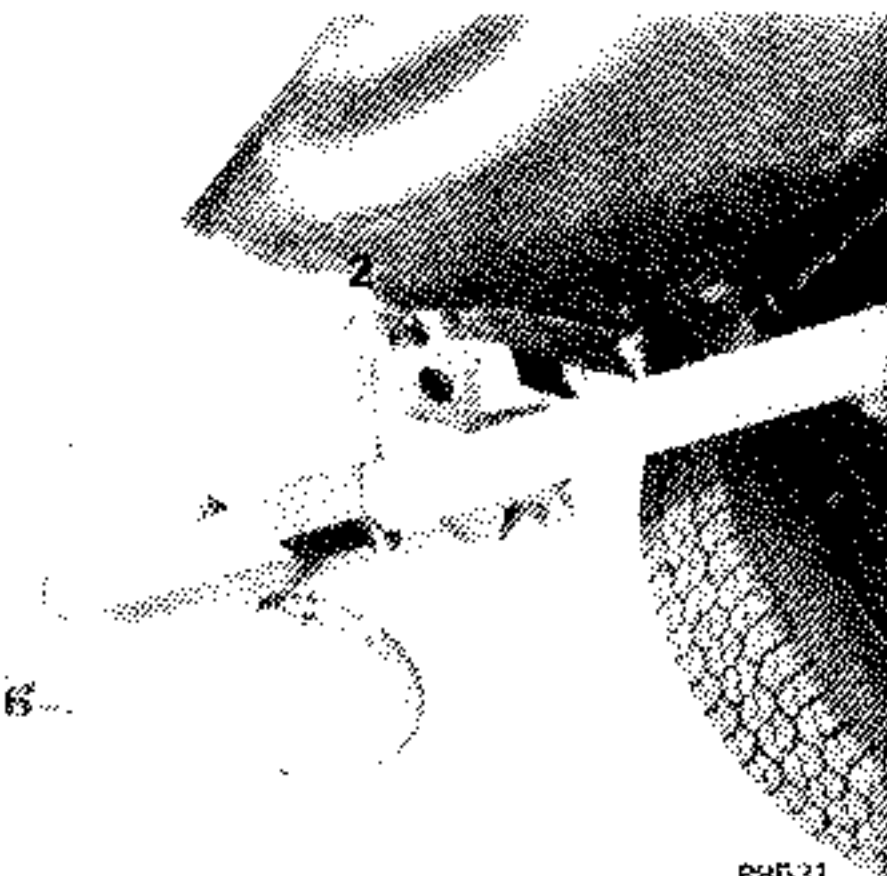
88530



88529

CHECKING THE DIAGONALS $A3 = B4$

The positions of the ends of the side members are to be checked by comparing diagonals $1-5 = 2-6$



88531

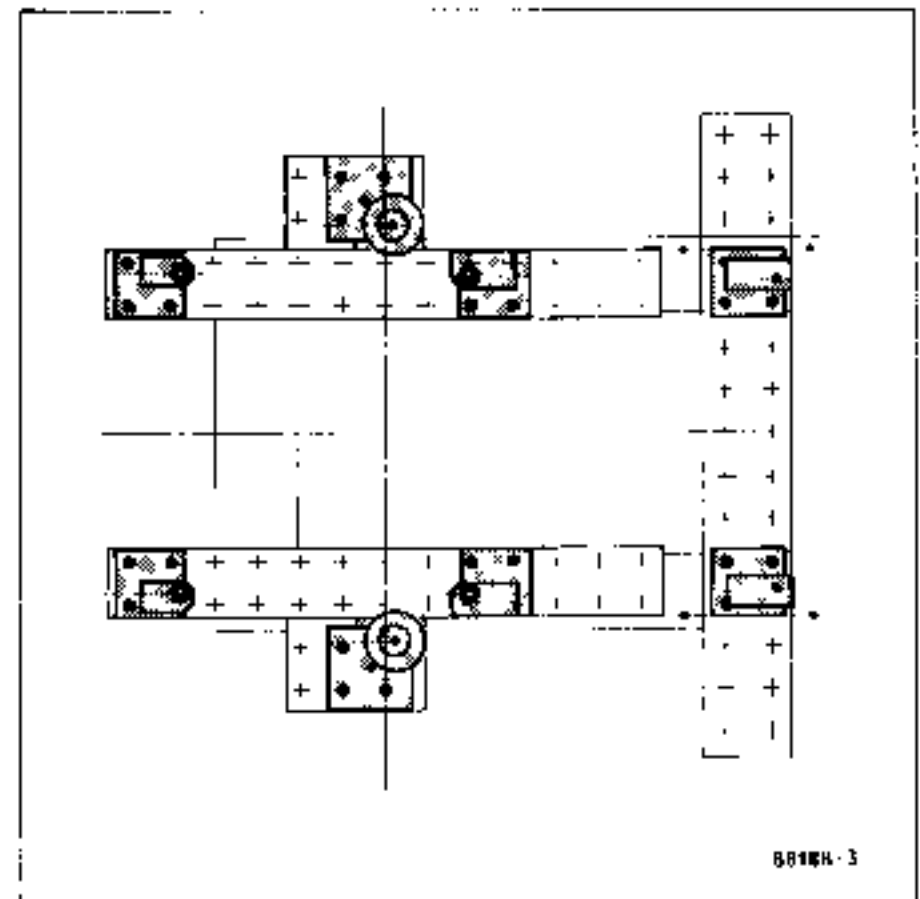
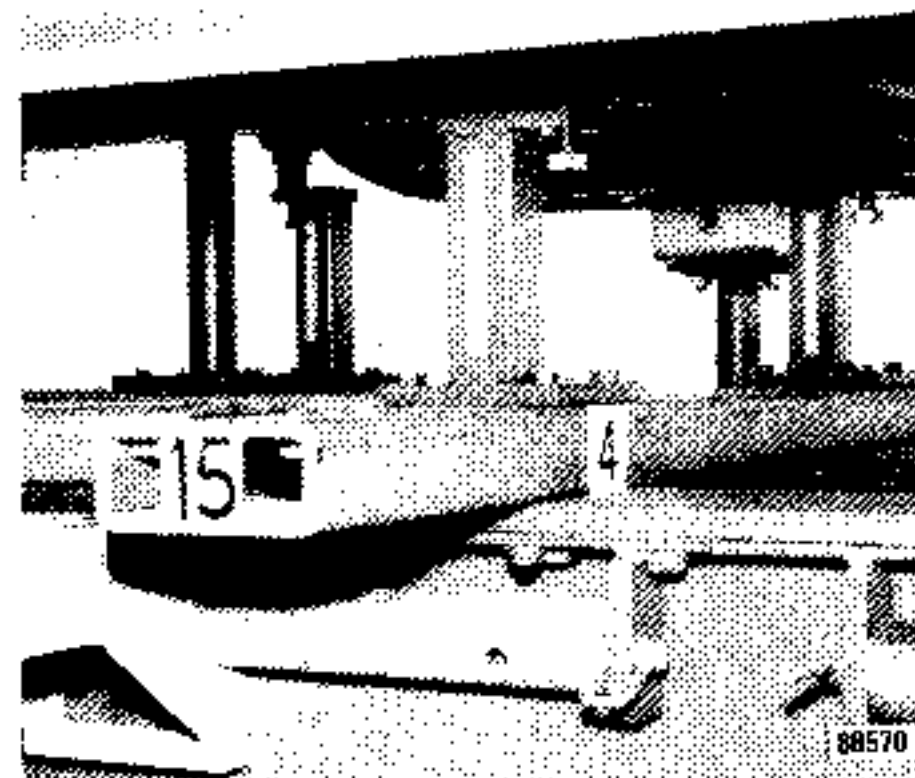
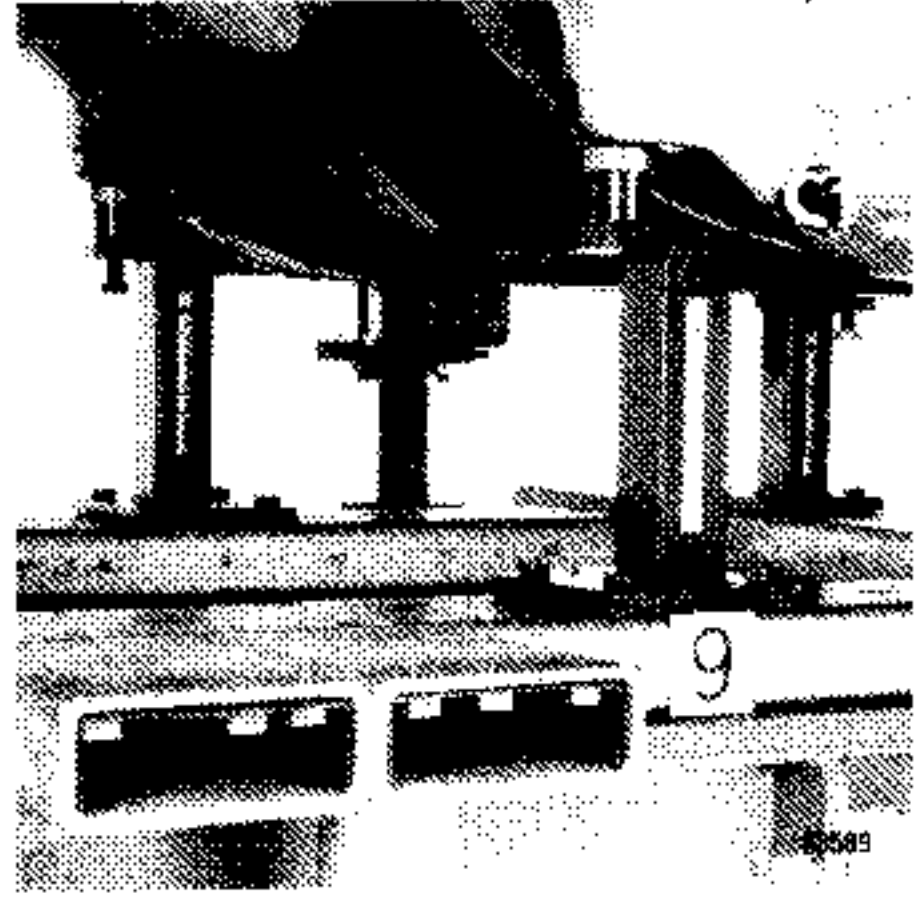
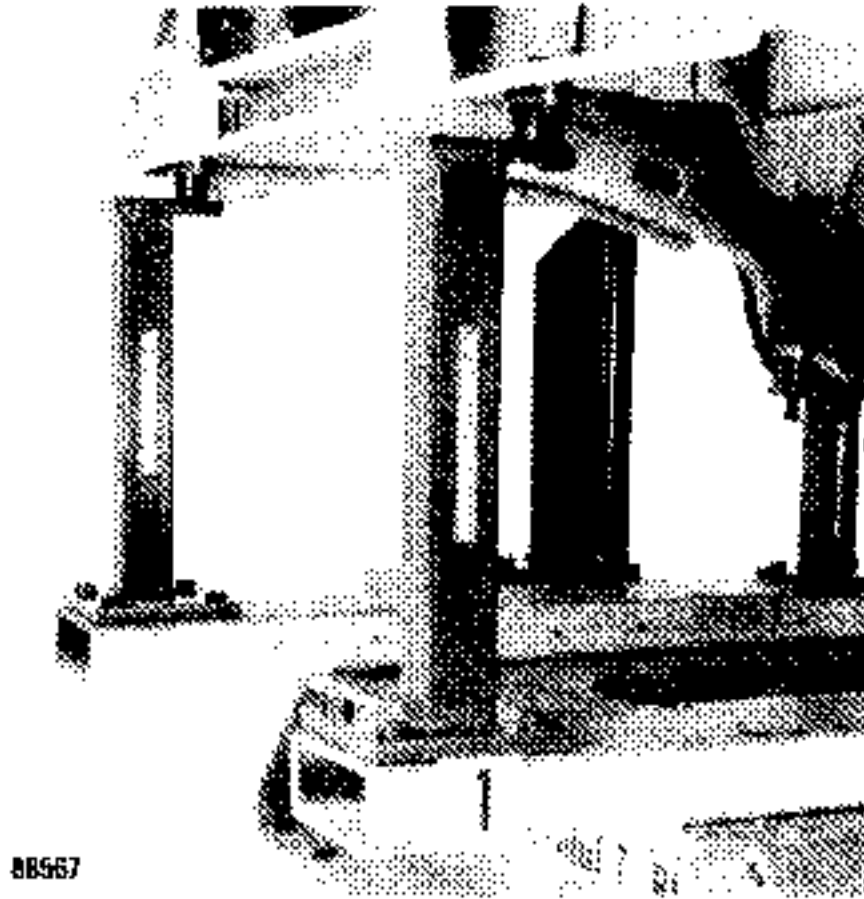


88528

CHECKING THE DIAGONALS $1-5 = 2-6$

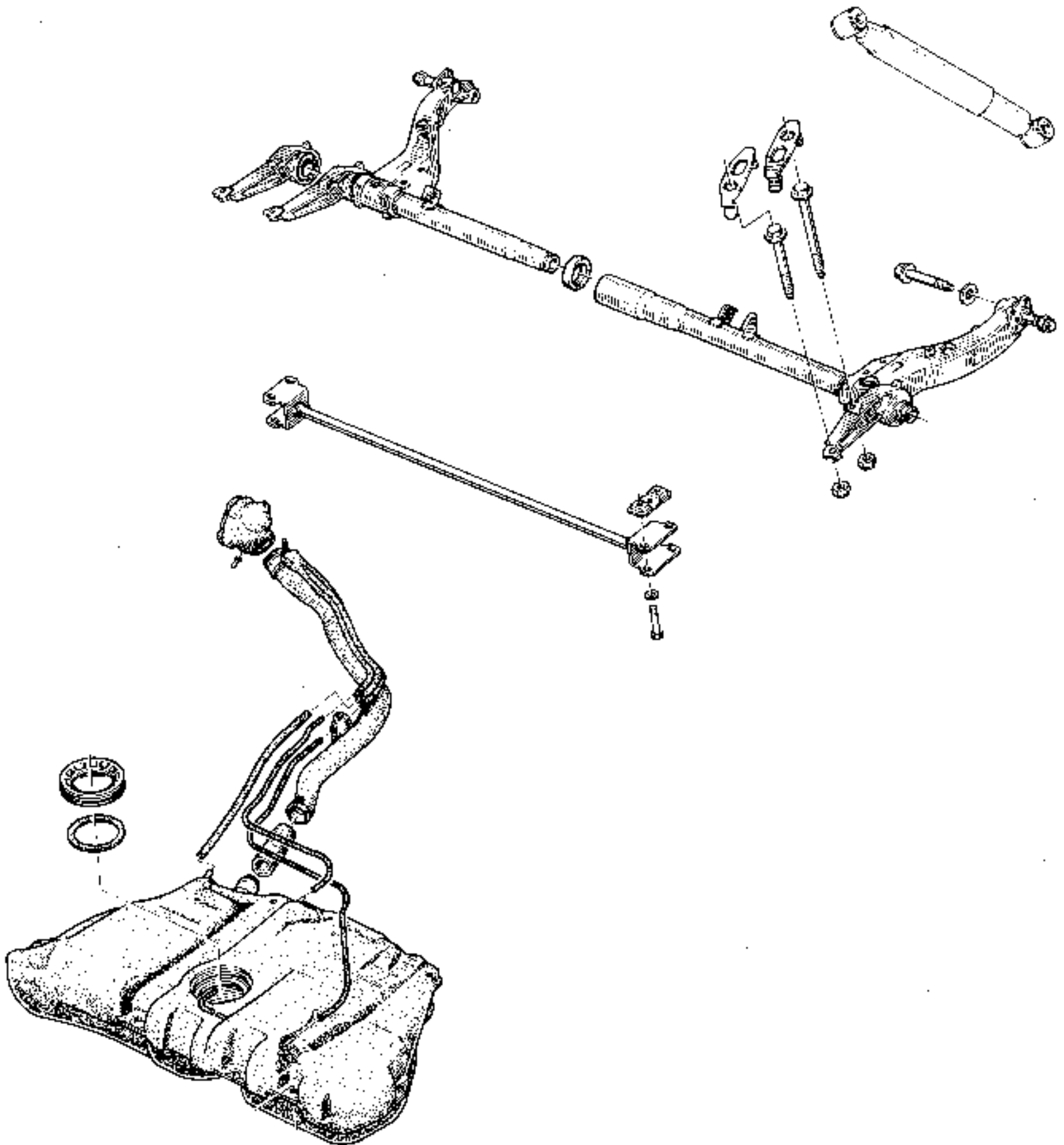
THIS OPERATION IS CARRIED OUT ON THE BODY JIG

FRONT SECTION



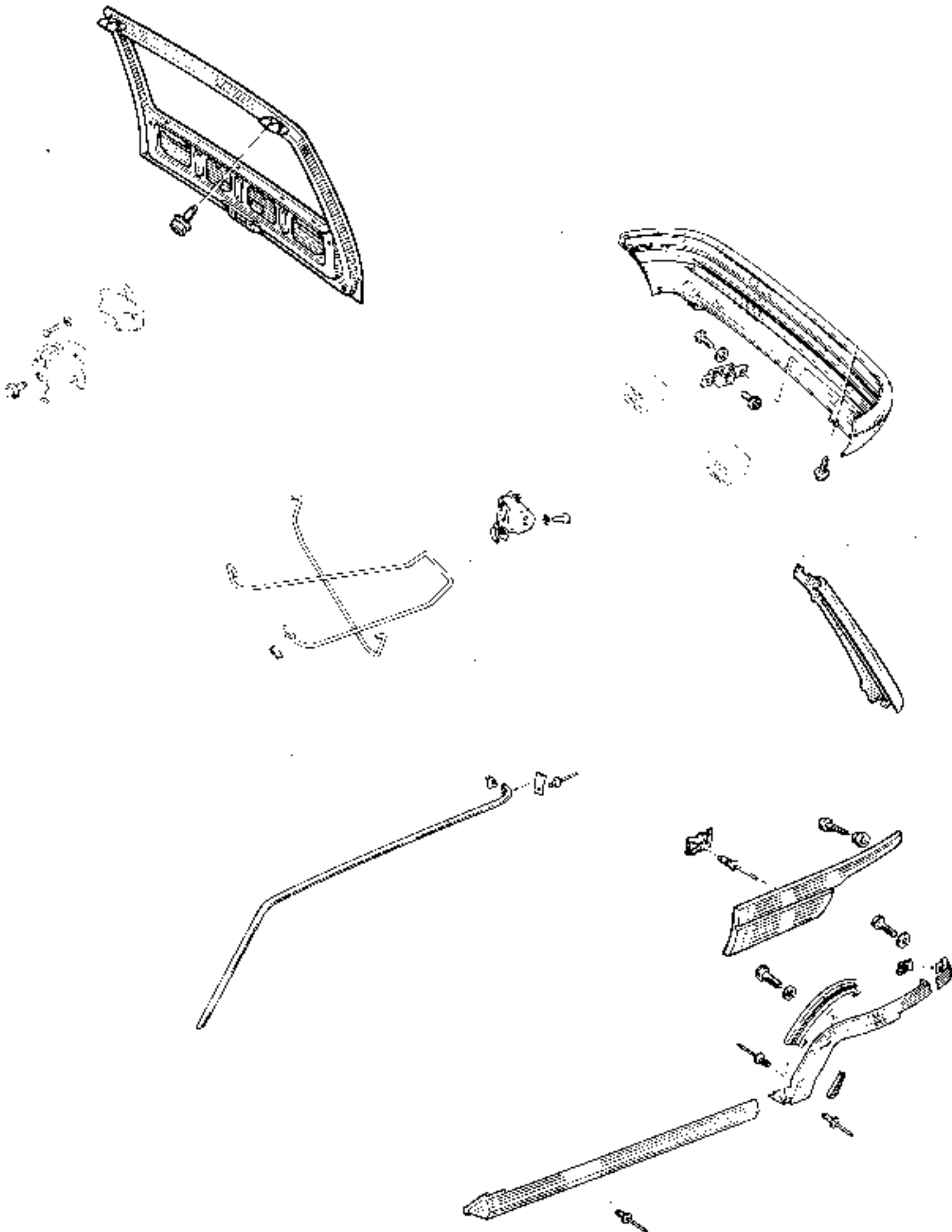
STRIPPING

All these parts are to be placed in a trolley bin.



