



Home TRAK

**DIRECT CURRENT**

Still Alive and Kickin'

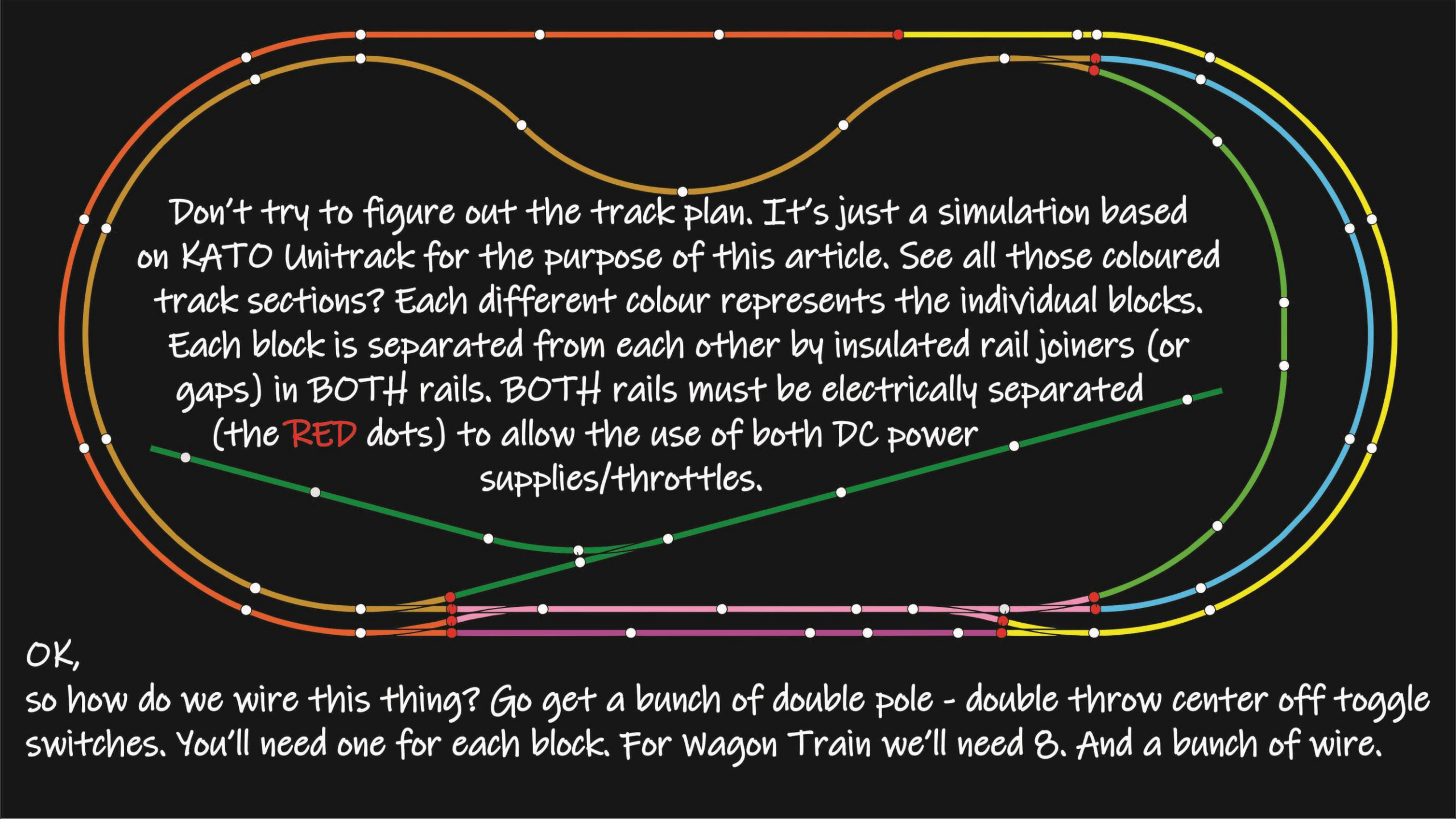
# I Love Small/Mini Layouts! This is "Wagon Train"

