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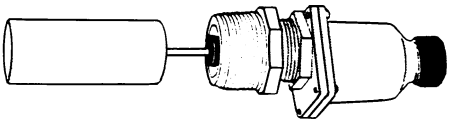
# LV-1201, LV-1202, LV-1203

**Non-Magnetic, Side Mount**
**Liquid Level Switches**



INSTRUCTION SHEET

**M0776/0104**

## 1. GENERAL DESCRIPTION

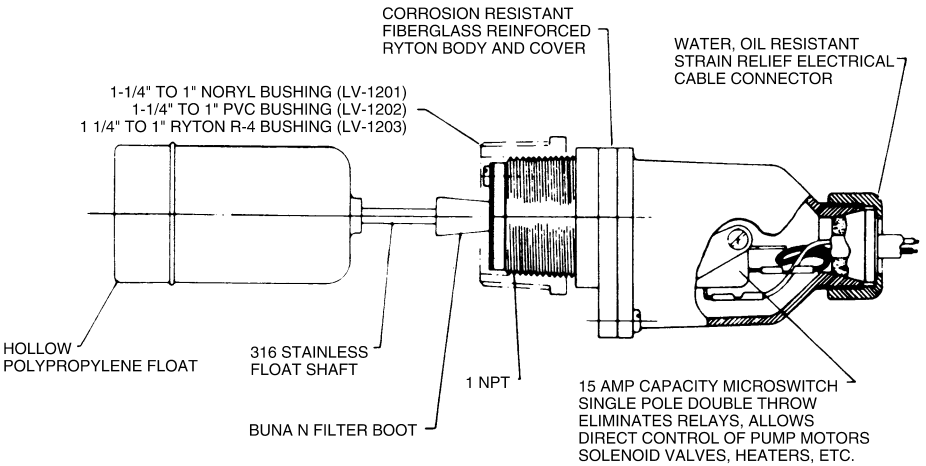
The OMEGA® LV-1200 Series Switches feature a non-magnetic design suitable for application where magnetic particles (ie: rust) are present. The LV-1200 Series features a plastic and 316 SS construction, or a Hastelloy C construction for more corrosive applications.

The LV-1200 Series can be used in highly particle contaminated liquids such as sewage, machine cutting oils and medium slurries under conditions of crystallization liquid surface, drying-caking at liquid-air interference, and scum formations.

With the LV-1200 Series, particle contamination resistance is provided by a flexible filter boot which prevents crystallization, caking, heavy dirt concentration, slurries, scum, etc, from affecting the operation of the unit.

**FEATURES**

- Rugged Industrial Design
- Non-Magnetic Design Suitable for Rusty Enviromnents;
- 15A SPDT Switch Directly Controls Pump



## SPECIFICATIONS FOR MODELS LV-1201, & LV-1202

- **Model LV-1201 (NORYL® PPO)**

  For use in water, acids, bases, inorganic solutions, sewage, contaminated water

- **Wetted Surfaces**

  Noryl® Engineering Plastic (PPO), 316 SS Stainless Steel, Hypalon®

- **Nominal Working Temperature & Pressure**

| | | |
|---|---|---|
| Temperature (°F) | 200 | Max. |
| Pressure (PSIG) | 75 | Operating |
| | 100 | Max. Non-Operating |

- **LV-1202 (FORTRON®PPS) (Broad Chemical Spectrum)**

  For use in acids, bases, inorganic solutions, alcohols ketones, chlorinated organics, esters, ether, hydrocarbons, nitrites, phenols

- **Wetted Surfaces**

  Fortron® Engineering Plastic (PPO), 316 SS Stainless Steel, Viton®

- **Nominal Working Temperature & Pressure**

| | | |
|---|---|---|
| Temperature (°F) | 200 | Max. |
| Pressure (PSIG) | 75 | Max. Operating |
| | 100 | Max. Non-Operating |

- **Working Fluid Spec. Gravity**

| | |
|---|---|
| Model 1201 | 0.6 Min. |
| Model 1202 | 0.7 Min. |
| Model 1203 | 0.7 Min. |

- **Electrical Switch Characteristics**

  SPDT UL and CSA listed
  15 AMP @ 1/2 HP: 125/250 Vac
  1/2 AMP @ 125 Vdc, 1/4 AMP @ 250 Vdc
  5 AMP 125 Vac (Tungsten Lamp Load)
  10,000,000 Operation Median.

