

## Wiring Emma's Cooling Fan:

In a previous post I described how I fitted a thermostatic sender unit to control the electric cooling fan. This post will cover the electrical wiring, but first a bit of relevant history. I was a Reliant Scimitar enthusiast for nearly thirty years and in the beginning, like almost everyone else who used their Scimitars regularly I suffered from premature failure of the thermostatic switch for the cooling fan. Eventually I decided to do something about it and completely changed the switch wiring.

Most switches work by switching **On** and **Off** the power to the appliance; I modified my wiring so the switch connected and disconnected the earth and I never had any more problems. Now many electricians will argue that the power in an electrical circuit is the same regardless of where you measure it and it makes no difference where you fit the switch, now that's true but try this simple test. Take a light bulb with a positive and negative wire connected to it. Now secure the negative wire to the negative battery post, touch the end of the positive wire to the positive battery terminal and observe the size of the spark as you make and break the connection to light the bulb. Repeat the test but this time secure the positive wire to the positive terminal and make and break the circuit by use of the negative wire. You will notice a smaller spark. What you are doing by touching the wires to the terminal is mimicking the action of a switch. "What can't speak can't lie! The switch will last longer if the spark is smaller!"

Regardless of the theoretical aspects this rewiring solved my problem and 'Rymfire' and later 'RoadRunner' (my last two Scimitar's), never burnt out another switch. In early 1990 I submitted details of my modification to 'SLICE' the Magazine of the Reliant Scimitar Owners Club and many other owners modified their cars with equal success.

### Note.

*Many years ago most cars were six volt and positive earth. Increasing battery voltage to 12 volts in order to have enough power to start multi-cylinder engines resulted in excessive erosion of the spark plugs, following which experiments revealed that a change to negative earth reduced spark plug erosion. A Volkswagen Beetle is just one of the many cars that underwent this change in both battery voltage and polarity; I'm sure this phenomenon is related to my switch experiment.*

I'm a belt and braces kind of guy so as well as a thermostatic switch I wanted a manual override switch. If or when I rewire Emma properly I will go the whole hog and fit a warning light and a relay as well.

The sketches show three circuit diagrams.