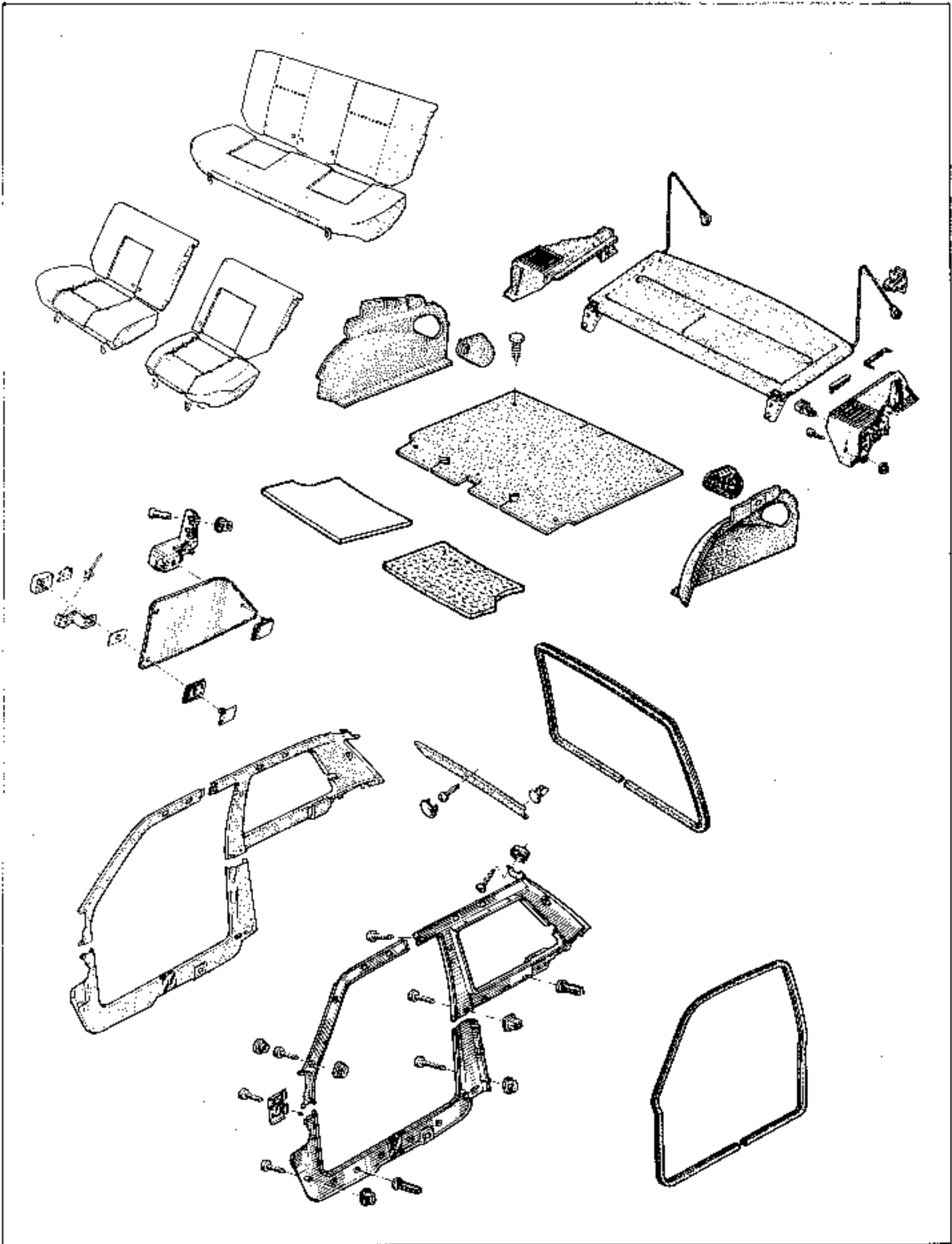
STRIPPING

All these parts are to be placed in a trolley bin.



STRIPPING

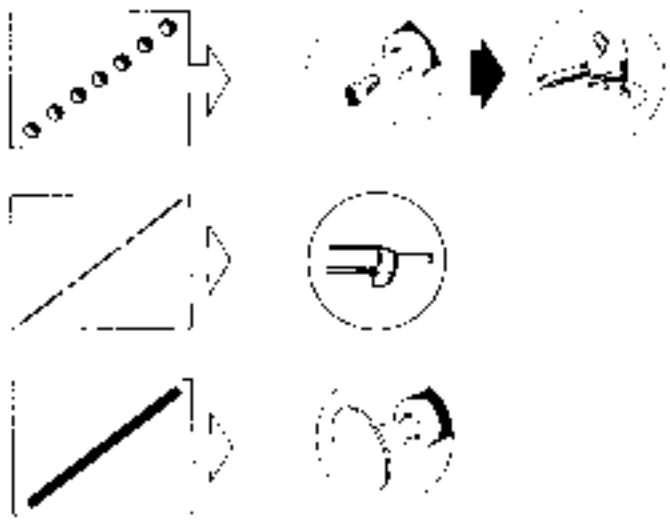
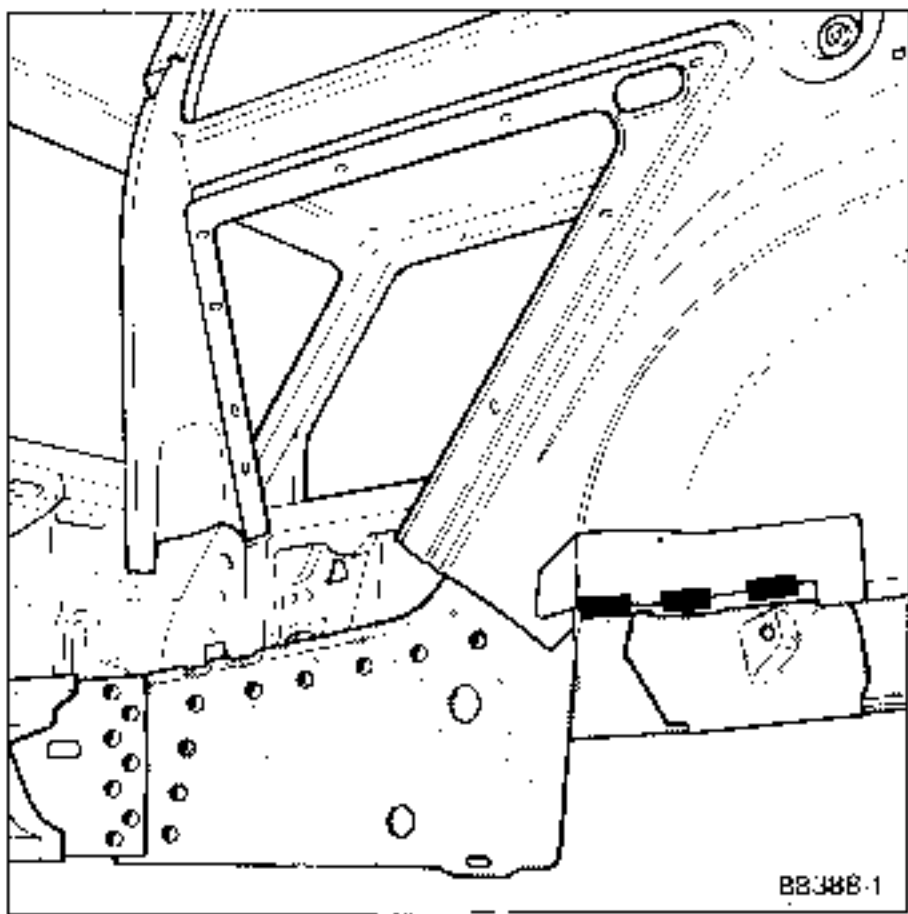
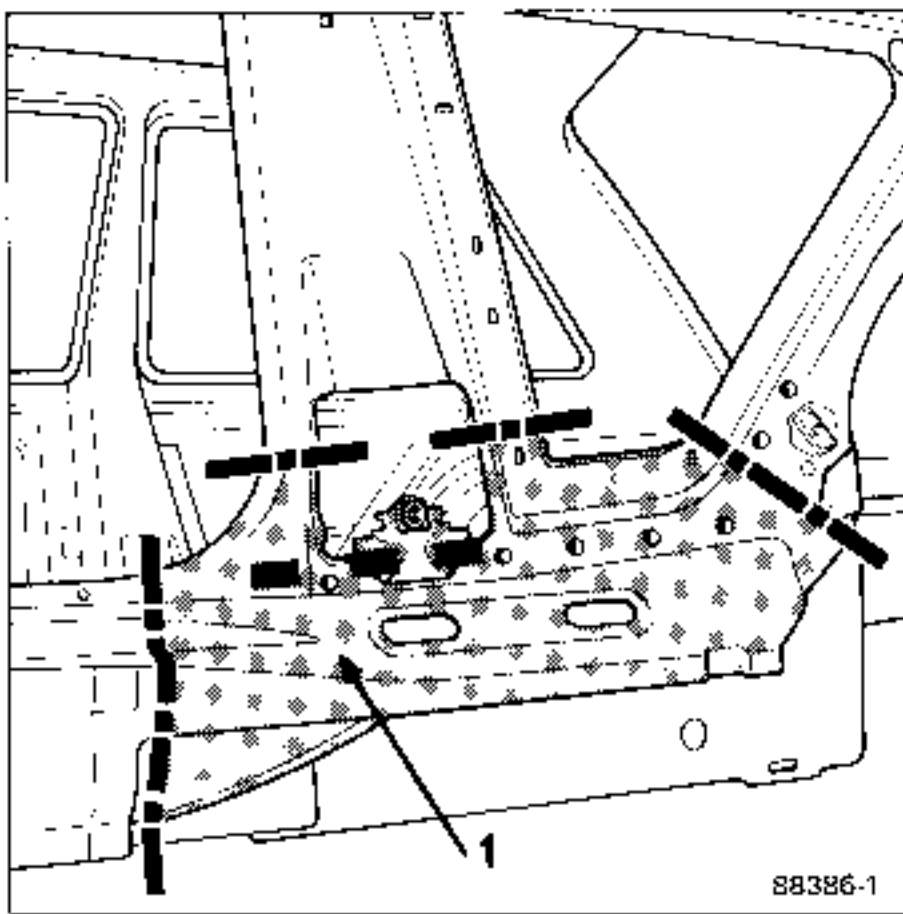
All these parts are to be placed in a trolley bin.



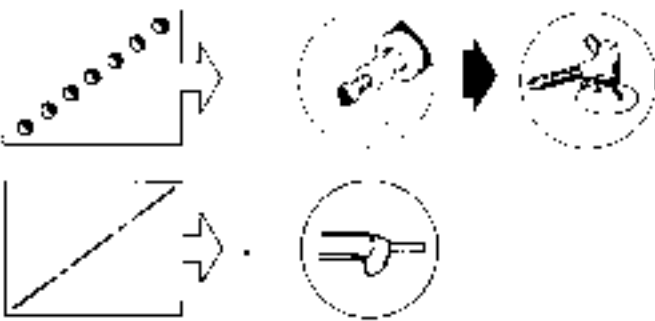
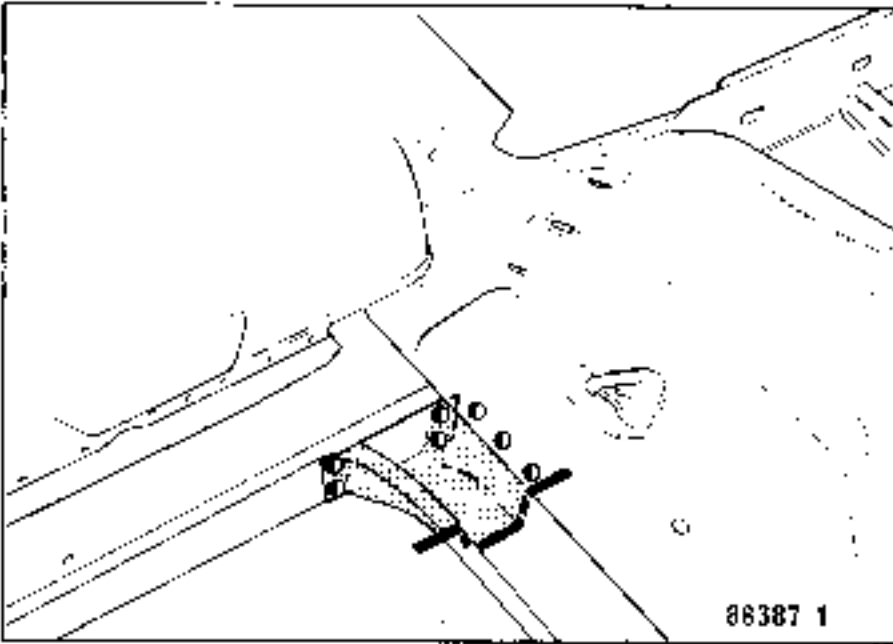
After first removing the rear end panel, part of the floor, the wing panel and the wheel arch (see corresponding section).

This operation is additional to the combined replacement of the rear end panel-floor type 2 - part of the rear wing.

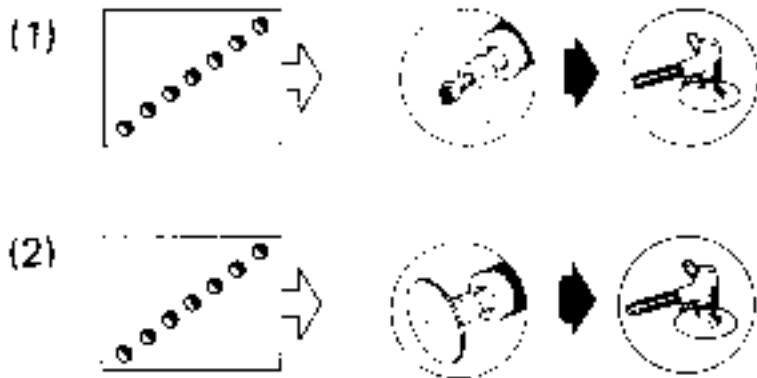
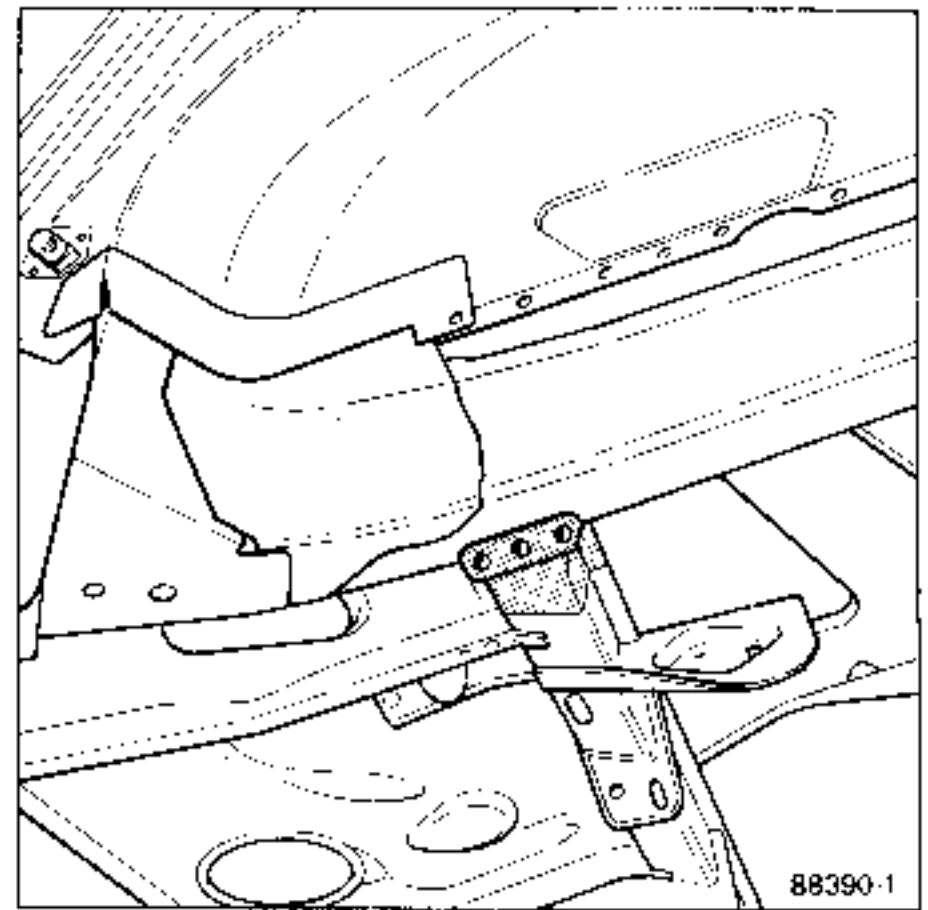
CUTTING - JOINT SEPARATION



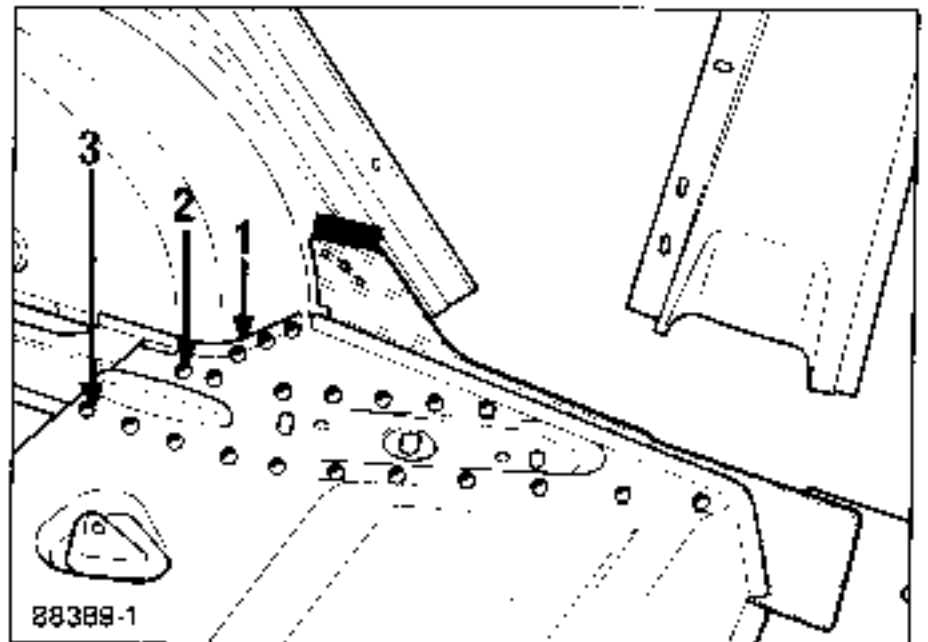
Note : Part (1) is to be removed cleanly as it will be refitted at the end of the operation. To do this, cut out the spot welds with a conical cutter.



