

SECTION W—BODY AND CHASSIS FRAME

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Have you read the General Notes on page vii?

DESCRIPTION

Body

The body is of all-steel construction except for a detachable plywood floor. The roof is a one-piece steel pressing supported on pressed steel hoops. The body sides are one-piece steel pressings strengthened by inner steel panels which extend upwards to the waist.

The front doors are carried on rollers, top and bottom, and slide on the outside of the body. Each door contains one fixed and one sliding glass window mounted in a metal frame. The door on the driver's side is locked by the ignition key whereas the opposite door is locked from the inside by a turn-button. The front doors and door apertures on CAL are wider than those on CAS,

and the CAL body floor is extended a corresponding amount at the front by means of a metal panel.

Each rear door is fitted with a glass window mounted in a rubber glazing channel. The doors are carried on self-aligning hinges and are locked by the ignition key.

The body is fitted with a one-piece windshield carried in a rubber weatherstrip incorporating a chrome-faced insert.

Chassis Frame

The chassis frame is of the cruciform type (see Fig. W.10 on page W-10) incorporating three crossmembers in addition to the cruciform member. The front crossmember is detachable.

GUARDIAN MAINTENANCE

Door Lock Barrels

Lubricate the lock barrels with an oil specially developed for the purpose, such as 'Slip' lock oil. This lubricant has the added advantage of an anti-freeze property which prevents freezing of the barrels down to -40° .

Door Hinges and Rollers

Lubricate the hinges of the back doors and front centre panel, and the front door rollers, with

engine oil. Access to the lower rollers is from underneath the vehicle.

Door Catches and Check Links

Lightly coat the working surfaces of the door and front centre panel catches, and the back door check links and locking rods, with high melting point grease.

BUMPERS AND BRACKETS

Removal

Front Bumper

1. Remove the nuts and bolts securing the bumper brackets to the chassis frame.
2. Remove the nut and bolt securing one of the brackets to the bumper, withdraw the bumper and lift away the remaining bracket.

Rear Bumper

1. Remove the nuts and bolts securing the support to the bumper bracket and chassis frame.
2. Remove the nuts and bolts securing the

bumper brackets to the frame, and withdraw the bumper.

Installation

Note the following:

1. Check the condition of the grommets before installing the bumpers.
2. Assemble the front bumper brackets to the chassis frame before installing the bumper.
3. Do not tighten the bolts until all of them are installed.

RADIATOR GRILLE AND MOULDINGS

Removal

1. Remove the eight securing screws and lift away the grille.
2. Remove the nut and washer securing each side moulding. Remove the mouldings. If a side moulding only is to be removed, slacken the grille

bottom side attaching screw to release the inner end of the moulding.

Installation

Do not tighten the side moulding nuts until the grille is located.

FRONT LOWER PANEL

Removal

1. Disconnect the head lamp, parking lamp and horn wires at the connectors, and detach the wires from the clips. Pull the wires through the grommets in the splashguard panels.
2. Remove the front bumper.
3. Remove the following nuts, bolts and plain washers securing the front lower panel: six each side attaching the panel to the front side panels, one each side at the top and four at the front attaching the panel to the radiator support frame. The two lower bolts at the front are obscured by the bottom moulding.
4. Lift away the panel.

Disassembly

1. Remove the head lamps and parking lamps.
2. Remove the radiator grille and mouldings.

Reassembly

Note the following:

1. Refer to page S-4 when installing the head lamps.
2. When installing the radiator grille and mouldings, refer above.

Installation

Note the following:

1. Smear all sealing strips with rubber adhesive before installing.
2. Install all panel securing bolts before tightening.
3. Secure all wires with the appropriate clips and check the connections with wiring diagrams in Section V.
4. Check the operation of the lamps and horns.

FRONT SIDE PANELS

Removal

1. Remove the front lower panel.
2. Remove the three nuts, bolts and plain washers securing the side panel to the centre hinged panel land.
3. Remove the screw at the bottom rear corner securing the panel to the door front pillar.

