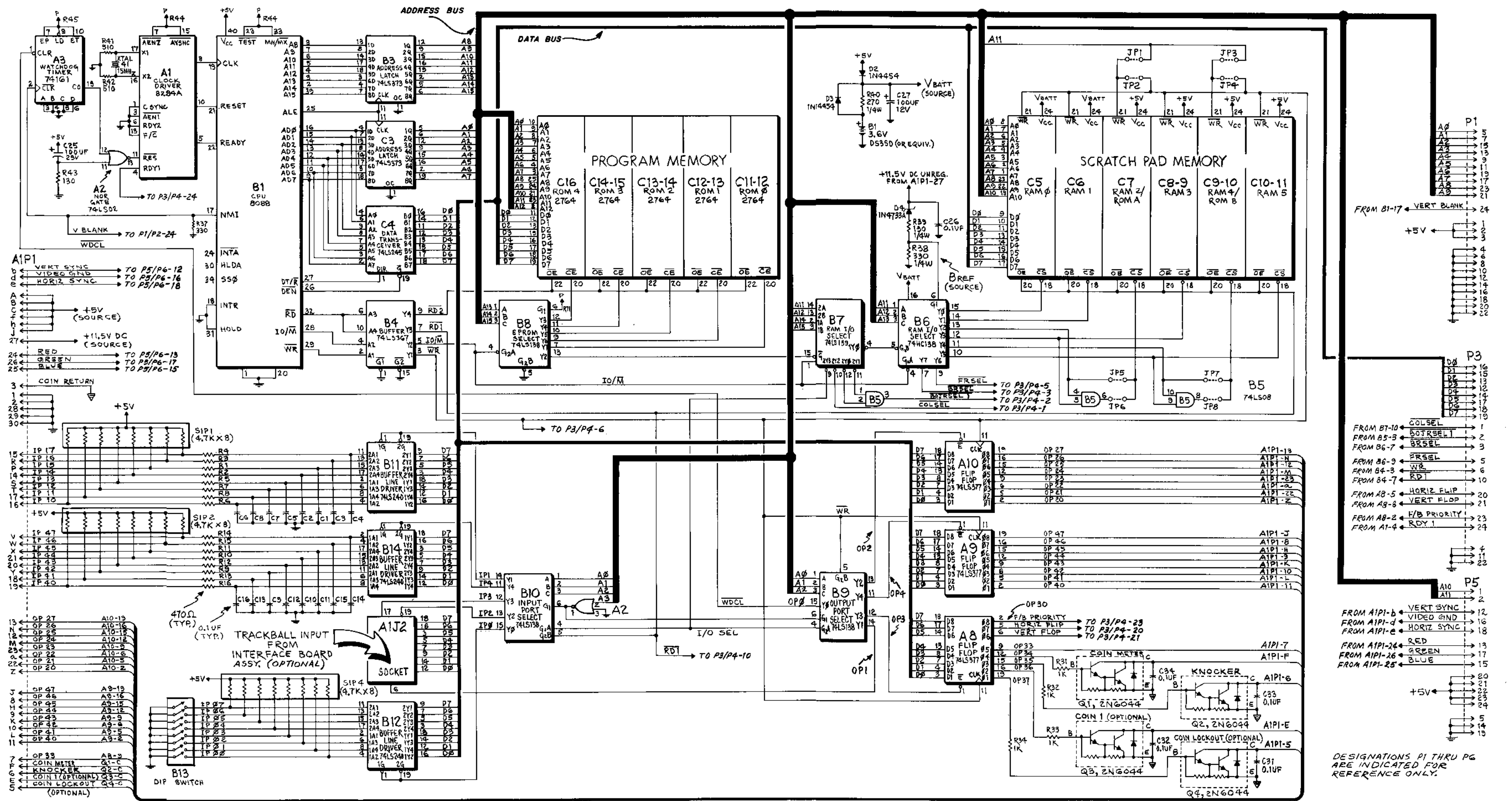


X. WIRING AND SCHEMATIC DIAGRAMS, PARTS LISTS

