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SERVICE MANUAL

53A-241

ARBITRARY WAVEFORM GENERATOR CARD

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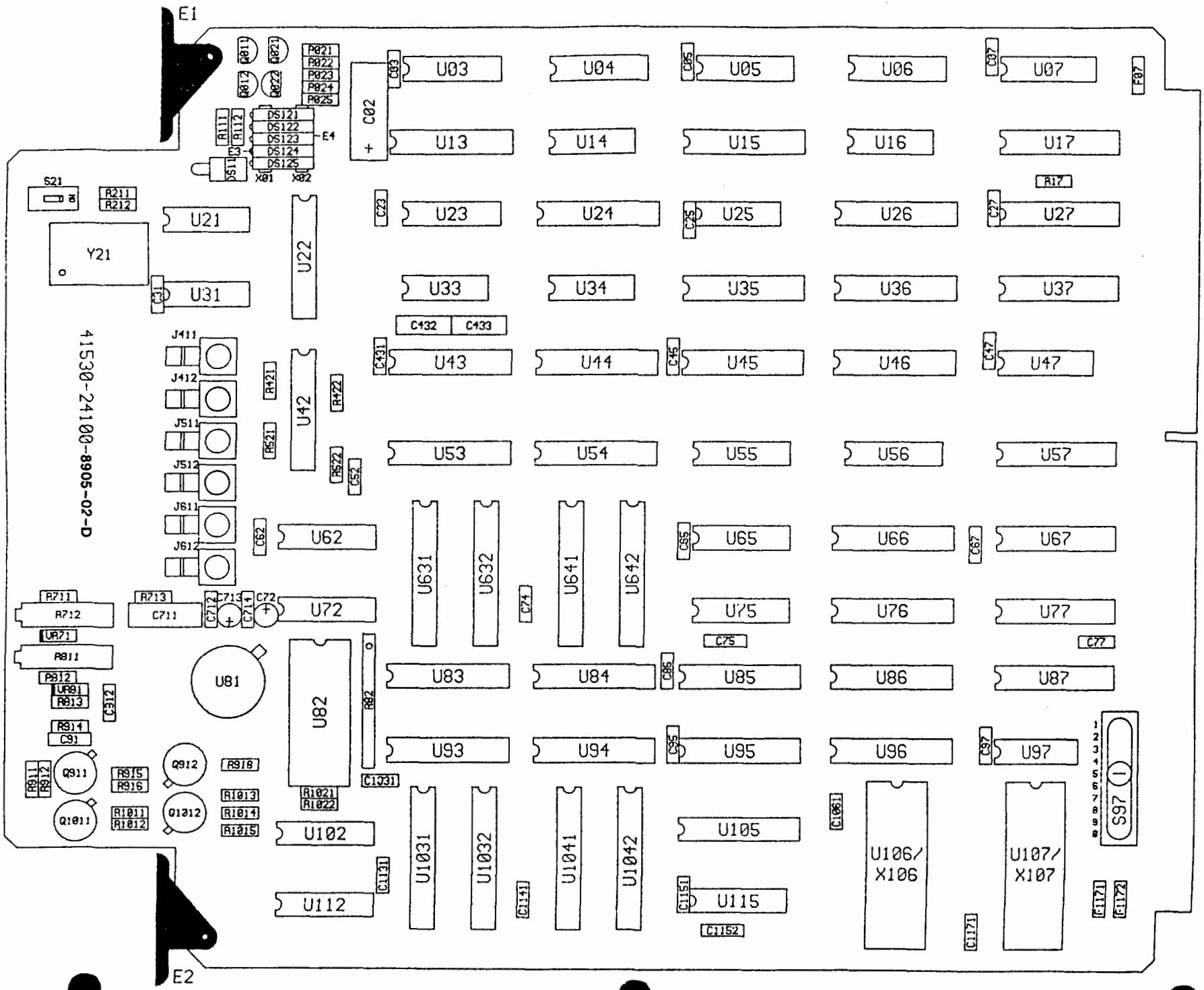
REFERENCE DESIGNATOR	CDS PART NUMBER	QTY.	PART DESCRIPTION	MFG. NUM.	MFG PART NUMBER
	53A-729	1	ADAPTER CABLE BNC MALE TO SMB SNAP-ON PLUG	0026	53A-729
	53A-729-010	1	OPT 10 10 FT CABLE LENGTH	0026	53A-729-010
C02	21018-15009	1	CAP FXD ELECT 150UF 75% -10% 16VDCW	0025	NLW150-16
C03,23,05,25,45,431,07,27,47,67 97,95,85,65,77,1151,1061,1171 1141,1131,1031,74,62,52,31	20128-10005	25	CAP FXD CER .01UF 20% 50VDCW	0106	1C2525U103M050B
C1152,75	21528-33003	2	CAP FXD MICA 330PF 5% 100VDCW	0025	CD7CA331J03
C711,432,433	21528-10004	3	CAP FXD MICA 1000PF 5% 100VDCW	0012	DM-15-102J
C713,72	22022-20008	2	CAP FXD TA 22UF 10-20% 20-25VDCW	0106	199D226X9025CA1
C714,712	20129-10006	2	CAP FXD CER .1UF 10% STABLE 100VDCW	0058	CK06BX104K
C812	21528-20001	1	CAP FXD MICA 2PF .5 PF TOL 300VDCW	0025	CD5CC020D03
C91	21528-50001	1	CAP FXD MICA 5PF .5 PF TOL 500VDCW	0025	CD10CD050D03
DS11	32000-00103	1	DIODE LIGHT EMITTING RED 50MA	0039	550-0103
DS121,124,123,125,122	32000-02003	5	DIODE LIGHT EMITTING RED WITH RESISTOR 0	0039	547-2003
E1	40401-00241	1	EJECTOR STAMP 53A-241 STYLE B BLUE	0026	40401-00241
E2	40401-10067	1	EJECTOR STAMP ARB STYLE D BLUE	0026	40401-10067
E3	45050-03302	1	DCL LED 5POS DRW 00000-00600	0026	45050-03302
E4	45050-03240	1	DCL LED 5POS BLK DRW 00000 -00470	0026	45050-03240
F07	42202-52001	1	FUSE SUB-MIN 2AMP	0061	251002
F1171,1172	42202-52101	2	FUSE SUB-MIN 1AMP	0061	251001
J411,412,511,512,611,612	45002-51054	6	CONNECTOR SMB RT ANGLE PC BD MOUNT	0287	R114665

REV 8905-02-D

REFERENCE DESIGNATOR	CDS PART NUMBER	QTY.	PART DESCRIPTION	MFG. NUM.	MFG PART NUMBER
PCB	41530-24100	1	P.C. BOARD VERSION 6L 8905	0026	41530-24100
Q012	51100-03906	1	TRANSISTOR PNP SWITCHING	0107	2N3906
Q021,011,022	51100-03646	3	TRANSISTOR NPN HIGH SPEED SWITCH	0074	MPS3646
Q1012,911	51100-05943	2	TRANSISTOR HIGH SPEED NPN	0074	2N5943
Q912,1011	51100-05583	2	TRANSISTOR HIGH SPEED PNP	0074	2N5583
R022	10117-22005	1	22K RES COMP 1-4W 5%	0087	R25J-22K-5%
R023	10117-68004	1	6.8K RES COMP 1-4W 5%	0087	R25J-6.8K-5%
R025,024,17,522,422,421	10117-33004	6	3.3K RES COMP 1-4W 5%	0087	R25J-3.3K-5%
R1014	10117-68005	1	68K RES COMP 1-4W 5%	0087	R25J-68K-5%
R1015	10117-62005	1	62K RES COMP 1-4W 5%	0087	R25J-62K-5%
R1022,1021,1011,915,1013,918	10117-51002	6	51 OHM RES COMP 1-4W 5%	0087	R25J-51-5%
R111	10117-33003	1	330 OHM RES COMP 1-4W 5%	0087	R25J-330-5%
R112	10117-12005	1	12K RES COMP 1-4W 5%	0087	R25J-12K-5%
R212,021,211	10117-10005	3	10K RES COMP 1-4W 5%	0087	R25J-10K-5%
R521,1012,916	10117-10004	3	1K RES COMP 1-4W 5%	0087	R25J-1K-5%
R712	15117-20004	1	2K RES VAR CER 22TRN 1W 100PPM	0105	43P-202
R713,711	14044-24902	2	24.9 OHM RES FILM 1-4W .1%	0037	CMF60-24R9BT2
R811	15117-10005	1	10K RES VAR CER 22TRN 1W 100PPM	0105	43P-103
R813,812	10117-20004	2	2K RES COMP 1-4W 5%	0087	R25J-2K-5%
R82	12008-22005	1	22K RES NETWORK SIP 5% 1.5W 9-PKG	0027	750-101-R22K
R911,912	14064-40201	2	4.02 OHM RES FILM 1-2W 1% 300PPM	0037	CMF60-95 4.02 1%
R914	10117-51005	1	51K RES COMP 1-4W 5%	0087	R25J-51K-5%
S21	42050-10101	1	SWITCH DIP 1POS SPST	0093	JS-8794-01

