


*Please Check for
CHANGE INFORMATION
at the Rear of This Manual*

THE INSTRUCTIONS INCLUDED IN THIS MANUAL ARE
FOR USE BY QUALIFIED PERSONNEL ONLY. TO
AVOID PERSONAL INJURY, DO NOT PERFORM ANY
SERVICING OTHER THAN THAT CONTAINED IN
OPERATING INSTRUCTIONS UNLESS YOU ARE
QUALIFIED TO DO SO. REFER TO THE SERVICE
SAFETY SUMMARY PRIOR TO PERFORMING ANY
SERVICE

WARNING

**RTD 710A
DIGITIZER
Service Volume II**

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INSTRUMENT SERIAL NUMBERS

Each instrument has a serial number on a panel insert, tag,
or stamped on the chassis. The first number or letter
designates the country of manufacture. The last five digits
of the serial number are assigned sequentially and are
unique to each instrument. Those manufactured in the
United States have six unique digits. The country of
manufacture is identified as follows:

B000000	Tektronix, Inc., Beaverton, Oregon, USA
1000000	Tektronix Guernsey, Ltd., Channel Islands
2000000	Tektronix United Kingdom, Ltd., London
3000000	Sony/Tektronix, Japan
7000000	Tektronix Holland, NV, Heerenveen, The Netherlands

PREFACE

GUIDE TO RTD 710A DOCUMENTATION

The RTD 710A Digitizer documentation provides information necessary to install, operate, and service the instrument. It consists of:

- an **Instruction Manual** that describes the instrument, tells how to prepare the instrument for use, explains the controls and connectors, provides operator familiarization, includes the IEEE 488 command set and programming examples, and provides instructions for internal control settings and rackmounting instructions for service personnel.
- an optional two volume **Service Manual** that provides information for qualified service personnel to troubleshoot, repair, and calibrate the instrument.
- an **Instrument Interfacing Guide** that helps the user get started using the instrument by providing more detailed interface and programming information.
- a **Rackmount Kit for the RTD 710A** instruction sheet that provides installation instructions and parts lists for the RTD 710A rack mounting kit.

Table 0-1 lists the Tektronix part numbers and titles of the available RTD 710A documentation.

Table 0-1
RTD 710A DOCUMENTATION

Part Number	Document Title
070-7204-XX	Instruction Manual
070-7205-XX	Service Manual, Volume 1
070-7206-XX	Service Manual, Volume 2
070-7207-XX	Instrument Interfacing Guide
070-7208-XX	Rackmount Kit for RTD 710/RTD710A

ABOUT THIS MANUAL

The RTD 710A Service Manual, which is contained in two volumes, provides information to troubleshoot, repair, and calibrate the instrument.

VOLUME 1

Section 1 - Theory of Operations contains a block diagram and detailed circuit description for the RTD 710A circuit operation.

Section 2 - Diagnostics contains detailed descriptions for the diagnostic routines contained in the RTD 710A Firmware and how to use them.

Section 3 - Maintenance contains four major subsections. Static-Sensitive Components contains information about handling and servicing static-sensitive components. Preventive Maintenance provides information about inspecting, cleaning, and calibrating the instrument. Troubleshooting and Repair provides information about replacement parts, and describes what tools (software, hardware, and Re-documentation) are available for troubleshooting and repairing the instrument. Removal and Re-placement Procedures contains instructions for removing and reinstalling all circuit boards in the instrument.

Section 4 - Performance Check/Adjustment Procedures contains a list of test equipment and the procedures required to perform check and/or adjust the instrument.

Section 5 - Replaceable Electrical Parts contains a list of all electronic parts in the instrument.

VOLUME 2

Section 6 - Test Point and Adjustment Locations contains an illustration showing the location of the test points and adjustable components for each circuit board adjusted during calibration.

Section 7 - Troubleshooting Charts contains flow charts that can be used with the internal diagnostics to isolate an instrument problem.

Section 8 - Diagrams and Circuit Board Illustrations contains schematic diagrams and circuit board illustrations for each printed circuit board in the instrument.

Section 9 - Replaceable Mechanical Parts contains exploded view illustrations and parts lists for the mechanical parts and assemblies in the instrument.

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4-33 H. MPU

4-34 I. DMA

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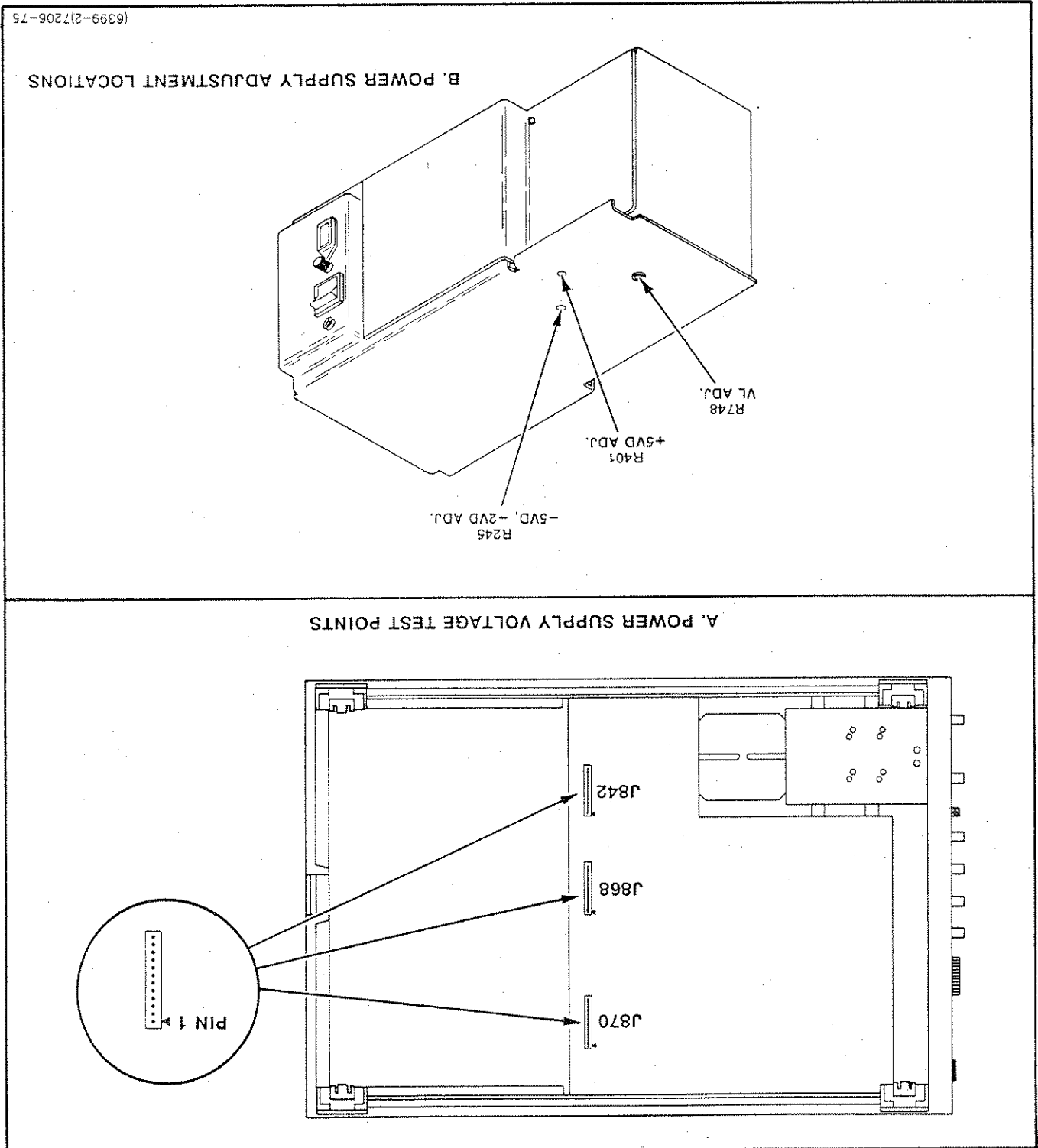
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Section 6 TEST POINT AND ADJUSTMENT LOCATIONS

This section contains illustrations and circuit board layouts showing the location of test points and adjustment locations called out in the Performance Check/Adjustment Procedures section. With the exception of the first figure, these are layed out in board order (i.e., A10 board, A12 board, etc.).

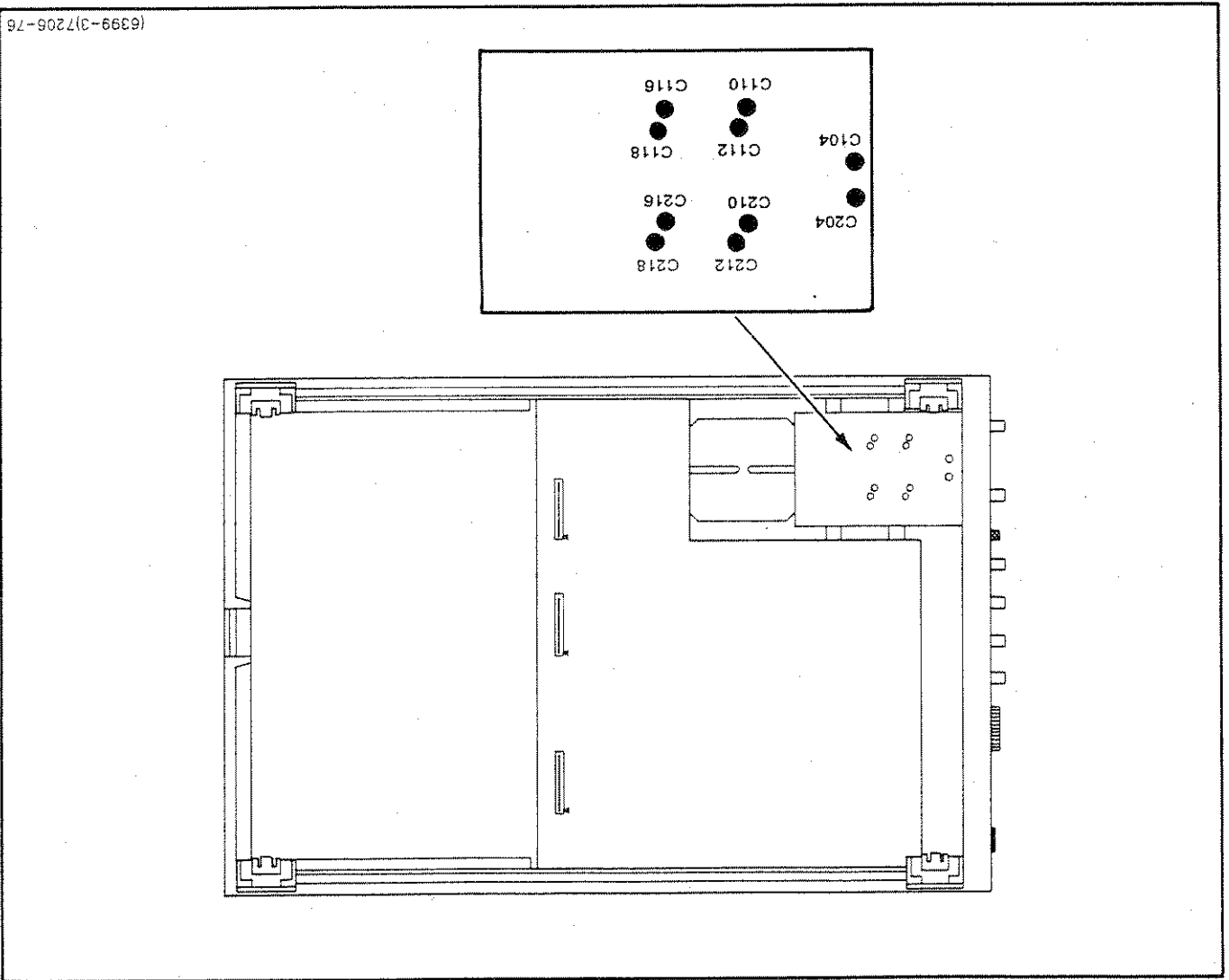
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Fig. 6-1 Power Supply Adjustment Locations



Test Point and Adjustment Locations

Fig. 6-2 A10 - Attenuator Board Adjustment Locations



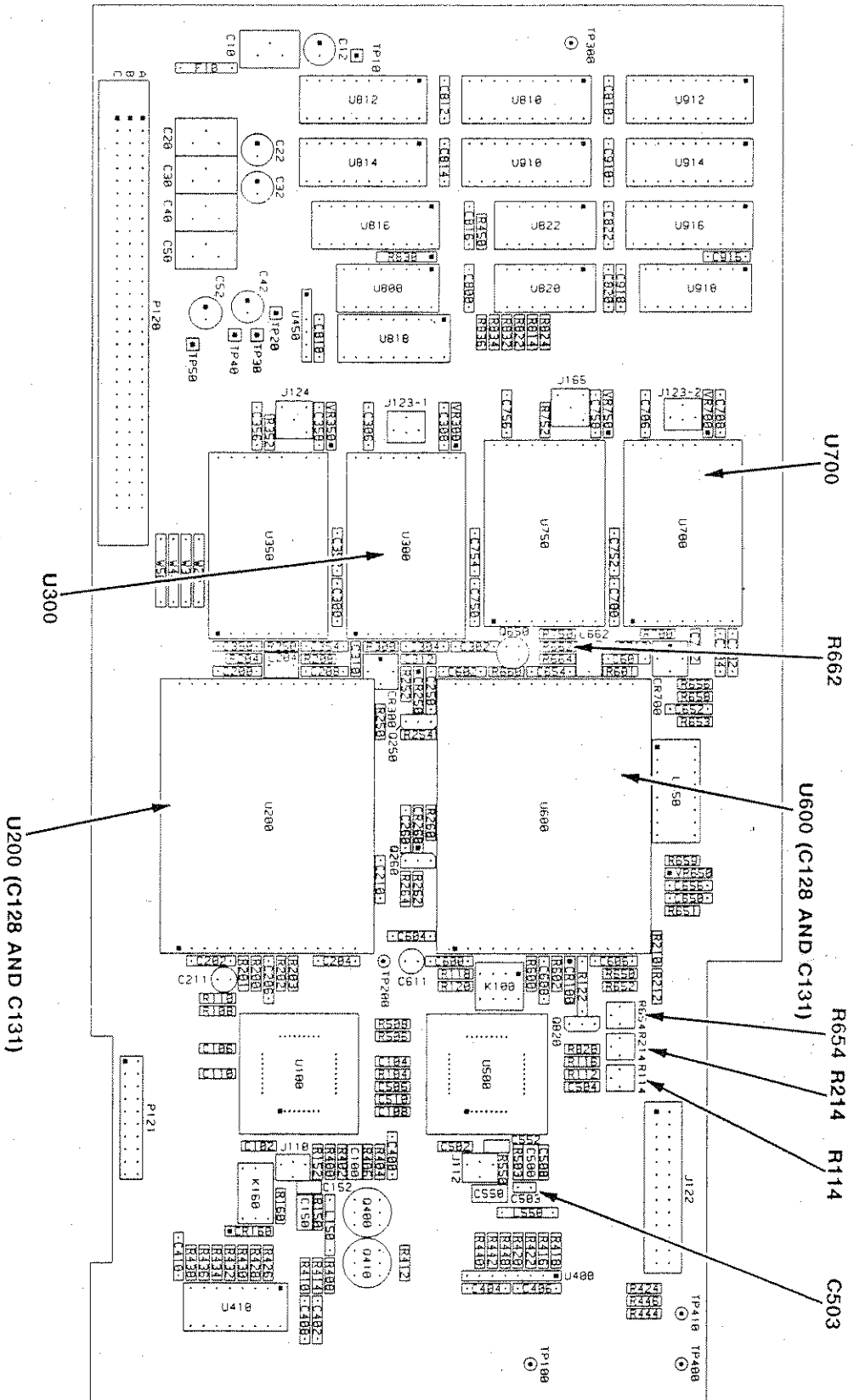


Fig. 6-3 A12 - Input Amp Board Adjustment Locations

7206-77

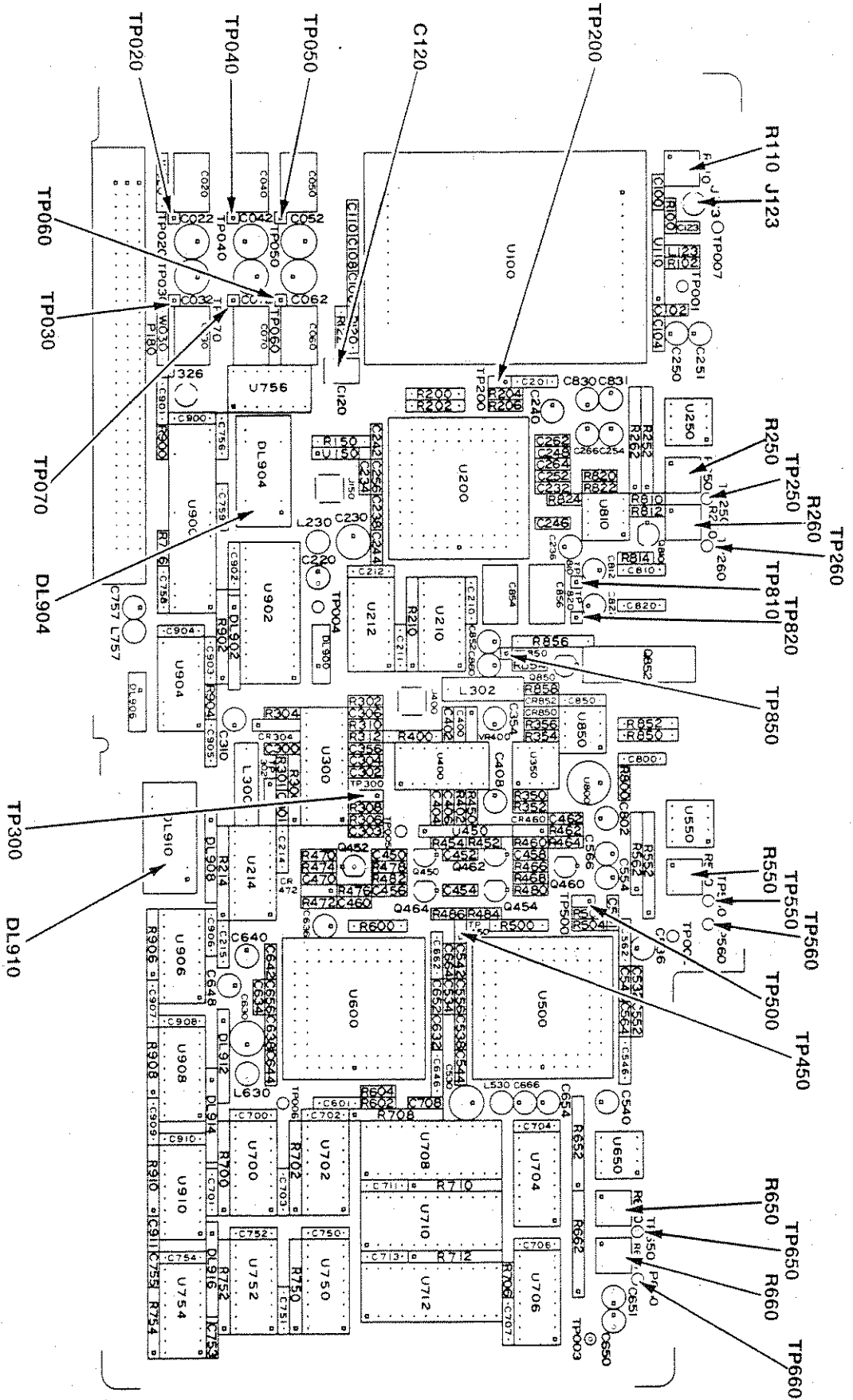


Fig. 6-5 A18 - A/D Board Adjustment Locations

7206-79

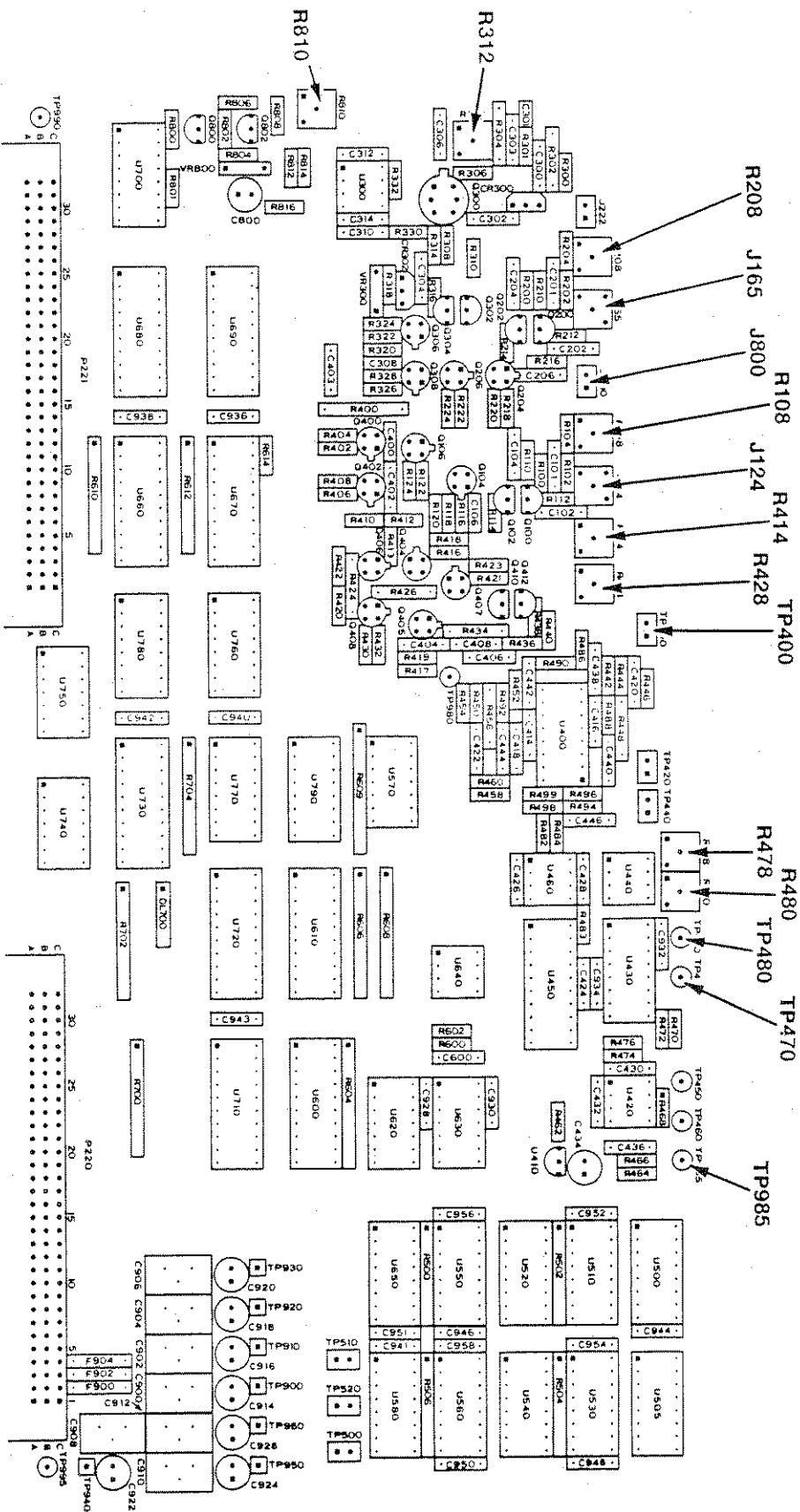


Fig. 6-6 A22 - Trigger Board Adjustment Locations

(6399)7206-80

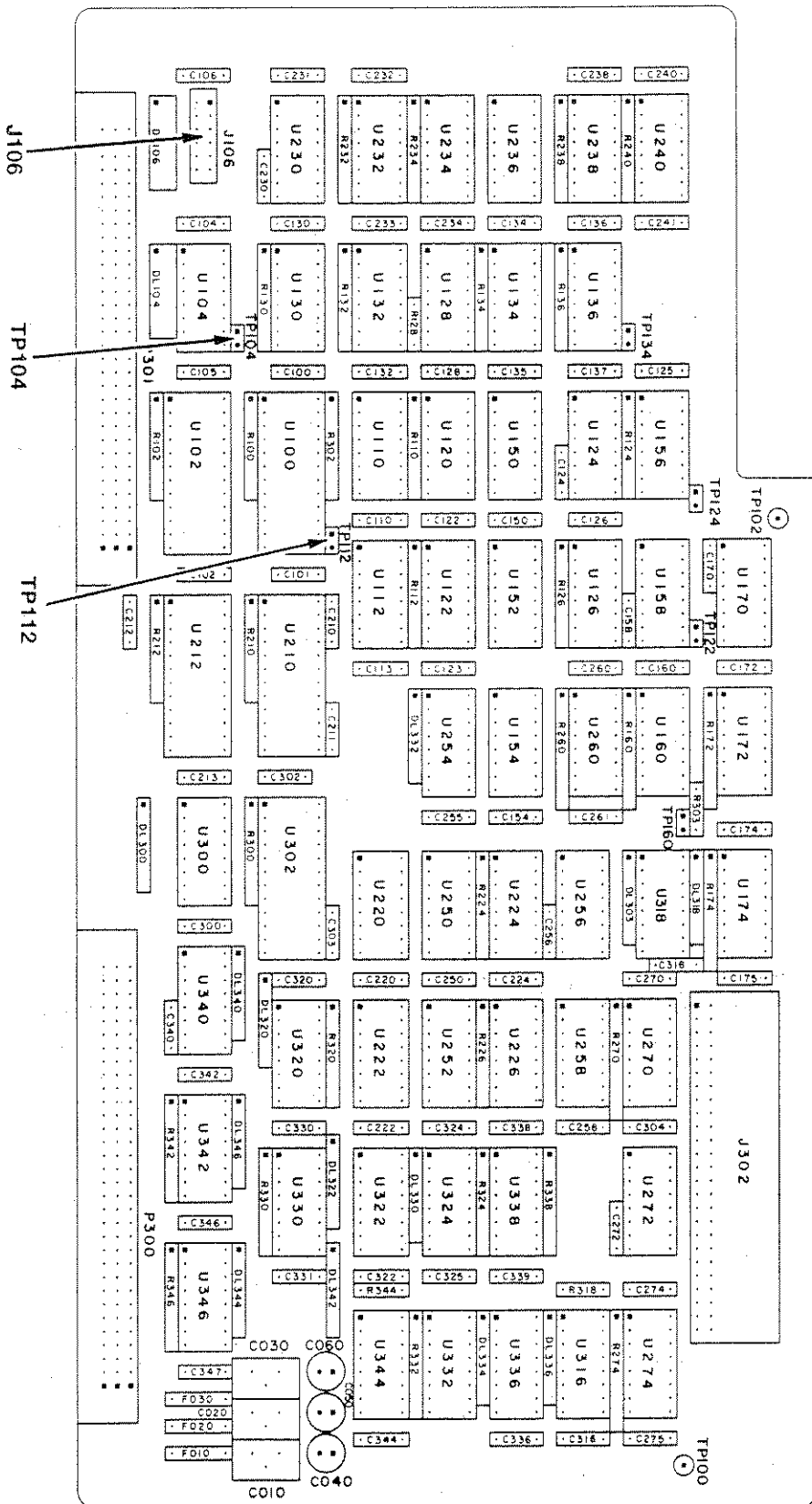


Fig. 6-7 A30 - Envelope Board Adjustment Locations

(6399)7206-81

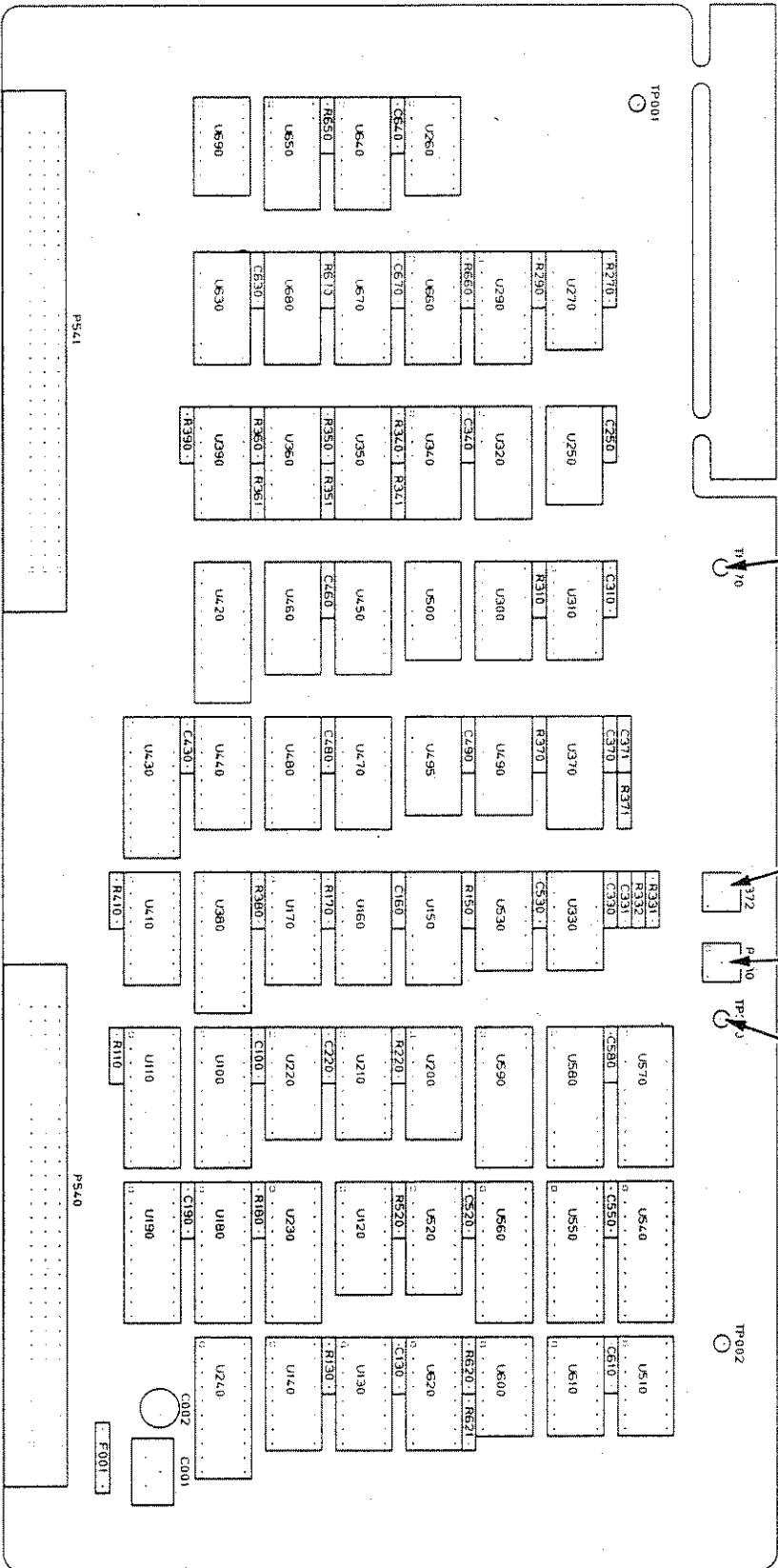


Fig. 6-11 A54 - Display Control Board Adjustment Locations

(6399)7206-85

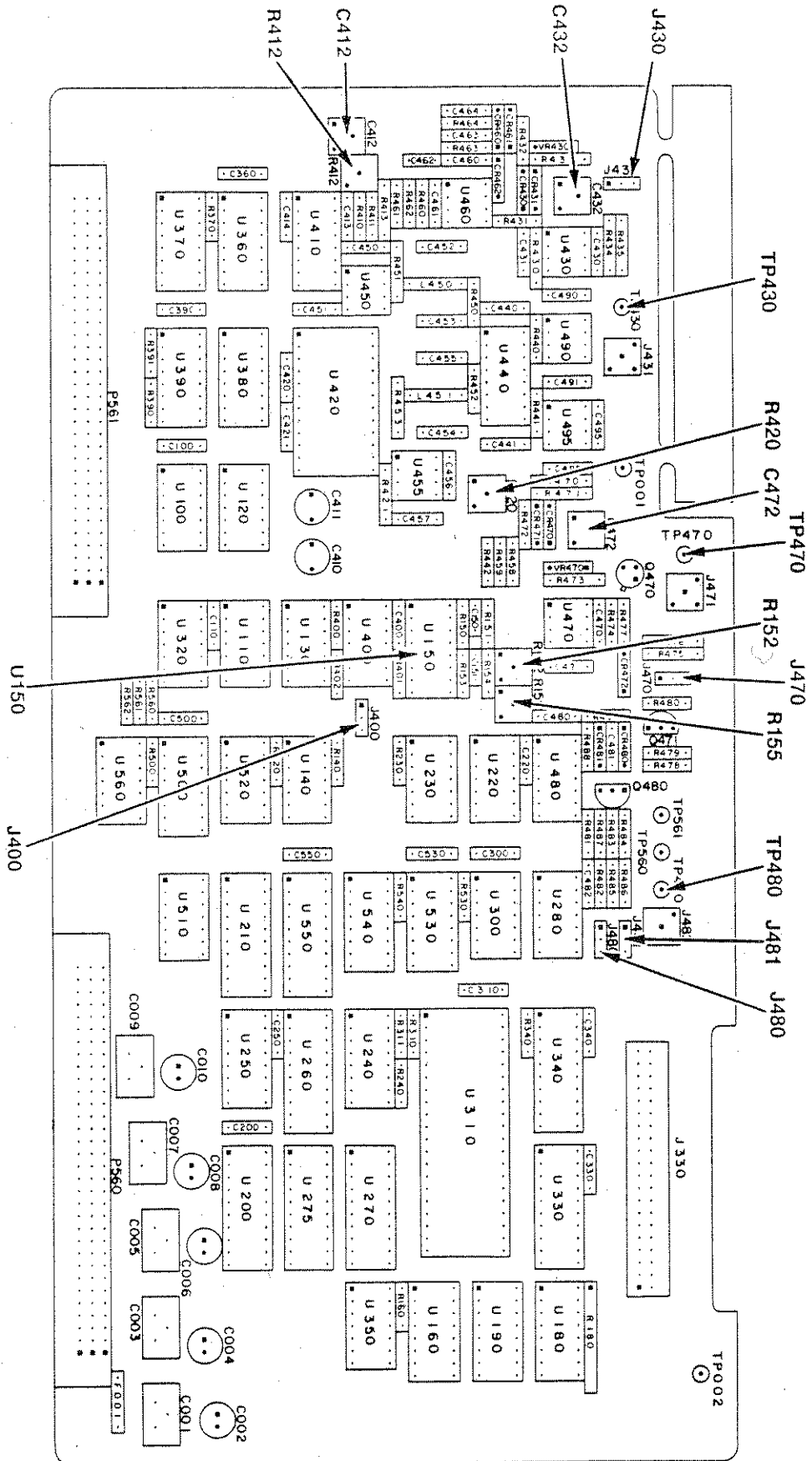


Fig. 6-12 A56 - GPIB/Monitor Board Adjustment Locations

(6399)7206-86

This section contains three distinct sets of troubleshooting charts: Charts 1-7, Charts A100-1 through A601, and Charts 001 - 015.

Section 7 TROUBLESHOOTING CHARTS

Chart	Problem
001	Channel 1 Only Mode Acquisition Failure
002	Average Function Failure
003-1	Breakpoint Function and Direct A/D Out
005	ARM/D/TRIG'D LEDs Fail To Illuminate
006-1-1	Internal/External Arm Function
006-1-2	Internal/External TRIG'D OUT Signal
006-2	External Clock In
006-2	Clock Out
006-4	External Trigger In
007	Trigger Coupling Error
008	Input Coupling Error
009	TV Trigger
010	Input Offset
011	Trigger Level
012	Panel Display Problem
013-1-1	Display Acquisition Data Problem
013-2-1	Acquired Data Displaying Straight Line
A180-2A	Acquired Data Linearity Problem
013-2-3	Lack of Data Around Trigger Point
013-2-4	Lack of Over Flow Data
014-1	XY/VT Display Problem
014-2	Line/Dot Display Mode Failure
014-3	Scroll Function Problem
014-4	No Trigger Point or Cursor Display
015	Trigger Slope Problem (-, Bi-Slope, & Hys)

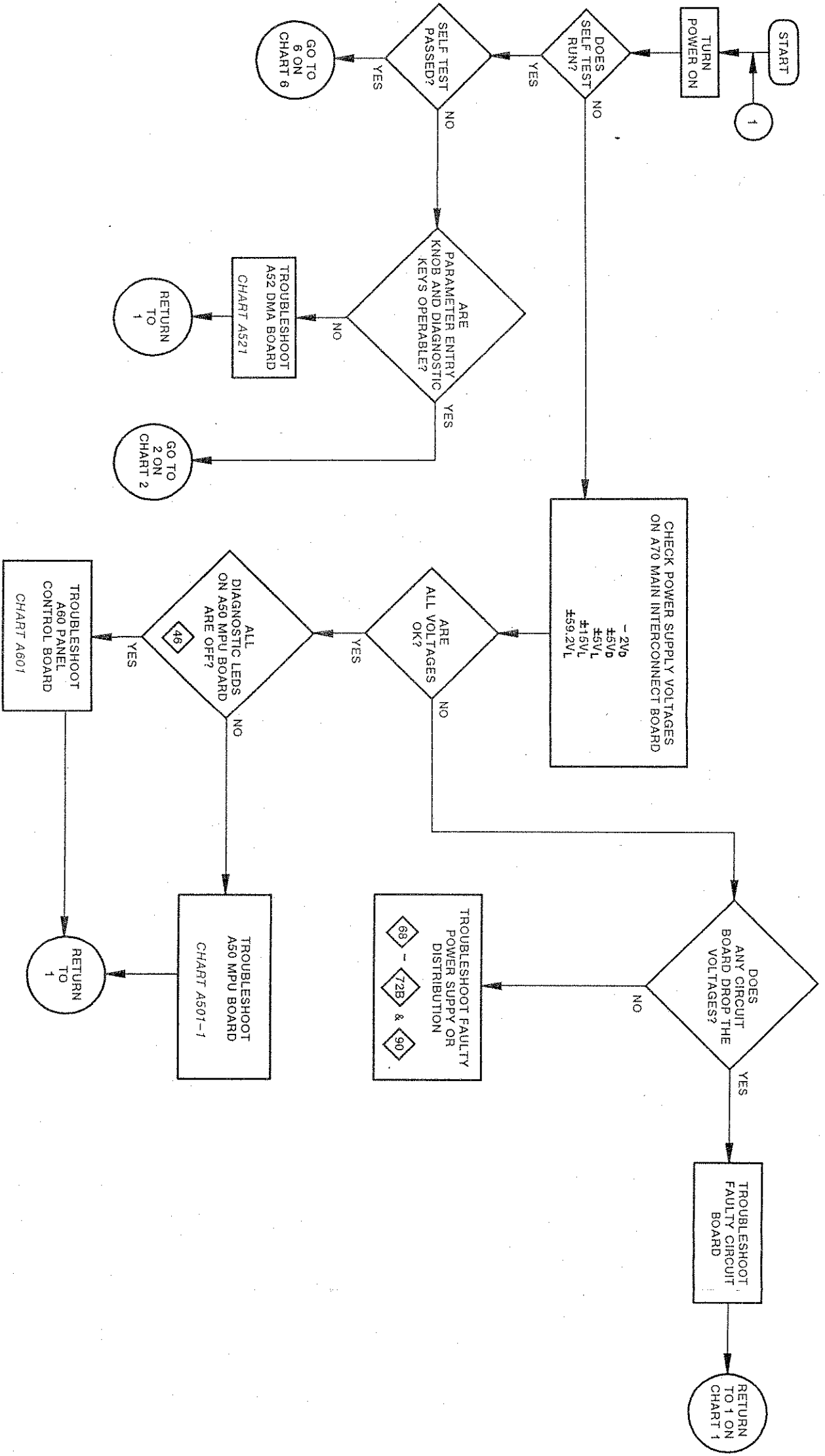
Table 7-1
Problems Not Detected by Self-Test Diagnostics

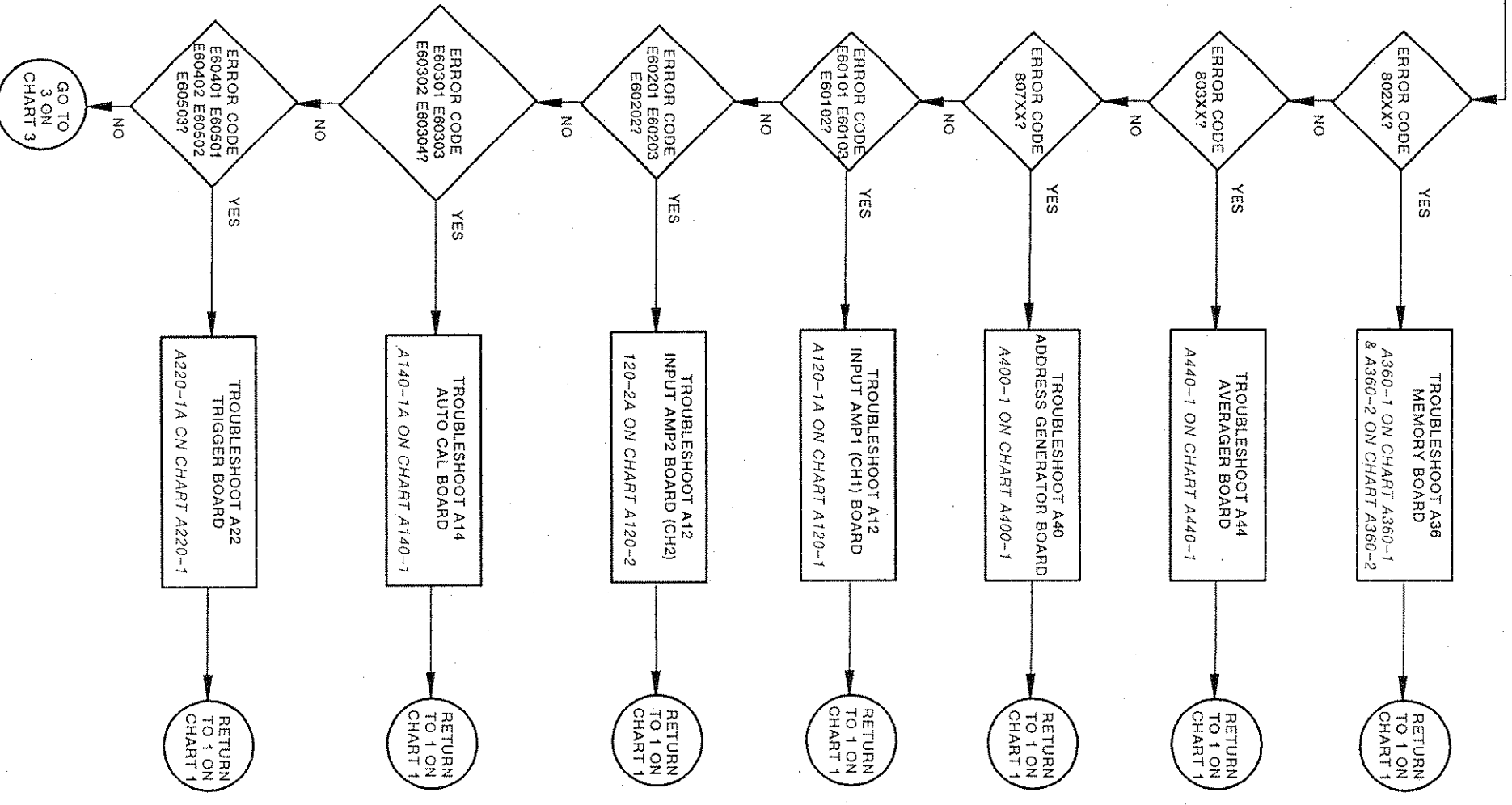
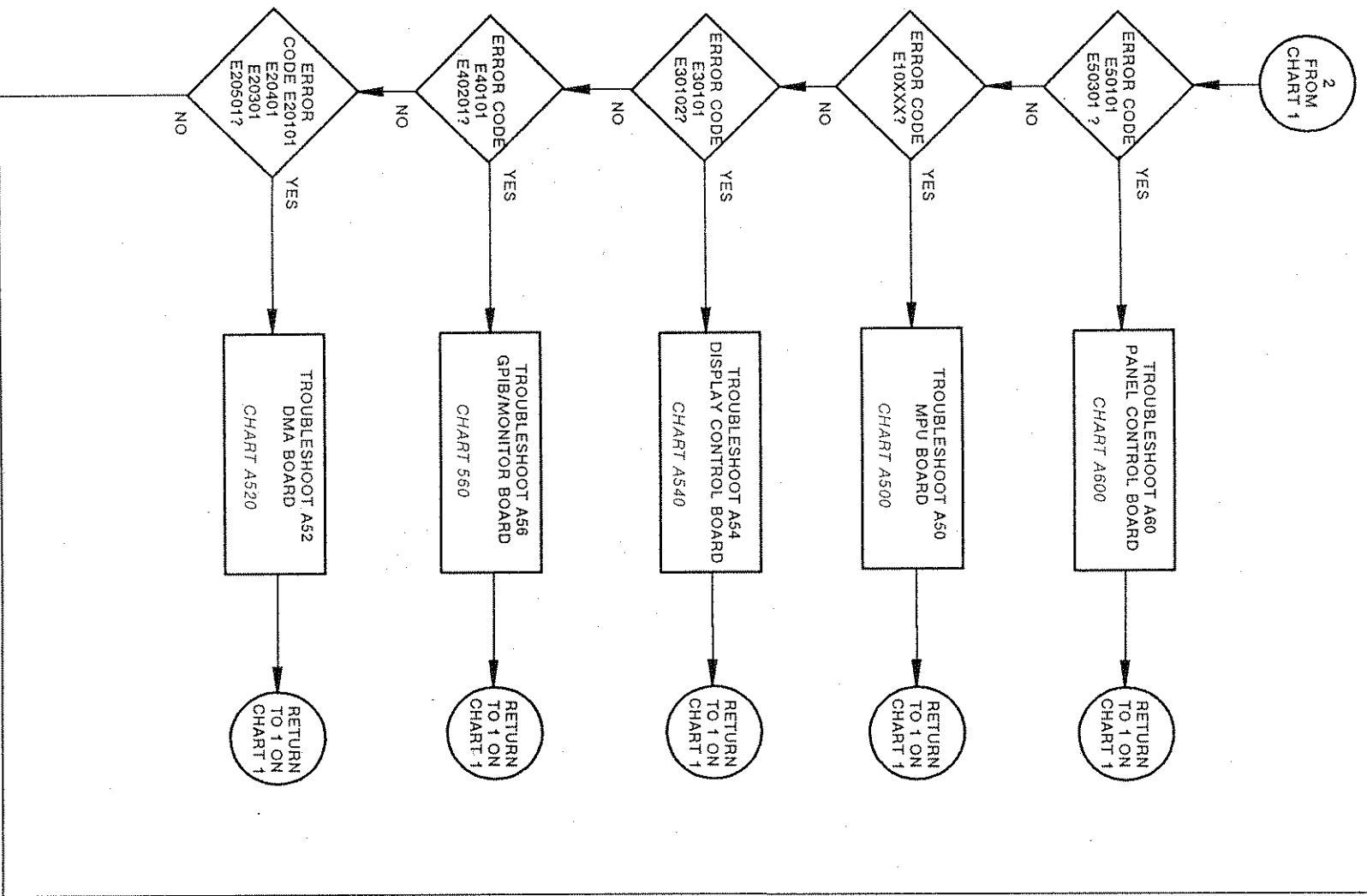
CHARTS 001-015
 Charts 001-015 contain troubleshooting procedures for problems that are not detected by the self-test diagnostic routines. Specific problems and their associated charts are listed in Table 7-1.

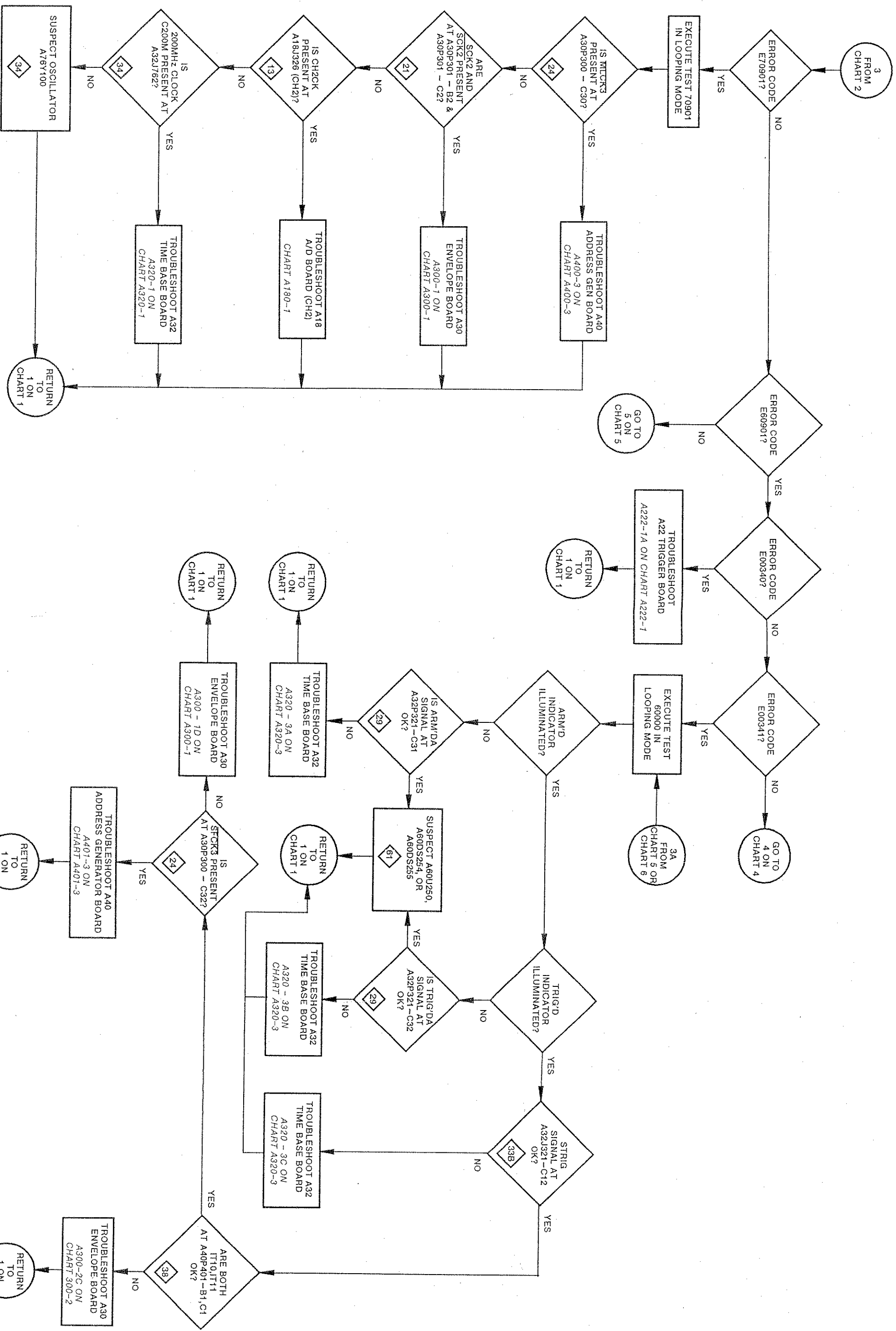
CHARTS 1-7
 Charts 1-7 contain a sequence of steps to be used with the self-test diagnostics to identify a specific circuit board using the diagnostic error code. Whenever an error code occurs in the troubleshooting sequence, the chart refers you to the troubleshooting chart for a specific circuit board.

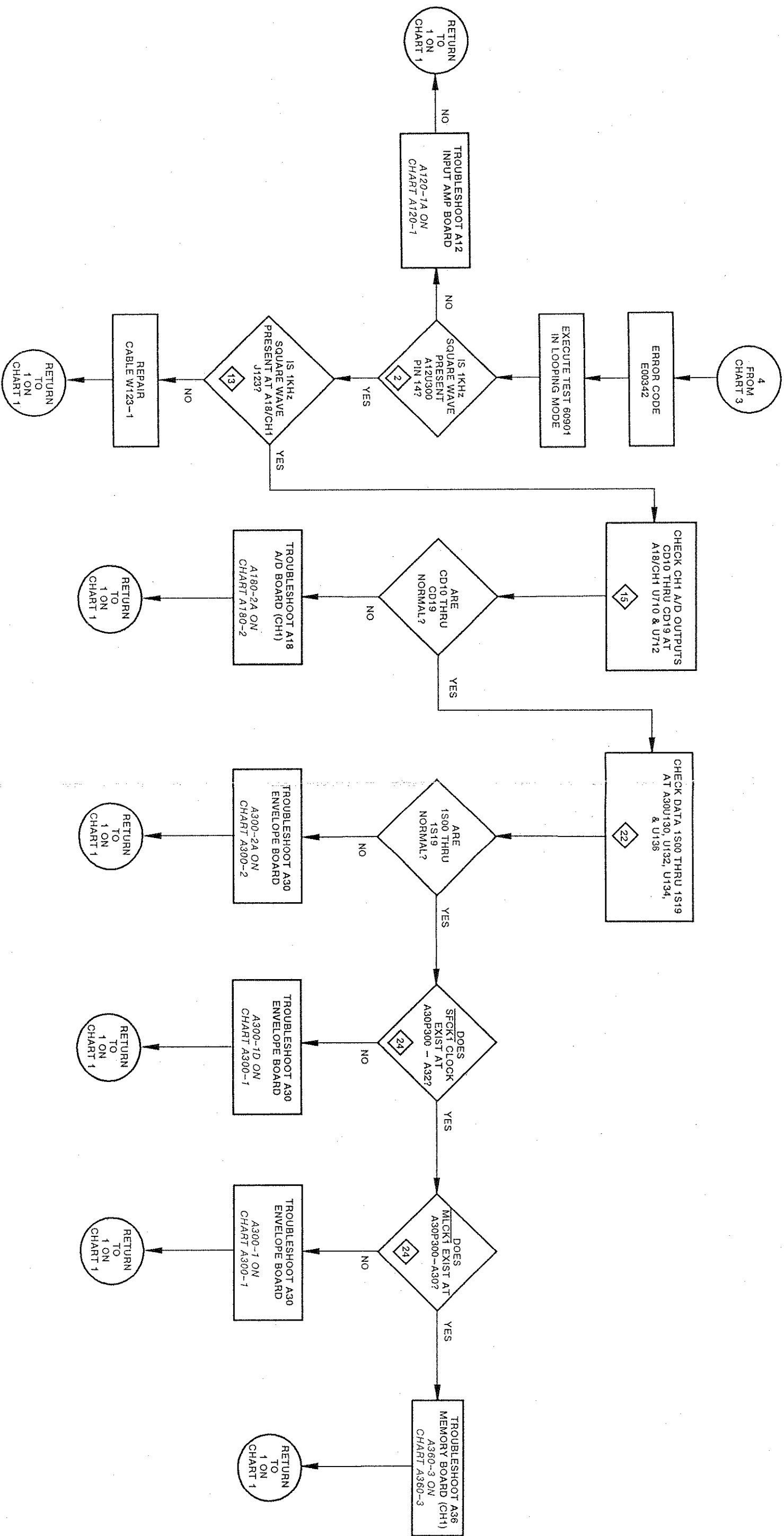
CHARTS A100-1 THROUGH A601
 Charts A100-1 through A601 contain troubleshooting procedures for a specific board. The alphabetic character and first two digits of the chart number identify the specific board. For example, A100-1 identifies a chart for the A10 board, A121-1 identifies a chart for the A12 board, etc. The additional digits of the chart number are simply chart sequencing numbers.

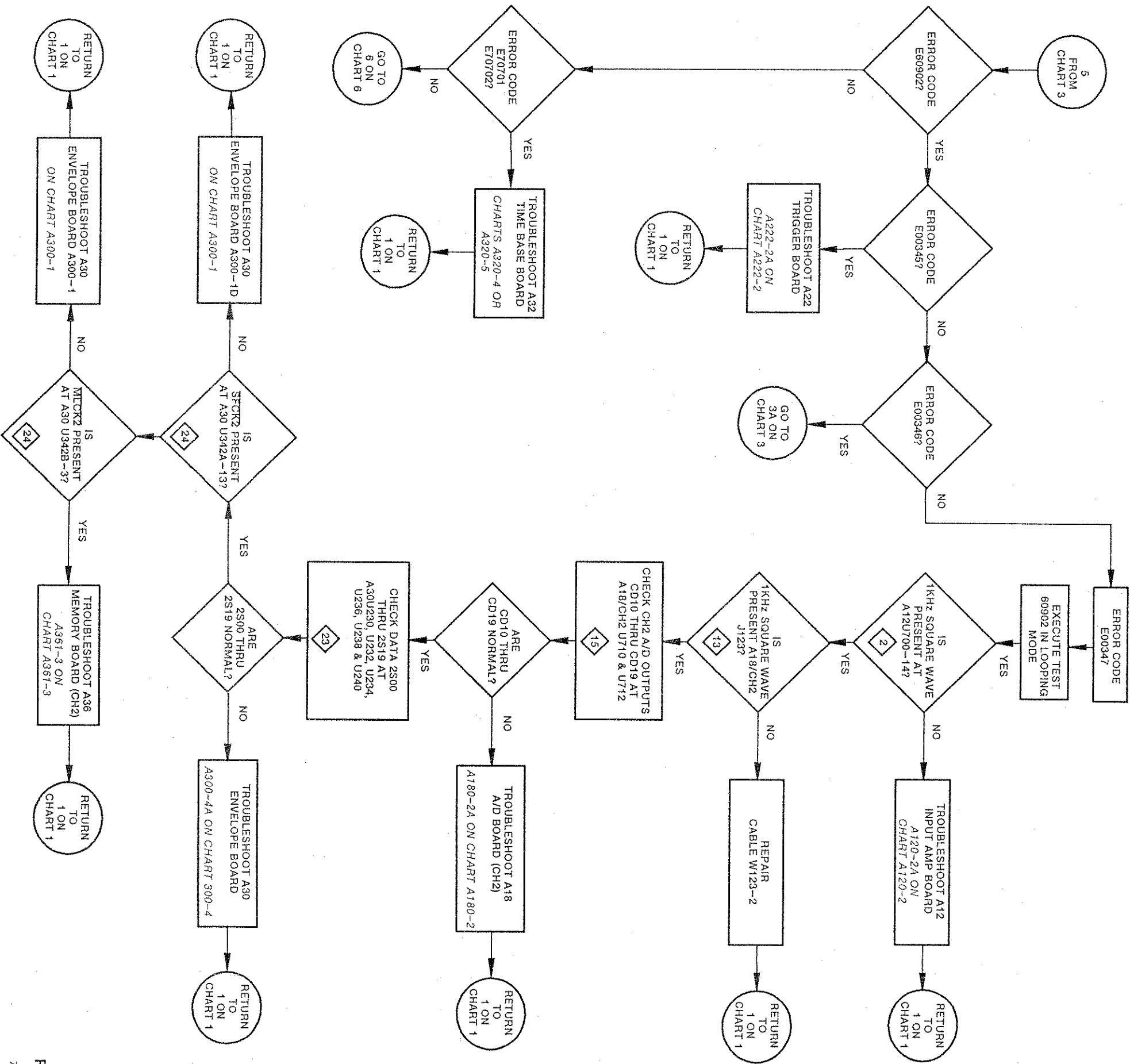
Troubleshooting Charts



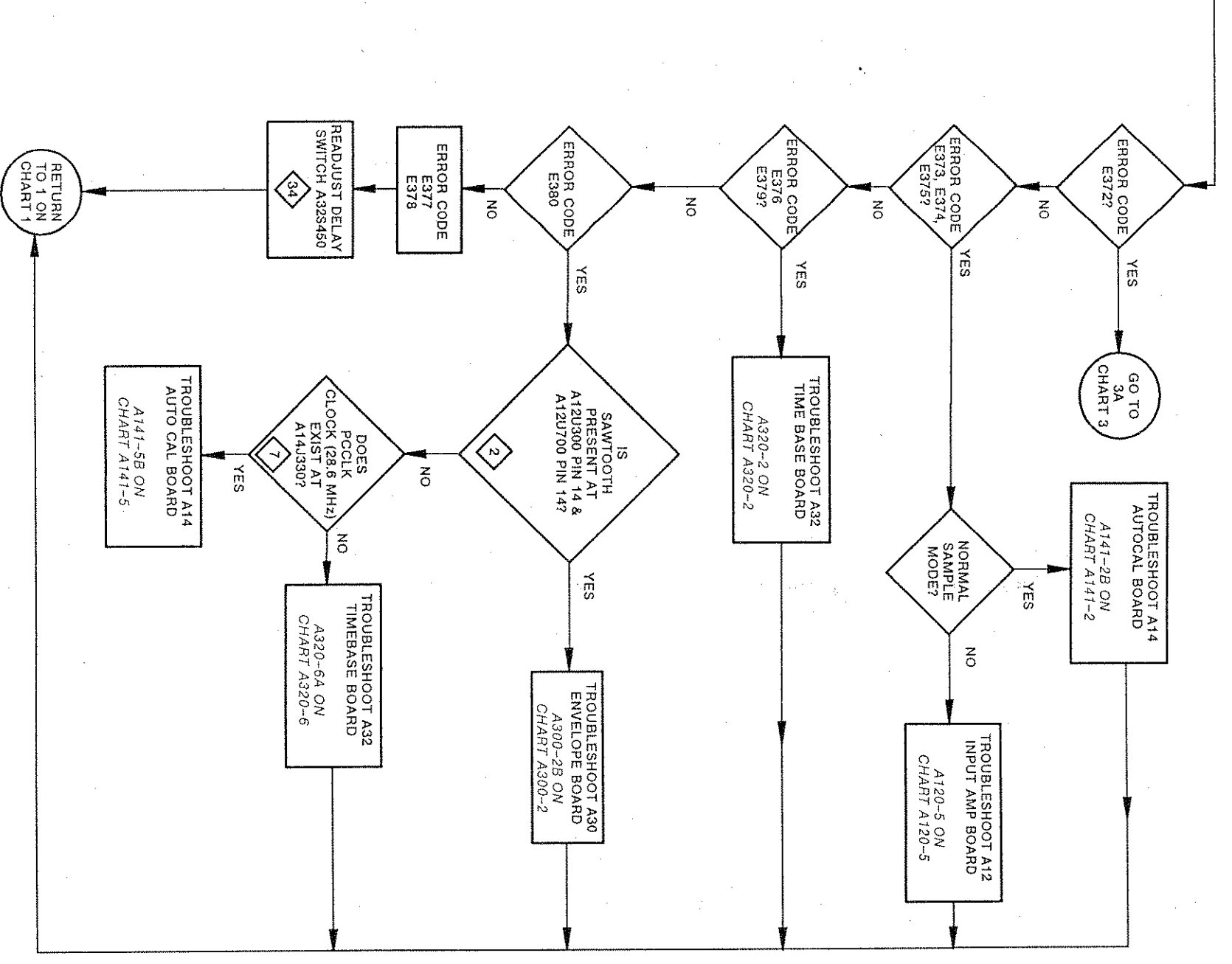
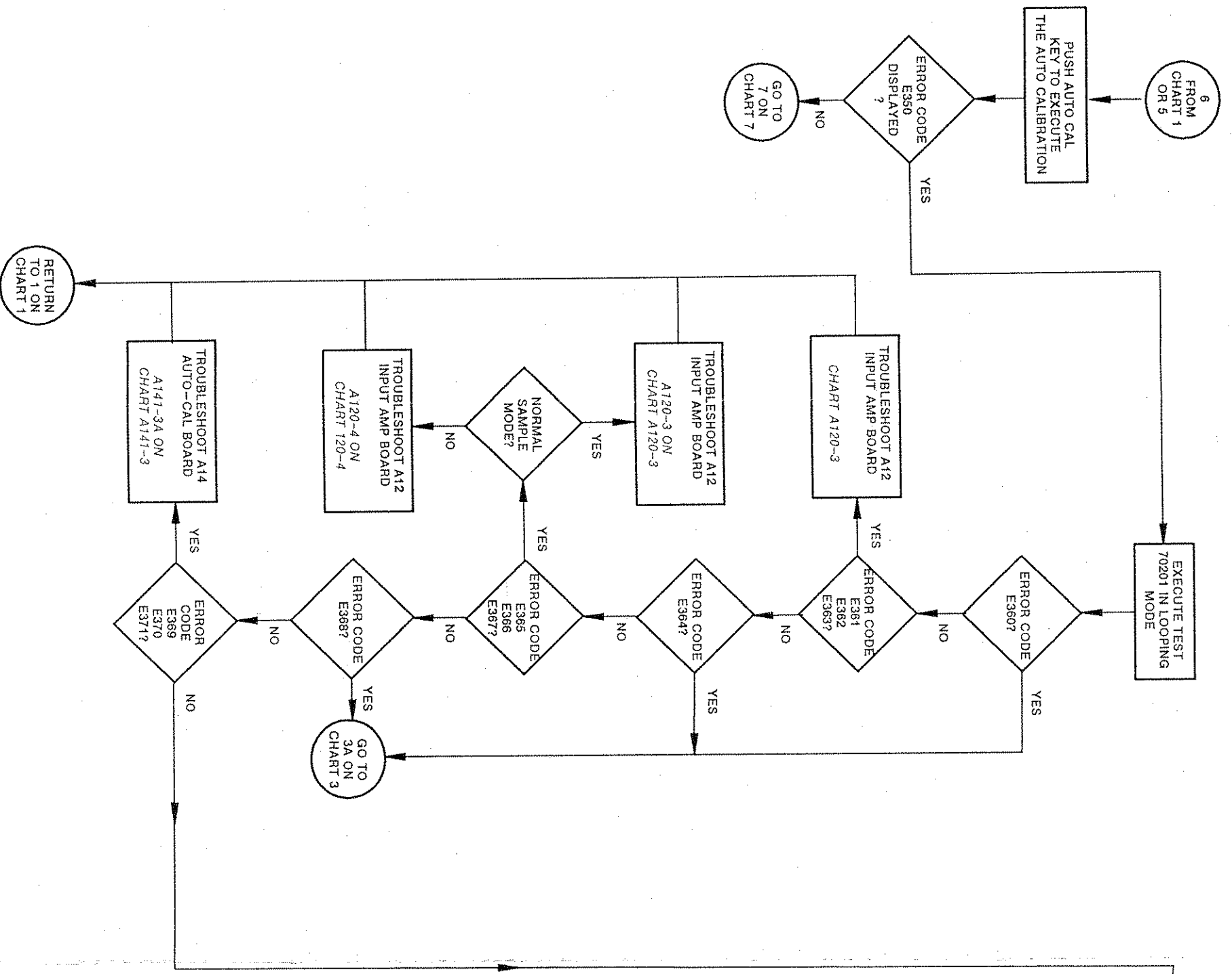


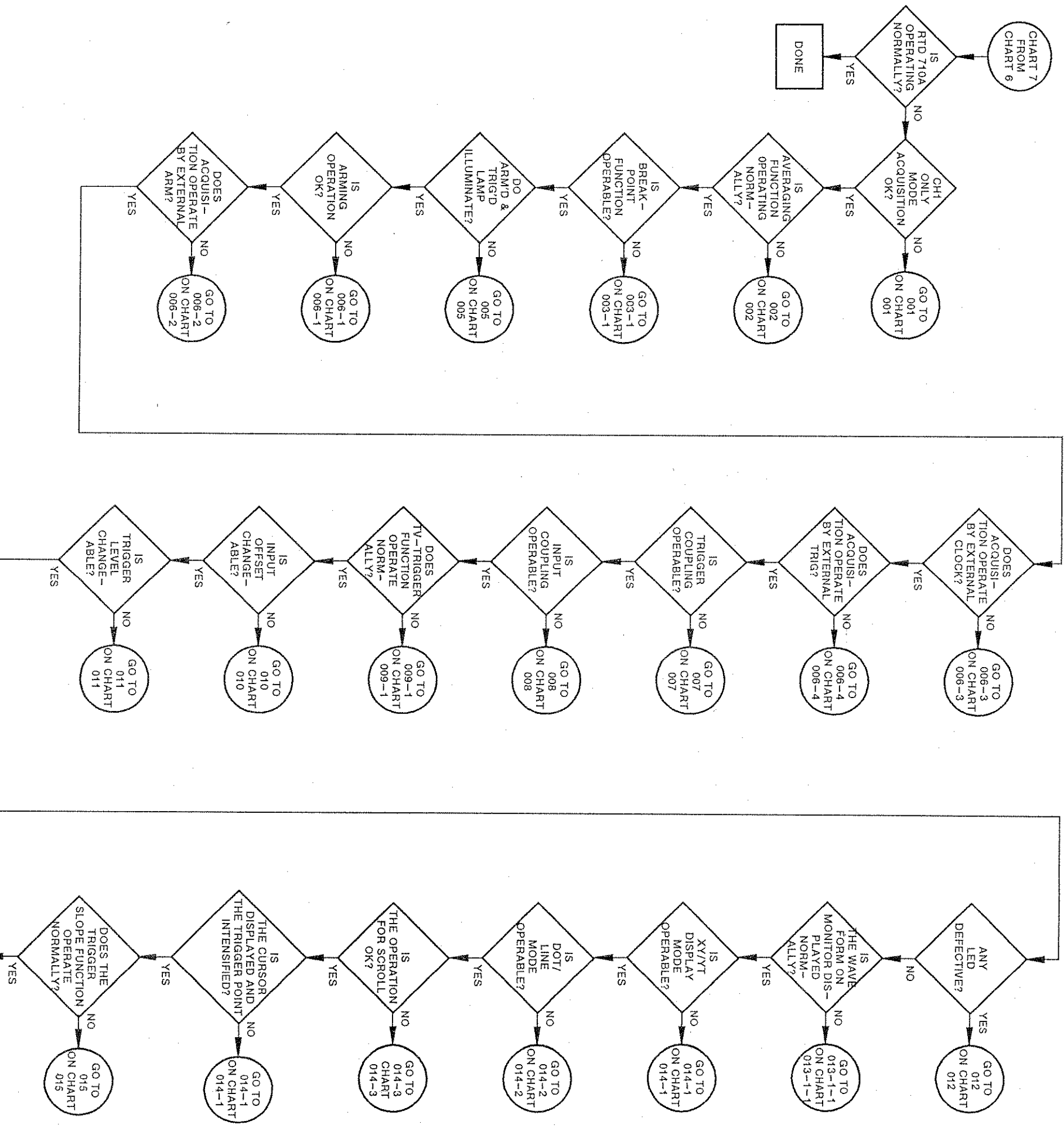


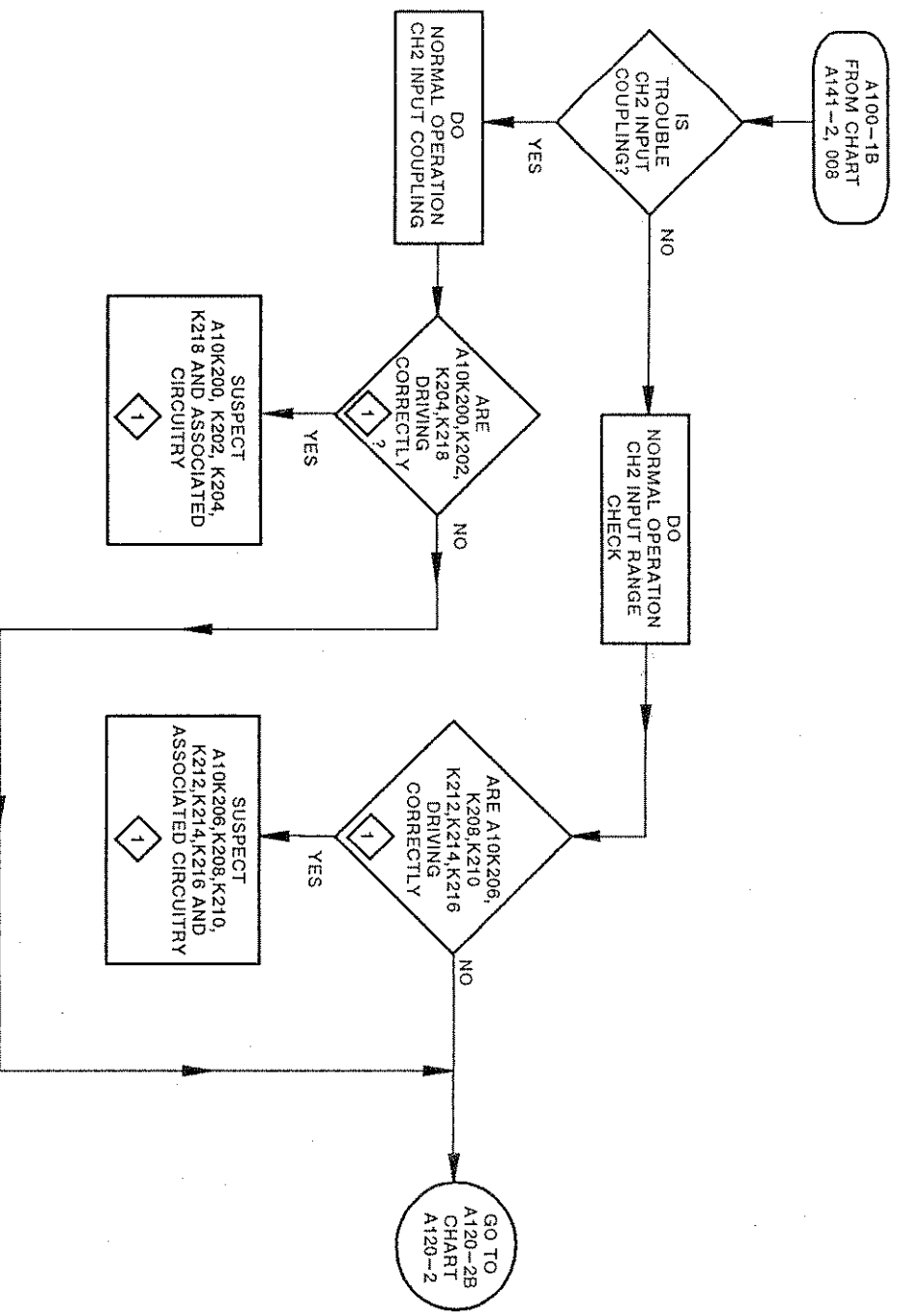
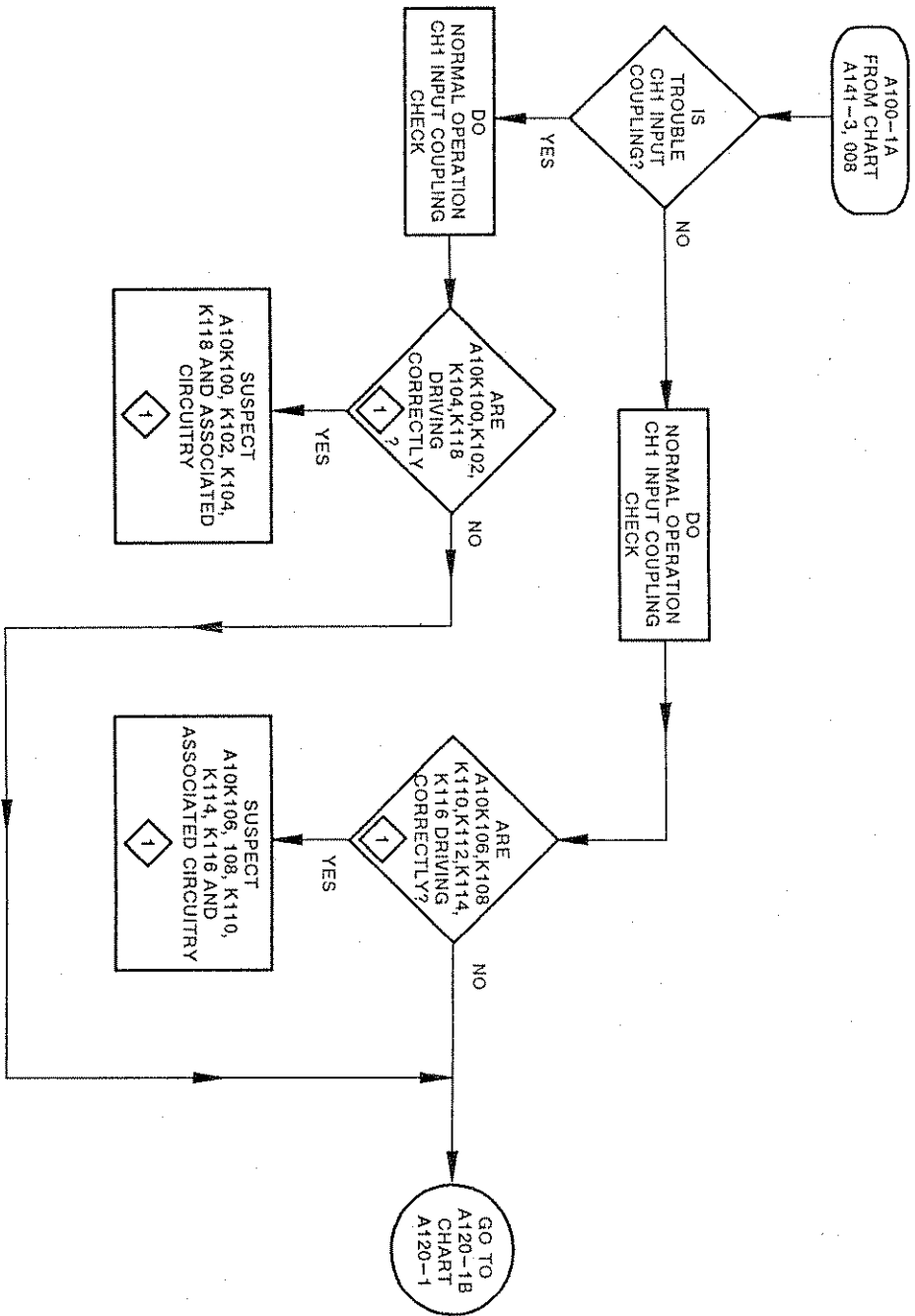


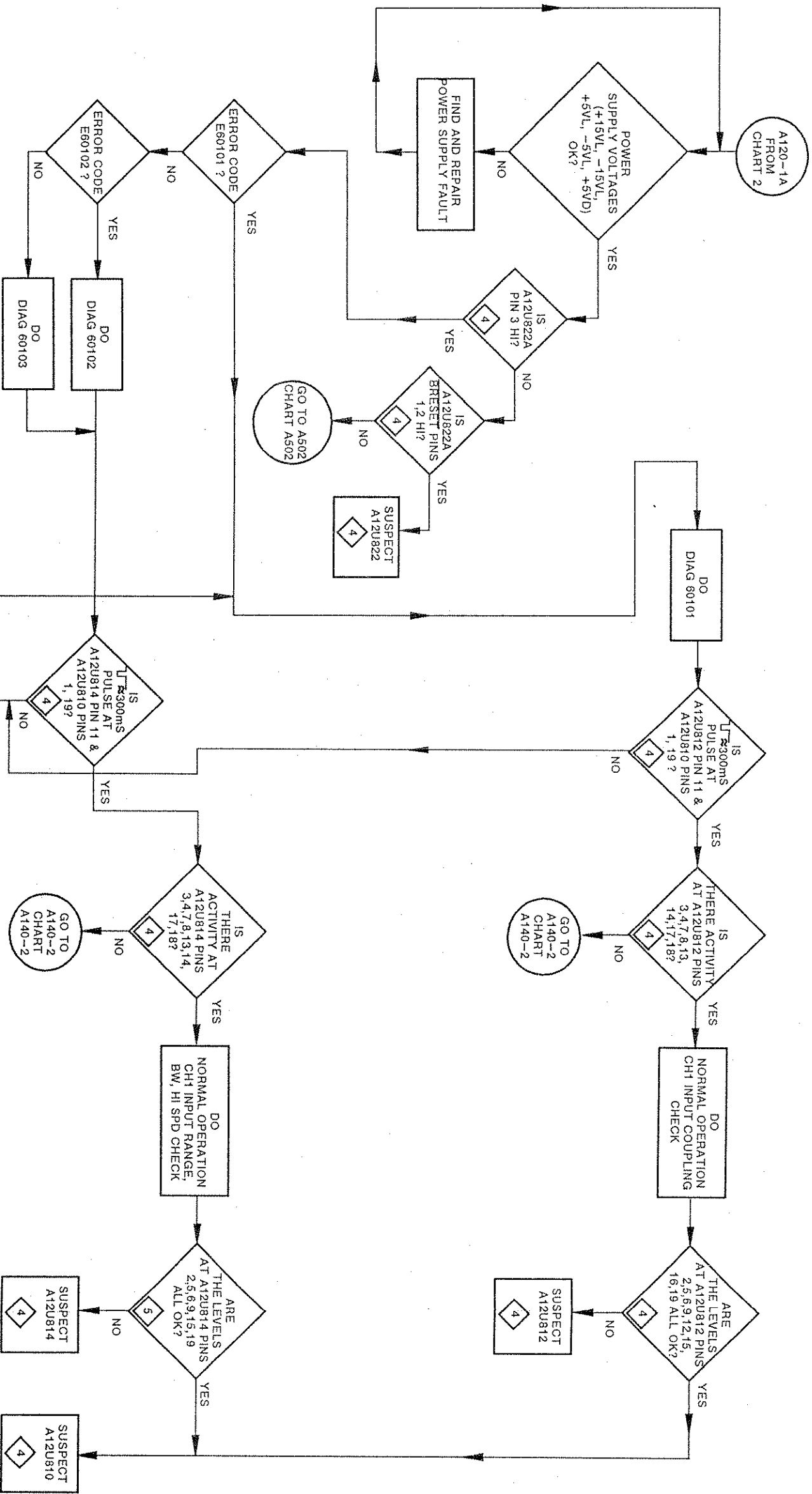


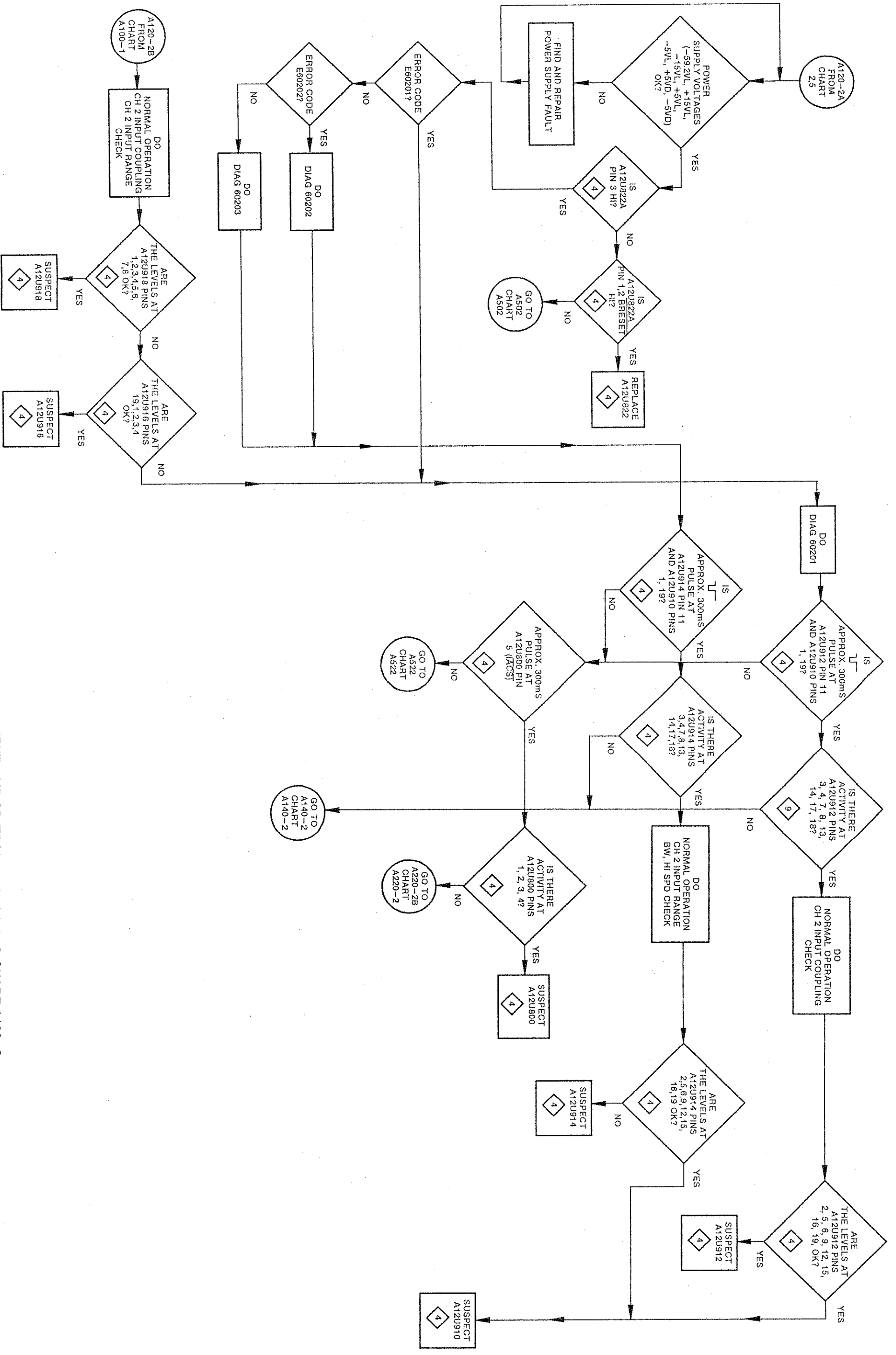
RTD 710A TROUBLESHOOTING CHART 5

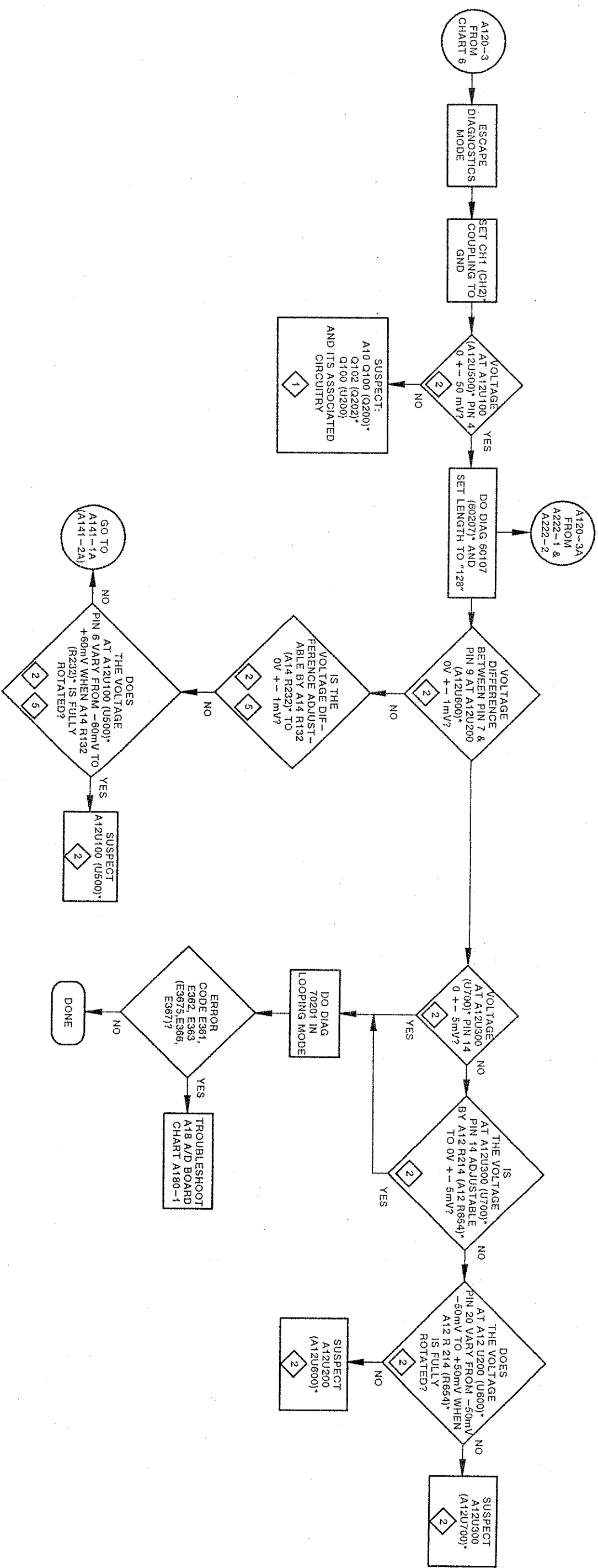


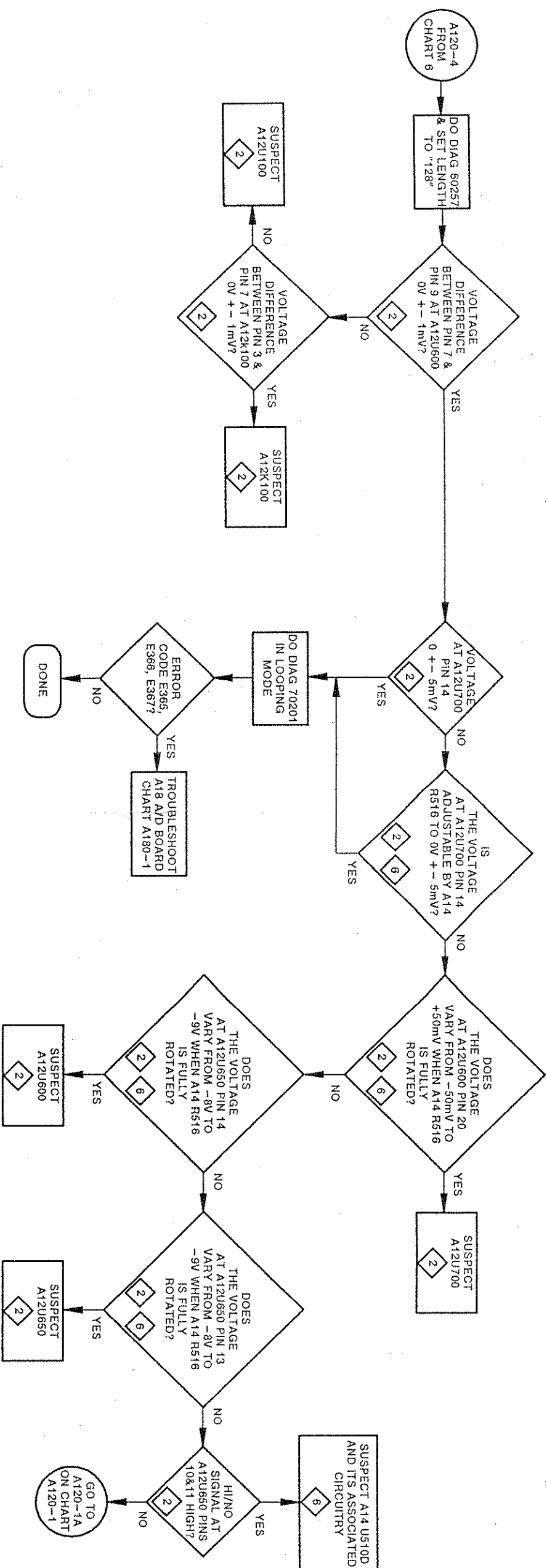


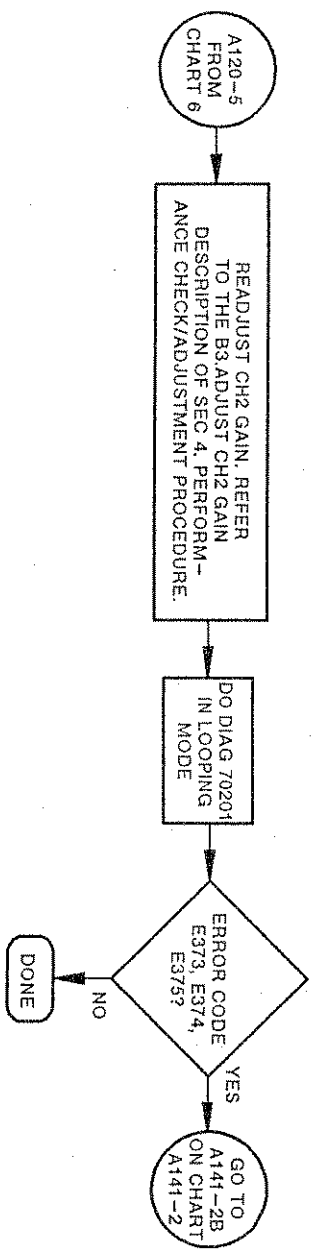


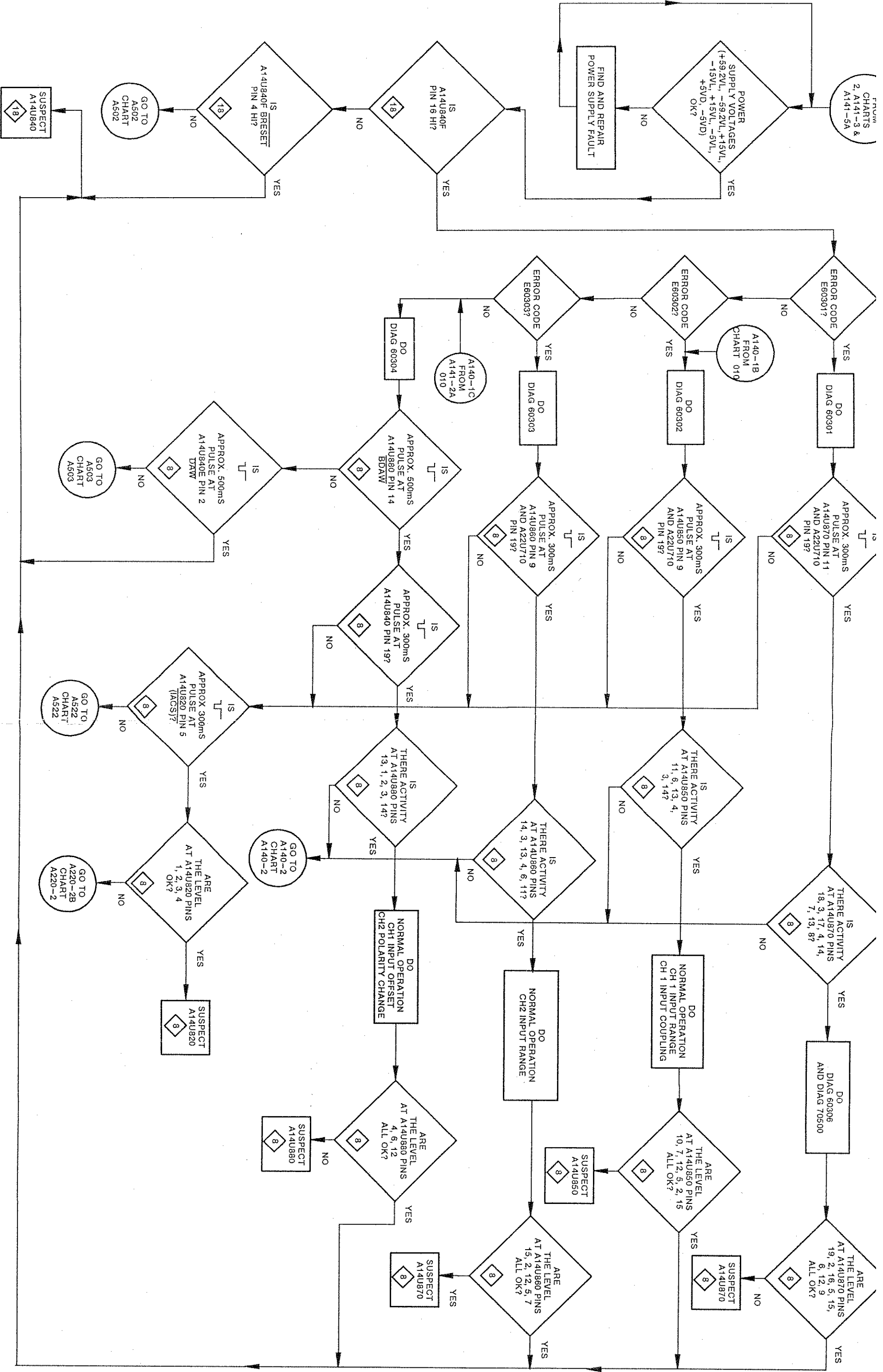






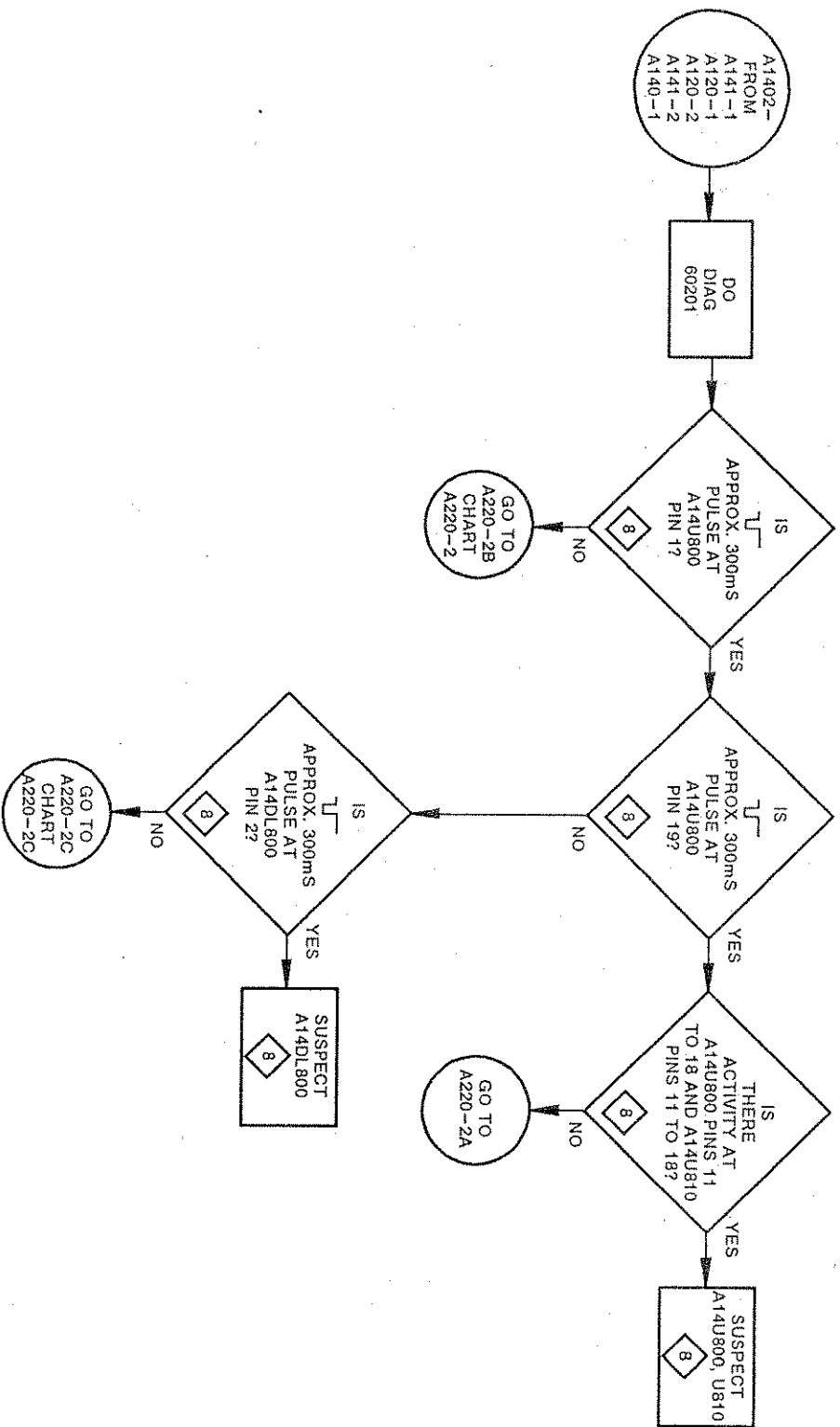


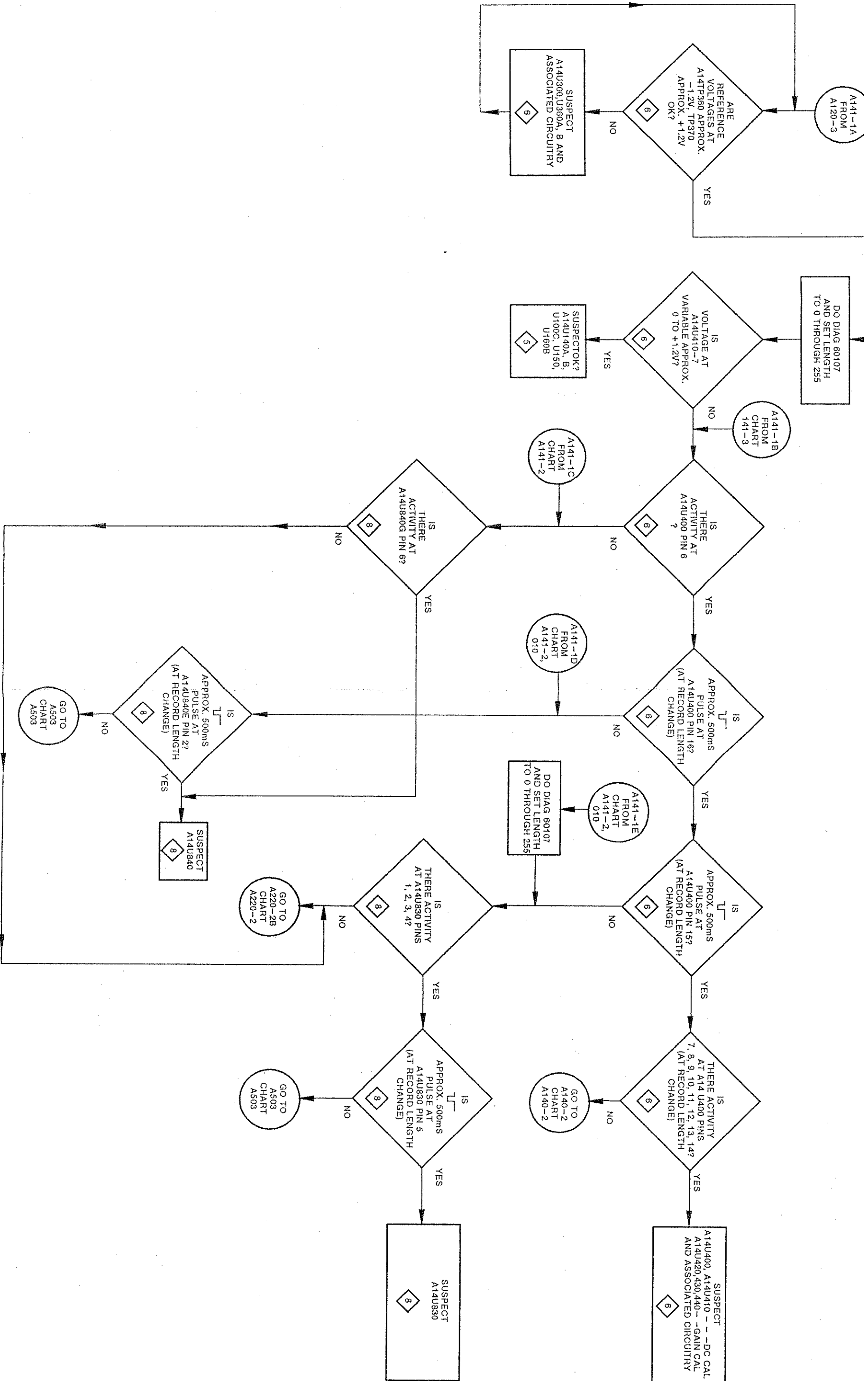


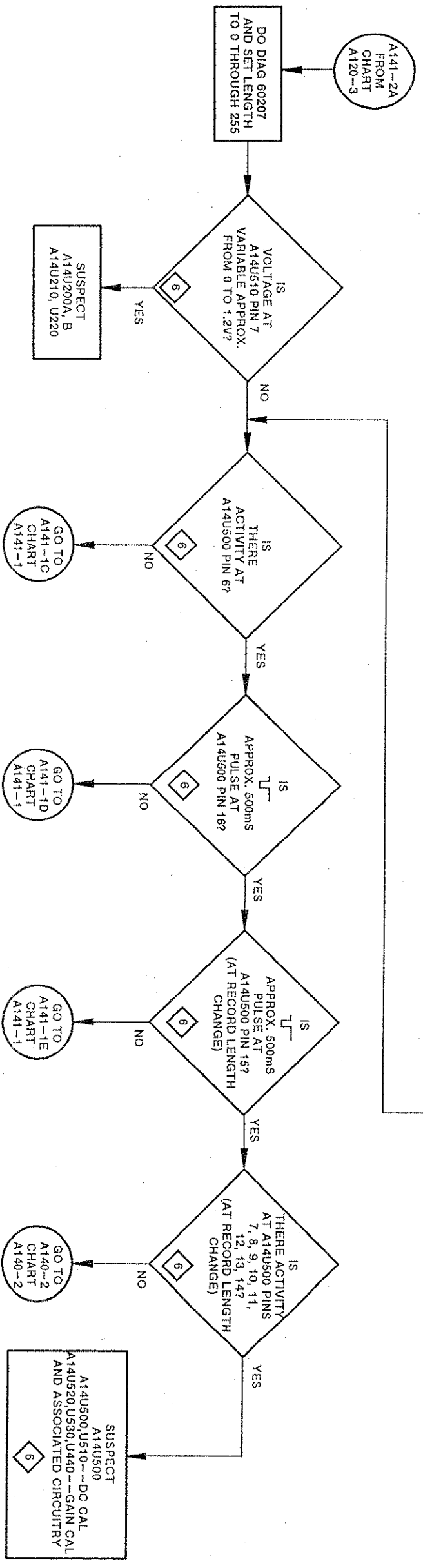
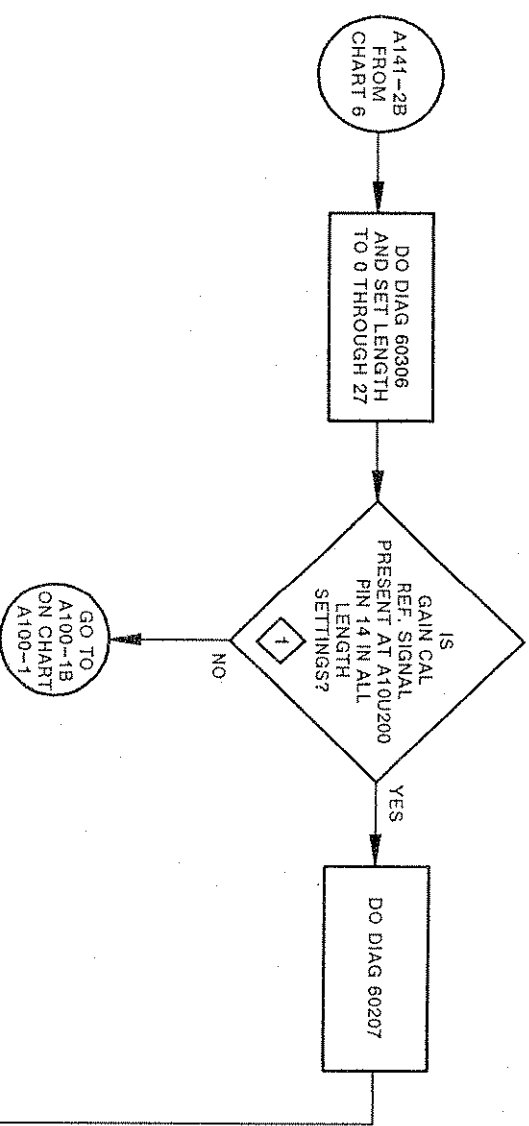


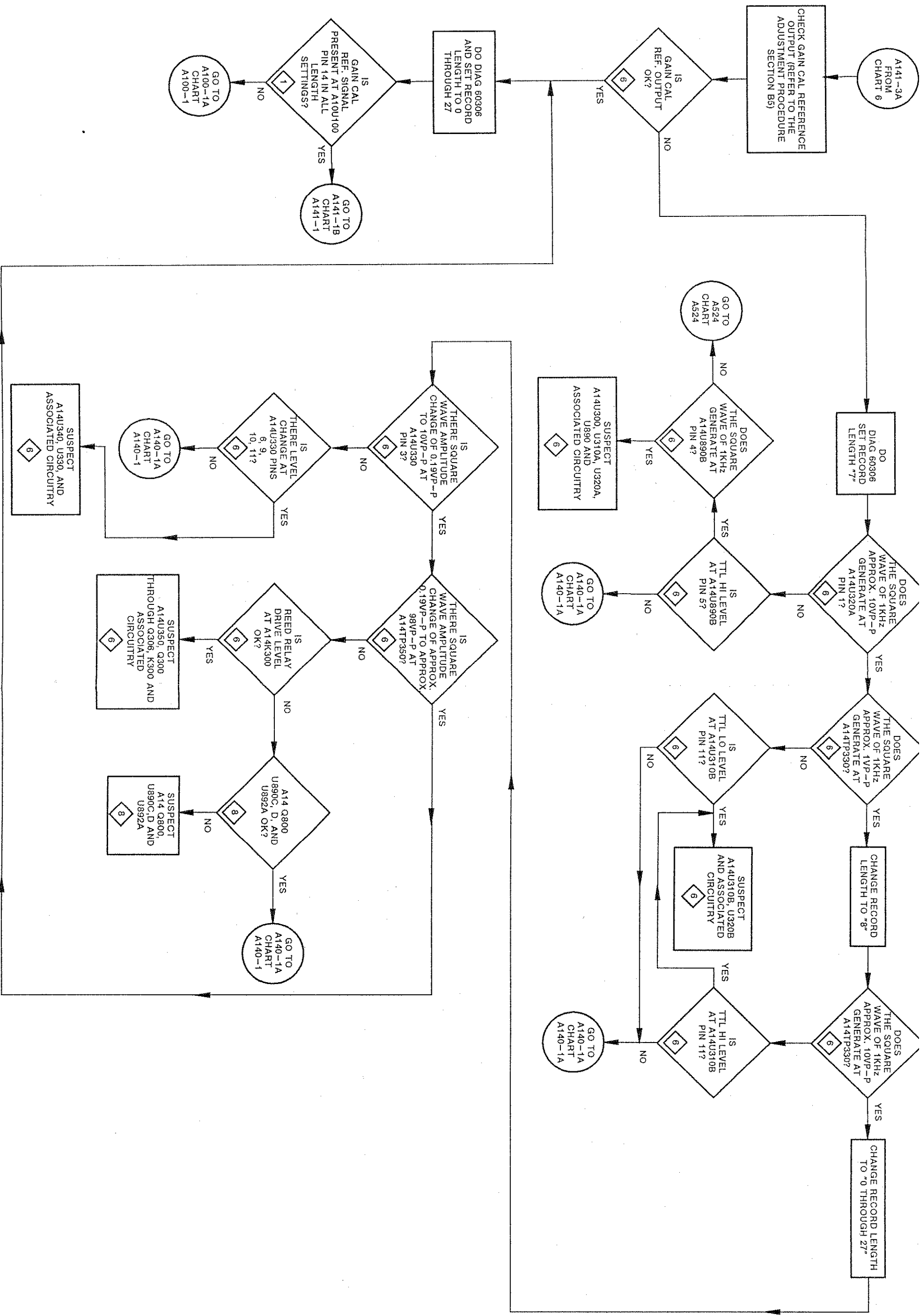
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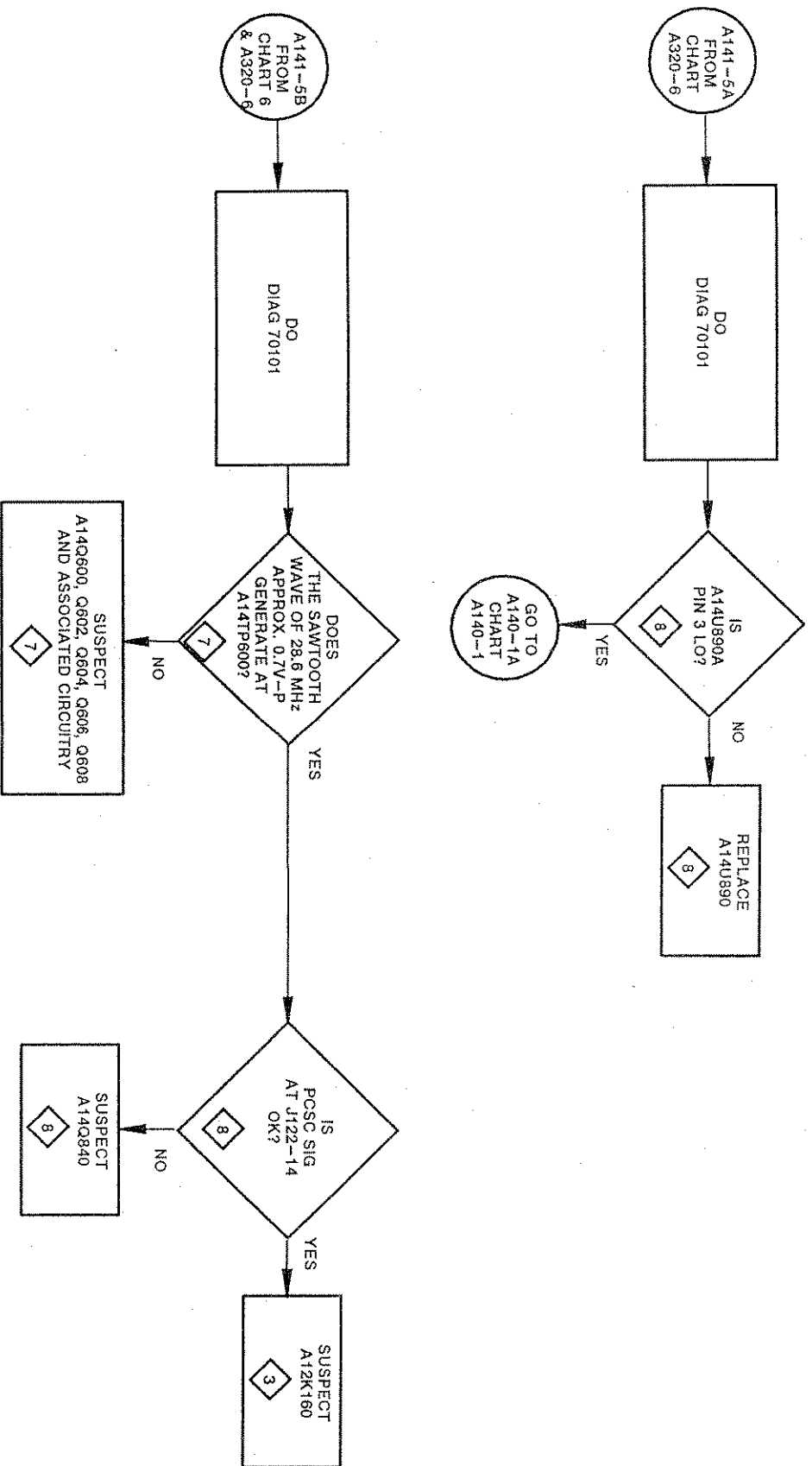
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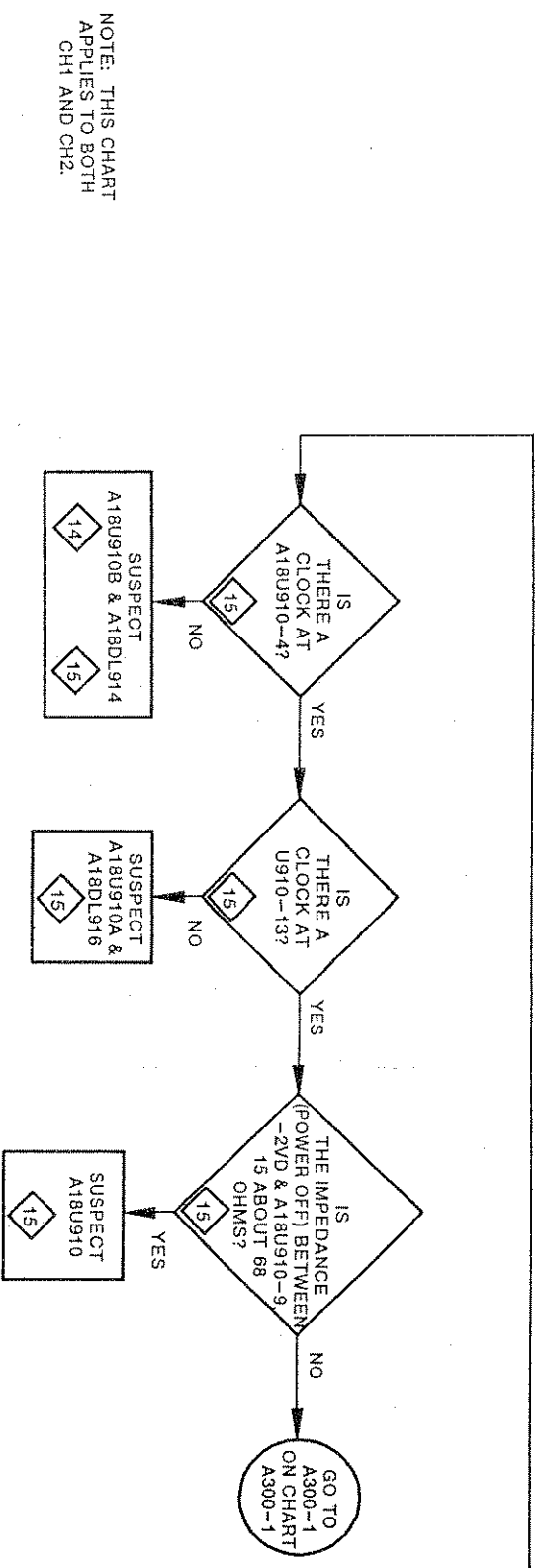
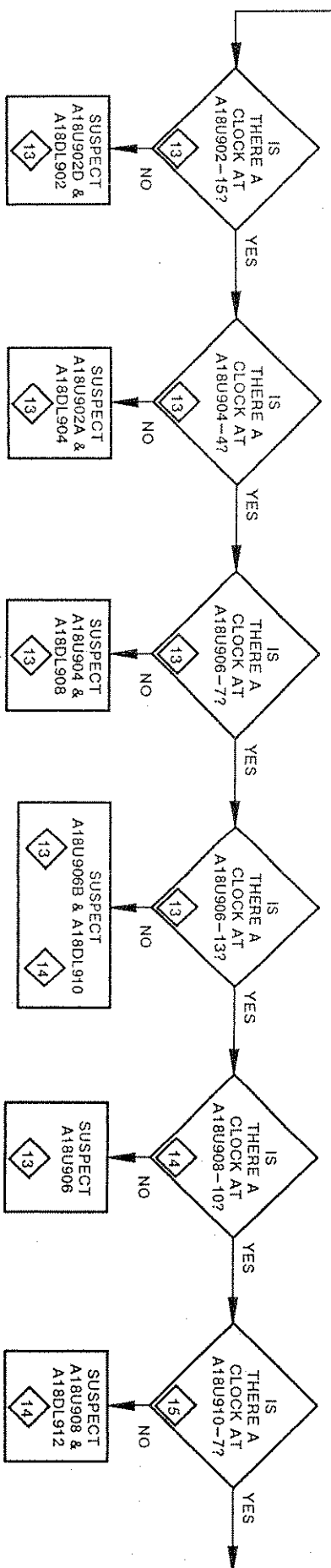
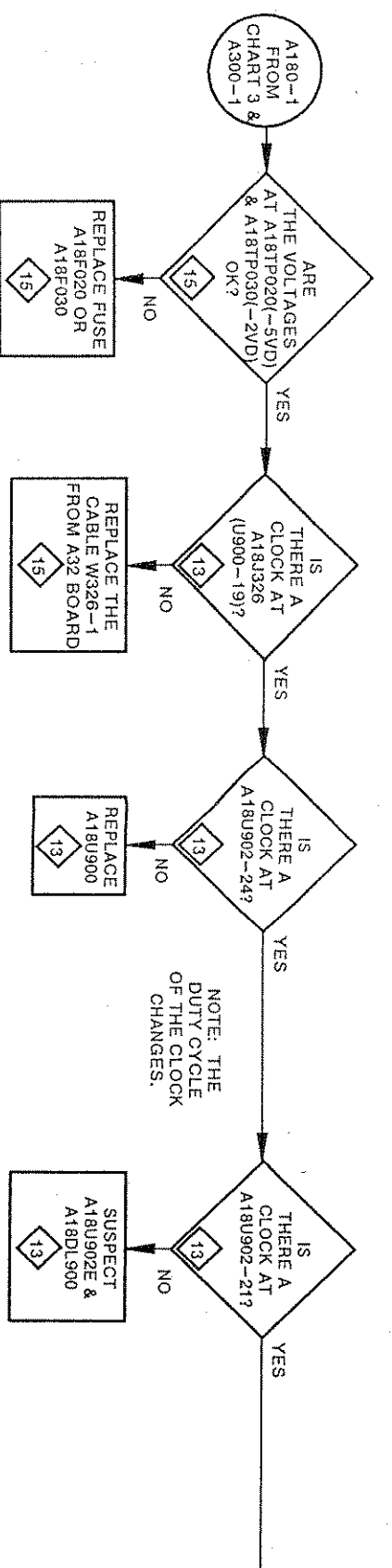






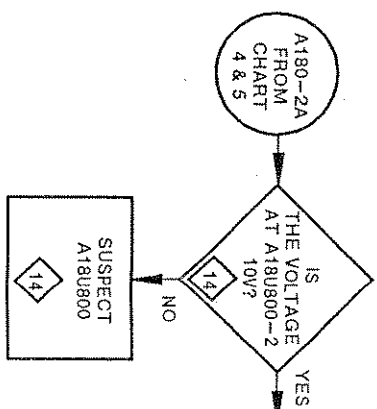






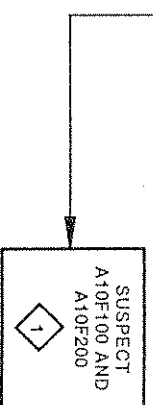
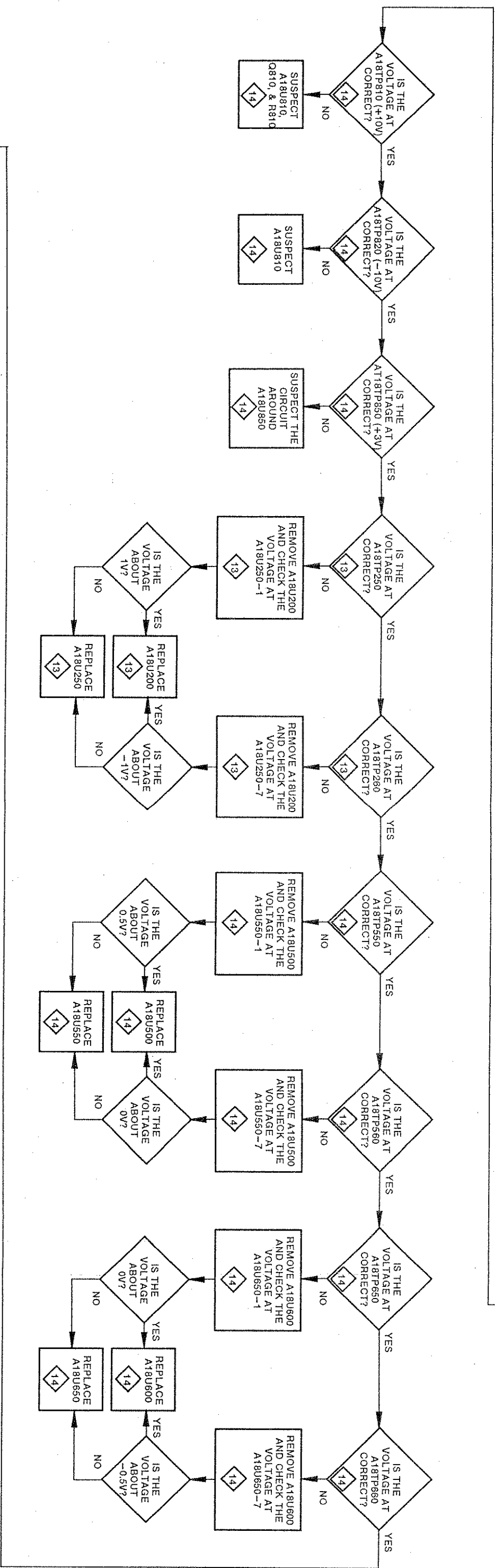
NOTE: THIS CHART APPLIES TO BOTH CH1 AND CH2.

