

Thank you for purchasing the Track Dog Racing Exhaust Heat Shield, which is designed to help maintain lower temperatures in the engine compartment by isolating elevated header temperatures. The TDR Heat Shield will install on all model years of the Mazda Miata 1990 to 2005. Both aftermarket headers, Section 1 and factory exhaust headers Section 2 will see the benefits of reduced heat transfer in the engine compartment and cooler under hood temperatures.



The TDR Heat Shield is manufactured with 4-layers. The bottom uses heavy-grade industrial aluminum to reflect radiant heat and to balance the conducted heat across the surface. The aluminum helps maintain its shape as you form the TDR Heat Shield around the exhaust manifold or header. The second layer is fiberglass cloth mat. The insulation is rated at 2000 degree and is made from ceramic wool. The outer surface is an aluminized fiberglass mat that not only looks good, but also adds to the efficiency of the TDR Heat Shield by dissipating heat, resulting in lower surface temperatures.

Please Read and make Note: Direct contact from the header can cause the inside material of the Heat Shield to burn away. As long as the outer surface is intact, the Heat Shield integrity is still efficient at holding the heat. After installation, it is recommended to “fluff” out the heatshield away from the header pipes by using a rod, or long socket extension(s) and reaching from the side and underneath, then push the heatshield away from making contact with the header pipes. Minimizing contact will extend the life of the heatshield. This is not a Wrap but a radiant barrier. Air is a poor conductor of heat compared to direct contact so having this air gap will reduce heat transfer as well as extend the life of the product. Improper installation is not a manufacturing defect.

TOOLS REQUIRED

The following tools may be required in your installation depending on your mounting method.

• 10 and 14 mm wrench or sockets	• Torque wrench	• Electric drill
• 1/4 in. nut driver	• 1/8 in. drill bit	

SECTION 1: INSTALLATION USING AFTERMARKET HEADERS

The TDR Heat Shield attaches to all aftermarket headers for the Mazda Miata and some other brand cars. Attachment is through the use of L-brackets on the header studs or through the use of a single self-tapping screw into the stock heat shield, depending on your application. The Heat Shield forms easily around the header and takes very little time to install. When forming the Heat Shield, a loose fit is better than a snug fit as air is a good insulator and increases efficiency. The small single grommet in the middle is not used in an open header application.

On non-supercharged setups and the Rotrex supercharger setup, the Heat Shield is attached to the two outer studs as shown in Photos 1-3 using the supplied L-brackets.

On supercharged applications (M45 or MP62 models) attachment is through the use of the rear factory stud and L-bracket only. The front L-bracket will hit the supercharger mounting or housing.

1. Be sure the surfaces around the engine exhaust area are cool to the touch.
2. Photo 1-1 shows hardware supplied. The screw, spacer and washer are for factory header shield installation. The angled brackets and two M6 x 16 mm nuts are for the aftermarket header installation.



Photo 1-1: Mounting hardware



Photo 1-2: Left angle bracket installed

3. Remove the factory M10 nut on the top left and top right side of the exhaust manifold as shown in Photos 1-2 and 1-3 using a 14 mm wrench.
4. Install the supplied angle bracket over the exhaust manifold stud and hand tighten the M10 nut. Turn the bracket face up as shown in Photo 1-4. Torque factory nuts to 28-34 ft. lbs.



Photo 1-3: Right angle bracket installed



Photo 1-4: Both angle brackets installed

5. Form the Heat Shield around the header starting with the right side. Bring the side in first under the angle bracket, followed by the top section overlapping it as shown in Photo 1-5.
6. The Heat Shield will go between the heater hoses and the manifold. The right-side heater hose has a clamp down low that will require you to push and form the Heat Shield between it and the header.
7. Make sure the Heat Shield is close to the head in the middle section as well as the sides as shown in Photo 1-6.
8. Use a small screwdriver or pick to help guide the grommet over the angle bracket mounting hole.
9. Attach the M6 x 16 mm bolt to the angle brackets through the grommet. Do not tighten down until both sides have been started. The L-brackets can be adjusted by loosening the exhaust nut.
10. After the two sides are firmly attached, form the rest of the Heat Shield around the header. If necessary, poke a rod from underneath to add air clearance. Remember: a loose fit is better than a tight fit.



Photo 1-5: Ends folded in



Photo 1-6: Folded and attached

SECTION 2: INSTALLATION ON FACTORY EXHAUST MANIFOLDS

The TDR Heat Shield attaches to the factory exhaust manifolds on all model years. Although aftermarket headers generate more heat, the factory exhaust manifold could use a little help as well. The Heat Shield forms easily around the factory exhaust manifold heat shield and takes little time to install.

