



DODGE SPRINTER BODY REPAIR MANUAL



SAFETY NOTICE

CAUTION

All SERVICE AND REBUILDING INSTRUCTIONS CONTAINED HEREIN ARE APPLICABLE TO, AND FOR THE CONVENIENCE OF, THE AUTOMOTIVE TRADE ONLY. All test and repair procedures on components or assemblies in non-automotive applications should be repaired in accordance with instructions supplied by the manufacturer of the total product.

Proper service and repair is important to the safe, reliable operation of all motor vehicles. The service produces recommended and described in this publication were developed for professional service personnel, and are effective methods for performing vehicle repair. Following these procedures will help ensure efficient economical vehicle performance and service reliability. Some service procedures require the use of special tools designed for specific procedures. These special tools should be used as recommended throughout this publication.

Special attention should be exercised when working with spring-or tension-loaded fasteners and devices such as E-Clips, Circlips, Snap rings, etc., since careless removal may cause personal injury. Always wear safety goggles when working on vehicles or vehicle components.

It is important to note that this publication contains various Cautions and Warnings. These should be read carefully in order to minimize risk of personal injury or the possibility that improper service methods may damage the vehicle or render it unsafe. It is important to note that these Cautions and Warnings cover only the situations and procedures DaimlerChrysler Corporation has encountered and recommended. DaimlerChrysler Corporation cannot possibly know, evaluate, and advise the service trade of all conceivable ways in which service may be performed, or of the possible hazards of each. Consequently, DaimlerChrysler has not undertaken any such broad service review. Accordingly, anyone uses a service procedure or tool that is not recommended in this publication must be certain that neither personal safety, nor vehicle safety, will be jeopardized by the service methods they select.

[Back To Index](#)

Safety

Risk of injury. Injuries may result when performing testing or repair work on airbag or emergency tensioning retractor units.

Store airbag unit with the deployment face up, do not subject to temperatures above 100°C. When working on these units, disconnect power supply.

Risk of injury

Injuries may be caused by flying objects if an airbag or emergency tensioning retractor (ETR) unit is triggered accidentally or if an airbag unit is stored with its deployment face down.

Safety instructions/precautions

- Always store removed airbag units with the deployment face up.
- The procurement, transport, storage, testing and installation of these units must be performed or supervised by specially trained personnel.
- Install airbag and ETR units immediately following retrieval from storage.
- Protect airbag and ETR units from sparks, open flames and temperatures above 100°C.
- Do not transport airbag or ETR units in the passenger compartment; pack in original replacement part packaging only and secure tightly in the load compartment of the vehicle.
- Do not allow grease, oil or cleaning agents to come into contact with airbag or ETR units.
- Perform system tests using approved testing equipment only (e.g. Star Diagnosis) and only **when the units are properly installed and the vehicle is unoccupied.**
- Initial hook-up of the battery of an external power supply may only be done when the ignition is switched on and **when the vehicle is unoccupied.**
- If an airbag or ETR unit falls from a height of more than 0.5m, it must be replaced.
- For proper and safe scrapping, airbag and ETR units must be sent in their original packaging for disposal via the established MeRSy disposal system (Renz company).
- Proper and safe scrapping shall be done in compliance with the applicable regulations of the country concerned.

The following steps must be taken before performing body work or retrofitting operations, work on airbag or ETR units, or work on components connected to airbag or ETR units or that involves the airbag or ETR circuitry (e.g. removal of the steering wheel):



- Remove key from starter
- Disconnect and isolate the battery ground cable
- Disconnect any external power sources (e.g. charging equipment)
- Pull plug from control module prior to performing work inside the passenger compartment and prior to any welding work.

Important instructions for performing repair, body work and welding on vehicles with airbags or belt tensioner

Before beginning with

- body work,
- work on airbag or emergency tensioning retractor units (removal, installation).
- work on components which are connected to the airbag and ETR units or necessitate an intervention in the circuit, e.g. when removing the steering wheel withdraw the ignition key.
On models 901,902,903,904 and WD2.YD141/YD241/YD341/YD441/ YD541, WD5.WD141/WD241/WD341 you must also disconnect/isolate the ground lead of the battery.

Before commencing welding work

- remove the starter key and disconnect/insulate the battery ground line.
- Disconnect coupling from airbag control module with ETR units.

During painting work

involving force drying, there are no special safety regulations to observe.

Airbag and emergency tensioning retractor units can withstand temperatures of up to 100 ° C without sustaining any damage.

During repair work

Ensure that you do not bring airbag or emergency tensioning retractor units into contact with grease, oil or cleaning agents.

Airbag and emergency tensioning retractor units which have dropped from a height of more than 0.5 m must be replaced and must on no account be installed in a vehicle.

[Back to Index](#)

After finishing work on the airbag and emergency tensioning retractor units

the restraint system is always to be checked with the hand-held tester/STAR DIAGNOSIS according to the diagnostics literature.

General information on repairs to body

All models

Basic prerequisites for properly performing body repairs include:

- Use of genuine Mopar parts.
- Strict observance of the DaimlerChrysler guidelines for bodywork.
- Workshop equipped with suitable special tools and workshop equipment.

Notes on repair method

Repair of damaged body panels is one of the most economical and time-saving measures and is preferred to replacing assemblies.

A precise check should always be made to determine which repair procedure is most economical. Repair should always be considered to be the "first choice", because this has the least effect on the strength, dimensional accuracy and corrosion resistance, etc. achieved at the factory.

[Back to Index](#)

Corrosion protection

After painting, treat repaired areas with appropriate corrosion protection measures (e.g. wax, hollow cavity sealing agent, underbody protection, etc., if available.)

Labor protection

Observe legal accident prevention regulations of professional societies and appropriate safety precautions contained in the applied service literature strictly.

Labor protection equipment

In addition to personal occupational clothing, cap and safety shoes also wear work gloves, eye protection, ear protection, dust protection mask, etc. during the work as required for the conditions.

Battery

Before performing any type of welding work or other work causing sparks in the area of the vehicle battery, always remove the battery and store in a protected location.

Components.

During repair work following accidents, visually check electronic components, steering and seat belts.

Drilling, sawing

Remove electronic cables and/or lines installed in hollow cavities as well as reservoirs located in concealed locations (e.g. battery) and electronic components from hazard area before drilling or sawing.

Vehicles

Shield vehicles located in the body repair area against possible damage to paint and glass surfaces as well as fire hazard from flying sparks using dividing walls or cover with fire-resistant tarpaulin.

Lifting platform

The vehicle can fall from the lifting platform due to weight transfer caused by removed parts (e.g. engine, shafts, etc.). Secure vehicle or add sand bags to compensate the weight.



Air conditioning

Do not weld or perform similar types of work on components in the closed air conditioning system or in its immediate vicinity.

Metal chips

Do not blow away metal chips produced during and after chip producing bodywork with compressed air; remove with vacuum cleaner.

Engine and auxiliary equipment

Before performing any type of machining work on the body (e.g. with spherical cutter), cover engine including all additional equipment (e.g. alternator, solenoids, etc.) to prevent damage from metal chips.

Straightening work

When performing straightening work never stand in a direct line in front of the pulling chains when introducing straightening forces to the frame or body.

Secure pull chains with catch straps or chains to prevent it from snapping away.

Check notes on straightening and reshaping work as well as locating holes. If necessary, detach body from straightening bench and realign.

Welding and related work

During all welding work, observe accident prevention regulations (UVV) for welding, cutting and related types of work.

In addition, before performing arc welding work, observe safety precautions for electronic control modules.

Moreover, remove easily combustible and/or inflammable materials and liquids from the hazard area. Use shields to protect against flying sparks and heat radiation and protect electric cables and tubes laid in hollow cavities.

When spot welding, maintain a spot weld interval of approx.

20 mm. Clean, smooth electrode tips are required. Set the current time or power according to the sheet metal thickness (new part) on the spot welder.

Sectional repairs

We recommend the following procedure for repairing body sections or sectional repairs:

MIG welds which are not in the immediately visible area or which are concealed by installed parts when the vehicle is completed should not be ground down smooth or filled for reasons of economy and operating stability. 

Welding vapors

Evacuate health enhancing gases, vapors, dust and welding smoke in the area where it occurs.

Welding procedures, connections and symbols

Resistance spot welding

Spot joint, single-row **RP** ◦

Spot joint, double-row **RP** ∴

Spot joint, double-row offset **RP** ◦ ◦

Brazing **H** ———

MIG welding

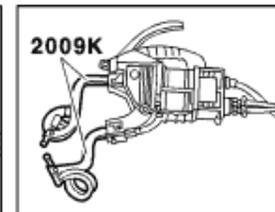
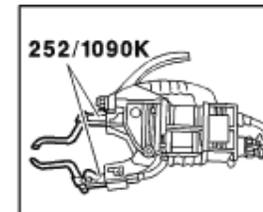
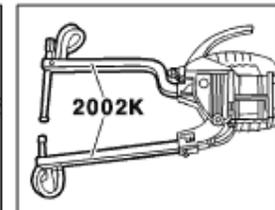
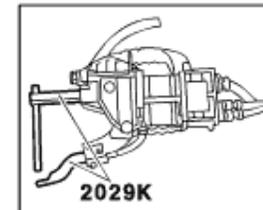
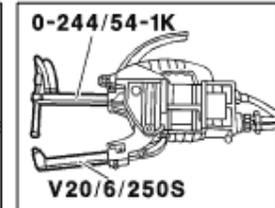
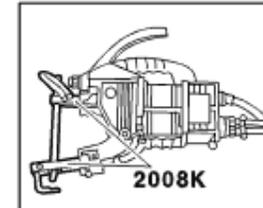
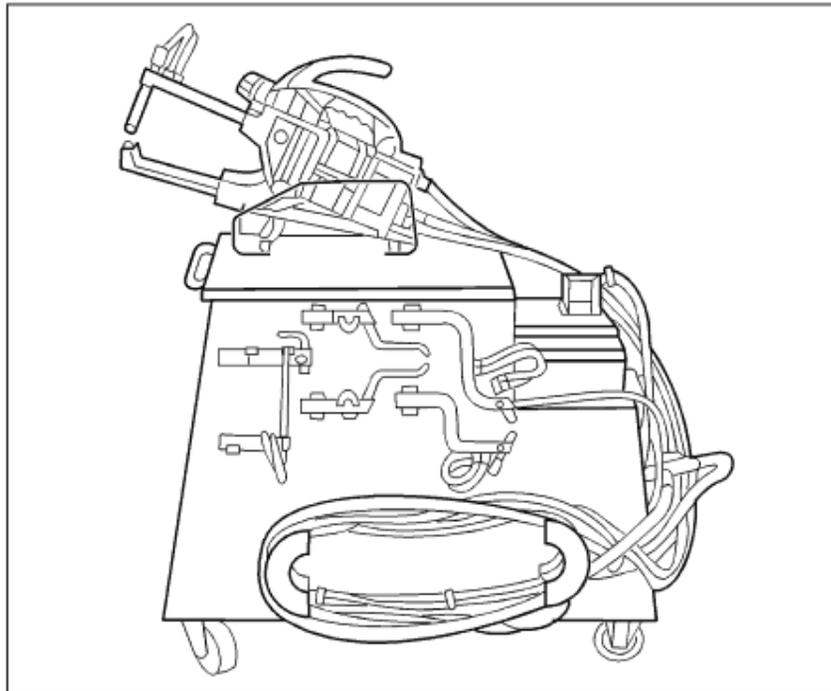
Tack weld **SG** ⊕

Continuous weld **SG** =====

Continuous weld interrupted **SG** =====

Plug weld **SG** ⊗

Assembly examples for spot welding fittings



- 1 Remove detachable body components in area to be repaired
- 2 Cover all detachable parts remaining in area to be repaired.
- 3 Separate left side wall paneling up to character bead (1)

Danger!

The high voltage used for arc welding presents a lethal hazard. Explosion hazard when welding in area of materials easily inflammable. **Risk of injury** from weld spatter and UV light when welding. **Risk of poisoning** if welding gasses inhaled. Use insulating mats. Wear protective clothing, safety glasses, and protective mask. Remove highly inflammable materials from the danger zone. Use air extractor.

Possible hazards

Lethal hazard from high voltage used for arc welding.

If arc welding work is performed in moist surroundings or on a wet surface, electricity conducted through the human body may pose a **lethal hazard**. This can result in severe burns, heart fibrillation or cardiac arrest.

Danger!

Persons with heart pacemakers should not perform arc welding work.

Risk of explosion!

Welding in the area of highly inflammable substances can cause explosions.

Risk of injury from welding spatter and UV light when welding as well as from flying sparks when grinding

Severe burns can be caused if hot chips (flying sparks) from grinding or welding sparks or spatter from liquid welding material come into contact with unprotected body parts.

Normal work clothing (consisting of cotton or synthetic fiber) can ignite from welding sparks and spatter from liquid welding material or from flying sparks when grinding and cause severe burns.

The UV light emitted during arc welding can lead to eye damage and burns on unprotected skin.

Measures for preventing damage to vehicles or components when performing arc welding work

All models



Risk of poisoning from inhaling welding gases

Inhaling the vapors resulting from combustion while welding can lead to headache, nausea, dizziness and unconsciousness.

Procedural guidelines and safety precautions

- Wear safety shoes (with rubber soles) and use insulating mats.
- Ensure a good ground connection is present.
- Persons with heart pacemakers should not perform arc welding work.
- Remove highly inflammable materials, substances and fluids from the danger zone.

- Wear appropriate protective clothing (leather, Kevlar), head covering (welding mask or helmet with suitable glasses), welding apron and protective gloves.
- Perform welding work in well ventilated rooms only.
- Wear respiratory mask or use air extractor.

First-aid measures

Rinse affected skin with large quantities of cold water and cover with sterile bandages.
Bring unconscious persons immediately into the fresh air and provide artificial respiration, if necessary.
Consult a doctor without delay.

Measures for preventing damage to vehicles or components when performing arc welding work

All models

The following measures must be taken **before** welding in order to prevent damage to various vehicle components:

- 1 Have fire extinguishers at the ready.
- 2 The negative terminal of the battery must be disconnected and covered up.
- 3 In vehicle with airbags the red, 12-pin test connection/plug-in connection must be disconnected no sooner than two seconds after the battery has been disconnected (risk of unwanted activation).
- 6 Attach protective shields to prevent flying sparks and radiated heat in endangered areas.



- 7 Do not touch electronics housings or electrical cables with the welding electrode or the welder's ground connection.
- 8 If two parts are being welded together, both parts must be attached to the welder's negative clamp.
- 9 Make direct connection between the electrical welder's ground connection and the part being welded. Ensure that there are no electrically insulating parts between the ground connection and the welding point.
- 10 Protect or remove any parts that are sensitive to heat such as plastic cables.
- 11 Remove electrical cables that are laid in cavities and/or pipelines, covered containers and electrical components from the danger area before welding.
- 12 If possible, the points where the welded part is being attached to the vehicle and the ground terminal is attached to the electrical welder must be bare; remove all traces of paint, corrosion, oil, grease and soiling.
- 13 The ground terminal of the welder must not be attached to the transmission. The welding current can cause arcing at the bearing points inside the transmission. The structural changes that this causes lead to premature failure of the equipment.



Introduction

DODGE SPRINTER

This manual has been prepared for use by all body technicians involved in the repair of the Dodge Sprinter

This manual shows:

- Typical unibody panels contained in these vehicles
- The weld locations for these panels
- The types of welds for the panel
- Proper sealer types and correct locations

General Notes
Body General
History of Collision Repair
Vehicle Identification Number Information
Corrosion Protection
Welded Panel Replacement
Substructure
Front End & Fire Wall

Side Wall
Rear Wall & Rear End
Doors
Windows
Sealer Locations
Frame/Body Locations.
Additional Support/Information

DaimlerChrysler Motors Corporation reserves the right to make improvements in design or to change specifications to these vehicles without incurring any obligation upon itself.



General Notes



Risk of injury

Risk of injury. Injuries may result when performing testing or repair work on airbag or emergency tensioning retractor units.

Store airbag unit with the deployment face up, do not subject to temperatures above 100°C. When working on these units, disconnect power supply.

Danger!

Risk of injury

Injuries may be caused by flying objects if an airbag or emergency tensioning retractor (ETR) unit is triggered accidentally or if an airbag unit is stored with its deployment face down.

Safety instructions/precautions

- Always store removed airbag units with the deployment face up.
- The procurement, transport, storage, testing and installation of these units must be performed or supervised by specially trained personnel.
- Install airbag and ETR units immediately following retrieval from storage.
- Protect airbag and ETR units from sparks, open flames and temperatures above 100°C.
- Do not transport airbag or ETR units in the passenger compartment; pack in original replacement part packaging only and secure tightly in the load compartment of the vehicle.
- Do not allow grease, oil or cleaning agents to come into contact with airbag or ETR units.
- Perform system tests using approved testing equipment only (e.g. Star Diagnosis) and only **when the units are properly installed and the vehicle is unoccupied.**
- Initial hook-up of the battery of an external power supply may only be done when the ignition is switched on and **when the vehicle is unoccupied.**
- If an airbag or ETR unit falls from a height of more than 0.5m, it must be replaced.

For proper and safe scrapping, airbag and ETR units must be sent in their original packaging for disposal via the established MeRSy disposal system (Renz company).

[Return to Index](#)

- In all countries proper and safe scrapping shall be done in compliance with the applicable regulations of the country concerned.

The following steps must be taken before performing body work or retrofitting operations, work on airbag or ETR units, or work on components connected to airbag or ETR units or that involves the airbag or ETR circuitry (e.g. removal of the steering wheel):

- Remove key from starter switch.
- Disconnect and isolate the battery ground cable.
- Disconnect any external power sources (e.g. charging equipment).
- Pull plug from control module prior to performing work inside the passenger compartment and prior to any welding work.

Important instructions for performing repair, body work and welding on vehicles with airbags or belt tensioner units
Models 901, 902, 903, 904

Models WD1, WD2, WD3, WD6, WD741, XD1, XD2, XD3, XD4, XD5, XD6, XD7, YD1, YD2, YD3, YD4, YD5, YD6, YD7

Before beginning with

- body work,
- work on airbag or emergency tensioning retractor units (removal, installation).
- Work on components which are connected to the airbag and ETR units or necessitate an intervention in the circuit, e.g. when removing the steering wheel

Withdraw the ignition key.

On models 901, 902, 903, 904 and models WD2.YD141/YD241/YD341/
YD441/ YD541, WD5.WD141/WD241/WD341

you must also disconnect/isolate the ground lead of the battery.

Before commencing welding work

- remove the starter key and disconnect/insulate the battery ground line.

[Return to Index](#)

- Disconnect coupling from airbag control module with ETR units.

On model 414 you must also disconnect the positive lead, bridge the ground and positive leads with a metal drift, and then unplug the airbag connector from the airbag control module.

During painting work

Involving force drying, there are no special safety regulations to observe.

Airbag and emergency tensioning retractor units can withstand temperatures of up to 100 °C without sustaining any damage.

Before starting up

When connecting up the positive and ground leads in model 414, make sure that nobody is inside the vehicle.

- Turn the ignition key to circuit 15 position (ignition on).
- Connect positive and ground lines.

After finishing work on the airbag and emergency tensioning retractor units

The restraint system is always to be checked with the hand-held tester/STAR DIAGNOSIS according to the diagnostics literature.

General information on repairs to body

All models

Basic prerequisites for properly performing body repairs include:

- Use of genuine DaimlerChrysler parts.
- Strict observance of the DaimlerChrysler guidelines for bodywork.
- Workshop equipped with suitable special tools and workshop equipment.

Notes on repair method

Repair of damaged body panels is one of the most economical and time-saving measures and is preferred to replacing assemblies.

[Return to Index](#)

A precise check should always be made to determine which repair procedure is most economical. Repair should always be considered to be the "first choice", because this has the least effect on the strength, dimensional accuracy and corrosion resistance, etc. achieved at the factory.

Corrosion protection

After painting, treat repaired areas with appropriate corrosion protection measures (e.g. wax, hollow cavity sealing agent, underbody protection, etc., if available.)

Labor protection

Observe legal accident prevention regulations of professional societies and appropriate safety precautions contained in the applied service literature strictly.

Labor protection equipment

In addition to personal occupational clothing, cap and safety shoes also wear work gloves, eye protection, ear protection, dust protection mask, etc. during the work as required for the conditions.

Battery

Before performing any type of welding work or other work causing sparks in the area of the vehicle battery, always remove the battery and store in a protected location.

Components.

During repair work following accidents, visually check electronic components, steering and seat belts.

Drilling, sawing

Remove electronic cables and/or lines installed in hollow cavities as well as reservoirs located in concealed locations (e.g. battery) and electronic components from hazard area before drilling or sawing.

Vehicles

Shield vehicles located in the body repair area against possible damage to paint and glass surfaces as well as fire hazard from flying sparks using dividing walls or cover with fire-resistant tarpaulin.

[Return to Index](#)

Lifting platform

The vehicle can fall from the lifting platform due to weight transfer caused by removed parts (e.g. engine, shafts, etc.). Secure vehicle or add sand bags to compensate the weight.

Air conditioning

Do not weld or perform similar types of work on components in the closed air conditioning system or in its immediate vicinity.

Metal chips

Do not blow away metal chips produced during and after chip producing bodywork with compressed air; remove with vacuum cleaner.

Engine and auxiliary equipment

Before performing any type of machining work on the body (e.g. with spherical cutter), cover engine including all additional equipment (e.g. alternator, solenoids, etc.) to prevent damage from metal chips.

Straightening work

When performing straightening work never stand in a direct line in front of the pulling chains when introducing straightening forces to the frame or body.

Secure pull chains with catch straps or chains to prevent it from snapping away.

Check notes on straightening and reshaping work as well as locating holes. If necessary, detach body from straightening bench and realign.

Welding and related work

During all welding work, observe accident prevention regulations (UVV) for welding, cutting and related types of work.

In addition, before performing arc welding work, observe safety precautions for electronic control modules.

Moreover, remove easily combustible and/or inflammable materials and liquids from the hazard area. Use shields to protect against flying sparks and heat radiation and protect electric cables and tubes laid in hollow cavities.

When spot welding, maintain a spot weld interval of approx.

20 mm. Clean, smooth electrode tips are required. Set the current time or power according to the sheet metal thickness (new part) on the spot welder.

[Return to Index](#)

Sectional repairs

We recommend the following procedure for repairing body sections or sectional repairs:

MIG welds which are not in the immediately visible area or which are concealed by installed parts when the vehicle is completed should not be ground down smooth or filled for reasons of economy and operating stability.

Welding vapors

Evacuate health enhancing gases, vapors, dust and welding smoke in the area where it occurs.

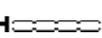
Welding procedures, connections and symbols

Resistance spot welding

Spot joint, single-row **RP** 

Spot joint, double-row **RP** 

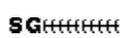
Spot joint, double-row offset **RP** 

Brazing **H** 

MIG welding

Tack weld **SG** 

Continuous weld **SG** 

Continuous weld interrupted **SG** 

Plug weld **SG** 

The high voltage used for arc welding presents a lethal hazard. Explosion hazard when welding in the area of highly combustible materials. **Risk of injury** from weld splatter and UV light when welding. **Risk of poisoning** when inhaling welding vapors.

Use insulating mats. Wear protective clothing, safety glasses, and protective mask. Remove highly inflammable materials from the danger zone. Use air extractor.

Danger!

Possible hazards

[Return to Index](#)

Lethal hazard from high voltage used for arc welding.

If arc welding work is performed in moist surroundings or on a wet surface, electricity conducted through the human body may pose a **lethal hazard**. This can result in severe burns, heart fibrillation or cardiac arrest.

Danger!

Persons with heart pacemakers should not perform arc welding work.

Risk of explosion!

Welding in the area of highly inflammable substances can cause explosions.

Risk of injury from welding spatter and UV light when welding as well as from flying sparks when grinding

Severe burns can be caused if hot chips (flying sparks) from grinding or welding sparks or spatter from liquid welding material come into contact with unprotected body parts.

Normal work clothing (consisting of cotton or synthetic fiber) can ignite from welding sparks and spatter from liquid welding material or from flying sparks when grinding and cause severe burns.

The UV light emitted during arc welding can lead to eye damage and burns on unprotected skin.

Risk of poisoning from inhaling welding gases

Inhaling the vapors resulting from combustion while welding can lead to headache, nausea, dizziness and unconsciousness.

Procedural guidelines and safety precautions

- Wear safety shoes (with rubber soles) and use insulating mats.
- Ensure a good ground connection is present.
- Persons with heart pacemakers should not perform arc welding work.
- Remove highly inflammable materials, substances and fluids from the danger zone.

- Wear appropriate protective clothing (leather, Kevlar), head covering (welding mask or helmet with suitable glasses), welding apron and protective gloves.
- Perform welding work in well ventilated rooms only.
- Wear respiratory mask or use air extractor.

[Return to Index](#)

First-aid measures

- Rinse affected skin with large quantities of cold water and cover with sterile bandages.
- Bring unconscious persons immediately into the fresh air and provide artificial respiration, if necessary.
- Consult a doctor without delay.

Measures for preventing damage to vehicles or components when performing arc welding work

All models

The following measures must be taken **before** welding in order to prevent damage to various vehicle components:

- 1 Have fire extinguishers at the ready.
- 2 The negative terminal of the battery must be disconnected and covered up.
- 3 In vehicle with airbags the red, 12-pin test connection/plug-in connection must be disconnected no sooner than two seconds after the battery has been disconnected (risk of unwanted activation).
- 6 Attach protective shields to prevent flying sparks and radiated heat in endangered areas.
- 7 Do not touch electronics housings or electrical cables with the welding electrode or the welder's ground connection.
- 8 If two parts are being welded together, both parts must be attached to the welder's negative clamp.
- 9 Make direct connection between the electrical welder's ground connection and the part being welded. Ensure that there are no electrically insulating parts between the ground connection and the welding point.
- 10 Protect or remove any parts that are sensitive to heat such as plastic cables.
- 11 Remove electrical cables that are laid in cavities and/or pipelines, covered containers and electrical components from the danger area before welding.
- 12 If possible, the points where the welded part is being attached to the vehicle and the ground terminal is attached to the electrical welder must be bare; remove all traces of paint, corrosion, oil, grease and soiling.
- 13 The ground terminal of the welder must not be attached to the transmission. The welding current can cause arcing at the bearing points inside the transmission. The structural changes that this causes lead to premature failure of the equipment.

[Return to Index](#)

General Notes on Welding

Model 901, 902, 903, 904

Model WD1, WD2, WD3, WD6, WD741, XD1, XD2, XD3, XD4, XD5, XD6, XD7, YD1, YD2, YD3, YD4, YD5, YD6, YD7

Personnel

Welding work requires special knowledge and should be performed only by well-trained welders observing the "Instructions for repair welding on motor vehicles" and according to the specifications of the vehicle manufacturer.

Welders should be tested at least according to testing group B II, DIN 8560.

The relevant national regulations apply abroad

Welding and related work

During all welding work, observe accident prevention regulations (UVV) VGB 15 for welding, cutting and related types of work.

Evaluation group for welds according to DIN 8563, Part 3

- For convex welds **BK**
- For butt welds **BS**

Further information is given in DIN 8563 Part 1-3.

Welding procedures

The following welding procedures are approved:

- Spot welding.
- MIG welding.

[Back to Index](#)

Electrode welding

Use electrodes with cold alkaline jacketing.

Dry moist electrodes at 150 ° to 400 °C.

Drying time

3 h at 150° C.

1 h at 400° C.

Electrode diameter

2.5 mm

Current intensity

40 A per mm electrode diameter.

MIG welding

When welding with CO₂ use a wire with thickness of 1 to 1.2 mm (300... 350 A).

The welding material must have at least the same yield strength and tensile strength as the material to be welded.

Welding vapors

Evacuate noxious gases, vapors, dust and welding smoke in the area where these occur.

Preparation

Thorough preparation of the points to be welded is absolutely necessary to obtain a high quality connection.

Protect heat sensitive parts or remove.

The connection points on the part to be welded on the vehicle and the ground terminal on the arc welder must be as bright as possible; for this reason, thoroughly remove paint, corrosion, oil, grease and contamination, etc.

Fasten welding tongs to part to be welded.

If two parts are welded to one another, connect the negative clamp to both parts.

To avoid damage to the semi-conductors disconnect vehicle battery before starting welding work.

Risk of explosion and **poisoning** caused by solvent vapors and gasses. **Risk of injury** to skin and eyes when handling anticorrosion agents.

[Return to Index](#)

Never spray anticorrosion agents on flames or glowing hot objects and keep them well away from all potential sources of ignition. Use them only in well-ventilated rooms; wear respiratory protection.

Danger!

Potential risks

Risk of explosion

The solvents contained in anticorrosion agents (such as underfloor protective coatings, cavity wax, engine compartment wax, etc.) are flammable, and may burst into flame if sprayed onto glowing hot components or open flames.

Risk of poisoning

Inhaling spray and solvent vapors can lead to damage of the respiratory system and lungs. Symptoms of poisoning include headache, breathing difficulty, nausea and loss of consciousness.

Underfloor protective coating materials further pose the following risks:

- Risk of damage to liver and kidneys.
- Central nervous system disorders, loss of consciousness.
- When these substances burn they produce toxic gases with a noxious odor; these gases are dangerous in high concentrations.

Risk of injury

If anticorrosion coatings come in contact with the eyes they can cause severe eye damage.

In the event of frequent or prolonged contact with the skin, these substances can drain the skin of natural oils and lead to inflammation.

Safety instructions/precautions

- Always remove all **PVC underfloor protective coatings** and **PVC seam sealers** from the areas to be treated before performing any welding or soldering work. This also applies for work such as cutting, sanding or similar work.
- When removing damaged bodywork sections use "cold" separating methods where possible. With these methods, smoke and toxic fumes are avoided.
- Do not expose containers to direct sunlight or to temperatures in excess of 50 °C.
- Always apply at the specified pressure.

[Return to Index](#)

- Do not spray anticorrosion agents on flames or glowing hot objects and keep them well away from all potential sources of ignition, do not smoke.
- Take precautions to avoid sparks from electrostatic discharge.
- Avoid all contact with eyes and skin.
- Wear tight-fitting safety glasses and solvent-resistant gloves.
- Wear respiratory protection and apply only in well ventilated areas.
- If clothing becomes soiled or soaked, remove and wash them immediately.
- Keep substances well away from food and beverages.
- Seal containers tightly and store them in a well-ventilated area.

First aid measures

In case of eye contact

- Flush thoroughly with water and consult a physician (eye doctor) immediately.

In case of ingestion

- Give medicinal activated charcoal, do not induce vomiting, consult a physician immediately.

In case of inhalation

- Move victim to fresh air, have victim lie down and remain calm, avoid strenuous activity.

In case of contact with the skin

- Immediately wash with soap and water, apply protective skin ointment.

Fire protection measures

Rescue, extinguishing and cleanup operations in areas contaminated by fumes should only be undertaken by individuals wearing respiratory protection. Do not inhale fumes from flames or explosions.

Suitable extinguishing agents:

- Water mist spray
- Foam
- Extinguishing powder
- Carbon dioxide

[Return to Index](#)

Non-suitable extinguishing agents:

- Direct water spray

Notes on sprayable joint sealant

All models

Application areas:

With this material, when applied over large surfaces on areas such as the wheelhouses, longitudinal members (rocker panels) and vehicle floor elements, the characteristics are visually equivalent to the standard or plant seals in terms of the processing.

When applying the material from the standard cartridge (300 ml), a special compressed air gun is required which allows different types of application for structured joints, surface coatings, stone-impact protection and sound deadening in combination with the associated plastic injection nozzles.

Processing:

- Wet-in-wet painting possible between 30 min. and 8 h after application without paint additives. Forced drying is necessary between 8 h and 72 h. Longer standing times should be avoided to exclude paint adhesion losses.
- Adhesion surfaces must be clean, dry and free of grease.
- Spray filler/filler primer before application of sprayable joint sealing agent.
- Never apply the sprayable joint sealing agent to fresh (unhardened) 1K polyurethane material.

Specific material advantages of "sprayable joint sealing agent":

- Does not contain any isocyanates, silicone, PVCs and no dangerous agent.
- The replaceable nozzle makes cleaning unnecessary.
- Visual repair of the plant seals and underbody coating.
- Good stability.

[Return to Index](#)

- UV-resistant.
- Material offers a number of application possibilities.
- With the proper gun setting, the sprayable joint seal can be applied as joint seal and surface coating in sequence.
- It is necessary, however, to wait for the end of the skin formation period of about 15 min. for the sprayed seam.
- Can be painted over well.

Notes on processing permanent underbody protection

The frame floor is protected by permanent PVC underbody protection as standard feature (see Manual "Paintwork and Corrosion Protection"). PVC material is also used in mass production for sealing work, e.g. for spot welded joints, door joints, etc.

When PVC material burns, strong corrosive hydrochloric acid is formed.

The new permanent underfloor protection can only be applied poorly to burned PVC material resulting in later sub-surface corrosion.

For this reason, always remove PVC underbody protection as well as PVC joint seals before starting any brazing or welding work. This also applies for work such as cutting, grinding, etc.

For these reasons, "cold" cutting methods should be preferred when cutting away damaged body panels.

[Return to Index](#)

Body General



Equip Straightening Bench, Straightening Bracket Set

MODEL

901.6, 902.6, 903.6, 904.6

MODEL

WD1, WD2, WD3, WD6, WD7, XD1, XD2, XD3, XD4, XD5, XD6, XD7, YD1, YD2, YD3, YD4, YD5, YD6, YD7

Use straightening bracket set according to associated set-up plans.

The straightening bracket set and straightening bracket set extension listed below is available for the Sprinter with all-wheel drive, model as of 2000 and 6.0 t - version.

Set up straightening bench, straightening set for front repair

MODELS

901.061 /361 /371 /461, 902.061 /071 /361 /371 /461 /471, 903.061 /071 /361 /371 /461 /471 with CODE (G40) Automatic transmission

MODELS

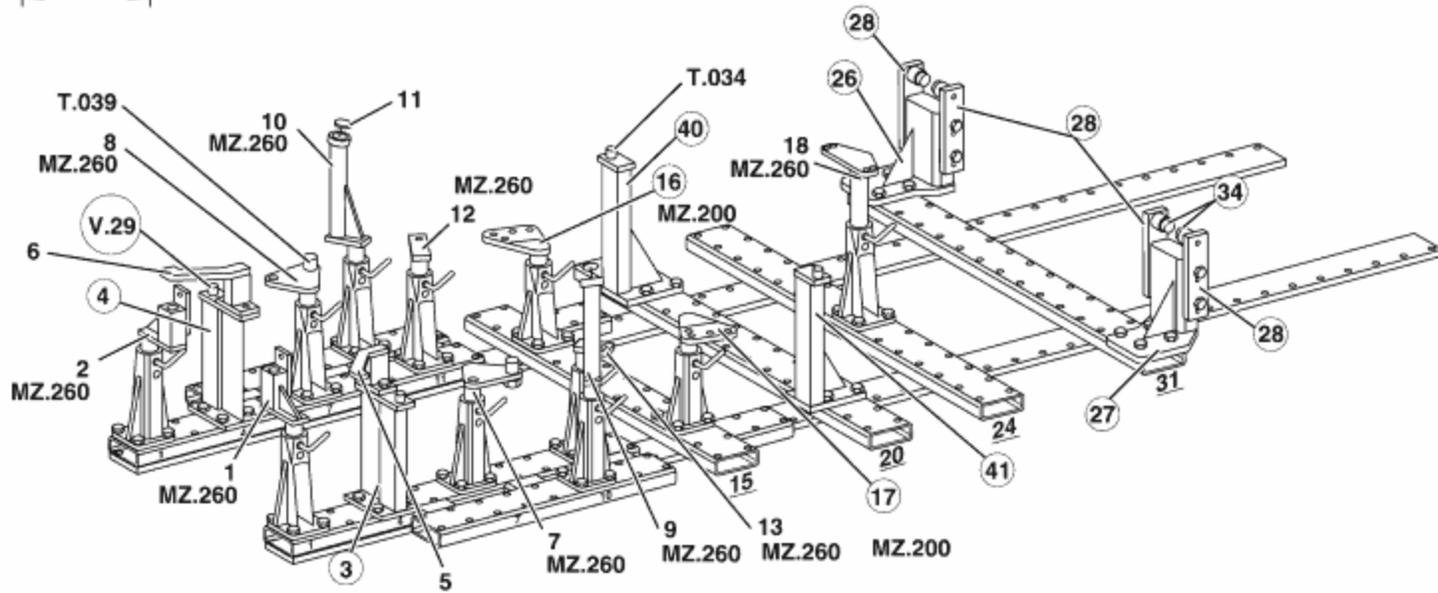
901.461, 902.461, 903.461 with TRANSMISSION 711.612 with CODE (N05) Countershaft PTO (2c) without flange

MODELS

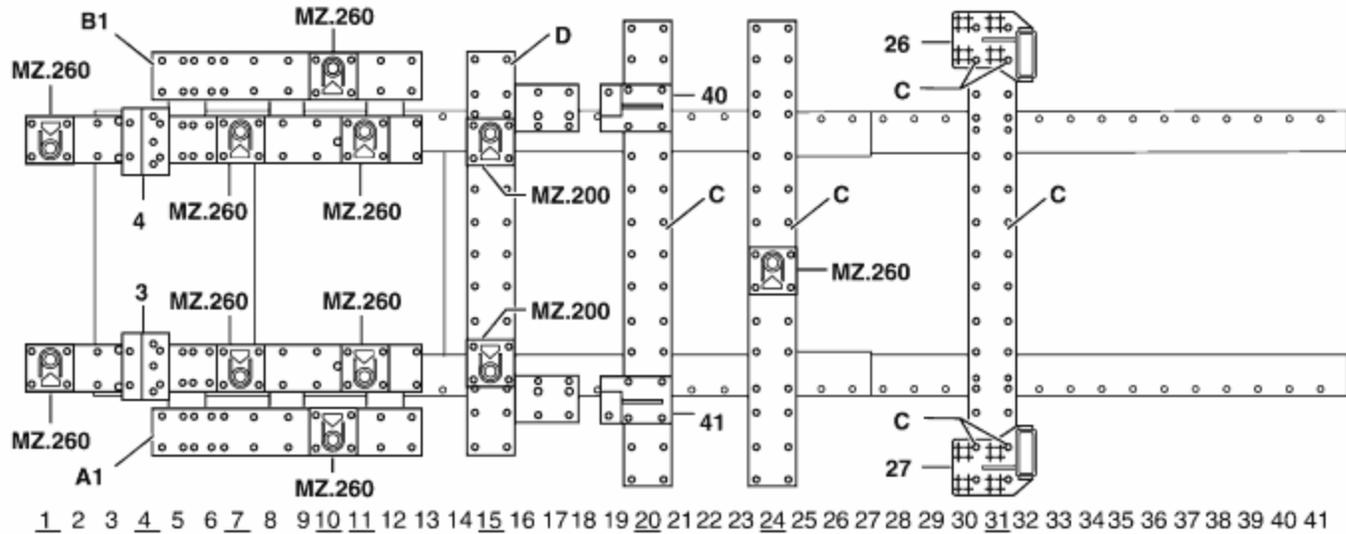
901.461, 902.461, 903.461 with TRANSMISSION 711.612 with CODE (N07) PTO countershaft (2b) with flange

[Back to Index](#)

Set up straightening bench, straightening set for front repair



[Back to Index](#)



- 1 Support for front cross member 7001.7001 (for MZ.260)
- 2 Support for front cross member 7001.7002 (for MZ.260)
- 3 Basic carrier 7001.7003 (for mounts 5 and 6 and centering pin V.29)
- 4 Base carrier 7001.7004 (for support 5 and 6 and centering pin V.29)
- 5 Support for securing floor panel 7001.7005 (for base carrier 3 and 4)
- 6 Mount for floor sheet attachment 7001.7006 (for basic carriers 3, 4)
- 7 Support for front axle attachment to front longitudinal member 7001.7007 (for MZ.260)
- 8 Mount for front axle attachment to front longitudinal member 7001.7008 (for MZ.260)
- 9 Support for suspension strut bracket 7001.7009 (for MZ.260) except all-wheel drive

[Back to Index](#)

10 Mount for suspension strut bracket 7001.7010 (for MZ.260) except all-wheel drive 7001.7044 (for MZ.260) only all-wheel drive
11 Checking and locating plate 7001.7011 (for support 9 and 10)
12 Support for front axle attachment to rear longitudinal member 7001.7012 (for MZ.260)
13 Mount for front axle attachment to rear longitudinal member 7001.7013 (for MZ.260)
16 Support for rear engine mount support 7001.7016 (for MZ.200)
17 Mount for rear engine mount base 7001.7017 (for MZ.200)
18 Mount for front propeller shaft bearing console 7001.7018 (for MZ.260)
26 Base carrier for rear spring, front spring bearing bracket 7001.7026 (with spring installed and removed, all 2.5-4.6 t except platform/crewcab 2.5-3.5 t)
27 Base carrier for rear spring, front spring bearing bracket 7001.7027 (with spring installed and removed, all 2.5-4.6 t except platform/crewcab 2.5-3.5 t)
28 Mounts 7001.7028 (for basic carriers 26 and 27)
34 Reducing bush to width across flats
18 mm 7001.7034
(for fixture 28)
40 Fixtures 7001.7040 (for front longitudinal member, on rear engine support)
41 Support 7001.7041 (for mounting front longitudinal member at rear engine support)
V.29 Centering pin for front longitudinal member (for basic carriers 3 and 4)
T.034 Centering pin (for fixtures 40 and 41)
T.039 Centering pin (for fixtures 7 and 8)

A1 Modular member 955.741
B1 Modular member 955.742
C Modular member 955.715/955.703
D Modular member 955.704

MZ.200 Support
MZ.260 Support

[Back to Index](#)

Work instructions

*Notes on aligning and welding work on shock absorber strut mount
Models 903, 904 for all-wheel drive vehicles*

*Notes on straightening and welding work on shock absorber strut mount
Model 903,904 on all wheel-drive vehicles.*

For control and straightening work on the original all-wheel drive spring strut mount use spring strut console for all-wheel drive vehicles.

For installing new spring strut mounts use spring strut mount for standard vehicles at the corresponding vehicle side, because there are no special all-wheel drive body parts for the spring strut mount with the corresponding inclination. After installing position spring strut mounts to the correct position for all-wheel drive vehicles with pulling device.

Example: Vehicles with accident damage on the left side. Replace floor element and left spring strut mount.

On the right side use the spring strut console for all-wheel drive and on the left side install the spring strut console for standard vehicles for welding in new parts.

Before installing components (engine, front axle) pull left spring strut mount to correct inclination angle with a special pulling device.

Set up Uni-Body straightening bench modular members or equivalent

Modular members A1, B1, C, D

Set up straightening bracket set for front end repairs

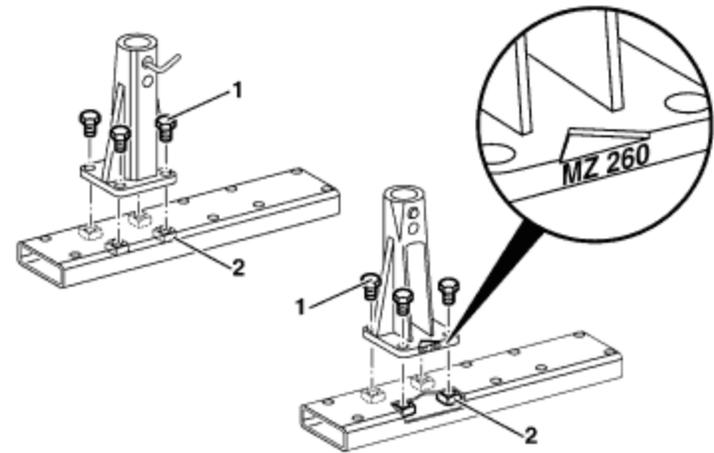
Always install assembly groups with item number circled.

The installation description applies in the same way for the left and right sides for front end repairs.

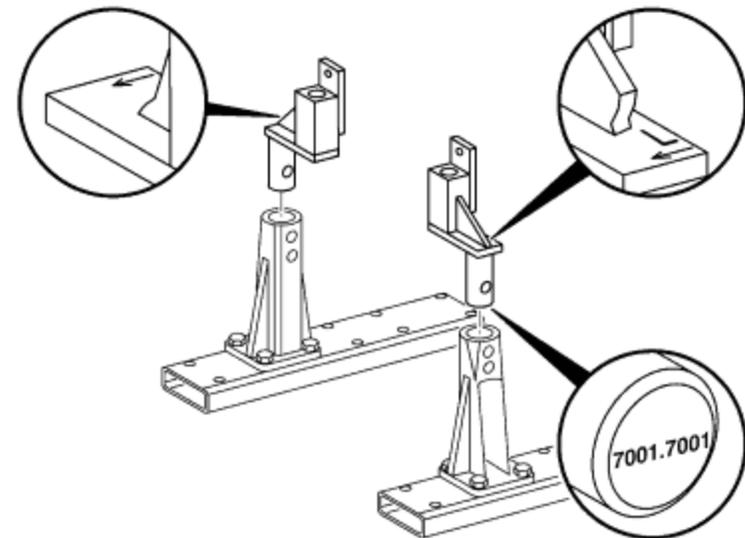
The part numbers of the supports are cast on the side.

[Back to Index](#)

1 Attach supports with hex. head bolts (1) and nuts (2) present in modular members.



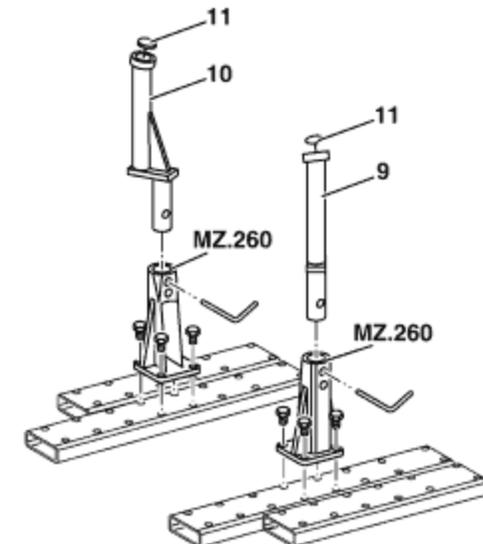
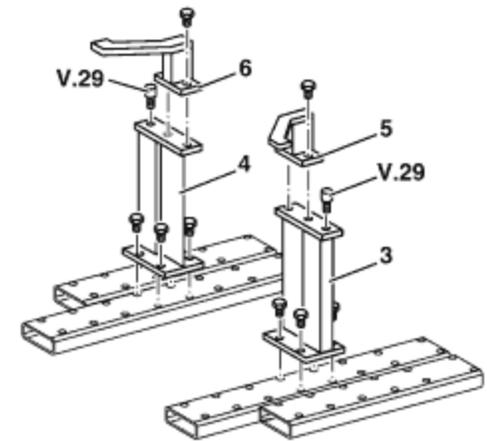
The part numbers and arrows are indicated on the straightening angles. When set up correctly, the arrows point in the direction of motion. The straightening tools for the left-hand side of the vehicle are also stamped with an "L" next to the arrow.



[Back to Index](#)

- 1 Mount for front crossmember 7001.7001 (for MZ.260)
- 2 Mount for front cross member 7001.7002 (for MZ.260)
- 3 Basic carrier 7001.7003 (for mounts 5 and 6 and centering pin V.29)
- 4 Base carrier 7001.7004 (for support 5 and 6 and centering pin V.29)
- 5 Mount for securing floor panel 7001.7005 (for base carrier 3 and 4)
- 6 Mount for floor sheet attachment 7001.7006 (for basic carriers 3 and 4)
- V.29 Centering punch for front longitudinal member support (for basic carriers 3 and 4)
- 7 Mount for front axle attachment to front longitudinal member 7001.7007 (for MZ.260)
- 8 Mount for front axle attachment to front longitudinal member 7001.7008 (for MZ.260)
- 9 Mount for spring strut console 7001.7009 (for MZ.260) except all-wheel drive
- 7001.7043 (for MZ.260) all-wheel drive only
- 10 Mount for spring strut console 7001.7010 (for MZ.260) except all-wheel drive
- 7001.7044 (for MZ.260) only all-wheel drive
- 11 Checking and locating plate 7001.7011 for supports 9 and 10)

T.039 Centering punch (for mounts 7 and 8)



[Back to Index](#)

12 Mount for front axle attachment to rear longitudinal member 7001.7012 (for MZ.260)

13 Mount for front axle attachment to rear longitudinal member 7001.7013 (for MZ.260)

14 Intermediate plate 7001.7014 for mounts 16 and 17 for MZ.200)

15 Intermediate plate 7001.7015 (for mounts 16 and 17 for MZ.200)

16 Mount for rear engine mount support 7001.7016 (for MZ.200)

17 Mount for rear engine mount base 7001.7017 (for MZ.200)

18 Mount for front propeller shaft bearing console 7001.7018 (for MZ.260)

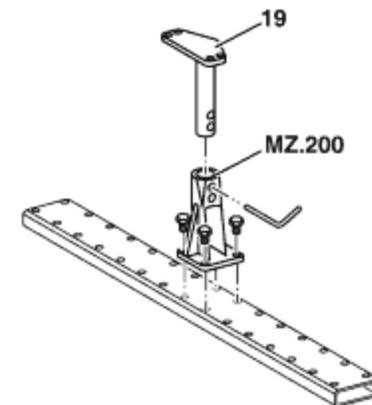
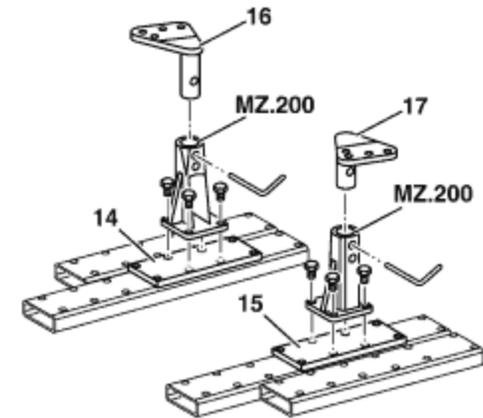
19 Mount for rear propeller shaft bearing bracket 7001.7019 (for MZ.260) i

MZ.200 support

MZ.260 Support

Adapter (19) with support MZ.200 set up only with :

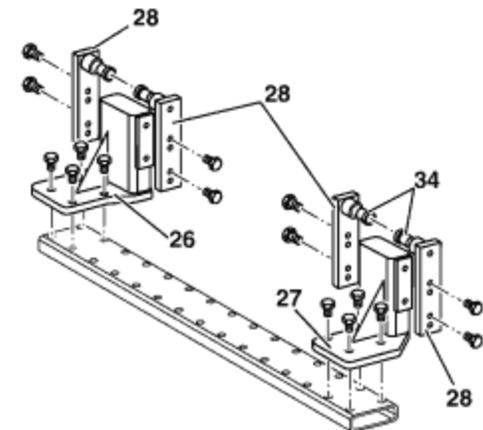
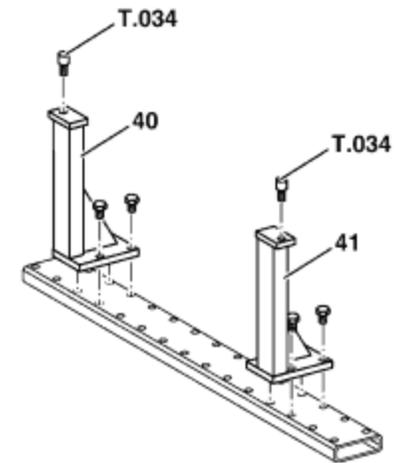
- Vehicles with wheelbase of 3550 mm and gasoline engine (M111),
- Vehicles with wheelbase 4025 mm.



[Back to Index](#)

- 20 Mount for rear spring, front spring bearing bracket 7001.7020 (for MZ.260, with spring installed and removed, only for platform vehicle/crewcab 2.5-3.5 t)
- 21 Mount for rear spring, front spring bearing bracket 7001.7021 (for MZ.260, with spring installed and removed, only for platform vehicle/crewcab 2.5-3.5 t)
- 26 Base carrier for rear spring, front spring bearing bracket 7001.7026 (with spring installed and removed, all 2.5-4.6 t except platform vehicle/crewcab 2.5-3.5 t)
- 27 Base carrier for rear spring, front spring bearing bracket 7001.7027 (with spring installed and removed, all 2.5-4.6 t except platform vehicle/crewcab 2.5-3.5 t)
- 28 Mounts 7001.7028 (for basic carriers 26 and 27)
- 34 Reducer sleeves to wrench size 18 mm 7001.7034 (for mounts 28, for all 2.5-3.5 t)
- 40 Mount 7001.7040 (for front longitudinal member base, at rear engine support)
- 41 Mount 7001.7041 (for front longitudinal member base, at rear engine support)

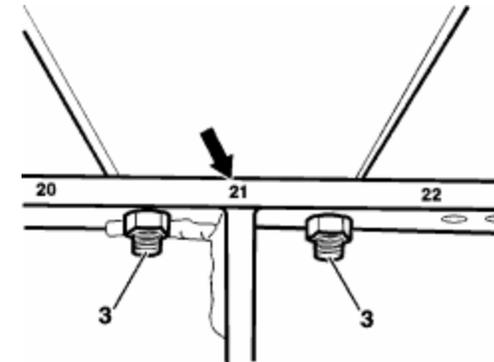
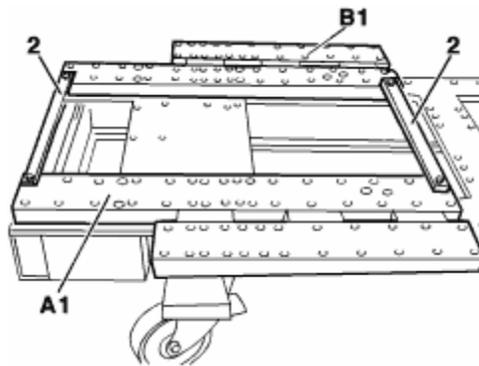
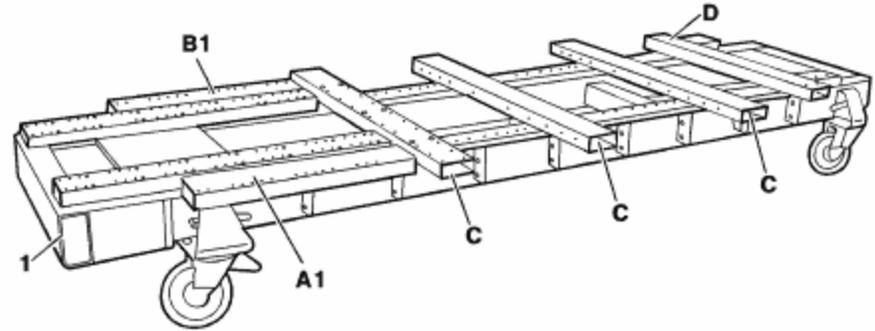
T.034 Centering punch (for mounts 40 and 41)



[Back to Index](#)

Mount Uni-Body straightening bench modular members

- 1 Uni-Body straightening bench or equivalent
- 2 Assembly strip
- 3 Countersunk screw
- TO1 Modular longitudinal member
- B1 Modular longitudinal member
- C Modular members (number dependent on installation diagram)
- D Modular auxiliary member



[Back to Index](#)

Work instructions

C, D Align a Uni-Body modular member according to the hole pattern of the straightening bench (1) and secure with countersunk screws (3) (the number of modular members (C) depends on the relevant installation diagram)

The straightening bench is split in the longitudinal direction into grid areas. The grid areas are marked with numerals (arrow) on the side flange of the straightening bench

A1, B1 Align modular longitudinal members A1 and B1 according to the hole pattern of the front base plate of the straightening bench and attach countersunk screws (3)

2 Connect the modular longitudinal members A1 and B1 with the assembly strips (2) and tighten

9, 10 Mount for spring strut console

11 Checking and locating plate 7001.7011 (for support 9 and 10)

Install check and attachment plate when performing repair or check work.

Insert check and attachment plate

Notes on straightening and welding shock-absorber strut mount
Models 901, 902, 903, 904 with all-wheel drive vehicles

1.1 When checking body:

Insert check and attachment plate (11) with offset "A" facing down (ring groove at top).

1.2 When carrying out body repair work:

Insert check and attachment plate (11) with offset "A" upward (ring groove at bottom).

[Back to Index](#)

9 Mount for suspension strut bracket 7001.7009 (for MZ.260) except all-wheel drive
7001.7043 (for MZ.260) all-wheel drive only
10 Mount for suspension strut bracket 7001.7010 (for MZ.260) except all-wheel drive
7001.7044 (for MZ.260) all-wheel drive only
11 Check and attachment plate 7001.7011 (for mount 9 and 10)

16, 17 Support with bracket MZ.200

Lock mounts in bottom hole with jack stands in upper hole.

18 Mount with jack stand MZ.260

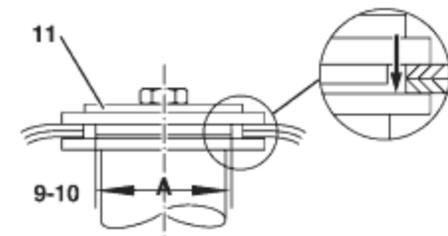
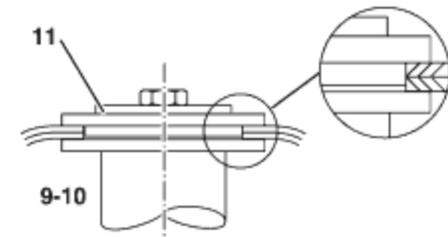
Lock mount in bottom hole with jack stand in upper hole

26, 27 Basic carrier

Screw basic carrier to modular member according to hole pattern C.

34 Reducing bushes to WAF, 18 mm

Set in mounts 28.



[Back to Index](#)

HISTORY OF COLLISION REPAIR

Time was, if you had an accident, the call went out to the insurance company - to the collision shop - or several shops - get the lowest bid and in no time at all, the vehicle was repaired.

The facilities, training, and equipment were simple. Use a torch to cut, shape, and bend. Use something substantial as an anchoring point - maybe a tree and then just pull.

Use plenty of solder or body putty to make it look good. With the frame and body vehicle, the job was easy; first straighten the frame - then fix the mechanical components and the body work was cosmetic. This was all well and good until the mid - '70s.

Then, the designers, engineers, and manufacturers had to find ways to make the vehicles energy efficient - and that meant unibody cars. The unibody concept wasn't new - back in the '30s the Chrysler Air Flow had it - race cars have it - and now the driving public worldwide has it.

The change came quickly. Manufacturers devoted time, money, and talent to develop the unibody car.

The public was ready to buy and did!

But then came the problem! The collision repair industry wasn't given the luxury of taking their time to train people in the new technology - or take time to plan for new equipment.

The collision happened and the vehicle had to be fixed. Cars that were repairable were being totalled.

Cars that were repaired were not repaired correctly. Everybody was in a **quandary** - auto manufacturer - insurance company - repair equipment people - body shops - and repair technicians.

The problem started in the early '70s and body shops are still catching up today. Yesterday's "ding" is today's "crash". It takes trained technicians and sophisticated equipment to do the repair today.

That's why DaimlerChrysler is taking the time and effort to get the right information into the hands of the people that handle the repair job.

[Back To Index](#)

DaimlerChrysler CORPORATION V.I.N. DECODING GUIDE

VEHICLE IDENTIFICATION NUMBER												
W.M.I.			V.D.S.						V.I.S.			
C O U N T R Y	M A K E	V E H I C L E T Y P E	C H A S S I S C O N F I G	M O D E L W B G V W R	M O D E L W B G V W R	E N G I N E B R A K E	E N G I N E B R A K E	C H D I G I T	Y E A R	P L A N T	S E Q U E N C E N O	
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**IMPORTED TRUCK
(SPRINTER)**

2004 MODEL YEAR

{Includes: U.S. & Canada}



DaimlerChrysler CORPORATION V.I.N. DECODING GUIDE

VEHICLE IDENTIFICATION NUMBER												
W.M.I.			V.D.S.						V.I.S.			
C O U N T R Y	M A K E	V E H I C L E T Y P E	C H A S S I S C O N F I G	M O D E L W B G V W R	M O D E L W B G V W R	E N G I N E B R A K E	E N G I N E B R A K E	C H D I G I T	Y E A R	P L A N T	S E Q N O	
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**IMPORTED TRUCK
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2004 MODEL YEAR

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VEHICLE IDENTIFICATION NUMBER											
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C O U N T R Y	M A K E	V E H I C L E T Y P E	C H A S S I S C O N F I G	M O D E L W B G V W R	M O D E L W B G V W R	E N G I N E B R A K E	E N G I N E B R A K E	C H D I G I T	Y E A R	P L A N T	S E Q U E N C E N O

**IMPORTED TRUCK
(SPRINTER)**

2004 MODEL YEAR

{Includes: U.S. & Canada}



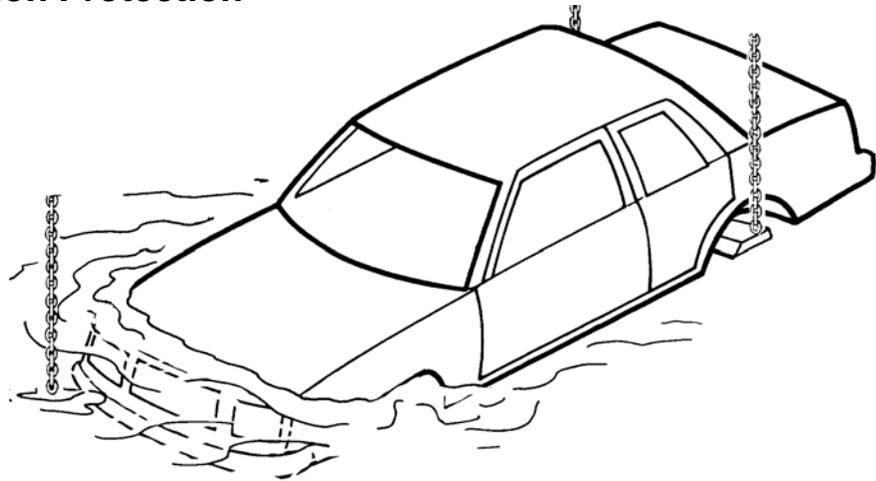
									4			Model Year 2004
										5		Duesseldorf, Germany – US Market
										R		Duesseldorf, Germany – Canadian Market
											*	Six Digit Sequential Number Assigned by Build Plant



Corrosion Protection



Corrosion Protection



Factory Applied Corrosion Protection

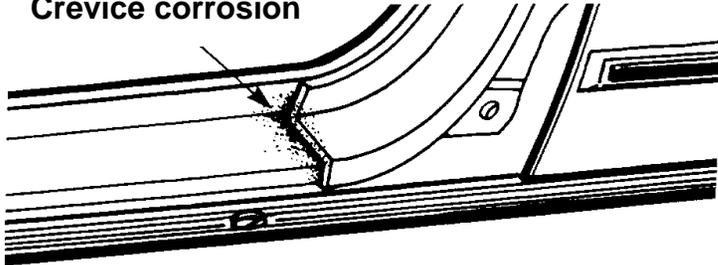
During the manufacturing of the unibody car, the manufacturer applies "corrosion protection" using specialized manufacturing processes. This system is not duplicated in the collision repair body shop. However, the body shop still has a responsibility to apply corrosion protection to the unibody vehicle. So, the collision repair shop must use alternative materials to do the corrosion protection job after the repair.

This corrosion protection is required regardless of the environment and weather conditions the vehicle will be operated in. Corrosion protection is as important in the desert as it is at the seaside. Corrosion damage can literally destroy the structural integrity of a unibody vehicle from within. Many corrosion protection systems are destroyed during collision repair operations. Metal finishing, metal working and fatigue can cause the breakdown of many of the corrosion barriers installed at the factory. The use of heat for stress relief and welding also destroys factory installed corrosion barriers. These corrosion barriers and corrosion protection systems must be replaced after collision repair to ensure that the structural integrity of the unibody will remain intact throughout its life. In the past, only vehicles with aftermarket or after-delivery corrosion protection systems installed were serviced after collision repair to restore the corrosion protection system.

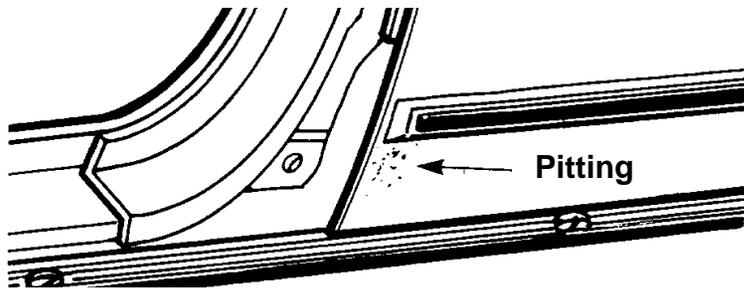
An understanding of the types of corrosion which affect the unibody vehicles will assist in understanding why the factory protection systems are important, how the factory protection systems consist of and how the systems' protection is replaced after collision and electrolytic corrosion. Some of the more common types of corrosion are **crevice corrosion**, **pitting**, **galvanic corrosion**, **stress corrosion**, **cracking**, **fretting**, and **erosion corrosion**.

Corrosion Protection

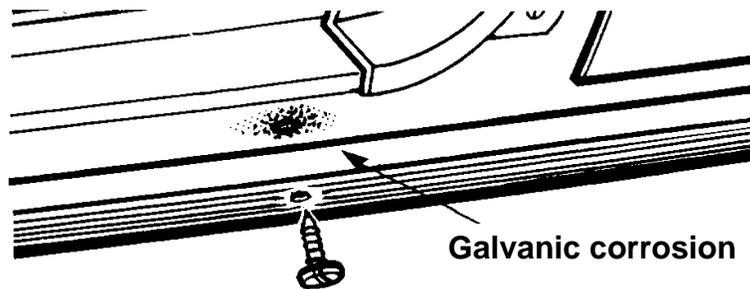
Crevice corrosion



Crevice corrosion is a form of localized attack that occurs in areas on metal surfaces exposed to the elements. Examples include spot weld lap joints, threaded or riveted connections, gasket fittings, porous welds, valve seats.



Pitting is the corrosion of a metal surface at points or small areas which look like a small hole in the metal.



Galvanic corrosion is the type that occurs when dissimilar metals are in electrical contact while immersed in an electrolyte.

Corrosion Protection

The penetration of corrosive solutions into these small areas, with widths that are typically a few thousandths of an inch, can result in various types of failures: the metal surface may become rusty in appearance, operating components may seize when protective coatings may have been removed from the metal surface. The coating of zinc on steel, known as galvanized, is an example of sacrificial cathodic protection.

An example of galvanic corrosion on the automobile is a stainless steel trim molding on a painted mild steel. When the paint becomes damaged, a galvanic corrosion cell is formed between the passive stainless steel (cathode) and the steel (anode). The corrosion leads to what would look like a rust stain. Methods of reducing galvanic corrosion include the use of compatible materials, minimizing of cathode-to-anode areas, the insulation of dissimilar metal contacts and the use of thick, replaceable sections.

Stress corrosion, cracking, fretting, and erosion corrosion.

Corrosion cracking is the early cracking of metals produced by the combined action of tensile stress and a corrosive atmosphere.

Corrosion fatigue is cracking due to the action of stresses and corrosion. Methods of reducing corrosion fatigue include the reduction in stress and the use of coatings.

Fretting is the deterioration of a metal at contact surfaces due to the presence of a corrosive and relative motion between the surfaces. The two metal surfaces initially are covered with an oxide film that becomes abraded during vibration. The results are oxide particles that become corroded. During the collision repair process, the factory protection materials become damaged from working the metals, or from the use of heat in the repair operations. If these factory protection materials are not replaced with some similar protection material after repair, a corrosion hot spot is formed. A corrosion hot spot is a small unprotected area surrounded by a protected area throughout the rest of the vehicle. The hot spot effect causes rapid deterioration of the unprotected area. This deterioration takes place at a much faster rate, sometimes 10-12 times faster than if the entire car were unprotected. The hot spot effect is created because all the corrosive factors are channeled to the unprotected area much the same way all material flowing through a funnel is concentrated in a small area. This hot spot effect means that corrosion failures to the unibody structure could occur in a short period of time even in an atmosphere normally not subject to corrosion. The hot spot effect can cause rapid deterioration of unibody structures from corrosion damage in a desert as well as seaside.



Corrosion Protection

The types of materials used in rustproofing application include oil based materials, wax base materials, primers and color coats. The most important properties of rustproofing materials are adhesion, toughness, and the resistance to the environment. The best coating in the world is not effective unless it is present in the right place at the right time.

Corrosion Protection Information

When making the collision repair, refer to the manufacturer's information on where corrosion protection and sealants are applied. Be sure to follow the recommendations. The application process is usually included with the material manufacturer's information so be sure to read and understand it before proceeding with the repair.

Collision Repair Corrosion Protection Materials

The materials must provide good **electrolyte barriers**. The material must also be able to penetrate **tiny crevices** and prevent **abrasive corrosion**. The material must be **compatible** with **paint systems** as many areas of the car must be treated before paint is applied.

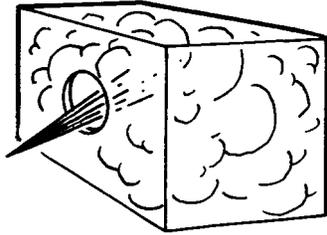
Materials containing silicones will cause paint conditions such as fish eyes if they are applied before the repaired vehicle is painted. So no silicone containing material is to be used. As many of the repair areas are more accessible before final assembly and painting, the non-silicone type materials are a must for this type of application.

When protecting an enclosed area, fog type properties for the corrosion protection material are a plus. The fog properties make the material much less susceptible to operator error or misapplication. With a fog type material, once the material is introduced inside of an enclosure, the fog spreads rapidly and evenly into all areas including tiny crevices. The fog type materials do not require direct spray application to be effective. Fog type materials are also very effective in coating over any existing rusted or corrosion damaged areas and preventing further corrosion of these areas. This is especially important on repairs of older vehicles.

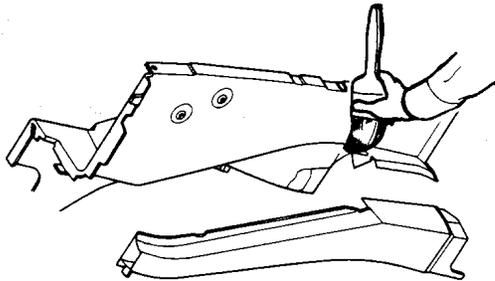


Corrosion Protection

Spray Accessibility to the Repair



Being able to achieve fog spray penetration into enclosed cavities as well as open areas requires application equipment, which includes an assortment of wands of various lengths and design.



Some areas are more effectively treated by brush application of corrosion protection material before they are assembled. A good example of this is an inner and outer engine compartment side rail area. Brush application to the inside of these areas as individual pieces is easy before assembly and can be followed by a light fog application to the weld areas and the crevices formed during assembly after the rails are assembled. Brush application keeps the foreign material from getting between welded joints during assembly yet gives good coverage to general areas with easy application. The material selected in addition to paint compatibility features and fog application features is also an excellent brush application material. Repaired areas, boxed in or closed in are more easily treated during assembly using fog and brush on techniques. Care must be taken to keep the corrosion materials away from the welding areas as welding contamination might take place. Brush-on applications are used before welding and fog in applications are used after welding assemblies together.



Corrosion Protection

Desired Characteristics of Corrosion Protection Material

- 1. Corrosion prevention material-** The material must displace water to prevent corrosion. This can be tested by spraying water on an open panel on the floor, then spraying the corrosion preventative material over the watered panel and observing if the material displaces the water.
- 2. Creepage of material-** To insure thorough and complete protection coverage, the material should have a "creep" capability, approximately 1/4 inch per minute while drying. This assures protective penetration of pinch welds, cracks, etc.
- 3. Safe material-** Material should be non-combustible when dried and when wet unable to support a fire after ignition.
- 4. Clean-up-** The material should be of a viscosity which inhibits runs or drips. Overspray on a vehicle's painted surface should wipe off easily without solvent when wet, with solvent when dry. The material should also dry clean off clothing.
- 5. Guarantee/Warranty-** The corrosion protection has to be done to maintain factory corrosion warranty. Manufacturer's recommendations must be followed.

Glossary:

Abrasion Corrosion - Rubbing or hitting of one material by another

Corrosion Protection - Material applied to deter corrosion (oxidation)

Crevice Corrosion - Oxidation when two metals are joined

Electrolytic Corrosion - Electrical action taking place between two materials in the presence of an electrolyte (liquid)

Fogging - Applying material in a mist form

Fretting - Deterioration of metal at contact surfaces due to motion and corrosive elements

Galvanic Corrosion - Electrical action (electrolysis) between two dissimilar metals in the presence of electrolyte (liquid)

Hot Spot - An unprotected area subject to corrosion

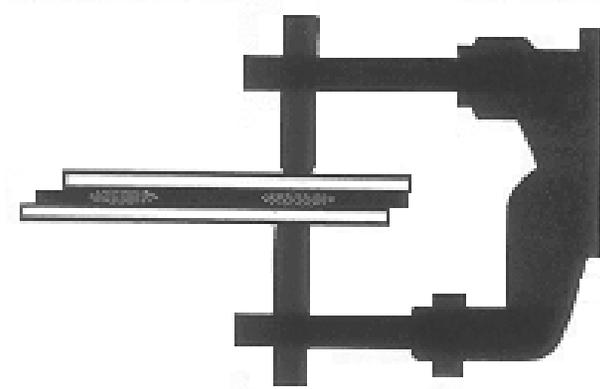
Pitting Corrosion - Corrosion on a surface the results in a small "specks" or "pinholes"

Stress of Fatigue, Cracking Corrosion - Cracking due to stress and atmospheric elements



WELDED PANEL REPLACEMENT

DODGE SPRINTER



The basic parts of the body structure are the welded panels. This section contains a brief description of the placement of some of the panels and their weld locations.

Note: To ensure the strongest, most durable and cleanest welds possible, perform testing before and during all weld procedures. Always follow American Weld Society specifications and procedures.

Note: Diagrams do not show all of the parts.

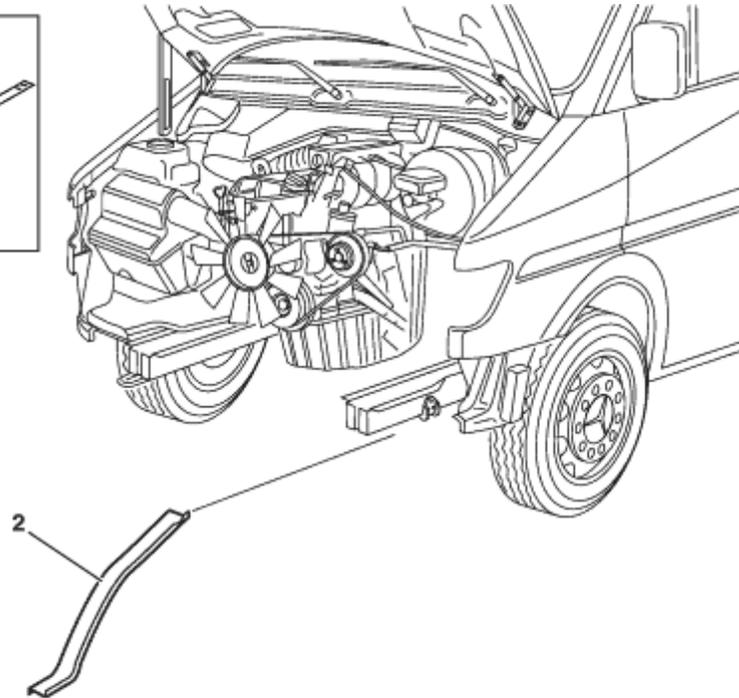
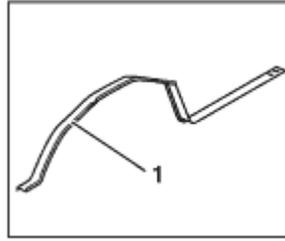


Substructure



Remove/install connection part in engine compartment

1. Connection element
2. Section of engine compartment connection element



Remove

1. Remove end section
2. Remove detachable body components in area to be repaired
3. Cover all detachable parts remaining in area to be repaired.
4. Separate section of engine compartment connection element (2) Cut out spot welds
5. Straighten connecting plates, grind off and coat with zinc dust paint



Remove/install connection part in engine compartment

Install

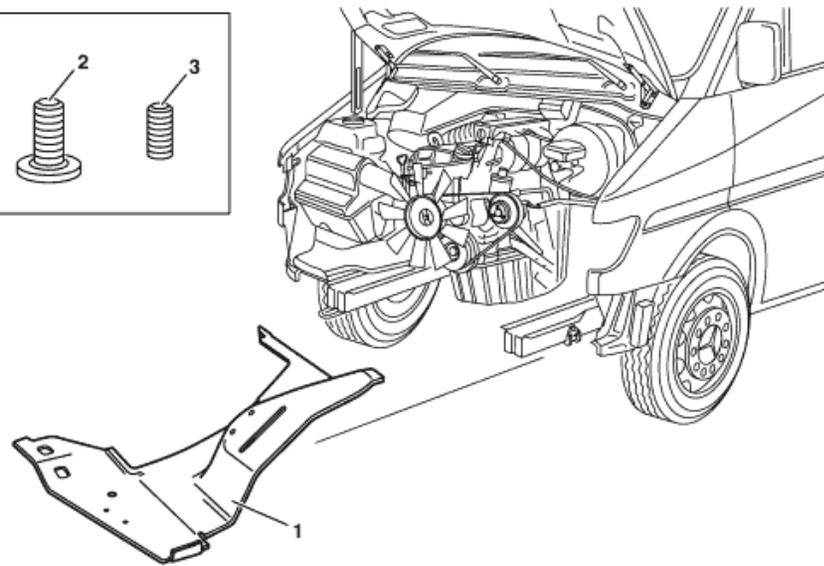
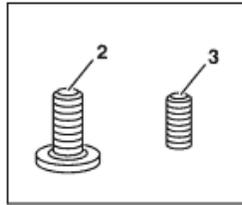
6. Prepare engine compartment connection element section (2) for installation
7. Fit engine compartment connection element section (2), align and clamp in place
8. Weld in engine compartment connection element section (2)
9. Grind down extending welding material
10. Install end section
11. Clean areas to be repaired with primer/filler
12. Supplement standard seals with body sealant Seam sealing after repairs
13. Add permanent underfloor protection as a supplement to underbody protection installed as standard
14. Paint repair area and adjacent surfaces
15. Supplement cavity preservation
16. Reinstall all detachable body components removed



Remove/install end tips

Illustrated repair for left tip

1. End tip
2. Welding bolts
3. Welding bolts



1. Remove front bumper
2. Remove front end center section
3. Remove radiator
- 4.1. Remove heater unit
- 5.1. Remove windshield washer system supply reservoir, air cleaner housing and signal horn
- 6.1. Remove hydraulic module
- 7.1. Remove shield for turbocharger
- 8.1. Remove battery, battery holder and engine control module with mount
- 9.1. Remove mount for signal horn
- 10.1. Remove mount for ABS unit
- 11.1. Remove mount for heater
- 12.1. Remove mount for battery mount
13. Remove miscellaneous detachable body components in repair area
14. Cover all detachable parts remaining in area to be repaired.
15. Separate end tip (1)
16. Straighten connecting plate, grind off and coat with zinc dust paint



Remove/install end tips

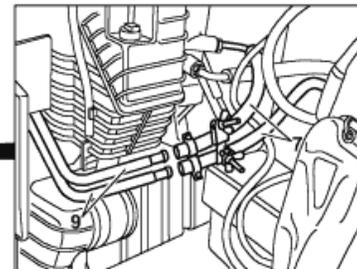
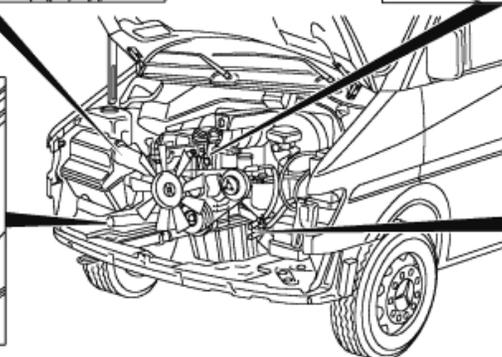
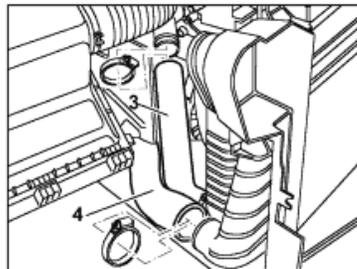
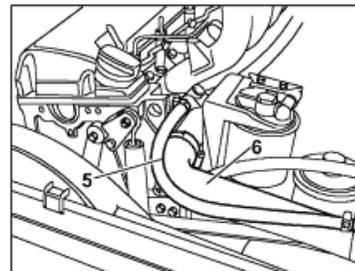
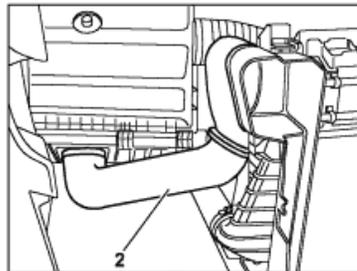
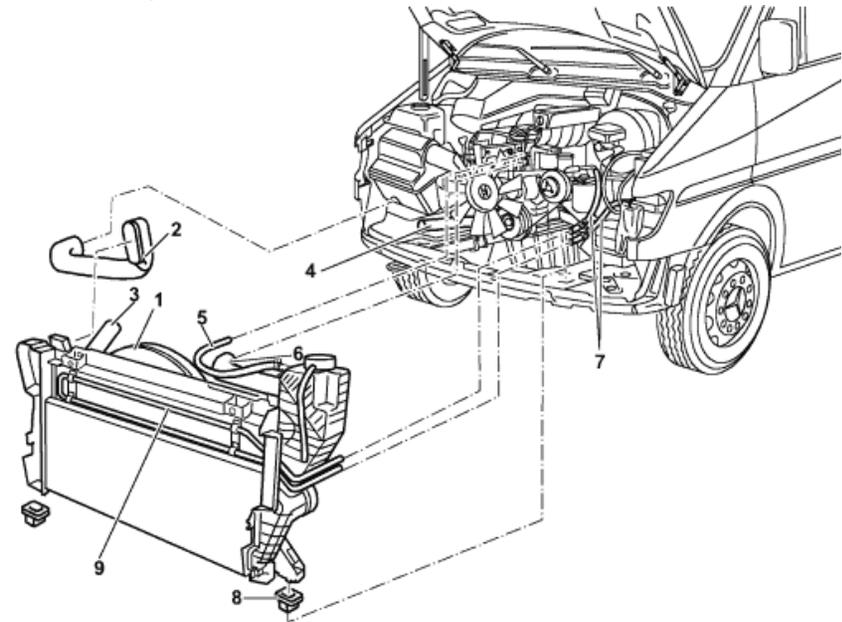
Install

17. Prepare end tip (1) for installation
18. Fit end tip (1), align and clamp in place
19. Weld in end tip (1)
- 20.1. Instal mount for ABS unit When repairing left end tip
- 21.1. Install mount for signal horn
- 22.1. Install H12 heater mount
- 23.1. Instal holder for battery mount
- 24.1. Weld in welding bolts (2 and 3)
25. Grind down extending welding material
26. Vacuum out hollow cavities
27. Clean areas repaired and prime with MB primer/filler
28. Supplement standard seals with MB body sealing compound
29. Add MB permanent underfloor protection as a supplement to underbody protection installed as standard
30. Paint repair area and adjacent surfaces
- 31.1. Install engine control module with mount, battery carrier and battery When repairing left end tip
- 32.1. Install heat shield for turbo charger When repairing right end tip
- 33.1. Install hydraulic unit When repairing left end tip
- 34.1. Remove windshield washer system supply reservoir, air cleaner housing and signal horn
- 35.1. Install heater When repairing left end tip
36. Install radiator
37. Install front end center section
38. Bolt on front bumper
39. Reinstall other detachable body components



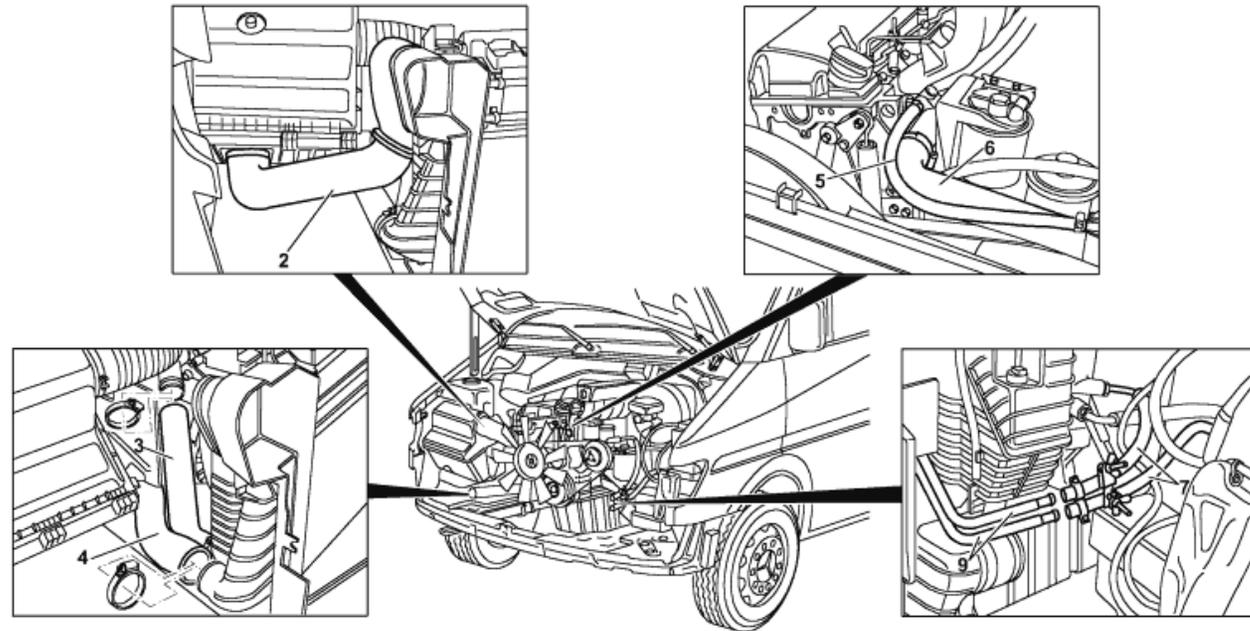
Removing and installing radiator

1. Radiator
2. Air intake hose
3. Coolant hose
4. Boost air hose
5. Coolant hose
6. Coolant hose
7. Oil pipes
8. Rubber glands
9. Cooling loop



Removing and installing radiator

1. Radiator
2. Air intake hose
3. Coolant hose
4. Boost air hose
5. Coolant hose
6. Coolant hose
7. Oil pipes
8. Rubber glands
9. Cooling loop

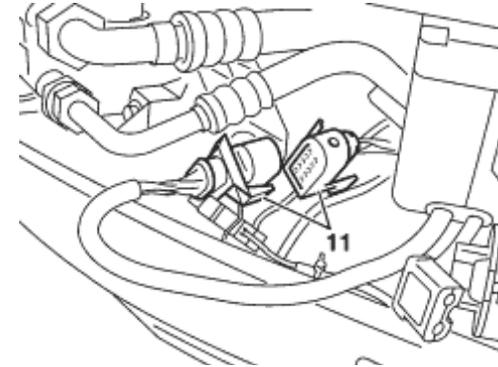
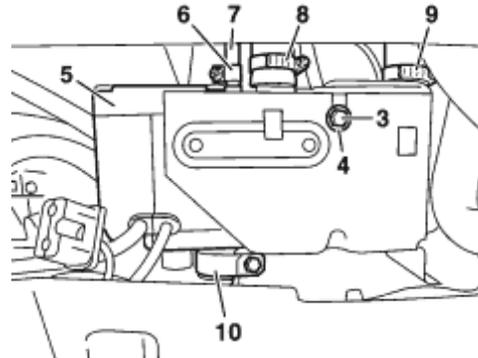
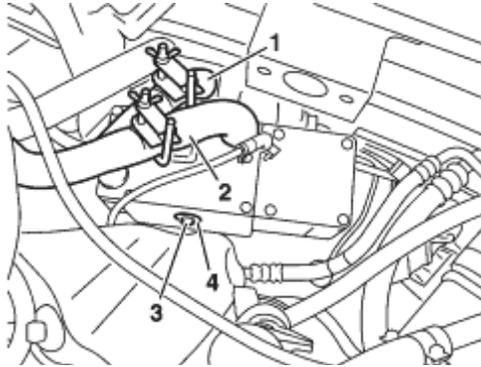


Removing, installing

1. Disconnect ground cable at battery.
2. Drain coolant
3. Remove center section of front end
4. Detach coolant hoses (5, 6) at the coolant outlet connection
5. Pinch off oil pipes (7), slacken at the cooling loop (9) and detach
6. Remove air intake hose (2)
7. Detach coolant hose (3) at the engine
8. Detach boost air hose (4)
9. Take out radiator (1)
10. Remove rubber glands (8)
11. Install in the reverse order



Remove/install heater



Remove/install

1. Remove left front headlamp
2. Remove headlamp cleaning system
3. Remove front bumper
4. Pinch off coolant hoses (1, 2)
5. Remove circulation pump from heater bracket
6. Detach coolant hoses (1, 2) from heater connecting pipes
7. Remove fuel line (7) from heater unit Seal fuel line using a suitable plug
8. Release clamp (10) for exhaust-gas line
9. Remove exhaust-gas line from heater
10. Unplug 8-pin connector (11)
11. Undo screws (3) and remove heater unit (5)
12. Install in reverse order
13. Start engine and bleed cooling and heating system.
14. Switch off engine
15. Check for leaks on coolant hose connections
16. Check auxiliary heater for proper operation

1. Coolant hose

2. Coolant hose

3. Bolt

4. Washer

5. Heater unit

6. Hose clamp

7. Fuel pipe

8. Hose clamp

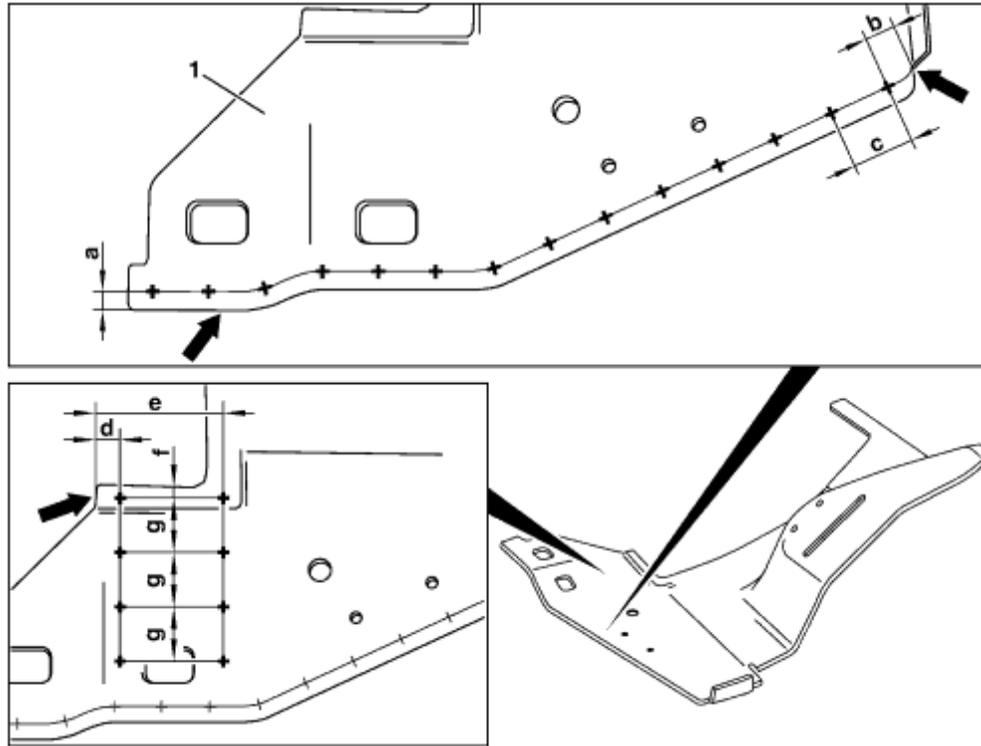
9. Hose clamp

10. Clamp

11. 8-pin connector



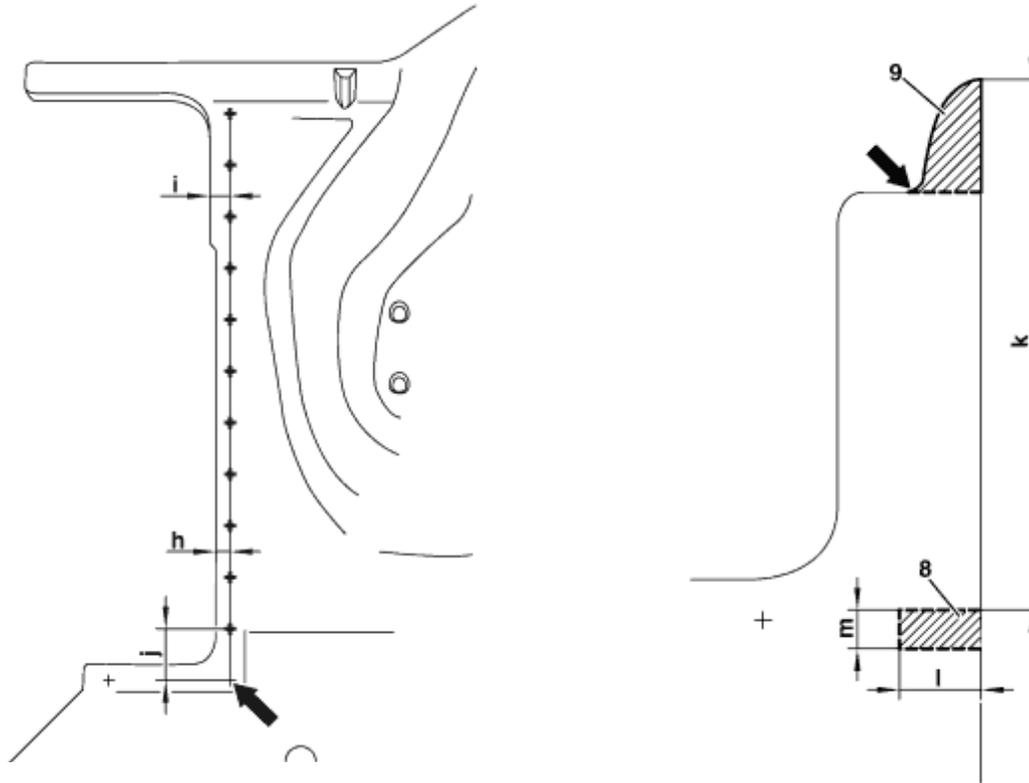
Preparing end tip for installation



1. Mark holes on end tip (1) as follows:
2. Mark auxiliary line at a distance of $a = 10$ mm measured from outer edge (arrow).
3. Mark first hole (+) at a distance of $b = 20$ mm measured from outer edge (arrow).
4. Mark 13 additional holes (+) with a corresponding distance of $c = 40$ mm.
5. Mark auxiliary line at a distance of $d = 15$ mm and auxiliary at a distance of $e = 100$ mm measured from outer edge (arrow).
6. Mark each first hole (+) at a distance of $f = 10$ mm measured from the outer edge.
7. Mark remaining 6 holes (+) at a distance of $g = 45$ mm each.



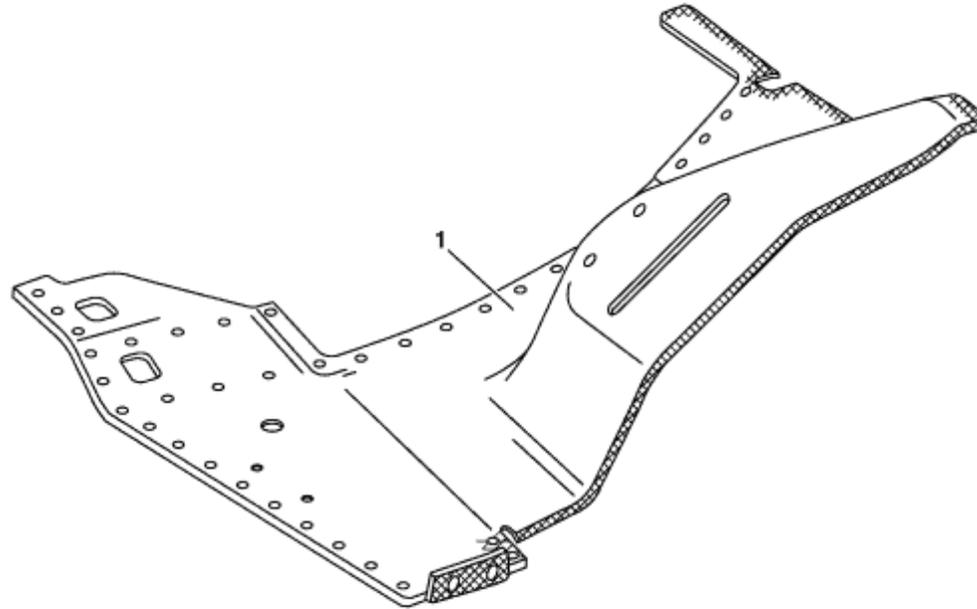
Preparing end tip for installation



8. Mark auxiliary line at a distance of $h = 10 \text{ mm}$ and $i = 15 \text{ mm}$ from outer edge.
9. Mark first hole (+) at a distance of $j = 45 \text{ mm}$ measured from already marked hole (arrow), also mark additional 10 holes (+) at a distance of $j = 45 \text{ mm}$ each.
10. Mark shaded area (8) with dimensions $l=30 \text{ mm}$ and $m=25 \text{ mm}$, at a distance of $k=210 \text{ mm}$ measured from outer edge and cut out.
11. Separate shaded area (9) at edge (arrow).
12. Drill all marked holes (+) with 6 mm.



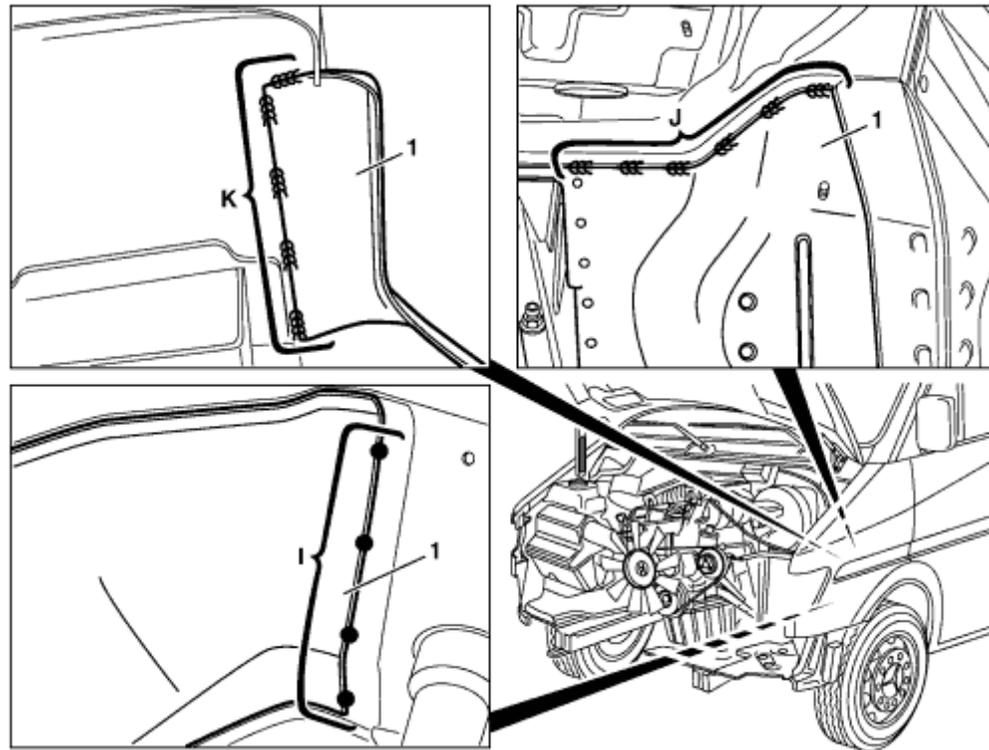
Preparing end tip for installation



13. Grind end tip (1) down to bare metal on both sides in area of marked holes and coat with zinc dust paint.
14. Grind end tip (1) down to bare metal on both sides in marked areas and coat with zinc dust paint.



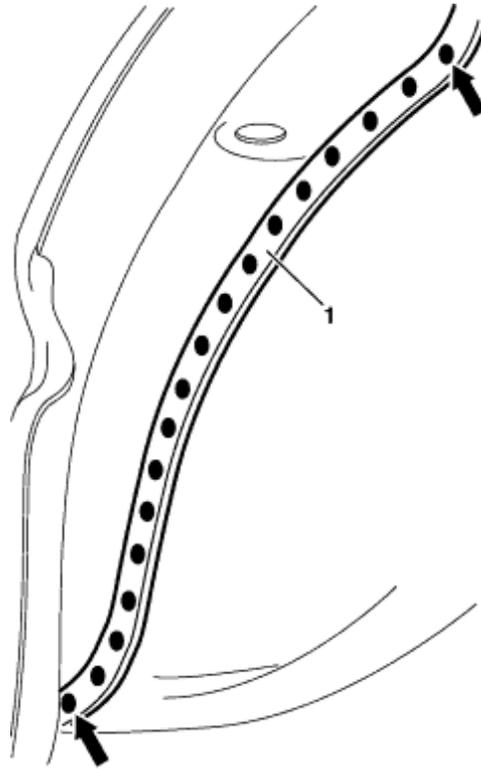
Welding in end tip



1. Spot weld end tip (1) (area I).
2. Weld end tip (1) between welds with approx. 30 mm long welds and at uniform distance (areas I and K).



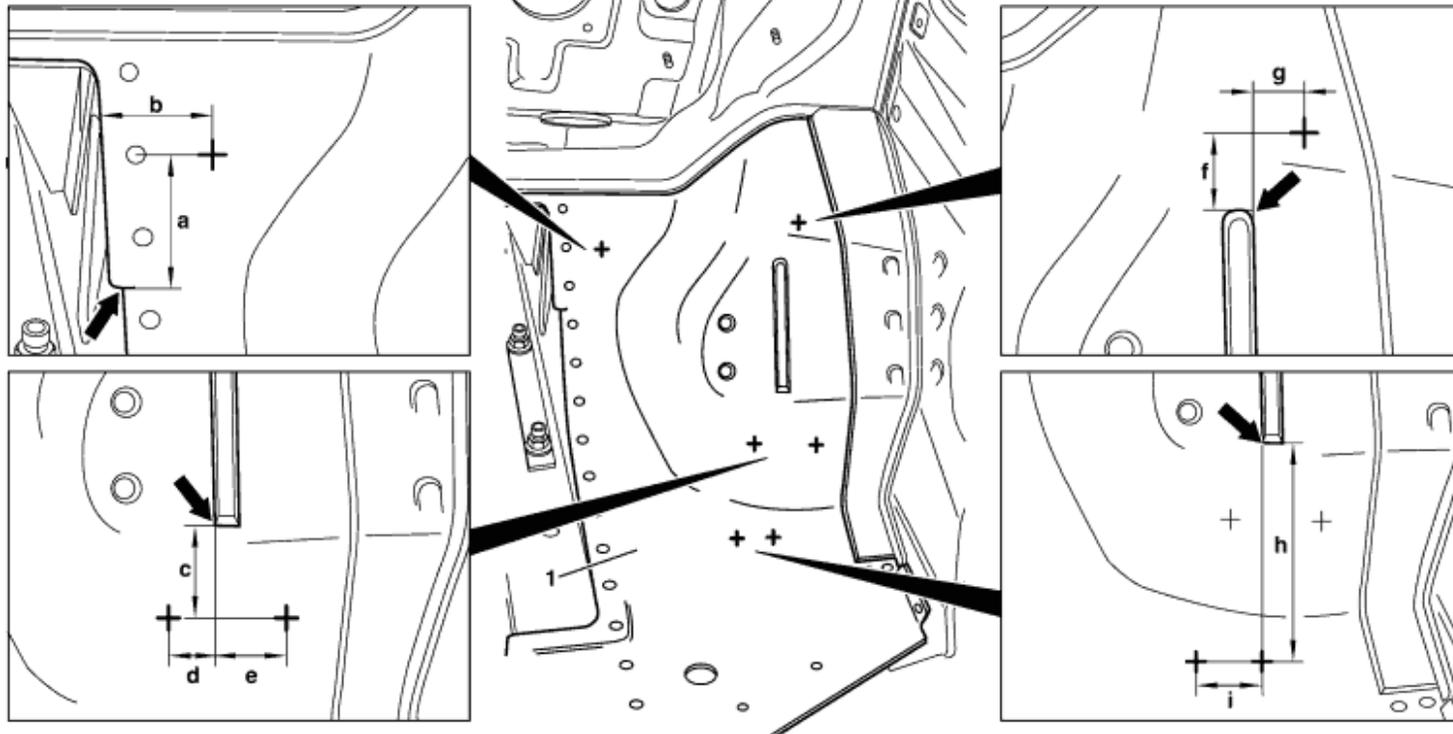
Welding in end tip



3. Weld end tip (1) to wheelhouse (arrows)

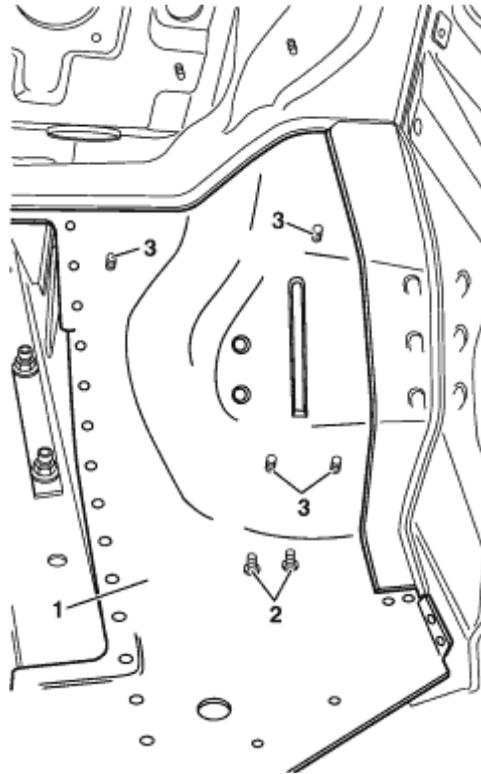


Welding on welding pin



1. Mark (+) at a distance of $a = 70$ mm measured from edge (arrow) and at a distance of $b = 50$ mm measured from outer edge.
2. Mark auxiliary line at a length of $c = 80$ mm measured from edge (arrow).
3. Mark (+) at a distance of $d = 20$ mm measured from auxiliary line.
4. Mark (+) at a distance of $e = 70$ mm measured from auxiliary line.
5. Mark auxiliary line at a length of $f = 40$ mm measured from edge (arrow).
- 6 Mark (+) at a distance of $g = 30$ mm measured from auxiliary line.
7. Mark auxiliary line at a length of $h = 175$ mm measured from edge (arrow).
8. Mark (+) at end of auxiliary line
9. Mark (+) at a distance of $i = 30$ mm measured from auxiliary line.
10. Grind end tip (1) down to bare metal in area of markings (+) and coat with zinc dust paint.

Welding on welding pin



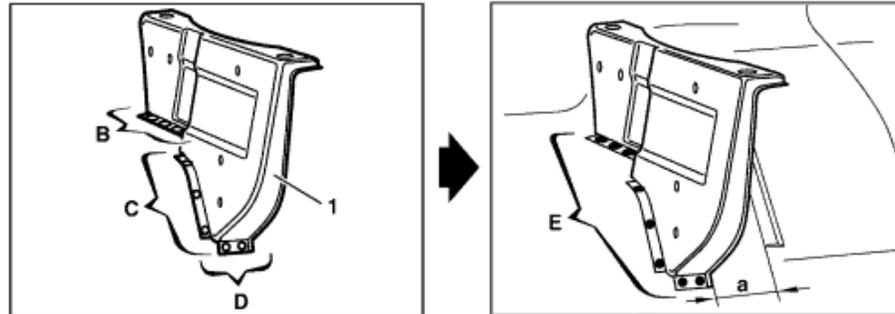
11. Weld welding bolts (2 and 3) onto end tip (1).



Remove/install holder for battery mount

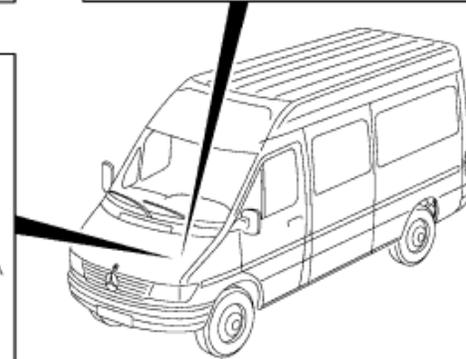
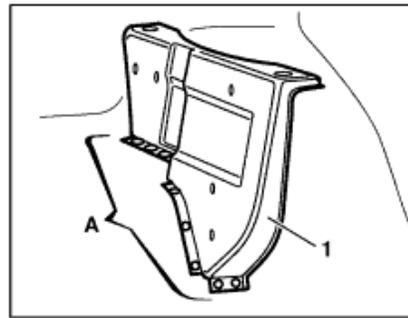
Illustrated on van

- 1. Holder for battery mount
- A-E Areas
- a=gap 45 mm



Remove

- 1. Remove battery
- 2. Remove battery mount
- 3. Remove detachable body components
- 4. Cover all detachable parts remaining
- 5. Expose welds in area A and cut out
- 6. Remove holder (1)



Install

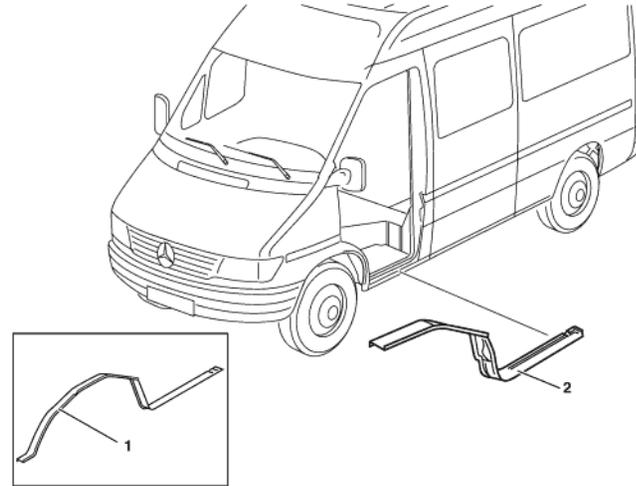
- 7. Drill three 6 mm dia. holes in areas (B and C) of mount (1) at a uniform interval.
- 8. Drill two 6 mm dia. holes at a uniform distance in area (D)
- 9 Grind mount (1) down to bare metal on both sides in area of cut out or punched holes and coat with zinc dust paint
- 10. Position mount (1) at a distance of a=45 mm measured from ridge, fit and align
- 11. Weld holder (1) to front floor, area E.
- 12. Grind down extending welding material
- 13. Clean areas to be repaired with MB primer/filler
- 14. Add MB permanent underfloor protection as a supplement to underbody protection installed as standard
- 15. Paint repair area and adjacent surfaces
- 16. Reinstall all detachable body components removed



Remove/install connection part in cab

Illustrated on van
with 158" wheelbase

1. Connection element
2. Section of cab connection element



Remove

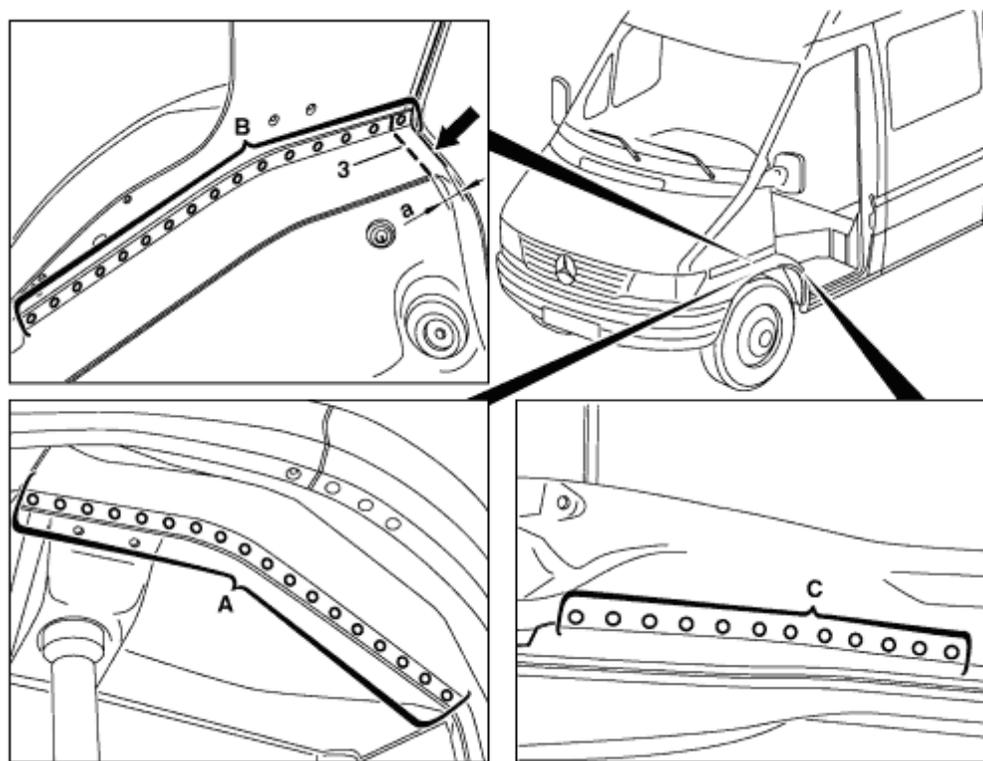
1. Remove door entry step
2. Remove detachable body components in area to be repaired
3. Cover all detachable parts remaining in area to be repaired.
4. Separate cab connection element section (2)
5. Straighten connecting plates, grind off and coat with zinc dust paint

Install

6. Prepare engine compartment connection element section (2) for installation
7. Fit engine compartment connection element section (2), align and clamp in place
8. Weld in cab connection element section (2)
9. Grind down extending welding material
10. Install door entry step
11. Clean areas repaired and prime with primer/filler
12. Supplement standard seals with body sealing compound
13. Add permanent underfloor protection as a supplement to underbody protection installed as standard
14. Paint repair area and adjacent surfaces
15. Supplement cavity preservation
16. Reinstall all detachable body components removed



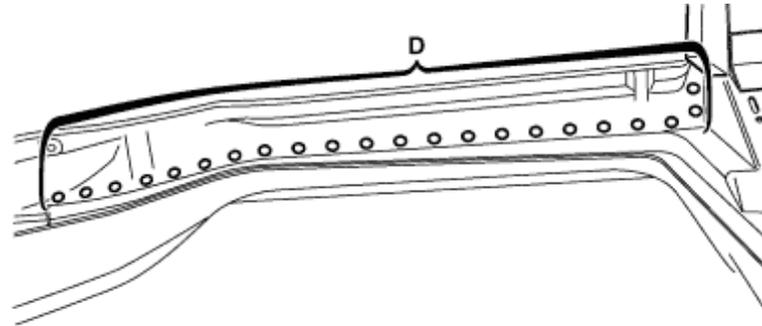
Separating section of connection element in cab



1. Expose spot welds in area (A) and cut out.
2. Expose spot welds in area (B) and cut out.
3. Mark separation line at a distance of $a=20$ mm measured from the edge (arrow).
4. Expose spot welds in area (C) and cut out.



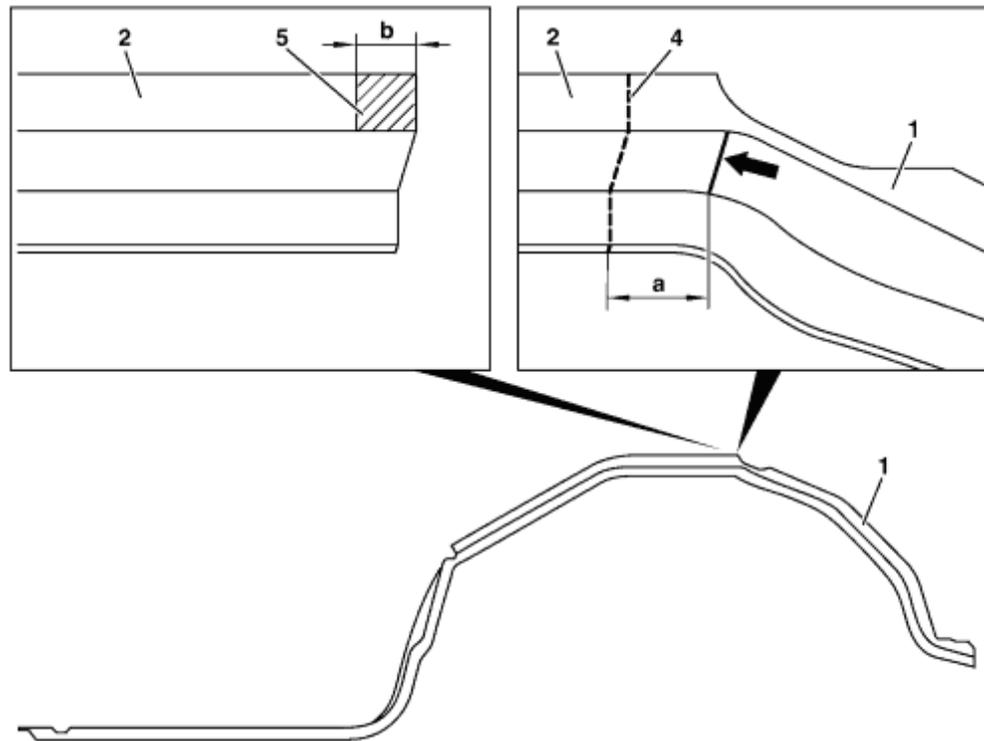
Separating section of connection element in cab



5. Expose spot welds in area (D) and cut out.



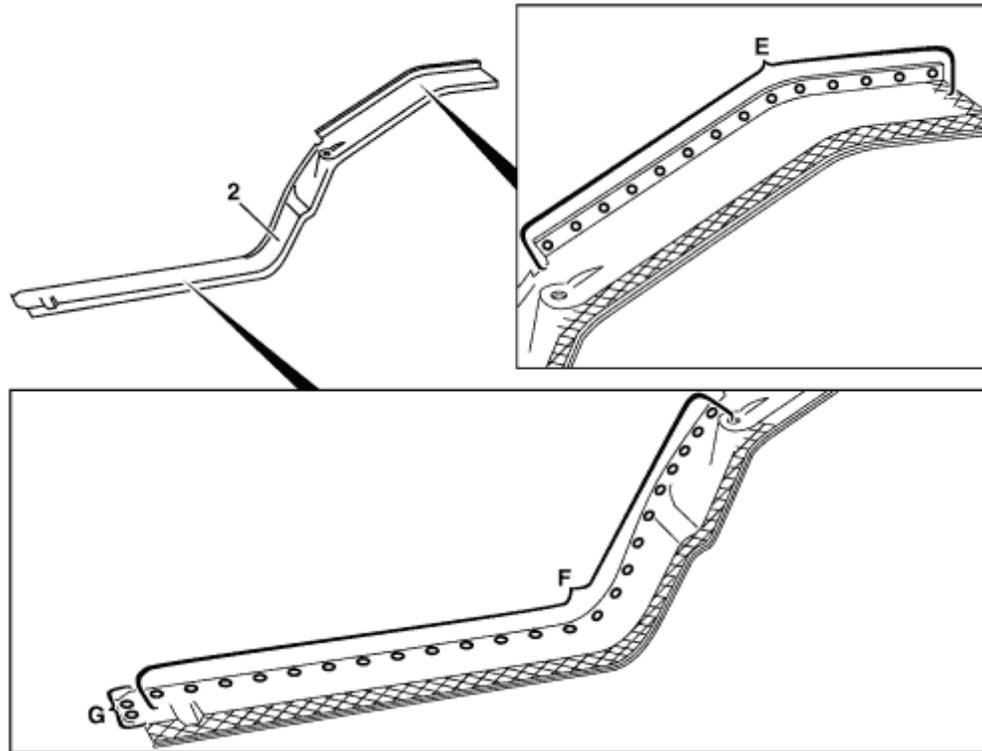
Preparing section of connection element in cab for installation



1. Mark separation line (4) at a distance of $a = 30$ mm measured from edge (arrow).
2. Cut section (2) off of connection element (1) along separation line (4).
3. Cut shaded area (5) off to width of $b=10$ mm.



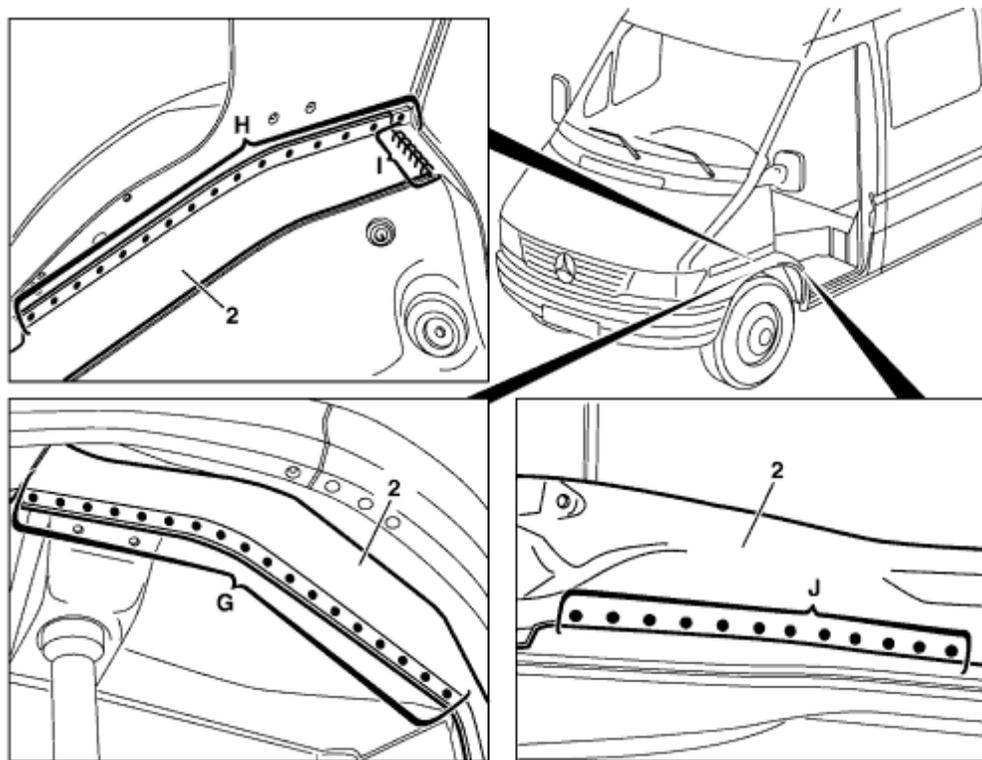
Preparing section of connection element in cab for installation



4. Drill holes in areas (E and F) at uniform distance of 40 mm and 6 mm.
5. Drill two holes in area (G) at a uniform distance and 6 mm.
6. Grind connection element section (2) down to bare metal in marked areas and in area of holes and coat with zinc dust paint.



