502 Assembly Log

	PART	VALUE	STATUS	NOTES
Capacitor	C1	68pf	installed	680J 74pf
Capacitor	C2	0.01uf	installed	103
Capacitor	C3	0.01uf	installed	103
Capacitor	C4	82pf	not installing	optional (Phase 0 circuit)
Capacitor	C5	150pf	installed	165pf
Capacitor	C6	0.01uf	installed	10.59nf
Capacitor	C7	.022uf/22nf	installed	
Capacitor	C8	82pf	not installing	optional (Phase 0 circuit)
Capacitor	C9	0.1uf	installed	100n
Capacitor	C10	0.001uf	installed	1040pf
Capacitor	C20-26	0.1uf	installed	
Capacitor	C28-38	0.1uf	installed	
Capacitor	C39	47uf 16V	installed	
Capacitor	C40-45	0.1uf	installed	
Diode	D1	1N914	installed	
Diode	D2	1N914	installed	
Diode	D3	1N914	installed	optional RS232
Diode	D4	1N914	installed	optional RS232
Diode	D5	1N914	installed	optional RS232
			installed	
Transistor	Q1	2N5226 pnp	2N3906	optional RS232
Transistor	Q2	2N5526 pnp	2N3906	optional RS232
Transistor	Q3	2N5526 pnp	2N3906	optional RS232
Transistor	Q4	2N2255 npn	2N3904	optional RS232
Transistor	Q5	2N2255 npn	2N3904	optional RS232
Transistor	Q6	2N2255 npn	2N3904	optional RS232
Resistor	R1	1K	installed	Br Bl R
Resistor	R2	10K	installed	Br Bl O
Resistor	R3	100K	installed	Br Bl Y
Resistor	R4	10K	installed	Br Bl O
Resistor	R5	4.7K	installed	Y V R
Resistor	R6	4.7K	installed	Y V R
Resistor	R7	4.7K	installed	Y V R
Resistor	R8	4.7K	installed	Y V R
Resistor	R9	4.7K	installed	Y V R
Resistor	R10	10K	not installing	optional (Phase 0 circuit)
Resistor	R11	10K POT	not installing	optional (Phase 0 circuit)
Resistor	R12	10K	not installing	optional (Phase 0 circuit)
Resistor	R13	10K POT	not installing	optional (Phase 0 circuit)
Resistor	R14	1K	installed	Br Bl R
Resistor	R15	4.7K	installed	Y V R
Resistor	R16	1K	installed	Br Bl R
Resistor	R17	5K POT	installed	P5K
Resistor	R18	4.7K	installed	Y V R
Resistor	R19	4.7K	installed	Y V R
Resistor	R20	4.7K	installed	Y V R
Resistor	R21	4.7K	installed	Y V R
Resistor	R22	4.7K	installed	Y V R
Resistor	R23	4.7K	installed	Y V R
Resistor	R24	4.7K	installed	Y V R
Resistor	R25	4.7K	installed	Y V R
Resistor	R26	10K	installed	Br Bl O

Resistor	R27	100	installed	Br Bl Br	
Resistor	R28	470	installed	Y V Br	
Resistor	R29	470	installed	Y V Br	
Resistor	R30	470	installed	Y V Br	
Resistor	R31	470	installed	Y V Br	
Resistor	R32	470	installed	Y V Br	
Resistor	R33	470	installed	Y V Br	
Resistor	R34	470	installed	Y V Br	
Resistor	R35	470	installed	Y V Br	
Resistor	R36	470	installed	Y V Br	
Resistor	R37	470	installed	Y V Br	
Resistor	R38	470	installed	Y V Br	
Resistor	R39	470	installed	Y V Br	
Resistor	R40	470	installed	Y V Br	
Resistor	R41	470	installed	Y V Br	
Resistor	R42	470	installed	Y V Br	
Resistor	R43	470	installed	Y V Br	
Resistor	R44	470	installed	Y V Br	
Resistor	R45	470	installed	Y V Br	
Resistor	R46	220	installed	R R Bl Bl Br	optional RS232
Resistor	R47	390	installed	O W Br	optional RS232
Resistor	R48	220	installed	R R Bl Bl Br	optional RS232
Resistor	R49	390	installed	O W Br	optional RS232
Resistor	R50	220	installed	R R Bl Bl Br	optional RS232
Resistor	R51	390	installed	O W Br	optional RS232
Resistor	R52	10K	installed	Br Bl Bl R Br	optional RS232
Resistor	R53	470	installed	Y V Br	optional RS232
Resistor	R54	10K	installed	Br Bl Bl R Br	optional RS232
Resistor	R55	10K	installed	Br Bl Bl R Br	optional RS232
Resistor	R56	470	installed	Y V Br	optional RS232
Resistor	R57	10K	installed	Br Bl Bl R Br	optional RS232
Resistor	R58	10K	installed	Br Bl Bl R Br	optional RS232
Resistor	R59	470	installed	Y V Br	optional RS232
Resistor	R60	10K	installed	Br Bl Bl R Br	optional RS232
Resistor	R61	10K	installed	Br Bl Bl R Br	optional RS232
Resistor	R62	4.7K	installed	Y V Br	optional RS232
Resistor	R63	10K	installed	Br Bl Bl R Br	optional RS232
Resistor	R64	4.7K	installed	Y V Br	optional RS232
Resistor	R65	10K	installed	Br Bl Bl R Br	optional RS232
Resistor	R66	4.7K	installed	Y V Br	optional RS232
Resistor	R67	470	installed	Y V Br	
Resistor	R68	390	installed	O W Br	
Resistor	R69	220	installed	R R Bl Bl Br	
Resistor	R70	390	installed	O W Br	
Resistor	R71	220	installed	R R Bl Bl Br	
Resistor	R72	390	installed	O W Br	
Resistor	R73	220	installed	R R Bl Bl Br	
Resistor	R74	1K	installed	Br Bl R	Needed for 540B VMA signal on Pin 41 backplane
Resistor	R75	10K POT	installed	103	
Resistor	R76	1K	installed	Br Bl R	

