

Door Interior Trim

Paul,

See below plus pics:

Hi again,

Ok, time to do the door interior trimming on my friends 1954 100-4. I have the Moss interior panel kit. Just a few detail questions that I just can't answer from the books I have (the Moment/Anderson book has GREAT text but really poor photos). The M/A book talks about the vinyl glued to the inside of the door, but I'm not clear.

1. Is it one piece of vinyl that covers the large section of the inside of the door AND the front and rear inside, AND the inside bottom? The front inside of the door isn't very flat, with what seems to be a strengthening panel for the door hinges. Does all this get covered too?

Yes, it's all one big piece of vinyl that glues inside the door from the wood strip down to the bottom, and turns to cover the forward hinge area, and the rear inner casing area. See pictures for reference.

And how high up should the vinyl go at the rear and front of the inside of the door?

It obviously goes only as high as the level of the wood strip.

2. The inside of the door of this car seems to be coated with a thin layer of what I think is tar. Is that right, or should the vinyl be glued straight to the paint?

All the trim should be glued onto a clean smooth painted surface.

3. What is the rough order of assembly? I'm thinking:

- a. inner door vinyl**
- b. vinyl at the top of the door going up to the aluminum top moulding**
- c. the inner door top vinyl trimmed board**
- d. door seal fixed to the door panel back**
- e. door opening pull cable trimming**
- f. door panel**
- g. side curtain top, center Tenax**
- h. door bottom, horizontal rubber seal**
- i. door latch cutout chrome bezel**

j. door front seal on main car body

Add: door inner bottom jute packing strip.

Rich Chrysler

**Sound good? Feel free to rearrange the letters. Pictures please!!
Sincerely,
Paul B.**



Carpet Installation in a BT7

By Rich Chrysler

Hi listers,

I mentioned the other day that I'd be willing to outline the steps usually taken to install carpets in the first fellow's situation, which was a BT7.

What resulted was a deluge of requests to set it up complete with detailed pictures on a web site that a number of fellows graciously volunteered to supply. Whew! Thanks to all for the kind offers.

A lot of folks mentioned the Moss video, and it of course is geared to their products of that time, complete with foam backed cut pile bound nylon stuff!

Yuck!

I do not currently have a BT7 here to photograph, nor do I have the time or inclination to travel somewhere else to do this right now. Anyway, I'll try to outline the steps I usually take to install a quality carpet set such as the one Heritage Trim and Interiors is currently supplying for a BT7:

Preparation:

1. To begin the area must be completely clean and well painted in the main colour of the car. All old remains of carpets, under lays and felt paper should be removed or at least carefully inspected for rot or deterioration.
2. The front "kick" panels must be removed. Take out the trim screws with their cup washers to accomplish this.
3. The inner and outer horizontal alloy threshold plates must be removed, along with the old door threshold seal. These are held in place with small posi-drive pan head screws. These screws will likely need to be replaced, as they really suffer over the years, and some may simply twist off when you try to remove them.
4. The rear quarter panels must be removed. This is accomplished by removing the vertical door shut pillar alloy plates, which will expose the slotted wood screws that screw inboard into the wood quarter panel leading edge block. With this block released, remove the two acorn nuts and washers from the rear wheel arch seat belt mounts. There are also self-tapping sheet metal screws holding the top "plateau" of the quarter panel to the wheel arch. This should release the quarter panel which has its rear edge fitted into the bracket which locates the lift out rear tonneau panel.

5. The aforementioned tonneau panel brackets must be removed, undoing the screws and nuts that locate it through the rear wheel arch.
6. The gearbox tunnel, and the forward bulkhead panel (if it's a side shift model) must be removed from the car.
7. The rear occasional seat pans must be removed from the car. These are fastened into position with 4 self-tapping trim screws and cup washers passing through each pan and into the surrounding metal. This is also a good time to inspect and renew the sealing rubbers around these openings if necessary
8. The dipswitch assembly complete with mounting bracket must be removed from the driver's side toe board. This can be left suspended from its cable for now, or can be hung from the pedals to aid in keeping it out of the way while installing the carpets.

Carpet felts and under lays:

1. On all the flat floor sections a layer of black felt paper (30 lb. tarpaper) is laminated to the painted steel floors. The felt paper is overlaid with a 1/4" thick layer of jute that has a black upper surface similar to body undercoating material. A coarse square weave is visible in the black coating. The male carpet snaps are positioned and their centre hold down screw passes through the jute and the tarpaper, anchoring all into place.
2. On the toe board portions of the foot wells (and the vertical gearbox panel on side shift models) the jute underlay is glued directly to the painted metal.
3. While paying attention to the vertical gearbox panel on the side shift model, make sure the black rubber draught excluder piece is riveted into position on this panel with flat split rivets. This is an inverted "U" shaped piece of rubber, not unlike inner tube rubber, which is so shaped to drape around the gearbox and therefore cut down most of the hot air flow from passing back into the gearbox and drive shaft tunnel area.
4. On the gearbox cover of the BT7, the jute is glued to the underside of the carpet with the black surface facing down. The female portion of the ring type carpet snaps pass through carpet and underlay to be held in position on the tunnel by the snaps. You should be able to locate the original male snaps (or the screw holes) on the gearbox cover and the tunnel to correctly locate the new snaps.

Carpet installation:

1. The first pieces to be installed are the left and right inner sill covers. These run from the rear edge of the inner sill forward onto the toe board area. When laid out flat for preliminary inspection it will be found that the carpet is cut with a slight curve taking it wider for the front few inches. This angled carpet will be applied to the outboard side of the sill so its edge will be nicely hidden by the bottom edge of the front hardboard kick panel. There will need to be a small dart cut out of the front corners of this sill carpet so the ends can lie flat on the angled toe board, and the sill carpet can be glued to the top of the sill and follow down the inboard vertical surface, leaving the inboard edge of carpet making a tight 90 degree bend onto the flat floor. This sill carpet must be trial fitted before any glue is applied to ensure there will be a good fit all along from front to back. At the very back, the sill carpet should have darts cut to allow the end to tab and glue to the wheel arch and the rear vertical panel.
2. Apply a fresh and good quality contact cement to the sill carpet and to the entire top surface and inboard vertical surface of the inner sill.
(Note: Some folks choose a spray on trim glue, but so far I prefer using Lepages Premium Contact Cement, applied with a brush. Allow plenty of fresh air where you are working.)
3. Apply glue also to the areas where the ends will tab onto at the front and the back. Let the glue set up for a good 15 minutes then carefully work the carpet into place beginning with the outer edge of the sill top, making sure it fits right to this outer edge. Keep in mind that the alloy threshold plate will be fitting tightly to and covering this edge.
4. Work slowly and carefully to ensure a good fit, pressing and smoothing the carpet as you go. I use my thumb in a teaspoon as a handy means of getting carpet and vinyl smoothed into corners and along inner edges.
5. The toe board to inner gearbox sidewall carpets go in next. Examine these carefully. The ones we got from Heritage have fine white chalk lines indicating where they need to have darts cut to allow the carpets to bend through the inside 90 degree curve from toe board to side wall. Trial fit these carpet pieces carefully while dry, ensuring they fit well with their outboard bottom edge squared cutout aligned and fitted to the inner sill and the dart fitting exactly into the inner corner. When happy with the fit, apply glue to the toe board surface only. Fit and press this area into place before carrying on with gluing the inner vertical sidewall. On the side shift models, this vertical carpet should extend right to the edge of the metal. Later, when the "U" shaped bulkhead piece is fitted, a carpet to carpet seal will result.

6. The next pieces to be fitted will be the large carpet section that fits around the rear seats and the one that extends down the vertical heel board panel. Originally these pieces were separate, though often the suppliers of carpet today will make this all one piece. I'll describe them as per original; separate pieces.
7. Again fit these sections dry, taking note of any edges or corners that do not want to fit smoothly, cutting small darts out if required to rectify any awkward areas. On the outboard edges the carpet surrounding the seat openings will edge up slightly onto the rear wheel arch. On the outboard edges of the vertical heel board, a slotted bracket holds the rear quarter trim panel in place. The carpet must butt right up to this bracket. At the bottom of the heel board panel, the carpet must bend and extend slightly onto the flat floor section. The inverted "U" shaped area of the heel board carpet must also be turned and fitted slightly onto the drive shaft tunnel. This will give the look of continuity when the floor and tunnel carpets are installed. Also be sure to have the carpet fit evenly around the openings of the rear occasional seats, leaving about " perimeter of bare painted metal around these openings.
8. Lastly, make sure to trim a clean 90-degree cutout where this heel board carpet will meet the carpet at the back end of the inner sill.
9. When you are sure this all fits well, apply glue to one half of the carpet and the car at a time and proceed to install, as before, smoothing and ensuring there are no wrinkles. The two sections of carpet must butt smoothly to each other forming a continuous looking piece of carpet. Usually these butted joints won't actually be seen, with the seat pans overlapping enough that only a bit in the middle, between the pans may show.
10. There will be three small carpet pieces that will be fitted and glued into the rear corners of the cockpit area behind where the lift out tonneau panel fits. One will fit into the acute angled corner on the left side of the car, butting up to the back edge of the rear wheel arch, and leaving a vertical edge on the rear sloped panel (where the top folds and stows). The second one will fit on the opposite side of the car, fitting similarly, and leaving a vertical edge. The third has three ears all going opposite directions. This will tuck into the rear right corner, wrapping somewhat around the sheet metal surrounding the fuel filler neck. It sounds confusing here, but when sorting out the three pieces and their locations, all will become apparent.
11. On the side shift models, the gearbox forward bulkhead panel should be trimmed and fitted next. This will have the aforementioned jute layer glued directly to the panel, and the carpet should be glued only to the outer perimeters on the backside only. This will result in the completion of the carpet-to-carpet seal we spoke of earlier. This panel will be fastened to the aperture with self-tapping trim screws and cup washers, 3 down each side.

12. The tunnel carpet can be installed next. First ensure that the tunnel has a good fit to the floor and the forward bulkhead, with good seals and the rectangular rubber inspection and filler aperture plugs are in good condition and fit well to the tunnel.
13. Next make sure that interior trim colour vinyl is fitted around the hand brake lever mounting area. This vinyl is simply contact cemented to the tunnel metal in the immediate area of the hand brake mounting screws. It should extend about 4 inches or so in every direction away from the mounting screws.
14. The tunnel carpet when fitted will be cut away and bound in this area, exposing this vinyl trim and allowing the lever and ratchet assembly to operate freely.
15. If the car is a side shift model there should be a strip of interior coloured vinyl glued along the front lip of the tunnel, extending back away from the lip about 1". When fitted, the tunnel carpet's leading edge will stop at this upturned lip, leaving the vinyl-trimmed lip exposed. The flat flanges of the cover that screw to the floor should also be trimmed in vinyl.
16. Also to be noted on the side shift gearbox models you should fit the rubber gear lever boot to the cup surrounding the base of the gear lever. The rest of the boot should form a cup with only the upper most lip of rubber fitting to the metal cover.
17. With the tunnel panel screwed into the floor with 4 sheet metal screws and washers down each side, make sure the shift lever aperture is well centered on the base of the lever, and not fighting the rubber shift boot.

Note that there are 4 male carpet snaps fitted down each side of the tunnel. If they are not still there, you should be able to locate the original mounting holes and mount new ones. They should be about 2 inches or so up from the bottom flange.
18. When satisfied that all is fitting well, fit the tunnel carpet into place, butting the leading edge as mentioned to the forward tunnel lip, and making sure the carpet material is equally fitted down each side of the tunnel and drive shaft tunnel. Pull the carpet evenly out and down to get a smooth fit. Ensure that the trimmed ring of vinyl binding fits centrally around the gear lever aperture.
19. Locate the bump of the male carpet studs beneath the carpet and mark the exact location on the outer surface with a piece of white chalk. Install the round ring of the carpet snaps (provided) with the 3 piercing tabs through the carpet and carefully fit and crimp the tabs over onto the female portion of the snap on the underside of the carpet. Fit these snaps one at a time and check each one for carpet position and fit. If you locate one a bit off, simply uncrimp the tabs and reposition the snap assembly.
20. Usually there is extra width of carpet allowed here, and any extra beyond an inch or so can be trimmed away with a sharp knife later. I use an Xacto knife with a fresh

blade for this. You want to be able to make a clean precise cut with no ragged edges or straggling threads remaining.

