

Modifications to MTH PS3 Tender Red/Black power wire Positioning
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I have a 30-1660-1 P&LE (NYC) 0-6-0 USRA Steam Switcher #9060 with PS3.

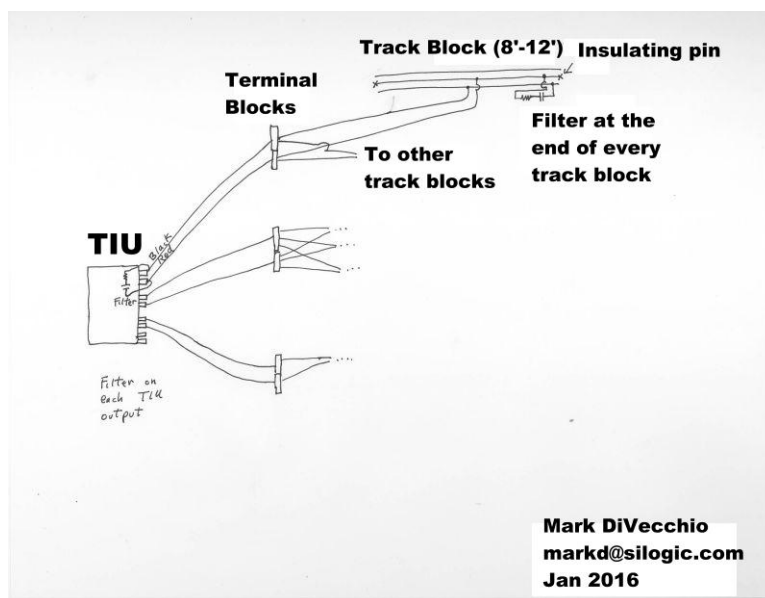


This engine was always a bulky runner. Often getting out of range errors and ignoring commands from the Remote/TIU. Its been like this since I bought it. I decided to see if I could do anything about it's poor performance.

I set up one loop of 0-54 tubular track. One TIU. It ran great – Track Signals of 10.

I put it back on my layout. It ran terribly – Track Signals from OUT OF RANGE to 10. My layout has about 30 blocks powered by all 4 outputs of a single TIU. When I ran the engine in a block containing another engine or a lighted passenger car, the Track Signal was always OUT OF RANGE to 6. In many blocks it was never above 1-2.

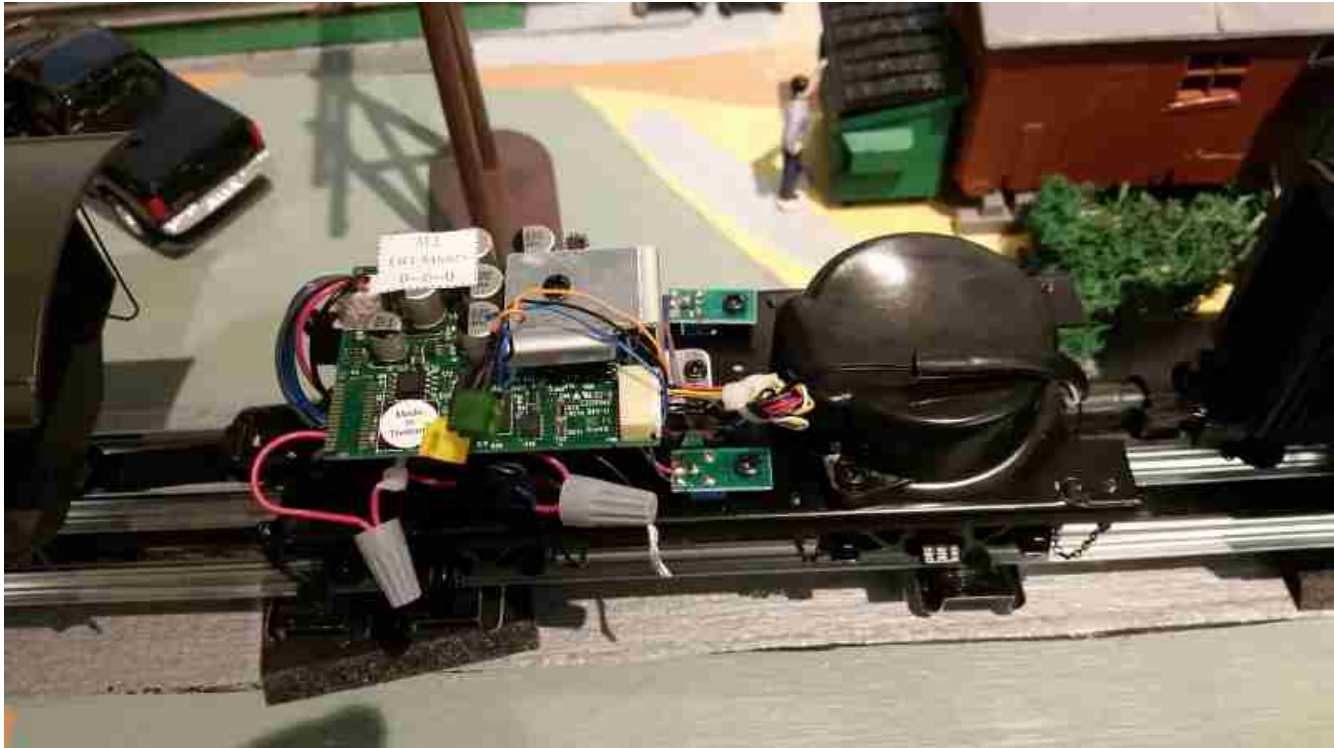
I ran other engines through the same blocks and always got Track Signal of 9-10. My wiring is what some call “Star” or “Home Run” style with an engineered filter on each TIU output jack and at the end of each branch of the distribution. Here is a drawing:



