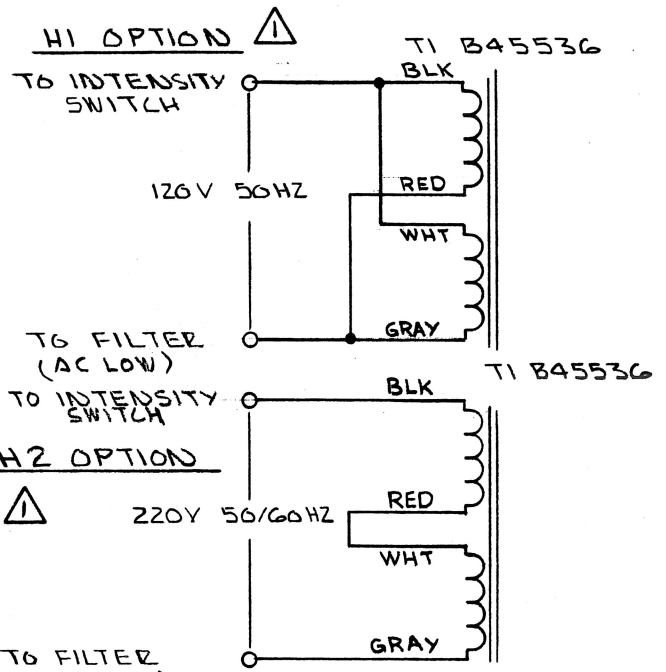
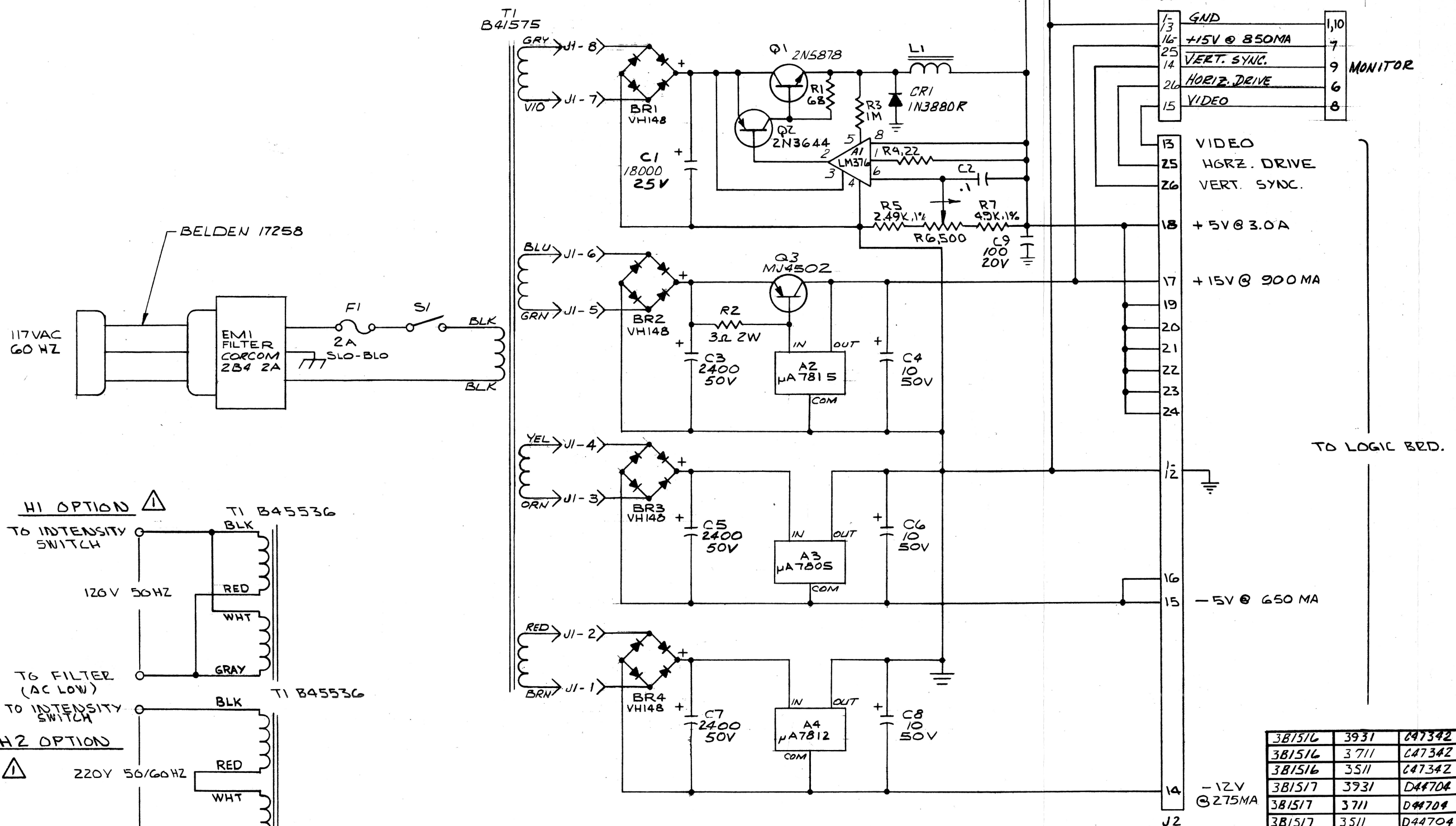


