

FIELD
ENGINEERING
BULLETIN

MODEL ADO
BULLETIN NO. 61141 SHEET 1 OF 28
DATE 11/86 BK-8604-06B*

SUPERSEDES F.E.B. 61043

HLC/LLC HYBRID OSCILLATOR - NTSC/PAL

I. APPLICABILITY

ALL ADO'S

Complete
GWD
8-20-86

Ordered
Parts 13 Jan 87
MRO

II. PURPOSE

The purpose of these design changes are to improve the over all performance of the computer clocks on the HLC and LLC PWA's.

III. DISCUSSION

The discrete oscillators on the HLC and LLC Boards are being replaced by a Hybrid device. This new device has better over all temperature stability plus it has no start up problems.

IV. PARTS REQUIRED

Parts required for this update may be purchased through Ampex. Installation assistance can be obtained through your local Ampex Regional Office at current Ampex Field Engineering rates.

<u>Ampex Part Number</u>	<u>Description</u>	<u>Quantity</u>
595-035	Hybrid Oscillator HS-100	2

MODEL	ADO	
BULLETIN NO.	61141	SHEET 2 OF 28
DATE	11/86 BK-8604-06B*	

SUPERSEDES F.E.B. 61043

HLC/LLC HYBRID OSCILLATOR - NTSC/PAL

V. PROCEDURE:

A. LLC PWA's, Part Numbers 1420056 or 1464320.

1. Remove and discard the following parts (refer to Figure 1).

- | | |
|--------------------------|------------------------|
| R31 - 220 Ohm Resistor | C91 330PF - Capacitor |
| R27 - 1K Resistor | C92 180PF - Capacitor |
| R30 - 4.7K Resistor | C93 24PF - Capacitor |
| R21 - 270 Ohm Resistor | C94 18PF - Capacitor |
| R22 - 470 Ohm Resistor | C87 0.1UF - Capacitor |
| R23 - 470 Ohm Resistor | C88 0.1UF - Capacitor |
| R28 - 5.1K Resistor | C89 0.1UF - Capacitor |
| R29 - 6.2K Resistor | Q2 MPS 6514 Transistor |
| L1 - 1UH Inductor | Q3 MPS 6514 Transistor |
| Y1 - 31.9488 MHZ Crystal | Q4 MPS 6514 Transistor |

2. Add a Hybrid Oscillator, HS-100 as follows:

- Connect Pin 7 to ground.
- Connect Pin 14 to +5 volts.
- Add a wire and connect IC 2S pin 5 to HS-100 pin 8.
- Designate added Hybrid Oscillator IT.

B. HLC PWA's, Part Numbers, 1420059, 1464265, and 1464286.

1. Remove and discard the following parts. (refer to Figure 2).

- | | |
|----------------------------|-------------------------|
| R23 - 6.2K Resistor | C57 - 0.1 Capacitor |
| R35 - 5.1K Resistor | C71 - 18PF Capacitor |
| R27 - 4.7K Resistor | C65 - 24PF Capacitor |
| R26 - 220 Ohm Resistor | C70 - 180PF Capacitor |
| R28 - 1K Resistor | C66 - 330PF Capacitor |
| R34 - 470 Ohm Resistor | C67 - 0.1 Capacitor |
| R30 - 470 Ohm Resistor | C69 - 0.1 Capacitor |
| R29 - 270 Ohm Resistor | Q2 - MPS6514 Transistor |
| L1 - 1.2 UH Inductor | Q3 - MPS6514 Transistor |
| Y1 - 31.9488 MHZ Capacitor | Q4 - MPS6514 Transistor |

SUPERSEDES F.E.B. 61043

HLC/LLC HYBRID OSCILLATOR - NTSC/PAL

2. Add a Hybrid Oscillator, HS-100 as follows:
 - a. Connect Pin 7 to ground.
 - b. Connect Pin 14 to +5 volts.
 - c. Add a wire and connect IC 2T pin 1 to HS-100 Pin 8.
 - d. Designate added Hybrid Oscillator 2S.

No alignment is required.

WAS

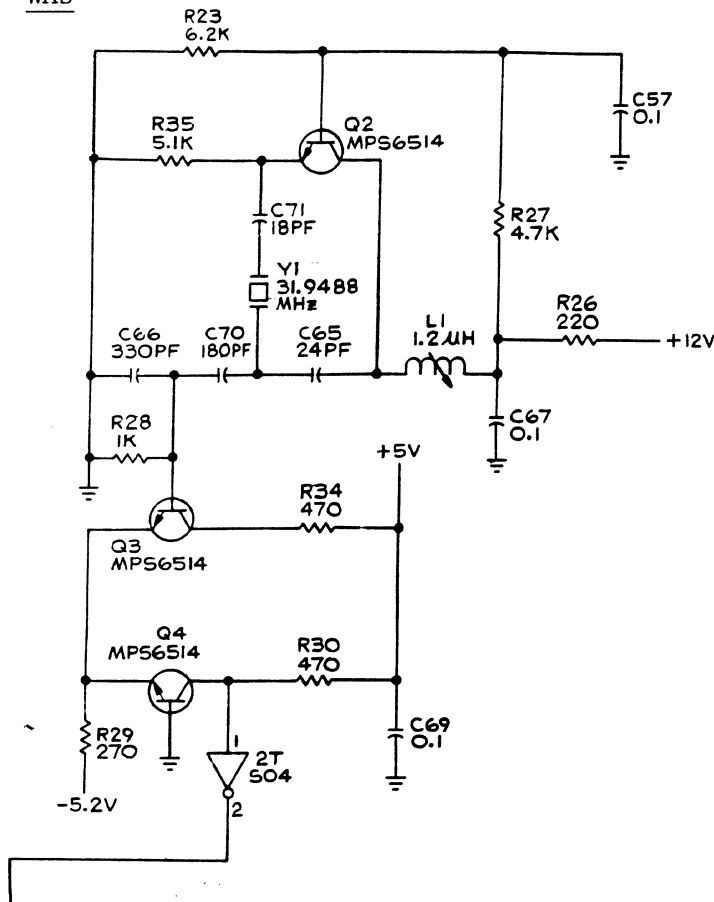


FIGURE 1

IS

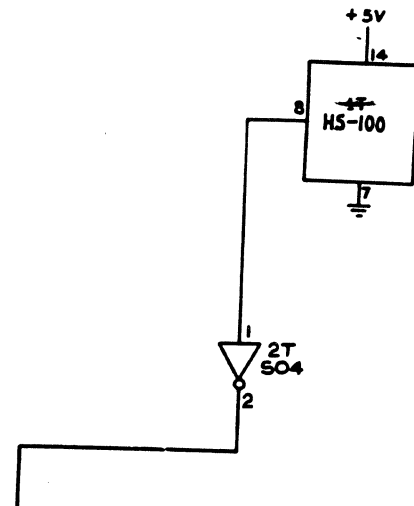


FIGURE 2

AMPEXAmpex Corporation
REDWOOD CITY, CALIFORNIA**LIST OF MATERIALS**CODE: P1M10
F.E.B. 61043 - BK-8604-06PRINTED WIRING ASSEMBLY
LOW LEVEL CONTROLLERLIST OF MATERIALS NO.
1464320

Revision F

ITEM NO.	PART NUMBER	DESCRIPTION	REF DESIG	QTY REQD PER DASH NUMBER		
				-01	-02	-03
1	1464321	PRINTED WIRING BOARD		-01	-02	-03
2						
3	1464322	SCHEMATIC		(-)	B	C
4						
5	1409670+BG	LABEL, EXTRACTOR ARM, PWA		1	1	1
6	1409976-AA	INSULATOR, STIFFENER		1	1	1
7	1409976-AB	INSULATOR, STIFFENER		1	1	1
8	1409997-AA	STIFFENER, PWB		1	1	1
9	1409997-AB	STIFFENER, PWB		1	1	1
10						
11	1420327-01	PROM ASSEMBLY REF: TBPI4510	1	1	1	
12	1420328-01	REF: TBPI4510	1	1	1	
13	1464314-01	REF: TMS2532	100,P	2	-	-
14	1464315-01	REF: TMS2532	10F,N	2	2	2
15	1464316-01	REF: TMS2532	10G,L	2	2	2
16	1464317-01	REF: TMS2532	11D,P	2	2	2
17	1464318-01	REF: TMS2532	11F,N	2	2	2
18	1464319-01	PROM ASSEMBLY REF: TMS2532	11G,L	2	2	2
19	1464314-02	PROM ASSEMBLY REF: TMS2532	100,P	2	2	2
20						
21	064-062	CAPACITOR, CER., .1uF, 100V, *20% C2-11,13-85,96,97		88	88	85
22	064-309	CAPACITOR, CER., .47uF, 100V, *20% C86		1	1	1
23						
24	034-253	CAPACITOR, MICA, 330PF, 500V, 1% C91		1	1	1
25	034-297	180PF, 500V, 1% C92		1	1	1
26	034-360	24PF, 500V, ±.5PF C93		1	1	1
27	034-376	33PF, 500V, ±.5PF C90		1	1	1
28	056-105	CAPACITOR, MICA, 18PF, 500V, ±.5PF C94		1	1	1
29						
30	037-265	CAPACITOR, TANT, 120uf, 10V, *20% C1,95		2	2	2
31						
32	017-240	CRYSTAL, 31.9488MHZ Y1		1	1	1
33	595-035*	HYBRID OSCILLATOR HS-100 IT		1	1	1
34	581-567	DIODE, LED, MV5077B DS1-DS16		16	16	16
35						
36	135-024	HEADER ASSEMBLY, RIGHT ANGLE 20 PINS J1		1	1	1
37						