This little double loop layout on a 24 inch by 48 inch "project board" was my first attempt at getting back into model railroading after about 40 years. ( a 5 x 10 flat tracks on plywood kid layout) And my first attempt at styro foam scenery modeling. It was also my beginning of joining the show circuit. This was 2003. Before DCC was fully accepted as it continued to develop and gain acceptance. So, Wagon Train is a DC layout. It used two individual power supplies/throttles, one for



each loop. But, they were interchangeable - pick a loop and pick a throttle. I can "operate" 4 trains! Truly operational DC layouts are broken into electrical sections or "blocks". And, as I mentioned, each block can be controlled by either power supply/throttle.

But now we have DCC! No problem! Just connect the DCC supply in place of the 2 DC sources! We'll get to that later. Got some DC locos? Let's see how this DC stuff works . . .



Don't try to figure out the track plan. It's just a simulation based on KATO Unitrack for the purpose of this article. See all those coloured track sections? Each different colour represents the individual blocks. Each block is separated from each other by insulated rail joiners (or gaps) in BOTH rails. BOTH rails must be electrically separated (the RED dots) to allow the use of both DC power supplies/throttles.

OK,

so how do we wire this thing? Go get a bunch of double pole - double throw center off toggle switches. You'll need one for each block. For Wagon Train we'll need 8. And a bunch of wire.

# The STAR of the show!

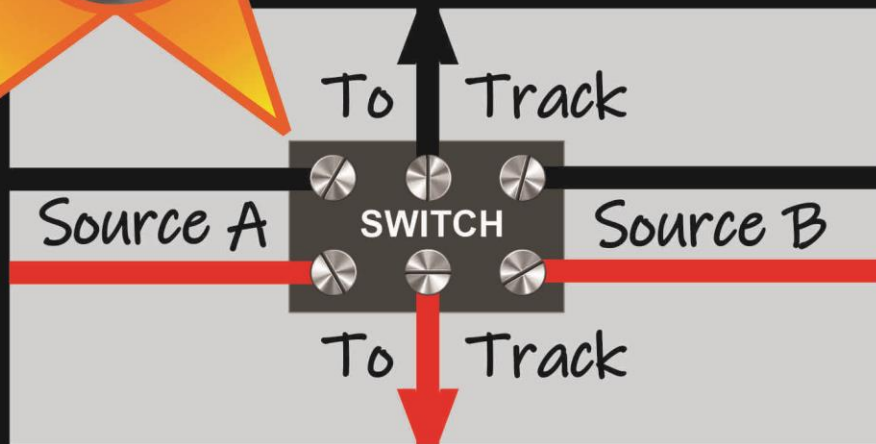
The double pole - double throw - center OFF toggle switch

