BODY & SHEET METAL • • • SECTION 14

CONTENTS

GENERAL DESCRIPTION AND CONSTRUCTION

Formed steel panels, welded together and strongly reinforced to provide maximum rigidity, constitute the basic body structure of all 1951 Kaiser and Frazer automobiles. Additional built-in features provide extra safety and comfort for the passengers (Figs. 326 and 327).

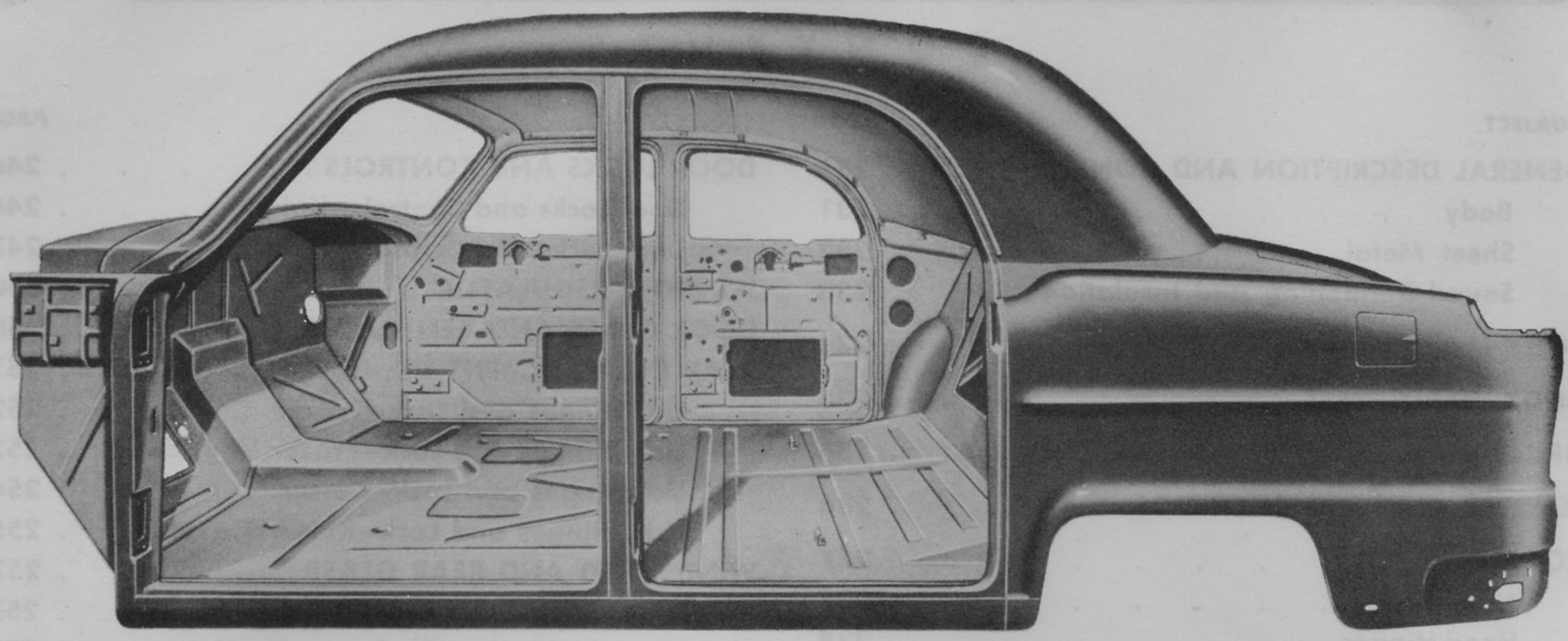
a. BODY. The roof section is formed from a single sheet of steel extending from the top of the windshield frame to the rear compartment belt line. The rear window opening is stamped from the roof panel and the roof panel is solidly welded to the cowl, side pillars, and rear quarter panels (Figs. 328 and 329).

The steel floor of the body is formed in two pieces. These two pieces are spot welded together to form the body and trunk floor. Reinforcing channels and beads in the floor panels provide additional rigidity. The floor is securely welded to the cowl, side pillars, and rear quarter panels. The trunk floor of the Kaiser models contains an integral spare tire well.

Front, center and rear pillar posts are of box and semi-box type construction. Concealed door hinges are mounted in the front and center pillar posts. The pillar posts are securely welded to the roof rail at the top and to the floor panel below.

In the rear compartment, a cross bracing of steel is securely welded to each inside corner of the rectangle formed by the shelf, the side panels, and the floor. The trunk lid is of two-piece construction with exterior and interior stampings flange-joined and electrically welded. Deep flanges are pressed into the inner panel to obtain greater rigidity. A thick weatherseal of sponge rubber prevents the entry of moisture, dirt, or dust.

The body doors are of all steel construction, rigidly braced and welded. The outer door panel conforms to the body contour while the inner frame and panel provide mounting points for the hardware and door hinges.



SP-1358

Fig. 326—Basic Body Construction—Frazer

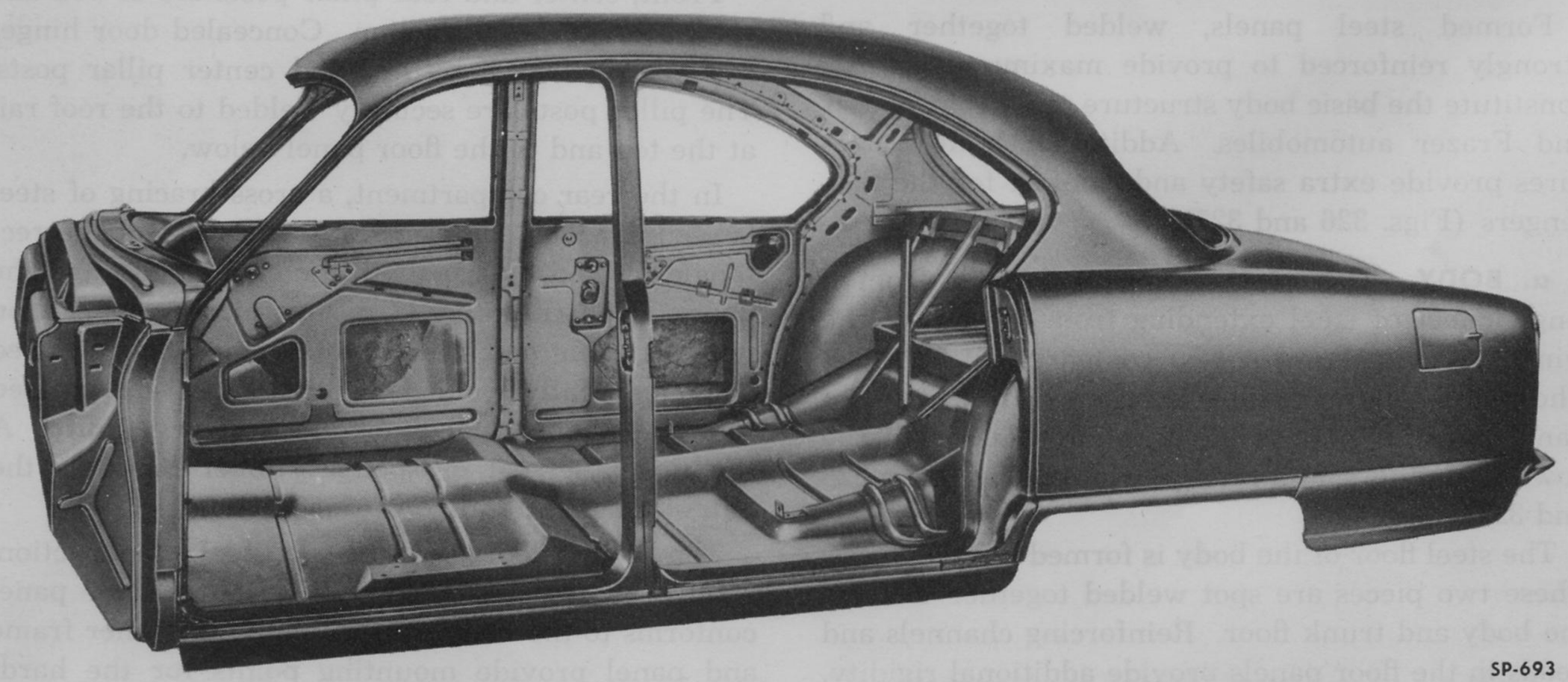
b. SHEET METAL. The sheet metal parts of the automobile include the hood, grille, front fenders, splash shields, and miscellaneous sheet metal parts (Figs. 328 and 329).

The one piece hood is formed to blend with the body contour. The hood is hinged at the rear and aligned to the body and fender contours. A hand operated hood latch locks the hood closed at the front. Hood adjustment is provided at the hinges and cross brace.

Grille design allows maximum air flow to the radiator and enhances the appearance of the car exterior. Kaiser grille design differs from Frazer grille design, aiding to individualize the models. Portions of the grille work are cast, other portions are formed from sheet metal. All are chrome plated.

Front fenders, unlike the rear integral fenders, are separate from the body. Developing body contour and blending with the hood contour, the fenders are bolted to the body, the radiator shroud and the splash shield. Adjustment at the attaching points provides alignment with the body and hood, during assembly at the factory.

Splash shields extending from the frame to the



SP-693

Fig. 327—Basic Body Construction—Kaiser

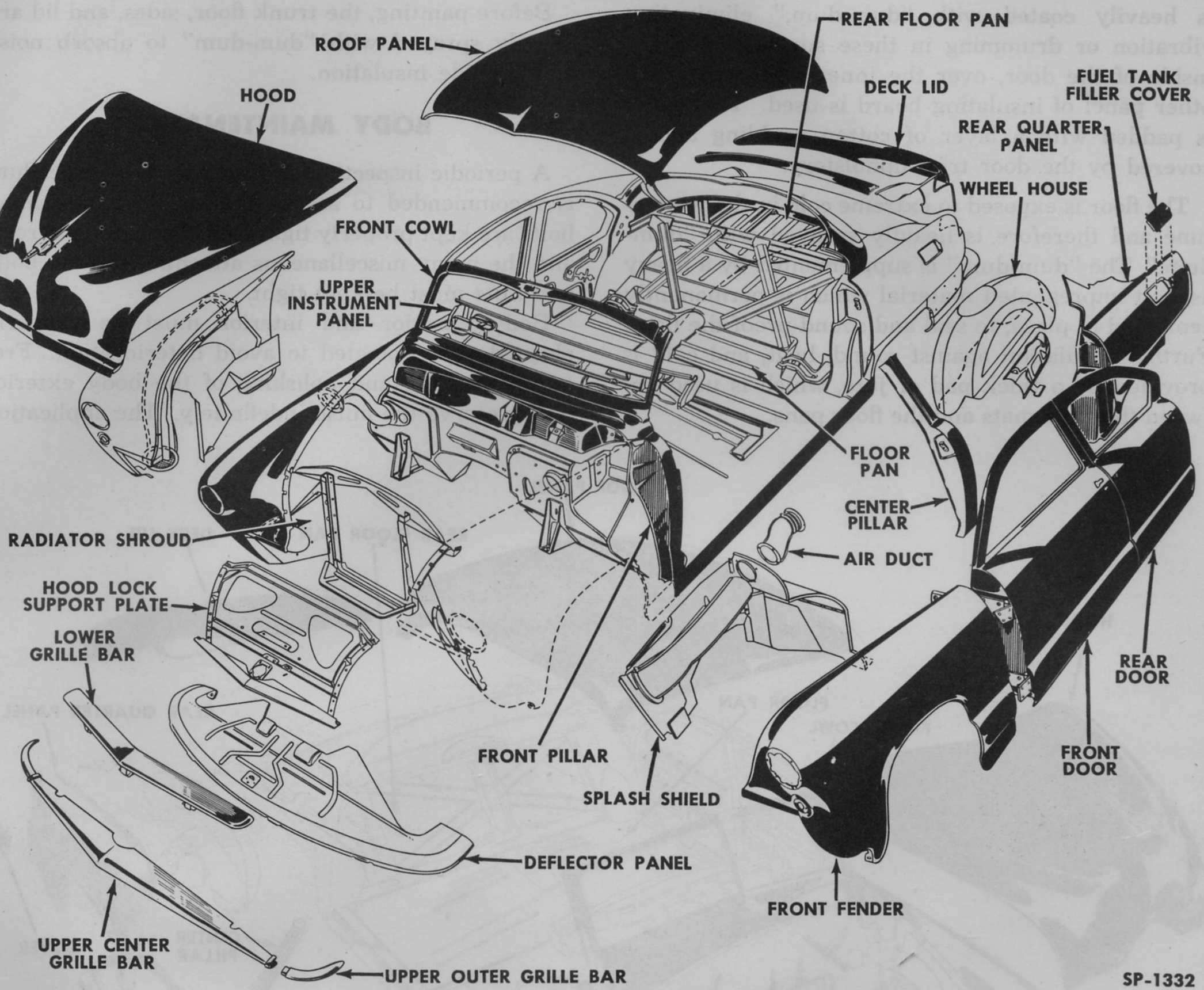


Fig. 328—Body and Sheet Metal—Exploded View—Kaiser

front fenders prevent water, dirt, and other foreign matter from entering the engine compartment, as well as providing a baffle for proper air circulation within the engine compartment. The splash shields include built-in air ducts to the body interior on Frazer models. On the Kaiser models, individual air ducts extending from the radiator shroud to the front cowl are used.

c. SOUND DEADENING AND INSULATION. Body insulation and sound deadening material is provided in the roof panel, cowl, doors, floor and trunk of the body (Fig. 330).

The underside of the roof is covered with a sound-absorbing pad, permanently cemented in place. This pad effectively absorbs noise or "drumming" in the roof panel, and at the same time provides insulation for the body interior. The insulation extends the full length of the roof from the windshield header to the top of the rear window, and completely covers the sides of the quarter panels.

Insulation of the cowl is important, to prevent heat from the engine entering the front compartment of the body. To provide insulation against heat and also to exclude any engine noise, a heavy leatherette-covered trim board is used. This trim board is finished at the bottom with a flexible flap, which extends over the floor covering and effectively seals the opening. Between the trim board and the cowl is a thick layer of fibrous jute.

The inside surface of the outer panels of all doors

is heavily coated with "dum-dum," eliminating vibration or drumming in these surfaces. On the inside of the door, over the inner steel panel, another panel of insulating board is used. This panel is padded with a layer of cotton wadding and is covered by the door trim upholstery.

The floor is exposed to extreme cold in the winter-time and therefore is heavily sprayed with "dum-dum." The "dum-dum" is supplemented by a heavy asphalt impregnated material which is permanently cemented in place, to seal and sound-proof the floor. Further insulation against sound, heat, and cold is provided by a thick pad of jute, which is used between the floor mats and the floor pans.

Before painting, the trunk floor, sides, and lid are heavily sprayed with "dum-dum" to absorb noise and provide insulation.

BODY MAINTENANCE

A periodic inspection and maintenance procedure is recommended to assure that all body attaching bolts are kept properly tightened. Door hinge screws and the many miscellaneous attaching screws, bolts and nuts must be kept tight.

Body exterior and interior must be properly cleaned and protected to avoid deterioration. Frequent washing and polishing of the body exterior will preserve the finish indefinitely. The application

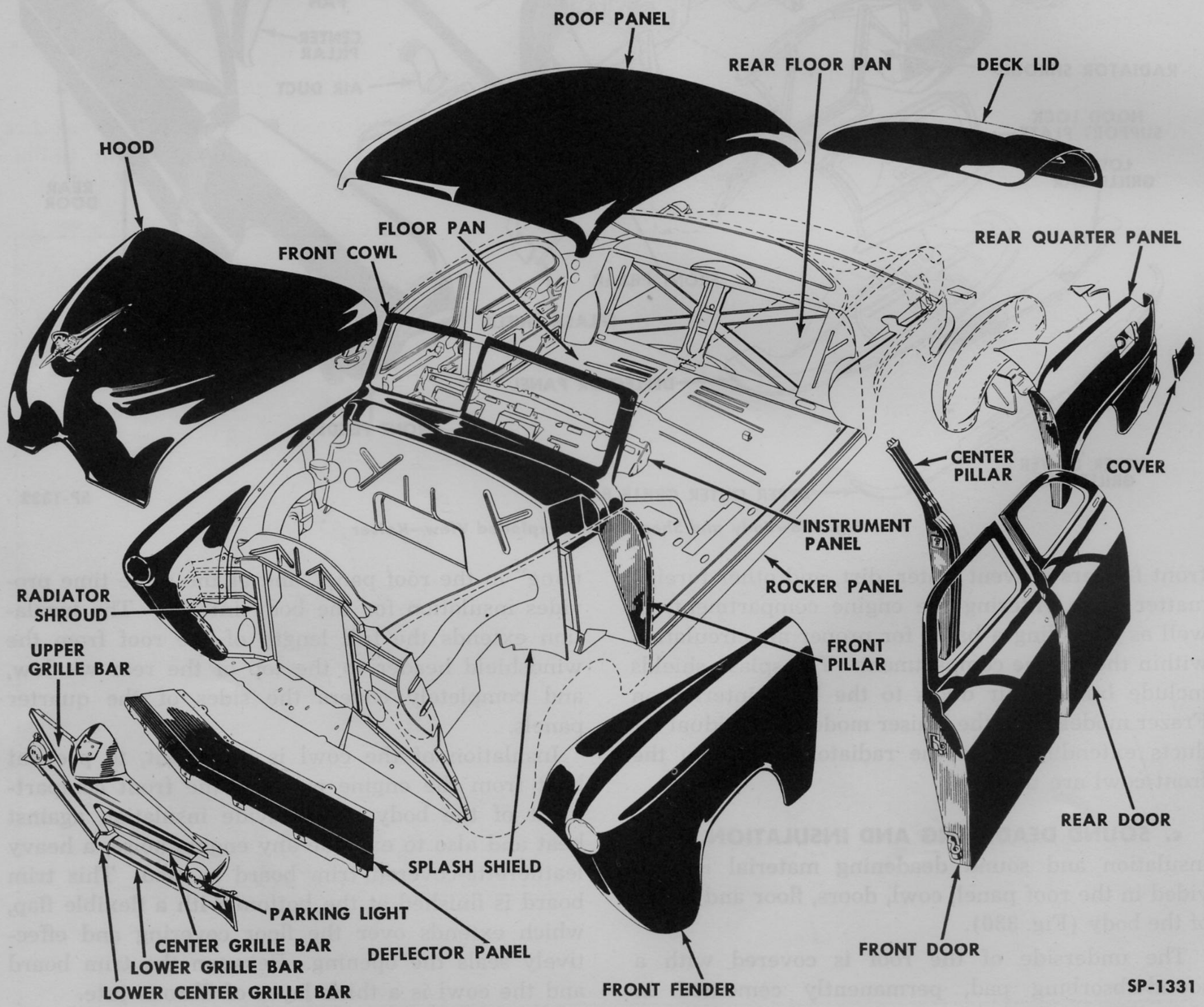


Fig. 329—Body and Sheet Metal—Exploded View—Frazer

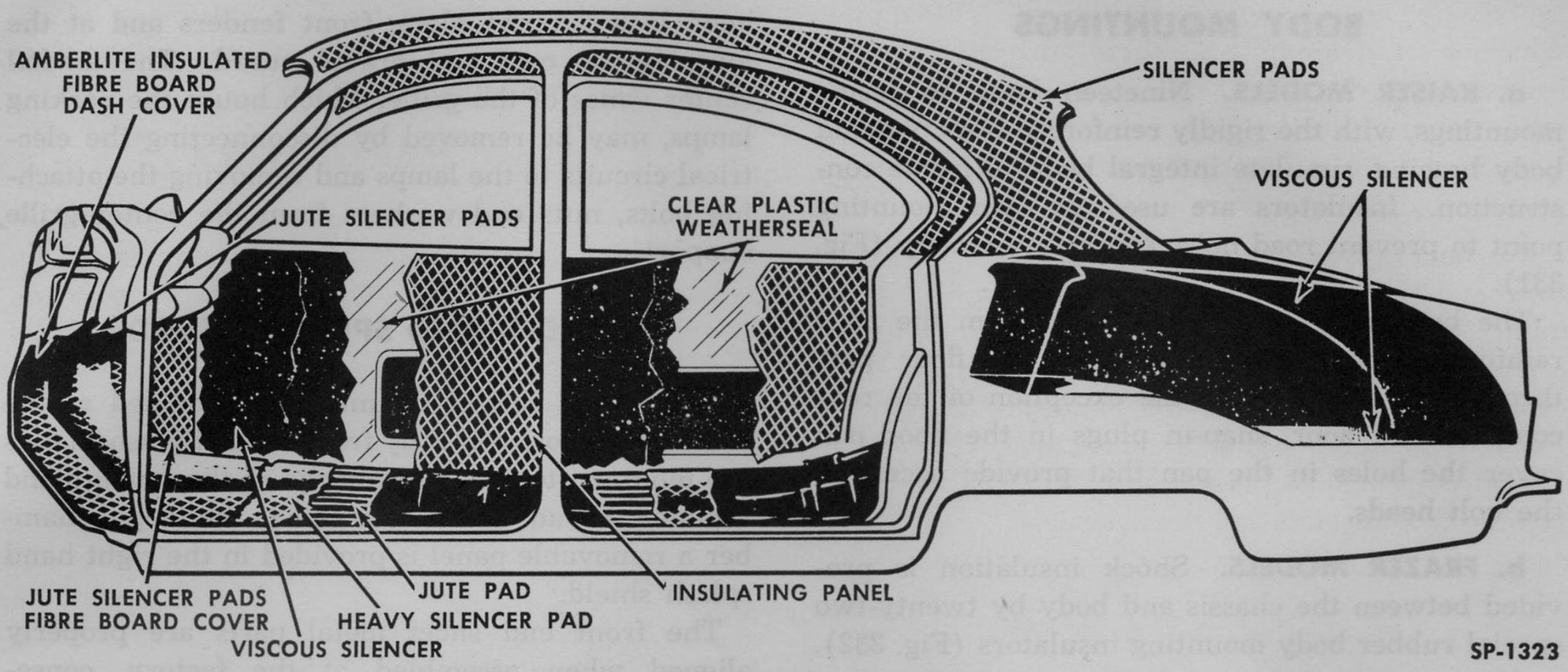


Fig. 330—Typical Body Sound Deadening and Insulation—Kaiser

of a "Lustur-Seal" treatment and its proper maintenance will provide a lasting fine hard luster finish to the body and fender exterior paint. The body interior should be cleaned regularly to prevent dirt and dust from becoming embedded in the upholstery and floor mats.

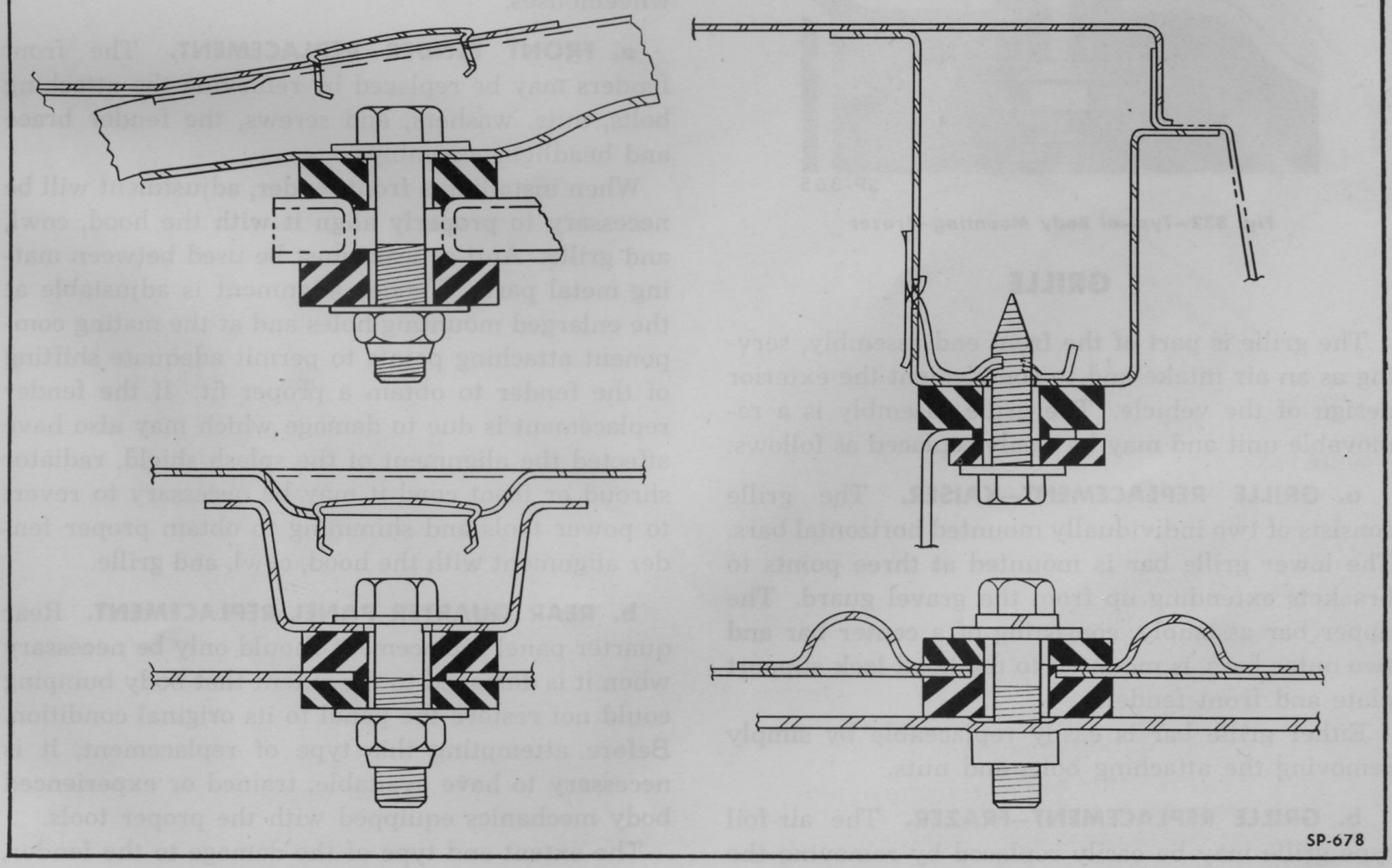


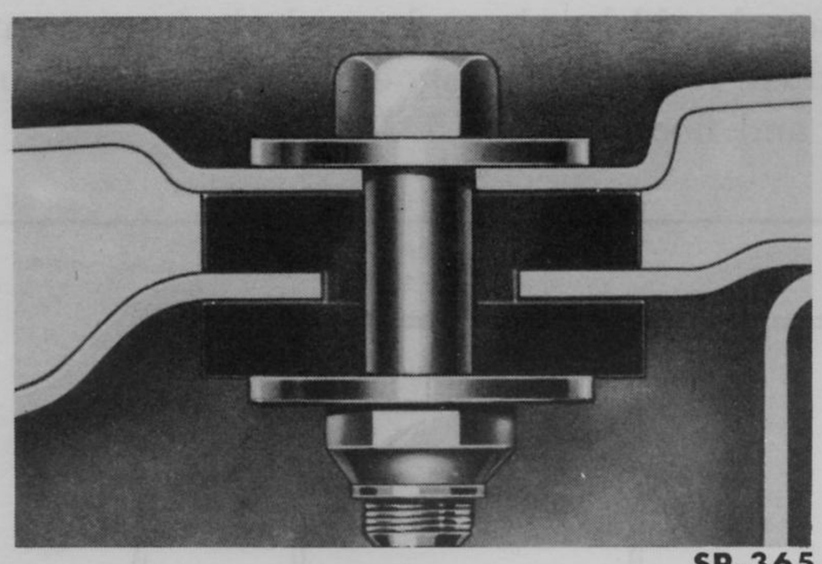
Fig. 331—Body Mountings—Kaiser

BODY MOUNTINGS

a. KAISER MODELS. Nineteen body to frame mountings, with the rigidly reinforced floor pan and body bracing, simulate integral body to frame construction. Insulators are used at each mounting point to prevent road noise entering the body (Fig. 331).

The body mounting bolts extend from the floor reinforcing channels, located on the floor pan, through the frame. With the exception of the rear compartment floor, snap-in plugs in the floor pan cover the holes in the pan that provide access to the bolt heads.

b. FRAZER MODELS. Shock insulation is provided between the chassis and body by twenty-two special rubber body mounting insulators (Fig. 332).



SP-365

Fig. 332—Typical Body Mounting—Frazer

GRILLE

The grille is part of the front end assembly, serving as an air intake and to complement the exterior design of the vehicle. The grille assembly is a removable unit and may be easily replaced as follows:

a. GRILLE REPLACEMENT—KAISER. The grille consists of two individually mounted horizontal bars. The lower grille bar is mounted at three points to brackets extending up from the gravel guard. The upper bar assembly, consisting of a center bar and two outer bars, is mounted to the hood lock support plate and front fenders.

