



THE *BEST* WAY TO COOL *HOT* ENGINES!



- “Classic Rodders punched louvers in their hoods to help radiate heat. The Old Dads knew what they were doing, and the principle is no less valid today.” – Car Craft Magazine
- “When you...cut off the airflow in the engine compartment...You may have a great radiator shroud, but if you can’t get the hot air out, the thing will cook when you are sitting still.” – Chevy High Performance Magazine



Patented

Installation Instructions

Congratulations! You now own genuine RunCool® Heat-Escape™ OuterCooler™ Hood Louvers. Read instructions thoroughly and “Limited Warranty and Limitation of Liability”, at end.

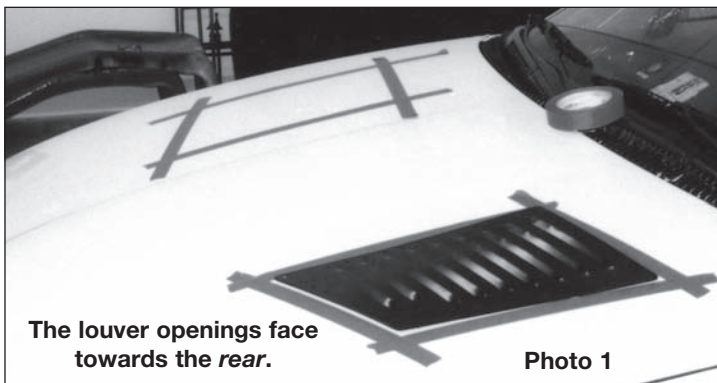
You will need these items for this installation:

- Electrical tape
- Duct tape
- Drill (high speed better than low speed)
- Gloves
- Angle grinder tool (if you don’t have one of these, this is the *handiest* electric tool anyone can have in his garage). Harbor Freight (800-423-2567) sells these starting at only \$11.95 (#03150-IRYH) and \$19.95 (#31309-IRYH). Northern (800-533-5545) also has them in the \$20-\$25 price range, and theirs comes with the *cutting* disc (this set is item no. 143378-B259). Lowe’s has several starting at \$49. Popular sizes are 4” and 4^{1/2}” diameter. Be sure to have a *thin*, 1/16” or thinner, metal-*cutting* disc for this tool (1/4” is too thick). DeWalt (available at Lowe’s) makes one only .045” thick – excellent. An air tool cut-off wheel with a cutting disc works quite well. Also have a grinding disk.
- Pop rivet gun (\$6.95 at Harbor Freight #7356-OVGA). If you have compressed air and want to speed up the process, an air-powered rivet gun can quickly justify itself – #93458-9YFA for \$34.99 from Harbor Freight Tools.
- Goggles (eye protection)
- Fire extinguisher (always important to have around when grinding steel – due to sparks!)
- 5 or 6 bath towels
- Can of flat black spray paint

1. Some (not all) of our hood louvers come with a white or clear plastic film overlay for protection in shipping. If yours have this, remove it now.
2. Affix black plastic electrical tape along the underside of the perimeter of the louver panels. This will form a slight cushion between the louvers and the surface of your vehicle to prevent scratching. Put it inboard about 1/16” so it doesn’t show around the outer edges when the louvers are installed.
3. **Read Steps 4 and 5** before finalizing the exact location of your hood louvers. Place the louver panels on your hood and locate them where you think best. The louver openings face towards the *rear* of the vehicle.
4. Open your hood and look at the interior hood support frame. It is completely satisfactory to have some of the hood frame passing under the hood louvers. If so, you can “hole out” or “Swiss cheese” the hood frame while still maintaining strength (**see Photo 4 and Step #16**). On wide hood frames you can use a 2” or 3” hole saw

drill bit. On smaller frames, use 1/2" or 1" hole saw drill bit. The more open the underside of the hood louvers are, the more air will flow through them. Some vehicles (e.g., certain late Fords) have flat, un-raised central panels that have no real support function and which can be cut through and removed.

5. As part of this location process, consider where the open louvers in your hood will be and if rainwater, flowing in from these, will flow directly onto the *distributor* (most vehicles built in the last 20 years don't have one) or the *alternator* (which is, typically, far forward enough from the louvers so this is not a problem). An open-style air cleaner (as on carburetored engines) is also a consideration (but if this is a V8, usually no problem as the louvers are *outboard* of this). Experience shows no problems with rainwater flowing onto the engine block, valve covers, battery, manifolds, etc. – after all, many people frequently wash their engine – some using 3000 PSI pressure washers!
- If you really don't want to compromise the location of the hood louvers, here is an option which prevents rainwater from flowing onto the distributor or alternator, if that is a problem. Only partially cut an opening in the hood (or not at all) under that one panel, opening up just the other side. Also, see the "Notes on Making a Rain Diverter" at the end of these instructions (see Photo 7).
6. Once you are sure of the proper location of your hood louvers, pre-contour the louvers to the shape of the hood. If you need to arc them slightly, do so over a curved surface. If you turn your front wheels all the way in one direction, a tire tread and sidewall provide good curved surfaces on which to lightly arc a louver panel.
7. With the louver panels resting in the desired position on your hood, temporarily apply masking tape or electrical tape around the perimeter of your hood louver panel onto the hood itself, making an outline of the hood louver panels (see Photo 1).