4. Ease the panel outwards and towards the rear to disengage it from the door pillar.

Installation

Note the points under 'Front Lower Panel—Installation'.

WINDSHIELD

The safety glass windshield is either toughened or laminated plate. Each glass can be identified by the manufacturers marks etched in the centre at the bottom of the glass.

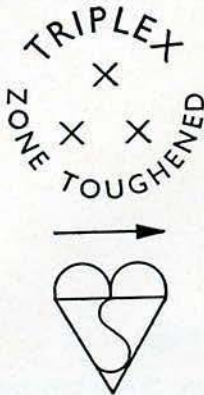


Fig. W.1. Toughened glass windshields can be identified by this symbol etched in the centre at the bottom of the glass. The arrow points to the side of the glass containing the modified zone

Removal

1. Remove the windshield wiper arms and blades.
2. Remove the glass weatherstrip insert. The ends of the insert should be in the centre at the top of the glass.
3. Where a toughened glass windshield is used, remove the glass by bumping with the palm of the hand from inside the vehicle. Leather or thick cloth gloves should be worn as a precaution in the event of the glass breaking. Where moderate

bumping with the hand fails to free the glass and weatherstrip, a steady foot pressure may be applied, using thick felt pads between the feet and glass to distribute the pressure evenly.

Before removing a shattered toughened glass, protect the surrounding paint and cover air ducts.

4. When removing a *laminated* glass, cut away the lip of the weatherstrip on the outer side and as close to the edge of the glass as possible. Then carefully push the glass outwards. *Do not bump the glass out as this may cause it to fracture.*

5. Remove the weatherstrip from the glass or aperture.

Inspection

1. If the glass or weatherstrip is to be used again, clean off the old sealing compound.
2. Check the glass for chipped edges; these are potential sources of cracking.
3. Where the glass is removed in order to correct water leaks or for replacement due to breakage, it is important to check the windshield aperture for distortion or damage. For this purpose, the glass can be used as a template as follows:
 - (a) Support the glass in the aperture with four checking blocks located as shown in Fig. W.2 and check that the spacing between the edge of the glass and the aperture flange is uniform and the contour of the flange compares favourably with that of the glass.
 - (b) Mark any areas of the aperture requiring correction, then remove the glass and checking

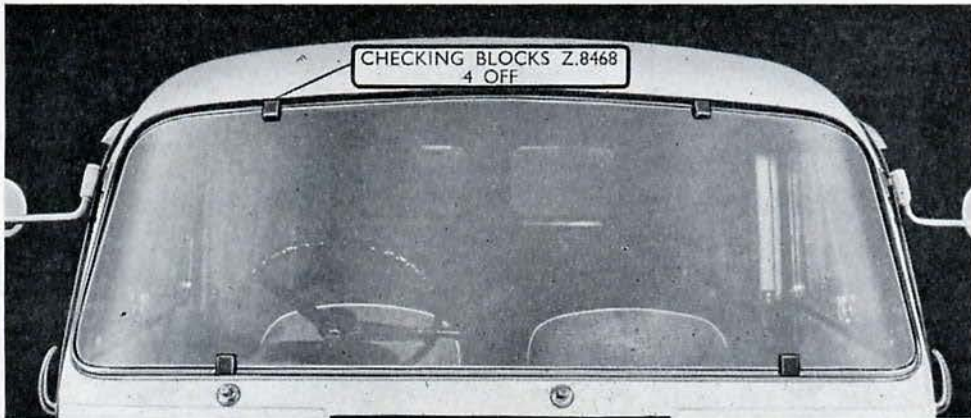


Fig. W.2. Windshield glass supported in body aperture by blocks when checking aperture for distortion or damage

blocks, re-form the aperture and rebate as necessary and re-check with the glass.

NOTE: Care should be taken to avoid scratching the glass or chipping the edges when using the glass as a template.

