

1973 MGB Heater Refurbishment

Michael Cooke, October 2019

The prelude

“Honey, please turn the heat on in the foot well.”

“It is on. Just rotate the knob to ‘interior’.”

....

Well it wasn't on, but there was ample heat to defrost at all times.

Investigated by looking and feeling in the area around the foot well heat canopies.

Passenger side canopy, once removed, reveals the lever that moves the air baffle from foot well (interior) to defrost has separated from the baffle. And equally serious there are drops of anti-freeze on my hand and the various foam seals are wet sponges. Of course you are not supposed to be able to see this except that the big foam gasket had rotted away.

Time to remove the whole thing and refurbish it.

Act 1 - removal.

Check out on-line sites and the parts plan in the vendor catalogues. Determine the order of attack.

Removal is easily done without removing the engine.

Assumptions: the heater valve on the engine block is fully functional and the hoses to and from the heater box are in good shape, otherwise plan on replacing them along the way. Battery power is disconnected.

1. In the cockpit: Remove the heater/defrost control knob. There is a tiny hole in the knob. Use a 1/16th drill bit to press in the locking ball to get knob off. Remove nut inside and two skinny washers. Do not lose! Bag and tag everything.
2. The heater control gear mechanism will now slide out behind the dash and drop down, and be available for disconnecting from the cable that runs to the air baffle lever hidden deep in the depths of the firewall bulkhead. Don't lose the cable clamp, nut and especially the trunnion.
3. There are pipes and hoses connecting the baffle box to the defrost vents. These can be found behind the radio console. Disconnect these at the baffle box – usually by removing a clamp and tugging free.
4. In the engine compartment: Disconnect wiring from the heater fan motor.
5. Disconnect hoses from the heater box. If you wish to drive the car before completing the refurbishment you can install a bypass hose, engine block to engine block.
6. At this point the heater box is only attached to the firewall by 6 bolts/screws. They all have screw-type heads (Phillips/PosiDrive).
 - a. The top one is larger than the remaining five.
 - b. The five smaller bolts are located on the bottom flanges of the box:
 - c. Three along the front, hard to see when buried beneath the fuel, clutch and brake pipes and the electrical harness. They are also hidden behind and holding in place a small heat shield protecting these pipes and wires from the heat at the rear of the engine. Some of these items are also attached to the heat shield by P-clips or similar. This all needs to be dismantled to free up the box.
 - d. One bolt at the left hand end of the heater box, next to the pedal box;

- e. And finally the troublemaker is hidden in a recess in the flange under the blower motor. How they installed this at the factory is a mystery you need to solve in order to remove it. If you are lucky this bolt has gone AWOL. If you want to replace it at the end use a bolt-head bolt (screw) and a ratchet wrench or a hex-head bolt and an Allen key. The bolt from a cable clamp is the perfect match.
7. Not quite all clear yet! The box has several butyl and foam gaskets sealing the engine compartment from the cockpit. These may now be super adhesive and/or hardened and prevent just lifting the box out. Probably this will require another pair of hands or a pry bar or two. Key is to pull the box forward so that the top bolt bracket will clear the firewall lip.
8. And of course the control cable has to be pulled out with or through this mess. May be necessary to disconnect the cable from the baffle lever if you can get it partially out.

Act 2 - disassembly.

Opening up the heater box is quite straightforward.

1. With a flat bladed screwdriver lift off the five clips holding the front and back panels together.
2. Remove the three screws holding the fan motor and fan to the front panel.
3. Lift the heater matrix (a mini radiator unit) from the back section.
4. Remove the four screws holding the baffles section to the bottom of the back section.
5. Inspect and if appropriate remove the mesh screen from the back section. This is where the fan sucks in external air from the vent below the windshield.
6. Clear leaves and other debris from the various cavities that have now become accessible.
7. Remember that many of these parts are no longer available so clean, repair and paint to your standards.

Act 3 - finding what to fix.

