

# Supplementary Instructions for Wiring Smiths Electronic Instruments

By Derek Wilson CEng MIET, 21-July-2020

**Note: Web Links are for Amazon Canada, but all of these products (or similar ones) are available on Amazon world-wide.**

This is the momentary switch that was used:

[https://www.amazon.ca/gp/product/B07HNYRZVC/ref=ppx\\_yo\\_dt\\_b\\_asin\\_title\\_o02\\_s00?ie=UTF8&psc=1](https://www.amazon.ca/gp/product/B07HNYRZVC/ref=ppx_yo_dt_b_asin_title_o02_s00?ie=UTF8&psc=1)

The AMP – style connectors that are used are as follows:

2-Pin (2 required):

[https://www.amazon.ca/gp/product/B00SGYUH2I/ref=ppx\\_yo\\_dt\\_b\\_asin\\_title\\_o00\\_s01?ie=UTF8&psc=1](https://www.amazon.ca/gp/product/B00SGYUH2I/ref=ppx_yo_dt_b_asin_title_o00_s01?ie=UTF8&psc=1)

3-Pin (1 required):

[https://www.amazon.ca/gp/product/B00SH05FR8/ref=ppx\\_yo\\_dt\\_b\\_asin\\_title\\_o00\\_s01?ie=UTF8&psc=1](https://www.amazon.ca/gp/product/B00SH05FR8/ref=ppx_yo_dt_b_asin_title_o00_s01?ie=UTF8&psc=1)

4-Pin (1 required):

[https://www.amazon.ca/gp/product/B07PZFN4W/ref=ppx\\_yo\\_dt\\_b\\_asin\\_title\\_o00\\_s00?ie=UTF8&psc=1](https://www.amazon.ca/gp/product/B07PZFN4W/ref=ppx_yo_dt_b_asin_title_o00_s00?ie=UTF8&psc=1)

You will need a set of crimpers like these to install the pins for the above connectors:

[https://www.amazon.ca/dp/B00MBB4RPA/ref=cm\\_sw\\_em\\_r\\_mt\\_dp\\_U\\_FHyfFbHN0M8V2](https://www.amazon.ca/dp/B00MBB4RPA/ref=cm_sw_em_r_mt_dp_U_FHyfFbHN0M8V2)

**Note: this is by no means all of the supplies you will need, simply the connectors. You will also require as a minimum:**

- a quantity of extra wire
- appropriate crimp on terminal lugs
- 2-3 Lucas-style bullet connectors (these can be harvested from the old instrument illumination bulb holders)
- a fuse holder w/ 3A fuse
- heat shrink tubing
- electronics solder
- electrical tape
- cable ties

**As for tools, you will need as a minimum**

- side cutters
- wire strippers
- standard terminal crimpers
- needle nose pliers
- razor knife
- soldering iron
- I like to use a heat gun for heating the shrink tubing, but a lighter will suffice

**Refer to your manual for removing the seat, gas tank, old tach drive, and old instruments.**

**Tips for crimping on the pins:**

1. Start by placing the yellow wire seal over the wire to be pinned, with the smaller, unribbed seal diameter towards the end to be pinned
2. Strip about 1/8" (3mm) of covering from the wire.
3. Pull the wire seal towards the stripped end until only the bare wire is visible (seal is even with the start of the wire cover)
4. Set the wire into the pin so that the wire seal sits in the larger tangs and the bare wire sits in the between the smaller tangs.

5. With your fingers, squeeze the larger tangs partially around the wire seal. This will help hold the pin in place for crimping and help the pin to better engage with the crimper.
6. Note that the crimpers have stepped jaws. The larger step must engage with the larger tangs, and the smaller step with the smaller tangs.
7. Holding the crimpers in your right hand, with the angle of the jaws facing away from you, place the pin/seal/wire subassembly into the inner most (largest) jaw female opening.
8. Slowly close the crimpers on the pin until it clicks once.
9. Ensure that the pin is seated correctly in the crimper jaws and that the bare wire is in position in the smaller tangs. The ribbed larger diameter of the yellow seal should be pressed flush against the side of the crimper jaws. Adjust positioning as required.
10. Once everything is in position, cycle the crimper. The larger tangs should close tightly and neatly around both the seal and the wire covering (forming a strain relief), and the smaller tangs around the bare wire.
11. For 20 AWG and smaller wires, crimp the pin a second time in the middle jaw opening to further tighten the pin connection.

