

MASTER TECHNICIANS SERVICE CONFERENCE 66-7

REFERENCE BOOK

CONVERTIBLE SERVICE



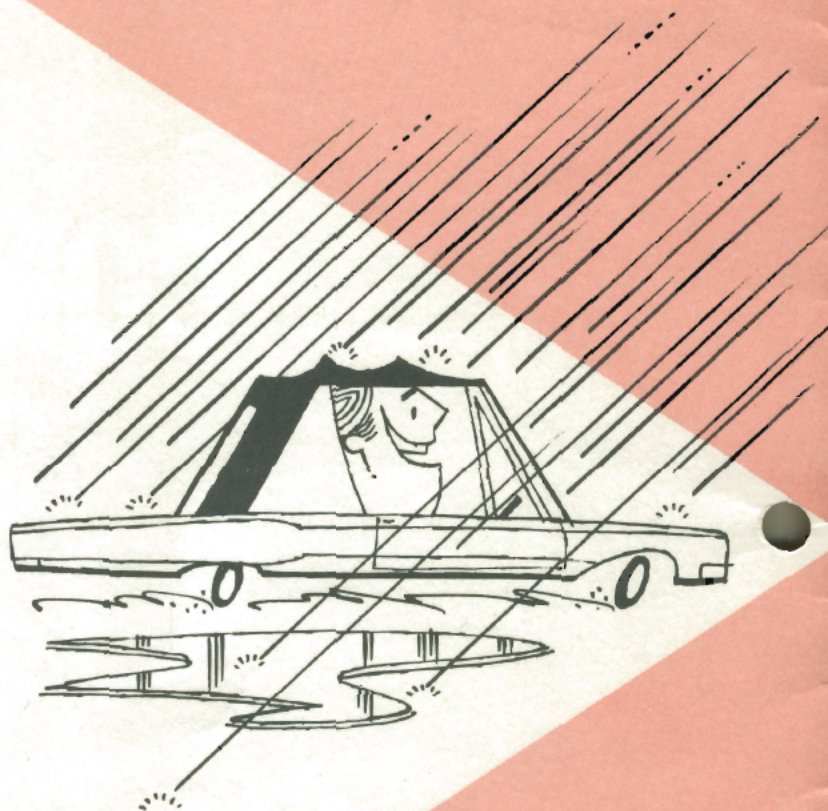
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There are people who say that everybody should own at least one convertible during his lifetime. Well, whatever your personal feelings about owning a soft top, we all know there are a lot of them around, and there will be a lot more, and sooner or later, a good number of them will be in for some kind of service.

Window and weatherstrip fits are important on any body style, and they are at least twice as important on a convertible. An owner who likes to be wind-blown on a nice, clear day can be mighty upset if a little bit of water or wind gets inside when the weather is not so nice. So, someone has to help him keep the bad weather outside the car where it belongs, and you Technicians are elected.

This session concentrates on the 1966 Belvedere and Coronet convertibles, but Tech figures that once you get these models down pat, you won't have any trouble on any of the other models. There are some features on the 66's that you probably haven't seen before. For instance, all the normal top adjustment points are accessible without removing any interior trim panels. That's a big time and worksaver in itself. Then, there are a couple of new adjustments you'll want to know about. So, read through this book, and keep it handy to help you with convertible adjustments.



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WHAT AND WHEN TO ADJUST



The fit of a convertible top to the windshield header and the side glass depends on a number of factors. The top does not present a fixed roof line to work from, but the top linkage and the side glass both have built-in adjustments to handle all normal fit problems. The glass can be moved to fit the top, or the top to fit the glass, depending on the condition to be corrected. But, before starting *any* adjustment, be sure you know just *what* the problem is, and *where* to make the adjustment to correct the problem.

INSPECT FIRST

CHECK GLASS ALIGNMENT

To have a good top-to-glass fit, it is necessary that the glass be properly aligned in the door and quarter panel. The vent wing, door glass and quarter glass should form a smooth contour from front to rear. So, the height of the glass and its forward-rearward attitude are of great importance.

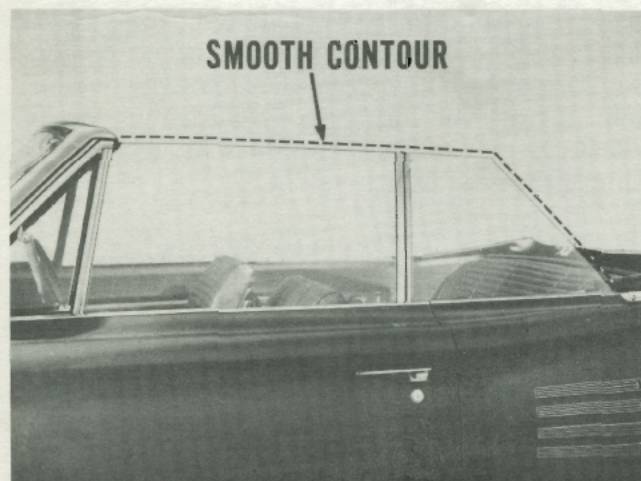


Fig. 1—Good glass alignment is important

CHECK DOOR FIT FIRST

Always inspect the fit of the door before attempting any glass adjustment. You don't stand much chance of getting a good glass fit if the door is not square in the opening, with equal spacing at the front, rear and bottom.

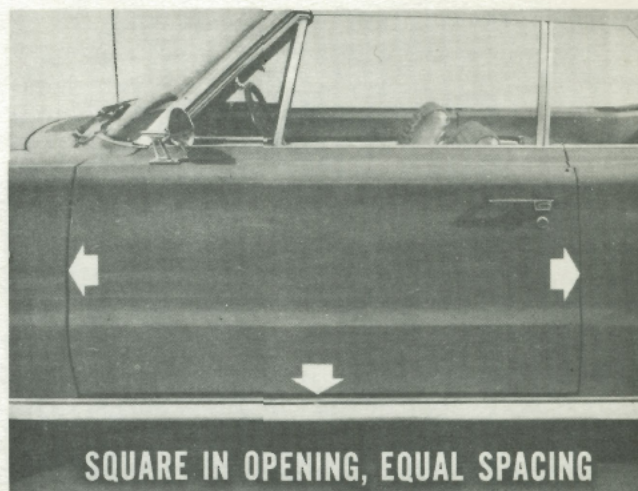


Fig. 2—Always check door fit first

Door hinge adjustments are explained completely in your Service Manual, so there is no need to repeat them here.