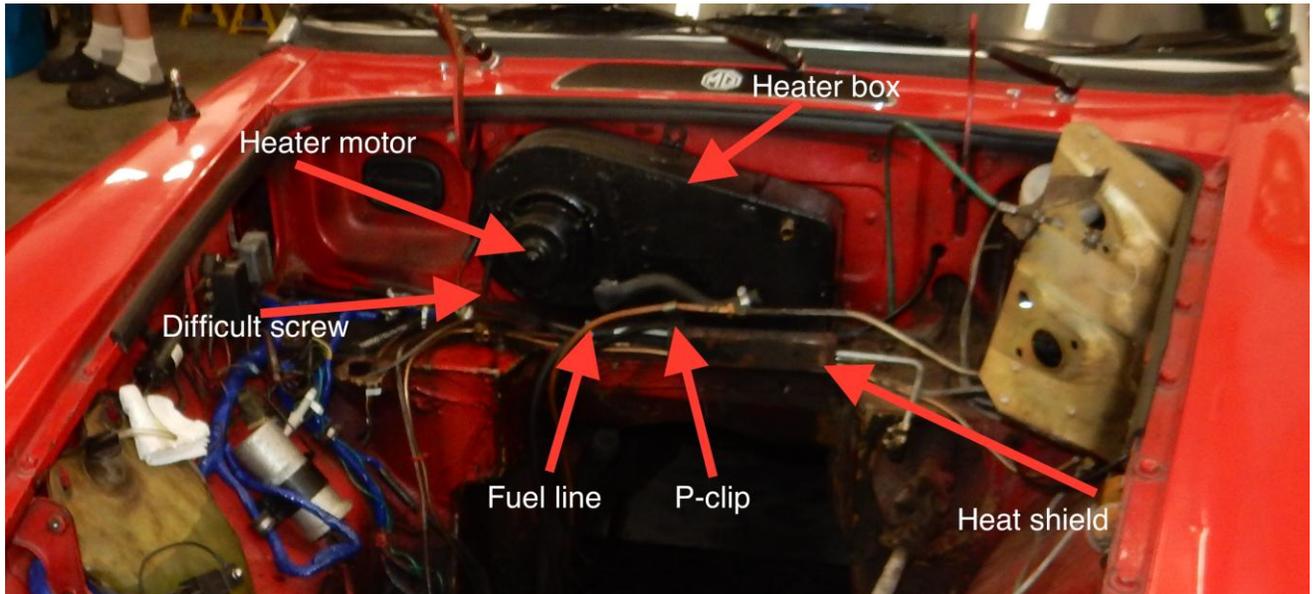
Here are some of the things you might want or need to fix:

1. Heater matrix. Eventually it will leak and be a PITA to replace at a later date. Just do it now. This cannot be done in-situ. An upgraded matrix can be had with extra heat exchange capacity.
2. Heater motor. If it is working leave it alone unless (CB only) you want to move from 1-speed to 2-speed. If you do you'll need a 2-speed switch (it's a unicorn so you'll probably have to use a headlight switch). What you'll likely get is normal speed and a slower speed.
3. Heater fan. A bigger fan is available and it might move more air but at the cost of more battery power. Probably not worth it as it has to be installed with the box apart plus some modifications whereas the OEM motor and fan can be replaced in-situ.
4. Control cable. This is probably kinked or damaged by removal so replace it and its grommet.
5. All seals and gaskets should be replaced.
6. And of course the baffle lever separation needs to be addressed. The original is held together by two very small alloy pop rivets, which in this case had corroded. I considered replacing them with S/S pop rivets I had on hand but found there is enough space to drill out the holes to 1/8th inch and then use S/S 1/2 inch long 10-32 bolts with Nyloc nuts. Much stronger. Do this as a preventive action.

