

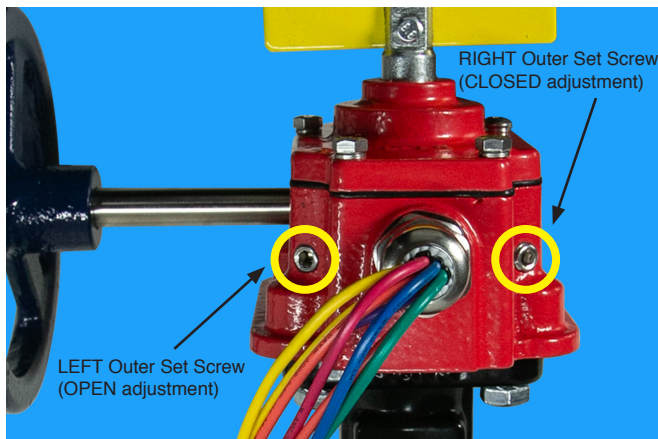
# Reliable®

## REL363GT, REL363GTC, REL363W, & REL363WC Butterfly Valve Mechanical Stop Adjustment

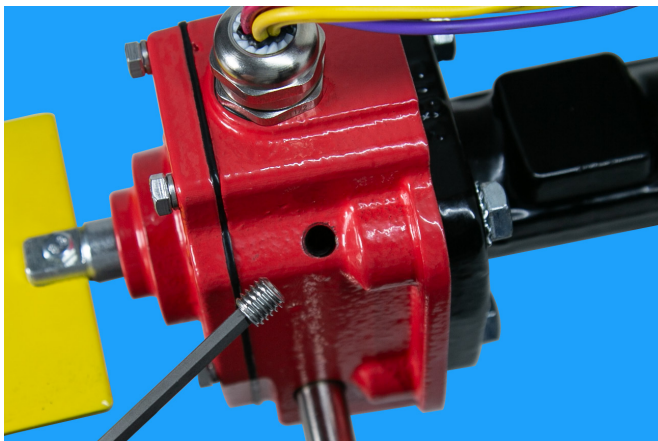
### Valve Mechanical Stop Adjustment

1. The valve's gearbox / alarm switch sub-system (colored either red or yellow based on whether the valve is a normally-open or normally-closed type) includes a mechanical stop that sets the "CLOSED" and "OPEN" positions of the valve's disc relative to the valve body and flow bore. This mechanical stop includes two adjustment set-screws shown in the picture below from the outside of the valve's gearbox / alarm switch sub-system (circled in green). For the purpose of these instructions, when looking at the back of the valve's gearbox / alarm switch sub-system in the view shown below, the two set screws will be identified as "RIGHT" and "LEFT".

- RIGHT screw controls the mechanical stop for the "CLOSED" position of the valve.
- LEFT screw controls the mechanical stop for the "OPEN" position of the valve.



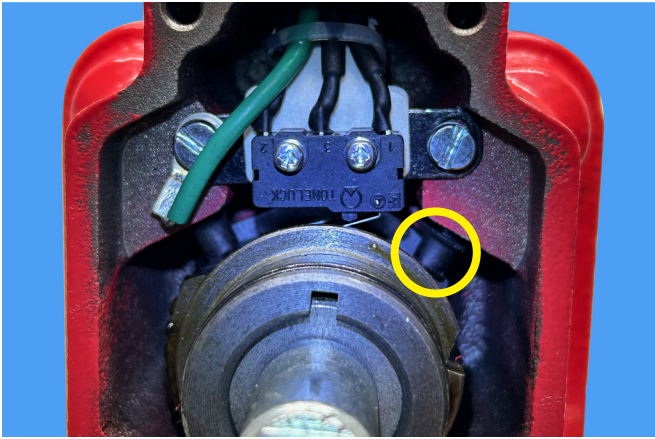
2. When removed, each silver-colored outer set screw will reveal a dark-colored second inner set screw underneath. The inner set screw is the one that serves to adjust the mechanical stop; once set the outer set screw is used to lock the inner set screw in place through friction and keep the inner set screw from vibrating loose. In the figure below, the outer set screw has been removed and the inner set screw can be seen at the bottom of the threaded set screw hole.