IC	U1	**7476**	installed in socket	
IC	U2	**CA3130**	installed in socket	
IC	U3	**6850**	installed in socket	
IC	U4	**6502**	installed in socket	
IC	U5	**2716**	installed in socket	SYNMON
IC	U6	**2716**	installed in socket	BASIC 1
IC	U7	**2716**	installed in socket	BASIC 2

IC	U8	**2716**	installed in socket	BASIC 3
IC	U9	**2716**	installed in socket	BASIC 4
IC	U10	**8T26**	installed in socket	
IC	U11	74LS123	not installing	optional (Phase 0 timing circuit)
IC	U12	**74LS04**	installed in socket	
IC	U13	**555**	installed in socket	
IC	U14	**74LS148**	installed in socket	
IC	U15	**Socket**	installed	ROM PAGE Jumpers
IC	U16	**74LS139**	installed in socket	
IC	U17	74LS04	installed in socket	Jumpers for 2716 or use 74LS04 if using 2316 ROMS
IC	U18	**74LS30**	installed in socket	
IC	U19	**8T26**	installed in socket	
IC	U20	74LS04	not installing	optional RS232
IC	U21	PROTO	not installing	*for expansion
IC	U22	**74123**	installed in socket	
IC	U23	**7474**	installed in socket	
IC	U24	**74LS17**	installed in socket	
IC	U25	**74LS17**	installed in socket	
IC	U26	**74LS138**	installed in socket	
IC	U27	**74LS10**	installed in socket	
IC	U28	**74LS04**	installed in socket	
IC	U29	**74LS20**	installed in socket	
IC	U30	74LS14	not installing	optional RS232
IC	U31	**74LS04**	installed in socket	
IC	U32	**74LS17**	installed in socket	
IC	U33	2114	installed in socket	
IC	U34	2114	installed in socket	
IC	U35	2114	installed in socket	
IC	U36	2114	installed in socket	
IC	U37	2114	installed in socket	
IC	U38	2114	installed in socket	
IC	U39	2114	installed in socket	
IC	U40	2114	installed in socket	
IC	U41	**74LS17**	installed in socket	

Further Modifications to get board to function

1. Install Jumper at W1
2. Cut trace from U22-6 to R75 center pin
3. Install jumper R75 center pin to C9
4. Install Jumper in square holes near R26
5. Fix missing trace on U16 pin 14. It connects to neighbouring trace on top of PCB

Modification for 2716 EPROMS

1. cut trace between U6-18 and U6-21 topside
2. connect U6-18 to U5-18 on bottomside
3. Above U7: cut bridge at W4 topside
4. Above U7: connect center of W4 to other position (gnd)
5. Above U9: cut bridge at W8A topside
6. Above U9: connect U9-18 to U8-18 on bottomside
7. remove U17 (74LS04)
8. add jumpers on U17 socket: pin 3--4, pin 5--6, pin 8--9, pin 10--11, pin 12--13

Electrical Adhustments

R17 TX Clock

Input of scope to U13, pin 3. Adjust R17 for a full cycle width of 210uSec.

R75 Tape Pulse Duration

Connect jumper between Pins 10 and 11 of J2

Cold Start Basic
Enter: 10 Print "U"
20 GOTO 10
SAVE
RUN
Input of scope to pin 5 of U22. Adjust R75 for a positive pulse width of at least 500uSec. But not over 640uSec.
Disconnect Jumper