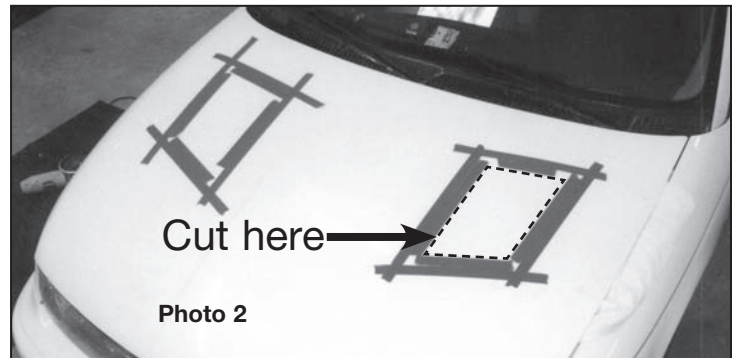


8. Remove the hood louver panels from the hood.
9. Run an *inner row* of masking or electrical tape such that the inner edge is 1" inboard from the inner edge of the existing tape on the hood. The *inboard* edge of this *second, inner row* of tape is your cutting line (see Photo 2).
10. Cut away any under-hood insulation material in the area where the louvers will be mounted, and in an area far

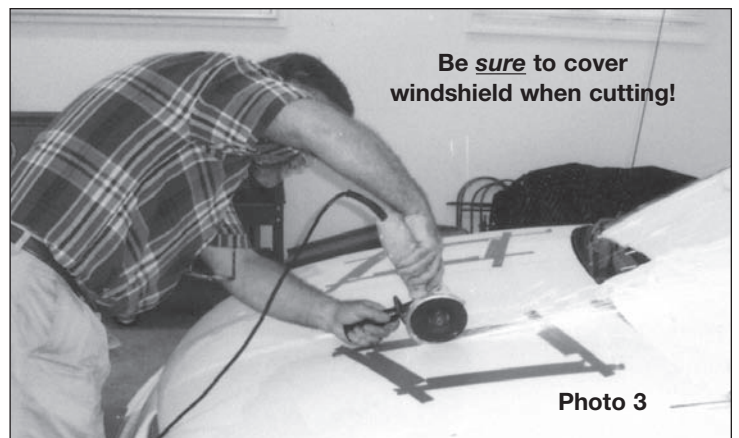
enough away so rainwater will not come in contact with it. In fact, you might want to remove all of this insulation. Most under-hood insulation is either: a) currently grimy, soggy and ratty-looking, or b) getting ready to be.

11. Now you are ready to cut panels out of the hood so air will pass through the hood louvers. Caution: Grinding produces sparks, so be sure to:
 - Grind when your engine is cold (gasoline can evaporate – explosive – when hot).
 - Open your hood all the way for two minutes, to let any trapped gasoline fumes escape, before grinding.
 - Cut with your hood at least partially opened, to prevent accumulation of gasoline fumes.
 - Place several damp bath towels completely across the top of your engine and fuel injection systems before grinding, to catch any hot sparks (and make clean-up easier).

• Place several damp towels across the windshield to protect it from damage from flying sparks – which, otherwise, would pit the windshield!



- Wear goggles (note: sparks can pit the lenses of glasses) when cutting and keep a fire extinguisher handy.
- Due to the hot sparks, grind in a safe location – such as outside, away from dry leaves and gasoline fumes.



12. Wear gloves, as the cut edges of sheet metal are sharp.
13. Using your angle grinder, cut out a panel along the inner side of the inner row of the masking tape outline (see Photo 3). Be sure to use a thin cutting disc, rather

than a thick grinding disc, to cut through the hood. Be sure to wear eye protection when cutting. Several shallow passes are better than one deep pass. Open the hood regularly to check the towel under the hood to be sure a spark hasn't ignited it. Don't cut through the underlying hood supports.

14. Wearing gloves, remove the cut-out panels from the hood. Note: Sometimes the sheet metal of the hood is affixed to the hood frame with a thick, anti-vibration adhesive. It may be necessary to use a screwdriver or chisel to pry the cut-out sheet metal panel off the hood frame.
15. Use your angle grinder to smooth out the raw edge of the hood around the cut-out area.

