

# Installation Instructions for L971 Series Crankcase Level Switch



Please read the following information before installing. A visual inspection of this product for damage during shipping is recommended before mounting. It is your responsibility to have a qualified person install this unit and make sure it conforms to local codes.

## GENERAL INFORMATION

# WARNING

**BEFORE BEGINNING INSTALLATION OF THIS MURPHY PRODUCT**

- ✓ Disconnect all electrical power to the machine.
- ✓ Make sure the machine cannot operate during installation.
- ✓ Follow all safety warnings of the machine manufacturer.
- ✓ Read and follow all installation instructions.



## Description

The Murphy L971 Series Level Switch detects low oil level in a compressor's crankcase. It is designed for Ingersoll-Rand Type 30, Type 40 and ESH compressors, yet can be adapted to fit other compressors that have an inspection plate extending below normal operating oil level. The L971 has a 1/2 NPT process connection and features an explosion-proof enclosure, durable SPDT snap-switch and rigid polyurethane foam float.

## Specifications

**Operating Temperature:** -15 to 275°F (-26 to 135°C).

**Maximum Working Pressure:** 30 psi (206 kPa) [2.06 bar].

**Switch Rating:** 4 A @ 250 VAC.

### Material

Case: *Aluminum (explosion-proof).*

Mounting Adaptor: *Brass.*

Floats:

- *Rigid polyurethane.*
- *304 stainless steel (L971-C only).*

Other Wetted Parts: *303, 304, and 316 stainless steel.*

O-Ring Seals: *Viton and Buna.*

**Process Connection:** 1/2 NPT.

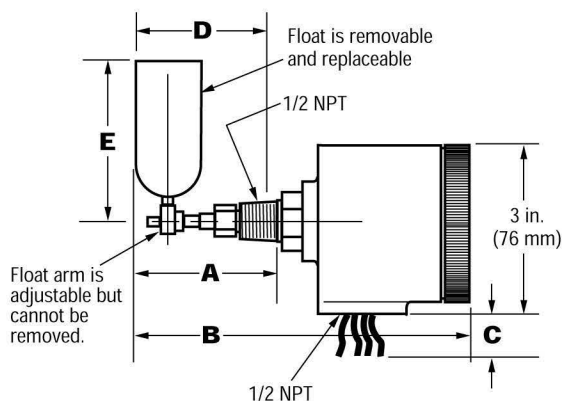
**Hazardous Location Rating:** UL and CSA listed for Class I, Groups C & D; Class II, Groups F & G.

**Enclosure Type / Ingress Protection Rating:** IP66 per IEC 60529

**Conduit Connection:** 1/2 NPT.

**Wire:** 18 AWG (0.75 mm<sup>2</sup>).

## Dimensions



Models	Dimensions in inches* (see drawing above)				
	A	B	C	D	E
L971	2-5/8 (67)	5-7/8 (149)	30 (762)	2-1/2 (64)	2-27/32 (72)
L971-A	2-5/8 (67)	5-7/8 (149)	30 (762)	2-1/2 (64)	2-27/32 (72)
L971-B	4-13/16 (122)	8-1/16 (205)	30 (762)	4-5/8 (117)	2-27/32 (72)
L971-C	2-13/16 (71)	6-1/16 (154)	30 (762)	2-7/8 (73)	3-1/8 (79)
L971-D	3-7/8 (98)	7-1/8 (181)	30 (762)	3-3/4 (95)	2-27/32 (72)
L971-E	4-13/16 (122)	8-1/16 (205)	30 (762)	5-1/8 (130)	2-27/32 (72)
L971-F	2-5/8 (67)	5-7/8 (149)	40 (1016)	2-1/2 (64)	2-27/32 (72)
L971-G	2-5/8 (67)	5-7/8 (149)	40 (1016)	2-1/2 (64)	2-27/32 (72)

\*Millimeter dimensions are shown in parenthesis ( ).