D	C3, 547 WERE 4500/25V ADD 20V TO C9, Q2 WAS 2N2905 R5 WAS 2.74K, RENUMBERED J1	LHW	1-16-75
E	ADD H1/H2 OPTIONS	AKB	3-31-75
F	ADD INV NO.	DJ	4-21-75

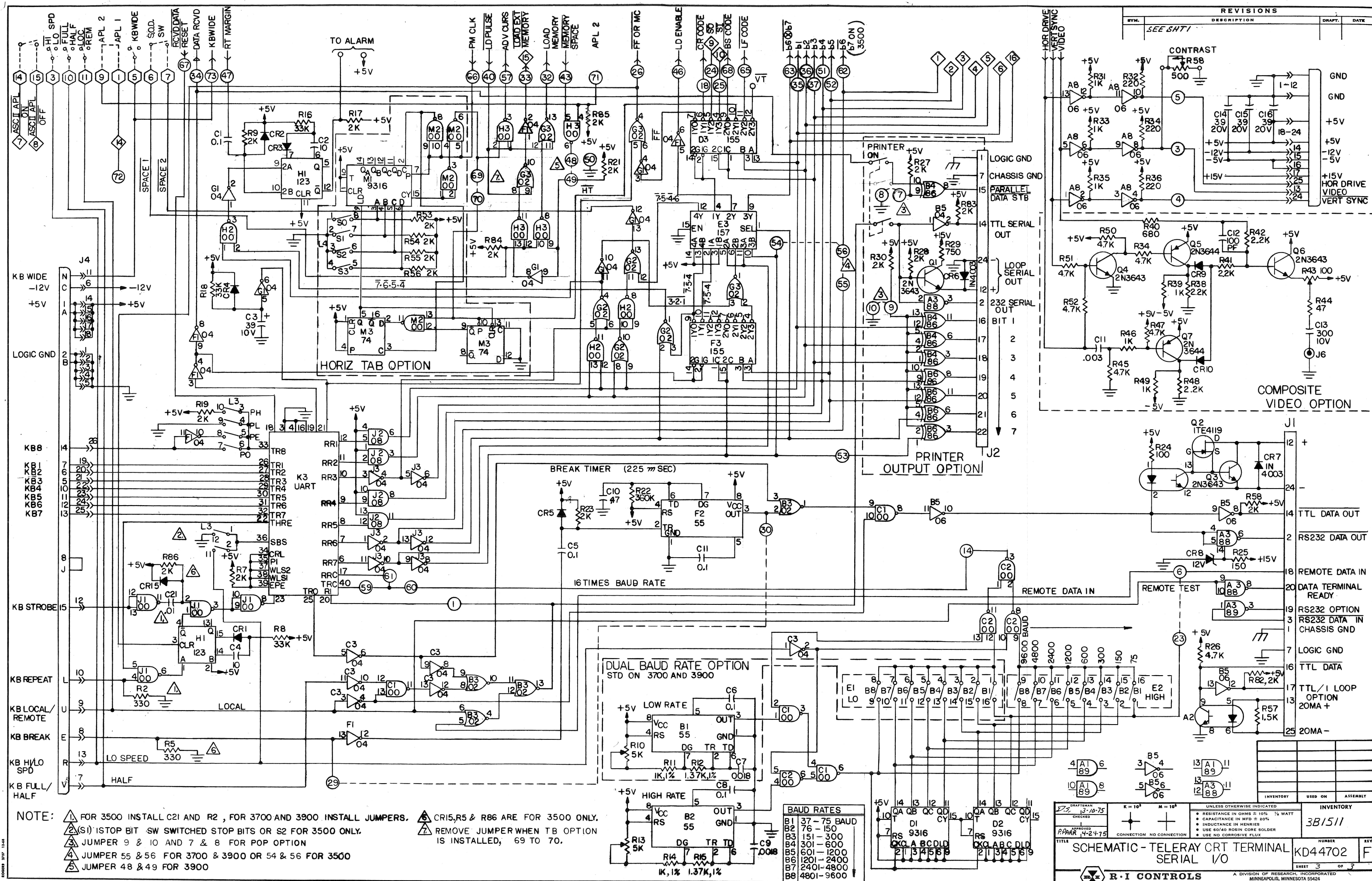
REVISIONS			
SYM.	DESCRIPTION	DRAFT.	DATE
A	REMOVED FANS	AKB	7-2-74
B	REPLACED CR1, CR2 WITH JUMPER A2, A4 WERE μ A7805	AKB	10-4-74
C	REDESIGNED +5V CIRCUIT	AKB	11-18-79



NOTE: Δ SWITCH MONITOR VOLTAGE TO MATCH TRANSFORMER VOLTAGE WHEN H1 OR H2 OPTION IS INSTALLED, EXCEPT 6ND 3500 TELERAYS. MONITOR VOLTAGE SELECTOR SWITCH IS LOCATED AT REAR RIGHT CORNER OF MONITOR.