Installation

1. Before installing a toughened glass, check that the modified zone is on the driver's side (Fig. W.1).

2. Fit the weatherstrip to the glass so that the corners are correctly positioned.

3. Run a length of cord around the groove of the weatherstrip, arranging a crossed loop at the top and crossed ends at the bottom.

4. Apply sealing compound all round the aperture flange. Sealers suitable for the operation are: Bostik No. 6, Seelastik, Glasticon 234, or 3M Brand Weatherstrip Adhesive.

5. Place the windshield into the aperture so that the cords are on the inside. With pressure applied from the outside, lift the lip of the weatherstrip over the aperture flange by pulling the cords in opposite directions (Fig. W.3).

6. Inject sealing compound between the glass and the weatherstrip.

7. Clean off any surplus sealer with white spirit.

8. Smear the insert groove in the weatherstrip with soft soap and install the insert, using a wooden spike as shown on Fig. W.4. The ends of the insert should meet in the centre of the top of the glass.

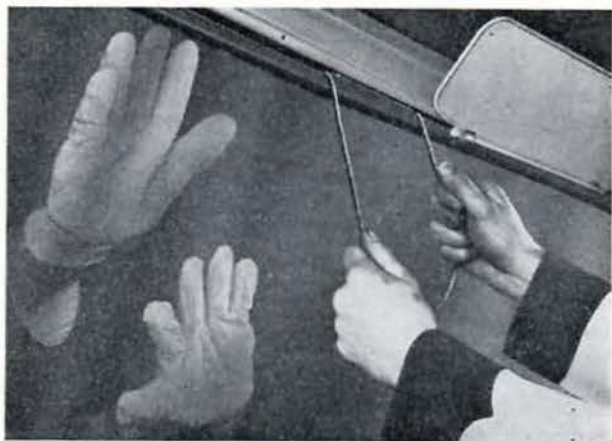


Fig. W.3. Installing the windshield glass. With pressure applied to the outside, a cord is used to lift the weatherstrip lip over the body aperture flange

9. Check the sealing of the windshield by spraying with water.

10. Install the windshield wiper arms and blades (page U-2).

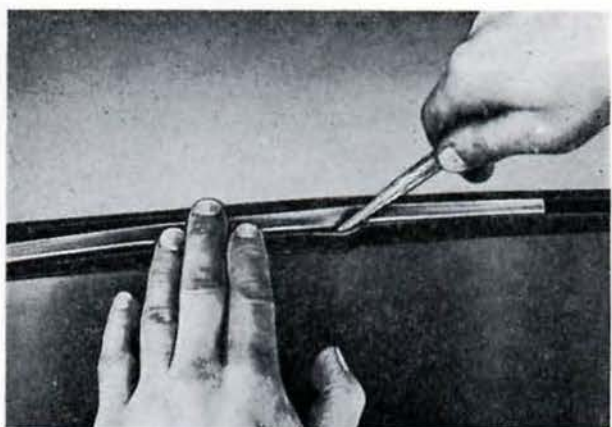


Fig. W.4. Installing the windshield weatherstrip insert, using a wooden spike

FRONT DOOR HANDLES

Removal

1. Press back the door inside handle escutcheon, and tap out the handle retaining pin.

2. Withdraw the handle, escutcheon and spring.

3. Remove the screws securing the outside

handle and withdraw the handle, retaining plate and gasket.

Installation

Apply recommended lubricant to the rubbing surfaces before installing the handles.

FRONT DOOR LOCK

Removal

1. Remove the door handles.
2. Remove the lock securing screws and cover plate, and withdraw the lock.

Installation

Apply recommended lubricant to the lock and rubbing surfaces of the handles before installing.

FRONT DOOR GLASSES

Removal

1. Using a flat-ended tool, drive out the wedges (Fig. W.5) securing the window frame to the door. If a wedge is difficult to remove, apply pressure to the outside of the frame and opposite the wedge to be removed.
2. Ease the window frame outwards from the aperture.
3. Remove the weatherstrip from the window aperture flanges.

