

SOLDERING TIPS:

Use a fine point tip soldering iron when you assemble this kit, to eliminate the possibility of creating any solder bridges. Also use only rosin core solder when assembling this kit. When making solder connections, apply the tip of the soldering iron to the joint where the component lead meets the PC pad. Apply heat for a moment and then apply the solder to the joint. **DO NOT APPLY SOLDER DIRECTLY TO THE IRON.** Remove the solder and the iron after the solder has flowed into the joint and let the joint cool. A smooth shiny finish on the joint indicates a good connection.

ASSEMBLY:

Place the bare board in front of you with the side that reads "EXTERMINATOR" facing you. Begin by mounting the S-100 Connector from this side and seat it flush with the surface of the VTE board. Then solder it into place. The long connector pins which come out the other side of the board may be used as "scope" tie points, otherwise you may cut them off. Next solder all I.C. Sockets into place if they have been provided in the kit. Otherwise be sure that pin #1 of the resistor array lines up with pin #1 on the VTE board before you solder the array directly to the board. Mount the remainder of the components. Pay particular attention to D1,2. Make sure that their circular bands point down and away from the S-100 edge connector. Also make sure that the band on the 12 volt zener faces U7. The flat side of Q1 should face the S-100 connector and be sure that the leads from Q3 have been placed in their appropriate holes. See the other side of this page for more details. Mount the heat sinks under Q2 and Q4. On Electrolytic capacitors, watch the polarization. C4 and C6 are marked on the board. C11 and C12 should have the negative side inserted into the hole nearest to the edge of the VTE board.

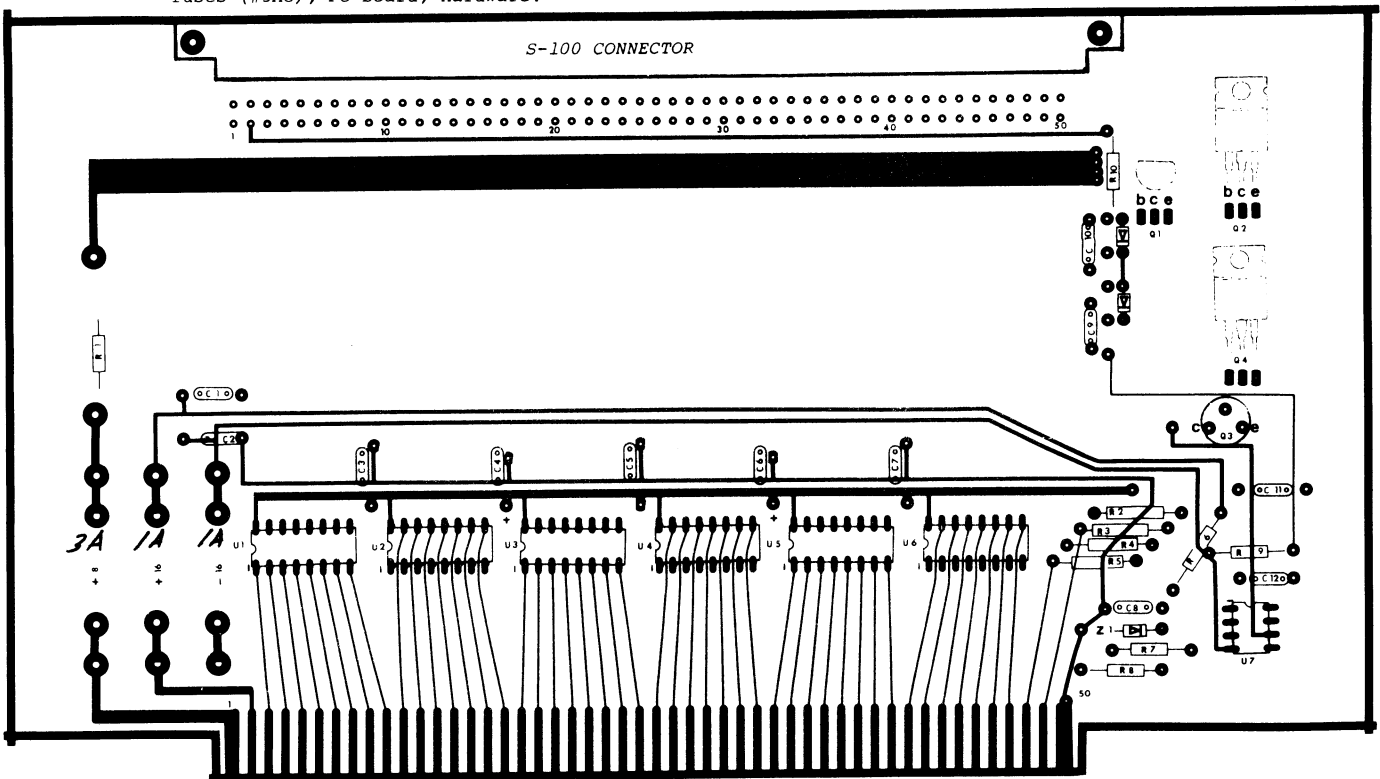
TESTING:

