



VEHICLE OVERHEATING: A K-9'S WORST ENEMY

articles and photos by Robert A. Buerlein



K-9 vehicles have a number of special needs, but one involves life and death. We've all heard of instances where a K-9 officer's vehicle has been left idling, it overheated, the engine cut off or the air conditioning quit working and as a result—the K-9 partner died.

We have also heard of, or experienced, days that were so hot that the temperature rose extremely high under the hood with the engine idling, that the air conditioning just blows hot air into the vehicle and our K-9 partner has suffered severely.



Over recent years, this situation has gone from bad to worse. This is for two reasons:

1 ♦ Today's engines operate typically 30 degrees *hotter* than two decades ago—210 degrees versus 180 degrees.

The problem is getting *worse* rather than better. As emissions standards get more stringent, higher engine temperatures burn off more pollutants. Those higher operating temperatures mean that underhood temperatures—where the heart of the K-9 vehicle's air conditioning system resides—are also up by at least that amount, further raising the temperatures of the air conditioning compressor and air conditioning lines,

which strains and reduces the efficiency of the air conditioning system. Also, the heat from under the hood causes the *interior* of the vehicle to become hotter, which means the air conditioning needs to work *more* rather than less.

2 ♦ Our climate is definitely getting hotter in the summer and this trend could continue.

These two patterns, both heading in the same direction, should be real concerns for a K-9 officer, because the health of his K-9 partner is at stake.

Enter the patented **RunCool® Hood Louvers**. These are shaped aluminum panels with formed louvered openings that allow the heat in the engine compartment



Example of a hood louver in place.



K9 advice & opinion

to escape. Inside the engine compartment, it is literally as hot as an oven. Hot air rises—if you cut off the top of an oven, the heat escapes. That's what happens when hood louvers are installed on a K-9 vehicle hood. This is assisted by the engine's cooling fan, which blows air across the engine and out through the louvered openings. By providing an exit for the hot air—which without the hood louvers was bottled up under the hood—more cool air comes in through the radiator to lower underhood temperatures. On a summer day, the escaping air is so hot, you can't hold your hand over the louvers for more than a second without getting a severe burn!

The Pelion South Carolina police department had their fire department test RunCool Hood Louvers, using sophisticated infrared heat monitors and were overwhelmed with the results. Police Chief Chris Garner's report states, "PHENOMENAL....a 47-degree drop in underhood temp!" The chief ordered RunCool Hood Louvers for all of his vehicles.

The good news for K-9 officers is that if the air conditioner

compressor and lines are running 47 degrees cooler, that means the air conditioning system in the vehicle can produce cooler temperatures and for longer periods. In this regard, a RunCool Hood Louver owner wrote in from one of the hottest places in the world, the United Arab Emirates, and said, "Ambient temperature is 117 degrees on average these days and having a black Tahoe is a death wish. The air conditioning has never been so cool, even after idling in the sun for an hour."

The Law Enforcement Division of RunCool Hood Louvers started operating with the U.S. Border Patrol. The Border Patrol station in El Centro, California is the center of the hottest part of the Mojave Desert, where temperatures can exceed 130 degrees in the sun during the summer. The USBP has K-9 units using these hood louvers and they also help keep USBP Agents cool while





they are on duty in their vehicles in the middle of the hot, dry desert.

Bruce Rucker, Fleet Manager for the U.S. Border Patrol at the El Centro Station, found out about the RunCool Hood Louvers and started using them on some of his vehicles. “[In this] kind of heat, our Border Patrol Agents, and *especially* our K-9 units, *must* have air conditioning operating in the vehicles. That drives up the operating temperatures of engines beyond the point of what auto makers envisioned for them. We found RunCool and purchased some of the louvers and installed them on some of our vehicles,” Rucker said, “and they made a big difference.”