Glass Renewal

Remove the screw at each end of the frame and separate the two halves. Remove the existing glasses, install the new and reassemble the frame. Do not over-tighten the securing screws.

Installation

1. Clean the flanges of the window aperture and check for burrs or distortion.
2. With the joint at the top, install the weatherstrip on to the aperture flanges.
3. Smear the outer faces of the weatherstrip with soft soap, place the window assembly into the aperture and push the frame inwards to fully locate on the weatherstrip. Care is necessary to avoid displacing the weatherstrip.
4. With pressure applied to the outside edge of the window frame, insert each wedge into a slot in the frame so that the step in the wedge (Fig. W.6) is facing the interior of the vehicle.
5. Tap each wedge into position so that it locates over the inside flange of the weatherstrip. Each wedge should be driven in carefully to avoid tearing the weatherstrip.

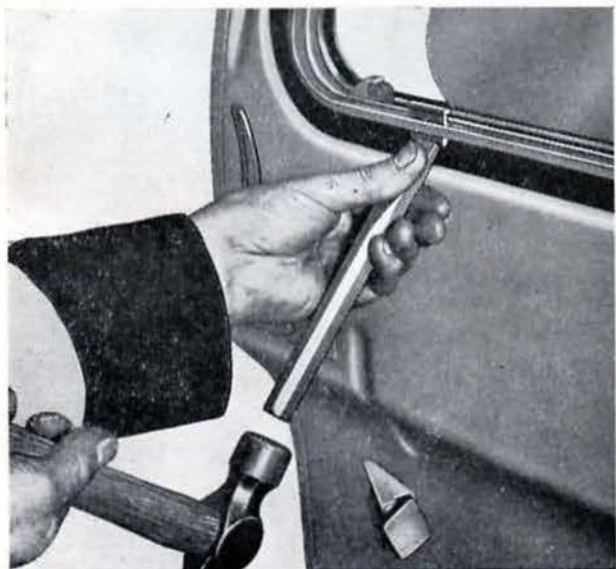


Fig. W.5. Removing one of the wedges securing a front door window frame

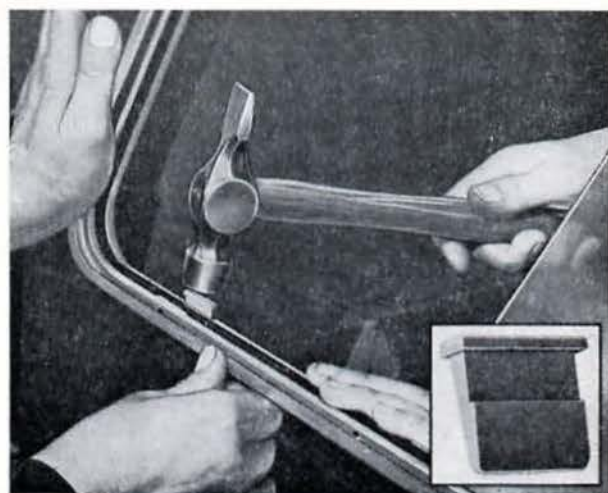


Fig. W.6. View from outside of vehicle showing installation of one of the wedges securing the window frame to the front door. Inset shows wedge step which must face towards interior of vehicle

FRONT DOORS

Removal

1. Remove the two screws securing the door stop to the inside of the door panel.
2. Close the door and remove the two screws and roller retaining plate from the top slide channel adjacent to the rear edge of the door.
3. Slide the door rearwards until the top rollers are opposite the cut-away in the slide channel.

4. Lift the door up and outwards at the top allowing the top rollers to pass through the cut-away, then lower the door to release the bottom rollers from the slide channel.

Installation

Lubricate the door rollers and slide channels with recommended grease.

BACK DOOR GLASSES

Removal

1. Using a blunt awl, ease the inner lip of the glazing channel over the side and top edges of the door panel.
2. With the glass supported, apply outward pressure at the top and lift the bottom lip of the channel over the panel. Withdraw the glass and glazing channel.
3. Remove the glazing channel from the glass.