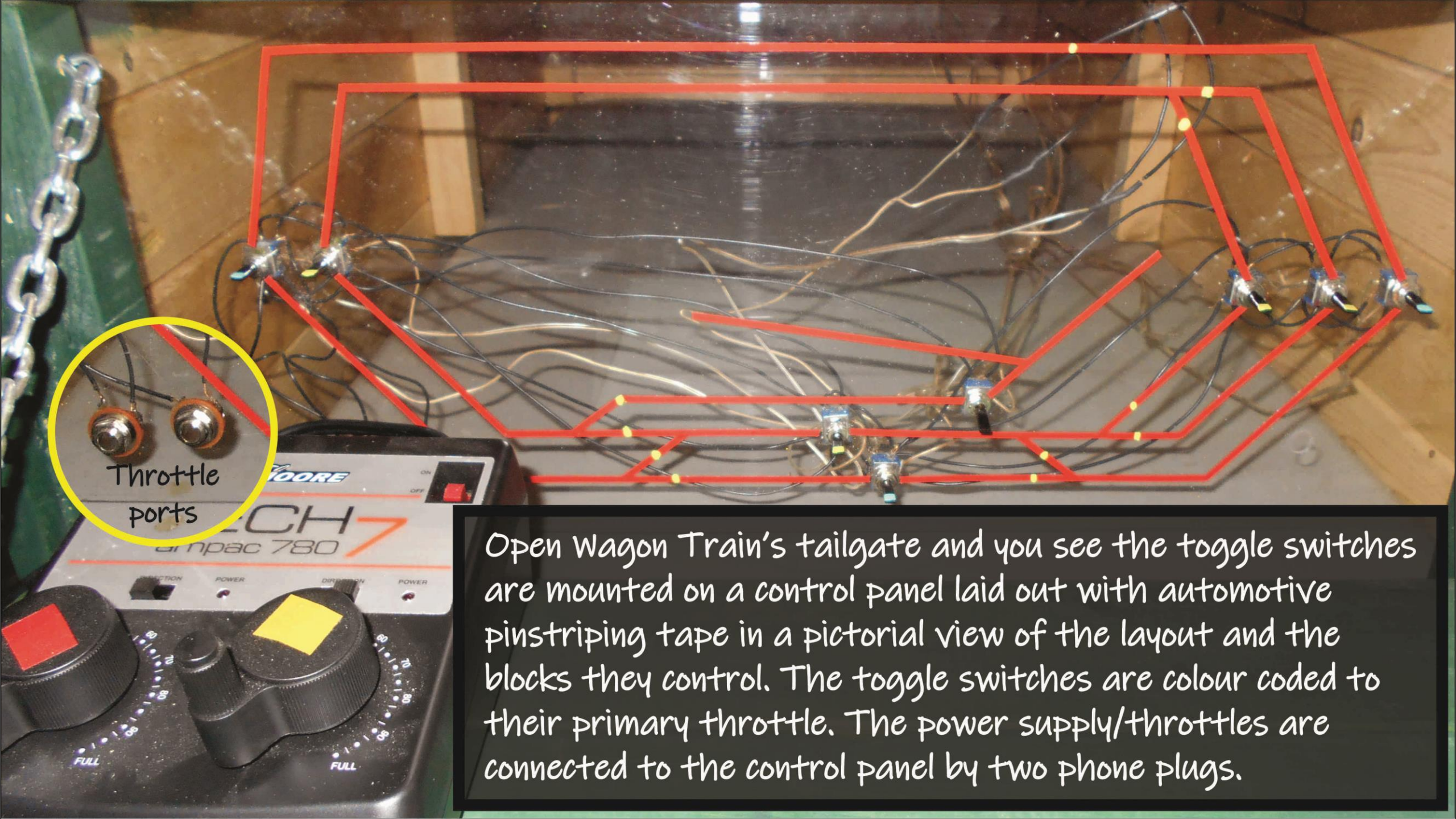
Why "Center OFF"? Allows parking trains in a block by turning off both power sources.

Why two power sources for each block? Total flexibility of which power supply is used when other trains are in operation.

Why gaps or insulated rail joiners in both rails? To prevent electrical short circuits when trains in adjacent blocks are operating in opposite directions on the other power supply.

NOTE: ALL toggle switches are wired identically! All switches should have the same electrical condition when the switch handles are in the same position. (A up: B down?)