21. Now, with the white chalk, mark the absolute centre of the drive shaft tunnel. This will be used to locate where the armrest will be sewn on. Remove the tunnel carpet, and cut a slot down the centre of the line, and two "Y" shaped cuts, one at each end, so the flaps formed by the cuts can be opened up to gain inner access to sew the armrest into place.
22. The recess for the ashtray must be located and the carpet carefully cut out using the Xacto knife. The chromed ashtray assembly is located and screwed into place using two #6 flat head Phillips self-tapping screws passing through the bottom and into the tunnel.
23. The rear floor carpets can be located next. Note that there are clearly left and right side pieces, determined by the spacing of the carpet vs. seat track slots, the slight chamfer on the outboard rear corner, and the chamfer on the inboard front corner to clear the gearbox tunnel.
24. Temporarily fit the carpet piece into place and make sure there is no interference in the fit of the outer perimeters to other carpet sections, and the slotted sections which should be able to clear the seat slides. Each rear floor carpet piece will be located and held in place using two carpet snaps as described previously. These two snaps are located toward the rear of the carpet about 3" in from the outer edges and from the rear edge. Again as with the tunnel carpets, the male snaps will be felt through the carpet, the chalk mark is made and the ring tabs pierce through the carpet. Finally the female portion of the snap is locked in place by bending and crimping the 3 tabs out flat. Test fit and adjust as necessary.
25. The forward floor carpets are now fitted in a similar manner. Note that as of this writing Heritage Trim and Interiors has assured me that they now prefit and install the two front snaps under the sewn in Austin heel mat on the driver's side. The two rear snaps will be about 3" in from the back and outboard edges.
26. The floor carpet pieces are made a bit larger on purpose to allow for the slight differences in tunnel and bulkhead positioning. These carpets must be final trimmed along the inboard edges as necessary to give a smooth and continuous fit where it meets up with the vertical plane of these areas.
27. The parcel tray carpet piece can simply be set into the tray, assuming that the tray has been properly trimmed in the appropriate vinyl. Make sure that the edges all fit smoothly, including the cutout for the windscreen washer bottle.
28. The rear quarter trim panels can now be refitted to the car and fastened in place as previously described. The flat steel plateau that rivets to the panel and is positioned in the car with the self-tapping screws will now be fitted with carpet. Again ensure

the edges fit precisely and butt up to the inner wall of the panel, and that the clearance holes for the hood frame socket are trimmed to fit. It will also be noted that there is a 90-degree notch out of the carpet toward the front edge. This is to clear the little wood block which is trimmed in vinyl and is screwed in place using a self-tapping screw passing through the block's counter bored center hole. This trimmed block will in turn have the polished anodized satin alloy capping piece fitted using 3 pan head countersunk chromed wood screws. This capping piece holds and anchors the rearmost edge of door threshold seal to give the area a completed look.

This will now have all the carpets installed. You can now carry on reinstalling the alloy shut trim plates and threshold plates, both inner and outer, the door seals, the rear tonneau panel brackets, and so on.

Well, I believe that's about it for the BT7 carpet installation. I hope I've been able to describe things well enough to get you through the job.

It really became apparent to me while writing this that each series has its own unique details and steps that must be taken to do the job correctly. I dare say, there's probably a book's worth of details that could be written on trimming out Healeys, with at least a chapter on each series. I am no professional when it comes to trimming these cars, but with the correct materials, colours, quality workmanship of the components, I think a very respectable results can be achieved.

This has not attempted to deal with colours, aftermarket heat insulating tricks, or the subject of fitting armacord boot trim, interior vinyl trimmed panels, etc., let alone seats, tops, tonneau covers and so on.

Maybe some other time...

Carpeting Your Healey

Concours and Restoration

Article and Photos

By Gary Anderson

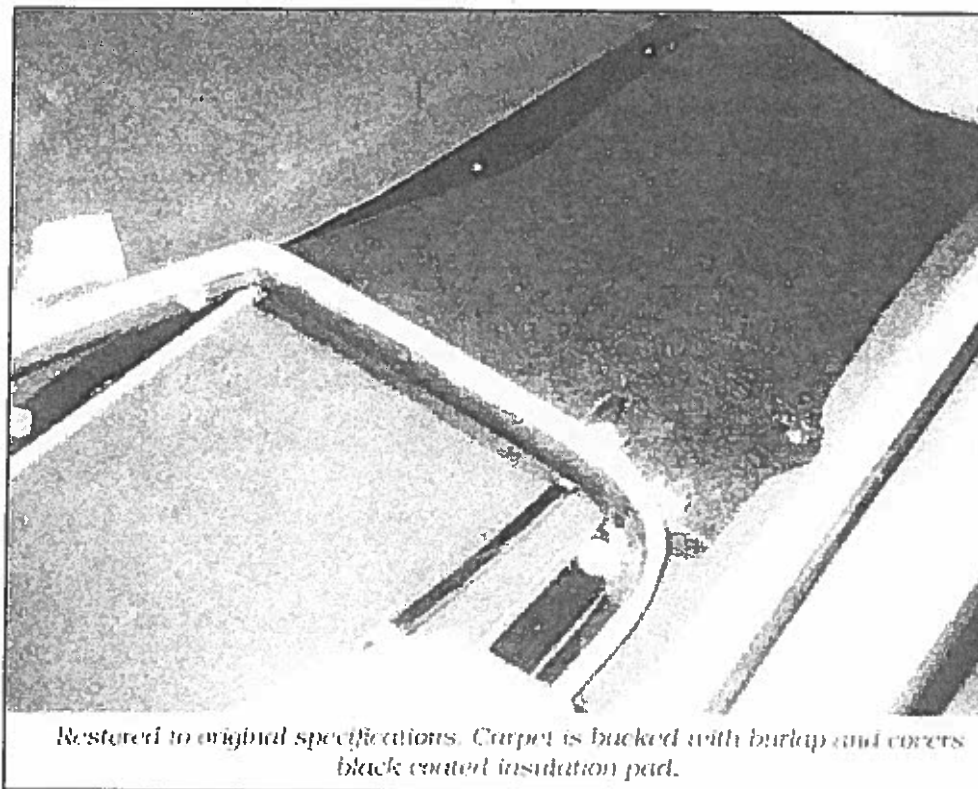
In this article, Gary reviews the standards used by the Austin Healey Concours Registry to judge interior carpeting and describes how you can install your own carpeting according to these standards.

The one area that most owners seem to be getting wrong in their restorations, at least based on our Registry inspections this summer, is carpeting. Several factors together probably account for this problem. Aftermarket producers of carpet kits are doing us no favors, seeming to believe that any material put together in any way will be fine if it more or less fits. Second, the original specifications for carpeting are not as widely known as those for other areas of the car, because most cars have had their interiors replaced at least once and the original interiors are usually trashed in the first frenzy of taking the car apart for restorations. Finally, the original standards don't seem to make sense, so many people try to improve on them when installing their new carpeting.

Original Standards

The nature of carpeting in the Healey didn't change much from the early BN1s to the late BN7s. Here are the specifications that the Judges check for and explanations of them.

Coarse cut-pile wool blend material backed with burlap The original material was Karvel hogshair, a blend of wool and synthetic with a very coarse texture, in a cut pile weave with a fairly shallow pile of a quarter inch or less. When the weave was folded open in one direction it opened up in parallel lines, but when divided in the other direction, it didn't show any pattern. This material is no longer available to our knowledge, but many cars still have the original material in good shape so full points are given only for the original material. A cut-pile wool/synthetic blend is the preferred alternative if the original is not good enough to re-use.



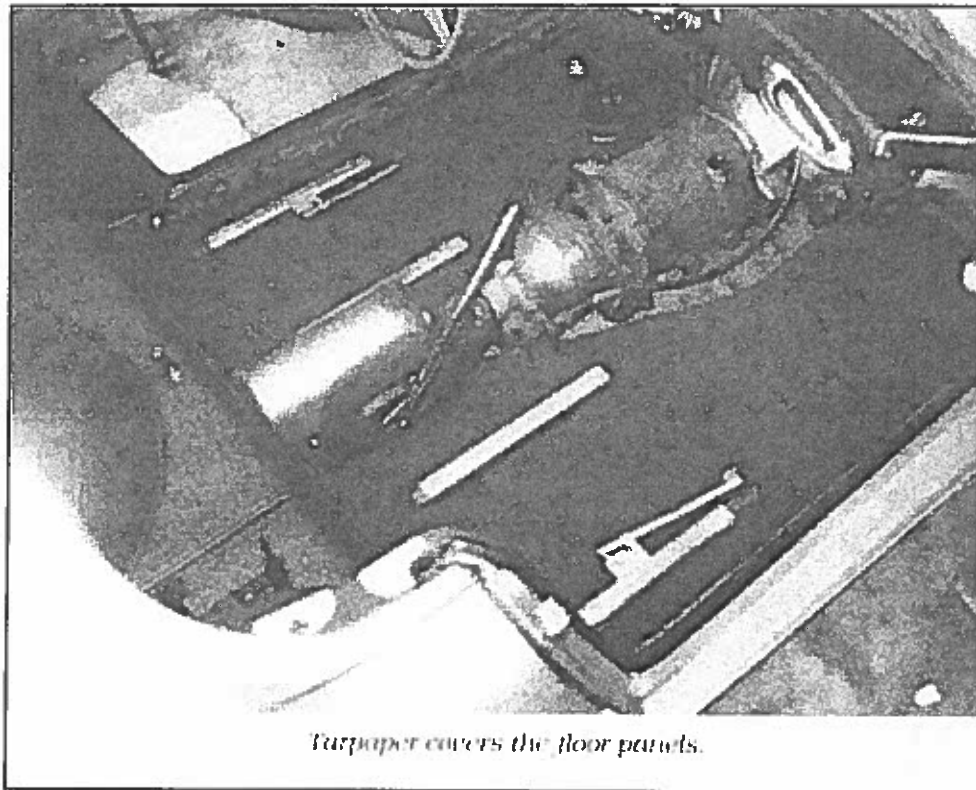
Restored to original specifications. Carpet is backed with burlap and covers black coated insulation pad.

Some restorers are using all wool, preferring the softer feel and deeper pile. You may wish to do the same if you're willing to trade off a very few extra points for the advantage of the improved appearance. Significant deductions would be taken for loop-pile carpeting, or nylon material. The carpeting material was embedded in a rubberized base and had undyed "Hessian cloth" (burlap) glued on the back, covering the base.

Edge binding only around gear shift and brake lever Because the wool blend doesn't unravel, the designers did not incorporate bound edges, except around the hand brake opening where the material would have frayed, and the gear-shift opening where a tight fit between the boot and carpeting is needed to reduce air flow. In every other area where carpeting pieces met, they were either butted together, or overlap, giving the car's floor area a continuous, molded appearance. The existence of edging is a major area that most replacement kits get wrong, because their material is usually of poorer quality, and has to have the edges bound to avoid unraveling.

Carpet color matches trim

Carpets were either black, red, or blue, matching the primary upholstery color. The only exception was on some of the green cars which had green carpeting with gray upholstery. The original material had a slight white fleck in it, because the synthetic threads didn't pick up dyes as well as the wool. When you replace your carpet, we recommend that you get a sample of an original piece and match it as closely as possible with a sample of the new material before beginning, to make sure that color and texture match as closely as possible.



Tar paper covers the floor panels.

Underlay material of jute and

tar paper The carpeting in the floor and footwell area has jute insulation pads laid immediately underneath. These jute pads are coated on the upper side with a rubbery material. The transmission tunnel carpeting also has a jute pad underneath. These pads are very important for heat and noise insulation, and also give the carpeting a softer resilience. Many kits now come with heavy felt rather than jute, but jute is available. Extra heavy tar paper is laid under the jute pads in the floor areas, for additional insulation and moisture protection. In the bulkhead areas, the carpeting is glued directly to the metal.

Blind snap fasteners on front floor and transmission The carpet pads on the floors in front of the seats are held in place by four snap fasteners. Our guess is that they were designed this way because they conveniently collect the water that leaks into the cars when it rains, and thus could easily be removed and dried out when needed.