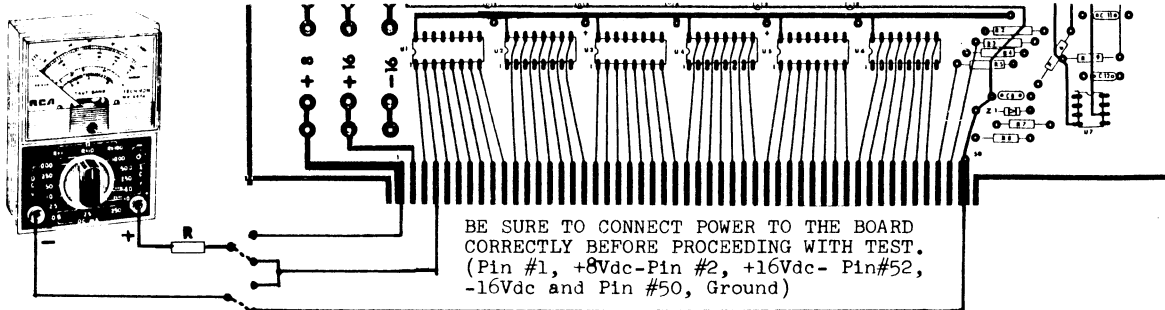
Check and make sure that you have soldered all connection points well and that you have not created any solder bridges. Now take a bench power supply and connect +8 Vdc to pin #1, +16 Vdc to pin #2, -16 to pin #52 and GND to pin #50 of the S-100 buss. (Power connections may also be made directly to the bottom fuse clips). The fuses must be inserted for these tests. Now measure the voltage at pin #16 of any one of the arrays. You should obtain a reading of 3.0 +0.3 Vdc. If you do not obtain this reading or the +8 fuse opens, check the orientation of D1-2 and/or the orientation of Z1 zener. Once you have the correct reference voltage, connect pin #4 of the S-100 buss to ground (pin #50). The reference voltage should not change. If it does, check Q1 & Q2. Then connect pin #4 of the S-100 buss to +8 Vdc. Once again the reference voltage should not change. If it does, check Q3 and Q4. Remove the connection to pin #4.

Now take your V.O.M. and switch it to a current reading scale. Connect the negative lead of the meter to Gnd. To the positive lead affix one end of the remaining resistors in the kit (usually 92 ohms). The free end of the resistor will serve as a probe. Connect the free end of the resistor to pins #3 thru #49 and #53 thru #99, one pin at a time. The current reading which you obtain in this manner, should be the same on each of the above mentioned pins (within at least 5%). If you obtain a "0" reading, check your solder connections for an open circuit condition. If you obtain a high reading (usually at least 80% higher than the other pins), you have a short between two traces on the board. Check your work carefully. This completes the testing procedure.

PARTS LIST:

R1	2.0 ohms 5 watts	U1,2,3,4,5,6	Resistor Network- Either 220, 330,390, 470
R2,3,4,5,	Either 220, 330, 390, 470	U7	Op-Amp -- LM307N or LM741CN or Equiv.
R6,8	2000 ohms (red-black-red)	Q1	2N3414 or Equiv.
R7	5600 ohms (green-blue-red)	Q2,4	TIP-31 or Equiv.
R9,10	4700 ohms (yellow-purple-red)	Q3	2N3638a or Equiv.
C1,2,3,5,		Z1	12 Vdc zener diode 1 watt
7,8,9,10	0.1 ufd Disc Capacitor 25Vdc.	D1,2	1N4148 or 1N4454
C4,6,11,12	100 ufd 10Vdc Electrolytic	Optional:	6- 16 pin and 1- 8 pin IC sockets
MISC:	S-100 Connector, 6 fuse clips, 3 fuses (#3AG), PC board, hardware.		

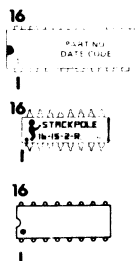




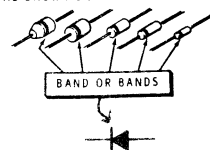
NOTE: When installing the following electrolytic capacitors, match the positive (+) mark on the capacitor with the positive (+) mark on the circuit board. Solder the leads to the foil and cut off excess lead lengths.

