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Subject: Variable Speed Oil Pump Drive Service Kit Changes		

Background

Over the last year we have seen some variable speed oil pump drives (VSOPD) faulting on high bus voltage, or blowing input fuses. The root cause of most failures has been line voltage fluctuations. These fluctuations can be caused by a variety of conditions such as the switching of power factor correction capacitors, grid switching, or thunderstorms. Currently, the service replacement kit for the VSOPD includes a drive and instructions. In locations where power fluctuations occur frequently, replacing the drive alone may solve the problem for a short time, only to have the drive fail again. To provide a more robust solution, new service replacement kits have been generated.

Units Affected

All style 'D' and some style 'E' YK chillers are affected.

Problem #1

The chiller shutdown on "OIL VARIABLE SPEED PUMP - DRIVE CONTACTS OPEN" or "OIL PUMP DRIVE - AUTOSTART" frequently. The chiller could be running, or not running when the shutdown occurs. Also if the shutdown occurs around the same time each day. The chiller will restart after the shutdown is cleared. On a few occasions, the fuses for the VSOPD are open, but the VSOPD has not failed.

Solution #1

This condition is typical of the VSOPD responding to a bus over voltage. The drive is not broken and does not need to be replaced. A line inductor needs to be installed at the input of the drive.

On 230 VAC drives the part number for the inductor is 025-37860-000.

On 460 VAC drives the part number for the inductor is 025-37861-000.

Both of these parts are available from the Baltimore Parts Center.

Installation Instructions: Refer to Figure #1

1. Remove power from the chiller at the main disconnect.
2. Locate where to mount the inductor. Typically the inductor can be mounted in the bottom of the enclosure.
3. Drill holes for the mounting of the inductor. Be sure to clean all metal shavings from the enclosure.
4. Mount the inductor.
5. Remove wires L1, L2, L3 from the input of the variable speed oil pump drive.
6. Remark wires L1, L2, and L3 to L1B, L2B, and L3B. Connect these wires to the inductor as shown in the drawing above.
7. Run 3 new wires from A1 to L1, and B1 to L2, and C1 to L3. Mark these wires L1-L3. Tighten the screws on the oil pump drive to 10 in.-lb.
8. The installation of the inductor is now complete. Re-apply power.

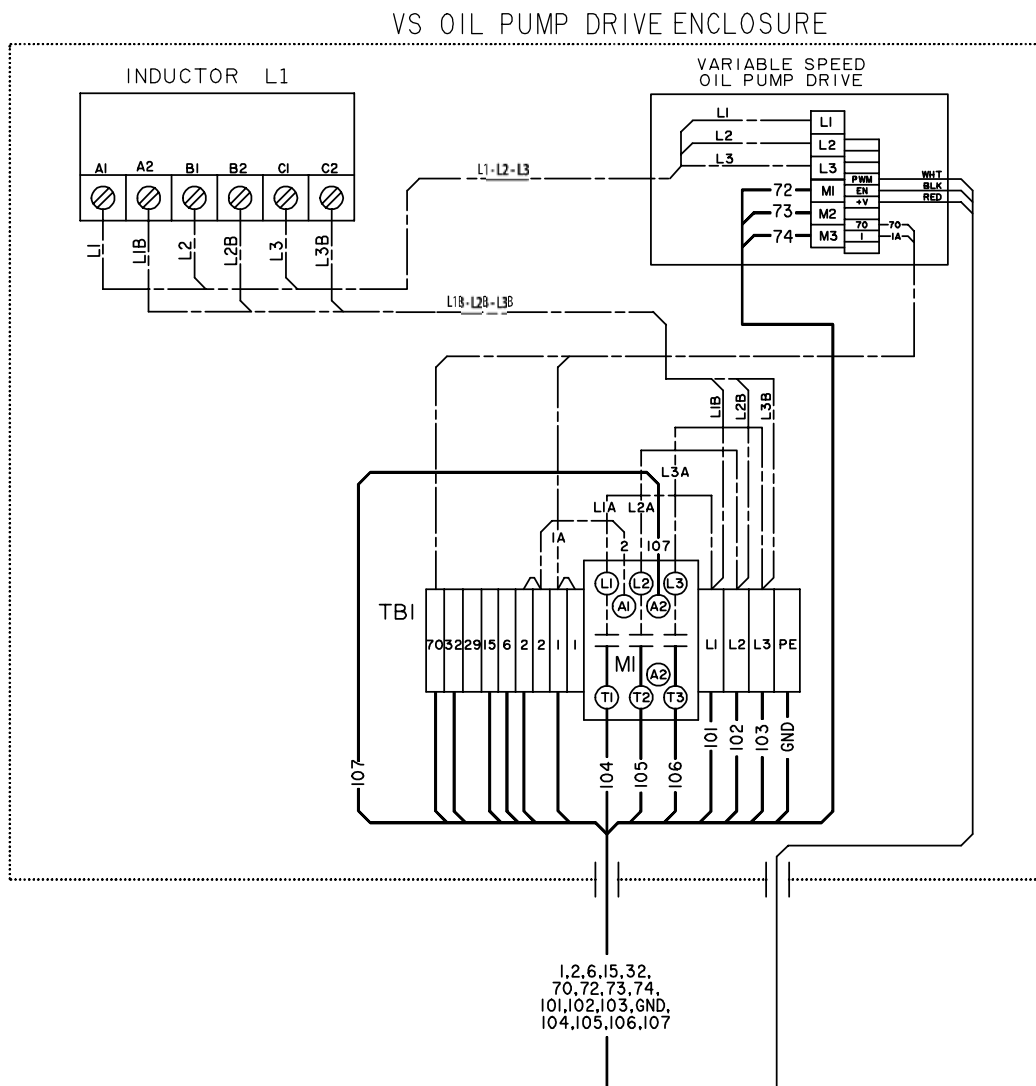


Figure 1 – Line Inductor Wiring

Problem #2

If the power fluctuations are extreme, and the chiller shutdown on “OIL VARIABLE SPEED PUMP - DRIVE CONTACTS OPEN” or “OIL PUMP DRIVE – AUTOSTART”, then the VSOPD may have failed. Typically, the symptom of this failure is open fuses for the VSOPD, or the shutdown will not clear from the panel.

Solution#2

A new service replacement kit is available that includes the line inductor, and the VSOPD in one service replacement kit. The service replacement kit now contains all material required to replace a failed drive, and install the line inductor.

The part numbers for the new drive replacement service kits are:

230 VAC replacement kit - 371-04113-101

460 VAC replacement kit - 371-04113-102

Problem #3

On rare occasions when the VSOPD has failed, and the inductor was installed. Only the replacement of the VSOPD is required.

Solution #3

The part numbers for the drive service replacement kits are:

230 VAC replacement kit – 024-30468-001

460 VAC replacement kit – 024-30468-002