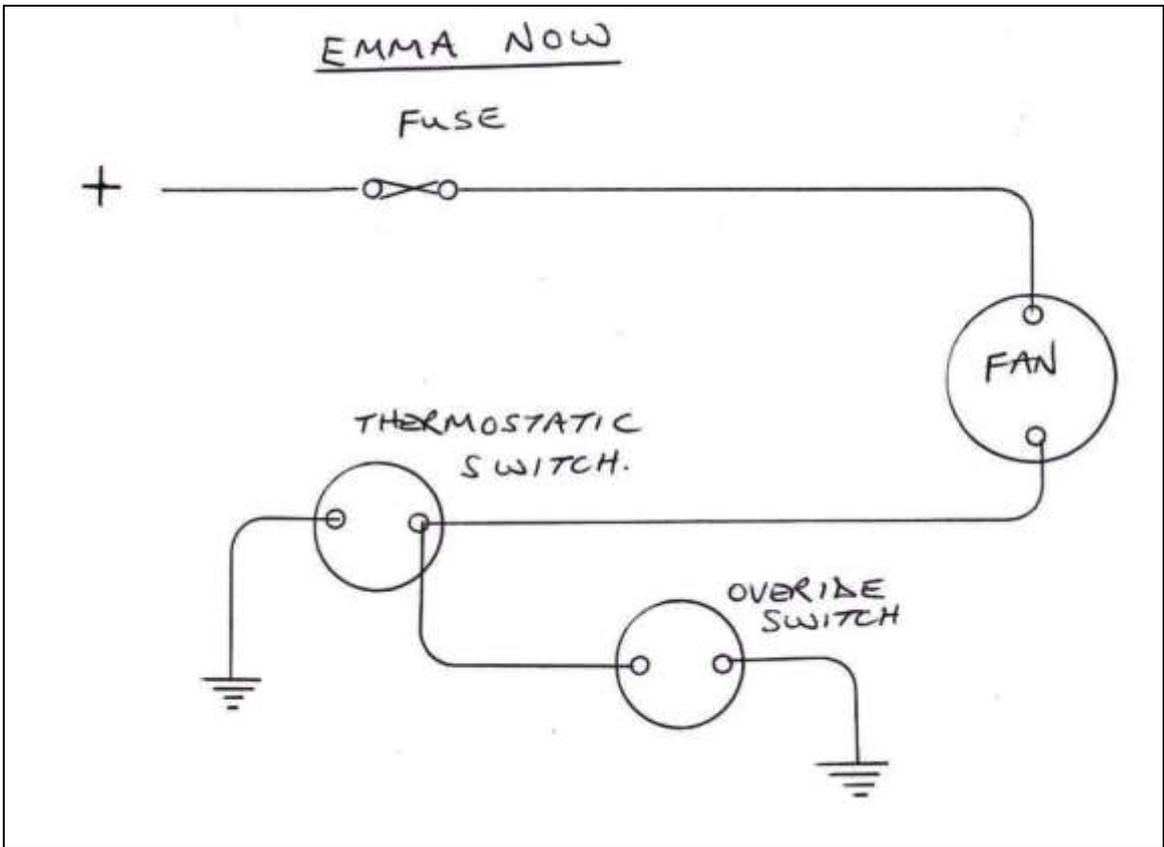
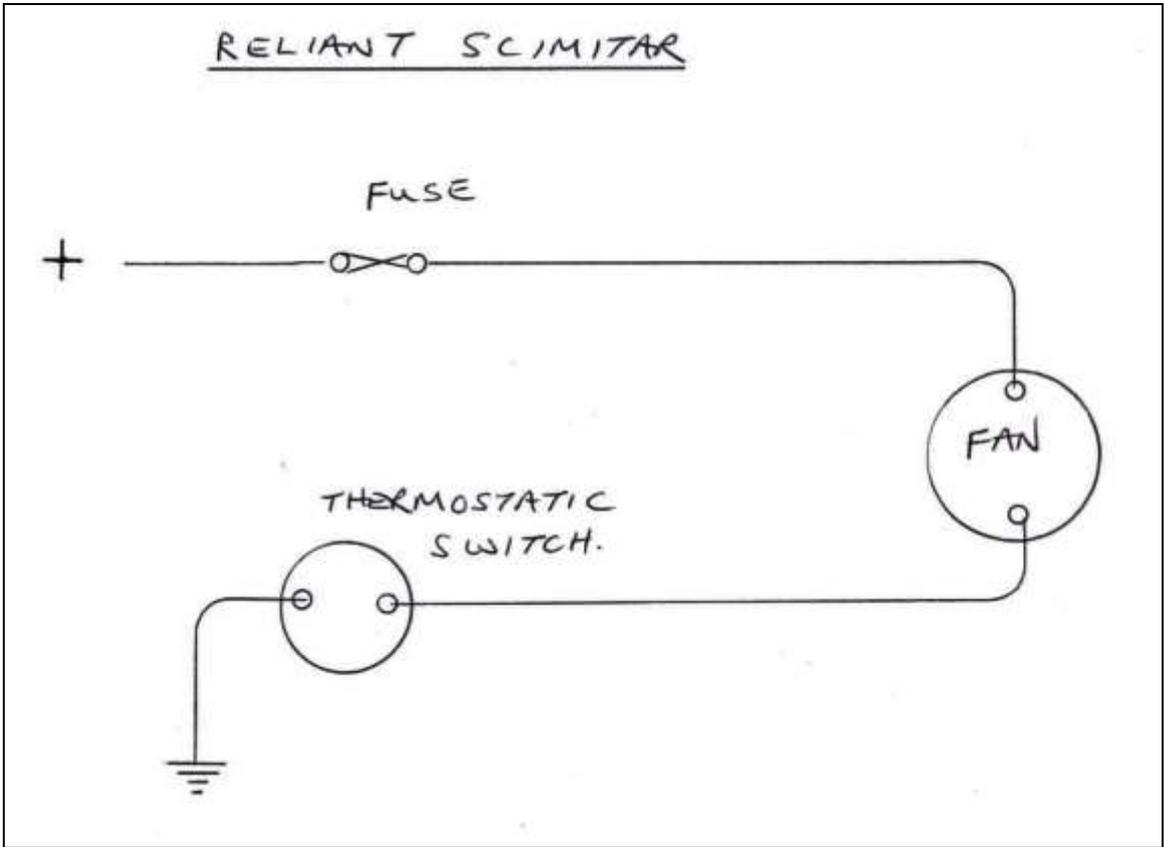
1. How I originally did it on my Reliant Scimitar's.
2. How I did it on Emma, a bit more complicated but not unduly so.
3. How I would do it if I was rebuilding/rewiring Emma from scratch.

### Notes.

*The Scimitar thermostatic switch is, from memory, quite small which may mean small underpowered switchgear/contacts. It is quite possible that a modern thermostatic switch may not require any wiring modifications; but as failure means an inoperative cooling fan why take the chance?*

*You will note that if I rewire Emma completely I will still retain the switch in the earth side of the cooling fan motor. Strictly speaking this is not necessary as a relay draws less than a quarter of an amp; however I've never been a conformist and when rewiring a car from scratch I always tend to put switches in the earth circuit if I can. The fuse will still protect the positive side of the circuit but a short in the negative circuit between the accessory and the switch will result in the accessory working, which in turn indicates a fault that you can repair.*

This almost concludes the work on my cooling system, but not quite. When I purchased Emma off 'Dan L' he told me that the cooling fan had an intermittent noise and he provided a new electric fan free gratis. Fitting it requires the manufacture of new mounting brackets and removal of the dummy radiator cowl so it has been designated as a job for the winter.



EMMA MAYBE LATER