Either grille bar is easily replaceable by simply removing the attaching bolts and nuts.

b. GRILLE REPLACEMENT—FRAZER. The air-foil type grille may be easily replaced by removing the attaching screws, bolts, nuts and washers at the hood lock support plate, front fenders and at the lower grille post and gravel guard. The air-foil center vanes of the grille, which house the parking lamps, may be removed by disconnecting the electrical circuits to the lamps and removing the attaching bolts, nuts and washers from the center grille support.

FENDERS AND SPLASH SHIELDS

Rigid front fender mounting is provided at the radiator support and body front cowl. Splash shields are mounted to the upper flange of the fenders and radiator shroud. For easy access to the tappet chamber a removable panel is provided in the right hand splash shield.

The front end sheet metal parts are properly aligned when assembled at the factory, consequently, no further adjustment should be required. Misalignment between the hood and fenders may usually be corrected by proper hood alignment.

The rear fenders are an integral part of the body, forming part of the rear quarter panel, and are rigidly braced by reinforcing channels and built-in wheelhouses.

a. FRONT FENDER REPLACEMENT. The front fenders may be replaced by removing the attaching bolts, nuts, washers, and screws, the fender brace and headlight assembly.

When installing a front fender, adjustment will be necessary to properly align it with the hood, cowl, and grille. Anti-squeak must be used between mating metal parts. Fender alignment is adjustable at the enlarged mounting holes and at the mating component attaching points to permit adequate shifting of the fender to obtain a proper fit. If the fender replacement is due to damage which may also have affected the alignment of the splash shield, radiator shroud or front cowl it may be necessary to revert to power tools and shimming to obtain proper fender alignment with the hood, cowl, and grille.

b. REAR QUARTER PANEL REPLACEMENT. Rear quarter panel replacement should only be necessary when it is damaged to the extent that body bumping could not restore the panel to its original condition. Before attempting this type of replacement, it is necessary to have available, trained or experienced body mechanics equipped with the proper tools.

The extent and type of the damage to the fender, necessitating replacement, is the determining factor

in the portion of the panel to be replaced. Rear fenders are serviced only in full size as illustrated in Figs. 328 and 329 and must be trimmed to fit at assembly.

HOOD

The hood opens at the front and is hinged at both sides at the rear. A counterbalancing or over-centering arrangement consisting of a spring loaded hinge on each side of the cowl is designed to assist in opening or closing the hood and to hold it in the open position. In the closed position the hood is secured by the hood lock mounted at the top of the radiator grille.

a. HOOD LOCK. The hood lock is manually operated by the hood lock control, consisting of a cable and knob assembly extending from under the left side of the instrument panel and connecting to the hood lock mechanism at the grill upper support plate. In addition to the hood lock, a safety catch is provided as a part of the regular lock mechanism.

1. Hood Lock Replacement (Fig. 333). Disconnect the control cable at the lock arm, remove the lock plate mounting bolts, nuts and washers, and lift out the lock. The hood safety lock mounted on the hood

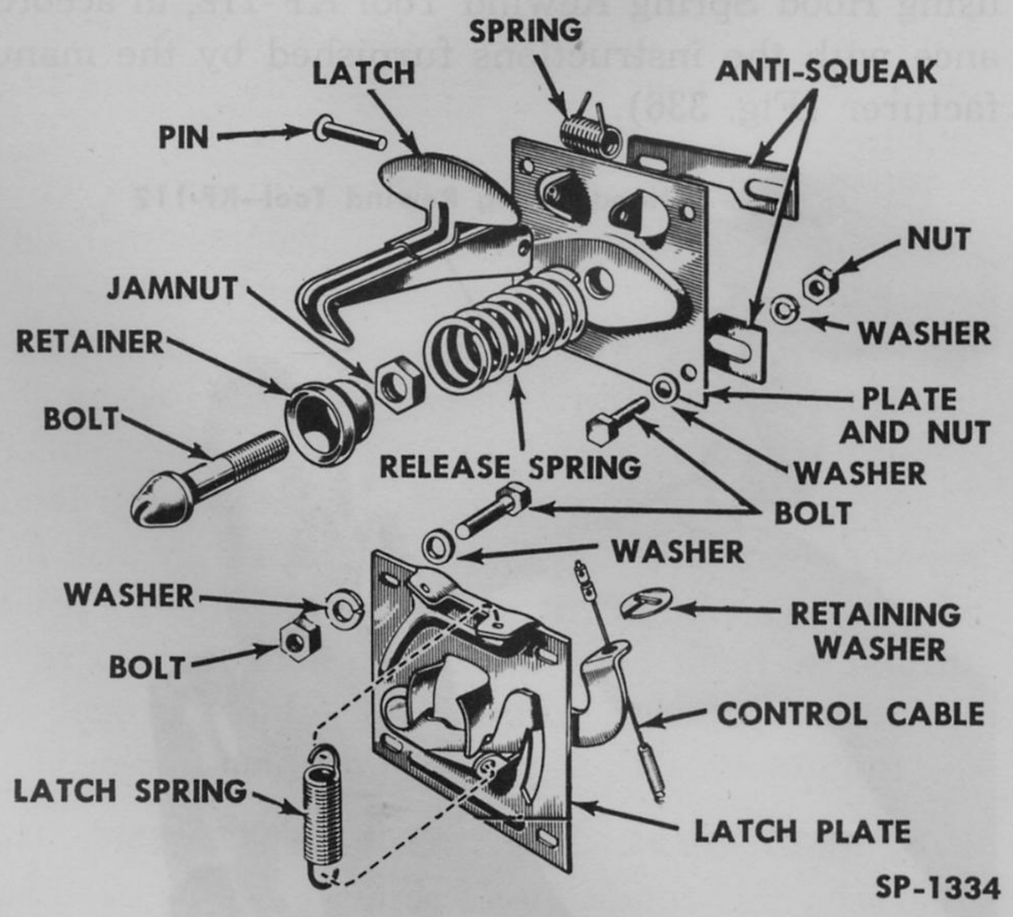


Fig. 333—Hood Lock and Cable—Exploded View

may be replaced by removing the four attaching bolts, nuts and washers.

2. Hood Lock Adjustment (Fig. 333). The hood latching mechanism is adjustable at the hood lock bolt plate on the hood and also at the hood lock latch on the support plate. The respective mounting holes for both the hood lock bolt plate and the hood lock latch are elongated to permit shifting either plate fore and aft for adjustment. Also, the latch plate may be shifted sidewise.

The lock bolt, mounted in the hood lock bolt plate, may be adjusted for length to obtain proper tension during operation of the locking mechanism and to secure the hood in the closed position. The safety catch on the hood lock bolt plate restricts the upward movement of the hood when the latch is released. Check and adjust the hood latch mechanism as follows:

(a) With the hood properly adjusted to assure alignment and proper opening and closing, raise the hood and operate the release mechanism to check for binding. Apply Lubriplate on the release lever and cable.

(b) Lower the hood so that the lock bolt and safety catch are in position for engagement and just touching the latch plate. Check the alignment by viewing the mechanism between the hood and upper grille bar. The lower end of the lock bolt should be centered in the mating hole of the latch plate. The safety catch should contact the front of the plate approximately ½ inch forward and below the end of the hook.

(c) To adjust, raise the hood and loosen the latch plate attaching bolts. Shift the plate position as required, tighten the bolts and lower the hood to check the adjustment. Additional fore and aft adjutsment may be obtained by shifting the hood lock bolt plate on the hood in a similar manner.

(d) Adjust the lock bolt length to permit closing the hood without slamming from the open position, but at the same time retain sufficient tension on the spring to prevent up and down movement of the hood when closed. The bolt is threaded into a tapping plate on the hood lock bolt plate and secured by a lock nut. The spring, held on the bolt by a retainer, exerts a tension on the latch mechanism when the hood is closed. Loosen the lock nut, turn the bolt in or out as required and retighten the lock nut.

(e) Check the hood opening and closing operation several times to check the adjustments. **CAUTION: Be sure that the safety catch engages the lock plate when the hood latch is released. The**

safety catch must engage to prevent the hood flying open.

b. HOOD HINGES. The hood hinges are the spring loaded counterbalancing type which permit opening or closing of the hood with a minimum of effort. The hinges used on the Frazer models are mounted on brackets which are permanently attached to the front cowl. The hood is attached to the upper hinge arms by four bolts on each side. A coil type counterbalancing spring is used with this type hinge (Fig. 334).

The hood hinges used on Kaiser models are bolted to the front cowl. The hood is attached to the upper hinge brackets and moving the hinges fore or aft as required to obtain proper alignment.

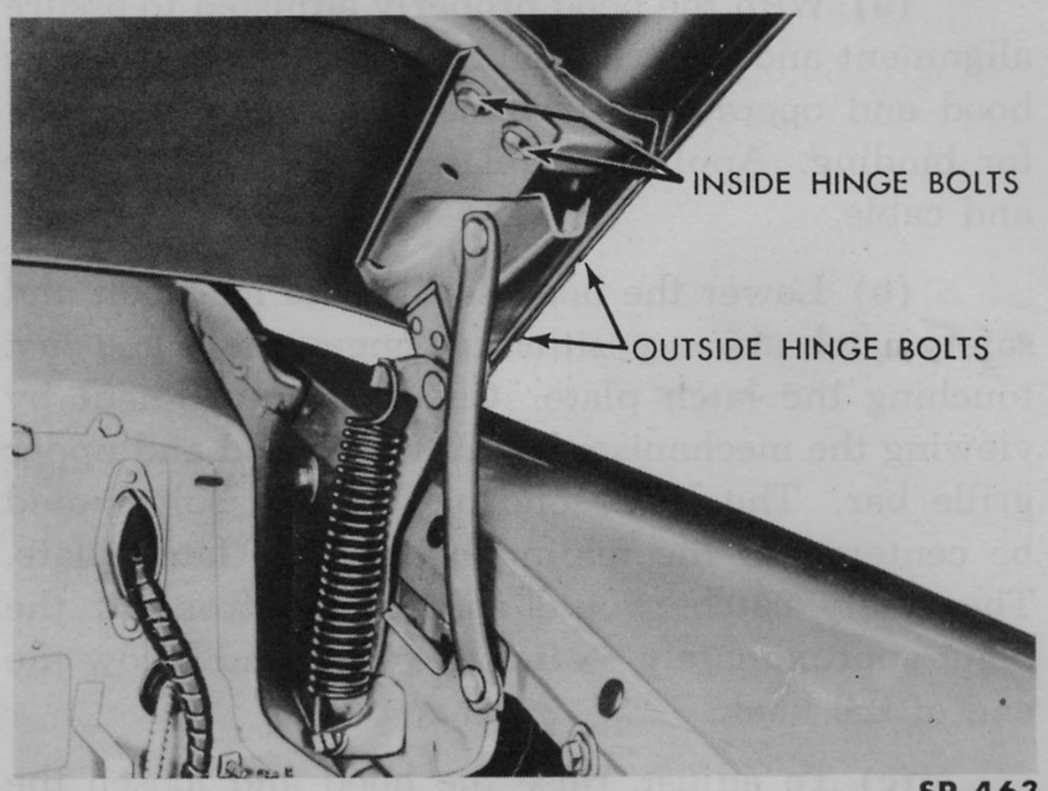


Fig. 334—Hood Hinge Mounting—Frazer

hinge arms by three bolts on each side. A clock type counterbalancing spring is used with this type hinge (Fig. 335).

1. Hood Hinge Replacement—Kaiser. The hood hinges may be replaced, after removing the hood as detailed under HOOD REPLACEMENT. The nuts and washers securing the hinge to the cowl are accessible from inside the front cowl behind the instrument panel. It will be necessary to remove the upper insulator pad to reach the nuts. The reverse procedure may be applied for installing the hinges.

The elongated holes in the cowl permit fore and aft adjustment of the hinges. To assure proper hood operation the hinges must be located in relatively the same position on each side of the cowl so that they align with each other. Proper location can best be determined by placing a straight edge across the front cowl, resting each end on the respective lower

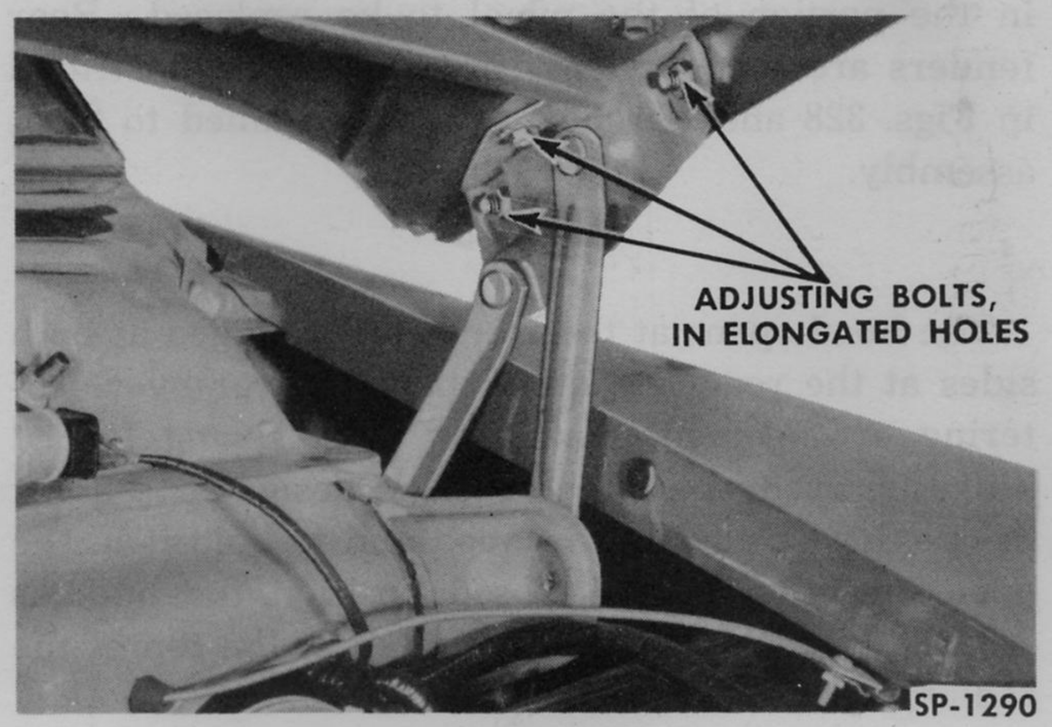


Fig. 335—Hood Hinge Mounting—Kaiser

To permit maximum hood adjustment at the hinge upper arm, the hinges should be positioned so that the studs of the lower bracket are located midway in the elongated mounting holes of the cowl.

The clock type springs used on the hinges are replaceable and may be easily removed or installed using Hood Spring Rewind Tool KF-112, in accordance with the instructions furnished by the manufacturer (Fig. 336).

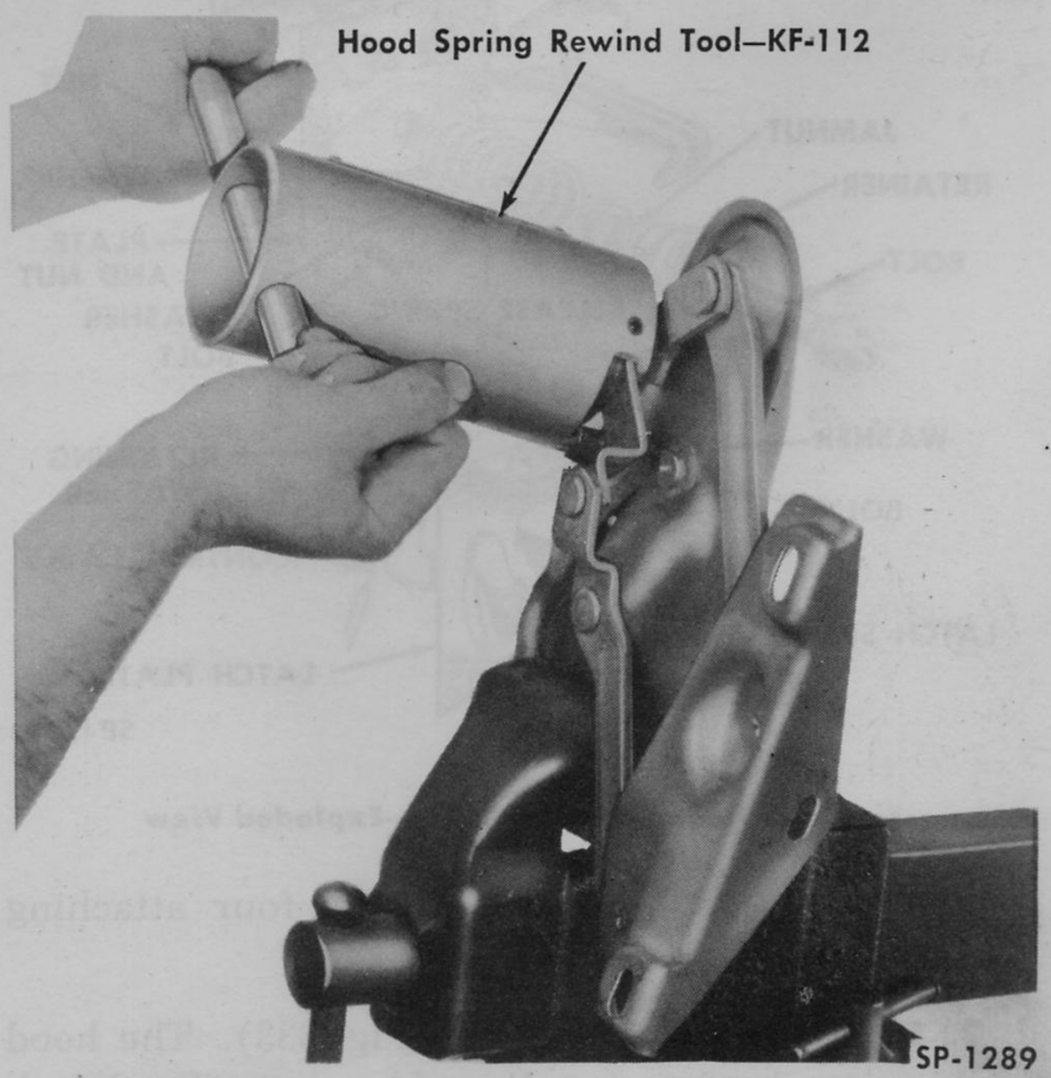


Fig. 336—Replacing Hood Hinge Spring—Kaiser

2. Hood Hinge Replacement—Frazer. Hood hinges are easily replaced, after removing the hood as detailed under HOOD REPLACEMENT. When removing hinges the hinge spring must be unhooked using Hood Hinge Spring Remover and Replacer KF-33 (Fig. 337). Then remove the bolts which attach the hinge to the cowl brackets. The reverse procedure may be applied to install the hinges.

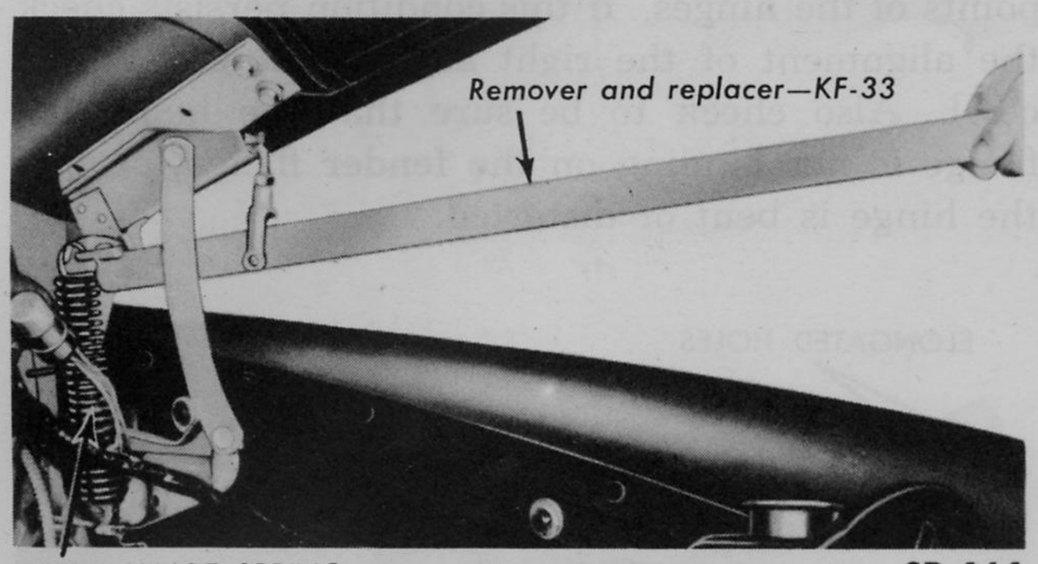


Fig. 337—Removing Hood Hinge Spring—Frazer

c. HOOD REPLACEMENT. Lift the hood and remove the inside and outside hinge bolts at each hinge. Supporting the hood at both sides lift from the hinges. Refer to Figs. 334 and 335. Install the hood and adjust at the hinges as follows:

1. Support the hood on hinges and install one outside and inside hinge bolt, at each hinge, using a punch to align bolt holes in hood and hinge arm.

2. Install the remaining hinge bolts.

3. Check hood alignment and adjust as required as described under HOOD ALIGNMENT which follows.

d. HOOD ALIGNMENT. The hood and hood mounting hinges can be adjusted to permit vertical, lateral, and lengthwise alignment of the hood as hereinafter indicated.

1. Hood Alignment—Kaiser. Holes in the side of the cowl for mounting the hood hinges are elongated to permit fore and aft adjustment of the hood and hinges. Although seldom necessary, some up and down adjustment is possible at the same point. Hood hinge to cowl stud nuts are accessible inside the body behind the instrument panel under the body insulator pad. Similar adjustment is also provided at the elongated holes in the hood mounting points of the upper hinge arms (Fig. 338).

Limited lateral or crosswise adjustment of the hood may be obtained at the main support crossbar which is bolted in place at the rear of the hood panel. The mounting holes of the crossbar are elongated for adjustment purposes.

Uniform spacing along the edges of the hood and adjacent fender edges, as well as the $\frac{5}{32}$ inch spacing specified between the rear edge of the hood and the cowl, may be obtained by proper adjustment at the hood and hinge mountings.

Proper coordination of adjustments at the foregoing points will solve the majority of hood fit difficulties. However, it is desired to emphasize the interdependency of the following adjustments and to stress the importance of a careful diagnosis of any hood fit problem before attempting any corrective adjustments.

The hood hinges are properly located on the cowl at the factory, consequently repositioning of the hinges should only be attempted when it has been determined that proper adjustment is not possible at hood mounting.

(a) Loosen the bolts attaching the hood to the hinge arm enough to permit movement of the hood but still tight enough to retain the adjustments until final tightening.

(b) Close the hood and check for fit, using the cowl contour and fender lines as guides. Test

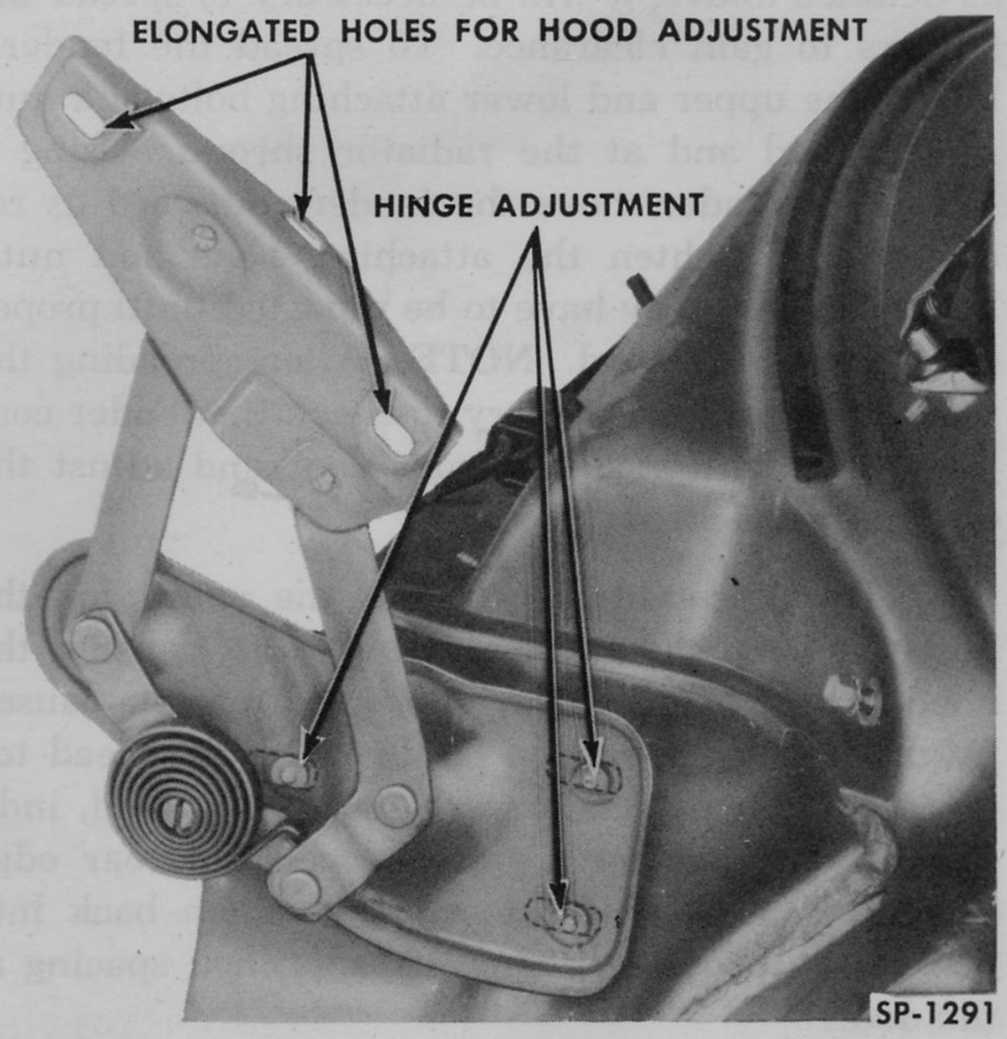


Fig. 338—Hood Hinge Adjustment Points—Kaiser

for fit along the anti-squeak moulding by light pounding with the bare hand. If the rear of the hood conforms snugly to this moulding, no vibration will be set up by pounding. If the hood does not conform properly, a combination of the two following operations will be required to secure a good fit.

(c) If the hood is raised through the center section and there is an excessive gap between the side edges of the hood and mating fender edges, the bolts at each end of the crossbar must be loosened slightly and the hood panel widened, using a suitable spreader, to bring the center section of the hood down. Refer to Fig. 340 which shows the operation on the Frazer hood. This operation may have to be repeated until a good fit is obtained between the rear of the hood and the cowl contour, and until the proper clearances are obtained between the hood edges and the fender edges.

(d) If the hood is too tight in the cavity between the fenders check the alignment with the front of the fenders at the hood latch support plate and also the spacing at cowl. This condition is usually indicative of the hood being positioned too far forward and will require moving it back into position maintaining the specified $\frac{5}{32}$ inch clearance at the cowl.

(e) When the hood is tight in the cavity between the fenders and the condition is not corrected as detailed above, it will be necessary to spread the fenders to gain clearance. To spread the fenders, loosen the upper and lower attaching bolts and nuts at the cowl and at the radiator shroud. Using a suitable spreader move the fenders outward as required and tighten the attaching bolts and nuts. This operation may have to be repeated until proper clearance is obtained. **NOTE:** After spreading the fenders it will be necessary to check the fender contour alignment with the front door and adjust the door outward if required.

(f) A condition wherein the space for the hood between the fenders is too wide, causing the hood to seat below the fender edge, may be caused by the fenders being too far forward or spread too far apart. If the fenders are too far forward, indicated by an excessive gap between the rear edge of the fender and the door, move them back into position to provide the specified $\frac{7}{32}$ inch spacing at the door.

If the space for the hood between the fenders is too wide, it will be necessary to reposition the fenders closer together reversing the procedure in operation (e) above.

(g) When the hood latch and safety catch at the front of the hood are released the hood should raise or lower evenly at the hinges. If binding is evident permitting uneven operation, allowing one side of the hood to stick down, lubricate the pivot points of the hinges. If this condition persists check the alignment of the right and left hinges on the cowl. Also check to be sure that the hood side flange is not binding on the fender flange, or that the hinge is bent or distorted.