VENT WING IS THE KEY

The only really solid point of reference for glass adjustments is the windshield pillar. So, the position of the vent wing frame in relation to the pillar is the key to good glass alignment. Because the vent wing frame and the door glass front track are one piece, a small amount of misalignment at the vent frame can cause a

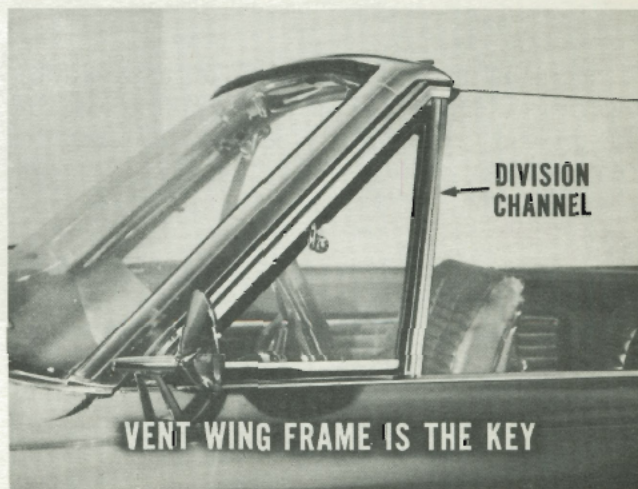


Fig. 3—Glass alignment starts at vent wing

much greater amount of misalignment at the rear of the door glass. And, since the quarter glass position is largely dependent upon the positioning of the door glass, correct adjustment of the vent wing is doubly important.

VENT WING TO PILLAR

To check the position of the vent wing frame in relation to the windshield pillar, raise and latch the top. Then, see that the vent wing frame is parallel with the pillar, with equal spacing at the top and bottom. Also, check to see if the frame is high enough to contact the top side rail weatherstrip. If the frame is not parallel, or does not extend high enough, there is a provision for adjustment upward, downward, forward or rearward. You can also tilt the top of the vent frame in or out to make sure the frame and the front of the door glass seal laterally against the side rail weatherstrip.

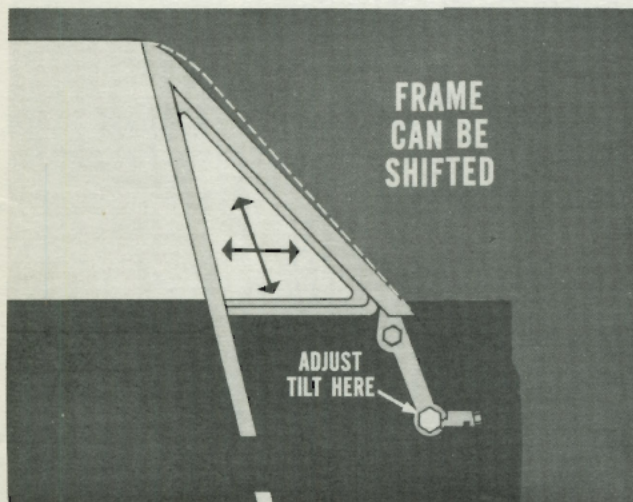


Fig. 4—Vent wing frame adjustments

Inspect the in and out (tilt) adjustment by lowering the door glass and looking at the rear of the vent frame where it contacts the weatherstrip.

DOOR GLASS HEIGHT

The up-stop adjustment is particularly important on the convertible door glass. If the glass does not go up high enough, it won't seal properly against the weatherstrip. If it goes too high, it could tear the top trim material when the door is opened or closed. Raise the glass until the front corner seals inside the cap at the top of the channel, but make sure the glass doesn't come up high enough to distort the cap.

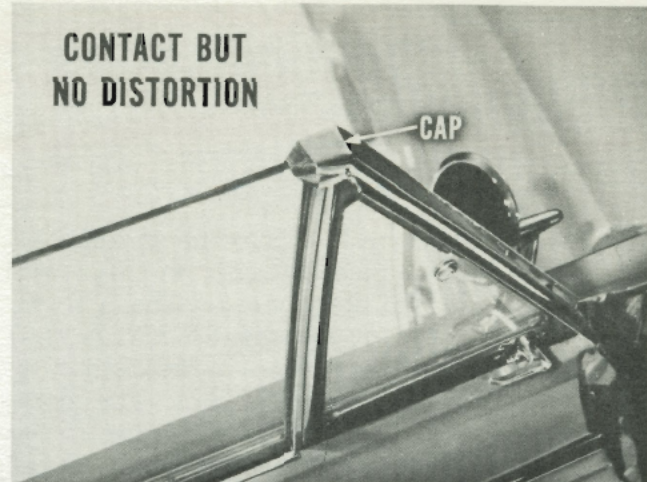


Fig. 5—Correct up-stop setting

SIDE RAIL WEATHERSTRIP

When the vent wing frame is set in against the weatherstrip, the front of the door glass is also in the correct sealing position. That's because the vent wing frame and the door glass division channel are one solid assembly. You may find it necessary to swing the rear of the door glass in or out to get good side rail weatherstrip contact at the top rear corner of the glass. If so, there are two in-and-out adjustment points, at the top and bottom of the rear track. Loosen both adjustments and move the glass in or out, as required. Make sure the glass is properly located in relation to the cat whiskers, at the belt line. The top edge of the glass should contact the outer lip of the weatherstrip, forcing it in against the inner lip. In addition, the inside face of the glass should seal against the inner lip of the weatherstrip.

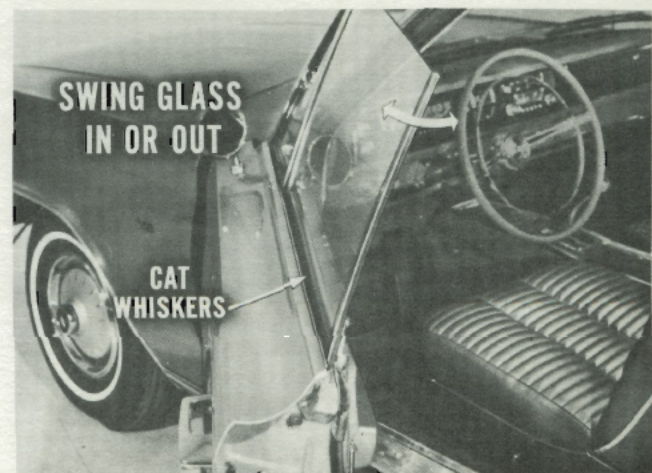


Fig. 6—Rear track in and out

QUARTER GLASS

QUARTER-TO-DOOR

Correct quarter glass alignment is based on the proper alignment of the door glass. The edge frames of the two glasses should be parallel, and the door glass edge frame should seal against the weatherstrip on the quarter glass edge frame. If the two edge frames are not parallel, shift the pivot bracket to square up the glass in the opening.

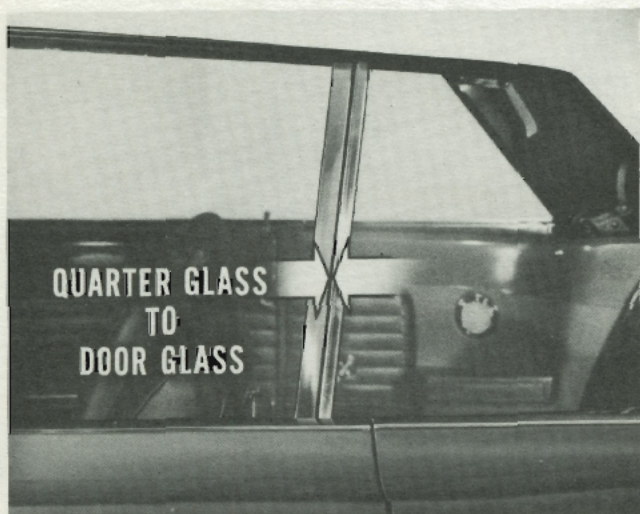


Fig. 7—Edge frames must be parallel

FORWARD—REARWARD

The quarter glass is also adjustable forward and rearward. The adjustment is made by shifting the regulator assembly. Make sure the quarter glass is far enough forward to provide