POSITIVE (+) MARK

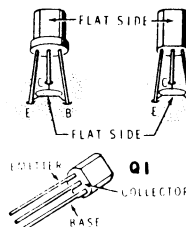
BE SURE THAT PIN #1 OF EACH IC RESISTOR ARRAY LINES UP WITH PIN #1 MARKED ON PC BOARD.



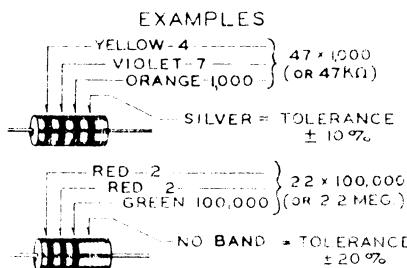
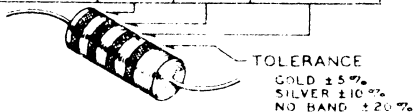
NOTE: DIODES MAY BE SUPPLIED IN ANY OF THE FOLLOWING SHAPES. ALWAYS POSITION THE BANDED END AS SHOWN ON THE CIRCUIT BOARD.



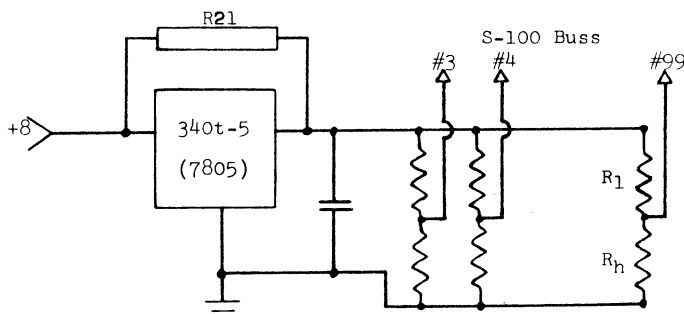
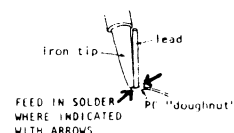
NOTE: The following transistor may be one of the two types shown below. Determine which type you received and insert the transistor leads into the corresponding E, C, and B holes in the circuit board as shown.



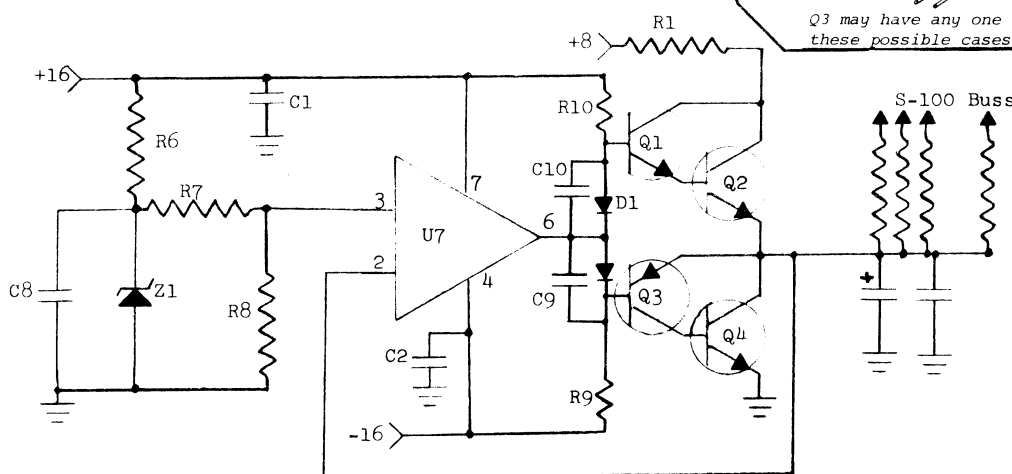
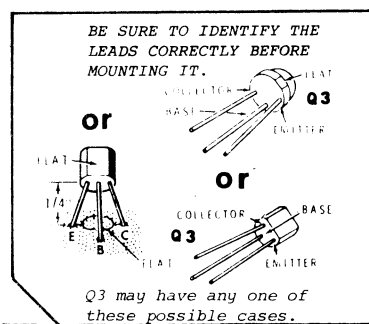
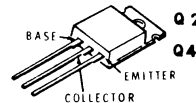
COLOR	1 st DIGIT	2 nd DIGIT	MULTIPLIER
BLACK	0	0	1
BROWN	1	1	10
RED	2	2	100
ORANGE	3	3	1,000
YELLOW	4	4	10,000
GREEN	5	5	100,000
BLUE	6	6	1,000,000
VIOLET	7	7	10,000,000
GRAY	8	8	100,000,000
WHITE	9	9	1,000,000,000
GOLD	-	-	± 5%
SILVER	-	-	± 10%
SILVER	-	-	± 20%



HOW TO SOLDER



BASIC DIAGRAM OF TERMINATOR (PASSIVE)



ACTIVE TERMINATOR