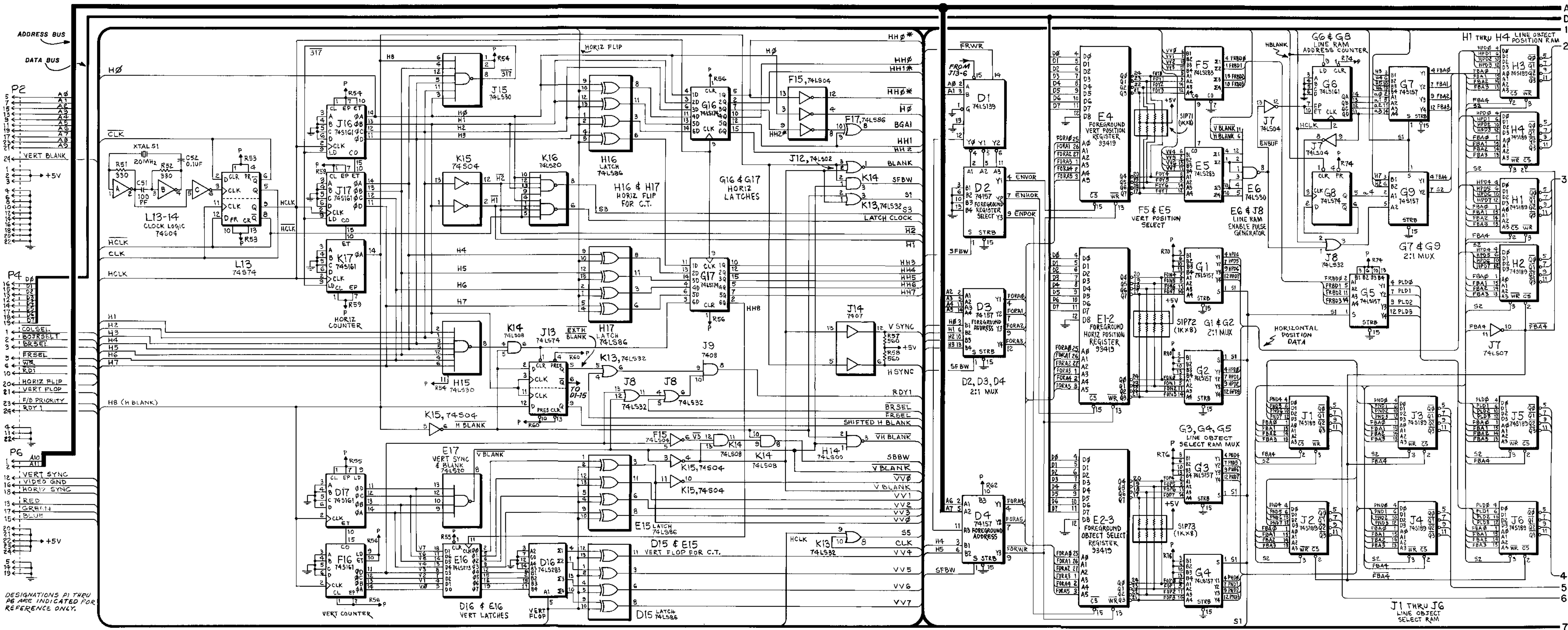
LOGIC BOARD ASSY. (A1), PARTS LIST (CONT.)

