

# TAME THAT FUEL GAUGE

By Richard Ansell

Are you fed up with the fuel gauge needle indicating anywhere between half and full as you drive over bumps or up and down hills? The following modification will solve these problems.

Some time ago Headlines from Healey published an article showing how to add a super capacitor into the fuel gauge circuit to prevent the wild fluctuations of the needle. Variations of that circuit are also on the internet.

The idea worked well but with a couple of drawbacks:

1. Each time the ignition was turned on, the gauge took a quite a while to reach the correct reading.
2. When the ignition was turned off the gauge immediately went to 'FULL' and then very slowly returned to zero as the super capacitor slowly discharged.

I thought about what was happening and came up with the simple addition of a relay added into the circuit. Now when the ignition is switched off the relay disconnects the super capacitor and the gauge returns to zero straight away.

The super capacitor retains its charge and hence the last reading. When the ignition is turned on again the fuel gauge will quickly reach the previous level.

Please Note. When switching on for the first time after adding the modification or after refuelling, the gauge will take 30 seconds or so to reach the correct reading.

If you are competent with soldering and car electrics, then you will find the following quite simple. If not, then please ask somebody who is.

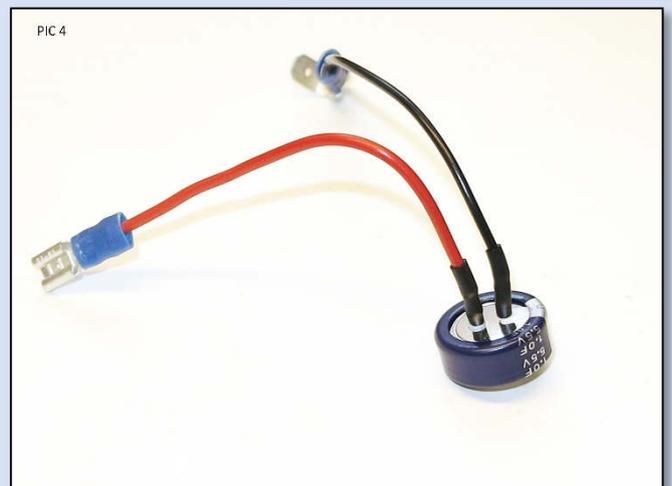
You will need the following parts:

1. A 1 Farad 5.5V super capacitor.  
I purchased mine on-line from Radio Spares Ltd. [www.uk.rs-online.com](http://www.uk.rs-online.com)  
**Description:** Cooper Bussmann 1F Supercapacitor EDLC -20 → +80% Tolerance Supercap KW Series 5.5V dc Through Hole.  
**RS Stock No:** 769-6217
2. A general purpose 12V 40A Automotive 'B' type relay SPST 4 terminal.
3. 3 'piggy back' 6.3mm female crimp blade connectors.
4. 1 standard 6.3mm female crimp blade connector.
5. 1 crimp 4mm ring connector.
6. Red, black, green, green/black cable as required.
7. Small (4mm dia.) heat-shrink sleeving.
8. Cable ties as required

See Pic 1 left.

Prepare 80mm lengths of a black and red cable and solder to the 'super capacitor' terminals. Fit the appropriate connectors and sleeve the soldered joints.

See Pics 2, 3 & 4.



PIC 5



Connect the other three cables to the relay as per the circuit diagram, at the end of the article. Black to terminal 86, Green to terminal 85 and the green/Black cable to terminal 30.

See Pic 7 below

Mount the relay/super capacitor assembly securely in your chosen position under the dash board and then connect the free ends of the three cables to the rear of the fuel gauge as per the circuit diagram. Black to the central threaded chassis stud, Green to 'B' and green/black to 'T'

I found it easier to remove the gauge from the dash board for this final part; feeding the wires through the hole in the dash board.

