Nail It!

By Steve Jekogian

Nail it! That's right thinking of doing work on the interior of your Healey use nails! Big ones!

Spring is a great time to work on the interior of your car especially the doors. Are the windows rattling or scratched? Are the weather seals around the window dry, and cracking? Are the door panels showing their age, or falling off? Is the vinyl on the top rails ripped ? Then perhaps you need to read on.

Working on the door panels has always been a frustrating and time-consuming project for me. Getting the door panel off has never been a problem, as most of the time it is barely held on anyway. But getting the door handle and window crank back on and trying to insert those little pins in the little hole while pushing the door panel in and the escutcheon, spring and crown(look in the Moss catalog) is a pain in the a_ _! And if you are installing new door panels that are tight, it is even more of a challenge. You have probably used needle nose pliers to hold the pin, while you try to push the panel in, hold the handle, slide the pin.....! Got the point.

Moss's big interior upholstery sale is usually in the spring and if you need these items do not miss it, as the price reductions are huge. But how does all this relate to nailing it? Did I just needed a catchy lead in to get your attention? Not quite. This is another helpful tech article that will provide you with a "Healey experience insight" that you can use immediately, suggest to a friend, who will think you are a great "Healey Master Mechanic" or tuck into the back of you mind until it is needed.

The trick is to use a nail to hold the window crank and door handles in, and this is how it works.

Door Pin

Find a 2 to 3 inch nail of the correct diameter to fit in the hole in the handle and shaft. From the pointy end measure about ¾ to 1 inch, this should be the size of the pin you removed and should fit inside the escutcheon. Using a hacksaw cut a grove all around the nail (see picture) so the short end can be broken off, but not yet. Get the picture. Now when installing the handle you can comfortably hold the nail, push in the panel escutcheon, etc. and slid the nail into position. Once in just move the nail side to side until it breaks off and you are done. Simple, it works and it is easy. Who would have thought you could nail the interior of a Healey.

This entry was posted in Interior on June 12, 2014 [http://www.austin-healey-stc.org/tech-articles/interior] by rick.

Seats Stuck?

Lots of Healeys I sit in have a common problem – the seat tracks are frozen solid or take a lot of effort to move. It seems that the passenger side is worse, perhaps because it gets moved less often. Do you want your seats to glide like they are supposed to? Do you want people to get in you car and feel comfortable being able to move the seats around and you don't have to make excuses. New seat rails aren't cheap, about $90.00 a pair.

This Tech article will explain how to repair and refurbish your seat rails so they glide into position with no effort at all. The seat rail repair is a simple job that can be done with just basic tools that you already have. First remove the seat bottom and then the six nuts that hold the seat back on. Now jack up the car and from below remove the six bolts that hold the seat rails in. The passenger side is easier – no exhaust pipes to contend with. Under the rails are a piece of wood and a sheet metal strip save them if you can. Once the rails are out determine how much you have to take them apart. If really frozen or if some bolts are broken you should separate the top and bottom rails. To do so put the seat rail in a vice and knock the pins out of the bottom rail using a nail punch, then remove the 8 ball bearings (four per end) by sliding them out the ends. Now the two rails can be separated. Wire brush or sand blast the rails to clean them up. To replace broken bolt on the top rail use a grinding wheel to grind the head down on the inside and then what's left of the bolt on the outside. Once flat put in a vice and use the nail punch to knock out the bolt. On the bottom rail you can not get the grinding wheel inside so ground down the bolt as far as you can and use the nail punch to knock it out.

To replace the bolts find a bolt of the right length and threads and grind down the head till it is about the thickness of a quarter. Now find a friend with welding equipment or ask your gas station guy to tack it in place. The seat rails were originally cad plated a silver color, so a little silver paint should be a close match. Use some white lubricating grease or the rails and the adjusting mechanism and put two ball bearings in one side of a rail then wiggle the rail to insert the other two on the same end. Masking tape on the ends of the rails can help keep them in place. Now reinsert the retaining pin and hammer into place. Do that for the other side and your done. Re-installation is, as the repair manual says, "a reversal of removal". The wood piece is 3/8" thick if you have to replace yours and is wood colored. The sheet metal piece goes under the wood, and now is a good time to scrap and paint the floorboard in this area prior to bolting it all back together.
-Steve Jekogian

This entry was posted in Interior on June 10, 2014 [http://www.austin-healey-stc.org/tech-articles/interior] by rick.

Dash Replacement

I replaced a dash for a fellow with a beautiful 3000. It was cracked and split and was really bugging the owner. The price of replacement parts was 370 some dollars. Ouch ...and a little expensive. I would have liked to have taken his off and refinished them but he wanted them replaced. The guy paying the bill is always right. You have to pull the radiator forward to remove the temp gauge and then bring it through the dash and out. The dash is attached at each end to a plate with three screws and is bolted through the windshield frame to the car. There are two little brackets attaching it above the middle of the glovebox and just above the speedo. Additionally, there are five little wood screws attaching the wood to the center vinyl covered section. I found removing the glovebox side to be the worst. The new parts were a little darker than the old. It is an expensive proposition. The owner is fortunate to be able to pay for something that he does not want to do.

I kept the old pieces of wood, and I finally figured out a technique to refinish them. I am sure that there are lots of other ways to do this but here is mine. You have to use a chemical stripper to remove the old finish. If you try to sand them you will go through the veneer in no time flat. I sprayed coat after coat of polyurethane on the wood. After you get some buildup you can sand between coats with 1000 grit and or steel wool (00). I put 10 to 15 thin coats over the wood. After you sand, you can get a smooth finish, but no shine, which is our goal. I floundered a little here. I tried various polishing and rubbing compounds. I found rubbing compound and Meguire cleaner to be helpful. Finally, I talked to a body man and he suggested a "glaze." You will have to go to a place that sells paint or body supplies. The glaze was the answer. It polishes the paint on the wood to a mirror- like finish. So if you have a bad dash, take it off and go for it. Although, practicing on an old piece of wood is not a bad idea. I have a dash on my table that I could put in a car and I like it. You may have a better way...if you do let me hear from you. Anyway, this works for me.

One Approach to Restoration Part 33

Windows and Trimming

By Roger Moment
Thanks to John Hodgman and
Peter Svilans for providing critical reviews

I have received many calls over the year with questions about trimming Healeys. This is the main topic for the current installment, and the information should be of value to those wanting to just repair or spruce up the upholstery in their car as well as involved with major restorations.

In Part 31 some of the rear trim was installed so that the aluminum door opening facings could be fitted. However, on the BJ7 and BJ8 convertibles the rear quarter trim panels were left off, as they interfere with mounting the top frame and installation of these must wait for the top frame to first be mounted.

We will now continue with cockpit trimming, focusing on various details that don't appear to be discussed in sufficient detail in the literature. We will start with odds and ends that need to be sorted out prior to installing top frames. These include side curtains on roadsters, roll-up door windows on convertibles, and setting the windshield rake angle.

Rear cockpit molding on convertibles

Before moving ahead with other assembly steps, on BJ7s and BJ8s you should install the drip channel and chrome trim strip that attach to the cockpit lip of the rear shroud. The drip channel needs to fit on the underside of the aluminum shroud, just behind the lip. This is a more difficult task than you might expect, so patience will be required. The chrome trim angle lays over the shroud edge. Use a soft, non-hardening caulk to seal under the trim flange (I use a clay-like material found at body supply stores or shops that install camper shells on trucks). A light color is preferable – the original material was white. Roll it into thin "snakes" so that when the trim is pressed down against the body it will squeeze out flat, but not out past the edge.

The sandwich of chrome trim, shroud lip, and steel drip channel are held together by 1/2 inch long Chrome-plated, #6 raised head Pozidrive sheet metal screws. These thread into holes in the rear flange of the drip channel. Be careful not to over-tighten them or you could strip out the threads.

Photo 1 - The drip channel is painted gray and nests under, and behind, the shroud lip. Chrome raised head Pozidriv sheet metal screws (A) thread into the top edge of the channel. Note holes (B) on the channel face. These are for attaching the inverted "J" piece for retaining the rear edge of the top. Drain tubes (C) from the drip channel, and top mechanism springs, and their Armacord sleeves (D), should also be installed now. This photo was taken at a later stage after more of the rear trimming had been done.

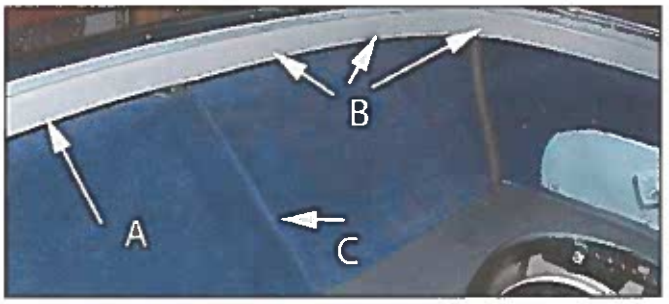


Photo 2 - In this photo the inverted "J"-channel (A) has just been loosely placed over the front edge of the drip channel. The edge of the soft top will be clipped to the rearward-facing edge of the "J". This piece will later be attached using #6 truss-head sheet metal screws (through holes B) to the drip channel, when the top is fitted. There also is a very thin rubber strip glued to the back face of the "J"-channel (where it mates against the drip channel) to seal out water. The rear carpet covers the middle drain hose (C) on BJ8s, but runs under this hose on BJ7s.

Photo 3 - The left screw is the a chrome-plated one used to attach the chrome trim and drip channel to the rear shroud flange. The screw to the right is the truss head one used to mount the inverted "J" channel to the drip channel.

There is an inverted "J" channel that mounts against the front flange on the drip channel using Zn-plated #6 truss head Pozidriv sheet metal screws, 1/2 inch long. Do not fix it with these screws at this time. The channel will be screwed in place later, after the top material has been clipped to the inverted "J"-edge (when installing the top).

Photo 4 - The window of this early 100 side curtain doesn't show up very well in the photo because the plastic is quite clear. The frame is shaped to match the side curve of the windshield pillar. Mounting pins are non-adjustable on this side curtain design.

Photo 5a - The second style of side curtain for the 100 had a leathercloth and flexible plastic cover attached to a metal frame. Slotted brackets at the bottom edge of the frame allowed ample adjustability. The lower rectangular flap lifts to provide access to the interior door latch.

Photo 5b - The third side curtain style used on 100s was very similar to the second one. In this case, the lower rear corner lifts outward to create access to the interior.

Side curtains, side windows, and finalizing windshield rake

You need to have side windows mounted on the doors before final positioning of the windshield rake angle. On roadsters these are side curtains, and how they are fitted depends on their construction and which model Healey you have. On convertibles the door vent window frame would be the corresponding alignment assembly.

- 100s -

The earliest side curtains on 100s consisted of a thick, curved clear Perspex window (Plexiglas is our American equivalent) mounted in a chrome-plated brass frame that had rubber seal strips along the front and bottom edges. Mounting posts that engage chrome sockets in the door skin were brazed to the frame, and thus not adjustable. The sockets mounted to the doors by threading into heavy wood blocks that were screwed to the door frame just under the skin. The hole in each socket was off center relative to the outside threads so the pocket could be moved sideways or fore-aft by rotating the socket. Fitting of this style side curtain (used up through body 1099) can be difficult due to the limited adjustment capability of the sockets.

There were two versions of a later style side curtain, both of which had a metal frame with leathercloth and flexible plastic window covering. Brackets with pins for engaging the door sockets were adjustable where they mounted to the frame, making fitting to the car much easier.

For all three side curtain designs, fit them to the doors so that the front seal pushes gently against the rear face of the windshield pillar. Loosen the three bolts holding the fixed chrome pillar base to the scuttle to adjust the windshield tilt angle. This can be done without disturbing the scuttle seals. Some reshaping of the frame may also be required so that the side curve of the front edge of the side curtain matches that of the windshield pillar.

- 100-six and 3000 roadsters -

Side curtains on these Healey models have an aluminum frame. The earliest versions had no markings, but starting with the version that had welded corner joints Weathershields Reg'd Design was stamped into the upper inside frame face. Panels were made out of Perspex (American equivalent is Plexiglas). On the non-welded frames the front window slid rearward, while the rear one was fixed in its channel by a small aluminum plate. Starting with welded frame construction, the front panel was fixed by pinching its channel, and the rear panel could slide forward (in felt-lined tracks).

Both styles of these frames have rubber seals along the front and bottom edges, joined and mitered at the front corner. Front and rear brackets for mounting to the doors are attached to the frames with panhead Phillips screws and dome nuts. The front bracket post fits through a chrome socket in the door, while the rear bracket mounts to a threaded post on the inside face of the door. At the top front corner of the frame there is a small rubber buffer, held using a short Zn-plated #4 truss head screw (like those used to attach chassis plates to the firewall).

At this time temporarily attach the front socket and rear bracket to the door. When fitting the side curtains, the front

seal should be about 1/2 inch wide, and nest into the shallow recess along the rear of the windshield pillar post. The three bolts attaching the windshield post to the scuttle should be loosened so that the windshield angle can be adjusted to match that of the side curtain. It may also be necessary to bend the front side curtain bracket slightly so that the sideways tilt of the frame lines up with the pillar recess.

Convertible windows -- BJ7 & BJ8

Convertible Healeys have roll-up door windows, and installing their mechanisms is more involved. The Service Parts List illustrates all the components fairly well. Once the vent window is mounted to the door the windshield angle can be set.

We installed door lock mechanisms in the doors back in Part 31. With the doors now on the car, the next step will be to mount the window crank mechanism.

The wing vent window-frame assemblies can now be mounted onto both doors. The rubber tip at the top rear corner of these should not be attached until after the door glass has been fitted and adjusted. Once the vent frame is installed you can close the door and adjust the windshield rake so that the vent frame seals uniformly against the pillar. The two screws at the bottom of the vent frame tracks can also be used for minor adjustment of the vent window alignment. Don't forget to attach the small sheet metal screws through the vent frame flange and into the outer door skin lip.

Before installing the side windows they need to be mounted into their

Photo 6 - A side curtain buffer protects the aluminum frame corner from rubbing against the top latch hardware. The inside top flap has been folded out of the way in this photo.

Photo 7 - The buffer is attached using a short #4 truss head screw that threads into the buffer's rubber stem.

Photo 8 - Two screws near the bottom of the window track (arrow) allow for some positioning adjustment of the vent window frame. The yellow "79" is a copy of the original cayron marking made at the factory. When the vent frame was restored the variety of finishes found on the original was carefully duplicated, including the red primer near the bottom attaching bracket.

Photo 9 - This photo shows the window glass in place. The "stop" arm (arrow -- introduced mid-way through BJ7 production) limits both upward and downward travel of the window. The padded rail can be installed on the door after the window is operating properly. Each rail is attached using five blunt, very short #4 flat head, Phillips (BJ7) or Pozidriv (BJ8) sheet metal screws about 1/4 inch long -- longer screws could contact the glass and scratch it.

Photo 10 - The outer sweep seal (A) is mounted to the chrome trim piece before installing on the door. The lower vent window frame seal edge is trapped behind the chrome trim (B).

frames, and this can be a tricky operation. Two nylon guides must first be inserted into the front frame channel, and a third one into the bottom rear of the frame, followed by pressing the rubber packing and glass into the sub-frame channels. The glass must be held very tightly, as it will want to pull rearwards from the top of the front channel when the window is lowered. Applying a small amount of silicone adhesive to the rubber and glass just below the top nylon guide may be needed to hold the glass in place.

Next install the rear window track. The "stop" arm will be mounted after the window is in its track and properly travelling up and down. The brush seal along the inside top edge of the door window pocket also needs to be in place before the window can be installed.

You can now insert the side window assembly into the channels from the top. Fit a handle to the window mechanism so that you can lower the arm to engage the pin in the window frame channel slot. Adjust the rear track so that the window slides smoothly and with minimal "cocking" (flat washers were used by the factory as spacers between the rear channel bracket and the door to adjust the rear channel position). When operation is satisfactory, install the stop arm and adjust it to limit travel so that the top edge of the window lines up with the vent frame (you can also install the rubber vent tip at this time).

Finish this stage of assembly by fixing the rubber "sweep" seal to the chrome door waist trim and attaching that to the outer window pocket edge. The rubber seal along the bottom edge of the vent window fits under, and behind the chrome strip.

