

## Sound and heat insulating your LBC floor and Transmission Tunnel By Ted Carlsen

Heat and noise, it's something it seems British manufacturers deliberately engineered into their cars rather than out of them. Since most LBC's are open cars, engine noise is just part of the experience, and I imagine engine heat in the cabin was welcome in the UK just about any time of the year. With an enclosed LBC in southern California, these attributes can become detrimental to one's driving enjoyment.

After purchasing our 1969 Triumph GT6+, we quickly found engine heat, noise, and at times, fumes, overwhelmed the cockpit. Heat at the throttle, baked my right foot and leg. After pulling up the carpet around the transmission tunnel, I discovered the tunnel was warped, lacked seals and insulation, and I could see directly into the engine bay. The solution was a new transmission tunnel, new seals, floor and tunnel insulation and exhaust heat wrap. Heat still penetrates the cabin but is now significantly less. Here is the process I went through:

### Step 1 – Carpet removal

- 1) Unbolt the seats and remove from the car.
- 2) In the GT6 I had to remove the radio support as it is bolted to the tunnel.
- 3) Unbolt your seat belts if you have them and anything else that is bolted through the carpet.
- 4) I wanted to retain my current carpet so I used a metal putty knife to help lift the carpet as it was glued to the floor.
  - a) Find an edge to start lifting the carpet and work the putty knife along underneath while peeling back the carpet. Be careful of any wiring under the carpet.
  - b) Some carpet has padding or "Jute" that may or may not be glued to the carpet or floor.
  - c) In some cases, removal could damage the padding and/or carpet and will require replacement. This is a good time to do so if your carpet and/or padding has perished.
- 5) Scrape up any remnants of glue or stuck carpet or padding on the floor.



## Step 2 – Transmission tunnel removal, Transmission inspection

- 1) Unscrew the shift knob
- 2) Remove all bolts and screws around the perimeter of the tunnel cover
- 3) Pull back while lifting up on the tunnel to clear the shift lever and remove the tunnel from the car. Mine was in terrible shape so I purchased a new one from British Parts Northwest (No taxes and free shipping on orders over \$150).
- 4) This is a good time to inspect your transmission for leaks and check the rubber mounts. I had a bad reverse light switch and my transmission mounts had perished. The reverse light switch is a simple detach and re-attachment of the new one with two screws and two wires.
- 5) Using a jack, I supported the transmission, removed the old transmission mounts, slid in new ones, re-fastened them and removed the jack. The switch and rubber mounts were included in the B.P.N. order with the tunnel.
- 6) Speedometer cable and clutch cylinder are also highly accessible at this point so give them an inspection as well.
- 7) Also inspect the wiring harness that is now exposed on the floorboard. I found one disconnected wire and two worn connectors that I replaced. Turns out the disconnected wire was my dome light. Another unexpected item checked off the to do list!

## Step 3 – Cleaning and sealing the floorboards

- 1) My floorboards had significant surface rust as this car was in the northeast. Moisture from wet feet soaking the carpets and salt air was likely trapped in the carpet for long and repeated periods.
  - a) I used a wire wheel on a grinder to clean as much of the rust off as possible to get back to bare metal. An orbital sander and wire brush were also utilized. **STAY AWAY FROM YOUR WIRE HARNESS DURING THIS PART!**
- 2) After removing the surface rust, I vacuumed up the dust and rust then thoroughly wiped down the floor with alcohol.
- 3) I taped off the thresholds and anything else I wanted to protect around the edges of the floor.
- 4) Using a foam brush (Home Depot) and POR 15 (Amazon), I coated the entire floor with three coats of POR 15 (wait for each coat to dry before applying the next one). This protects the bare metal from future rust and locks in any rust that I was not able to 100% eradicate.
  - a) I used the better part of a quart and multiple foam brushes. Make sure you dab it in all of the cracks and crevices.



#### Step 4 – Installing the sound and heat matting

- 1) Dynamat is probably the most familiar name for this product but it is very expensive. There are many affordable options on Amazon and the web. I recommend buying them in sheets rather than a roll, as sheets are more manageable to work with. You will also need a set of rollers to press it down (these are also an Amazon item). One box (36 sq ft.) was sufficient for my GT6 floors, firewall and transmission tunnel with a few sheets left over.
- 2) I vacuumed and wiped the floor down with rubbing alcohol again to make sure I had a dust free surface.
- 3) Start with an area that you can utilize an entire sheet to get the hang of installation.
  - a) Before removing the backing, lay the sheet where you want it and then, using your fingers, deform it by pressing down and shaping the material to match the installation surface.
  - b) Once you are happy, lift the sheet, remove the backing exposing the adhesive and gently place it back onto the surface, matching the form you created.
    - i) Working from one end to the other, use the largest roller wheel to press down and affix the sheet to the floor.
    - ii) When you get to edges and small areas use the appropriate size wheel to get a good seat and attachment to the floor surface.
    - iii) These sheets have “bubbles” that flatten after the wheel is pressed over them so you can tell where you have been and what still needs to be pressed.
    - iv) Continue working your way across the sheet from one end to the other until complete.

- c) Repeat this process for all areas that a single sheet can cover.
- d) For smaller areas or areas that have curves etc., form the sheet to the extent possible, mark with a marker and cut to fit. Repeat the process of installation.
  - i) I overlapped each piece by about a ¼ inch and in tight areas where small pieces were used I overlapped more to make sure there was a good seal.
- e) I also insulated the new transmission tunnel while it was out of the car on the garage floor. It has a lot of shapes so there was a lot of measuring, cutting, and installation of small pieces.
- f) Using a punch (or screw driver), find your bolt holes for the seat, seat belts, radio support, and poke holes through the matting so they are easier to find later.



#### Step 5 – Tunnel seals and installation

- 1) I also included the rubber tunnel seal in my B.P.N. order.
  - a) Using automotive weather strip adhesive, I glued the new tunnel seal to the tunnel mounting surfaces and let it harden.
    - i) The seal is sold by the foot so measure what you need and buy a little extra.
  - b) Once the glue was dry, the tunnel was ready for installation.
    - i) Slide the tunnel back into place over the shift lever and line up with the fastener holes.
      - (1) This was more finicky than I had expected as the new molded tunnel needed some influencing. I also used all new fasteners as the previous person used a miscellaneous assortment on the old tunnel.



#### Step 6 – Replacing the carpet.

- 1) You can install carpet padding (also known as Jute) and then carpet or just the carpet over the sound deadening. Jute will help with additional heat and sound insulation.
- 2) Use an upholstery tack glue (3M or other brands)
  - a) Spray on to the area you are covering and on the back of the Jute or carpet, let dry until it becomes tacky, then place together and press down on all areas with your hands.
  - b) Repeat this process throughout
  - c) Replicate the gluing process if placing carpet over Jute if you are installing both.
  - d) Be judicious when tacking down.
    - i) I recommend areas that get traffic have more glue and other areas less to allow for future removal if you need access.
    - ii) I did not glue the carpet on the tunnel so I could remove it in the future without tearing up glued surfaces and damaging the Jute and carpet.

Step 7 – Re-install radio support, seat belts and seats.

Step 8 – Wrap exhaust pipe with heat wrap

- a) To keep the wrap from unravelling over time, I started at a pipe clamp to pinch the wrap and then used a standard hose clamp at the other end to tighten the cloth down.
- b) Be sure to have good overlap in the wrap to keep it tight and maximize insulation. This wrap is available at O’Reilly’s, Amazon and elsewhere.



This process will not completely isolate noise and heat, but you should notice a significant difference making your ride that much more enjoyable.