



Technical Bulletin (TB-0015)

Replacement of INT 69/70 and PTC Oil Sensor

August 2010

BACKGROUND

In 2008, the OLC-K1 was introduced to monitor the oil level of a compressor that used a centrifugal disk instead of a pump. The OLC-K1 is a relay switch powered by 120/230V power that closed when the optical eye verified oil.

The previous version used a PTC oil sensor that required a separate module (INT69/70) to open or close the control circuit. When the sensor saw oil, the temperature was not sufficient to raise the PTC resistance above its rated response. With power to the module, this closed the relay on the INT 69/70. The INT 69/70 was also used to monitor the motor temperature.

Furthermore, the port on the compressor where the sensor is located changed threads from 1/2" NPT to M20 in October 2008. (Serial number xx750xxxxx; 749 is September 2008; 751 is November 2008, etc).

PURPOSE / SCOPE

This document sums up the new part numbers and wiring changes necessary to convert from the old version to the new OLC-K1. If a replacement compressor is ordered, then the new compressor will have different threads (M20) than the original compressor (1/2" NPT). This prevents using the old sensor and module unless the bearing cap is switched.

If a failure occurs with the INT69/70 or PTC Oil sensor, then replacement is possible by using the OLC-K1 with NPT threads. All of the wiring instructions will still be the same.

INFORMATION – PART NUMBERS

Pre-2008 Parts:

PTC Oil sensor:



347333-01 (1/2" NPT thread, 4 wires leading away)

INT 69/70 Module:



347018-01 (24VAC, 9 terminals, 5 wires leading away)

Transformer: TA281321 (50VA, 208/230 > 24V)

Pre-2008 Kits:

347334-01 : INT/Sensor (included 347333-01 and 347018-01)

347334-01KIT : INT/sensor/Transformer (included 347333-01, 347018-01, TA81321, shielded wire)

Current Version Parts:

Oil sensor:

347318-07 (M20 thread, 120V)



347318-06 (M20 thread, 240V)

347318-07-NPT (1/2" NPT thread, 120V)

347318-06-NPT (1/2" NPT thread, 240V)

SE-B3 Module:



347035-01 (120V/230V, 7 terminals, 2 wires leading away)



Current Version Replacement Kits:

If replacing a failed PTC oil sensor or INT 69/70 order:

999-0115-01: SE-B3 / 115V sensor (includes 347035-01 and 347318-07-NPT)

OR

999-0230-01: SE-B3 / 230V sensor (includes 347035-01 and 347318-06-NPT)

If replacing compressor and PTC oil sensor or INT 69/70 order:

347035-01-KIT: SE-B3 (includes 347035-01 and spade connectors for M1 and M2.

AND

347318-06 OR 347318-07

WIRING INSTRUCTIONS (Ref. Section 5 -- Wiring Diagram)

DANGER OF ELECTROCUTION! -- ALL WORK TO BE PERFORMED BY A TRAINED PROFESSIONAL.

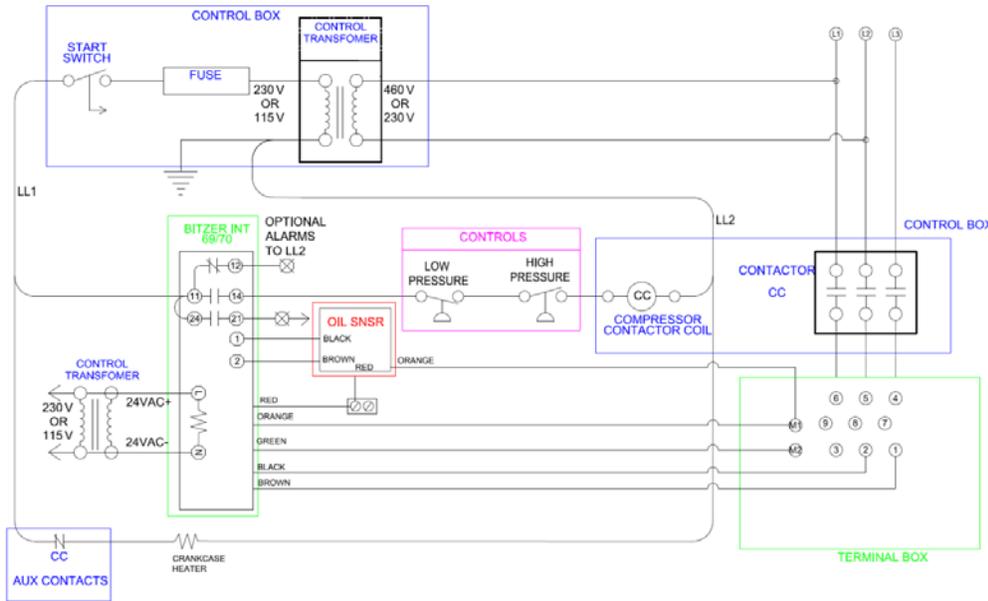
ATTENTION:

WIRING SCHEMATICS ARE DIFFERENT FOR EVERY SYSTEM. THESE DRAWINGS ARE PROVIDED ONLY FOR REFERENCE AND MAY NOT ALWAYS BE USED LITERALLY. CONSULT SYSTEM MANUFACTURER OR OTHER QUALIFIED SYSTEM ENGINEER IF UNSURE OF REWIRING.