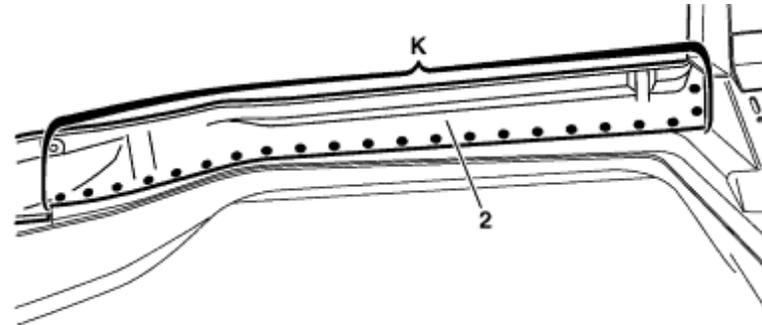
Welding in section of connection element in cab



1. Weld connection element (2) to body (area G, areas H and J, area I).



Welding in section of connection element in cab

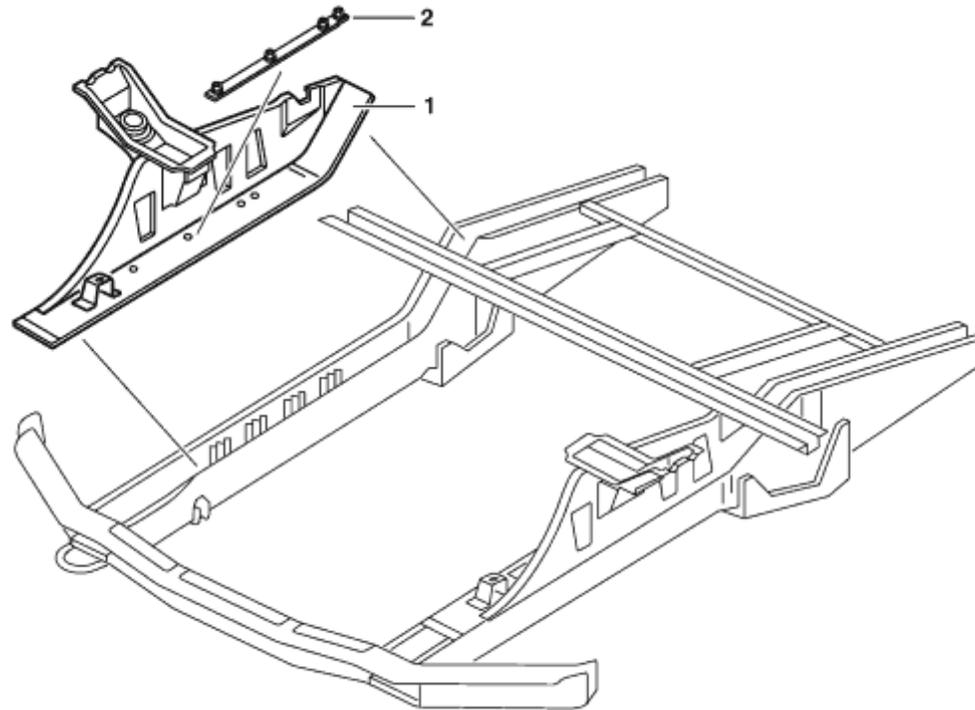


2. Weld connection element (2) to body (area K).



Remove/install body console with spring strut mount

1. Body console
2. Mounting rail for front axle



Remove

1. Remove floor panel in cab
2. Remove detachable body components in area to be repaired
3. Cover all detachable parts remaining in area to be repaired.
4. Separate body console (1)
5. Straighten connecting plates, grind off and coat with zinc dust paint



Remove/install body console with spring strut mount

Install

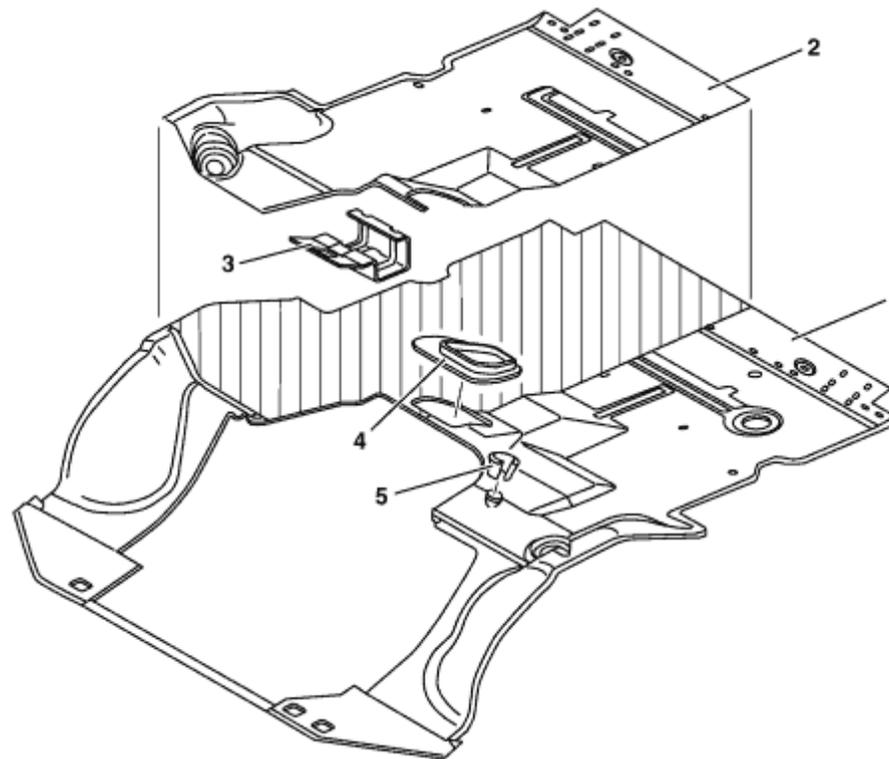
6. Prepare body console (1) for installation
7. Fit body console (1), align and clamp in position
8. Insert check and locating plate Insert check and locating plate in position of repair.
9. Weld in body console (1)
10. Weld in retaining rail (2) for front axle
11. Grind down extending welding material
12. Install floor panel in cab
13. Pull shock absorber strut mount with puller to prescribed incline angle
14. Punching in vehicle identification number
15. Clean areas to be repaired with primer/filler
16. Supplement standard seals with body sealant
17. Add permanent underfloor protection as a supplement to underbody protection installed as standard
18. Paint repair area and adjacent surfaces
19. Supplement cavity preservation
20. Reinstall all detachable body components removed



Remove/install front floor in cab up to firewall

Repair illustrated for right half of floor

1. Front floor
2. Front floor section
3. Jack tube
4. Round cover plate for shift guide, selector lever leadthrough
5. Bracket for accelerator pedal stop buffer/kickdown switch



Remove/install front floor in cab up to firewall

Remove

1. Remove seats and seat structure / seat frames
2. Remove floor mat
3. Remove partition
4. Remove miscellaneous detachable body components in repair area
5. Cover all detachable parts remaining in area to be repaired.
6. Remove entry assembly
7. Remove connecting part in cab
8. Remove jack tube (3)
9. Remove rosette for shift guide, selector lever feed-through (4)
10. Remove bracket (5) for accelerator jounce bumper/kickdown switch
11. Detach front floor (1) up to firewall
12. Straighten connecting plate, grind off and coat with zinc dust paint



Remove/install front floor in cab up to firewall

Install

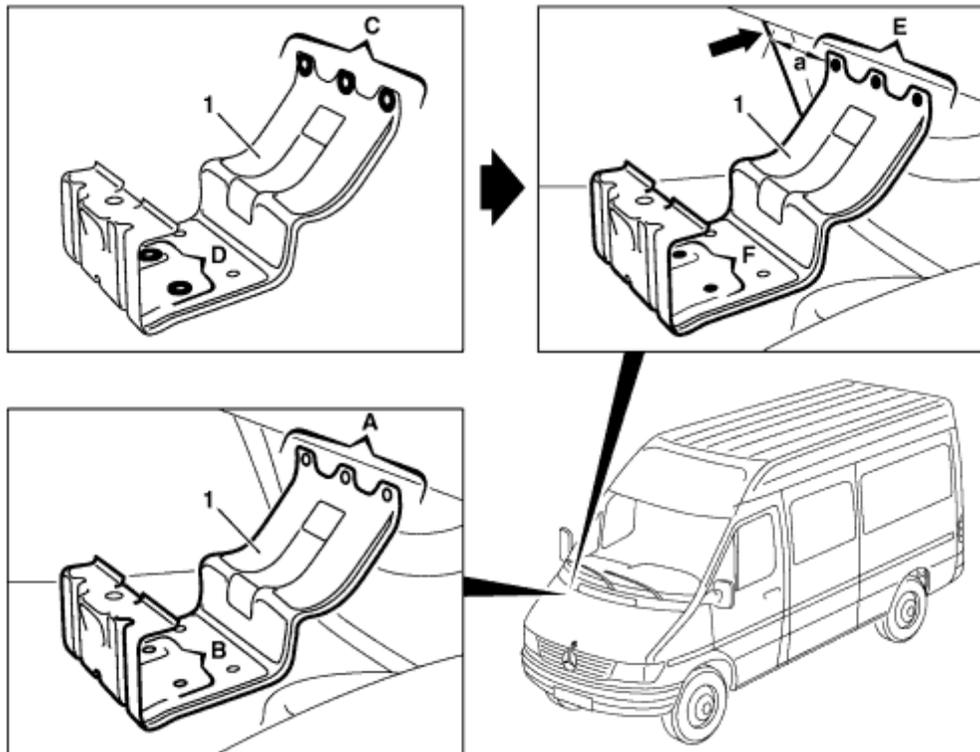
13. Prepare floor part of front (2) for installation
14. Fit front part of floor (2), align and clamp in position
15. Insert check and locating plate
16. Weld in front part of floor (2)
17. Install jack tube (3) Only for repairs to floor half on passenger side.
18. Install rosette for shift guide, selector lever feed-through (4)
19. Install bracket (5) for accelerator jounce bumper/kickdown switch
20. Install connecting part in cab
21. Install entry assembly
22. Grind down extending welding material
23. Vacuum out hollow cavities
24. Pull shock absorber strut mount with puller to prescribed incline angle
25. Clean areas repaired and prime with primer/filler
26. Supplement standard seals with body sealing compound
27. Add permanent underfloor protection as a supplement to underbody protection installed as standard
28. Paint repair area and adjacent surfaces
29. Supplement cavity preservation
30. Install partition
31. Install floor mat
32. Remove seats and seat structure / seat frames
33. Reinstall miscellaneous detachable body components



Remove/install jack socket

1. Jack tube

A-F Areas



Remove

1. Remove detachable body components in area to be repaired
2. Cover all detachable parts remaining in area to be repaired.
3. Expose spot welds in areas (A and B) and cut out.
4. Remove jack socket (1)
5. Grind connecting panels down to bare metal in area of spot welds cut out and coat with zinc dust paint



Remove/install jack socket

Install

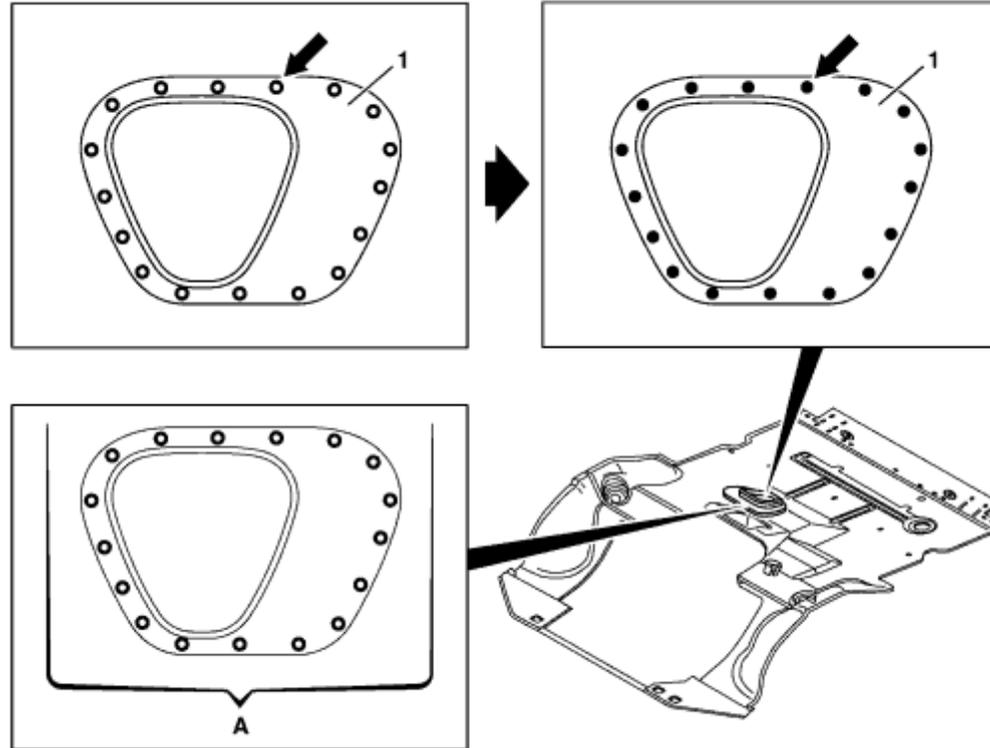
6. Drill 3 holes with diameter of 6 mm in area (C)
7. Grind jack socket (1) down to bare metal on both sides in area of holes (areas C and D) and coat with zinc dust paint.
8. Position jack socket (1) at a distance of $a=65$ mm from edge (arrow) and align
9. Weld jack socket (1) to front floor and firewall in areas (E and F)
10. Grind down extending welding material
11. Clean areas repaired and prime with primer/filler
12. Add permanent underfloor protection as a supplement to underbody protection installed as standard
13. Paint repair area and adjacent surfaces
14. Reinstall all detachable body components removed



Remove/install round cover plate for gear shift/selector lever passage

1. Round cover plate

A Area



Remove

1. Remove detachable body components in area to be repaired
2. Cover all detachable parts remaining in area to be repaired.
3. Expose welds in area A and cut out
4. Remove trim ring (1)
5. Grind front floor (2) down to bare metal in area of trim ring (1) and coat with zinc dust paint



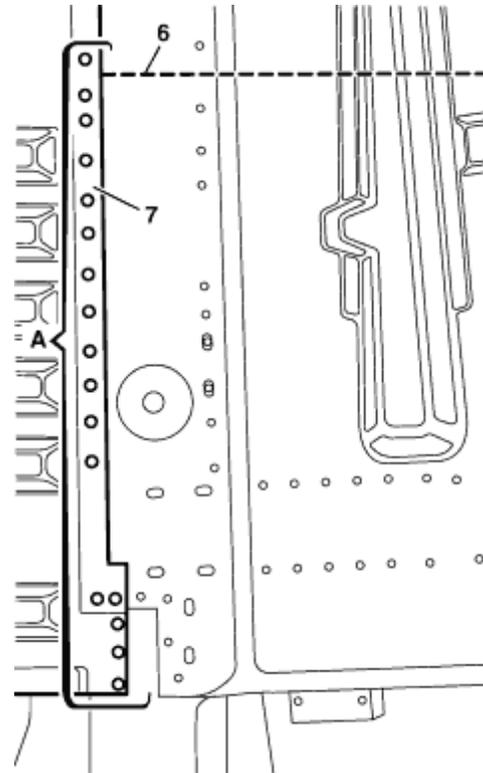
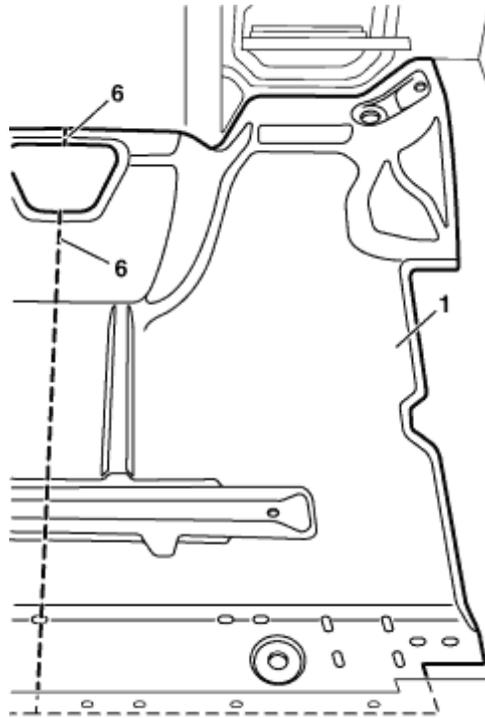
Remove/install round cover plate for gear shift/selector lever passage

Install

6. Punch 6 mm dia. holes (arrow) at maximum hole interval of 30 mm all the way around the trim ring (1)
7. Grind trim ring (1) down to bare metal on both sides in area of cut out or punched holes and coat with zinc dust paint
8. Fit and align trim ring (1)
9. Weld trim ring (1) to front floor (arrow)
10. Grind down extending welding material
11. Clean areas repaired and prime with MB primer/filler
12. Supplement standard seals with MB body sealing compound
13. Add MB permanent underfloor protection as a supplement to underbody protection installed as standard
14. Paint repair area and adjacent surfaces
15. Reinstall all detachable body components removed



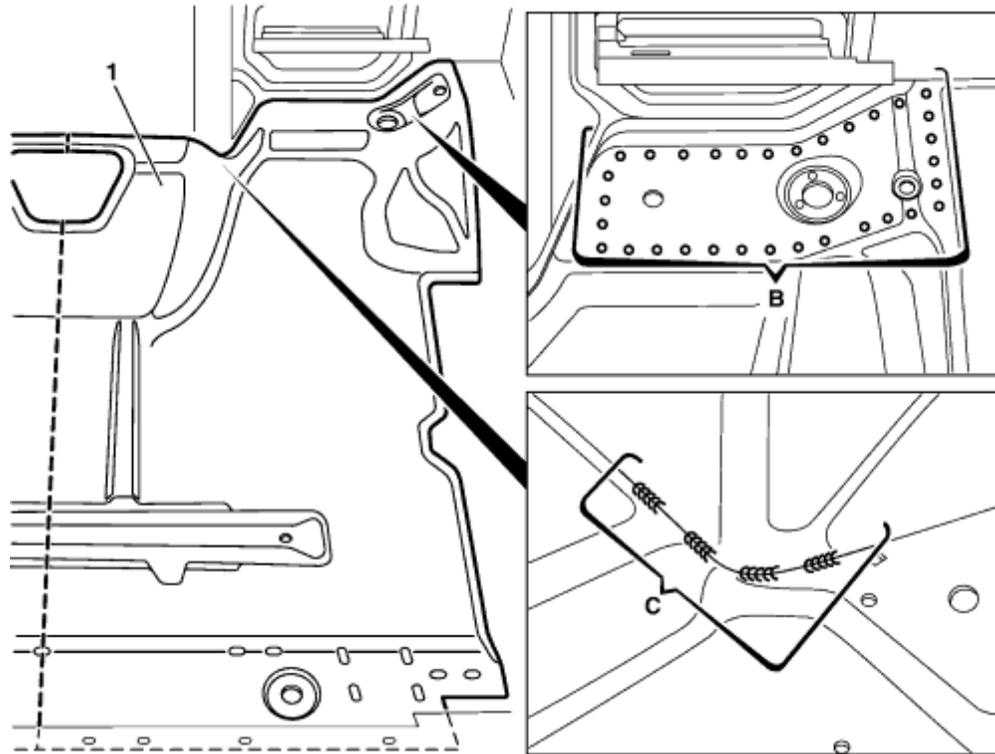
Separating front floor in cab up to firewall



1. Mark separation line (6) in center of front floor (1).
Cut spot welds out through cargo space floor and floor panel in one step.
2. Expose spot welds in area (A) up to behind separating line (6) and cut out.



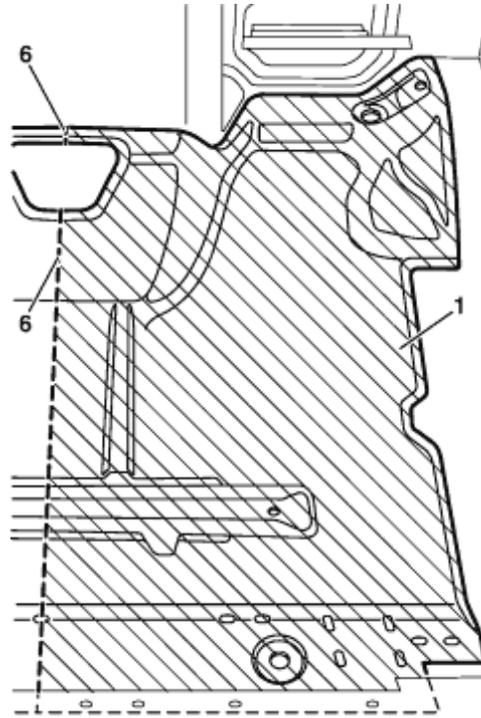
Separating front floor in cab up to firewall



3. Expose spot welds in area (B) of front floor (1) and cut out.
4. Expose spot welds in area (C) of front floor (1) and grind down.



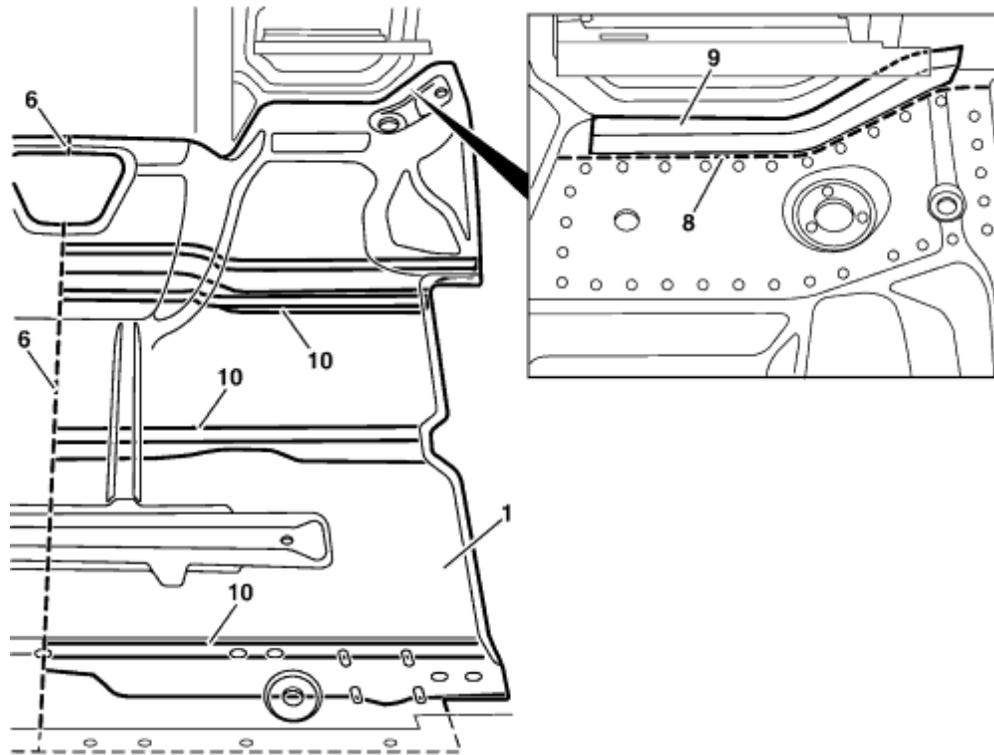
Separating front floor in cab up to firewall



5. Expose all spot welds of front floor (1) in shaded area up to separation line (6) and cut out.



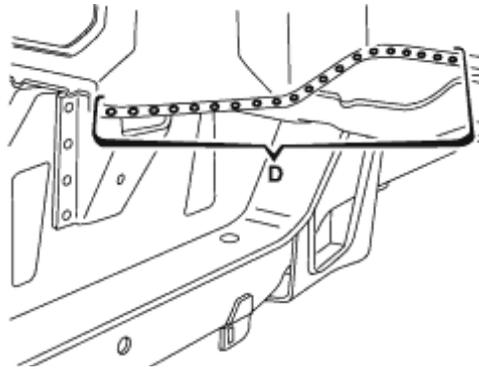
Separating front floor in cab up to firewall



6. Mark separation line (8) along bracket (9) on front floor (1)
Cutting depth in area of lateral struts (10) and reinforcement bracket (9) max. 1 mm.
7. Separate front floor (1) along separation lines (6 8).



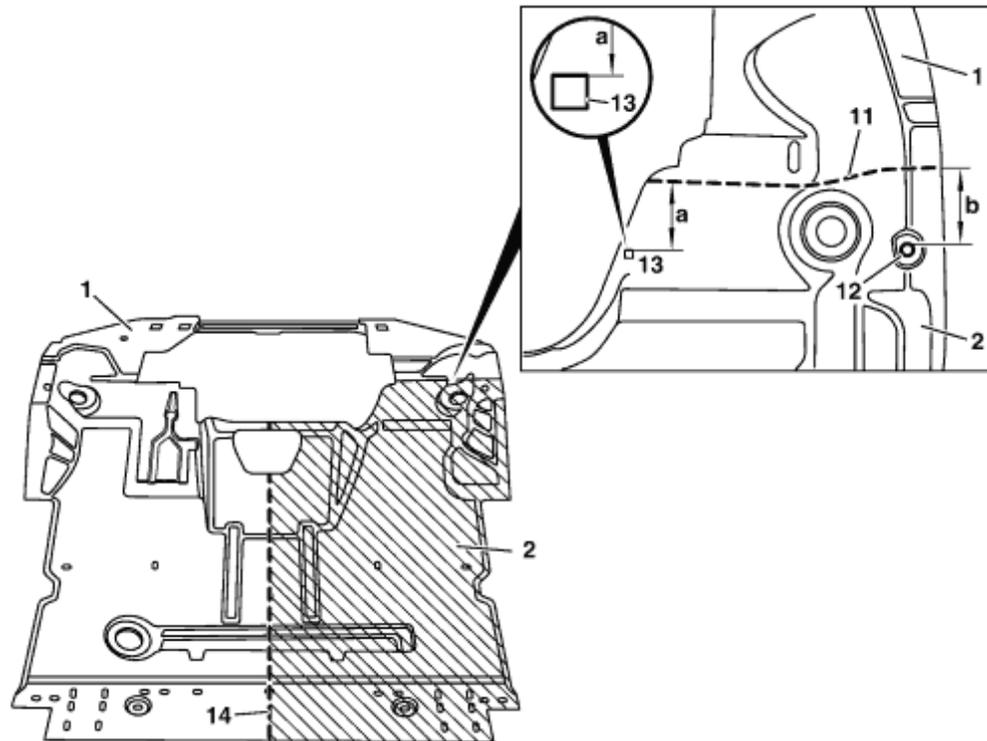
Separating front floor in cab up to firewall



8. Expose spot welds at firewall in area (D) and cut out.



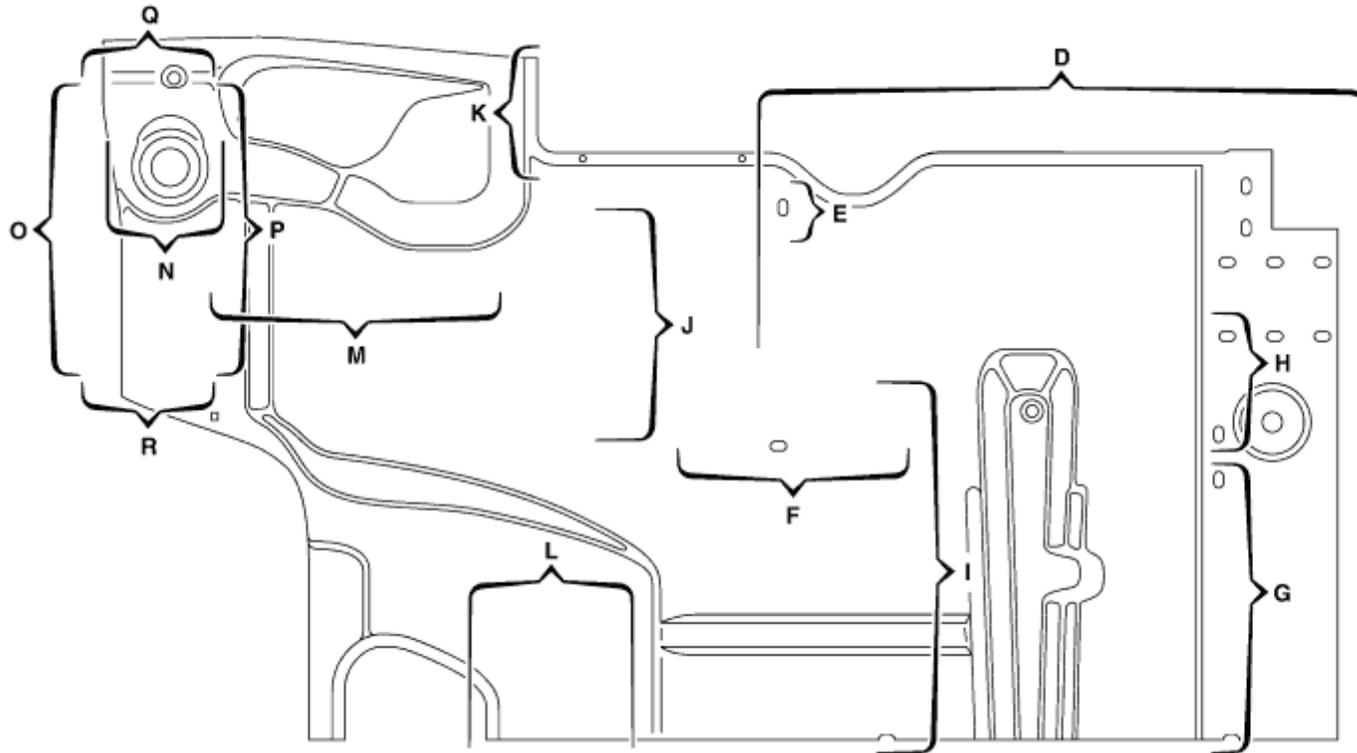
Prepare front floor section of cab for installation



1. Mark separation line (11) at a distance of $a = 95$ mm measured from cutout (13) and at a distance of $b = 100$ mm measured from hole 12 on front floor.
2. Mark separation line (14) on center of front floor (1).
3. Separate front floor section (82) along separation lines (11 and 14).



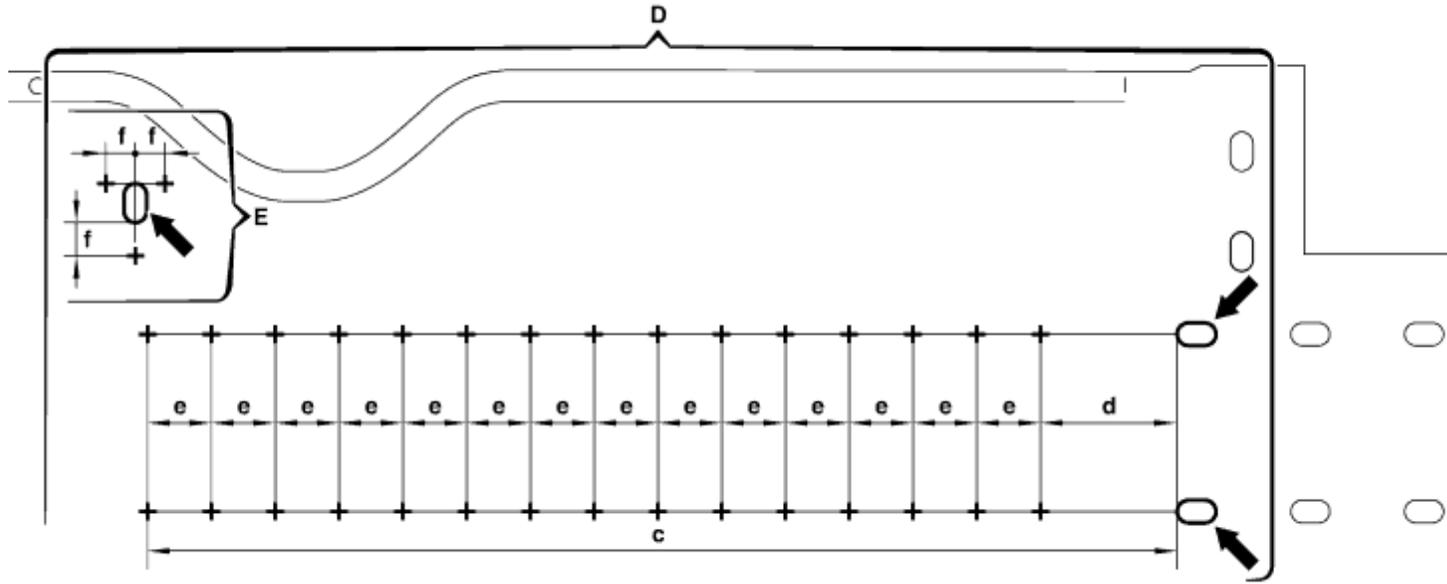
Prepare front floor section of cab for installation



4. Mark holes in areas (D-R) as follows:



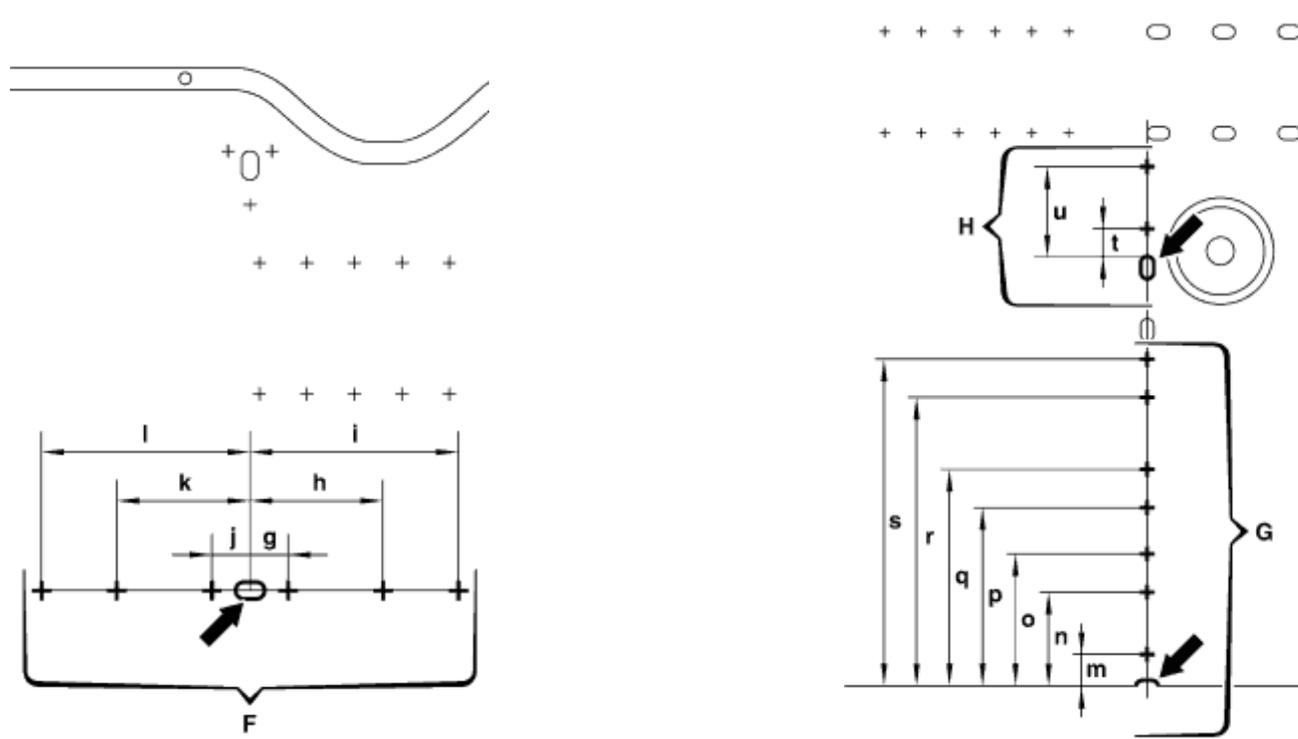
Prepare front floor section of cab for installation



5. Mark 30 holes+) at a width of $c = 470$ mm in area (D) as follows:
6. Mark auxiliary lines measured from center of cutouts (arrows).
7. Mark first hole at a distance $d = 50$ mm measured from cutout (arrow), mark remaining holes at a distance of $e = 30$ mm each.
8. Mark 3 holes+) at a distance of $f = 15$ mm measured from outer edge of cutout (arrow).



Prepare front floor section of cab for installation



9. Mark 6 holes (+) in area (F) as follows:

10. Mark auxiliary lines measured from center of recess (arrow) and holes (+) with the following gaps:
 $g=20$ mm, $h=50$ mm, $i=90$ mm, $j=20$ mm, $k=70$ mm, $l=110$ mm.

11. Mark 7 holes (+) in area (G) as follows:

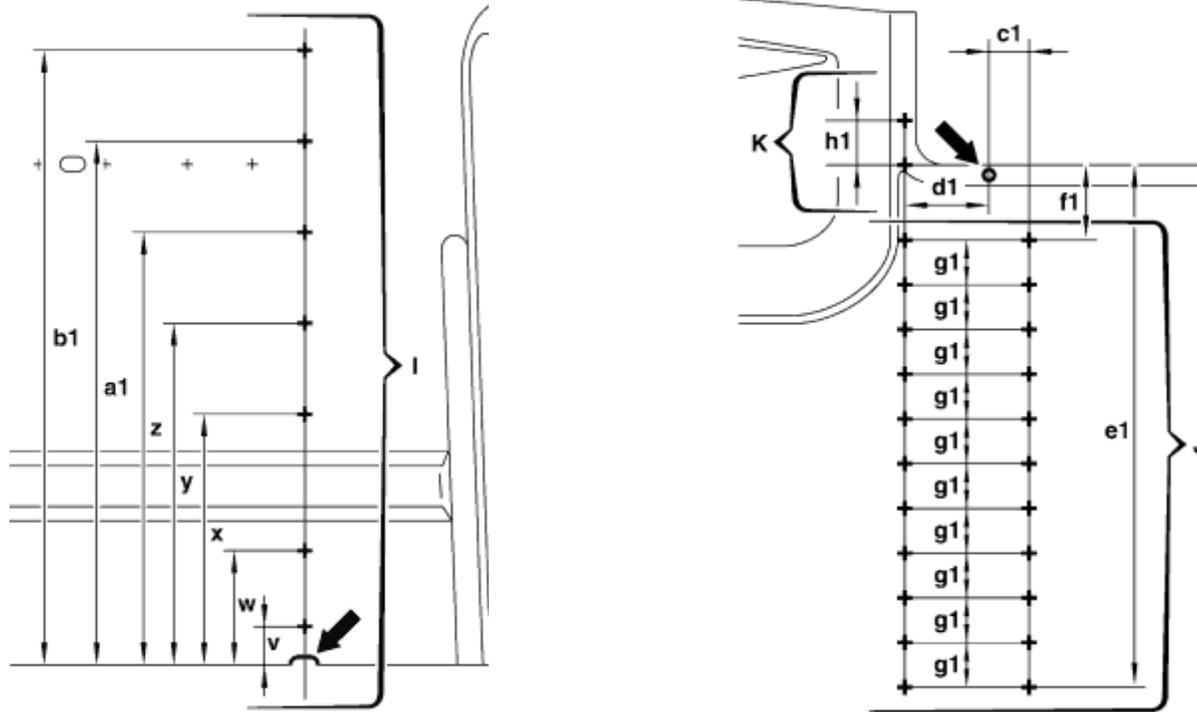
12. Mark auxiliary line measured from center of cutout (arrows) and mark holes (+) with the following gaps:
 $m=30$ mm, $n=80$ mm, $o=110$ mm, $p=140$ mm, $q=170$ mm, $r=230$ mm, $s=260$ mm.

13. Mark 2 holes (+) in area (H) measured from cutout (arrow) as follows:

$t=25$ mm, $u=75$ mm.



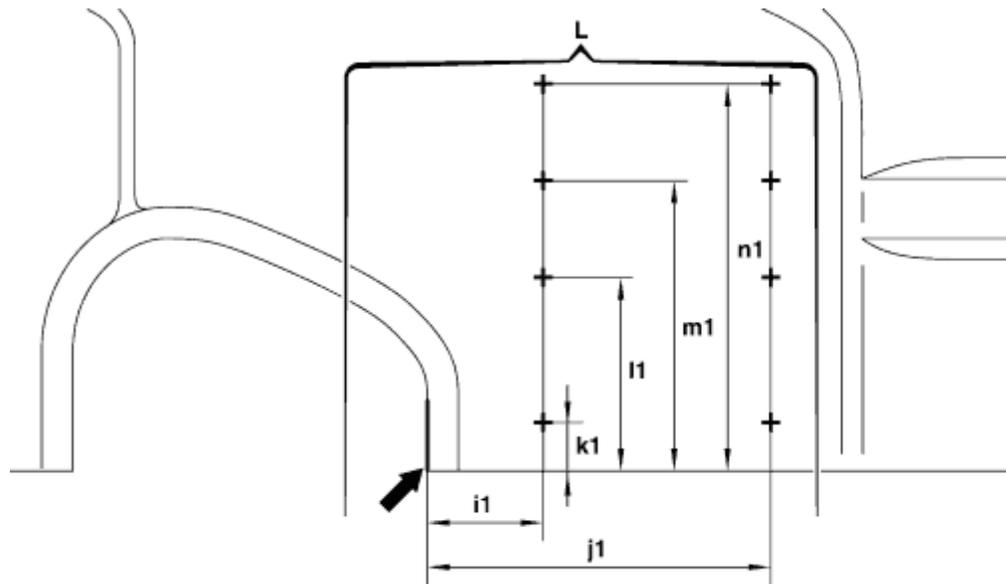
Prepare front floor section of cab for installation



14. Mark 22 holes (+) in area (J) as follows:
15. Mark auxiliary lines at a distance of $c1 = 25$ mm and $d1 = 60$ mm measured from center of hole (arrow).
16. Mark hole at a distance of $f1 = 50$ mm measured from outer edge, mark remaining holes at a distance of $g1 = 30$ mm each.
17. Mark 2 holes (+) in area (K) as follows:
18. Mark first hole on auxiliary line at height of outer edge.
19. Mark second hole at a distance of $h1 = 30$ mm measured from outer edge.



Prepare front floor section of cab for installation

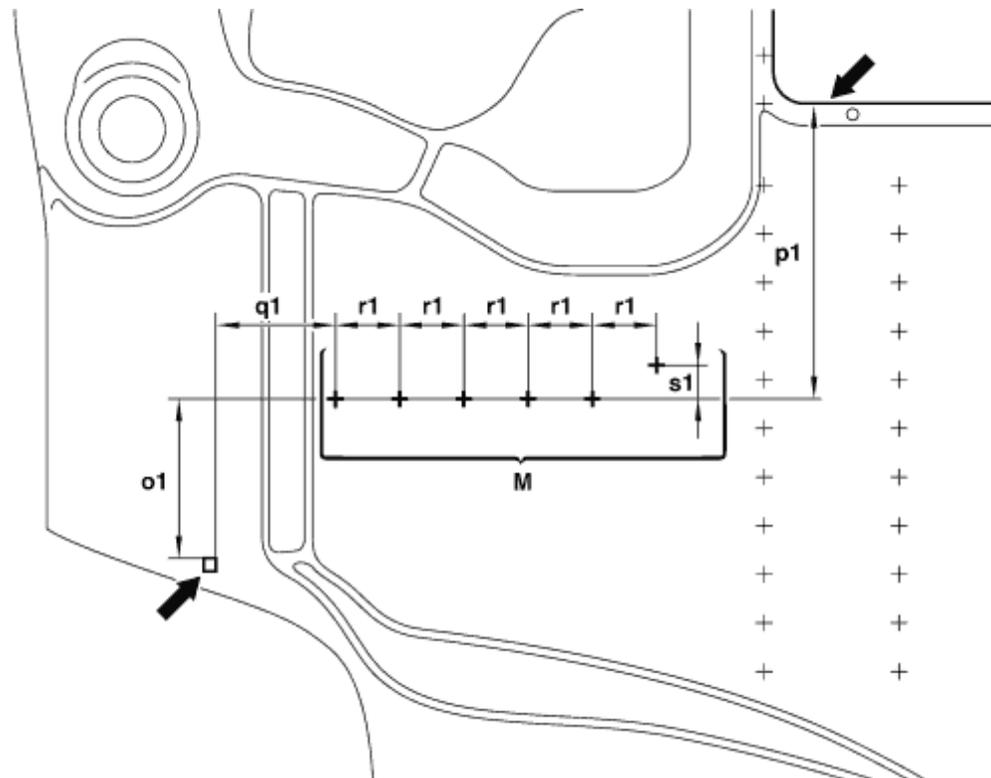


20. Mark 8 holes (+) in area (L) as follows:

21. Mark auxiliary lines at a distance of $i_1 = 50$ mm and $j_1 = 150$ mm measured from edge (arrow) and mark holes (+) with the following gaps: $k_1 = 20$ mm, $l_1 = 80$ mm, $m_1 = 120$ mm, $n_1 = 160$ mm



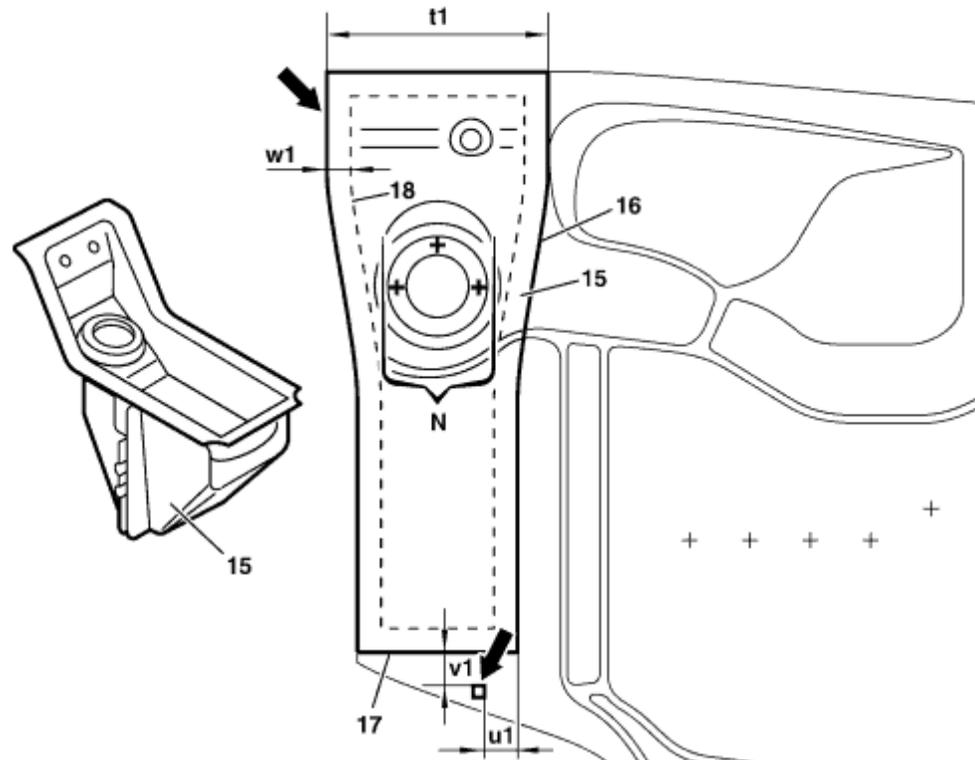
Prepare front floor section of cab for installation



22. Mark 6 holes (+) in area (M) as follows:
23. Mark auxiliary lines at a distance of $o_1=110$ mm measured from cutout (arrow) and a distance of $p_1=180$ mm measured from edge (arrow).
24. Mark first hole at a distance of $q_1 = 90$ mm measured from outer edge of cutout (arrow).
25. Mark remaining holes at a distance of $r_1=40$ mm each, whereby the last hole should be marked offset from the auxiliary line at a distance of $s_1 = 20$ mm.



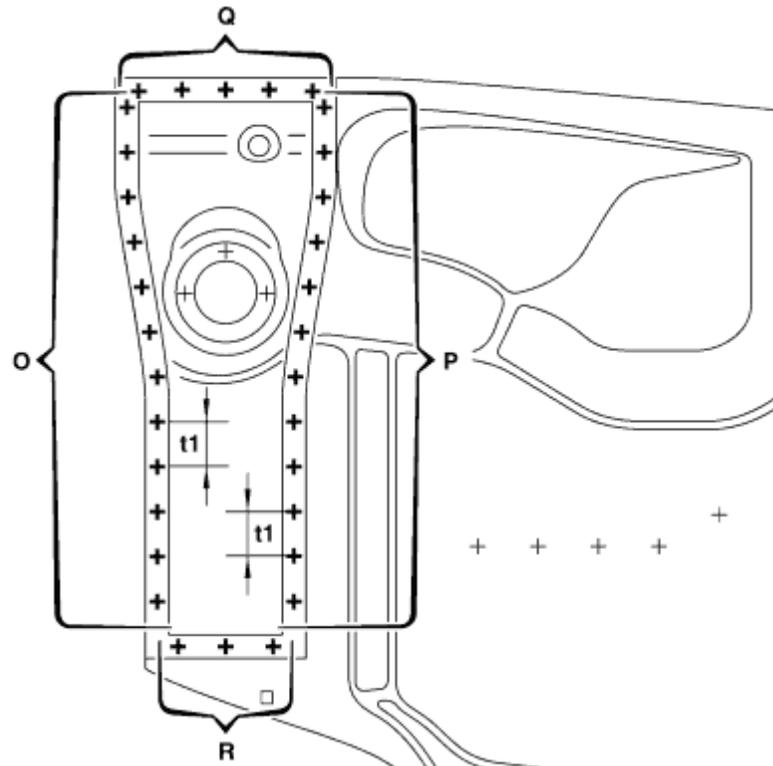
Prepare front floor section of cab for installation



26. Mark contours for spring strut mount (15) as follows:
27. Mark contour 16 at a distance of $t1=145$ mm measured from outer edge (arrow) and at a distance of $u1 = 25$ mm measured from cutout (arrow).
28. Mark contour 17 at a distance of $v1 = 20$ mm measured from cutout (arrow).
29. Mark auxiliary line 18 circumferentially at a distance of $w1 = 15$ mm measured from contour lines.
30. Mark 3 holes (+ at a uniform distance in area (N).



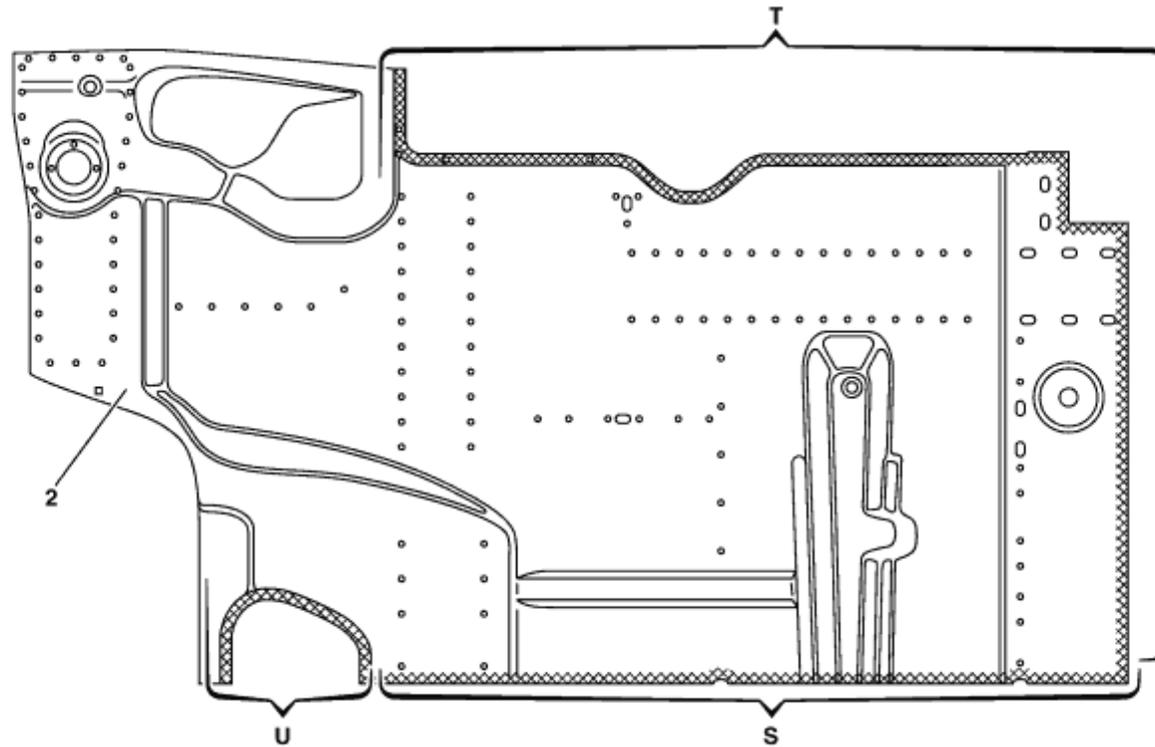
Prepare front floor section of cab for installation



31. Mark holes (+) in center between marked contours and auxiliary lines as follows.
32. Mark 12 holes (+) in areas (O and P) at a distance of $t1=30$ mm.
33. Mark 5 holes (+) at a uniform distance in area (Q).
34. Mark 3 holes (+) at a uniform distance in area (R).
35. Center-punch all marked holes (+) and drill 6 mm dia. holes.



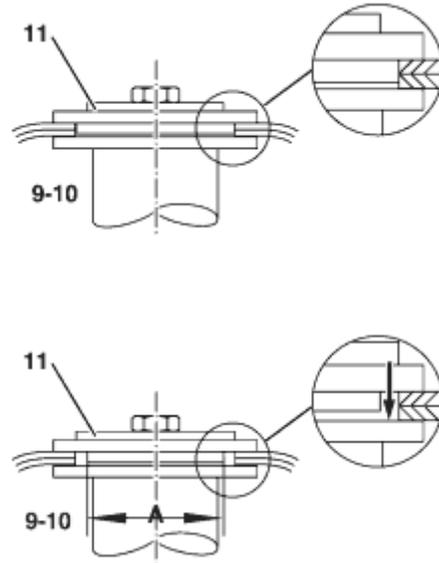
Prepare front floor section of cab for installation



36. Grind front floor section (2) down to bare metal on both sides in area of drilled holes and in area (S) and coat with zinc dust paint.
37. Grind front floor section (2) down in areas (T and U) and coat with zinc dust paint



Insert check and attachment plate



1.1 When checking body:

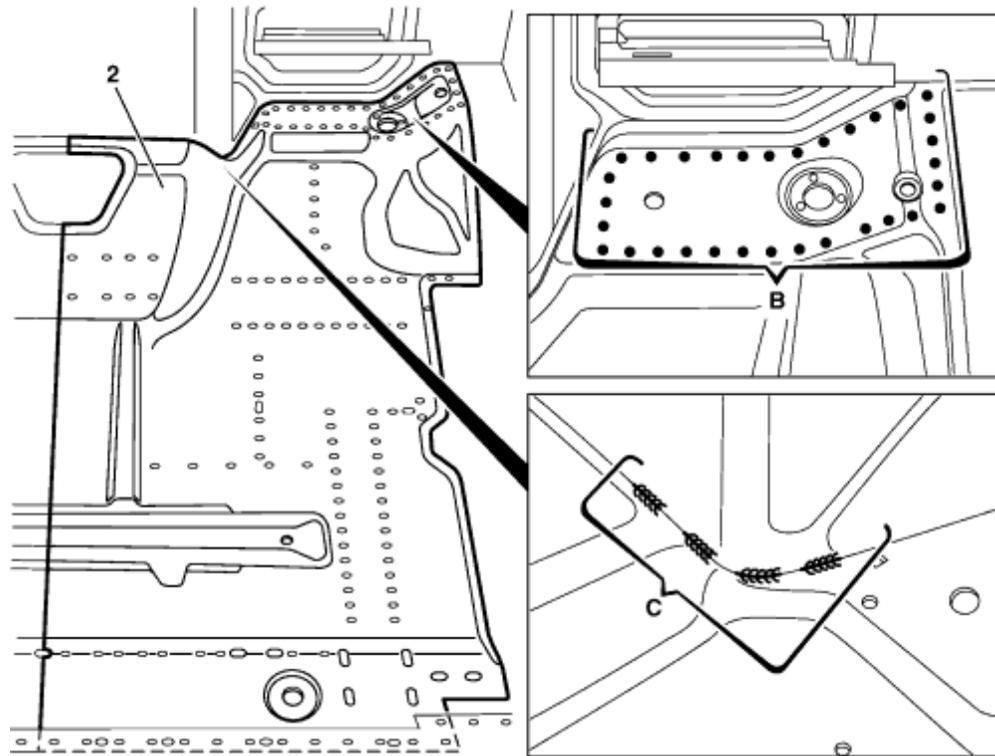
Insert check and attachment plate (11) with offset "A" facing down (ring groove at top).

1.2 When carrying out body repair work:

Insert check and attachment plate (11) with offset "A" upward (ring groove at bottom).



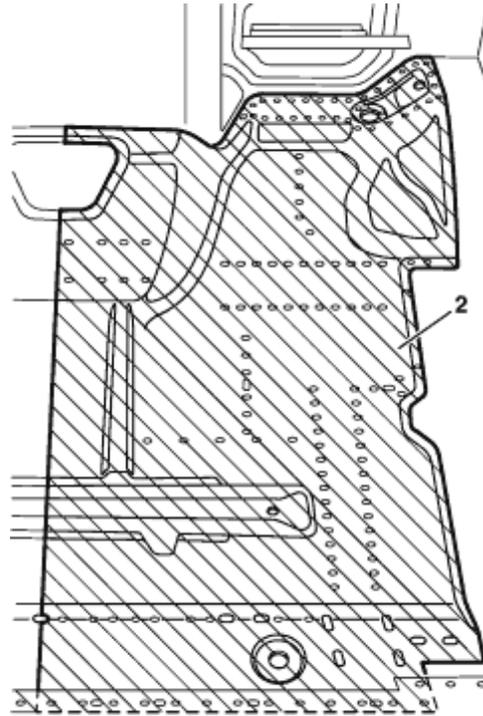
Weld in front floor section



1. Weld on front floor section (2) (area B and area C).



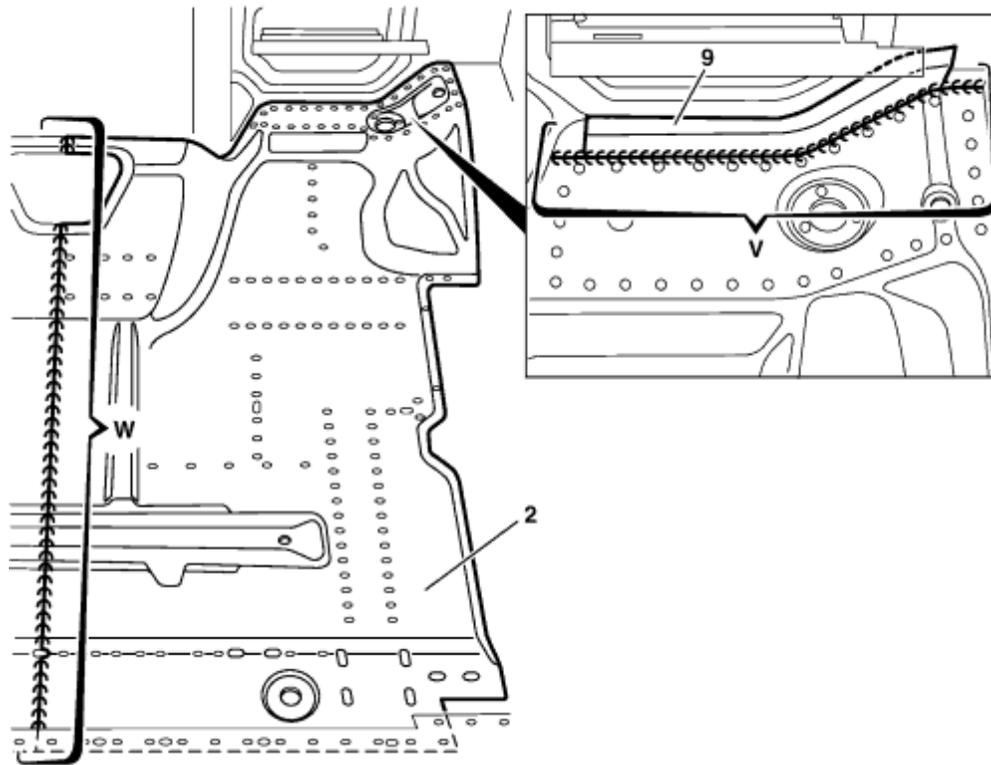
Weld in front floor section



2. Weld on front floor section (2) (all holes drilled in shaded area).



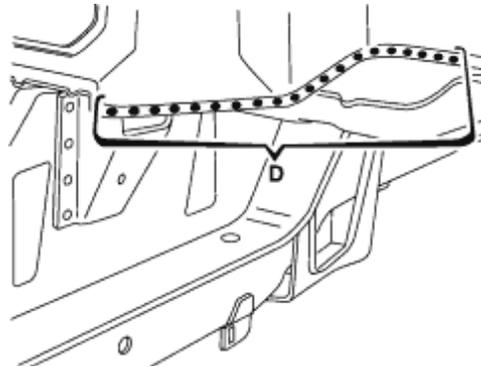
Weld in front floor section



3. Weld on front floor section (2) (areas V and W).



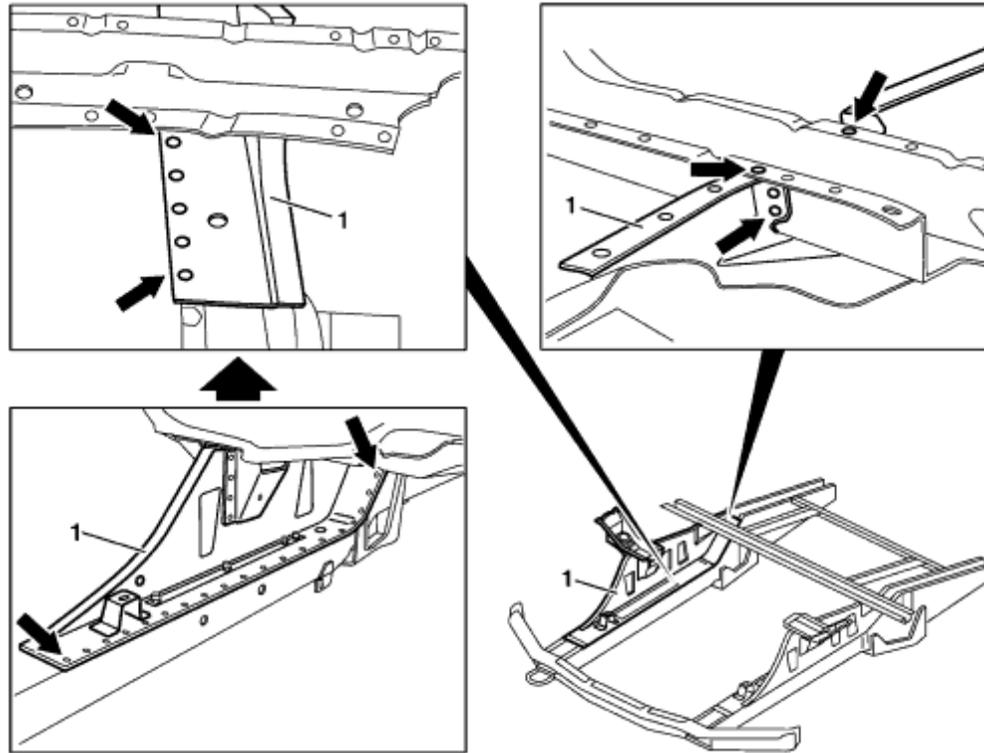
Weld in front floor section



4. Weld on front floor section (2) (area D).



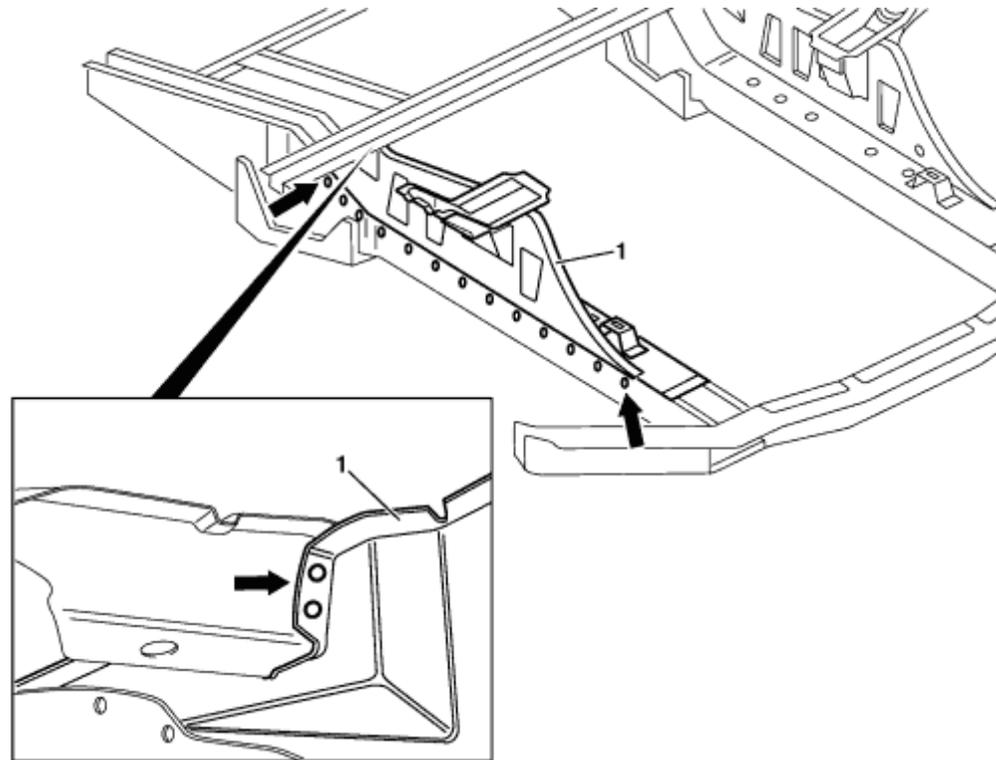
Separating body console



1. Expose spot welds (arrows) for body console and cut out.



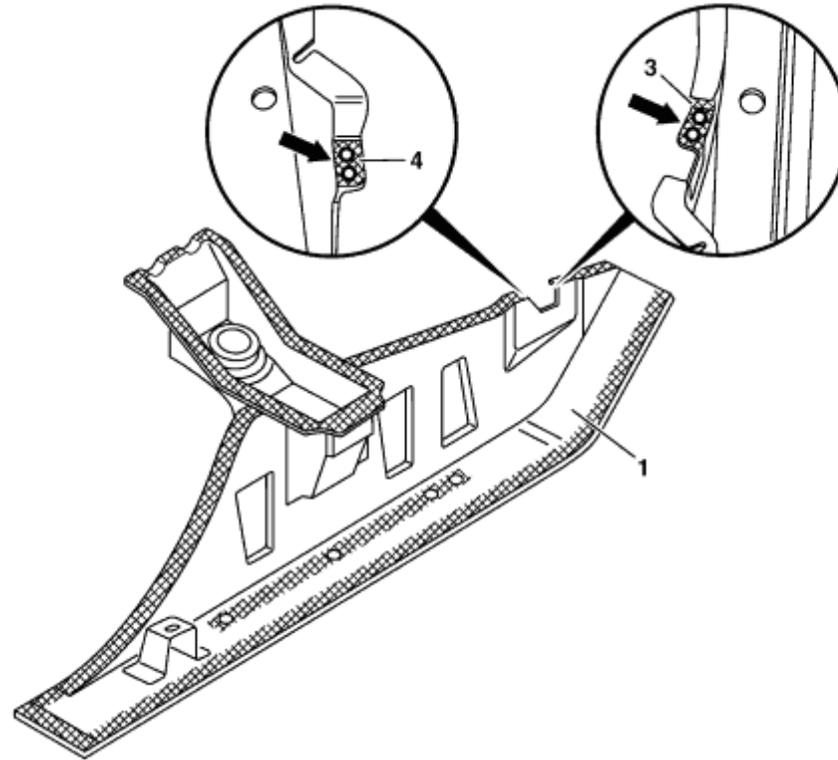
Separating body console



2. Expose spot welds (arrows) for body console and cut out.



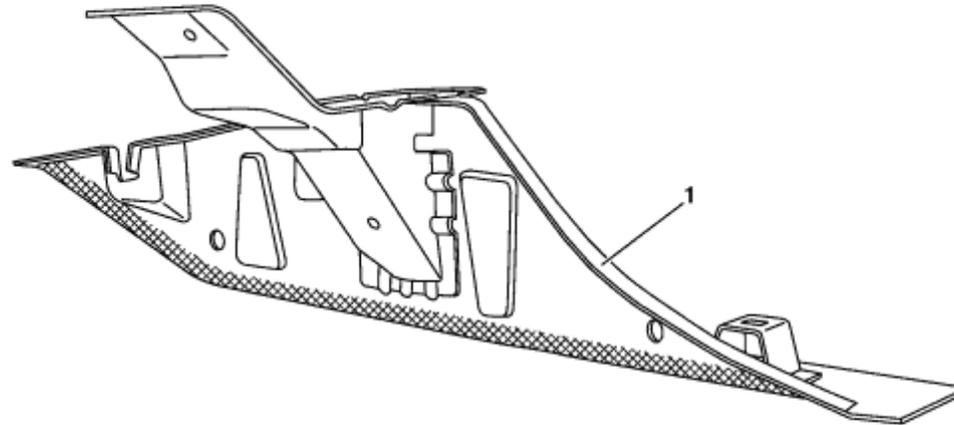
Preparing body console for installation



1. Punch two 6 mm dia. holes uniformly in areas (3 and 4).
2. Grind down body console (1) in marked areas and coat with zinc dust paint.
3. Grind down body console (1) on both sides in areas (3, 4) and coat with zinc dust paint.



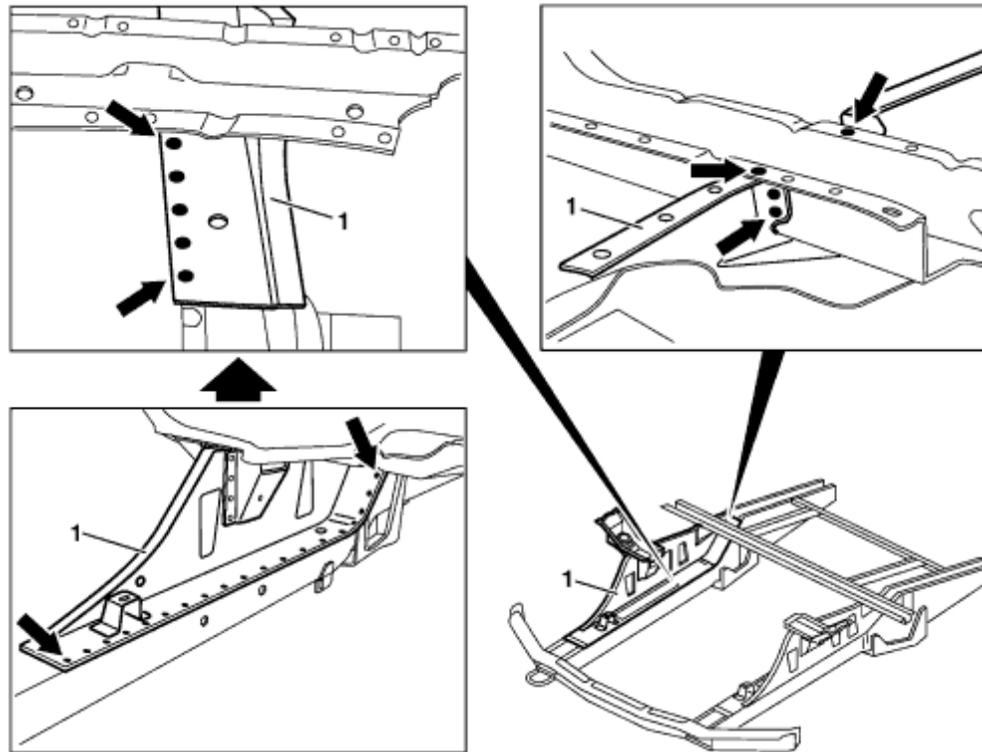
Preparing body console for installation



4. Grind down body console (1) in marked area and coat with zinc dust paint.



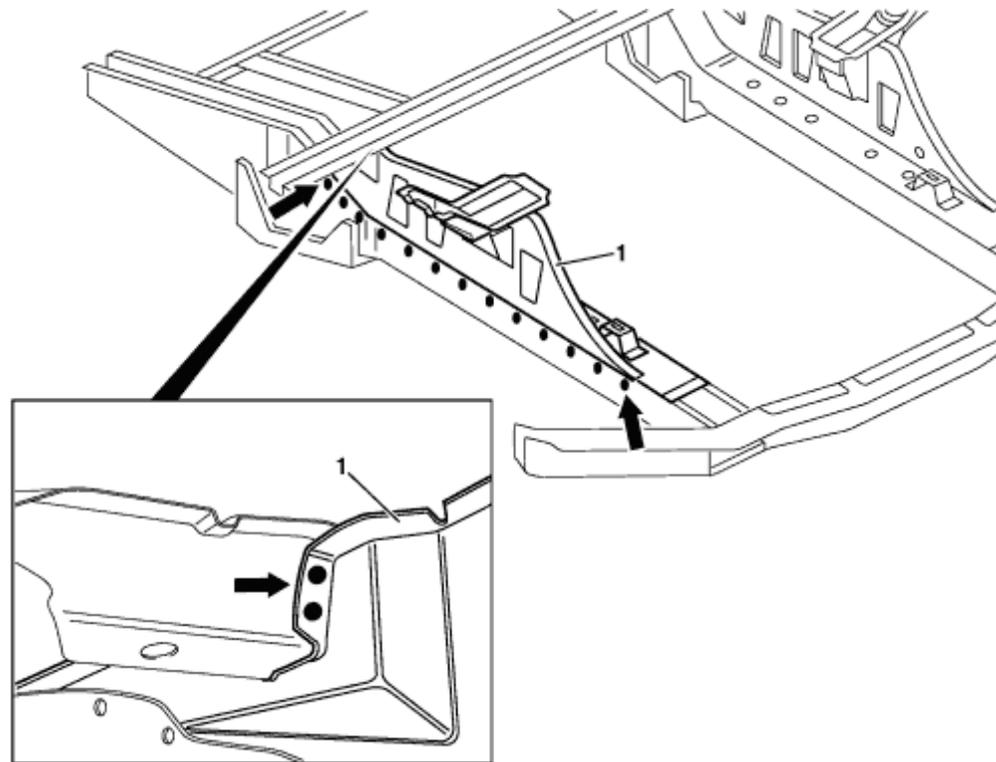
Welding in body console



1. Weld body console (1) to lateral strut and longitudinal frame member (arrows).



Welding in body console



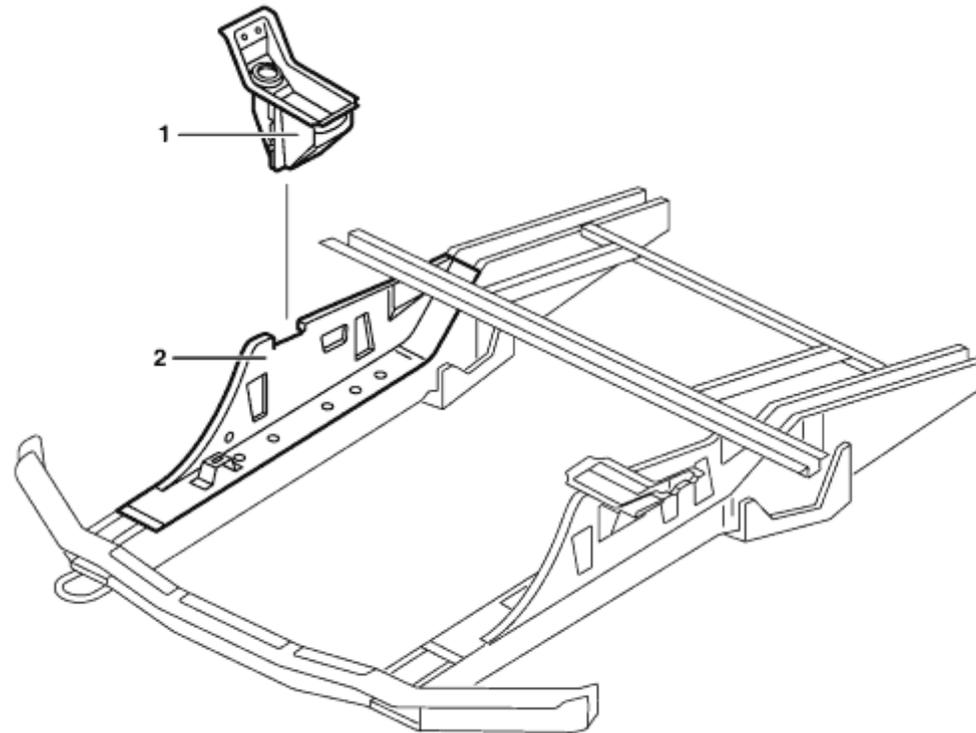
2. Weld body console (1) to lateral strut and longitudinal frame member (arrows).



Remove/install spring strut mount

Repair illustrated on right spring strut mount

1. Spring strut mount
2. Body console



Remove

1. Remove front axle
2. Remove floor panel in cab
3. Lift insulation on splash wall
4. Remove miscellaneous detachable body components in repair area
5. Cover all detachable parts remaining in area to be repaired.
6. Remove spring strut mount (1)
7. Straighten connecting plates, grind off and coat with zinc dust paint



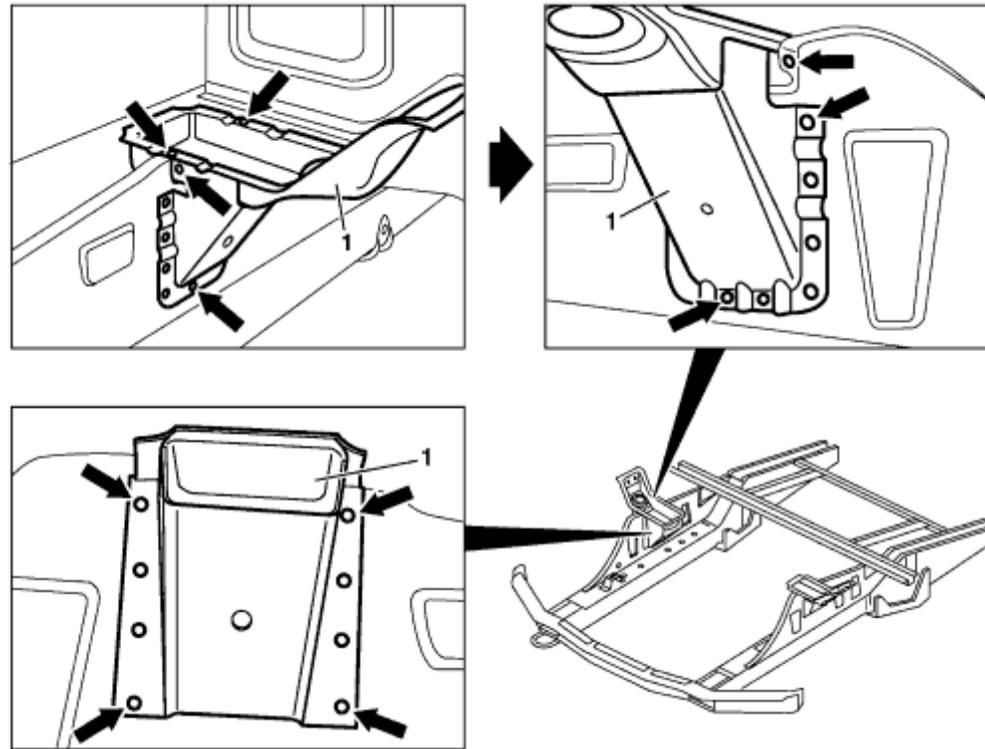
Remove/install spring strut mount

Install

8. Prepare spring strut mount (1) for installation
9. Fit spring strut mount (1), align and clamp in place
10. Insert check and locating plate
11. Weld in spring strut mount (1)
12. Install floor panel in cab
13. Grind down extending welding material
14. Vacuum out hollow cavities
15. Clean areas to be repaired with MB primer/filler
16. Supplement standard seals with MB body sealant Seam sealing after repairs
17. Add MB permanent underfloor protection as a supplement to underbody protection installed as standard
18. Paint repair area and adjacent surfaces
19. Supplement cavity preservation
20. Install front axle
21. Lift insulation on splash wall
22. Reinstall all detachable body components removed



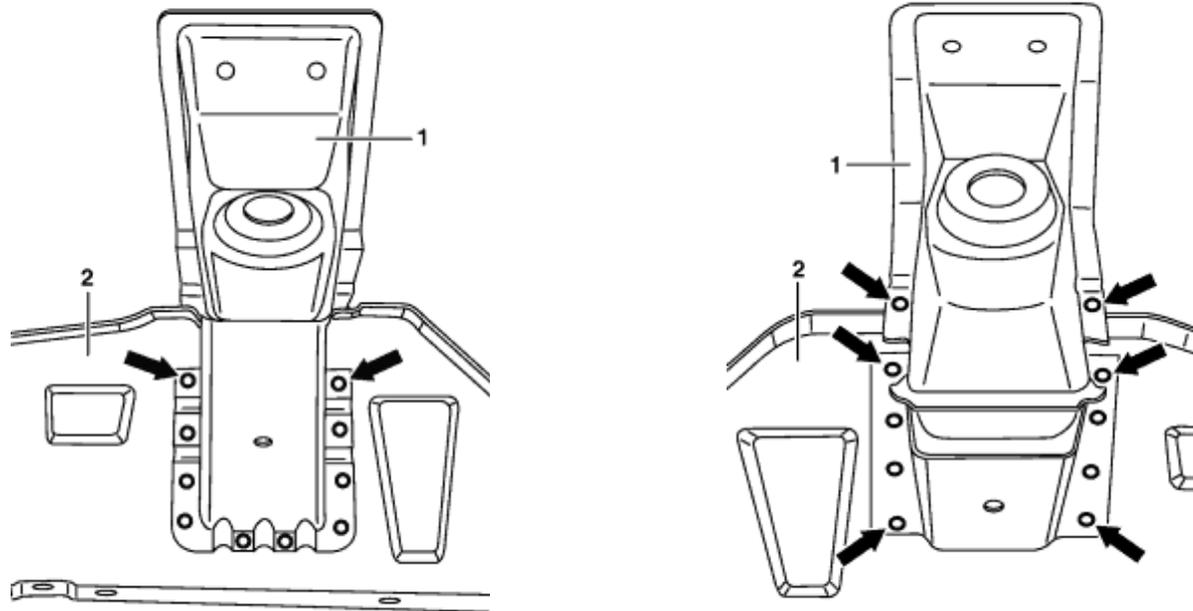
Separating spring strut mount



1. Expose spot welds (arrows) of spring strut mount (1) and cut out.

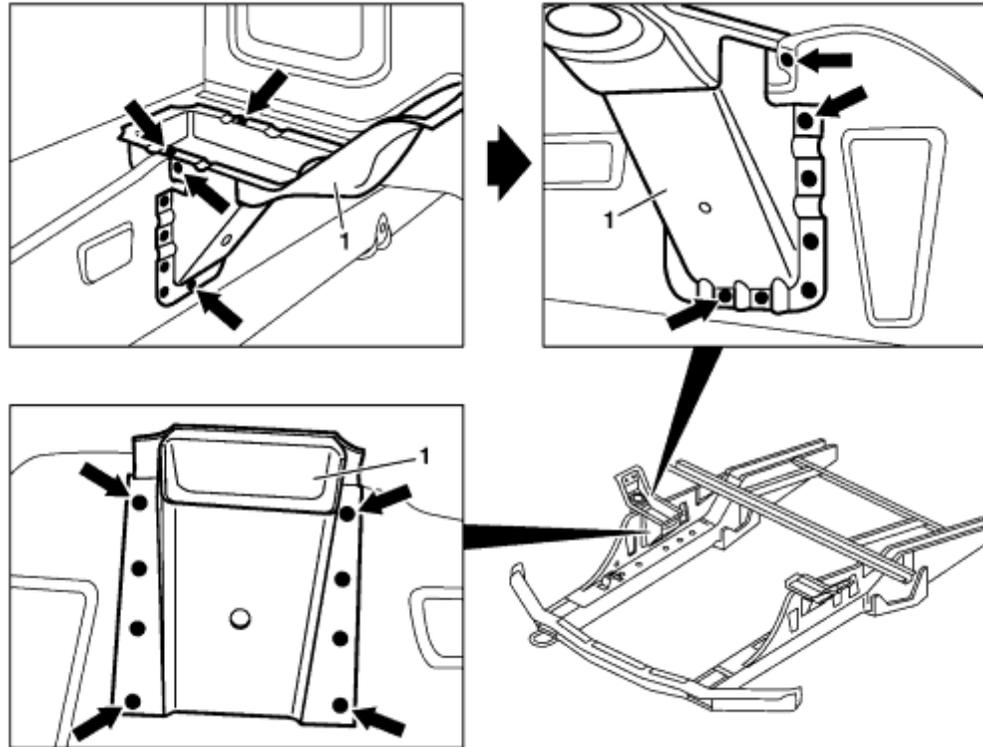


Preparing spring strut mount for installation



1. Cut out spot welds (arrows)
2. Remove spring strut mount (1) from body console (2).
3. Grind down spring strut mount (1) on both sides in area of spot welds cut out and coat with zinc dust paint.

Welding in spring strut mount



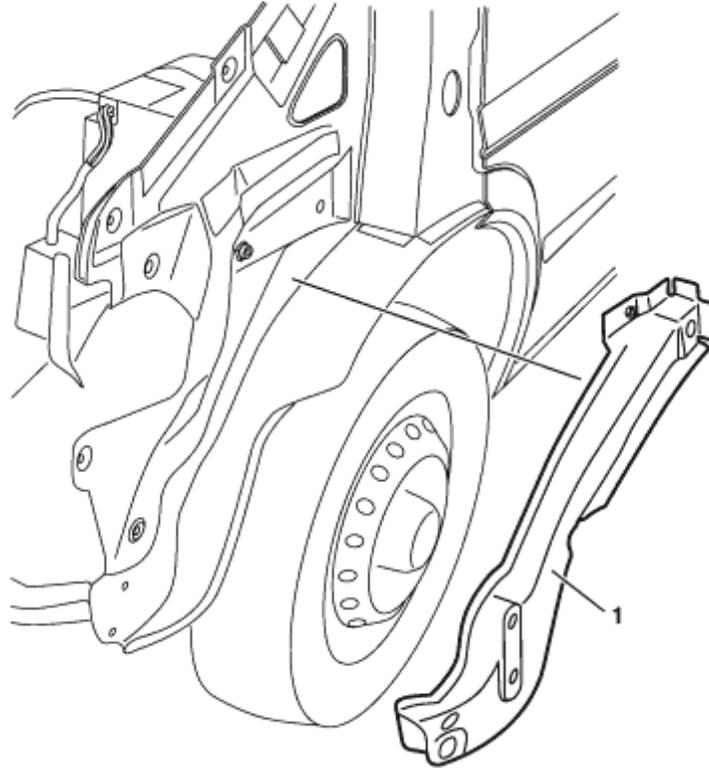
1. Weld spring strut mount (1) to body console (arrows).



Remove/install wheel arch flaring

Repair illustrated on left wheel flange

1. Wheel flange



Remove

1. Remove front-end paneling
2. Remove miscellaneous detachable body components in repair area
3. Cover all detachable parts remaining in area to be repaired.
4. Separate wheel flange (1)
5. Straighten connecting plates, grind off and coat with zinc dust paint



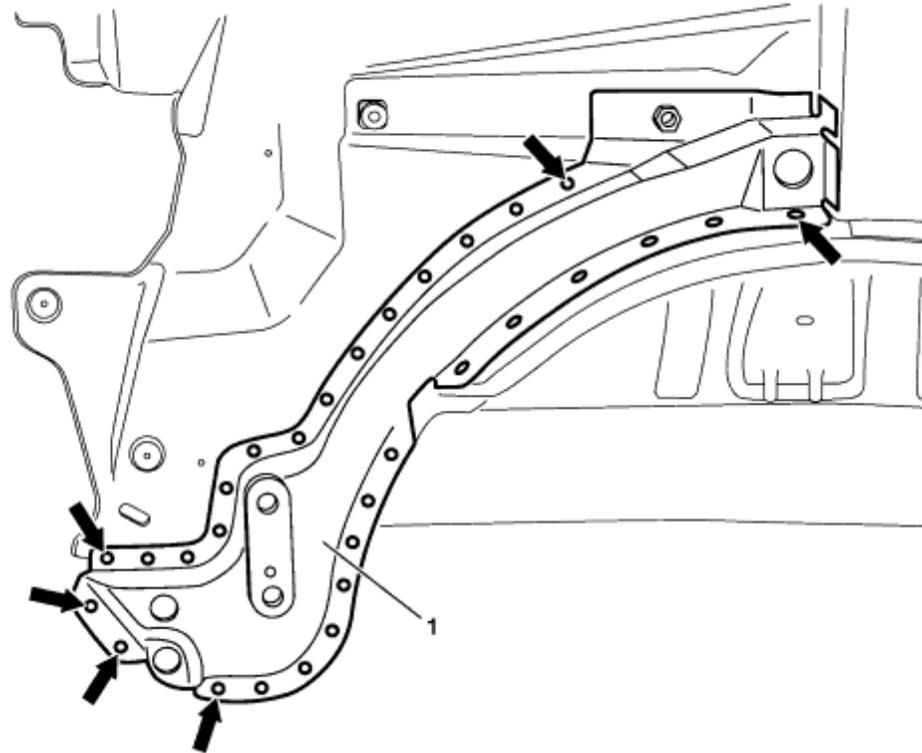
Remove/install wheel arch flaring

Install

6. Prepare wheel flange (1) for installation
7. Fit wheel flange (1), align and clamp in place
8. Weld in wheel flange (1)
9. Grind down extending welding material
10. Vacuum out hollow cavities
11. Clean areas to be repaired with primer/filler
12. Supplement standard seals with body sealant
13. Add permanent underfloor protection as a supplement to underbody protection installed as standard
14. Paint repair area and adjacent surfaces
15. Supplement cavity preservation
16. Install front-end paneling
17. Reinstall all detachable body components removed



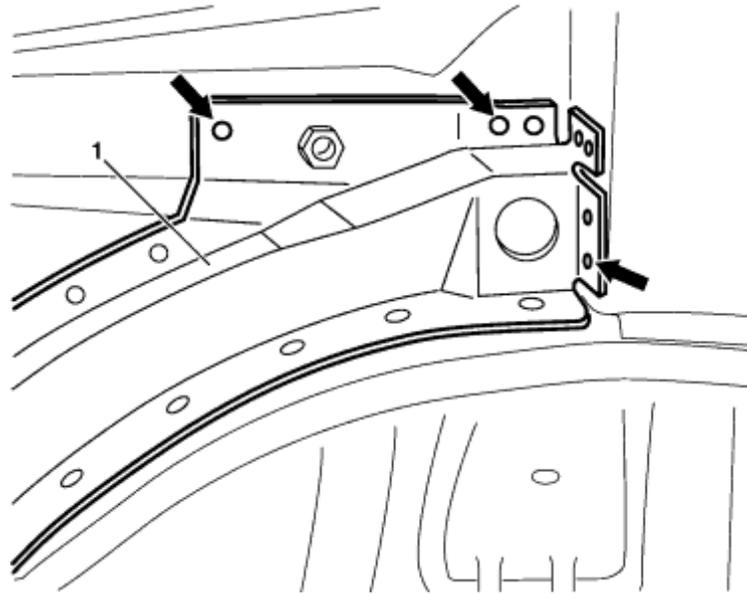
Separate wheel arch



1. Expose spot welds of wheel flange (1).
2. Cut out spot welds (arrows).



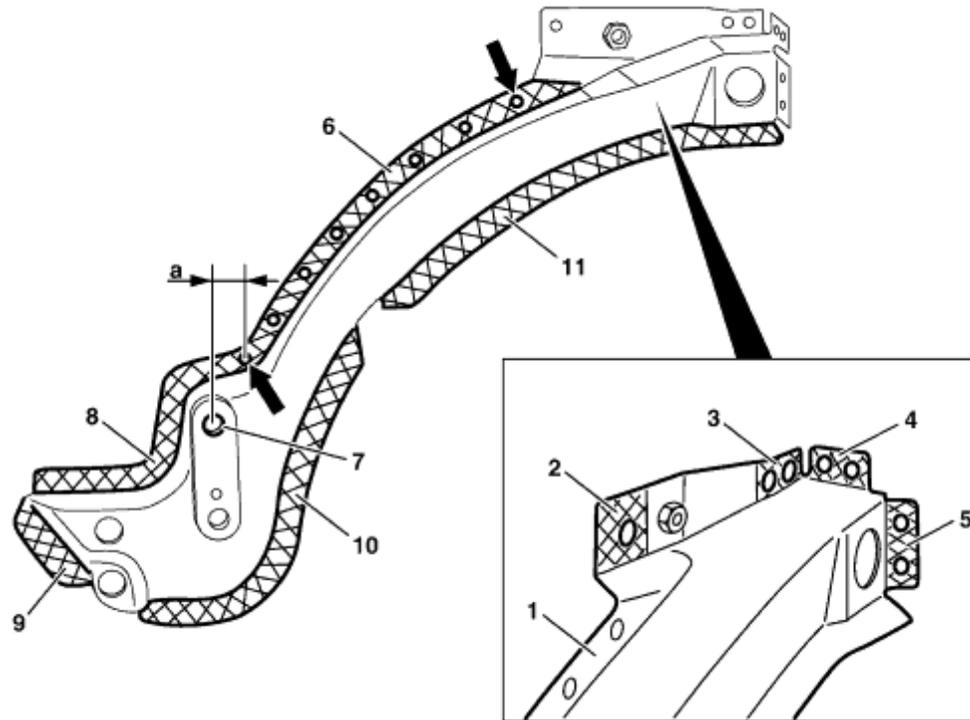
Separate wheel arch



3. Cut out spot welds (arrows).
4. Remove wheel flange (1).



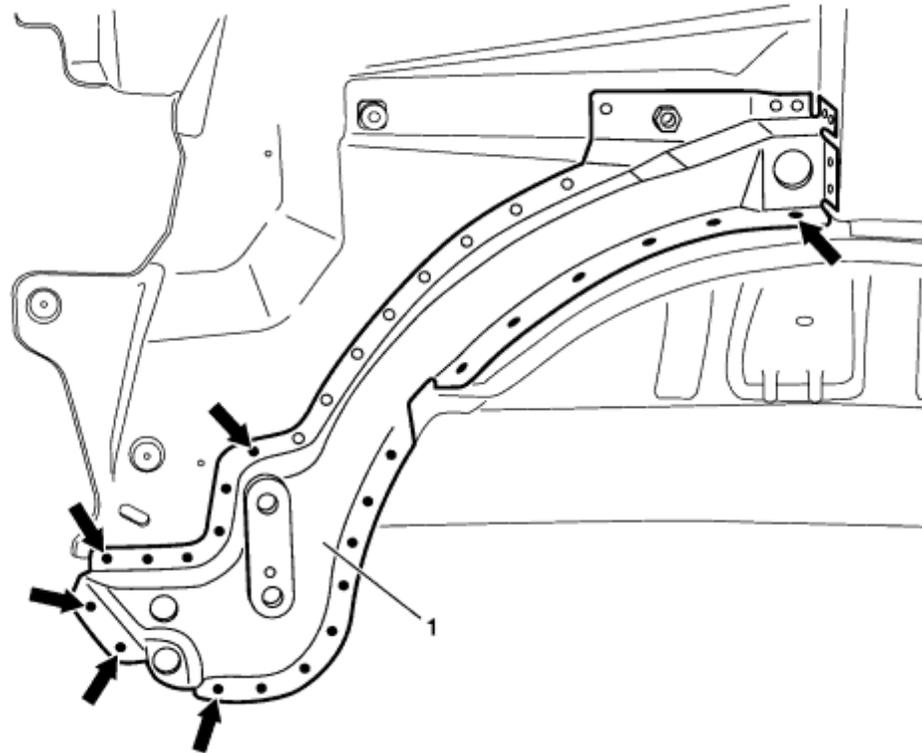
Preparing wheel flange for installation



1. Punch 1 hole with $\text{Ø } 6 \text{ mm}$ in area (2).
2. Punch two 6 mm dia. holes in areas (3, 4 and 5).
3. Punch 7 holes with diameter of 6 mm at max. hole interval of $a = 20 \text{ mm}$ in area (6) with distance of $a = 20 \text{ mm}$ (arrows).
4. Grind wheel flange (1) down to bare metal on both sides in marked areas (2, 3, 4, 5, 6, 8, 9, 10 and 11) and coat with zinc dust paint.



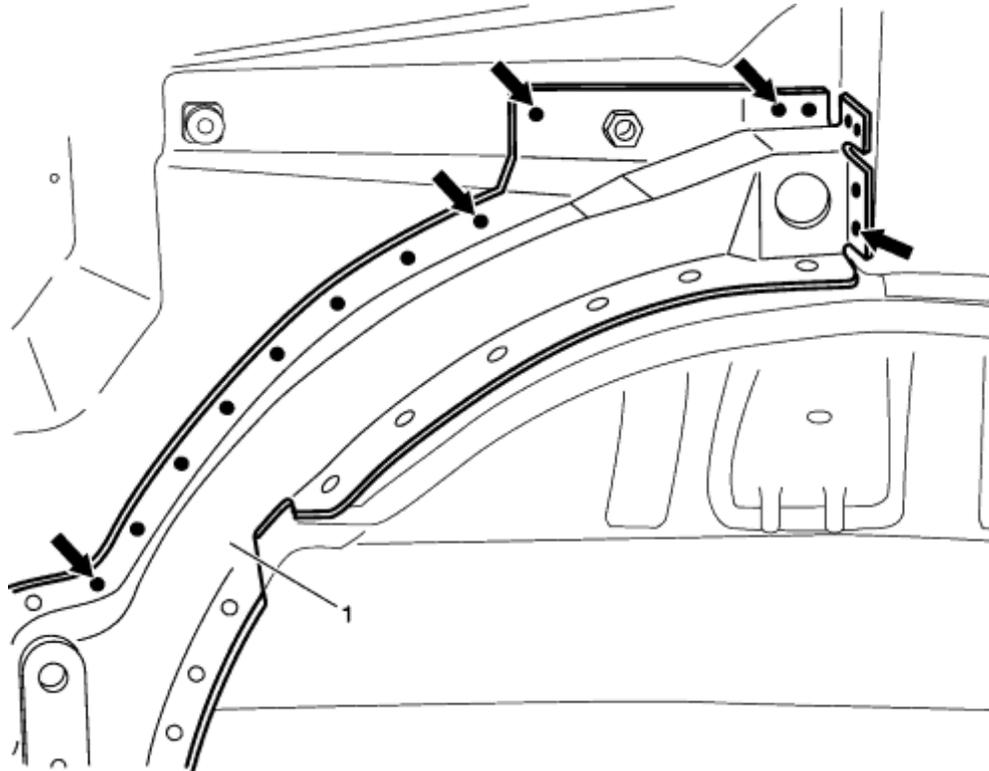
Welding in wheel flange



1. Weld wheel flange (1) to wheelhouse and cross member (arrows).



Welding in wheel flange



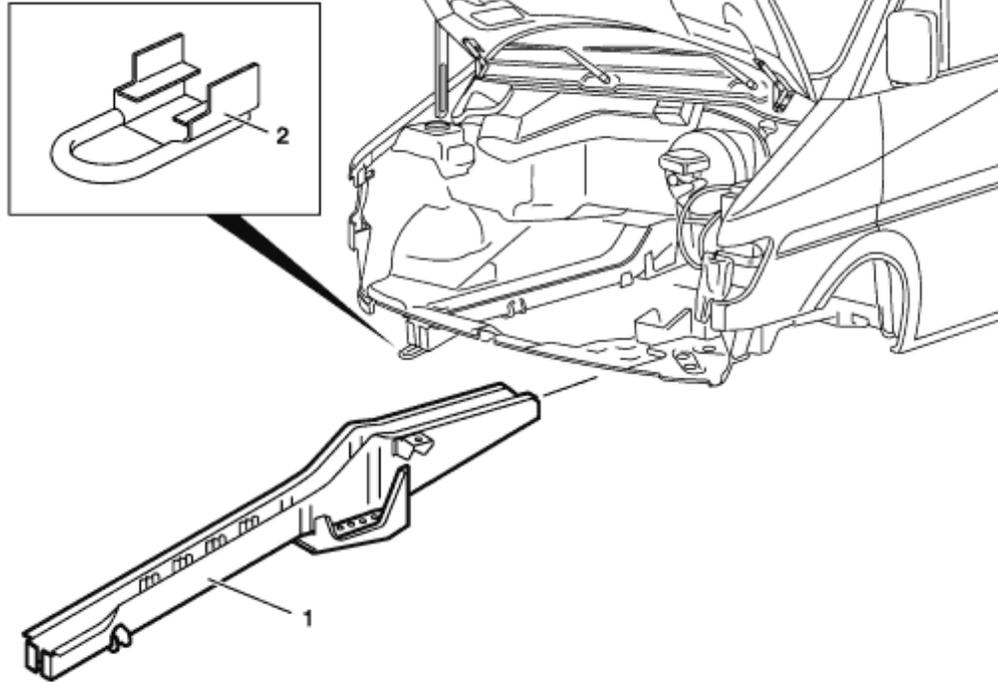
2. Weld wheel flange (1) to web plate and door frame paneling (arrows).



Remove/install front longitudinal frame member

Illustrated repair for left longitudinal frame member

1. Front longitudinal frame member
2. Puller hook



Remove

1. Remove engine
2. Remove front axle
3. Remove heater unit
4. Remove crossmember
5. Remove miscellaneous detachable body components in repair area
6. Cover all detachable parts remaining in area to be repaired.
7. Separate front longitudinal frame member (1)
8. Straighten connecting plate, grind off and coat with zinc dust paint



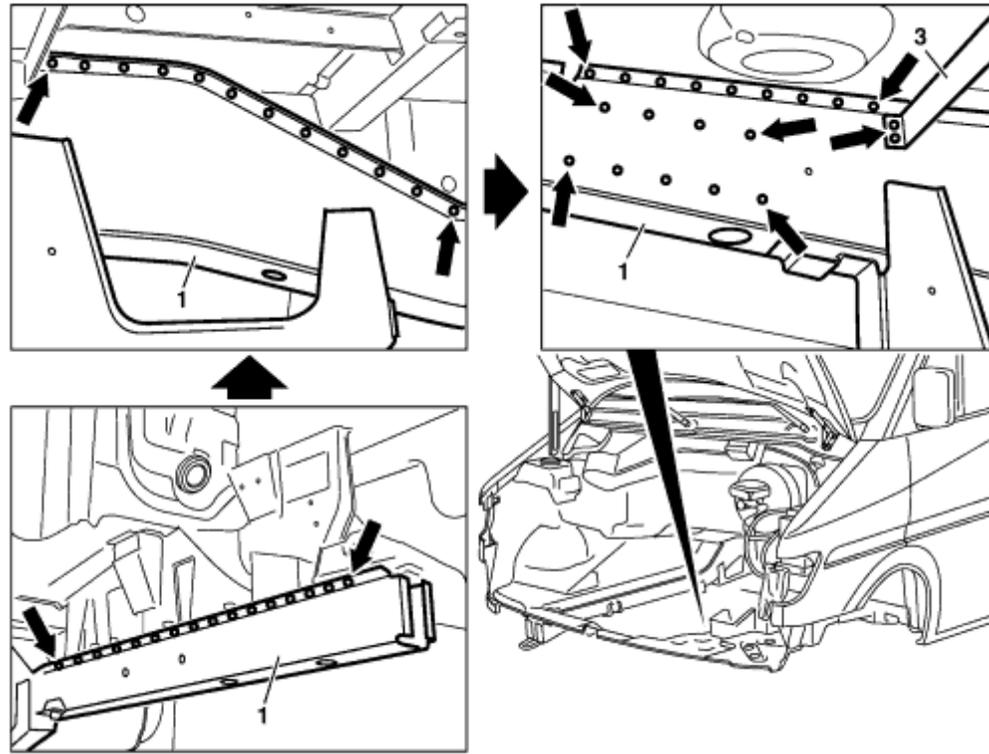
Remove/install front longitudinal frame member

Install

9. Prepare front longitudinal frame member (1) for installation
10. Fit front longitudinal frame member (1), align and clamp in place
11. Weld in front longitudinal frame member (1) Weld in new puller hook (2) when installing right front longitudinal frame member.
12. Grind down extending welding material
13. Vacuum out hollow cavities Metal filings or metallic grinding dust in cavities can lead to corrosive damage.
14. Install cross member
15. Clean areas repaired and prime with primer/filler
16. Supplement standard seals with body sealing compound Seam sealing after repairs.
17. Add permanent underfloor protection as a supplement to underbody protection installed as standard
18. Paint repair area and adjacent surfaces
19. Supplement cavity preservation
20. Install front axle
21. Install engine
22. Install heater
23. Reinstall all other detachable body components



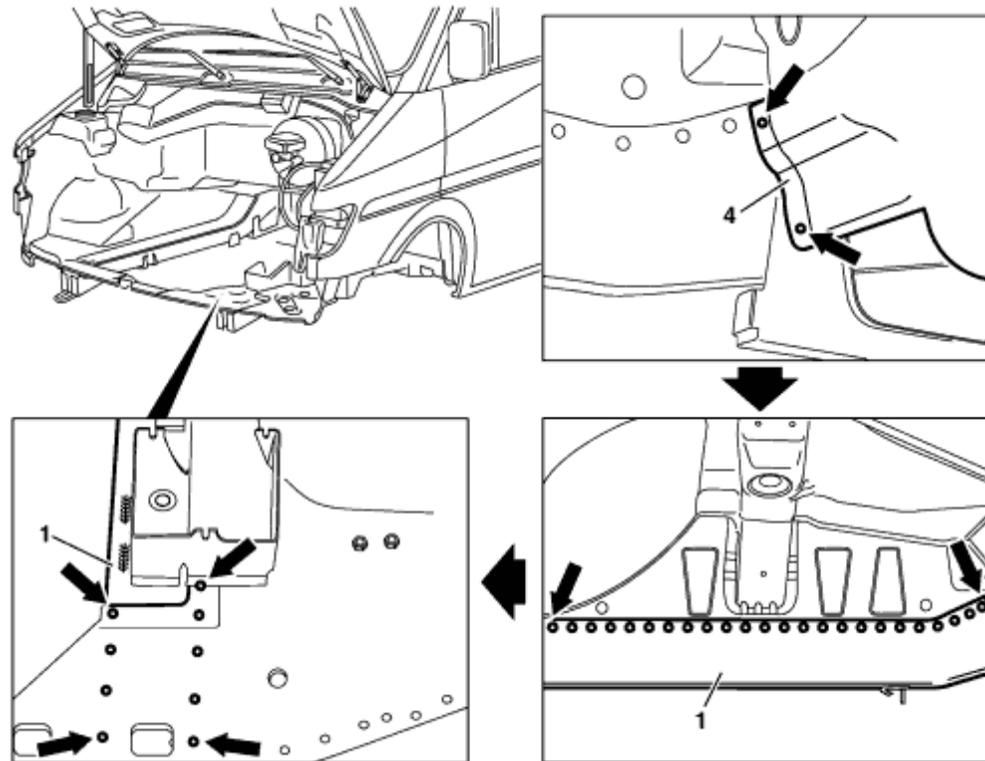
Cutting off front frame side member



1. Expose spot welds (arrows) of front side rail (1) and cross strut (3) and cut out.



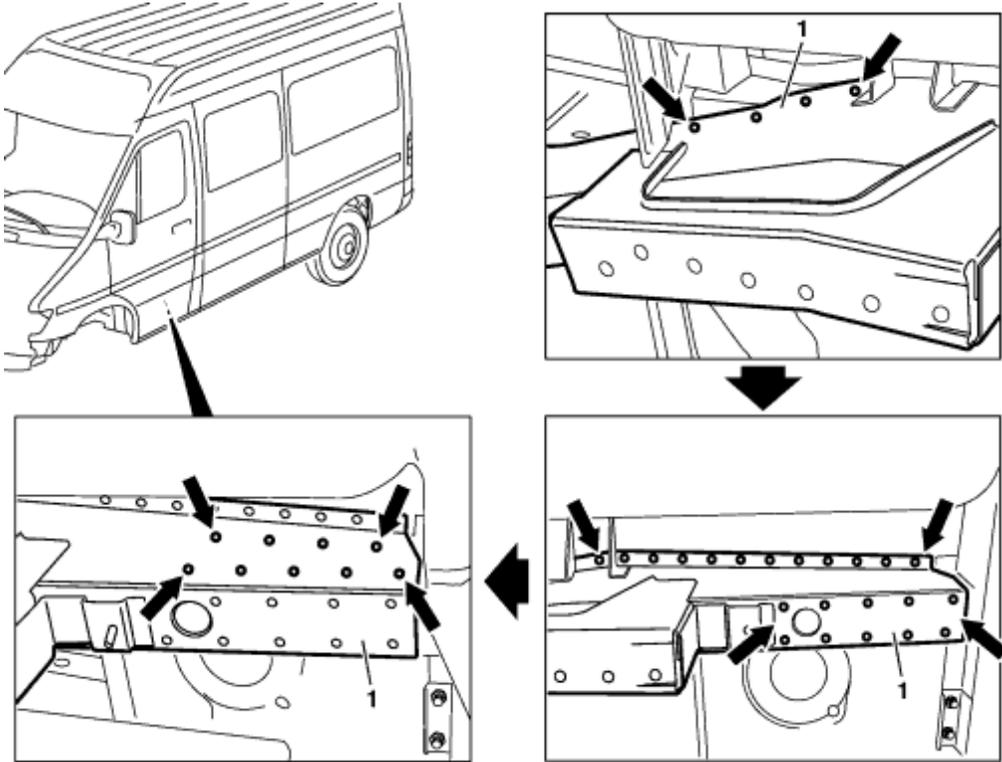
Cutting off front frame side member



2. Expose spot welds (arrows) of front side rail (1) and splash panel (4) and cut out.



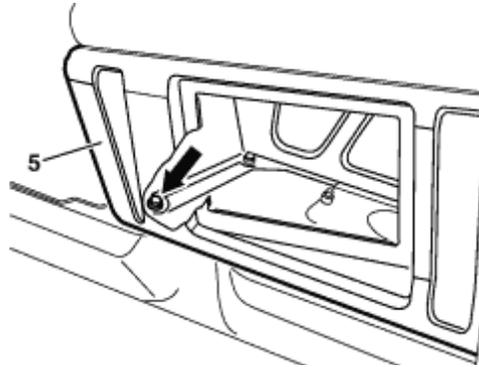
Cutting off front frame side member



3. Expose spot welds (arrows) of front side rail (1) and cut out.



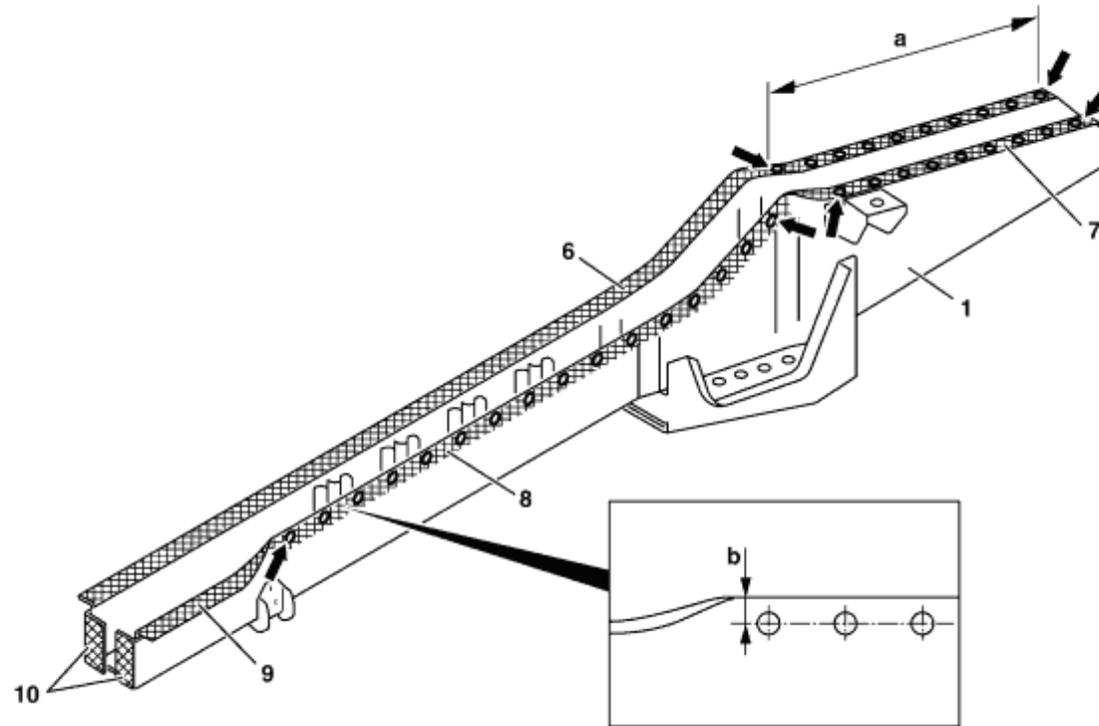
Cutting off front frame side member



4. Unscrew bolt (arrow) in seat frame (5).
5. Remove front side rail.



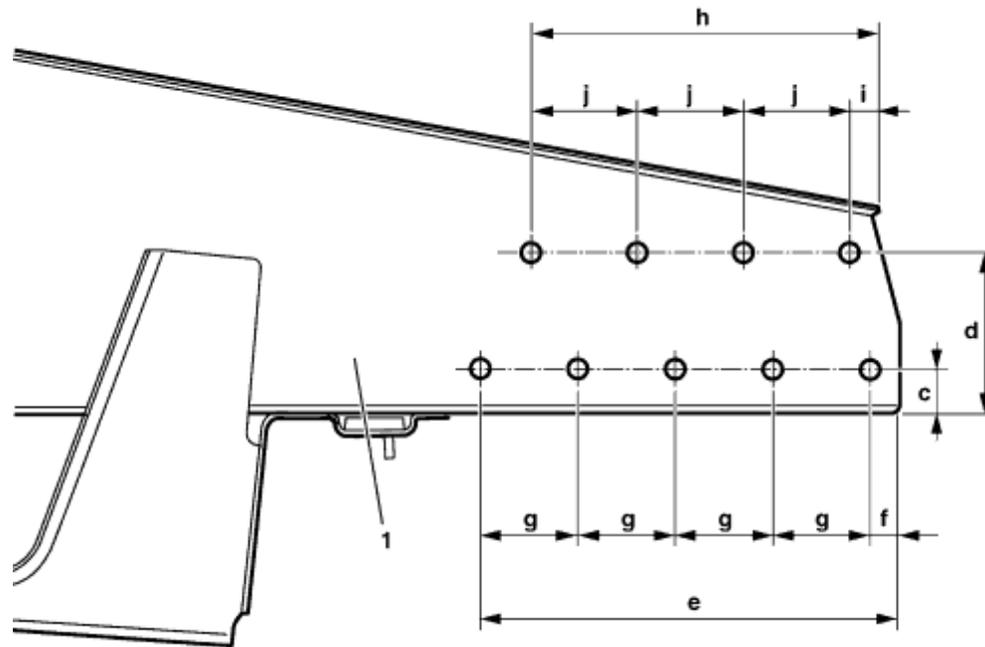
Preparing front longitudinal member for installation



1. Drill holes at a length of $a = 460$ mm with a maximum hole interval of 40 mm and 10 mm in area (6).
2. Drill holes at maximum hole interval of 40 mm and 10 mm in area (7).
3. Drill holes at a distance of $b = 10$ mm measured from top edge with a maximum hole interval of 40 mm and 10 mm.
4. Grind off areas (6, 7 and 8) on both sides and coat with zinc dust paint.
5. Grind off areas (9 and 10) and coat with zinc dust paint.



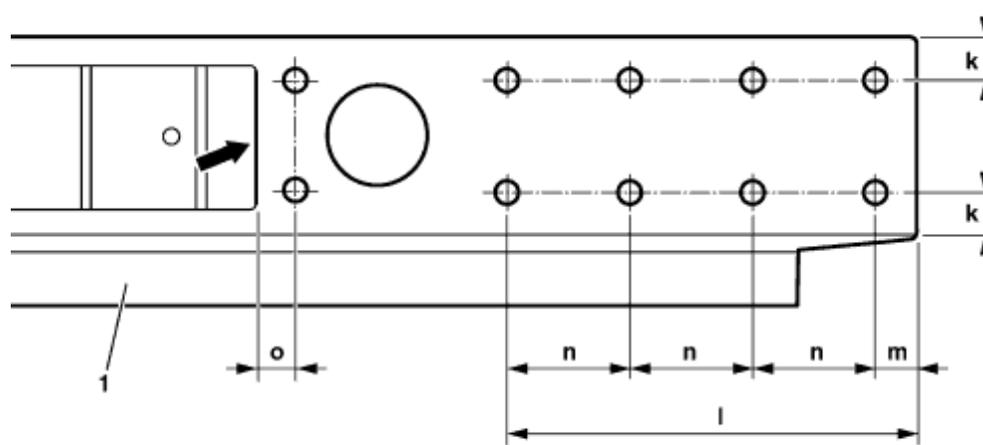
Preparing front longitudinal member for installation



6. Mark auxiliary lines on both sides of front frame longitudinal member (1) at a distance of $c=20$ mm and $d=80$ mm measured from bottom edge.
7. Drill five 10 mm holes at a width of $e = 210$ mm. The first hole at a distance of $f=10$ mm measured from outer edge. The remaining 4 holes at a distance of $g = 50$ mm measured from center of hole.
8. Cut four 10 mm holes \varnothing at a width of $h=175$ mm. The first hole at a distance of $i=10$ mm measure from outer edge. The remaining 4 holes at a distance of $j = 55$ mm measured from center of hole.



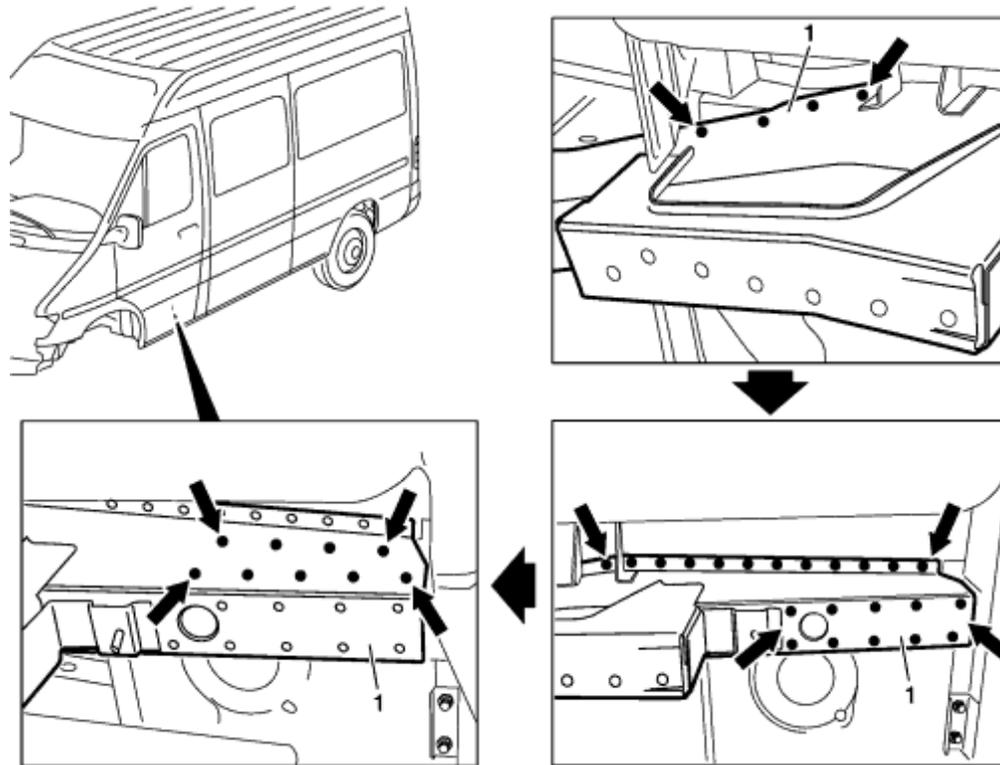
Preparing front longitudinal member for installation



9. Mark auxiliary lines on bottom side of front frame longitudinal member (1) at a distance of $k=15$ mm measured from outer edge.
10. Drill eight 10 mm holes at a width of $l = 155$ mm. The first 2 holes at a distance of $m=20$ mm measured from the outer edge. The remaining 6 holes at a distance of $n = 45$ mm measured from center of hole.
11. Cut two 10 mm holes at a distance of $o=45$ mm measured from the edge (arrow).



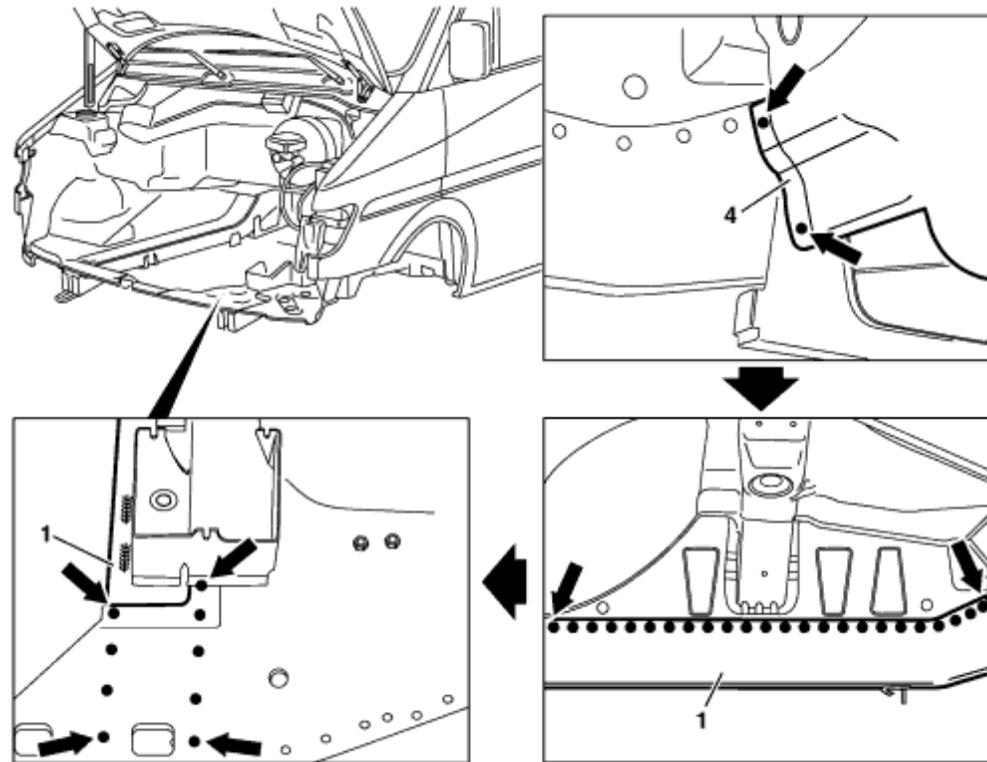
Welding in front longitudinal frame member



1. Weld front longitudinal frame member (1) to body (arrows).



Welding in front longitudinal frame member

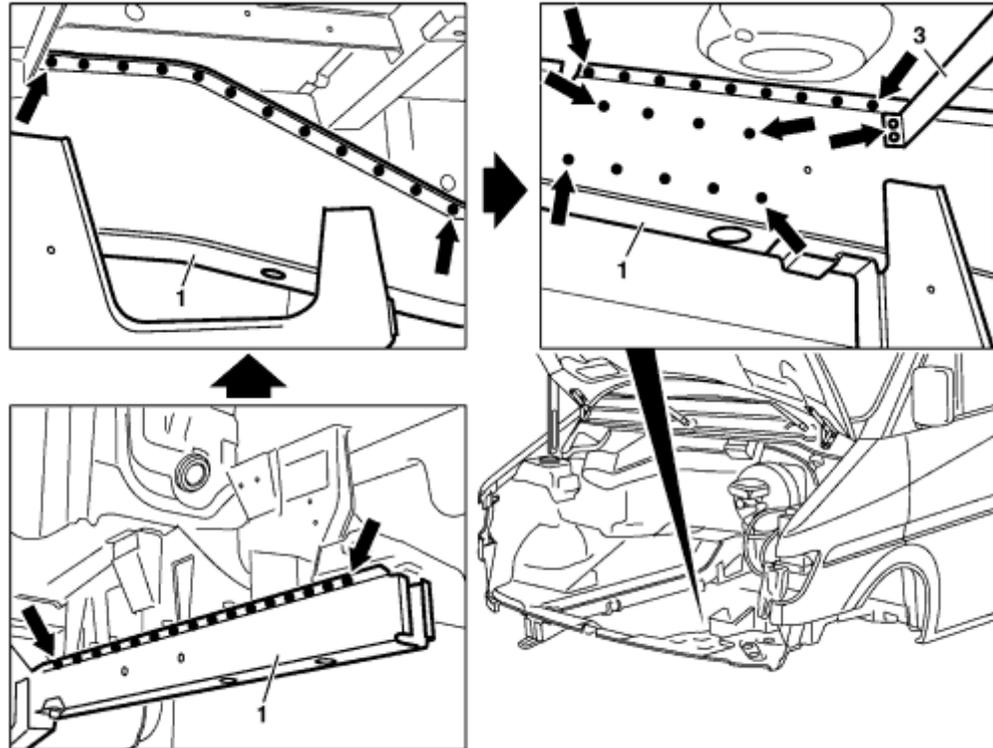


2. Weld front longitudinal frame member (1) to body (arrows).

3. Weld vertical panel (4) to front longitudinal member (1) (arrows).



Welding in front longitudinal frame member



4. Weld front longitudinal frame member (1) to body (arrows).
5. Weld cross member (3) to front longitudinal frame member (1) (arrows).
6. Weld front longitudinal frame member (1) to body (arrows).



