

Mercotronic Model 98 Schematic Correction Mar 23 2023

Upon further investigation we have discovered there is an error in the schematic that was posted in the original documentation for the Mercotronic Model 98.

This schematic error only affects the Coil Test Mode of the model 98. This is during a coil test using the internal battery and will only affect how the meter section of the circuit responds as the Lo – Hi control is rotated from left to right. If wired as shown in the original schematic that we posted the Model 98 will still perform a coil test but the meter reading to display the current flow to the coil under test will not work. The meter will move but only about two widths of the needle as the control is rotated from the low position to a point where an ignition coil normally fires.

This error was discovered by member dj450 as he reassembled his Model 98 unit which was documented. The wiring that was in his Model 98 was in such poor condition he decided to replace it with all new wiring of the proper gauge and voltage rating. After reassembly the unit worked perfectly except for one problem. When doing an ignition coil test the meter did not respond properly resulting in virtually no amp reading being displayed on the meter. We assumed that there was a bad solder joint or some other connection problem but after testing virtually all parts of the circuit using an ohm meter and other methods the meter still did not work – moving only about two widths of the needle as stated.

As I stated during the original explanations of how the Model 9800 (which was the first unit documented) worked during each test mode I was not entirely sure the meter worked the way I described it and it turns out it does not. On a hunch member dj450 removed the new wire that he had used to connect the center terminal of the Lo – Hi control (which is a 10 ohm variable resistor) to one of the switch terminals and replaced it with the original piece of what appeared to be ordinary bare wire. To his amazement and joy the meter now responded and worked properly to display the proper current reading on the meter.

He used an ohm meter to try to measure the resistance level of the original wire but his ohm meter displayed it as 0.2 ohms which was the same reading that he would get if he measured the new replacement wire, any other normal wire or by shorting the leads together. As it turns out that during the manufacture of some of the Mercotronic units (such as the Model 98 and Model 9800) a special piece (or pieces) of wire was used as a connection wire at some point between the Lo – Hi control and the wire that comes from the vibrator socket that connects to one of the function switch terminals. The special wire is what we will call a “resistance wire” similar to what might be found in a heating element. The value of this wire is unknown at present – an educated guess on my part would give it a value of perhaps 0.01 ohms. Its purpose is to act as a very low ohm value “shunt resistor” across the positive and negative terminals of the meter. Whenever a current flows through a resistor there will always be a slight voltage drop between the two connection points of the resistor. This voltage drop will increase as the amount of current flowing through the resistor increases. In this case the voltage drop is very minimal and does not affect a coil under test but it provides a potential voltage difference between the meters positive and negative meter terminals and this creates a current flow through the meter resulting in a reading to be displayed by the needle and this reading will increase as the current flow through the wire increases. Now we know how the meter on the Model 9800 and the 98 works which is one more piece of the puzzle solved.

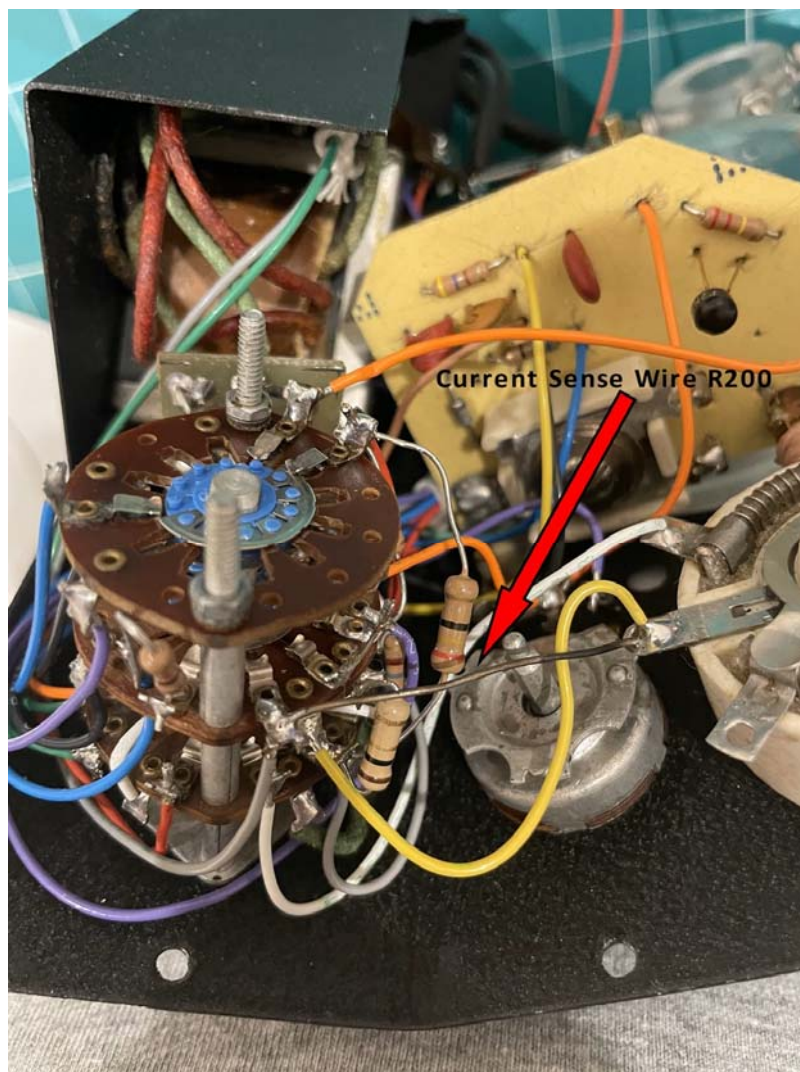
On the Model 98 that was documented there is only one piece of this special wire used – the Model 9800 uses two pieces. On the Mercotronic Model 98 the piece, which I have labelled R200 in the corrected schematic, connects between the Lo – Hi Control VR100 terminal 2 and the test selection switch (SW100 section D) terminal 22. My guess is that this piece of wire was used to calibrate the meter during coil test so it displays the proper amount of current flow. If someone has a Model 98 that

requires a repair of either of these components we would advise that this special wire should be made note of as far as length between the connection points at each terminal and reused and connected at the same spots on the wire to a replacement component. When removing a component unsolder and unwrap the wire from the terminal. DO NOT CUT THE WIRE as it will be difficult to splice back together – easy to make shorter – much harder to make it longer again! Since the resistance value of the wire is unknown and is such a small value that it cannot be measured with a normal ohm meter it may prove very difficult to replace the original wire if it gets damaged or shortened.

Attached is a corrected version of the schematic – the physical connections shown are not quite shown accurately but electronically the circuit is accurate.

The actual physical connection points for R200 are VR100 Terminal 2 to SW100D Terminal 22

Picture of the wire at the two connection points



Trying to measure with an ohm meter