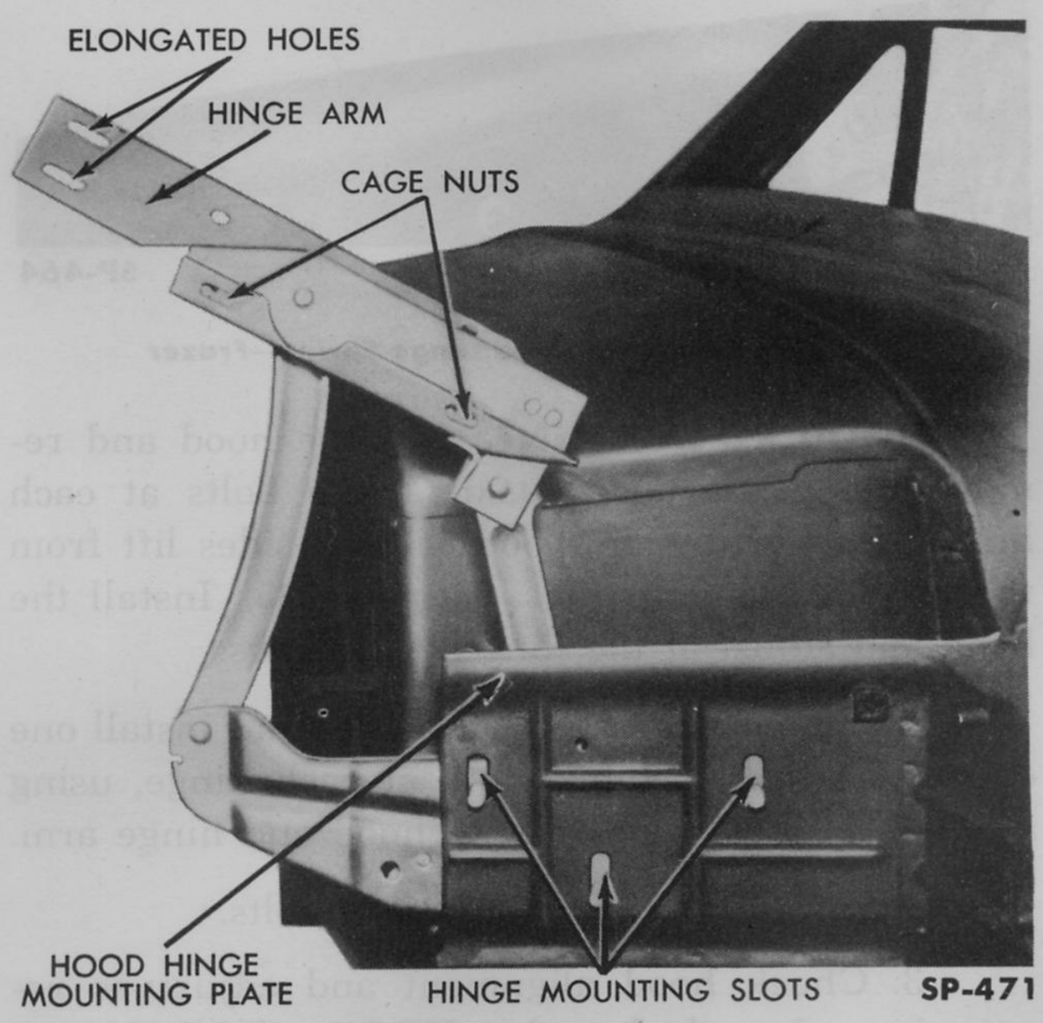


Fig. 339—Hood Hinge Adjustment Points—Frazer

2. Hood Alignment—Frazer. The right and left hood hinge assemblies (Fig. 339) are attached to mounting brackets that are permanently attached to the body. The plates are provided with three slotted hinge-mounting holes that accommodate the hinge mounting studs and permit as much as ½ of an inch of vertical adjustment of the hinges. The hinge stud nuts are easily accessible in the fender wells.

Lateral or crosswise adjustment of the hood may be obtained at the main support crossbar (Fig. 340), the center section of which telescopes and is held in adjustment by two hexagon head bolts. Adjustment at this point determines the actual width and also

affects the contour line of the hood in relation to the cowl.

Lengthwise or fore and aft positioning of the hood is obtained at the point where the hood attaches to the hinge arms (Fig. 339). The hood is attached to the hinge arms by means of four screws on each side, two through the slotted end holes and two into the caged nuts to the rear of the slotted holes. Adjustment at these points permits as much as ½ inch lenghwise positioning of the hood.

Proper coordination of adjustments at the foregoing points will solve the majority of hood fit difficulties. However, it is desired to emphasize the interdependency of the following adjustments and

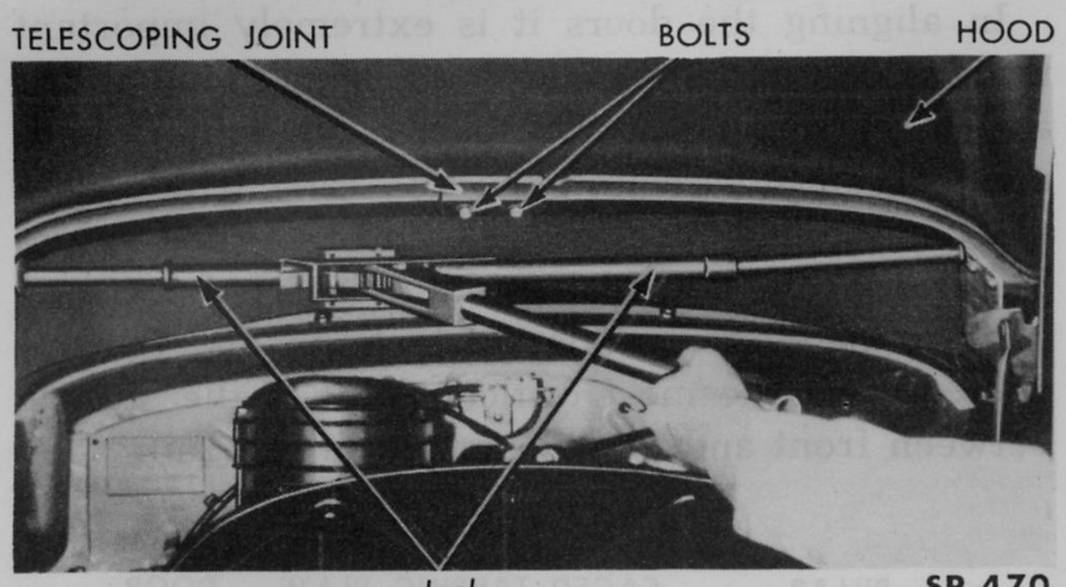


Fig. 340—Hood Lateral or Crosswise Adjustment—Frazer

to stress the importance of a careful diagnosis of any hood fit problem before attempting any corrective adjustments.

(a) *Loosen Hinge Mounting Bolts.* Loosen the bolts attaching the hinge to the cowl bracket and the hood to the hinge arm, enough to permit movement at these points but still tight enough to retain the adjustments until final tightening.

(b) *Fit Hood to Cowl.* Close the hood and check for fit, using the cowl contour and fender lines as guides. Test for fit along the anti-squeak moulding by light pounding with the bare hand. If the rear of the hood conforms snugly to this moulding, no vibration will be set up by the pounding. If the hood does not conform properly, a combination of the two following operations will be required to secure a good fit.

(1) When fitting a hood, a common condition is encountered wherein the hood has seated properly at the sides, but is raised through the center section. This condition usually is accompanied by excessive clearance between the hood side edges and the mating fender edges, particularly at the rear of the hood.

To remedy this condition, loosen the bolts at the center of the hood crossbar, and, using a suitable spreader, widen the hood edges and bring down the center section (Fig. 340). This operation may have to be repeated until a good fit is obtained between the rear of the hood and the cowl contour, and until the proper clearances are obtained between the hood edges and the fender edges.

Of course, the reverse of this condition may occur in which the hood seats properly in the center, but is off the cowl at the sides. This will be accompanied by little or no clearance between the hood edges and the fenders. Correction of this condition is the reverse of the foregoing.

(2) When adjustment has been accomplished to match the contour of the hood with the cowl, it then is necessary to regulate the height of the hinge assemblies to bring the hood down to a snug fit on the anti-squeak moulding. This is accomplished by adjustment of the hinges at the vertical slots in the cowl bracket (Fig. 339).

(c) *Align Hood to Fenders.* When a proper fit has been obtained between the hood and the fender edges, (keeping in mind that some subsequent fender adjustment may have to be made to secure good vertical and horizontal alignment of the hood and fender edges), a slight sidewise force exerted in either direction at the nose of the hood will move the hood mounting bolts in the hinge arm, permitting proper alignment of the hood and fenders. At this time also check the fore and aft positioning of the hood.

(d) *Tighten Hinge Mounting Bolts.* When a combination of the foregoing operations has secured a good fit, securely tighten the hood hinge stud nuts in the fender wells. Open the hood gently and securely tighten the hood to hinge arm bolts. Close the hood and recheck the alignment.

NOTE: It may be necessary to repeat some of the foregoing operations several times to secure a good hood fit.

DOORS

The doors consist of an outer and inner panel welded together, forming a rigid door shell. Door

hinges, window regulator and door lock and remote controls are mounted to the inner panel. Holes in the inner panel of each door provide access to the units mounted inside the door. The doors are hung on heavy concealed type hinges which are mounted on the body pillar. A door check strap is provided to prevent the door from opening enough to strike adjacent panels and to hold the door open.

a. DOOR REPLACEMENT. To replace the door, remove the garnish moulding, window regulator handle, arm rest, door lock control and the trim pad from the door inner panel and the outside door handle and lock, window glass, and reveal mouldings. Disconnect the door check strap and swing the door fully open for access to the hinge screws in the pillar. Remove the hinge screws from the pillar and lift off the door. **NOTE:** The doors supplied for replacement have the hinges, window regulator mechanism and door locks mechanism installed. Consequently these parts need not be removed from the old door.

To install the door position it in the body opening and attach the hinges to the pillar. Anti-squeak should be installed between the mating surfaces of the hinge and the pillar. A preliminary door adjustment should be made at this time, followed by a final adjustment as described under DOOR ADJUSTMENT.

After finish painting the door and installation of the weatherstrip, install the door glass run channels, door glass, reveal mouldings, trim pad, regulator handle, door lock controls, arm rest, garnish moulding and the outside door handle and the outside door lock.

b. DOOR ADJUSTMENT. The doors are adjustable at the hinge mounting points on the body pillar and on the door inner panel. The door lock striker plate, mounted on the body pillar, is also adjustable. These adjustments are adequate to obtain proper door alignment and adjustment under normal circumstances.

1. Door Adjustment—Kaiser. The Kaiser doors are adjustable "in or out" and "up and down" at both upper and lower hinges and at the striker plate to permit proper alignment. Fore and aft door adjustment is seldom necessary with the body construction of the Kaiser models; however, limited adjustment is possible by the use of shims behind the hinges.

The hinges are attached to caged tapping plates in both the door inner panel and body pillar (Fig. 341). Movement of these caged plates permits an adjustment of ⅛ inch through 360 degrees. This movement provides the "in or out" and "up and down" door adjustment. A caged tapping plate in the pillar to which the striker plate is attached permits a similar adjustment in positioning the striker plate.

Proper alignment of the door through the use of these adjustments will assure good door fit and proper weather sealing. Therefore, it should not be necessary to adjust doors by springing or bending, unless the door is misaligned due to damage. In this case the information contained under DOOR ADJUSTMENT—FRAZER, operation (d) will apply.

In aligning the doors it is extremely important that consideration be given the spacing at the pillars and front fenders, as well as the horizontal alignment at the crease line and rub rail. If adequate spacing and alignment at the points indicated in Fig. 342 is not maintained, resultant interference may damage the doors or adjacent body panels. On four door models the most critical point is the spacing between front and rear doors at the rub rail.

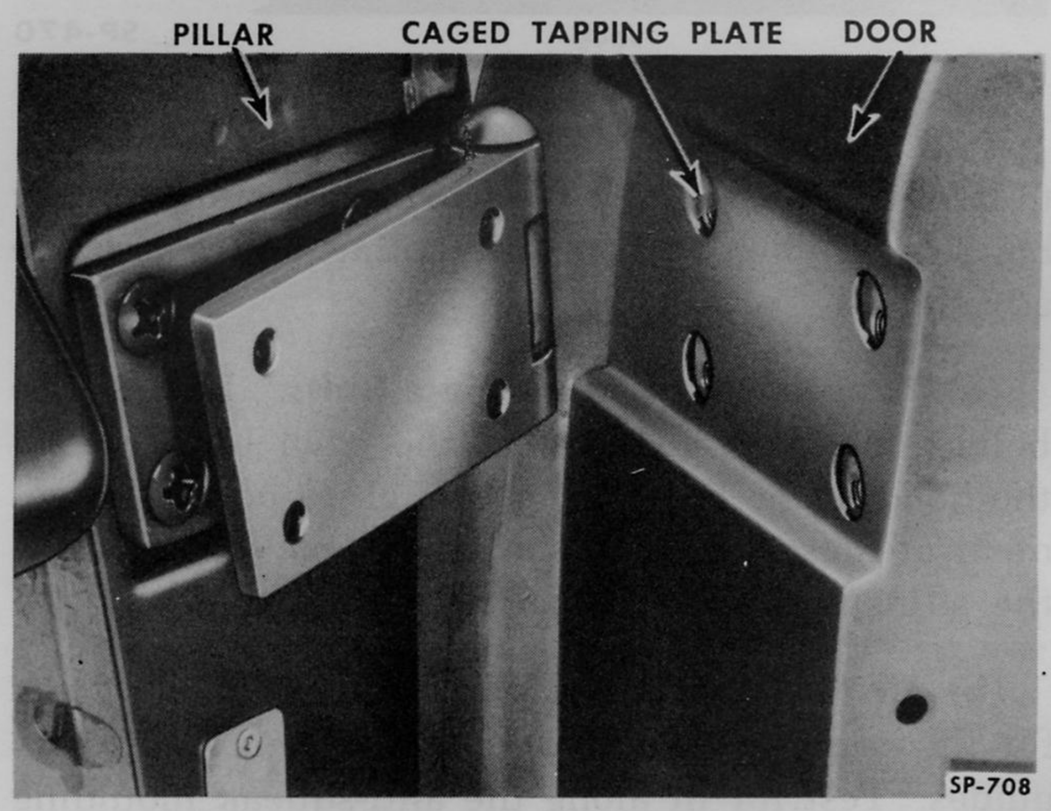


Fig. 341—Door Hinge Adjustment—Kaiser

The following procedure and sequence of operations should be adhered to for fitting and aligning both the front and rear doors:

(a) Remove the striker plate.

(b) Loosen the screws that attach the door hinge arms to the pillar and door sufficiently to allow forced movement at these points.

Fig. 342—Spacing for Proper Door Alignment—Kaiser

(c) Carefully close the door and check its alignment in the body opening. Also check the contour alignment and spacing between the adjacent body panels. To obtain proper alignment may require driving the hinges "up or down" and "in or out" on the pillar or door and installing shims between the hinge and mating surface to shift the door fore or aft.

(d) When a good door fit has been obtained by adjustment at the hinges, open the door wide and tighten the hinge arm attaching screws securely. The foregoing operations may have to be repeated to get good final hinge positioning. **NOTE:** All screws that are used at the adjustment points are provided with external tooth lock washers. These lock washers must be in place or the adjustments will not hold.

(e) Adjust the striker plate on the pillar as described under STRIKER PLATE later in this section.

(f) The door fit may be checked for seating against the weatherstrip by using a piece of heavy weight paper between the door and sill. The paper should pull with a drag through the space between the door and sill. Refer to Fig. 343.

2. Door Adjustment—Frazer. The front and rear doors are adjustable at both the upper and

Fig. 343—Checking Fit of Door Weatherstrip

lower hinges and at the striker plate to permit proper alignment of the doors in the door openings. The hinge arms are attached to caged tapping plates in the front and rear door inner panels. Movement of these caged plates permits a variation of approximately ¼ inch through 360 degrees as illustrated in Figs. 344 and 345. A caged tapping plate (in the body pillar) to which the striker plate is attached permits a similar adjustment in positioning the striker plate.

Proper coordination of adjustments at the foregoing points will assure good door fit and operation under normal conditions, without resorting to springing or bending the doors. Do not adjust doors

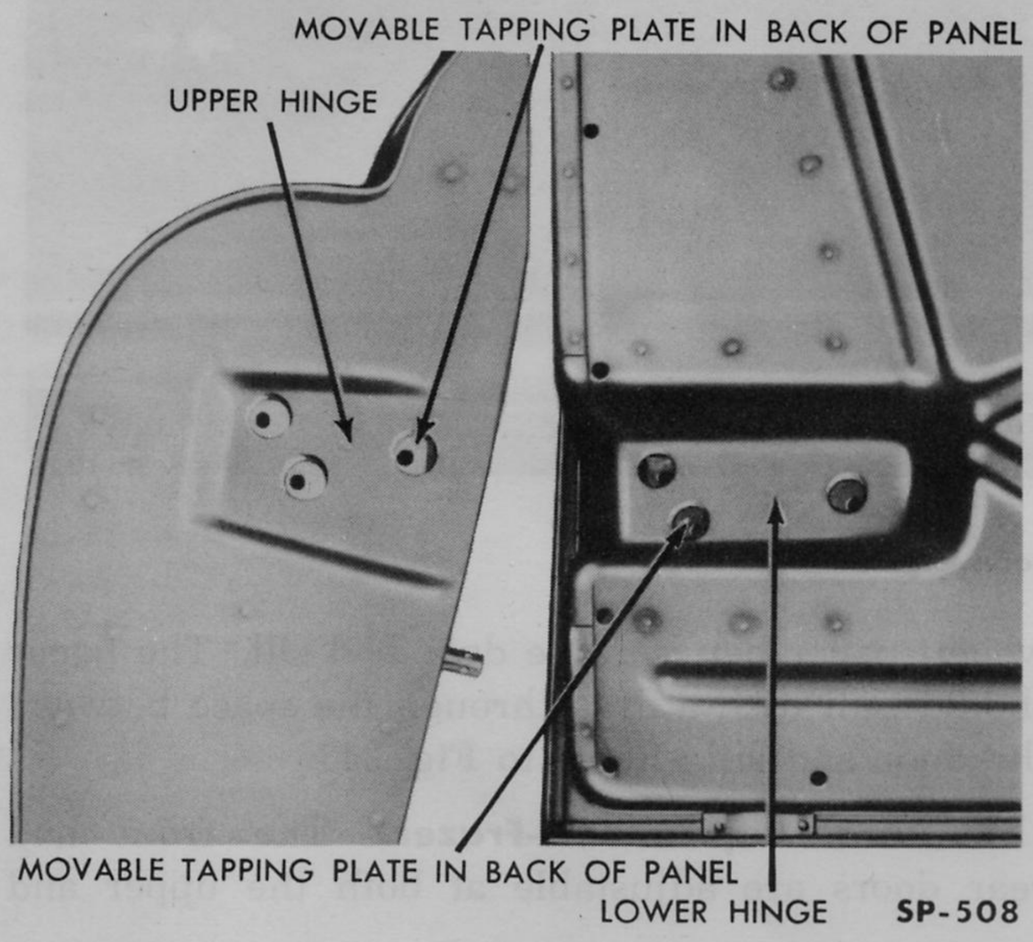


Fig. 344—Front Door Adjustment at Hinge Mountings—Frazer

by springing or bending until it is determined that proper door fit cannot be obtained by adjustment at the hinges and striker plate. The following procedure and sequence of operations should be adhered to for fitting and aligning both the front and rear doors:

(a) Remove the striker plate.

(b) Loosen the screws that attach the door hinge arms to the door, sufficiently to allow forced movement at these points.

(c) Carefully close the door to the body and by moving and positioning the door, determine whether or not a good fit or conformation of the door to the body can be obtained. If so, complete the ad-

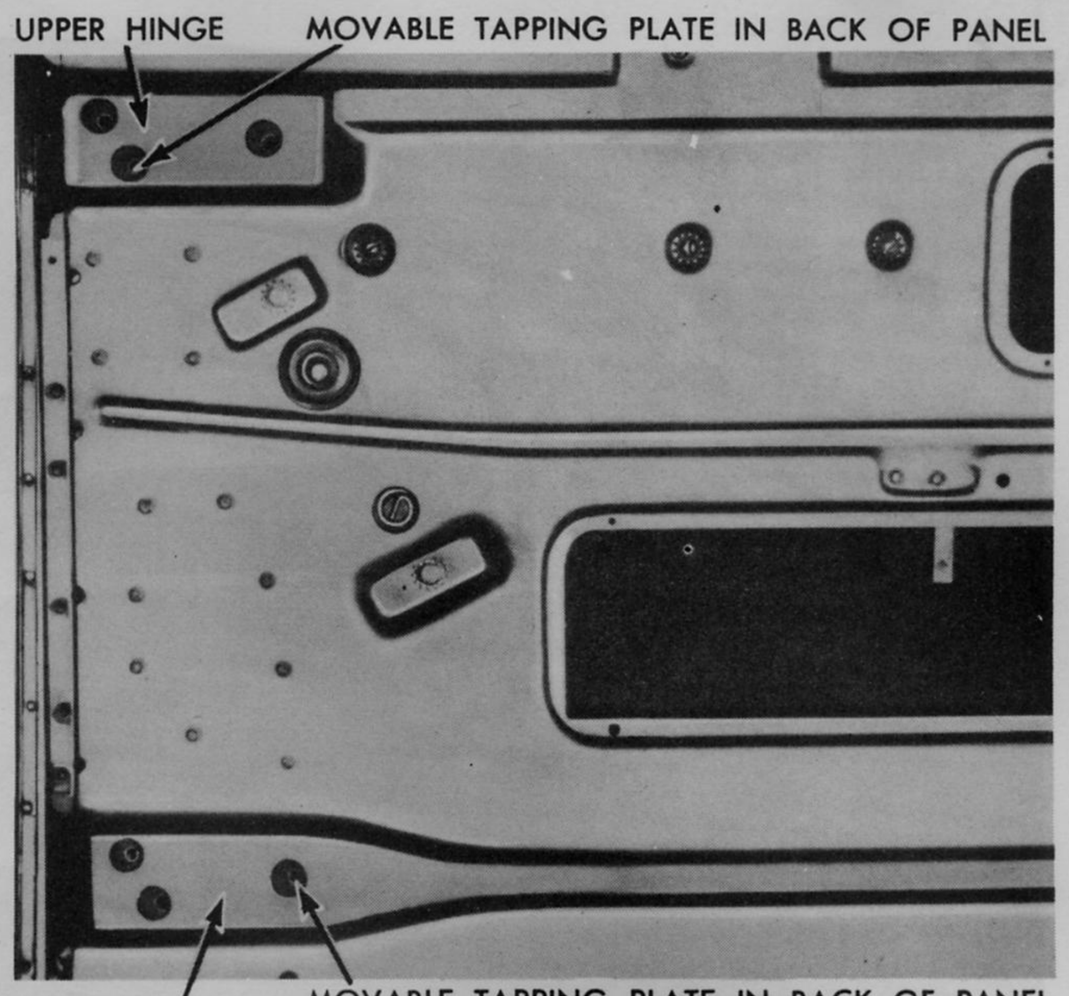


Fig. 345—Rear Door Adjustment at Hinge Mountings—Frazer

justment as described in operations (f), (g), (h) and (i) of this procedure. If poor conformation anywhere around the edge of the door is encountered (Fig. 346), it will be necessary to spring or bend the door to obtain a good fit as explained in operation (d) which follows:

(d) Springing or bending the doors should be done with special tools. The "G" Double Bar Unit and the "H" Single Bar Unit are for straightening

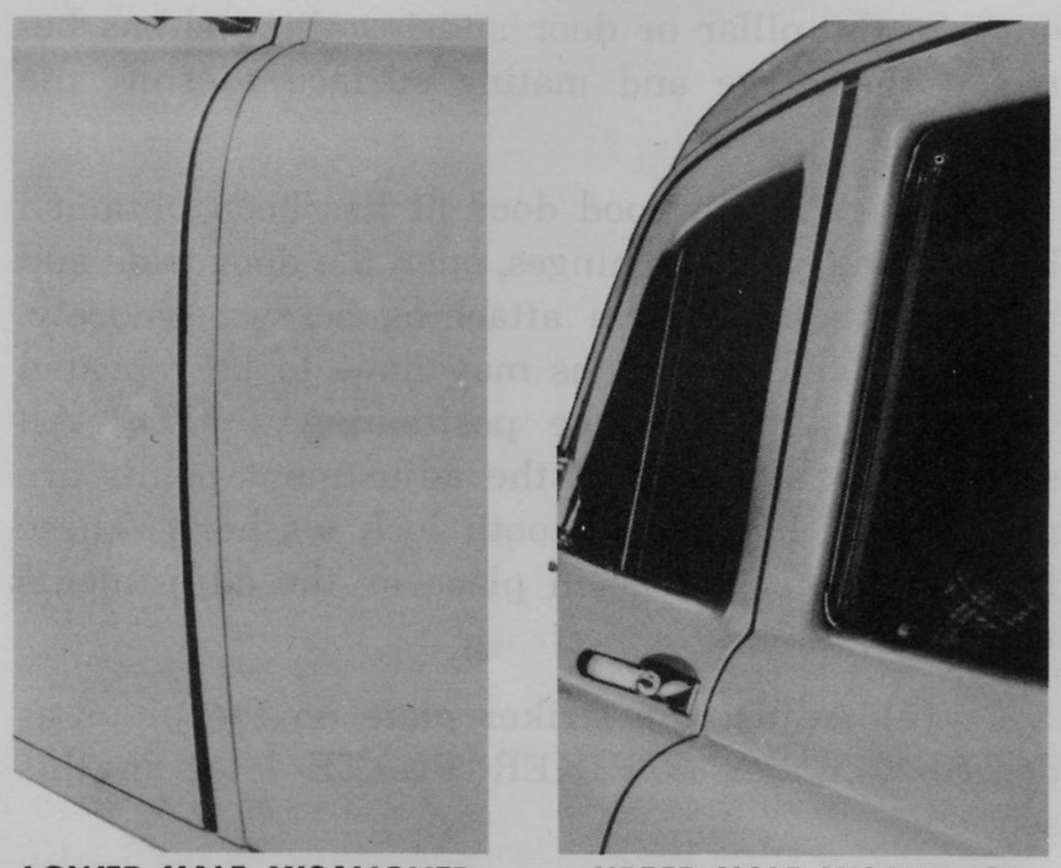


Fig. 346—Misalignment at Door Edges—Frazer

car doors and should be used in accordance with the manufacturer's instructions furnished with each unit.

If the special door aligning tools are not available, it may be possible to satisfactorily correct some of the most common and simple cases of door distortion using a short length of wood "two by four" to spring or bend the door sufficiently to obtain proper alignment. This method should only be attempted by experienced or trained body mechanics.

CAUTION: When using wood pry bars or blocks to fit doors, be sure to pad the blocks and levers to protect the door finish.

(e) When adjustments have been made to secure a good door fit to the body, tighten the screws that secure the door to the hinge arms sufficiently to retain further adjustments until final tightening.

(f) Close the door to the body and recheck the fit. Adjust by shifting the door at the hinge arm attaching points. A jack may be used to assist in positioning the door at the lower hinge.

(g) When a good door fit has been obtained by adjusting at the hinges, carefully open the door wide and tighten the door hinge arm attaching screws securely. The foregoing operations may have to be repeated to get good final hinge positioning. **NOTE:** All screws that are used at the adjustment points are provided with external tooth lock washers. These lock washers must be in place or the adjustments will not hold.

(h) Adjust the striker plate on the pillar as described under STRIKER PLATE below.

(i) The door fit may be checked for seating against the weatherstrip by using a piece of heavy weight paper between the door and sill (Fig. 343). The paper should pull tightly through the space between the door and sill.

c. STRIKER PLATE. The striker plate is attached to a caged tapping plate in the body. Movement of the caged plate permits variation of approximately ¼ inch through 360 degrees in positioning the striker plate, similar to the adjustment of the door hinges.

