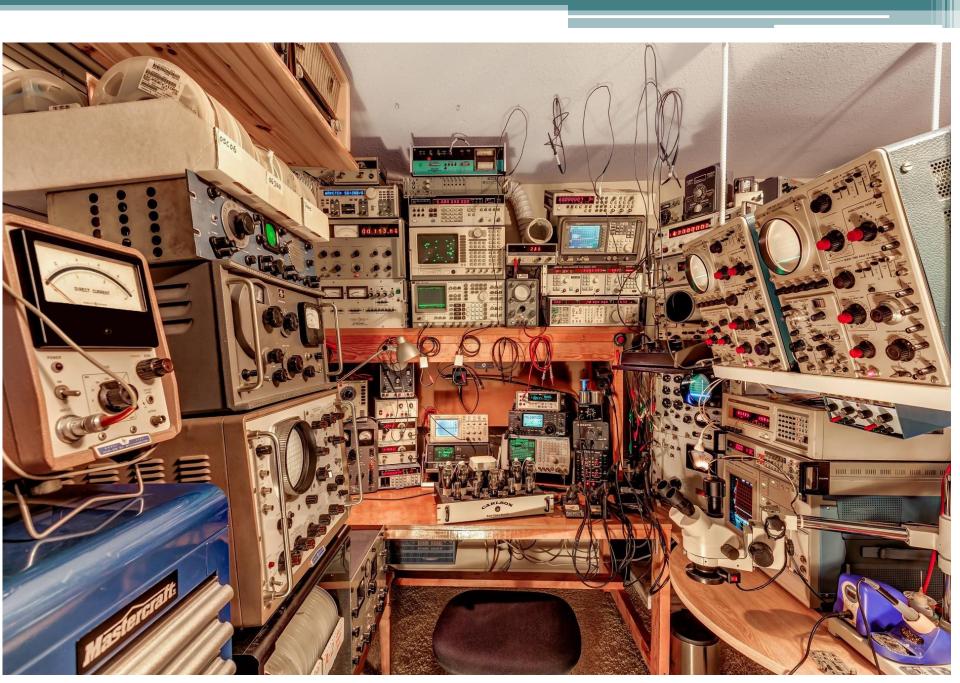
Electronic Workbench on a Budget

By Rob May, NV5E



Basic Tools

- Screwdrivers
 - Cross point and Flat-head
 - Precision Screwdrivers
- Pliers
 - Slip Joint
 - Needle Nose
- Wire cutters/strippers
 - Wire Stripper
 - Diagonal Cutter
 - Flush Cutter

Miscellaneous Tools

- Tweezers
- Light
- Magnifying glass
- ESD mat
- Nutdrivers
- Torx
- Files
- Nibbler
- Adjustable Wrench

Soldering

- Solder station
- Solder
- Flux
- Solder braid
- Desoldering tool

Solder Station

- Hakko 888D Update version of the 936
- Hakko 936 Most popular solder station, often copied. Now discontinued
- Weller WS-51
- Stick Irons Avoid these if possible
- Circuit Specialists
 - Station 60 this is the one I use
 - Station 75D I also use this one

Soldering Station





Soldering (Cont'd)

- Solder
 - 60/40 or 63/37 Rosin core only!
- Flux
 - Flux Pen MG Chemicals #835-P or Kester #951
 - Flux Liquid in a bottle w/brush or paste in a tin
- Solder Tips
 - Use chisel tips for most soldering, get a variety of widths
- Desoldering Tool
 - Handheld about \$7.00
 - Powered vacuum desoldering tool \$100 +

Power

- Bench Power Supply
 - Adjustable voltage and current output
 - Displays voltage and current
- Battery
 - 12V Gel Cell must be current limited!
 - LiPo battery pack multiples of 3.7V
 - NiMH battery pack safe and inexpensive, 1.2V
 - Alkaline battery pack not rechargeable, expensive

Multimeters - Budget

Aneng AN8008 \$21.00



Multimeter - Mid Range

Uni-T UT139C

\$42.00

I would consider this the minimum quality multimeter for electrical (not electronic) work



Multimeter - High End

Fluke 17B+
\$117.00
Chinese market only but
available from US sellers
Excellent quality, very good
input protection and accuracy



Tool	Price	Source	Part Number
Hand Tools			
4 way screwdriver	\$1.99	Harbor Freight	69470, 61988
Jewelers screwdriver	\$3.99	Harbor Freight	47823
Pliers set	\$9.99	Harbor Freight	63812
Flush cutters	\$4.47	Amazon	Hakko CHP-170
Wire strippers	\$1.89	Harbor Freight	36901
Soldering			
Soldering Station	\$19.99	Circuit Specialists	CSI Station 60
De-soldering	\$5.93	Amazon	Omorc
<u>Solder</u>	\$3.59	Fry's	MG 4880-18G
<u>Flux Pen</u>	\$9.95	Fry's	MG 865-P
Power			
12V Battery	Free		
Multimeter	\$21.00	Amazon	Aneng AN 8008
Multimeter 2	Free	Harbor Freight	90899, 98025
Component tester	\$10.00	еВау	Various
ESD			
ESD Mat and strap	\$10.81	Amazon	Velleman AS4
Total	\$103.55		

Questions?