

Manual Electric Gate Down Operation:

When mechanism control voltage is present at the circuit controller terminal and the gate is in the vertical position, the gate can be lowered by operating the cam switch to the test position. The gate descends to the horizontal position. When the cam switch is operated to the run position, and the reset button on the EGM is depressed, the gate will operate to the vertical position as described under gate up operation. This operation is also a test of the EGM. The gate can also be lowered by loosening the gold test nut located at terminal 2B on mechanisms equipped with the PC Relay Board.

EGM Controlled and Annunciated Fault Operations of the 3597 Gate Mechanism:**Gate Arm Knocked-Off Operation:**

If the gate arm is knocked off in any position except the vertical position, the force of gravity pulls the counterweights violently downward. If this condition occurs, the EGM senses a sharp increase in voltage being generated by the forced rotation of the motor. The relays in the EGM de-energize, the green LED will go dark and dynamic braking, through external wiring within the 3597 mechanism, controls the descent of the weights and protects against damage to the mechanism. The dynamic braking is accomplished by shorting the A and B terminals of the motor through an adjustable resistor.

Gate Arm Guillotine Operation:

If mechanical or electrical failure occurs causing the attached gate arm to violently drop from the vertical to horizontal position, the EGM senses a sharp increase in voltage being generated by the forced rotation of the motor. The relays in the EGM de-energize, the green LED will go dark and dynamic braking, through external wiring within the 3597 mechanism, controls the descent of the gate arm and prevents damage to mechanism and gate arm.

Open Electrical Circuit Failure:

The gate mechanism could display the operational characteristics of the gate arm being knocked off or guillotine operation if an open failure in the mechanism electrical circuit were to occur, such as a relay contact not making contact, open snub resistor or an open condition in the wiring. When such an event happens, the EGM will control the fault the same as described for the knock-off guillotine operations provided the EGM is connected and there are not any openings in the EGM circuit, the shorting resistor or the motor. Supply power does not have to be present at the EGM for it to control a fault.

Vertical Gate Arm Pumping Operation:

If a mechanical or electrical failure of the hold clear device or ratchet wheel occurs, the gate arm will oscillate (pump) in the vertical position. When this happens, the motor powers the gate until #2 power up contact opens. If the gate cannot be mechanically held in the vertical position, the force of gravity causes the arm to begin to descend, the #2 contact closes, power is applied to the motor and the gate is driven back to vertical. This series of events continuously repeats. Each time a pulse of voltage is received at the motor, a certain amount of voltage is stored within the EGM. When the stored voltage reaches a threshold, the EGM de-energizes its relays, the green LED goes dark, the pumping ceases and the gate arm descends to horizontal position through the controlled dynamic braking circuit. The gate arm will remain in the horizontal position until the EGM receives a pulse of 12 vdc positive voltage at the reset wire lead, created by a gate up command sent from the external crossing control system, or, the manual reset button located on the EGM is depressed. When reset, the green LED illuminates.