381516	3931	047342
381516	3711	047342
381516	3511	047342
381517	3931	044704
381517	3711	044704
381517	3511	044704

DRAFTSMAN HALLGREN 2-13-75		K = 10 ³ M = 10 ⁶		UNLESS OTHERWISE INDICATED	
CHECKED		CONNECTION NO CONNECTION		• RESISTANCE IN OHMS $\pm 5\%$ 1/4 WATT • CAPACITANCE IN MFD $\pm 20\%$ • INDUCTANCE IN HENRIES • USE 60/40 ROSIN CORE SOLDER • USE NO CORROSIVE FLUX	
APPROVED P. Paul 3-31-75		TITLE SCHEMATIC, POWER SUPPLY - TELERAY			
INVENTORY 3D1518				NUMBER C44705	
SHEET / OF /				REV F	



REVISIONS			
SYM.	DESCRIPTION	DRAFT	DATE
F	REV & REDRAWN-RUN 3713D & BEFORE SEE SCHEM D46945 ADD INV NO.	D/S	4-14-75

PM CHARACTER COUNTER $\div 82$ OR 41

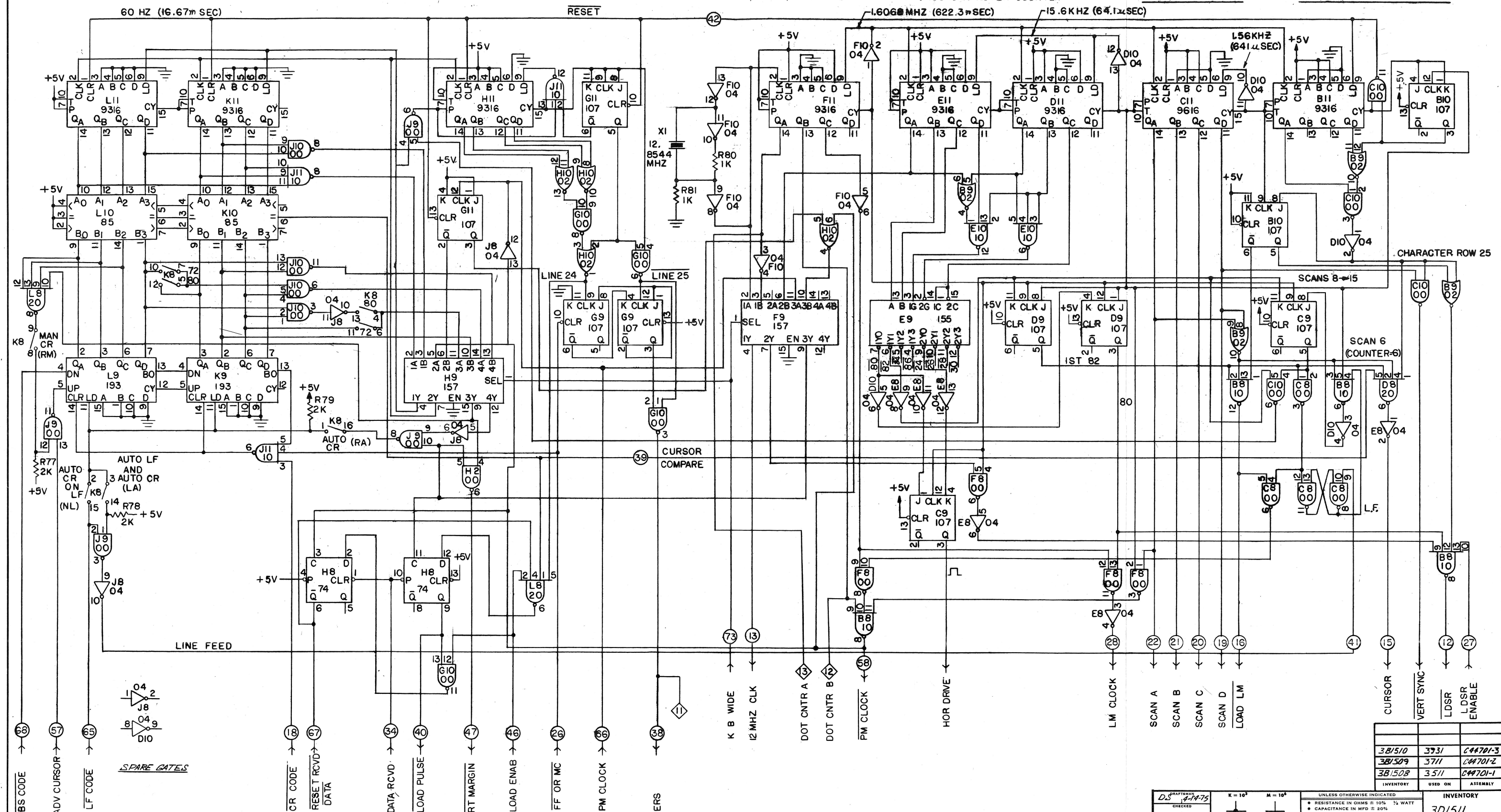
PM LINE COUNTER $\div 25$

$\div 8$ DOT COUNTER

$\div 103$ CHARACTER COUNTER

$\div 10$ SCAN COUNTER

$\div 25$ DISLAY LINE COUNTER



HIGHEST REF DESIGNATION USED			
R85	C21	X1	CR15
47			

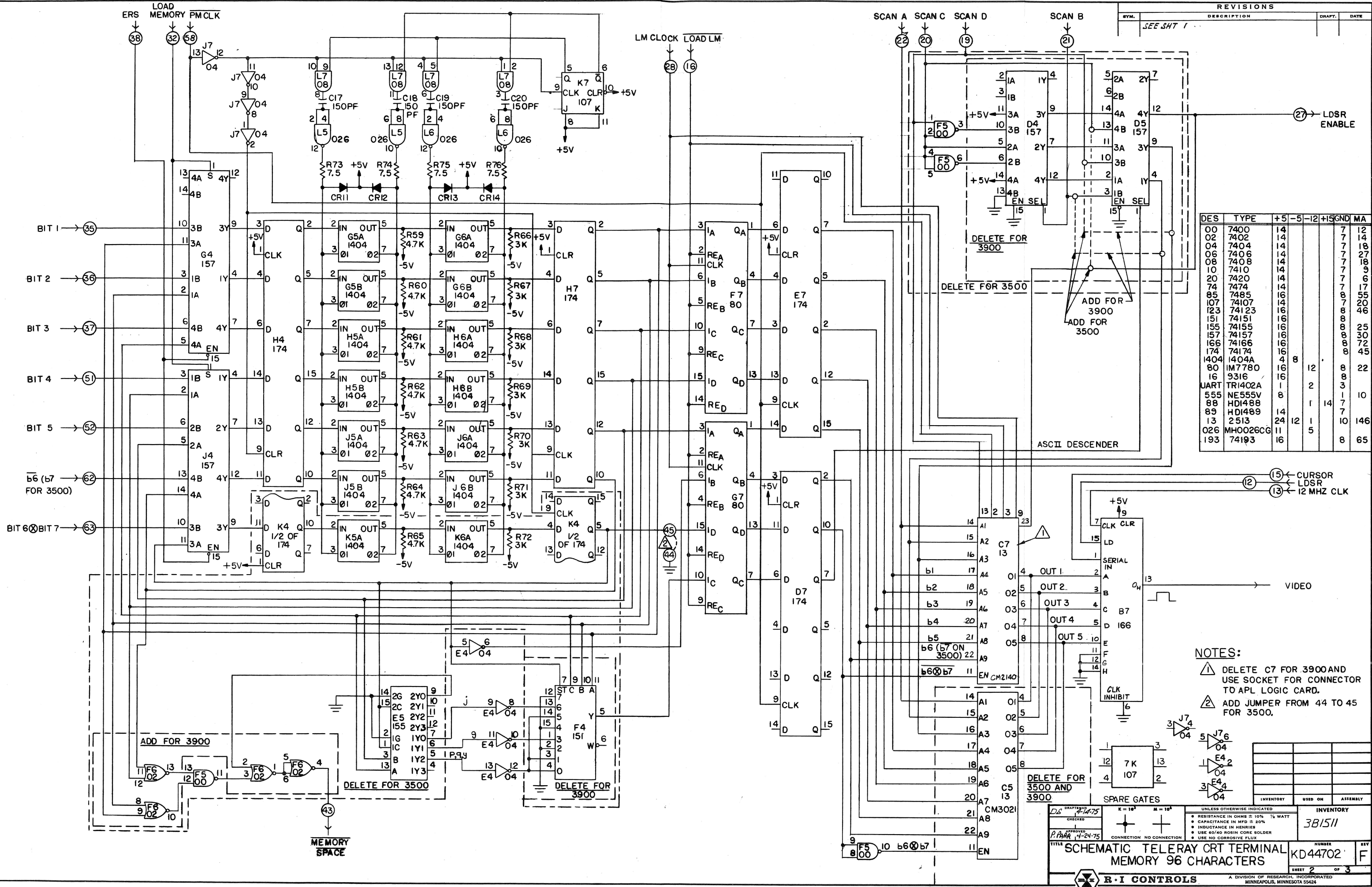
NOTE: ALL DIODES ARE IN 314 UNLESS SPECIFIED