Attachment is by the existing center bolt or by using a single self-tapping mounting screw fitted into the factory metal heat shield. Some manifolds do not have the center bolt for mounting so use the self-tapping installation method is the second option.

When forming the Heat Shield, a loose fit is better than a snug fit as air is an excellent insulator and increases efficiency. Note that the two side grommets are not used on the factory exhaust manifold installation.

1. Be sure the surfaces around the engine exhaust area are cool to the touch.
2. Form the Heat Shield around the factory metal shield starting with the right side as shown in Photo 2-1.
3. Bring the side in first, followed by the top section overlapping it. The Heat Shield will go between the heater hoses and the manifold. The right-side heater hose has a clamp down low that will require you to push and form the Heat Shield between it and the factory shield.
4. Make sure the Heat Shield is close to the head in the middle section as well as the sides before you mark your hole if using the self-tapping screw.
5. Once the Heat Shield is formed over the manifold, align it so the center hole is above the name plate and inline between the valve cover bolts and the rib on the head as shown in Photo 2-2.



Photo 2-1: Right side Heat Shield side folded in



Photo 2-2: The center hole mounting using existing bolt or tap screw

6. Using a marker or pen, mark the factory shield as shown in Photo 2-3. It is important that you are centered on the exhaust shield between header 2 and 3.
7. After marking the Heat Shield you will install a self-tapping screw into the factory shield. There are two methods to install the screw.

Method 1: Attach a 1/4" socket to a power drill. This will thread in the supplied self-tapping screw.

Method 2: If you do not have a drill socket, the second option is to drill a pilot hole using a 1/8 inch drill bit as shown in Photo 2-5.



Photo 2-3: Mark the hole



Photo 2-4: Hole on the header shield centered

8. With the hole marked in Photo 2-4, drill the pilot hole using the 1/8" drill bit as shown in Photo 2-5. The factory metal shield has two layers of metal, so you will drill through both layers.
9. Hand tighten with a socket wrench as shown in Photo 2-6 to start the thread cutting.
10. Remove the screw after the threads have been made.



Photo 2-5: Drill pilot hole



Photo 2-6: Self-tapping screw into the factory shield

11. Install the Heat Shield back onto the factory exhaust shield. A loose fit is better than a tight fit. Pressing the Heat Shield around the exhaust manifold will reduce the Heat Shield's efficiency.
12. To simplify installation, install the screw and washer through the grommet on the Heat Shield and install the spacer as shown in Photo 2-7. Carefully pull the header shield up to the drilled hole and hand-start the screw.
13. Make sure the heat shield is formed the way you want it and then screw in the self-tapping screw as shown in Photo 2-8. Careful not to over-tighten.
14. All remaining hardware supplied with the Heat Shield including the angle brackets and bolts are not used for this application.



Photo 2-7: Screw and spacer attached

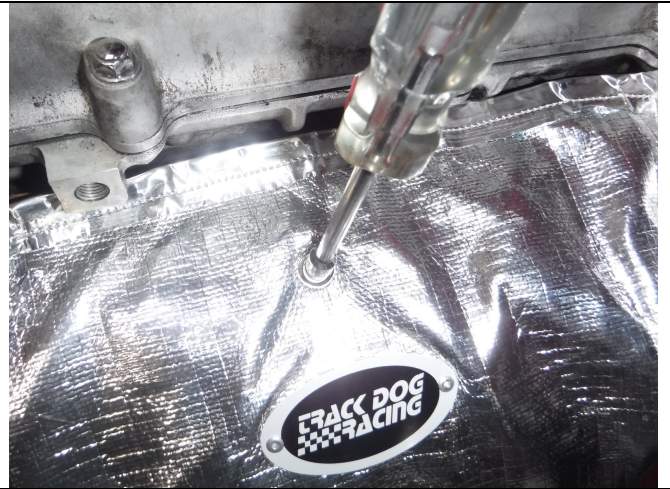


Photo 2-8: Screw inserted into heat shield

The TDR Heat Shield is easy to maintain using simple water and soap if necessary. If the Heat Shield is removed you will notice that it has become a little stiffer, but it will still form back around your exhaust manifold or aftermarket header. In some cases, you may see some foil has burned off from contact with the header. However, this will not affect the performance of the Heat Shield as the ceramic wool insulation will continue to perform a heat barrier.

We hope you will be pleased with our product. If at any time you need assistance, please feel free to contact us at 214-340-9797 or email us at support@trackdogracing.com. If you have any comments or suggestions, please let us know. Please visit us at www.trackdogracing.com.

We appreciate your business,

The Track Dog Racing Team