- NOTE:
1. THIS CHART APPLIES TO BOTH CH1 AND CH2.
 2. PC/AP IS PERFORMANCE CHECK/ADJUSTMENT PROCEDURES.
 3. THIS CHART TESTS ANALOG CIRCUITS ON A/D BOARD.



CHECK A/D POWER SUPPLY VOLTAGES AS FOLLOWS:

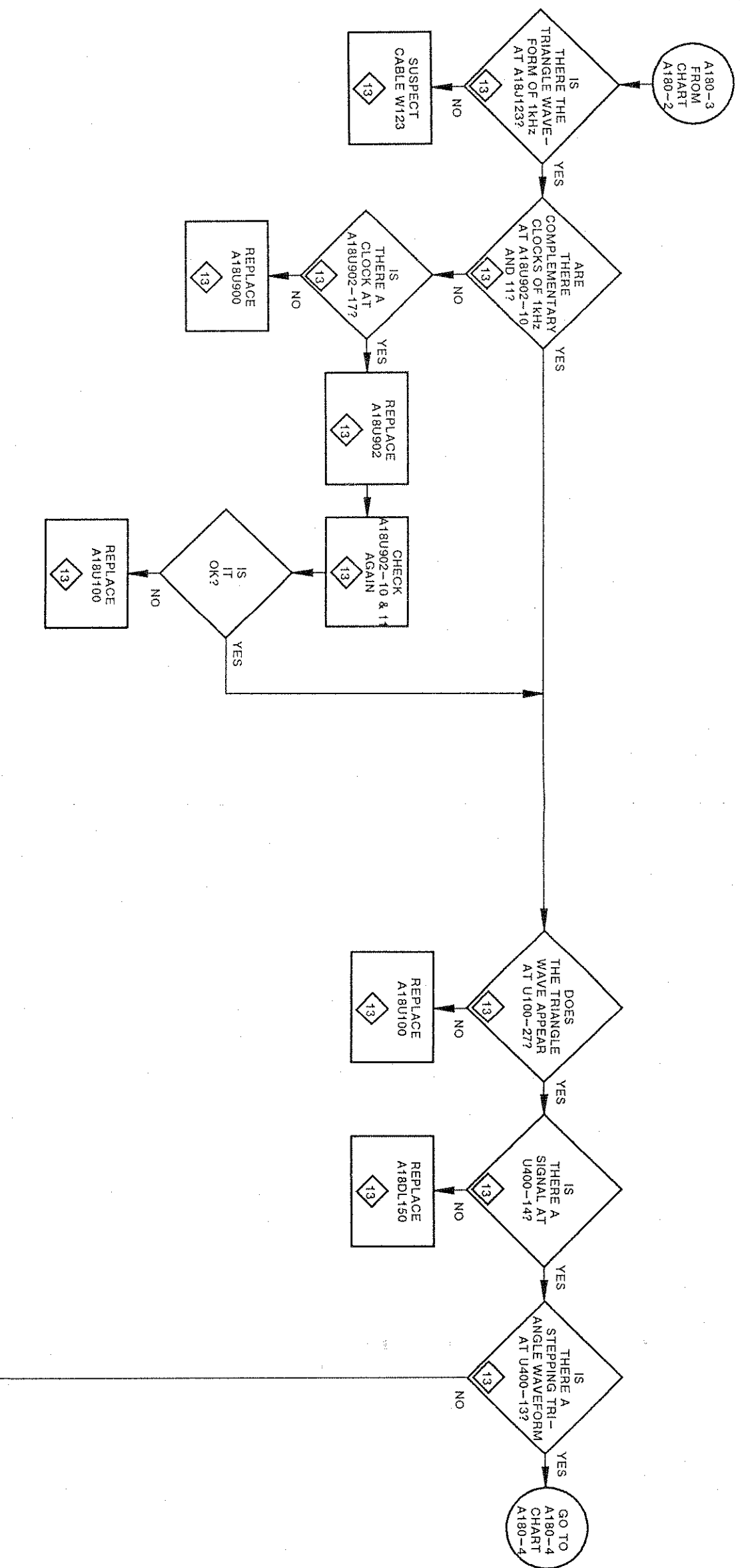
TP810	9.985 - 10.015	14	TP550	0.475 - 0.525	14
TP820	-9.750 - -10.250	14	TP560	-0.010 - 0.010	14
TP850	2.800 - 2.830	14	TP650	-0.025 - 0.025	14
TP250	-0.990 - 1.090	13	TP660	-0.475 - -0.525	14
TP260	-0.900 - -1.000	13			

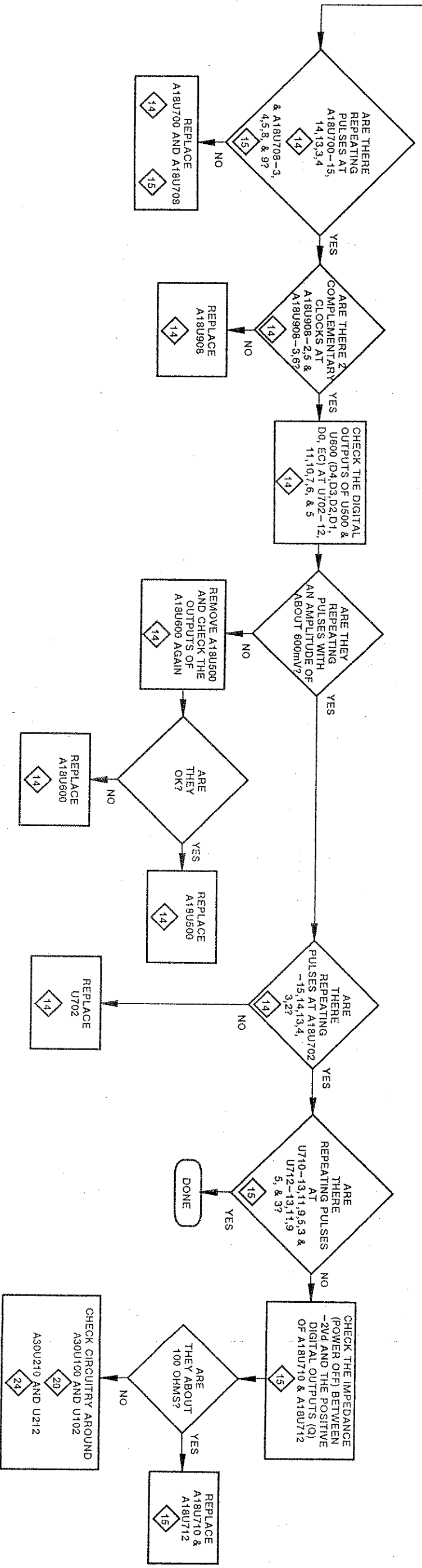
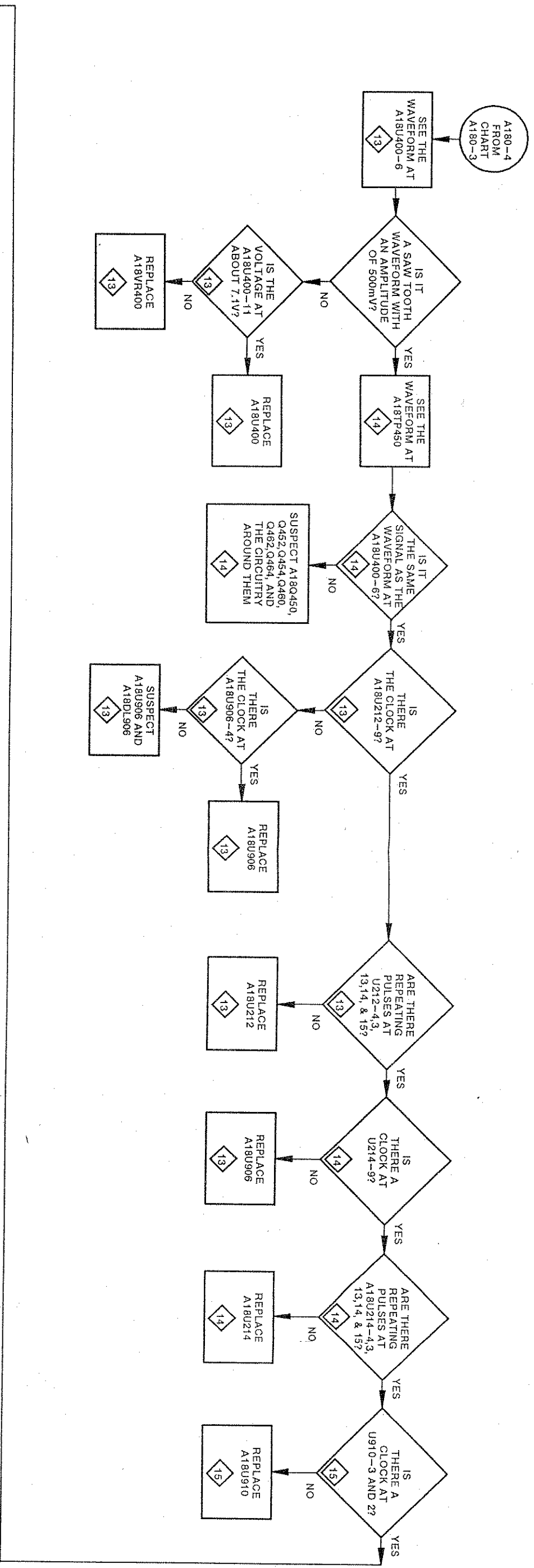


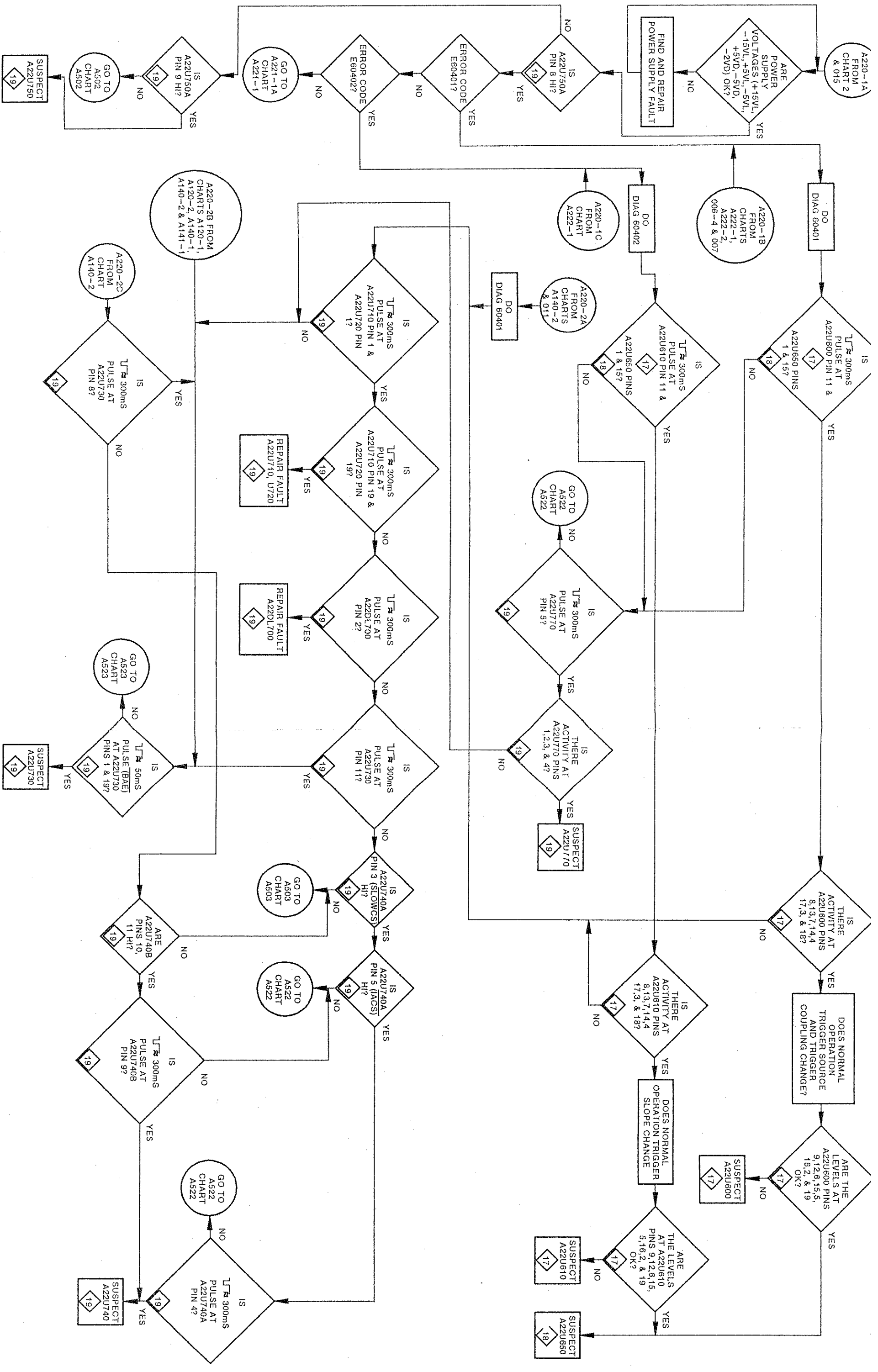
SET THE RTD 710A AS FOLLOWS:
 CH1 (CH2) COUPLING: DC
 CH1 (CH2) RANGE: 800 mV
 SAMPLE INTERNAL: 100 ns

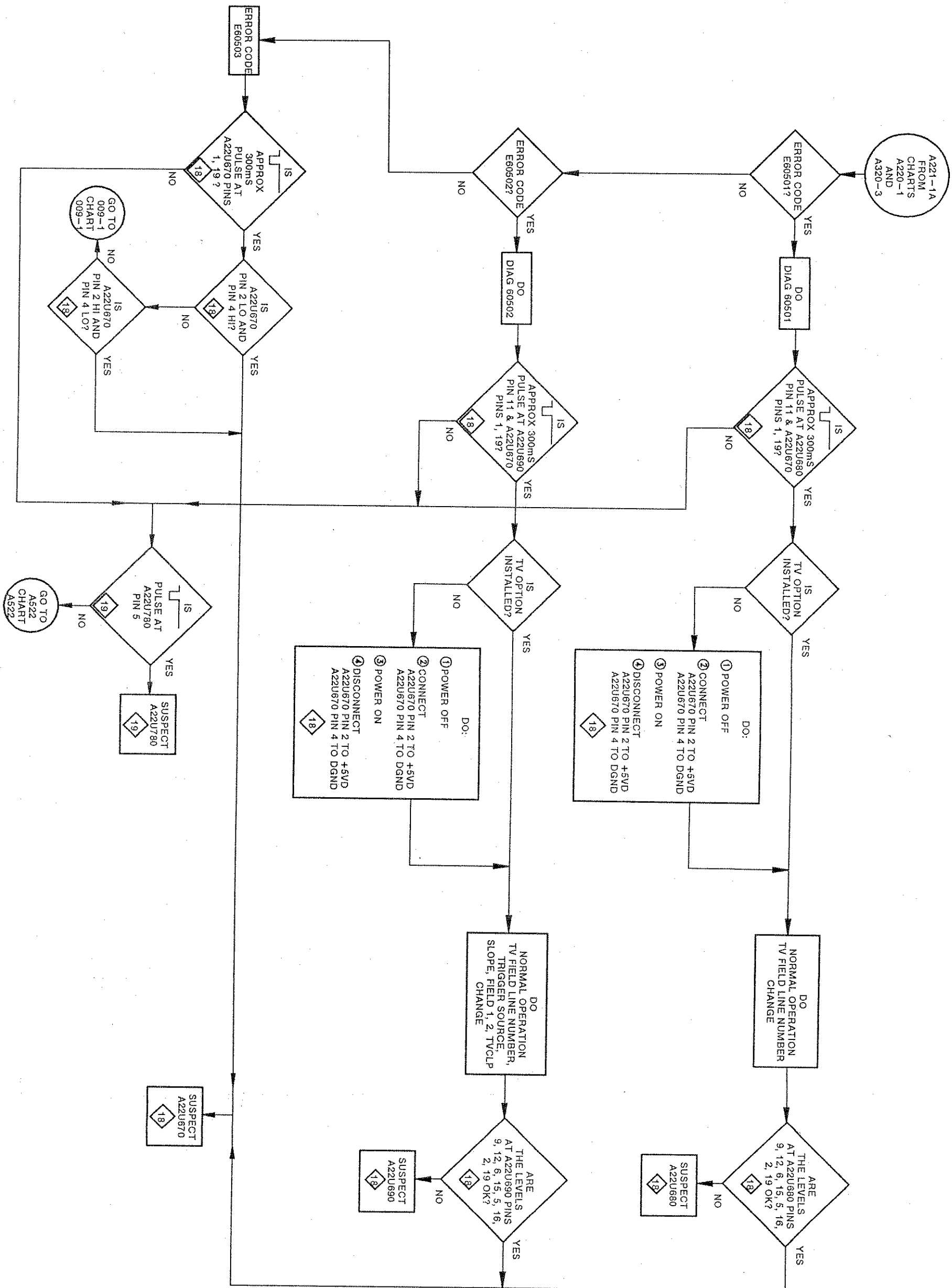
INPUT A TRIANGLE WAVEFORM
 TO CH1 (CH2) AS FOLLOWS:
 AMPLITUDE: + - 600 mV
 FREQUENCY: 1 kHz

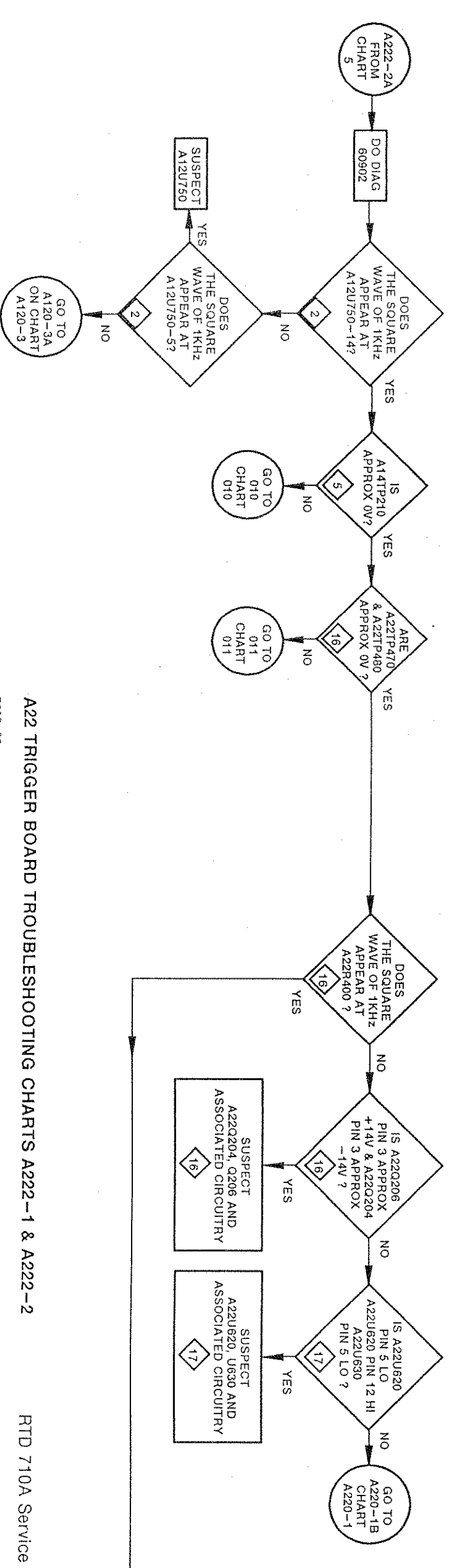
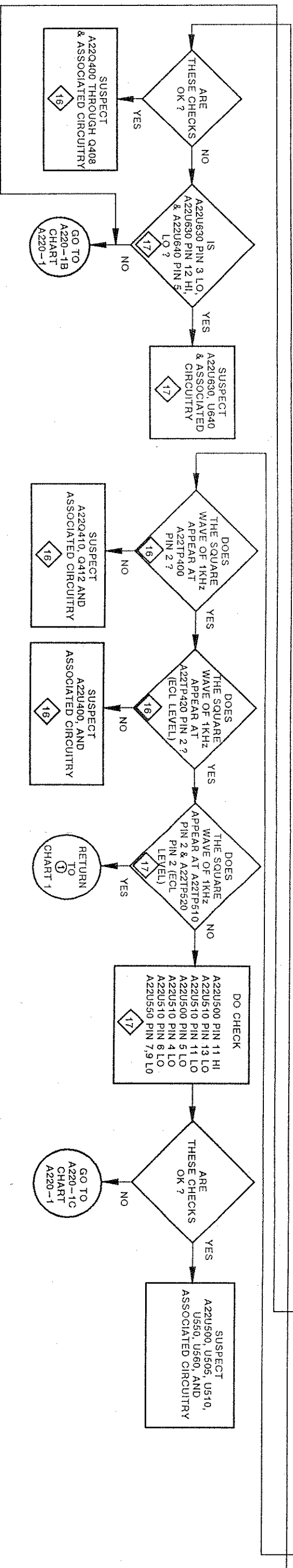
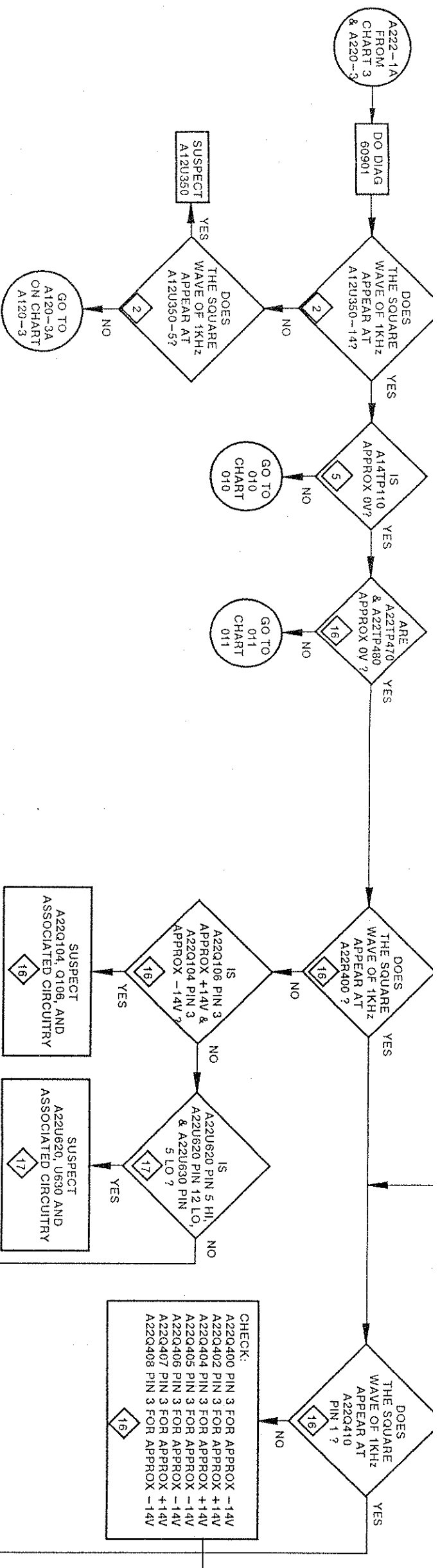


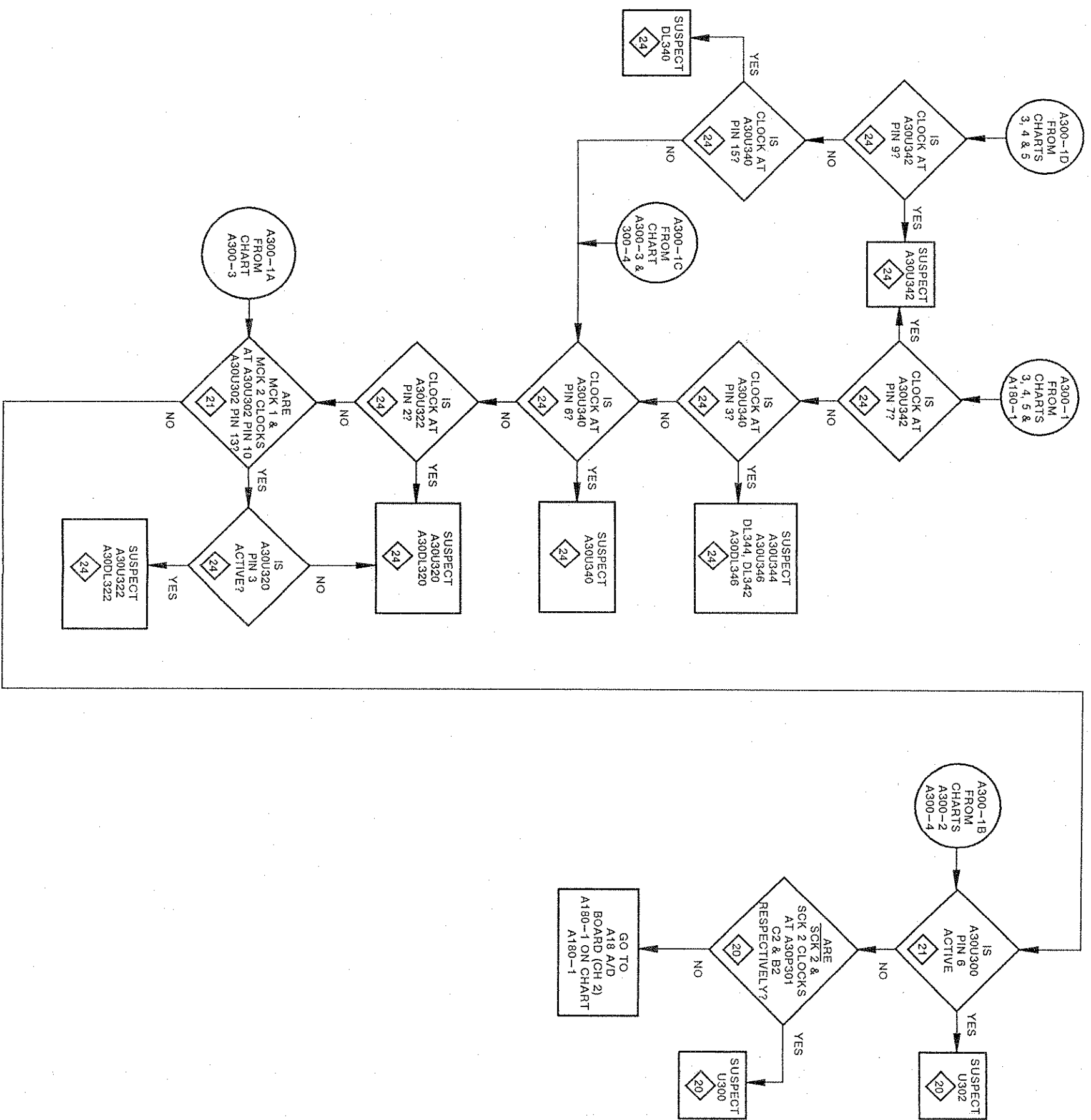


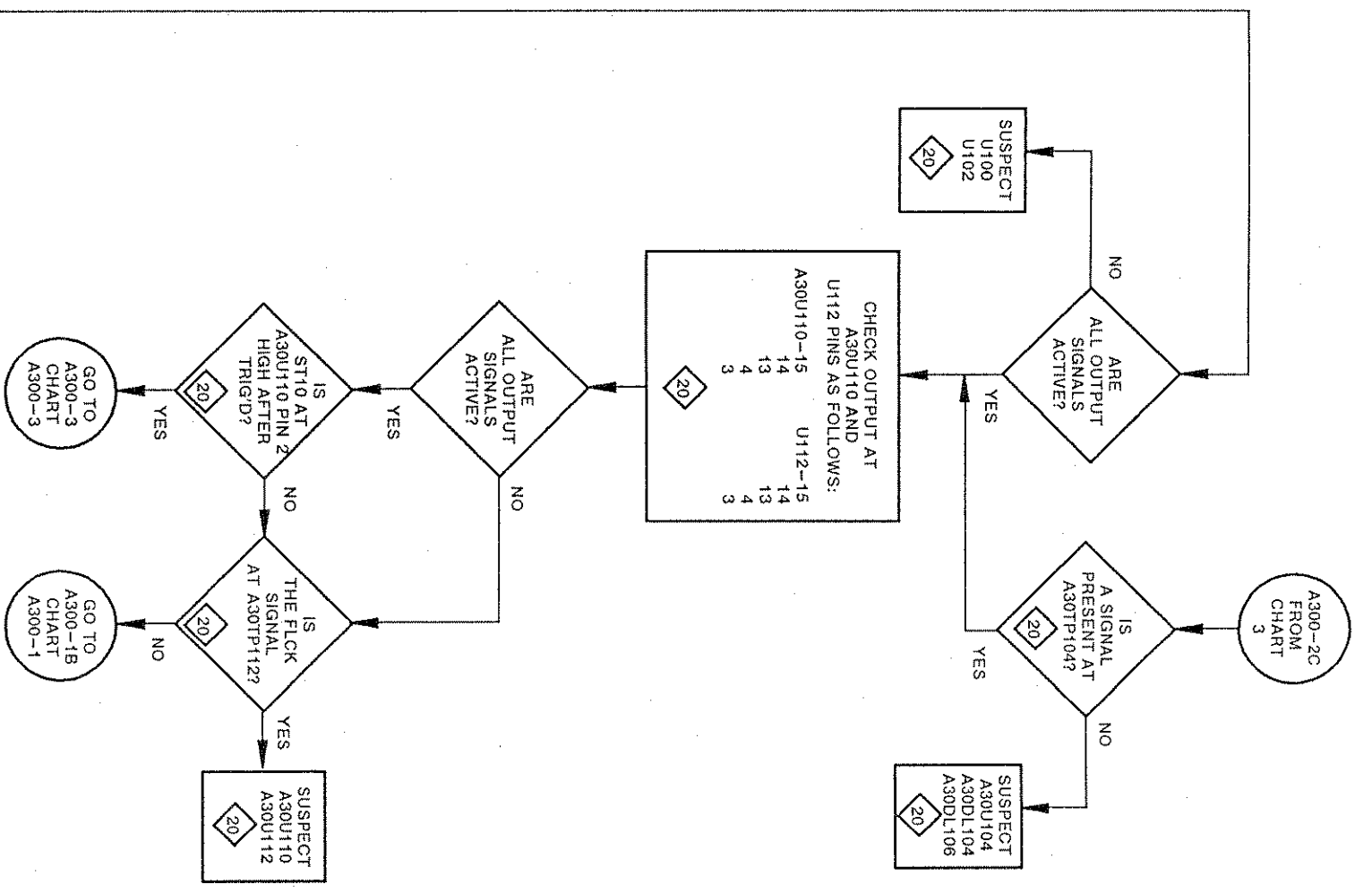
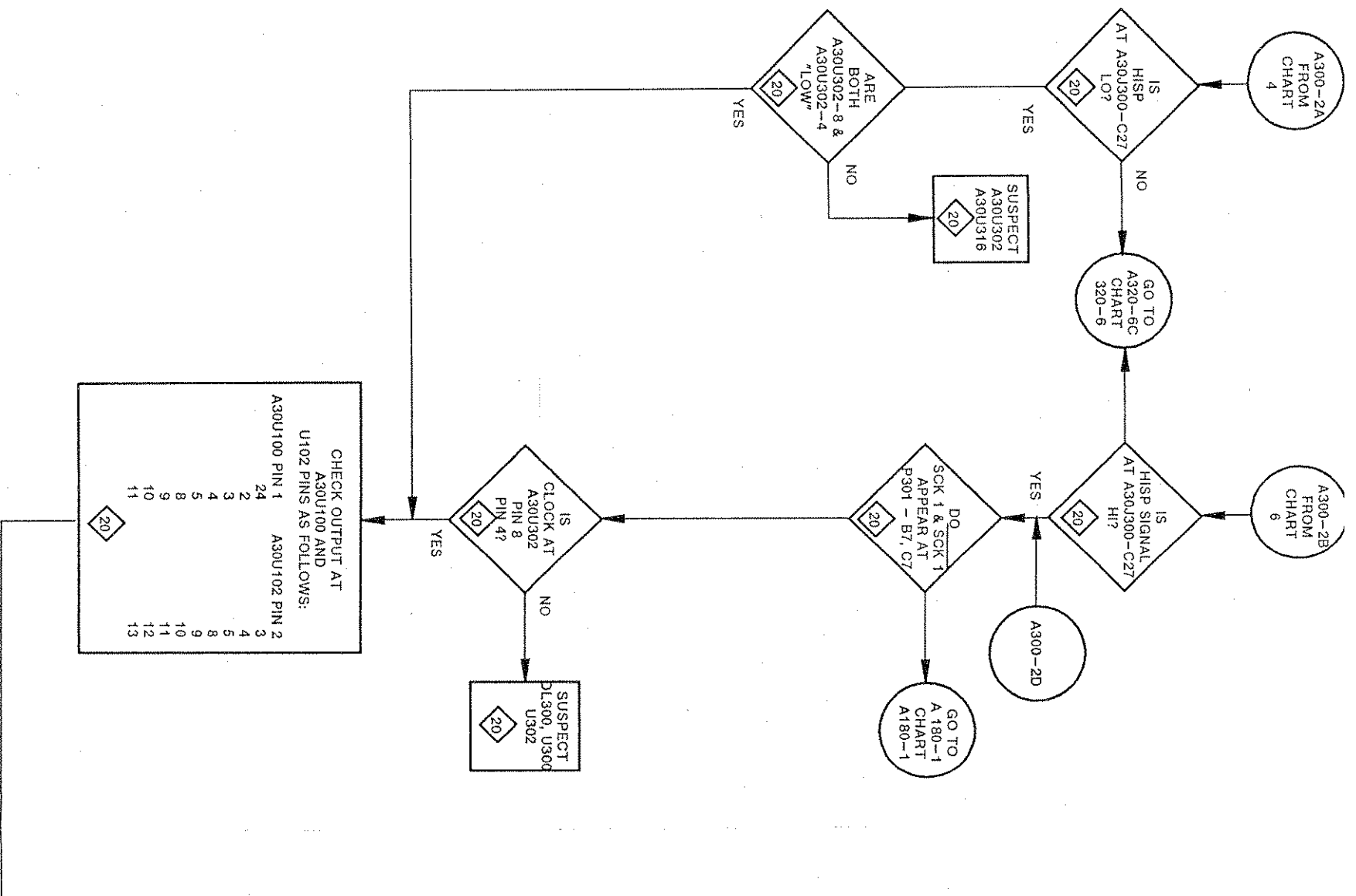


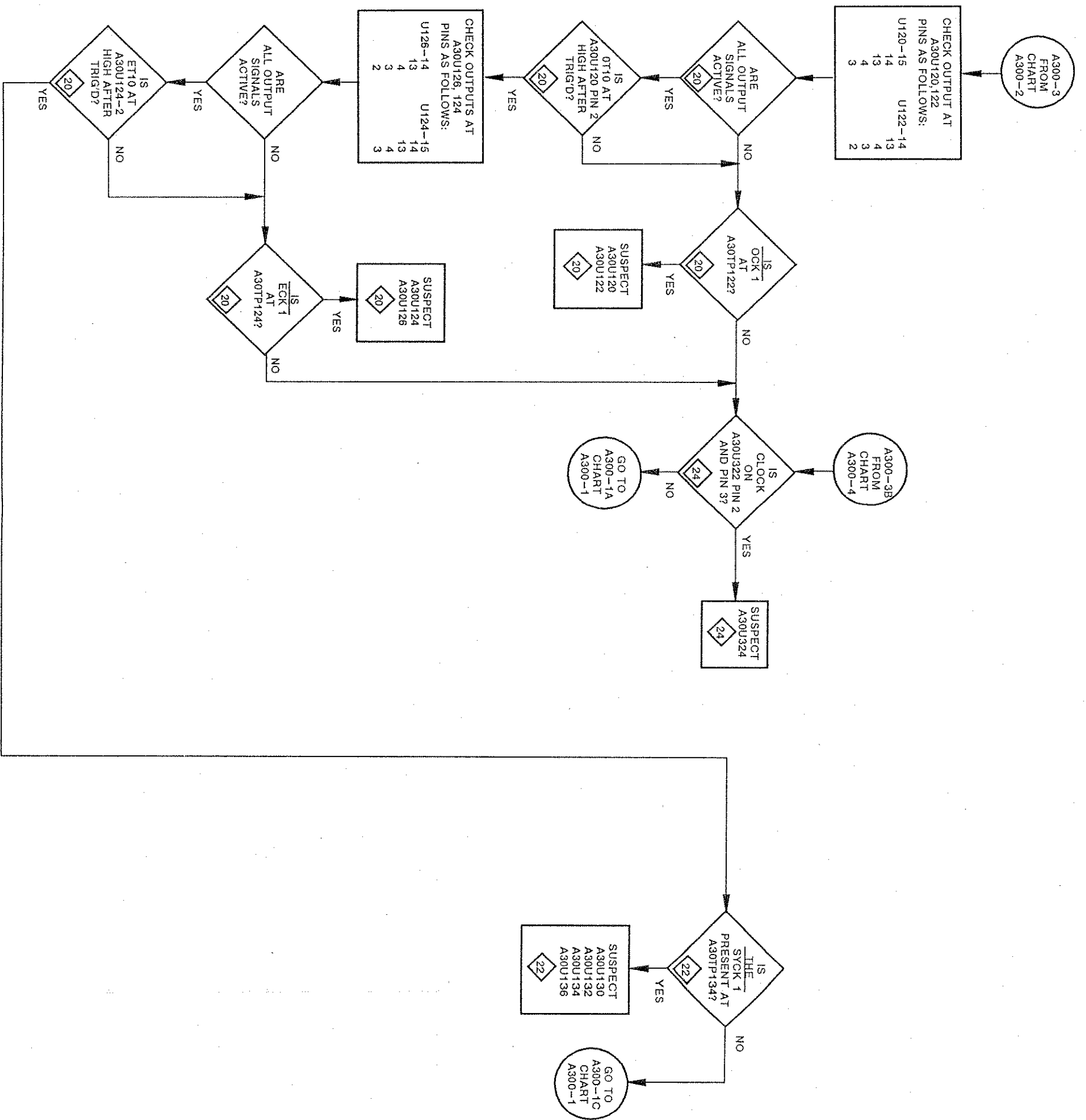


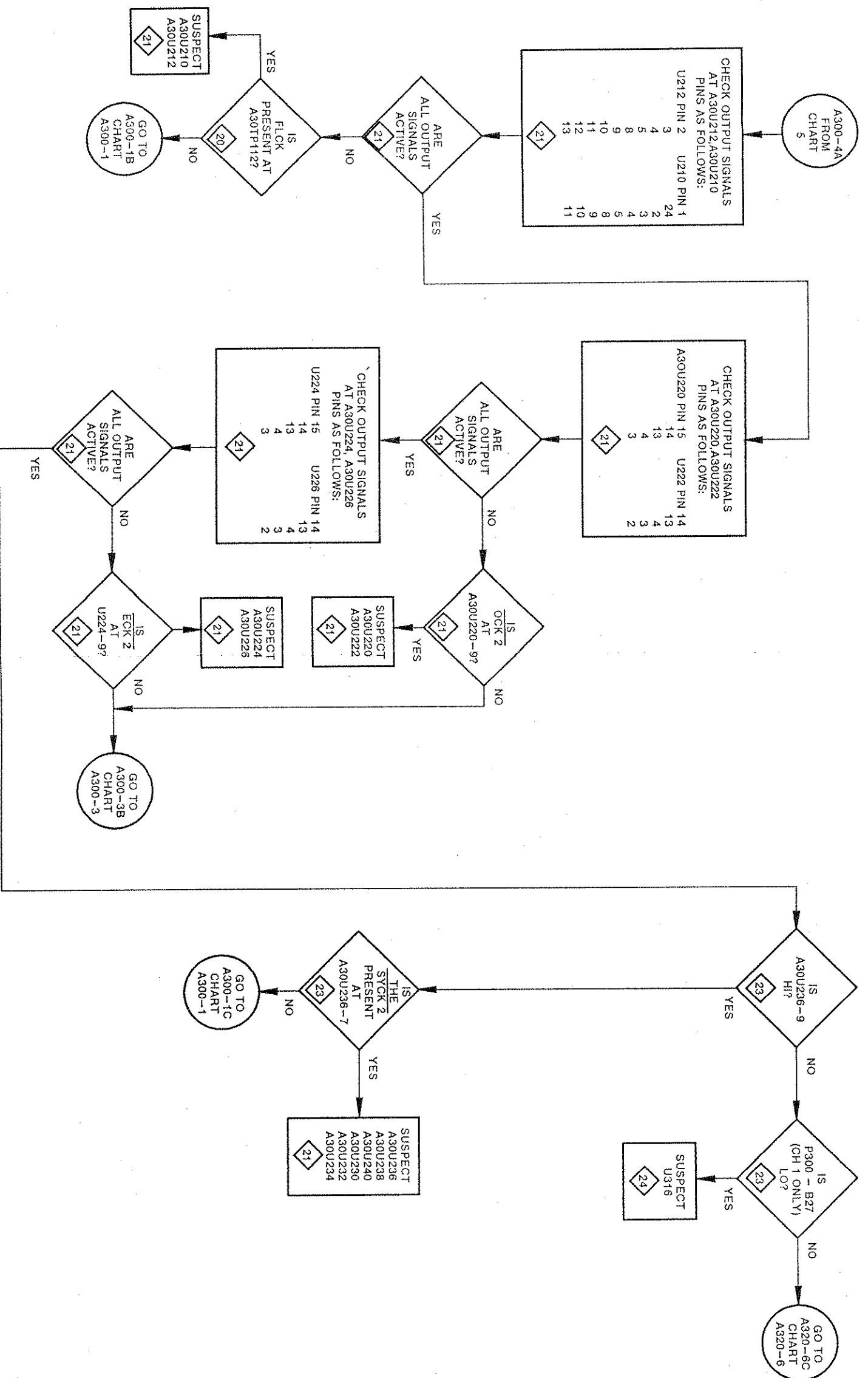


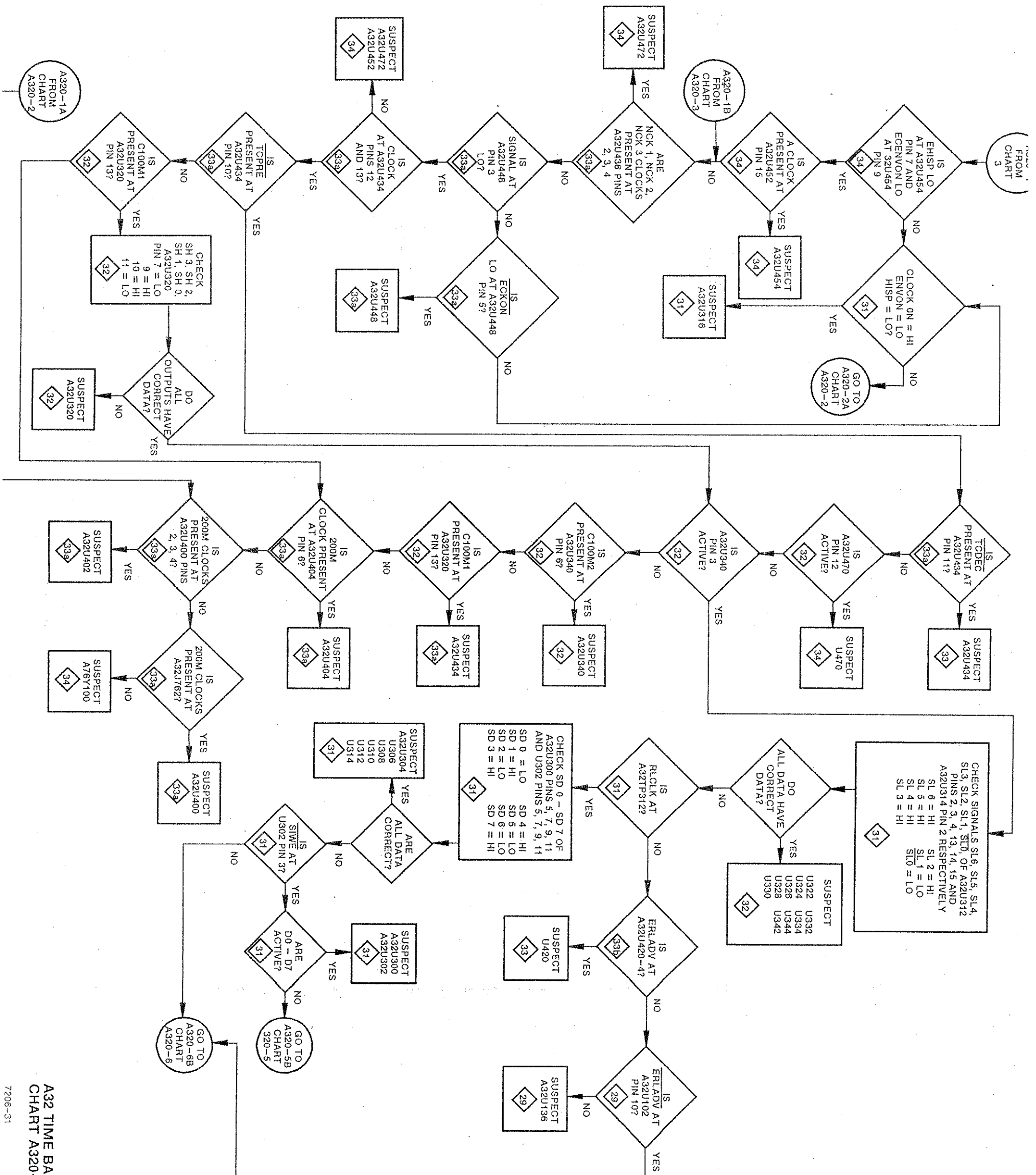




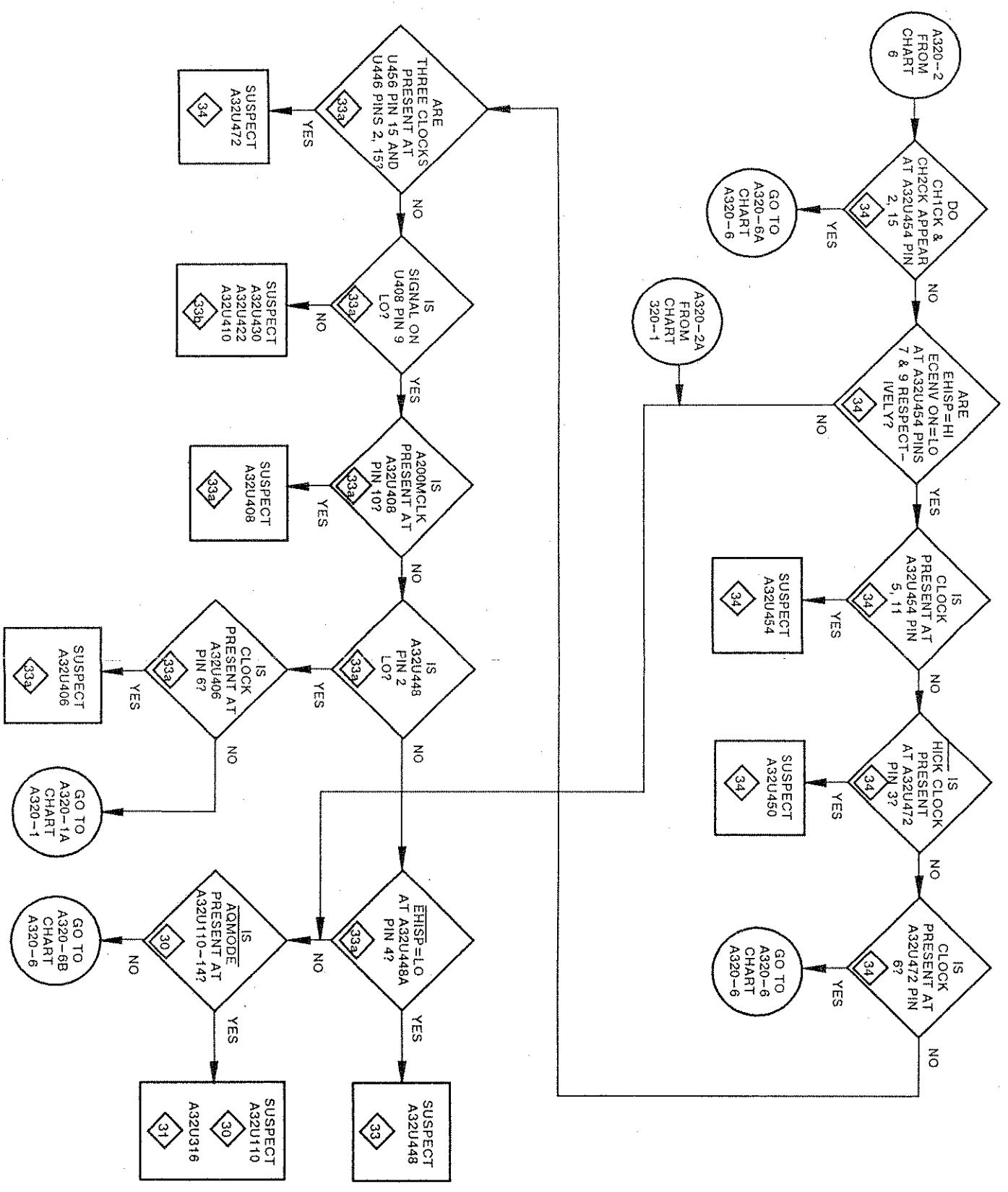


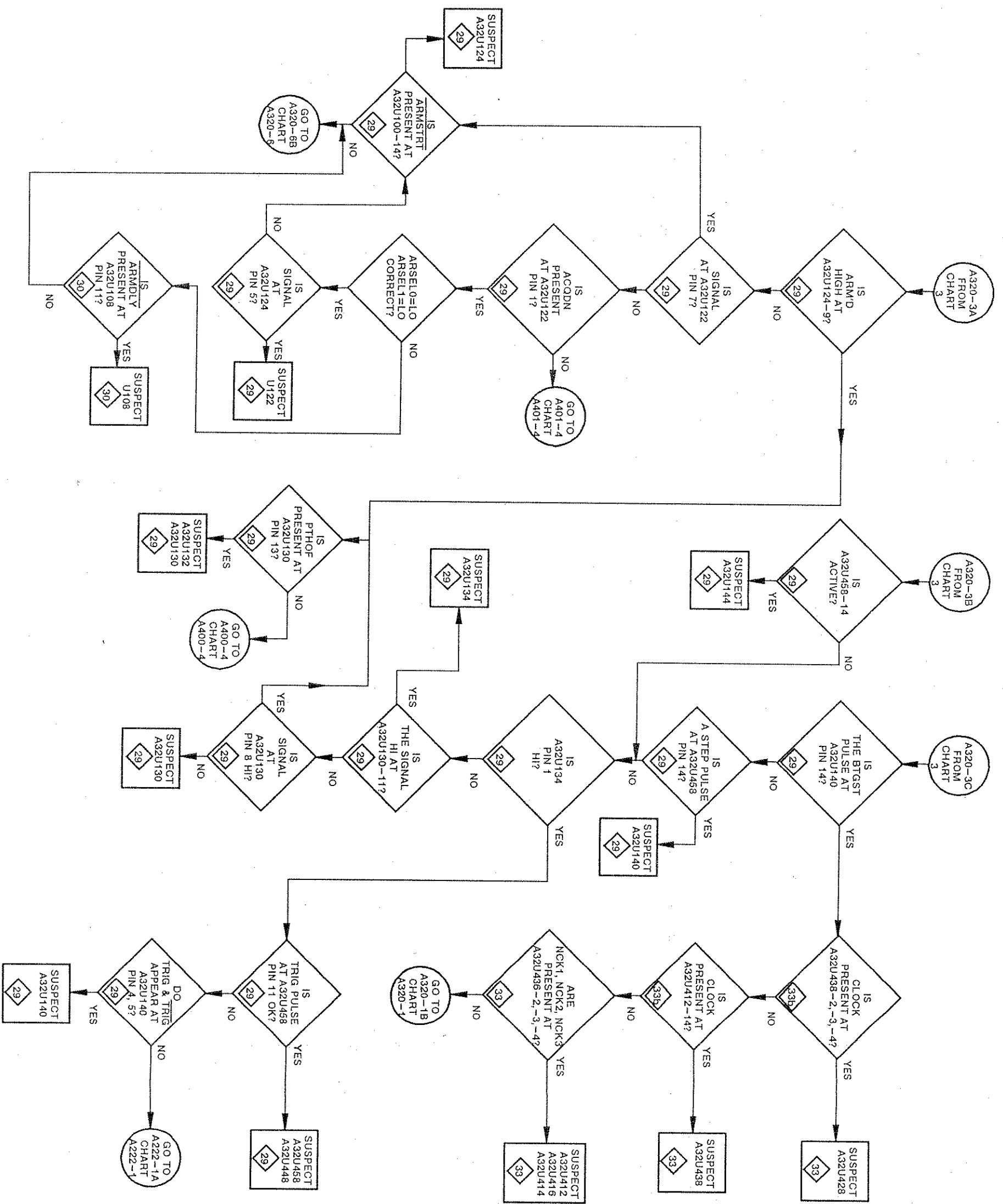


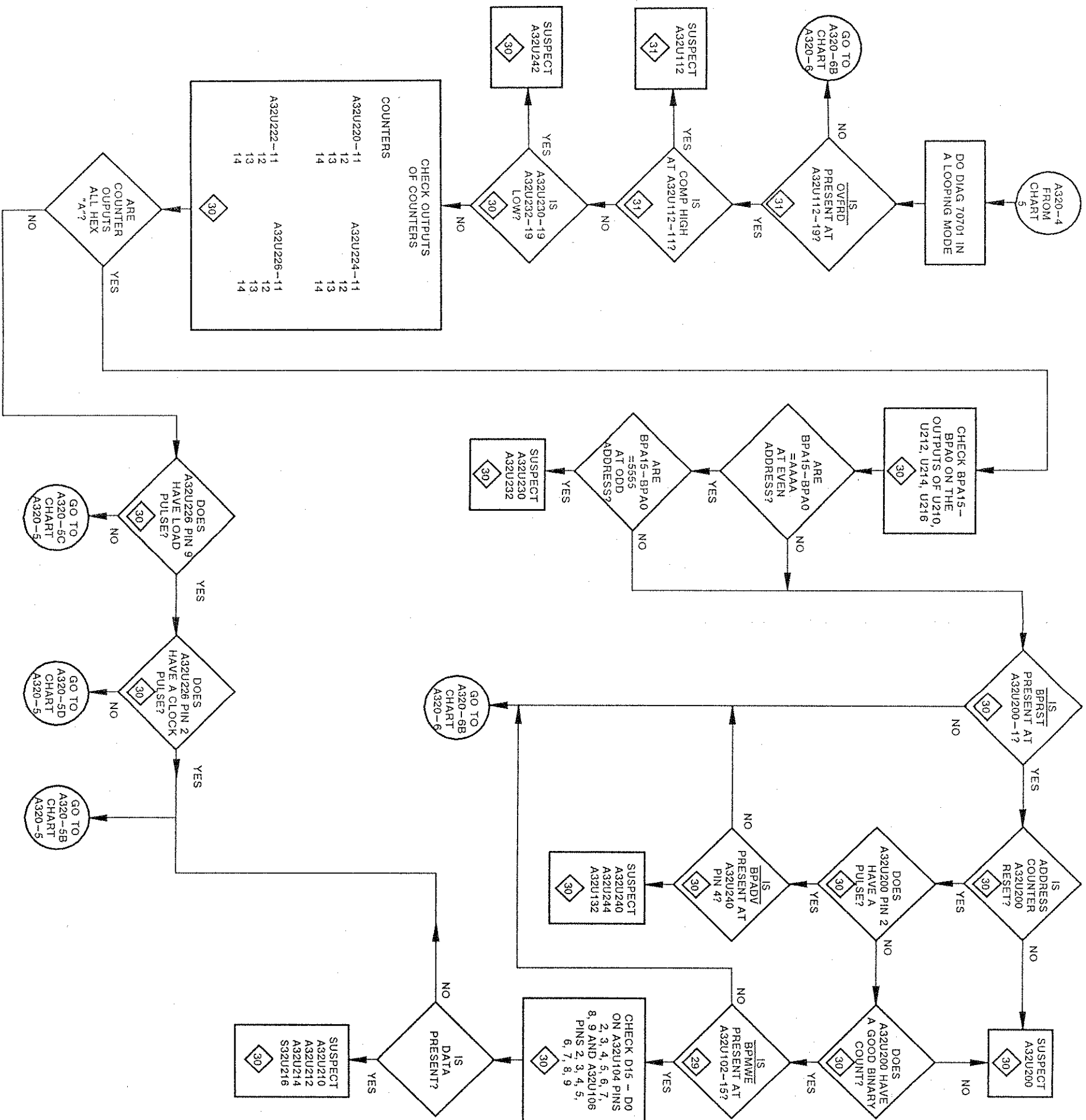




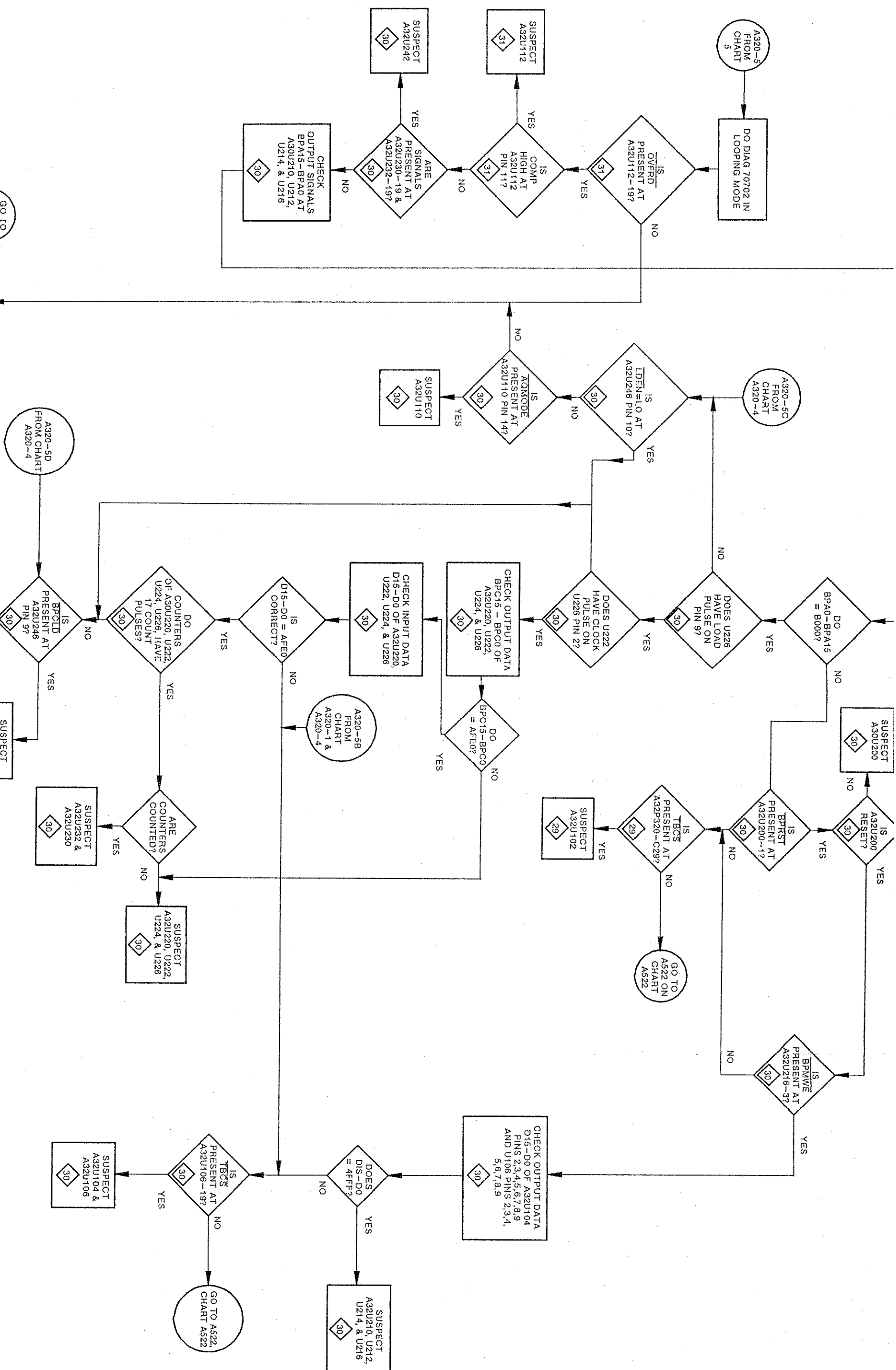
A32 TIME BASE TROUBLE SHOOTING
CHART A320-1



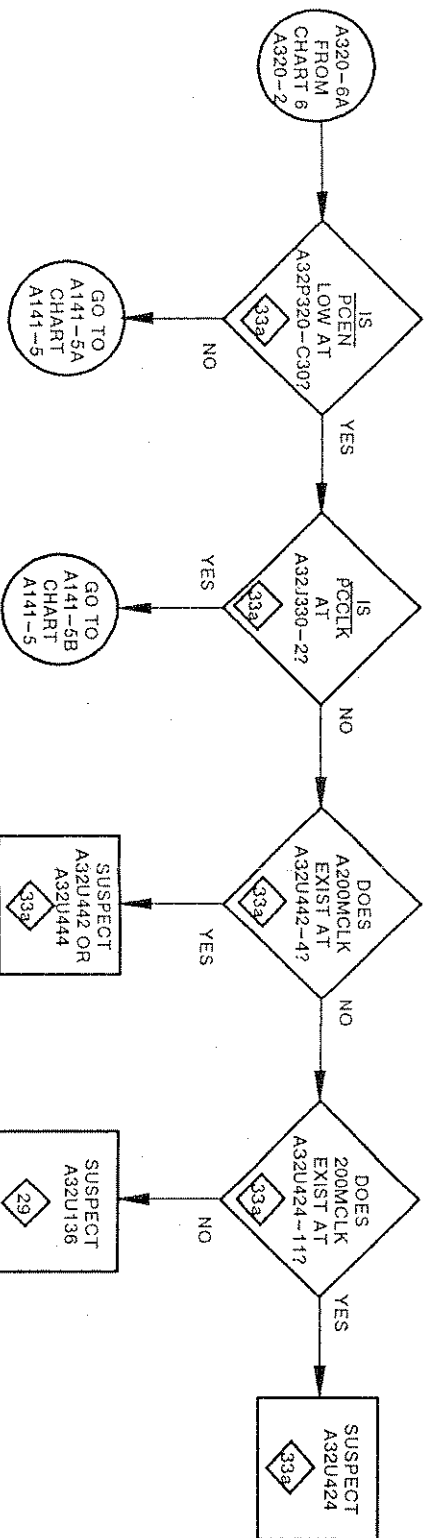
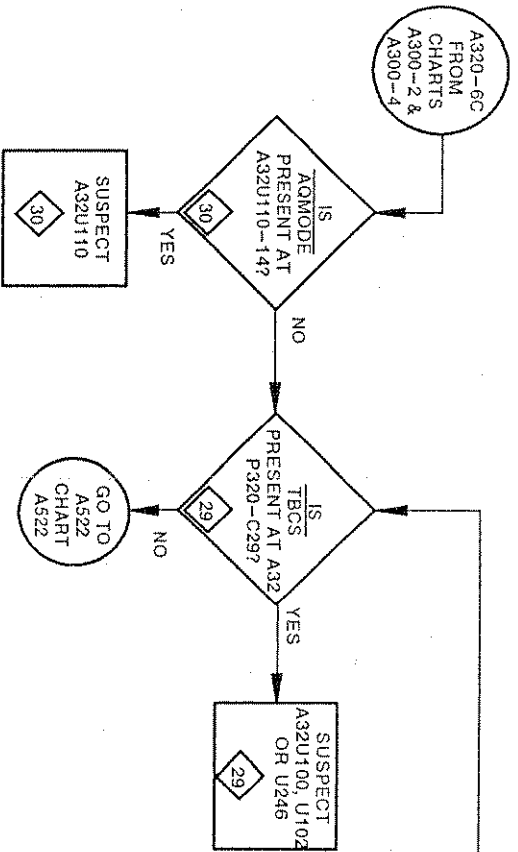
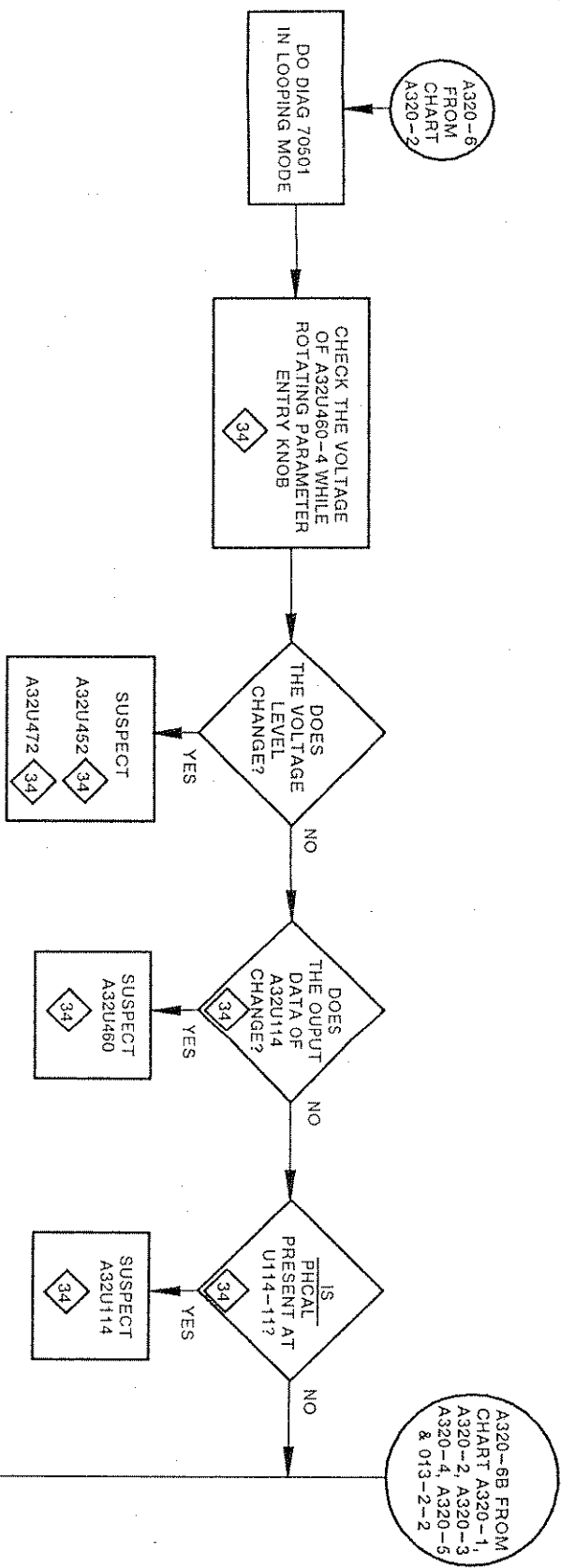


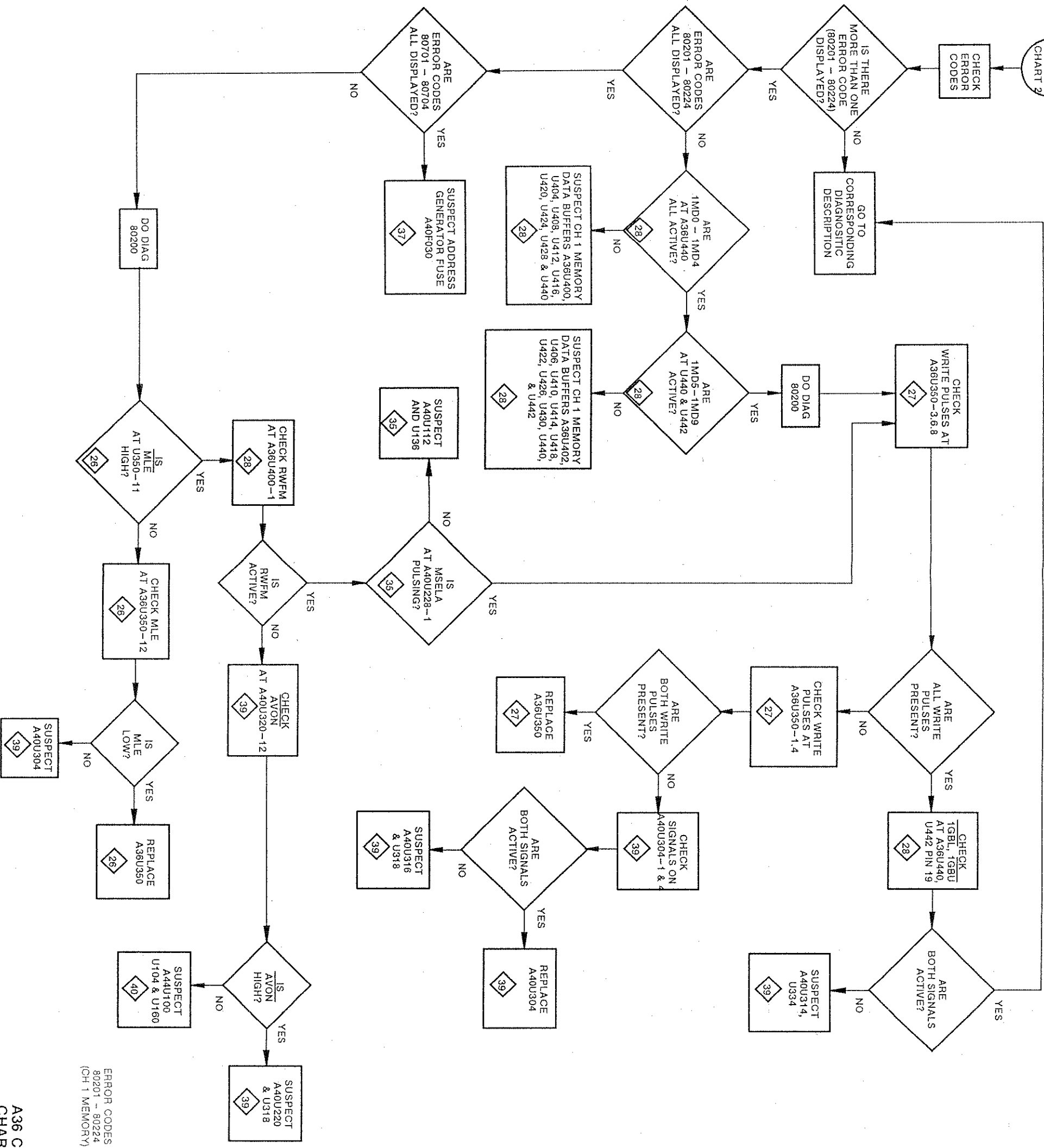


GO TO
A320-6B
FROM CHART
A302-6

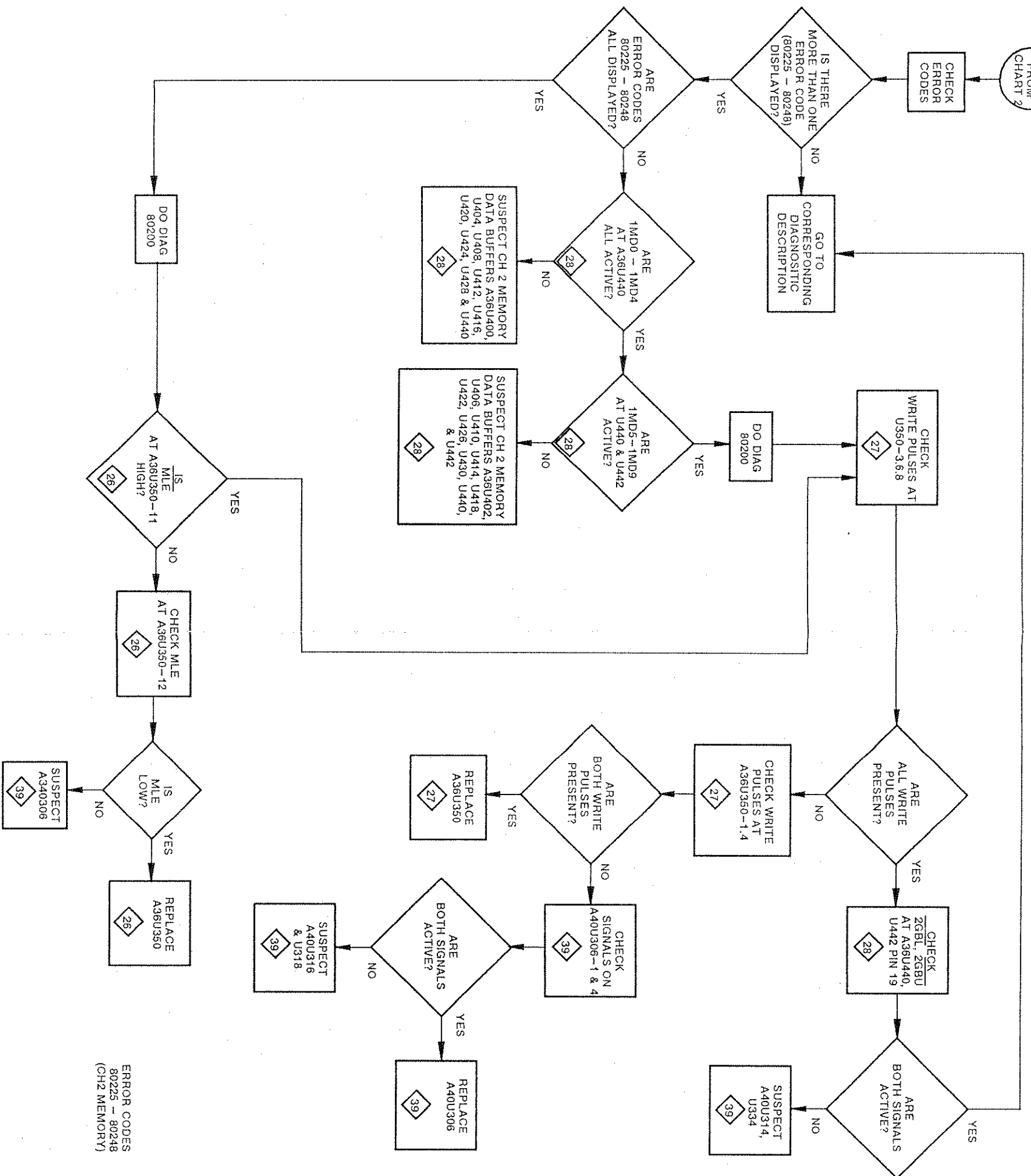


A32 TIME BASE TROUBLESHOOTING
CHART A320-5

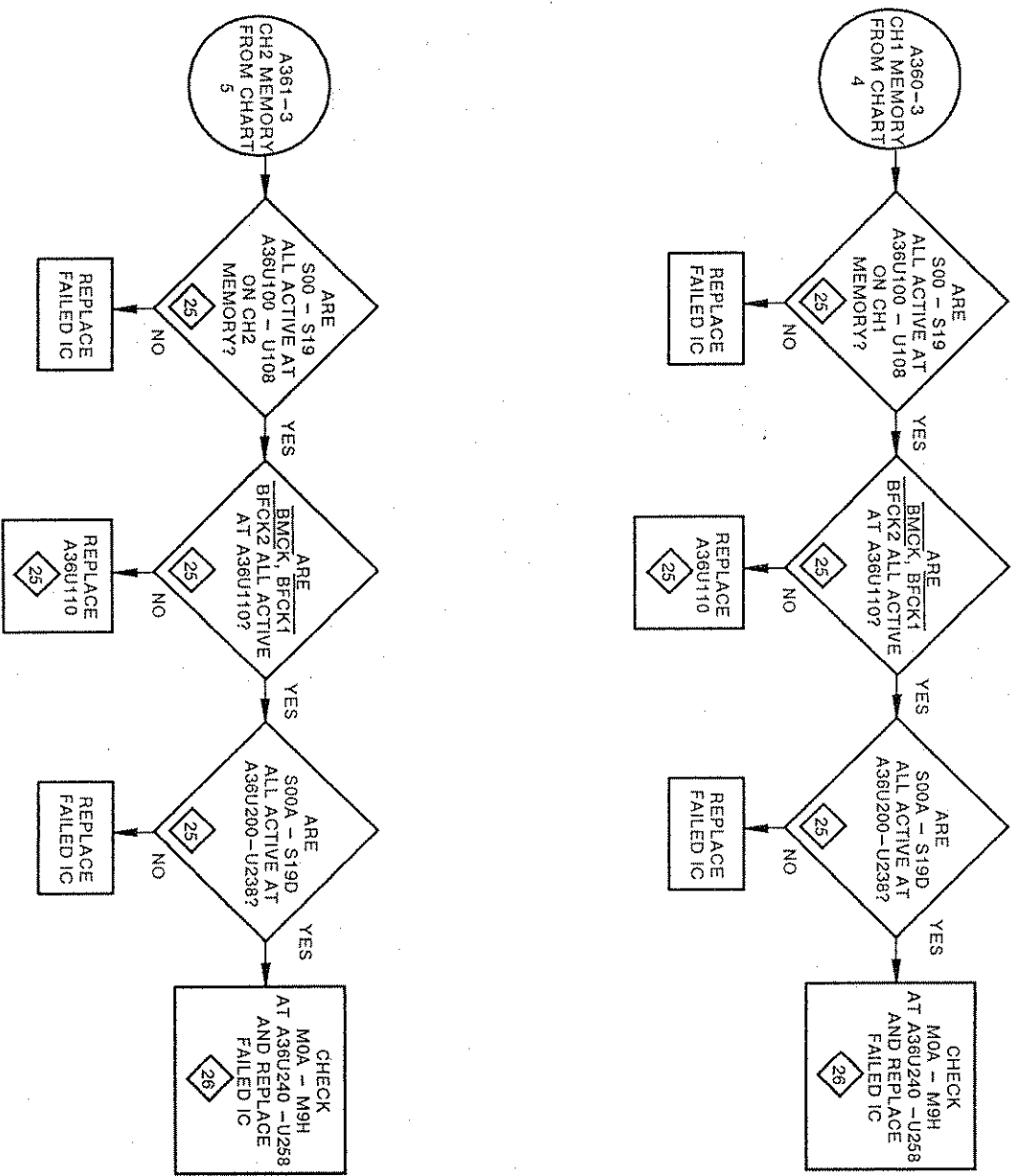


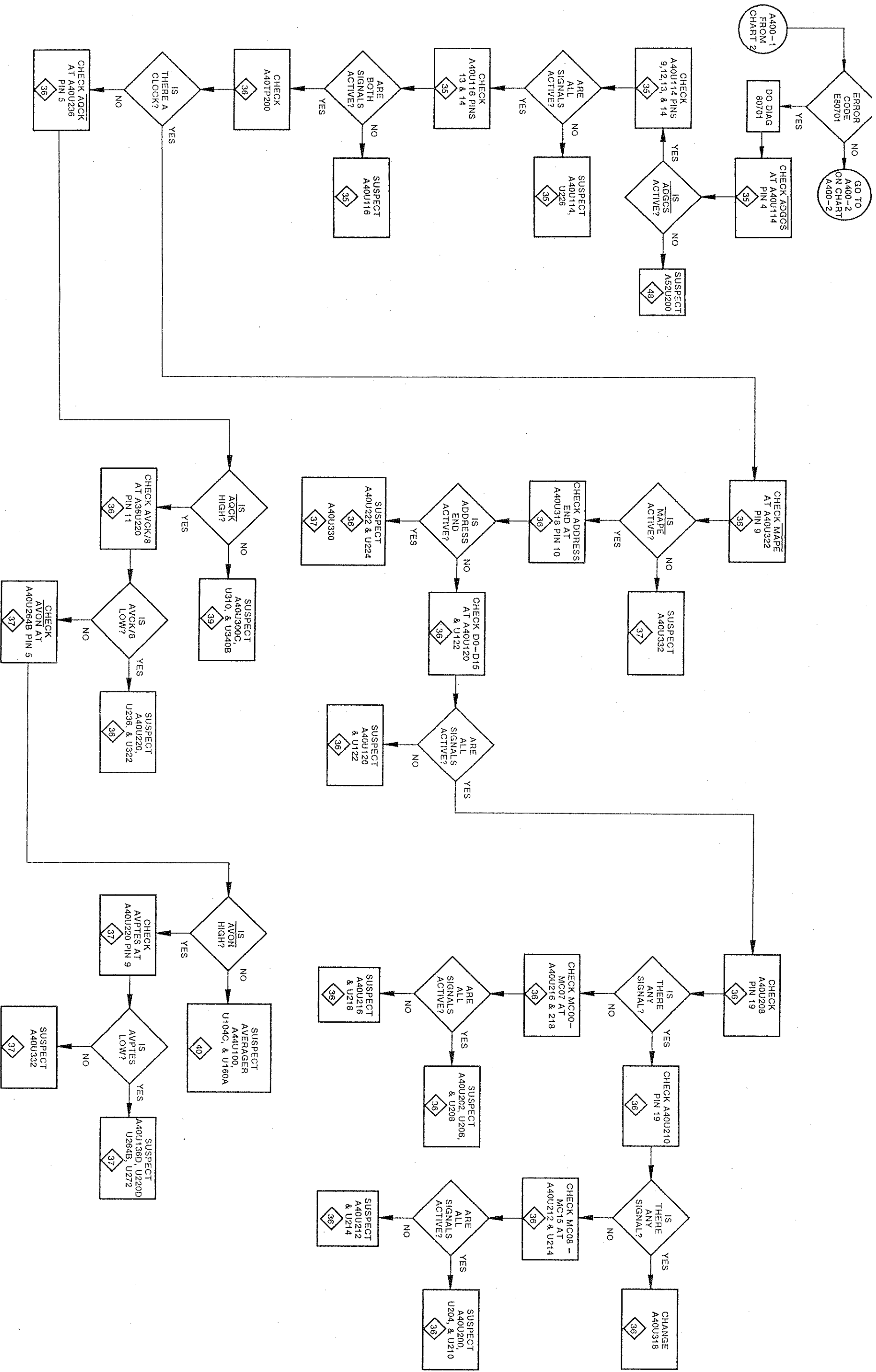


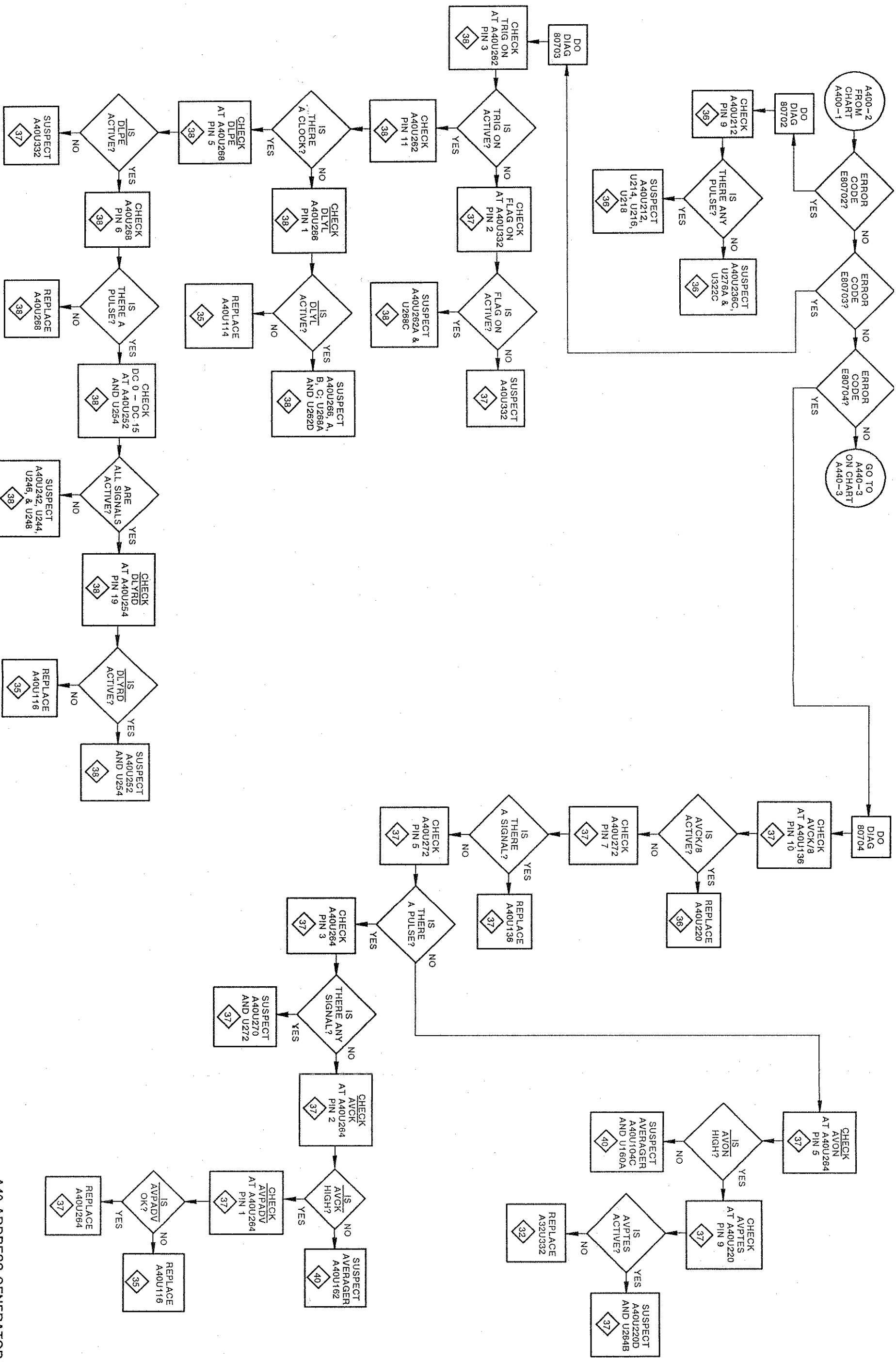
ERROR CODES
80201 - 80224
(OH 1 MEMORY)



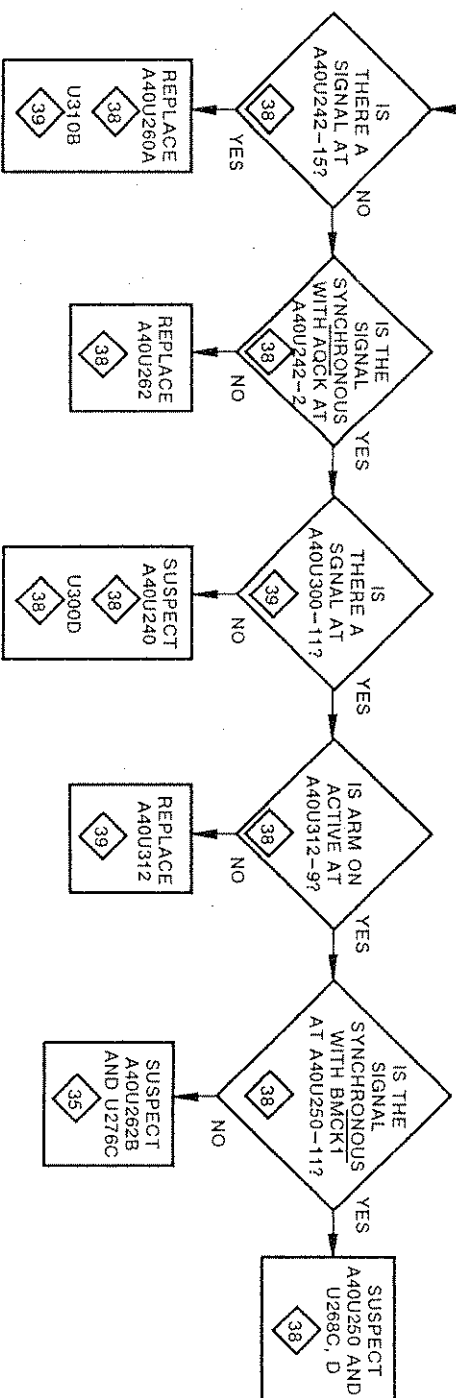
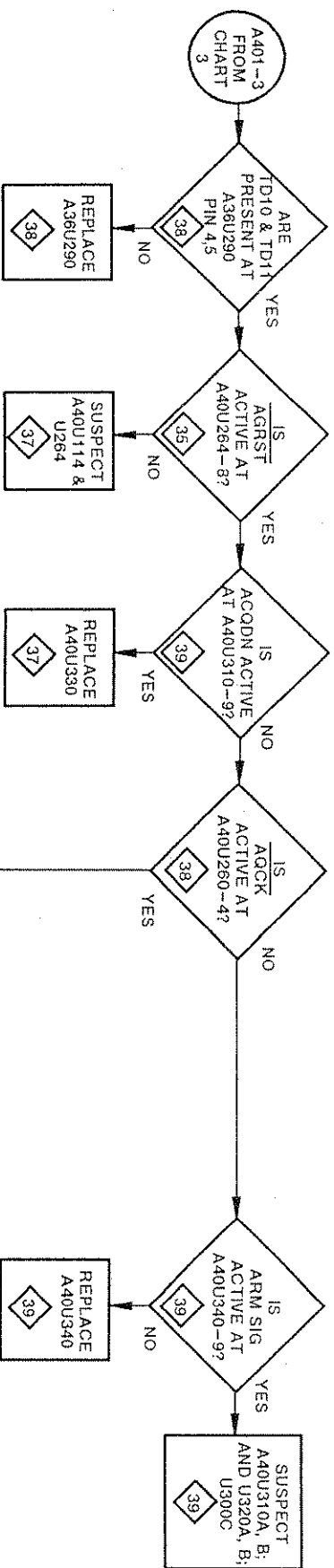
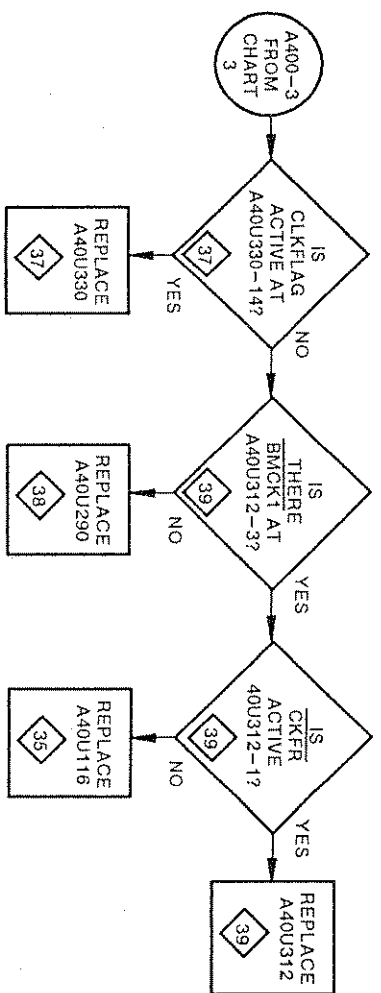
ERROR CODES
80225 - 80248
(CH2 MEMORY)

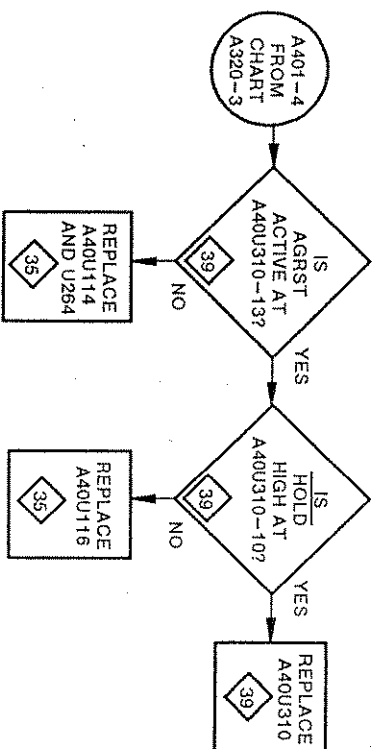
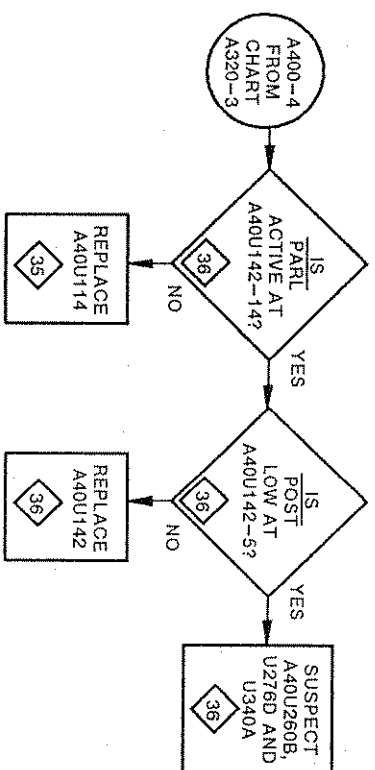


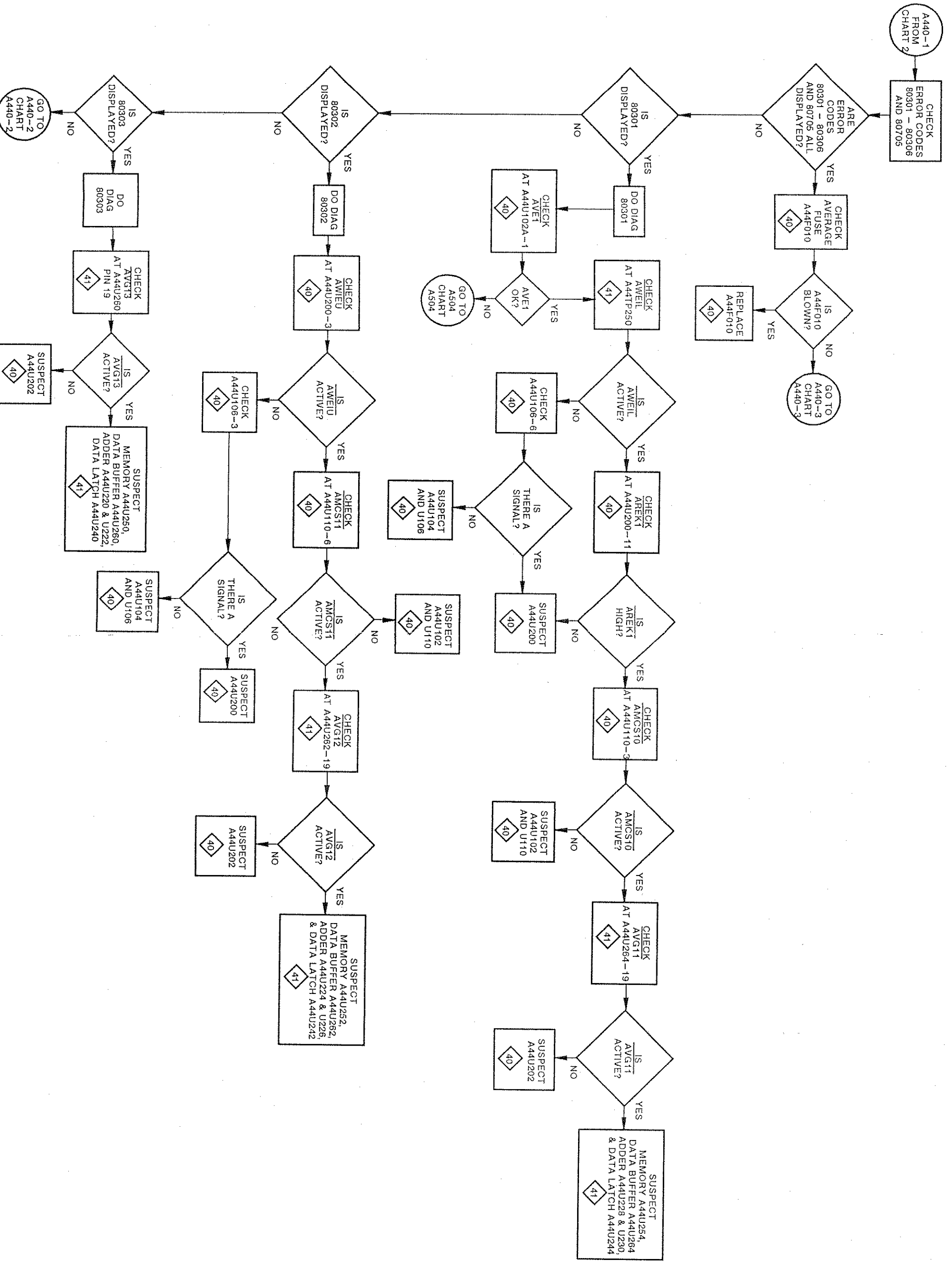


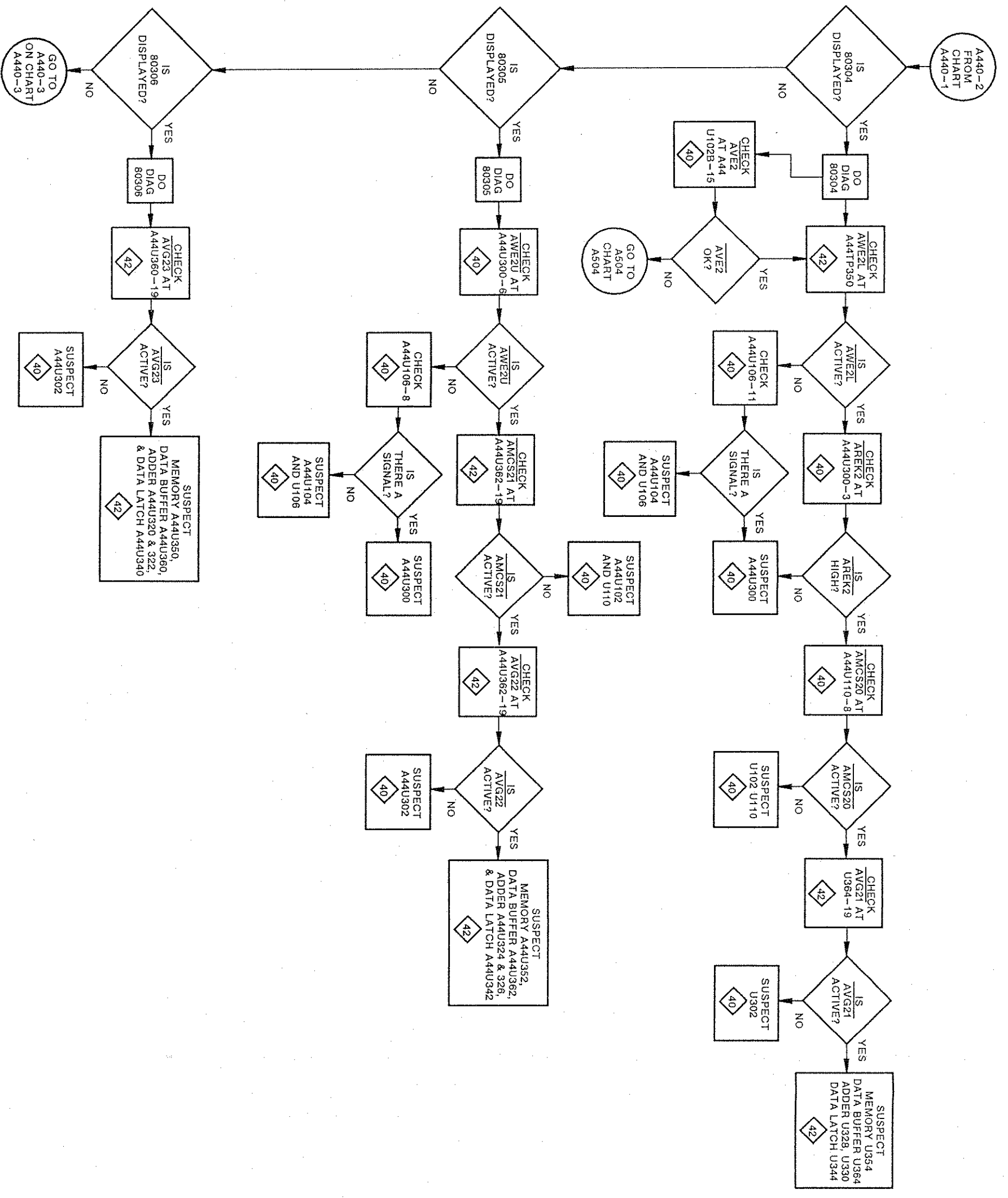


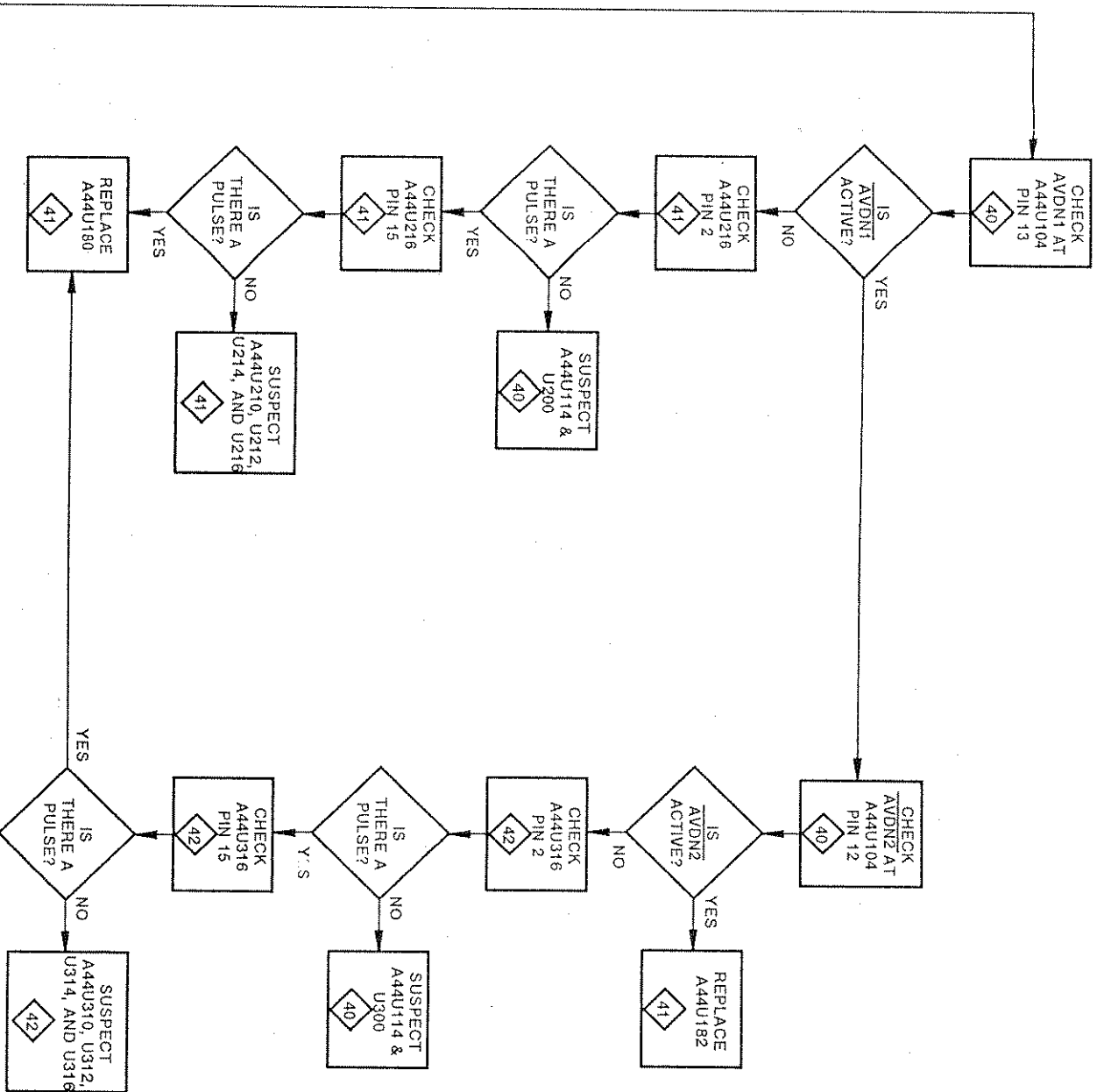
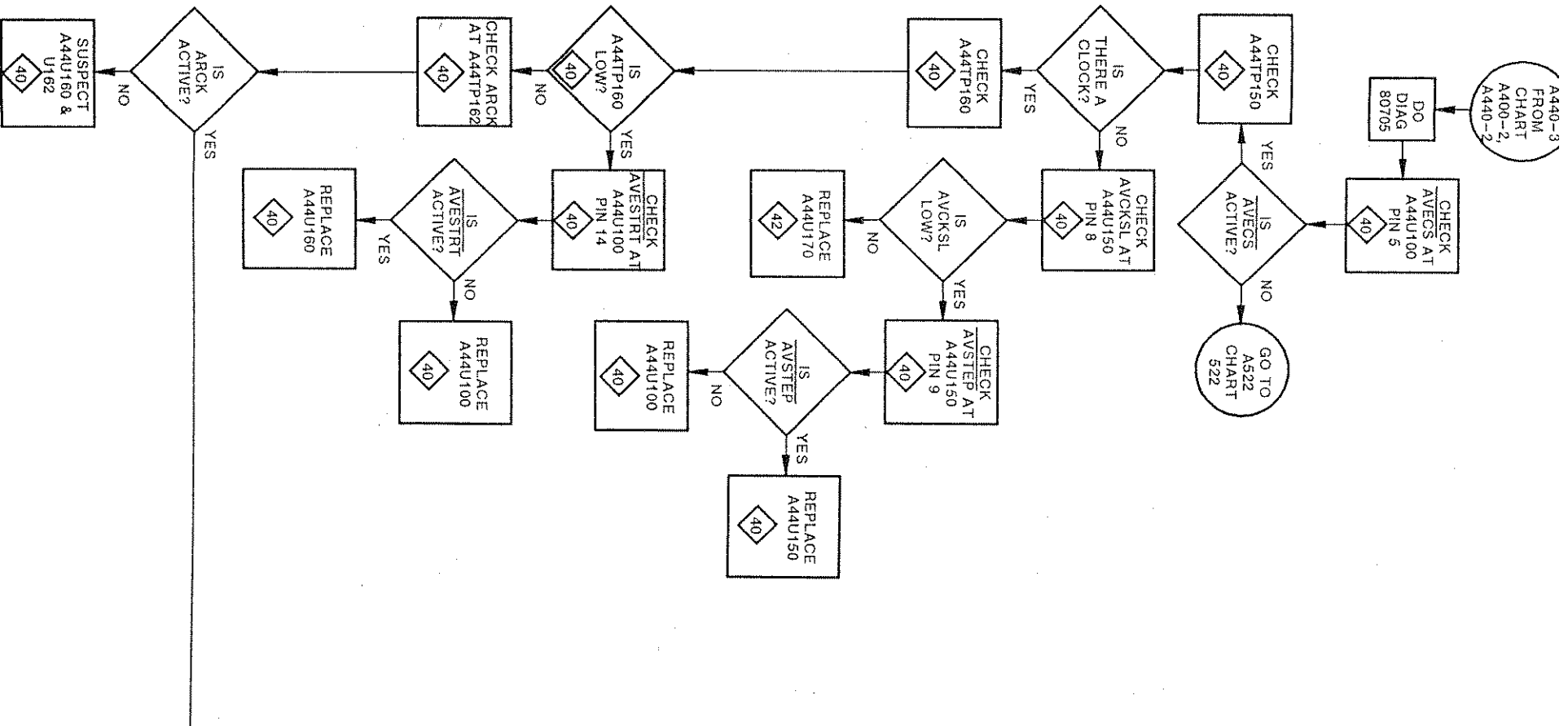
A40 ADDRESS GENERATOR TROUBLESHOOTING CHART A400-2