INVENTORY		
38/510	3931	C44701-3
38/509	3711	C44701-2
38/508	3511	C44701-1
INVENTORY	USED ON	ASSEMBLY
3D/511		
TITLE: SCHEMATIC-TELERAY CRT TERMINAL TIMING AND PM COUNTER LOGIC		
NUMBER	REV	
KD44702	F	
SHEET	OF	
1	3	

R.I. CONTROLS

A DIVISION OF RESEARCH, INCORPORATED MINNEAPOLIS, MINNESOTA 55424

REVISIONS			
SYM.	DESCRIPTION	DRAFT	DATE
SEE SHT 1			



DES	TYPE	+5	-5	-12	+5GND	MA
00	7400	14			7	12
02	7402	14			7	14
04	7404	14			7	18
06	7406	14			7	27
08	7408	14			7	18
10	7410	14			7	9
20	7420	14			7	6
74	7474	14			7	17
85	7485	16			8	55
107	74107	14			7	20
123	74123	16			8	46
151	74151	16			8	
155	74155	16			8	25
157	74157	16			8	30
166	74166	16			8	72
174	74174	16			8	45
1404	1404A	4	8			
80	IM7780	16		12	8	22
16	9316	16			8	
555	NE555V	8		2	3	10
88	HD1488	1		14	7	
89	HD1489	14			10	146
13	2513	24	12	1	5	
026	MHO026CG	11			8	65
193	74193	16				

- NOTES:
- DELETE C7 FOR 3900 AND USE SOCKET FOR CONNECTOR TO APL LOGIC CARD.
 - ADD JUMPER FROM 44 TO 45 FOR 3500.