## II. SPECIFICATIONS FOR MODELS LV-11201, & LV-1202 con't

- **SPDT-Dry Circuit**

  Gold Cross bar Contacts for Computer/ PLC Interfaces
  1.0 AMP or less 5-24 Vac/Dc (UL & CSA Listed)

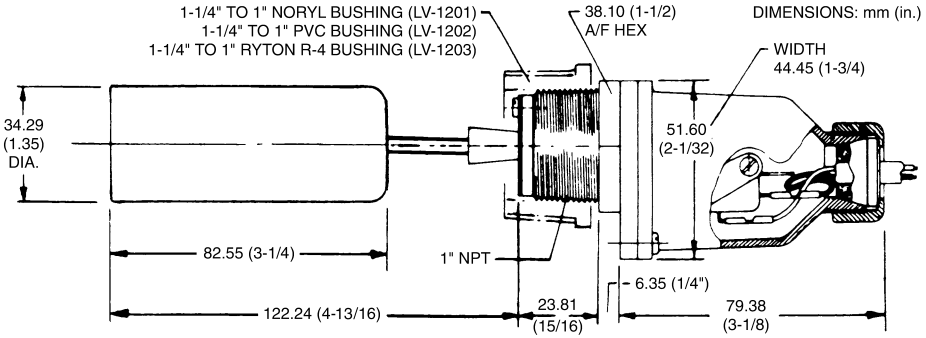
- **Liquid Level Change to Activate Switch:**

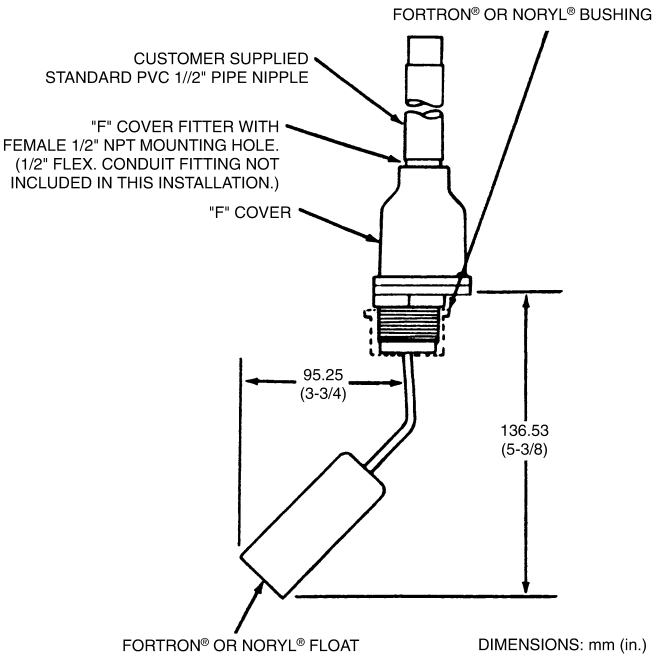
  -6.35 mm (-1/4") All Models

- **Weight:**

  0.22 kg. (1/2 lb) All Models

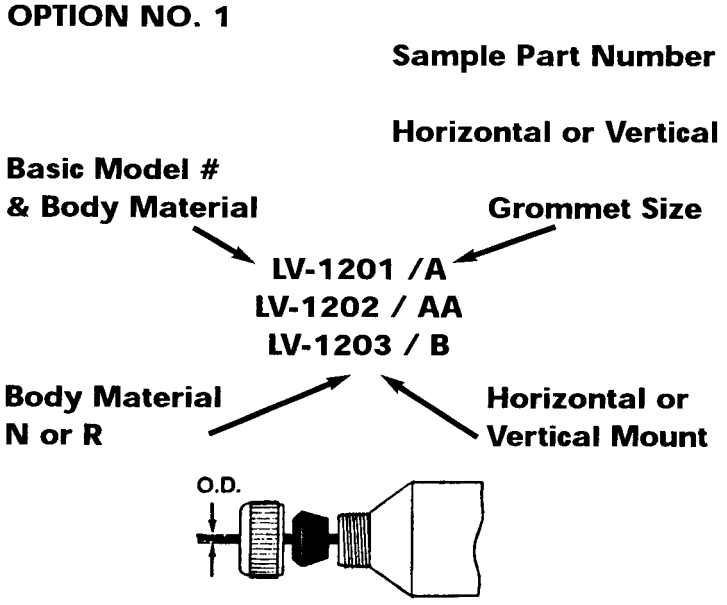
- **INSTALLATION DIMENSIONS**



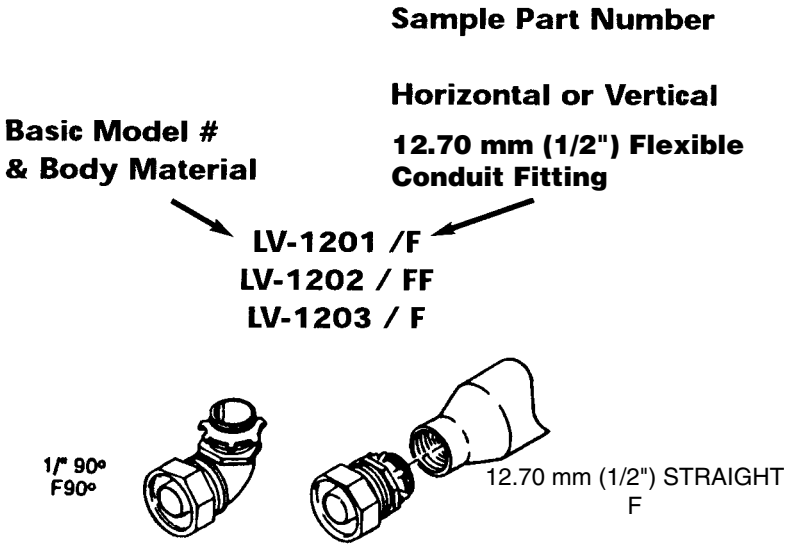
## III. INPUT POWER CABLE INTERFACE OPTIONS