REFERENCE DESIGNATOR	CDS PART NUMBER	QTY.	PART DESCRIPTION	MFG. NUM.	MFG. PART NUMBER
S97	42050-10010	1	SWITCH 10POS.	0101	C42315-A61-A11
U04,05,03,06,07	71208-74160	5	IC HCMOS 4-BIT DECADE COUNTER	0107	74HC160
U102,112,62,72	71200-74161	4	IC TTL LS SYNCH 4-BIT COUNTER	0107	74LS161A
U1031,1032,1042,1041,642,641,632 631	79805-00128	8	IC CMOS 2K X 8 STATIC RAM 45NS	0218	CY7C128-45PC
U106	79813-00037	1	PROGRAMMED PROM U96 53A-241	0026	79813-00037
U107	79813-00038	1	PROGRAMMED PROM U97 53A-241	0026	79813-00038
U115,75	71206-74161	2	IC TTL LS SYNCH 4-BIT COUNTER TI ONLY	0107	SN74LS161A
U13	79814-00092	1	PAL PROGRAMMED EP310 REV A 53A-241 AND 242	0026	79814-00092
U15	79814-00089	1	PAL PROGRAMMED EP310 REV B 53A-241	0026	79814-00089
U16	76601-07438	1	IC TTL QUAD 2-INPUT NAND BUFFER W-OC	0107	7438
U17	79814-00124	1	PAL PROGRAMMED 16L8L REV B 53A-241	0026	79814-00124
U22	79814-00095	1	PAL PROGRAMMED 16L8L REV B 53A-241	0026	79814-00095
U23	71208-74390	1	IC HCMOS DUAL 4-BIT DECADE COUNTER	0107	74HC390
U24	79814-00100	1	PAL PROGRAMMED 16L8L REV A 53A-241	0026	79814-00100
U26	79814-00090	1	PAL PROGRAMMED EP310 REV A 53A-241	0026	79814-00090
U33	73304-07473	1	IC HCMOS DUAL J-K FLIP-FLOP	0107	74HC73
U34,31,97,25,14,21	73304-07474	6	IC HCMOS DUAL D-TYPE FLIP-FLOP	0107	74HC74
U35,76,66,87	73004-74273	4	IC HCMOS OCTAL D-TYPE FLIP-FLOP	0107	74HC273
U36	79814-00096	1	PAL PROGRAMMED 16L86 REV B 53A-241 AND 242	0026	79814-00096

