

# RTD 710A DIGITIZER Service Volume II

## WARNING

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

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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
100000	Tektronix Guernsey, Ltd., Channel Islands
200000	Tektronix United Kingdom, Ltd., London
300000	Sony/Tektronix, Japan
700000	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 documentation) are available for troubleshooting and repairing the instrument. Removal and Replacement 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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# **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 laid out in board order (i.e., A10 board, A12 board, etc.).





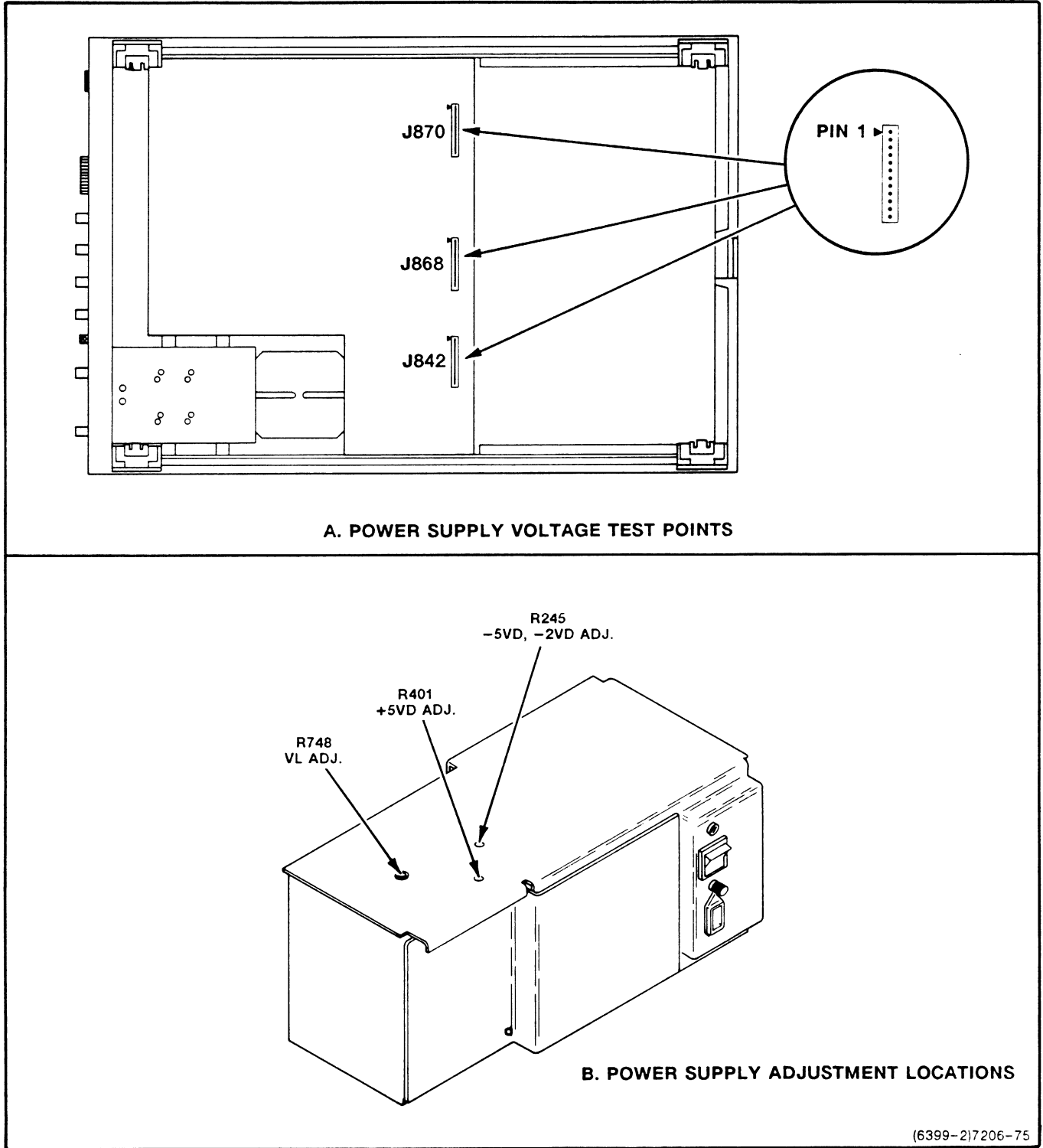


Fig. 6-1 Power Supply Adjustment Locations

# Test Point and Adjustment Locations

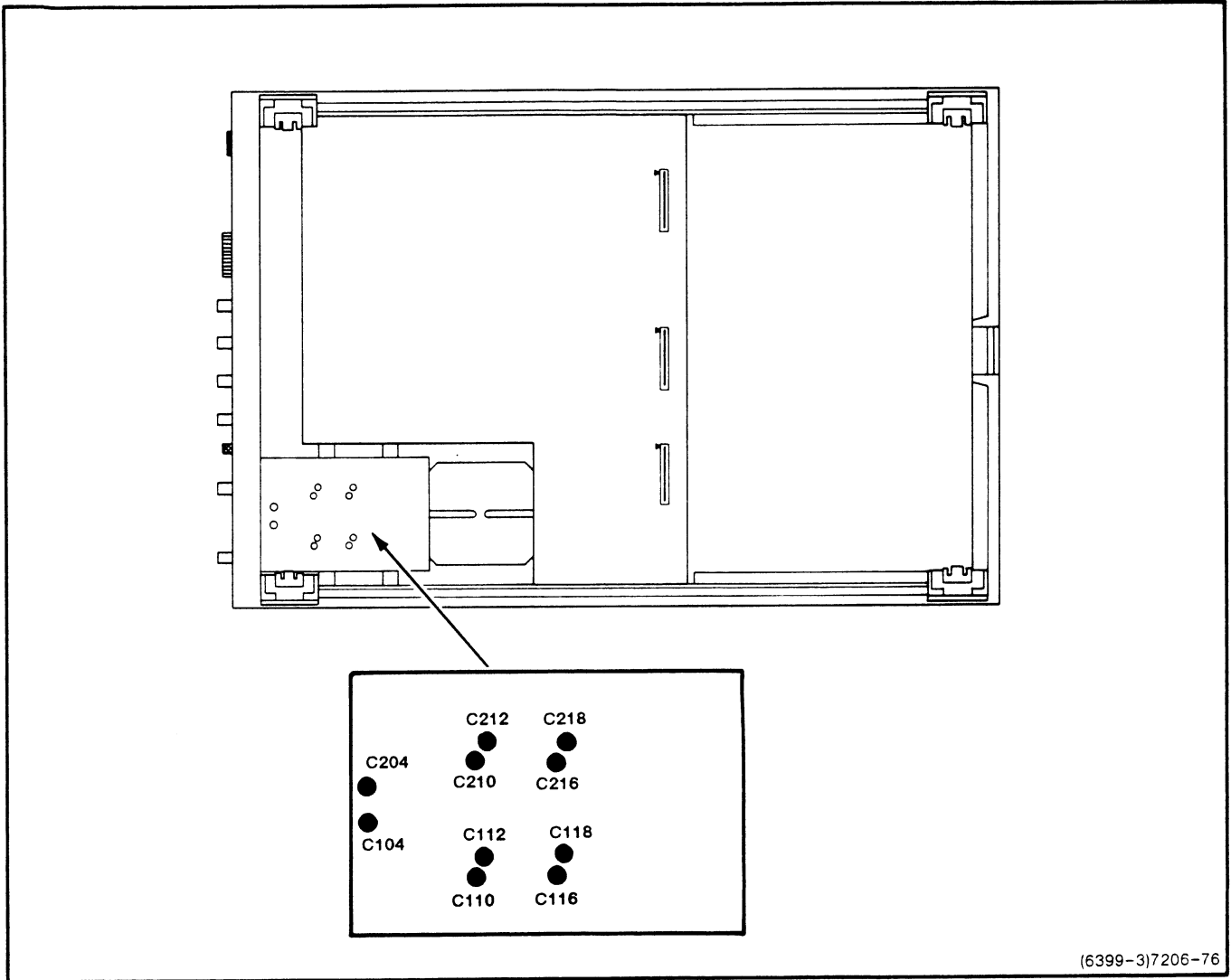


Fig. 6-2 A10 - Attenuator Board Adjustment Locations



# Test Point and Adjustment Locations

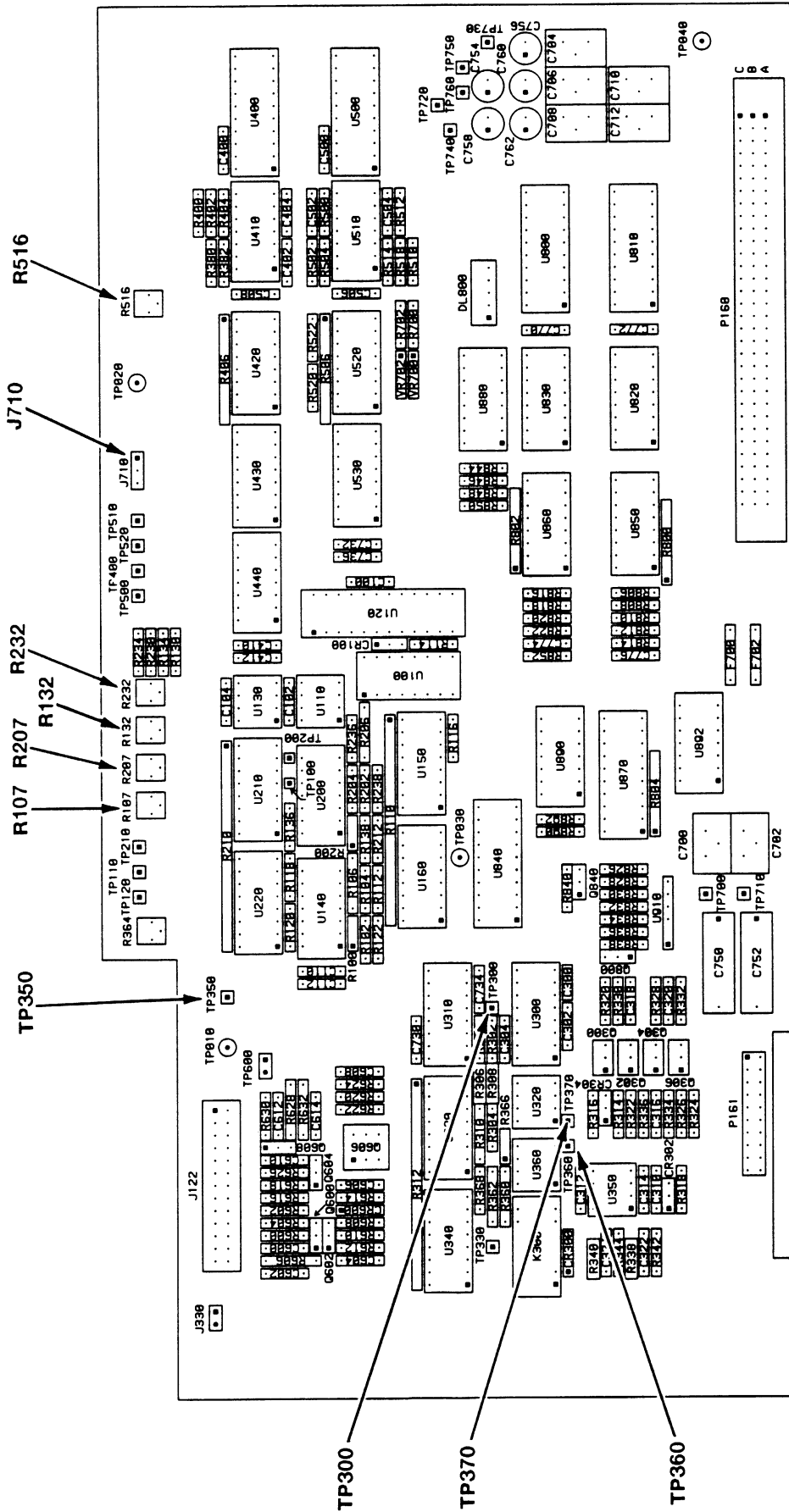
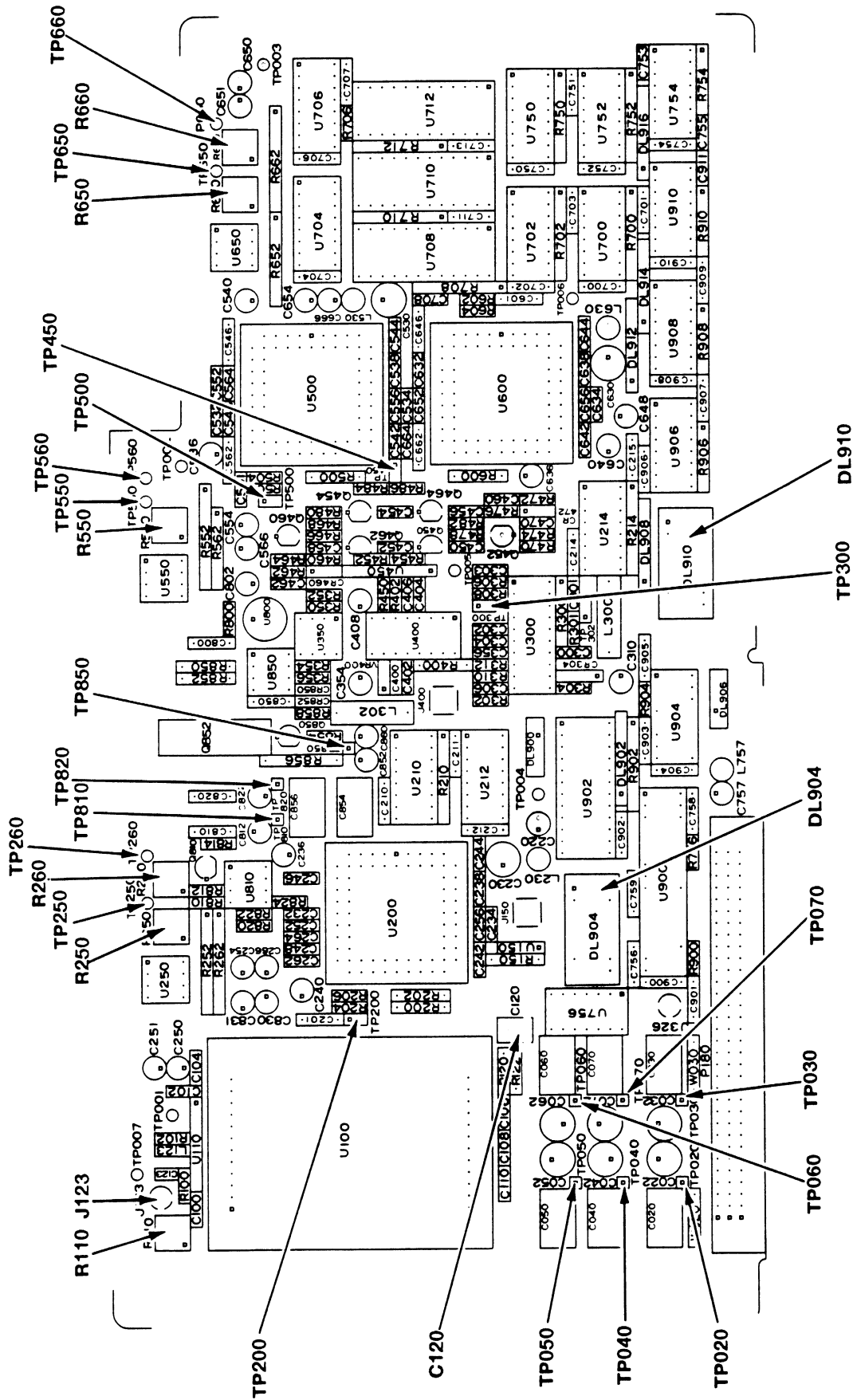