### OPTION NO. 1




| GROMMET SIZE | CABLE O. D. | GROMMET SIZE | CABLE O. D. |
|---|---|---|---|
| A | 6.35 mm (0.25 in.) | B | 9.40 mm (0.37 in.) |
| AA | 7.62 mm (0.30 in.) | C | 12.70 mm (0.50 in.) |

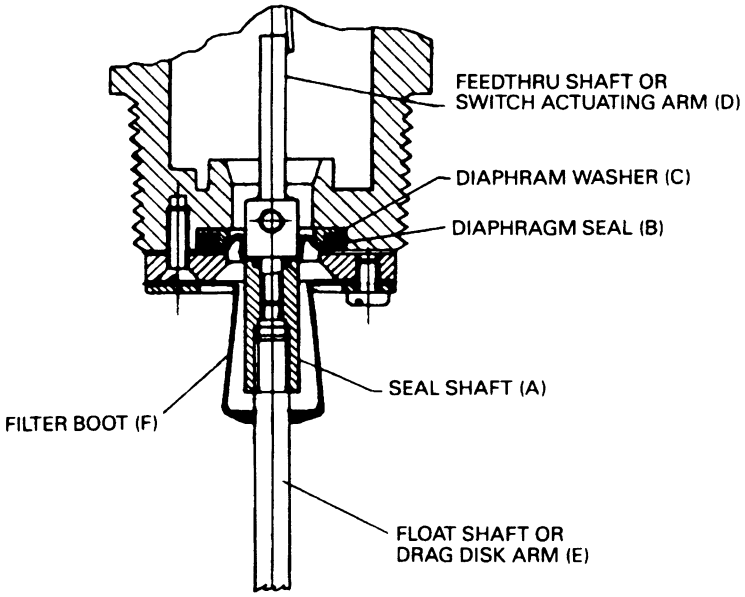
### OPTION NO. 2



# ASSEMBLY WARNING

**THE LV-1200 SERIES EMPLOY AN EXTERNAL SEAL SHAFT (A), A FLEXIBLE ELASTOMER DIAPHRAGM SEAL (B), AND AN INTERNAL FEED THRU SHAFT OR SWITCH ACTUATING ARM (D) - REFER TO DIAGRAM BELOW. ALL THREE ELEMENTS ARE ASSEMBLED AND LOCKED IN PLACE WITH LOCTITE ADHESIVE. TO PREVENT RUPTURE OF SEAL AND LEAKAGE INTO SWITCH AREA, IT IS CRITICALLY IMPORTANT THAT TORQUE NOT BE APPLIED TO SEAL SHAFT (A), FLOAT SHAFT (E) OR DRAG DISK ARM (E), DURING CHANGE OF FLOAT OR DISK DRAG.**

**IF FLOAT SHAFT OR DRAG DISK ARM (E) REQUIRE REPLACEMENT, IT IS NECESSARY TO REMOVE FILTER BOOT (F). SEAL SHAFT (A) MUST THEN BE HELD FIRMLY IN A VISE OR WITH PLIERS WHILE (E) IS THREADED AND A NEW SHAFT IS ASSEMBLED.**




**NOTE**

LV-1200 Series are NOT explosion-proof devices.

## IV. INSTALLATION AND OPERATION

The LV-1200 Series Liquid Level Switch is for side-mounting ONLY. It is supplied with a 1½" or 1¼" x 1" bushing (Noryl®, Model LV-1201; PVC, Model LV-1202, and Ryton R-4 for Model LV-1203) threaded in place with 2 to 3 wraps of Teflon® tape, which must be intact or renewed if the bushing and switch are separated before assembly in tank. Care must be exercised when threading the bushing into plastic or metal fittings. Apply a minimum of 2 to a maximum of 3 wraps of Teflon tape to the threads of the bushing. This is especially important if the unit is to be used in metal fittings where coarse metal threads could gall plastic if not lubricated. The plastic bushing **CAN BE CRACKED** if the main body of the level switch is tightened into it **FIRST**. Cracking will not occur if the bushing is **FIRST** tightened into the pipe or tank fitting and **THEN** the LV-1200 body is tightened into the bushing.

