Installation Instructions for Replacement Parts
EX Explosion-proof and OP Enclosed Switches

ISSUE 2
PK 88012

EXTERNAL ACTUATORS (ROTARY)

During removal, installation or adjustment of lever arms, hold shaft in position by using a wrench on the hexagon shaped, serrated 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.

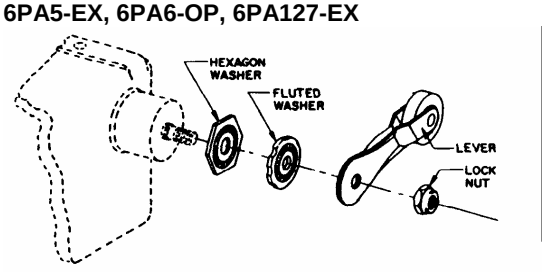
NOTICE

Excessive tightening will deform the hexagon serrated washer and cause the lever arm assembly to bind.

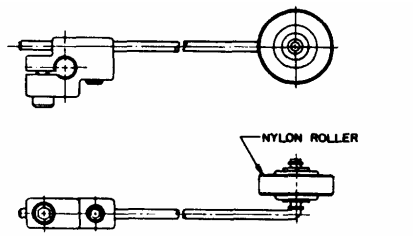
Assemble external actuators to the switch housing as shown in the exploded views. After positioning lever arm as desired, tighten the lock nut sufficiently to prevent slippage of arm, but avoid over tightening.

Note that the grommet in Packet 6PA134-OP is secured to the top of the switch with a machine screw and the compression spring fits over the stud on the underside of the paddle lever.

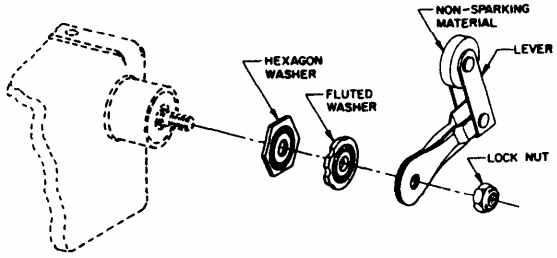
6PA5-EX, 6PA6-OP, 6PA127-EX



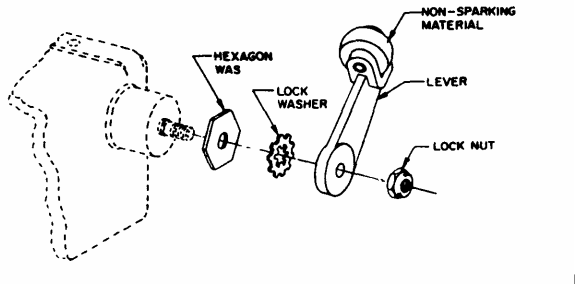
6PA126-EX



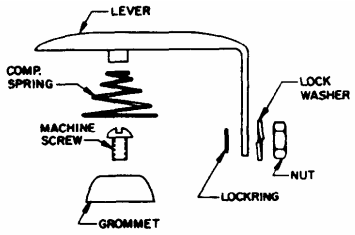
6PA130-EX, 6PA142-EX



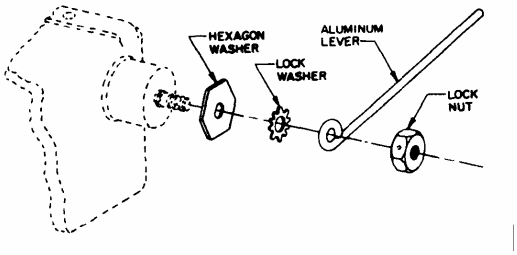
6PA131-EX



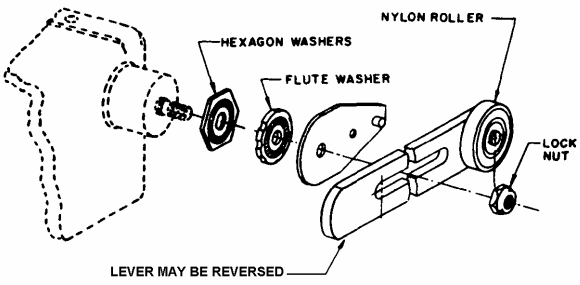
6PA134-OP



6PA136-EX



6PA138-EX



ADJUSTING THE LEVER ARM

Moving the lever arm one serration forward or backward with respect to the serrations on the fluted washer changes the position of the lever approximately 8.2°. Moving the lever and fluted washer, as a unit, one serration forward or backward with respect to the serrations on the hexagon washer changes the 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 the position of the arm approximately 0.2°.