UNLESS OTHERWISE INDICATED

- RESISTANCE IN OHMS ± 10% 1/2 WATT
- CAPACITANCE IN MFD ± 20%
- INDUCTANCE IN HENRIES
- USE 50/50 ROBIN CORE SOLDER
- USE NO CORROSIVE FLUX

INVENTORY

381511

NUMBER

844702

SHEET 2 OF 3

R.I. CONTROLS

A DIVISION OF RESEARCH, INCORPORATED MINNEAPOLIS, MINNESOTA 55424

SOURCE VOLTAGE INPUT

- ### LOGIC OUTPUT LEVELS (ENCODED KEYS)

- FUNCTION KEY OUTPUT (NON-ENCODED)**

- ## ELECTRICAL INTERLOCK

- STROBE

- ### STROBE OUTPUT

- ## PARITY

- ## KEYBOARD PHYSICAL FEATURES

- | | |
|-----------|--|
| <u>47</u> | No. of encoded keys |
| <u>3</u> | No. of shift keys (mode selection) |
| <u>3</u> | No. of function keys (non-encoded - logic 1) |
| <u>0</u> | No. of function keys (Form "A" Switch *
contact only) |
| <u>53</u> | Total keys (including space bar) |
| <u>0</u> | No. of alternate action - key nos. |

BUTTONS

- ☐ None
- ☒ MICRO truncated two shot molded
- ☐ Std color (gray button-white legend)
- ☒ Other color (define in remarks)
- ☐ MICRO truncated three shot molded
(Define in remarks)
- ☐ Other than MICRO truncated two or three
shot molded (Define in remarks)

STYLE OF KEYBOARD

- ☒
- Sloped
- ☐
- Stepped

OFFSET BETWEEN ROWS

- ☒ $(3/8 - 3/16 - 3/8)$ ☐ $(3/8 - 3/8 - 3/8)$

ENCLOSURE

- ☒
- None
- ☐
- Cast aluminum

CONNECTOR

- ☒
- None
- ☐
- Std card edge

SPACERS

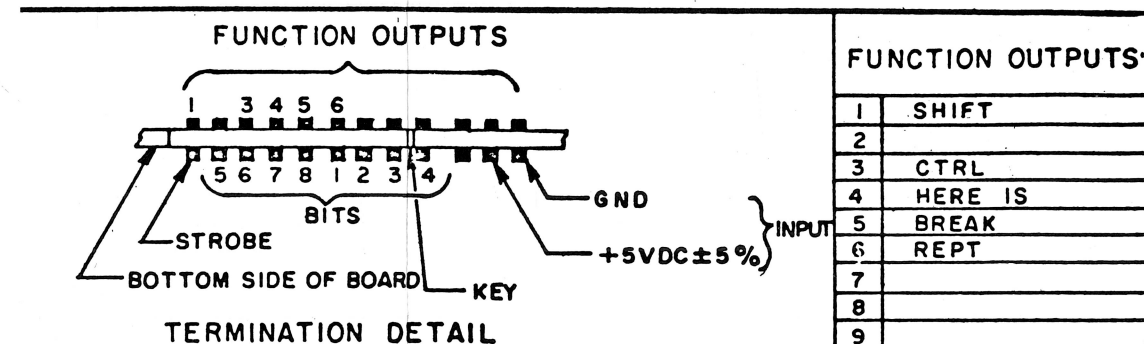
- ☒ None
- ☐ Lo-Level 1 unit ☐ Lo-Level 1/2 unit*
- Color: _____ Color: _____
- Key Positions: _____ Key Positions: _____
- ☒ Wired and Encoded
- ☒ DTL
- ☐ MOS
- ☐ Mono Mode
- ☐ Dual Mode
- ☐ Tri Mode
- ☒ Quad Mode
- ☐ Wired Only
- ☐ Reed Switch
- 8 Watts Max Resistive Load Only
- Max. Voltage: 240 VDC @ 8 Watts
- Max. Current: 250 MA @ 8 Watts
- ☐ Solid State Switch
- Source Voltage Input
- +5VDC, Regulated $\pm 5\%$
- Function Key Output (Non-Encoded)
- On - +2.8 VDC Min 1-10 MA
- Current Source
- Off - +0.25 VDC Max With Load
- Resistance of 2500 Ohms
- or Less

Keyboard Capability Type No. _____
* RW Only

- ☐ Blank buttons to be provided if legend tooling is not available.

REMARKS - MECHANICAL ONLY

STATIONS 17, 24, 35, 36, 44, 55, 56, 57, 65 & 76 ARE 1-15
GRAY BUTTONS WITH 1-2 WHITE LEGENDS.
STATION 81 IS A 1-9 GRAY BLANK.
ALL REMAINING STATIONS ARE 1-9 GRAY BUTTON
WITH 1-2 WHITE LEGENDS.