## Warranty

A limited warranty on materials and workmanship is given with this Murphy product. A copy of the warranty may be viewed or printed by going to [www.fwmurphy.com/support/warranty.htm](http://www.fwmurphy.com/support/warranty.htm)

## INSTALLATION

### Compressors With Inspection Plate

1. Drain crankcase.
2. Remove crankcase inspection plate (Figure 1).
3. Drill and tap a 1/2 NPT female pipe thread into the inspection plate at point "A" (Figure 2). **CAUTION: Clean area of metal shavings.** The hole is to be a minimum of 2 in. (51 mm) below normal running oil level (Figure 3).

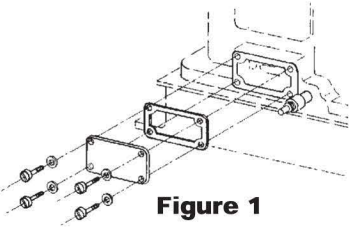


Figure 1

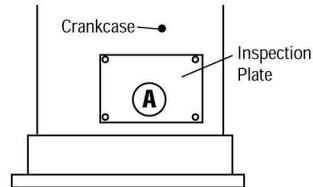


Figure 2

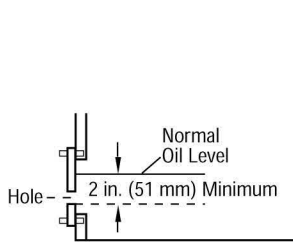


Figure 3

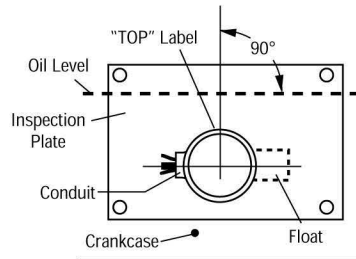


Figure 4

4. Unscrew and remove float on the L971 switch.
5. Apply pipe dope to the process connection threads.
6. Thread the L971 switch into crankcase hole until "TOP" label is up (Figure 4). Be sure the float moves freely and there are no obstructions.
7. If adjustment of shutdown level is required, loosen hex set screw on float attachment. Rotate float attachment to desired level. Retighten set screw.
8. Replace float and reinstall inspection plate and gasket in original position.
9. Install drain plug.
10. Wire accordingly.
11. Fill crankcase to proper level.

### Compressors Without Inspection Plate

1. If installing into a thick wall crankcase, drill and tap a 1/2 NPT female pipe thread into the crankcase. **CAUTION: Clean area of metal shavings.** The hole is to be a minimum of 2 in. (51 mm) below normal running oil level (Figure 3).

If installing into a thin wall crankcase, drill a hole in the crankcase slightly larger than outside diameter of a 1/2 in. coupling. The hole is to be a minimum of 2 in. (51 mm) below normal running oil level (Figure 3). **CAUTION: Clean area of metal shavings.** Weld a half collar (1/2 NPT) into the hole.

2. Follow steps 4 thru 11 above.

**ENOVATION CONTROLS CORPORATE HEADQUARTERS**  
5311 S 122ND EAST AVENUE  
TULSA, OK 74146

**ENOVATION CONTROLS – SAN ANTONIO OFFICE**  
5757 FARINON DRIVE  
SAN ANTONIO, TX 78249

**ENOVATION CONTROLS – HOUSTON OFFICE**  
105 RANDON DYER RD  
ROSENBERG, TX 77471

**ENOVATION CONTROLS LTD. – UNITED KINGDOM**  
CHURCH ROAD LAVERSTOCK  
SALISBURY SP1 1QZ UK

**MURPHY ECONTROLS TECHNOLOGIES (HANGZHOU) CO. LTD.**  
77 23RD STREET  
HANGZHOU ECONOMIC & TECHNOLOGICAL DEVELOPMENT AREA  
HANGZHOU, ZHEJIANG 310018 CHINA