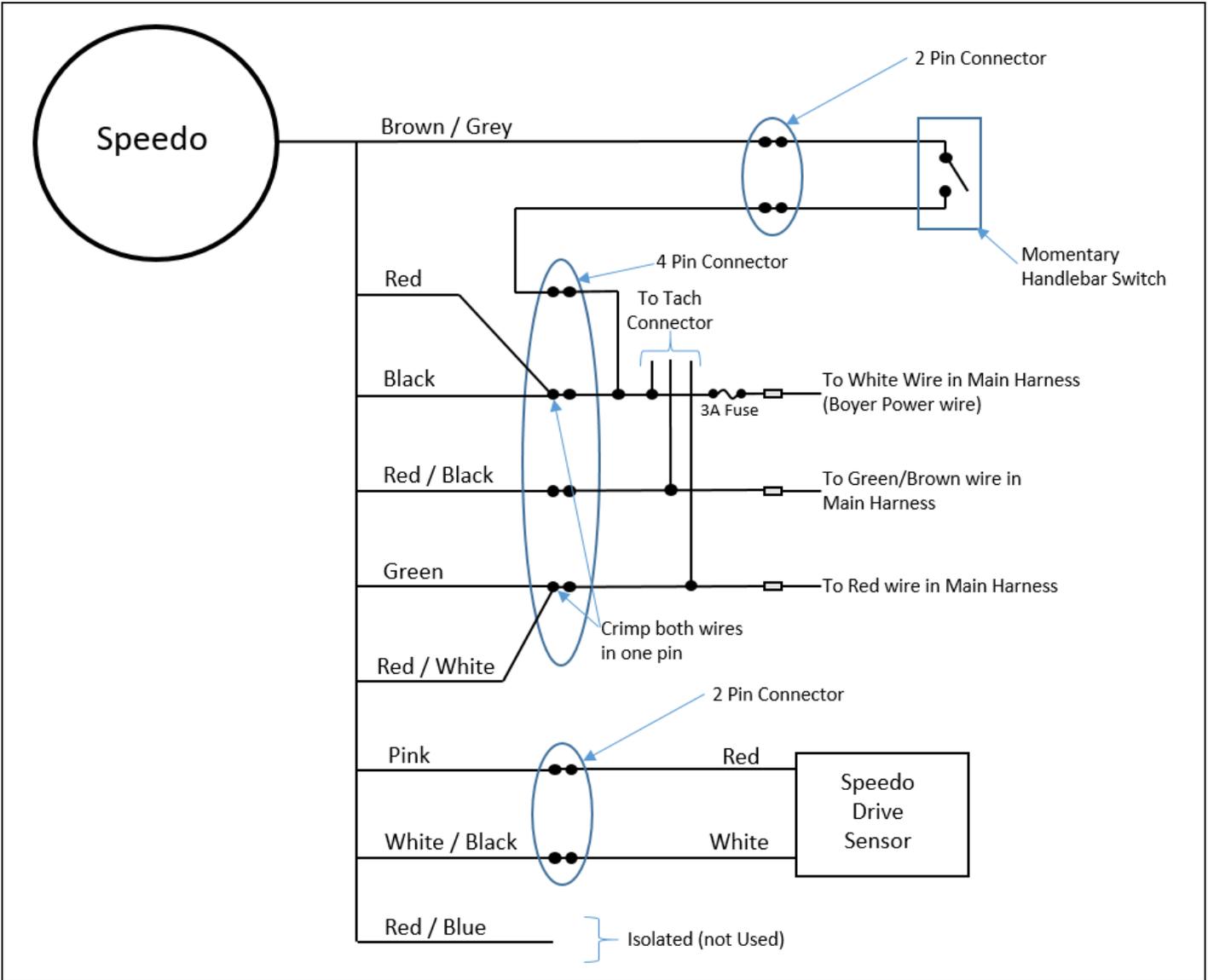
When pushing the pins into the connectors, ensure you hear an audible click, which indicates the pin is locked in. You should not have to force the pin in. If the pin is not engaging easily, it may be upside down. Flipping it over and try again.