MICRO SWITCH
MOS KEYBOARD SPECIFICATIONS
CODE DEFINITION

K.S. Iss. No. 2
Page 2 of 3

APPROVALS

DATE

S.P. NO.

CHARGE NO.

PREPARED BY:

DATE:

CATALOG LISTING:

71-02187-01 RD

O. KAU-MAN

53SW1-2

S.O. NO.

LINE NO.

SCHEDULE NO.

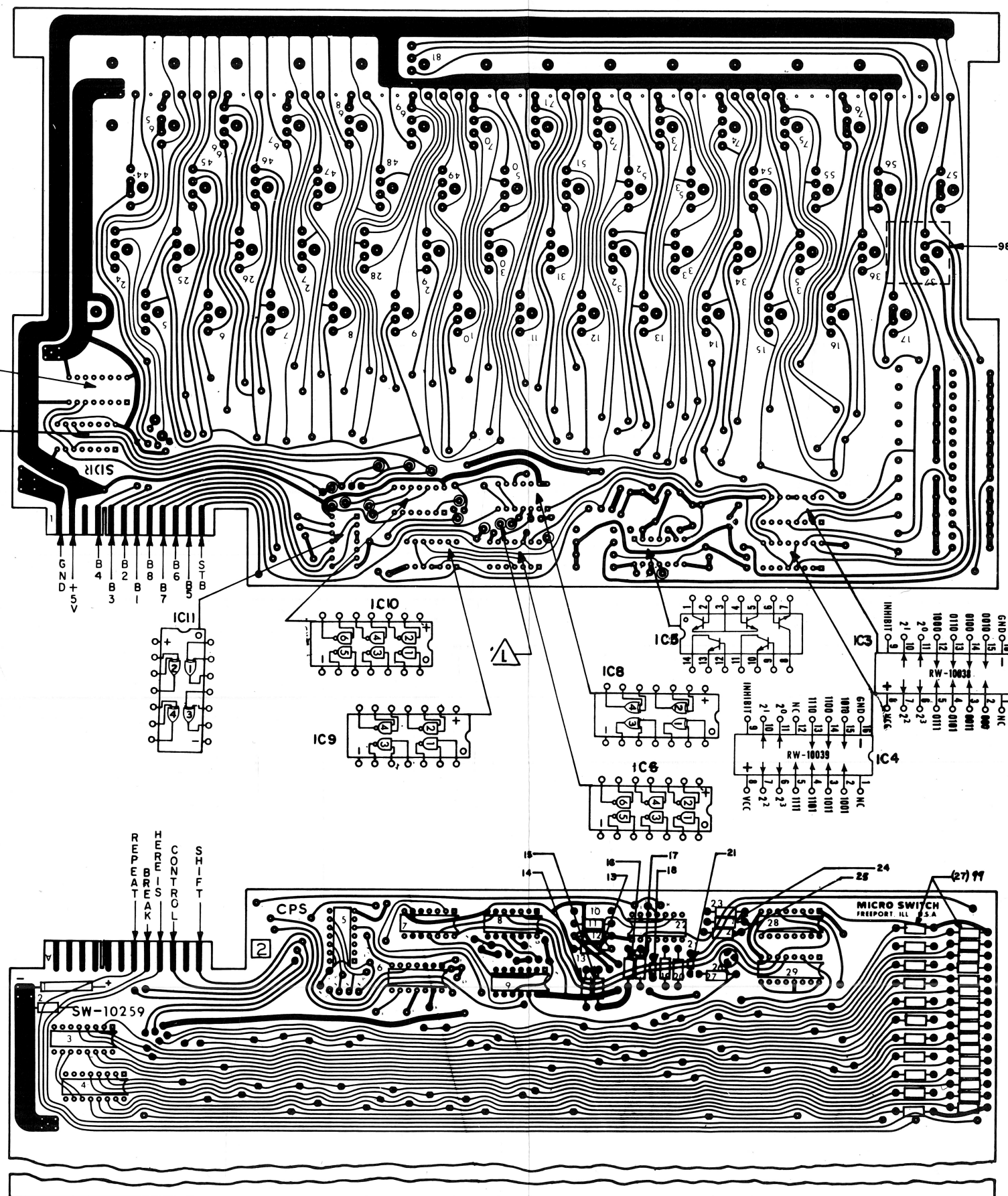
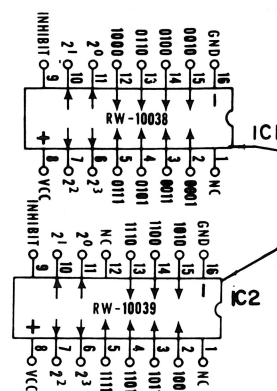
CUSTOMER:

