

## Installation Instructions for OP Series Enclosed Switches

ISSUE 2  
PK 88008

### **⚠ WARNING**

#### **PERSONAL INJURY**

DO NOT USE these products as safety or emergency stop devices or in any other application where failure of the product could result in personal injury.

**Failure to comply with these instructions could result in death or serious injury.**

### **GENERAL INFORMATION**

OP switches are used in applications where the splash of oil, water or other liquids might hamper the operation of less-adequately protected switches. A gasket between cover and housing plus an O-ring shaft seal provide the seal for OP switches. OP switches are **NOT** explosion-proof.

Rotary OP's sealed construction provides protection from the entry of dust, water, oil and noncorrosive liquids as defined in NEMA 1, 3, 4 and 13.

Since "Q" plunger actuators are not sealed, it is recommended that the switch be mounted so that liquids will not fall directly on the plunger. These plunger actuators meet NEMA 1 enclosure requirements.

### **INSTALLING THE SWITCH**

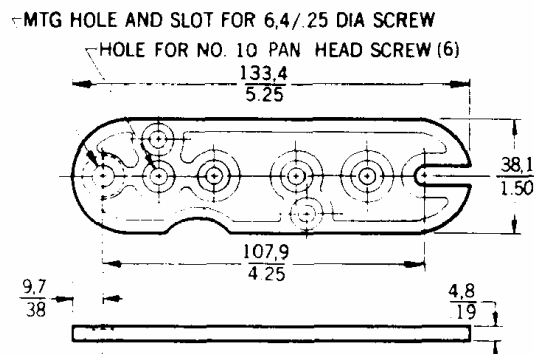
A mounting bracket (15PA85-EX) is furnished at no extra cost with most OP switches. This permits all rotary operated switches to be mounted from top, bottom, back or right end. Plunger switches may be mounted on back, bottom or right end with this standard bracket. For top mounting of plunger switches, bracket 15PA86-EX must be purchased separately.

### **ELECTRICAL RATINGS**

Electrical ratings of OP switches depend on the type of basic switch enclosed in the housing. Ratings are shown on page 2 along with letter keys (A, B, C, D) shown in table of listings on page 3.

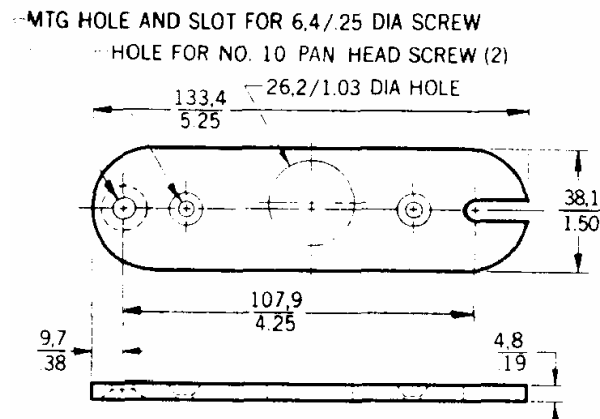
### **15PA85-EX**

Fasten bracket to switch with screws furnished. Bracket may be secured to mounting surface with .250" machine screws.



### **15PA86-EX**

Fasten bracket to top of switch with screws furnished. Bracket may be secured to mounting surface with .250" machine screws.



**ADJUSTING ROLLER ARMS**

The roller lever assembly is adjustable through 360° at any of 1,980 positive lock positions at intervals of approximately 0.2°.

To adjust the roller lever to the desired position, hold the hexagon washer with a wrench and loosen lock nut sufficiently to disengage the serrations. Hold shaft in position by means of the hexagon washer so that no torque will be applied to the internal parts of the unit when the lock nut is tightened or loosened. Failure to do so may result in damage to the enclosed switching mechanism.

Moving lever one serration forward or backward with respect to serrations on fluted washer changes the position of the lever approximately 8.2° (see sketch on page 3).