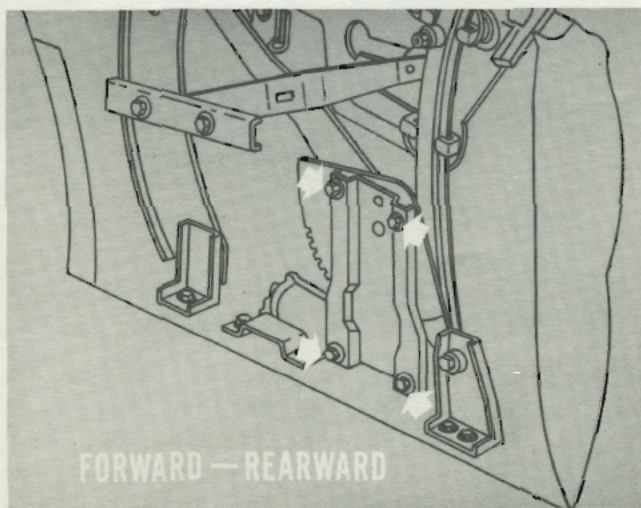


Fig. 8—Move regulator assembly

a good seal with the door glass, but not so far forward that the two edge frames interfere with the opening and closing of the door. You might have to work back and forth between the regulator assembly and the pivot bracket to get the best alignment.

QUARTER GLASS HEIGHT

The up-stop adjustment is very important on convertibles, since the side rail weatherstrip seals against two of the quarter glass edges. Also, the quarter glass and the door glass must form a smooth, even contour from front to rear. Set the up-stop so that the top of the quarter glass is exactly even with the door glass.

BELT LINE AND SIDE RAIL WEATHERSTRIP

When properly adjusted, the quarter glass should lightly contact the cat whiskers at the belt line. The top of the stabilizer is adjustable in and out to provide this contact. Then, at the top of the front track, move the front of the quarter glass as necessary to align it with the rear of the door glass. Another in-out adjustment at the lower end of the track moves the top of the glass to align the top of the quarter glass and the door glass. If the door glass is properly adjusted at the top, then the quarter glass should seal against the side rail weatherstrip. To complete the in-out adjustments, loosen the stabilizer lower attaching screws and run the glass all the way down. This will position the stabilizer correctly. Then, tighten the lower attachment.

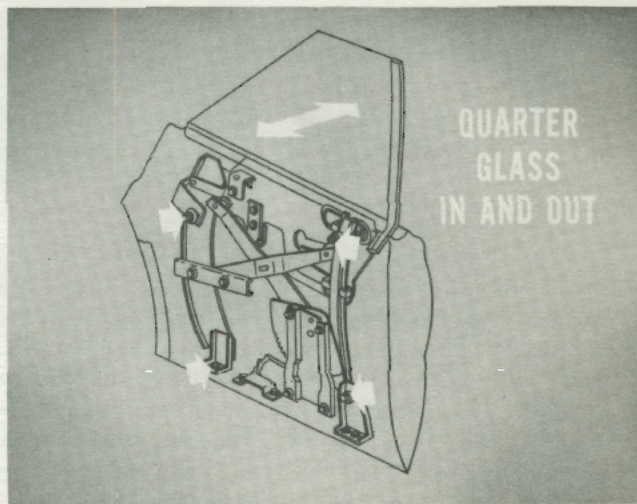


Fig. 9—Quarter glass adjustments

NEW PANEL

There's a new feature in these convertibles that simplifies the quarter glass adjustments. It's a combination garnish molding, trim panel and pocket panel, all in one piece, and attached with screws and three clips. Just remove the rear seat cushion and seat-back, and all the screws are readily accessible. But, if there are no adjustments necessary on the quarter glass, you won't have to remove the panel to make the adjustments to the folding top. All the normal adjustment points are accessible with the panel in place.

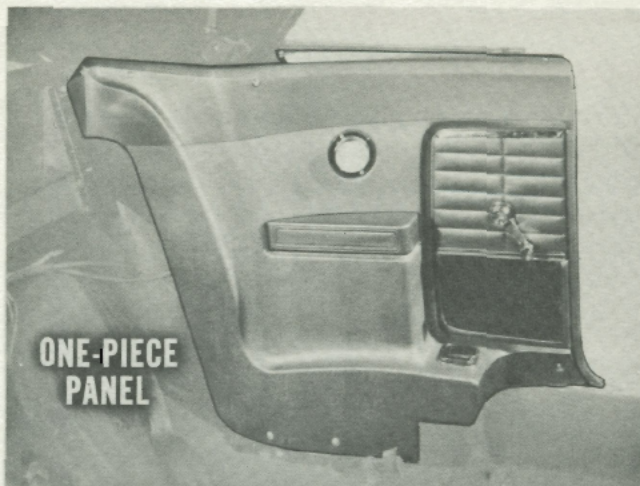


Fig. 10—New molded pocket panel

FOLDING TOP ADJUSTMENTS

There are a number of basic adjustments available to improve a poorly fitting folding top. It probably won't be necessary to use all of them on any one job. In fact, you may find that one simple change is all that's required to bring the top into alignment or correct a sealing problem. But, you should be aware that all of the adjustments are inter-related to some extent. For example, the top header position, in relation to the windshield header, can be changed by moving the header on the side rails, by turning an adjusting cam, and by changing the length of the control links. And, these adjustments may affect the latching effort, the top material tension or the contour of the top.

LATCH ADJUSTMENT

The latches on the 1966 Belvedere and Coronet have more leverage than those on previous models, so you can get the same sealing pressure as before with much less latching effort. That's something to keep in mind when you're adjusting the latches, since the amount of sealing pressure is important to the life of the header weatherstrip. If the latch hooks are too short, latching effort will be too high, and the weatherstrip will be over-compressed. The

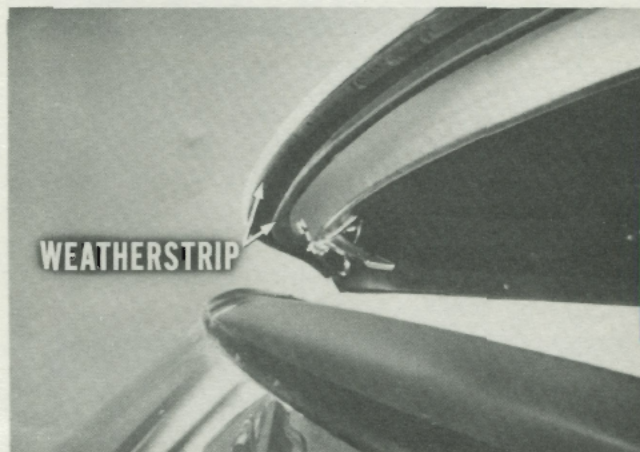


Fig. 11—Latch hooks too short

weatherstrip will soon take a permanent set and lose its sealing ability. On the other hand, if the hooks are too long, there may be a leak at the weatherstrip.