Installation

Note the following:

1. After assembling the glazing channel to the glass, run a length of cord around the groove in the channel and cross the ends about half-way along the bottom.
2. Assemble the glass so that the bottom lip of the glazing channel locates over the flange of the

door panel. Press downwards and inwards and pull the cord ends to lift the lip of the channel over the flange (Fig. W.7).

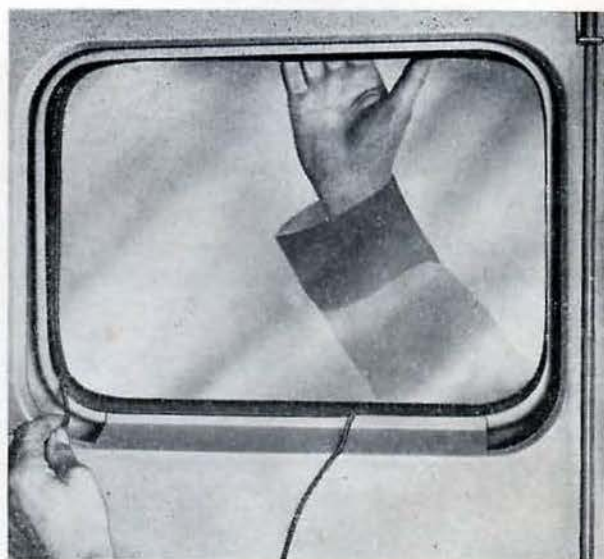


Fig. W.7. Installing the back door glass and glazing channel

BACK DOORS AND HINGES

Removal

1. Remove the rivet securing the door check link to the door pillar.
2. Remove the bolts securing the hinges to the door.
3. Remove the cover panel inside the body and behind the door bottom hinge.

4. Remove the hinge securing nuts and bolts.

Installation

Note the following:

1. Lubricate the hinge pins, check links and door locking rods with recommended grease.
2. Adjust the door locking rod guides so that when shut the door does not rattle.

BODY ASSEMBLY**Removal**

1. Disconnect the battery.
2. Drain the radiator.
3. Remove the radiator grille and front bumper.
4. Remove the following nuts, bolts and plain washers: six each side securing the front lower panel to the side panels, and five each side securing the radiator support frame to the wing splash-guards.
5. Detach the head lamp, parking lamp and horn wires at the connectors and release the harness where clipped to the radiator support panel.
6. Disconnect the radiator and heater hoses.
7. Remove the two nuts, bolts and retainers securing the radiator support to the chassis frame crossmember.
8. Lift away the front lower panel complete with radiator, and remove the insulators and ferrules from the support frame.
9. Withdraw the steering drop arm (see Section M) and remove the bolts securing the steering gear to the chassis frame.
10. Disconnect the gear shift control rods from the selector levers.
11. Disconnect the wire from the water temperature gauge engine unit.
12. On diesel-engined models, remove the igniter supply tank from its support bracket.
13. Remove the nuts and lockwashers and withdraw the clutch and brake pedals.
14. Remove the air cleaner.
15. Disconnect the main and engine wiring harness at the connectors on the side of the footwell panels, and remove the screw securing the earth wire. Detach the harness where clipped to the body.
16. Disconnect the throttle control rods from the cross-shaft levers and the controls from the carburetter or fuel injection pump.
17. Remove the body floor boards.

18. Disconnect the cables from the starter and the wires from the stop lamp switch.

19. Disconnect the speedometer cable from the transmission.

20. Disconnect the parking brake lever link from the bell crank lever.

21. Disconnect all rear lamp wires at the connectors, and detach the wires where clipped to the chassis frame.

22. Slacken the clips securing the fuel tank filler pipe hose, and slide the filler pipe and vent pipe hoses clear of the tank pipes.