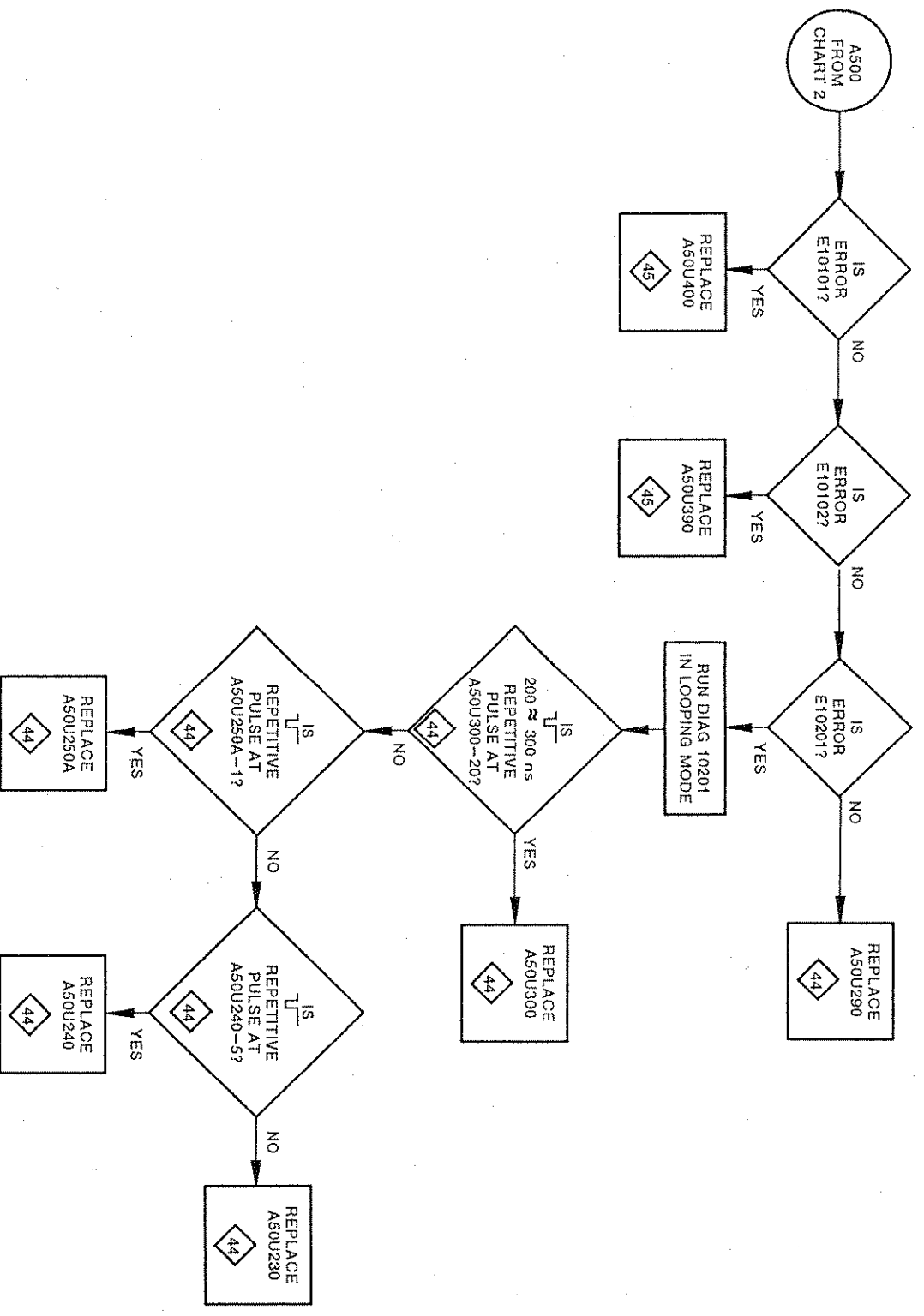


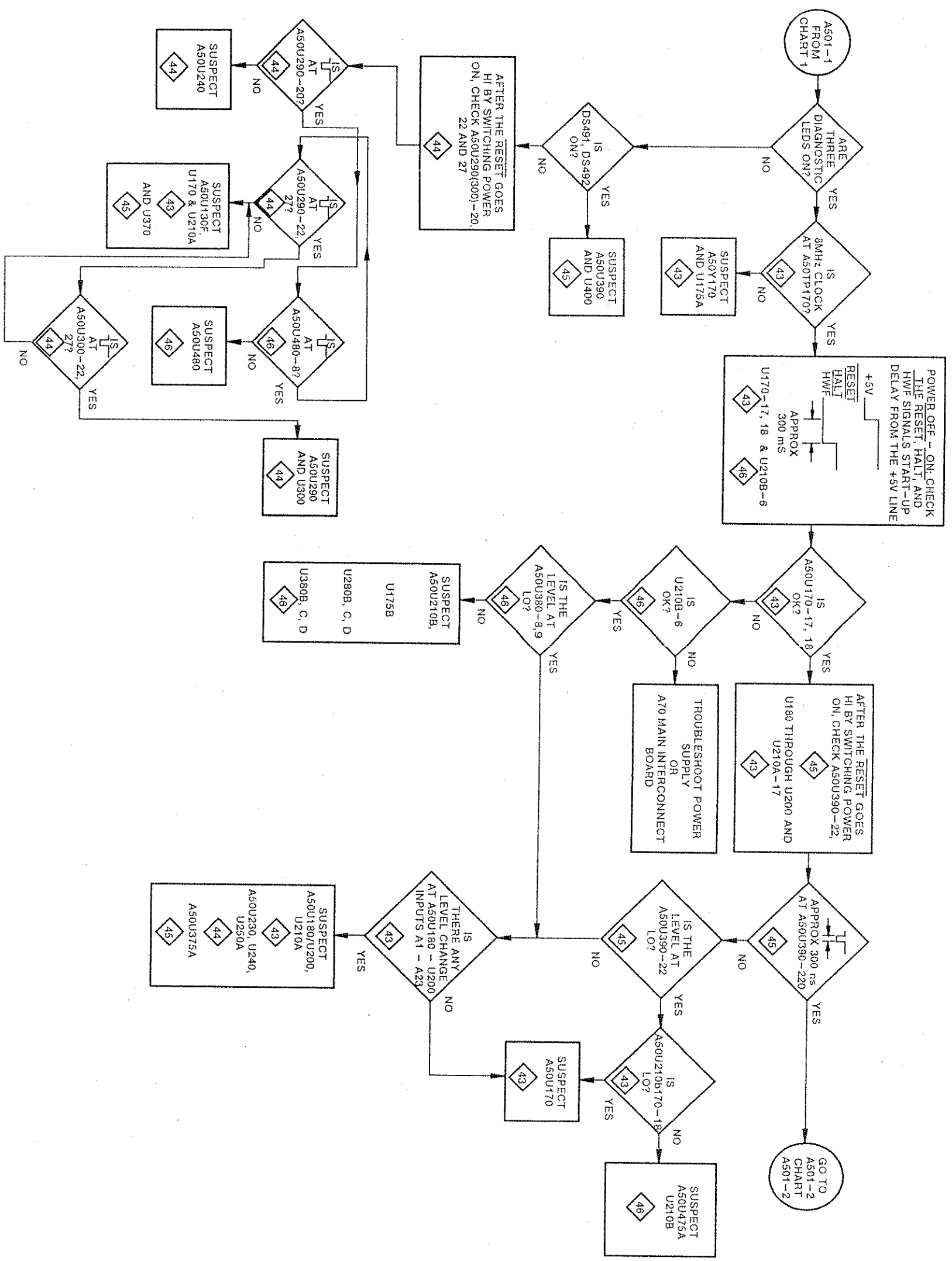


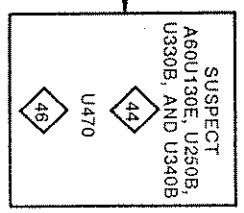
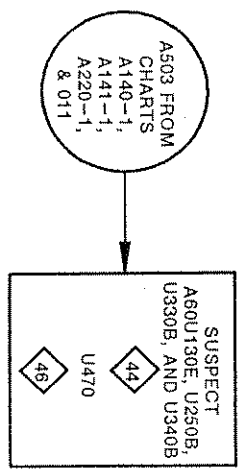
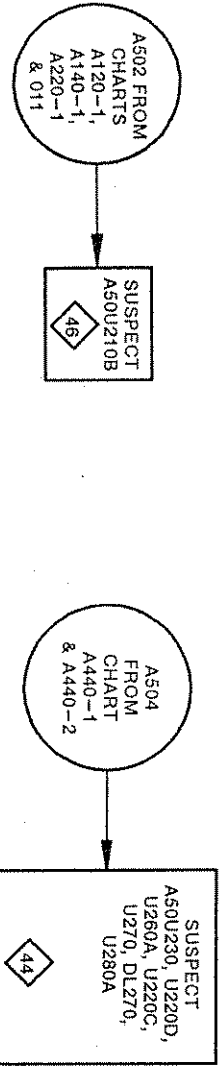
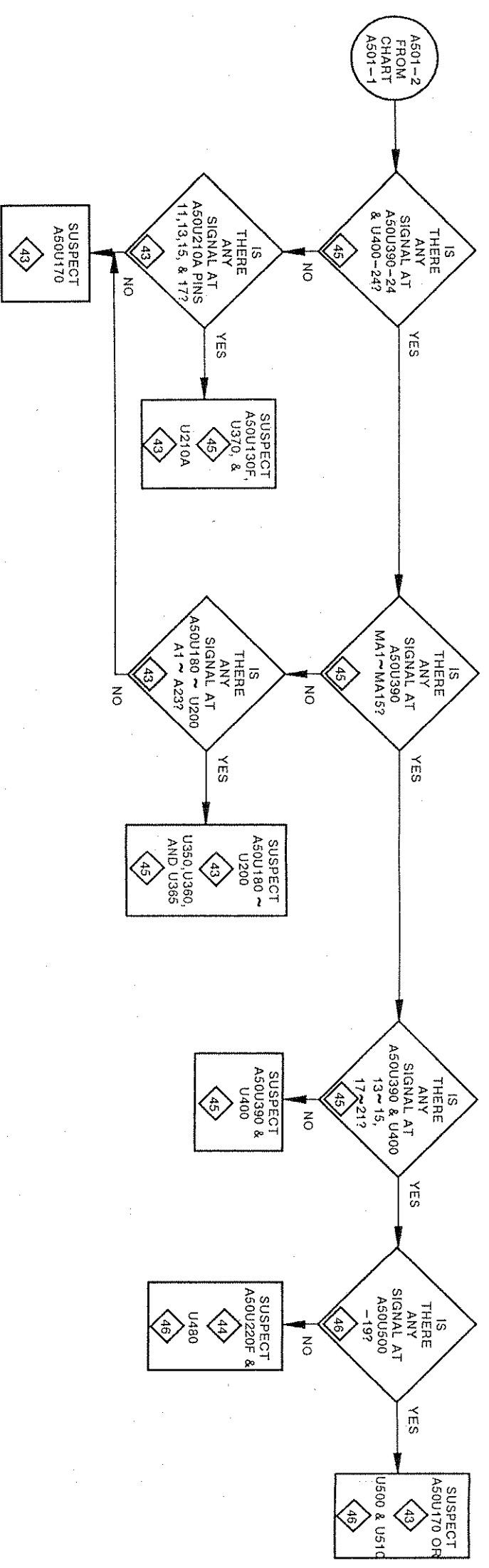


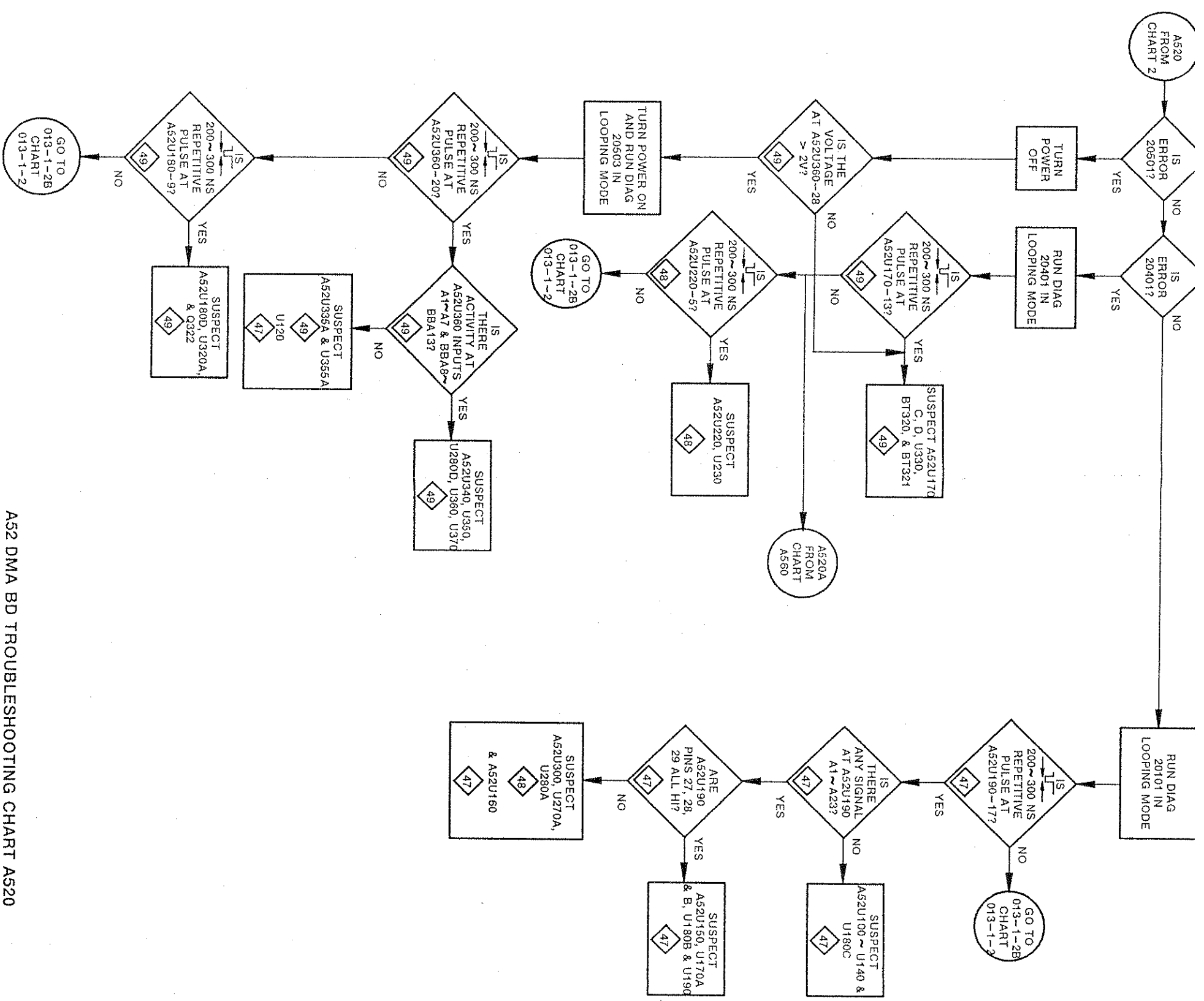


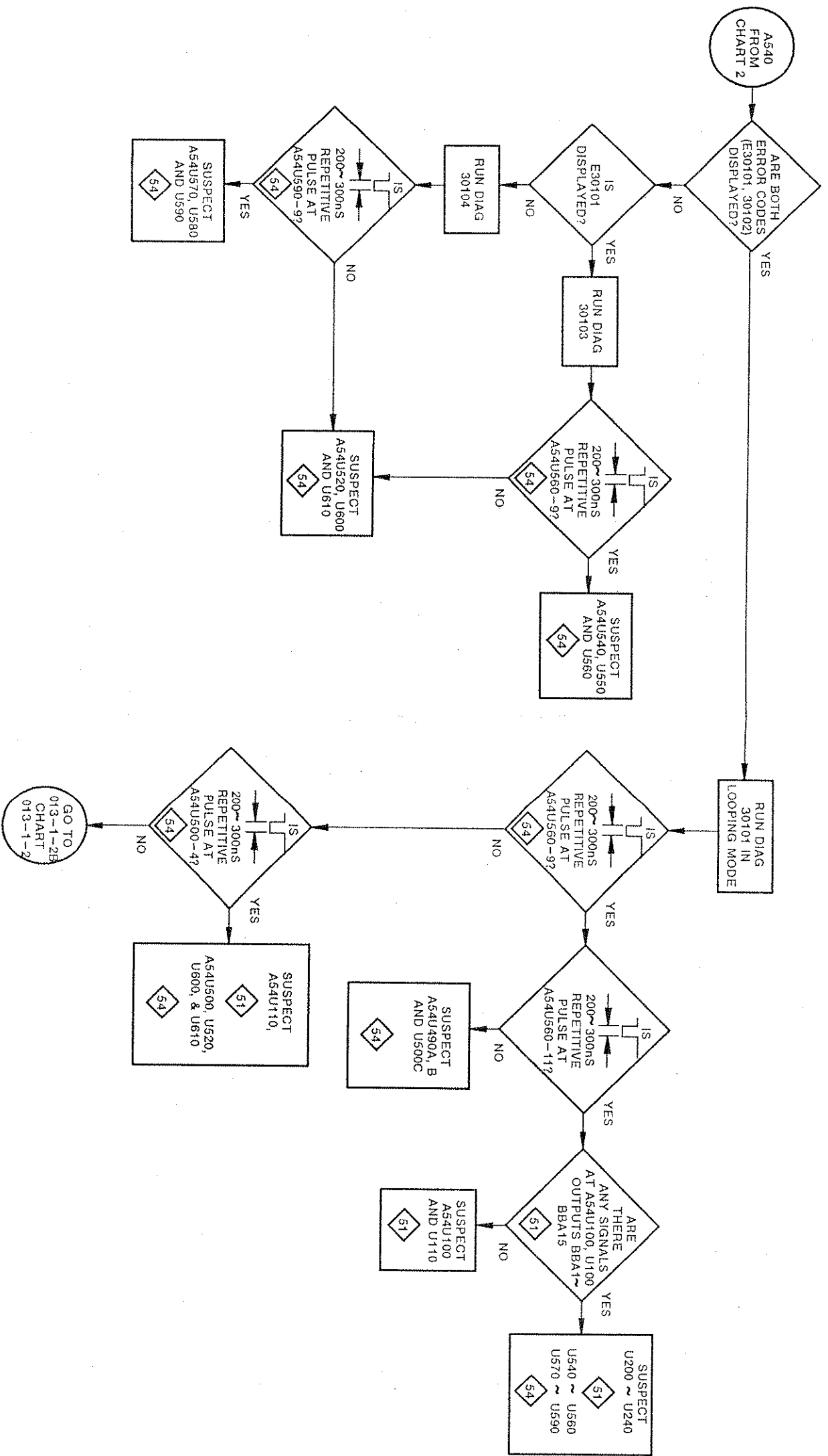


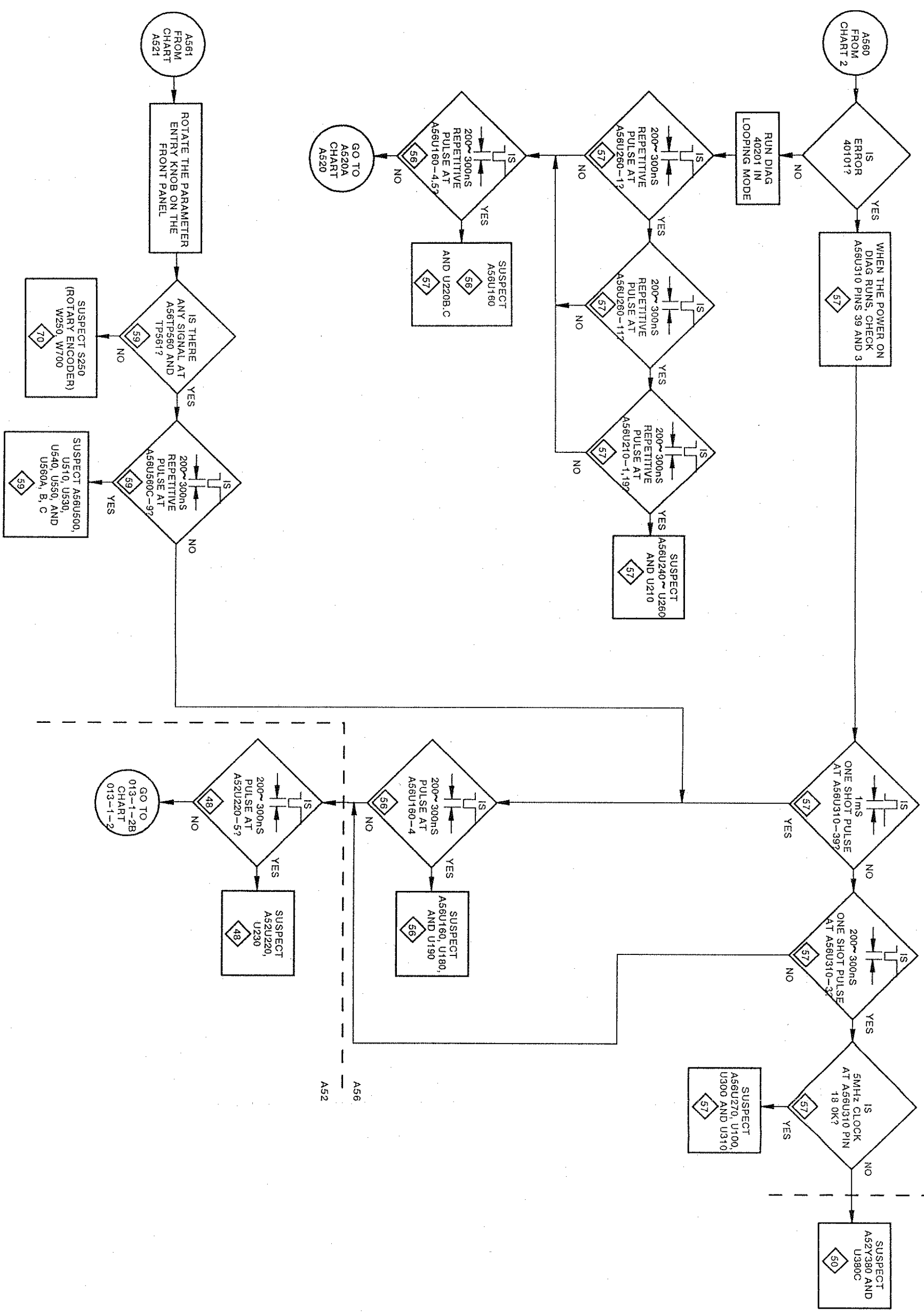


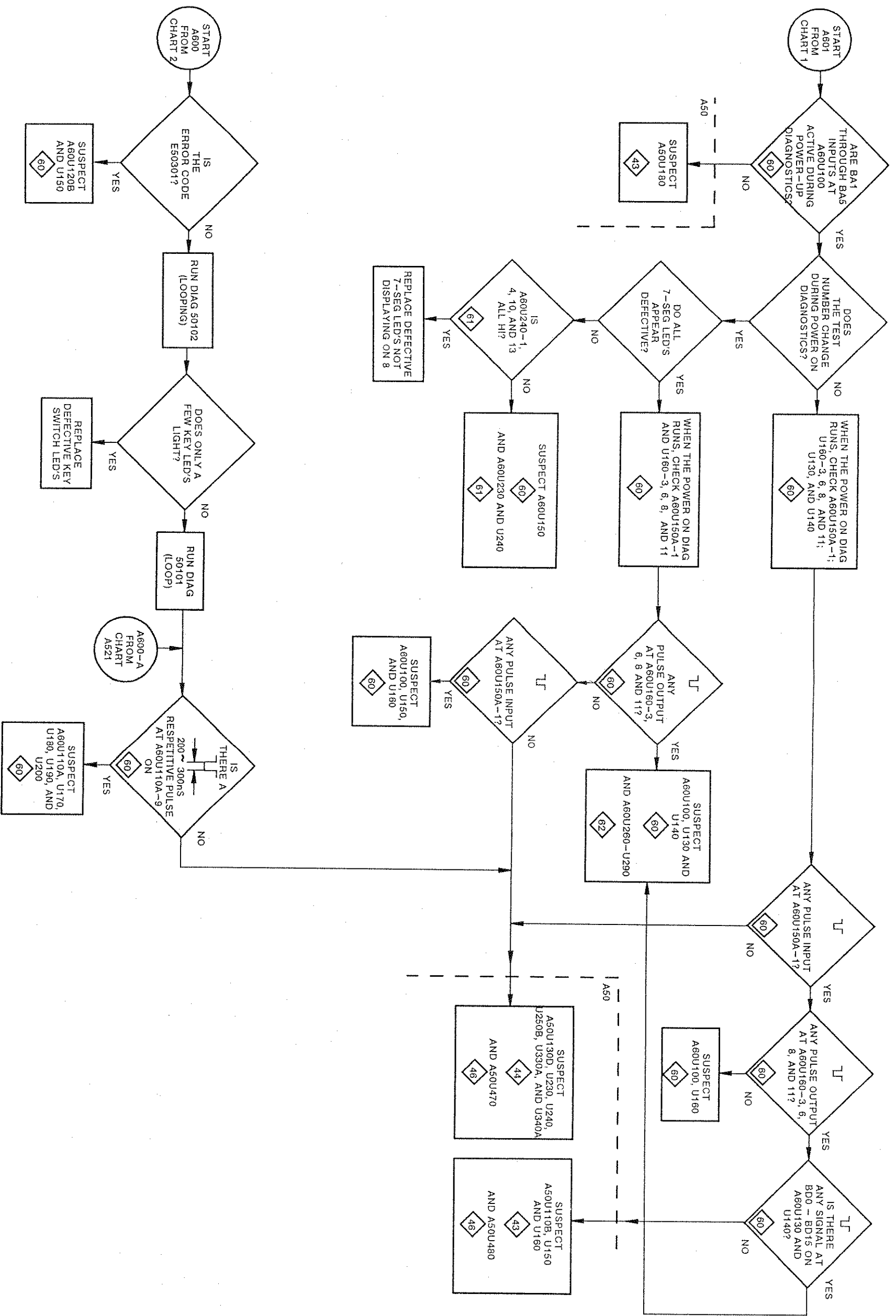


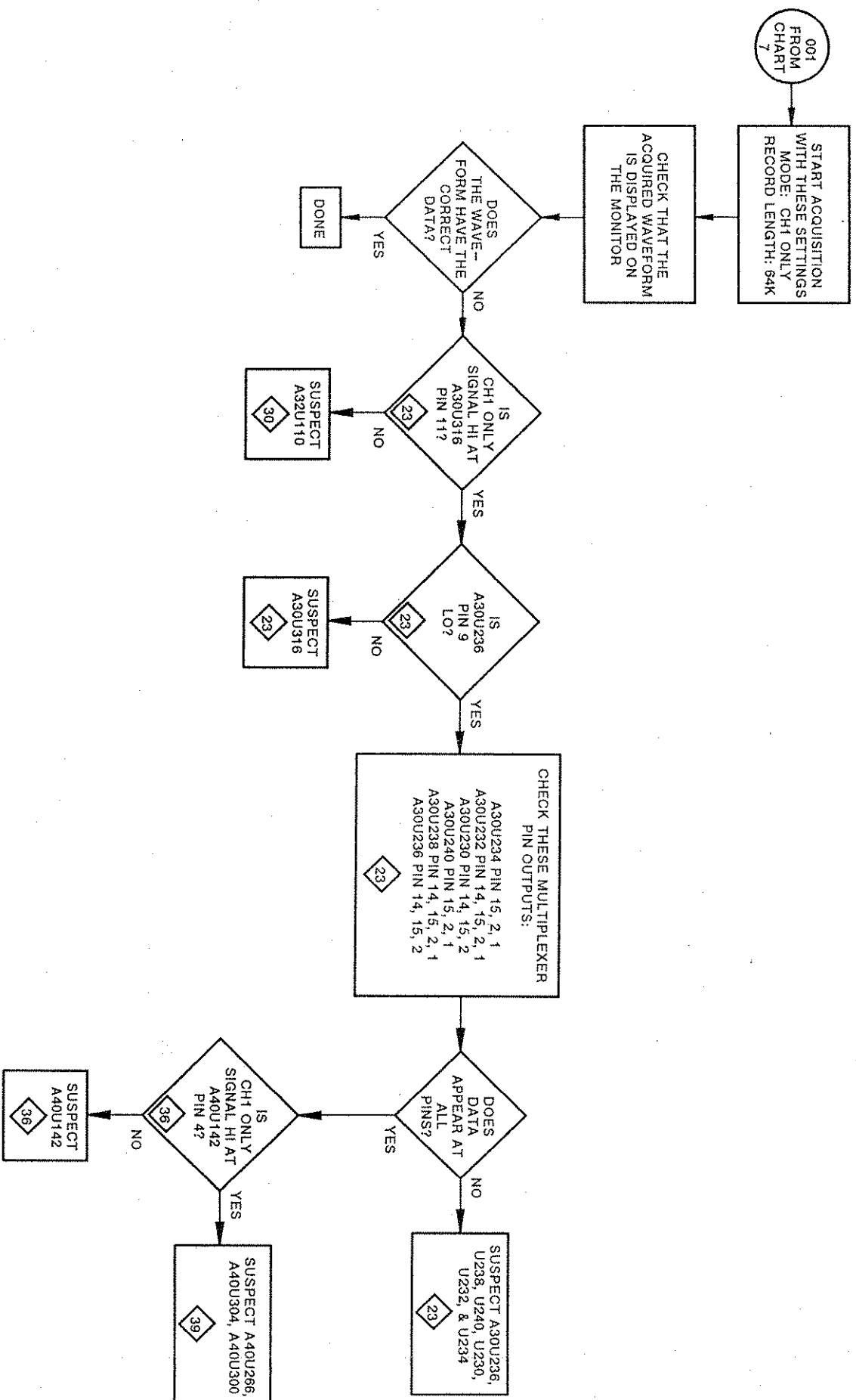








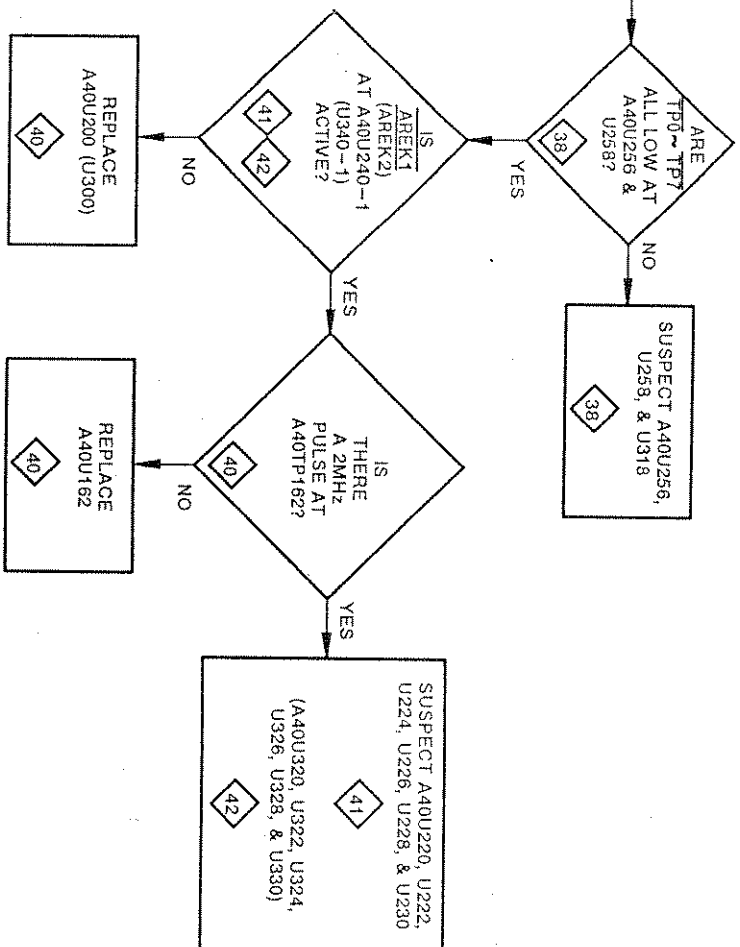




002 FROM CHART 7

SIGNAL NAME, CKT NO. AND OTHERS IN PARENTHESES FOR CH2 AVERAGE.

INITIALIZE RTD710A BY PRESSING INIT KEY TWICE.
 SET RTD710A AS FOLLOWS:
 INPUT RANGE: 500mV INPUT COUPLING: DC
 TRIG SOURCE: CH1 (CH2) SAMPLE INTERVAL: 100ns
 RECORD MODE: AVE AVE/ENVY OF TIMES: 32
 • CONNECT A 1V-p 1MHZ SINE WAVE FROM SG 503 TO THE CH1 (CH2) INPUT VIA A 50 OHM CABLE.
 • SET RESET/HOLD KEY TO RESET (ACQUISITION)



003-1

- * CONNECT A 50KHZ SINE WAVE SIGNAL TO CH1 AND CH2 VIA A 50 OHM CABLE, 50 OHM TERMINATION AND A DUAL COUPLER.
 - * SET INPUT RANGE TO 500mV
 - * SET THE SINE WAVE GENERATOR FOR A 3 DIVISION MONITOR DISPLAY.
 - * SET BREAKPOINTS AS FOLLOWS:
- | BREAKPOINT # | BREAKPOINT LOC. | SAMPLE INTERVAL |
|--------------|-----------------|-----------------|
| 0 | 16 | 10 ns |
| 1 | 24 | 20 ns |
| 2 | 32 | 30 ns |
| 3 | 40 | 50 ns |
| 4 | 48 | 90 ns |
| 5 | | 10 ns |

PRESS THE HOLD/RESET KEY TO ACQUIRE WAVEFORM. CHECK THE ACQUIRED WAVEFORM ON THE MONITOR.

DOES THE WAVEFORM HAVE THE CORRECT BREAKPOINT LOCATIONS?

- SET BREAKPOINTS AS FOLLOWS:
- | BREAKPOINT # | BREAKPOINT LOC. | SAMPLE INTERVAL |
|--------------|-----------------|-----------------|
| 0 | 16 | 200 ns |
| 1 | 24 | 2 us |
| 2 | 24 | 200 us |
| 3 | 32 | 200 us |

TURN DISPLAY OFF. CHECK THAT RCLK SIGNAL IS PRESENT AT TP312 AFTER STRIG AT A32J321-C12

SUSPECT A32U470 & A32U428

DOES RCLK PULSE EXIST?

CHECK THE OUTPUT OF THESE RAMS: A32U302 PIN 5 [7 9 11] ACTIVE A32U300 PIN 5 [7 9 11] LO

SUSPECT A32U300, & U302

IS DATA CORRECT?

SUSPECT A32U304, U306, U308, & U310

TURN DISPLAY OFF. CHECK THAT RCLK SIGNAL IS PRESENT AT TP312 AFTER STRIG AT A32J321-C12

DOES RCLK PULSE EXIST?

SUSPECT A32U470 & A32U428

CHECK: A32U304-13 [-12 -3] ACTIVE A32U304-4 HI -2 LO

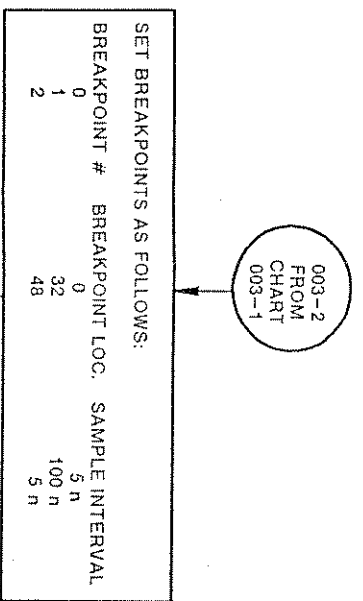
SUSPECT A32U312, U308, & U310

ARE THE OUTPUT DATA CORRECT?

SUSPECT A32U300, & U304

DOES THE WAVEFORM HAVE THE CORRECT BREAKPOINT?

GO TO 003-2 CHART 003-2



DOES THE WAVEFORM HAVE THE EXACT BREAKPOINT LOCATIONS?

YES

NO

TURN DISPLAY OFF. CHECK THAT RCLK SIGNAL IS PRESENT AT TP312 AFTER THE LEADING EDGE OF STRIG AT A32U321 PIN C12

30

IS RCLK PRESENT?

YES

NO

SUSPECT A32U430, U422, & U410

33

CHECK ACTIVITY AT A32U304 PINS 2 & 4

31

ARE ALL DATA ACTIVE?

YES

NO

SUSPECT A32U312, U308, & U310

31

SUSPECT A32U300, & U304

31

CHECK: DIRECT A/D OUT FUNCTION
CHECK OUTPUT WITH ECL PROBE AT THE FOLLOWING PINS:

A30U302 PIN 3,4,5,6,7,8,9, 10,11,12,13,14,15,16,17,18, 19,20,21,22,23,24

A30U302 PIN 27,28,29,30, 31,32,33,34,35,36,37,38, 39,40,41,42,43,44,45,46, 47,48

20

21

ARE ALL DATA ON J302 PINS 3-24 ACTIVE?

YES

NO

SUSPECT A30U174, U172, & U170

20

ARE ALL DATA ON J302 PINS 27-48 ACTIVE?

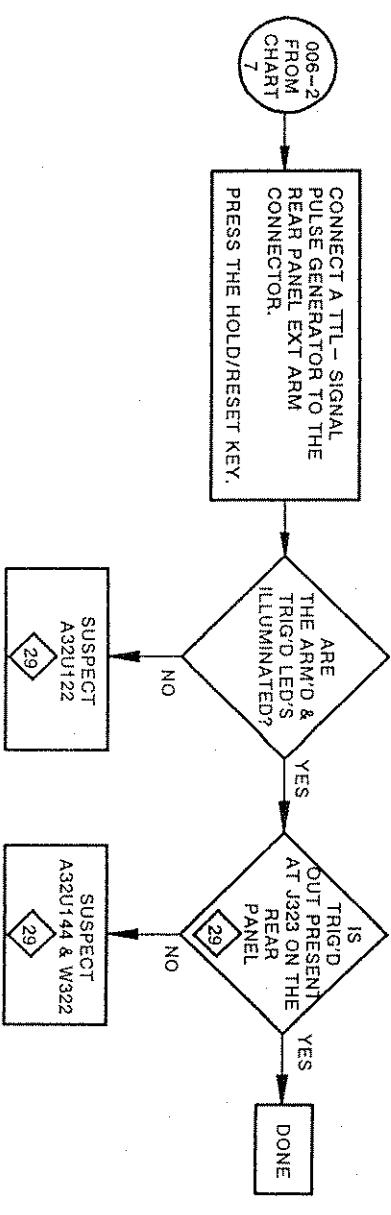
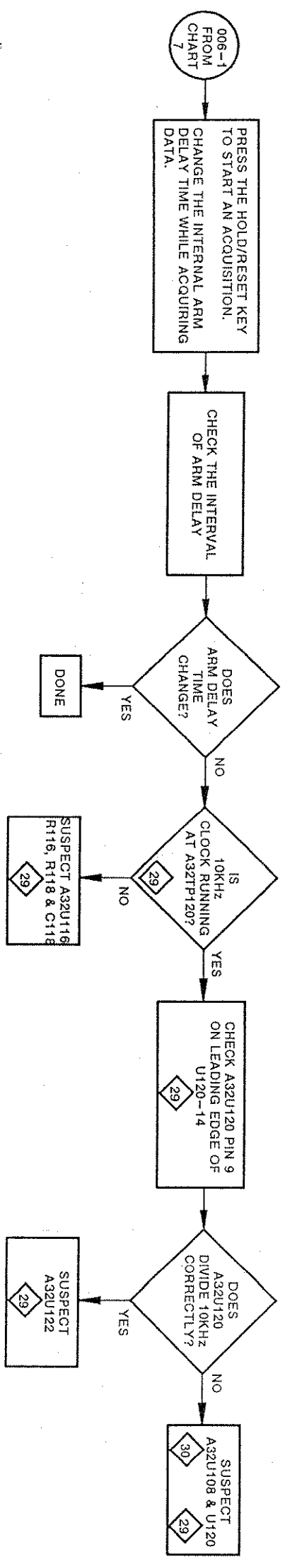
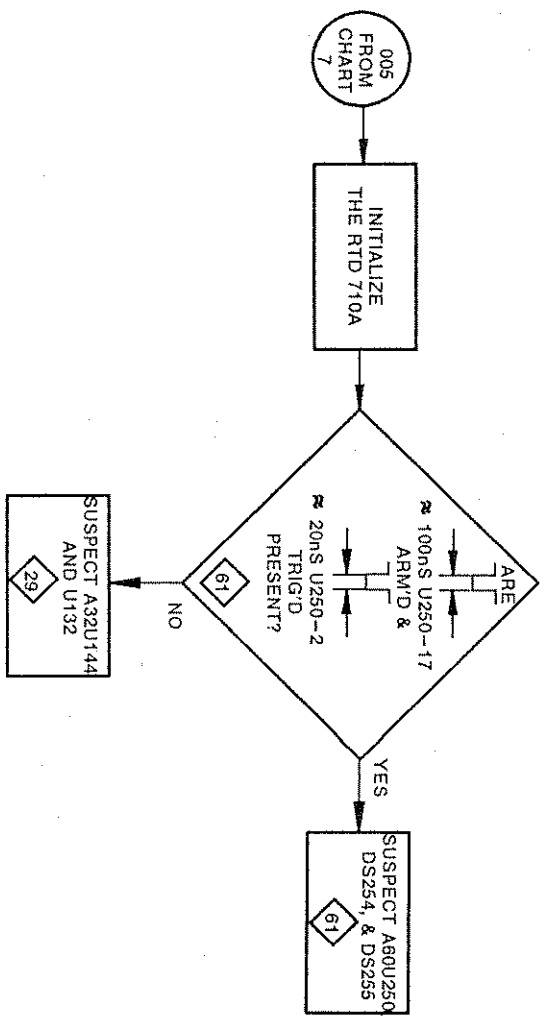
YES

NO

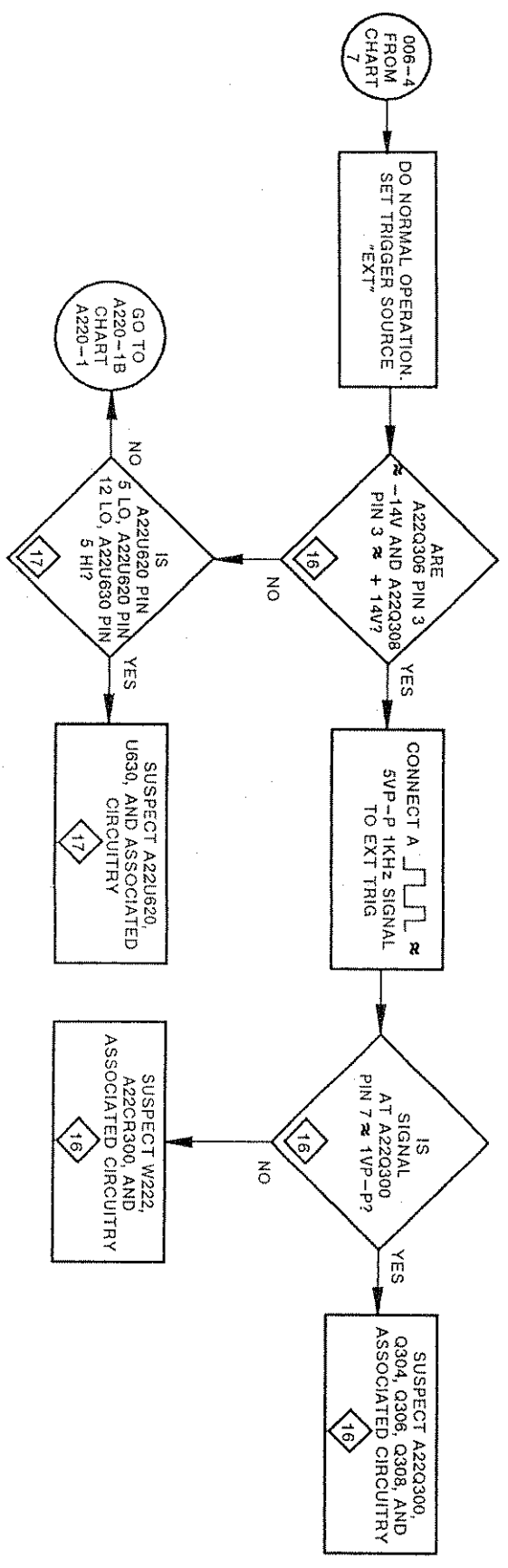
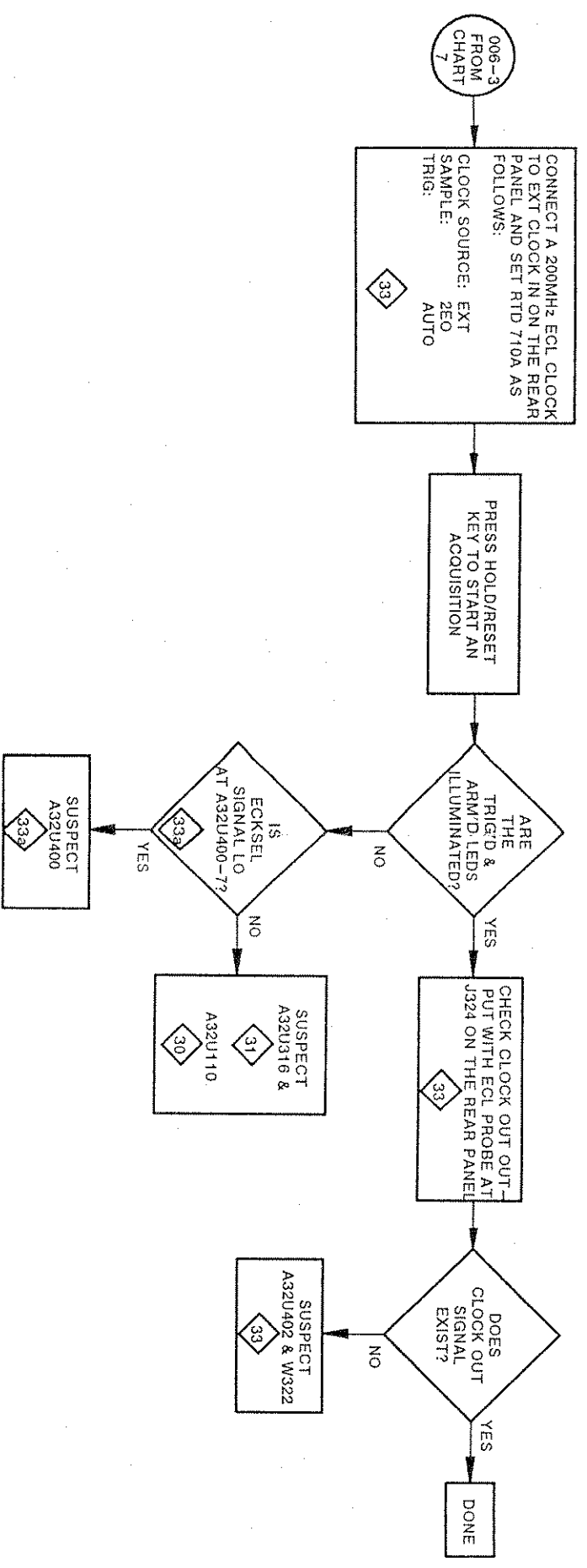
SUSPECT A30U270, U272, & U274

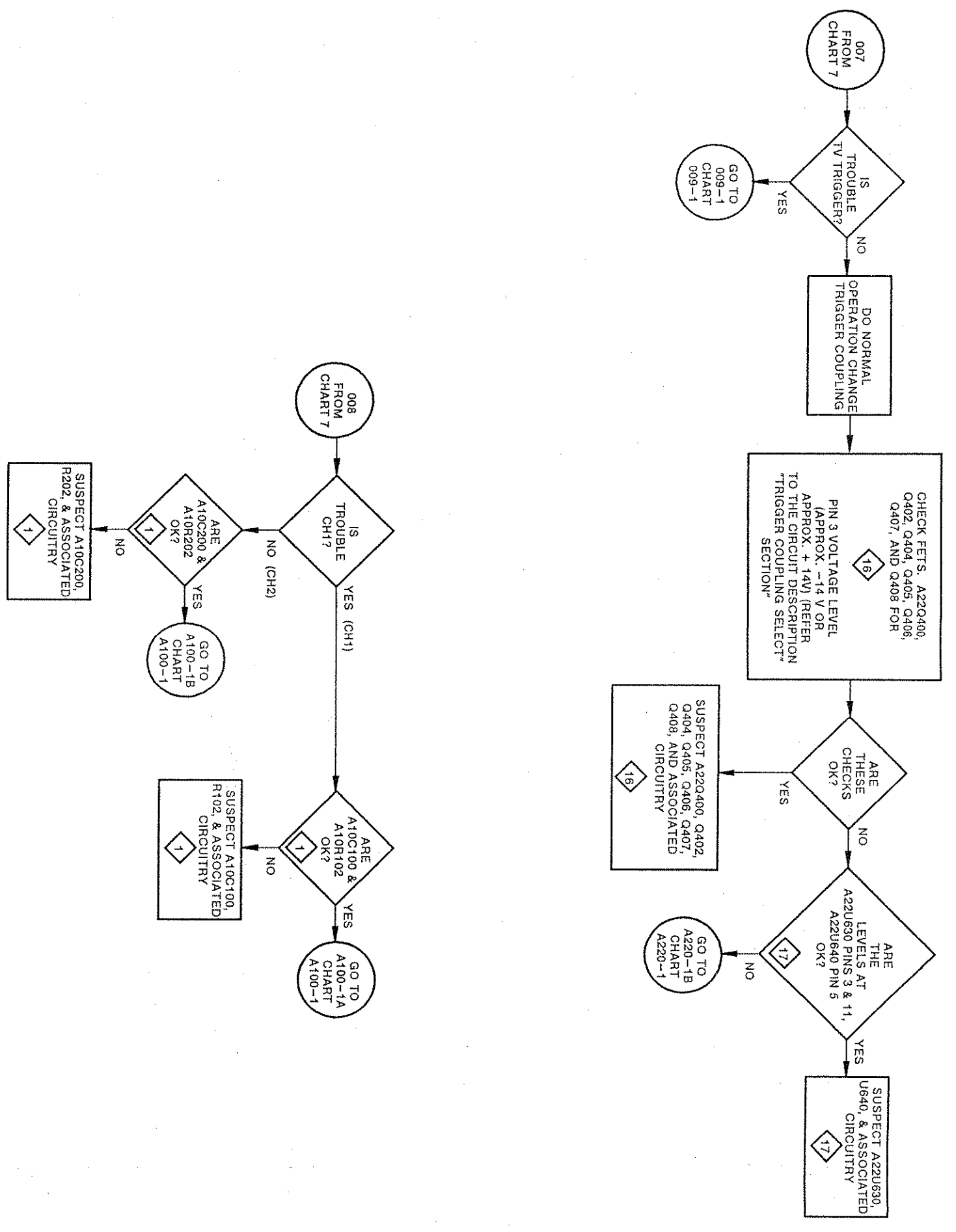
21

DONE

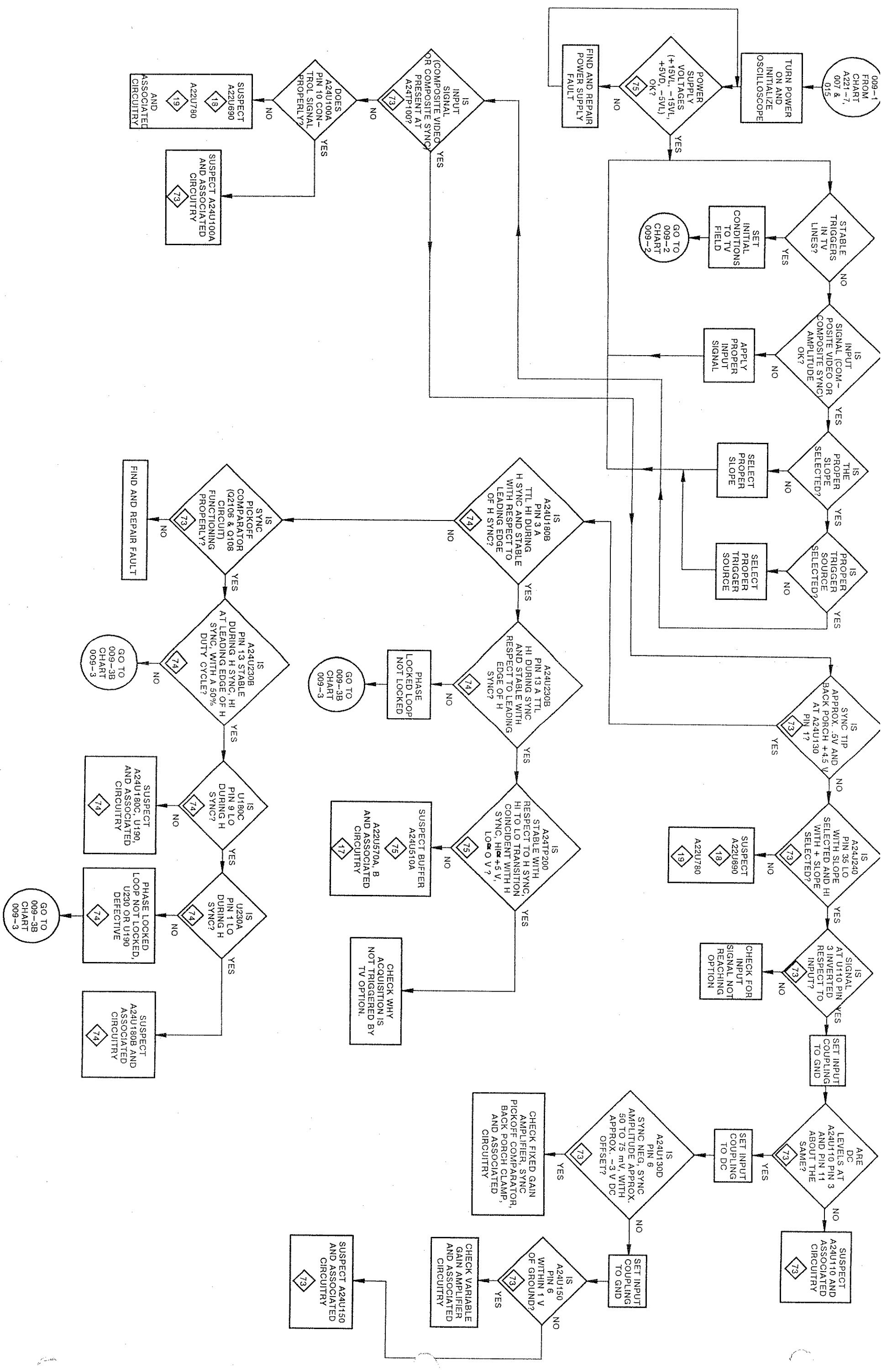


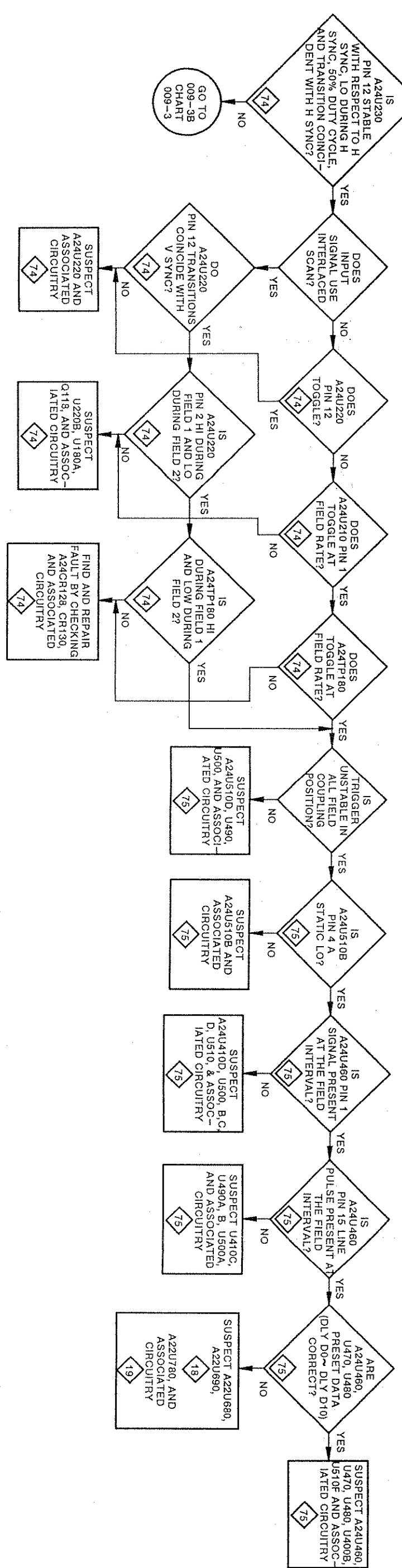
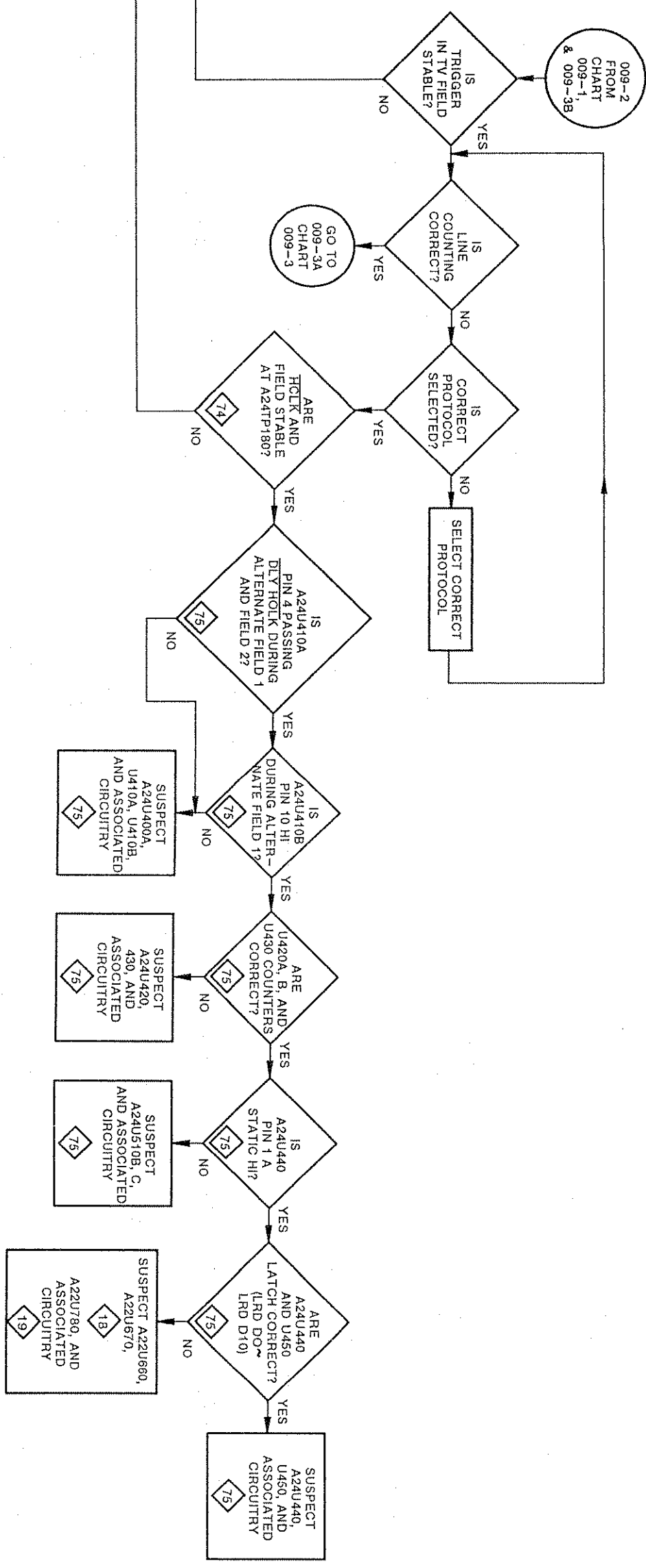
ARM/D/TRIG/D LAMP TROUBLESHOOTING
 CHART 005
 ARMING CIRCUIT TROUBLESHOOTING
 CHART 006-1
 EXT. ARM & TRIGGERED OUT
 TROUBLESHOOTING CHART 006-2



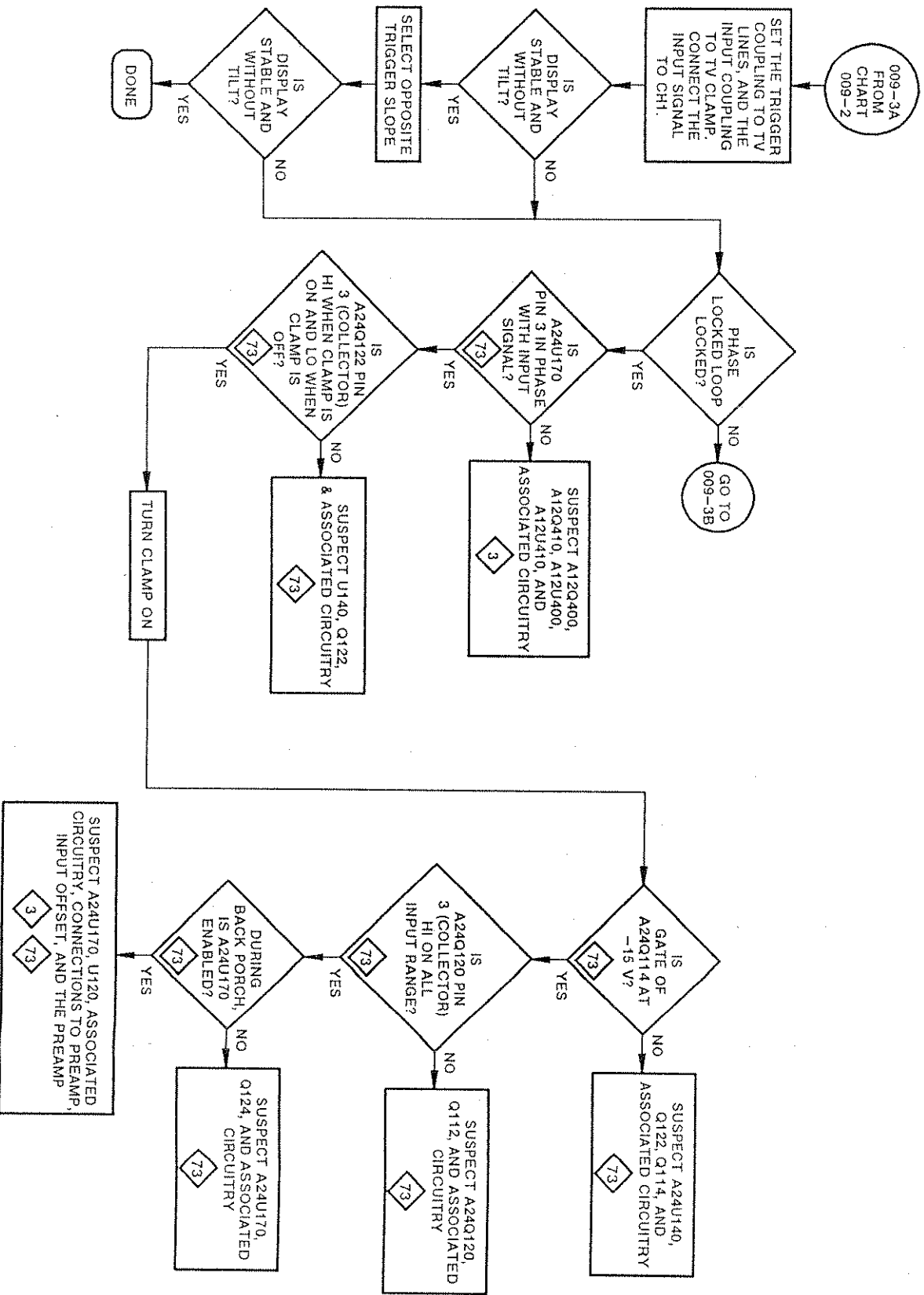
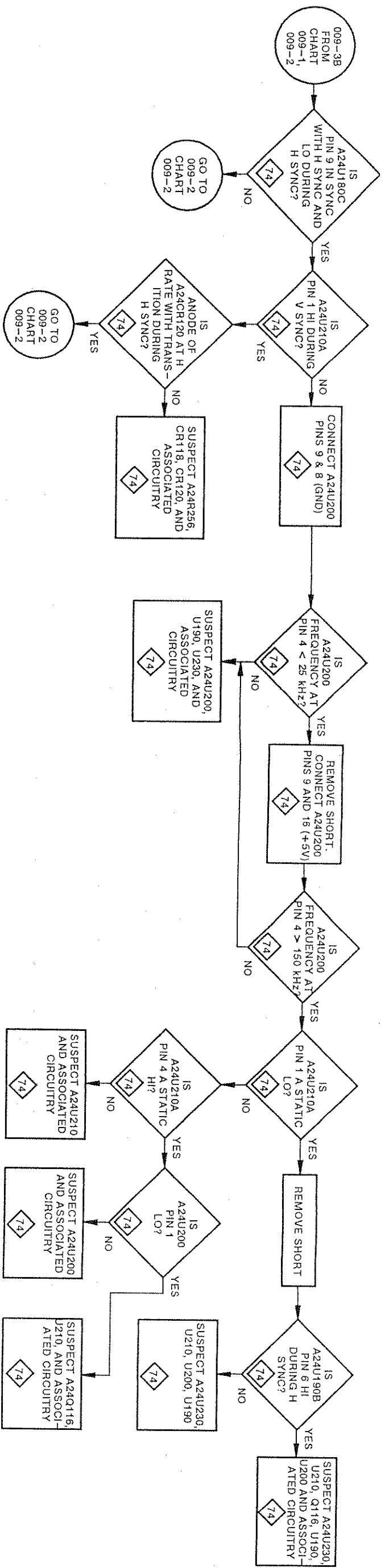


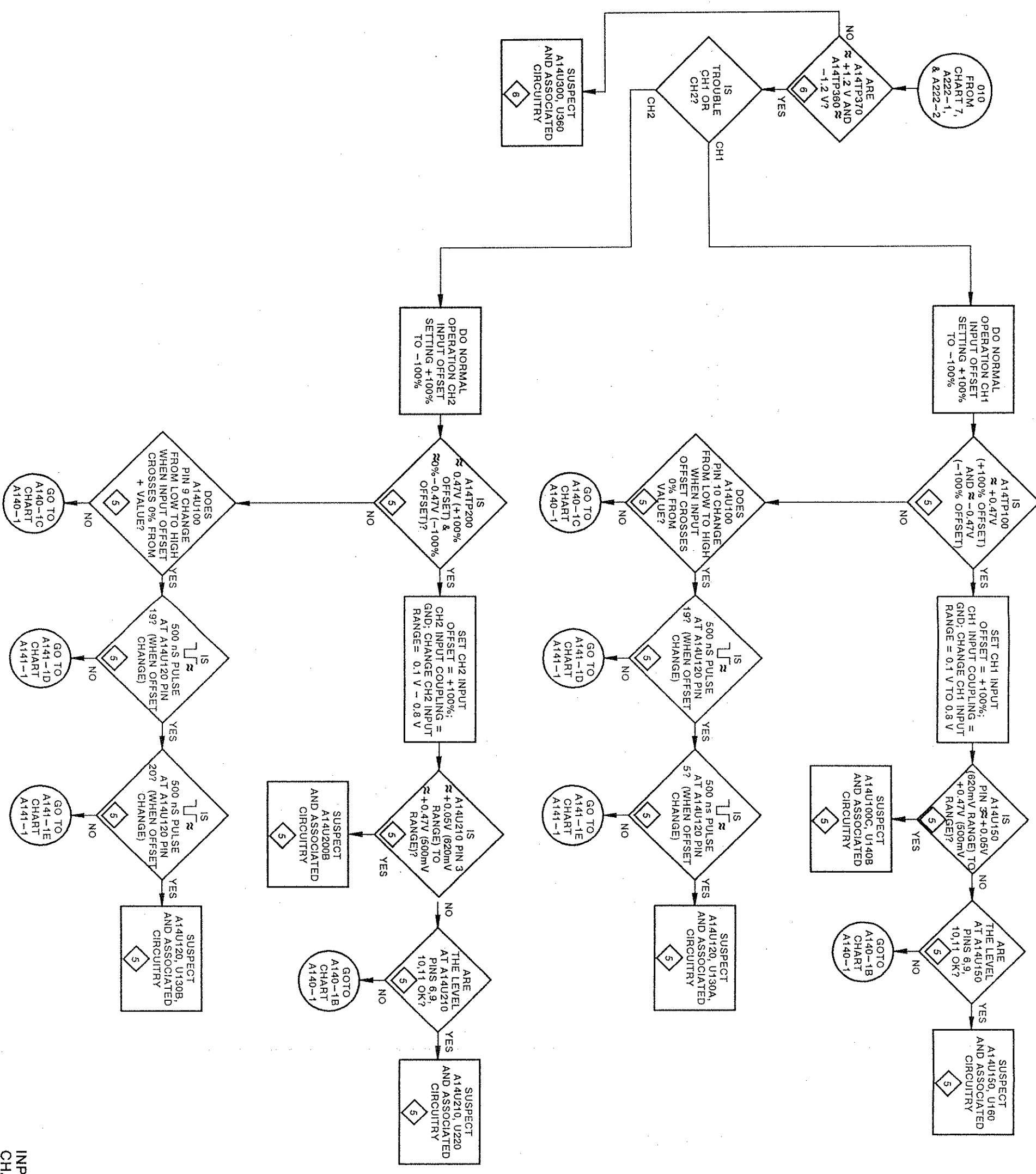
TRIGGER COUPLING ERROR
 TROUBLESHOOTING CHART 007
 INPUT COUPLING ERROR
 TROUBLESHOOTING CHART 008

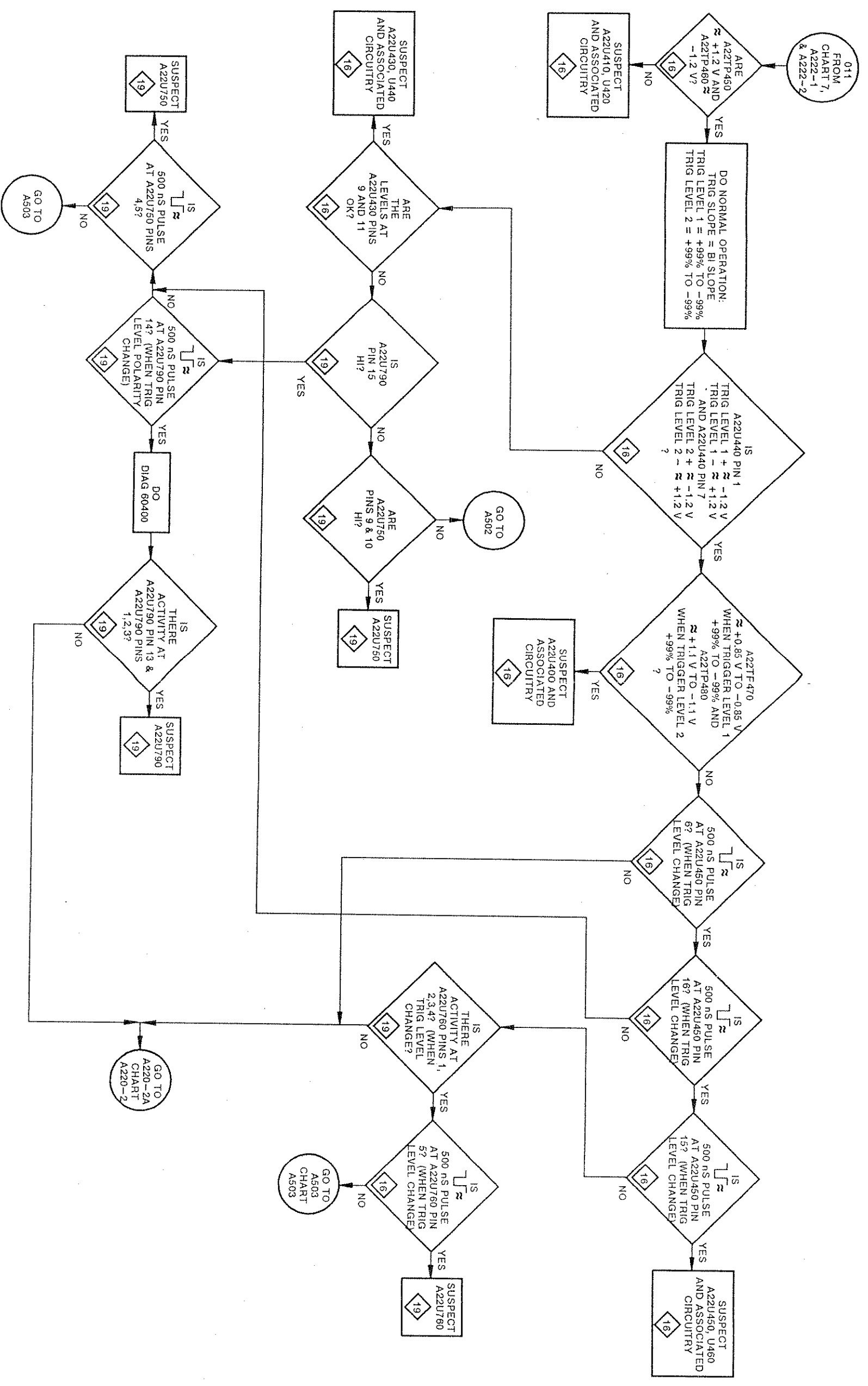


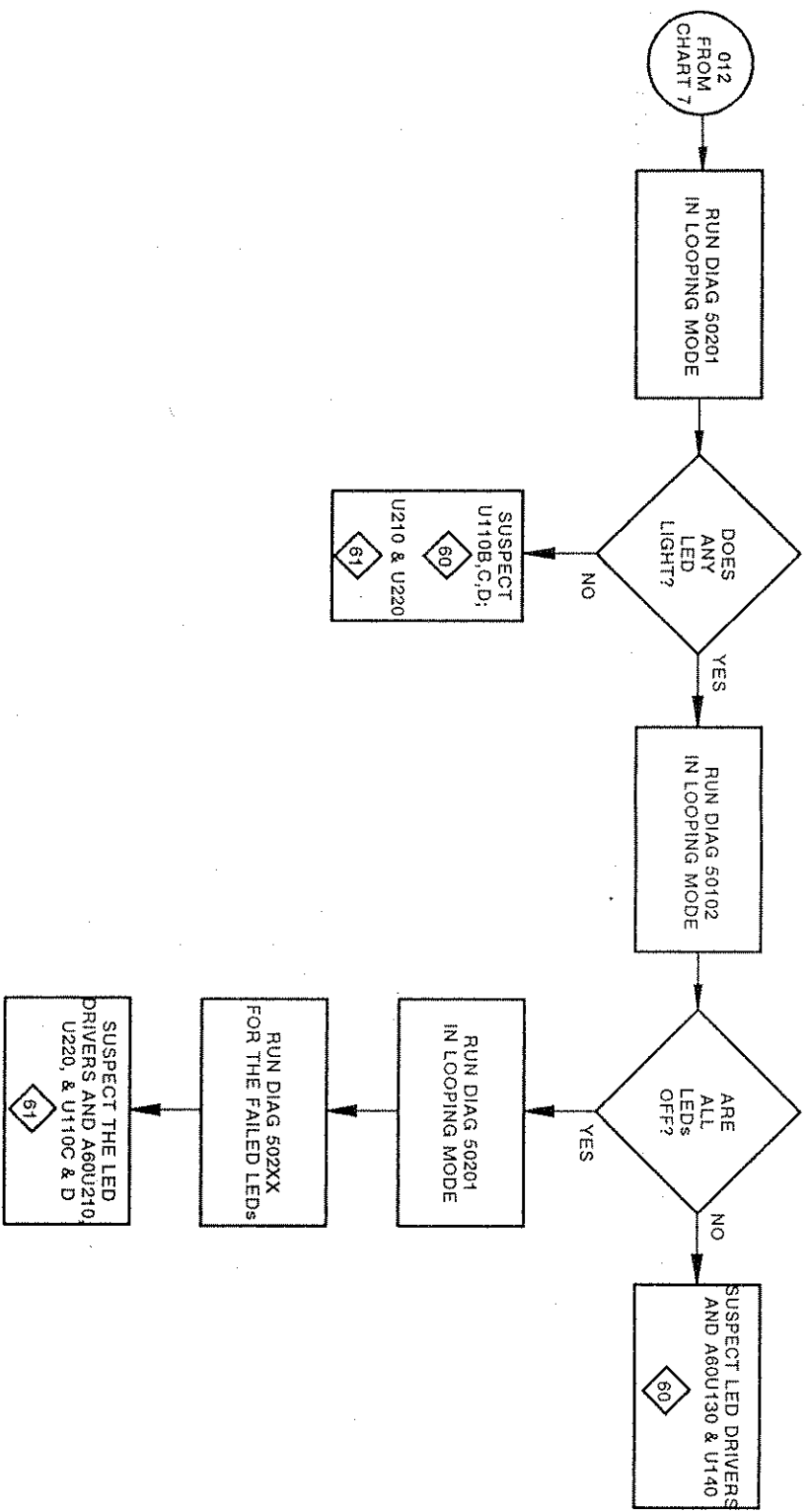


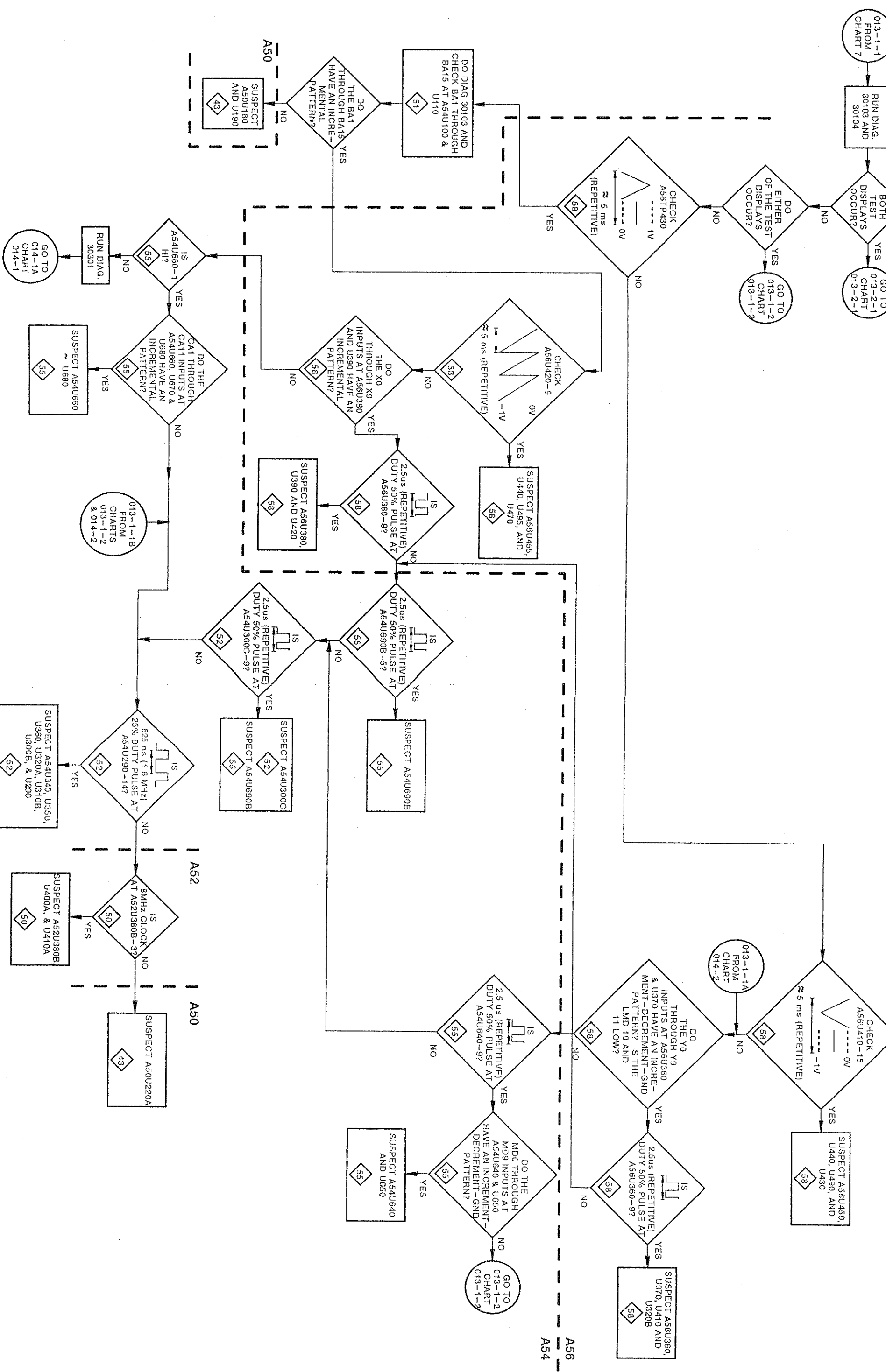
A24 TV TRIGGER BOARD
TROUBLESHOOTING CHART 009-2

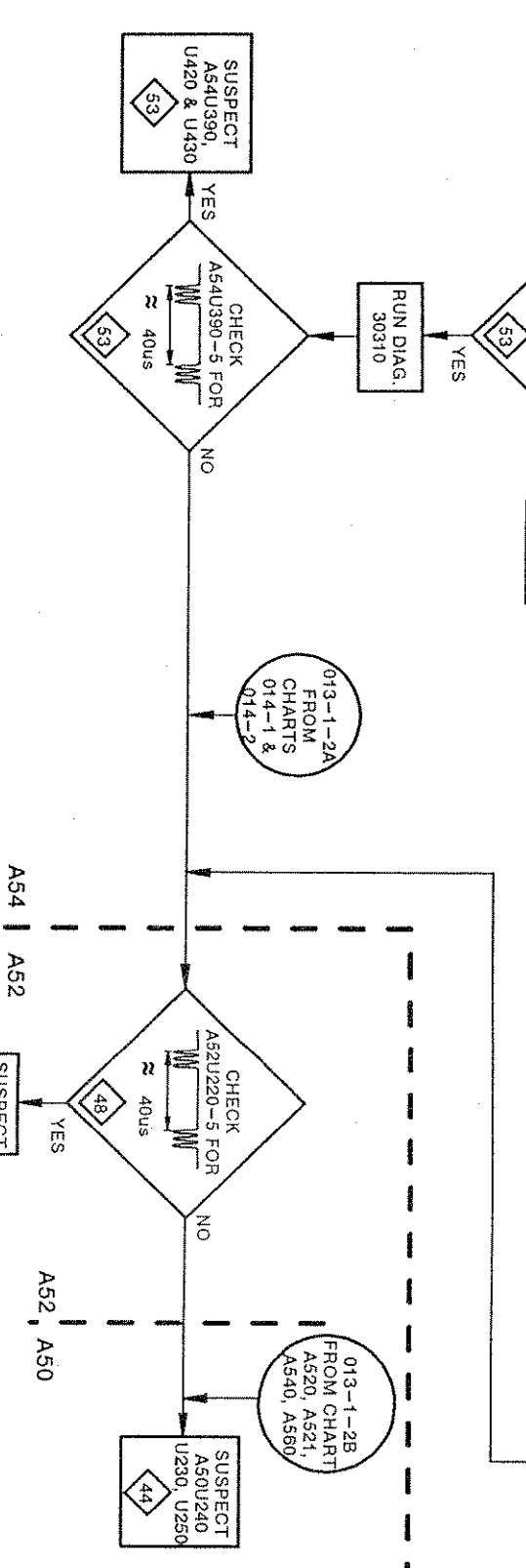
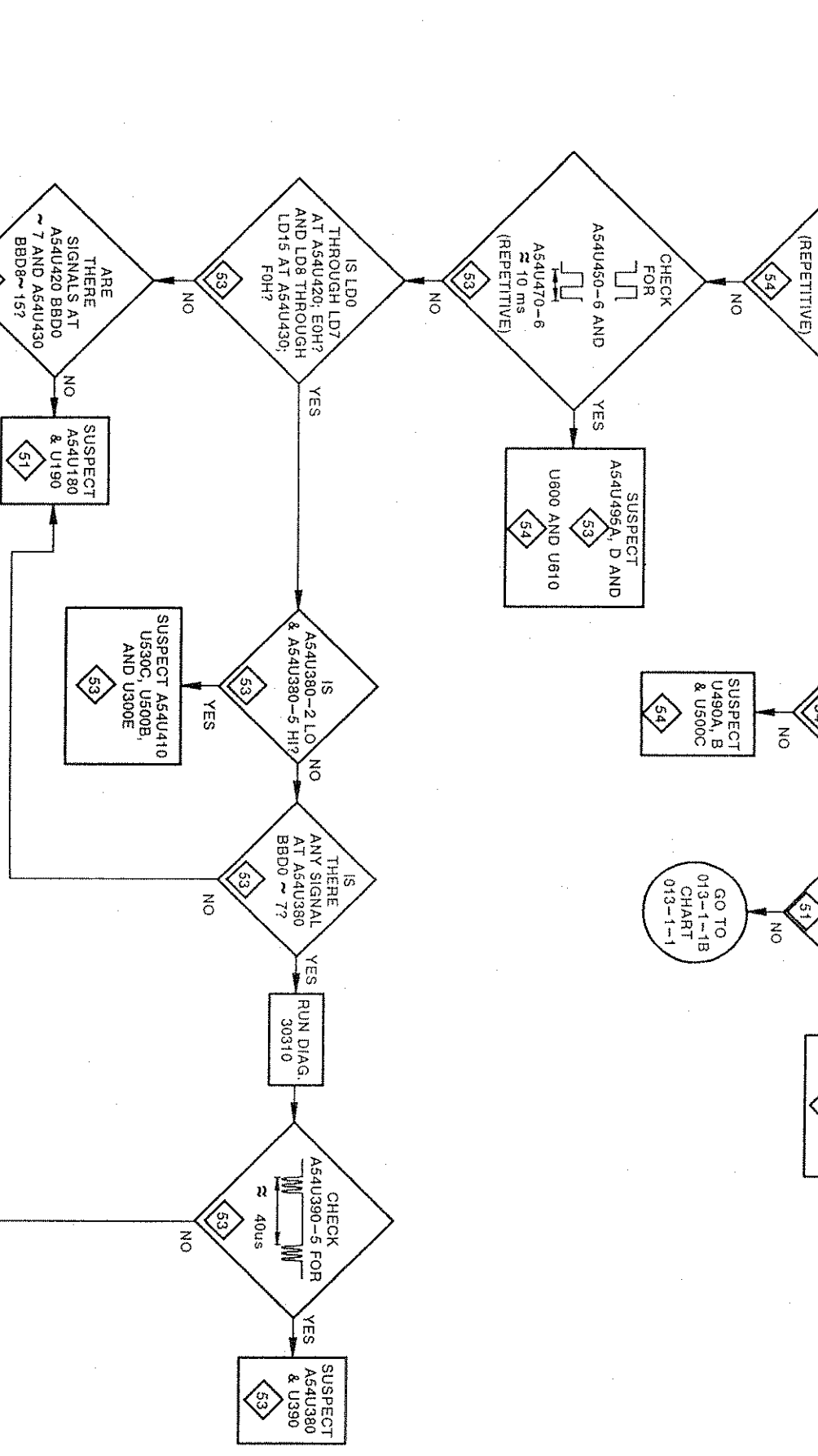
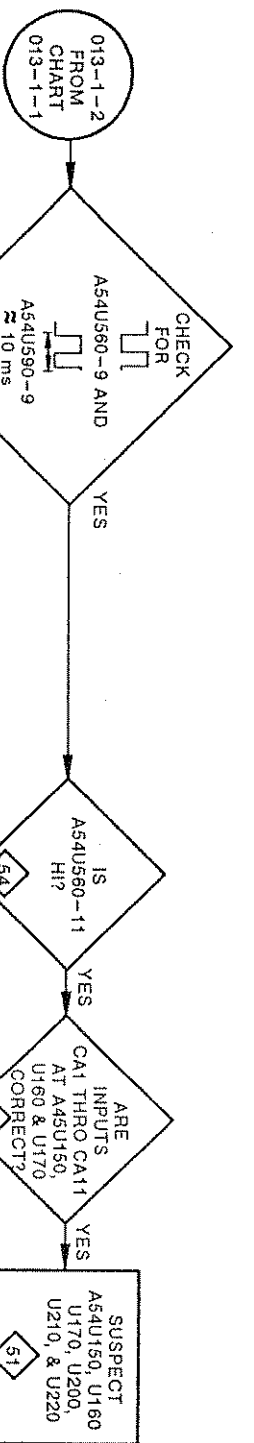




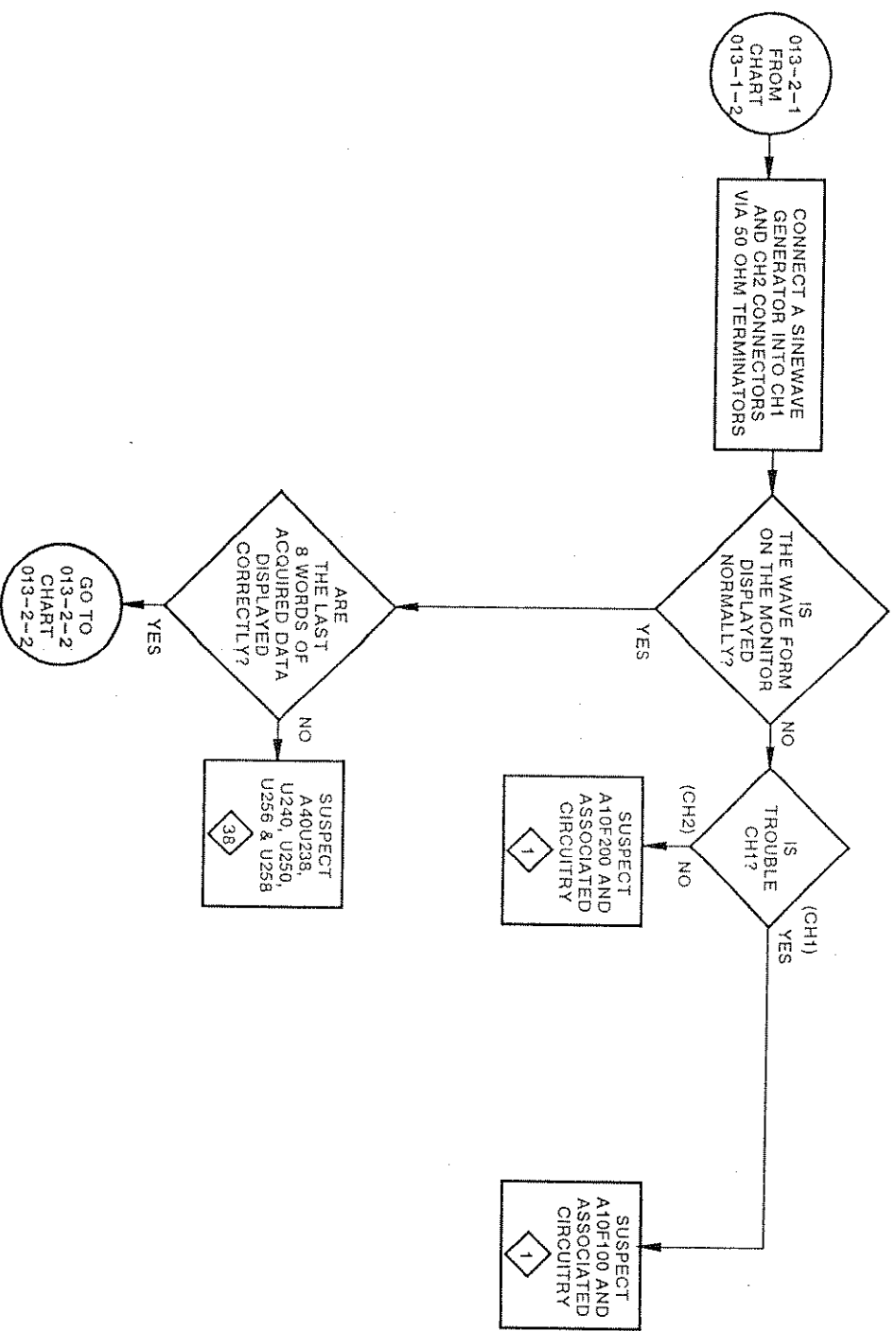








A54

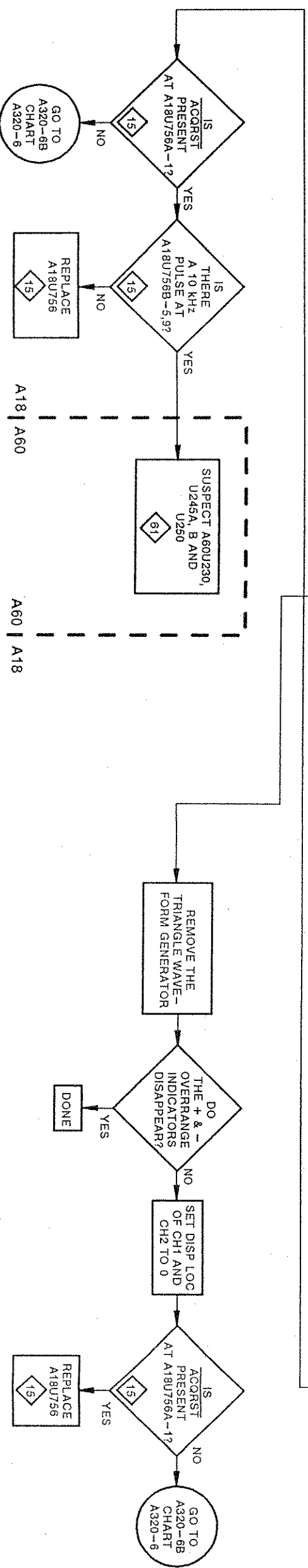
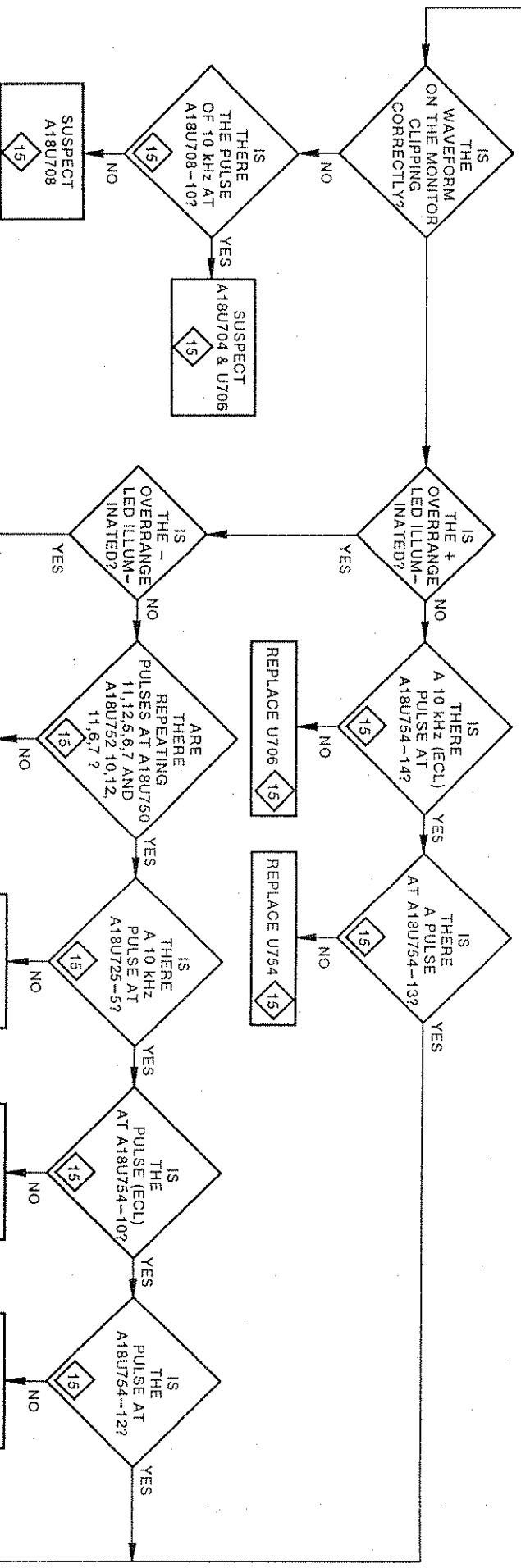


013-2-2
FROM
CHART
013-2-1

SET THE RTD710A AS FOLLOWS:
CH1 (CH2) COUPLING = DC
CH1 (CH2) RANGE = 800 mV
SAMPLE INTERVAL = 100 nS

INPUT TRIANGLE WAVEFORM
TO CH1 (CH2):
AMPLITUDE: +2V
FREQUENCY: 10 kHz

START ACQUISITION
USING HOLD/RESET KEY



A18 | A60

A60 | A18

REMOVE THE TRIANGLE WAVE- FORM GENERATOR

DO THE + & - OVERRANGE INDICATORS DISAPPEAR?

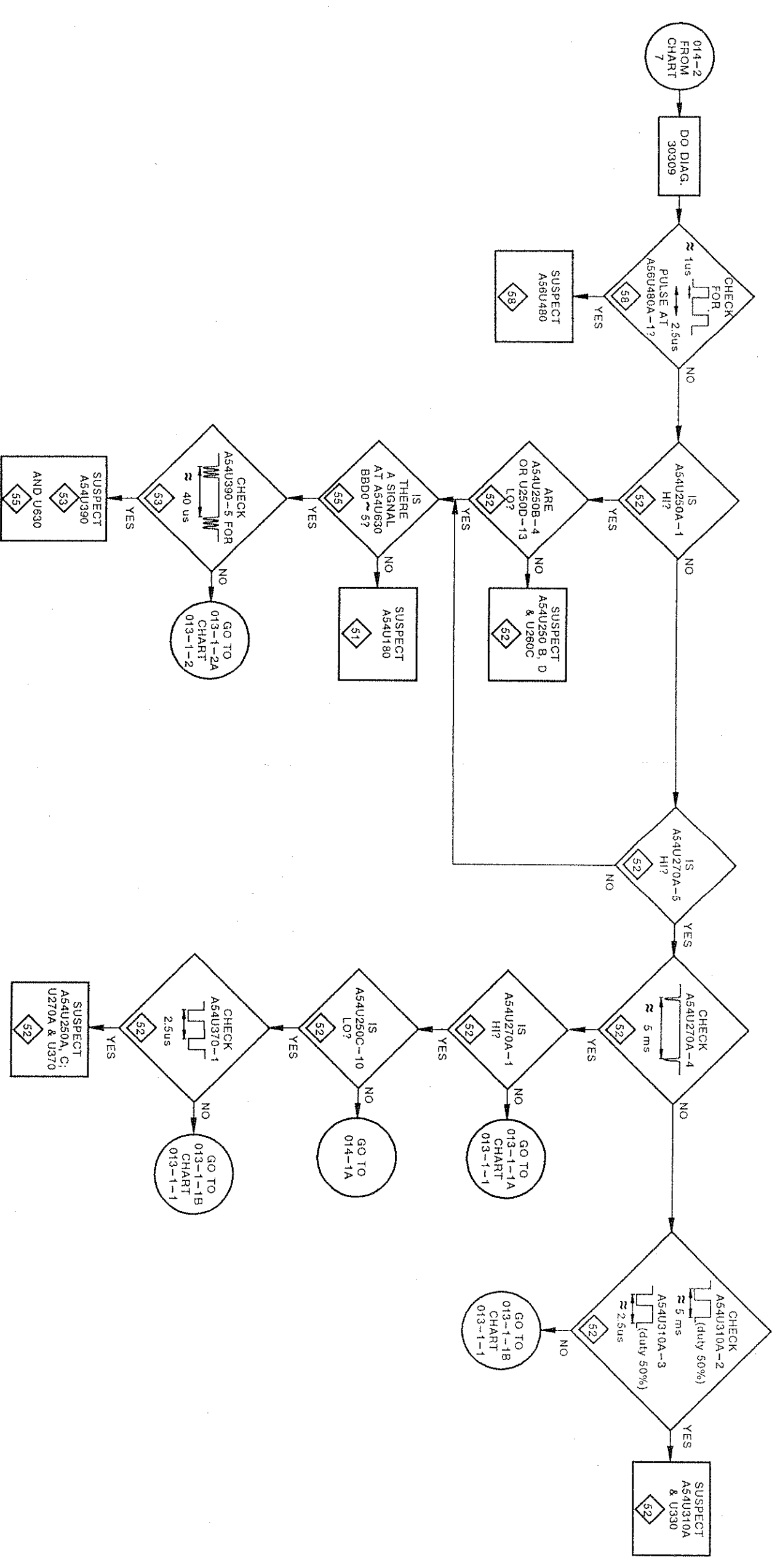
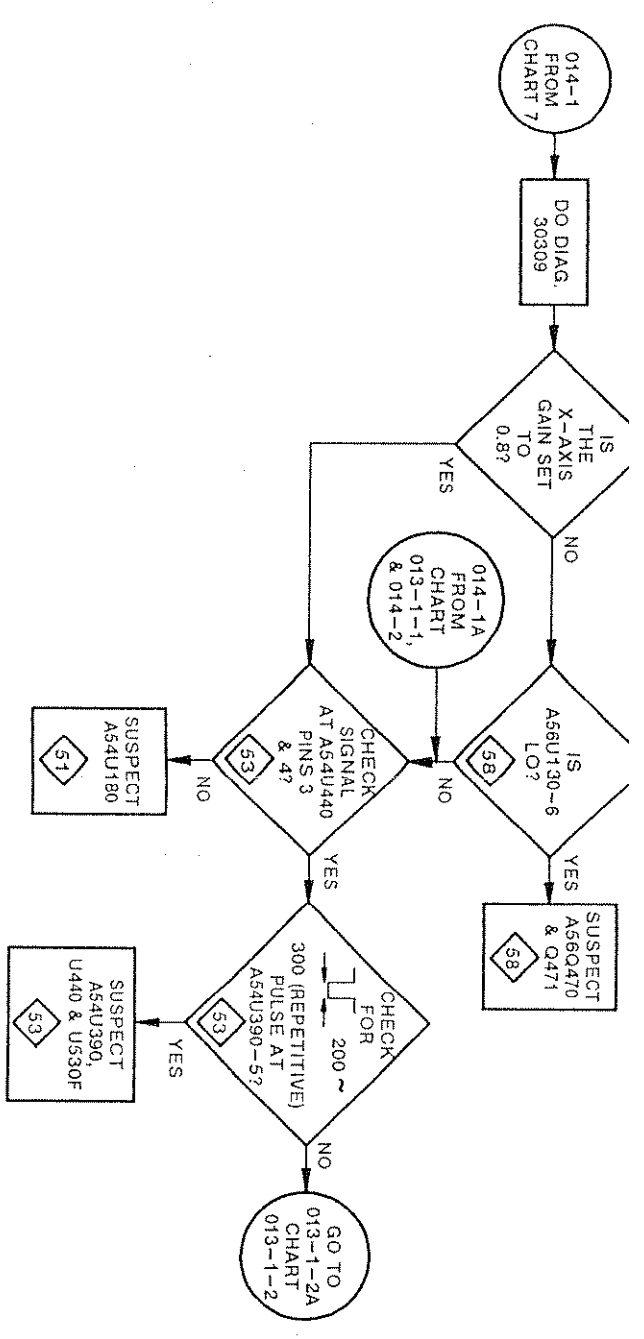
SET DISP LOC OF CH1 AND CH2 TO 0

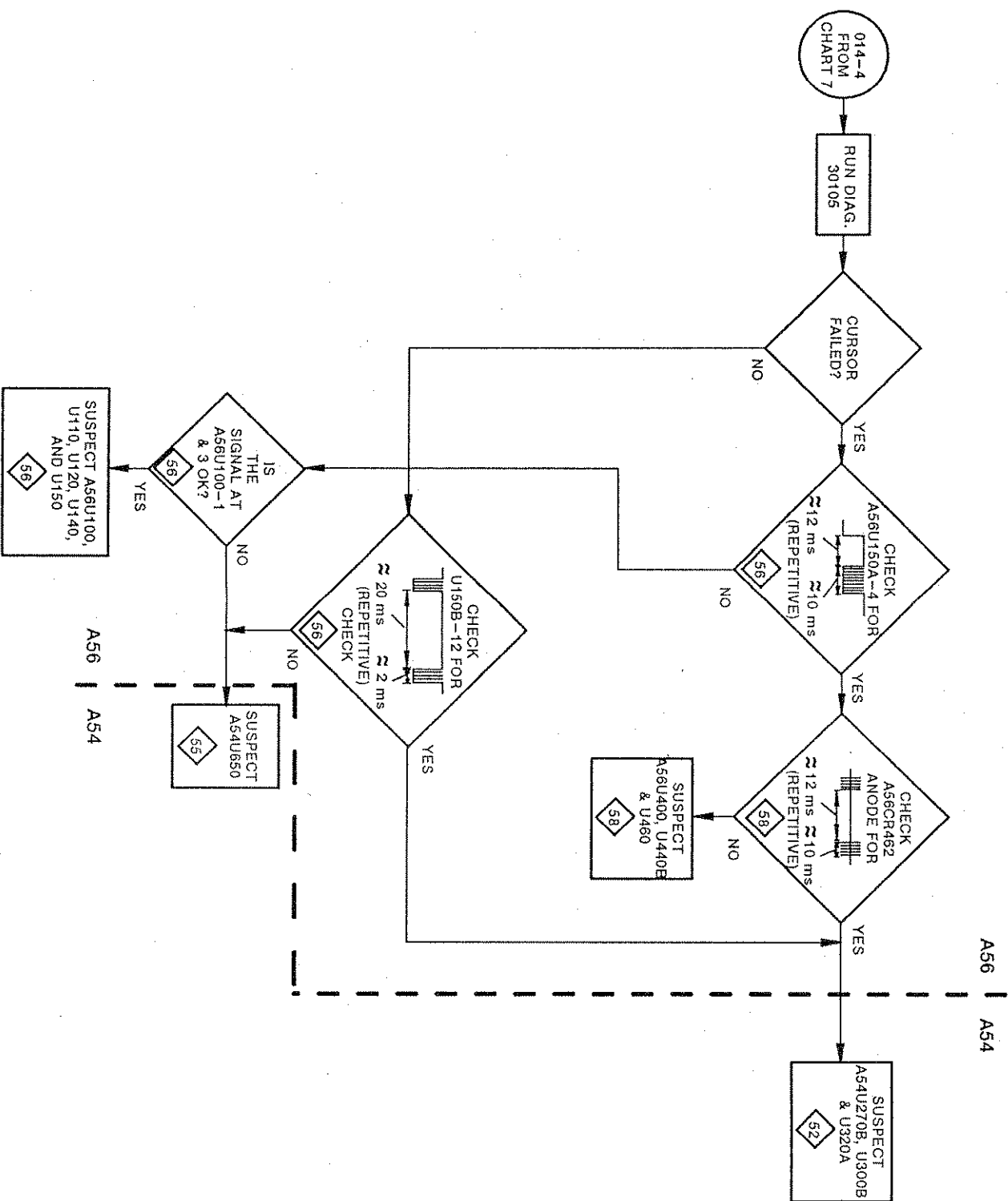
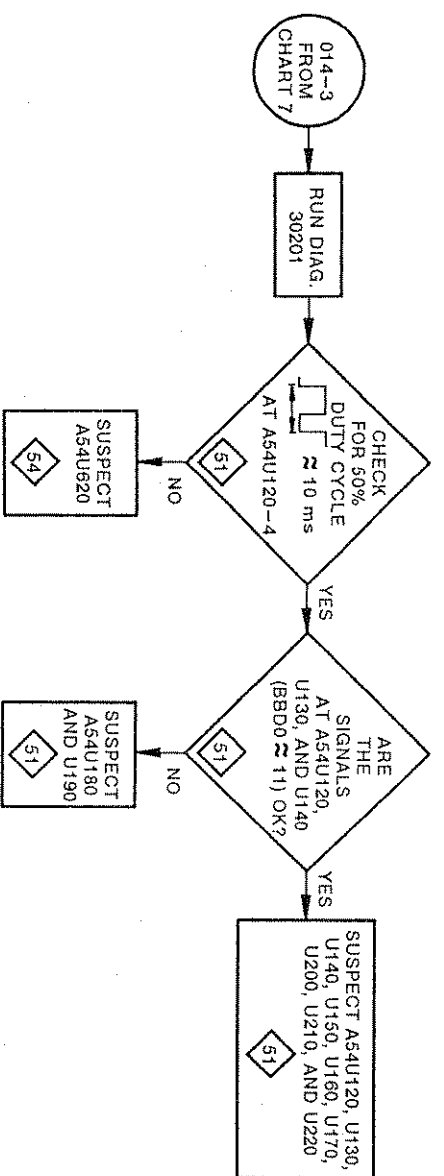
IS ACQRST PRESENT AT A18U756A-1?

REPLACE A18U756

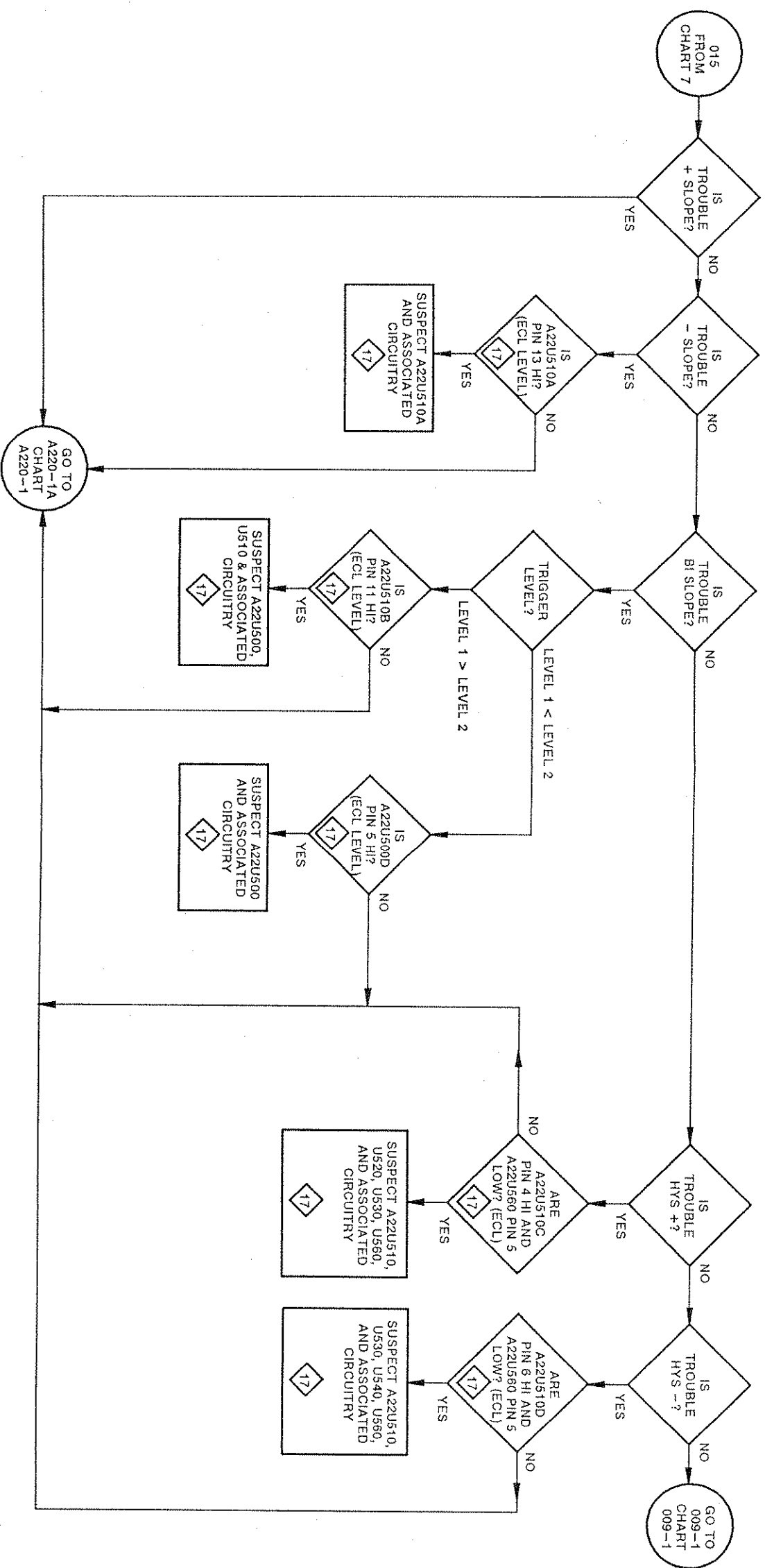
GO TO A320-6B CHART A320-6

DONE





A54 SCROLL FUNCTION TROUBLESHOOTING
 CHART 014-3
 A56 TRIGGER POINT/CURSOR DISPLAY
 TROUBLESHOOTING CHART 014-4



Section 8 DIAGRAMS AND CIRCUIT BOARD ILLUSTRATIONS

Symbols

Graphic symbols and class designation letters are based on ANSI Standard Y32.2-1975.

Logic symbology is based on ANSI Y32.14-1973 in terms of positive logic. Logic symbols depict the logic function performed and may differ from the manufacturer's data.

The overline on a signal name indicates that the signal performs its intended function when it is in the low state.

Abbreviations are based on ANSI Y1.1-1972.

Other ANSI standards that are used in the preparation of diagrams by Tektronix, Inc. are:

Assembly Numbers and Grid Coordinates

Each assembly in the instrument is assigned an assembly number (e.g., A20). The assembly number appears on the circuit board outline in the title for the circuit board component illustration, and in the lookup table for the schematic diagram and corresponding component locator illustration. The Replaceable Electrical Parts list is arranged by assemblies in numerical sequence; the components are listed by component number* (see following illustration for constructing a component number).

The schematic diagram and circuit board component location illustration have grids. A lookup table with the grid coordinates is provided for ease of locating the component. Only the components illustrated on the facing diagram are listed in the lookup table. When more than one schematic diagram is used to illustrate the circuitry on a circuit board, the circuit board illustration may only appear opposite the first diagram on which it was illustrated; the lookup table will list the diagram number of other diagrams that the circuitry of the circuit board appears on.

The information and special symbols below may appear in this manual.

Electrical components shown on the diagrams are in the following units unless noted otherwise:

Capacitors = Values one or greater are in picofarads (pF).

Values less than one are in microfarads (μ F).

