



Tech Tip

CABIN AIR FILTERS/ AC SYSTEM 177

PASSENGER COMPARTMENT VENTILATION Eliminating Musty Odors

Eliminating the musty odors or that refrigerator smell can be a challenge. The first course of action should involve a complete inspection to determine the source of the foul odors. Deodorizers are usually just a short term solution that results in a recurring condition. Some vehicle manufacturers claim they further compound the odor concern and advise against their usage.

MICROORGANISMS AND FUNGAL GROWTH

Nothing can be more unhealthy than a couple of lungs inflated with mildew, mold spores, pollen, dust, decaying microorganisms and fungal growth. This is especially a problem with people who have respiratory issues. The air conditioner (A/C) evaporator is a breeding ground for fungus and microbial growth. Some vehicle manufacturers offer chemicals and treatments to rid the evaporator of these contaminants. Some systems allow treatment through a port entry in the evaporator housing while others require removal of the evaporator for cleaning and treatment. Removal of the evaporator can be a major exercise at a substantial cost to the vehicle owner. The vehicle manufacturers' recommendations vary when dealing with the contamination and preventing a recurrence. Identifying the source of the foul odors is the first step in the diagnosis. Once that is completed, treatment options can be explored. Let's consider some of the sources of the foul odors.

CABIN AIR FILTRATION

Is the cabin air filter on your vehicle inspection list? Many vehicle owners are not aware their vehicle is equipped with the filter. It should be changed annually or every 12-15K miles. The cabin air filter can prevent the evaporator or heater core from becoming contaminated with debris such as dirt, decaying leaves and insects. These contaminants can absorb moisture, promote fungal growth and produce some nasty foul odors. In addition, the build-up of contaminants can affect airflow, thereby restricting the heating and A/C ventilation system efficiency.

Two types of cabin air filters are commonly used:

- (1) Particulate filters that remove dust, bacteria, mold spores, pollens and other pollutants.
- (2) Combination filters, which are charcoal/carbon impregnated filters designed to remove the same previously mentioned elements, in addition to harmful gases and odors.

Make certain the cabin air filter is a part of your vehicle inspection process.

MUSTY ODORS

A short duration of musty odors, sometimes referred to as a refrigerator smell, may be emitted from the A/C system during start-up and in the presence of hot, humid conditions. This unpleasant odor is often the result of microbial growth on the evaporator core.

GM has addressed this concern for 2015 and prior passenger cars and trucks in Service Bulletin 99-01-39-004F. The solution involves applying an evaporator coating to reduce the formation of microbial growth. It is imperative that the evaporator be completely dry before applying the coating, and the coating must be completely dry before turning the A/C back on.

In addition, they recommend activating an after-blow function within the heating, ventilating, and air conditioning (HVAC) control module software. This enables the blower fan to dry the evaporator after the vehicle has been shut down, which will prevent the formation of the microbial growth. The customer should be made aware this feature has been activated or they may assume the vehicle has an electrical problem. If the vehicle is not equipped with the after-blow feature, it may be added with GM's Electronic Evaporator Dryer Module Kit P/N 12497910.

Some vehicle manufacturers recommend turning the A/C off, but leaving the blower motor on, moments before arriving at their destination to reduce the potential for microbial growth. This stops the A/C's condensing action and the blower helps dry the evaporator. Most vehicle operators are not going to give up the comfort of the A/C for even a few moments, or they will never remember to follow that procedure. In dry weather it is recommended that the ventilation system be placed in the fresh air mode. In humid weather the system should be placed in the recirculation mode.

Mazda recommends applying a cooling coil (evaporator) coating to encapsulate the mold growth and reduce the odors. The treatment provides a coating that will aid in preventing biological reactions that lead to odor complaints. It is applied to the evaporator in a misted form that is introduced by way of the cabin air filter, the recirculate door, the blower motor resistor access, or the

blower motor air intake. If applied properly, Mazda claims the treatment can be effective for up to three years.

Ford has issued a service bulletin (TSB 14-0099) addressing musty odors emitted from the A/C vents on initial start-up on 2013–2014 Fusion and Lincoln MKZ vehicles built on or before 2/24/2014. The solution is to replace the Climate Control Housing, which is a 6–8 hour procedure, depending on the application.