23. Remove the twelve bolts securing the body to the chassis frame. The two bolts each side at the front have larger heads than those adjacent.

24. Lift off the body, ensuring that wiring harness and controls are free from obstruction.

Installation

Note the following:

1. Before installing the body, position all mounting pads and the two mounting strips, at the body attachment points on the chassis frame. In addition, place two sealing strips along each side-member, one in line with the battery the other above the rear axle.

2. Do not tighten any body securing bolts until all have been fitted.

3. Check that the wiring harness is not trapped or will become chafed.

4. Tighten the steering gear attaching bolts to the specified torque (see Section M).

5. Adjust the gear shift control rods (see Section F).

6. Refer to Section D when assembling diesel engine controls.

7. When installing the front lower panel, refer to page W-3.

8. Refer to the wiring diagrams in Section V when reconnecting the wiring harness.

9. Check the operation of all lights and controls.

BODY REPAIRS

Minor body damage can be corrected in the normal way with hydraulic body repair equipment. Consideration must, however, be given to probable distortion sustained by other body members in addition to the obviously damaged parts. For example, an impact involving a side panel may also have caused the less apparent distortion of the underbody crossmembers and the body mounting brackets on the chassis frame sidemembers, also the floor panel wheelarch reinforcement.

Where extensive buckling and tearing of the body is encountered, the most economical and satisfactory repair may be to cut away the damaged parts and weld in new panels or members.

In those cases of major damage to the vehicle, the body assembly must be removed to enable an alignment check to be carried out on the chassis frame. The principal dimensions shown in Figs. W.8 and W.9 will assist in determining body distortion.

