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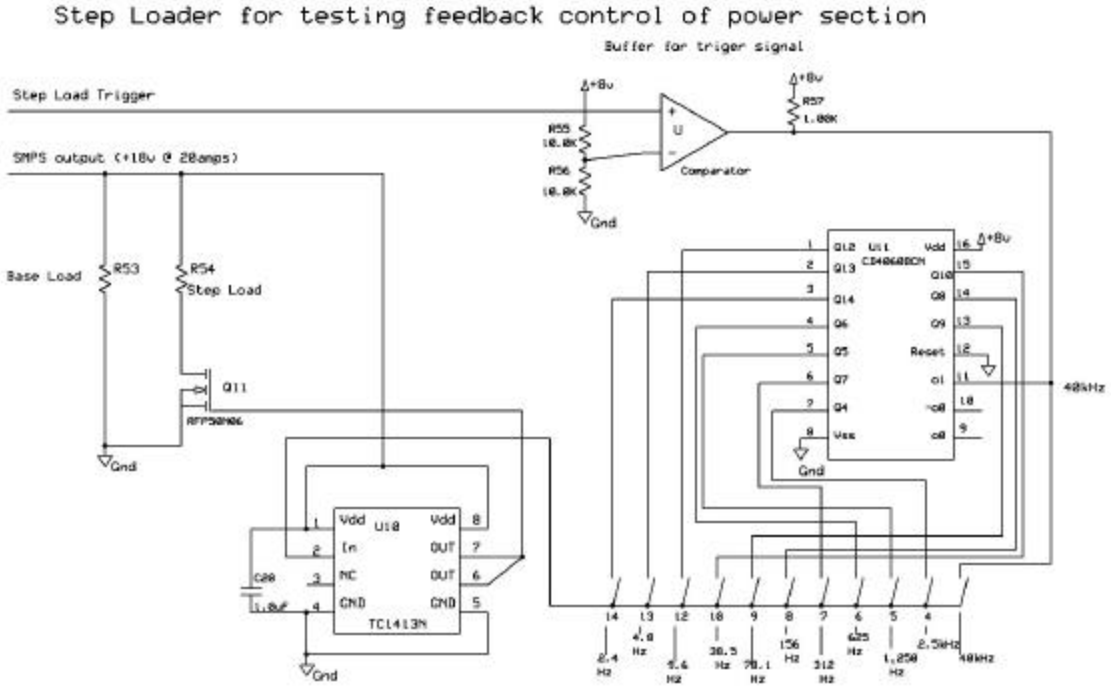
# Step Loader Circuit for Feedback Testing

This circuit was suggested to me by John Popelish from Yahoo-Groups Electronics101 discussion group. I have been working on a switch mode power supply (SMPS) and John has been coaching me through the feedback control circuit. In order to establish stability I needed to be able to load the circuit in a repeatable manner. John suggested I setup a circuit that would use a Binary Counter to generate a load addition every so many cycles of the SMPS.

My test loads for the SMPS project consisted of large home-made resistors of ½ amp-load each. I have these connected with 7 separate wires to achieve (2) 5 amp-loads, (1) 4 amp-load, a 3 amp-load, a 2 amp-load and a 1 amp-load. Previously I had connected these loads manually with a terminal strip. No chance of repeating connection – disconnect.

Since the idea is to load the circuit periodically the binary counter would trigger a mosfet or Darlington transistor that connected the extra resistor. I had never worked with a binary counter before and ended up with a Fairchild BC4060BCN, a 14-Stage Binary Ripple Counter.

I have listed the circuit below:




This circuit uses a mosfet driver, U10 to run Q11. Q11 could be triggered directly by U11 if needed. I had the mosfet driver in hand and used it to ensure good, clean triggering of the mosfet. The multi-segmented switch represents a 12 position rotary switch I had on hand as well.