Top frames

The next task will be fitting and mounting the top frames. On 100s these are bolted to the body, while on 6-cylinder roadsters (BN4, BN6, BT7, and BN7) they are loose and mount by inserting into pockets just behind the doors. On convertibles they also are bolted to the body, but installation on these Healey models is a bit more complicated.

100s

First finish trimming the rear of the cockpit and attach the rear aluminum cockpit molding. These tasks are fairly straight forward, however the battery access door should be trimmed off the car and mounted after the rest of the cockpit Armacord has been glued into place.

There are a few points to note while installing the rear trim:

•The spare tire bag should be glued around the tire opening flange, and riveted to the long horizontal part, before gluing the upper Armacord piece to the rear cockpit panel. The Armacord pad (sewn to the bottom edge of the tire cover) that lays under the spare tire in the boot should not be glued down until later when the boot is trimmed. The flap against the right wheel arch will also be attached at that time and held in place by a vinyl-covered triangular wood block.

•The flap along the top edge of the upper Armacord needs to extend upwards and over the front face of the rear shroud so that it will tuck behind the rear cockpit molding.

•A 1/8 inch-thick brown jute felt pad is glued against the flat area of the rear wheel arches to provide a cushion for the top frame arms in the folded-down position.

•The male snap just ahead of the top frame mounting plate should be positioned using the original screw holes.

There were three iterations of top frame mounting on 100s, which also involved differences in the link configuration. A more extensive discussion of these details can be found in Supplement 1 on Healey Tops the Austin-Healey Concours Guidelines.

Some preparation of the top bows is required before mounting them to the car,. The wood header strip attaches to the top surface of the front bow angle iron, with the angle's upper front edge flush with the bottom front edge of the wood. A piece of vinyl material (matching the top) is wrapped around to cover both the wood and angle iron. The material edges meet on the underside along the inside corner of the angle iron. The material needs to be stretched to make a nice covering over the curved corners at each end. Note how the finished top material will lie so that you can hide any joints in the header covering.

Next glue on the front rubber seal, mount the three chrome plates with rubber buffers, and temporarily mount the top latches to the side frame.

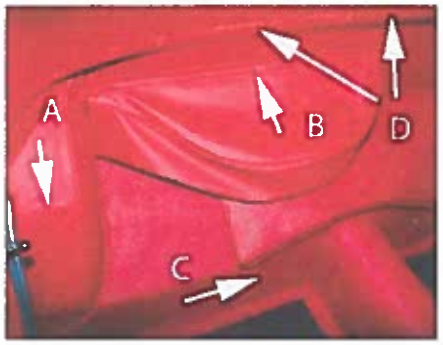


Photo 11 - A jute felt pad to cushion the folded hood bows goes under the wheel arch cover on the "flat" (A). The top edge flap of the wheel cover is glued to the flange and bulkhead above the wheel opening. Three "Speedy" rivets (B) are also used to attach the second stitched flap along the top edge. These have a flat base, push-on caps, and are compressed using a buck from underneath and hammer and flat ended drift from above. The heads are painted black. Lift-The-Dot studs (C) are used for the battery door hold-down straps (not yet installed here). The flap along the top edge of the upper Armacord piece is glued and trimmed flush with the front edge of the rear shroud (D). It will be hidden by the aluminum cockpit molding. This photo is of a Reno Red BN2 with Red trim. Note Armacord covering on the drive shaft tunnel.

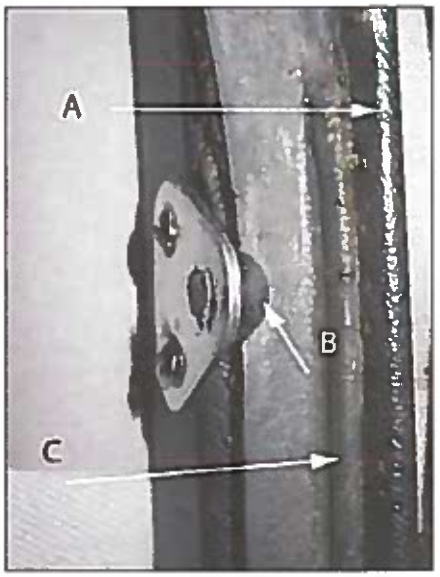


Photo 12 - This view is looking upwards at the front top bow of a Healey 100. (A) points to the vinyl-covered lip of the angle iron. The rubber buffer, B (same part as used along the bottom edge of the boot opening), is pressed into the chrome plate before mounting to the header. The lip (C) on the rubber seal strip (an original 100 top seal is shown here) nests against the back surface of the header angle iron's vertical face. Tip: AFTER working the buffer tightly against the chrome piece, gently pry up the dome edge and use a little superglue behind the mushroom to hold it on firmly.

Photo 13 - An excellent seal that is almost exactly like the original one is available from Restoration Specialties (www.restortionspecialties.com) -- their item number 4116. The left face in this photo nests against the inside of the front bow angle (see area "C" in Photo 12).

Photo 14 - This photo shows the second style of top frame mounting plate. Note the male snap at the right that a flap on the top will attach to. The mounting plate of the first style had a slight peak at the center of the top edge, instead of being straight. Otherwise the top bows are identical.

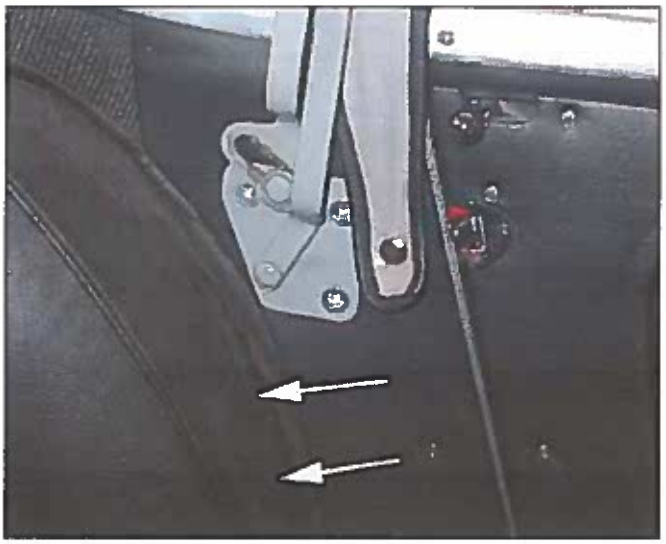


Photo 15 - This is the third style of top frame mounting plate. Note the difference in the top bow slot configuration. A jute pad is glued to the flat recess in the wheel arch, under the vinyl covering, in the area indicated by the arrows. This view also shows how the top's flap will attach to the snap.

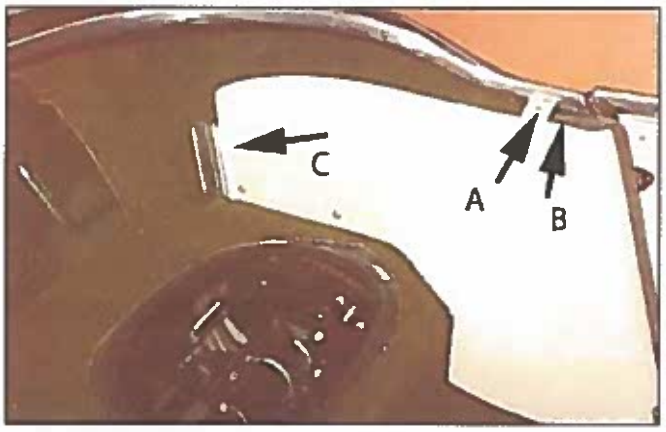


Photo 16 - Rear cockpit trim in a BT7. The aluminum finisher plate is yet to be mounted on the trimmed wood block (A). This plate has a channel that extends forward to retain the door seal (b). The bracket (C) provides mounting for the rear seat back.

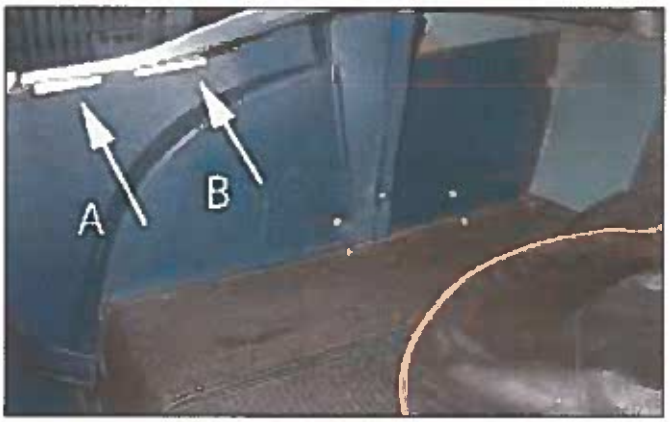


Photo 17 - This photo of an original BN6 shows many of the rear trim details. The spare tire cover was vinyl on earlier BN6's and later changed to carpet (without any piping) between BN6 chasses 2093 and 3061. Trim plate (A) is the same piece as used on 2+2 roadsters. Plate (B) is unique to BN6 and BN7 cars.

After mounting the top bows to the car, open them up and latch to the windshield pillars. I find that pressing the front top frame corner rearwards a bit and then down against the windshield frame using the heel of one hand, while closing the latch with the other, helps to minimize the shearing force against the rubber buffers. If you just let he latch pull the top downward the rear edge of the windshield frame will tend to tear the mushroom dome off of its mounting stem. When releasing the top, this technique also makes it easy to unhook the latch from the chrome post without having to force the latch lever forward.

Finish fitting the top frame by making any adjustments necessary so that it also folds down neatly without the arms scraping each other.

6-cylinder roadsters

On the 100-Six and 3000 roadsters, it would now be appropriate to finish off all rear cockpit trimming that remains to be done. There are differences in the panels and trim materials between the two-seat and 2+2 body configurations, but much information on details can be obtained from the Service Parts List.

Fitting of the top frame on most of these models basically involves adjusting the main bow by bending so that it easily slides into the pockets. There are screws at the bottom of the legs for adjusting the height of the top when it is fitted later.

Early BN4s, built up to April 1957, had top frames that were attached to the body, though with much different mechanisms than on the 100s. However, the front bow was not part of the rest of the frame, but was only attached to the top material, as was also the case with later BN4s and also the BT7s.

Without the top covering mounted, the front bow of 2+2 seat models can be attached separately to the windshield. There is a wood piece that is covered with top material to which an aluminum trim piece is screwed. Finally there is a soft rubber seal glued to the aluminum.

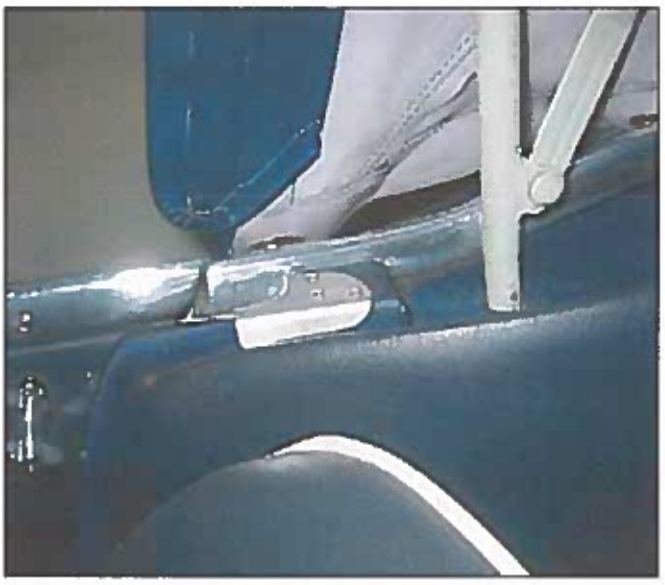


Photo 18 - The main bow on later BN4s and BT7 models slides into a pocket through a hole in the carpet.

Photo 19 - On BN6 and BN7 Healeys the main frame pocket has a separate aluminum trim piece screwed to the rear quarter trim panel.

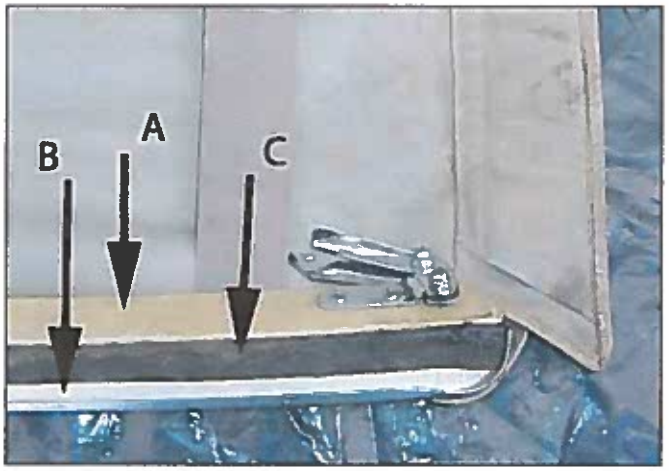


Photo 20 - The front bow on BN4 and BT7 Healeys is a wood piece, covered with top material (A). An aluminum trim piece (B) is screwed against the wood (hiding the joint of the covering material) and has a front edge configured to hook onto the windshield frame. A simple foam rubber seal strip (C) is glued to the aluminum. With the bow hooked to the windshield, the latches holds it tightly in place. (This photo of a NOS Grey BT7 top courtesy of Peter Svilans)

Convertibles -- BJ7s & BJ8s

On convertibles the top frame must be mounted before the rear quarter trim panels can be attached. The first step is to mount the frame to the body. Shims for adjusting the height were used by the factory for fitting around the door windows. The balance springs need to be attached at this point and will make raising and lowering the frame much easier.

The next group of tasks will involve attaching trim, seals, and hardware to the frame. Wood blocks that are screwed to the front and side frame pieces should first be trimmed in a thin, lightly-textured white vinyl. Cut the material to form flaps which cover the ends of each piece of wood. They can then be attached to the top frame, followed by mounting the aluminum facing pieces. However, before latching the frame to the windshield, the remaining seal strips need to be added.

There is a fairly good substitute for the original seal strip available from Restoration Specialties (www.restortionspecialties.com) as their item number 1120A-GRY. It is rather grayish in appearance, has a steel core (which grips the aluminum flange very well) and a rubber bulb that is close to the size of the original one. These seals need to be trial-mounted to the top frame for measuring their lengths.

Once the seals have been attached, the top latches and handle can be added and the frame raised for latching to the windshield. At this point you can finally check to see how the seals fit against the raised door windows. Shims may be added under the top frame plates to raise the frame a little, but adjustment this way is rather limited. The top of the side window should have been set earlier to be flush with the top of the vent

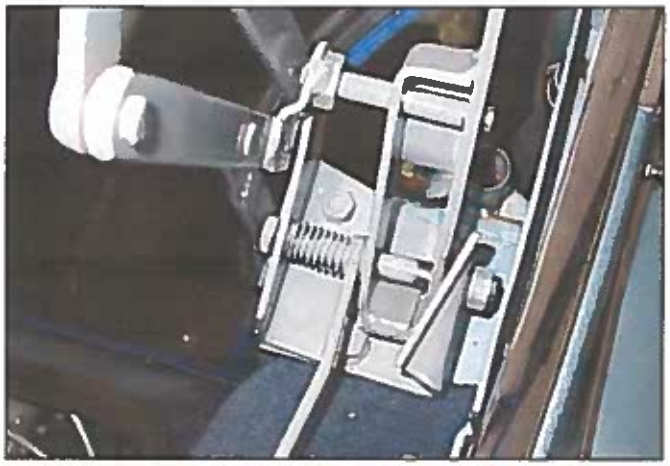


Photo 21 - There are two studs on the body platform and one on the top frame plate for mounting convertible tops. Shims may be inserted under the plate later when adjusting vertical position of the frame over the door windows. The top surface on the chassis that the top frame mounts to has been found hand-painted gray on some BJ8s. All moving parts of the mechanism should be lubricated to make its operation easier

Photo 22 - The sleeved balance springs (seen through the door window -- arrow) should next be attached to make it easier to raise and lower the frame. (See Photo 1 for another view of this spring and its Armacord sheath "D").

Photo 23 - The white vinyl should completely cover the wood blocks with tight gaps where the edges met (see arrows). Lips on the aluminum facing strips are for mounting the rubber seal strips.