INTEGRATED CIRCUITS

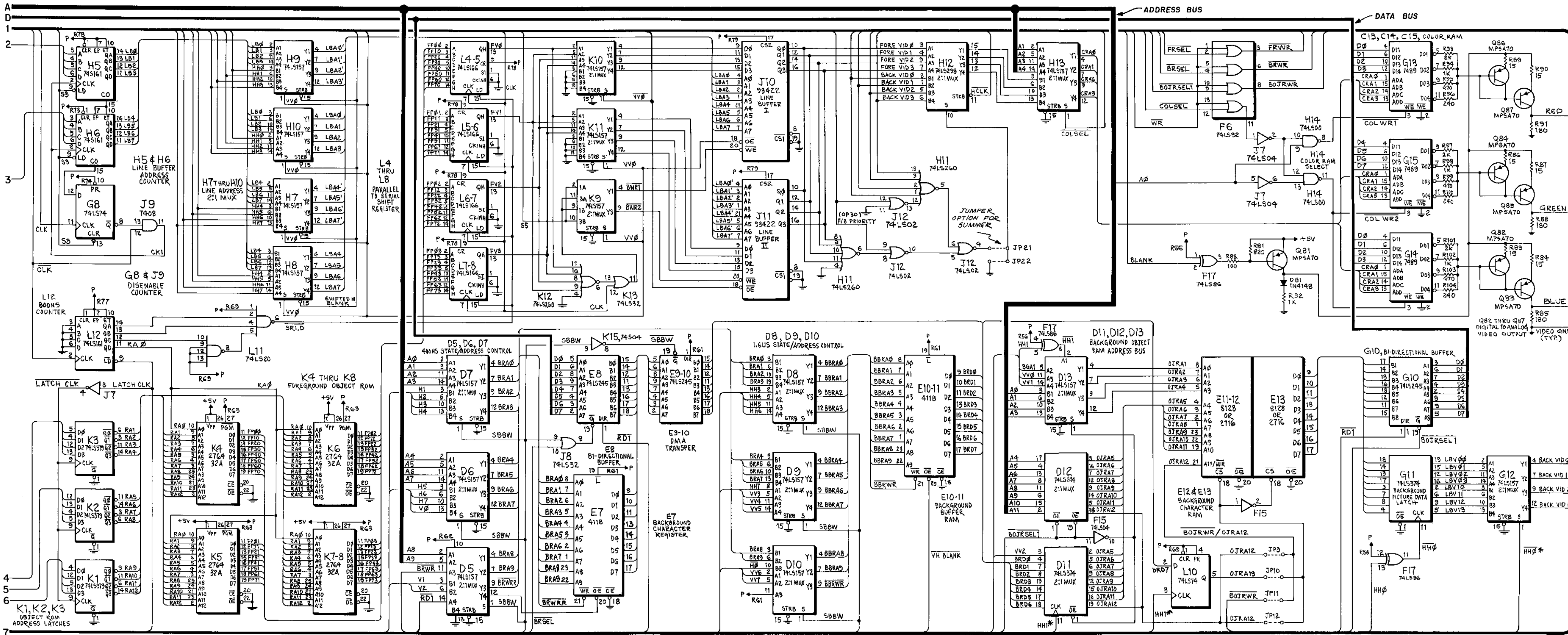
REFERENCE	DESCRIPTION	PART NO.	REFERENCE	DESCRIPTION	PART NO.
A1	Logic Board Assy.	MA-378	G7	74LS157 Quad 2-input multiplexer	XO-114
A2	8284 CLK Driver	XO-478	G8	74LS74 Dual D-type flip flop	XO-434
A3	74LS02 Quad 2-input "NOR" gate	XO-428	G9	74LS157 Quad 2-input multiplexer	XO-114
A8, A9, A10	74LS161 Synchronous 4-bit counter	XO-192	G10	74LS245 Octal bus transceiver	XO-79
B1	74LS377 Octal "D" Flip Flop	XO-97	G11	74LS374 Octal D-type flip flop	XO-96
B3	8088 CPU	XO-490	G12	74LS157 Quad 2-input multiplexer	XO-390
B4	74LS373 Octal D-type flip flop	XO-445	G13, G14, G15	7489 64-bit RAM	XO-88
B5	74LS367 Hex 3-state buffer	XO-444	G16, G17	74LS174 Hex D flip flop	XO-442
B6	74LS08 Quad 2-input "AND" gate	XO-86	H1, H2, H3, H4	74LS189 64-bit RAM	XO-89
B7	74HC138 Decoder/demultiplexer	XO-190	H5, H6	74LS161 Synchronous presettable binary counter	XO-488
B8, B9, B10	74LS139 Dual 1 of 4 decoder	XO-419	H7, H8, H9, H10	74LS157 Quad 2-input multiplexer	XO-390
B11, B12, B14	74LS138 1 of 8 decoder	XO-437	H11	74LS260 Dual 5-input "NOR" gate	XO-93
C3	74LS240 Octal Buffer/line driver	XO-91	H12	74LS298 Quad 2-port register	XO-118
C4	74LS373 Octal D-type flip flop	XO-445	H13	74LS157 Quad 2-input multiplexer	XO-390
C5	74LS245 Octal Bus transceiver	XO-79	H14	74LS00 Quad 2-input "NAND" gate	XO-427
C6	RAM # 6116LP-4	XO-191	H15	74LS30 8 input "NAND" gate	XO-432
C7	RAM 1 6116LP-4	XO-191	H16, H17	74LS86 Dual 2-input exclusive "OR" gate	XO-435
C8-9	RAM 2 2128-2	XO-195	J1, J2, J3	74LS189 64-bit RAM	XO-89
C11-12	RAM 3 2128-2	XO-195	J4, J5, J6	74LS04 Hex inverter	XO-418
C12-13	ROM # 2764 8K x 8 EPROM	XO-489	J7	74LS04 Hex inverter	XO-418
C13-14	ROM 1 2764 8K x 8 EPROM	XO-489	J8	74LS32 Quad 2-input "OR" gate	XO-433
D1	ROM 2 2764 8K x 8 EPROM	XO-489	J9	7408 Quad 2-input "AND" gate	XO-404
D2, D3, D4, D5, D6, D7, D8, D9, D10	74LS139 Dual 1 of 4 Decoder	XO-419	J10, J11	93422 256 x 2 bipolar RAM	XO-100
D11	74LS157 Quad 2-input multiplexer	XO-114	J12	74LS02 Quad 2-input "NOR" gate	XO-428
