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SHIELD ME *How to Keep Your Kit Project Cool and Quiet*



Working on a bare chassis obviously makes things a whole lot easier when installing shielding for heat and sound. This particular project is a new GTM from Factory Five Racing.

story & photos by Steve Temple

It's the stuff you can't see that often makes the difference between a good and a great project car. That's because it's all too easy to get distracted by the obvious features such as the engine, bodywork and upholstery. But what about beneath and behind those items? Without sufficient insulation for heat and sound, your car can end up being hot and noisy, an uncomfortable experience at best.

As a case in point, in a previous life I worked for a certain well-known Texas chicken farmer turned racer and sports car builder, who reintroduced the Cobra he created in component form. Our factory mule was put together rather hurriedly as a display vehicle. A few key items were left out, such as barrier materials (insulation) in and around the fiberglass cockpit, and a rubber grommet on the steering column where it passed through the firewall. So when that 427 big-block V-8 came up to operating temperature, a blast of hot air would hit the nether regions of the driver. We jokingly referred to this feature as the "Shelby nut roaster," but it made for a really unpleasant driving experience (not to mention the likelihood of lowered fertility rates among male drivers).

Fiberglass is a wonderful material in certain aspects, but lousy for insulating against noise and heat, both of which can interfere with your reaction time and driving ability. That's why we sought out some expert assistance from Tim Cox of Quiet Ride Solutions to help with a Factory Five GTM project (We'll dig into details on the car in an upcoming issue.)



Note how thoroughly the material will cover every surface in the cockpit, and in every nook and cranny. The foil-backed insulation is still being dry-fitted at this stage.



Start by loosely laying out the strips of Dynamat. You don't need to cover every square inch of the cockpit. It's sufficient to have spaces between the strips to break up the sound vibrations. The blue tape covers the self-adhesive side, so these strips will be turned over later on and pressed in place after determining their correct location, as indicated in the instruction sheet.

Let's address the noise aspect first. Note that sound can emanate from a least two different sources on a car: via a solid material (the frame and body panels) and through the air (such as from the exhaust



Dynamat is made of rubber and asphalt, which can reduce vibration by as much as 90 percent, according to Quiet Ride Solutions. This material has self-adhesive on one side, so you simply peel off the backing tape, and press into position with a roller.



Next dry-fit the pre-cut piece of foil-backed insulation in place, making sure it follows any curves or corners. Note how close the mid-mounted engine is to the back of the cockpit. Adding shielding for both heat and sound is obviously a benefit for driver and passenger comfort. (pipe). So reducing noise levels starts with minimizing vibration, like placing your hand on the skin of a drum.

Dynamat, a material composed of



Apply the spray-on adhesive included with the kit to the underside of the padding. A double application on the edges is a good idea to ensure a tight bond. Also spray adhesive on the Dynamat strips and cockpit surface. After drying a few minutes, the heat shield is simply pressed in place.



Once the foil-backed padding is pressed in place, be sure to seal the edges with foil tape in order to create a seamless envelope.



If a kit isn't available for your particular project vehicle, a universal package is available. Electric scissors will make the cutting go a lot quicker.



This closeup shows the top layer of reinforced aluminum foil and dense fabric padding.

Next goes on a layer of Quality Heat Shield, dense padding bonded to a reinforced layer of aluminum foil. It's important that the foil be placed on top (instead of against the fiberglass body or sheetmetal) for several reasons. It not only serves as a skin to protect the padding, but also creates an air pocket, similar to a double-pane window. It's that layer of air that provides the insulation, providing as much as a 50 percent reduction in noise, Cox claims, depending on the vehicle.



This display helps to illustrate how Quiet Ride can reduce sound levels in a car. Note the flat metal panel at right being tapped with a rod, so it vibrates like a gong. The panel in the center has two strips of Dynamat, which break up the sound waves. The panel on the left adds a layer of foil-backed insulation on top (the black strips are for showing the locations of the Dynamat underneath). This panel muffles the sound even more, like throwing a blanket on top of a drum skin.



The Quiet Ride kit includes insulation for the roof as well. These strips of Dynamat were laid on top to illustrate how they'll be positioned underneath, in the headliner, in order to minimize vibration.

As for reducing temperature, the foil also helps to reflect back heat emanating from the engine and exhaust system. This material acts as a fire retardant, and reflects back 97 percent of infrared energy, Quiet Ride claims, resulting in a temperature drop of as much as 30 degrees.

It's fairly easy to put in the materials, and Quiet Ride offers a wide range of pre-cut kits for cars, trucks, RVs and other projects. A universal package that you can custom fit is available as well.

It's important to make sure the materials form a consistent barrier or envelope that's sealed with foil tape at the seams, and is glued down securely. Otherwise a small opening might create your very own "nut roaster" as well!

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rubber and asphalt, is the rough equivalent of placing your hand on the drumming motion of your cockpit panels. Quiet Ride, the country's largest distributor of Dynamat, starts an insulation project by laying down intermittent strips of this self-adhesive material on the fiberglass (or sheetmetal, depending on the vehicle).

Why not use just one big sheet? Keeping the cost down is the main reason, and those strips work just as well. Why so? Imagine dropping a stone on the surface of the water, which forms ripples. Those waves of water provide a visual analogy to sound waves, and the Dynamat strips act as breakwaters to attenuate the motion.



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