"In and out" adjustment of the striker plate controls, to a large degree, the tightness of the door against the body and, of course, controls the "flush" fit of the door rear edge to the body. "Up and down" adjustment of the striker plate determines the

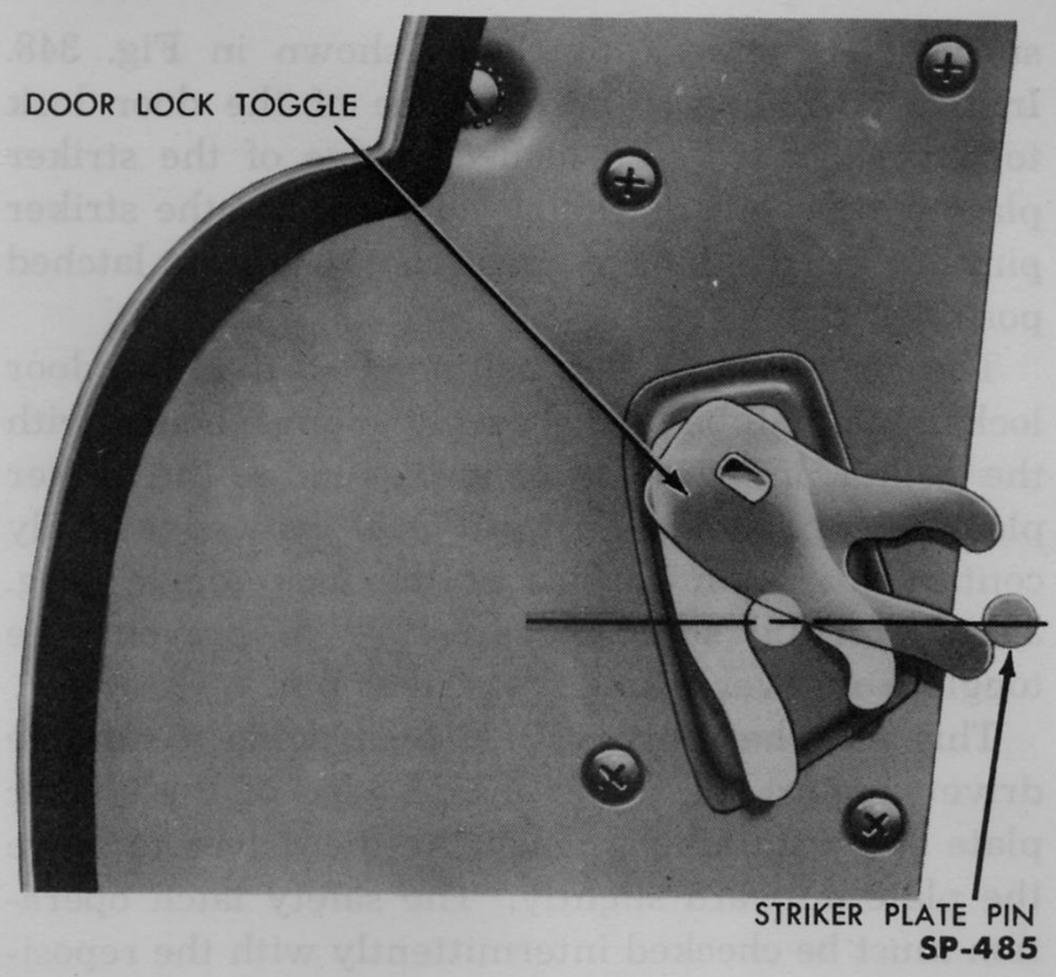


Fig. 347—Door Lock and Striker Plate Adjustment

actual point of engagement between the door lock toggle and the engaging pin on the striker plate. This is a critical adjustment inasmuch as it affects proper operation of the lock toggle, and determines the amount of "ride up" of the door onto the engaging pin in the striker plate.

Adjust the striker plate so that the engaging pin in the striker plate meets the toggle at the point indicated in Fig. 347 to secure smooth operation of the lock and avoid excessive "riding up" of the door. Proper positioning of the striker may require the use of shims between the pillar and striker plate.

Care should be taken to avoid improper positioning of the door striker wedge in relation to the cam

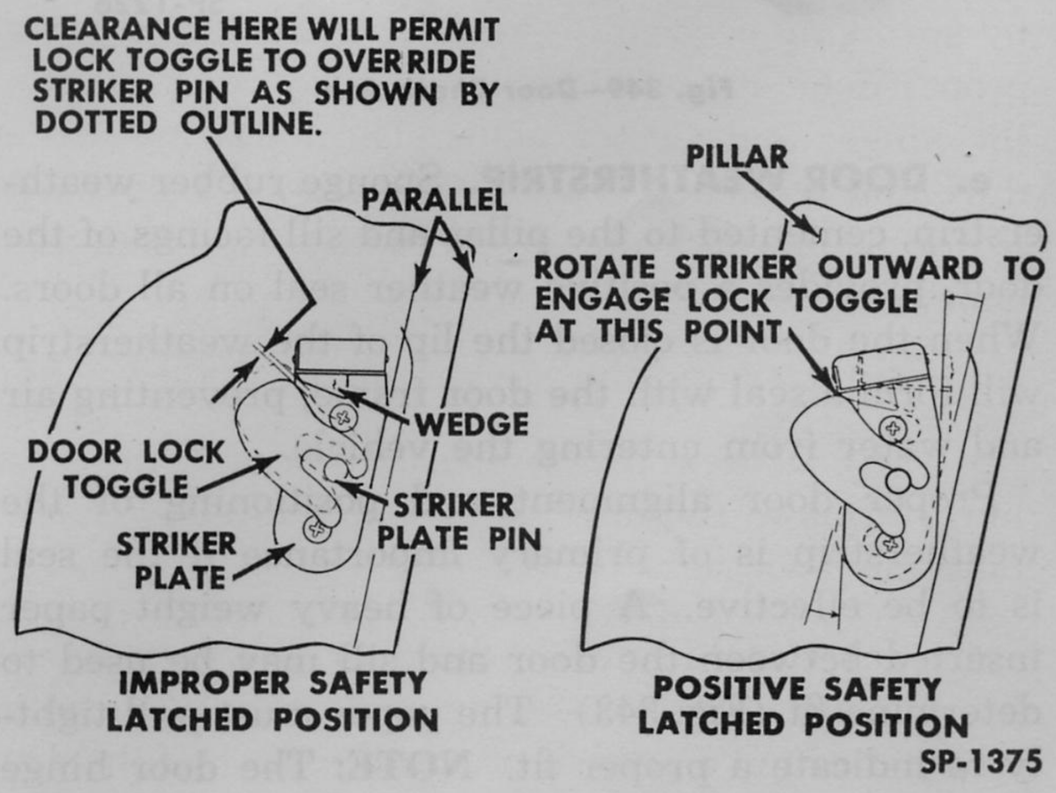


Fig. 348—Lock Toggle and Striker Plate Position

surface of the lock toggle as shown in Fig. 348. In this position the cam surface of the door lock toggle and the spring loaded wedge of the striker plate will permit the toggle to over-ride the striker pin, causing the door to open from the safety latched position.

The striker must be positioned so that the door lock toggle will be held securely in engagement with the striker pin. The top or wedge end of the striker plate must be moved outward until the wedge firmly contacts the cam surface of the lock toggle (Fig. 348), exerting sufficient pressure to prevent the toggle from over-riding the striker pin.

This may be accomplished by placing a suitable driver against the upper inside edge of the striker plate and with a hammer strike the driver to move the plate outward slightly. The safety latch operation must be checked intermittently with the repositioning of the striker until the correct position is obtained. The striker plate to pillar attaching screws must be securely tightened after the striker plate has been properly positioned.

d. DOOR CHECKS. The maximum open position of the door is controlled by a door check arm assembly connected between the door and the body. There is no adjustment of this door check arm (Fig. 349).

SP-1226

Fig. 349—Door Check Arm

e. DOOR WEATHERSTRIP. Sponge rubber weatherstrip, cemented to the pillar and sill facings of the door, provides a positive weather seal on all doors. When the door is closed the lip of the weatherstrip will form a seal with the door frame, preventing air and water from entering the vehicle.

Proper door alignment and positioning of the weatherstrip is of primary importance if the seal is to be effective. A piece of heavy weight paper inserted between the door and sill may be used to determine fit (Fig. 343). The paper must pull tightly to indicate a proper fit. **NOTE:** The door hinge recesses on the body pillars and doors must be sealed flush with the hinge to prevent leakage around the hinges.

When replacement is necessary, remove the defective section of weatherstrip, clean the metal surface thoroughly and apply cement as directed on the package. Install a new section of weatherstrip, allowing sufficient time for it to adhere firmly to the door.

f. DOOR DRAINS. The doors are designed to provide adequate drainage of water, preventing rusting of the metal panels and damage to the upholstery. Two slots are cut in the bottom of each door, adjacent to the outer door panel. These slots are protected by a small metal shield spot welded to the outer door panel. The rubber weatherstripping is cemented **over** the metal shield.

If inadequate drainage is suspected, an inspection should be made at each drain hole to determine whether the metal shield has been bent or otherwise damaged, causing partial plugging of the drain slot. Correction can be quickly made by inserting a screwdriver between the shield and the door panel and prying the shield away from the panel. Any debris that may have accumulated in the slot should be cleaned out.

DOOR LOCKS AND CONTROLS

The door locks on the Kaiser and the Frazer models, although similar, are not interchangeable. The differences in the locks and controls and the adjustment procedures are as follows.

a. DOOR LOCKS AND CONTROLS—KAISER.

1. Description and Construction. Each door lock is operated by an outside pull type handle (Fig. 350) and also by an inside turn handle and remote control assembly which is connected to the lock by a link. The inside and outside handles operate independently of each other.

All doors when closed can be locked from the inside by pushing down the lock button. With the lock button pushed down the door will be automatically locked when it is pushed closed. Rear doors cannot be opened from the outside or inside until the lock button is raised. Front doors are unlocked from the outside with the ignition key and from the inside by remote control handle or lifting the lock button.

The door locks are a heavy steel spring loaded trigger type (Fig. 351) and are mounted on the door

inner panel. The lock toggle extends through the door panel to engage the pin of the striker plate which is mounted on the body pillar. Two stages of locking are provided, the first is a safety position to prevent the door from swinging open in case it is not fully closed and the second is the fully latched position.

The remote control assembly is mounted on the inner door panel underneath the door trim pad. A link extending from this unit is connected directly to the door lock. Elongated holes at the mounting

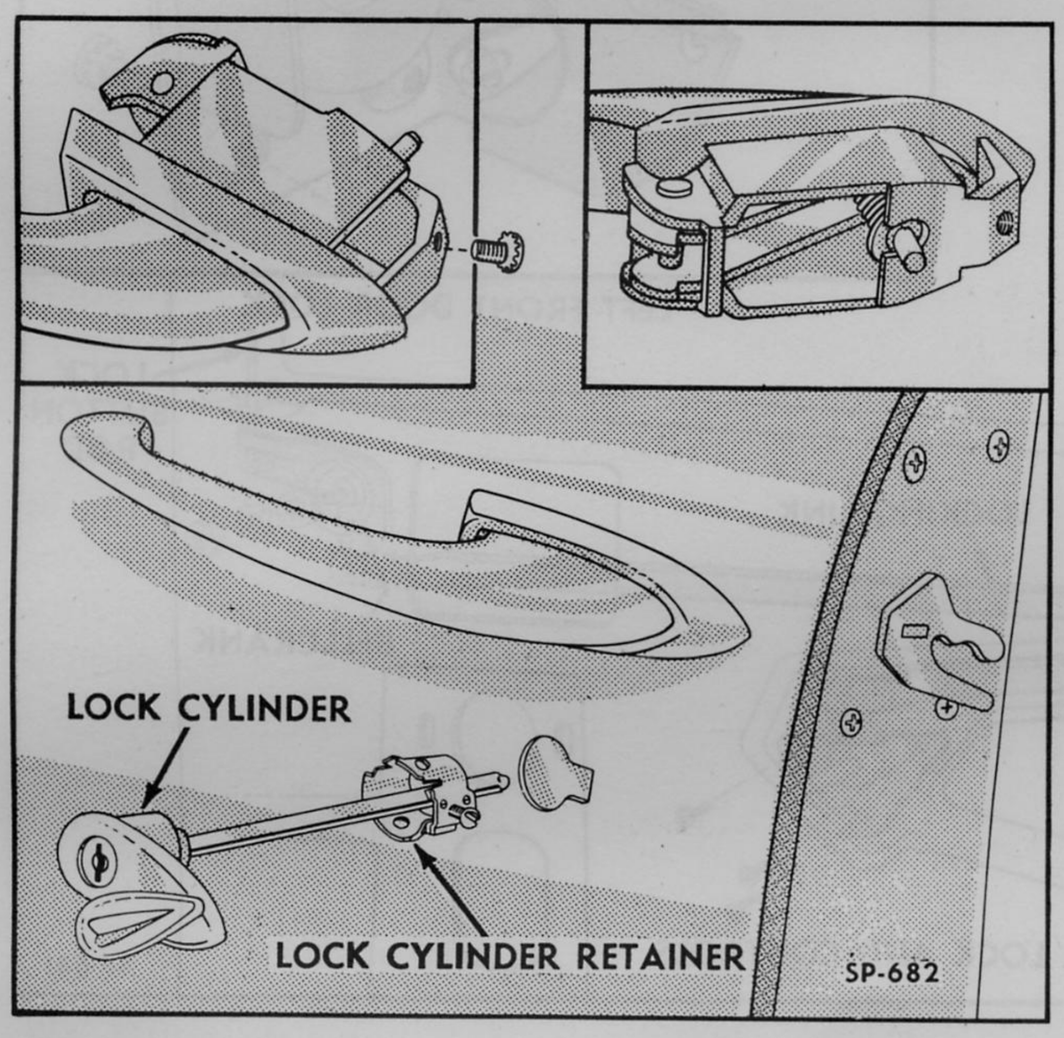


Fig. 350—Door Lock and Handle—Kaiser

permit limited fore and aft adjustment to obtain proper operation of the door lock by remote control.

The inside lock buttons on the front doors are directly connected to the lock by a rod extending up through the garnish moulding. The rear door inside lock buttons are mounted at the front of the door and connected to the lock by adjustable linkage extending from the lock button to the lock at the rear of the door. Proper operation of the inside lock on the rear doors depends on correct adjustment of the bellcrank located at the elongated hole in the inner door panel underneath the trim pad. This bellcrank is below the lock button which is connected to it.

A key operated plate tumbler lock is mounted in each front door below the door handle as shown in Fig. 350. A set screw fastens the lock into a spring steel retainer that is snapped into the door outside panel. The lock is provided with a cover which closes automatically over the keyhole when the key is removed.

2. Door Lock Controls Replacement (Fig. 351). Remove the garnish moulding, the door arm rest, the window regulator handle, door lock control handle and the door trim pad. Carefully remove the door inner panel protective covering for access inside the door. Remove the door lock, the remote control, and inside door lock attaching screws and washers and the lower window channel screws. The remote control link and the door locking link (rear doors only) may be disconnected from the lock as it is being removed.

On the front doors it will be necessary to move the window channel sufficiently to permit removal of the door lock. The door lock cylinder on the front doors is held in place with a set screw (Fig. 350). To remove the lock loosen the set screw, which is accessible through a hole in the door inner panel, and lift out the lock. Reverse the procedure to install the door locks and controls.

b. DOOR LOCKS AND CONTROLS—FRAZER.

1. Description and Operation. Door locks, mounted on the door inner panel, are remote controlled from inside the car. Pressing the button located near the center of the door trim panel just beneath the garnish moulding, operates the remote control rod extending from the push button to the lock, tripping the lock release lever (Fig. 352).

All doors may be safety locked or unlocked from inside the car. To operate the locks, move the inside lock button, located in the door trim panel, up or down.

The outside door handles are the pull type, pivoted at one end. The mechanism at the pivoted end engages the door lock. A slight pull on the door handle will trip the lock and open the door.

2. Door Lock and Controls Replacement (Fig. 352). Remove the garnish moulding and the door assist handle. Partially remove the trim panel to provide access to the lock and remote control mechanism. Remove the door lock, the remote control, and inside door lock attaching screws and washers and the lower window channel screws. Remove the complete mechanism. **NOTE:** On the front doors, the door lock cylinder must be removed before the lock may be removed.

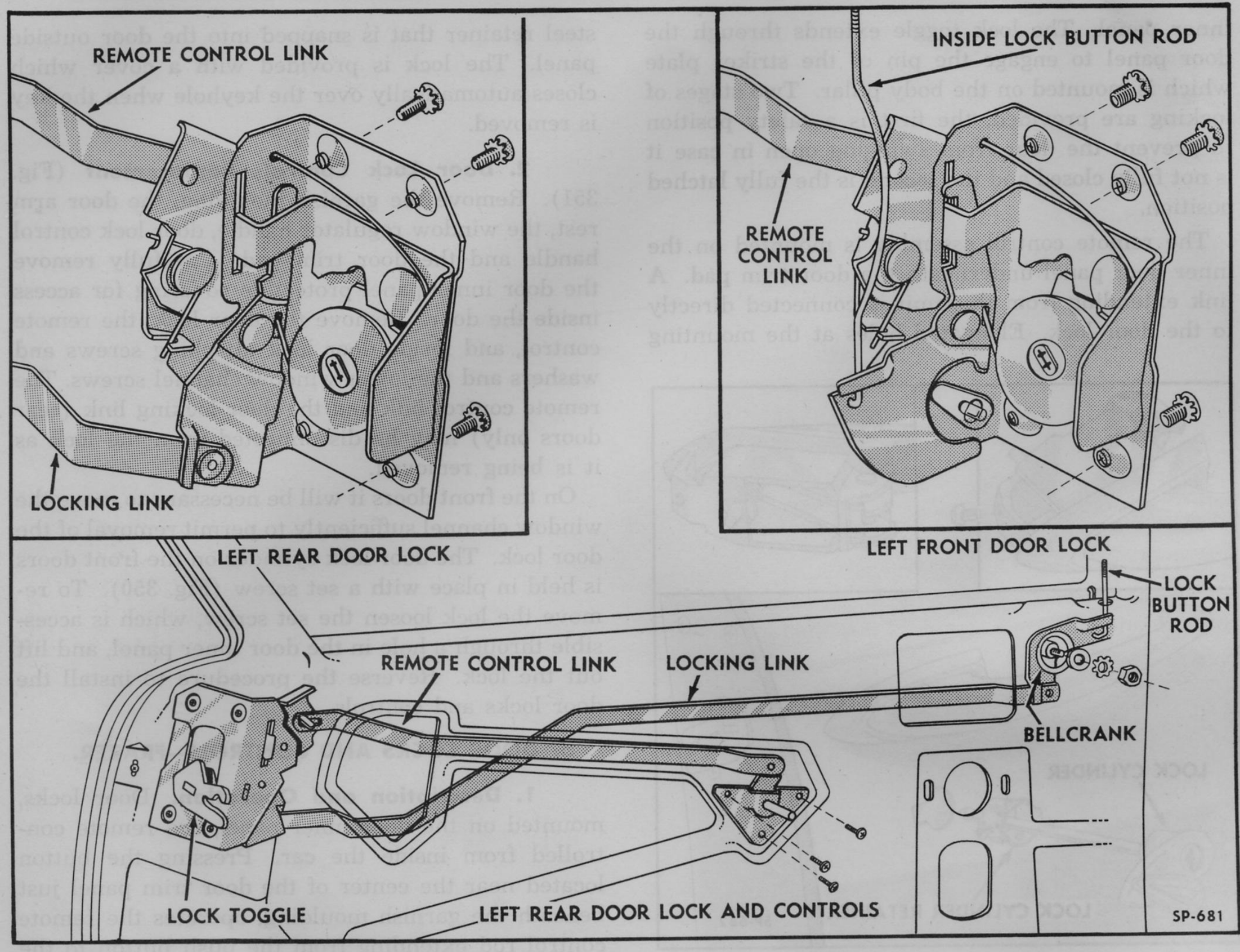


Fig. 351—Door Lock Operating Mechanism—Kaiser

The door handle is attached with one screw at the front and is held rigidly in place by a lip extending behind the door outer surface. By removing the attaching screw the handle may be tilted and removed. Reverse the procedure to install the door lock and controls.

3. Door Lock Adjustment. Proper door lock adjustment may be accomplished as follows:

(a) Door lock trouble may be caused by either a preload condition or the failure of the latch lever to return to the proper position. Check the points covered in the next four paragraphs.

Check the clearance between the pawl in the handle and the latch trip lever (Inset, Fig. 352). This clearance must be $\frac{1}{32}$ inch in the fully returned position.

Check for binding between the push button and escutcheon plate in the trim panel. Correct any binding by removing the garnish moulding and trim panel and by relocating the push button mounting plate on the inner door panel.

Check the push button remote control rod for binding in the mounting plate or against the door inner panel channel. Also check for twisting where the remote control rod enters the lock plate (Inset, Fig. 352).

Check the rivets in the lock plate assembly for excessive tightness which also may cause binding in the lock. If such a condition is evident, remove the lock assembly and loosen the rivets by tapping with a hammer. Thoroughly clean all movable parts and lubricate properly.

(b) If the door closes, the safety lock is unlocked, and the outside door handle will not open

the door, proceed as described in the next four paragraphs.

Remove the garnish moulding and trim panel. Trip the lock by pushing the button or by prying the latch lever with a screwdriver inserted through the opening of the door inner panel. Then, remove the outside door handle. Check the position of the pawl spring in the handle (Inset, Fig. 352).

If the spring has become disengaged from under the boss on the pawl, bend the spring so that when it is inserted under the boss it will exert force against the pawl. Push the spring down with a screwdriver until it snaps in place under the boss on the side of the pawl.

Make certain that the door handle base is flush with the door outside panel. If not, remove the handle and bend the door handle retaining screw recess (Inset, Fig. 352) in the door, sufficiently to permit the base of the handle to fit flush with the door outside panel. Be sure to use the proper handle retaining screw so that it does not extend into the handle base too far and interfere with handle operation.

Check for $\frac{1}{32}$ inch clearance between the handle pawl and the latch trip lever (Inset, Fig. 352). If the latch trip lever binds, check the rivets, loosen if necessary, clean, and lubricate as previously directed. Be certain that the lock lever is in the fully unlocked position.

(c) If the door locks automatically when closed, with the safety lock button in the fully raised (unlocked) position, proceed as described in the next three paragraphs.

Check the travel of the safety lock button and stud. Improper location of the escutcheon plate in the trim panel or bolster will limit the travel of the lock button and stud. Relocate the escutcheon plate to allow full travel and free movement.

Check the tang on the lock lever in the door lock assembly to see that it permits full release of the

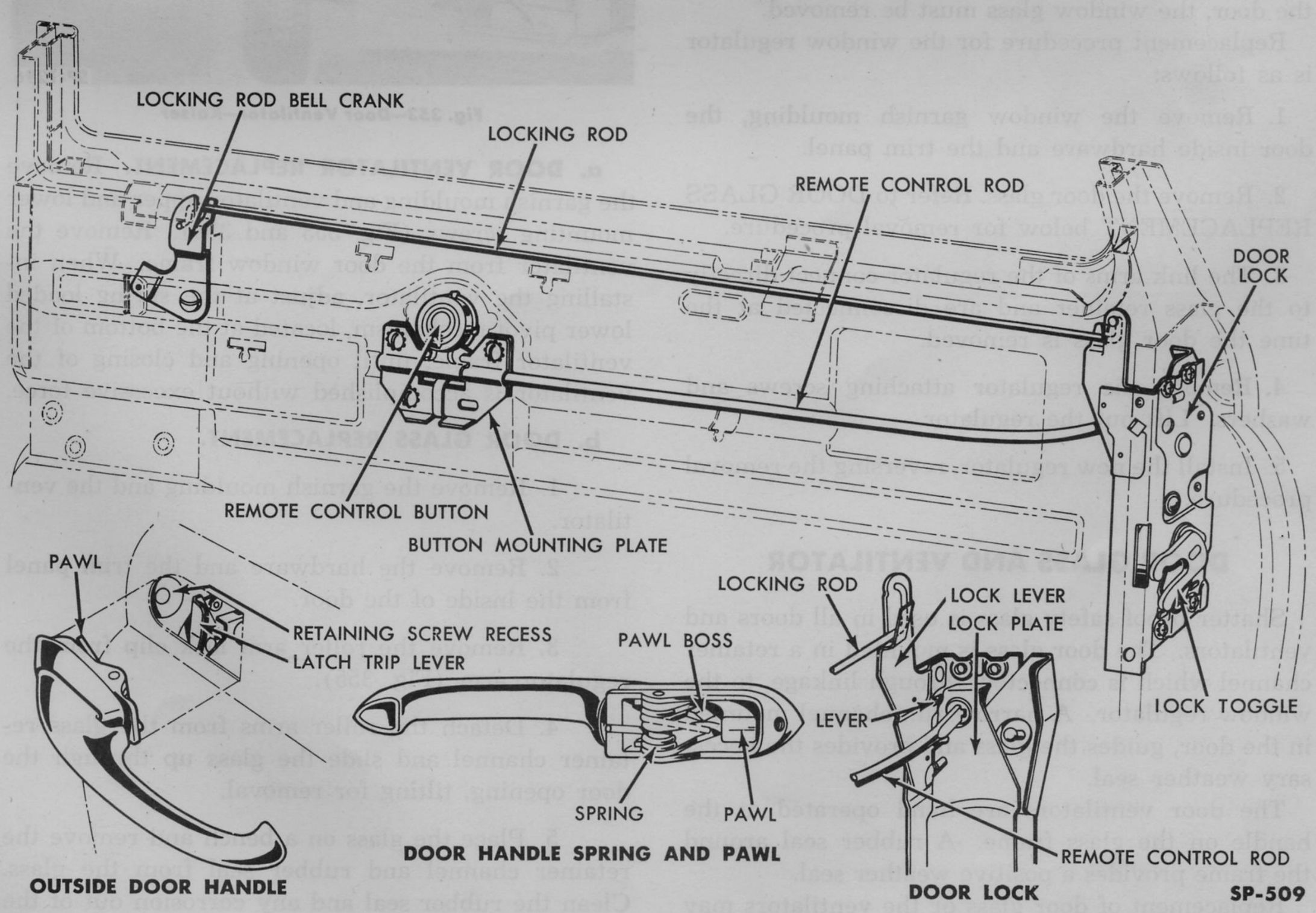


Fig. 352—Door Lock Controls—Frazer

lock lever (Inset, Fig. 352). If not, bend the tang slightly to permit full release.

Check all working parts of the lock and remote control and eliminate all interference as required.

(d) Difficulties in operating the door lock cylinder with the key (front doors only) may be caused by interference of the trim panel attaching clip, located opposite the lock cylinders. If the clip interferes with lock operation, remove the clip from the panel. In all cases, remove excessive paint and ascertain that all moving parts are properly lubricated.

WINDOW REGULATOR

Door windows are raised or lowered by a hand operated window regulator. The regulator is mounted on the door inner panel and is accessible for replacement through the access holes in the panel when the trim panel is removed. The regulator is linked directly to the slots in the window retainer channel. When replacing the regulator in the door, the window glass must be removed.

Replacement procedure for the window regulator is as follows:

1. Remove the window garnish moulding, the door inside hardware and the trim panel.

2. Remove the door glass. Refer to DOOR GLASS REPLACEMENT below for removal procedure.

3. The link arms of the regulator connect directly to the glass retainer and are disconnected at the time the door glass is removed.

4. Remove the regulator attaching screws and washers. Lift out the regulator.

5. Install the new regulator, reversing the removal procedure.

DOOR GLASS AND VENTILATOR

Shatter proof safety glass is used in all doors and ventilators. The door glass is mounted in a retainer channel which is connected, through linkage, to the window regulator. A narrow run channel mounted in the door, guides the glass and provides the necessary weather seal.

The door ventilators are hand operated at the handle on the glass frame. A rubber seal around the frame provides a positive weather seal.

Replacement of door glass or the ventilators may be accomplished as follows:

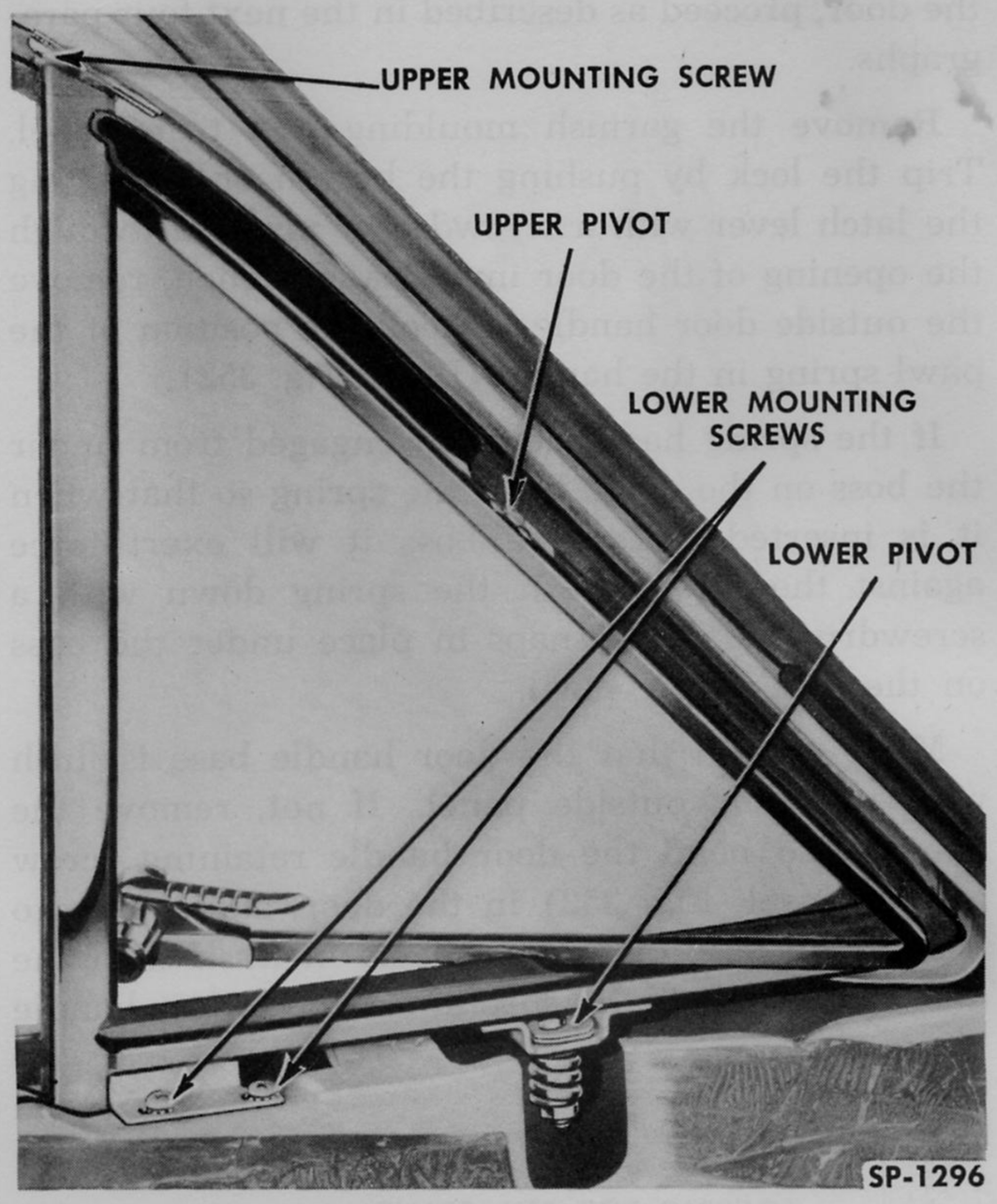


Fig. 353—Door Ventilator—Kaiser

a. DOOR VENTILATOR REPLACEMENT. Remove the garnish moulding and ventilator upper and lower mounting screws (Fig. 353 and 354). Remove the ventilator from the door window frame. When installing the ventilator, adjust at the spring loaded lower pivot mechanism, located at the bottom of the ventilator frame, until opening and closing of the ventilator is accomplished without excessive force.

b. DOOR GLASS REPLACEMENT.