Fig. 6-4 A14 – Auto Cal Board Adjustment Locations

7206-78



7206-79

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

# Test Point and Adjustment Locations

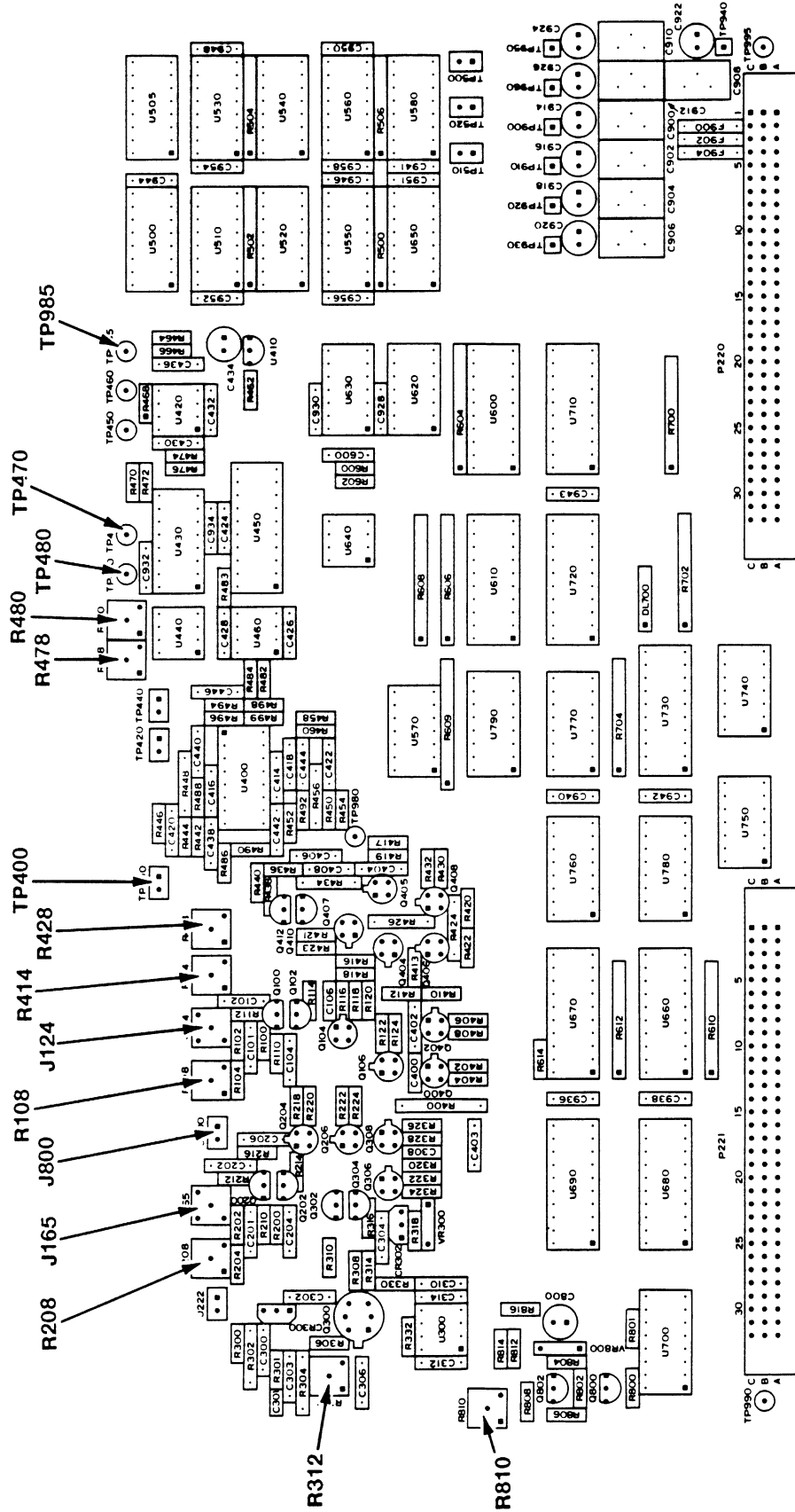
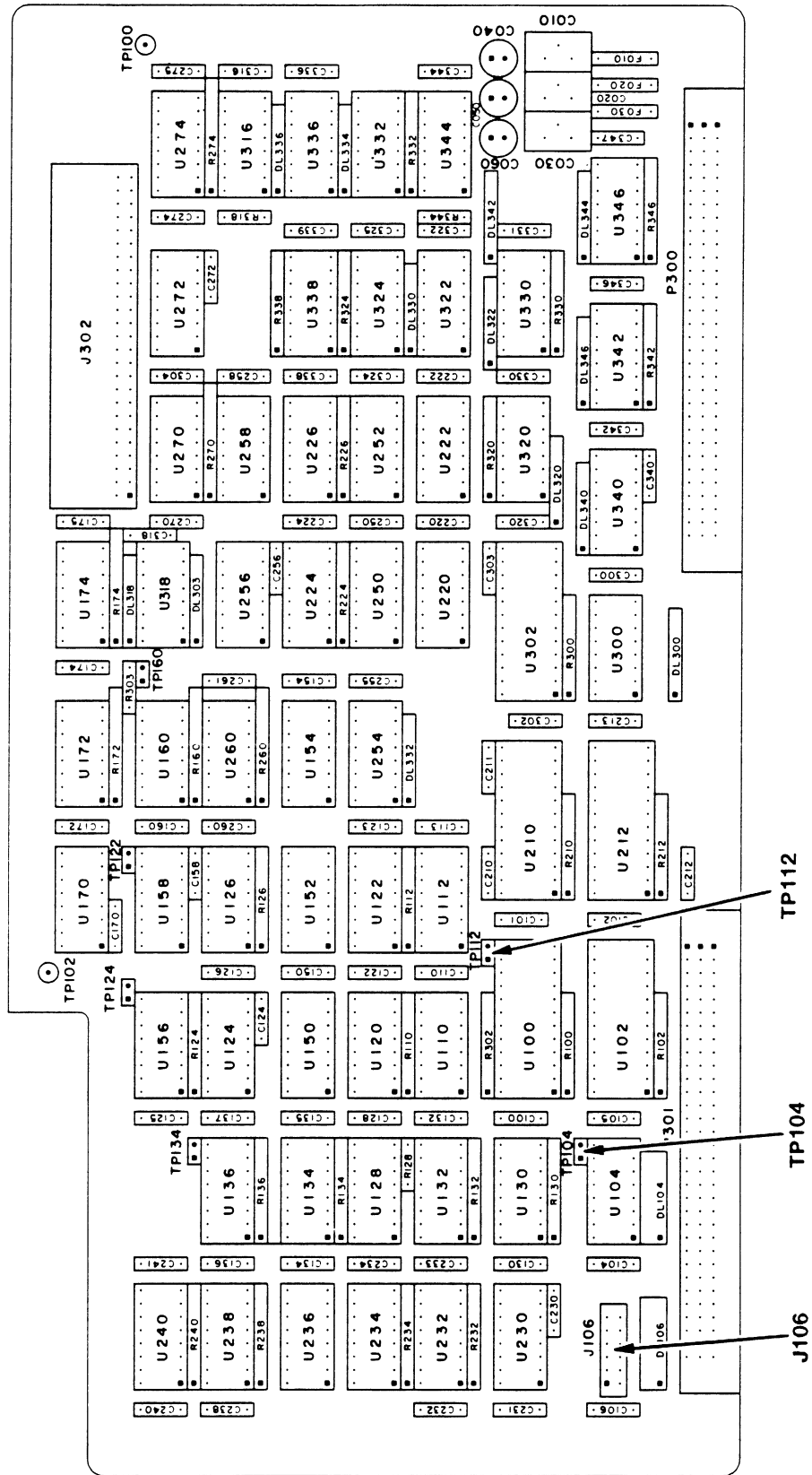