THE CARD TRICK

To determine whether there is sufficient sealing pressure at the header weatherstrip, latch the top with a piece of heavy paper or a card between the header. (A shipping tag is just the right thickness.) The header weatherstrip



Fig. 12—Check the sealing pressure

should grip the card lightly when it's pulled out. If the seal is too loose, tighten the latching hooks one turn at a time until the correct pressure is obtained. Check the seal all the way across the header. If the seal is good on the ends of the header, but loose in the middle, you might have to place a thin shim under the weatherstrip. Always water-test the header area after adjusting the hooks to make sure there is no leak.

HEADER-TO-SIDE RAIL

This is one adjustment that you shouldn't have to use except in cases of extreme misalignment of the header locating dowels. In fact, you should use this adjustment only if the other header locating adjustments do not provide enough movement forward or rearward. The other adjustments will be discussed later, in another section.



Fig. 13—Header to side rail adjustment

TOP MATERIAL TENSION

If you have to move the header on the side rails, the tension of the top material will be affected. If the tension is correct before the header is moved, and the header is to be moved forward, then the material will be too tight. If the header is to be moved rearward, there will probably be slack in the material. So, you'll have to loosen the material at the header tacking strip and retack it after the adjustment has been made. However, in some cases of loose material, there is another adjustment to take up the slack.

ROOF BOWS ARE MOVABLE

One of the new adjustments built into the 1966 convertibles is at the number one and number two roof bows. The bows have slotted attaching holes to provide a small amount of vertical movement. This allows some adjustment of the top material tension if a header adjustment loosens the material. Also, if there are any wrinkles in the material, the bow adjustments can be used to remove them. You might have to move one side of the bow a little bit more than the other to get rid of some of the wrinkles.



Fig. 14—New adjustable roof bows

AVOIDING TEARS

Another function of the roof bow alignment, and possibly the most important of all, is to lift the side of the top material clear of the door glass. If the material is too low at this point, it could be torn by the top of the glass when the door is opened or closed.

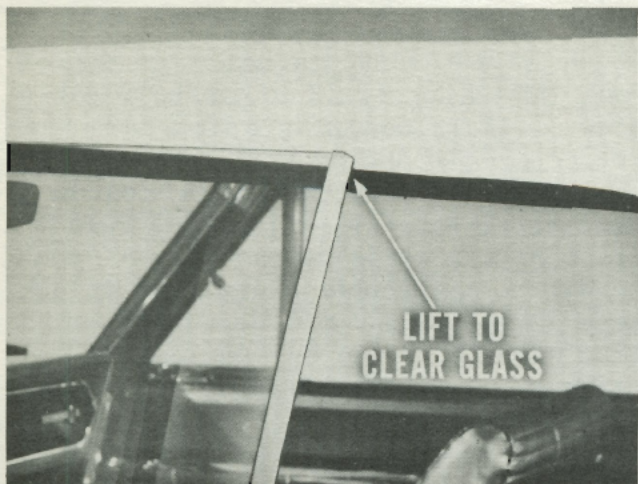


Fig. 15—Door glass could tear the top material

CENTER JOINT SCREW

The connection between the front side rail and the center side rail is called a pivot plate. It's pivoted at both side rails, and also connects to the operating linkage. The center joint adjusting screw threads into the pivot plate, and acts as a stop to prevent "jackknifing" at the center joint.

TANGS ALIGN RAILS

There are two curved tangs at the rear of the side rail. When the top is raised and latched in position, the tangs slide into the center side rail and under the center joint screw. The head of the screw forces the tangs down against the bottom of the center side rail to line up the front and center rails. If the screw is turned in too far, the tangs will not be against the center rail, and the two rails will not be in alignment.

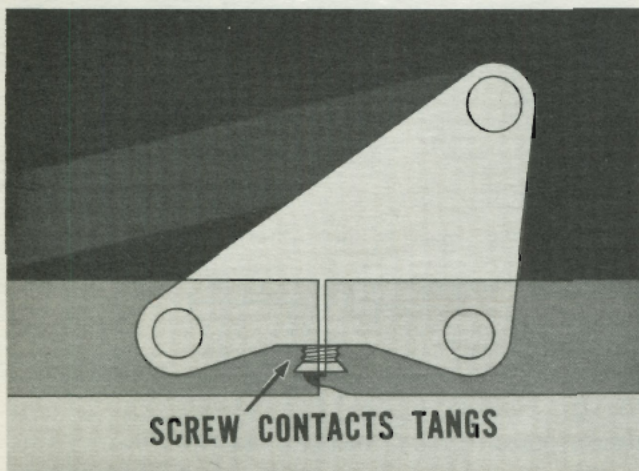


Fig. 16—Center joint screw determines height

In addition to being misaligned, the rails will raise up at the center joint, causing a "jackknife" condition.

LOWER THE SIDE RAILS

To correct a "jackknife" condition at the center joint, unlatch the top header and raise the front of the front side rail to open the joint.

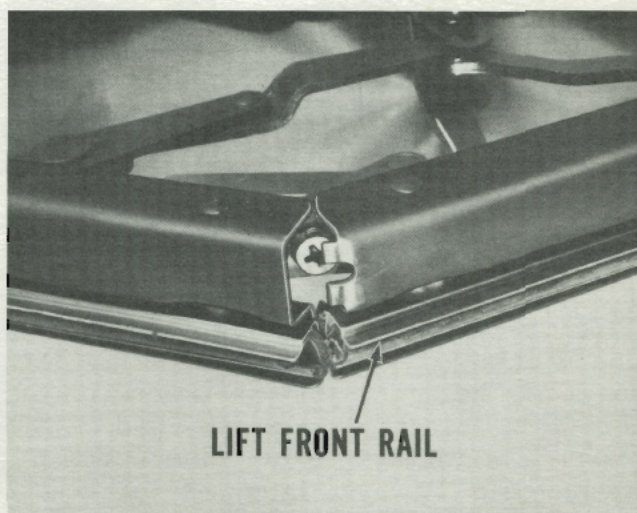


Fig. 17—Center joint adjustment screw

Then, back the screw out just far enough to force the joint down into position. If the door glass is correctly positioned, the side rail weatherstrip should contact the top of the glass as described earlier. There's another way you can check the center joint position. Place a straightedge against the side rails between the rear of the header bracket and the rear of the center rail. The center joint should be

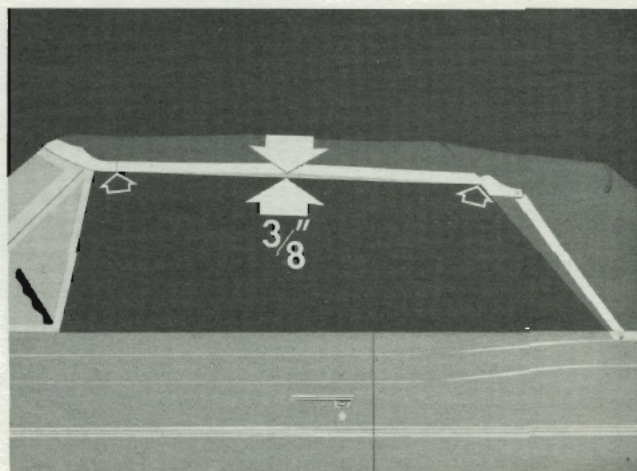


Fig. 18—Checking center joint height

about $\frac{3}{8}$ -inch above the straightedge. (If you don't have a straightedge that long, a piece of string will do the job.) Just don't back the screw out too far. If you do, the head of the screw might bend the tangs, or distort the bottom of the center side rail.