The transmission tunnel carpeting also fastens with the same snaps. The transmission carpeting was

fastened in this way to give access to the transmission oil dipstick in front, and, in some models, to the rear transmission tunnel opening above the rear universal joint grease nipple.

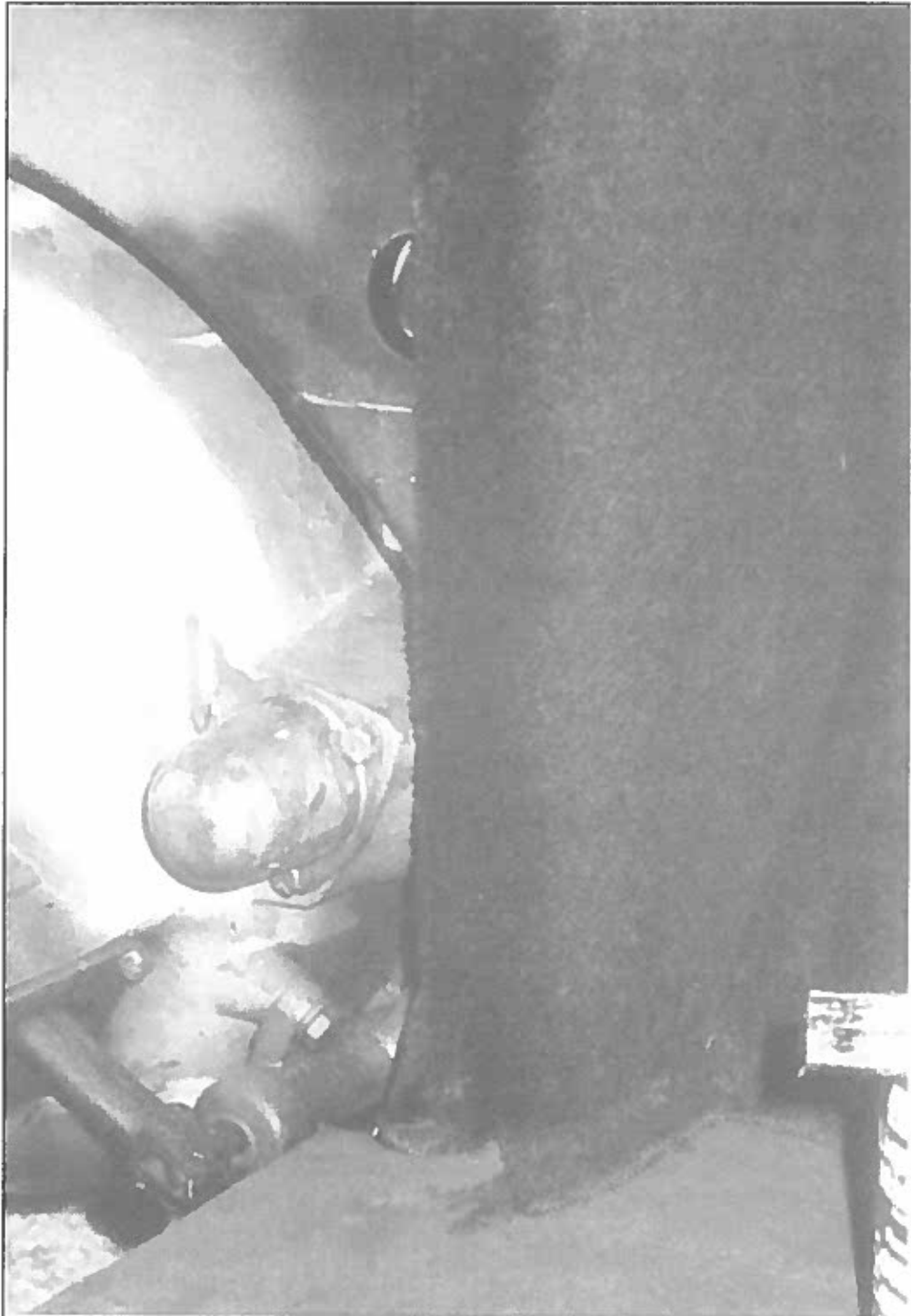
The female snap fasteners are held in place on the underside of the carpeting by three-pronged "blind" clips in the form of thin rings that insert from the top of the carpet and are, more or less, covered by the carpet pile. The fasteners snap to male screw snaps that are screwed through the jute pads and tar paper (helping to hold them in place) into the floor panels, or are bolted to the transmission tunnel, projecting through openings in the jute pads. Carpeting on vertical surfaces is glued in. Carpeting on the rear floor is simply laid on top of the tar paper and jute padding (This area is not carpeted in the 100/4s).

Heel pad with "Austin" in script

The original kits, throughout the production, had heel pads sewn to the carpeting under the driver's pedals. These rubber pads have the word "Austin" in script molded into them. The carpeting was not reinforced in any other areas.

Vinyl trim covering area under brake lever, and exposed edge of transmission tunnel The space on the transmission tunnel exposed by the semi-circular opening of the carpeting around the brake lever was covered by vinyl trim. On the late BN4s through Mark IIs, the front edge of the transmission tunnel was covered with a vinyl strip against which the transmission carpeting

butted.



Carpeting overlaps the edge of the transmission opening.

Question: I've still got my original carpeting, but I wouldn't say it is in showroom condition. Should I replace it?

In the new judging standards, a judge may deduct up to 60% of available points for a component for inaccuracy, and 40% for poor appearance or condition. Because accurate replacement material isn't available for carpeting, you would probably lose the same few points for using new wool blend material as you would lose by keeping the original, not-quite-perfect, material. For example, original carpeting material in acceptable but not excellent condition might receive a two point (0.2 percent) deduction for condition, while a new cut pile wool blend would receive a two-point deduction for inaccuracy. You will have to use your own judgement as to which makes you happier, but your point deductions won't be much different either way. We do recommend that if you keep the old material, you put in new tar paper, jute underlay, and fasteners. This will go a long way to restoring the appearance of the original installation.

Installing Your Carpeting

Here are some guidelines to help you in installing your own carpeting. Installation should take two or three weekends, with the time depending on how much effort is required to remove the old material and prepare the area.

Materials needed

In addition to the carpeting kit with heel pad, fasteners, and vinyl (all of which should be supplied by the vendor), you will need:

Contact Cement: LePages, two 1-pint cans and one spray can. Follow instructions closely.

Tar Paper: One 36" wide roll of 30 weight asphalt-saturated felt shake roofing liner from the lumber yard or building supply store.

Burlap: 2-3 yards in natural color from a yardgoods store.



New heat deflector riveted to the back of the transmission bulkhead.

Two-inch paint brush for cement, awl, scissors, paint scraper.

Preparation

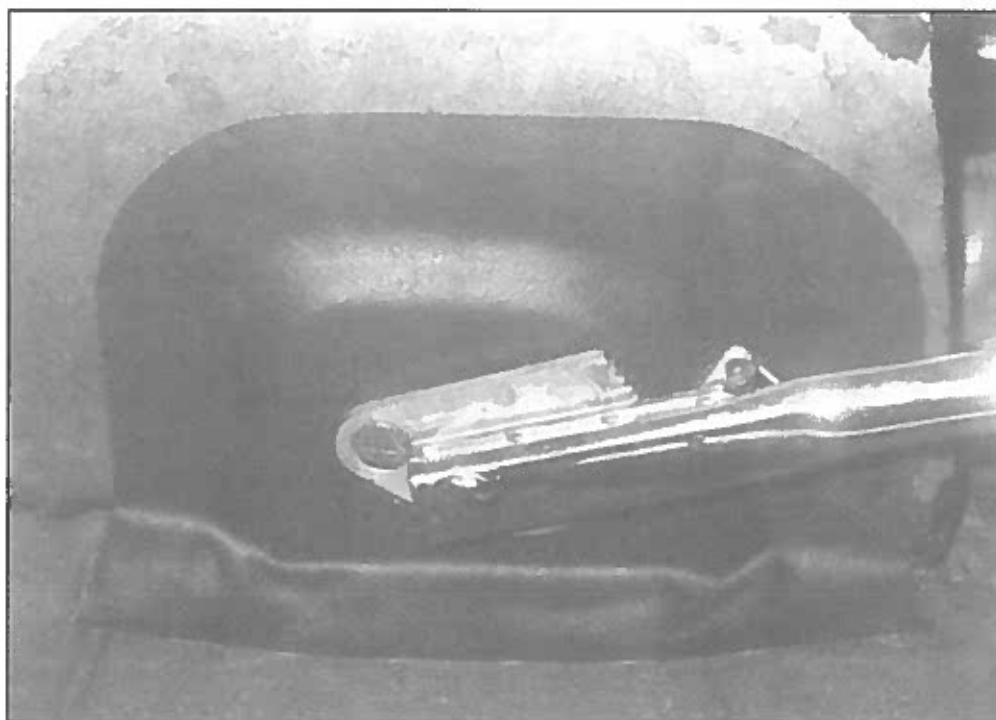
Get the car ready for installation by removing the seat frames (leave seat rails in place), carpet and underlay, and taking out the transmission tunnel and bulkhead, the front and rear trim panels, and the door threshold plates. Wirebrush any rust, repair metal as necessary, then give all exposed metal a coat of primer and paint.

Order of installation

The carpets are installed in the following order.

1. Cut and lay tarpaper on the floor areas, cutting openings for the seat rails. The tar paper can be glued down if you wish, because it isn't likely to be removed again.

2. Glue in the vertical panels, a. Start with the rear of the tonneau area (in the four-seater). b. Install the inner sill carpet sections, first marking where the trim screws on the threshold plates go through the carpeting. The threshold plate will cover the edges, c. Then glue in the rear bulkhead piece, butting the material against the siderails. d. Finally, glue in the foot well panels. Mark the carpeting where the bulkhead screws go in before covering the holes with carpeting. Let the footwell carpeting overlap the transmission opening, to provide a good seal when the bulkhead is screwed in.



Vinyl is glued to the tranny tunnel behind the brake lever.

3. Restore the transmission tunnel bulkhead, a. Trial fit in place. You will probably have to do some straightening and even a little patching on this piece so that it fits well. A bad fit is usually the source of unwanted cockpit heat. b. Replace the rubber heat deflector on the opening of the transmission bulkhead—

an old innertube is good for this—fastening it with pop rivets, c. Line the engine side of the bulkhead with tar paper, d. Glue the carpeting to the bulkhead, overlapping it around the edges to the back.