Fig. 6-6 A22 - Trigger Board Adjustment Locations

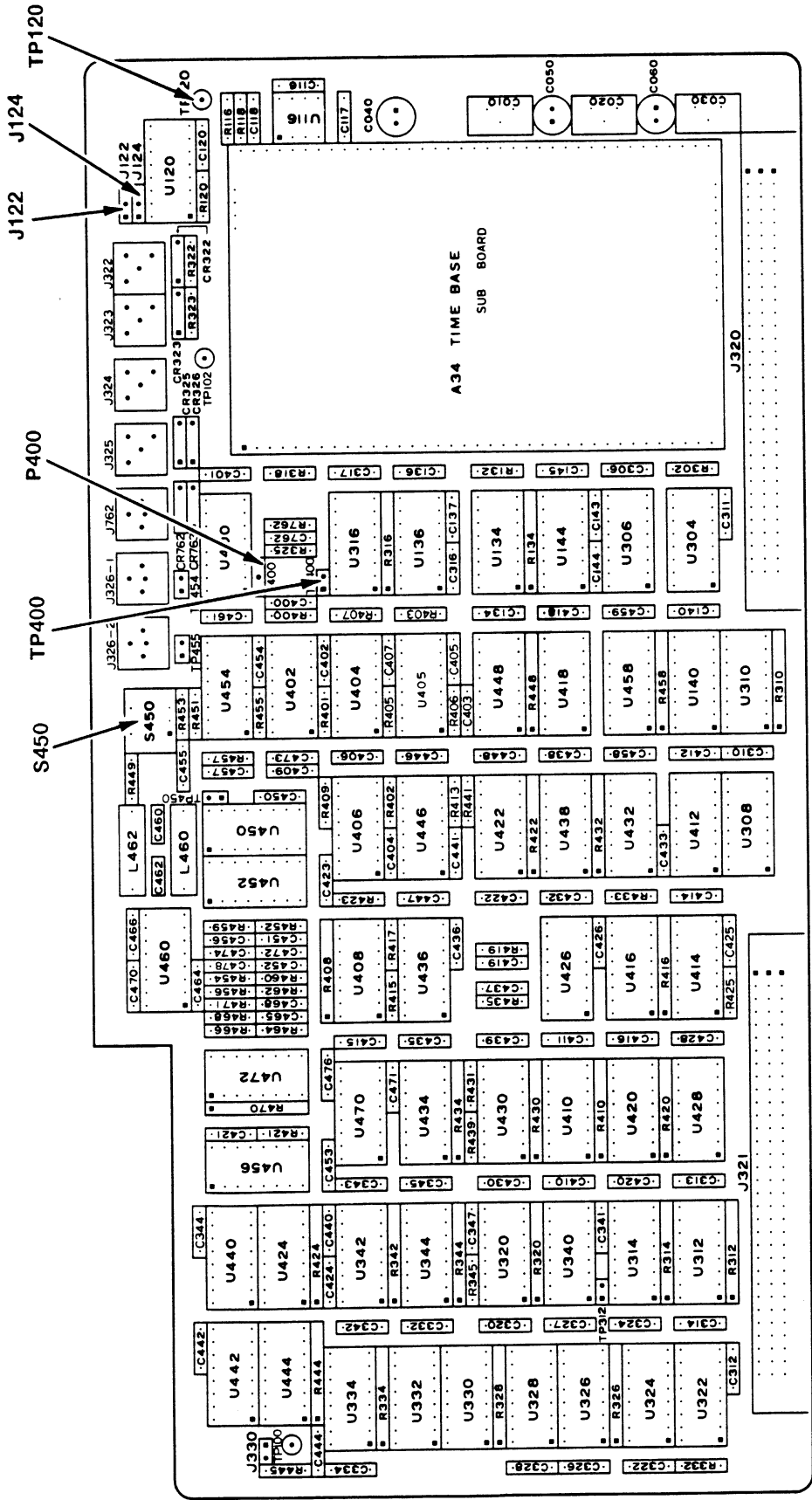
(6399)7206-80



(6399)7206-81

Fig. 6-7 A30 - Envelope Board Adjustment Locations

# Test Point and Adjustment Locations



7206-82