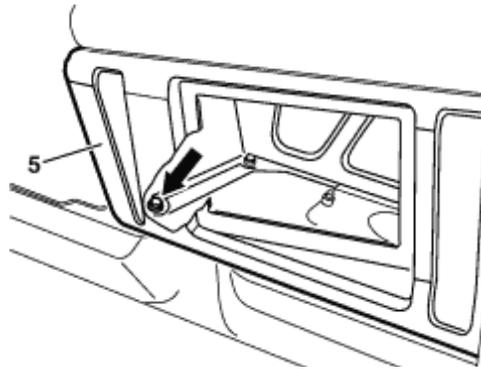
Welding in front longitudinal frame member



7. Weld towing hook (2) to front longitudinal frame member (arrows).



Welding in front longitudinal frame member

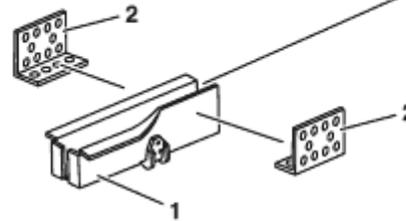
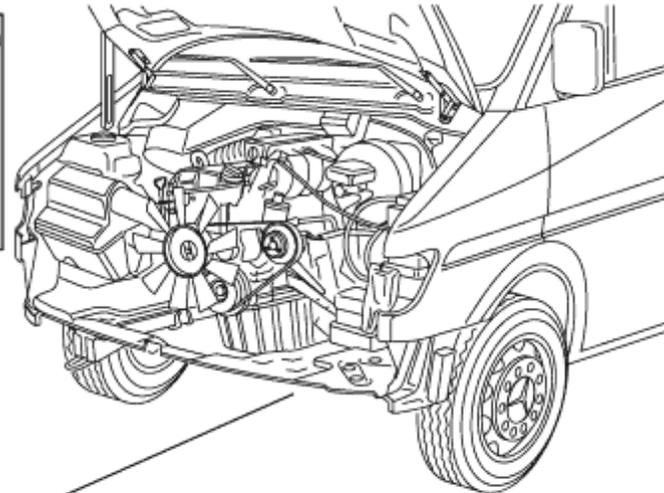
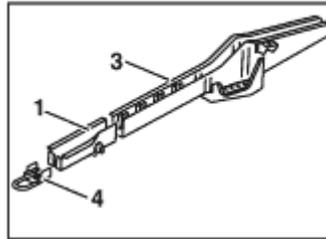


8. Screw bolt (arrow) into seat frame (5).



Partially remove/install front longitudinal frame member

1. Section of front longitudinal frame member
2. Reinforcement bracket
3. Front longitudinal frame member
4. Bracket with towing eye



The repair to the front longitudinal frame member (3) must only be performed in the event of damage that extends to at most the jack tube.

Remove

1. Remove front crossmember AR62.30-D-0001A
2. Remove detachable body components in area to be repaired
3. Cover all detachable parts remaining in area to be repaired.
4. Detach front part of longitudinal frame member (1) and machine connecting plates
5. Straighten connecting plate, grind off and coat with zinc dust paint



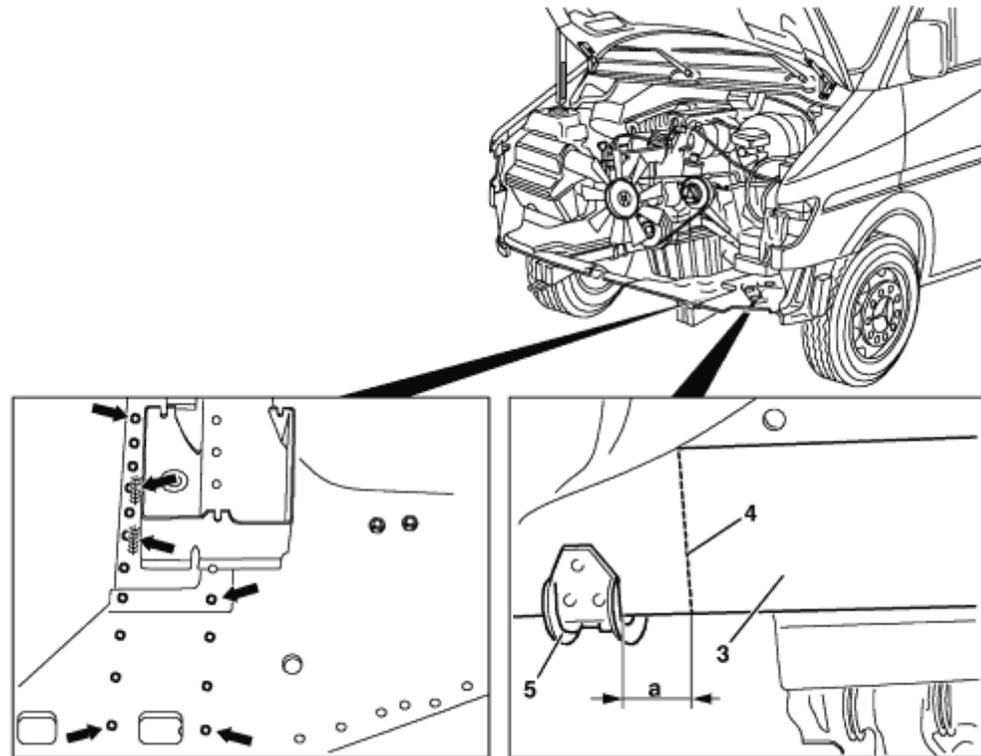
Partially remove/install front longitudinal frame member

Install

6. Prepare front part of longitudinal frame member (1) for installation
7. Fit front part of longitudinal frame member (1), align and clamp in position
8. Weld in front part of longitudinal frame member (1) When repairing the right longitudinal frame member (3), weld on new bracket with towing eye (4).
9. Grind down extending welding material
10. Prepare reinforcement bracket (2) for installation
11. Weld in reinforcement bracket (2)
12. Grind down extending welding material
13. Install front crossmember
14. Clean areas repaired and prime with primer/filler
15. Supplement standard seals with body sealing compound
16. Add permanent underfloor protection as a supplement to underbody protection installed as standard
17. Paint repair area and adjacent surfaces
18. Supplement cavity preservation
19. Reinstall all detachable body components removed



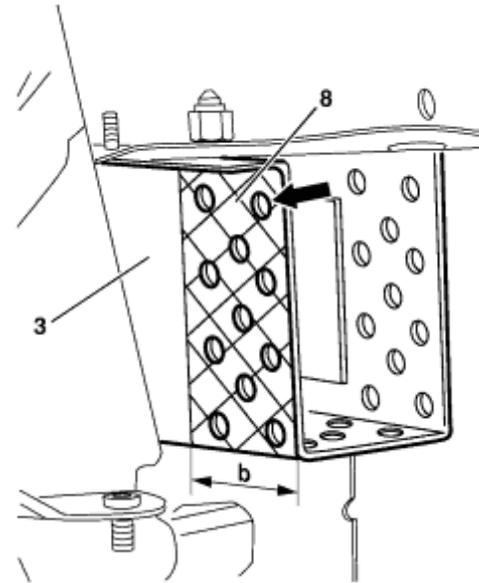
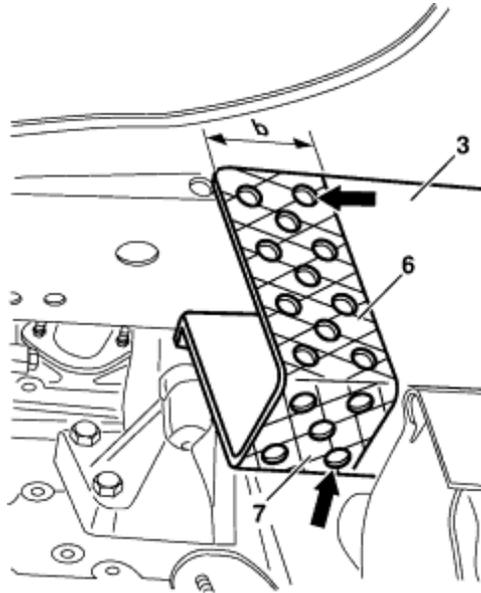
Cutting off section of front frame side member and preparing connection panels



1. Grind off weld seams (arrows).
2. Expose spot welds (arrows) and cut out.
3. Draw separation line (4) at a distance of $a=55$ mm, measured from the jack tube (5), on both sides and the underside of the side rail (3).
4. Detach side rail (3) along the separation line (4).



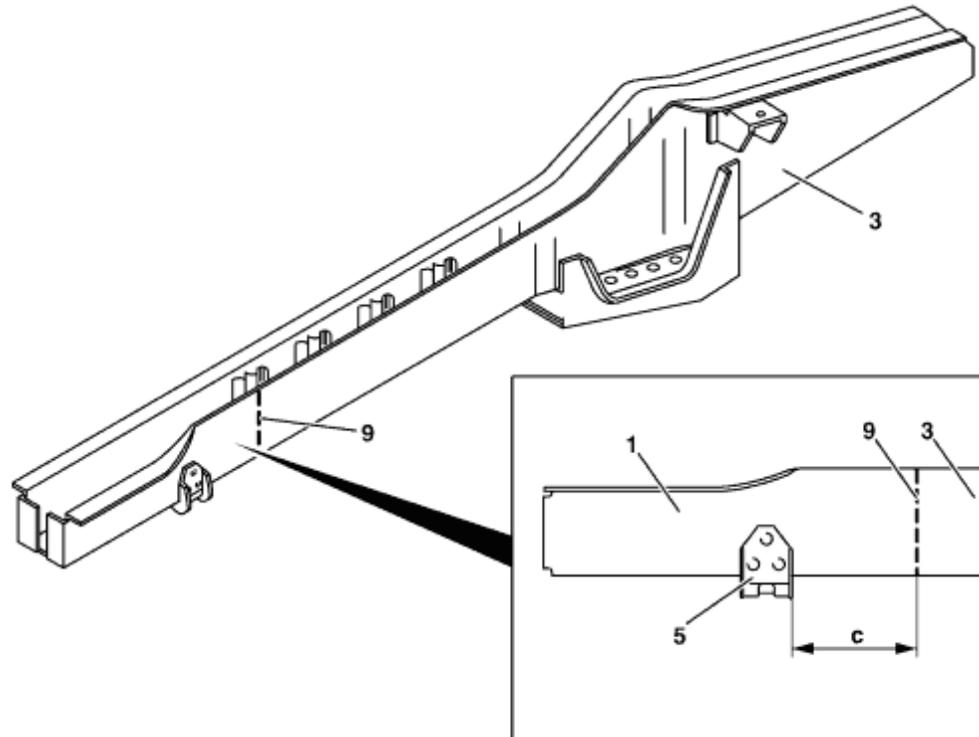
Cutting off section of front frame side member and preparing connection panels



5. In area (6) of side rail (3), at a width of $b=50$ mm, uniformly provide 11 holes (arrow) with a of 10 mm.
6. In area (7), at a width of $b=50$ mm, uniformly provide 5 holes (arrow) with a of 10 mm.
7. In area (8), at a width of $b=50$ mm, uniformly provide 11 holes (arrow) with a of 10 mm.
8. Grind off areas (6, 7 and 8) on both sides and coat with zinc dust paint.



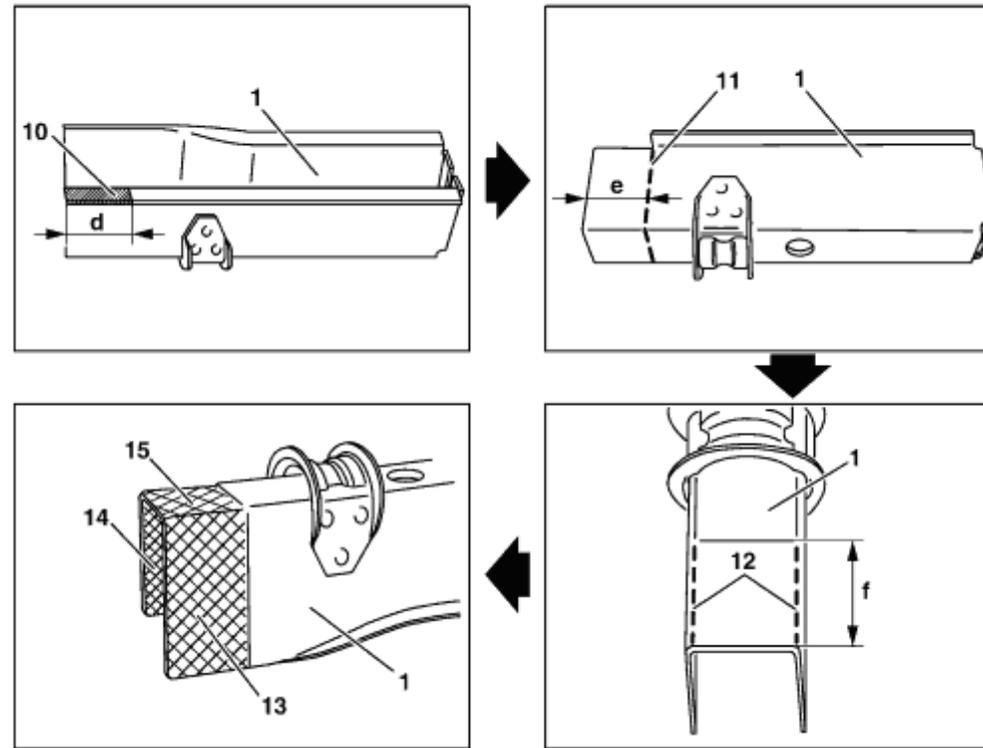
Prepare section of front longitudinal frame member for installation



1. Mark separation line (9) at a distance of $c=105$ mm on both sides of frame longitudinal member (3) measured from jack socket (5).
2. Separate frame longitudinal member (3) section along separation line (9).

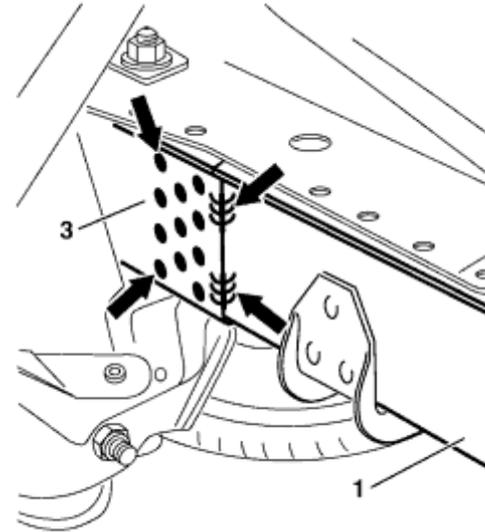
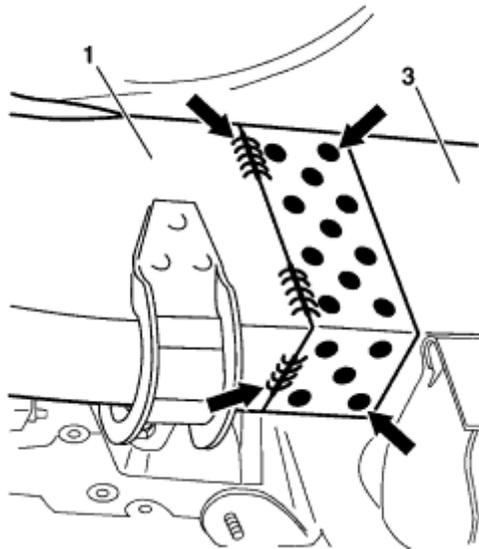


Prepare section of front longitudinal frame member for installation



3. Separate stay (10) of section (1) to a length of $d = 55$ mm.
4. Mark line (11) at a distance of $e=55$ mm on all three sides of the section (1) measured from the outer edge.
5. Mark separation lines (12) at a length of $f = 55$ mm in both section roundings (1).
6. Cut section (1) at a cutting depth of approx. 2 mm along separation lines.
7. Taper areas (13, 14 and 15) of section (1) until it can be inserted into the remaining sheet metal of the longitudinal frame member on the vehicle
8. Grind off areas (13, 14 and 15) and coat with zinc dust paint.

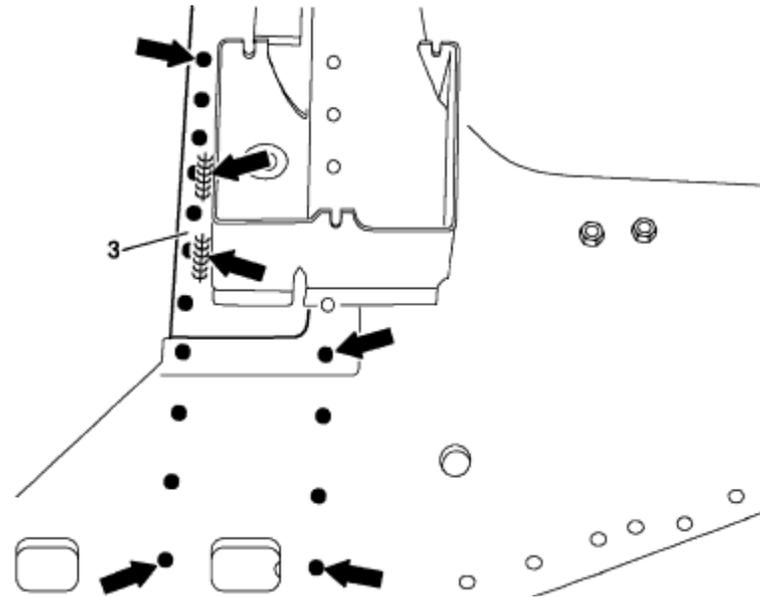
Welding in section of front frame side member



1. Weld part section (1) onto side rail (3) (arrows).
2. Weld part section (1) onto side rail (3) (arrows).



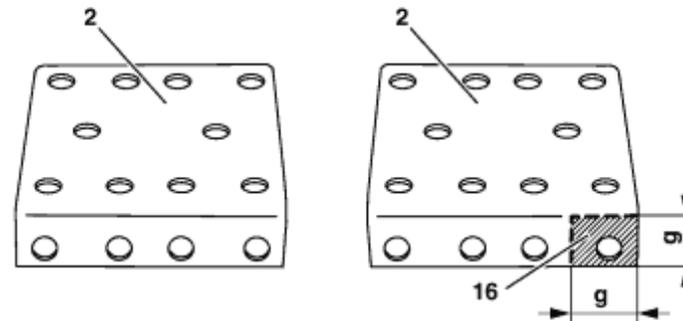
Welding in section of front frame side member



3. Weld end tip onto side rail (arrows).
4. Weld end tip onto side rail (3) (arrows).



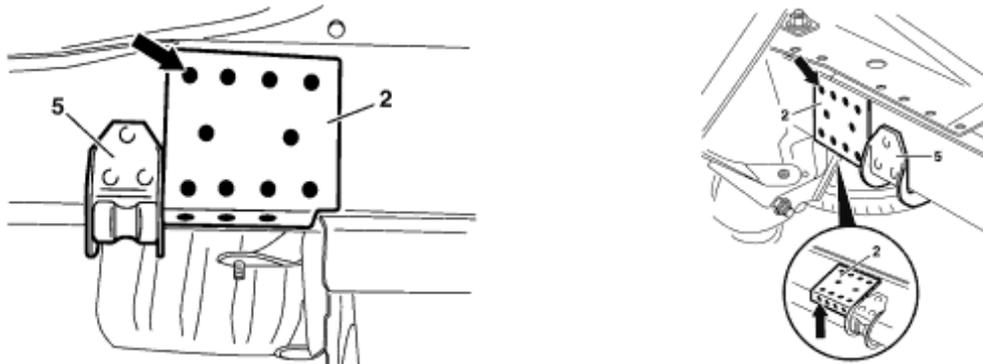
Preparing reinforcement bracket for installation



1. Separate area (16) area of reinforcement bracket (2) for outer frame longitudinal member to a width of $g = 20$ mm.
2. Coat reinforcement bracket (2) with zinc dust paint on both sides.



Welding in reinforcement bracket

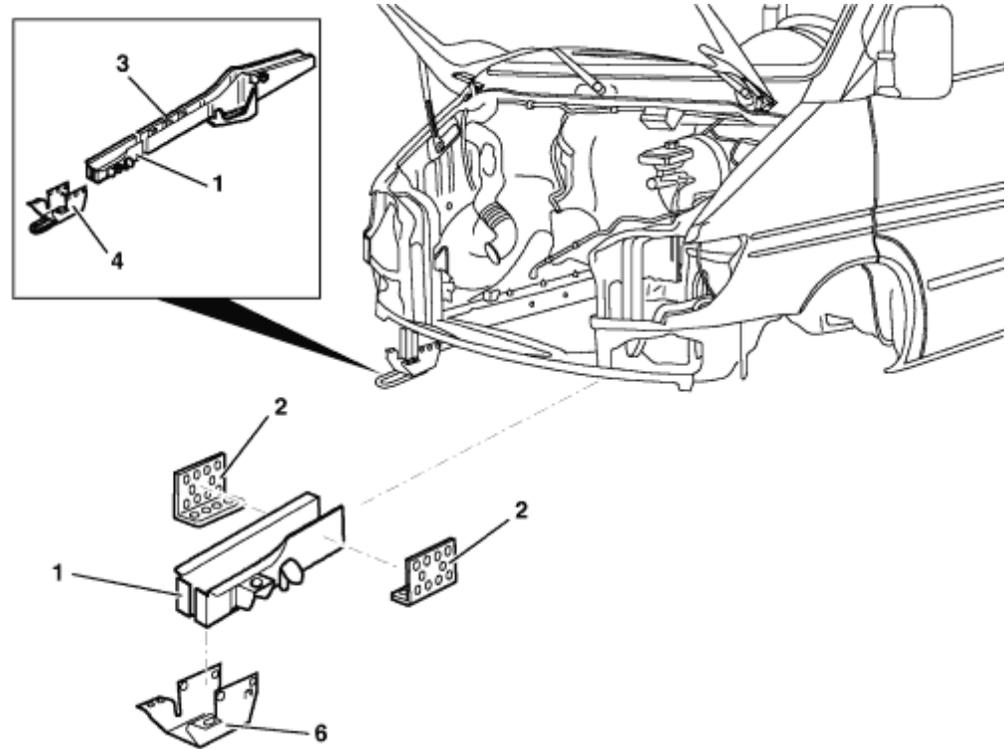


1. Position reinforcement bracket (2) at jack mount (5), align and weld on (arrows).



Partially remove/install front longitudinal frame member

1. Section of front longitudinal frame member
2. Reinforcement bracket
3. Front longitudinal frame member
4. Bracket with towing eye
6. Bracket



Remove

1. Remove front crossmember
2. Remove detachable body components in area to be repaired
3. Cover all detachable parts remaining in area to be repaired.
4. Detach part section from front longitudinal frame member (1) and machine connecting plates
5. Straighten connecting plates, grind off and coat with zinc dust paint



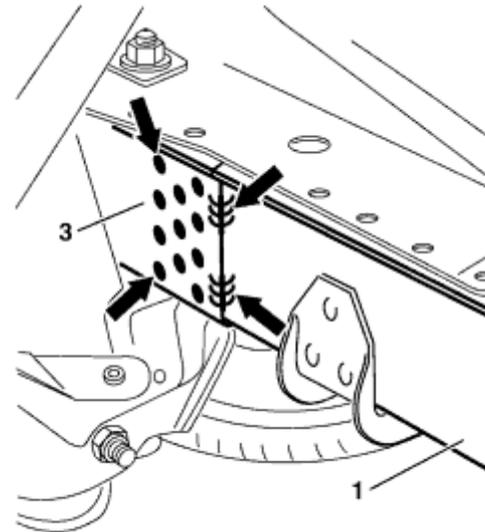
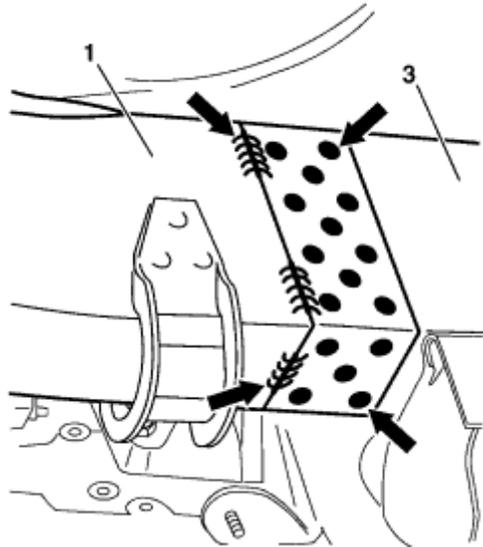
Partially remove/install front longitudinal frame member

Install

6. Prepare front part of longitudinal frame member (1) for installation
7. Fit front part of longitudinal frame member (1), align and clamp in position
8. Weld in front part of longitudinal frame member (1)
9. Grind down extending welding material
10. Prepare reinforcement bracket (2) for installation
11. Weld in reinforcement bracket (2)
12. Grind down extending welding material
13. Install front crossmember
14. Clean areas to be repaired with primer/filler
15. Supplement standard seals with body sealant Seam sealing after repairs.
16. Add permanent underfloor protection as a supplement to underbody protection installed as standard
17. Paint repair area and adjacent surfaces
18. Supplement cavity preservation
19. Reinstall all detachable body components removed



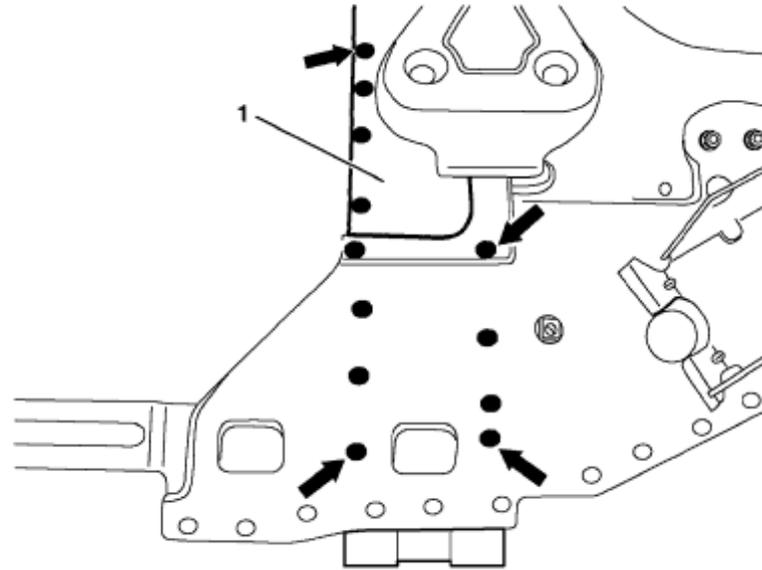
Weld in section of front longitudinal frame member



1. Weld part section (1) onto longitudinal frame member (3) (arrows).
2. Weld part section (1) onto longitudinal frame member (3) (arrows).



Weld in section of front longitudinal frame member

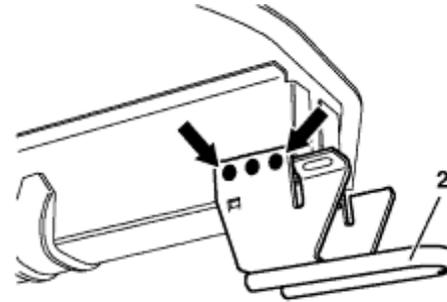
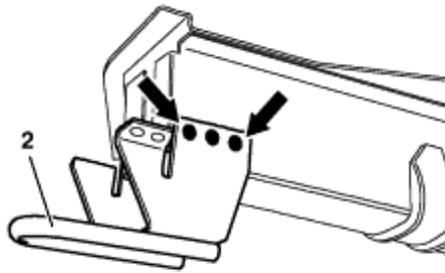


3. Weld end tip onto longitudinal frame member (arrows).
4. Weld end tip onto longitudinal frame member (3) (arrows).



Weld in section of front longitudinal frame member

right longitudinal frame member

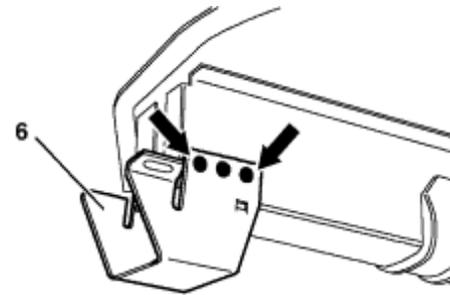
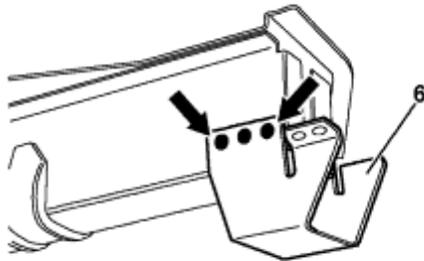


5. Weld bracket (6)/bracket with towing lug (2) onto front longitudinal frame member (arrows).



Weld in section of front longitudinal frame member

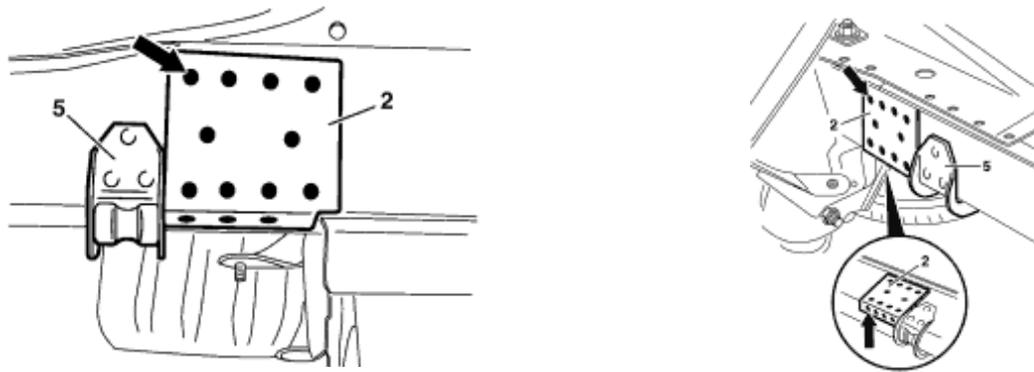
left longitudinal frame member



5. Weld bracket (6)/bracket with towing lug (2) onto front longitudinal frame member (arrows).



Welding in reinforcement bracket

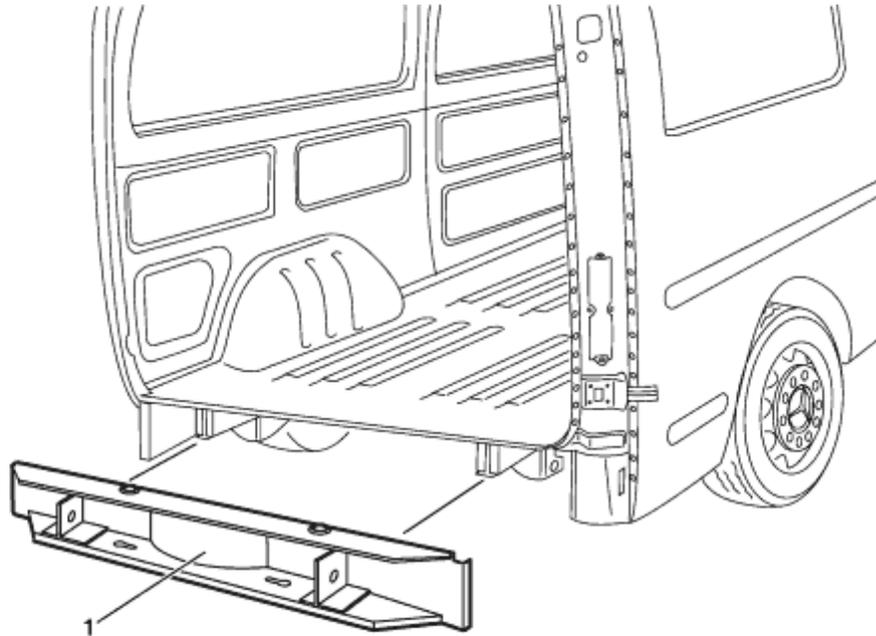


1. Position reinforcement bracket (2) at jack mount (5), align and weld on (arrows).



Remove/install end cross member

1. End cross member



Remove

1. Remove rear bumper
2. Remove tailgate entrance panel
3. Remove rear doors
4. Remove end plate
5. Remove both outer corner pillar panelings
6. Remove both reinforcement plates for outer corner pillar paneling
7. Remove miscellaneous detachable body components in repair area
8. Cover all detachable body components remaining in area to be repaired
9. Separate end cross member (1)



Remove/install end cross member

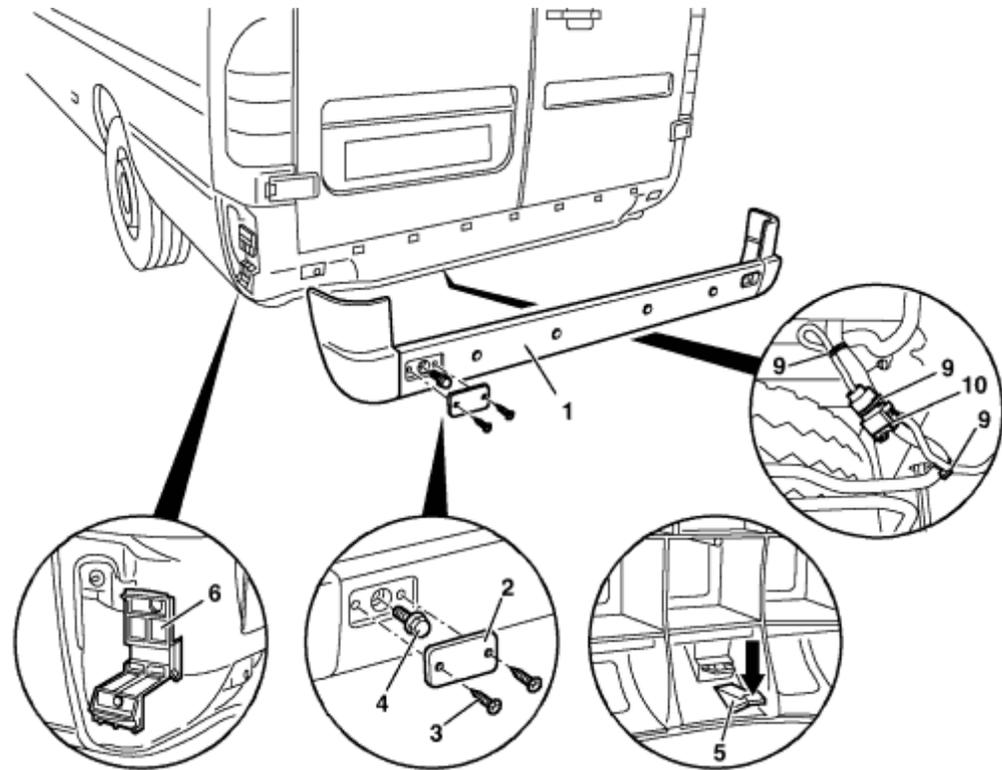
Install

10. Prepare connection points for end cross member (1)
11. Straighten connecting plate, grind off and coat with zinc dust paint
12. Prepare end cross member (1) for installation
13. Weld in end cross member (1)
14. Grind down extending welding material
15. Install both reinforcement plates for outer corner pillar paneling
16. Install both outer corner pillar paneling
17. Install end plate
18. Vacuum out hollow cavities
19. Clean areas repaired and prime with MB primer/filler
20. Supplement standard seals with MB body sealing compound
21. Add MB permanent underfloor protection as a supplement to underbody protection installed as standard
22. Paint repair area and adjacent surfaces
23. Supplement cavity preservation
24. Install rear doors
25. Install tailgate step
26. Install rear bumper
27. Reinstall all other detachable body components



Remove/install rear bumper

1. Bumper
2. Reflector
3. Phillips screws
4. Collar bolt
5. Bumper bracket
6. Corner pillar mount
9. Cable strap
10. Electrical connector



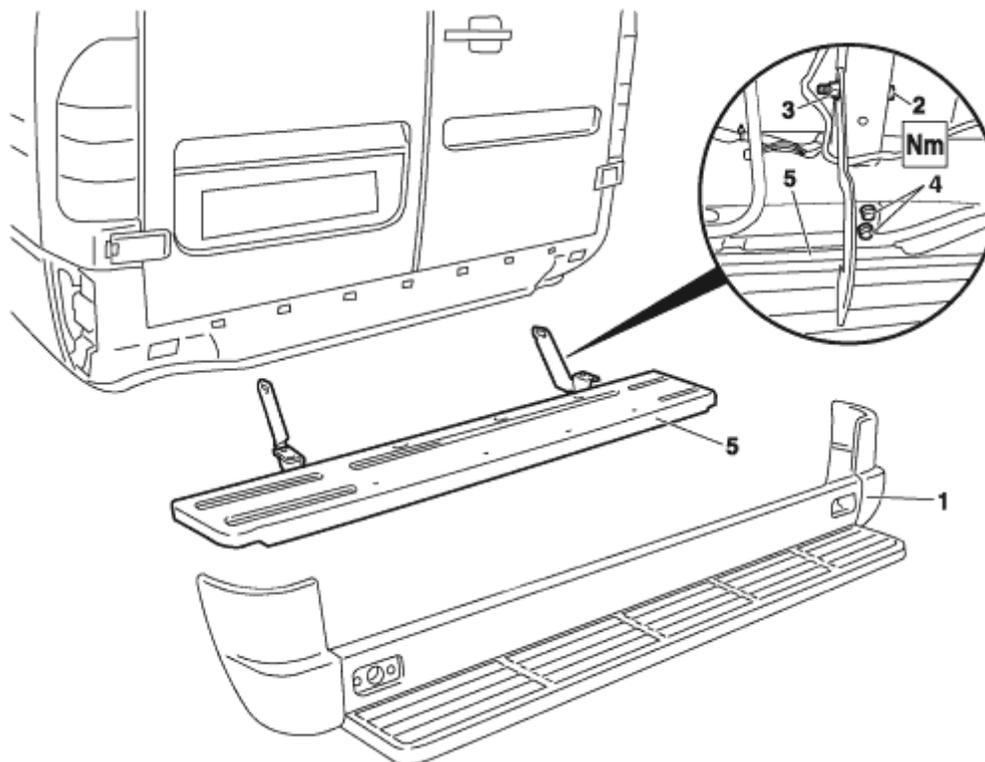
Remove/install

1. Unscrew reflector (2) and collar bolts (4) Installation Replace micro-encapsulated collar bolt (4)
2. Unclip bumper brackets (5) below end panel
3. Remove plastic clips (7) With code W73, rear-end door step. Press dowel pin (8) of plastic clip (7) inward.
4. Remove bumper Installation: The corner parts of the bumper are inserted in the mounts (6) of the corner pillars (not screwed).
5. Pince through cable strap (9)
6. Separate electrical connector (10)
7. Install in the reverse order



Remove/install rear bumper

1. Bumper
2. Bolt
3. Nut
4. Screw
5. Rear-end door step



Remove/install

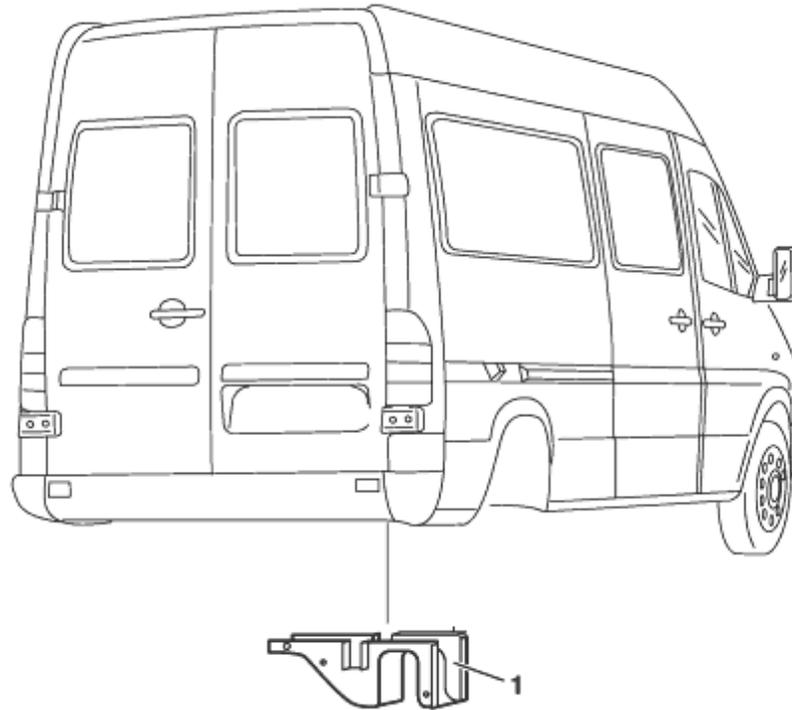
1. Remove rear bumper
2. Unscrew screw (2) with nut
3. Unscrew screw (4) and remove rear-end door step
4. Install in the reverse order



Remove/install rear spring bracket

Repair illustrated on right rear spring bracket

1. Rear spring bracket



Remove

1. Remove rear axle.
2. Remove rear spring
3. Remove miscellaneous detachable body components in repair area
4. Cover all detachable body components remaining in area to be repaired
5. Separate rear spring bracket (1)



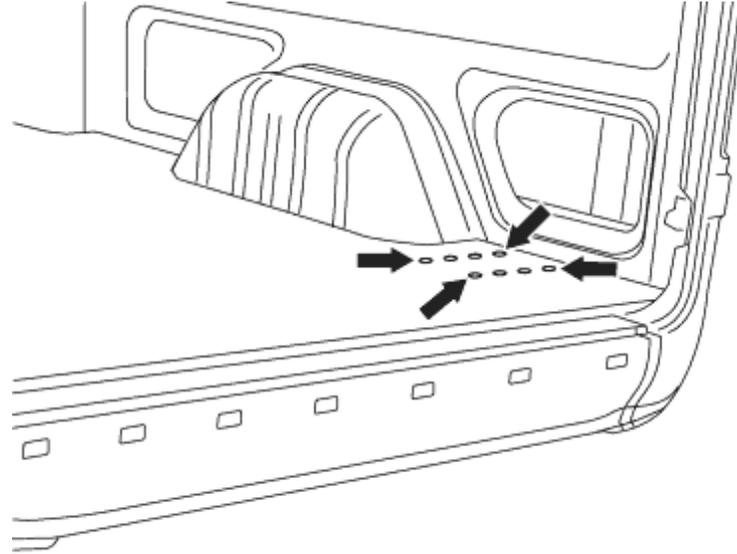
Remove/install rear spring bracket

Install

6. Straighten connecting plates, grind off and coat with zinc dust paint.
7. Prepare rear spring bracket (1) for installation
8. Weld in rear spring bracket (1)
9. Grind down extending welding material
10. Vacuum out hollow cavities
11. Clean areas to be repaired with MB primer/filler
12. Supplement standard seals with MB body sealant
13. Add MB permanent underfloor protection as a supplement to underbody protection installed as standard
14. Paint repair area and adjacent surfaces
15. Supplement cavity preservation
16. Install rear spring
17. Install rear axle
18. Reinstall miscellaneous detachable body components



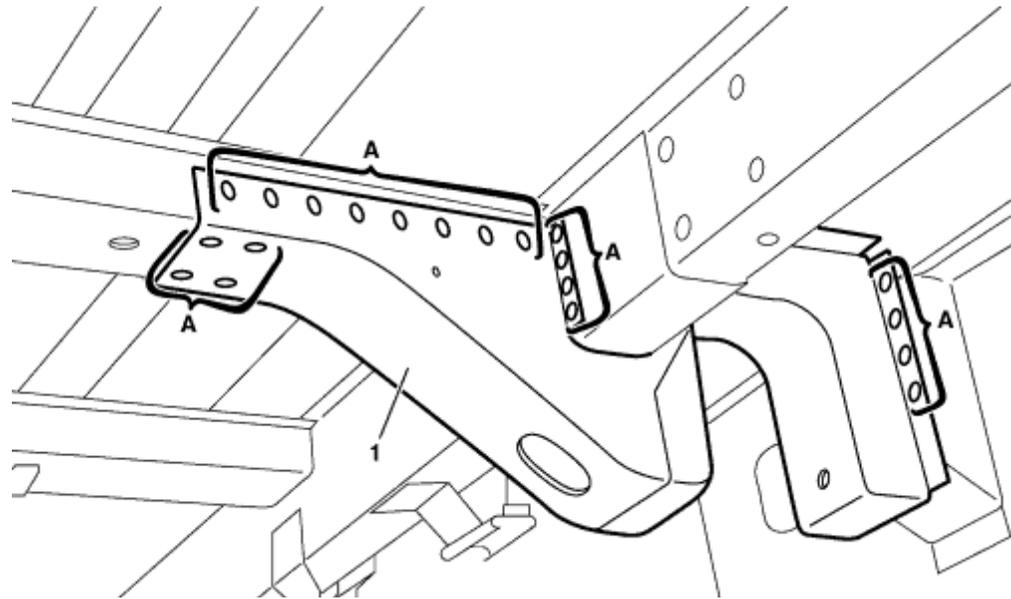
Separating rear spring bracket



1. Expose spot welds (arrows) and cut out.



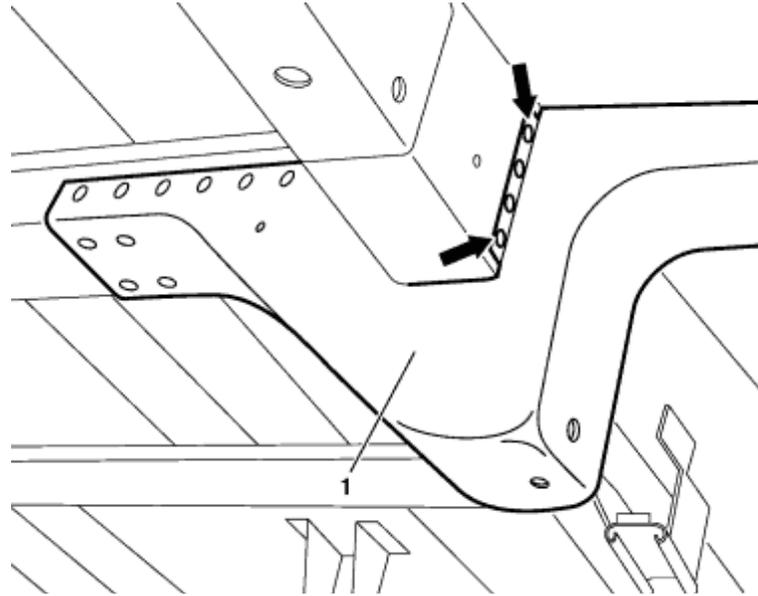
Separating rear spring bracket



2. Expose spot welds (A) and cut out of rear spring bracket (1)



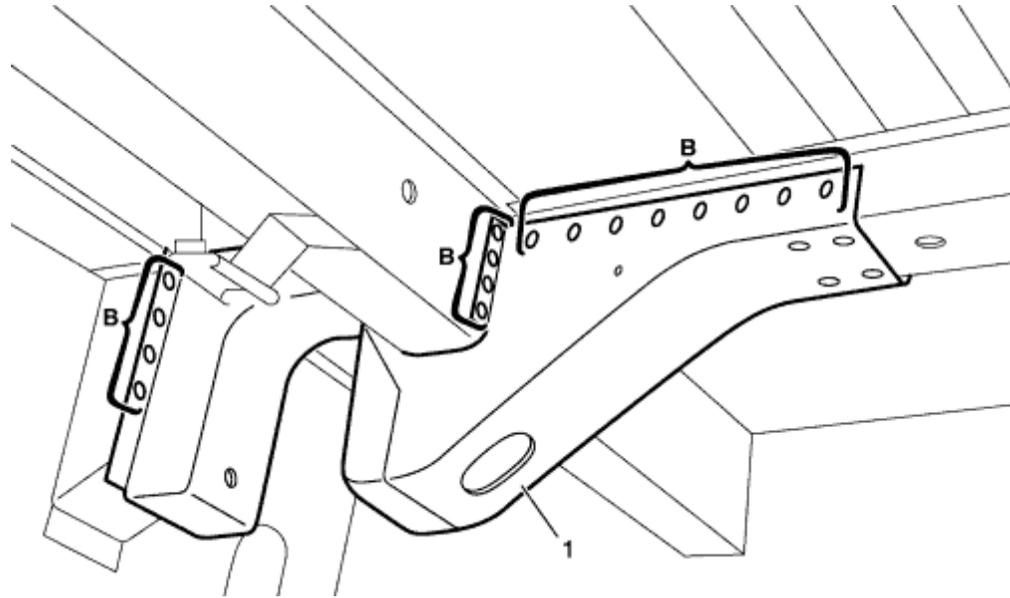
Separating rear spring bracket



3. Expose spot welds (arrows) and cut out of rear spring bracket (1).



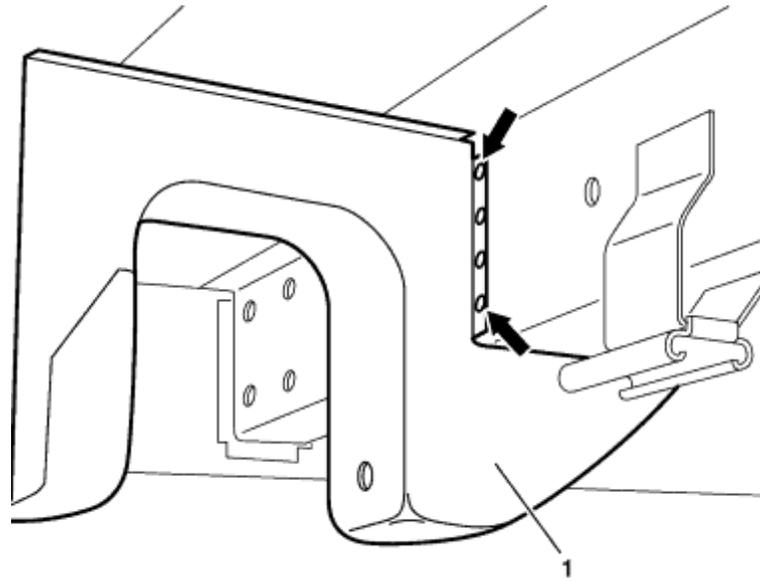
Separating rear spring bracket



4. Expose spot welds (B) and cut of rear spring bracket (1).



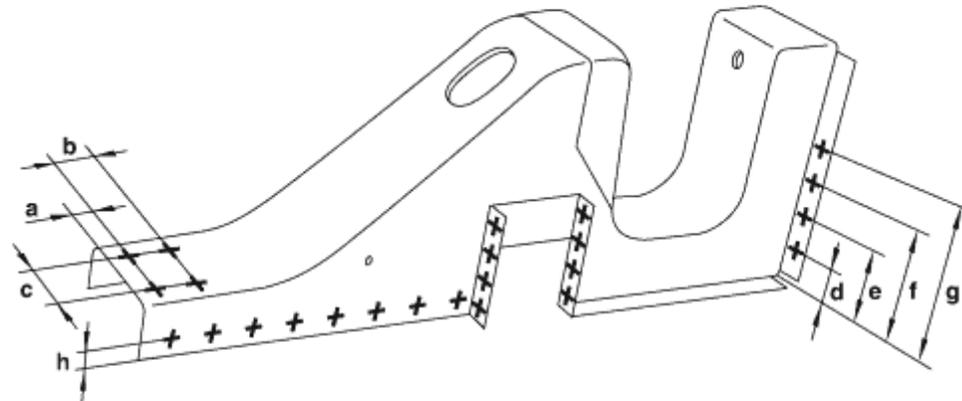
Separating rear spring bracket



5. Expose spot welds (arrows) and cut out of rear spring bracket (1).



Preparing rear spring bracket for installation

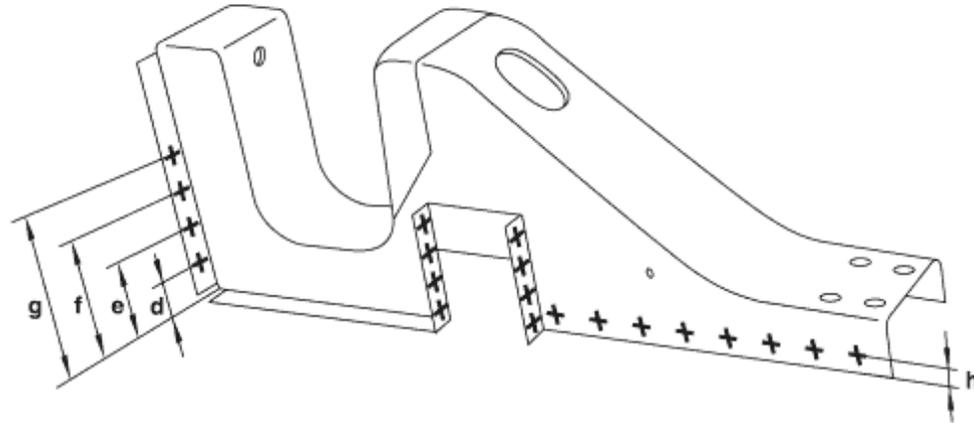


1. Mark rear holes at rear spring bracket.

- a. 15 mm
- b. 30 mm
- c. 45 mm
- d. 30 mm
- e. 50 mm
- f. 80 mm
- g. 100 mm
- h. 12 mm



Preparing rear spring bracket for installation

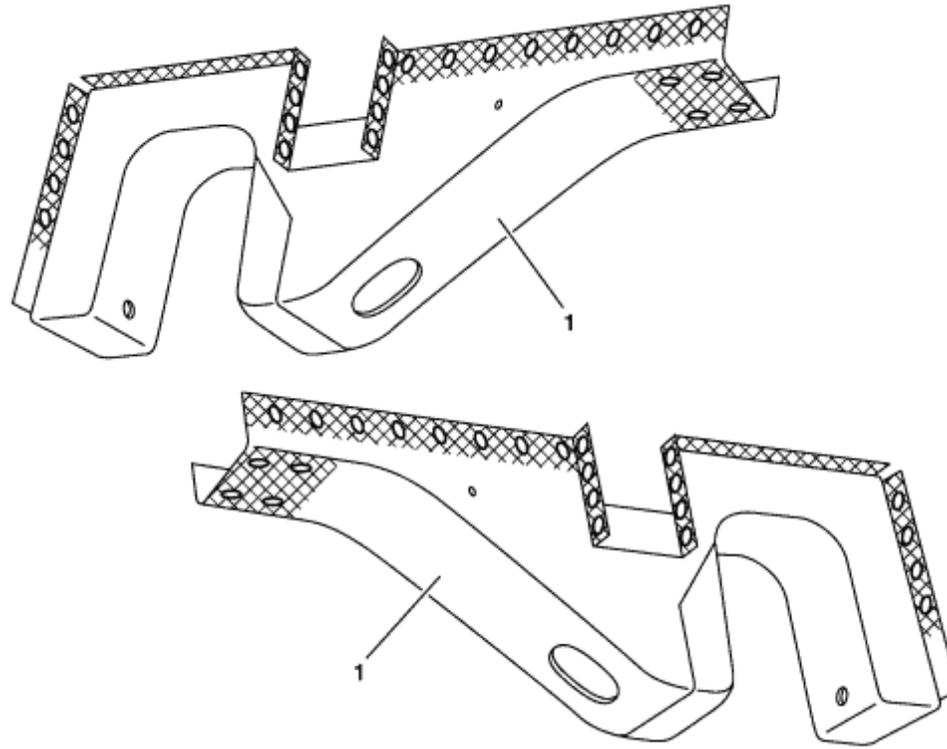


2. Mark rear holes at rear spring bracket.
3. Drill all marked holes with 6 mm dia. bit.

- d. 30 mm
- e. 50 mm
- f. 80 mm
- g. 100 mm
- h. 12 mm



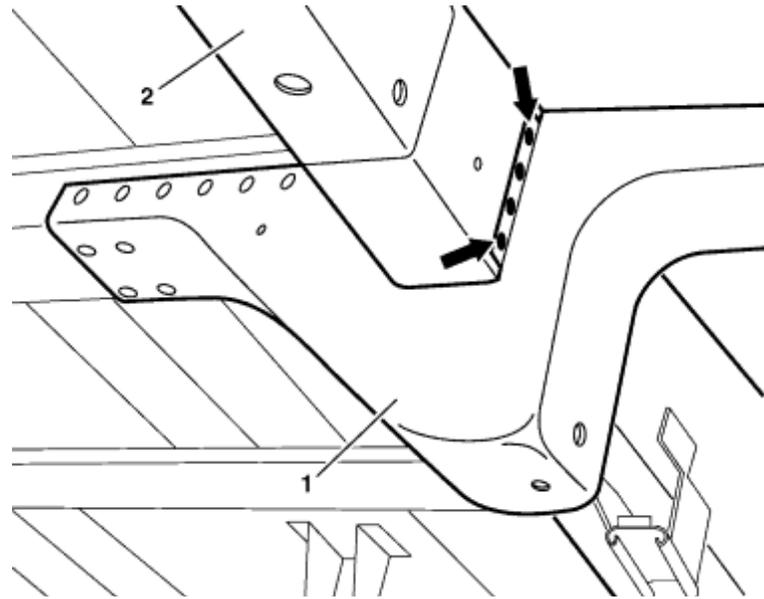
Preparing rear spring bracket for installation



4. Grind rear spring bracket (1) off on both sides in marked area and coat with zinc dust paint.



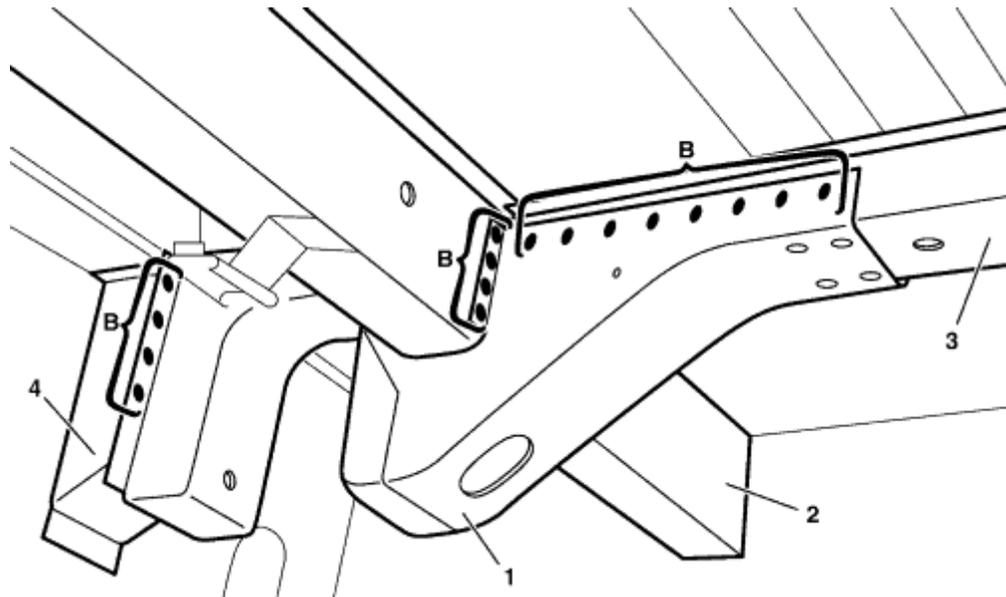
Welding in rear spring bracket



2. Weld rear spring bracket (1) to longitudinal member (2) (arrows).



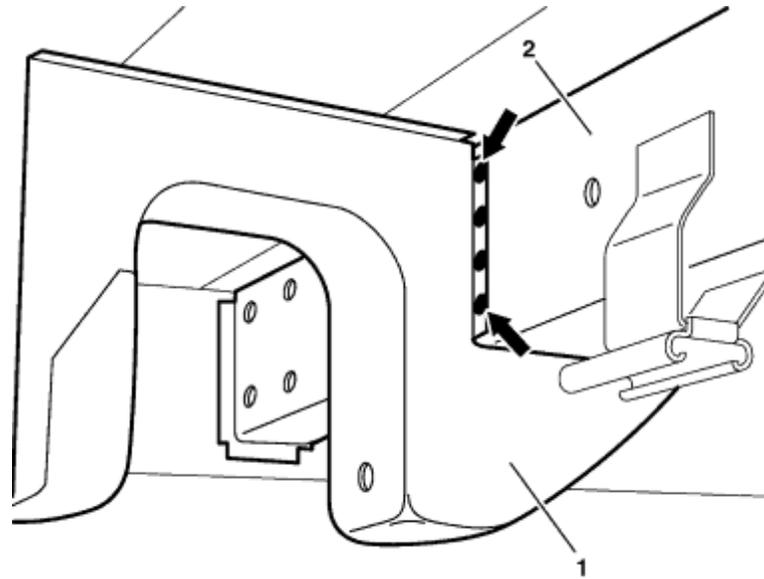
Welding in rear spring bracket



3. Weld rear spring bracket (1) to longitudinal member (2), cross member (3) and console (4) (areas B).



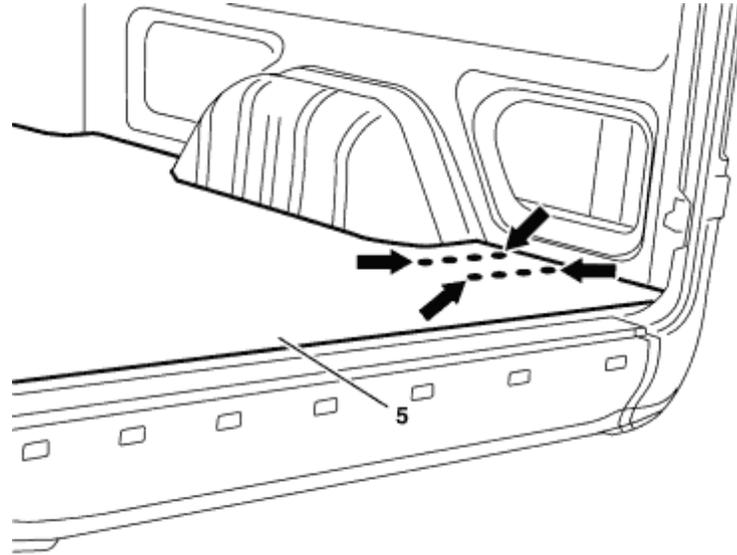
Welding in rear spring bracket



4. Weld rear spring bracket (1) to longitudinal member (2) (arrows).



Welding in rear spring bracket



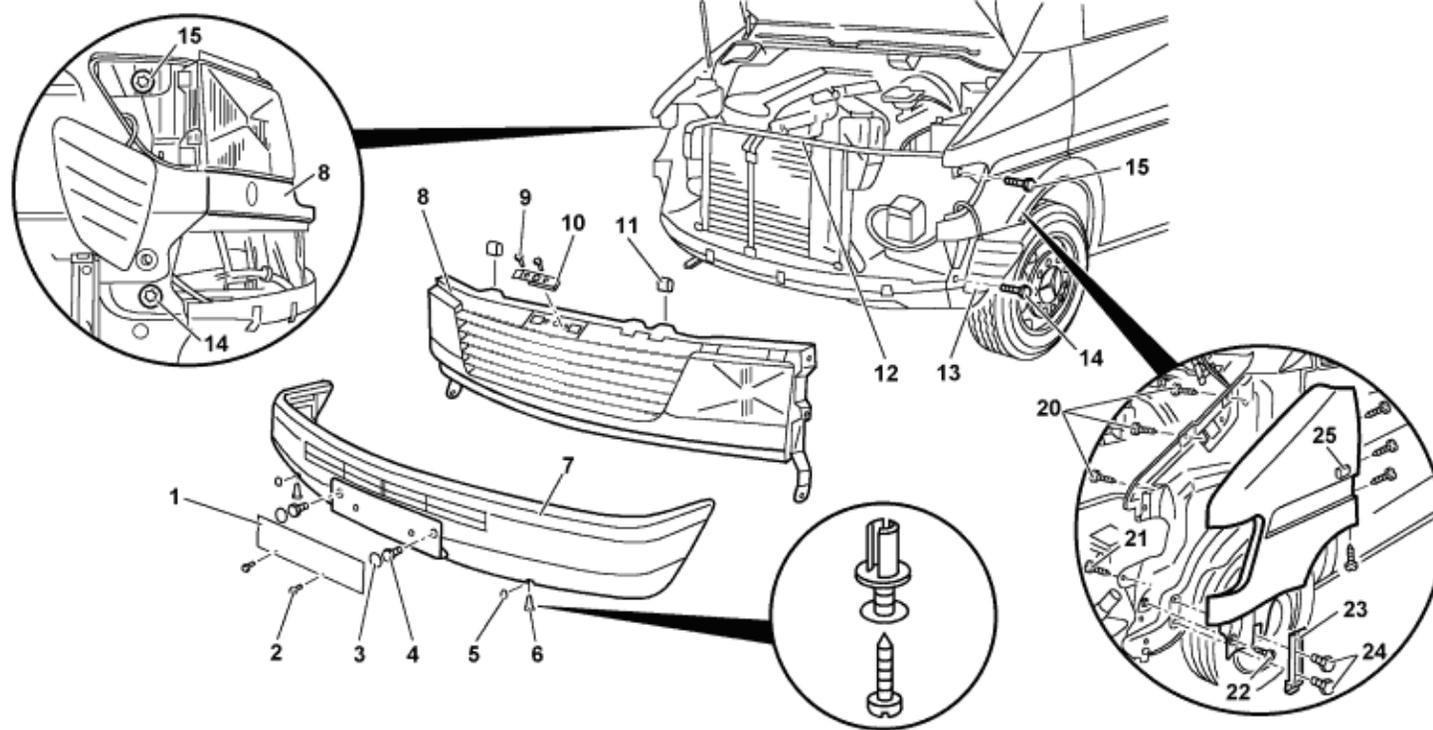
5. Weld floor panel (5) to rear spring bracket (2) (arrows).



Front End & Fire Wall



Removing and installing front end paneling



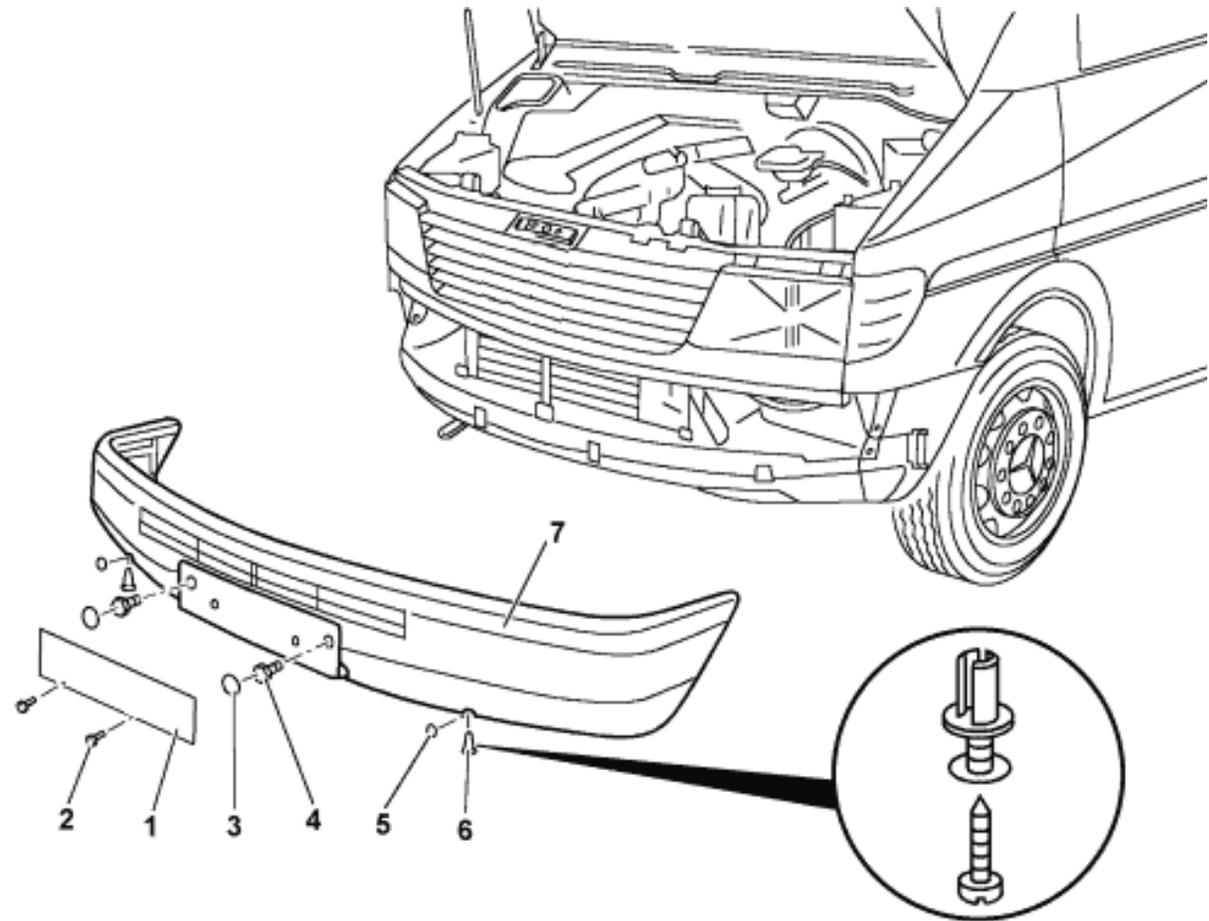
Removal, installation

1. Remove front bumper.
2. Remove turn signal lamps and front end center element (a) with head lamps.
3. Unscrew bolts (7) on A-pillar.
4. Remove sealant (18) between wheelhouse and fender.
5. Unscrew bolts (19, 20, 21 and 22).
6. Drill out spreading pins (24) and pull off bumper mount (23).
7. Pull connector off of auxiliary turn signal lamp.
8. Remove fender remove sealant residues.
9. Reinstall in opposite order before installing spray fender on inside with underbody protection agent.
10. Seal inside of fender at wheel well and wheel well transition.



Removing and installing front bumper

- 1 License plate
- 2 Phillips screws
- 3 Cover
- 4 Collared bolts
- 5 Cover
- 6 Expanding rivet
- 7 Bumper

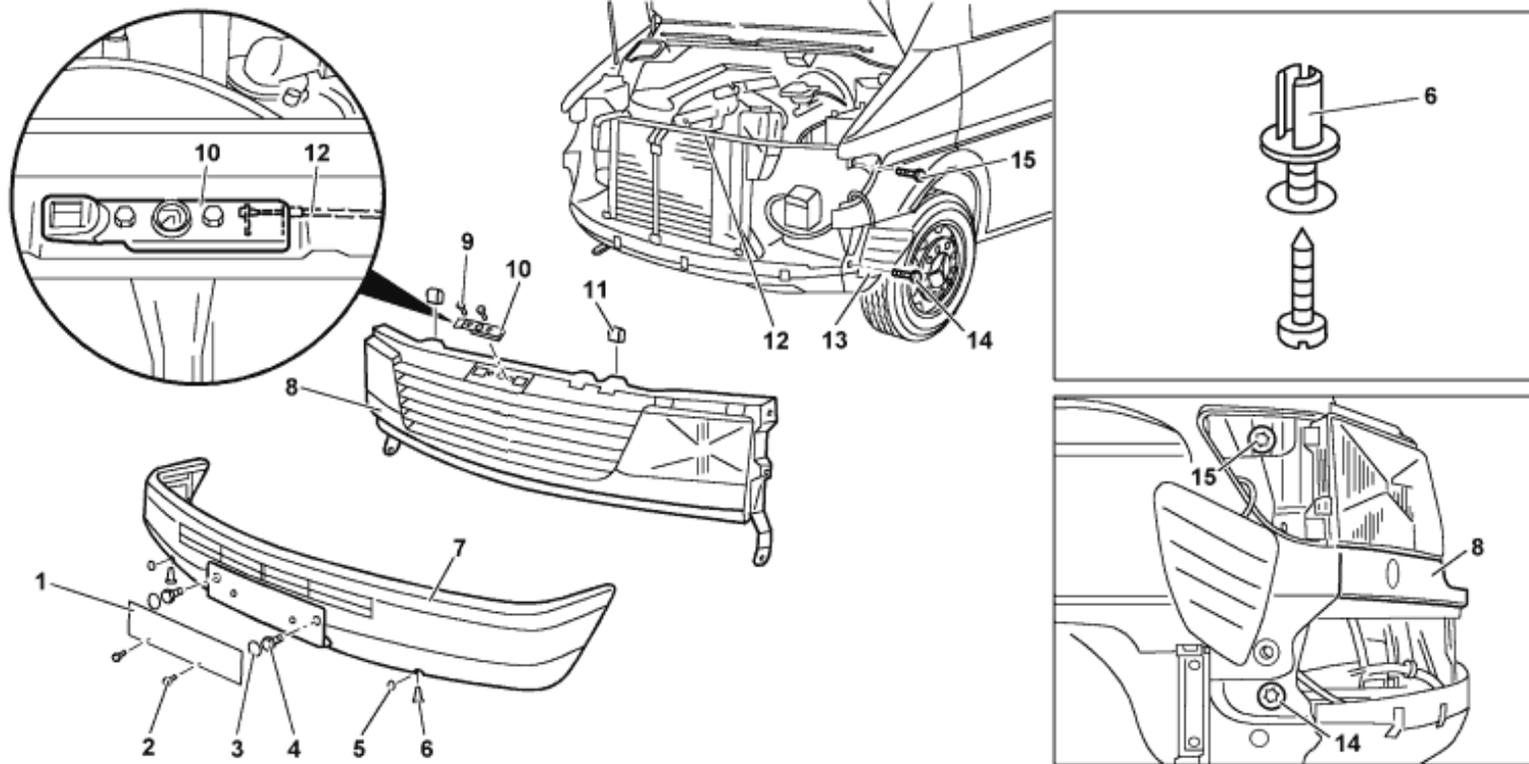


Removing, Installing

1. Unscrew license plate.
2. Remove covers (3) and unscrew collared bolts (4) Installation: Replace micro-encapsulated collared bolts.
3. Remove covers (5) and pull out expanding rivet (6) Pull out rivet by screwing a sheet metal screw (M4.2x30 or longer) into the expanding rivet. Installation: Replace expanding rivet.
4. Remove bumper (7).
5. Install in the reverse order.



REMOVING AND INSTALLING FRONT SECTION CENTER ASSEMBLY



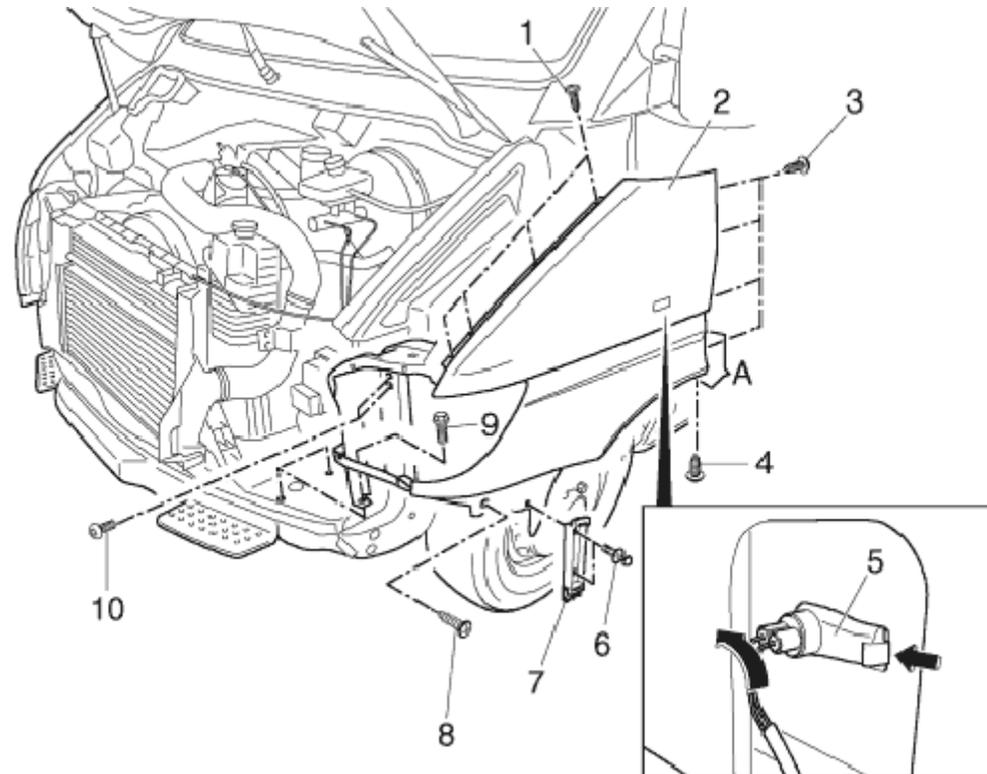
Removal, Installation

1. Remove bumper.
2. Unscrew bottom section of hood lock (10) Installation: Check and grease hood lock.
3. Unhook hood pull cable (12).
4. Remove radiator mounts (11) in direction of arrow.
5. Remove turn signal lamp.
6. Pull vacuum hose and connector off of headlamp.
7. Screw bottom (14) and top (15) fitting off of front section center assembly (8).
8. Remove front section center assembly.
9. Reinstall in opposite order Installation: Use new cable straps and other ties.



Removing and installing front end paneling

- 1 Philips screw
- 2 Front end paneling
- 3 Philips screw
- 4 Philips screw
- 5 Auxiliary turn signal lamp
- 6 Body-bound rivet
- 7 Bracket
- 8 Philips screw
- 9 Hexagon bolt
- 10 Internal torx bolt



Removing, installing

1. Remove front bumper.
2. Remove front grille.
3. Remove lock cross member.
4. Remove headlamp.
5. Unclip auxiliary turn signal lamp (5) (arrow). Disconnect connector and remove.
6. Pull out spreading rivet (6) and remove bumper support (7).
7. Remove sealant between area (A) of wheelhouse and front end paneling.

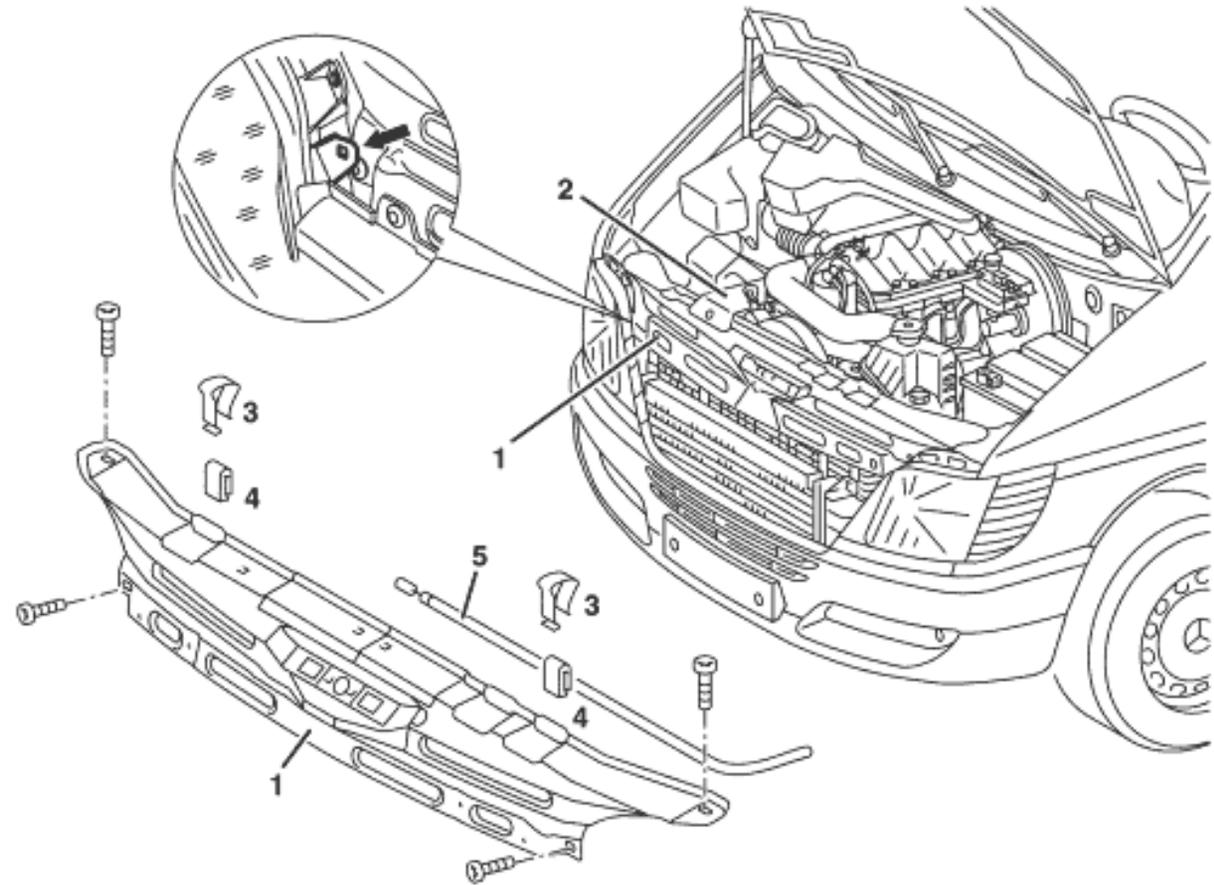
Installation: Replace sealant MB body sealant for sealing seams (suitable for painting).

8. Unscrew screws (3) from A-pillar.
9. Unscrew screw (4) from wheelhouse.
10. Unscrew screws (8, 9, 10).
11. Remove front end paneling (2) Remove sealant residues.
12. Install in the reverse order before installing inner front end paneling coat with underbody protection agent . Observe uniform gap to engine hood.



Remove/install lock cross member

- 1 Lock cross member
- 2 Heat guard
- 3 Retaining clamp
- 4 Rubber mounts
- 5 Hood cable



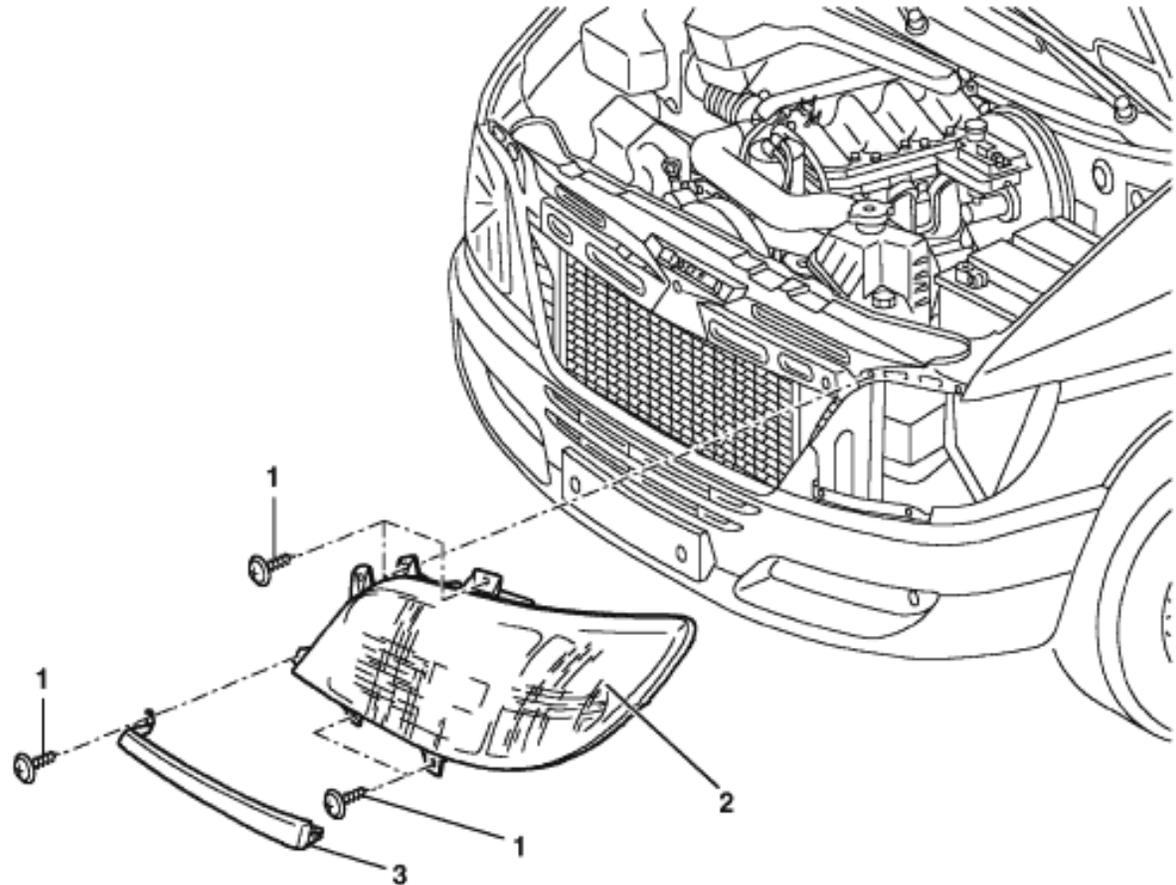
Remove, Install

1. Remove front grill.
2. Remove heat guard (2).
3. Remove retaining clips (3) and rubber mount (4).
4. Remove mounting clip (arrow) on headlamp. In the case of headlamp with additional mounting clip as of October 2000. Mounting clip is only necessary for code ZJ9, NAFTA national version.
5. Unscrew screws from lock cross member (1).
6. Remove lock cross member (1) and unhook hood release cable (5).
7. Install in the reverse order.



Remove/install headlamps

- 1 Philips screw
- 2 Headlights
- 3 Cover



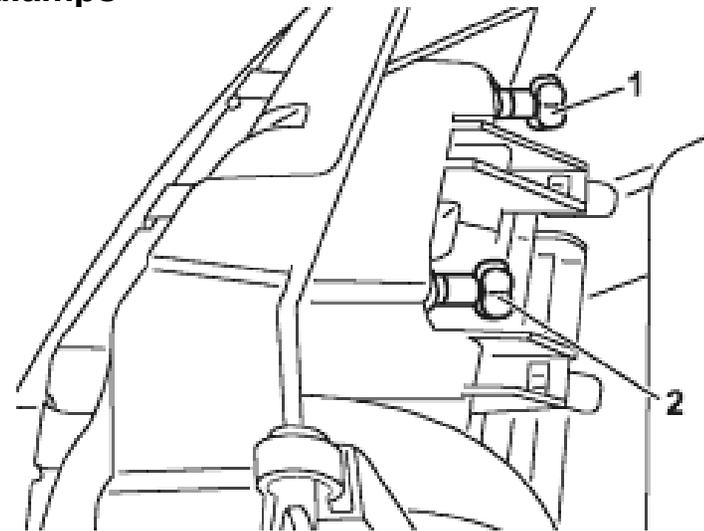
Remove/Install

1. Remove front grille.
2. Unscrew cover (3).
3. Release connector at rear of headlamp and unplug.
4. Take out Phillips screws (1), remove headlamp (2).
5. Install in the reverse order Installation. Check headlamp adjustment.



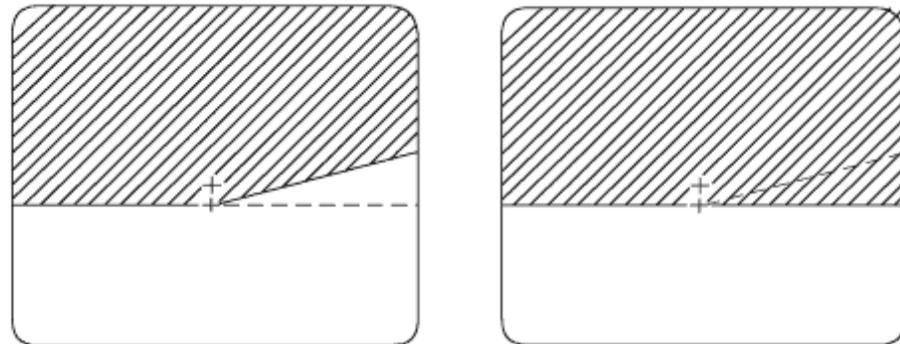
Remove/install headlamps

- 1 Adjusting device, horizontal
- 2 Adjusting device, vertical



Picture on left: Shape of light/dark limit of low beam with adjusted reflector

Picture on right: Shape of light/dark limit of fog lamp with adjusted reflector.



1. Prerequisites for testing:

Drive vehicle onto a level surface. Vehicle should be in the ready-to-drive state (curb weight, fuel reservoir full or corresponding additional weight). Load driver seat with 75 kg.

2. Switch on low beam or fog lamp.

3. Open hood.

4. Align and adjust headlamp aimer in accordance with the operating instructions.

5. The reflector is adjusted by rotating the adjusting device.

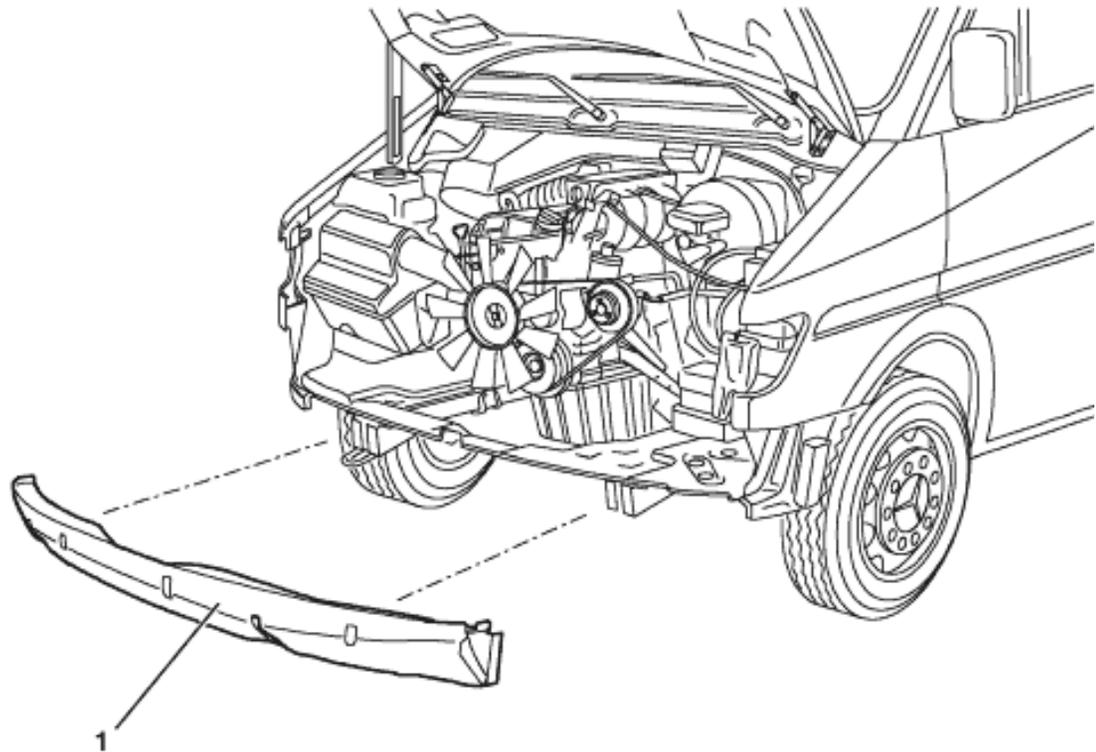
1 = Horizontal

2 = Vertical



Remove/install front frame cross member

1 Front frame cross member

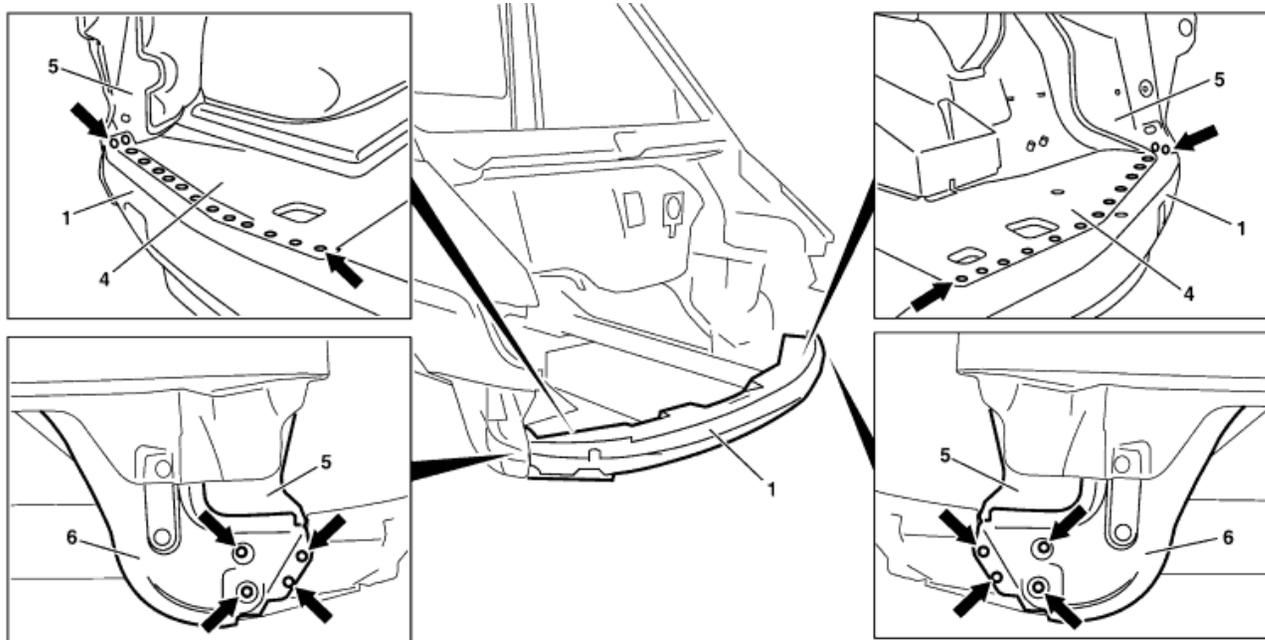


Remove

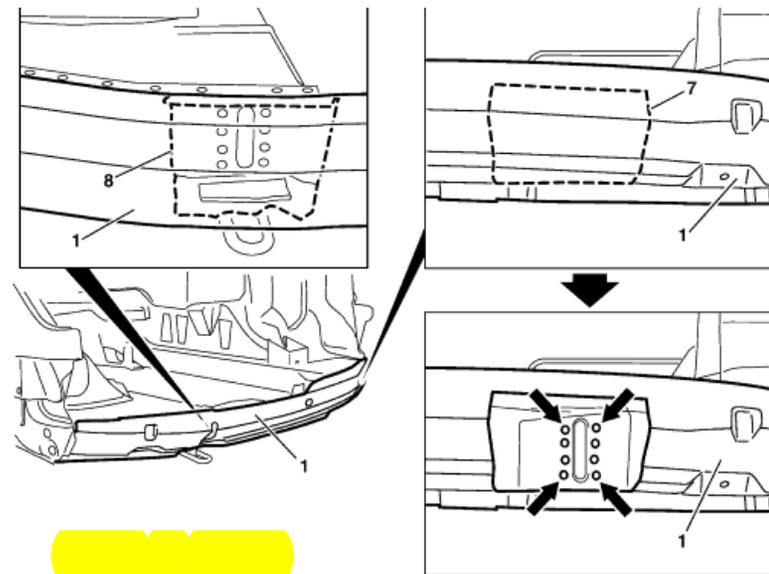
1. Remove front bumper.
2. Remove front end center section.
3. Remove radiator.
4. Remove heater unit On vehicles with hot water auxiliary heater, code H12.
5. Remove miscellaneous detachable body components in repair area.
6. Cover all detachable body components remaining in area to be repaired.
7. Remove mount for signal horn.
8. Detach front frame cross member (1) Bore welding points.



Cutting out front frame cross member



1. Cut spot welds out of end tips (4), wheel arch flarings (6), inside sections of A-pillar (5) and front frame crossmember (1) (arrows).
2. Detach a window out of front frame crossmember (1) in front of left longitudinal member (broken line,7).
3. Cut spot welds out of front frame crossmember (1) (arrows).
4. Detach front frame crossmember (1) around right longitudinal member (broken line, 8).



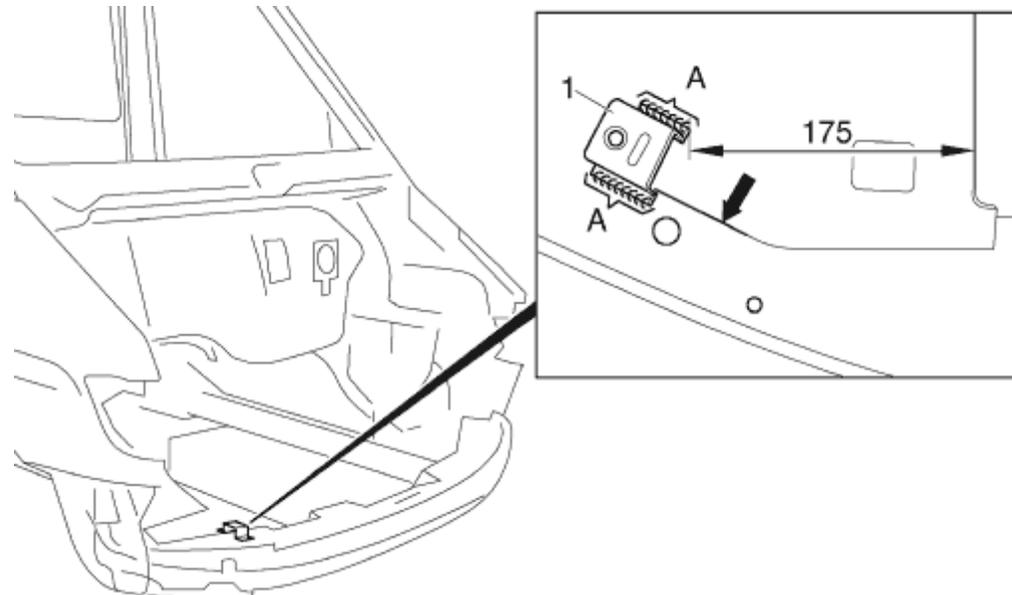
Remove/install front frame cross member

Install

9. Prepare connecting points of front frame cross member (1).
10. Straighten connecting plate, grind off and coat with zinc dust paint Zinc dust paint suitable for spot welding.
11. Prepare front frame cross member (1) for installation.
12. Weld in front frame cross member (1). Measures for preventing damage to vehicles or components when performing welding work All models.
13. Grind down extending welding material.
14. Vacuum out hollow cavities Metal filings or metallic grinding dust in cavities can lead to corrosive damage. Wet/dry vacuum cleaner.
15. Install mount for signal horn.
16. Clean areas repaired and prime with primer/filler.
17. Supplement standard seals with body sealing compound Seam sealing after repairs.
18. Add permanent underfloor protection as a supplement to underbody protection installed as standard.
19. Paint repair area and adjacent surfaces.
20. Supplement cavity preservation.
21. Install heater On vehicles with hot water auxiliary heater, code HDB.
22. Install radiator.
23. Install front end center section.
24. Bolt on front bumper.
25. Reinstall miscellaneous detachable body components.



Remove/install mount for signal horn



Remove

Danger! Risk of injury when carrying out test or repair work on airbag or belt tensioner units. Store airbag unit with expulsion area on top, do not subject to temperatures above 100 °C. Interrupt power supply when working on such units.

Important instructions for performing repair, body work and welding on vehicles with airbag and emergency belt tensioner units Model 129 as of 1.7.93, 163, 168, 170, 202 as of 1.7.93, 208, 210, 463, 638, 901, 902, 903, 904

General notes on body repair All models

1. Remove signal horn.
2. Remove front bumper.
3. Remove remaining detachable body components in area to be repaired.
4. Cover all detachable parts remaining in area to be repaired.
5. Expose spot welds in area A and grind off.
6. Remove holder (1) Grind down connection plates and coat with zinc dust paint. Zinc dust paint for spot welding.



Remove/install mount for signal horn

Install

7. Grind mount (1) down to bare metal on both sides in area to be welded and coat with zinc dust paint
Zinc dust paint for spot welding.
8. Position mount (1) according to dimensions in drawing and align parallel to sheet metal edge of cross member (arrow).

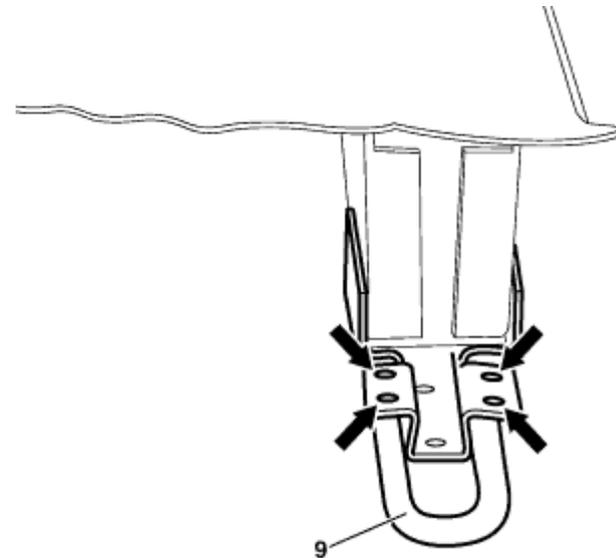
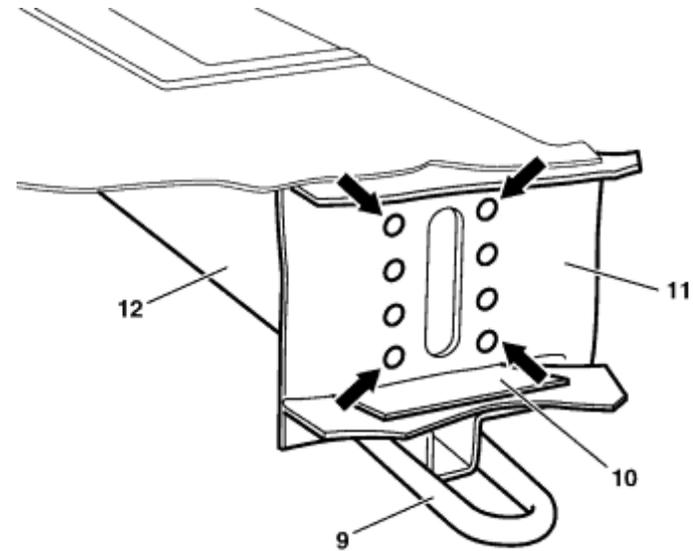
Danger! The high voltage used for arc welding presents a lethal hazard. Explosion hazard when welding in area of materials easily inflammable. Risk of injury from weld spatter and UV light when welding. Risk of poisoning if welding gasses inhaled Use insulating mats. Wear protective clothing, safety glasses, and protective mask. Remove highly inflammable materials from the danger zone. Use air extractor.

9. Weld holder (1) onto the body measures for preventing damage to vehicles or components when performing arc welding.
10. Vacuum out hollow cavities Metal filings or metallic grinding dust in cavities can lead to corrosive damage. Wet/dry vacuum cleaner.
11. Clean areas repaired and prime with MB primer/filler.
12. Add MB permanent underfloor protection as a supplement to underbody protection installed as standard.
13. Paint repair area and adjacent surfaces.
14. Install signal horn.
15. Install front bumper.
16. Install remaining detachable body components in area to be repaired.



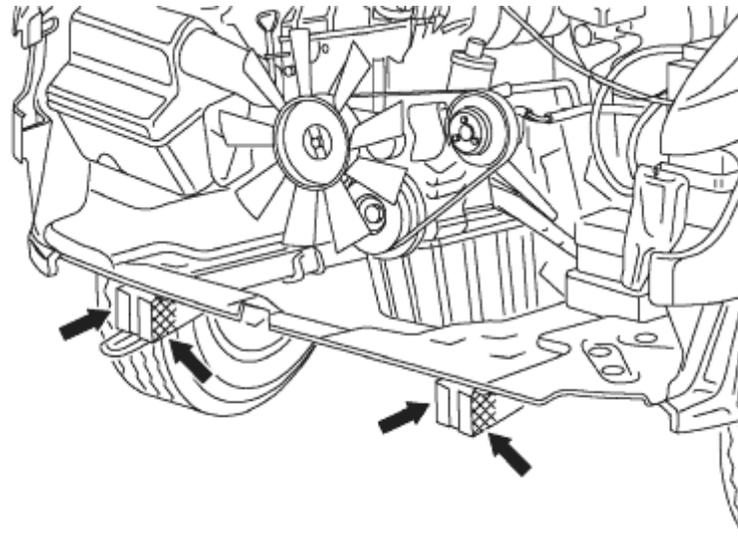
Preparing connecting areas of front frame cross member

1. Grind off inner panel (10) from towing lug (9) and sheet metal remains (11).
2. Cut spot welds out of sheet metal remains (11) (arrows).
3. Remove sheet metal remains (11) from side rail (12).
4. In mount of towing lug (9) drill 4 holes, \varnothing 6 mm (arrows).



Preparing connecting areas of front frame cross member

5. Hold new frame crossmember against side rail (12) and copy contours of the reinforcing bracket over to the side rail (arrows, cross-hatch area).
6. Grind off side rail in marked area and coat with zinc dust paint.

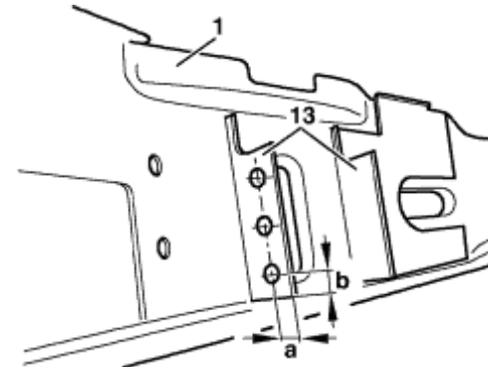


Preparing frame cross member at front for installation

1. Mark bores at the 4 brackets (13) of the frame crossmember (1) at a distance of 20 mm and drill with a \varnothing of 6 mm.

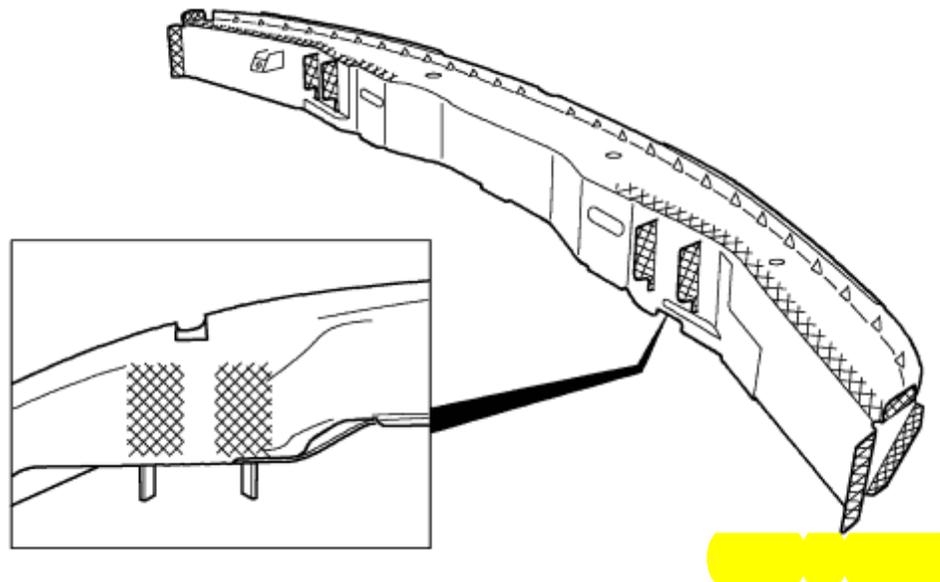
a=13 mm

b=12 mm



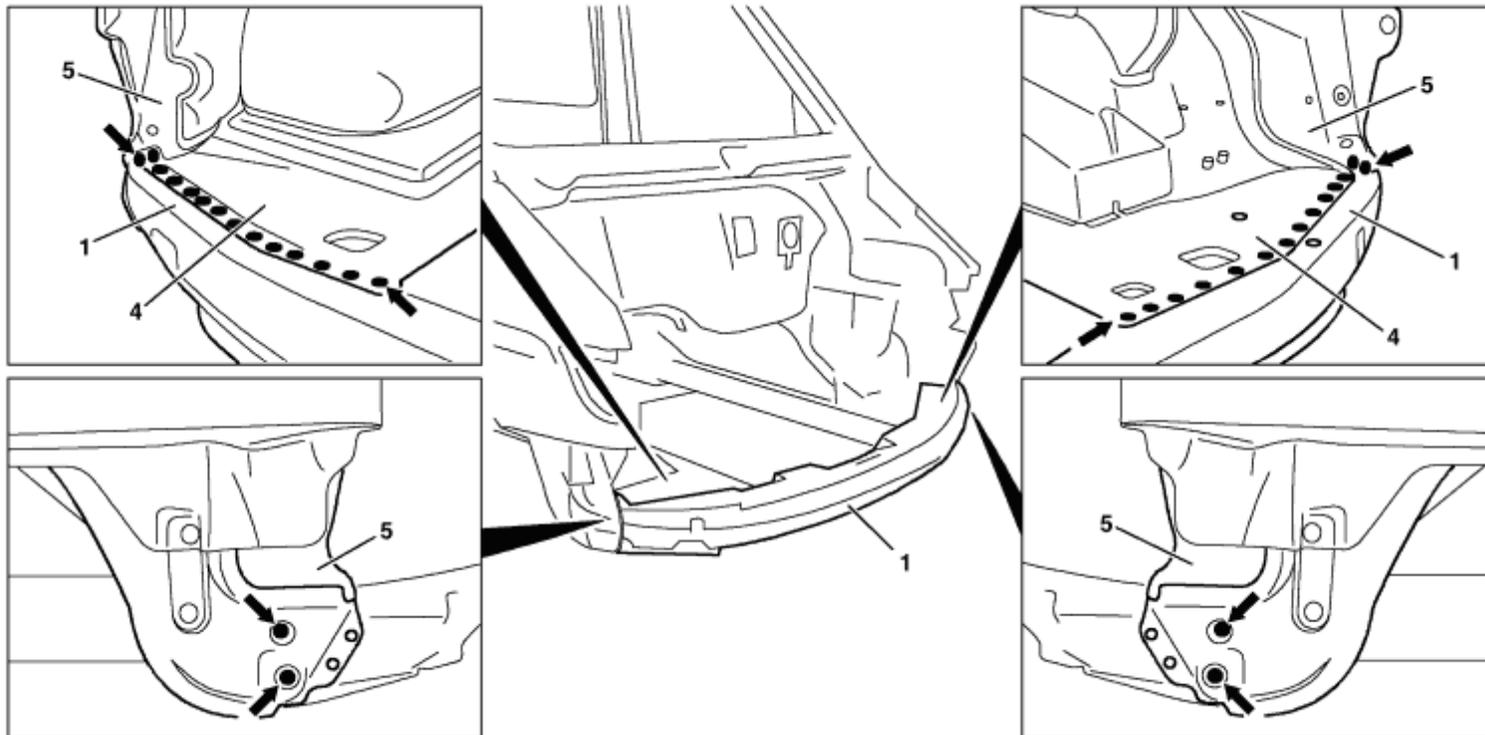
2. Grind off cross-hatched area of frame crossmember and coat with zinc dust paint.

3. Hold frame crossmember against vehicle, align and clamp in position.



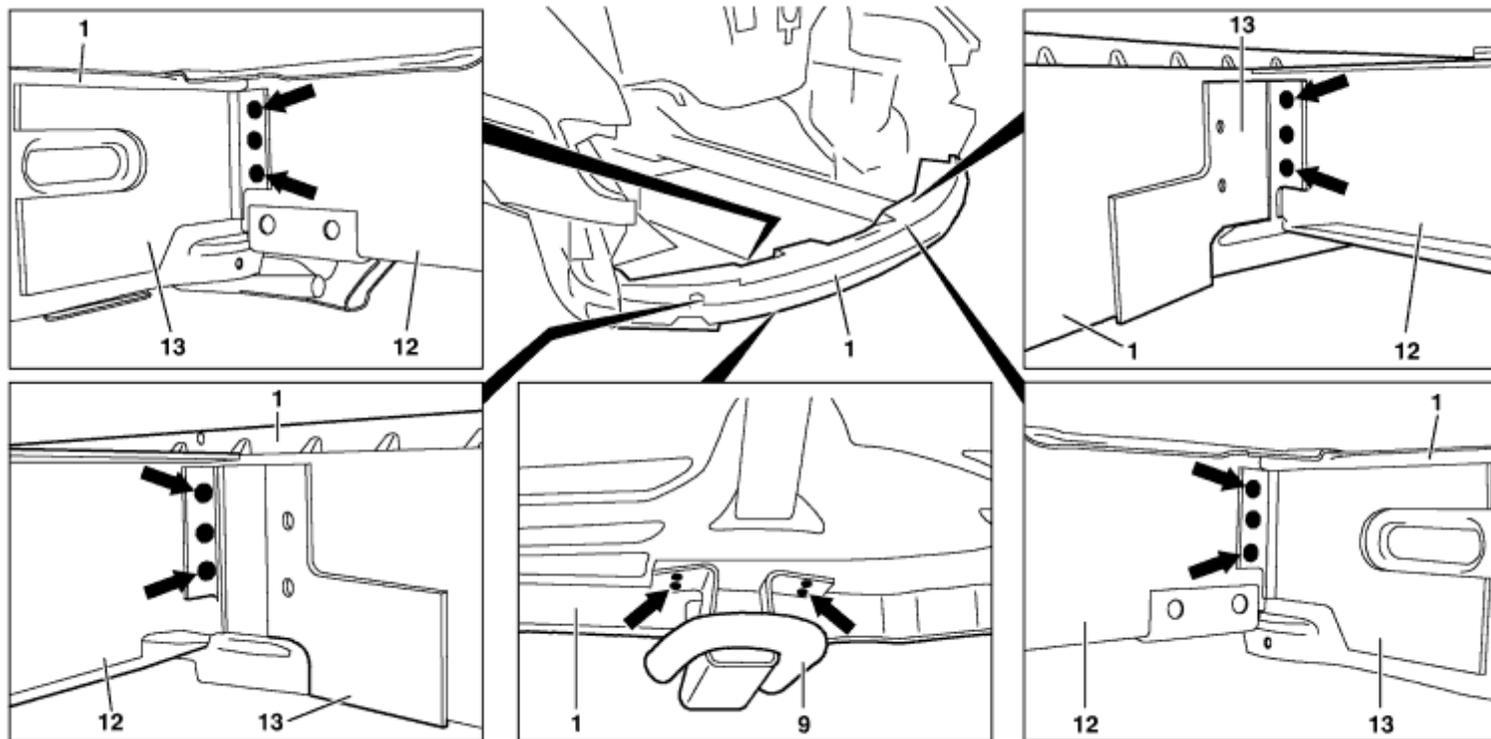
Welding in frame cross member at front

1. Weld front frame crossmember (1) onto end tips (4) and inside sections of A-pillar (5) (arrows).



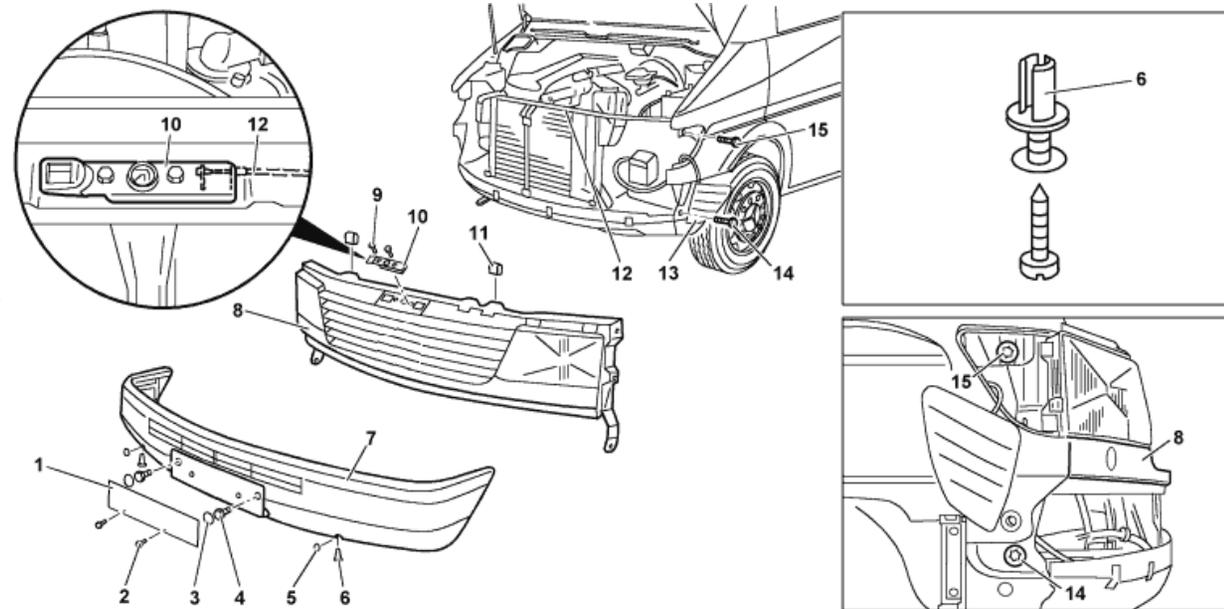
Welding in frame cross member at front

2. Weld reinforcing bracket (13) of front frame crossmember (1) onto side rail (12) and bracket of towing lug (9) (arrows).



Detaching and attaching front section center assembly

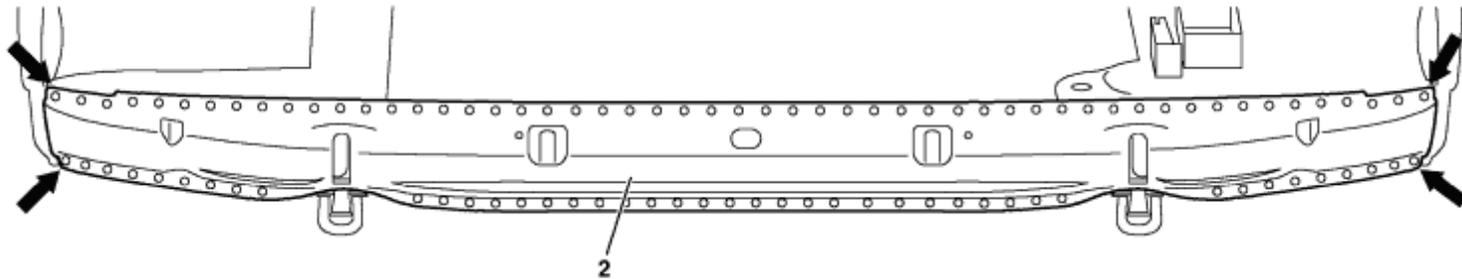
1. License plate
2. Philips screws
3. Cap
4. Collar bolt
5. Cap
6. Spreading rivet
7. Bumper
8. Front section center assembly
9. Collar bolt
10. Hood lock
11. Radiator mount
12. Hood pull cable
13. Turn signal lamp
14. Hex. head bolt
15. Hex. head bolt



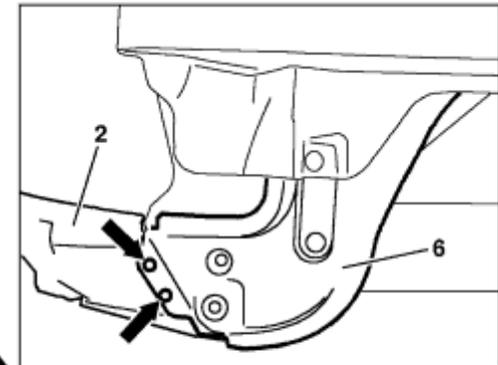
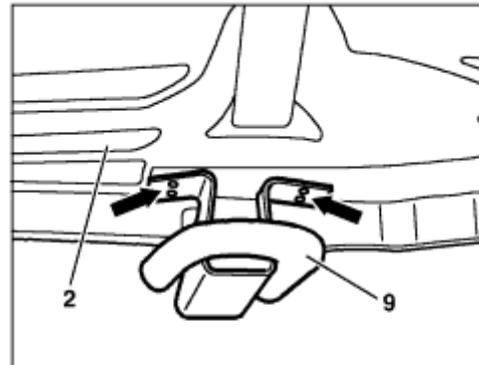
1. Remove bumper
2. Unscrew bottom section of hood lock (10) Installation: Check and grease hood lock
3. Unhook hood pull cable (12)
4. Remove radiator mounts (11) in direction of arrow
5. Remove turn signal lamp
6. Pull vacuum hose and connector off of headlamp
7. Screw bottom (14) and top (15) fitting off of front section center assembly (8)
8. Remove front section center assembly
9. Reinstall in opposite order



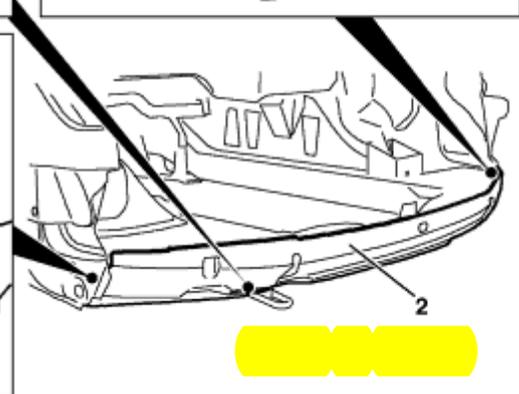
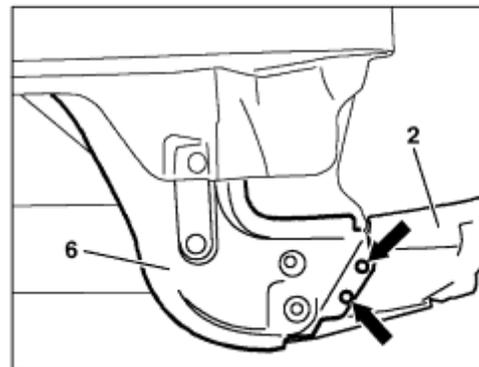
Cutting off front part of frame cross member at front



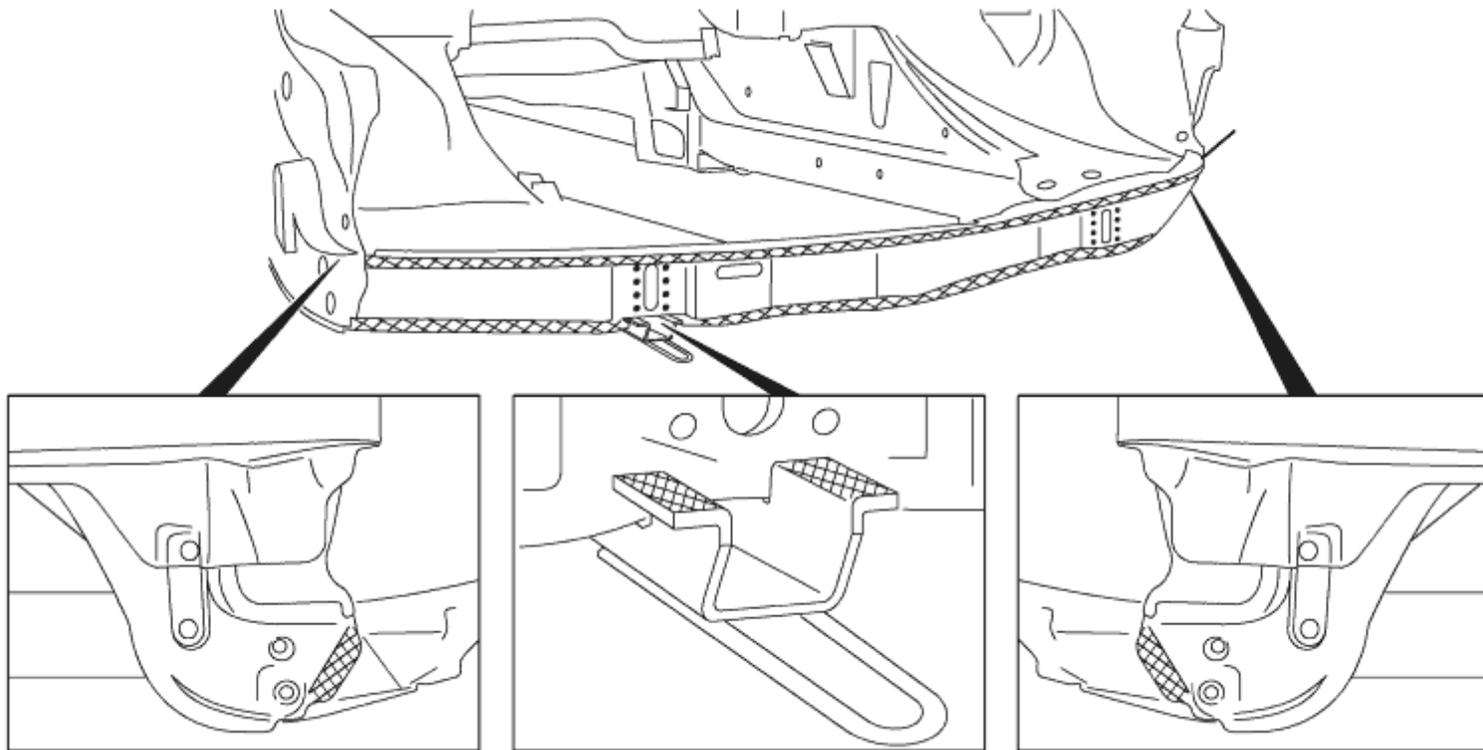
1. Expose spot welds (arrow) on front part (2) of front frame crossmember and mill.



