KPC3+ TNC Regulator Replacement

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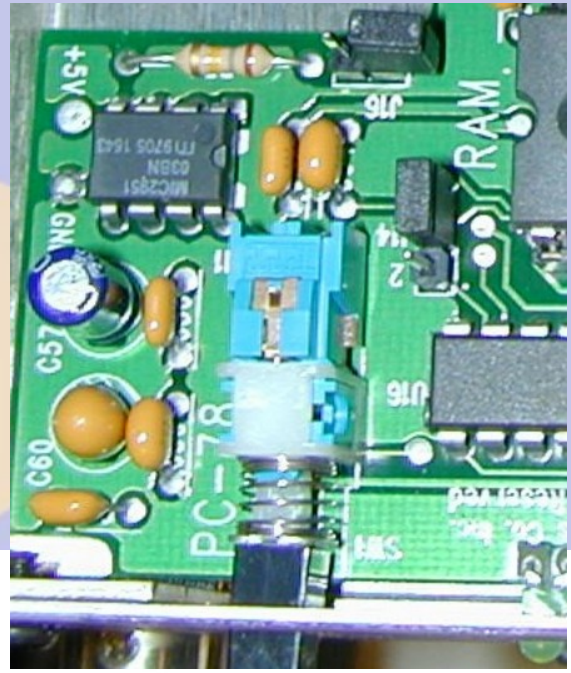
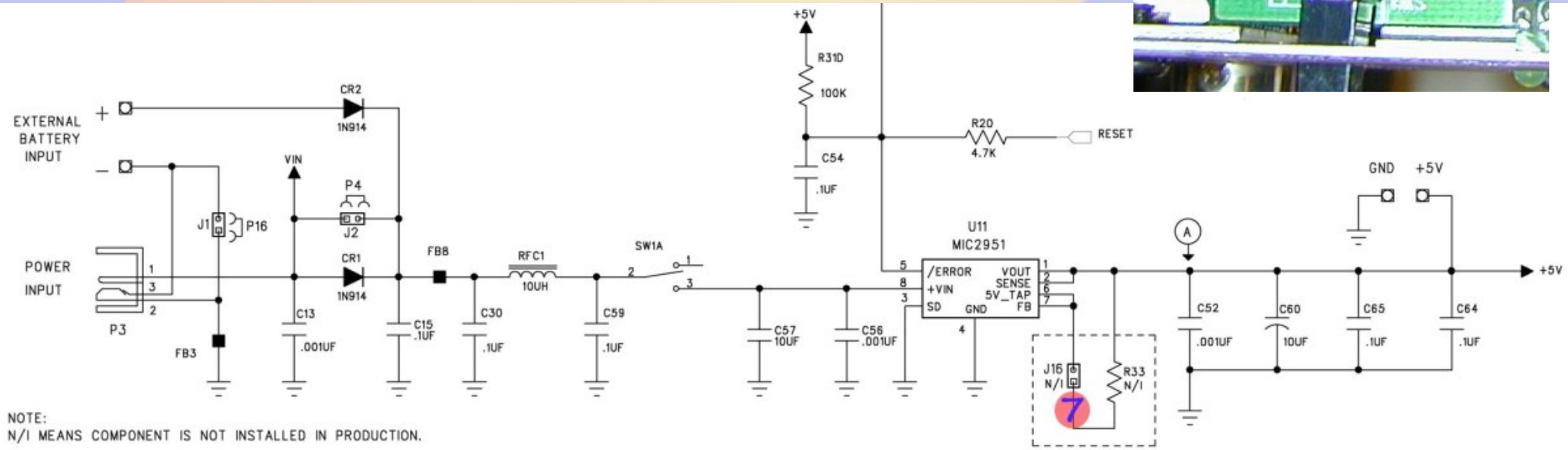
Diagnostics

- *It was kinda flakey and needed to be power cycled to work, and then stopped working*
- Symptoms
  - All LEDs off
  - 12V at power switch
  - <<1V at 5V test point

KPC Power Circuit

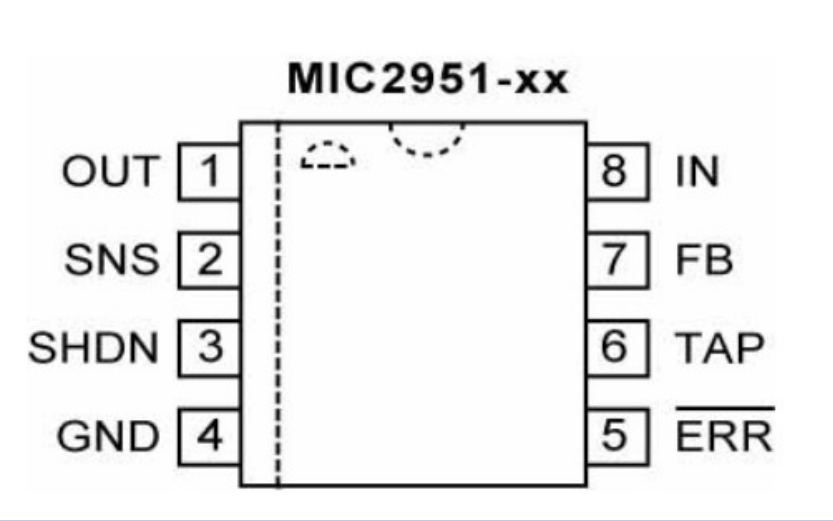
- MIC 2951 5V regulator chip
  - *12V on pin 8, <<1V on pin 1*