Moving lever and fluted washer, as a unit, one serration forward or backward with respect to serrations on the hexagon washer changes position of the lever 8°. Moving the lever one serration in one direction, and the lever and fluted washer, as a unit, one serration in the other direction, changes position of the arm approximately 0.2°.

After positioning lever arm, tighten lock nut sufficiently to prevent slippage of arm, but avoid over tightening.

**NOTICE**  
Excessive tightening will also deform the hexagon serrated washer and cause lever assembly to bind.

**STRAIGHT PLUNGER ACTUATION**

**Do not actuate by cams or slides** or by any other device which will impart side thrust to the plunger. Use straight "push" action in the direction of the plunger motion. **Do not oil** this plunger mechanism. Sufficient grease of the proper type is assembled in the plunger during manufacture to last the lifetime of the switch. Additional grease, oil, water or fine abrasive may cause jamming or electrical failure.

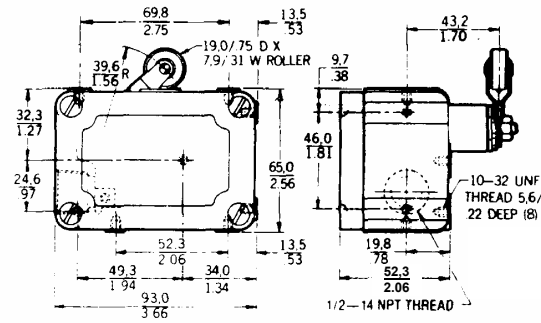
**REPLACING BASIC SWITCH**

1. Observe this notice:

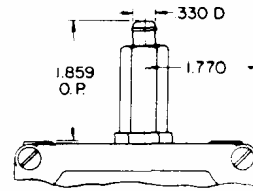
**NOTICE**  
Disconnect power supply circuit before opening switch.

2. Remove cover of housing, disconnect the lead-in wires, loosen screws holding the basic switch, then remove the basic switch.
3. Place replacement switch in the insulator, insert the screws, and place basic switch in the housing.
4. Tighten the screws and connect the lead-in wires.
5. Be sure small compression spring is returned to its position between the top of the basic switch and the internal lever (or above internal lever in the case of the CCW actuated switches).

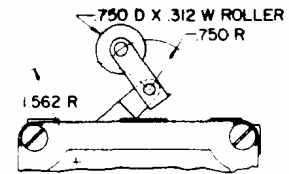
**MOUNTING DIMENSIONS**



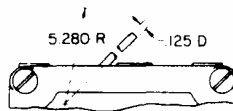
**Roller Arm**



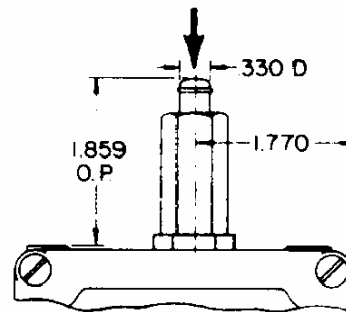
**Straight Plunger**



**One-way Roller Arm**



**Low Force Rod**



**Straight Plunger Actuation**

**ELECTRICAL RATINGS**

A	UL and CSA listed: L96 15 amps, 125, 250 or 480 VAC; 1/8 Hp, 125 VAC; 1/4 Hp, 250 VAC; 1/2 amp, 125 VDC; 1/4 amp, 250 VDC
B	UL and CSA listed: L23 20 amps, 125, 250 or 480 VAC; 10 amps, 125 VAC "L"; 1 Hp, 125 VAC, 2 Hp, 250 VAC; 1/2 amp, 125 VDC; 1/4 amp, 250 VDC
C	UL and CSA listed: L59 10 amps, 125 or 250 VAC; 0.3 amp, 125 VDC; 0.15 amp, 250 VDC
D	UL and CSA listed: L35 5 amps, 125, 250 or 480 VAC; 1/2 amp, 125 VDC; 1/4 amp, 250 VDC