2. Expose spot weld of front part (2) of front frame crossmember to wheel arch flaring (6) and towing lug (9) and mill.



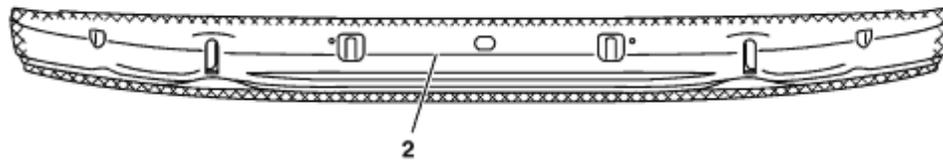
Preparing connecting areas of front frame cross member



1. Grind off connecting points of frame crossmember in marked area on both sides and coat with zinc dust paint.



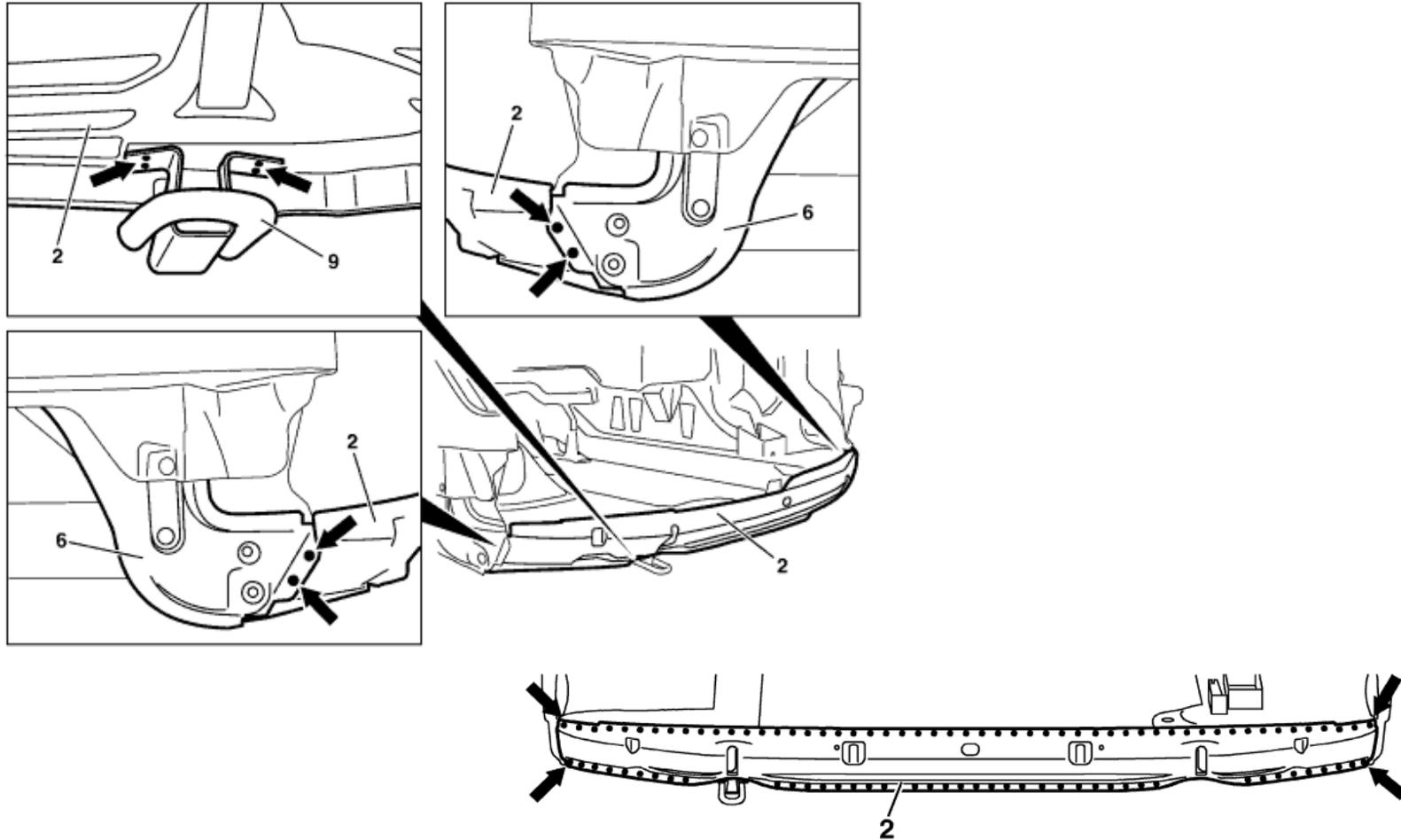
Preparing front frame cross member front section for installation



1. Grind off front section (2) of front frame cross member in marked area on both sides and coat with zinc dust paint.
2. Hold front section (2) of front frame cross member, align and clamp in position.



Welding in front section of front cross member

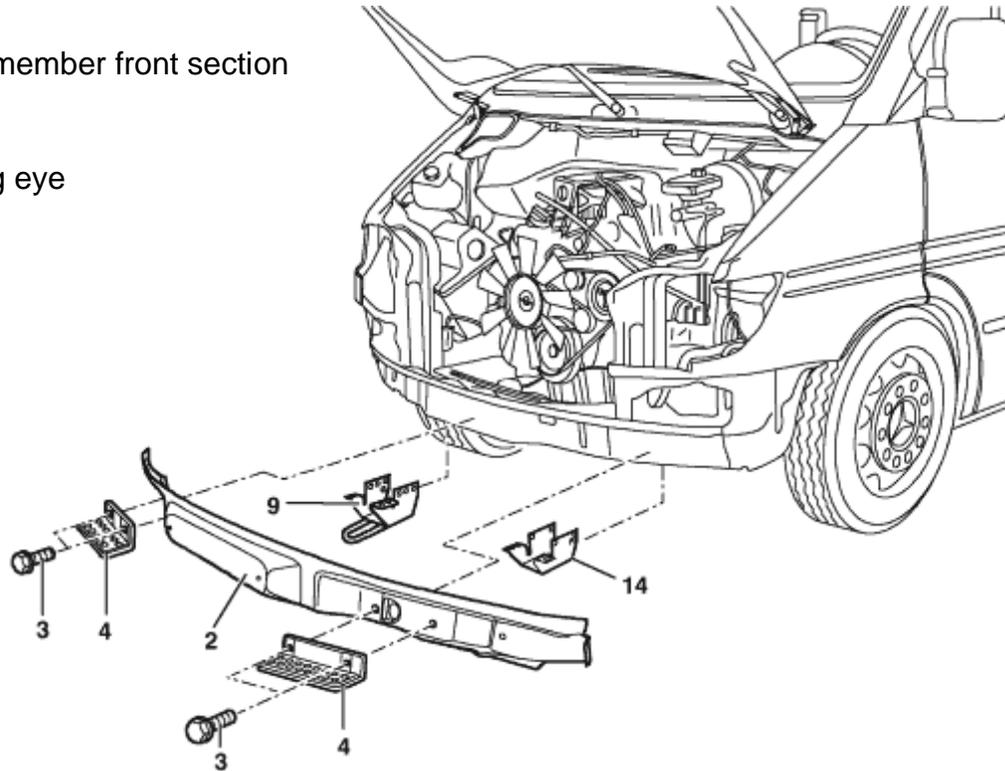


1. Weld front section (2) of front frame crossmember onto rear section of front frame crossmember (arrows).
2. Weld front section (2) of front frame crossmember onto wheel arch flaring (6) and towing lug (9) (arrows).



Remove/install front frame cross member front section

- 2. Front frame cross member front section
- 3. Bolt
- 4. Step
- 9. Bracket with towing eye
- 14. Bracket



Remove

- 1. Remove front bumper
- 2. Remove steps (4)
- 3. Remove front grill
- 4. Remove front end cross member
- 5. Remove miscellaneous detachable body components in repair area
- 6. Cover all detachable body components remaining in area to be repaired
- 7. Detach front frame cross member front section (2)



Remove/install front frame cross member front section

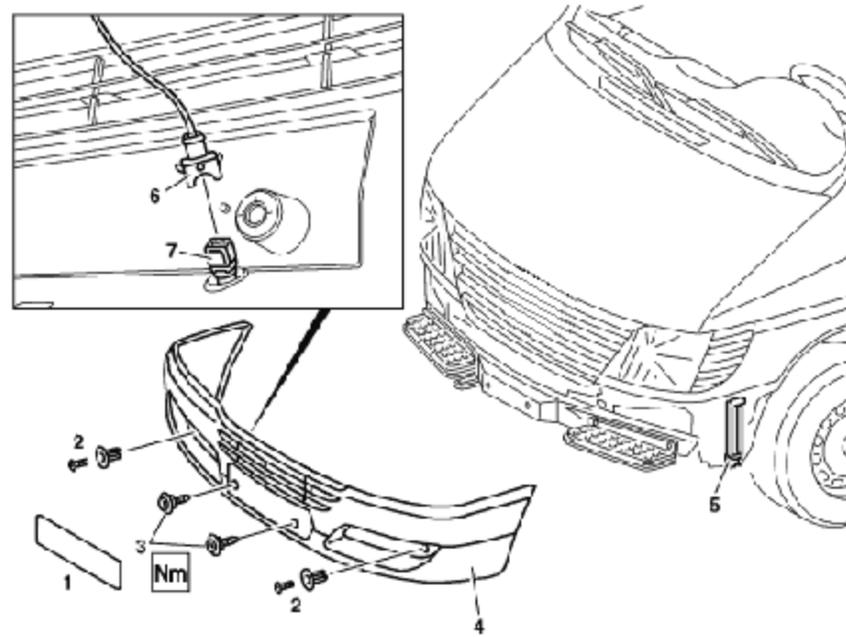
Install

8. Prepare connection points of front frame cross member
9. Straighten connecting plates, grind off and coat with zinc dust paint Zinc dust paint for spot welding
10. Prepare front frame cross member front section (2) for installation
11. Weld in front frame cross member front section (2)
12. Grind down extending welding material
13. Vacuum out hollow cavities
14. Clean areas to be repaired and prime with primer/filler
15. Supplement standard seals with body sealant Seam sealing after repairs.
16. Add permanent underfloor protection as a supplement to underbody protection installed as standard
17. Paint repair area and adjacent surfaces
18. Supplement cavity preservation
19. Install lock cross member
20. Install front grille
21. Attach steps (4) Replace screws (3).
22. Bolt on front bumper
23. Reinstall miscellaneous detachable body components



Removing and installing front bumper

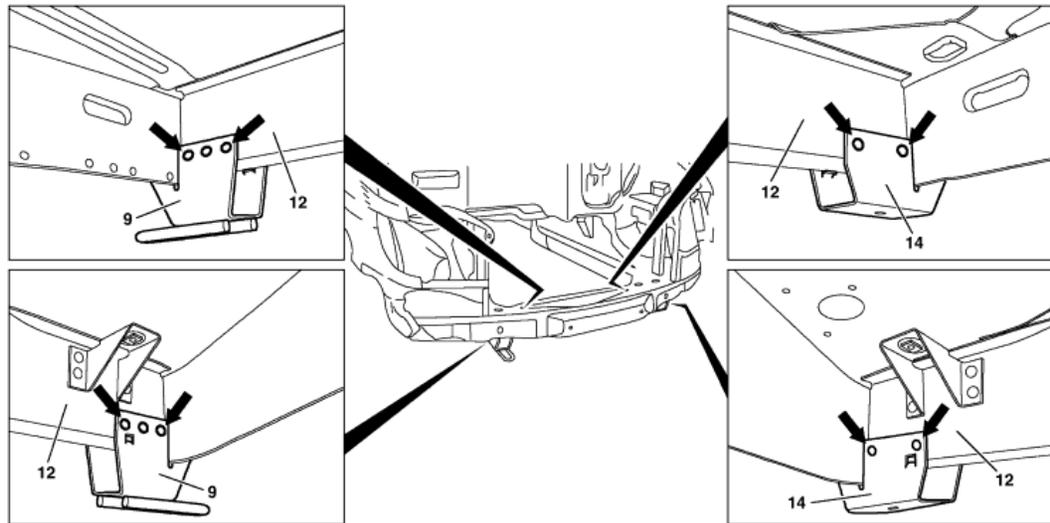
- 1 License plate
- 2 Rivet
- 3 Bolt
- 4 Bumper
- 5 Guide
- 6 Connector
- 7 Outside temperature sensor



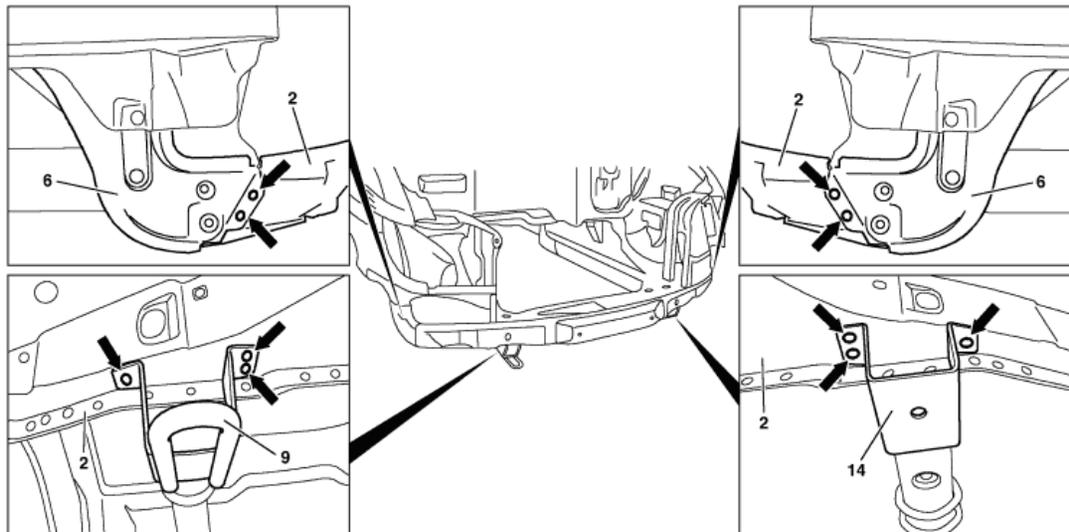
1. Remove license plate (1)
2. Take off rivet (2) on left and right
3. Unscrew screws (3) Installation: Replace micro-encapsulated screws
4. Pull bumper (4) forward out of the side guides (5) Installation: Ensure that the bumper is correctly seated in the side guides
5. Unplug connector (6) from outside air temperature sensor (7) On vehicles with outside air temperature sensor
6. Install in the reverse order



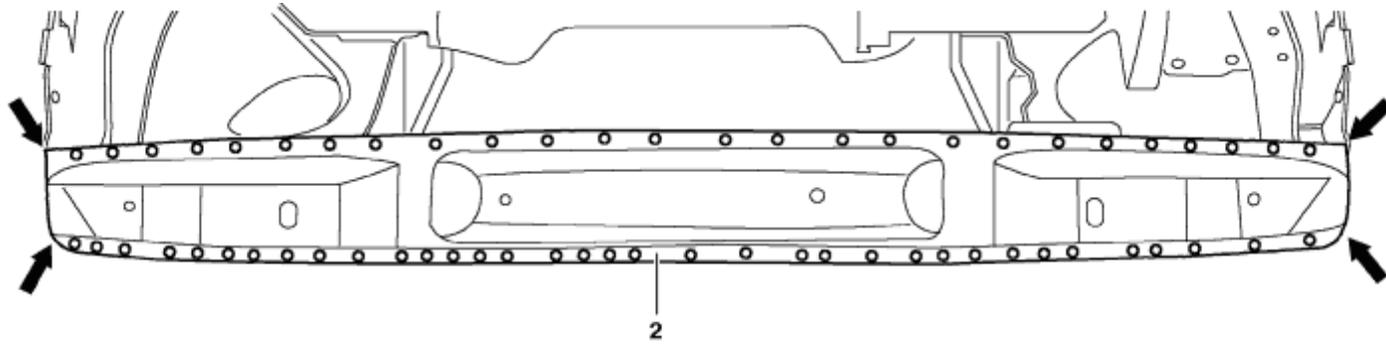
Separating front frame cross member front section



1. Expose spot welds of reinforcing bracket (13) on longitudinal member (12) and cut out.



Separating front frame cross member front section

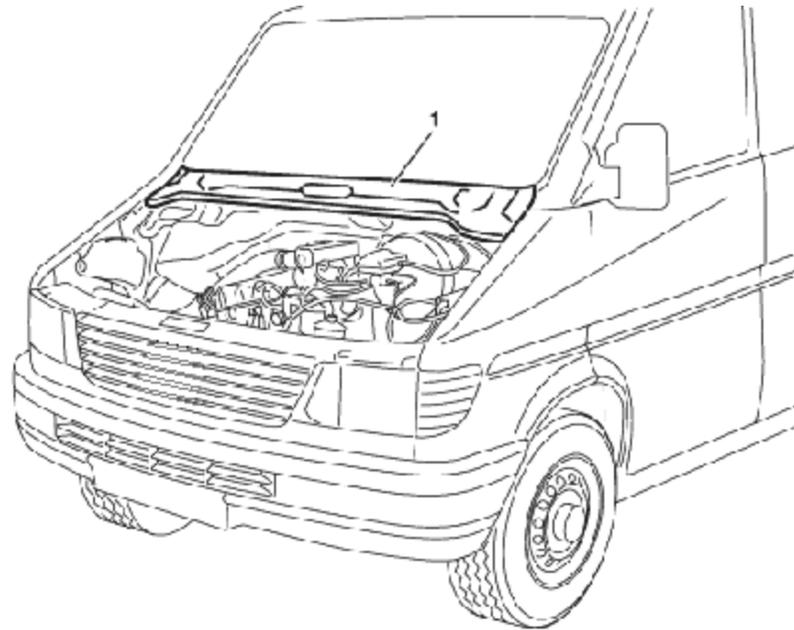


2. Expose spot welds of front part (2) of front frame cross member on wheel arch flaring (6), bracket (14) and bracket for towing lug (9) and cut out.
3. Expose spot welds (arrow) on front part (2) of front frame cross member and cut out.



Remove/install waist rail paneling

1 Waist rail paneling



Remove

- 1 Remove engine hood
- 2 Remove wiper arms.
- 3 Remove ventilation box
- 4 Remove wiper motor
- 5 Remove wiper linkage
- 6 Remove windshield
- 7 Remove instrument panel cover
- 8 Remove miscellaneous detachable body components in repair area
- 9 Cover all detachable body components remaining in area to be repaired Tarpaulin (fire-proof)
- 10 Separate waist rail paneling (1)



Remove/install waist rail paneling

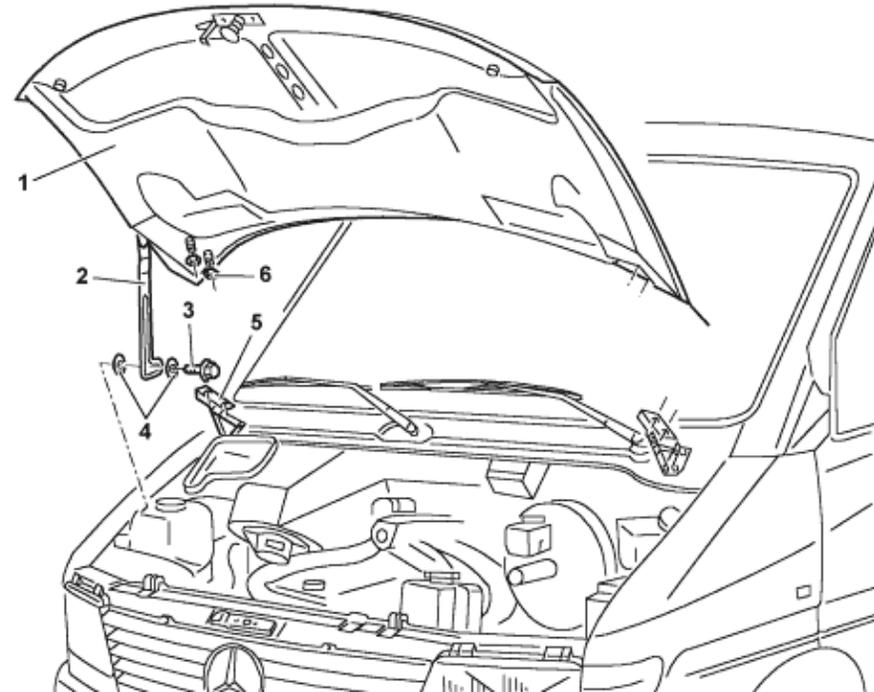
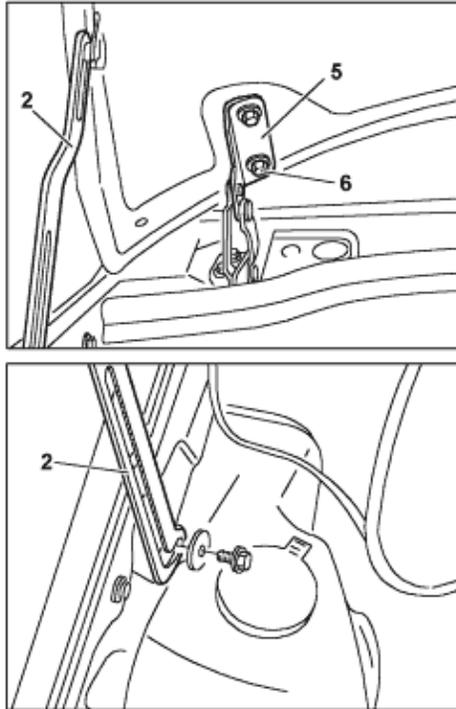
Install

11. Prepare connection points for waist rail paneling
12. Straighten connecting plates, grind off and coat with zinc dust paint Zinc dust paint for spot welding
13. Prepare waist rail paneling (1) for installation
14. Weld in waist rail paneling (1)
15. Grind down extending welding material
16. Vacuum out hollow cavities Metal filings or metallic grinding dust in cavities can lead to corrosive damage.
17. Clean areas repaired and prime with primer/filler
18. Supplement standard seals with body sealing compound Seam sealing after repairs
19. Add permanent underfloor protection as a supplement to underbody protection installed as standard
20. Paint repair area and adjacent surfaces
21. Supplement cavity preservation
22. Install windshield
23. Install instrument panel cover
24. Install wiper motor
25. Install wiper linkage
26. Install ventilation box
27. Install engine hood
28. Install wiper arms
29. Reinstall miscellaneous detachable body components



Removing and installing engine hood

- 1 Engine hood
- 2 Hood support
- 3 Collar bolt
- 4 Washers
- 5 Hinge
- 6 Collared nut



Removing

1. Unscrew collar nuts (6) at the hinge (5) Support engine hood to prevent damage
2. Unscrew hood support (2) and remove engine hood

Installation

3. Place engine hood on hinges (5) Only position collar nuts and do not tighten
4. Install hood support and bolt securely
5. Adjust engine hood
6. Grease hinges (5)



Adjust engine hood

A- Left, right gap width

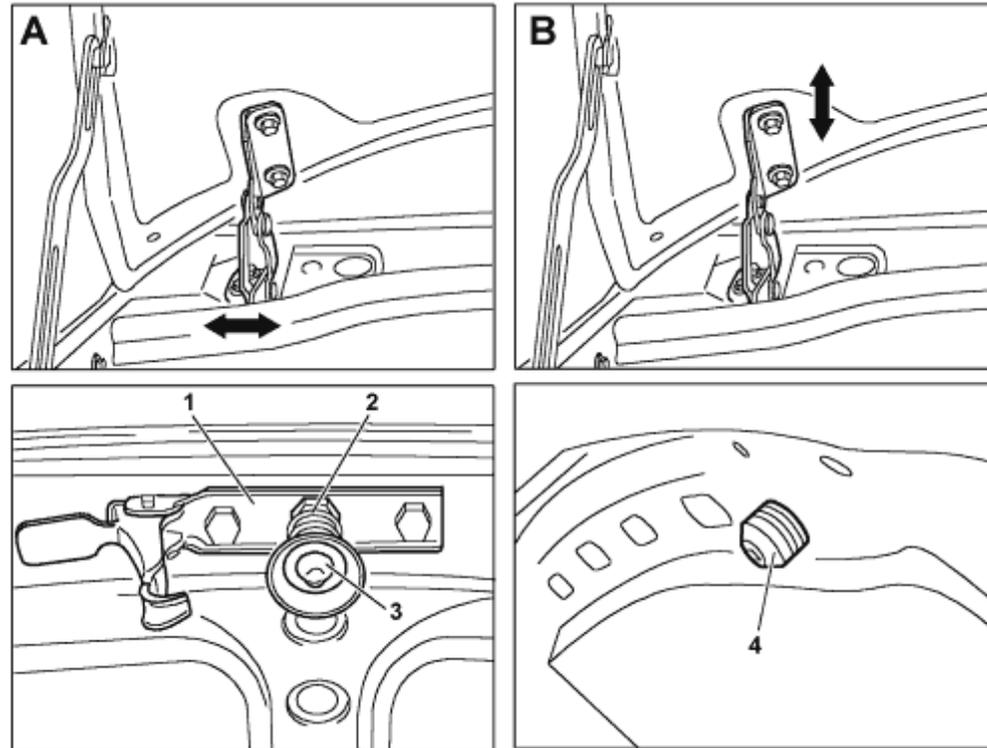
B- Hood depth and flushness

1 Hood lock top section

2 Lock nut

3 Locking pin

4 Rubber pad



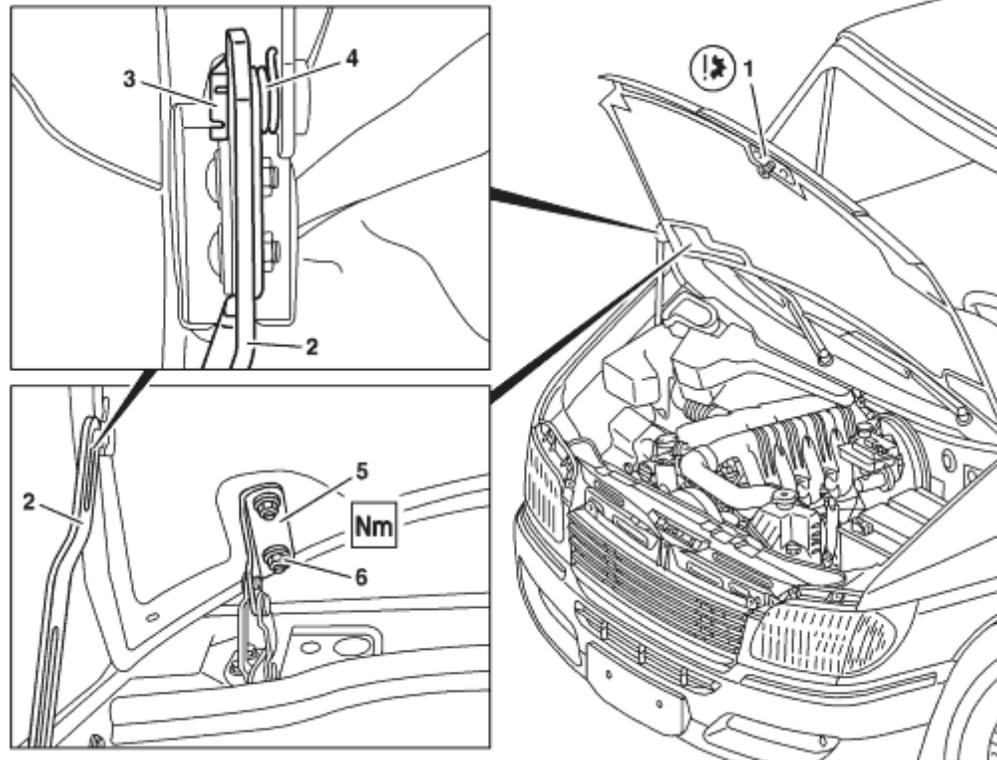
Adjusting

1. Adjust gap width between engine hood and fender By horizontally offsetting hinges (A).
2. Adjust hood depth and flushness in relation to fender By moving engine hood (B) vertically.
3. Loosen hood lock upper section (1) and align on hood lock bottom section
4. Tighten hood lock upper section
5. Loosen lock nut (2) and adjust striker pin (3) to correct height. Adjust engine hood on hood lock upper section to height.
6. Screw on lock nut (2)
7. Adjust height of hood at front on rubber pad (4) on right and left



Removing and installing engine hood

- 1 Engine hood
- 2 Hood support
- 3 Fuse
- 4 Spring
- 5 Hinge
- 6 Collar nuts



Removal:

1. Remove retainer (3) and hood support (2) with spring (4) from guide on engine hood (1). Support engine hood (1) to prevent damage. Pay attention to installation position of spring (4).
2. Unscrew collar nuts (6) from hinge (5) and remove engine hood (1)

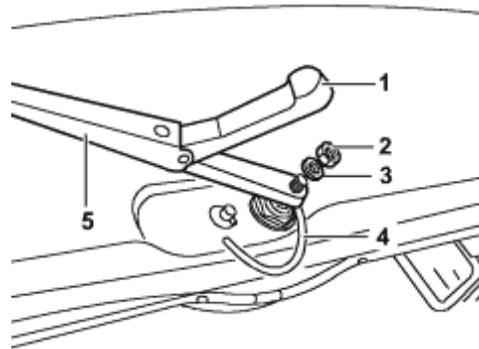
Installation

3. Position engine hood (1) on hinges (5). Only fit collar nuts (6), do not tighten
4. Install spring (4), insert hood support (2) into guide on engine hood (1) and mount new retainer (3).
5. Adjust engine hood
6. Grease hinges (5).



Removing and installing wiper arm

- 1 Cover
- 2 Nut
- 3 Washer
- 4 Hose
- 5 Wiper arm



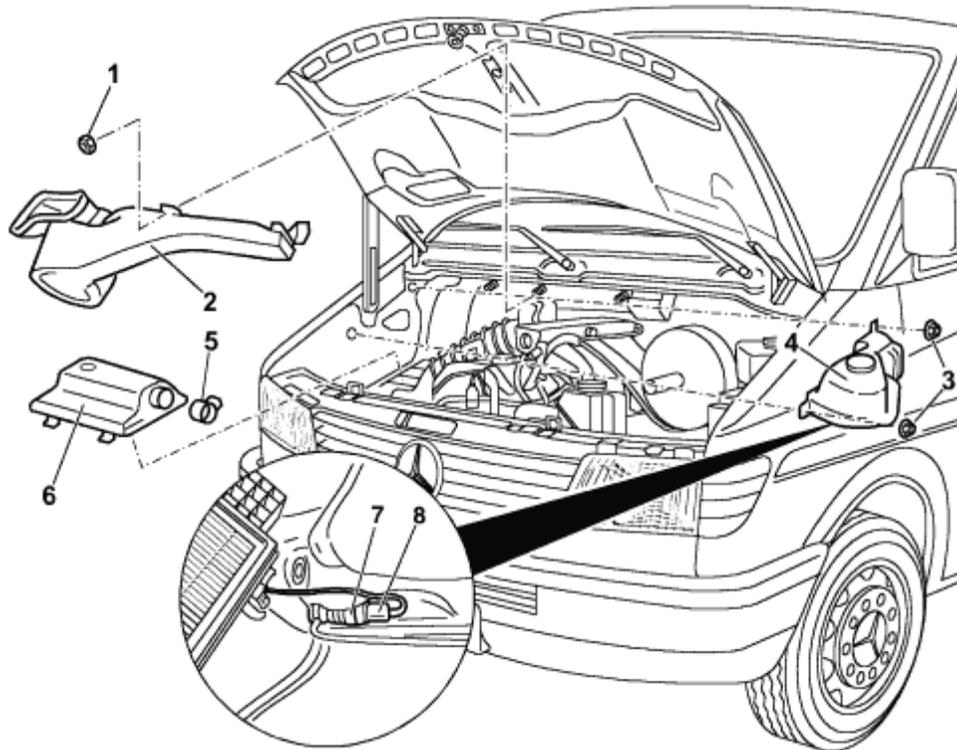
Remove/install

1. Open engine hood
2. Detach hose (4)
3. Raise cover (1)
4. Unscrew wiper arm (5)
5. Install in the reverse order



Removing, installing ventilation housing

- 1 Nut
- 2 Ventilation box
- 3 Nut
- 4 Screen washer fluid reservoir
- 5 Clamp
- 6 Air cleaner cover



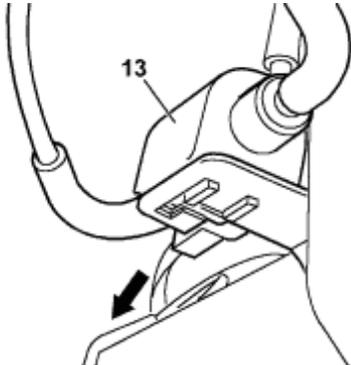
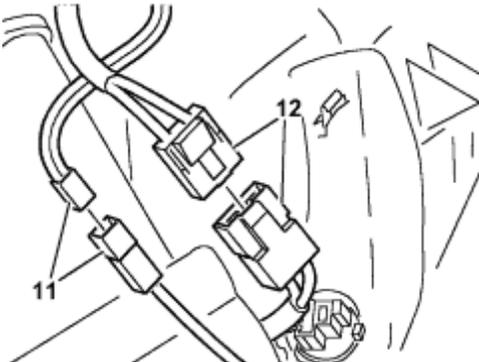
Removing, installing

1. Loosen clamp (5), open clamps on air cleaner cover (6), remove air cleaner cover (6)
2. Disconnect plug (8) on wiper motor (7)
3. Remove screen washer fluid reservoir (4)
4. Remove nuts (1), pull ventilation box (2) forwards
5. Disconnect plug connections (11, 12)
6. Lift retaining plate (arrow), remove solenoid valve (13) from rear
7. Detach vacuum hose (16) from vacuum cell (17)
8. Release and disconnect plugs (18, 19, 20)
9. Remove ventilation box (2)
10. Install in the reverse order

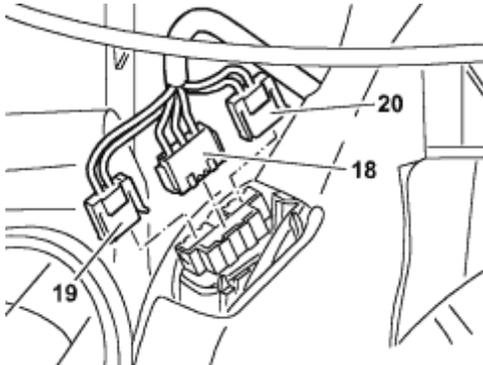
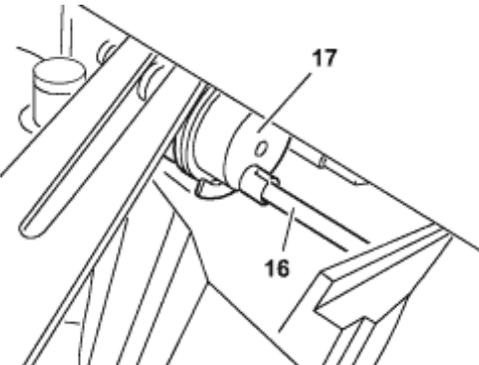


Removing, installing ventilation housing

11, 12 Plug connections
13 Solenoid valve for recirculated air flap control



16 Vacuum hose
17 Vacuum cell
18, 19, 20 Plugs



Removing, installing ventilation housing

1 Ventilation box

3 Vacuum line

4 Nut

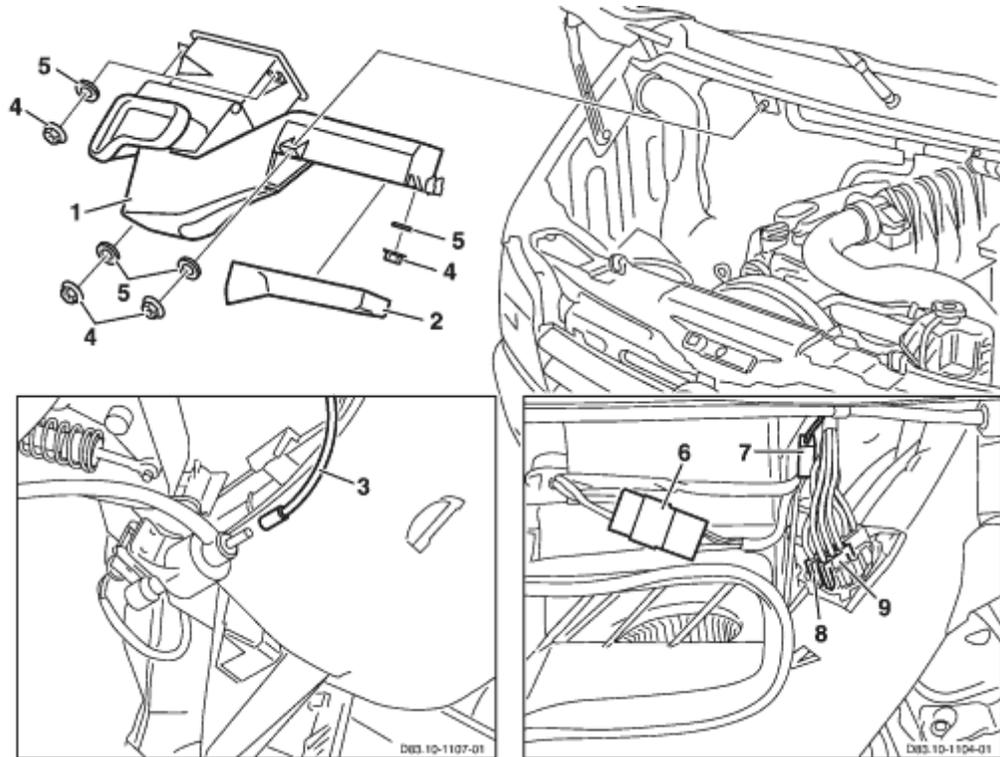
5 Washer

6 Connector

7 Connector

8 Plug

9 Plug



Remove/Install

1.1 Remove top part of charge air distribution pipe

2.1 Remove air intake pipe

3 Prepare ventilation box for removal

4 Release clamps and remove pollen filter cover (2) Remove pollen filter if necessary

5 Disconnect vacuum line (3) from left ventilation box

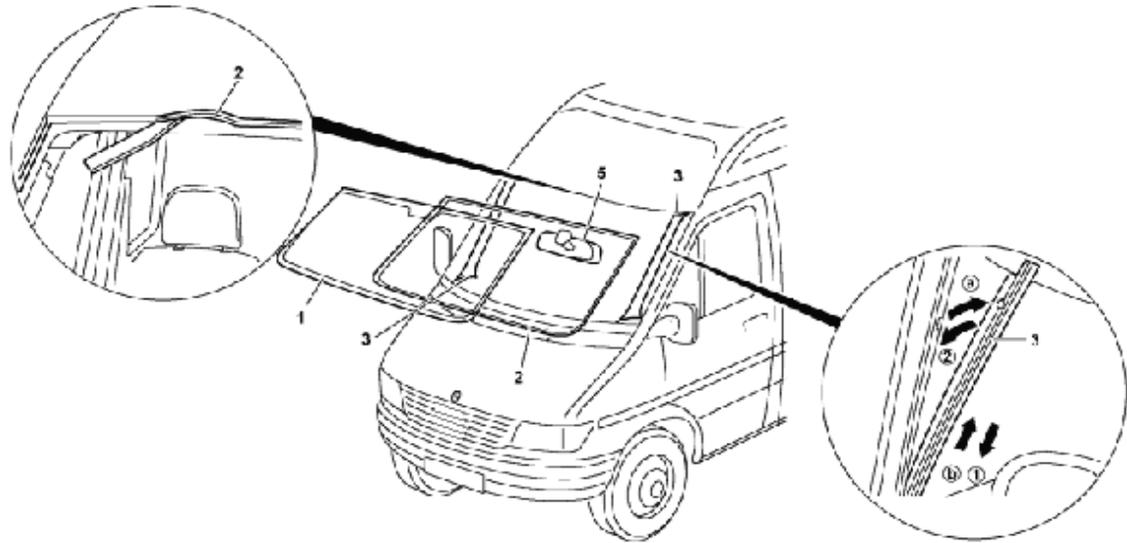
6 Unscrew ventilation box (1) and gently pull off Unscrew 5 nuts (4) and remove together with washers (5)

7 Disconnect connectors (6 and 7) and disconnect plugs (8 and 9)

8 Install in the reverse order



Remove/install windshield



Remove

1. Remove windshield wiper arms
2. Detach inner hinge (6)
3. Lift front edge of headliner and pull out wiring harness with connectors (8)
4. Pull off felt strips (7) and separate connectors (8)
- 5.1. Remove inside rearview mirror (5).
- 5.2. Remove rain sensor
- 5.3. Remove cooling system control panel console
6. Remove door seal in area of A-pillar paneling (3)
7. Unclip upper A-pillar paneling (a), pivot down and pull out upward (b)
8. Cover dashboard and louvers
9. Lift sealing frame (2) with mounting wedge and remove.
10. Cut windshield (1) out with cutting wire
11. Vacuum off glass splinters and contamination



Remove/install windshield

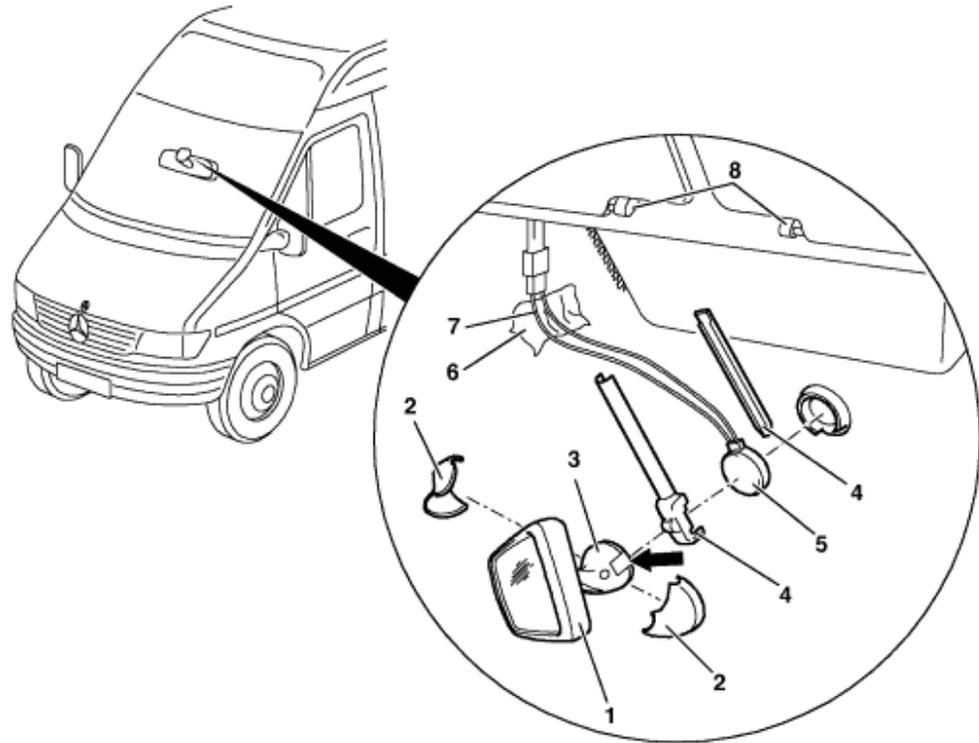
Install

12. Prepare windshield for insertion
13. Prepare windshield cutout for windshield insertion
14. Prepare glue cartridge
15. Install windshield Apply first 5 cm of glue bead to piece of paper, because the glue components are not yet properly mixed at the beginning. Always apply bead of glue to windshield Start applying glue bead at bottom of windshield in center directly to sealing frame. When applying, guide the triangular nozzle on the cartridge gun at right angles to windshield and ensure that the height of the glue bead corresponds to the cutout in the triangular nozzle. Allow the end of the glue bead to run out parallel to the beginning and smooth together. After applying the glue, install the windshield within 5 minutes. The curing time for the glue is at least 1 hour.
- 16.1. Glue rain sensor to windshield
- 16.2. Install inside rearview mirror (5)
- 16.3. Install cooling system control panel console
17. Install rain sensor
18. Connect connector (8), wrap wiring harness with felt strips (7) and position connectors (8) in ro of recess
19. Fasten hinges for sun visor
20. Insert A-pillar paneling with lug downward into hole in A-pillar (b) and catch at top (a)
21. Install door seal in area of A-pillar paneling (3)
22. Install windshield wiper arms
23. Clean windshield



Remove/install rain sensor

1. Mirror
2. Cover
3. Mirror arm
4. Cover
5. Rain sensor
6. Felt strip (anti-rattle)
7. Plug-in wiring plug connection
8. Hinge (sun visor)

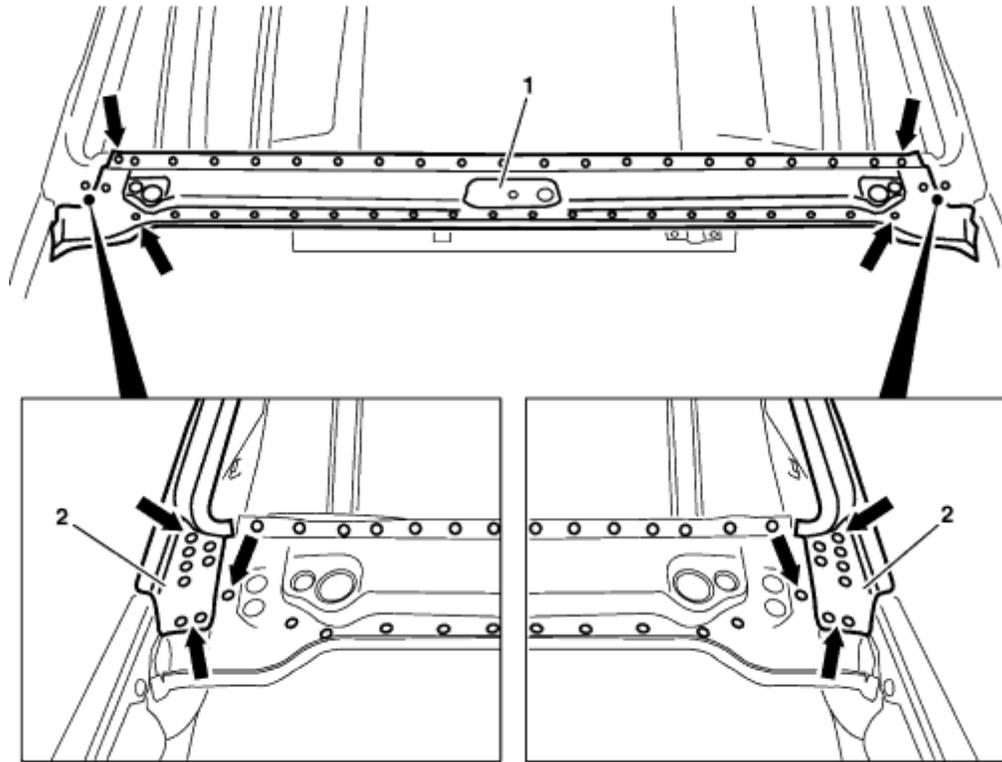


Remove/Install

1. Disconnect and remove both covers (2)
2. Press mirror arm (3) down off the mirror base parallel to the windshield. To facilitate disassembly, lift up the retaining collar (arrow) slightly using a screwdriver (reduction in breakaway torque).
3. Separate and remove covers (4)
4. Loosen both inner hinges (8) of the sun visors
5. Raise headliner at the front and remove cable strands
6. Pull off felt strip (protection against rattling) (6)
7. Unplug electrical connector (7)
8. Remove rain sensor (5). Do not touch the gel-like sensor surface of the rain sensor, otherwise its function is impaired or the rain sensor becomes unusable.
9. Install in the reverse order, code GBF.
10. Check for proper function



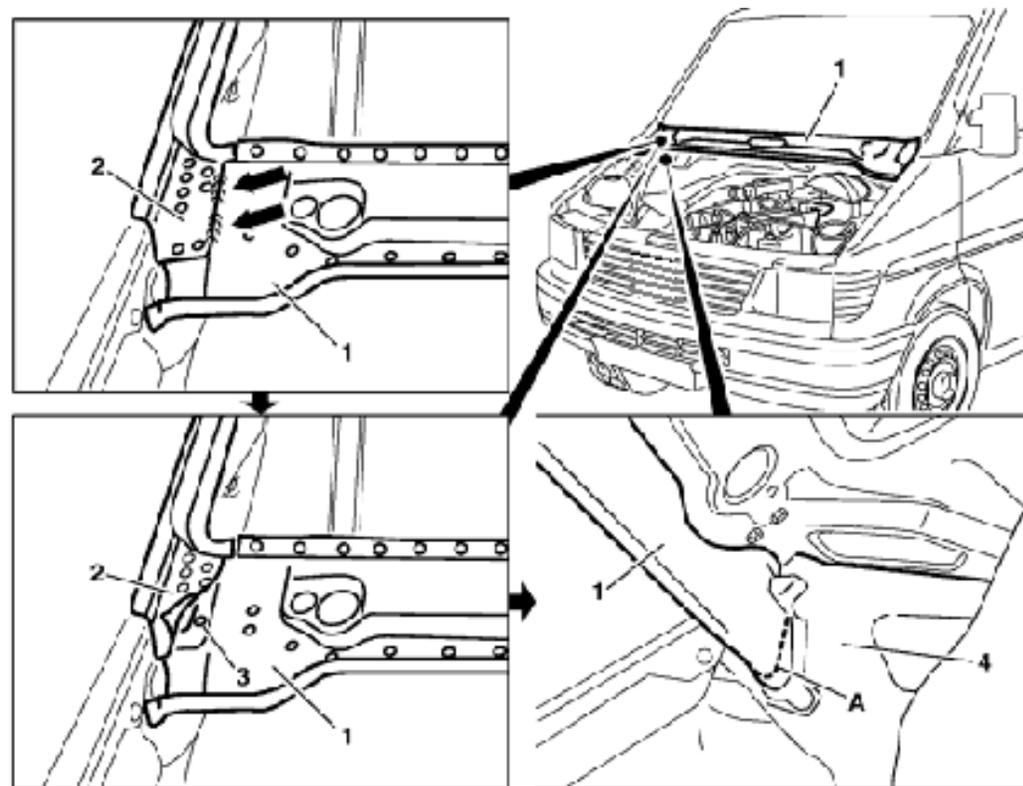
Separating waist rail paneling



1. Cut spot welds out of waist rail paneling (1) and A-pillar paneling (2).



Separating waist rail paneling

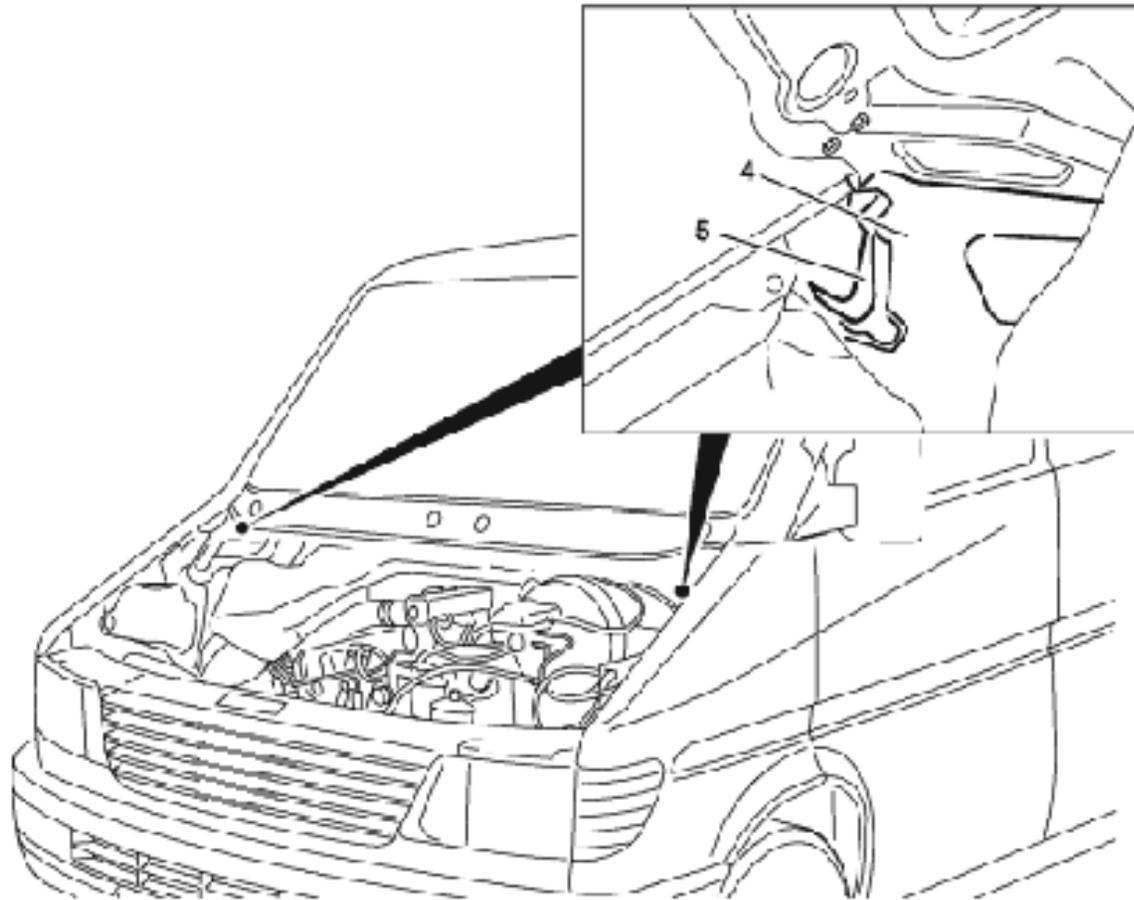


The following steps apply for the right side of the vehicle and must be performed on the left side with locations reversed.

2. Grind welding seams off of A-pillar paneling (2) (arrows).
3. Bend A-pillar paneling (2) open and cut spot welds (3) out of waist rail paneling (1).
4. Separate waist rail paneling (1) along A-pillar inner section (4) (dotted line, A).



Prepare connection points for waist rail paneling



1. Carefully grind remaining sheet metal (5) off of A-pillar inner section (4).



Preparing waist rail paneling for installation

The following steps apply for the right side of the of waist rail paneling (1) and must be performed on the left side with locations reversed.

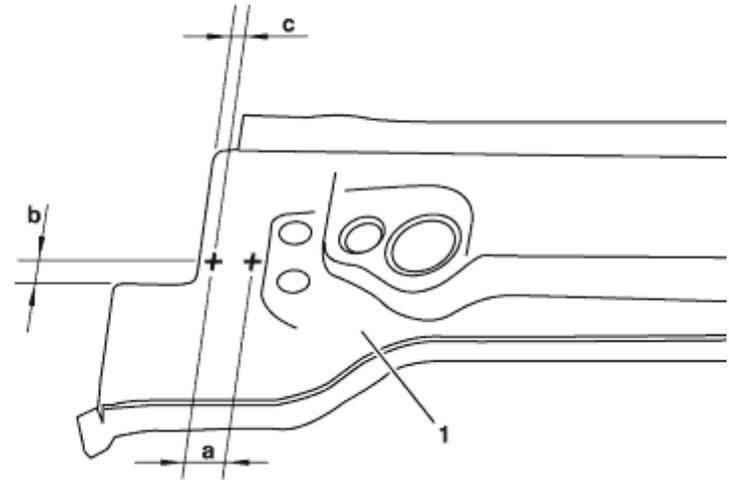
1. Mark holes with the following gaps:

a = 25 mm,

b = 15 mm,

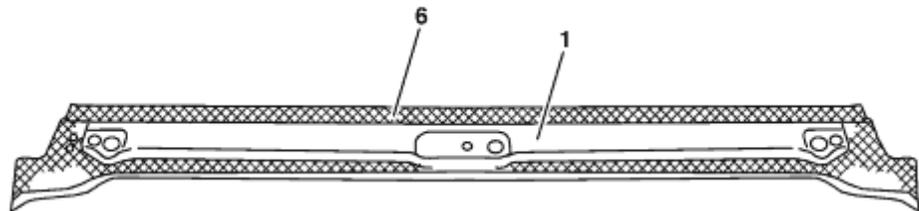
c = 11 mm.

2. Drill all marked holes with 6 mm dia. bit.



3. Grind waist rail paneling (1) down to bare metal in marked area (6) and coat with zinc dust paint.

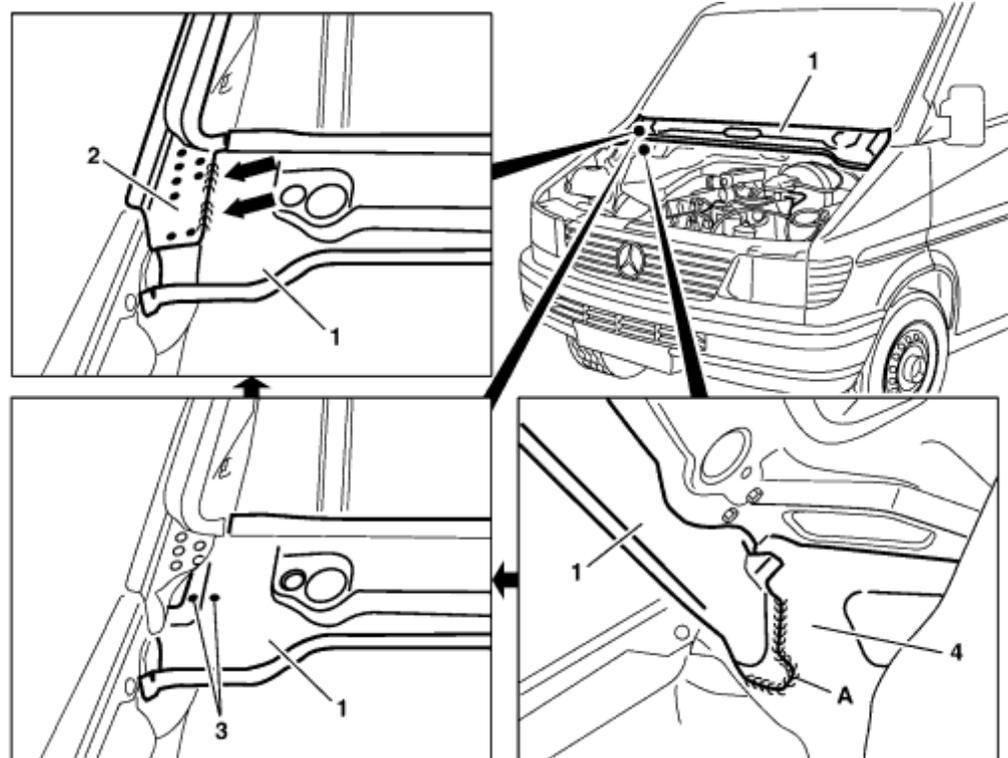
4. Fit waist rail paneling, align and clamp.



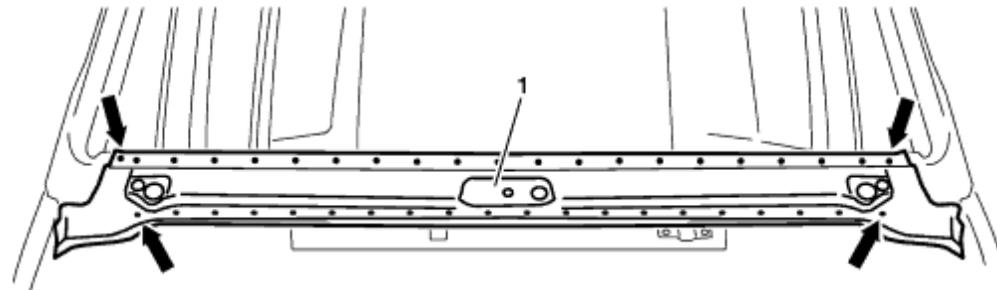
Welding in waist rail paneling

The following steps apply for the right side of the of waist rail paneling (1) and must be performed on the left side with locations reversed.

1. Weld waist rail paneling (1) to A-pillar inner section (4) (A).
2. Weld waist rail paneling (1) to waist rail brace (3).
3. Align A-pillar paneling (2) and weld to waist rail brace and waist rail paneling (1) .



4. Spot weld waist rail paneling (1) to waist rail brace (arrows).



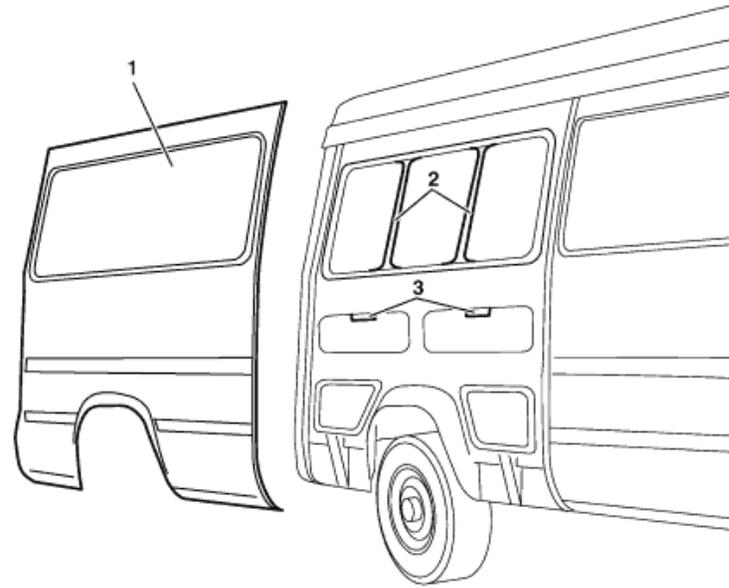
Side Wall



Remove/install side paneling

***Repair illustrated on right side wall of van
with wheelbase of 3550 mm***

- 1 Side wall paneling*
- 2 Side wall braces*
- 3 Side wall reinforcements*



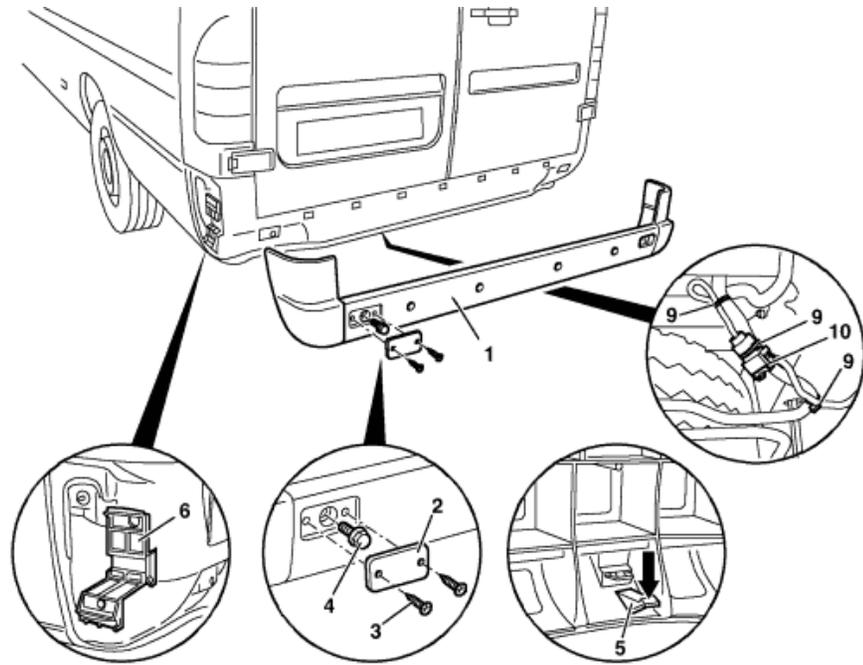
Removing

The repair instructions apply accordingly for use on the left-hand side of the vehicle

[Return to Index](#)

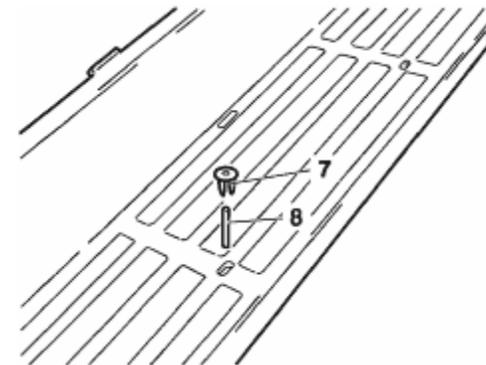
1 Remove rear bumper

- 1 Bumper
- 2 Reflector
- 3 Phillips screws
- 4 Collar bolt
- 5 Bumper bracket
- 6 Corner pillar mount
- 9 Cable strap
- 10 Electrical connector



Only with code MBZ: Rear-end door step

- 7 Plastic clip
- 8 Dowel pin



[Return to Index](#)

Remove/install

1 Unscrew reflector (2) and collar bolts (4)

Installation Replace micro-encapsulated collar bolt (4)

2 Unclip bumper brackets (5) below end panel

3.1 Remove plastic clips (7)

With code MBZ, rear-end door step.

Press dowel pin (8) of plastic clip (7) inward.

4 Remove bumper

Installation: The corner parts of the bumper are inserted in the mounts (6) of the corner pillars (not screwed).

5 Pinch through cable strap (9)

6 Separate electrical connector (10)

7 Install in the reverse order

2 Remove rear door step

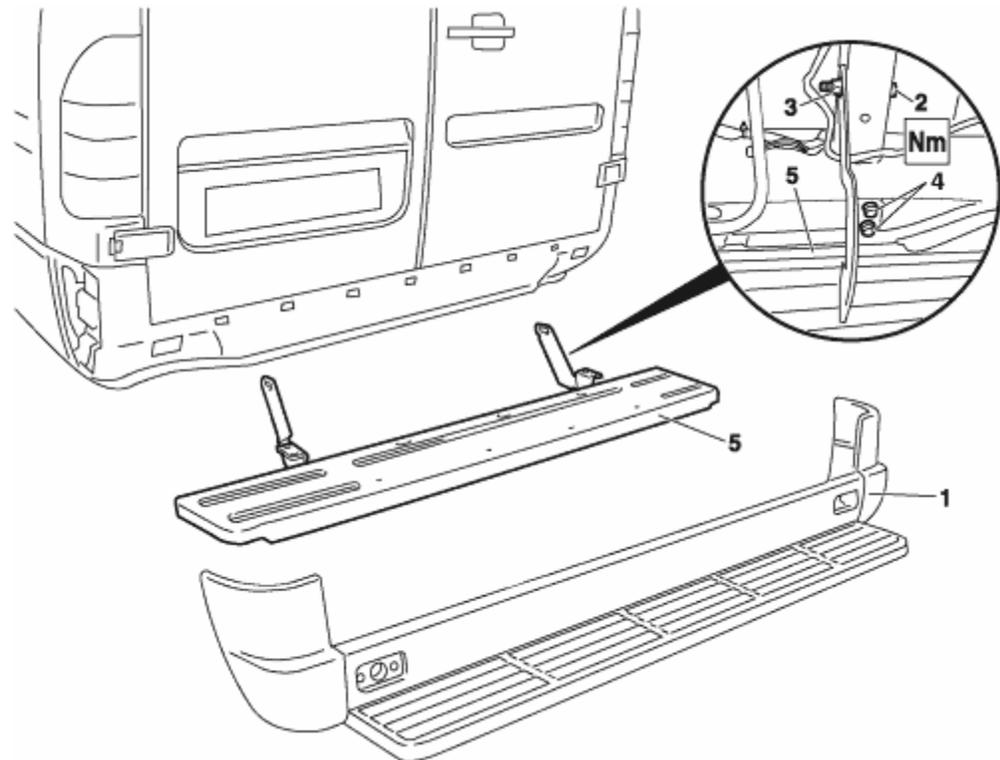
1 Bumper

2 Bolt

3 Nut

4 Screw

5 Rear-end door step



[Return to Index](#)

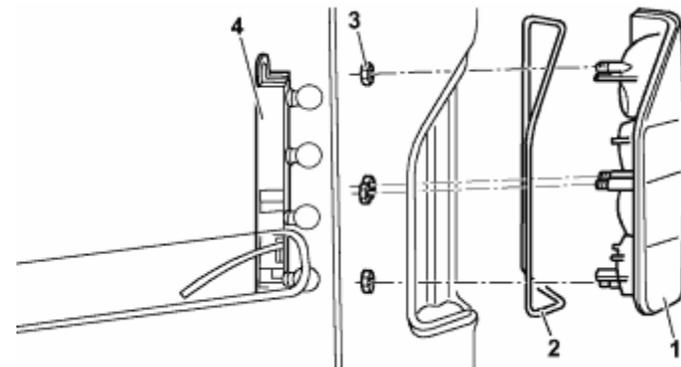
Remove/install

- 1 Remove rear bumper
- 2 Unscrew screw (2) with nut
- 3 Unscrew screw (4) and remove rear-end door step
- 4 Install in the reverse order

3 Remove rear taillamp

Remove/install taillamp

- 1 *Taillamp lens*
- 2 *Gasket*
- 3 *Nut*
- 4 *Lamp carrier*



Remove/install

- 1 Unclip lamp carrier (arrows) and take out
- 2 Turn down nut (3), remove taillamp

Installation: Check seal (2).

- 3 Install in the reverse order

[Return to Index](#)

4 Remove side window

Applies only to side wall with window

5 Remove side wall paneling

Applies only to vehicles with side wall paneling, Code CTE.

6 Remove miscellaneous detachable body components in repair area

7 Cover all detachable body components remaining in area to be repaired

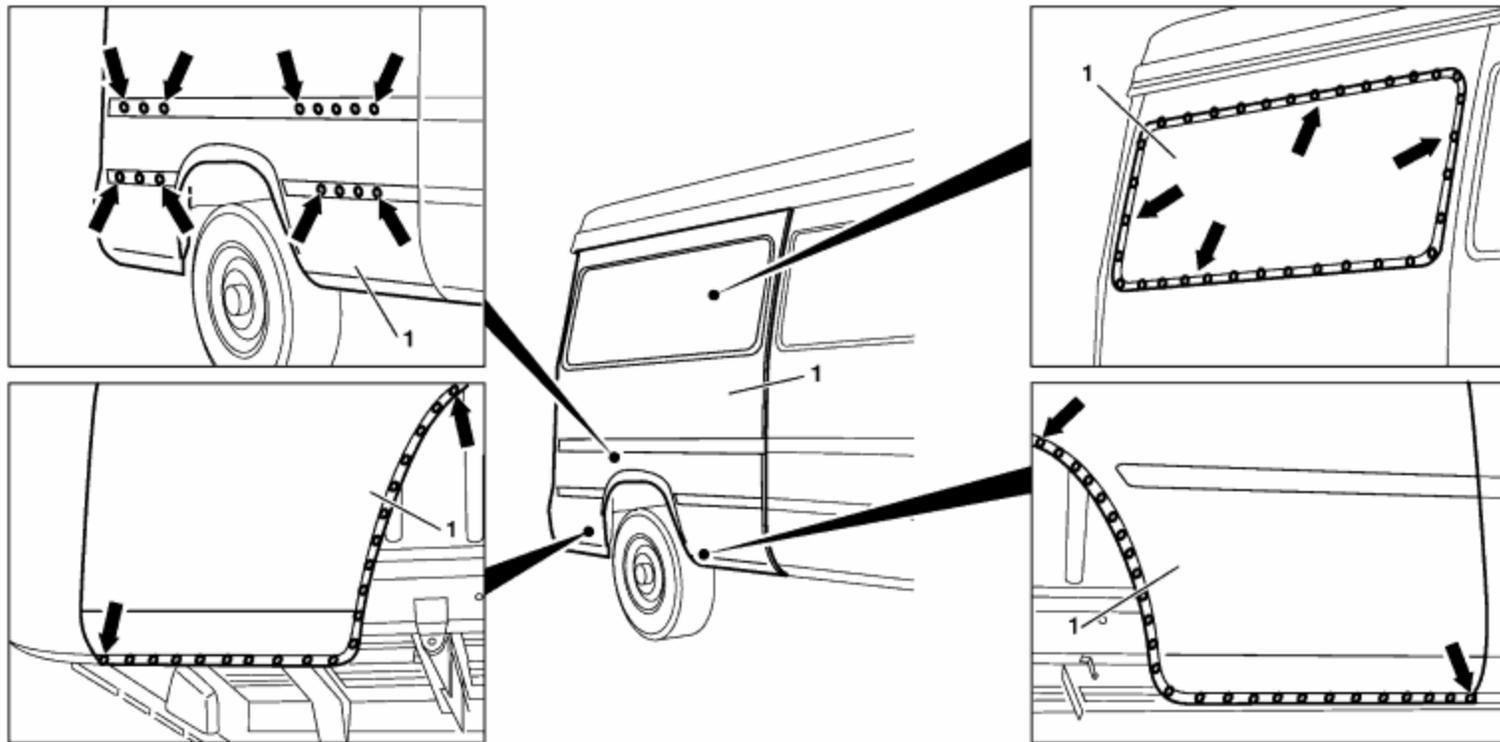
8.1 Use a hot-air gun to carefully heat up the side wall flange (2) and side wall reinforcements (3) in the cargo compartment and separate the glued connections

Applies only to side wall without window

8.2 Use a hot-air gun to carefully heat up the side wall reinforcements (3) in the cargo compartment and separate the glued connections

Applies only to side wall with window

9 Separate side wall paneling (1)

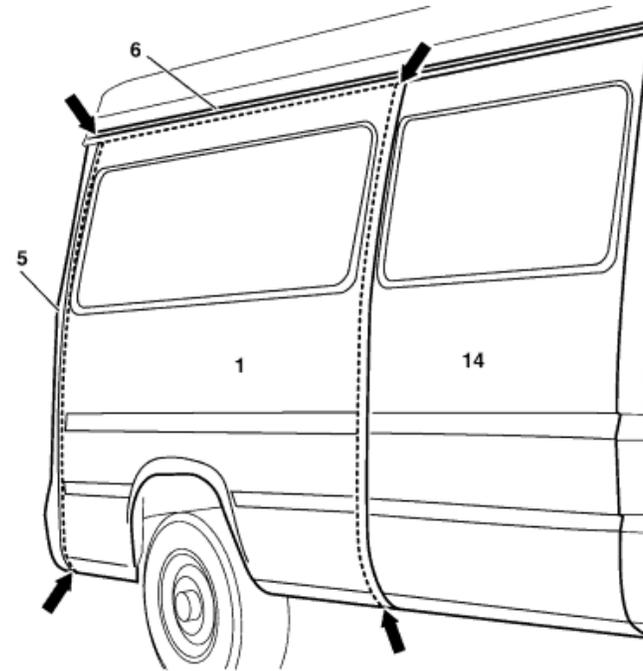


1 Expose spot welds in right side wall paneling (1).

2 Cut spot welds out of right side wall paneling (1) (arrows).

[Return to Index](#)

3 Separate right side wall paneling (1) along corner pillar paneling (5), drip molding (6) and front paneling (14) (dotted line, arrows).

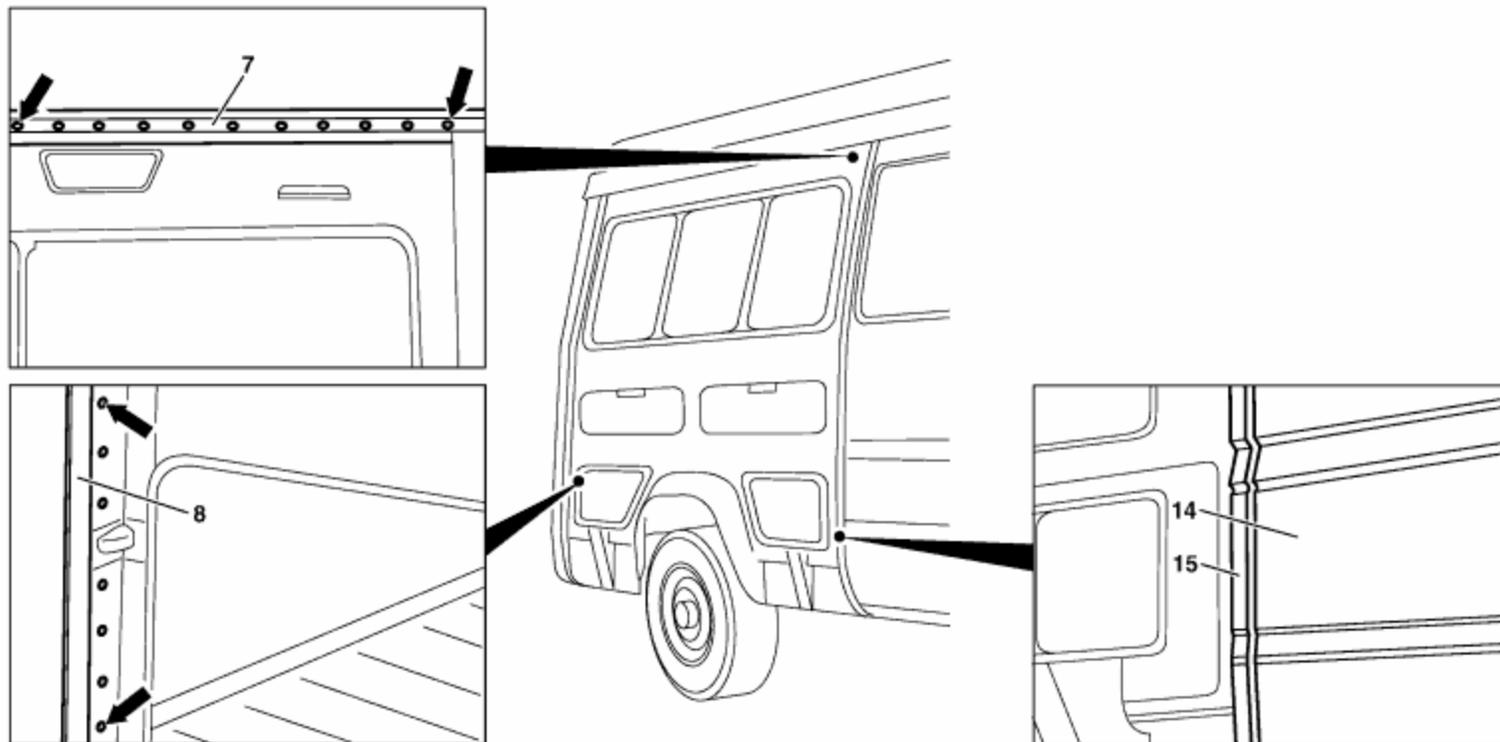


[Return to Index](#)

Install

10 Prepare connection points of side wall paneling

Preparing connection plates for right side wall paneling



1 Cut spot welds out of remaining sheet metal panels (7 and 8) (arrows).

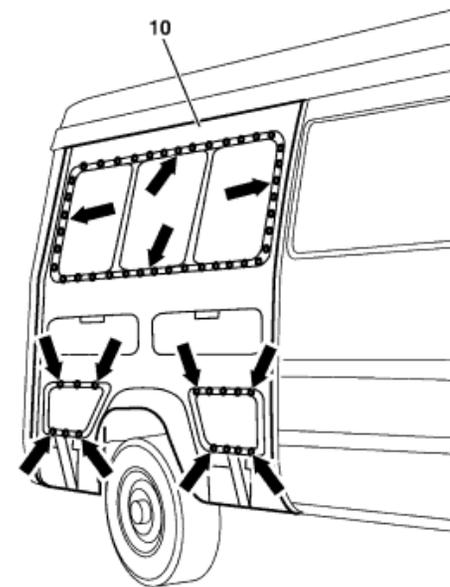
2 Remove remaining sheet metal panels (7 and 8).

3 Grind remaining sheet metal (15) down to edge of front paneling (14).

[Return to Index](#)

Perform the following steps only if the side wall paneling is welded with plug welds at points marked here when installing

4 Punch Ø 6 mm dia. holes in side wall inner section and at a maximum hole interval of 95 mm (arrows).



11 Straighten connecting plates, grind off and coat with zinc dust paint
Zinc dust paint suitable for spot welding

[Return to Index](#)

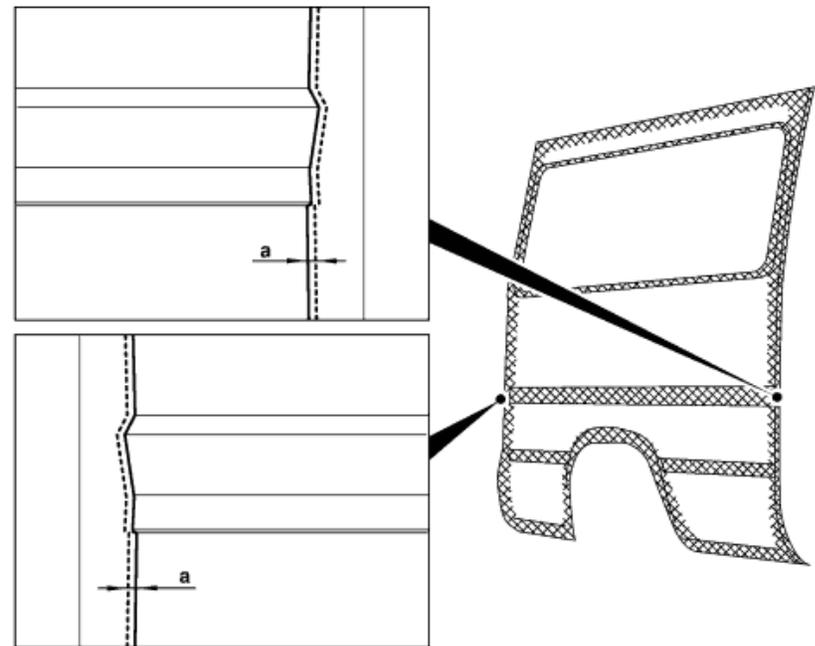
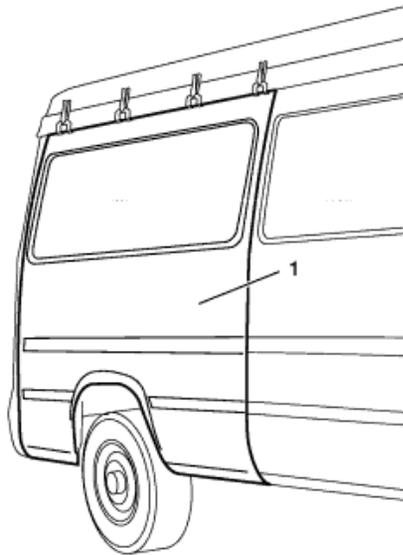
12 Prepare side paneling (1) for installing

Preparing right side wall paneling for installation

1 Separate right side wall paneling along front and rear edge with the following dimension (dotted lines):

a = approx. 1 mm.

2 Grind right side wall paneling down to bare metal on both sides in marked area and coat with zinc dust paint.



Hold right side wall paneling (1), align and clamp

[Return to Index](#)

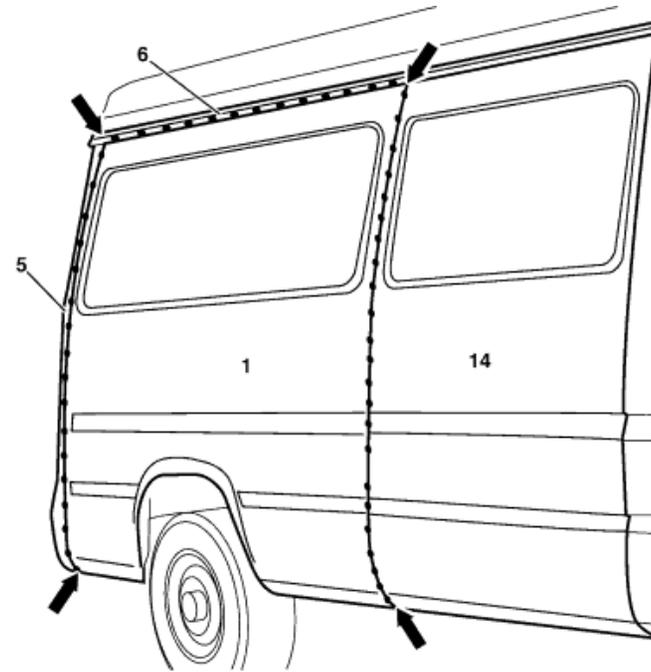
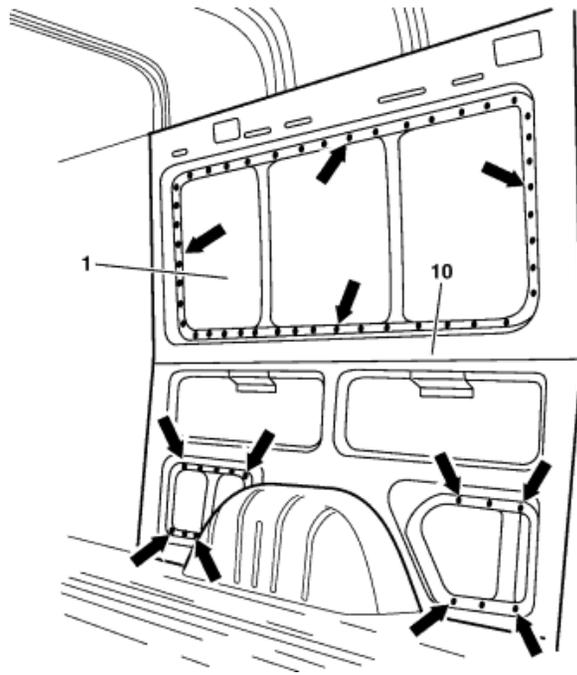
13 Weld in side wall paneling (1)

With side wall without window

Welding in right side wall paneling

1 Weld right side wall paneling (1) to drip molding (6) (arrows).

2 Weld right side wall paneling (1) to corner pillar paneling (5) and front paneling (14) (arrows).

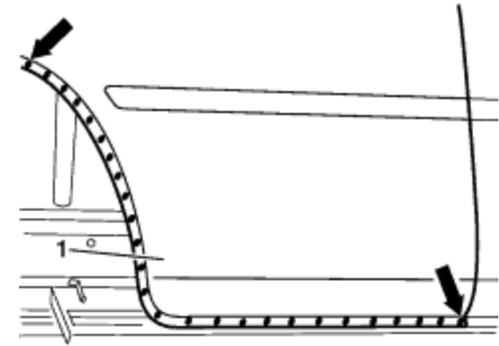


To prevent the sheet metal parts from distorting, hold steel or copper block to side wall paneling from outside. The block (approx. 25mm x 25 mm x 200 mm) should make full contact.

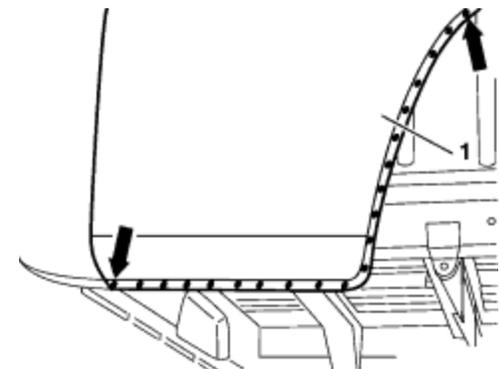
[Return to Index](#)

3 Weld right side wall paneling (1) to side wall inner section (10 arrows).

4 Weld right side wall paneling (1) to longitudinal member and wheelhouse (arrows).



5 Weld right side wall paneling (1) to rear longitudinal member and wheelhouse (arrows).

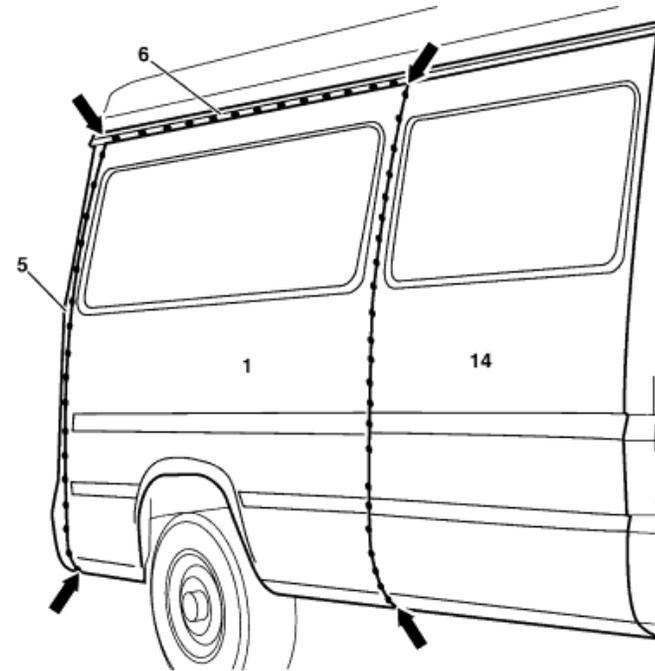
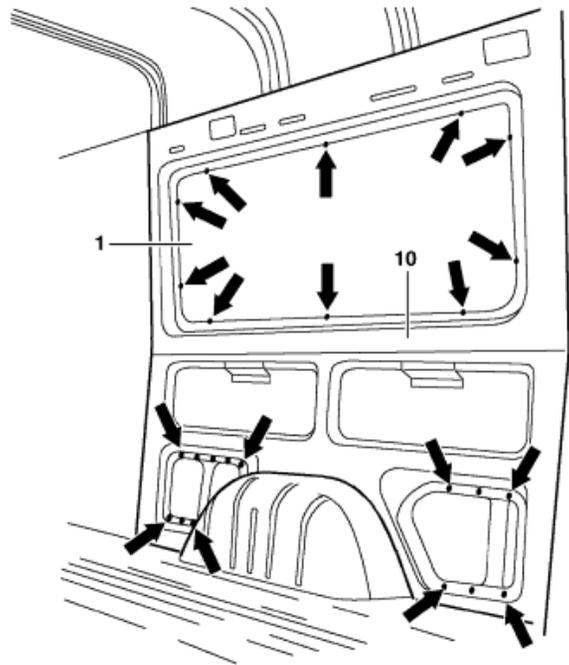


[Return to Index](#)

With side wall with window

1 Weld right side wall paneling (1) to drip molding (6) (arrows).

2 Weld right side wall paneling (1) to corner pillar paneling (5) and front paneling (14) (arrows).



To prevent the sheet metal parts from distorting, hold steel or copper block to side wall paneling from outside. The block (approx. 25mm x 25 mm x 200 mm) should make full contact.

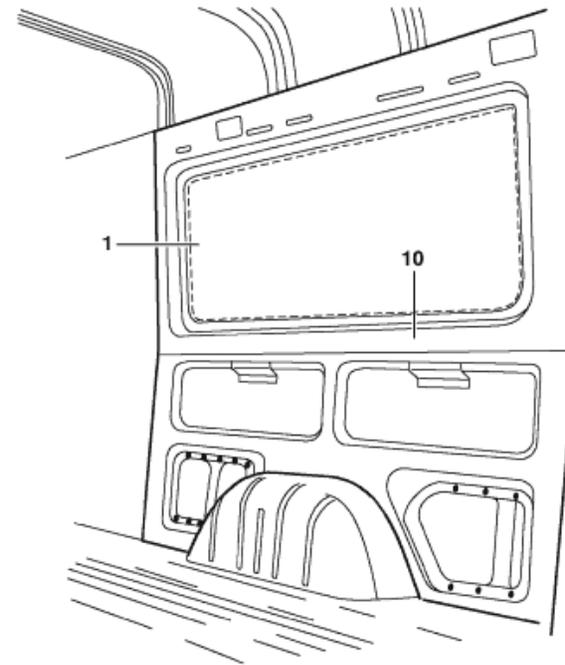
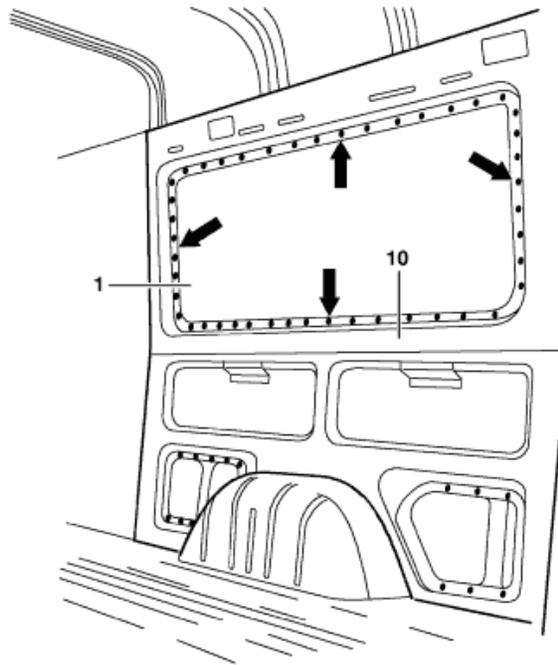
[Return to Index](#)

3 Weld right side wall paneling (1) at bottom to inner section of side wall (10) (arrows).

4 Tack right side wall paneling (1) on window cutout of inner section of side wall (10) (arrows).

5 Cut out window cutout of side wall along inner section of side wall (dotted line).

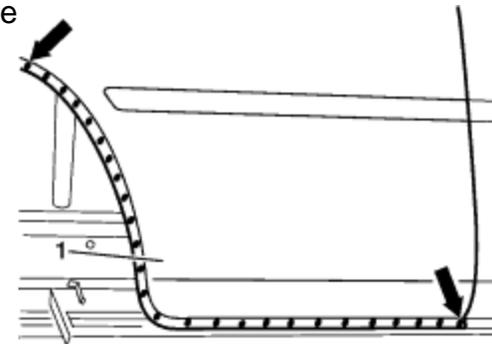
6 Deburr cutting edge



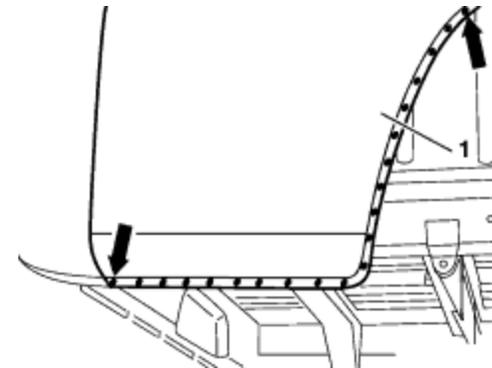
[Return to Index](#)

7 Weld right side wall paneling (1) to inner section of side wall 10) (arrows).

8 Weld right side wall paneling (1) to longitudinal member and wheelhouse (arrows).



9 Weld right side wall paneling (1) to rear longitudinal member and wheelhouse (arrows).



14 Grind down extending welding material

15 Vacuum out hollow cavities

[Return to Index](#)

Metal filings or metallic grinding dust in cavities can lead to corrosive damage.

Wet/dry vacuum cleaner

16.1 Glue side wall paneling (1) with side wall flange (2) and side wall reinforcements (3)
Applies only to side wall without window

16.2 Glue side wall paneling (1) with side wall reinforcements (3)
Applies only to side wall with window

17 Clean areas to be repaired with Mopar or equivalent primer/filler

18 Supplement standard seals with Mopar or equivalent body sealant

Seam sealing after repairs.

19 Add Mopar or equivalent permanent underfloor protection as a supplement to underbody protection installed as standard

20 Paint repair area and adjacent surfaces

21 Supplement cavity preservation

22 Apply standard sealant between the outside corner pillar paneling and side wall paneling (1)

23 Apply standard sealant between the front paneling and side wall paneling (1)

24 Install side window
Applies only to side wall with window

25 Install side wall paneling
Applies only to vehicles with side wall paneling, Code CTE.

[Return to Index](#)

26 Install rear door step

Only with code MBZ, rear door step

27 Install rear bumper

28 Install rear taillamp

29 Reinstall miscellaneous detachable body component

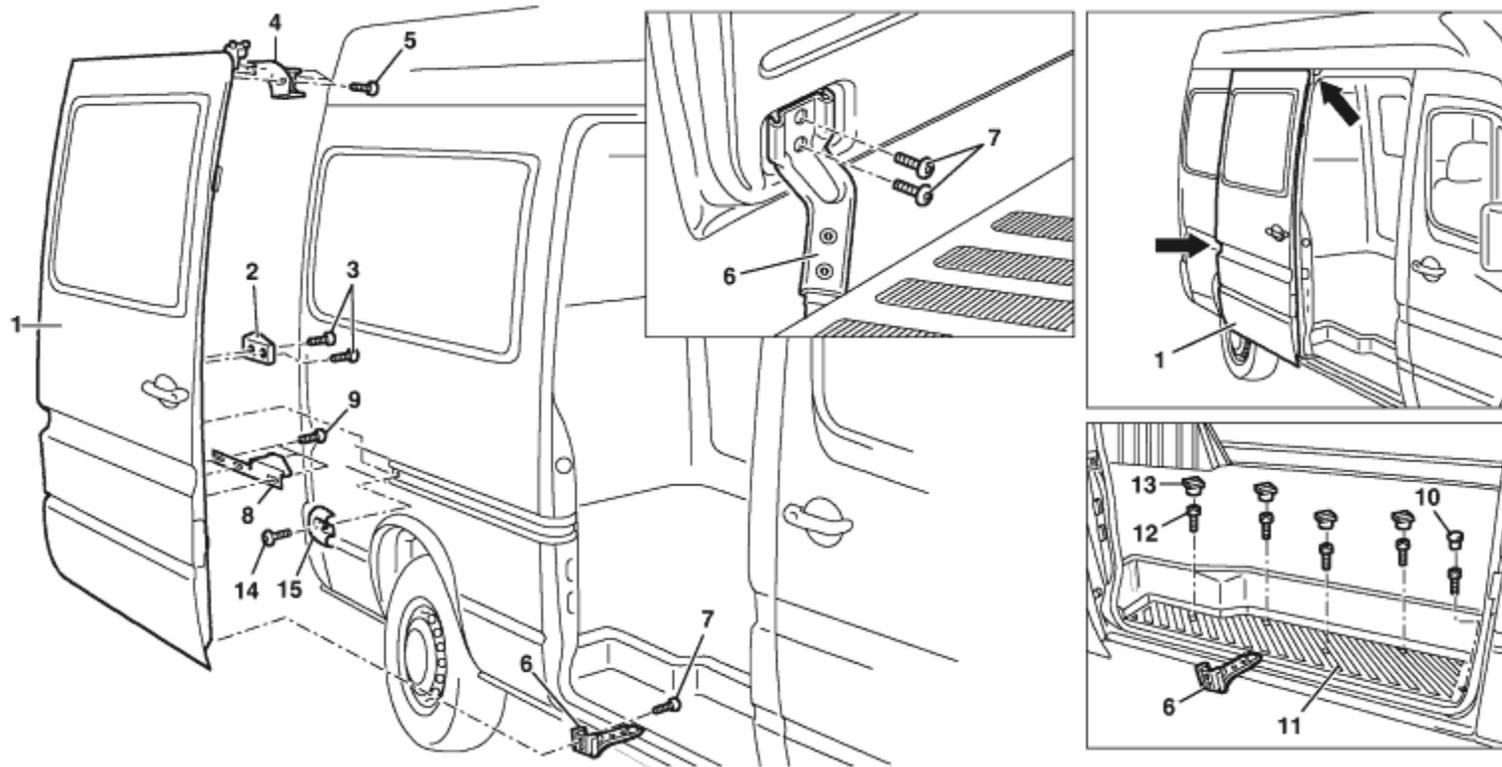
Repair shown on right-hand side wall paneling on box-type vehicle with wheelbase 158"

1 Remove sliding door

2 Remove sliding-door guide channel

3 Remove door seal

[Return to Index](#)



- 1 Sliding door
- 2 Sliding door stop
- 3 Bolt
- 4 Upper sliding door stop
- 5 Bolt
- 6 Carriage
- 7 Bolt
- 8 Lower sliding door stop

- 9 Bolt
- 10 Plug
- 11 Entrance paneling
- 12 Bolt
- 13 Plug
- 14 Bolt
- 15 End piece

[Return to Index](#)

Remove/Install

1 Remove handle on sliding door

Remove/install sliding door handle strip

Remove

1 Punch through drift of expansion rivet on handle strip (1) and pry out expansion rivet.

2 Separate edge sealing all way round between the handle strip and the insulation element and then remove the handle strip.

3 Remove residue adhesive on handle strip and on insulation element

Install

4 Apply handle strip to insulation element and press in expansion rivet.

5 Apply sealing compound to gap between handle strip and insulation element all round

2 Remove end piece (15)

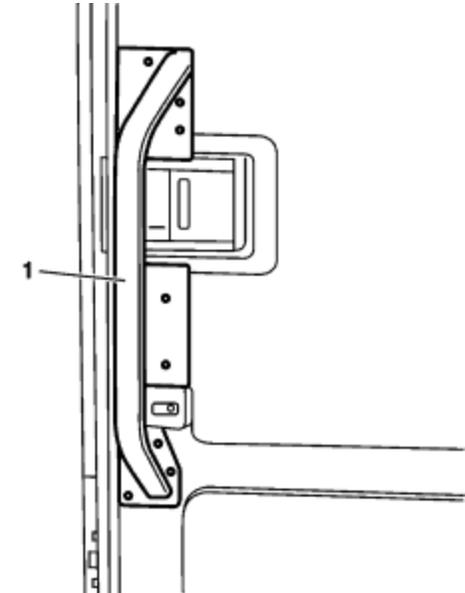
3 Remove sliding door stop (2)

Installation: Replace bolt (3).

4.1 Remove additional sliding door stops (4, 8) at top and bottom from sliding door

Installation: Replace bolts (5, 9).

5 Remove bottom carriage from sliding door.



[Return to Index](#)

6 Push sliding door to the rear using the center and top carriages (arrows).

7 Remove plugs (10, 13) from the scuff plate (11).

8 Unscrew bolts (12) and remove scuff plate

9 Remove carriage (6).

Check for wear before installing bottom carriage, replace if necessary.

10 Install in the reverse order

If the door is replaced, the seams must be sealed all around before painting

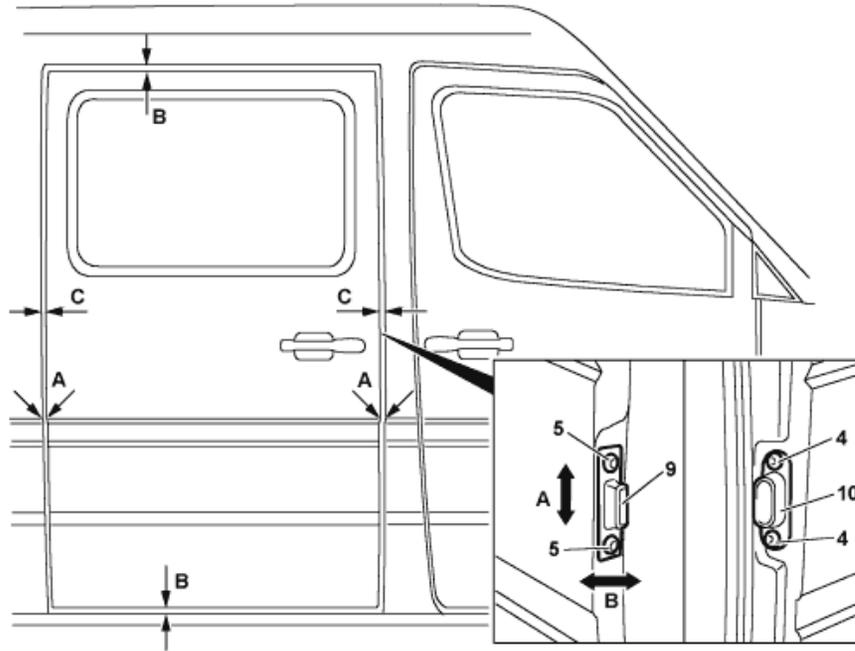
11.1 Adjust additional sliding door stops (4, 8) at top and bottom

The center stop buffer should make contact with the C-pillar for adjustment. Adjust upper and lower stop buffer (4, 8) to a gap of 2 mm to C-pillar and tighten

12 Check the setting of the sliding door.
Adjust if necessary.

[Return to Index](#)

*A Ridge pattern
B, C Gaps*



Adjusting

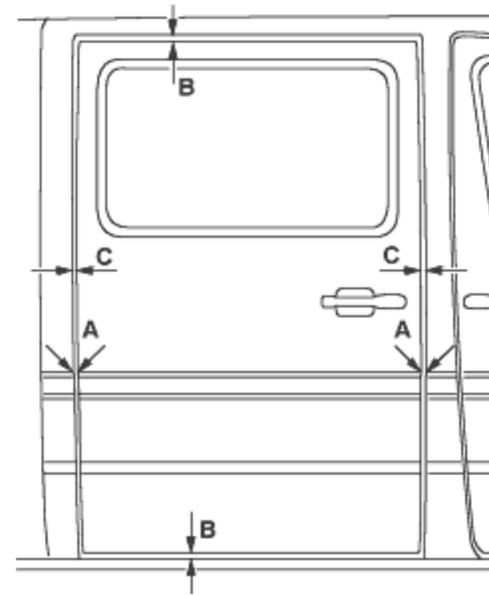
- 1 Check gaps and ridge pattern on sliding door all the way around
- 2 Tighten Torx screws (4) of sliding element (10)
- 3 Slacken torx bolts (5) of guide wedge (9) until the guide wedge can be moved.

It must be possible to move the guide wedge during the entire adjusting procedure. In order to close the sliding door during adjustment adjust position of guide wedge (9) in relation to sliding element (10) by moving.

[Return to Index](#)

4 Adjust gaps and ridge pattern

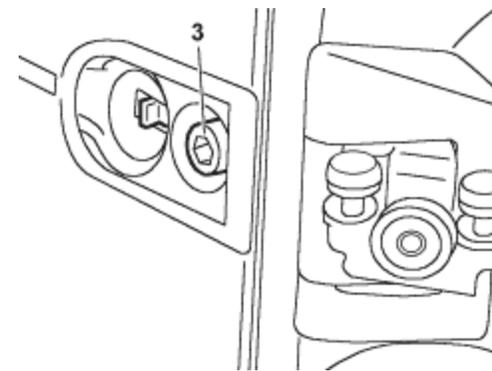
Adjust gaps and sliding door ridge pattern



Adjust ridge pattern A

1 Loosen screw (3) and adjust rear ridge pattern B by lifting or lowering sliding door.

Tighten bolt (3).

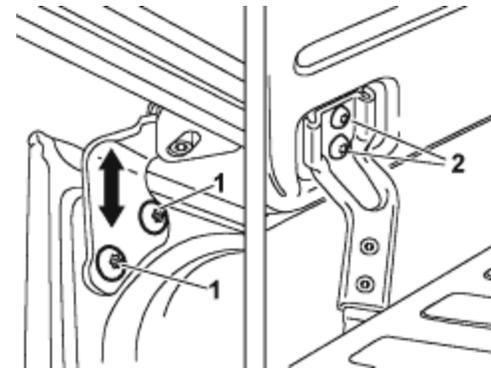


[Return to Index](#)

Loosen Torx screws (1, 2) on top and bottom carriage.

Match front ridge pattern A at upper carriage by lifting or lowering the sliding door.

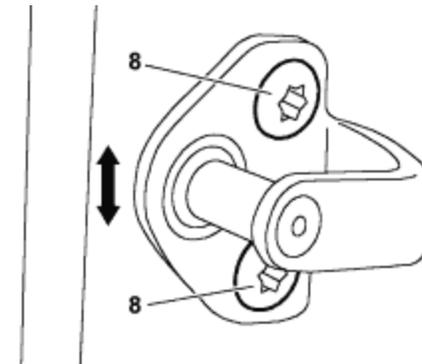
Tighten Torx screws (1, 2)



Loosen Torx screws (8) for striker eye and adapt to modified door adjustment by vertically adjusting (arrow) striker eye

Tighten Torx screws (8).

Do not lift or pull down sliding door over striker eye. When the ridge pattern coincides the bottom and top door gap B on the sliding door should be within the specified tolerance range. For optical reasons a slightly wedge-shaped door gap at the top and bottom is preferable to a ridge offset.

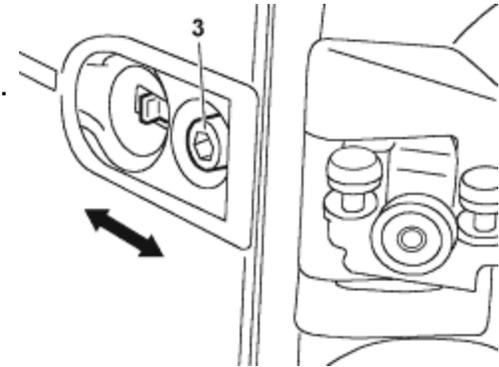


[Return to Index](#)

Adjust gap C.

Loosen screw (3) and adjust gap C by horizontally adjusting center carriage (arrow).

Tighten bolt (3).



5 Adjust flatness, installation depth and stop of sliding door

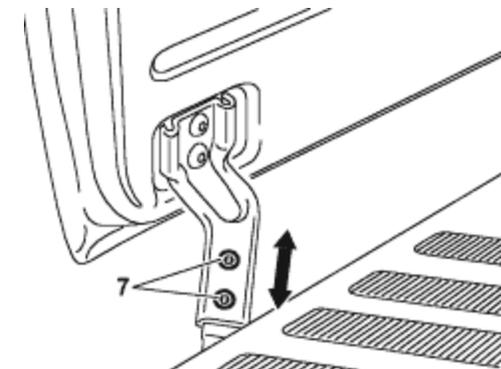
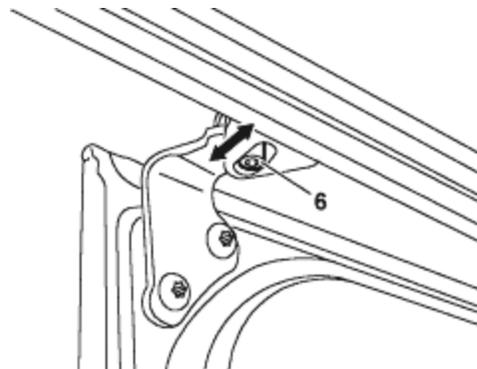
To avoid wind noises the installation depth in the area of B-pillar should be flush to 1 mm recessed and in the area of the C-pillar flush to 1 mm extending.

Adjust flatness in relation to B-pillar

1 Loosen hex. head screws (6, 7).

Adjust flatness by moving upper and lower carriage.

3 Tighten hex. head screws (6, 7)



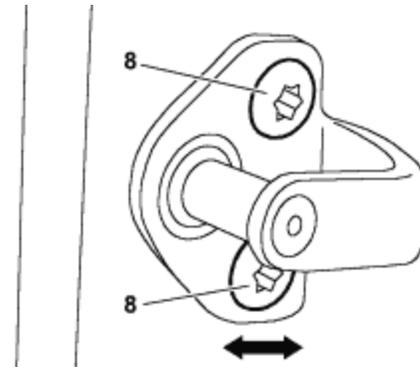
[Return to Index](#)

Adjust rear installation depth

4 Loosen Torx screws (8).

Move door eye horizontally and adjust rear installation depth.

Adjust rear installation depth until flush or with 1mm protrusion.



Adjust guide wedge.

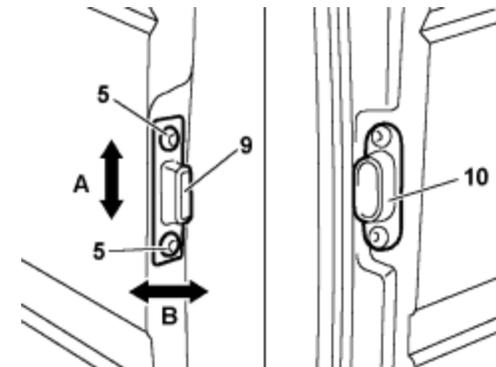
Adjust the position of the guide wedge (9) in relation to the sliding element (10) by moving the guide wedge (arrows A, B).

Close sliding door.
This centers the guide wedges (9) at the sliding elements (10).

Check installation depth of sliding door in relation to B-pillar.

The installation depth must be adjusted so that the sliding doors are flush or protruding 1mm to the inside

Tighten Torx screws (5).



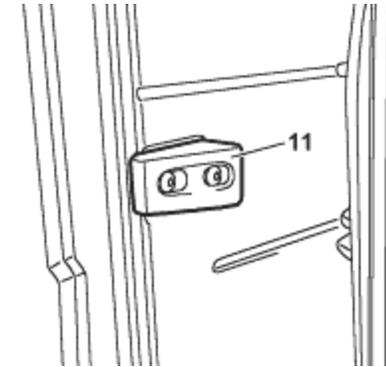
[Return to Index](#)

Adjust sliding door stop.

1 Loosen sliding door stop (11).

Open sliding door and hold in end position.

Hold sliding door stop, position at C-pillar free of clearance and tighten.



6 Install rubber buffer on sliding door

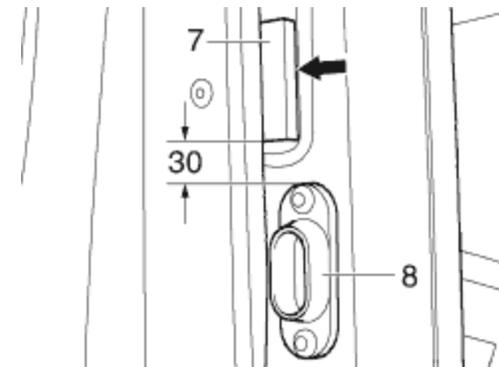
If not installed, install rubber buffer to avoid damage to the B-pillar when the sliding door is closed with a swing. The rubber buffers are installed at the factory as of V IN 725 456 as a standard feature. See ↓

Install rubber buffer

The rubber buffers are installed to avoid damage to the B-pillar when the sliding door is closed with a swing.

The rubber buffers are installed at the factory as of V IN 725 456 as a standard feature.

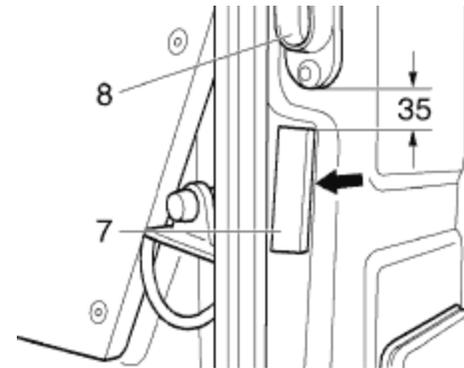
1 Glue upper rubber buffer (7) to B-pillar approx. 30 mm above upper inlet guide (8).



[Return to Index](#)

2 Glue bottom rubber buffer (7) approx. 35 mm below bottom inlet guide (8) to B-pillar

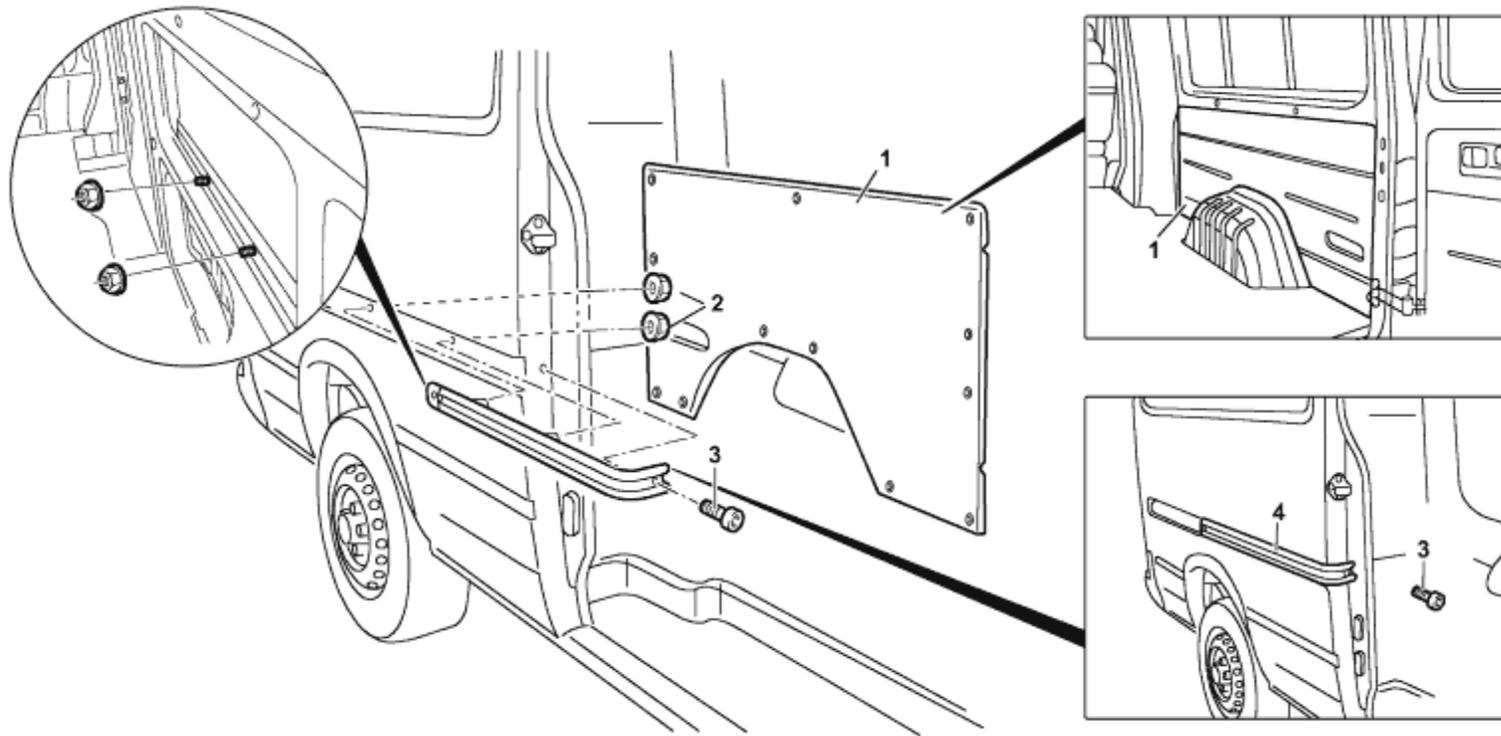
Glue rubber buffer (7) only to outer edge (arrow) of B-pillar so that the sealing frame cannot be pinched between the sliding door and rubber buffer when the sliding door is closed.



7 Check sliding door for easy motion

[Return to Index](#)

Remove, install guide rail for sliding door



- 1 Inner paneling
- 2 Hexagon nut
- 3 Torx bolt
- 4 Guide rail

[Return to Index](#)

Removing, installing

- 1 Remove sliding door
- 2 Remove inner paneling (1)
- 3 Unscrew hexagon nuts (2).
- 4 Unscrew Torx screw (3) and remove guide rail (4)

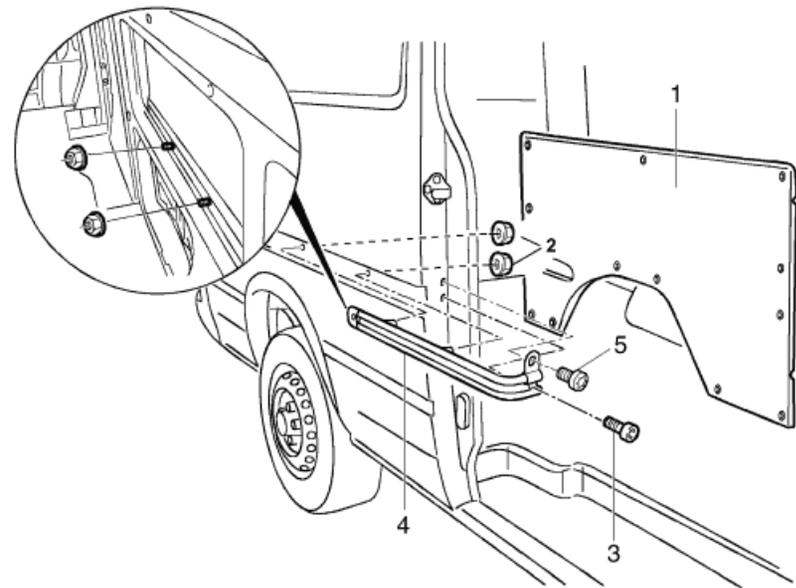
When replacing guide rail: ↓

Modify attachment for sliding door guide rail.