Photo 24 - The trimmed front wood block (A) is screwed to the header bow. Note how the side block trim meets to form a tight edge joint (B).

window frame in its fully raised position, so this should not require further adjustment.

Trimming of the doors can now be completed. With new padded panels, and new draught seals, there will be a lot of "crush" when the doors are closed. This tightness will ease over time after the materials take a "set".

Photo 25 - An aluminum facing is trimmed with top material and screwed to the header bow's wood block.

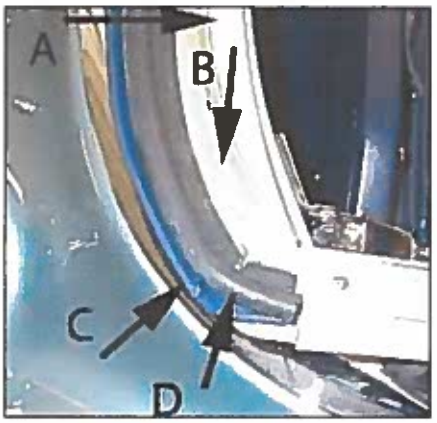


Photo 26 - Next, a rubber seal strip with a tubular bulb along one edge (D) is glued to the aluminum facing (B). Note the vinyl-covered wood (A) and the vinyl covering (C) of the aluminum (see also Photo 25).

Photo 27 - The rubber end caps need to be cut through the web as shown by the arrows so that it can slide down over the aluminum flange. Use Superglue to attach to seal strips.

Photo 28 - This view shows the seal strips installed. The extra seal strip (D in Photo 26) can be seen on the head bow (arrow).

Photo 29 - Though taken at a later stage after the rear cockpit and console trim had been installed, this photo shows the top frame prepared, adjusted, and ready for installation of the top (which will be done later).

Photo 30 - A filler (arrow) made form foam rubber is glued and screwed to the end of the trimmed wood block. The screw is a Pozidriv trim screw with cup washer and it and the washer are buried a bit into the rubber block.

Photo 31- There is a thin vinyl cover glued to the frame all-around making an air-tight seal to the inside of the door before attaching the trim panel. The foam rubber "donuts" (original ones shown here) push firmly against the panel (and in doing so also make the handles more difficult to install).

Photo 32 - A finished BJ8 door panel. Blunt-tipped raised-head large sheet metal screws attach the inside pull handles. They must not be long enough to scratch the window glass, yet also have good "bite" into the door frame. Do not over-tighten these or the sheet metal threads will become stripped. Install these handles with the window rolled down and visually check down the window slot that there is adequate clearance between the blunt screw tips and the glass. The window and door lock handles are in the correct orientation in this photo -- window is in the "down" position.

Next time ...

There still is a lot of trim work to do, so that will be the focus in our next installment. We will address finishing trimming the rear of convertible cockpits, BJ8 consoles, solving what to do about some special rubber bits that are not available anywhere, and seat belts. As with recent installments, I will use photographs as much as possible to illustrate how to tackle some tasks, as well as what the result should look like.

One Approach to Restoration

Tips on Trimming the Cockpit

e installed and aligned the windows, and set the top frames in place in Part 33. I am now going to continue with more trim work in the cockpit.

Many of the tasks are straight forward, and all you really need is to pay attention to the types of fasteners used and how the results should appear. Much information about these details can be obtained using the Service Parts List for your Healey model , studying period photos of the cars when new, or examining original or carefully restored examples.

As with other segments in this series, I will focus attention on details that typically are missing or done incorrectly because information about them is difficult to find. And these topics should be equally of value to people performing repair work as well as a complete restoration. I would only like to add that the more correct you make your car, the greater its value should be when the time comes for you to sell.

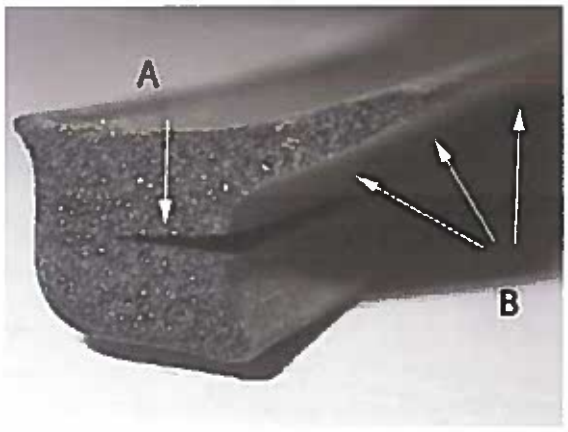


Photo 1: A slit (A) has been created in the MMP seal LP 41-M, which will be slid over the seat opening edge. The flap (B) angles upward and will seal against the underside of the seat pan flange.

Rubber Seat Pan Seals

[illegible] to find accurate [illegible] the seat pans and rear cockpit shelf on all 2+2-seat Healeys (BN4, BT7, BJ7 and BJ8) are one such item. I have found a way to create a reasonable approximation, however, using a readily available rubber extrusion.

The original seal has a thin flap that contacts the seat pan and a narrow groove that slides over the shelf opening edge. I use as a starting material seal LP 41-M (Photo 1) obtained from Metro Molded Parts (www.metrommp.com) and then built a fixture (Photo 2) that allows me to create a slit of uniform depth.

This seal will be cut to length so that the shelf edge is fully buried in the slit. Use just enough adhesive to keep the seal in place, and make the end joint at the mid-point at the front.

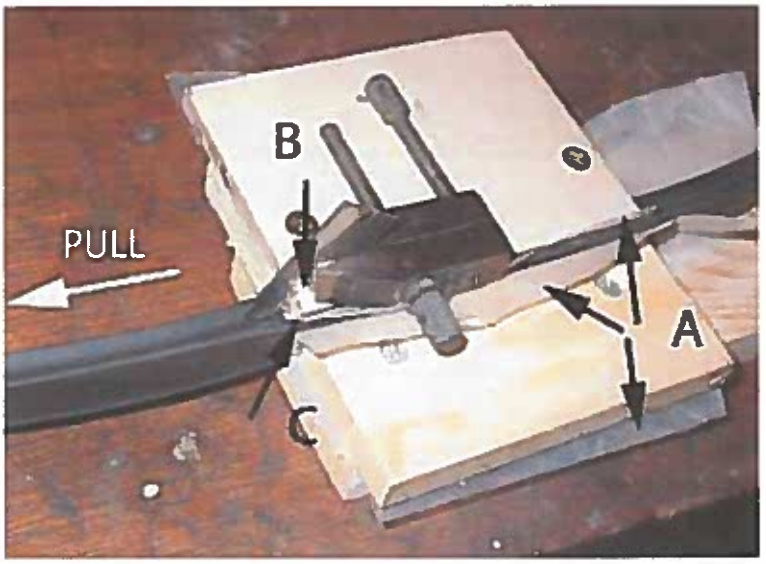


Photo 2: This wood fixture was constructed to create a cavity through which the seal material can be drawn. A polyethylene plastic lining (A) is used to reduce friction. A thin slit (B) in the top block positions the razor blade. The clamp sets the blade depth. There is a gap (C) to clear the seal flap (B in Photo 1). It is important that the seal be pulled through the tooling, as this causes it to contract laterally and reduce friction as it slides along.

Photo 3: The rear cockpit area of a BJ8. The thin foam padding under the vinyl should be cut back from the edge of the seat pan openings and where the wheel arches meet the shelf. The vinyl should be glued to the painted metal lip around this edge, but not to the foam pad.

Photo 4: A seat pan seal installed on a BJ8. The appearance is almost exactly like the original.

Convertibles Rear Cockpit Trim

Previously in Part 31, installation of the door seals was covered. In the case of BJ7 and BJ8 convertibles this task was left unfinished, as the top frame needed to be installed before attaching the rear quarter trim panels. Now is the time to finish off trimming the rear cockpit of these models.

First you need to install the carpet and shelf covering. The latter is vinyl over thin foam rubber padding. Follow this by mounting the rear quarter panels. The front edge of these is held to a metal flange using sheet metal trim screws with cup washers. Again I advise using grease on the screw threads to minimize wear of the tapped holes. If you press the panel by hand tightly against the flange while tightening the screws you will create less stress on the threads.

With the side panels in place you can now finish installing the door seals. These slip over the top front edge of the upholstered trim panel and are also held to the panel and top of the door opening flange using very short #4 countersunk head sheet metal screws

Photo 5: On late BJ7s and BJ8s the door seal bends over the top of the door opening and clips onto the top front edge of the trim panel. Two #4 sheet metal screws (arrows) described in the text are used on each side to hold the seal to the metal flange at the door opening and metal backing of the panel. You will need to drill a hole through the web of the metal seal core so that the screw can grip it firmly. Note also the metal clip squeezed over the end of the seal, Tenax stud for the convertible top cover (when the top is folded down) just below the clip, and upper trim panel mounting screw just below the arrows. On earlier BJ7s, the seal strip ended at the top of the door opening and is illustrated in the Service Parts List.

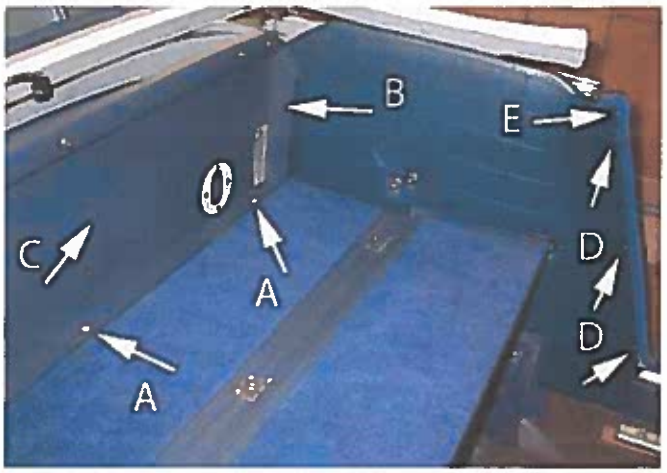


Photo 6: This view of a BJ8 shows two of the flat head screws (A) used to mount the seat back frame to the shelf; the inside of the side frame (B) where similar screws thread into hidden "T" nuts; Rexine covering material on the rear frame piece (C); the three trim screws (with cup washers) (D)attaching the front edge of the trim panel to the metal flange; and one of the tiny #4 screws holding the door seal to the flange.

through the furflex and metal core web. You should find original holes in the panel and flange to help you locate exactly where these screws should be inserted.

Finish trimming the rear by mounting the seat pans and installing the seat back. The rear seat back on BJ7s is hinged to fold forward and the components are illustrated in the Service Parts List. The BJ8 seat back is comprised of two hinged panels. The main frame piece mounts to the shelf behind the seat pans using three

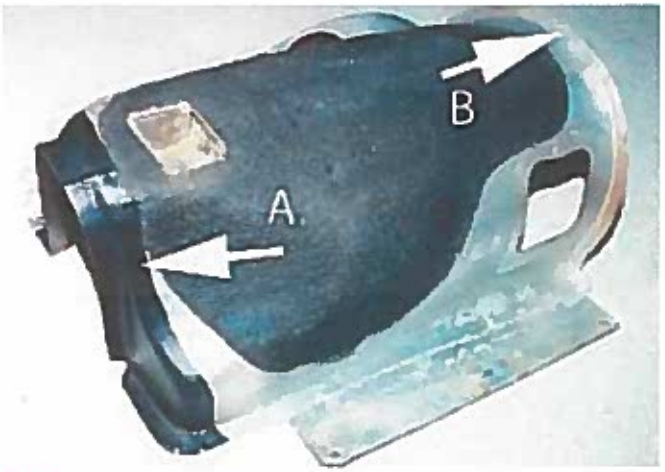


Photo 7: On BN1 (3-speed) gearbox covers, a coated jute pad, like that used under floor carpets, is glued to the aluminum cover. Leathercloth is used to trim the rear area (A). The front flange (B) will be covered by a vinyl flap when the carpet is attached.

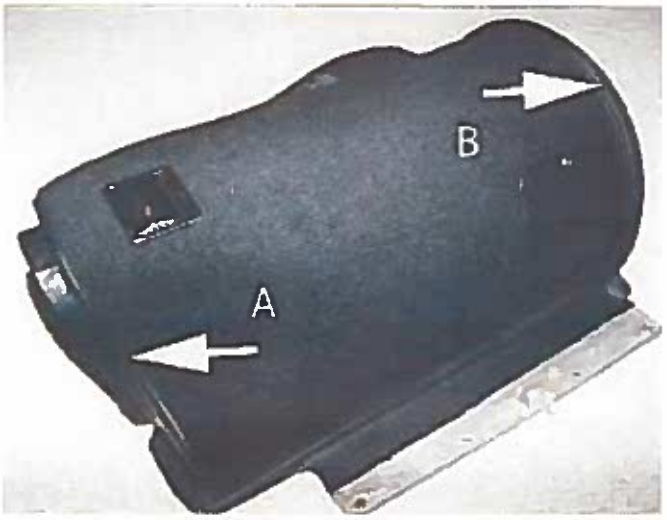


Photo 8: The BN1 gearbox carpet has rolled edging at the rear (A) as well as around the gear lever area. A flap sewn to the carpet's front edge is wrapped over and glued to the front flange (B), and flaps sewn to the carpet bottom edges are glued to cover's mounting flanges on both sides.

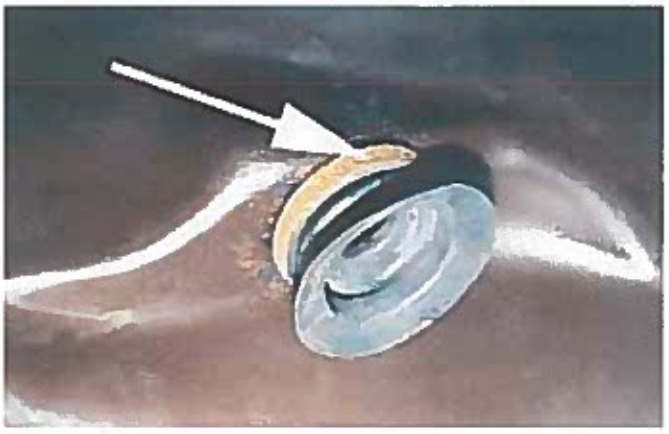


Photo 9: A 3 1/2 inch diameter by 3/8 inch thick skinned foam donut (arrow) fits into the top groove of the gearshift boot before inserting the boot through the gearbox cover hole. The cylindrical cavity in the bottom of the boot will nest over the gear lever cup on the transmission. The underside of the aluminum cover is finished in a dark brown primer.

1.5-inch long, flathead, countersunk 1/4-28 screws that thread into nuts welded to the underside of the shelf. Use a tap to make sure that the threads are clear of paint, rust, or trimming debris.

The sides of the seat back have "T" nuts pressed into the vertical wood frame sections which are covered by a very thin vinyl trim material. An excellent replica of this material is Rexine cloth (also called moleskin), also used in book binding cover applications. There are four 1 3/8 inch long flat head 1/4- 28 screws that thread into the nuts from inside the rear wheel arches – two on each side on earlier BJ8s and one on each side later on. Examine the wheel arch holes to determine how many side screws your car uses. Be careful that the screw ends do not penetrate to where they push against the material covering the seat back frame.

The rear seat back frame and folding panels should be assembled before positioning in the car. It likely will be a tight fit between the side trim panels, and aligning all holes for the screws that insert through the wheel arches may be tricky. Here is another place where your patience will be well rewarded.

Gearbox Cover Installation

100 BN1 - The carpet gearbox cover attaches differently on the 100 BN1s, BN2s and side-shift 6-cylinder roadsters, and center-shift 3000s. Furthermore, early 100s, at least up through Body no.133, had a different shape around the gear shift lever than later production BN1s and thus were trimmed differently in this area.

The accompanying photos will illustrate the more common configuration found on BN1s from late 1953 through the end of their production in 1955. There are two removable pieces covering the drive train – the main gearbox cover and a short 8-inch tunnel extension back to the fixed drive shaft tunnel (which provides access for lubricating the front U-joint and drive shaft slip joint). All pieces (including the fixed tunnel) are covered with carpet with rolled vinyl binding or vinyl flaps sewn to various edges. On the gearbox cover there is some jute padding glued to the aluminum. The carpet cover is generally not glued to the jute except in concave/recessed areas.

The armrest pad was laid over the drive shaft tunnel and attached to Tenax studs mounted in both the fixed and removable tunnel sections.