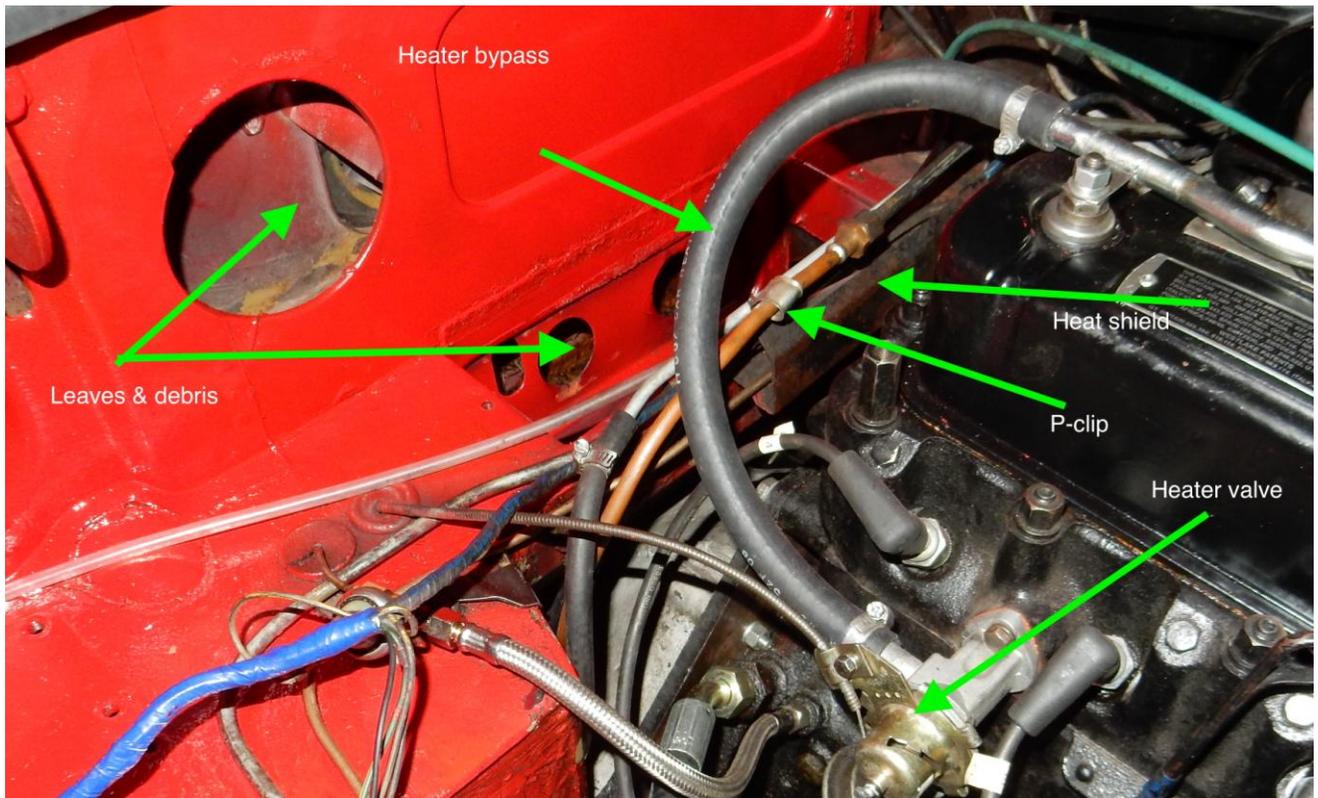
Act 4 - assembly

Still waiting for parts so you are on your own. Imagination and reversing the disassembly procedures should get you there.





This engine out picture is for clarity.



The reality is removing the heater box with the engine in place.



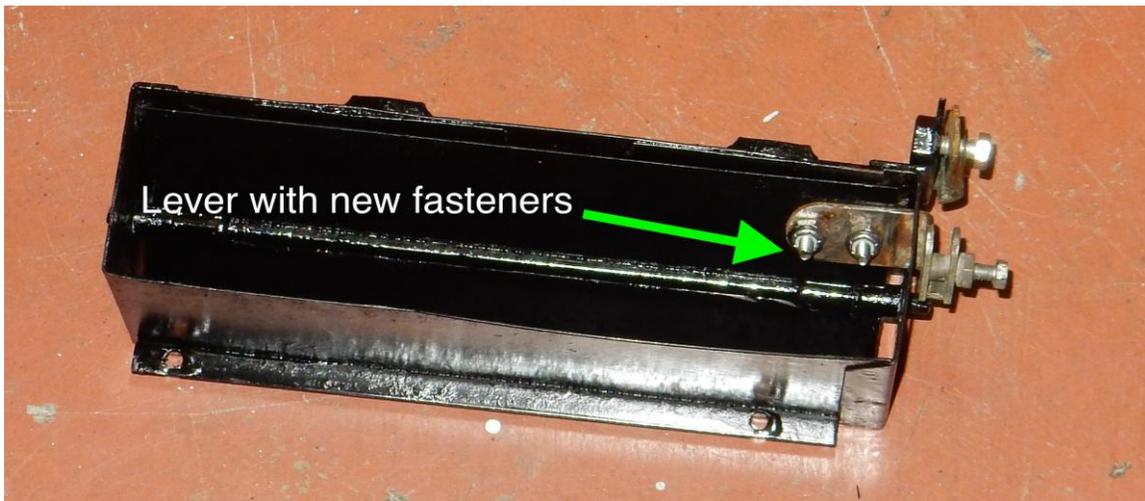
Hoses, seals and gaskets will be 'tired' after all these years. Replace them all.