- 5 Install in the reverse order

Removing and installing guide rail for sliding door

- 1 Inner paneling
- 2 Hexagon nut
- 3 Torx screw
- 4 Guide rail
- 5 Torx screw



[Return to Index](#)

Remove/install

- 1 Remove sliding door
- 2 Remove inner paneling (1)
- 3 Unscrew hexagon nuts (2)
- 4 Take out Torx screws (3, 5)
- 5 Take off guide rail (4)

Installation: If guide rail is replaced, clean contact surface before installing and pull protective sheet off adhesive strip of guide rail

Guide rail (4) modified

As of VIN #R 140436 on right sliding door and
as of VIN #R 147685 on left sliding door: ↓

Guide rail modified

The sliding door guide rail is glued over the entire surface to improve the strength and corrosion resistance as of production dates listed above.

For removal it is necessary to heat up the guide rail to approx.
60 °C with a hot air gun.

Guide rail should be replaced after removal.

Installation: Before installation thoroughly clean contact surface on side wall.

Only the guide rail to be glued over the entire surface is available is as new replacement part.

[Return to Index](#)

Heat guide rail (4) to approx. 60° C and take off

Installation: Replace guide rail (4). Clean contact surface before installing and pull protective sheet off adhesive strip of guide rail

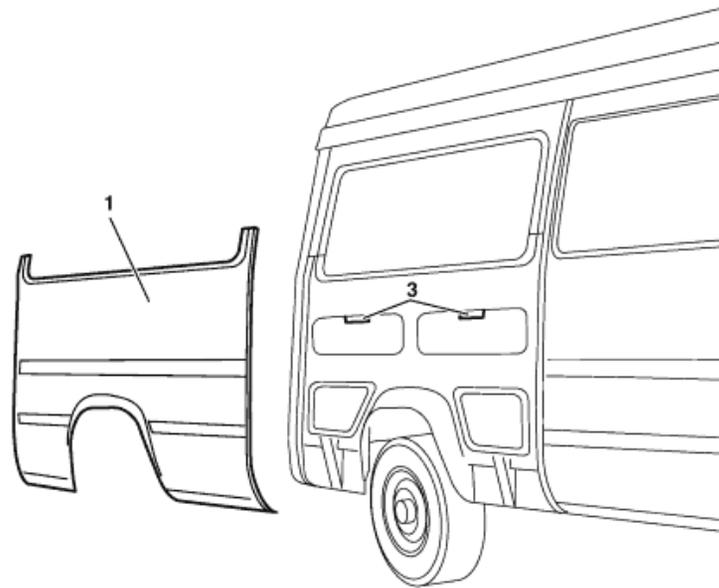
6 Install in the reverse order

Replace side wall paneling up to window cutout

Repair shown on right-hand side wall paneling on station-wagon type vehicle with wheelbase 3550 mm

1 Side wall paneling

3 Side wall reinforcements



[Return to Index](#)

Removing

Repair description applies by analogy for left side of vehicle

1 Remove rear bumper

2 Remove rear taillamp

3 Remove rear door step

Only with code W73, rear door step

4 Remove side window

5 Remove side wall paneling

Applies only to vehicles with side wall paneling, Code VA1/ VA2.

6 Remove miscellaneous detachable body components in repair area

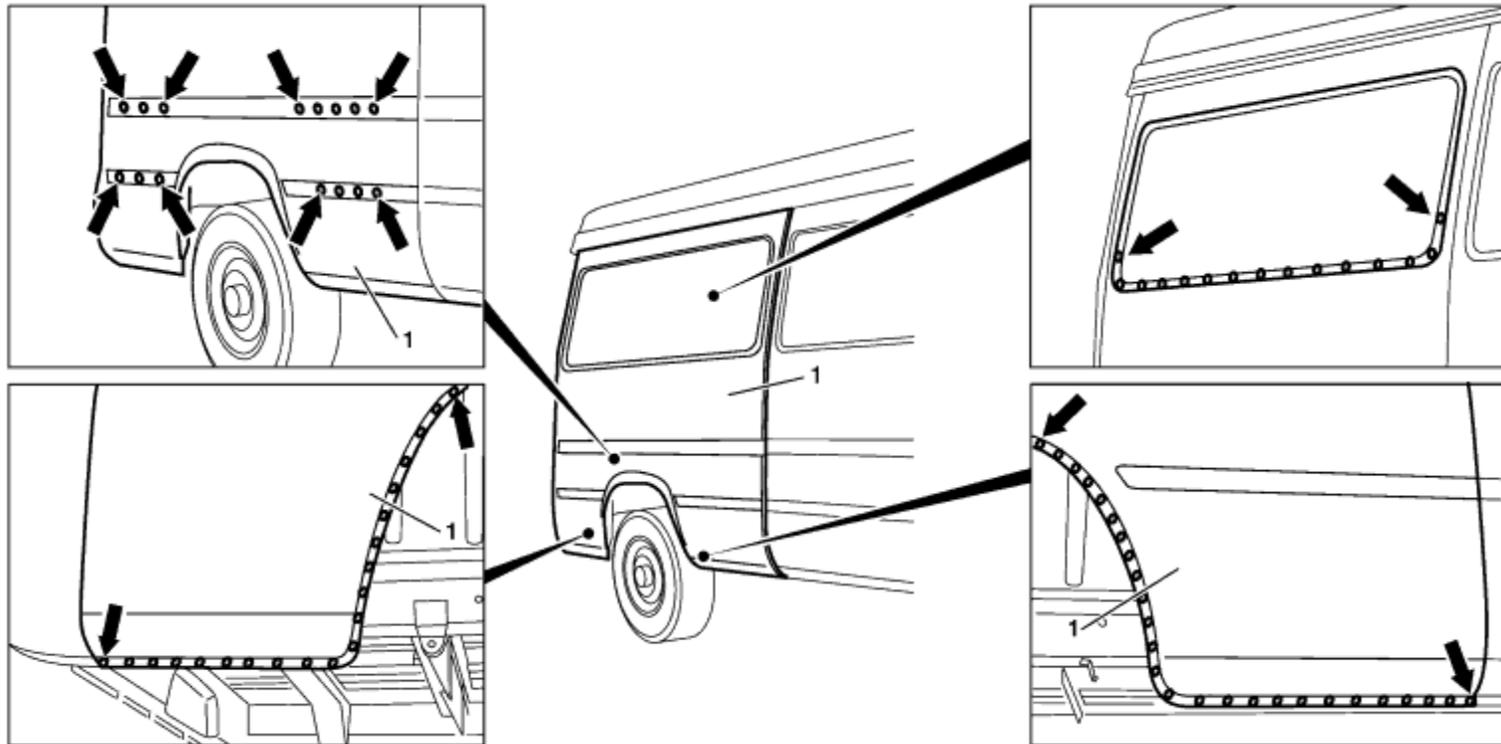
7 Cover all detachable body components remaining in area to be repaired

8 Use a hot-air gun to carefully heat up the side wall reinforcements (3) in the cargo compartment and separate the glued connections

9 Separate left side wall paneling (1) up to window cutout

Bore welding points.

[Return to Index](#)



1 Expose spot welds in right side wall paneling (1) up to window cutout (arrows).

2 Cut exposed spot welds out of right side wall paneling (1) (arrows).

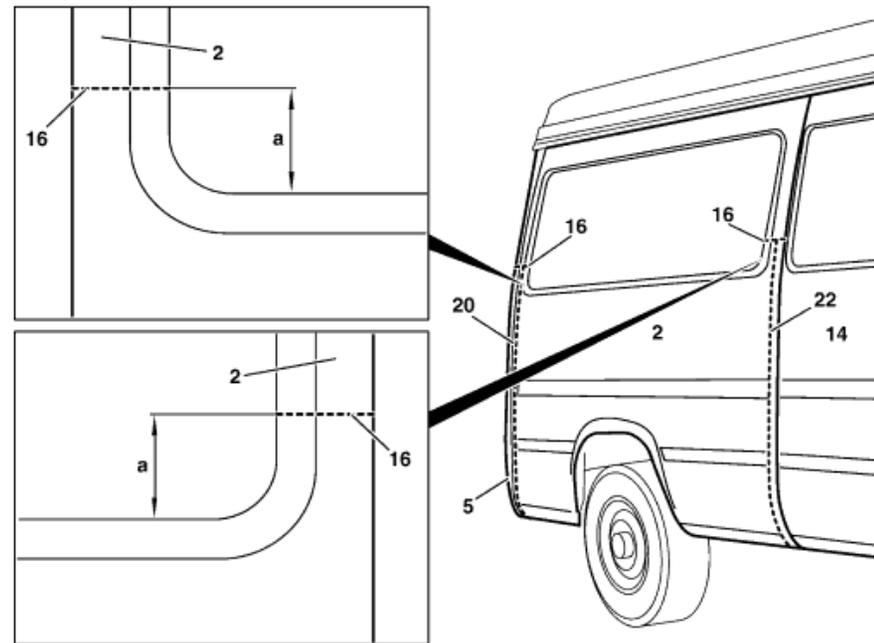
[Return to Index](#)

3 Separate side wall paneling (2) above bottom window frame with the following dimensions (dotted lines, 16):

a = approx. 50 mm.

4 Separate side wall paneling (2) along corner pillar paneling (5) up to separation line (16) (dotted line, 20).

5 Separate side wall paneling (2) along front paneling (14) up to separation line (16) (dotted line, 22).



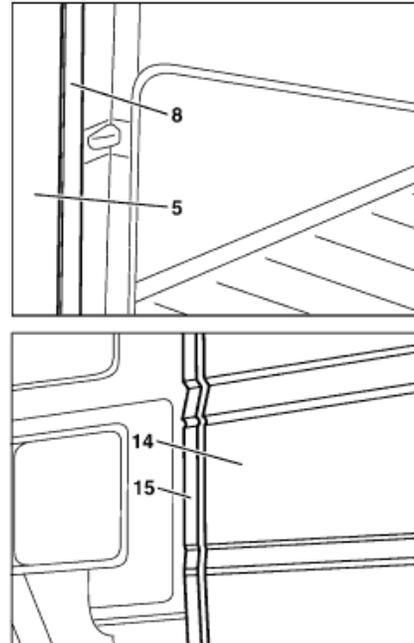
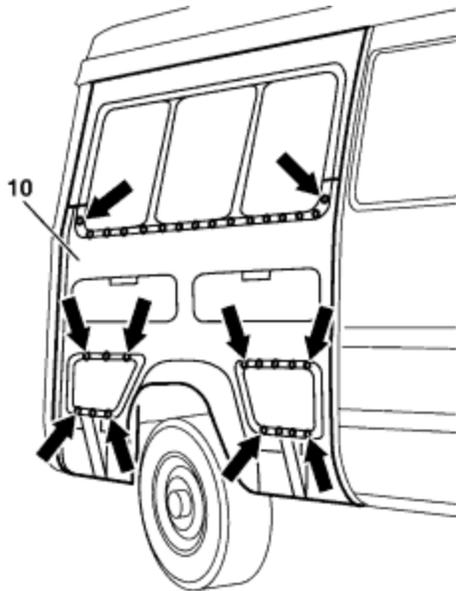
[Return to Index](#)

Install

10 Prepare connection points of right side wall paneling up to window cutout

1 Grind remaining sheet metal (8) down to edge of outer corner pillar paneling (5).

2 Grind remaining sheet metal (15) down to edge of front paneling (14).



Perform the following step only if side wall paneling is welded with plug welds (SG ) at points marked here when installing

3 Punch 6 mm dia. holes in side wall inner section at a maximum hole interval of 95 mm (arrows).

[Return to Index](#)

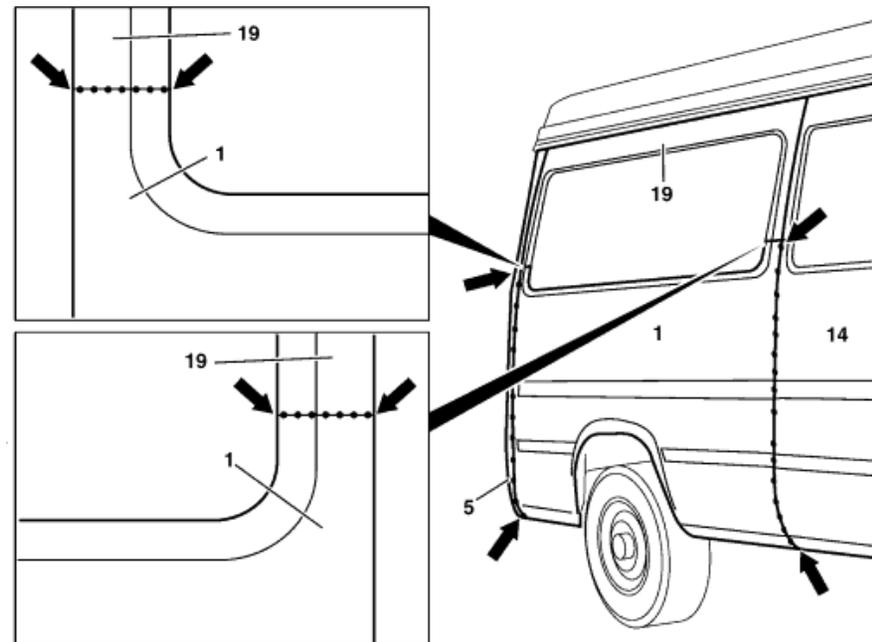
11 Straighten connecting plates, grind off and coat with zinc dust paint
Zinc dust paint suitable for spot welding

12 Prepare side wall paneling (1) up to window cutout for installation

Zinc dust paint suitable for spot welding

13 Weld in side wall paneling (1) up to window cutout

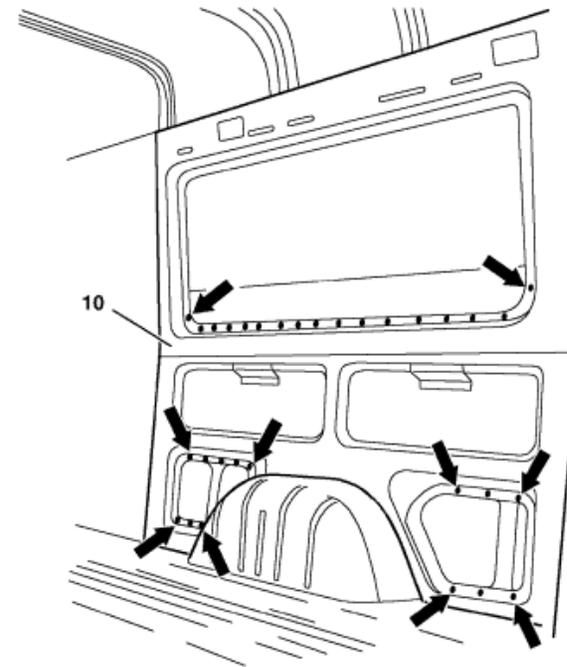
Weld in right side wall paneling up to window cutout
1 Weld right side wall paneling bottom section (1) to side wall paneling top section (19), outer corner pillar paneling (5) and front paneling (14) $\text{sg}\phi$, arrows).



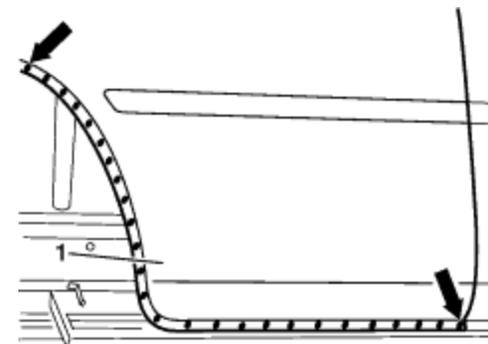
[Return to Index](#)

To prevent the sheet metal parts from distorting, hold steel or copper block to side wall paneling from outside. The block (approx. 25mm x 25 mm x 200 mm) should make full contact.

2 Weld right side wall paneling to side wall inner section (10) (SG  or RP , arrows).

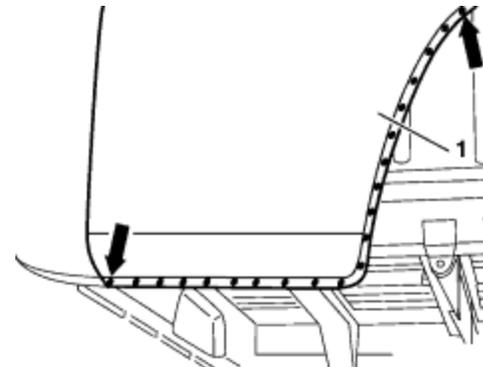


3 Weld right side wall paneling (1) to longitudinal member and wheelhouse (arrows).



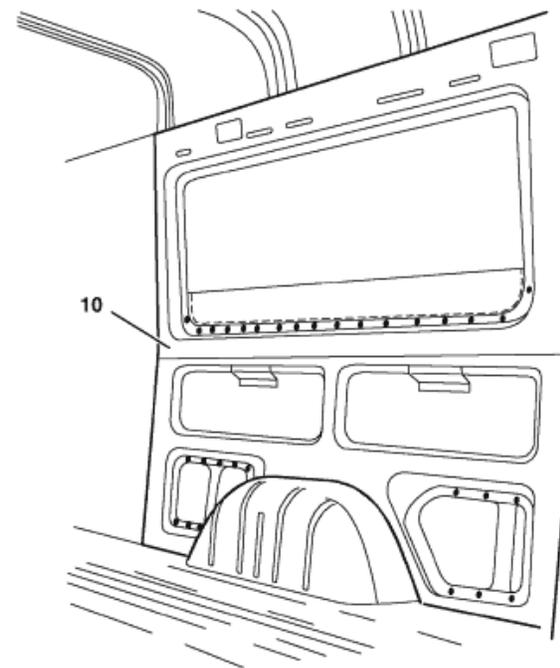
[Return to Index](#)

4 Weld right side wall paneling (1) to rear longitudinal member and wheelhouse (arrows).



5 Cut out window cutout of side wall along inner section of side wall (dotted line).

6 Deburr cutting edge.



[Return to Index](#)

14 Grind down extending welding material

15 Glue side wall paneling (1) with side wall reinforcements (3)

16 Tin connection points

17 Vacuum out hollow cavities

Metal filings or metallic grinding dust in cavities can lead to corrosive damage.

Wet/dry vacuum cleaner

18 Clean areas to be repaired with Mopar or equivalent primer/filler

19 Supplement standard seals with Mopar or equivalent body sealant

Seam sealing after repairs.

20 Add Mopar or equivalent permanent underfloor protection as a supplement to underbody protection installed as standard

21 Paint repair area and adjacent surfaces

22 Supplement cavity preservation

23 Apply standard sealant between the outside corner pillar paneling and side wall paneling (1)

24 Apply standard sealant between the front paneling and side wall paneling (1)

25 Install side window

[Return to Index](#)

26 Install side wall paneling

Applies only to vehicles with side wall paneling, Code CTE.

27 Install rear door step

Only with code W73, rear door step

28 Install rear bumper

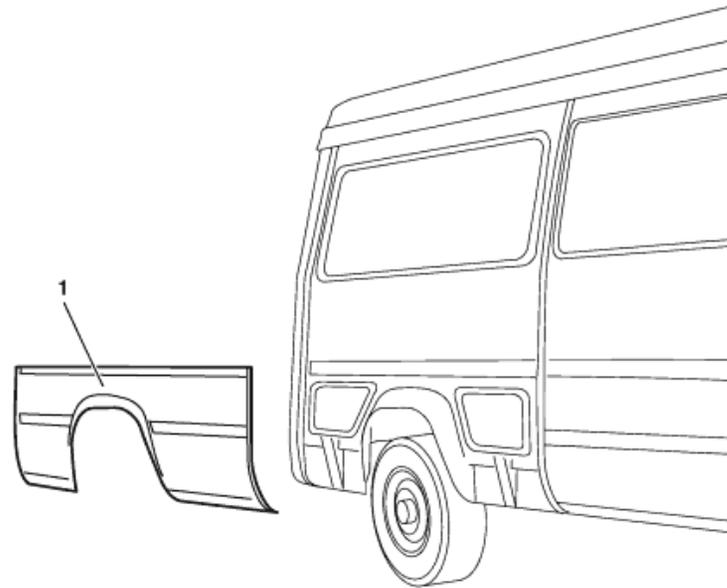
29 Install rear taillamp

30 Reinstall miscellaneous detachable body components

Replace side wall paneling up to character bead

***Repair shown on right-hand side wall paneling
on box-type vehicle with wheelbase 158"***

1 Side wall paneling bottom section



[Return to Index](#)

Repair description applies by analogy for left side of vehicle

1 Remove rear bumper

2 Remove rear door step

Only with code W73, rear door step

3 Remove rear taillamp

4 Remove side wall paneling

Applies only to vehicles with side wall paneling, Code CTE.

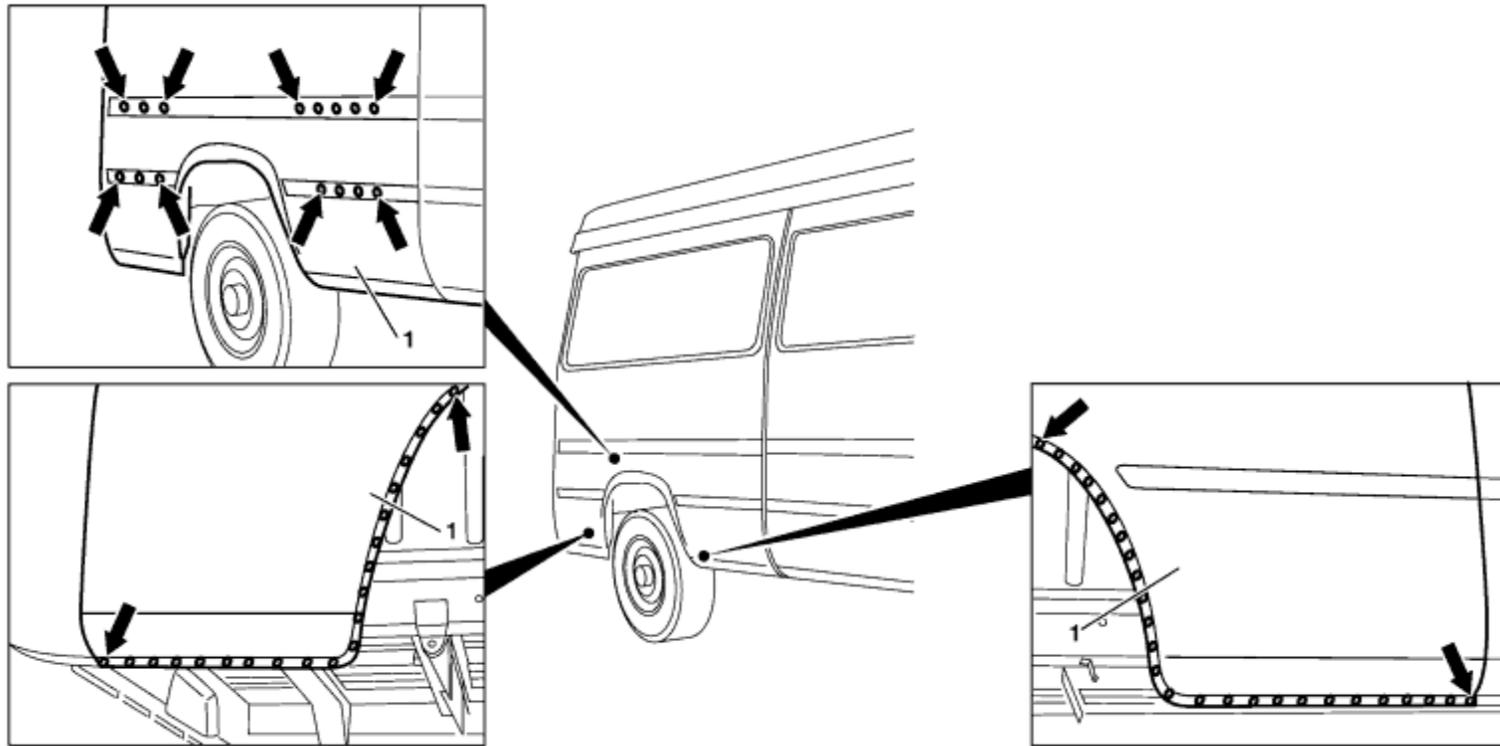
5 Remove miscellaneous detachable body components in repair area

6 Cover all detachable body components remaining in area to be repaired

7 Separate side wall paneling bottom member (1)

[Return to Index](#)

Separating right side wall paneling bottom section



1 Expose spot welds in right side wall paneling bottom section (1) (arrows).

2 Cut exposed spot welds out of right side wall paneling bottom section (1) (arrows).

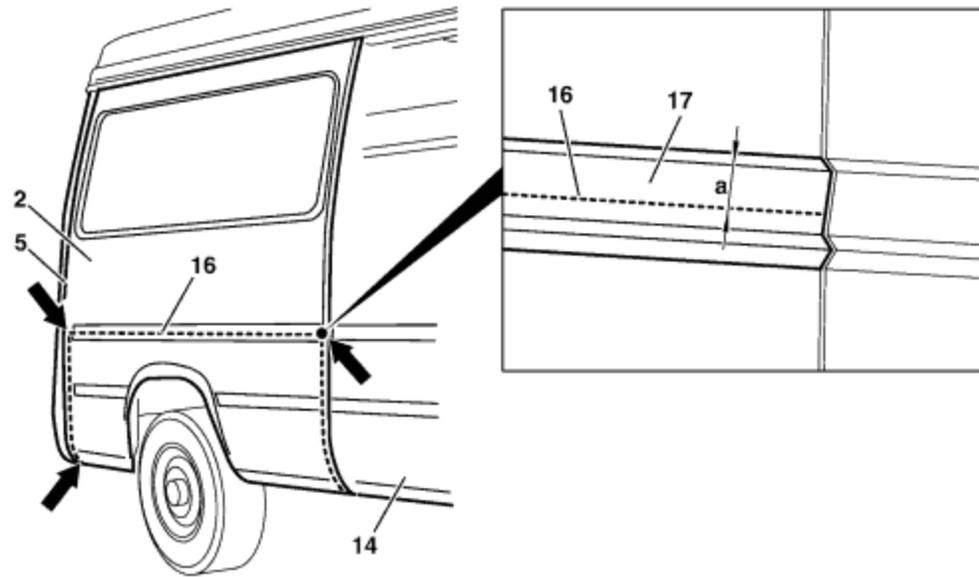
[Return to Index](#)

3 Separate side wall paneling (2) in character ridge (17) with the following dimension (dotted line, 16):

a = approx. 35 mm.

4 Separate side wall paneling (2) along outer corner pillar paneling (5) (dotted line, arrows).

5 Separate side wall paneling (2) along front paneling (14) (dotted line, arrows).



Bore welding points.

[Return to Index](#)

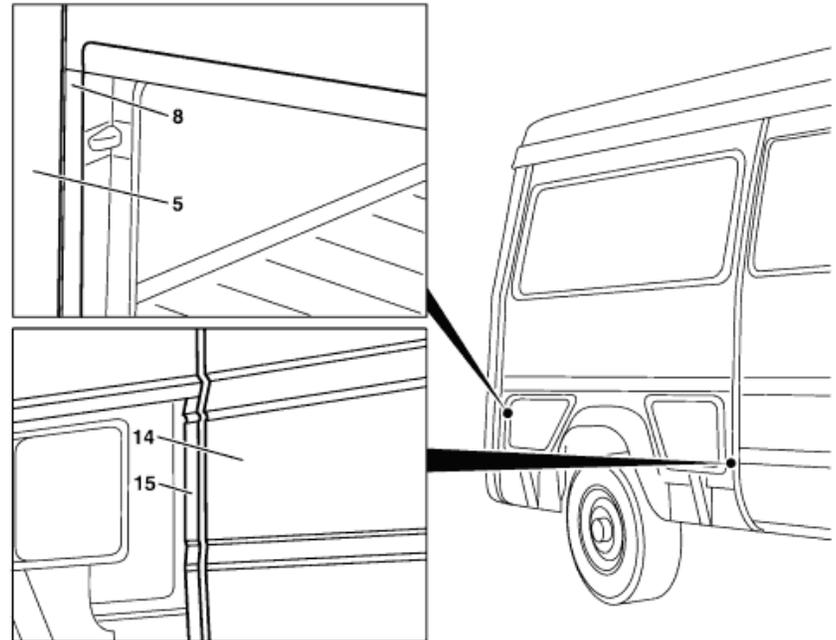
Install

8 Prepare connection points for side wall paneling of right bottom section

Preparing connection points for right side wall paneling bottom section

1 Grind remaining sheet metal (8) back to edge of outer corner pillar paneling (5).

2 Grind remaining sheet metal (15) back to edge of front paneling (14).



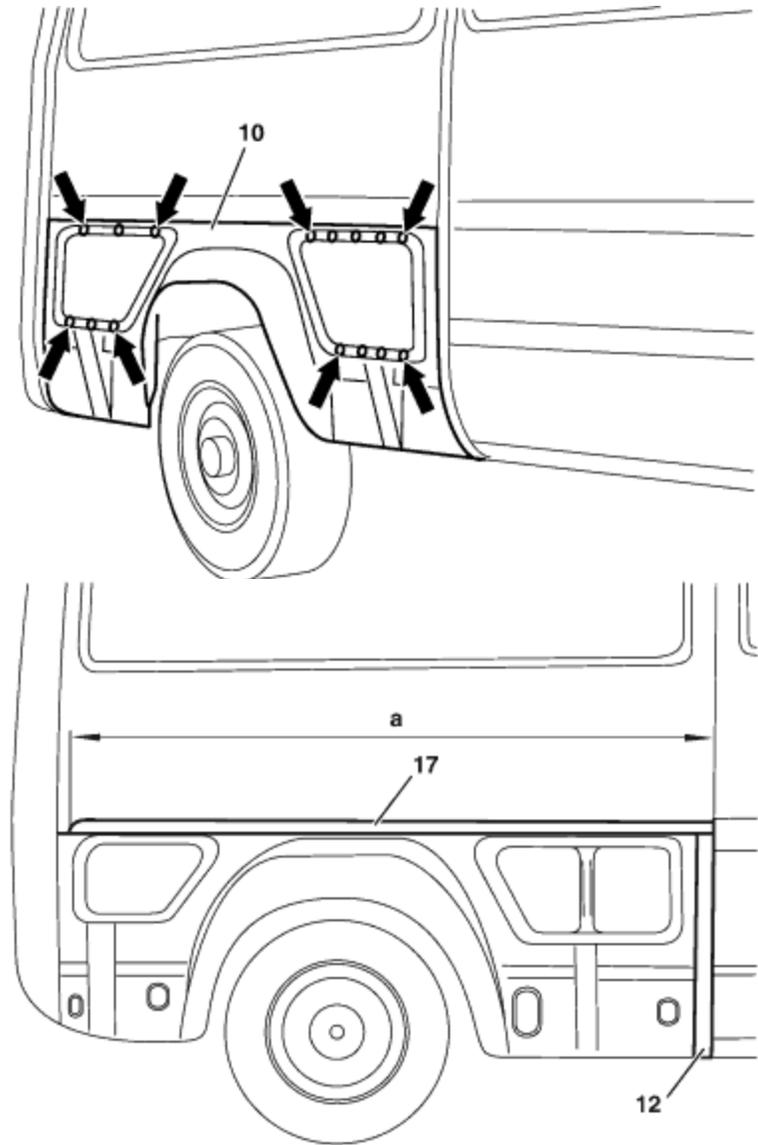
[Return to Index](#)

Perform the following step only when installing side wall paneling at points marked here with plugs welds (1) (SG )

3 Punch 6 mm dia. holes in inner section of side wall paneling (10) and at a maximum hole interval of 95 mm (arrows).

4 Align character ridge (17), grind and coat with zinc dust paint.

5 Measure distance a between C-pillar (12) and end of character ridge (17).



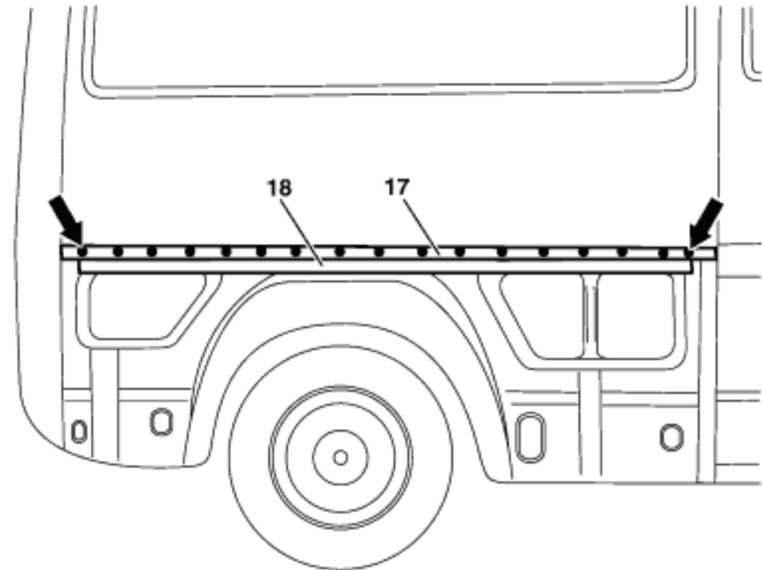
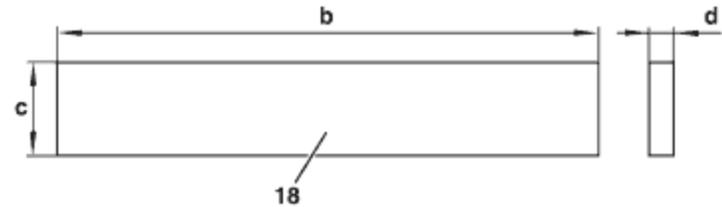
[Return to Index](#)

6 Cut sheet metal strip (18) to size with the following dimensions:

$b = a - 80 \text{ mm}$,
 $c = \text{approx. } 40 \text{ mm}$,
 $d = \text{approx. } 1.5 \text{ mm}$.

7 Grind off sheet metal strips (18) on both sides and coat with zinc dust paint.

8 Spot weld sheet metal strips (18) at character ridge (17), arrows).



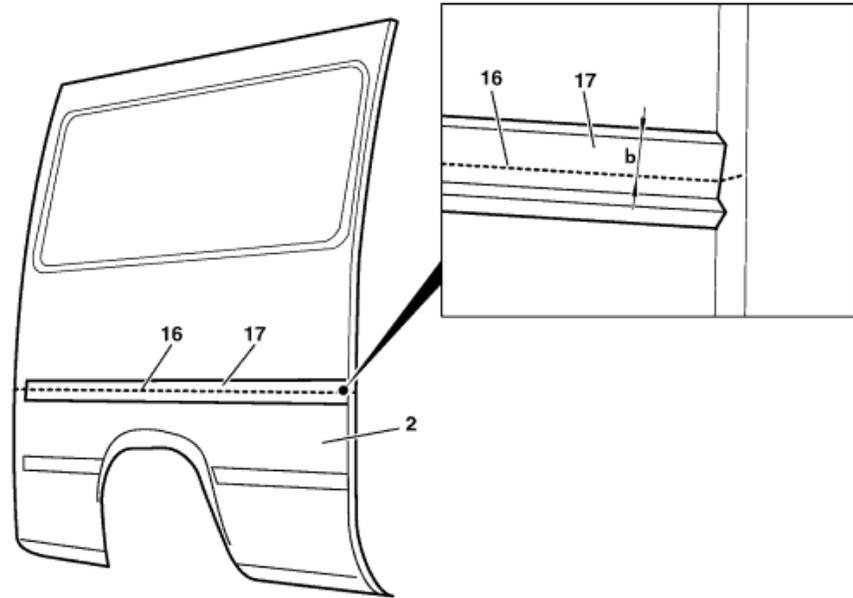
[Return to Index](#)

9 Straighten connecting plates, grind off and coat with zinc dust paint
Zinc dust paint suitable for spot welding

10 Prepare side wall paneling bottom member (1) for installation

Preparing right side wall paneling bottom section for installation

1 Separate side wall paneling (2) in character ridge (17) with the following dimension (dotted line, 16):
a = approx. 35 mm.



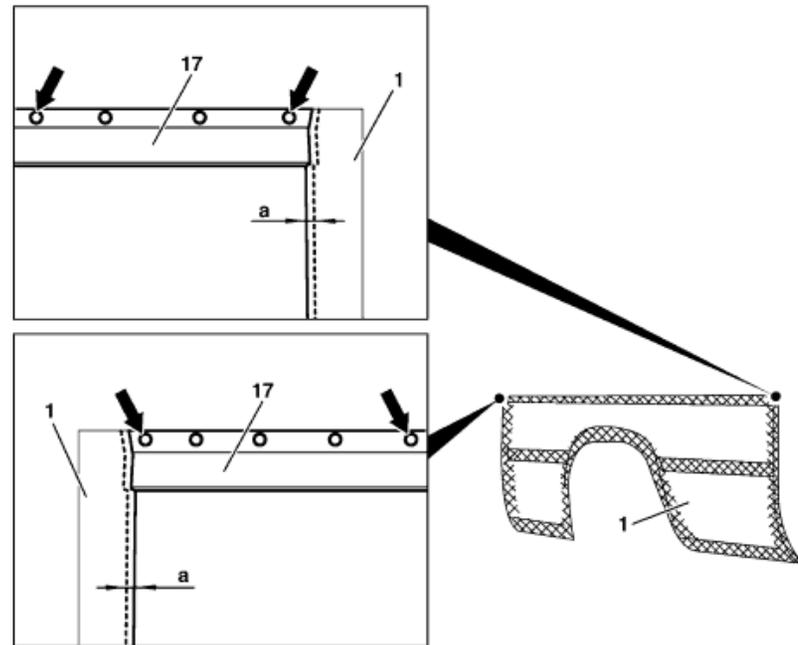
[Return to Index](#)

2 Separate right side wall paneling bottom section (1) along front and rear edge with the following dimension (dotted line):
a = approx. 1 mm.

3 Punch 6 mm dia. holes over entire length of character ridge (17) and at a maximum hole interval of 15 mm (arrows).

4 Grind right side wall paneling bottom section (1) on both sides in marked area and coat with zinc dust paint.

5 Hold right side wall paneling bottom section (1), align and clamp.

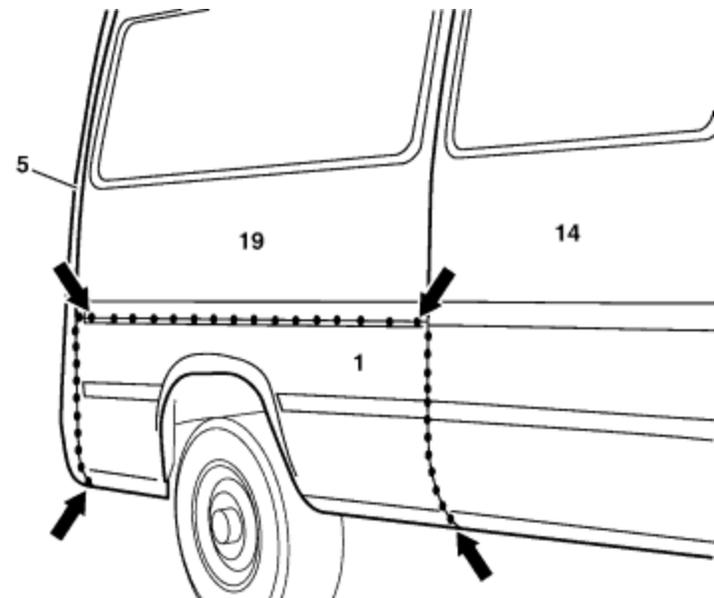
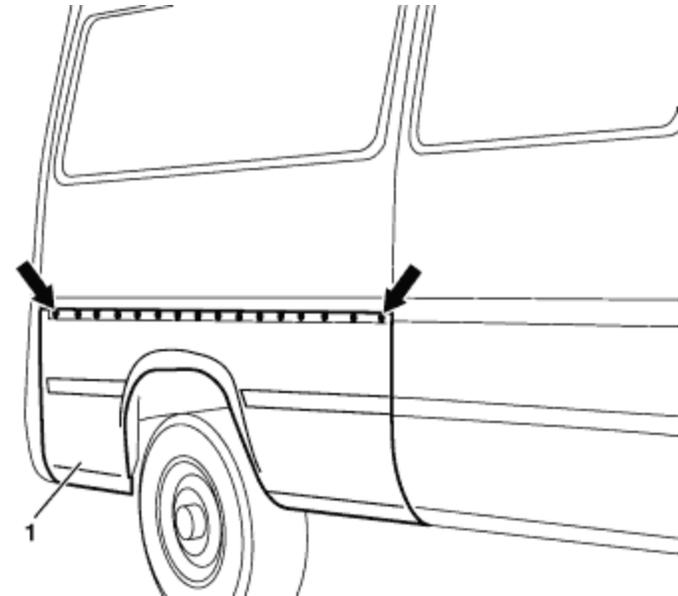


11 Weld in side wall paneling bottom member (1)

Welding in right side wall paneling bottom section

1 Weld right side wall paneling bottom section (1) to sheet metal strip $sg\Phi$, arrows).

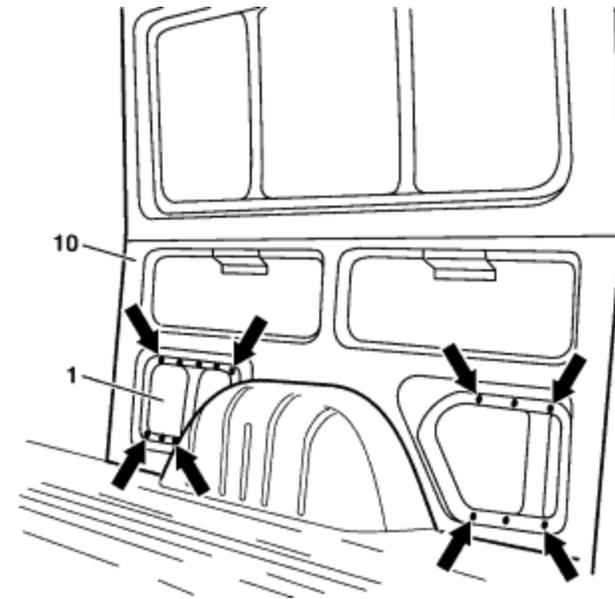
2 Weld right side wall paneling bottom section (1) to side wall paneling upper section (19), outer corner pillar paneling (5) and front paneling (14) $sg\Phi$, arrows).



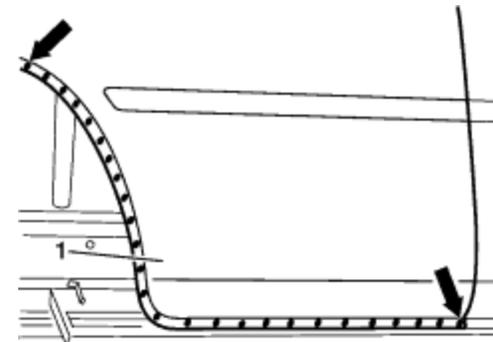
[Return to Index](#)

To prevent sheet metal strips from distorting hold steel or copper block against side wall paneling from outside. Ensure that block (approx. 25 mm x 25 mm x 200 mm) makes contact over entire surface.

3 Weld right side wall paneling bottom section (1) to side wall inner section (10) (**SG**  or **RP** , arrows).

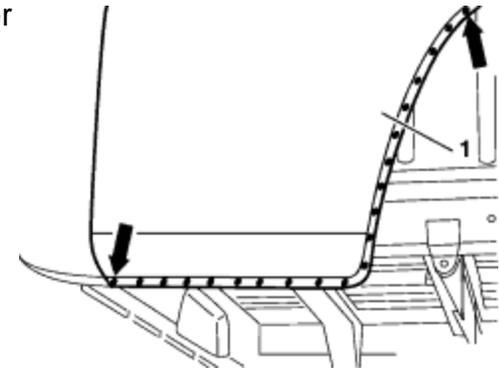


4 Weld right side wall paneling bottom section (1) to longitudinal member and wheelhouse (**RP** , arrows).



[Return to Index](#)

5 Weld right side wall paneling bottom section (1) to rear longitudinal member and wheelhouse (RP , arrows).



12 Grind down extending welding material

13 Tin connection points

14 Vacuum out hollow cavities

Metal filings or metallic grinding dust in cavities can lead to corrosive damage.

Wet/dry vacuum cleaner

15 Clean areas repaired and prime with Mopar or equivalent primer/filler

16 Supplement standard seals with Mopar or equivalent body sealant

Seam sealing after repairs.

17 Add Mopar or equivalent permanent underfloor protection as a supplement to underbody protection installed as standard

[Return to Index](#)

18 Paint repair area and adjacent surfaces

19 Supplement cavity preservation

20 Apply standard sealant between the outside corner pillar paneling and side wall paneling

21 Apply standard sealant between the front paneling and side wall paneling

22 Install side wall paneling

Applies only to vehicles with side wall paneling, Code CTE.

23 Install rear door step

Only with code MBZ, rear door step

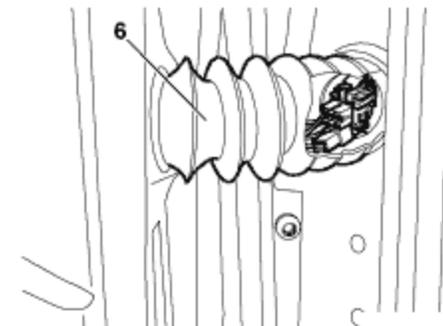
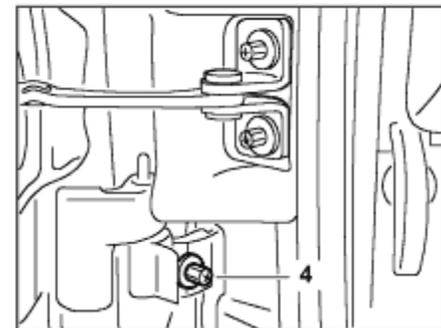
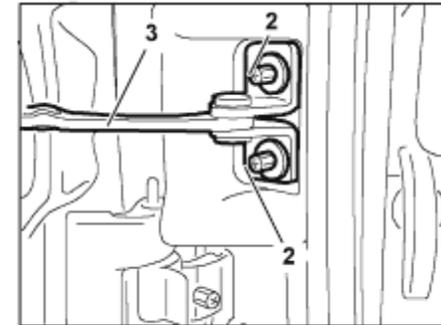
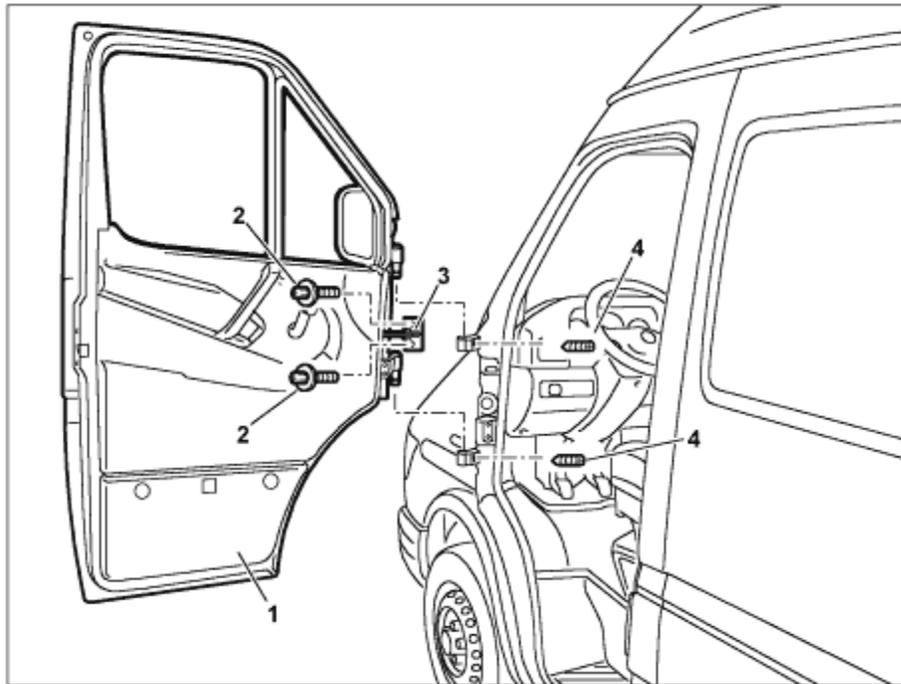
24 Install rear bumper

25 Install rear taillamp

26 Reinstall miscellaneous detachable body components

[Return to Index](#)

Remove



1 Remove right front door

Remove/install hinged door

[Return to Index](#)

Remove/Install

1.1 Remove bellows (6) from A-pillar and disconnect electrical connectors
With code FZ0/FZ1, central locking and/or code F68, electric rearview mirror and/or code V50, power window

2 Unscrew door catch strap (3)

Installation: Insert M6 torx bolts (2) with adhesive, replace M8 Adhesive

3 Unscrew hexagon socket head screw (4) from door hinges

4 Lift out hinged door (1)

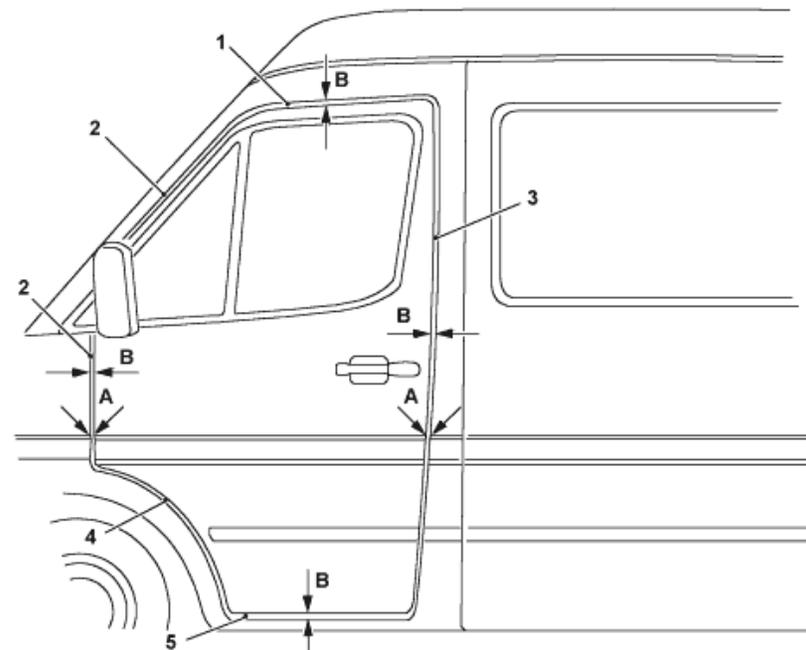
5 Install in the reverse order

6 Adjust hinged door

Adjusting hinged door

A Ridge pattern
B Door gap

- 1 Door gap at top
- 2 Door gap on A-pillar
- 3 Door gap on B-pillar
- 4 Door gap on wheelhouse
- 5 Bottom door gap



[Return to Index](#)

Adjusting

1 Check gaps and ridge pattern on hinged door all the way around

Ridge transitions flush without offset.

2 Adjust door gap and ridge pattern

Door gap B and ridge pattern A

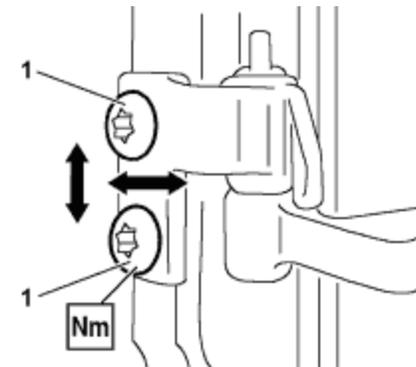
Adjust door gap and ridge pattern for hinged door

- 1 Unscrew Torx screws (1) from door hinges.
- 2 Adjust door gap by vertically and horizontally adjusting door.
- 3 Adjust ridge pattern by vertically adjusting door.
- 4  Tighten Torx screws (1).

3 Adjust installation depth

Adjust front door contour transitions flush up to max. 1 mm recessed, at rear with 1 mm overlap (wind noises) Rotary tumbler should engage in the center of the striker eye.

Adjust installation depth of hinged door



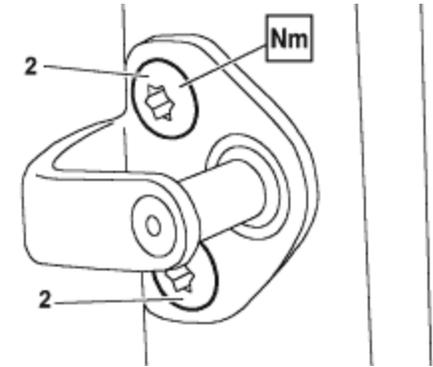
[Return to Index](#)

A B-pillar

- 1 Loosen Torx screws (2).
- 2 Adjust installation depth by horizontally adjusting striker pin.

Adjust door flush to max. 1 mm extension.
Rotary tumbler should engage in center of striker pin

- 3  Tighten Torx screws (2).



B A-pillar

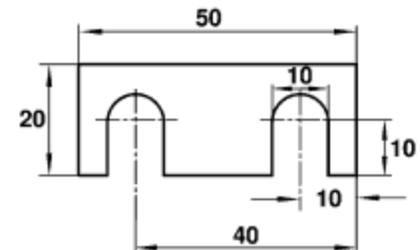
Adjust only if door extends too far outside at upper A-pillar.

Unscrew outside rearview mirror.

Loosen upper hinge and shim with 1 mm thick shop-made stainless steel plate (as shown in drawing)

Tighten hinge and screw on mirror.

- 2 Remove passenger door seal
- 3 Remove front entrance paneling
- 4 Remove right rear door
- 5 Remove right rear door seal
- 6 Remove rear door sill paneling



[Return to Index](#)

7 Remove inner B-pillar paneling

8 Remove miscellaneous detachable body components in repair area

9 Cover all detachable parts remaining in area to be repaired.

10 Remove outer door sill on right rear door

11 Separate right B-pillar paneling (1)

Install

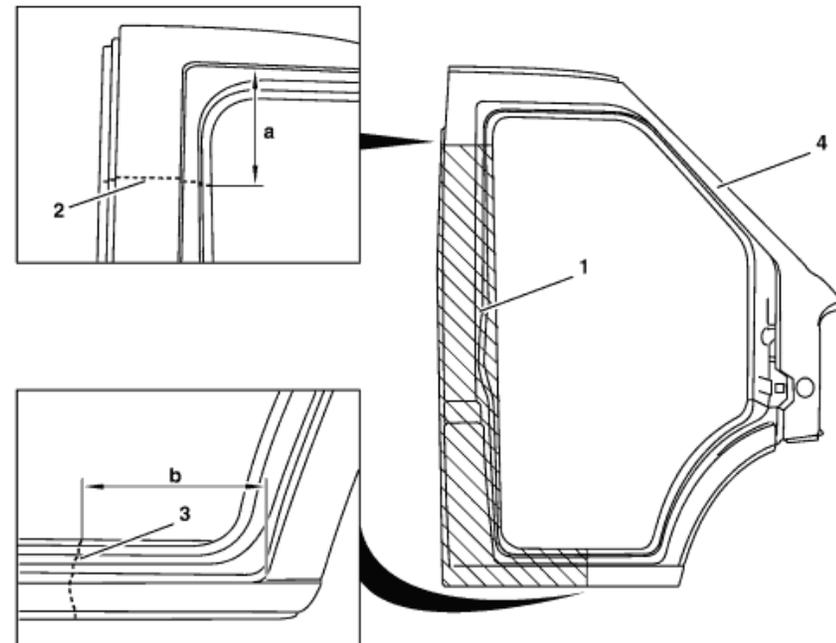
12 Straighten connecting plate, grind off and coat with zinc dust paint
Zinc dust paint suitable for spot welding

13 Prepare right B-pillar paneling (1) for installation

1 Mark separation lines (dotted lines, 2 and 3) on door frame paneling (4) with the following dimensions:

a = approx. 200 mm,
b = approx. 260 mm.

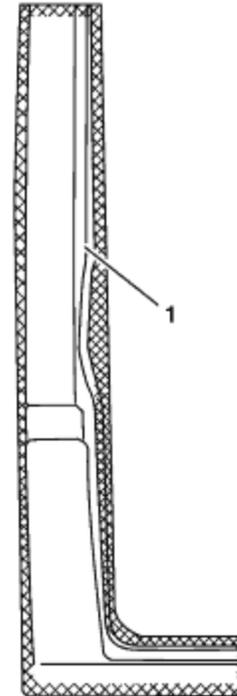
2 Separate right B-pillar paneling (1) along marked separation lines (dotted lines, 2 and 3).



[Return to Index](#)

3 Grind down paneling (1) in marked area on both sides and coat with zinc dust paint.

4 Position paneling (1), align and clamp in place.

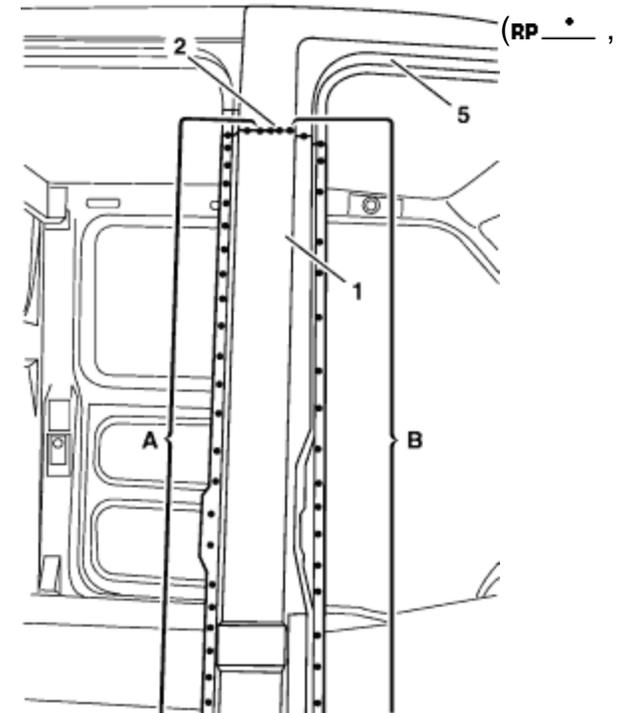


[Return to Index](#)

14 Weld in right B-pillar paneling (1)

1 Spot weld right B-pillar paneling (1) at B-pillar inner section areas A and B).

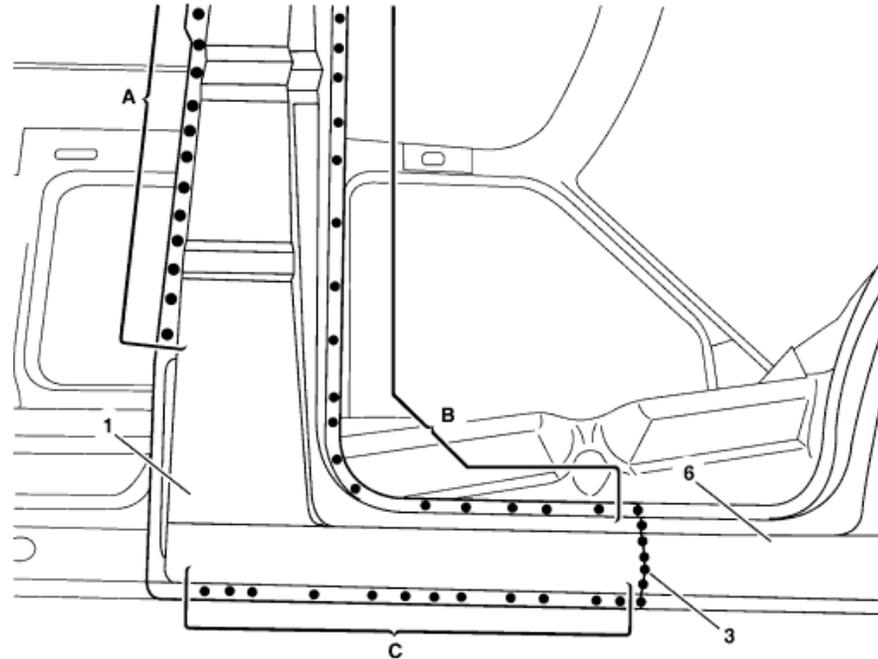
2 Weld paneling (1) to paneling upper section (5) (SGΦ, 2).



[Return to Index](#)

3 Spot weld paneling (1) to B-pillar inner section and inner entry (**RP** $\overline{\text{---}}$, areas A, B and C).

4 Weld paneling (1) to paneling front section (6) (**SG** Φ , 3).



15 Install outer door sill on right rear door

16 Grind down extending welding material

17 Vacuum out hollow cavities

 Metal filings or metallic grinding dust in cavities can lead to corrosive damage.

Wet/dry vacuum cleaner

[Return to Index](#)

18 Clean areas repaired and prime with Mopar or equivalent priming filler

19 Supplement standard seals with Mopar or equivalent body sealing compound
Body seam sealing following repairs

20 Add Mopar or equivalent permanent underfloor protection as a supplement to underbody protection installed as standard

21 Paint repair area and adjacent surfaces

22 Supplement cavity preservation

23 Install inner B-pillar paneling.

24 Install rear door seal

25 Install rear door sill paneling

26 Install right rear door

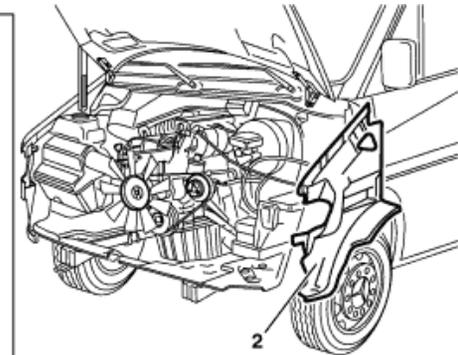
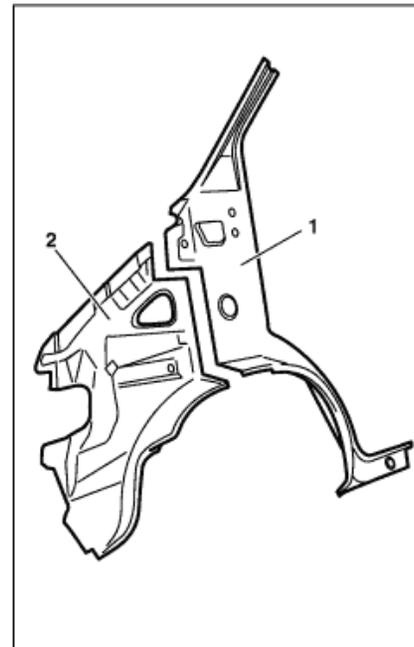
[Return to Index](#)

Partially remove/install A-pillar inner section

Illustration shows repair of left A-pillar inner section

1 A-pillar inner section

2 A-pillar inner section



[Return to Index](#)

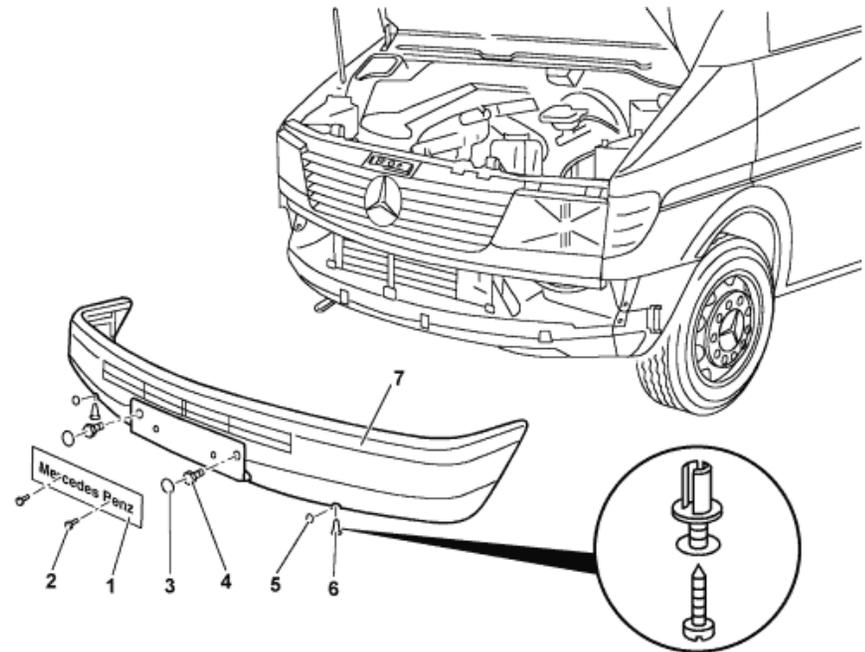
Remove

The repair description applies also for use on the right-hand side of the vehicle

1 Remove front bumper

Removing and installing front bumper

- 1 License plate
- 2 Phillips screws
- 3 Cover
- 4 Collared bolts
- 5 Cover
- 6 Expanding rivet
- 7 Bumper



[Return to Index](#)

Removing, installing

1 Unscrew license plate

2 Remove covers (3) and unscrew collared bolts (4)

Installation: Replace micro-encapsulated collared bolts (M8)

3 Remove covers (5) and pull out expanding rivet (6)

Pull out rivet by screwing a sheet metal screw (M4.2x30 or longer) into the expanding rivet.

Installation: Replace expanding rivet

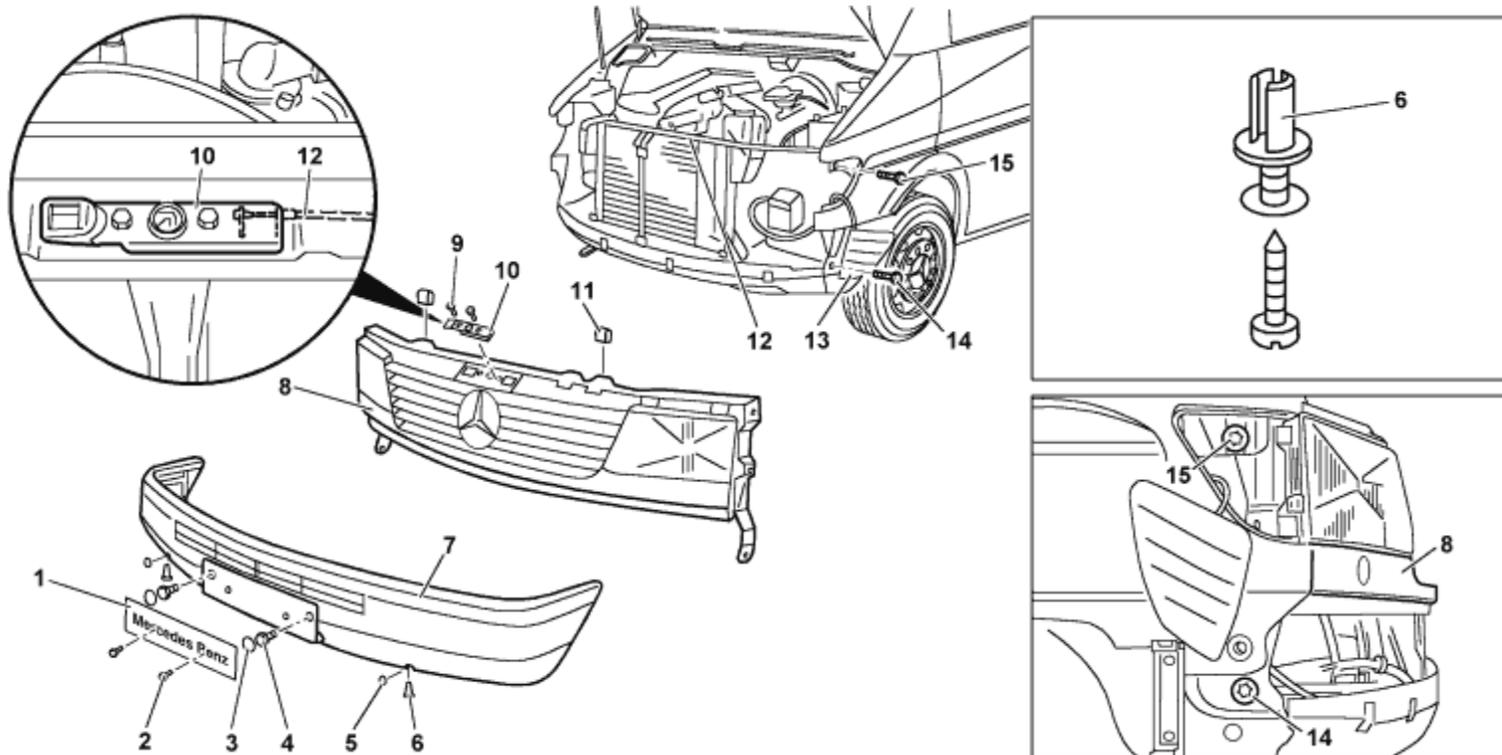
4 Remove bumper (7)

5 Install in the reverse order

2 Remove front end center section

[Return to Index](#)

Detaching and attaching front section center assembly



1 License plate

2 Philips screws

3 Cap

4 Collar bolt (micro-encapsulated)

5 Cap

6 Spreading rivet

7 Bumper

8 Front section center assembly

9 Collar bolt

10 Hood lock

11 Radiator mount

12 Hood pull cable

13 Turn signal lamp

14 Hex. head bolt

15 Hex. head bolt

[Return to Index](#)

Removal, installation

1 Remove bumper

2 Unscrew bottom section of hood lock (10)

Installation: Check and grease hood lock

3 Unhook hood pull cable (12)

4 Remove radiator mounts (11) in direction of arrow

5 Remove turn signal lamp

6 Pull vacuum hose and connector off of headlamp

7 Screw bottom (14) and top (15) fitting off of front section center assembly (8)

8 Remove front section center assembly

9 Reinstall in opposite order

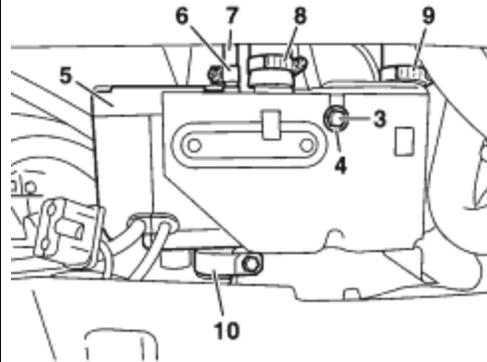
Installation: Use new cable straps and other ties

3 Remove heater unit

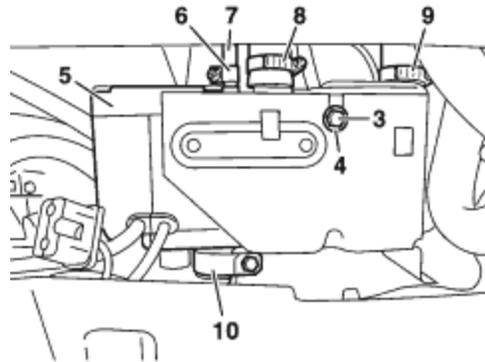
Only on vehicles with heater, code HDB

[Return to Index](#)

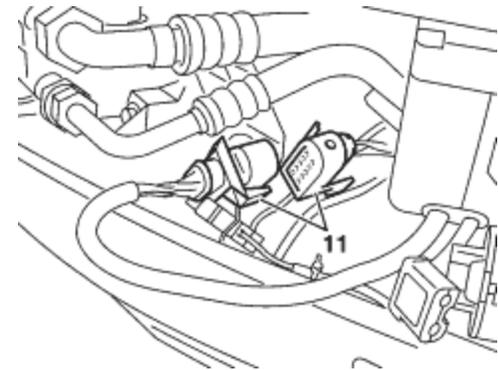
Remove/install heater



- 1 Coolant hose
- 2 Coolant hose
- 3 Bolt
- 4 Washer



- 5 Heater unit
- 6 Hose clamp
- 7 Fuel pipe
- 8 Hose clamp



- 9 Hose clamp
- 10 Clamp
- 11 8-pin connector

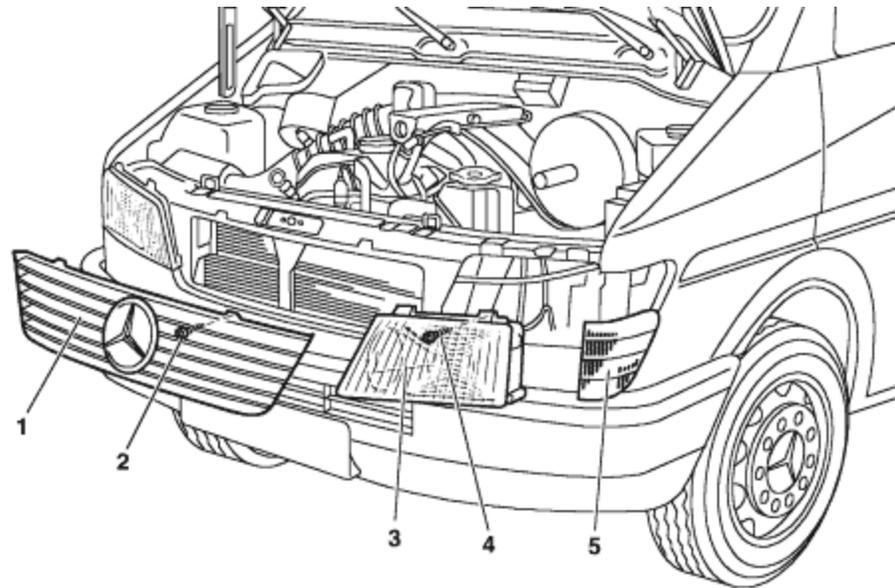
[Return to Index](#)

Remove/install

1 Remove left front headlamp

Removing and installing headlamp

- 1 *Decorative grille*
- 2 *Philips screw*
- 3 *Headlamp*
- 4 *Philips screw*
- 5 *Turn signal lamp*



Removal, installation

- 1 Open engine hood.
- 2 Unscrew Philips screws (2), remove decorative grille (1).
- 3 Remove turn signal lamp (5).

[Return to Index](#)

Removing and installing turn signal lamp

- 1 Turn signal lamp
- 2 Socket

Working instructions

Open engine hood.

Release retainer (3), pull out turn signal lamp (1) together with socket (2).

4 Disconnect connector and vacuum hose on rear of headlamp.

5 Unscrew Philips screws (4) and remove headlamp (3).

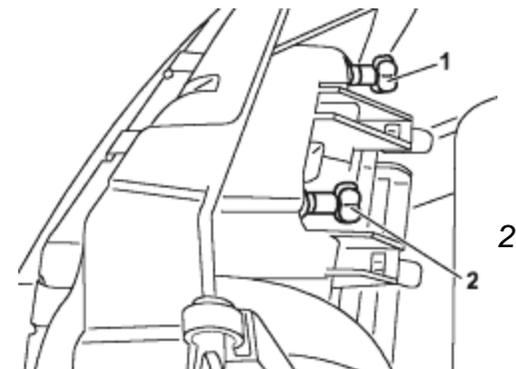
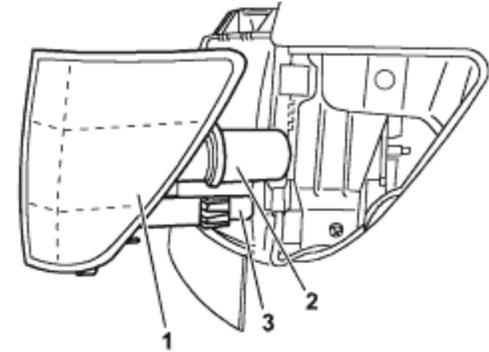
6 Reinstall in opposite order.

Installation ↓

Check headlamp adjustment

Check and correct headlamp adjustment

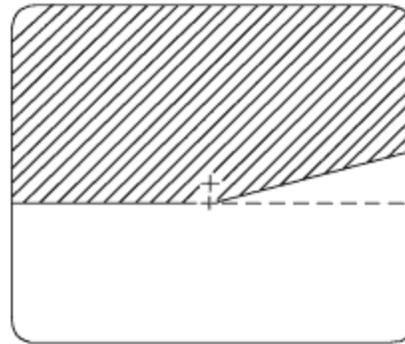
- 1 *Adjusting device, horizontal*
- 2 *Adjusting device, vertical*



[Return to Index](#)

Picture on left: Shape of light/dark limit of low beam with adjusted reflector

Picture on right: Shape of light/dark limit of fog lamp with adjusted reflector.



Prerequisites for testing:

- 1 Drive vehicle onto a level surface.

Vehicle should be in the ready-to-drive state (curb weight, fuel reservoir full or corresponding additional weight).

Load driver seat with 165 LBS.



Inspect

- 2 Switch on low beam or fog lamp.
- 3 Headlamp range adjustment switch on position 0.
- 4 Open hood.
- 5 Align and adjust headlamp aimer in accordance with the operating instructions.
- 6 The reflector is adjusted by rotating the adjusting device

[Return to Index](#)

- 1 = Horizontal
- 2 = Vertical

2.1 Remove headlamp cleaning system
With headlamp cleaning system Code F46.

3 Remove front bumper

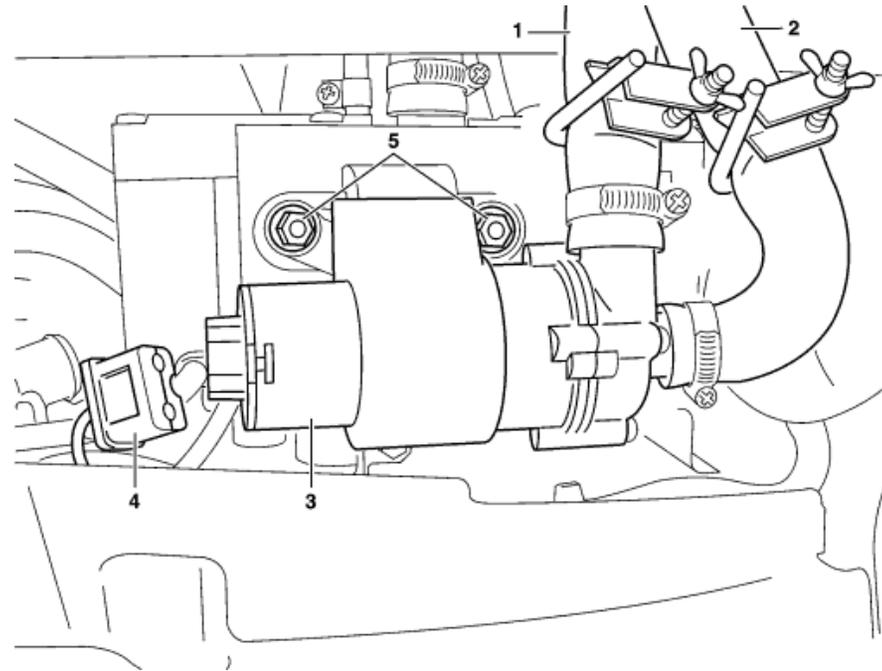
4 Pinch off coolant hoses (1, 2)

5 Remove circulation pump from heater bracket

Place circulation pump to one side. Do not disconnect the hoses.

Remove/install coolant circulation pump

- 1 *Coolant hose*
- 2 *Coolant hose*
- 3 *Circulation pump*
- 4 *Connector*
- 5 *Nut*



[Return to Index](#)

Remove/Install

1.1 Remove front bumper

Models 901.0/3/4, 902.0/3/4, 903.0/3/4, 904.0/3/4

1.2 Remove front grille

Models 901.6, 902.6, 903.6, 904.6 up to model year 2003

Models 901.6, 902.6, 903.6, 904.6 as of model year 2003

Remove/install front grille

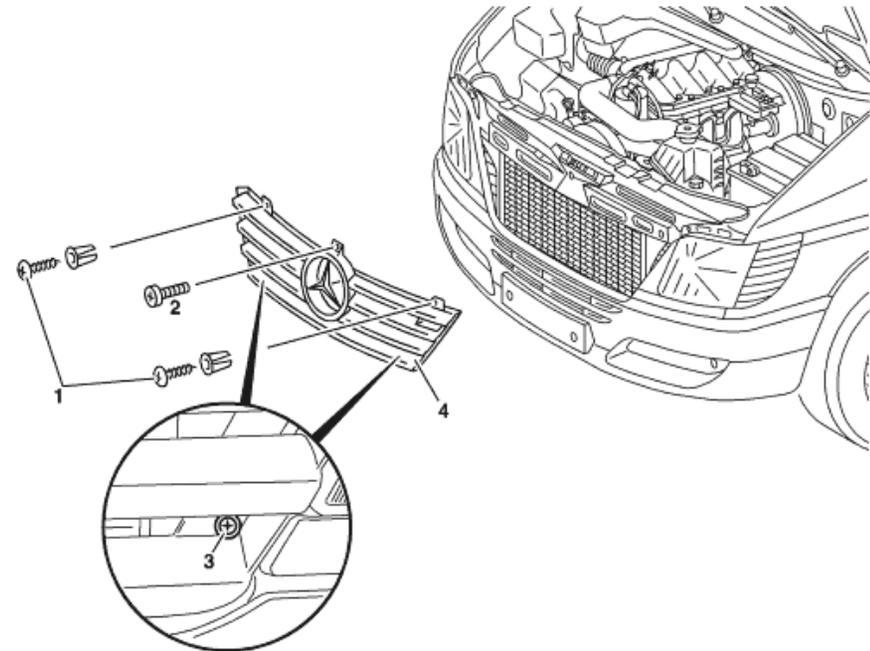
1 Rivet

2 Bolt

3 Bolt

4 Front grille

MODEL 901.6, 902.6, 903.6, 904.6
up to model year 2003



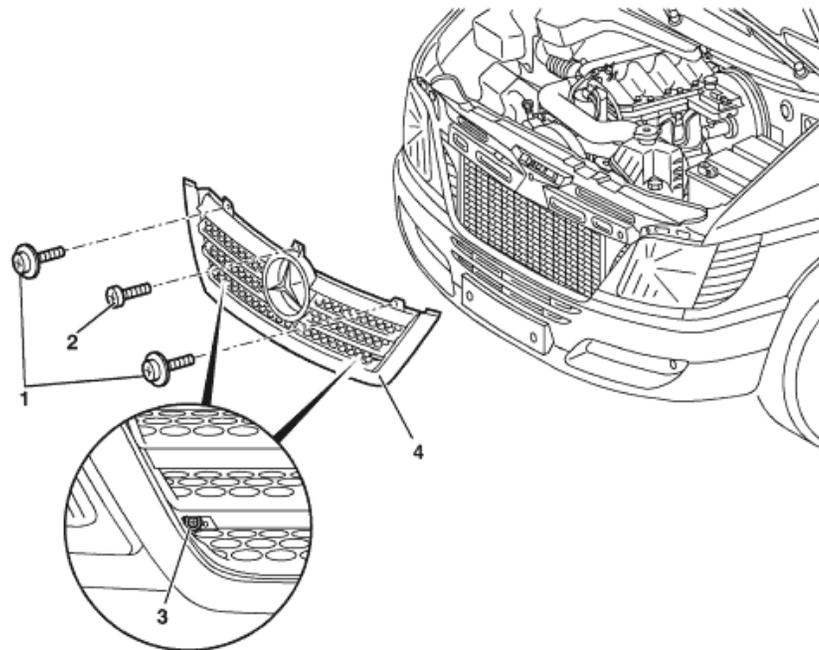
[Return to Index](#)

Remove/Install

- 1 Take off rivet (1) on left and right
- 2 Slacken screw (3)
Do not remove.
- 3 Unscrew screw (2)
- 4 Lift front grille (4) up and out
- 5 Install in the reverse order

MODEL 901.6, 902.6, 903.6, 904.6
as of model year 2003

- 1 Bolt
- 2 Bolt
- 3 Bolt
- 4 Front grille



[Return to Index](#)

Remove/Install

1 Take off screw (1) on left and right

2 Slacken screw (3)
Do not remove.

3 Unscrew screw (2)

4 Lift front grille (4) up and out

5 Install in the reverse order
Observe gap all the way round.

2.1 Remove left headlamp

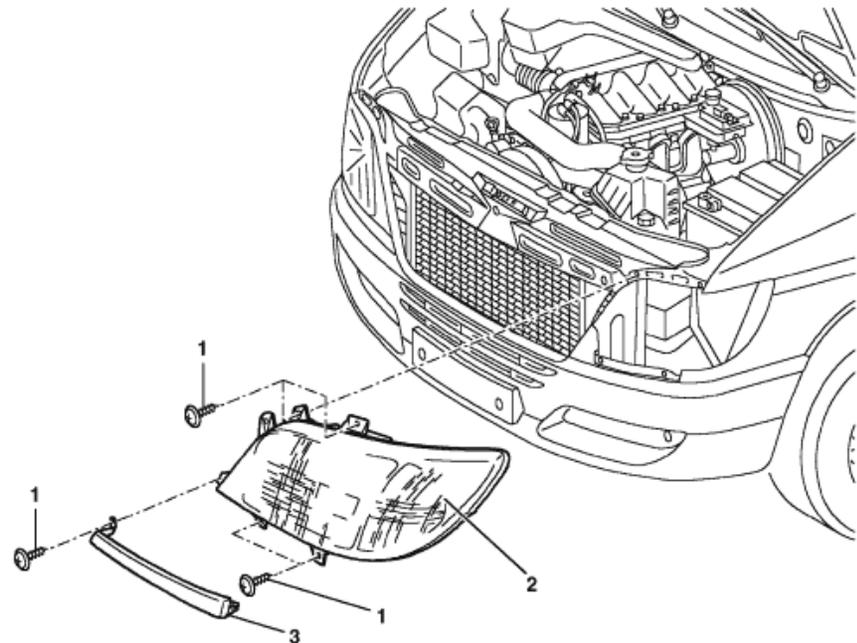
Models 901.6, 902.6, 903.6, 904.6

Remove/install headlamps

1 Philips screw

2 Headlights

3 Cover



[Return to Index](#)

Remove/Install

1 Remove front grille

Up to model year 2003

As of model year 2003

2 Unscrew cover (3)

3 Release connector at rear of headlamp and unplug

4 Take out Phillips screws (1), remove headlamp (2)

5 Install in the reverse order

Installation↓

Check headlamp adjustment

3 Pinch off coolant hoses (1, 2)

4 Disconnect electrical connector (4) from circulation pump (3)

5 Disconnect coolant hoses (1, 2) from circulation pump connecting pipes

Collect escaping coolant in a clean vessel.

Installation: pour any escaped coolant back into coolant and heater circuit after installation of the circulation pump.

6 Unscrew nuts (5).

7 Remove circulation pump (3) from heater unit bracket

8 Install in the reverse order

[Return to Index](#)

⚠ Danger!

Risk of accident from vehicle starting off by itself when engine running.

Risk of injury as working around the engine during startup or while running may result in contusions and burns

Secure vehicle to prevent it from moving off by itself.

Wear closed and snug-fitting work clothes.

Do not grasp hot or rotating parts.

9 Start engine and bleed cooling and heating system.

Allow engine to warm up for approx. 1 min at alternating speeds.

10 Switch off engine

11 Check coolant and top up if necessary

12 Check coolant hoses on circulation pump for signs of leaks

13 Check auxiliary heater for proper operation

6 Detach coolant hoses (1, 2) from heater connecting pipes

Collect escaping coolant in a clean vessel.

7 Remove fuel line (7) from heater unit

Seal fuel line using a suitable plug

8 Release clamp (10) for exhaust-gas line

9 Remove exhaust-gas line from heater

10 Unplug 8-pin connector (11)

[Return to Index](#)

11 Undo screws (3) and remove heater unit (5)

12 Install in reverse order

13 Start engine and bleed cooling and heating system.

Allow engine to warm up with alternating speeds for approx. 1 minute.

Top up coolant continuously up to top mark in the coolant expansion tank.

14 Switch off engine

15 Check for leaks on coolant hose connections

16 Check auxiliary heater for proper operation

4 Remove battery

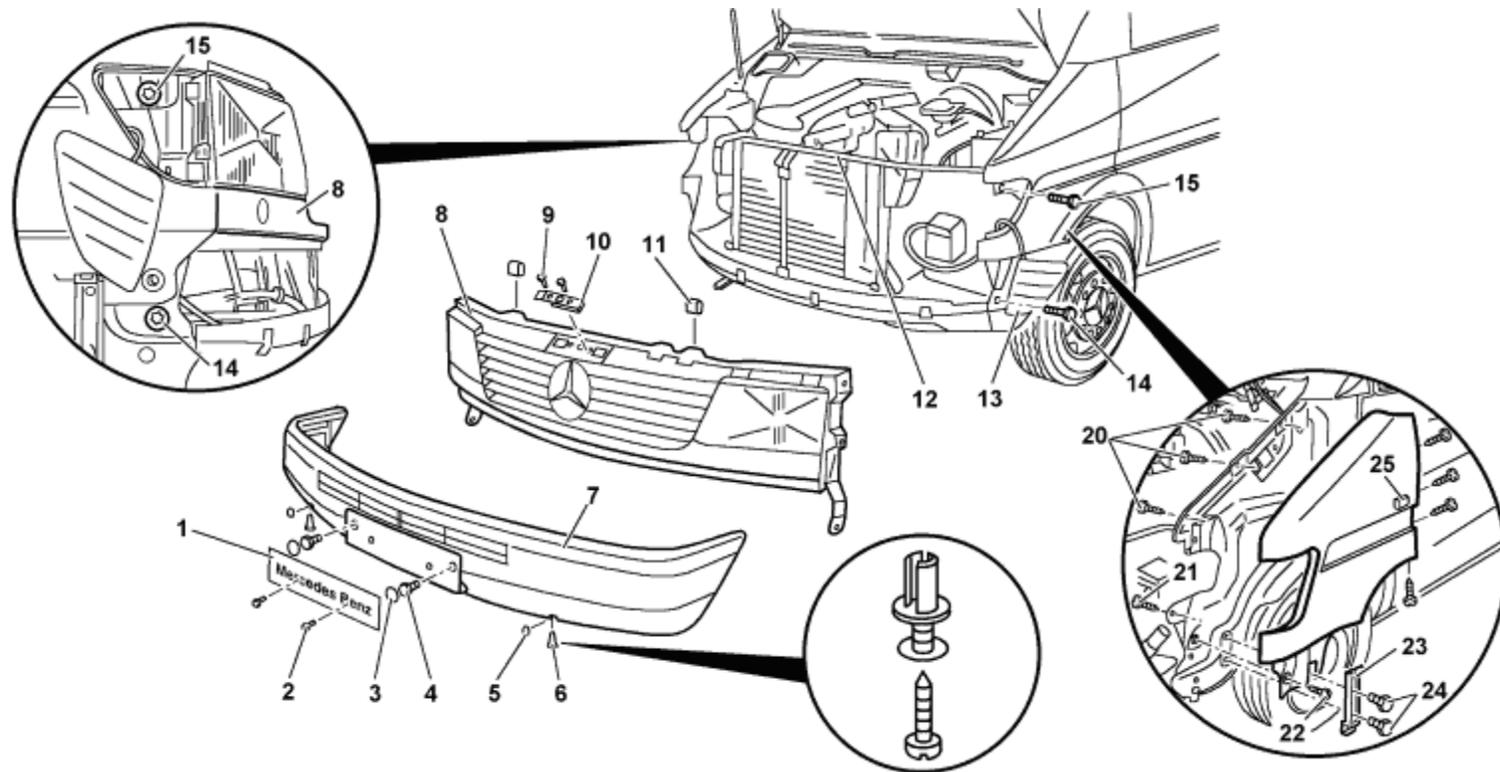
5 Remove battery tray

6 Remove engine control module with mount

7 Remove front-end paneling

[Return to Index](#)

Removing and installing front end paneling



[Return to Index](#)

Removal, installation

- 1** Remove front bumper
- 2** Remove turn signal lamps and front end center element (a) with head lamps
- 3** Unscrew bolts (7) on A-pillar
- 4** Remove sealant (18) between wheelhouse and fender
- 5** Unscrew bolts (19, 20, 21 and 22)
- 6** Drill out spreading pins (24) and pull off bumper mount (23)
- 7** Pull connector off of auxiliary turn signal lamp
- 8** Remove fender
Remove sealant residues.
- 9** Reinstall in opposite order
Before installing spray fender on inside with underbody protection agent.
Seal inside of fender at wheel well and wheel well transition

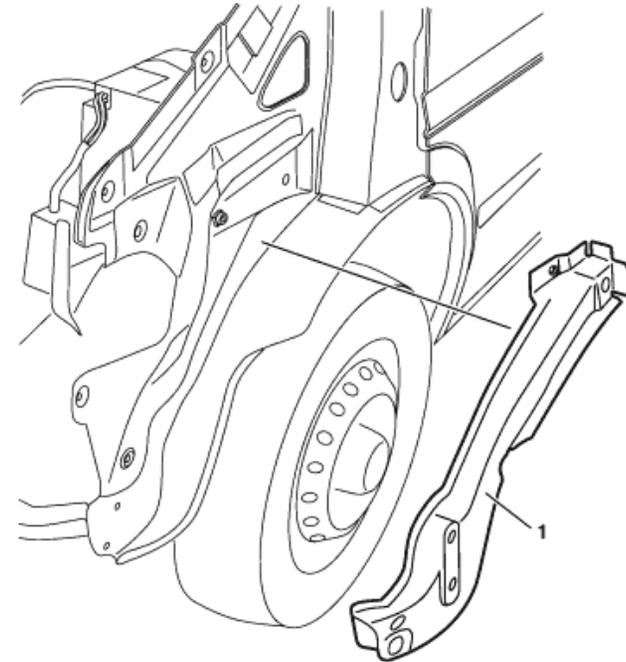
[Return to Index](#)

8 Remove wheel arch flaring

Remove/install wheel arch flaring

Repair illustrated on left wheel flange

1 Wheel flange



Remove

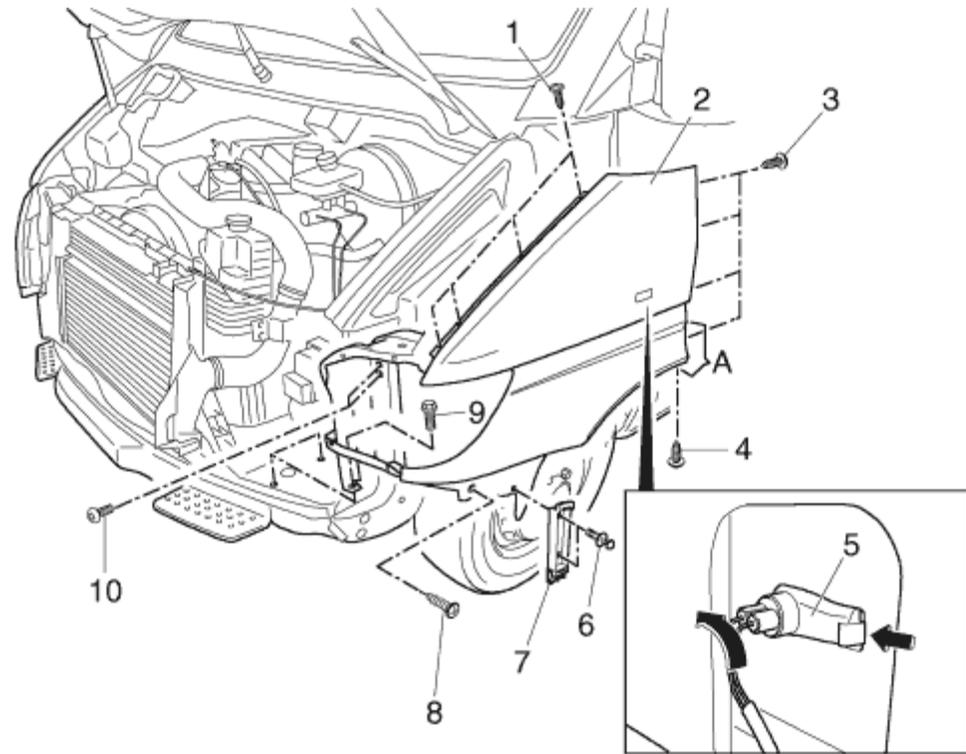
1 Remove front-end paneling

Removing and installing front end paneling

MODELS 901.6, 902.6, 903.6, 904.6

[Return to Index](#)

- 1 Philips screw
- 2 Front end paneling
- 3 Philips screw
- 4 Philips screw
- 5 Auxiliary turn signal lamp
- 6 Body-bound rivet
- 7 Bracket
- 8 Philips screw
- 9 Hexagon bolt
- 10 Internal torx bolt



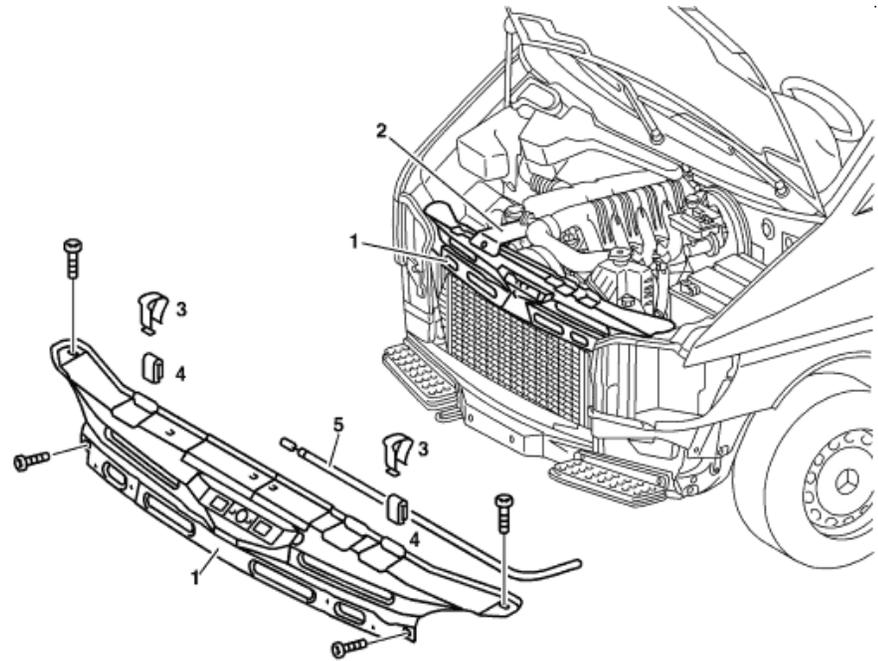
Removing, installing

- 1 Remove front bumper
- 2 Remove front grille
- 3 Remove lock cross member

[Return to Index](#)

Remove/install lock cross member

- 1 Lock cross member
- 2 Heat shield
- 3 Retaining clamp
- 4 Rubber bushing
- 5 Hood release cable



Remove/Install

- 1 Remove front grille
Up to model year 2003
As of model year 2003
- 2 Remove heat guard (2)
- 3 Take off retaining clamps (3) and rubber bushing (4)
- 4 Unscrew bolts from lock cross member (1)
- 5 Remove lock cross member (1) and unhook hood release cable (5)
- 6 Install in the reverse order

[Return to Index](#)

4 Remove headlamp

5 Unclip auxiliary turn signal lamp (5) (arrow). Disconnect connector and remove

6 Pull out spreading rivet (6) and remove bumper support (7)

7 Remove sealant between area (A) of wheelhouse and front end paneling

Installation: Replace sealant

Mopar or equivalent body sealant for sealing seams
(suitable for painting)

8 Unscrew screws (3) from A-pillar

9 Unscrew screw (4) from wheelhouse

10 Unscrew screws (8, 9, 10)

11 Remove front end paneling (2)

Remove sealant residues

12 Install in the reverse order

Before installing inner front end paneling coat with underbody protection agent
Observe uniform gap to engine hood.

2 Remove miscellaneous detachable body components in repair area

3 Cover all detachable parts remaining in area to be repaired

4 Separate wheel flange (1)

[Return to Index](#)

Cut out spot welds

5 Straighten connecting plates, grind off and coat with zinc dust paint

Zinc dust paint for spot welding

Install

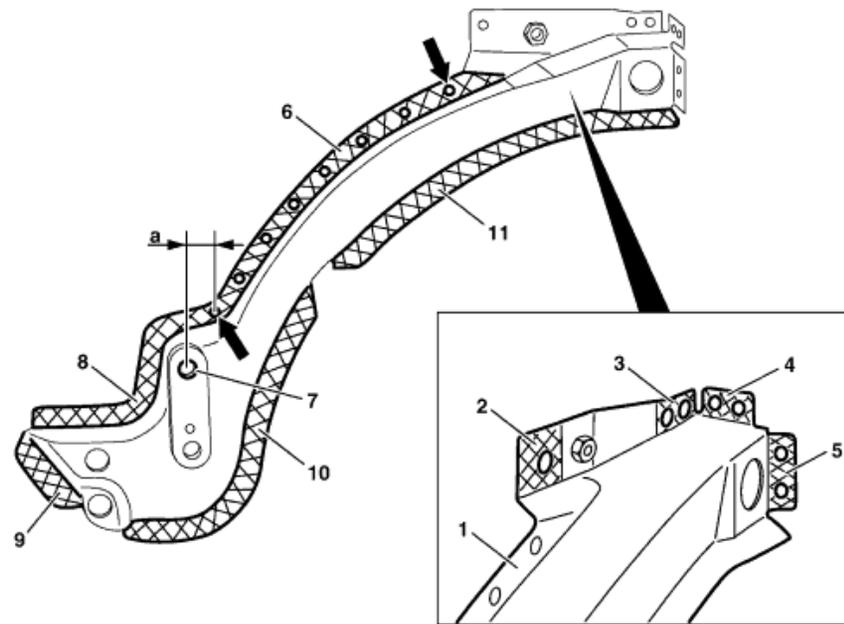
6 Prepare wheel flange (1) for installation

1 Punch 1 hole with Ø 6 mm in area (2).

2 Punch two 6 mm dia. holes in areas (3, 4 and 5).

3 Punch 7 holes with diameter of 6 mm at max. hole interval of $a = 20$ mm in area (6) with distance of $a = 20$ mm (arrows) Ø .

4 Grind wheel flange (1) down to bare metal on both sides in marked areas (2, 3, 4, 5, 6, 8, 9, 10 and 11) and coat with zinc dust paint.

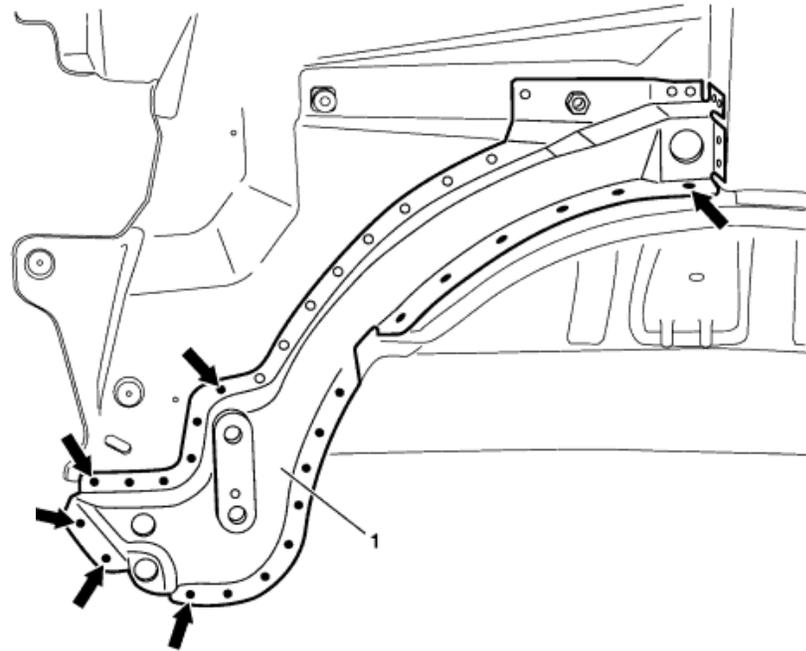
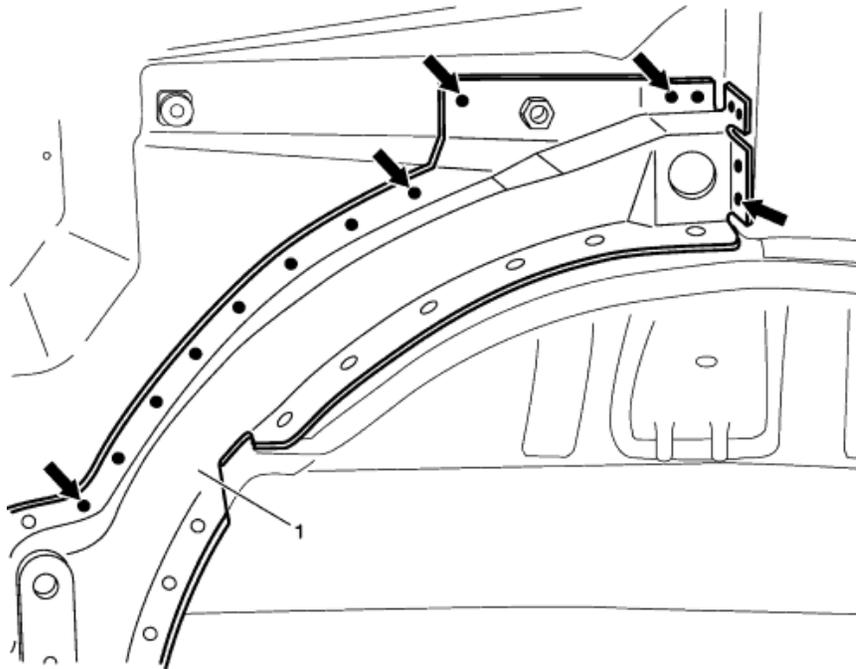


[Return to Index](#)

7 Fit wheel flange (1), align and clamp in place

8 Weld in wheel flange (1)

1 Weld wheel flange (1) to wheelhouse and cross member (RP , arrows).



[Return to Index](#)

9 Grind down extending welding material

10 Vacuum out hollow cavities

Metal filings or metallic grinding dust in cavities can lead to corrosive damage.

Wet/dry vacuum cleaner

11 Clean areas to be repaired with Mopar or equivalent primer/filler

12 Supplement standard seals with Mopar or equivalent body sealant

Seam sealing after repairs

13 Add Mopar or equivalent permanent underfloor protection as a supplement to underbody protection installed as standard

14 Paint repair area and adjacent surfaces

15 Supplement cavity preservation

16 Install front-end paneling

Model 901.0/3/4, 902.0/3/4, 903.0/3/4, 904.0/3/4

Model 901.6, 902.6, 903.6, 904.6

17 Reinstall all detachable body components removed

9 Remove miscellaneous detachable body components in repair area

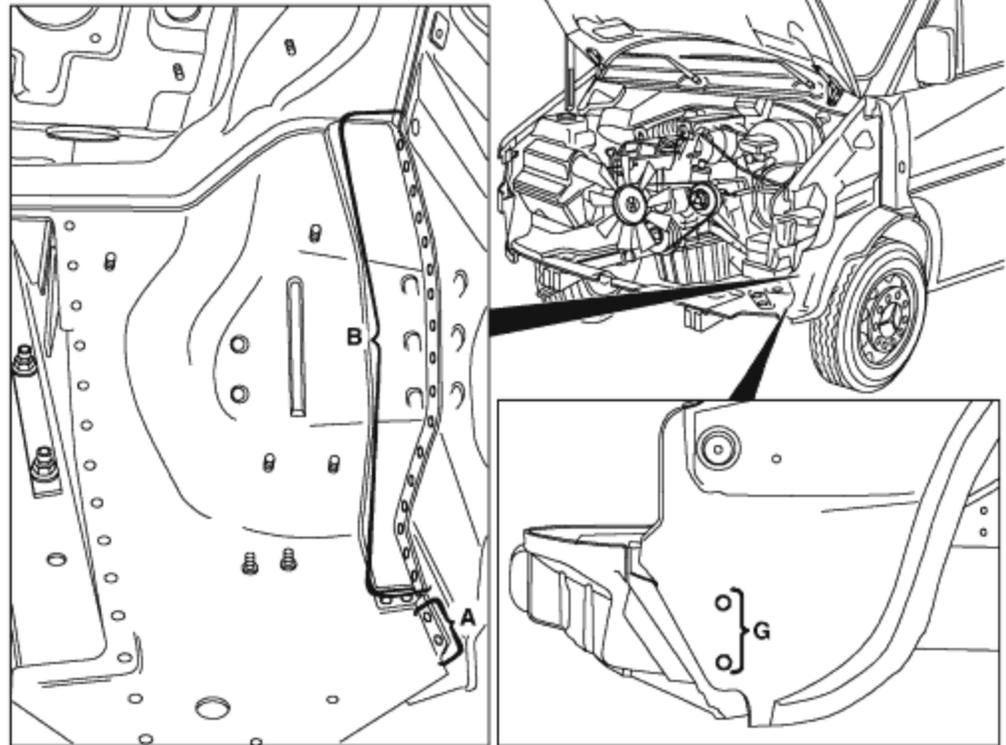
10 Cover all detachable body components remaining in area to be repaired

11 Separate part of inside section of A-pillar (2)

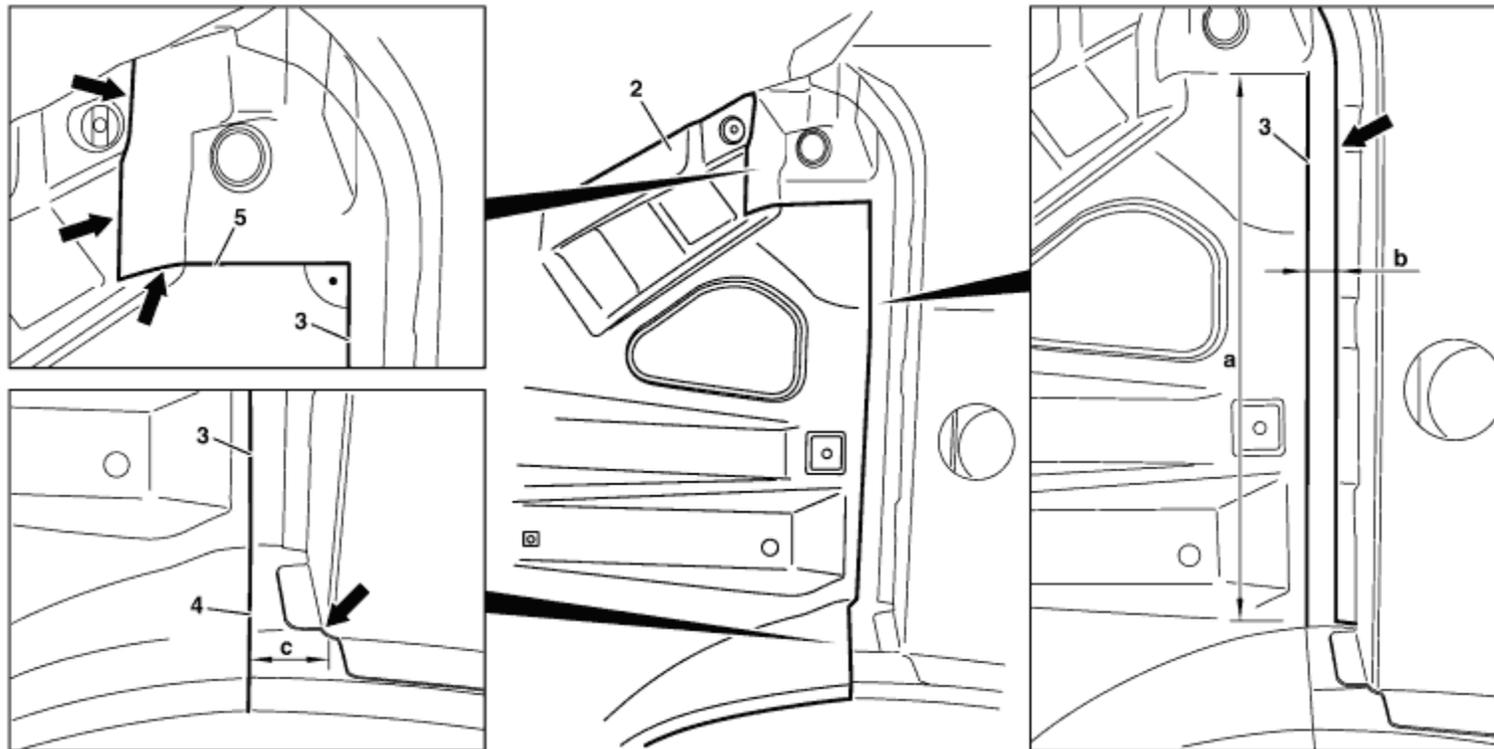
[Return to Index](#)

Cutting out inside section of A-pillar

1 Expose and mill off weld spots in the areas (A, B and G).



[Return to Index](#)



2 Draw parting line (3) of length a = approx. 340 mm, measured at a distance b=25 mm from the edge (arrow), on the body.

3 Draw parting line (4) at distance c = approx. 40 mm, measured from the edge (arrow).

4 Draw parting line (5) at 90° angle to parting line (3) and along the panel contours (arrows) on the body.

6 Cut out inside section of A-pillar (2) along the parting lines (3, 4 and 5), and remove.

Cutting depth in area of parting line (4) max. 1 mm

[Return to Index](#)

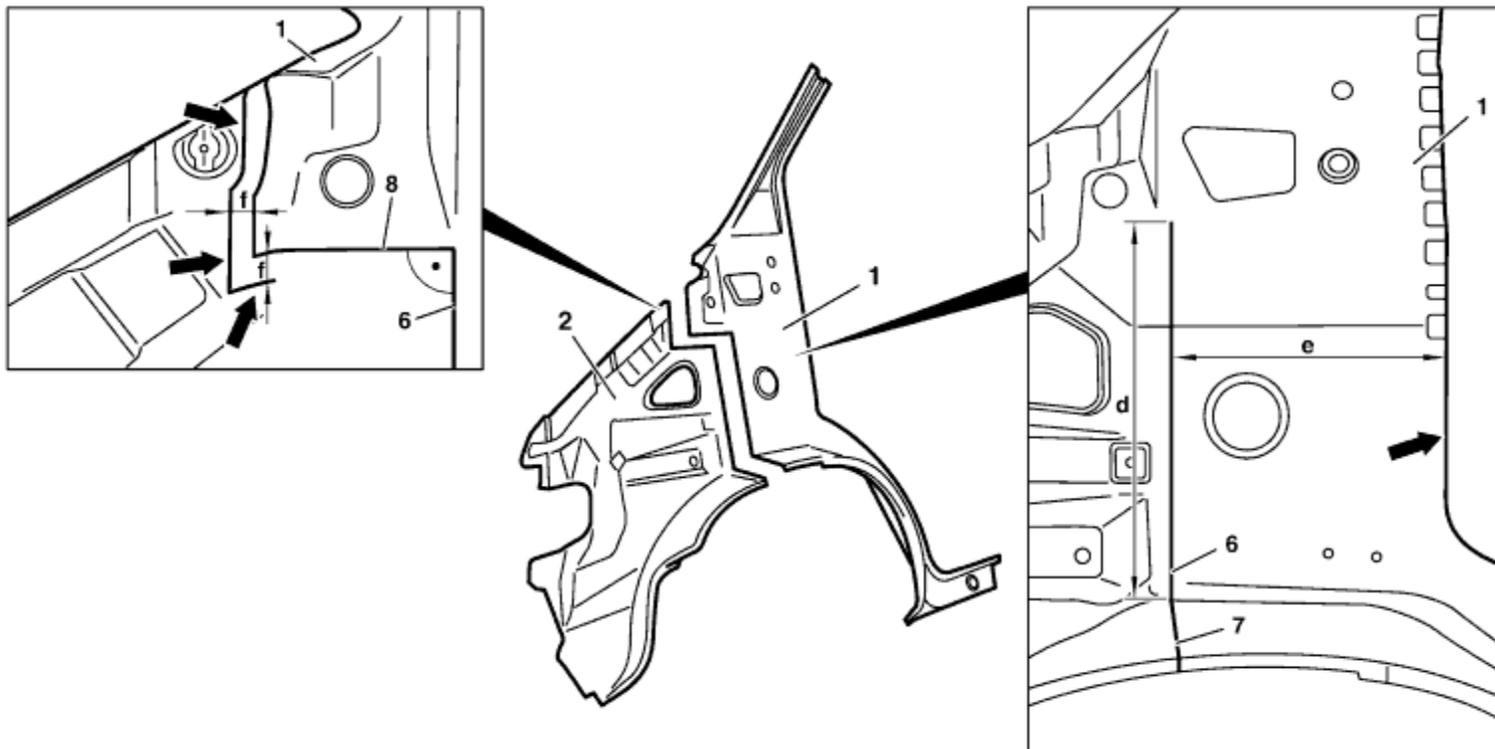
Install

12 Straighten connecting plate, grind off and coat with zinc dust paint

Zinc dust paint for spot welding

13 Prepare part of inside section of A-pillar (2) for installation

Preparing inner part of A-pillar for installation



[Return to Index](#)

1 Mark cutting line (6) with length $d = \text{approx. } 355 \text{ mm}$, at interval $e = \text{approx. } 255 \text{ mm}$ from edge (arrow) on inner part of A-pillar (1).

2 Mark cutting line (7) at extension of cutting line (6).

3 Mark contours (arrows) on inner part of A-pillar (1).

6 Punch holes in area (C) at uniform intervals of 40 mm and $\text{Ø } 6 \text{ mm}$.

7 Mark cutting lines (9) with length of $g=20 \text{ mm}$ in round parts of section of A-pillar inner part (2).

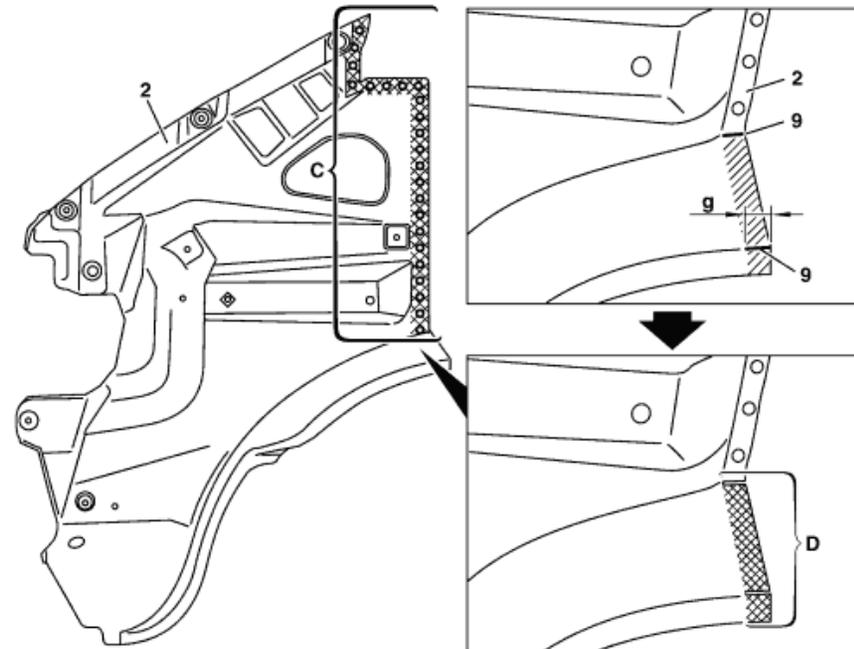
8 Cut section (2) along cutting lines (9) with cutting width of approx. 2 mm .

9 Taper shaded area (D) until it can be inserted below the wheelhouse on the body.

10 Grind section (2) down to bare metal on both sides in area of holes punched and coat with zinc dust paint

4 Mark cutting line (8) at angle of 90° to cutting line (6) and at interval $f = \text{approx. } 15 \text{ mm}$ from marked sheet metal contours (arrows) on body.

5 Cut off inner part of A-pillar (1) along cutting lines (6, 7 and 8).



[Return to Index](#)

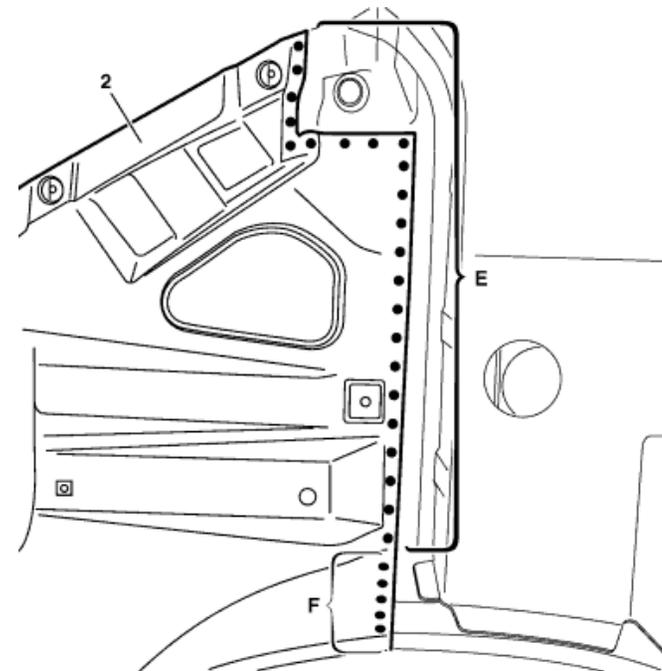
11 Grind section (2) down to bare metal in area (D) and coat with zinc dust paint.

14 Fit and align part of inside section of A-pillar (2)

Fit part of inside section of A-pillar to match other side of vehicle. Measure distances by means of cross measurement (vehicle center = drill hole for washing nozzle hose duct).

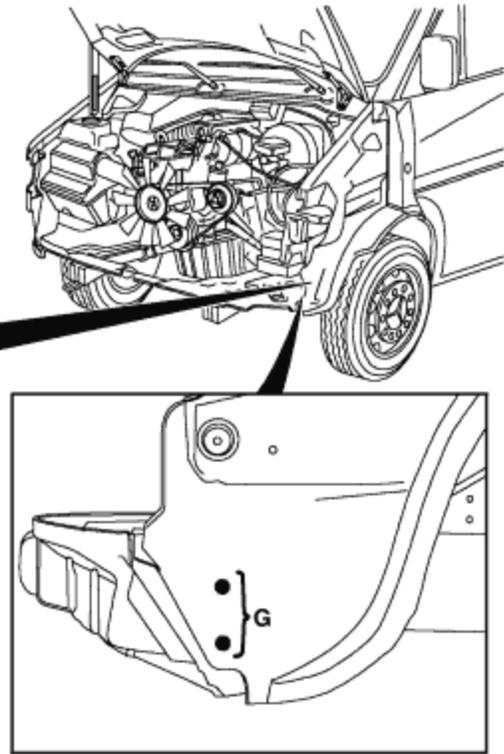
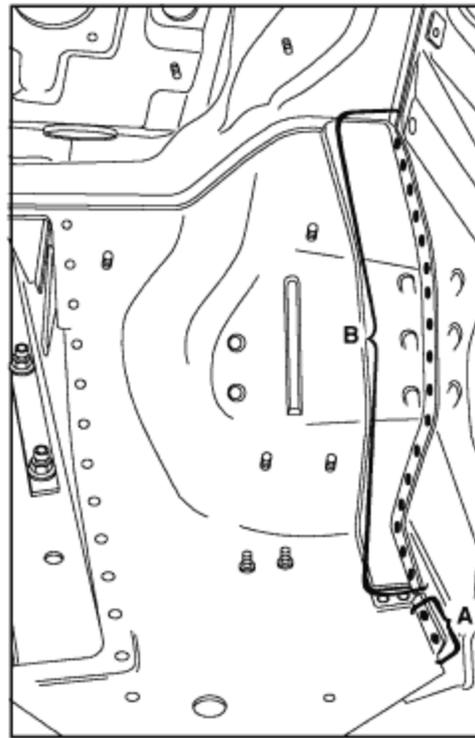
15 Welding in part of inside section of A-pillar (2)

1 Weld inside section of A-pillar (2) to the body (SG  , area E and RP  , area F).



[Return to Index](#)

2 Weld inside section of A-pillar (2) to the body (see , areas A, B and G).



16 Install wheel arch flaring

17 Grind down extending welding material

18 Vacuum out hollow cavities

Metal filings or metallic grinding dust in cavities can lead to corrosive damage.