Fig. 6-8 A32 - Time Base Board Adjustment Locations





# Test Point and Adjustment Locations

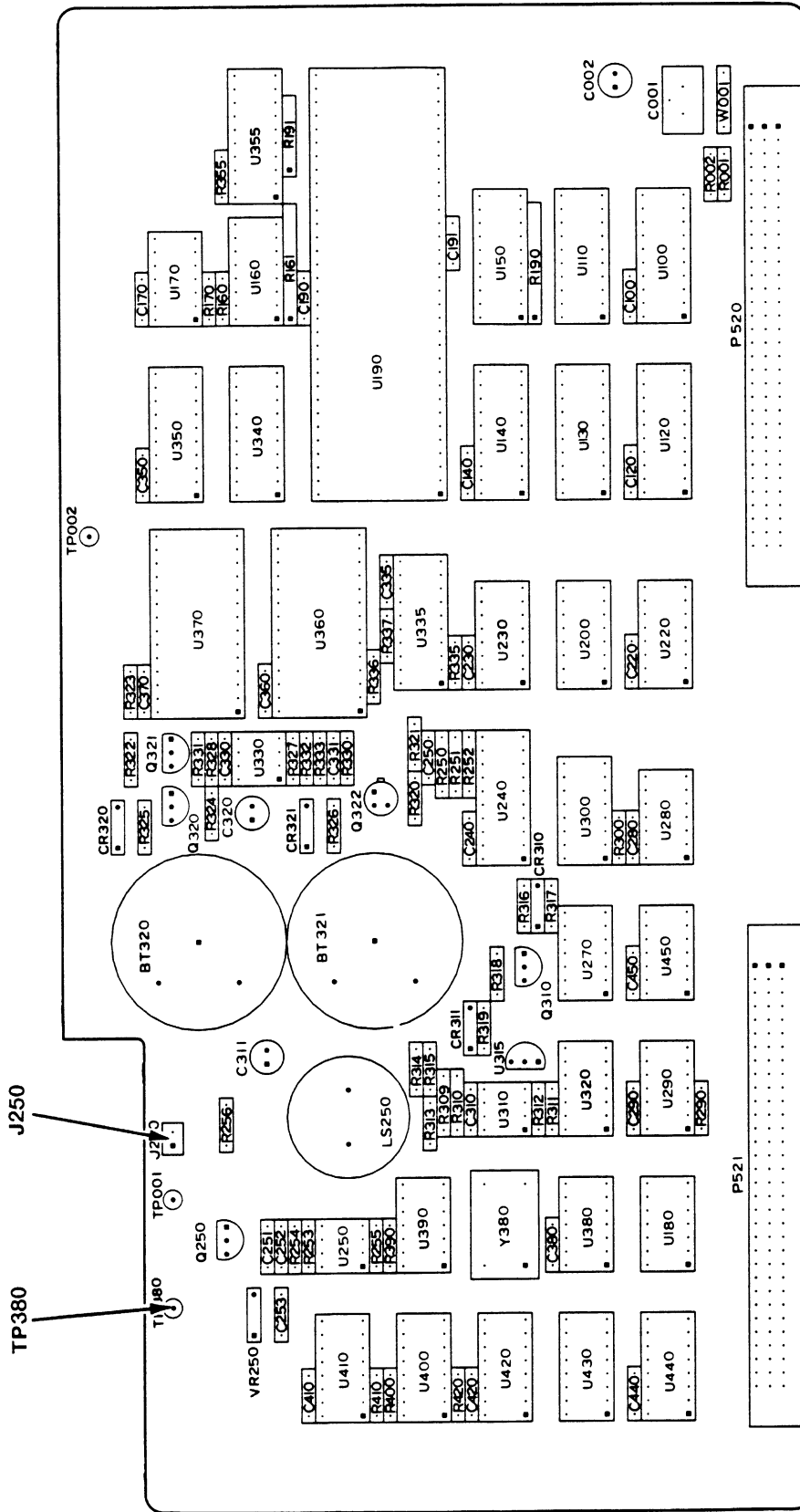
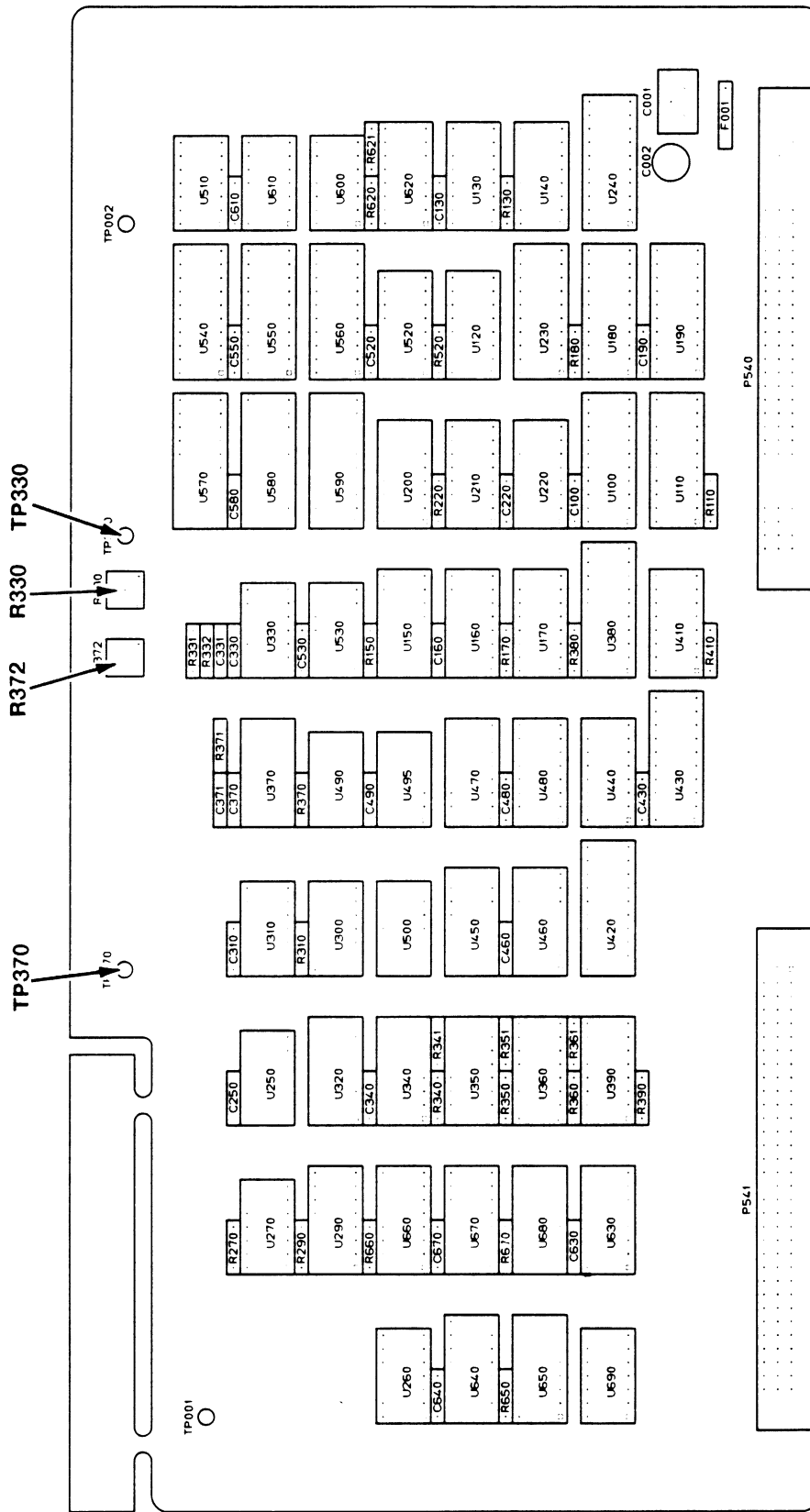


