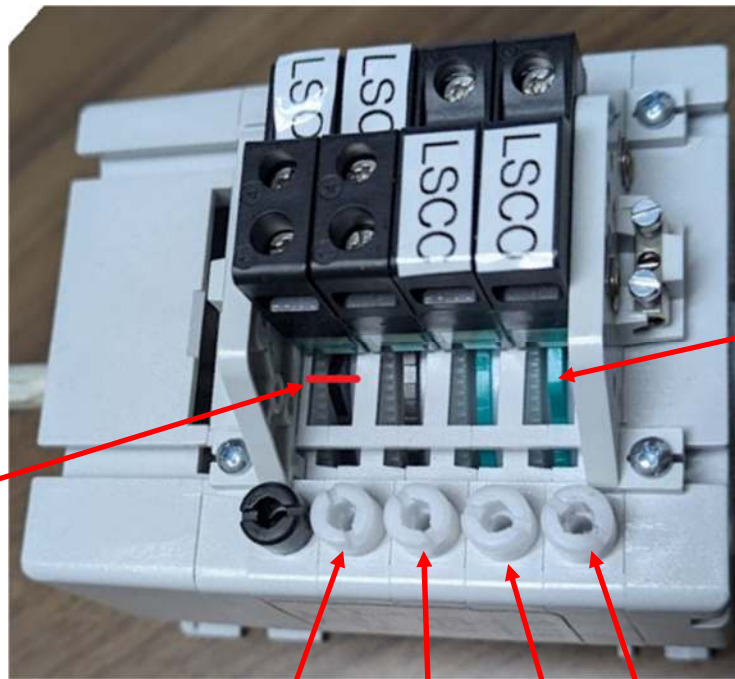




# CROWN INDUSTRIAL OPERATORS

## Rotary Limit Switch Setup

Door Hardware, Operators, and Complete Systems



Black Colored, Short Cam of an Open or Close Limit

Teal Colored, Long Cam of a Creep Limit

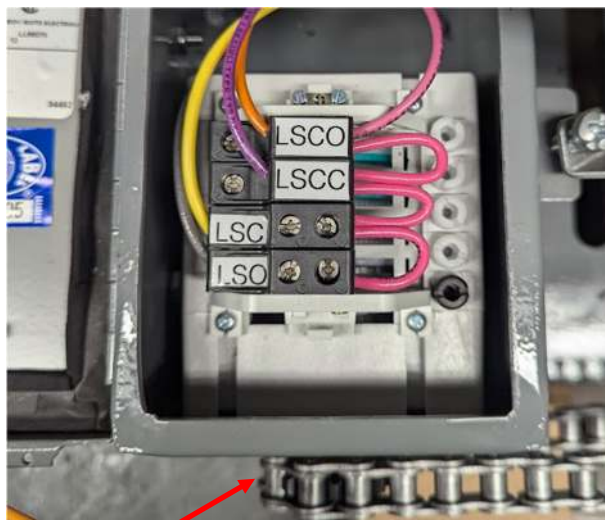
Adjusting Screw for LSO Limit Switch

Adjusting Screw for LSCO Limit Switch

Adjusting Screw for LSC Limit Switch

Adjusting Screw for LSCC Limit Switch

**Figure LS1**



Limit switch shaft with limit switch sprocket

**Figure LS2**



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## Rotary Limit Switch Setup

Door Hardware, Operators, and Complete Systems

### Purpose:

To set the full Open (LSO), Close (LSC), Creep Open (LSCO) and Creep Close (LSCC) limits of your operator.

- Limit Switch Open (LSO): defines where your door will stop in the full open position.
- Limit Switch Close (LSC): defines where your door will stop in the full closed position.
- Limit Switch Creep Open (LSCO): This limit activates the creep mode during the end of the open cycle. When the limit switch is actuated the door travels in the opening direction at a reduced speed set by the Creep Potentiometer in the Control Box.
- Limit Switch Creep Open (LSCC): This limit activates the creep mode during the end of the close cycle. When the limit switch is actuated the door travels in the closing direction at a reduced speed set by the **Creep Potentiometer in the Control Box.**

### Description:

The rotary limit switch is designed to accurately control the end limits of the door travel provided by the electric operator as well as the activation point and duration of the creep mode. The limit switch input shaft drives a set of planetary gears which in turn drives a set of nylon cams (See Figure LS1). Each precision limit switch unit is actuated by its individual nylon cam. The cam rotate as the operator travels the door back and forth. The cam contacts the electrical snap switches to either stop the travel of the operator or initiate the creep modes. The limit switch typically has 4 switches.

