



Subject: EVAPORATOR AIR BYPASS	TSB #: 9 6-08
	Date: 15/8/08
Initial Once Read:	

This subject has been the cause of many a "hair tearing out" situation.

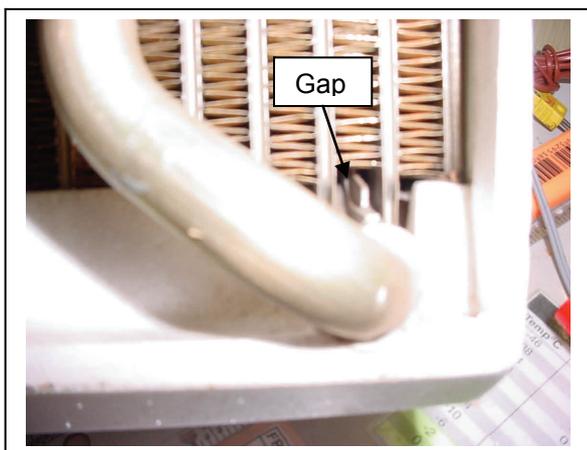
You have diagnosed an evaporator coil as leaking refrigerant and it has to be replaced. A new evaporator coil is purchased, the old coil is removed and the new coil is fitted into the HVAC or evaporator case. The A/C system is evacuated and charged and guess what? The face vent temperature is not as cold as it should be, even though your system pressures indicate that the A/C system "wet side" is performing okay.

AIR BYPASS.....

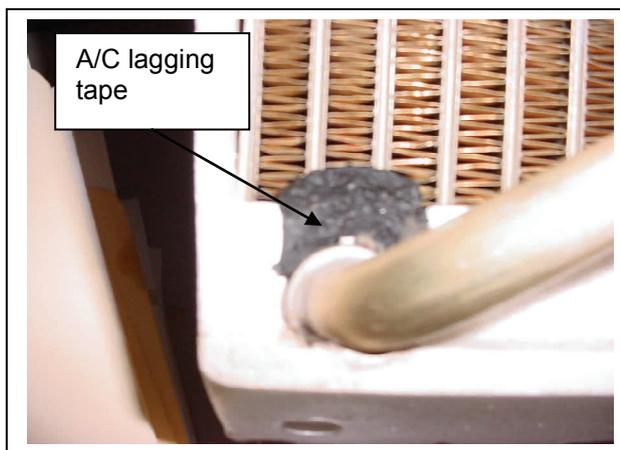
Air bypass is a situation when all the incoming hot ambient air that should be passing through the cold evaporator fins, some air is actually passing over or around (bypassing) the evaporator coil. This bypass hot air mixes with the cold air coming off the evaporator coil air off side. And the result is an increase in the face vent temperature.

The original evaporator coil uses closed cell foam which seals the evaporator coil to the evaporator case or alternately the evaporator could use poly styrene liners that serve the same purpose and also act as insulators to prevent condensation from forming on the outside of the plastic evaporator case. Plastic blanking plates are also used to close off any open areas such as around the inlet / outlet tubes and the serpentine tube loops.

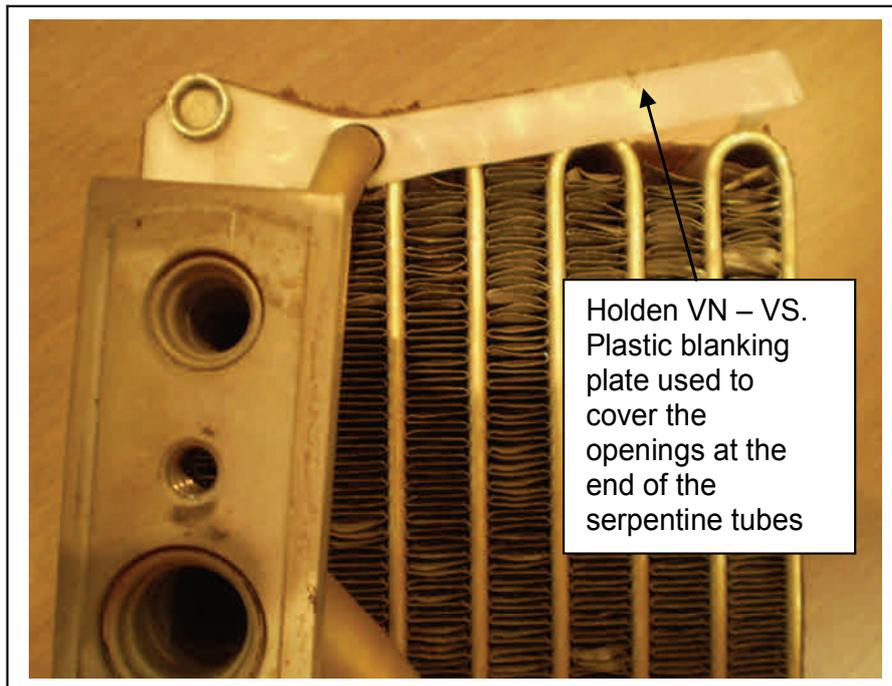
Whenever you replace an evaporator coil, take the time to view the sealing methods used and the locations of any blanking plates and grommets. At the end of the day the evaporator coil must be fully sealed fully around the coil to the case and all gaps must be covered. If you fully seal the evaporator so **NO** air can bypass the evaporator coil, the face vent temperature will be cold. Even some OEM evaporator coils do not have sufficient sealing or a number of gaps are present, so have a good look. You never know, you may even improve the performance above the OEM standard.



Example of an evaporator coil using a full wrap around polystyrene liner to prevent hot from bypassing the evaporator, but what about the gaps around the inlet and outlet tubes.



In you have identified gaps that hot air can "sneak through" use black lagging tape to seal of that area.



If you find that the original foam seals have deteriorated or you have purchased an evaporator coil that has no foam sealing fitted at all, you will have to install new foam seals of the same type, size and location.

Foam is not just foam! Remember where the foam was located on the old evaporator coil. The foam seals are located directly in the air inlet to the inside of the vehicle and they are constantly immersed in moisture and covered in dirt and dust.

Please be aware there is a specified type of foam and adhesive manufactured for automotive heating and air conditioning systems.

Below is the OEM specification for evaporator foam seals used on an evaporator coil. Ensure that you use only foam seals that meet the specifications outlined below.

Specification

- Light density, soft closed cell foam. Polyvinyl Chloride
- Recommended service temperature range – Minus 40 to + 82oC
- Fire resistant
- Ultra violet ray resistant
- Chemical resistant against most solvents, acids
- 30% Compression
- Permanent, cast – on polyester film
- High tack (A3) adhesive with a wide temperature range. GM spec HN1340 type 1, class 1.
- Water based acrylic adhesive

We wish to thank Gaska Australia for the OEM HVAC foam seal specification.