Fig. 6-10 A52 - DMA Board Adjustment Locations

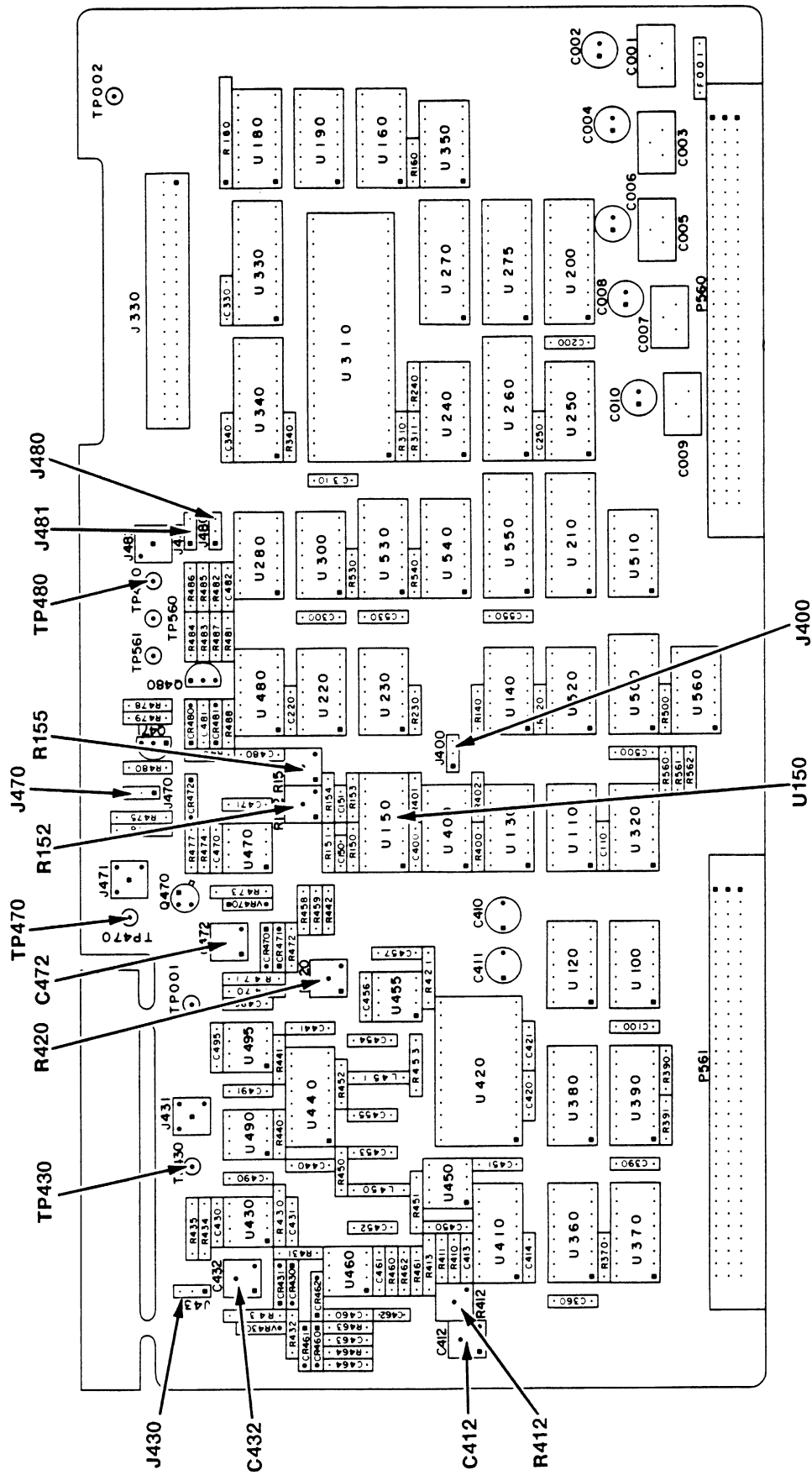
7206-84



(6399)7206-85

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

Test Point and Adjustment Locations



(6399)7206-86

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

# Section 7

## TROUBLESHOOTING CHARTS

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

