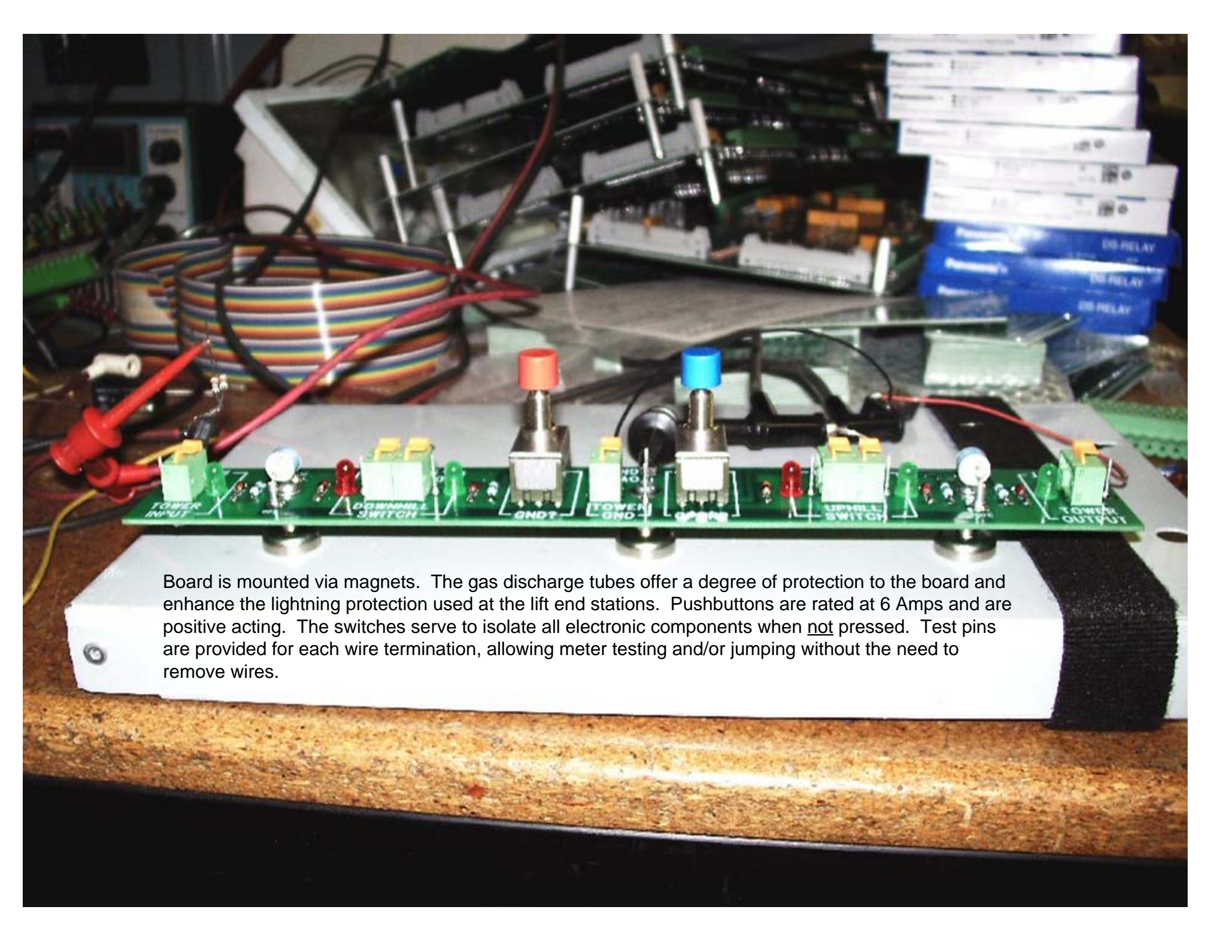


Board connected for test:  
+ tower input is delivered through a 100 Ohm resistor – the same one used for all outfeeds in our systems. In series with that is a 56 Ohm resistor which simulates line resistance. Connected to the output end is the same relay that is used in our systems for all tower circuits. In this way, we accurately simulate the lift.

Uphill and downhill switches are connected to their corresponding terminals. The “Tower Ground” terminal should be electrically connected to the steel of the tower, since that’s where ground faults find “ground”.





Board is mounted via magnets. The gas discharge tubes offer a degree of protection to the board and enhance the lightning protection used at the lift end stations. Pushbuttons are rated at 6 Amps and are positive acting. The switches serve to isolate all electronic components when not pressed. Test pins are provided for each wire termination, allowing meter testing and/or jumping without the need to remove wires.

### OPEN SWITCH TEST:

Pressing the blue button engages the continuity test. The green LEDs associated with input, output, uphill switch and downhill switch will only light if the voltage present at each is nominal for normal system operation – in this case, 8.5 volts or higher. At 7.5 volts (the critical voltage for the relays used), the LEDs will not light.

This photo shows all LEDs lighted – meaning that the circuit is continuous through the tower. Note the jumpers on the switch terminal strips - they represent brittle bars.



**OPEN SWITCH TEST: UPHILL FAULTED:**

Note that the input LED and the Downhill Switch LEDs are lighted – indicating that the tower is receiving power and that the Downhill switch is OK. The LED for the Uphill Switch is not lighted (because its jumper is pulled) – and consequently, the Output is also not lighted.

At this point, the technician should look for a broken switch or an open connection on the Downhill side of the tower.

Jumper disconnected



### GROUND FAULT TEST:

A 100 Ohm "fault to ground" has been applied to the Uphill Switch terminal. Pressing the red button lights the red LED adjacent to the Uphill Switch termination.

The Ground Test button isolates all connections between the input, output and switches – allowing indication of only the faulted switch even though the entire circuit is "grounded". The red LEDs may light dimly in the presence of a 10k ground, but will not light with the normal "water and ice" bleeds that are expectable on tower circuits.