D12	74LS374 Octal D-type flip flop	XO-96	J13	74LS74 Dual D-type flip flop	XO-434
D13	74LS244 Octal buffer/line driver	XO-117	J14	7407 Hex buffer/driver	XO-384
D15	74LS157 Quad 2-input multiplexer	XO-390	J15	74LS30 8 input "NAND" gate	XO-432
D16	74LS86 Quad 2-input exclusive "OR" gate	XO-435	J16, J17	74LS161 Synchronous presettable binary counter	XO-488
D17	74LS283 4-bit binary full adder	XO-95	K1, K2, K3	74LS379 Quad D-type flip flop	XO-98
E1-2, E2-3, E4	74LS161 Synchronous presettable binary counter	XO-488	K4	FG0 2764-3 8K x 8 EPROM	XO-489
E5	93419 64 x 9 bipolar RAM	XO-99	K5	FG1 2764-3 8K x 8 EPROM	XO-489
E6	74LS283 4-bit binary full adder	XO-95	K6	FG2 2764-3 8K x 8 EPROM	XO-489
E7	74LS30 8-input "NAND" gate	XO-432	K7-9	FG3 2764-3 8K x 8 EPROM	XO-489
E8, E9-10	4801 1K x 8 RAM	XO-193	K9, K10, K11	74LS157 Quad 2-input multiplexer	XO-390
E10-11	74LS245 Octal Bus Transceiver	XO-79	K12	74LS260 Dual 5-input "NOR" gate	XO-93
E11-12	4801 1K x 8 RAM	XO-193	K13	74LS32 Quad 2-input "OR" gate	XO-433
E13	2732A (BG1) 4K x 8 EPROM	XO-485	K14	74LS08 Quad 2-input "AND" gate	XO-86
E15	2732A (BG1) 4K x 8 EPROM	XO-485	K15	74LS04 Hex inverter	XO-400
F1	74LS86 Quad 2-input exclusive "OR" gate	XO-435	K16	74LS20 Dual 4-input "NAND" gate	XO-430
F2	74LS273 8-bit register	XO-94	K17	74LS161 Synchronous presettable binary counter	XO-488
F3	74LS20 Dual 4-input "NAND" gate	XO-430	L4, L5, L6, L7	74LS166 8-bit shift register	XO-391
F4	74LS283 4-bit binary full adder	XO-95	L8	74LS74 Dual flip flop	XO-434
F5	74LS32 Quad 2-input "OR" gate	XO-433	L9	74LS20 Dual 4-input "NAND" gate	XO-430
F6	74LS04 Hex inverter	XO-418	L10	"NAND" gate	
F7	74LS161 Synchronous presettable binary counter	XO-488	L11	74LS161 Synchronous presettable binary counter	XO-440
F8	74LS157 Quad 2-input exclusive "OR" gate	XO-435	L12	74LS161 Synchronous presettable binary counter	XO-440
G1, G2, G3, G4, G5, G6	74LS157 Quad 2-input multiplexer	XO-390	L13	74S74 Dual D-type pos. edge trig. flip flop (T. 1. only)	XO-87
	74LS161 Synchronous presettable binary counter	XO-440	L13-14	74S04 Hex inverter	XO-400