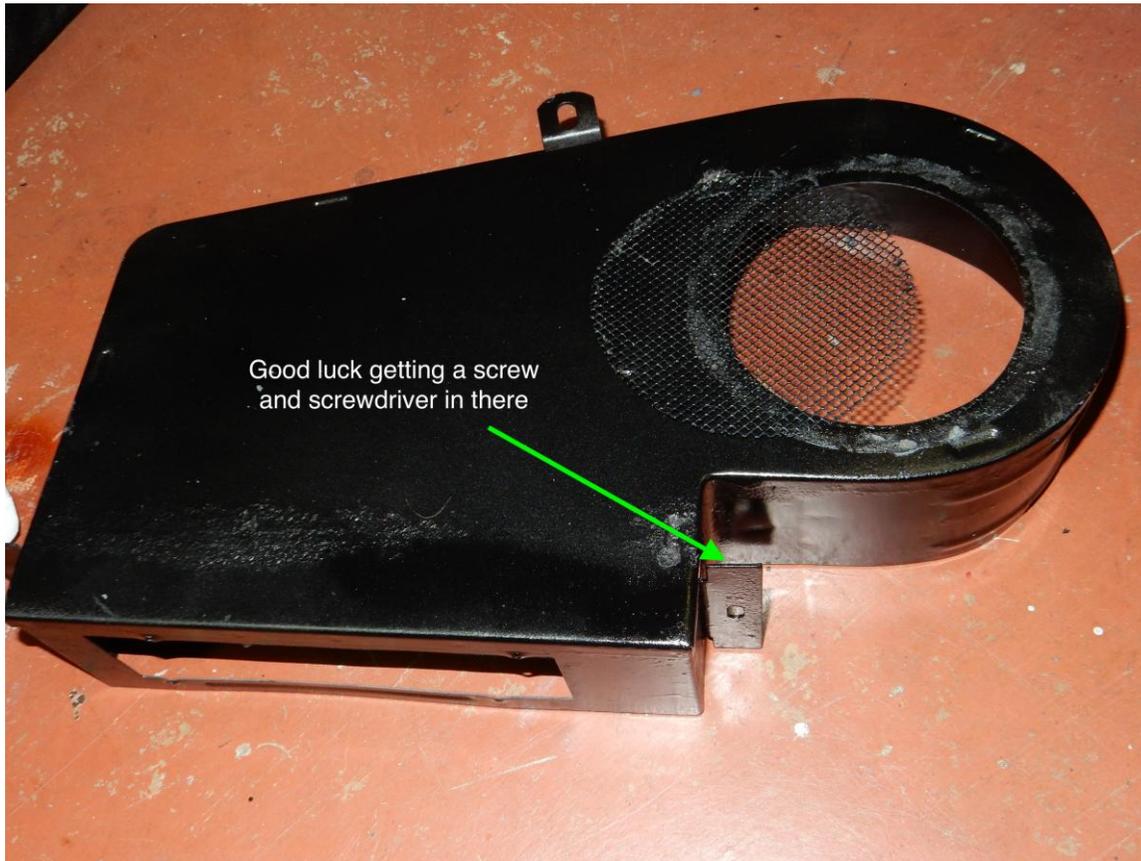
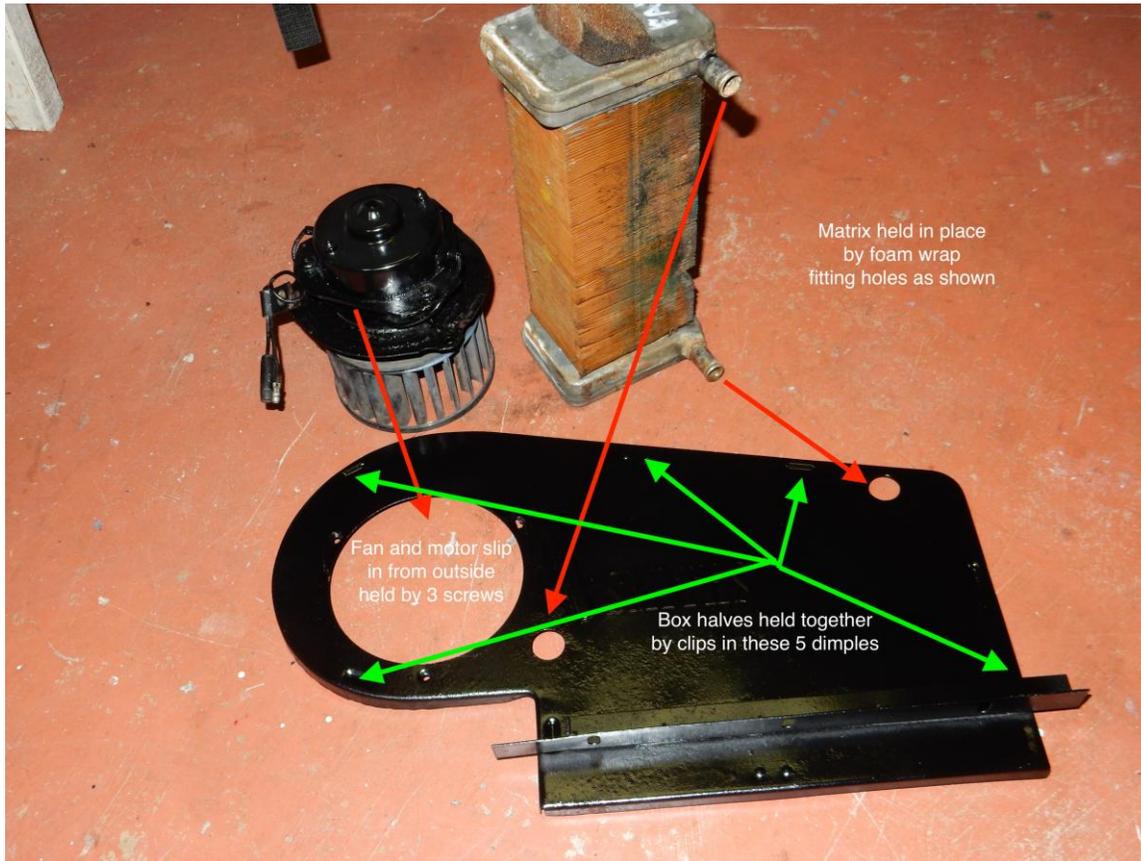
A new one for comparison. Found on e-Bay.