REFERENCE DESIGNATOR	CDS PART NUMBER	QTY.	PART DESCRIPTION	MFG. NUM.	MFG. PART NUMBER
U37,27	73310-74240	2	IC TTL LS OCTAL BUFFER	0107	74LS240
U42	73312-74240	1	IC TTL AS OCTAL BUFFER	0107	74AS240
U43	79814-00091	1	PAL PROGRAMMED EP310 REV B 53A-241	0026	79814-00091
U44	79814-00094	1	PAL PROGRAMMED 16L8L REV A 53A-241	0026	79814-00094
U45	79814-00099	1	PAL PROGRAMMED 16L8L REV B 53A-241	0026	79814-00099
U46	79814-00097	1	PAL PROGRAMMED 16L8L REV A 53A-241 AND 242	0026	79814-00097
U54	79814-00098	1	PAL PROGRAMMED 16L8L REV A 53A-241	0026	79814-00098
U57	79814-00093	1	PAL PROGRAMMED 16L8L REV A 53A-241 AND 242	0026	79814-00093
U65,55,56,47	71201-74192	4	IC HC UP-DOWN DECADE COUNTER	0107	74HC192
U67,77	73004-74574	2	IC HCMOS OCTAL D-TYPE LATCH INV TRISTATE	0107	74HC574
U81B	61000-00032	1	OP AMP FET ULTRA FAST BUFFER	0078	LH0032CG
U82	20100-00565	1	DIGITAL TO ANALOG CONVERTER	0011	AD565AKD
U94,93,83,84	73002-74374	4	IC TTL AS OCTAL D-TYPE FLIP-FLOP	0107	74AS374
U95,105,85,53	73310-74241	4	IC TTL LS OCTAL BUFFER NON-INVERTING	0078	74LS241
U96,86	73001-74564	2	IC HCMOS OCTAL TRISTATE LATCH INVERTING	0107	74HC564
VR71,81	32000-05243	2	DIODE ZENER 13V .5W 5%	0074	1N5243B
X01,02	45001-05100	2	CONNECTOR SIP 5 PIN	0032	CA-S05VSC-12B