To adjust each individual limit switch, turn the screw adjustment for each specific limit switch. Note that depending upon the handing of the operator the cams travel from either the clockwise or counterclockwise direction to activate the appropriate snap switches.

Limit Switch Adjustment	Limit Switch Adjusting Screw Rotation Direction			
	LSO (Limit Switch Open)	LSC (Limit Switch Close)	LSCO (Limit Switch Creep Open)	LSCC (Limit Switch Creep Close)
Rotates <u>Counter Clockwise</u> to Open	<u>Counter Clockwise</u> to Open More	Clockwise to Close More	Clockwise to Creep Open Longer	<u>Counter Clockwise</u> to Creep Close Longer
Rotates <u>Clockwise</u> to Open	Clockwise to Open More	<u>Counter Clockwise</u> to Close More	<u>Counter Clockwise</u> to Creep Open Longer	Clockwise to Creep Close Longer

Table LS T1



# CROWN INDUSTRIAL OPERATORS

## Rotary Limit Switch Setup

### Door Hardware, Operators, and Complete Systems

#### **Preliminary Rotary Limit Switch Adjustment:**

##### 1. PREPARATION FOR ADJUSTMENT:

- a. Disconnect the Electrical Power Supply to the Operator Control Box.
- b. Unscrew limit switch cover and expose assembly.

##### 2. ROUGH ADJUSTMENT:

- a. Manually Slide or Swing the door in the open direction and note the direction the Limit Switch Sprocket is rotating. Is it turning clockwise or counterclockwise? Reference **Table LS T1**.
- b. Manually Slide or Swing the door to approximately 6" from the full open position.
- c. Adjust the LSO cam adjuster until the cam contacts the electrical snap switch from the same direction and you hear it click.
- d. Manually Slide or Swing the door towards the closed direction and back towards the open direction. The snap switch should click when the door gets approx. 6" from the full open position.
- e. Position the door approx. 12" from the full open position.
- f. Turn the LSCO cam adjusting screw until the cam contacts the electrical snap switch from the same direction as the LSO switch and you hear it click. **Note:** This cam is longer and the operator shall only travel in closed creep mode while this cam is depressing the snap switch.
- g. Repeat Step (d). The LSCO the snap switch should click when the door gets approx. 12" from the full open position.
- h. Manually Slide or Swing the door to approximately 6" from the full closed position.
- i. Turn the LSC adjusting screw until the cam contacts the electrical snap switch from the opposite direction and you hear it click.
- j. Manually Slide or Swing the door towards the open direction and back towards the closed direction. The snap switch should click when the door gets approx. 6" from the full closed position.
- k. Position the door approx. 12" from the fully closed position.
- l. Turn the LSCO cam adjusting screw until the cam contacts the electrical snap switch from the same direction as the LSC switch and you hear it click. **Note:** This cam is longer and the operator shall only travel in open creep mode while the cam is depressing the snap switch.
- m. Repeat step (j) LSCO the snap switch should click when the door gets approx. 12" from the full open position.
- n. Move the door back and forth noting that the proper snap switches are being contacted from the proper direction at the proper time.

#### **Final Rotary Limit Switch Adjustment:**

After the run speed, creep speed and ACCEL & DECEL have been adjusted, the final limit switch settings can be made.

- a. Actuate the operator controls and adjust the rotary limit switches (LSO & LSC) to stop the door in the full open and closed positions.
- b. Actuate the operator and adjust the rotary limit switches (LSCO & LSCC) to initiate the creep mode at the desired time. Keep in mind that the operator only travels in creep mode as long as the cam lobe is depressing the snap switch.
- c. After adjusting LSCO & LSCC check the travel of the door. LSC & LSO may need to be re-adjusted.
- d. Activate the operator to open and close the door several times and fine tune the limit switches.

**Note:** The length of time the operator is running in creep mode must be long enough to allow for it to dynamically brake from run speed to creep speed plus the desired length of time the operator is traveling under creep mode. If the DECEL time is set for too long, the creep mode may be adversely affected.