X. WIRING AND SCHEMATIC DIAGRAMS, PARTS LISTS

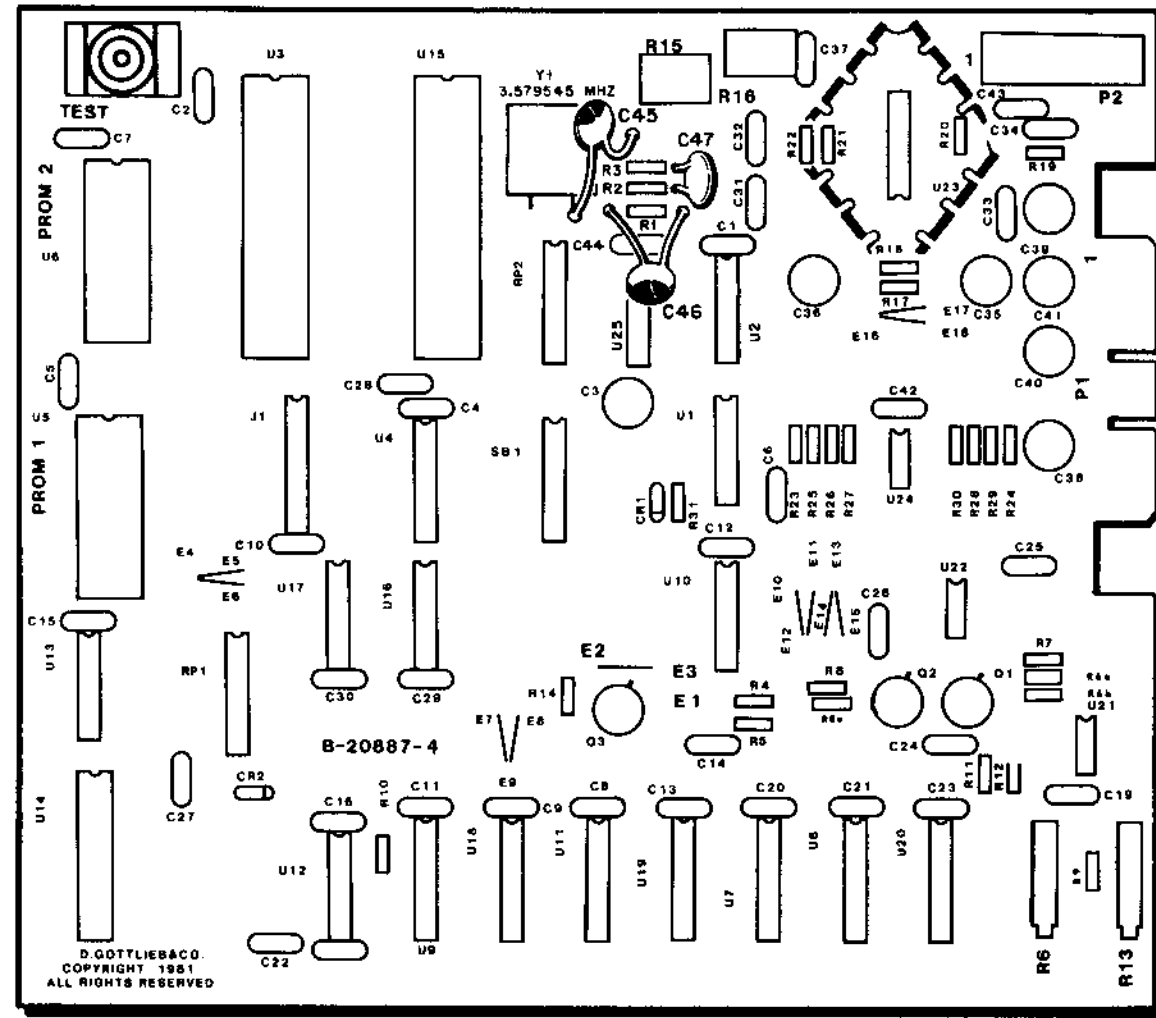


X. WIRING AND SCHEMATIC