In the PS3 steam engines, the PS3 circuit board is in the tender so I removed the tender shell.



I know the DCS signal comes in on the power wires. I could see the red and black power wires stuffed underneath the circuit board. So I wanted to check them. I wiggled the wire bundle from the tether connector out from under the circuit board. I noticed there were two black wires supplying power. Sometimes DCS signals get confused if the signal can travel two paths from the TIU to the engine.



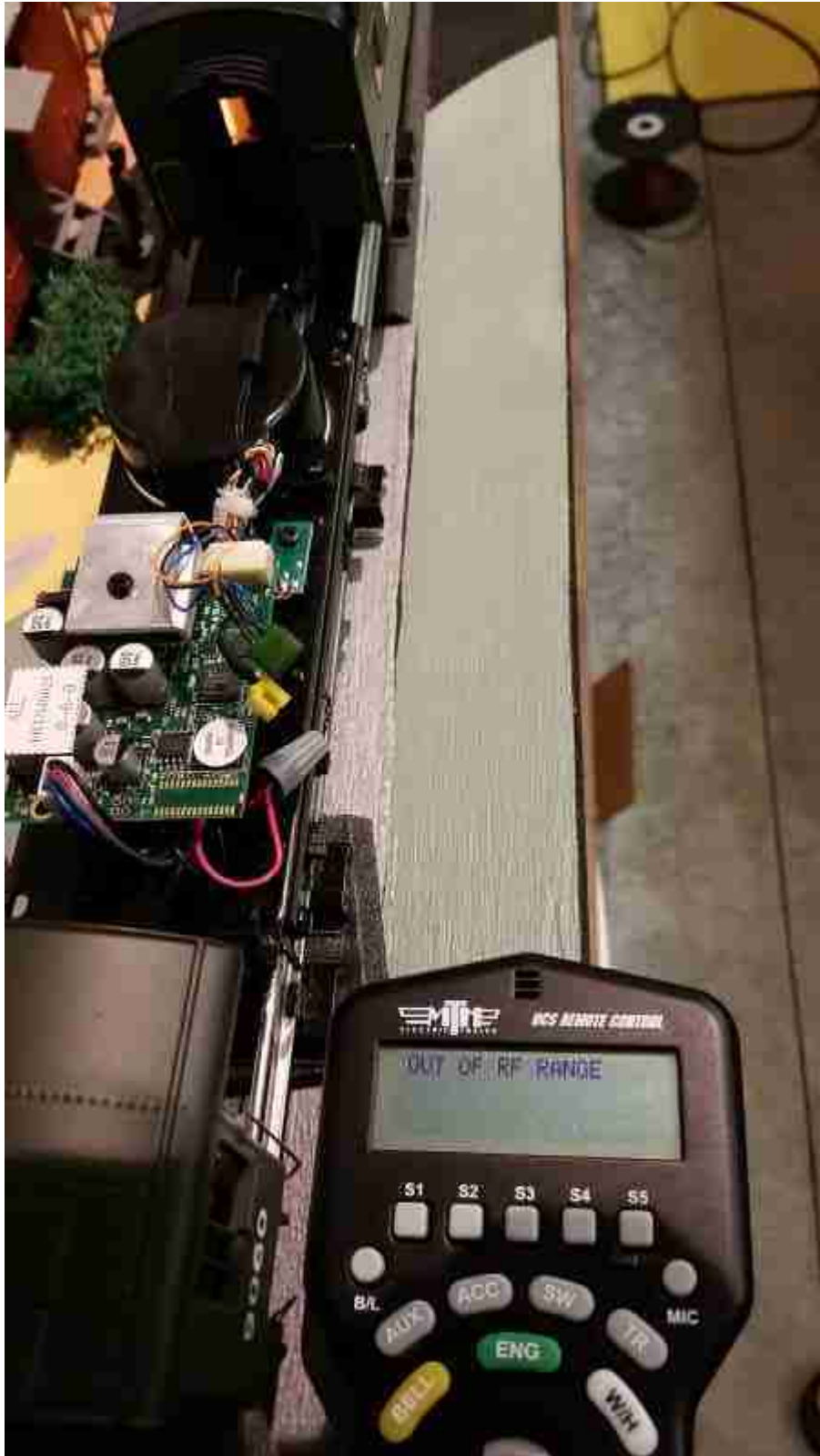
So I disconnected one of the black wires and put the tender back on the track.