Note : this part of the cross member is also to be retained.

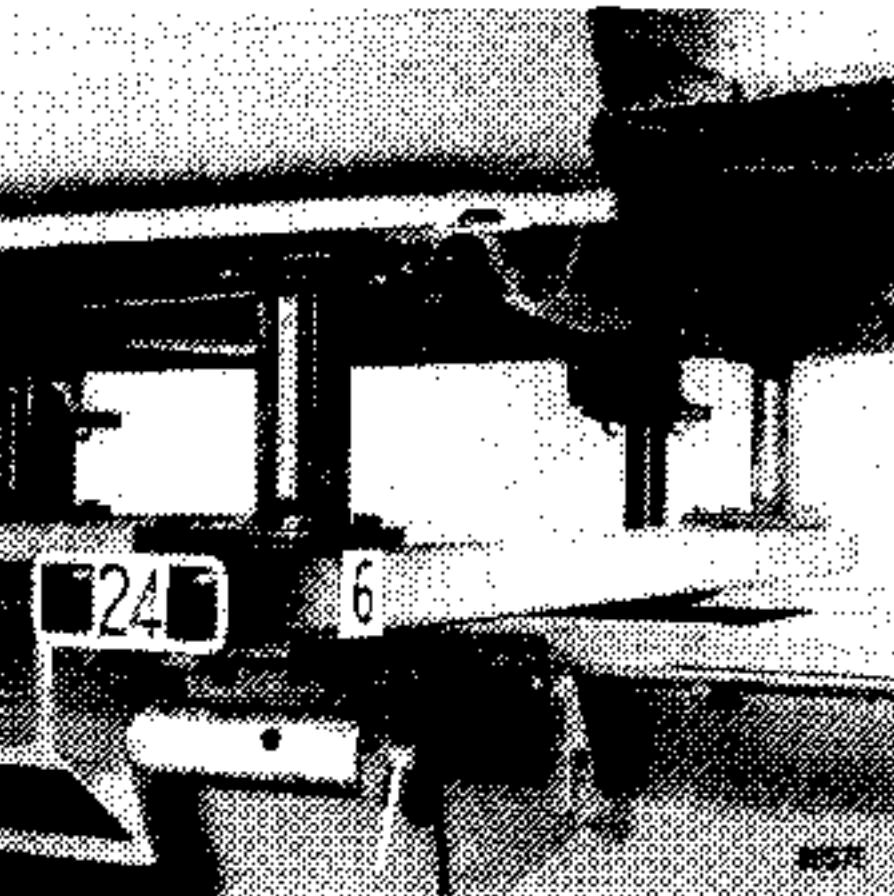


(3) Use a conical cutter.

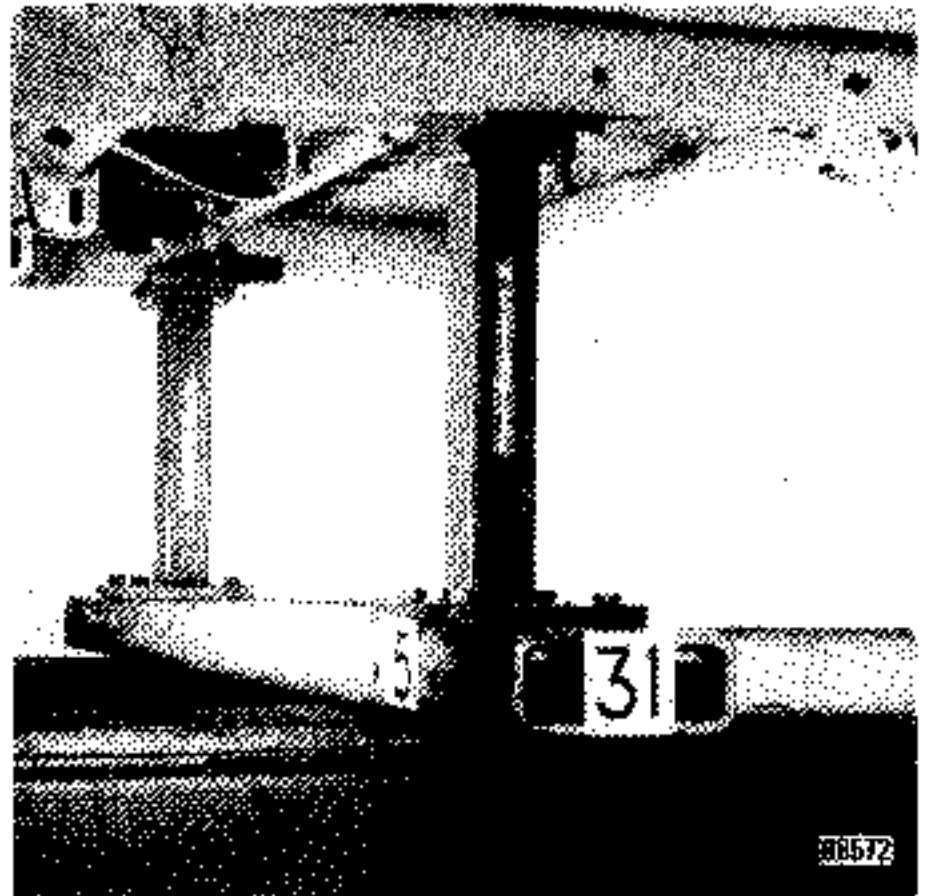


PREPARATION PRIOR TO WELDING

- Strip back, to the bare metal, the inner and outer faces of all the areas to be welded. (Both on the vehicle and on the new parts).
- Apply a coat of electroplastic mastic to the areas to be spot welded (see description of symbols at the beginning of this section).
- Apply zinc paint to the areas to be plug welded.
- Adjust the new part and secure it with grip clamps.

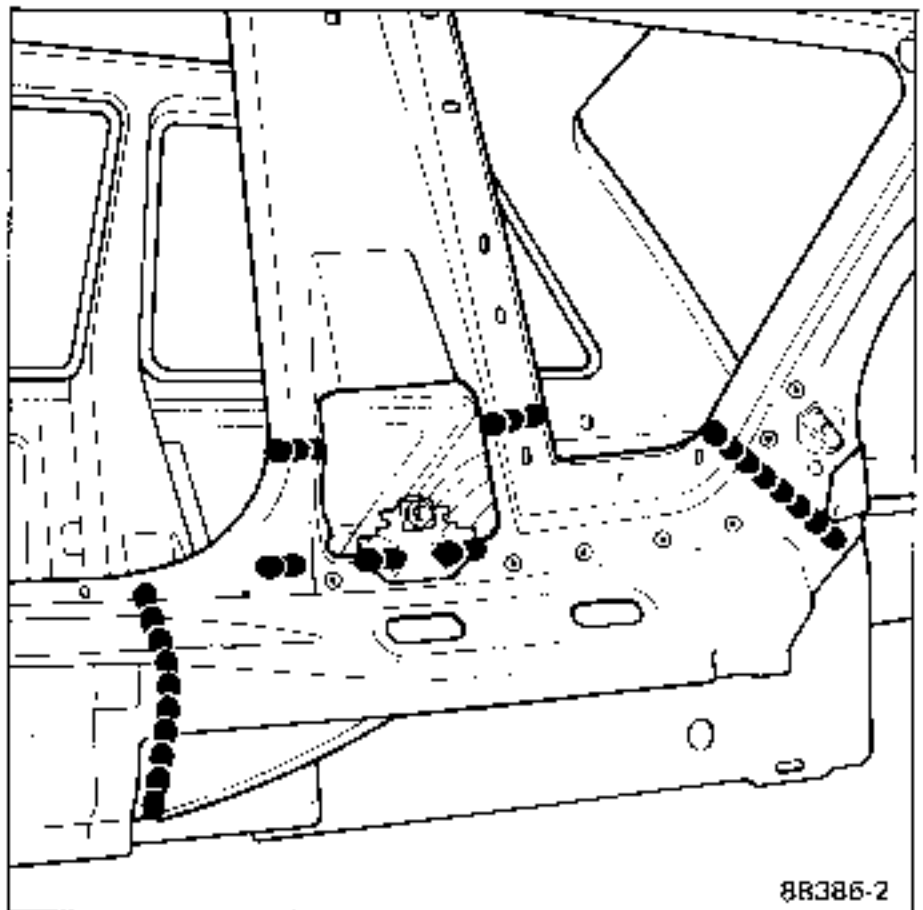
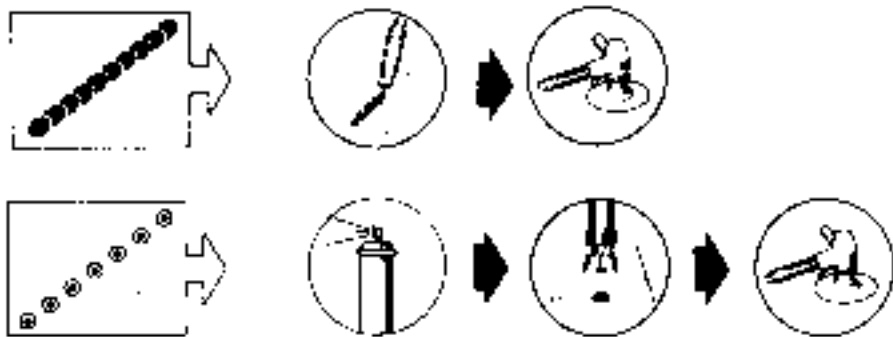
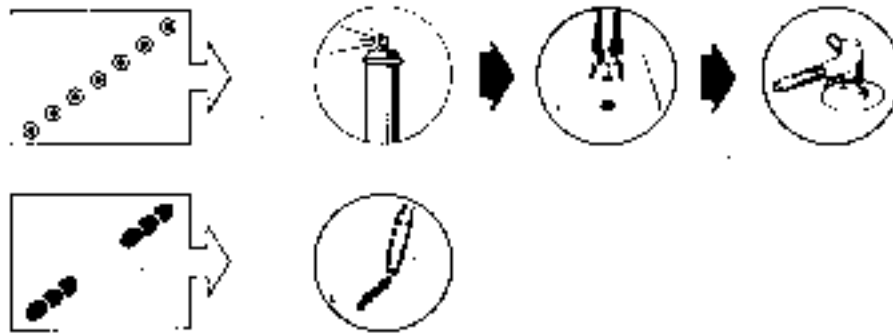
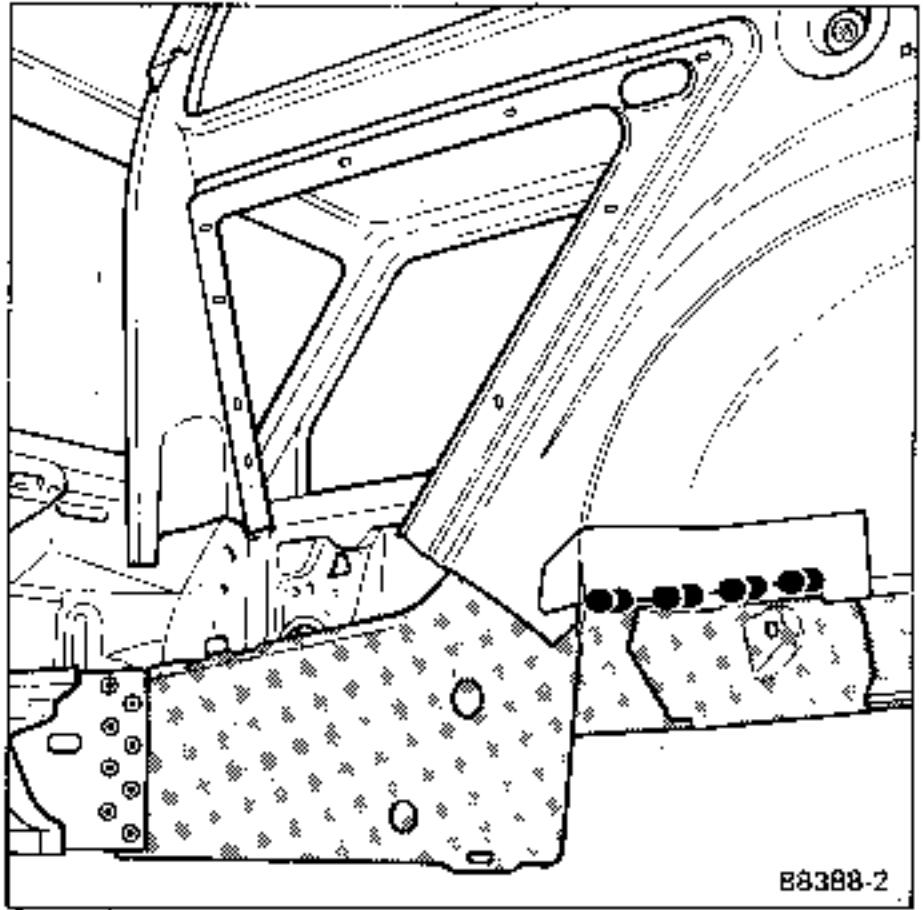
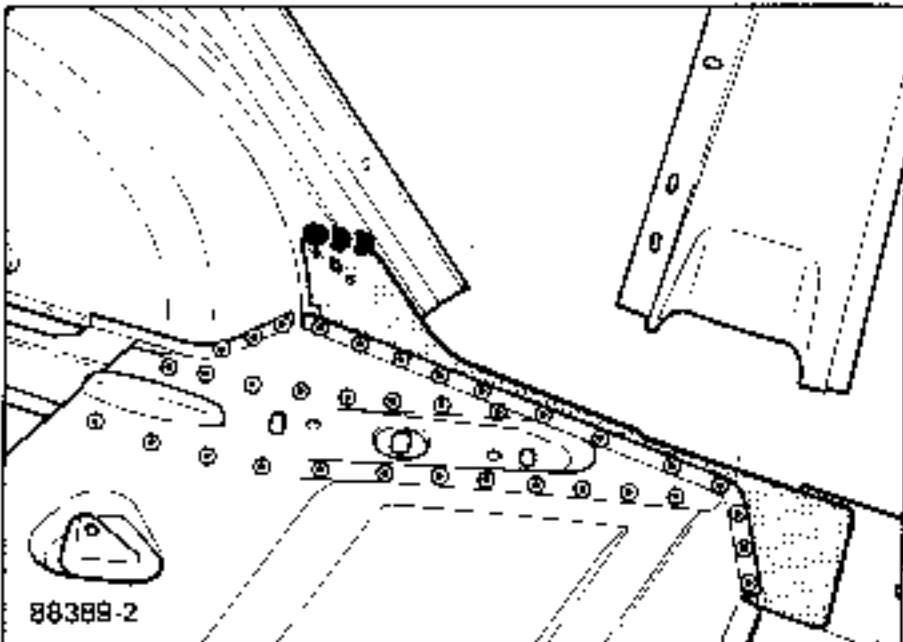


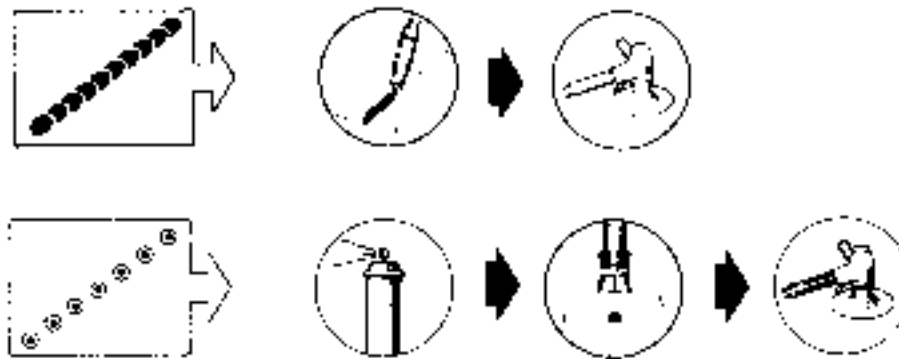
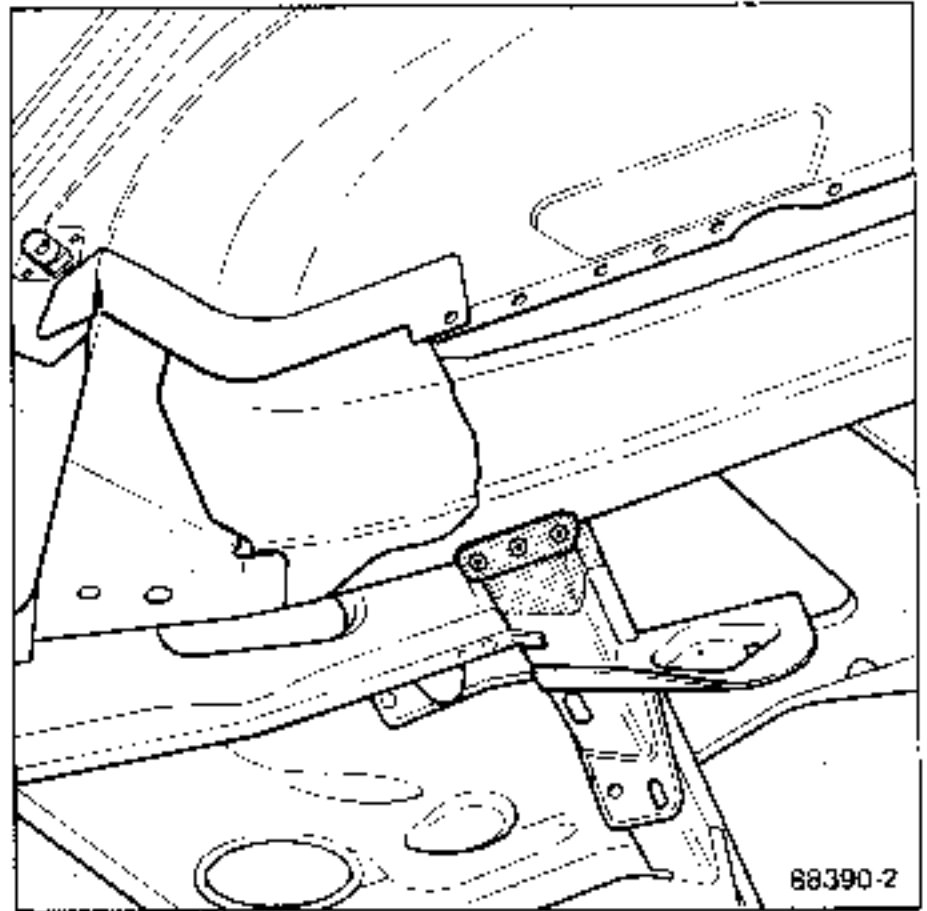
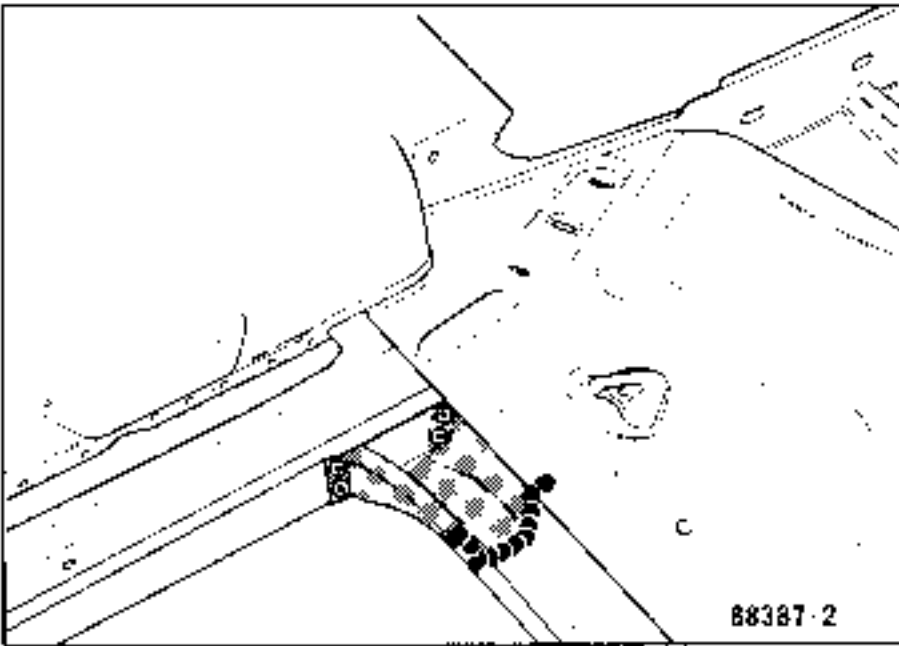
Fit jig bracket no. 5



