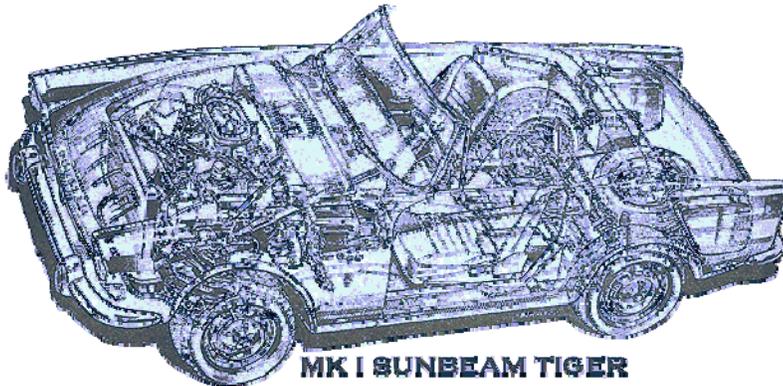


Sunbeam Tiger Muffler Heat Shield Tech Tip



Tech Tips You Just Can't Live Without

Muffler Heat Shields

The location of the original engine fuel pump directly over the exhaust would likely never be permitted on a modern engineered motor vehicle. Given that the rules were different back in the sixties we have been forced to make allowances for the some of these engineering missteps as we continue to work to keep our prized Tigers on the road. One area of concern and downright inconvenience is the location of the fuel pump when looking to upgrade to a higher volume fuel pump required for engine improvements beyond 400 HP.



The original problem for me was that the original pump lacked adequate volume to completely sustain my 430 HP stroker motor and I was forced to use an HP pump. Initially I used an Aeromotive Street Rod pump which is a rotary vane type pump but the sheer decibel volume of the noise generated 2 feet from the driver's seat was simply nerve wracking. It started out quiet but as the pump temperature increased the volume of the noise would increase as well to the point where it was difficult to talk over the pump noise. I switched to a quiet Holley 150

Georotor Pump and

was extremely happy with it but due to the tight tolerances of a pump of this type it was not able to cope with the extreme heat of the mounting location and eventually seized up. I thought perhaps the pump might have been overworked due to the higher volume and the dead end fuel system that terminates at a non tank return regulator. I replaced it with a Holley 125 Pump and in about 5 months of really short trips about once per week that fuel pump packed it in as well. Now I had identified that in fact the heat was killing the pumps and the real cause of the failure was heat soak from sitting over the muffler.



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So after some research decided to construct a heat shield over the mufflers to minimize the amount of heat soak that would occur with the car stationary. The following outlines the steps and the products used to create a functional and extremely effective shield for my Dynomax 17731 mufflers.



I used Flow Master Muffler heat shields intended for the SUV style muffler. I found them after much searching and ultimately got them through Summit Racing for about \$28 each with the special metal clamps to attach them. They are made of dead soft aluminum and are easily conformable even though the Dynomax mufflers are not dimensionally identical to the Flowmaster Mufflers. This was my biggest concern as the Flowmaster mufflers typically have a very distinctive shape and are relatively large. It turns out that the Dynomax muffler is VERY close to the same external shape as the Flowmaster design and the shields fit like they were designed for them on purpose.

I used two of the aluminum shields as I chose to install them on both sides as the cavity that the pump sits in is over both Dynomax mufflers and I felt it best to maximize the effect by installing the shield on each muffler. On the Passenger side muffler I also installed a Reflecta Shield aluminized heat resistant aluminized barrier on top of the aluminum shield to further provide a heat barrier for the fuel pump. I centered the fabric shield over the aluminum panel and used oversize rivet washers to affix the fabric type material to the top of the Muffler heat shield as is shown in the photo. The process was very simple and was effective in securing the shield and has proven to be fairly durable in the 3 months since it was installed.



After installing the Reflecta Shield I then installed the shield assembly to the top of the muffler with the three included band clamps. In the photos you can see the Dan Walters Torque Arm assembly. The heat shield assembly has proven extremely effective and it has reduced the muffler radiated temperature by roughly 87 degrees from muffler temp radiating from the top of 210 degrees to radiant heat of roughly 123 degrees. I can



actually place my hand on the top surface of the muffler shield and it is hot to touch but NOT nearly the scalding hot it was before the shield was installed. That is around a 42% drop in the radiated heat and has sufficiently corrected the problem for me such that I am satisfied it will prolong the durability of my current fuel pump.

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I road tested the shields on the freeway for 45 minutes at about 85-90 MPH and then sat with the car idling for around 20 minutes and determined that the heat soak to the fuel pump has almost completely disappeared.



I used a laser thermometer and verified temps and with an 85 degree day it is measurably cooler. I do want to complete another test once weather gets to over 100 degrees but will need to wait for summer for that. In the mean time I hope that this documented solution is helpful to others to improve a rather hot issue for us.

Curtis Fisher's weld-on shield

One alternative to the rather involved shields used here is a simple approach used by Curtis Fisher. He graciously provided a couple of photos of his supremely simple but functional approach. His solution for a shield is brilliantly simple. It is a piece of tin welded to the top of the muffler that creates a gap between the muffler and the shield. According to Curtis it has functioned perfectly and for his application has been more than sufficient to prevent any heat issues from killing his carter style electric pump.

Project Details:

Time to completion – About 15 minutes with the car already on stands

Materials / Tools required:

Cordless Drill
1/8 Drill Bit
Pop Rivet Gun
Flat screwdriver
2 Flowmaster SUV heat shields Part # 51017

1 Reflecta Shield Part # 101420 14" x 20" shield
1/8th X 1/2" long inch pop rivets
1/8th inch pop rivet oversize washers

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