Pin extractors are available if you accidentally push the pin into the incorrect slot in the connector. These ones work well: [https://www.amazon.ca/gp/product/B07DCN6GJ7/ref=ppx\\_yo\\_dt\\_b\\_asin\\_title\\_o04\\_s00?ie=UTF8&psc=1](https://www.amazon.ca/gp/product/B07DCN6GJ7/ref=ppx_yo_dt_b_asin_title_o04_s00?ie=UTF8&psc=1)

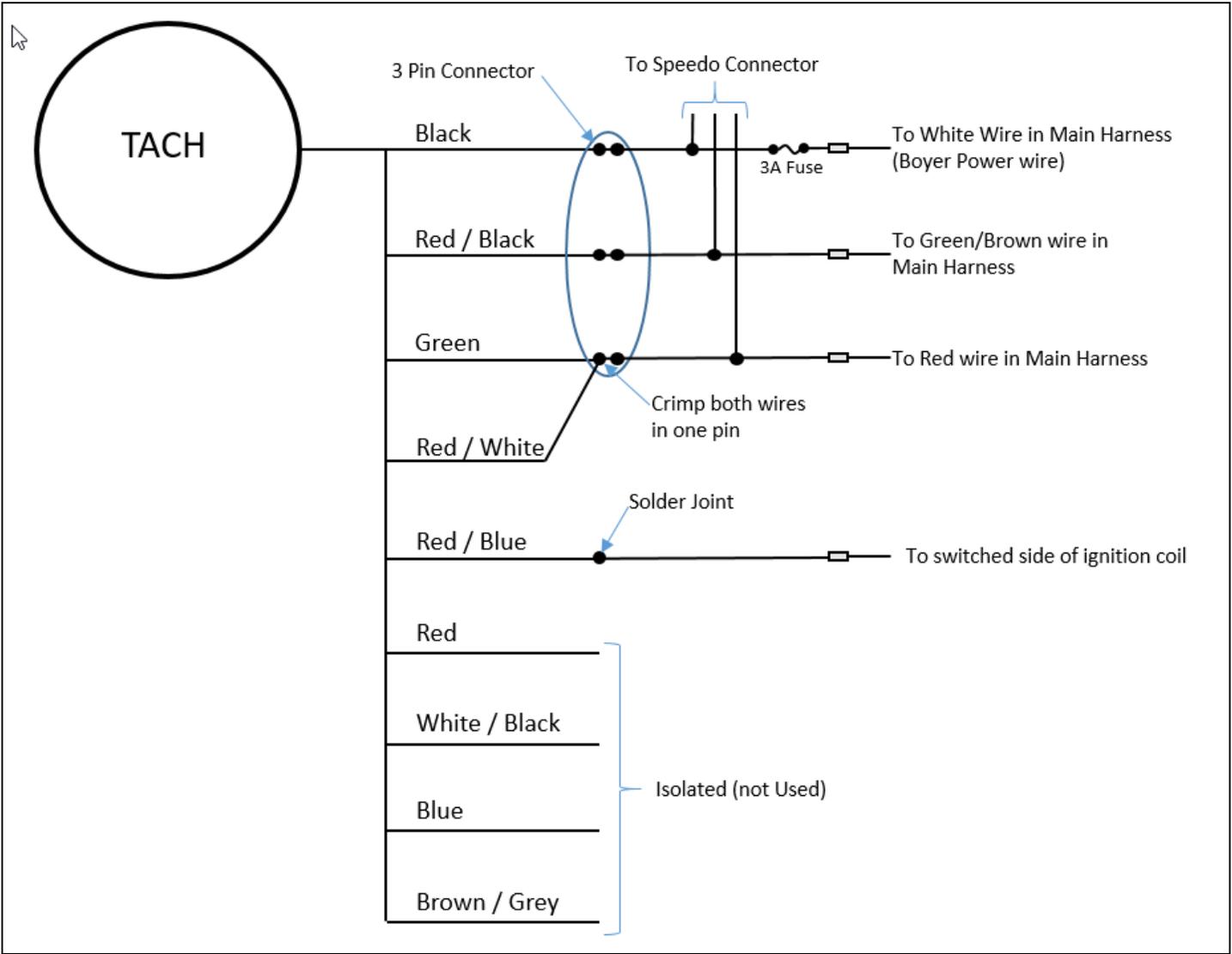
This is the extractor that you need to use:



Insert the extractor from the wire side of the connector, between the connector body and the yellow seal, on the lock side of the connector. Ensure that the extractor goes straight in. Gently work the extractor until the lock releases and the wire/pin assembly extracts without excessive force.



Speedo Wiring Diagram



Tachometer Wiring Diagram