INACTIVATED
OBSOLETE

SEE PCN 16656-96
REPLACED BY 1464323
NO LONGER REQUIRED

LM-1464320




AMPEX

Ampex Corporation
Redwood City, California

CODE IDENT NO
92739

LIST OF MATERIALS

F.E.B. 61043 - BK-8604-06

ITEM NO	PART NUMBER	DESCRIPTION	REF DESIG	QTY REQD PER DASH NUMBER		
				-01	-02	-03
38	068-212	INDUCTOR, VARIABLE, 1, uH, 10%	L1		1	-
39						
40	000-005	IC, MSM2128-1AS 	11T 10A,T,11A	4	4	4
41	000-138	74LS135	2A,2U	2	2	2
42	000-148	AM2966	5S		1	1
43	001-061	MC1489	3C,3T	2	2	2
44	001-353	MC1488	4C,4T	2	2	2
45	587-626	74S02	6J		1	1
46	589-850	74S163	3S,4S 5H,L,7H,L	6	6	6
47	589-813	74LS00	5D,5K,10J	3	3	3
48	589-814	74LS04	1D,7E,7P,11K	4	4	4
49	589-816	74LS10	1C,11H,11J	3	3	3
50	589-820	74LS74	1P		1	1
51	589-823	74LS138	10H,K 1A,U,7F,G,M,N	8	8	8
52	589-837	74S00	2J	1	1	1
53	589-838	74S04	2S,4J,5F,5R,6G,M	6	6	6
54	589-839	74S08	6E,6K,6P	3	3	3
55	589-846	74S74	5E,G,J,M,N,P	6	6	6
56	589-933	74LS161	1B,2B	2	2	2
57	590-328	74LS32	1N		1	1
58	590-335	74LS273	5A,5T	2	2	2
59	590-584	74LS244	3E,3P 1F,H,J,K,L,M	8	8	8
60	590-725	555V	1S		1	1
61	590-847	74LS245	4D,N,R 1E,3D,N,R,4F	8	8	8
62	590-848	74S373	4E,G,M,P	4	4	4
63	590-854	74S240	9K,J	2	2	2
64	590-861	25LS14	6A,B,C,D,R,S,6T,U,7A,B, C,7D,R,S,T,U	16	16	16
65	590-862	25LS15	6F,6N	2	2	2
66	590-864	25LS22	8A,8U	2	2	2
67	590-865	25LS23	8B,C,D,E,F,G,H,L,M 8N,P,R,S,T,9A,B,C, 9D,E,F,G,H,L,M,N,P, 9R,S,T,U	30	30	30
68	590-866	AMZ8002DC 	4K,4H	2	2	2
69	590-867	AM9551-4PC	4A,4U	2	2	2
70	590-868	74S244	8J,K 3J,5B,7J,K	6	6	6
71	590-983	IC, TMM2016P 	1G,3F	2	2	2
72						
73						
74						
75	066-660	RESISTOR, C.F., 22 OHMS, 1/4W, ±5%	R26		1	1
76	066-663	220 OHMS, 1/4W, ±5%	R25	2	2	1
77	066-665	1K OHMS, 1/4W, ±5%	R5,8,11-14	7	7	6
78	066-668	4.7K OHMS, 1/4W, ±5%	R7	2	2	1
79	066-673	1M OHMS, 1/4W, ±5%	R19,20	2	2	2
80	066-715	1.2K OHMS, 1/4W, ±5%	R24	1	1	1
81	066-814	RESISTOR, C.F., 270 OHMS, 1/4W, ±5%	R21	1		-

LM-1494320

ITEM NO	PART NUMBER	DESCRIPTION	REF DESIG	QTY REQD PER DASH NUMBER											
				-01	+02	-03									
82	066-818	RESISTOR, C.F., 470 OHMS, 1/4W, ±5%	R18	3	3	1									
83	066-842	5.1K OHMS, 1/4W, ±5%	R28	1	1	-									
84	066-843	RESISTOR, C.F., 6.2K OHMS, 1/4W, ±5%	R29	1	1	-									
85															
86															
87	039-164	RESISTOR, NETWORK, 4.7K OHMS	U3,6	2	2	2									
88	039-174	470 OHMS	U1,2,7,8	4	4	4									
89	039-264	RESISTOR, NETWORK, 4.7K OHMS	U4,5	2	2	2									
90															
91	187-055	TERMINAL, WIREWRAP	E18,19	2	2	2									
92															
93	014-780	TRANSISTOR, MPS6514-5	Q2-4	3	3	-									
94	014-781	TRANSISTOR, MPS6518-5	Q1	1	1	1									
95															
96	582-280	IC MTG HDW, SOCKET, 24 PIN	REF: 1G,3F,10A,C,D,10F,G, L,N,P,S,T,11A,C,D,F G,L,N,P,11S,T	22	22	22									
97	582-281	28 PIN	REF: 4A,U	2	2	2									
98	582-282	40 PIN	REF: 4H,K	2	2	2									
99	582-329	8 PIN	REF: 1S	1	1	1									
100	582-330	14 PIN	REF: 1C,D,N,P,2J,S,3C,T, 4C,J,T,5J,K,D,E,F,G, H,N,P,R,6E,G,J,K,M, 6P,7E,7P,10J,11H,J, K	33	33	33									
101	582-331	16 PIN	REF: 1A,B,U,2A,B,U,3S,4S, 5H,L,6A,B,C,D,H,L,T, R,S,U,7A,B,C,D,F,G,H L,M,N,R,S,T,U,10H,K	36	36	36									
102	582-333	IC MTG HDW, SOCKET, 20 PIN	REF: 1E,F,H,J,K,L,M,3D,E J,N,P,R,4D,E,F,G,M,N P,R,5A,B,S,T,6F,N,7J K,8A,B,C,D,E,F,G,H,J K,L,M,N,P,R,S,T,U,9A B,C,D,E,F,G,H,J,K,L, M,N,P,R,S,T,U	65	65	65									
103															
104															
105	471-060	SCREW, PAN HD, X-REC, 4-40 X .250 LG		6	6	6									
106	493-005	NUT, HEX, NYLON LOCK, 4-40		6	6	6									
107	530-477	ENCLOSURE PART, CARD INSERTER/EXTRACTOR		2	2	2									
108															
109	600-036	SLEEVING, TEFLON, FLEXIBLE, .035 ID		AR	AR	AR									
110	615-004	WIRE, SOLID, UNINSULATED, 24 AWG		AR	AR	AR									

NOTES:
 STATIC SENSITIVE, SPECIAL HANDLING
 REQUIRED PER AMPEX STD HE1-1.

LM1464320

AMPEX

Ampex Corporation
REDWOOD CITY, CALIFORNIA



LIST OF MATERIALS

F.E.B. 61043 - BK-8604-06

PRINTED WIRING ASSEMBLY
HIGH LEVEL CONTROLLER

LIST OF MATERIALS NO.
1420059

Revision N

ITEM NO.	PART NUMBER	DESCRIPTION	REF DESIG	QTY REQD PER DASH NUMBER	
				-02	-03
1	1420060	PRINTED WIRING BOARD		-02	-03
2					
3	1420061	SCHEMATIC	C		
4					
5	1409670-BH	LABEL, EXTRACTOR ARM, PWA		1	1
6	1409976-AA	INSULATOR, STIFFENER		1	1
7	1409976-AB	INSULATOR, STIFFENER		1	1
8	1409997-AA	STIFFENER, PWB		1	1
9	1409997-AB	STIFFENER, PWB		1	1
10					
11	1420380-01	PROM ASSY REF: TBP14S10	4N	1	1
12	1420381-01	 REF: TMS2532	1A	1	-
13	1420382-01		2A	1	-
14	1420383-01		3A	1	-
15	1420384-01		4A	1	-
16	1420385-01		5A	1	-
17	1420386-01		6A	1	-
18	1420387-01		7A	1	1
19	1420388-01		8A	1	1
20	1420389-01		9A	1	-
21	1420390-01		10A	1	-
22	1420391-01		11A	1	-
23	1420392-01		12A	1	-
24	1420393-01		13A	1	-
25	1420394-01		14A	1	-
26	1420395-01		15A	1	1
27	1420396-01	 REF: TMS2532	16A	1	1
28	1420402-01	REF: 2816-3	6G	-	-
29	1420403-01	PROM ASSY REF: 82S100	8R	1	1
30					
31	034-206	CAPACITOR, MICA., 18pF, 500V, 5%	C71	1	1
32	034-207	24pF	C65	1	1
33	034-212	330pF	C66	1	1
34	034-319	270pF	C76,77	2	2
35	034-347	180pF	C70	1	1
36	034-962	MICA., 33pF, 500V, 5%	C63	1	1
37	037-892	CAPACITOR, TANT., 47uF, 20V, 20%	C48,64	2	2