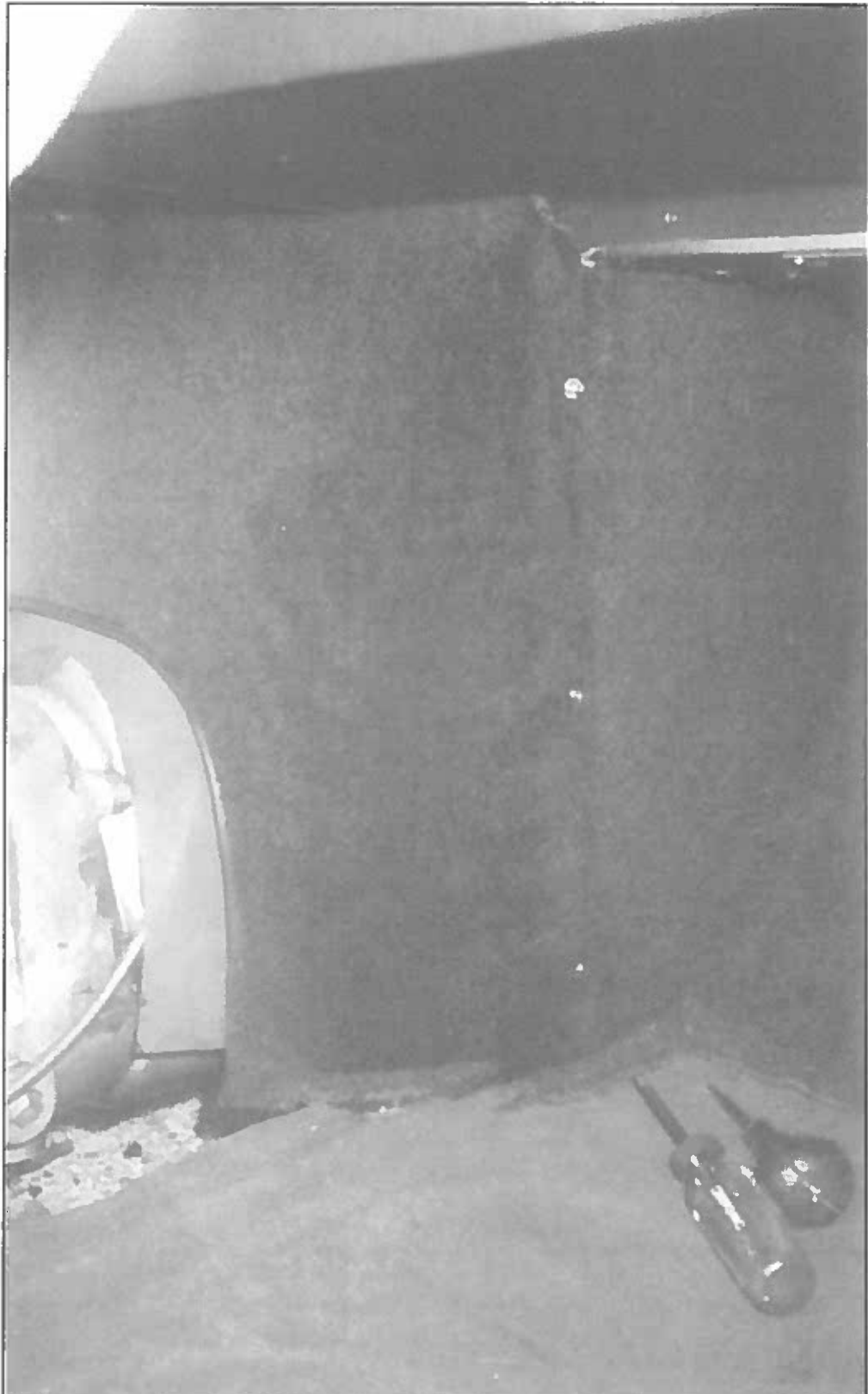
4. Install the transmission bulkhead. Make sure to replace the rubber sealing strip at the top of the chassis panel above the transmission before installing the bulkhead. This stops another source of unwanted heat. The bulkhead is fastened with three trim screws and cup washers along the vertical flanges on each side, with the screws visible on the carpeting.

5. Cover the transmission tunnel. As with the bulkhead, trial fit into place first, smoothing any rough edges. Glue the vinyl to cover the flat side area near the brake lever location. Then lay the carpeting and padding in place and check the location of the fasteners, moving the snaps on the tunnel if necessary to get the carpeting to lay smoothly. On cars without the center console, the leather arm rest is sewn directly to the carpeting before the carpeting is installed.

6. Install the rear pads and carpets around the seat rails and install the seat frames.

7. The transmission tunnel can be installed at this stage, because it will rest on top of the tar paper.

8. Cover the back of the carpeting sections that go forward of the seats with burlap. This is most



Three trim screws fasten the transmission bulkhead in place.

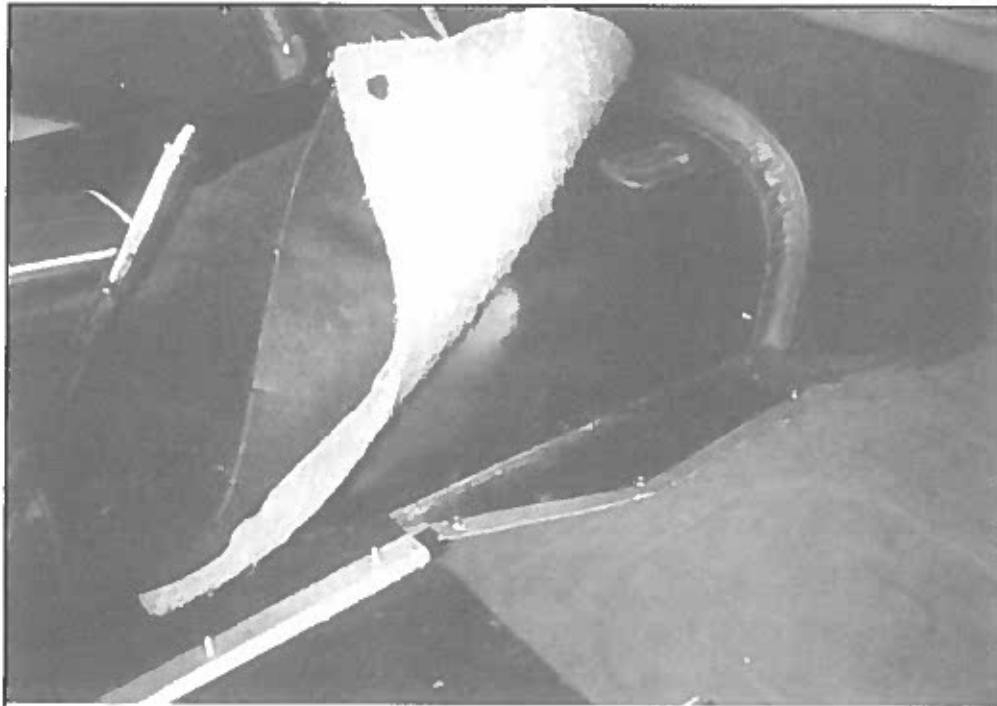
easily done by cutting an oversize piece of burlap for each section, then spraying it and the carpet back with contact cement, gluing the two together, then trimming the burlap to the carpet edges.

9. If the carpet sections don't have their snaps attached, they can be clipped on now, positioning them about two inches in from the edges in each corner. Then lay the front pads and carpets in place so that they butt against the rear carpeting. Use an awl to poke positioning holes through the carpeting in the center of each fastener ring. Remove the carpet and screw a male snap through the jute pad and into the floor board at each corner as marked. The carpeting should then snap back into place.

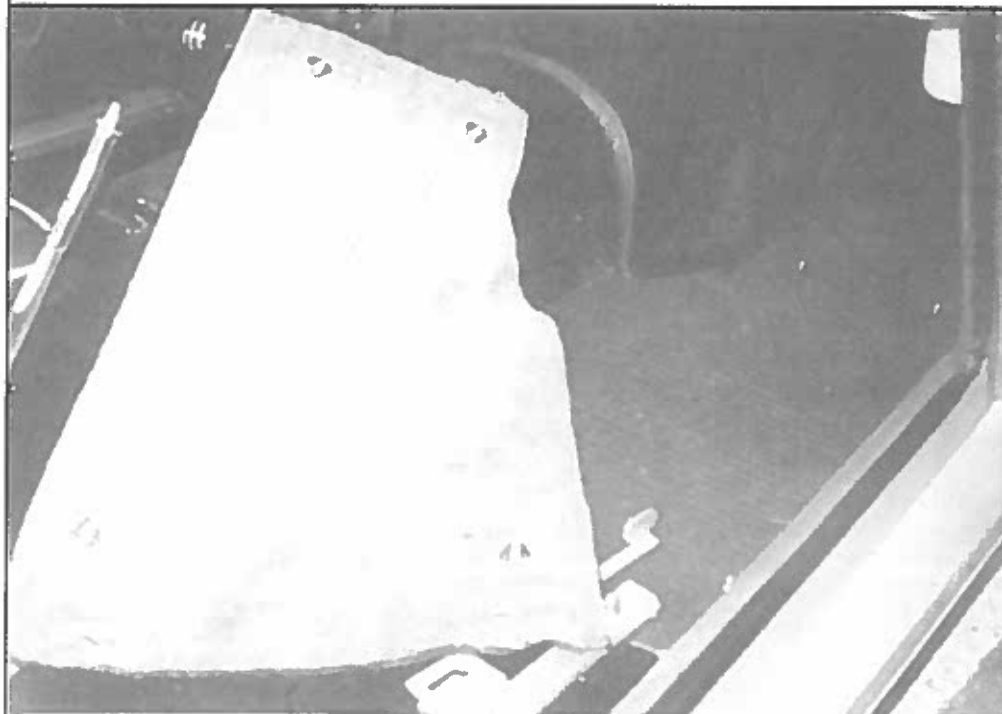
10. The last piece of carpet in the kit is for the package tray. You may also wish to replace the vinyl on the tray, if it is in bad shape, but note how the bottom piece is sewn to the side piece, in order to duplicate the installation. Finally, reinstall the seats, trim panels, and threshold plates. If you've been careful, you should have a job you will be proud of, and one that will transform the look of the interior. But remember, if there isn't time to do it right the first time, when will you ever have time to do it again?

Sources

Carpet snaps, studs, screws, padding material and other interior hardware and material, as well as individually tailored carpet kits, can be obtained from MaeGregor Coach Trimming in Ontario, Canada (416)



Carpet and pad fold back to access the transmission oil filler hole.



Front carpet pad, showing burlap backing and snaps.

627-4006 Turnaround time for full kits from this source is often quite long, however, and prices reflect the high quality of materials and workmanship.

Carpet kits are also available from a variety of other sources and the quality varies, but good kits are available. If you are interested in concours quality, check with other owners and the restoration services that advertise in this magazine to find out where good kits are available.

Finally, you might consider having a local trimmer do the whole job or at least make the carpeting for you.

if you have an original installation to duplicate and know of a good shop that has a reputation for concours quality work. Wool blend is available from many sources; just match it as closely as possible for color, weave, and texture. The rubber heel pads are available from Moss Motors and other sources, and fasteners can be ordered from MaeGregor.

The author thanks Rich Chrysler, Anders Clausager, Martin MaeGregor, Roger Moment, and Rick Regan for information and assistance in the installation that led to this article.

Austin-Healey Magazine, August 1990

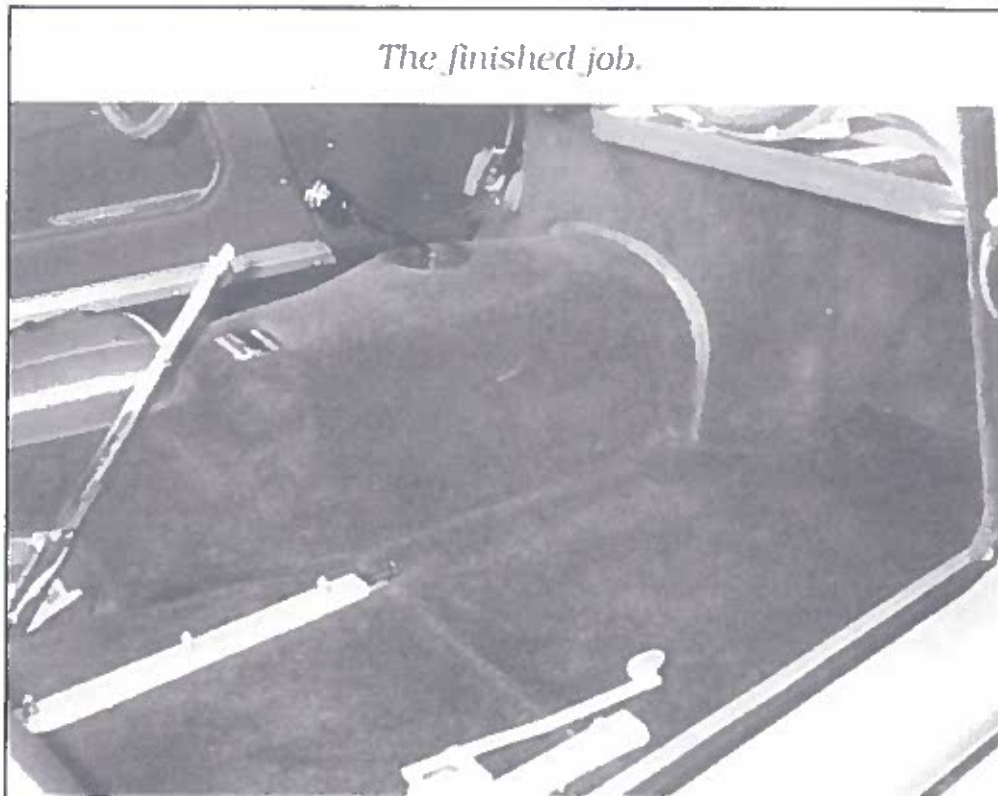
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Mechanicals

Bucket Seat Shape: It Isn't That Hard To Do It Right!