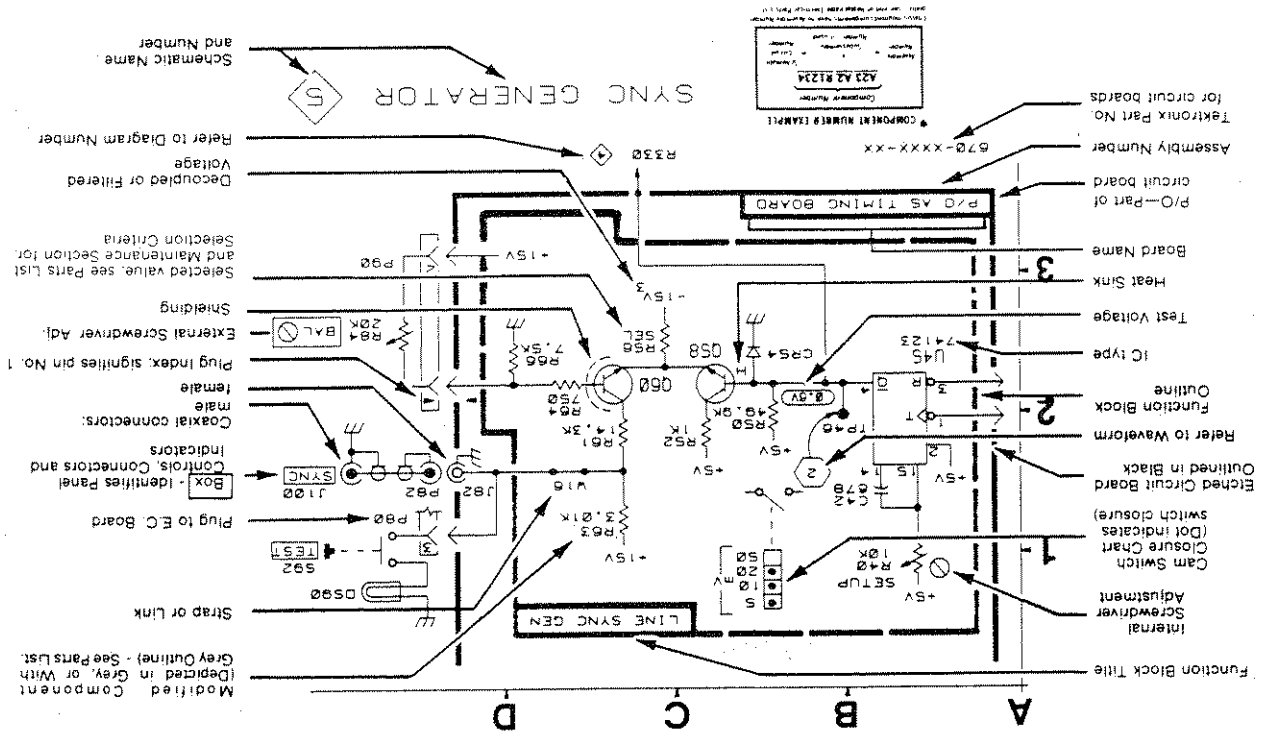
Resistors = Ohms (Ω).

(μ F).

(μ F).

Y14.15, 1966 Drafting Practices.
 Y14.2, 1973 Line Conventions and Lettering.
 Y10.5, 1968 Letter Symbols for Quantities Used in Electrical Science and Electrical Engineering.
 American National Standard Institute
 1430 Broadway
 New York, New York 10018

Component Values



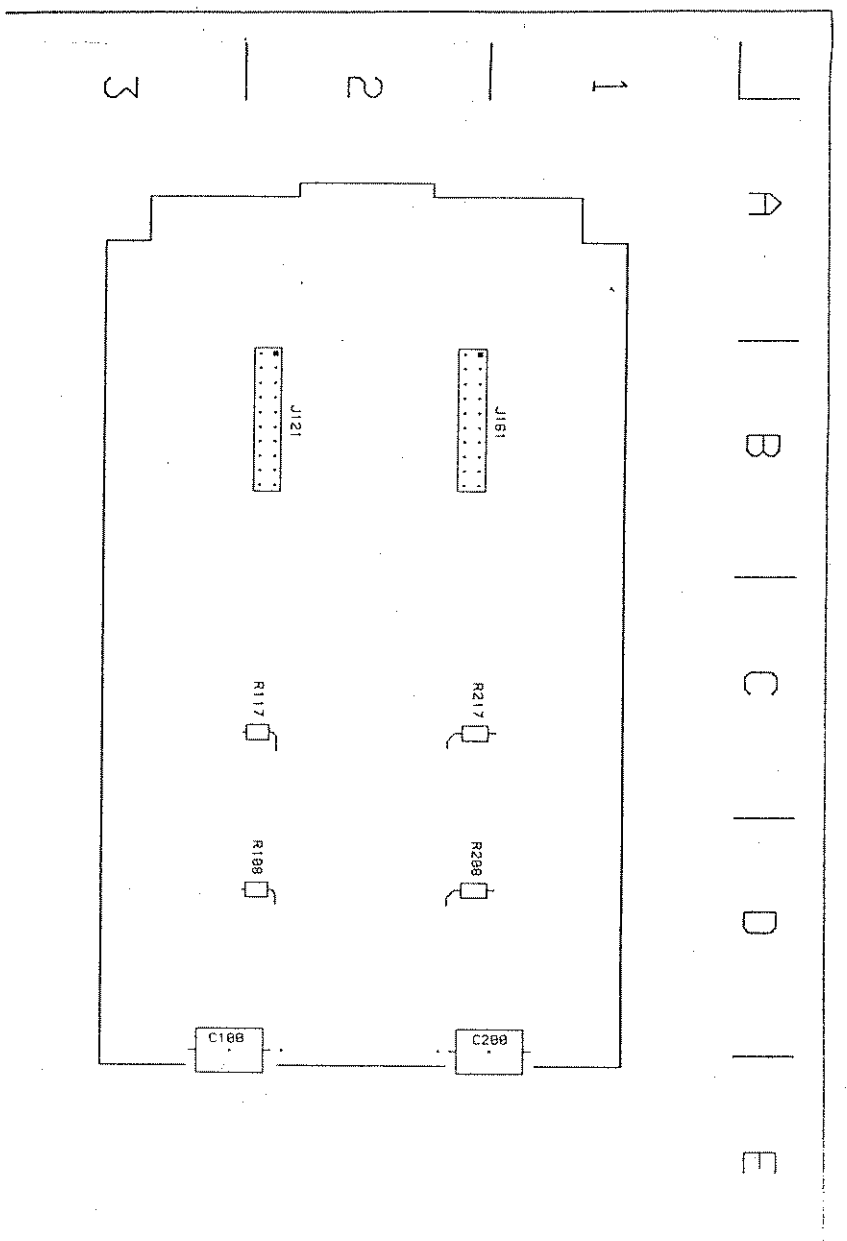
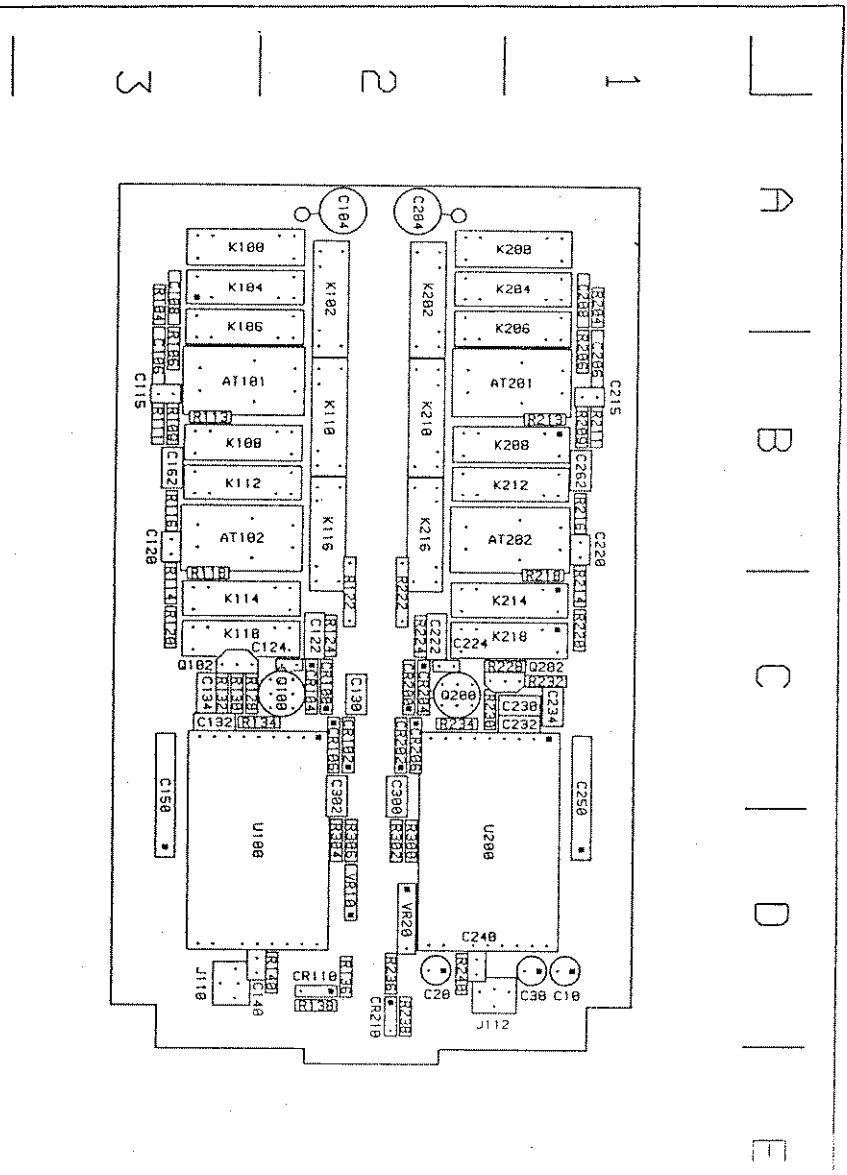
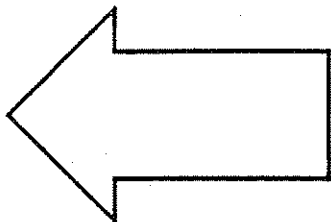
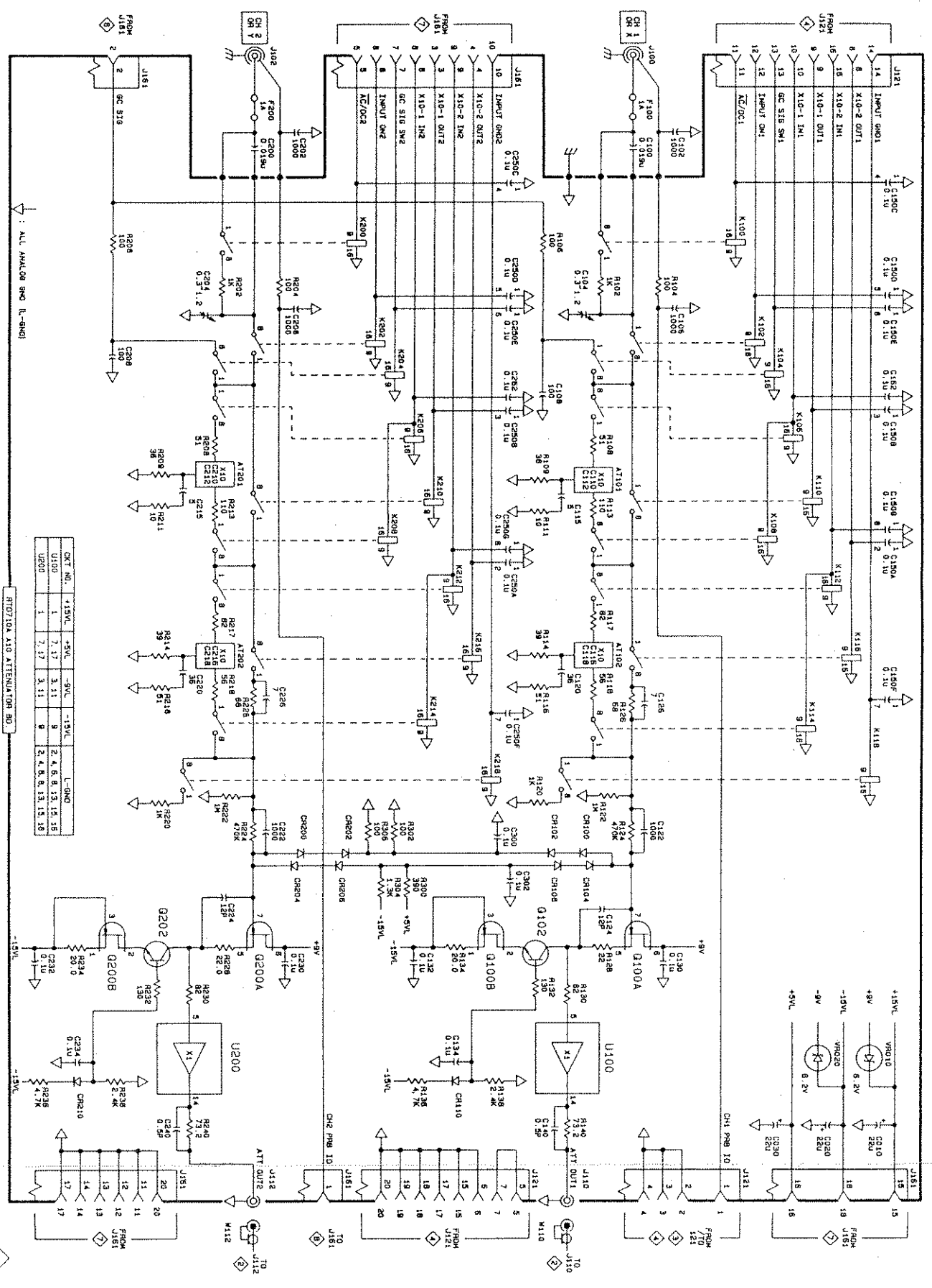


Fig. 8-1. A10 ATTENUATOR CIRCUIT BOARD ASSEMBLY (FRONT AND BACK VIEWS).



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SIDE

A B C D E F G



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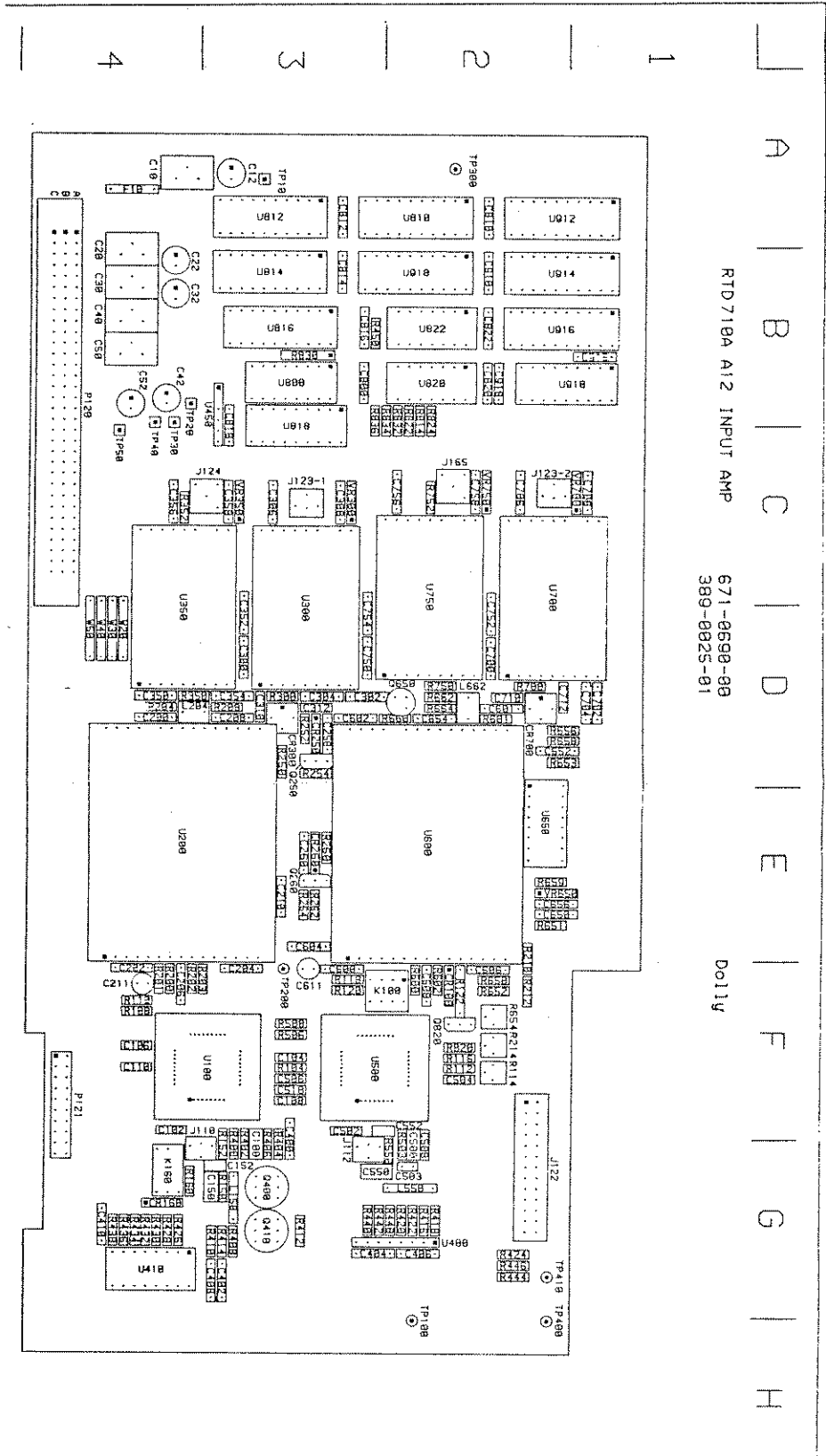
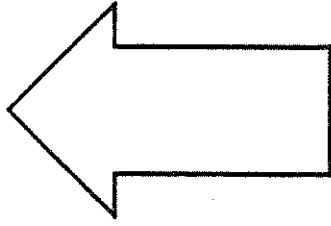


FIG. 8-2. A12 INPUT AMPLIFIER CIRCUIT BOARD ASSEMBLY.



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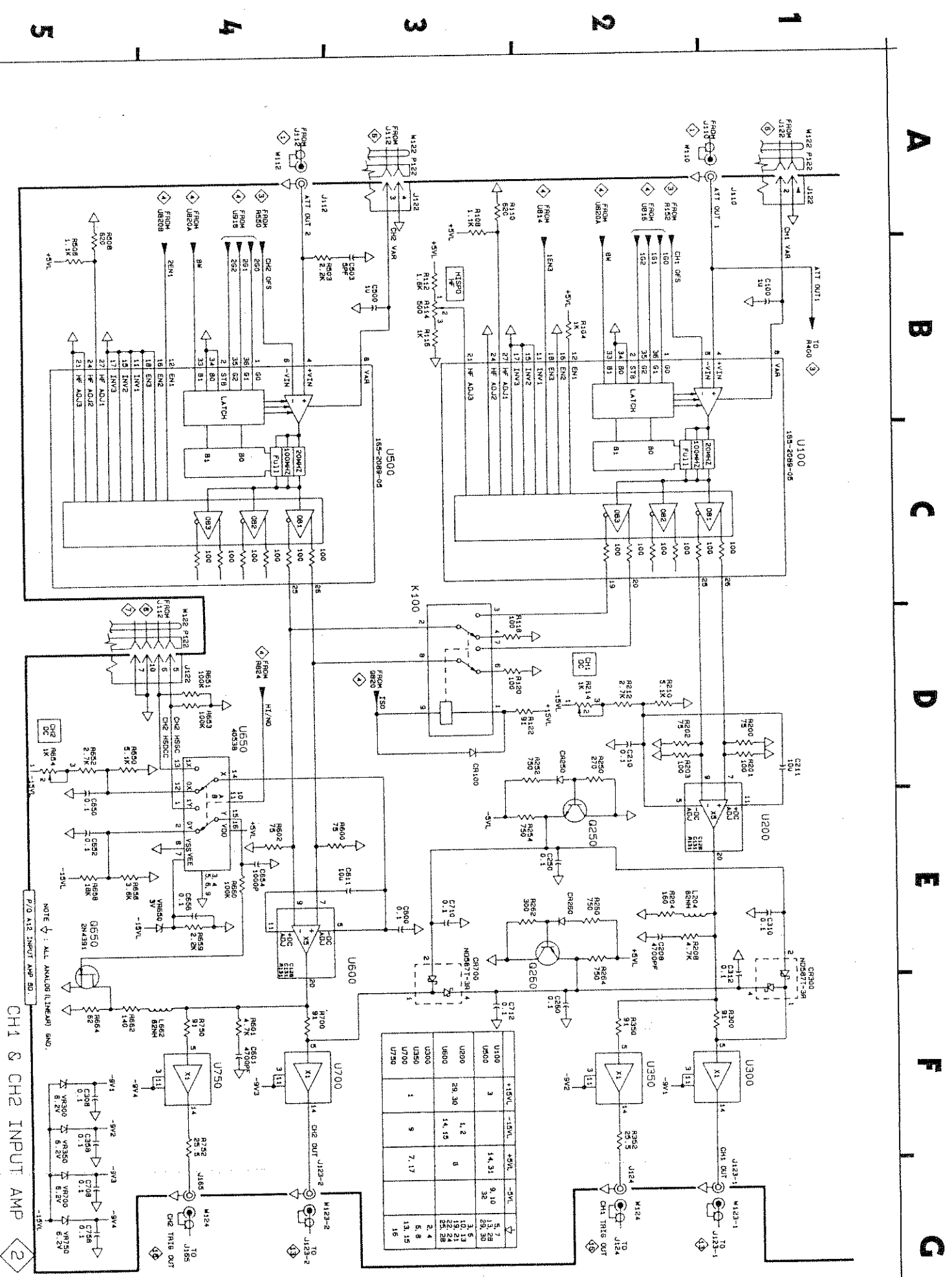
Table B-2

CH 1 & CH2 INPUT IMP 2

INPUT IMP BO, ASSEMBLY B12

CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION	CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION	CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION
C100	B1	G3	J123-2	G4	C2	R350	F2	B4
C128	E2		J124	G2	C3	R352	F2	C4
C128	E4		J165	G4	C2	R303	B4	G2
C131	E2					R306	B5	F3
C131	E4		K100	D3	F2	R308	B5	F3
C208	E2					R600	E3	F2
C210	D2		L204	E2	B4	R601	F4	D2
C211	B1	F4	L662	F4	D2	R602	E4	F2
C250	E2					R650	D5	F2
C260	F2	E3	Q250	E2	D3	R651	B4	E2
C308	F5	C3	Q260	E2	E3	R652	B5	F2
C310	E1	D3	Q650	E5	D2	R653	B4	D2
C312	E1	D3				R654	D5	F2
C358	F5	C3	R104	B2	F3	R656	E5	D2
C500	B3	G2	R108	B3	F4	R658	E5	D2
C503	B3	G2	R110	B3	F4	R659	E4	E2
C600	E3	F3	R112	B3	F2	R660	E4	D2
C601	F4	D2	R114	B3	F2	R662	F5	D2
C611	E3	F3	R116	B3	F2	R664	F5	D2
C650	D5	E2	R118	D3	F3	R700	F4	D2
C652	E5	D2	R120	D3	F3	R750	F4	D2
C654	E4	D2	R122	D2	F2	R752	F4	C2
C656	E4	E2	R131	E4				
C708	G5	C1	R131	E2				
C710	E3	D2	R200	B1	F4	U200	E1	E4
C712	F3	D2	R201	B1	F4	U300	F1	B3
C758	G5	C2	K202	D2	F4	U350	F2	B4
C810	B3	F2	R204	E2	B4	U600	E4	E2
CR250	D2	D3	R208	E2	D3	U650	B4	E2
CR260	E2	E3	R210	D2	E2	U700	F4	C2
CR300	E1	D3	R212	D2	F2	U750	F4	C2
CR700	E3	D2	R214	D2	F2			
J110	B1	G3	R252	D2	D3	UR300	F5	C3
J112	B4	G3	R254	E2	D3	UR350	F5	C3
J122	B4	G2	R260	E2	E3	UR700	G5	C1
J122	B1	G2	R262	E2	E3	UR750	G5	C2
J123-1	G1	C3	R300	F1	D3			

ASSY A12 is also shown on Diagrams 2,3, and 4.
 ASSY A12 (Fig.8-2) circuit board illustration faces Diagram 2.



A B C D E F G

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Table 8-3

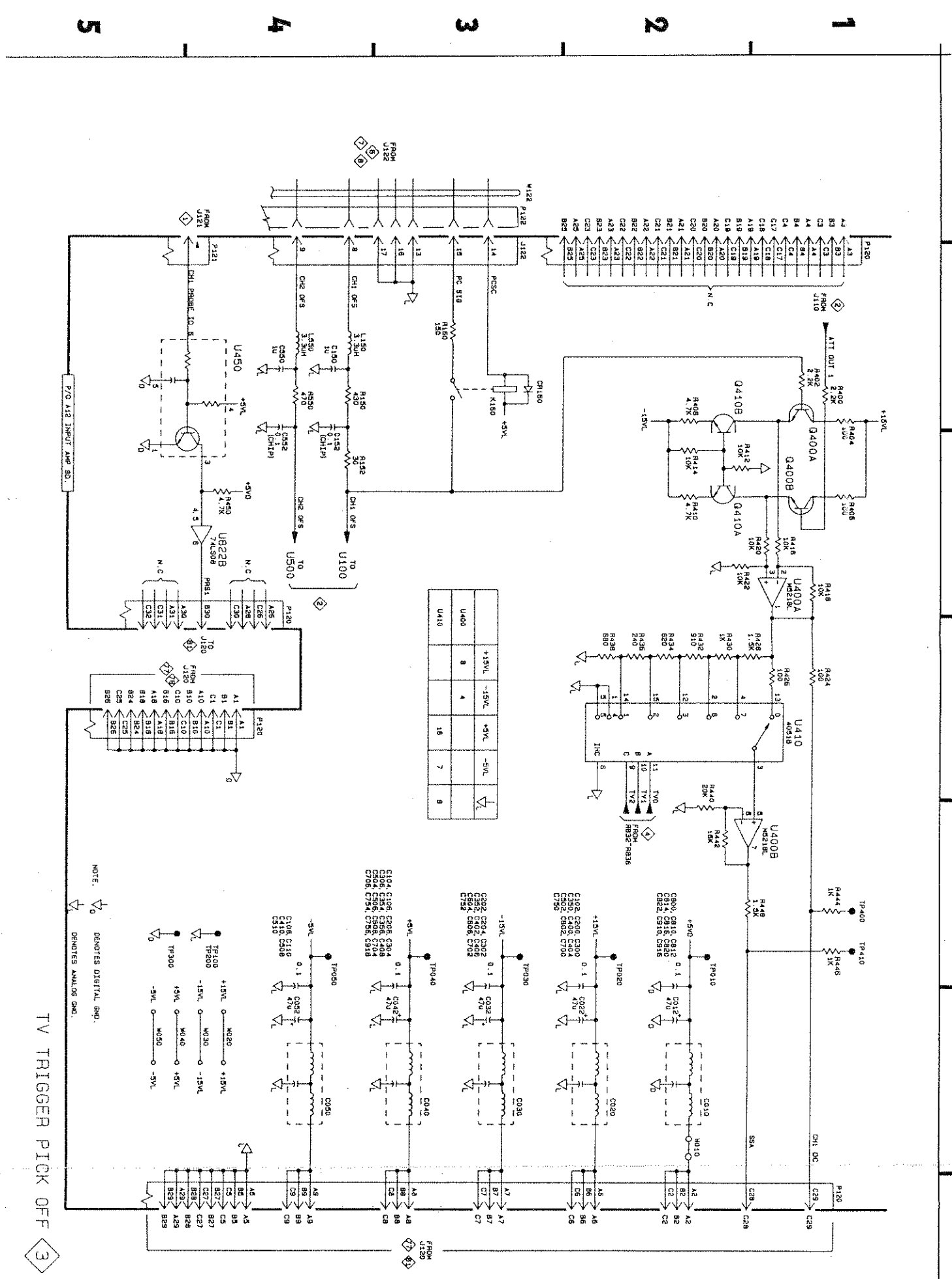
TU TRIGGER PICK OFF 3

INPUT AMP NO., ASSEMBLY A12

CIRCUIT NUMBER	SCHEMATIC BOARD		CIRCUIT NUMBER	SCHEMATIC BOARD		CIRCUIT NUMBER	SCHEMATIC BOARD	
	LOCATION	LOCATION		LOCATION	LOCATION		LOCATION	LOCATION
C010	F2	B4	C700	E2	B2	R414	C2	B3
C012	F2	B3	C702	E3	B1	R416	C1	B2
C020	F2	B4	C704	E3	B1	R418	C1	B2
C022	F2	B4	C706	E3	C2	R420	C1	B2
C030	F3	B4	C750	E2	B3	R422	C2	B2
C032	F3	B4	C752	E3	B2	R424	B1	B2
C040	F3	B4	C754	E3	B3	R426	B1	B4
C042	F3	B4	C756	E3	C2	R428	B2	B4
C050	F4	B4	C800	E2	B3	R430	B2	B4
C052	F4	B4	C810	E2	B2	R432	B2	B4
C102	E2	F4	C812	E2	B3	R434	B2	B4
C104	E3	F3	C814	E2	B3	R436	B2	B4
C106	E3	F4	C816	E2	B3	R438	B2	B4
C108	E4	F3	C820	E2	B2	R440	E2	B3
C110	E4	F4	C822	E2	B2	R442	E2	B2
C150	B4	B3	C910	E2	B2	R444	E1	B2
C152	B4	B4	C916	E2	B1	R446	E1	B2
C200	E2	B4	C918	E3	B2	R448	E1	B2
C202	E3	F4	C950	E3	B2	R450	C4	B3
C204	E3	F3	C950	E3	B4	R550	B4	B4
C206	E3	E3	K150	B3	B4			
C300	E2	E2	K150	B3	B4	TP010	E2	B3
C302	E3	B3	L150	B4	B3	TP020	E2	B4
C304	E3	B3	L150	B4	B3	TP030	E3	B4
C306	E3	C3	L550	B4	B2	TP040	E3	C4
C350	E2	B4				TP050	E4	C4
C352	E3	B3	P120	B4	B4	TP100	E4	B2
C354	E3	B3	P120	C4	B4	TP200	E4	F3
C356	E3	C4	P120	B1	B4	TP300	E5	B2
C400	E2	B3	P120	B1	B4	TP400	E1	E1
C402	E3	B3				TP410	E1	B2
C404	E2	B2	Q400R	B1	B3			
C406	E3	B2	Q400R	C1	B3	U400R	C1	B2
C408	E3	B3	Q410R	C2	B3	U400R	E1	B2
C410	E4	B4	Q410R	B2	B3	U410	B1	B4
C502	E2	F3				U450	B4	B3
C504	E3	F2	R150	B4	B3	U822B	C4	B2
C506	E3	F3	R152	C4	B3			
C508	E4	B2	R150	B3	B4	U810	F2	
C510	E4	F3	R400	B1	B3	U820	F4	B4
C550	B4	B3	R402	B1	B3	U830	F4	B4
C552	B4	F2	R404	B1	B3	U840	F5	B4
C602	E2	B3	R406	C1	B3	U850	F5	B4
C604	E3	E3	R408	B2	B3			
C606	E3	F2	R410	C2	B3			
C608	E3	F2	R412	C2	B3			

ASSY A12 is also shown on Diagrams 2,3, and 4.
ASSY A12 (Fig.8-2) circuit board illustration faces Diagram 2.

A B C D E F G



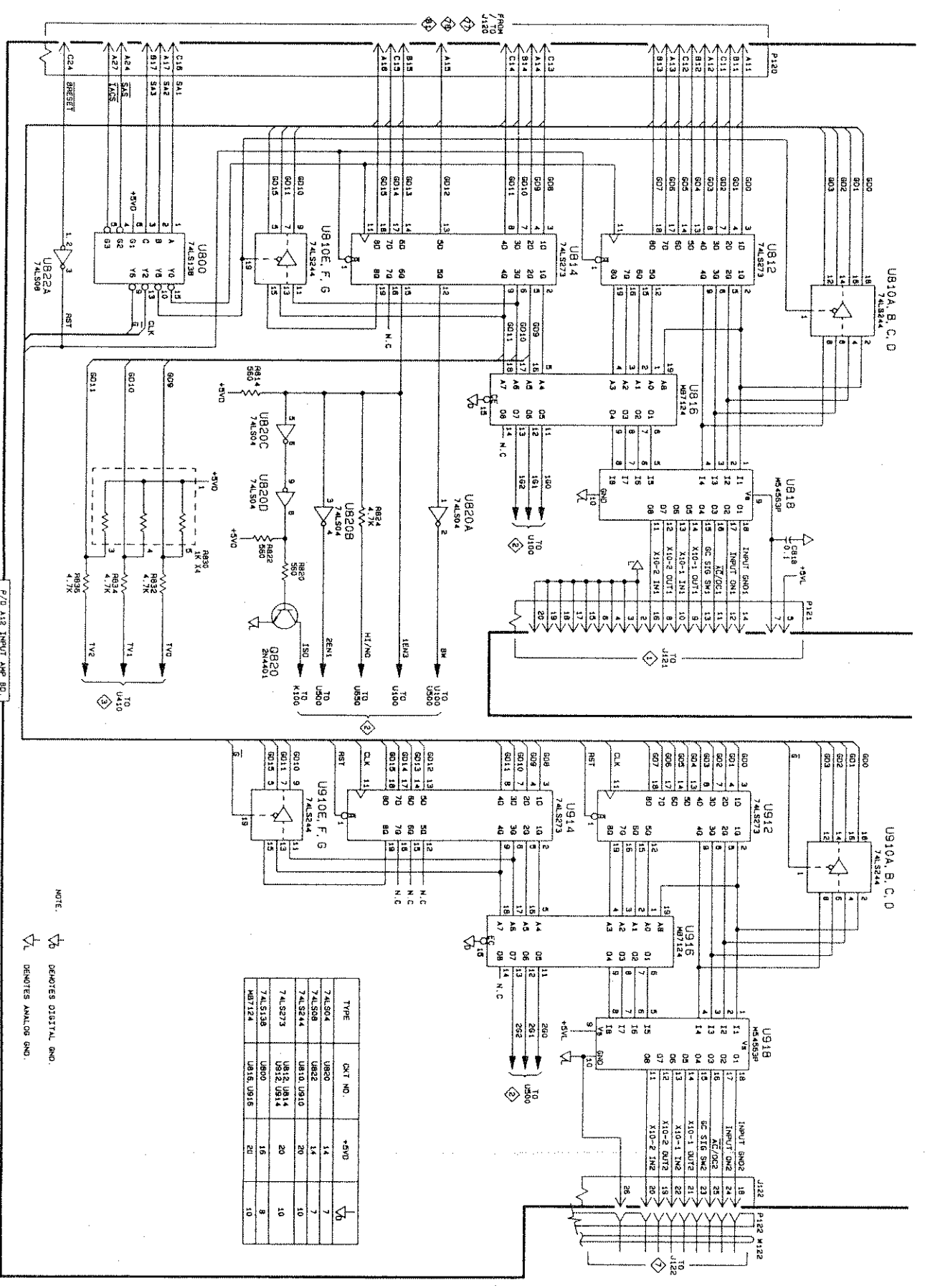
1 2 3 4 5

Table 8-4
AMP MPU INTERFACE 4

INPUT AMP BD., ASSEMBLY A12

CIRCUIT NUMBER	SCHEMATIC BOARD LOCATION		CIRCUIT NUMBER	SCHEMATIC BOARD LOCATION	
	LOCATION	LOCATION		LOCATION	LOCATION
C818	C1	C3	U810E	B4	A2
			U810F	B4	A2
J122	G2	G2	U810G	B4	A2
			U812	B2	A3
P120	A2	B4	U814	B3	B3
P121	D1	F4	U815	C2	B3
			U818	C2	C3
Q820	D4	F2	U820A	C3	B2
			U820B	C4	B2
R814	C4	B2	U820C	C4	B2
R820	D4	F2	U820D	C4	B2
R822	C4	B2	U822A	B5	B2
R824	C3	F2	U910A	E1	B2
R830	C4	B3	U910B	E1	B2
R832	D4	B2	U910C	E1	B2
R834	D5	B2	U910D	E1	B2
R836	D5	B3	U910E	E4	B2
			U910F	E4	B2
U800	B4	B3	U910G	E4	B2
U810A	B1	A2	U912	E2	A2
U810B	B1	A2	U914	E3	B2
U810C	B1	A2	U915	E2	B2
U810D	B1	A2	U918	F2	B2

ASSY A12 is also shown on Diagrams 2,3, and 4.
ASSY A12 (Fig.8-2) circuit board illustration faces Diagram 2.



TYPE	CMT. NO.	+5VDC	⊕
74LS04	UB20	14	7
74LS08	UB22	14	7
74LS244	UB10, UB14	20	10
74LS273	UB12, UB14, UB16, UB18	20	10
74LS138	UB800	16	8
MB7124	UB16, UB18	20	10

NOTE:
 ⊕ DENOTES DIGITAL GND.
 ⊕ DENOTES ANALOG GND.

AMP MPU INTERFACE

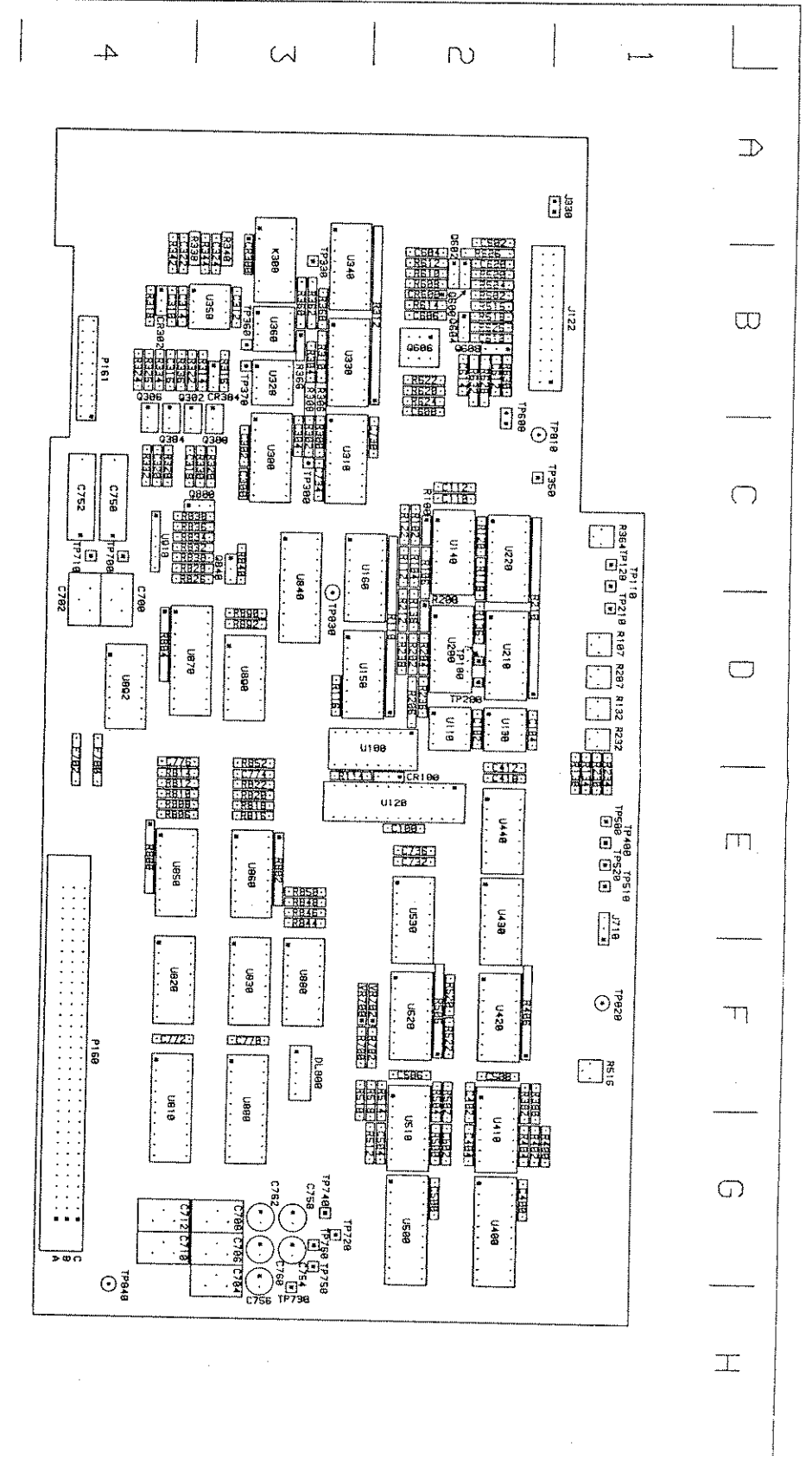
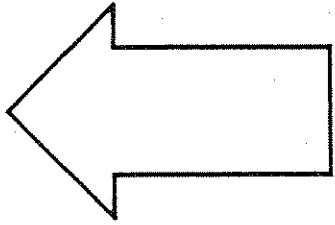


Fig. 8-3. A14 AUTO CAL CIRCUIT BOARD ASSEMBLY.



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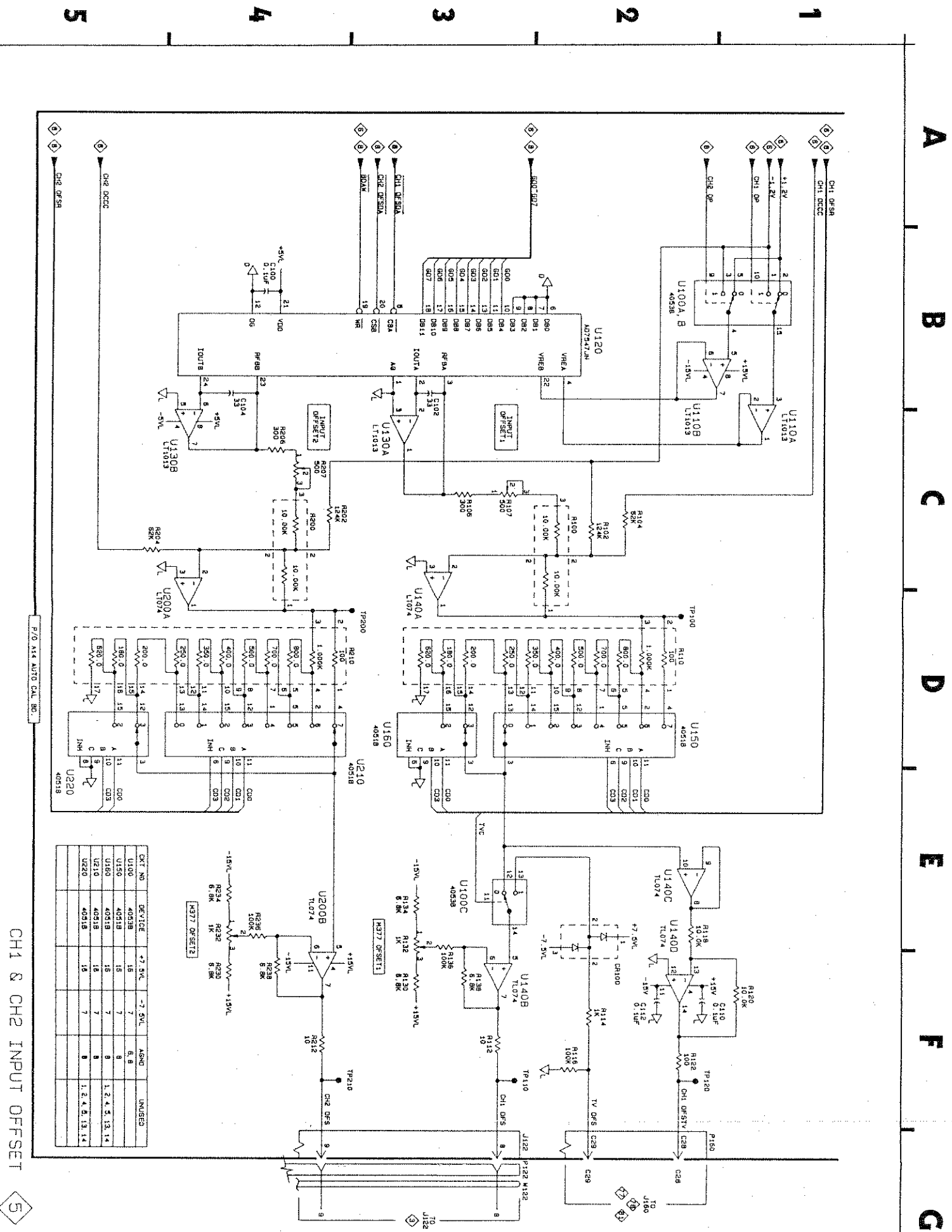
Table 8-5

CNT 1 CH2 IMPRT OFFSET

PHOTO CML. NO. ASSEMBLY R14

CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION	CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION	CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION
C100	B4	E2	R120	F1	C2	F2	F2	C1
C102	B3	D2	R122	F2	C2	04	04	D2
C104	B4	D2	R130	F3	E1	F4	F4	D1
C110	F2	C2	R132	E3	D1			
C112	F2	C2	R134	E3	E1	01	01	
CR100	E2	E2	R138	F3	D2	E3	E3	D2
			R136	E3	D2	01	01	D2
			R134	E3	E1	01	01	D2
			R200	C4	D2	C1	C1	D2
			R202	C4	D2	01	01	D2
			R204	C5	D2	02	02	E2
			R206	C4	D2	03	03	D2
P160	B2	F4	R207	C4	D1	C4	C4	D2
			R210	04	D2	03	03	C2
R100	C2	C2	R212	F4	D2	F3	F3	C2
R104	C2	C2	R230	F4	E1	E2	E2	C2
R106	C3	C2	R232	E4	D1	F2	F2	C2
R107	C3	D1	R234	E4	E1	02	02	D2
R110	D2	D2	R236	E4	B2	03	03	C2
R112	F3	C2	R238	F4	D2	C4	C4	D2
R114	F2	E3				F4	F4	B2
R116	F2	B3	R180	D2	D2	04	04	D2
R118	E2	C2	R110	F3	C1	05	05	C2

ASSY A14 is also shown on Diagrams 5,6,7, and 8. ASSY A14 (Fig-8-3) circuit board illustration faces Diagram 5.



CH1 & CH2 INPUT OFFSET

Table 8-6

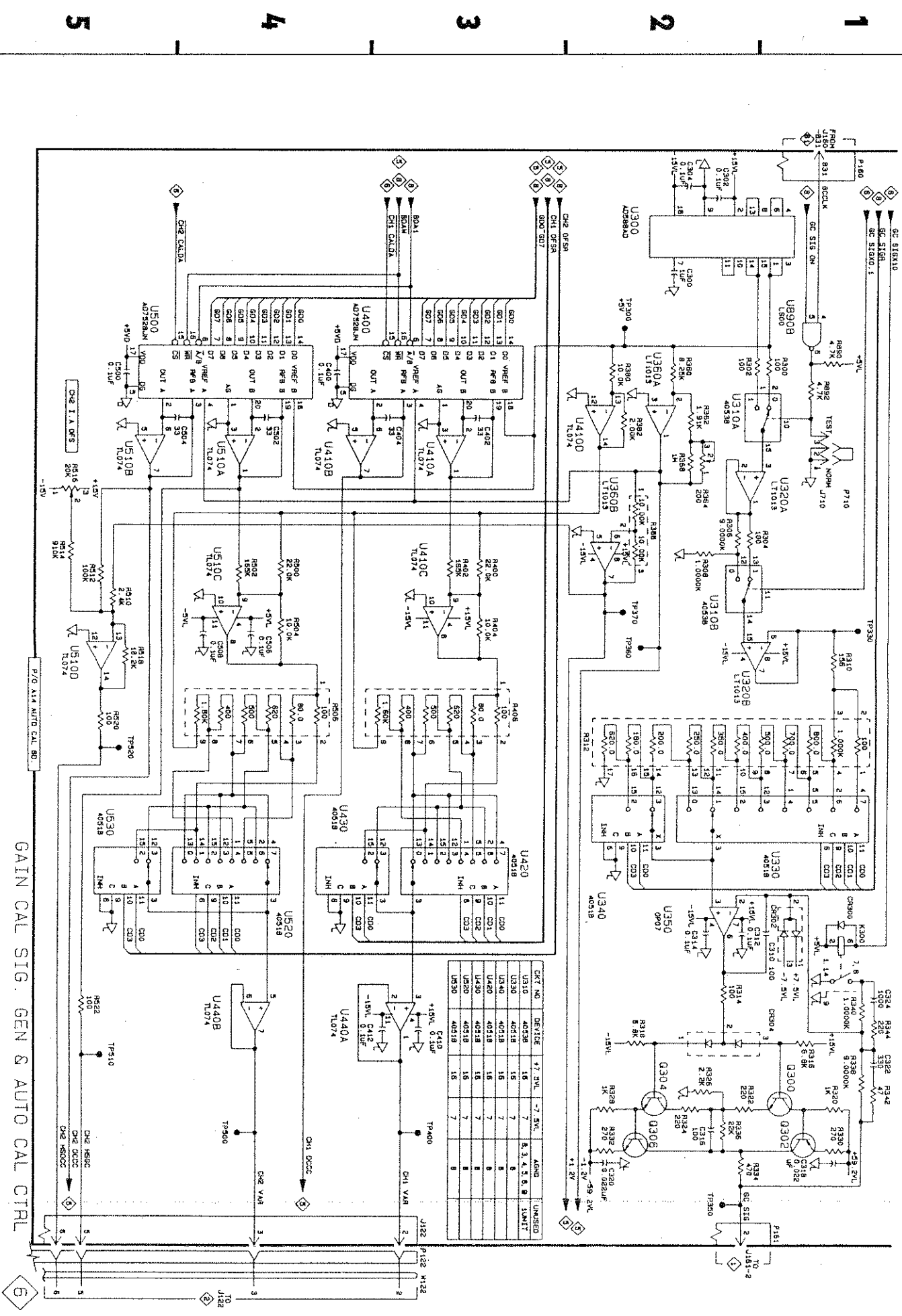
GRN CR. SIG. GEN. & AUTO CR. CIR. 6

AUTO CR. BO., RESERVE #14

CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION	CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION	CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION
C300	R2	C3	R304	C2	B3	R522	E5	F2
C302	R2	C3	R306	C2	B3	R890	B1	B3
C304	R2	C3	R308	C2	B3	R892	B1	B3
C310	E1	B4	R310	D1	B3			
C312	E2	B3	R312	D2	B2	TP300	B2	C3
C314	E2	B4	R314	E2	B3	TP330	D1	B3
C316	F2	B4	R316	F1	B3	TP350	G2	C2
C318	F1	C3	R318	F2	B4	TP360	D2	B3
C320	F2	C4	R320	F1	C3	TP370	C2	B3
C322	F1	B4	R322	F2	B3	TP400	F3	E1
C324	E1	B3	R324	F2	B4	TP500	F4	E1
C400	B4	G2	R326	F2	B4	TP510	F5	E1
C402	B3	F2	R328	F2	C4	TP520		E1
C404	B3	G2	R330	F1	C3			
C410	F3	E2	R332	F2	C4	U300	B2	C3
C412	F3	E2	R334	F2	B4	U310B	B2	C3
C500	B5	G2	R336	F2	B4	U310B	C2	C3
C502	B4	G2	R338	F1	B3	U320A	C2	B3
C504	B4	G2	R340	E1	B3	U320B	D2	B3
C506	D4	F2	R342	F1	B4	U330	E1	B3
C508	D4	F2	R344	F1	B3	U340	E2	B3
			R360	B2	B3	U350	E2	B3
CR300	E1	B3	R362	B2	B3	U360A	B2	B3
CR302	E1	B4	R364	C2	C1	U360B	C2	B3
CR304	F2	B3	R366	C2	B3	U400	B3	G2
			R368	C2	B3	U410A	C3	G2
J122	G3	B1	R380	B2	F2	U410B	C4	G2
J710	C1	E1	R382	B2	F2	U410C	C3	G2
			R400	C3	G1	U410D	B2	G2
K300	E1	B3	R402	C3	G1	U420	E3	F2
			R404	C3	G2	U430	E4	E2
P160	B1	F4	R406	B3	F2	U440A	F3	E2
P161	G2	B4	R500	C4	G2	U440B	F4	E2
P710	C1	E1	R502	C4	F2	U500	B4	G2
			R504	C4	F2	U510A	C4	G2
Q300	F1	C3	R506	D4	F2	U510B	C5	G2
Q302	F1	C3	R510	C5	F2	U510C	C4	G2
Q304	F2	C4	R512	C5	G2	U510D	B5	G2
Q306	F2	C4	R514	C5	F2	U520	E4	F2
			R516	C5	F1	U530	E5	E2
R300	B1	C3	R518	D5	F2	U890B	B1	B3
R302	B2	C3	R520	D5	F2			

ASSY A14 is also shown on Diagrams 5, 6, 7, and 8.
ASSY A14 (Fig. 8-3) circuit board illustration faces Diagram 5.

A B C D E F G



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GAIN CAL SIG. GEN & AUTO CAL CTRL

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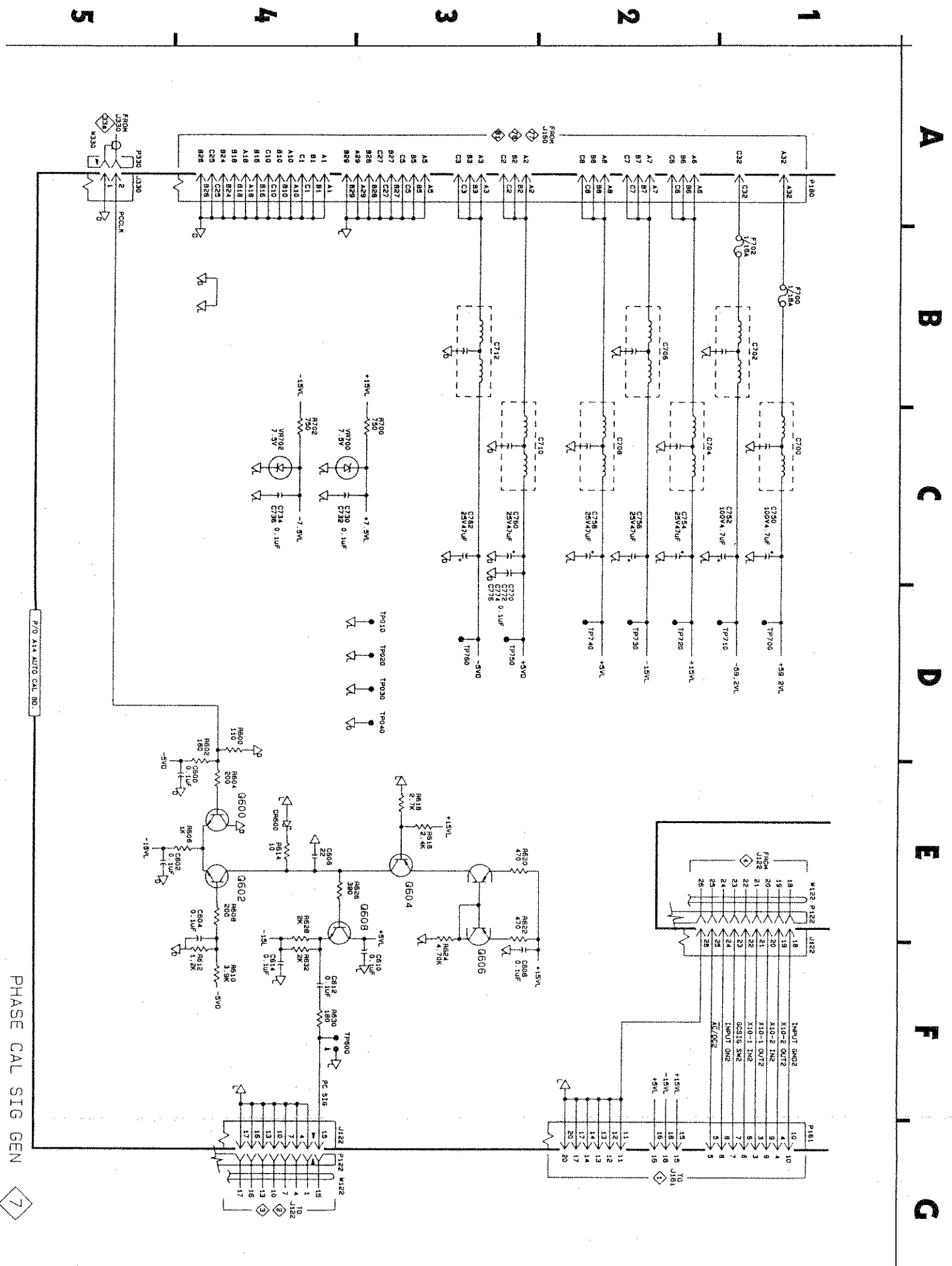
Table 8-7

PHONE CBL SUB. GEN. 7

UNIT CBL. 801, ASSEMBLY A14

CIRCUIT NUMBER	SCHEMATIC LOCATION	BORRD LOCATION	CIRCUIT NUMBER	SCHEMATIC LOCATION	BORRD LOCATION	CIRCUIT NUMBER	SCHEMATIC LOCATION	BORRD LOCATION
C600	E4	B2	C774	C3	E3	R614	E4	B2
C602	E5	B2	C776	C3	E4	R616	E3	B2
C604	E4	B2				R618	E3	B2
C606	E4	B2	C8600	E4	B2	R620	E3	B2
C608	F3	B2				R622	E3	B2
C610	F3	B2	F700	B1	E4	R624	E3	B2
C612	F4	B2	F702	B1	E4	R626	E4	B2
C614	F4	B2				R628	E4	B2
C700	C1	D4	J122	G4	B1	R630	F4	B2
C702	B1	D4	J122	F1	B1	R632	F4	B2
C704	C2	H3	J330	H5	B1	R700	C3	F2
C706	B2	G3				R702	C4	F2
C708	C2	G3	P160	B1	F4			
C710	C3	G4	P161	G1	B4	P910	O3	C2
C712	H3	G4				P920	O3	F1
C730	F4	C2	Q600	E4	B2	P930	O3	O5
C732	F4	E2	Q602	E4	B2	P940	O3	H4
C734	F4	C3	Q604	E3	B2	R608	F4	C2
C736	F4	E2	Q606	E3	B2	P700	O1	C4
C738	C1	C4	Q608	E4	B2	P710	O1	C4
C752	C1	C4				P720	O2	G3
C754	C2	G3	R640	D4	B2	P730	O2	H3
C756	C2	H3	R602	D4	B2	P740	O2	G3
C758	C2	G3	R604	E4	B2	P750	O3	G3
C760	C3	G3	R606	E4	B2	P760	O3	G3
C762	C3	G3	R608	E4	B2			
C770	C3	F3	R610	F4	B2	UR700	C4	F2
C772	C3	F4	R612	F4	B2	UR702	C4	F2

ASSY A14 is also shown on Diagrams 5,6,7, and 8.
ASSY A14 (Fig.8-3) circuit board illustration faces Diagram 5.



A B C D E F G

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Table 8-8

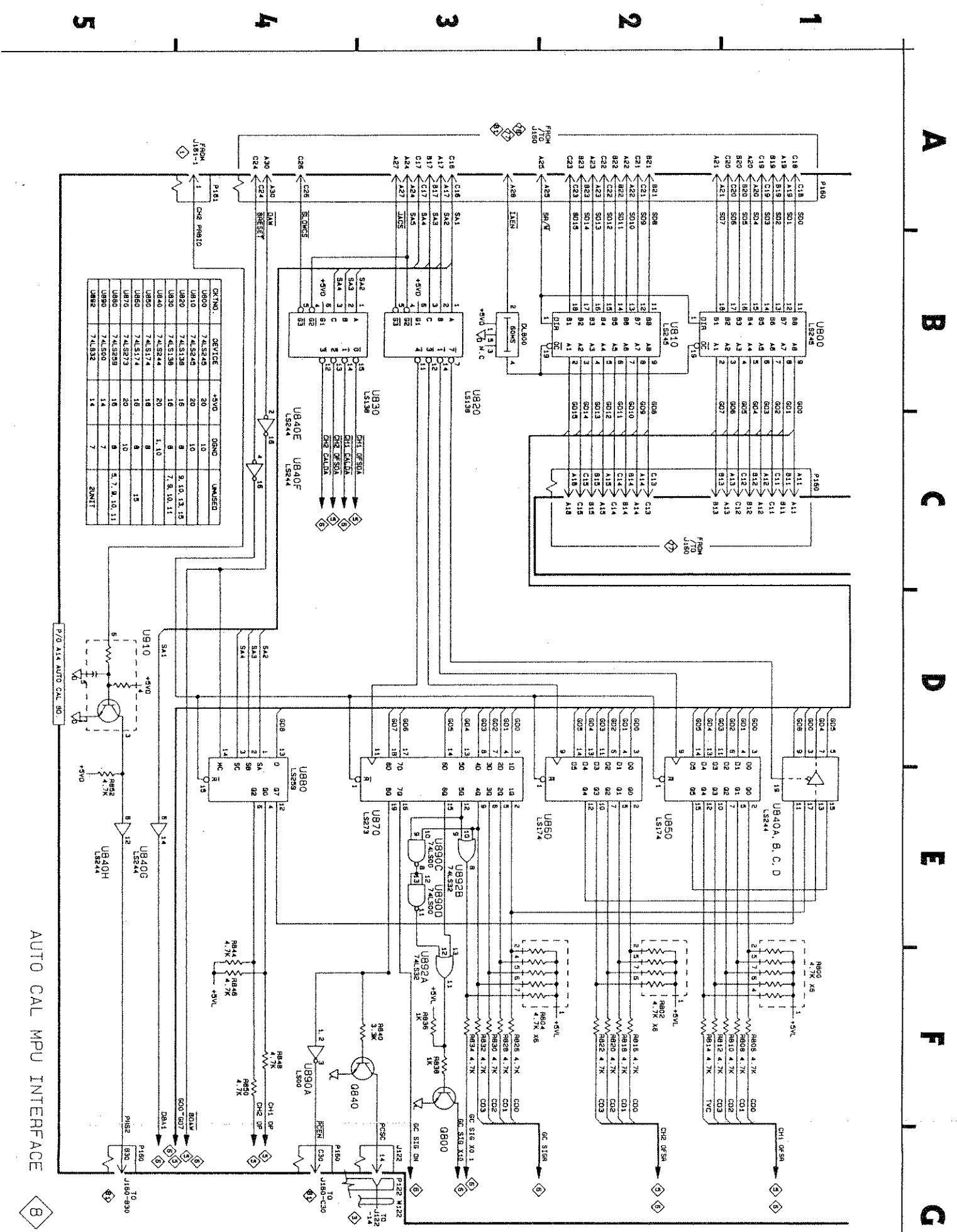
AUTO CAL MPU INTERFACE

8

AUTO CAL. BD., ASSEMBLY A14

CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION	CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION
DL800	B3	F3	R838	F3	C3
			R840	F3	C3
J122	G3	B1	R844	F4	E3
			R846	F4	E3
P150	C1	F4	R848	F4	E3
P150	G4	F4	R850	F4	E3
P150	A1	F4	R852	E5	E3
P150	G5	F4			
P161	A4	B4	U800	B1	G3
			U810	B2	G4
Q800	F3	C3	U820	B3	F4
Q840	F3	C3	U830	B4	F3
			U840A	E1	D3
R800	F1	E4	U840B	E1	D3
R802	F2	E3	U840C	E1	D3
R804	F2	D4	U840D	E1	D3
R806	F1	E4	U840E	C4	D3
R808	F1	E4	U840F	C4	D3
R810	F1	E4	U840G	E5	D3
R812	F2	E4	U840H	E5	D3
R814	F2	E4	U850	E2	E4
R816	F2	E3	U860	E2	E3
R818	F2	E4	U870	E3	D3
R820	F2	E3	U880	E4	F3
R822	F2	E3	U890A	F4	D3
R826	F3	C3	U890C	E3	D3
R828	F3	E3	U890D	E3	D3
R830	F3	C3	U892A	F3	D4
R832	F3	C3	U892B	E3	D4
R834	F3	C3	U910		D4
R836	F3	C3		D5	C4

ASSY A14 is also shown on Diagrams 5,6,7 and 8.
 ASSY A14 (Fig.8-3) circuit board illustration faces Diagram 5.



AUTO CAL MPU INTERFACE

A B C D E F G

1 2 3 4 5

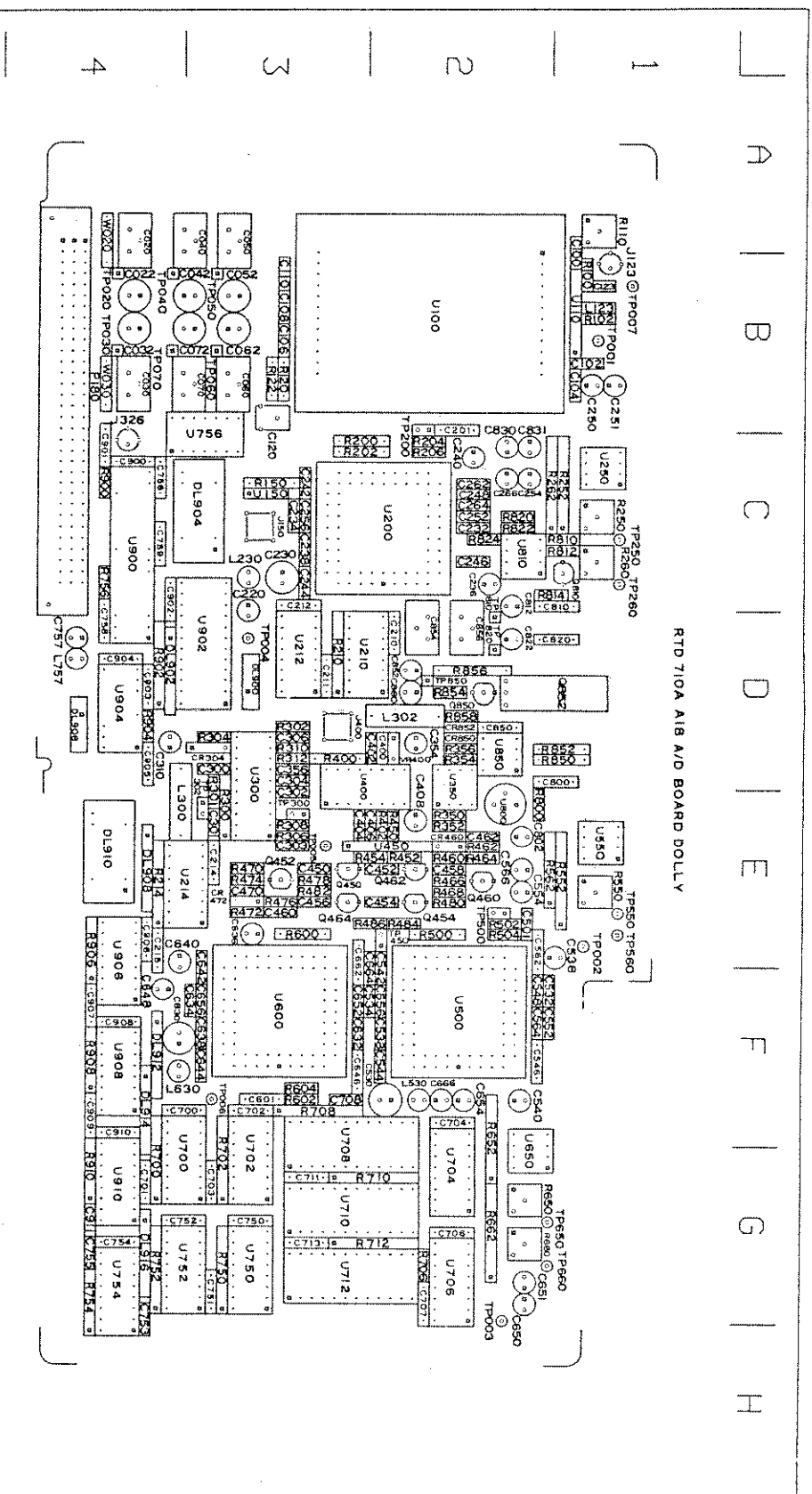


Fig. 8-4. A18 A/D CIRCUIT BOARD ASSEMBLY.

SEE
OTHER
SIDE

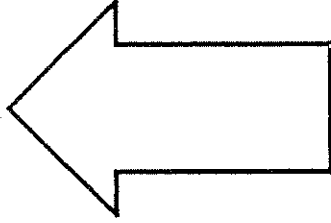


Table B-9

TRUCK/HOLD & 1st R/O
 13
 R/O CRL. BO.; ASSEMBLY A18

CIRCUIT NUMBER	SCHEMATIC BOARD LOCATION	CIRCUIT NUMBER	SCHEMATIC BOARD LOCATION	CIRCUIT NUMBER	SCHEMATIC BOARD LOCATION	CIRCUIT NUMBER	SCHEMATIC BOARD LOCATION
C110	B2	R100	B2	R100	B1	R994	B5
C120	C3	R102	B2	R102	B1	R968	B4
C123	B2	R110	B3	R110	B1	R960	E5
C230	B5	R120	C3	R120	B3		
C232	C2	R122	C3	R122	B3	R901	F4
C234	B5	R150	C3	R150	C3	R902	F4
C236	B5	R200	C2	R200	C3	R903	F4
C238	B5	R202	C2	R202	C3	R904	F4
C252	C1	R204	B2	R204	C2	R905	F4
C254	C1	R206	B2	R206	C2	R906	F4
C256	C2	R2100	E2	R2100	B3	R907	F4
C262	C2	R210	B1	R210	B3	R9200	B2
C264	C3	R250	C1	R250	C1	R9250	C2
C266	C3	R2528	C2	R2528	C1	R9260	C2
C300	E4	R252C	C2	R252C	C1	R9300	E4
C302	F4	R2520	C1	R2520	C1	R9302	E5
C304	F3	R252F	C1	R252F	C1		
C306	F4	R2526	C3	R2526	C1	R100	B2
C354	F3	R2521	C1	R2521	C1	R1508	C3
C356	F3	R260	C3	R260	C1	R1508	C3
C400	F4	R2628	C2	R2628	C1	R150C	C3
C402	F4	R262C	C3	R262C	C1	R1500	C3
C404	F5	R262F	C2	R262F	C1	R210	B2
C406	F5	R2626	C2	R2626	C1	R212	E2
CR304	E3	R2621	C2	R2621	C1	R2508	C1
DL150M	C3	R301	E3	R301	E3	R3500	C2
DL900	B4	R302	E3	R302	E3	R350	F2
DL902	C4	R304	E3	R304	E3	R400	F4
DL904	D5	R306	E4	R306	E3	R900	B4
DL906	E5	R308	E4	R308	E3	R9028	C4
DL908	E5	R310	F3	R310	F3	R9028	B4
H400	F4	R350	E2	R350	E2	R9020	C4
J123	B2	R354	F2	R354	F2	R904	D5
J150	C3	R356	F2	R356	F2	R9068	B4
J400	B3	R402	F5	R402	F5	R9068	E5
L123	B2	R9028	B4	R9028	B4	R400	F4
L230	B5	R9028	C4	R9028	C4	R123	B2
L300	E4	R902F	C4	R902F	C4	R326	B4
L302	F4	R9026	B4	R9026	B4		

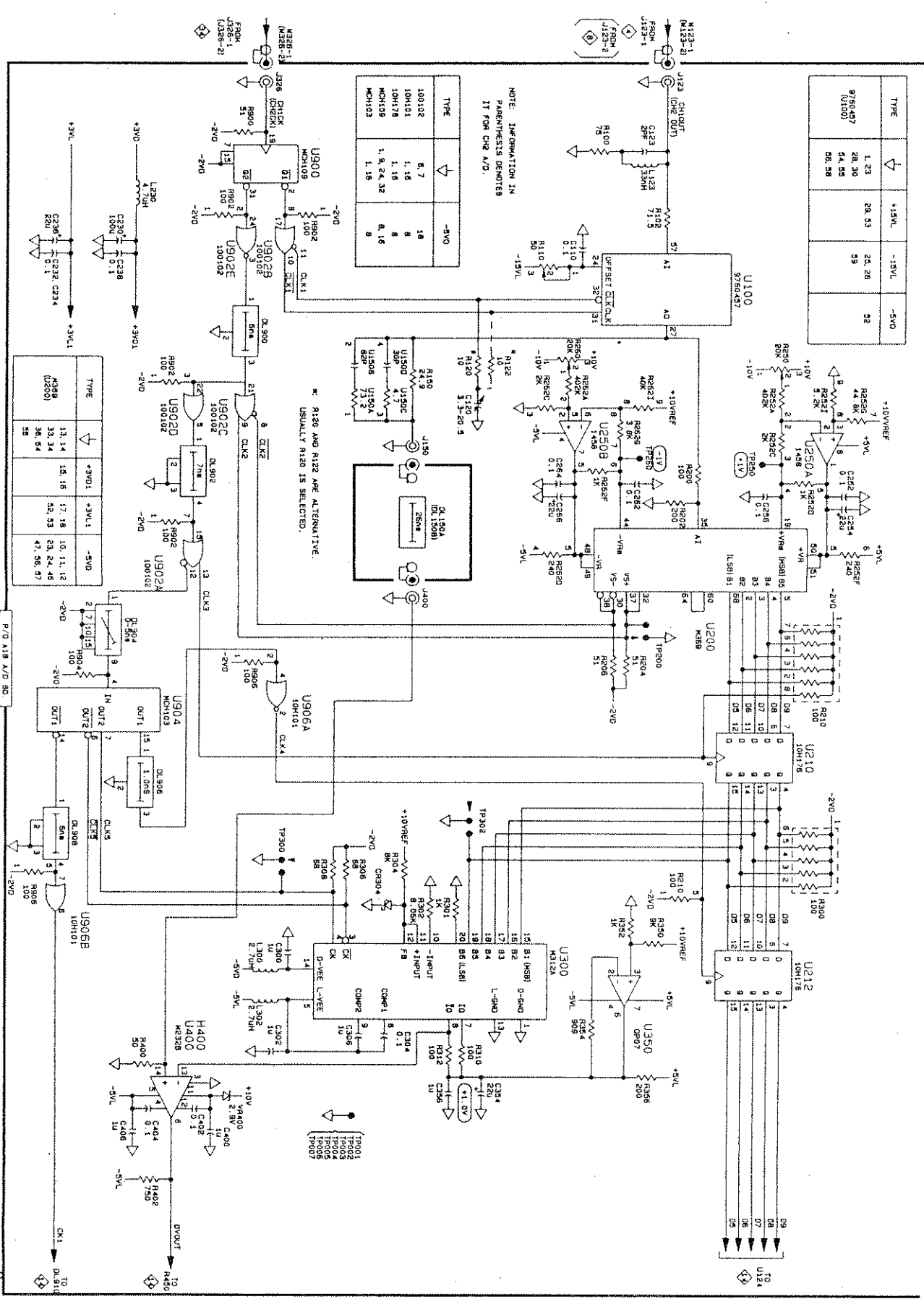
ASSY A18 is also shown on Diagrams 13,14, and 15.
 ASSY A18 (Fig.8-4) circuit board illustration faces Diagram 13.

A B C D E F G

TYPE	↓	+15VL	-15VL	-5V0
979047 (U100)	L 23 R 20, 30 S 4, 55 S6, 58	28, 53	24, 26 59	32

TYPE	↓	-5V0
100102	R 7	18
100101	L 1, 16	8
100178	L 1, 16	8
MCH109	L 9, 24, 32	8
MCH103	L 1, 16	8

NOTE: INFORMATION IN PARENTHESES DENOTES IT FOR CHG A/D.



TRACK/HOLD & 1st A/D 13

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Table 8-10

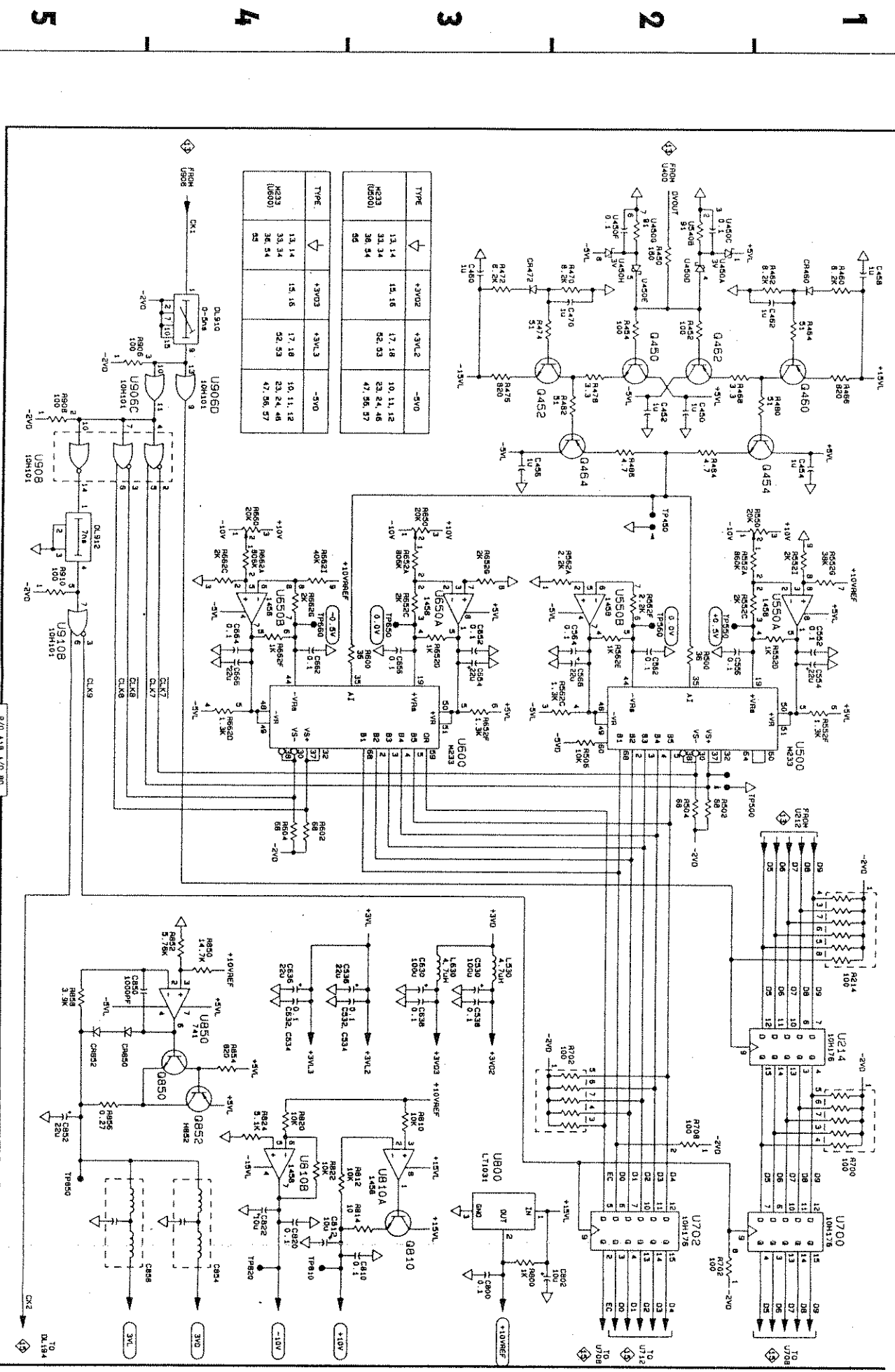
2nd R/O 14

R/O CR, BR, ASSEMBLY A18

CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION	CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION	CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION	CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION
C450	B2	E3	C8050	E5	B2	R3528	C1	E1	R306	B5	F4
C452	B2	E2	C8052	E5	B2	R352C	C1	E1	R308	B5	F4
C454	C1	E2				R352D	C1	E1	R310	C5	F4
C456	C3	E3	DL910	B4	E4	R352F	01	E1			
C458	B1	E2	DL912	C5	F4	R3526	C1	E3	TP450	C2	E2
C460	B3	E3				R352I	C1	E1	TP500	B2	E2
C470	B2	E3	L530	E3	F2	R352H	C2	E1	TP530	C2	E1
C530	E3	F2	L630	E3	F3	R352C	B2	E1	TP560	C2	E1
C532	E3	F2				R352E	C2	E1	TP50	C3	F2
C534	E3	F2	Q450	B2	E3	R352F	C2	E1	TP660	C4	F2
C536	E3	E1	Q452	B3	E3	R600	C3	E3	TP810	B4	F2
C538	E3	F2	Q454	B1	E2	R602	B4	F3	TP820	B4	F2
C552	C1	F2	Q460	B1	E2	R604	B4	F3	TP950	F5	B2
C554	01	E2	Q462	B2	E2	R650	C3	F2			
C556	C2	F2	Q464	B2	E3	R652H	C3	F2	U214	E1	E3
C562	C2	E2	Q810	F3	C1	R652C	C3	F2	U450H	B2	E2
C564	C2	F2	Q850	F4	B2	R652D	C3	F2	U450B	B2	E2
C566	B2	E2	Q852	F4	01	R652F	B3	F2	U450C	B2	E2
C630	E3	F4				R6526	C3	F2	U450D	B2	E2
C632	E4	F3	R214	E1	E4	R660	C4	F2	U450E	B2	E2
C634	E4	F3	R450	B2	E2	R662H	C4	F2	U450F	B2	E2
C636	E4	E3	R452	B2	E2	R662C	C4	F2	U450G	B2	E2
C638	E3	F3	R454	B2	E2	R662D	B4	F2	U450H	B2	E2
C652	C3	F3	R460	B1	E2	R662F	C4	F2	U500	01	F2
C654	C3	F2	R462	B1	E2	R6626	C4	F2	U500B	C1	E1
C656	C3	F3	R464	B1	E2	R662I	C4	F2	U500D	C2	E1
C662	C4	F3	R466	B1	E2	R700	F1	F4	U600	B3	F3
C664	C4	F2	R468	B2	E2	R702	F2	F3	U650H	C3	F2
C666	C4	F2	R470	B2	E3	R7026	B2	F3	U650B	C4	F2
C680	G3	01	R472	B3	E3	R708	F2	F3	U700	F1	F3
C682	G2	E2	R474	B3	E3	R800	G3	E2	U702	F2	F3
C684	F3	C1	R476	B3	E3	R810	F3	C1	U800	F3	E2
C686	F4	C2	R478	B2	E3	R812	F3	C1	U810B	F3	C2
C688	F4	01	R480	B1	E2	R814	F3	C1	U810B	F4	C2
C692	F4	B2	R482	B2	E3	R820	F4	C2	U850	F4	B2
C694	E5	B2	R484	B2	E2	R822	F4	C2	U96C	B4	E4
C696	F5	B2	R486	B2	E2	R824	F4	C2	U96D	B4	E4
C698	F4	B2	R500	C2	E2	R850	E4	01	U908	C5	F4
C699	F5	B2	R502	C2	E2	R852	E4	01	U910B	C5	F4
C699	F5	B2	R504	C2	E2	R854	F4	02			
C699	F5	B2	R506	C2	E2	R856	F5	02			
C699	F5	B2	R530	C1	E1	R858	E5	02			

ASSY A18 is also shown on Diagrams 13, 14, and 15.
ASSY A18 (Fig 8-4) circuit board illustration faces Diagram 13.

A B C D E F G



TYPE	+3V02	+3V1.2	-5V0
NE23 (8500)	13.14	15.16	10.11, 12
NE23 (8500)	33.34	17.18	23.24, 46
55	36.34	22.23	47.56, 57

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2nd A/D 14

Table B-11

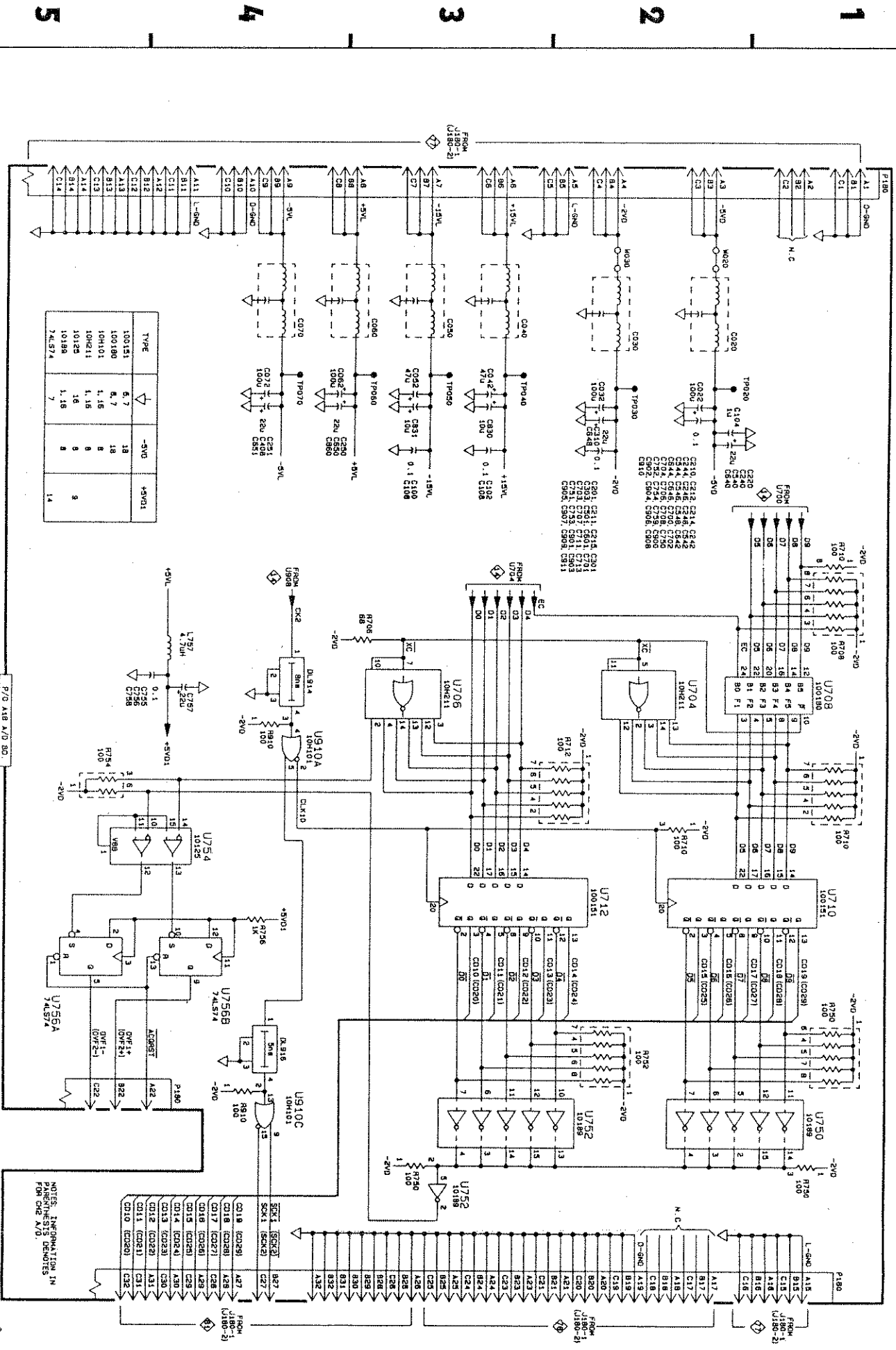
DIGITAL ERROR CORRECTION 15

R/O CH. 80, ASSEMBLY A18

CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION	CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION	CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION	CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION
C020	B2	H4	C408	B4	E2	C759	B2	C4	R7508	F1	G3
C022	B2	H4	C501	B2	E2	C830	B3	C2	R752	F2	G4
C030	B2	H4	C540	B2	F2	C831	B3	C2	R7548	B5	G4
C032	B2	H4	C542	B2	F2	C860	B4	D2	R754E	D5	G4
C040	B5	H3	C544	B2	F2	C900	B2	C4	R756	E4	G4
C042	B3	H3	C546	B2	F2	C901	B2	C4	R9108	F4	G4
C050	B3	H3	C548	B2	F2	C902	B2	C4	R910E	H4	G4
C052	B3	H3	C601	B2	F3	C903	B2	D4			
C060	B3	H3	C640	B2	E3	C904	B2	D4	T9020	B2	H4
C062	B4	H3	C642	B2	F3	C905	B2	D4	T9030	B2	H4
C070	B4	H3	C644	B2	F3	C906	B2	E4	T9040	B3	H4
C072	B4	H3	C646	B2	F3	C907	B2	F4	T9050	B3	H3
C100	B3	H1	C648	B2	F4	C909	B2	F4	T9060	B3	H3
C102	B3	H1	C650	B2	G2	C910	B2	F4	T9070	H4	H4
C104	B2	H1	C651	B4	G2	C911	B2	F4			
C106	B3	H3	C700	B2	F3	C914	D4	F4	U704	D2	G2
C108	B3	H3	C701	B2	G4				U706	D3	G2
C201	B2	H2	C702	B2	F3	U914	F4	F4	U708	D1	G3
C210	B2	H2	C703	B2	G3	U916	F4	G4	U710	E1	G3
C211	B2	H3	C704	B2	F2				U712	E2	G3
C212	B2	H3	C706	B2	G2	L757	C4	D4	U750	F1	G3
C214	B2	H3	C707	B2	G2				U752	F2	G3
C215	B2	H4	C708	B2	F3	P100	G1	H4	U752	F3	G4
C220	B2	H3	C711	B2	G3	P100	H1	H4	U754	E4	C3
C240	B2	H2	C713	B2	G3	P100	F4	H4	U756A	E4	C3
C242	B2	H3	C750	B2	G3				U756B	E4	C3
C244	B2	H3	C751	B2	G3	R706	C3	G2	U9108	D4	G4
C246	B2	H2	C752	B2	G3	R708	C1	F3	U910E	F4	G4
C248	B2	H2	C753	B2	G4	R710	D1	G2			
C250	B4	H1	C754	B2	G4	R710B	D2	G2	U020	B2	H4
C251	B4	H1	C755	D5	G4	R710G	C1	G2			
C301	B2	H3	C756	D5	C4	R712	D2	G2	U030	B2	H4
C303	B2	H3	C757	D4	D4	R750	F1	G3			
C310	B2	H4	C758	D5	D4	R758A	F3	G3			

ASSY A18 is also shown on Diagrams 13, 14, and 15.
ASSY A18 (Fig. 8-4) circuit board illustration faces Diagram 13.

A B C D E F G



DIGITAL ERROR CORRECTION

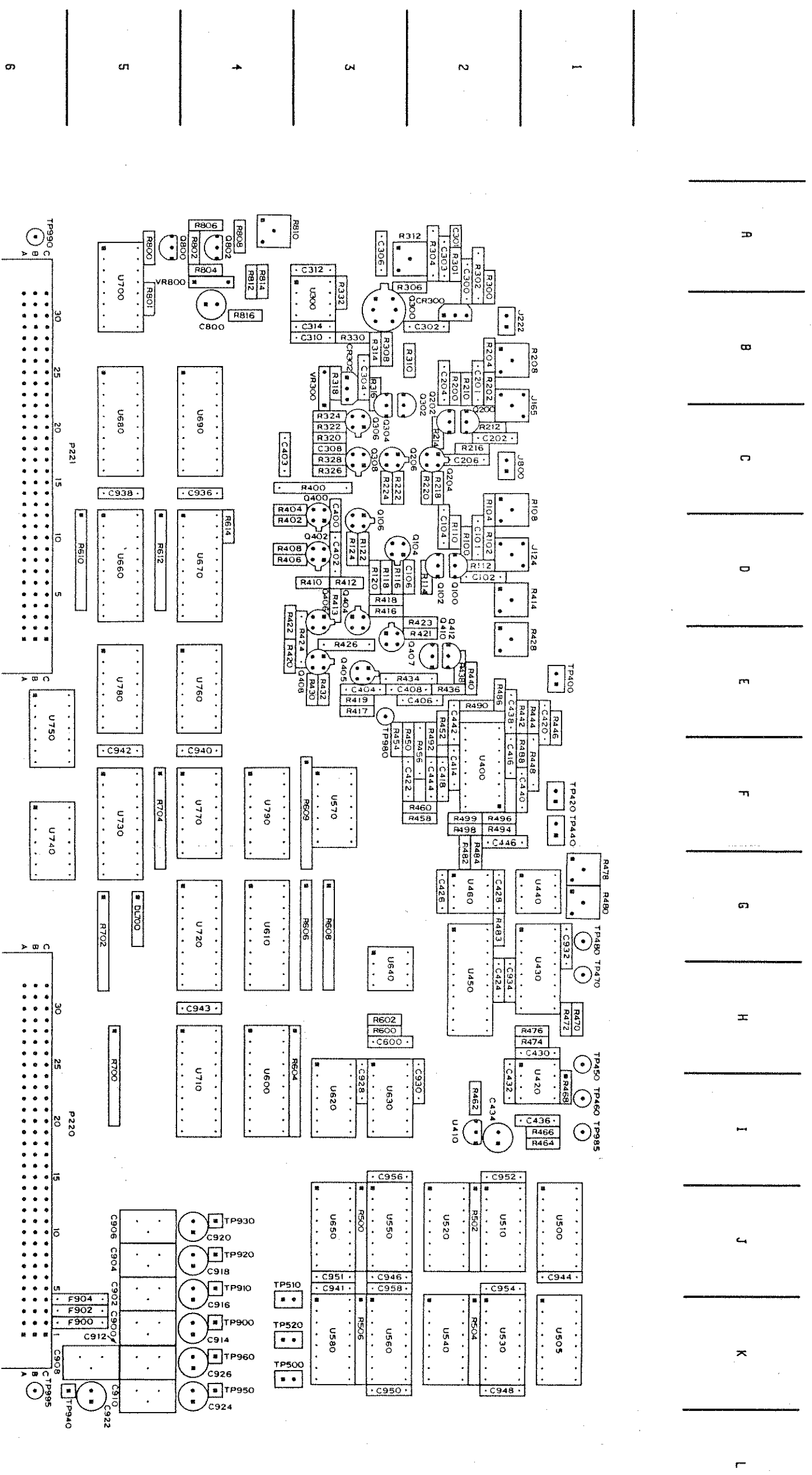
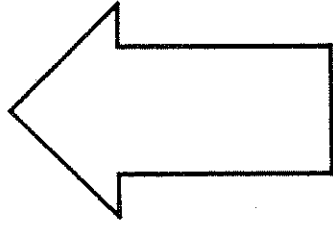


Fig. 8-5. A22 TRIGGER BD., CIRCUIT BD. ASS.



SEE
OTHER
SIDE

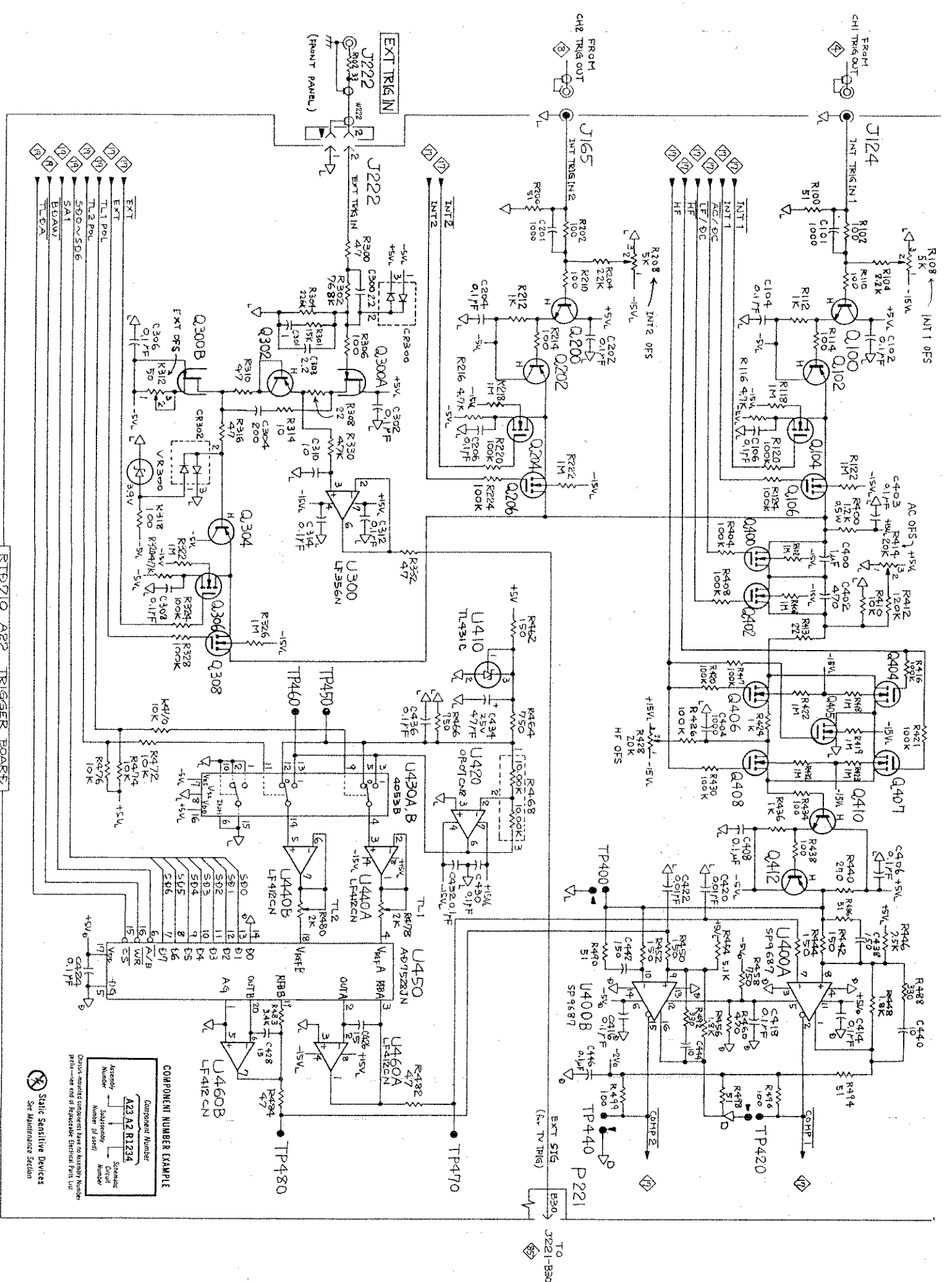
Table 8-12

TRIGGER GENERATOR 16 TRIGGER BOARD, ASSEMBLY A22

CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION	CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION	CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION
C101	B1	D2	Q402	E1	D3	A422	E1	D4
C102	C1	D2	Q404	E1	D3	A423	E1	D2
C104	C2	D2	Q405	E1	D3	A424	E3	D3
C106	C2	B3	Q406	E2	D3	A426	E3	D3
C201	B3	B2	Q407	E1	D3	A428	E3	D3
C202	C2	B2	Q408	E2	D3	A430	E3	D3
C204	C3	B2	Q410	E1	D2	A432	E3	D3
C206	C3	B2	Q412	E1	D2	A434	E3	D3
C300	B4	A2	R100	B1	D2	A436	E3	D3
C301	C4	A2	R102	A4	F/P BD	A438	E3	D3
C302	C4	B2	R104	B1	D2	A440	E3	D3
C303	C4	A2	R102	B1	D2	A442	E3	D3
C304	C4	B3	R104	B1	D2	A444	E3	D3
C306	C5	A3	R108	B1	D2	A446	E3	D3
C308	C5	C3	R110	B1	D2	A448	E3	D3
C310	C4	B3	R112	B3	D3	A450	E3	D3
C312	D4	A3	R114	C1	D2	A452	E3	D3
C314	D4	B3	R116	C2	D3	A454	E3	D3
C400	D1	C3	R118	C1	D3	A456	E3	D3
C402	D1	D3	R120	C2	D3	A458	E3	D3
C403	D1	C4	R122	D1	D3	A460	E3	D3
C404	E1	E2	R200	B3	D3	A462	E3	D3
C406	F1	E2	R202	B3	D3	A464	E3	D3
C408	F1	E2	R204	B3	D3	A466	E3	D3
C414	F2	F2	R208	B2	D2	A470	E3	D3
C416	F2	F2	R210	B3	D2	A472	E3	D3
C418	F2	F2	R212	C3	D2	A474	E3	D3
C420	F2	F2	R214	C3	D2	A476	E3	D3
C422	F2	H2	R216	C3	D2	A478	E3	D3
C424	H2	G2	R218	C3	D2	A480	E3	D3
C426	F4	G2	R220	C3	D2	A482	E3	D3
C428	F4	H1	R222	C3	D2	A484	E3	D3
C430	F3	H1	R224	C3	D2	A486	E3	D3
C432	F3	I2	R300	B4	A2	A488	E3	D3
C434	F3	I1	R301	C4	A2	A488	E3	D3
C436	F1	I1	R302	B4	A2	A490	E3	D3
C438	F1	I2	R304	C4	A2	A492	E3	D3
C440	F1	I2	R306	C4	A2	A494	E3	D3
C442	F2	I2	R308	C4	A2	A496	E3	D3
C444	F2	I2	R310	C4	A2	A498	E3	D3
C446	G2	I2	R312	C5	A2	R499	E3	D3
CR300	B4	B2	R314	C4	A2	TP400	E3	D3
CR302	C5	B3	R316	C4	A2	TP420	E3	D3
J124	B1	D2	R318	D5	D5	TP440	E3	D3
J165	B3	B2	R320	D5	D5	TP450	E3	D3
J222	A4	B2	R322	D5	D5	TP460	E3	D3
J222	B4	B2	R324	D5	D5	TP470	E3	D3
P221	G3	C6	R326	D5	D5	TP480	E3	D3
Q100	C1	D2	R328	D3	A3	U300	E3	D3
Q102	C1	D2	R330	C4	B3	U300A	E3	D3
Q104	C1	D3	R332	D3	A3	U400A	E3	D3
Q106	D1	C3	R332	D3	A3	U400B	E3	D3
Q200	C3	C2	R402	D1	D1	U400A	E3	D3
Q202	C3	C2	R404	D1	D1	U400B	E3	D3
Q204	C3	C2	R406	D1	D1	U400A	E3	D3
Q206	C3	C2	R408	D1	D1	U400B	E3	D3
Q300A	C4	B3	R410	D1	D1	U430A	E3	D3
Q302	C4	B3	R412	D1	D1	U430B	E3	D3
Q304	C4	B3	R414	D1	D1	U440A	E3	D3
Q306	C4	B3	R416	D1	D1	U440B	E3	D3
Q308	C4	B3	R417	E2	E2	U440A	E3	D3
Q309	C4	B3	R418	E2	E2	U440B	E3	D3
Q309B	C5	B3	R419	E1	E1	U450	E3	D3
Q309A	C4	B3	R420	E1	E1	U460A	E3	D3
Q309B	C5	B3	R421	E1	E1	U460B	E3	D3
Q309C	C4	B3	R421	E2	E2	VR300	E3	D3
Q309D	C5	B3	R421	E1	E1	VR300	E3	D3
Q309E	C4	B3	R421	E2	E2	VR300	E3	D3
Q309F	C5	B3	R421	E1	E1	VR300	E3	D3
Q309G	C4	B3	R421	E2	E2	VR300	E3	D3
Q309H	C5	B3	R421	E1	E1	VR300	E3	D3
Q309I	C4	B3	R421	E2	E2	VR300	E3	D3
Q309J	C5	B3	R421	E1	E1	VR300	E3	D3
Q309K	C4	B3	R421	E2	E2	VR300	E3	D3
Q309L	C5	B3	R421	E1	E1	VR300	E3	D3
Q309M	C4	B3	R421	E2	E2	VR300	E3	D3
Q309N	C5	B3	R421	E1	E1	VR300	E3	D3
Q309O	C4	B3	R421	E2	E2	VR300	E3	D3
Q309P	C5	B3	R421	E1	E1	VR300	E3	D3
Q309Q	C4	B3	R421	E2	E2	VR300	E3	D3
Q309R	C5	B3	R421	E1	E1	VR300	E3	D3
Q309S	C4	B3	R421	E2	E2	VR300	E3	D3
Q309T	C5	B3	R421	E1	E1	VR300	E3	D3
Q309U	C4	B3	R421	E2	E2	VR300	E3	D3
Q309V	C5	B3	R421	E1	E1	VR300	E3	D3
Q309W	C4	B3	R421	E2	E2	VR300	E3	D3
Q309X	C5	B3	R421	E1	E1	VR300	E3	D3
Q309Y	C4	B3	R421	E2	E2	VR300	E3	D3
Q309Z	C5	B3	R421	E1	E1	VR300	E3	D3
Q400	D2	D2	W222	E1	D4	W222	E1	D4

ASSY A22 is also shown on Diagrams 16, 17, 18, and 19. ASSY A22 (Fig.8-5) circuit board illustration faces Diagram 16.

(CHASSIS) B3



TRIGGER GENERATOR

COMPONENT NUMBER EXAMPLE

Component Number	423 A2 R1234
Assembly Number	
Subassembly Number	
Detail Number	

Obtain nearest component name to Assembly Number.
 Detail number end of Reproducible Technical Print Unit.

Static Sensitive Devices
See Maintenance Section

A B C D E F G

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TRIGGER SLOPE CONTROL  TRIGGER BOARD, ASSEMBLY A22

Table 8-13

CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION	CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION
C600	C1	H3	R608C	C5	G3
P220	G2	I6	R609B	E5	F3
P221	B5	C6	R609D	E4	F3
R500A	E1	J3	TP500	F1	K4
R500B	E2	J3	TP510	G2	J4
R500C	F3	J3	TP520	G2	K4
R500D	F4	J3			
R502A	E1	J2			
R502B	E2	J2			
R502C	E3	J2			
R502D	E4	J2			
R502E	F3	J2			
R504A	E3	K2	U500A	E1	J1
R504B	E3	K2	U500B	E1	J1
R504C	F3	K2	U500C	E2	J1
R504D	F3	K2	U500D	E2	J1
R504E	G4	K2	U505A	E1	K1
R504F	G4	K2	U505B	D2	K1
R506A	E2	K3	U510A	E1	J2
R506B	G1	K3	U510B	E1	J2
R506C	G1	K3	U510C	F3	J2
R506D	G2	K3	U510D	F3	J2
R506E	F2	K3	U520A	E2	J2
R506F	G4	K3	U520B	E3	J2
R600	C1	H3	U530A	E3	K2
R602	C1	H3	U530B	G3	K2
R604A	C3	H3	U540A	G4	K2
R604B	C3	H3	U540B	F2	J3
R606A	C4	H3	U550	G2	K3
R606B	C4	H3	U560A	F2	K3
R606C	C4	H3	U560B	E3	K3
R606D	C4	H3	U560C	G4	K3
R608A	C5	G3	U570A	E4	F3
R608B	C5	G3	U570B	D5	F3
			U600	C1	H4
			U610	C4	G4
			U620	C1	I3
			U630	C2	I3
			U640	C3	G3

ASSY A22 is also shown on Diagrams 16, 17, 18, and 19.
 ASSY A22 (Fig.8-5) circuit board illustration faces Diagram 16.

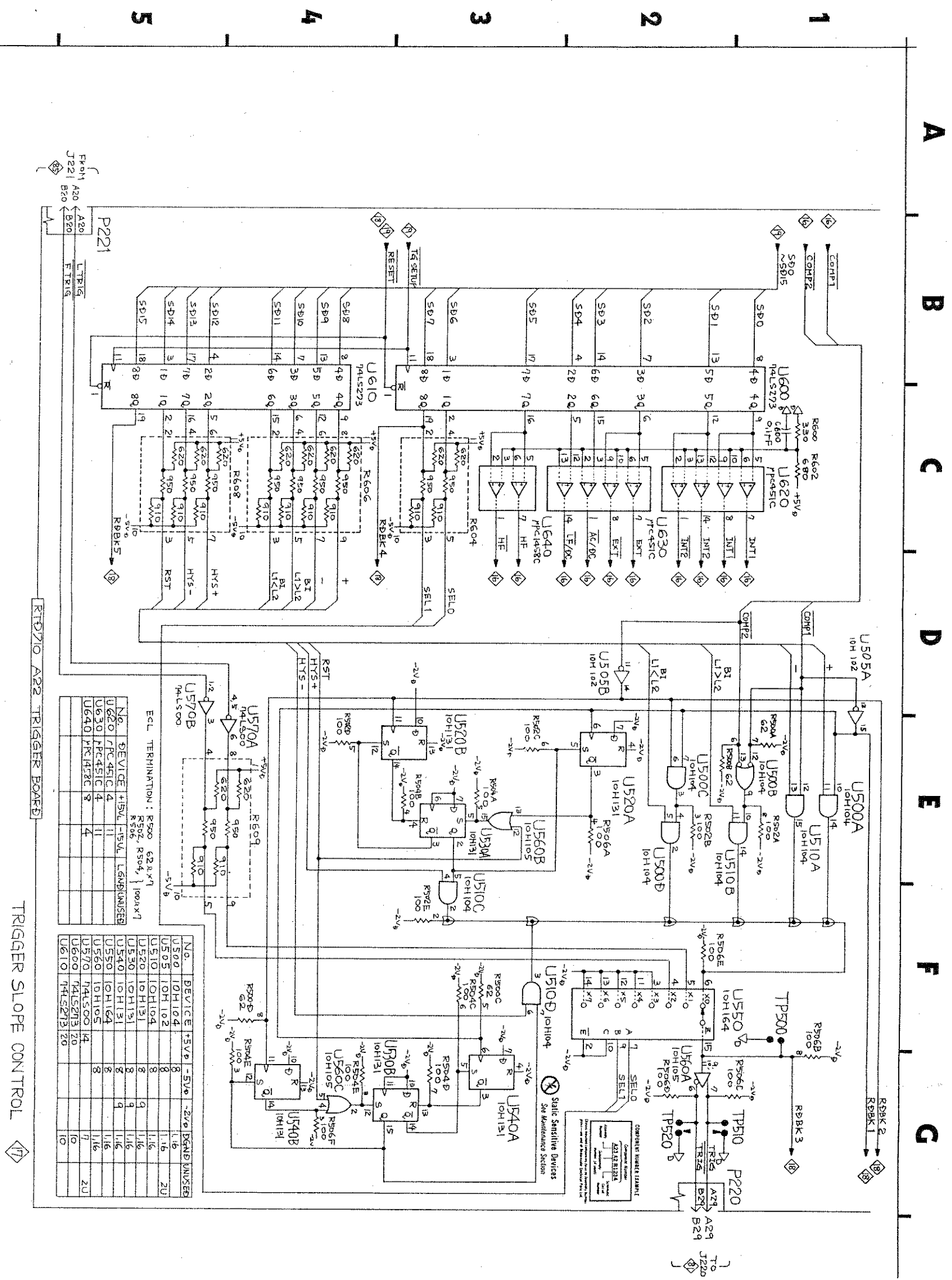

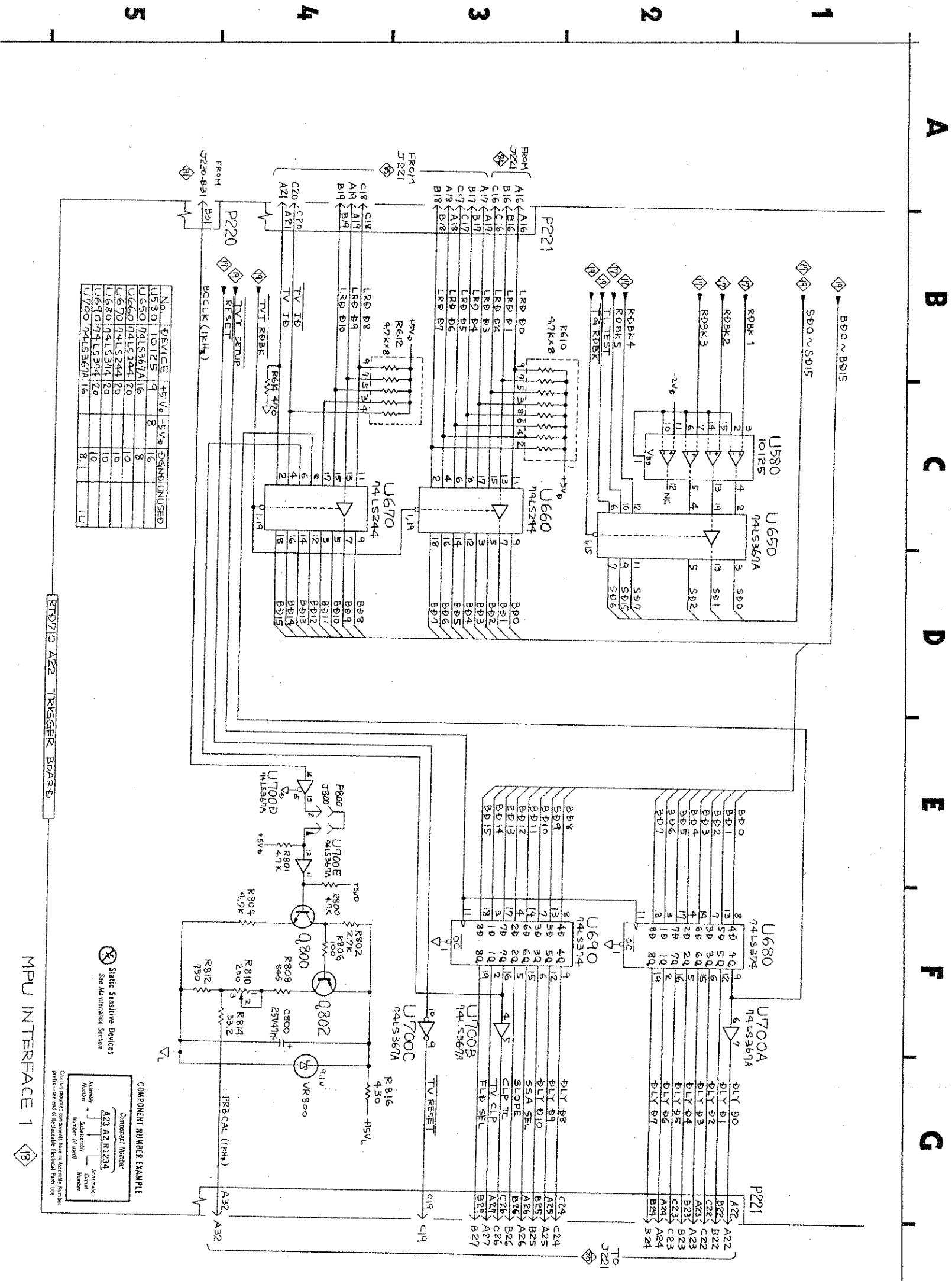


Table 8-14
 MPU INTERFACE 1 
 TRIGGER BOARD, ASSEMBLY A22

CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION
C800	F4	B4
J800	E4	C2
P220	B5	I6
P221	B3	C6
P221	G2	C6
P800	E4	C2
Q800	F4	A5
Q802	F4	A4
R610	C3	D5
R612B	C3	D5
R612C	C3	D5
R612D	C3	D5
R612F	C3	D5
R612H	C3	D5
R614	C4	D4
R800	F4	A5
R801	E4	A5
R802	F4	A4
R804	F4	A4
R806	F4	A4
R808	F4	A4
R810	F4	A4
R812	F5	A4
R814	F4	A4
R816	G4	B4
U580	C2	K3
U650	C2	J3
U660	C3	D5
U670	C4	D4
U680	F2	C5
U690	F3	C4
U700A	F1	A5
U700B	F3	A5
U700C	F3	A5
U700D	E4	A5
U700E	E4	A5
VR800	G4	A4

ASSY A22 is also shown on Diagrams 16, 17, 18, and 19.
 ASSY A22 (Fig.8-5) circuit board illustration faces Diagram 16.



No.	DEVICE	+5V	-5V	DGN#	UNUSED
U580	10125	9	8	16	
U650	74LS367A16			8	
U660	74LS244	20		10	
U670	74LS244	20		10	
U680	74LS367A16			10	
U690	74LS367A16			10	
U700	74LS367A16			8	10

A B C D E F G

1 2 3 4 5

Table 8-15
 MPU INTERFACE 2 **19** — TRIGGER BOARD, ASSEMBLY A22

CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION	CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION
C900	G4	K5	F902	G5	J5
C902	G4	J5	F904	G5	J5
C904	G4	J5	P220	B1	I6
C906	G4	K5	P220	E1	I6
C908	G5	K5	P220	G2	I6
C910	G5	K5	P221	E3	C6
C912	F4	K4	P221	F2	C6
C914	F4	J4	R700	D1	H5
C916	F4	J4	R702	D2	G5
C918	F4	J4	R704	D3	F5
C920	F5	K4	TP900	F4	K4
C922	F5	K4	TP910	F4	J4
C924	F5	K4	TP920	F4	J4
C926	F5	K4	TP930	F4	J4
C928	F4	H2	TP940	F5	K5
C930	F4	H2	TP950	F5	K4
C932	F4	G1	TP960	F5	K4
C934	F5	H2	TP980	G3	E3
C936	F5	C4	TP985	G3	I1
C938	F5	C5	TP990	G3	A6
C940	F5	F4	TP995	G3	K6
C941	F5	J3	U710	C1	H4
C942	F5	F5	U720	C2	G4
C943	F5	H4	U730	B3	F5
C944	F5	J1	U740A	B4	F6
C946	F5	J3	U740B	B4	F6
C948	F5	K2	U750A	C4	E6
C950	F5	K3	U760	C5	E4
C951	F5	J3	U770	C5	F4
C952	F5	J2	U780	D5	E5
C954	F5	J2	U790	D4	F4
C956	F5	I3			
C958	F5	J3			
DL700	C2	G5			
F900	G5	K5			

ASSY A22 is also shown on Diagrams 16, 17, 18, and 19.
 ASSY A22 (Fig.8-5) circuit board illustration faces Diagram 16.