X106,107	45012-28128	2	SOCKET 28-PIN DIP MACHINED	0089	ICA-286-S-TG30
Y21	89499-02000	1	CRYSTAL OSC 2.000MHZ 50PPM	0037	XO-43A-2.000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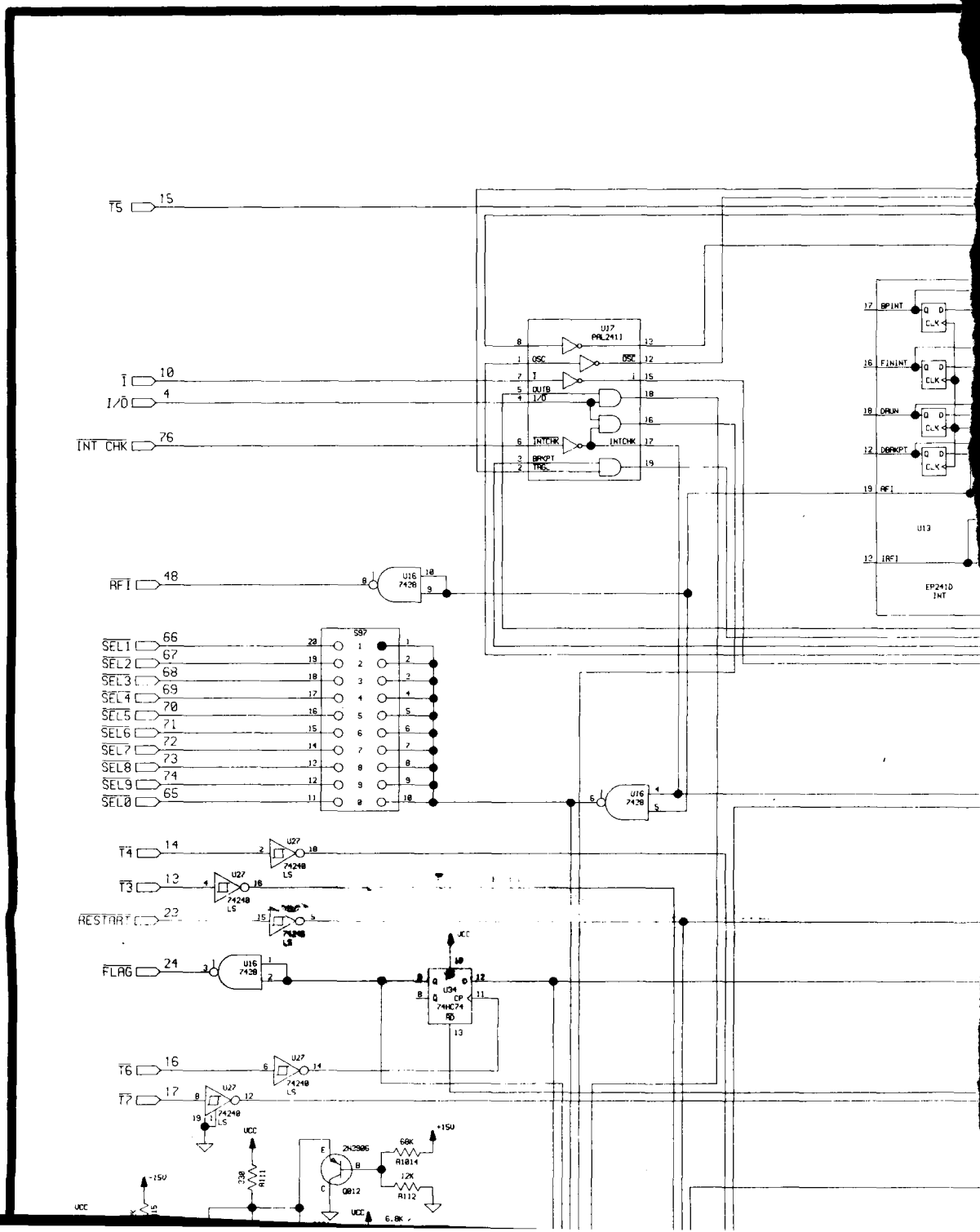
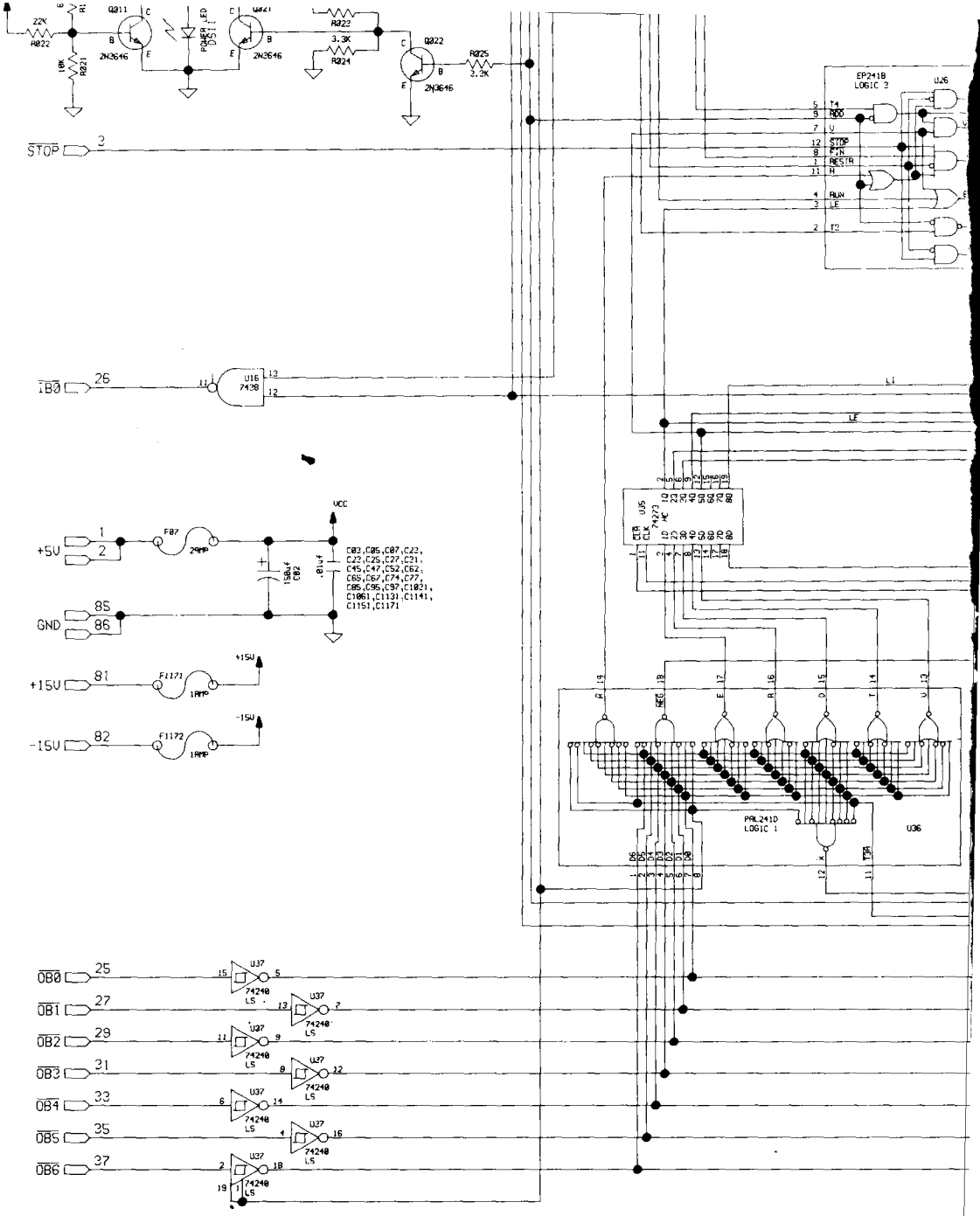
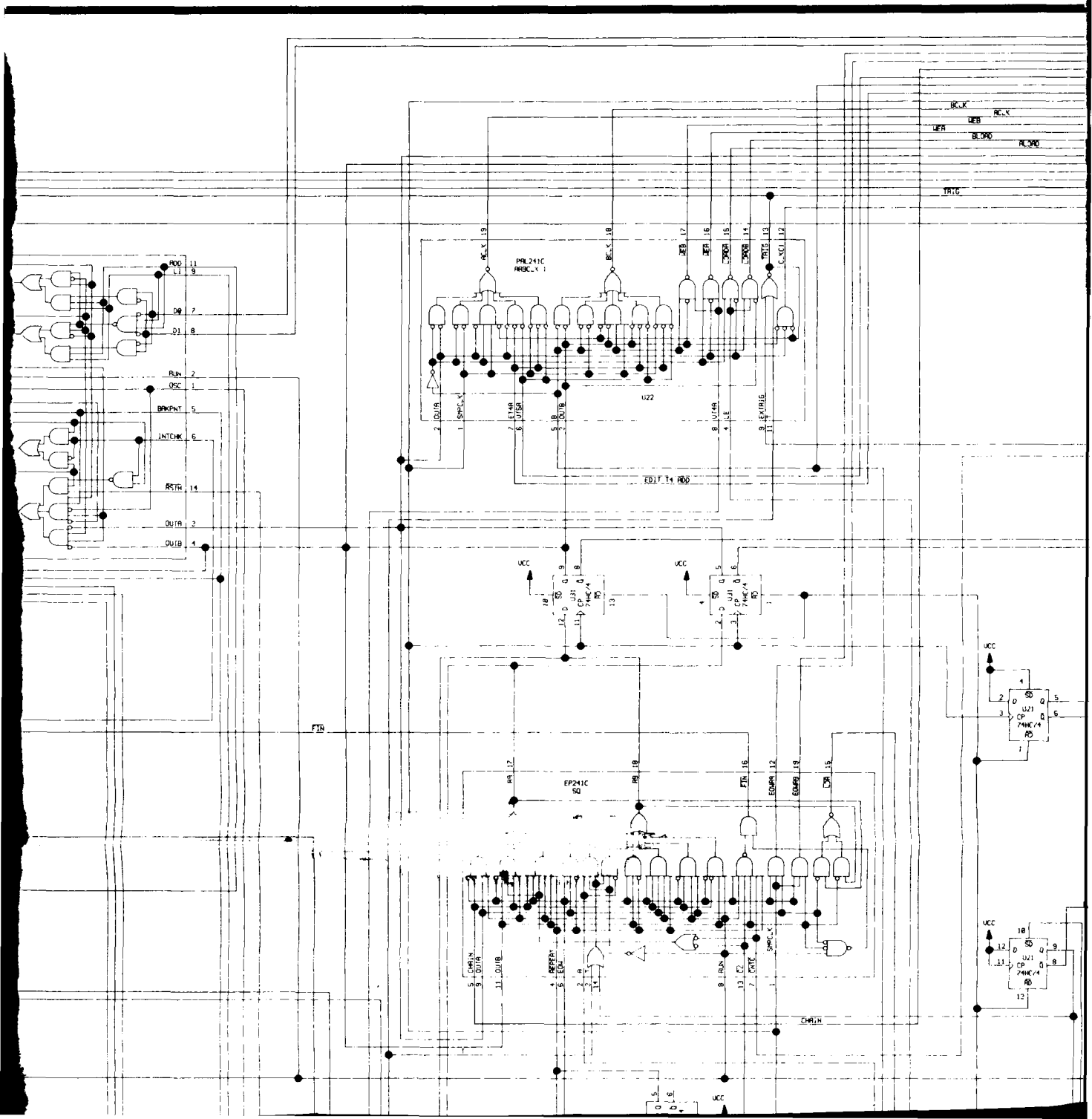
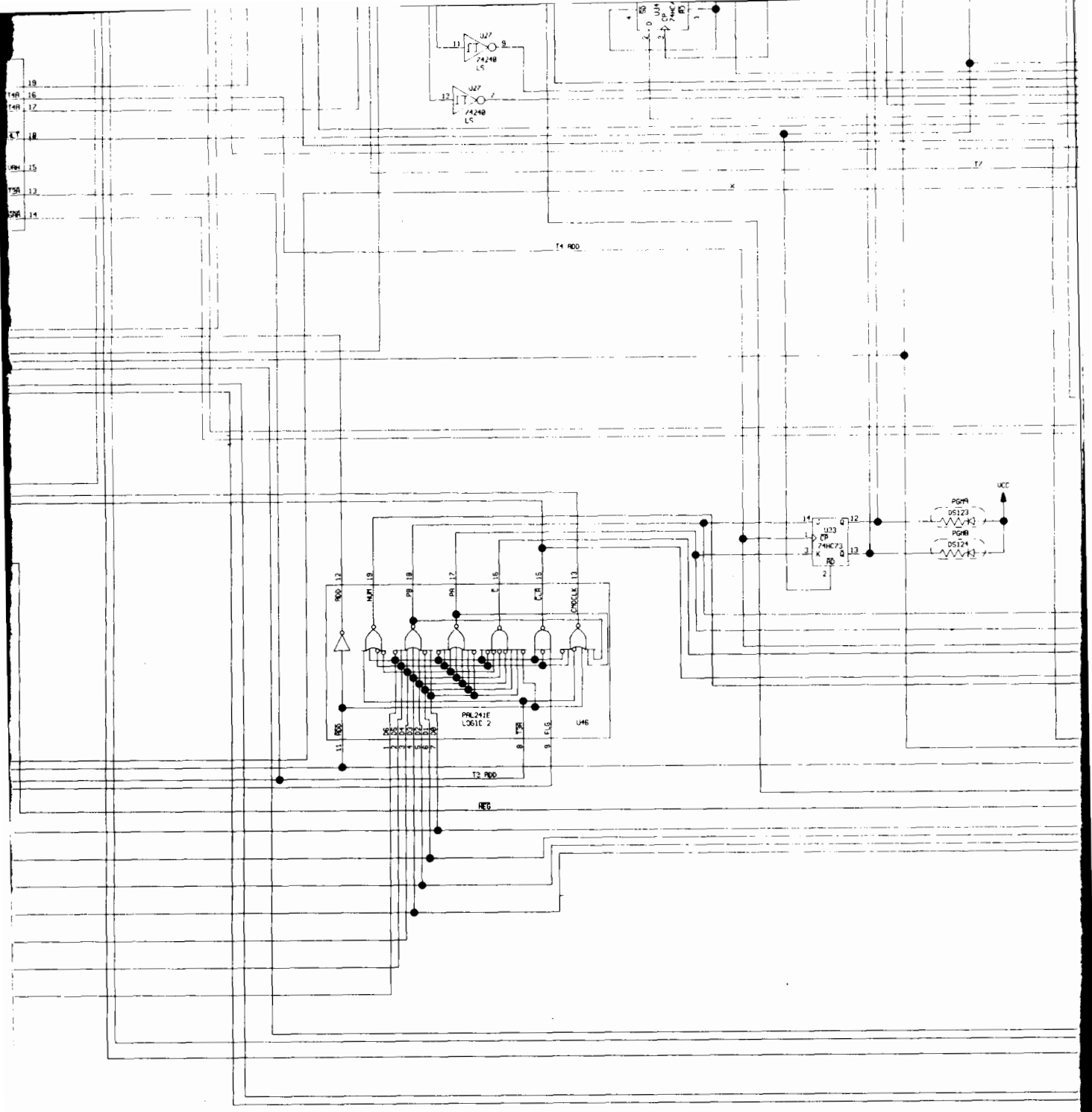
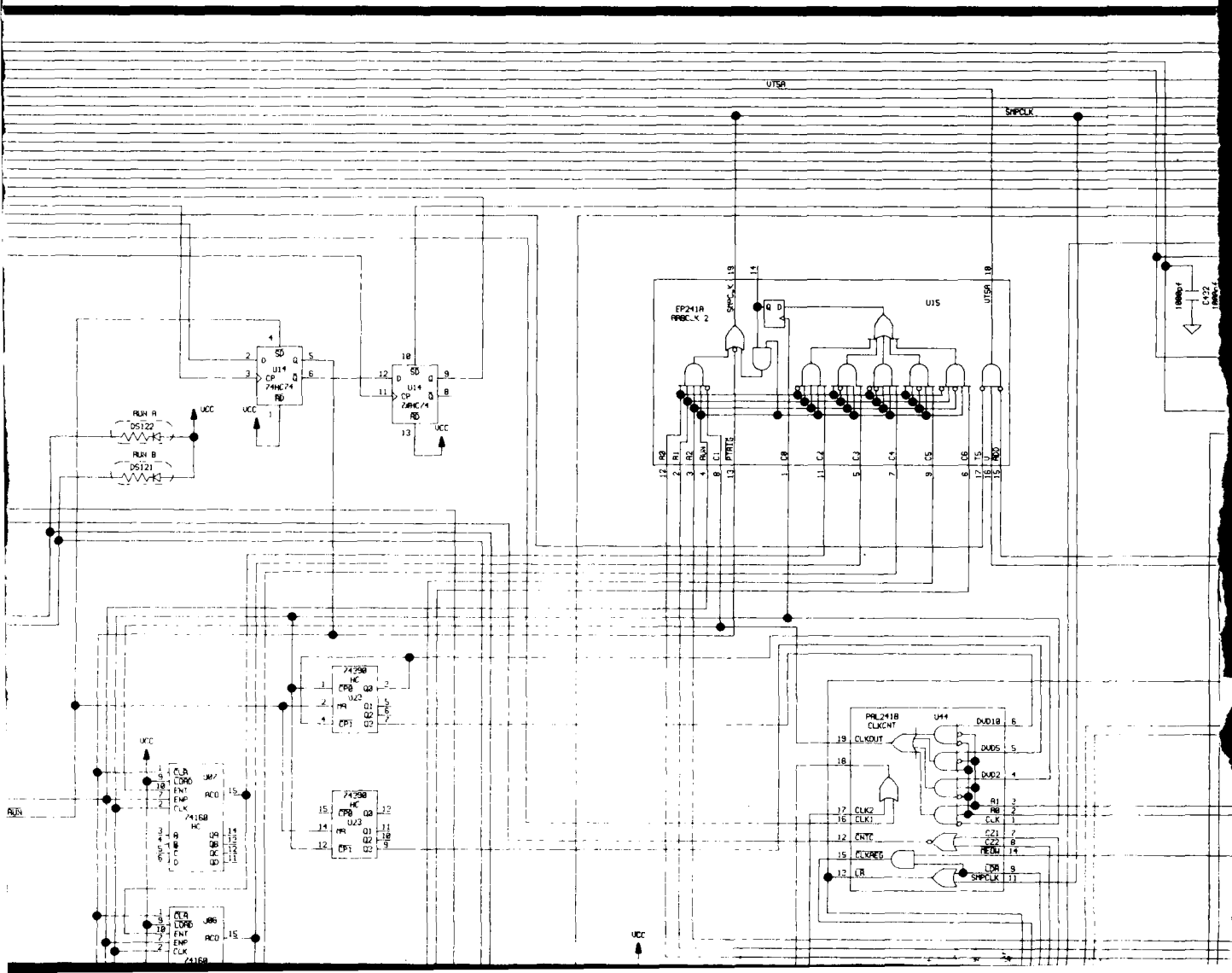
E2
41530-24100-8905-02-D
U03
U04
U05
U06
U07
U13
U14
U15
U16
U17
U21
U22
U23
U24
U25
U26
U27
U31
U33
U34
U35
U36
U37
U42
U43
U44
U45
U46
U47
U53
U54
U55
U56
U57
U62
U65
U66
U67
U72
U75
U76
U77
U81
U82
U83
U84
U85
U86
U87
U93
U94
U95
U96
U97
U102
U105
U112
U115
U631
U632
U641
U642
U1031
U1032
U1041
U1042
U106/
X106
U107/
X107
S97
Y21
S21
C02
C03
C23
C25
C27
C31
C432
C433
C431
C45
C47
C52
C62
C65
C67
C74
C75
C77
C85
C95
C97
C711
C712
C713
C714
C72
C912
C91
C1031
C1061
C1131
C1141
C1151
C1152
C1171
C1172
R17
R07
R211
R212
R421
R422
R521
R522
R711
R712
R713
R811
R812
R813
R914
R911
R912
R915
R916
R918
R1013
R1014
R1015
R1011
R1012
R1021
R1022
R02
VR71
VR81
Q911
Q1011
Q912
Q1012
Q011
Q012
Q021
Q022
P021
P022
P023
P024
P025
DS121
DS122
DS123
DS124
DS125
DS11
R111
R112
X01
X02
J411
J412
J511
J512
J611
J612