1. Remove the garnish moulding and the ventilator.

2. Remove the hardware and the trim panel from the inside of the door.

3. Remove the roller arm lock clip from the regulator arm (Fig. 355).

4. Detach the roller arms from the glass retainer channel and slide the glass up through the door opening, tilting for removal.

5. Place the glass on a bench and remove the retainer channel and rubber seal from the glass. Clean the rubber seal and any corrosion out of the channel.

Fig. 354—Door Ventilator—Frazer

6. Cut a strip of rubber seal the length of the bottom of the door glass. Place a cloth pad on the bench to prevent cracking the glass during installation of the channel and seal. Install the seal and the channel by carefully tapping them both onto the bottom edge of the glass as shown in Fig. 356. After installing the channel, check for proper alignment.

7. Install the door glass in the door by reversing operations 1 through 4 above. **NOTE:** Be sure to coat the roller arm and roller with Lubriplate.

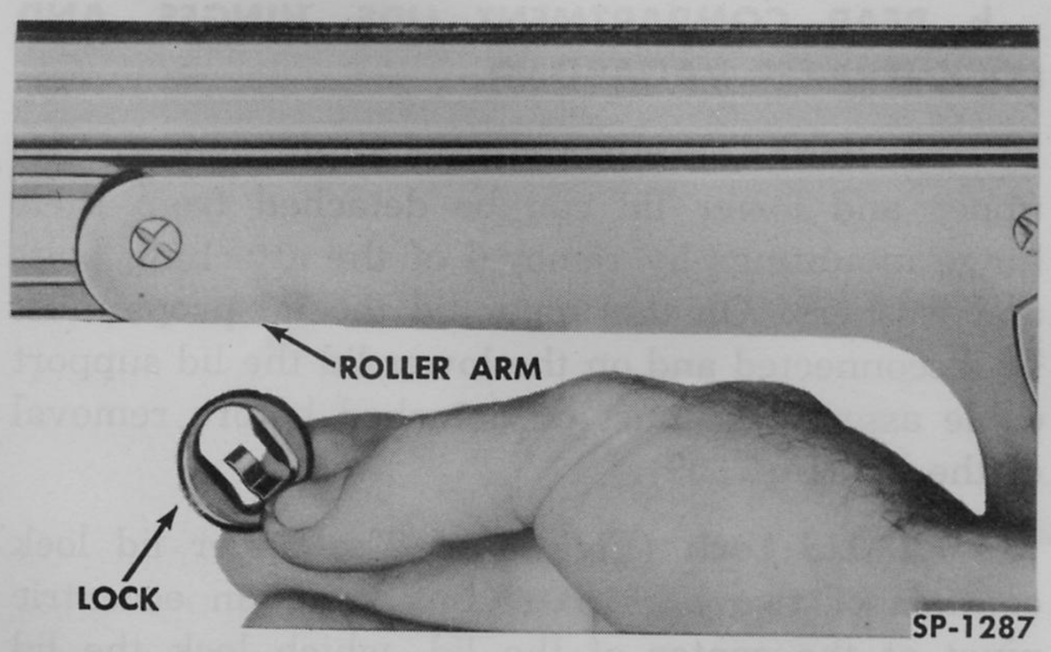


Fig. 355—Disconnecting Door Glass Regulator Arm

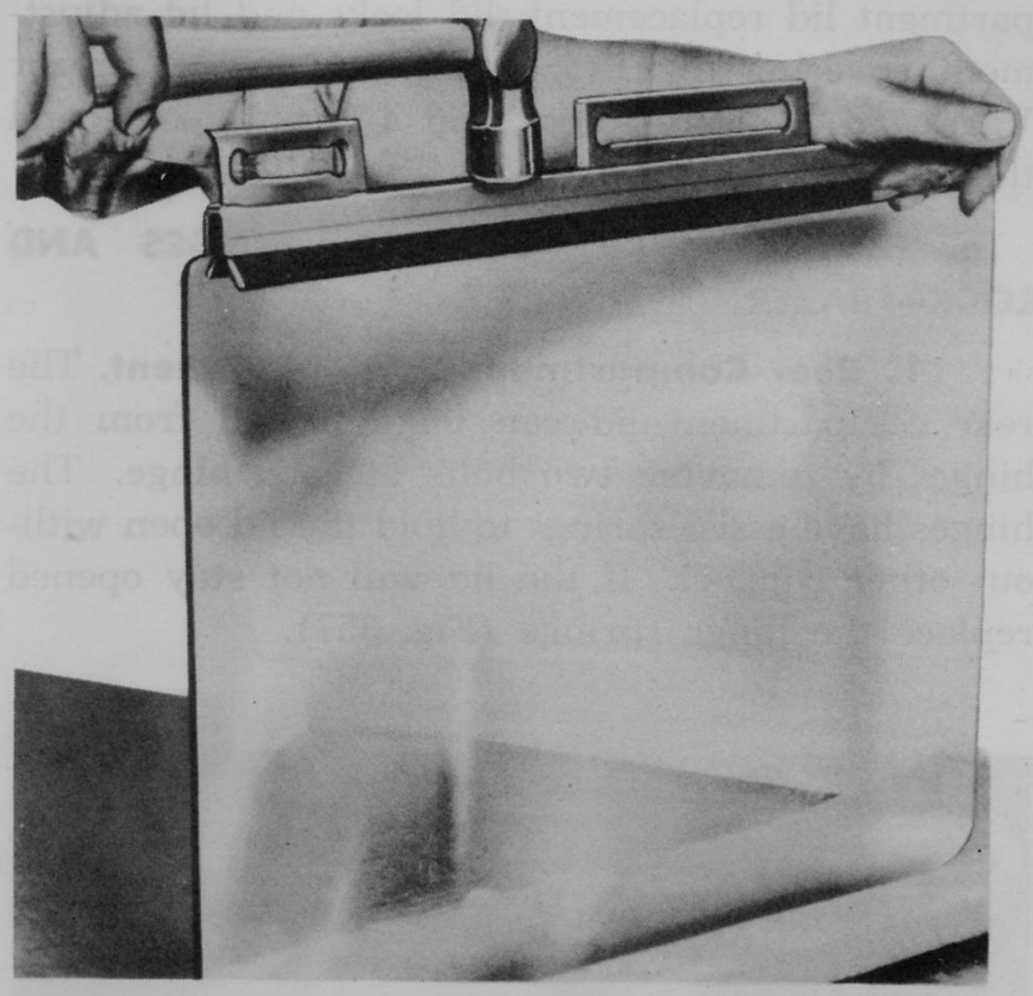


Fig. 356—Installing Door Glass in Retainer Channel—Frazer

REAR COMPARTMENT LID, HINGES AND LOCK

The rear compartment lid provides a cover and weather seal for the rear compartment. The rear compartment is sealed against the entry of water and dust by the lid closing against a rubber weatherstrip which is cemented in a metal gutter around the frame of the opening in the compartment. The lid is attached to the body with hinges. A lid latch and lock secure the lid in the closed position.

The following paragraphs will include rear com-

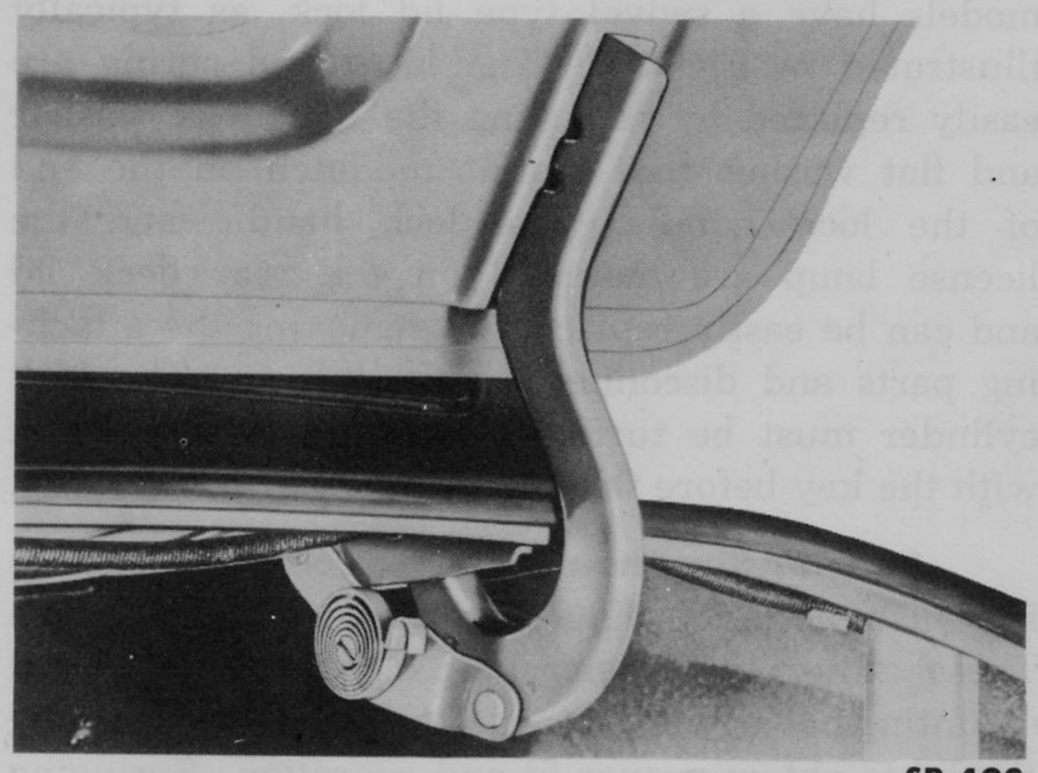


Fig. 357—Rear Compartment Lid Hinge—Frazer

partment lid replacement, lid locks and lid adjustment covering the Frazer 4-Door models, Frazer Vagabond, Kaiser 2-Door and 4-Door models and the Kaiser Traveler.

a. REAR COMPARTMENT LID, HINGES AND LOCK—FRAZER.

1. Rear Compartment Lid Replacement. The rear compartment lid can be detached from the hinges by removing two bolts at each hinge. The hinges have assist springs to hold the lid open without other support. If the lid will not stay opened replace the hinge springs (Fig. 357).

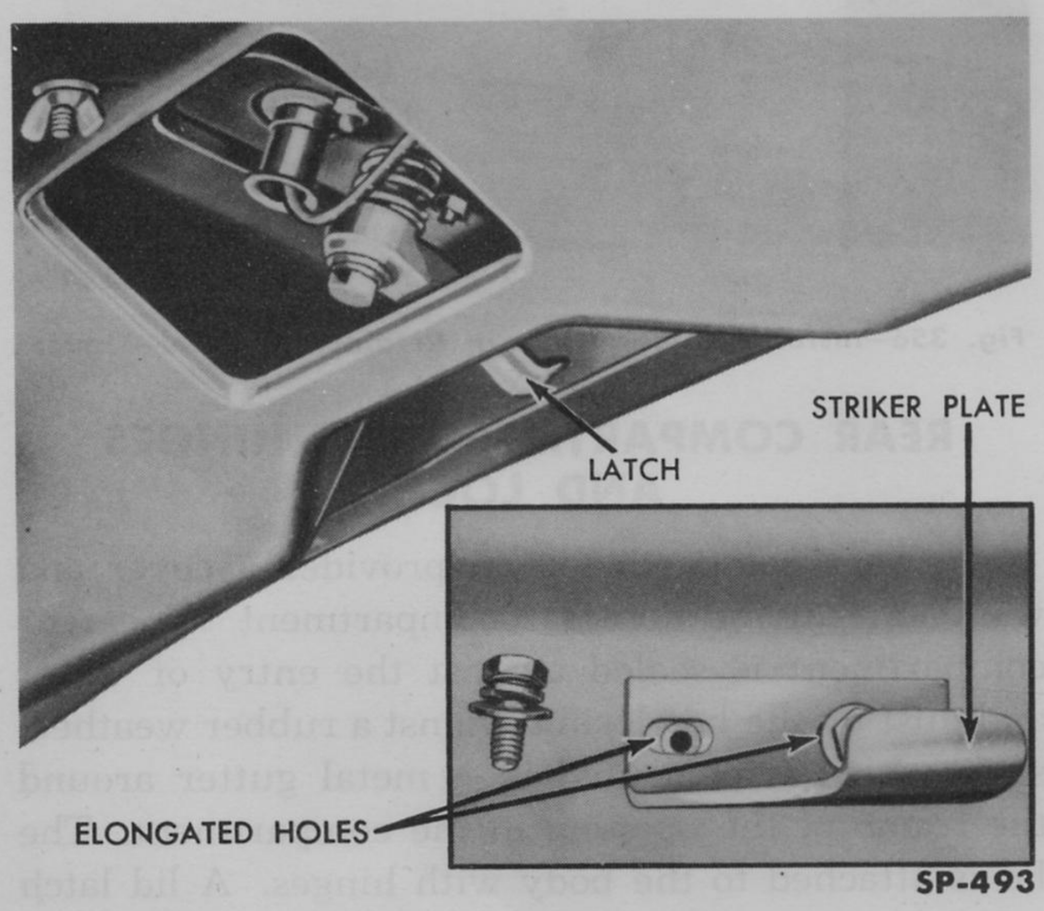


Fig. 358—Rear Compartment Lid Lock and Striker—Frazer

2. Rear Compartment Lid Lock. Frazer models have a swivel type lid lock, as typically illustrated in Fig. 358. The latch and spring are easily replaced by removing the bolt, lock washer and flat washer that mount the latch on the end of the lock handle. The lock handle and the license lamp are mounted on the rear deck lid and can be easily replaced by removing the attaching parts and disconnecting the wiring. The lock cylinder must be turned to the unlocked position with the key before the lock handle can be removed.

3. Lid Adjustment. The rear compartment lid is adjustable at the hinges and lid lock striker plate. These adjustments consist of elongated or slotted mounting holes which permit variation in positioning the lid to obtain proper fit and operation. Springing or bending the rear compartment lid should be avoided until it is definitely determined that a proper fit cannot be obtained by adjustment at the hinges, and the lock striker. An inspection should be made of the condition of the weatherstrip around the body opening and also the alignment of the weatherstrip gutter. Deteriorated or distorted weatherstrip must be replaced. Bent or distorted gutters must be aligned. To adjust the lid proceed as follows:

(a) Loosen the lid hinge bolts enough to permit movement at these points.

(b) Close the lid and move it into position so that equal spacing is obtained around the edges between the lid and the body. The lid should not conform exactly to the downward curve of the body, but should require a slight downward springing force to compress the entire lid edge against the weatherstrip when engaging the lock. This assures a weather tight fit of the lid to the body and prevents rattling at the lock latch.

(c) When a proper fit has been obtained, securely tighten the hinge bolts. This is best accomplished inside the rear compartment with the lid locked in a closed position.

(d) Recheck the fit and repeat the foregoing operations if necessary.

(e) The striker plate mounting holes are elongated (Fig. 358) to permit sidewise adjustment to properly position the plate in relation to the latch on the lock handle with the handle in the locked position. Fore and aft adjustment of the striker plate in relation to the locking handle latch may be accomplished by carefully bending the striker plate as required.

b. REAR COMPARTMENT LIDS, HINGES, AND LOCK—FRAZER VAGABOND.

1. Rear Compartment Lid Replacement. The upper and lower lid can be detached from their hinge mountings by removal of the attaching bolts and washers. On the upper lid the lid props must be disconnected and on the lower lid the lid support cable assemblies must be detached before removal of the lid (Fig. 359).

2. Lid Lock (Fig. 360). The upper lid lock consists of two bars extending from an eccentric pivot at the center of the lid, which lock the lid closed when the center handle assembly, mounted

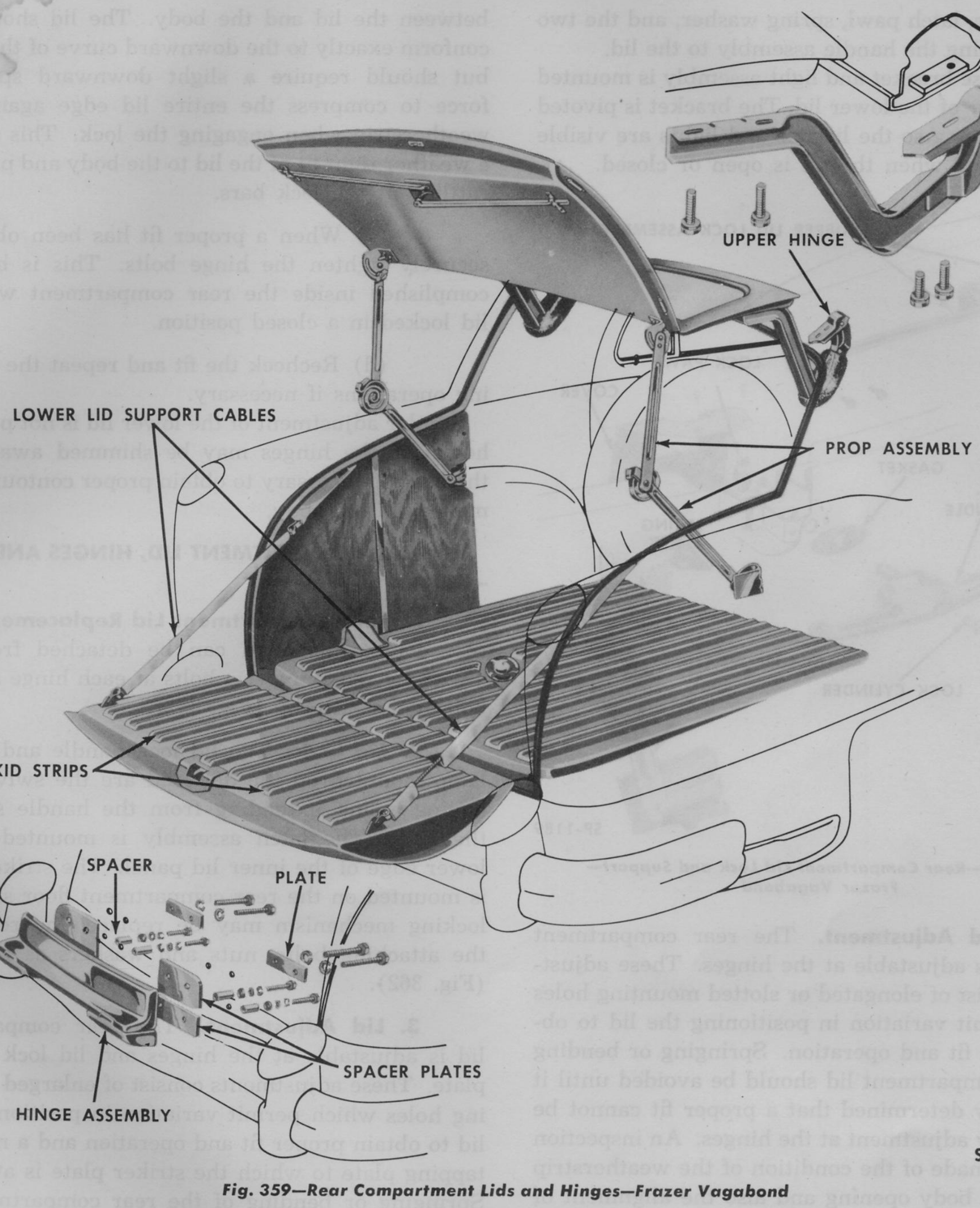


Fig. 359—Rear Compartment Lids and Hinges—Frazer Vagabond

on the inner panel of the lid, is rotated to the closed position.

The upper lid and lock operates independently of the lower lid and lock. Spring loaded lid props extending from the body bracing to the upper lid assist in raising or lowering the lid. The lid prop may be adjusted at the wing nuts to support the lid in the open position (Fig. 359). The upper lid lock and lid props may be replaced by removing the attaching bolts, nuts and washers as required.

The lower lid lock is a swivel type extending through the lid panel. The latch on the lock shaft on the inner panel of the lid engages the striker mounted on the lower edge of the upper lid (Fig. 360). The lid lock may be replaced by removing the lock cover on the lid inner panel, the latch bolt,

lock washer, latch pawl, spring washer, and the two bolts attaching the handle assembly to the lid.

The license bracket and light assembly is mounted in the center of the lower lid. The bracket is pivoted on its mounting so the license and lights are visible from the rear when the lid is open or closed.

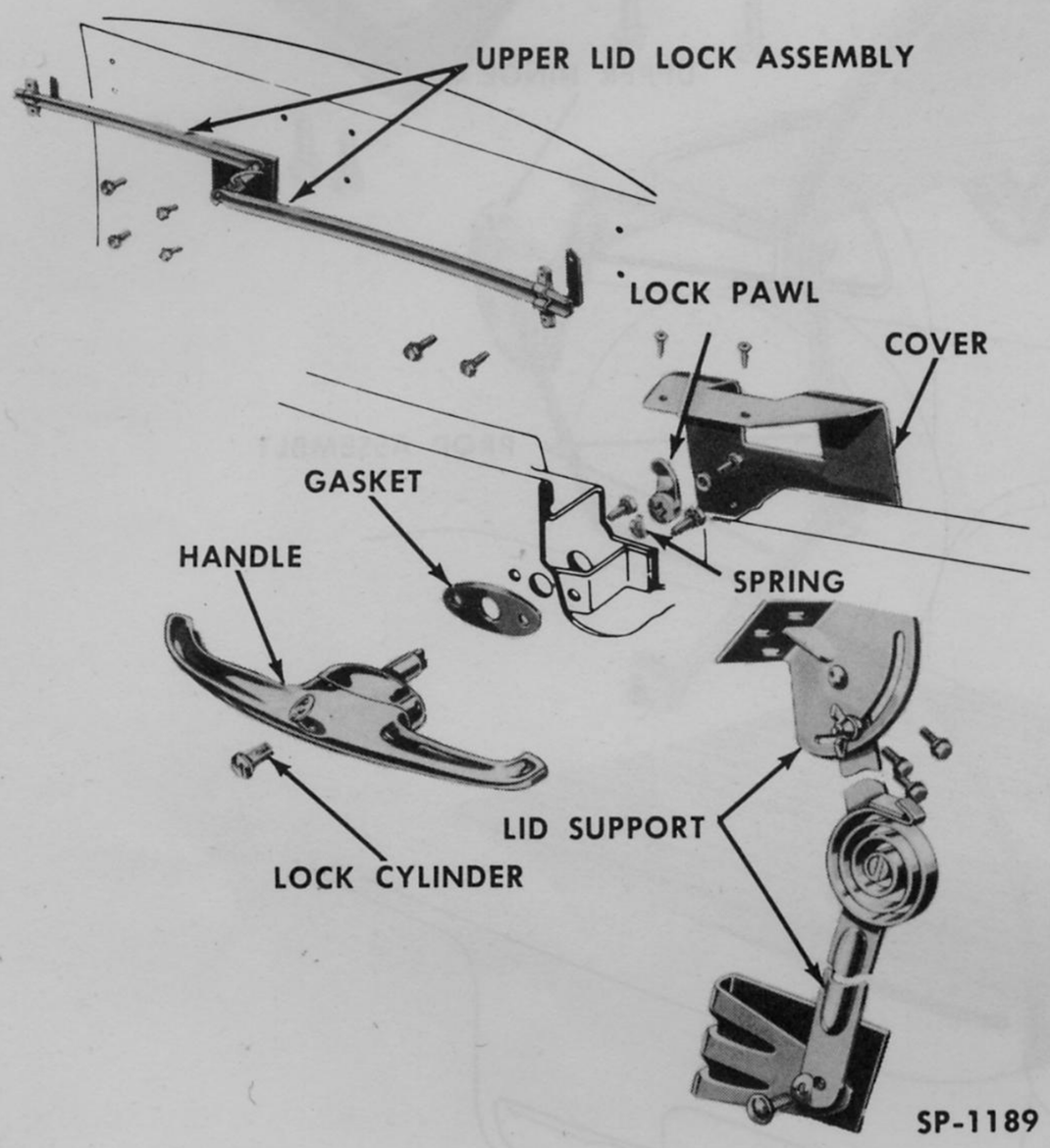


Fig. 360—Rear Compartment Lid Lock and Support—Frazer Vagabond

3. Lid Adjustment. The rear compartment upper lid is adjustable at the hinges. These adjustments consist of elongated or slotted mounting holes which permit variation in positioning the lid to obtain proper fit and operation. Springing or bending the rear compartment lid should be avoided until it is definitely determined that a proper fit cannot be obtained by adjustment at the hinges. An inspection should be made of the condition of the weatherstrip around the body opening and also the alignment of the weatherstrip gutter. Deterioration or distorted weatherstrip must be replaced. Bent or distorted gutters must be aligned. To adjust the lid proceed as follows:

(a) Loosen the lid hinge bolts enough to permit movement at these points.

(b) Close the lid and move it into position so that equal spacing is obtained around the edges between the lid and the body. The lid should not conform exactly to the downward curve of the body, but should require a slight downward springing force to compress the entire lid edge against the weatherstrip when engaging the lock. This assures a weather tight fit of the lid to the body and prevents rattling at the lock bars.

(c) When a proper fit has been obtained, securely tighten the hinge bolts. This is best accomplished inside the rear compartment with the lid locked in a closed position.

(d) Recheck the fit and repeat the foregoing operations if necessary.

Similar adjustment of the lower lid is not possible; however, the hinges may be shimmed away from the body if necessary to obtain proper contour alignment with the body.

c. REAR COMPARTMENT LID, HINGES AND LOCK —KAISER.

1. Rear Compartment Lid Replacement. The rear compartment lid can be detached from the hinges by removing two bolts at each hinge and the bolt at the lid prop (Fig. 361).

2. Lid Lock. The lid lock handle and license lamp mounted on the deck lid are the swivel type having a link extending from the handle shaft to the latch. The latch assembly is mounted at the lower edge of the inner lid panel. The striker plate is mounted on the rear compartment floor sill. The locking mechanism may be replaced by removing the attaching bolts, nuts and washers as required (Fig. 362).