A B C D E F G

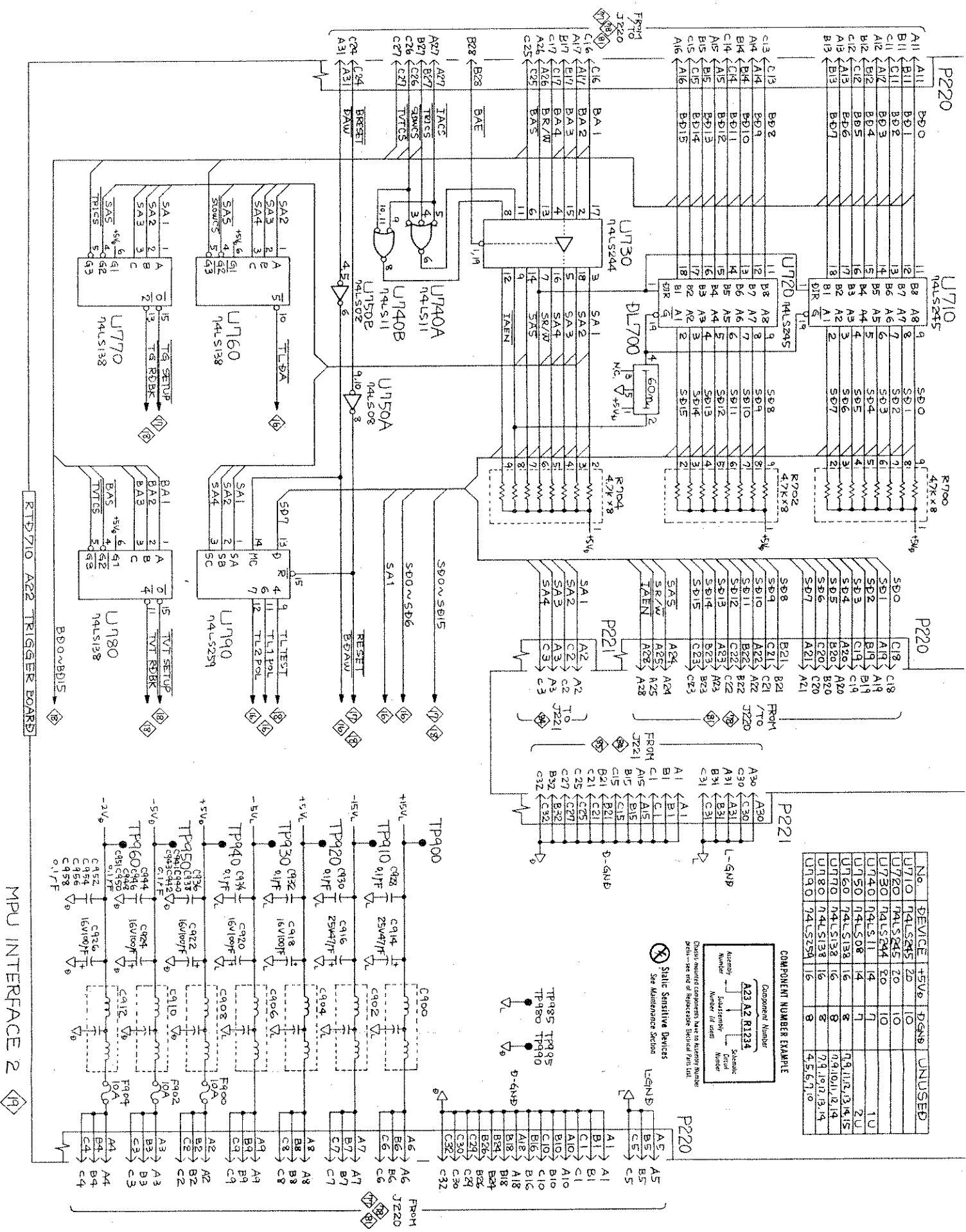




Fig. 8-6. A30 ENVELOPE BD., CIRCUIT BD. ASS.

SEE
OTHER
SIDE

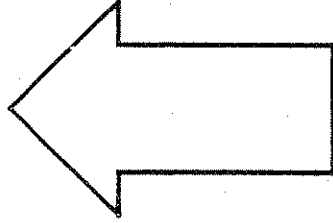
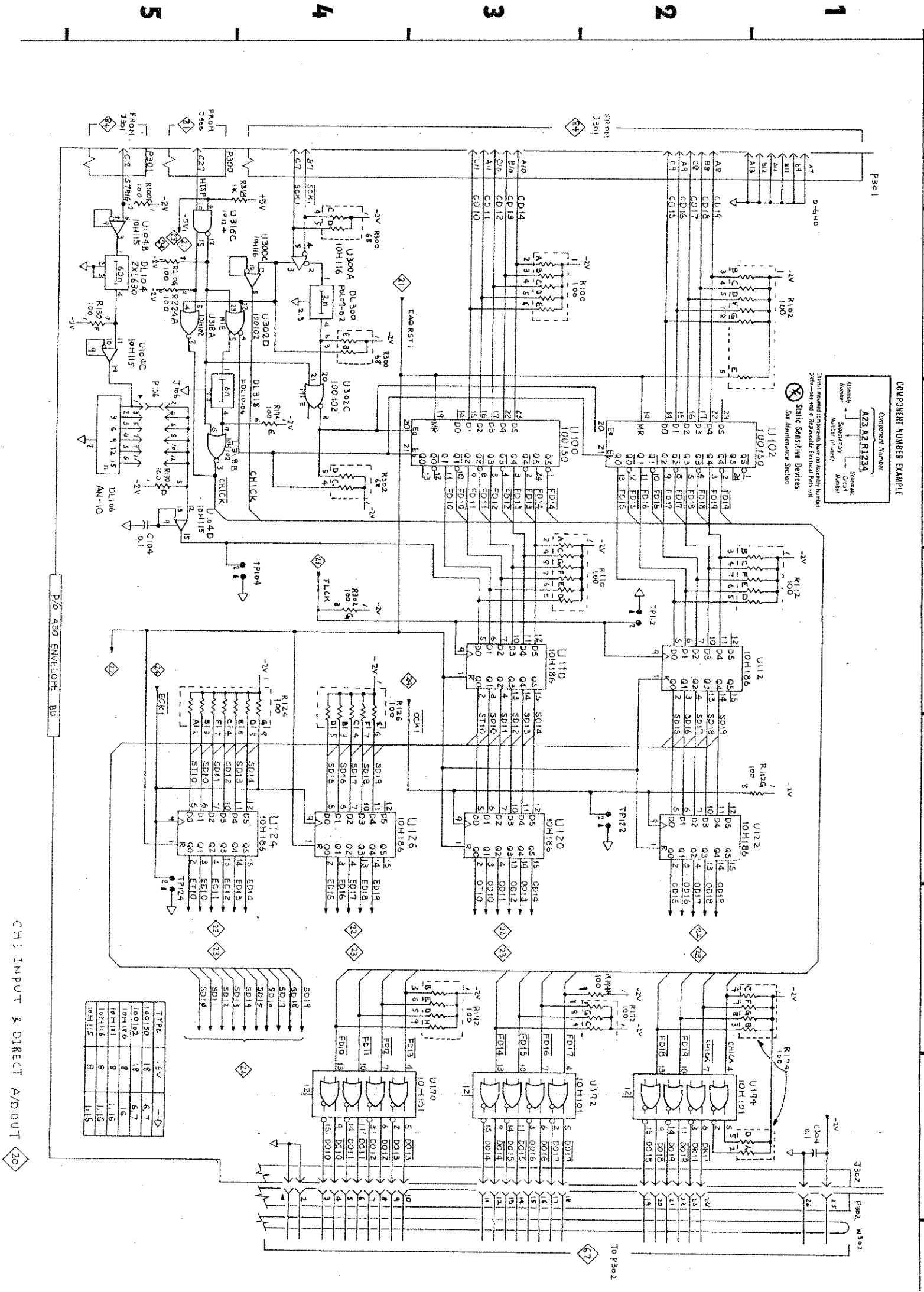


Table 8-16 CH1 INPUT & DIRECT A/D OUT — ENVELOPE BD., ASSEMBLY A30

CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION	CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION
C104	C5	B5	R172E	F3	F1
DL104	B5	C5	R172G	F2	F1
DL106	C5	A5	R172H	F3	F1
DL300	B4	G6	R174A	G1	G1
DL318	C5	G1	R174B	T1	G1
J106	C5	A5	R174C	T1	G1
J302	G1	I1	R174D	G1	G1
P106	C5	A5	R174E	G1	G1
P300	A5	I6	R174F	T1	G1
P301	A1	C6	R174G	T1	G1
P301	A5	C6	R174H	T2	G1
P302	G1	I1	R210G	B5	G5
R100A	B3	D5	R224A	B5	G5
R100B	B3	D5	R300B	B5	G5
R100C	B3	D5	R300C	B5	G5
R100D	B3	D5	R300D	B5	G5
R100E	B3	D5	R300E	B5	G5
R100F	A5	D5	R302A	B4	G5
R102B	B2	D5	R302B	B4	G5
R102C	B2	D5	R302C	B4	G5
R102D	B2	D5	R302D	B4	G5
R102E	B2	D5	R302E	B4	G5
R102F	B2	D5	R302F	B4	G5
R110A	D3	D3	U100	C2	D4
R110B	D3	D3	U102	C2	D4
R110C	D3	D3	U104B	B5	C5
R110D	D3	D3	U104C	B5	C5
R110E	D3	D3	U104D	B5	C5
R110F	D3	D3	U110	D3	D4
R112A	D1	D1	U112	E3	D3
R112B	D1	D1	U120	E3	D3
R112C	D1	D1	U122	E2	D2
R112D	D1	D1	U124	E4	D2
R112E	D1	D1	U126	E4	D2
R112F	D1	D1	U170	G4	E1
R112G	E1	E1	U172	G3	E1
R124	D4	D4	U174	G2	G1
R126B	E4	E4	U300A	B4	G5
R126C	E4	E4	U300C	B4	G5
R126D	E4	E4	U302C	B4	G4
R126E	E4	E4	U302D	B4	G4
R130D	C5	C5	U316C	B5	J2
R130F	B5	B5	U318A	B5	G2
R172B	F3	F1	W302	H1	(CHASSIS)
R172C	F1	F1			
R172D	F3	F1			

ASSY A22 is also shown on Diagrams 16, 17, 18, and 19.
 ASSY A22 (Fig.8-5) circuit board illustration faces Diagram 16.

A B C D E F G



CH1 INPUT & DIRECT A/DOUT

TYPE	-5V	-2V
100150	18	6.7
100152	18	6.7
100153	8	1.6
100154	8	1.6
100155	8	1.6

COMPONENT NUMBER EXAMPLE

Component Number: **A23 A2 R1234**

Assembly Number: **A23**

Subassembly Number: **A2**

Part Number: **R1234**

Quantity: **1**

Static Sensitive Devices
 (X) See Maintenance Section

Drawn: **J361**

Checked: **J361**

Approved: **J361**

Table 8-17
 CH2 INPUT & DIRECT A/D OUT  — ENVELOPE BD., ASSEMBLY A30

CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION	CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION
DL303	C4	G2	R270F	F3	H2
J302	G1	I1	R270G	F2	H2
P300	B5	I6	R270H	F2	H2
P301	B1	C6	R274A	G2	J2
P302	G1	I1	R274B	F2	J2
R210A	C3	E5	R274C	F2	J2
R210B	C3	E5	R274D	G2	J2
R210D	C3	E5	R274E	F2	J2
R210E	C3	E5	R274F	F2	J2
R210F	C3	E5	R300A	B5	G5
R212C	C2	E5	R300F	B4	G5
R212D	C2	E5	R300G	B4	G5
R212E	C2	E5	R303	C4	F1
R212F	C2	E5	R338G	C5	I3
R212G	C2	E5	U210	C3	E4
R224B	D5	G3	U212	C2	E5
R224C	D5	G3	U220	E3	G4
R224D	D5	G3	U222	E2	H4
R224E	D5	G3	U224	E5	G3
R224F	D5	G3	U226	E4	H3
R224G	D5	G3	U270	G4	H2
R226B	D4	H3	U272	G3	I2
R226C	D4	H3	U274	G2	J2
R226D	D4	H3	U300B	B4	G5
R226E	D4	H3	U302A	C5	G4
R226F	D4	H3	U302B	C4	G4
R226G	D4	H3	U302E	C4	G4
R270A	F2	H2	U318B	B5	J2
R270B	F3	H2	U318D	D4	J2
R270C	F3	H2	U336A	C5	J3
R270D	F2	H2	U336B	C5	J3
R270E	F3	H2	W302	H1	(CHASSIS)

ASSY A30 is also shown on Diagrams 20,21,22,23,and 24.
 ASSY A30 (Fig.8-6) circuit board illustration faces Diagram 20.

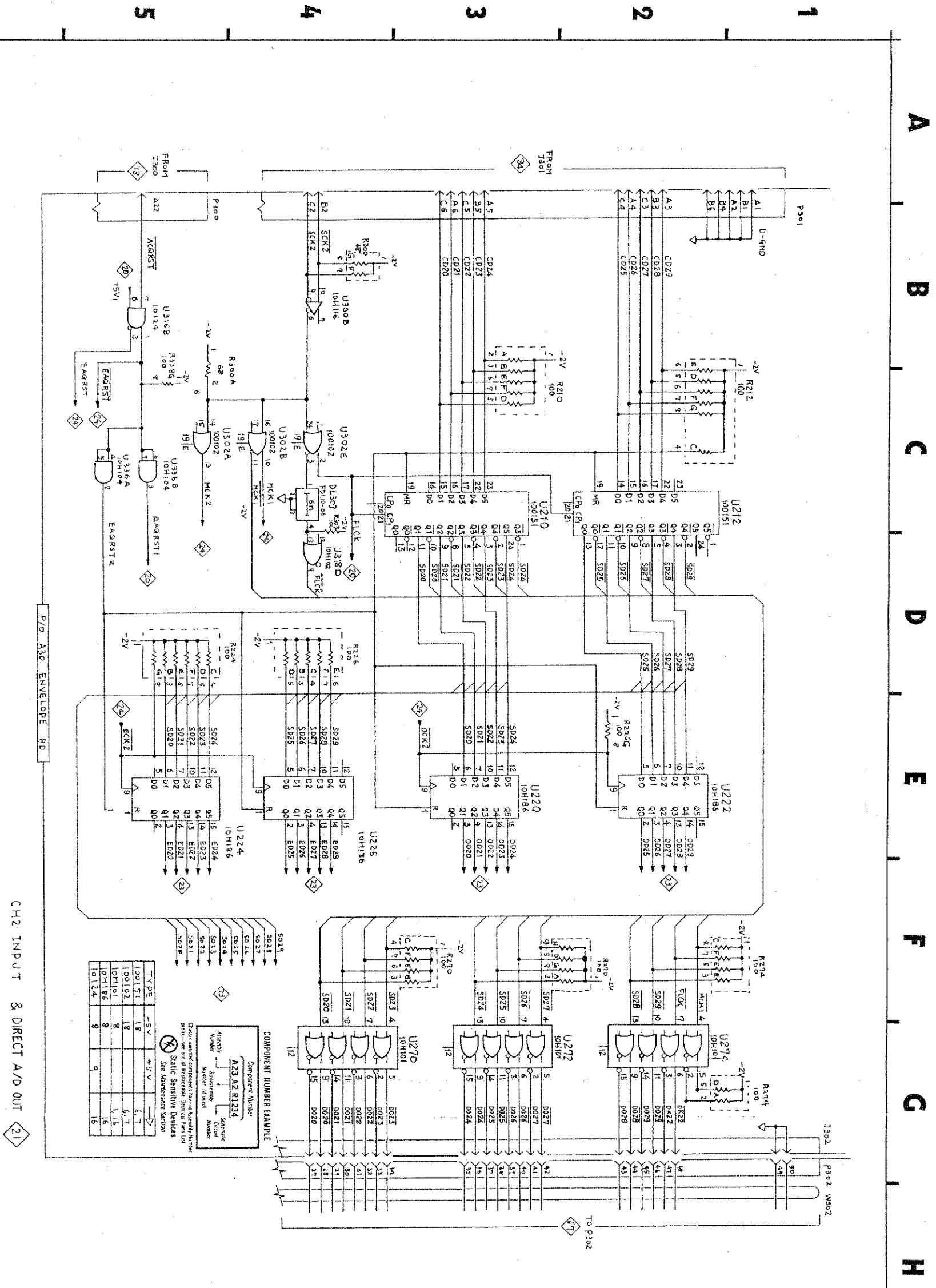

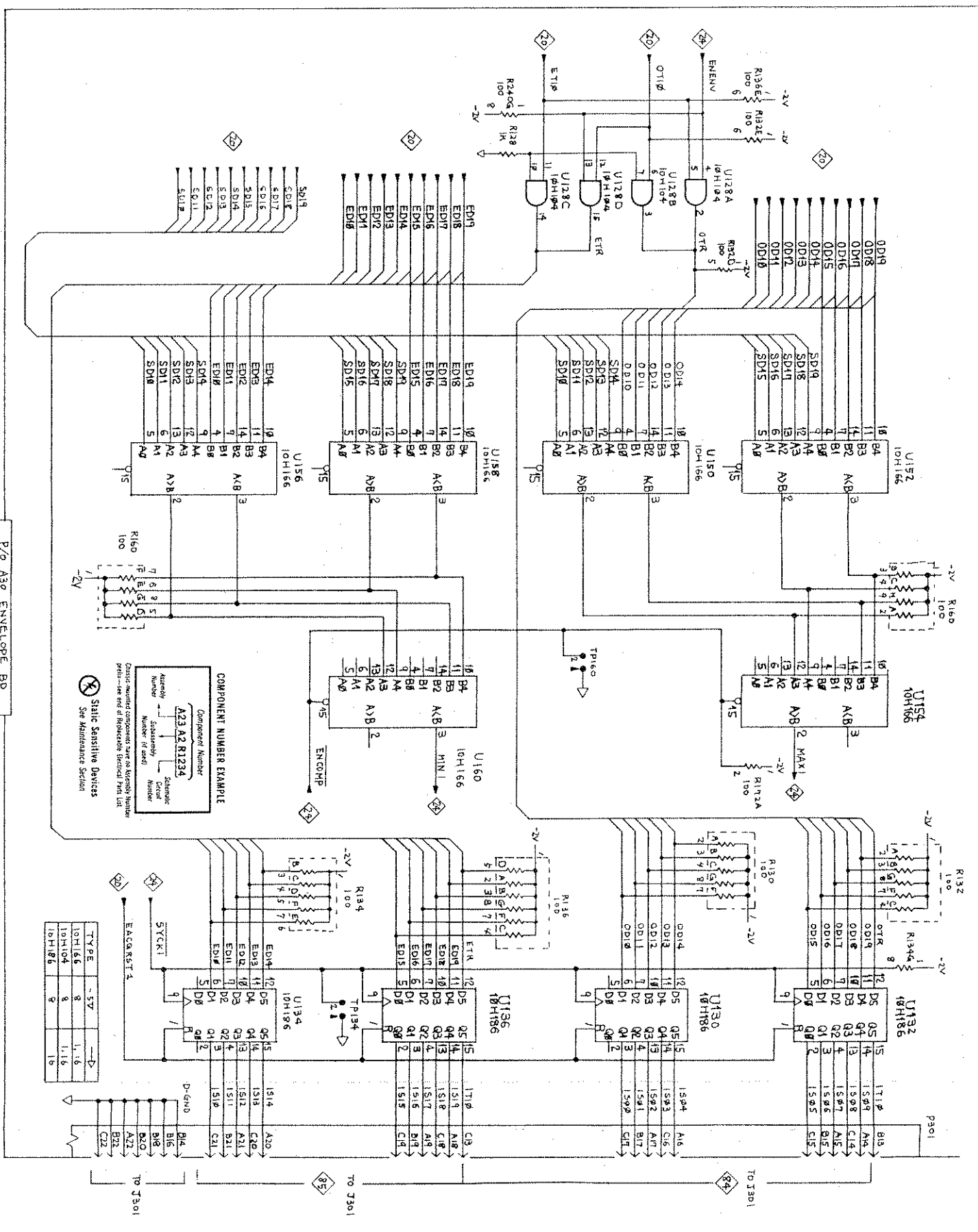


Table 8-18
 CH1 COMPARATOR  ENVELOPE BD., ASSEMBLY A30

CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION	CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION
P301	G1	C6	R180A	D1	F2
R128	B3	C3	R180B	D1	F2
R130A	E2	C5	R180C	D1	F2
R130B	E2	C5	R180D	D5	F2
R130C	E2	C5	R180E	D5	F2
R130F	E2	C5	R180F	D5	F2
R130G	E2	C5	R180G	D5	F2
R132A	E1	C4	R180H	D1	F2
R132B	E1	C4	R172A	E2	F1
R132C	F1	C4	R240G	B3	B2
R132D	B2	C4	TP134	F4	C2
R132E	B2	C4	TP160	D3	G2
R132F	F1	C4	U128A	B2	C3
R132G	E1	C4	U128B	B2	C3
R134B	F4	C3	U128C	B3	C3
R134C	F4	C3	U128D	B3	C3
R134D	F4	C3	U130	F2	C4
R134E	F4	C3	U132	F1	C4
R134F	F4	C3	U134	F4	C3
R134G	F1	C3	U136	F3	C2
R136A	F3	C2	U150	C2	D3
R136B	F3	C2	U152	C1	F3
R136C	F3	C2	U154	E1	F3
R136D	A2	C2	U156	C4	D2
R136E	F3	C2	U158	C3	E2
R136G	F3	C2	U160	E3	F2
R136F	F3	C2			

ASSY A30 is also shown on Diagrams 20,21,22,23,and 24.
 ASSY A30 (Fig.8-6) circuit board illustration faces Diagram 20.

A B C D E F G



CHI COMPARATOR

TYPE	-5V	-1.6
10H166	9	1, 16
10H104	9	1, 16
10H186	9	16

COMPONENT NUMBER EXAMPLE

Component Number	A23 A2 R1234
Assembly Number	
Station/Order Number	
Control Number	

Classic mounted components have an Assembly Number prefix - see end of Reference Electrical Part List.

Static Sensitive Devices
See Maintenance Section

P/O A30 ENVELOPE BD

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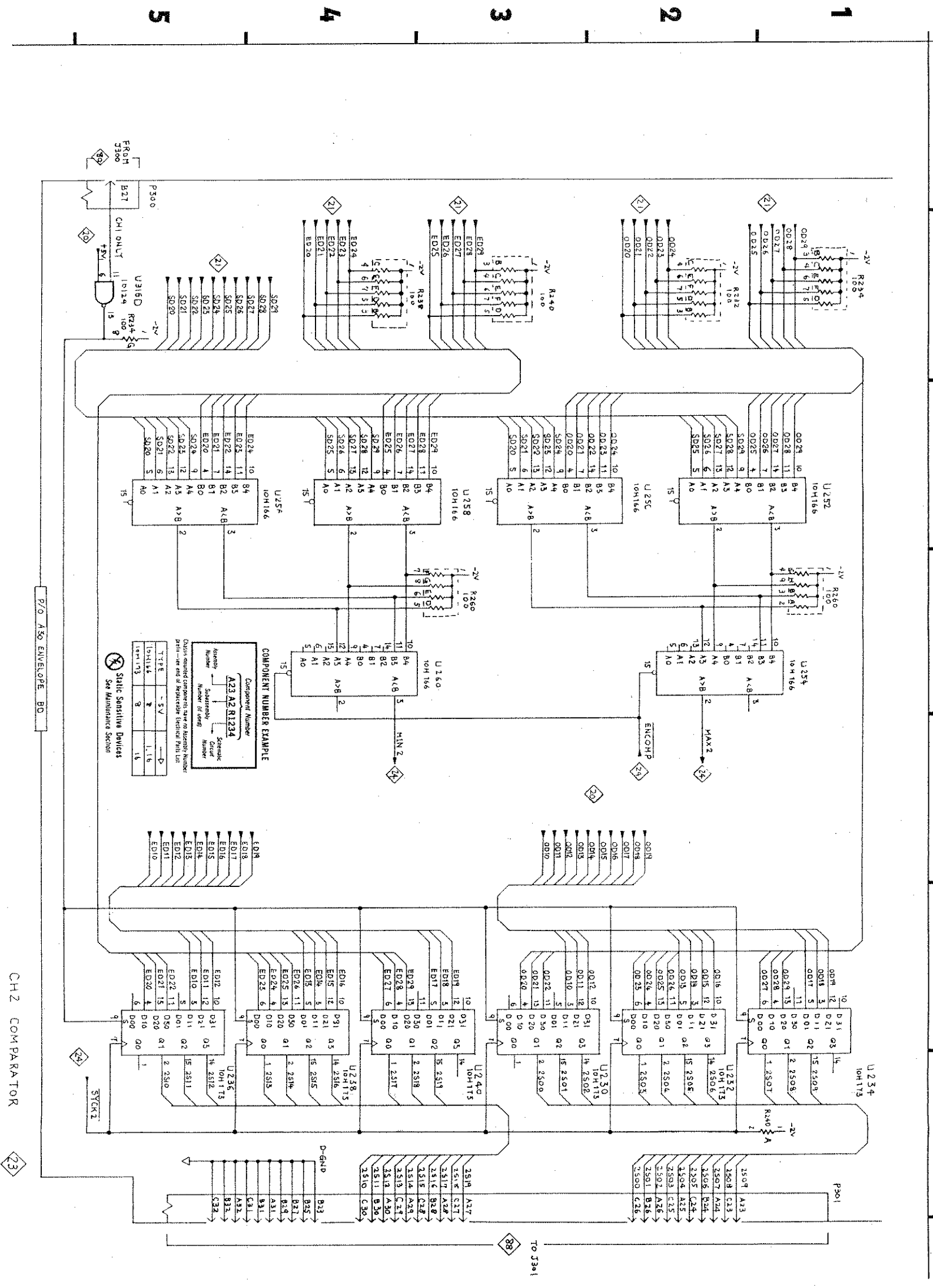
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Table 8-19
 CH2 COMPARATOR 23 — ENVELOPE BD., ASSEMBLY A30

CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION	CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION
P300	A5	16	R240F	B3	B2
P301	G1	C6	R260A	D1	F2
R232B	B2	B4	R260B	D1	F2
R232C	B2	B4	R260C	D1	F2
R232D	B2	B4	R260D	D3	F2
R232E	B2	B4	R260E	D3	F2
R232F	B2	B4	R260F	D3	F2
R234B	B1	B3	R260G	D3	F2
R234C	B1	B3	R260H	D1	F2
R234D	B1	B3	U230	F3	B4
R234E	B1	B3	U232	F2	B4
R234F	B1	B3	U234	F1	B3
R234G	B5	B3	U236	F5	B3
R238B	B4	B2	U238	F4	B2
R238C	B4	B2	U240	F3	B2
R238D	B4	B2	U250	C2	G3
R238E	B4	B2	U252	C1	G3
R238F	B4	B2	U254	D2	H3
R240A	G1	B2	U256	C5	G2
R240B	B3	B2	U258	C4	H2
R240C	B3	B2	U260	D4	F2
R240D	B3	B2	U316D	B5	J2

ASSY A30 is also shown on Diagrams 20,21,22,23, and 24.
 ASSY A30 (Fig.8-6) circuit board illustration faces Diagram 20.

A B C D E F G



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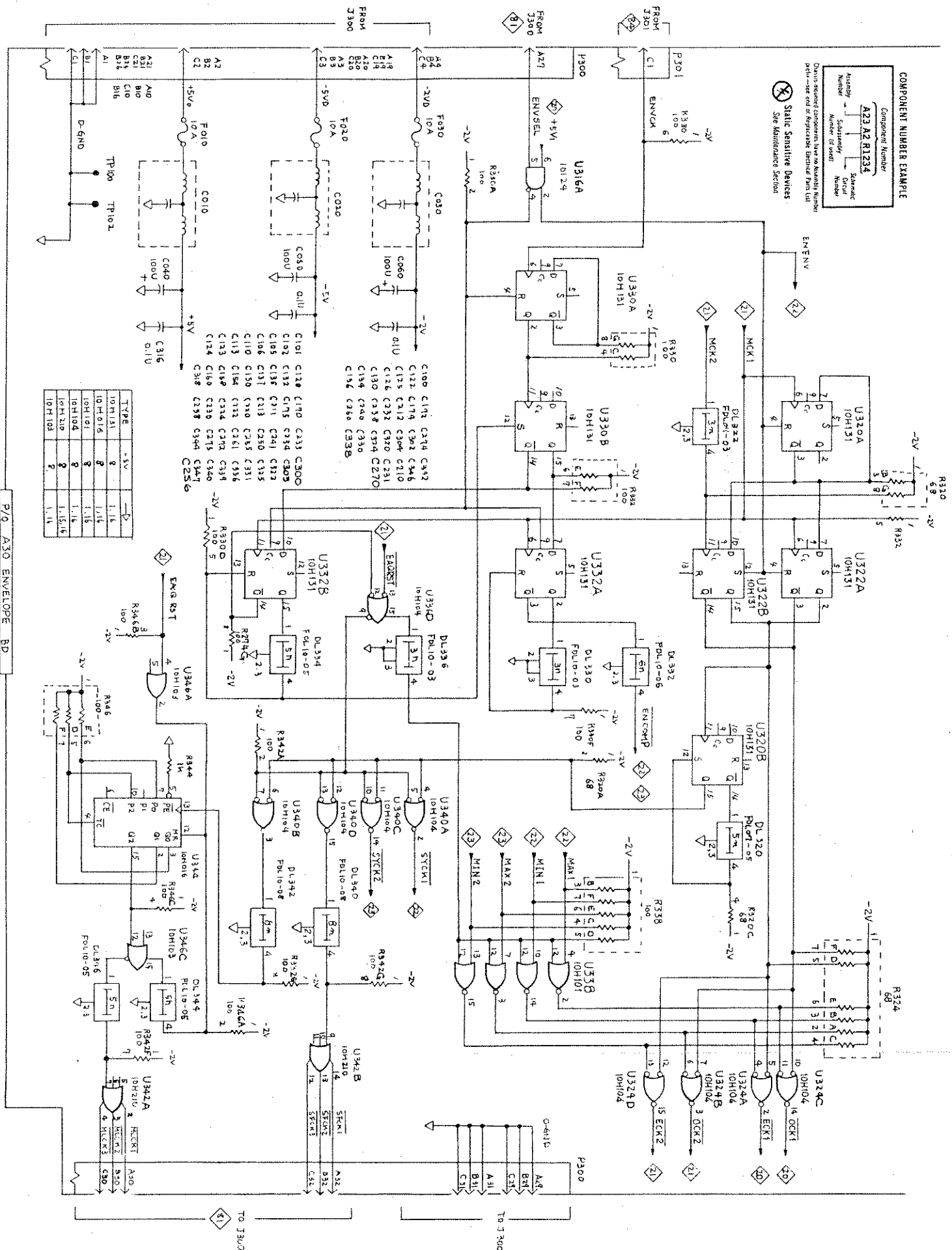
ACO TIMING GENERATOR  — ENVELOPE BD., ASSEMBLY A30

Table 8-20

CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION	CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION	CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION
C010	B5	K5	C270	C4	H2	R324F	F1	I3
C020	B4	K5	C272	C4	I2	R330A	B3	I5
C030	B3	K5	C274	C4	J2	R330C	C2	I5
C040	C5	K4	C275	C4	K2	R330D	D5	I5
C050	C4	K4	C300	C4	G5	R330E	B2	I5
C060	C4	J4	C302	C4	F4	R330F	E2	I5
C100	C4	C4	C303	C4	G4	R330G	C2	I5
C101	C4	E4	C304	C4	I2	R332D	D1	I4
C102	C4	E5	C316	C5	K2	R332E	D1	J4
C105	C4	C5	C318	C4	H2	R332F	D2	J4
C106	C4	A5	C320	C4	H4	R332G	F4	J4
C110	C4	D4	C322	C4	J4	R338B	F2	I3
C113	C4	E4	C324	C4	I3	R338C	F2	I3
C122	C4	D3	C325	C4	J3	R338D	F2	I3
C123	C4	E3	C330	C4	I4	R338E	F2	I3
C124	C4	D2	C331	C4	K3	R338F	F2	I3
C125	C4	C2	C336	C4	I3	R342A	E4	I5
C126	C4	D2	C338	C4	I3	R342F	F4	I5
C128	C4	C3	C339	C4	J3	R342G	F4	I5
C130	C4	B4	C340	C4	H5	R344	E5	I4
C132	C4	C4	C342	C4	H5	R346A	G4	J5
C134	C4	B3	C344	C4	K4	R346B	D5	J5
C135	C4	C3	C346	C4	I5	R346C	F5	J5
C136	C4	B2	C347	C4	K5	R346D	E5	J5
C137	C4	C2				R346E	E5	J5
C150	C4	D3	DL320	F2	H4	R346F	E5	J5
C154	C4	F3	DL322	C2	I4	TP100		
C158	C4	E2	DL330	E3	I4	TP102		
C160	C4	E2	DL332	E2	F3			
C170	C4	E1	DL334	E4	J3			
C172	C4	E1	DL336	E3	J3	U316A	B3	J2
C174	C4	G1	DL340	F4	H5	U320A	C1	H4
C175	C4	H1	DL342	F4	J4	U320B	E2	H4
C210	C4	E4	DL344	F5	J5	U322A	D1	H4
C211	C4	F4	DL346	F5	I5	U322B	D2	I4
C212	C4	E6				U324A	G2	I3
C213	C4	F5	F010	B5	K5	U324B	G2	I3
C220	C4	H4	F020	B4	K5	U324C	G1	I3
C222	C4	I4	F030	B3	K5	U324D	G2	I3
C224	C4	H3				U330A	C3	I4
C230	C4	B5	P300	A3	I6	U330B	C3	I4
C231	C4	A4	P300	G3	I6	U332A	D3	I3
C232	C4	A4	P301	A2	C6	U332B	D4	J3
C233	C4	B4				U336D	D4	J3
C234	C4	B3	R274G	E4	J2	U338	F3	I3
C238	C4	A2	R320A	E2	H4	U340A	E3	H5
C240	C4	A2	R320B	D1	H4	U340B	E4	H5
C241	C4	B2	R320C	F2	H4	U340C	E4	H5
C250	C4	H3	R320G	D1	H4	U340D	E4	H5
C255	C4	F3	R324A	G1	I3	U342A	G4	I5
C256	C4	G3	R324B	G1	I3	U342B	G4	I5
C258	C4	I2	R324C	G1	I3	U344	E5	I5
C260	C4	E2	R324D	F1	I3	U346A	E5	J5
C261	C4	F2	R324E	F1	I3	U346C	F5	J5

ASSY A30 is also shown on Diagrams 20,21,22,23,and 24.
ASSY A30 (Fig.8-6) circuit board illustration faces Diagram 20.

A B C D E F G



1 2 3 4 5

P/O A30 ENVELOPE BOARD
ACQ TIMING GENERATOR

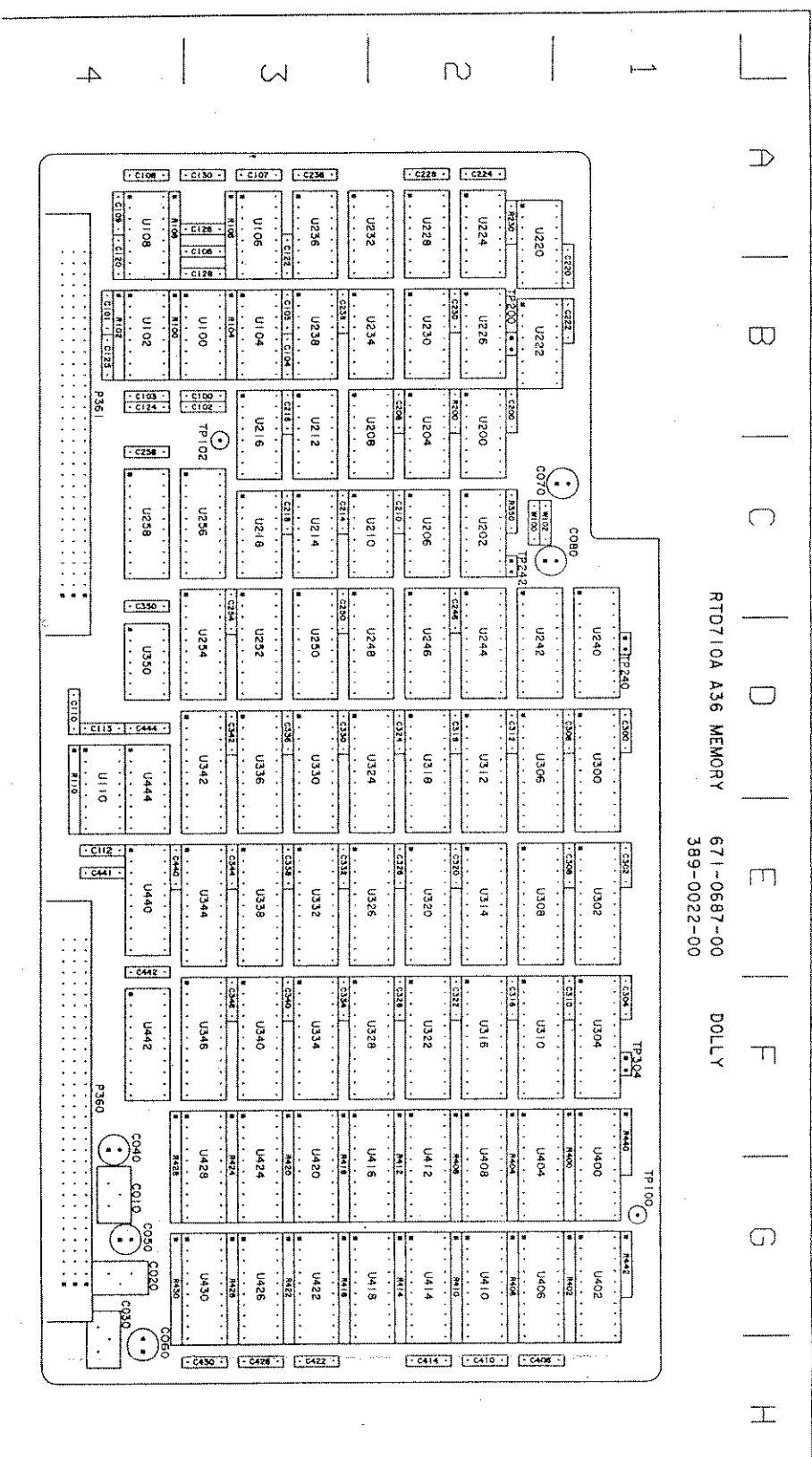
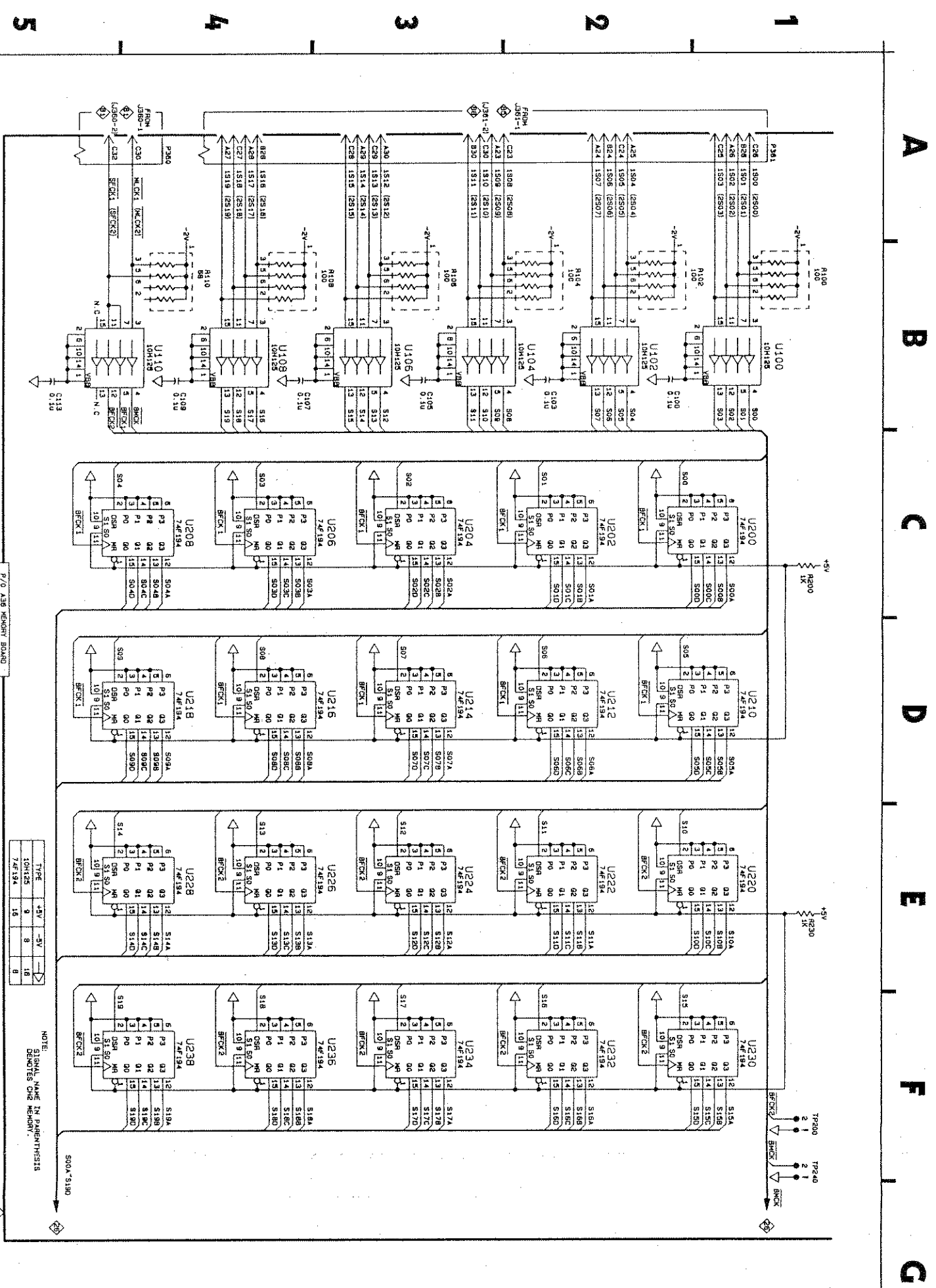


Fig. 8-7. A36 MEMORY BD., CIRCUIT BD. ASS.

Table 8-21
HIGH SPEED SHIFT REGISTER
MEMORY BOARD, ASSEMBLY A36

CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION	CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION
C100	B2	B3	U104	B2	B3
C103	B2	B4	U106	B3	A3
C105	B3	B3	U108	B4	A4
C107	B4	A3	U110	B4	D4
C109	B4	A4	U200	C1	B2
C113	B5	D4	U202	C2	C2
			U204	C3	B2
P360	A4	F4	U206	C4	C2
P361	A1	B4	U208	C4	B2
			U210	D1	C2
R100	B1	B4	U212	D2	B3
R102	B2	B4	U214	D3	C3
R104	B2	B3	U216	D4	B3
R105	B3	A3	U218	D4	C3
R108	B4	A4	U220	E1	A2
R110	B4	D4	U222	E2	B2
R200	C1	B2	U224	E3	A2
R230	E1	A2	U226	E4	B2
			U228	E4	A2
TP200	F1	B2	U230	F1	B2
TP240	F1	D1	U232	F2	A2
U100	B1	B3	U234	F3	B2
U102	B2	B4	U236	F4	A3
			U238	F4	B3

ASSY A36 is also shown on Diagrams 25,26,27, and 28.
ASSY A36 (Fig.8-7) circuit board illustration faces Diagram 25.



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A B C D E F G

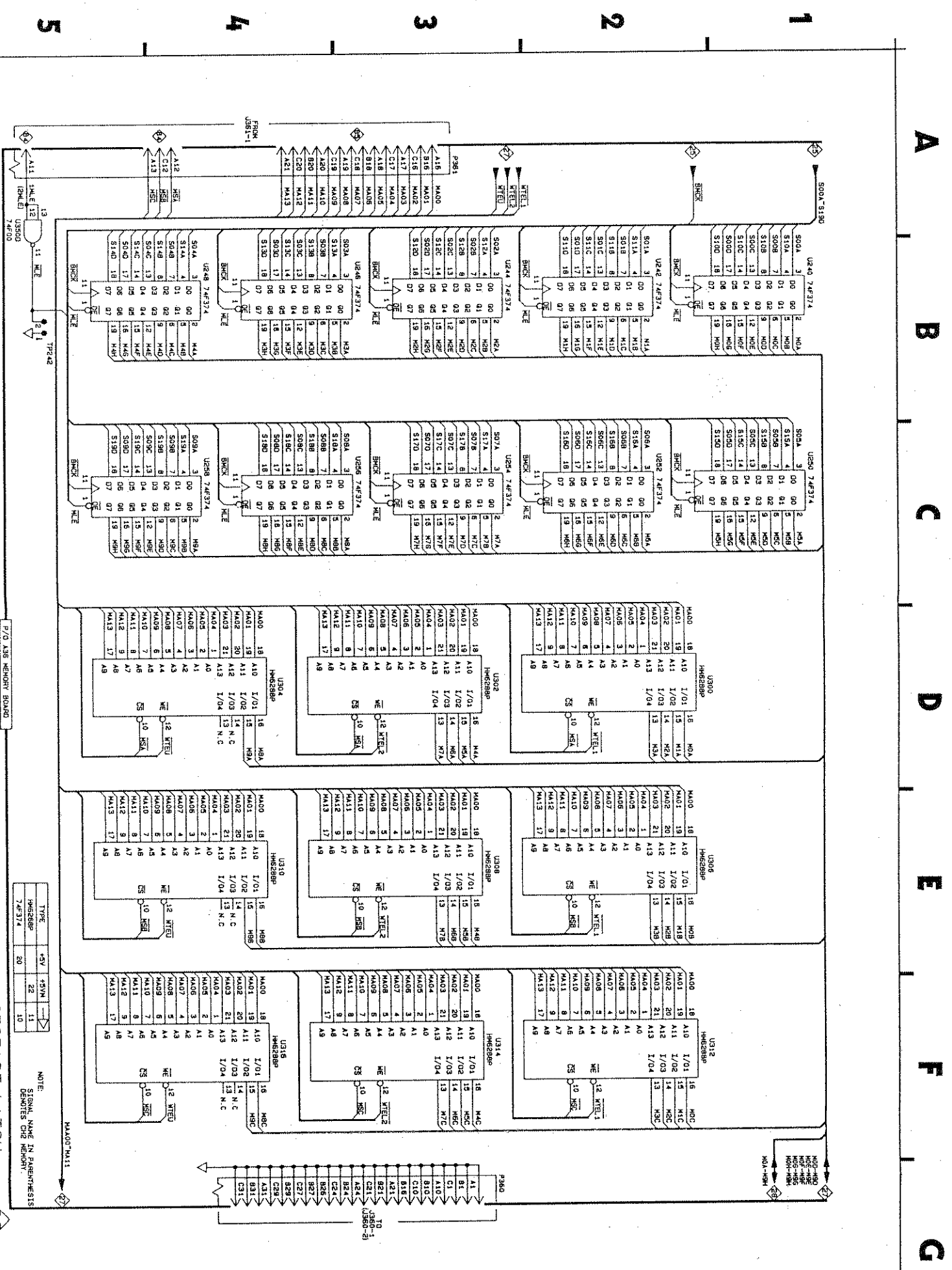
Table 8-22

MEMORY STORAGE LATCH 

MEMORY BOARD, ASSEMBLY A36

CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION
P360	G3	F4
P361	A3	B4
TP242	B5	C2
U240	B1	D1
U242	B2	D2
U244	B3	D2
U246	B4	D2
U248	B4	D2
U250	C1	D3
U252	C2	D3
U254	C3	D3
U256	C4	C3
U258	C4	C4
U300	D2	D1
U302	D3	E1
U304	D4	F1
U306	E2	D2
U308	E3	F2
U310	E4	F2
U312	F2	D2
U314	F3	E2
U316	F4	F2
U350D	A5	D4

ASSY A36 is also shown on Diagrams 25,26,27,and 28.
 ASSY A36 (Fig.8-7) circuit board illustration faces Diagram 25.



TYPE	+5V	+5VM	11
U292BPP	22	11	10
74F374	20		

MEMORY STORAGE LATCH

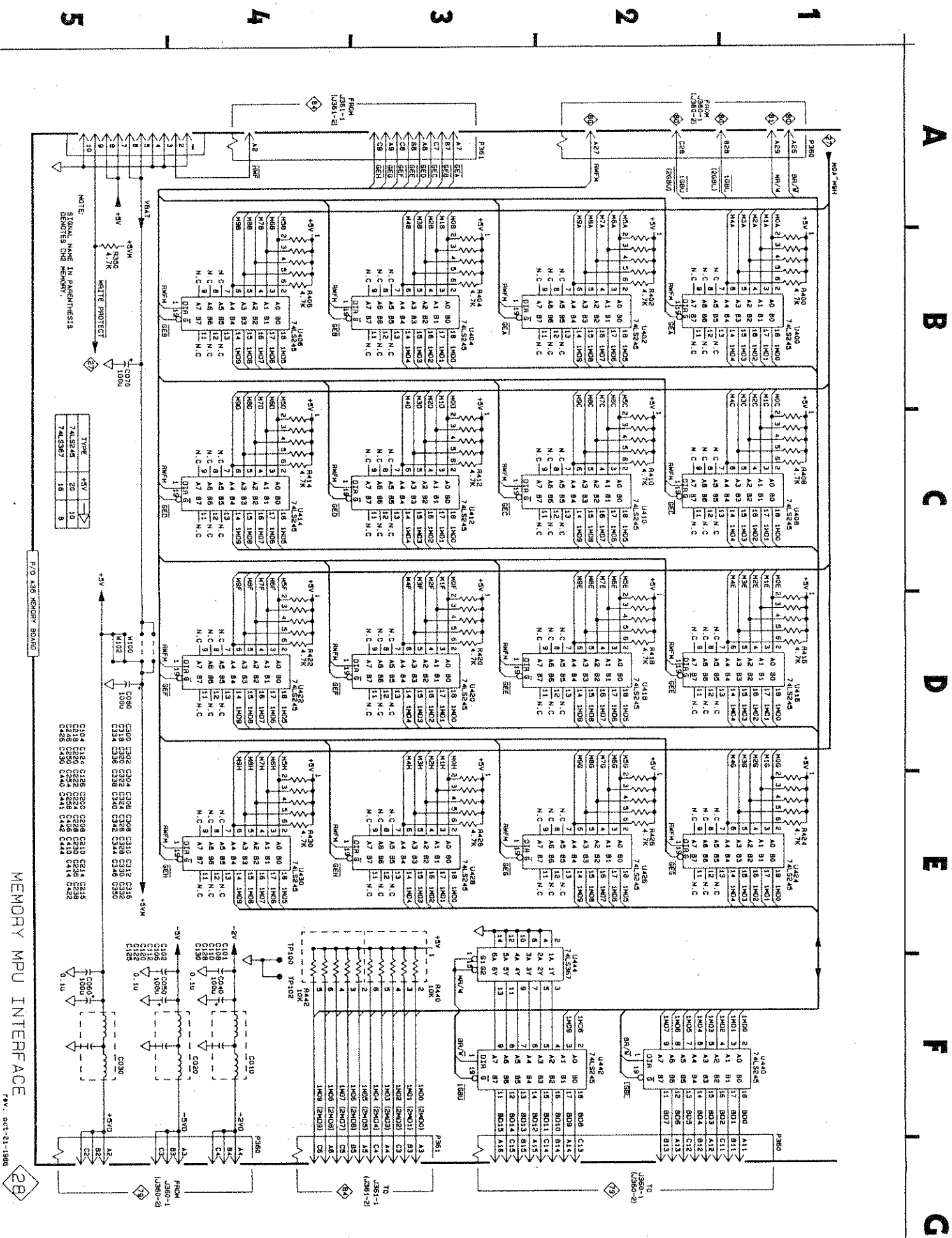
Table 8-24

MEMORY MPU INTERFACE 28

MEMORY BOARD, ASSEMBLY R36

CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION	CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION	CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION
C010	F4	G4	C306	E5	D1	R406	B4	G2
C020	F4	G4	C308	E5	E1	R408	C1	G2
C030	F5	G4	C310	E5	F1	R410	C2	G2
C040	F4	F4	C312	E5	D2	R412	C3	G2
C050	F5	G4	C316	E5	F2	R414	C4	G2
C060	F5	H4	C318	D5	D2	R416	D1	G3
C070	B5	C1	C320	D5	E2	R418	D2	G3
C080	D5	C1	C322	E5	F2	R420	D3	G3
C101	F4	B4	C324	E5	D2	R422	D4	G3
C102	F5	B3	C326	E5	E2	R424	E1	G3
C104	D5	B3	C328	E5	F2	R426	E2	G3
C106	F5	B3	C330	E5	D3	R428	E3	G3
C108	F4	H4	C332	E5	E3	R430	E4	G4
C110	F4	D4	C334	D5	F3	R440	F3	F1
C112	F5	E4	C336	D5	D3	R442	F4	G1
C120	F5	H4	C338	E5	E3			
C122	F5	B3	C340	E5	F3	P100	F4	G1
C124	D5	B4	C342	E5	D3	P102	F4	G3
C125	F5	B4	C344	E5	E3			
C126	E5	B3	C346	E5	F3	U400	D1	G1
C128	F4	B3	C350	E5	C4	U402	D2	G1
C130	F4	B3	C406	E5	H2	U404	B3	G2
C200	E5	B2	C410	E5	H2	U406	B4	G2
C208	E5	B2	C414	E5	H2	U408	C1	G2
C210	E5	C2	C422	E5	H3	U410	C2	G2
C214	E5	C3	C426	D5	H3	U412	C3	G2
C216	E5	B3	C430	D5	H3	U414	C4	G2
C218	D5	C3	C440	E5	E4	U416	D1	G2
C220	D5	B1	C444	E5	E4	U418	D2	G2
C222	E5	B1	C442	E5	E4	U420	D3	G3
C224	E5	R2	C444	E5	D2	U422	D4	G3
C228	E5	R2				U424	E1	G3
C230	E5	B2	P360	B1	F4	U426	E2	G3
C236	E5	B3	P360	G1	F4	U428	E3	G3
C238	E5	B3	P360	G4	F4	U430	E4	G3
C246	D5	C2	P361	B3	B4	U440	F1	E4
C250	D5	C3	P361	G3	B4	U442	F2	F4
C254	E5	C3				U444	F2	D4
C258	E5	C4	R350	B5	C2			
C300	D5	D1	R400	B1	G1	U100	D5	C2
C302	D5	E1	R402	B2	G1	U102	D5	C2
C304	E5	F1	R404	B3	G2			

ASSY A36 is also shown on Diagrams 25,26,27, and 28.
ASSY A36 (Fig.8-7) circuit board illustration faces Diagram 25.



A B C D E F G

1 2 3 4 5

Table 8-25

REF & REVERSE 29

TIME BASE BD., ASSEMBLY R32

CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION	CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION
C16	B3	B2	P4400	E2	E3
C18	B3	B2	P4500	E1	E4
C10	F2	E4	P450C	E1	E4
C14	F1	E3	P4500	F1	E4
CR322	B1	G1	P450E	E2	E4
CR323	B2	F1	P450F	E2	E4
J122	C1	G1	P120	B3	H1
J174	C2	G1	U16	B3	G2
J322	B2	G1	U20	B2	G1
J33	G1	F4	U340	E2	E3
P122	C1	G1	U340	E2	E3
P174	C2	G1	U360	F4	E2
P320	G3	F4	U360	F3	E2
P320	B4	F4	U36C	F3	E2
P320	B1	F4	U360	F3	E2
P321	G1	B4	U400	E1	E4
P371	B3	B4	U400	F2	E4
R116	B3	G2	U44C	F1	E3
R18	B3	G2	U440	F2	E3
R120	B2	G1	U480	E2	E3
R12	E1	F3	U450	F2	E3
R134F	F1	E3			
R322	B1	G1	U322	G1	OFF BO.
R373	B2	F1	U322	B2	OFF BO.
R48C	F2	E3			

ASSY A32 is also shown on Diagrams 29,30,31,32,33a,33b, and 34.
ASSY A32 (Fig.8-8) circuit board illustration faces Diagram 29.

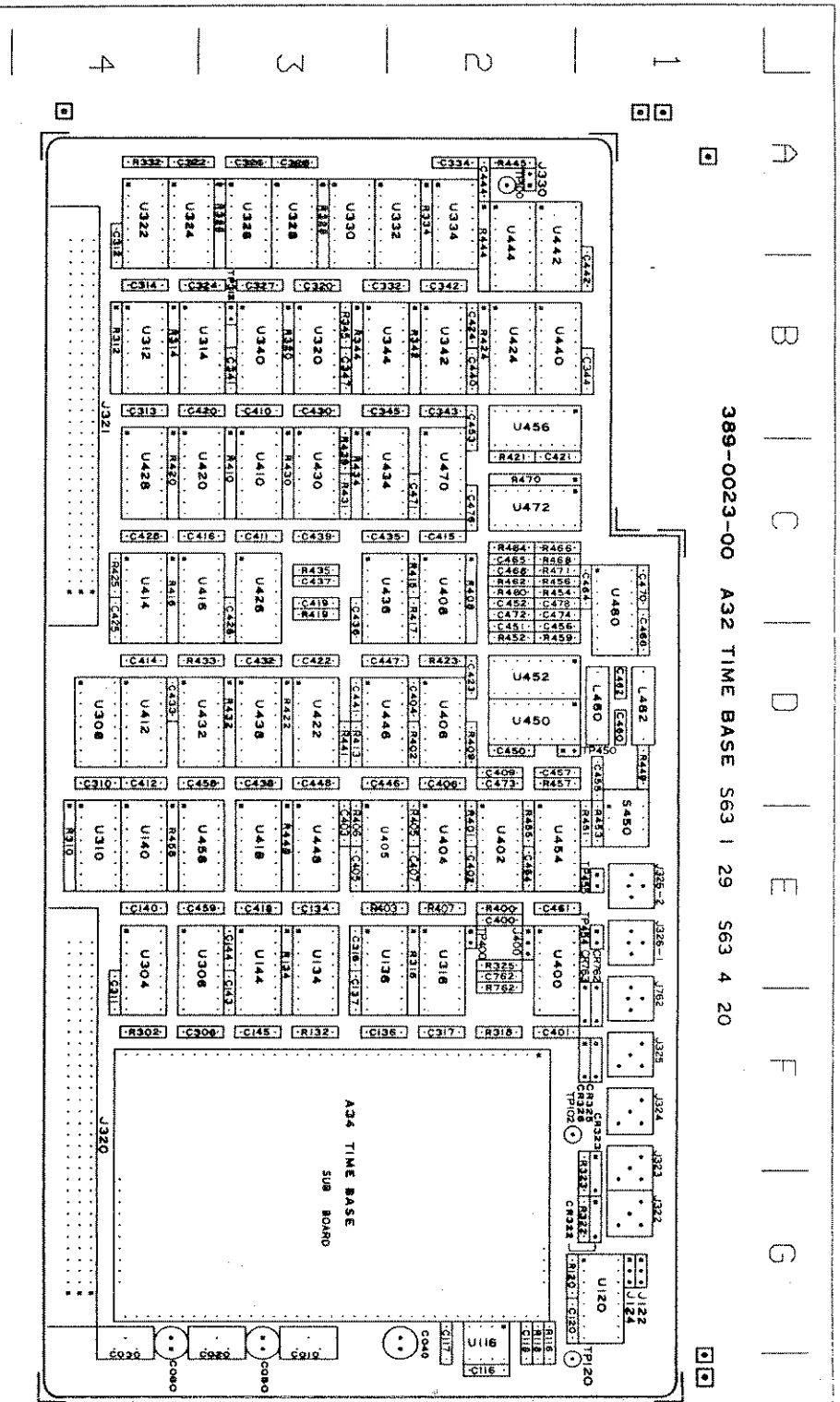


Fig. 8-8. A32 TIME BASE BD., CIRCUIT BD. ASS.

TIME BASE CONTROL BD., ASSEMBLY A34

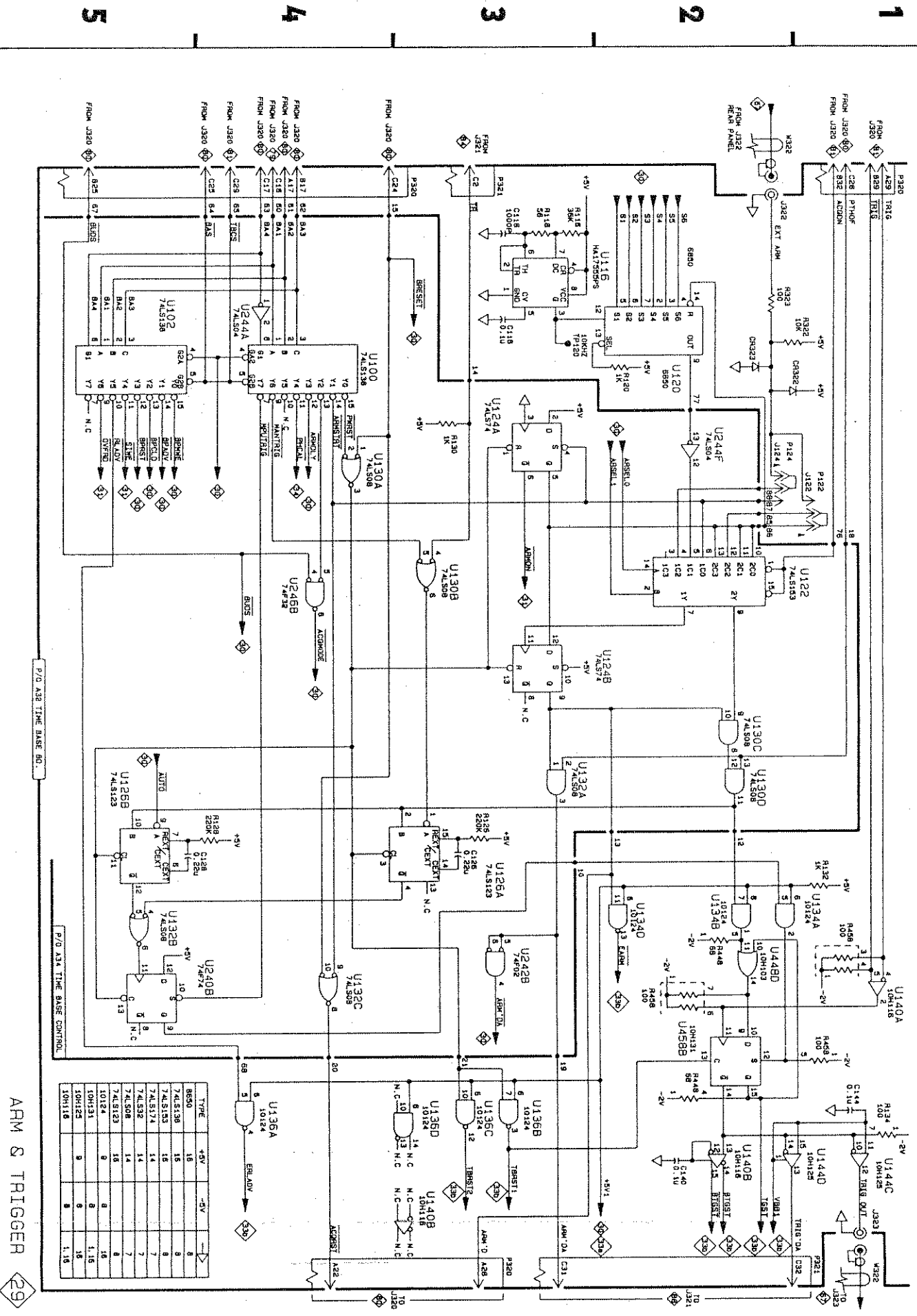
Table 8-26

REF & REVERSE 29

CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION	CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION
C126	E3	B3	U260	F3	B3
C128	E5	B4	U300	C4	C4
R126	E3	B3	U300	E3	C4
R128	E4	B3	U30C	B2	C4
R130	B3	C5	U320	B3	B4
U100	B4	E1	U320	E3	B4
U102	B5	D1	U32C	E4	B4
U122	C2	B2	U400	E3	B4
U124	B3	B4	U420	E3	C4
U124B	/03	B4	U44F	B4	C2
U126A	E3	B3	U260	C4	B3

ASSY A34 is also shown on Diagrams 29,30,31, and 34.
ASSY A34 (Fig.8-9) circuit board illustration faces Diagram 30.

A B C D E F G



TYPE	+5V	-5V	→
RES0	18	8	
74LS138	18	8	
74LS133	18	8	
74LS134	14	7	
74LS132	14	7	
74LS08	18	8	
10K124	8	8	1.16
10K125	8	8	1.16
10K118	8	8	1.16

ARM & TRIGGER 29

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2
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4
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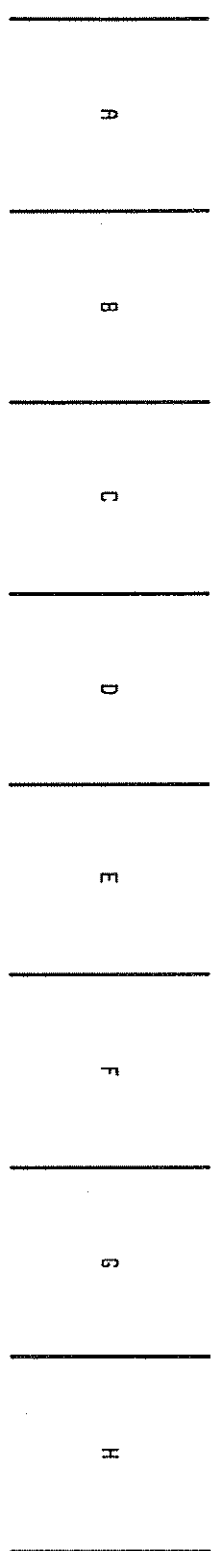


Table 8-27

BREAK POINT LOCATOR 30	
TIME BASE BD., ASSEMBLY A32	
CIRCUIT NUMBER	SCHEMATIC BOARD LOCATION
P320	A2
P320	G3
U134C	E1
	E3
	F4
	F4

ASSY A32 is also shown on Diagrams 29,30,31,32,33a,33b, and 34.
 ASSY A32 (Fig.8-8) circuit board illustration faces Diagram 29.

Table 8-28

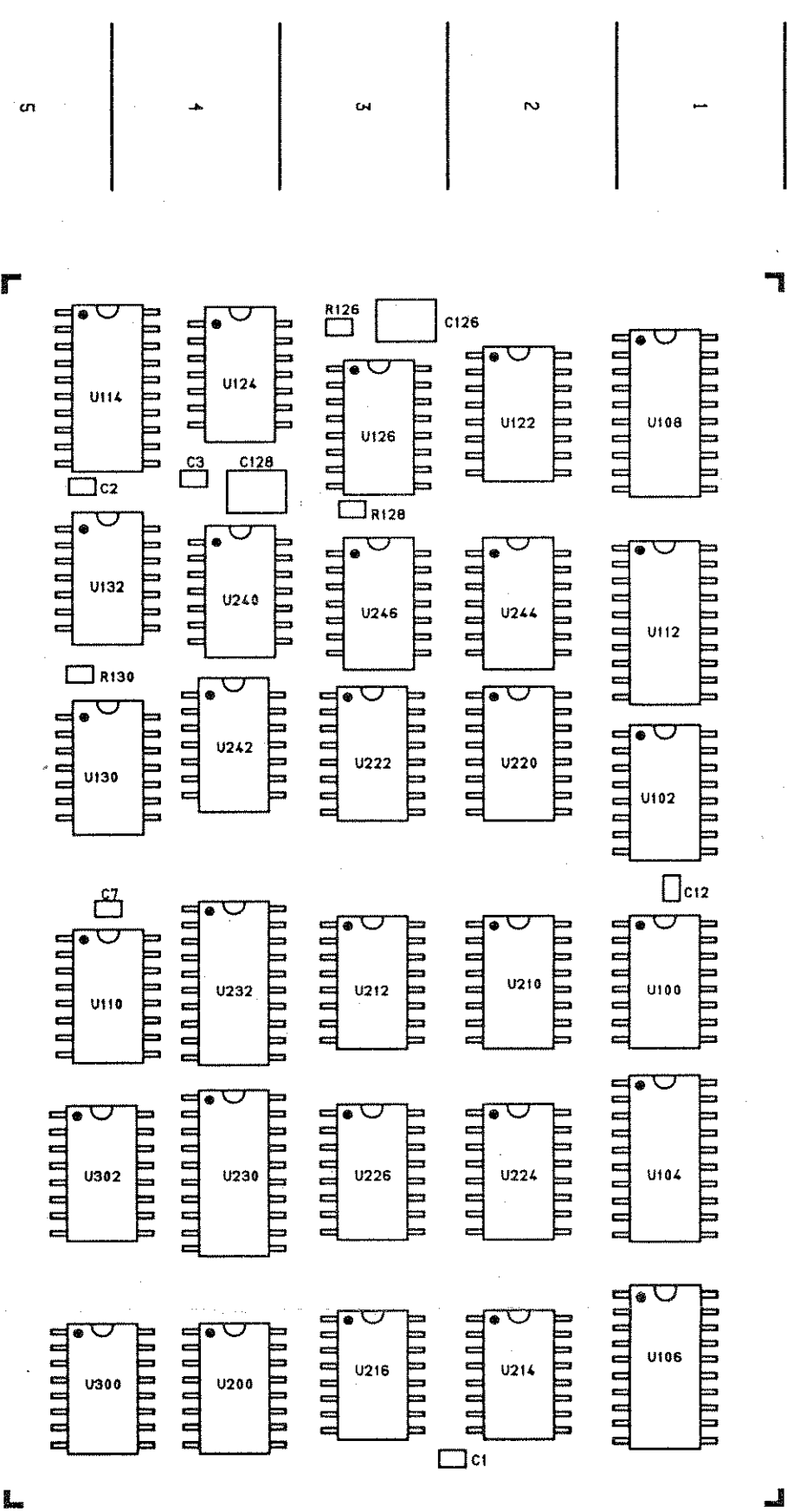
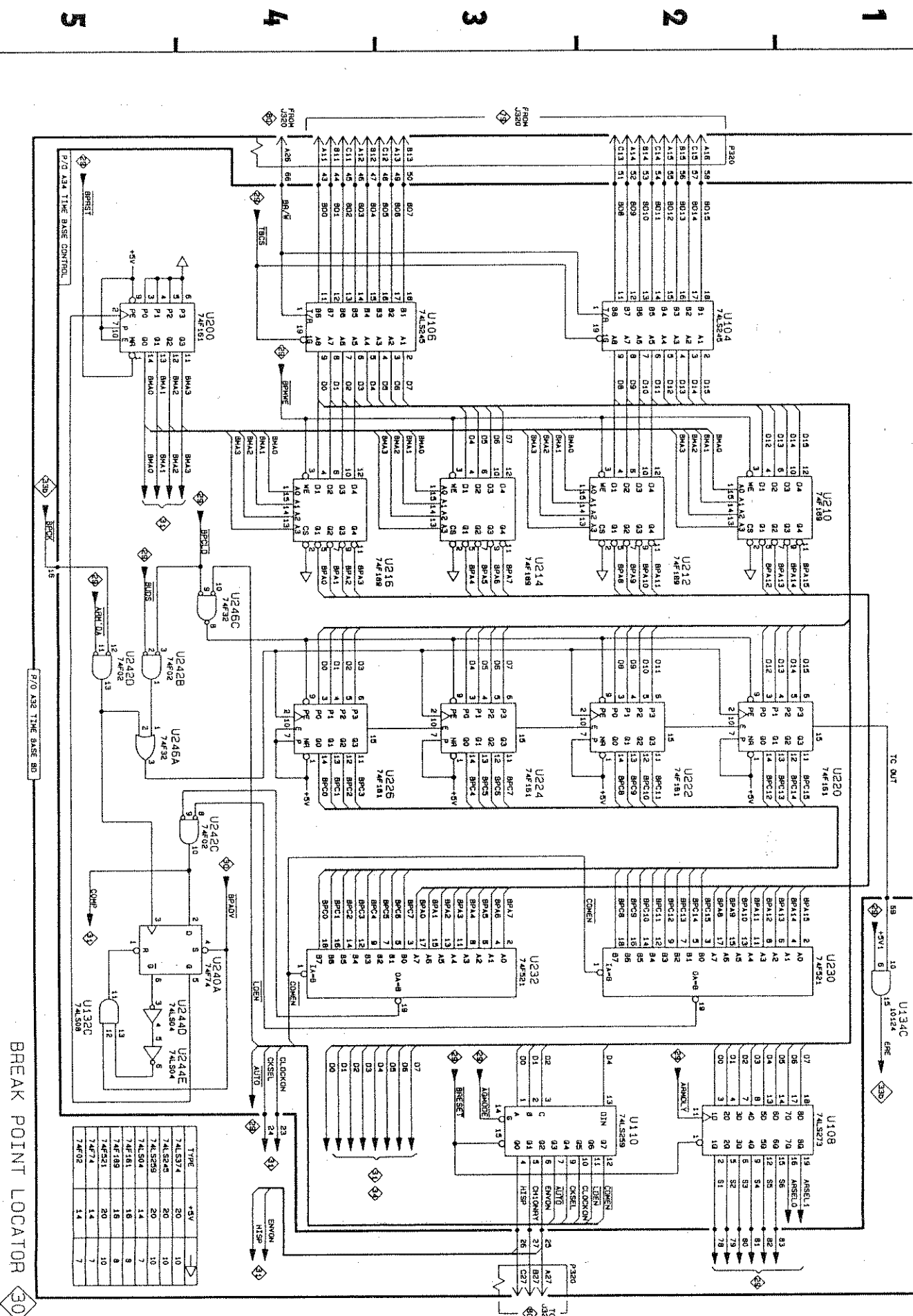


Fig. 8-9. A34 TIME BASE CONTROL BD., CIRCUIT BD. ASS.

BREAK POINT LOCATOR 30	
TIME BASE CONTROL BD., ASSEMBLY A34	
CIRCUIT NUMBER	SCHEMATIC BOARD LOCATION
U104	B2
U106	B3
U108	F1
U110	F2
U132C	E5
U200	B5
U210	C1
U212	C2
U214	C3
U215	C4
U220	D1
U222	D2
U224	D3
U226	D4
U230	E2
U232	E3
U240A	E4
U242B	D5
U242C	D4
U242D	D5
U244D	E5
U244E	F5
U245A	D5
U245C	C4
	B3

ASSY A34 is also shown on Diagrams 29,30,31, and 34.
 ASSY A34 (Fig.8-9) circuit board illustration faces Diagram 30.

A B C D E F G



BREAK POINT LOCATOR 30

1 2 3 4 5

Table 8-29

INTERVAL DATA RAM 31

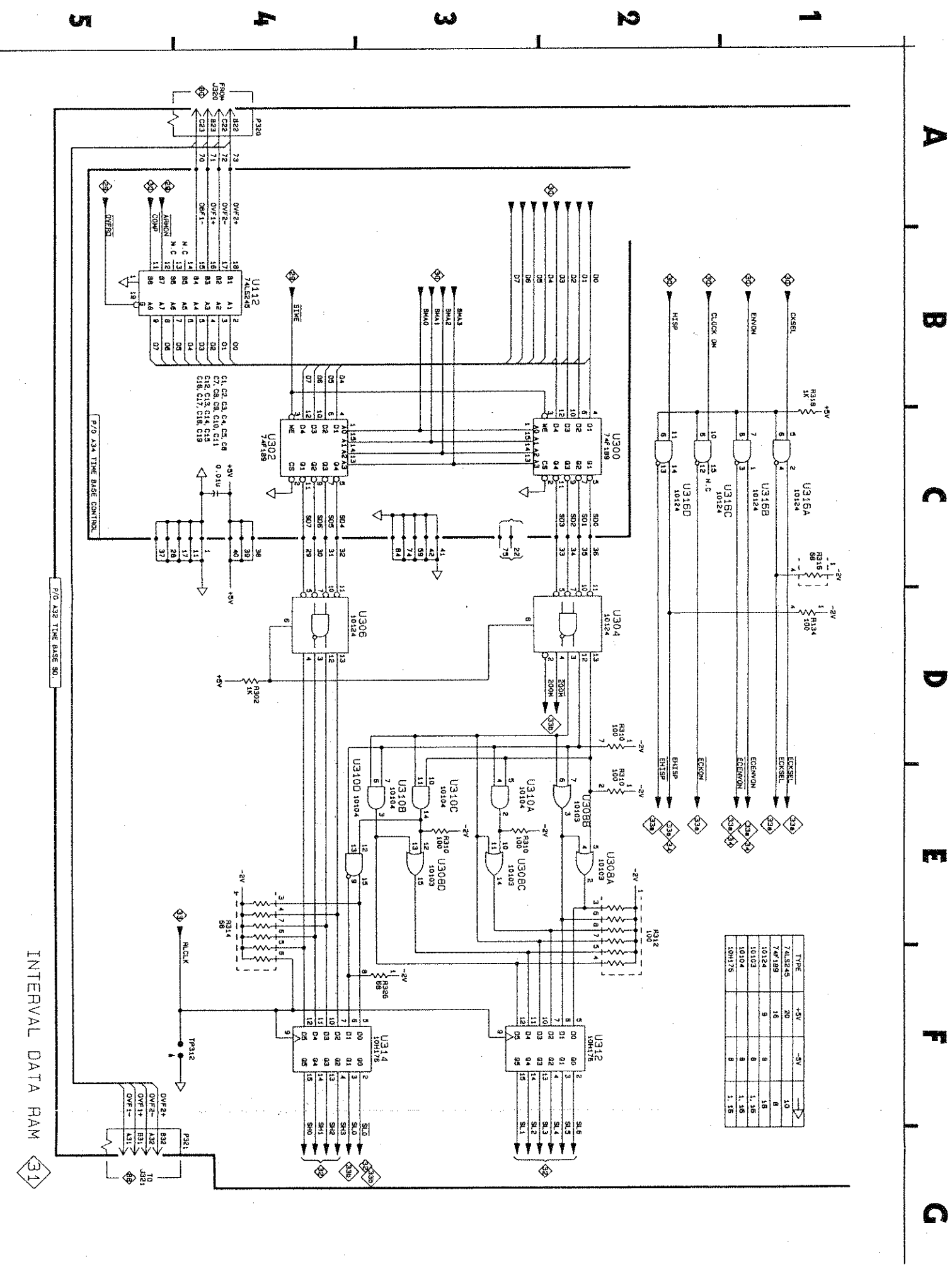
TIME BASE BD., ASSEMBLY A32			
CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION	
P320	A4	F4	
P321	G5	B4	
R134C	D1	E3	
R302	D4	F4	
R310	E3	E4	
R310	E3	E4	
R310A	E2	E4	
R310F	D2	E4	
R312	E2	B4	
R314	E4	B4	
R316C	C1	E2	
R318	C1	F2	
R326	F3	A3	
TP312	F4	B3	
U304	D2	E4	
U306	D4	E3	
U308A	E2	D4	
U308B	E2	D4	
U308C	E3	D4	
U308D	E3	D4	
U310A	E3	E4	
U310B	E3	E4	
U310C	E3	E4	
U310D	E4	E4	
U312	F2	B4	
U314	F4	B3	
U316A	C1	E2	
U316B	C1	E2	
U316C	C2	E2	
U316D	C2	E2	

Table 8-30

INTERVAL DATA RAM 31

TIME BASE CONTROL BD., ASSEMBLY A34			
CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION	
C1	C4	H2	
C2	C4	B5	
C3	C4	B4	
*C4	C4		
*C5	C4		
*C6	C4		
C7	C4	D4	
*C8	C4		
*C9	C4		
*C10	C4		
*C11	C4		
C12	C4	D1	
*C13	C4		
*C14	C4		
*C15	C4		
*C16	C4		
*C17	C4		
*C18	C4		
*C19	C4		
U112	B4	C1	
U300	C2	G5	
U302	C4	F5	

ASSY A34 is also shown on Diagrams 29,30,31, and 34.
 ASSY A34 (Fig.8-9) circuit board illustration faces Diagram 30.



INTERVAL DATA RAM (31)

A B C D E F G

1 2 3 4 5

Table 8-31

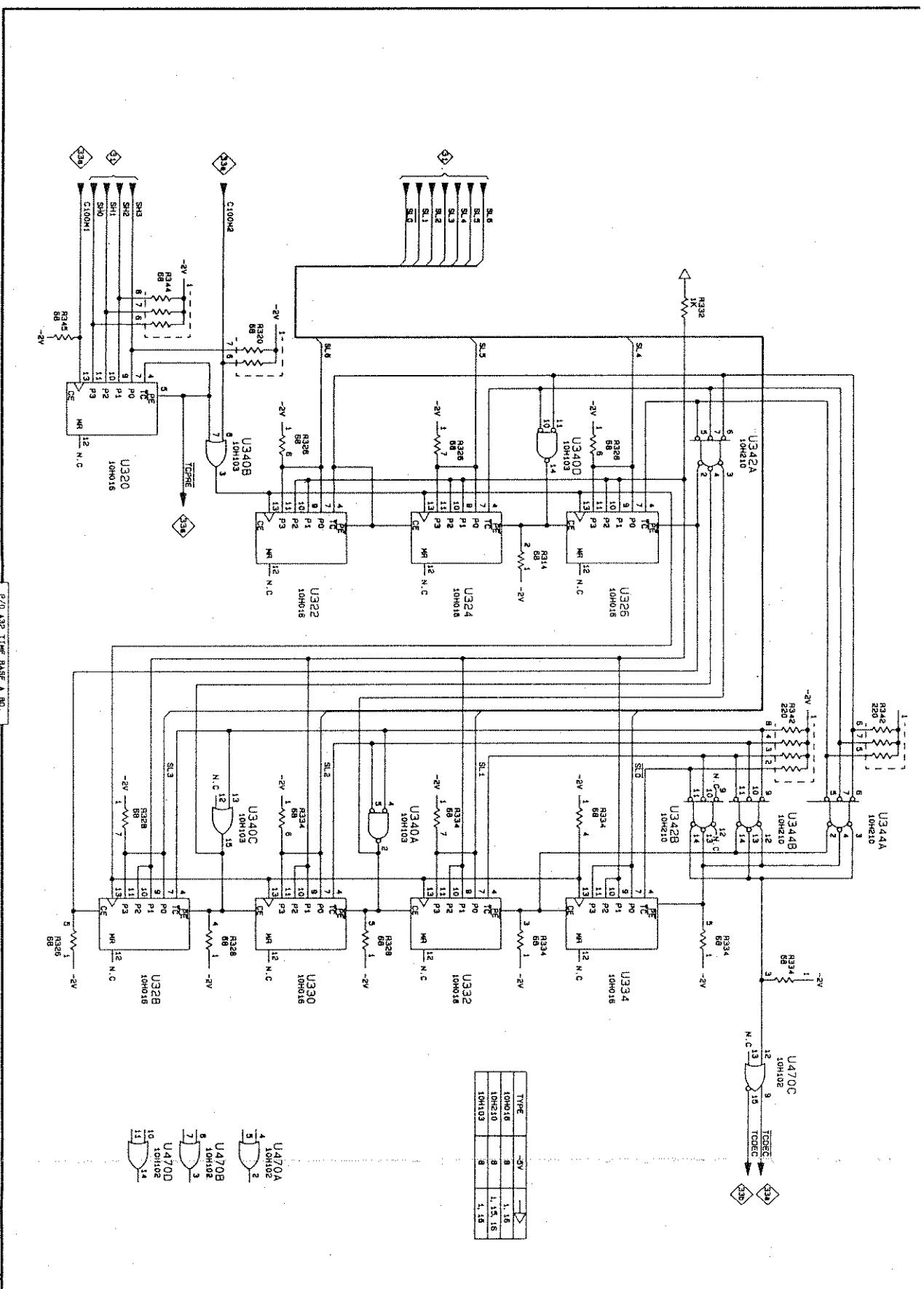
PROGRAMMABLE COUNTER 32

TIME BASE BD., ASSEMBLY A32

CIRCUIT NUMBER	SCHEMATIC LOCATION		BOARD LOCATION		CIRCUIT NUMBER	SCHEMATIC LOCATION		BOARD LOCATION	
	LOCATION	LOCATION	LOCATION	LOCATION		LOCATION	LOCATION	LOCATION	LOCATION
R314	C3		B4		U322	C4		A4	
R320	C4		B3		U324	C3		A4	
R326	C4		A3		U326	C2		A3	
R326	C3		A3		U328	E4		A3	
R326D	E5		A3		U330	E4		A3	
R328	C2		A3		U332	E3		A2	
R328C	E4		A3		U334	E2		A2	
R328D	E3		A3		U340A	E3		B3	
R328F	E5		A3		U340B	C4		B3	
R332	B2		A4		U340C	E4		B3	
R334B	F1		A2		U340D	C3		B3	
R334B	E3		A2		U342A	C2		B2	
R334C	E2		A2		U342B	E2		B2	
R334D	E2		A2		U344A	E1		B2	
R334E	E4		A2		U344B	E2		B2	
R334F	E3		A2		U470A	F4		C2	
R342	D1		B2		U470B	F4		C2	
R344	B4		B3		U470C	F2		C2	
R345	B5		B3		U470D	F4		C2	
U320	C5		B3						

ASSY A32 is also shown on Diagrams 29,30,31,32,33a,33b, and 34.
 ASSY A32 (Fig.8-8) circuit board illustration faces Diagram 29.

A B C D E F G



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P/O 282 TIME BASE A 80

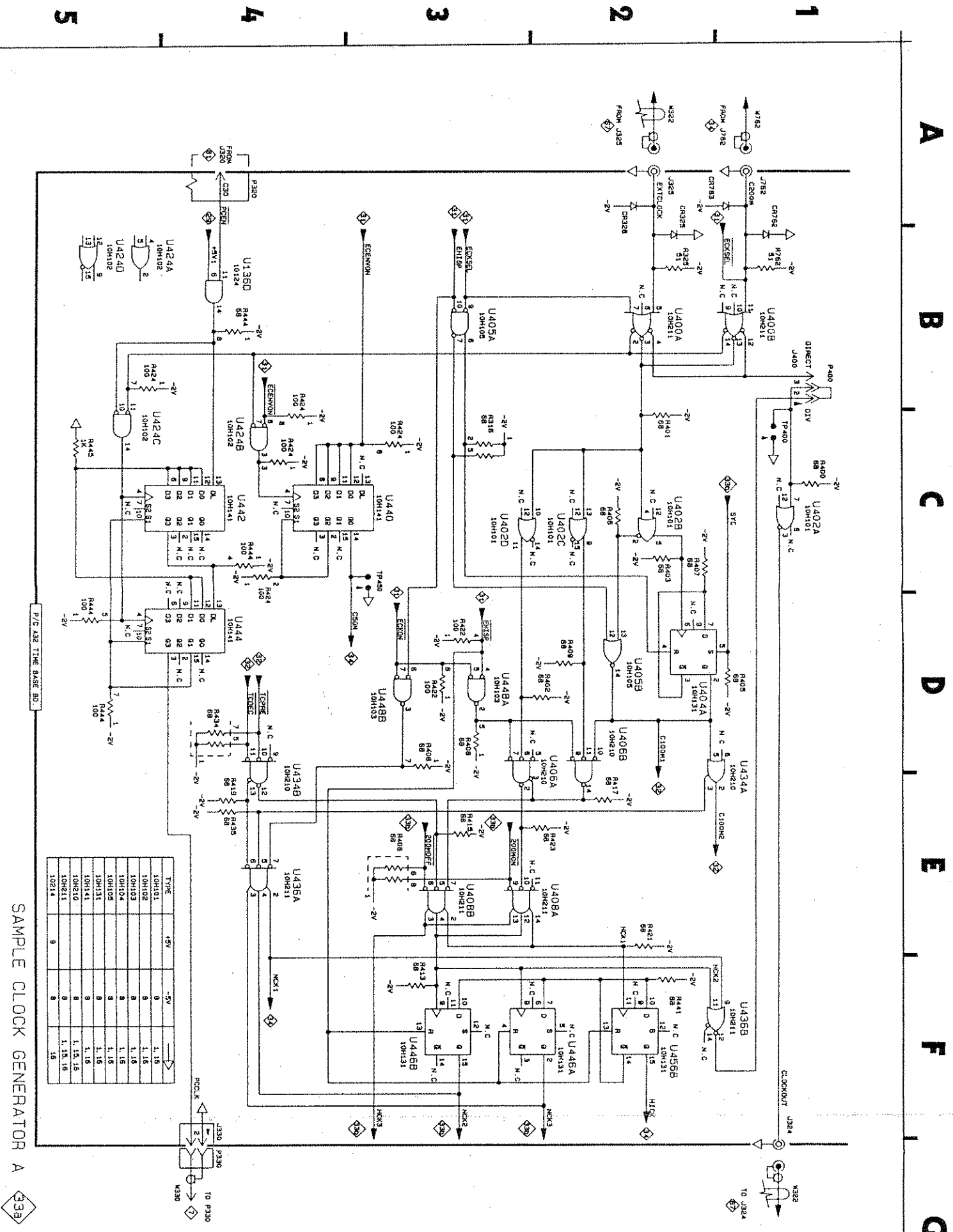
Table 8-32

SAMPLE CLOCK GENERATOR A 33 A

TIME BASE 80, ASSEMBLY R32

CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION	CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION	CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION
CR325	R2	F1	R417	E2	C2	U4020	C3	E2
CR326	R2	F1	R419	E4	C3	U4040	D2	E2
CR762	R1	F1	R421	E2	C2	U4058	B3	E2
CR763	R1	F1	R422C	D3	D3	U4058	D2	E2
J324	G1	F1	R422S	D3	D3	U4068	D3	D2
J325	R2	F1	R423	E2	D2	U4068	D2	D2
J338	F4	R2	R424B	C4	B2	U4088	E3	C2
J400	R1	E2	R424B	C4	B2	U4088	E3	C2
J762	R1	F1	R424F	B5	B2	U424B	B5	B2
P320	R4	F4	R424B	C4	B2	U424B	C4	B2
P400	R1	E2	R430D	B4	C3	U424C	C5	B2
R316A	C3	E2	R434F	D4	C3	U424D	B5	B2
R316B	C3	E2	R435	E4	C3	U434B	D1	C2
R325	B2	E2	R441	F2	D3	U434B	B4	C2
R400	C1	E2	R441C	C4	B2	U436B	E4	C2
R401	C2	E2	R444D	D5	B2	U436B	F1	C2
R402	D2	D2	R444F	D5	B2	U440	C3	B2
R403	C2	E2	R444G	B4	B2	U442	C4	B2
R405	D1	E2	R445	C5	B2	U444	B4	B2
R406	C2	E3	R762	B1	F2	U446A	F2	D2
R407	C2	E2	T400	C1	E2	U446B	F3	D2
R408D	D3	C2	T450	C3	D2	U448B	D3	E3
R408E	E3	C2	U1360	B4	E2	U448B	D3	E3
R408F	D3	C2	U408A	B2	E2	U456B	F2	E3
R408G	E3	C2	U408B	B1	E2	U522	B2	BTF 80,
R409	D2	D2	U402A	C1	E2	U522	G1	BTF 80,
R413	F3	D3	U402B	C2	E2	U762	B1	BTF 80,
R415	E3	C2	U402C	C2	E2			

ASSY A32 is also shown on Diagrams 29,30,31,32,33a,33b, and 34.
ASSY A32 (Fig.8-8) circuit board illustration faces Diagram 29.



33a

Table 8-33

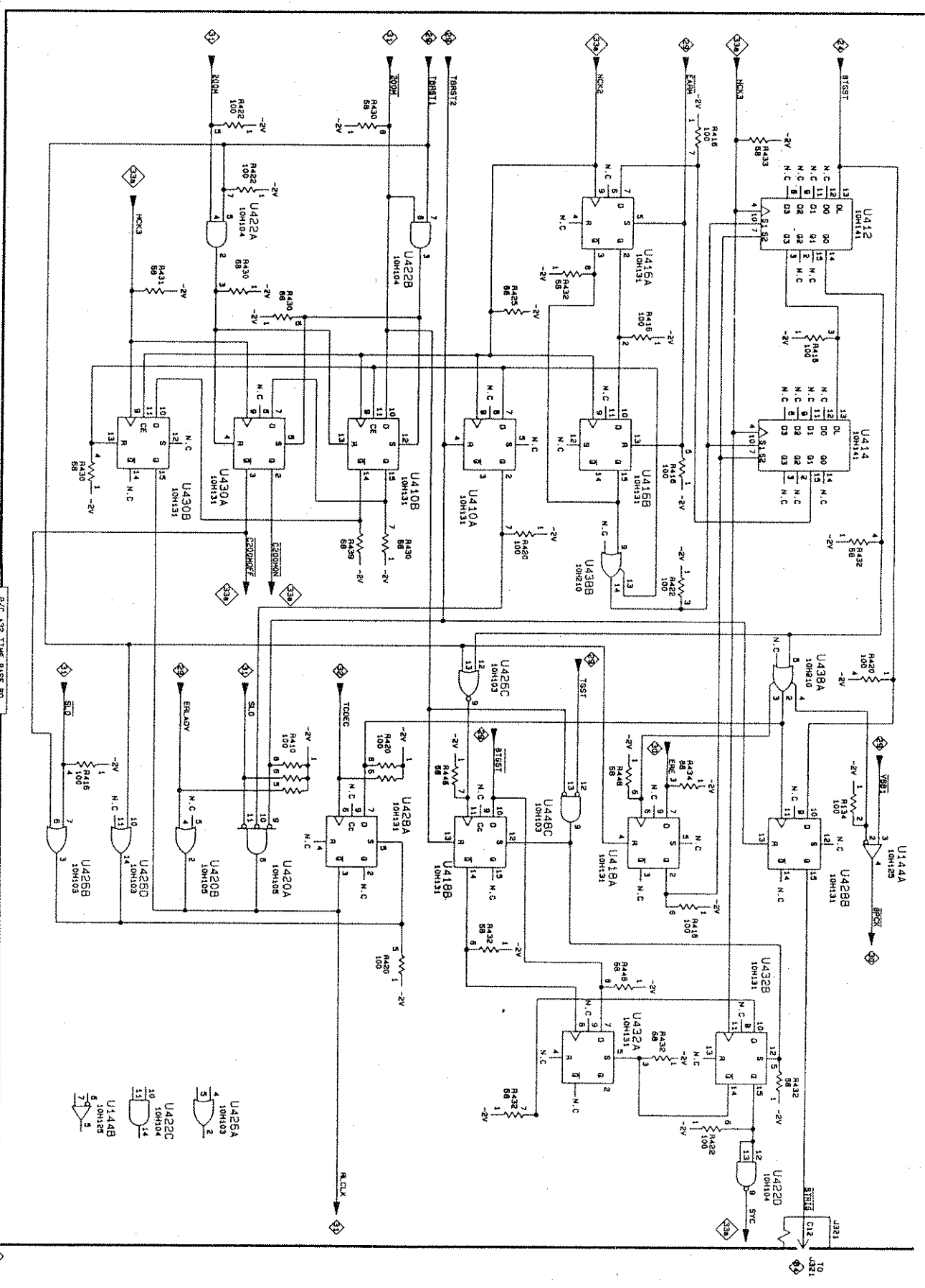
SAMPLE CLOCK GENERATOR B 33 B

TIME BASE BD., ASSEMBLY A32

CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION	CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION
J321	G1	B4	R439	C4	C3
R134	E1	E3	R448E	E2	E3
R410D	E4	C3	R448F	E3	E3
R410E	E4	C3	R448G	F2	E3
R410G	E4	C3			
R416A	B2	C4	U144A	E1	E3
R416B	B1	C4	U144B	F5	E3
R416C	E5	C4	U410A	C3	C3
R416D	C2	C4	U410B	C3	C3
R416E	E2	C4	U412	B1	D4
R416F	A2	C4	U414	C1	C4
R420D	F3	C4	U416A	B2	C3
R420E	E3	C4	U416B	C2	C3
R420F	C3	C4	U418A	E2	E3
R420G	E3	C4	U418B	E3	E3
R422B	D2	C4	U420A	E4	C3
R422D	A4	D3	U420B	E4	C3
R422E	F2	D3	U422A	B4	D3
R422F	B4	D3	U422B	B3	D3
R425	B3	D3	U422C	F5	D3
R430B	B4	C4	U422D	G2	D3
R430D	B4	C3	U425A	F4	C3
R430F	C3	C3	U425B	E5	C3
R430G	C3	C3	U425C	D3	C3
R431	A3	C3	U425D	E5	C3
R432B	B5	C3	U428A	E3	C4
R432C	F2	C3	U428B	E1	C4
R432D	C1	D3	U430A	C4	C3
R432E	F2	D3	U430B	C5	C3
R432F	E3	D3	U432A	F2	D3
R432G	F3	D3	U432B	F2	D3
R433	B3	D3	U438A	C5	D3
R434B	A2	D3	U438B	D2	D3
	E2	C3	U448C	E2	E3

ASSY A32 is also shown on Diagrams 29,30,31,32,33a,33b, and 34.
 ASSY A32 (Fig.8-8) circuit board illustration faces Diagram 29.

A B C D E F G



SAMPLE CLOCK GENERATOR B

33D

1 2 3 4 5

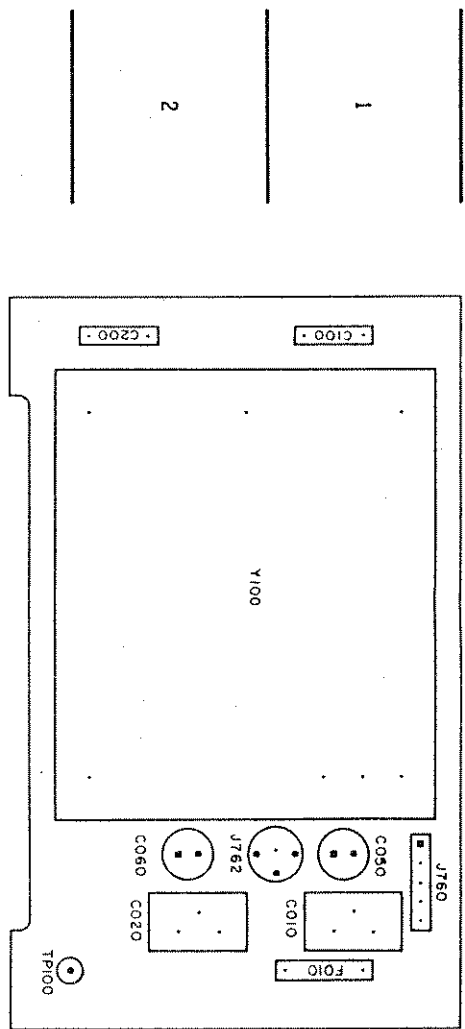
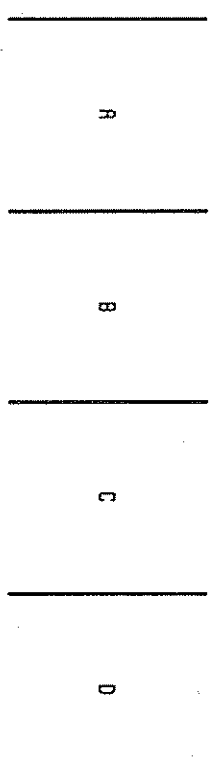


Fig. 8-10. OSCILLATOR BD., CIRCUIT BD. ASS.

Table 8-35

SAMPLE CLOCK OUTPUT & 200MHz OSC

TIME BASE CONTROL BD., ASSEMBLY A34

CIRCUIT SCHEMATIC BOARD

NUMBER LOCATION LOCATION

U114 B3 A4

ASSY A34 is also shown on Diagrams 29,30,31, and 34.
ASSY A34 (Fig.8-9) circuit board illustration faces Diagram 30.

Table 8-36

SAMPLE CLOCK OUTPUT & 200MHz OSC

OSCILLATOR BD., ASSEMBLY A76

CIRCUIT SCHEMATIC BOARD

NUMBER LOCATION LOCATION

C010 ES D1

C020 E4 D2

C050 ES C1

C060 E4 C2

C100 ES A1

C200 E4 A2

F010 FS D1

J762 F4 C1

P760 F4 D1

TP100 D4 D3

Y100 D4 B2

Table 8-34

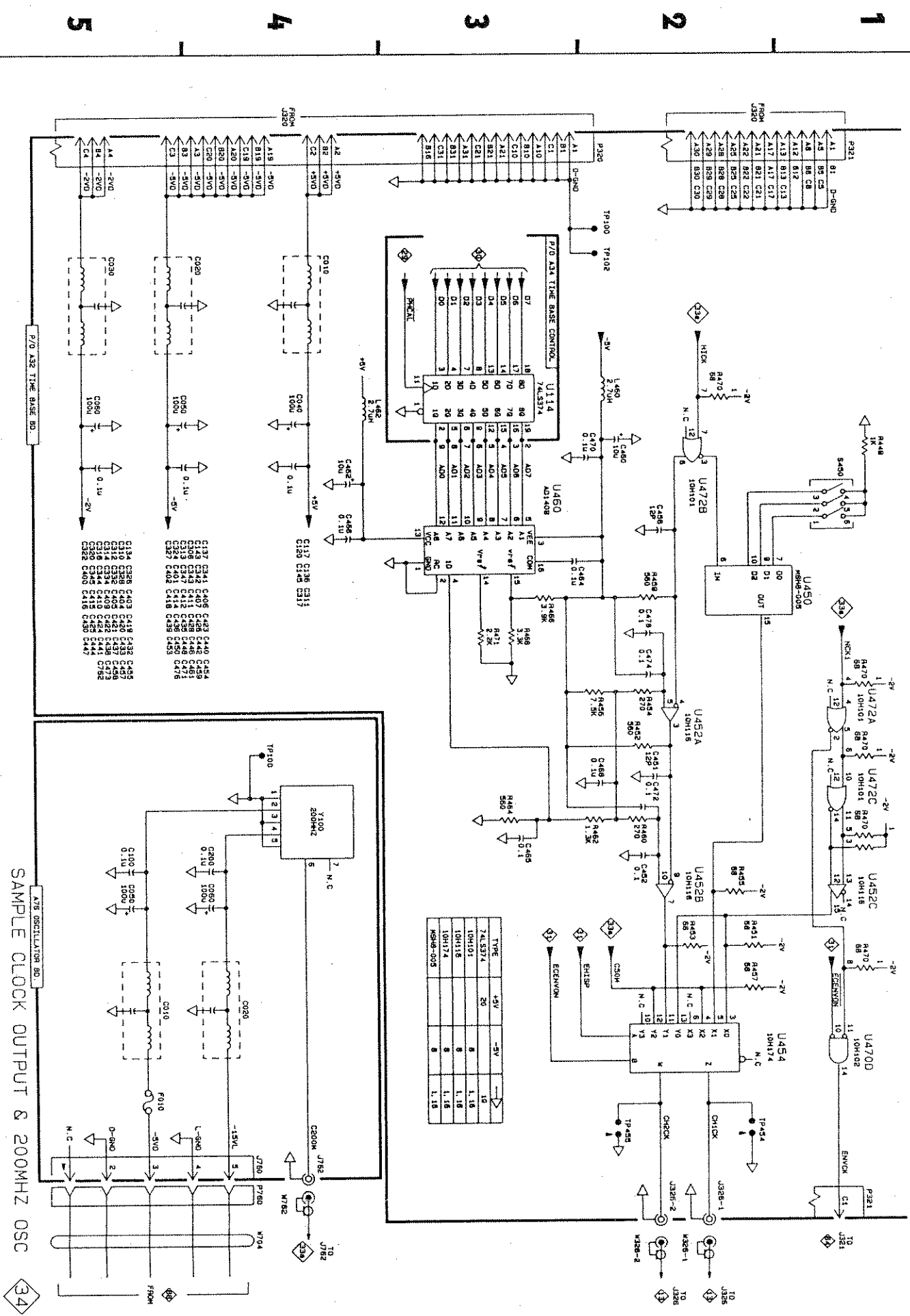
SAMPLE CLOCK OUTPUT & 200MHz OSC

TIME BASE BD., ASSEMBLY B32

CIRCUIT NUMBER	SCHEMATIC BOARD LOCATION	BOARD LOCATION	CIRCUIT NUMBER	SCHEMATIC BOARD LOCATION	BOARD LOCATION	CIRCUIT NUMBER	SCHEMATIC BOARD LOCATION	BOARD LOCATION
C010	B4	C3	C404	C5	B2	C452	E2	C2
C020	B5	C3	C405	C5	E3	C453	C4	B2
C030	B5	C4	C406	C4	B2	C454	C4	E2
C040	B4	B2	C407	C4	E2	C455	C5	D1
C050	B5	C3	C409	C5	B2	C456	C2	D2
C060	B5	C4	C410	C5	B3	C457	C5	B2
C117	C4	B2	C411	C4	C3	C458	C5	B3
C120	C4	B1	C412	C4	B4	C459	C4	E3
C134	C5	E3	C414	C4	B4	C460	B2	D1
C136	C4	F2	C415	C5	C2	C461	C4	E2
C137	C4	F3	C416	C5	C3	C462	C4	D1
C143	C4	F3	C418	C4	E3	C464	C3	C1
C145	C4	F3	C419	C5	C3	C465	B3	C2
C306	C4	F3	C420	C5	B3	C466	C4	B1
C310	C5	B4	C421	C5	C2	C468	B2	C2
C311	C4	F4	C422	C5	B3	C470	B2	C1
C312	C5	B4	C423	C4	B2	C471	C4	C2
C313	C4	B4	C424	C5	B2	C472	B2	C2
C314	C5	B4	C425	C5	C4	C473	C5	B2
C316	C5	E3	C426	C4	C3	C474	B2	C2
C317	C4	F2	C428	C4	C4	C476	C4	C2
C320	C5	B3	C430	C5	B3	C762	C5	E2
C322	C5	B4	C432	C5	B3			
C324	C4	B3	C433	C5	B4	J326-1	F2	E1
C326	C5	B3	C435	C4	C2	J326-2	F2	E1
C327	C4	B3	C436	C4	C3			
C328	C5	B3	C437	C5	C3	L460	B2	D1
C332	C5	B2	C438	C5	B3	L462	B4	B1
C334	C5	B2	C439	C4	C3			
C341	C4	B3	C440	C4	B2	P320	B3	F4
C342	C4	B2	C441	C5	B3	P321	F1	B4
C343	C4	B2	C442	C4	B1	P321	B1	B4
C345	C5	B2	C444	C5	B2			
C347	C4	B3	C446	C4	B2	R449	C1	D1
C400	C5	E2	C447	C5	B2	R451	E2	E1
C401	C4	F2	C448	C4	B3	R452	B2	D2
C402	C4	E2	C450	C4	B2	R453	E2	E1
C403	C5	E3	C451	B2	B2	R454	B2	C2

ASSY A34 is also shown on Diagrams 29,30,31, and 34.
ASSY A34 (Fig.8-9) circuit board illustration faces Diagram 30.

A B C D E F G



34 SAMPLE CLOCK OUTPUT & 200MHZ OSC

1 2 3 4 5

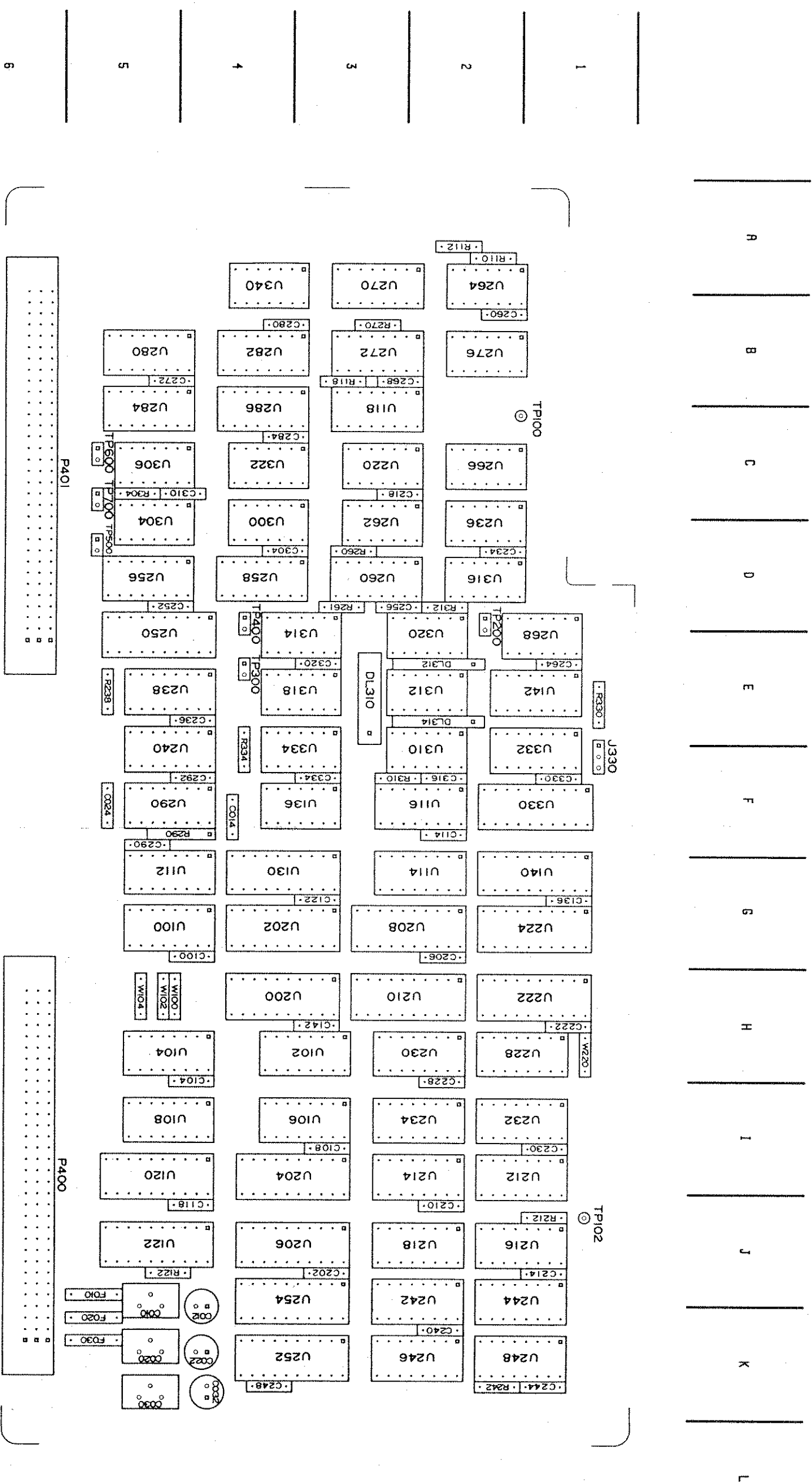
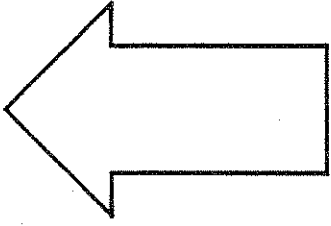


Fig. 8-11. A40 ADDRESS GENERATOR BD., CIRCUIT BD. ASS.



SEE
OTHER
SIDE

Table 8-37



MEMORY ADDRESS

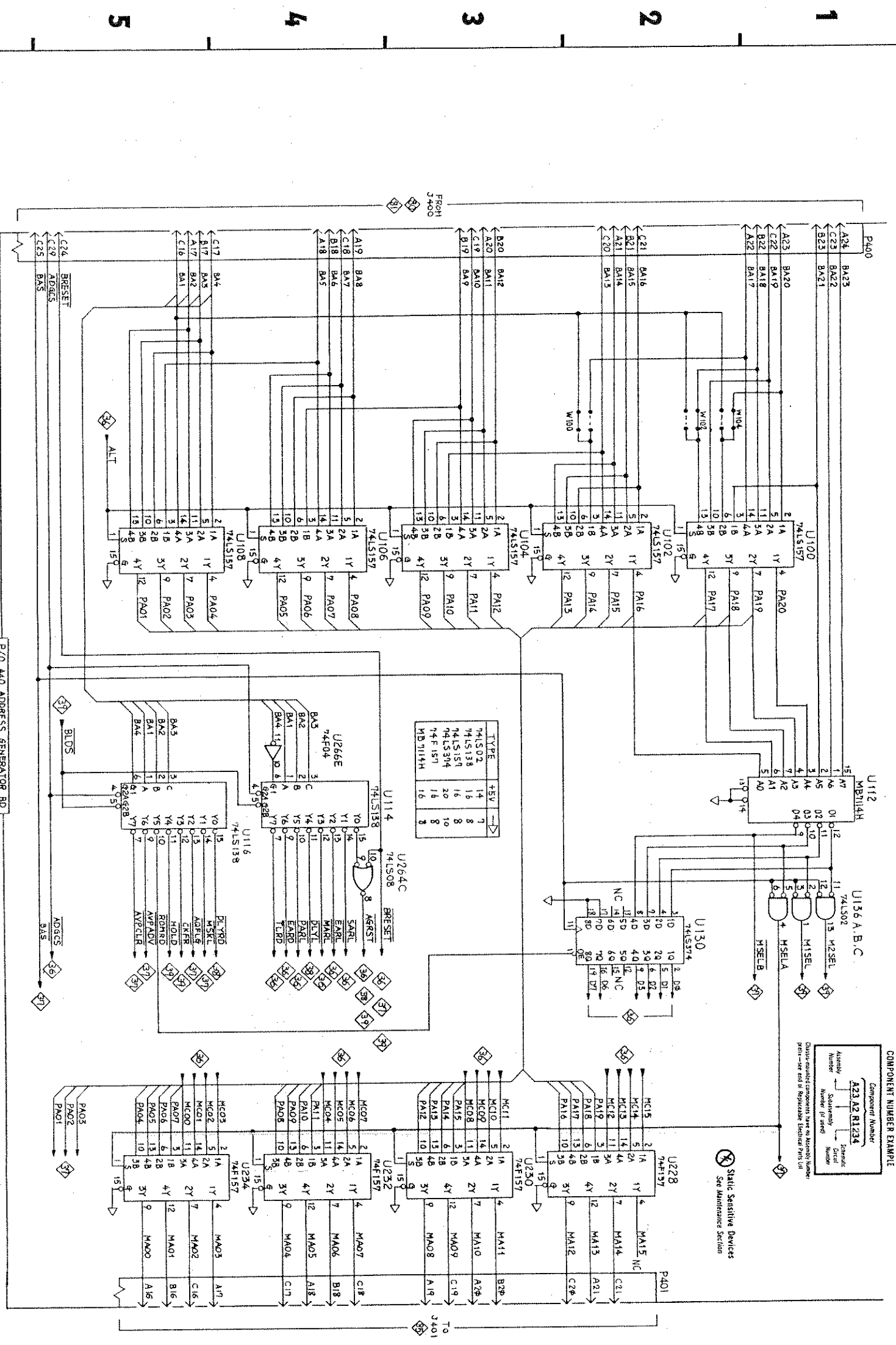
ADDRESS GENERATOR BD., ASSEMBLY A40

CIRCUIT NUMBER SCHEMATIC LOCATION BOARD LOCATION

P400	B1	H2	C6
U100	C1	G5	H3
U102	C2	H3	H5
U104	C3	H5	H5
U106	C4	I3	H5
U108	C5	I5	H5
U112	E1	F5	H5
U114	E4	G2	H5
U116	E5	F2	H5
U130	F2	G4	H5
U136A	E1	F3	H5
U136B	E1	F3	H5
U136C	E1	F3	H5
U228	G2	H1	H5
U230	G3	H2	H5
U232	G4	I1	H5
U234	G5	I2	H5
U264C	E4	A2	H5
U266E	D4	C2	H5
W100	C2	H5	H5
W102	C2	H5	H5
W104	C2	H5	H5

ASSY A40 is also shown on Diagrams 35, 36, 37, 38, and 39.
 ASSY A40 (Fig. 8-11) circuit board illustration
 faces Diagram 35.

