

**Normal 3597 Gate Mechanism Operation:**

Mechanism operating voltage is 12 vdc nominal. Static voltage is not to exceed 17 vdc. Voltage at the circuit controller terminals should not drop below 11 vdc during normal operations, or drop below 9 volts during lifting of weights, vertical mechanism pumping or mechanism obstruction. Positive voltage is applied to terminal 2A and negative is applied to terminal 7A on the circuit board. Mechanism control voltage is connected to terminal 2B on the circuit board. For 3597 mechanisms equipped with the PC Relay Board, positive voltage is applied to terminal 3A, and mechanism control voltage is connected to terminal 2A.

**Gate Up Operation:**

Static Position: Gate horizontal (down).

Contact Position: #1 normally closed (back) gate power down contact open, #1 normally open (front) gate snub down contact closed, #2 power up closed, #3 gate down closed, #4 gate clear open, #5 bell silence contact open, #6 spare open, #7 snub closed, hold clear power down contact closed.

When mechanism control voltage is applied, and if the cam switch "C" is in the run position, the pick coil of the hold clear energizes thus engaging the hold clear mechanism and opening the hold clear mounted power down contact. Voltage then flows through the cam operated power up contact (#2). This allows the hold coil of the hold clear to energize as well as the motor control relay (MCR). When the MCR energizes, positive voltage is applied to motor terminal A and negative is connected to motor terminal B, the motor starts and the gate raises under full power. When the main shaft of the mechanism reaches a point, normally 85 to 90 degrees, the #2 contact opens, the pick coil of the hold clear and the MCR de-energizes and the motor stops. As long as control voltage is supplied, the hold coil of the hold clear remains energized and the hold clear and ratchet wheel attached to motor holds the gate in the adjusted vertical position.

**Gate Down Operation:**

Static Position: Gate vertical (up).

Contact Position: #1 normally closed (back) gate power down contact closed, #1 normally open (front) gate snub down contact open, #2 power up open, #3 gate down open, #4 gate clear closed, #5 bell silence contact closed, #6 spare open, #7 snub open, hold clear down contact open.

When mechanism control voltage is removed, the hold clear de-energizes and the hold clear power down contact closes. Voltage travels through the closed #1 power down contact, the snub resistor and the contacts of the de-energized MCR to the motor. The motor powers the gate down until the #1 normally closed power down contact opens and power is removed from the motor. The #1 normally open snub down contact then closes allowing motor generated voltage to travel through the MCR contacts and the adjustable resistor creating dynamic breaking. This breaking slows and controls the decent of the gate. When the gate arm is almost horizontal, the #7 snub contact closes creating an short between the motor terminals. The gravitational weight of the gate arm then forces the gate to slowly descend the final degrees and the arm rests in the horizontal position.