[Return to Index](#)

Wet/dry vacuum cleaner

19 Clean areas repaired and prime with Mopar or equivalent primer/filler

20 Supplement standard seals with Mopar or equivalent body sealing compound

Seam sealing after repairs

21 Add Mopar or equivalent permanent underfloor protection as a supplement to underbody protection installed as standard

22 Paint repair area and adjacent surfaces

23 Supplement cavity preservation

24 Install engine control module with mount

25 Install battery tray

26 Install battery

27 Install heater

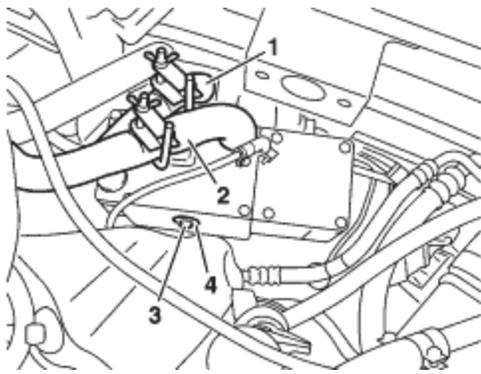
Only on vehicles with heater, code H12

Remove/install heater

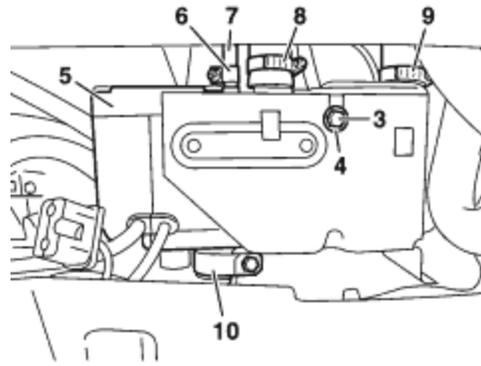
MODELS

901.0 /3 /4, 902.0 /3 /4, 903.0 /3 /4, 904.0 /3 /4 with CODE (HDB) Hot water auxiliary heater

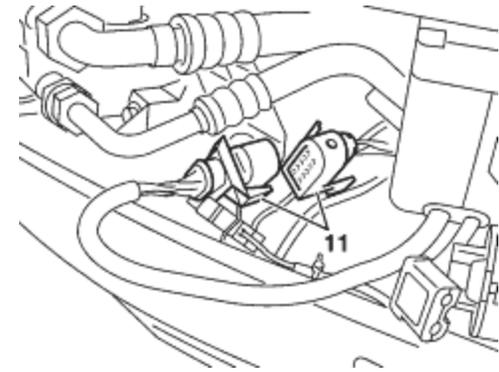
[Return to Index](#)



- 1 Coolant hose
- 2 Coolant hose
- 3 Bolt
- 4 Washer



- 5 Heater unit
- 6 Hose clamp
- 7 Fuel pipe
- 8 Hose clamp



- 9 Hose clamp
- 10 Clamp
- 11 8-pin connector

Remove/install

- 1 Remove left front headlamp
- 2.1 Remove headlamp cleaning system
- 3 Remove front bumper
- 4 Pinch off coolant hoses (1, 2)
- 5 Remove circulation pump from heater bracket

[Return to Index](#)

Place circulation pump to one side. Do not disconnect the hoses.

6 Detach coolant hoses (1, 2) from heater connecting pipes
Collect escaping coolant in a clean vessel.

7 Remove fuel line (7) from heater unit
Seal fuel line using a suitable plug

8 Release clamp (10) for exhaust-gas line

9 Remove exhaust-gas line from heater

10 Unplug 8-pin connector (11)

11 Undo screws (3) and remove heater unit (5)

12 Install in reverse order

13 Start engine and bleed cooling and heating system.

Allow engine to warm up with alternating speeds for approx. 1 minute.
Top up coolant continuously up to top mark in the coolant expansion tank.

14 Switch off engine

15 Check for leaks on coolant hose connections

16 Check auxiliary heater for proper operation

[Return to Index](#)

28 Install front-end paneling

29 Install front end center section

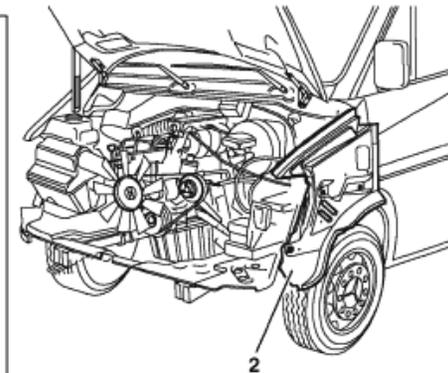
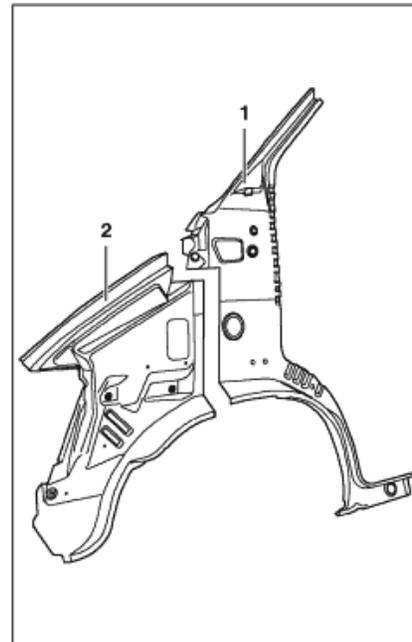
30 Bolt on front bumper

31 Reinstall all detachable body components removed

Partially remove/install A-pillar inner section

MODEL 901.6, 902.6, 903.6, 904.6
left side of vehicle

1 A-pillar inner section
2 A-pillar inner section



[Return to Index](#)

Remove

1 Remove front bumper

2 Remove front grill

3 Remove front end cross member

4 Remove heater unit

Only for vehicles with heater, Code HDB

5 Remove battery

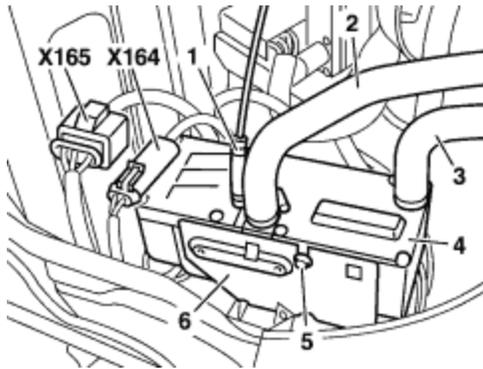
Remove/install heater

MODELS 901.6, 902.6, 903.6, 904.6
with CODE (HDB) Hot water auxiliary heater

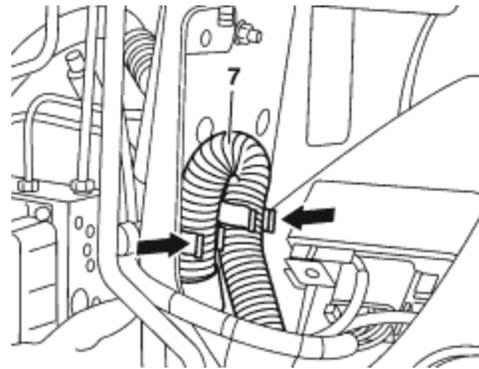
MODEL 901.6, 902.6, 903.6, 904.6
with CODE (HZ9) Heater booster, diesel engine

MODELS 901.6, 902.6, 903.6, 904.6
with CODE (HZ5) Warm air auxiliary heater 10 kW with timer

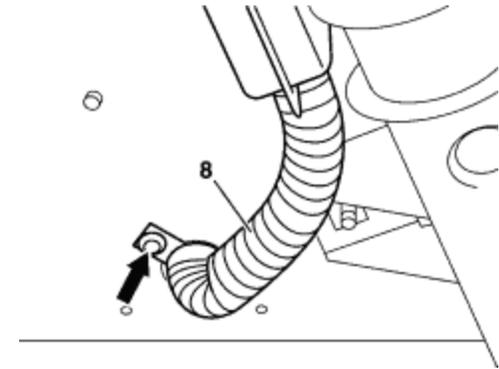
[Return to Index](#)



- 1 Fuel pipe
- 2 Supply coolant hose (warm)
- 3 Return coolant hose (cold)
- 4 Warm water heater unit



- 5 Screw for heater unit
- 6 Heater unit bracket
- 7 Intake line
- 8 Exhaust line



- X164 Warm water auxiliary heater connector, 2-pin
- X165 Warm water auxiliary heater connector, 8-pin

Remove/Install

1 Remove front grille
 MODELS 901.6, 902.6, 903.6, 904.6
 up to model year 2003

MODEL 901.6, 902.6, 903.6, 904.6
 as of model year 2003

[Return to Index](#)

2 Remove left headlamp

3.1 Remove heater booster circulation pump from heater bracket for warm water auxiliary heater 10 kW with timer Code HZ5

i Place circulation pump to one side. Do not disconnect the hoses.

4 Pinch off coolant hoses (2, 3)

5 Detach coolant hoses (2, 3) from heater unit (4)
Collect escaping coolant in a clean vessel.

6 Remove fuel line (1) from heater unit (4)
Seal fuel line using suitable plug.

7 Disconnect 2-pin and 8-pin connector
(X164, X165)

8 Unclip suction line (7) from both brackets (arrows) on the front-end side panel

9 Undo screw (5) on front end and rear side of heater unit bracket (6)

10 Remove bracket (arrow) of exhaust-gas line (8) from left wheelhouse and remove exhaust-gas line downwards from heater unit

11 Remove heater from heater unit bracket

12 Disconnect exhaust-gas line from heater unit

13 Install in the reverse order

14 Start the engine and allow it to warm to its normal operating temperature
Allow engine to run for approx. 1 min at alternating speeds.

[Return to Index](#)

15 Check engine coolant level and top up with coolant if necessary

16 Switch off engine

17 Check coolant hose and fuel line connections on heater unit for signs of any leaks

18 Check auxiliary heater/heater booster for proper operation

6 Remove battery tray

Remove/install holder for battery mount

MODEL 901, 902, 903, 904

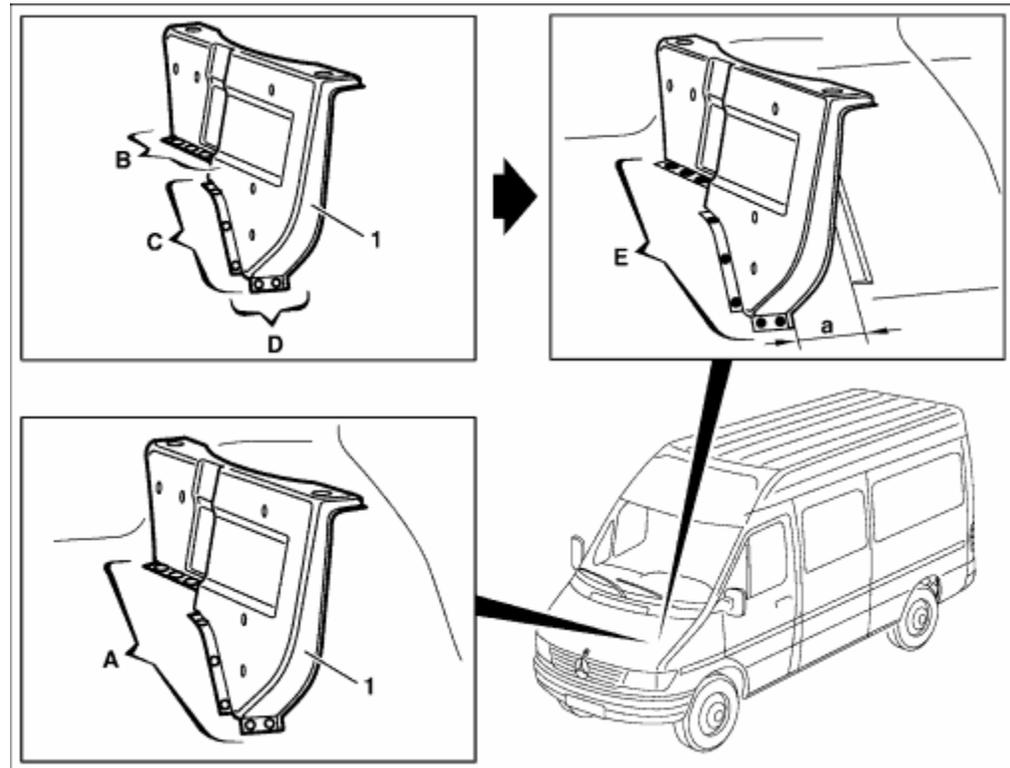
MODEL WD1, WD2, WD3, WD6, WD7, XD1, XD2, XD3, XD6, XD7, YD1, YD2, YD3, YD4, YD5, YD6, YD7

Illustrated on van

1 Holder for battery mount

A-E Areas

a=gap 45 mm



[Return to Index](#)

Remove

- 1 Remove battery
- 2 Remove battery mount
- 3 Remove detachable body components in area to be repaired
- 4 Cover all detachable parts remaining in area to be repaired.
- 5 Expose welds in area A and cut out

Bore welding points.

- 6 Remove holder (1)

Grind connection plates in area of cut spot welds and coat with zinc dust paint

Zinc dust paint that can be spot welded.

Install

- 7.1 Drill three Ø 6 mm dia. holes in areas (B and C) of mount (1) at a uniform interval.

Only when replacing holder (1)

- 8.1 Drill two Ø 6 mm dia. holes at a uniform distance in area (D)

Only when replacing holder (1)

- 9 Grind mount (1) down to bare metal on both sides in area of cut out or punched holes and coat with zinc dust paint

Zinc dust paint that can be spot welded

[Return to Index](#)

10 Position mount (1) at a distance of $a=45$ mm measured from ridge, fit and align

11 Weld holder (1) to front floor, area E.

12 Grind down extending welding material

13 Clean areas to be repaired with Mopar or equivalent primer/filler

14 Add Mopar or equivalent permanent underfloor protection as a supplement to underbody protection installed as standard

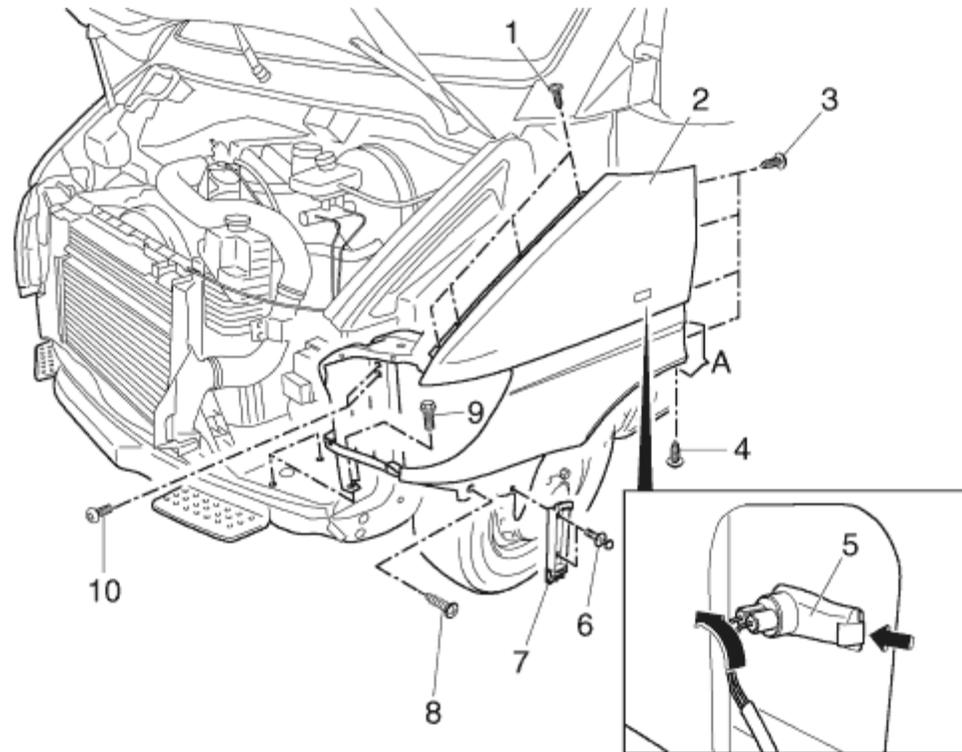
15 Paint repair area and adjacent surfaces

16 Reinstall all detachable body components removed

Removing and installing front end paneling

MODELS 901.6, 902.6, 903.6, 904.6

- 1 Philips screw
- 2 Front end paneling
- 3 Philips screw
- 4 Philips screw
- 5 Auxiliary turn signal lamp
- 6 Body-bound rivet
- 7 Bracket
- 8 Philips screw
- 9 Hexagon bolt
- 10 Internal torx bolt



Removing, installing

- 1 Remove front bumper
- 2 Remove front grille
- 3 Remove lock cross member
- 4 Remove headlamp
- 5 Unclip auxiliary turn signal lamp (5) (arrow). Disconnect connector and remove
- 6 Pull out spreading rivet (6) and remove bumper support (7)

[Return to Index](#)

7 Remove sealant between area (A) of wheelhouse and front end paneling

Installation: Replace sealant

Mopar or equivalent body sealant for sealing seams (suitable for painting)

8 Unscrew screws (3) from A-pillar

9 Unscrew screw (4) from wheelhouse

10 Unscrew screws (8, 9, 10)

11 Remove front end paneling (2)

Remove sealant residues

12 Install in the reverse order

Before installing inner front end paneling coat with underbody protection agent
Observe uniform gap to engine hood.

7 Remove preglow output stage

ENGINE 612.981

8 Remove front-end paneling

9 Remove wheel arch flaring

10 Remove miscellaneous detachable body components in repair area

11 Cover all detachable body components remaining in area to be repaired

12 Separate part of inside section of A-pillar (2)

[Return to Index](#)

Cut out spot welds

Install

13 Straighten connecting plates, grind off and coat with zinc dust paint
Zinc dust paint suitable for spot welding

14 Prepare part of inside section of A-pillar (2) for installation

Zinc dust paint suitable for spot welding

15 Fit and align part of inside section of A-pillar (2)

Fit part of inside section of A-pillar to match other side of vehicle. Measure distances by means of cross measurement (vehicle center = drill hole for washing nozzle hose duct).

16 Welding in part of inside section of A-pillar (2)

17 Install wheel arch flaring

18 Grind down extending welding material

19 Vacuum out hollow cavities

Metal filings or metallic grinding dust in cavities can lead to corrosive damage.

Wet/dry vacuum cleaner

20 Clean areas to be repaired with Mopar or equivalent primer/filler

21 Supplement standard seals with Mopar or equivalent body sealant
Seam sealing after repairs

[Return to Index](#)

22 Add Mopar or equivalent permanent underfloor protection as a supplement to underbody protection installed as standard

23 Paint repair area and adjacent surfaces

24 Supplement cavity preservation

25 Install preglow output stage
ENGINE 612.981

26 Install battery tray

27 Install battery

28 Install heater
Only for vehicles with heater, Code HDB

29 Install front-end paneling

30 Install lock cross member

31 Install front grille

32 Install bumper

33 Reinstall all detachable body components removed

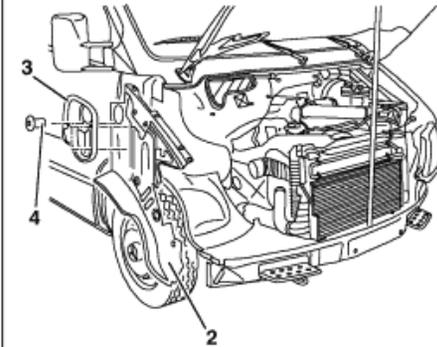
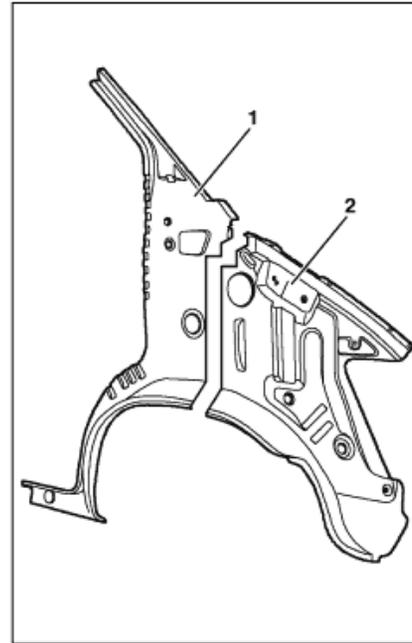
Partially remove/install A-pillar inner section

MODEL 901.6, 902.6, 903.6, 904.6
right side of vehicle

[Return to Index](#)

right side of vehicle

- 1 A-pillar inner section
- 2 Part of A-pillar inner section
- 3 Water deflector panel
- 4 Rivet



Remove

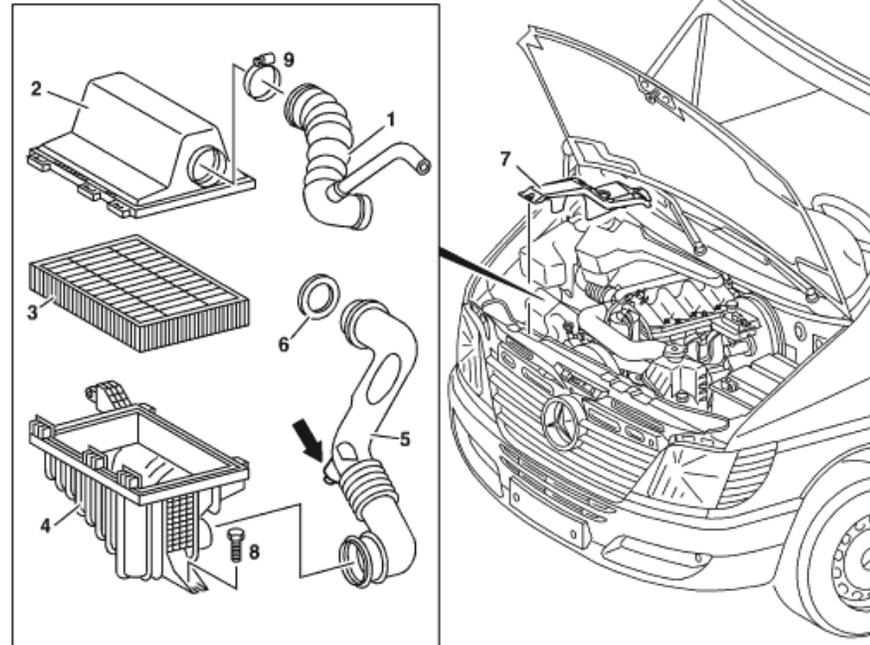
- 1 Remove front bumper
- 2 Remove front grill
- 3 Remove front end crossmember
- 4 Remove wiper water reservoir
- 5 Remove air cleaner with intake hoses

[Return to Index](#)

Remove/install air cleaner housing

ENGINE 612.981 in MODEL 902.6, 903.6, 904.6

- 1 Air intake hose
- 2 Top part of air cleaner housing
- 3 Air cleaner cartridge
- 4 Bottom part of air cleaner housing
- 5 Air intake hose
- 6 Gasket
- 7 Heat shield
- 8 Screw
- 9 Hose clamp



Remove/install

- 1 Remove heat shield (7)
- 2.1 Detach air intake hose (1) at top part of air cleaner housing (2)
- 2.2 Remove hot film mass air flow sensor
On vehicles fitted with code MD1, MS5, MF8

[Return to Index](#)

Remove/install hot film mass air flow sensor

ENGINE

612.981 in MODEL 902.6, 903.6, 904.6, 905.6 with CODE (MD1) Low-pollutant vehicle according to EC Class 1

ENGINE

612.981 in MODEL 902.6, 903.6, 904.6, 905.6 with CODE (MS5) Low pollution engine according to EC category 2

ENGINE

612.981 in MODEL 902.6, 903.6, 904.6, 905.6 with CODE (MF8) Low-emission engine conforming to EU 3 group 3

ENGINE

612.981

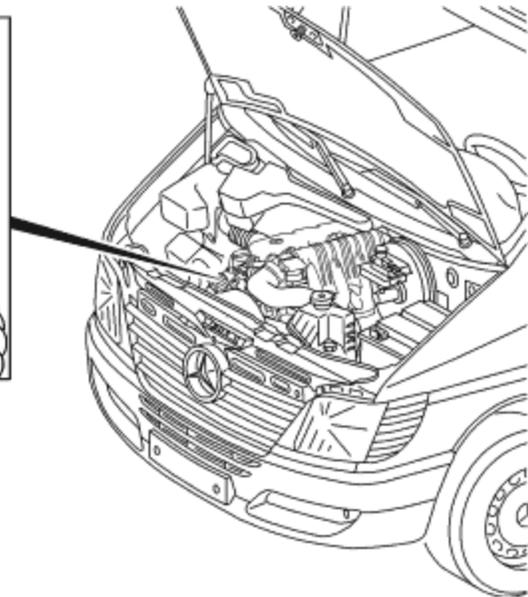
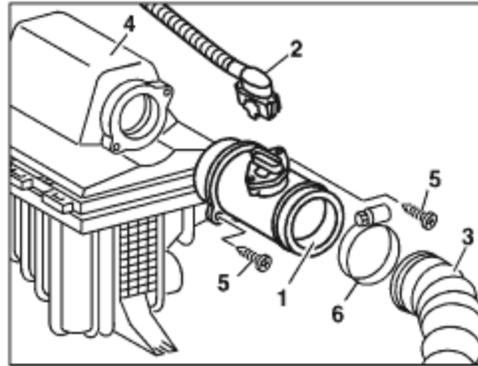
in MODEL WD1XD141, WD1XD241, WD1XD341, WD1XD441, WD1XD541, WD1XD641, WD1XD741,

WD2YD141, WD2YD241, WD2YD341, WD2YD441, WD2YD541, WD2YD641, WD2YD741,

WD5WD141, WD5WD241, WD5WD341, WD5WD641, WD5WD741

[Return to Index](#)

- 1 Hot film mass air flow sensor
- 2 Connector
- 3 Air intake hose
- 4 Air cleaner housing
- 5 Screw
- 6 Hose clamp



Remove, Install

- 1 Detach air intake hose (3) at hot film mass air flow sensor
- 2 Unplug connector (2) at hot film mass air flow sensor
- 3 Remove hot film mass air flow sensor (1) at air cleaner housing (4).
- 4 Install in the reverse order
- 3 Unclip top part of air cleaner housing (2) at bottom part of air cleaner housint (4) and take off
- 4 Take out air cleaner element (3)

[Return to Index](#)

5 Detach bottom part of air cleaner housing (4) at body

6 Take air intake hose (5) out of the inner fender and out of the rubber bush in the wheelhousing liner (arrow), then detach it at bottom part of air cleaner housing (4)

Installation: Ensure seal (6) between inner fender and air intake hose is correctly installed.

7 Take bottom part of air cleaner housing (4) out of the rubber bushes in the inner fender and remove

8 Install in the reverse order

6 Remove front-end paneling

7 Remove wheel arch flaring

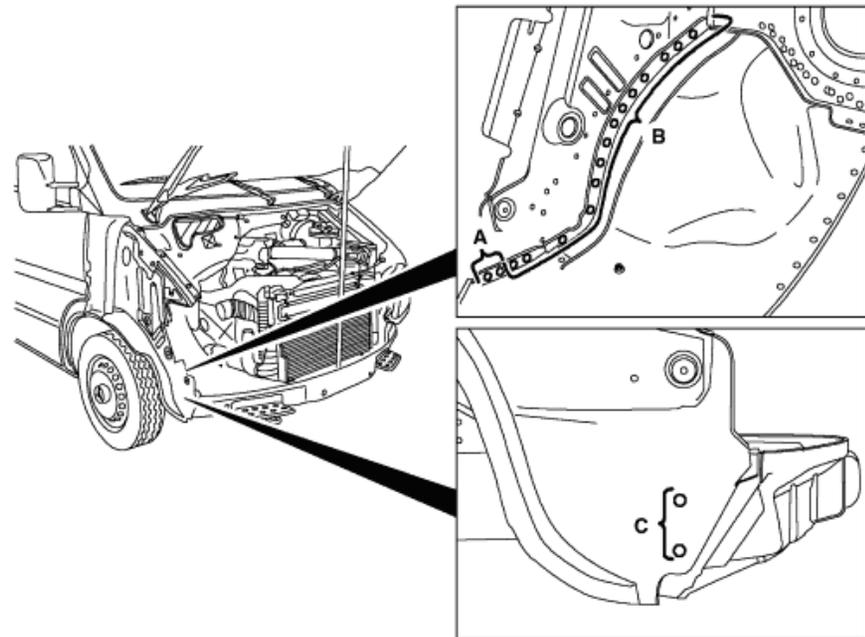
8 Remove miscellaneous detachable body components in repair area

9 Cover all detachable body components remaining in area to be repaired

10 Drill rivets (4) for water deflector panel (3) with a drill bit having a \varnothing of 5 mm. Remove water deflector panel (3)

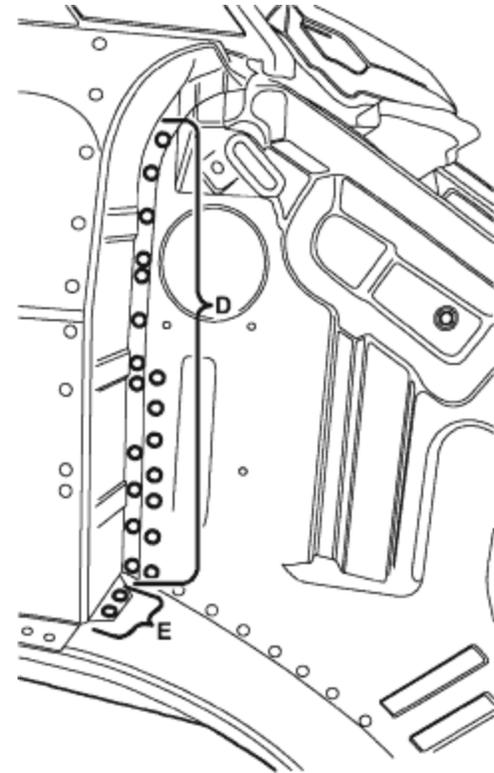
11 Separate part of A-pillar inner section (2)

1 Expose spot welds in the areas (A, B and C) and cut out.

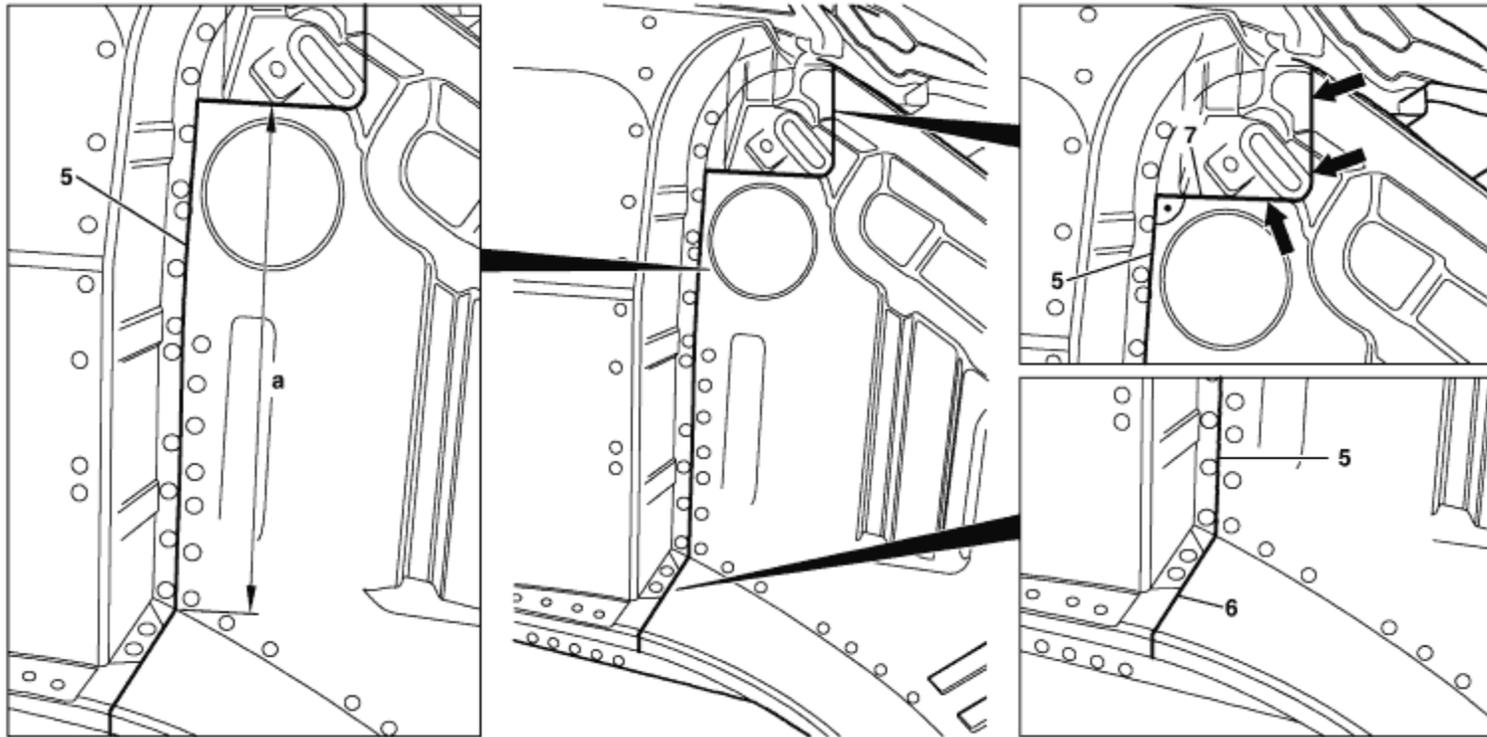


[Return to Index](#)

2 Expose spot welds in the areas (D and E) and cut out.



[Return to Index](#)



3 Mark separation line (5) with length of $a = 350$ mm at edge of A-pillar (arrow) on body.

4 Draw separation line (6) at the edge of the A-pillar (arrow), as indicated.

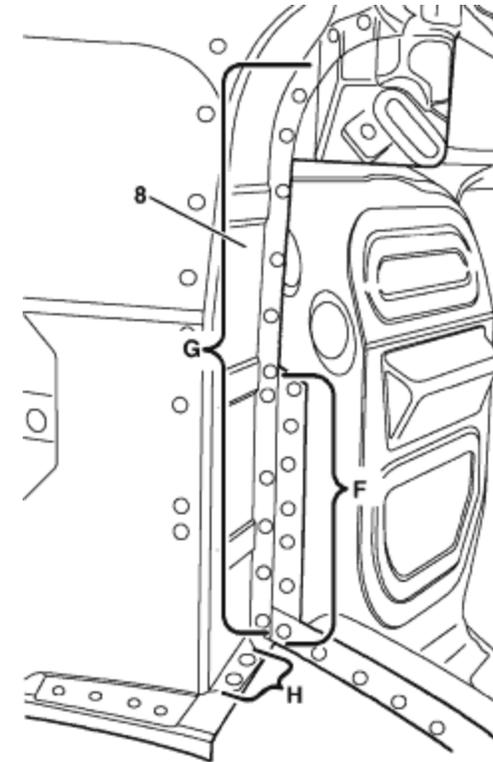
5 Draw separation line (7) along the sheet metal contours (arrows) on the body.

6 Detach part of inside section of A-pillar (2) along the separating lines (5, 6 and 7) and remove.

 Cutting depth in area of separation line (5) max. 1 mm.

[Return to Index](#)

7 Bend up A-pillar sheet (8) slightly in the areas (G and H) of the cut out spot welds and grind off spot weld residue on the remaining A-pillar inside part as well as on the weld web of the splash wall (9), area F.



Cut out spot welds

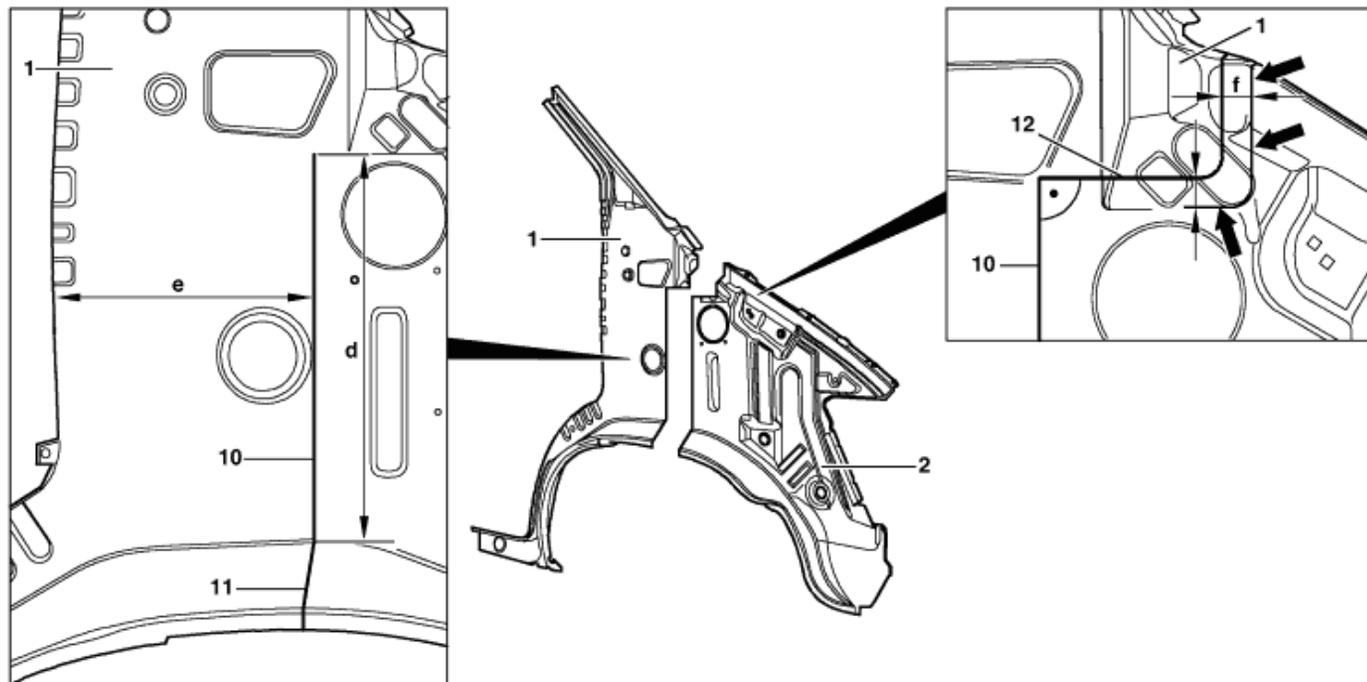
[Return to Index](#)

Install

12 Straighten connecting plates, grind off and coat with zinc dust paint
Zinc dust paint suitable for spot welding

13 Prepare part of A-pillar inner section (2) for installation

Preparing A-pillar pillar inner section for installation



[Return to Index](#)

1 Draw separation line (10) of length $d=365$ mm, at a distance $e=225$ mm measured from the edge (arrow), on the inside section of the A-pillar (1).

2 Draw separation line (11) as an extension of separation l(10).

6 Punch holes in area (I) at equal distances of 40 mm and with a \varnothing of 6 mm.

7 Insert and fit part (2) between inside and outside sections of A-pillar.

8 Copy bore holes in area (J) over to part (2) and punch holes with a \varnothing of 6 mm.

9 In area (K) punch holes at an equal distance of 30 mm, beginning with $h = 190$ mm, at a distance of $g = 25$ mm from panel edge and with a \varnothing of 6 mm.

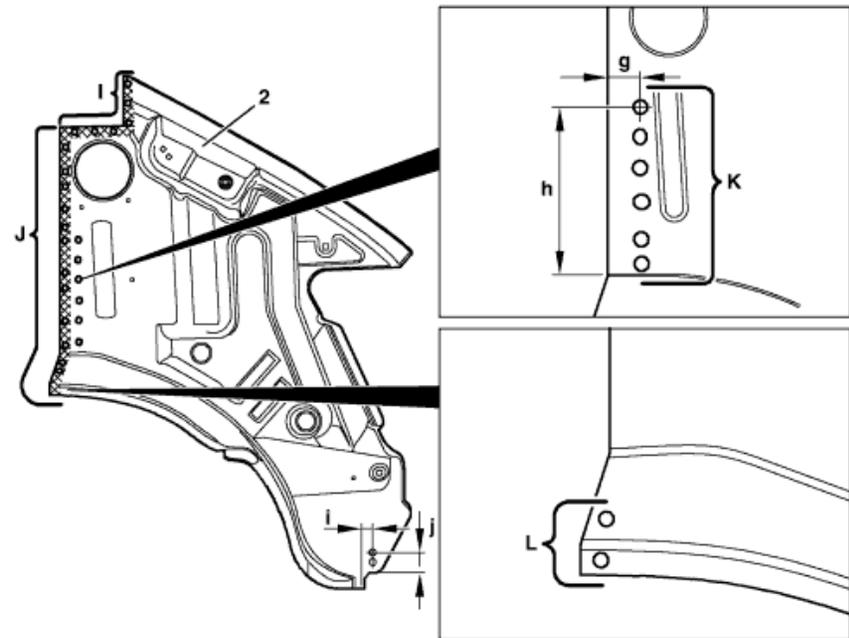
10 In area (L) punch a hole with a \varnothing of 6 mm in both the vertical and horizontal surfaces at a distance of 8 mm from the panel edge.

11 At the lower point, punch 2 holes 50 mm apart with a \varnothing of 6 mm.
 $i=20$ mm
 $j=70$ mm

3 Draw contours (arrows) on inside section of A-pillar (1).

4 Draw separation line (10) at a distance $f=15$ mm from the sheet metal contours (arrows) marked on the body.

5 Detach inside section of A-pillar (1) along the separation lines (10, 11 and 12).



[Return to Index](#)

12 Grind part (2) on both sides near holes and coat with zinc dust pain

Zinc dust paint suitable for spot welding

14 Fit and align part of A-pillar inner section (2)

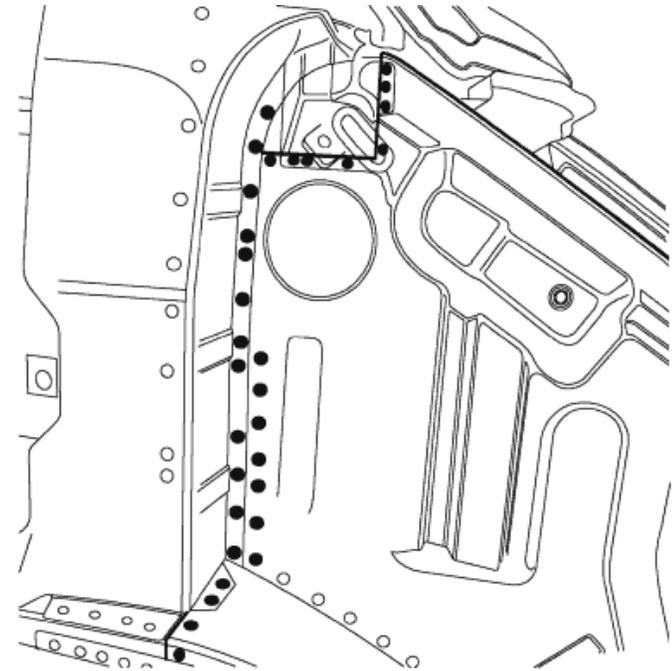
i Fit part of A-pillar inner section to match other side of vehicle.

Measure distances by means of cross measurement
(vehicle center = drill hole for washing nozzle hose duct).

15 Welding in part of A-pillar inner section (2)

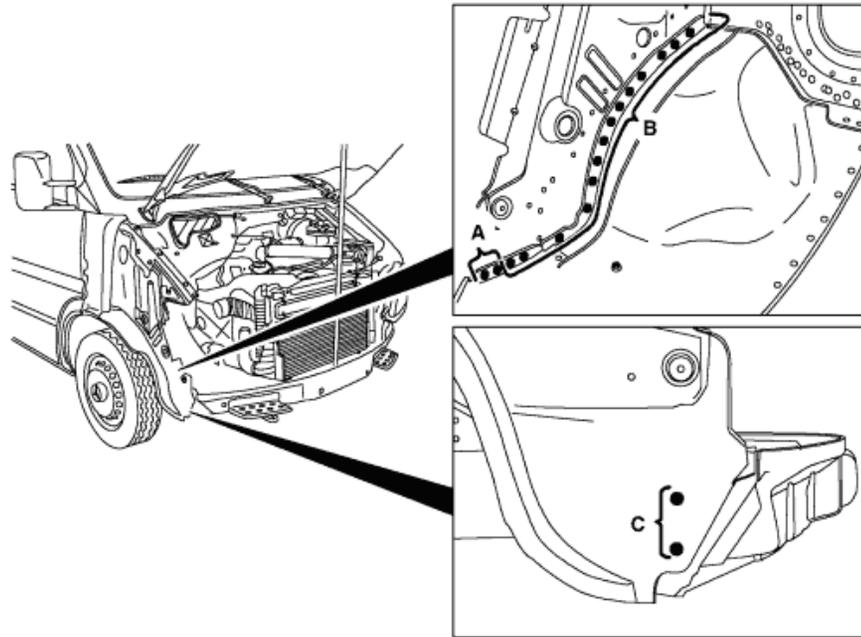
Welding in A-pillar inner section

1 Weld part of inside section of A-pillar (2) onto the
body (**sg** ).



[Return to Index](#)

2 Weld part of inside section of A-pillar (2) onto the body (SC , areas A, B and C).



16 Install wheel arch flaring

17 Grind down extending welding material

18 Vacuum out hollow cavities

 Metal filings or metallic grinding dust in cavities can lead to corrosive damage.

Wet/dry vacuum cleaner

19 Clean areas to be repaired with Mopar or equivalent primer/filler

20 Supplement standard seals with Mopar or equivalent body sealant

 Seam sealing after repairs.

[Return to Index](#)

21 Add Mopar or equivalent permanent underfloor protection as a supplement to underbody protection installed as standard

22 Rivet water deflector panel (3) to A-pillar inner section (2)

23 Paint repair area and adjacent surfaces

24 Supplement cavity preservation

25 Install air cleaner with intake hoses

26 Install wiper water reservoir

27 Install front-end paneling

28 Install lock crossmember

29 Install front grill.

30 Install bumper

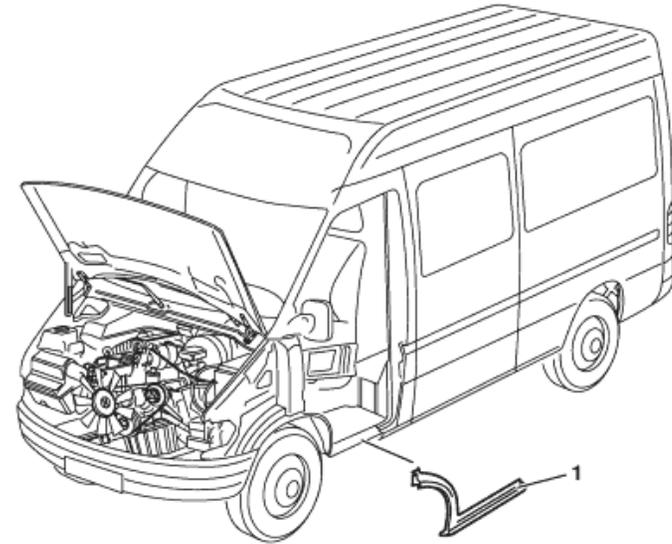
31 Reinstall all detachable body components removed

Partially remove/install front wheelhouse paneling

Repair illustrated on right wheelhouse paneling

[Return to Index](#)

1 Front wheelhouse paneling section



Remove

The repair description applies also for use on the right-hand side of the vehicle

1 Remove hinged door

2 Remove entrance paneling

3 Remove door seal

4 Remove front end paneling

Model 901.0/3/4, 902.0/3/4, 903.0/3/4, 904.0/3/4

Model 901.6, 902.6, 903.6, 904.6

[Return to Index](#)

5 Remove miscellaneous detachable body components in repair area

6 Cover all detachable parts remaining in area to be repaired.

7 Separate front wheelhouse paneling section (1)

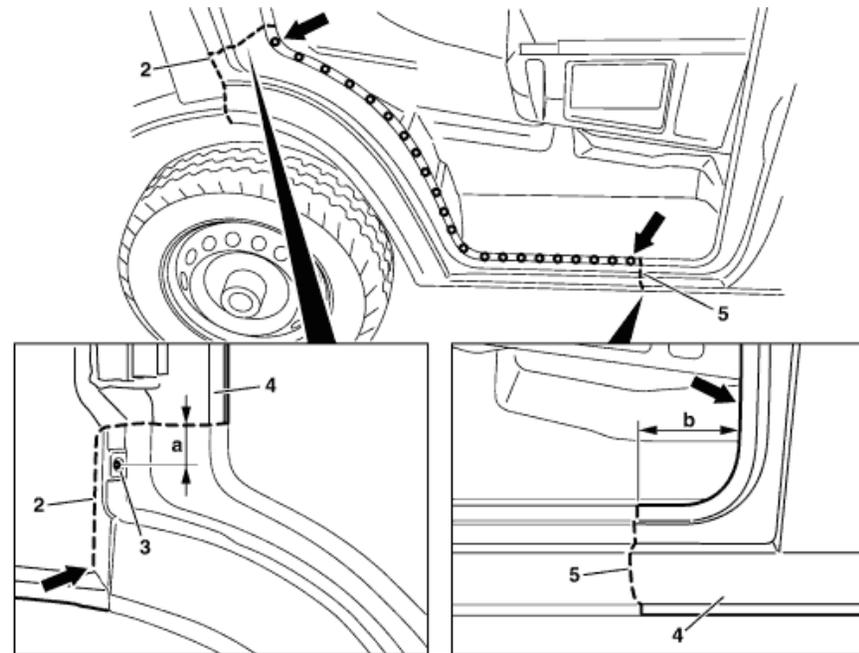
1 Mark separation line (2) on door frame paneling (4) at a distance of $a = 35$ mm measured from center of hole (3) and in center of ridge (arrow)

2 Mark separation line (5) on door frame paneling (4) at a distance of $b = 120$ mm measured from edge (arrow).

3 Expose spot welds (arrows) and cut out.

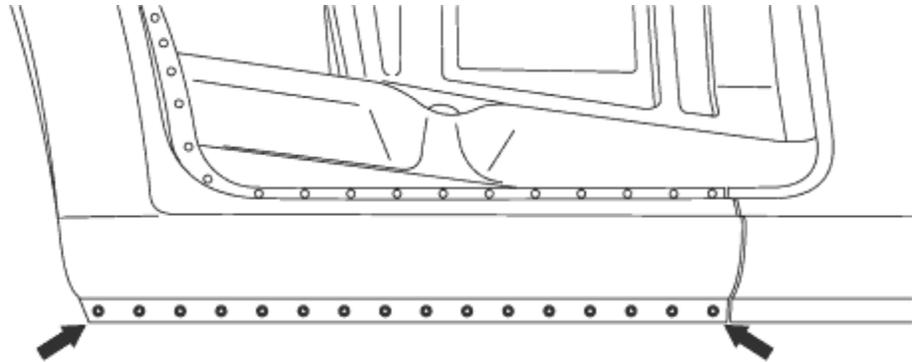
 Cutting depth in area of spot welds maximum 1 mm.

4 Separate door frame paneling (3) along marked separation lines (2 and 5).



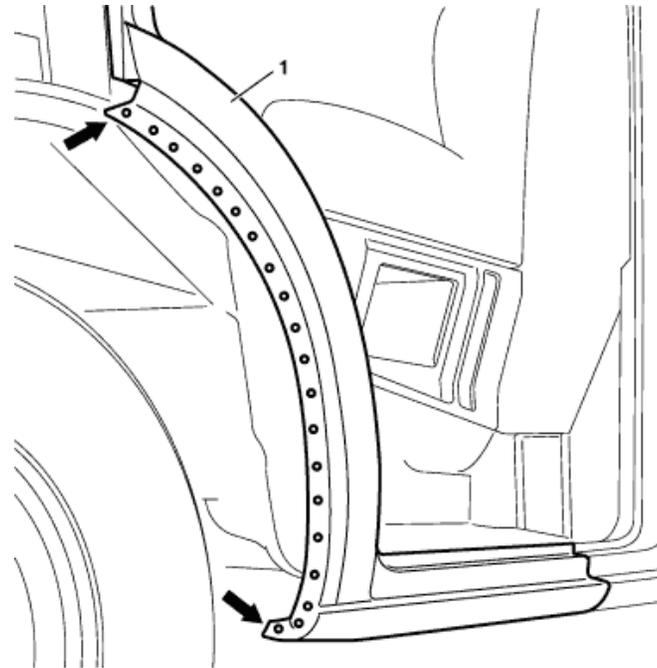
[Return to Index](#)

5 Expose spot welds (arrows) and cut out.



6 Expose spot welds (arrows) and cut out.

7 Remove front wheelhouse paneling section (1)



Cut out spot welds

[Return to Index](#)

8 Straighten connecting plates, grind off and coat with zinc dust paint
Zinc dust paint suitable for spot welding

Install

9 Prepare front wheelhouse paneling section (1) for installation

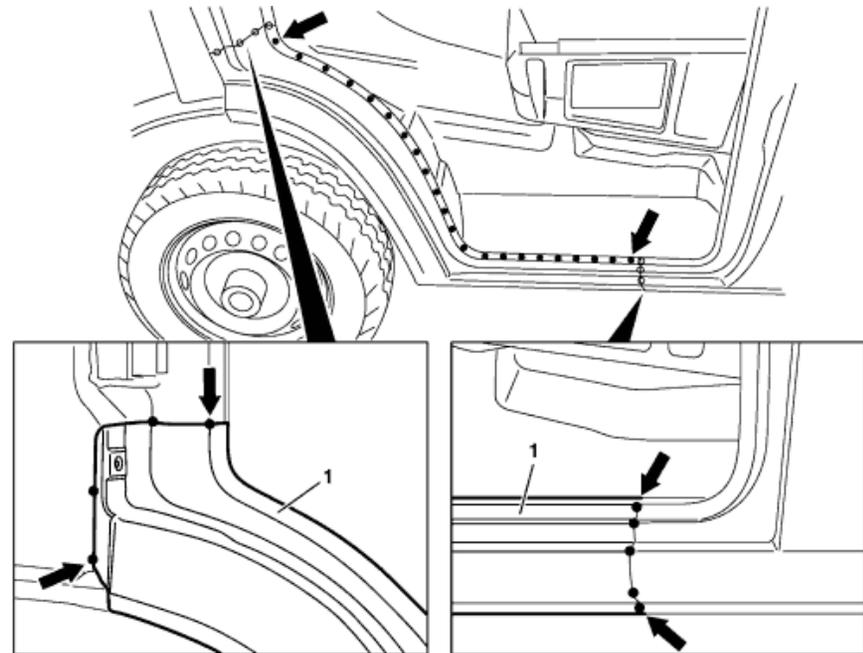
Zinc dust paint suitable for spot welding

10 Fit front wheelhouse paneling section (1), align and clamp in

11 Weld in front wheelhouse paneling section (1)

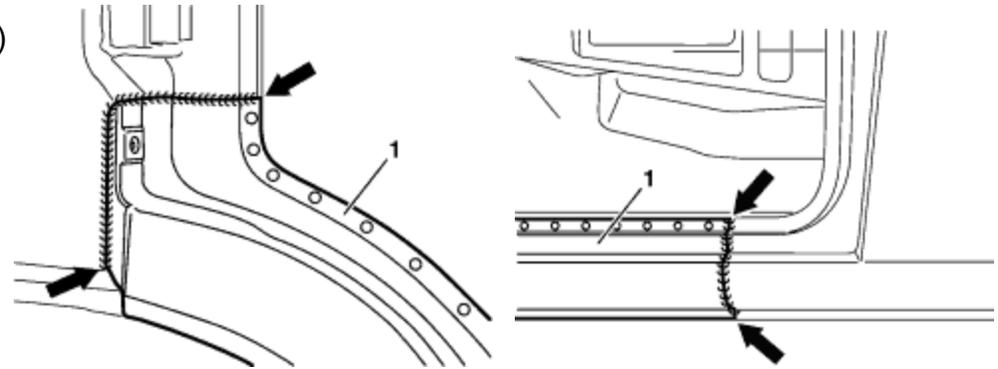
1 Spot weld front wheelhouse paneling section (SG
 , arrows).

2 Weld front wheelhouse paneling section (1) (RP
 , arrows).

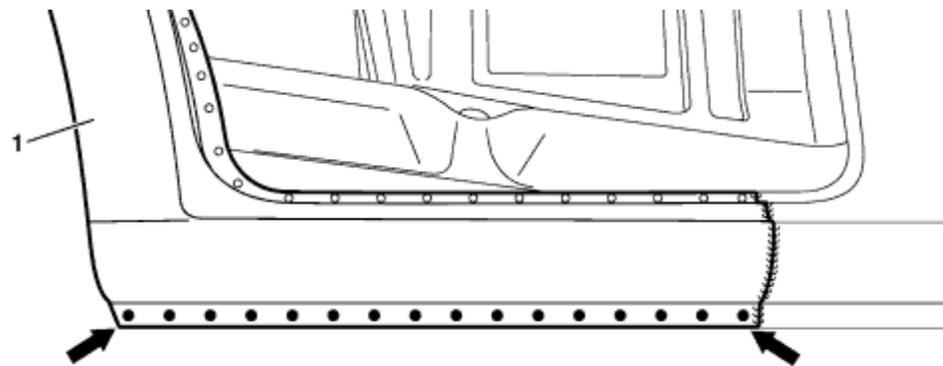


[Return to Index](#)

3 Weld front wheelhouse paneling section (1)
(**SG** , arrows).

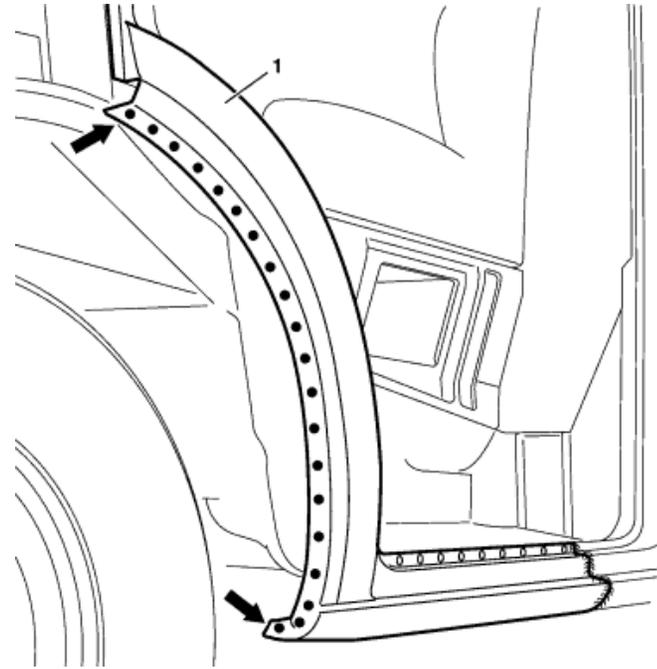


4 Weld front wheelhouse paneling section (1)
(**RP** , arrows).



[Return to Index](#)

5 Weld front wheelhouse paneling section (1)
(RP , arrows).



12 Grind down extending welding material

13 Tin connection points

14 Vacuum out hollow cavities

⚠ Metal chips or metallic grinding dust in hollow cavities can lead to corrosion damage

Wet/dry vacuum cleaner

[Return to Index](#)

15 Clean areas to be repaired with Mopar or equivalent primer/filler

16 Supplement standard seals with Mopar or equivalent body sealant
Seam sealing after repairs

17 Add Mopar or equivalent permanent underfloor protection as a supplement to underbody protection installed as standard

18 Paint repair area and adjacent surfaces

19 Supplement cavity preservation

20 Install front end paneling

Model 901.0/3/4, 902.0/3/4, 903.0/3/4, 904.0/3/4
Model 901.6, 902.6, 903.6, 904.6

21 Install entrance paneling

22 Install door seal

23 Install hinged door

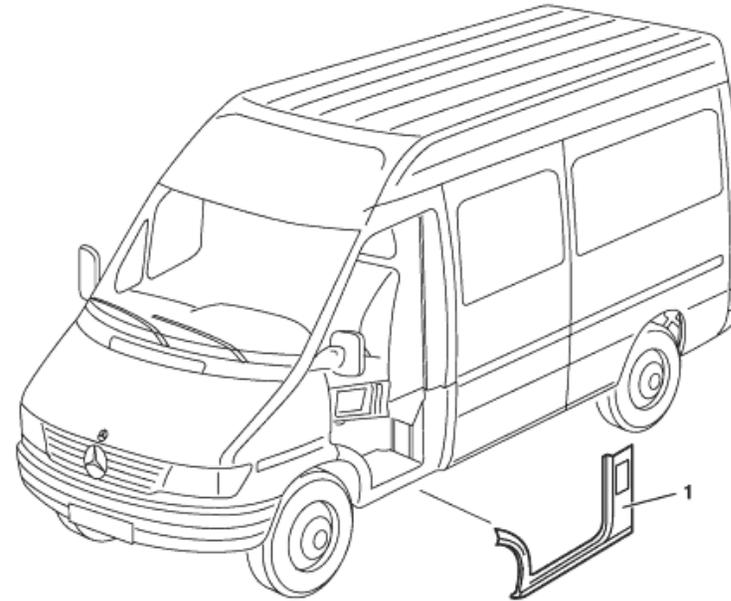
24 Reinstall all other detachable body components

Remove/install bottom section of door frame paneling

Repair illustrated on left door frame paneling

[Return to Index](#)

1 Door frame paneling bottom section



Remove

The repair description applies also for use on the right-hand side of the vehicle

1 Remove hinged door

2 Remove entrance paneling

3 Remove door seal

4 Remove miscellaneous detachable body components in repair area

5 Cover all detachable body components remaining in area to be repaired

[Return to Index](#)

6 Separate bottom section of door frame paneling (1)

Cut out spot welds

Van

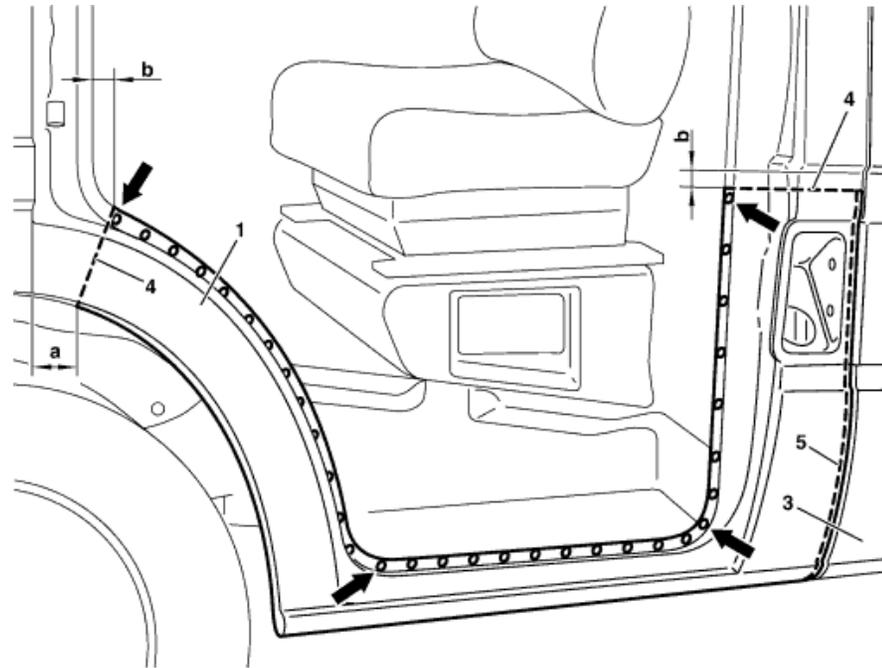
Separating door frame paneling bottom section

1 Cut spot welds out of door frame paneling bottom section (1) (arrows).

2 Separate front and rear door frame paneling bottom section (1) with the following dimensions (dotted line, 4):

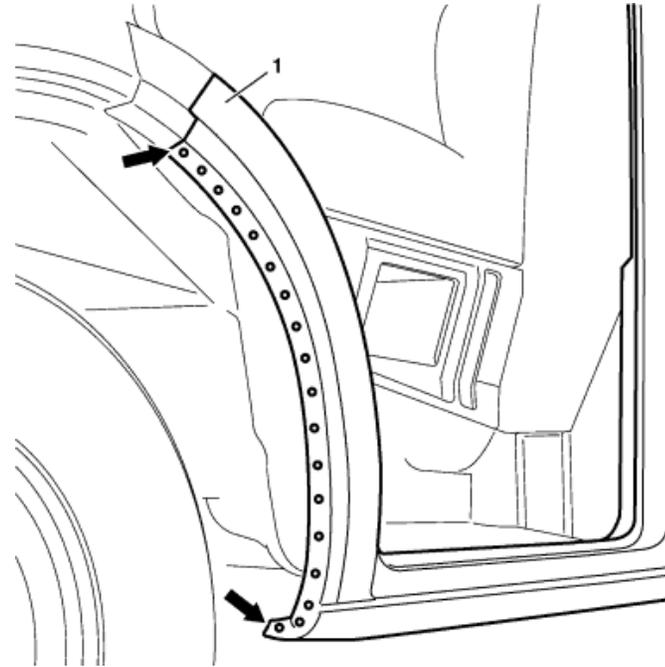
a = approx. 55 mm,
b = approx. 25 mm.

3 Separate door frame paneling bottom section (1) along front paneling (3) up to character ridge (dotted line, 5).

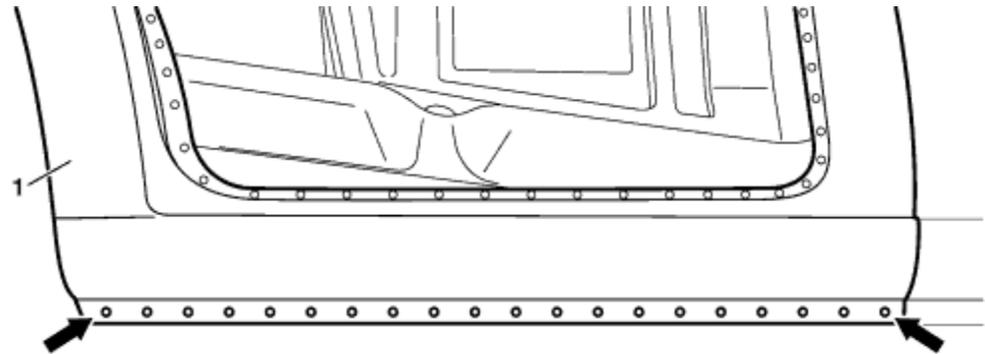


[Return to Index](#)

4 Cut spot welds out of door frame paneling bottom section (1) (arrows).



5 Cut spot welds out of door frame paneling bottom section (1) (arrows).



[Return to Index](#)

Platform

Separating door frame paneling bottom section

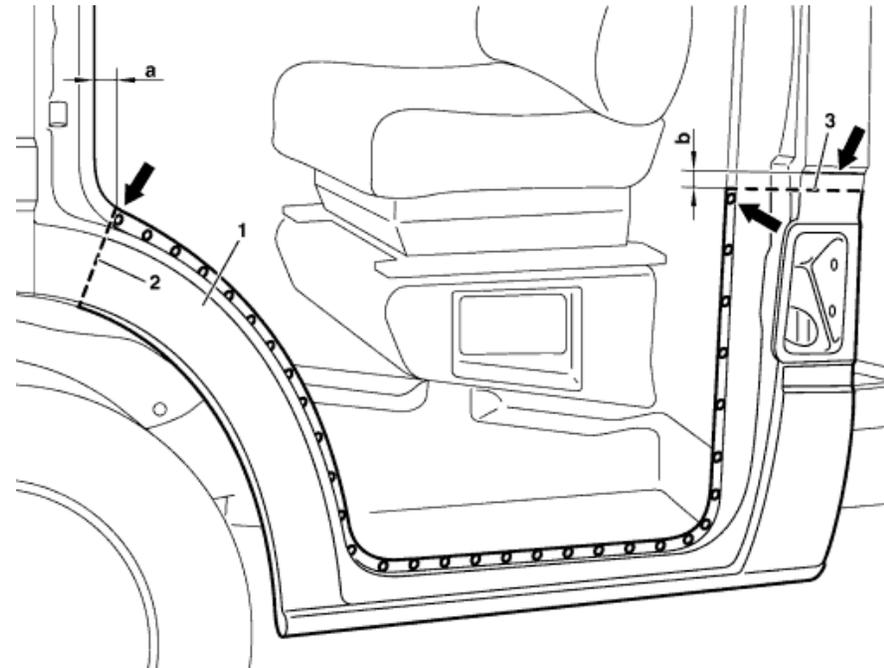
1 Mark separation line (2) on door frame paneling at a distance of $a =$ approx. 25 mm measured from edge (arrow).

2 Mark separation line (3) on door frame paneling at a distance of $b =$ approx. 25 mm measured from edge (arrow).

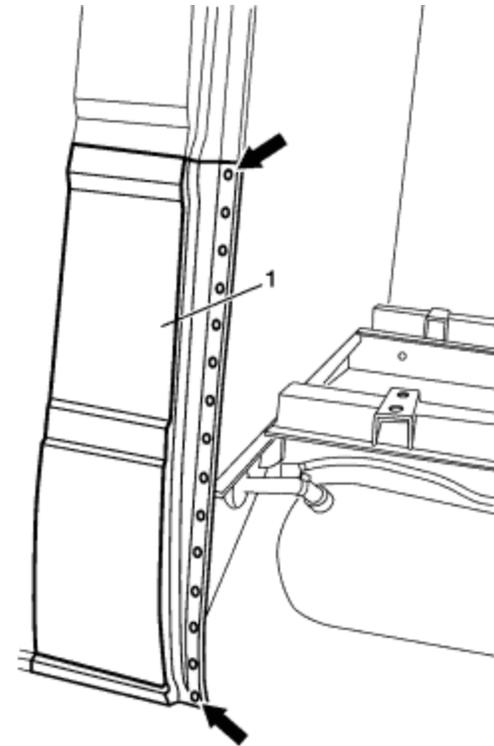
3 Expose spot welds (arrows) and cut out.

 Cutting depth in area of spot welds max. 1 mm.

4 Separate door frame paneling bottom section (1) along marked separation lines (2 and 3).

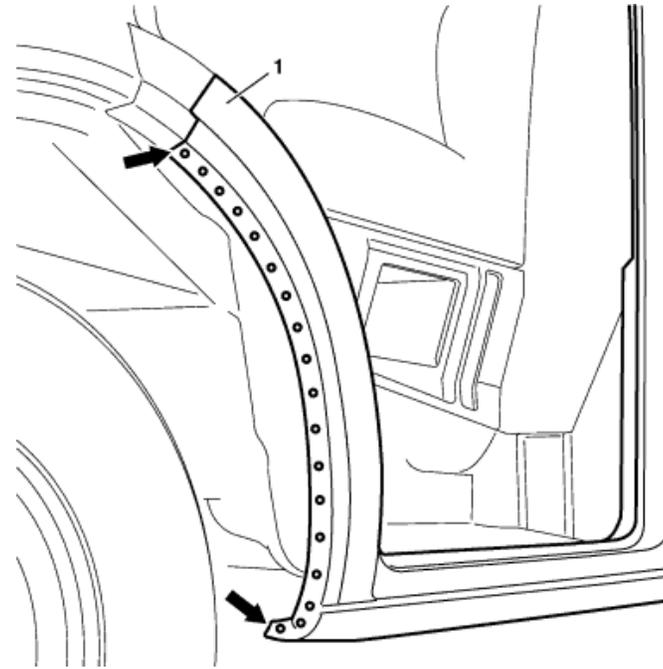


5 Cut spot welds (arrows) out of door frame paneling bottom section (1).

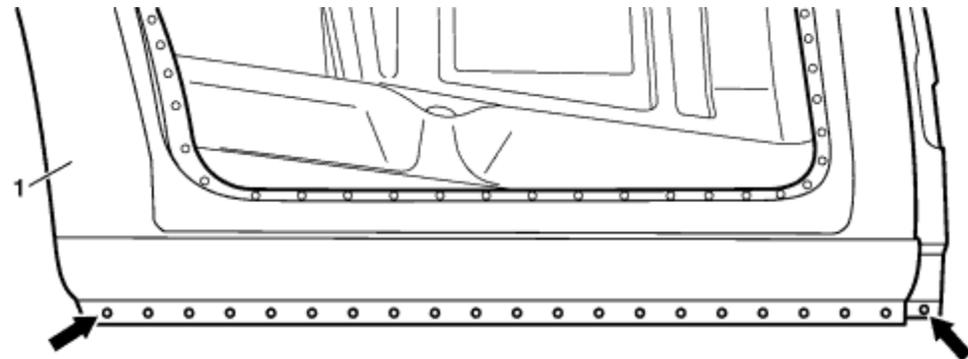


[Return to Index](#)

6 Cut spot welds (arrows) out of door frame paneling bottom section (1).



7 Cut spot welds (arrows) out of door frame paneling bottom section (1).



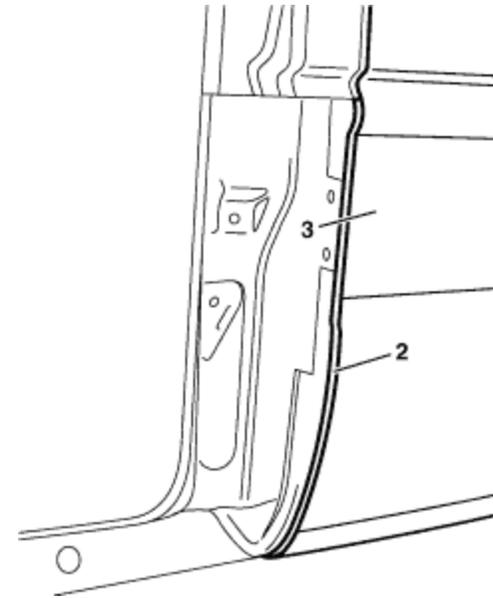
[Return to Index](#)

Install

7 Prepare connection points for bottom section of door frame paneling (1)
Van, crew bus, platform double cab

Preparing connection points for door frame paneling bottom section

1 Grind remaining sheet metal (2) back up to edge of front paneling (3).



8 Straighten connecting plates, grind off and coat with zinc dust paint
Zinc dust paint suitable for spot welding

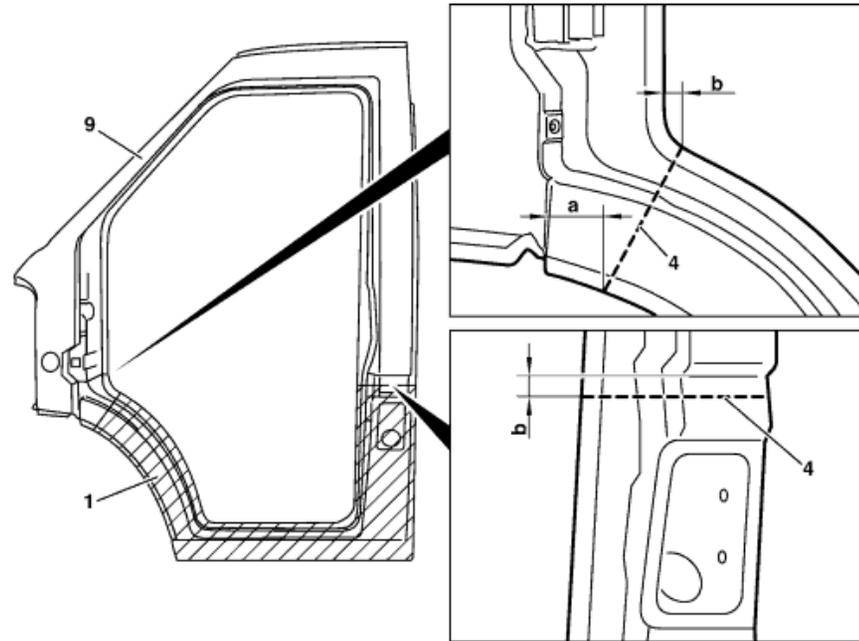
[Return to Index](#)

9 Prepare bottom section of door frame paneling (1) for installation

1 Mark separation lines (dotted lines, 4) on door frame paneling (9) with the following dimensions:

a = 55 mm,
b = 25 mm.

2 Separate door frame paneling bottom section (1) along marked separation lines (4).

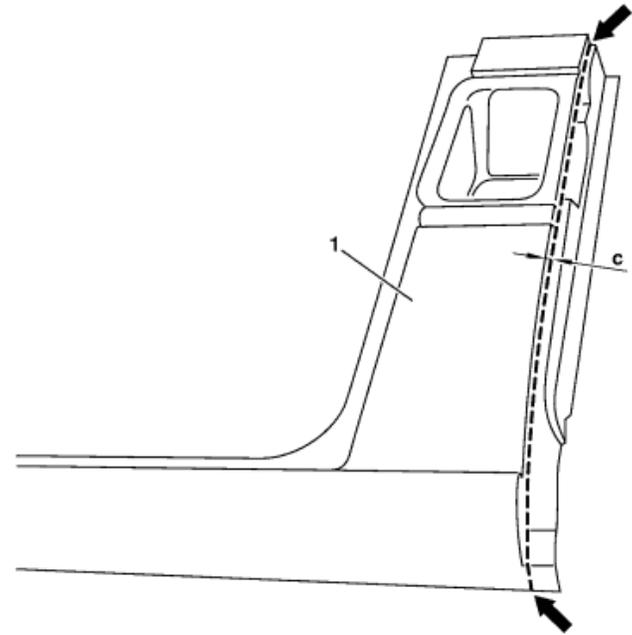


[Return to Index](#)

Perform step 3 only on vans

3 Separate door frame paneling bottom section (1) along dotted line (arrows) with the following dimension:

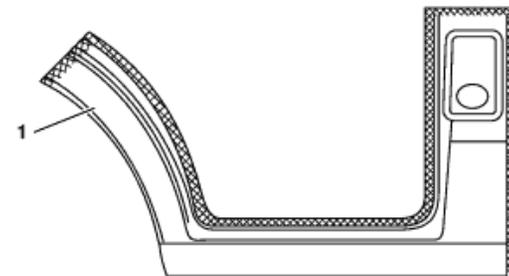
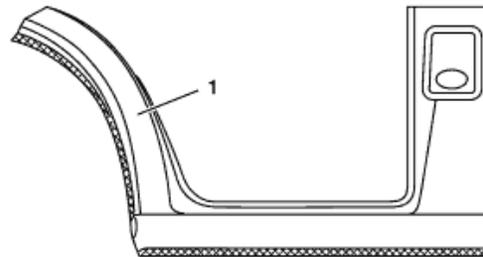
$c = 1 \text{ mm}$.



[Return to Index](#)

4 Grind off door frame paneling bottom section (1) on both sides in marked areas and coat with zinc dust paint.

5 Hold door frame paneling bottom section (1), align and clamp.



Zinc dust paint suitable for spot welding

10 Weld in bottom section of door frame paneling (1)
Van, crew bus, platform double cab

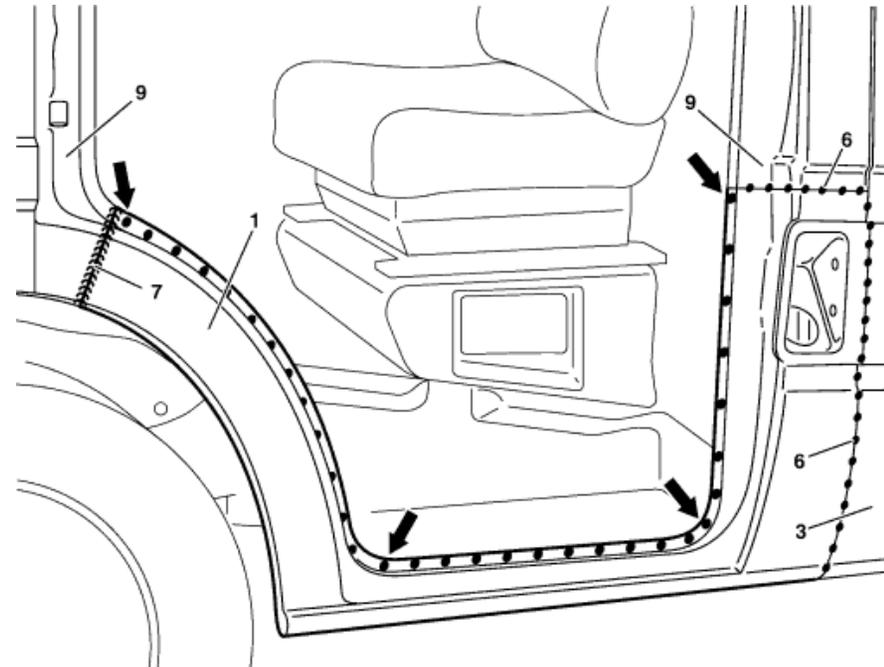
Welding in door frame paneling bottom section

[Return to Index](#)

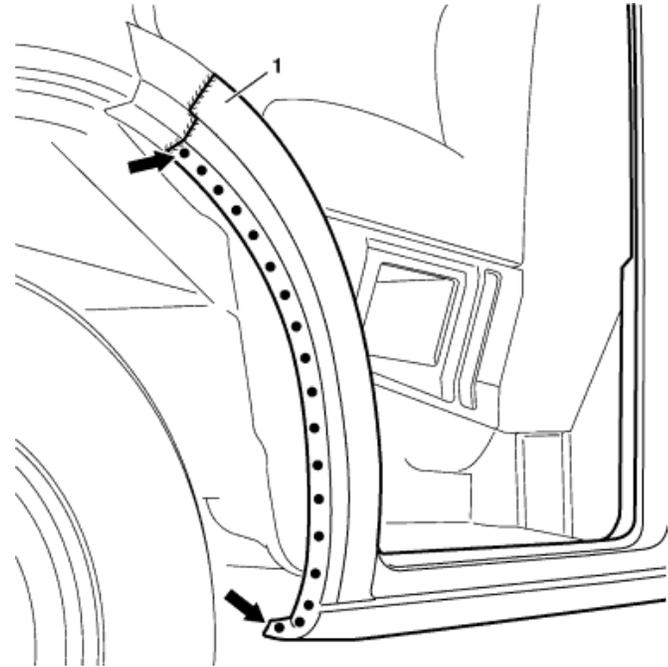
1 Weld door frame paneling bottom section (1) to wheelhouse paneling and B-pillar (RP $\overset{\bullet}{\rule{0.5em}{0.4pt}}$, arrows).

2 Weld door frame paneling bottom section (1) to door frame paneling (9) and front paneling (3) (SG Φ , 6).

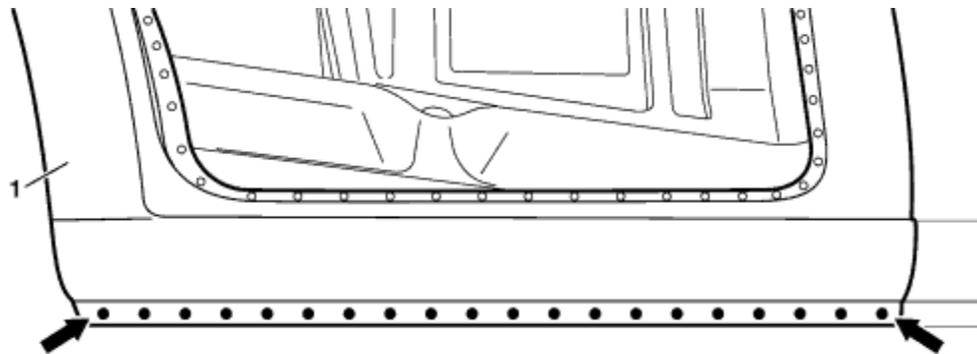
3 Weld door frame paneling bottom section (1) to door frame paneling (9) (SG ||||| , 7).



4 Weld on front door frame paneling bottom section
(1) (RP $\overset{\bullet}{\text{---}}$, arrows).



5 Weld on door frame paneling bottom section
(1) at bottom (RP $\overset{\bullet}{\text{---}}$, arrows).



[Return to Index](#)

Platform

11 Grind down extending welding material

12 Tin connection points on B-pillar

13 Vacuum out hollow cavities

Metal filings or metallic grinding dust in cavities can lead to corrosive damage.

Wet/dry vacuum cleaner

14 Clean areas to be repaired with Mopar or equivalent primer/filler

15 Supplement standard seals with Mopar or equivalent body sealant

Seam sealing after repairs

16 Add Mopar or equivalent permanent underfloor protection as a supplement to underbody protection installed as standard

17 Paint repair area and adjacent surfaces

18 Supplement cavity preservation

19 Install entrance paneling

20 Install door seal

21 Install hinged door

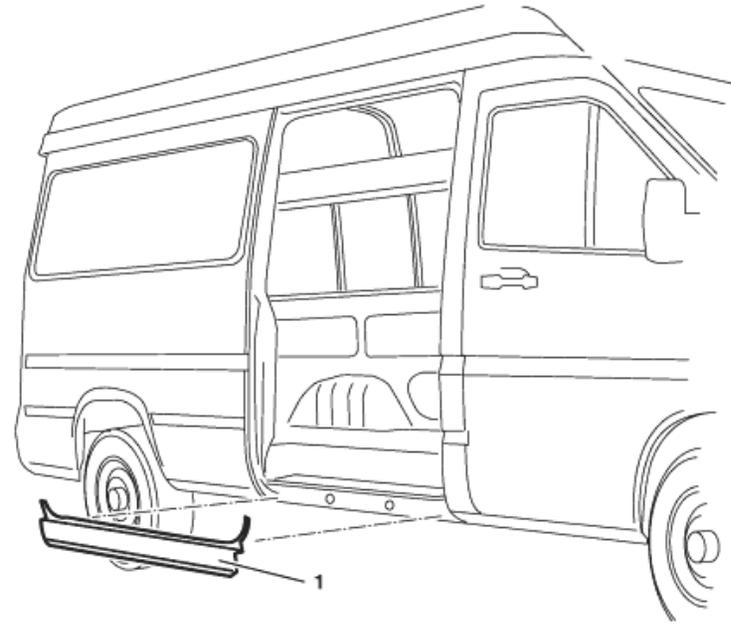
22 Reinstall miscellaneous detachable body components

[Return to Index](#)

Remove/install outer sliding door entry

Repair illustrated on right sliding door entry

1 Outer sliding door entry



Remove

Repair description applies by analogy for left side of vehicle

- 1 Remove sliding door
- 2 Remove door seal
- 3 Remove miscellaneous detachable body components in repair area
- 4 Cover all detachable body components remaining in area to be repaired
- 5 Separate outer sliding door entry (1)

Bore welding points.

[Return to Index](#)

Install

6 Straighten connecting plates, grind off and coat with zinc dust paint
Zinc dust paint suitable for spot welding

7 Prepare outer sliding door entry (1) for welding in

Zinc dust paint suitable for spot welding

8 Weld in outer sliding door entry (1)

9 Grind down extending welding material

10 Vacuum out hollow cavities

Metal filings or metallic grinding dust in cavities can lead to corrosive damage.

Wet/dry vacuum cleaner

11 Clean areas to be repaired with Mopar or equivalent primer/filler

12 Supplement standard seals with Mopar or equivalent body sealant

13 Add Mopar or equivalent permanent underfloor protection as a supplement to underbody protection installed as standard

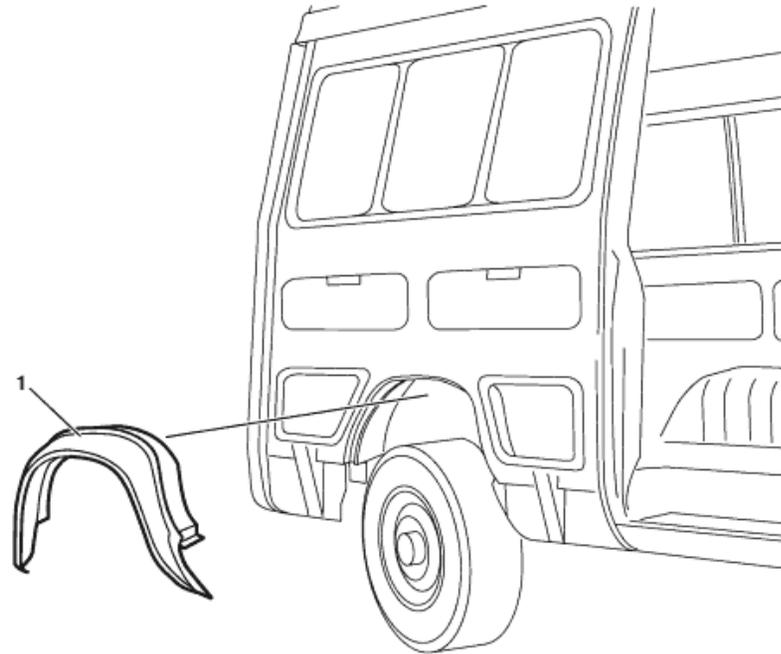
14 Paint repair area and adjacent surfaces

15 Supplement cavity preservation

16 Install door seal

[Return to Index](#)

1 Outer wheel flange



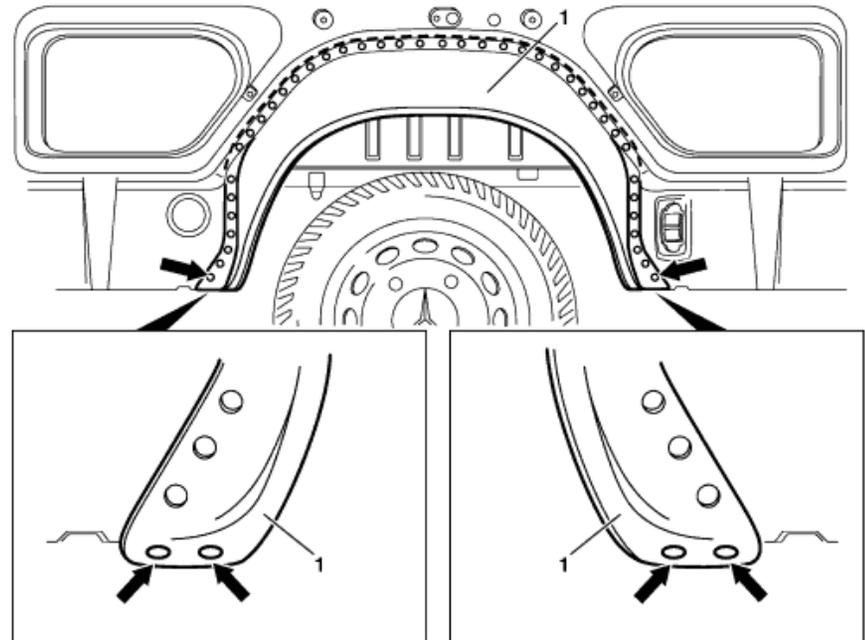
Remove

- 1 Remove side wall paneling
- 2 Remove detachable body components in area to be repaired
- 3 Cover all detachable parts remaining in area to be repaired.
- 4 Separate outer wheel flange (1)

[Return to Index](#)

Separating outer wheel flange

1 Expose spot welds (arrows) of outer wheel flange (1) and cut out.

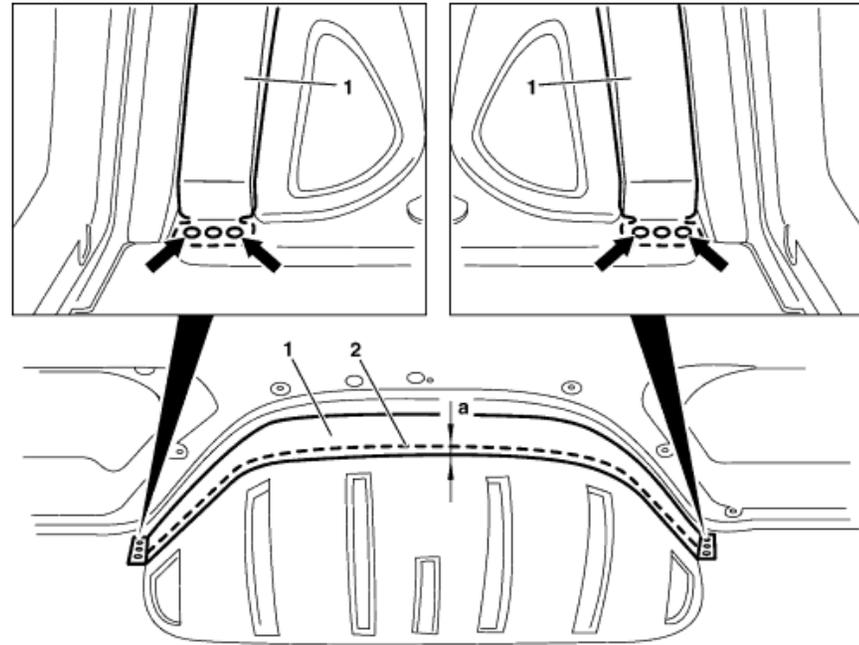


[Return to Index](#)

3 Expose spot welds (arrows) of outer wheel flange (1) and cut out.

4 Cut off outer wheel flange (1) along dotted line (2) at a distance of $a = \text{approx. } 10 \text{ mm}$ measured from outer edge.

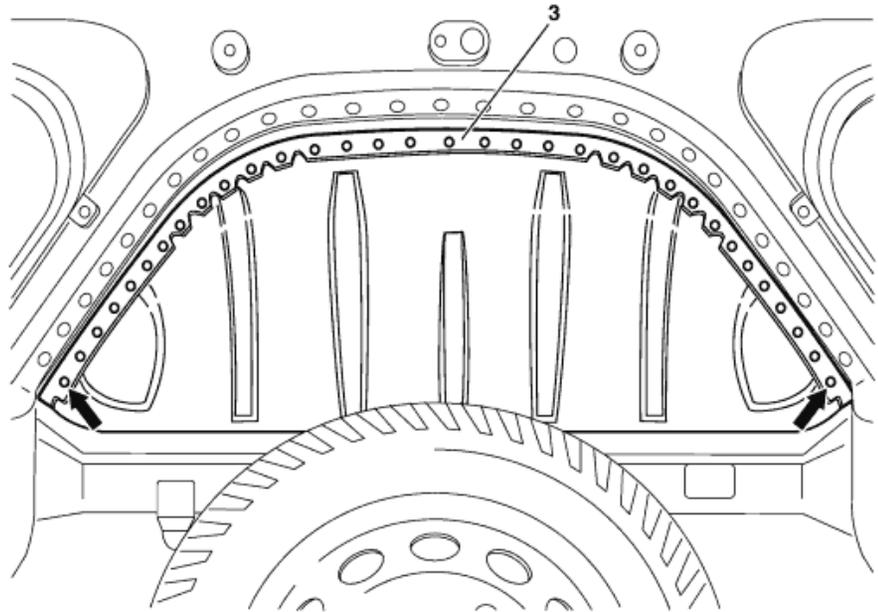
5 Remove outer wheel flange (1).



[Return to Index](#)

6 Cut out spot welds (arrows) of remaining sheet metal (3).

7 Remove remaining sheet metal (3).



Bore welding points.

5 Straighten connecting plates, grind off and coat with zinc dust paint

Zinc dust paint suitable for spot welding

[Return to Index](#)

Install

6 Prepare outer wheel flange (1) for installation

Preparing outer wheel flange for installation

1 Punch \varnothing 6 mm dia. holes in areas (5 and 6) at a maximum hole interval of 15 mm (arrows).

2 Uniformly punch

3 holes with \varnothing 6 mm dia. bit in area (7) (arrows).

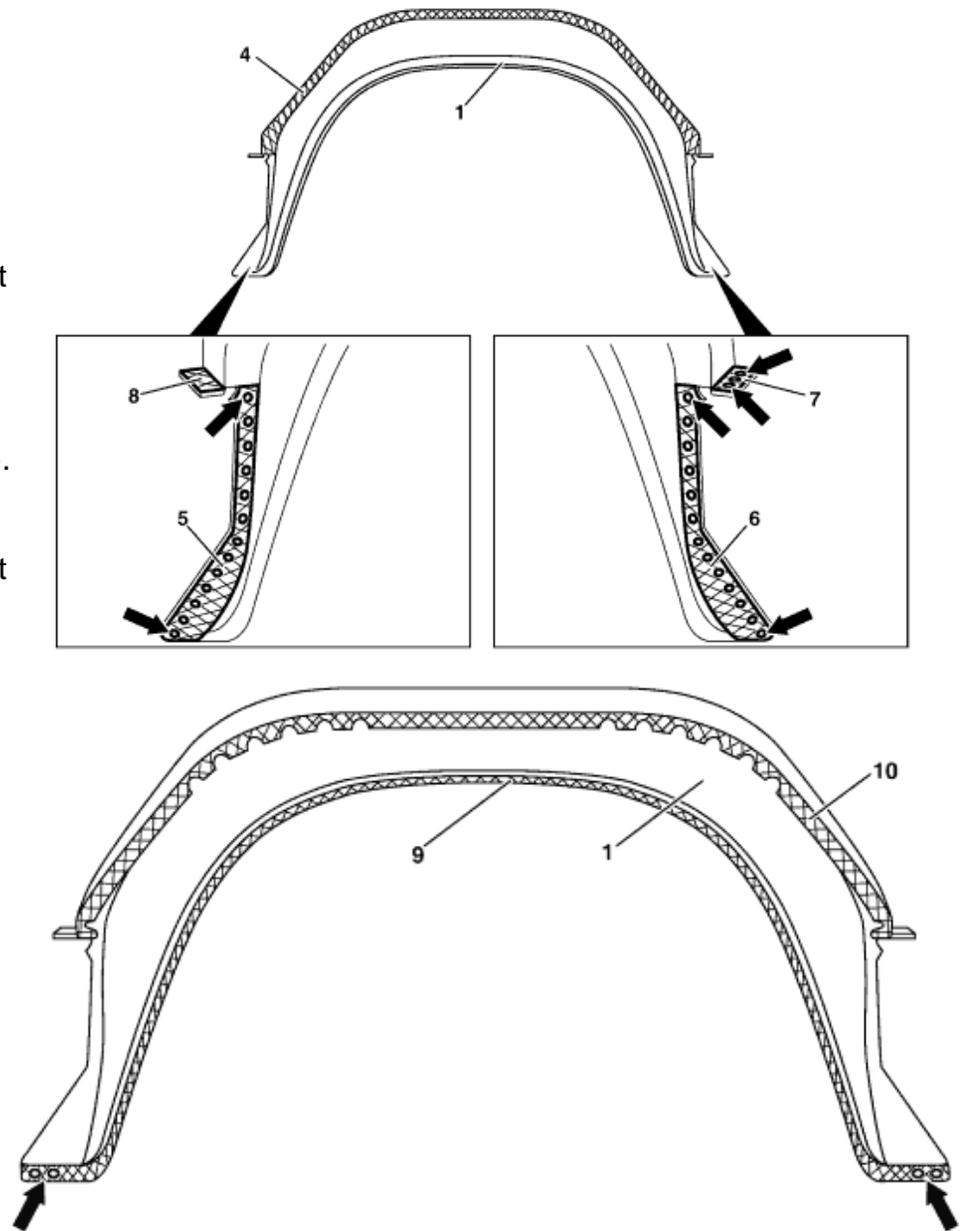
3 Grind outer wheel flange (1) down to bare metal in marked area (4) and coat with zinc dust paint.

4 Grind outer wheel flange (1) down to bare metal on both sides in marked areas (5, 6, 7 and 8) and coat with zinc dust paint.

5 Punch 2 holes with \varnothing 6 mm dia. bit on left and right at a maximum hole interval of 15 mm in area (9) (arrows).

6 Grind outer wheel flange (1) down to bare metal on both sides in marked areas (9 and 10) and coat with zinc dust paint.

[Return to Index](#)



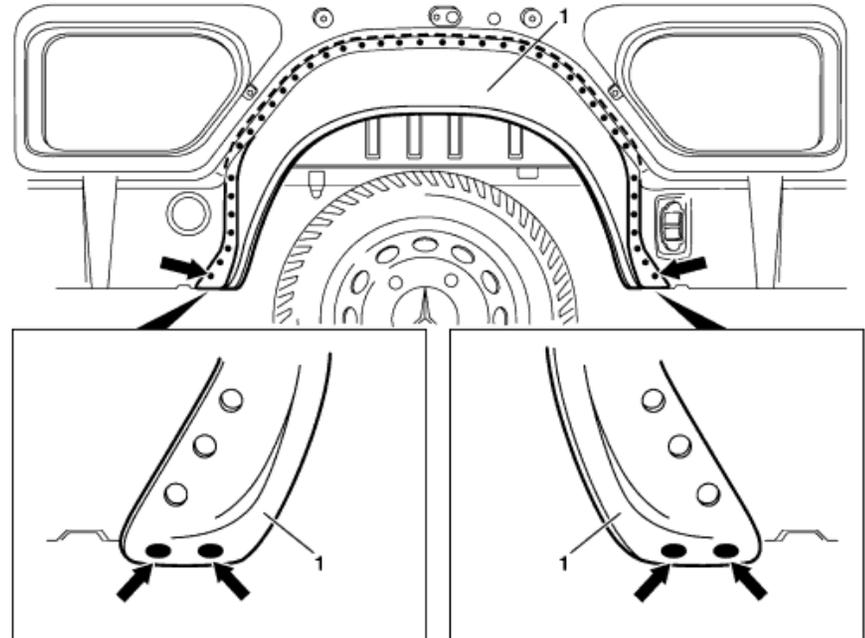
Zinc dust paint suitable for spot welding

7 Fit outer wheel flange (1), align and clamp in place

8 Weld in outer wheel flange (1)

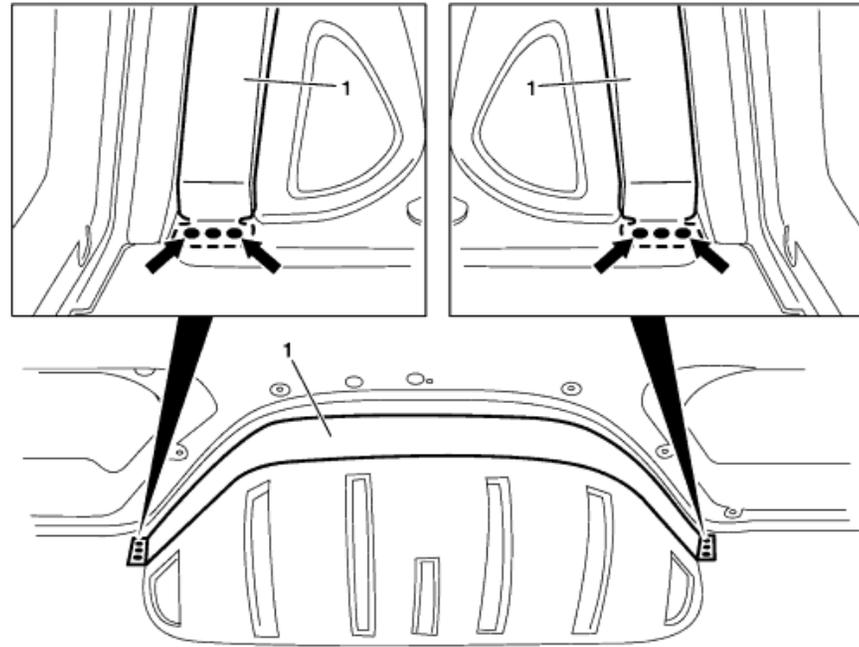
Welding in outer wheel flange

1 Weld wheelhouse (1) to inner side wall section
(, arrows).

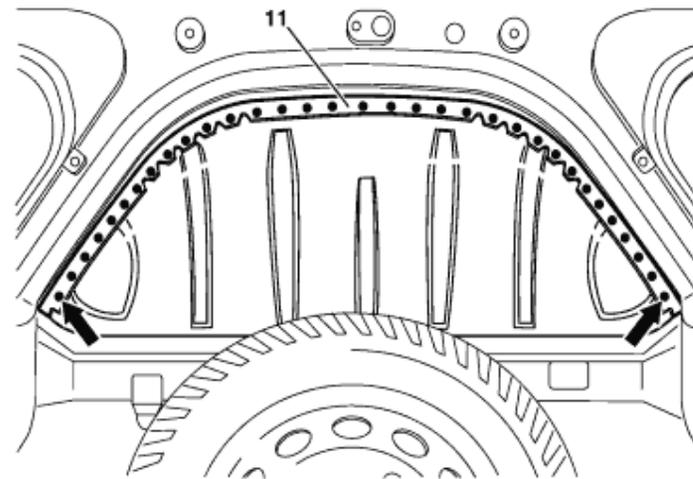


[Return to Index](#)

2 Weld wheelhouse (1) to cargo space floor (SG, arrows).



3 Weld outer wheelhouse to wheelhouse (11) (RP, arrows).



[Return to Index](#)

9 Grind down extending welding material

10 Install side wall paneling

11 Clean areas repaired and prime with Mopar or equivalent primer/filler

12 Supplement standard seals with Mopar or equivalent body sealing compound

13 Add Mopar or equivalent permanent underfloor protection as a supplement to underbody protection installed as standard

14 Paint repair area and adjacent surfaces

15 Supplement cavity preservation

16 Reinstall all detachable body components removed

[Return to Index](#)

Rear Wall & Rear End



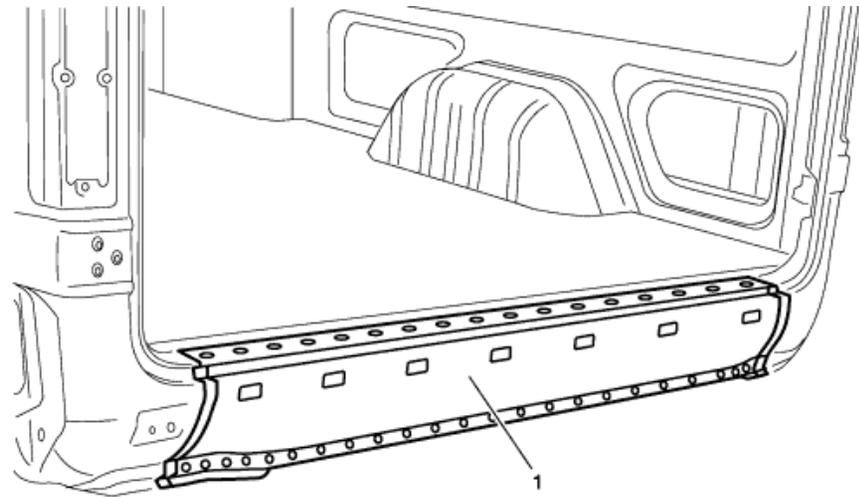
Rear Wall and Rear End

Remove/install end plate

MODEL

901.06 /36 /37 /46 /66 /67, 902.06 /07 /36 /37 /46 /47 /66 /67, 903.06 /07 /36 /37 /46 /47 /66 /67, 904.06 /36 /46 /66

1 End plate



[Return to Index](#)

Removing

1 Remove trailer coupling

Only on vehicles with trailer coupling

2 Remove spare wheel

3 Remove rear bumper

4 Remove tailgate entrance panel

Only with code MBZ, tailgate step

5 Remove cover rail on wooden floor

6 Remove rear wooden floor

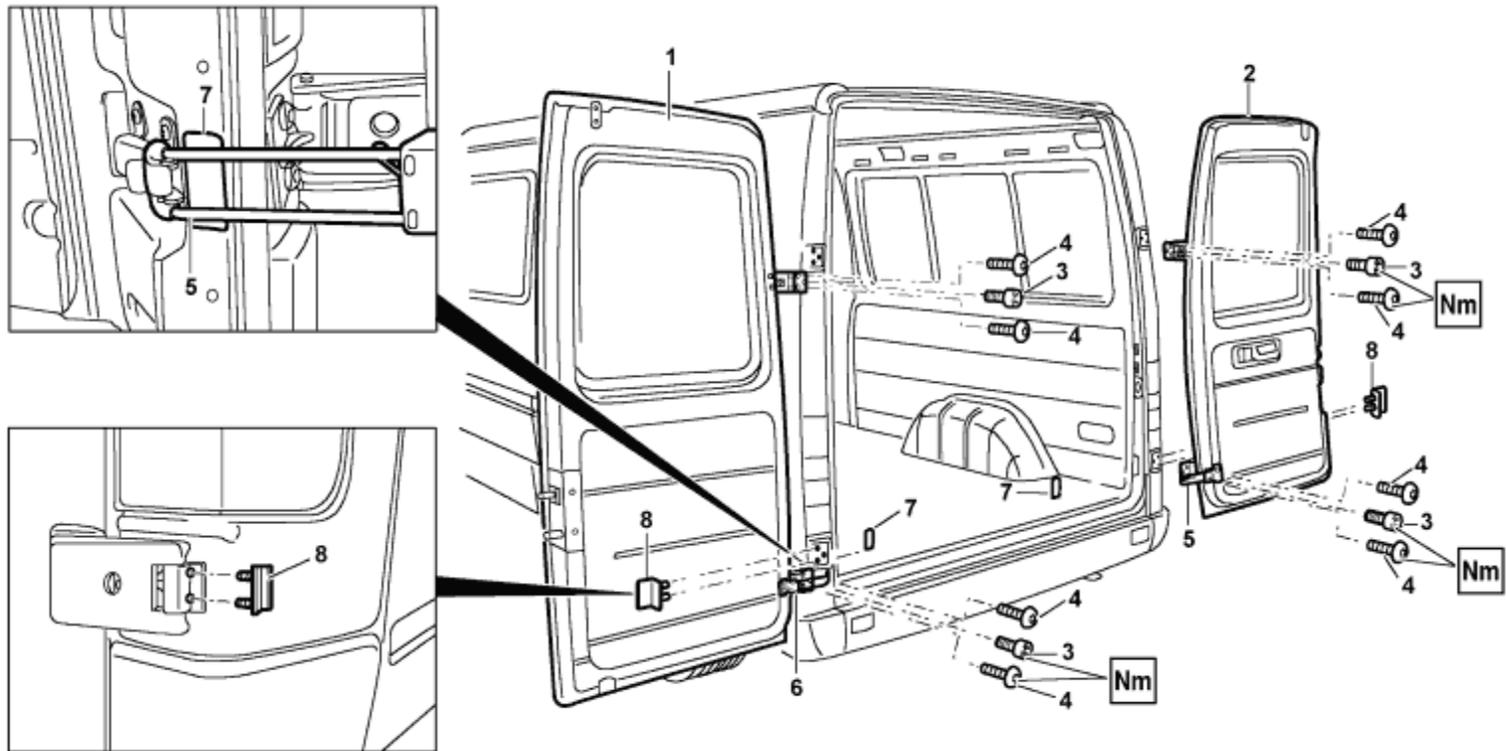
7 Remove rear doors

Remove, install rear door

MODEL

901.06 /36 /37 /46 /66 /67, 902.06 /07 /36 /37 /46 /47 /66 /67, 903.06 /07 /36 /37 /46 /47 /66 /67, 904.06 /36 /46 /66 except
CODE (W90) Delete item rear doors

[Return to Index](#)



Illustrated: Flat roof version

- 1 Rear door, left door wing
- 2 Rear door, right door wing
- 3 Cylindrical Torx screw
- 4 Torx screw

- 5 Right strap
- 6 Left strap
- 7 Paint protective sheet
- 8 Door stop

[Return to Index](#)

Modification notes

Restore paint structure (touch up with brush) in adjustment area of hinges

Remove/install

1 Inspect door stop (8) on both door hinges replace if necessary

2 Release strap (5)

3 Inspect paint protective sheets (7) for damage replace if necessary

4 Remove screws (3, 4) attaching door hinges

5 Lift out rear door

The left rear door is removed in the same way

If the door is replaced, the seams must be sealed all round before painting

6 Install in the reverse order

7 Inspect alignment of rear door

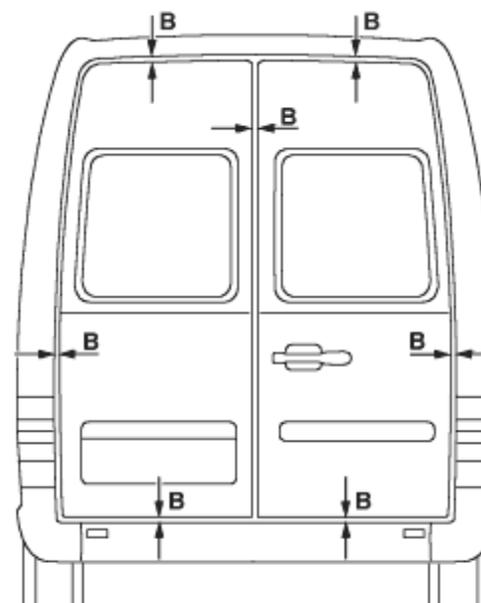
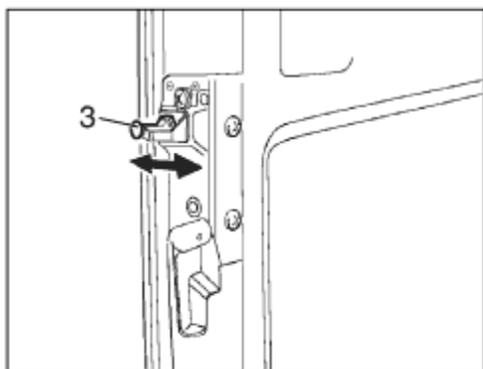
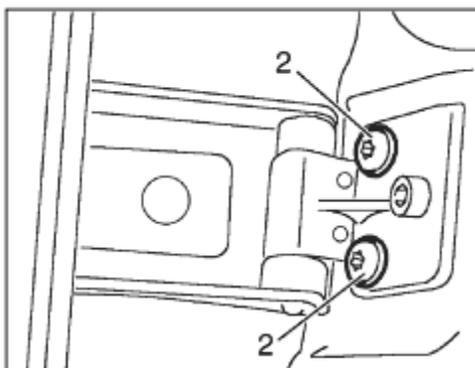
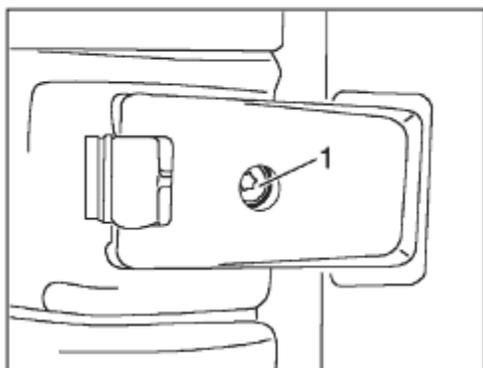
Adjust if necessary

[Return to Index](#)

Adjust rear door

MODEL

901.06 /36 /37 /46 /66 /67, 902.06 /07 /36 /37 /46 /47 /66 /67, 903.06 /07 /36 /37 /46 /47 /66 /67, 904.06 /36 /46 /66 except
CODE (W90) Delete item rear doors



B Door gaps

[Return to Index](#)

Modification notes

Reference to remedy for leakage added

Due to technical modifications, new reference added

Adjusting

1 Check gaps on rear door all the way around

2 Loosen Torx screws (2)

3 Loosen hexagon socket head screw (1) through hole in hinge

4 Adjust rear door and tighten Allen screw (1)

Adjust so that bottom closing wedges make contact and door gaps are uniform all the way around.

5 Tighten Torx screws (2).

6 Loosen striker pin (3) and adjust horizontally until right rear door is flush in relation to left rear door

Lock pin should engage in lock in center. Never lift door over lock pin nor pull down

7 Adjust closing wedges for rear doors

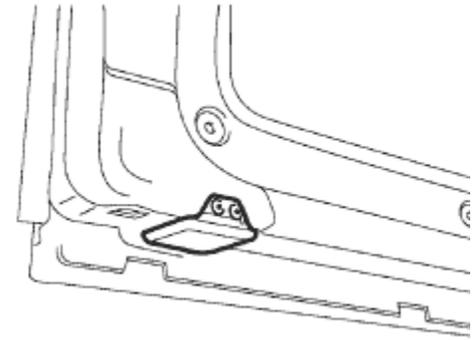
Since the rear doors are components with static functions it is extremely important that they are fastened while driving. This prevents excessive torsion of the vehicle and leaky rear doors. The rear doors are fastened by adjusting the closing wedges.

[Return to Index](#)

Adjust closing wedges on rear doors

Lower closing wedges must touch plastic plates free of clearance when rear doors are closed.

To adjust closing wedges, loosen door hinges and lift and lower doors completely.

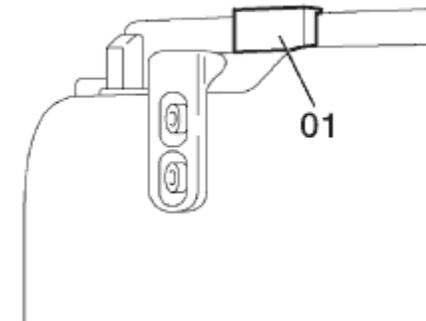


To adjust upper closing wedge of left rear door, push distance gauge (01) onto door at top near lock pin so that the 12 mm-thick side faces the cargo space.

Close rear door until the distance gauge makes contact below the roof drip molding.

Position upper closing wedge so that it touches the plastic plate free of clearance and tighten **Nm**.

To adjust upper closing wedge of right rear door, position wedge so that it touches the plastic plate free of clearance when the rear door is closed and tighten

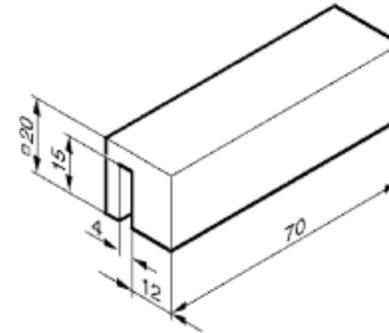


[Return to Index](#)

Distance gauge for adjusting closing wedges on rear doors.
Model 901, 902, 903, 904

Distance gauge for adjusting closing wedges on tailgates

Material: plastic or hardwood



If the contact pressure is too low leakage can occur on the seal of the left rear door. For disposal see: ↓

Sealing rear door

Models 901, 902, 903, 904 up to XP 671 699

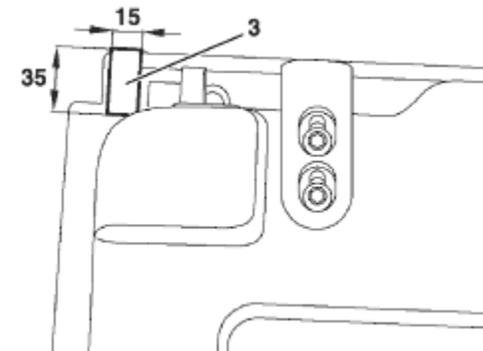
Do not carry out operation unless a new seal has been installed at the left rear door and water continues to get into the interior of the vehicle at the transition between the all-around sealing frame and the vertical seal at top.

Models 901, 902, 903, 904 as of XP 671 700,

As of the VIN mentioned above, the modified seal is already factory-fitted to the left rear door and does not need to be replaced beforehand.

1 A strip of sealing tape (3) must be placed below the vertical seal at the top in order to increase the contact pressure.

Sealing strip



[Return to Index](#)

8 Check rear door for easy motion

9 Finish paint in adjustment range of hinges on rear pillars using brush

Since the hinges are already installed on the body shell at the factory it is not possible for corrosion protection agent to adhere to the contact surfaces. For this reason it is necessary to repair the unprotected areas after adjusting.

8 Remove door seal

9 Remove electric leads from repair area and cover

10 Remove miscellaneous detachable body components in repair area

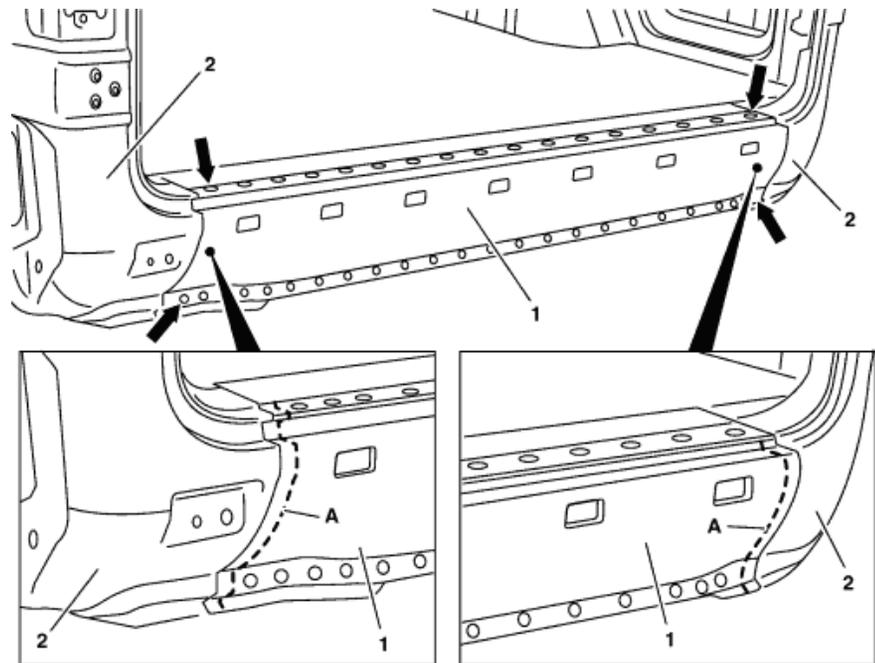
11 Cover all detachable body components remaining in area to be repaired

12 Remove end plate (1)

[Return to Index](#)

Separating end plate

- 1 Cut spot welds out of end plate (1) (arrows).
- 2 Separate end plate (1) along both corner pillar panels (2) (dotted line, A).



Bore welding points.

Install

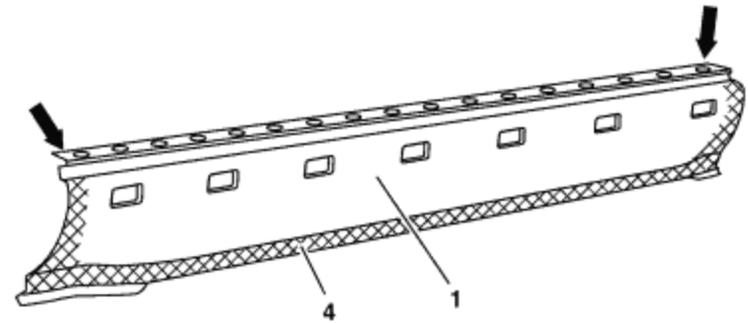
13 Straightening connecting plate, grinding off and coating with zinc dust paint
Zinc dust paint suitable for spot welding

14 Prepare end plate (1) for installation

[Return to Index](#)

Preparing end plate for installation

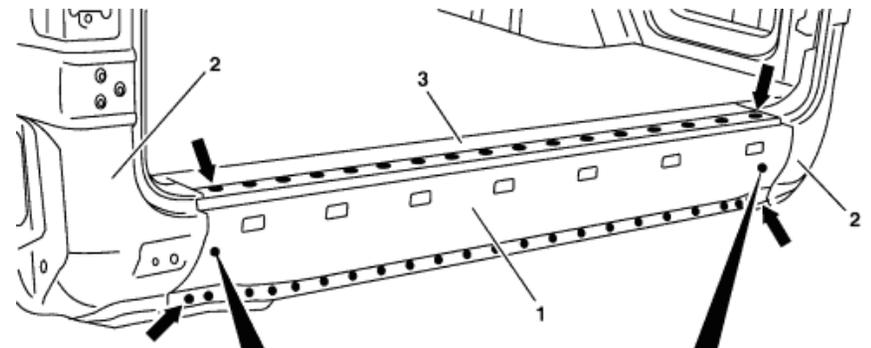
- 1 Punch 6 mm dia. holes (1) (arrows) in end plate (1) at a maximum hole interval of 60 mm.
- 2 Grind end plate (1) in area of punched holes and in area (4) and coat with zinc dust paint.
- 3 Fit end plate (1), align and clamp.



Zinc dust paint suitable for spot welding

15 Weld in end plate (1)

- 1 Weld end plate (1) to cross member (3) at top (SG , arrows).
- 2 Weld end plate (1) to corner paneling (2) (SG , A)
- 3 Spot weld end plate (1) at bottom to cross member (RP , arrows).