A B C D E F G




6
5
4
3
2
1

P/O AAO ADDRESS GENERATOR BD

MEMORY ADDRESS

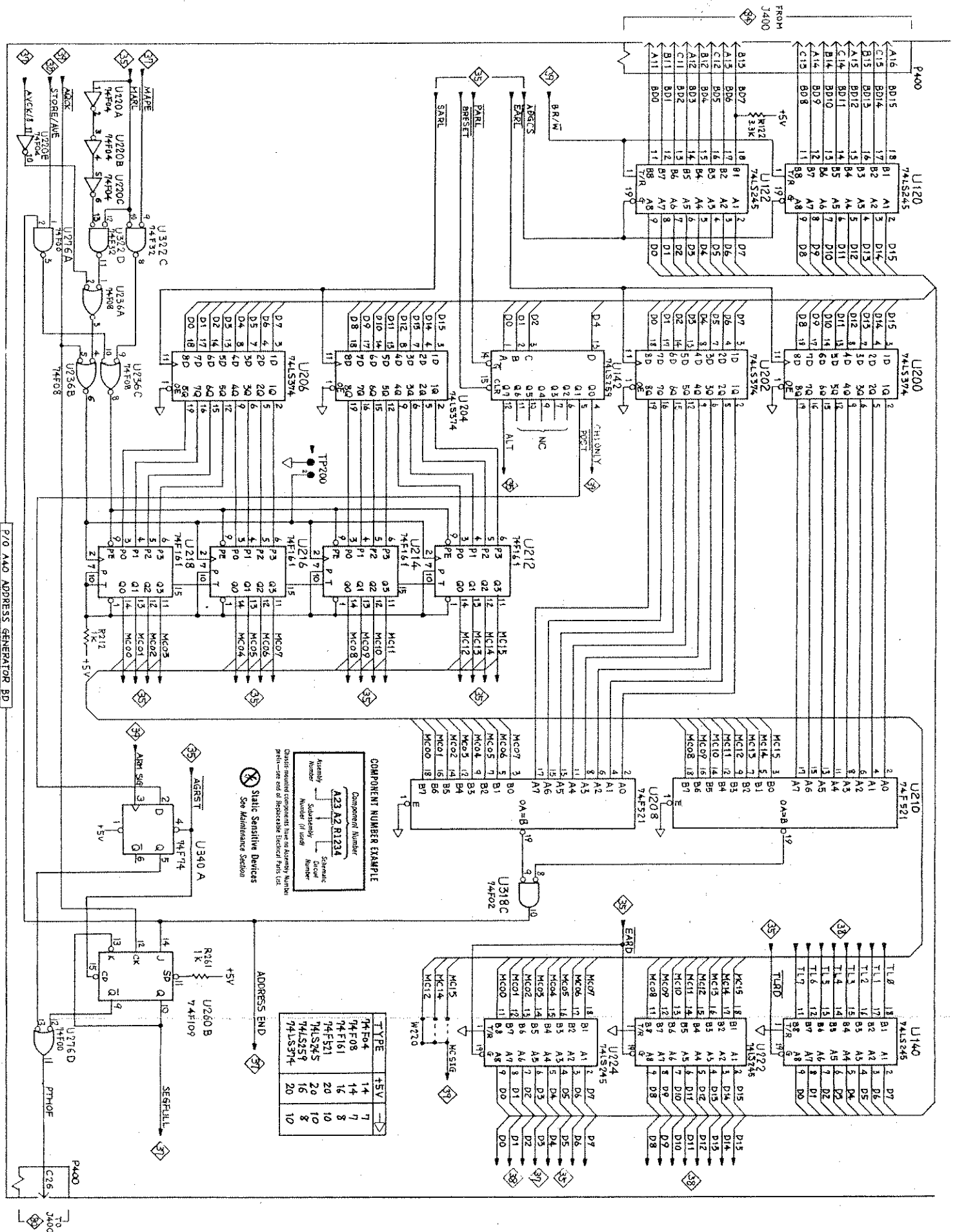
35

Table 8-38
SEGMENTATION LOGIC 
ADDRESS GENERATOR BD., ASSEMBLY A40

CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION
P400	B1	I6
P400	G5	I6
R122	B2	J5
R212	E5	J1
R261	F5	D3
TP200	D4	D2
U120	B1	I5
U122	B2	J5
U140	G1	C1
U142	C3	E1
U200	C1	H4
U202	C2	G4
U204	C4	I3
U206	C4	J3
U208	E3	G2
U210	E1	H2
U212	D3	I1
U214	D4	I2
U216	D4	J1
U218	D5	J2
U220A	B5	C3
U220B	B5	C3
U220C	B5	C3
U220E	B5	C3
U222	G2	H1
U224	G3	G1
U236A	C5	C2
U236B	C5	C2
U236C	C5	C2
U260B	F5	D3
U276A	B5	B2
U276D	G5	B2
U318C	F3	E3
U322C	B5	C4
U322D	B5	C4
U340A	F5	A4
W220	G3	H1

ASSY A40 is also shown on Diagrams 35,36,37,38,and 39.
 ASSY A40 (Fig.8-11) circuit board illustration faces Diagram 35.

A B C D E F G



SEGMENTATION LOGIC

COMPONENT NUMBER EXAMPLE


Component Number	74F04
Assembly	A23 A2 R1234
Subassembly	
Director	
Number (Optional)	

Check selected components for an Assembly Number print-out on a separate sheet of this kit.

* Static Sensitive Devices
See Maintenance Section

TYPE	+5V	7
74F04	14	7
74F08	14	8
74F161	16	8
74F521	20	10
74LS75	20	10
74LS74	16	8
74LS74	20	10

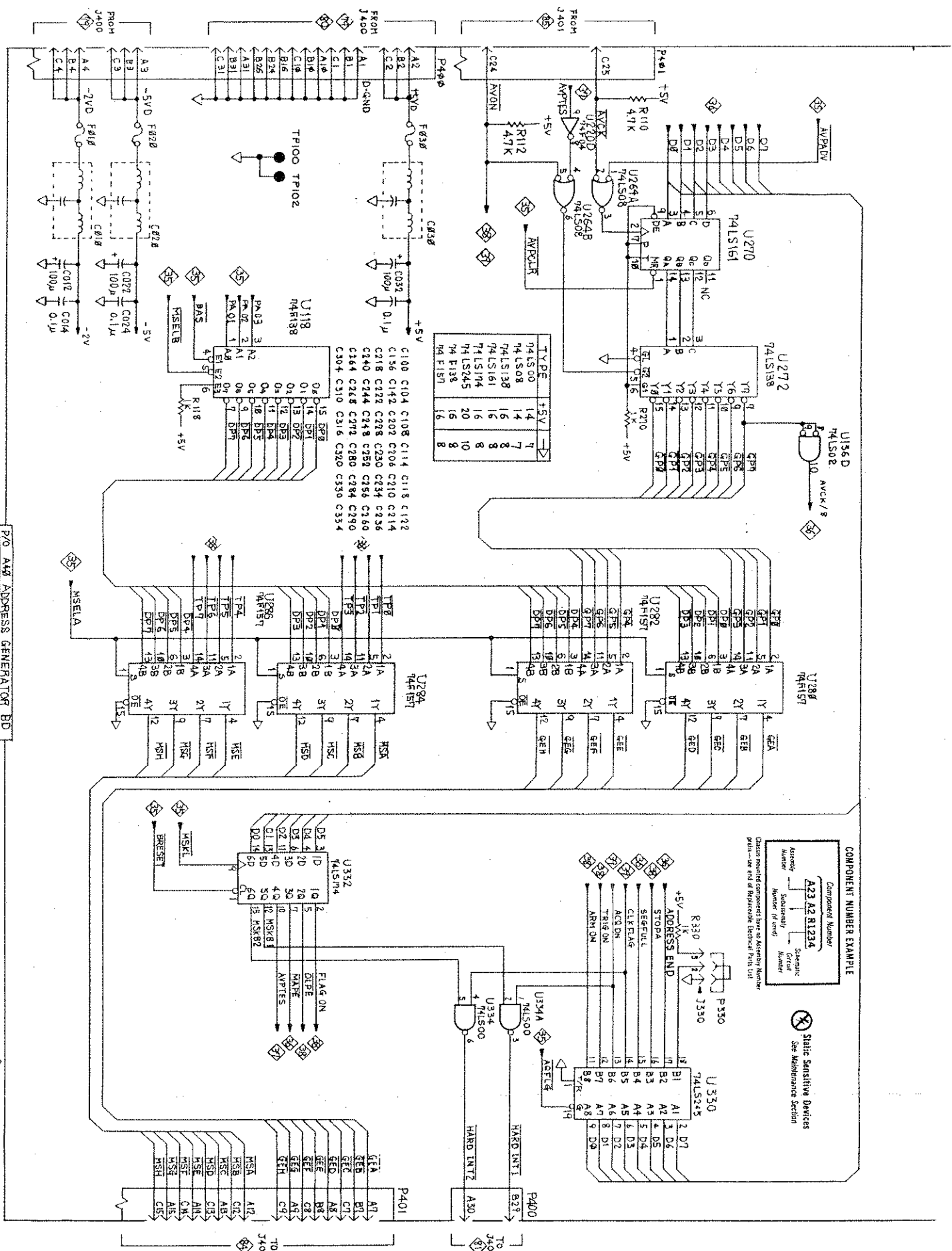
1 2 3 4 5

Table 8-39
MEMORY CHIP SELECT 
ADDRESS GENERATOR BD., ASSEMBLY A40


CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION	CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION
C010	B5	J5	C320	C4	E3
C012	B5	J4	C330	C4	F1
C014	C5	F4	C334	C4	F3
C020	B5	K5			
C022	B5	K4	F010	B5	J5
C024	C5	F5	F020	B5	J5
C030	B3	K5	F030	B3	K5
C032	B4	K4			
C100	C4	G4	J330	F2	F1
C104	C4	H4			
C108	C4	I3	P330	F2	F1
C114	C4	F2	P400	A3	I6
C118	C4	I4	P400	G3	I6
C122	C4	G3	P401	A2	I6
C136	C4	G1	P401	G4	C6
C142	C4	H3			
C202	C4	J3	R110	A2	A2
C206	C4	G2	R112	B3	A2
C210	C4	I2	R118	C5	B3
C214	C4	J1	R270	C2	B3
C218	C4	C3	R330	F2	E1
C222	C4	H1			
C228	C4	H2	TP100	B4	C2
C230	C4	I1	TP102	B4	J1
C234	C4	D2			
C236	C4	E4	U118	B4	B3
C240	C4	K2	U136D	C1	F3
C244	C4	K1	U220D	B3	C3
C248	C4	K4	U264A	B2	A2
C252	C4	D5	U264B	B3	A2
C256	C4	D3	U270	B2	A3
C260	C4	B2	U272	C2	B3
C264	C4	E1	U280	E2	B5
C268	C4	B3	U282	E3	B4
C272	C4	B5	U284	E4	B5
C280	C4	B4	U286	E5	B4
C284	C4	C4	U330	G2	F1
C290	C4	F5	U332	F4	F1
C304	C4	D4	U334A	F3	E3
C310	C4	C5	U334B	F3	E3
C316	C4	F2			

ASSY A40 is also shown on Diagrams 35,36,37,38, and 39.
 ASSY A40 (Fig.8-11) circuit board illustration faces Diagram 35.

A B C D E F G




1 2 3 4 5

Table 8-40
TRIGGER DELAY COUNTER 
 ADDRESS GENERATOR BD., ASSEMBLY A40

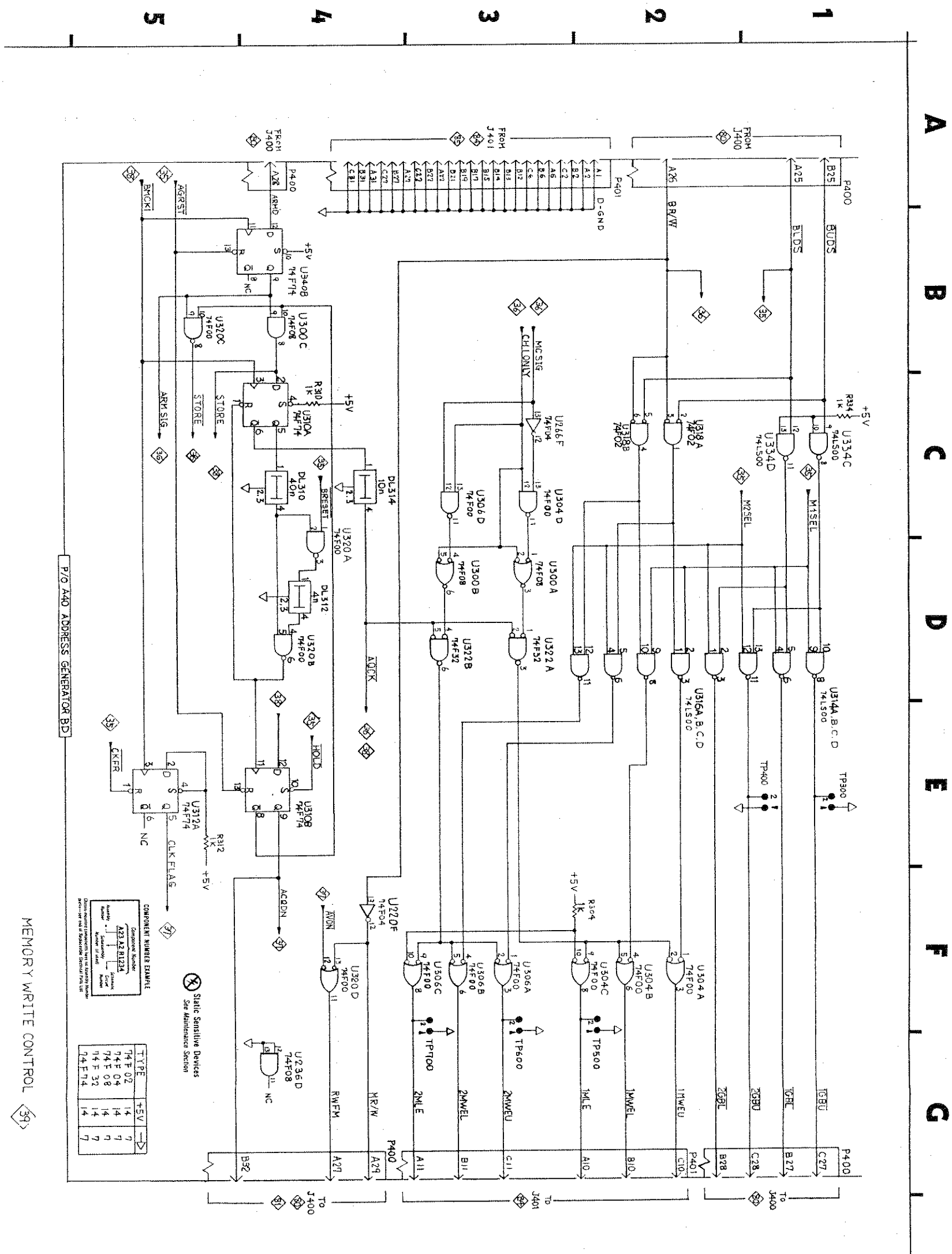
CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION
C292	B5	F4
P400	A5	I6
P401	A4	C6
R238	C3	E5
R242	E4	K2
R260	F1	D3
R290	B4	F3
U238	B3	E5
U240	B3	E5
U242	E1	J2
U244	E2	J1
U246	E3	K2
U248	E3	K1
U250	E4	D5
U252	G2	K3
U254	G1	J3
U256	G4	D6
U258	G5	D4
U260A	F2	D3
U262A	C5	C3
U262B	D5	C3
U262C	F5	C3
U262D	D2	C3
U264D	B5	A2
U266A	C2	C2
U266B	C2	C2
U266C	C2	C2
U266D	B5	C2
U268A	C2	D1
U268B	D1	D1
U268C	C5	D1
U268D	D5	D1
U276B	F5	B2
U276C	D5	B2
U290	B4	F5
U300D	D5	C4
U312B	C5	E2
U318D	F3	E3

ASSY A40 is also shown on Diagrams 35,36,37,38,and 39.
 ASSY A40 (Fig.8-11) circuit board illustration faces Diagram 35.

Table 8-41
 MEMORY WRITE CONTROL 
 ADDRESS GENERATOR BD., ASSEMBLY A40

CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION	CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION
DL310	C4	E3	U304B	F2	C5
DL312	D4	E2	U304C	F2	C5
DL314	C4	E2	U304D	C3	C5
P400	A1	I6	U306A	F3	C5
P400	A4	I6	U306B	F3	C5
P400	G1	I6	U306C	F3	C5
P400	G4	I6	U306D	C3	C5
P401	A3	C6	U310A	C4	E2
P401	G2	C6	U310B	E4	E2
			U312A	E5	E2
			U314A	D2	D3
R304	F2	C5	U314B	D1	D3
R310	C4	F3	U314C	D1	D3
R312	E5	D2	U314D	D1	D3
R334	C1	E4	U316A	D2	D2
			U316B	D2	D2
TP300	E1	E4	U316C	D2	D2
TP400	E1	D4	U316D	D2	D2
TP500	F2	D5	U318A	C2	E3
TP600	F3	C5	U318B	C2	E3
TP700	F3	C5	U320A	C4	D2
			U320B	D4	D2
U220F	F4	C3	U320C	B5	D2
U236D	G4	C2	U320D	F4	D2
U266F	C3	C2	U322A	D3	C4
U300A	D3	C4	U322B	D3	C4
U300B	D3	C4	U334C	C1	E3
U300C	B4	C4	U334D	C1	E3
U304A	F2	C5	U340B	B4	A4

ASSY A40 is also shown on Diagrams 35,36,37,38, and 39.
 ASSY A40 (Fig.8-11) circuit board illustration faces Diagram 35.



COMPONENT NUMBER EXAMPLE

Component Number	74LS02	74LS04	74LS08	74LS32	74LS74
Quantity	14	14	14	14	14
Notes					
Quantity	7	7	7	7	7
Quantity	7	7	7	7	7
Quantity	7	7	7	7	7

State Sensitive Devices See Maintenance Section

MEMORY WRITE CONTROL 39

P/O A40 ADDRESS GENERATOR BD

1
2
3
4
5

A B C D E F G

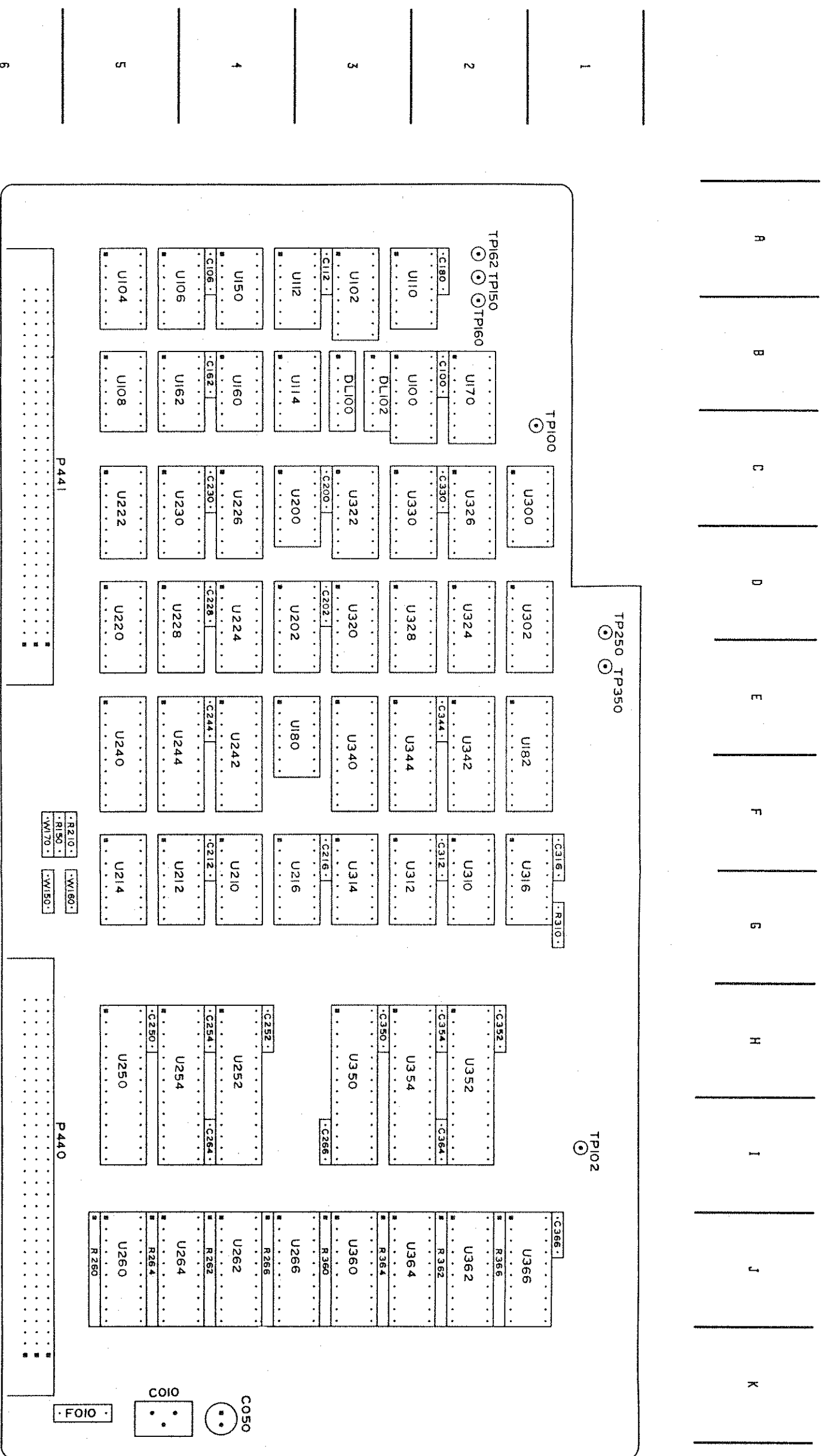
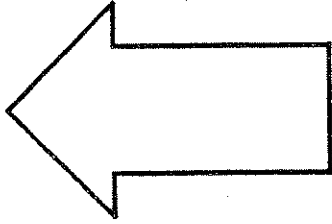


Fig. 8-12. A44 AVERAGE BD., CIRCUIT BD. ASS.

SEE
OTHER
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40 — AVERAGE BOARD, ASSEMBLY A44

CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION	CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION
C010	B5	K5	U100	B1	B2
C50	B5	K4	U102A	B2	A3
C100	C5	B2	U102B	B4	A3
C106	C5	A4	U104A	B3	A5
C112	C5	A3	U104B	B3	A5
C162	C5	B4	U104C	G2	A5
C200	C5	C3	U106A	C3	A4
C202	C5	D3	U106B	C3	A4
C212	C5	F4	U106C	C4	A4
C216	C5	F3	U106D	C4	A4
C228	C5	D4	U108A	C2	B5
C230	C5	C4	U108B	B3	B5
C244	C5	E4	U108C	B3	B5
C250	C5	H5	U108D	B5	B5
C252	C5	H4	U110A	C2	A2
C254	C5	H4	U110B	C2	A2
C264	C5	I4	U110C	C4	A2
C266	C5	I3	U110D	C4	A2
C312	C5	F2	U112A	C3	A3
C316	C5	F1	U112B	C3	A3
C330	C5	C2	U112C	C3	A3
C344	C5	E2	U112D	D5	A3
C350	C5	H3	U112E	B1	A3
C352	C5	H2	U112F	A3	A3
C354	C5	H2	U114A	B3	B3
C364	C5	I2	U114B	B3	B3
C366	C5	J1	U114C	B3	B3
DL100	D3	B3	U150A	D2	A4
DL102	D5	B3	U150B	D2	A4
F010	B5	K5	U160A	C1	B4
F010	B5	K5	U160B	C1	B4
P440	A2	I6	U162A	T1	B4
P440	A3	I6	U162B	T1	B4
P440	A5	I6	U200A	E2	C3
P441	A1	C6	U200C	E2	C3
P441	A3	C6	U200D	E2	C3
P441	A5	C6	U202	G2	D3
P441	H1	C6	U300A	E4	C1
TP100	D5	C1	U300B	E4	C1
TP102	D5	I1	U300C	E4	C1
TP150	E2	A2	U302	G4	D1
TP160	E1	A2			
TP162	G1	A2			

ASSY A44 is also shown on Diagrams 40,41, and 42.
 ASSY A44 (Fig.8-12) circuit board illustration faces Diagram 40.

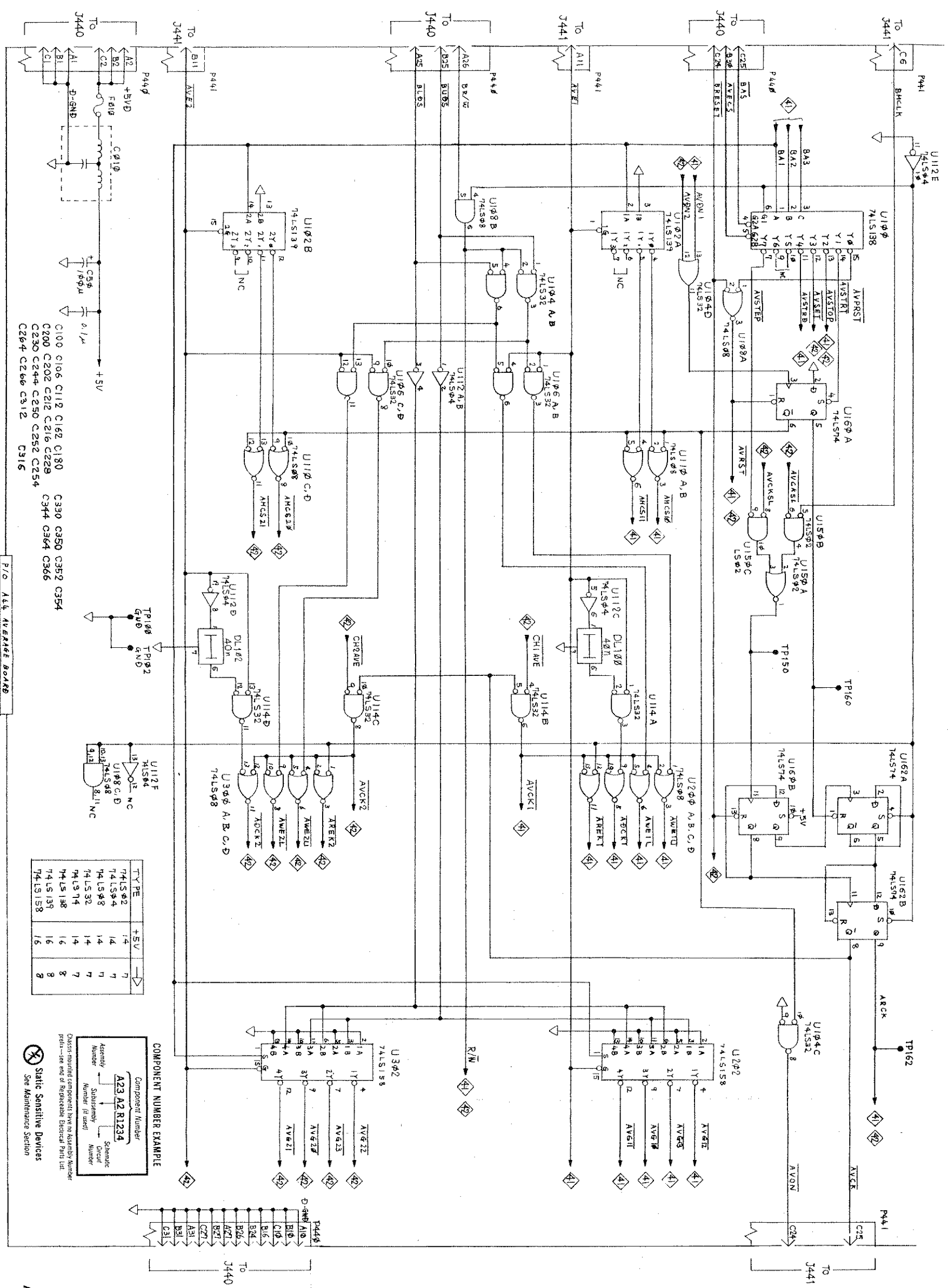

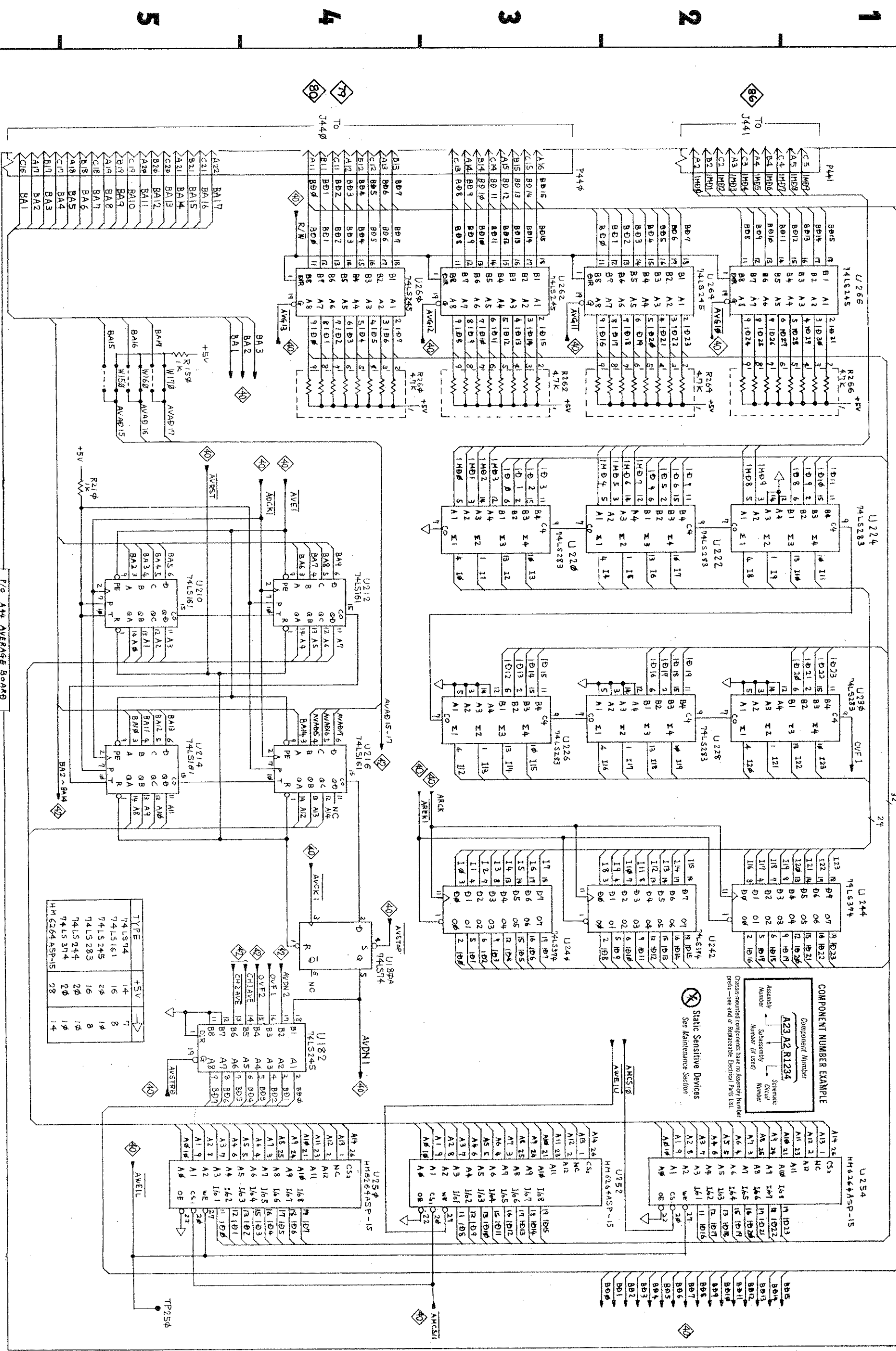


Table 8-43
 CH 1 AVERAGE MEMORY 
 AVERAGE BD., ASSEMBLY A44

CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION
P440	A3	16
P441	A1	C8
R150	B5	F5
R210	C5	F5
R260	B4	J5
R262	B3	J4
R264	B2	J5
R266	B1	J4
TP250	HS	D1
U180A	F4	E3
U182	F4	E1
U210	D5	F4
U212	D4	F4
U214	D6	F5
U216	D4	F3
U220	C3	D5
U222	C2	C5
U224	C1	D4
U226	D3	C4
U228	D2	D4
U230	D1	C4
U240	E3	E5
U242	E2	E4
U244	E1	E4
U250	G4	H5
U252	G3	H4
U254	G1	H4
U260	B4	J5
U262	B3	J4
U264	B2	J4
U266	B1	J3
W150	B5	G6
W160	B5	G5
W170	B5	F6

ASSY A44 is also shown on Diagrams 40,41, and 42.
 ASSY A44 (Fig.8-12) circuit board illustration faces Diagram 40.

A B C D E F G



COMPONENT NUMBER EXAMPLE

Component Number: A23 A2 R1234

Assembly Number (if used):


Subassembly Number:

Schematic Circuit Number:

Diagrams showing component numbering examples for various levels of assembly.

Static Sensitive Devices
See Maintenance Section

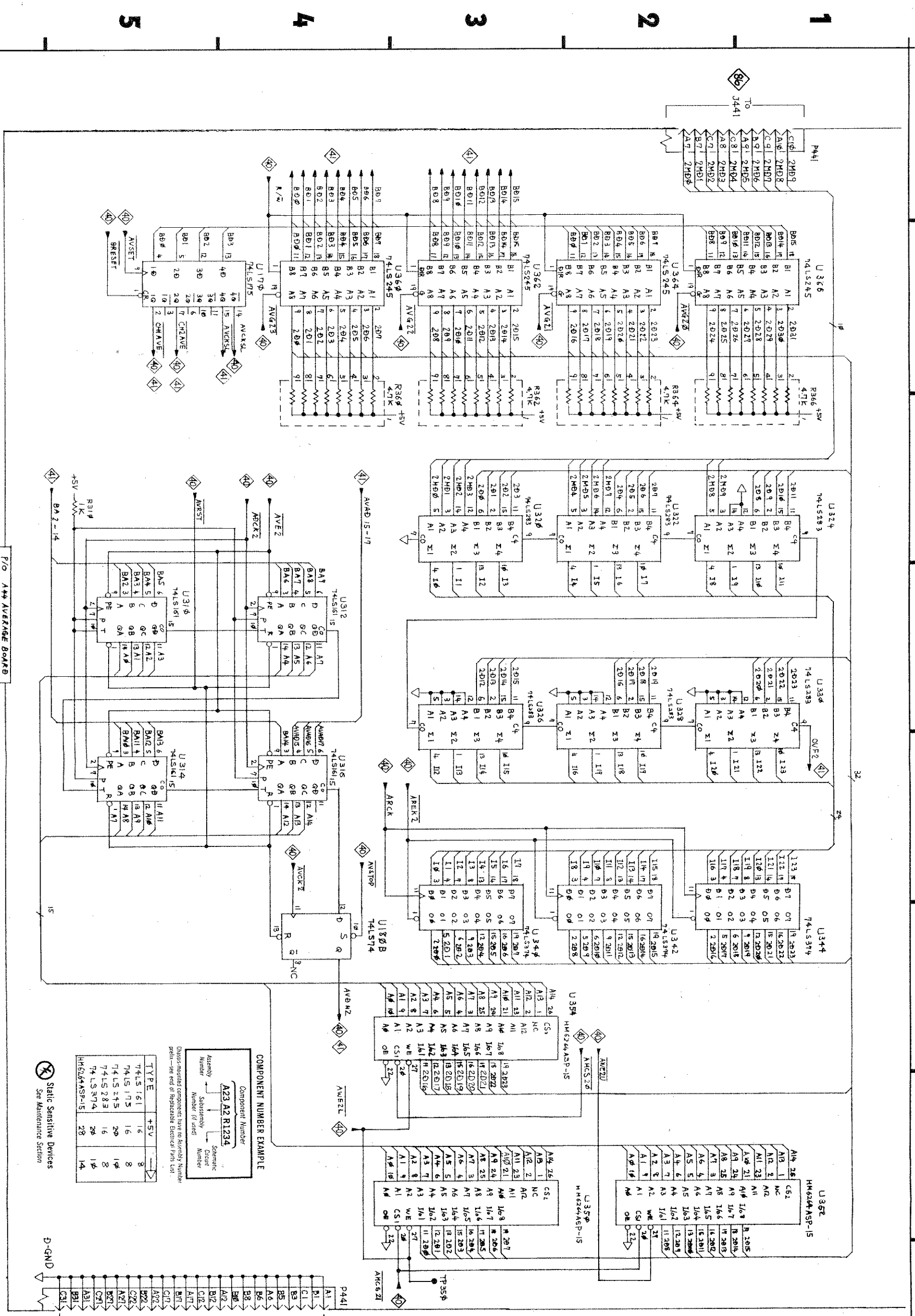
TYPE	+5V	7
74LS174	14	7
74LS161	16	8
74LS145	20	8
74LS283	16	8
74LS244	20	10
74LS374	20	10
HM6264ASP-15	28	14

Table 8-44
CH 2 AVERAGE MEMORY 
 AVERAGE BD., ASSEMBLY A44

CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION
P441	A1	C6
P441	H4	C6
R310	C5	G1
R360	C4	J3
R362	C3	J2
R364	C2	J3
R366	C1	J2
TP350	H3	E1
U170	B4	B2
U180B	F4	E3
U310	D5	F2
U312	D4	F2
U314	E5	F3
U316	E4	F1
U320	C3	D3
U322	C2	C3
U324	C1	D4
U326	D3	C2
U328	D2	D2
U330	D1	C2
U340	F3	E3
U342	F2	E2
U344	F1	E2
U350	G3	H3
U352	G1	H2
U354	F3	H2
U360	B4	J3
U362	B3	J2
U364	B2	J2
U366	B1	J1

ASSY A44 is also shown on Diagrams 40, 41 and 42.
 ASSY A44 (Fig. 8-12) circuit board illustration faces Diagram 40.

A B C D E F G H



COMPONENT NUMBER EXAMPLE

Component Number	A23 A2 R1234
Assembly Number	
Subassembly Number (if used)	
Schematic Circuit Number	

Chassis-mounted component, have no Assembly Number prefix—see end of Replaceable Electrical Parts List.

TYPE	+5V	
74LS161	16	8
74LS175	16	8
74LS245	20	10
74LS283	16	8
74LS374	20	10
HM6244ASP-15	28	14

Static Sensitive Devices
See Maintenance Section

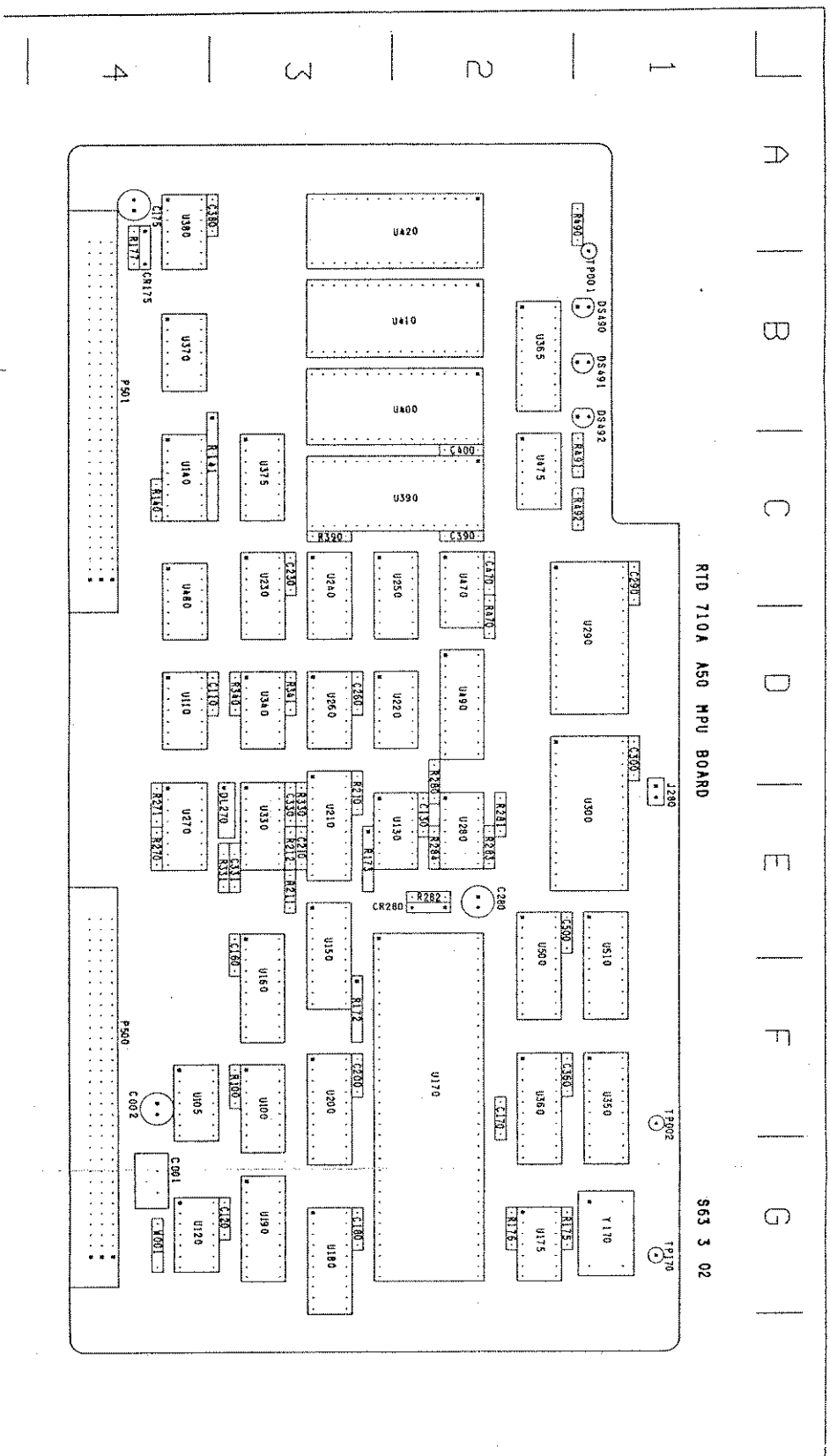


Fig. 8-13. A50 MPU BD., CIRCUIT BD. ASS.

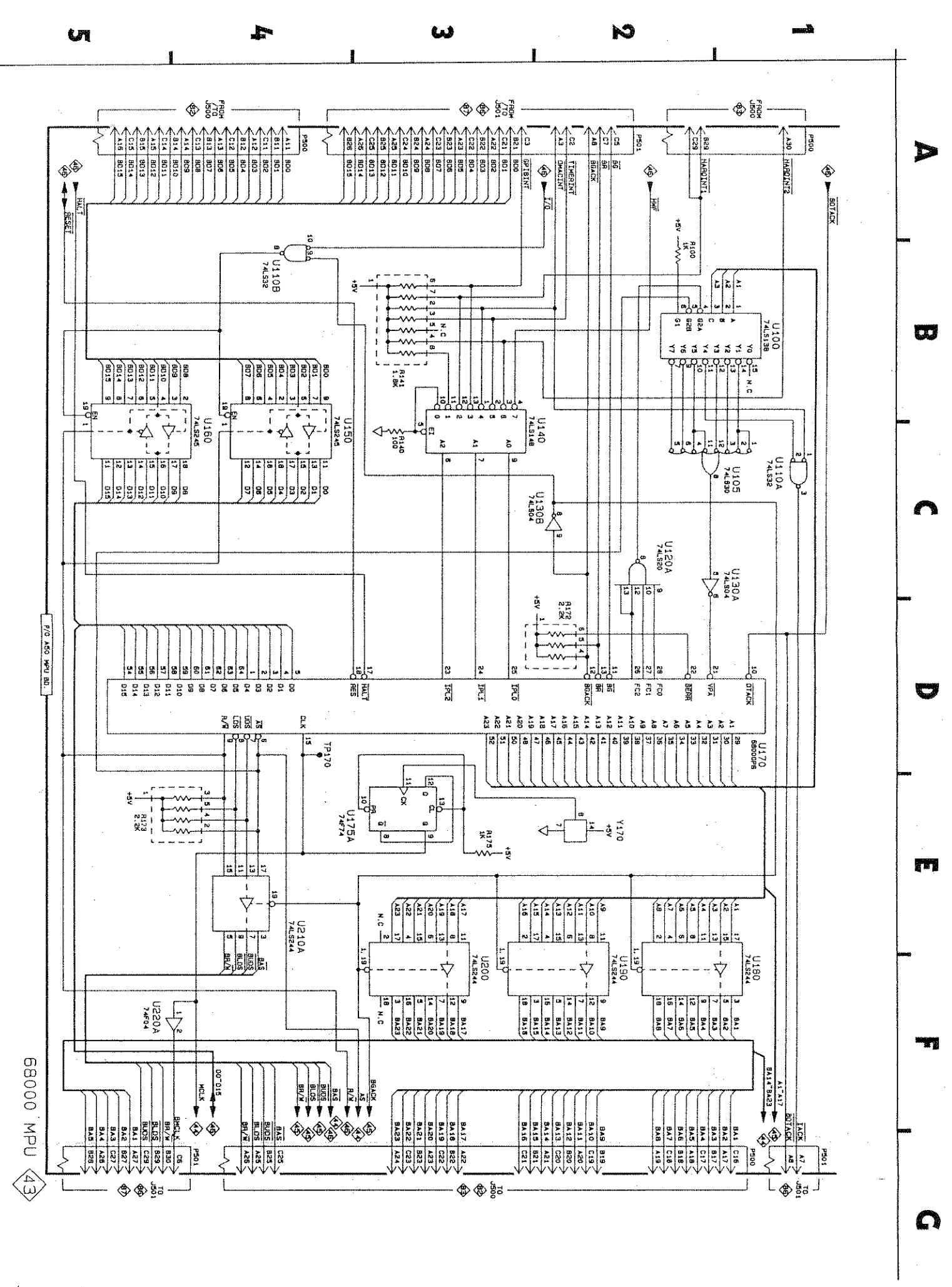
Table 8-45

68000 MPU 43

MPU BD., ASSEMBLY A50

CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION
P500	A1	F4
P500	G1	F4
P500	A4	F4
P501	G1	B4
P501	A2	B4
P501	G4	B4
R100	B2	F3
R140	C3	C4
R141	B3	C3
R172	D2	F3
R173	E4	E3
R175	E3	G2
TP170	D4	G1
U100	B1	F3
U105	C1	F4
U110A	C1	D4
U110B	B4	D4
U120A	C2	G4
U130A	C1	E2
U130B	C2	E2
U140	C3	C4
U150	C4	E3
U160	C4	F3
U170	D1	F3
U175A	E3	G2
U180	F1	G3
U190	F2	F2
U200	F3	F3
U210A	E4	E3
U220A	F4	D2
Y170	E2	G1

ASSY A50 is also shown on Diagrams 43,44,45, and 46.
ASSY A50 (Fig.8-13) circuit board illustration faces Diagram 43.



A B C D E F G

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68000 MPU U43

Table 8-46

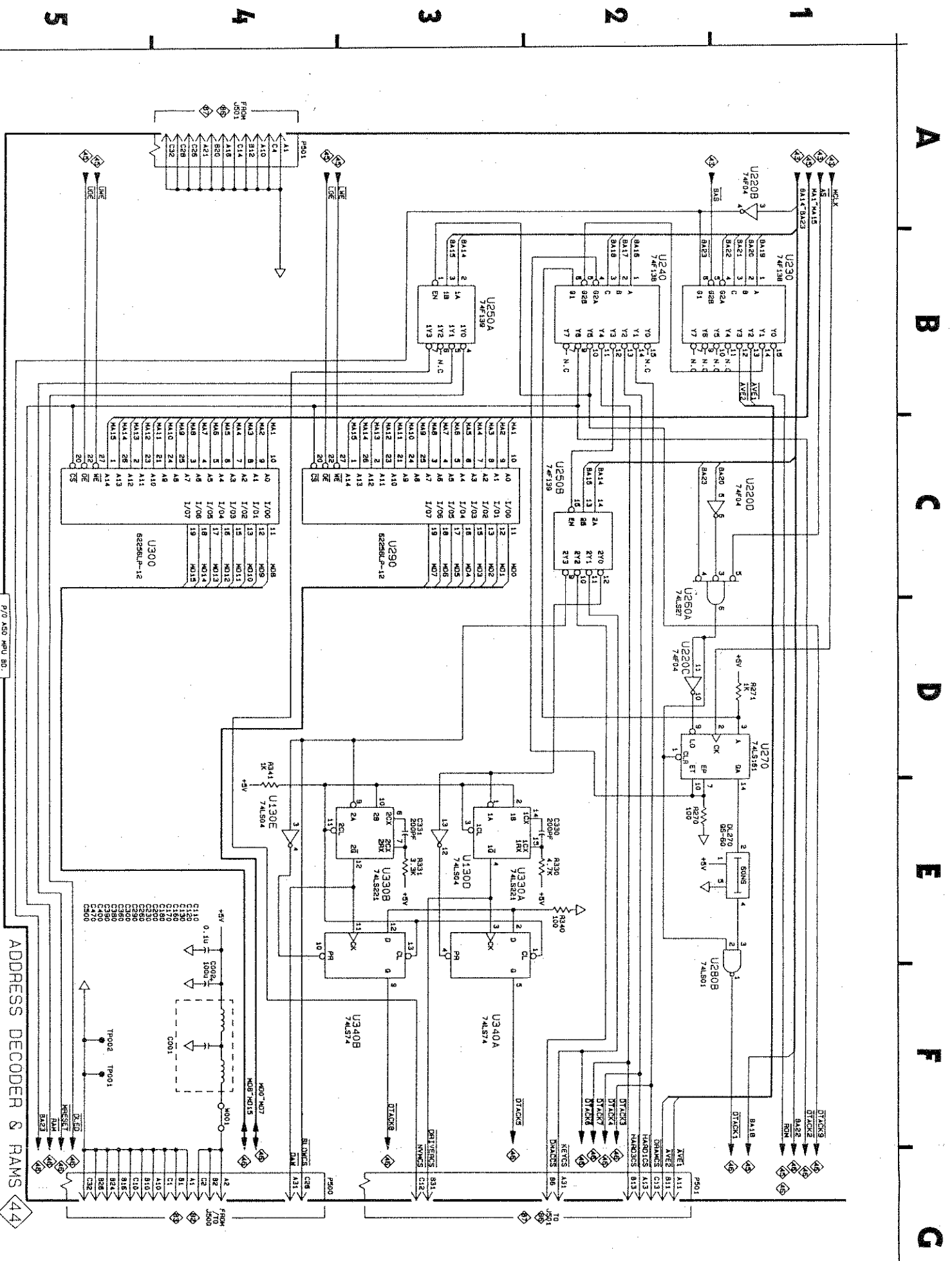
ADDRESS DECODER & RAMS

44

MPU BD., ASSEMBLY A50

CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION	CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION
C001	F4	G4	R331	E3	E3
C002	F4	F4	R340	E2	D3
C110	E4	D3	R341	E4	D3
C120	E4	G3			
C130	E4	E2	TP001	F5	B1
C150	E4	E3	TP002	F5	F1
C170	E4	F2			
C180	E4	G3	U130D	E3	E2
C200	E4	F3	U130E	E4	E2
C230	E5	C3	U220B	A1	D2
C260	E5	D3	U220C	D2	D2
C290	E5	C1	U220D	C1	D2
C300	E5	D1	U230	B1	C3
C330	E2	E3	U240	B2	C3
C331	E3	E3	U250A	B3	C2
C350	E5	F2	U250B	C2	C2
C380	E5	A3	U260A	C1	D3
C390	E5	C2	U270	D1	E4
C400	E5	C2	U280B	E1	E2
C470	E5	C2	U290	C3	D1
C500	E5	E2	U300	C4	E1
			U330A	E3	E3
DL270	E1	E3	U330B	E3	E3
			U340A	E3	D3
P500	G4	F4	U340B	E3	D3
P501	G1	B4			
P501	A4	B4	W001	F4	G4
R270	E2	E4			
R271	D1	E4			
R330	E2	E3			

ASSY A50 is also shown on Diagrams 43,44,45,and 46.
ASSY A50 (Fig.8-13) circuit board illustration faces Diagram 43.



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A B C D E F G

Table 8-47

ROMS 

MPU BD., ASSEMBLY A50

CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION
P501	G3	B4
R390	E2	C3
U130F	B4	E2
U350	B1	F1
U360	B2	F2
U365	B3	B2
U370A	B5	B4
U370B	B4	B4
U370C	B4	B4
U370D	B5	B4
U375A	C3	C3
U380A	B5	A4
U390	D2	C2
U400	D4	B2
U410	F1	B2
U420	F3	A2

ASSY A50 is also shown on Diagrams 43,44,45,and 46.
 ASSY A50 (Fig.8-13) circuit board illustration faces Diagram 43.

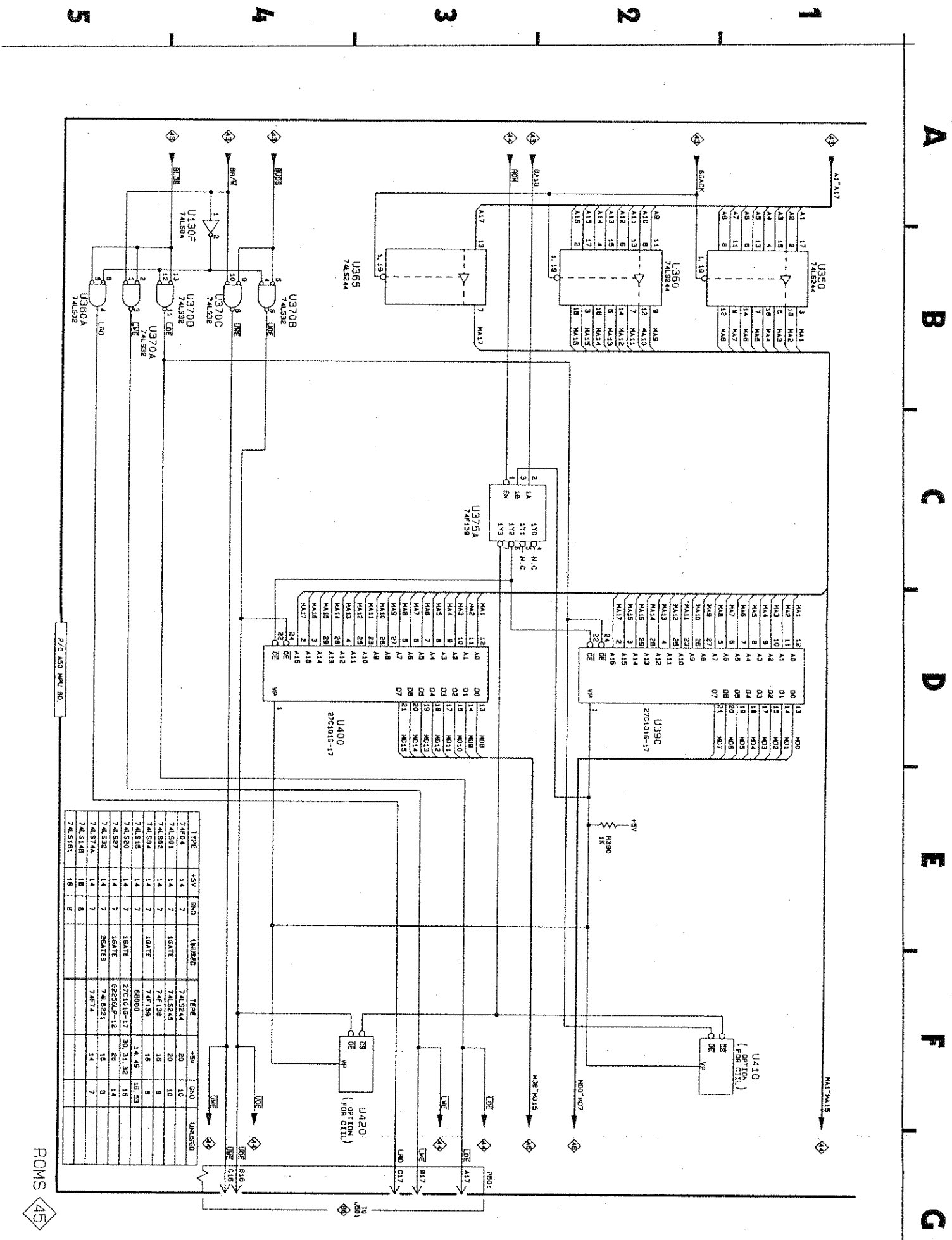



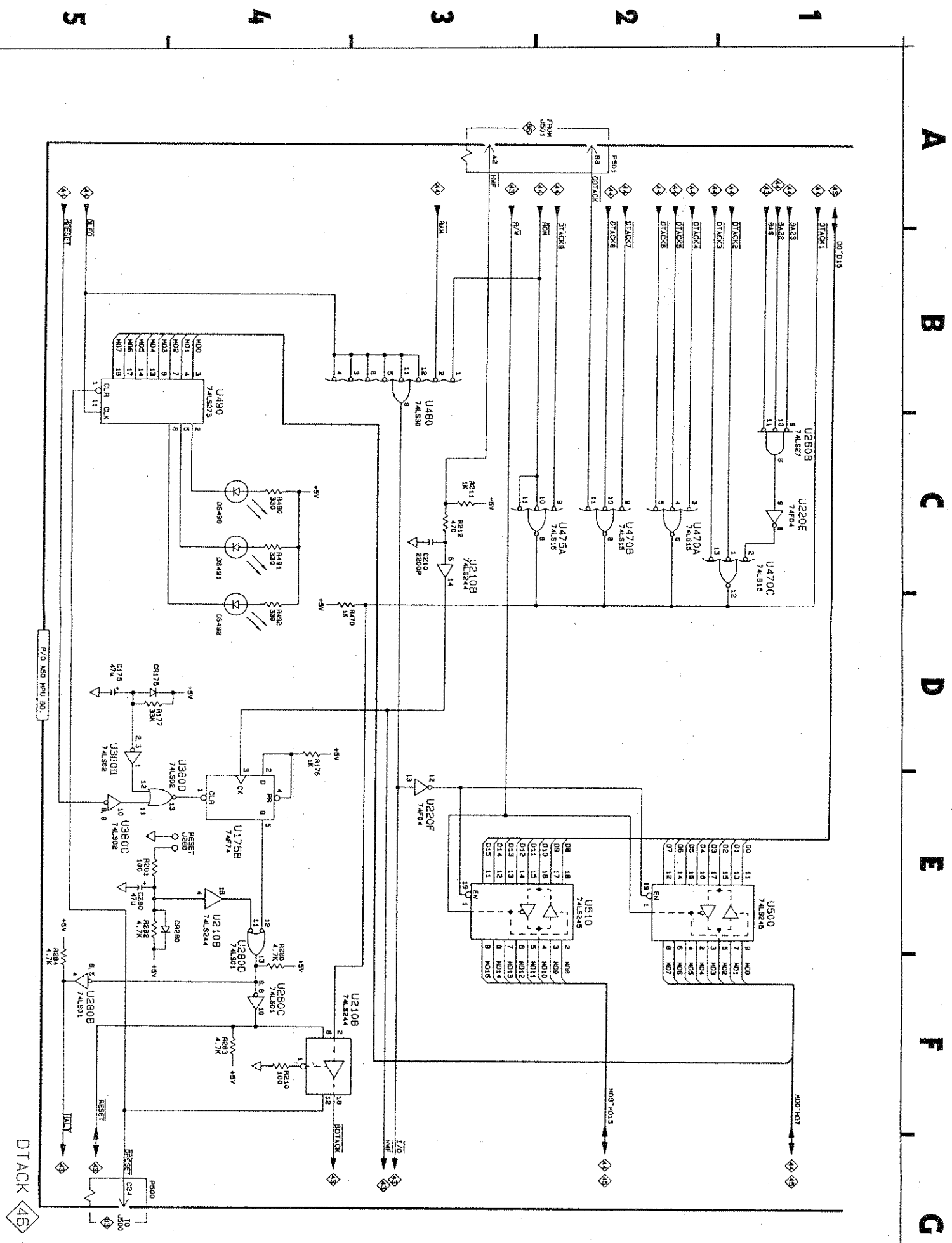
Table 8-48

DTACK 

MPU BD., ASSEMBLY A50

CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION	CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION
C175	D5	A4	R470	D3	D2
C210	C3	E3	R490	C4	A1
C280	E5	E2	R491	C4	C1
			R492	D4	C1
CR175	D5	A4			
CR280	E4	E2	U175B	E4	G2
			U210B	F4	E3
DS490	C4	B1	U210B	E4	E3
DS491	C4	B1	U210B	C3	E3
DS492	D4	B1	U220E	C1	D2
			U220F	E3	D2
J280	E4	E1	U260B	C1	D3
			U280B	F5	E2
P500	G5	F4	U280C	F4	E2
P501	A2	B4	U280D	E4	E2
			U380B	D5	A4
			U380C	E5	A4
R176	D4	G2	U380D	E4	A4
R177	D5	A4	U470A	C2	C2
R210	F4	E3	U470B	C2	C2
R211	C3	E3	U470C	C1	C2
R212	C3	E3	U475A	C2	C2
R280	F4	D2	U480	B3	C4
R281	E5	E2	U490	B4	D2
R282	E5	E2	U500	E1	E2
R283	F4	E2	U510	E2	E2
R284	F5	E2			

ASSY A50 is also shown on Diagrams 43,44,45, and 46.
 ASSY A50 (Fig.8-13) circuit board illustration faces Diagram 43.



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DTACK 45

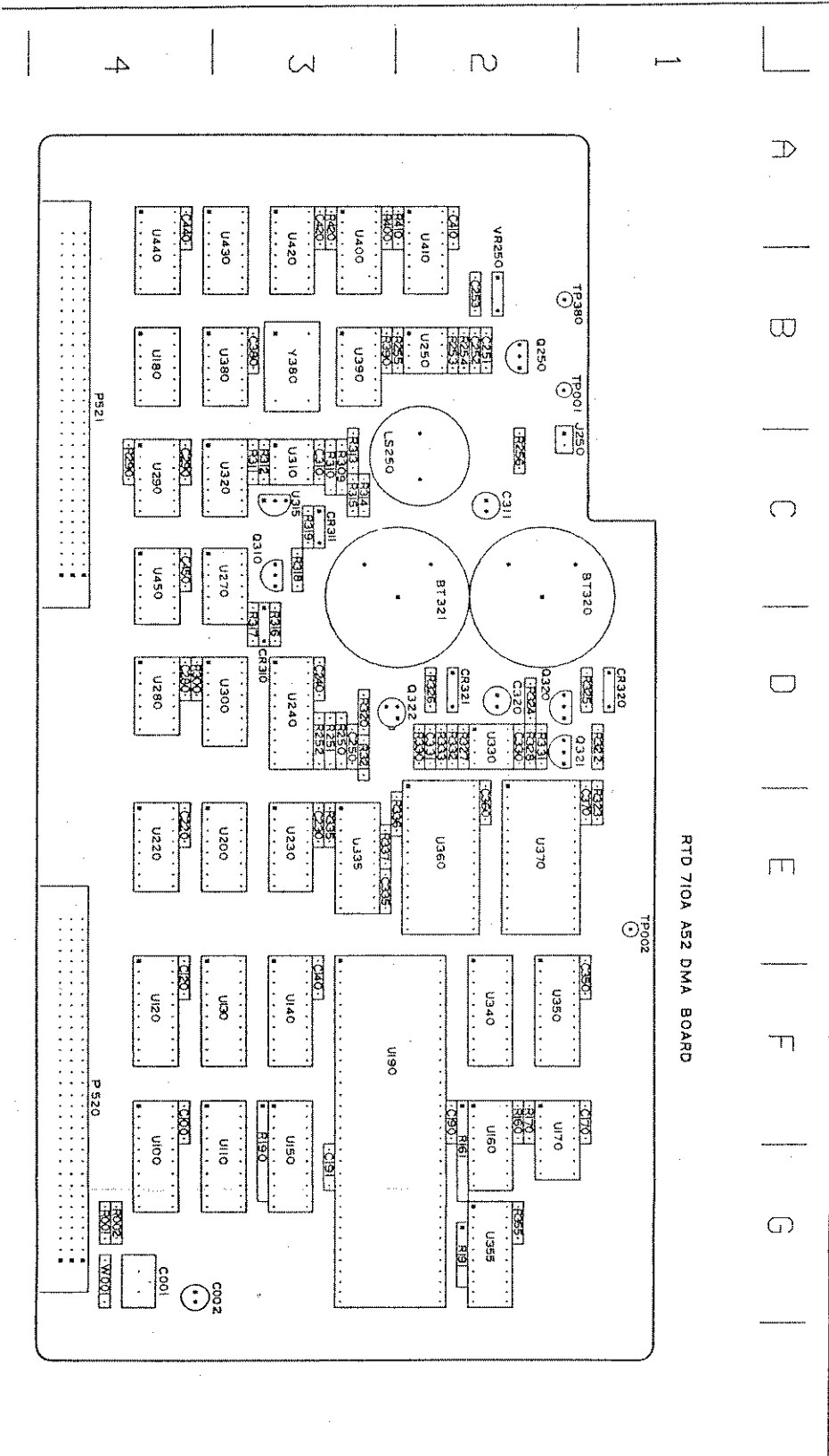


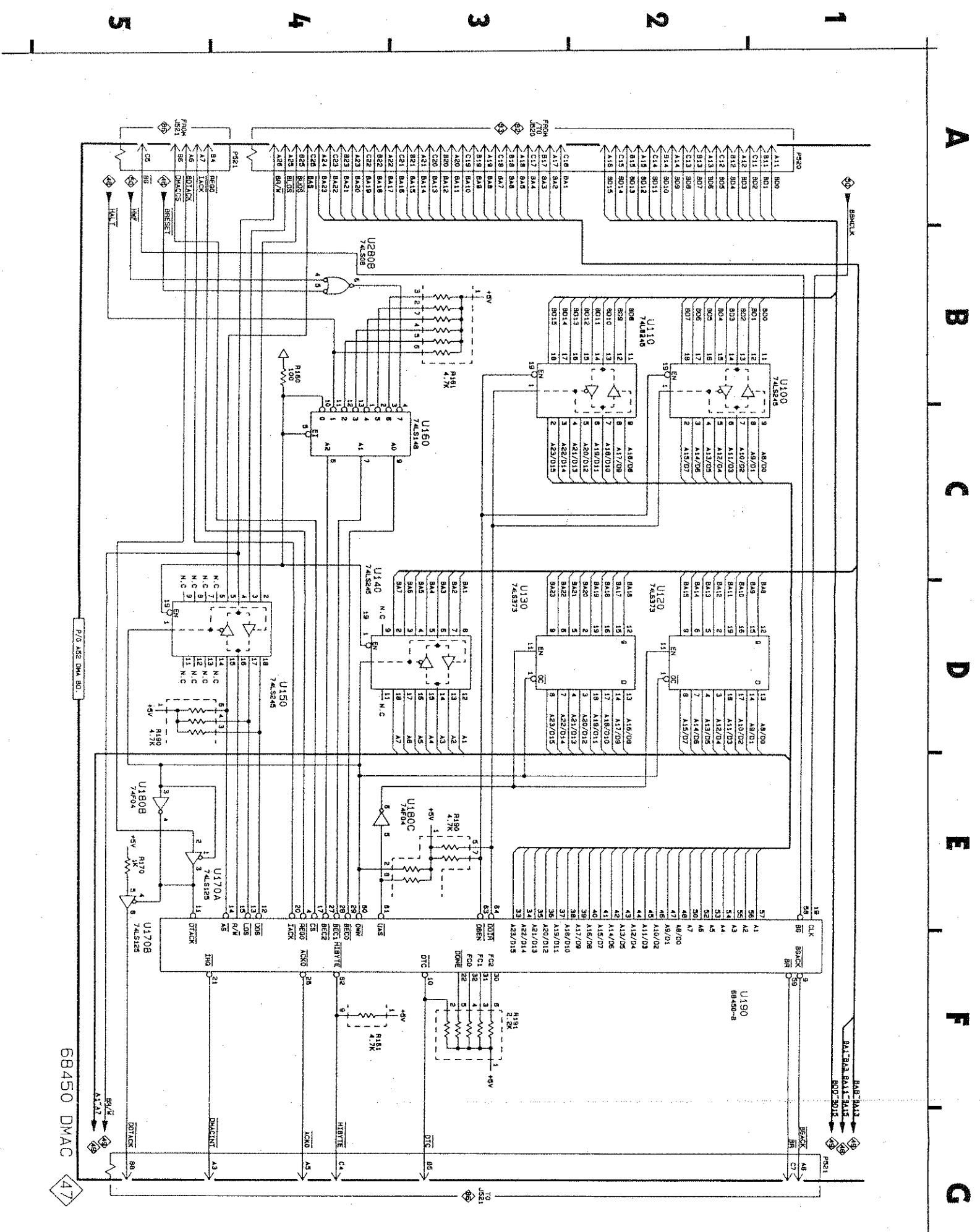
Fig. 8-14. AS2 DMA BD., CIRCUIT BD. ASS.

Table 8-49
68450 DMAC 47

DMA BD., ASSEMBLY AS2

CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION
P520	A1	F4
P521	G1	B4
P521	A5	B4
R160	B4	F2
R161	B3	F2
R161H	F4	F2
R170	E5	F2
R190B	D5	G3
R190C	D5	G3
R190D	E3	G3
R190E	D5	G3
R190F	E3	G3
R191	F3	G2
U100	B1	G4
U110	B2	G3
U120	D2	F4
U130	D3	F3
U140	D3	F3
U150	D4	G3
U160	C3	F2
U170A	E5	F2
U170B	E5	F2
U180B	E5	B4
U180C	E3	B4
U190	F2	F2
U280B	B4	D4

ASSY AS2 is also shown on Diagrams 47, 48, 49, and 50.
ASSY AS2 (Fig. 8-14) circuit board illustration faces Diagram 47.



68450 DMAC

A B C D E F G

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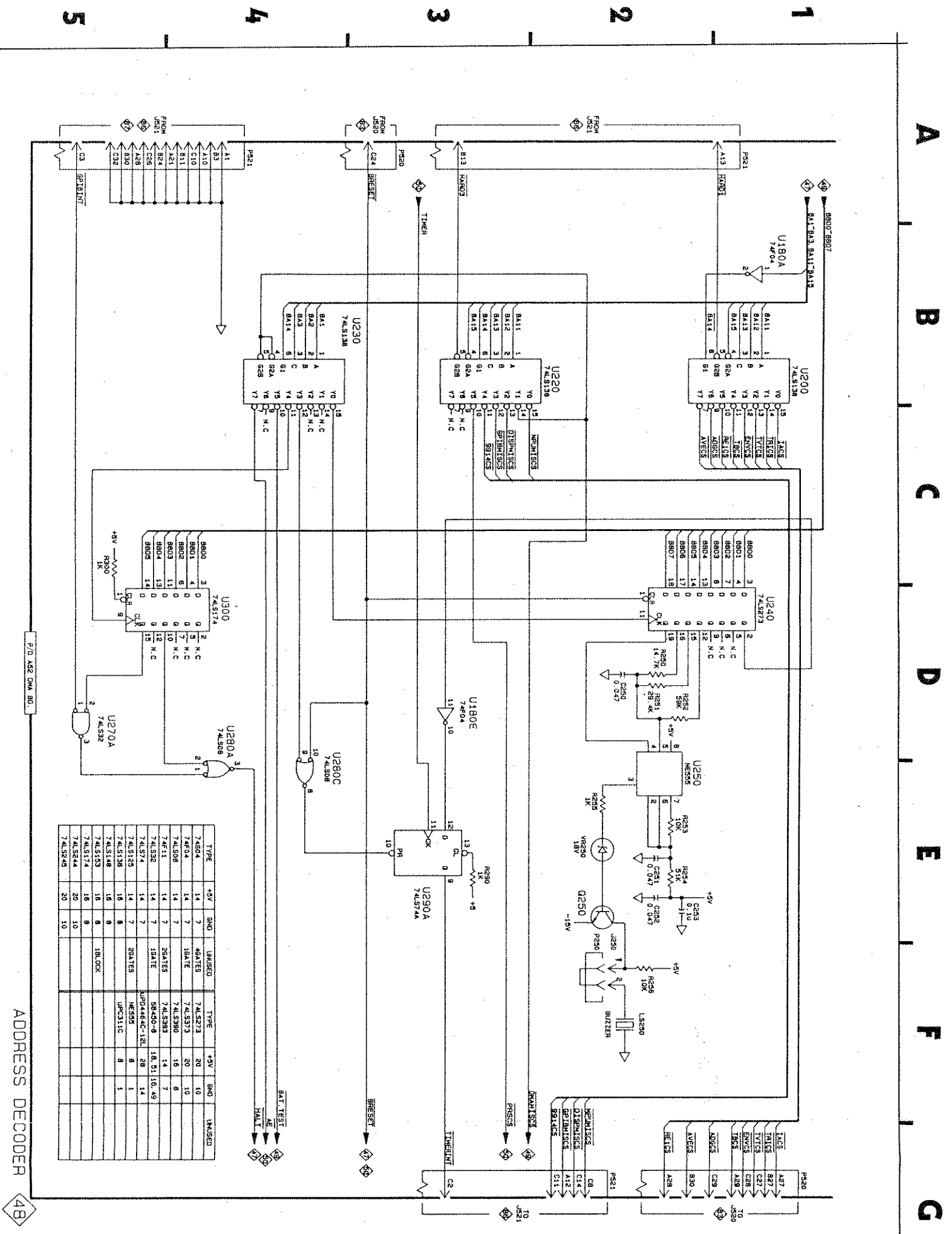
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Table 8-50

ADDRESS DECODER  DMA BD., ASSEMBLY A52

CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION	CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION
C250	D2	D3	R253	E2	B2
C251	E2	B2	R254	E2	B2
C252	E2	B2	R255	E2	B2
C253	E2	B2	R256	F2	C2
			R290	E3	C4
J250	F2	C2	R300	C5	D4
LS250	F2	C2	U180A	B1	B4
			U180E	D3	B4
P250	F2	C2	U200	B1	E3
P520	G1	F4	U220	B3	E4
P520	A3	F4	U230	B4	E3
P521	G2	B4	U240	D1	D3
P521	A4	B4	U250	E2	B2
P521	A1	B4	U270A	D5	C3
			U280A	E4	D4
Q250	E2	B2	U280C	E4	D4
			U290A	E3	C4
R250	D2	D3	U300	D4	D3
R251	D2	D3			
R252	D2	D3	VR250	E2	B2

ASSY A52 is also shown on Diagrams 47,48,49,and 50.
ASSY A52 (Fig.8-14) circuit board illustration faces Diagram 47.



ADDRESS DECODER

48

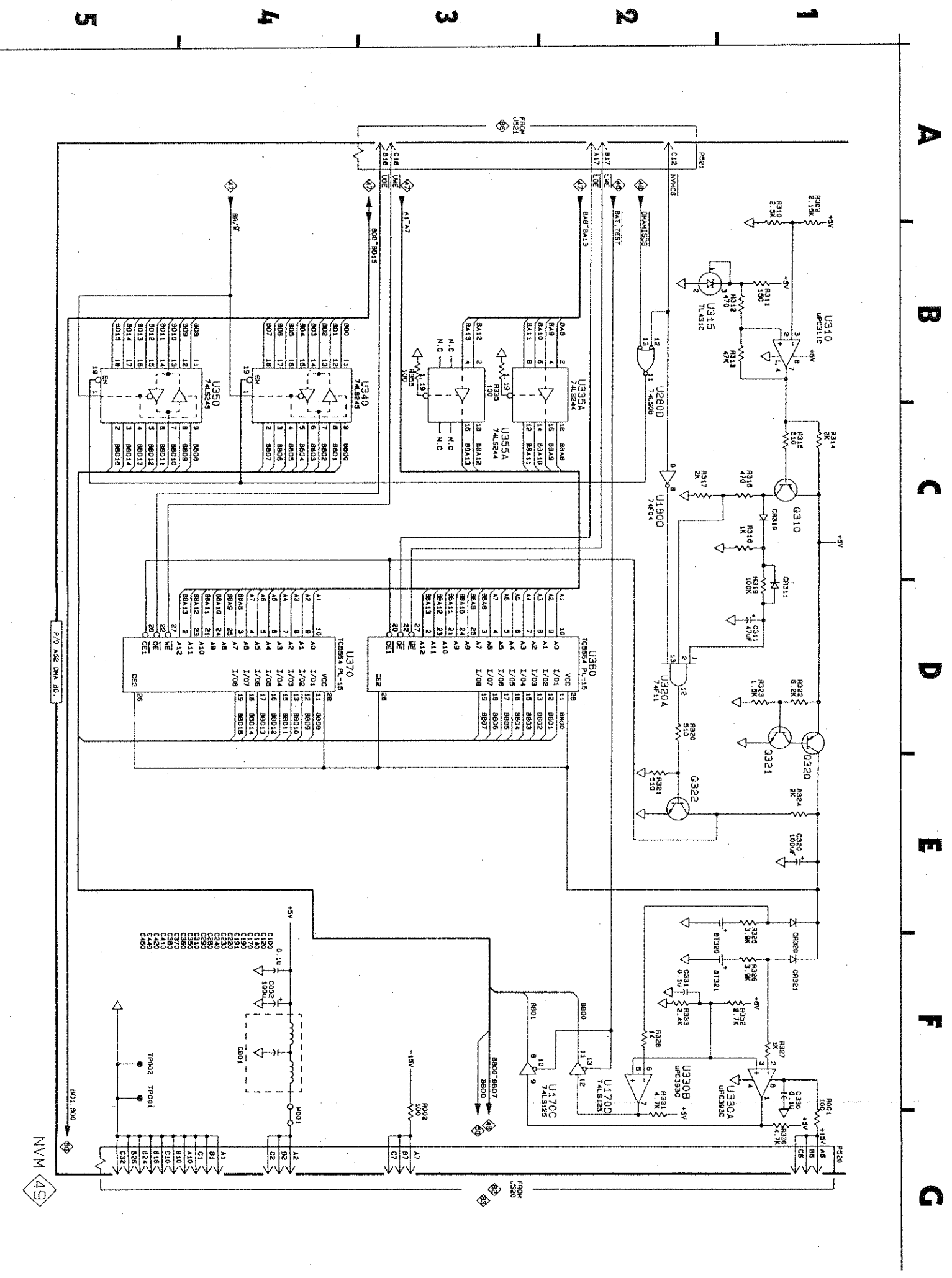
Table 8-51



DRM 80, ASSEMBLY AS2

CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION	CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION	CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION
B1320	E1	C2	C8310	C1	D3	R325	E1	D1
B1321	F1	C2	C8311	D1	C3	R326	F1	D2
			C8320	E1	D1	R327	F1	D2
C001	F4	D4	C8321	F1	D2	R328	F2	D2
C002	F4	D4				R330	G1	D2
C100	F4	F4	P520	G1	F4	R331	F2	D2
C120	F4	F4	P521	A2	B4	R332	F1	D2
C140	F4	F3				R333	F2	D2
C170	F4	F1	Q310	C1	C3	R335	B3	E3
C190	F4	F2	Q320	D1	D2	R355	B3	D2
C191	F4	G3	Q321	D1	D2			
C220	F4	E4	Q322	E2	D2	TP001	F5	D2
C230	F4	E3				TP002	F5	E1
C240	F4	D3	R002	F3	D4			
C280	F4	D4	R209	A1	C3	U120C	F3	F2
C290	F4	C4	R310	A1	C3	U120D	F2	F2
C310	F4	C3	R311	B1	C3	U280D	D2	D4
C311	D1	C2	R312	B1	C3	U310	B1	C3
C320	E1	D2	R313	B1	C3	U315	D2	C3
C330	F1	D2	R314	C1	C3	U320R	D2	C3
C331	F2	D2	R315	C1	C3	U330R	F1	D2
C350	F4	F1	R316	C1	D3	U330B	F2	D2
C360	F4	E2	R317	C2	D3	U335R	B2	E3
C370	F4	E1	R318	C1	C3	U340	B4	F2
C380	F5	B3	R319	D1	C3	U350	B5	F2
C410	F5	D2	R320	D2	D3	U355R	B3	G2
C420	F5	B3	R321	E2	D3	U360	D2	E2
C440	F5	B4	R322	D1	D1	U370	D4	E2
C450	F5	C4	R323	D1	E1			
			R324	E1	D2	U001	F4	D4

ASSY AS2 is also shown on Diagrams 47,48,49,and 50.
ASSY AS2 (Fig.8-14) circuit board illustration faces Diagram 47.



NVM 49

Table 8-52

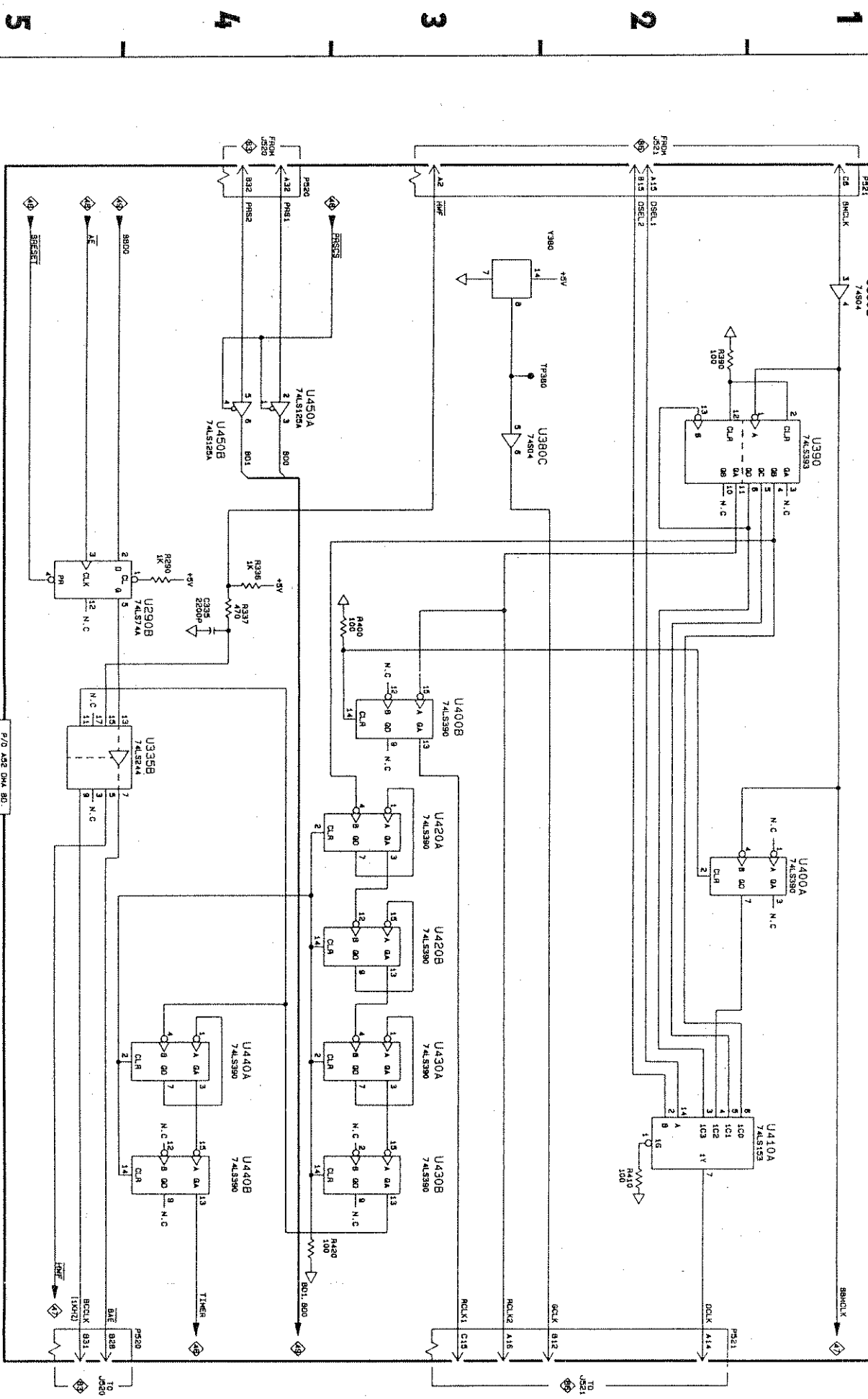
DOT CLOCK AND TIMER 50

DMA BD., ASSEMBLY A52

CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION
C335	C4	E3
P520	A4	F4
P520	G5	F4
P521	A1	B4
P521	G2	B4
R290	C4	C4
R336	C4	E2
R337	C4	E3
R390	B2	B3
R400	C3	A3
R410	F2	A2
R420	F4	A3
TP380	B3	B2
U290B	C5	C4
U335B	D5	E3
U380B	B1	B3
U380C	B3	B3
U390	B1	B3
U400A	D1	A3
U400B	D3	A3
U410A	F2	A2
U420A	D3	A3
U420B	E3	A3
U430A	E3	A3
U430B	F3	A3
U440A	E4	A4
U440B	F4	A4
U450A	B4	C4
U450B	B4	C4
Y380	B3	B3

ASSY A52 is also shown on Diagrams 47, 48, 49, and 50.
 ASSY A52 (Fig. 8-14) circuit board illustration faces Diagram 47.

A B C D E F G



DOT CLOCK & TIMER 50

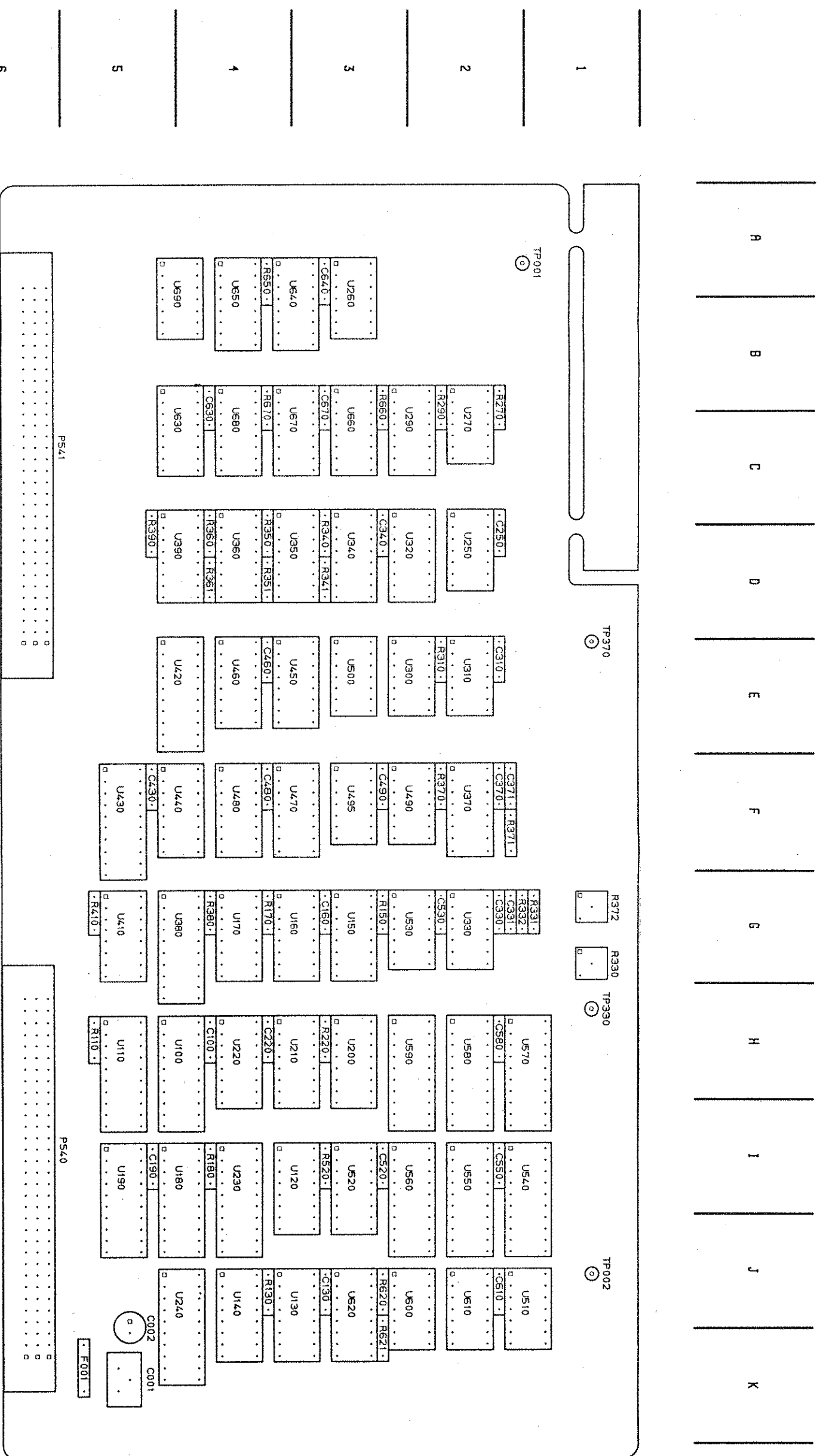


Fig. 8-15. AS4 DISPLAY BD., CIRCUIT BD. ASS.

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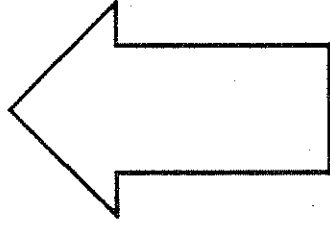


Table 8-53

ADDRESS MUX



DISPLAY BD., ASSEMBLY A54

CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION
P540	A1	I6
R110	B3	H5
R130	B3	J4
R150	E1	G3
R170	D3	G4
R180	D4	H4
R220	E3	H3
U100	C1	H4
U110	C2	H5
U120	C3	I3
U130	C4	J4
U140	C5	J4
U150	E1	G3
U160	E2	G3
U170	E3	G4
U180	E4	I4
U190	E5	I5
U200	F1	H3
U210	F2	H3
U220	F3	H4
U230	F4	I4
U240	F5	J5

ASSY A54 is also shown on Diagrams 51, 52, 53, 54, and 55.
 ASSY A54 (Fig. 8-15) circuit board illustration faces Diagram 51.

A B C D E F G

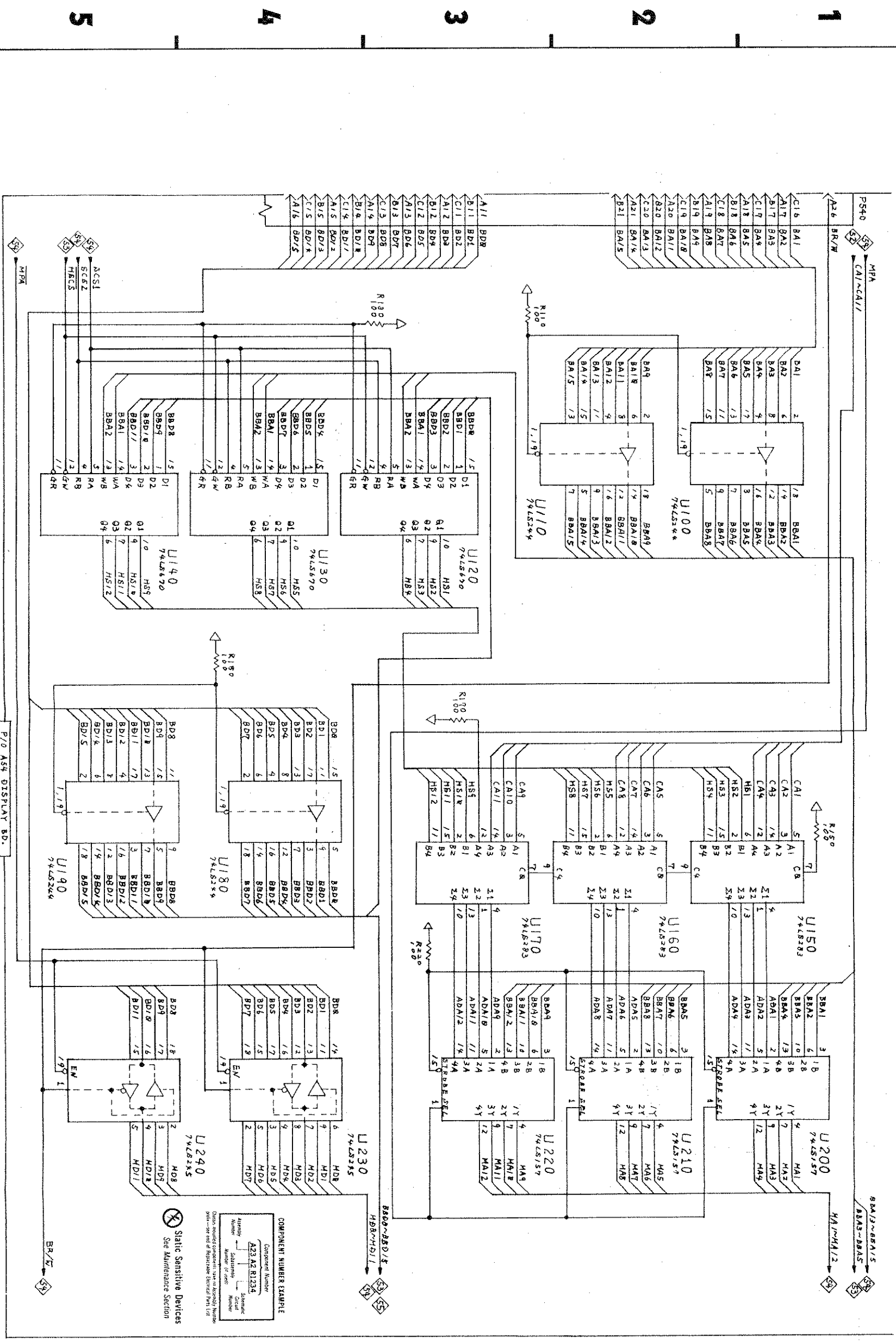



Table 8-54
ADDRESS GENE  — DISPLAY BD., ASSEMBLY AS4

CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION	CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION
C330	F2	G2	TP330	F2	H1
C331	F2	G2	TP370	D3	D1
C371	D2	F2			
P541	A1	C6	U250A	C5	D2
P541	G5	C6	U250B	B5	D2
			U250C	C3	D2
			U250D	B5	D2
R270	G2	B2	U280C	C5	A3
R290	C4	B2	U270A	C3	B2
R310	E1	E2	U270B	G2	B2
R330	F2	G1	U290	C4	B2
R330	F2	G1	U300A	F2	E2
R331	F2	G2	U300B	D4	E2
R332	F2	G2	U300D	F5	E2
R340	F3	D3	U300E	B2	E2
R341	G3	D3	U310A	E1	E2
R350	F3	D4	U310B	E4	E2
R351	G4	D4	U320A	E3	D2
R360	F4	D4	U330	F2	G2
R361	G5	D4	U340	F3	D3
R370	C2	F2	U350	F4	D3
R371	D2	F2	U360	F4	D4
R372	D2	G1	U370	D2	F2

ASSY A54 is also shown on Diagrams 51, 52, 53, 54, and 55.
ASSY A54 (Fig. 8-15) circuit board illustration faces Diagram 51.

A B C D E F G

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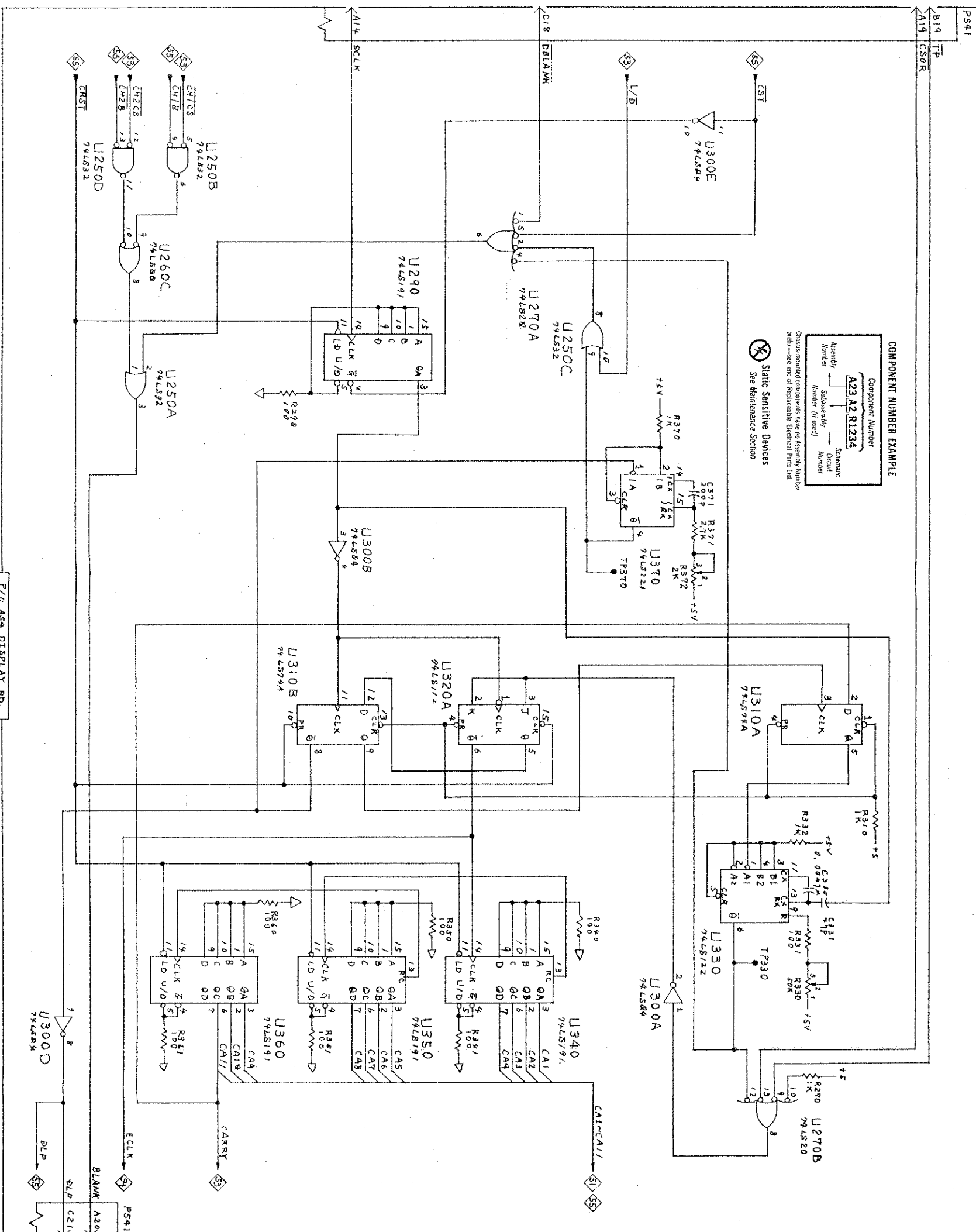

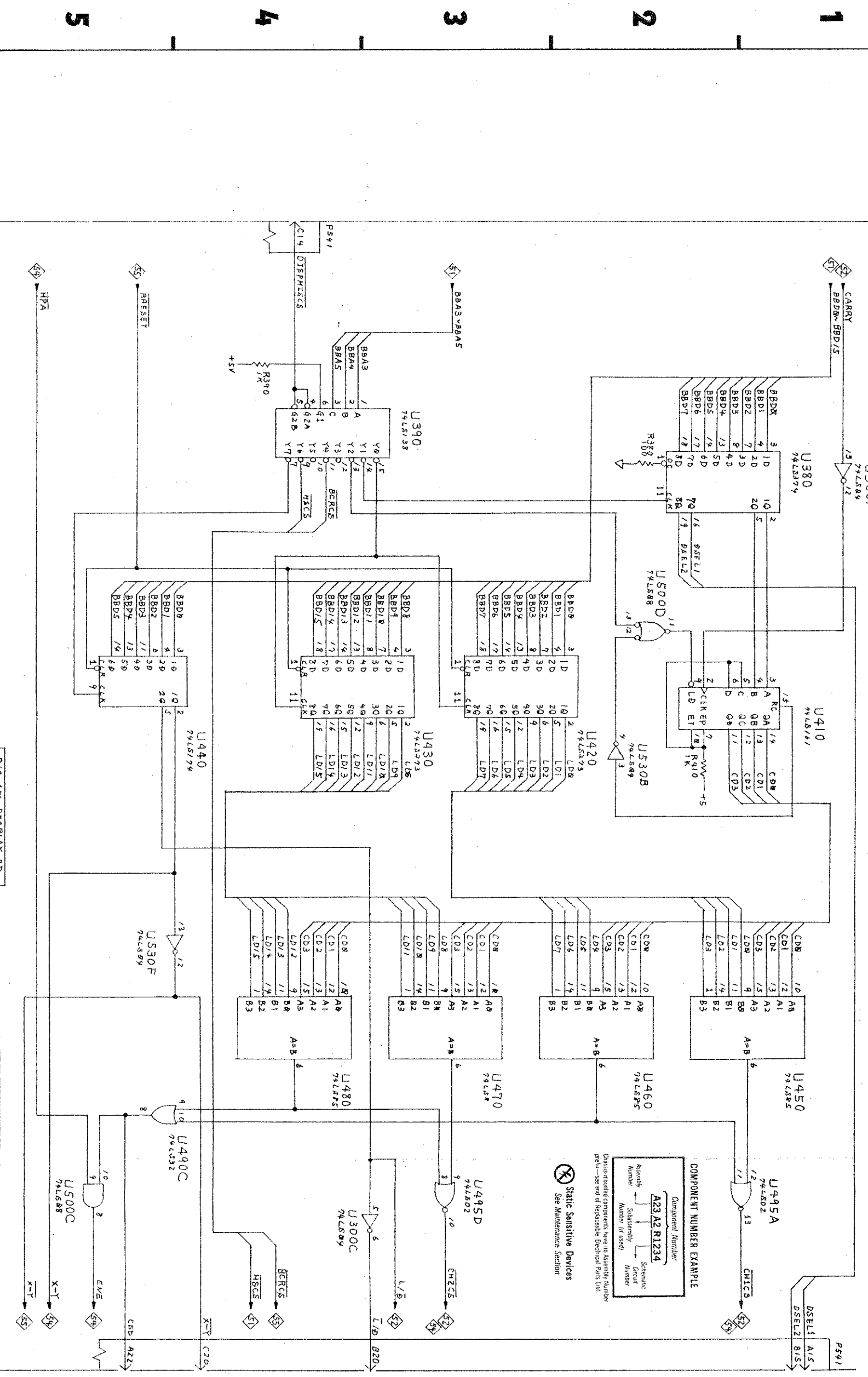


Table 8-55
 DISPLAY RAM CHIP SELECT 
 DISPLAY BD., ASSEMBLY A54


CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION
P541	B4	C6
P541	G1	C6
R380	C2	G4
R390	B4	D5
R410	D2	G5
U300C	G3	E2
U300F	C1	E2
U380	C1	G4
U390	C4	D4
U410	D1	G5
U420	D3	E4
U430	D3	F5
U440	D5	F4
U450	F1	E3
U460	F2	E4
U470	F3	F3
U480	F4	F4
U490C	F5	F2
U495A	G1	F3
U495D	G3	F3
U500C	G5	E3
U500D	D2	E3
U530B	D2	G3
U530F	E4	G3

ASSY A54 is also shown on Diagrams 51,52,53,54,and 55.
 ASSY A54 (Fig.8-15) circuit board illustration faces Diagram 51.

A B C D E F G



DISPLAY RAM CHIP SELECT

Table 8-56
 DISPLAY RAM 
 DISPLAY BD, ASSEMBLY A54

CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION
P541	A5	C6
R520	B5	I3
R620	F4	J3
R621	G5	J3
U490A	B3	F2
U490B	C3	F2
U500A	C4	E3
U500B	B5	E3
U510A	B2	J2
U520	B5	I3
U530C	B5	G3
U530D	B3	G3
U540	C2	I2
U550	E2	I2
U560	F2	I3
U570	C3	H2
U580	E3	H2
U590	F3	H2
U600A	D5	J3
U600B	D5	J3
U600C	E5	J3
U600D	E5	J3
U610A	B4	J2
U610B	B4	J2
U610C	E5	J2
U610D	E5	J2
U620	G5	J3

ASSY A54 is also shown on Diagrams 51,52,53,54,and 55.
 ASSY A54 (Fig.8-15) circuit board illustration faces Diagram 51.

A B C D E F G

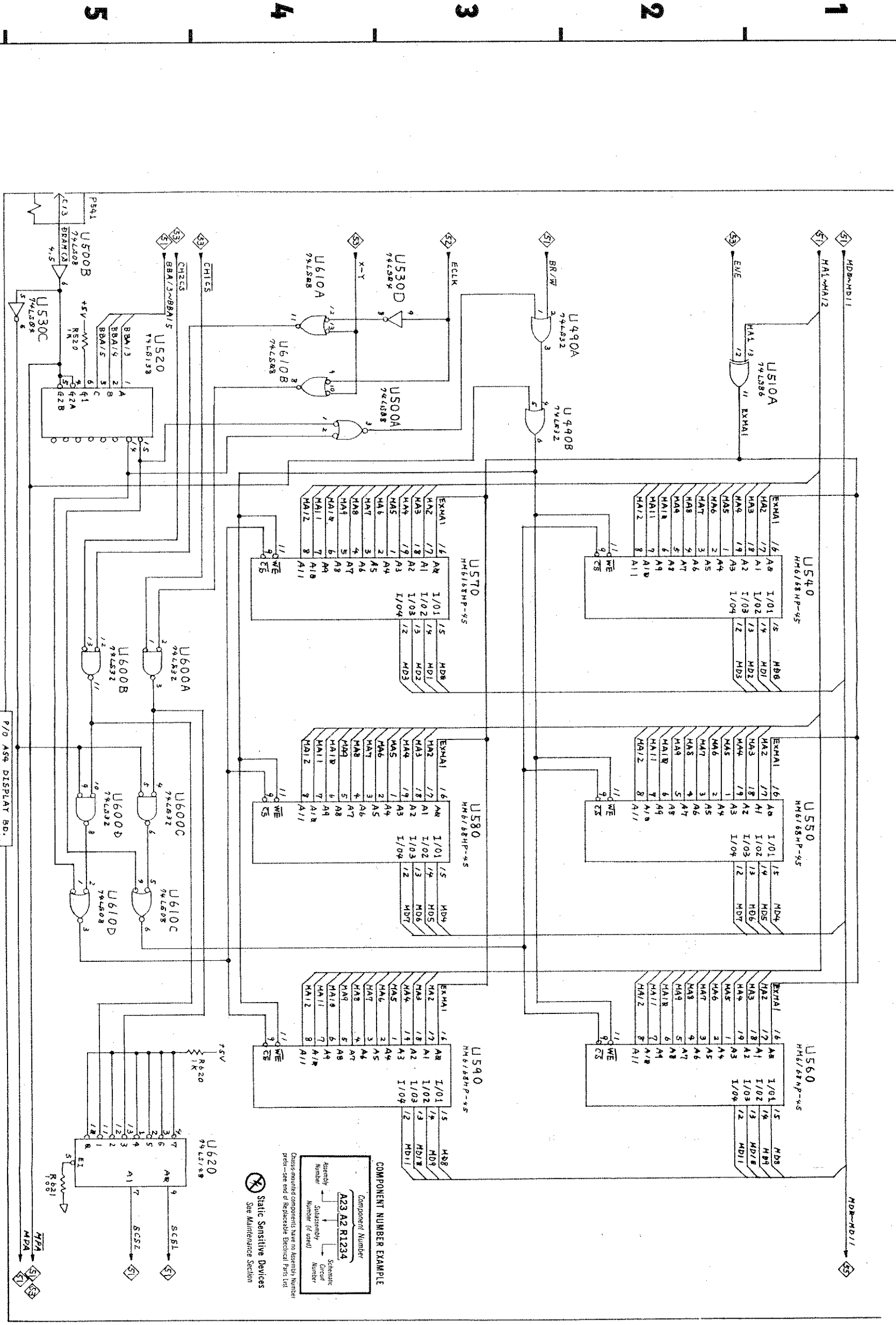



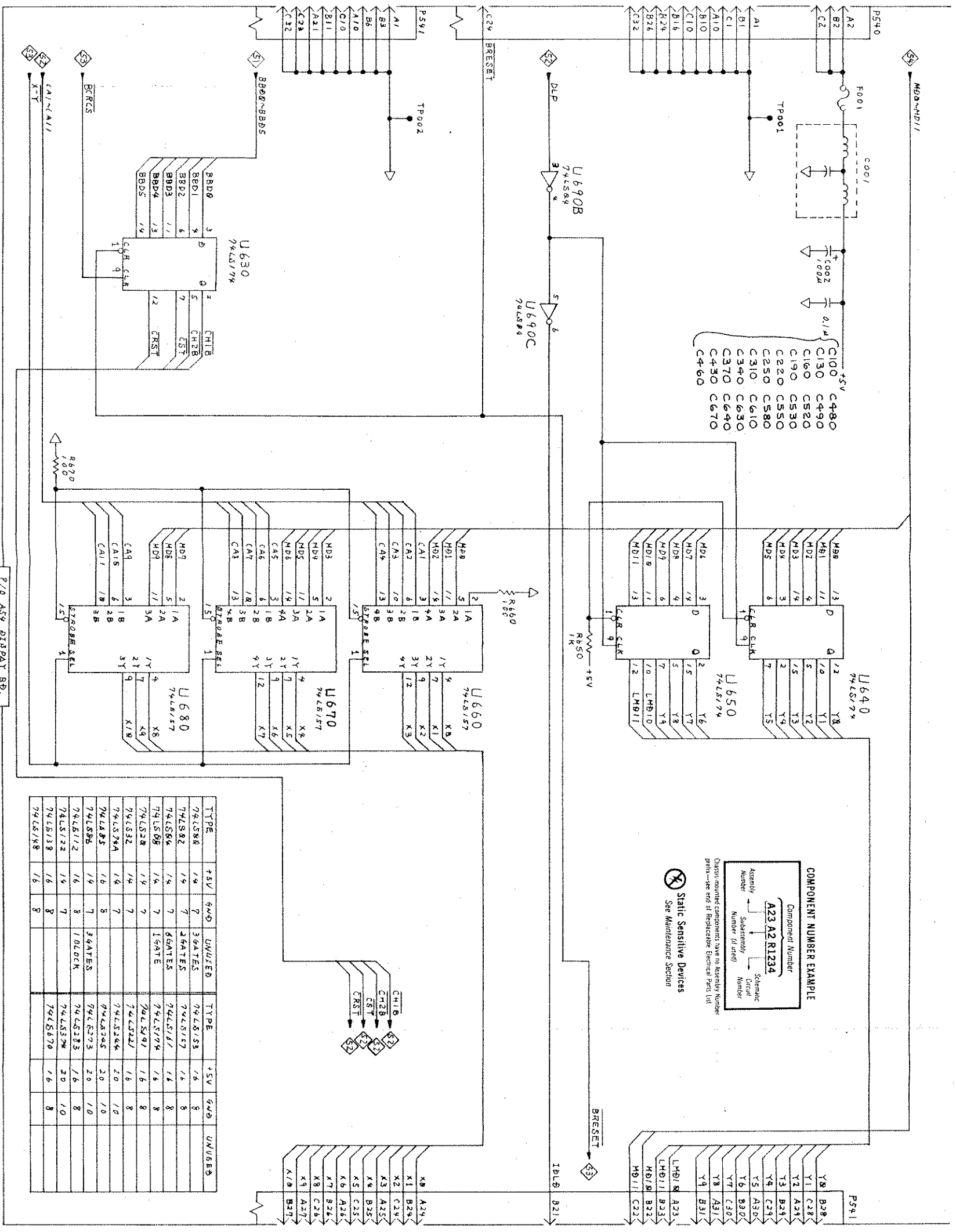
Table 8-57
 DISPLAY DATA OUTPUT  — DISPLAY BD., ASSEMBLY A54

CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION	CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION
G001	B1	K5	F001	B1	K5
C002	C1	J5	P540	A1	I6
C100	C1	H4	P541	A3	C6
C130	C1	J3	P541	G1	C6
C160	C1	G3			
C190	C1	I5			
C220	C1	H4	R650	E3	A4
C250	C1	D2	R660	D3	B3
C310	C1	E2	R670	D5	B4
C340	C1	D3			
C370	C1	F2	TP001	B2	A1
C430	C1	F5	TP002	B3	J1
C460	C1	E4			
C480	C1	F4	U630	C5	B4
C490	C1	F3	U640	E1	A3
C520	C1	I3	U650	E2	A4
C530	C1	G2	U660	E3	B3
C550	C1	I2	U670	E4	B3
C580	C1	H2	U680	E5	B4
C610	C1	J2	U690B	B3	A4
C630	C1	B4	U690C	B3	A4
C640	C1	A3			
C670	C1	B3			

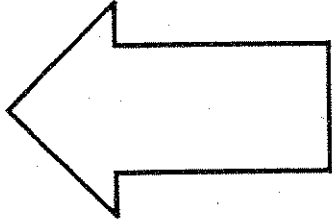
ASSY A54 is also shown on Diagrams 51,52,53,54,and 55.
 ASSY A54 (Fig.8-15) circuit board illustration faces Diagram 51.