3. Lid Adjustment. The rear compartment lid is adjustable at the hinges and lid lock striker plate. These adjustments consist of enlarged mounting holes which permit variation in positioning the lid to obtain proper fit and operation and a movable tapping plate to which the striker plate is attached. Springing or bending of the rear compartment lid should be avoided until it is definitely determined that a proper fit cannot be obtained by adjustment at the hinges and the lock striker. An inspection should be made of the condition of the weatherstrip around the body opening and also the alignment of the weatherstrip gutter. Deteriorated or distorted weatherstrip must be replaced. Bent or distorted gutters must be aligned. To adjust the lid proceed as follows:

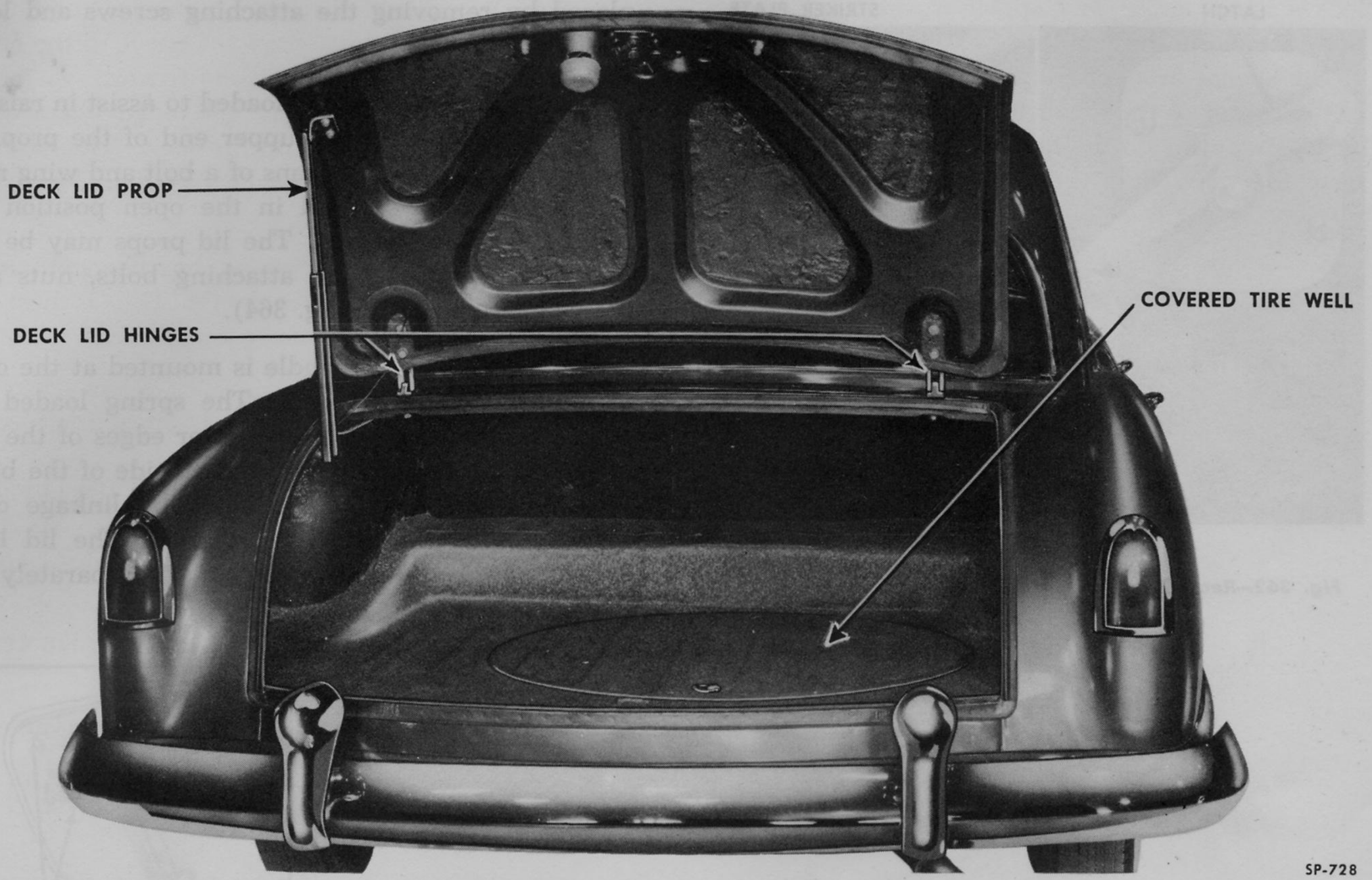


Fig. 361—Rear Compartment and Lid—Kaiser

(a) Loosen the lid hinge bolts enough to permit movement at these points.

(b) Close the lid and move it into position so that equal spacing is obtained around the edges between the lid and the body. The lid should not conform exactly to the downward curve of the body, but should require a slight downward springing force to compress the entire lid edge against the weatherstrip when engaging the lock. This assures a weather tight fit of the lid to the body and prevents rattling at the lock latch.

(c) When a proper fit has been obtained, securely tighten the hinge bolts. This is best accomplished inside the rear compartment with the lid locked in a closed position.

(d) Recheck the fit and repeat the foregoing operations if necessary.

(e) The striker plate is mounted to a tapping plate that is movable to permit sidewise adjustment to properly position the plate in relation to the latch on the lock handle, with the handle in the locked position. Fore and aft adjustment of the striker plate in relation to the locking handle latch may be accomplished in the same way—by loosening the striker plate and moving it and the tapping plate as required.

d. REAR COMPARTMENT LIDS, HINGES AND LOCK—KAISER TRAVELER.

1. Rear Compartment Lid Replacement. The upper and lower lids can be detached from their hinge mountings by removal of the attaching bolts and washers. On the upper lid the lid props must be disconnected and on the lower lid support cable assemblies must be detached before removal of the lid (Fig. 363).

2. Lid Lock. The upper lid locks are mounted at each side of the lower edge of the lid inner panel (Fig. 364). The locks are manually operated independently of each other. The lock is actuated by rotating the tongue 180° which moves the latch in or out of engagement with the striker plate mounted on the body bracing. The locks may be easily re-

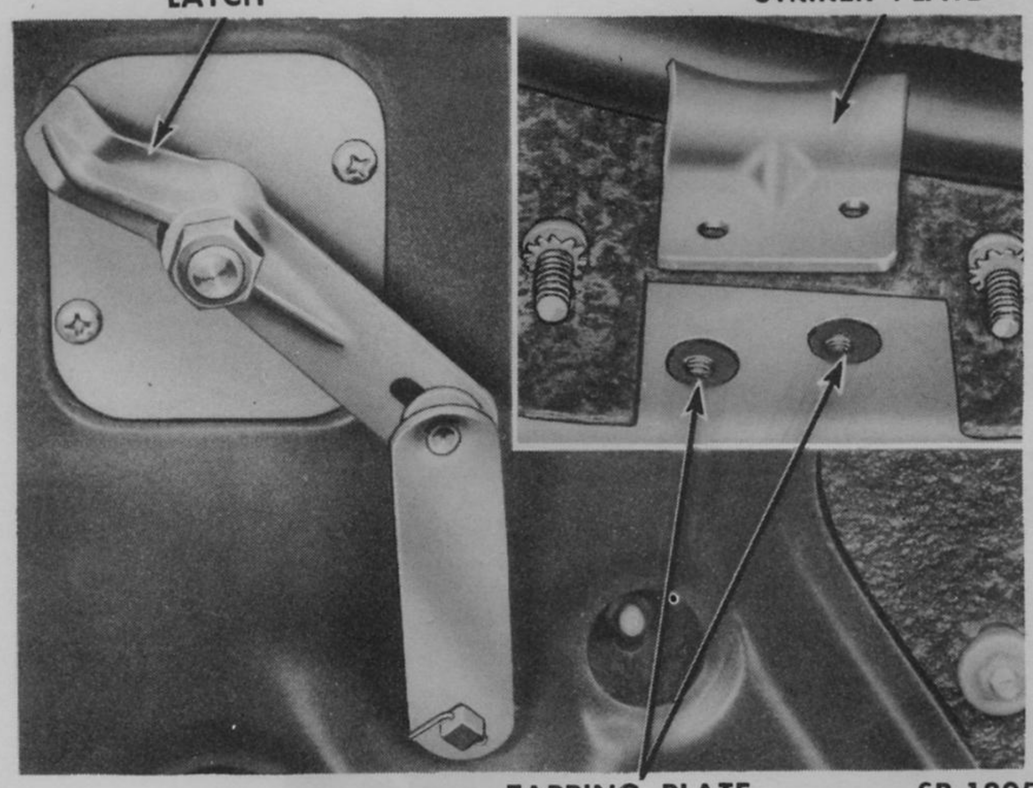
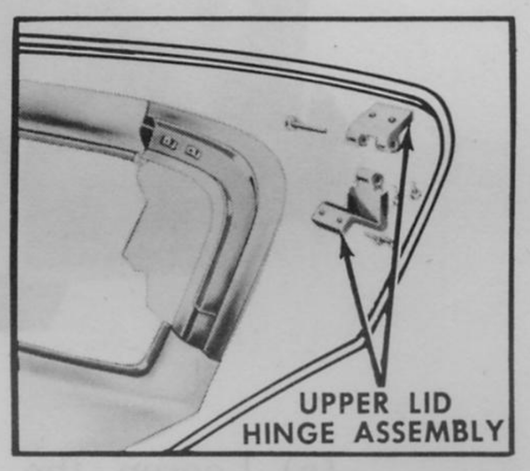


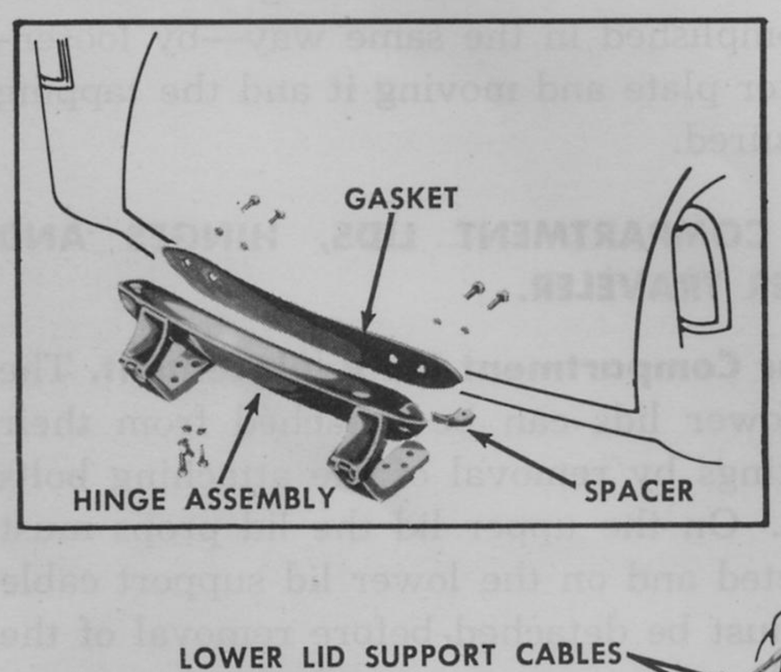
Fig. 362—Rear Compartment Lid Lock and Striker—Kaiser

placed by removing the attaching screws and lock washers.

The lid props are spring loaded to assist in raising or lowering the lid. The upper end of the prop, at the lid, is attached by means of a bolt and wing nut. The lid may be secured in the open position by tightening the wing nut. The lid props may be replaced by removing the attaching bolts, nuts and washers as required (Fig. 364).

The lower lid lock handle is mounted at the center of the lid outer panel. The spring loaded lid locks are mounted at the top outer edges of the lid, engaging the striker plates on each side of the body opening. The locks are actuated by linkage connected to the lid lock handle shaft. The lid lock handle or the locks may be replaced separately by





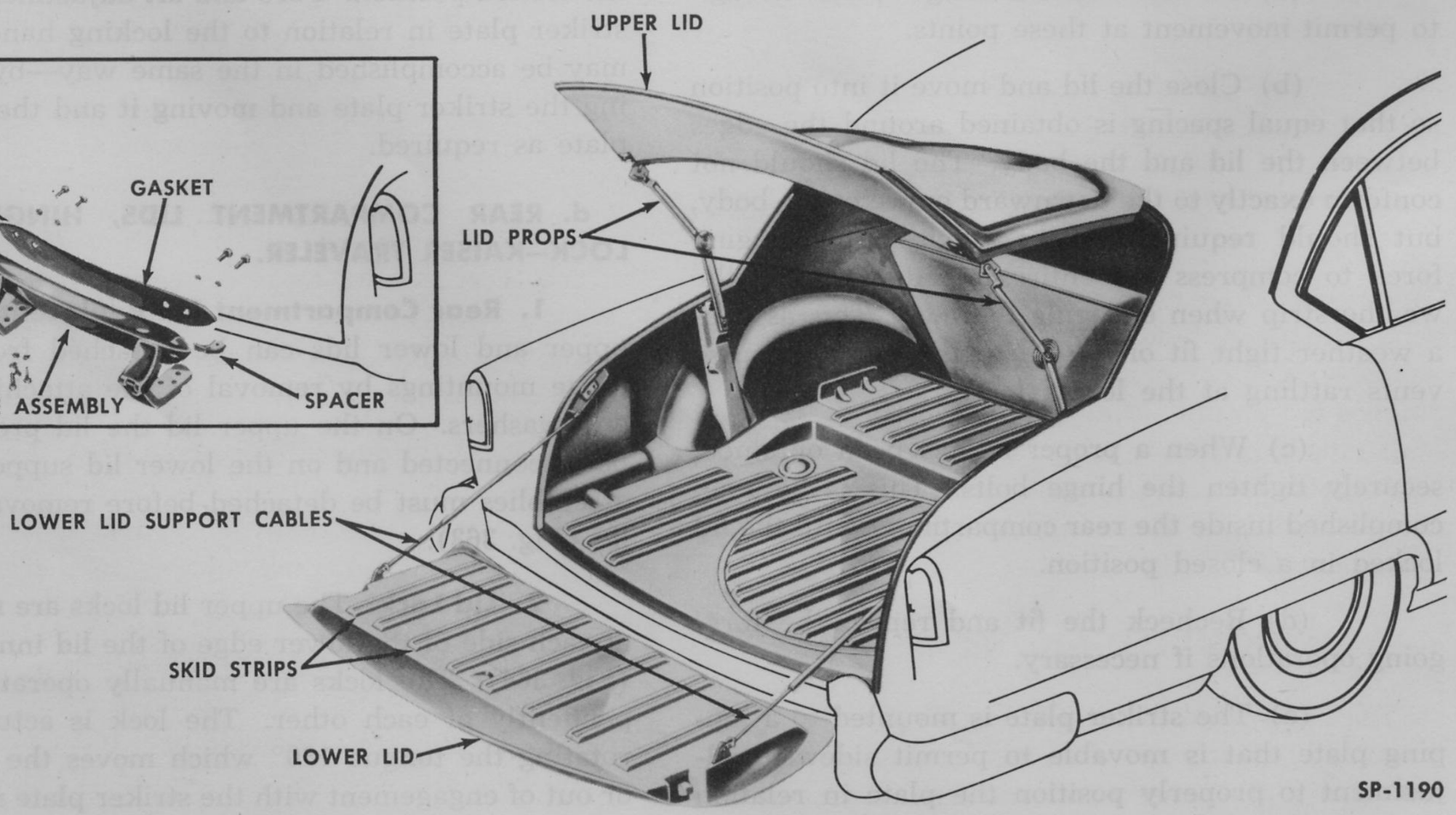


Fig. 363—Rear Compartment Lids and Hinges—Kaiser Traveler.

removing the attaching screws, washers and linkage as required (Fig. 364).

3. Lid Adjustment. To avoid dust and water leaking into the rear compartment the rubber weatherstrip must be in good condition and properly installed. The lip of the weatherstrip must firmly contact the rear lid at all points. The rear compartment lids may be adjusted at the hinges or lock strikers as required. However, if the lid is properly aligned and fitted in the body opening and the sealing is still not satisfactory the weatherstrip may be at fault. If the weatherstrip is loose or distorted in the retainer channel it should be removed, cemented and reinstalled properly. If damaged or deteriorated, the weatherstrip must be replaced.

The upper lid on utility models can be aligned for even spacing between the edges of the lid and

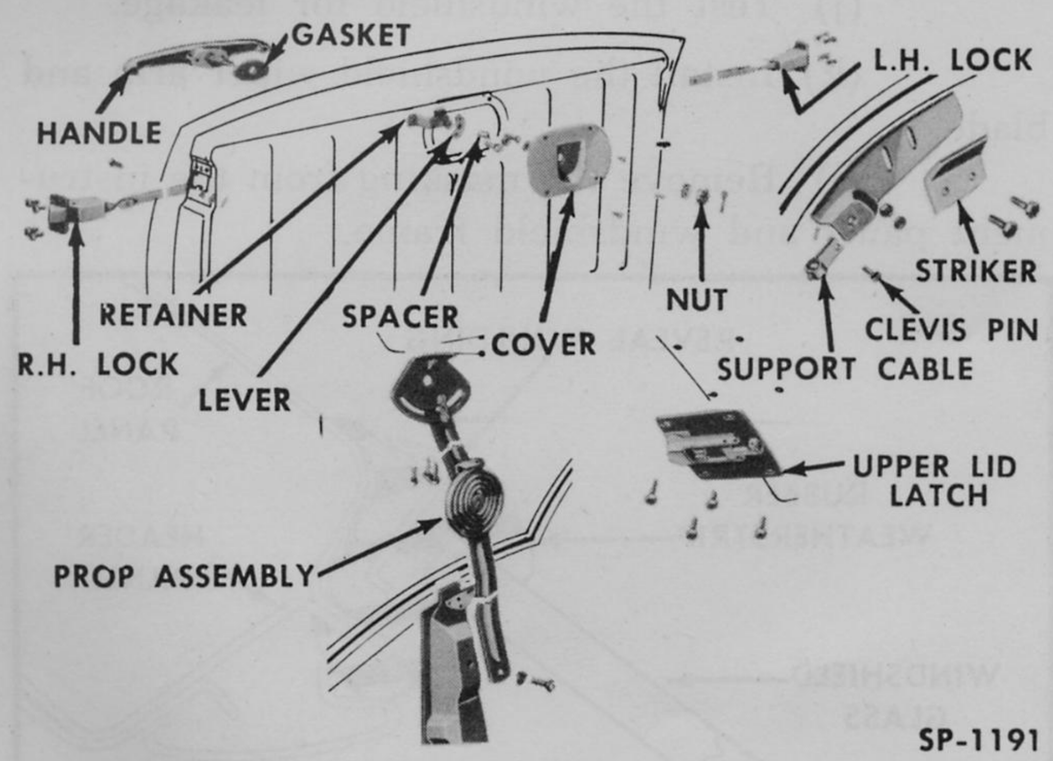


Fig. 364—Rear Compartment Lid Lock and Prop—Kaiser Traveler

the opening in the body by adjusting the hinge mounting. Enlarged hinge mounting holes in the lid and elongated holes in the body for fore and aft hinge movement permit shifting the position of the hinges for proper lid alignment. Be sure to tighten the nuts tightly to maintain proper lid alignment. The lower lid can also be aligned by adjusting the hinge mounting at the underside of the rear compartment floor sill.

WINDSHIELD AND REAR GLASS

The fixed windshield and rear window glasses are mounted in rubber channels, forming a positive weather seal against water and dust leakage around the edges. The Frazer windshield consists of two flat glasses supported at the center by a division bar. The Kaiser models have a two piece curved glass windshield supported at the center by a division bar. The rear glass is formed or curved to the contour of the body. Both windshield glass and the rear glass are replaceable.

a. WINDSHIELD GLASS REPLACEMENT—FRAZER. The windshield glass, mounted in the one piece rubber weatherstrip, is held in place by a garnish moulding attached to the body windshield frame. The division bar provides the vertical center support.

1. Windshield Glass Removal. Either glass of the windshield may he replaced individually. Removal is as follows:

(a) Mask off the instrument panel and windshield frame to prevent scratches on the finished surfaces.

(b) Remove the division bar screws, the inner bar, the bar retainer, the division bar weather seal and the division outer bar.

(c) Remove the garnish moulding attaching screws and the garnish moulding from around the glass to be removed.

(d) Remove the windshield wiper arm and blade.

(e) Remove the windshield chrome trim moulding.

(f) Loosen the weatherstrip around the affected glass using a wooden wedge.

(g) Loosen the weatherstrip around the windshield frame using a wooden wedge. Carefully work the glass and weatherstrip from the frame by prying with wooden wedges exerting pressure toward the inside of the vehicle until the glass is free for removal (Fig. 365).

(h) Remove the glass from the weatherstrip.

(i) Thoroughly clean frame surfaces and all surfaces and channels of the weatherstrip to remove all traces of sealer.

2. Windshield Glass Installation. Before installing a new glass the windshield frame alignment should be checked. Misalignment must be corrected before installing the glass. Then proceed as follows:

(a) Coat the channel of the weatherstrip

liberally with suitable sealing compound and install the glass in the channel of the weatherstrip. Make certain that the glass is seated in the center section of the moulding.

(b) Coat the exterior of the weatherstrip with Lubriplate (or soap solution) to provide a slip fit at the windshield frame.

(c) Fit a strong cord around the outer channel of the weatherstrip and position the glass, with the weatherstrip on it against the windshield frame from inside the body.

(d) With the aid of a helper, inside the body pushing against the glass and weatherstrip, pull the cord down, working from the top of the division bar at the center of the windshield, across the top (Fig. 366), around the side and across the bottom, until the weatherstrip is pulled into place on the windshield frame.

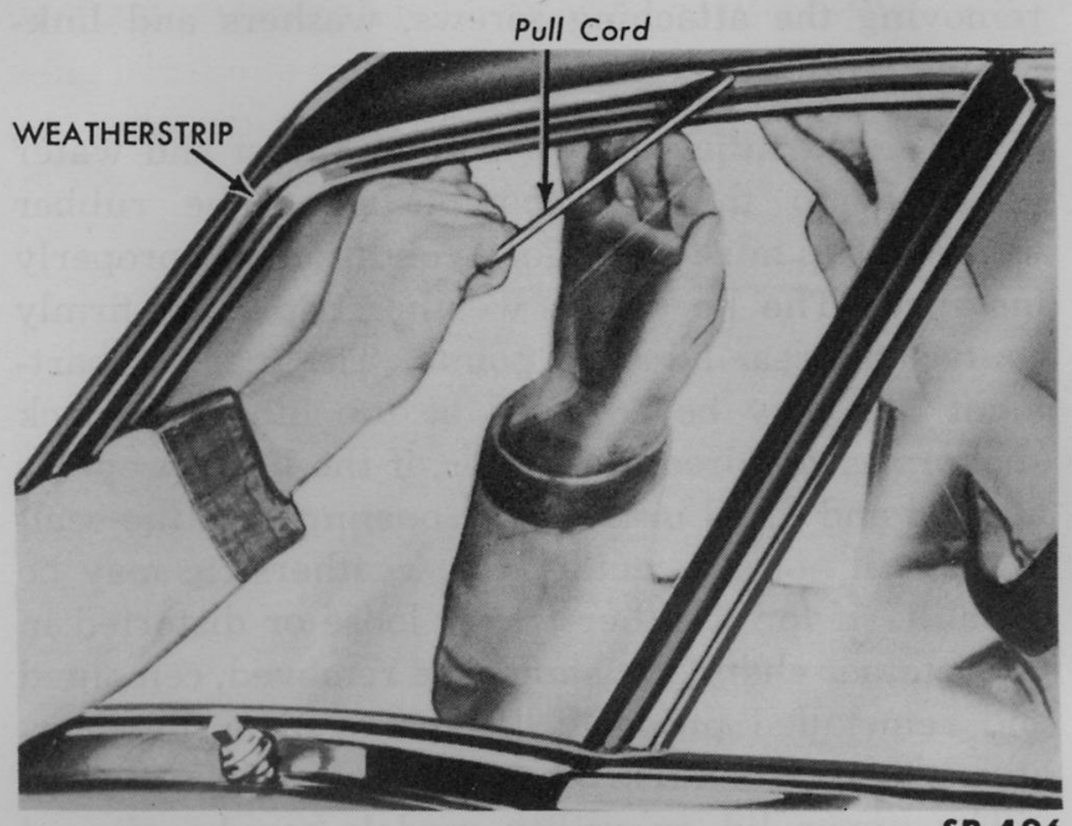


Fig. 366—Installing Windshield—Frazer

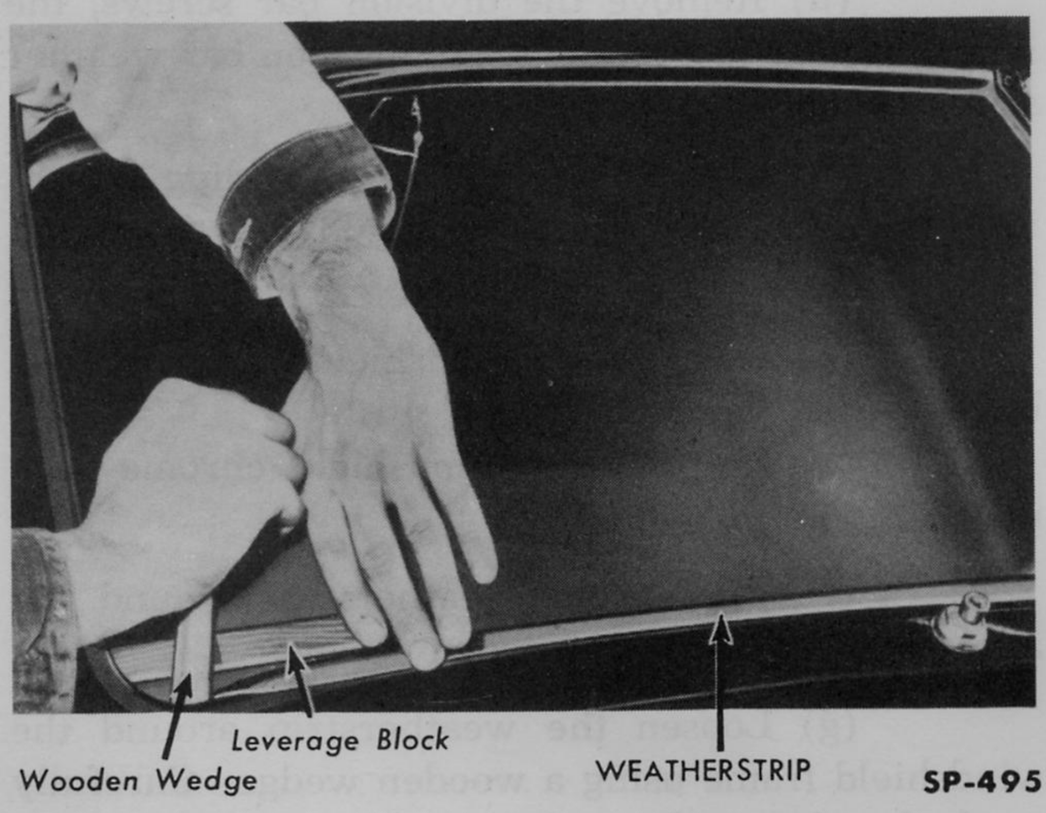


Fig. 365—Removing Windshield—Frazer

(e) Fill the weatherstrip channel with suitable sealing compound using a wooden wedge.

(f) Install the garnish mouldings and attaching screws at the inside of the windshield glass.

(g) Place the outer division bar against the windshield and install the weather seal, the division bar retainer and the inner division bar. Install the attaching screws.

(h) Install the chrome trim moulding (if used).

(i) Remove excess sealing compound and clean both windshield glasses.

(j) Test the windshield for leakage.

(k) Install the windshield wiper arm and blade.

(l) Remove the masking from the instrument panel and windshield frame.

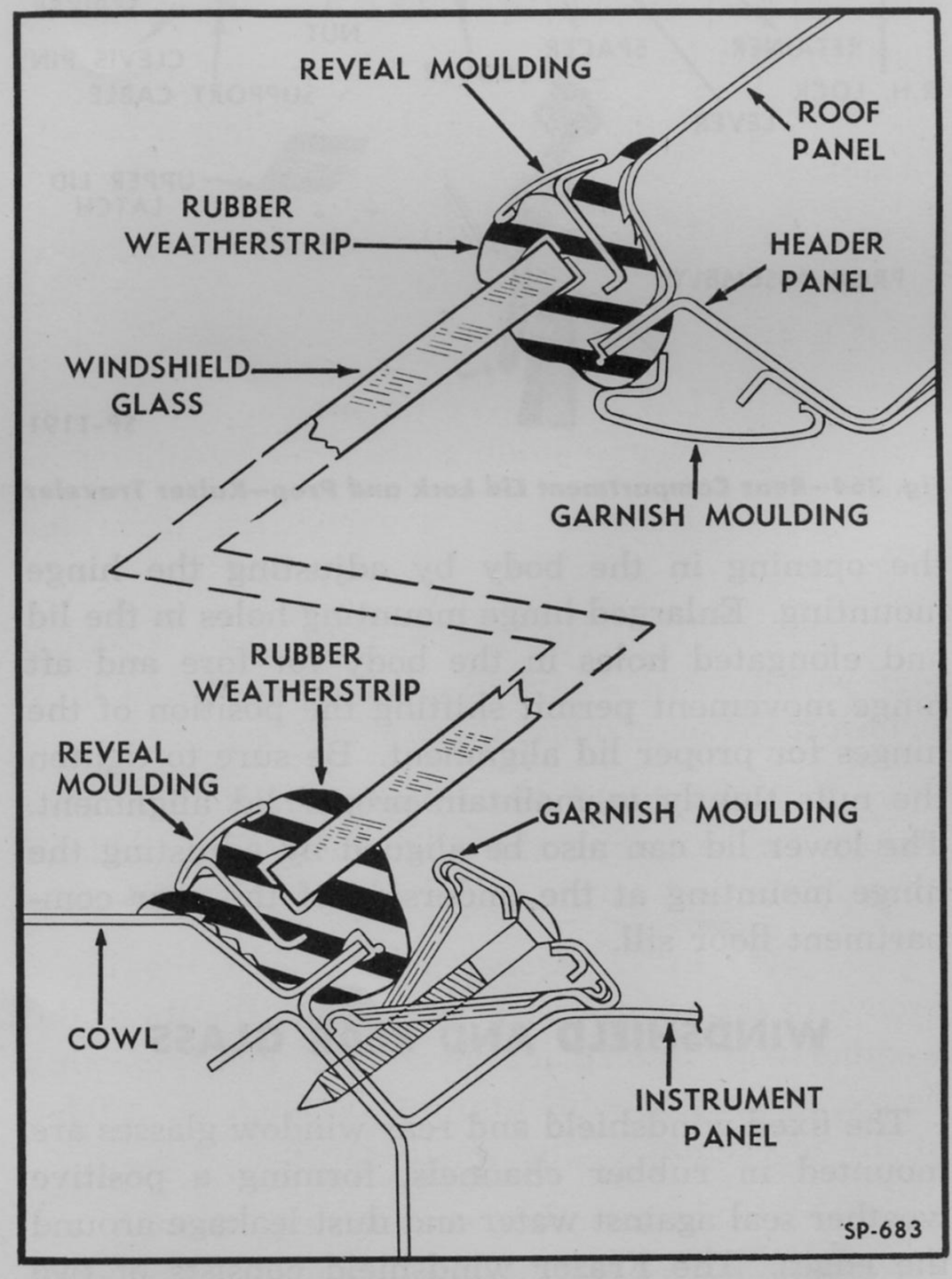


Fig. 367—Windshield Installation—Sectional View—Kaiser

b. WINDSHIELD GLASS REPLACEMENT—KAISER. The windshield consists of two pieces of curved glass separated by a division bar and mounted in a one piece moulded rubber weatherstrip which is assembled in the body opening. The windshield assembly is installed from the outside of the body and is secured in the opening by the rubber weatherstrip and the interior garnish moulding (Fig. 367) The windshield is set at an angle of 51½ degrees from vertical.