DIAGRAMS, PARTS LISTS



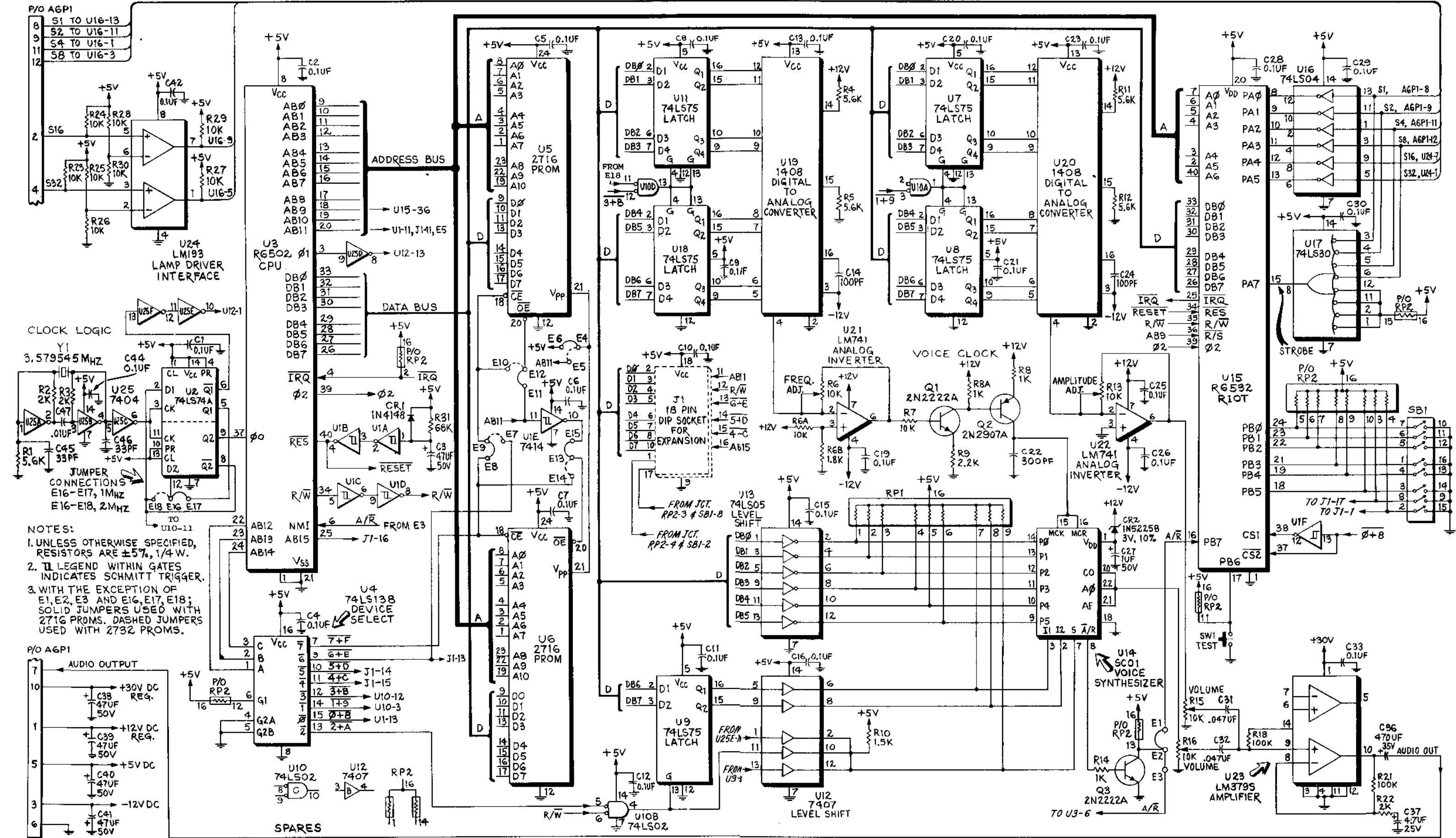
LOGIC BOARD ASSY. (A1), SCHEMATIC DIAGRAM, SHEET 3 OF 3