**Therefore:**

**Step 1.** Teflon tape thread and tighten plastic bushing into pipe or tank fitting.

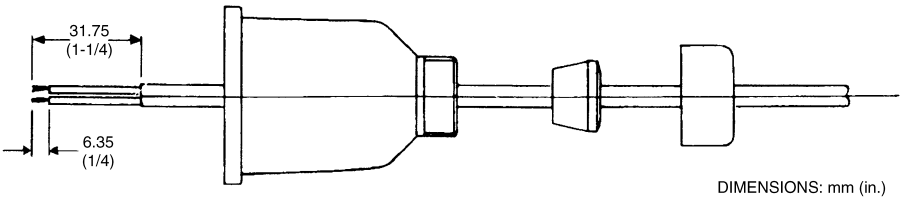
**Step 2.** Teflon tape thread and tighten the LV-1200 Switch into plastic bushing by applying wrench to hexagon section. Repeat steps 1 and 2 until arrow on the body points UPWARD and the threads are leak tight.

**NOTE**

Plumbers tools such as pipe wrenches are not recommended if possible, use a "Rigid" type wrench where the smooth jaws closely fit the hexagon section.

## V. ELECTRICAL WIRING

1. Remove the gland nut, grommet and switch cover
2. Strip the outer jacket of the electrical cord back approximately 32 mm (1¼"). Strip the insulation from the individual conductors back approximately 6 mm (¼").
3. Slip on terminals are supplied with each switch. Remove them from the switch terminals and crimp on or solder to the electrical leads.
4. Feed the electrical cable through the gland nut, grommet and switch cover as shown below.




DIMENSIONS: mm (in.)

## V. ELECTRICAL WIRING Con't

5. Apply slip on terminals to appropriate contacts of the microswitch.
6. Slide the cover down the cable and fasten it to the body of the switch with the 4 screws provided.
7. Slide the grommet down the cable until the outer jacket is level with the small end of the grommet and then push the grommet into the tapered end of the cover.
8. Hold the cable jacket to prevent rotation and thread the gland nut firmly onto the cover.

**Figure 1:** Wiring Schematic for power applied to the load when the liquid level is less than the set point (power to the load is interrupted when the level increases to above the set point.)

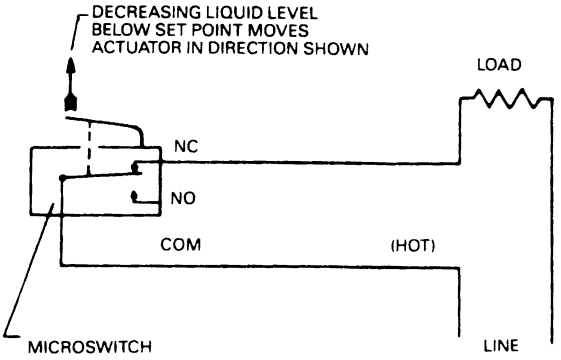
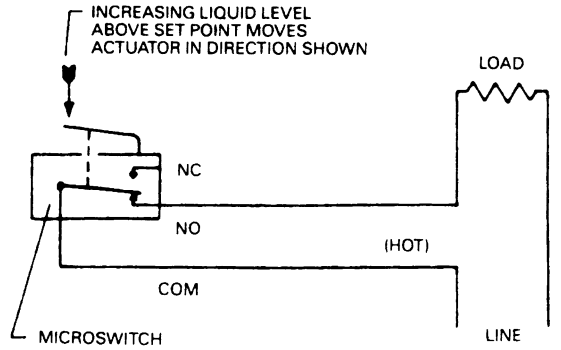
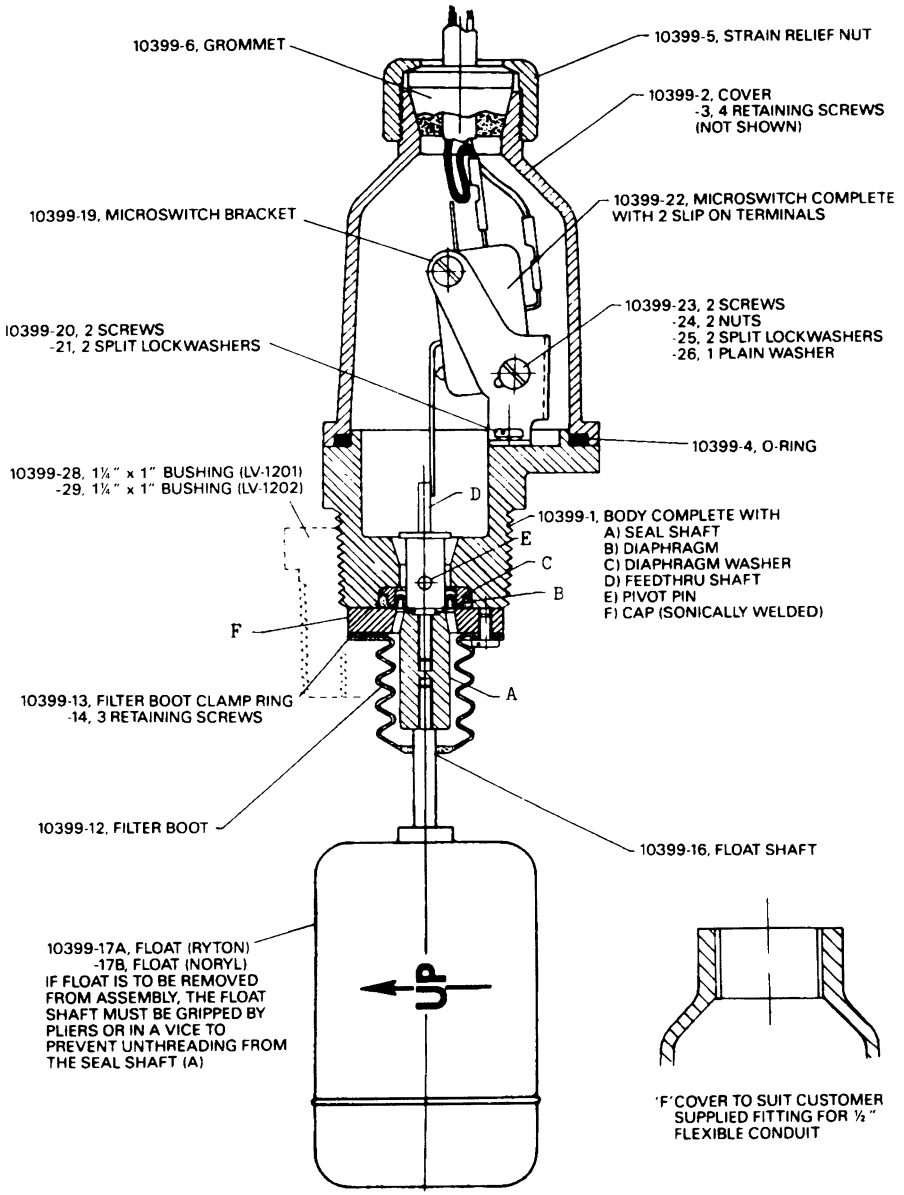