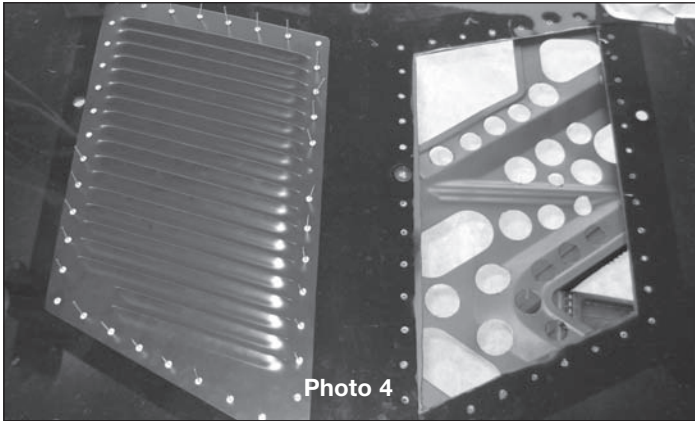


Photo 4

16. Under-hood frames being in the way is not a big problem. **Just "hole out" or "swiss cheese" any that are in your way.** Note Photo No. 4 and the UNUSUALLY large brace under this hood (most are much smaller!). But, NO PROBLEM! The owner (Detective Michael Livera of Odessa, Texas, P.D.) just "holed" it out with various size hole-saw drill bits (the large elongated slots were already there). Hole-saw drill bits come in sizes from 1/2" to 4" dia. Now the heat can easily escape through the Hood Louvers!
17. Peel off the inner row of tape on the hood, leaving the outer row of tape in place.
18. Place the hood louver panels back on the hood, using the tape outline for position. Tape the louver panels in place with duct tape. Leave most of the mounting holes around the perimeter of the louver panel exposed, so you can see where to drill the holes.
19. Drill the mounting holes, being sure to use a 9/64" drill bit (provided with kit). This is the proper size for the 1/8"-dia. rivets provided. This is a slightly smaller size hole than on the louver panels, to give you a little bit of leeway in mounting the panels. If you hit a hood support, drill through it. Drill the four corner holes first. Then take some (approx. 1/8"-dia.) nails or machine screws and drop into the holes, to serve as temporary locator pins, to hold the panel in position as you drill the remaining holes.
20. To prevent rusting, paint the raw edges of the holes you have drilled in the hood, as well as the raw, cut edge of the hood. A quick way is to move the exist-

ing masking-tape border in 1/4", then mask off the hood and spray paint the inner area of holes and the cut edge (see Photo 5). It will not show because it will be covered by the hood louvers. Flat black is a good color. (Corvette, Aston Martin and Land Rover owners remind us this step is not necessary with their cars, with, respectively, fiberglass, aluminum, and aluminum hoods.)



Photo 5

21. Before you install the hood louvers, spray paint (flat black) any of the under-hood support frame that might show through the louver openings, from the top (see Photo 5). This is to prevent it from being conspicuous when seen through the louvers.
22. Before "popping" the rivets in place, be sure to wear eye protection. Be sure the hood louver panel is pressed firmly against the hood (see Photo 6). A gap between the hood louver panel and the hood will not allow the pop rivet to mount correctly. Pop the rivets in place, from the outside in. Do the four corners, first. Then do the center of each side. Two full squeezes of the pop rivet gun are typically needed for each pop rivet. If you encounter a thick section, such as a hood-frame brace, here are some suggestions. Try one of the pop rivets provided. Or, you can pop a pop rivet in a piece of scrap sheet metal. Grind off the back of the pop rivet so you can extract it, with the head of the pop rivet intact. Glue this pop rivet head in place in that hole in the hood louver panel, so it will match the other pop rivets. J-B Weld is a strong, two-part epoxy sold at many hardware and auto parts stores; it is excellent for this. Another option is to buy some longer pop rivets.

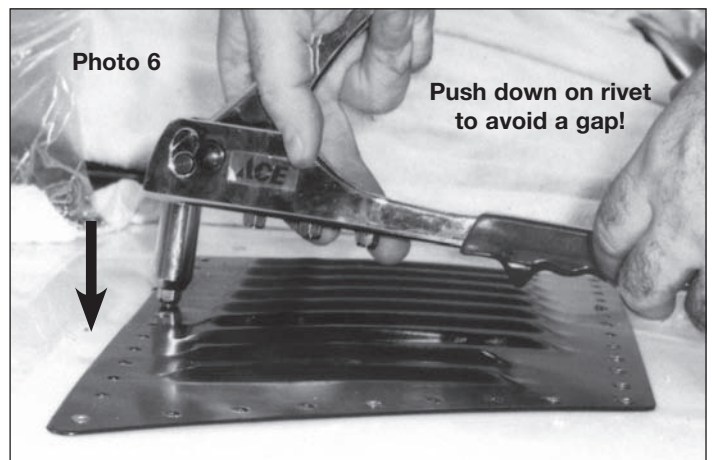


Photo 6

Push down on rivet to avoid a gap!