100 BN2 and 100-Six BN4s up to April 1958 – BN2s had a new 4-speed gearbox and required a new cover design, now made in steel and painted with a dark brown primer on both sides.. The separate rear tunnel extension (used on BN1s) was done away with. The gearbox cover now extended rearward to overlap the fixed tunnel, and had rectangular ports (with removable rubber plugs) for access to fill the gearbox and lubricate the U-joint and slip joint fittings. On BN2s, Armacord was now used to trim the fixed tunnel with the cut-out area to clear the handbrake finished with a rolled binding of the same vinyl used for other interior trim. A piece of this same vinyl was cut to fit around the handbrake and glued to cover any of the painted tunnel metal that would otherwise show. A thin jute felt strip (approximately 1/8 inch thick) sealed between the gearbox cover and the Armacord.

The new BN4s continued the same basic gearbox cover and arm rest configuration as on the BN2, with some modifications, except that carpet replaced the Armacord drive shaft tunnel covering. This carpet piece had rolled vinyl binding on the rear edge where it meets the bulkhead and also on the "U"-shaped cut-out around the handbrake mounting. As with the BN2s, a piece of trim vinyl was glued to the tunnel to cover the exposed painted metal around

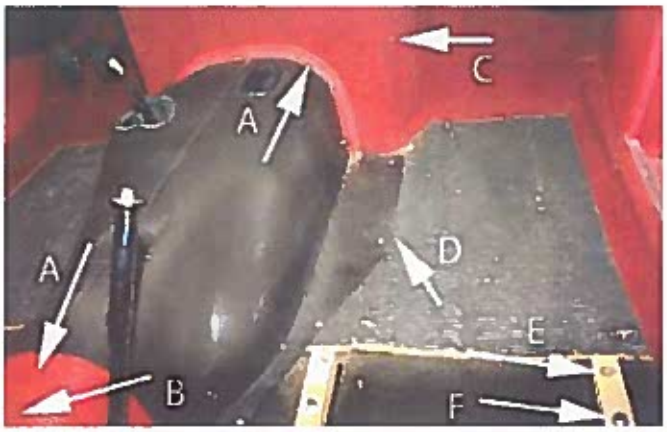


Photo 10: The interior of a BN2 showing a number of details. Note that there is a single seam running lengthwise along the top of the gearbox cover. Vinyl is glued over front and rear edges of the cover (A) and there is a thin jute felt strip glued to the underside at the rear to seal to the Armacord covering of the fixed drive shaft tunnel (B). Snaps were used to attach the carpet cover (just to the right of the letter "B" and at the front corner). Three panhead Phillips sheet metal screws (C) on each side attach the front bulkhead panel to the foot box sides. The cover flanges screw down over the floor jute felt (D). The standard passenger side seat mounting on 100s did not use tracks (as for the driver). Instead, a thick strip of wood was bolted to the floor (E). A thin wood packing strip with holes to clear the bolt heads (E) lay on top of it. The seat pan was attached by four bolts (F – temporarily installed here) that passed through the packing strip and threaded into "T" nuts fixed to the underside of the bottom wood strip. A number of mounting holes to choose from in the seat pan allowed adjusting its position towards the front or rear.

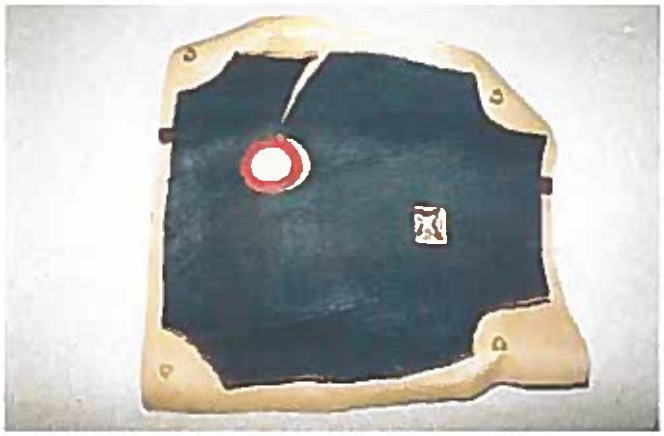


Photo 11: On BN2s and BN4s, built up to April 1958, a jute insulation pad was glued to the underside of the gearbox carpet. Snaps for attaching the carpet to the gearbox cover can be seen in this photo. The "donut" binding around the gear lever opening was made from two pieces sewn face-to face, then turned inside out and then stitched to the carpet. The extra edge material was finally trimmed back to about 1/8 inch from the stitching.

and behind the handbrake. All binding was done in the same vinyl color as used for other interior trim pieces.

This driveline carpet configuration, with a short gearbox carpet cover extending back to where it meets the driveline tunnel, carried through to the temporary halt of BN4 production in April 1958 (when production was concentrated for a few months on the new 2-seat BN6 model). Both BN6s and later BN4s (after their production resumed in September, 1958) used a longer one-piece gearbox-tunnel carpet cover that extended all the way back to the rear bulkhead. This will be described shortly.

Photo 12: Tenax fasteners at the forward corners of the armrest pad attached to studs that were mounted in the gearbox carpet cover (arrow). Rear studs were screwed into the fixed drive shaft tunnel. This photo is of a BN2 with red interiors — therefore the piping is the same color as the trim material.

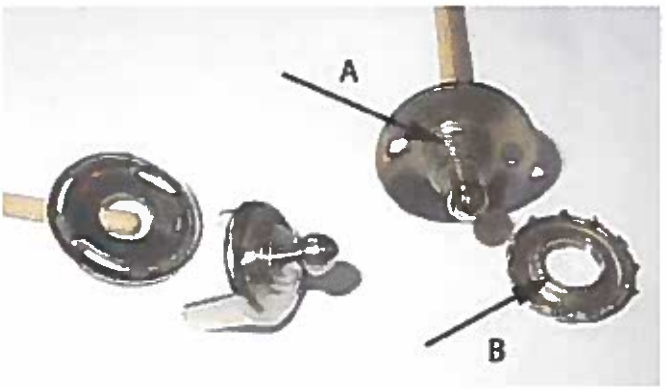


Photo 13: Special carpet-mounting Tenax studs available today (left) have tangs that poke through the carpet and spread behind a backing plate. The original carpet-mounted Tenax studs (right) were integral with their back plate. They had threads (A) that a pronged nut (B) screwed onto. Once the nut points engaged the carpet the stud could be tightened from behind using the standard Tenax 2-prong tool.

BN2s and the first group of BN4s – On these, the metal gearbox cover was extended rearward and had vinyl trim glued to both front and rear edges and the carpet was attached using snaps. The carpet sides extended down to butt against the metal gearbox cover flanges. When the floor carpet is installed it will lie over the cover flange and butt against the vertical face of the gearbox carpet.

The padded armrest was attached using Tenax fasteners, as with the BN1s. Initially BN2 armrest side panels were the same as on BN1s, and this configuration continued unchanged into BN4s, but the side panels were later shortened at Abingdon (they did not extend as far down towards the floor) prior to temporarily halting BN4 production in April 1958. Studs for Tenax fasteners at the front corners of BN2 and BN4 armrests were attached to the gearbox carpet (and not the metal structure -- see Photo 13), while the rear studs were mounted to the fixed tunnel, as with the BN1s.

Later BN4s, BN6s, and 3000s up to the center-shift Mk IIs – There were a few changes to gearbox trim when the BN6 was introduced. The carpet now was one-piece, all the way back to the rear cockpit bulkhead. No trim was needed at the rear edge of the gearbox cover, and a thin felt strip was used for sealing to the drive shaft tunnel. Vinyl rolled binding around the handbrake,

Photo 14: This is the style of gearbox cover used on all 100-Six and 3000 roadsters (up to the center-change gearbox). The 6-cylinder roadster cover had two longitudinal seams, as compared to the single seam on the BN2 cover. The front flange was wider (shown here) on 3000s than on 100-Sixes. On cars with grey interior trim, carpet binding around the gear lever and handbrake was done in grey vinyl, as was the piece glued behind the brake handle and the front flange was trimmed in either green (shown here) or red to blend with the carpet. On all other trim colors (black, red, or blue), the front flange trim as well as all carpet trim and binding was the same vinyl color used throughout the interior. The rubber gear lever gaiter is shaped on the underside to fit snugly over the metal gear lever retaining cup on the transmission (see also Photo 10). Rectangular ports with rubber plugs provided access for filling the gearbox (A) or lubricating the forward driveline grease fittings (B). As with the BN2, the gearbox carpet was attached using snaps (C).

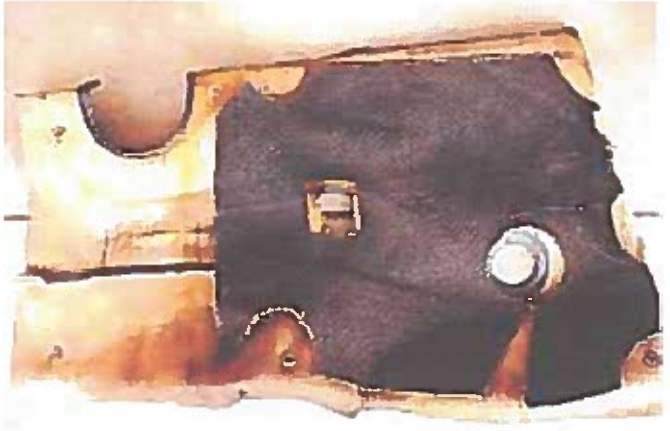


Photo 15: This photo shows the jute pad glued to the underside of an original BN6 gearbox carpet. The carpet extends all the way back to the rear bulkhead and now has a wrapped vinyl binding around the opening to clear the hand brake.

Photo 16: With the one-piece gearbox-drive shaft carpet, the arm rest pad was now sewn to it, starting with BN6 C. 744 and continuing from BN4 C. 68960 through 3000s, up to the BJ8s. Note that the pad is not rectangular, but rather noticeably wider at the front than the rear. This photo is of a 3000 Mk I with grey-green interior. Original seat cushions were a bit more squared-off at the front.

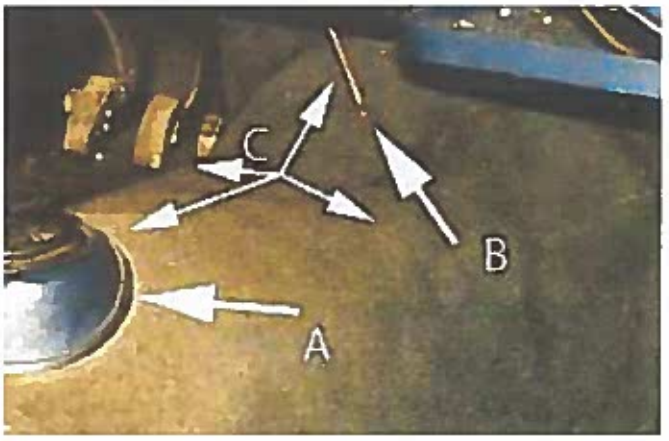


Photo 17: Original carpet in a center-shift BT7. The raised part of the fiberglass around the gear lever is covered in vinyl and the carpet edge is finish with a rolled vinyl binding (A). The speedometer cable passes through a hole in the carpet (B). On Mk II roadsters, a rather limited jute pad was glued to the underside of the carpet only over the top horizontal area and extending from the gear lever forward and up the sloped front (range C in the photo). This padding has not been observed on very original BJ7s or BJ8s. The carpet must be pulled back quite a bit to gain access to the gearbox for filling (see hole and plug [25] in Photo 18). The armrest pad continued to be sewn to the carpet up to the BJ8. (Photo courtesy of Peter Svilans)

and a vinyl piece glued to the tunnel behind the handbrake were continued. All vinyl pieces and binding were of he same color as used elsewhere in the cockpit. The only exception was on cars with grey interiors, where the piece of vinyl glued over the front edge of the gearbox cover was in a color to blend with the carpet.

One significant change was made when the one-piece carpet cover was introduced. From that point onward, the armrest pad was sewn directly to the carpet. This pad had vinyl sides and leather for the three pleats on top. It is noticeably wider at the front than the rear, and had a molded foam rubber pad inside, of the same type of foam used in original seat cushions.

Other details of the gearbox cover installation are well-illustrated in the Service Parts List for the BN6 and 3000 Mk I.

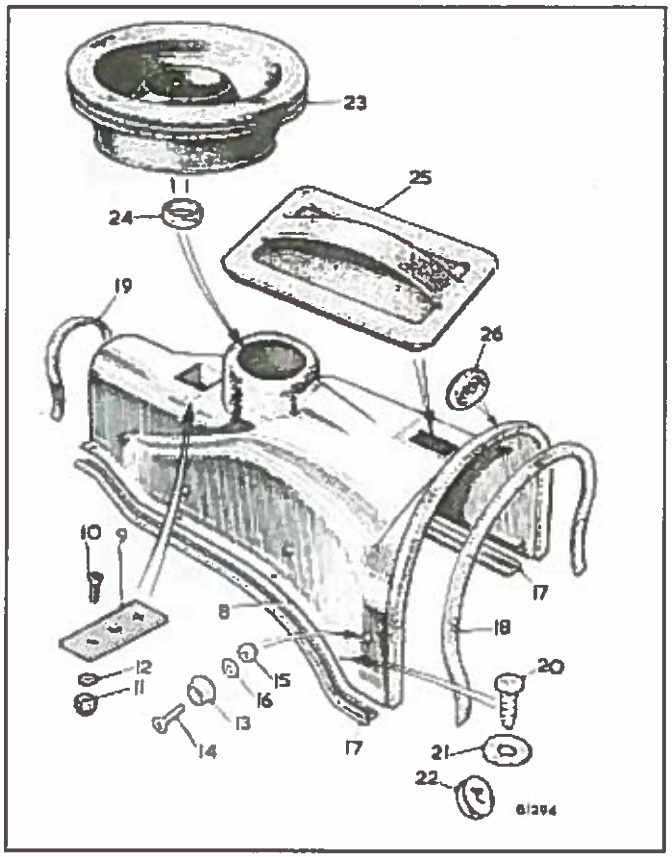


Photo 18: An illustration of the fiberglass gearbox cover used for cars with center-shift transmissions. Item #17 is the rubber seal to the chassis, BUT I believe its placement is incorrectly pictured for a number of reasons. First, a mechanic who owned a Healey repair shop for about 30 years from the late 1960s and worked on many relatively new Healeys, remembers only seeing this seal mounted over the raised metal flange that was welded to the floor. Second, the inverted "U" channel on the inside of the cover is quite wide and fits perfectly over the metal flange with the seal attached to it. And third, rubber grommets (#22) are inserted into the fiberglass flange for mounting to the floor. The face of these grommets, projecting on the flange underside, would interfere with a good seal, even if the surface was a compressible rubber strip.

Photo 19: This is a close-up of the original gearbox cover seal. The material is molded, skinned foam rubber approximately 1/8 inch thick. Measured from the top of the curve, the long leg is 7/8 inch and the short one about 1/4 inch.

Center-shift Healeys, 3000 Mk IIs and Mk IIIs – With introduction of the center-shift gearbox during BN7/BT7 Mk II roadster production, a number of changes were made to the gearbox cover and its trimming. The carpet remained one piece from the front back to the rear cockpit bulkhead. However the cover structure was now made out of fiberglass and incorporated formed inverted "U" channels running lengthwise on the inside just above the bottom edges. These channels nested over metal flanges that were welded to the floor. A J-shaped rubber seal was installed between the chassis and the gearbox cover. As noted in the caption for photo 18, I believe the seal should be attached to the raised metal flange welded to the floor.

There is no source that I know of for this "J" seal, but it is easy to make a fairly close replacement using skinned foam rubber 1.5 inches wide by 1/8 inch thick from Metro Molded Parts (www.metrommp.com – their item #LP-58F).

Other trimming tasks in the cockpit are fairly straight forward, so these will not be discussed here. Information can be found in period photographs of original interiors, Service Parts Lists, and by examining original cars or those that have been carefully restored with attention to accuracy.

Photo 20: To replicate the original inverted "J" seal, first glue the 1/8 inch thick foam strip to the back side of the metal flange, leaving enough projecting up to reach down to the floor on the front face.

