THE LINDE GROUP

Refrigerants. General HCFC to HFC retrofit checklist.

☐ 1. Record baseline performance data

- → Record temperature and pressure measurements throughout the system (compressor suction and discharge, evaporator, condenser)
- → Derive superheat and subcool values
- → Record oil type and charge size, system set points and any other key operating parameters

☐ 2. Recover existing HCFC refrigerant charge

- → Refrigerant gases must be handled properly. Please consult material safety data sheets for detailed safety precautions
- → Linde does not recommend mixing HCFCs with HFCs. Therefore the full original HCFC charge should be recovered
- → Do not overfill recovery cylinders
- → Do not mix recovered material with other gases
- → Weigh total amount of refrigerant charge recovered

☐ 3. Choose compressor lubricant (oil)

- → In some cases the system may require a change of oil type from MO or AB to POE, in which case carry out Step 3a - Oil replacement and system flush
- → In cases where no change in oil type is needed, simply replace oil with the same volume of equivalent type if necessary (e.g. if contaminated) and move to Step 4

☐ 3a. Oil replacement and system flush (where necessary)

- → Drain lubricant & dispose of it in accordance with all applicable local regulations
- → Recharge with replacement POE oil, using the same volume as removed.
- → Recharge system with original HCFC refrigerant
- → Run the system for period of time (minimum 1 hour, 24 hours recommended) to circulate the new oil and flush original residual oil to compressor
- → Repeat flushing process until original residual oil is at correct level. (Commonly accepted guidelines are <5% original oil, see specific refrigerant guidelines for accepted levels)
- → Recover the HCFC refrigerant again as in Step 2

☐ 4. Follow correct end-of-life process for recovered HCFC refrigerant

- → Recycle, reclaim or destroy as necessary
- → Do not vent to atmosphere
- → Speak to Linde for further details on end-of-life options available to you

☐ 5. Overhaul refrigeration system
- → Replace filter-driers, suction filters, gaskets, and any other elastomer seals in contact with the refrigerant

☐ 6. Evacuate system and check for leaks
- → Evacuate to “full vacuum” on both low and high sides of the system
- → Perform pressure leak test. Note: leak test should not be carried out with mixtures of HFCs with air, oxygen or other oxidising materials
- → Make repairs as necessary

☐ 7. Charge with new refrigerant
- → If filling with a zeotropic blend (e.g. “400 series” blends), ensure that you charge in liquid phase to prevent fractionation
- → Charge to the stated percentage of existing charge weight as detailed in the product retrofit guide
- → Do not charge liquid refrigerant into the compressor as it will cause serious irreversible damage

☐ 8. Check system operation
- → Start up system, monitor and adjust expansion device, operating controls and/or refrigerant charge size
- → If adjustment is not possible, or inadequate, replace expansion device
- → Monitor oil levels in compressor and top up as necessary
- → If oil level continuously falls, or large oscillations occur, review and confirm oil content and compatibility

☐ 9. Label the system and fill in log books as required

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