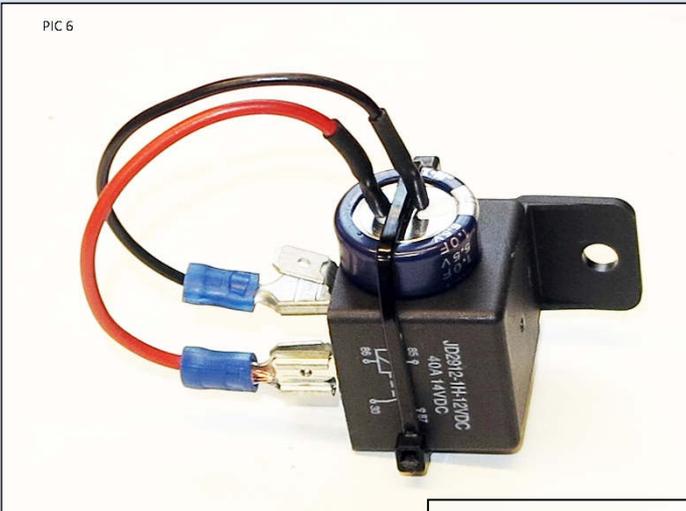
Re-fit the speedo and you're ready to go.

A few chums and I have been using this modification for a year now and are all very pleased with it.

**IMPORTANT PLEASE NOTE.**

The details above are for NEGATIVE earth cars. For POSITIVE earth cars simply reverse the connections to the super capacitor.

PIC 6



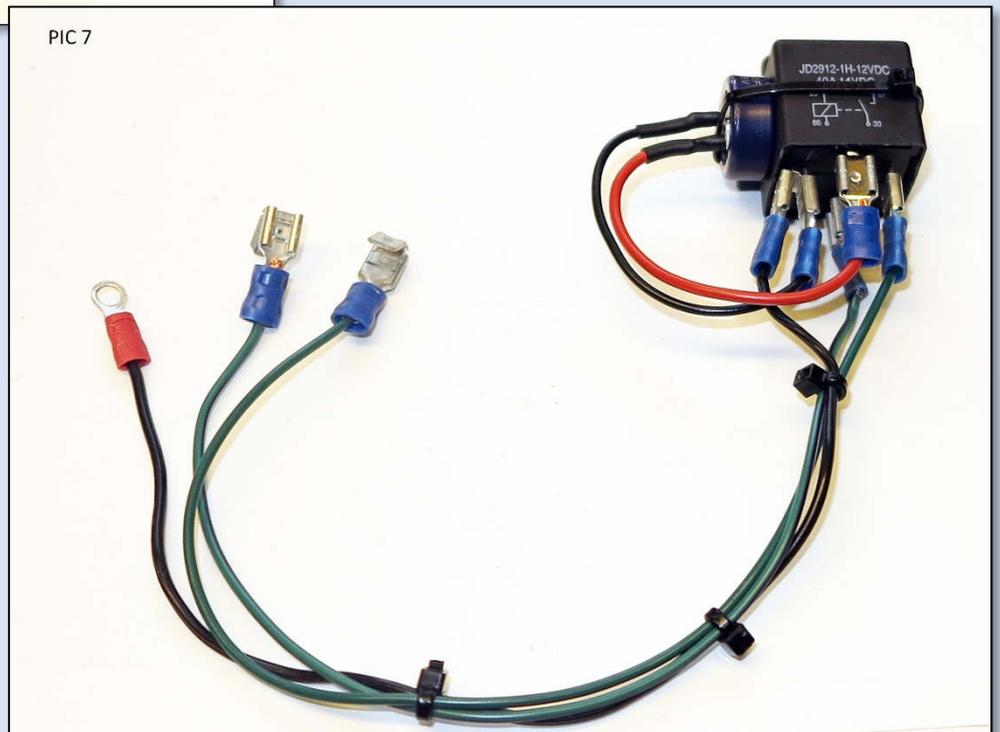
Determine where you are going to fix the relay assembly behind the dashboard to determine the length of cables required. Keeping to the existing wiring colour codes cut 1 Black, 1 green, and 1 green/black cable to the length required. Tidy up with either cable ties or sleeving.