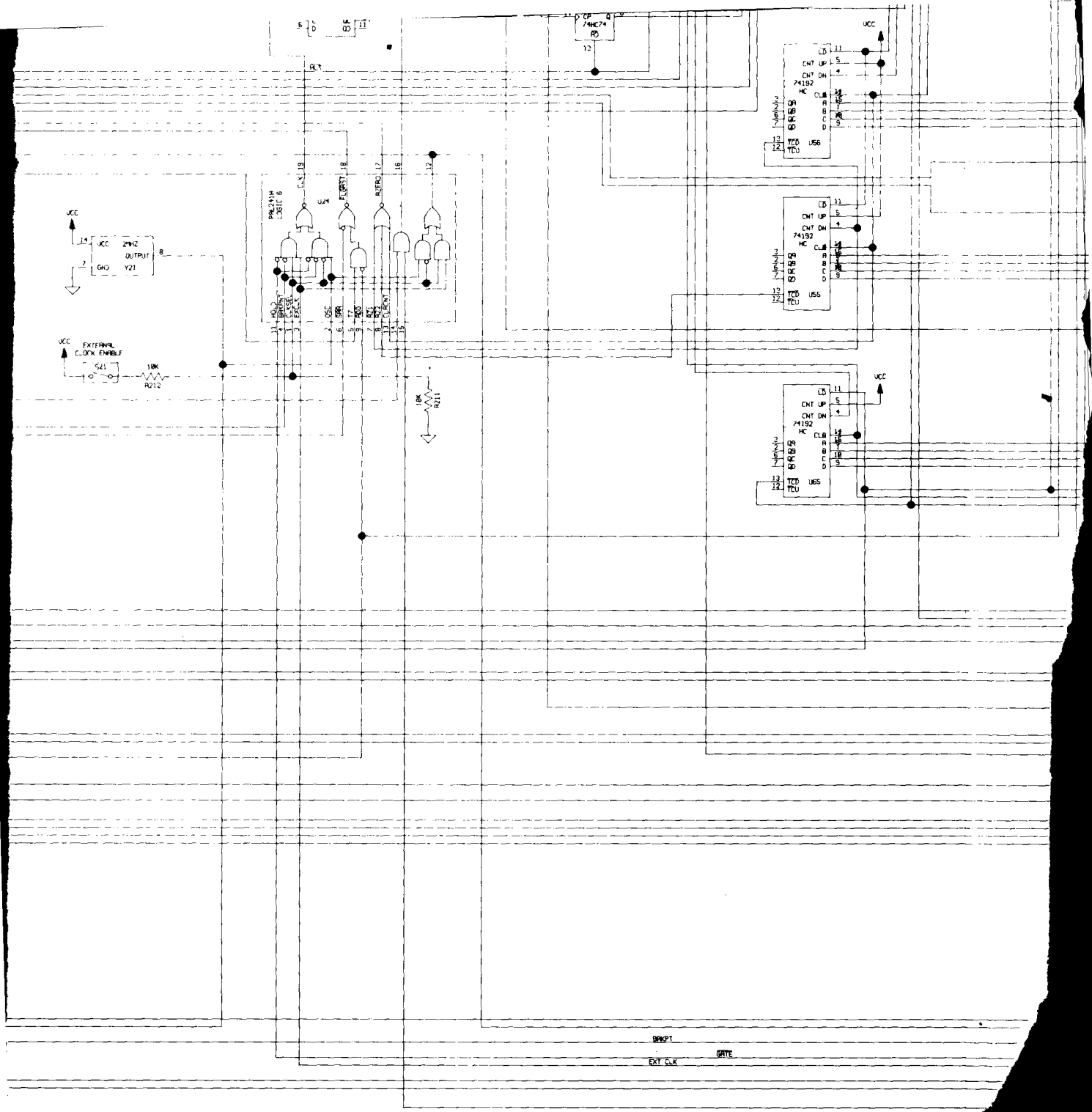

T5
I
I/O
INT CHK
RFI
SEL1
SEL2
SEL3
SEL4
SEL5
SEL6
SEL7
SEL8
SEL9
SEL0
T4
T3
RESTART
FLAG
T6
T7
U17
PAL2411
OSC
I
OUTB
I/O
INTCHK
BRKPT
TRC
U16
7428
S97
U27
74240
LS
U34
74HC74
CP
RD
VCC
+15V
-15V
2N2906
Q012
68K
R1014
12K
R112
330
R111
6.8K
BPINT
FININT
DRUN
DBRKPT
RFI
U13
EP241D
INT


Q011
2N2646
POWER LED
DS1
Q021
2N2646
R022
3.3K
R024
Q022
2N2646
R025
3.3K
22K
R022
10K
R021
STOP
EP2418
LOGIC 3
U26
T4
RDO
STOP
PIN
RESTR
RUN
LE
T2
IB0
U16
7438
LI
LE
U35
74273
+5V
F07
20AMP
VCC
150uf
C02
.01uf
C03,C05,C07,C22,
C23,C25,C27,C31,
C45,C47,C52,C62,
C65,C67,C74,C77,
C85,C95,C97,C1021,
C1061,C1131,C1141,
C1151,C1171
GND
+15V
F1171
1AMP
-15V
F1172
1AMP
PRL241D
LOGIC 1
U36
TPR
OB0
OB1
OB2
OB3
OB4
OB5
OB6
U37
74240
LS


PAL241C
ABSCLK 1
U22
EDIT T4 ADD
EP241C
SQ
U31
74HC74
U21
74HC74
VCC
BCLK
WEB
WEA
BLOAD
TRIG
FTR
CHAIN
RUN
OSC
BRKPNT
INTCHK
RSTH
OUTA
OUTB
ADD
D0
D1


U27
74240
LS
U27
74240
LS
U34
74HC
T4 ADD
T7
K
U33
74HC73
PGMA
DS123
PGMB
DS124
VCC
ADD
NUM
PB
PA
E
K-R
CMDCLK
PAL241E
LOGIC 2
U46
T2 ADD
REG