Photo 21: The second step is to use contact cement again to adhere the strip to the outer face of the metal flange. Make sure the rubber layer is tight to the metal to keep the overall thickness at the folded edge as thin as possible.

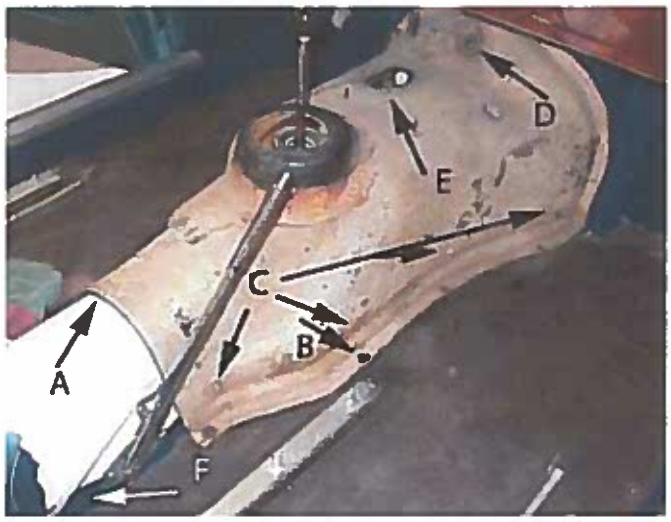


Photo 22: A BJ8 gearbox cover. (A) points to the rear sponge rubber seal to the drive shaft tunnel (here with some protective paper temporarily laid over tunnel). (B) rubber grommets; there will be flat washers under the heads of mounting screws. (C) snaps for attaching the carpet cover. (D) hole and grommet through which the speedometer cable passes. (E) access port for filling and checking the gearbox oil. (F) blue (in this case) vinyl trim piece glued to the driveshaft tunnel behind the handbrake mounting. The gear lever needs to be centered in the fiberglass cover hole, and this may require eliminating the front rubber seal (#18 in Photo 18) so the cover can be positioned a bit forward.

Photo 23: Gearbox carpet cover– the raised fiberglass dome has its original vinyl covering. On Mk II roadsters and BJ7s this "tower" was covered in the same color vinyl used for interior trim. The covering was black on all BJ8s, as shown here, regardless of interior trim color. The baggy fit of the carpet can also be seen in period factory photos. On BJ8s there was no rolled edging around the handbrake cut-away. The black bracket in front of the gear lever is for fixing the console. On LHD cars the left-front of the carpet must be folded back to gain access to the gearbox dip stick, so the speedometer cable feeds under the front part of the carpet and exits at the top edge.

BJ8 Console

Trimming the center console on BJ8s presents a few special challenges. Installation of the console is fairly easy, but don't forget the machine screw that attaches the tab at the rear to a threaded insert in the top of the fiberglass gearbox cover. If a radio is to be installed, it should be mounted to the console before fitting the console to the car. Finally, the center arm rest assembly nests into the back edge of the console and is screwed at the rear to the driveshaft tunnel.

Photo 24: Thin foam padding was used on the console sides and on the vertical face of the console. There was no padding on the horizontal surface. Joints between the side and top vinyl pieces must be tight and precisely aligned so they will be hidden by the narrow stainless trim strips. The foam padding needs to be cut back slightly near the trim strip so the vinyl coverings can be glued to the metal console surface.

Photo 25: This photo of a totally original BJ8 with 16,184 mi. on the "clock" (built October 13, 1967) shows many details. 1) There is a strip of matching piping attached (with "D" clips) along the top edge of the console where it meets the bottom of the dash. 2) Around the gear lever the narrow edge of the stainless trim should show. 3) On this RHD car the speedometer cable pokes through a hole in the carpet. This cable would be shorter than on a LHD car and exit through an appropriately-located hole in the gearbox cover. Since access to the gearbox dip stick is on the left side, this doesn't interfere with folding the carpet back. 4) This car has non-adjustable steering -- thus the larger horn button and different switch bezel design.

Next Time, Still More Trim

There are a few more interior trimming tasks left to do before this aspect of the car is "complete". These include seatbelts and seats, and trimming the boot. We will address these next time.

One Approach to Restoration Part 36

Boot Lid, Bonnet, and More

By Roger Moment

Thanks to John Hodgman and Peter Svilans for their critical reviews and suggestions regarding this manuscript.

We've finished most of the trim work, including lining for the boot. In this installment, we are going to move ahead with assembly of the car by attaching the boot lid and bonnet, and setting the orientation of the steering wheel.

Other trim tasks that weren't covered in these pages are fairly routine. These can be completed with aid of the Service Parts List for your car, reference to photos of original cars, and examining completed cars that are known to be fairly correct. It is not unheard of to find something on a car that is believed to be original, or accurately restored, to in fact be wrong, so a basic tenet of restoration research is to look for confirmation by double- and triple-checking against multiple sources.

Boot Lid

The boot lid is more easily finished on a work bench prior to installation on the car. Tasks include mounting the lock handle (the lock should have been mounted and painted along with the lid itself), badges, hinges, sealing gasket, and prop rod. The telescopic stay on 100s should be mounted to the left wheel arch before fitting the boot lid. The majority of this work is fairly self-explanatory, but tips on a couple of tasks may be useful.

The sealing gasket should probably be left as the last item before mounting the lid. Boot lid gasket installation differs a little between the 100s and later 3000s. On 100s, it consists of two pieces, with joints midway up the boot lid sides. On 3000s most original gaskets are one piece with the joint down by the latch. On one 3000Mk I the gasket was also done in two pieces, as on 100s. Also, on a few Mk IIIs original gaskets have been found with pre-formed corner pieces butt-joined to the straight segments. Regardless of these configuration details, the two things you need to be concerned with are:

- That the gasket nests tightly as it rounds the corners (and won't pull away over time)
- That the material has a reasonably-correct profile and doesn't hold the boot lid proud of the surrounding body panel when closed.

This latter issue should have been considered when doing panel fitting, but sometimes last-minute adjustments are needed. Remember that the body channel is aluminum, and thus it is easy to bend the inside lip up or down as needed. Be sure to use proper padding and tooling to minimize paint damage. Paint repair is not terribly difficult to do, however, and since the area that might need fixing has lots of contours, it is easy to have it blend in and not be noticeable.

Mounting the boot lid is a 2- or 3-person job. First double-check that the hinges are attached to the lid with the bottom surface sloped correctly. Also have all the hardware for attaching the hinges to the body ready, and test that the nuts thread easily onto the hinge studs.

Place the hinge studs through the rear shroud holes and while one or two people hold the lid open and in position, another helper needs to install the large flat washer, spring washer and nut. On four-seat Healeys these are attached from inside the rear of the cockpit, while two-seat roadsters, access

Photo 1: This photo shows how a completed BJ8 boot looks, with tool kit, tonneau cover support bar in its Armacord case, tire hold-down equipment, and plastic battery cover. Boots of earlier 3000 series are virtually identical.

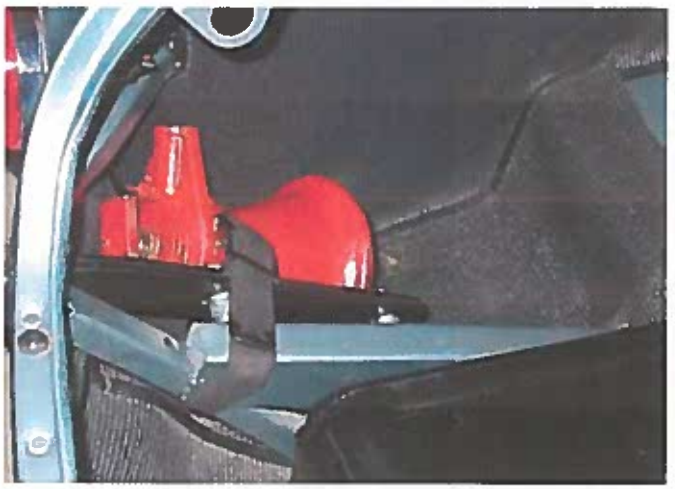


Photo 2: Starting with 3000 Mkl BN7 C.10611 and BT7 C.10565 (around summer, 1960) the black King Dick B.1881 jack was replaced with a shorter Chinese Red Shelley LJ225 one with a conical base. At this point a strap was also included for securing the jack against the left rear bumper bracket. This photo is of a BJ8. Note the reinforced lip around the nose of the jack where the handle inserts. This design change occurred early on during BJ8 production to correct a problem of the yoke pocket breaking.

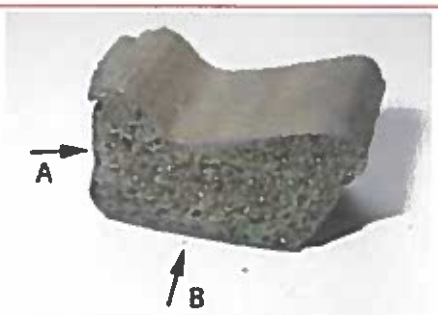


Photo 3: This is a piece of original boot lid seal from a 3000 MK I. The left face (A) presses against the side flange. I only apply adhesive to the bottom surface (B) as this is adequate to hold the seal in place and makes for a neater installation.

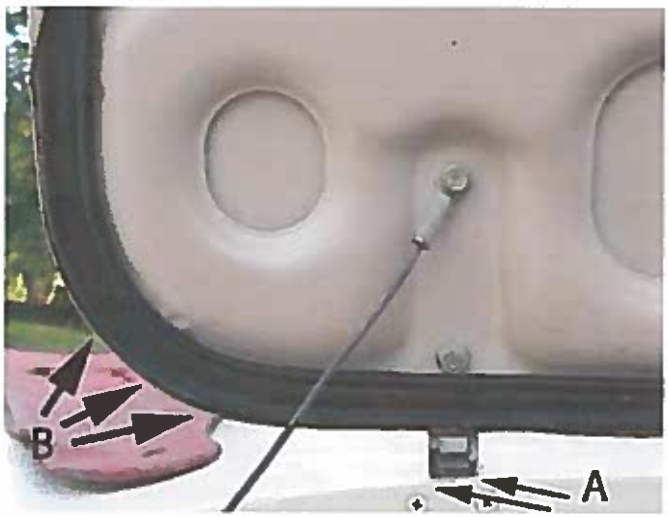


Photo 4: Gaskets are most easily installed with the boot lid off the car. Start gasket installation at the center of the forward edge. Apply adhesive (contact cement is good) to the bottom surface of the gasket and mating area on the lid. The trick to having the seal stay pressed up tightly against the boot lid flange in the corners (arrows B) is to compress the gasket by pushing it longitudinally back towards the part that has already been stuck to the lid as you progress through the turn. This puts corners into compression and the rubber will expand outward laterally to nest nicely against the flange. Trim gasket pieces to length in-situ on the lid and use adhesive to butt-join the ends. Note that boot lid hinges have sloped bottom surfaces so that the hinge pins will line up between the left and right sides. Also note which bolt is used to attach the boot lid stay cable (no flat washer under the stay's tab). (Photo courtesy of George Baxter)

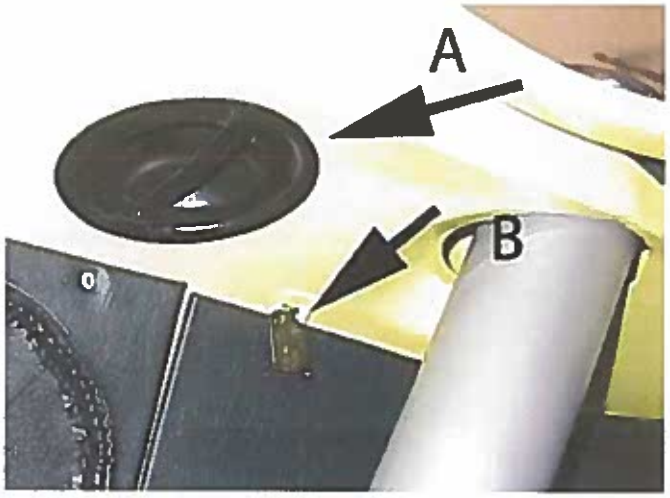


Photo 4a: This view, looking upwards in a BN6/7 boot, shows the metal cover plate (A) that hides access to the right side hinge mounting stud/nut. The fuel filler pipe is at the right, and arrow (B) points to one of the metal tabs, used to hold the boot trim panels in place, that has been hand painted to match the black vinyl.

Photo 5: The long flap of buffers extends down into the engine bay, while the short flap is in the drip channel. The channel flange should nest against the bottom of the buffer groove.

Photo 6: After inserting the split rivet through the buffer and flange hole, use a flat blade screwdriver to partially spread the tangs. To avoid stresses that could cause the buffer to tear at the base of the groove, use your fingers to hold the rivet head and buffer tightly against the aluminum channel lip and force the buffer back using your thumb. This causes a simple flex of one flap and allows adequate access for long nose pliers to squeeze against the ends and head. Small channel lock pliers also work well for flattening the tangs.

is from inside the boot. Access is hidden by metal covers on BN6s and BN7s. The holes in the body are oversize to allow for left-right and for-aft positioning.

Finally, adjust the striker plate so that the latch engages it properly. You may need to change the thickness of shims, but when closing the lid use the handle to turn the hook to the side so that you will have some feel for how it engages until it is adjusted to your liking.

Bonnet

There are a few preparatory task to do before mounting the bonnet to the car. On all models, attach the rubber buffers to the shroud drip channel around the engine bay. And on 6-cylinder Healeys, add the seal strip next to the carburetters and attach the grille and prop rod to the bonnet. The striker pin will be mounted later, after clearances between the bonnet and body have been adjusted.

Rubber Buffers

These buffers have one longer and one shorter flap on either side of the groove. They are a heavy rubber that is stiff to flex, and the sharp corners at the bottom of the groove make them vulnerable to tear if over-stressed. It is safer to locate and drill a 1/8 inch hole in the longer flap (rather than using an awl to poke through) to avoid tearing when the rivet is inserted.

Bonnet Grille

Fitting the bonnet grille can reveal some issues, so I will address some tips related to that task. This grille consists of sheet brass brow and bar sections that sandwich the bonnet scoop between them. Note that the top flange of

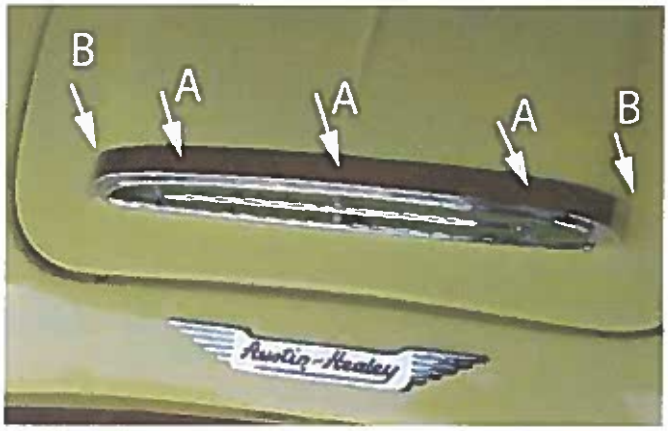


Photo 7: Three mounting stud locations will dimple during tightening if there are insufficient fiber shims between the brow and bonnet. If you don't stop tightening the nuts just as dimples start to be noticed, you can cause residual deformation that will be tricky to straighten out. Also watch that the corners (B) don't dig into the paint. Because of the risk of paint chipping at the ends, never push down on the brow when latching the bonnet, but rather press down on the painted area of the bonnet just in front of the grille.

Photo 8: The end corners of the brow typically do not line up perfectly parallel with the creases on either side of the bonnet scoop. You may well have to live with a less-than-perfect fit between the chrome brow ends and bonnet surface. Be particularly attentive to possible gouging of the paint by the brow. Being brass, it is fairly soft and easy to reshape a bit by twisting gently.

the grille bars has slotted holes for adjustment. This means that you must use flat washers over them along with the spring washers and nuts.

The brow has a shallow cavity so that the metal does not lie tightly against the bonnet, except along the rear edge. As the studs draw the brow downwards, thick fiber washer/spacer pieces, slipped over the studs, support the visible surface. These need to be thick enough to fill the gap, but not so thick as to create a noticeable gap between the brow edge and bonnet. As you tighten the nuts watch the chrome and stop at a point just before the reflection shows signs of distortion. If need be, add additional thin shims so that you can make the nuts tight without causing distortion.