SCREW DOESN'T CORRECT SAG

If the side rails sag down at the center joint, you can't correct it with the center joint adjusting screw. That's taken care of by the control link adjustment, which we'll talk about a little later.

— ANOTHER NEW ADJUSTMENT —

There's another new adjustment on the 1966 convertibles, at the top of the rear side rail. It's a cam assembly, and it's used to change the position of the top header in relation to the windshield header. The cam turns inside the rear side rail and the thrust link, which is part of the operating linkage. When the cam is rotated, it changes the relationship between the front and rear side rails, by moving the thrust link forward or rearward.

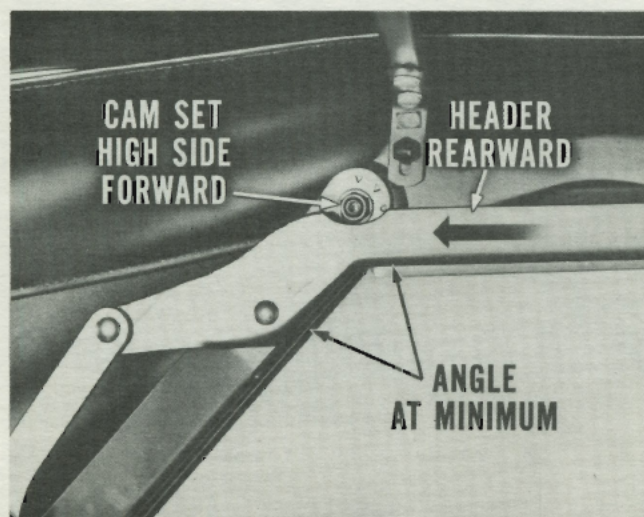


Fig. 19—Cam changes header position

CAM IS SET FORWARD

Usually, when the top is originally trimmed, the cam is set with the high side forward. Oddly enough, this means that the header is as far rearward as the cam can position it. When the cam is rotated to the rear, in effect, it moves the top header forward on the windshield header. Let's take a look at what actually happens.

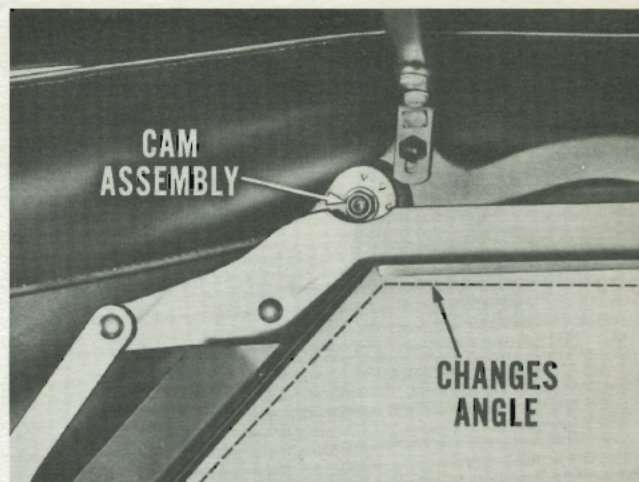


Fig. 20—Cam set forward brings header rearward

ANGLES AND THROWS

The position of the high side of the cam determines the angle between the center side rail and the rear side rail. When the high side is all the way forward, the angle is at the minimum. As the high side of the cam is turned toward the rear, the angle is increased. The increased angle also increases the forward "throw" of the entire top assembly. So, when the top is raised, the top header is farther forward on the windshield header.

LATCHING EFFORT IS AFFECTED

When the center-to-rear side rail angle is increased by adjusting the cam, the top header settles higher off the windshield header. This means that the latching effort will be increased slightly. However, even with this slight increase, the overall effort of engaging the top

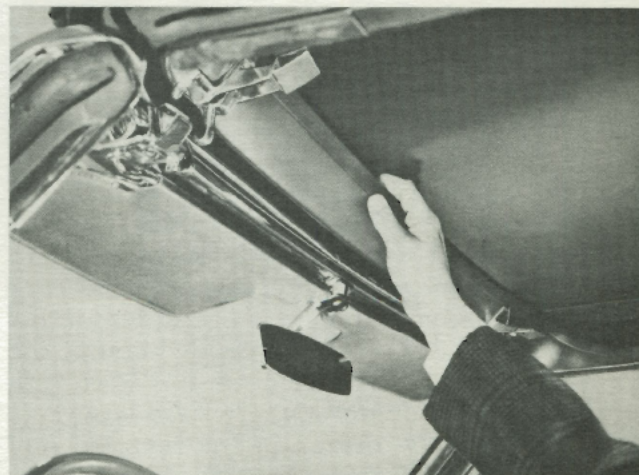


Fig. 21—Easier to pull than to push

header dowels with the holes in the windshield header is somewhat less. That's because it is much easier to pull the header straight down, or even back slightly, than it is to push it forward and then down.

IDENTIFICATION MARKS

The high side of the cam is indicated by a notch in the threaded end of the cam. Three triangular-shaped marks on the side rail indicate the amount of rotation of the cam when you're making an adjustment. The marks are located at the full-forward position of the high side, 45 degrees up, and 90 degrees up. By referring to the notch and the three triangular marks, you can always tell where the high side of the cam is and, when adjusting the cams, you can be sure just how much adjustment is being made on each cam.

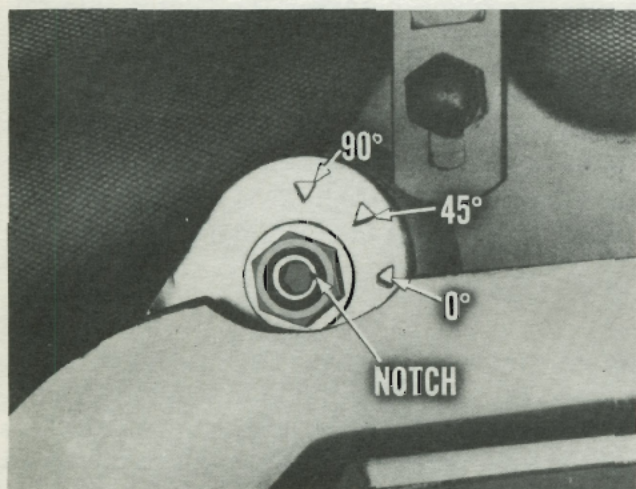


Fig. 22—Cam location marks

ADJUSTING TIPS

Before you attempt any adjustment of the center-to-rear rail cam, always place the top in the *intermediate position*. (Halfway between the raised and lowered positions.) This will take much of the strain off the cam. Make sure the lock nut is loose, and tap the threaded end of the cam with a soft-faced hammer to break loose any paint bond between the cam and the top linkage. There's a good reason for all these precautions. The threaded end of the cam, with the hex socket head, has to have a small outside diameter. Otherwise, a large hole would have to be drilled in the rear rail and thrust link, reducing the strength. And, the hex must be large enough to provide the leverage

