

# Heater Box Rebuild

*by Joel Justin*

As many of you know, we are doing a frame-off restoration on Pam's GT6. When contemplating such an endeavor, you immediately think about the big parts of the project – body and paint, seats and carpet, engine, gearbox, diff, suspension, brake rebuilds. But there are many smaller things that also need to be rebuilt. The heater box is one of those “smaller” things.

Since the body is finally at the paint shop, and all the other big parts are done, I started thinking about all the “small” things that needed rebuilding or refurbishing. I first tackled the pedal assembly (including the hand brake). I decided to tackle the heater box next.

Heater boxes aren't that complicated. A sheet metal enclosure, a fan and a heater core. As I disassembled the heater box, I took copious photos so I would be able to see exactly how things went back together. Once it was disassembled, I wanted to test the motor to make sure it was working.

The GT6 has a 2-speed motor and uses a power resistor to lower the voltage the motor sees which allows for low-speed operation. After studying the wiring diagram, I hooked it all up to my 12 VDC bench power supply and powered it up. I switched from off to low speed and violá, it turned on. I then switched it to high and it spun faster! And it was quiet. That meant the bushes and bearing surfaces were in decent shape. So, my rebuild turned into a refurbishment.

There were felt and foam seals inside the heater box. These are there to help direct seal air flow when switching the vents from off to defrost to footwell. The felt was very tired and the foam turned to dust when I touched it. After more photos, I removed the felt and scrapped off as much felt and foam residue as possible. Next, I media blasted all the sheet metal parts to remove the paint, surface rust and any remnants of felt, foam and glue. After I was satisfied with their cleanliness, I washed all the parts in soap and water, dried them in the oven at 150°F, primed and painted them satin black

I like to reuse as much hardware (nuts, bolts, screws, washers, etc.) as possible. Unless it's damaged, I reuse everything except lock washers and nyloc nuts. Refer to my Tech Article on Hardware Refurbishment for details on how I do that.

The last thing I needed to determine was the state of the heater core. I called Jack's Radiator in Camarillo, who I've used several times in the past for radiator flow and pressure testing, only to find out he had just sold all his equipment and was closing up shop. Bummer, another local small shop dealing with a key part of our hobby going kaput. So, I decided to test it myself. The flow testing would be easy. I rigged up a female hose fitting to a piece of heater hose and clamped it to one side of the heater core. I connected it up to the hose and slowly turned it on. After about 30 seconds of rusty water coming out, along with a few chunkier pieces, it flowed clean and clear. I turned up the water and it still looked great. I switched the hose to the other side of the heater core and ran it again. A little more rusty water, then clean and clear. So, the flow was good, but what about leaks?

I got another piece of heater hose and clamped a bolt into one end and fastened the other to the heater core outlet. With the other end still connected to the water, I turned it on, again, very low. Nothing, so I slowly turned it up until I got to pretty much full pressure, which at my house is about 35 PSI. Still nothing, so no obvious leaks. But since I did this right after my pressure test, where I got the core all wet, I couldn't tell if there were any small (pinhole leaks), so I let the core dry overnight and tried again the next day. I slowly turned the pressure all the way up and let it sit for about an hour. After checking it, I saw no signs of any leaks, which was good, because even though a new core is available, it costs \$250 which I didn't want to spend if I didn't need to. A little exterior cleaning and the heater core was good to go.

Now I had to figure out how to deal with the felt and foam seals. I determined that the felt was used only on the vanes (used to direct where the air inside the box went) to seal them in their different positions. It was 1/8" thick felt. The foam was used on the box to provide a buffer between the heater core and the box, to keep the core from moving and I'd guess vibrating against the sheet metal of the box. I had 1/8" felt, but not foam, so I decided to use felt everywhere.

I used 3M General Trim Adhesive 08088, which I use for all my vinyl, seal and carpet work, to glue the felt to the vanes and box. I was a little concerned that the felt wasn't going to be as compliant as foam, and that the box wouldn't close tightly once the core was installed. I was correct. So, I removed the felt from the top and bottom, but left it on the sides. That worked fine. I wasn't worried about up and down movement/vibration as the side felt had the heater core snugly in place.

Before final assembly, I wanted to replace the old internal wiring that connected to the high-power resistor. British Wiring sells wire by the meter in original colors. I had ordered 5 meters each of proper green/yellow and green/slate wire. I unsoldered the old wires from the resistor and soldered on the new ones. I riveted the resistor back in place, installed a new 3/8" grommet and ran the wires outside the box.

I reinstalled the vanes and connected the external controls. I made sure the vanes moved synchronously, then assembled the box with the 10 sheet metal screws. Before assembling the motor, I put a drop of 3-in-1 oil in the shaft bearing cup. I then used the 4 sheet metal screws to attach the motor to the box. My final step was to install the stickers. I had carefully peeled off the original stickers, but reattaching them would have been a challenge. Not to mention they were a bit faded and worn. So, I Googled them and found Moss Motors sells virtually identical stickers (<https://mossmotors.com/408-345-heater-motor-sticker> and <https://mossmotors.com/408-355-heater-number-sticker-as-fitted>). They were for an MG, but the only difference was the code number (no big deal), so I ordered them and put them on.

With everything reassembled, I did a final test. Off, then low, then high. It worked perfectly and the vanes seemed to work well in directing the air. Now all I need is the body back from the paint shop to install the heater onto. In the meantime, I'll move onto restoring the steering column!