Lever broken off. And look at that ugly felt seal. But now you know which side to glue it to. An example from e-Bay.

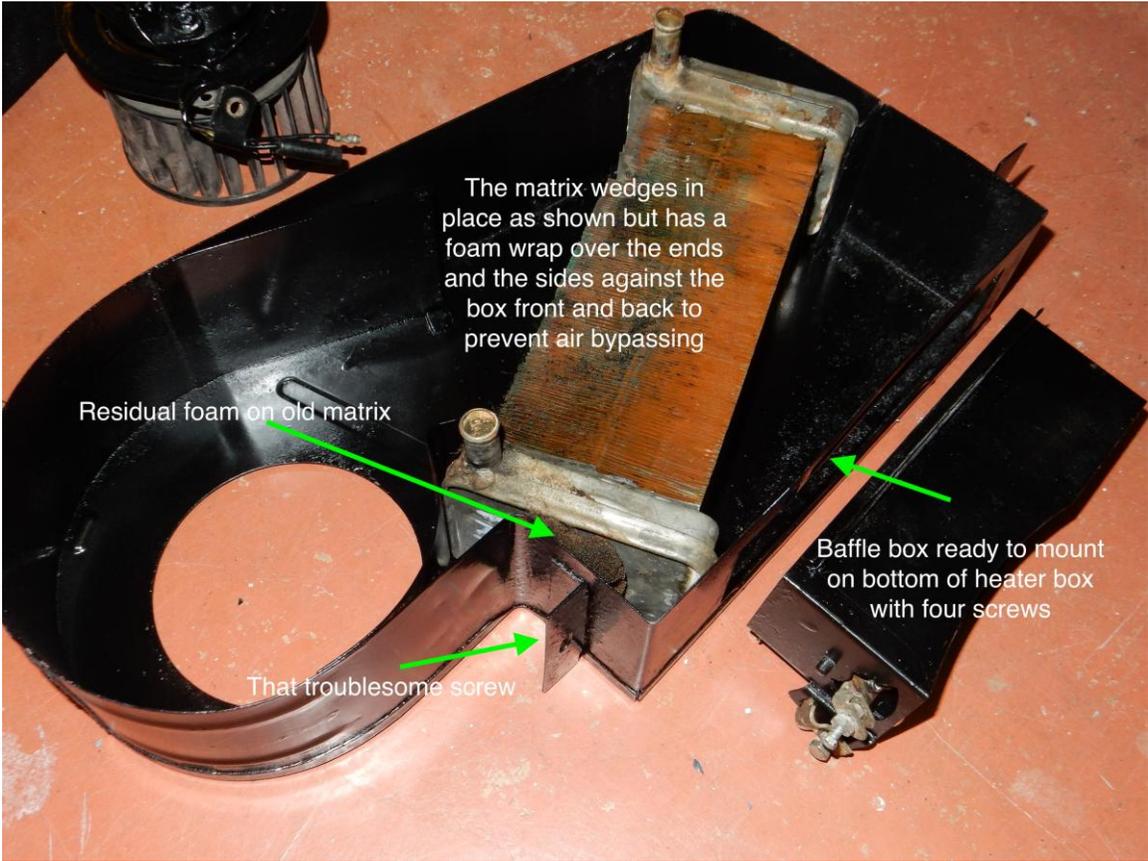


The cable sheath clamp is top right. The cable trunnion is below it and is only held in place when the cable itself passes through it and is clamped tight.





Use a couple of dabs of silicone to hold mesh in place while re-assembling with foam sealing ring



The matrix wedges in place as shown but has a foam wrap over the ends and the sides against the box front and back to prevent air bypassing

Residual foam on old matrix

That troublesome screw

Baffle box ready to mount on bottom of heater box with four screws

Act 4 – Continued

Wherein is discussed circumcision, KY jelly, buyer beware, levers and fulcrums, orthoscopic surgery, and much more.

The parts have arrived and the job has been completed. Here follows a record of this and the lessons learned.

Scene 1 – buyer beware

There are two cables associated this project. Make sure you get the right ones, and consider buying spares.

The longer cable goes from the heat control knob to the heat control valve on the engine block. According to the vendors there are different lengths for different models, and options (or not!) of metal or plastic. Metal was OEM on my 1973 B, and why would I want plastic anywhere near a hot engine block? The vendors didn't always, in their wisdom, agree and sent plastic cables and shorter ones (for other models) with instructions to 'cut to length'.

Measure what you remove, know what you want and demand they get it right. If not sure ensure you get the longest possible and be prepared to cut to length (Dremel the sheath, and side cut the inner wire 4-5 inches longer).

The shorter cable goes from the air control knob to the air control baffle lever (which you have just repaired). Plastic is OK in this case. If you need a spare (and I did) you can cut a section out of the one the vendor sent by mistake.