EXTERNAL ACTUATORS (PLUNGER)

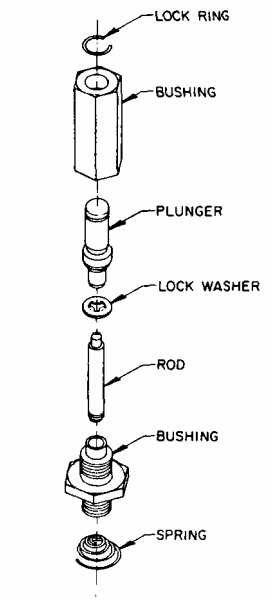
Assemble external actuators as shown in the exploded views. Packet 8PA7-OP for OP-Q type switches has a threaded bushing that screws into the housing. Place the compression spring on top of the basic switch around the switch plunger. The actuator rod with the lock ring attached goes through the threaded bushing and onto the spring.

Assemble the plunger to the internally threaded bushing and secure with the lock ring. Finally, screw the internally threaded bushing onto the bushing in the housing.

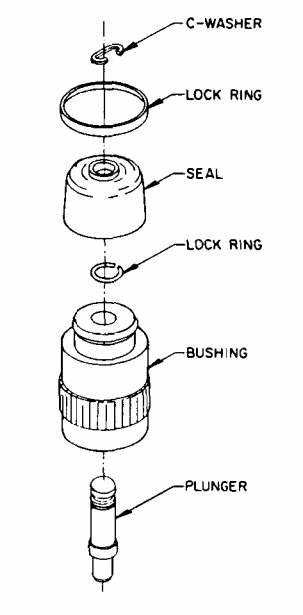
Assemble packet 8PA15-EX for EX-N15 type switches as shown, securing the parts together with the C-washer and lock ring. Screw the bushing onto the bushing in the housing.

Packet 8PA15-EX for EX-Q type switches is assembled by securing the plunger in the bushing with the lock ring. Screw the bushing onto the bushing in the housing.

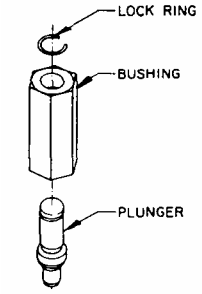
8PA7-OP



8PA12-EX



EPA15-EX



⚠ WARNING

IF USED IN APPLICATIONS CONCERNING HUMAN SAFETY

- Only use NC direct opening (“positive opening”/”positive break”) contacts, identified by the symbol ⊖.
- Do NOT use flexible/adjustable actuators. Only use actuators designed for safety applications
- Do NOT defeat, tamper, remove, or bypass this switch.
- Hazardous voltage, disconnect power before servicing.
- Strictly adhere to all installation and maintenance instructions.
- Consult with local safety agencies and their requirements when designing a machine-control link, interface and all control elements that affect safety.

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

INTERNAL LEVERS

Internal lever packets 33PA1-EX and 33PA8-EX for EX explosion-proof switches do not include the shaft or flat torsion spring.

The shaft is not replaceable, and the flat spring is separately ordered in either packet 33PA5-EX, 33PA6-EX or 33PA7-EX, as noted in the table in PK8800, furnished with the switch.

Internal levers 33PA2-OP and 33PA9-OP for OP enclosed switches include the complete assembly as shown. With the external actuator removed, the old internal lever assembly can be pulled out of the switch housing and the new assembly pushed into place. Before assembling new lever in switch, lubricate the shaft and O-ring with a light weight oil (SAE #30 or equivalent). Use care in re-assembling so as not to cut or nick the 0-ring seal.