Reprinted from CHATTER, January 1994.

by Roger Moment,
Rocky Mountain Healey Club

One area of restoration, whether on "concours" or "driver" cars, that I have most often seen incorrectly done is that of seat upholstery. Since this is a most visible part of the cars, not doing it right detracts greatly from what might be an otherwise excellent car.

The two problems that are most significant are: 1) width of the various panel pieces relative to each other and, 2) padding/fit of the covers to the cushion foam. There are only a handful of upholstery shops scattered around that have the knowledge and experience to do a correct job on their own. However, there are many other very capable upholsterers around who could do things perfectly if properly guided. The cause of flaws in their work is usually that they do not know what details to pay attention to when redoing Healey seats. Given proper directions by customers, I believe that many shops could turn out proper results. However, left to their own "feel" for what looks "right," seats are finished looking like bloated dead fish, or '50s tuck and roll projects.

The purpose of this article is to focus on those details which make for a proper upholstery job. We will look at foam core shaping, cover dimensions, final stuffing and shaping and finishing details, such as piping.

General Appearance

If you look at original photos of upholstery in the Big Healeys you will see that there appear to be two basic styles. From the BN1 through BJ7 the front seats had five-pleat panels in both the cushion and back, bordered by a "U" shaped collar. The rear seats of BN4s had four pleats in the seat pan and ten across the seat back, or rear squab as the British called it. Starting with the BJ8, the front seat cushion insert was changed to six embossed pleats, and their side seams were continued forward over the front cushion edge, as the "U" piece was totally replaced with three sections, the front one extending down to the bottom edge of the cushion. The front seat back inserts were divided into two sections, the bottom part having six pleats to match the cushion, and the top consisting of a plain semi-circular panel.

The rear seat pans had 12 embossed pleats each, to match the front insert panels, and the rear squab back was covered using an embossed square pattern to match the rear quarter panel coverings.

Piping on all seats, up to the BJ8, was leather cloth, wrapped over a core, in colors to either match or contrast with, the main color. Piping on the BJ8 consisted of clear plastic, covering an embossed "chrome" core.



Seats from BN1 through BJ7 had front seats with five pleats and a large "U" shaped collar. Seat cushion pleated panel is "too bloated"; it should sit down more. This typically happens with age when glue lets go and also can be the result of poor seat re-construction.

pleated panel, and its general front shape is quite rounded, and conforms with the appearance these later-designed seats were supposed to have. I have heard that proper foam cores for the earlier style seat cushions are available from Hemphill's Healey Haven, but don't know whether this is true for the seat back foam as well.

The BJ8 foam can be adapted for earlier style seats by filling in the two grooves in the seat cushion, building up the front edge, and filling in a bit to reshape the "U" part of the seat back piece. These modifications are shown in Figure 1. In doing so, it is important to understand the shape you are trying to achieve and the best way to do this is to refer to photos of original seats, or restorations that are true and accurate to original seats. Unfortunately, seats were not a very high priority, compared with the rest of the car, so good detailed photos are hard to find. Here are a few that I think are pretty useful:

1) *Austin-Healey, The Story of the Big Healeys* by Geoff Healey: On page 110 is an excellent view showing a BJ8 interior. Page 102 shows the seat cushion style used in BN1 through BN7 interiors.

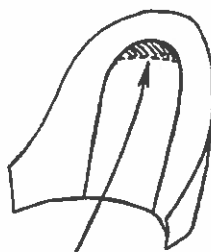
2) *Healey, The Handsome Brute* by Chris Harvey: Page 23 also has some good BJ8 interior views.

3) *The Big Healeys* by Graham Robson: Page 51 shows the profile of early style seat cushions and piping on the seat back of BN1, BN2 and early BN4 cars. Page 52 shows the rear seat pan and squab patterns.

4) *Austin-Healey 100, Super Profile Series* by John Wheatley: Page 30 and 31 show excellent views of totally original, and well cared for seats of John's one-owner car.

Foam Cores

Most of the original foam has by now suffered terminal disintegration. Fortunately, it is possible to buy new replacement pieces that have the basic proper shapes. However, nothing is so simple as to "buy and install," upholstery-wise. The foam pieces that are available from most sources are shaped for the later style (BJ8) front seats. The arch of the recessed portion of the seat back reaches too high, leaving a too-narrow width for the top of the surrounding "U" panel. The seat cushion foam has two grooves to accommodate the seam extending forward on either side of the



Fill in top region of recess.



Fill in grooves.

Build up front lip.



Side view of cushion

Figure 1

Replacement seat cushion foam, and modifications for BN1-BJ7 upholstery.

The finished seat cushion for BN1 through BJ7 cars should have the outer piping running in a plane as it goes up the side, across the front and back down the other side. The five-pleat inner panel has rounded corners involving the outer two pleats only, but with not too sharp a radius. It is glued down to sit "into" the foam so that it is recessed relative to the "U" piece which surrounds it. I have tried to show this by cross-sectional views of the cushion in figure 2. This "U" piece should be slightly wider at the front than on the sides, and padded to give a gentle loft. Again, using the photos in references (3) and (4) should make the desired result clear.

To use the BJ8 seat back foam for BN1 through BJ7 seats requires building up the top of the "U" area to the proper width. The measurement from the piping at the top edge of the seat to the piping at the top of the five-pleat panel should be about 6 1/4". Again, the panel needs to sit "into" the foam (held in place by gluing, as was the panel in the seat cushion), and this will require a little building up of the padding around the "U" area.

Piping

There is really only one aspect of piping which is worth special attention. That concerns the way the piping is run on the seat backs in the "ear" region where they are attached to the seat frame. From the BN1 through the early BN4s a single piece of piping was run from the midpoint of the seat back at the base forward and around the "ear," up over the top, and returning in similar way down and around the other side. This can be seen fairly clearly in the photo on page 51 in reference (3). To do this properly requires that each of the small cover pieces that slip over the "ears" of the seat frame are sewn to the piping along with the main back cover. A quick inspection of the geometry of the seat will show that the piping must be left unsewn from about the front-most point of each "ear," so that the cover can be slipped over the seat back. This is shown in figure 3. Once the cover is in place, the remaining stitching was done by hand, as illustrated. The ends of the piping were tacked along with the edge of the cover to a tack strip that runs across the lower seat back edge, and the tacks covered with a "hidum" strip, that extended to within a few inches of the two attaching bolts.

For later BN4, BN6, BT7 and BJ7 cars, the seat back piping was done differently. The "ear" pieces were totally separate from the seat back cover, and the piping ran down along the joint on the seat face side, as shown in figure 3 (B). This change apparently coincided with the introduction of metal seat cushion frames, rather than wooden ones used on the BN1/2 and Longbridge 100-6 cars.

One final point regarding piping. It is important that the excess material of piping cover facing and back all lies on the back side of the seat back. This will keep the piping in place, and prevent the cover from sliding forward over the top of the seat back, thereby allowing the piping to move out of position. This is shown in figure 4.

The details that I have highlighted are those which typically identify incorrect upholstery and will result in scoring down in Concours. However, since it takes little or no extra effort to do the job right, there is no reason that equal care should not be applied to reupholstering a "driver." This article was not intended to answer all possible questions on upholstery, but rather only to address areas that are commonly done wrong, usually as a result of not knowing what was correct. I strongly urge anyone redoing their seats to look at many cars, and study remnants of original upholstery, before turning the job over to a shop. This way you will know exactly what you want, and can oversee and guide the craftsman doing the actual sewing and fitting.

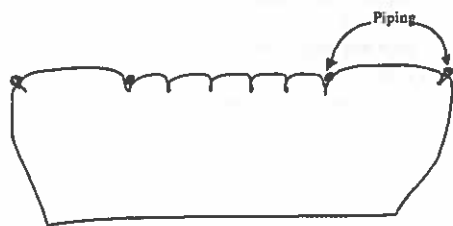


Figure 2
Cross section of front seat cushion
BN1-BJ7 style.

Figure 3

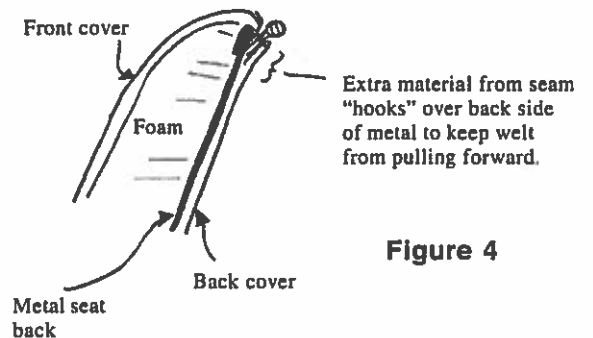
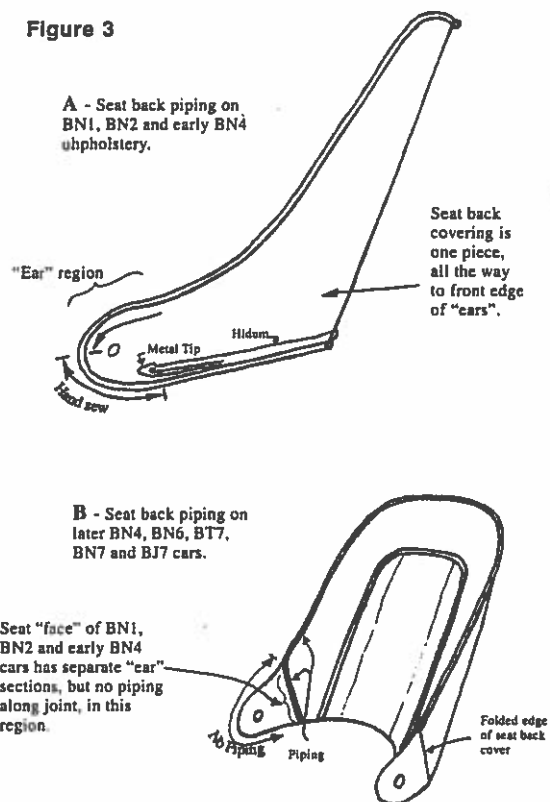
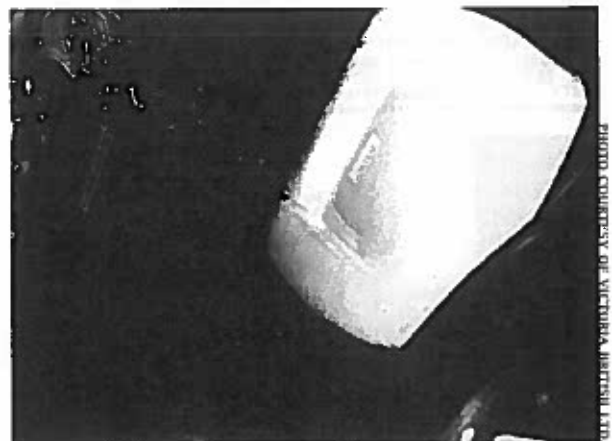


Figure 4



Most aftermarket seat cushion forms incorporate two grooves in front portion that must be filled in on BN1 through BJ7 Healeys.

Hard Seat

Norman Nock, British Car Specialists, Stockton, CA

Does your wife hate long trips in your Healey? Maybe it's because the seats are too hard.

The foam type seats in the original Austin-Healey had holes molded into the seat foam. This made the seat much softer to sit on.

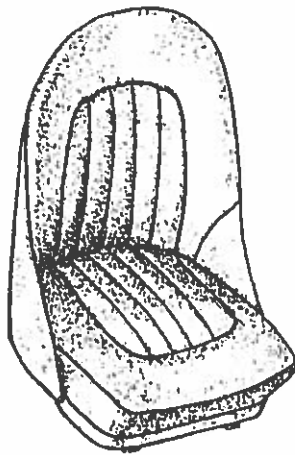
If you have the new type foam in your seats, they can be modified. This "new type" foam cushion has been around for about 15 years. I modified my seats to make them softer just

before my 950-mile trip to Rendezvous 2000. The difference was amazing, and I had no problem sitting in the seat for many hours. Following is what I did to solve the problem.

