Switch Machine Reference Guide - Part 5 - Adjusting Throw

5.0 Switch Machine Description

The Walthers Switch Machine uses a microprocessor controlled servo to move an actuator wire connected to a turnout throwbar between normal and reverse positions. The servo's rotary motion is converted to linear motion of the actuator wire by passing the wire through a pivot which rotates in the output arm as the servo rotates from one endpoint to the other. The position of the wire pivot on the output arm relative to the servo output shaft determines amount of distance between the normal and reverse locations. This distance is adjustable and determines the movement of the wire at the turnout throwbar. When the turnout point contacts the stock rail, the amount of excess pivot travel bends the actuator wire and determines the amount of spring tension which holds the points in place. Figure 5.1 illustrates the mechanical principles of this design.

The result is a reliable, durable, self-locking mechanism which has several distinct advantages over traditional servo based designs:

- Servo rotation is a constant and independent of actuator wire travel
- Servo rotation is factory set and never requires adjustment
- Throwbar travel and point tension are infinitely adjustable
- Point tension is provided by the bend of the actuator wire determined by the wire pivot location, not by the servo
- The servo mechanism is isolated from the throwbar by the actuator wire and will maintain thowbar position and tension when power is removed
- The switch machine may be operated into a jammed point without risk of damage or overload
- Throw speed is independent of throw distance and tension
- All moving components are molded in strong self-lubricating Delrin plastic and do not require any routine maintenance

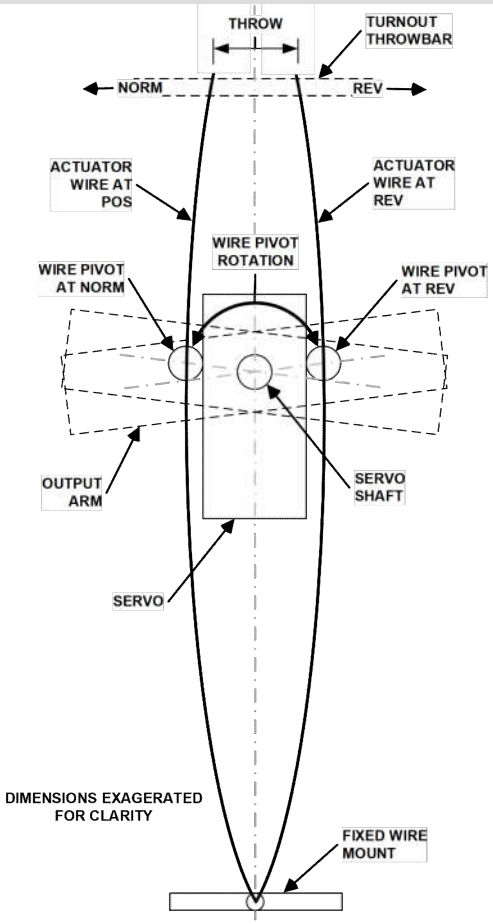


Fig 5.1: Switch Machine Mechanics

5.1 Adjusting Wire Throw and Tension

Actuator wire throw and tension are controlled by the position of the wire pivot on the servo output arm. Throw can be adjusted from 2 mm to 13 mm (1/16" to 1/2") If adjustment is required, refer to figure 5.2 and follow the steps below:

1) Use a small phillips head screwdriver and loosen the short and long screws at the ends of the output arm
2) Move the wire pivot closer to the servo shaft to shorten throw or reduce tension, away from the servo shaft to increase throw or tension
3) Snug down the short and long screws when done. Do not overtighten.

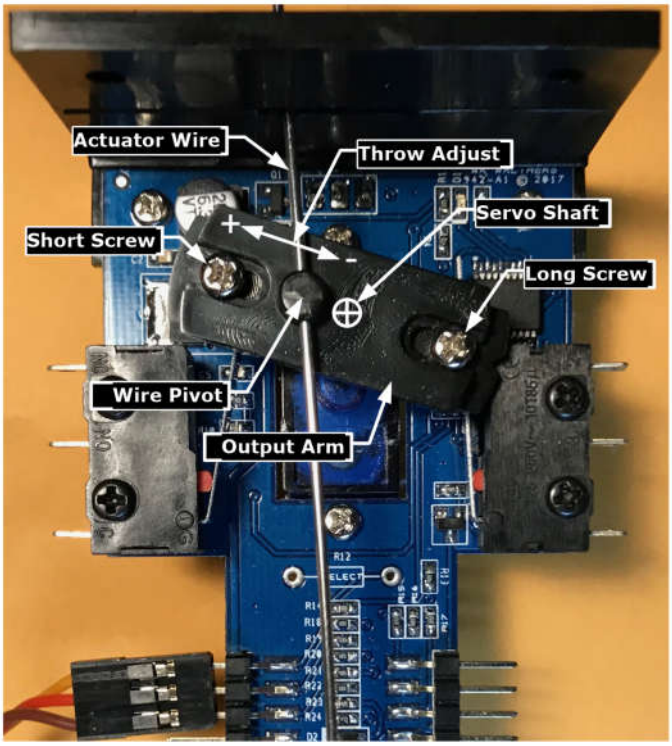


Fig 5.2: Actuator Wire Adjustment