**Figure 2:** Wiring Schematic for power applied to the load when the liquid level is greater than the set point (power to the load is interrupted when the level decreases to above the set point.)

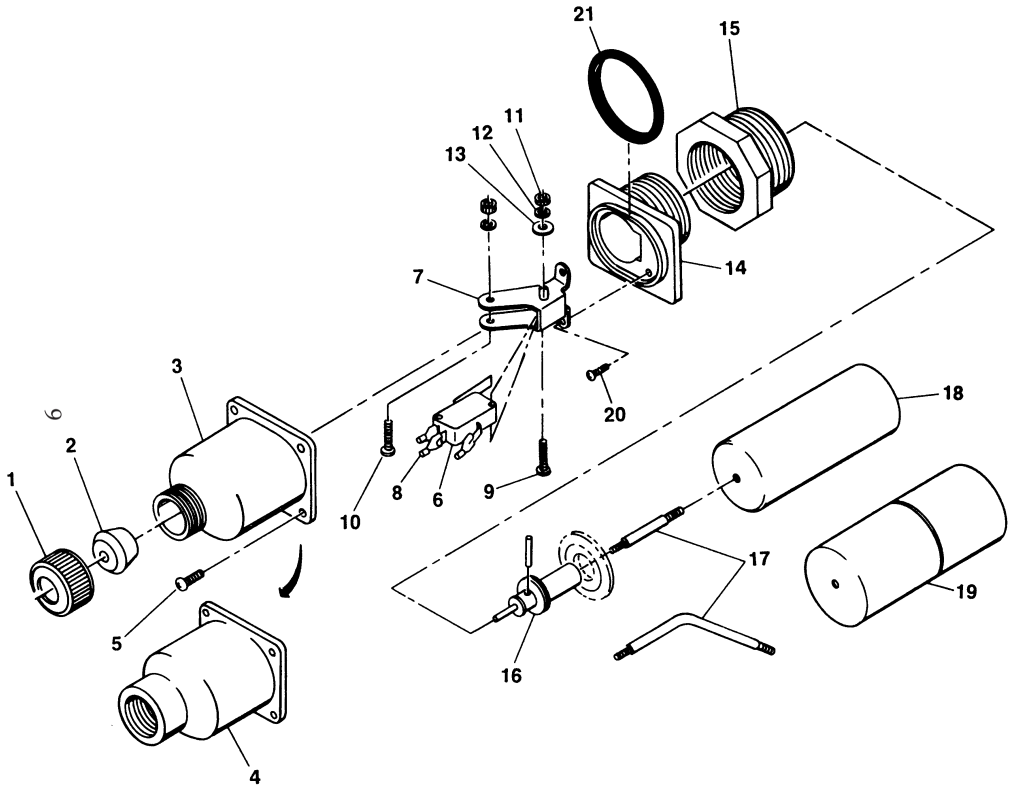



Microswitch actuation point may be monitored by an audible click or with an OHM meter before connecting the line power to the terminal strip or by monitoring the voltage supplied to the load through the microswitch.