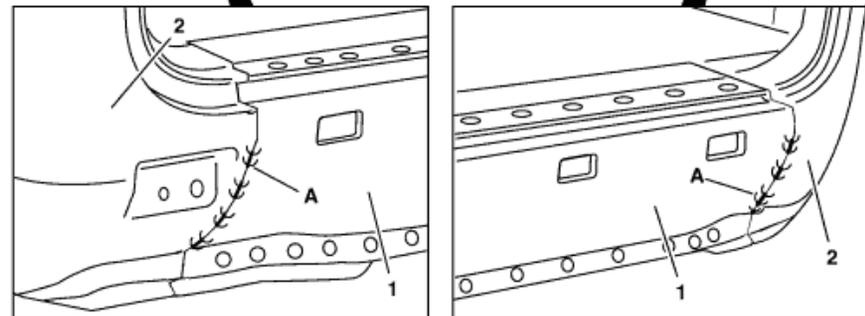


16 Grind down extending welding material

17 Vacuum out hollow cavities

Metal filings or metallic grinding dust in cavities can lead to corrosive damage.

Wet/dry vacuum cleaner



[Return to Index](#)

18 Clean areas to be repaired with MOPAR primer/filler or equivalent

19 Supplement standard seals with MOPAR body sealant or equivalent

Seam sealing after repairs

20 Add MOPAR permanent underfloor or equivalent protection as a supplement to underbody protection installed as standard

21 Paint repair area and adjacent surfaces

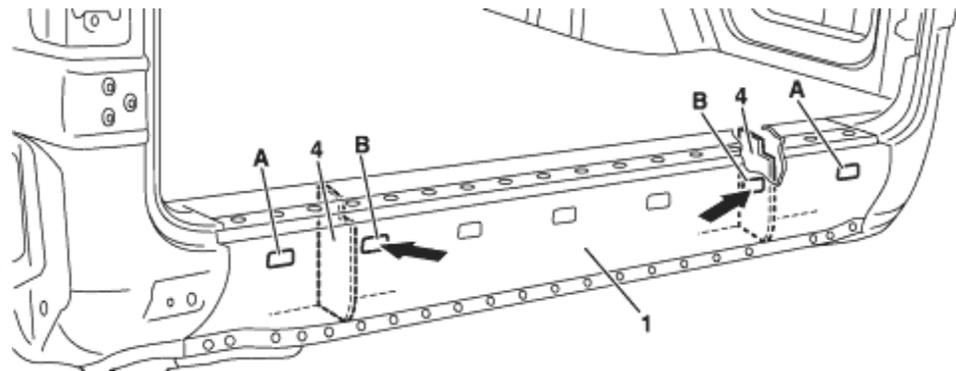
22 Seal hollow cavities on right and left in end plate (1) with assembly foam

Perform step to ensure that no exhaust gases get into the passenger compartment through the openings in the rear panel while driving

Sealing left and right hollow cavities in end plate with assembly foam

1 Install assembly foam through second opening (arrow) on right and left in end plate (1) in front of sealing plates (4).

Screw screws into towing hook mount on right side, to keep glue off of threads
When replacing end cross member new sealing plates (4) are not delivered, therefore completely foam area between opening **A** and **B**.



2 Allow assembly foam to harden as described and remove excessive material.

Assembly foam

[Return to Index](#)

23 Supplement cavity preservation

24 Install rear doors

25 Install rear wooden floor

26 Install door seal

27 Install cover rail for wooden floor

28 Connect electrical leads to body

29 Install tailgate step

Only with code MBZ, tailgate step

30 Install rear bumper

31 Install trailer coupling

Only on vehicles with trailer coupling

32 Install spare wheel

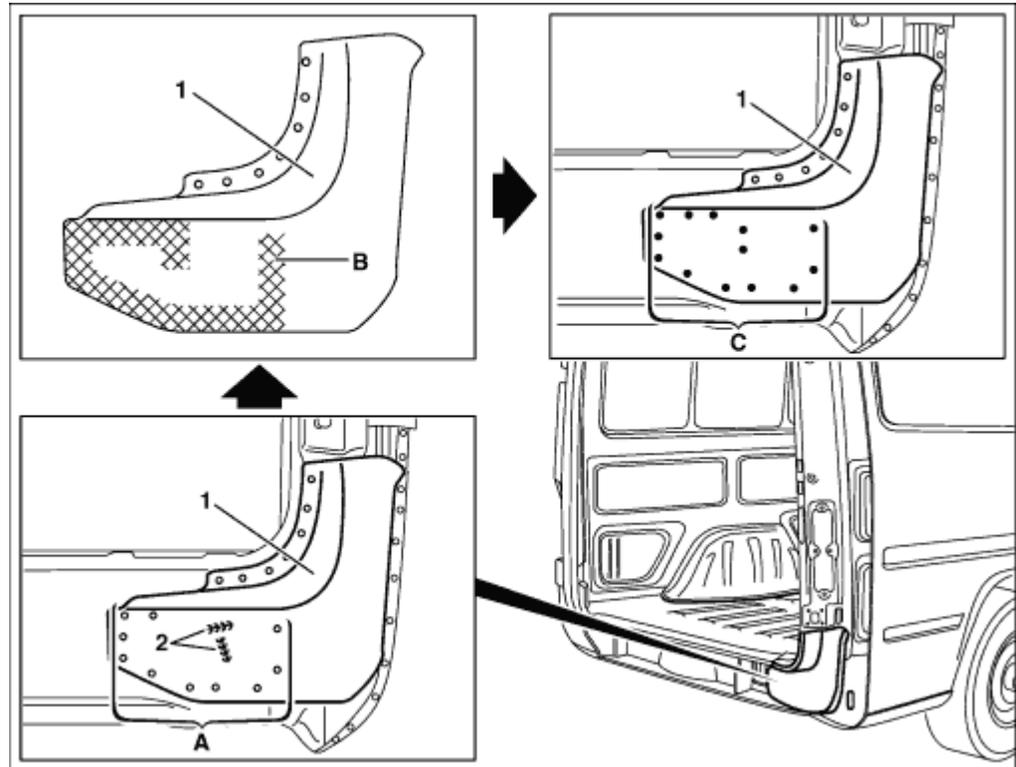
33 Reinstall miscellaneous detachable body components

Remove/install reinforcement plate for outer corner pillar paneling

Repair illustrated on right reinforcement plate of corner pillar paneling

[Return to Index](#)

1 Reinforcement plate for outer corner
pillar paneling
2 Welds
A Area
B Area
C Area RP



Remove

Repair description applies by analogy for left side of vehicle

1 Remove rear bumper

2 Remove tailgate entrance panel

[Return to Index](#)

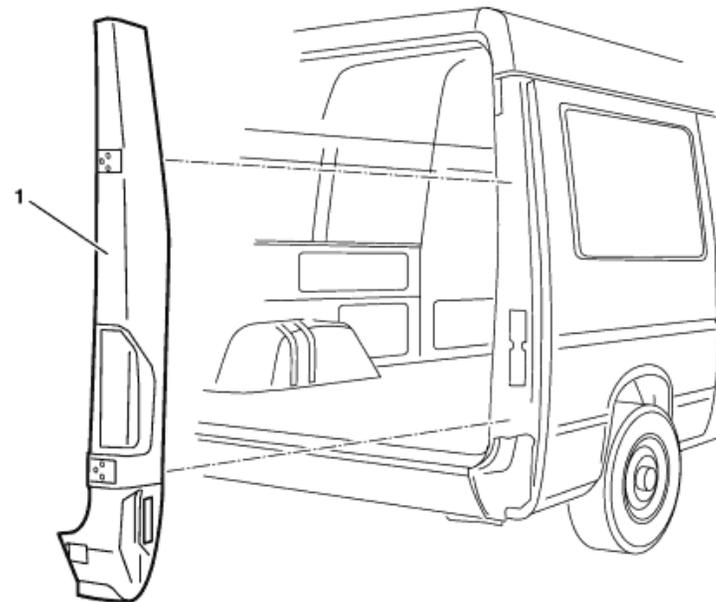
Only with code MBZ, tailgate step

- 3 Remove rear door
- 4 Remove miscellaneous detachable body components in repair area
- 5 Cover all detachable body components remaining in area to be repaired
- 6 Remove end plate
- 7 Remove outer corner pillar paneling

Remove/install outer corner pillar paneling

Repair illustrated on right side of vehicle

1 Outer corner pillar paneling



[Return to Index](#)

Removing

Repair description applies by analogy for left side of vehicle

1 Remove rear bumper

2 Remove tailgate entrance panel

Only with code MBZ, tailgate step

3 Remove rear door

4 Remove door seal

5 Remove taillamp

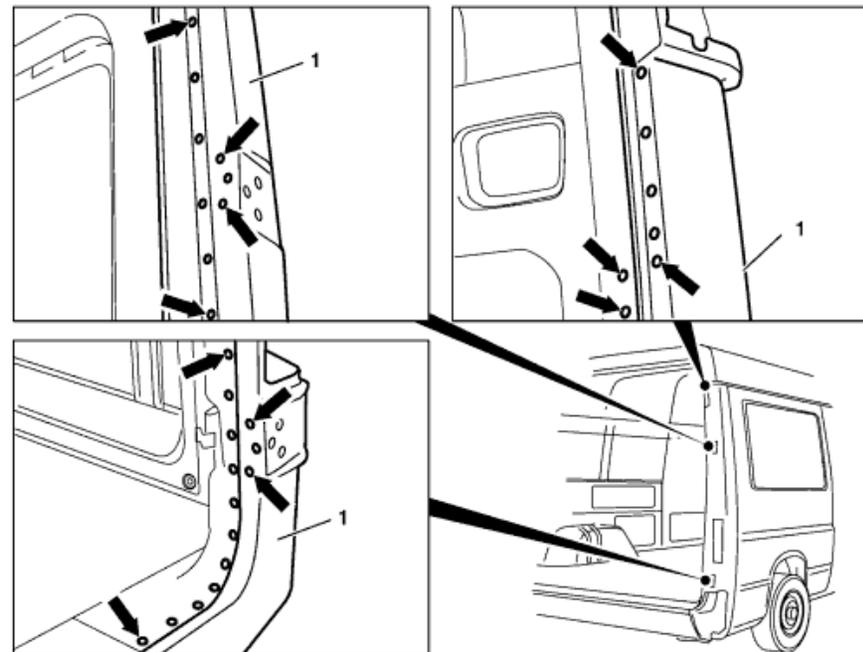
6 Remove miscellaneous detachable body components in repair area

7 Cover all detachable body components remaining in area to be repaired

8 Separate right outer corner pillar paneling (1)

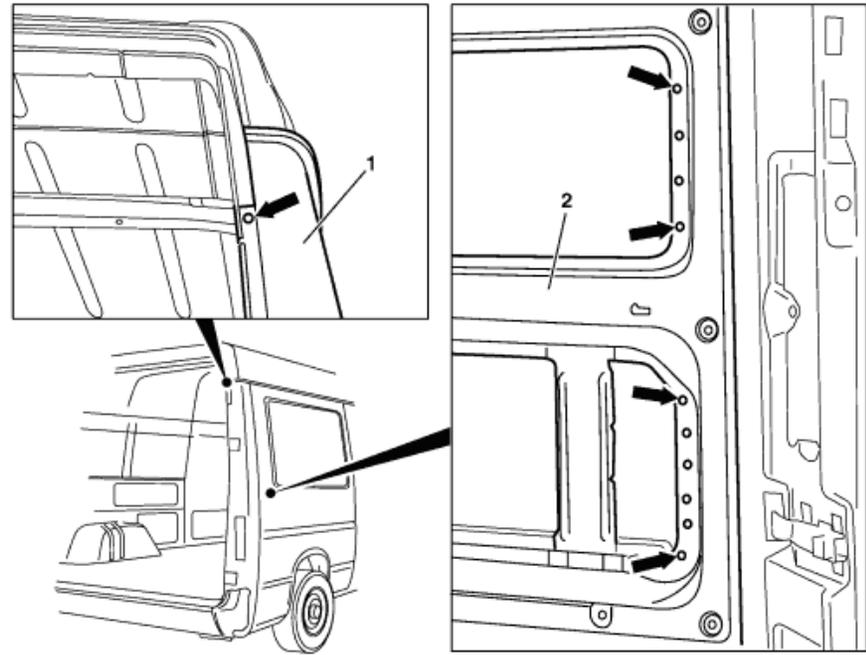
Figure shows van with high roof as an example

1 Cut spot welds out of right outer corner pillar paneling (1).



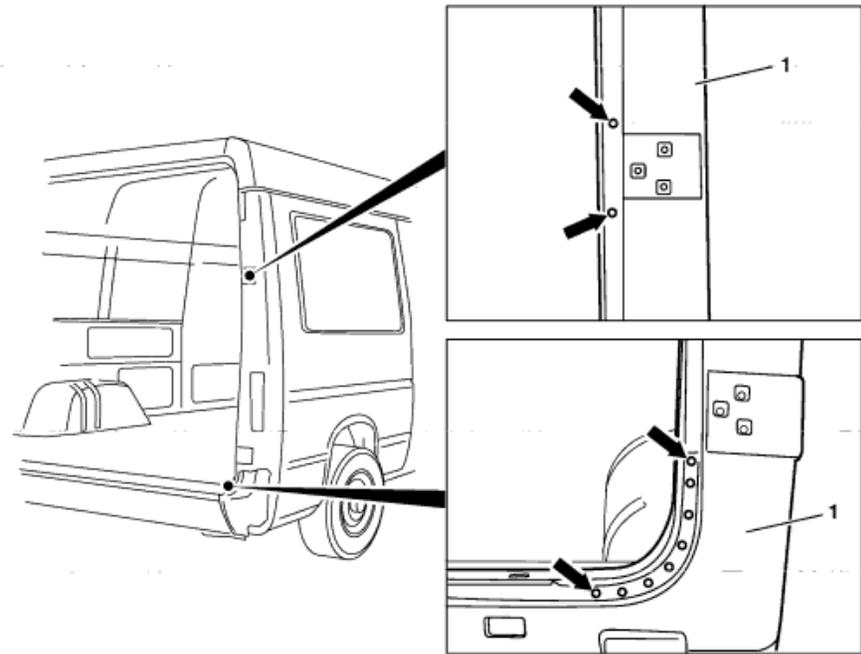
[Return to Index](#)

2 Cut spot welds out of right outer corner pillar paneling (1) and side wall inner section (2) (arrows).



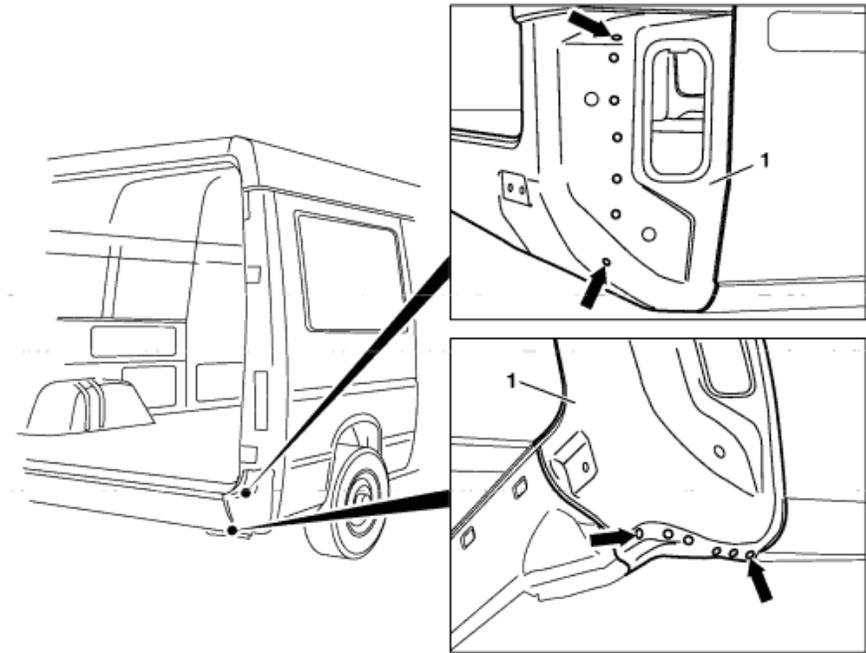
[Return to Index](#)

3 Cut spot welds out of right outer corner pillar paneling (1) (arrows).



[Return to Index](#)

4 Cut spot welds out of right outer corner pillar paneling (1) (arrows).

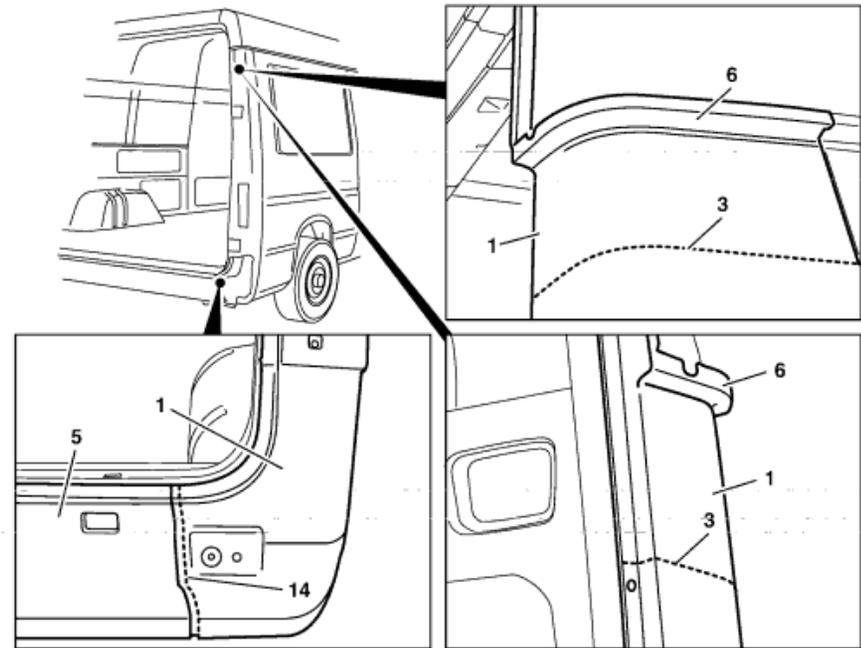


[Return to Index](#)

5 Mark separation line (dotted line, 3) along drip molding (6) at a distance of approx. of 100 mm.

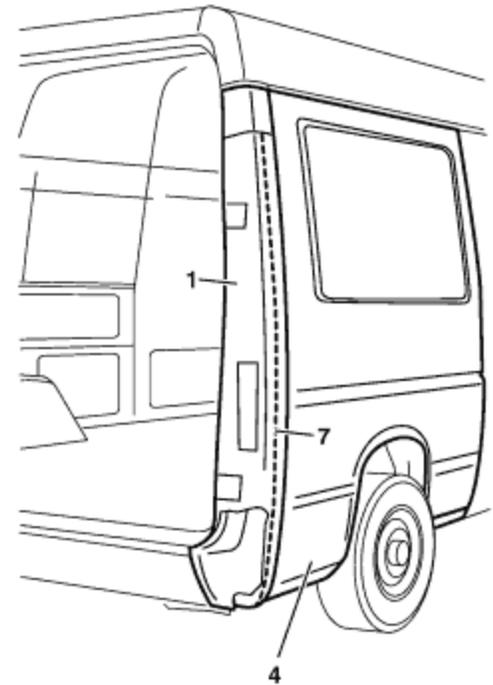
6 Separate right outer corner pillar paneling (1) along marked separation line (dotted line, 3).

7 Separate right outer corner pillar paneling (1) along end plate (5) (dotted line, 14).



[Return to Index](#)

- 8 Separate right outer corner pillar paneling (1) along side wall paneling (4) (dotted line, 7).
- 9 Remove right outer corner pillar paneling (1).



Cut out spot welds

Install

- 9 Prepare connection points for right outer corner pillar paneling
- 10 Straighten connecting plates, grind off and coat with zinc dust paint
Zinc dust paint suitable for spot welding
- 11 Prepare right outer corner pillar paneling (1) for installation
Zinc dust paint suitable for spot welding

[Return to Index](#)

12 Weld in right outer corner pillar paneling (1)

13 Grind down extending welding material

14 Tin connection points

15 Vacuum out hollow cavities

 Metal chips or metallic grinding dust in hollow cavities can lead to corrosion damage

Wet/dry vacuum cleaner

16 Clean areas to be repaired with MOPAR primer/filler or equivalent

17 Supplement standard seals with MOPAR body sealant or equivalent
Seam sealing after repairs

18 Add MOPAR permanent underfloor protection or equivalent as a supplement to underbody protection installed as standard

19 Paint repair area and adjacent surfaces

20 Supplement cavity preservation

21 Apply standard sealant between right outer corner pillar paneling (1) and right side wall paneling

22 Install taillamp

23 Install rear door

[Return to Index](#)

24 Install door seal

25 Install tailgate step
Only with code MBZ, tailgate step

26 Install rear bumper

27 Reinstall miscellaneous detachable body components

8 Cut all welds out of reinforcement plate for outer corner pillar paneling (1) (area A)

Cut out spot welds

9 Separate reinforcement plate for outer corner pillar paneling (1) at welds (2).

Remove/install bottom section of outer corner pillar paneling

Repair illustrated on right side of vehicle

1 Outer corner pillar paneling bottom section



[Return to Index](#)

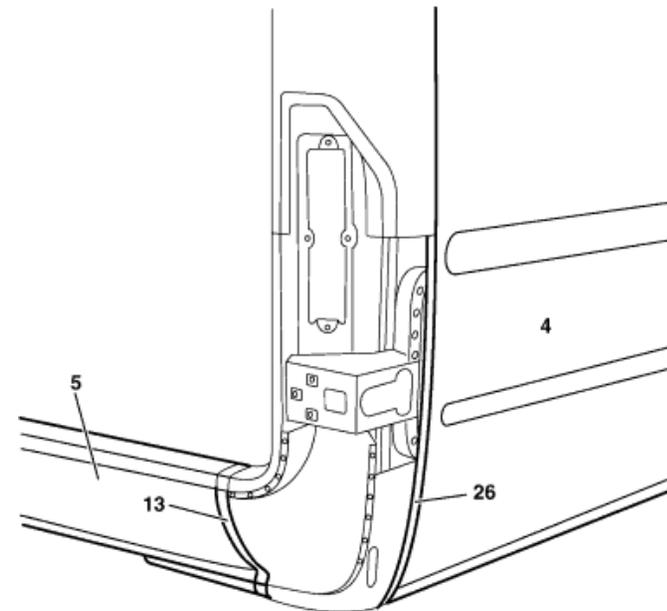
Removing

Repair description applies by analogy for left side of vehicle

- 1 Remove rear bumper
- 2 Remove tailgate entrance panel
i Only with code MBZ, tailgate step
- 3 Remove rear door
- 4 Remove door seal
- 5 Remove taillamp
- 6 Remove miscellaneous detachable body components in repair area
- 7 Cover all detachable parts remaining in area to be repaired.
- 8 Separate bottom section of outer corner pillar paneling (1)

Install

- 9 Prepare connection points for right outer corner pillar paneling bottom section
 - 1 Carefully grind back remaining sheet metal panel (13) on end plate (5)
 - 2 Carefully grind remaining sheet metal panel (26) down to edge of side wall paneling (4).



[Return to Index](#)

10 Straighten connecting plates, grind off and coat with zinc dust paint
Zinc dust paint suitable for spot welding

11 Prepare right outer corner pillar paneling bottom section (1) for installation

1 Mark separation line (dotted line, 25) with the following dimension:

a = approx. 200 mm.

2 Separate right outer corner pillar paneling (1) along marked separation line (dotted line, 25)

3 Cut spot welds out of outer corner pillar paneling (1) (arrows).

4 Grind outer corner pillar paneling bottom section down to bare metal on both sides in marked area (18) and coat with zinc dust paint.

5 Fit outer corner pillar paneling bottom section, align and clamp.

Zinc dust paint suitable for spot welding

13 Grind down extending welding material

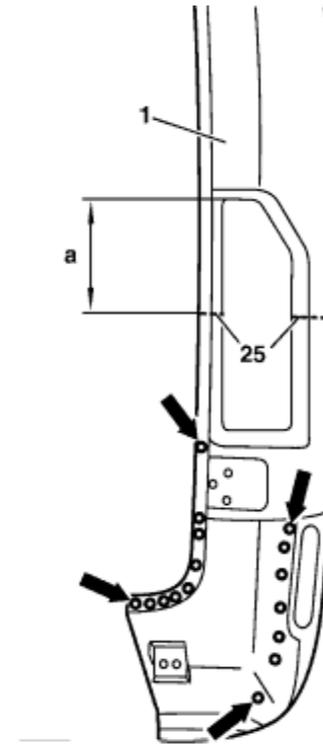
14 Tin connection points

15 Vacuum out hollow cavities

Metal chips or metallic grinding dust in hollow cavities can lead to corrosion damage

Wet/dry vacuum cleaner

16 Clean areas to be repaired with MOPAR primer/filler or equivalent



[Return to Index](#)

17 Supplement standard seals with MOPAR body sealant or equivalent
Seam sealing after repairs

18 Add MOPAR permanent underfloor protection as a supplement to underbody protection installed as standard

19 Paint repair area and adjacent surfaces

20 Supplement cavity preservation

21 Apply standard sealant between right outer corner pillar paneling (1) and right side wall paneling

22 Install taillamp

23 Install rear door

24 Install door seal

25 Install tailgate step
Only with code MBZ, tailgate step

26 Install rear bumper

27 Reinstall miscellaneous detachable body components

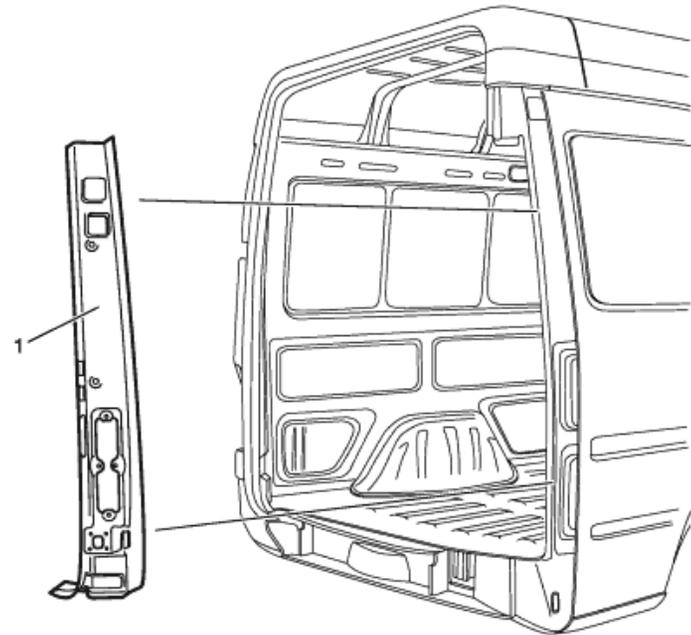
Cut out spot welds

[Return to Index](#)

Remove/install inner corner pillar paneling

Repair illustrated on right side of vehicle

1 Inner corner pillar paneling



Remove

Repair description applies by analogy for left side of vehicle

1 Remove rear bumper

2 Remove tailgate entrance panel
Only with code MBZ, tailgate step

3 Remove rear doors

4 Remove side wall paneling

[Return to Index](#)

Only on vehicles with side wall paneling, code CTE

5 Remove door seal

6 Remove taillamps

7 Remove miscellaneous detachable body components in repair area

8 Cover all detachable body components remaining in area to be repaired

9 Remove end plate

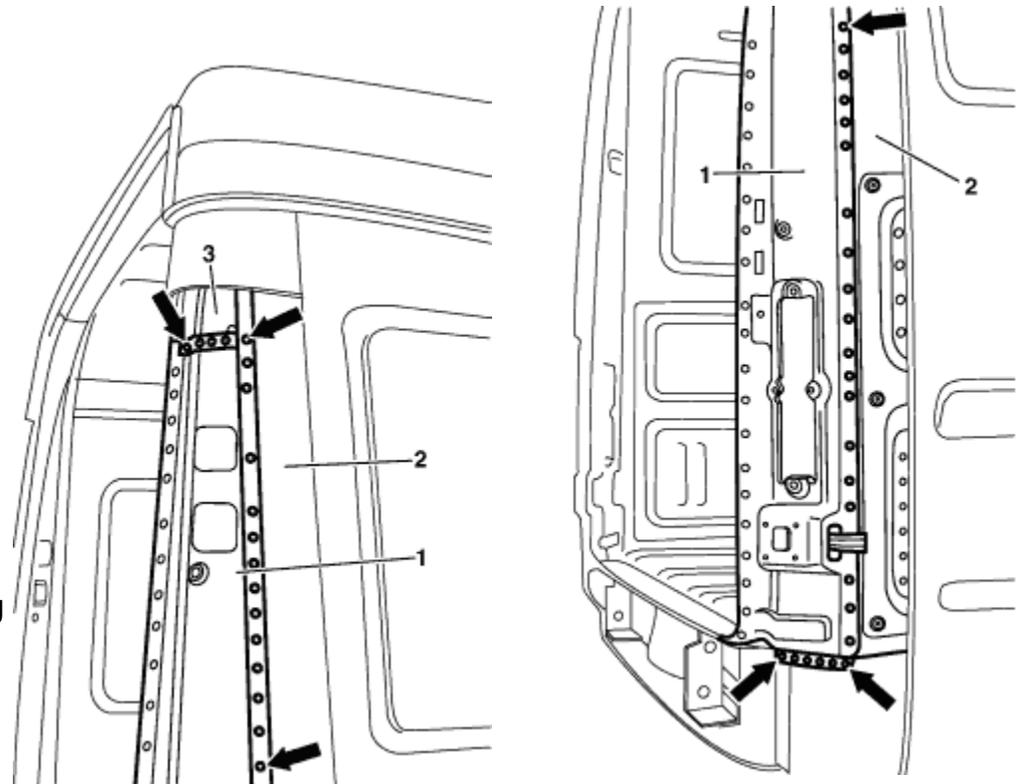
10 Remove right outer corner pillar paneling

11 Remove reinforcement panel for right outer corner pillar paneling

12 Separating right inner corner pillar paneling

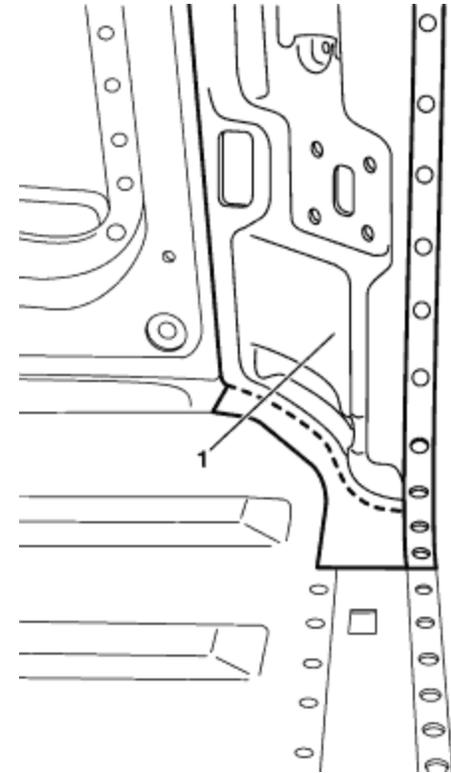
1 Cut spot welds out of side wall inner section (2), right inner corner pillar paneling (1) and right inner corner pillar paneling (2) upper section (3) (arrows).

Bore welding points.



[Return to Index](#)

2 Separate right inner corner pillar paneling (1) along bottom edge (dotted line).



[Return to Index](#)

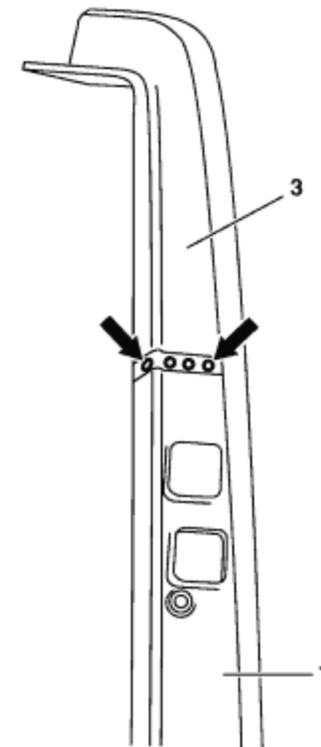
Install

13 Straighten connecting plates, grind off and coat with zinc dust paint
Zinc dust paint suitable for spot welding

14 Prepare right inner corner pillar paneling for installation

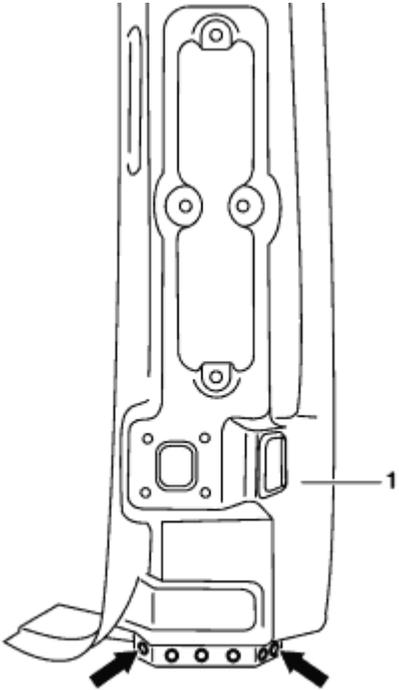
Preparing right inner corner pillar paneling for installation

1 Cut spot welds out of right inner corner pillar paneling (1) and remove upper section (3) (arrows).



[Return to Index](#)

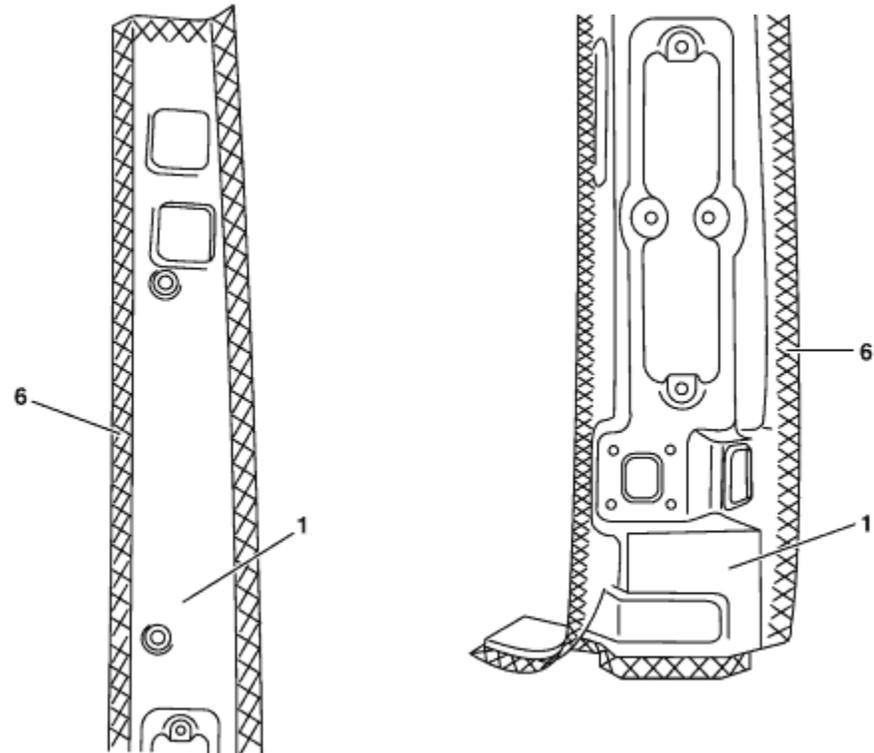
2 Punch 6 mm dia. holes in right inner corner pillar paneling (1) (arrows).



[Return to Index](#)

3 Grind right inner corner pillar paneling (1)
on both sides in marked area (6) and
coat with zinc dust paint.

4 Hold right inner corner pillar paneling (1),
align and clamp.



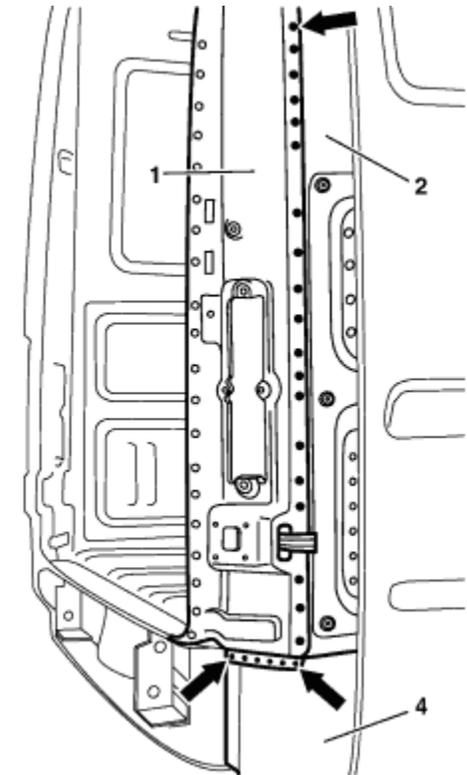
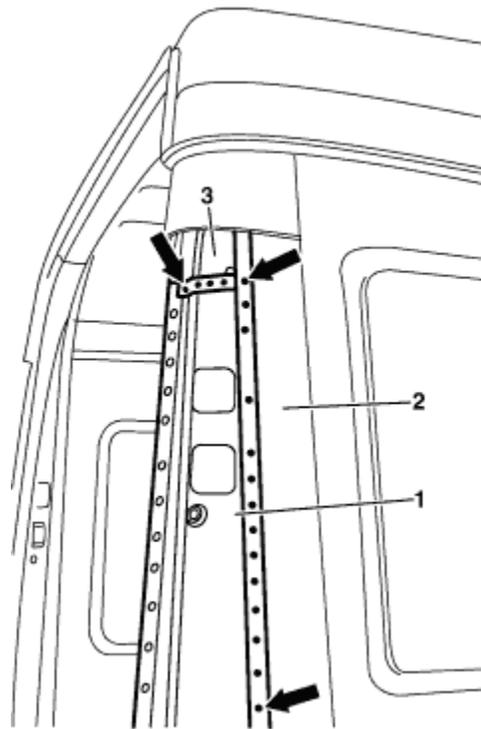
Zinc dust paint suitable for spot welding

15 Weld in right inner corner pillar paneling (1)

[Return to Index](#)

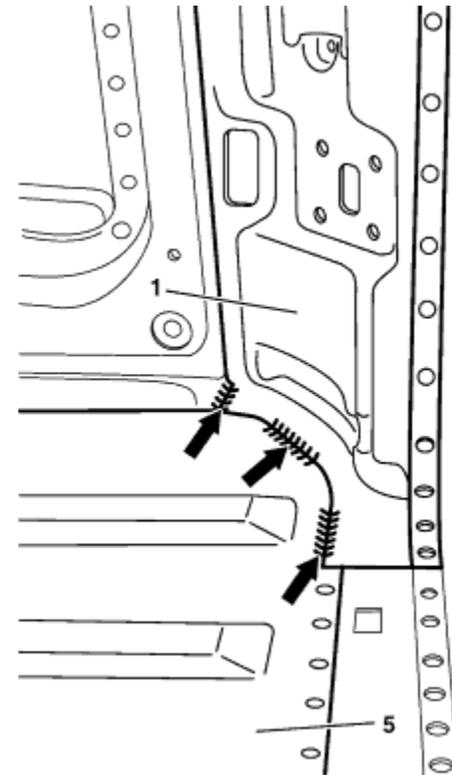
Welding in right inner corner pillar paneling

1 Weld right inner corner pillar paneling (1) to right inner corner pillar paneling upper section (3), side wall inner section (2) and outer longitudinal member (4) (see , arrows).



[Return to Index](#)

2 Weld right inner corner pillar paneling (1) to floor panel (5)
(~~see~~, arrows).



16 Grind down extending welding material

17 Clean areas repaired and prime with MOPAR primer/filler or equivalent

18 Remove reinforcement panel for right outer corner pillar paneling

19 Install right outer corner pillar paneling

[Return to Index](#)

20 Install end plate

21 Supplement standard seals with MOPAR body sealant or equivalent
Seam sealing after repairs.

22 Add MOPAR permanent underfloor protection as a supplement to underbody protection installed as standard

23 Paint repair area and adjacent surfaces

24 Supplement cavity preservation

25 Install door seal

26 Install rear doors

27 Install taillamps

28 Install side wall paneling
Only on vehicles with side wall paneling, code CTE

29 Install tailgate step
Only with code MBZ, tailgate step

30 Install rear bumper

31 Reinstall miscellaneous detachable body components

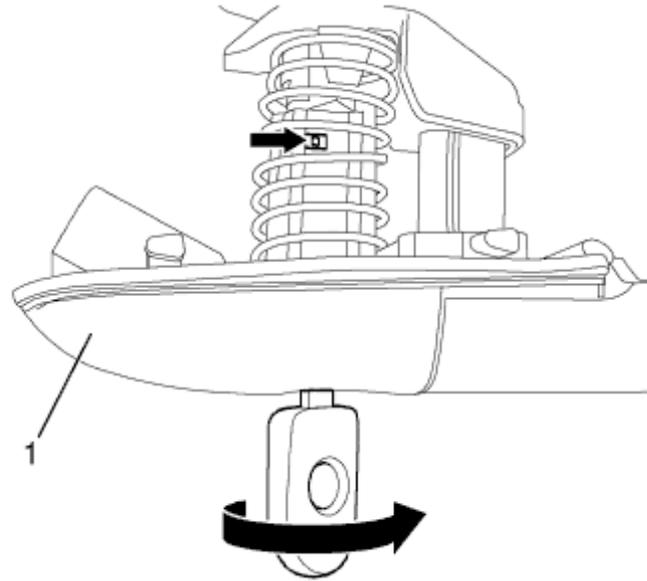
[Return to Index](#)

Doors



Removing and installing lock cylinder

1. Door handle



Remove

1. Remove door handle (1)
2. Insert ignition key into lock cylinder and turn to right to stop
3. Push retaining vane of lock cylinder down through slot in door handle (arrow)
4. Pull out lock cylinder

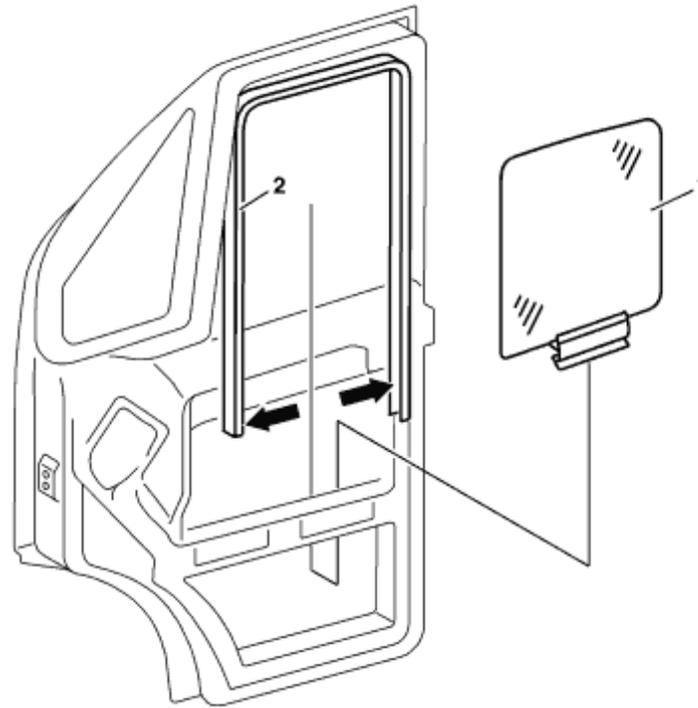
Install

5. Insert lock cylinder with ignition key into mounting hole of door handle (1) to stop Lock cylinder fits only in one position and catches only there



Removing and installing front door window

1. Window
2. Sealing frame



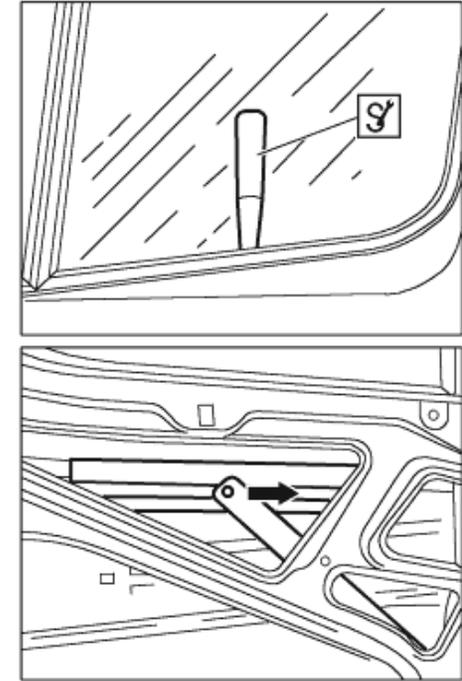
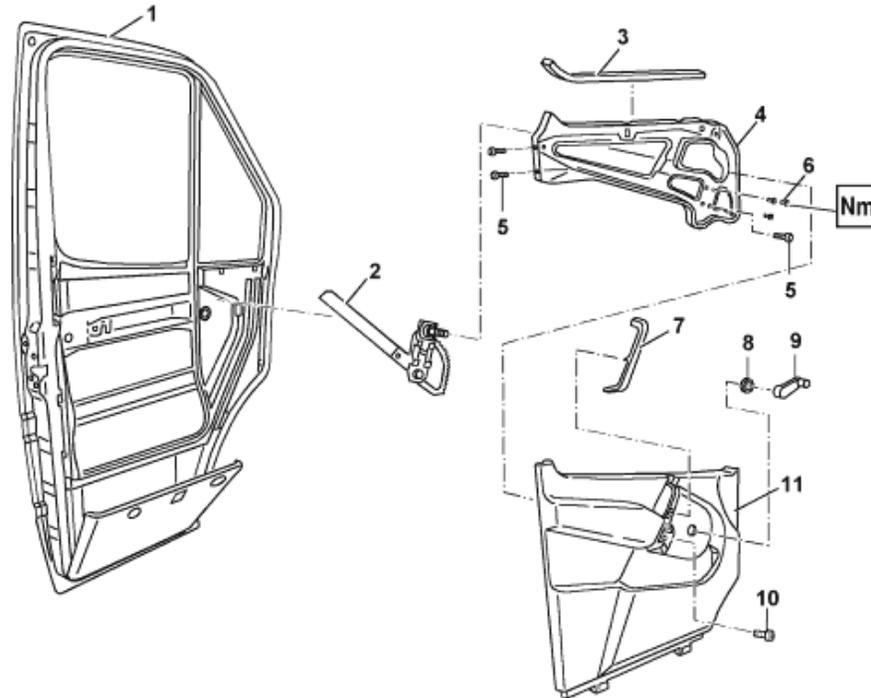
Remove/install

- 1.1. Remove crank mechanism
- 1.2. Remove power window motor
2. Carefully lower window (1) down into door, move out of sealing frame (2) on left and right (arrows) and remove
3. Install in the reverse order



Removing and installing crank mechanism for hinged door

1. Door
2. Crank
3. Sealing strip
4. Carrier plate
5. Bolt
6. Blind rivet
7. Cover
8. Trim ring
9. Window crank
10. Bolt
11. Door paneling



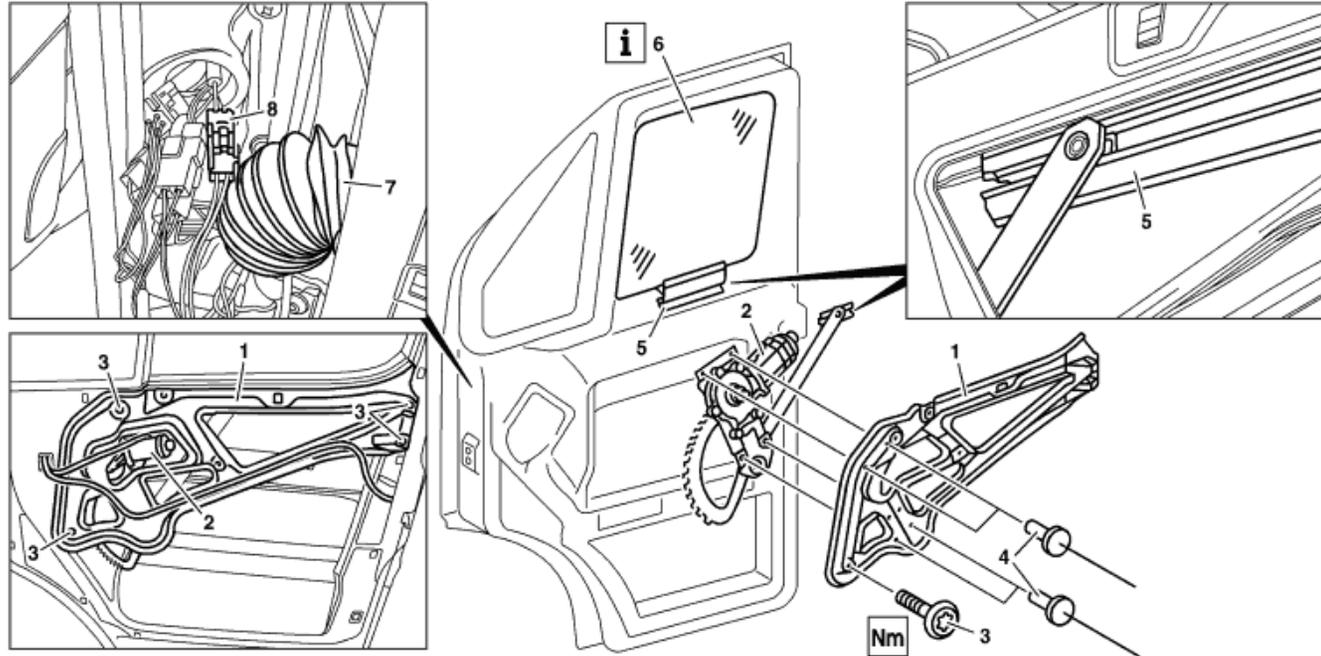
Remove/install

1. Remove door liner from hinged door (11)
2. Block window with special tool
3. Remove crank carrier plate (4)
4. Move crank (2) out of window lift rail in direction of arrow
5. Check crank mechanism replace if necessary
6. Install in the reverse order



Remove/install motor for electric power windows in front door

1. Carrier plate
2. Motor (power window)
3. Torx bolt
4. Blind rivet
5. Guide rail
6. Window
7. Rubber grommet
8. Connector



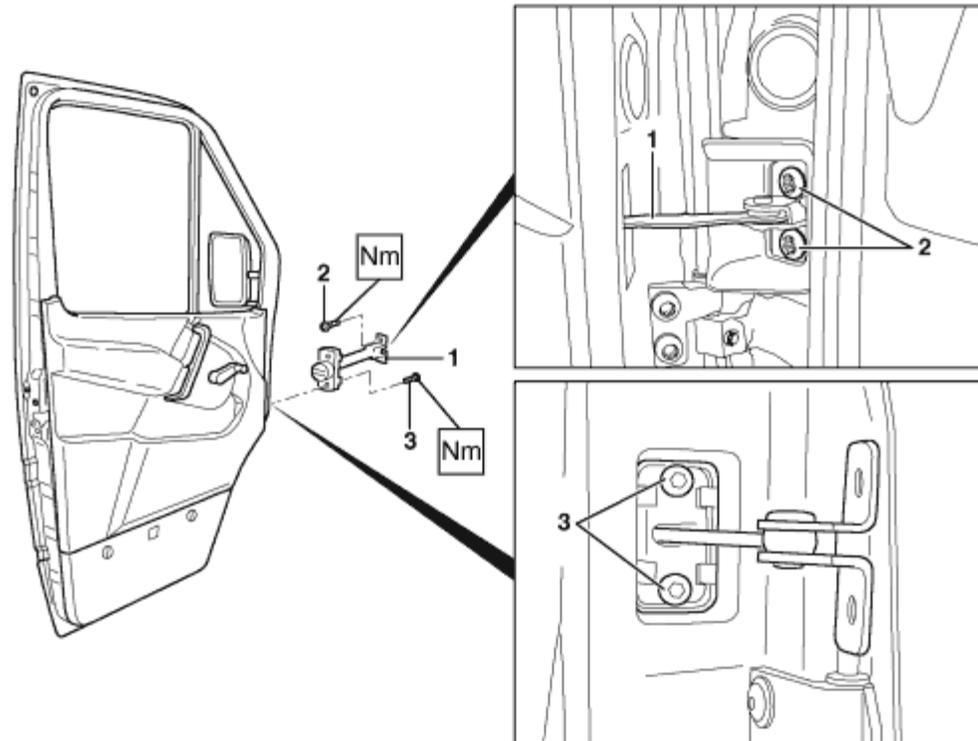
Remove/Install

1. Lower front window approx. 2 cm
2. Remove door liner from hinged door
3. Pull rubber grommet (7) out between front door and A-pillar
4. Detach connector (8) Secure connector (8) against falling into front fender.
5. Secure window (6) against falling down with 2nd person
6. Remove carrier plate (1) with power window motor (2) from front door
7. Remove motor linkage (2) out of guide rail (5) on window
8. Drill out blind rivets (4) to motor (2)
9. Remove motor (2) from carrier plate (1).
10. Install in the reverse order



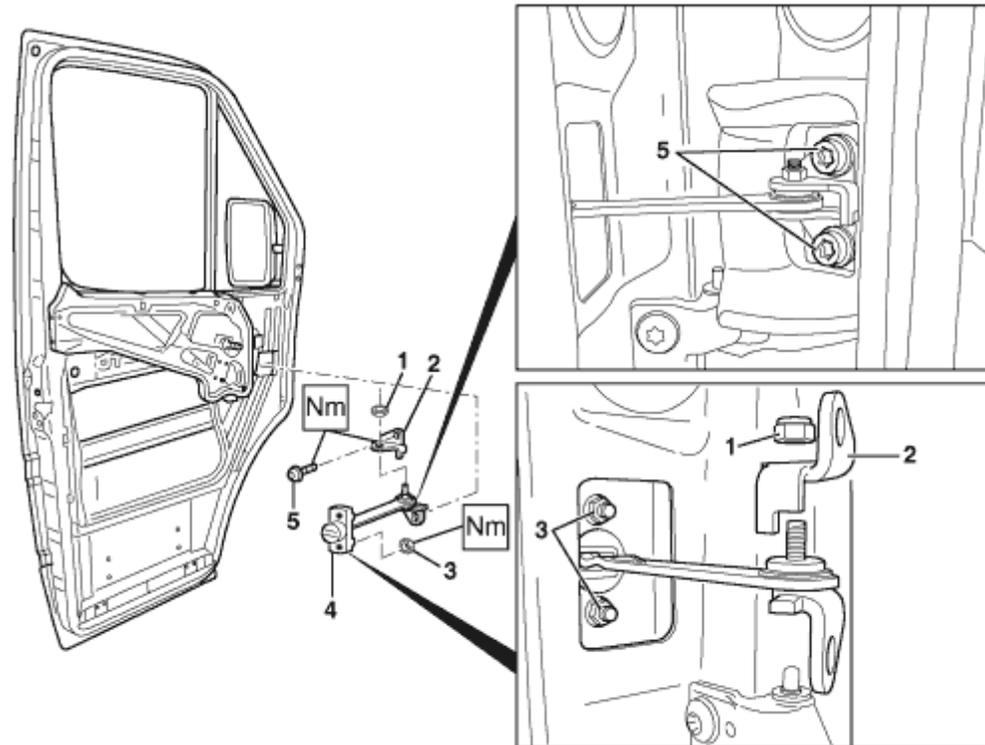
Removing and installing door catch

1. Door catch
2. Bolt
3. Bolt



Removing and installing door strap

1. Nut
2. Bracket
3. Nut
4. Door strap
5. Screw

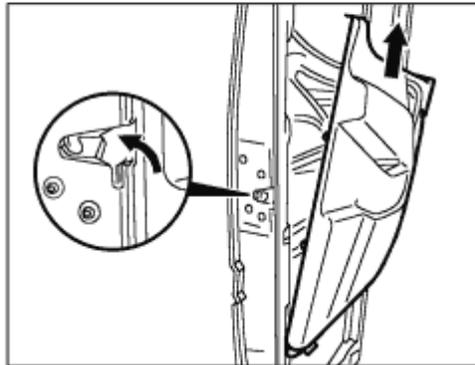
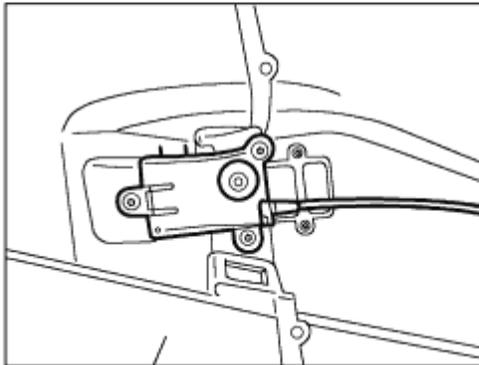
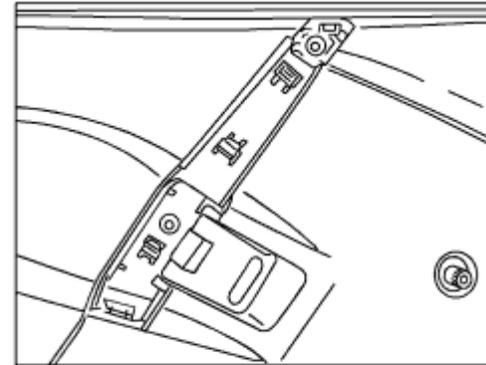
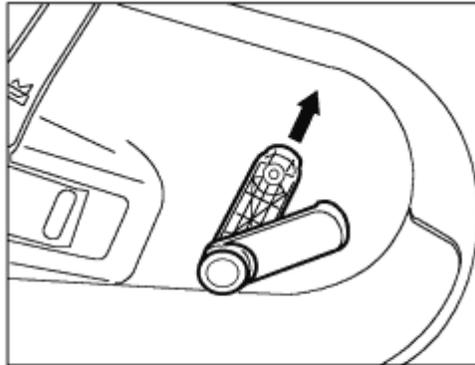
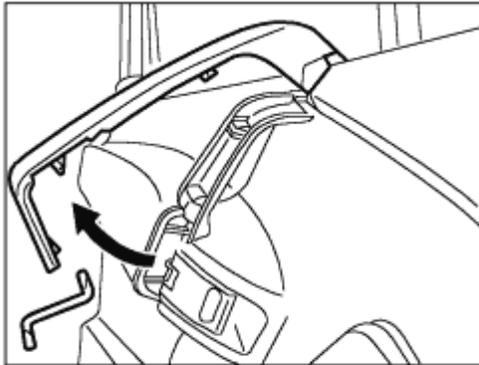


Remove/install

1. Remove door trim panel
2. Unscrew door strap (4) at A-pillar
3. Unscrew bracket (2) from door strap (4)
4. Unscrew door strap (4) at door
5. Install in the reverse order



Removing and installing door liner on hinged door



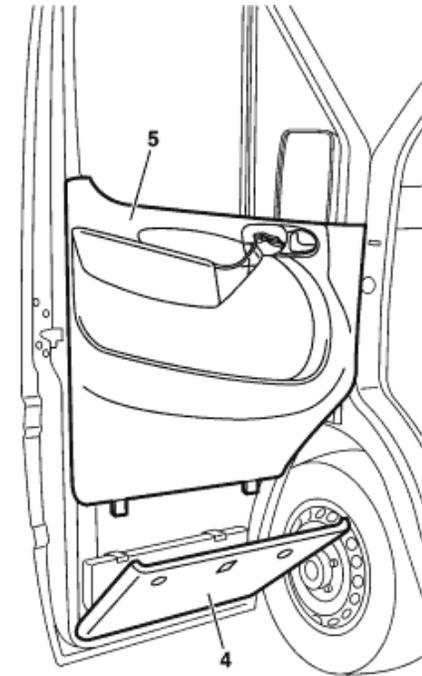
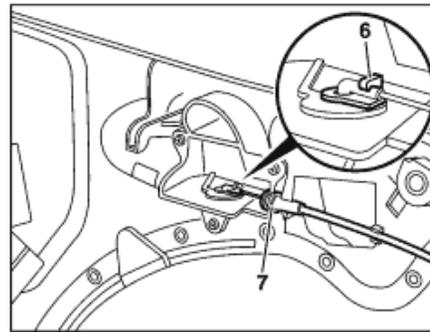
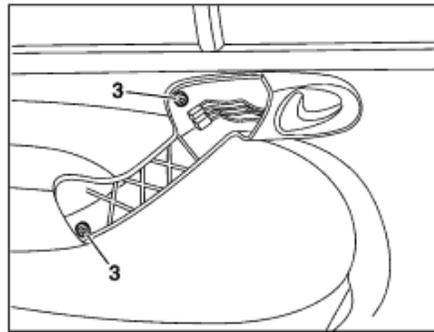
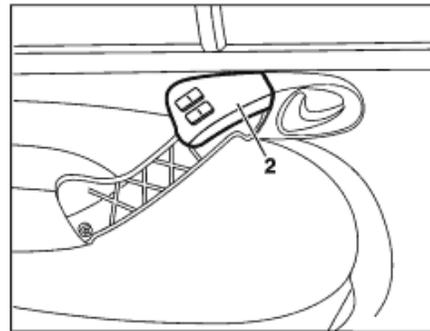
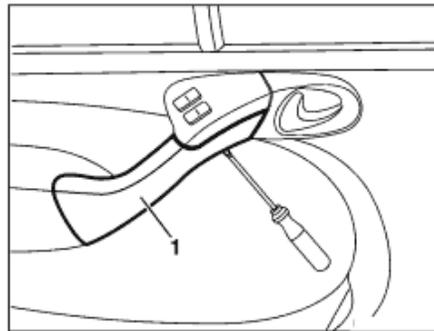
Removing, installing

1. Release door handle cover from retaining catch
2. Remove door handle cover upward
3. Remove window crank cover
4. Unlock window crank in direction of arrow and remove
5. Unscrew screws from hinged door liner
6. Pull door liner upward slightly and fold down
7. Remove inner door actuation from door liner
8. Remove door liner
9. Install in the reverse order



Removing and installing door liner on hinged door with power windows

1. Handle recess
2. Switch cover
3. Screw
4. Door pocket
5. Door paneling
6. Fuse
7. Cable



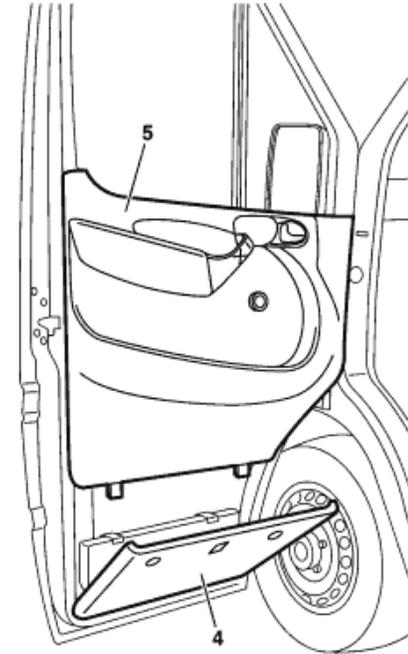
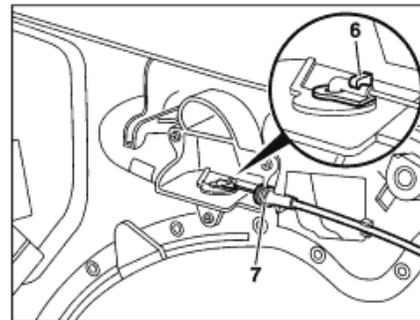
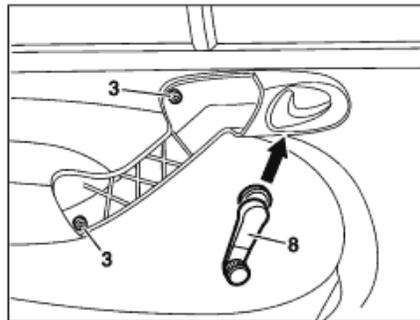
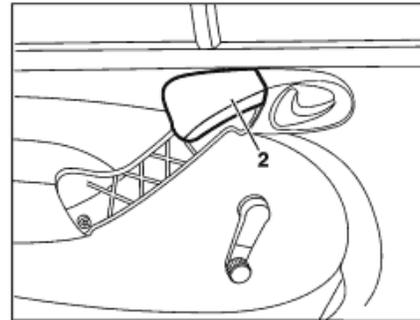
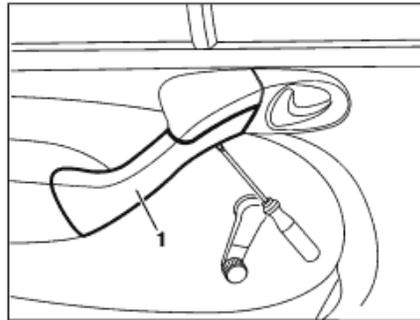
Removal, installation

1. Remove handle shell (1) Press retaining clip upward through cutout in handle shell with screwdriver
2. Unclip switch cover (2) and disconnect connector A different number of switches may be fitted depending on vehicle equipment.
3. Unscrew screws (3)
4. Fold open door pocket (4)
5. Slightly pull door paneling (5) upward and swing away slightly The door opening lever is still connected with the control cable (7)
6. Unlock retainer (6) and unclip pull wire (7) from door opening lever and door paneling
7. Remove door liner (5)
8. Install in the reverse order



Removing and installing door liner on hinged door without power windows

1. Handle recess
2. Cover
3. Screw
4. Door pocket
5. Door paneling
6. Fuse
7. Cable
8. Window crank



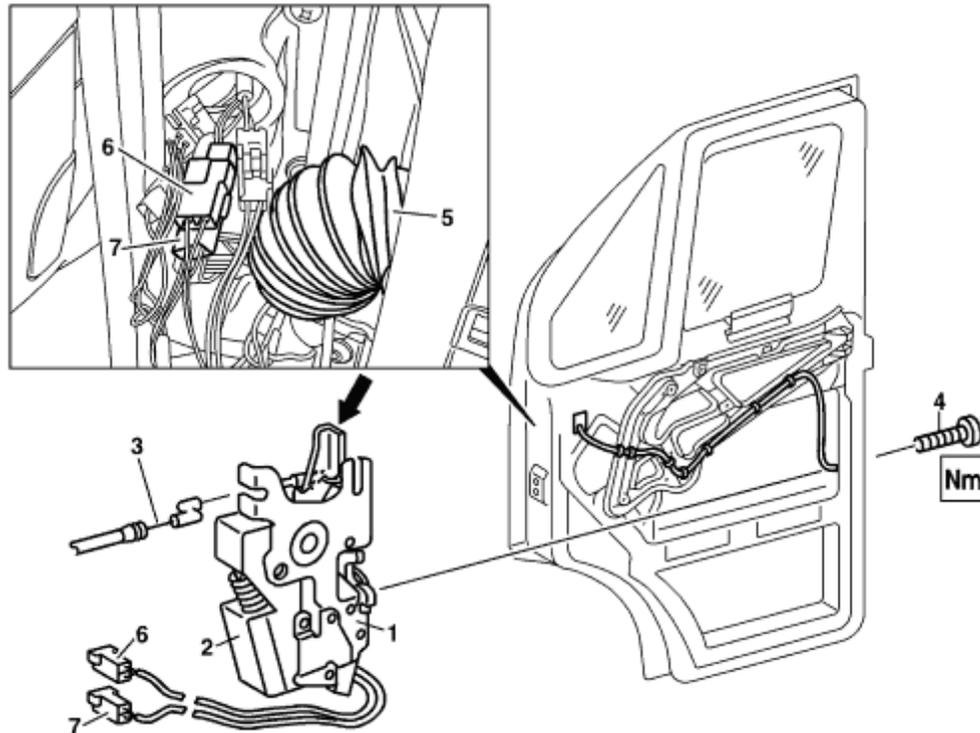
Removal, installation

1. Remove handle shell (1) Press retaining clip upward through cutout in handle shell with screwdriver
2. Unclip cover (2)
3. Disconnect connector from rearview mirror switch With code F68, heated and electrically adjustable rearview mirror
4. Unscrew screws (3)
5. Remove window crank (8) Press mounting ring in direction of arrow
6. Fold open door pocket (4)
7. Slightly pull door paneling (5) upward and swing away slightly The door opening lever is still connected with the control cable (7)
8. Unlock retainer (6) and unclip pull wire (7) from door opening lever and door paneling
9. Remove door liner (5)
10. Install in the reverse order



Remove/install front door lock

1. Door lock
2. Motor (central locking)
3. Release cable
4. Torx bolt
5. Rubber grommet
6. Connector (light blue)
7. Connector (yellow)



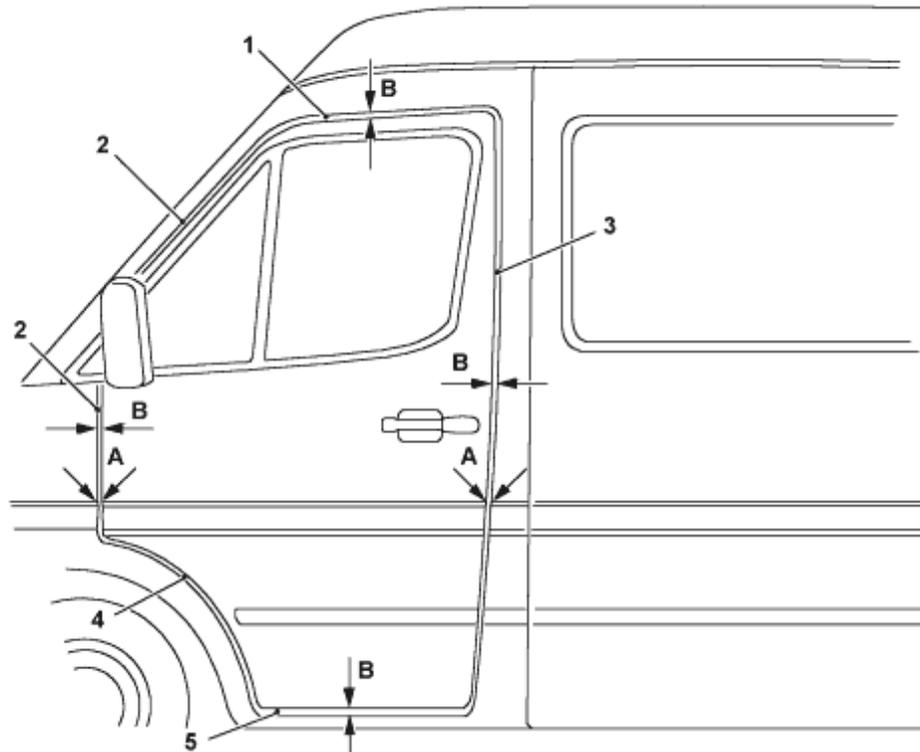
Remove/Install

- 1 Remove door trim panel
- 2.1 Pull out rubber grommet (5) between door and A-pillar, unplug connectors (6, 7) and expose cable
- 3 Unscrew torx bolts (4) for door lock (1) Installation: Replace self-locking Torx screws (4).
- 4 Remove door lock (1) from front door
- 5 Detach release cable (3) from door lock (1)
- 6 Install in the reverse order



Adjusting hinged door

- A. Ridge pattern
- B. Door gap
- 1. Door gap at top
- 2. Door gap on A-pillar
- 3. Door gap on B-pillar
- 4. Door gap on wheelhouse
- 5. Bottom door gap



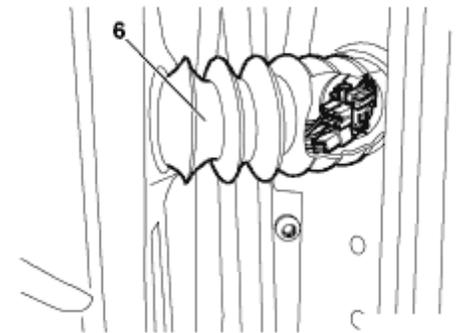
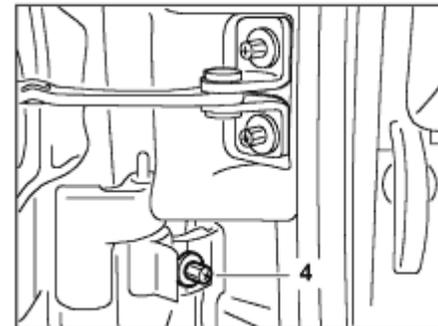
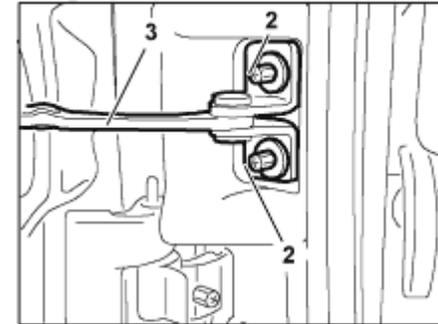
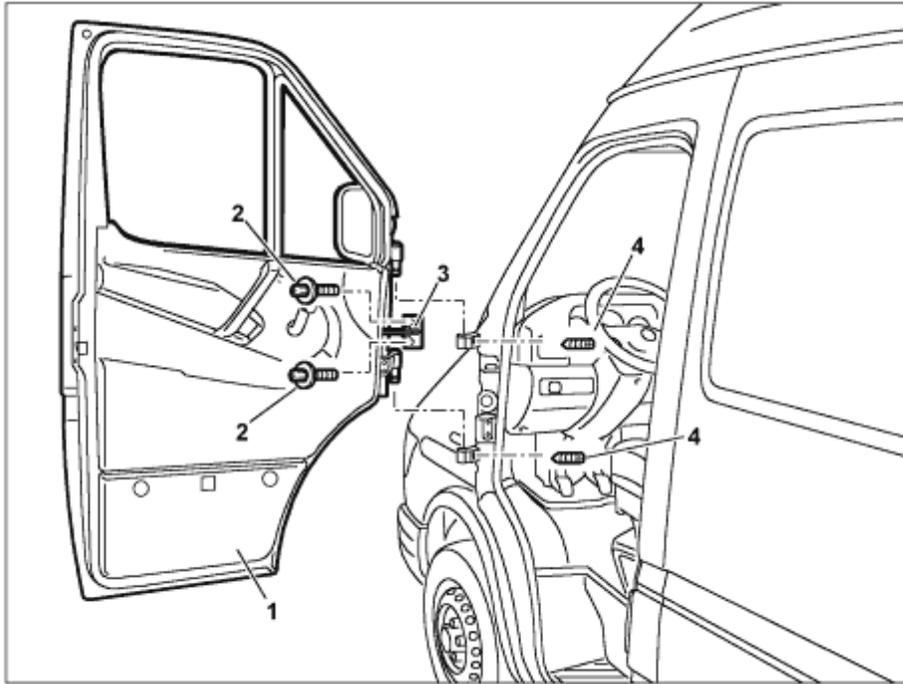
Adjusting

1. Check gaps and ridge pattern on hinged door all the way around Ridge transitions flush without offset.
2. Adjust door gap and ridge pattern Door gap B and ridge pattern A
3. Adjust installation depth

Adjust front door contour transitions flush up to max. 1 mm recessed, at rear with 1 mm overlap (wind noises) Rotary tumbler should engage in the center of the striker eye.



Remove/install hinged door

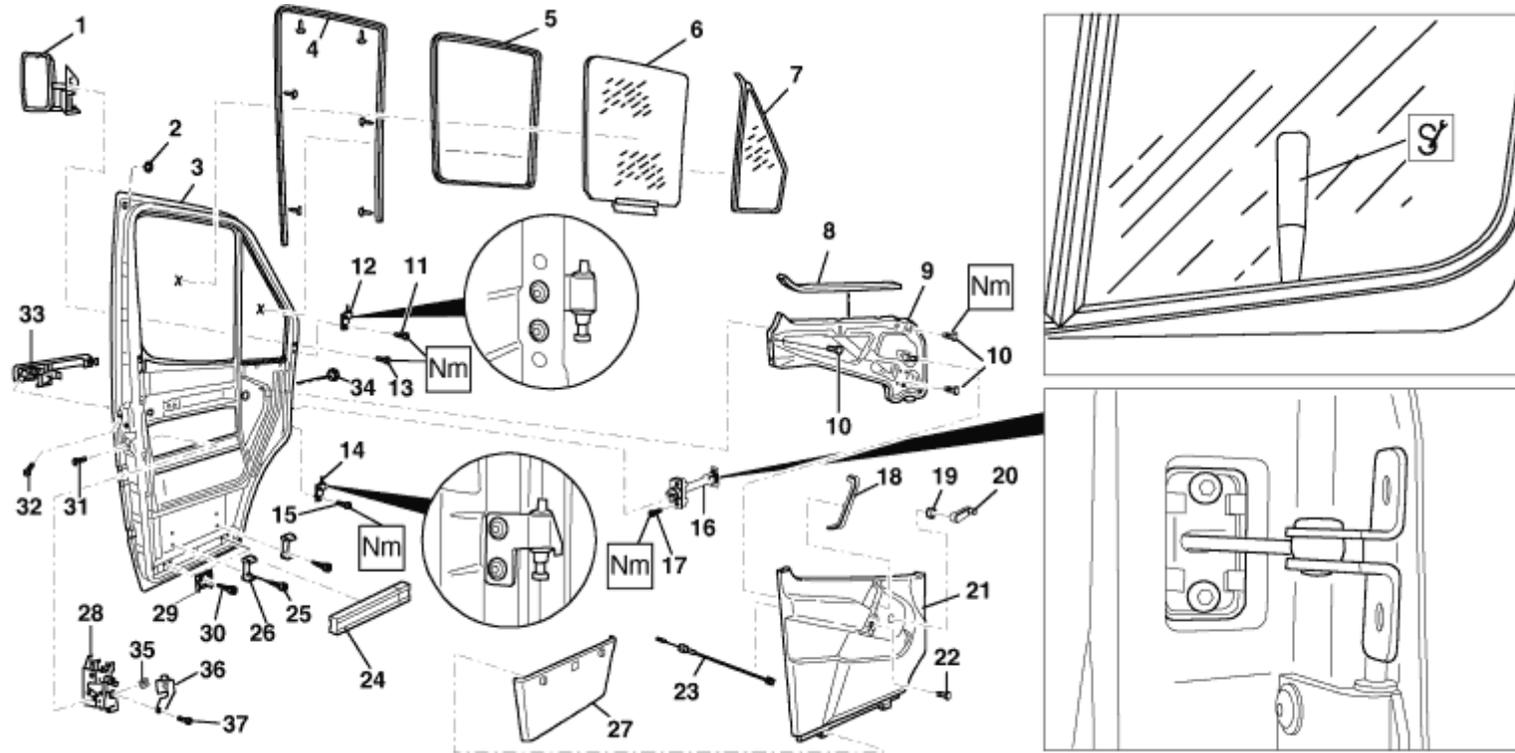


Remove/Install

- 1.1. Remove bellows (6) from A-pillar and disconnect electrical connectors
2. Unscrew door catch strap (3) Installation: Insert M6 torx bolts (2) with adhesive, replace M8
3. Unscrew hexagon socket head screw (4) from door hinges
4. Lift out hinged door (1)
5. Install in the reverse order
6. Adjust hinged door



Disassembling and assembling hinged door



- | | | |
|-------------------------|----------------------|---------------------------------|
| 1. Mirror | 14. Hinge, bottom | 26. Mount for warning triangle |
| 2. Plug | 15. Screw | 27. Cover |
| 3. Door | 16. Door check strap | 28. Door lock |
| 4. Window guide rail | 17. Screw | 29. Mount for cover |
| 5. Window sealing frame | 18. Cover | 30. Screw |
| 6. Window | 19. Trim ring | 31. Screw |
| 7. Triangular window | 20. Window crank | 32. Screw |
| 8. Sealing strip | 21. Door paneling | 33. Exterior door handle |
| 9. Crank carrier plate | 22. Screw | 34. Plug |
| 10. Torx screw | 23. Control cable | 35. Clips |
| 11. Screw | 24. Warning triangle | 36. Cap (anti-theft protection) |
| 12. Hinge, top | 25. Screw | 37. Screw |
| 13. Screw | | |



Disassembling and assembling hinged door

Disassembling, assembling

1. Remove hinged door
2. Remove door liner from hinged door (11)
3. Unscrew mirror (1)
4. Loosen outer door handle (33)
5. Slightly move outer door handle (33) forward and lift off
6. Lock rotary tumbler on door lock (28)
7. Remove door lock (28) with control cable (23)
8. Arrest window (6) using special tool
9. Remove crank carrier plate (9)
10. Remove wedge and remove window downward
11. Remove window guide rail (4)
12. Remove outer window sealing frame (5)
13. Slightly lift corner window rubber from inside and moisten with lubricant
14. Press corner window out from inside toward outside
15. Remove door catch (16)
16. Unscrew top (12) and bottom (14) door hinges
17. Unscrew detachable body components
18. Assemble in reverse order

Screw for outside rearview mirror on hinged door Nm 25

Screw for door hinge on hinged door Nm 25

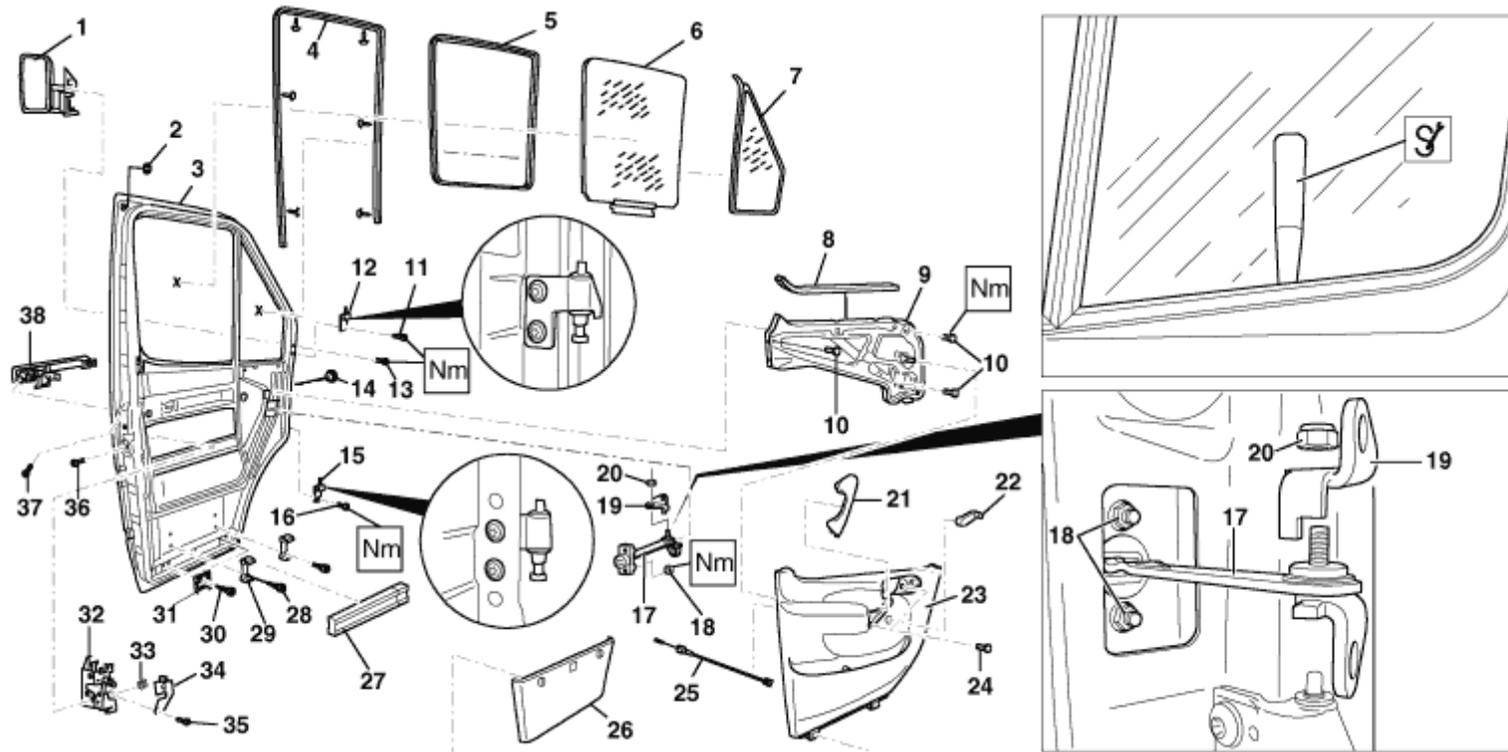
Screw for outer door handle on hinged door Nm 10

Screw for door lock on hinged door Nm 10

Screw for crank carrier plate on hinged door Nm 10



Disassembling and assembling hinged door



- | | | |
|----------------------------------|-------------------|---------------------------------|
| 1. Mirror | 14. Plugs | 27. Warning triangle |
| 2. Plugs | 15. Hinge, bottom | 28. Screw |
| 3. Door | 16. Torx bolt | 29. Holder for warning triangle |
| 4. Window guide rail | 17. Door catch | 30. Screw |
| 5. Window sealing frame | 18. Nut | 31. Mount for cover |
| 6. Window | 19. Bracket | 32. Door lock |
| 7. Triangular window | 20. Nut | 33. Clips |
| 8. Sealing strip | 21. Cover | 34. Cap (anti-theft protection) |
| 9. Crank mechanism carrier plate | 22. Window crank | 35. Screw |
| 10. Torx bolt | 23. Door paneling | 36. Torx bolt |
| 11. Torx bolt | 24. Torx bolt | 37. Torx bolt |
| 12. Hinge, top | 25. Control cable | 38. Outer door handle |
| 13. Screw | 26. Cover | |

Disassembling and assembling hinged door

Disassemble/assemble

1. Remove hinged door
2. Remove door liner from hinged door (23)
3. Unscrew mirror (1)
4. Loosen outer door handle (38)
5. Slightly move outer door handle (38) forward and lift off
6. Close rotary tumbler of door lock (32)
7. Remove door lock (32) with control cable (25)
8. Arrest window (6) using special tool
9. Remove crank mechanism carrier plate (9)
10. Remove wedge and remove window downward
11. Remove window guide rail (4)
12. Remove outer window sealing frame (5)
13. Slightly lift corner window rubber seal from inside and moisten with lubricant
14. Press off corner window (7) from inside to outside
15. Unscrew mount (19) from door catch (17)
16. Remove door catch (17)
17. Unscrew top (12) and bottom (15) door hinges
18. Unscrew detachable body components (29, 31) Driver's side
19. Assemble in reverse order

Screw for outside rearview mirror on hinged door Nm 25

Bolt, door catch at hinged door Nm 10

Screw for door hinge on hinged door Nm 25

Screw for outer door handle on hinged door Nm 10

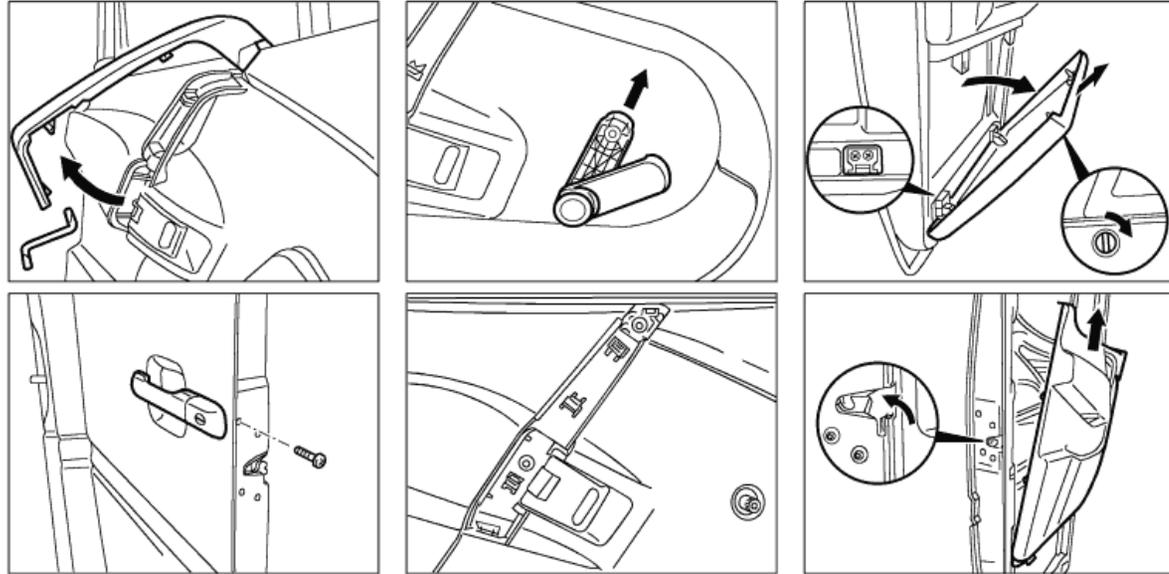
Bolt, door lock to hinged door Nm 10

Screw for crank mechanism carrier plate on hinged door Nm 10

Nut, bracket at door catch Nm 6



Removing and installing door liner on hinged door with door lock



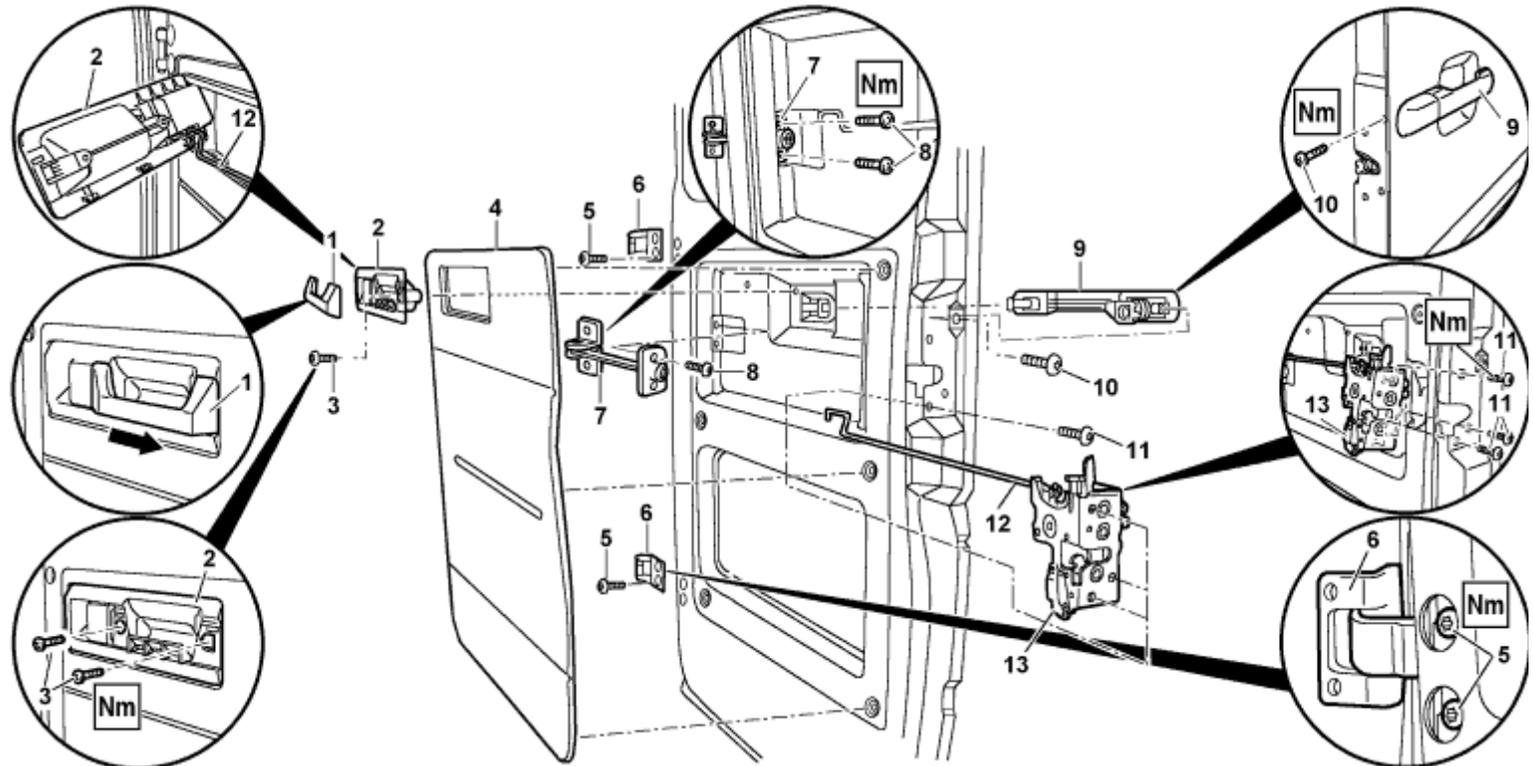
Removing, installing

1. Release cover for door pull handle on retaining lug with offset screwdriver
2. Remove door handle cover upward
3. Remove window crank cover
4. Unlock window crank in direction of arrow and remove
5. Unlock bottom door pocket and lift out of hinge in direction of arrow
6. Unscrew hinge supports
7. Loosen door handle
8. Push door handle forward slightly and lift off
9. Close rotary tumbler on door lock
10. Detach door lock
11. Unscrew screws from paneling
12. Slightly pull paneling upward and remove together with lock
13. Install in the reverse order

Screw for paneling on hinged door Nm 10



Disassemble/assemble right rear door



1. Panel
2. Inner actuation
3. Torx bolt
4. Door paneling
5. Torx bolt

6. Tailgate hinge
7. Door check strap
8. Torx bolt
9. Outside door opener
10. Torx bolt

11. Torx bolt
12. Door lock linkage
13. Door lock



Disassemble/assemble right rear door

Disassemble/assemble

1. Remove right rear door
2. Slide cover (1) in direction of arrow and remove
3. Unscrew inner actuation (2) and pull out
4. Unhook door lock linkage (12) from inner actuation (2)
5. Remove door paneling (4)
6. Remove door check strap (7)
7. Remove door lock (13)
8. Remove door lock linkage
9. Remove exterior door opener (9)
10. Remove door hinges (6)
11. Assemble in reverse order

Bolt, door catch to hinged door Nm 10

Bolt, door hinge to hinged door Nm 25

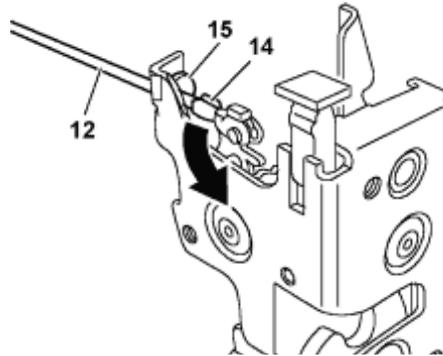
Bolt, inner actuation to hinged door Nm 10

Bolt, outer door handle to hinged door Nm 10

Bolt, door lock to hinged door Nm 10



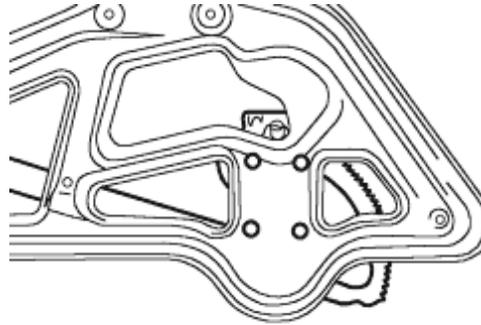
Removing and installing door lock linkage



1. Open linkage retainer (14) in direction of arrow.
2. Remove rubber seal (15) from linkage.
3. Slide door lock linkage (12) through hole in door lock and remove.
4. Install in reverse order.



Disassemble/assemble crank mechanism for hinged door



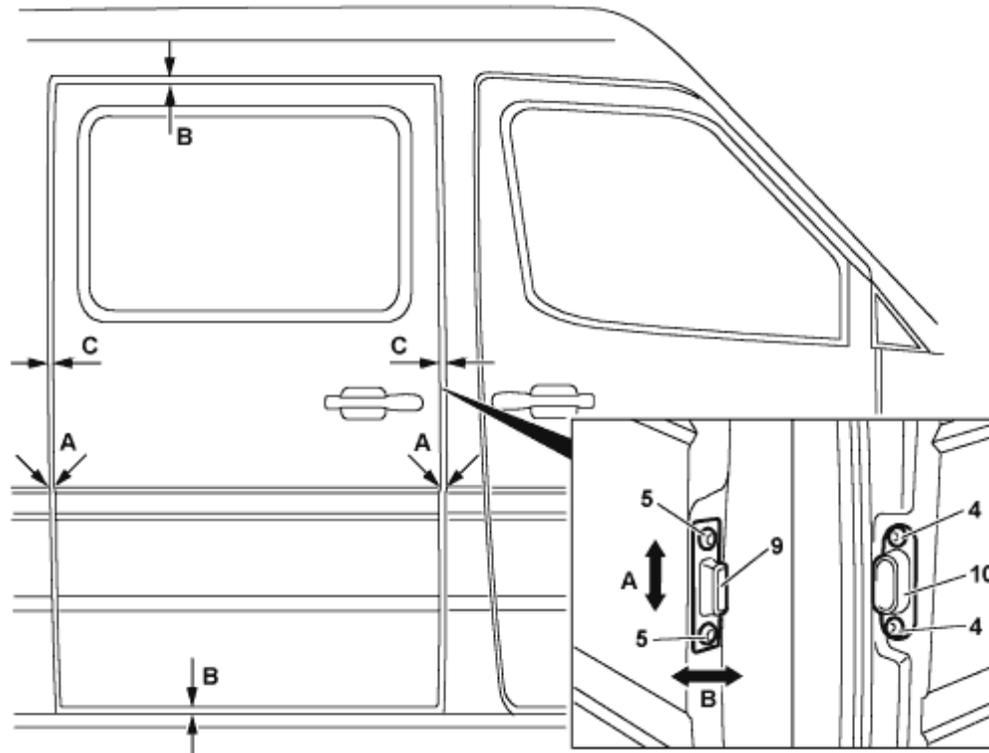
Disassemble/assemble

1. Remove crank mechanism
2. Drill out pop rivet heads on crank mechanism carrier plate Drill bit diameter 4.8 mm.
3. Remove crank mechanism from carrier plate
4. Assemble in reverse order



Adjust sliding door

A Ridge pattern
B, C Gaps



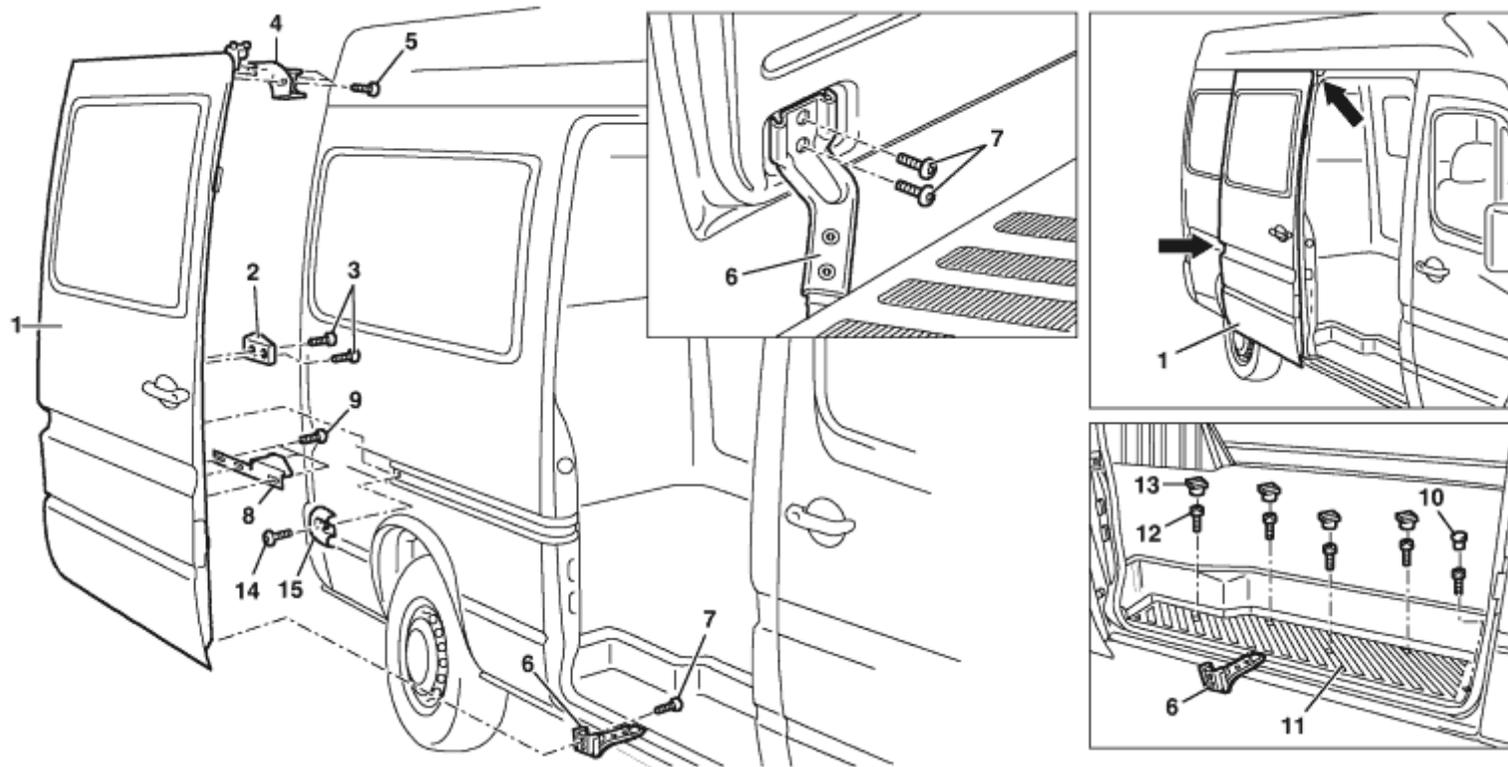
Adjusting

1. Check gaps and ridge pattern on sliding door all the way around
2. Tighten Torx screws (4) of sliding element (10)
3. Slacken torx bolts (5) of guide wedge (9) until the guide wedge can be moved.
4. Adjust gaps and ridge pattern
5. Adjust flatness, installation depth and stop of sliding door
6. Install rubber buffer on sliding door. If not installed, install rubber buffer to avoid damage to the B-pillar when the sliding door is closed with a swing.
7. Check sliding door for easy motion

Door gap all around 7mm (± 0.5)



Remove/install sliding door



- 1. Sliding door
- 2. Sliding door stop
- 3. Bolt
- 4. Upper sliding door stop
- 5. Bolt

- 6. Carriage
- 7. Bolt
- 8. Lower sliding door stop
- 9. Bolt
- 10. Plug

- 11. Entrance paneling
- 12. Bolt
- 13. Plug
- 14. Bolt
- 15. End piece



Remove/install sliding door

Remove/Install

1. Remove handle on sliding door
2. Remove end piece (15) B
3. Remove sliding door stop (2)
- 4.1. Remove additional sliding door stops (4, 8) at top and bottom from sliding door
5. Remove bottom carriage from sliding door.
6. Push sliding door to the rear using the center and top carriages (arrows).
7. Remove plugs (10, 13) from the scuff plate (11).
8. Unscrew bolts (12) and remove scuff plate
9. Remove carriage (6). Check for wear before installing bottom carriage, replace if necessary.
10. Install in the reverse order. If the door is replaced, the seams must be sealed all around before painting
- 11.1. Adjust additional sliding door stops (4, 8) at top and bottom
12. Check the setting of the sliding door. Adjust if necessary.

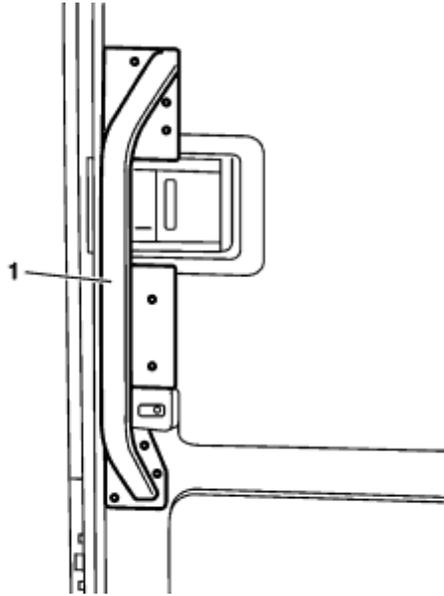
Bolt for bottom carriage on sliding door Nm 25

Bolt, end piece to guide rail Nm 10

Bolt for sliding door stop on sliding door Nm 10



Remove/install sliding door handle strip



Remove

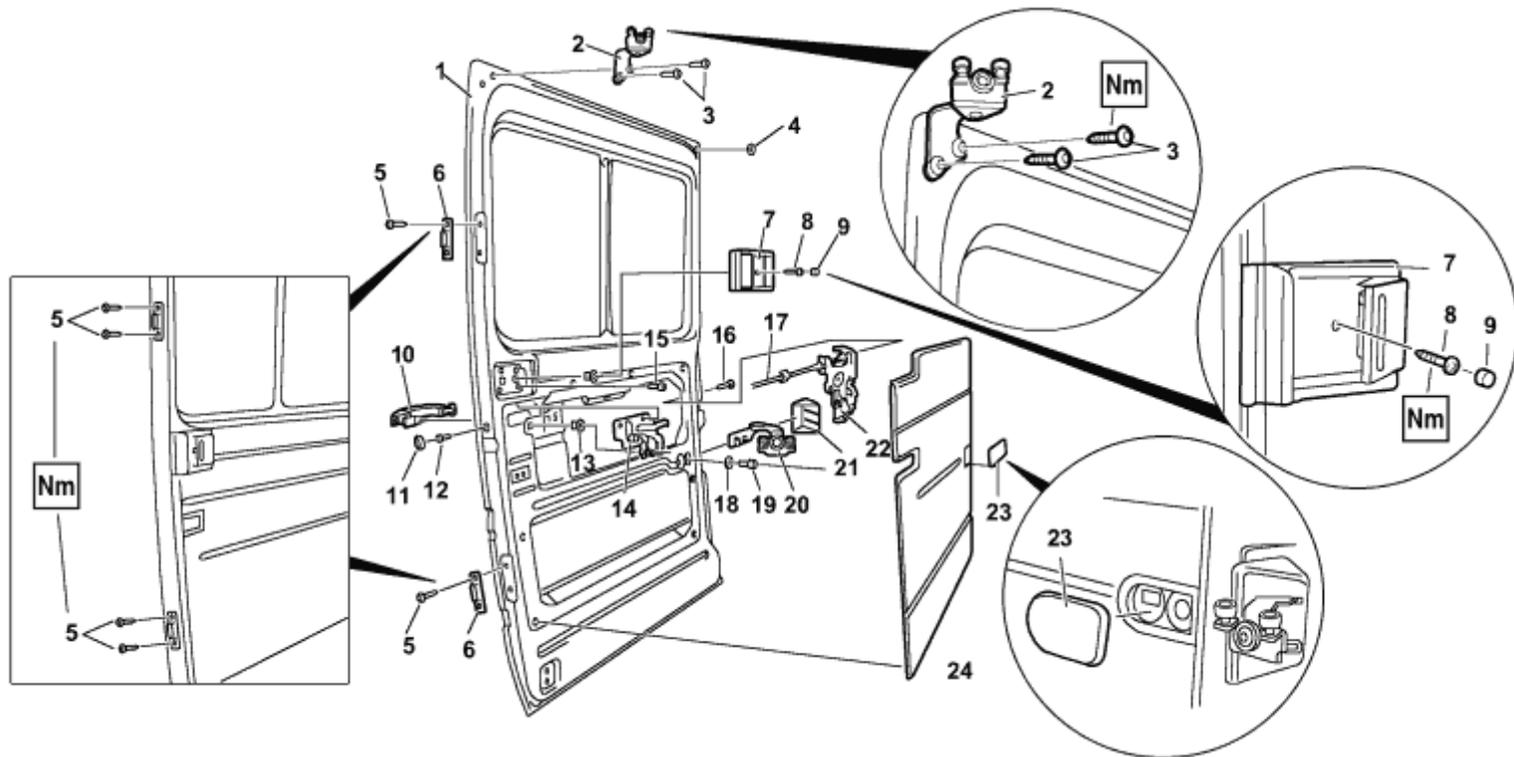
1. Punch through drift of expansion rivet on handle strip (1) and pry out expansion rivet.
2. Separate edge sealing all way round between the handle strip and the insulation element and then remove the handle strip.
3. Remove residue adhesive on handle strip and on insulation element

Install

4. Apply handle strip to insulation element and press in expansion rivet.
5. Apply sealing compound to gap between handle strip and insulation element all round



Disassemble/assemble sliding door



- 1. Sliding door
- 2. Carriage, top
- 3. Bolt
- 4. Plug
- 5. Bolt
- 6. Guide wedge
- 7. Inside door opener
- 8. Bolt

- 9. Plug
- 10. Door handle
- 11. Cap
- 12. Bolt
- 13. Nut
- 14. Inside door lock
- 15. Bolt
- 16. Bolt

- 17. Release cable
- 18. Washer
- 19. Bolt
- 20. Carriage, center
- 21. Rubber cover
- 22. Door lock
- 23. Cover
- 24. Door paneling



Disassemble/assemble sliding door

Disassemble/assemble

1. Remove inside door opener (7)
2. Remove cover (23).
- 3.1. Remove door paneling (24).
- 3.2. Remove insulating element for sliding door
4. Remove door lock (22).
5. Remove inside door lock (14).
6. Remove door handle (10).
7. Remove rubber cover (21) from middle carriage (20)
8. Mark horizontal installation position for middle carriage (20) and remove carriage
9. Remove closing wedges (6).
10. Remove upper carriage (2).
11. Assemble in the reverse sequence.