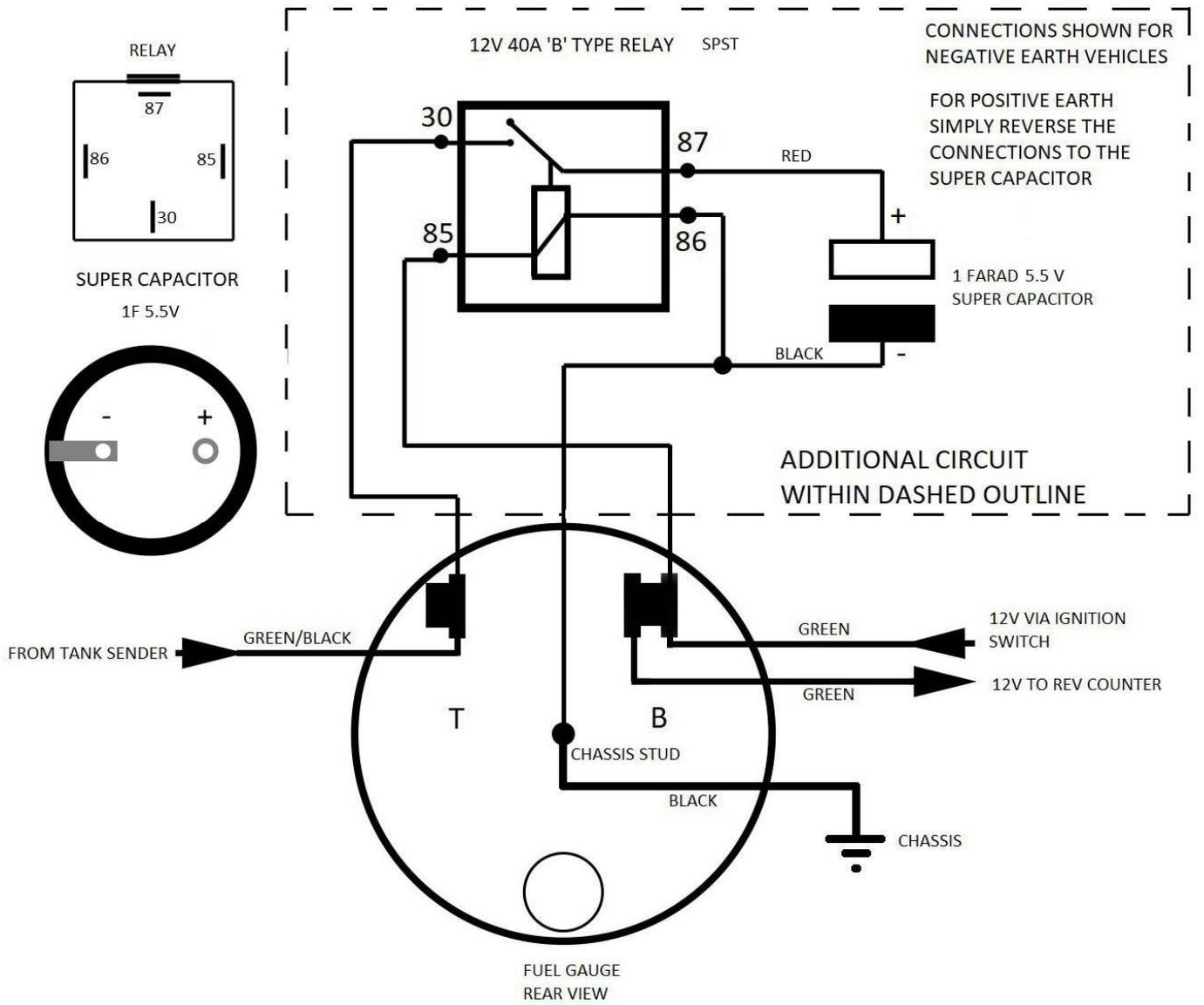
See Pic 5 above

Fix the super capacitor assembly to the side of the relay using a cable tie. Connect the red cable to terminal 87 and the black to terminal 86.

See Pic 6 above

PIC 7





CIRCUIT DIAGRAM