3. The mechanical stop adjustment inner set screws control ONLY the range of orientation of the valve's disc inside the body; they DO NOT control the valve position that trips the electrical switch that provides a signal to a fire protection system's control panel or to an alarm bell or other notification device. If the valve is communicating electrical signals improperly (e.g. always in alarm or never in alarm throughout the entirety of the valve disc's range) then the valve must be replaced.

4. The mechanical stop adjustment set screws (both inner and outer) are set at the factory during manufacture of the valve; occasionally it is necessary for installation or maintenance personnel to make adjustments to the position of these set screws to set the OPEN and CLOSED positions of the valve's disc. The position of these set screws may be adjusted using either a 5/32" or a 4mm hex key (sometimes referred to as an "allen key" or "allen wrench"). The same size key may be used for both removal / installation of the outer set screws and adjustment of the inner set screws. Adjustment of the mechanical stop set screws should only be undertaken by experienced personnel with a clear understanding of how the valve and its gearbox / alarm switch sub-system is designed, manufactured, and operated.

5. The end of the mechanical stop adjustment set screws have a flat surface on the end that is inside the valve's gearbox / alarm switch sub-system. The interior of the valve's gearbox / alarm switch sub-system includes a specialized non-serviceable component mounted to the valve stem with flat surfaces that will engage the flat ends of the mechanical stop adjustment set screws; this is the mechanism that limits the valve disc's rotation when operating the handwheel. To better illustrate the workings of these two components, a valve gearbox / alarm switch sub-system has been partially disassembled and shown with the RIGHT inner set screw contacting the flat surface of the mechanical stop stem component for the CLOSED position (shown in blue circle). The LEFT screw provides a similar functionality when the valve is in the OPEN position but is not shown. **DO NOT DISASSEMBLE THE GEARBOX / ALARM SWITCH SUB-SYSTEM;** doing so risks contaminating and / or damaging either the lubricated gears that allow the handwheel to open and close the valve or the electrical switch that provides an alarm signal when the valve is operated outside of its normal position. This image is purely for illustration to help qualified personnel understand how the adjustment set screws work to adjust the mechanical stop and how adjustments impact the range of orientation of the valve's disc.



6. The most common valve complaint for which manipulation of the mechanical stop adjustments screws is an appropriate corrective action is a valve that appears to be in the fully closed position (based on handwheel resistance) but does not seal properly between the valve disc and the inside of the valve body, allowing leakage through the valve. The remaining steps provide guidance specifically on how to address this challenge; other deficiencies may be addressed in a similar fashion by qualified personnel with appropriate experience in the installation and maintenance of butterfly valves and an understanding of their design, manufacture, and operation.

7. If the valve being serviced leaks through the disc when closed or exhibits other symptoms of not fully closing, then it is an indication that the RIGHT mechanical stop adjustment screw is in the wrong position. When operating the valve from “FULL OPEN” to “FULL CLOSED”, it is possible for the valve disc to stop prematurely before ever reaching the “FULL CLOSED” position. This indicates that the RIGHT mechanical stop adjustment screw is installed too far into the valve’s gear-box / alarm switch sub-system and is engaging the mechanical stop on the valve stem prematurely. The corrective action is to rotate the RIGHT screw counter-clockwise in 1/4 turn increments until the correct position is identified.

8. It is also possible for a valve’s disc to continue rotating through the proper “FULL CLOSED” position and continue to rotate some amount before the mechanical stop adjustment set screw engages the mechanical stop on the valve stem, effectively closing and then slightly opening the valve. The symptoms of this type of failure are nearly identical to #5 above, and can only be diagnosed visually by watching the valve disc move while the handwheel is being operated. In this case, the corrective action is to rotate the RIGHT screw clockwise in 1/4 turn increments until the correct position is identified.

9. The correct position is one that will provide a pressure-seal between the valve disc and the inside of the valve body; this should also be the position in which the valve flag is oriented 90° to the direction of flow through the valve.

10. When adjustment of the inner set screws is complete, the outer set screws should be reinstalled and tightened using a torque range between 45 in-lbs and 75 in-lbs (5 Nm to 8.5 Nm).