SEE PCN 16108-4
REPLACED BY 1464265-01
 NO LONGER REQUIRED

INACTIVATED
 OBSOLETE

LM-1420059

AMPEX

Ampex Corporation
REDWOOD CITY, CALIFORNIA

CODE IDENT NO
92739

LIST OF MATERIALS

F.E.B. 61043 - BK-8604-06

ITEM NO	PART NUMBER	DESCRIPTION	REF DESIGN	QTY REQD PER DASH NUMBER																
				+02	-03															
38	037-893	CAPACITOR, TANT., 15uF, 20V, 20%	C53,54	-	-															
39	037-965	TANT., 120uF, 10V, 20%	C16	1	1															
40	055-809	POLY., .047uF, 100V, 1%	C45	-	-															
41	055-818	POLY., .039uF, 100V, 1%	C62	-	-															
42	064-314	CER., 1uF, 50V, 20%	C17	-	-															
43	064-315	CER., 1.5uF, 50V, 20%	C29,30	2	2															
44	064-653	CER., .1uF, 50V, 20%	C1-15,18-28, 31-44,46,47,49- 52,55-61,63,67, 69,72-75	-	-															
45	064-314	CAPACITOR, CER., 1uF, 50V, 20%	C62	1	1															
46	017-240	CRYSTAL, 31.9488 MHZ	Y1	1	1															
47																				
48	013-689	DIODE, CD6016	CR1,3,4	-	-															
49	013-780	DIODE, ZENER, 20V, 1N4747A	CR2	-	-															
50	581-567	DIODE, LIGHT-EMITTING, RED	DS1-18	18	18															
51																				
52	068-212	INDUCTOR, VAR., 1.0uH	L1	1	1															
53																				
54	590-610	INTEGRATED CIRCUIT, 74121	7B	-	-															
55	000-132	7407	6K	-	-															
56	589-837	74500	5E,6J,P,7R	-	-															
57	589-838	74504	2D,T,4R,5S,7L	5	5															
58	589-846	74574	4P,5N,P	3	3															
59	589-847	74586	1K	1	1															
60	589-823	74LS138	4L,5L,6B	3	3															
61	590-725	NE555	9R	1	1															
62	589-820	74LS74	1E,4D,E,F,5T	5	5															
63	590-615	74LS139	3E	1	1															
64	590-328	74LS32	3D	1	1															
65	590-329	74LS123	2F	1	1															
66	590-443	74502	1F,8N	2	2															
67	589-839	74508	3G,5R,7C	3	3															
68	590-552	74LS279	2E	1	1															
69	589-825	74LS157	7N,P	2	2															
70	589-933	74LS161	6C,D	2	2															
71	589-824	74LS153	8L	1	1															
72	001-061	1489	5D	1	1															
73	589-850	74S163	3T,4M,T,5M	4	4															
74	590-854	74S240	8P,9P	2	2															
75	000-138	74LS195	5F	1	1															
76	590-335	74LS273	8M,9N	2	2															
77	590-503	LM358	6L	-	-															
78	590-584	74LS244	1C,D,L,N,P,S	6	6															
79	590-847	74LS245	6S,T,7F,G,J,K	-	-															
80	001-088	74LS373	7D,E,H	-	-															
81	000-133	INTEGRATED CIRCUIT, 74S373	7S,T	2	2															

LM-1420059

ITEM NO	PART NUMBER	DESCRIPTION	REF DESIG	QTY REQD PER DASH NUMBER																
				102	-03															
82	590-868	INTEGRATED CIRCUIT, 74S244	1G,H,J	3	3															
83	001-953		1488 6E	1	1															
84	590-193		9637 3F	1	1															
85	001-042		DS3692 2G	1	1															
86	590-932		CDP1854ACD 2B	1	1															
87	000-148		AM2966 7M,8K	2	2															
88	590-861		25LS14 2H,J,K,L,3H,J,K,L	8	8															
89	590-862		25LS15 4S	1	1															
90	590-864		25LS22 5G	1	1															
91	590-865		25LS23 2M,N,P,R,3M,N,P,R,4G,H,J,K,5H,J,K	15	15															
92	590-866		AM28002DC 8T	1	1															
93	590-867		AM9551-4PC 5B	1	1															
94	590-989		TMS4164-15 8B,C,D,E,F,G,H,J,9B,C,D,E,F,G,H,J	16	16															
95	000-044		WD1510-01 4B	1	1															
96	570-586	INTEGRATED CIRCUIT, PM681 (POWER PRODUCTS 12VDC TO 24VDC CONVERTER)	6N	-	-															
97	590-847	INTEGRATED CIRCUIT, 74LS245	6S,T,7J,K	4	4															
98	039-163	RESISTOR, NETWORK, 470 OHMS, 10 PIN SIP	R14,15	2	2															
99	039-241	NETWORK, 4.7K OHMS, 10 PIN SIP	R22,25	2	2															
100	039-264	NETWORK, 4.7K OHMS, 8 PIN SIP	R38	1	1															
101	041-008	COMP, 1.5K OHMS, 1/2W, 5%	R13	-	-															
102	062-968	M.F., 4.99K OHMS, 1/4W, 1%	R19	-	-															
103	066-660	C.F, 22 OHMS, 1/4W, 5%	R33	1	1															
104	066-663	220	R18,26,32	-	-															
105	066-665	1K	R28	1	1															
106	066-668	4.7K	R1,3-5,27	5	5															
107	066-673	1M	R24,36	2	2															
108	066-715	1.2K	R31	1	1															
109	066-717	47K	R20	-	-															
110	066-814	270	R29	1	1															
111	066-818	470	R6,12,30,34,37	5	5															
112	066-827	3.9K	R17	-	-															
113	066-830	10K	R21	1	1															
114	066-832	18K	R2	-	-															
115	066-842	5.1K	R9,11,35	3	3															
116	066-843	6.2K	R23	1	1															
117	066-865	12K	R16	-	-															
118	066-912	82K	R7,8	2	2															
119	076-004	RESISTOR, C.F, 180 OHMS, 1/4W, 5%	R10	1	1															
120																				
121	135-239	HEADER ASSY, RT ANDLE, 10 POSITION	J1	1	1															
122	187-055	TERMINAL, WIREWRAP	E27,28	-	2															
123	119-837	SWITCH, DIP, 8 X SPST	S1,2	2	2															
124	187-055	TERMINAL, WIREWRAP	E1-23,27-31	-	-															
125	014-247	TRANSISTOR, NPN, CD38	Q1	-	-															
126	014-364	TRANSISTOR, PNP, CD438	Q5	1	1															

LM-142 0059

AMPEX Ampex Corporation REDWOOD CITY, CALIFORNIA		CODE IDENT NO. 92739	LIST OF MATERIALS	F.E.B. 61043 - BK-8604-06																	
ITEM NO.	PART NUMBER	DESCRIPTION			REF DESIG	QTY REQD PER DASH NUMBER															
						02	03														
127	014-780	TRANSISTOR, NPN, MPS6514-5			Q2-4	3	3														
128																					
129	582-333	I.C., MTG HDW., SOCKET, 20 PIN			REF: 1C, D, G, H, J, L, N, P, S, 2M, N, P, R, 3M, N, P, R, 4G, H, J, K, S, 5G, H, J, K, 6S, T, 7D, E, F, G, H, J, K, M, S, T, 8K, M, P, 9N, P																
130	582-329			8 PIN	REF: 3F, 6L, 9R																
131	582-330			14 PIN	REF: 1E, F, K, 2D, T, 3D, G, 4D, E, F, P, R, 5D, E, N, P, R, S, T, 6E, J, K, P, 7B, C, L, R, 8N																
132	582-280			24 PIN	REF: 1A, 2A, 3A, 4A, 5A, 6A, G, 7A, 8A, 9A, 10A, 11A, 12A, 13A, 14A, 15A, 16A																
133	582-281			28 PIN	REF: 4B, 5B, 8R	3	3														
134	582-282			40 PIN	REF: 2B, 8T	2	2														
135	582-331	I.C., MTG HDW., SOCKET, 16 PIN			REF: 2E, F, G, H, J, K, L, 3E, H, J, K, L, T, 4L, M, N, T, 5F, L, M, 6B, C, D, 7N, P, 8B, C, D, E, F, G, H, J, L, 9B, C, D, E, F, G, H, J	4	2	4	2												
136																					
137	302-395	STRAP, MOUSETAIL			REF: Y1	1	1														
138																					
139	615-154	WIRE, WIREWRAP, 30 AWG GRN																			
140																					
141	471-060	SCREW, PAN HD., X-REC, 4-40 X .250 LG				6	6														
142	493-005	NUT, HEX, NYLON LOCK, 4-40				6	6														
143	530-477	ENCLOSURE PART, CARD INSERTER/EXTRACTOR				2	2														
144	600-036	SLEEVEING, TEFLON, FLEXIBLE, .035 ID				A/R	-														
145	615-004	WIRE, SOLID, UNINSULATED, 24 AWG				A/R	-														
146	064-653	CAPACITOR, CER., .1uF, 50V, ±20%			C1-15, 19-28, 31-44, 46, 47, 49-51, 55-61, 63, 67, 69, 72, 75	58	58														
147	013-689	DIODE, CD6016			CR4	1	1														
148	582-333	I.C., MTG HDW., SOCKET, 20 PIN			REF: 1C, D, G, H, J, L, N, P, S, 2M, N, P, R, 3M, N, P, R, 4G, H, J, K, S, 5G, H, J, K, 6S, T, 7J, K, M, S, T, 8K, M, P, 9N, P	38	38														
149	582-329			8 PIN	REF: 3F, 9R	2	2														
150	582-330			14 PIN	REF: 1E, F, K, 2D, T, 3D, G, 4D, E, F, P, R, 5D, E, N, P, R, S, T, 6E, J, K, P, 7C, L, R, 8N	25	25														
151	582-280	I.C., MTG HDW., SOCKET, 24 PIN			REF: 1A, 2A, 3A, 4A, 5A, 6A, 7A, 8A, 9A, 10A, 11A, 12A, 13A, 14A, 15A, 16A	16	16														
152	066-663	RESISTOR, C.F., 220 OHMS, 1/4W, ±5%			R26, 32	2	2														
153	580-837	INTEGRATED CIRCUIT, 74S00			5E, 6P, 7R	3	3														
154	064-314	CAPACITOR, CER., 1uF, 50V, ±20%			C17, 62	2															
NOTES:																					
					1	STATIC SENSITIVE DEVICE															

