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SYSTEM SERVICE UND OIL BALANCE

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SYSTEM SERVICE UND OIL BALANCE

Technical task:

Procedure for adjusting the oil balance in a refrigeration circuit with AC and, if necessary, WP function. Compressor oil quantity is determined via oil levels (calibration)

> Systems are completely flushed and freed of oil, especially when servicing is required to readjust the oil quantity

> During flushing, a flow resistance-free condition must be created as far as possible (e.g. removal of refrigerant compressor and valves (expansion elements and/or shut-off valves and/or non-return valves) or open them, if possible, for a given large flow cross-section, ideally with no resistance)

> Implementation of defined purging directions in relation to the main flow direction of the refrigerant in a properly operated system:

- Step 1 – Counter current (expulsion of particles from possible screens and filter elements)
- Step 2 - Direct current

KMV removed, all valves open or removed/replaced with manually operated flush valves (e.g. replacement of check valves, TXV, etc., i.e. generally of "too small" cross-sections). Execution of subsequent flushing processes according to KD instructions.

Initial situation:

The system itself can be flushed to a relatively good oil-free condition.

> LOC can, regardless of the compression concept, neither in the system nor in the removed condition be flushed effectively and therefore its stored oil cannot be determined > but: workshops, KD, service flush LOC in the removed condition.

> residual oil quantity in the LOCA (when reinstalled in a flushed system) cannot be determined or can only be determined to a limited extent and is sometimes added to the target oil quantity when refilling.

- Residual oil CMV + target quantity = ACTUAL_new
- Oil overfilling and loss of efficiency

> Belt pulley-free KMV without the possibility of setting the compression mechanism in motion by external rotation in order to "push out" any remaining oil.

> Rotation of the pulleys and thus movement of the compaction mechanism (scroll/piston) can discharge further oil.

Solution:

Provision of a procedure for improved/ more precise adjustment of the oil balance in the system

Advantages:

Use of the originally used and mounted LOCA (if undamaged - mechanical damage can be detected by discoloration of the oil) is still possible, but it remains unflushed and thus filled with oil.

> Time saving due to omission of the KMV flushing carried out so far
Exact determination of the amount of oil to be refilled and adjusted

> Performance/ efficiency/ costs

Possible application:

Provision of the unladen weight (oil-free) of all installed LVs in a defined state, e.g. without attachments (screws, caps, etc.) - Complete unladen weight of the machine ready for installation

> Documentation in e.g. workshop / service manuals bound to component number

Printing of the component weights on the components (label)

> Weighing of the unflushed, removed component and comparison with the unloaded weight

Difference provides information on the amount of oil stored

> Measure can be used for other components that are relevant to oil quantity determination appear critical, can be applied (e.g. accumulator because of dryer bags - up to now also new part used)

Exemplary process representation for the possible process description of the KMV handling:

