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## **MSC Oil Conversion Procedure and Guidelines**

The following is the procedure to change 4GS mineral oil to POE on the HCI vertical screw compressor.

POE & Mineral oil should never be mixed. When converting from mineral oil to POE, approximately 95% of the mineral oil must be removed from the **system**. This will leave approximately 5% of residual oil in the system that will not cause harm. Test kits are available from most refrigeration supply houses that can check the amount of residual mineral oil in the system.

- HCI has approved the use of CPI Solest POE lubricants. The most widely used would be Solest 120. It has been tested and is one of our approved oils. A POE oil of 100 ISO to 150 ISO may also be used instead of CPI Solest 120. Please check service bulletin SB24 for approved oils for all applications or contact HCI Applications Department for questions or approval of an appropriate oil to use.

### **COMPRESSOR OIL CHARGES**

MSC compressor oil charges are as follows: (To center of sight glass)

1111	5.8 gallons	1210	10.5 gallons
1113	5.7 gallons	1212	10.25 gallons
1117	5.5 gallons	1215	12.5 gallons
		1218	12.5 gallons

### **Procedure to remove mineral oil from an MSC not installed and replace it with POE Oil.**

1. Drain the oil from the compressor at the oil drain valve at the bottom of the compressor. A hose can be attached to the valve or a bucket used to catch the oil inside the compressor. The quantity will be approximately 1 to 2 gallons short of the complete oil charge due to residual oil left in the system and oil trapped in cavities inside the compressor.
2. Remove the oil level sensor from the sensor housing. You will require a snap ring pliers in order to remove the retaining ring (Snap ring) holding the sensor in the housing.
3. Once the sensor has been completely removed the sensor housing can be detached from the compressor enclosure. In order to remove the housing without damaging it, an box wrench or box socket must be placed on the housing body as close to the compressor as possible near the threads. **Caution must be taken so the sensor housing is not distorted.** If the housing is distorted it would result in cracking the glass prism inside the housing and making the sensor inoperative.

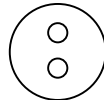
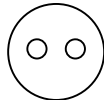
4. After the sensor housing is removed a rubber hose attached to a small liquid pump can be inserted inside the compressor through the sensor opening and used to remove any residual oil sitting in the sump of the compressor. The oil should be placed in the same container with the prior oil removed. The hose should be inserted in the sensor port and moved around the bottom of the compressor sump to pump out as much oil as possible.

5. It is important for the glass prism in the sensor housing to be extremely clean or the receiver may get an erroneous signal. Dust or dirt on the prism can give a false reading indicating there is a liquid covering the prism. If the prism is cracked, the same problem will occur.

6. The sensor housing can now be replaced on the compressor using a new neoprene o-ring (HCI Part # RNG238). The same care should be taken to not twist or distort the housing and crack the glass prism. To avoid this from happening the box wrench or box socket should be placed close to the compressor near the threads.

7. When installing the electronic section into the prism section, there is no specific alignment required. The sensor will function with the LED sending and receiving diodes in any position.

Either Position  
Is Acceptable



8. The electronic sensor can now be reinstalled in the sensor housing and the retaining ring (Snap Ring) is reused to secure the sensor in the housing.

9. The compressor can now be recharged with POE oil. (Please see page 1 for approximate amounts of oil to put into the compressor). Please be aware that there will still be residual oil left in the bearing cavities and housings inside the compressor. This can be taken into consideration by measuring the total amount of oil taken out of the compressor and replacing it with the same amount of POE. If the oil level is still low more oil can be added until the level appears in the sight glass. (Please be careful not to overfill the oil above the sight glass.)

10. The compressor can now be installed on the package. After approximately two to three hours of operation check the amount of residual mineral oil left in the compressor using an oil test kit. If more than 5% is present, the compressor should be pumped down of refrigerant and isolated using the service valves. The oil can then be removed from the compressor repeating steps 1 through 9 and discarded. A new charge of oil should then be added to the compressor following the guidelines listed above.

11. The compressor can now be restarted and monitored closely for oil / performance problems. After approximately two hours of operation, check the mineral oil content again. If necessary complete another oil change until the mineral oil content is below 5%.