LM-1420059

AMPEX | Ampex Corporation
REDWOOD CITY, CALIFORNIA

LIST OF MATERIALS

F.E.B. 61043 - BK-8604-06

PRINTED WIRING ASSEMBLY
HIGH LEVEL CONTROLLER, NTSC & PAL

LIST OF MATERIALS NO.
1464265

Revision F

ITEM NO	PART NUMBER	DESCRIPTION	REF DESIG	QTY REQD PER DASH NUMBER							
				-01	-02	-03	-04				
1	1464266	PRINTED WIRING BOARD		-01	-03	-04	-05				
2											
3	1464267	SCHEMATIC		-)	A	B	C				
4											
5	1409670-BH	LABEL, EXTRACTOR ARM, PWA		1	1	1	1				
6	1409976-AA	INSULATOR, STIFFENER		1	1	1	1				
7	1409976-AB	INSULATOR, STIFFENER		1	1	1	1				
8	1409997-AA	STIFFENER, PWB		1	1	1	1				
9	1409997-AB	STIFFENER, PWB		1	1	1	1				
10											
11	1420380-01	PROM ASSY	REF: TBP14510	4N		1	1				
12	1420403-01		REF: 82S100	8R		1	1				
13	1464310-01		REF: TMS2532	7A		1	1				
14	1464311-01			8A		1	1				
15	1464312-01			15A		1	1				
16	1464313-01	PROM ASSY	REF: TMS2532	16A		1	1				
17											
18	064-314	CAPACITOR, CER., 1uF, 50V, 20%		C62		1	1				
19	064-315	CER., 1.5uF, 50V, 20%		C29,30	2	2	2	2			
20	064-653	CAPACITOR, CER., .1uF, 50V, ±20%		C1-15, 19-28, 31-44, 46, 47 49-51, 55, 56, 58-61, 63, 72-75	58	58	58	55			
21											
22	034-206	CAPACITOR, MICA., 18pF, 500V, +.5pf		C71	1	1	-				
23	034-207	24pF, +.5pf		C65	1	1	-				
24	034-212	330pF, 5%		C66	1	1	-				
25	034-319	270pF		C76,77	2	2	-				
26	034-347	180pF		C70	1	1	-				
27	034-962	CAPACITOR, MICA., 33pF, 500V, 5%		C68	1	1	1				
28	034-184	CAPACITOR, MICA., 68pF, 500V, ±5%		C76,77		-	2	2			
29	037-892	CAPACITOR, TANT., 47uF, 20V, 20%		C48,64	2	2	2	2			
30	037-965	CAPACITOR, TANT., 120uF, 10V, 20%		C16	1	1	1				
31											
32	017-240	CRYSTAL, 31.9488 MHZ		Y1	1	1	-				
33	595-035	HYBRID OSCILLATOR		1T			1				
34	013-689	DIODE, CD6016		CR4	1	1	1	1			
35											
36	581-567	DIODE, LIGHT-EMITTING, RED		DS1-18	18	18	18	18			
37											

INACTIVATED
OBSOLETE
 SEE PCN 14644-1
 REPLACED BY 1464286
NO LONGER REQUIRED

LM-1404265

AMPEX

Ampex Corporation
Redwood City, California

CODE IDENT NO
92739

LIST OF MATERIALS

F.E.B. 61043 - BK-8604-06

ITEM NO	PART NUMBER	DESCRIPTION	REF DESIG	QTY REQD PER DASH NUMBER			
				-01	-02	-03	-04
38	135-230	HEADER ASSY, RT ANGLE, 10 POSITION	J1	1	1	1	1
39							
40	068-212	INDUCTOR, VAR., 1.0uH	L1	1	1	1	-
41							
42	000-044	INTEGRATED CIRCUIT, WD1510-01	4B	1	1	1	1
43	000-133	74S373	7S,T	2	2	2	2
44	000-138	74LS195	5F	1	1	1	1
45	000-148	AM2966	7M,8K	2	2	2	2
46	001-042	DS3692	2G	1	1	1	1
47	001-061	1489	5D	1	1	1	1
48	001-953	1488	6E	1	1	1	1
49	589-820	74LS74	1E,4D,E,F,5T	5	5	5	5
50	589-823	74LS138	4L,5L,6B	3	3	3	3
51	589-824	74LS153	8L	1	1	1	1
52	589-825	74LS157	7N,P	2	2	2	2
53	589-837	74S00	5E,6P,7R	3	3	3	3
54	589-838	74S04	2D,T,4R,5S,7L	5	5	5	5
55	589-839	74S08	3G,5R,7C	3	3	3	3
56	589-846	74S74	4P,5N,P	3	3	3	3
57	589-847	74S86	1K	1	1	1	1
58	589-850	74S163	3T,4M,T,5M	4	4	4	4
59	589-933	74LS161	6C,D	2	2	2	2
60	590-193	9637	3F	1	1	1	1
61	590-328	74LS32	3D	1	1	1	1
62	590-329	74LS123	2F	1	1	1	1
63	590-335	74LS273	8M,9N	2	2	2	2
64	590-443	74S02	1F,8N	2	2	2	2
65	590-552	74LS279	2E	1	1	1	1
66	590-584	74LS244	1C,D,L,N,P,S	6	6	6	6
67	590-615	74LS139	3E	1	1	1	1
68	590-725	NE555	9P	1	1	1	1
69	590-847	74LS245	6S,T,7J,K	4	4	4	4
70	590-854	74S240	8P,9P	2	2	2	2
71	590-861	25LS14	2H,J,K,L,3H, J,K,L	8	8	8	8
72	590-862	25LS15	4S	1	1	1	1
73	590-864	25LS22	5G	1	1	1	1
74	590-865	25LS23	2H,N,P,R,3M,N,P,R, 4G,H,J,K,5H,J,K	15	15	15	15
75	590-866	AMZ8002DC	8T	1	1	1	1
76	590-867	AM9551-4PC	5B	1	1	1	1
77	590-868	74S244	1G,H,J	3	3	3	3
78	590-932	CDP1854ACD	2B	1	1	1	1
79	590-989	INTEGRATED CIRCUIT, TMS164-15	8B,C,D,E,F,G,H,J, 9B,C,D,E,F,G,H,J	16	16	16	16
80							
81							
82							

LM1464265

AMPEX

Amper Corporation
Redwood City California

ORDER PART NO
92739

LIST OF MATERIALS

F.E.B. 61043 - BK-8604-06

ITEM NO.	PART NUMBER	DESCRIPTION	REF DESIGN	QTY REQD PER DASH NUMBER									
				-01	-02	-03	-04						
83	066-660	RESISTOR, C.F., 22 OHMS, 1/4W, 5%	R33	1	1	1	1						
84	066-663	220 OHMS, 1/4W, +5%	R32	2	2	2	1						
85	066-665	1K	R28	1	1	1	-						
86	066-666	4.7K	R1,3-5	5	5	5	4						
87	066-673	1M	R24,36	2	2	2	2						
88	066-715	1.2K	R31	1	1	1	1						
89	066-814	270	R29	1	1	1	-						
90	066-816	470	R6,12,37	5	5	5	3						
91	066-830	10K	R21	1	1	1	1						
92	066-842	5.1K	R9,11	3	3	3	2						
93	066-843	6.2K	R23	1	1	1	-						
94	066-912	82K	R7,8	2	2	2	2						
95	076-004	RESISTOR, C.F., 180 OHMS, 1/4W, 5%	R10	1	1	1	1						
96													
97													
98													
99	039-163	RESISTOR, NETWORK, 470 OHMS, 10 PIN SIP	R14,15	2	2	2	2						
100	039-241	4.7 OHMS, 10 PIN SIP	R22,25	2	2	2	2						
101	039-264	RESISTOR, NETWORK, 4.7K OHMS, 8 PIN SIP	R38	1	1	1	1						
102													
103	119-837	SWITCH, DIP, 8 X SPST	S1,2	2	2	2	2						
104													
105	187-055	TERMINAL, WIREWRAP	E27,28	2	2	2	2						
106													
107	014-364	TRANSISTOR, PNP, CD438	Q5	1	1	1	1						
108	014-780	TRANSISTOR, NPN, MPS6514-5	Q2-4	3	3	3	-						
109													
110	582-280	I.C., MTG HDW., SOCKET, 24 PIN	REF: 1A,2A,3A,4A,5A,6A, 7A,8A,9A,10A,11A, 12A,13A,14A,15A, 16A	16	16	16	16						
111	582-329	8 PIN	REF: 3F,9R	2	2	2	2						
112	582-330	14 PIN	REF: 1E,F,K,2D,T,3D,G,4D, E,F,P,R,5D,E,N,P,R, S,T,6E,P,7C,L,R,8N	25	25	25	25						
113	582-331	16 PIN	REF: 2E,F,G,H,J,K,L,3E,H, J,K,L,T,4L,M,N,T,5F, L,M,6B,C,D,7N,P,8D, C,D,E,F,G,H,J,L,9B, C,D,E,F,G,H,J	42	42	42	42						
114	582-333	I.C., MTG HDW., SOCKET, 20 PIN	REF: 1C,D,G,H,J,L,N,P,S, 2M,N,P,R,3M,N,P,R,4G, H,J,K,S,5G,H,J,K,6S, T,7J,K,M,S,T,8K,M,P, 9N,P	38	38	38	38						
115	582-281	I.C., MTG HDW, SOCKET, 28 PIN	REF: 4B,5B,8B	3	3	3	3						
116	582-282	I.C., MTG HDW, SOCKET, 40 PIN	REF: 2B,8T	2	2	2	2						
117	302-325	STRAP, MOUSETAIL	REF: Y1	1	1	1	-						
118													
119	471-060	SCREW, PAN HD., X-REC, 4-40 X .250 LG		6	6	6	6						
120	433-005	NUT, HEX, NYLON LOCK, 4-40		6	6	6	6						
121	530-477	ENCLOSURE PART, CARD INSERTER/EXTRACTOR		2	2	2	2						

