



Guide to Servicing Blended Refrigerants

Service Tips

Refrigerant charging with R-400 or R-500 series refrigerants

Good service practices dictate that only liquid should be removed from the cylinder. The proper cylinder position for liquid refrigerant removal is indicated by arrows on the cylinder and/or cylinder box. Once liquid refrigerant is removed from the cylinder, the refrigerant can be charged into the system as a liquid or vapor as desired. Use gauge manifold or a throttling valve to flash the liquid to vapor if required.

The mixing of refrigerants

Do Not mix refrigerants with different “R” numbers. Uncertain safety criteria, performance and/or system damage could result.

Which refrigerants can be used without a lubricant change (drop-in)?

Field experience has shown that R-401A (MP39), R-401B (MP66), R-408A (FX10), and R-409A (FX56) work successfully with the existing MO (mineral oil) in many unitary and other close coupled systems. Insure that the system will provide good oil return to the compressor before retrofitting without a lubricant change.

Note: Many compressors already contain AB (Alkylbenzene) lubricant, therefore, no lubricant change is required when converting to an HCFC type refrigerant.

Lubricant recommendations:

Refer to the OEM’s compressor guidelines for the proper lubricant. If this information is not available, you can refer to lubricant recommendation as outlined in the General Replacement Guide by DuPont.

Fractionation within the blended refrigerant, has it taken place in your system?

Fractionation: A change in composition of a blend by preferential evaporation of the more volatile component or condensation of the less volatile component. When servicing a system containing a blended refrigerant it is necessary to confirm that the existing refrigerant has not fractionated, therefore producing less capacity.

“General Rule of Thumb around Fractionation”

Under saturated static conditions a: 10% loss in pressure = 5% loss in capacity

Net glide of various R-400 series refrigerants at 40°F saturated suction:

R-401A has 9°F glide, 10% more capacity than R-12

R-407C has 11°F glide, same capacity as R-22

R-409A has 15°F glide, 10% more capacity than R-12

R-414B has 14°F glide, same capacity as R-12

R-417A has 7°F glide, 18% less capacity than R-22

Reprinted / adapted from Sporlan Cold W.A.R. Phase II, Issue 7