Re-using the original cables likely will not be an option since when it was tightened into the trunnion most people will end up bending the wire through 90 degrees, and you will have had to cut it off to extract the cable from the trunnion. See photo.

Scene 2 – foreplay: assembling the bits and bobs

Assemble the heater box by installing the new matrix wrapped in its foam gasket. Insert gaskets in small holes in box front. Join front to back with spring clips. Motor and fan (if not uprated) can be left until the last.

Conventional wisdom says to pre-attach the short cable to the newly fixed lever and feed it through the hole designed for it in the new rubber block. See photo. Glue the block to the heater box.

Offer up the assembly to the firewall and insert into place.

Scene 3 – destroying virgin cables

The new rubber block is substantially harder than the OEM unit and will resist you and your army of helpers for hours. During this time flanges will get bent, paint will get scratched and your helpers will suddenly have somewhere to go.

Spoiler alert: it took me three attempts to get this part completed.

Attempt 1: Short cable attached and used longer cable spliced to it to provide a guide and convenient length for my assistant to work comfortably with. Eventually assistant departed to make lunch and single handed I dashed among both foot wells and the engine bay to feed the cable through and press the assembly home. Broke the cable-splice (duct tape isn't what it used to be) and succeeded in making no progress – but at least removal was easy, unlike at the start of this project.

Attempt 2: To quote Archimedes — *'Give me a **lever** long enough and a **fulcrum** on which to place it, and I shall move the **world**.*

As in the previous attempt but without the spliced extension: Using various lengths and sizes of wood as levers and the underside of the firewall as fulcrum apply substantial pressure to the box until it cooperates and goes into place. See photo
Squeeze into right foot well and pull cable through.