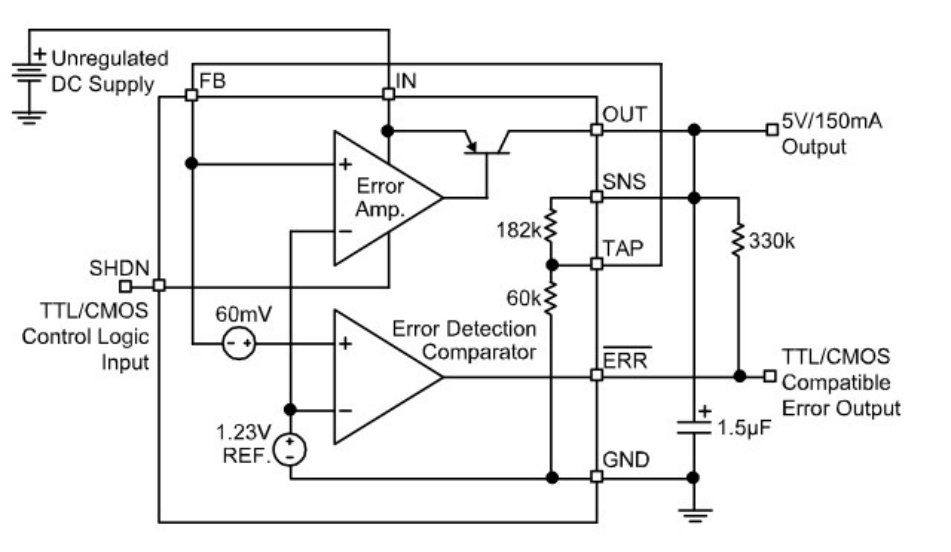




MIC 2951 Voltage Regulator

- Mouser $1.17
  - Mine was surface mount
  - Wired to act like 7805



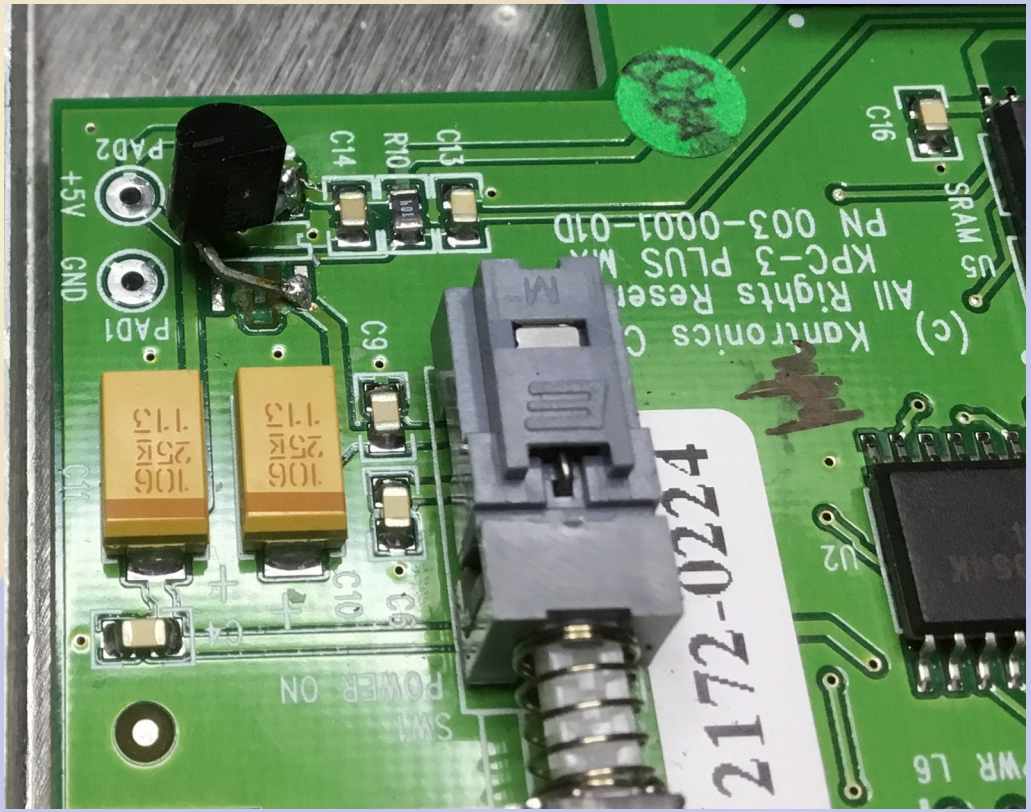


• Try 1: RECOM 78E5.0-1.0

- DC-DC converter
  - 7-30V input
  - 5V 1A output
  - 90% or better efficiency
  - Mouser $3.92
- Uses 40kHz oscillator
  - Could this noise be an issue?
    - Worked OK for me...

• Try 2: 78L05 linear regulator

- Classic linear IC
  - 7-20V input
  - 5V 100mA
  - Mouser $0.46
- Generates heat
  - uses ~10mA



Conclusions

- A 50c part makes a $200 device usable again
- A little trouble shooting with a voltmeter goes a long way
- Manufacturers publishing circuit diagrams for ham equipment is the original “open” system