SOUND/SPEECH ASSY. (A6), COMPONENT LOCATION



SOUND/SPEECH ASSY. (A6), PARTS LIST

REFERENCE	DESCRIPTION	PART NUMBER	REFERENCE	DESCRIPTION	PART NUMBER
C1, C2	Sound/Speech Assembly	MA-216	R15, R16	Potentiometer, 10K ohm	XO-109
C4, C13	Capacitor, 0.1UF, 25V	XO-248	R18, R21	Resistor, 100K ohm, 5%, 1/4W	XO-45
C15, C16, C19			R22	Resistor, 2K ohm, 5%, 1/4W	XO-14
C20, C21, C23			R31	Resistor, 68K ohm, 5%, 1/4W	XO-189
C25, C26			RP1, RP2	Resistor, Dip	XO-168
C28-C30, C33			SB1	Switch, Dip	XO-505
C42, C44			SW1	Switch, Momentary Pushbutton	XO-515
C31-C32	Capacitor, .047UF, 25V	XO-222	U1	IC, 7414	XO-397
C37	Capacitor, 4.7UF, 35V	XO-291	U2	IC, SN74LS74N	XO-434
C3, C38-C41	Capacitor, 47UF, 50V	XO-210	U3	CPU, R6502-13	XO-360
C14, C24	Capacitor, 100PF	XO-223	U4	IC, SN74LS138N	XO-437
C22	Capacitor, 300PF	XO-283	U5, U6	EPROM, 2716	PR-53
C27	Capacitor, 1UF, 50V	XO-217	U7-U9, U11, U18	IC, SN74LS75	XO-394
C36	Capacitor, 470UF, 35V	XO-284	U10	IC, SN74LS02N	XO-428
C45, C46	Capacitor, 33PF	XO-277	U12	IC, SN7407N	XO-384
C47	Capacitor, .01 UF, 100V	XO-202	U13	IC, Inverter, SN74LS05N	XO-411
CR1	Diode, IN4148	XO-261	U14	Voice Chip, SC01	XO468
CR2	Diode, Zener, 1N5225B	XO-269	U15	RR10T, R6532-18	XO-361
Q1, Q3	Transistor, NPN, 2N2222A	XO-320	U16	IC, SN74LS04N	XO-418
Q2	Transistor, PNP, 2N2907A	XO-321	U17	IC, SN74LS30N	XO-432
R1, R4, R5	Resistor, 5.6K ohm, 5%, 1/4W	XO-321	U19, 20	Converter, PML, 1408A-6P	XO-416
R11, R12		XO-19	U21, U22	IC, LM741 ICP	XO-393
R2, R3	Resistor, 2K ohm, 5%, 1/4W	XO-14	U23	IC, UM3795	XO-395
R6, R13	Potentiometer, 10K	XO-108	U24	IC, Dual Comparator, LM193	XO-396
R6A, R7, R23-R30	Resistor, 10K ohm, 5%, 1/4W	XO-18	U25	Inverter, 7404	XO-402
R8, R8A, R14	Resistor, 1K ohm, 5%, 1/4W	XO-5	Y1	Crystal, 3.579545MHZ	XO-456
R6B	Resistor, 1.8K ohm, 5%, 1/4W	XO-37		Socket 22 Pin Dip	XO-467
R9	Resistor, 2.2K ohm, 5%, 1/4W	XO-27		Socket 24 Pin (2)	XO-529
R10	Resistor, 1.5K ohm, 5%, 1/4W	XO-20		Socket 40 Pin (2)	XO-530



NOTES:
 1. UNLESS OTHERWISE SPECIFIED, RESISTORS ARE ±5%, 1/4W.
 2. ▭ LEGEND WITHIN GATES INDICATES SCHMITT TRIGGER.
 3. WITH THE EXCEPTION OF E1, E2, E3 AND E16, E17, E18; SOLID JUMPERS USED WITH 2716 PROMS. DASHED JUMPERS USED WITH 2732 PROMS.

SOUND/SPEECH ASSY. (A6), SCHEMATIC DIAGRAM