Two types of windshield weatherstrip are used, one without a chrome exterior reveal moulding, the second type with a chrome exterior reveal moulding. The latter type is used on deluxe models and some vehicles of the special model. The chrome reveal mouldings are attached by an integral flange which fits into a groove in the weatherstrip as shown sectionally in Fig. 367.

1. Windshield Glass Removal. The windshield assembly, including the weatherstrip, glass and the reveal mouldings must be removed from the vehicle as a unit. Proceed as follows:

(a) Remove the interior garnish moulding and division bar.

(b) Remove the windshield wiper arms and blades.

(c) Pressing from the inside work the glass and weatherstrip out of the body opening until the glass is free for removal.

(d) Lay the glass on soft clean surface and remove the reveal mouldings from the weatherstrip.

(e) Remove the weatherstrip from the glass.

(f) Thoroughly clean the body opening and weatherstrip channels. If the weatherstrip is deteriorated or cracked it should be replaced.

2. Windshield Glass Installation. The procedure for installing the windshield is as follows (Fig. 368).

(a) Fit a strong cord around the inner groove of the weatherstrip for pulling the lip of the weatherstrip into place over the body opening flange. Allow the ends to protrude from the groove at the top center of the weatherstrip.

(b) Install the weatherstrip around the glass using sealer as required in the glass groove of the weatherstrip channel. The windshield weatherstrip also requires sealer in the division strip groove.

(c) Install the chrome mouldings, fitting the flange into the groove in the weatherstrip, and install the corner clips.

(d) Place the glass and weatherstrip assembly in position in the body opening from the outside of the vehicle.

(e) With the aid of a helper outside the body pushing against the glass and weatherstrip, pull the cord ends, working from the top center, across the top, down the sides and across the bottom, pulling the lip of the weatherstrip into place over the flange of the body opening. **NOTE:** In some cases a better fit of the glass in the opening may be obtained by installing the glass starting at the bottom instead of the top.

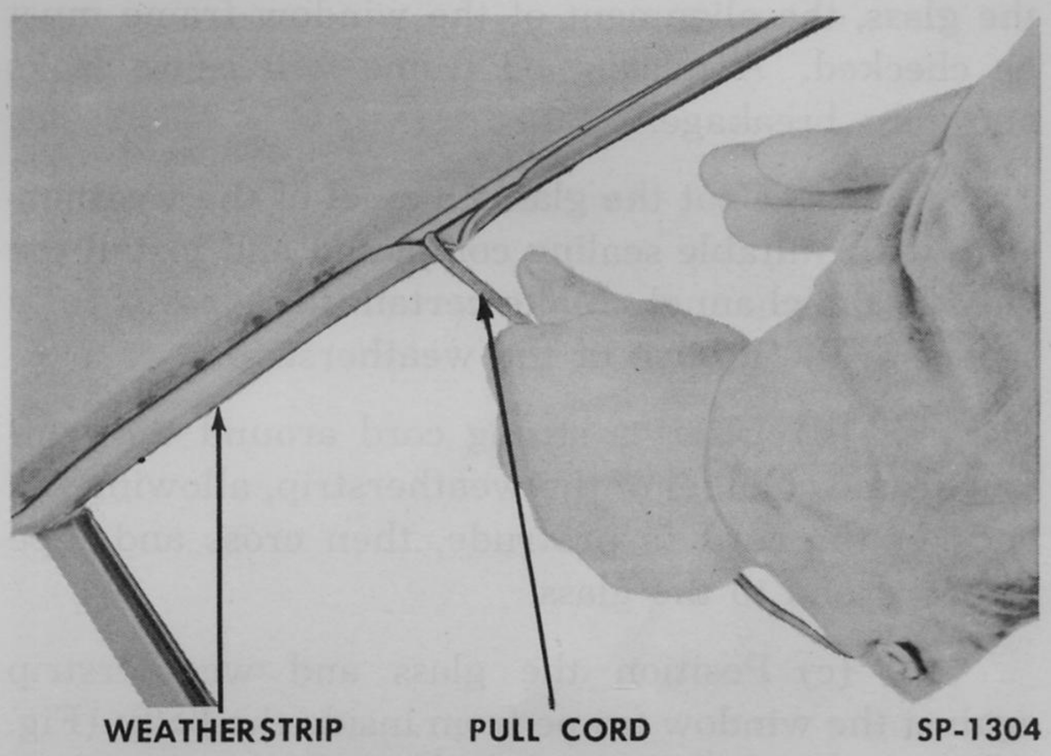


Fig. 368—Installing Windshield—Kaiser

(f) Install the interior garnish mouldings, attaching with screws. Also install the exterior division bar reveal moulding using screws.

(g) Water test the finished installation to be sure there is no leakage.

(h) Install the windshield wiper arms and blades.

c. REAR WINDOW GLASS REPLACEMENT — FRAZER. The rear window glass is sealed in the channel of a one piece rubber weatherstrip mounted around the rear window frame. In addition to the rubber weatherstrip an outer chrome trim moulding and an interior garnish moulding are used.

1. Rear Glass Removal. Remove the rear

glass and the weatherstrip together. Proceed as follows:

(a) Remove the chrome trim moulding by removing the snap-on clips and carefully work the moulding free from the weatherstrip.

(b) Remove the interior garnish moulding by removing the attaching screws and working the moulding free of the weatherstrip.

(c) Press out the glass and weatherstrip toward the inside of the car using a wooden wedge to loosen the weatherstrip from the rear window frame.

(d) Remove the weatherstrip from the glass and clean all sealing compound from the weatherstrip channels and the window frame.

2. Rear Glass Installation. Before installing the glass, the alignment of the window frame must be checked. A misaligned frame will cause leaks and glass breakage.

(a) Coat the glass channel of the weatherstrip with suitable sealing compound and install the glass in the channel. Make certain the glass is fully seated in the groove of the weatherstrip.

(b) Insert a strong cord around the window frame channel of the weatherstrip, allowing the ends of the cord to protrude, then cross and tape the cord end to the glass.

(c) Position the glass and weatherstrip against the window frame from inside the body (Fig. 369) and, with a helper pressing against the glass, pull the ends of the cord downward and around the frame to force the lip of the weatherstrip over the window frame.

(d) Fill the lip of the weatherstrip around the window frame with suitable sealing compound to provide a positive weather seal. Clean off excessive sealing compound and test for leaks.

(e) Install the interior garnish moulding.

(f) Install the chrome reveal moulding.

d. REAR WINDOW GLASS REPLACEMENT — KAISER. The curved window glass is sealed in the channel of a one piece rubber weatherstrip mounted around the rear window frame. In addition to the rubber weatherstrip an outer chrome reveal moulding and an interior garnish moulding are used.

1. Rear Glass Removal. Remove the rear glass and the weatherstrip as a unit. Proceed as follows:

(a) Remove the garnish moulding.

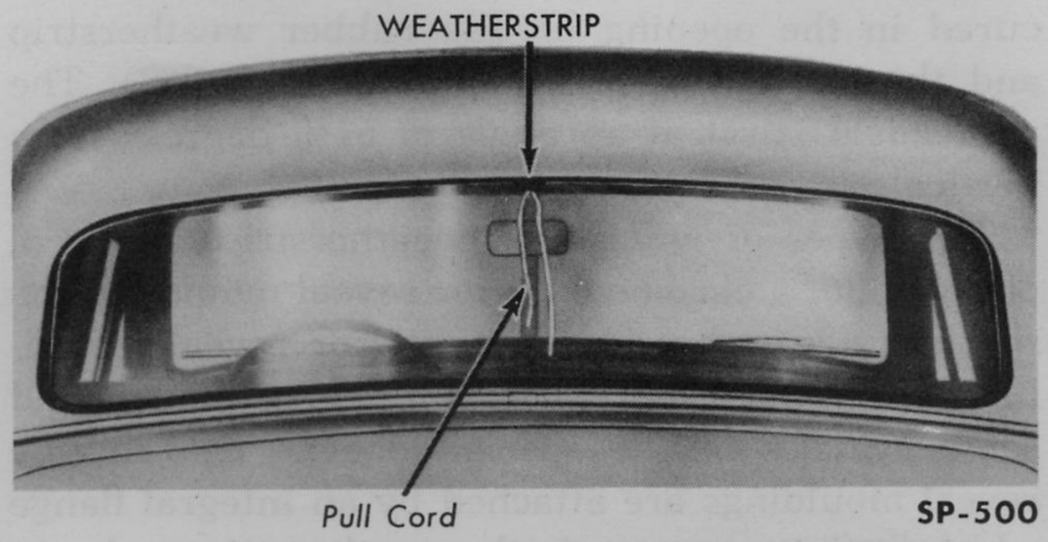


Fig. 369—Rear Glass in Place Ready to Install—Frazer

(b) Pressing from the inside work the glass and weatherstrip out of the body opening until it is free for removal.

(c) Lay the glass on a soft clean surface and remove the reveal moulding from the weatherstrip.

(d) Remove the weatherstrip from the glass.

(e) Thoroughly clean the body opening and weatherstrip channels. If the weatherstrip is deteriorated or cracked it should be replaced.

2. Rear Glass Installation. The rear glass weatherstrip and reveal mouldings must be assembled and installed in the vehicle as a unit as follows:

(a) Fit a strong cord around the inner groove of the weatherstrip for pulling the lip of the weatherstrip into place over the body opening flange.

(b) Install the weatherstrip around the glass using sealer as required in the glass groove of the weatherstrip channel.

(c) Install the chrome mouldings, fitting the flange into the groove in the weatherstrip, and install the corner clips.

(d) Place the glass and weatherstrip assembly in position in the body opening from the outside of the vehicle.

(e) With the aid of a helper outside the body pushing against the glass and weatherstrip, pull the cord ends, working from the bottom center,

across the bottom, up the sides and across the top, pulling the lip of the weatherstrip into place over the flange of the body opening (Fig. 370).

(f) Install the interior garnish mouldings, attaching with screws.

(g) Water test the finished installation to be sure there is no leakage.

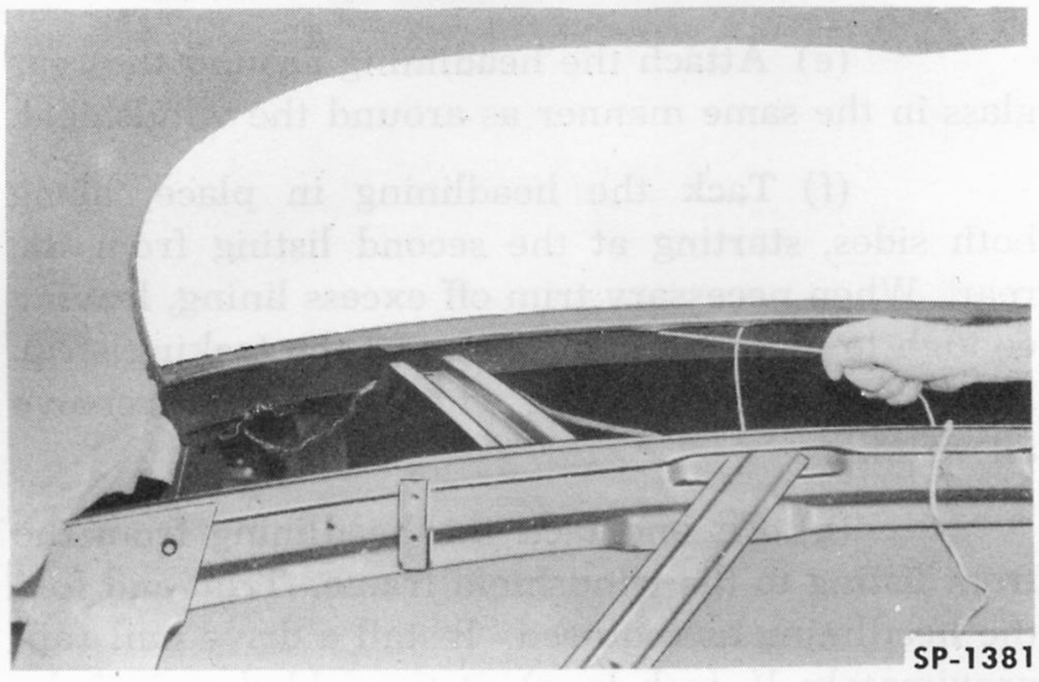


Fig. 370—Rear Glass in Place Ready to Install—Kaiser

INTERIOR TRIM AND SEATS

Interior trim of various materials and colors has been designed and styled to blend with seat upholstery, other appointments and exterior color of the vehicle. Included in the interior trim are the headlining, front and rear door trim panels, cowl trim panel, center pillar trim panels, rear quarter trim panels and floor mats. On the Kaiser Deluxe models a Vinyl covered padding is applied to the upper instrument panel to enhance the interior appointments.

Seat frames are of all steel construction, upholstered in a choice of quality tailored material combinations to match the interior trim. Beneath the upholstering is a series of springs bound together in the seat or seat back frame. Heavy padding, securely bound, covers the springs and is covered in turn by the exterior upholstering material. Airfoam padding is used to increase passenger comfort (Figs. 371 and 372).

a. INSTRUMENT PANEL COVER REPLACEMENT—KAISER. The padded vinyl cover on Deluxe models is replaceable, with use of a special service replacement cover. Fully detailed instructions are supplied with the new cover, providing procedure for removal of the old cover and installation of the new. Follow the instructions in the sequence given.

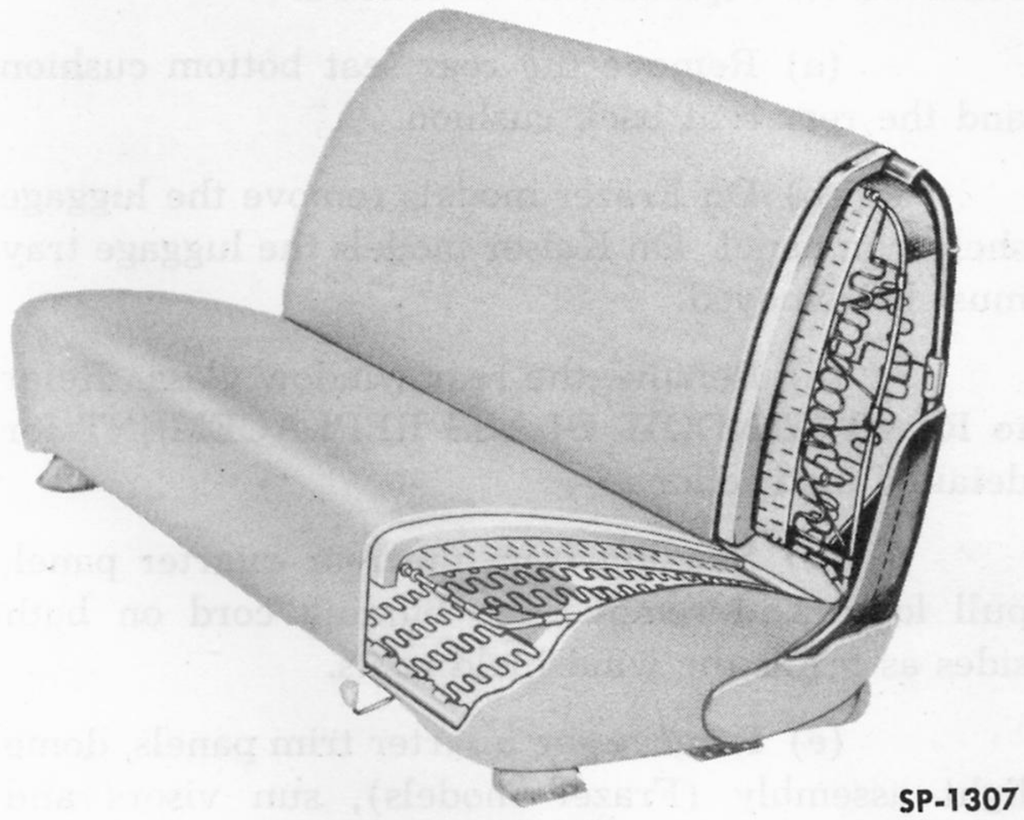


Fig. 371—Seat Construction—Kaiser

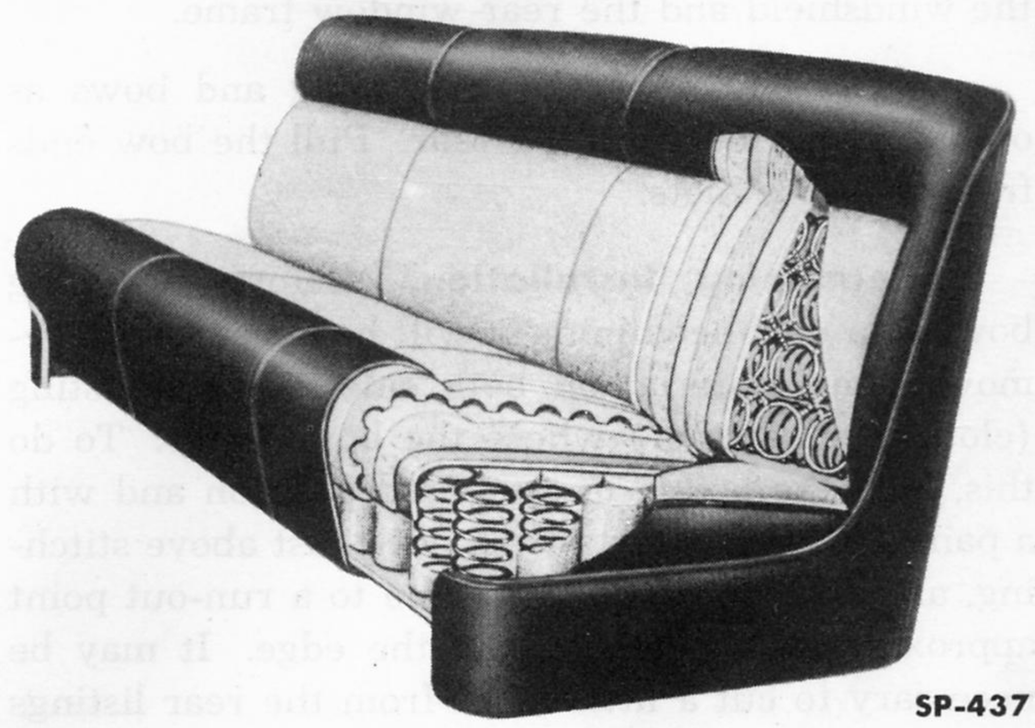


Fig. 372—Seat Construction—Frazer

b. HEADLINING. The headlining, or inside covering for the steel roof panel, is held in place by a series of curved steel bows attached to the roof sill and running across the inside of the roof panel. The bows are inserted through the headlining listings and form and hold the headlining to the contour of the roof panel.

All Frazer models are equipped with five bows for the headlining. All Kaiser models are equipped with seven bows. The ends of the bows are held in

place by spring tension when inserted in rubber grommets located in the roof panel.

1. Headlining Removal. The headlining is removed for replacement as follows:

(a) Remove the rear seat bottom cushion and the rear seat back cushion.

(b) On Frazer models remove the luggage shelf trim panel. On Kaiser models the luggage tray must be removed.

(c) Remove the rear window glass. Refer to REAR WINDOW GLASS REPLACEMENT for detailed instructions.

(d) Starting from the rear quarter panel, pull loose and remove the binding cord on both sides as far as the windshield posts.

(e) Remove the quarter trim panels, dome light assembly (Frazer models), sun visors and windshield garnish mouldings.

(f) Remove the tacks and staples from both sides of the headlining. Unhook the lining at the windshield and the rear window frame.

(g) Remove the headlining and bows as one unit starting from the rear. Pull the bow ends from the grommets.

2. Headlining Installation. Before installing bows in a new headlining it will be necessary to remove some material on both sides of each listing (cloth bow retainer) where the bows enter. To do this, hold the listing in a creased position and with a pair of scissors, start at the edge just above stitching, and shear on a diagonal line to a run-out point approximately 3 inches from the edge. It may be necessary to cut a little more from the rear listings due to the larger bend in the rear bows. This cutting operation is necessary to prevent the listings from piling up on the bows and to allow the headlining to be stretched in place. Proceed as follows:

(a) Bows for Frazer models are numbered 1 to 5 and Kaiser models are numbered 1 to 7, starting at the front. This method will avoid installing a bow in the wrong place.

(b) Before installing the new headlining, check the weather cord on both sides for sags and retack where necessary. Tack spacing on weather cord should be approximately 3 inches.

(c) Install the new headlining and bows starting with the rear bow. Pull headlining even at sides to center it on the bows and remove all wrinkles. Locate rear bow by hooking onto prongs at rear of roof.

(d) Stretch the headlining forward and fasten into place around the windshield header by engaging on hooks and using trim cement. Start at center and work outward removing wrinkles.

(e) Attach the headlining around the rear glass in the same manner as around the windshield.

(f) Tack the headlining in place, along both sides, starting at the second listing from the rear. When necessary trim off excess lining, leaving enough to permit folding under at the tacking strip. Pull down at each listing when tacking to remove all wrinkles.

(g) Fit and tack the headlining from the front listing to the windshield frame. Trim and fold the headlining as required. Install a drive nail (approximately ½ inch long) at the folded end of the headlining on the A post to hold it securely. Pierce the metal to permit nail installation. Trim excess headlining from around windshield and rear window openings.

(h) Fit and tack the headlining at the rear quarter panels. Remove old tacks and staples from rear quarter trim panels and install panels using new nails.

(i) Remove the old tacks and staples from the binding cords and install the binding cords with new tacks (working from front to rear).

(j) On Frazer models cut the headlining for the dome light and fold the excess material into the opening. Install the dome light assembly.

(k) With the thumb, locate the recesses for the spring on each sun visor bracket, then pierce a hole in the headlining for each visor and install the visors.

(l) Install the windshield garnish mouldings and the rear luggage shelf (Kaiser) or trim panel (Frazer).

(m) Install the rear back and seat bottom cushions.

(n) Install the rear window glass. Refer to REAR WINDOW GLASS REPLACEMENT.

(o) To remove any wrinkles from the headlining, apply steam to and around the affected area.

c. SIDE TRIM PANELS. The trim panel assemblies consist of waterproof cardboard foundation cut to the shape of the particular body or door panel to be covered. Padding and trim cover are applied and secured to the foundation to complete each trim panel. The trim panels are installed on the body or door panel by spring clips and screws. Trim panel chrome moulding is secured to the panel clip retainers on Frazer models.

The door trim panels may be replaced by removing the garnish moulding, window regulator handle, assist handle, and the arm rest. Use a screwdriver to pry the trim panel off the door.

Garnish mouldings used at door and side windows of the Kaiser models are aluminum die cast instead of the conventional stamped steel type. Flexibility of this die cast moulding is comparable to the stamped steel type used on the Frazer. Remove all the attaching screws and lift off the garnish moulding.

Garnish mouldings at the windshield and rear glass of both Kaiser and Frazer models are stamped steel, attached with screws.

d. FRONT AND REAR SEATS. The front and rear seats are designed to provide maximum comfort and durability. The rear seat consists of removable seat and seat back cushions attached to anchor points of the body.

The front seat is adjustable forward and backward at the driver's discretion. The sliding type adjuster mechanism is operated by a handle easily accessible on the lower left side of the front seat cushion (Figs. 373 and 374). The front seat and seat back cushions are attached to the seat frame on Frazer models, and both cushions are removable. Folding arm rests used in some models are an integral part of the seat back construction.

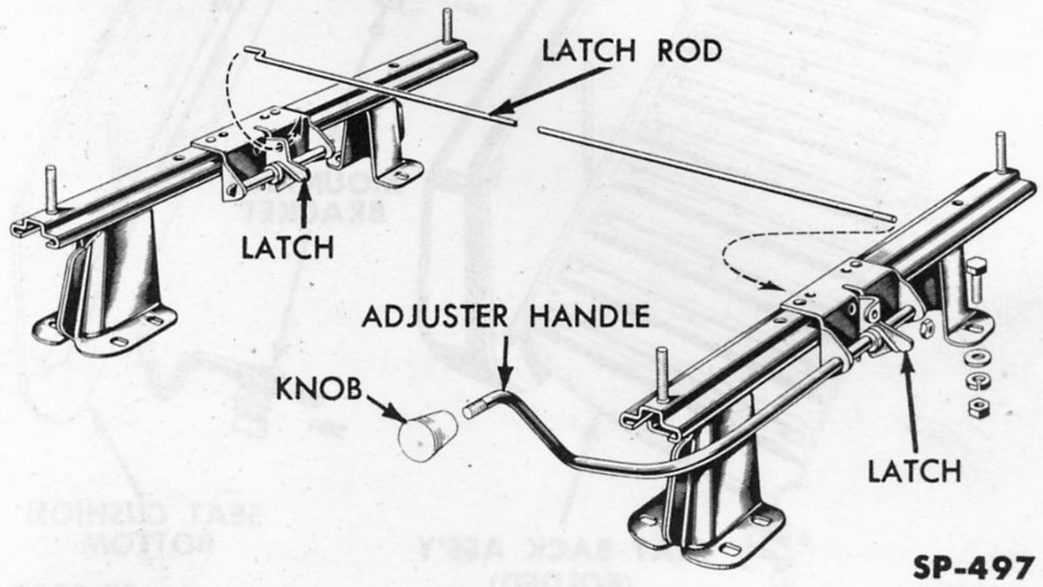


Fig. 374—Front Seat Adjusting Mechanism—Frazer

On Kaiser models the front seat cushion and seat back are an integral part of the seat frame. The seat back cushion and frame is bolted to the seat cushion frame at each side. The Kaiser two door and coupe models have split-back type front seat back cushion.

