

## Limit Switches

Limit Switches should be included in your build. These switches are located at both ends of each axis-of-movement such that an “over extension” of any axis will trigger the software to stop moving the motors and halt the program.

This can prevent serious damage to your CNC machine, and potentially to your body.



Figure 54 - Typical Limit Switch

Figure 54 shows a very typical limit switch. You will need 6 for your build. They are super-easy to install and wire-up. Notice the long lever on the switch. This can be bent and adjusted as necessary so as to ‘trip’ at the right time.

All 6 limit switches are wired in series – if any limit switch is tripped, regardless of which one, the circuit is ‘broken’, no current and the input on the HobbyCNC board is pull high (10k internal pullup). The wiring ‘daisy chains’ from the NC of switch 1 to the COM of switch 2, from the NC of switch 2 to the COM of switch 3, from the NC of switch 3 to the COM of switch 4, etc.

You will need to configure your CAM software to accept the proper level and pin.

Figure 55 attempts a combination schematic and diagram to show how the wire leaves one switch and goes to the next (red and green wires).

The blue wires go to the HobbyCNC PRO board, pins 11 and GND.

You could add one more switch as an E-Stop switch also.

This type of wiring where current flows until there is a limit situation is a more “fail safe” approach than using the N.O. pins and wiring the switches in series.

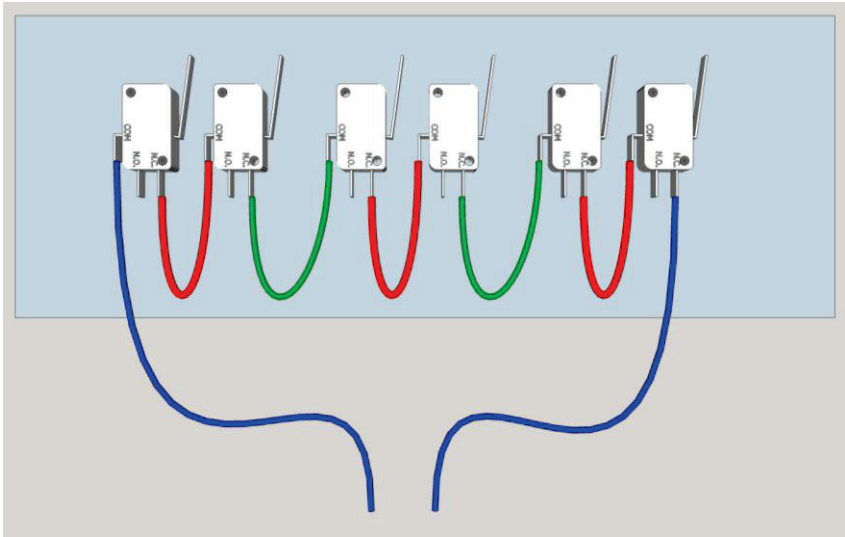


Figure 55 - Limit Switch Wiring Explained

Figure 56 shows how my HobbyCNC PRO board is wired. You need to focus only on the connector highlighted in red. Each of the inputs on this terminal block have a 10k pull-up resistor. Take care when routing the wires from this connector to the limit switches so that the limit switch wiring is not in close proximity to the stepper motor wiring (potential for induced noise to trigger a shut-down)

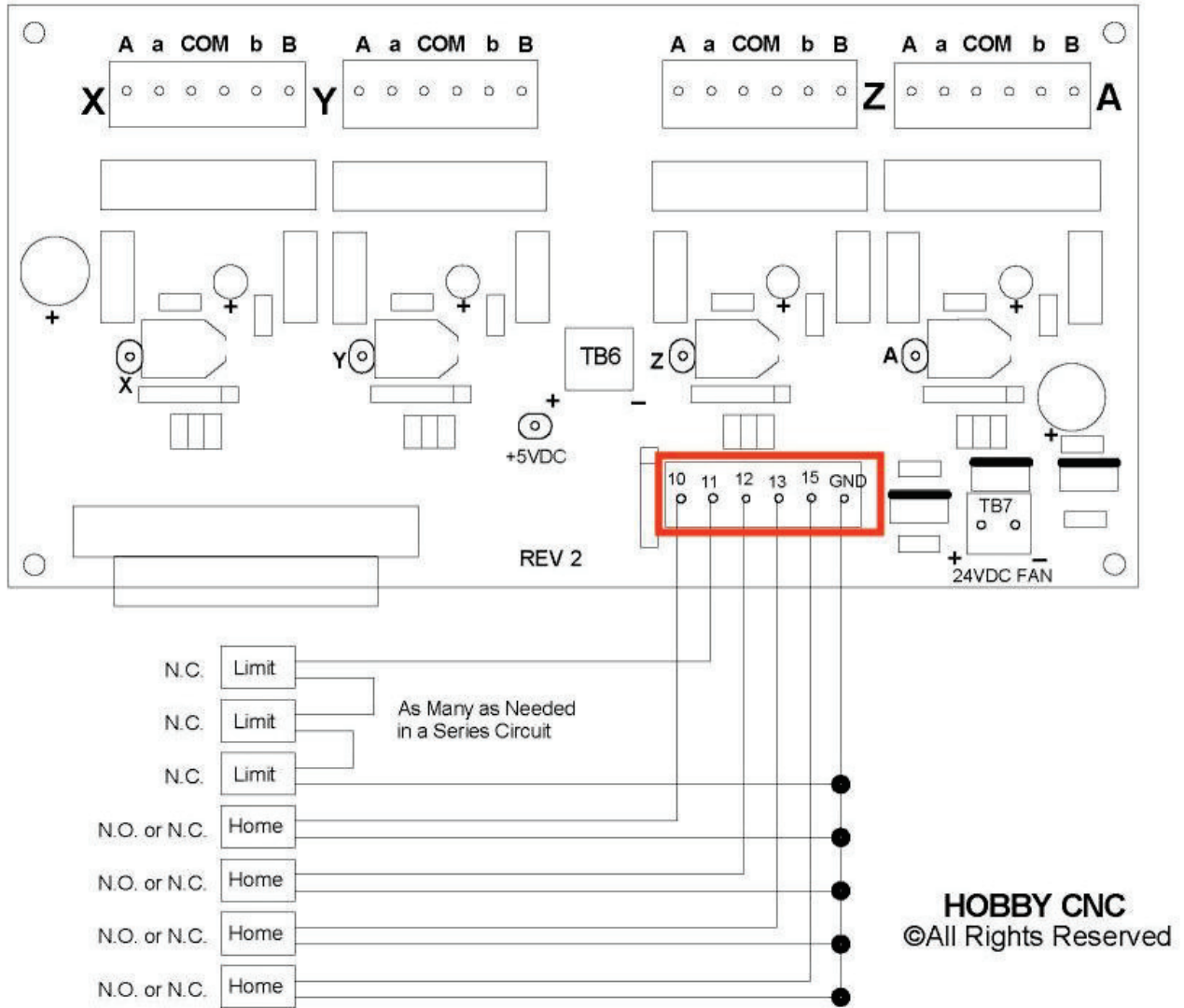


Figure 56 - Limit Switch Wiring Schematic