A B C D E F G

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TYPE	QTY	UNUSED	TYPE	+5V	QTY	UNUSED
74LS88	1/4	7	74LS153	1/6	8	
74LS92	1/4	7	74LS157	1/6	8	
74LS96	1/4	7	74LS161	1/6	8	
74LS08	1/4	7	74LS174	1/6	8	
74LS28	1/4	7	74LS197	1/6	8	
74LS32	1/4	7	74LS221	1/6	8	
74LS74	1/4	7	74LS244	2/0	1/0	
74LS85	1/4	8	74LS245	2/0	1/0	
74LS112	1/6	8	74LS273	2/0	1/0	
74LS12	1/6	8	74LS183	1/6	8	
74LS13	1/6	7	74LS139	2/0	1/0	
74LS18	1/6	8	74LS170	1/6	8	
74LS198	1/6	8				



SEE
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SIDE

Table 8-58

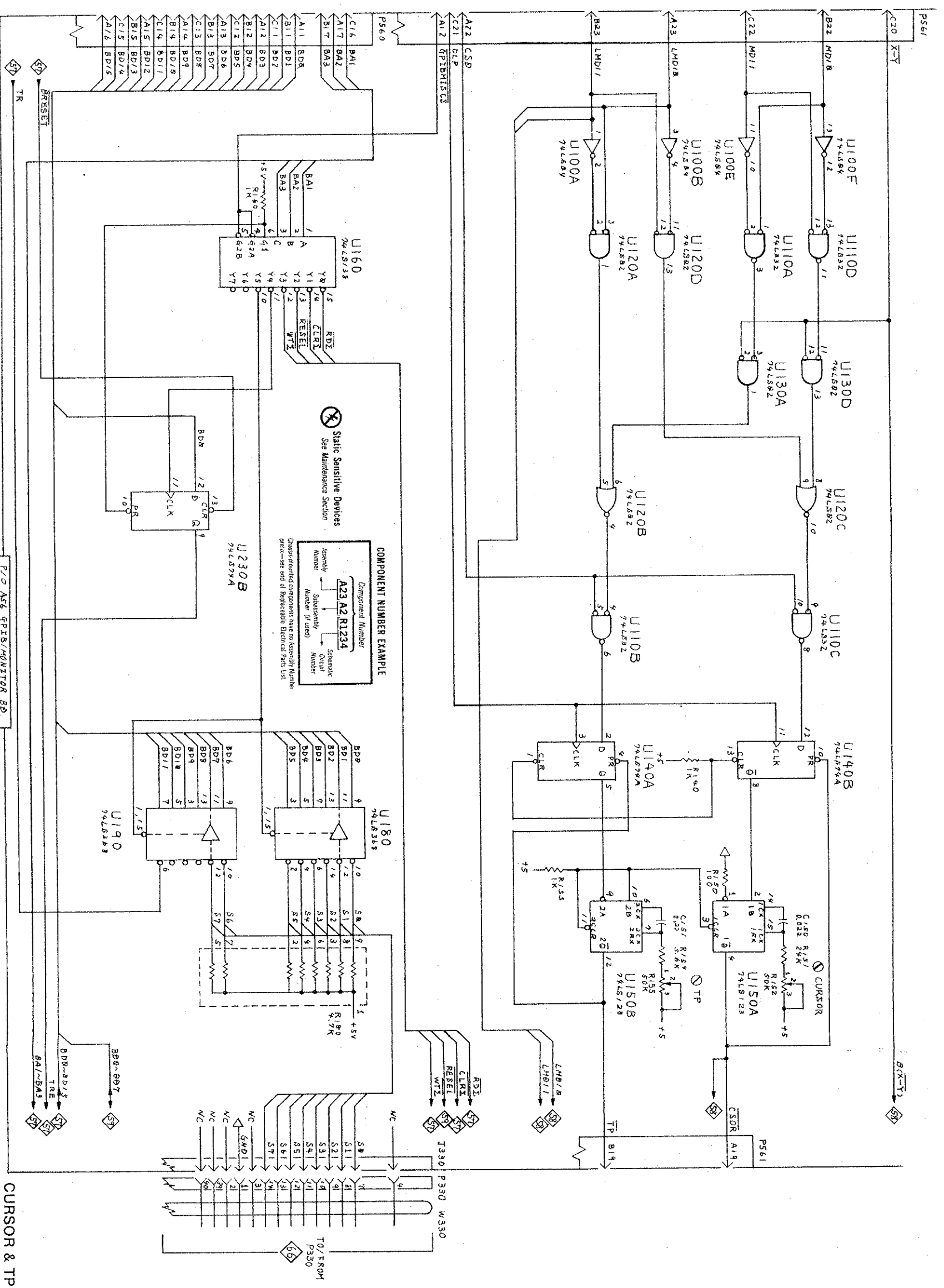
CURSOR & TP CONTROL

GPB/MONITOR BD., ASSEMBLY A56


CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION
C150	F2	E3
C151	F2	E3
J330	G4	I1
P330	H4	I1
P560	B4	I6
P561	B1	O6
P561	G2	O6
R140	E2	F4
R150	F2	E3
R151	F2	E2
R152	G2	E2
R153	F3	E3
R154	F2	E2
R155	G2	E2
R160	B4	J3
R180	F4	K2
U100A	B2	D5
U100B	B2	D5
U100E	B2	D5
U100F	B1	D5
U110A	C2	F4
U110B	E2	F4
U110C	E1	F4
U110D	C1	F4
U120A	C2	D4
U120B	D2	D4
U120C	D1	D4
U120D	C2	D4
U130A	C2	E4
U130D	C1	E4
U140A	E1	F4
U140B	E2	F4
U150A	F2	E3
U150B	F2	E3
U160	C4	J3
U180	F4	J2
U190	F5	J2
U230B	D5	F3
W330	H4	CHASSIS

ASSY A56 is also shown on Diagrams 56, 57, 58, and 59.
 ASSY A56 (Fig. 8-16) circuit board illustration faces Diagram 56.

A B C D E F G



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Table 8-59
 GPIB 
 GPIB/MONITOR BD., ASSEMBLY A56

CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION
J330	G1	I1
P330	G1	I1
P560	A5	I6
P561	A1	C6
P561	G4	C6
R230	D1	F3
R240	D2	I3
R310	F1	H3
R311	F1	H3
R340	G1	H2
U100C	C2	D5
U100D	E1	D5
U200	B1	J4
U210	B4	G4
U220A	B5	F2
U220B	E4	F2
U220C	E4	F2
U220D	D3	F2
U230A	D1	F3
U240	D2	H3
U250	D3	H4
U260	D4	H4
U270	D4	H4
U275	E5	J3
U280A	D5	J4
U280B	E2	G2
U280C	D2	G2
U280D	E2	G2
U300A	E3	G2
U300B	E3	G2
U300C	E2	G2
U300D	E2	G2
U310	F1	I3
U320C	G1	E5
U330	G4	I2
U340	G1	H2
U350A	C3	J3
W330	H1	CHASSIS

ASSY A56 is also shown on Diagrams 56, 57, 58, and 59.
 ASSY A56 (Fig. 8-16) circuit board illustration faces Diagram 56.

A B C D E F G

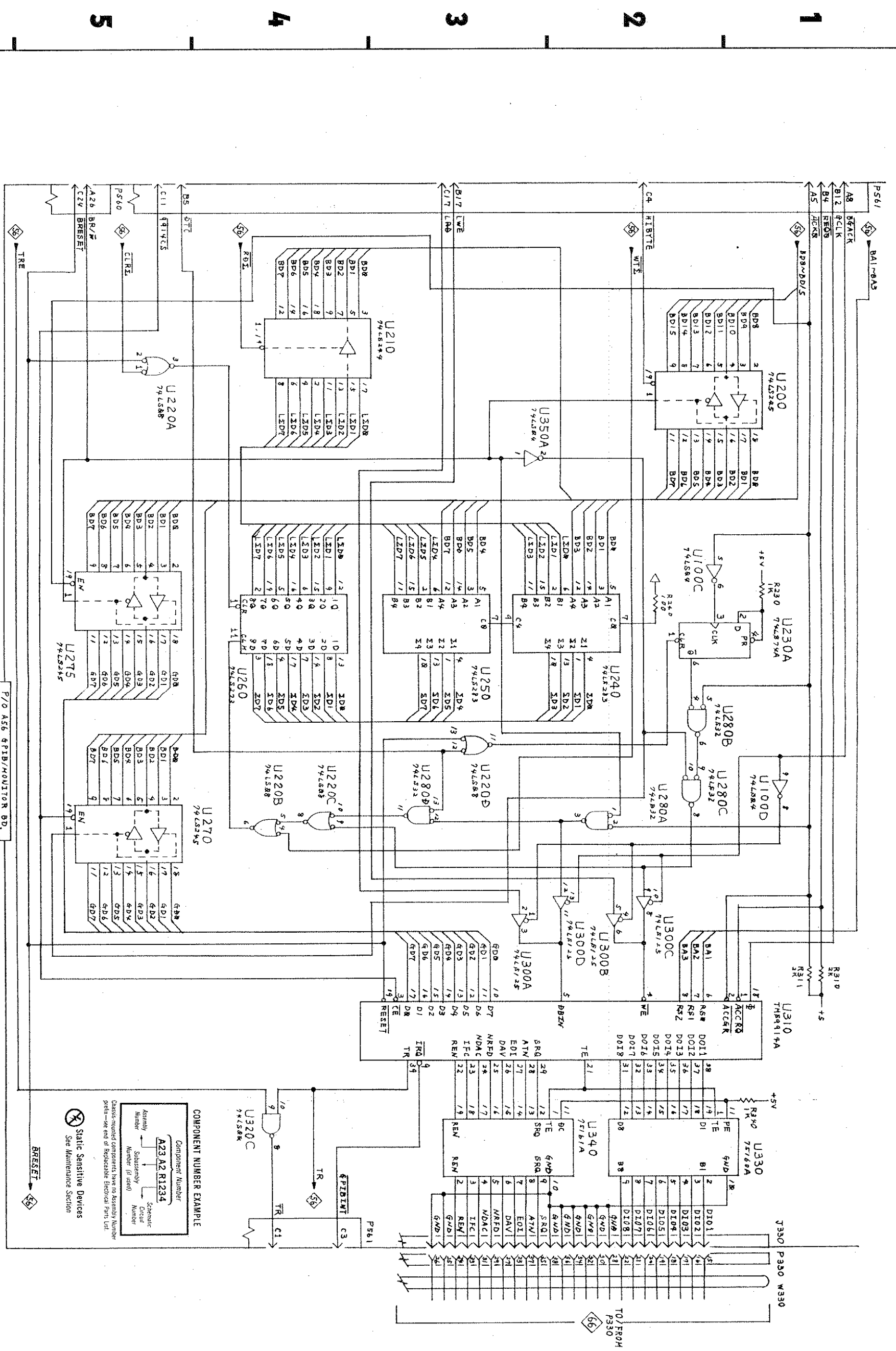



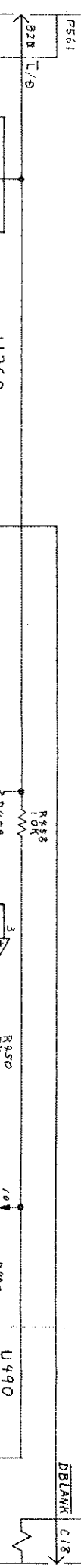
Table B-60
 ANALOG OUT  GPIB/MONITOR BD., ASSEMBLY A56

CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION	CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION
C400	D3	E3	R441	G3	C2
C412	E2	A4	R442	E3	D2
C432	F2	A2	R450	E1	B3
C452	F1	B3	R451	E1	B3
C453	F1	B3	R452	F3	C3
C454	F3	C3	R453	F3	C3
C455	F3	C3	R458	E1	D2
C462	E2	A3	R459	D1	D2
C463	E2	A3	R460	D3	A3
C464	E2	A3	R461	D3	A3
C472	F4	D2	R462	D3	A3
C481	F3	F1	R463	E2	A3
C482	G5	G2	R464	E2	A3
CR430	E2	A2	R470	E4	D2
CR431	E2	A2	R471	F4	D2
CR460	E2	A2	R472	E4	D2
CR461	E2	A2	R473	F4	D2
CR462	E2	A2	R474	F3	E2
CR470	E2	A2	R475	F4	E1
CR471	E4	A2	R476	G4	E1
CR472	E4	D2	R477	F3	E1
CR480	E3	E1	R478	E5	F1
CR481	E5	F2	R479	E4	F1
J400	D3	F3	R480	E5	F1
J430	G2	A1	R481	F4	G2
J431	G2	C1	R482	G5	G2
J470	G4	E1	R483	G5	G1
J471	G4	E1	R484	G5	G1
J480	G4	E1	R485	G4	G1
J481	G4	G2	R486	G4	G1
J482	G4	G1	R487	F5	G2
L450	F1	B3	R488	F4	F2
L451	F3	C3	R489	E5	F2
P400	D3	F3	TP430	G2	B1
P430	G2	A1	TP470	G4	D1
P470	G3	E1	TP480	G5	G1
P480	G4	G2	U130B	C5	E4
P481	G4	G1	U320A	B5	E5
P561	B1	C6	U320D	C1	B4
P561	G1	C6	U370	C2	B5
Q470	F4	D1	U380	C3	C4
Q471	E5	F1	U390	C4	C5
Q480	F5	F1	U400	D3	E3
R370	C3	B5	U410	D2	B4
R390	C5	C5	U420	D4	C4
R391	C4	C5	U430	F2	B2
R400	C3	E4	U440A	F1	C2
R401	D3	E3	U440B	E3	C2
R402	D3	E4	U440C	E3	C2
R410	D2	B3	U450	E1	B3
R411	D2	B3	U455	F3	D3
R412	E2	A4	U460	E3	A3
R413	E2	A4	U470	F4	E2
R420	E4	B3	U480A	F5	F2
R421	E4	D3	U480B	G5	F2
R430	E2	B2	U480C	F5	F2
R431	E2	B2	U480D	G5	F2
R432	E2	A2	U490	G1	C2
R433	F2	A2	U495	G3	C2
R434	F2	B1	VR430	F2	A2
R435	G2	B1	VR470	F4	D2
R440	F1	C2	W431	H2	CHASSIS

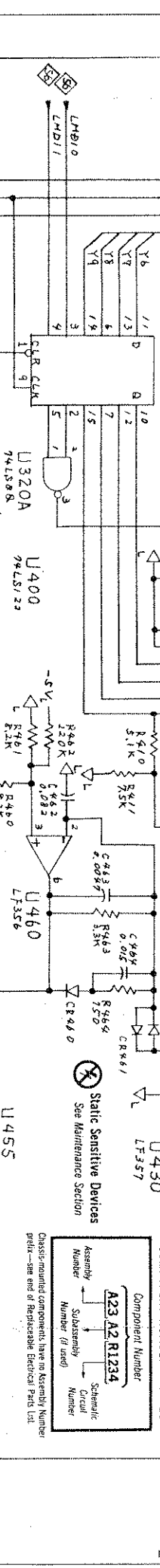
ASSY A56 is also shown on Diagrams 56, 57, 58, and 59.
 ASSY A56 (Fig. 8-16) circuit board illustration faces Diagram 56.

A B C D E F G

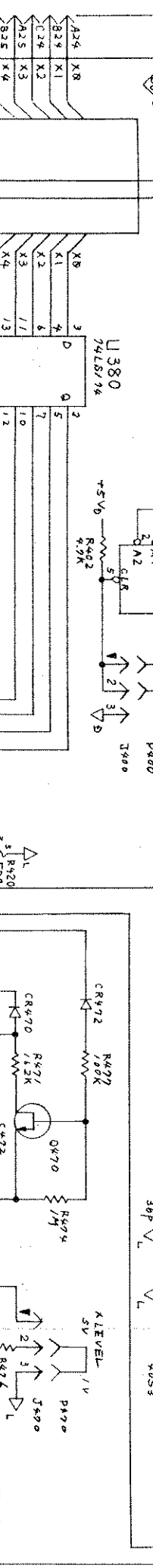
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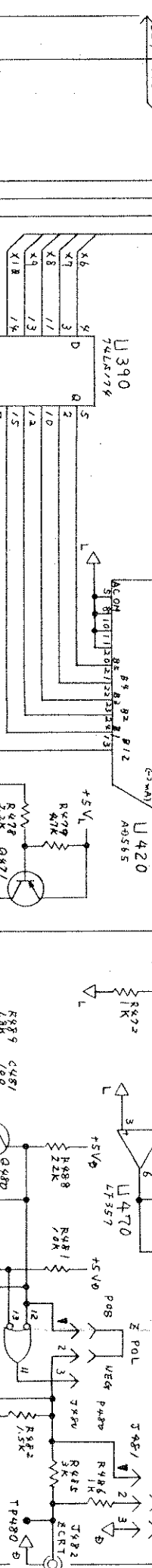
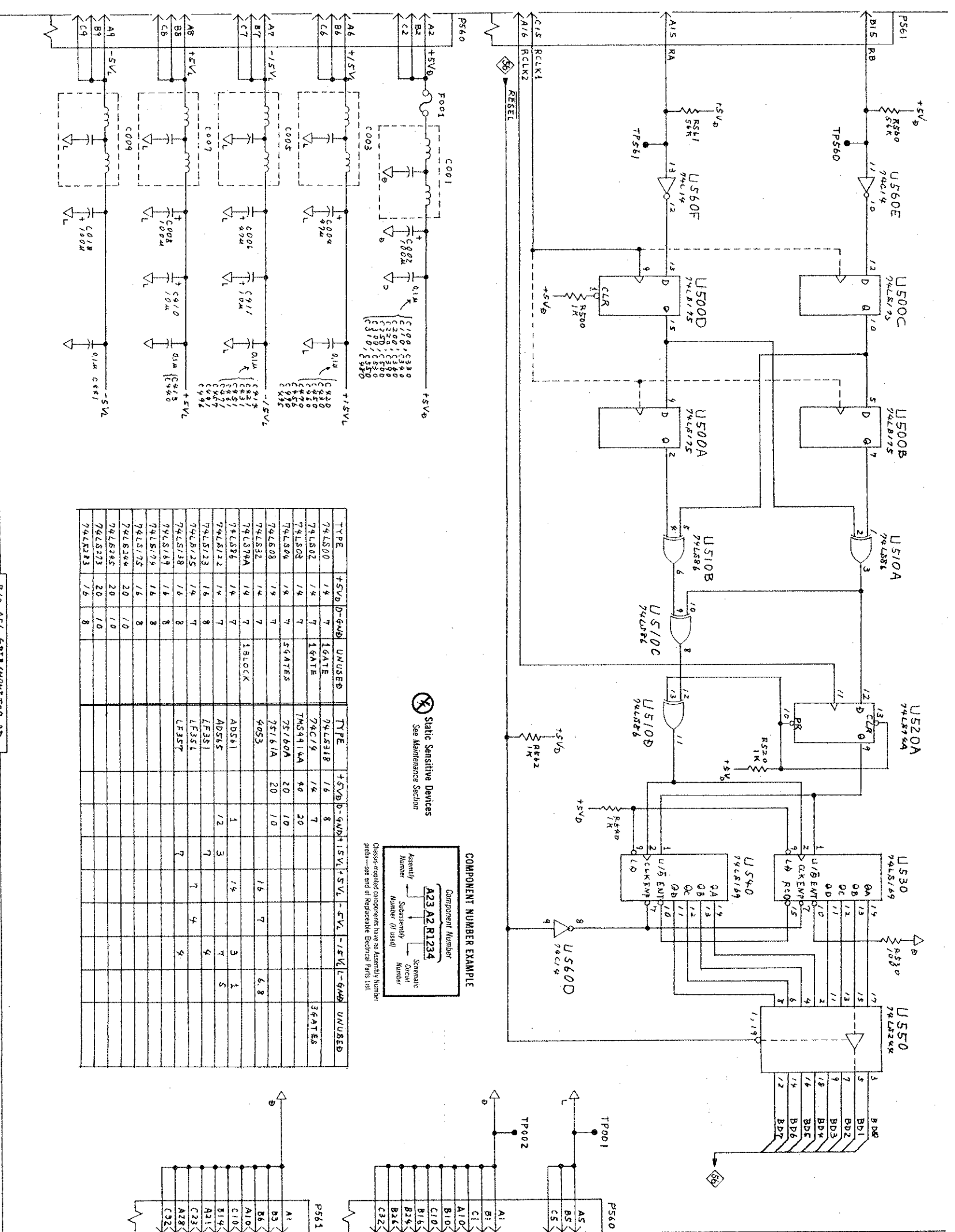


Table 8-61
 ROTARY ENCODER  — GPIB/MONITOR BD., ASSEMBLY A56

CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION	CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION
C001	B3	K5	C495	C4	C2
C002	B3	K5	C496	C4	D2
C003	B4	J5	C500	C3	F5
C004	B4	K5	C530	C3	G3
C005	B4	J5	C550	C3	G4
C006	B4	J5			
C007	B5	I5	F001	B3	K5
C008	B5	I5			
C009	B5	H5	P560	A3	I6
C010	B5	H5	P560	G3	I6
C100	C3	O5	P561	A1	C6
C110	C3	E5	P561	G4	
C200	C3	I4			
C220	C3	F2	R500	C3	F5
C250	C3	H4	R520	E2	F4
C300	C3	G2	R530	F1	G3
C310	C3	H3	R540	E2	G3
C330	C3	I2	R560	B1	E5
C340	C3	H2	R561	B2	E5
C360	C3	A4	R562	E3	E5
C390	C3	B5			
C410	C4	D4	TP001	G3	D1
C411	C4	D4	TP002	G3	K1
C413	C5	B4	TP560	B1	G1
C414	C5	B4	TP561	B2	F1
C420	C4	B4			
C421	C4	C4	U500A	C2	F5
C430	C4	B2	U500B	C1	F5
C431	C4	B2	U500C	C1	F5
C440	C5	B2	U500D	C2	F5
C441	C5	C2	U510A	D1	G5
C450	C4	B3	U510B	D2	G5
C451	C4	B4	U510C	D2	G5
C456	C4	D3	U510D	E2	G5
C457	C4	D3	U520A	E1	F4
C460	C4	A3	U530	F1	G3
C461	C4	A3	U540	F2	G3
C470	C4	E2	U550	F2	G3
C471	C4	E2	U560D	G1	G4
C480	C3	F2	U560E	F3	F5
C490	C4	B2	U560F	B1	F5
C491	C4	B2			

ASSY A56 is also shown on Diagrams 56, 57, 58, and 59.
 ASSY A56 (Fig. 8-16) circuit board illustration faces Diagram 56.

A B C D E F G



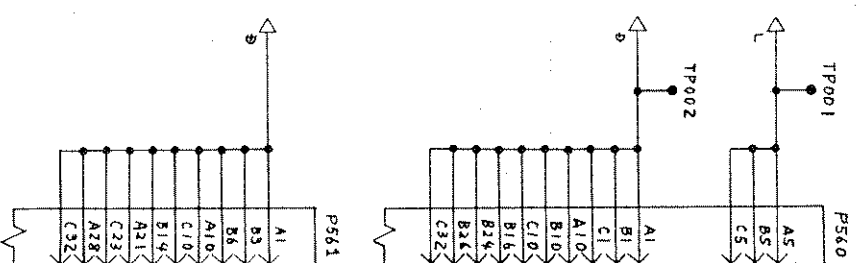
TYPE	+5V D-GND	UNUSED	TYPE	+5V D-GND	+5V +5V	-5V -5V	-5V -5V	UNUSED
74LS00	1/4	7	74LS318	1/6	8			
74LS02	1/4	7	74LS14	1/4	7			347TES
74LS08	1/4	7	74LS91	40	20			
74LS04	1/4	7	74LS160A	20	10			
74LS08	1/4	7	74LS161A	20	10			
74LS32	1/4	7	4053	1/6	7			6.8
74LS74A	1/4	7	181CLK					
74LS74	1/4	7	AD561	1	3			1
74LS74	1/4	7	AD565	1/2	3			5
74LS122	1/4	7	LE351	7				
74LS123	1/4	7	LE351	7				
74LS138	1/6	8	LE35T	7				
74LS145	1/6	8						
74LS174	1/6	8						
74LS244	20	10						
74LS273	20	10						
74LS283	1/6	8						

⊗ Static Sensitive Devices
See Maintenance Section

COMPONENT NUMBER EXAMPLE

Component Number	A23A2 R1234
Assembly Number	
Subassembly Number (if used)	
Schematic Diagram Number	

Class-mounted components have no Assembly Number prefix—see end of Replaceable Electrical Parts List.



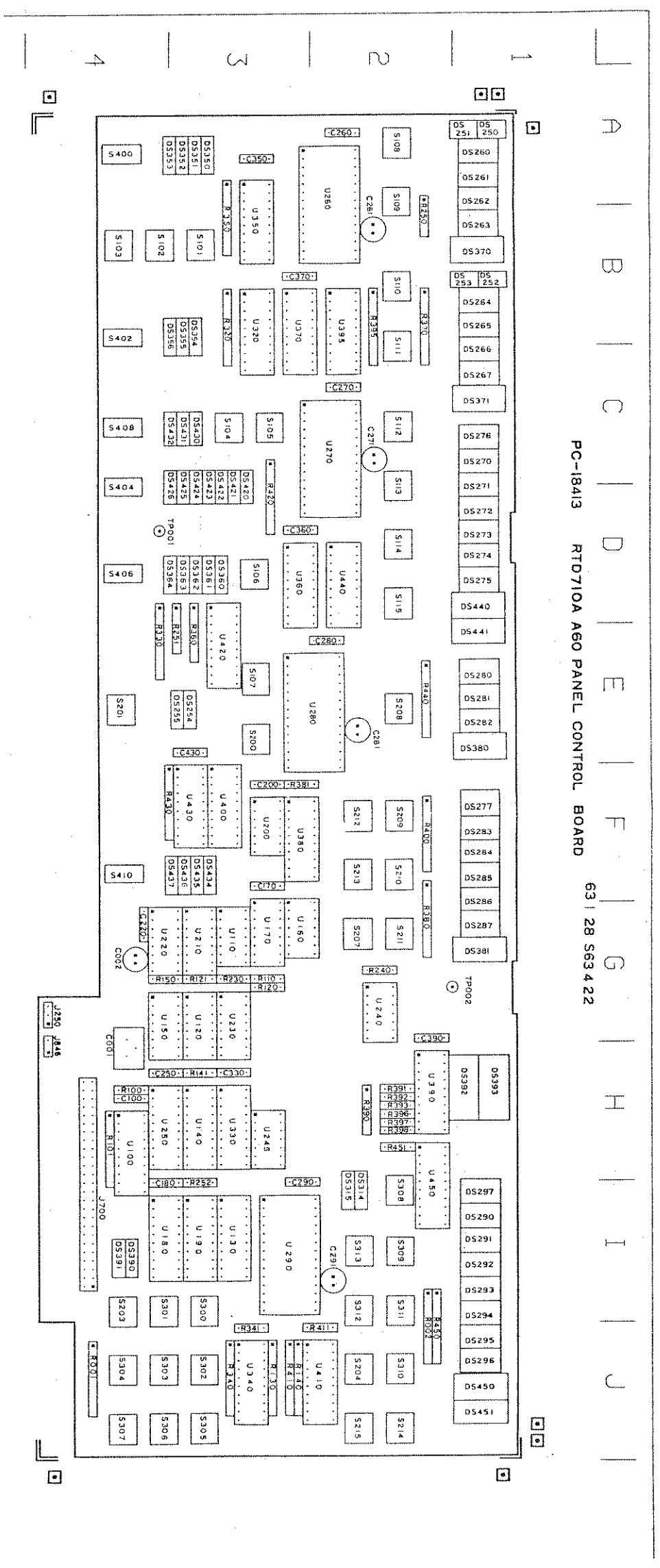


Fig. 8-17. A60 PANEL CONTROL BD., CIRCUIT BD. ASS.

SEE
OTHER
SIDE

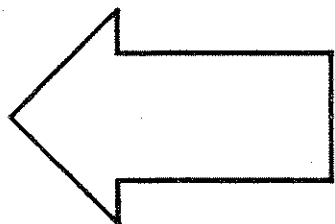


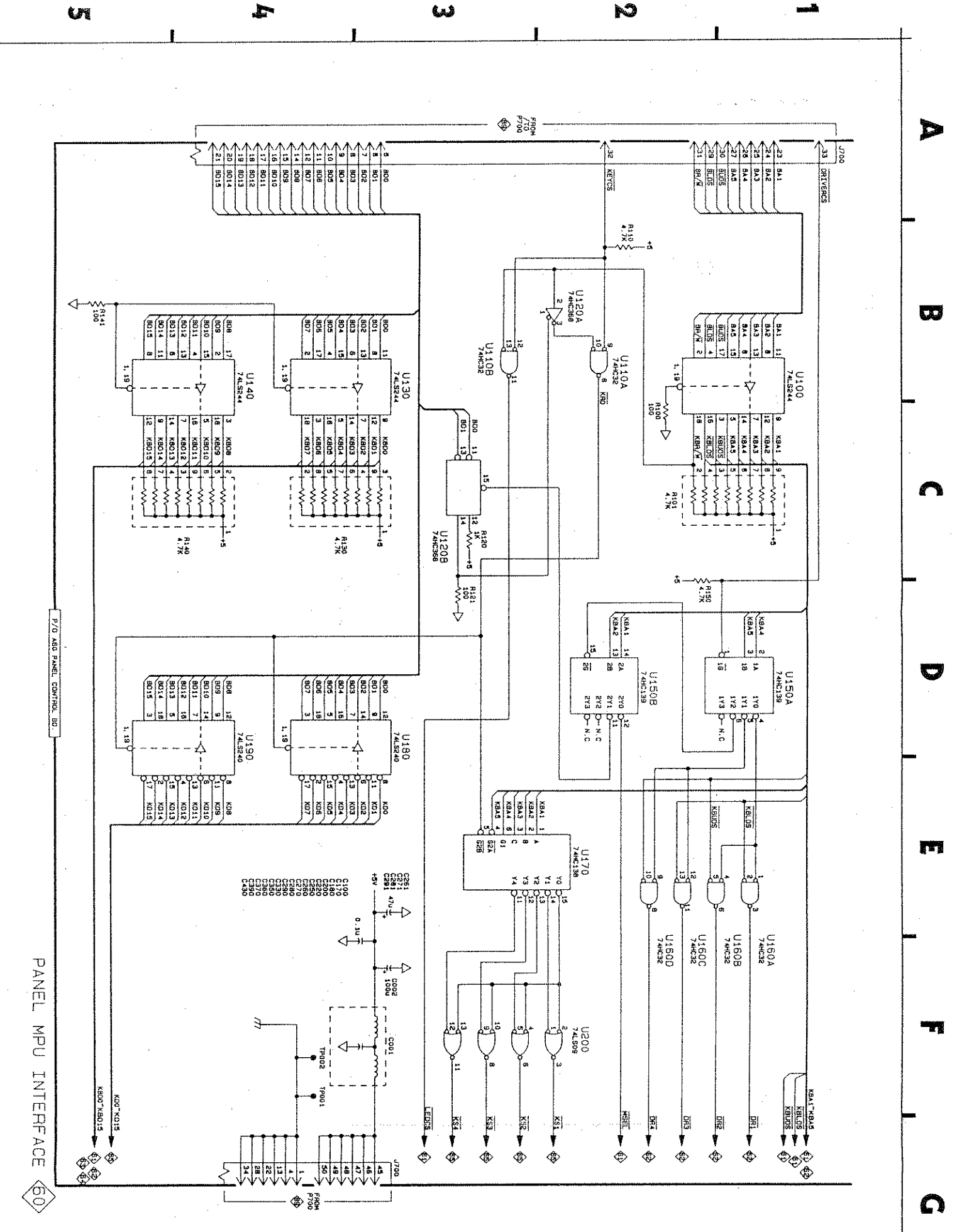
Table 8-5Z

PANEL MPU INTERFACE

PANEL CONTROL BD., ASSEMBLY A60

CIRCUIT NUMBER	SCHMATIC LOCATION	BOARD LOCATION	CIRCUIT NUMBER	SCHMATIC LOCATION	BOARD LOCATION
C001	F3	H4	R110	B2	G3
C002	F3	G4	R120	C3	G3
C100	E4	H4	R121	D3	G3
C170	E4	F3	R130	C4	J3
C180	E4	H4	R140	C4	J3
C200	E4	F3	R141	B5	H3
C220	E4	G4	R150	D2	G4
C250	E4	H4			
C260	E4	A2	TP001	F3	D4
C261	E3	B2	TP002	F3	G2
C270	E4	C2			
C271	E3	C2	U100	B1	H4
C280	E4	E2	U110A	B2	G3
C281	E3	E2	U110B	B3	G3
C290	E4	H3	U120A	B2	G3
C291	E3	I2	U120B	C3	G3
C330	E4	H3	U130	B3	I3
C350	E4	A3	U140	B4	H3
C360	E4	D3	U150A	D1	G4
C370	E4	B3	U150B	D2	G4
C390	E4	G2	U160A	E1	G3
C430	E4	E3	U160B	E1	G3
J700	A1	I4	U160D	E2	G3
J700	G3	I4	U170	E2	G3
R100	C2	H4	U190	D4	I3
R101	C1	H4	U200	F2	F3

ASSY A60 is also shown on Diagrams 60,61,62,63,64, and 65.
 ASSY A60 (Fig.8-17) circuit board illustration faces Diagram 60.



PANEL MPU INTERFACE 60

Table 8-63

LED DECODER 61

PANEL CONTROL BD., ASSEMBLY A60			
CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION	
DS250	C4	A1	
DS251	C4	A1	
DS252	C4	B1	
DS253	D4	B1	
DS254	D4	E3	
DS255	D4	E3	
J250	E5	G4	
J700	A4	I4	
J846	E5	H4	
P250	E5	OFF BD.	
P846	E5	OFF BD.	
R230	D2	G3	
R240	E3	G2	
R250	C4	B2	
R251	D4	E3	
R252	C5	H3	
S250	E5	OFF BD.	
S846	E5	OFF BD.	
U110C	B2	G3	
U110D	B2	G3	
U210	C1	G3	
U220	C2	G4	
U230	D2	G3	
U240A	F2	G2	
U240A	F2	G2	
U240B	F2	G2	
U240D	E2	G2	
U245A	B4	H3	
U245B	B4	H3	
U250	C4	H4	
W250	E5	OFF BD.	
W846	E5	OFF BD.	

ASSY A60 is also shown on Diagrams 60,61,62,63,64, and 65.
 ASSY A60 (Fig.8-17) circuit board illustration faces Diagram 60.

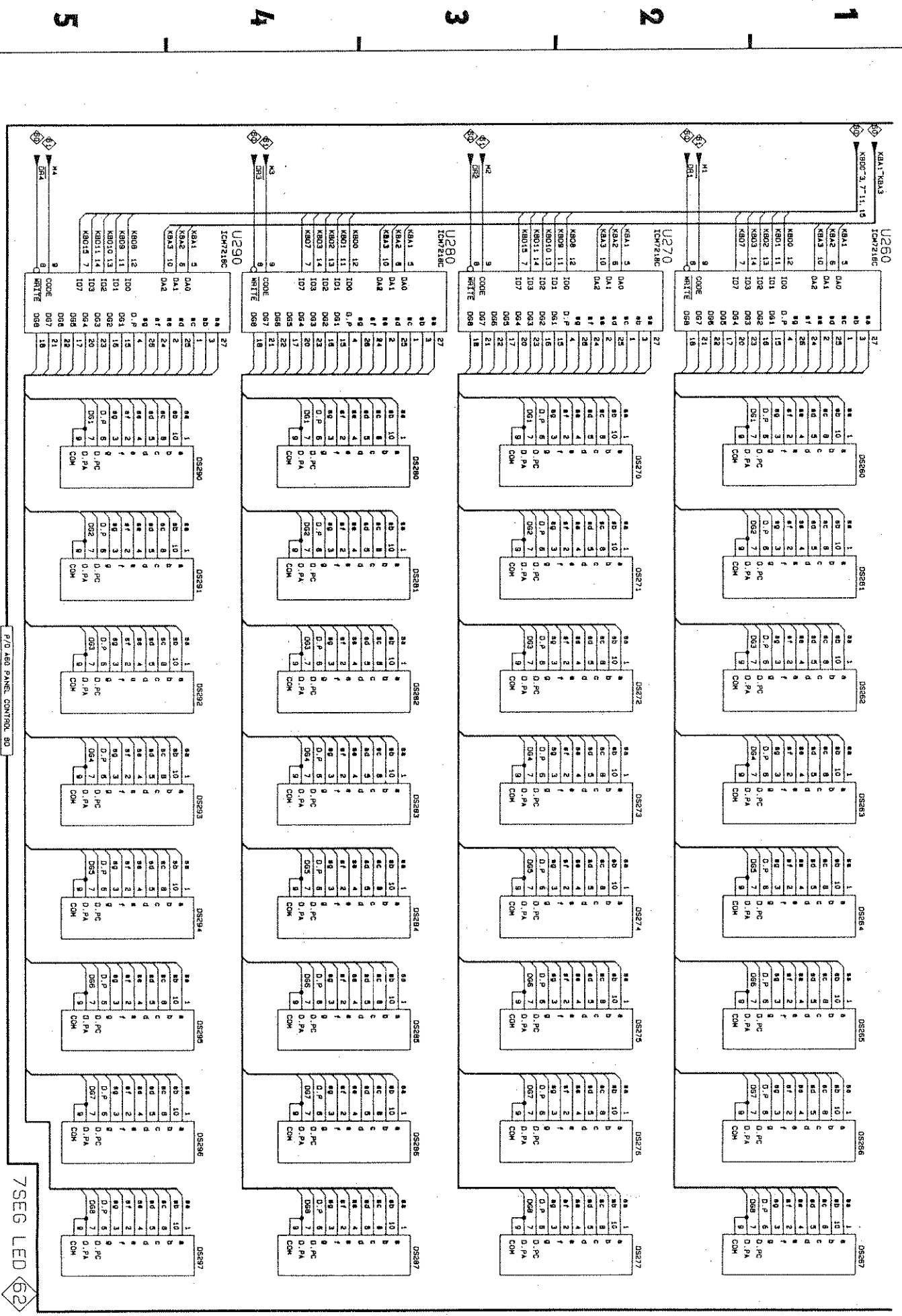
Table 8-64

7SEG LED 62

PANEL CONTROL BD., ASSEMBLY A60			
CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION	
DS260	C1	A1	
DS261	C1	A1	
DS262	D1	A1	
DS263	D1	B1	
DS264	E1	B1	
DS265	F1	B1	
DS266	F1	C1	
DS267	G1	C1	
DS270	C2	C1	
DS271	C2	D1	
DS272	O2	D1	
DS273	O2	D1	
DS274	E2	D1	
DS275	F2	D1	
DS276	F2	C1	
DS277	G2	F1	
DS280	C3	E1	
DS281	C3	E1	
DS282	D3	E1	
DS283	D3	F1	
DS284	E3	F1	
DS285	F3	F1	
DS286	F3	G1	
DS287	G3	G1	
DS290	C4	I1	
DS291	C4	I1	
DS292	D4	I1	
DS293	D4	I1	
DS294	D4	I1	
DS295	F4	J1	
DS296	F4	J1	
DS297	G4	I1	
U260	B1	A2	
U270	B2	C2	
U280	B3	E2	
U290	B4	I3	

ASSY A60 is also shown on Diagrams 60,61,62,63,64, and 65.
 ASSY A60 (Fig.8-17) circuit board illustration faces Diagram 60.

A B C D E F G



710 A40 PANEL CONTROL 80

7SEG LED 62

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Table 8-65

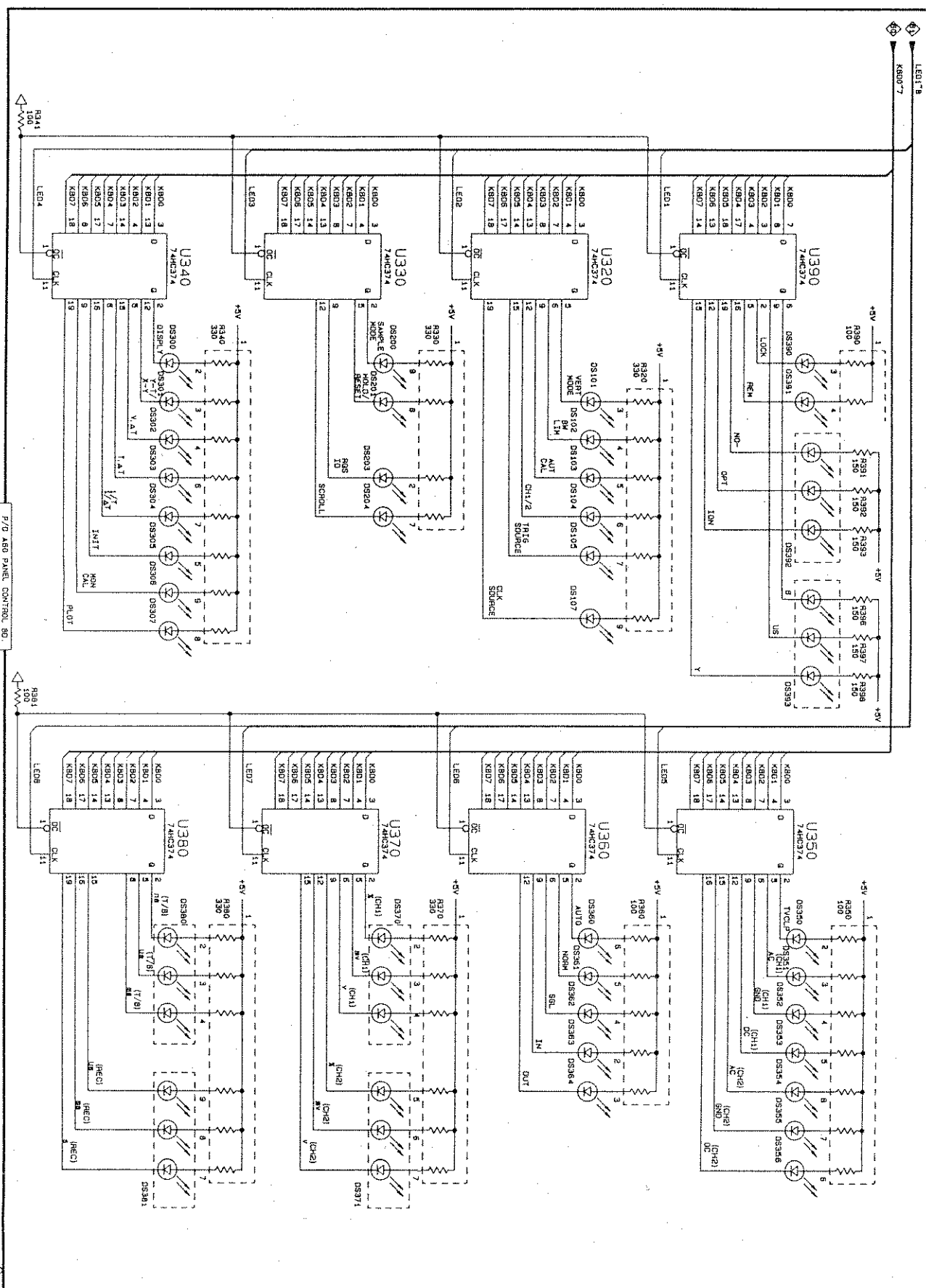
LED-1 

PANEL CONTROL BD., ASSEMBLY A60

CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION	CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION
DS101	C2	B3	DS380	E4	E1
DS102	C2	B4	DS381	F4	G1
DS103	C2	B4	DS390	C1	I4
DS104	C2	C3	DS391	C1	I4
DS105	C2	C3	DS392	C1	H1
DS107	D2	E3	DS393	D1	H1
DS200	C3	E3			
DS201	C3	E4	R320	C2	B3
DS203	C3	I4	R330	C3	E4
DS204	C3	J2	R340	C4	J3
DS300	C4	I3	R341	A5	J3
DS301	C4	I4	R350	E1	B3
DS302	C4	J3	R360	E2	E3
DS303	C4	J4	R370	E3	B2
DS304	C4	J4	R380	E4	G2
DS305	C4	J3	R381	D5	F3
DS306	D4	J4	R390	C1	H2
DS307	D4	J4	R391	C1	H2
DS350	E1	A3	R392	C1	H2
DS351	F1	A3	R393	C1	H2
DS352	F1	A3	R396	D1	H2
DS353	F1	A3	R397	D1	H2
DS354	F1	B3	R398	D1	H2
DS355	F1	B3			
DS356	F1	B3	U320	B3	B3
DS360	E2	D3	U330	B4	H3
DS361	F2	D3	U340	B5	J3
DS362	F2	D3	U350	E2	B3
DS363	F2	D3	U360	E3	D3
DS364	F2	D3	U370	E4	B3
DS370	E3	B1	U380	E5	F3
DS371	F3	C1	U390	B2	H2

ASSY A60 is also shown on Diagrams 60,61,62,63,64,and 65.
ASSY A60 (Fig.8-17) circuit board illustration faces Diagram 60.

A B C D E F G



LED-1 63

Table 8-55

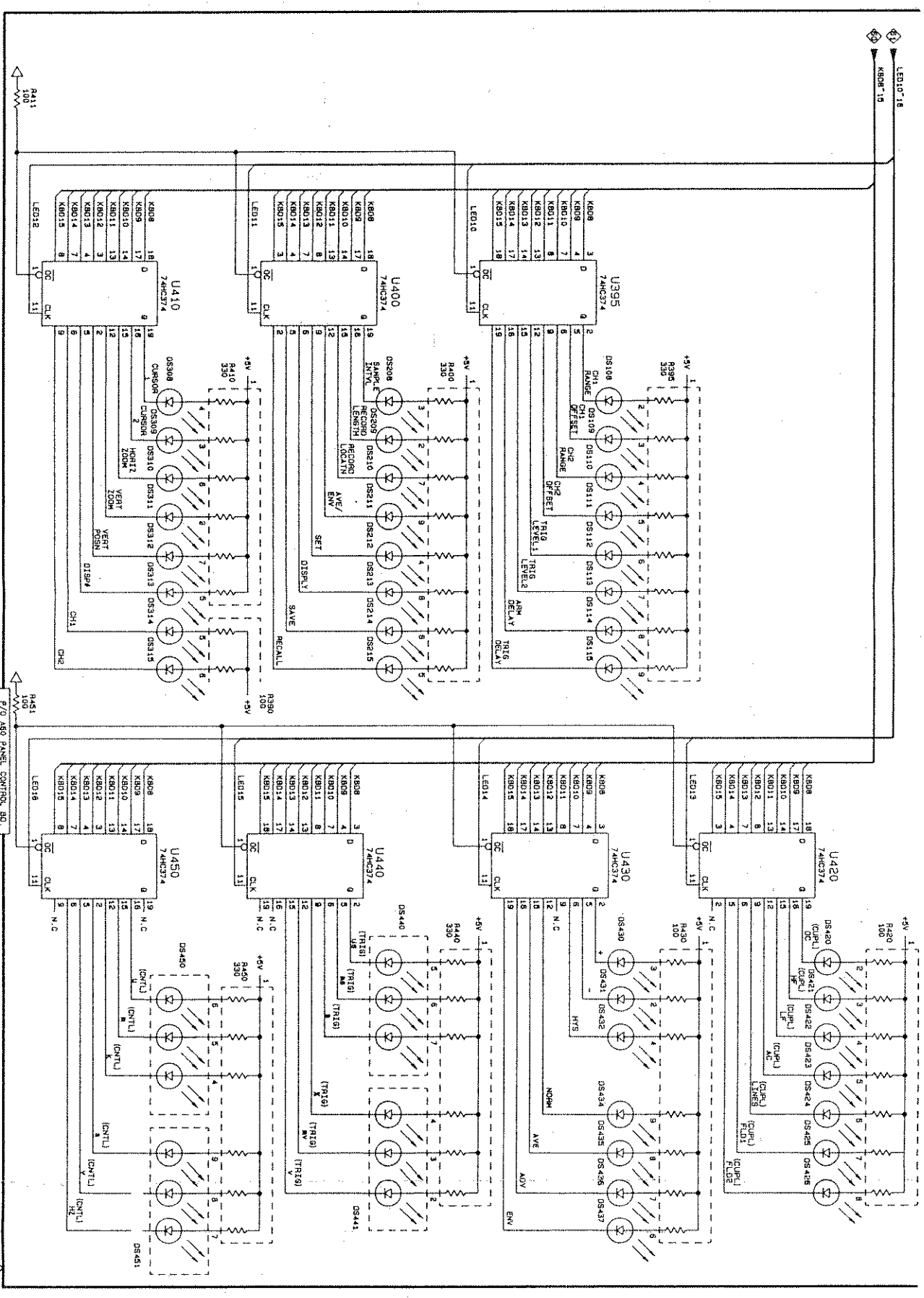
LED-2 64

PANEL CONTROL BD., ASSEMBLY A60

CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION	CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION
DS108	C2	A2	DS430	E2	C3
DS109	C2	A2	DS431	F2	C3
DS110	C2	B2	DS432	F2	C3
DS111	C2	B2	DS434	F2	F3
DS112	C2	C2	DS435	F2	F3
DS113	D2	C2	DS436	G2	F3
DS114	D2	D2	DS437	G2	F3
DS115	D2	D2	DS440	E3	D1
DS208	C3	E2	DS441	F3	E1
DS209	C3	F2	DS450	F4	J1
DS210	C3	F2	DS451	G4	J1
DS211	C3	G2			
DS212	C3	F2	R390	D4	H2
DS213	D3	F2	R395	C2	B2
DS214	D3	J2	R400	C3	F2
DS215	D3	J2	R410	C4	J3
DS308	C4	I2	R411	A5	J2
DS309	C4	I2	R420	F1	D3
DS310	C4	J2	R430	F2	F4
DS311	C4	I2	R440	F3	E2
DS312	C4	I2	R450	F4	J2
DS313	D4	I2	R451	D5	H2
DS314	D4	I2			
DS315	D4	I2	U395	B2	B2
DS420	E1	D3	U400	B3	F3
DS421	F1	D3	U410	B4	J2
DS422	F1	D3	U420	E1	E3
DS423	F1	D3	U430	E2	F3
DS424	F1	D3	U440	E3	D2
DS425	F1	D3	U450	E4	I2
DS426	G1	D3			

ASSY A60 is also shown on Diagrams 60,61,62,63,64, and 65.
 ASSY A60 (Fig.8-17) circuit board illustration faces Diagram 60.

A B C D E F G



LED-2 64

1 2 3 4 5

Table 8-87

SWITCH MATRIX 65

PANEL CONTROL BD., ASSEMBLY A60

CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION	CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION
R001	B5	J4	S211	F2	G2
R002	G5	J2	S212	F2	F2
			S213	F2	F2
S101	B2	B3	S214	F2	J2
S102	C2	B4	S215	G2	J2
S103	C2	B4	S300	B3	I3
S104	C2	C3	S301	B3	I4
S105	D2	C3	S302	C3	J3
S106	D2	D3	S303	C3	J4
S107	D2	E3	S304	C3	J4
S108	E2	A2	S305	D3	J3
S109	E2	A2	S306	D3	J4
S110	E2	B2	S307	D3	J4
S111	F2	B2	S308	E3	I2
S112	F2	C2	S309	E3	I2
S113	F2	C2	S310	E3	J2
S114	F2	D2	S311	F3	I2
S115	G2	D2	S312	F3	I2
S200	B2	E3	S313	F3	I2
S201	B2	E4	S400	B4	A4
S203	C2	I4	S402	C4	B4
S204	C2	J2	S404	C4	D4
S207	D2	G2	S405	D4	D4
S208	E2	E2	S408	E4	C4
S209	E2	F2	S410	E4	F4
S210	E2	F2			

ASSY A60 is also shown on Diagrams 60,61,62,63,64, and 65.
ASSY A60 (Fig.8-17) circuit board illustration faces Diagram 60.

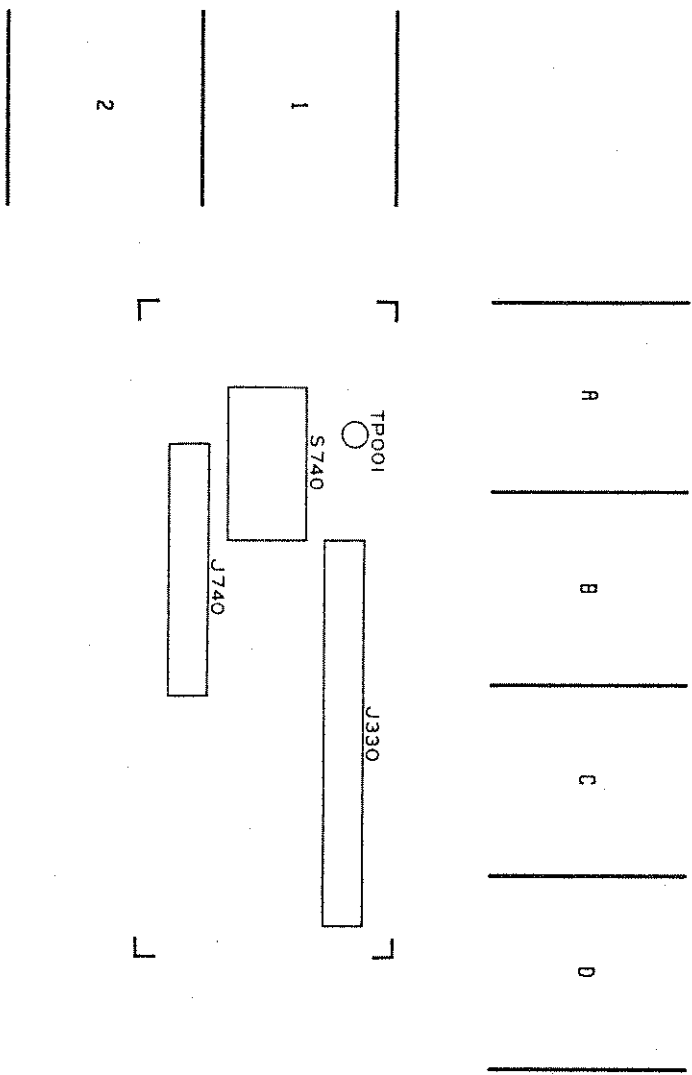


Fig. 8-18. A74 I/O BD., CIRCUIT BD. ASS.

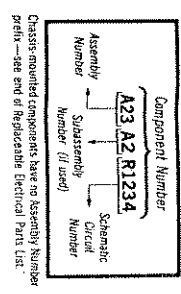
Table 8-68

I/O I/O BD., ASSEMBLY A74

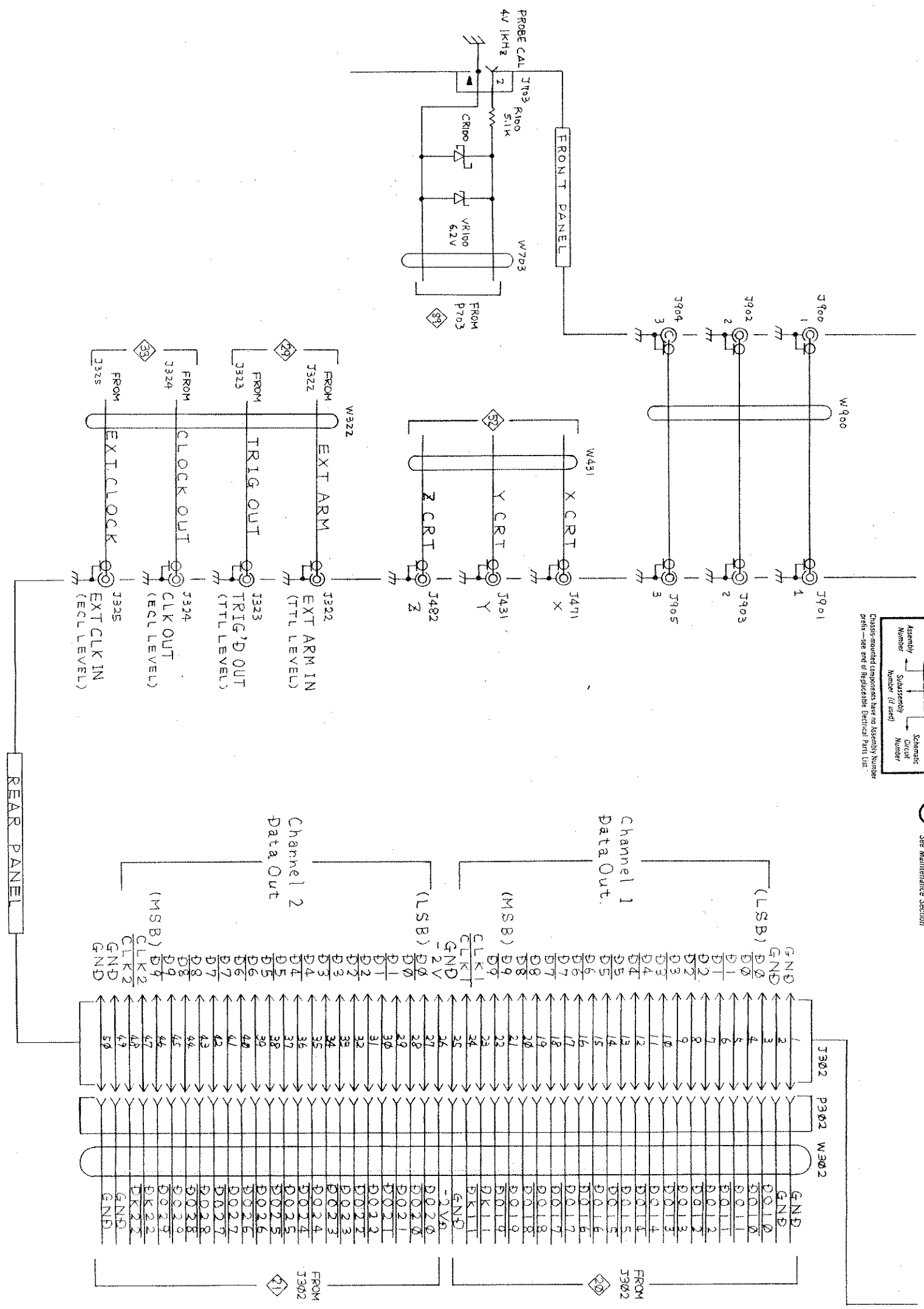
CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION	CHASSIS
J330	C1	C1	
J740	E1	B2	
P330	B1	C1	
P740	E1	B2	
S740	D4	A1	
TP001	C3	A1	
W330	B1		CHASSIS
W740	F1		CHASSIS

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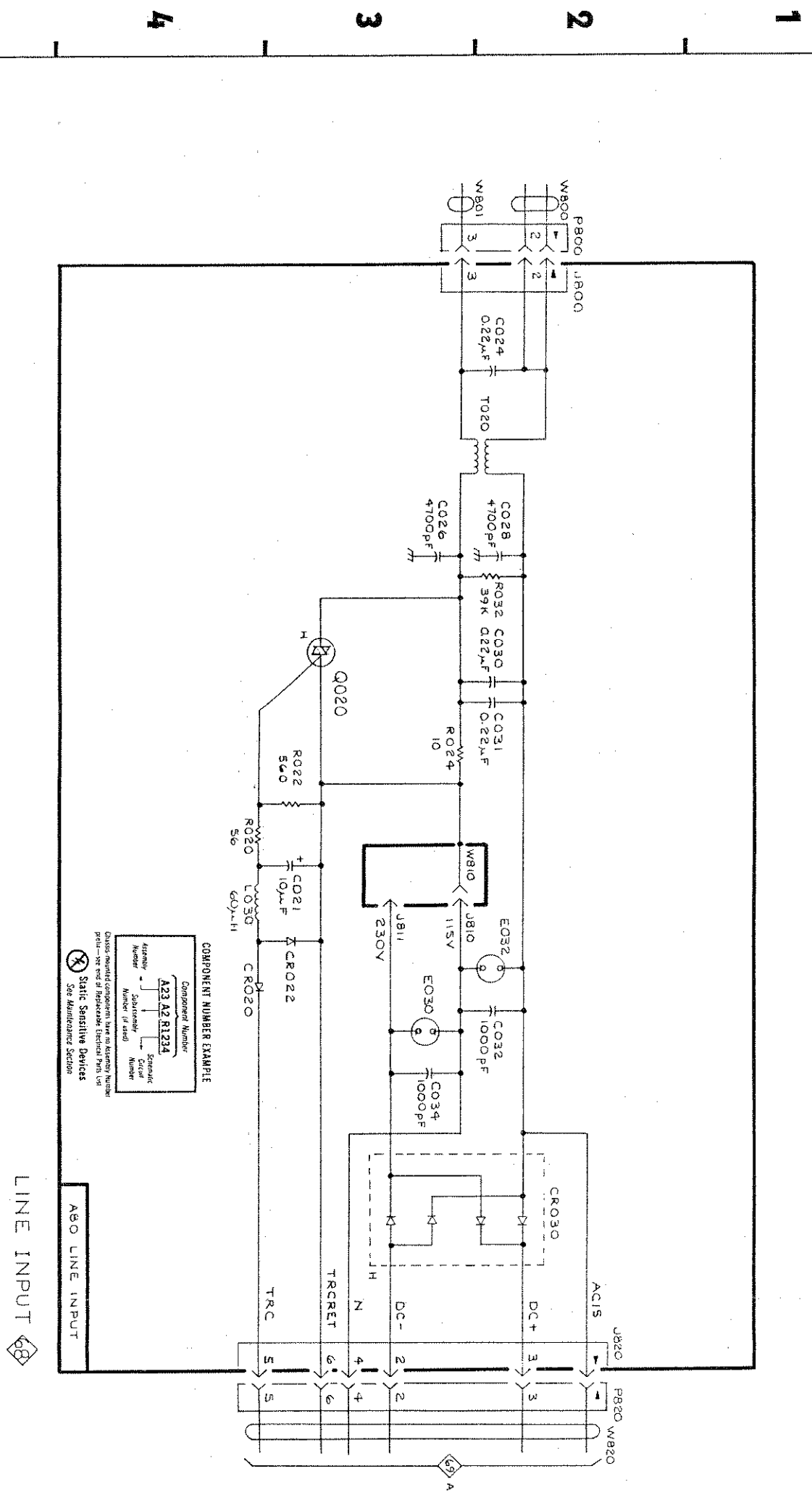
COMPONENT NUMBER EXAMPLE



⊗ Static Sensitive Devices
See Maintenance Section



A B C D E F G



COMPONENT NUMBER EXAMPLE

Component Number	A23 A2 R1234
Assembly Number	1
Subassembly Number (if used)	2
Stock Number	3
Order Number	4

Diagrams should be accompanied by the component number prefix—see end of Appendix B, Section 1.0. See Appendix Section.

⊗ Static Sensitive Devices

LINE INPUT

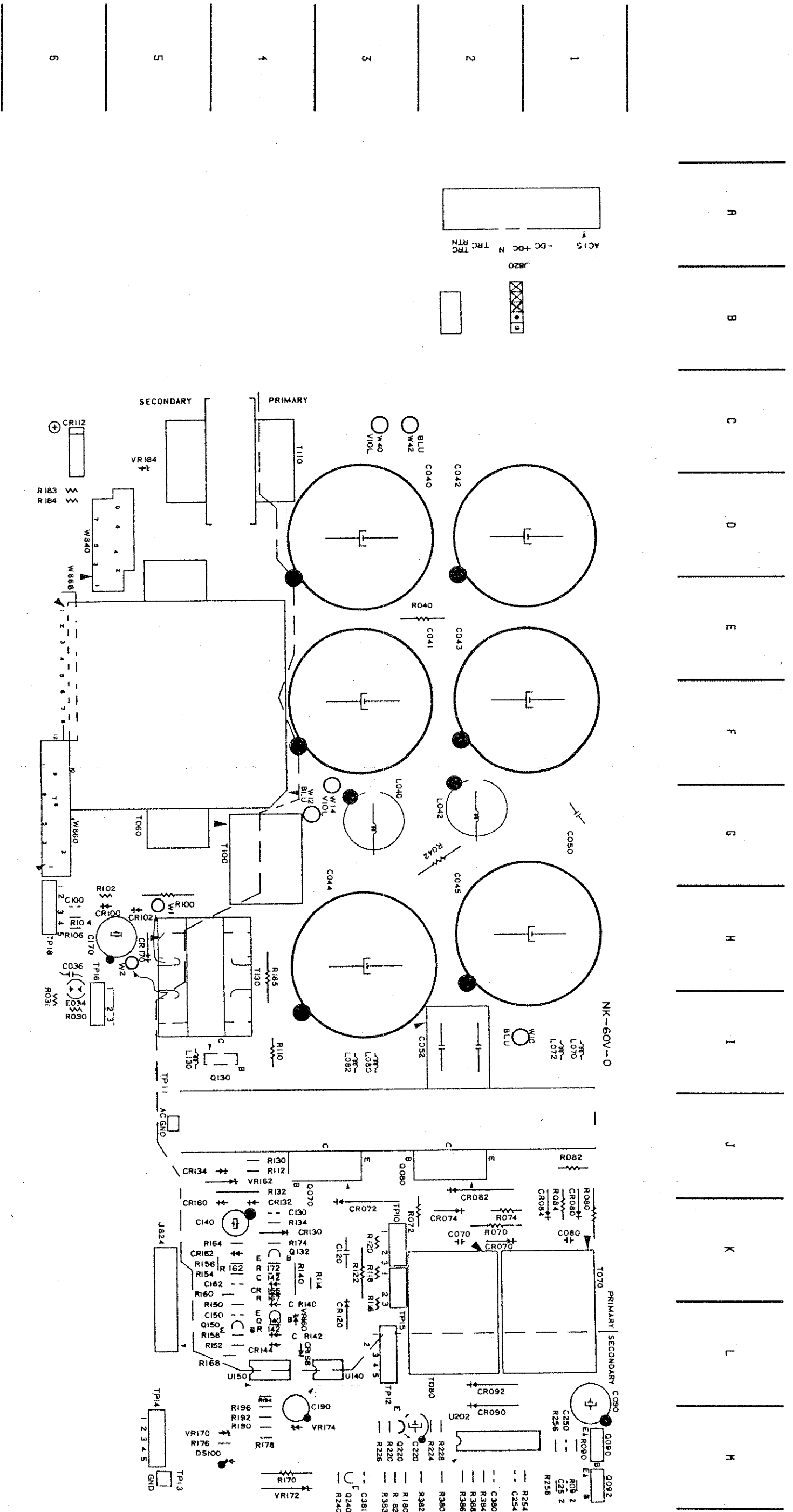
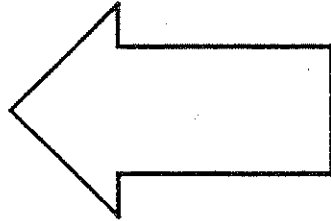


Fig. 8-20. A82 INVERTER BD., CIRCUIT BD. ASS.



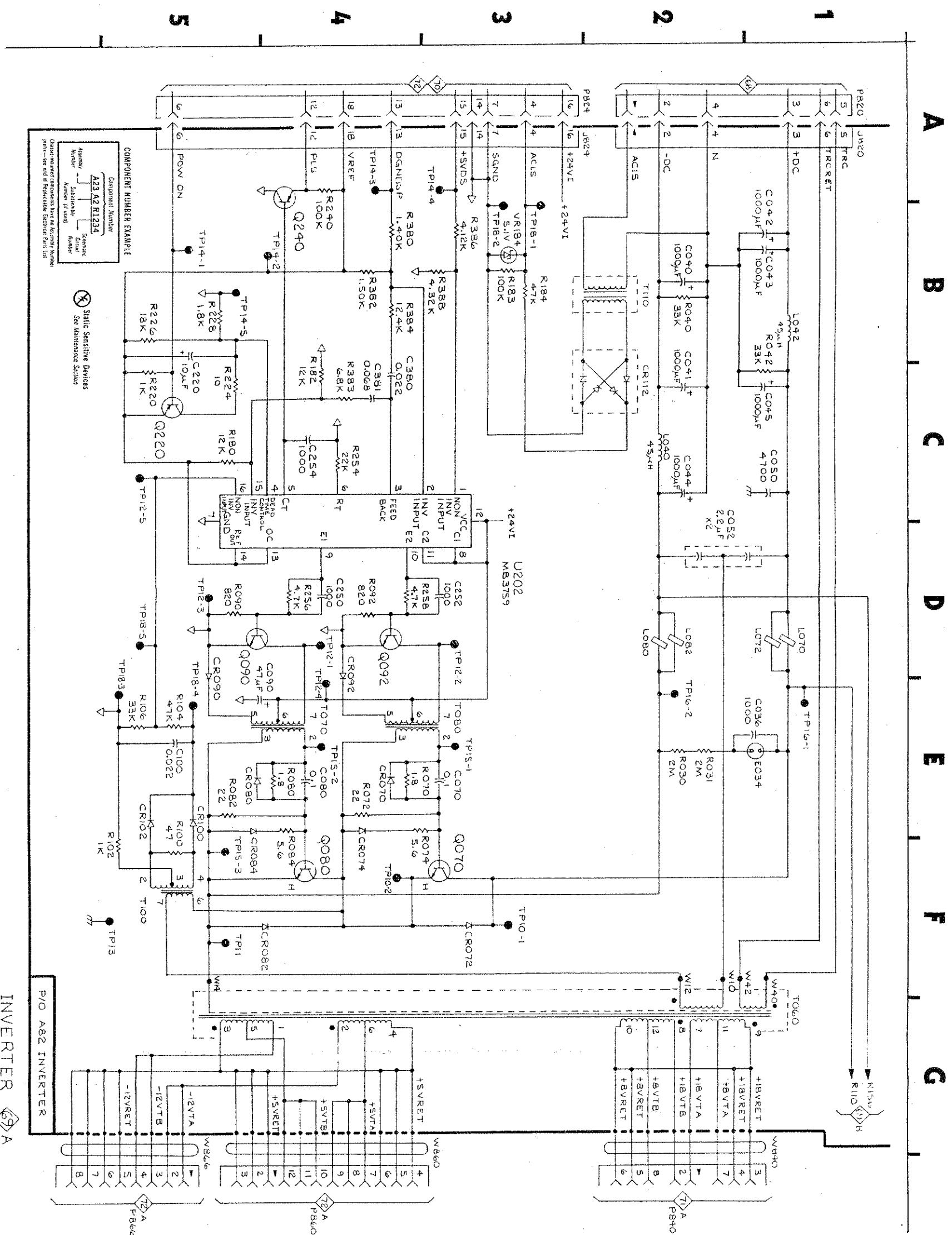
SEE
OTHER
SIDE

Table 8-70

INVERTER  INVERTER BD., ASSEMBLY A82

CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION	CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION
C036	E1	H6	R100	FS	G5
C040	B2	D3	R102	ES	G5
C041	C2	F3	R104	ES	H6
C042	B1	D1	R106	ES	H6
C043	B1	F1	R180	C6	M3
C044	C2	H3	R182	C4	M3
C045	C1	H1	R183	B3	D6
C050	C1	G1	R184	B3	D6
C052	D2	I2	R220	C5	M3
C070	E3	K2	R224	C6	M2
C080	E4	K1	R226	B6	M3
C090	E5	L1	R228	B5	M2
C100	B5	H6	R240	A4	M3
C220	D4	M1	R254	C4	M2
C250	D4	M1	R256	D4	M1
C252	D3	M1	R258	D4	M1
C254	C4	M2	R380	B4	M2
C380	C4	M2	R382	B4	M3
C381	C4	M3	R383	C4	M3
CR070	EA	K2	R386	B3	M2
CR072	EA	J3	R388	B3	M2
CR074	EA	K2	T070	G1	G5
CR080	EA	J1	T070	EA	K1
CR082	EA	J2	T080	EA	L2
CR084	EA	J1	T100	EA	G4
CR090	D5	L2	T110	B2	C4
CR092	D4	L2	TP10-1	F3	K3
CR100	EA	H5	TP10-2	F3	K3
CR102	EA	H5	TP11	F3	K3
CR112	C2	H6	TP12-1	D3	L3
E034	E1	H6	TP12-2	D3	L3
J820	A1	A1	TP12-3	D5	L3
J824	A3	K5	TP12-4	EA	L3
L040	C2	G3	TP13	T5	M5
L042	B1	G2	TP14-1	B5	M5
L070	D1	I1	TP14-2	B4	M5
L072	D1	I1	TP14-3	A4	M5
L080	D2	I3	TP14-4	A3	M5
L082	D2	I3	TP14-5	B5	M5
P820	A1	A1	TP15-1	EA	K3
P824	A3	K5	TP15-2	EA	K3
Q070	F3	J3	TP15-3	EA	K3
Q080	F4	J2	TP16-1	E1	H6
Q090	D5	M1	TP16-2	B3	H6
Q092	D4	M1	TP18-1	B3	H6
Q220	C6	M3	TP18-2	B3	H6
Q240	A4	M3	TP18-3	ES	H6
R030	E2	I6	TP18-4	ES	H6
R031	E2	H6	U202	D3	M2
R040	B2	E2	VR184	B3	C5
R042	C1	G2	W10	G2	I2
R070	E4	K2	W12	G2	G4
R072	E4	K3	W40	G1	C3
R074	E4	K2	W42	G2	C3
R080	E4	K1	W840	G1	D5
R082	E5	J1	W860	G4	D5
R084	E4	J1	W866	G5	ES
R090	D5	M1			
R092	D4	M1			

ASSY A82 is also shown on Diagrams 69A and 69B.
 ASSY A82 (Fig.8-20) circuit board illustration faces Diagram 69A.



COMPONENT NUMBER EXAMPLE

Component Number: A23 A2 R1234

Assembly Number: A23
Schematic Number: A2
Component Number: R1234
Revision: A

Some numbered components have no known number. Please see end of Replaceable Hardware Parts List.

⊗ Static Sensitive Devices
See Maintenance Section

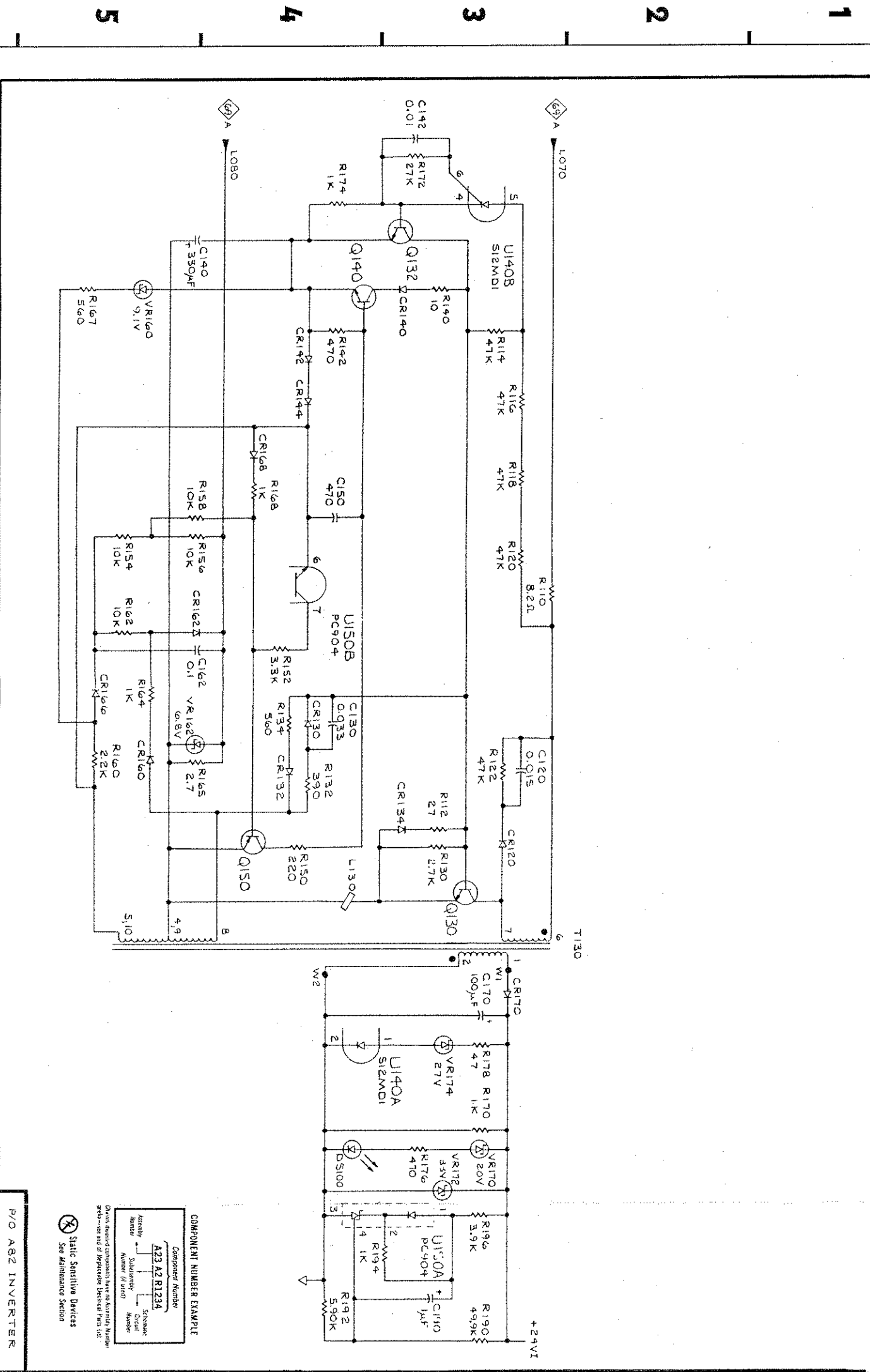
P/O AB2 INVERTER
INVERTER 9 A

Table 8-71
 INVERTER  — INVERTER BD., ASSEMBLY A82

CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION	CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION
C120	E3	K3	R134	D4	K4
C130	D4	K4	R140	B3	K4
C140	B5	K4	R142	B4	L4
C142	A3	K4	R150	E4	K4
C150	C4	L4	R152	D4	L4
C162	D5	K4	R154	C5	K4
C170	F3	H5	R156	C4	K4
C190	G3	L4	R158	C4	L4
			R160	D5	K4
CR120	E3	K3	R162	D5	K4
CR130	D4	K4	R164	D5	K4
CR132	E4	J4	R165	D5	H4
CR134	E3	J4	R167	B5	K4
CR140	B3	K4	R168	C4	L4
CR142	B4	L4	R170	F3	M4
CR144	B4	L4	R172	A3	K4
CR160	D5	J4	R174	A4	K4
CR162	D5	K4	R176	G3	M4
CR166	D5	K4	R178	F3	M4
CR168	C4	L4	R190	H3	M4
CR170	F3	H5	R192	H4	M4
			R194	G3	L4
DS100	G4	M4	R196	G3	L4
			T130	E3	H4
L130	E4	I5			
Q130	E3	I4	U140A	F4	L3
Q132	B3	K4	U140B	A3	L3
Q140	B4	L4	U150A	G3	L4
Q150	E4	L4	U150B	D4	L4
R110	D3	I4	VR160	B5	L4
R112	E3	J4	VR162	D5	J4
R114	B3	K4	VR170	G3	M4
R116	B3	K3	VR172	G3	M4
R118	C3	K3	VR174	F3	M4
R120	C3	K3			
R122	E3	K3	W1	F3	H5
R130	E3	J4	W2	F4	H5
R132	E4	J4			

ASSY A82 is also shown on Diagrams 69A and 69B.
 ASSY A82 (Fig.8-20) circuit board illustration faces Diagram 69A.

A B C D E F G



P/O AB2 INVERTER

INVERTER



1 2 3 4 5

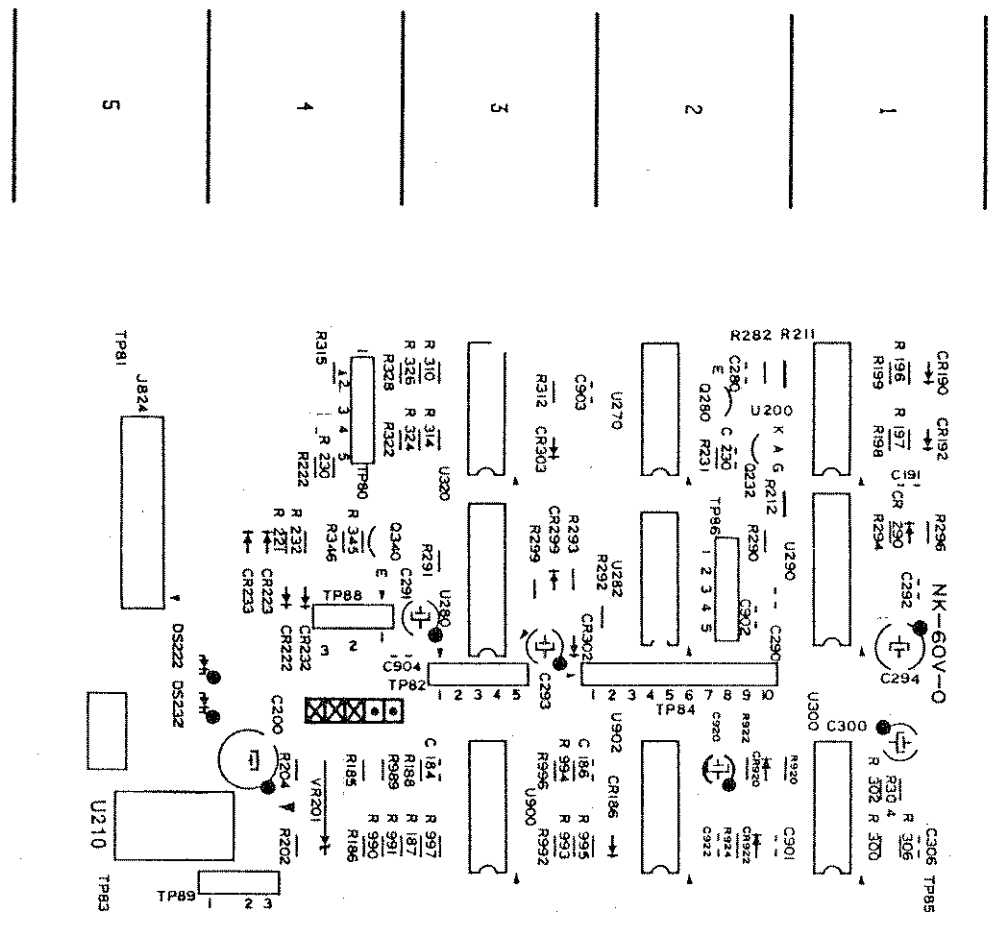
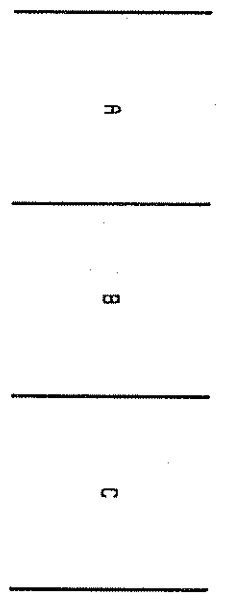
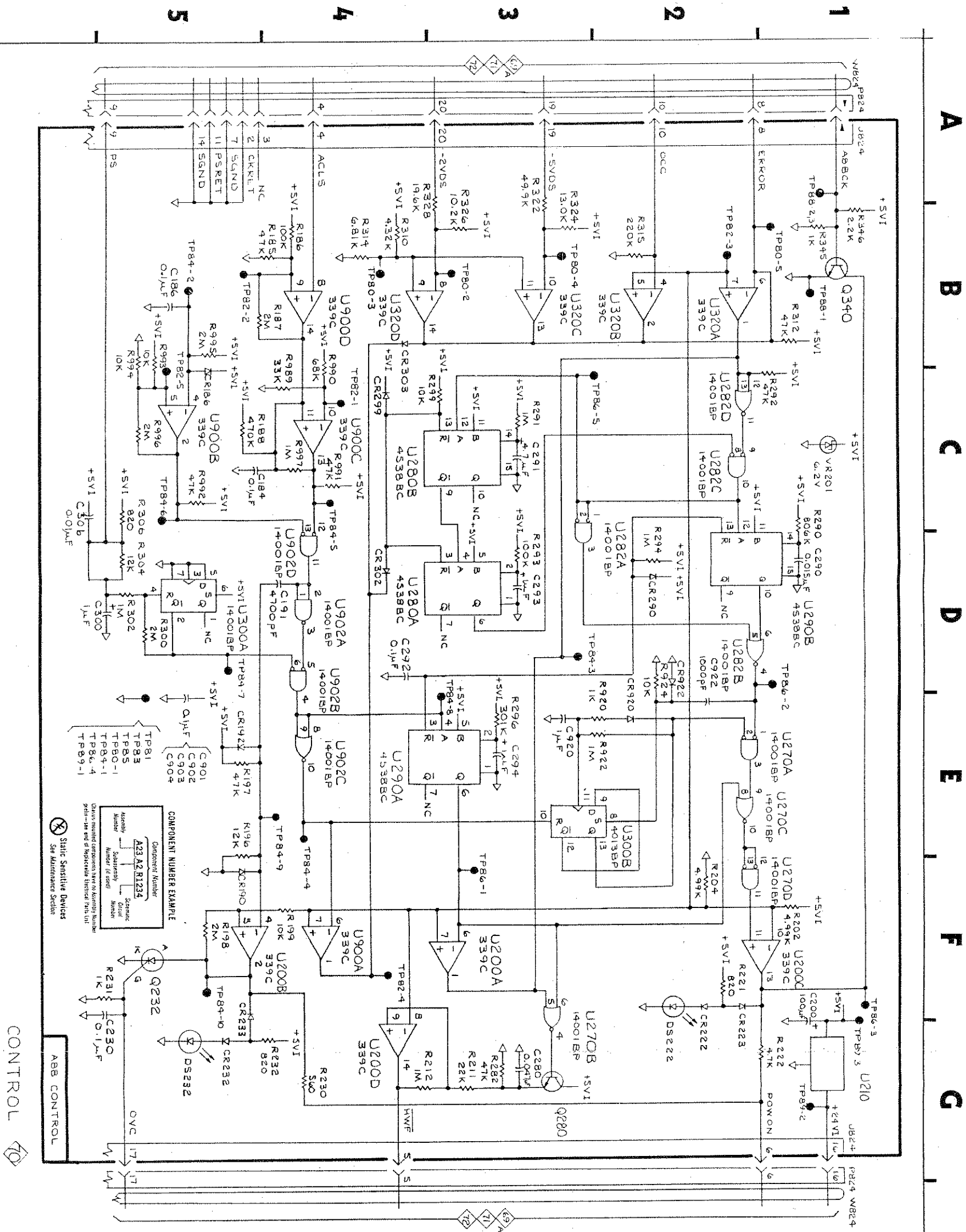


Fig. 8-21. A88 CONTROL BD., CIRCUIT BD. ASS.

Table 8-72
CONTROL BOARD, ASSEMBLY A88

CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION	CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION	CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION
C184	C5	C3	R204	F2	C4	TP84-2	B5	B2
C186	B5	C3	R211	G3	A2	TP84-3	D3	B2
C191	D4	A1	R212	G4	A2	TP84-4	E4	B2
C200	G1	C4	R221	F2	B4	TP84-5	C4	B2
C230	F5	A2	R222	G1	A4	TP84-6	C5	B2
C280	G3	A2	R230	G4	A4	TP84-7	D5	B2
C290	D1	B2	R231	F5	A4	TP84-8	E3	B2
C291	C3	B3	R232	G4	B4	TP84-9	E4	B2
C292	D4	B1	R282	G3	A2	TP84-10	F5	B2
C293	D3	B3	R290	C1	B2	TP85	E5	C1
C294	E3	B1	R291	C3	B3	TP86-1	F3	B2
C300	D5	C1	R292	C1	B2	TP86-2	D1	B2
C306	D5	C1	R293	D3	B3	TP86-3	F1	B2
C902	E5	C2	R294	D2	B1	TP86-4	E6	B2
C903	E5	B2	R296	E3	B1	TP86-5	B1	B2
C904	E5	A3	R299	C3	B3	TP88-1	B1	B4
C920	E3	B3	R300	D5	C1	TP88-2	A1	B4
C922	E2	C2	R302	D5	C1	TP88-3	A1	C4
			R304	D5	C1	TP89-1	E6	C4
			R306	C5	C1	TP89-2	G1	C4
			R310	B4	A3	TP89-3	G1	C4
			R312	B1	A3			
CR186	B5	C2	R314	B1	A3			
CR190	F5	A1	R315	B2	A4	U200A	F3	A1
CR192	E5	A1	R322	A3	A4	U200B	F5	A1
CR222	F2	B4	R324	B3	A4	U200C	F1	A1
CR232	F2	B4	R326	B3	A3	U210	G4	C5
CR233	G5	B4	R328	A3	A3	U270A	G1	A2
CR290	F5	B1	R345	B1	A4	U270B	E2	A2
CR299	D2	B3	R346	E2	B4	U270C	F2	A2
CR302	D4	B3	R920	E2	C2	U280A	D3	B3
CR303	B4	A3	R922	E2	C2	U280B	D3	B3
CR920	E2	C2	R924	D2	C2	U282A	D3	B2
CR922	D2	C2	R989	C4	C4	U282B	D3	B2
			R990	B4	C4	U282C	D2	B2
			R991	C4	C4	U282D	C2	B2
			R992	C5	C3	U290A	E3	B1
			R993	B5	C3	U290B	D1	B1
			R994	B5	C3	U300A	D5	C1
			R995	B5	C3	U320B	E3	A3
			R996	C5	C3	U320C	B2	A3
			R997	C4	C3	U320D	B2	A3
DS222	F2	B5	TP80-1	E5	A4	U900A	B3	A3
DS232	G5	C5	TP80-2	B3	A4	U900B	B3	A3
			TP80-3	B4	A4	U900C	F4	C3
			TP80-4	B3	A4	U900D	C5	C3
J824	A1	A5	TP81	B1	A4	U902A	B4	C2
J824	G1	A5	TP82-1	E5	A5	U902B	D4	C2
P824	A1	A5	TP82-2	B2	B3	U902C	E4	C2
P824	G1	A5	TP82-3	F4	B3	U902D	E4	C2
P824	A1	A1	TP82-4	B5	B3	VR201	D4	C2
P824	A5	A5	TP82-5	E5	C5			
P824	A1	C4	TP83	E5	B2			
P824	A5	A5	TP84-1	E5	C5			
Q232	F5	A2						
Q280	G3	B4						
Q340	B1	B4						
R185	B4	C4						
R186	B4	C4						
R187	B5	C3						
R188	C5	C3						
R196	E5	A1						
R197	F4	A1						
R198	F4	A1						
R199	F4	A1						
R202	F1	C4						

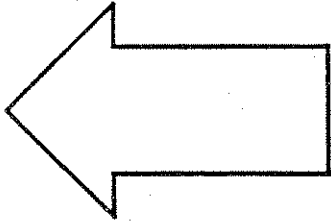


CONTROL

Static Sensitive Devices
See Maintenance Section

COMPONENT NUMBER EXAMPLE
 Component Number: A33 A2 R1232
 Assembly Number: A33
 Subassembly Number: A2
 Scheme Number: R1232
 Part Number: 2

Drawn: [Name]
 Checked: [Name]
 Approved: [Name]



SEE
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Table 8-73

REGULATOR ANALOG — REGULATOR ANALOG BD., ASSEMBLY A84

CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION	CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION	CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION
C550	C2	D2	L570	D3	G3	R588	F3	A3
C552	D2	D2	L590.1	C1	I2	R590	B2	F3
C556	E2	E2	L590.2	C1	B2	R600	D2	A3
C558	F2	F2	L592	B3	D2	R602	D2	A3
C570	C2	C2	L594	B2	K3	R604	F4	A3
C574	E2	E2	L596	B2	K3	R605	F4	A3
C576	G3	G3	L600	D4	G2	R606	F4	A3
C592	B2	B2	L620	D5	G2	R608	F4	A3
C596	B3	B3	L640.1	C3	G4	R610	F4	A3
C598	B2	B2	L640.2	C3	G4	R611	F4	A3
C600	C1	C1	L642	C5	I4	R612	F4	A3
C602	C4	C4	L644	C5	I4	R613	F4	A3
C604	D4	D4	L646	C5	I4	R614	F4	A3
C606	F4	F4	L648	B5	J4	R616	F4	A3
C620	D5	D5	P840	A1	J4	R620	D5	A3
C622	C5	C5	P842	G1	J4	R625	D5	A3
C624	D5	D5	P844	B1	J4	R628	D5	A3
C626	G5	G5	Q550	D1	B1	R629	D5	A3
C640	B4	B4	Q552	D2	B1	R630	D5	A3
C642	B4	B4	Q554	D3	B1	R631	D5	A3
C644	B5	B5	Q558	D3	B1	R632	D5	A3
C646	B5	B5	Q570	D3	B1	R633	D5	A3
CR500	C2	C4	Q572	D3	B1	R634	D5	A3
CR520	C4	C4	Q574	D3	B1	R636	D5	A3
CR550	C2	C4	Q600	D3	B1	R638	D5	A3
CR552	F1	D1	Q602	D3	B1	R640	D5	A3
CR570	D3	D3	Q604	D4	B2	R802	D5	A3
CR572	F3	D3	Q622	D6	B2	R804	D5	A3
CR592	B1	B1	R550	C3	B3	R806	D5	A3
CR594	B2	B2	R552	C2	B3	R808	D5	A3
CR600	D4	D4	R554	E2	B3	TP21.1	F4	A6
CR602	F4	F4	R555	C3	B3	TP21.5	F4	A6
CR620	D6	D6	R556	C3	B3	TP22.1	F4	A6
CR622	F6	F6	R557	C2	B3	TP22.8	F4	A6
CR640	B4	B4	R558	E3	B3	TP24.2	F4	A6
CR642	B4	B4	R560	E3	B3	TP24.3	F4	A6
CR644	B5	B5	R562	E3	B3	TP25.2	F4	A6
CR646	B5	B5	R564	E3	B3	U600A	F3	A3
DS550	E1	E1	R566	D2	B3	U600B	F3	A3
DS570	E5	E5	R570	D2	B3	U600C	F3	A3
DS600	E4	E4	R572	D2	B3	U600D	F3	A3
DS620	E5	E5	R574	D2	B3	VR550	F3	A3
J840	A1	A1	R576	D2	B3	VR552	F3	A3
J842	B1	B1	R578	D2	B3	VR570	F3	A3
L550	D1	D1	R580	D2	B3	VR572	F3	A3
			R581	D2	B3	VR602	F3	A3
			R582	D2	B3	VR622	F3	A3
			R584	D2	B3			

ASSY A84 is also shown on Diagrams 71A and 71B.
 ASSY A84 (Fig. 8-22) circuit board illustration faces Diagram 71A.

A B C D E F G

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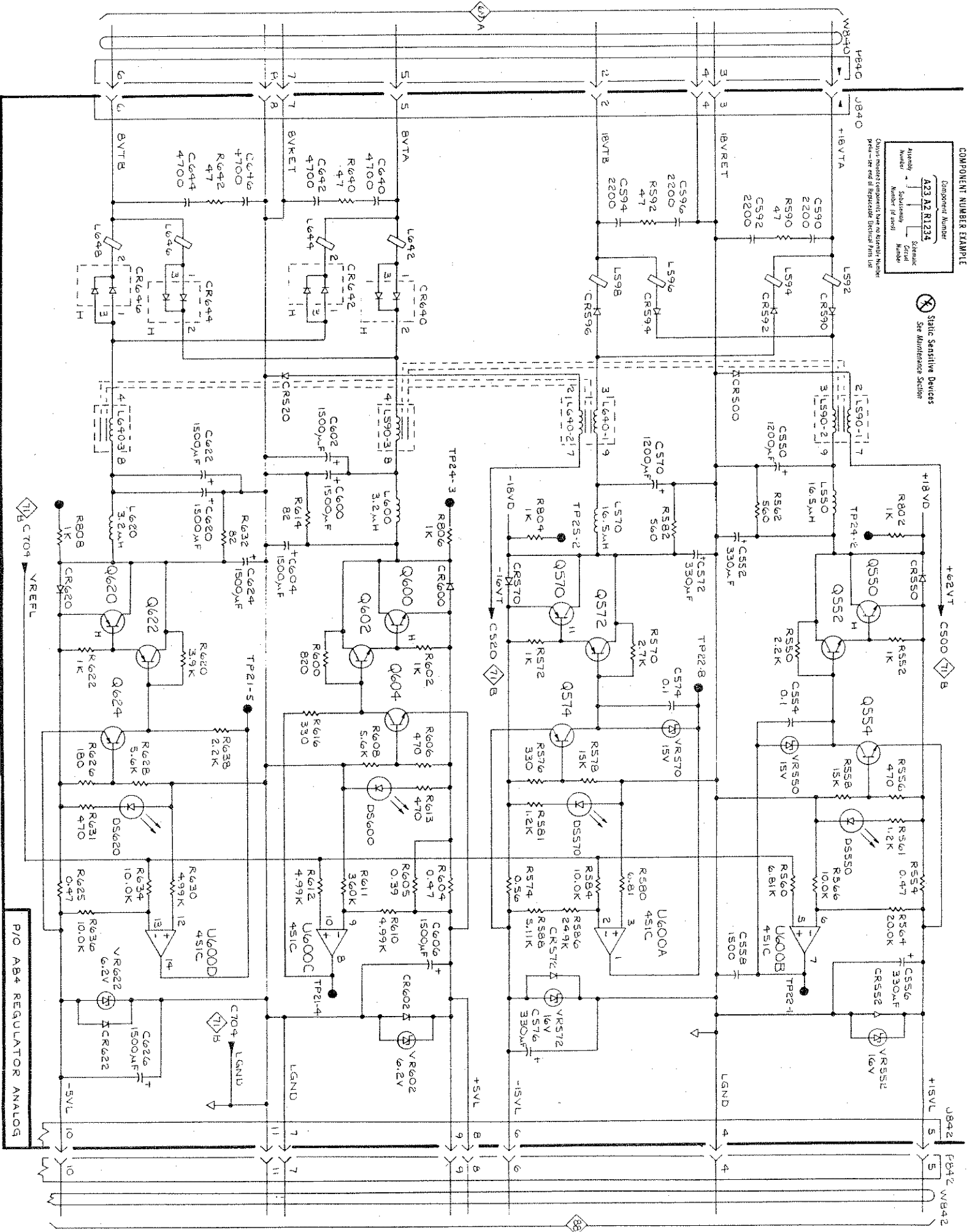
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REGULATOR ANALOG

COMPONENT NUMBER EXAMPLE

Component Number	A23 A2 R1234
Assembly Number	
Subassembly Number	
Part Number	
Revision Number	

⊗ Static Sensitive Devices
See Maintenance Section

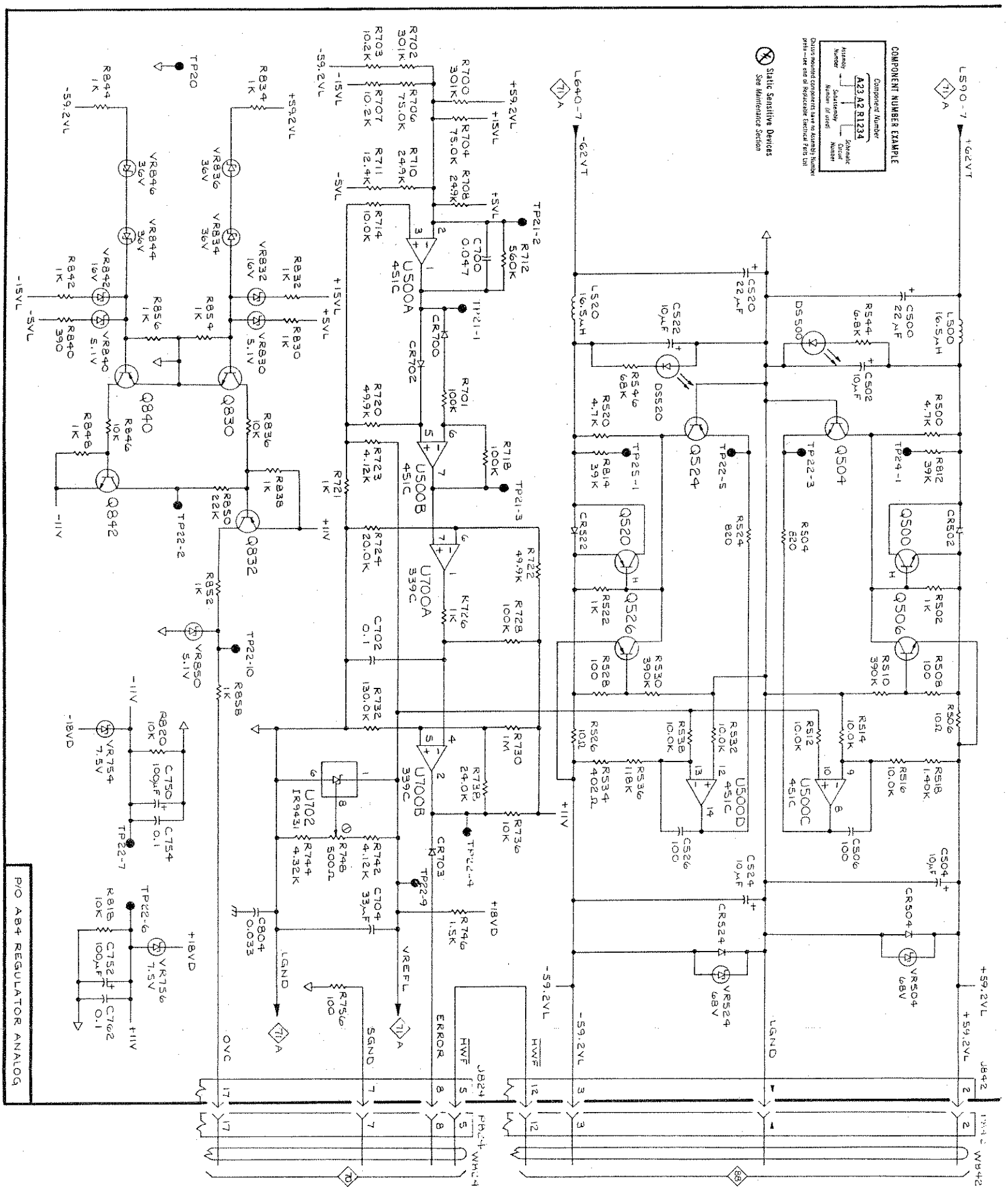
Choose indicated components from the following list:
Part - end of list Reproduce Below Part From List

Table 8-74
REGULATOR ANALOG  REGULATOR ANALOG BD., ASSEMBLY A84

CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION	CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION	CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION
C500	C1	H2	R508	E1	D4	R832	B5	B3
C502	C1	G2	R510	E1	D4	R834	A5	B4
C504	F1	D1	R512	E2	A4	R836	C5	B3
C506	F1	B4	R514	E2	A4	R838	D5	B3
C520	B2	H5	R516	E1	B4	R840	C6	A2
C522	C2	G5	R518	E1	B4	R842	B6	B3
C524	F2	C1	R520	D3	E4	R844	A6	B4
C526	F2	A4	R522	D3	E4	R846	C6	C4
C700	B4	A5	R524	D2	B4	R848	C6	C4
C702	E4	C5	R526	E3	D4	R850	D5	C3
C704	F4	B4	R528	E3	D4	R852	D5	B3
C750	E5	C5	R530	E3	D4	R854	C5	C3
C752	F6	C5	R532	E2	A4	R856	C5	C3
C754	F5	A4	R534	E3	A4	R858	E5	B4
C762	F5	A4	R536	E3	A4			
C804	G6	F1	R538	E2	A4	TP20	A5	A5
			R544	C1	F6	TP21-1	C4	A5
CR502	D1	E4	R546	D3	G5	TP21-2	B3	A5
CR504	F1	E1	R700	A4	B4	TP21-3	D3	A5
CR522	D3	E4	R701	C4	A5	TP22-10	E5	D5
CR524	F2	E1	R702	A4	A4	TP22-2	D5	D5
CR700	C4	A5	R703	A4	B4	TP22-3	C2	D5
CR702	C4	A5	R704	A4	A3	TP22-4	F4	D5
CR703	F4	B5	R706	A4	A3	TP22-5	C2	D5
			R707	A4	A3	TP22-6	F6	D5
DS500	C2	F5	R708	B4	B2	TP22-7	F6	D5
DS520	D3	G5	R710	B4	A2	TP22-9	F4	D5
			R711	B4	A2	TP24-1	C1	F6
J824	G4	C5	R712	B3	A5	TP25-1	D3	G8
J842	G1	B1	R714	B4	A5			
			R718	C4	B5	U500A	B4	A4
L500	C1	G2	R720	C4	B5	U500B	C2	A4
L520	D3	G5	R721	D4	A5	U500C	E2	A4
P824	G4	C5	R722	D3	B5	U500D	E2	A4
P842	G1	B1	R723	C4	B5	U700A	D4	C4
			R724	D4	C5	U700B	E4	C4
Q500	D1	D3	R726	D4	B5	U702	E4	C4
Q504	C2	C4	R728	D3	B5			
Q506	E1	C4	R730	E3	B5	VR504	F1	E1
Q520	D3	D4	R732	E4	C5	VR524	F2	E1
Q524	C2	C4	R736	F3	B5	VR754	D5	D5
Q526	E3	C4	R738	E4	B5	VR756	F5	D5
Q830	C5	C3	R742	F4	B4	VR830	C5	B2
Q832	D5	B3	R744	F5	B4	VR832	B5	A3
Q840	C6	C3	R746	F4	D5	VR834	B5	A4
Q842	D6	C4	R748	G4	B3	VR836	B5	A4
			R756	C1	B5	VR840	C6	A2
R500	C1	E4	R812	D3	F6	VR842	B6	A3
R502	D1	E4	R814	D3	G6	VR844	B6	A4
R504	D2	B4	R818	F6	B5	VR846	B6	A4
R506	E1	D3	R820	E5	A5	VR850	D5	B3
			R830	C5	B2			

ASSY A84 is also shown on Diagrams 71A and 71B.
ASSY A84 (Fig.8-22) circuit board illustration faces Diagram 71A.

A B C D E F G



REGULATOR ANALOG

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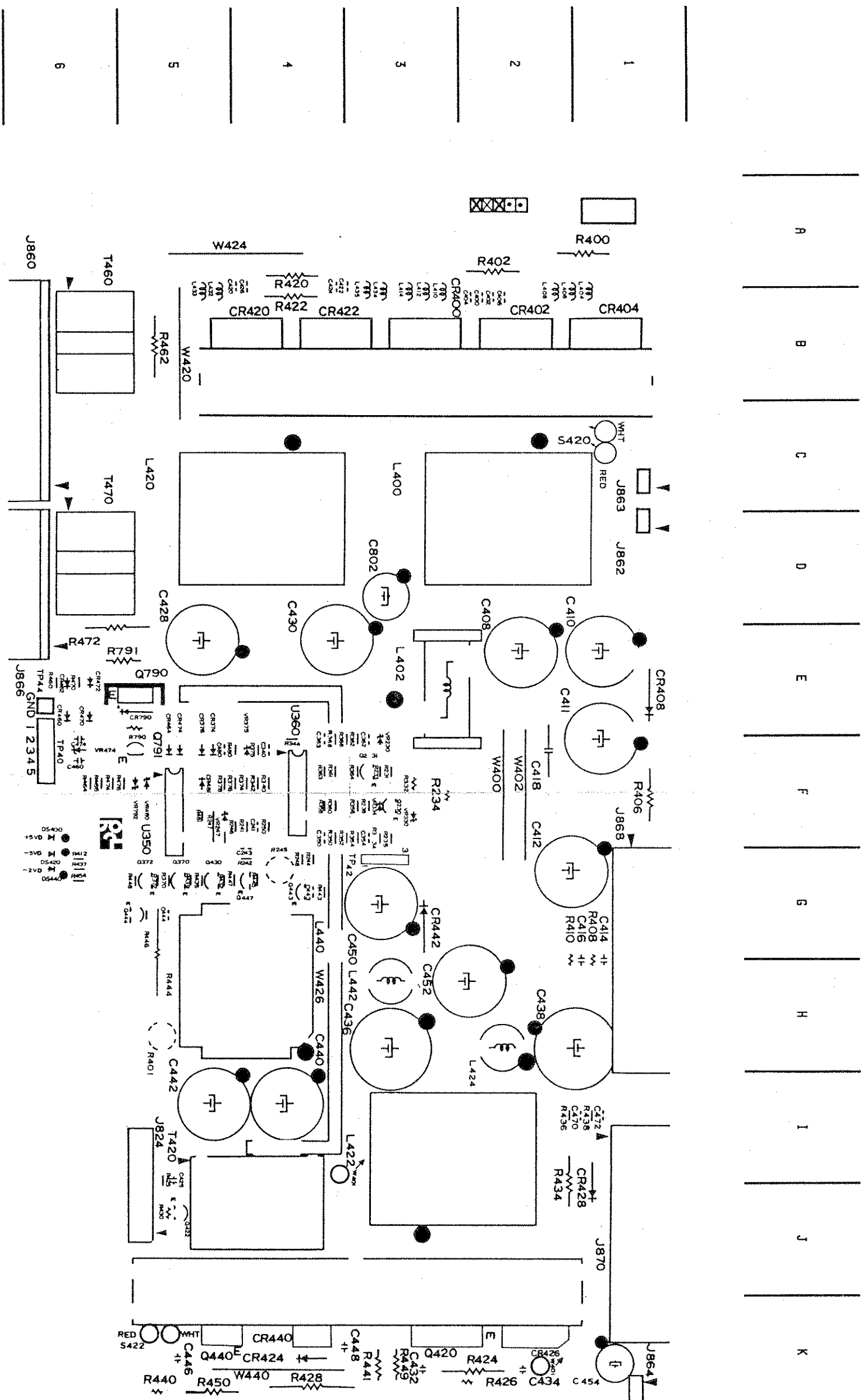


Fig. 8-23. A86 REGULATOR DIGITAL BD., CIRCUIT BD. ASS.

SEE
OTHER
SIDE

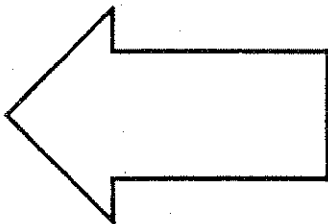


Table 8-75

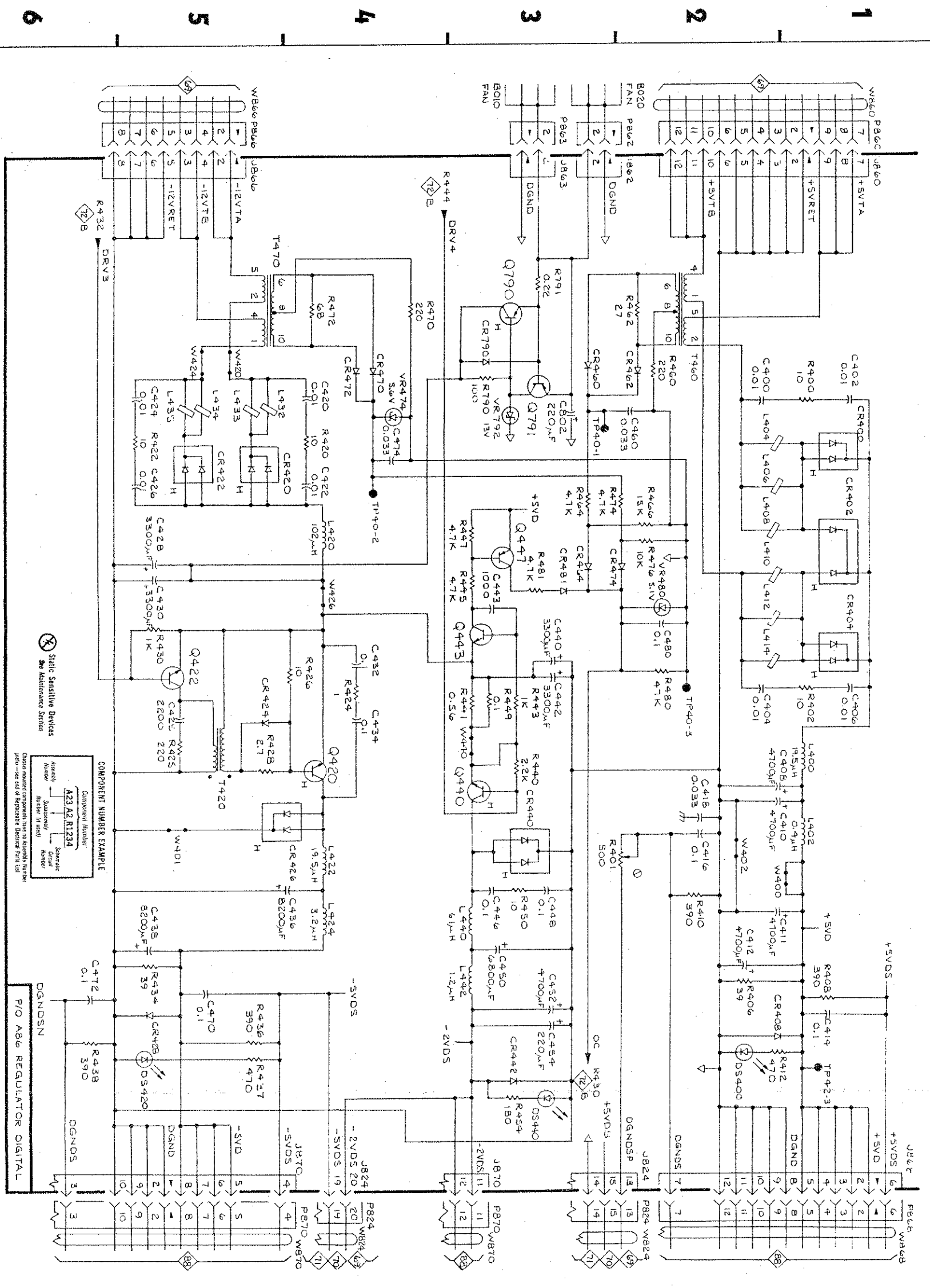
REGULATOR DIGITAL 72A — REGULATOR DIGITAL BOARD, ASSEMBLY A86

CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION	CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION	CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION
C400	C2	B2	CR790	B3	E5	R406	F2	F2
C402	C1	B2	DS400	G2	F6	R408	F1	G1
C404	D2	B2	DS420	G5	C6	R410	G2	G2
C406	D1	B2	DS440	G3	C6	R420	G4	B4
C408	E2	E2				R422	C5	B4
C410	E2	E2				R424	D4	B4
C411	F2	F1	J824	G2	I5	R425	D4	I5
C412	F2	G2	J824	G4	I5	R426	D4	K2
C414	F1	G1	J860	A1	B6	R428	D4	K2
C416	E2	F1	J862	A3	B6	R430	D5	K2
C418	E2	F2	J863	A3	D6	R434	D5	K2
C420	C4	B5	J866	A5	D6	R437	F5	K2
C422	C4	B5	J868	G1	D6	R438	F5	K2
C424	C6	B4	J870	G3	D6	R441	F5	K2
C425	C5	B4				R443	F5	K2
C426	C5	B4				R445	F5	K2
C428	D5	B4	L400	E1	C3	R447	F5	K2
C430	D5	B4	L402	E1	C3	R449	F5	K2
C432	D4	B4	L404	C2	B1	R454	F5	K2
C434	E4	B4	L406	C2	B2	R455	F5	K2
C436	F4	B4	L408	C2	B2	R456	F5	K2
C438	F5	B4	L410	D2	B3	R457	F5	K2
C440	D3	B3	L412	D2	B3	R459	F5	K2
C442	D3	B3	L414	D2	B3	R460	F5	K2
C443	D3	B3	L420	C4	C5	R462	F5	K2
C446	F3	B3	L422	E4	C5	R464	F5	K2
C448	F3	B3	L424	F4	H2	R466	F5	K2
C450	F3	B3	L432	C5	B5	R470	F5	K2
C452	F3	B3	L433	C5	B5	R472	F5	K2
C454	F3	B3	L434	C5	B5	R474	F5	K2
C460	C2	B3	L435	C5	B3	R476	F5	K2
C470	F5	B3	L440	F3	G4	R481	F5	K2
C474	C4	B3	L442	F3	H3	R488	F5	K2
C480	D2	F6	P824	H2	I5	R490	F5	K2
C802	C3	D3	P824	H2	I5	R791	F5	K2
CR400	C1	B3	P860	A1	B6	TP40-1	E5	J4
CR402	C1	B3	P863	A3	B6	TP40-2	E5	J4
CR404	D1	B1	P866	A5	B6	TP40-3	E5	J4
CR408	G2	E1	P868	H1	G1	TP42-3	E5	J4
CR420	C6	B4	P870	H3	G1	VR480	E5	J4
CR422	C5	B4	P870	H3	G1	VR474	E5	J4
CR424	E5	C4	Q420	E4	K3	VR792	E5	J4
CR426	E4	C4	Q422	D5	J5	W400	E5	J4
CR428	F5	C4	Q440	D3	G4	W401	E5	J4
CR440	E3	C4	Q443	D3	G4	W420	E5	J4
CR442	G3	C4	Q447	D3	G4	W424	E5	J4
CR444	B3	B3	Q790	C3	F5	W426	E5	J4
CR446	D3	B3	R400	C1	A1	W428	E5	J4
CR472	B4	B4	R401	E2	H5	W440	E5	J4
CR474	D3	B4	R402	D1	A2			
CR481	D3	B4						

ASSY A86 is also shown on Diagrams 72A and 72B.

ASSY A86 (Fig.8-23) circuit board illustration faces Diagram 72A.

A B C D E F G H



⊗ Sensitive Devices
See Maintenance Section

COMPONENT NUMBER EXAMPLE

Component Number	A23 A2 R1234
Assembly Number	
Subassembly Number	
Circuit Number	
Revision Number	

Do not remove components from the circuit board until you have read the instructions in the manual. Do not attempt to repair or modify the circuit board.

