

AC Tech Talk: Hidden Suction Hose Collapse.



Have you ever seen a low side system restriction as a result of the suction hose collapsing? When I ask technicians this question they tend to tilt their head and look at me as if I have proposed the impossible, but this is not the case, at least not in systems that use a specific type of barrier hose. Barrier hoses exist as a result of advances in AC system performance technologies and they have great benefits such as reduced permeation (refrigerant loss) and water ingress, increased flexibility and life span; and in the case of plastic inner sleeve hoses you see a reduced friction, an increase in system performance and less operation noise in the cabin. It is this plastic inner sleeve that can collapse, causing a low side system restriction or blockage. The picture to the left and below are of a suction hose cut out of a Subaru Liberty and shows an inner layer collapse.

So how do we identify a suction hose inner collapse or restriction? In reality this fault is extremely difficult to diagnose as it displays itself on the gauges as a restriction in the TX Valve. Further, when diagnosing a system with a variable compressor the fault can be masked as the pump 'varies' its stroke according to the returning suction pressure. Therefore a system can look to be working, though in time, the restriction in the suction hose will starve the compressor causing it to overheat. Visually you cannot see the hose collapse as only the inner layer does so while the outer layer maintains a perfect structure, and blowing through the hose with air will only force the collapsed barrier open and not reveal any restrictions. The only way to verify a collapsed suction hose is by cutting it open to inspect!



Suction hose collapses are a rare occurrence and you would not suspect this fault every time a system presents itself with a low side restriction, however be aware that more and more manufacturers are using plastic inner sleeves and this fault is becoming more common.

VW and AUDI Transducer Switch Leaks:

The transducer switch pictured below (OE# 1K0-959-126) is common throughout the Volkswagen Golf IV, V and VI series and many Audi vehicles of the same years. The switch has been found to display a common fault of an internal leak in its mechanical components causing a loss of refrigerant and electrical short circuit. The switch pictured below suffered a leak so large that it separated in two. When looking for a leak in the Audi or VW range, be sure to check under the plug of this transducer for oil residue.



Be Sure You Flush Out That Flush!

AC system flushing is a very important process when you are repairing a system that has suffered a catastrophic compressor failure, however be aware that it is as important to remove all traces of flush! Below is a picture of the oil that was drained from a new variable compressor that had failed to pump correctly. The oil is easily ignited as it is contaminated with flush.



Variable compressors rely heavily on the maintenance of oil levels and oil types in the system. If the oil viscosity is changed or liquid (flush) is mixed with the oil, the control valve will become fowled and fail to stroke the compressor. Remember that when flushing you should always leave air running through the hoses until they blow dry and avoid flushing parallel flow condensers and evaporators if a replacement part is easily available and fitted. Also be sure to choose a flushing compound that is highly evaporative and non-oil based or it will be hard to remove from the system. If you are unsure, contact your local AC supplier for more information.

This Tec Article was bought to you by CoolCompressors and MrCool Automotive. For any further information regarding ECV diagnostics or information on the tools mentioned, please contact Benjamin Perry via email (ben@mrcool.com.au) or phone (07) 3369 3033.



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