Fit jig bracket no. 6

WELDING



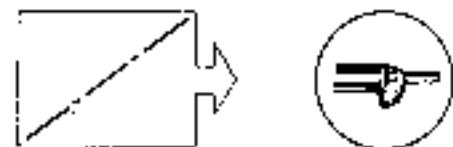
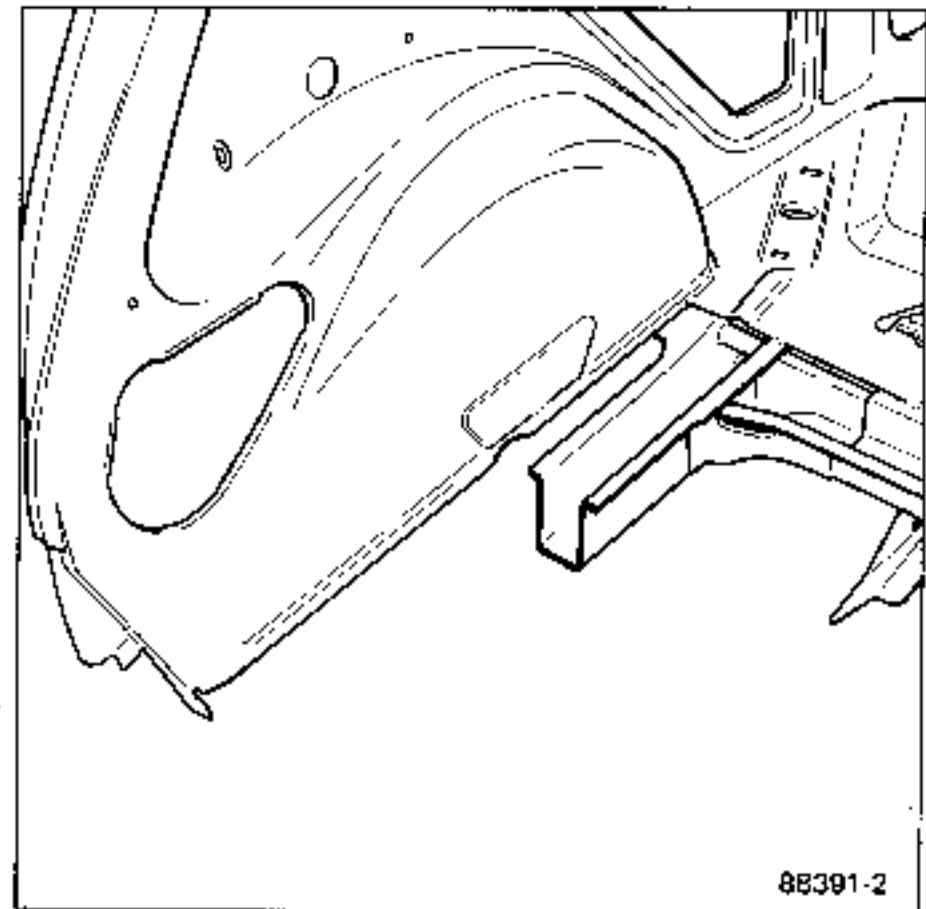
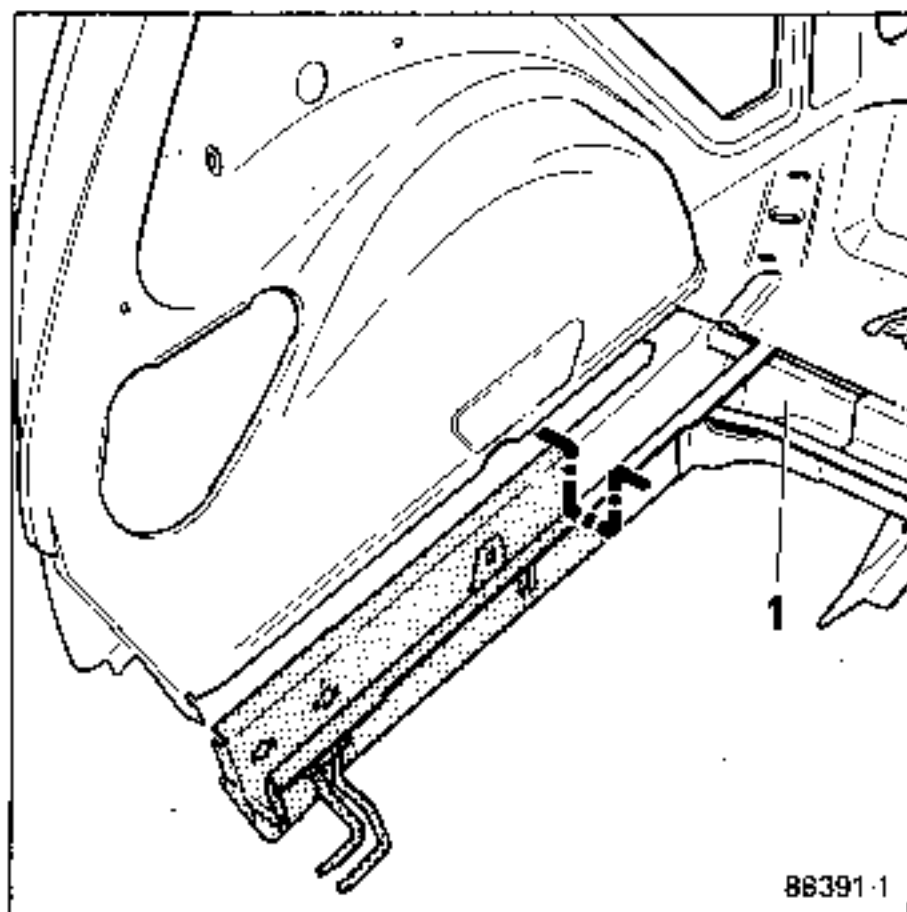


PAINTING : after refitting the rear end panel, part of the floor, the wing panel and drip channel (see corresponding section), spray on a coat of anti-chipping mastic.

After painting, apply hollow section protective treatment inside the side member and the cross member.

If it is found, on inspection (see this section) that the mechanical unit securing points have remained intact, this operation can be carried out without using the body jig.

CUTTING



NOTE :

If the distortion has extended past the cross member (1) it is essential that the entire side members should be replaced.

- Remove the damaged section by following the methods represented by the above symbols (see description of symbols).

PREPARATION PRIOR TO WELDING

- Strip back, to the bare metal, the inner and outer faces of all the areas to be welded.

PREPARING THE NEW SIDE MEMBER

Cut a section, from the new side member, 20 mm longer than the part cut out.

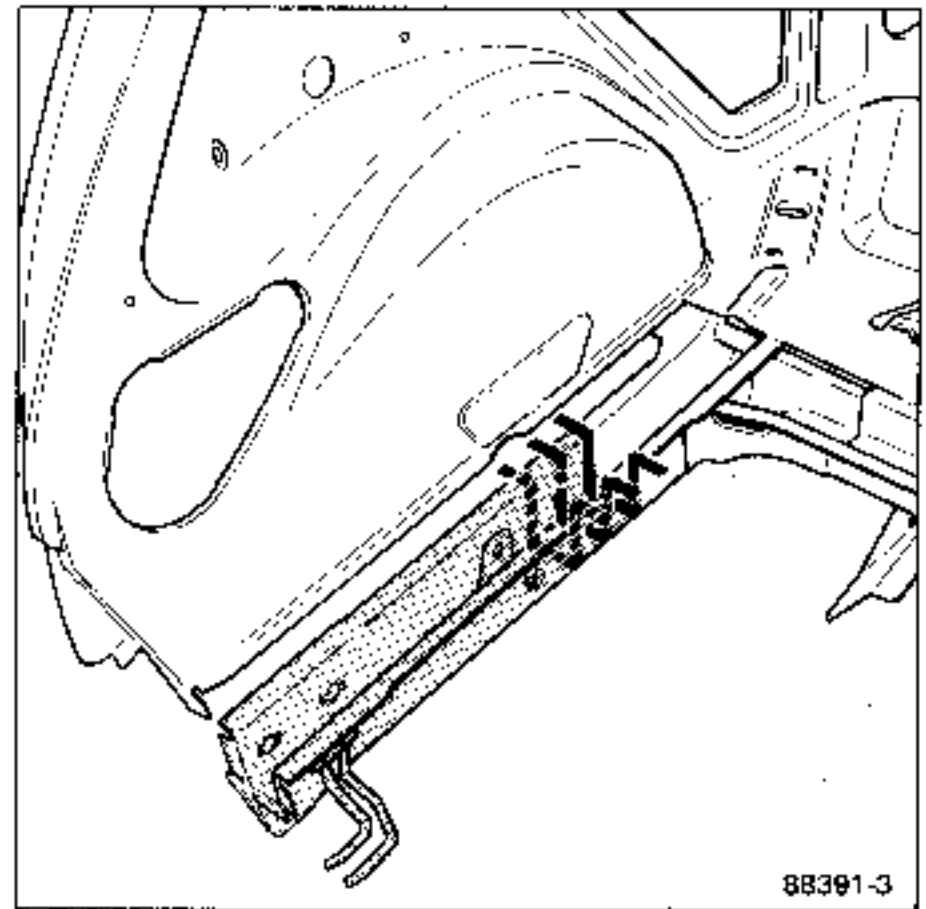
- Fit the new part so that it overlaps the original part on the vehicle and secure it with grip clamps.

Superimpose the two side members. Check the height and length against the side member on the opposite side either with a rule, over a flat floor, or visually.

- Saw through both thicknesses of metal simultaneously to make adjusting the joint easier.

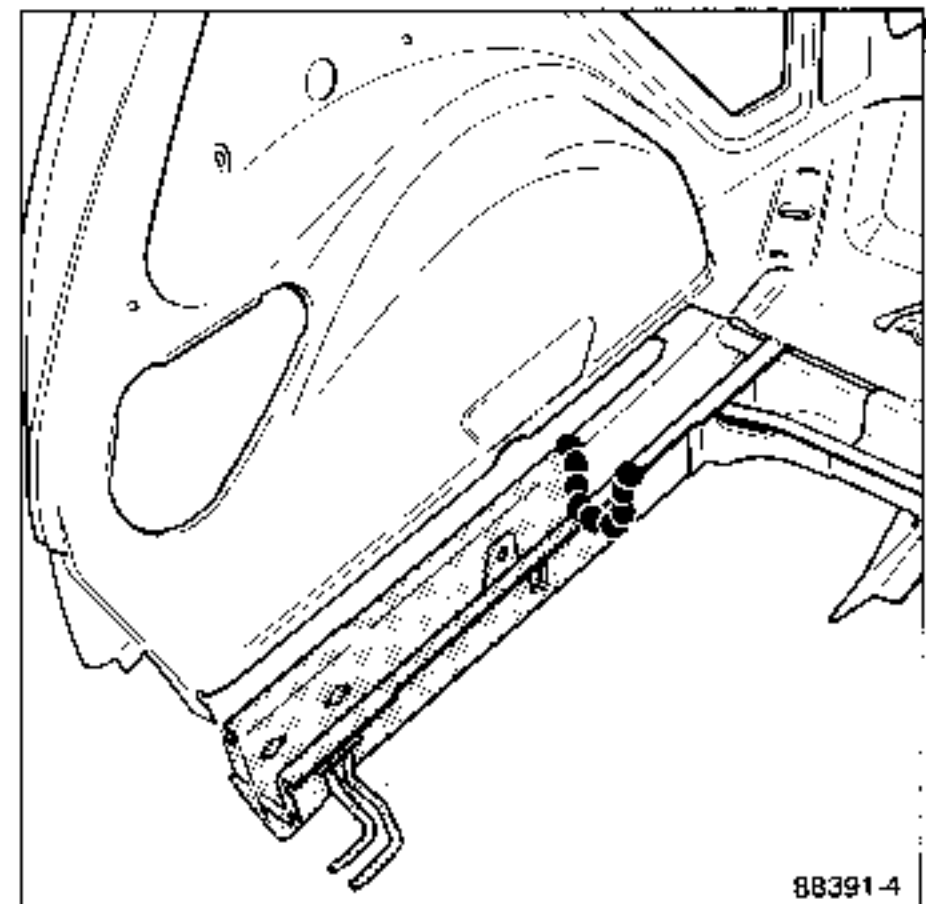


- Adjust the new part and secure it with grip clamps.



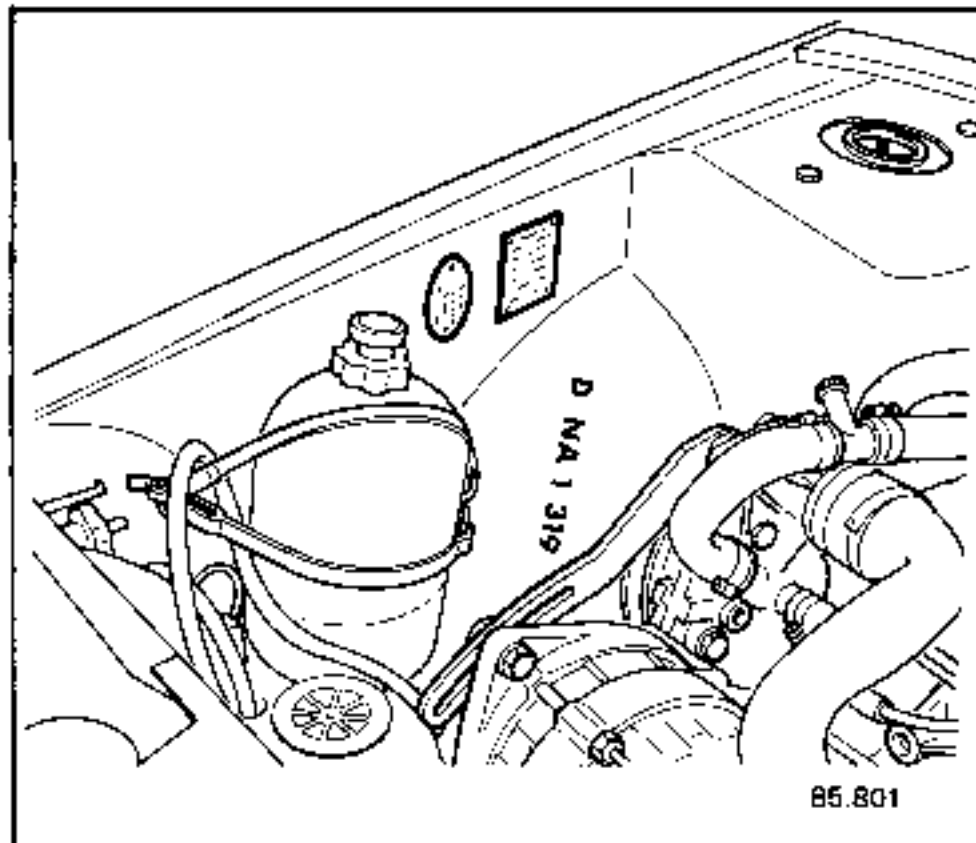
WELDING

- Apply the stitched fillets using the gas envelope welding process.



A/INK STAMP

The paint applied in production is identified by a code stamped on the upper part of the right hand cowl side.



1^o - One or more letters indicate the paint type

S	Synthetic	VR	Super gloss (HERBOL)
A	Acrylic (solution)	VRR	Super gloss (RENAULT)
NA	High quality acrylic (NAD dispersion)	VRV	Super gloss (VALENTINE)
		VRU	Super gloss (URUZOLA)

2^o - A number (1 or 2 figures) which is the supplier's reference number

1	Renault	11	Sikkens
2	Nitrolac	12	Rinshed Mason
3	Valentine	13	Corona
4	Ripolin	14	Herberts
5	Duco	15	Semelac
6	Villemer	16	Glasurit Herbol
7	Dupont de Nemours	17	Bolling Kemper
8	Soudee	18	Blancome
9	Astral	19	Levis
10	ICI	20	Uruzola

3^o - A letter showing where the vehicle was built :

F	Flins	D	Douai	D.S	Dunstable (RVI)
LH	Sandouville	V	Valladolid (Spain)	D.P	Dieppe
C	Creil	P	Palencia (Spain)	V.V	Villa Verde (Spain)
H	Haren	N.M	Novo Mesto (Yugoslavia)	B.L	Blainville (RVI)
B	Billancourt	S.T	Setubal (Portugal)	B.G	Bourg (RVI)
M	Maubeuge	B.T	Batilly		

4° - A 3 figure number shows the colour reference

OPAQUE	NAD
WHITE	355
SCHIST	402
AZURE BLUE	466
MOSS	914

The first figure indicates the colour :

- | | |
|---------------------------|--------------------|
| 1 - Beige | 6 - Grey and black |
| 3 - Yellow, white, orange | 7 - Red |
| 4 - Blue | 9 - Green |

5° - For certain factories, dots identify the assembly line

EXAMPLES :

High grade
acrylic paint

Supplier Corona

NA	13	M	353
----	----	---	-----

Butter cup
Yellow

Assembly factory : Maubeuge

Assembly factory :
DOUAI

High grade
acrylic paint

D	NA	1	725
---	----	---	-----

Jasper Red

Supplier : Renault

Renault super gloss

Valentine base

VRR	3	F	153
-----	---	---	-----

Topaze Beige

Assembly factory : Flins

Herbol super gloss

Renault base

VR	1	LH	477
----	---	----	-----

Sapphire Blue

Assembly factory : Sandouville

High grade
acrylic paint

NA	1	F	921
----	---	---	-----

Line 6

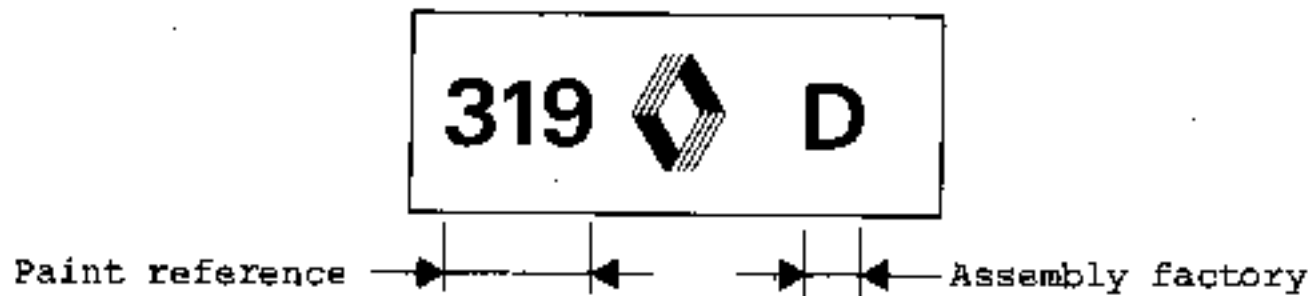
Supplier
Renault

Factory
Flins

Green

B/SELF ADHESIVE LABEL

From the 1983 model year, the paint identification code is no longer applied by an ink stamp. A self-adhesive label is now used stating the paint reference and the factory at which the car was assembled. The label is stuck in the same place as the former ink stamp.



