The Never Ending Saga of the Bl**dy B and W Wooly

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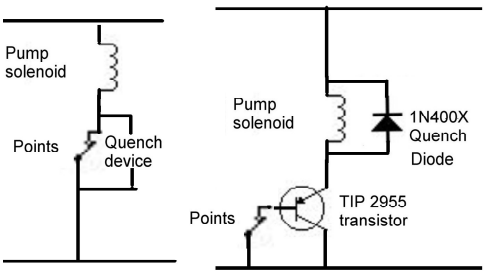
Well...it's been a while since I've appeared here.
My latest effort is to

ELECTRONIFY AN SU FUEL PUMP

This project started off a long time ago, when I had an old electronic fuel pump and decided that the electronics could be fitted to an SU pump. Didn't work, too many mechanical issues.

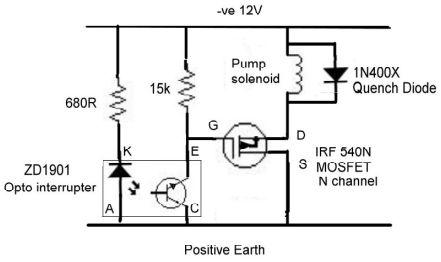
Roger kindly donated the SU pump. It needed a bit of TLC.
After the abortive attempt to fit those electronics, the pump languished, in pieces, for quite some time.
Eventually I decided to do something. Many years ago I saw an idea, on the QLD MG website, about using a transistor as an emitter follower, to isolate the points from the coil power. Simple, two components, a large transistor and a quench diode. This works OK, but has heating problems, due to the voltage drop across and the current through the transistor. In practice this may work OK, due to the long duty cycle, allowing the transistor to cool between strokes.

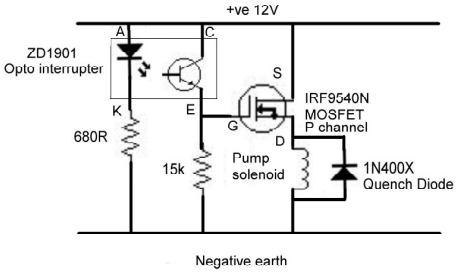


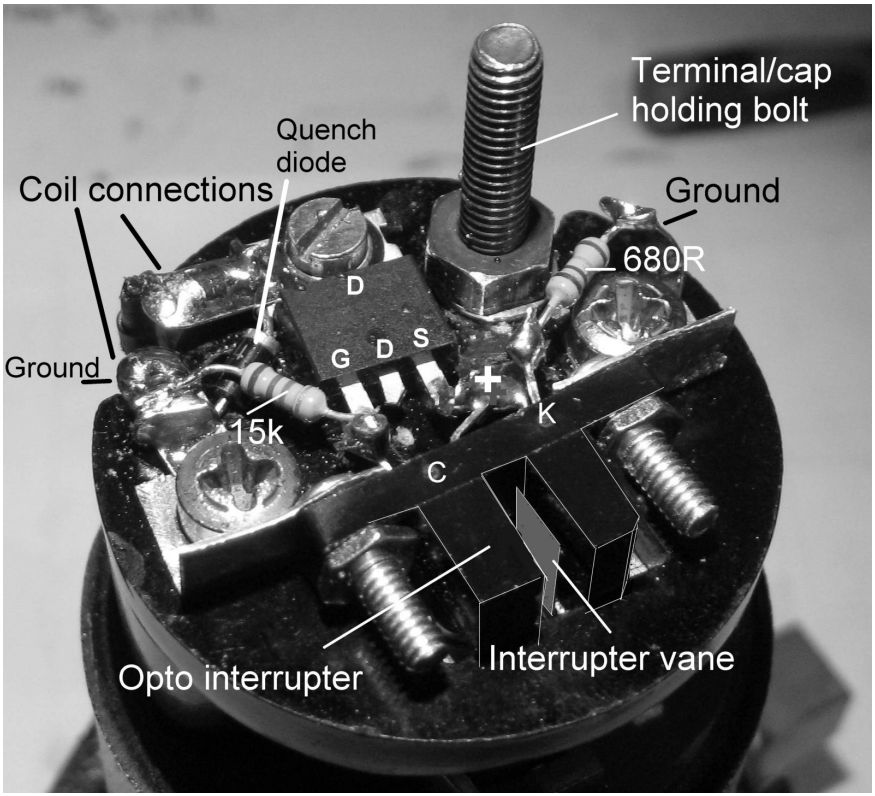
These diagrams show the original SU system and the mods for the emitter follower. Note that when the coil is turned off it generates a large reverse voltage, like an ignition coil. SU quenched this voltage across the points, whilst the quench diode shorts out the reverse voltage in the coil.

After emailing the SU pump guru, Dave DuBois, in the USA, he sent me heaps of good info. Included in this info was that he solders a small vane onto the points throw over and this becomes the interrupter for an opto interrupter. I tried this, with more electronics, such as a MOSFET as the switch.

I have drawn two versions of the MOSFET circuit, one for negative earth and the other for positive earth.







To build the negative earth mod, dismantle the pump and unscrew the diaphragm, Then remove the pedestal, from the pump, then remove the points and throw over mechanism. Cut the flex wire off the throw over. The terminal bolt needs to be moved to the opposite side of the pedestal, with a solder lug under the nut. The hole etc is already there. This is to place the “bump” in the cap over the opto interrupter. You will need to make two small brackets to hold this

opto interruptor, and place a solder lug under each screw. Once this interrupter is fitted, make a small vane from thin sheet metal. I used some 10 thou brass shim. Solder it to the throw over mechanism, between the points, tight fit but do-able. Now comes the fiddly bit, making this vane the right size to correctly interrupt the light beam. I assembled the throw over to the pedestal, then the pedestal to the pump body. Now the vane has to smoothly move up and down in the slot. The width may need to be adjusted to allow this. Once the vane is moving smoothly, the length needs to be adjusted so that when it is up it covers the little slot in the interrupter, and when it is down it doesn't.
Replace the pedestal. Now cut the centre lead off the MOSFET, the connection will be made via the mounting tab. Again, with a solder lug under the screw, mount the MOSFET where the "fixed" points were. Refer to the photo for the general layout of the bits and the orientation of the solder lugs. Solder the quench diode from under the solder lugs, with the band pointing towards to MOSFET tab. Then solder the 15k resistor and the E wire of the interruptor to the G terminal of the MOSFET. The other end of the 15k resistor is soldered to the ground lug, together with the diode and one of the coil wires. The other coil wire goes to the lug from the MOSFET tab. Now the A and C wires of the interrupter and the S terminal of the MOSFET are soldered to the lug under the terminal bolt. Check that there are no wires touch where they shouldn't. Reassemble the pump, as per the manual, except that where it says to unscrew the diaphram 4 holes, do it to 6 holes, i.e. one full turn. This seems to be a more reliable setting. Connect the pump to a 12V high current supply e.g. the battery and it should start clattering away. After this test squirt some hot melt glue around the components and the connections, to guard against vibration. Replace the cap and spade terminal.

Unfortunately, this mod retains the issue of damaging the pump, if the inlet side gets blocked. It stays in a power on condition, through the coil, as did the original points, possibly causing over heating and damage.

All components are available from Jaycar.