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Serial Data Buffer Instructions

Background

This Serial Data Buffer is required when upgrading a steam engine with a wireless tether using a Cruise Commander M™. The tether uses an LED that pulls the serial data signal below the normal logic levels used by the command board. If this buffer is not used, the engine will operate without any speed control!

Installation

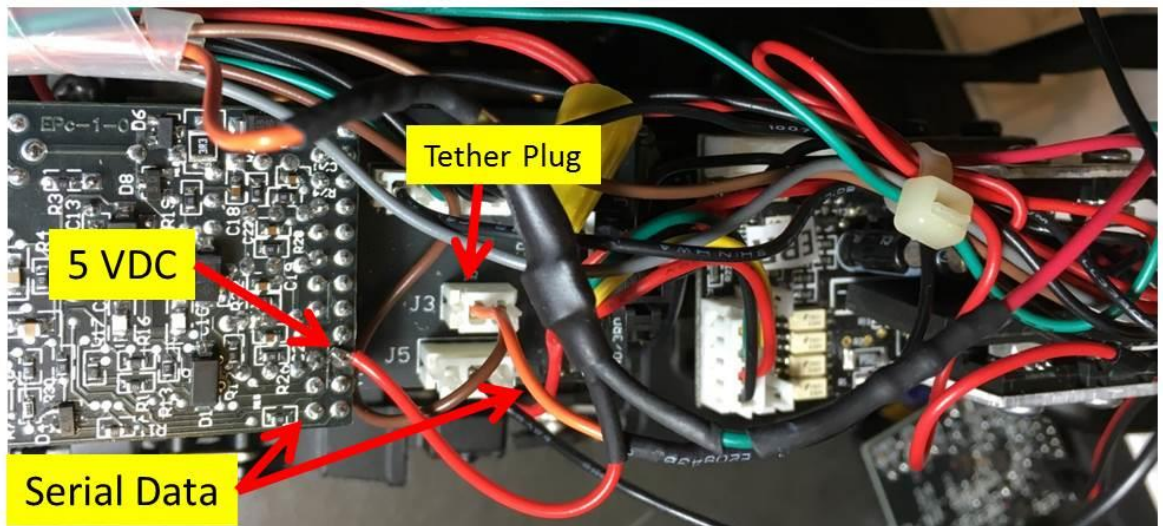
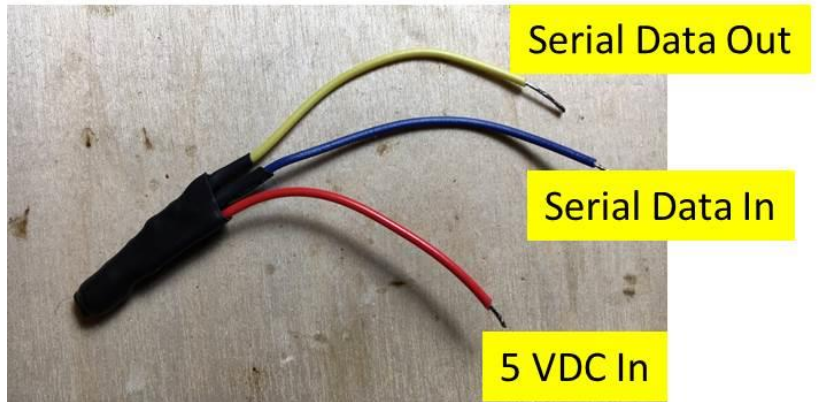
The Serial Data Buffer is shown with wire connections to the right.

The serial data is normally connected to the steam engine wireless tether through a 2 pin connector as shown in the picture below. The 2 pin connector is labeled J3 and the serial data signal is

on the orange colored wire.

The brown wire is ground.

The serial data signal is found on pin 24 of the R2LC. Five volts DC is available on pin 19 & 20 of the R2LC as shown.



Sometimes the wires are different colors. In that case, with *power off*, you can determine which wire on the two pin tether plug is the serial data with a continuity test between each J3 pin and the serial data pin on the R2LC. You can get to the J3 plug pins by removing the plug! This is important because this orange serial data line to the tether must be cut. The serial signal on the orange wire from J3 is connected to Pin 1 of plug J4 on the Cruise Commander. The loose end of the orange wire is connected to the yellow wire of the serial buffer (Serial Data Out).

Pin 2 from plug J4 of the Cruise Commander M™ will connect to the blue wire (Serial Data In) of the serial buffer. This places the serial buffer between the Cruise Commander and the tether thus providing isolation and separate drive signal for the LED in the tether.

Lastly, the red wire (5 VDC) from the serial buffer is connected to pin 19 as shown in the previous picture. The use of a soldering iron with a small/fine point is recommended! Once the end of the red wire is tinned, it will solder easily to this point.

Engines without the tether connector

Most engines without the tether will not need the Serial Data Buffer. Occasionally when upgraded with the Cruise Commander, the motor control is lost. Before installing this buffer, make sure all connections were made correctly. *This installation is rarely required!*

The serial line to the Cruise Commander (J4, pin1) will need to be attached as shown below to the serial data out from the R2LC. It is best to route the wire above the R2LC to prevent the wire from being pinched between the shell and the motherboard.

The connections to the serial buffer are the same as before. However, the serial signal to the sound board will have to be cut and spliced with the yellow wire from the serial buffer as done before.