Oops, why won't the cable move the damper lever? Turns out it had chosen a different route and formed a pretzel. Literally! See photo.

Out comes the assembly, just as hard to do as at the beginning.

Get a spare cable and then re-think this.

Scene 4 – circumcision (not on Tom's knob)

The pig-headed rubber block must be cut down to size! Maybe by cutting off any excess without destroying its sealing functionality it can more easily be persuaded to drop into place? Using a box cutter and a few judicious slices the dastardly deed is done. See photo.

But what to do to avoid another costly pretzel? Decide to try fitting the cable after the box is in place.

Scene 5 – call in the KY Jelly brigade

Attempt 3: With the assembly now missing several chunks of rubber and also without the cable just slather KY Jelly over all the resistant surfaces and use levers to persuade it into position.

Took less than two minutes to complete!

Scene 6 – get a degree in orthoscopic surgery

In the right foot well, with the heater cowl removed, there is a 2" x 1.5" opening through which it is possible to see the space for the cable clamp and trunnion on the baffle lever. That is assuming you are capable of assuming the position of a pretzel

yourself. And only if you removed the protecting flange from the rubber block, otherwise you will have to remove this surgically now (which I had to do).

Feed the new short cable forward from behind the radio, through the grommet in the tiny hole up high to the right and down to the designated hole in the rubber block (see photo) and into the location of the lever's cable clamp and trunnion. All while having almost no working space and certainly no view of what and where. Insert them and tighten them down. Do this through the heater cowl opening using needle nose pliers to position the clamp and bolt, and trunnion, and then feed the cable into position. While holding them in place use a screwdriver borne socket to tighten the clamp and the trunnion (which cannot avoid a 90 degree kink in the inner cable end – so there is no going back).

Test the action of the cable from the other end. A satisfying clunk from the baffle and now I deserve a fake beer.

The Finale

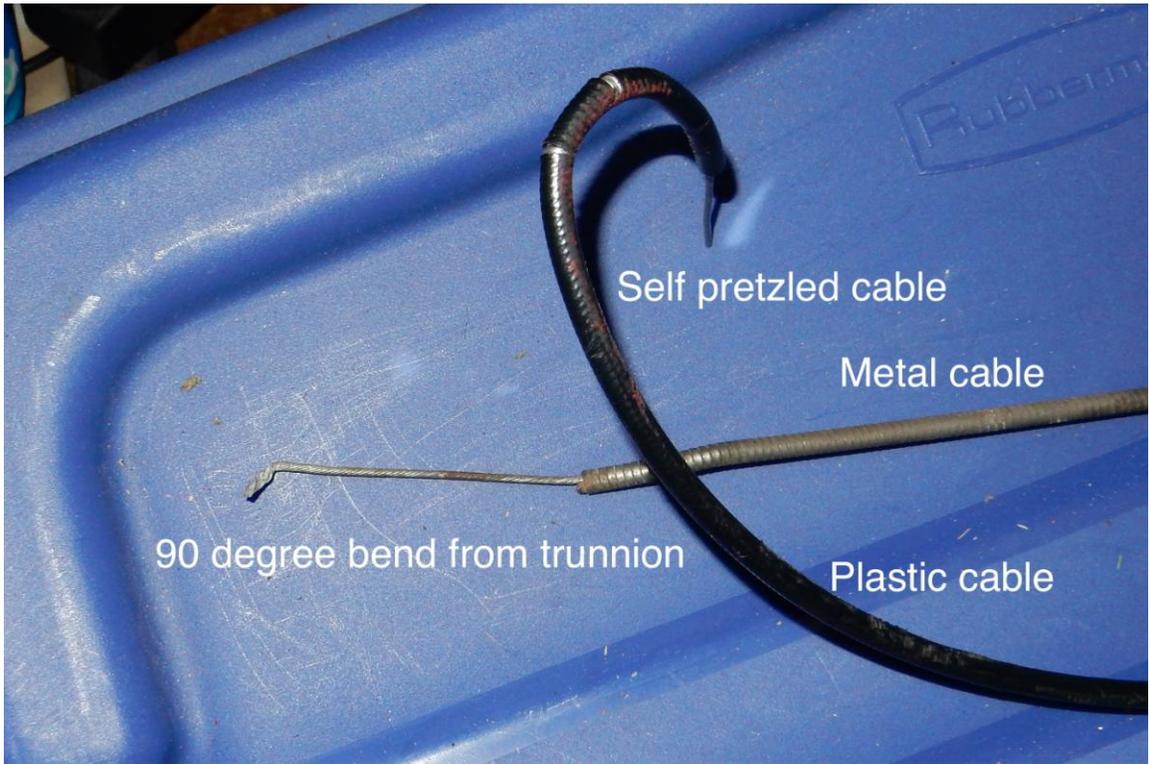
Route the longer cable to the heater valve. Connect up the control knobs to their respective cables. Test like crazy.