HEALTH AND SAFETY INSTRUCTIONS

A/HEALTH

- The special polyurethane mask must be worn.
- The paint booth must be clean and fulfil the requirements of current legislation (air flow velocity 0,5 m/sec.).
- Clean, dust-free overalls must be worn for spraying.
- Never use thinners for washing the hands (cracking, allergy etc.).

B/SAFETY

- If the vehicle is to be stoved or if paint is to be dried with infra-red panels, we recommend that plastic trim (radiator grille, door handles, rear lights, drip channel trim etc.) be protected either with covers or with damp cloths, or should be removed.
- Earth the vehicle.
- No pots of thinners or paint should be stored in the spray booth.
- Never smoke in the spray booth.

NOTE :

The fuel tank must be removed from the vehicle before it is taken into the spray booth.

BODY COLOURS

OPAQUE		SUPER GLOSS		METALLIC SUPER GLOSS	
White	355	Black	694	Granada	761
Bordeaux	721			Aurora	116
Grege	159			Schist	402
Red	705			Silver	620
				Cloud	624
				Alpine Blue	485
				Turquoise	443

OPAQUE		SUPER GLOSS		METALLIC SUPER GLOSS	
White	355	Black	694	Granada	761
Bordeaux	721			Aurora	116
Grege	159			Schist	402
Red	705			Silver	620
				Cloud	624
				Alpine Blue	485
				Turquoise	443

Very careful preparation is required if a good finish is to be obtained with polyurethane paints.

The correct choice of abrasive paper for finishing purposes is of the utmost importance.

There are standards governing the grain sizes of abrasives and these must be stated by abrasive suppliers. There is the American standard and, very recently, a European standard (F.E.P.A.) has been introduced, with a conversion table showing the equivalent, in the two standards, for 3 M abrasive paper.

American Standard	European Standard (F.E.P.A.)
	P 120
120	
	P 150
150	
	P 180
180	
	P 220
220	
	P 240
240	
	P 280
	P 320
280	
	P 360
320	
	P 400
360	
	P 500
400	
	P 600
500	
	P 800
600	
	P 1000
	P 1200

If we consult this table we can see that :

A paper classified as P600 in the European standard is the equivalent of a 360 grain paper in the American standard.

To obtain the required finish for two coat systems, abrasive P1200 (the equivalent of 600) is to be used.

The American standard is still used, by all suppliers, in their data sheets. Conversion is therefore necessary to obtain the correct abrasive.

To obtain effective corrosion resistance, our replacement parts are protected according to a SPECIFICATION that requires that they should resist 400 hours exposure to salt spray, no matter what type of paint system is used (cathaphoresis or any other process).

- These parts can be identified by the reference letter "C" applied to the part number label.
- However, even parts that are not identified by the letter "C" are protected to an equivalent quality standard.

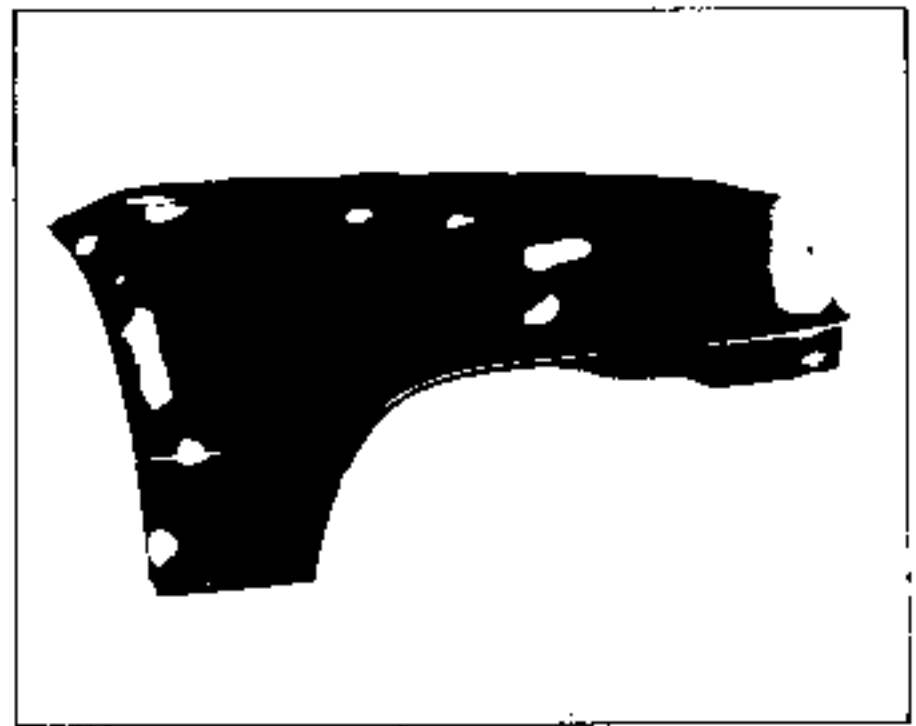
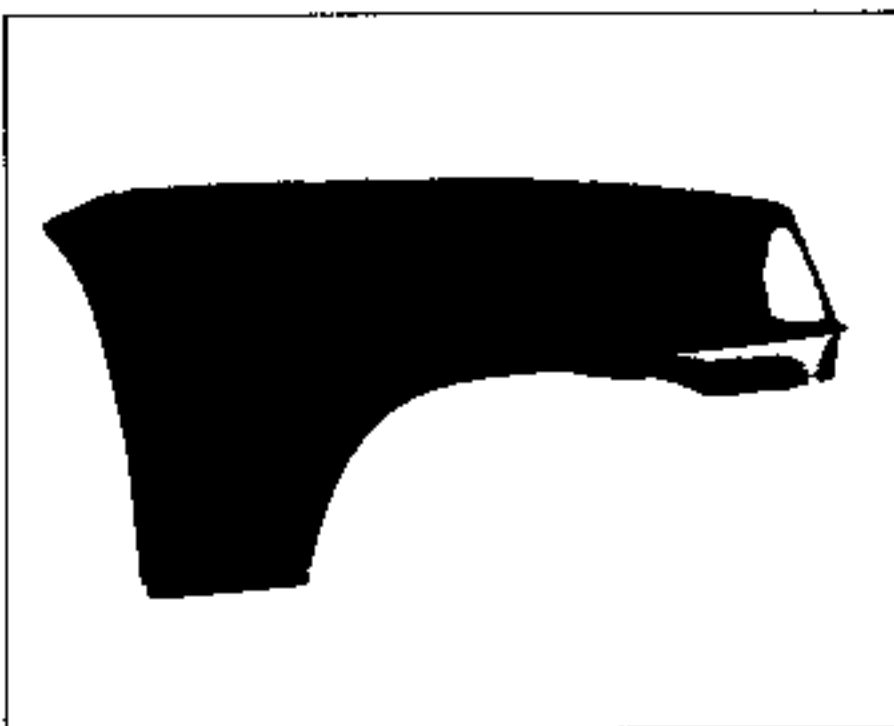
Furthermore all external components are protected by a heat shrunk film against possible damage during handling (scoring, impact etc.) as this would make it necessary to rub the parts back to the bare metal and thus destroy the protection.



CONSEQUENTLY TO MAINTAIN THE ORIGINAL ANTI-CORROSION PROTECTION, ON REPLACEMENT PARTS, IT IS FORBIDDEN TO RUB THEM BACK TO THE BARE METAL. SIMPLY "KEYING" THE SURFACE WITH P240, USED DRY, IS SUFFICIENT PRIOR TO APPLYING THE SURFACER COAT.

If it is absolutely essential, because of accidental damage to the external undercoating, carry out the following sequence :

- Degrease.
- Rub back, dry with P150.
- Blow off - degrease.
- Apply phosphate primer to the stripped areas.
- Apply a coat of surfacer (single or two pot).
- Rub down with P800, wet, for opaque finishes, P1000 to P1200, wet, for super gloss finishes.
- Apply two pot paint (Polyurethane).



NEVER STRIP BACK TO THE BARE METAL, ON INTERNAL SURFACES, EVEN IF THE FINISH IS POOR (RUNS, INCLUSIONS etc.).

Degrease.

Rub down both faces with P120, P150 or P240, dry.

Blow off - Degrease.

Apply chrome phosphate primer to the stripped areas.

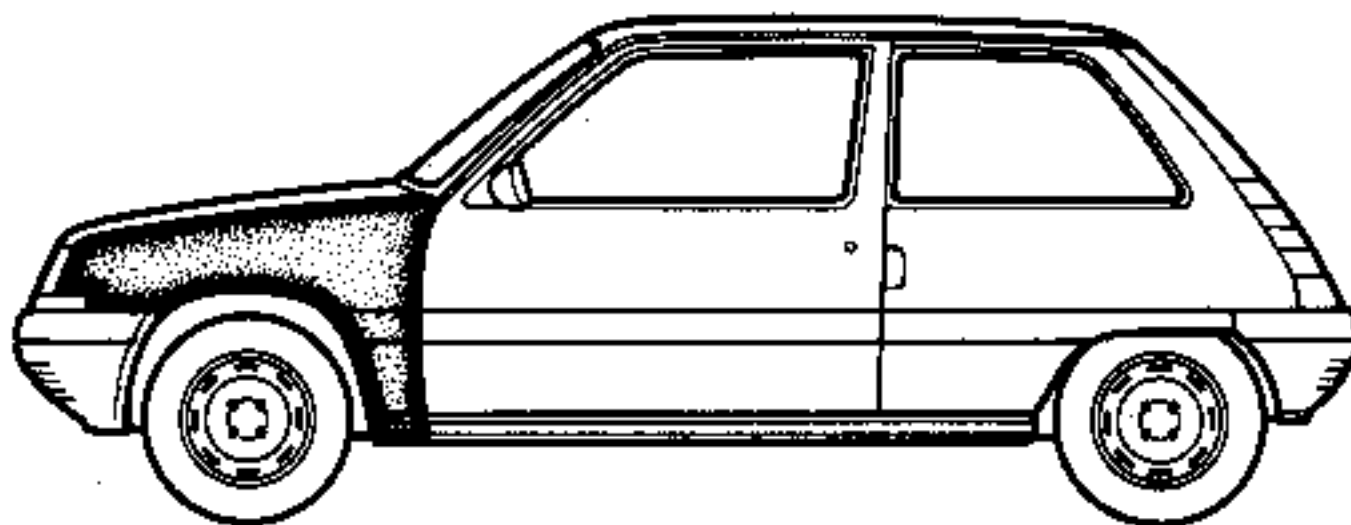
Apply corrosion inhibiting surfacer (single or two pot) to both faces.

Spray on anti chipping mastic.

Protect crimped areas and panel joints (Adhesive mastic).

Paint the inside faces (Door apertures, door pillars etc.).

Match the colour on a 200 x 200 mm plate, finished with surfacer.



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FITTING THE PART TO THE VEHICLE

Lightly rub down the surfacer with P800 (400) paper, wet, for opaque paints. P1000 (500) P1200 (600) paper, wet, for super gloss.

Blow off with compressed air.

Mask-off (after checking and determining the colour).

Place the vehicle in the spray booth (fit the cover and the earthing lead).

Degrease - Blow off.

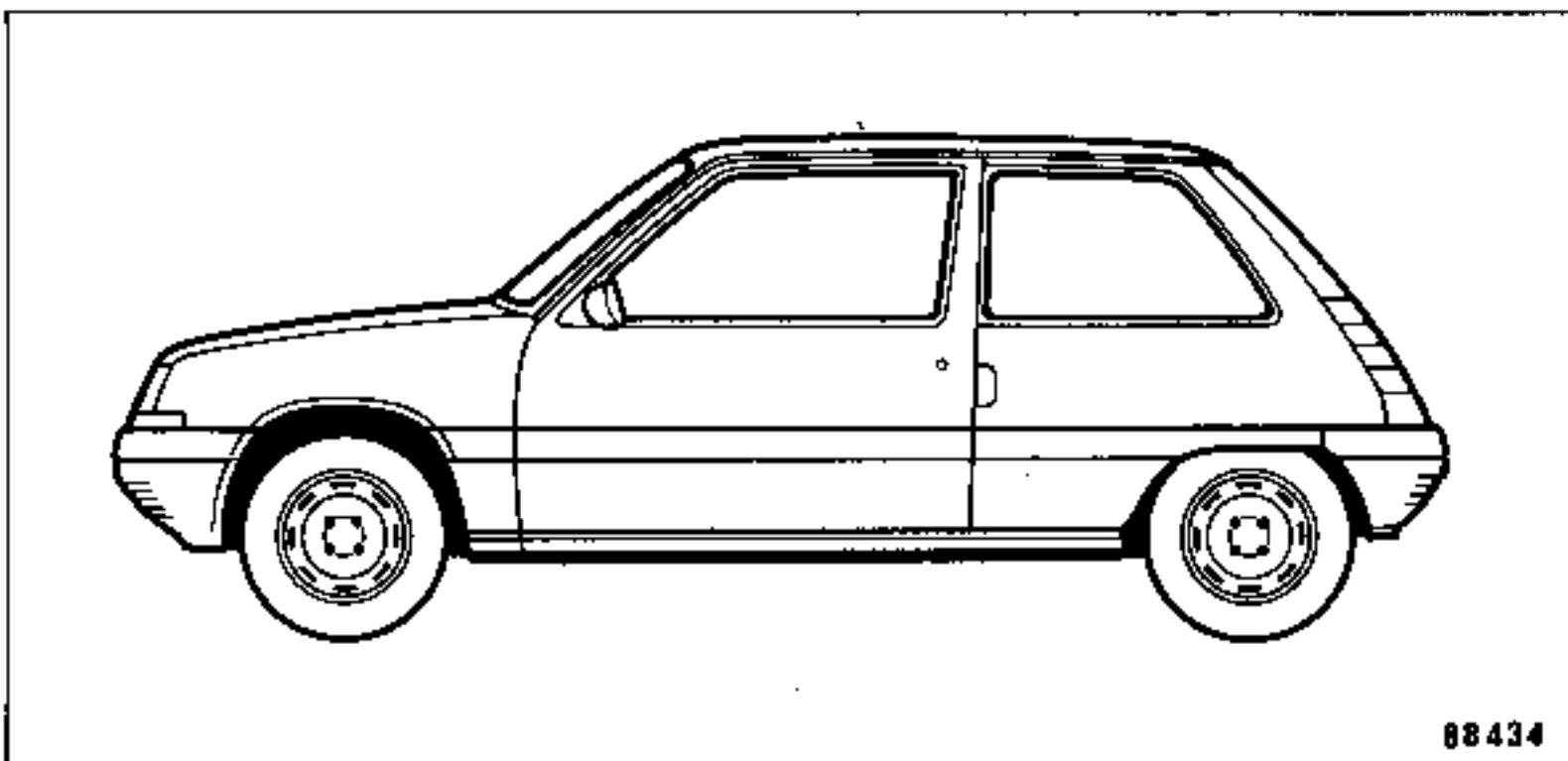
Wipe down with a chemical pad.

Apply two pot paint (Polyurethane).

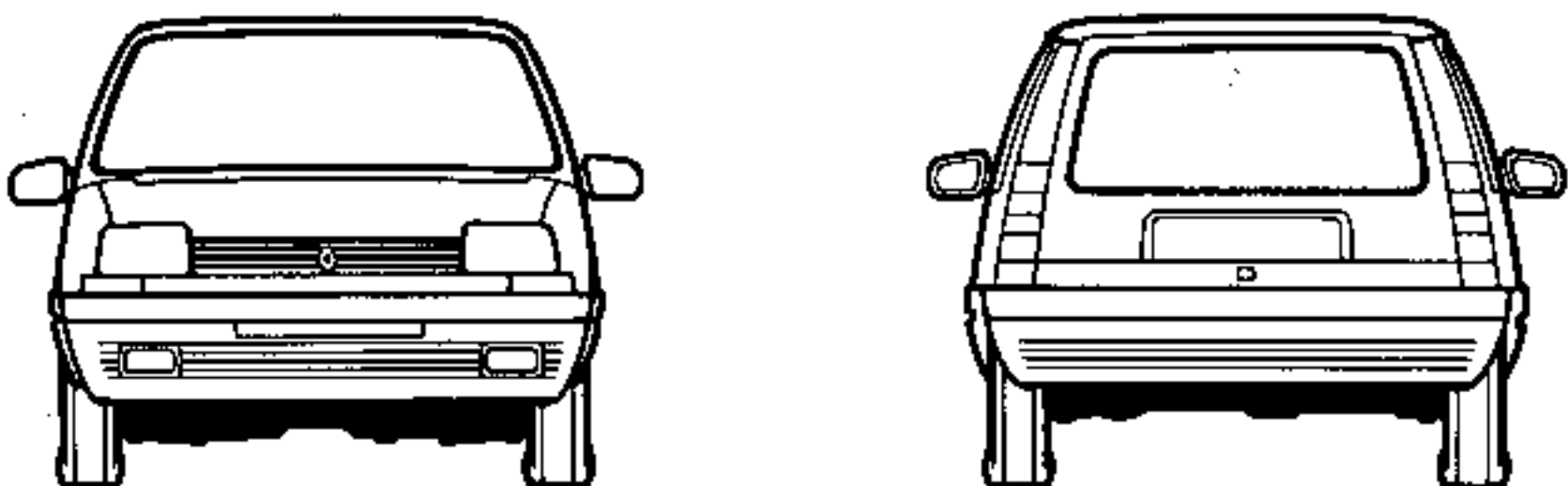
Apply hollow section protection (Box section components).

After repainting the base colour to original specification simply take an aerosol of the required colour and spray the areas concerned in the usual way.