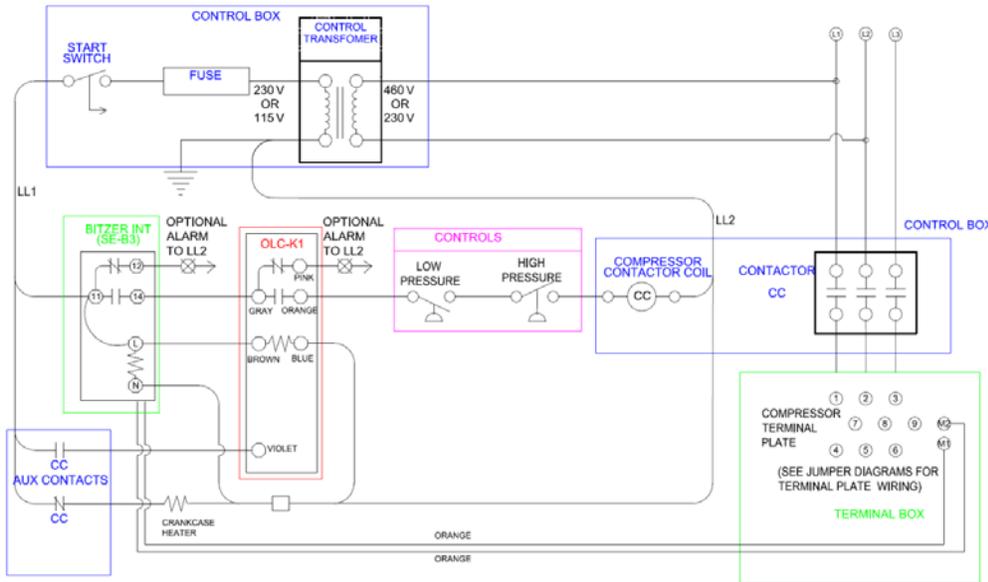
1. Make sure compressor is properly evacuated and all power is shut off to the compressor.
2. Remove the oil sensor and each of the wires (red, black, brown and orange) completely from inside the terminal box.
3. Remove INT 69/70.
 - a. Label wires from the terminals 11, 12, 14, 21, L, and N. as they are removed.
Note: The 24VAC wiring (L, N) may be re-used later if wiring is sufficient for control voltage (120 or 230).
 - b. Remove the red, black, brown, orange, and green wires (they will not be used).
4. Remove the wires from 24VAC XFMR (located in terminal box). Label the wires according to their terminals (24VAC+ and 24VAC-) and close off with wire nuts. If the XFMR is not used to power anything else then it can be removed completely.
5. Install the OLC-K1. Verify the threads are correct (M20 w/ metal gasket or NPT tapered pipe threads). Install two pieces separately. Run wire to terminal box.
6. Install the SE-B3 in terminal box.
7. Replace wires as follow:
 - a. #11 Wire from INT 69/70 → SE-B3 Terminal #11 (To compressor control LL1)
 - b. #12 Wire from INT 69/70 → SE-B3 Terminal #12 (To *optional* compressor high temp alarm)
 - c. #14 Wire from INT 69/70 → Orange wire OLC-K1 (wire nut) (To HPC common)
 - d. #21 Wire from INT 69/70 → Pink wire OLC-K1 (wire nut) (To *optional* oil fail alarm)
 - e. Install a jumper from SE-B3 #11 to SE-B3 "L"
 - f. Install Brown wire OLC-K1 into SE-B3 terminal #11
 - g. Install Gray wire OLC-K1 into SE-B3 terminal #14
 - h. Install the two orange wires leading out of the SE-B3 into M1 and M2 (use terminal spade connectors provided on the M1 and M2 leads).
 - i. The crankcase heater should have two wires; one from normally closed aux. compressor contactor and the other to the common group (LL2). Take the wire from the common and tie it together with the Blue wire from the OLC-K1. Also include with this wire nut a third wire that leads to the SE-B3 terminal N.
 - j. Install a power wire (LL1) to the N.O. on compressor contactor auxiliary (install jumper wire from N.O. compressor contactor aux #1 to "common" on compressor contactor aux. #2).
 - k. Install a wire from the other side of the aux contacts to the violet wire OLC-K1.
**Instead of running new wire from the control box to the compressor terminal box, it may be possible to use the 24VAC wires that already exist if the wire gauge is the proper size.
 - i. Take L wire from INT69/70 and connect with Violet wire OLC-K1 (wire nut).
 - ii. The N wire from INT69/70 is not used. (close off with wire nut).
 - iii. Install the other end of the L wire (should be labeled 24VAC+) into the other side of the normally open aux contacts.

WIRING DIAGRAMS:

INT 69/70 with PTC Oil Sensor



Using the OLC/K1 and SE-B3



***THERMOSTAT CONTROL, LIQUID LINE SOLENOIDS, JNLOADERS AND OTHER POSSIBLE COMPONENTS ARE NOT SHOWN.

ADDITIONAL INFORMATION AVAILABLE:

- KT-180 – Optical oil level sensor OLC-K1 technical information
- KT-181 – INT 69/70 control module technical information
- KT-122 – SE-B3 control module technical information
- TB-0005 – Technical Bulletin on SE-B3
- TB-0006 – Technical Bulletin on OLC-K1

REVISION HISTORY:

- Released 8/26/2010
- Revised 2: 12/15/2011 JDS (updated wiring)
- Revised 3: 6/01/2011 JDS (update incorrect OLC-K1 part numbers / voltages)