UTSA
SMPCLK
U15
EP241A
ARBCLK 2
SMPCLK
UTSA
PTRTG
RUN A
DS122
RUN B
DS121
VCC
U14
74HC74
U14
74HC74
U22
74390
HC
U23
74390
HC
U37
74160
HC
U36
74160
PAL2418
CLKCNT
U44
CLKOUT
CLK2
CLK1
CNTC
CLKREG
CR
DUD10
DUD5
DUD2
A1
A0
CLK
C21
C22
MEDU
CR
SMPCLK
RUN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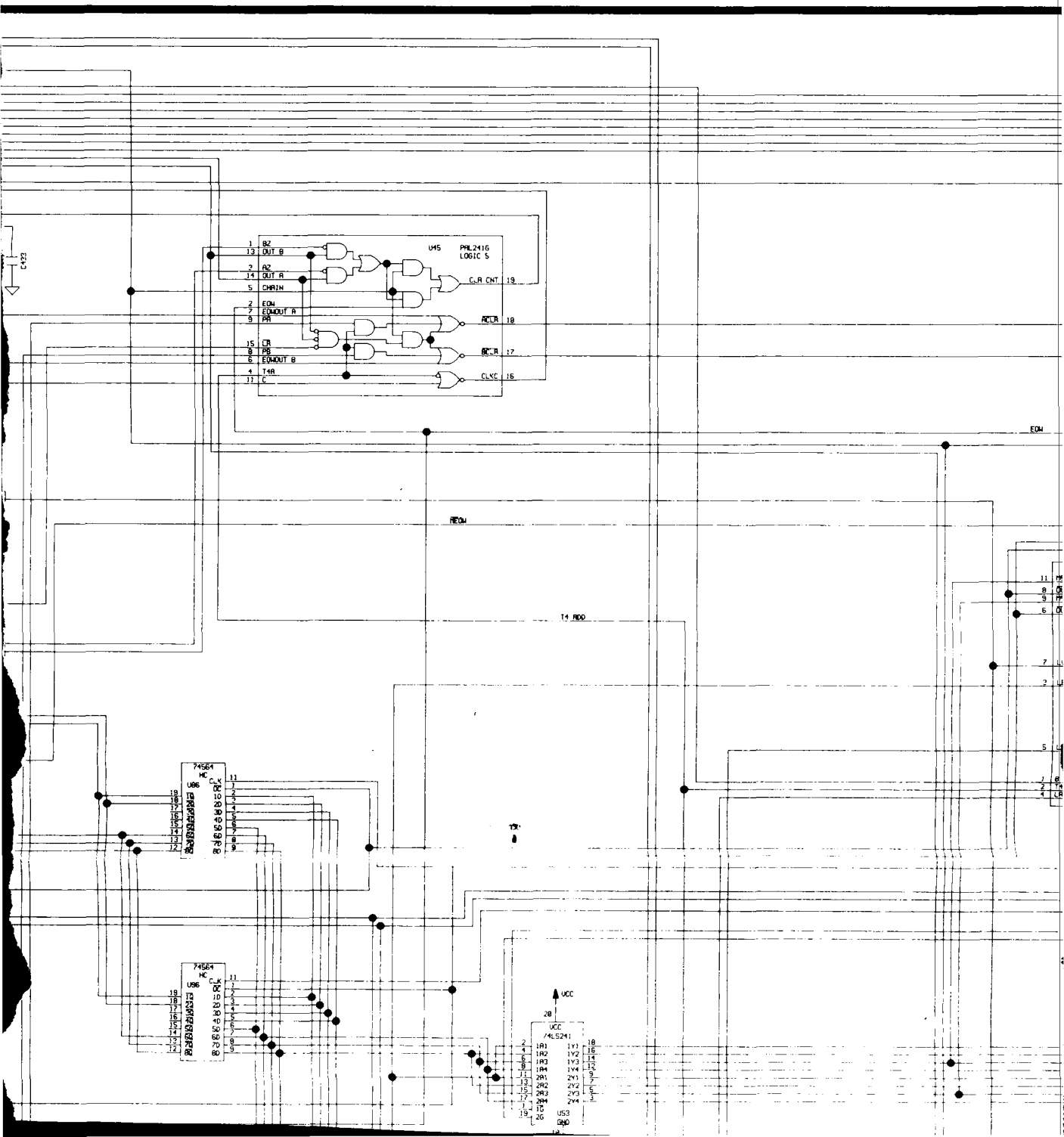
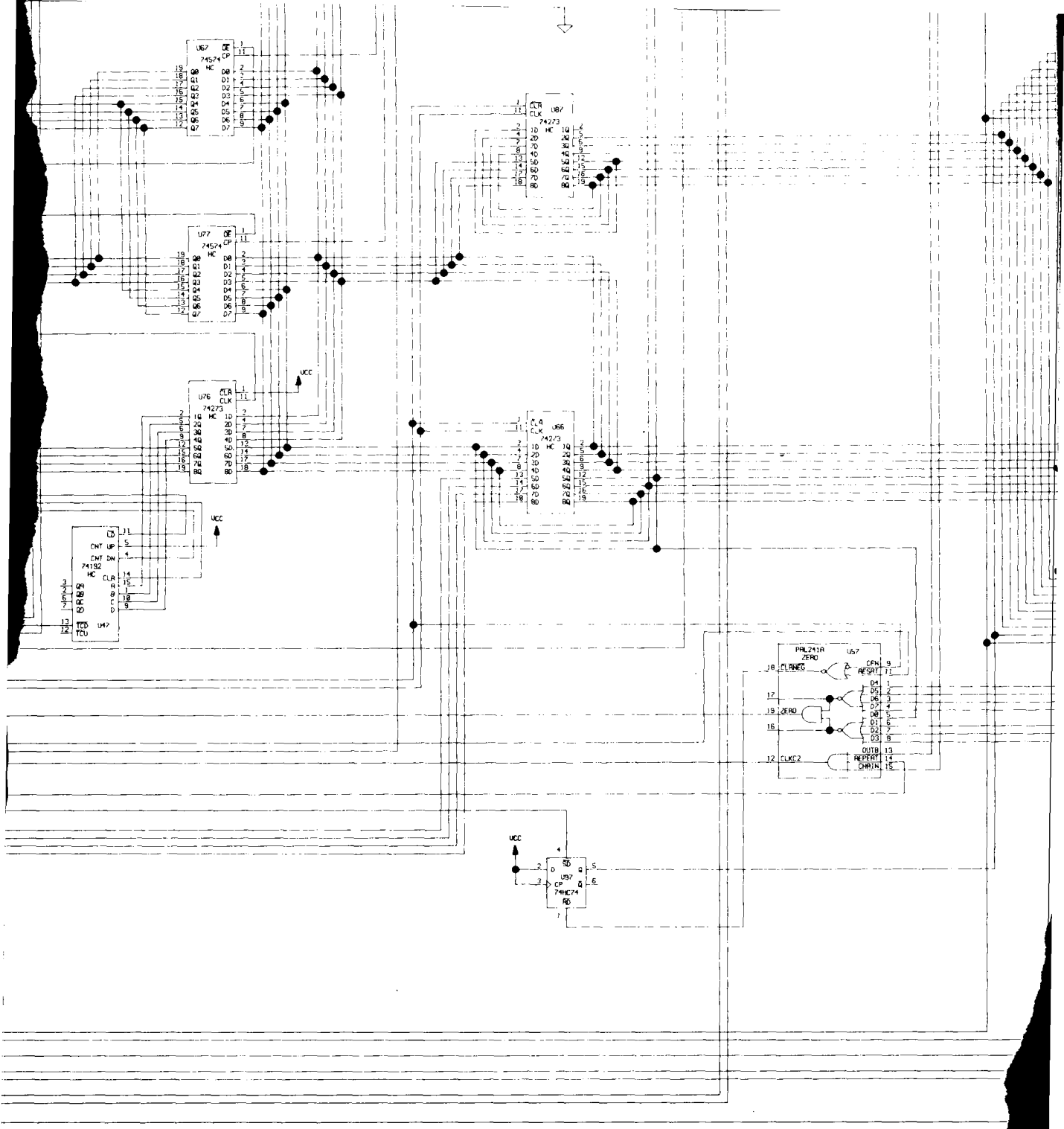
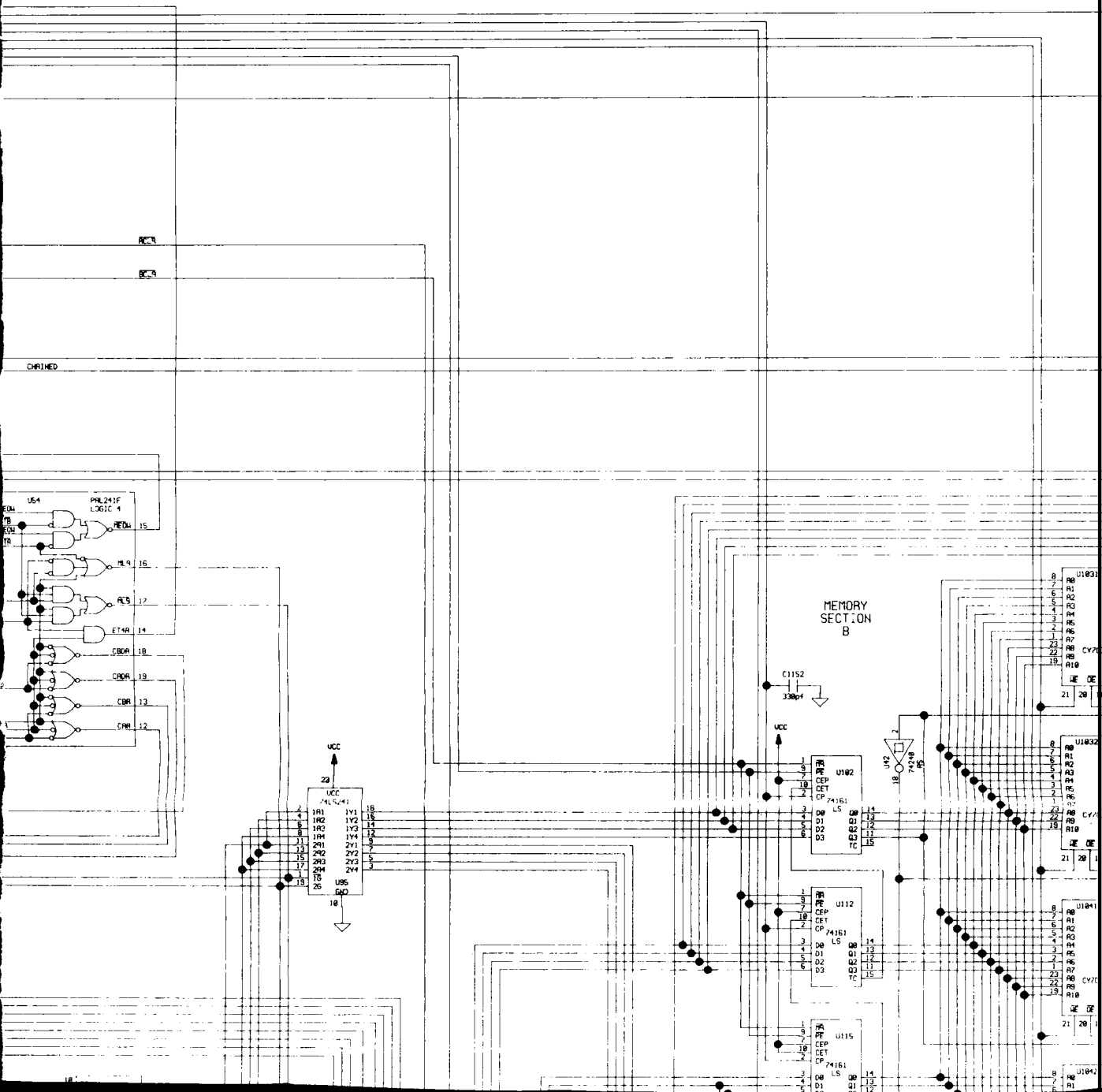
EXTERNAL CLOCK ENABLE
S21
10K
R212
10K
R211
PAL241H
LOGIC 6
U24
74HC74
74192
HC
U56
U55
U65
BRKPT
GATE
EXT CLK