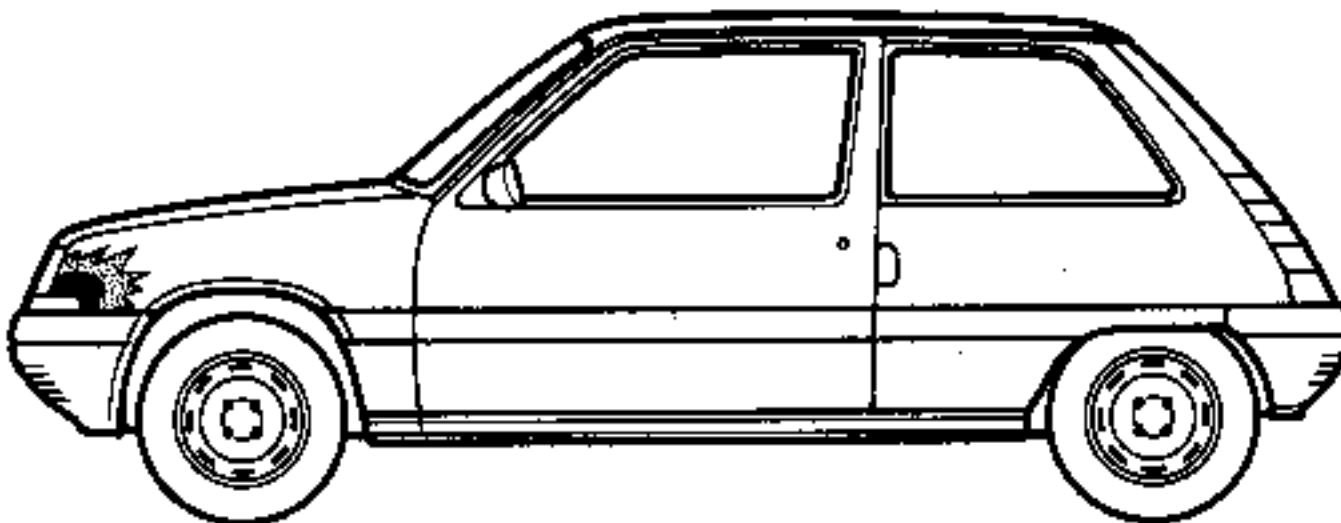
Sills.
Front and rear wheel arches (Inside).



Front and rear lower sections.



Degrease.
Rub down the area to be repaired, dry, with P120.
Blow off - Degrease.
Apply chrome phosphate primer to the bare metal.
Apply surfacing mastic with a palette knife.
Rub down with a block and P800 (400) paper, wet.
Apply corrosion inhibiting surfacer (single or two pot).
Polish the entire area with slightly abrasive polish in the case of opaque paints.
Key the entire part with ultra fine abrasive polish or P1200 (600) paper, wet, in the case of super gloss.
Blow off - Degrease.
Mask-off (after checking and determining the colour).
Place the vehicle in the spray booth (Fit the cover and the earthing lead).
Degrease - Blow off.
Wipe down with a chemical pad.
Apply the two pot paint (Polyurethane).
Stove for 30 minutes at 60°C.
Polish the blended-in area (to hours after stoving) with silicone polish.



FLEXIBLE PLASTIC PARTS

(Radiator grille, trim, spoilers etc,)

Carefully degrease.

Lightly roughen with a grey rubbing pad.

Blow off - Degrease.

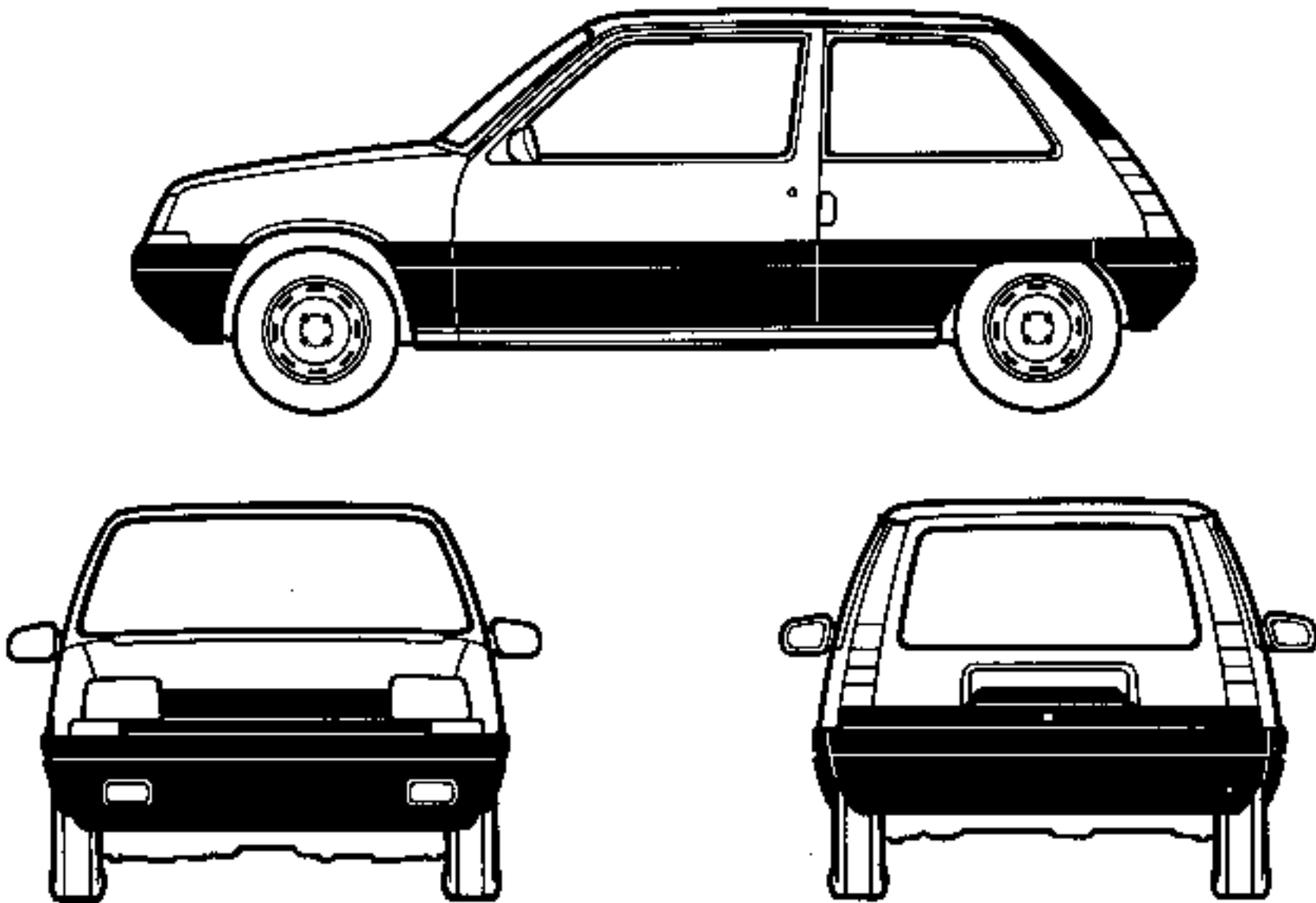
Wipe down with a chemical pad.

Spray on a plastic bonding primer.

Apply two pot paint mixed with a flexible additive.

Do not mix the flexible additive with the matt base but it is essential for the super gloss.

THESE PARTS CANNOT BE REPAIRED



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RIGID PLASTIC PARTS

(Example : Bumper shields)

Carefully degrease.

Roughen with a grey or red rubbing pad.

Blow off - Degrease.

Wipe down with a chemical pad.

Apply the two pot paint (Polyurethane).

Preparing welded replacement parts (cataphoresis paint base)

Preparing removable and welded parts (original paint base)

Degrease.

Sand back the areas which have been welded or repaired with P80 paper, dry (Orbital sander, sanding pad).

Rub down both faces with P120, P150 or P40, dry (Cataphoresis paint base).

Rub down round the sanded area with P120 or P150, dry (Original paint base).

Blow off - Degrease.

Apply chrome phosphate primer to the bare metal (On both faces).

Apply surfacing mastic with a palette knife or a gravity fed gun.

or

Apply two pot filler primer (Eg : Polyurethane).

Rub down with a pad and P150 paper, dry.

or

Rub down with a pad and P400 paper (360), wet.

Roughly mask-off the area, if necessary, before applying the surfacer.

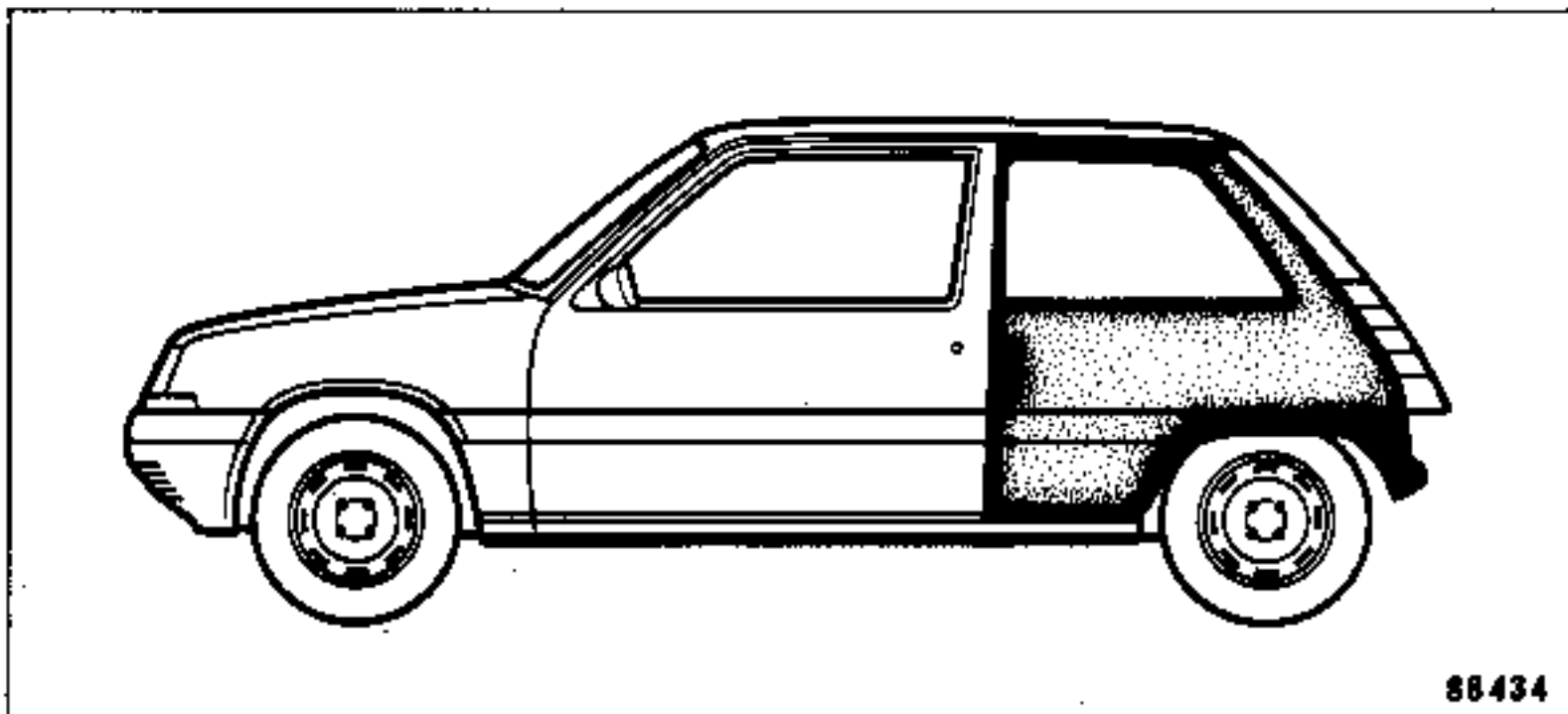
Apply corrosion inhibiting surfacer (single or two pot) to both faces.

Apply the sprayed anti-corrosion finish (Anti-chipping mastic).

Protect the crimped areas and panel joints (Adhesive mastic).

Paint the inside areas (Door frames, door pillars etc.).

Match the paint on a 200 x 200 mm plate to which surfacer has been applied.



REFITTING ADJACENT PARTS

Key the surfaces with P800 (400) paper, wet, for opaque paints.

P1000 (500) P1200 (600) wet, for super gloss.

Blow off with compressed air.

Mask-off (after checking and determining the colour match).

Place the vehicle in the spray booth (Fit the cover and the earthing lead).

Degrease - Blow-off.

Wipe down with a chemical pad.

Apply the two pot paint (Polyurethane).

Apply the hollow section protection.

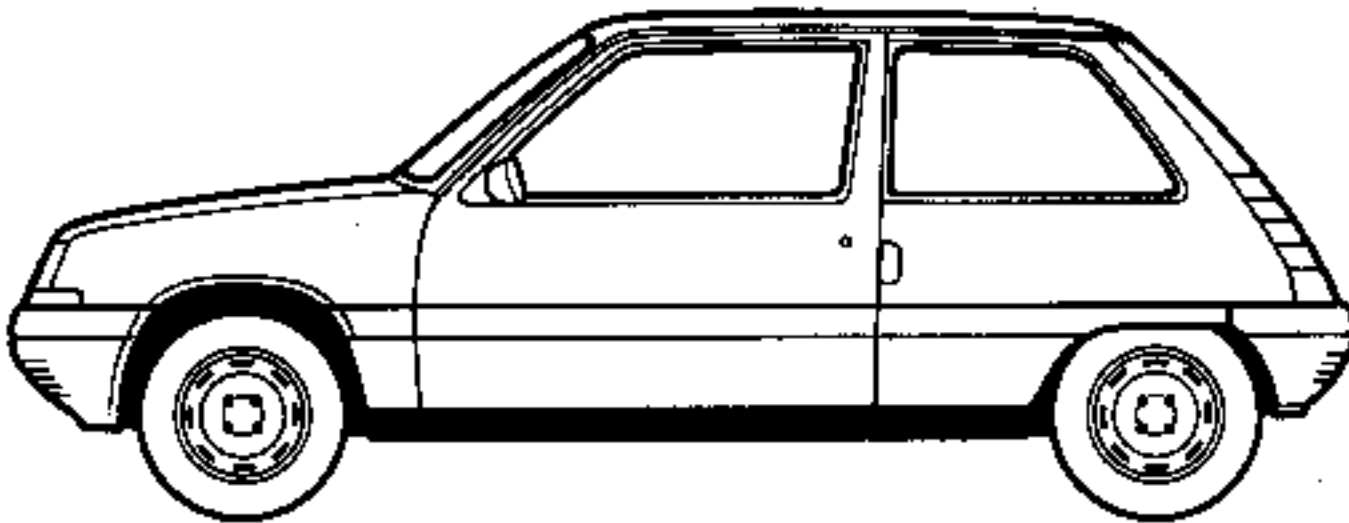
MASTIC 561(6018)

This mastic is sprayed on to the following sections to provide anti-chipping protection :

- the body sills,
- the insides of the front and rear wings,
- the front and rear lower sections.

It is also used as anti-corrosion protection on the following areas :

- crimped joints,
- panel joints.



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Preparation

Thoroughly mix the two components (parts A and B).

For the products' optimum qualities to be maintained, it is important that the two components should be mixed in the correct proportions, that is to say :

- all part A mixed with all part B,
- half part A mixed with half part B.

Pot life

The mix remains usable for 1 hour at ambient temperature.

Application

For the mastic to adhere properly, to bare panelling, it must be preceded by one coat of chrome phosphate primer and one coat of surfacer.

Apply the mastic in successive coats 1 to 1,5 mm thick using a pressure pot type gun.



Pressure pot mastic gun (type Pipo 2)



Adjusting the mastic gun pressure (type Pipo 2).

The air pressure reducing valve is to be set at 3 bars.

(A) An extruded fillet of mastic is obtained by adjusting the gun as follows :

- unscrew screw (1),
- close the air delivery screw (2),
- unscrew the product delivery screw (3) by three turns.

To spray the mastic on to body sills, rear end panels, radiator grilles, wheel arches, adjust the gun as follows :

- unscrew screw (1),
- unscrew screw (2) by one and a half turns,
- unscrew screw (3) by three turns.

(B) To spray the mastic on to any type of joint, adjust the gun as follows :

- unscrew screw (1),
- unscrew screw (2) by one turn,
- unscrew screw (3) by two and a half turns.

The gun is to be cleaned after application.

Drying time

Stove the product for 15 minutes. at 80°C, using infra-red panels.

After drying, apply the finish paint.

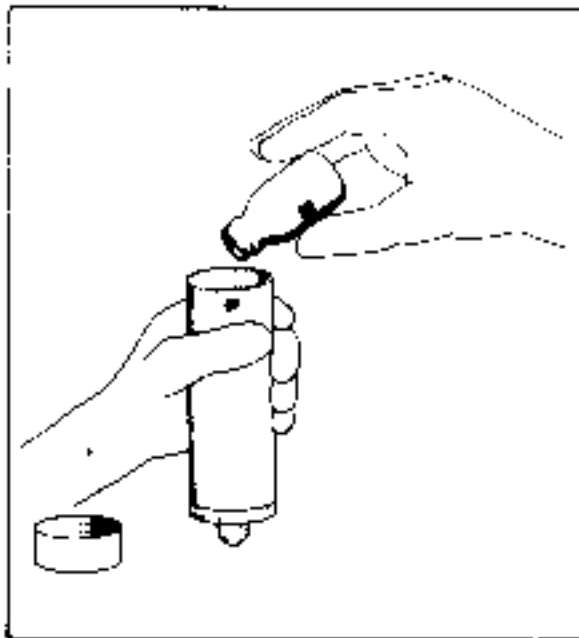
This product takes a very long time to fully cure. It is in no way incorrect to spray paint on to the product whilst it is still slightly flexible.

MASTIC 514 (6015)

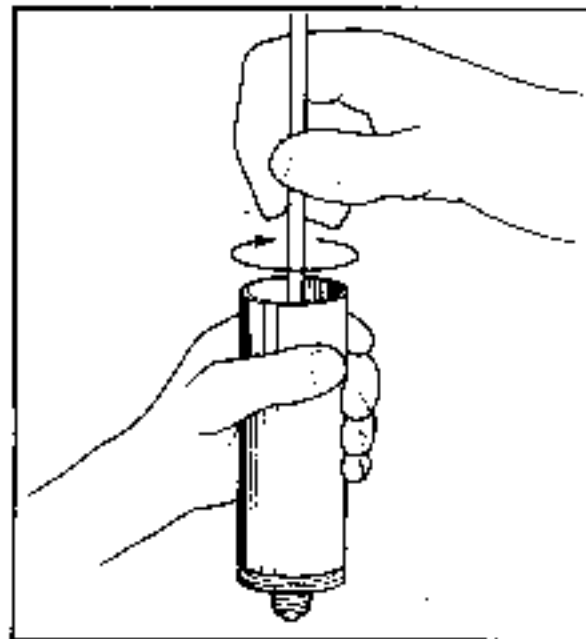
- APPLICATION - Structural bonded joints on body components : stiffeners, joints between wings and wheel arches, roofs and bonnet and boot stiffeners.
- Protection of crimped joints on doors and lids.

- PACK SIZE 210 gr kit (base + hardener) comprising :
- One 135 mm rigid cartridge containing part A - 90 gr,
 - 1 flask containing part B - 20 gr,
 - 1 flat nozzle,
 - 1 piston,
 - 1 set of instructions.