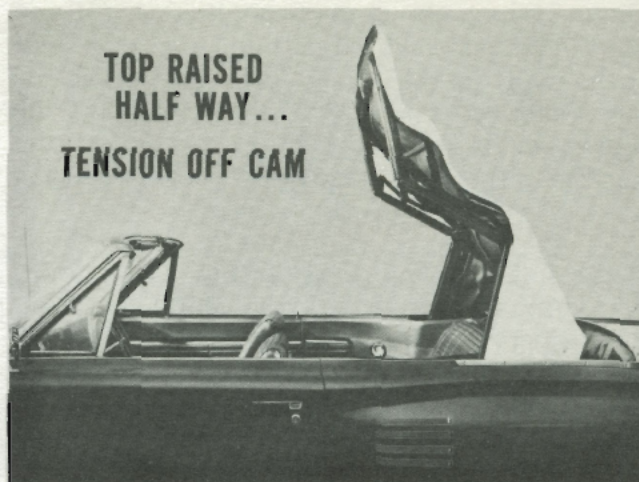


Fig. 23—Makes cam easier to turn

to turn the cam. So, we wind up with a comparatively thin wall around the hex socket. If the cam is bound up in any way, it's possible that the wall would be split out when you're trying to turn the cam.

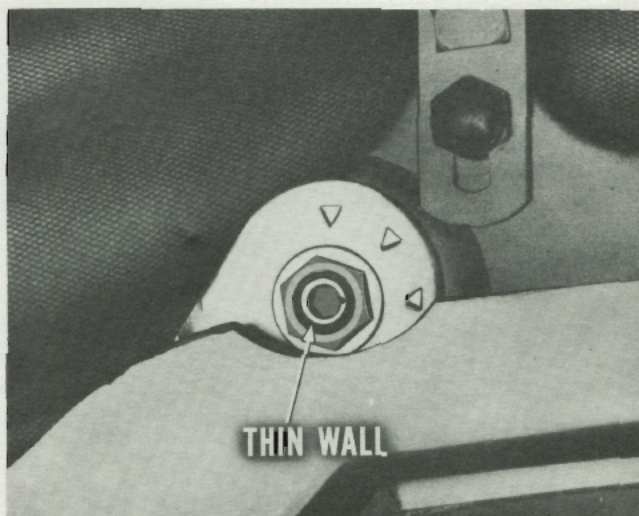


Fig. 24—Be careful not to split socket

TURN UP

The cams can be turned in either direction to make the header adjustment. However, it's best to turn them upward. That means that the left cam should be turned in a counter-clockwise direction, and the right cam in a clockwise direction. In most cases, it's a good idea to make sure the cams are turned the same amount, as well as in the same direction. But, there may be times when it's necessary to turn one cam more than the other, if one side of the header is farther forward than the other.

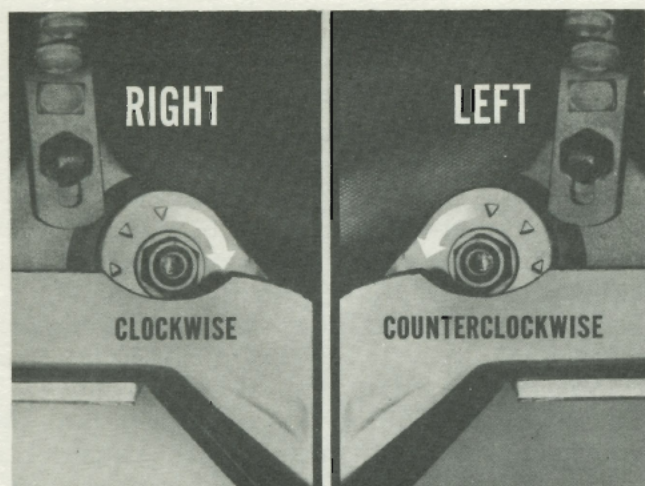


Fig. 25—Best way to turn cams

CONTROL LINK

If the required cam adjustment is fairly large, it's possible to develop a sagging condition at the center joint, between the front and center side rails. This condition cannot be corrected by adjusting the center joint screw. Instead, the center joint is lifted into the correct position by shortening the control link at the rear of the folding top operating linkage. Shortening the link pulls down on the rear of the center side rail, lifting the front of the center rail and the rear of the front rail. Usually, one or two serrations change at the control link adjustment point are all that will be required.

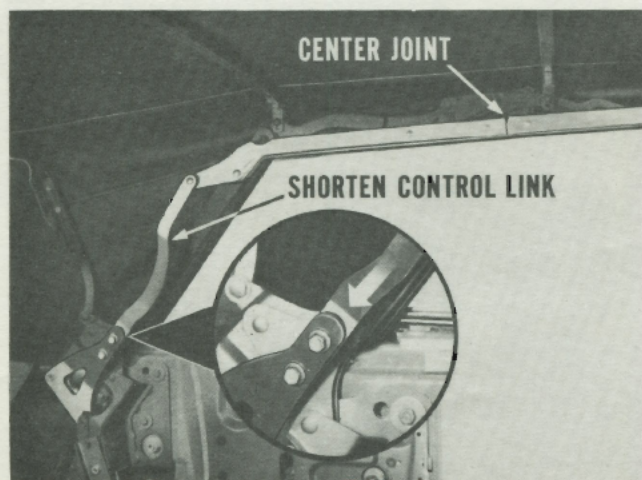


Fig. 26—Correcting side-rail sag

CONTROL LINK MOVES HEADER, TOO

Changing the length of the control link also changes the position of the top header when it is latched into place on the windshield



Fig. 27—May have to readjust cam

header. As you can see in the illustration, shortening the control link increases the angle at the center rail to rear rail joint. So, the overall reach of the top linkage is increased, just as it is when the cam adjustment is turned to the rear. This means that you may have to work back and forth between the cam and the control link to get the correct header adjustment and still have the preferred contour at the center joint.

LINK AFFECTS STACK HEIGHT

The length of the control link also affects the stack height of the top linkage when it is lowered into the boot well. If the linkage does not enter the well far enough, it will be very difficult to install the boot. To lower the stack height, lengthen the control link one or two serrations. Then, recheck header alignment.



Fig. 28—Lengthen link to lower stack height

CONTROL LINK ADJUSTMENT

To change the length of the control link, unlatch the header and loosen the two control link lock screws. Then, have a helper lift up on the front of the center side rail to take the load off the link. Pull up on the link to lengthen it, or push it down to shorten it.

HEADER SIDE-TO-SIDE ALIGNMENT

The dowel pins in the top header must line up with the holes in the windshield header sideways, as well as forward and rearward. Any great amount of sideways misalignment will have as much effect on the latching effort as if the header were too far to the rear. If the dowels do not line up properly, you can shift the front of the top assembly sideways a small amount by lengthening or shortening one control link.

