

Technical Information

Compressor



Compressor failure after AC system repair

1. Outline

This bulletin is to inform you why AC compressors fail after replacing OE condensers with a non OE condenser.

2. Applicable product

All variable displacement compressors.

3. Cause of failure

We see an increase in warranty claims for compressor failure following the replacement of an OE condenser with a non OE condenser. But what causes this failure?

Frequently, we find that flux, which is used during the production process of the non OE condenser, has entered the condenser tubes and starts a chemical reaction with the UV-Dye and Oil.

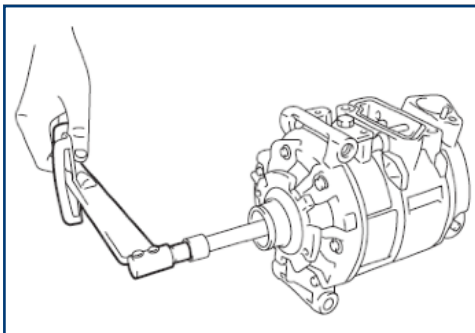


4. Background

Flux is mostly used for the aluminum brazing process during manufacturing of a condenser. Because of the poor production quality of some non OE condensers, the flux can enter the condenser tubes during this brazing process. When a workshop installs these non OE condensers, the flux inside the condenser tubes comes in contact with the UV-Dye. During AC system operation, the flux and UV-Dye starts mixing and causes a chemical reaction with the oil. This turns the oil into a jelly like, sticky substance. Immediately after the repair, the AC system operates without any issue. The problem starts after the engine has been switched off and the AC system cools down. During the cool down period, the sticky oil causes the pistons to bond to the cylinders. The compressor will still rotate, but remains in the minimum displacement position, thus not giving the required cooling performance.

5. Effect on compressor

- Higher rotational torque



The rotational torque of a contaminated compressor is higher and it has a “sticky” feeling when rotating the compressor shaft the first time.

Standard value: 2.9 Nm or less.

- Production of imitation condenser



The flux is entering the condenser tubes, during the aluminum brazing process of the non OE condenser.



Brazing flux.

Can either be powder, liquid or gel.



• **Chemical reaction inside the AC system**



After installing the non OE condenser, with flux inside...



...and adding UV-Dye to the AC system...



...after cooling down period, the compressor still rotates, but does not regulate anymore.

• **Result after chemical reaction**



PAG oil is turned into a jelly like, sticky oil.



Pistons are bonded in the cylinders at minimum displacement.



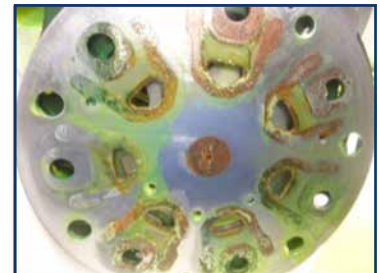
Not possible to remove pistons with force.



Pistons can only be removed with an alcohol based solvent.



Heavy corrosion after only one day.



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