Mounting the Bonnet

Two people will be needed for mounting the bonnet to the car – one to support it while the other inserts fasteners and makes adjustments. There are slots in both the hinge bars and the bonnet mounting brackets that allow for adjustment up and down as well as forward and back. Whenever using bolts through slotted holes, it is imperative to place flat washers under the bolt heads and/or nut lock washers so they can't wedge into the slots. On 100s the bolts should be inserted from the outside towards the center of the car; on 6-cylinder models the bolts insert just the reverse – towards the outside of the car. These bolt orientations are not for any specific reason other than this is the way they have been observed on many original cars.

Once the four bolt-washer-nut sets have been inserted and run just finger tight, slide the bonnet on the hinges out towards the ends of the slots and make the bolt nearest the hinge tip fairly snug. Lateral positioning of the bonnet to even out the side gaps is achieved by pushing sideways on the bonnet to slightly deform the hinge bars. Lower the bonnet slowly, paying particular attention to the panel gap between the hinges where the bonnet edge passes closest to the body. If it looks like it may touch, stop and re-adjust.

When closing, the bonnet should have a minimal – about 1/16 inch – gap at the point of closest approach between its edge and the shroud. Vertical positioning is easily achieved by loosening the bolt closest to the bonnet edge and pushing up or down, pivoting the hinge bar about the bolt nearest to its tip. Sideways cocking of the bonnet (to even out the gaps on both sides) can be adjusted by moving it for or aft on one hinge bar, relative to the other.

Adjusting the Bonnet Latch

The latch pieces are zinc-plated (except for the wavy top plate on 100s which is painted black), as are the striker pin and spring cup. The spring and striker base are painted black, as is the heavy latch return spring.

a. Install the latch pull rods (and bell crank at the right front on 6-cylinder Healeys), or insert the pull rod through the firewall on 4-cylinder models.

b. Mount the latch mechanism to the shelf and then this sub-assembly to the firewall (100s) or front brace (6-cylider models). Connect all pull rods and links (just partially bend the cotter pins) *but do not install the heavy return spring to the latch!* Leave the pull rod spring unhooked on the right side of the bonnet opening of 6-cylinder Healeys, or from the tab/bracket on 100s.

c. Screw the striker pin into its base so there is just enough thread exposed to accommodate the jam nut and mount the striker to the bonnet, but leave the bolts loose enough so that the assembly can be slid to position it (remember to use flat washers under the bolt heads). Lower the bonnet slowly so that you can approximately align the spring cup with the center hole in the top wavy metal plate over the latch, and now make the two striker mount bolts "just snug".

d. Pull the latch rod so that the latch's sliding plate is fully to the side (without the return springs it should stay in the "open" position) – you will see a perfectly round opening in the latch hole.

Photo 9: The latch return spring has been unhooked on this Healey 100 and next will be detached from the latch bar and removed so that it won't interfere with closing the bonnet.

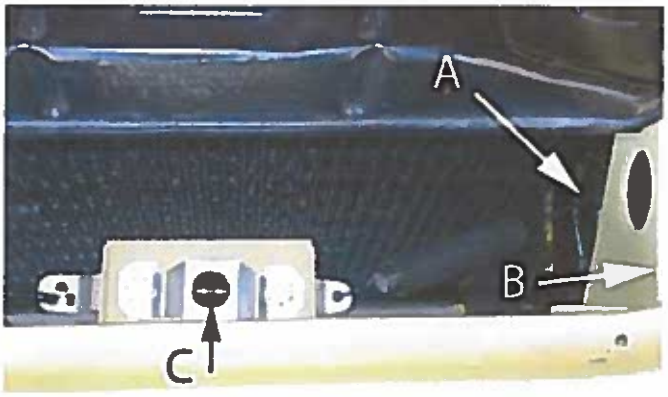


Photo 10: This view, looking down through the latch on a 6-clylinder Healey, shows the fully open hole (C) where the striker pin will pass. The end (A) of the latch spring will be hooked back to a small hole in the outside edge of the radiator brace (B) after lateral adjustment of the striker pin is completed.

e. Lower the bonnet – it will be supported at the latch by the striker spring. Gently push down a bit and listen and feel for any rubbing of the striker pin head as it starts to enter the latch hole. If this is the case, *stop*! The striker will need to be adjusted on the bonnet so that there is no rubbing as the pin enters the latch. When this adjustment is correct, you should be able to push the bonnet down flush with the shroud and have it bounce right back up. Remember to always leave the heavy latch spring disconnected until you have re-reached this condition. If you don't, the pin could stay engaged with the latch when trying to release the bonnet and you'll have a *big* problem getting it to come free. This is far more difficult to resolve on 100s than 6-cylinder Healeys.

f. Once this condition is achieved, fully tighten the two striker mounting bolts and attach the heavy latch spring.

g. Push the bonnet down into the latch. If it doesn't stay down (latched), the pin is not extended out far enough. In Part 21 (Austin-Healey Magazine, June 2008) this adjusting procedure was described as part of body work under fitting the bonnet and latch. The procedure is being repeated here for convenience. If you had managed to get it to fit properly before, you should easily be able to re-create that condition.

h. Once the pin engages the latch at step g, you can then fine-tune the height of the bonnet, relative to the shroud, by adjusting the pin. Just push up on the spring, grip the pin's tip, and screw it up or down a bit at a time until the bonnet surface is flush with the adjacent shroud.

Setting the Steering Wheel

Before installing the turn signal/horn switch it is necessary to first properly orient the steering wheel. The standard wheel, and wood wheels with their three spokes oriented 120 degrees apart, should have one spoke pointing vertically when the car is moving straight ahead. Changing the wheel setting later on is more involved, as the trafficator switch needs to first be removed, and complicates the operation – even more so with non-adjustable steering wheels.

Since the car has not yet been driven, re-check all fluids -- engine, transmission, and differential oil, brake fluid, and coolant -- to be sure they are at the proper levels. You should also have at least two to three gallons of gas in the tank. If you can't get gas without ethanol added to it, and your car won't be driven for a month or more, you should add a fuel stabilizer, such as Sta-bil to the tank. And if you haven't yet set the tow-in, now is the time to do so.

You will need to find a location that doesn't require you to drive very far for this operation -- a flat driveway is perfect or the road in front of your house. If you use a public street, be aware they often have a crown, so for true straight-ahead tracking you will need to be driving on the crest (as in down the center of the road) where the car won't pull left or right if you take your hands off the steering wheel.

For adjustable steering wheel cars, the wheel should be just slipped onto the splines -- the retaining circlip is left off.

For non-adjustable wheels, the retaining nut should also be left off. Obviously when you do your driving you don't want to pull the wheel rearwards as it will come off in your hands!

I like to select a reference point in the distance and drive the car about 100 feet towards it. Then stop and carefully slide the wheel off the steering shaft and replace it with the one spoke positioned straight-up. Drive another 100 feet to check that the orientation is how you want it and then return to your garage.

As you park the car be sure that you stop with the wheels aimed straight and the one steering wheel spoke vertical.

For adjustable steering wheels, remove the wheel and replace it with the adjusting collar screwed on and the small collar and spiral chrome sleeve in place on the column. The circlip can now be snapped into its groove to retain the wheel.

For non-adjustable wheels, there is a washer, with a prong extending from the edge, that nests over a short raised shoulder in the hub, followed by a special shake-proof washer, and nut that hold the wheel to the shaft. The prong should be installed pointing vertically *down*.

Next time

We will finish up next time with wiring and installing the turn signal/horn switch and point out some important issues regarding tops.

ONE APPROACH TO RESTORATION PART 31

AROUND THE WINDSHIELD

By Roger Moment
Thanks to John Hodgman for his critical review

At this point there are a number of body items I prefer to install before putting in the engine and remaining mechanical bits. We'll start with scuttle seals and windshields.

The sequence for installing these items on the car is different for each of the three basic Healey models, so I will discuss them in the following order:

- 6-cylinder roadsters : scuttle seals, dash pad, windshield
- 100s: Windshield, scuttle seals (no dash pad)
- BJ7 & BJ8 convertibles: windshield, seals, dash pad

I will try to explain some of the specific tasks that many people have asked me about over the years, but not necessarily give complete step-by-step details. It's worth noting that most of the tasks being described are often undertaken as repair or refurbishment issues on completed cars, so they should not just be considered applicable only to a new restoration.

BN4, BN6, BN7, and BT7 scuttle seals and dash pad

For the 6-cylinder roadsters the dash top pad should be installed prior to the windshield, and the scuttle seals prior to the dash pad. So if you did not do these seals before lowering the body to jack stands, as described in part 29, now is the time to do so.

There is a trick I found that makes fixing the split rivets fairly easy. This is to use a metal block for flattening out the rivet tips, as illustrated in the accompanying photos. For additional details on installation of this type of scuttle seal refer back to Part 29 in the March-April 2010 issue of A-H Mag.

Next install the dash pad on the 6-cylinder roadster models. Make sure that the front corner screws are long enough to bite firmly through the aluminum shroud and into the steel scuttle structure underneath. Now is a good time to also attach the rear view mirror (you can leave the glass out until later), turn buttons, and Tenax stud(for attaching the center of the tonneau cover).

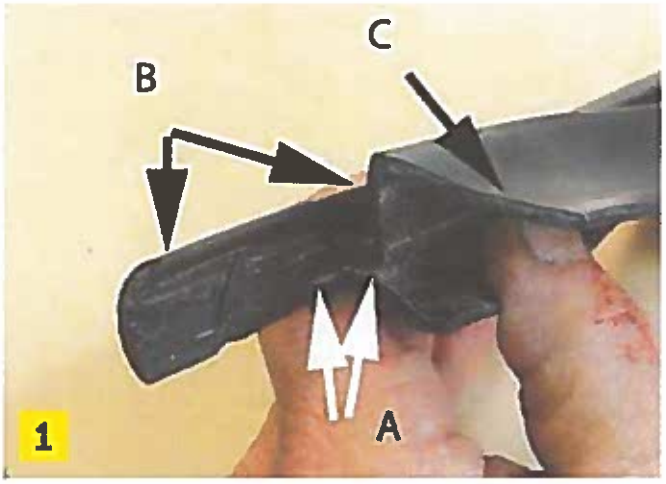


Photo 1: This is how the rear end of the scuttle seal (driver's side shown) on 6-cyinder roadsters should be trimmed. The slot, A, slides over the shroud flange. The mounting rivets pass only through the flap being held down a bit by my thumb. Trim away material back to the shroud corner to create a flap, B. The upper flap, C, lies under the dash pad.

Photo 2: After mounting the seal to the flanges of the shroud and front wing, a #6 trim screw (but with no cup washer) is used to position the flap as shown. This will be hidden by the front of the dash pad.

Photo 3: With the seal pushed tightly against the scuttle use an awl to poke a hole through the bottom flap only in line with the hole in the metal flange.

Photo 4: Insert the split rivet through the washer, flap and flange hole and, while holding it up firmly with a blunt tool, pull back the top part of the seal and use a flat-blade screwdriver to partially open the rivet tips. Then, still holding the seal bent back, place a small square metal block across the rivet tips as shown.

Photo 5: Use a channel-lock pliers, with one jaw under the rivet head, to squeeze the block down, thereby flattening the rivet tips against the metal flange.

Photo 6: Note the trim screw and cup washer at the front corner of the dash pad. Access to this screw is blocked by the windshield pillar. On a number of original roadsters (3000 Mk I) this screw had a flat (rather than raised) Phillips head, and was chrome plated like the regular trim screws.

Windshield assembly and installation

Assembly of windshield frames , installation of the glass, and fitting of the rubber seal along the bottom of the frame differ between the 100, 6-cylinder roadster, and convertible Healey models, with the level of difficulty varying quite a bit. I will try to highlight only certain areas where the path forward may not be terribly obvious. I described general aspects of windshield assembly in Part 26 (May-June 2009), but have since thought of some additional details that might be confusing, so I will expand on this task here and also continue on with related seal fitting.

All frame channels are chrome-plated brass, and held together at the corners by thick bent angle brackets that are tapped to accept rather small screws. These brackets are NOT interchangeable from right to left, so it is important to play around with them to find the pairing that will hold the mitered chrome frame corners tight. You will need to pre-assemble the four chrome channel pieces so that you know which bracket goes where BEFORE putting the windshield together. One common thread in the assembly of all windshields is that these corner brackets must be assembled to the side channels before attempting to fit these to the glass.

BN4, BN6, BN7, BT7 windshield assembly and installation

On the six-cylinder roadsters, the painted side pillars are left off until after the glass has been fitted to the chrome frame and the bottom rubber seal strip has been installed.

First attach the top and bottom angle brackets to the side chrome channels. The only small screws (4BA thread) that will show are the ones at the ends of the top channel frame piece, so save the best four for these locations. New angle brackets may not have their tapped holes precisely positioned to draw the corner joints up tight, so a lot of fiddling may be required to achieve a perfect fit. It is advisable to test assemble the chrome frame first to determine where each bracket goes in order to achieve the best corner joints.

You will need some thin rubber strips to wrap around the edges of the glass. These need to be thick enough to hold the glass, but not so thick that it is too difficult to slide the glass and rubber into the frame channel. A good windshield shop should have an assortment of glazing rubber to choose from. Water is a good lubricant to help the rubber slide into place.

There also are four thick rubber strips that lay in the bottom of the frame channel pieces between the corner brackets.

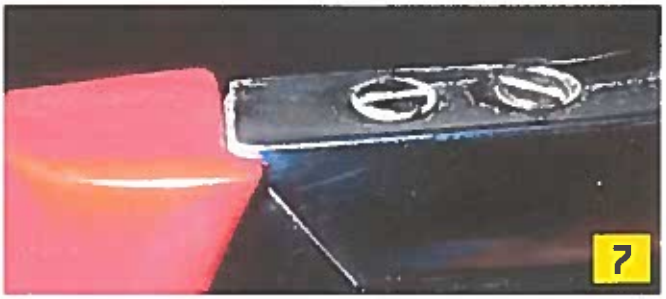


Photo 7: Only the top corner bracket screws are visible so save those with the nicest finish for these locations. The chrome channel faces at each mitered corner should be flat right up to the joint. Over-polishing will round the edges of these soft brass pieces.

Photo 8: The angle brackets on original windshield frames don't hold the corner joints equally tight if they are inadvertently swapped between the right and left sides(a bottom bracket is shown). Note the thick piece of rubber at the right. There are four of these strips used as spacers to help center the glass inside the frame. The strips nest between the corner angle brackets inside the frame channel.

These hold the glass away from touching the brackets and help also to center it within the frame. Don't forget to include them.

Leave the glazing rubber as one long strip. Start by positioning one side frame onto the glass. At the bottom corner, initiate the rubber miter joint by trimming against the installed frame. Next, draw the rubber around the glass, rough out the remaining rubber trimming, and add the bottom frame. Tighten the bottom bracket screws and make sure that the corner frame joint is as nice as when you test-assembled the frame. The rubber joint will have to be dressed as you push the frame joint tight.

Continue as before with the other side piece, finishing by adding the top frame section.

The next, and often difficult step, is inserting the seal to the cowl in the channel of the bottom frame piece. Leave the strip ends about 1/2 inch long for now.

The framed windshield should now be attached to the painted pillars. As you do this, trim the bottom seal strip so that it buts up against each painted pillar.

To begin the installation of the windshield, slide the molded rubber pad over each A-pillar stem and lower the windshield vertically down into the pocket formed by the front wing, scuttle, and scuttle seal. With the rubber seal strip resting against the ridge running across the cowl, use a tool to pull the lip to the front face of the ridge. I find that a "D" ring paint can opener (with its end wrapped with tape) works excellently for this purpose. Once the rubber is pulled forward you can push the windshield down, insert the shims, and install the bolts. There will be adjustments made to the angle a bit later, so just tighten the bolts snugly for now.

100s windshield assembly and installation

Windshield assembly for the 100s is very similar to that on the 6-cylinder roadsters. However, there are some significant differences. One is that after first mounting the top and bottom angle brackets to the side chrome channels, these assemblies must be attached to the painted part of the side pillars.

The four frame sections are assembled around the glass as described above, followed by insertion of the seal strip into the bottom frame section. Leave the ends extending past the frame about 1 inch for now. New strips have a curve to them, sometimes with sharper radius near the ends. Position the strip to best match curvature in the lower frame.