#### DOMESTIC SALES & SUPPORT

**ECONTROLS PRODUCTS**  
PHONE: 210 495 9772  
FAX: 210 495 9791  
EMAIL: INFO@ECONTROLS.COM  
WWW.ECONTROLS.COM

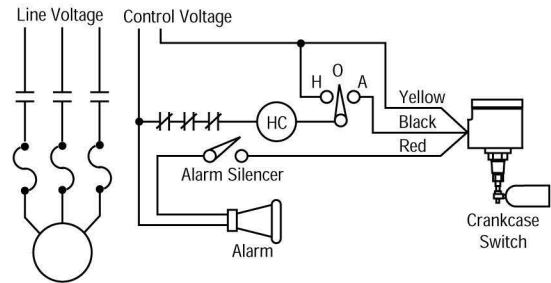
**MURPHY PRODUCTS**  
PHONE: 918 317 4100  
FAX: 918 317 4286  
EMAIL: SALES@FWMURPHY.COM  
WWW.FWMURPHY.COM

**MURPHY CONTROL SYSTEMS & SERVICES**  
PHONE: 281 633 4500  
FAX: 281 633 4588  
EMAIL: CSS-SOLUTIONS@FWMURPHY.COM

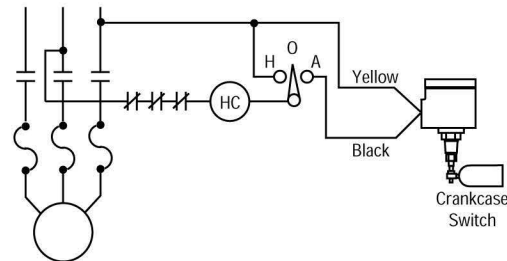
**MURPHY INDUSTRIAL PANEL DIVISION**  
PHONE: 918 317 4100  
FAX: 918 317 4124  
EMAIL: IPDSALES@FWMURPHY.COM

## TYPICAL WIRING

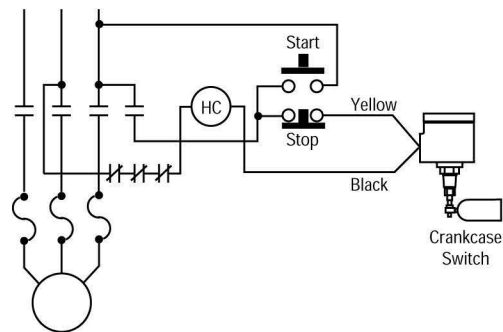
### Shutdown and Alarm Circuit



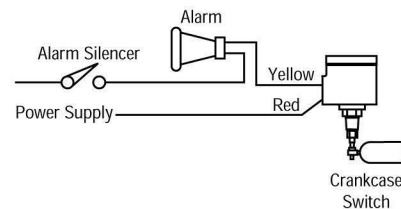
### Shutdown Circuit for H.O.A. Operation



### Shutdown Circuit for Start-Stop Push-button Operation



### Alarm Without Shutdown Circuit



## REPLACEMENT PARTS

Description	Part Number	Description	Part Number
Cover	15050443	Float	
Cover Gasket	15050369	Polyurethane	15050679
Snap-switch	00002326	Stainless Steel	15050356

#### INTERNATIONAL SALES & SUPPORT

**UNITED KINGDOM**  
PHONE: +44 1722 410055  
FAX: +44 1722 410088  
EMAIL: SALES@ENOVATIONCONTROLS.EU  
WWW.FWMURPHY.EU

**CHINA**  
PHONE: +86 21 6237 5885  
FAX: +86 21 6237 5887  
EMAIL: APSALES@FWMURPHY.COM

**LATIN AMERICA & CARIBBEAN**  
PHONE: 918 317 2500  
EMAIL: LASALES@FWMURPHY.COM

**SOUTH KOREA**  
PHONE: +82 70 7951 4100  
EMAIL: SKOREASALES@FWMURPHY.COM

**INDIA**  
PHONE: +91 91581 37633  
EMAIL: INDIALES@FWMURPHY.COM

**ISO 9001**  
REGISTERED



USA (TULSA) - ISO 9001:2008 FM 28221  
USA (ROSENBERG) - ISO 9001:2008 FM 28221  
UK - ISO 9001:2008 FM 29422  
CHINA - ISO 9001:2008 FM 523851  
Registered Facilities

Printed in the USA