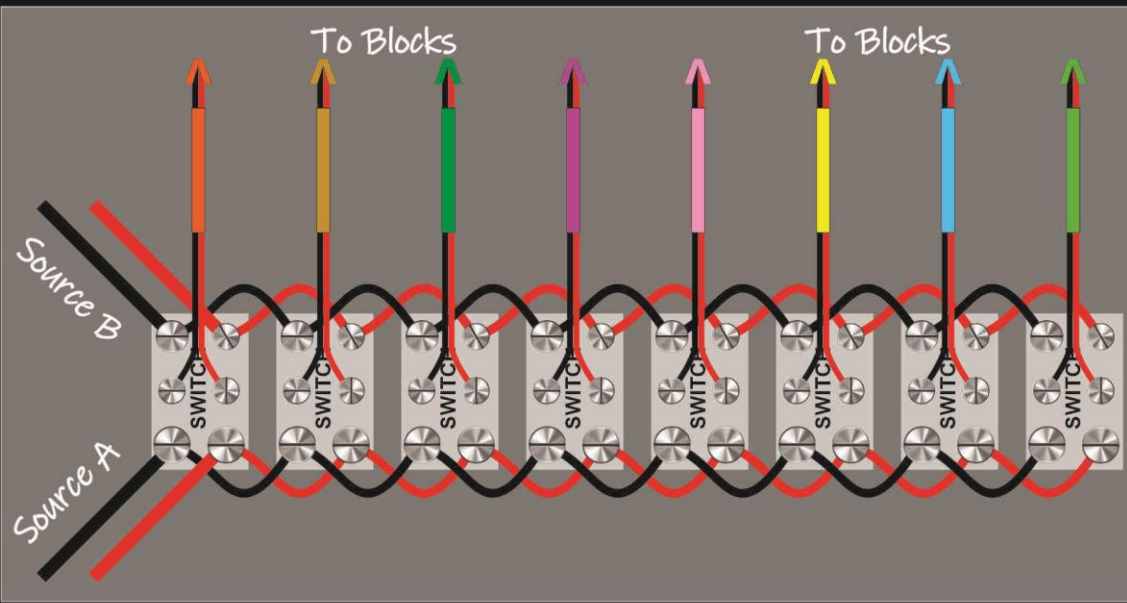


Throttle  
ports

Open Wagon Train's tailgate and you see the toggle switches are mounted on a control panel laid out with automotive pinstriping tape in a pictorial view of the layout and the blocks they control. The toggle switches are colour coded to their primary throttle. The power supply/throttles are connected to the control panel by two phone plugs.

# The Wiring Puzzle

The wiring requirements aren't really so puzzling. There may be a bunch of them but there's still only two wires; a positive red one and a negative black one. Trouble is the DC power supply/throttle terminals are not labeled as to positive (+) or negative (-). If you have more than one throttle of the same brand you should be OK. But, if your throttles are from different brands you will need



to determine the matching terminals when the train is going "forward" as selected by the throttle. Since we won't know which wire is + or - the red and black are only a way to distinguish the wires from each other as we route our supply wiring to their blocked tracks. Wagon Train uses small toggle switches and small gauge wiring due to its diminutive size. Larger layouts would be better off with more robust switches and 14 AWG gauge wire, or larger. The diagram above shows the 8 toggle switches required by Wagon Train and the supply wiring from the switches to the track blocks is colour coded to match the pretty layout plan graphic, for ease of identification and any possible trouble shooting later. Although a strip of switches as shown here could be used coded to the blocks on a layout operating diagram it is only meant to show the nature of the wiring which would be the same if the switches were mounted on a control panel shown before.

## Two or More Throttles

Larger DC layouts may use more than two power supplies/throttles. The ability to follow the train with the power supply/throttle as it travels from block to block allows semi continuous running without the need to change throttles, matching direction and speed.

## Oh Yeah! DCC!

Want to run some DCC trains? Place all toggle switches in the set position for the same power supply (A?). Remove your DC locos, disconnect the A DC supply/throttle and set it aside. Plug in your DCC supply/throttle. Now the whole layout will be supplied DCC from the A source. Rerail your DCC locos and go railroading. If the layout is large enough to require two DCC "districts" (a funny word for "blocks") set the second part of the layout switches to the B source and connect it to your second DCC supply. Want to run DC and DCC trains? Sure. Supply one source from DC and the other from DCC. In this case, a DC loop and a DCC loop but by changing block power trains can still cross over.

With metal wheel sets DO NOT change the block sources until the train is clear of the block to avoid electrical short circuits when running DC trains. With plastic wheel sets the rolling stock may occupy the neighbouring block.

Thanks for watching



A **ZoomTRAK** presentation by **True North Rail**