GENERAL SALE

NOTE: THIS CHART TO BE USED FOR CODED KEYS ONLY										MODE 1		MODE 2		MODE 3		MODE 4	
THIS SPACE FOR FREERPORT USE ONLY										UNSHIFTED		SHIFTED		CONTROL		SHIFT & CONTROL	
4-8-----10-15-----																	
INDEX NO.	INPUT PATTERN										CUSTOMER MODE DESCRIP- TION	CUSTOMER BIT NO.	CUSTOMER DATA OUTPUT KEY NO.	CUSTOMER KEY NO.	CUSTOMER DATA OUTPUT KEY NO.	CUSTOMER KEY NO.	CUSTOMER DATA OUTPUT KEY NO.
	INPUT PAIR	A	B	C	D	E	F	G	H	I							
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54
55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72
73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100	101	102	103	104	105	106	107	108
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163	164	165	166	167	168	169	170	171	172	173	174	175	176	177	178	179	180
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199	200	201	202	203	204	205	206	207	208	209	210	211	212	213	214	215	216
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523	524	525	526	527	528	529	530	531	532	533	534	535	536	537	538	539	540
541	542	543	544	545	546	547	548	549	550	551	552	553	554	555	556	557	558
559	560	561	562	563	564	565	566	567	568	569	570	571	572	573	574	575	576
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595	596	597	598	599	600	601	602	603	604	605	606	607	608	609	610	611	612
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631	632	633	634	635	636	637	638	639	640	641	642	643	644	645	646	647	648
649	650	651	652	653	654	655	656	657	658	659	660	661	662	663	664	665	666
667	668	669	670	671	672	673	674	675	676	677	678	679	680	681	682	683	684
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793	794	795	796	797	798	799	800	801	802	803	804	805	806	807	808	809	810
811	812	813	814	815	816	817	818	819	820	821	822	823	824	825	826	827	828
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847	848	849	850	851	852	853	854	855	856	857	858	859	860	861	862	863	864
865	866	867	868	869	870	871	872	873	874	875	876	877	878	879	880	881	882
883	884	885	886	887	888	889	890	891	892	893	894	895	896	897	898	899	900
901	902	903	904	905	906	907	908	909	910	911	912	913	914	915	916	917	918
919	920	921	922	923	924	925	926	927	928	929	930	931	932	933	934	935	936
937	938	939	940	941	942	943	944	945	946	947	948	949	950	951	952	953	954
955	956	957	958	959	960												

PARTS LIST

LOCATION NO.	DESCRIPTION	
1	15MFD	C6
2	.1 MFD 16 WVDC	C5
3	MICRO SWITCH RW-10039	IC2
4	MICRO SWITCH RW-10038	IC1
5	MOTOROLA MC 1812P	IC11
6	MOTOROLA MC 836P	IC10
7	MOTOROLA MC 846P	IC9
8	MOTOROLA MC 836P	IC6
9	MOTOROLA MC 1812P	IC8
10		
11	6,800	R9
12	1,690 ± 1%	R4
13	5,600	R8
14	470	R14
15	470	R13
16	392 ± 1%	R3
17	432 ± 1%	R1
18	.01 MFD 16 WVDC	C1
19	10,000	R5
20	432 ± 1%	R2
21	.01 MFD 16 WVDC	C2
22	RCA CA 3046	IC5
23	2,200	R7
24	6,800	R6
25	3,300	R11
26	2N5134	Q1
27	470	R15
28	MICRO SWITCH RW-10039	IC4
29	MICRO SWITCH RW-10038	IC3
98	MICRO SWITCH SW-10108	EMD
99	1,050 ± 1%	R12
12	.01 MFD 16 WVDC	C4