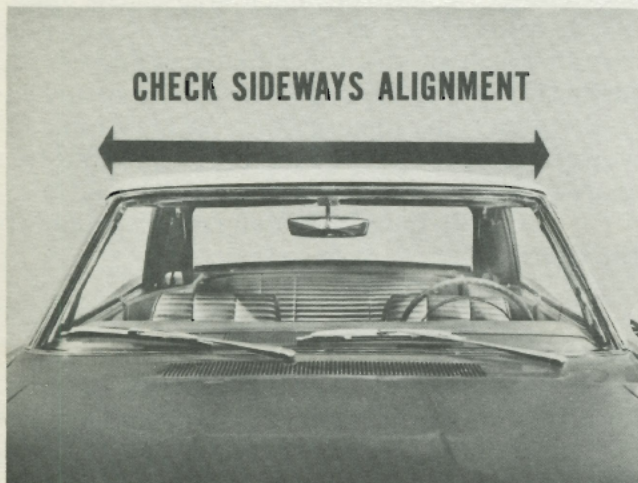


Fig. 29—Dowels must line up sideways, too

For instance, if the header is off to the right side of the car, shortening the right-hand control link one serration will move the header $\frac{1}{8}$ -inch to the left. If more movement than this is required, you might have to pivot the mounting plate to line up the dowels. But, before you do, be sure to read the section covering mounting plate adjustments.

ALWAYS RECHECK

Any time you have to make an adjustment at either the cam or the control link, always recheck the position of the top header on the windshield header, the contour of the center joint, and the stack height of the linkage in the boot well. You may find it necessary to jockey the adjustments somewhat to get the best possible conditions at all the locations.

MOUNTING PLATE

ONLY WHEN NECESSARY

Ordinarily, the mounting plate should not be moved. You'll notice two alignment dowel holes in the plate and the body inner panel. These holes are used to get the basic alignment when the top assembly is installed. But, even if the holes are not exactly aligned, don't be in a big hurry to move the plate. It might have needed a little bit of shifting around to compensate for those little variations between cars that occur during manufacturing. So, if you have to remove the whole top assembly for any reason, such as collision repairs, just keep in mind that those two extra holes are there for reasons of alignment only.

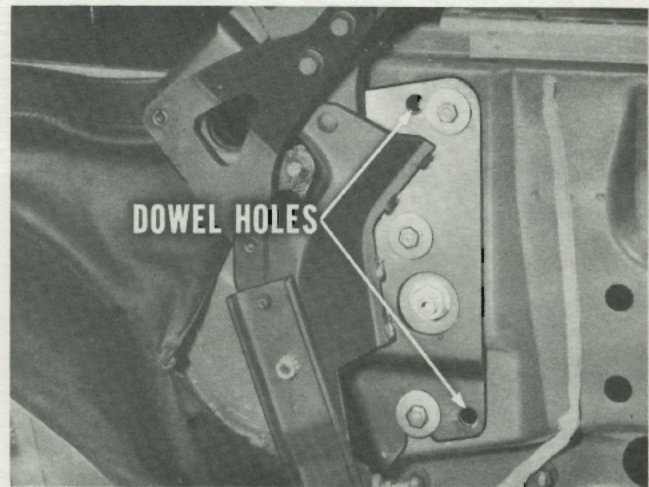


Fig. 30—Mounting plate not moved normally

PIVOT, DON'T SHIFT

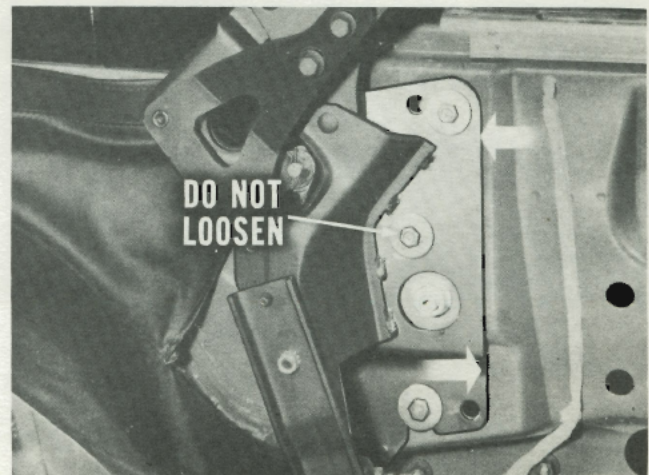


Fig. 31—Pivot plate around center screw

If you should find it necessary to use the mounting plate to correct a sideways misalignment condition, **DO NOT** loosen all the mounting plate attaching screws. Loosen **ONLY** the top and bottom screws. Then, pivot the mounting plate around the center screw to get enough movement to align the header dowels, and retighten the top and bottom screws. After making this mounting plate adjustment, be sure to go back and check all the other alignment conditions, including the side glass-to-side rail weatherstrip contact.

WEATHERSTRIP ADJUSTABLE, TOO

You might find that the weatherstrip seals against the side glass at the front, but not at the rear, or that a section in the middle of the glass does not seal properly, even though the door and quarter glasses are correctly aligned. If you do, there's a small amount of in-and-out adjustment available at the weatherstrip itself. The weatherstrip retainer strip is attached to the side rails by screws, with elongated screw

holes in the retainer. To make the in-or-out adjustment, drop the weatherstrip from the retainer, loosen the attaching screws and move the retainer strip as necessary. You'll probably want to cement the ends of the weatherstrip in place when you re-install it.

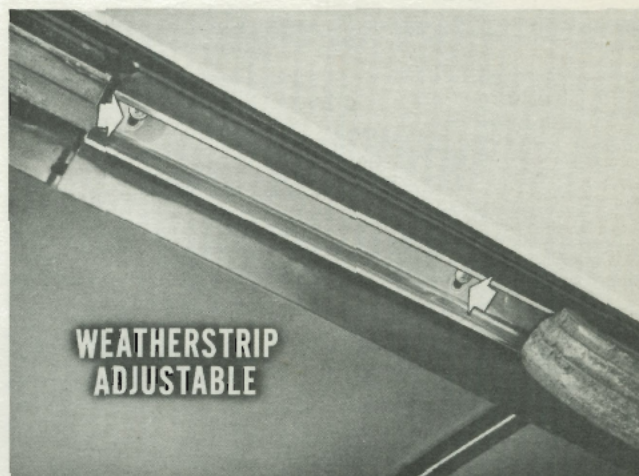


Fig. 32—Weatherstrip retainer is movable

TOP TRIM TIPS

You may never have to replace a convertible top, but, if you do, there are some things you should know about the construction and fastening of the top material. In addition, there are some hints on care of the top material that

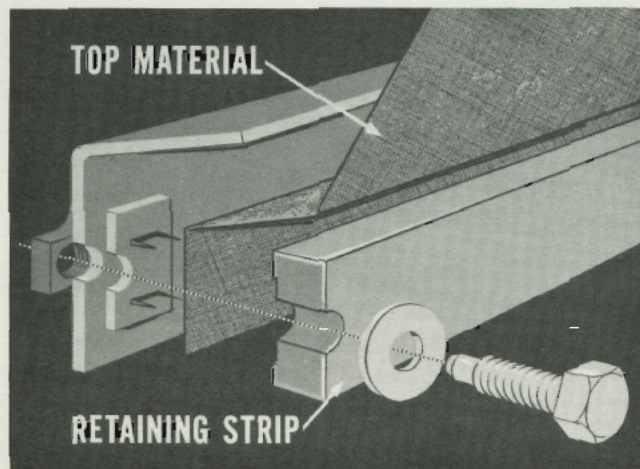


Fig. 33—New material attaching method

you might want to pass along to your customers.