LM-1464265

AMPEX

Ampex Corporation
REDWOOD CITY, CALIFORNIA

LIST OF MATERIALS

F.E.B. 61043 - BK-8604-06

PRINTED WIRING ASSEMBLY
HIGH LEVEL CONTROLLER, NTSC, PAL, & PAL-M

LIST OF MATERIALS NO.
1464286

Revision K

ITEM NO.	PART NUMBER	DESCRIPTION	REF DESIG	QTY REQD PER DASH NUMBER																	
				-01	-02	-03	-04	-05													
1	1464266	PRINTED WIRING BOARD		-03	-04	-04	-05	-07													
2																					
3	1464288	SCHEMATIC		(-)	(-)	(-)	(0)	(E)													
4																					
5	1409670-BH	LABEL, EXTRACTOR ARM, PWA		1	1	1		1													
6	1409976-AA	INSULATOR, STIFFENER		1	1	1		1													
7	1409976-AB	INSULATOR, STIFFENER		1	1	1		1													
8	1409997-AA	STIFFENER, PWB		1	1	1		1													
9	1409997-AB	STIFFENER, PWB		1	1	1		1													
10																					
11	1420380-01	PROM ASSY, HLC	4N	1	1	1		1													
12	1420403-01	PROM ASSY HLC	8R	1	1	1		1													
13																					
14	064-314	CAPACITOR, CER., 1uF, 50V, 20%	C62	1	1	1		1													
15	064-315	CAPACITOR, CER., 1.5uF, 50V, 20%	C29,30	2	2	2		2													
16	064-653	CAPACITOR, CER., .1uF, 50V, ±20%	C1-15,19-28,31-44,46,47,49-51,55-56,58-61,63,67,69,72-75	58	58	58		58													
17	064-653	CAPACITOR, CER., .1uF, 100V, ±20%	C1-15,19-28,31-44,46,47,49-51,55-56,58-61,63,72-75																		
18	034-206	CAPACITOR, MICA., 18pF, 500V, ±.5pF	C71	1	1	1		1													
19	034-207	24pF, ±.5pF	C65	1	1	1		1													
20	034-212	330pF, 5%	C66	1	1	1		1													
21	034-319	270pF,	C76,77	2	2	2		2													
22	034-347	180pF,	C70	1	1	1		1													
23	034-962	CAPACITOR, MICA, 33pF, 500V, 5%	C68	1	1	1		1													
24	034-184	CAPACITOR, MICA, 68pF, 500V, ±5%	C76,77			2		2													
25																					
26	037-892	CAPACITOR, TANT., 47uF, 20V, 20%	C48,64	2	2	2		2													
27	037-965	CAPACITOR, TANT., 120uF, 10V, 20%	C16	1	1	1		1													
28																					
29	017-240	CRYSTAL, 31.9488 MHZ	Y1	1	1	1		1													
30																					
31	013-689	DIODE, CD6016	CR4	1	1	1		1													
32																					
33	581-567	DIODE, LIGHT-EMITTING, RED	DS1-18	18	18	18		18													
34																					
35	135-239	HEADER ASSY RT ANGLE, 10 POSITION	J1	1	1	1		1													
36																					

LM-1464286

AMPEX

Amplex Corporation
Redwood City, California

CODE IDENT NO
92739

LIST OF MATERIALS

F.E.B. 61043 - BK-8604-06

ITEM NO.	PART NUMBER	DESCRIPTION	REF DESIG	QTY REQD PER DASH NUMBER				
				-01	-02	-03	-04	-05
37	068-212	INDUCTOR, V.A.R., 1.0uH	L1	1	1	1		
38								
39	000-044	INTEGRATED CIRCUIT, WD1510-01	4B	1	1	1		1
40	000-133	74S373	7S,T	2	2	2	2	2
41	000-138	74LS195	5F	1	1	1		1
42	000-148	AM2966	7M,8K	2	2	2	2	2
43	001-042	DS3692	2G	1	1	1		1
44	001-061	1489	5D	1	1	1		1
45	001-953	1488	6F	1	1	1		1
46	589-820	74LS74	1E,4D,E,F,5T	5	5	5	5	5
47	589-823	74LS138	4L,5L,6B	3	3	3	3	3
48	589-824	74LS153	8L	1	1	1		1
49	589-825	74LS157	7N,P	2	2	2	2	2
50	589-837	74S00	5E,6P,7R	3	3	3		3
51	589-838	74S04	2D,T,4R,5S,7L	5	5	5	5	5
52	589-839	74S08	3G,5R,7C	3	3	3		3
53	589-846	74S74	4P,5N,P	3	3	3		3
54	589-847	74S86	1K	1	1	1		1
55	589-850	74S163	3T,4M,T,5M	4	4	4		4
56	589-933	74LS161	6C,D	2	2	2		2
57	590-193	9637	3F	1	1	1		1
58	590-328	74LS32	3D	1	1	1		1
59	590-329	74LS123	2F	1	1	1		1
60	590-335	74LS273	8M,9N	2	2	2		2
61	590-443	74S02	1F,8N	2	2	2		2
62	590-552	74LS279	2E	1	1	1		1
63	590-584	74LS244	1C,D,L,N,P,S	6	6	6		6
64	590-615	74LS139	3E	1	1	1		1
65	590-725	NE555	9R	1	1	1		1
66	590-847	74LS245	6S,T,7J,K	4	4	4		4
67	590-854	74S240	8P,9P	2	2	2		2
68	590-861	25LS14	2H,J,K,L,3H, J,K,L	8	8	8		8
69	590-862	25LS15	4S	1	1	1		1
70	590-864	25LS22	5G	1	1	1		1
71	590-865	25LS23	2M,N,P,R,3M,N,P,R, 4G,H,J,K,5H,J,K	15	15	15	15	15
72	590-866	AM28002DC	8T	1	1	1		1
73	590-867	AM9551-4PC	5B	1	1	1		1
74	590-868	74S244	1G,H,J	3	3	3		3
75	590-932	CDP1854ACD	2B	1	1	1		1
76	590-989	INTEGRATED CIRCUIT, TMS4164-15	8B,C,D,E,F,G,H,J, 9B,C,D,E,F,G,H,J	16	16	16	16	16
77	595-035	HYBRID OSCILLATOR, HS-100	REF:2S					1
78								
79	066-663	RESISTOR, C.F., 220 OHMS, 1/4W, ±5%	R32					1
80	066-660	RESISTOR, C.F., 22 OHMS, 1/4W, 5%	R33	1	1	1		1
81	066-663	RESISTOR, C.F., 220 OHMS, 1/4W, ±5%	R26,32	2	2	2		-

