

WESTLOCK

Westlock Valve Position Monitor To A FISHER Linear Actuator Conversion Mounting Kit I.O.M.

This Installation, Operation and Maintenance document details how to assemble and adjust the final conversion kit to obtain the optimum results.

The Westlock Linear to Rotary conversion kits are designed to generally fit more than one Fisher model, size and stroke, therefore some parts may remain.

Prior to assembling the mounting kit, fully stroke the actuator to confirm stroke length and adjust indicator guide plate accordingly.

NOTE: Please ensure that all pneumatics are isolated to the actuator that is being fitted with this kit until stated within this I.O.M. Failure to do so may result in serious injury.

1.0 Assembly

- 1.1 Select the standoff that is required and secure the 5/16 x 3/4" setscrew to the shaft block. Place the 5/16 star lock washer over the setscrew and secure the standoff to the shaft block.



NOTE-1: For actuators with 3/8 thread in shaft block use 3/8 x 1" set screw and 3/8 star lock washer.

WESTLOCK

NOTE-2: An adapter plate is required for shaft blocks, which do not have a 5/16 or 3/8 thread to mount a standoff. Fasten this adapter plate onto the shaft block using 2 supplied hex head screws and lock washers (these screws will also secure the shaft block onto the actuator shaft). Mount the standoff onto the adapter plate using the appropriate setscrew and star lock washer.

- 1.2 Orientate the mounting bracket so that the centerline of the bracket is off set to the left of the linear actuator centerline, as shown below. Fasten the bracket to the Actuator using the 2 off 5/16 x 1/2" hex head screws and lock washers.



- 1.3 Orientate and Secure the mounting plate to the base of the Westlock Valve Position Monitor (Accutrak) using the 4 off 5/16 x 1/2" flat head screws.



WESTLOCK

- 1.4 Secure the switch box / plate assembly to the mounting bracket using the 4 off $\frac{1}{4}$ x $\frac{5}{8}$ slotted pan head screws, lock washers, and nuts.



- 1.5 Assemble the rod end bearing to the shorter section of the connecting rod using the lock washers and nuts. Ensure that the connecting rod is fully engaged.

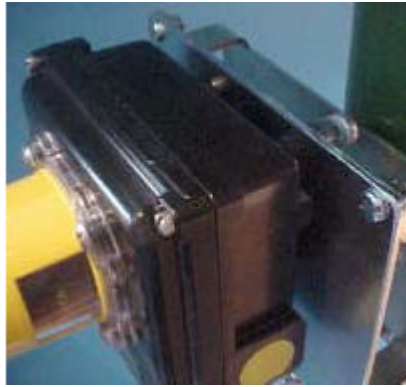
NOTE: The short section of the connecting rod has a left hand thread and therefore one of the rod end bearings and locking nuts have corresponding threads.

- 1.6 Orientate the drive arm so that the graduations are visible. Fit the $\frac{1}{4}$ x $\frac{3}{8}$ " shoulder screw through the remaining rod end bearing and the drive arm graduated slot and secure using the 10-24 elastic stop nut. Adjust the center of the nut so that it aligns with the graduation corresponding to the stroke length of the linear actuator previously confirmed.



WESTLOCK

- 1.7 Assemble the drive arm to the output shaft of the Westlock Valve Position Monitor (Accutrak) ensuring that the nut is facing towards the mounting plate. Do not tighten the 2 off setscrews.
- 1.8 Rotate the monitor output shaft so that the starting point is $+45^\circ$ from the horizontal centerline, when viewed from in front of the Westlock product. The total travel of this unit will be 90° finishing at -45° from the horizontal centerline.



- 1.9 With the Linear actuator in the fail position, rotate the Valve Position Monitor (Accutrak) output shaft to the correct corresponding position, either $+45^\circ$ (fail open) or -45° (fail closed). Assemble the remaining rod end bearing / connecting rod to the shaft stand off and measure the connecting rod to approx half the depth of the rod end bearing ($1/2''$).
- 1.10 Using the correct tools cut the connecting rod to length and debur. Assemble the rod end bearing / drive arm assembly to the shortened connecting rod and fit to the Westlock output shaft and Linear shaft block stand off. At this point secure the drive arm to the output shaft of the Westlock Valve Position Monitor using the 2 off setscrews.
- 1.11 Visibly inspect the entire assembly to ensure that the connecting rod is approximately vertical.

WESTLOCK

NOTE: Due to the fixed radius position on the drive arm, the connecting rod should be as vertical as possible at either end of travel but will deviate from the vertical alignment when traveling towards the mid position.



Drive Arm Start +45°



Drive Arm Finish -45°

- 1.12 Connect the pneumatic supply to the linear actuator, refer to manufactures literature for working pressure ratings, and stroke the actuator several times to ensure that the conversion kit is assembled and operating correctly.
- 1.13 With the Linear actuator in the energized position, check the indication of the Westlock Beacon. If this is out of alignment, loosen the 2 off connecting rod locking nuts and adjust the rod by rotating it until the Beacon indicates correctly.
- 1.14 De-energize the Linear actuator and re-check the Beacon indication for the correct position. A positional error indicates that the effective length of the drive arm is incorrect.
- 1.15 If the stroke is in excess of 90° the effective length of the drive arm is too short and requires lengthening by loosening the shoulder screw and elastic nut and sliding away from the shaft output drive end. If the stroke is less than 90°, reverse the adjustment procedure.

WESTLOCK

- 1.16 Once the correct angle of rotation has been achieved, secure the connecting rod by locking the 2 off locking nuts ensuring that the rod is not moved.

2.0 Switch Adjustment.

- 2.1 Adjust the switches as necessary following the instructions provided with the unit (if applicable).

3.0 CS Transmitter Calibration.

- 3.1 Connect a 24 VDC powered loop calibrator to points 1 and 2 and set to 'READ'.
- 3.2 Stroke the Linear actuator fully clockwise taking note of the direction that the shaft traveled to reach the fail or de-energized position. Typically clockwise when looking into the switchbox.

NOTE: Reverse all the following directions of rotation if the fail or de-energize direction is counter clockwise.

- 3.3 Depress the main shaft gear to disengage from the locking spline. Take extreme care not to turn the main shaft gear in order to maintain correct switch settings (if applicable).
- 3.4 With the main shaft gear depressed, turn the transmitter gear to the fully counter clockwise position and note the mA reading on the loop calibrator.
- 3.5 Rotate the transmitter gear clockwise until the reading changes by no more than 0.5mA from the previously recorded reading. Release the main shaft gear and re-engage taking extreme care in order to maintain switch settings.

NOTE: If mechanical switches are fitted, depress switch roller lever to allow gear to re-engage.

- 3.6 Turn the clockwise mA adjustment screw to adjust the transmitter reading to the desired output for this valve position. Typically this is 4mA or 20mA.

WESTLOCK

- 3.7 Stroke the Linear actuator to the fully counter clockwise.
- 3.8 Turn the counter clockwise mA adjustment screw to adjust the transmitter reading to the desired output for this position (opposite step 3.6).
- 3.9 Stroke the linear actuator between the full clockwise and counter clockwise positions checking and readjusting the mA output as necessary.