Finish assembly of the windshield by attaching the chrome links and pillar bases and tightening these in the "raised" position. There are special " chrome "studs" that screw into the inside face of each base to which the hold-down springs attach. Install these, and the springs, and tape the springs to the back of the glass to keep them out of the way.

You will need a second person to assist in placing the windshield in position. From early fitting (during the body metal-working stage) you should have the correct shims for each side. The windshield posts slide in from the rear into the pockets between the front wings and scuttle. Be sure to trap the top part of the front kick panel furflex seal webbing between the post and scuttle. With the post mounting bolts just snug, and after loosening the knurled knobs and pushing the "bolt heads inwards to clear recesses in the chrome links, check that the windshield post pins slide easily in and out of the pockets in the chrome base as the windshield is pulled up. Finally see that the bottom pins nest properly in the resting escutcheons that are mounted on the top of the wing-shroud joint.

There is a recess on the inside face of each chrome base into which the bottom seal ends should nest with the windshield in the raised position. Trim the outer edge of the seal to fit -- access can be had by lifting the windshield up and tilting to expose the seal ends.

100 scuttle seals

The BN1 scuttle seal is a rather simple piece of skinned foam rubber. It should nest into the channel formed into the shroud, but not be crimped to hold in place. Instead, use contact cement on the lower 2/3 of the back face. A flap about 1.5 inches long

Photo 9a: BN1 scuttle seals are nested into a channel formed into the edge of the scuttle area of the aluminum front shroud and glued to the flat face. The rear end is shaved to about half-thickness, tucked behind the cockpit molding for about 1.5 inches and is held in place with a trim screw (as in Photo 2). The forward end is glued against the rear face of the windshield stanchion. Note that this part of the stanchion is painted body color.

Photo 9b: This skinned foam extrusion is an excellent approximation of the original BN1 scuttle seal. The flat face that is down in the photo mates against the metal scuttle. I find that by only applying adhesive along the bottom half of the back surface, the seal will stay in place but is still easy to replace when needed.

Photo 10: This view shows the metal pieces used for mounting the BN2 scuttle seal. The thin securing strip (arrows) nests into a slot in the rubber seal and is shown here to illustrate how it will be mounted. Note the screws attaching the fan-shaped bracket to the hinge pillar are larger than those for the securing strip. Three screws are also used to fix the straight part of the strip against the scuttle.

should be made at the rear by trimming away about half the seal thickness. This flap then tucks behind the cockpit molding. At the front cut a V-shaped notch half-way through the seal to form a mitered corner by the windshield pillar. The seal is glued to the chrome pillar and trimmed flush with the outside edge.

Finally, hand paint the bottom of the chrome pillar, and mounting bolts, with body color as shown in the photo.

BN2 scuttle seals were improved, incorporating a molded channel to direct the water to the side. Mounting was a bit more complicated and involved metal brackets and securing strips. This type of seal can also be fitted to BN1 Healeys, as noted in the Austin Service Journal, Volume 25 - Cars - Body, p. 32 (dated 12-5-55).

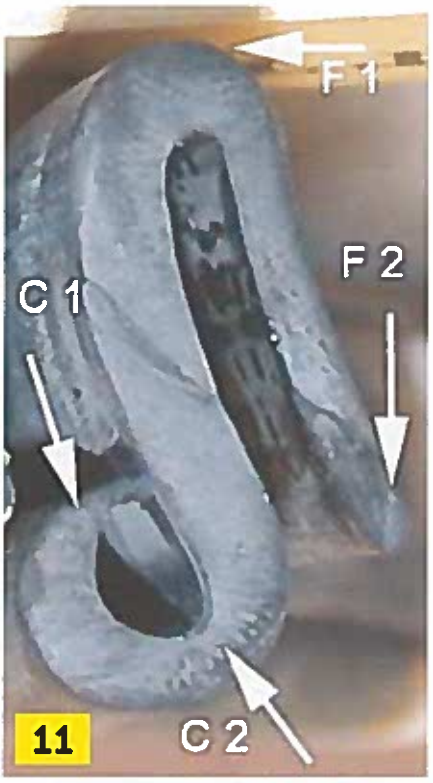


Photo 11: This photo shows the BN2 rubber seal. Note the narrow vertical gap for the securing strip. To trim the front of the seal, cut off the channel part (C1-C2) as well as the rear flap, F1-F2. This will leave a single flap (the part between C2 and F1) to tuck behind the cockpit molding. The end of this flap is secured with a #6 trim screw and hidden by the cockpit molding.

Photo 12 BN2 scuttle seals are mounted using two additional steel pieces. The narrow metal strip clamps the back flap of the seal against the hinge pillar bracket and the angled scuttle edge. The seal flap at the rear is also held behind the cockpit molding by a trim screw. The lower windshield stanchion and fixing bolts (below the seal) should be painted body color, as is done on BN1s.

BJ7 & BJ8 convertibles

The windshields on the convertibles, because of their curves are somewhat more complex to install than the roadsters.

The four frame channel pieces on these windshields are held together with corner angle brackets very much like those on used on the roadsters, but that and the way the pillars are bolted to the scuttle are about the only similarities

All pieces of the frame are chrome plated, and the main side pillars are built up of two parts that are riveted together, but for satisfactory results all pieces must be plated separately and then re-assembled using new rivets. I had to modify commercially-

Photo 13: The side pillars on convertible Healeys are built up from multiple pieces. The main pillar is comprised of two chrome-plated parts that are held together by a number of solid rivets. I don't know of a source for "exact" copies of these, but they can be made out of other commercially-available ones.

available rivets by machining the heads, diameters, end (in the case of the tubular rivet), and re-plate each in order to arrive at exact copies of the originals. Hopefully you saved all the pieces when you took the windshield apart so that you can copy the head dimensions.

After assembling the main side post pieces, the side channels are attached using screws. These side sub-assemblies are then completed by adding the top and bottom corner brackets.

There is a special rubber glazing strip that goes around the glass, which is compose of a long piece that runs down one side, across the bottom and up the other(without mitered bottom corners) and a second top piece that meets the other with mitered corners. Thick rubber spacers are also used in the frame channels between the angle brackets to help keep the glass centered in the frame. By stretching the bottom glazing around the corners you can achieve a good fit without undue "bunching" of the rubber.

Do not forget to attach the center bracket that mounts to the bottom frame channel on the inside.

The last, and perhaps most difficult task on convertible windshields is installing the bottom seal strip. start at the center of the bottom frame and work towards both ends. When you are

Photo 14: Rivets are also used to attach the hook that the top latches engage to the top of the pillars. The angle brackets are custom fitted to each corner. I stamped this one R S to indicate it goes on the right side and also which leg is against the side pillar when I "test-assembled" the frame channel segments.

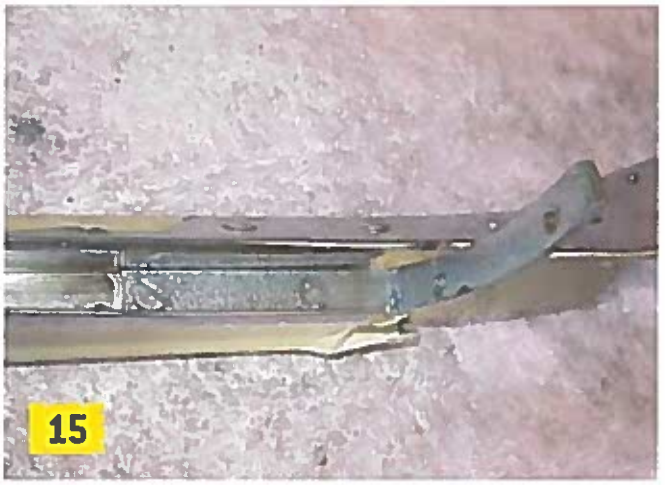


Photo 15: The channels are attached to the main pillar using screws. However, the angle brackets attach to the side pillars from the inside, and are tapped for the screws (10-32 thread) used to attach the bottom and top channels from the outside. Only one screw is used to attach the top and bottom channels to the corner brackets.

close, you will need to trim off the bulky part of the seal, leaving only the flat part that is visible from the front extending out past the end of the channel and the pillars by a good 4 or more inches. This flap needs to be equal on both sides, so plan ahead and try to center the seal when you begin this operation. The flap will be trimmed after the windshield is installed and side pillar draft seals have been attached (see Photo 20).

BJ7/8 windshield installation

Windshield assemblies for convertibles mount to the body in a similar manner as those for roadsters. There are packing pieces, or shims (as required) to fill any space between the pillar and the scuttle and three mounting bolts on each side. However, there is the one additional bolt fixing the lower frame channel to the cowl, noted above. This screws into a 1/2 inch diameter rubber sleeve with a captured nut inside. If your original is not usable, a 1/4-20 coarse-thread version is available from NAPA, part No.665-2079. Because of the need to access this bolt, the dash pad must be installed after the windshield is mounted.

The angle of the windshield will be adjusted to match the door vent window frames later, so just tighten the pillar bolts snug at this time.

Seals

Convertible Healeys don't have a scuttle seal along the sides of the dash pad, but instead have a special seal along the trailing edge of the windshield pillar that continues out across the back edge of the front wing (see Photo 20). This same material, comprised of a rubber "tube" and woven cloth-covered steel core, is found along the edge of the convertible top frame for sealing against the side windows and windshield. An excellent approximation of it can be purchased from Restoration Specialties as their part number 1120A, in the color Grey.

The seal is attached to the windshield pillar and wing flange using small pop rivets. Installation involves first placing the seal over the pillar flange and moving it up or down so that a wide area of the metal core falls over the top rivet hole. Drill a 1/8-inch hole through the seal web and then attach the top rubber end cap. I then temporarily hold the seal to the pillar by locating the top rivet (but do not squeeze it!). Move down the pillar locating,

Photo 16 (Top): On BJ7 and BJ8 convertibles there is a special nut (1/4-28 thread – original), captured inside a rubber insert, for fixing the center bracket on the windshield frame. Note the recess in the cowl is hand-painted black so body color doesn't show in the gap between the forward edge of the dash pad and the windshield frame. (Bottom): This view shows the center windshield bracket fixed against the cowl.

removing to drill the hole, and replacing using a rivet to hold the position (again, do not set!). The core can be expanded or contracted a bit to line up the web with each pillar hole.

With the pillar rivet holes drilled into the seal, bend the bottom and continue with the wing flange attaching rivets. Note that the bottom windshield seal strip end flaps tuck behind the seal at the rear edge of the front wings. Cut the pillar seal to length and finish off the end with a couple of wraps of electrical tape, being sure to push the tape fully into the channel with each turn.

With the seal thus "prepared" and fitted, go back and install the rivets, starting at the top, but now squeezing them to set.

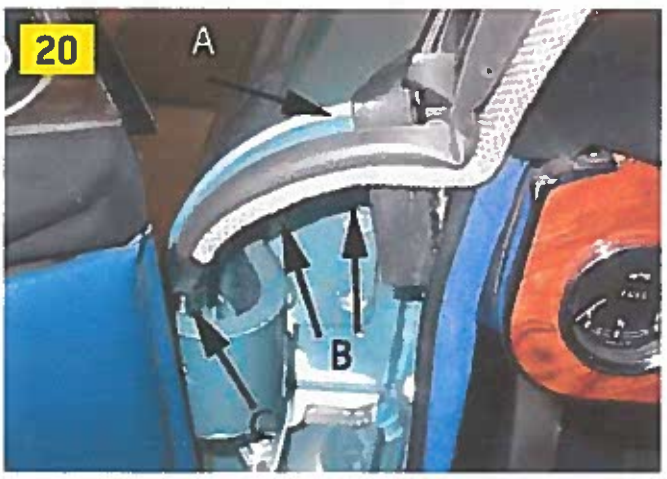
Photo 17: The steel core of the seal is formed in a zig-zag shape. For the seal to stay in place the pop rivets need to pass through the wide area (arrow) and not in the gaps.

Photo 18: A slit needs to be cut in the rubber end cap so it can slide over the flange. Use super-glue to attach the cap to both the rubber and cloth parts of the seal.

Photo 19: This photo of a very original BJ8 (17,000 miles from new) shows the top two of the four rivets along the pillar edge (only one at the top on early BJ7s) and the original woven cotton cloth covering on the seal.

The dash pad then just slips into place, with the demister vents and Lift-The-Dot studs pre-mounted. The mirror is attached with mounting screws that thread into captive nuts under the cowl.

Photo 20: End flaps (A) of the lower windshield seal tuck behind the seal with their ends left hanging. Two holes in the wing flange are for the pop rivets (B). The end of the seal is wrapped with a couple of turns of tape (C) which must be poked into the channel with each wrap so the end can slide over the flange.



Aluminum facing on door sills and shut pillars

Before mounting the doors there still a number tasks that should first be completed. One is fitting of the aluminum facing pieces on the sill and shut pillar (but not yet the inboard strips that cover the door seal on later 100-sixes and 3000s). I discussed fitting these pieces during body repair in Part 21 of this series (June 2008) and suggested installing them during the final build in Part 29 (March-April 2010).

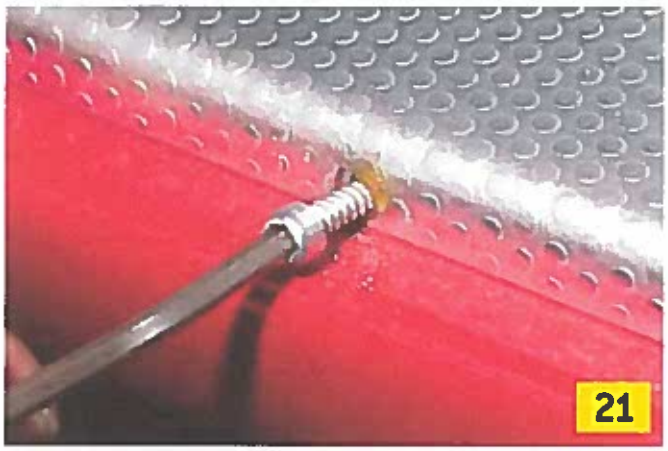


Photo 21: #4 cap head sheet metal screws are hardened and work well for pre-tapping holes for the truss head trim screws. Use grease to lubricate the threads and be careful not to use excessive force which could break the tapping screw.

Photo 22: Packing shims (arrow) can be glued to the Al facing to hold them in place until the striker plates are mounted. The number and thickness of these should have been determined earlier while fitting body panels (see Part 20, May 2008).

Rear cockpit trim and door seals

Installing door seals on the later 100-Sixes and all 3000s is much easier with the doors off. However, the rear trim quarter panels need to be in place first, and to install these requires that some of the rear cockpit trim also be finished. So I recommend that the following tasks be tackled in order: First, attach the rear cockpit molding. Second, install carpet or Armacord (as appropriate) in the rear of the cockpit. Third, mount the rear quarter panel trim.

While installing the rear side panels you will need to remove the aluminum door shut facing (but not the sill section) and also keep in mind how the door seals fit over their mounting flange. It may be necessary to make minor adjustments to provide clearance for the furflex seal along the front edge of these panels. Also be sure that there is a gap under the panel's bottom edge for about half an inch of the rear carpet to tuck into.

After mounting the quarter panel, re-install the shut pillar facing, making sure that it nests properly behind the rear edge of the horizontal sill section.