The rear seats of the Kaiser Traveler and Frazer Vagabond utility models are designed to fold forward forming a flat bed with the rear floor pan. Both the rear seat bottom cushion and seat back of

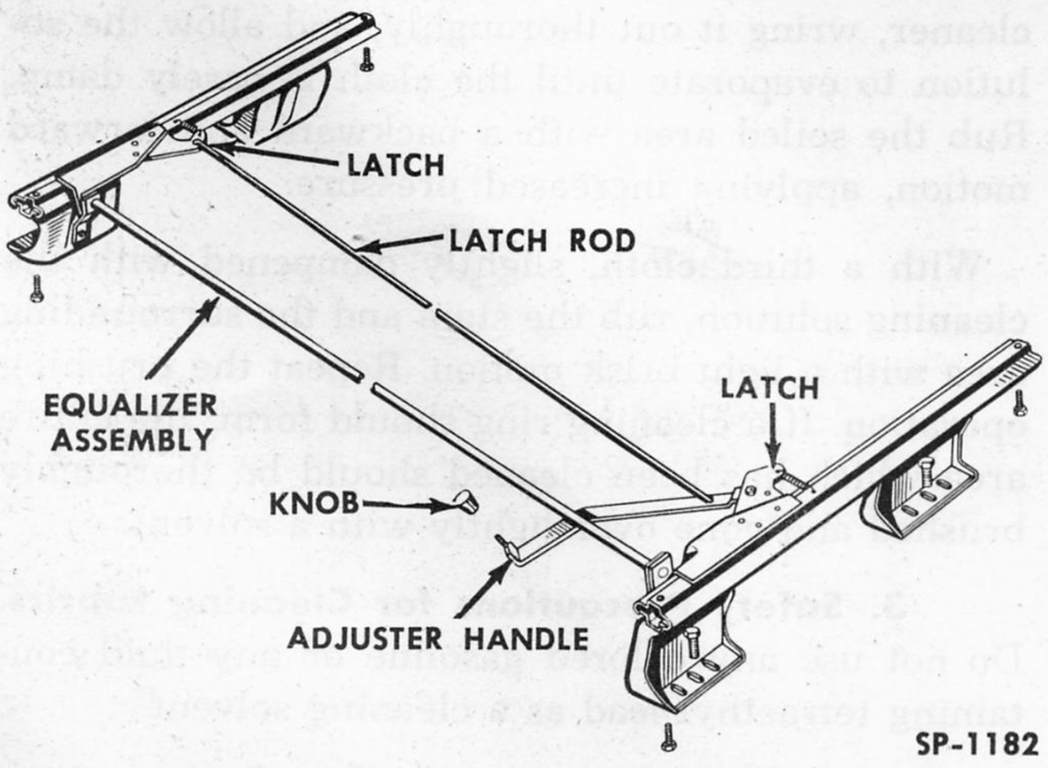


Fig. 373—Front Seat Adjusting Mechanism—Kaiser

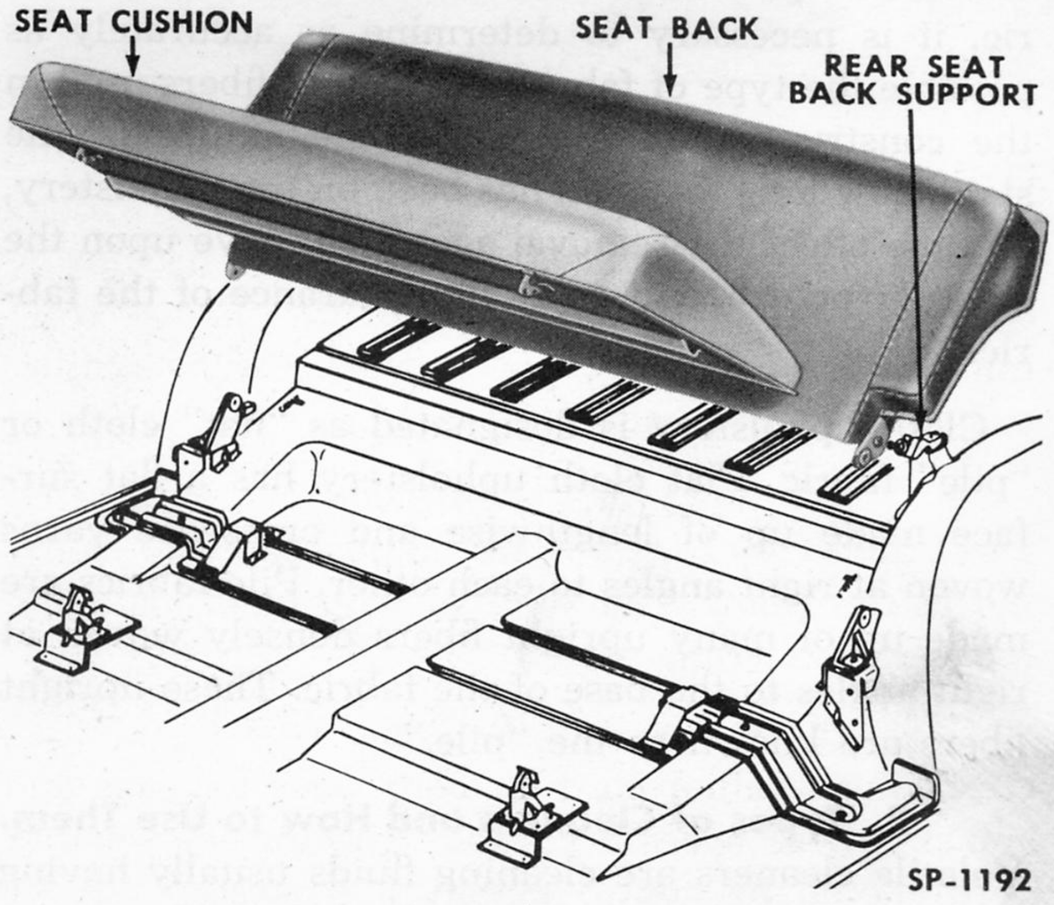


Fig. 375—Folding Seat—Kaiser Traveler

these models are mounted on pivot brackets which permit folding of the seat and seat back cushions (Figs. 375 and 376).

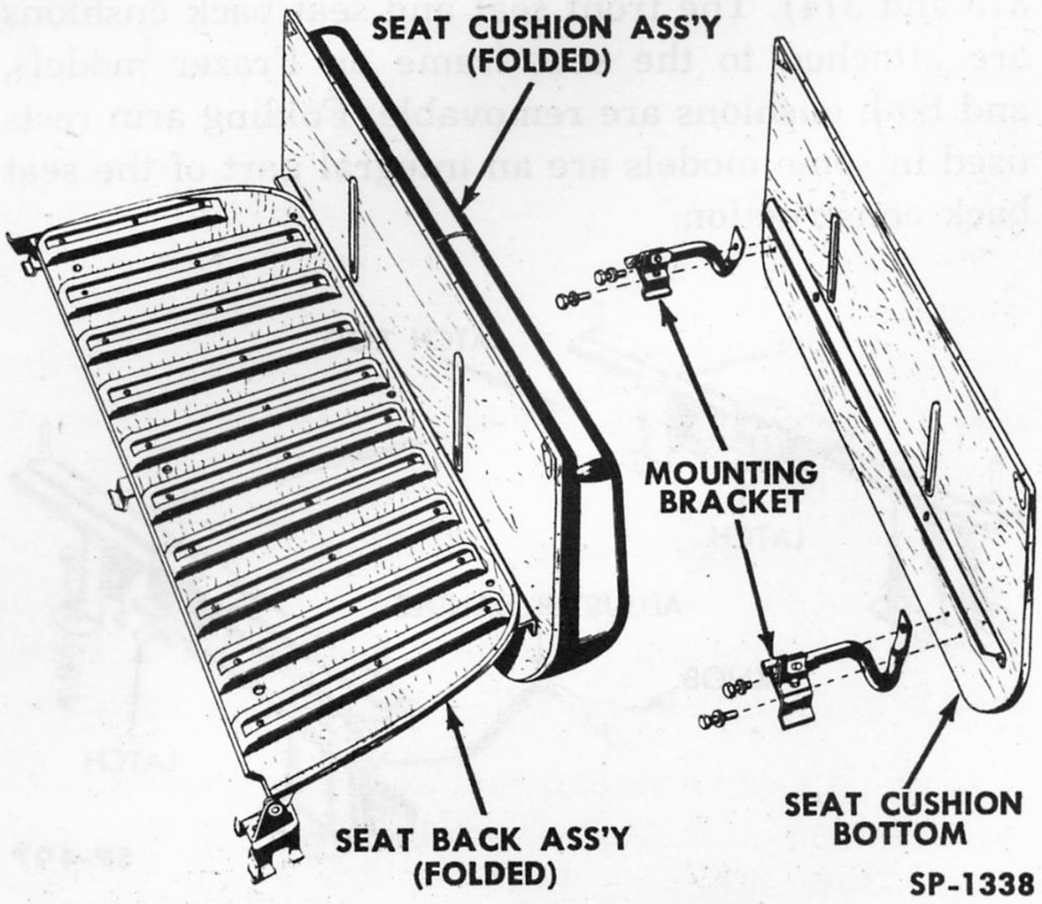


Fig. 376—Folding Seat—Frazer Vagabond

e. CLEANING CLOTH UPHOLSTERY. Cloth upholstery requires periodic cleaning to retain its natural beauty and give satisfactory service. Dust and dirt particles that fall on the surface of the upholstery can be readily removed with a whisk broom or vacuum cleaner. If the upholstery is unusually dusty, the seats should be removed before cleaning.

1. General Information. Before attempting to remove spots and stains from the upholstery fabric, it is necessary to determine as accurately as possible the type of fabric, the type of fibers used in the construction of the fabric, the nature of the stain, how long the stain has been on the upholstery, and the effect the removal agent will have upon the color, structure, and general appearance of the fabric.

Cloth upholstery is designated as "flat" cloth or "pile" fabric. Flat cloth upholstery has a flat surface made up of lengthwise and crosswise yarns woven at right angles to each other. Pile fabrics are made up of many upright fibers densely woven at right angles to the base of the fabric. These upright fibers are known as the "pile."

2. Types of Cleaners and How to Use Them. Volatile cleaners are cleaning fluids usually having a carbon tetrachloride or naptha base and are recommended for removing grease, oil, road grime, and certain stains as later noted in this Section. Alkaline cleaners are **not** recommended for use because of possible damage to the fabric.

Soap and water may be used provided that the soap is a neutral and nonalkaline agent. Soap should be used with lukewarm water and should be formed into a frothy suds. The suds should be applied with a damp cloth, sponge, or soft brush. When applying soap suds to pile fabrics, rub with the pile, not against it.

Soap suds should be removed with a clean damp cloth, or damp sponge. After removal, wipe the surface thoroughly with a dry cloth. While the pile is still damp, brush it lightly with a whisk broom or a medium stiff brush. After the upholstery has dried, brush again, this time against the pile.

Soap and water is not recommended for cleaning flat cloth upholstery. Water is destructive to this type of finish and causes the nap to curl and roughen.

When using volatile cleaners, care should be taken to always use clean cloths and to carefully gauge the quantity of solvent used in the cleaning operation. Permit the solvent to do the cleaning work by using only a minimum of friction or pressure.

To obtain the best results, dip a small cloth pad into the cleaning solution, wring it out thoroughly, and allow part of the solution to evaporate. Place the cloth on the stain for a few seconds, then use a tapping pressure several times. This will pick up particles embedded in the cloth. After all loose particles have been removed, dip a new cloth into the cleaner, wring it out thoroughly, and allow the solution to evaporate until the cloth is barely damp. Rub the soiled area with a backward and forward motion, applying increased pressure.

With a third cloth, slightly dampened with the cleaning solution, rub the stain and the surrounding area with a light brisk motion. Repeat the brushing operation. If a cleaning ring should form, the entire area which has been cleaned should be thoroughly brushed and gone over lightly with a solvent.

3. Safety Precautions for Cleaning Fabrics. Do not use any colored gasoline or any fluid containing tetraethyl lead as a cleaning solvent.

Do not use bleaches or reducing agents such as

chloride of lime, hydrogen peroxide, sodium hydrosulphite, potassium permanganate, chlorine solutions, sulphurous acid, and sodium thiosulphate. These solutions may weaken the fabric and change the color. Always select a cleaning solvent of proved quality.

Exercise every precaution and care when using cleaning solvents (carbon tetrachloride is not inflammable). Do not permit cleaning solvents to come in contact with the skin. Do not breathe the fumes of cleaning solvents. When using oxalic acid, keep it out of reach of children and away from your mouth. It is a deadly poison.

Do not use too much cleaning fluid because some interior trim assemblies are padded with rubber, and volatile cleaners are usually solvents for rubber.

4. Instructions for Removal of Specific Types of Stains. Stains and spots which cannot be successfully removed by the methods previously outlined are covered in the following paragraphs. It must be expected in some cases, particularly when water treatment is specified, that discoloration and finish disturbance may be preferable to the stain itself and if proper care and caution in applying the following methods is exercised, reasonably satisfactory results can be expected.

(a) *Battery Acids.* Saturate the spot with ordinary household ammonia water or with a saturated solution of baking soda. Permit the ammonia water or baking soda to remain on the spot for about one minute to neutralize the acid. Rinse the spot by rubbing with a clean cloth thoroughly wet with cold water. This treatment will remove old and new stains. However, no type of treatment will repair fibers which have been damaged from the action of the acids, particularly after the spot has dried. It is, therefore, necessary that the spot be treated as quickly as possible. If the spot is allowed to remain for even a few minutes the acid will probably eat a hole in the material.

(b) *Blood.* Rub the stain with a clean cloth wet with cold water until no more of the stain can be removed. Change position of the cloth frequently so that clean portions are being used to rub the stain. If all the stain cannot be removed with cold water, apply a little household ammonia water. After about a minute, rub the stain again with a clean wet cloth. If the stain remains after both water and ammonia have been used, prepare a thick paste of corn starch and cold water. Apply the paste to the stained area and allow it to dry. Pick off the dry starch and brush the surface thoroughly. Hot water or soap and water must never be used on blood stains as their use will set the stain, making it practically impossible to remove.

(c) *Candy.* Candy stains other than candy containing chocolate can be removed with a cloth and very hot water. If the stain is not completely removed with the hot water, allow the spot to dry and rub with a cloth dampened with carbon tetrachloride.

Candy stains resulting from cream and fruit filled chocolates can be removed with a cloth soaked in lukewarm soap suds, together with scraping, while wet, with a dull knife. Rinse spot with cold water.

Chocolate or milk chocolate can be removed with lukewarm water. After the spot is dry, sponge with carbon tetrachloride.

(d) *Chewing Gum.* Moisten the spot with carbon tetrachloride and scrape off with a dull knife while still moist.

(e) *Enamel, Paint, and Lacquer.* Enamels, paints, and lacquers are compounds of two or more of the following materials: drying oils, driers, gums, resins, pigments, organic solvents, and other materials. Therefore, the quality, brand, and color of the paint, enamel or lacquer causing the spot are important factors governing the ease with which the spot may be removed. Some pigments, gums, and oils are much more easily removed than others. If the stain is old it will be much harder to remove. It is important, therefore, that the stain be removed as quickly as possible. If the stain is not dried, remove as much as possible with turpentine or with a solvent composed of one part denatured alcohol and one part benzene. For dry stains, saturate the spot with the solution of alcohol and benzene, then work out as much of the paint as possible with a dull knife. After repeating the above treatment several times, saturate the stain with the particular paint remover for the type of paint involved and rub the spot vigorously with a clean cloth saturated with lukewarm soap suds. Rinse with cold water.

(f) *Fruits.* Fruit stains can usually be removed with very hot water. Scrape all excess pulp, if any, off the fabric with a dull knife, then rub

vigorously with a cloth dipped in very hot water. If this does not remove the stain, allow it to dry and treat with carbon tetrachloride. Never use soap and water as this treatment will set the stain causing a discoloration which will be worse than the original stain.

(g) *Grease and Oil.* Scrape all excess grease from the fabric with a dull knife, then treat the spot with carbon tetrachloride, benzene, ether, or plain gasoline. Always use a clean portion of the cloth to rub the stain.

If the spot is very dark, pour a small amount of the solvent directly on the spot and immediately press with a white blotter. This will absorb much of the grease.

If after repeated treatments with the solvent the stain still remains, rub the spot with lukewarm suds and rinse with cold water.

(h) *Ice Cream.* Use the same procedure as that recommended for removing fruit stains. If the stain still remains, rub the spot with warm soap suds and rinse with cold water. Allow to dry, then sponge with carbon tetrachloride.

(i) *Ordinary Ink.* In general, ink spots cannot be completely removed from flat fabrics without injuring the fabric. The following methods of removal are listed in the order of their efficiency:

Rub Iron Rust Soap into the stain with the fingers. Let stand about a minute and wipe off with a dry cloth. Repeat the process until the cloth no longer shows a stain. Rinse with cold water.

Apply No. 1 Ink Eradicator solution to the spot with an eye dropper then apply a white blotter. Ink Eradicator No. 2 cannot be used because it will change the color of the fabric. Repeat the process until the blotting paper shows no stain. Rinse with cold water.

Use a saturated solution of oxalic acid in the same manner as No. 1 Ink Eradicator solution is used, explained in the preceding paragraph.

Use a 2 percent solution of sodium bifluoride in the same manner as No. 1 Ink Eradicator solution is used.

(j) *Iron Rust.* Rub the spot with warm soap suds and rinse with cold water. After the fabric has dried, treat the remaining stain in the same manner as described for ink spots.

(k) *Lipstick.* Apply carbon tetrachloride to the stain with a saturated cloth and immediately press a blotter firmly to the spot. Repeat this procedure using new sections of blotting paper until the stain is removed.

(l) *Liquor and Wine.* Treat exactly the same as fruit stains.

(m) *Mildew.* Fresh mildew stains can be removed with warm soap suds. Rinse with cold water. Old mildew growths can also be removed with the soap and water treatment, but a discoloration probably will remain. The treatment for removing this discoloration is as follows: Place a cloth over the stain and pour a 10 percent oxalic acid solution on the cloth to completely cover the stain. Allow it to remain for one minute, then remove the acid by alternately blotting with a dry blotting paper and pouring either cold or hot water on the stain.

(n) *Nausea.* Before the stain has had a chance to dry, sponge with clear cold water. After most of the stain has been removed in this manner, wash lightly with soap and lukewarm water. Rinse with cold water. If any stain remains, remove with carbon tetrachloride.

(o) *Shoe Polish.* For white shoe dressing, allow the polish to dry, then brush the spot vigorously. If this does not remove the stain, moisten the spot with cold water and after it has dried repeat the brushing operation.

This method applies particularly to white shoe dressing containing starch or dextrine, or some water soluble vehicle. Where water in soluble vehicles are used it is well to try carbon tetrachloride. If this treatment does not remove the spot, use the procedure as outlined for removing ink spots.

Black and tan polishes or dressings can usually be removed with carbon tetrachloride.

(p) *Tar.* Moisten the spot with carbon tetrachloride, benzene, or clear gasoline and scrape with a dull knife. Follow this operation by rubbing the spot with carbon tetrachloride.

(q) *Urine.* Sponge the stain with lukewarm soap suds and rinse with cold water, then

apply a mixture composed of one part household ammonia water and five parts cold water to the spot. Rinse with cold water.

(r) *Water Spots.* To remove water spots, sponge the entire panel showing the stain with cold water. Allow to dry then sponge with carbon tetrachloride.

f. CARE AND CLEANING OF LEATHER AND VINYL UPHOLSTERY. The interior leather upholstery, used in some special Kaiser and Frazer models, is the finest selection "snuffed" top grain, pyroxylin treated, cowhide. Its original beauty will last indefinitely, if properly cared for. Vinyl upholstering is used in both Kaiser Traveler and Frazer Vagabond models.

Cases of stickiness or loss of lustre of upholstery leathers or Vinyl are due to the use of polishes or cleaning preparations which injure the finish. Sufficient oil is retained in the leather upholstering during processing to last as long as it is in use. Never use furniture polishes, oils, varnishes, ammonia water, or cleaners on leather or Vinyl upholstery. They will soften the finish.

The following procedure is recommended for cleaning the leather or Vinyl upholstery:

1. Use lukewarm water and any mild soap.

2. Work up a thin suds on a piece of cheesecloth and apply to the surface.

3. Wipe the surface with a piece of damp cheesecloth without soap.

4. Finish by wiping the surface with a dry soft cloth. This will restore the original lustre.

NOTE: Pyroxylin treated leather is not a dyed leather, and the above instructions do not apply to dyed leather.

EXTERIOR TRIM

Body and fender mouldings (Fig. 377) are attached by means of fastener clips. The moulding and fastener clips are readily accessible for replacement. The moulding is designed to mate with the contours of the body to which it attaches. Flanges, running the

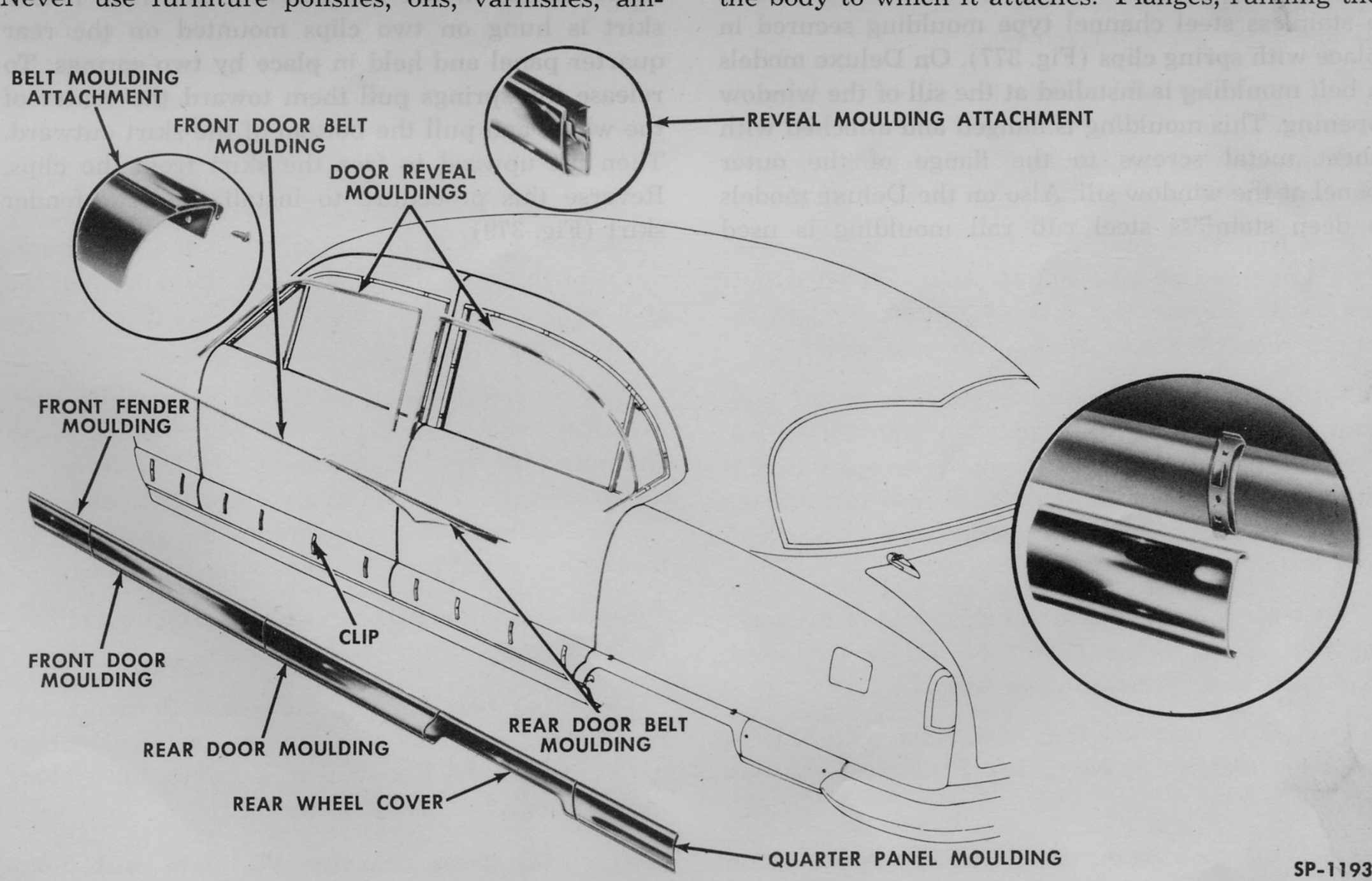
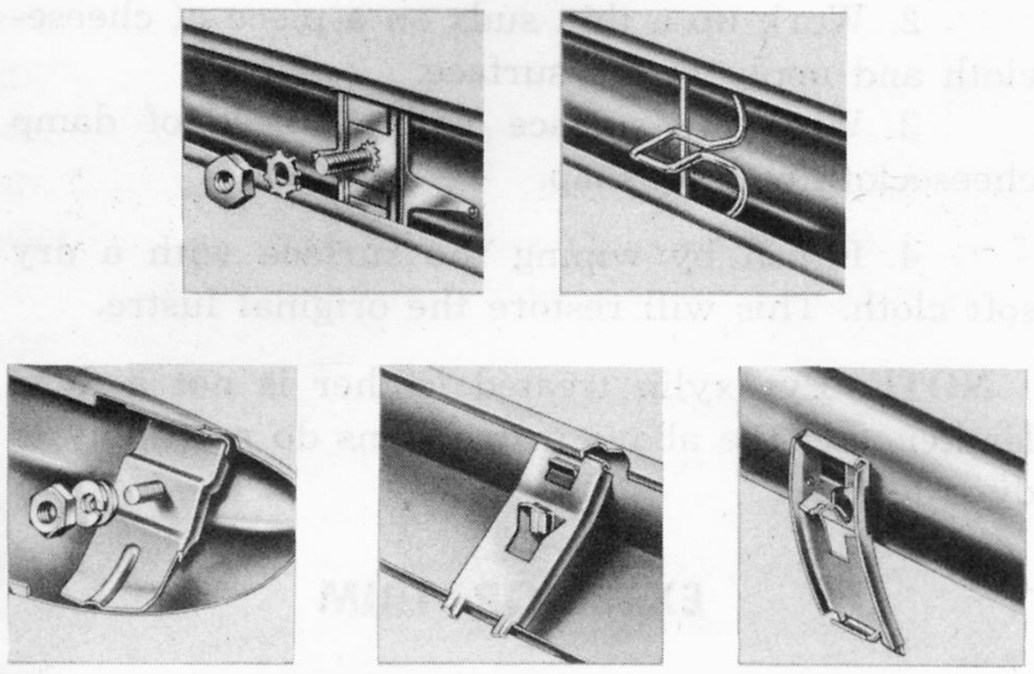


Fig. 377—Reveal, Belt and Rub Rail Mouldings—Kaiser

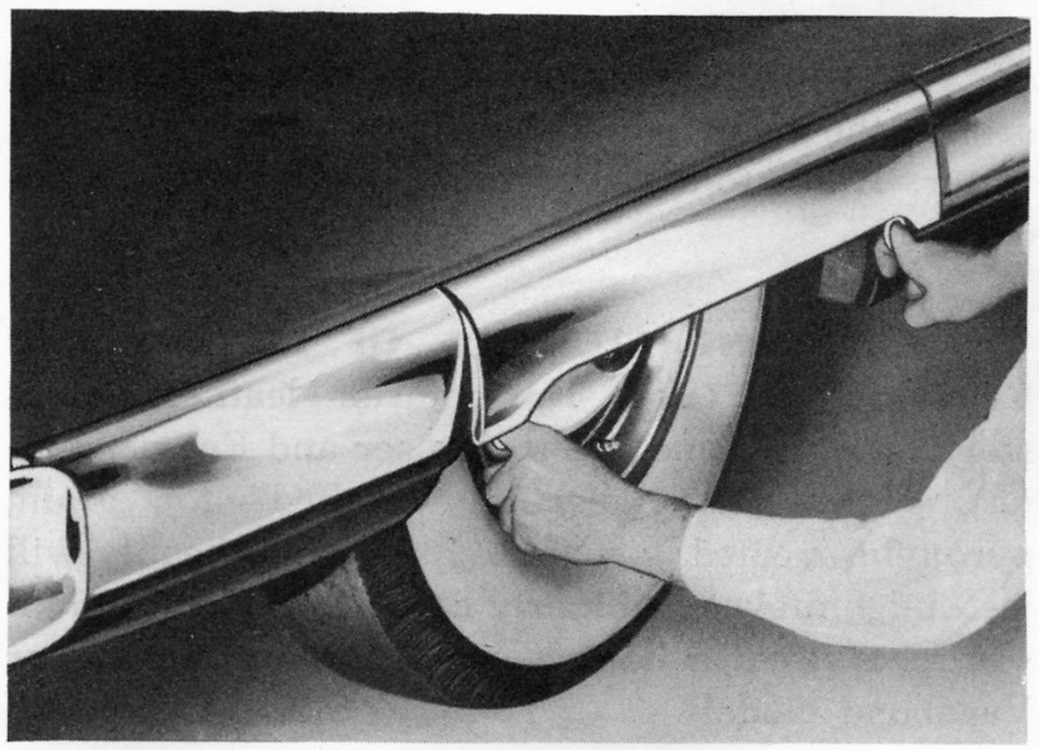
full length of both inside edges of the moulding, rigidly secure the fastener clips in place. The fastener clips, either a spring or stud type are fitted in the beads of the moulding and fastened to the body (Fig. 378).



SP-498

Fig. 378—Typical Body Moulding Clips

On the Kaiser models a reveal moulding is installed around the door window openings. This is a stainless steel channel type moulding secured in place with spring clips (Fig. 377). On Deluxe models a belt moulding is installed at the sill of the window opening. This moulding is flanged and attached with sheet metal screws to the flange of the outer panel at the window sill. Also on the Deluxe models a deep stainless steel rub rail moulding is used above the body sill and on some special models a narrow rub rail moulding is used (Fig. 377).



SP-725

Fig. 379—Removing Rear Fender Skirt—Kaiser Deluxe

On Deluxe Kaiser models chrome rear fender skirts are used as part of deluxe trim. To facilitate rear wheel removal for changing a tire the rear fender skirts should be removed. The rear fender skirt is hung on two clips mounted on the rear quarter panel and held in place by two springs. To release the springs pull them toward the center of the wheel and pull the bottom of the skirt outward. Then lift upward to free the skirt from the clips. Reverse this procedure to install the rear fender skirt (Fig. 379).