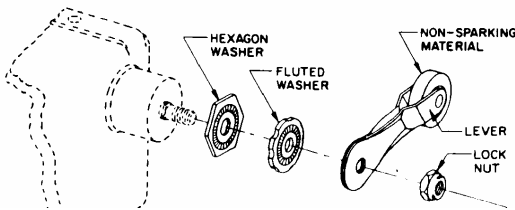
## REPLACEMENT PARTS Packets illustrated on page 4. Installation instructions are included with each packet

1	2	3	4	5	6	7	8
Catalog Listing	Description	Elec. Rtg.	Basic Switch Unit	External Actuator	Internal Lever	Springs	Mounting Bracket
OP-AR	Roller arm, CW actuation, SPDT, 15 amp capacity	A	BZ-2R-P4	6PA6-OP*	33PA2-OP	33PA7-EX	15PA85-EX
OPA-AR	Roller arm, CW actuation, SPDT, 20 amp capacity	B	BA-2R-P4	6PA6-OP*		33PA7-EX	15PA85-EX
OP-AR20	No external actuator furnished, CW actuation 15 amp capacity, SPDT	A	BZ-2R-P1	Note 1	33PA2-OP	33PA7-EX	15PA85-EX
OP-AR30	Roller arm, CCW actuation, SPDT, 15 amp capacity	A	BZ-2R-P4	6PA6-OP*	33PA16-OP	33PA5-EX	15PA85-EX
OP-AR16	Roller arm, CW or CCW actuation, SPDT, 15 amp capacity, no lever return spring, no mounting bracket	A	BZ-2RW88-P5	6PA6-OP			
OP-CR	Cross-roller arm, CW actuation, SPDT, 15 amp capacity	A	BZ-2R-P4	6PA131-EX	33PA2-OP	33PA7-EX	15PA65-EX
OP-Q	Overtravel plunger, SPDT, 15 amp capacity	A	BZ-2R-P4	8PA7-OP			Note 2
OPA-Q	Overtravel plunger, SPDT, 20 amp capacity	B	BA-2R-P4				Note 2
OPD-Q	Overtravel plunger, DPDT, 10 amp capacity	C	DT-2R-A7				Note 2
OP-AR50	Manual actuator paddle, SPDT, 15 amp capacity	A	BZ-2R-P4	6PA134-OP	33PA3-OP	33PA7-EX	15PA85-EX
OPD-AR	Roller arm, CW actuation, DPDT, 10 amp capacity	C	DT-2R4-A7	6PA6-OP*		33PA6-EX	15PA65-EX

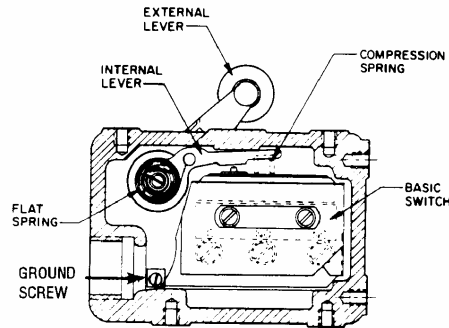
Note 1: Rotary external actuators shown on page 4 (except 6PA126-EX) may be used with the OP-AR20 listing..

Note 2: For mounting plunger actuator swatches from the bottom, back or end, order packet 15PA65-EX. For top mounting, order packet 15PA86-EX.

\*Packet 19PA4-EX, containing only the hexagon washer, fluted washer and lock nut for this actuator, is available.



Sketch showing Fluted Washer



A ground screw is provided for convenient grounding. See drawing.