Through the USBP testing and use in the desert, RunCool developed enlarged louvered panels and punched more louvered openings in each panel to come up with the *Size Large Hi-Flow™* model, which is now their standard issue for law enforcement vehicles. This size has also become popular with a number of city and county K-9 units for Crown Victorias, Chargers, Impalas, Tahoes, Expeditions, Durangos and pick-up trucks. The louvered aluminum panels measure 11 x 17 inches each (two panels are affixed per vehicle), and these feature 19 louvered openings per panel, for a total of 38 openings.

K-9 officer, Chad Robinson, with the Bureau of Land Management in Arizona says, “The RunCool Hood Louvers make the critical difference! Here in the Arizona heat, you have to keep the engine cool if you are going to keep the air conditioning cool, and you have to keep the air conditioning cool if you are going to keep the dog cool! These do the job! I liked the RunCool Hood louvers I put on our 2007 Tahoe and now I’m putting a set on our 2010 Tahoe.”

Even up north in Pennsylvania, the hood louvers are sought out and prove themselves. K-9 officer, Jeff Wijnen-Riems, of the Beaver Area, Pennsylvania Police Department reports, “About a year ago we put the RunCool Hood Louvers on all our Chargers. We like them because they keep the engine temperature noticeably cooler by about 17 degrees. They really do the job! We just put them on my K-9 Tahoe and its engine, too, is now running about 17 degrees cooler. I keep it running non-stop, six to seven hours a day and we really need to keep it cool!”



K-9 officer, Matt Grubb, of the Ross, Pennsylvania Police Department reports, “My lieutenant recently told me, ‘It kills me to cut holes in the hoods of our vehicles,



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but if these hood louvers work that well for you, go ahead!’ It is said that Ford doesn’t recommend opening the hood of a Crown Vic when idling, as that reduces the flow of cool air that is brought in through the radiator (which can cause the engine to overheat). We’ve noticed with hood louvers and the hood closed, the flow of air through the radiator *increases* because it can escape from under the hood, through and out of the hood louvers, which lets the engine run cooler.”

Officer Grubb added, “We have also found that without hood louvers, the heat can keep building up under the hood to the point where the air conditioning

will only blow out hot air. If you open the hood, or in our case, install hood louvers, the heat can escape from under the hood so the air conditioning keeps blowing cool air. In fact, we have noticed that the temperature of the air coming out of the air conditioning vents is noticeably cooler with the hood louvers. Everywhere we go, people ask us about them. We tell these people, ‘Hold your hand over these vents and feel how hot the air is coming out.’ They are always amazed!”

Officer Tommy Nicholson of the Pittsylvania County, Virginia Sheriff’s Office also reports, “The hood louvers make a noticeable difference. They really get the heat





out. We are just adding another K-9 vehicle, and I asked the other K-9 officers who have used your hood louvers for the past two years if we should get hood louvers for the new car, and they said, 'Definitely!'"



Equipment Coordinator, Randy Bills, of the City of Naples, Florida Police Department reports, "South Florida gets very hot during the summer and stays that way for most of the year. Keeping our K-9 partners healthy and safe is very important to us. We have used hood louvers since 2002. We just swapped out our old 2002 CVPI vehicle with close to 8,000 hours of city driving and idle time on the original engine. When we participate in joint agency training exercises we are the only ones to have our hoods closed. We found that hood louvers keep our vehicles running cooler by dissipating idle heat like no other method we have found."

Officer Mikell Jones, of the Aston Township, Pennsylvania Police Department tells us, "As a K-9 officer in Southeastern Pennsylvania, the weather can get pretty crazy and the car is always left on. I can

already tell a big difference in the vehicle, especially when the Air conditioning is cranking. While sitting at an intersection one day, I could see the heat vapors pouring out from the hood louvers. I would recommend this for all police cars. They are awesome and easy to install."

Officer Jones further testified, "Unfortunately, I have seen a K-9 car overheat and nearly catch on fire. If the handler did not check on the vehicle (with the dog in the car) when he did, his partner would not be here today. I am sure that kind of problem would have never happened with these hood louvers. These are a must-have for all K-9 vehicles. I don't know why *all* police cars don't have them."