Install the heater motor and fan.

Go through all your 'tag and bag' items and re-install them. Tidy the car up.

Fire up the car and go for a drive with the heat cranked up.

Stick the Smith's labels on the heater, and reach for a real beer.

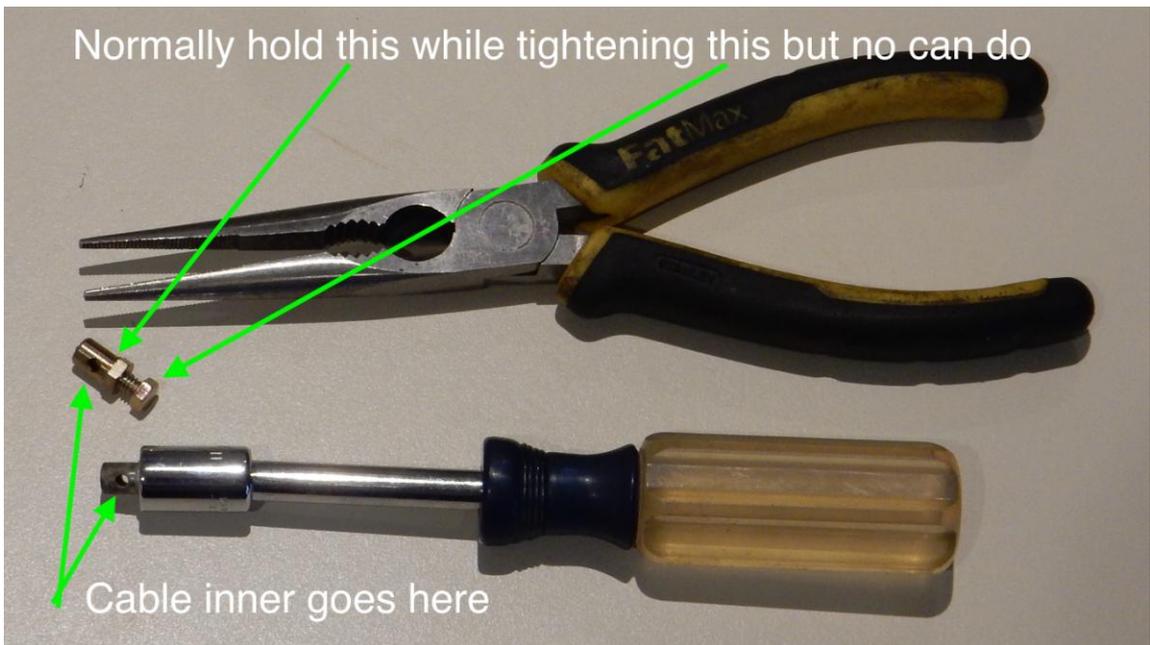




Results of circumcision



Patented lever and fulcrum for MGB heater



Normally hold this while tightening this but no can do

Cable inner goes here

Here are some links to articles, tips and techniques that may help during your own project:

First, from club member Andrew McCue:

<https://www.mgexp.com/forum/mgb-and-gt-forum.1/thoughts-on-heater-box-removal-refurbish.3190595/>

Here are some resources:

<https://mgb1967.com/removing-the-mgb-gt-heater-box/>

<https://mgb1967.com/removing-the-mgb-gt-heater-box-part-2/>

<https://www.britishcarforum.com/bcf/showthread.php?56793-MGB-Heater-Box-Removal>

<https://www.mg-cars.org.uk/news/news169.html>

http://www.fixya.com/cars/t1425032-mgb_gt_heater_box_removal

<http://www.mgb-stuff.org.uk/heatertext.htm>