23. Open the hood and inspect it on the underside for any sharp burrs — especially if you drilled out the support braces. De-burr them with your grinding disc. If any pop rivets didn't turn out to your satisfaction (e.g., you had a gap) you can remove them. Open the hood and grind off the underside of the pop rivet all the way down to the surface of the underside of the hood. Then take a hammer and a 1/16"-to-1/8"-diameter punch (or a nail will work) and knock out the rivet from the underside; it should pop right out.
24. Now that you are through grinding, drilling and painting, remove the towels from across your engine and across your windshield. Careful: These will have metal dust and sharp flakes in them, so don't spill them into the engine compartment or onto the vehicle.

25. Drive and enjoy your vehicle with your new RunCool Hood Louvers.
26. Consider ordering additional sets of RunCool Hood Louvers for your other vehicles! Thank you! Run cool! ■

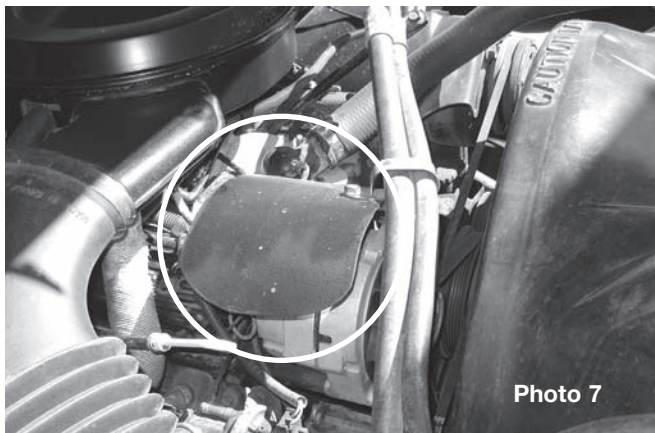
If you wish to paint your hood louvers...

If you like, you can paint these hood louvers to match your vehicle. When painting the bare aluminum, scuff sand it well (320, 360 or 400 grit) to promote good paint adhesion. Eastwood makes "Self-Etch Primer", which etches and primes the material. This is available in Flat Gray or Flat black at (866) 483-2259. If you paint the louver panels before you install them, the fasteners will be more distinctive, for an enhanced, high-performance look. ■

Most Will *Not* Need This, But For Your Information: Notes on Making a Rainwater Diverter

Again, from step #5, experience shows no problems with rainwater flowing onto the engine block, valve covers, battery, manifolds, etc. — after all many people frequently wash their engine! The only need to divert rainwater is if it flows directly onto the distributor, alternator or open air cleaner (hot rod type, often on a carburetored engine).

- Some owners report making a "hood" over the component to shield it from water. They use the cut-out panel from the hood, curve it and bolt it on (typically using an existing bolt that is also holding something else nearby). See Photo 7 for an alternator "hood." Be sure it is affixed *securely!*
- You can divert rainwater in any direction — fore or aft, or right or left — by using a diverter, and by angling it accordingly, by using different-length hanger straps.
- Purchase sheet aluminum at a hardware store, or use sheet metal. Also, purchase a roll of perforated sheet metal plumbing pipe "Hanger Strap" for holding up plumbing pipe (available, typically, in the plumbing department).
- Wearing gloves, cut the sheet aluminum to approximate the size of the hood louver panel (or smaller, or larger, depending upon your need). This can be positioned under all of, or a portion of, the louver panel. By adjusting the size, position and angle, you can divert the rainwater anywhere you like.
- If helpful, you can put a slight crease down the sheet metal, to help guide the flow of water and to add rigidity to the piece.
- You might want to paint the upper surface of the deflector flat black primer, so it isn't noticeable when looking through the top of the hood louvers. A high-temperature "Barbeque Grill"-type paint works best, due to the heat. Scuff sand well and use a "Self-Etch Primer" (see above) first, so the paint will stick.
- From a roll of hanger strap, cut four pieces to serve as hangers. These should be long enough to hold the sheet metal deflector 1/2" to 5" below the underside of the hood. The bigger the gap the better (for air flow) — but don't have it so low that it hits your engine! Also, make the straps 1" longer at both ends (2" longer, overall), so you can bend the ends 90° to serve as the mounting tabs to the underside of the hood and against the deflector. The standard hanger strap has two sizes of holes in it; use the smaller hole for each of the tabs (or put a washer under the rivet), so the pop rivet will hold.
- Use the existing holes around the perimeter of the hood louver panel for affixing the hanger straps, using a pop rivet for each. Drill mounting holes in the diverter for pop riveting the hanger straps in place. ■



Limited Warranty and Limitation of Liability

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