# LV-1201 AND LV-1202 PARTS LIST DIAGRAM



# LV-1201 PARTS LIST DIAGRAM



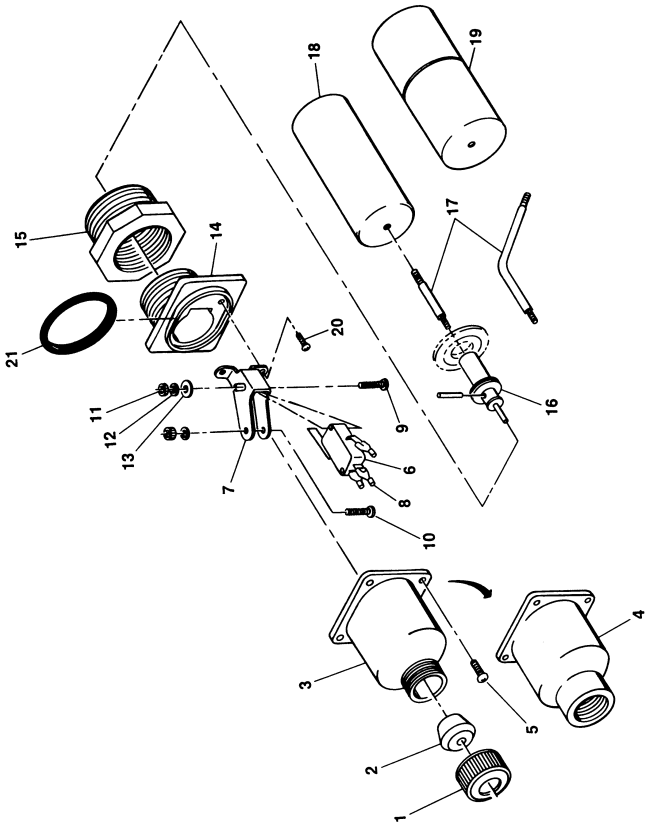

LV-1201

| NO. | PART NAME | | | QTY | PART NO. |
|---|---|---|---|---|---|
| 1 | STRAIN RELIEF NUT | | | (1) | 60127 |
| 2 | GROMMET | # A | (Optional) | (1) | 10440 |
| | | #AA | (Optional) | (1) | 10441 |
| | | # B | (Optional) | (1) | 10442 |
| | | # C | (Optional) | (1) | 10443 |
| 3 | COVER (Male) | | (Optional) | (1) | 60125 |
| 4 | COVER (Female) | | (Optional) | (1) | 60126 |
| 5 | SCREW | | | (4) | 109-S |
| 6 | MICROSWITCH | | | (1) | 20103 |
| 7 | BRACKETS | | | (1) | 65401 |
| 8 | TERMINALS | | | (3) | 706-T |
| 9 | SCREW | | | (1) | 133-S |
| 10 | SCREW | | | (1) | 116-S |
| 11 | NUT | | | (2) | 219-N |
| 12 | WASHER | | | (2) | 311-W |
| 13 | WASHER | | | (2) | 301-W |
| 14 | BODY (Assembly Only) | | | (1) | 65203 |
| | CLAMP RING (Sonically Welded) | | | (1) | 65102 |
| 15 | BUSHING REDUCER | | (Optional) | (1) | 65204 |
| | BUSHING REDUCER | | (Optional) | (1) | 65205 |
| 16 | FEED THRU SHAFT (Assembly Only) | | | (1) | 65103 |
| | A) Seal Shaft | | | (1) | 65104 |
| | B) Diaphragm | | | (1) | 65105 |
| | C) Diaphragm Washer | | | (1) | 65106 |
| | D) Pivot Pin | | | (1) | 65107 |
| | E) Cross Pin | | | (1) | 65108 |
| 17 | DRAG DISK ARM #2-B | | (Optional) | (1) | 65208 |
| | | #45% | (Optional) | (1) | 65402 |
| 18 | FLOAT (Noryl) | | (Optional) | (1) | 65601 |
| 19 | FLOAT (Polypropylene) | | (Optional) | (1) | 65602 |
| 20 | SCREW | | | (2) | 123-S |
| 21 | O RING | | | (1) | 65110 |