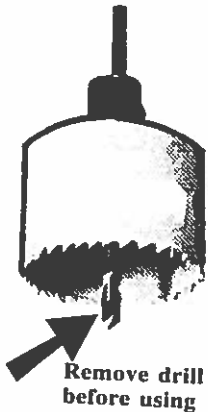
Modifying Your Cushion

Remove the cushion from the seat. The material is held to the seat pan by clips at the side and front. Carefully open the clips with a thin screw driver to remove the cover. Clips will come off without damaging the material.

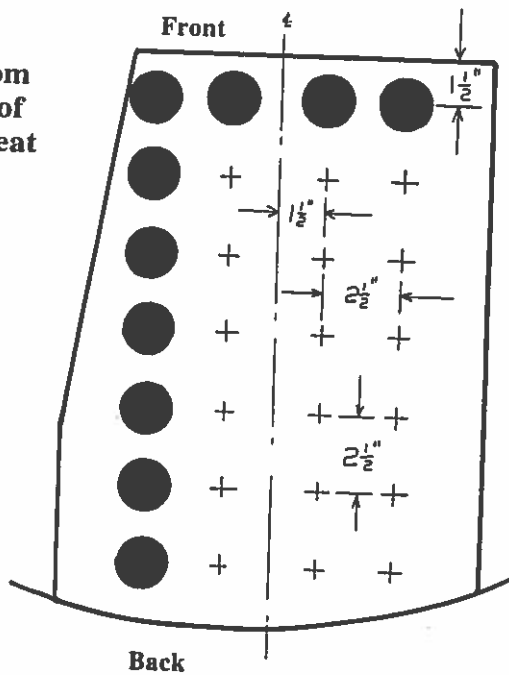
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Hole Saw



View from bottom of drivers seat



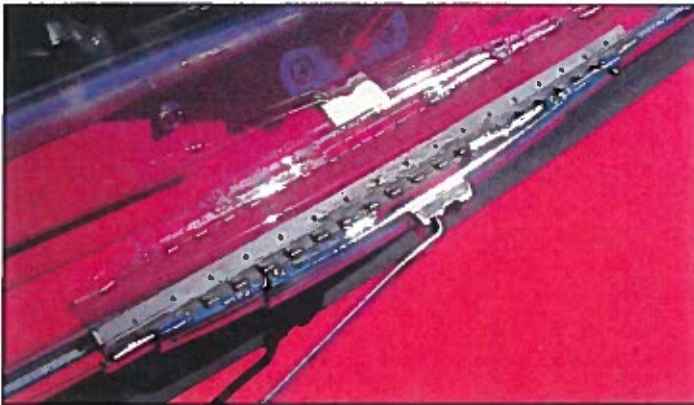
Hard Seat (continued)

The rear seat material is held rigidly in place. Do not remove seat material from cushion. Open seat like a book to expose bottom of seat cushion. Mark the bottom of the seat foam as per diagram, using a 1 3/4" hole saw with drill removed. Drill the back two rows 1/2" deep. Drill other holes 1" deep. Hold hole with pliers and twist out. Replace seat material. Ⓜ

INSERTING WIPER BLADE REFILLS

By Roger Moment

The Rainbow wiper blades used on Healeys, from BN1 through the Mk II roadsters, have 9-inch long removable inserts for replacing the rubber. The removable blade part consists of the rubber, captured in a metal claw backing, and a tiny pin for retaining the assembly in the articulated blade frame.



The Rainbow wiper blade used on Healey roadsters – BN1 through Mk II BN7/BT7s.



Construction of an original Rainbow wiper blade. The rubber part is 9 inches long. The end molded bars are 1 inch long.

Reproduction assemblies that are very similar to the original Rainbow ones are available, but I don't know of a source for just 9-inch replacement refills (consisting of the rubber and metal backing). Originally, Lucas blade refills were sold with the backing, and the instructions for installing these are shown in the accompanying illustrations.

There is an alternative to purchasing complete blade assemblies, and this is to buy just reproduction rubbers and replace them into the original blade. Moss sells 9-inch rubber refills that are molded exactly like the originals (part No. 164-977), but they don't include the backing strip, and fitting them can be a bit tricky.

I have found that rather than removing the entire blade insert from the frame to insert the rubber, it actually can be much easier to replace the rubber into the blade assembly. My method for doing this is described below.

You will need a clear, smooth work space and a pair of long nose pliers. First remove the blade assembly from the wiper arm. Then, on a table bend the end tab closest to the locking pin out to an angle of about 45°, as shown in

LUCAS "RAINBOW" WINDSCREEN WIPER BLADES

CAUTION

Before fitting the rubber wiping element and flexible steel "backbone" in place of the original element and "backbone," we strongly advise that the blade body and wiper arm be carefully examined. If these are found to be worn or distorted they should be replaced.

We cannot be held responsible for subsequent poor wiping performance or damage to the screen if the replacement element and "backbone" has been fitted to worn parts.

New elements should be handled with care. It is important to keep the rubber clean and free from oil or petrol and to avoid distortion of the metal "backbone."

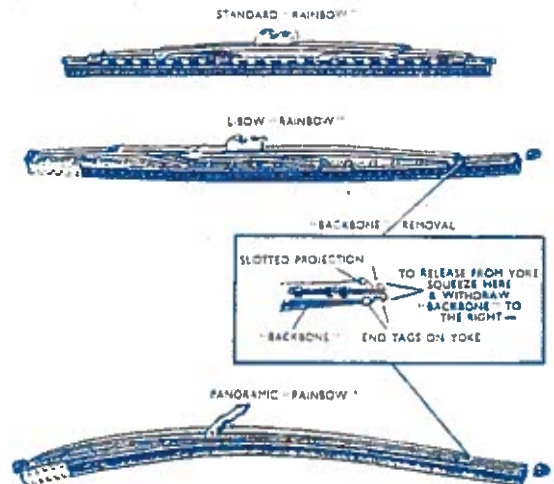


Fig. 1 "Rainbow" wiper blades

FITTING NEW WIPING ELEMENT

Pull the wiper arm away from the windscreen and disengage the blade from the arm.

Page 1 of the Lucas instructions for installing blade refills. These cover two styles of Rainbow blade – Big Healey roadsters use the "Standard" version.

Photo 2. It is not necessary to bend it all the way out flat. Only a minimal straightening of the tab by is needed to allow the rubber to be slid by. By minimizing the bending you will reduce the chance for breaking the tab in the future when you do subsequent rubber replacement.

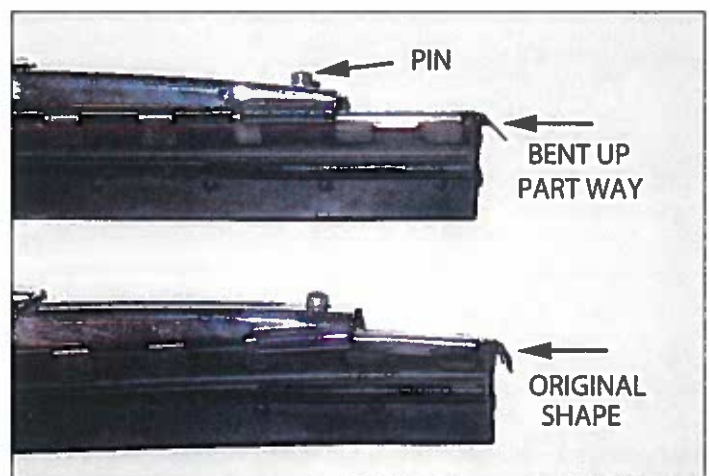


Photo 2 – The bottom view shows how the metal backing was originally bent at the end to keep the rubber in place. The top view shows the tab bent back ONLY PART WAY, to about 45°. This should be enough to allow the rubber to be slid out. NOTE: the end you bend up should be the one near the locking pin.

Standard "Rainbow" Blade

(i) Press down the locking pin securing the wiping element and slide the element to the right, as shown in Fig. 2 (a), to free it from the body of the blade.

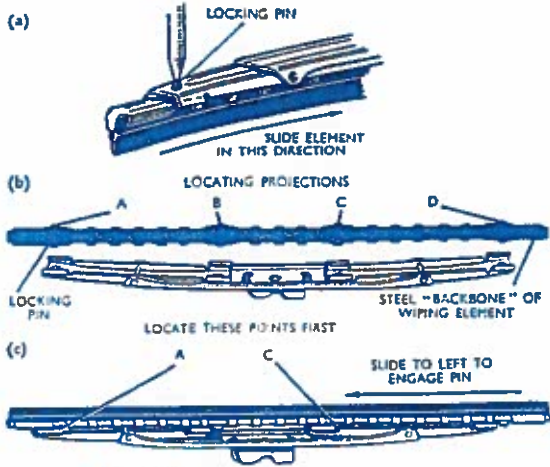


Fig. 2. Fitting new element to standard blade

(ii) There are four pairs of locating projections on the "backbone" of the new wiping element, as shown in Fig. 2 (b). When fitting, first locate the element by projections "A" and "C". Then guide projections "B" and "D" into position and slide the element to the left, as shown in Fig. 2 (c), until the locking pin is heard to snap into position.

(iii) Finally, refit the complete blade to the wiper arm.

L-Bow and Panoramic "Rainbow" Blades

(i) Pull the plastic caps from the ends of the blade and withdraw the rubber and "backbone".

The "backbone" is supported in the yoke on four pairs of tags. It is locked in position by a slotted projection which engages with one of the end tags on the yoke. It can be released for withdrawal from the yoke by squeezing together the sides of the locked end, as shown opposite (inset).

(ii) Fit the new "backbone," rubber and end caps to the yoke.

(iii) Finally, refit the complete blade to the wiper arm.

JOSEPH LUCAS LTD • BIRMINGHAM • ENGLAND

Instruction Leaflet No. 908F

W/164/L XX/864/L Printed in England

Page 2 of the Lucas instructions.

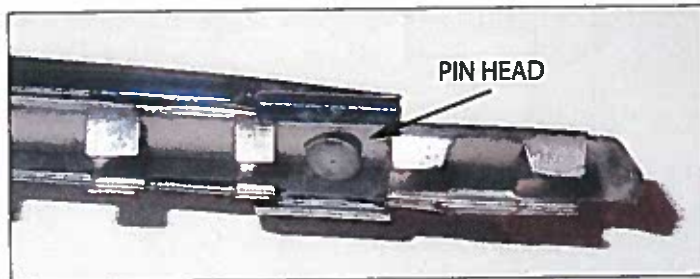


Photo 3 -- It is important to hold the frame level with the metal backing in place removed (see Photo 4 for the correct orientation), so that the pin will stay engaged with the blade frame and not fall out after the rubber has been.

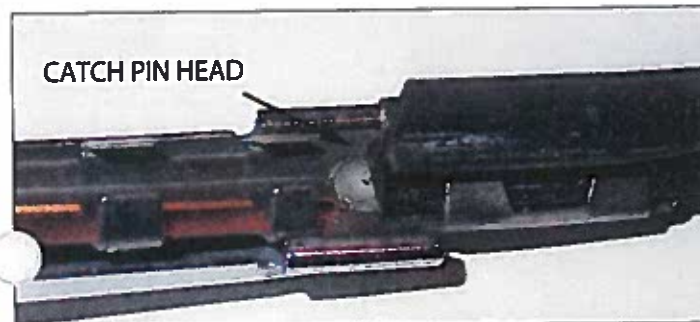


Photo 4 -- As soon as the old rubber is out, immediately slide the new strip in at least far enough to trap the pin. This will keep the metal backing strip positioned in the wiper blade frame.

With the tab bent back sufficiently, it will be possible to draw the rubber out. It is important that the blade be held upside down and level (in the orientation shown in Photo 4) so that the pin stays engaged with the blade frame. You should also have the new rubber at hand so it can immediately be started back into the metal backing as soon as the old rubber is removed.

Once the new rubber is inserted enough to trap the pin head, the risk of the metal backing slipping out of position in the blade frame is passed, and you can carefully work the rubber insert fully back into position.