LM-1464286


AMPEX

Ampex Corporation
REDWOOD CITY, CALIFORNIA

CODE IDENT NO.
92739

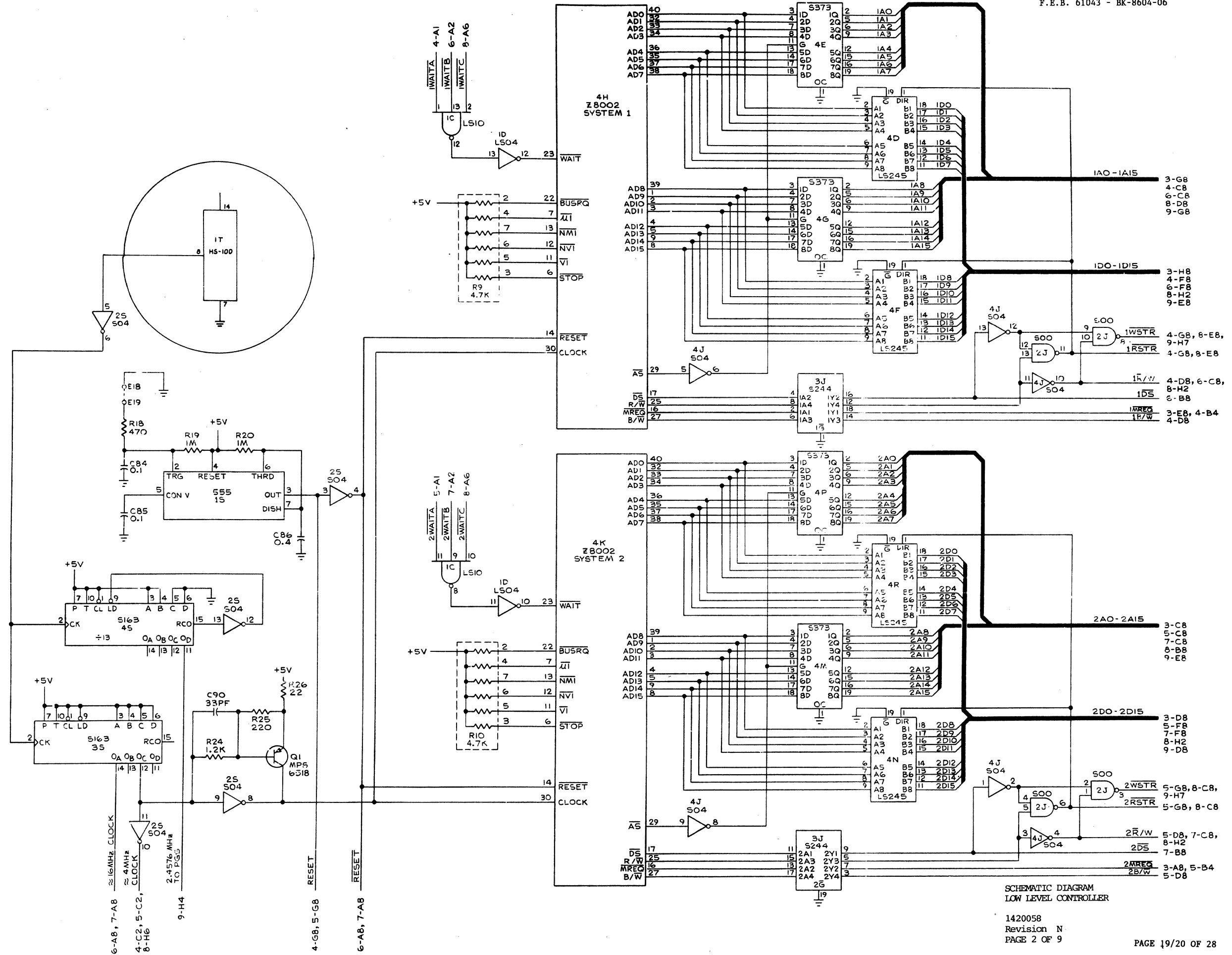
LIST OF MATERIALS

F.E.B. 61043 - BK-8604-06

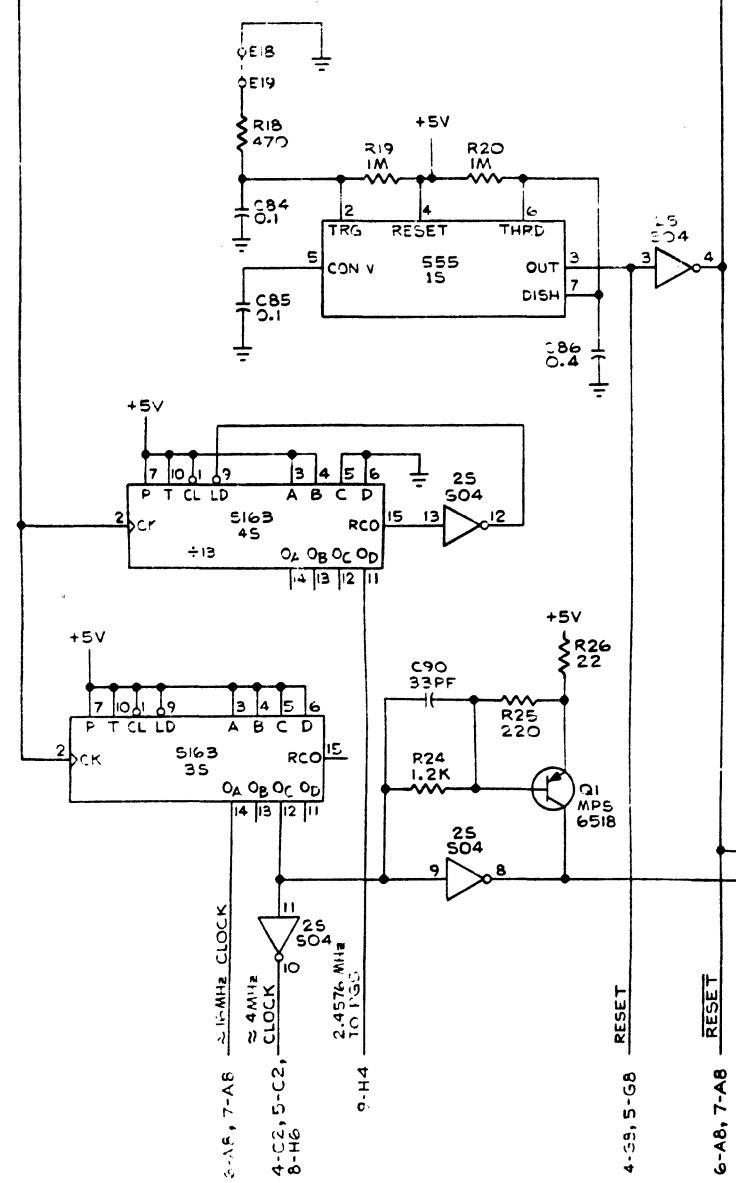
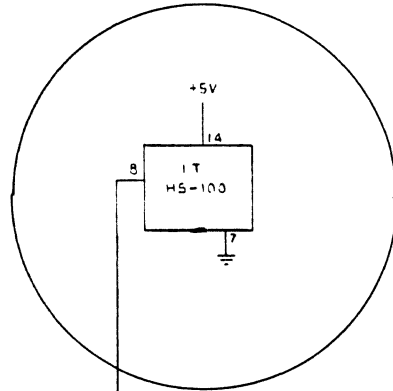
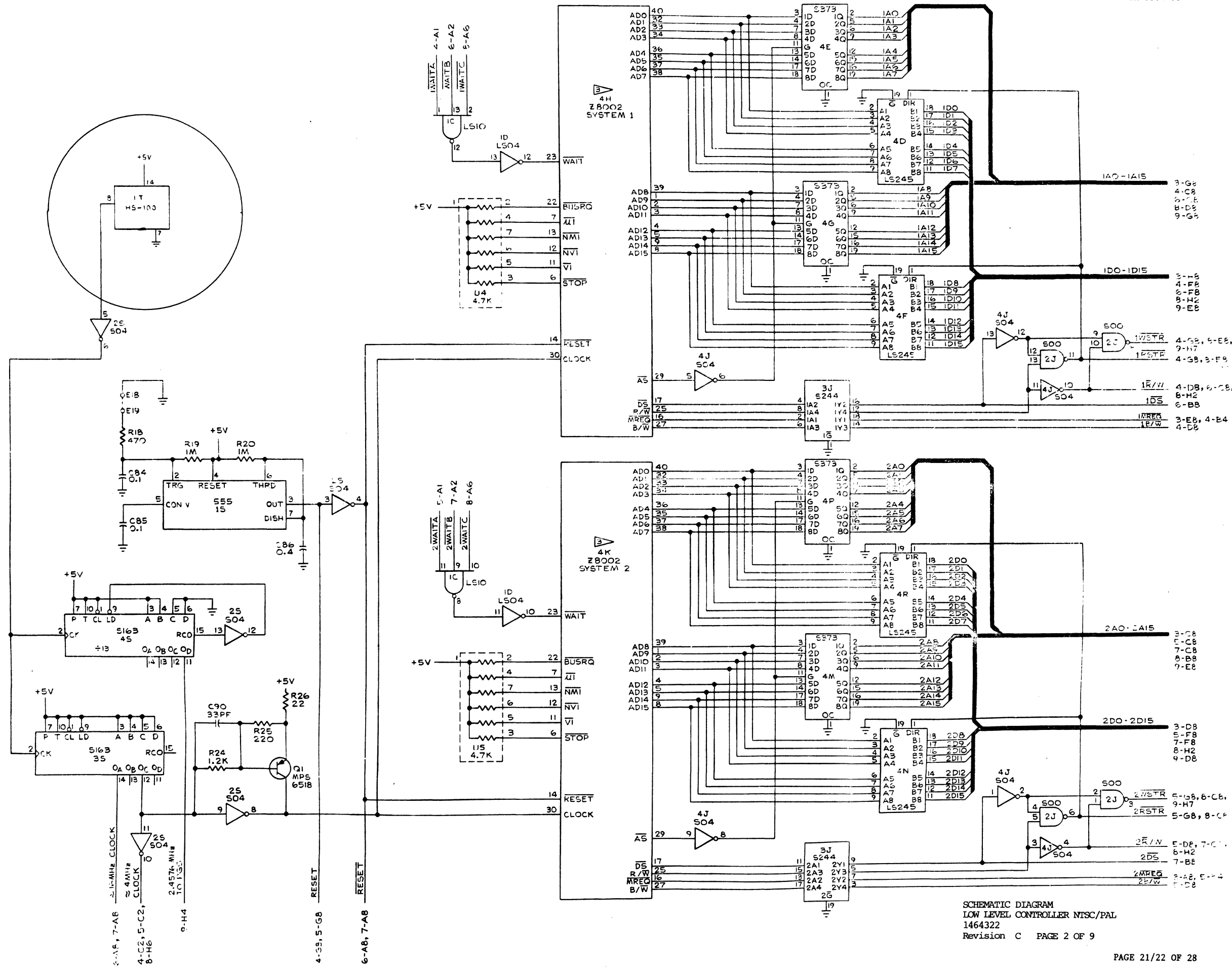
ITEM NO.	PART NUMBER	DESCRIPTION	REF DESIG	QTY RECD PER DASH NUMBER				
				-01	-02	-03	-04	-05
82	066-665	RESISTOR, C.F., 1K OHMS, 1/4W, ±5%	R28	1	1	1	1	-
83	066-668	4.7K	R1,3-5,27	5	5	5	5	-
84	066-673	1M	R24,36	2	2	2	2	2
85	066-715	1.2K	R31	1	1	1	1	1
86	066-814	270	R29	1	1	1	1	-
87	066-818	470	R6,12,30,34,37	5	5	5	5	-
88	066-830	10K	R21	1	1	1	1	1
89	066-842	5.1K	R9,11,35	3	3	3	3	-
90	066-843	6.2K	R23	1	1	1	1	-
91	066-912	82K	R7,8	2	2	2	2	2
92	076-004	RESISTOR, C.F., 180 OHMS, 1/4W, ±5%	R10	1	1	1	1	1
93	066-842	RESISTOR, C.F., 5.1K OHMS, 1/4W, ±5%	R9,11					2
94	066-818	RESISTOR, C.F., 470 OHMS, 1/4W, ±5%	R6,12,37					3
95	066-668	RESISTOR, C.F., 4.7K OHMS, 1/4W, ±5%	R1,3-5					4
96	039-163	RESISTOR, NETWORK, 470 OHMS, 10 PIN SIP	RN14,15	2	2	2	2	2
97	039-241	RESISTOR, NETWORK, 4.7K OHMS, 10 PIN SIP	RN22,25	2	2	2	2	2
98	039-264	RESISTOR, NETWORK, 4.7K OHMS, 8 PIN SIP	RN38	1	1	1	1	1
99								
100	014-364	TRANSISTOR, PNP, CD438	Q5	1	1	1	1	1
101	014-780	TRANSISTOR, NPN, MPS6514-5	Q2-4	3	3	3	3	-
102								
103	119-837	SWITCH, DIP, 8 X SPST	S1,2	2	2	2	2	2
104								
105	187-055	TERMINAL, WIREWRAP	E27,28	2	2	2	2	2
106								
107	302-395	STRAP, MOUSETAIL	REF:Y1	1	1	1	1	1
108								
109	582-280	I.C., MTG HDW., SOCKET, 24 PIN	REF:1A,2A,3A,4A,5A,6A,7A,8A,9A,10A,11A,12A,13A,14A,15A,16A	15	15	15	15	15
110	582-281	28 PIN	REF:4B,5B,6B	3	3	3	3	3
111	582-282	40 PIN	REF:2B,8T	2	2	2	2	2
112	582-329	8 PIN	REF:3F,9R	2	2	2	2	2
113	582-330	14 PIN	REF:1E,F,K,2D,T,3D,G,4D,E,F,P,R,5D,E,N,P,R,S,T,6E,P,7C,L,R,8N	25	25	25	25	25
114	582-331	16 PIN	REF:2E,F,G,H,J,K,L,3E,H,J,K,L,T,4L,M,N,T,5F,L,M,6B,C,D,7N,P,8B,C,D,E,F,G,H,J,L,9B,C,D,E,F,G,H,J	42	42	42	42	42
115	582-333	I.C., MTG HDW., SOCKET, 20 PIN	REF:1C,D,G,H,J,L,N,P,S,2H,N,P,R,3M,N,P,R,4G,H,J,K,S,5G,H,J,K,6S,T,7J,K,M,S,T,8K,M,P,9N,P	38	38	38	38	38
116	280-998	TRANSISTOR, MTG. HDW., 5 PIN	REF:Q5				1	1
117								
118	471-060	SCREW, PAN HD., X-REC, #4-40 X .250 LG		6	6	6	6	6
119	493-005	NUT, HEX, NYLON LOCK, #4-40		6	6	6	6	6
120	530-477	ENCLOSURE PART, CARD INSERTER/EXTRACTOR		2	2	2	2	2
121		NOTES:						
122		 STATIC SENSITIVE, SPECIAL HANDLING REQUIRED PER AMPEX STD HE1-1.						