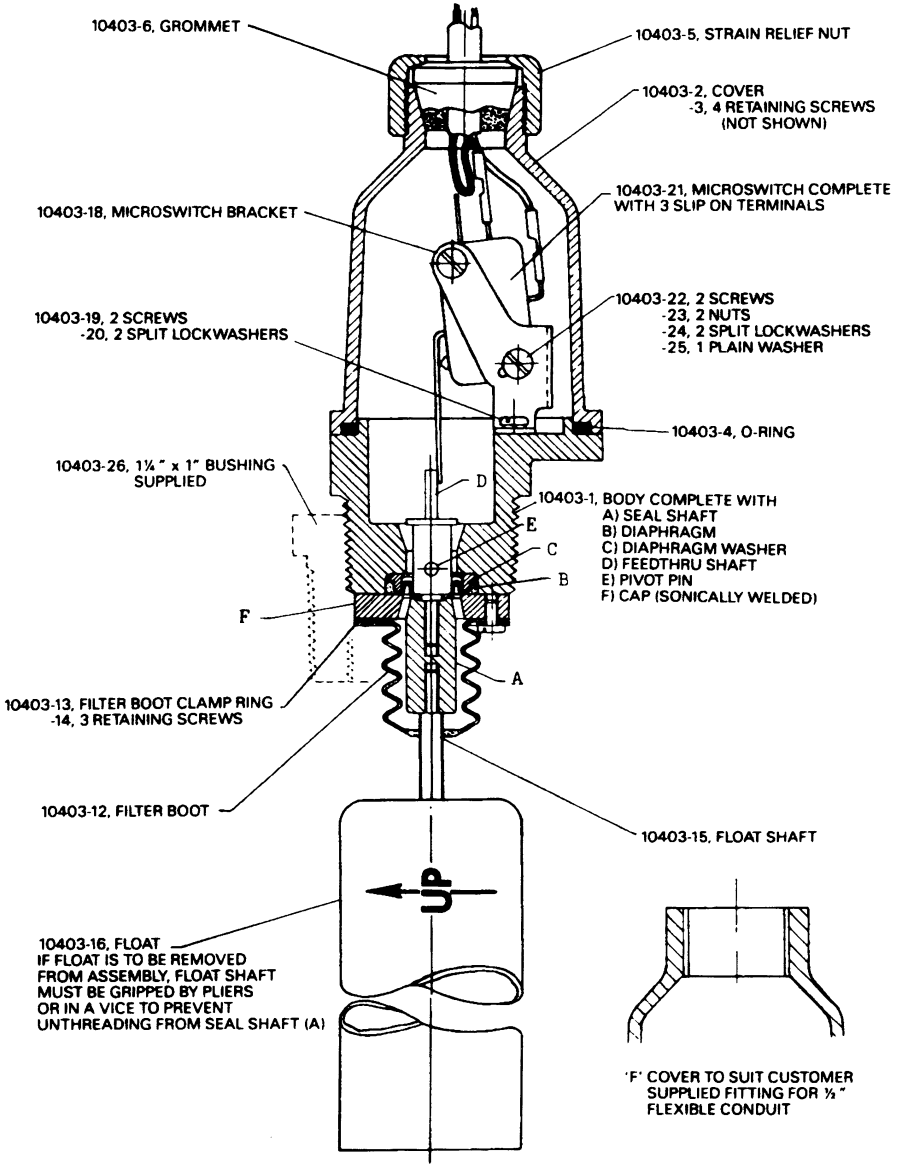
# LV-1202 PARTS LIST DIAGRAM

## LV-1202

| NO. | PART NAME | | QTY. | PART NUMBER |
|---|---|---|---|---|
| 1 | STRAIN RELIEF NUT | | (1) | 65301 |
| 2 | GROMMET | (Optional) | (1) | 10440 |
| | #A | (Optional) | (1) | 10441 |
| | #AA | (Optional) | (1) | 10442 |
| | #B | (Optional) | (1) | 10443 |
| | #C | (Optional) | (1) | 65302 |
| 3 | COVER (Male) | (Optional) | (1) | 65303 |
| 4 | COVER (Female) | (Optional) | (1) | 109-S |
| 5 | SCREW | | (4) | 20103 |
| 6 | MICROSWITCH | | (1) | 65401 |
| 7 | BRACKETS | | (1) | 706-T |
| 8 | TERMINALS | | (3) | 133-S |
| 9 | SCREW | | (1) | 116-S |
| 10 | SCREW | | (1) | 219-N |
| 11 | NUT | | (2) | 311-W |
| 12 | WASHER | | (2) | 301-W |
| 13 | WASHER | | (2) | 65304 |
| 14 | BODY (Assembly Only) | | (1) | 65305 |
| | CLAMP RING (Sonically Welded) | | (1) | 65306 |
| 15 | BUSHING REDUCER | (Optional) | (1) | 65307 |
| | BUSHING REDUCER | (Optional) | (1) | 65103 |
| 16 | FEED THRU SHAFT (Assembly Only) | | (1) | 65104 |
| | A) Seal Shaft | | (1) | 65705 |
| | B) Diaphragm | | (1) | 65306 |
| | C) Diaphragm Washer | | (1) | 65107 |
| | D) Pivot Pin | | (1) | 65108 |
| | E) Cross Pin | | (1) | 65208 |
| 17 | DRAG DISK ARM #2-B | (Optional) | (1) | 65402 |
| | #45% | (Optional) | (1) | 65805 |
| 18 | FLOAT (Ryton) | (Optional) | (1) | 65602 |
| 19 | FLOAT (Polypropylene) | (Optional) | (2) | 123-S |
| 20 | SCREW | | (1) | 65110 |
| 21 | O RING | | | |