The final step is to bend the opened tab back, but only part way -- just enough to keep the rubber from sliding back out.

Note: By only bending the metal tab a minimal amount, you should be able to replace the rubber insert many times without breaking it. This is especially true because in the future you won't be bending it as much to remove the rubber as you did the first time.

However, if you are concerned about it breaking off, you can alternatively open the tab from the opposite end (that doesn't have the locking pin) and then carefully transfer the pin to this end, taking care to not let the backing disengage from the frame. You will need a pair of tweezers to perform this operation.

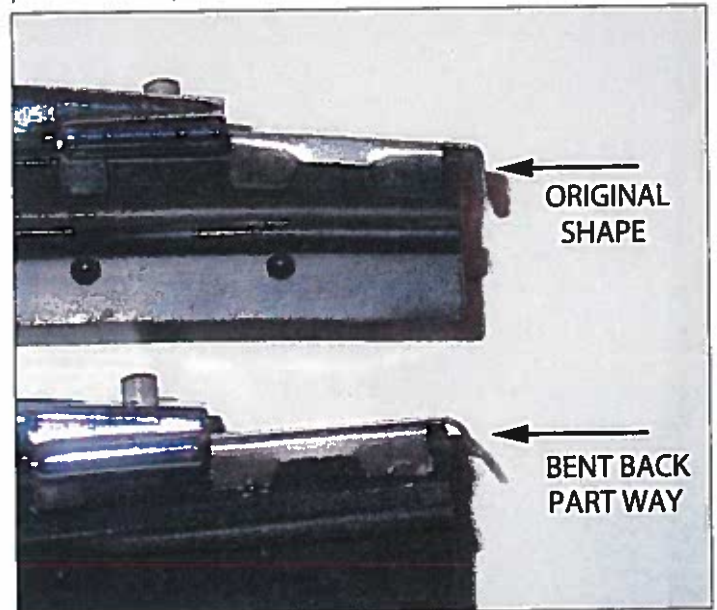


Photo 5 -- The tab only needs to be bent back part way -- not completely to how it was originally.

PS -- Inserting a refill with the rubber mounted in its metal backing is not as easy as the instructions describe. The challenge of this operation will be to engage all four pairs of the metal backing tabs into their retainers on the two end segments of the blade frame. This operation will be easiest if the pin is at the left end of the refill (near projection A), as oriented and shown at the bottom of Fig. 2 on page 2 of the Lucas instructions. The pin will now compress into the rubber as the refill is slid to the left.

BN1 & BN2 WINDSHIELD SEAL

Dave Russell
Boise, Idaho

Over the years I have read much discussion on how to fit the seal at the bottom of the Healey Hundred windscreen, and which seal is the best. I went through the following drill quite awhile ago and still have a perfect tight fit, even though the car has been in very hot sun, rain, and snow.

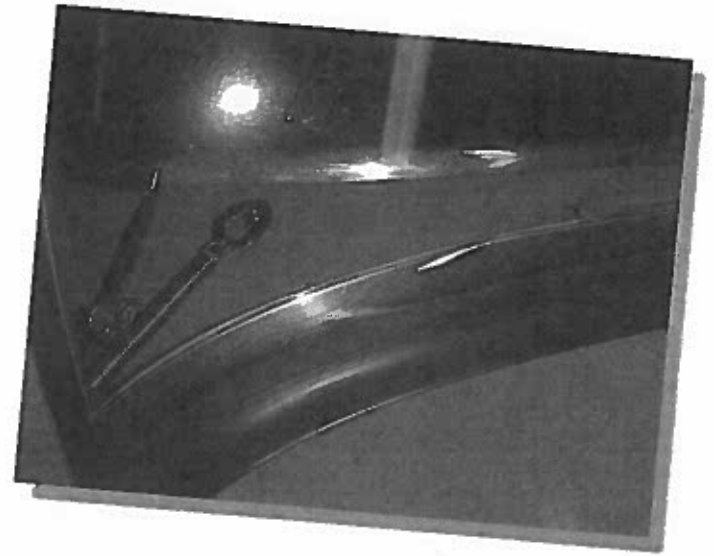
I purchased a straight-section replacement seal from British Car Specialists in Stockton, California (an *Austin-Healey Magazine* advertiser). With the seal were instructions for a perfect fit. A note to me from Norman Nock at British Car Specialists read, "Dave, I got this tip from a 100-4 owner at Silverstone in England many years ago and we send this info out to our customers who buy a seal from us. Glad it helped you. Norman Nock."

The windshield and frame need to be removed from the car and placed on a soft, flat surface. I used the living room floor.

Step 1 – After removing your windshield from the car, work the top edge of the rubber seal into the bottom windshield channel a bit at a time. Don't slide it in from one end, as this will stretch the seal in the wrong places. You can use a couple of inch-wide drywall knives, putty knives or some similar flat blades used in a leapfrog fashion to work the rubber seal into the channel. Take your time and make sure that the rubber is completely bottomed in the channel. Also use some soapy water for lubricating the seal to help it fit into the channel. The heat that is applied to the rubber seal later will remove the water at the curves.

Step 2 – When the seal is solidly seated in the channel, apply a heat gun to the upper thicker part of the rubber seal. For this part of the installation a hair dryer will not work. You will need a heat gun such as one rated at 1200 watts preferably with about a one-inch diameter outlet. It is OK to heat the entire height/width of the rubber seal, but when stretching the seal, only pull on the thick part. Be sure to direct the heat gun right on the rubber. Be careful not to heat the glass or the chrome windshield frame as this may crack your glass! If in doubt, tape a cardboard shield over the chrome frame and glass.

Step 3 - After heating the rubber seal, pull on the ends of the seal extending out on either end of the windshield. You can do this on one side at a time or if you have a helper, both sides



can be stretched at the same time. Using vice grips to grab the ends of the rubber seal at the thicker part of the seal will make this stretching process much easier. You need to hold the stretch on the seal until the rubber cools. A wet rag applied to the rubber will expedite the cooling process, but be careful not to get the wet rag on your chrome windshield frame or windshield glass as the rapid cooling may crack your windshield. The stretching and cooling of the rubber seal causes the thicker part of the seal to become longer than the bottom thin part of the seal because the thick part of the seal springs back to its original length less than the thin part of the seal springs back. It may take several tries to get the rubber hot enough and to stretch it far enough. You don't need to put the windshield back on the car to check the fit of the curve resulting from this stretching process. Just eyeball the curve to determine if there is enough curve or a little more than enough curve for a proper tight fit to the shroud. If there is too much curve as a result of this stretching, it will flatten out to the correct contour of the shroud when the windshield is installed back on the car.

Step 4 - The final step is to trim the ends of the rubber seal. Be very careful here to make sure the ends of the seal go all the way to the post bases on the shroud plus about 1/8-inch. Also make sure the ends of the rubber seal are parallel to the windshield posts. Over time, due to ageing of the rubber seal, the ends of the rubber seal may shrink back away from the windshield posts a bit.

The photo shows the finished curve, still providing a perfect seal, after a couple of years of use. 🍷

OVERDRIVE

By Steve Jekogian



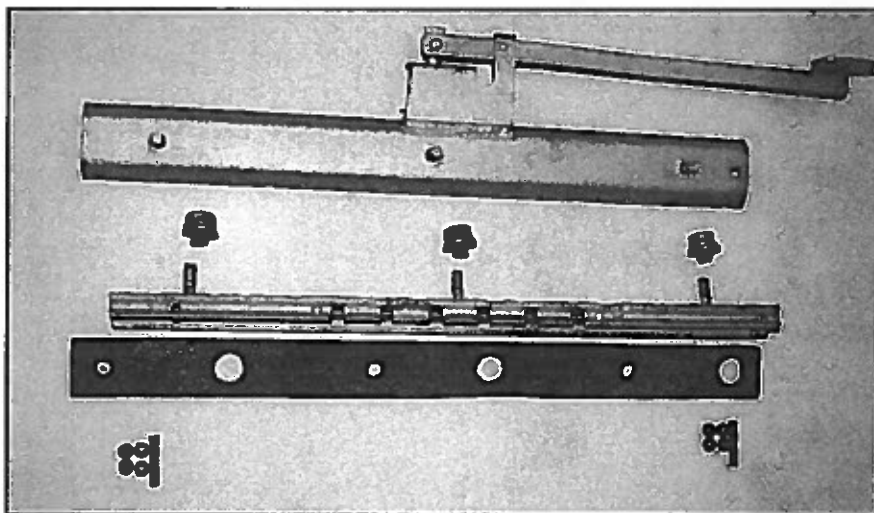
Lots of Healeys I sit in have a common problem - the seat tracks are frozen solid or take a lot of effort to move. It seems that the passenger side is worse, perhaps because it gets moved less often. Do you want your seats to glide like they are supposed to? Do you want people to get in you car and feel 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 so read on.

This Tech article, will explain how to repair and refinish 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 and on a Saturday. First remove the seat cushion 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 of the car, determine how much you have to take them apart. If they are 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. (watch out if they fall out and hit the ground they disappear, so spread out a blanket to catch them) 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 of the track 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 what's left of the bolt. On the bottom rail you can not get the grinding wheel inside the track, 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. New "T" nuts that go through the floor boards are available from Moss (part # 031-329 about \$2.50 each). The seat rails were originally cad plated a silver color, so a little silver paint should be a close match. Use



white lubricating grease on 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. Reinstallation is, as the repair manual says, "a reversal of removal". The wood piece is about 3/8" thick if you have to replace yours and it was originally not painted, just 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.

When you get in and move the adjusting level and start sliding around you will feel great and better yet it could be the cheapest repair on you Healey to date!

See you sliding around.

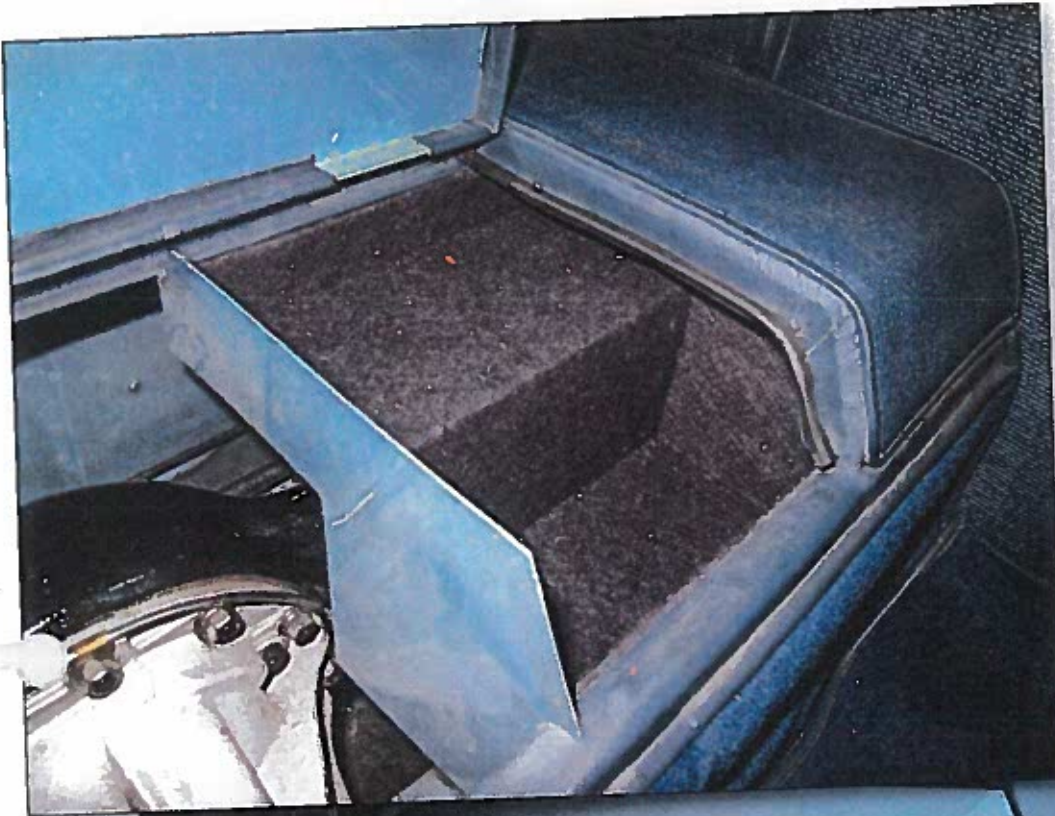
My Healey Mods

A continuing series

Gary Hodson
Bonner Springs, Kansas
Austin-Healey Club of Kansas City

Auxiliary Storage Box

When the rear shroud was replaced with a two-seat roadster shroud, we also removed the two BJ8 rear seats and modified the shelf area to include a hinged access panel. The battery and spare tire were both left in the boot, and that created space under the shelf for dual fuel pumps on the right side and an auxiliary storage box on the left side.



