

OILS 101

Anyone who works with HVAC systems knows the importance of compressor oil to the systems' functioning. Furthermore, if a mobile HVAC system does not have the right type or amount of compressor oil, it will not only affect the HVAC system's ability to function, but also that of the vehicle itself.

Here are some guidelines to follow when determining the correct compressor oil type and charge for your mobile HVAC system.

Basics

- The correct type and amount of compressor oil is a crucial component of an optimally performing HVAC system.
- The type of oil as well as the original oil charge, is dictated by the compressor model and can be found on the compressor label information.
- Technicians need to carefully manage the amount of oil in a system by recording how much oil is removed during refrigerant recovery or component replacement.
- Rule of thumb when replacing a failed compressor, measure the oil amount in the failed compressor. Some oil may need to be removed from the replacement compressor so the system does not end up with too much oil. If the system is flushed before a new compressor is installed, the system will require a full oil charge.

When to use PVE vs PAG oils

- PAG is the most commonly used oil in mobile HVAC systems. There are three main viscosities of PAG (polyalkylene glycol) oil used with R-134a: PAG 46, PAG 100 and PAG 150.
- Hybrid and electric vehicles (as well as Red Dot's all electric E-6100 unit) require PVE (polyvinyl ether) oil. If the wrong type of oil is used, the vehicle may detect a short circuit in the compressor and not run – this is critical.
- Using PAG oils in hybrid or electric vehicles is not only hazardous to the vehicle, but can also endanger the technician due to electric shock risk associated with using the incorrect oil.
- Some electric compressors may require POE (polyol ester) oil so again, check the label and use the recommended oil.

Other Oil Tips

- When installing a system, make sure there are not any oil traps – low points where the oil can drop out of circulation from the refrigerant. Large oil buildups can slug the compressor, damaging valves or bending piston rods.

- Purchase your oil from reputable supplier (see Red Dot's selection in the aftermarket catalog). If purchasing over the counter select a double end capped PAG.
- If you have a large supply of oil, use the older bottles first. If the plastic bottles sit for more than a few years, moisture can eventually get through and compromise the quality of the oil.