Managers of fleet maintenance shops will be pleased to know the lower underhood temperatures extend component life. For example, *Consumer Reports* magazine (October, 2006) observed, "Chilling cold isn't the hardest environment for batteries; hot temperatures actually cause more damage...heat saps more life over time...increased underhood temperatures in hot weather is especially taxing."

Similarly, the *Car Care Council* reports, "Rubber hoses can become hard and brittle, deteriorating with age and exposure to heat. Belts also break down with heat."

Two questions that sometimes arise and their answers:

Q1 What About Use of Hood Louvres in Winter?

A1 Lower temperatures under the hood are a benefit year-round—extending the life of critical, sensitive components located there, including rubber hoses, belts and the battery. Heat is an enemy all year! Cooler is always better.



Q2 What About Rain or Snow Entering the Vents?

A2 Not a problem. The only water-sensitive component under the hood is the alternator and that is on the front of the engine, located far forward of the hood louvers. Think about it—many shops regularly wash down their engines to keep them clean, using 1200 p.s.i. pressure washers!

The best testimony for RunCool Hood Louvers is that the biggest source of new law enforcement orders is from police departments and sheriffs' offices that started using them a few years ago. Now they are adding new vehicles to their fleets and calling to order more hood louvers.

For example, Chief Don Madger of the Beaver, Pennsylvania Police just called in April of this year, when it started getting warm, and said, "We've been successfully using them on our Chargers and they *really* let the heat out! Now we're adding a Tahoe as a K-9 vehicle and we need a set for it."

The hood louvers discussed here are made in the U.S.A. They are made of a professional grade of formed aluminum—which is as thick as the sheet metal of the vehicle. The hood louvers are available in a powder-coat finish of white or black, to match most law enforcement vehicles. The correct size drill bit and pop rivets, which are supplied painted in the color of the hood louvers, are included. These panels blend right in with the rest of the hood, so they are hardly noticeable. Self-explanatory installation instructions are included. Most departments install them in their own shop, but some go outside (for example, one border patrol station in California uses a local tire retailer to install their hood louver).

"The installation was straight forward," said Edgar Jaime, El Centro Border Patrol Shop Manager, of

California. "We followed the instructions and after we installed the first set, the technicians had no difficulties. The hood louvers are affixed with pop rivets, which are provided with the hood louvers. The riveted-in panels are quite secure."

Shipping on open invoice or with credit card is usually immediate. The orders are delivered via UPS. There is no minimum order to get the police discount. The police discount price for the size large, *Hi-Flow™*, powder-coated white or black is \$172.00 for a complete set, plus \$12.00 for UPS charges.



Under-the-hood view of hood louver in a Tahoe.

With engines operating at 30 degrees higher than two decades ago and with summers getting noticeably hotter, hood louvers are beneficial for all vehicles and especially for K-9 partners in communities where summertime temperatures regularly get into the 90s and beyond. If a unit's patrol area includes mountainous terrain, they are practically required for climbing long or steep hills, especially in warm weather.

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They are successful in service on all kinds of law enforcement vehicles and a whole host of other vehicles, from giant, gravel-hauling quarry trucks to racing boats. Anytime and anywhere an internal combustion engine gets hot, the vehicle **and its occupants** can benefit by lowering those underhood operating temperatures! That includes K-9 officers and their K-9 partners!

For more information, visit www.HoodLouvers.com or call RunCool at (804) 355-1758 for special Police Pricing (no minimum order required). ■



Robert A. Buerlein is founder of RunCool® Hood Louvers in Richmond, Virginia. He works closely with the U.S. Border Patrol, police departments, sheriffs' offices and a wide range of public safety agencies and departments, providing for their hood louver needs. He can be reached at cool@hoodlouvers.com or at (804) 355-1758.

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