REGULATOR DIGITAL

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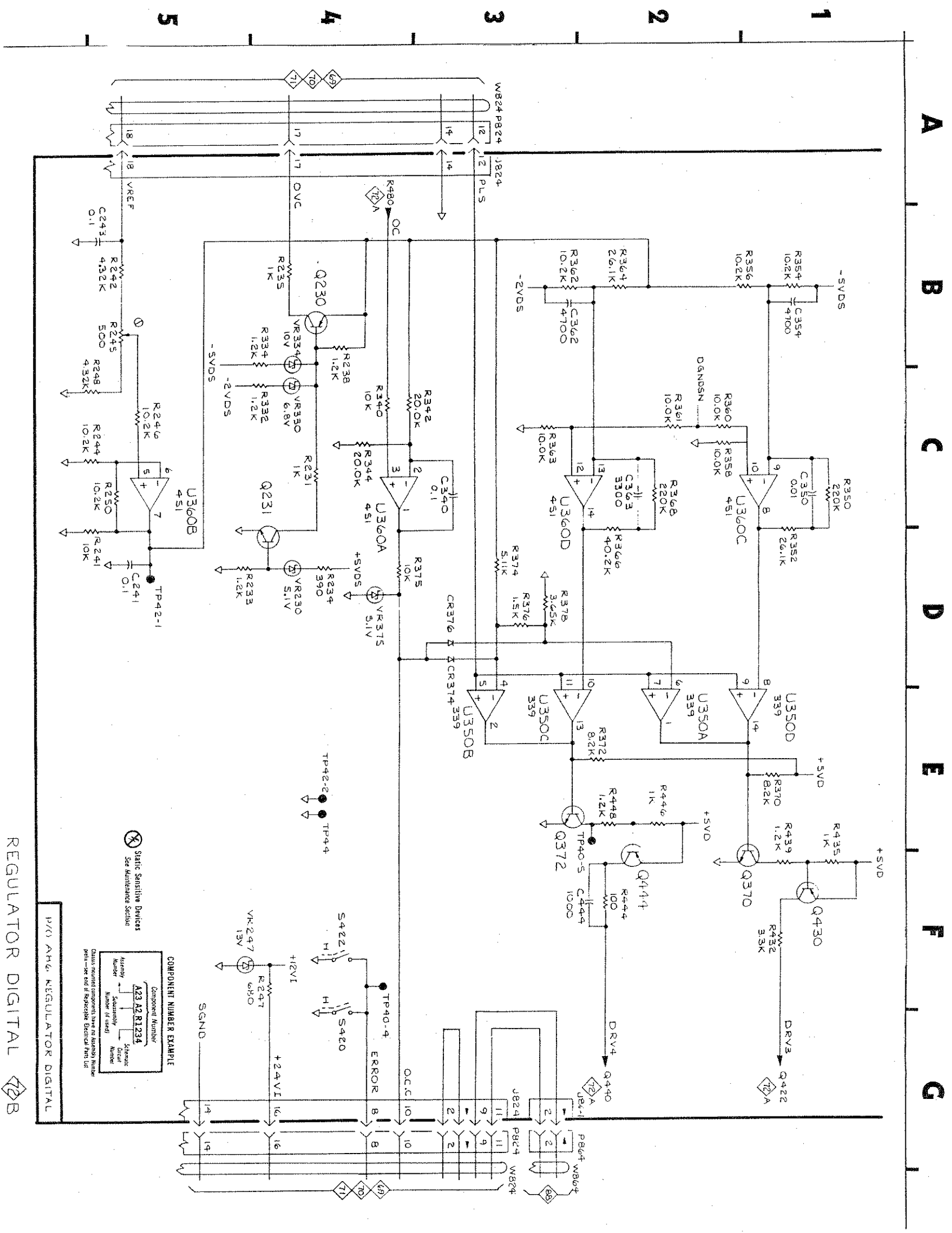
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Table 8-76
 REGULATOR DIGITAL 72B — REGULATOR DIGITAL BD., ASSEMBLY A86

CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION	CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION
C241	D5	F4	R354	B1	F3
C243	B5	G4	R356	B1	F3
C340	C3	F4	R358	C2	F4
C350	C1	F4	R360	C2	F4
C354	B1	F3	R361	C2	F4
C362	B3	F3	R362	B3	F3
C363	C2	F4	R363	C3	F4
C444	F3	G5	R364	B2	F3
			R366	D2	F4
CR374	D3	F5	R368	C2	F4
CR376	D3	F5	R370	E1	G5
J824	A1	I5	R372	E2	G5
J824	G3	I5	R374	D3	F4
J864	G3	K1	R375	D4	F4
J864	G3	K1	R376	D3	F5
			R378	D3	F5
P824	A1	I5	R432	F1	G5
P824	G3	I5	R435	F1	G5
P864	G3	K1	R439	F1	G5
			R444	F2	G5
			R446	E2	G5
Q230	B4	F3	R448	E2	G5
Q231	D4	F3			
Q370	F1	G5			
Q372	E3	G5	S420	F4	C1
Q430	F1	G5	S422	F4	C5
Q444	F2	G5			
			TP40-4	F4	F6
R231	C4	F3	TP40-5	E2	F6
R233	D5	F3	TP42-1	D5	G3
R234	D4	F3	TP42-2	E4	G3
R235	B4	F3	TP44	E4	E6
R238	B4	F3			
R241	C5	F4	U350A	E2	F5
R242	C5	G4	U350B	E3	F5
R244	C5	G4	U350C	E3	F5
R245	B5	G4	U350D	E1	F5
R246	C5	F5	U360A	C4	F4
R247	F4	F5	U360B	C5	F4
R248	F4	G4	U360C	C1	F4
R250	C5	F4	U360D	C3	F4
R332	C4	F3			
R334	B4	F3	VR230	D4	F3
R340	C4	F4	VR247	F5	F3
R342	C4	F4	VR330	C4	F3
R344	C4	F4	VR334	B4	F3
R350	C1	F4	VR375	D4	F4
R352	D1	F4			

ASSY A86 is also shown on Diagrams 72A and 72B.
 ASSY A86 (Fig.8-23) circuit board illustration faces Diagram 72A.



REGULATOR DIGITAL

COMPONENT NUMBER EXAMPLE

Component Number	A23 A2 R1234
Assembly Number (if used)	
Subassembly Number	
Schematic Number	

Caution: Incomplete components have no Assembly Number prefix - see end of Electrical Electrical Parts List.

Static Sensitive Devices
See Maintenance Section

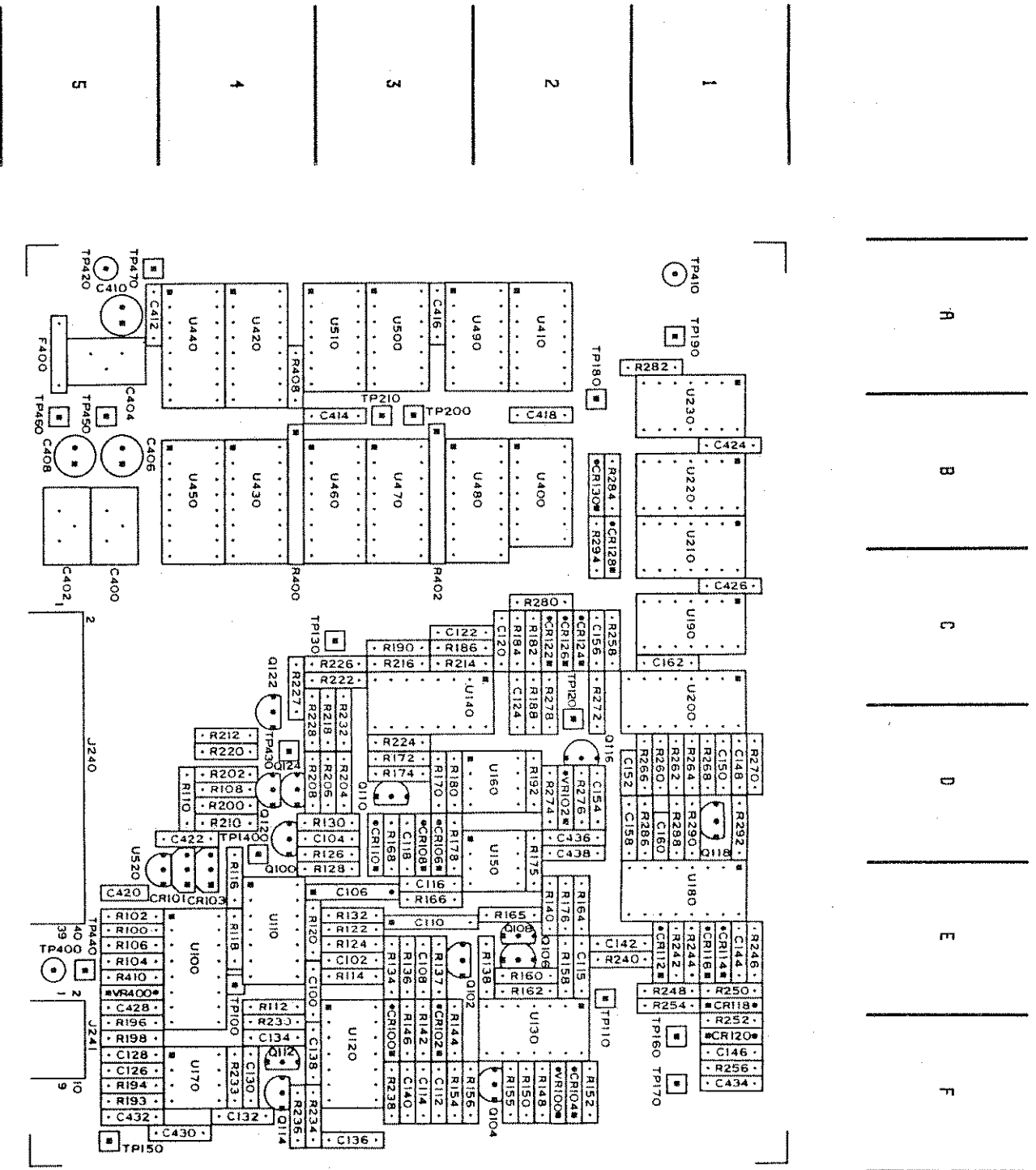
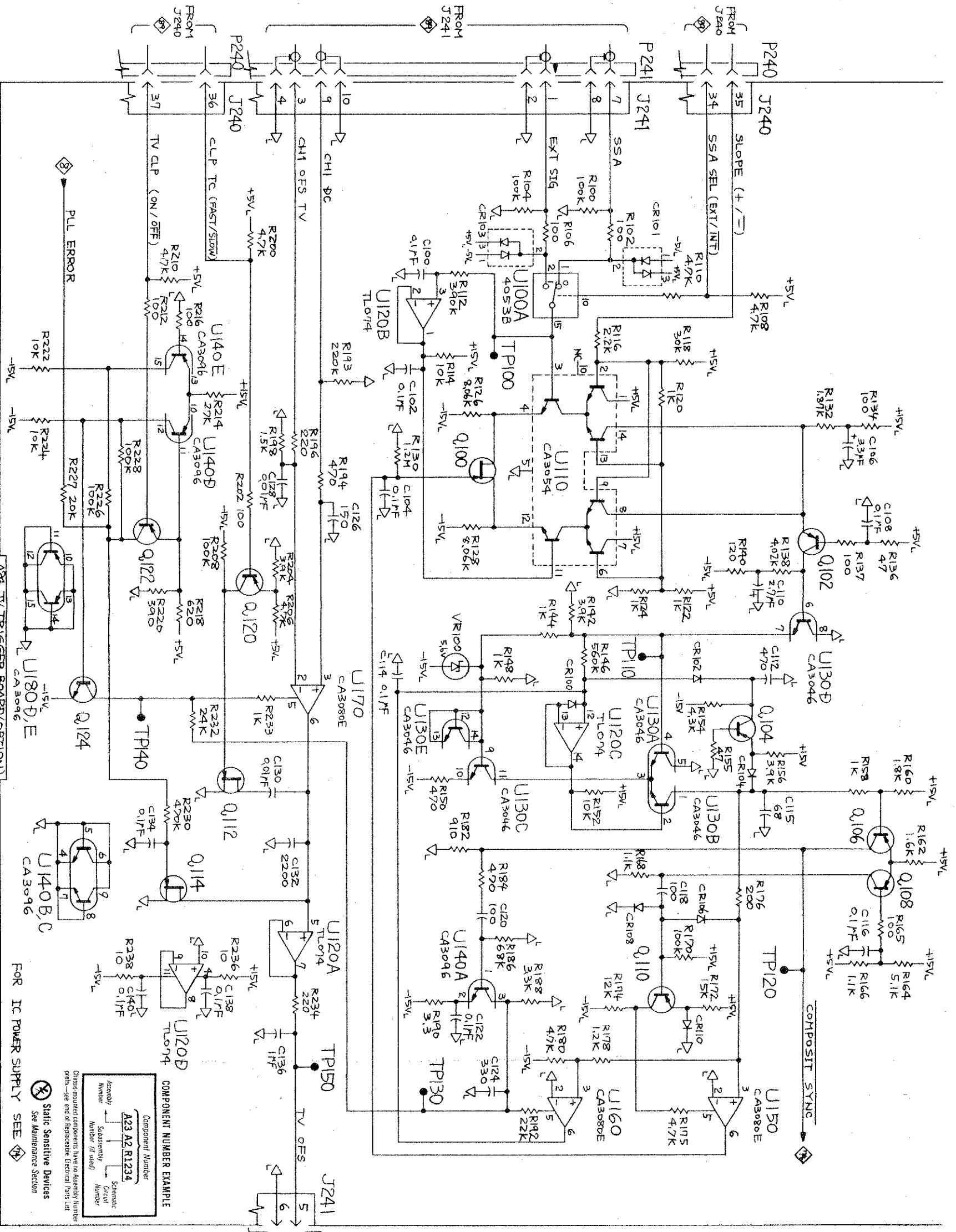


Fig. 8-24. A24 TV TRIGGER BD. ASS.

A B C D E F G



COMPONENT NUMBER EXAMPLE

Component Number	A23 A2 R1234
Assembly Number	
Subassembly Number (if used)	
Schematic Number	

Chassis mounted components have no Assembly Number prefix—see end of Replaceable Electrical Parts list

Static Sensitive Devices See Maintenance Section

FOR IC POWER SUPPLY SEE

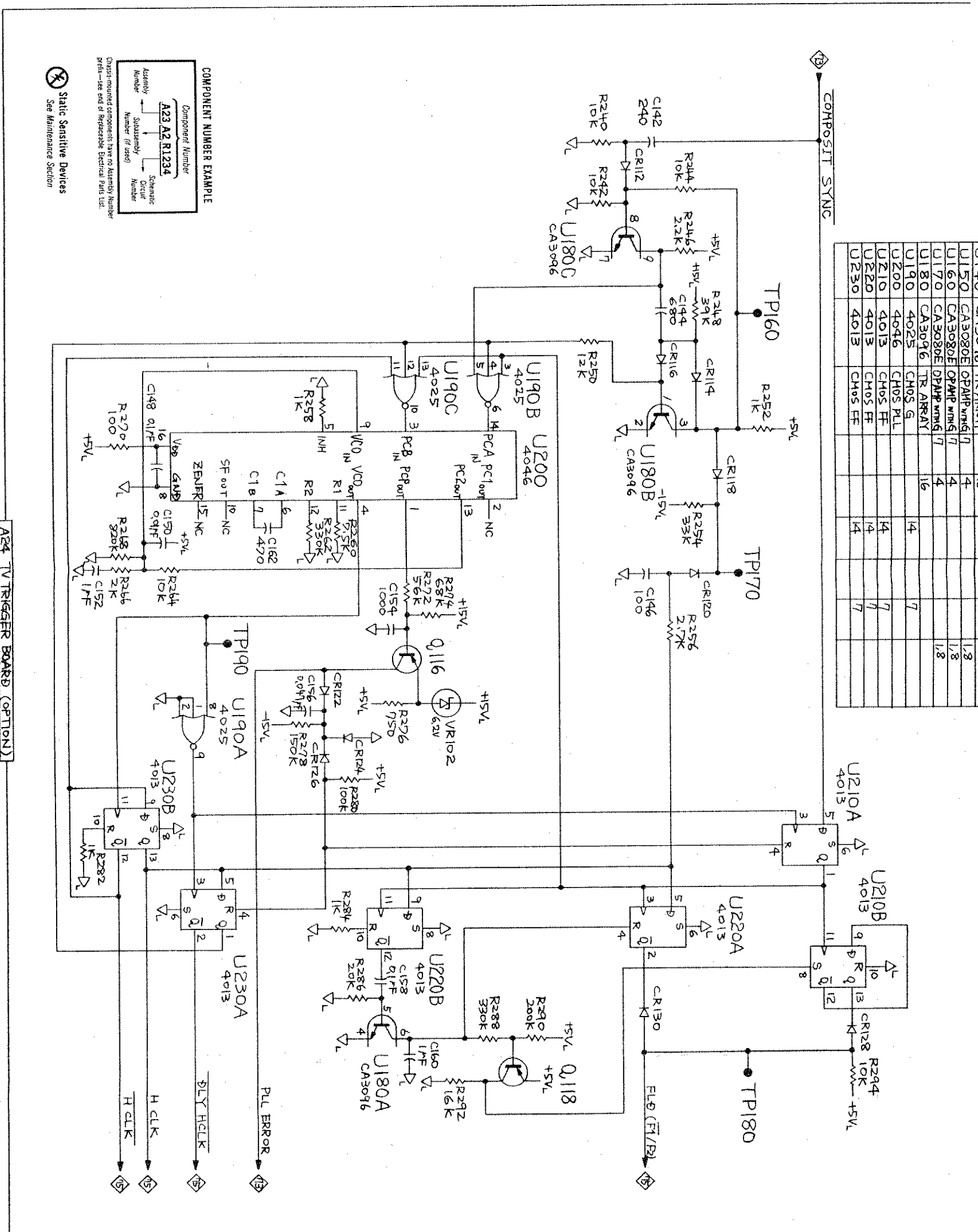
Table 8-78
 PHASE LOCKED LOOP  — TV TRIGGER BD., ASSEMBLY A24

CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION	CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION
C142	B3	E2	R264	D5	D1
C144	C2	E1	R266	D5	D1
C146	D3	F1	R268	D5	D1
C148	D5	D1	R270	D5	D1
C150	D5	D1	R272	D4	C2
C152	D5	D2	R274	D4	D2
C154	D4	D2	R276	E4	D2
C156	F4	C2	R278	E4	C2
C158	F4	D2	R280	F5	C2
C160	G4	D1	R282	F5	A1
C162	D4	C1	R284	F4	B2
			R286	F4	D1
CR112	B3	E1	R288	F3	D1
CR114	C2	E1	R290	F3	D1
CR116	C2	E1	R292	G3	D1
CR118	D2	E1	R294	G2	B2
CR120	D2	F1			
CR122	E4	C2	TP160	C2	F1
CR124	E4	C2	TP170	D2	F1
CR126	F2	C2	TP180	G2	A2
CR128	F2	B2	TP190	E5	A1
CR130	F3	B2			
Q116	E4	D2	U180A	F4	E1
Q118	G3	D1	U180B	C2	E1
R240	B3	E2	U180C	C3	E1
R242	B3	E1	U190A	E5	C1
R244	B2	E1	U190B	C3	C1
R246	C2	E1	U190C	C4	C1
R248	C2	E1	U200	D3	C1
R250	C3	E1	U210A	F2	B1
R252	D2	E1	U210B	F2	B1
R254	D2	E1	U220A	F2	B1
R256	D2	F1	U220B	F4	B1
R258	C4	C2	U230A	F5	B1
R260	D4	D1	U230B	E5	B1
R262	D4	D1	VR102	E4	D2

ASSY A24 is also shown on Diagrams 73, 74, and 75.
 ASSY A24 (Fig. 8-24) circuit board illustration faces Diagram 73.

A B C D E F G

No.	DEVICE	CATEGORY	+5V _L	-15V _L	+5V _L	-5V _L	AGND	UNUSED
U100	4053B	CHOS SW		16		7	68	
U130	CA3046	TR ARRAY						2U
U140	CA3046	TR ARRAY		16				
U150	CA3080E	OPAMP MM5	7					1,2
U160	CA3080E	OPAMP MM5	7					1,2
U170	CA3080E	OPAMP MM5	7					1,2
U180	CA3096	TR ARRAY		16				
U190	4025	CHOS G						7
U200	4046	CHOS PLL						14
U210	4013	CHOS FF						7
U220	4013	CHOS FF						7
U230	4013	CHOS FF						7




COMPONENT NUMBER EXAMPLE

Component Number: A23 A2 R1234
 Assembly Number: A23
 Subassembly Number: A2
 Circuit Number: R1234
 Schema Number: 1

Observe mounted components have no Assembly Number prefix—see end of Replaceable Electrical Parts List.

⊗ Static Sensitive Devices
 See Maintenance Section

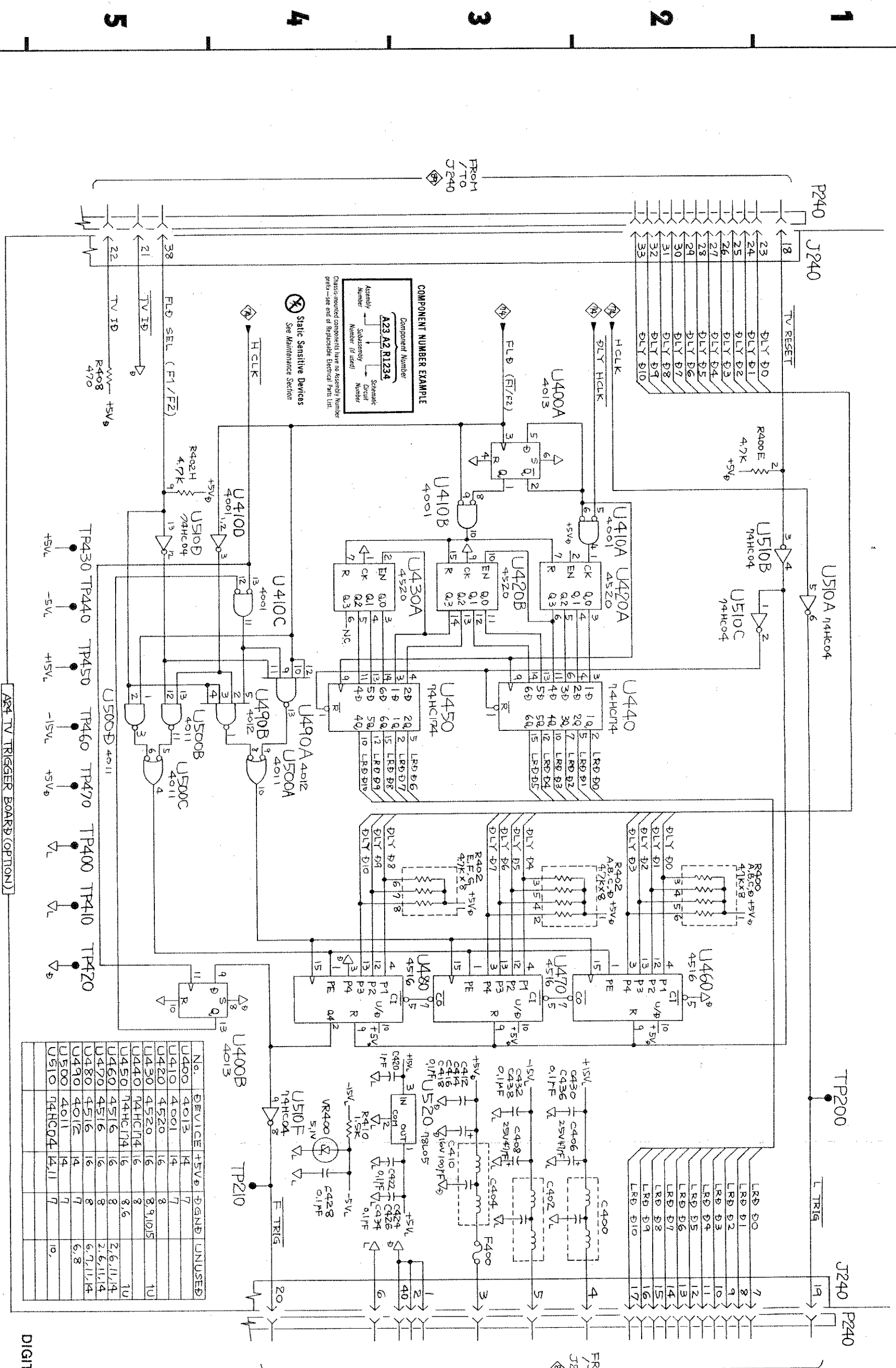
⊗ A24 TV TRIGGER BOARD (OPTION)

Table 8-79
 DIGITAL CIRCUITRY  — TV TRIGGER BD., ASSEMBLY A24

CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION	CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION
C400	G2	B5	R408	B5	A4
C402	G3	B5	R410	G4	E4
C404	G3	A5	TP200	F1	B3
C406	G3	B5	TP210	G4	B3
C408	G3	B5	TP400	E5	E5
C410	G3	A5	TP410	E5	A1
C412	F3	A5	TP420	F5	A5
C414	F3	B3	TP430	D4	D4
C416	F3	A3	TP440	D5	E5
C418	F4	B2	TP450	D5	B5
C420	F4	ES	TP460	D5	B5
C422	G4	D4	TP470	D5	A5
C424	G4	B1			
C426	G4	C1			
C428	G4	ES	U400A	C3	B2
C430	F3	F4	U400B	F5	B2
C432	F3	F5	U410A	C2	A2
C434	G4	F1	U410B	C3	A2
C436	F3	D2	U410C	D4	B2
C438	F3	D2	U410D	C4	B2
			U420A	D2	A4
F400	G3	A5	U420B	D3	A4
			U430A	D4	B4
J240	B1	D5	U440	D2	A4
J240	G1	D5	U450	D3	B4
			U460	F2	B3
P240	A1	D5	U470	F3	B3
P240	H1	D5	U480	F4	B2
R400A	E2	B4	U490A	D4	A2
R400B	E2	B4	U490B	D4	A2
R400C	E2	B4	U500A	E4	A3
R400D	E2	B4	U500B	D5	A3
R400E	E2	B4	U500C	E5	A3
R400F	C1	B4	U500D	D5	A3
R402A	E3	B3	U510A	D1	A3
R402B	E3	B3	U510B	C1	A3
R402C	E3	B3	U510C	D1	A3
R402D	E3	B3	U510D	C5	A3
R402E	E3	B3	U510F	F4	A3
R402F	E3	B3	U520	F3	A3
R402G	E3	B3			
R402H	C5	B3	VR400	G4	E5

ASSY A24 is also shown on Diagrams 73, 74, and 75.
 ASSY A24 (Fig. 8-24) circuit board illustration faces Diagram 73.

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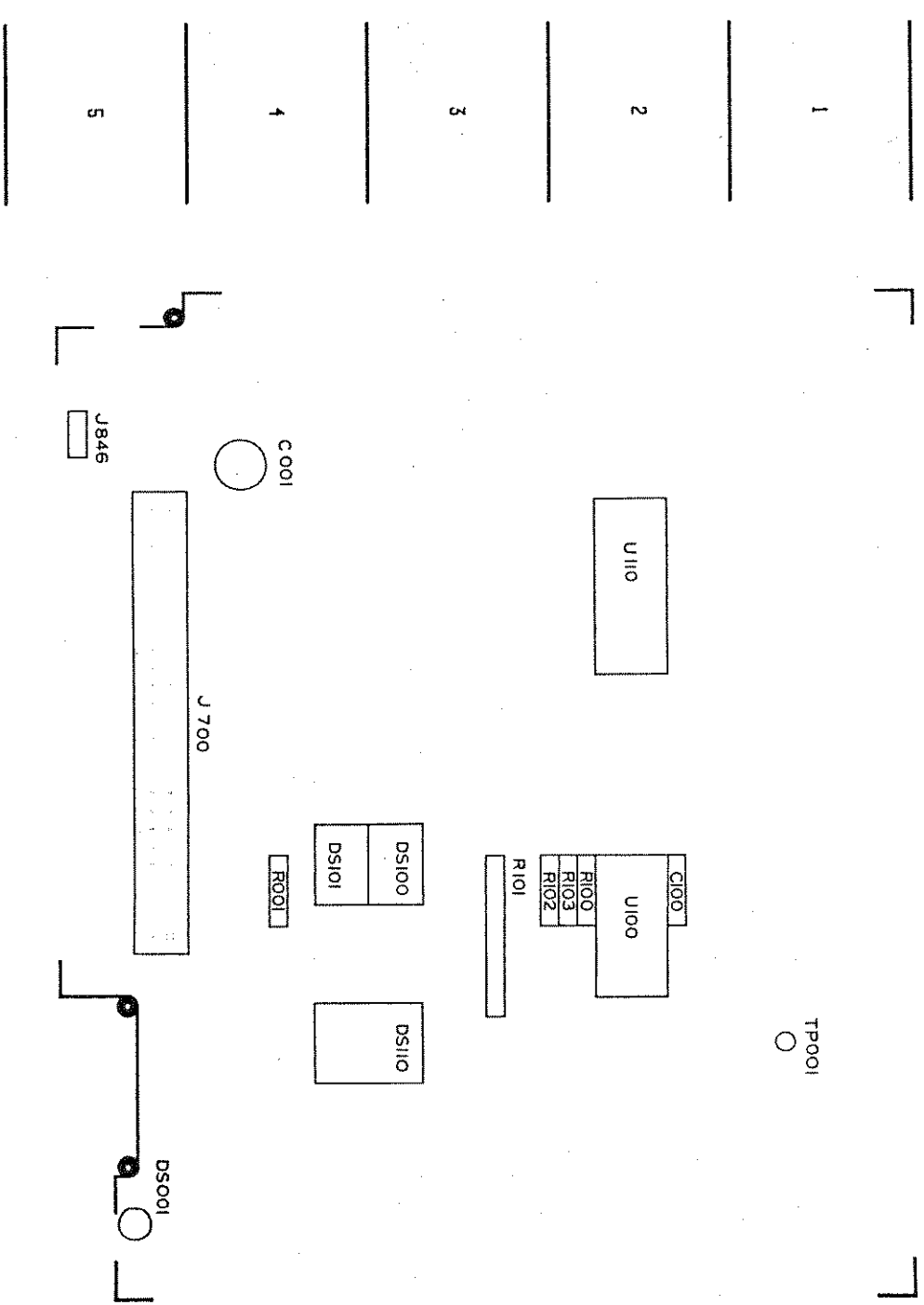
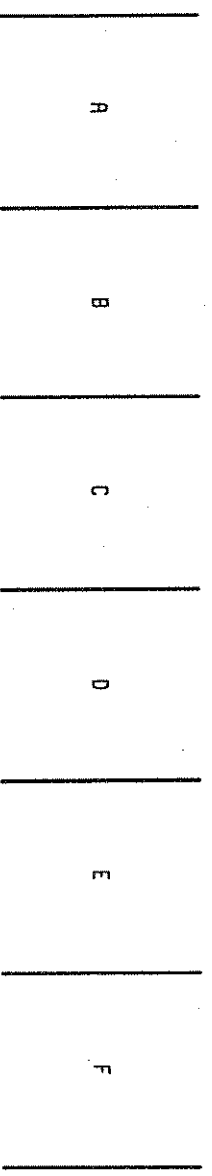

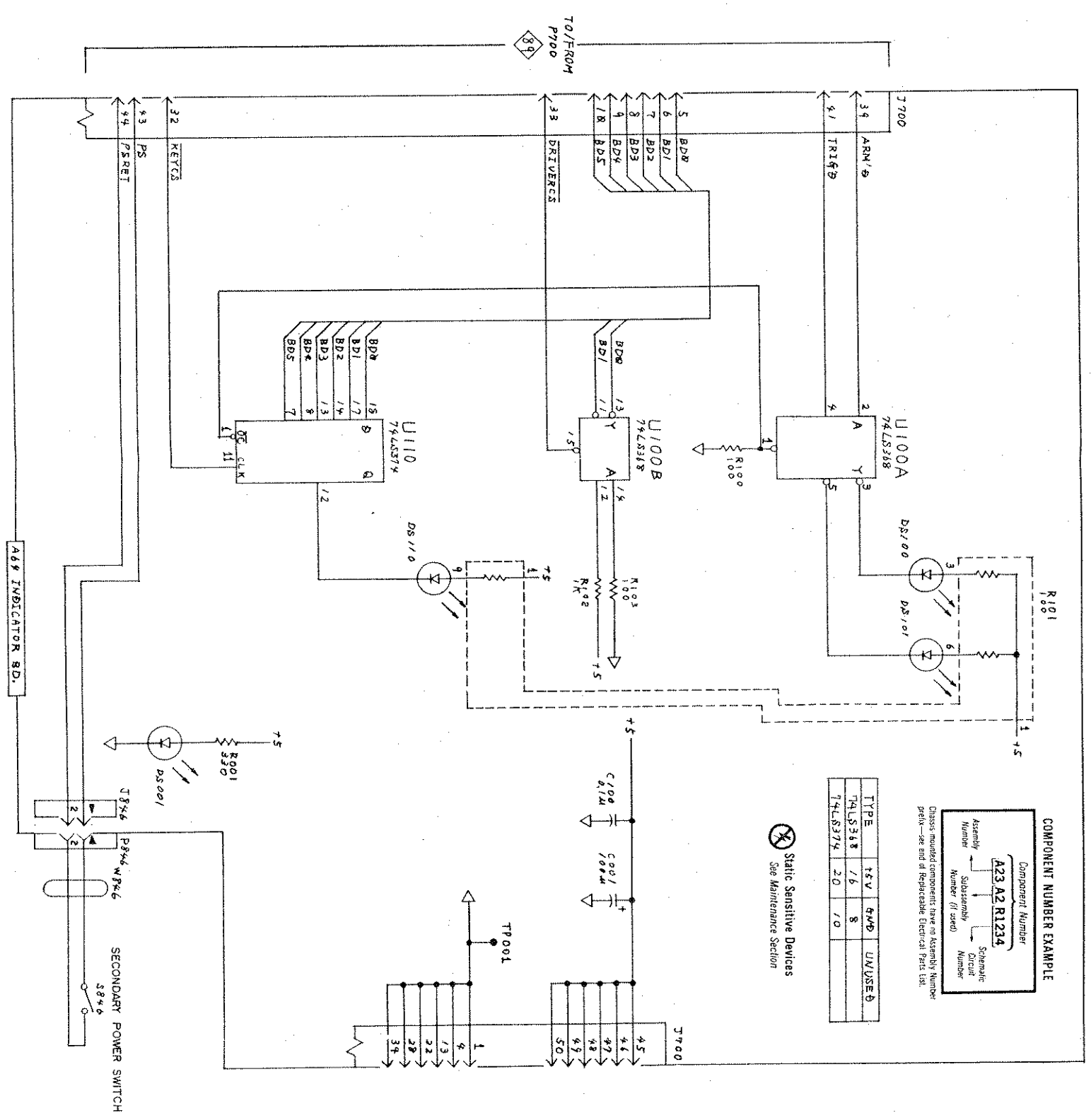


Fig. 8-25: A64 INDICATOR BD., CIRCUIT BD. ASS.

Table 8-80
INDICATOR  ASSEMBLY A64

CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION
C001	E3	A4
C100	E3	D2
DS001	D5	F5
DS100	D1	D3
DS101	D1	D4
DS110	D3	E3
J700	B2	C5
J700	F3	C5
J846	E5	A5
P846	E5	A5
R001	D4	D4
R100	C2	D2
R101	D1	D3
R102	D3	D3
R103	D3	D2
S846	E5	CHASSIS
TP001	E3	E1
U100A	C2	D2
U100B	C3	D2
U110	C4	B2
W846	E5	CHASSIS



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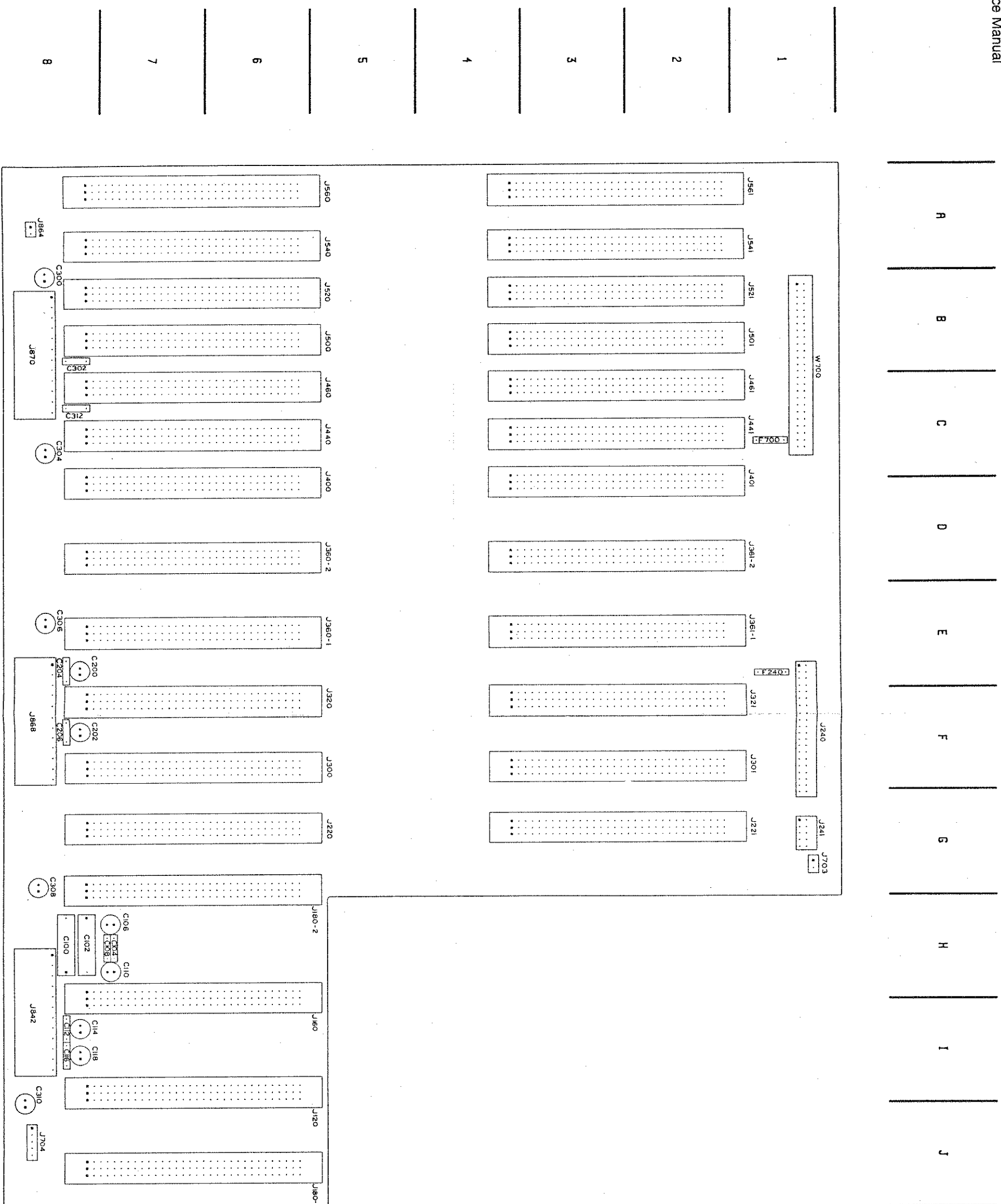
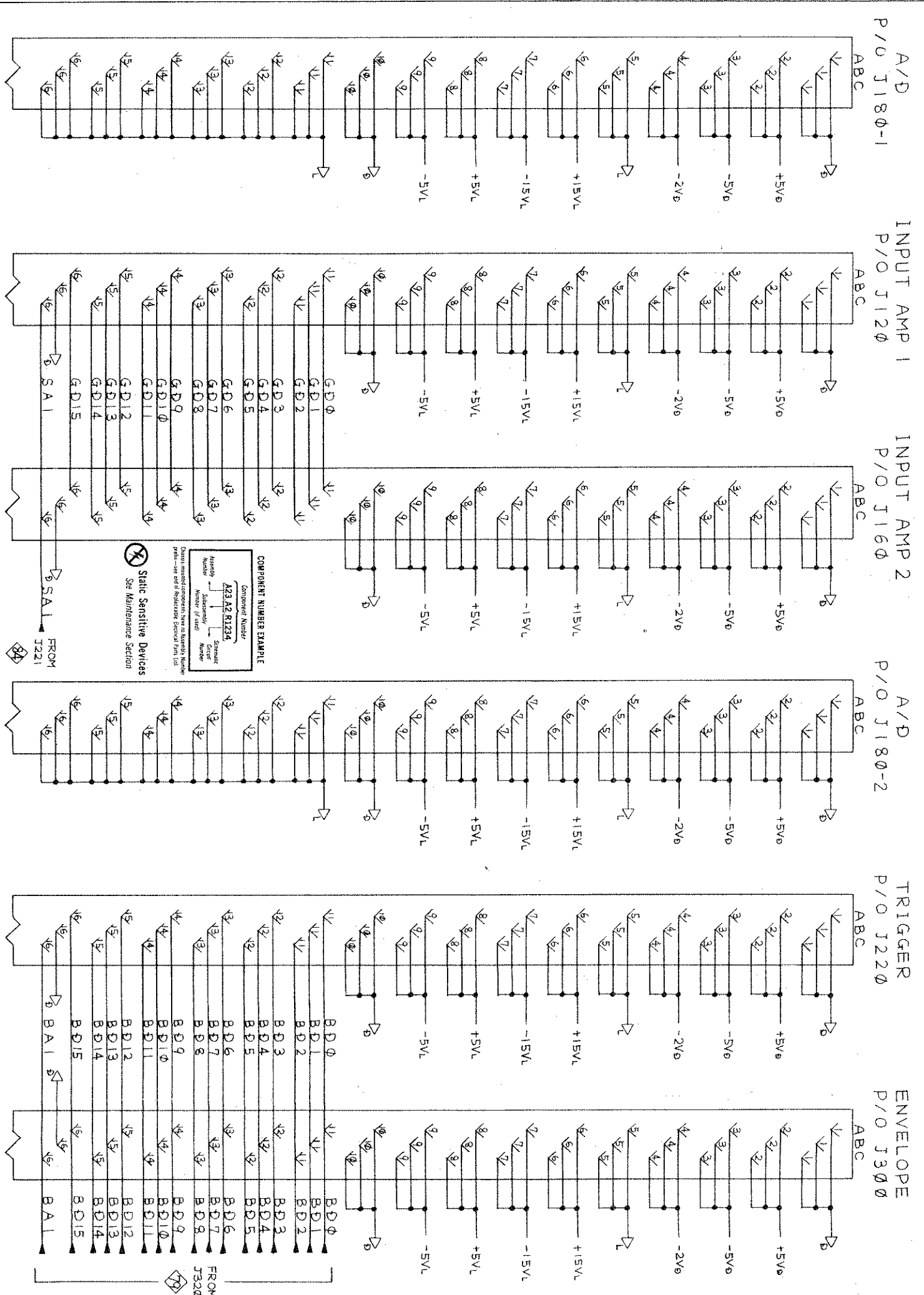


Fig. 8-26. A70 MAIN INTERCONNECT BD. CIRCUIT BD. ASS.


A B C D E F G

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P/O A70 MAIN INTERCONNECT BD.

NOTE: "D" DENOTES DIGITAL GND. "A" DENOTES ANALOG GND.

Table 8-82
MAIN INTERCONNECT-2 
 MAIN INTERCONNECT BD., ASSEMBLY A70

CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION
J120	C1	15
J160	D1	15
J180-1	B1	J5
J180-2	E1	G5
J220	F1	G5
J300	G1	F5

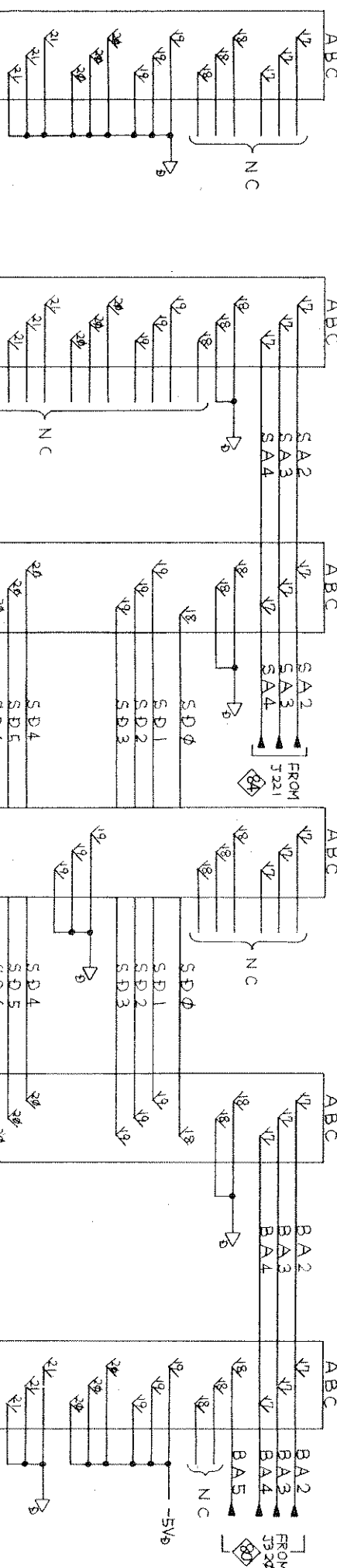
ASSY A70 is also shown on Diagrams 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, and 89.
 ASSY A70 (Fig. 8-26) circuit board illustration faces Diagram 77

A B C D E F G

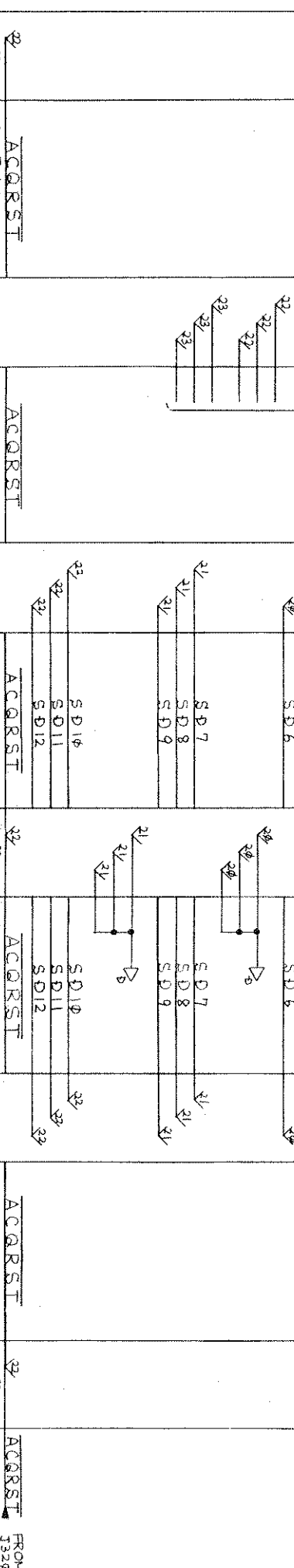
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A/D P/O J180-1 INPUT AMP 1 P/O J120 INPUT AMP 2 P/O J160 A/D P/O J180-2 TRIGGER P/O J220 ENVELOPE P/O J300

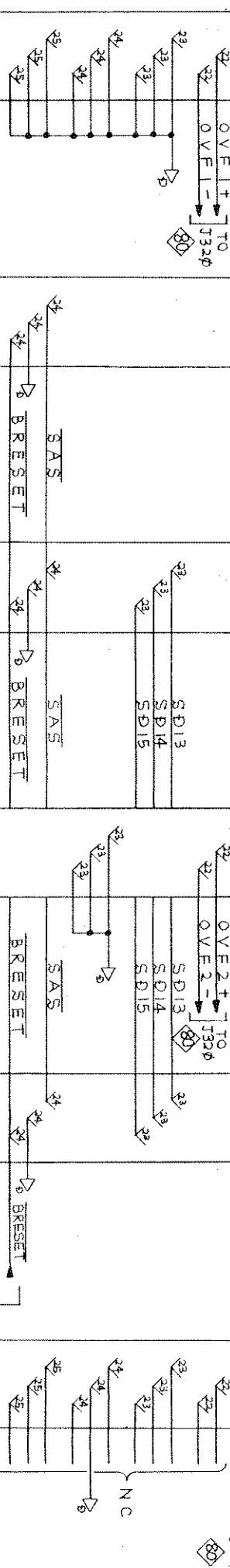
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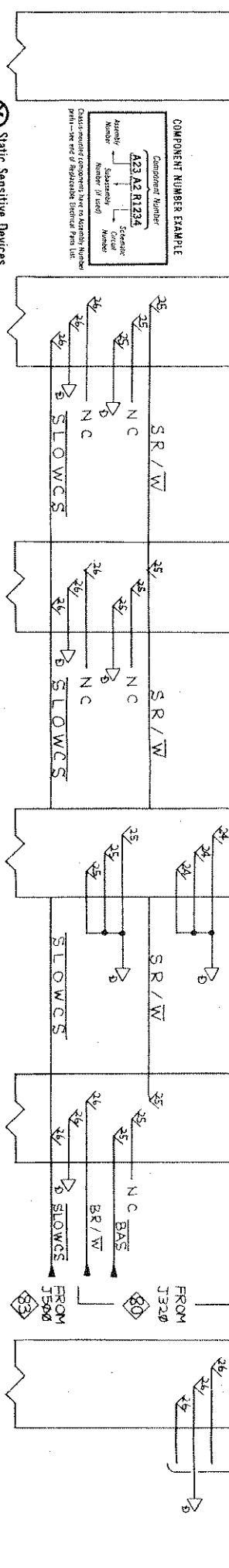
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Static Sensitive Devices
See Maintenance Section

COMPONENT NUMBER EXAMPLE
A23 A2 R1234
Component Number
Assembly Number
Subassembly Number (J1230)
Circuit Number
Manufacturer's Part Number (Mfg. No.)
Check manual components for a security number printed on the top of the component. Refer to the

P/O AT0 MAIN INTERCONNECT BD.

NOTE: * DENOTES DIGITAL GND. * DENOTES ANALOG GND.

Table 8-83

MAIN INTERCONNECT-3 

MAIN INTERCONNECT BD., ASSEMBLY A70

CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION
J320	B1	F5
J360-1	C1	E5
J360-2	D1	D5
J400	F1	D5
J440	G1	C5

ASSY A70 is also shown on Diagrams 77,78,79,80,81,82,83,84,85,86,87,88,and 89.
 ASSY A70 (Fig.8-26) circuit board illustration faces Diagram 77

A B C D E F G

1 2 3 4 5

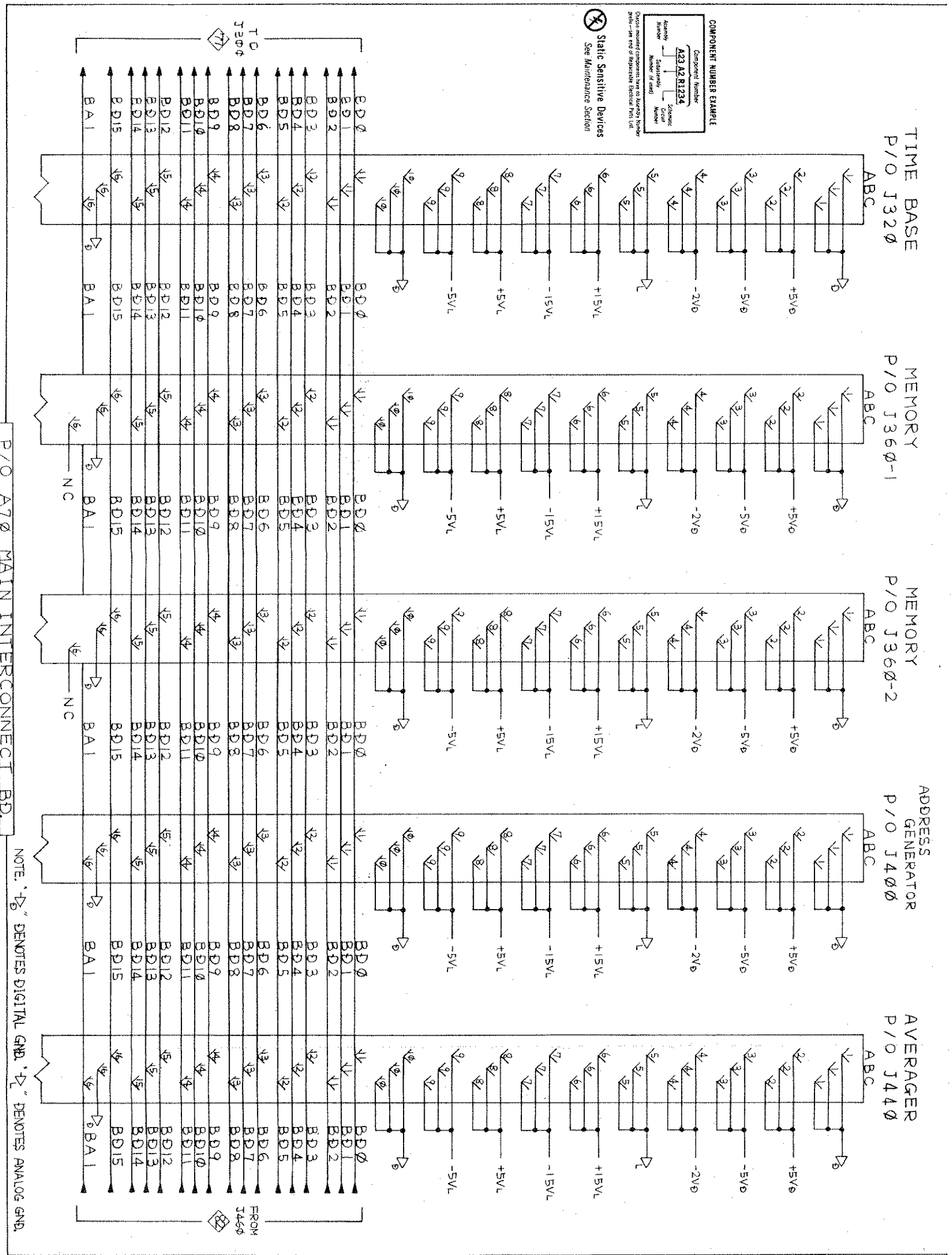
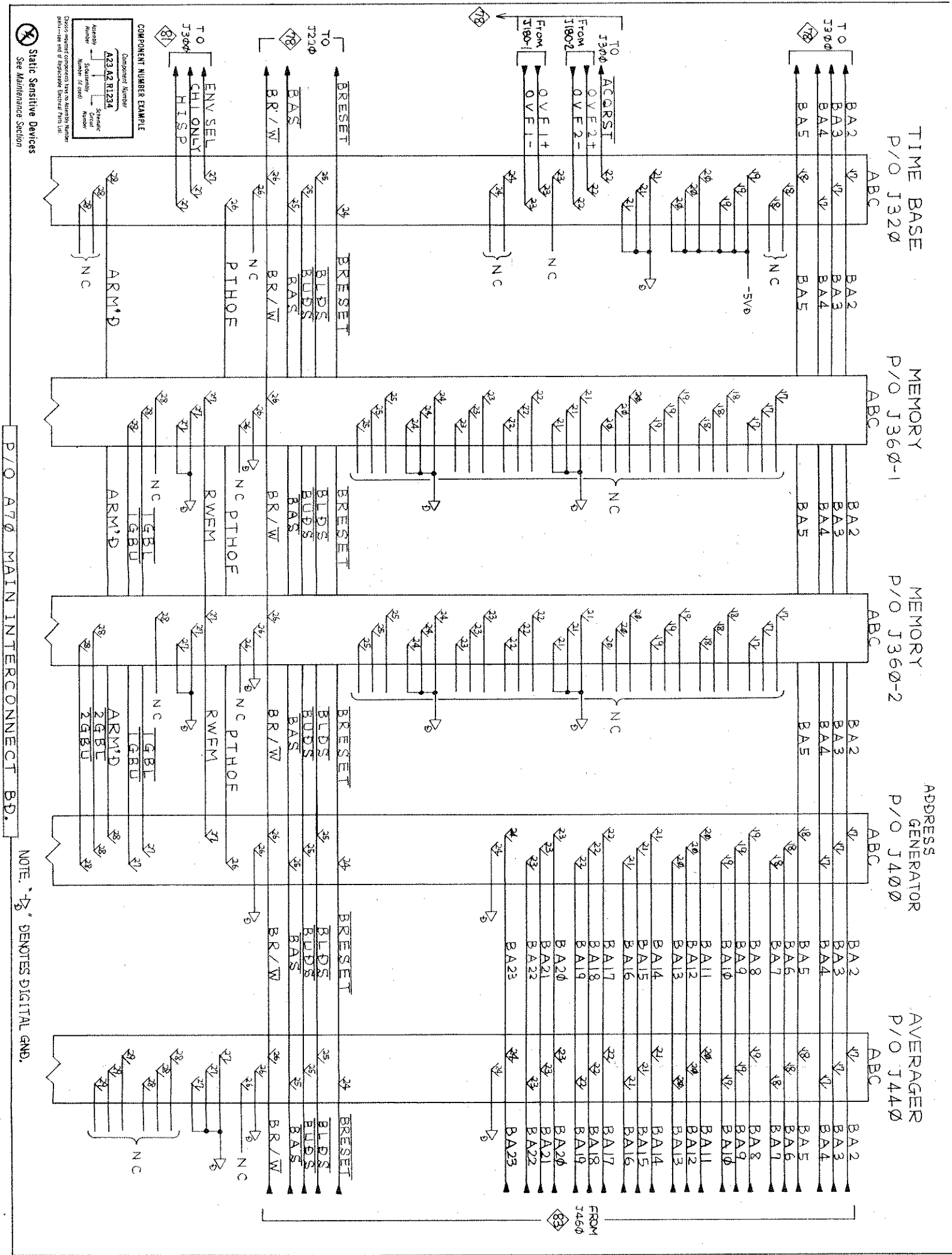


Table 8-84
MAIN INTERCONNECT-4 
MAIN INTERCONNECT BD., ASSEMBLY A70

CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION
J320	B1	F5
J360-1	C1	E5
J360-2	E1	D2
J400	F1	D5
J440	G1	C5


ASSY A70 is also shown on Diagrams 77,78,79,80,81,82,83,84,85,86,87,88, and 89.
 ASSY A70 (Fig.8-26) circuit board illustration faces Diagram 77

A B C D E F G



MAIN INTERCONNECT 4 30

1
2
3
4
5

Table 8-85
MAIN INTERCONNECT-5 
 MAIN INTERCONNECT BD., ASSEMBLY A70

CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION
J120	C1	I5
J160	D1	J5
J180-1	B1	G5
J180-2	E1	G5
J220	F1	G5
J300	G1	F5
J320	B4	F5
J360-1	D4	E5
J360-2	E4	D5
J400	F4	D5
J440	G4	C5


ASSY A70 is also shown on Diagrams 77,78,79,80,81,82,83,84,85,86,87,88, and 89.
 ASSY A70 (Fig.8-26) circuit board illustration faces Diagram 77

A B C D E F G

COMPONENT NUMBER EXAMPLE

Component Number	A23 A2 R1234
Assembly Number	
Subassembly Number	
Manufacturer Number	
Part Number	

Diagrams showing component numbers are for illustrative purposes only. Use the number of the component as shown on the component label.

 Static Sensitive Devices
See Maintenance Section

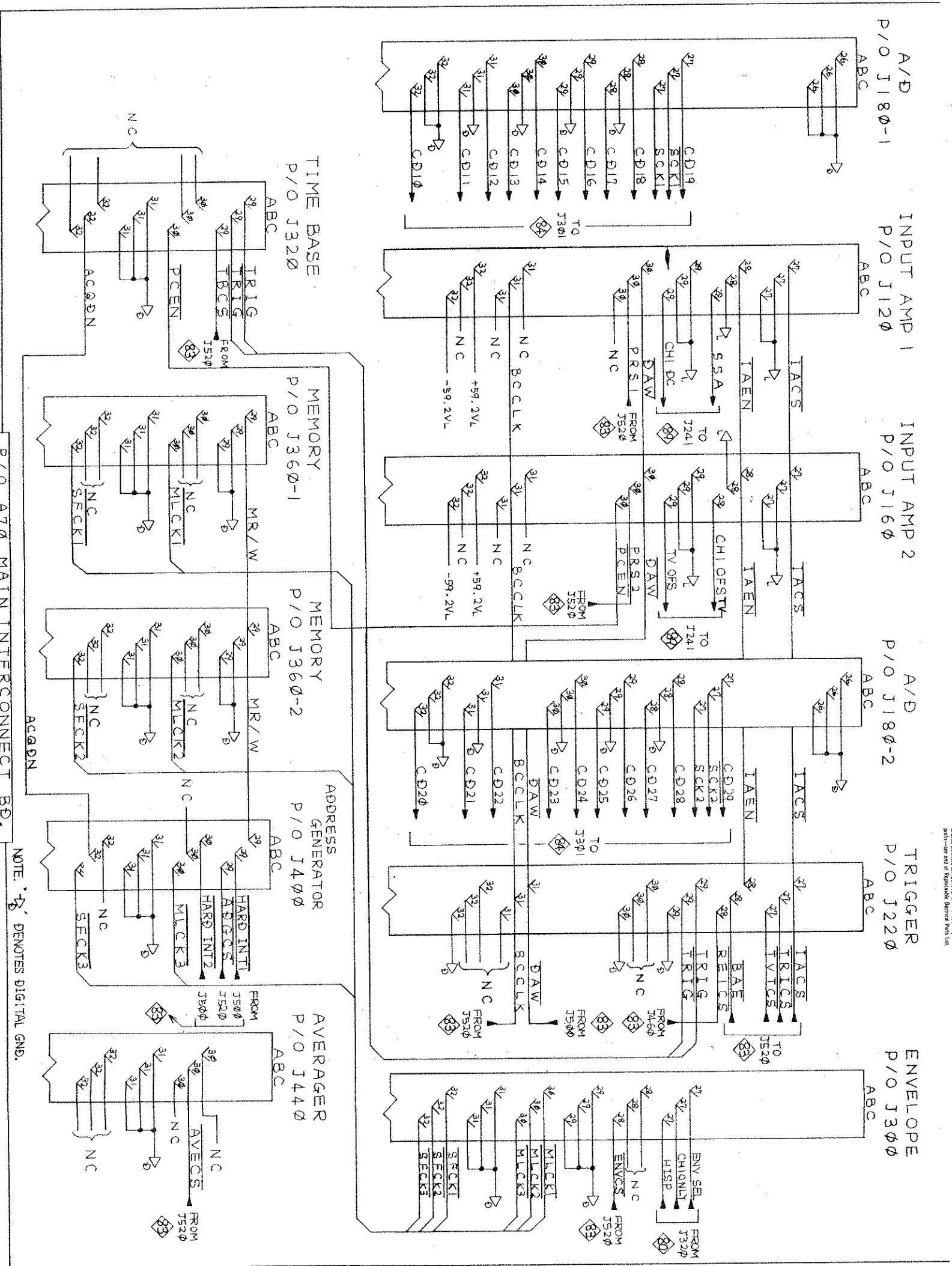



Table 8-86
MAIN INTERCONNECT-6 
MAIN INTERCONNECT BD., ASSEMBLY A70

CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION
J460	C1	C5
J500	D1	B5
J520	E1	B5
J540	F1	A5
J560	G1	A5

ASSY A70 is also shown on Diagrams 77,78,79,80,81,82,83,84,85,86,87,88, and 89.
 ASSY A70 (Fig.8-26) circuit board illustration faces Diagram 77

A B C D E F G

1

2

3

4

5

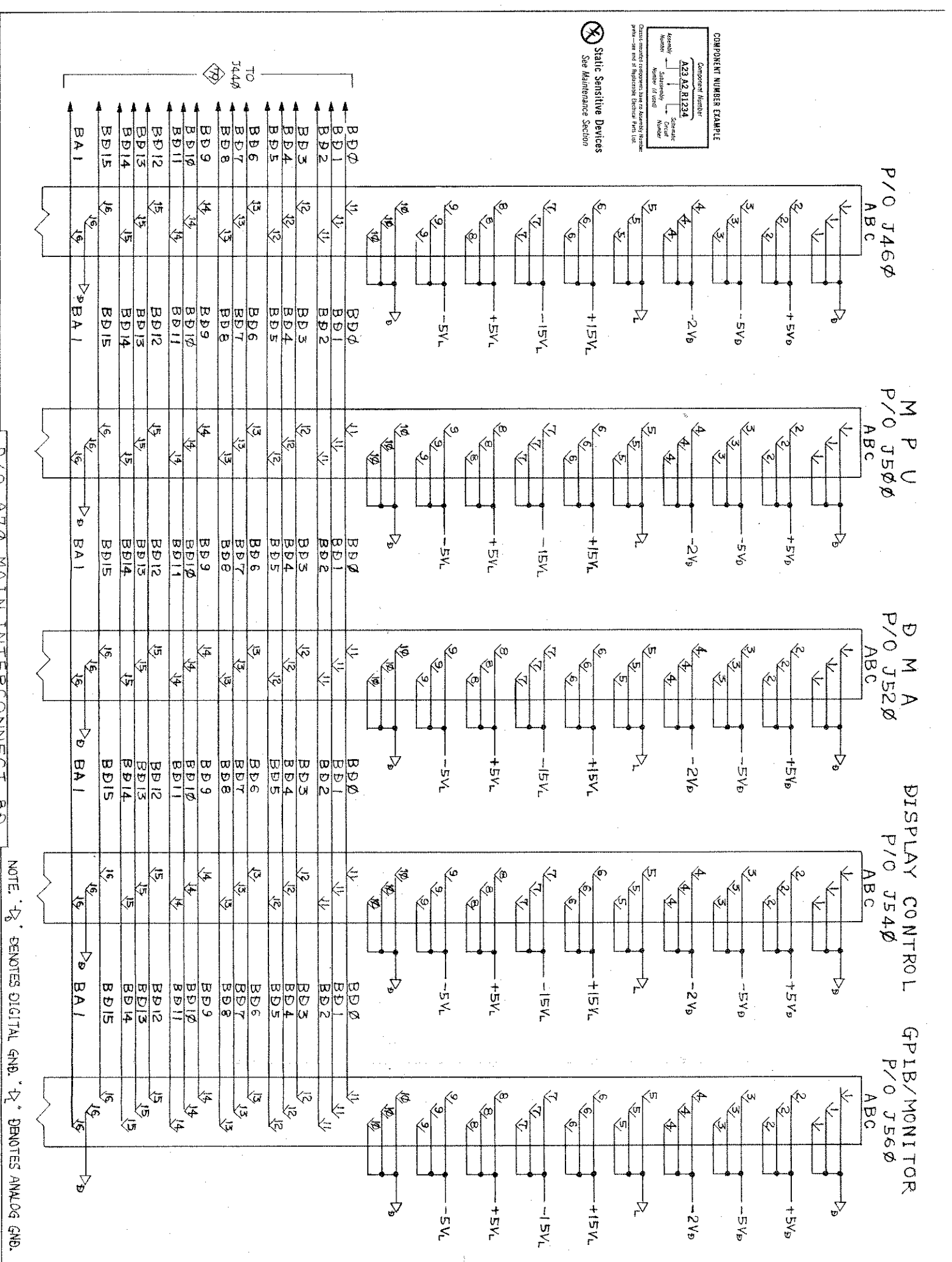


Table 8-87

MAIN INTERCONNECT-7 

MAIN INTERCONNECT BD., ASSEMBLY A70

CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION
J460	C1	D6
J500	D1	B5
J520	E1	B5
J540	F1	A5
J560	G1	A5

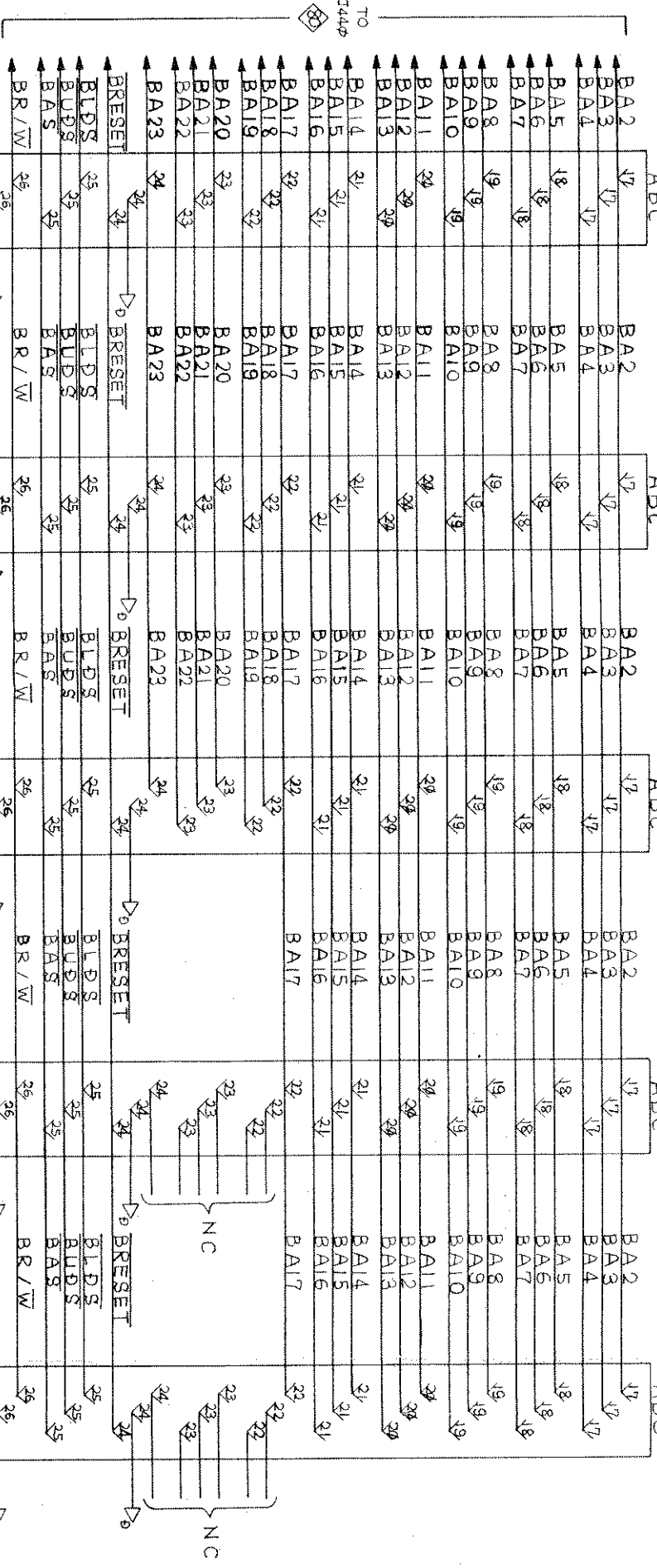
ASSY A70 is also shown on Diagrams 77,78,79,80,81,82,83,84,85,86,87,88, and 89.
 ASSY A70 (Fig.8-26) circuit board illustration faces Diagram 77

A B C D E F G

1

P/O J460 M P U P/O J500 D M A DISPLAY CONTROL GPIB/MONITOR P/O J540 P/O J560

2



3

4

5

COMPONENT NUMBER EXAMPLE
 Component Number: A23 R2 R22A
 Agency Number: R2
 Subassembly Number: R22A
 Schematic Number: A23
 Order Number: R2

⊗ Static Sensitive Devices
 See Maintenance Section

P/O A70 MAIN INTERCONNECT BD.

NOTE: "81" DENOTES DIGITAL GND.

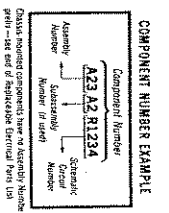
Table 8-88

MAIN INTERCONNECT-8 
 MAIN INTERCONNECT BD., ASSEMBLY A70

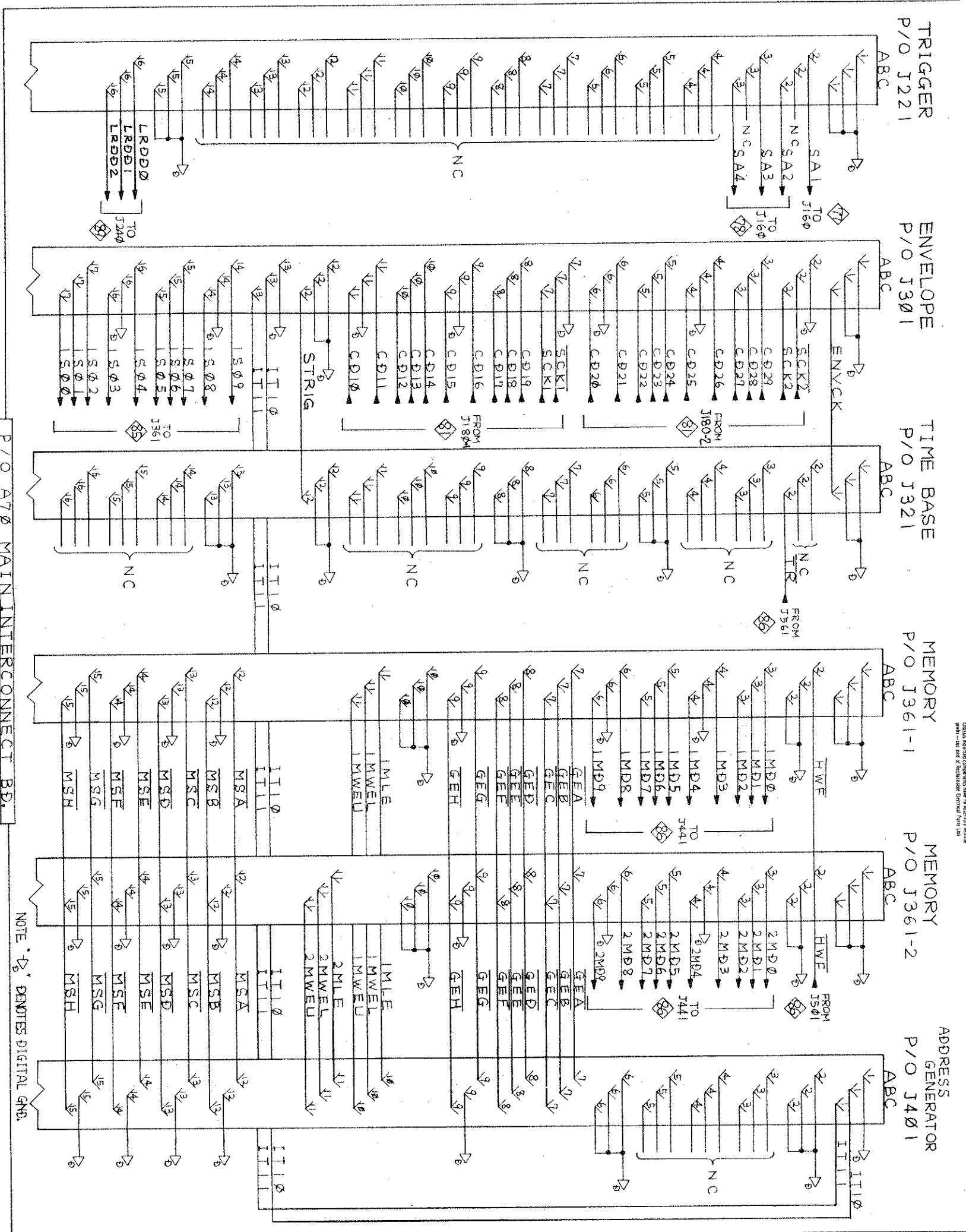
CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION
J221	B1	G1
J301	C1	F1
J321	D1	F1
J361-1	E1	E1
J361-2	F1	D1
J401	G1	D1

ASSY A70 is also shown on Diagrams 77,78,79,80,81,82,83,84,85,86,87,88,and 89.
 ASSY A70 (Fig.8-26) circuit board illustration faces Diagram 77

A B C D E F G




⊗ Static Sensitive Devices
See Maintenance Section



P/O A70 MAIN INTERCONNECT BD.

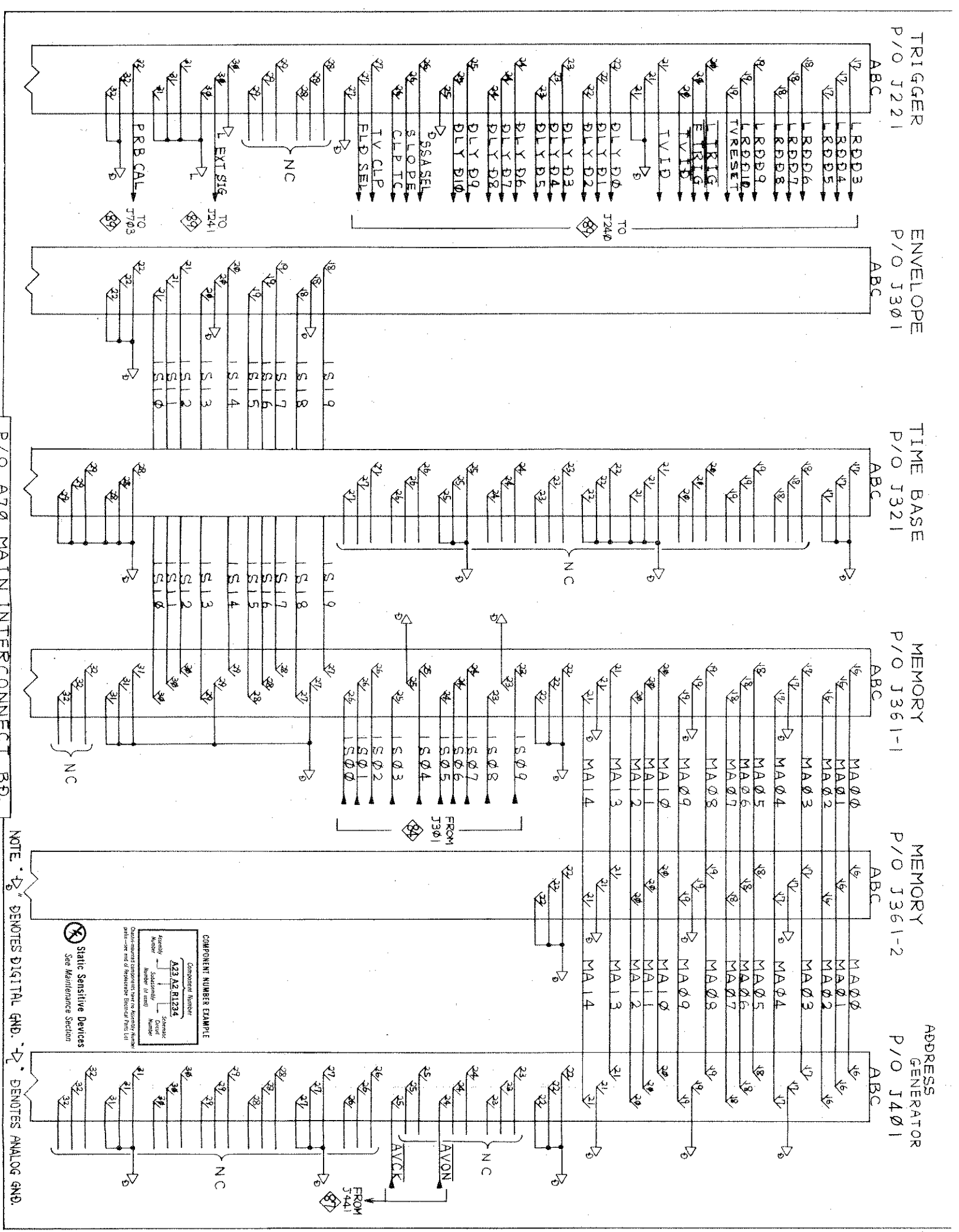
NOTE: ⊗ DENOTES DIGITAL GND.

Table 8-89
MAIN INTERCONNECT-9 
 MAIN INTERCONNECT BD., ASSEMBLY A70

CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION
J221	B1	G1
J301	C1	F1
J321	D1	F1
J361-1	E1	E1
J361-2	F1	D1
J401	G1	D1

ASSY A70 is also shown on Diagrams 77,78,79,80,81,82,83,84,85,86,87,88,and 89.
 ASSY A70 (Fig.8-26) circuit board illustration faces Diagram 77

A B C D E F G



P/O A70 MAIN INTERCONNECT BD.

NOTE: ⊕ DENOTES DIGITAL GND. ⊖ DENOTES ANALOG GND.

COMPONENT NUMBER EXAMPLE

Component Number	A23 A2 R1234
Assembly	□
Subassembly	□
Part Number (if used)	□
Ordering Number	□

⊗ Static Sensitive Devices
See Maintenance Section

Qualification Component Part or Assembly Number will not be used if replacement electrical parts are used.

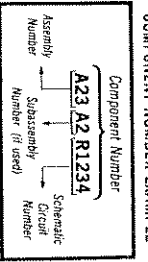
Table 8-90
MAIN INTERCONNECT-10 
 MAIN INTERCONNECT BD., ASSEMBLY A70

CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION
J441	B1	C1
J461	C1	C1
J501	D1	B1
J521	E1	B1
J541	F1	A1
J561	G1	A1

ASSY A70 is also shown on Diagrams 77,78,79,80,81,82,83,84,85,86,87,88, and 89.
 ASSY A70 (Fig.8-26) circuit board illustration faces Diagram 77

A B C D E F G

COMPONENT NUMBER EXAMPLE



⊗ Static Sensitive Devices See Maintenance Section

Chassis mounted components have no Assembly Number prefix—see end of Reproducible Electrical Parts List.

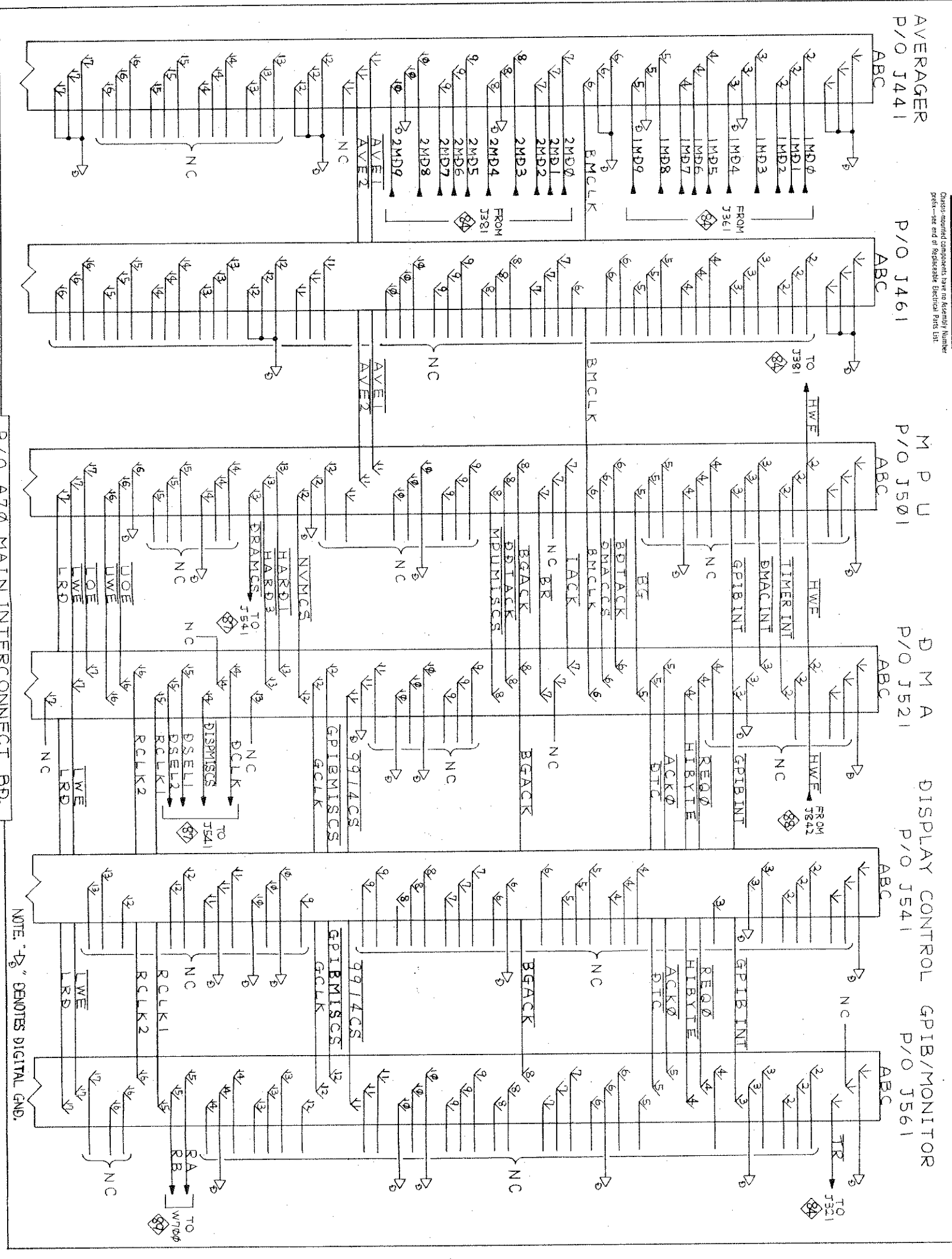


Table 8-91
 MAIN INTERCONNECT-11 
 MAIN INTERCONNECT BD., ASSEMBLY A70

CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION
J441	B1	C1
J461	C1	C1
J501	D1	B1
J521	E1	B1
J541	F1	A1
J561	G1	A1

ASSY A70 is also shown on Diagrams 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, and 89.
 ASSY A70 (Fig. 8-26) circuit board illustration faces Diagram 77

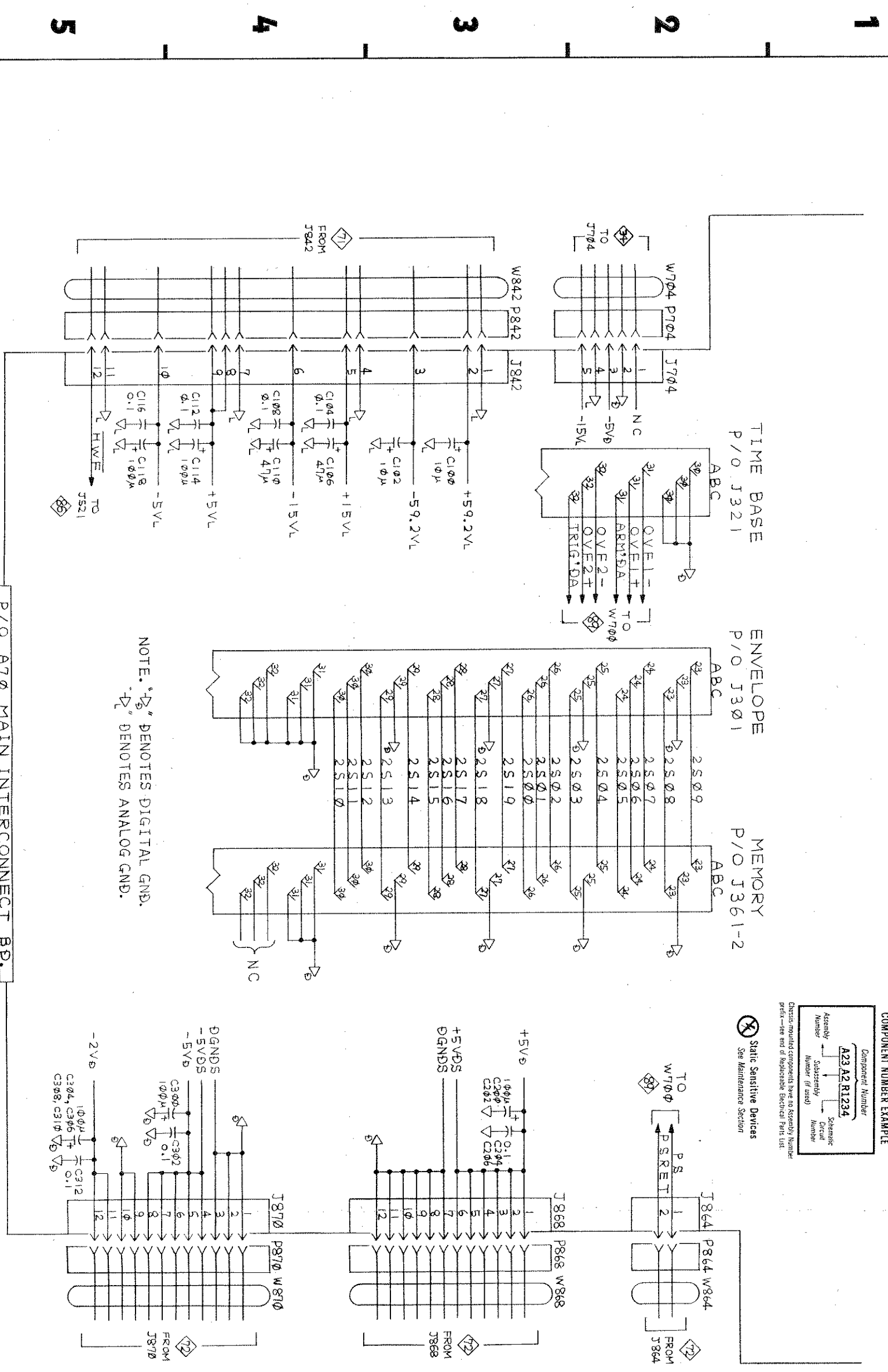
Table 8-92

MAIN INTERCONNECT-12  MAIN INTERCONNECT BD., ASSEMBLY A70

CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION
C100	B3	H8
C102	B3	H8
C104	B4	H7
C106	B4	H7
C108	B4	H7
C110	B4	H7
C112	B4	H7
C114	B4	H7
C116	B5	H8
C118	B5	H8
C200	F3	E8
C202	F3	F8
C204	F3	E8
C206	F3	F8
C300	F5	A8
C302	F5	B8
C304	F5	C8
C306	F5	E8
C308	F5	G8
C310	F5	H8
C312	F5	C8
J301	D2	F1
J321	E2	F1
J361-2	E2	D5
J704	B2	J8
J842	B3	J8
J864	F2	A8
J868	F3	F8
J870	F4	B8
P704	B2	J8
P842	B3	I8
P864	F2	A8
P868	F3	F8
P870	F4	B8
W704	B2	CHASSIS
W824	G2	CHASSIS
W842	B3	CHASSIS
W868	G3	CHASSIS
W870	G4	CHASSIS

ASSY A70 is also shown on Diagrams 77,78,79,80,81,82,83,84,85,86,87,88, and 89.
 ASSY A70 (Fig.8-26) circuit board illustration faces Diagram 77

A B C D E F G



NOTE: "DS" DENOTES DIGITAL GND.
 "DL" DENOTES ANALOG GND.

COMPONENT NUMBER EXAMPLE

Component Number	A23A2R1234
Assembly Number	AS1234
Subassembly Number (if used)	AS1234
Schematic Circuit Number	AS1234
Part Number	AS1234

Distibuted components type to Assembly Number
 Part - see end of Independent Electrical Parts List.

⊗ Static Sensitive Devices
 See Maintenance Section

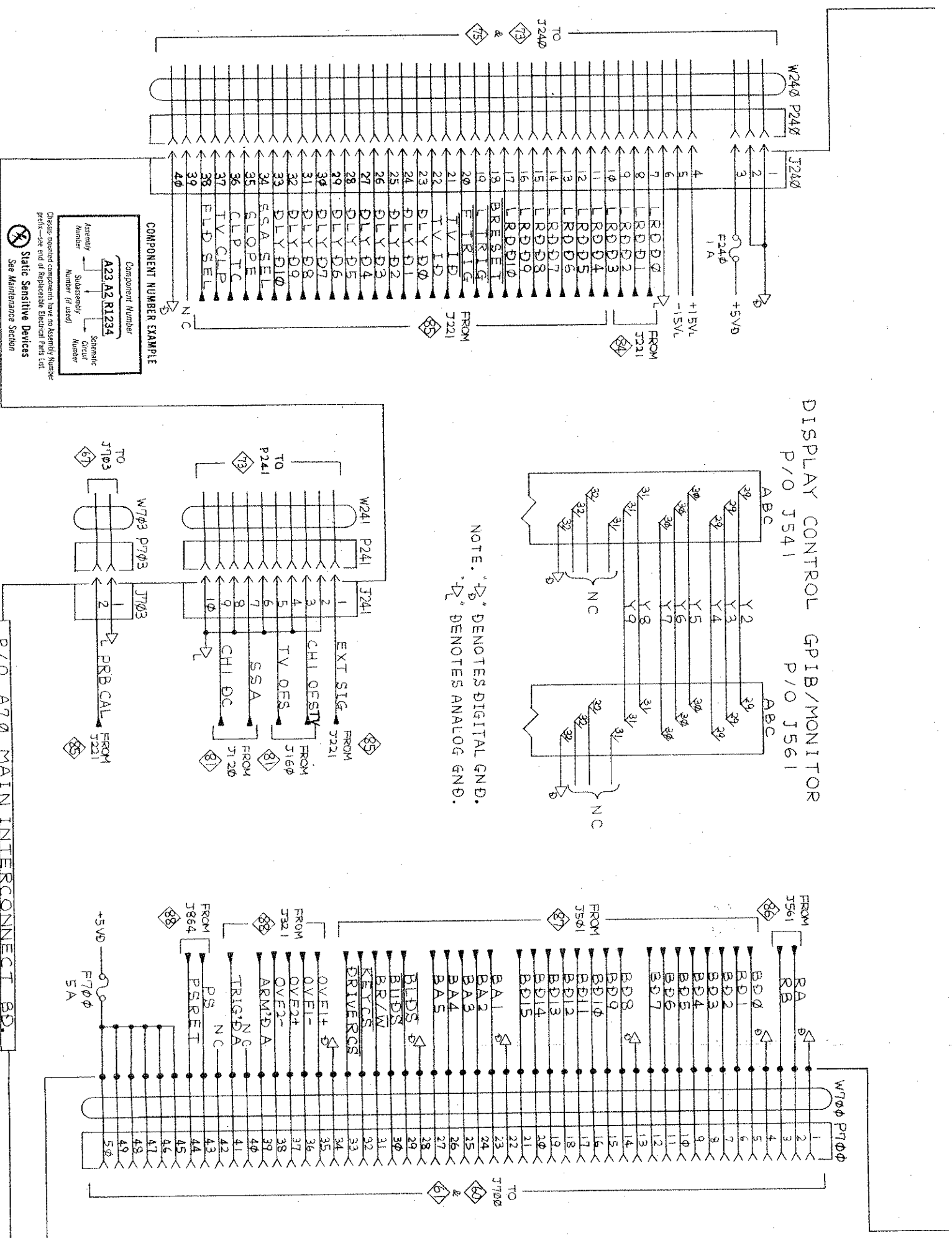
Table 8-93
MAIN INTERCONNECT-13 
 MAIN INTERCONNECT BD., ASSEMBLY A70

CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION
F240	C2	E1
F700	F5	C1
J240	B2	F1
J241	D4	G1
J541	D2	A1
J561	E2	A1
J703	D5	G1
P240	B2	F1
P241	D4	G1
P700	G2	CHASSIS
P703	D5	G1
W240	B2	CHASSIS
W241	D4	CHASSIS
W700	G2	B1
W703	D5	CHASSIS

ASSY A70 is also shown on Diagrams 77,78,79,80,81,82,83,84,85,86,87,88, and 89.
 ASSY A70 (Fig.8-26) circuit board illustration faces Diagram 77

A B C D E F G

1 2 3 4 5



Chassis mounted components have no Assembly Number prefix—see end of Replicable Electrical Parts List. See Maintenance Section



REPLACEABLE MECHANICAL PARTS

INDENTATION SYSTEM

This mechanical parts list is indented to indicate item relationships. Following is an example of the indentation system used in the description column.

1 2 3 4 5
Name & Description

Assembly and/or Component
Attaching parts for Assembly and/or Component
END ATTACHING PARTS

Detail Part of Assembly and/or Component
Attaching parts for Detail Part
END ATTACHING PARTS

Parts of Detail Part
Attaching parts for Parts of Detail Part
END ATTACHING PARTS

Attaching Parts always appear in the same indentation as the item it mounts, while the detail parts are indented to the right. Indented items are part of, and included with, the next higher indentation.

Attaching parts must be purchased separately, unless otherwise specified.

ABBREVIATIONS

Abbreviations conform to American National Standards Institute Y11.

PARTS ORDERING INFORMATION

Replacement parts are available from or through your local Tektronix, Inc. Field Office or representative.

Changes to Tektronix instruments are sometimes made to accommodate improved components as they become available, and to give you the benefit of the latest improvements developed in our engineering department. It is therefore important, when ordering parts, to include the following information in your order: Part number, instrument type or number, serial number, and modification number if applicable.

If a part you have ordered has been replaced with a new or improved part, your local Tektronix, Inc. Field Office or representative will contact you concerning any change in part number.

Change information, if any, is located at the rear of this manual.

ITEM NAME

In the Parts List, an item Name is separated from the item Name by a colon (:). Because of space limitations, an item Name may sometimes appear as incomplete. For further item Name identification, the U.S. Federal Cataloging Handbook H6-1 can be utilized where possible.

FIGURE AND INDEX NUMBERS

Items in this section are referenced by figure and index numbers to the illustrations.

CROSS INDEX - MFR. CODE NUMBER TO MANUFACTURER

Replaceable Mechanical Parts

Mfr. Code	Manufacturer	Address	City, State, Zip Code
01536	TEXTRON INC	1818 CHRISTINA ST	ROCKFORD IL 61108
04713	SEMS PRODUCTS UNIT MOTOROLA INC SEMICONDUCTOR PRODUCTS SECTOR	5005 E MCDOWELL RD	PHOENIX AZ 85008-4229
06383	PANDUIT CORP	17301 RIDGELAND	TINLEY PARK IL 07094-2917
06666	GENERAL DEVICES CO INC	1410 S POST RD PO BOX 39100	INDIANAPOLIS IN 46239-9632
12327	FREEMAY CORP	9301 ALLEN DR	CLEVELAND OH 44125-4632
13511	AMHENOL CADRE		LOS GATOS CA
16428	DIV BUNKER RAMO CORP COOPER BELDEN ELECTRONIC WIRE AND CA	NW N ST	RICHMOND IN 47374
19701	MEPCO/CENTRALAB A NORTH AMERICAN PHILIPS CO	PO BOX 760	MINERAL WELLS TX 76067-0760
50434	HEWLETT-PACKARD CO OPTOELECTRONICS DIV	370 W TRIMBLE RD	SAN JOSE CA 95131
52961	NORTHWEST STAMPING	86365 COLLEGE VIEW RD	EUGENE OR 97405-9631
57668	RCHM CORP	8 WHATNEY	IRVINE CA 92713
71279	INTERCONNECTION PRODUCTS INC	2601 S GARNEY ST PO BOX 19515	SANTA ANA CA 92707-3338
73743	FISCHER SPECIAL MFG CO	111 INDUSTRIAL RD	COLD SPRING KY 41076-9749
78189	ILLINOIS TOOL WORKS INC	ST CHARLES ROAD	ELGIN IL 60120
80009	SHAKEPROOF DIV TEKTRONIX INC	14150 SW KARL BRAUN DR PO BOX 500	BEAVERTON OR 97077-0001
83486	ELCO INDUSTRIES INC	1101 SAMUELSON RD	ROCKFORD IL 61101
86928	SEASTROM MFG CO INC	701 SOMORA AVE	GLENDALE CA 91201-2431
92101	SCHULZE MFG	50 INGOLD RD	BURLINGAME CA 94010-2206
93907	TEXTRON INC	600 18TH AVE	ROCKFORD IL 61108-5181
95403	HIROSE ELECTRIC CO LTD	5-5-23 OHSAKI	TOKYO JAPAN
TK0191	SONY TEKTRONIX	SHINAGAWA-KU PO BOX 14	TOKYO JAPAN
TK0435	LEWIS SCREW CO	4300 S RACING AVE	CHICAGO IL 60609-3320
TK0508	NORTHWEST SPRING AND MFG CO	5858 WILLOW LANE	LAKE OSWEGO OR 97034-5343
TK0AL	ONODERA MFG CO LTD	3-1-2 KAMIYOHGA	TOKYO JAPAN
TK0AR	KITAGAWA IND CO LTD	SETAGAYA-KU	TOKYO JAPAN
TK0AU	CHIYODA DENSHI CO LTD	NIHONBASHI CHUO-KU 2-4-26 MUROMACHI	TOKYO JAPAN
		MEGURO-KU 2-5-12 MITA	TOKYO JAPAN

Index	Elektronix	Serial/Assembly No.	Qty	Description	Mfr. Code	Mfr. Part No.
105-0786-03			2	RELEASE LATCH: PLASTIC, SMOKE TAN	80009	105-0786-03
105-0787-00			2	LATCH, RETAINING; RACKMOUNT, SST	80009	105-0787-00
119-2627-02			1	DELAY LINE ASSY; 26NS, 50 OHM, 1034CM	80009	119-2627-02
124-0452-00			2	STRIP, TRIM; BOTTOM, 508MM L, ABS	80009	124-0452-00
124-0453-00			2	STRIP, TRIM; TOP, 596.9MM L, ABS	80009	124-0453-00
129-0053-00			1	POST, B06, ELEC: 5 WAY, UNINSULATED	80009	129-0053-00
129-1184-00			10	SPACER, POST; 9.9MM L, W 4-40, BRS, NP, 6.3MM HEX	80009	129-1184-00
129-1272-00			2	SPACER, POST; 6MM L, W 10-32 STD, 6-6-32	80009	129-1272-00
131-0955-00			1	CONN, RCPT, ELEC: BNC, FEMALE	13511	31-279
131-1315-01			3	CONN, RCPT, ELEC: BNC, FEMALE	80009	131-1315-01
136-0387-00			1	JACK, TIP; W/U 0.04 DIA PIN, GRAY	71279	45043525010318
152-0166-00			1	SEMICOND DVC, DI: ZEN, SI, 1.6, 2V, 5%, 400MM, DO-7	04713	SZ11738RL
152-0322-00			1	SEMICOND DVC, DI: SCHOTTKY, SI, 15V, 1.2PF, DO-35	50434	5082-2672
174-0603-00			1	CABLE ASSY, RF; 50 OHM COAX, 16.1 L	80009	174-0603-00
174-0604-00			1	CABLE ASSY, RF; 50 OHM COAX, 21.7 L	80009	174-0604-00
174-0605-00			1	CABLE ASSY, RF; 50 OHM COAX, 21.7 L	80009	174-0605-00
174-0790-00			1	CABLE ASSY, RF; 50 OHM COAX, 13.0 L	80009	174-0790-00
174-0791-00			1	CABLE ASSY, RF; 50 OHM COAX, 45.0 L	80009	174-0791-00
174-0793-00			1	CA ASSY, SP, ELEC: 12, 18 AWG, 4.0 L, 8-3	TK0191	ORDER BY DESC
174-0795-00			1	CA ASSY, SP, ELEC: 12, 18 AWG, 4.1 L, 8-1	TK0191	ORDER BY DESC
174-0796-00			1	CA ASSY, SP, ELEC: 12, 18 AWG, 23.0 L, 8-2	TK0191	ORDER BY DESC
174-1302-00			1	CABLE ASSY, RF; 75 OHM COAX, 250MM L	SS403	FL2LPL, SCNM2360
174-1304-00			1	CABLE ASSY, RF; 75 OHM COAX, 250MM L	SS403	FL2LPL, SCNM2360
198-5598-00			1	WIRE SET, ELEC: TRIGGER BD	TK0191	ORDER BY DESC
198-5599-00			1	WIRE SET, ELEC: EXT TRIGGER IN	TK0191	ORDER BY DESC
198-5600-00			1	WIRE SET, ELEC: TIME/BASE BD	TK0191	ORDER BY DESC
198-5601-00			1	WIRE SET, ELEC: GPIB/MONITOR BD RTD710	TK0191	ORDER BY DESC
198-5602-00			1	WIRE SET, ELEC: PROBE CAL	TK0191	ORDER BY DESC
198-5603-00			1	WIRE SET, ELEC: POWER SW	TK0191	ORDER BY DESC
198-5604-00			1	WIRE SET, ELEC: THROUGH BNC	TK0191	ORDER BY DESC
200-3405-01			4	COVER, DLY LINE	80009	200-3405-01
200-3405-01			1	COVER, CHASSIS: MAIN, ALUMINUM	80009	200-3405-01
210-0223-00			1	TERMINAL, LUG; 0.26 ID, LOCKING, BRZ TIN PL	86928	5441-37
210-0458-00			1	NUT, PLAIN, HEX; 0.25-28 X 0.375, BRS NP	72743	3089-402
210-0458-00			10	NUT, PL, ASSEM WA; 8-32 X 0.344, STL CD PL	78189	511-081800-00
210-0586-00			12	NUT, PL, ASSEM WA; 4-40 X 0.25, STL CD PL	78189	511-041800-00
210-0858-00			2	WASHER, FLAT; 0.172 ID X 0.5 OD X 0.062, BRS	12327	ORDER BY DESC
210-1298-00			2	WSHR, SHLD&REC; 0.195 ID X 0.57 OD, PLSTC	80009	210-1298-00
210-3077-00			1	RIVET, BLIND; 5.9MM L X 3.2MM DIA, AL	80009	210-3077-00
211-0008-00			125	SCREW, MACHINE; 4-40 X 0.25, PNH, STL	93907	ORDER BY DESC
211-0012-00			1	SCREW, MACHINE; 4-40 X 0.375, PNH, STL	93907	ORDER BY DESC
211-0101-00			1	SCREW, MACHINE; 4-40 X 0.25, FLH, 100 DEG, STL	93907	ORDER BY DESC
211-0108-00			2	SCREW, MACHINE; 2-56 X 0.156, PNH, STL, POZ	TK0435	ORDER BY DESC
211-0502-00			14	SCREW, MACHINE; 6-32 X 0.188, FLH, 100 DEG, STL	TK0435	ORDER BY DESC
211-0503-00			2	SCREW, MACHINE; 6-32 X 0.188, PNH, STL	TK0435	ORDER BY DESC
211-0504-00			23	SCREW, MACHINE; 6-32 X 0.250, PNH, STL	TK0435	ORDER BY DESC
211-0541-00			6	SCREW, MACHINE; 6-32 X 0.25, FLH, 100 DEG, STL	93907	ORDER BY DESC
211-0565-00			3	SCREW, MACHINE; 6-32 X 0.250, TRH, STL	93907	ORDER BY DESC
211-0661-00			20	SCR, ASSEM WSHR; 4-40 X 0.25, PNH, STL, POZ	01536	821-01655-024
212-0070-00			10	SCREW, MACHINE; 8-32 X 0.312, FLH, 100 DEG, STL	TK0435	ORDER BY DESC
212-0183-00			4	SCREW, MACHINE; 10-32 X 0.875, OVH, STL	TK0435	ORDER BY DESC
213-0782-00			4	SCREW, TP6, TF; 8-32 X 0.625, FLH, STL	83486	ORDER BY DESC
213-0863-00			4	SCREW, TP6, TR; 8-32 X 1.375, TAP TITE, FLH, STL	93907	ORDER BY DESC
220-0105-00			2	NUT BLOCK; 4-40 X 5.5MM, BRS, NI PL	80009	220-0105-00
260-2410-00			1	SWITCH, ROCKER; DPDT, 4A, 125V	80009	260-2410-00
315-0330-00			1	RES, FXD, FILM; 33 OHM, 5%, 0.25W	19701	50433C33R00J
315-0512-00			1	RES, FXD, FILM; 5.1K OHM, 5%, 0.25W	57668	NTR25J-E05K1
333-3471-01			1	PANEL, FRONT	TK0AU	21-010500
337-3574-00			1	SHIELD, ELEC: TV TRIGGER	80009	337-3574-00
343-0549-00			10	STRAP, TIEDOWN; E: 0.091 W X 4.0 L, ZYTEL	06383	PLTIM
343-1070-00			8	RTNR, ELEK SHLD; STAINLESS STEEL	80009	343-1070-00
343-1407-01			1	RETAINER, CKT BD; STEEL, RTD710A	80009	343-1407-01
344-0395-00			5	CLIP, CABLE; NYLON	TK0191	344-0395-00
344-0409-00			4	CLIP, RETAINING; WIRE MOUNTING, NYLON	80009	344-0409-00
348-0067-00			5	GROMMET, PLASTIC; GRAY, ROUND, 0.252 ID	80009	348-0067-00

Index	Tektronix	Serial/Assembly No.	Effective	Discont	Qty	12345	Name & Description	Mfr.	Code	Mfr. Part No.
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348-0201-00					1		FLIP-STAND,CAB:12.875 H,5ST			TK0508 (ADVISE)
348-0235-00					7		SHLD GSKT,ELEK:FINGER TYPE,4.734 L			92101 ORDER BY DESCR
348-0544-05					4		RTNR,CAB,COVER:CORNER EARTH BROWN,PC			80009 348-0544-05
348-0596-00					4		PAD,CAB,FOOT:0.69 X 0.255 X 0.06,PU			80009 348-0596-00
348-0617-00					4		FOOT,CABINET:BOT,TEK BLUE,POLYCARBONATE			80009 348-0617-00
348-0633-00					6		SHLD GSKT,ELEK:FINGER TYPE,19.0 L,CORNER			52961 ORDER BY DESCR
348-0633-00					6		SHLD GSKT,ELEK:FINGER TYPE,19.0 L,CORNER			52961 ORDER BY DESCR
348-0979-00					2		PAD,CUSHIONING:3.73MM L X 7MM W X 5MM THK			80009 348-0979-00
348-1002-00					1		GASKET:ELEC SHIELD,31.8MM L			TK0AR 9797508K L=31.8M
348-1077-00					1		GSKT,SHLD,ELEC:19.2MM L			80009 348-1077-00
348-1089-00					1		GSKT,SHLD,ELEK:142.5MM L,BE CU			80009 348-1089-00
348-1090-00					1		GSKT,SHLD,ELEK:12.7MM L,BE CU			80009 348-1090-00
348-1091-00					111		GSKT,SHLD,ELEK:MESH ON SPONGE CORE W/			80009 348-1091-00
348-1094-00					109		GSKT,SHLD,ELEK:MESH ON SPONGE CORE			80009 348-1094-00
348-1096-00					1		SHLD GSKT,ELEK:43.2MM,BE CU,SN PL			80009 348-1096-00
351-0104-03					1		SL SECT,DWR,EXT:12.625 L,W/O HARDWARE			06666 C-720-3
351-0623-00					1		SLIDE,DWR,EXT:22.0 X 1.54,STEEL			80009 351-0623-00
351-0807-00					3		GUIDE,CABLE:151.6MM L,ALUMINUM			80009 351-0807-00
351-0839-00					32		GUIDE,CKT BD:4.0 L,NYLON			80009 351-0839-00
358-0730-00					2		BUSHING,SLEEVE:16.9MM X 18.0MM X 4MM,NYLON			80009 358-0730-00
361-1413-00					1		SPACER,PLATE:2.5MM X 31MM X 413.4MM,AL			80009 361-1413-00
361-1456-00					1		SPACER,BLOCK:17.3MM X 18MM X 38MM,AL			80009 361-1456-00
361-1512-00					1		SPACER,BLOCK:10MM X 15MM X 59MM,ALUMINUM			80009 361-1512-00
367-0248-07					1		HANDLE,CARRIAGE:16.34 L,W/CLIP,PLASTIC			80009 367-0248-07
378-0300-00					1		FILTER ELBMAIR:160.9MM X 144.5MM X 5MM THK			80009 378-0300-00
378-0302-00					2		FILTER ELBMAIR:138.5MM X 73.7MM X 5MM THK			80009 378-0302-00
390-1003-00					1		CABINET TOP			80009 390-1003-00
390-1004-00					1		CABINET BOTTOM			80009 390-1004-00
390-1005-00					1		CABINET SIDE:LEFT			80009 390-1005-00
390-1006-00					1		CABINET SIDE:RIGHT,W/HANDLE RETAINER			80009 390-1006-00
390-1053-00					1		CABINET,SIDE:LEFT,RACK,W/HANDLE,AL			80009 390-1053-00
390-1055-00					1		CABINET,SIDE:RIGHT,RACK,W/HANDLE,AL			80009 390-1055-00
407-3589-00					1		BRACKET,CHASSIS:TOP,ALUMINUM			80009 407-3589-00
407-3590-00					1		BRACKET,CHASSIS:TOP,ALUMINUM			80009 407-3590-00
407-3591-00					1		BRACKET,CHASSIS:TOP REAR,ALUMINUM			80009 407-3591-00
407-3595-01					1		BRACKET,FR PNL:BOTTOM,ALUMINUM			80009 407-3595-01
407-3596-00					1		BRACKET,FR PNL:LEFT,ALUMINUM			80009 407-3596-00
407-3597-00					1		BRACKET,FR PNL:RIGHT,ALUMINUM			80009 407-3597-00
407-3771-00					1		BRACKET,FR PNL:TOP,ALUMINUM			80009 407-3771-00
407-3812-00					1		BRKT,SHLD GSKT,ALUMINUM			80009 407-3812-00
426-1480-01					1		FRAME,CABINET:REAR,7.0 X FULL RACK			80009 426-1480-01
426-2189-00					1		FRAME SECT,CAB:BOTTOM LEFT			80009 426-2189-00
426-2191-00					1		FRAME SECT,CAB:TOP LEFT			80009 426-2191-00
426-2294-00					1		FRAME PNL,CAB:FRONT,ALUMINUM			80009 426-2294-00
426-2299-00					1		FRAME SECT,CAB:TOP,RIGHT,ALUMINUM			80009 426-2299-00
426-2300-00					1		FRAME SECT,CAB:BOTTOM RIGHT,ALUMINUM			80009 426-2300-00
441-1778-03					1		CHASSIS,FRONT:ALUMINUM			80009 441-1778-03
441-1779-00					1		CHAS,XTAL OSC			80009 441-1779-00
441-1888-01					1		CHASSIS,MAIN:ALUMINUM			80009 441-1888-01
441-1891-00					1		CHASS,RETAINER:CABINET,ALUMINUM			80009 441-1891-00
620-0038-00					1		POWER SUPPLY:+5V,25A OUT,9 CH			80009 620-0038-00

070-7204-00
 070-7207-00
 070-7208-00
 159-0268-00
 159-0269-00
 161-0066-09
 161-0066-10
 161-0066-11
 161-0066-12
 161-0123-00
 161-0154-00
 012-0991-00
 016-0886-00
 067-1312-00
 070-7205-00
 070-7206-00
 334-3379-05

MANUAL, TECH: INSTRUCTION, RTD710A
 MANUAL, TECH: INSTR, RTD710A
 MANUAL, TECH: REFERENCE, RTD710A
 FUSE, CARTRIDGE: 3AG, 8.0A, 125V MEDIUM
 FUSE, CARTRIDGE: 3AG, 4.0A, 250V MEDIUM
 CABLE ASSY, PWR: 3.0, 0.75MM SQ, 220V, 99.0 L (OPTION A1 ONLY)
 CABLE ASSY, PWR: 3.0, 0.75MM SQ, 240V, 96.0 L (OPTION A2 ONLY)
 CABLE ASSY, PWR: 3.0, 0.75MM, 240V, 96.0 L (OPTION A3 ONLY)
 CABLE ASSY, PWR: 3.0, 18 AWG, 250V, 99.0 L (OPTION A4 ONLY)
 CABLE ASSY, PWR: 3.0, 16 AWG, 125V, 96.01 L
 CABLE ASSY, PWR: 3.0, 0.75MM SQ, 240V, 96.0 L (OPTION A5 ONLY)
 MARKER, IDENT: MKD GROUND SYMBOL
 MANUAL, TECH: SERVICE, RTD710A
 MANUAL, TECH: SERVICE, RTD710A
 FIXTURE, CAL: MAINTENANCE, RTD710
 BACK MOUNT KIT
 CABLE, GP18: LOW EMI, 2 METER
 OPTIONAL ACCESSORIES

Fig. & Index	Telextronix	Serial/Assembly No.	Effective	Discont	Qty	12345	Name & Description	Mfr. Code	Mfr. Part No.
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MANUAL CHANGE INFORMATION

At Tektronix, we continually strive to keep up with latest electronic developments by adding circuit and component improvements to our instruments as soon as they are developed and tested.

Sometimes, due to printing and shipping requirements, we can't get these changes immediately into printed manuals. Hence, your manual may contain new change information on following pages.

A single change may affect several sections. Since the change information sheets are carried in the manual until all changes are permanently entered, some duplication may occur. If no such change pages appear following this page, your manual is correct as printed.