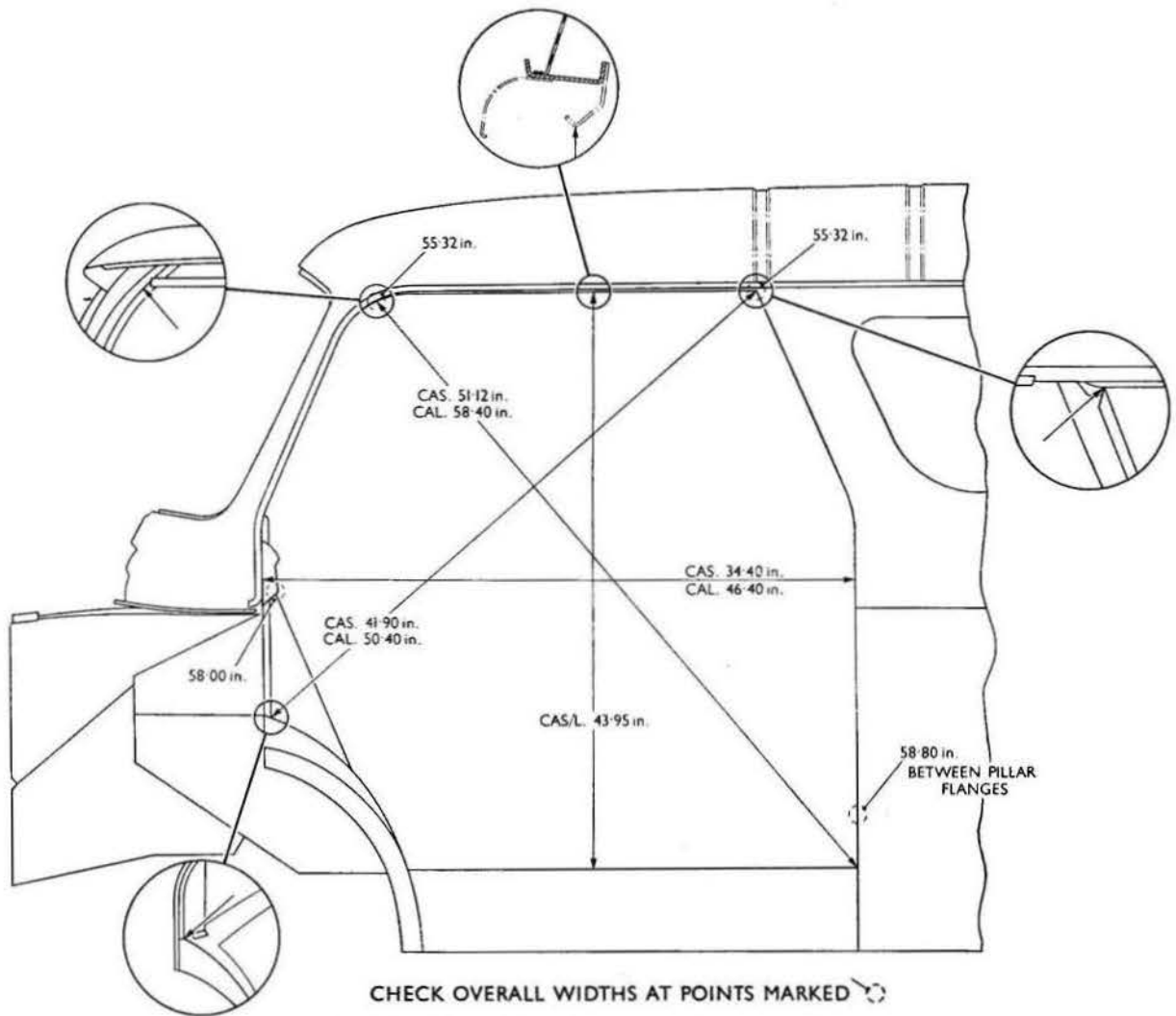


Fig. W.8. Body front door aperture dimensions

CHASSIS FRAME

Checking Alignment

Reference should be made to Fig. W.10 when checking the alignment of a chassis frame which has sustained accidental damage. A check of the

dimensions between the datum points shown and making a cross check at the dotted lines will reveal where the distortion exists.