# LV-1203 PARTS LIST DIAGRAM



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MADE IN USA

## WARRANTY/DISCLAIMER

OMEGA ENGINEERING, INC. warrants this unit to be free of defects in materials and workmanship for a period of **13 months** from date of purchase. OMEGA's WARRANTY adds an additional one (1) month grace period to the normal **one (1) year product warranty** to cover handling and shipping time. This ensures that OMEGA's customers receive maximum coverage on each product.

If the unit malfunctions, it must be returned to the factory for evaluation. OMEGA's Customer Service Department will issue an Authorized Return (AR) number immediately upon phone or written request. Upon examination by OMEGA, if the unit is found to be defective, it will be repaired or replaced at no charge. OMEGA's WARRANTY does not apply to defects resulting from any action of the purchaser, including but not limited to mishandling, improper interfacing, operation outside of design limits, improper repair, or unauthorized modification. This WARRANTY is VOID if the unit shows evidence of having been tampered with or shows evidence of having been damaged as a result of excessive corrosion; or current, heat, moisture or vibration; improper specification; misapplication; misuse or other operating conditions outside of OMEGA's control. Components which wear are not warranted, including but not limited to contact points, fuses, and triacs.

**OMEGA is pleased to offer suggestions on the use of its various products. However, OMEGA neither assumes responsibility for any omissions or errors nor assumes liability for any damages that result from the use of its products in accordance with information provided by OMEGA, either verbal or written. OMEGA warrants only that the parts manufactured by it will be as specified and free of defects. OMEGA MAKES NO OTHER WARRANTIES OR REPRESENTATIONS OF ANY KIND WHATSOEVER, EXPRESS OR IMPLIED, EXCEPT THAT OF TITLE, AND ALL IMPLIED WARRANTIES INCLUDING ANY WARRANTY OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE HEREBY DISCLAIMED. LIMITATION OF LIABILITY: The remedies of purchaser set forth herein are exclusive, and the total liability of OMEGA with respect to this order, whether based on contract, warranty, negligence, indemnification, strict liability or otherwise, shall not exceed the purchase price of the component upon which liability is based. In no event shall OMEGA be liable for consequential, incidental or special damages.**

CONDITIONS: Equipment sold by OMEGA is not intended to be used, nor shall it be used: (1) as a "Basic Component" under 10 CFR 21 (NRC), used in or with any nuclear installation or activity; or (2) in medical applications or used on humans. Should any Product(s) be used in or with any nuclear installation or activity, medical application, used on humans, or misused in any way, OMEGA assumes no responsibility as set forth in our basic WARRANTY/DISCLAIMER language, and, additionally, purchaser will indemnify OMEGA and hold OMEGA harmless from any liability or damage whatsoever arising out of the use of the Product(s) in such a manner.

## RETURN REQUESTS / INQUIRIES

Direct all warranty and repair requests/inquiries to the OMEGA Customer Service Department. BEFORE RETURNING ANY PRODUCT(S) TO OMEGA, PURCHASER MUST OBTAIN AN AUTHORIZED RETURN (AR) NUMBER FROM OMEGA'S CUSTOMER SERVICE DEPARTMENT (IN ORDER TO AVOID PROCESSING DELAYS). The assigned AR number should then be marked on the outside of the return package and on any correspondence.

The purchaser is responsible for shipping charges, freight, insurance and proper packaging to prevent breakage in transit.

FOR **WARRANTY** RETURNS, please have the following information available BEFORE contacting OMEGA:

1. Purchase Order number under which the product was PURCHASED,
2. Model and serial number of the product under warranty, and
3. Repair instructions and/or specific problems relative to the product.

FOR **NON-WARRANTY** REPAIRS, consult OMEGA for current repair charges. Have the following information available BEFORE contacting OMEGA:

1. Purchase Order number to cover the COST of the repair,
2. Model and serial number of the product, and
3. Repair instructions and/or specific problems relative to the product.

OMEGA's policy is to make running changes, not model changes, whenever an improvement is possible. This affords our customers the latest in technology and engineering.

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