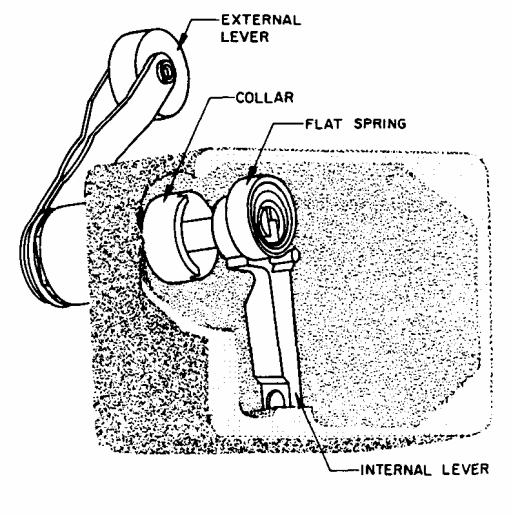
Internal lever 33PA3-OP is for the OPAR50 switch only. This lever packet is assembled into the switch exactly as described for lever packet 33PA1-EX with one exception. This packet contains the shaft which, if replaced, must be inserted into the housing from the hub opening where the external actuator is attached.

1. Remove cover from switch by loosening captive screws.
2. Remove basic switch, or if lead-in wire length permits, pull basic switch out of the housing.
3. Remove flat torsion spring by turning internal lever to limit of clockwise movement and lifting spring off of lever hook and shaft with needle-nose type pliers.
4. Pull internal lever off shaft.
5. If need be, collar is removed from shaft by loosening the set screw (shown in exploded view). It is necessary to loosen nut on external actuator so shaft can be pulled out far enough to permit collar removal inside housing.
6. To replace parts, follow above steps in reverse. Tighten the collar on the shaft, and make sure the set screw goes into the hole on the shaft. Tighten the holding nut on external shaft.

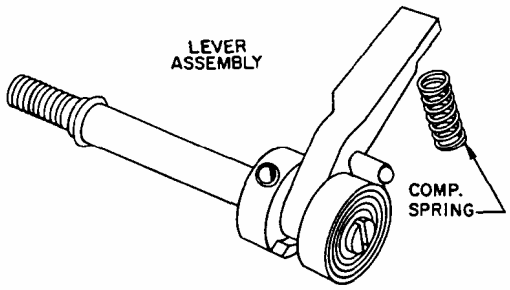
NOTICE

When tightening lock nut on external shaft, apply sufficient pressure to prevent slippage of arm, but avoid over tightening.

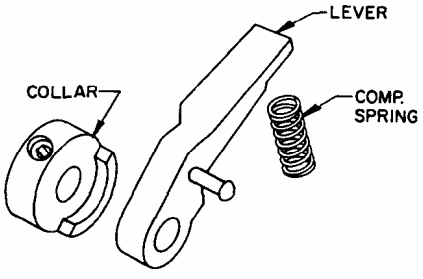
7. Place internal lever on shaft.
8. With internal lever held to limit of clockwise movement, place flat torsion spring on shaft and place hook around top of stop on internal lever.
9. Pull the internal lever out on shaft to clear the collar stops. With the internal lever held to the limit of its clockwise movement, turn the external lever 3/4 revolution in direction to tighten the spring. Push internal lever in on shaft to mate with collar stops.
10. Replace basic switch and compression spring.
11. Replace cover of switch and tighten screws.
12. Connect power supply circuit.



33PA2-OP, 33PA3-OP



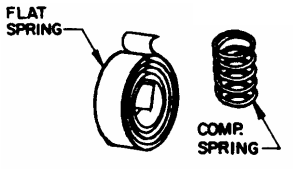
33PA1-EX



SPRINGS

Spring packets 33PA5-EX, 33PA6-EX and 33PA7-EX contain one flat torsion spring and one compression spring. Directions for installing the flat torsion spring are described under internal lever packet 33PA1-EX in steps 9 and 10. In the case of switches actuated counter-clockwise, the torsion spring is placed on the shaft in a flipped over position as compared to the clockwise actuated switches. Follow these steps:

1. Place flat torsion spring on shaft and place hook around bottom of stop on internal lever so that the flat spring will tighten with a counter-clockwise movement of the external actuator.
2. Pull the internal lever out on the shaft to clear the collar stops. Rotate external actuator 1/2 revolution to tighten the spring. Push internal lever in on shaft to mate with collar stops.



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www.honeywell.com/sensing

info.sc@honeywell.com

Honeywell

Sensing and Control
www.honeywell.com/sensing
Honeywell
11 West Spring Street
Freeport, Illinois 61032

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