Bolt for inner actuation on sliding door Nm 10

Bolt for closing wedge on sliding door Nm 10

Bolt for upper carriage on sliding door Nm 25

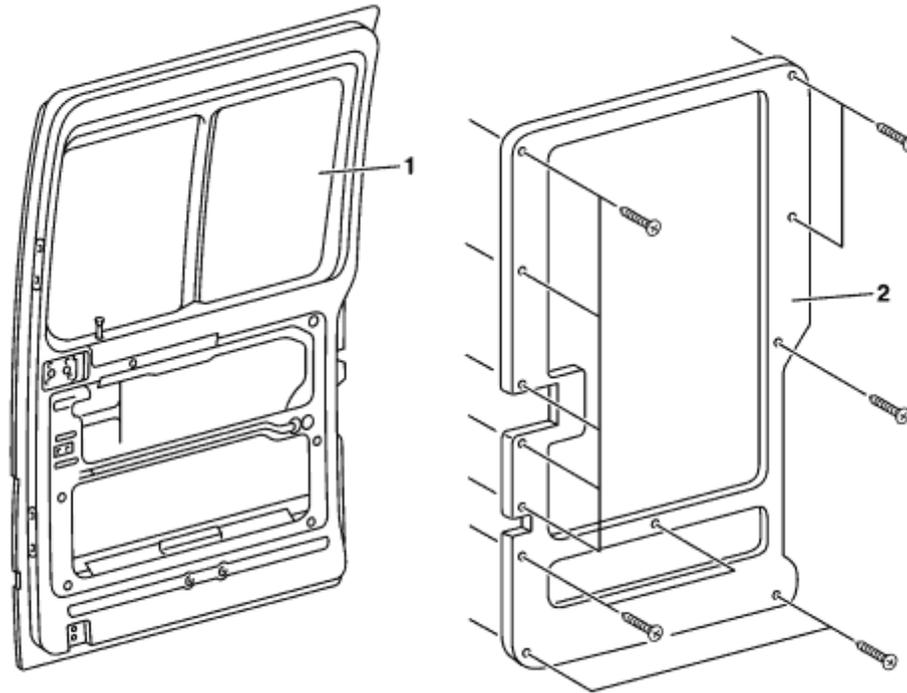
Bolt for center carriage on sliding door Hexagon socket Nm 45

Bolt for center carriage on sliding door Torx Nm 60



Remove/install sliding door insulation element

- 1 Sliding door
- 2 Insulation element



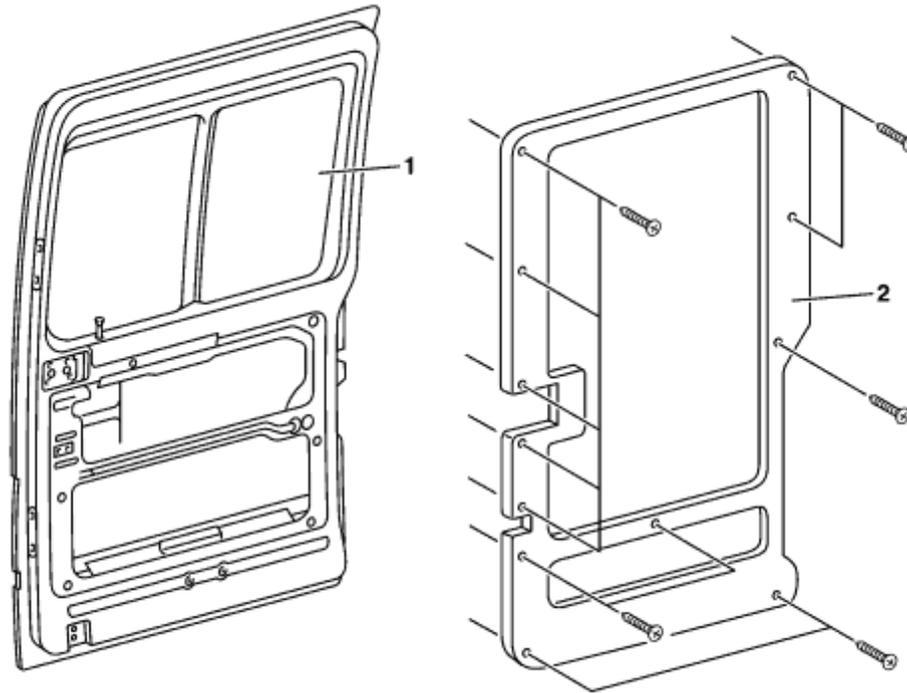
Remove

1. Remove handle strip of sliding door
2. Remove sliding door
3. Remove inside door opener
4. Expose bolts of insulation element (2) and unscrew
5. Separate edge sealing between insulation element (2) and sliding door (1) all-round
6. Detach insulation element from sliding door (1) Do not damage insulation foam on rear of insulation element. Carefully separate adhesive points in area of bolt holes.
7. Remove residue adhesive on sliding door and on insulation element



Remove/install sliding door insulation element

- 1 Sliding door
- 2 Insulation element

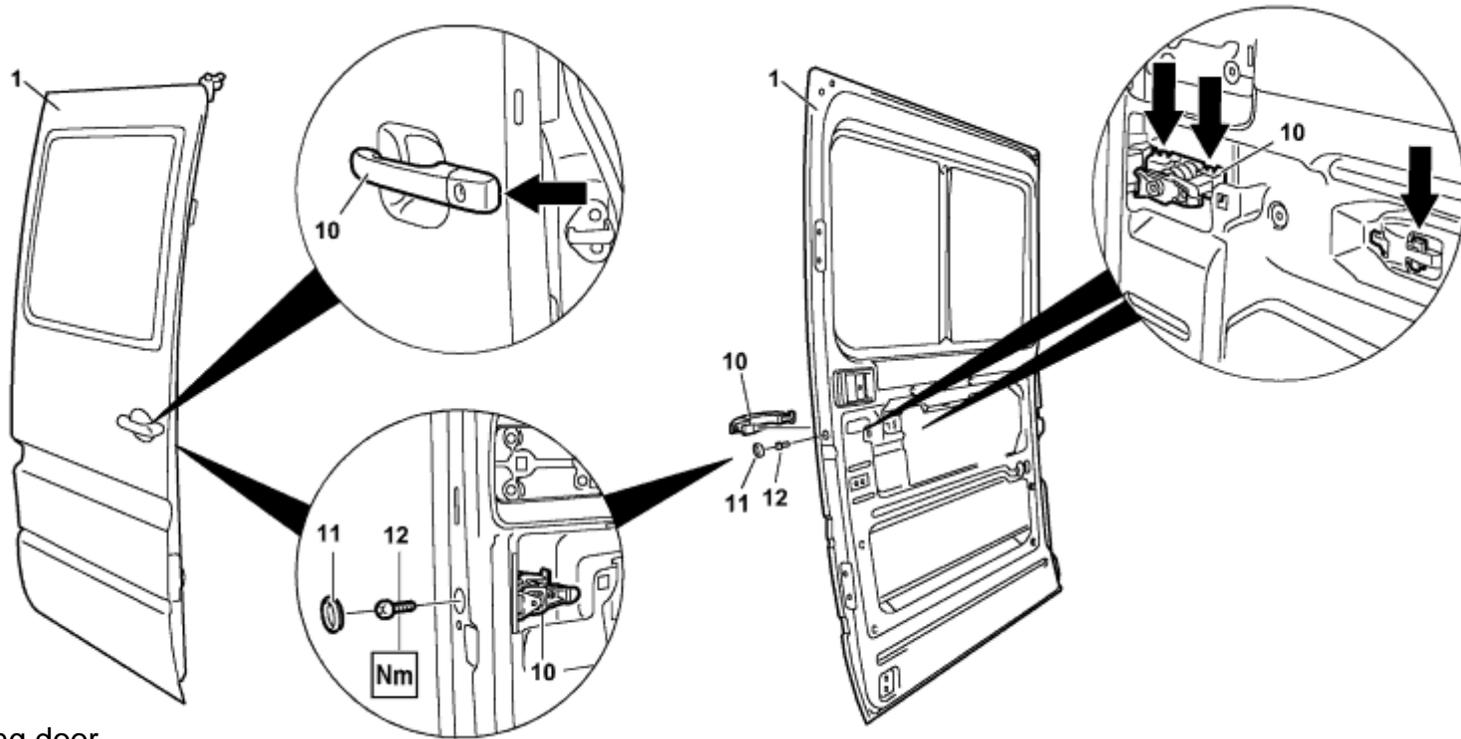


Install

8. Apply walnut sized sealing compound dots to the rear of the insulation element in the area of the bolt holes. The sealing compound dots serve as adhesive points.
9. Apply insulation element (2) to sliding door (1) and tighten
10. Cover up bolt heads using sealing compound
11. Apply sealing compound to gap between sliding door and insulation element all round
12. Install inside door opener
13. Install sliding door
14. Install sliding door handle strip



Removing and installing outer door handle for sliding door



- 1. Sliding door
- 10. Door handle
- 11. Covering cap
- 12. Torx bolt

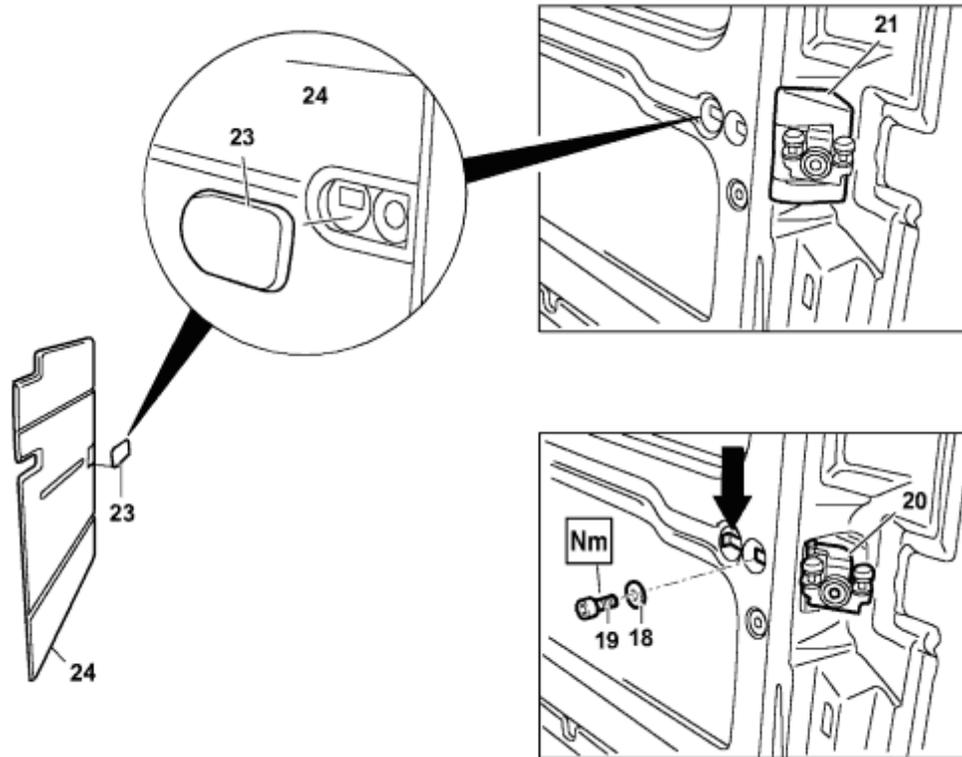
Remove/Install

1. Remove cap (11).
2. Remove bolt (12) for door handle (10).
3. Push door handle (10) backwards and remove.
4. Install in the reverse order



Remove/install sliding door center carriage

- 18. Washer
- 19. Hexagon socket bolt
- 20. Carriage, center
- 21. Rubber cover
- 23. Cover
- 24. Panel



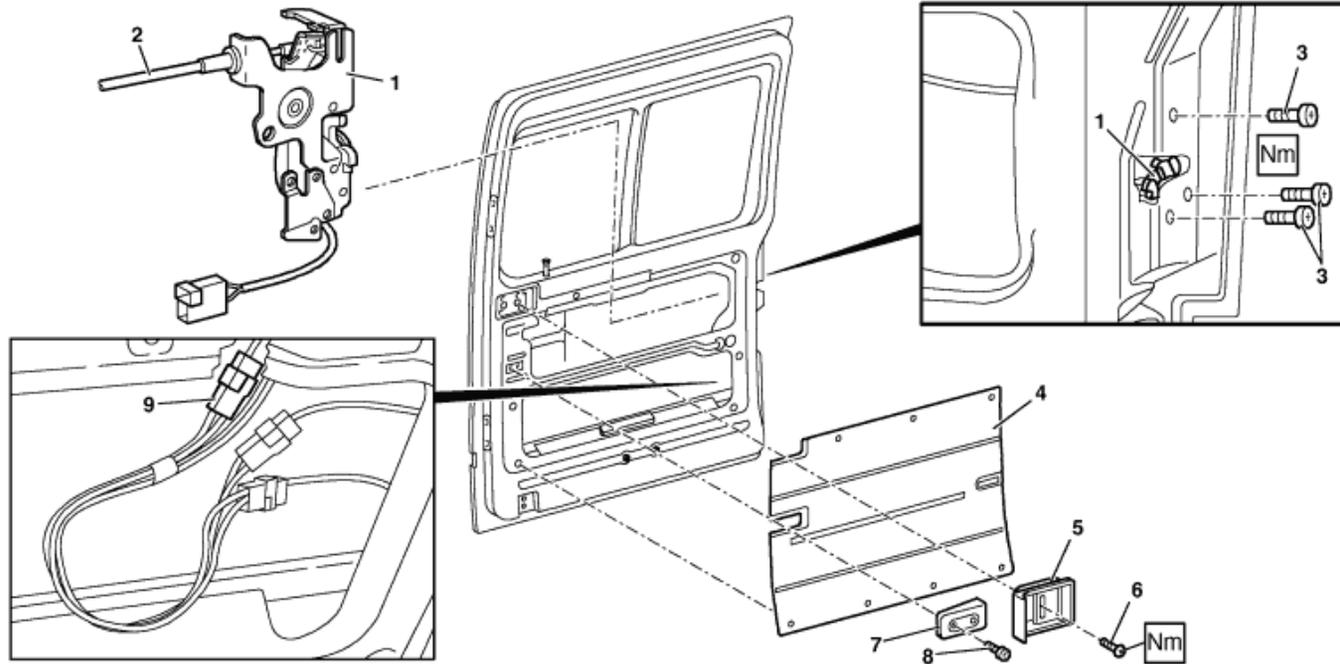
Remove/Install

1. Remove cover (23).
2. Lift rubber cover (21) of center carriage.
3. Mark horizontal position of carriage (20) (arrow) and remove carriage. Installation: Check carriage and grease.
4. Install in the reverse order



Remove/install sliding door lock

1. Door lock
2. Release cable
3. Bolt
4. Door paneling
5. Inside door opener
6. Cross-head screw
7. Sliding door stop
8. Bolt
9. Connector

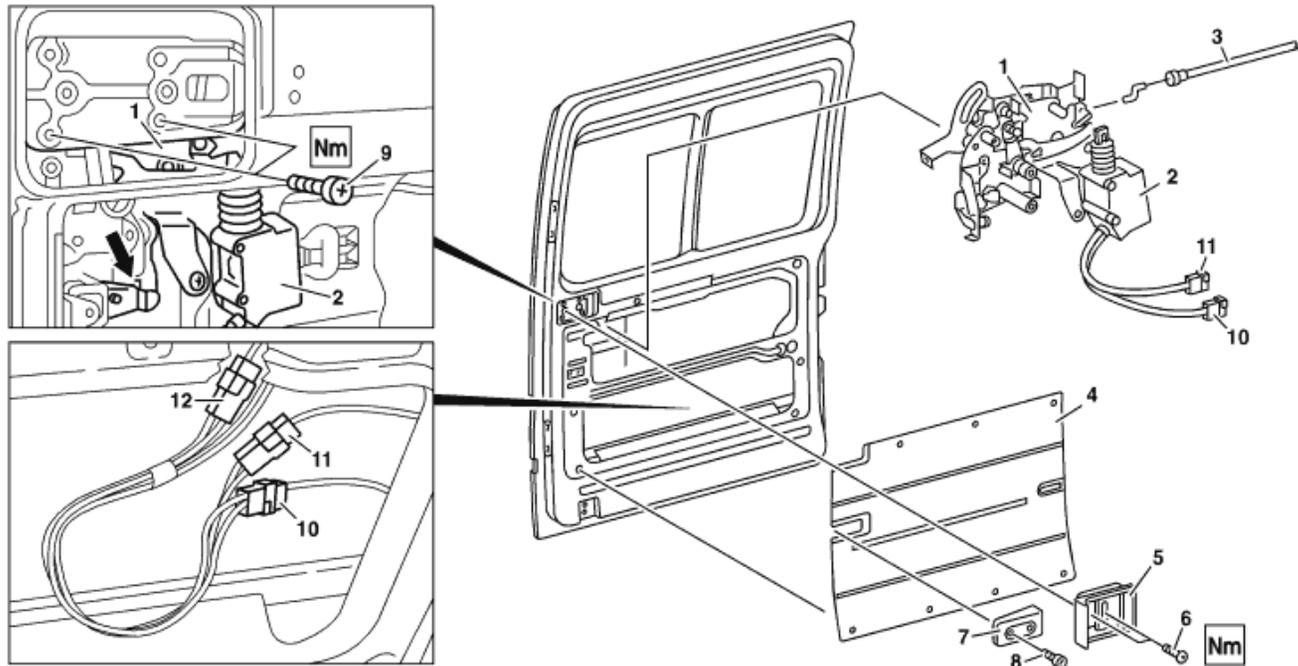


Remove/Install

1. Remove sliding door
2. Remove sliding door stop (7)
3. Remove inside door opener
- 4.1. Remove door paneling (4) on sliding door
- 4.2. Remove insulating element for sliding door
5. Disconnect connector (9) for rotary tumbler switch
6. Unscrew bolts (3) on door lock (1)
7. Remove door lock (1) from sliding door.
8. Detach release cable (2) at door lock (1).
9. Install in the reverse order

Remove/install inside door lock on sliding door

1. Inside door lock
2. Central locking motor
3. Release cable
4. Door paneling
5. Inside door opener
6. Bolt
7. Sliding door stop
8. Bolt
9. Bolt
10. Connector
11. Connector
12. Connector



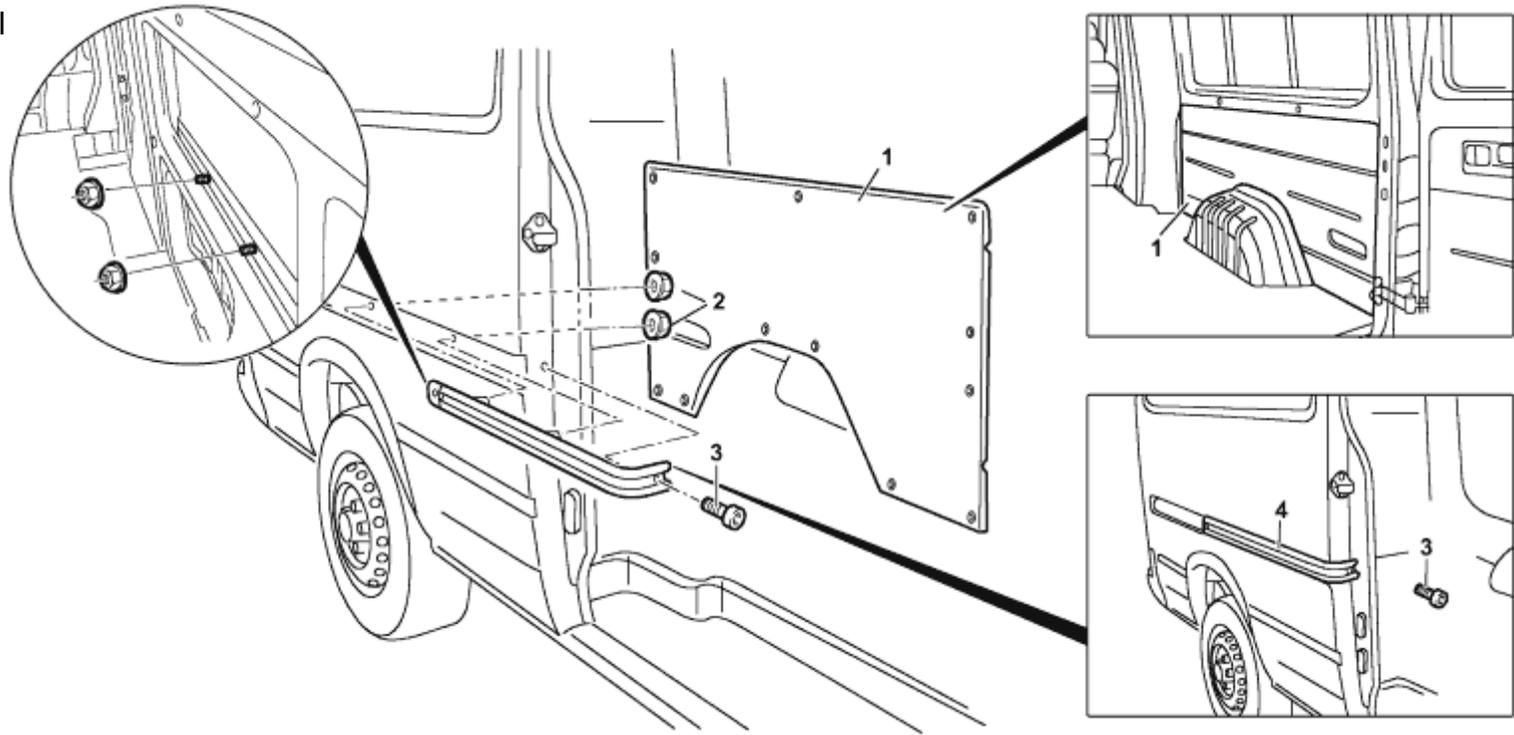
Remove/Install

1. Remove sliding door
2. Remove sliding door stop (7)
3. Remove inside door opener (5)
- 4.1. Remove door paneling (4) on sliding door
- 4.2. Remove insulating element for sliding door
5. Separate connectors (10, 11, 12).
6. Unscrew bolts (9) on inside door lock (1)
7. Remove inside door lock (1) from sliding door. Installation: Ensure that lever (arrow) for door handle is located in front of lever for inside door lock (1).
8. Detach release cable (3) from inside door lock (1). For easier installation - Unhook clip on inner door panel.
9. Install in the reverse order



Remove, install guide rail for sliding door

1. Inner paneling
2. Hexagon nut
3. Torx bolt
4. Guide rail



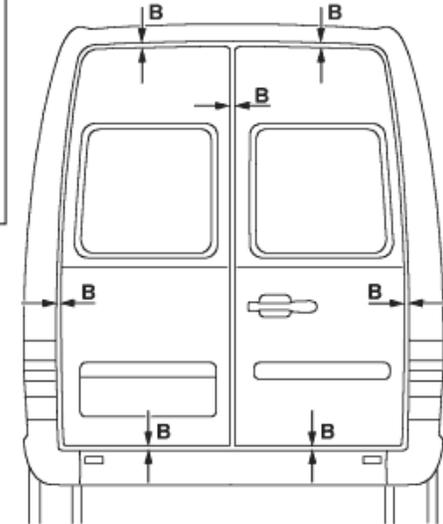
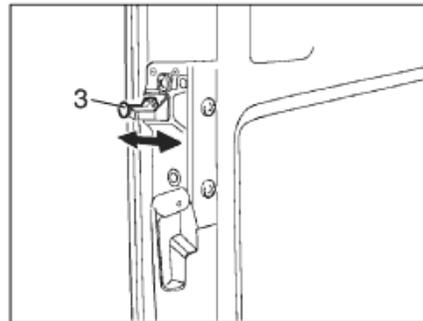
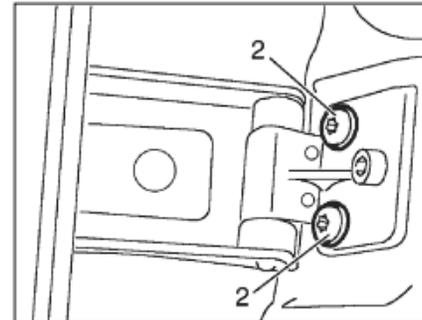
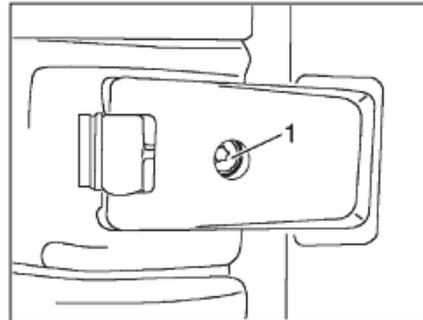
Removing, installing

- 1 Remove sliding door
- 2 Remove inner paneling (1)
- 3 Unscrew hexagon nuts (2).
- 4 Unscrew Torx screw (3) and remove guide rail (4)
- 5 Install in the reverse order



Adjust rear door

B. Door gaps



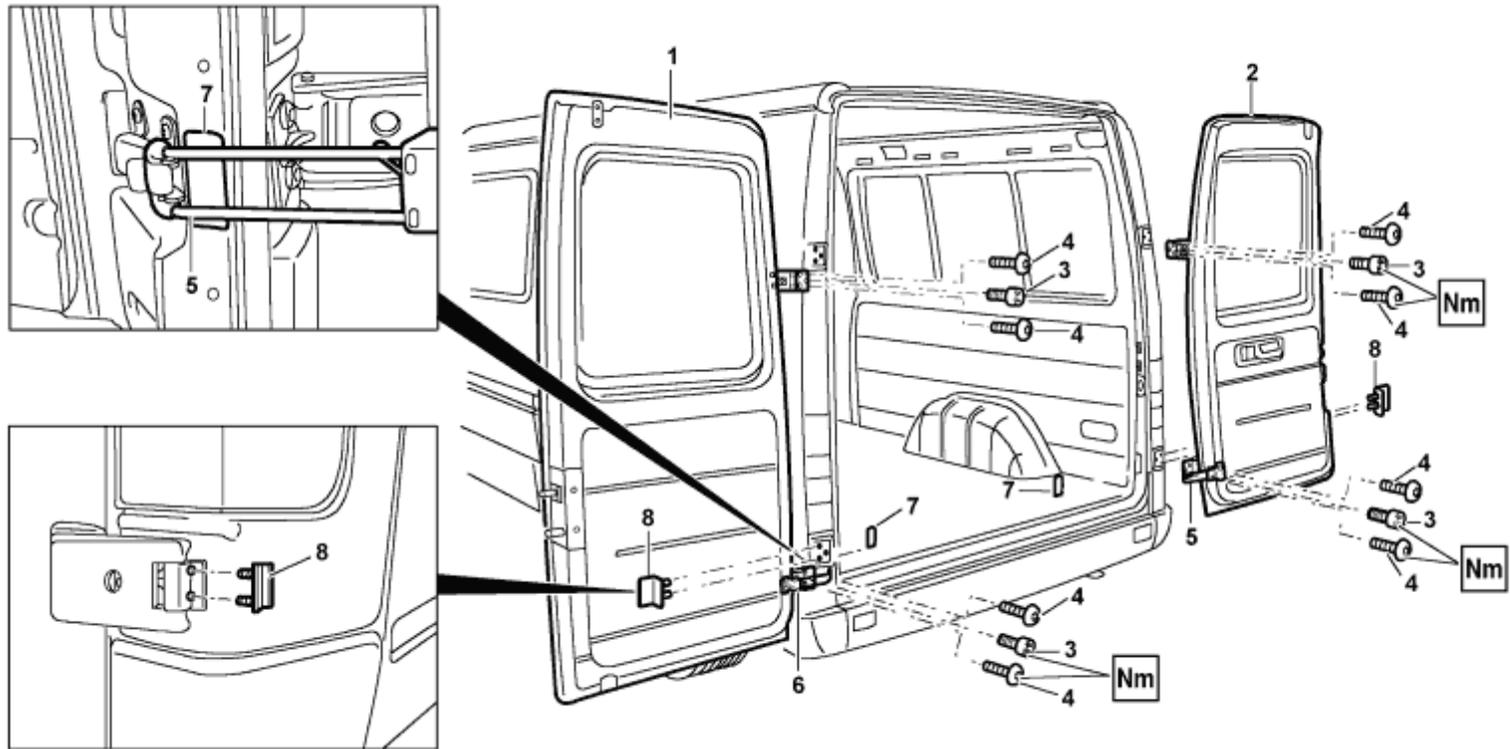
Door gap all around except at the top 8mm (± 0.5)
Door gap at top 13mm (± 0.5)

Adjusting

1. Check gaps on rear door all the way around
2. Loosen Torx screws (2)
3. Loosen hexagon socket head screw (1) through hole in hinge
4. Adjust rear door and tighten Allen screw (1) Adjust so that bottom closing wedges make contact and door gaps are uniform all the way around.
5. Tighten Torx screws (2).
6. Loosen striker pin (3) and adjust horizontally until right rear door is flush in relation to left rear door
Lock pin should engage in lock in center. Never lift door over lock pin nor pull down
7. Adjust closing wedges for rear doors Since the rear doors are components with static functions it is extremely important that they are fastened while driving. This prevents excessive torsion of the vehicle and leaky rear doors. The rear doors are fastened by adjusting the closing wedges.
8. Check rear door for easy motion
9. Finish paint in adjustment range of hinges on rear pillars using brush



Remove, install rear door



Remove/install

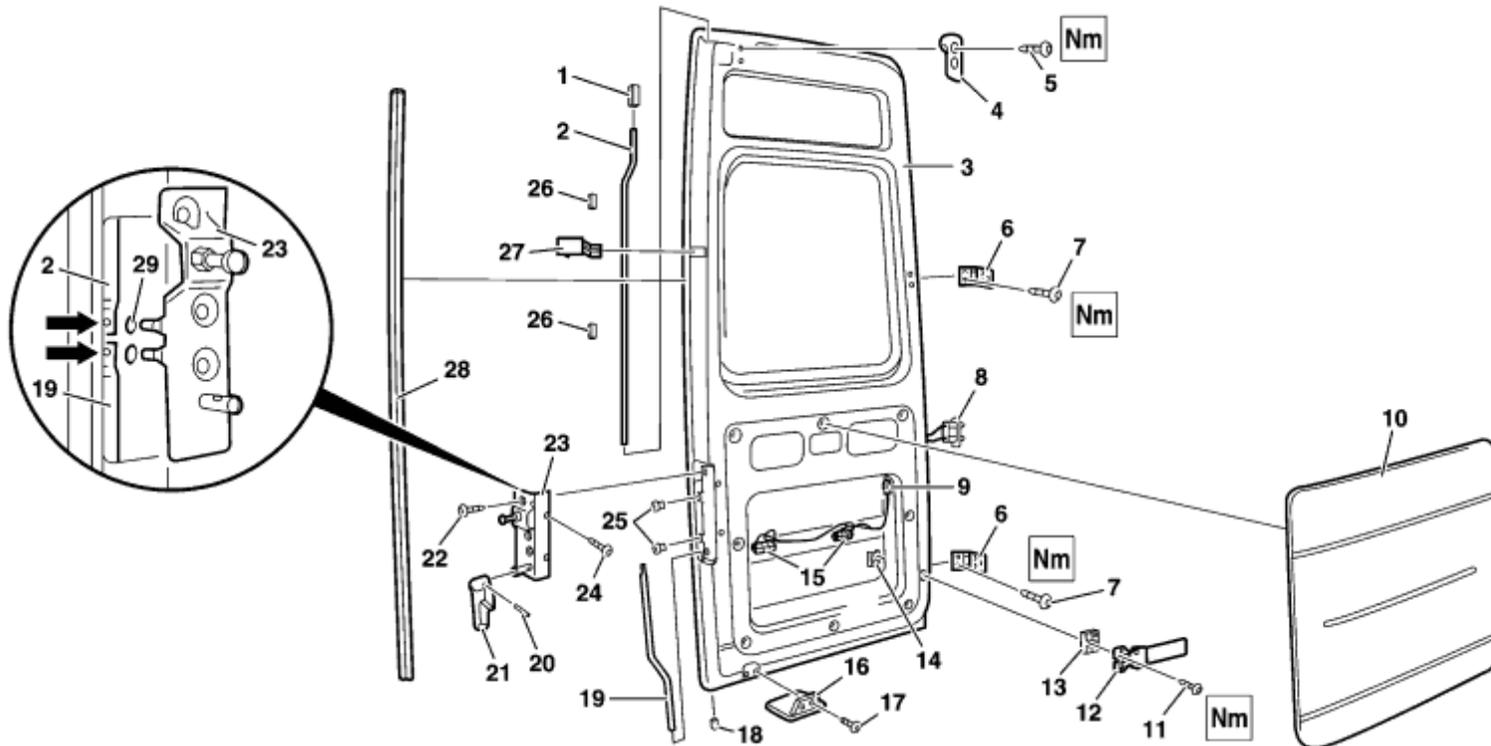
1. Inspect door stop (8) on both door hinges replace if necessary
2. Release strap (5)
3. Inspect paint protective sheets (7) for damage replace if necessary
4. Remove screws (3, 4) attaching door hinges
5. Lift out rear door The left rear door is removed in the same way
6. Install in the reverse order
7. Inspect alignment of rear door

1. Rear door, left door wing
2. Rear door, right door wing
3. Cylindrical Torx screw
4. Torx screw
5. Right strap
6. Left strap
7. Paint protective sheet
8. Door stop

Screw, door hinge to body 25Nm



Assemble/disassemble rear door (left door wing)



- 1. Top locking rod guide
- 2. Top locking rod
- 3. Tailgate
- 4. Closing wedge, top
- 5. Bolt
- 6. Hinge
- 7. Bolt
- 8. Switch
- 9. Connector
- 10. Door paneling

- 11. Bolt
- 12. Door catch
- 13. Console (with code W54 only)
- 14. Tapping plate
- 15. License plate illumination
- 16. Bottom closing wedge
- 17. Rivet
- 18. Lock rod guide, bottom
- 19. Lock rod, bottom
- 20. Roll pin

- 21. Lock pin handle
- 22. Bolt
- 23. Rod-type lock
- 24. Bolt
- 25. Clips
- 26. Felt strip
- 27. Lock rod guide, top center
- 28. Rear door seal
- 29. O-ring



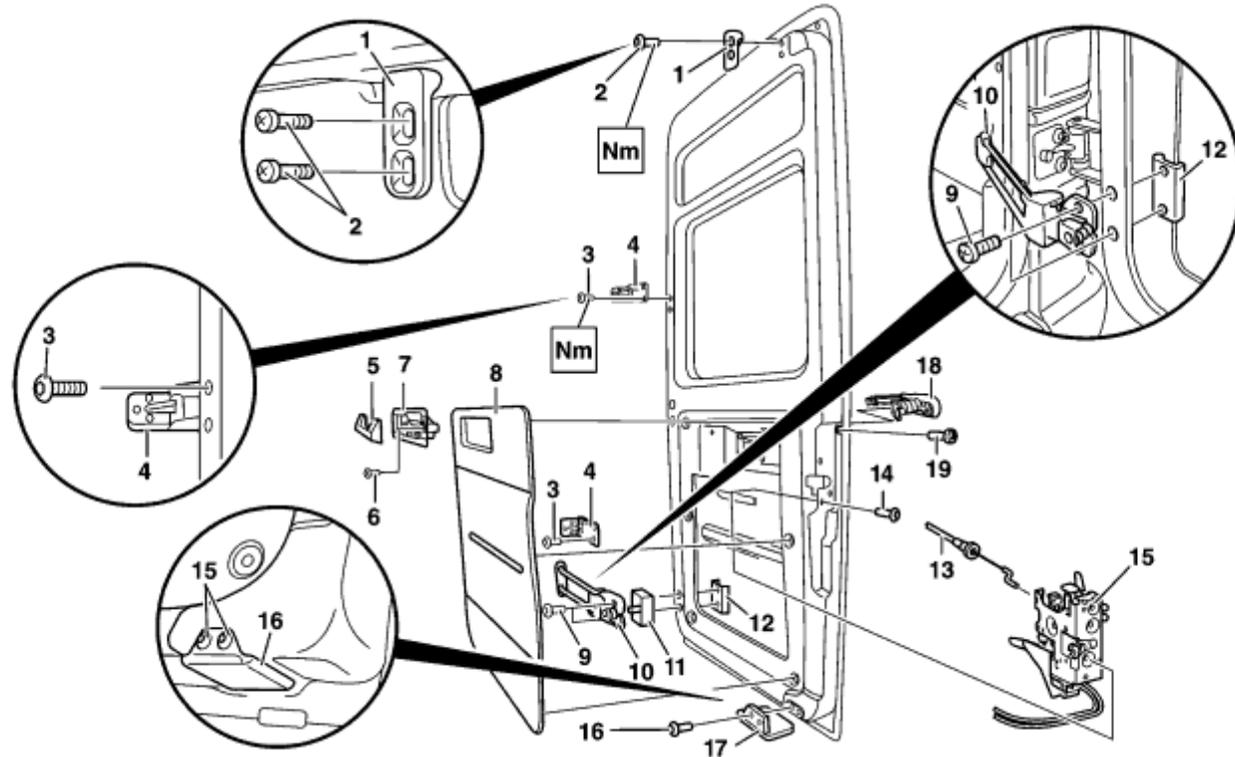
Assemble/disassemble rear door (left door wing)

Disassemble/assemble

- 1.1. Remove door paneling (10) from rear door
- 1.2. Remove insulating element for rear door
2. Disconnect connector (9) and pull off plug of license plate illumination (15)
3. Remove license plate lighting
4. Pull out switch (8) and remove connector
5. Drive out dowel pin (20) and remove lock pin handle (21)
6. Remove door catch (12)
7. Remove door hinges (6)
8. Remove closing wedge (4)
9. Drill rivet (17) out of bottom closing wedge (16) and remove closing wedge
10. Remove door lock (23) Arrest upper lock rod (2) with suitable tool.
11. Remove clips (25)
12. Pull out lock rods guides (1, 18, 27) and lock rods (2, 19) out of rear door
13. Assemble in reverse order



Assemble/disassemble rear door (right door wing)



1. Closing wedge, top

2. Bolt

3. Bolt

4. Door hinge assembly

5. Inside door opener covering

6. Bolt

7. Inside door opener

8. Door paneling

9. Bolt

10. Door catch

11. Console (only for hollow roof with code W54)

12. Tapping plate

13. Release cable

14. Bolt

15. Door lock

16. Rivet

17. Bottom closing wedge

18. Outer door handle

19. Bolt



Assemble/disassemble rear door (right door wing)

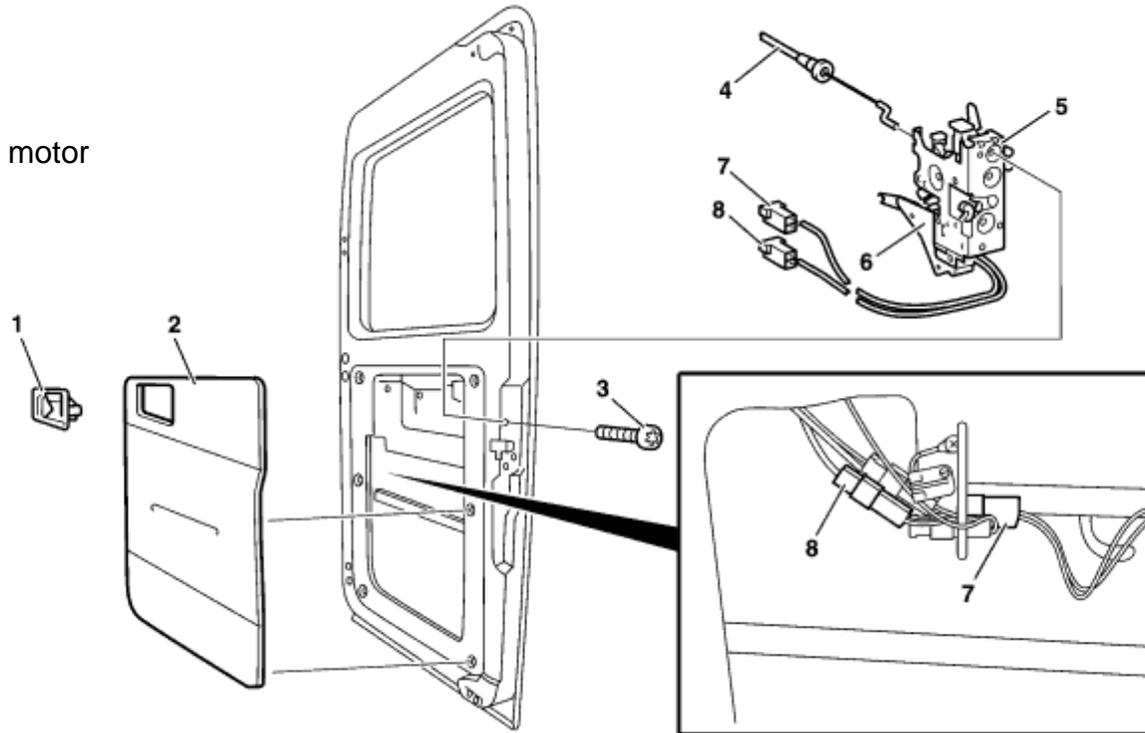
Disassemble/assemble

1. Remove inside door opener (7)
- 2.1. Remove door paneling (8) from rear door
- 2.2. Remove insulating element for rear door
3. Remove door lock (15).
4. Unscrew bolt (19) for door handle (18)
5. Push door handle (18) to the right and remove
6. Drill out rivet (16) of bottom closing wedge (17).
7. Remove closing wedge
8. Remove top closing wedge (1)
9. Remove door catch (10).
10. Remove door hinges (4)
11. Assemble in reverse order



Remove/install rear door lock

1. Inside door opener
2. Door paneling
3. Bolt
4. Release cable
5. Door lock
6. Central locking motor
7. Connector
8. Connector



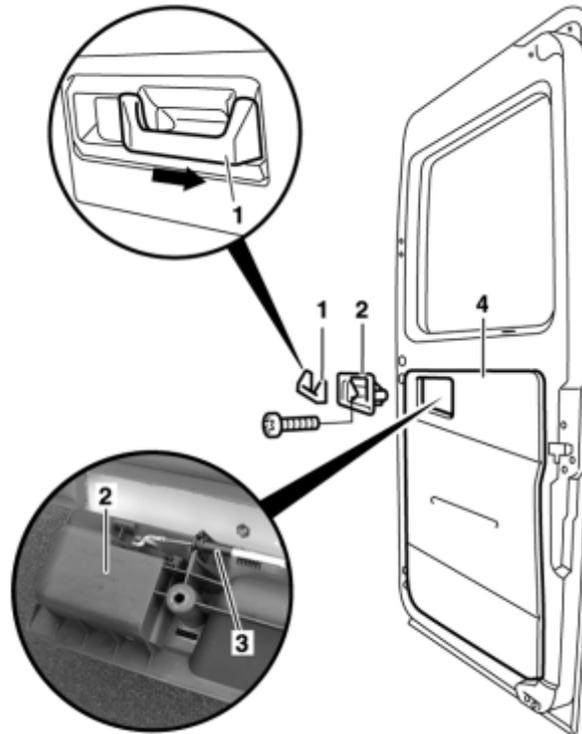
Remove/Install

1. Remove inside door opener (1)
- 2.1. Remove door paneling (2) from rear door
- 2.2. Remove insulating element for rear door
3. Disconnect connectors (7, 8) and expose cable.
4. Unscrew bolts (3) on door lock (5)
5. Remove door lock (5) from rear door
6. Detach release cable (4) at door lock (5).
7. Install in the reverse order



Remove/install inside door opener on rear door

1. Panel
2. Inside door opener
3. Release cable
4. Door paneling



Remove/Install

1. Push covering (1) in direction of arrow
2. Unscrew inside door opener (2) and pull out of door paneling (4)
3. Unhook release cable (3) on inside door opener (2)
4. Install in the reverse order

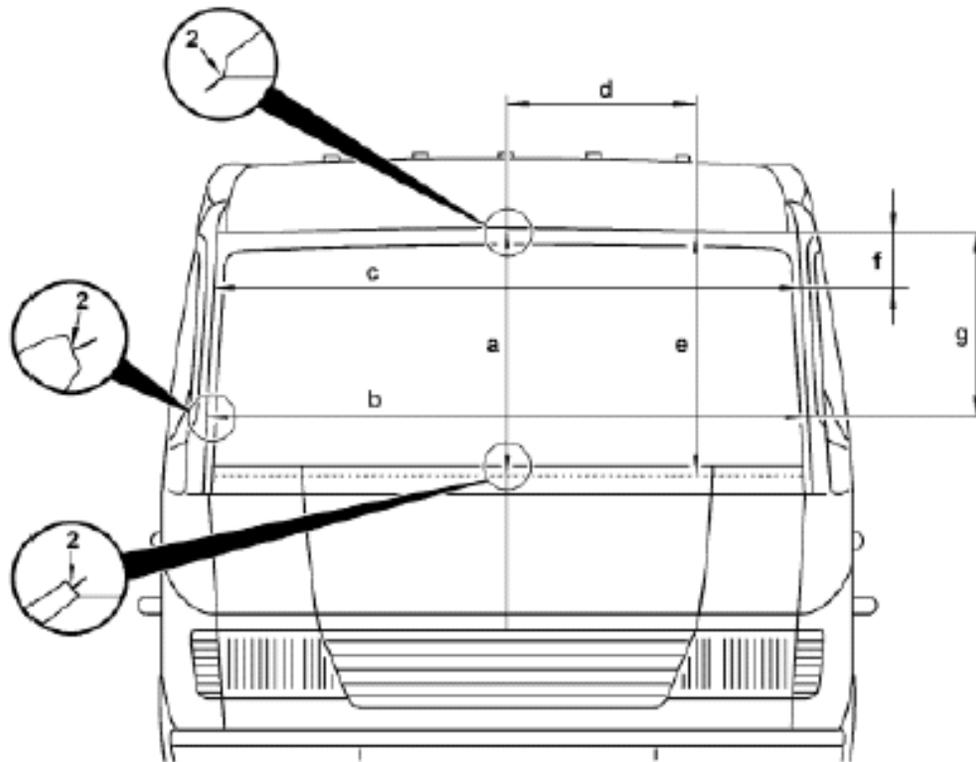


Windows



Testing and repair work: Transporters: Windows

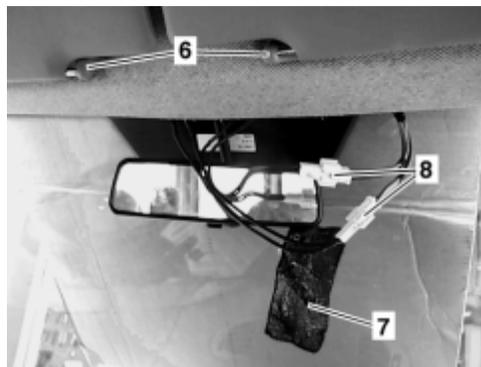
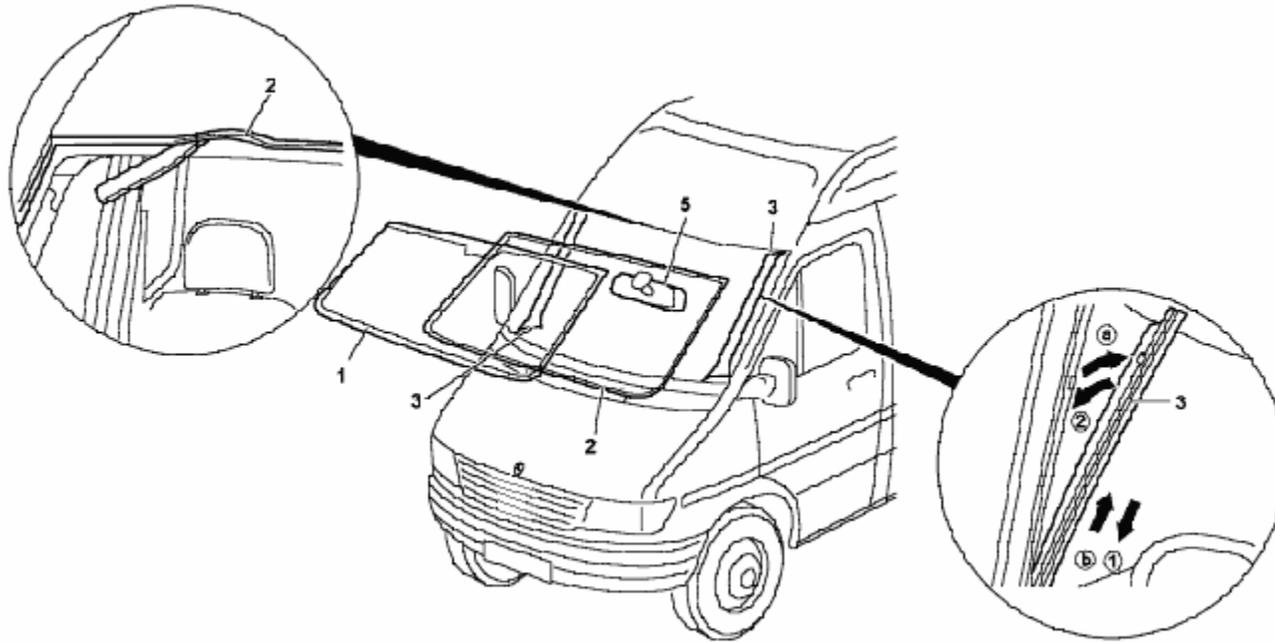
Check windshield cutout



2 Dimensional reference point (uniform all the way around)



Remove/install windshield



- 6 Hinge (sun visor)
- 7 Felt strip (anti-rattle)
- 8 Connector

[Back to Index](#)

Remove

Danger!

Risk of injury from slipping when clamping the blade in the multicutter and from glass splinters when cutting out cemented windows

Always interrupt air supply when inserting or removing blade.

Wear protective gloves and safety glasses.

Injury hazard

When clamping blade into multi-cutter and unclamping cuts can results when the tensioning wrench slips off or unintentionally switching on the multi-cutter.

Glass splinters can injure eyes and hands when cutting out bonded windows.

Rules of behavior/protective measures

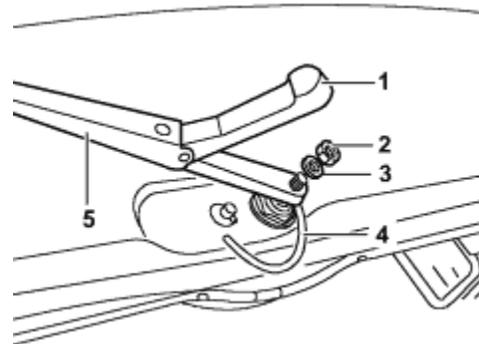
- Clamp/unclamp blade only with air supply shut-off.
- Wear protective gloves.
- Wear protective goggles when cutting out windows.

Risk of injury from knife slipping off when clamping it in the multicutter and from glass splinters when cutting out bonded windows

Clamp/unclamp blade only with air supply shut-off. Wear protective gloves and goggles

1 Remove windshield wiper arms

- 1 Cover
- 2 Nut
- 3 Washer
- 4 Hose
- 5 Wiper arm



[Return to Index](#)

Remove/install

1 Open engine hood

2 Detach hose (4)

3 Raise cover (1)

4 Unscrew wiper arm (5)

5 Install in the reverse order

2 Detach inner hinge (6) on sun visor

On cars with clear or shaded, heated windshield with rain sensor, code GBF

3 Lift front edge of headliner and pull out wiring harness with connectors (8)

On cars with clear or shaded, heated windshield with rain sensor, code GBF

4 Pull off felt strips (7) and separate connectors (8)

On cars with clear or shaded, heated windshield with rain sensor, code GBF

Fasten connecting cable for window heater to windshield with tape.

5.1 Remove inside rearview mirror (5).

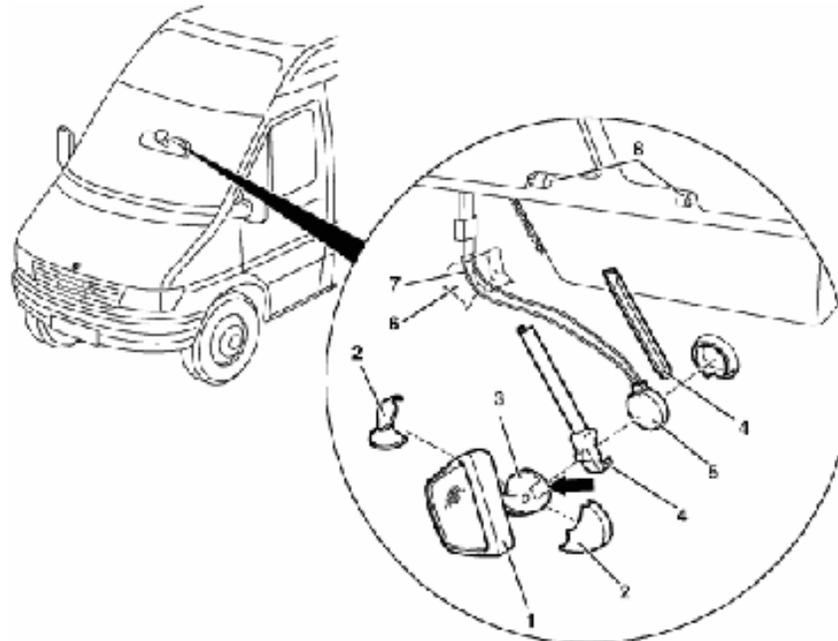
Except on cars with clear or shaded, heated windshield with rain sensor, code GBF

5.2 Remove rain sensor

On cars with clear or shaded, heated windshield with rain sensor, code GBF

[Return to Index](#)

Remove/install rain sensor



- 1 Mirror
- 2 Cover
- 3 Mirror arm
- 4 Cover
- 5 Rain sensor
- 6 Felt strip (anti-rattle)
- 7 Plug-in wiring plug connection
- 8 Hinge (sun visor)

[Return to Index](#)

Remove/Install

1 Disconnect and remove both covers (2)

2 Press mirror arm (3) down off the mirror base parallel to the windshield

To facilitate disassembly, lift up the retaining collar (arrow) slightly using a screwdriver (reduction in breakaway torque).

3 Separate and remove covers (4)

4 Loosen both inner hinges (8) of the sun visors

5 Raise headliner at the front and remove cable strands

6 Pull off felt strip (protection against rattling) (6)

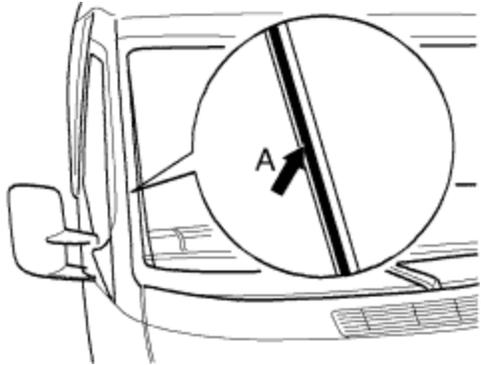
7 Unplug electrical connector (7)

8 Remove rain sensor (5)

Do not touch the gel-like sensor surface of the rain sensor, otherwise its function is impaired or the rain sensor becomes unusable.

10 Install in the reverse order

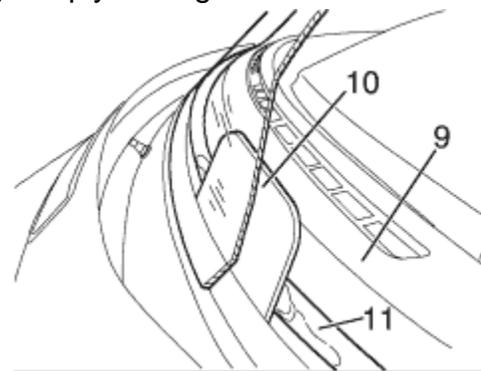
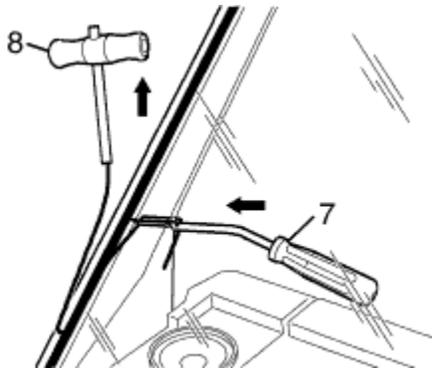
11 Check for proper function



5.1 Support countersupport (7) at top and on sides approx. 30 cm above passage of cutting wire for bead of glue, pull on T-handle (8) on outside in direction of countersupport (7) and cut through bead of glue.

5.2 At corners bend wire around corner and alternately pull on handle/countersupport so that bead of glue is sawed through and not cut.

5.3 In the center area at the bottom operate in a sawing manner as described in 5.2 because the bead of glue is overlapped here at the factory and is very difficult to separate by simply cutting.



[Return to Index](#)

In the area of the instrument cover (9) hold shopmade cover plate (10) between window flange and seal (11) to prevent damaging seal (11) when cutting out window.

Keep cutting wire under tension during entire glass removal procedure, because otherwise the wire can break from kinking.

6 Remove windshield from window opening with suction cups.

11 Vacuum off glass splinters and contamination

Install

12 Prepare windshield for insertion

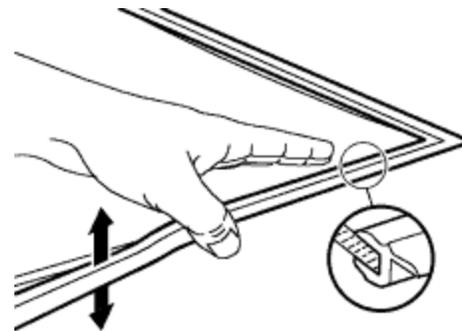
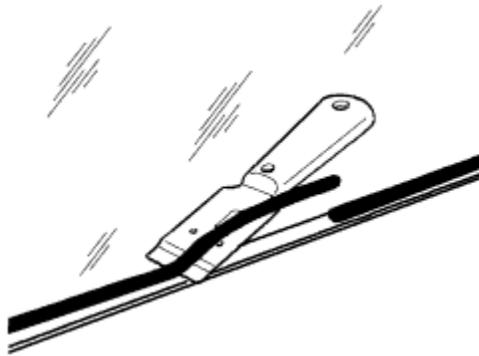
A On reusing the previously installed windshield

1 Level bead of glue on window with scraper to a thickness of approx. 1 mm.

2 Remove loose glue.

3 Position sealing frame at one corner of windshield, press on with thumb and pull onto window by quickly moving up and down.

Never moisten sealing frame with lubricants to facilitate installation.



[Return to Index](#)

4 Position suction cups at outside of window and center window in window cutout.
5 Glue adhesive tape (12) at side and at upper window edge and separate with sharp knife.

6 Check whether sheet metal flange runs parallel to window every where. If distance is > 8 mm, remove window, reposition sheet metal flange and then check distance again.

7 Remove window.

8 Rub area to be glued with moist cleaning rag from package (glass cleaning set) and rub dry with drying rag from package (glass cleaning set)

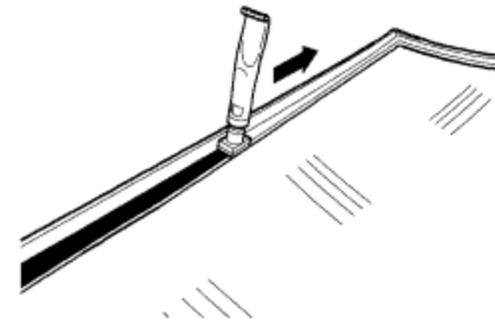
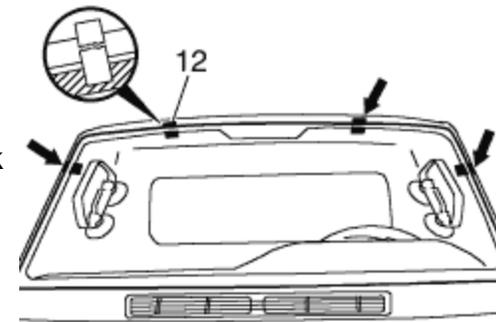
Do not use commercially available cleaning agents.

9 Repair damaged primer layer (flashlight test) with primer.

Shake primer tube for at least 30 seconds before use. To open, hold threaded primer tube connection pointing upwards, and screw felt applicator on to stop.

10 Check primer application.

The primer is applied properly when the screen print in the application area is opaque to light (flashlight test).
If more than 12 hours have expired since leveling the bead of glue apply primer to entire bead of glue.
Allow primer to air-dry for min. 10 minutes.

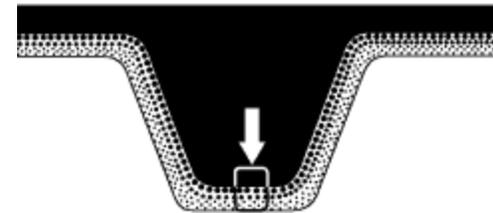


[Return to Index](#)

B. When installing new window

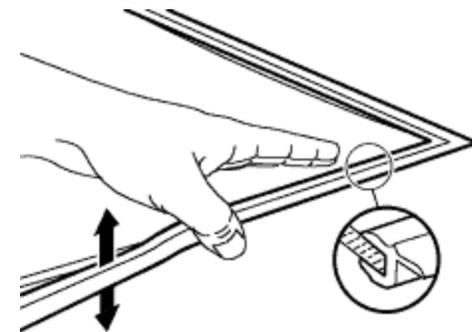
- 1 Clean window with commercially available glass cleaner and check for scratches and damage.
- 2 Clean marked gluing area for inside rearview mirror mount (arrow) with acetone.
- 3 Apply glue on gluing surfaces from glue set according to instructions for use. Glue mount on marked surface and press on for 30 seconds.

Observe installation position of dove tail fit. The narrow side should point upward.



- 4 Position sealing frame at one corner of windshield, press on with thumb and pull onto window by quickly moving up and down.

Never moisten sealing frame with lubricants to facilitate installation.



[Return to Index](#)

5 Position suction cups on window and center window in cutout.

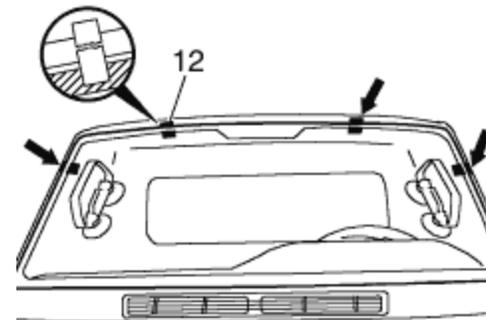
6 Glue adhesive tape (12) at side and at upper window frame and separate with sharp knife.

7 Check whether sheet metal flange runs parallel to window everywhere. If distance is > 8 mm, remove window, reposition sheet metal flange and then check distance again.

8 Remove window.

9 Rub area to be glued with moist cleaning rag from package (glass cleaning set) and rub dry with drying rag from package (glass cleaning set)

Do not use commercially available glass cleaners.



10 Apply primer on gluing surface of window directly at the sealing frame.

Shake primer tube for at least 30 seconds before use.

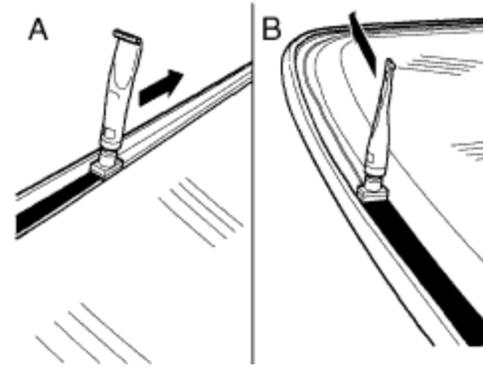
To open hold threaded connection of primer tube upward and screw felt applicator open to stop
Hold application sponge in longitudinal direction at sides "A" (narrow application), hold application sponge in lateral direction "B" at top and bottom (wide application).

Allow primer to air-dry for at least 10 minutes.

[Return to Index](#)

11 Check primer application.

The primer is applied properly when the screen print in the application area is opaque to light (flashlight test).

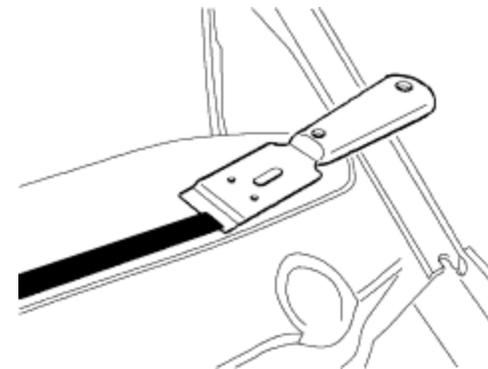


13 Prepare windshield cutout for windshield insertion

Preparing windshield opening for windshield installation

A. Without body work

1 Clean window cutout.



[Return to Index](#)

2 Level remaining bead of glue to a thickness of approx. 1 mm with scraper .

3 Clean window cutout and dashboard with vacuum cleaner.

4 Dab possible paint damage with primer.

Allow primer to air-dry for at least 10 minutes.

B. If body work is required

1 Perform body work.

2 Perform paint work.

3 Clean window cutout.

4 Level remaining bead of glue to a thickness of approx. 1 mm with scraper

14 Prepare glue cartridge

Before inserting cartridge, remove red circlip on cartridge and completely retract piston slides in cartridge gun, see Betapower II operating

1 Remove cartridge kit retainer (6).

2 Pull pressure arms on cartridge gun back

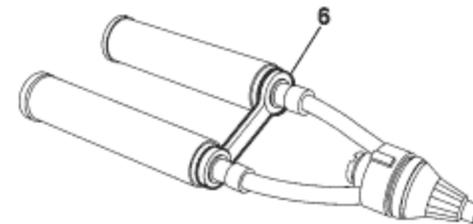
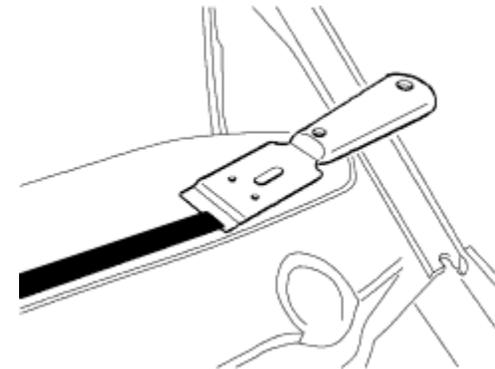
3 Open cartridge gun and insert cartridge set.

4 Screw on application nozzle.

Application nozzle for windshield (8 x 14 mm).

Application nozzle for rear window (blue, 8 x 7 mm with guide lug).

Triangular opening should point upward.



instructions.

[Return to Index](#)

15 Install windshield

Apply first 5 cm of glue bead to piece of paper, because the glue components are not yet properly mixed at the beginning. Always apply bead of glue to windshield Start applying glue bead at bottom of windshield in center directly to sealing frame. When applying, guide the triangular nozzle on the cartridge gun at right angles to windshield and ensure that the height of the glue bead corresponds to the cutout in the triangular nozzle. Allow the end of the glue bead to run out parallel to the beginning and smooth together. After applying the glue, install the windshield within 5 minutes. The curing time for the glue is at least 1 hour.

1 Apply glue bead with triangular nozzle directly to sealing frame starting at bottom in center of window.

When applying the glue bead **must have** the same height as the triangular nozzle cutout. Apply first 5 cm of glue bead onto a piece of cardboard, since the components are not yet properly mixed at the beginning.

Always apply glue bead to windshield **Always** install window within 5 minutes after applying 2K-glye.

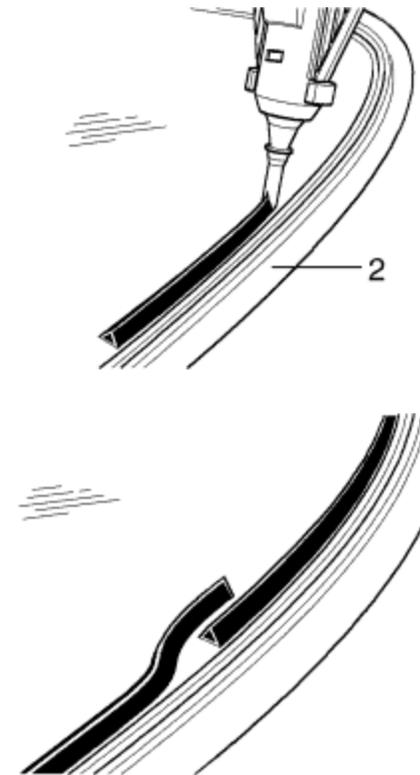
To correctly apply glue bead hold cartridge gun at right angle to window.

2 Allow end of glue bead to run out parallel to start of glue bead.

3 Smooth glue bead flush

4 Position suction cups on window

5 Lift window and center with adhesive tape (12) above window cutout, carefully lay down and press on.

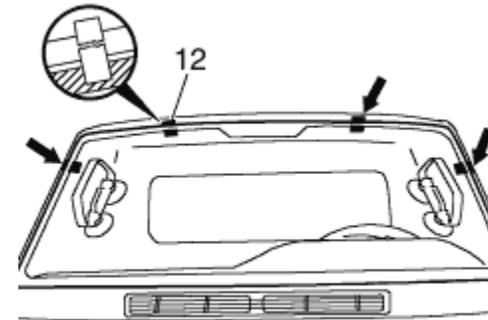


[Return to Index](#)

It is no longer possible to move the window after installation. The window should never be pressed in by more than one person, because the window can break if pressed simultaneously on both sides

Open a crank window in the vehicle so that air is not trapped when the door is closed, thereby pressing the window outwards.

Curing time at least 1 hour.



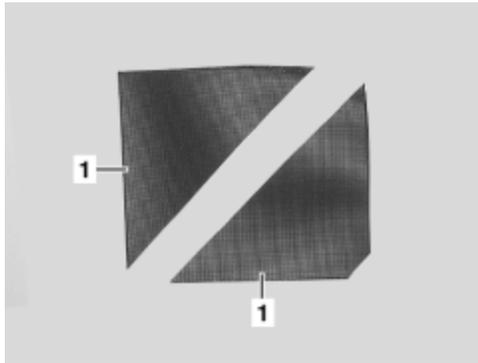
16.1 Glue rain sensor to windshield

On cars with clear or shaded, heated windshield with rain sensor, code FM1 or FM2

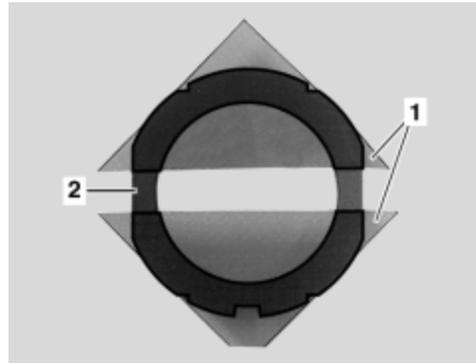
Only when installing new windshield.

[Return to Index](#)

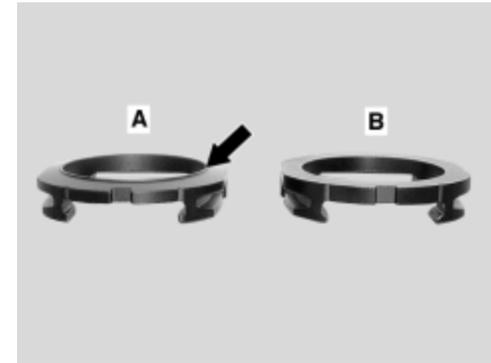
Glue rain sensor bracket to windshield



1 Nylon mesh woven textile



1 Nylon mesh woven textile
2 Rain sensor bracket



A Rain sensor bracket with collar (old version)
B Rain sensor bracket without collar (new version)

Install

- 1 Cut through nylon mesh fabric (1) from repair set diagonally
- 2 Place rain sensor bracket (2) on nylon mesh fabric (1)
- 3 Cut the nylon mesh fabric (1) to the contours of the rain sensor bracket (2)

On the old version (A) of the rain sensor bracket cut back the nylon mesh fabric somewhat more on the inside, as the nylon mesh fabric must not lie on the collar (arrow).

- 4 Glue on the rain sensor bracket (2)

In order to avoid assembly errors, be sure to observe the assembly notes in the leaflet from the bonding kit.

For a trouble-free operation of the rain sensor make sure no adhesive gets onto the inner edge of the rain sensor bracket.

[Return to Index](#)

16.2 Install inside rearview mirror (5)

Except on cars with clear or shaded, heated windshield with rain sensor, code GBF

17 Install rain sensor

On cars with clear or shaded, heated windshield with rain sensor, code GBF

18 Connect connector (8), wrap wiring harness with felt strips (7) and position connectors (8) in roof recess

On cars with clear or shaded, heated windshield with rain sensor, code GBF

19 Fasten hinges for sun visor

On cars with clear or shaded, heated windshield with rain sensor, code GBF

20 Insert A-pillar paneling with lug downward into hole in A-pillar (b) and catch at top (a)

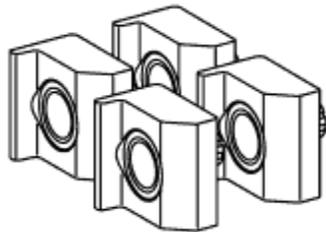
21 Install door seal in area of A-pillar paneling (3)

22 Install windshield wiper arms

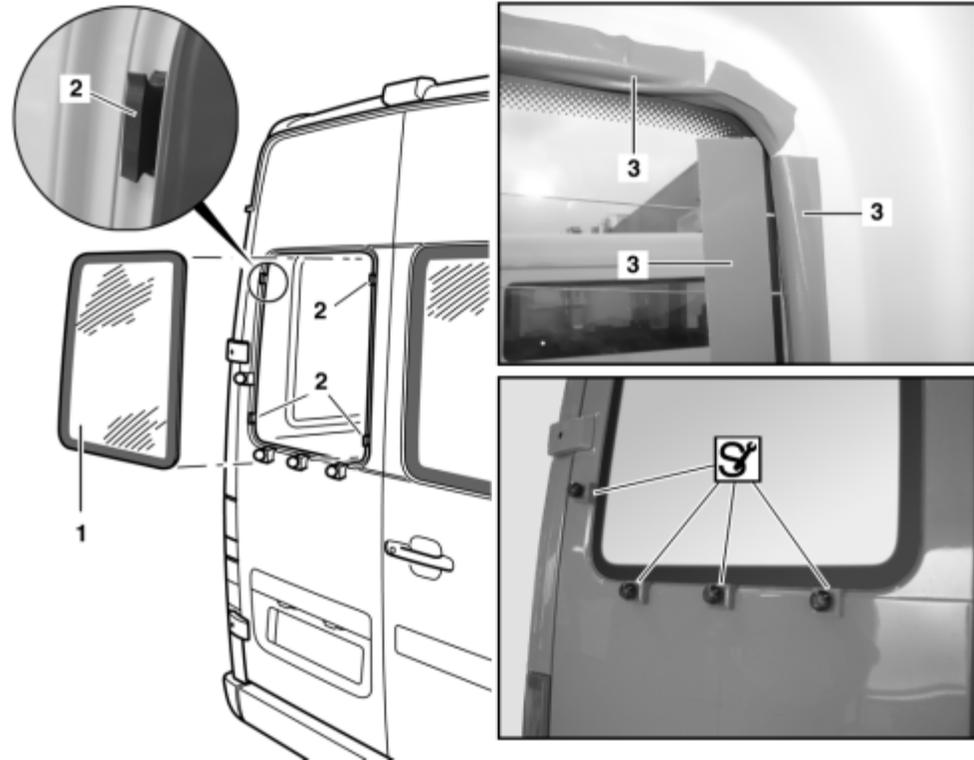
23 Clean windshield

Remove/install glued rear window

- 1 Rear window
- 2 Spacers (from glue kit)
- 3 Textile adhesive tape



Spacer



[Return to Index](#)

Remove

1.1 Disconnect electrical connector for rear window defroster

2 Fasten two suction cups on rear window

3 Cut out rear window

Secure rear window against falling down.

To prevent damaging the paint, adjust the cutting depth of the cutting blade to 32 mm and tape the inner metal flange of the window as well as the conductor tracks and wire ends along the edge to the rear window with textile adhesive tape (3), e.g. Tesa 4657.

4 Remove rear window (1) with suction cup.

Install

5 Prepare window cutout of rear door for installation

Not more than 1 mm of the adhesive bead must remain. Pull off loose adhesive material (remaining pieces which are not completely cut off). Repair paint damage on body flange not covered by glue material.

A. Without body and paintwork

1 Clean window cutout.

2 Level remaining bead of glue to a thickness of approx. 1 mm with scraper .

3 Evacuate window cutout.



[Return to Index](#)

4 Dab possible paint damage in the gluing area with primer. Repair paint damage in the visual area with top coat paint.

Allow primer to air-dry for at least 10 minutes

B. On body and paintwork

1 Perform body work.

2 Perform paintwork.

3 Clean window cutout.

4 Level remaining bead of glue to a thickness of approx. 1 mm with scrape

5 Apply primer to painted gluing surface.

Allow primer to air-dry for at least 10 minutes. If more than 12 hours have expired since leveling the bead of glue in the window cutout apply primer to bead of glue.

Hold application sponge in the longitudinal direction (narrow application).



[Return to Index](#)

6 Prepare rear window for installation

A When re-using the previously installed window

1 Level bead of glue on window with scraper to a thickness of approx. 1 mm.

Do not damage conductors of rear window defroster.

2 Remove loose glue.

3 Rub area to be glued with moist cleaning rag from package (glass cleaning set) and rub dry with drying rag from package (glass cleaning set)

Do not use commercially available cleaning agents.

4 Repair damaged primer layer (flashlight test) with primer.

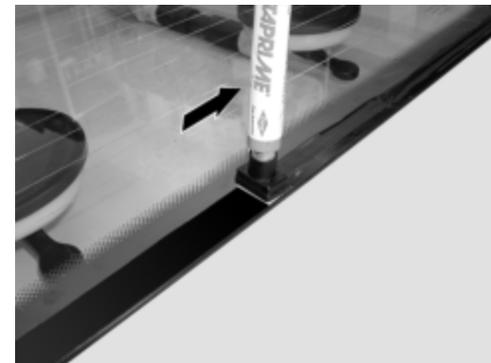
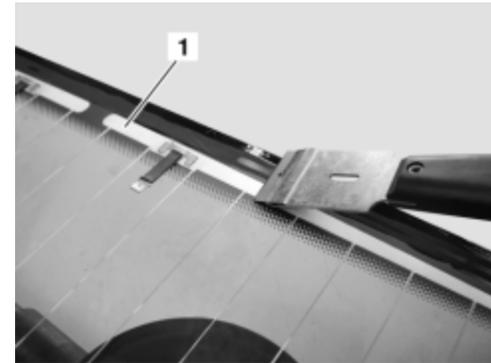
Shake primer tube for at least 30 seconds before use. To open, hold threaded primer tube connection pointing upwards, and screw felt applicator on to stop.

5 Check primer application.

The primer is applied properly when the screen print in the application area is opaque to light (flashlight test).

If more than 12 hours have expired since leveling the bead of glue apply primer to entire bead of glue.

Allow primer to air-dry for min. 10 minutes



[Return to Index](#)

B. When installing new window.

6 Rub area to be glued with moist cleaning rag from package (glass cleaning set) and rub dry with drying rag from package (glass cleaning set)

Do not use commercially available glass cleaners.

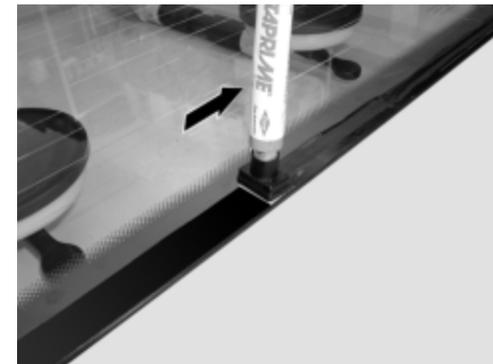
7 Apply primer on gluing surface of window directly at the window edge.

Shake primer tube for at least 30 seconds before use. To open, hold threaded primer tube connection pointing upwards, and screw felt applicator on to stop. Hold application sponge crosswise (wide application range).

Allow primer to air-dry for at least 10 minutes.

8 Check primer application.

The primer is applied properly when the screen print in the application area is opaque to light (flashlight test).



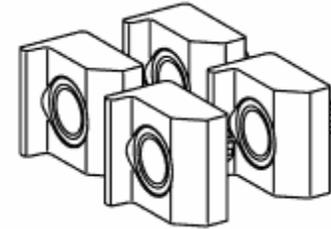
[Return to Index](#)

7 Install spacers at rear door.

To prevent lowering of the window, install three spacers at bottom of rear door. One spacer is sufficient for correct side alignment.

8 Glue spacer pads (2) into crimp on rear door.

To prevent the window from tilting, glue pads into vertical crimp from top and bottom.



9 Prepare glue cartridge

Use blue application nozzle with side guide lug. Before inserting cartridge remove red retaining ring from cartridges and completely retract pressure piston slide of cartridge gun

10 Install rear window

Apply first 5 cm of bead of glue on a piece of cardboard, since the components are not yet mixed properly at the beginning. When applying the glue, the glue bead **must** be the same height as the cutout of the triangular nozzle (approx. 7 mm), otherwise the glue will protrude along the edge of the window pane when installed.

Always apply glue bead to window. The window **must** be inserted within 5 minutes of applying the 2K adhesive before the adhesive force of glue starts decreasing.

Do not press down window with too much force.

Curing time: Min. 1 hour

To correctly apply bead of glue hold cartridge gun at right angle to window.

1 Apply glue bead only with blue triangular nozzle (7 x 8 mm with guide lug).

Apply first 5 cm of bead of glue onto a piece of cardboard, since the components are not yet properly mixed at the beginning. When applying the glue bead **must** have the same height as the cutout of the triangular nozzle (approx. 7 mm) because otherwise the glue would be squeezed out at the edge of the window during installation if too much glue is applied.

[Return to Index](#)

Always apply glue bead to window **Always** install window within 5 minutes after applying the 2K glue, otherwise the adhesive force of the glue starts to decrease.

To correctly apply bead of glue hold cartridge gun at right angle to window.

2 Allow end of bead of glue to run out parallel to start of bead of glue.

3 Smooth bead of glue flush.

4 Position suction cups on window

5 Remove window, position at spacers, position carefully and press on.

Do not press down window with too much force. Open sliding door so that the air is not trapped when the rear door is closed, thereby pressing the window outwards.

Curing time: Min.1 hour

11 Completely empty glue cartridges before disposal.

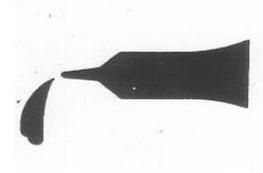
Remaining glue not required can be disposed of with the household waste.

12 Remove spacers after completion of curing time.

13.1 Connect electrical connector for rear window defroster.

14 Clean rear window.

[Return to Index](#)



Sealer Locations



Seam Sealing Following Repair

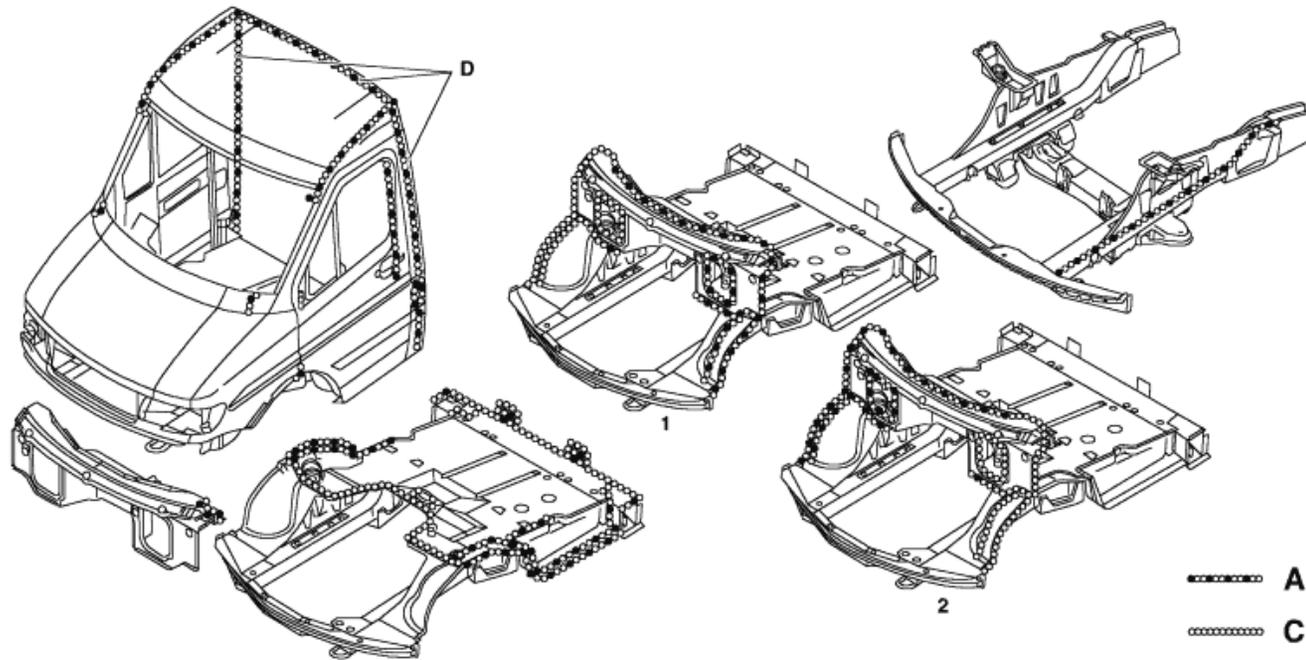


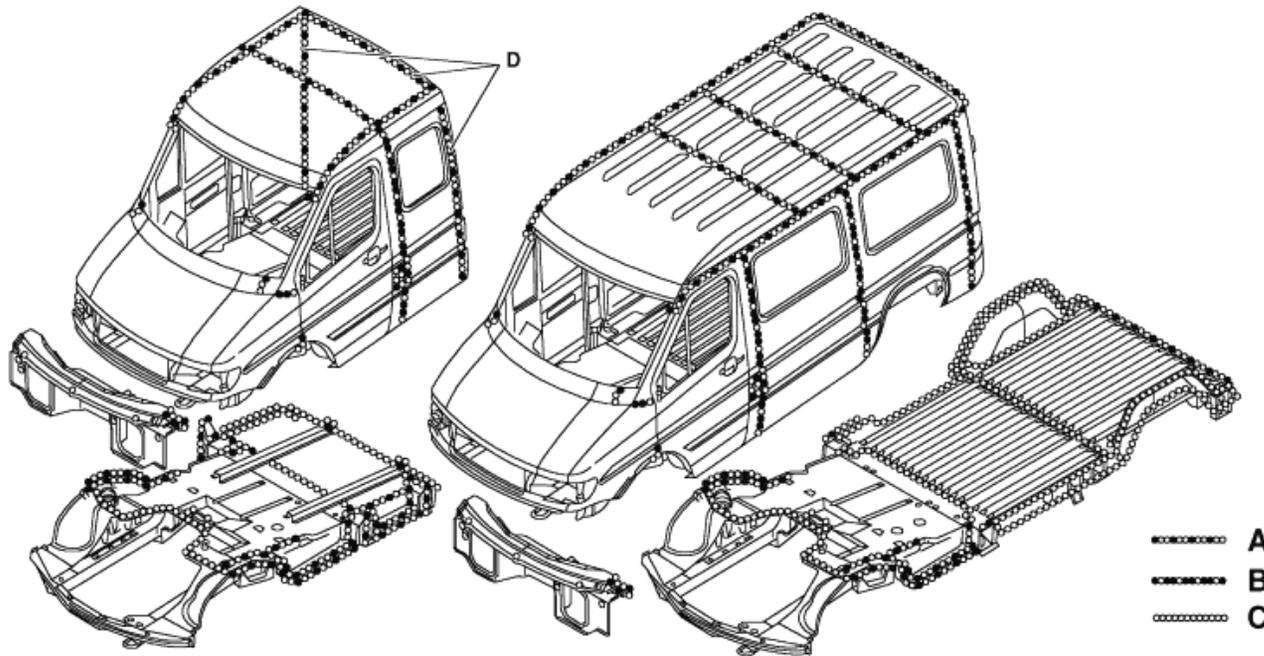
Illustration: 1 vehicle with left-hand steering
Illustration: 2 vehicle with right-hand steering

A Fine seam sealing

C Airless sealing

D Concealed fine seam sealing

[Return To Index](#)



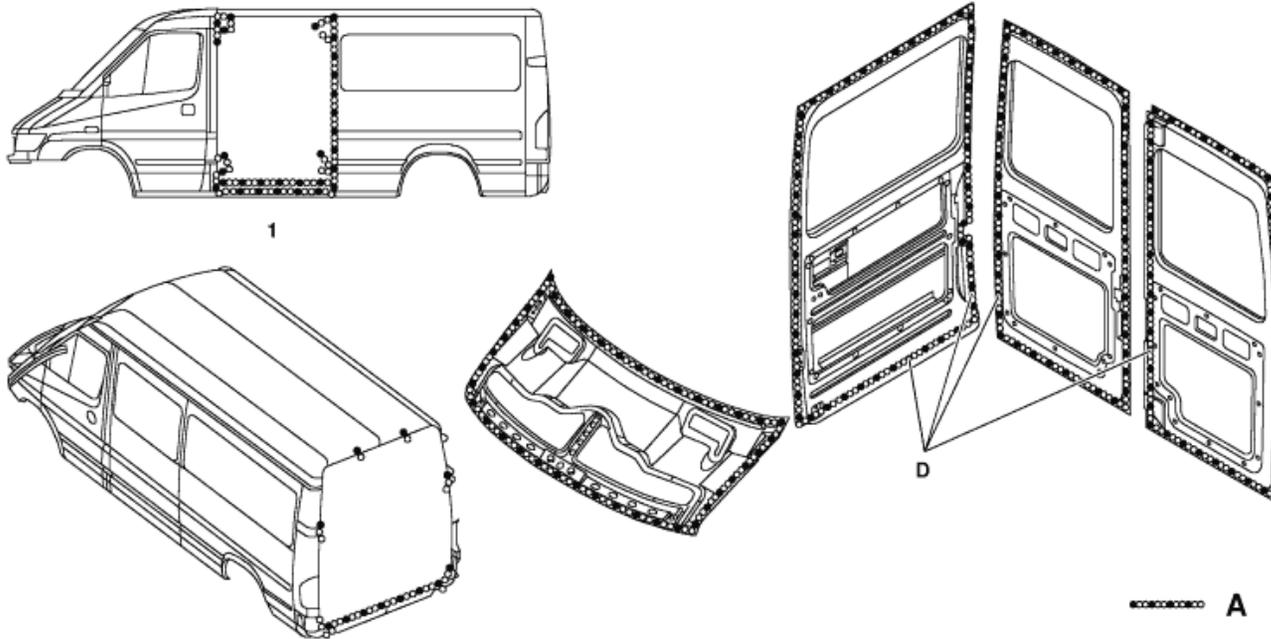
A Fine seam sealing

B Outer body seam sealing on top coat

C Airless sealing

D Concealed fine seam sealing

[Return To Index](#)



Fine seam sealing

1 Drain holes in entry

[Return To Index](#)

Danger!

Risk of explosion and poisoning. Solvent vapors and fumes are explosive and toxic.

Risk of injury. Working with anticorrosion agents may result in eye and skin injuries.

Never spray anticorrosion agents on flames or glowing hot objects and keep them well away from all potential sources of ignition. Process in well-ventilated rooms, wear respiratory protection.

Risk of explosion and poisoning caused by solvent vapors and gasses.

Risk of injury to skin and eyes when handling anticorrosion agents.

Never spray anticorrosion agents on flames or glowing hot objects and keep them well away from all potential sources of ignition. Use them only in well-ventilated rooms; wear respiratory protection.

 **Danger!**

Potential risks

Risk of explosion

The solvents contained in anticorrosion agents (such as underfloor protective coatings, cavity wax, engine compartment wax, etc.) are flammable, and may burst into flame if sprayed onto glowing hot components or open flames.

Risk of poisoning

Inhaling spray and solvent vapors can lead to damage of the respiratory system and lungs. Symptoms of poisoning include headache, breathing difficulty, nausea and loss of consciousness.

Underfloor protective coating materials further pose the following risks:

- Risk of damage to liver and kidneys.
- Central nervous system disorders, loss of consciousness.
- When these substances burn they produce toxic gases with a noxious odor; these gases are dangerous in high concentrations.

[Return To Index](#)

Risk of injury

If anticorrosion coatings come in contact with the eyes they can cause severe eye damage.

In the event of frequent or prolonged contact with the skin, these substances can drain the skin of natural oils and lead to inflammation.

Safety instructions/precautions

- Always remove all **PVC underfloor protective coatings** and **PVC seam sealers** from the areas to be treated before performing any welding or soldering work. This also applies for work such as cutting, sanding or similar work.
- When removing damaged bodywork sections use "cold" separating methods where possible. With these methods, smoke and toxic fumes are avoided.
- Do not expose containers to direct sunlight or to temperatures in excess of 50 °C.
- Always apply at the specified pressure.
- Do not spray anticorrosion agents on flames or glowing hot objects and keep them well away from all potential sources of ignition, do not smoke.
- Take precautions to avoid sparks from electrostatic discharge.
- Avoid all contact with eyes and skin.
- Wear tight-fitting safety glasses and solvent-resistant gloves.
- Wear respiratory protection and apply only in well ventilated areas.
- If clothing becomes soiled or soaked, remove and wash them immediately.
- Keep substances well away from food and beverages.
- Seal containers tightly and store them in a well-ventilated area.

First aid measures

In case of eye contact

- Flush thoroughly with water and consult a physician (eye doctor) immediately.

In case of ingestion

- Give medicinal activated charcoal, do not induce vomiting, consult a physician immediately.

In case of inhalation

- Move victim to fresh air, have victim lie down and remain calm, avoid strenuous activity.

[Return To Index](#)

In case of contact with the skin

- Immediately wash with soap and water, apply protective skin ointment.

Fire protection measures

Rescue, extinguishing and cleanup operations in areas contaminated by fumes should only be undertaken by individuals wearing respiratory protection. Do not inhale fumes from flames or explosions.

Suitable extinguishing agents:

- Water mist spray
- Foam
- Extinguishing powder
- Carbon dioxide

Non-suitable extinguishing agents:

- Direct water spray

Notes on sprayable joint sealant

All models

Application areas:

With this material, when applied over large surfaces on areas such as the wheelhouses, longitudinal members (rocker panels) and vehicle floor elements, the characteristics are visually equivalent to the standard or plant seals in terms of the processing.

When applying the material from the standard cartridge (300 ml), a special compressed air gun is required which allows different types of application for structured joints, surface coatings, stone-impact protection and sound deadening in combination with the associated plastic injection nozzles.

Processing:

- Wet-in-wet painting possible between 30 min. and 8 h after application without paint additives. Forced drying is necessary between 8 h and 72 h. Longer standing times should be avoided to exclude paint adhesion losses.
- Adhesion surfaces must be clean, dry and free of grease.

[Return To Index](#)

- Spray filler/filler primer before application of sprayable joint sealing agent.
- Never apply the sprayable joint sealing agent to fresh (unhardened) 1K polyurethane material.

Specific material advantages of "sprayable joint sealing agent":

- Does not contain any isocyanates, silicone, PVCs and no dangerous agent.
- The replaceable nozzle makes cleaning unnecessary.
- Visual repair of the plant seals and underbody coating.
- Good stability.
- UV-resistant.
- Material offers a number of application possibilities.
- With the proper gun setting, the sprayable joint seal can be applied as joint seal and surface coating in sequence.
- It is necessary, however, to wait for the end of the skin formation period of about 15 min. for the sprayed seam.
- Can be painted over well.

Sealing

After performing body repair seal welds on both sides.

Processing of corrosion protection materials before painting

Notes on processing permanent underbody protection

The frame floor is protected by permanent PVC underbody protection as standard feature (see Manual "Paintwork and Corrosion Protection"). PVC material is also used in mass production for sealing work, e.g. for spot welded joints, door joints, etc.

When PVC material burns, strong corrosive hydrochloric acid is formed.

[Return To Index](#)

The new permanent under floor protection can only be applied poorly to burned PVC material resulting in later sub-surface corrosion.

For this reason, always remove PVC underbody protection as well as PVC joint seals before starting any brazing or welding work. This also applies for work such as cutting, grinding, etc.

For these reasons, "cold" cutting methods should be preferred when cutting away damaged body panels.

Application of body sealant (paintable) before painting

For sealing plans see paint and corrosion protection manual.

Processing body sealant (paintable) before painting

When replacing sheet attached parts (doors, trunk lid, etc.) and also body parts welded in place, carefully seal the folds and openings with body sealant in order to avoid corrosion and leaks. Seal spot weld seams and rivets on both sides.

Observe the following procedure:

- 1 Carefully clean affected body parts.
- 2 Apply sealant uniformly.
- 3 Spread body sealant evenly.
- 4 Maintain drying time for overpainting.

The brushes, wooden spatulas, etc. used to spread the body sealant should generally be cleaned only with pure benzine.

If these objects are cleaned with paint thinner or other alcoholic liquids before applying the body sealant the sealant does not cure and remains sticky.

[Return To Index](#)

Processing zinc dust paint before painting

Do not use for painting outer surface.

Observe the following procedure when processing:

Carefully clean affected body parts. All bare sheet metal parts must be completely clean and free of rust, oil and wax. Uniformly apply zinc dust paint with brush or flow cup spray gun. Maintain drying time for overpainting.

Zinc dust paint serves for preventing corrosion on welding seams, sheet metal contact points and surfaces, which cannot be painted or are difficult to paint following assembly.

Do not use for painting outer surface.

All bare sheet metal parts must be completely clean and free of rust, oil and wax.

Processing permanent underbody protection for painting

Observe following procedure when processing:

All areas to which permanent underbody protection is to be applied must be thoroughly cleaned (steam cleaner). In particular, remove wax and oil residues as well as loose pieces of PVC thoroughly. Grind corroded points down to bare metal and prime.

A hot air gun and flat nozzle with integrated scraper or rotating wire brushes are suitable for removing the PVC material. Apply permanent underbody protection uniformly with spray gun. Do not spray permanent under floor protection on equipment, otherwise, the function could be impaired. Maintain drying time for overpainting.

[Return To Index](#)

Permanent underbody protection (synthetic rubber), dark gray:

The permanent underbody protection is designed on a synthetic rubber basis and is suited for processing fender bottom sections, underbody as well as transitions to original standard PVC underbody protection.

Not suited for sealing work (seam sealing). Blow through spray gun with solvent after use. Clear air hole on screw-in thread.

Permanent under floor protection (water-base dispersion), gray

The permanent under floor protection is a water-base dispersion suitable for application to the underbody, fender bottom sections and exterior surface. For processing on the outer surface (e.g. front fender below bumper, longitudinal members at entry) thin material with 5 % water to achieve better coverage.

This permanent under floor protection is not suitable for transitions to original standard PVC under floor protection or for sealing work (insufficient adhesion and formation of cracks). After completion of work, clean tools thoroughly with water. Before reuse moisten air flap with mineral oil so that spray fog does not dry on.

Sealant

Corrosion protection

Do not apply sealing agent on bare metal, prime welds, etc. first

Detachable body components

When replacing detachable body components such as doors, engine hood, rear doors etc. also seam welds and beads.

Separation points

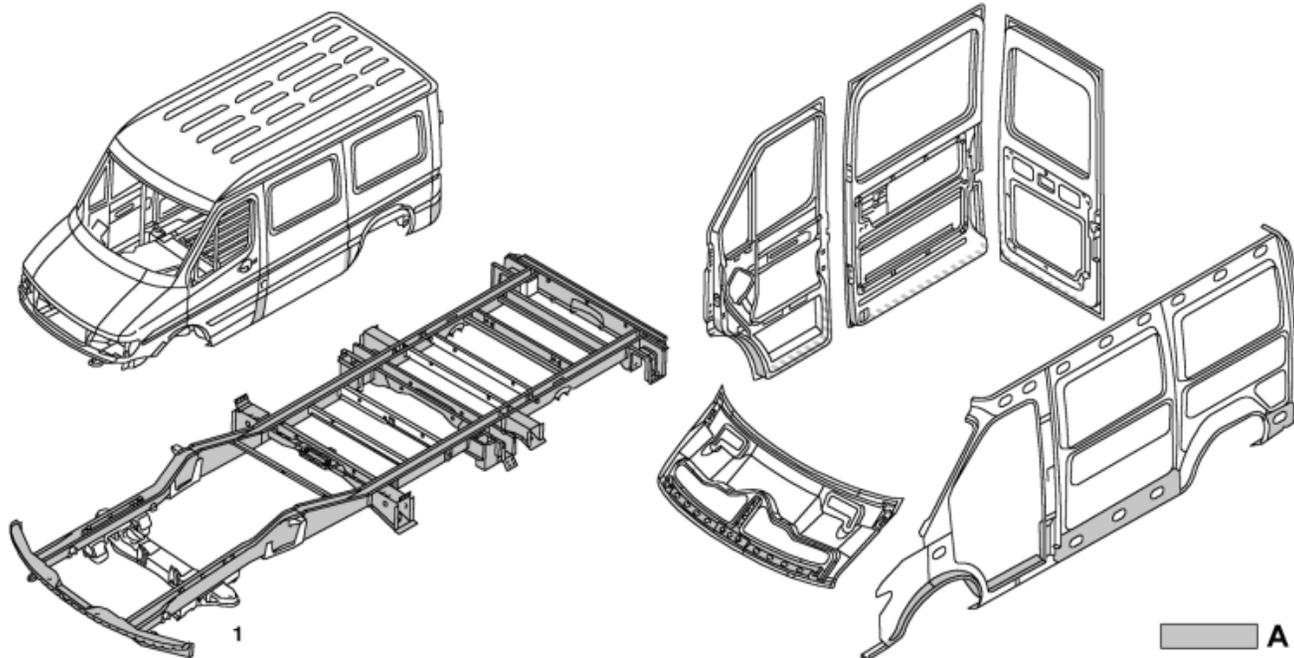
In some cases various sealing measures may be required at points not illustrated depending on the scope of repair.

1 Drain holes in entry

Keep drain holes in entry free.

[Return To Index](#)

Hollow Cavity Preservation Following Repair Work



A Hollow cavity preservation

1 Panel van/compact van frame

[Return To Index](#)

Notes on hollow cavity preservation

The cavity preservation with wax already performed at the factory completes the corrosion prevention measures.

No repetition of this preservation work is necessary.

On vehicles on which repairs to the sheet metal parts have been accomplished, repair preservation is required. As a matter of principle, apply two coats of repair preservation agent one after another with an air drying time of 5 min. in between.

It is also necessary to preserve replacement bodies twice after painting.

Replacement body shells top-coated in the factory have already been treated with the standard cavity preservation.

Processing instructions for hollow cavity preservation

The cavity preservation with wax already performed at the factory completes the corrosion prevention measures.
No repetition of this preservation work is necessary.

Repair preservation

Following accident repairs, spray hollow cavities with wax in the repaired area. When replacing detachable body components, e.g. front fender, engine hood, doors, trunk lid as well as during welding, riveting and soldering work, also perform repair preservation.

Always apply two coats of repair preservation agent, one after another with an air drying time of 5 min in between.

After drying, ensure that drain holes are not plugged.

It is important that the wax preservation agent is applied following sealing and paintwork, however, before assembly. Otherwise painting defects can occur or attached parts may be contaminated with wax.

[Return To Index](#)

Replacement bodyshells must also be preserved twice in succession after painting.

Replacement bodyshells top-coated in the factory have already been treated with the standard cavity preservation

Working instructions

The cavities must be dry before preserving. Before commencing preservation work, check the spray pattern from the spraying hose or spray can. The wax must spray uniformly from the openings in a circular pattern.

Particularly advantageous are nozzles which spray toward the front as well as at an angle toward the rear.

The spraying hose of the hand-held lance must be "stiff". Hoses that tend to roll up are not suitable.

When preserving, insert the spraying hose into the cavities in all directions as far as possible.

Spray while slowly inserting and retracting the hose (processing temperature not below +15 °C).

Clean spray nozzle and spray hose together with spray equipment.

Apply wax preservation agent in shaded areas following sealing and paintwork, however, before performing assembly work

Move spraying hose into hollow cavities as far as possible and slowly pull out hose while spraying

Apply repair preservation agent twice with a drying time of 5 minutes in between.

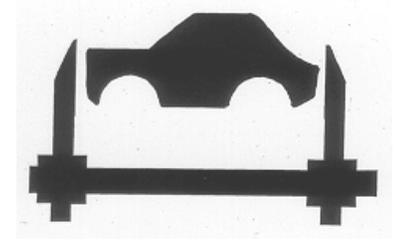
The spraying hose should be stiff and the nozzles should spray at angle to the front and rear. The hollow cavities should be dry.

Ensure that the drain holes are not plugged following drying

The processing temperature should not be below + 15 °C

Additional preservation measures may be required depending on the repair area deviating from the standard hollow cavity preservation illustrated.

[Return To Index](#)



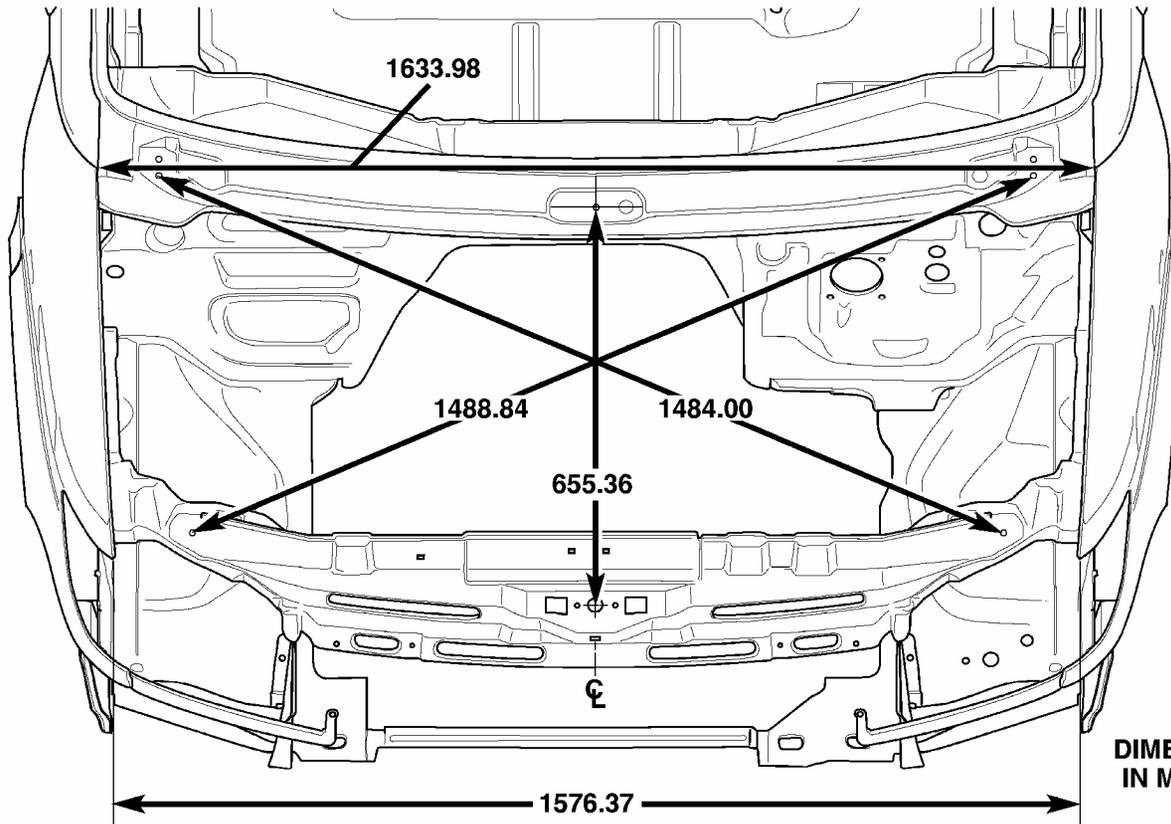
Frame/Body Dimensions



BODY OPENING DIMENSIONS INDEX

DESCRIPTION	FIGURE
ENGINE BOX – ALL	1
WINDSHIELD OPENING – ALL	2
BODY SIDE DOOR OPENINGS – ALL	3
BODY SIDE WINDOW OPENINGS – 118 WB	4
BODY SIDE WINDOW OPENINGS – 140 WB	5
BODY SIDE WINDOW OPENINGS – 158 WB	6
REAR DOOR OPENING – ALL	7

[Return to Index](#)

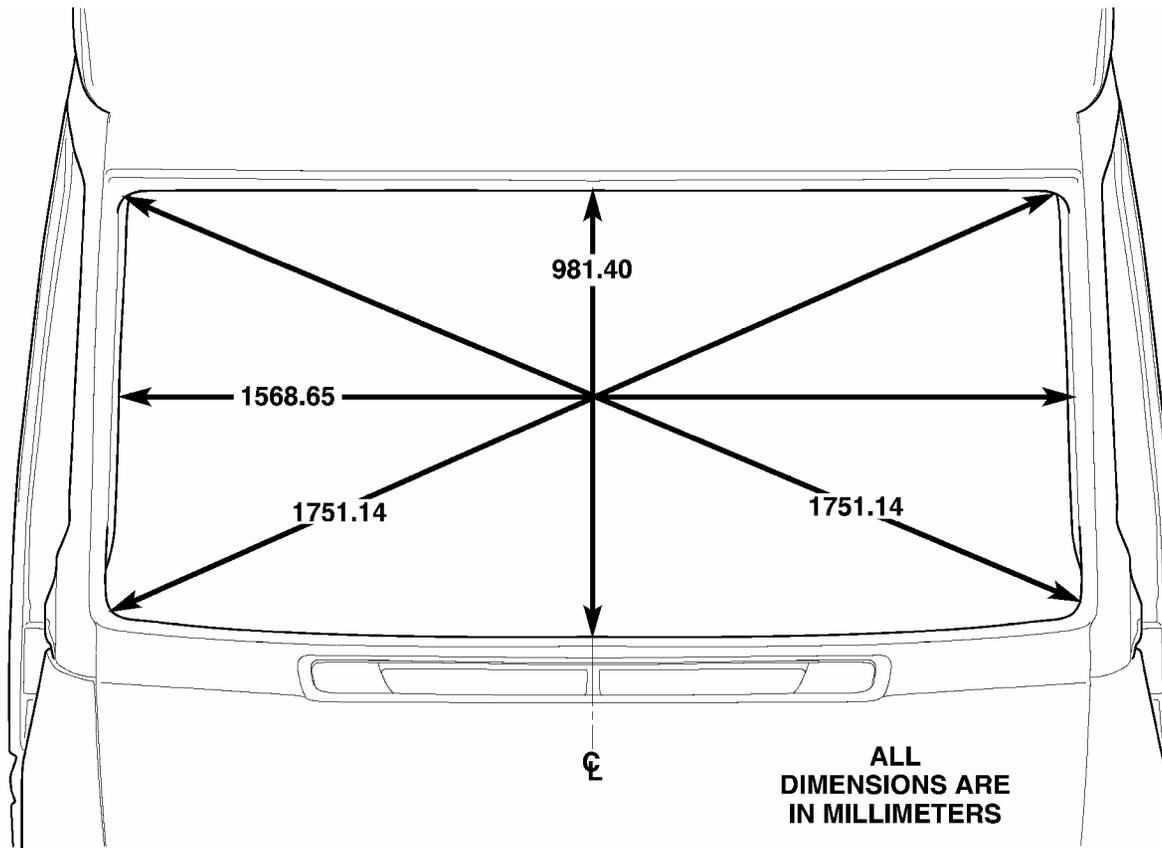


ALL
DIMENSIONS ARE
IN MILLIMETERS

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Fig. 1 ENGINE BOX - ALL

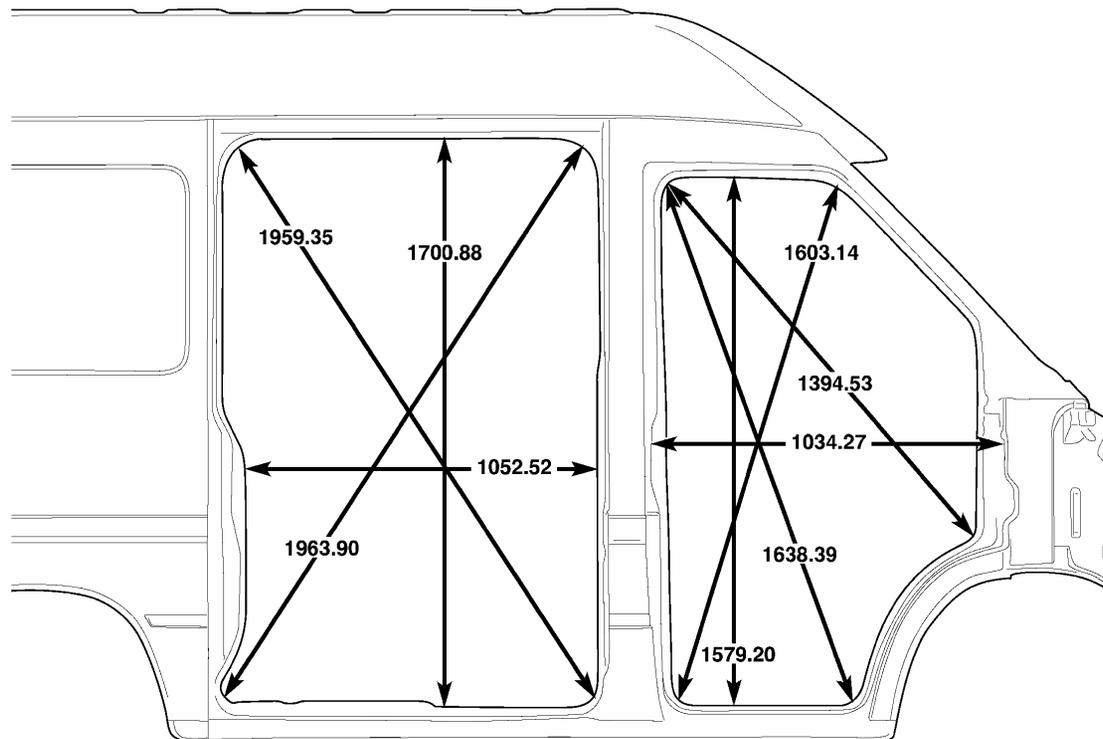
[Return to Index](#)



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Fig. 2 WINDSHIELD OPENING - ALL

[Return to Index](#)

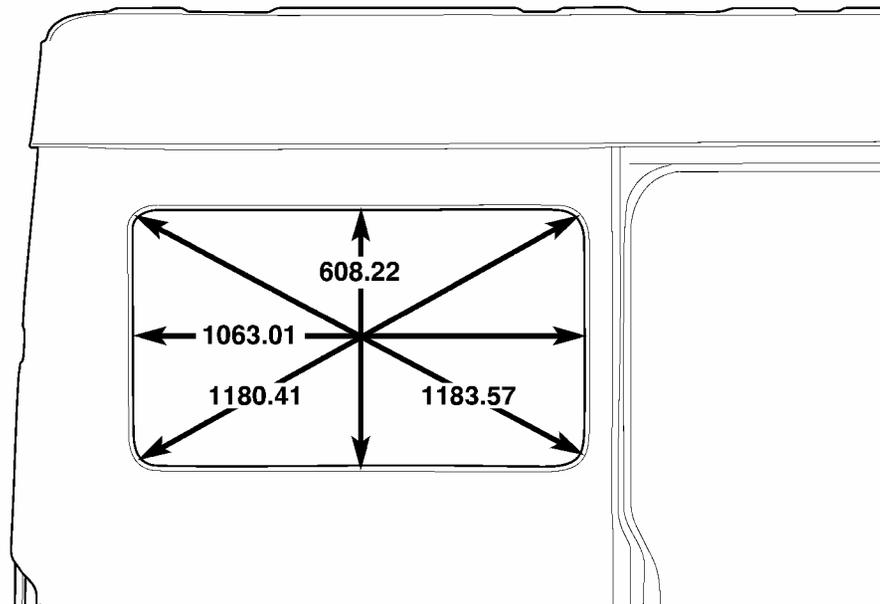


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Fig. 3 BODY SIDE DOOR OPENINGS - ALL

[Return to Index](#)

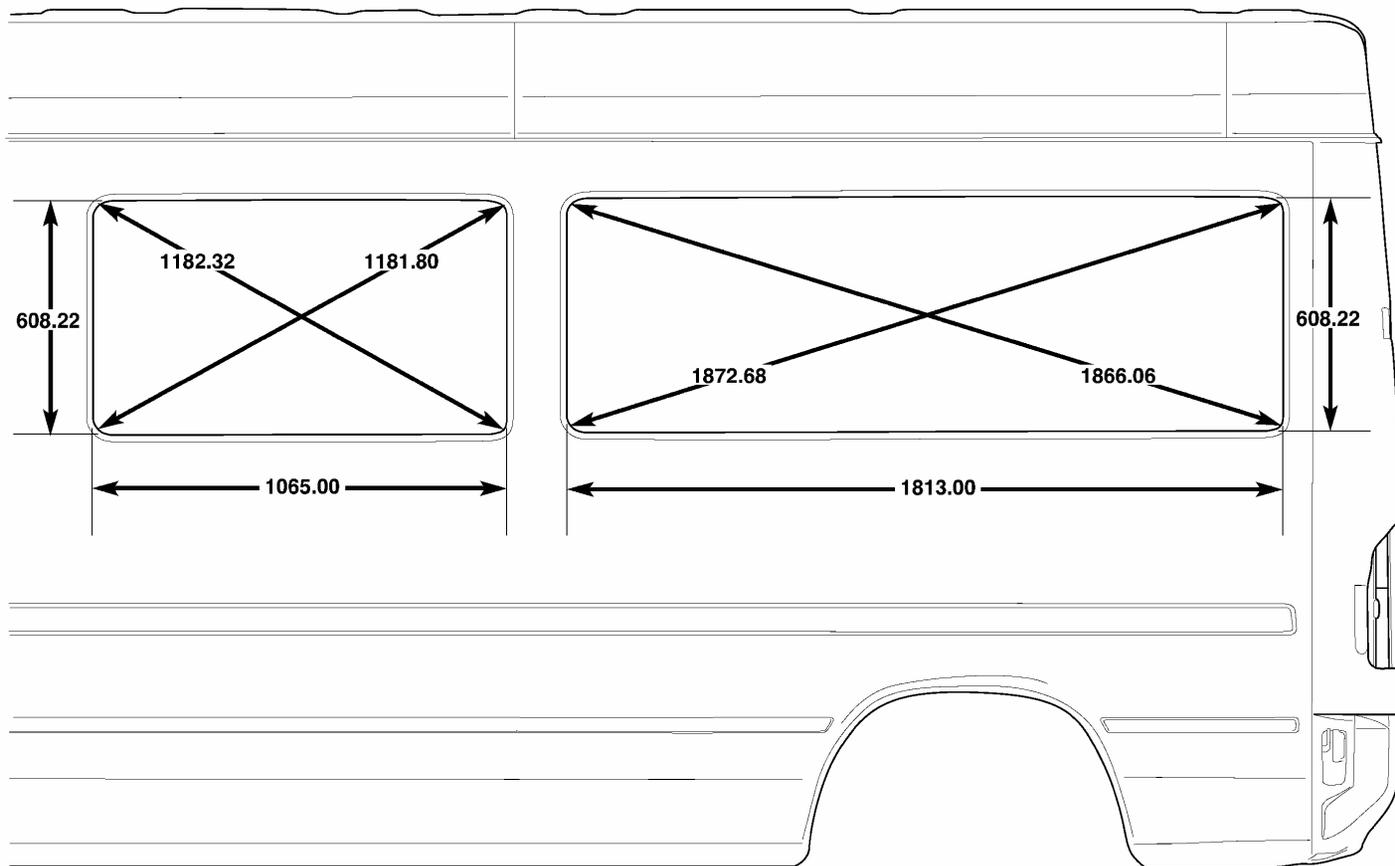


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Fig. 4 BODY SIDE WINDOW OPENINGS – 118 WB

Return to Index

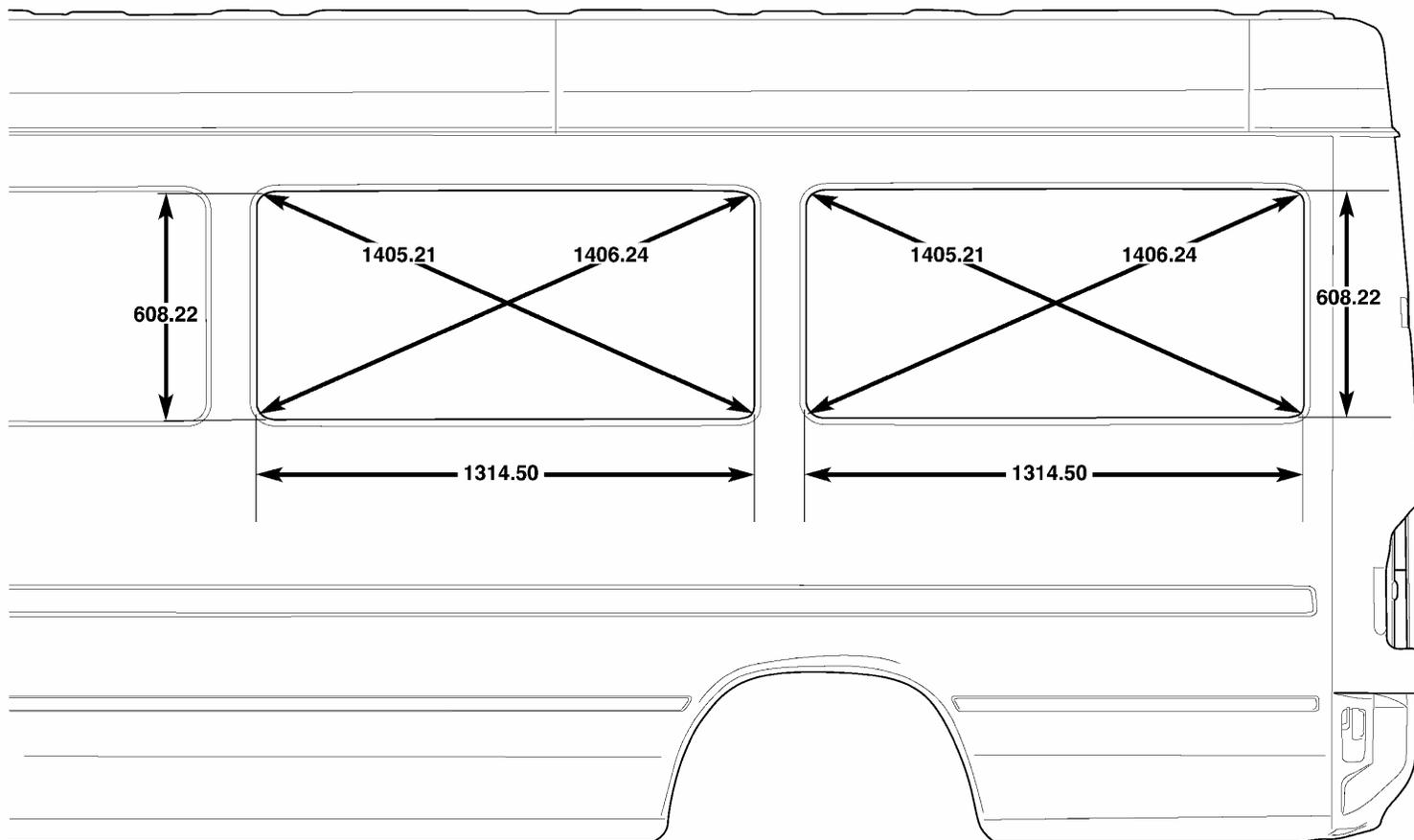


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Fig. 5 BODY SIDE WINDOW OPENINGS – 140 WB

[Return to Index](#)

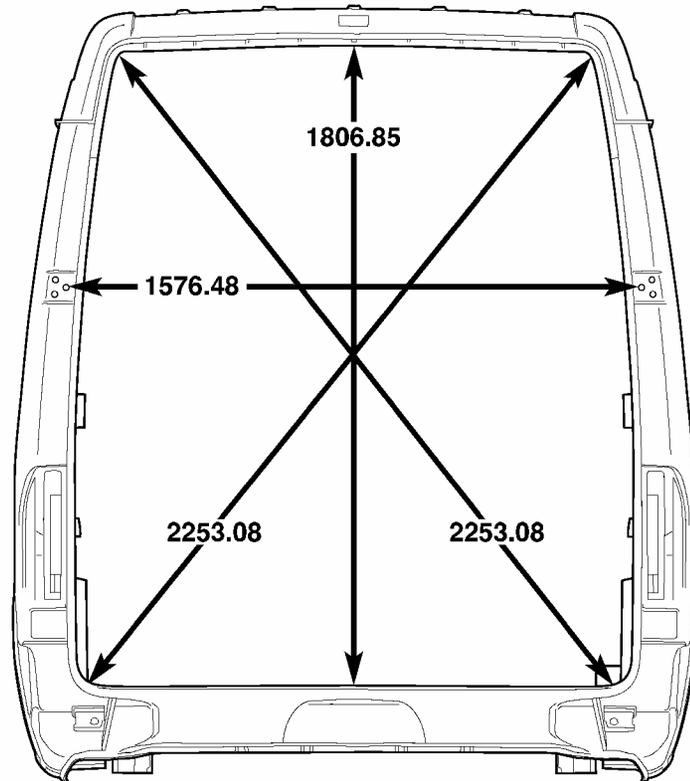


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Fig. 6 BODY SIDE WINDOW OPENINGS – 158 WB

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[Return to Index](#)



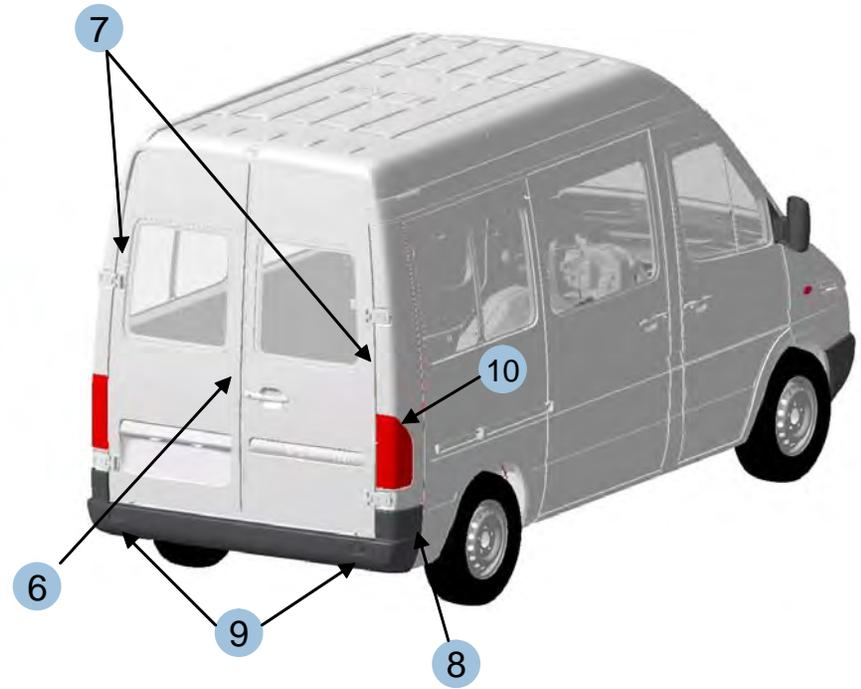
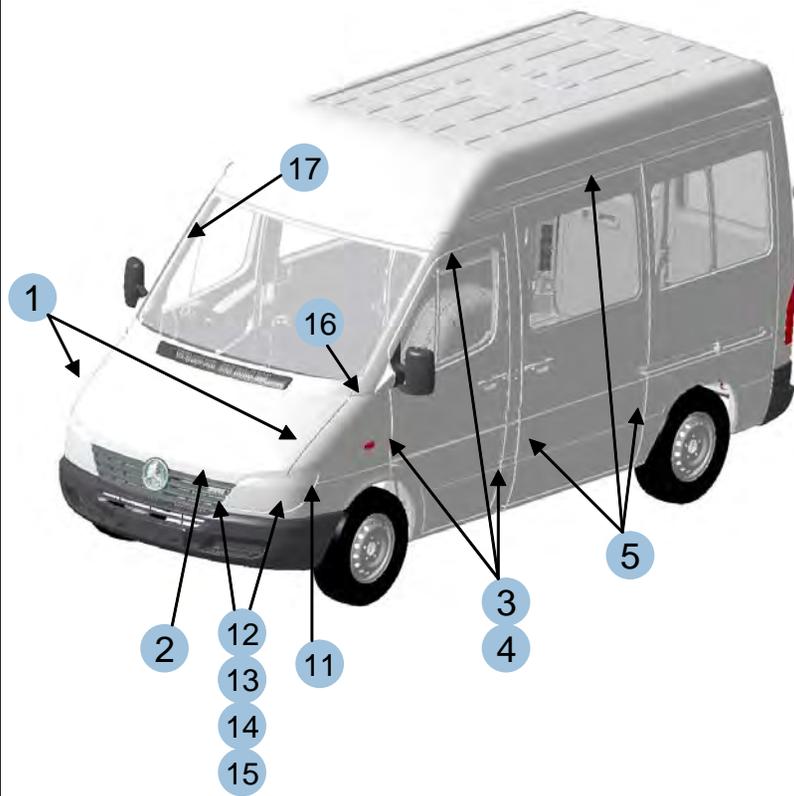
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Fig. 7 REAR DOOR OPENING - ALL

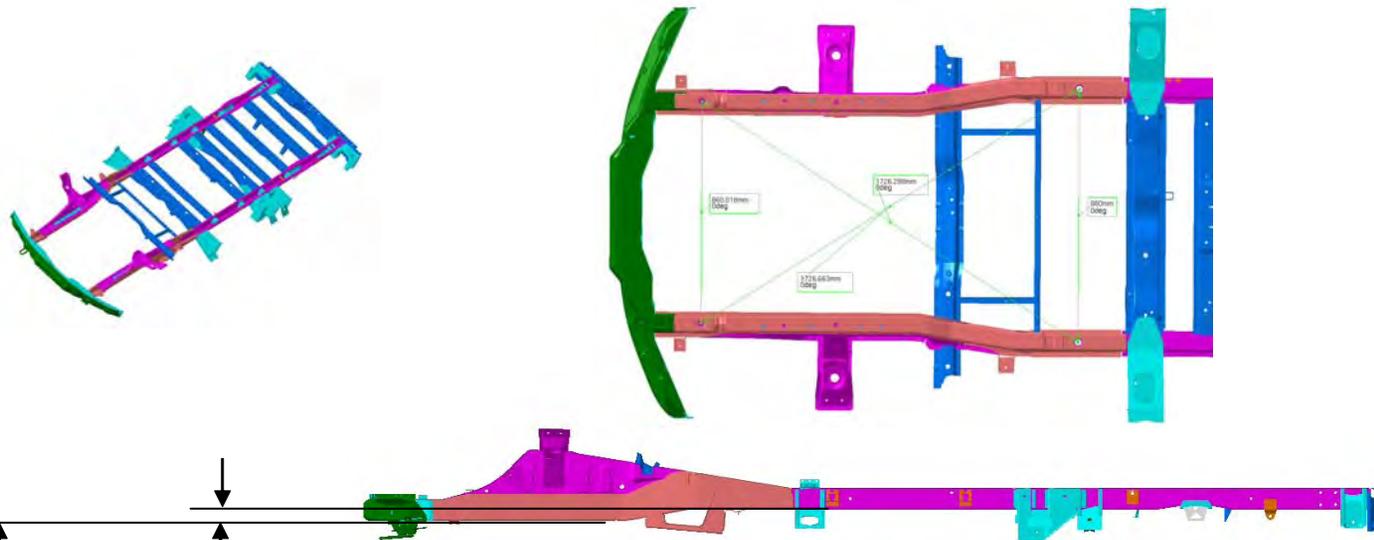
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Body Dimensions



Pos.	Vehicle Part	Gap Measurement	Pos.	Vehicle Part	Gap Measurement
	Hood			Tail Lamp	
1	Left/Right	4,8 / 4,3	10	Gap to Side Panel Left/Right	2,6 / 4,3
	Drivers Door			Side Marker	
3	Front/Back/Top/Bottom	7,4 / 6,7 / 8,7 / 6,6	11	Gap to Fender Left/Right	4,1 / 1,7
4	Front/Back/Top/Bottom	6,8 / 6,2 / 8,2 / 7,6			
	Sliding Door			Head Light	
5	Front/Back/Top/Bottom	7,6 / 6,7 / 5,0 / 10	12	Gap to Fender Left/Right	4,0 / 5,1
	Tail Gate		13	Gap to Baffle Left/Right	2,7 / 2,4
6	Gap Middle	9,1	14	Gap to Bumper Left/Right	11 / 10,5
7	Gap Left/Right	7,8 / 8,4	15	Gap to Grille Left/Right	3,7 / 9,6
	Rear Bumper			A-Pillar	
8	Gap to Side Panel Left/Right	8,0 / 5,6	16	Gap to Fender Left/Right	4,4 / 4,4
9	Bumper Middle to Left/Right	7,0 / 8,5	17	Gap to Front Windshield	Barrier
Gap Allowance ± 1 MM					





Z = -178

53 mm

MEASUREMENTS FROM POINT ON RADIUS TO POINT ON RADIUS

ALL DIMENSIONS ARE IN MILLIMETERS



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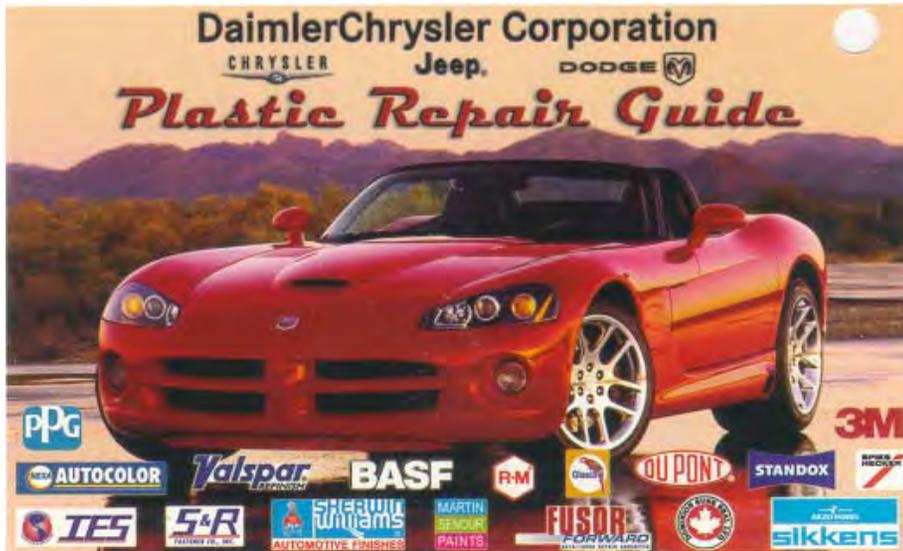
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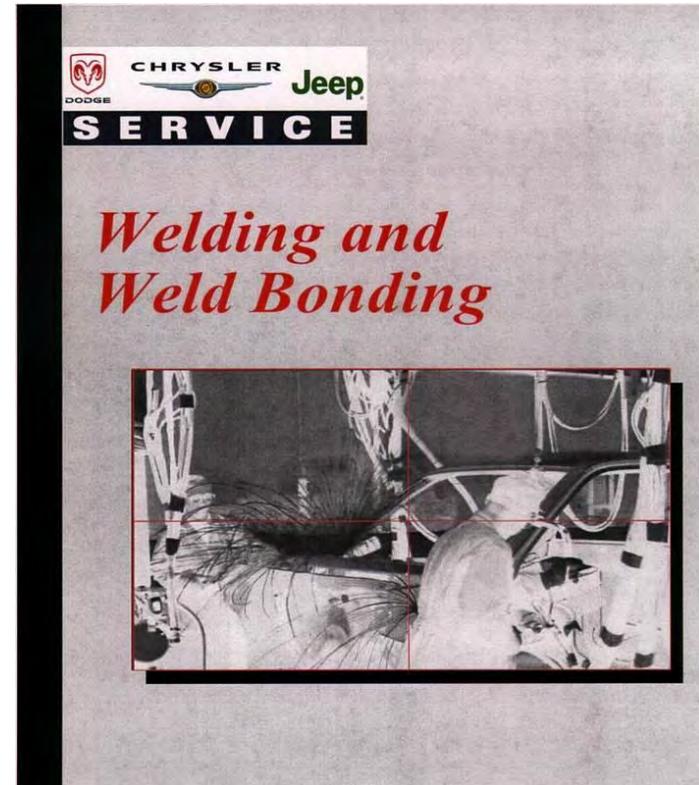
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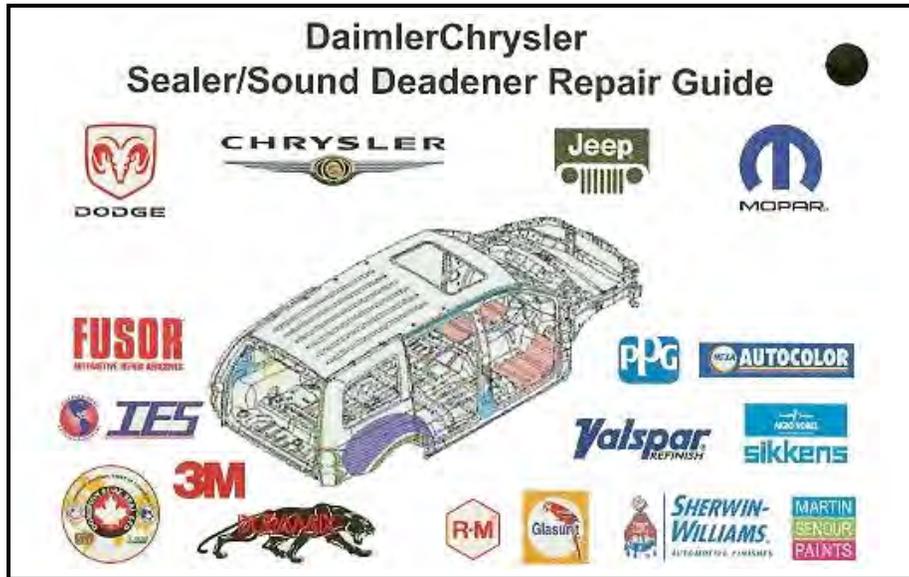
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