

# THEME: CONDENSER

## CONDENSER INNER CLOG

### BACKGROUND

The condenser is placed in the front of the car and is typically attached to other heat exchangers in the engine compartment. The condenser is crucial for the AC system operation. It ensures that the refrigerant changes from a gas to a liquid form. This is achieved through the condensation process, where the refrigerant heat is extracted and exchanged with the ambient air.

### PROBLEM

When impurities develop in the system, the thin channels of the condenser will quickly clog. This can restrict the refrigerant flow, eventually reducing the unit's ability to exchange heat. In most cases, this will eventually cause overpressure in the system, which is extremely harmful for the compressor. Especially condensers with micro tube technology are in great risk. While micro tube technology offers an outstanding cooling performance, the thin fins are more exposed to stoppages. As the flow is compressed to a more confined area, fewer impurities are needed for clogging to occur.

### RECOMMENDED SOLUTION

To keep the condenser in good condition, the receiver dryer must always be replaced during a compressor replacement, if the circuit has been exposed to ambient air, or the system has run empty, due to leakages. If none of these events occur, it is recommended to replace the receiver dryer every second year.

Furthermore, it is always required to perform a system flush after a compressor breakdown. Make sure that no flushing agent residues remain in the system after flushing.

Always use the recommended oil and additives. Replace the condenser in cases of doubt.

## COMMON CAUSES FOR CONDENSER INNER CLOG



**No/poor flushing** – A thorough system flush must always be performed prior to a new component installation - especially after a compressor seizure. When a compressor has seized, metal chips can break off and cause clogging in the system. Furthermore, carbonized oil particles, developed due to compressor overheating, can cause clogging in the system and must be flushed.



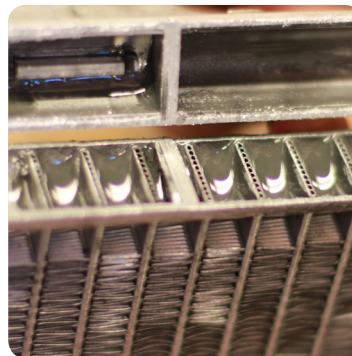
**Wrong use of additives** – Incorrect additives, or improper application of additives, can cause system contamination. This is often caused by crystalized leak-stop agents and/or Teflon that has peeled off inner parts of the compressor. Teflon peeling off can be caused by aggressive, and not properly removed, cleaning agents.



**Wrong Lubricant** – A lubricant with a too high viscosity can easily clog the condenser. Especially condensers built in micro tube technology, due to the confined flow in the fins.



**Receiver dryer in bad shape** – Poor condition of the receiver dryer means that it will become less efficient in filtering particles, increasing the risk of impurities flowing through the system. This will eventually lead to clogging of the condenser and other components.



Black, carbonized oil will quickly clog the condenser's inner tubes



Visible soiling at the condenser inlet



Oil drained from a seized compressor. The visible contaminations are spread in the entire system, including the condenser.



Worn out receiver dryer (or desiccant bag cartridge) often results in clogging of the condenser's inner tube