Whoa! The track signal jumped to 10. I reconnected the black wire and it stayed at 10.

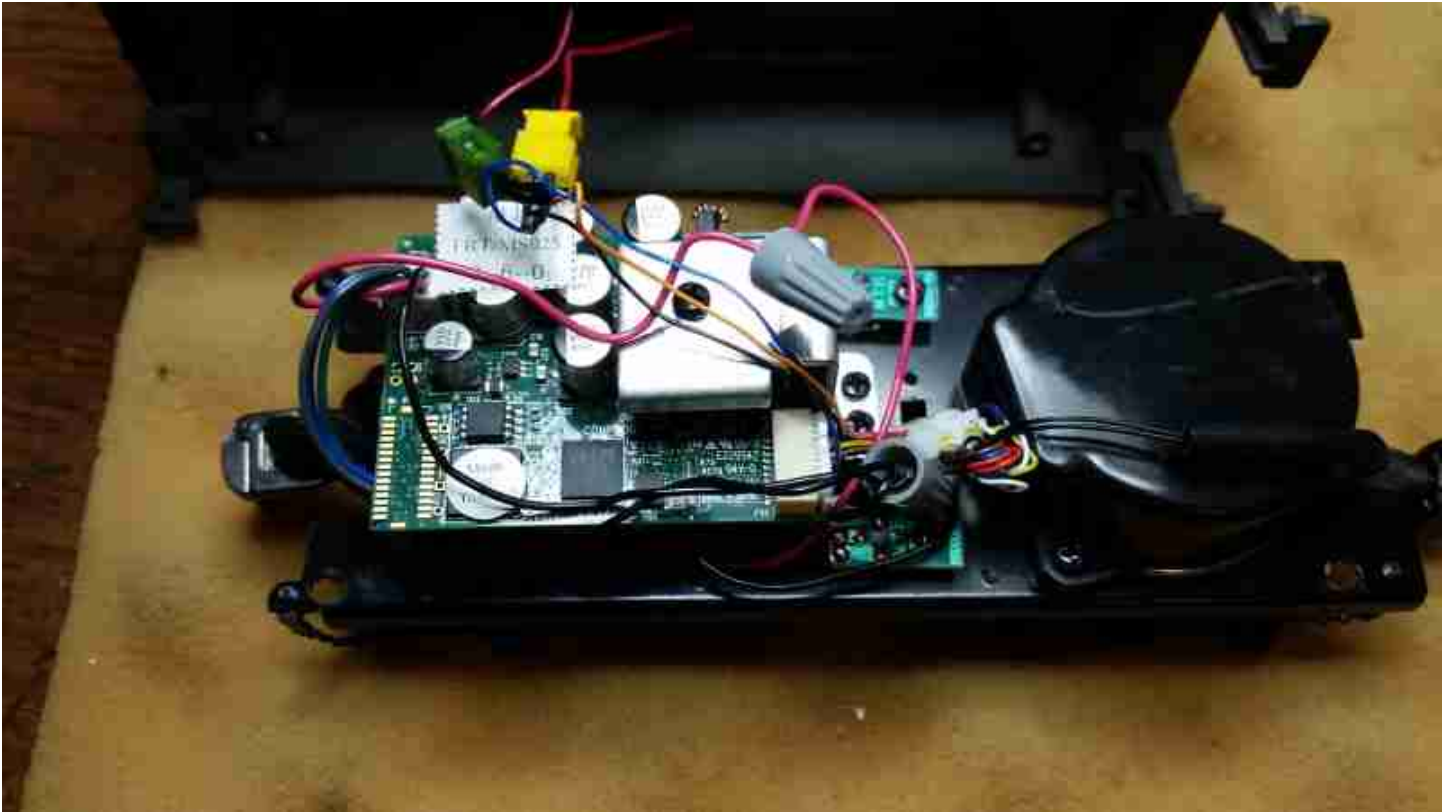


Magic?