LM-1464286

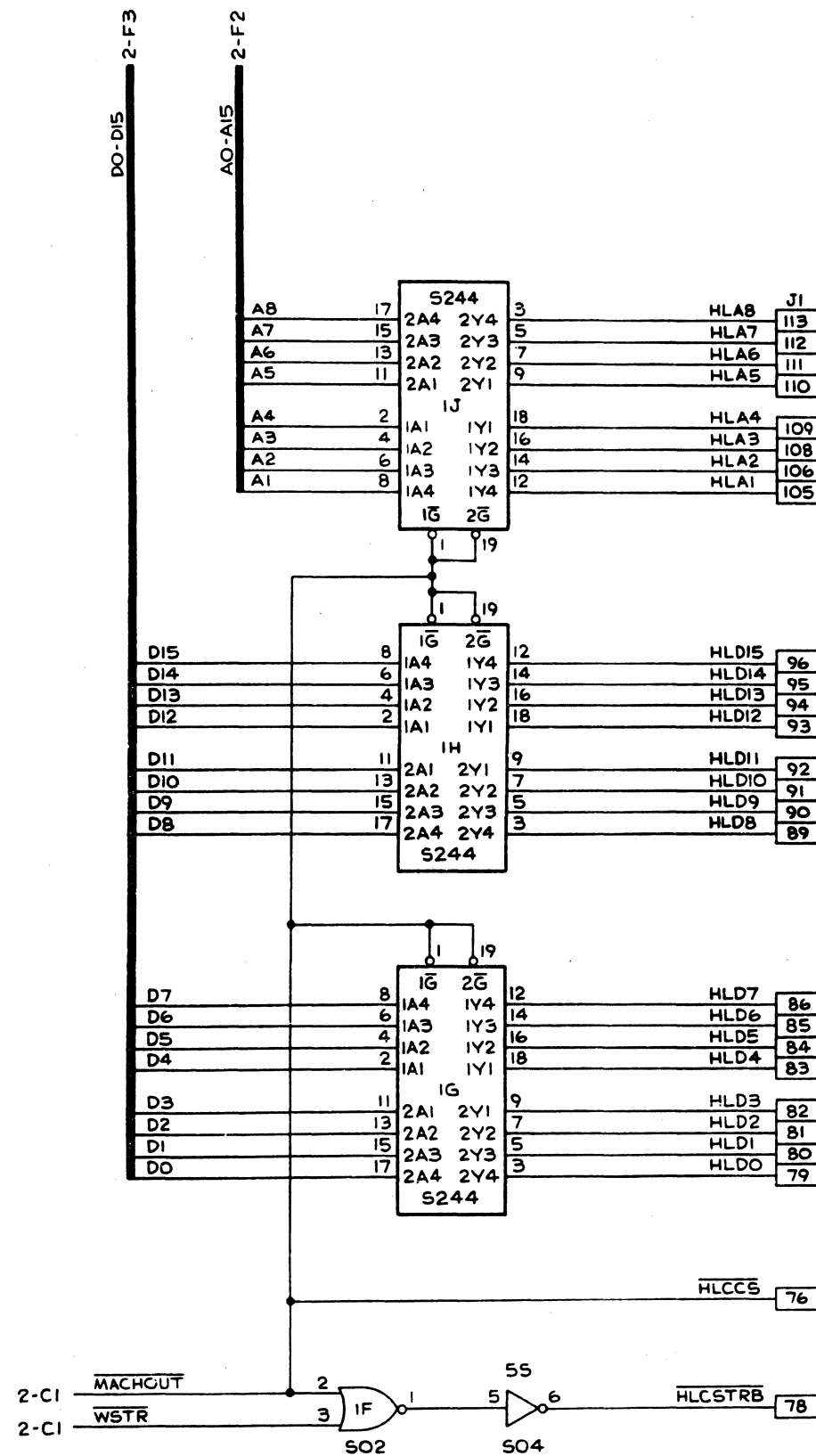
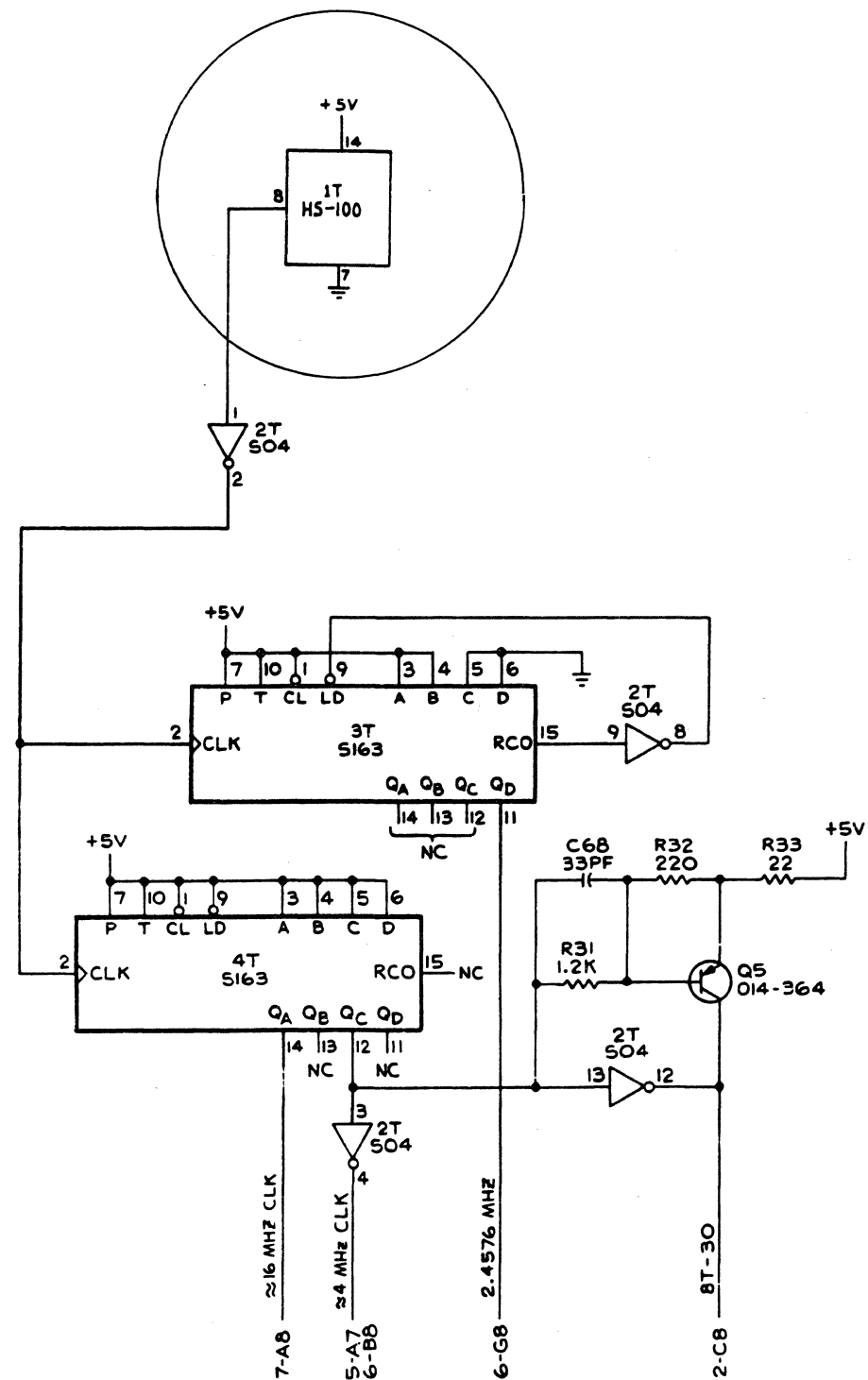