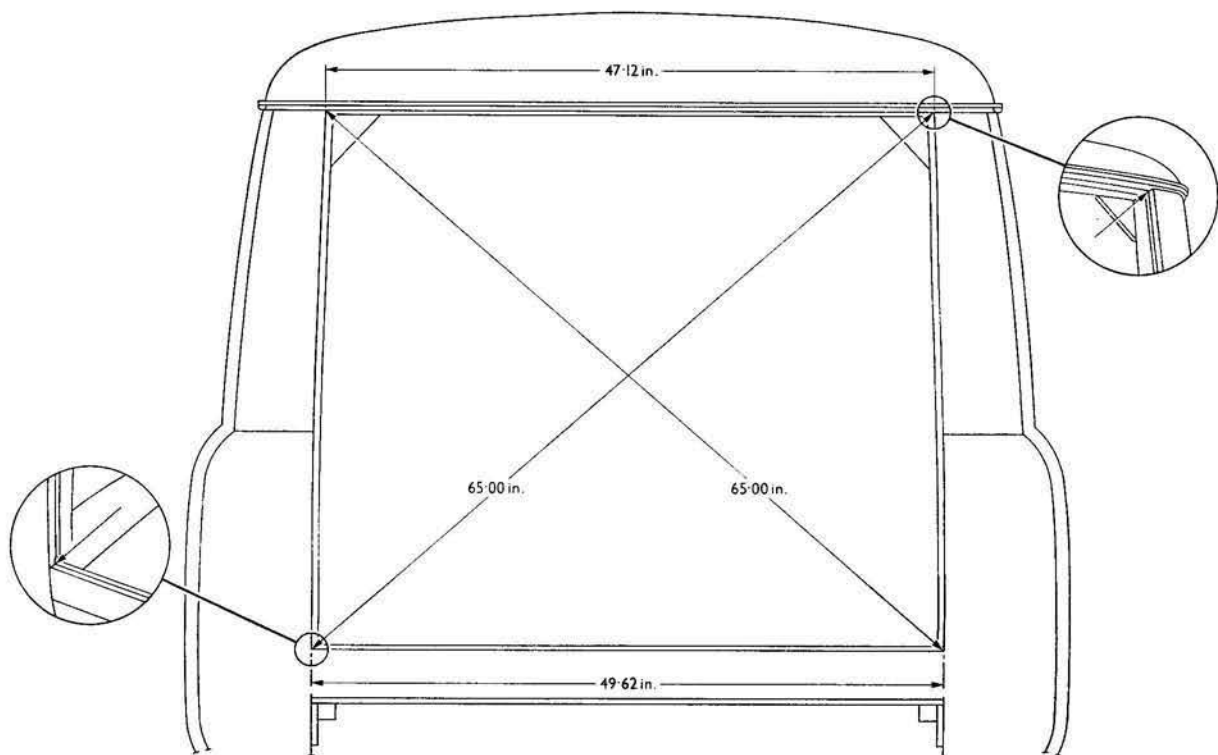


Fig. W.9. Body back door aperture dimensions

Frame Straightening

It is permissible to straighten the frame if the damage is not excessive. Whenever possible the frame should be straightened cold. If, however, it is necessary to heat the frame to rectify damage, the following precautions should be taken:

The damaged area should be heated to full cherry red as rapidly as possible before attempting to straighten the members. The member should be re-heated to full cherry red as necessary during the straightening operation and finally allowed to cool slowly.

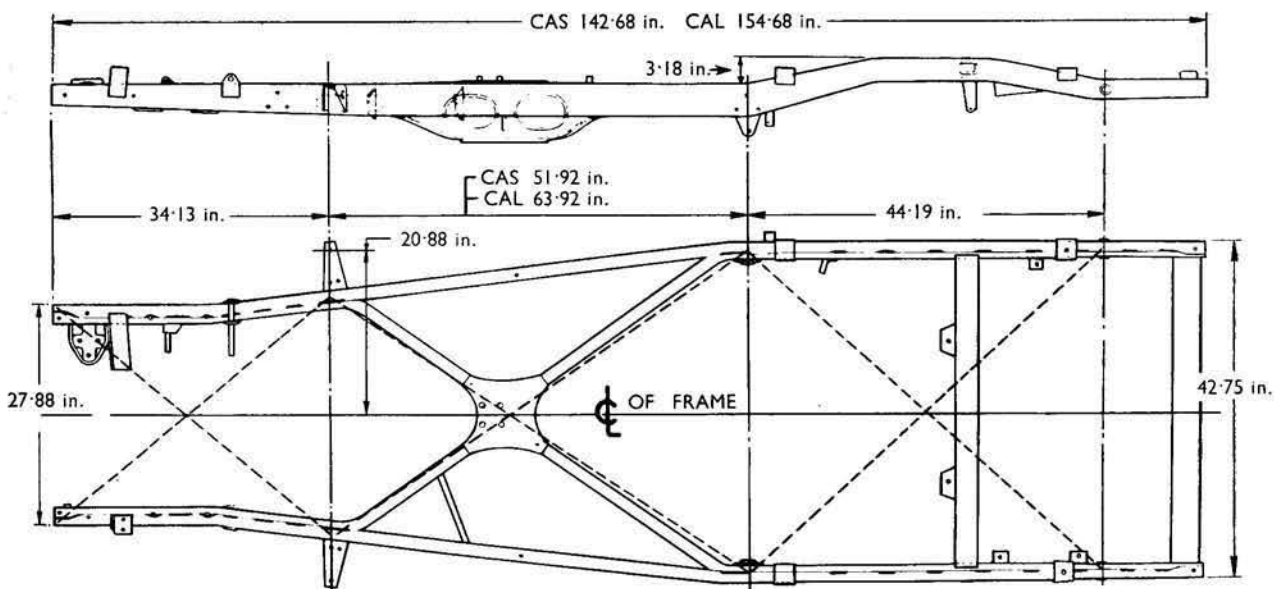


Fig. W.10. Chassis frame dimensions