RESTRICTED A/C DRAINS

With symptoms of a mist of water discharging from the A/C vents or the presence of a musty odor, one of the first check points should be the evaporator drain. It is not uncommon to identify a restricted or damaged drain hose, which can allow water to pool in the evaporator case, or leak and accumulate beneath the carpet, where it is absorbed into the felt backing. If the A/C is cooling and water is not dripping from the evaporator drain, you have identified the source of the foul odors.

Recently, we encountered an A/C drain issue on a Maxima whereby a rodent had chewed at the end of the evaporator drain hose, apparently in an attempt to quench its thirst. The damage to the gnawed end of the drain hose allowed water to drain into the floor pan of the passenger compartment. The first symptom of a problem was when the vehicle owner complained of water sloshing in the floorboard. This was a major labor intense repair as it required removing the seats, carpeting and felt backing to dry the components and treat them for mildew. It takes many hours of drying time to remove all the moisture from the felt backing. Assuming that the components will dry on their own without removal is false hope that will certainly lead to mold and mildew issues, in addition to corrosion of the floor pan.

Evaporator drain issues are not uncommon. When they occur, mildew and mold are almost certain. Let's consider two cases of recent production vehicles that have encountered evaporator drain issues documented by the vehicle manufacturer.

1) GM reports that mist from the instrument panel A/C vents, moisture on the windshield or wet carpets on 2010–2014 Buick LaCrosse, 2011–2014 Buick Regal and 2013–2014 Chevrolet Malibu applications may be the result of a restricted evaporator case drain hose.

Reposition the passenger side front carpet to inspect the evaporator drain hose. The hose may be caught on the foam insulator on the transmission cable (see illustration). This will require moving the shift cable to the driver's side of the vehicle. Push any slack in the cable and insulator forward into the engine compartment.

2) Owners of 2010–2015 Chevrolet Camaros may complain that they encounter moisture from the A/C vents and the front and rear carpets are wet.

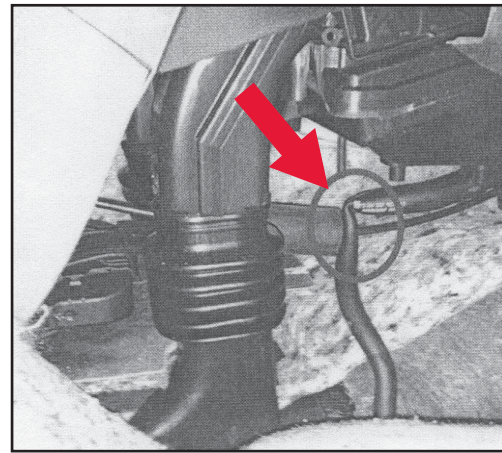


Illustration Courtesy of GM

The condition may be the result of a collapsed evaporator drain grommet, causing the water to pool in the evaporator housing and/or leak into the floor pan, saturating the carpets.

With the vehicle safely supported on a lift and the transmission supported with a suitable jack, remove the transmission mount bracket. Slightly lowering the transmission will allow access to the drain tube and grommet.

Reach above the transmission on the passenger side for automatics, or the driver's side for manual transmissions, until you feel the evaporator drain tube and grommet. Remove the drain tube and grommet and allow the water to completely drain. Check for any obstructions in the drain hose.

Apply a small amount of grease around the circumference of the drain tube and grommet. Reinstall the grommet and drain tube, making sure they are properly aligned.

Reposition and tighten the transmission bracket.

Verify that the evaporator is now properly draining.

If the carpets are wet, they must be removed for drying and treatment for mildew.

ODOR ELIMINATOR

GM offers an odor eliminator to control interior and luggage compartment odors on those vehicles that have encountered wet carpets or felt backing. The chemical may also be used in the evaporator housing and instrument panel ducts to control non-bacterial odors. The product will not leave a residue or scent. It is an effective odor eliminator when applied directly to the odor source. Part numbers and procedures concerning the use of the product are illustrated in GM Service Bulletin 00-00-89-027F.

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