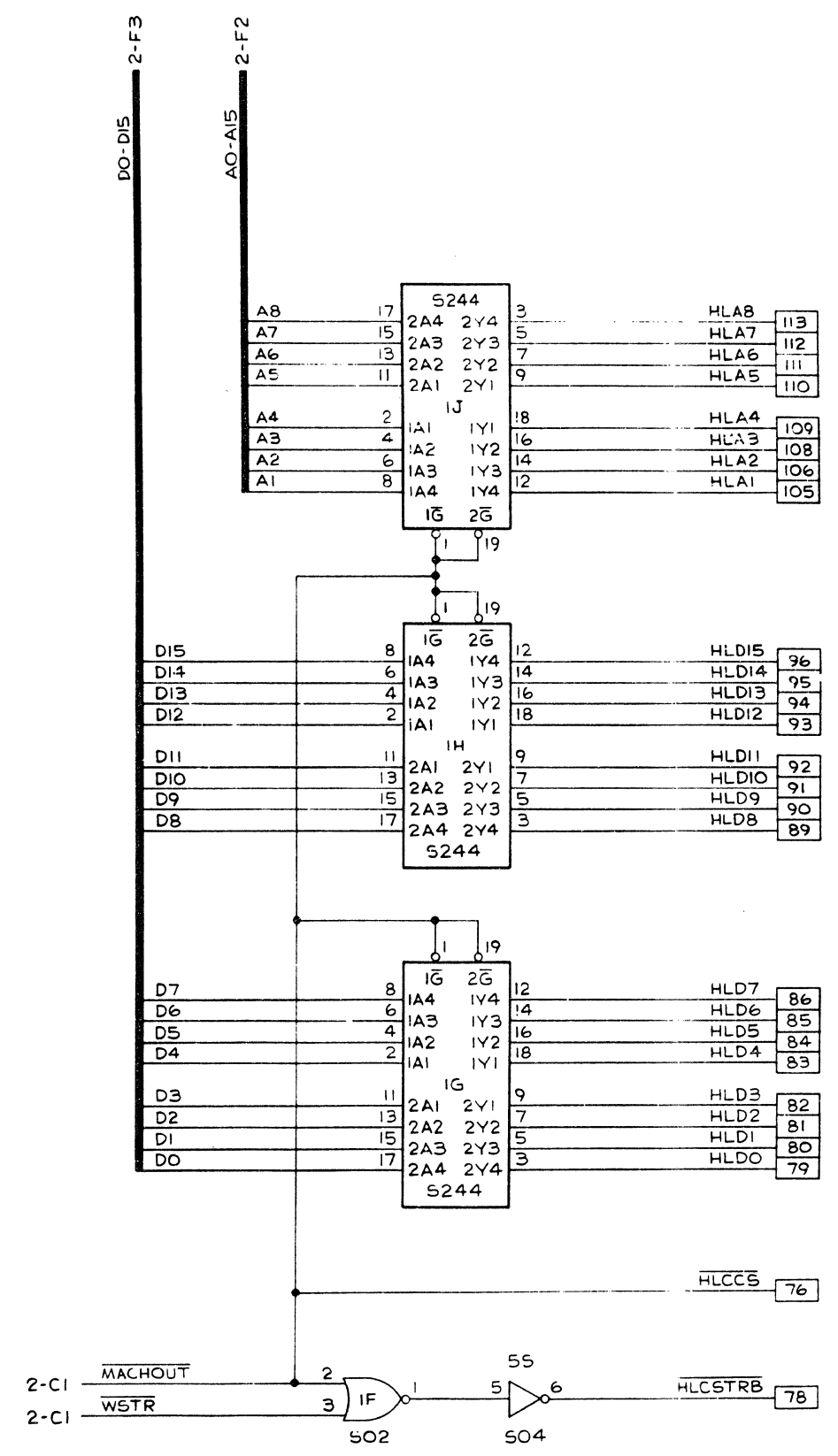
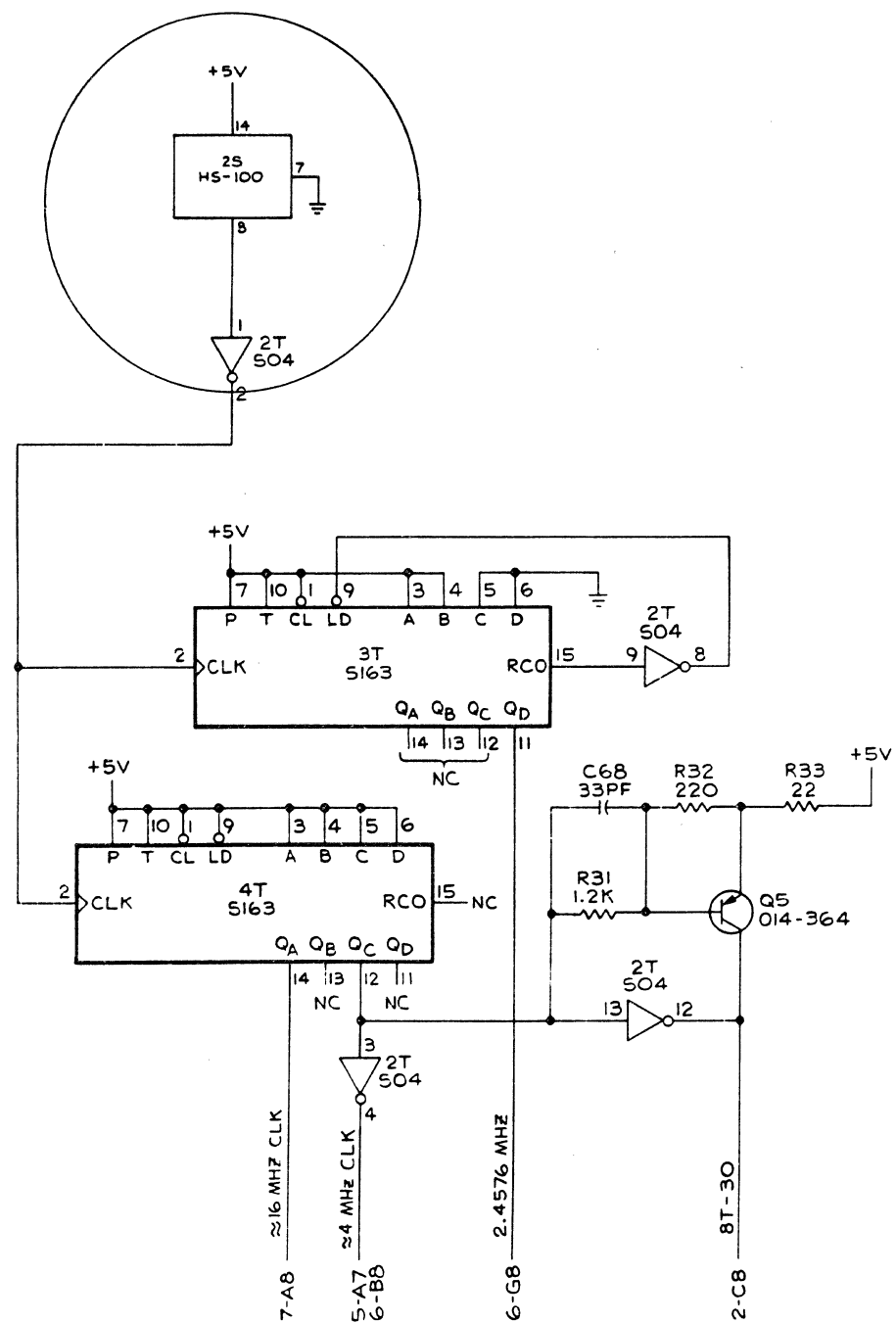
SCHEMATIC DIAGRAM
LOW LEVEL CONTROLLER



SCHEMATIC DIAGRAM
 LOW LEVEL CONTROLLER NTSC/PAL
 1464322
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HIGH LEVEL CONTROLLER
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SCHEMATIC DIAGRAM
 HIGH LEVEL CONTROLLER
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AMPEX