## REPLACEMENT PACKETS (Order from columns 5, 6 and 7, page 3)

### External Actuators - Rotary

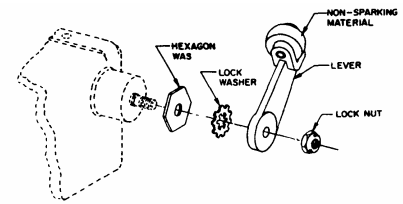
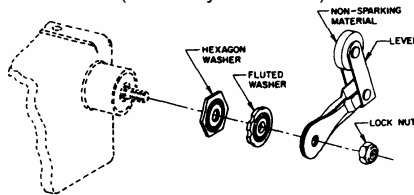
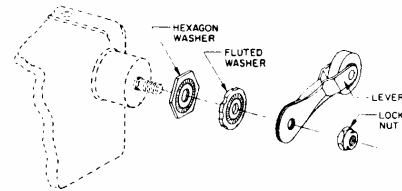
6PA6-OP (Steel roller)

6PA127-EX (High strength nylon roller)

6PA130-EX (One-way roller arm) CW

6PA142-EX (One-way roller arm) CCW

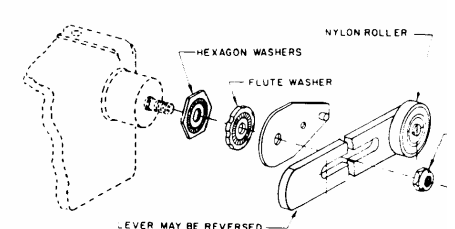
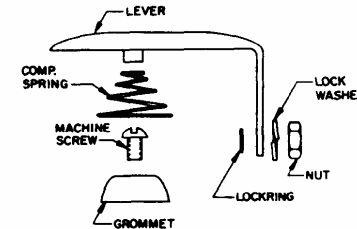
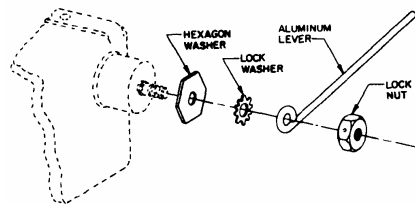
6PA131-EX (Cross-roller arm)



6PA136-EX (Aluminum rod)

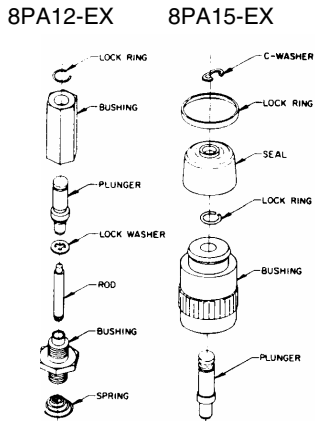
6PA134-OP (Manual paddle)

6PA138-EX



**REPLACEMENT PACKETS** (Order from columns 5, 6 and 7, page 3)

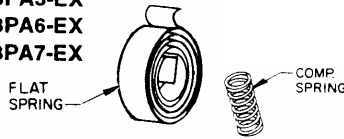
**EXTERNAL ACTUATORS - Plunger**



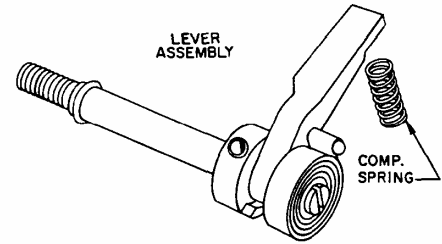
**INTERNAL LEVERS - Rotary**

**Springs**

- 33PA5-EX
- 33PA6-EX
- 33PA7-EX



- 33PA2-OP, 33PA3-OP, 33PA9-OP



**WARRANTY/REMEDY**

Honeywell warrants goods of its manufacture as being free of defective materials and faulty workmanship. Honeywell's standard product warranty applies unless agreed to otherwise by Honeywell in writing; please refer to your order acknowledgement or consult your local sales office for specific warranty details. If warranted goods are returned to Honeywell during the period of coverage, Honeywell will repair or replace, at its option, without charge those items it finds defective. **The foregoing is buyer's sole remedy and is in lieu of all other warranties, expressed or implied, including those of merchantability and fitness for a particular purpose. In no event shall Honeywell be liable for consequential, special, or indirect damages.**

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