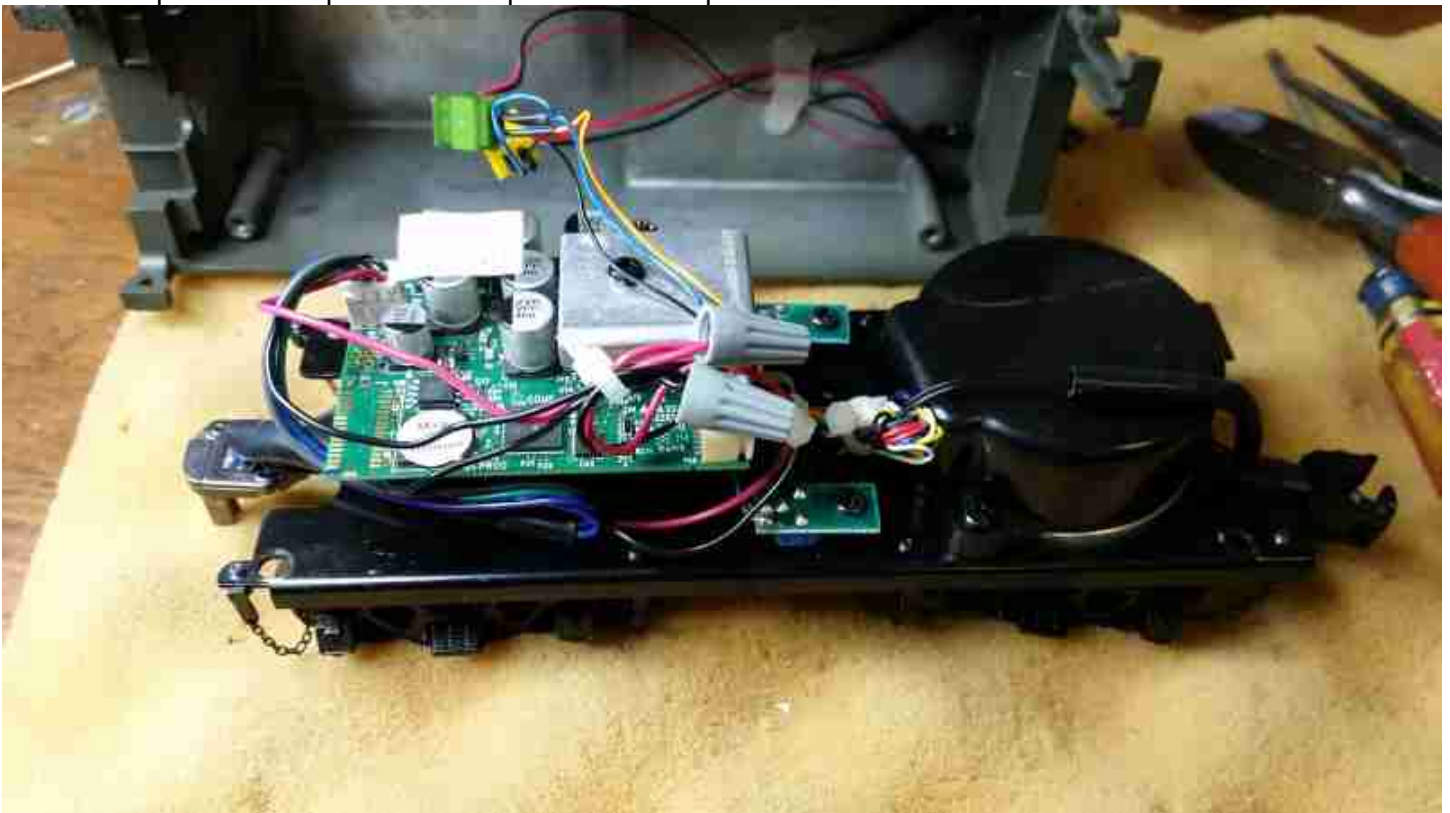
So I stuffed the wire bundle back under the circuit board and the track signal dropped down to OUT-OF-RANGE-1-2-3



So did just pulling the bundle out from underneath the circuit board cause this effect? After more testing, moving the bundle underneath then outside a few times confirmed that this was the problem. I unbundled the red and black power wires and routed them over top of the circuit board. I stuffed the remaining wires in the bundle back underneath the circuit board. Track Signals back at 10.



I used a couple of tie wraps to hold the power wires in place above the circuit board.



I replaced the tender body, put it back on the track and Track Signal was still 10. I ran the engine on my layout at 3 Smph and I got 10's all around.

So I don't know why this worked. Some kind of the interaction between the power wires (carrying the DCS signal) and the circuitry on the PCB.

I have one other PS3 steam engine but it does not exhibit this same problem. None of my other PS2 or PS3 engines have this problem either.

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<http://www.silogic.com/trains/layout.html>

http://www.silogic.com/trains/RTC_Running.html

http://www.silogic.com/trains/OOK_Radio_Support.html

<http://www.silogic.com/trains/ADPCM.html>