RETRIMMING

NEW REAR FASTENING

The top material on the 1966 Belvedere and Coronet is fastened on the inside of the car, below the belt line. There's a combination tacking strip and retainer bar that runs around the inner panels, and fastens to the panels with screws. The well liner, which covers the retainer bar, is fastened with snap fasteners to the retainer bar.

REAR BOW TENSION

You will note that there are no rear bow tension cables to be adjusted on these models. Instead, there is a web strap on each rear corner. The webs are attached to the rear roof bow with rivets and to the retainer bar with tacks. The webs are not adjustable, except by loosening at the retainer bar and retacking.

TRIM WITH HEADER FORWARD

When you're ready to install the top trim material, make sure the cam adjustment is set so the high side of the cam is all the way forward. Remember, this is the most rearward header position available at the cam adjustment.

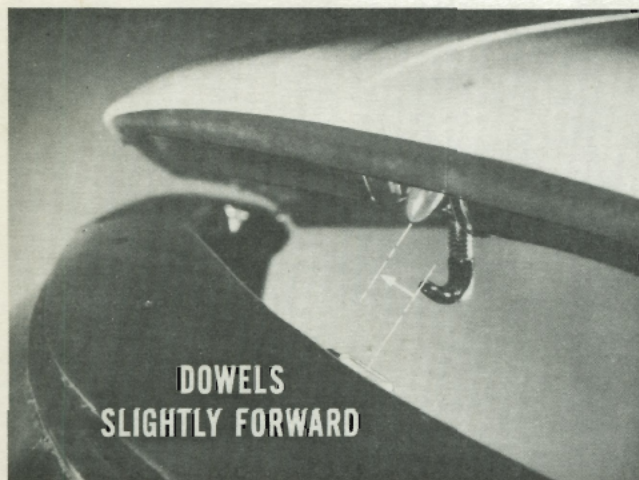


Fig. 34—Set dowels forward when retrimming

Then set the control links by loosening the lock screws and lifting the header about ten inches off the windshield header. (Lift the header by raising the front of the center side rail.) Tighten the control link lock screws and check the forward-rearward position of the top header. Before installing the material, use the header-to-side rail adjustment to set the top header dowels about $\frac{1}{4}$ -inch ahead of the dowel holes in the windshield header. The tension of the top materials should pull the header back into the correct position, so the dowels will line up with the holes.

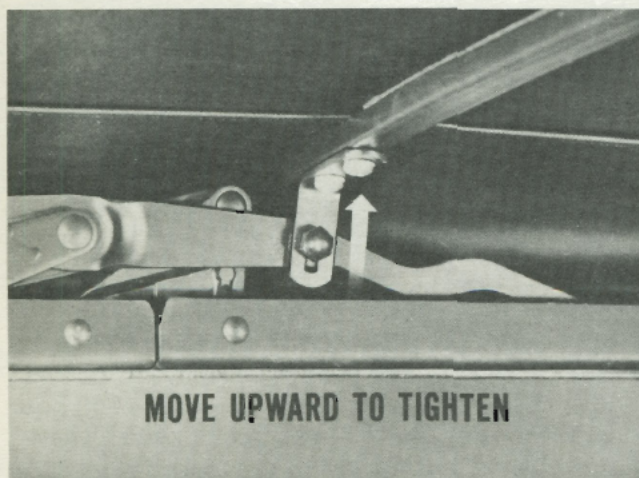


Fig. 35—Set bows down when retrimming

SET ROOF BOWS DOWN

Another preliminary step when retrimming a top is to set the number one and number two roof bows in their lowest positions. This will provide ample adjustment of the top material, if it's necessary to increase the tension. The tension is especially important, to avoid any "ballooning" appearance at road speeds. Remember, too, that you may have to use the roof bow adjustment to lift the sides of the top material clear of the door glass to avoid tearing the material when the door is opened or closed.

SOME TIGHTENING AT REAR, TOO

The retainer bar-tacking strip at the rear of the top material can be used to remove any looseness in the material around the rear curtain. Remove the bar from the inner panels and take the material loose. Retack the material, moving it over the bar just far enough to take out the slack in the material.

TEMPERATURE MAKES A DIFFERENCE

The temperature of the top material when it's installed can have quite an effect on top fit and material tension, especially in areas where there is a large variation in weather. If the top is trimmed in cold weather, the material may tighten up when the weather gets warm. So, in areas with extreme weather changes, it might be desirable to re-adjust the tension a couple of times a year.



Fig. 36—Temperature affects material tension

TOP MATERIAL CARE

The material used on convertible tops is of the highest quality. However, there are a few things we and our customers should know

about taking proper care of the material and the rear window.

KEEP IT CLEAN

Top material is a little bit like a suit of clothes: if you keep it clean, it will last a lot longer and look much better. Your customers should know that a good working over with a vacuum cleaner will help to keep abrasive dust from collecting in the folds and seams of the material. And, frequent washing, if properly done, will add to top life and appearance. Use a soft hand brush with natural bristles, and a bar of ordinary laundry soap. Place some kind of support under the material and scrub an area of about two feet at a time. Do not scrub hard on the seams. Rinse with clear water, and use plenty of it to make sure all the soap and dirt are rinsed out of the material. Otherwise, the material might become stained when it dries out. And, speaking of drying, the top should never be lowered when the material is wet, or even slightly damp.



Fig. 37—Clean top material often

CLEANING REAR WINDOW

There are probably as many precautions about the rear window of a convertible as there are instructions. Here are a few of the most important "DO NOT'S":

Don't use gasoline, carbon-tetrachloride or any cleaner with an alcohol base to clean the window. If you do, the window will be discolored.

Don't rub the window with a dry cloth to remove road dust. The dust particles will scratch the window, causing impaired rear vision.

Don't use a scraper to remove snow or ice from the window. This will also cause scratches.



Fig. 38—Clean rear window carefully

Do wash the rear window with a soft cloth and household detergent, using a heavy lather. Rinse with plenty of clear water and wipe with a slightly moistened clean cloth. To remove plain road dust, use a soft, clean cloth moistened with clear water only.

LUBE STAINS ELIMINATED

One problem you should never have with this new top mechanism is the troublesome stains that used to come from over-lubricated linkages. The very simple reason is that this mechanism doesn't require any lubrication. All the joints and pivot points are connected by rivets, with nylon inserts between the rivets and linkage members. And, as a plus benefit, the nylon acts as a cushion to provide practically rattle-free top linkage.

TOP MOTOR

Experience during the last few years has shown that our top motor and pump are practically failure-proof. The few failures that have occurred have been caused mainly by pinched hoses or electrical circuit shorts or opens. To avoid these problems, be very careful when installing the rear-seat cushion and back. Check the hose routings to see that they are clear of any possible pinch points in the linkage and the seat. There are clips provided to assure correct routing. If you should have to replace a hose, be sure to refill the reservoir with automatic transmission fluid, Type "A".

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