



A/C Service Tips

The following tech tips apply to specific symptoms or conditions on Subaru air conditioning systems. Scan these pages to see if the symptoms on your problem vehicle match the descriptions here. Follow the recommended service procedures for all air conditioning repairs.

Dash Vent Mist

If a customer complains of mist coming from the A/C vents when the air conditioning system is operating, it is more than likely a normal condition caused by a number of factors. The evaporator is probably operating close to or at the freezing point. There may even be a small amount of ice accumulation on the evaporator, but not enough to affect system operation. The outside air is probably very humid, perhaps 85-95 percent relative humidity. When this very moist air comes in contact with the cold evaporator, it causes the moisture in the air to condense into a mist. You have probably observed a similar situation when you opened the freezer on the refrigerator at home. This mist is then pushed by the fan, through the vehicle's ducts, and into the passenger compartment.

A very minor adjustment to the vehicle's air conditioning system will correct the problem. Move the temperature

lever on the control panel slightly toward the warm position. This blends a little of the warm air from the heater core with the outside air to melt the coating of ice on the evaporator. Vehicle cooling will not be noticeably affected by this small movement of the temperature lever. The customer will have to experiment to find the position that cures the condition, as it may change based on the weather conditions mentioned above.

So if you have checked out the system and can find nothing wrong, the weather conditions may be to blame. Spend a few minutes explaining this to the customer. Vehicles in areas with low humidity are unlikely to exhibit these symptoms.

Refrigerant Cross Contamination

All 1996 and later Subaru models are equipped with R-134a refrigerant air conditioning systems. Some models were equipped with this type of system as early as 1994. R-134a does not contain suspected ozone-depleting chlorofluorocarbons. The chemical compounds and molecular structures of R-12 and R-134a are completely different. However, the temperature/pressure relationships of the two are very similar. R-134a and R-12 are not compatible. Under no circumstances should

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they be mixed.

If you suspect that a refrigerant system has been tampered with or may be contaminated, observe the following general rules.

Symptoms of a contaminated refrigerant system may be any of the following:

- High system pressure (could be extreme). The higher the mix of contamination, the higher the pressure will be.

- Poor cooling.
- Rapid cycling of the compressor.

Inspect for:

- Correct condenser fan operation,
- Debris in front of the condenser,
- Correct blower fan operation,
- Charge/caution label,
- Service ports, stripped threads (from wrong fittings),
- Cloudy, milky sight glass.

Contact the customer for:

- Repair history,
- Previous dealer or independent shop repair.

Refrigerants must be handled properly. Always wear protective gloves and goggles. For your safety and the safety of others, it is imperative that the work area be properly ventilated. If a refrigerant release occurs, wait until the mist clears before continuing. R-12 and R-134a must be handled separately. The two refrigerants cannot be mixed. The lubricating oils used in the R-12 and R-134a systems are incompatible. Service tools cannot be intermixed. If you find yourself unsure of what to do when servicing an R-134a system, don't guess. Refer to service manuals and service bulletins. As with all automotive repair work, good service depends on good diagnosis.

Compressor Failure Precautions

Always examine the oil when replacing a failed (seized or not pumping) A/C compressor. If you find metal particles, flush the entire with an approved air conditioning system flushing agent to remove the particles. Simply installing a new receiver-drier with the replacement compressor may not be enough to keep the leftover par-

ticles from clogging the expansion valve and possibly the bellows valve in the compressor.

If compressed air is used to dry the system after the flushing agent has been used, the system must be evacuated for an extended period of time to remove any residual moisture. A 30 minute evacuation period is necessary for a new system that has not been opened to the atmosphere. Air conditioning manufacturers are recommending alternative system flushing procedures to comply with the Montreal protocol.



Recovering Refrigerant and Oil

Compressor Failure

If the compressor is fixed at minimum displacement, look for a much smaller than usual difference between the low side and high side pressures. In other words, the low side may appear slightly higher than normal and the high side slightly lower, as the two system sides move towards equalization. Manifold gauge readings of 50 (low side) and 75 (high side) are representative of this condition.

Expansion Valve Failure—Excessive Restriction

Your manifold gauge readings will show the low side almost normal or slightly below normal and your high side will definitely be lower than normal. Reading of 28 (low side) and 90 (high side) are representative of this condition. In addition, if the expansion valve is clogged, stuck closed or inoperative, the expansion valve inlet area will exhibit heavy sweating or frosting. There will be a slight decrease in cool-

ing performance that will increase as the condition worsens. A low side reading of 25-35 is not necessarily abnormal. The high side reading must always be considered along with the low/high side relationship.

A/C Service Oil Adjustment

Should an A/C compressor or other component require replacement, it's important to adhere to the oil charge table listed in the service manual. Each component retains a certain amount of oil when removed. During replacement, this amount of oil must be compensated for. For example, if the condenser is replaced in a Calsonic-equipped 1991 Legacy, 2.9 fluid ounces must be added to the system to compensate for the estimated amount of oil that will be taken out of the system when the original condenser is removed. On the other hand, since

replacement compressors come with a full oil charge for the whole system, oil must actually be removed from the compressor to avoid overcharging the system with oil. Overcharging the systems with oil will result in reduced cooling effectiveness, while undercharging will result in increased system wear and possible failure. Subaru recommends the use of a refrigerant recycling machine to protect the environment.

Air Conditioning Evaporator Odor

As outdoor temperatures rise, so do the complaints of evaporator musty odor. To help control the amount of bacterial growth within the evaporator case (which causes the odor), perform the following:

- Check the evaporator drain hose for kinks or clogs which might restrict proper condensation or

water drainage. Also, make sure the firewall outlet end of the drain hose is routed away from the catalytic converter.

- Try using the 'Max A/C' or 'Recirculation' mode for initial cool-down only. Then switch to the 'Normal A/C' mode. This allows outside air to enter the evaporator. Changing the mode positions to selections other than 'Max A/C' may reduce the conditions in which the bacteria grows.

- When the vehicle is parked, the duct system will remain in the last position programmed by the Mode control. Using a selection other than 'Max A/C' can also help reduce the odor-causing environment.

- For chronic customer complaints, an evaporator cleaning agent can be used. Evaporator removal for core cleaning is not necessary. Cleaning the evaporator through the fresh air duct is just as effective.

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