RSL
Refrigerant Solutions Limited

RS-50 (R442A)

RETROFIT PROCEDURE TO REPLACE R22

Replacing R22 with RS-50 essentially will follow the procedure specified by the equipment manufacturer for a refrigerant change. Since RS-50 is zeotropic it is very important that liquid refrigerant, not vapour, be removed from the container and added to the system.

1. Ensure the right equipment is available, eg recovery unit and cylinders, container for recovered lubricant, vacuum pump, weighing scales, replacement drier etc.

2. Before removing the R22, operate the unit under standard operating conditions and record the pressures, temperatures and any other relevant measurable data to establish unit performance. Typically, the appropriate standard conditions for setting up the unit will have already been specified by the equipment supplier.

3. Recover and weigh the R22 from the unit. The weight should be within the range specified by equipment manufacturer.

4. If mineral oil or alkylbenzene are being used in the system, which is common in the case of R22, it is necessary to change the lubricant to a miscible lubricant such as a polyol ester. It is advisable to check with the compressor manufacturer which type and viscosity of lubricant to use. The remaining amount of mineral oil or alkylbenzene left in the system should be less than 5%.

5. Record the quantity of oil removed from the system, and compare with the amount recommended by the compressor manufacturer, since this is the quantity of lubricant that will need to be replaced.

6. Recharge the same quantity as in 5 above with a suitable miscible lubricant.

7. Since the mass flow of R442A is similar to R22, it should not be necessary to replace the expansion device, but superheat should be checked and the TXV adjusted as necessary.

8. Replace the filter/drier and evacuate the system.

9. Before operating the unit, charge the unit with **liquid** RS-50. The weight added at this stage should be approximately 10% lower than the R22 charge specified by the equipment manufacturer.

10. Operate the unit under conditions similar to those used in Step 2. Although compressor suction pressures will be similar to those experienced using R22, discharge pressures will be approximately 20% higher which may require the higher pressure cut out to be reset and controls to be adjusted accordingly. It is important that the operating limits of the compressor etc are not exceeded.

11. Check superheat to ensure the system is operating satisfactorily.

12. Check system thoroughly for leaks.

13. Remove all R22 labels and clearly label system RS-50.

RS SERIES OF REFRIGERANTS PRESSURE/TEMPERATURE CHARTS

RS Series Pressure/Temperature charts indicate both liquid bubble point and vapour dew point of the RS Series Refrigerant.

Liquid Bubble Point: this is the temperature which the liquid refrigerant will begin to vaporize at the given pressure. Below this temperature the liquid refrigerant will be sub-cooled.

Vapour Dew Point: this is the temperature at which refrigerant vapour will begin to condense at the given pressure. Above this temperature the refrigerant vapour will be superheated.

EvaporatorVapour Superheat:

To determine evaporator superheat, measure the suction line temperature at the outlet pipe of the evaporator and measure the suction pressure at the outlet pipe of the evaporator. Using the Pressure/Temperature chart, determine the vapour dew point for the measured suction pressure. Subtract the determined dew point from the actual temperature and this difference is the evaporator superheat.

Condenser Liquid Sub-Cooling:

To determine condenser sub-cooling, measure the temperature of the outlet pipe of the condenser and measure the condenser pressure at the outlet pipe of the condenser. Using the Pressure/Temperature chart, determine the liquid bubble point for the measured condenser pressure. Subtract the measured temperature from the determined bubble point and this difference is the condenser liquid sub-cooling.