C423
U45
PAL2416
LOGIC 5
B2
OUT B
A2
OUT A
CHAIN
EOW
EOWOUT A
PA
CR
PB
EOWOUT B
T4A
C
CLR CNT
ACLR
BCLR
CLKC
EOW
REOW
T4 ADD
74S64
HC
U86
CLK
RCK
1D
2D
3D
4D
5D
6D
7D
8D
1Q
2Q
3Q
4Q
5Q
6Q
7Q
8Q
VCC
74LS241
1A1
1A2
1A3
1A4
2A1
2A2
2A3
2A4
1G
2G
1Y1
1Y2
1Y3
1Y4
2Y1
2Y2
2Y3
2Y4
U53
GND


U67
74574
HC
U77
74574
HC
U76
74273
HC
U87
74273
HC
U66
74273
HC
U47
74192
HC
TCU
CNT UP
CNT DN
CLR
VCC
PAL241A
ZERO
U57
FLANGE
ZERO
CLKC2
CFN
RESET
OUTB
REPEAT
CHAIN
U97
74HC74
HC


ACC9
BC9
CHAINED
U54
PAL241F
LOGIC 4
MEDW
ML9
ACS
ET4A
CBDA
CADA
CBA
CAA
MEMORY
SECTION
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VCC
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U112
U115
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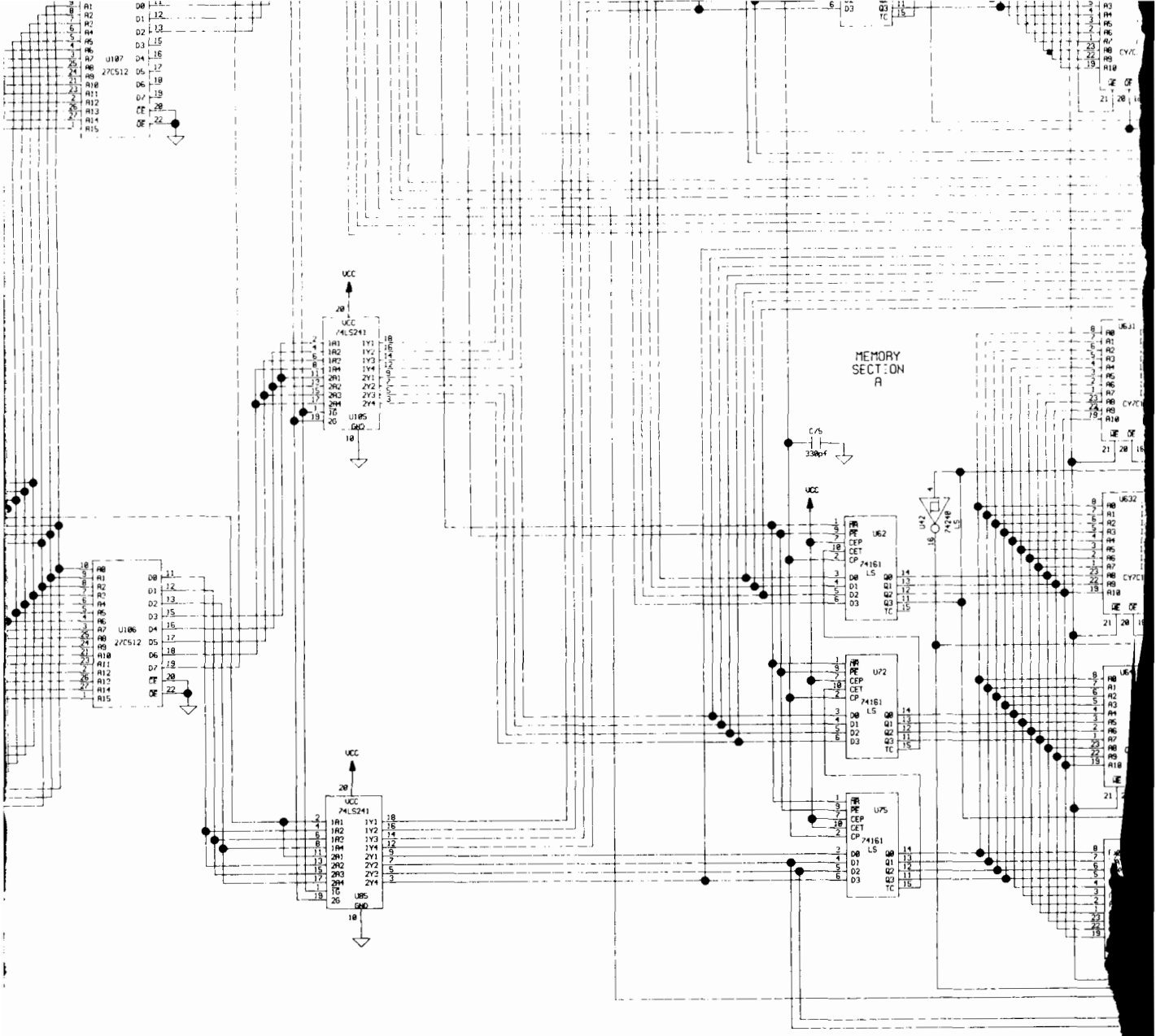
LS
U42
74240
U95
74LS241
GND