NOTES

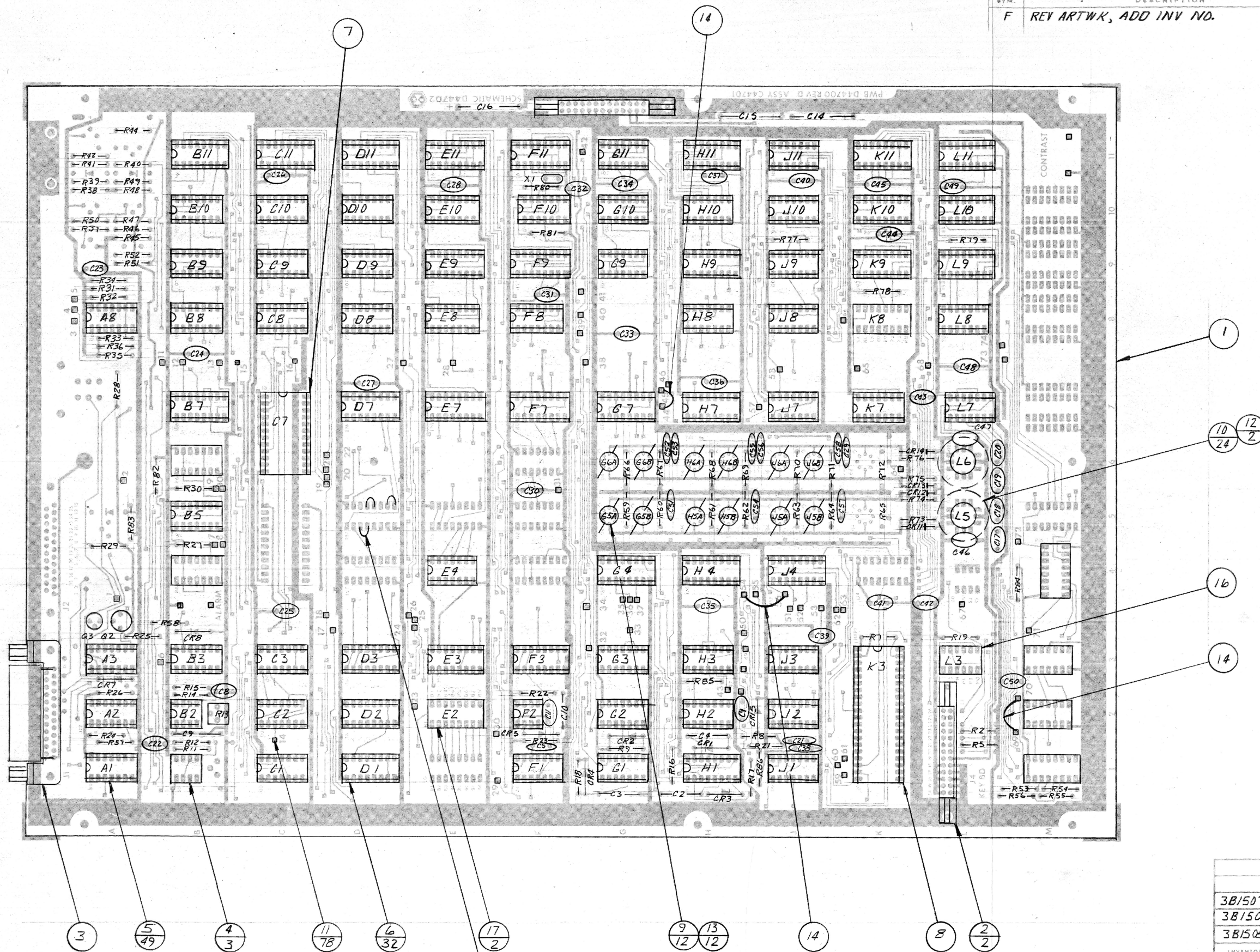
- "CPS" REFERS TO COMPONENT MOUNTING SIDE OF P.C. BOARD
- "SDR" REFERS TO SOLDERED SIDE OF P.C. BOARD
- ALL RESISTORS 1/4 W. CARBON 5% TOL, UNLESS OTHERWISE SPECIFIED
- 1% RESISTORS ARE 1/8 W. METAL FILM TYPE
- SUPPLY (+) 5.0 ± 0.25 VOLTS DC, MEASURED AT CONNECTOR TERMINALS
- ALL CODE DESIGNATIONS SHOWN WITH LEAST SIGNIFICANT BIT TO RIGHT
- ABBREVIATIONS: R = RESISTOR, C = CAPACITOR, IC = INTEGRATED CIRCUIT, B = BIT, Q = TRANSISTOR, D = DIODE, F = FUNCTION, STB = STROBE, GND = GROUND, EMD = ELECTRICAL MONITOR DETECTOR, PC = PRINTED CIRCUIT BOARD, J = JUMPER
- ALL CAPACITORS IN MICROFARADS UNLESS OTHERWISE SPECIFIED
- DO NOT MAKE CONNECTIONS TO UNIDENTIFIED TERMINATION PADS
- NOTATION "2⁰" REFERS TO LEAST SIGNIFICANT BIT OF A GROUP, "2¹" THE NEXT HIGHER, ETC.
- EQUIVALENT COMPONENTS MAY BE SUBSTITUTED

△ CIRCLED PADS DENOTE FEED-THROUGH TYPE ELECTRICAL CONNECTION

8 BIT QUAD MODE
POS. LOGIC
POS. STROBE
ODD PARITY

MICRO SWITCH FREEPORT, ILLINOIS, U.S.A. A DIVISION OF HONEYWELL		THIS DRAWING COVERS A PROPRIETARY ITEM AND IS THE PROPERTY OF MICRO SWITCH, A DIVISION OF HONEYWELL. THIS DRAWING IS NOT TO BE COPIED OR USED WITHOUT THE APPROVAL OF MICRO SWITCH.	
DRAWN: MDM ELEC. CHECK: JRM MECH. CHECK: JRS	18 FEB 70 26 FEB 70 26 FEB 70	REPLACES: SP-90-11329-31 CUSTOMER GENERAL SALES ISSUE NO. X83	B ADDED C4 A NOTE ADDED REV. 1 REVISION PAGE 1 OF 1 DR-384 DRAWING NUMBER C SWE-19

REVISIONS			
SYM.	DESCRIPTION	DRAFT	DATE
F	REV ARTWK, ADD INV NO.	DS	4-23-75



JUMPER 24AWG
SOLID (3 PLACES)

D44701-3	3931	3	381510
D44701-2	3711	2	381509
D44701-1	3511	1	381508
DWG NO	MODEL	SHT	INV NO.

DS 4-23-75	MATERIAL	TOLERANCE UNLESS OTHERWISE NOTED	SCALE
CHECKED	FINISH	2 PLACE DEC	FRACTIONAL
APPROVED	APPROVED	3 PLACE DEC	ANGULAR
APPROVED	APPROVED	REMOVE ALL BURRS AND SHARP EDGES	SCHEMATIC
TITLE		INVENTORY	
ASSY- TELERAY LOGIC BOARD		381508	
MODEL 3511, 3711, 3931		KC44701 F	
R.I. CONTROLS		SHEET 1 OF 17	

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MINNEAPOLIS, MINNESOTA 55424