If You Can't Stand The Heat

In pursuit of a Cooler Drive(r)

By Raymond A. Carbone

The pursuit of a cool breeze on a hot summer's day is not a unique endeavor. However, the delivery of a breeze to cool the hellish environment which builds within the foot well of the Big Healey is something that would be greatly appreciated by all its drivers. In this article, I will address *Supercharging the Cold Air Vent's Stream* to substantially increase the volume of air coming into the driver's well and will present the approach and details of my implementation further on in the article.

At this point, I want to stress that this is not a Do It-Yourself instructional and it will be at your own risk, should you choose to do as I have done in this article.



Pressured into Stagnation

So, what is the problem? Have you ever noticed, when top-down driving, the strong breeze that hits the back of your head? From an aerodynamic perspective, this condition is the result of air passing over the windshield that is drawn into a vortex within the cabin area. As this air stream continues, pressure builds in the foot-wells and blocks further free-flowing cool air from entering. To further this air stagnation, the limited amount of cooling air that does escape from the ventilation duct rides on top of the bubble toward the underside of the dash and is defused to irrelevance.

Go with the Flow (Simple non-BJ8 Alternative)

While back, when driving on a hot afternoon in a friend's skull, I was impressed by the foot-well airflow he had achieved by simply placing an old dash fan (Figure 1) on the tunnel. In this application, the fan created sufficient under-dash air movement to effectively disrupt the high-pressure bubble's air stagnation effect. Easily placed and removed, this is one

of the most effective solutions that will only require the installation of a power access receptacle or cigarette lighter. It is critical to note that, whatever the fan's mounting design, the fan must be securely attached to the tunnel in order to fix the direction of the airflow and eliminate the possibility of its movement dangerously impeding driver function.



Fig. 1 - Pre-BJ8 Fan Example

Supercharging the Cool

While the previous approach is simple and effective for most Big Healeys, due to the encapsulating nature of the BJ8's dash/console configuration, this solution is not applicable. For the BJ8, a method for OVERPOWERING the even greater effect of high-pressure stagnation was selected. Simply speaking, I utilized a 4" diameter 12-volt in-line Boat Bilge Blower (Figure 2), installed into the cold air duct, to forcefully move an overwhelming volume of air (up to 240 Cubic Feet per Minute) into the driver's foot-well area. These units are commonly used to evacuate gas-laden combustible air



Fig. 2 - Bilge Fan Example

from inboard boat engine compartments before initial start-up and I have found examples at stores providing boat accessories, listed on e-bay for new and used versions, or even available from Wal-Mart or Amazon on-line at prices from \$15, for the used units I chose, to around \$35 for new.

Civility is Key

So, now that I had the ability to power-ventilate the driver's foot well at volumes up to 240-CFM, I discovered this flow was more than expected, it was loud, and the blower's longevity was at question as the unit was only designed for use at full speed for short periods. Though these discoveries were concerning, they pointed out that Speed and Directional Control would have to be applied to civilize this raw power if I was to achieve my long-term comfort objective.

Controlling your Cool

1. A Traditional Approach

To enjoy the benefits of a tamed tornado, I needed to apply just the right amount of blower control. Historically, DC motor speed was step-switched through the application of selected amounts of resistance (Resistor Packs) in order to alter motor voltage (Figure 3). In this manner, a 12-volt motor running at full speed could be reduced to half speed when the voltage was brought down to 6-volts. Used for years and available in most salvage yards for no or low cost, Step Controllers are highly reliable and provide a small number of discrete speed settings but produce substantial resistor heat at lower speed settings and have both mass and component size to consider when mounting.

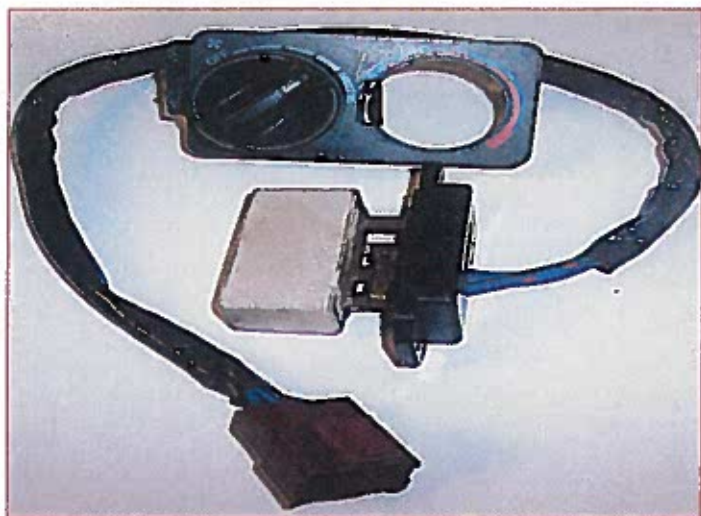


Fig. 3 - Resistor-based Step Controller (Example)

1. Modern Efficient Motor Speed Control

A modern approach to DC motor speed control comes in the form of a compact electronic unit that utilizes the application of Pulse-Width Modulation (PWM - Figure 4). With this technology, full 12-volt power is rapidly turned "On and Off", at selectable rates, to produce average motor speeds between 0-RPMs and full speed. Although requiring a higher dollar outlay than scavenged Step Controllers, this DC motor speed control offers efficient motor operation, full-range variable speed selection, and is easily located and quicker to install.

After reviewing the specifications for electrical draw and operating requirements of my bilge fan, I began my search for a 12-volt 10 amp PWM Controller. Following an evaluation of a number of available PWM Controllers on e-bay and Amazon at prices ranging to over \$28 for a fully housed unit with cable-connected potentiometer, I chose the small unenclosed model with integrated potentiometer pictured (Figure 4) for a surprising \$9.

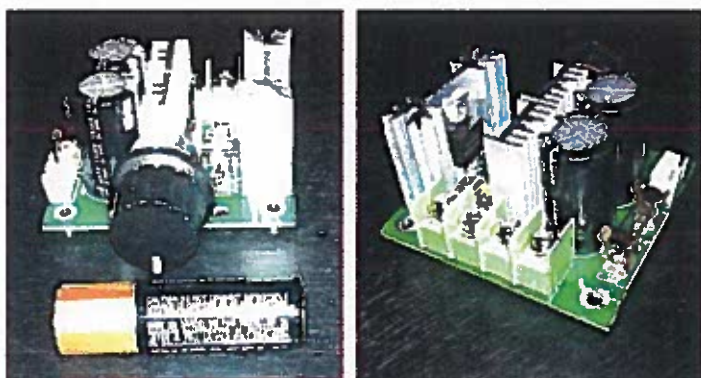


Fig. 4 - Pulse-width Modulation Controller (Example)

Directing the Breeze

Having selected my bilge fan and PWM Controller, focus was placed upon properly directing the air stream toward the foot-well through the implementation of a simple air deflector attached to the bottom of the wiper platform (Figure 5).



Fig. 5 - Drivers Foot Well - Deflector Only

Designing in Electrical Isolation

Most modern electronics have been designed for negative ground installation and must be electrically isolated (no metal part of an electrical component can come in contact with any surrounding metal part of the car) when installed on a positive ground Healey. Although this may sound like a difficult task, it really wasn't when addressed in the approach as a requirement of the project's design.

To start with, my 4" in-line bilge fan, as with all fans reviewed is powered by a two-lead 12VDC motor housed in an electrically-isolating plastic case and required no additional mounting consideration. However, in order to achieve electrical isolation for the PWM, it was decided that the easiest and most space saving approach would be to integrate the controller into the deflector's design and constructed the deflector from such non-electric conducting materials as Lexan plastic or Masonite pressed board (Figure 6). Further, when installing in the car, because of how the controller is positioned behind the plastic deflector, it was easy to assure that there was no metal to metal contact between the controller and car.



Fig. 6 - PWM Controller Mounted on a Non-Conductive Deflector

If You Can't Stand The Heat

LOST and now FOUND - A Cooling Breeze

Now that we have discussed the three elements of our approach:

- Increased cooling through a supercharged air flow,
- Comfort selection through air volume control,
- Targeted delivery through proper air flow deflection, we are now ready to implement our gentle wind.

Supercharger Installation

On the left side of the foot well, within the engine compartment, you will find a platform just in front of where the vent duct enters the cabin (Figure 7). This area, formed by the top of the driver foot well, is an ideal mounting location for the bilge fan and, when installed, the fan is completely hidden from view. The first step was to select which of two methods to follow when approaching the installation.



Fig. 7 - Bilge Fan Installation Location (Engine Compartment)

Access Method 1 is to work through the engine compartment. This approach requires the removal of the rear carburetor, however, the removal of both carburetors would be better. It should be noted that this access method requires a superior level of physical flexibility and dexterity, as it will be necessary to blindly work under the shroud and behind the firewall support. Although Tom Leavy, a club member and friend, has proved this approach successful, I myself found this method more of a physical challenge than I could accept.

Access Method 2 is the removal of the left front fender (door removal is required for fender dismount). Although this approach seems severe, it is relatively straightforward and provides full and easy access for installing the blower and attaching the ducts. As an example, it took me less than 20 minutes to gain access and about 45 minutes to refit all body parts.

Once Method 2 was selected, installation of the bilge blower was relatively straightforward, however, there are a few things learned in the process of fitting and aligning the bilge fan to the firewall-located Cold Air duct flange:

1. Shave the raised ridge (Figure 2) on each end of the blower to allow for easy installation of the Healey duct.
2. Leave a small separation between the firewall flange and blower to install a short section of duct (Figure 8 to provide the necessary flex in order to easily align and connect the fan to the firewall flange.
3. Test-fit the bilge blower on the platform (Figure 8) and make sure the direction of the fan's airflow is toward

the cabin (flow direction usually marked on body) before trimming the inside mounting foot for proper alignment with the firewall duct flange.

4. Install and secure ducting prior to fastening the blower to the platform. A secure mounting should only require one blower connection to the platform.



Fig. 8 - Bilge Fan Unit Installed (Engine Compartment)

Isolation by Deflector

When selecting a material for deflector construction, sheet metal is thought best to handle the heat and mass of a polarity-insensitive scavenged Honda resistor-based Step Controller. However, after choosing a smaller, lighter, and cooler running PWM as my fan speed controller, Lexan plastic became my preferred non-conductive material for deflector construction. An 8"x10"X0.093" sheet was acquired from Home Depot for \$3.98 and, unlike Plexiglas that is prone to fracturing when cut or drilled, Lexan was easily cut and heat-bent (following instructions found on YouTube) to produce the two pieces required. The front or face panel is the main air deflector and provides the mounting surface for the potentiometer integrated into the controller. The back supporting panel provides the added strength for attaching the unit to its mounting bracket for attachment to the under side of the wiper platform. Additionally, the support panel is bent to rest upon the air plenum (heater duct) for added support and serve as mount for the PWM printed circuit board. After gluing the support panel to the face panel, holes were drilled and a strip of rubber was attached to the area that rests on the duct to deaden any vibration. Black vinyl was applied to the face of the deflector and the PWM Controller mounted. Short wires with spade connectors were then attached to the PWM to receive leads from both fan and power sources prior to attaching the bracket and mounting the finished integrated Deflector Module into the car (Figure 9).

All Wired Up

When addressing connection requirements, component location and wire routing between fan, controller, and power for both Step and PWM Controllers were carefully reviewed (Figure 10). Consideration was extended to assure ease of failed-component replacement through the use of appropriately located wire connectors (spade and other) and an in-line fuse of between 6 and 10 amps was installed to protect both fan and controller within the circuit.