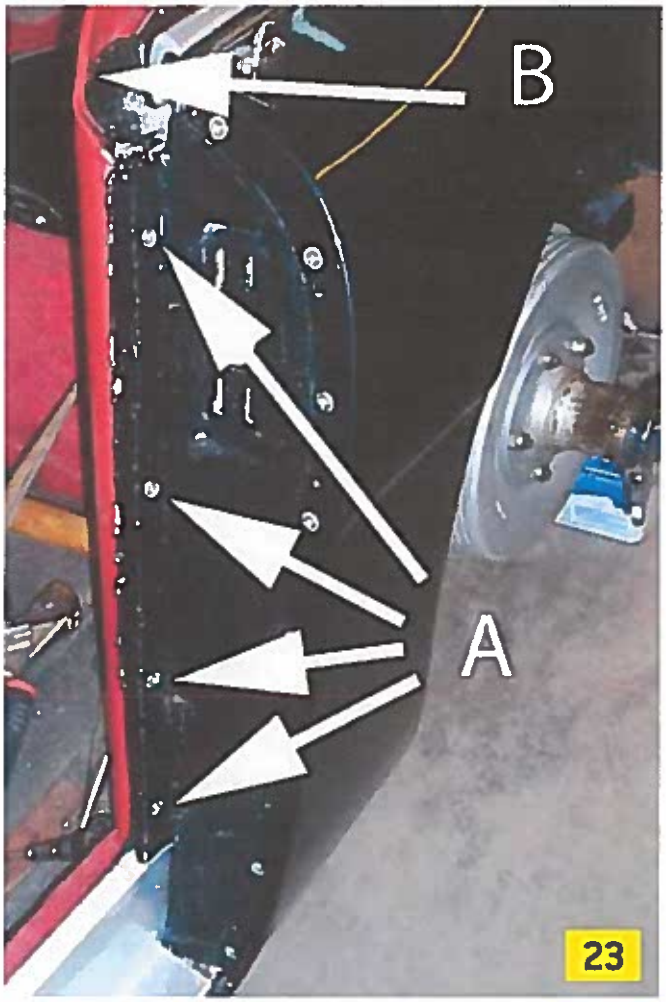


Photo 23: Four flat head wood screws (A) attach the front edge of the rear quarter panel on 6-cylinder roadsters to the door shut pillar flange. A 3000 BT7 is shown here. The metal cup (B) may need to be bent a bit to allow clearance for the seal to fit between it and the top edge of the trim panel.

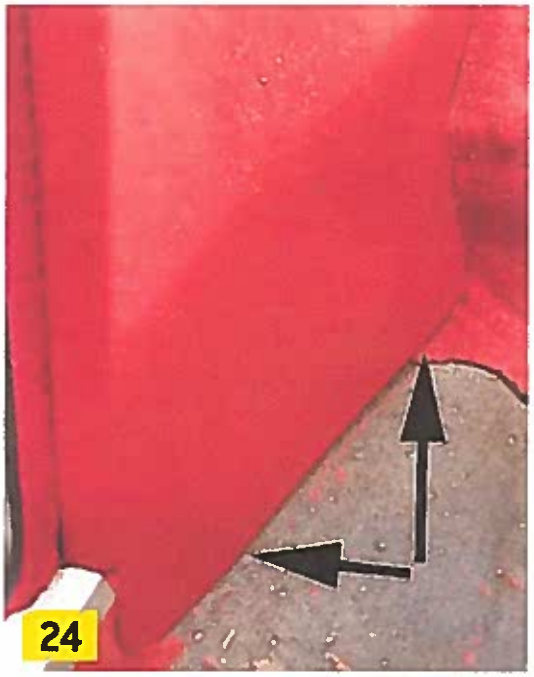


Photo 24. The edge of the rear carpet (about 1/2 inch or so) needs to be able to tuck under the panel. This photo was taken after attaching the seal strip and sill cover plate.

Photo 25: The vertical door pillar facing slides in behind the sill piece. Shims are often needed to hold the shut facing tight against the rear sill edge. The piping ends at the rear corner of the horizontal sill.

Early BN4 door seals

BN4s built at Longbridge and the first run of this model at Abingdon into April 1958 (when BN4 production was temporarily halted to concentrate on 2-seater BN6 production) had metal channels for the door seals screwed against the hinge pillar edge, horizontal sill trim, and edge of the shut pillar trim. (With resumption of BN4 production in September, 1958, the door seal design which had been used on all BN6s was also used on the BN4s – and continued on through all 3000s to the end of BJ8 production in 1967).

Photo 26: Arrows point to the three door seal sections on early BN4s. The rubber seals slide into metal strip channels and are mitered at the corners. The top edge of the longitudinal aluminum sill trim folds over the sill carpet (not yet installed in this photo), as on 100s. There is no third piece mounted along the inside as on BN6s, later BN4s, and 3000s. Blue masking tape is being used to protect the paint along all edges. In this photo the engine and gearbox have already been installed.

Later 100-Six and 3000 door seals

The original door seals had steel cores which firmly gripped the mounting flanges. Replacement seals have aluminum cores which won't stay in place by themselves. Additional steel clips need to be inserted into the seal strips which will grip the flange. Some tricks for doing this are illustrated in the accompanying photos.

I inserted a number of clips into the seal where it will be pressed onto the flange – four for the front edge, four along the sill, and four for the rear edge. No clip is needed for the metal cup at the top of the door shut pillar.

Start at the top of the hinge pillar to install the seal. Use a rubber mallet to tap it down fully onto the flange (particularly where the clips are positioned). Before tapping on the bottom clip, check that the channel is open where it will fit onto the curved gusset at the bottom corner. Continue across the bottom of the door opening and finally up the rear pillar edge.

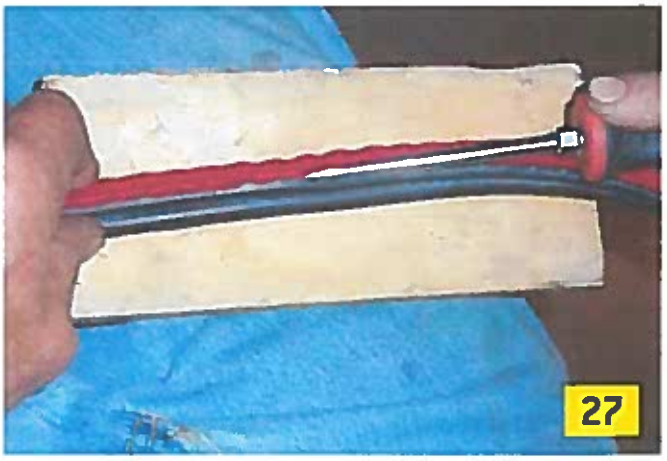


Photo 27: Open up the channel by gently sliding a flat-blade down the channel while rotating it back and forth.

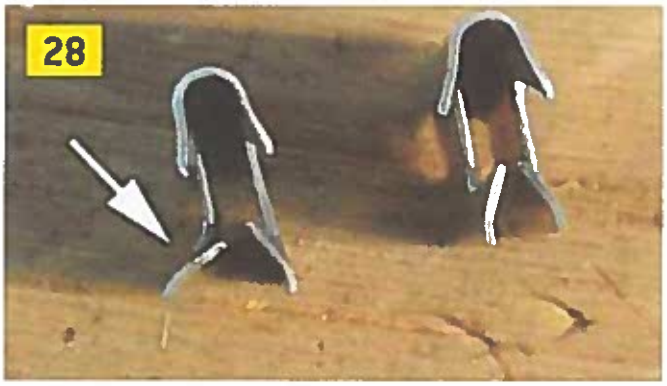


Photo 28: Bend one side of the clip out to form a flange that will lock inside the seal channel.

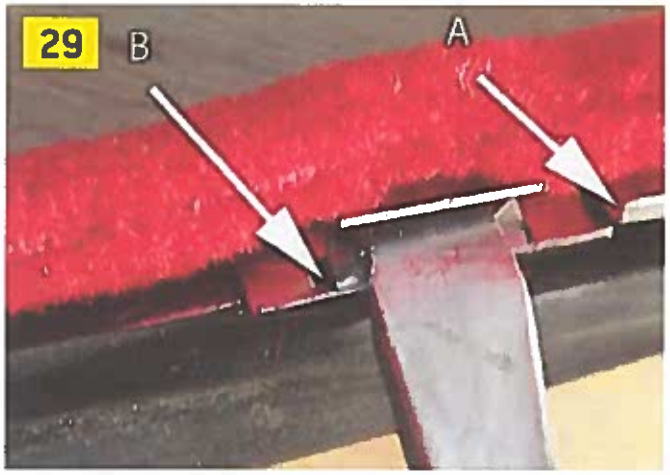


Photo 29: One side of the aluminum core has a right angle bent into the edge (A). Firmly press the clip into the channel with the bent flange so that it can lock in the Aluminum core as shown (B). Lever the clip using the screwdriver and you will hear it snap into place.

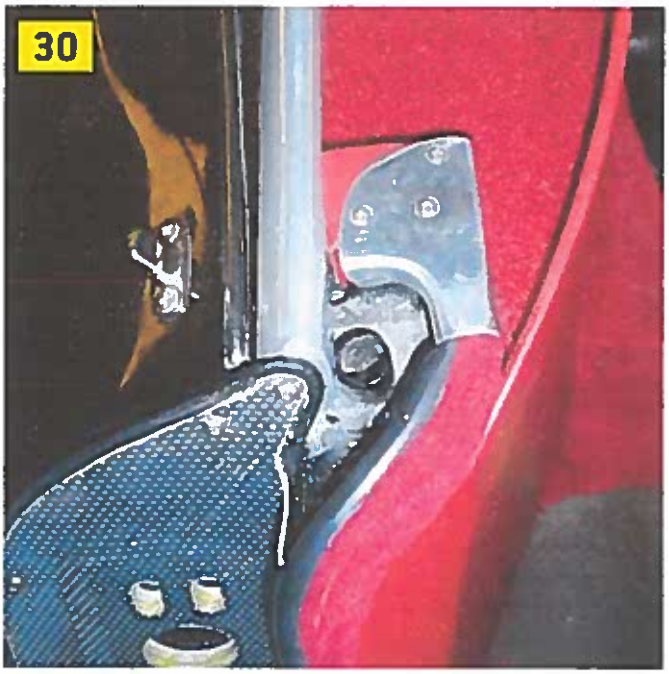


Photo 30: The top end of the seal is held with an aluminum trim plate, fastened with #4 Phillips raised-head wood screws. (A 3000 BT7 is shown.)

Installation of the seal continues with trimming the seal to length, pressing over the "cup" edge, and attaching the aluminum finisher plate at the door pillar. Finally, install the cover plate along the sill. This plate is attached using three #4 truss head trim screws and covers most of the furflex on the seal, leaving about 1/8 - 1/4 inch exposed.

On BJ7s and BJ8s the rear part of the seal can be attached up the shut pillar, but leave it un-trimmed to length until the rear quarter panel has been installed – this must wait until after the folding top frame has been mounted.

Door Checks

The last preparatory task is to install the door checks. On 100s these should have been in place (with screws through holes in the tangs to prevent them from sliding forward through the stop bars) when the body was painted, However, if you forgot to install the checks (or need to remove them for any reason later on) there is a slick way to do so that does not require removing the front wing.

Get a 36-inch length of 3/32 welding rod and form a tool as shown in the photos. Insert the loop end through the hinge pillar and forward through the large hole in the hinge pillar brace from the foot box back to the hinge pillar (hidden by the front wing). With the check strap attached, you can pull it up through the braces and hinge pillar. Once mounted, remove the wire, but immediately replace the screw so that the strap can't inadvertently slide through the stop bars and fall into the hidden steel structure. If it does you will have to loosen the front wing fasteners to pull it away at the rear so you can reach behind to retrieve the stop tang.

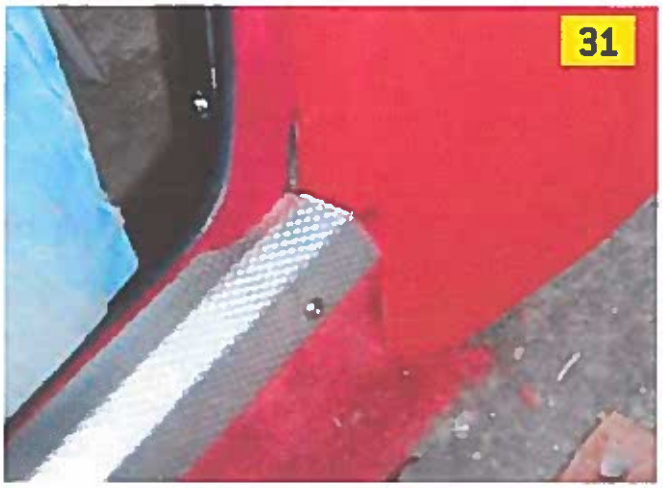


Photo 31: The sill plate covers most of the seal furflex.

On all 6-cylinder Healeys the door checks should also be mounted at this time. Check the condition of the studs and large nut which is tightened by a small "wrench" (part of the assembly) as the door is opened. On the right doors these have left hand threads. Any repair or replacement should be done now, though it is not that difficult to replace these checks later with the doors on the car.

Doors

Before mounting the doors, there are a number of tasks that are more easily performed on a table than after the door is

Photo 32: The handle end of the wire used to install a door check on the 100s. This photo was taken during replacement on a finished car.

Photo 33: The far end of the wire has a loop formed to accept a 10-32 screw. From under the car, you can reach over the front of the sill structure to pull this loop out where the check strap can be attached. Note the orientation of the tang curvature relative to the off-set hole in the plate. Tighten the screw with the tang in line with the wire.

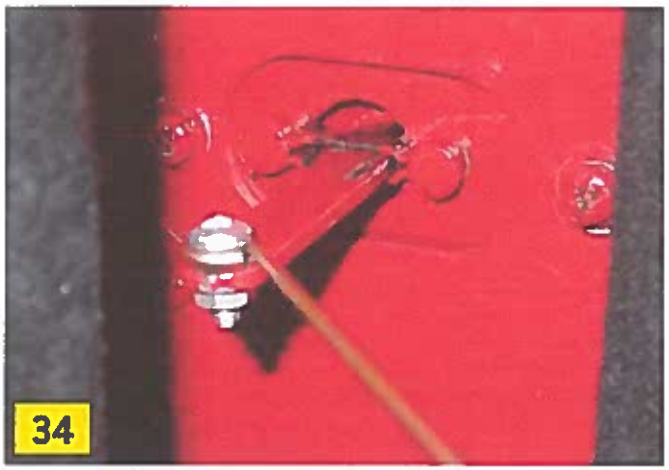


Photo 34: This photos during replacement on a competed car shows the left door check installed and before removing the wire. Note the offset of the stop bars towards the outside of the oval opening in the hinge pillar. On 100s, the mounting screws and tang should all be painted body color.

mounted on the car. First check the screw holes for mounting door panels (on roadsters) to see that they are not stripped. If they are, you have five options:

1) Use a hammer and dolly to flatten the raised hole edge, thereby somewhat repairing the hole – this will not recover the original screw tightness, however;

2) use #8 trim screws with #6 heads (available from trim supply shops);

3) use steel "speed nuts" inside the door pocket – not necessarily accessible for placing at all screw locations;

4) drill new holes in adjacent locations, but this may not be possible if your new door panels have screw holes already in them (these holes in the wood behind the vinyl should be countersunk for the cup washers, and thus relocation requires removing the vinyl trim – a big operation); or

5) welding up the oversize holes and re-drilling and tapping. Whatever your choice, just make sure that when it comes time for final door panel mounting there won't be un-resolved screw issues to address.

With the door off the car, this is a good time to install the door locks and operating mechanisms. I find that you have better access to the mounting nuts if you install exterior handles (on 6-cylinder Healeys) before putting in the lock mechanism.

On roadsters you can apply the upper vinyl trim strip and then mount the side screen pockets. I prefer to fit the vent windows and roll-up window mechanisms on convertibles with the doors on the car, as it is easier when tightening the various fasteners.

On all Healeys, mount the chrome escutcheon to which the door check strap will be attached later.

Hanging doors is really not all that difficult, but it is much easier to do with two people. There are a few tips to keep in mind:

- Initially insert only two screws per hinge, in diagonally opposed positions.
- Use a Phillips screwdriver to position the taped plate to line up the screw holes
- Put anti-seize grease on all screws
- Pull the door as far out and upwards initially and run the screws in snug
- Watch clearance between the front edge of the door and the wing as you close the door
- Also note clearance between the bottom corner of the door and sill Aluminum trim on the inside as you make adjustments
- Finally adjust the door position to align the swage lines and edge gaps as you did when doing the body panel fitting and alignment (by now that was a long while ago)

Once the doors are properly positioned, you can add the remaining two screws for each hinge and also connect the door checks to the chrome escutcheons.

Finally mount the striker plates to the shut pillars and adjust so that the door locks engage easily (as they did much earlier when you were checking body panel fit). Be sure to use grease on the screws and contact surfaces of the latch and striker.

Next time

We will finally install the remaining mechanical items (engine, exhaust, radiator, etc), add vital fluids (oil, water), do final checks, and start the engine. There will still be remaining interior trim and fitting the top, all time-consuming tasks, but the end is getting near.