MEMORY
SECTION
A
U107
27C512
U106
27C512
U105
74LS241
U85
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U62
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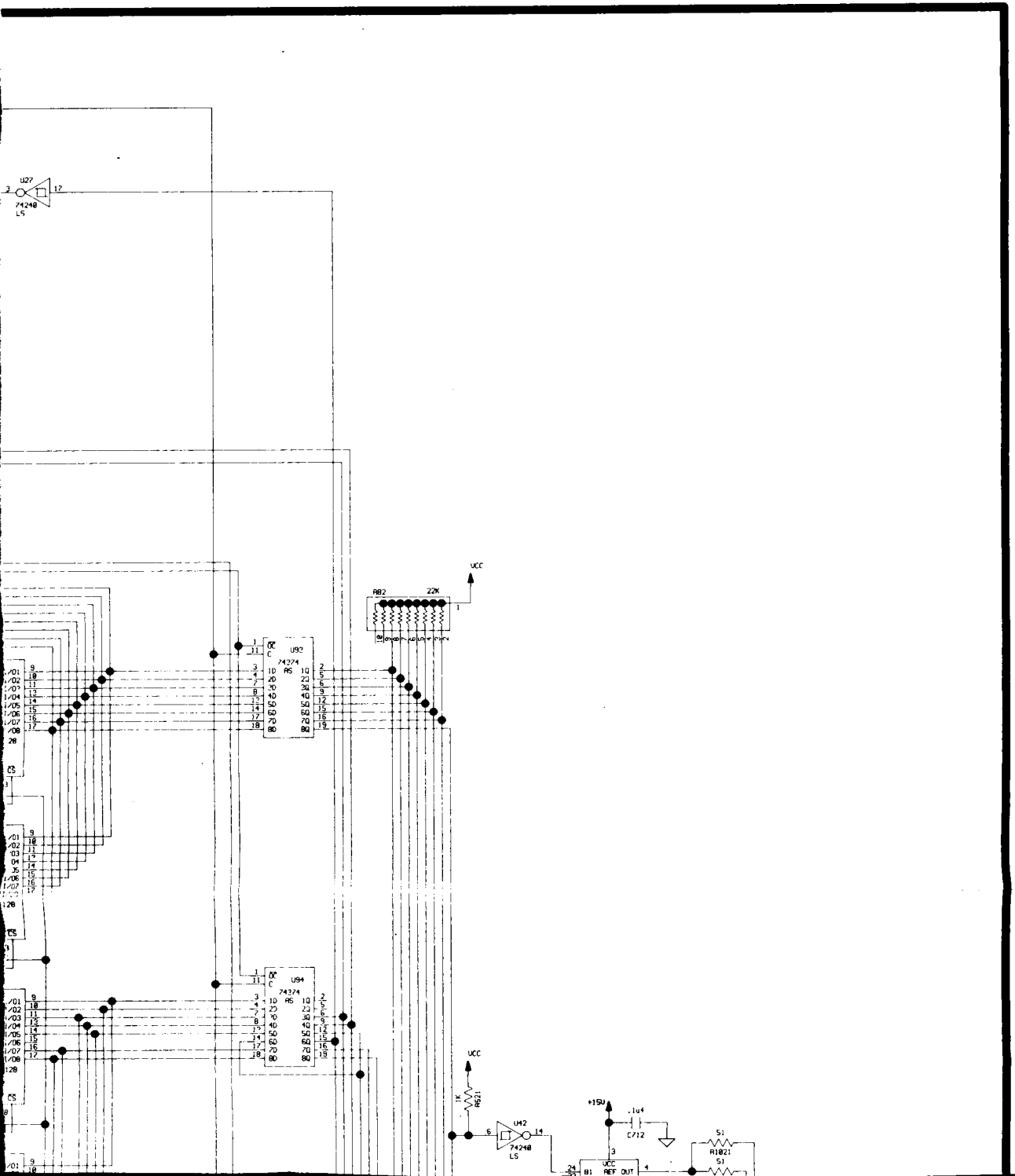
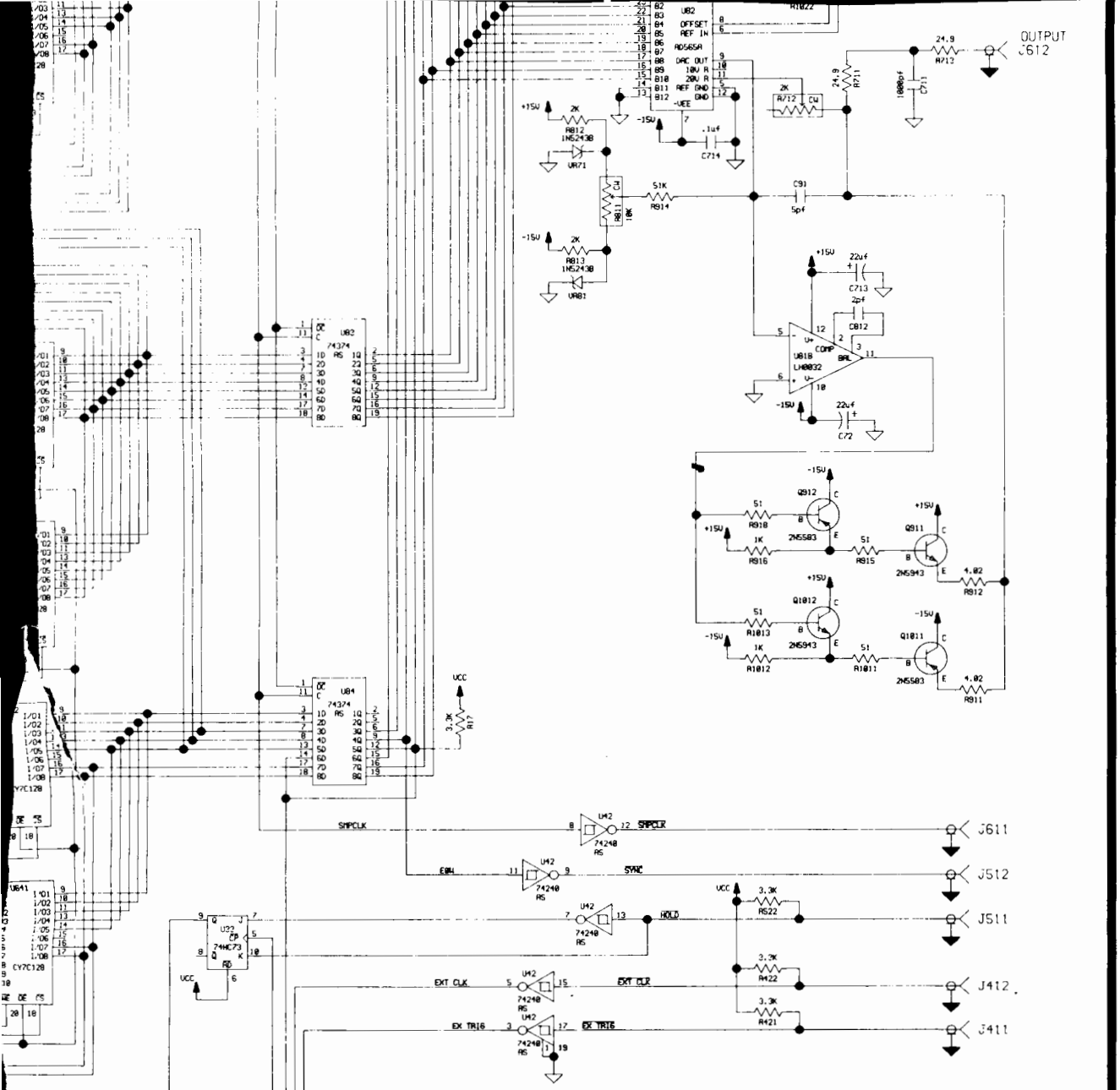
LS
C45
330pf
VCC
GND


U27
74240
LS
U92
74374
U94
74374
RB2
22K
VCC
R621
1K
U42
74240
LS
+15V
.1u4
C712
S1
R1021
S1



REVISION LEVEL	ECO #
8704-01-A	ISSUED
8704-01-B	452
8706-01-C	566
8803-02-A	626
8805-02-B	671
8805-02-B	745
8905-02-D	993

COLORADO DATA SYSTEMS

PART NO.: 53A-241

DESCRIPTION: ARBITRARY WAVEFORM GENERATOR

P.C.B. NUMBER: 41530-24100

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