

What Happens if PAG Oil is Used in Hybrid Compressor?

It is important to pay attention to the type of oil being used in the compressor, especially on hybrid and electric automobiles. Below are images of compressor 7513135 for 2012–2014 Toyota Prius Hybrids. As described in gpd Tech Tip #108, hybrid scroll compressors require a specific type of oil with high dielectric properties. Using the same oil as a non-hybrid compressor, PAG oil, on a hybrid compressor will cause compressor failure. It is imperative to use a non-conductive Polyol Ester (POE) oil in hybrid compressors (refer to manufacturer's specifications for specific type). Even a small amount of standard PAG oil will reduce the dielectric properties of the POE hybrid oil and damage the compressor.

Examples of hybrid compressor damage caused by using the wrong oil:



In this image, the water droplets show that moisture has been introduced into the system. This is particularly damaging to hybrid compressors that conduct high voltage electricity.



The stationary scroll shown on the left is found in the middle of the compressor and is where refrigerant is discharged. See gpd Tech Tip #54 for an in depth description of scroll compressors. The images above show signs of electrical arcing (dark grey/brown burn marks) due to high pressure and low dielectric properties in the oil.