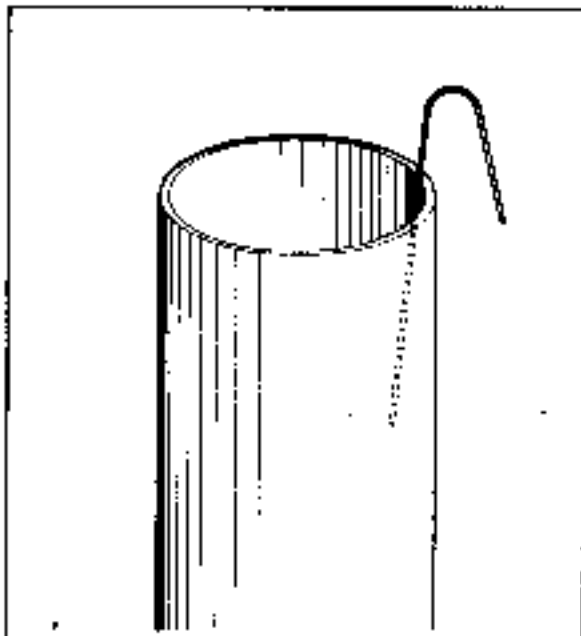
USING THE PRODUCT



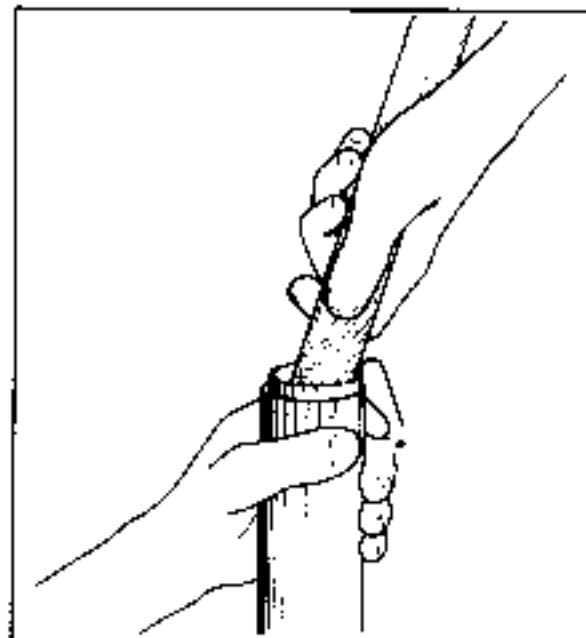
- 1 - Remove the adhesive tape that secures the plastic cap to the cartridge and pour the contents of the glass flask into it.



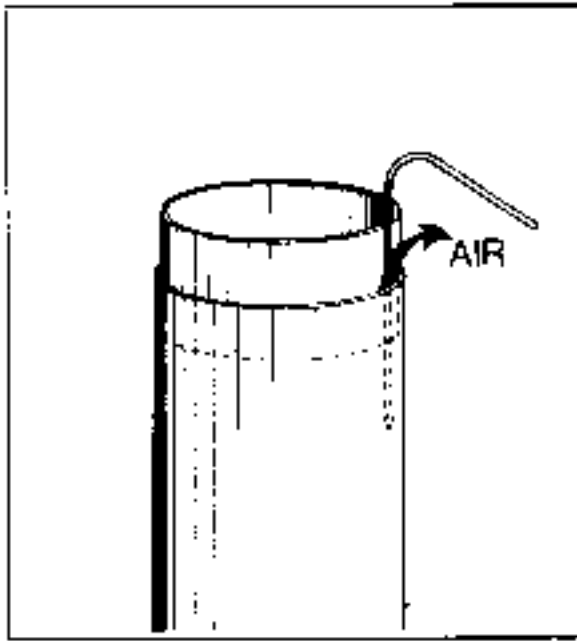
- 2 - Mix the two components, in the cartridge, using for example a long screwdriver, until a thoroughly mixed paste is obtained.



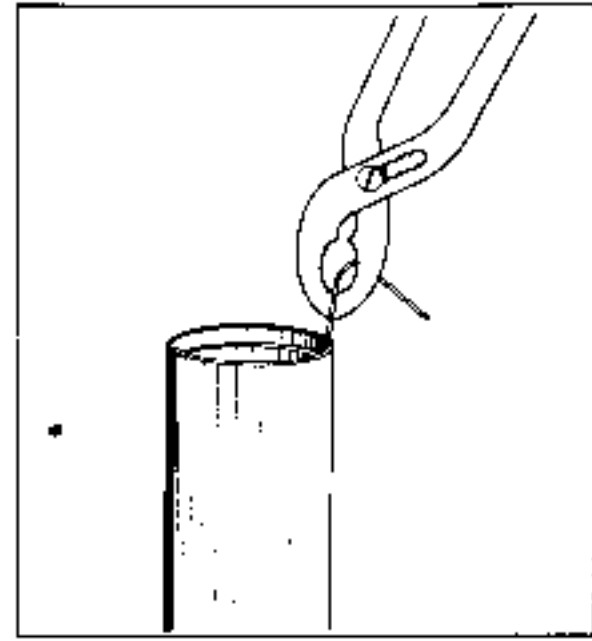
- 3 - Insert a thin wire, max. \varnothing 1 mm, for example a welding rod, piece of steel wire or a paper clip, bent at one end as shown here, into the cartridge. It should enter by at least 8 cm.



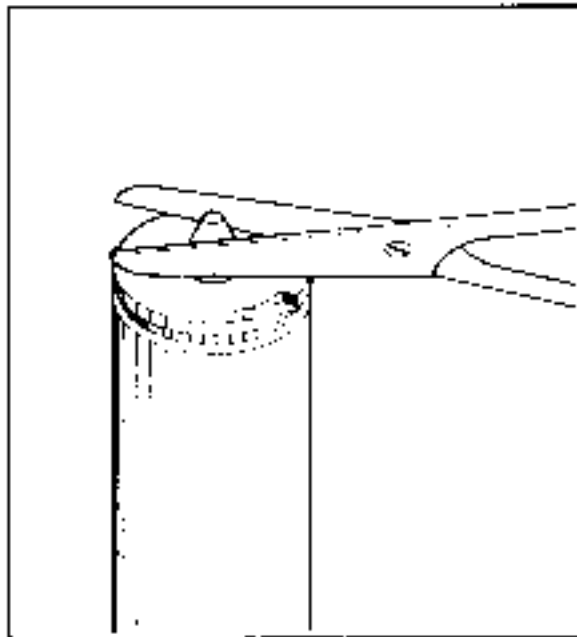
- 4 - Fit the piston as shown and press it down with a tool handle.



5 - Air will escape from the cartridge past the gap made by the wire.

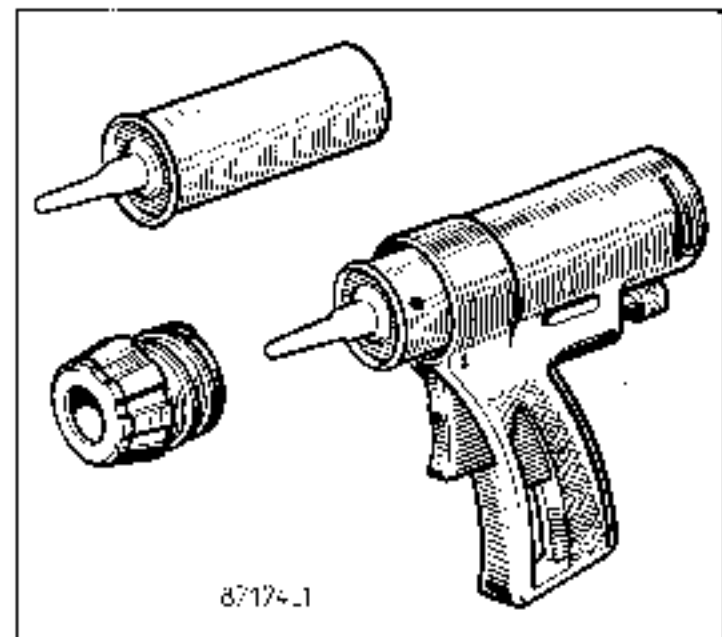


6 - When no further air is escaping, remove the pressure from the piston and take out the wire with pliers.

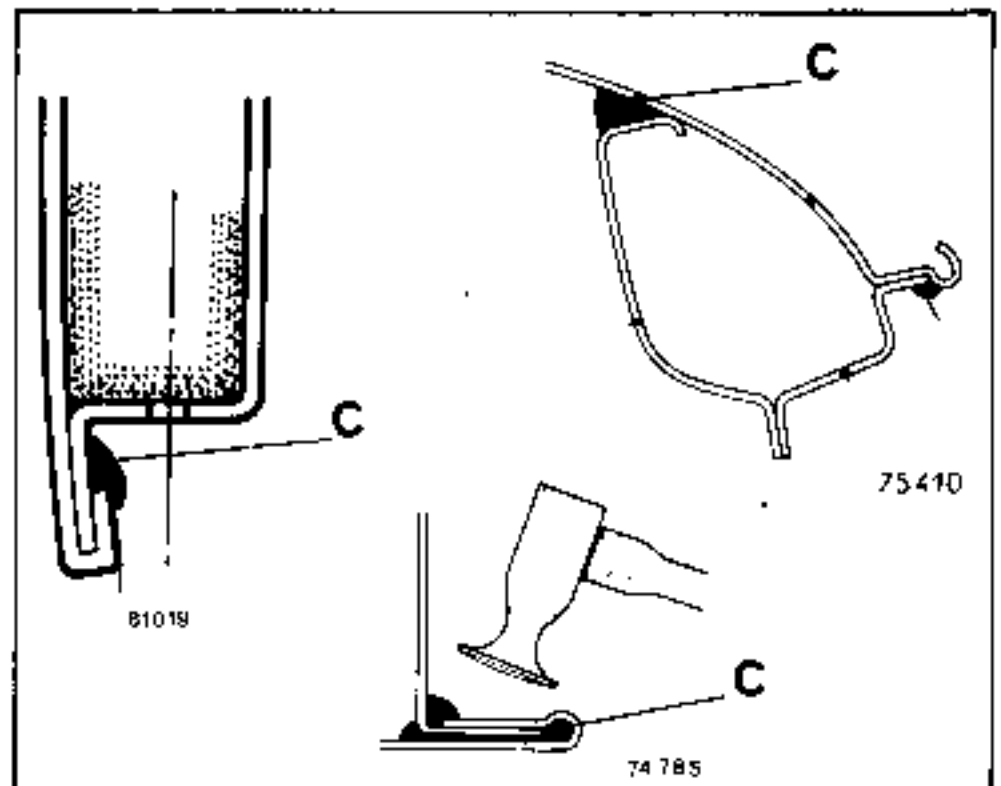
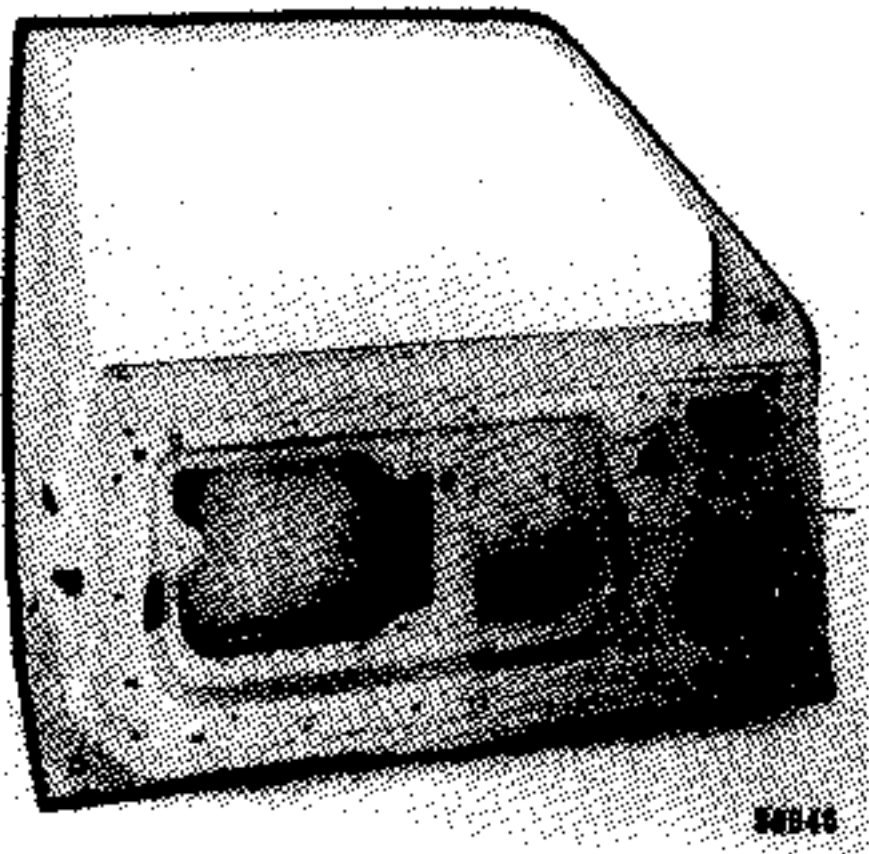


7 - Cut off the end of the cartridge.

APPLICATION



8 - Fit the special flat nozzle and apply the mastic using Terosen gun S3-DR + adaptor A 135. The bond, and seal, thus formed will be touch dry in approx. 40 min. It can then be painted and stoved. Any conventional nozzle, that will fit on this type of cartridge, can be used to form other types of joint.



Protecting hollow sections

This protection usually has to be applied "blind" and therefore great care must be taken to ensure that the protection is effective.

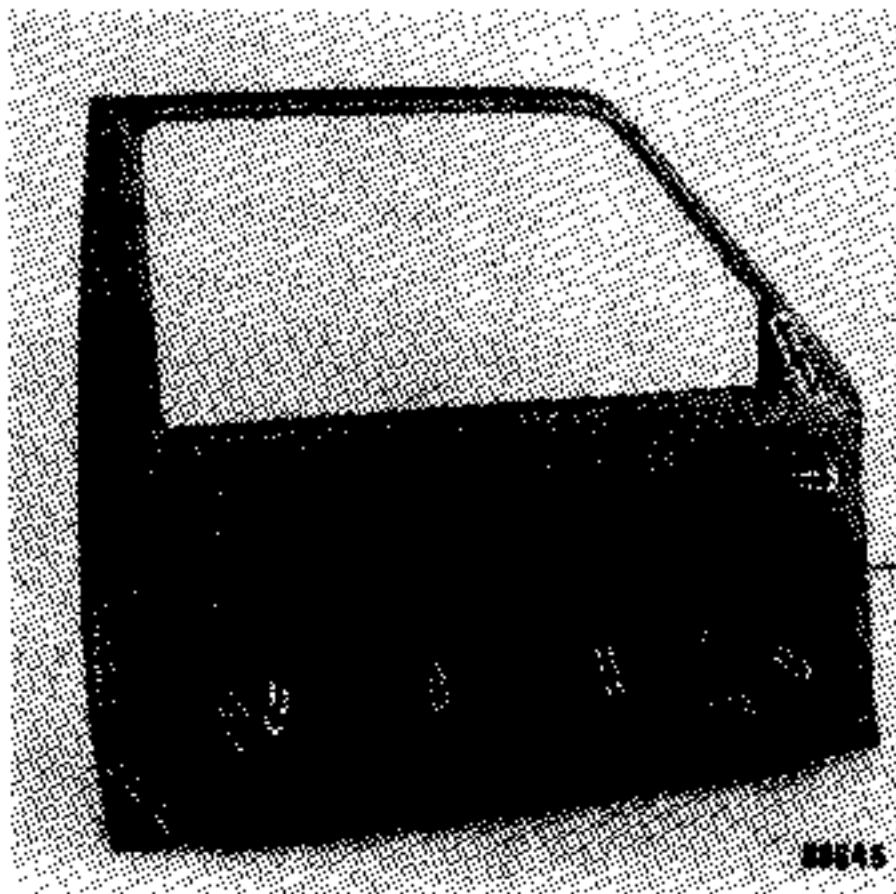
The areas to be protected are, in the main, crimped or welded body joints. The operations to be carried out are as follows, depending on the type of component being protected :

The product is injected into the hollow section after painting but before the interior trim is refitted.

Application

In the case of door, tail gates, bonnet and boot lids, engine compartments or boots, where the areas to be protected can be seen, a cranked nozzle is used to apply it, at a minimum pressure of 5 to 6 bars.

These operations are represented, on the application drawings, by arrows showing the direction in which to point the nozzle.



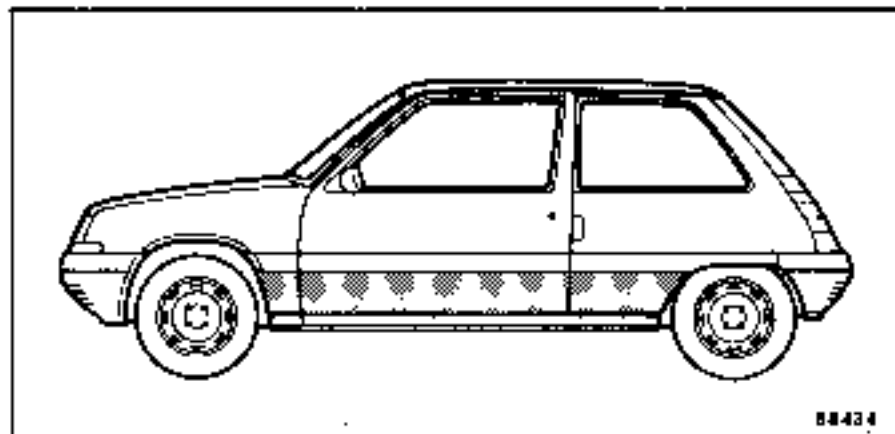
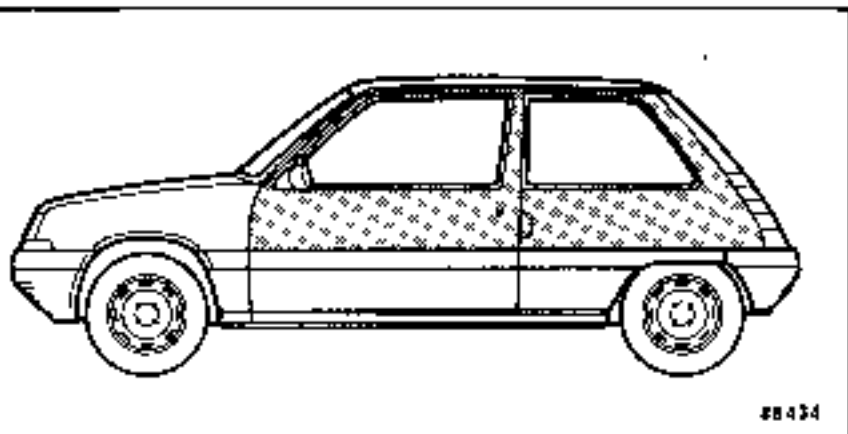
For "long" hollow sections such as side members and cross members, in which the injection operation cannot be seen, directly, it is preferable to use a vertical nozzle which is inserted into each hole so that the protective film is thoroughly distributed.

The ridges on the body panels of this vehicle make it possible to repaint part of a panel.

