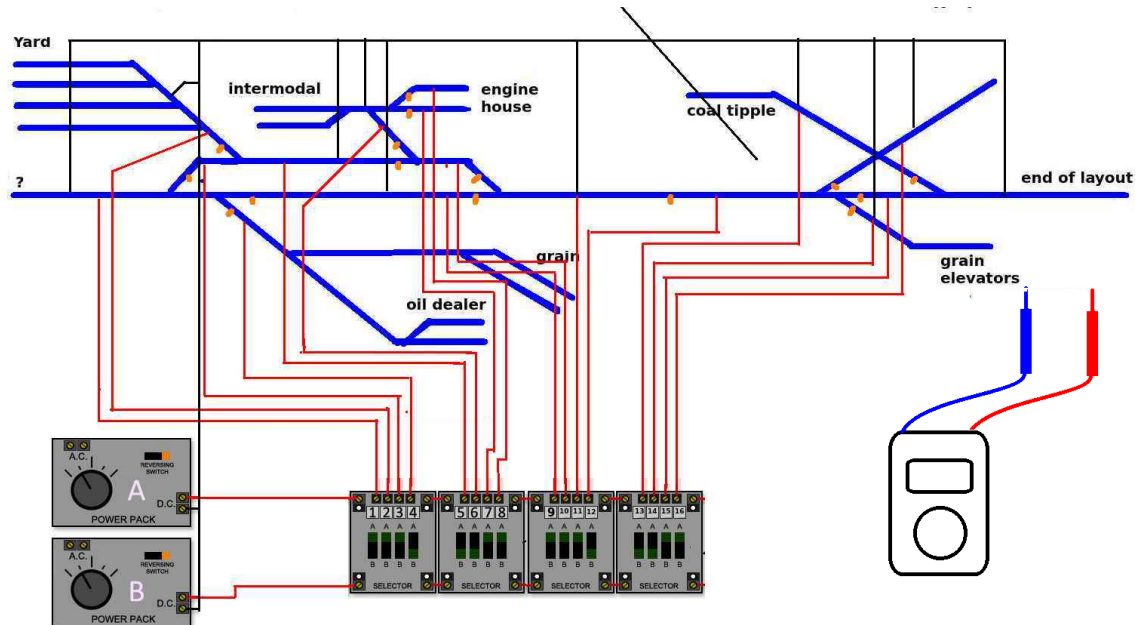


CHECK LIST FOR WIRING CHECKING Part 2

My correspondent Lee who asked me about the initial wiring apparently got the testing done OK but when making the final connections could not get the trains on his layout to run.

This is the schematic of his layout using Atlas Selector Switches. The principles are the same for rotary or toggle switches



TO TEST FOR WIRING INTEGRITY

1. Disconnect both your power packs from the selector switches (shown on my diagrams as a "Red" wire) but leave the common rail wire in place (the "Black" wire). Make sure there are also no locomotives or rolling stock on the track as motors will give a "false" reading to the meter.
2. Set your meter to 20 volts DC and check the output at the terminals of both your power packs and make sure that the voltage is working between 0 and about 15 volts because there is no load on your controller! If there is a variable voltage, the controllers are OK!
3. With your meter, place one lead of your meter on the open end of your power pack (where the "red" wire was connected) and connect that open end to one end of your multimeter still on the voltage scale.

Turn on your power pack to about half voltage and connect the other meter lead to where all the sections BLACK wire joins the track. Check every block on both sides of your track. Your meter will read either a voltage or 0 depending on the rail. You might need an extension wire from the power pack red lead side to the meter to make it a bit easier.

IF THERE IS VOLTAGE ON BOTH RAILS, that would normally indicate that you have a short circuit in that block or you may have a broken wire therefore there is no voltage to the track. Your wires for that block may be reversed. Turn the switch for that block to the other cab or off .

Set all the selector switches to the other block, check your power pack output as in Step 1 and then turn the power pack back on.

TO CHECK THAT THE BLACK WIRE IS WORKING

Set your MULTIMETER to the OHMS scale and place one prod on the BLACK wire terminal and the other on the Common Rail of your track. It should read "0". If it reads "1", you have a broken wire on the Black side.

Turn on the selector switches to the original block side one switch at a time. If there is a short circuit, as soon as the short occurs, the reading will go to "0". Isolate that block and detect the fault.

The obvious is that a connection is incorrect from the aspect of the sides the wires are connected to. Less likely but not impossible is a switch/turnout/point (whatever you call it) where wires feed under the frog between one rail and the other.

Or there may be a wire strand bridging the rails.

If this is there is no short in this way, turn off your power packs from the wall power.

4 Leave your red wires disconnected from your power packs and set your Ohmmeter to the resistance scale.

You will have two (red) wires from each of those power packs so do one at a time Set all your selector switches to one direction. Place one of your meter leads on the red wire at the end that you disconnected at the power pack.

Follow it through with the other prod, first to the connection point on the first switch then each of the output points on that side. The reading of the meter should be 0 or perhaps up to 0.5 depending on the meter and the amount of the battery that has been spent.

As you check each block, keep the connection and switch the selector to the other cab. The meter should then read "1" or infinity depending on if it is a digital or analogue meter.

5 With the switches on, do the same check from the power pack wire, still disconnected, to the rail on that side. Your meter will read either a voltage or 0 depending on the rail as it did in step 3.

6 Connect your multimeter lead to the other "red" wire from the other power pack and repeat steps 4 and 5