Following small body repairs to scoring etc., just the area concerned can be repainted by masking-off at one of the ribs on the body, thus making repainting the entire component unnecessary. Great care, however, must be paid to correctly matching the colour :

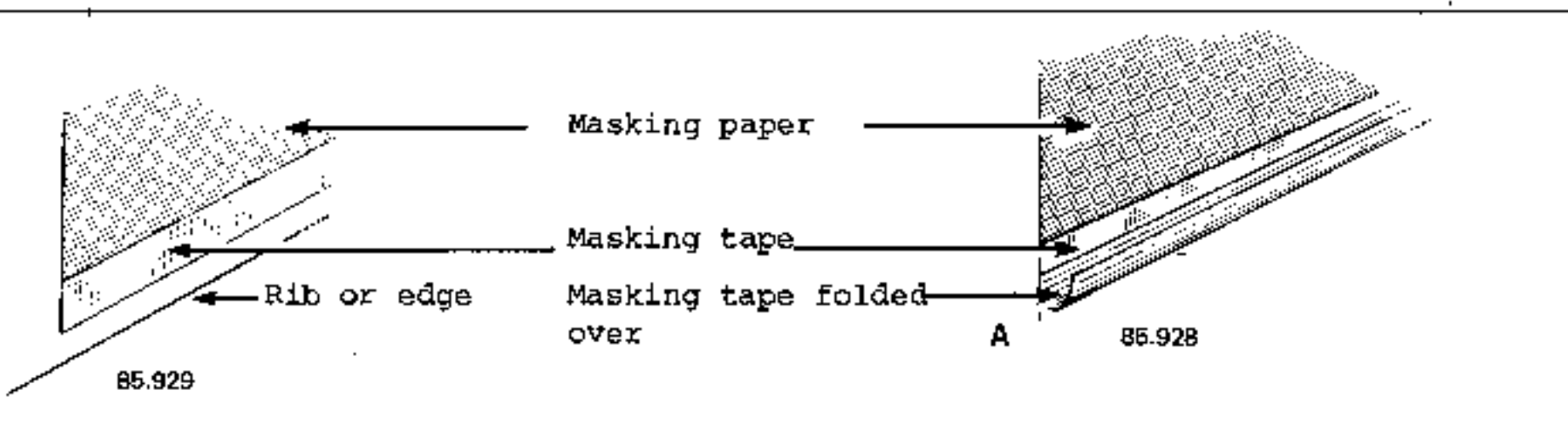
a) Upper part

b) Lower part

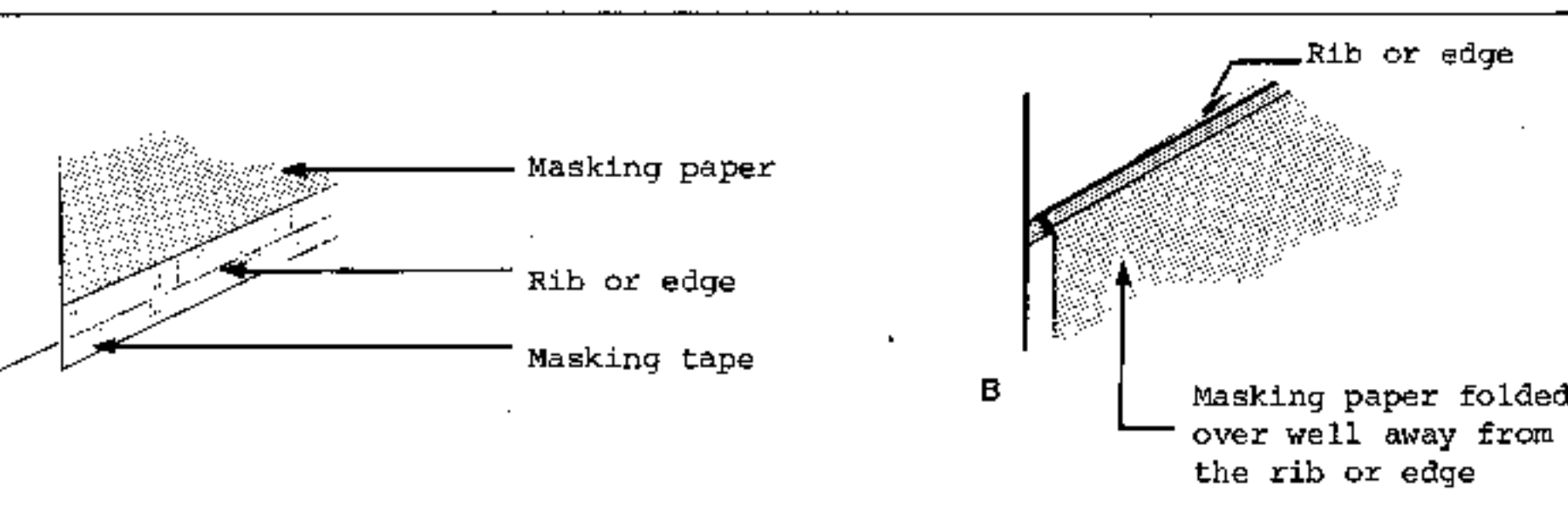


- Prepare the area to be repaired.
- Degrease and polish the rest of the component before masking it off ready for painting.
- Mask-off along the upper or lower edge.

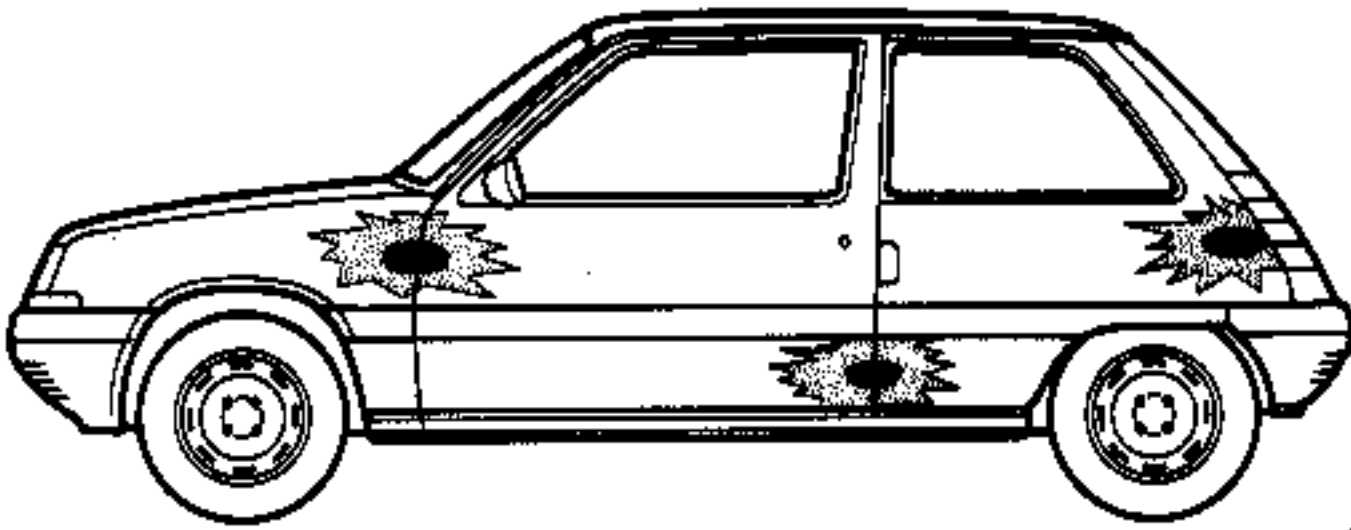
(A) Masking-off folding the masking tape over the edge



(B) Method of masking-off folding both the masking tape and paper over the edge



Local paint damage can be repaired by blending in the area concerned.



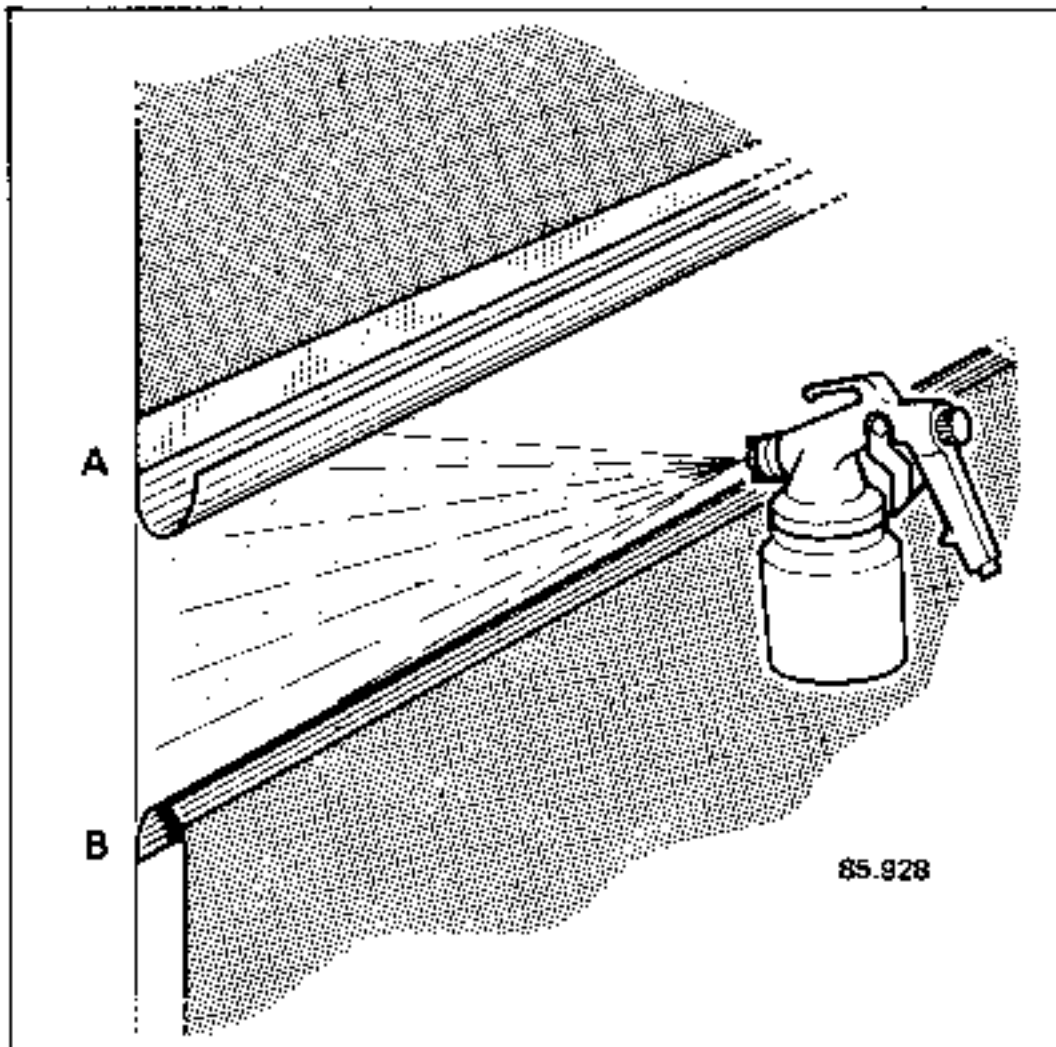
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Blending-in an area on a door and a front wing without repainting all these two parts.

Blending-in on a door and a rear wing without repainting all these two parts.

Blending-in just the lower sections of two doors.

Prepare the area to be blended-in (See PAINT APPLICATION SEQUENCE No. 3 and Section TO02 of MR501).



We recommend that the edges of the repair should be masked-off with masking tape, folded over, before stoving the paint.

A/THE COLOUR

- This is the impression that the eye detects when daylight falls on coloured objects around us.
- Daylight consists of the mixture of colours that can be seen in a rainbow (Red - Orange - Yellow - Green - Blue - Violet).

Example :

A coloured object (such as an orange) when illuminated by daylight, absorbs all these colours and reflects back just its own (Orange) and this is the one seen by the eye of the observer.

B/THE CHROMATIC CIRCLE

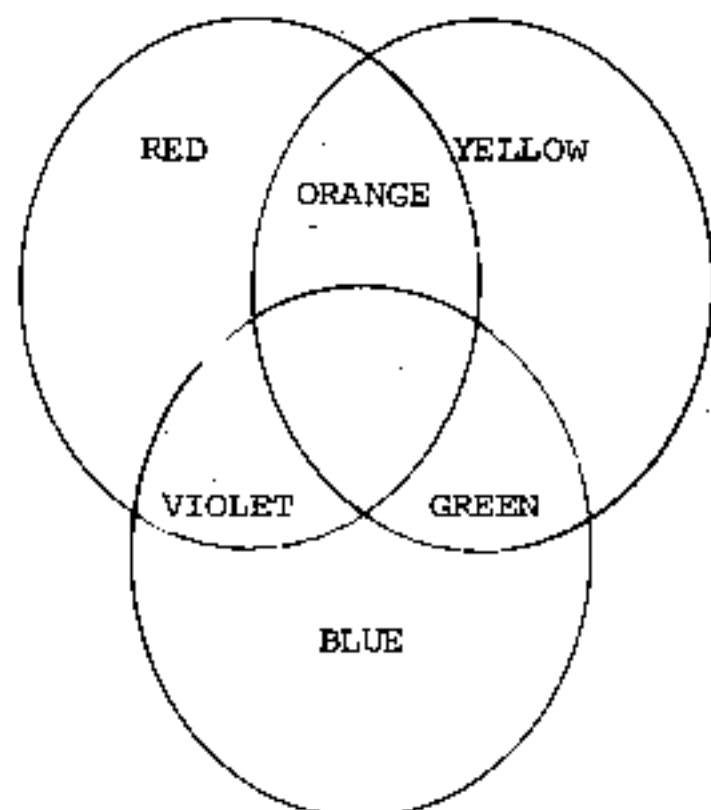
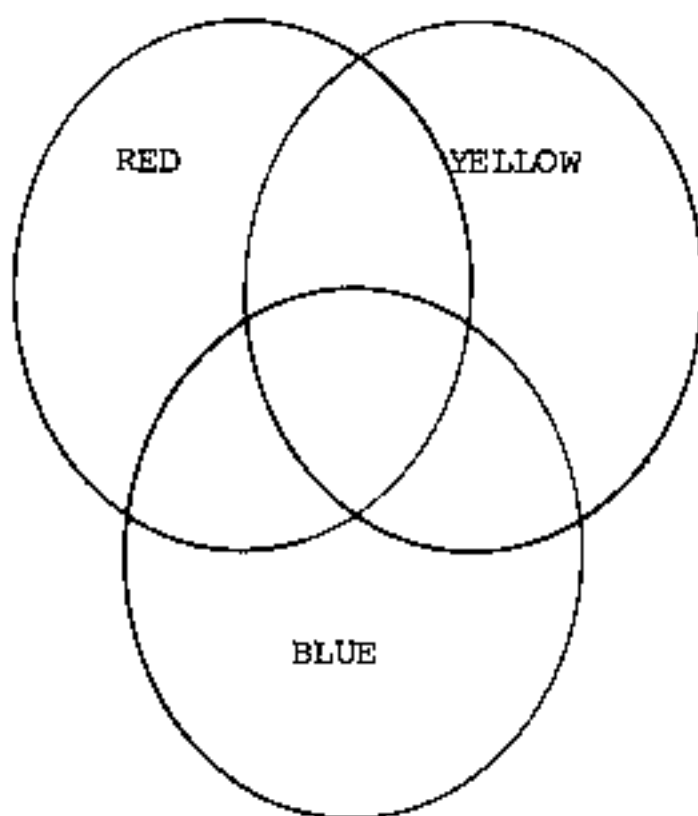
The chromatic circle is a simplified representation of all these colours. The centre of the circle appears as colorimetric black.

PRIMARY COLOURS

These cannot be obtained by mixing.

SECONDARY COLOURS

These are obtained by mixing two primary colours.



RED + YELLOW = ORANGE

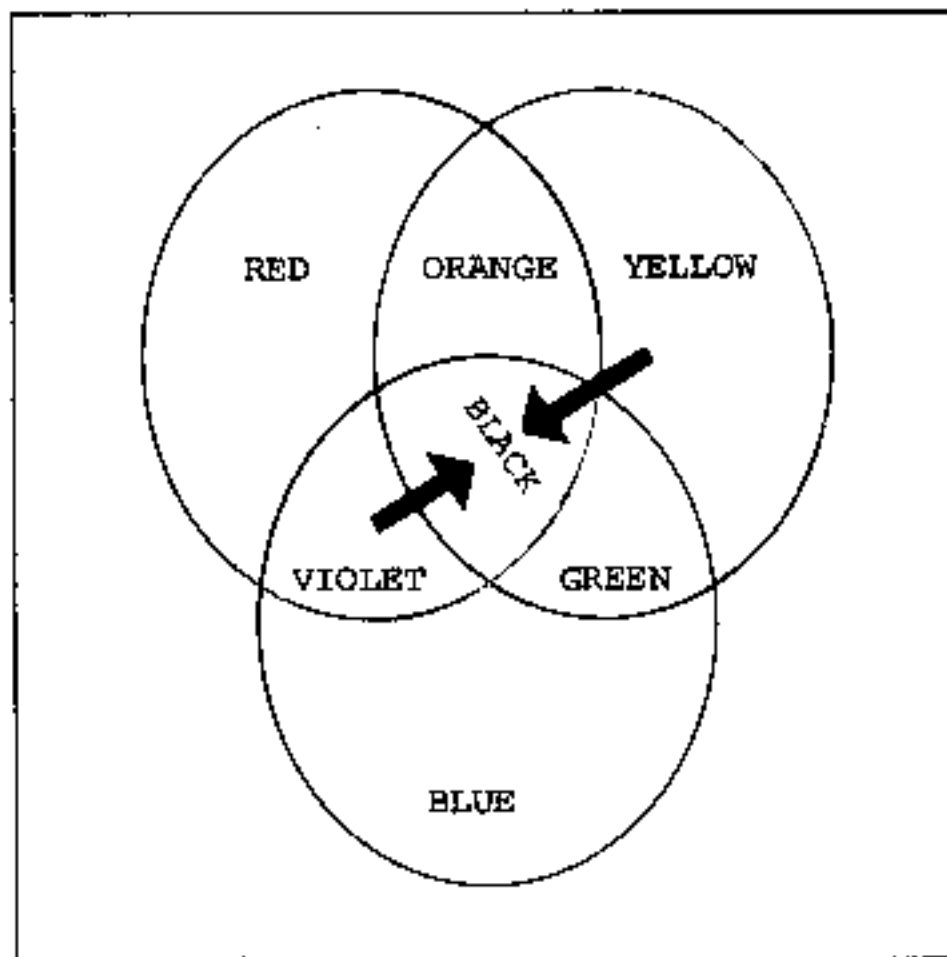
RED + BLUE = VIOLET

BLUE + YELLOW = GREEN

THE ROLE OF THE SECONDARY COLOURS

GREEN - ORANGE and VIOLET are said to be secondary to the primary colours that are diametrically opposite one another on the chromatic circle in that they are made up of two of the PRIMARY colours.

- If we mix three PRIMARY colours we obtain BLACK (colorimetric black).



Example : YELLOW + VIOLET = BLACK

BLUE+RED

BLUE + ORANGE = BLACK

RED+YELLOW

RED + GREEN = BLACK

BLUE+YELLOW

C/COLOUR MATCHING

- Carry out the basic principles of application (see wall chart).
- Spray the paint on to a sample plate, painted with surfacer, 200 x 200 mm.
- Polish an area of the vehicle alongside the repaired area.

D/CORRECTING THE MATCH

- A colour consists of 4 to 5 basic colours.
- Any colour difference is corrected by using the basic components of the formula otherwise there is a risk of metamerism occurring.

E/WHAT IS METAMERISM ?

Visually, metamerism results in any difference between the basic colour and the matching colour being accentuated by a change in the composition of the light under which it is observed.