## Troubleshooting Charts

### 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

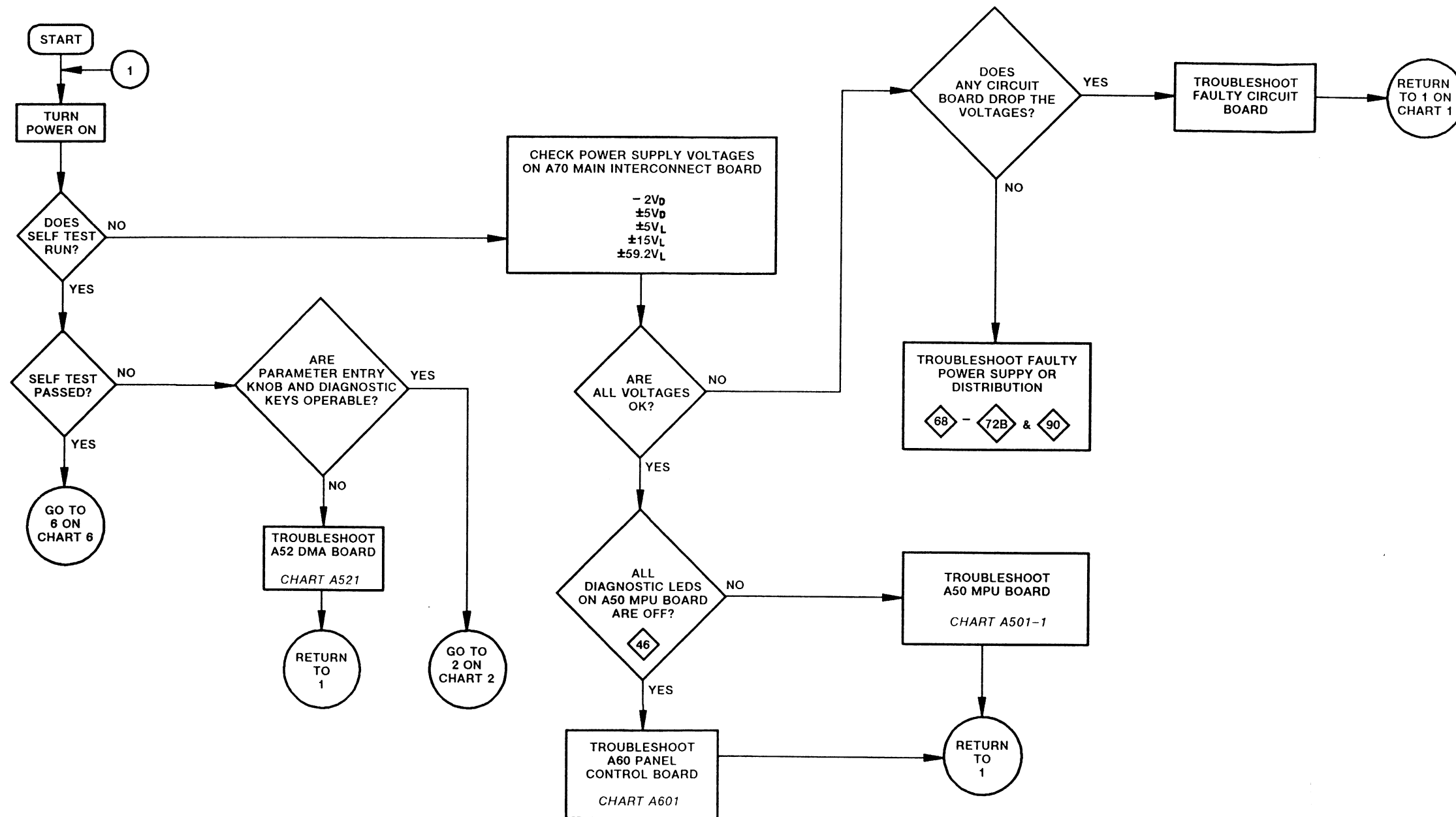
identify the specific board. For example, A100-1 identifies a chart for the A10 board, A121-1 identifies a chart for the A12 board, etc. The additional digits of the chart number are simply chart sequencing numbers.

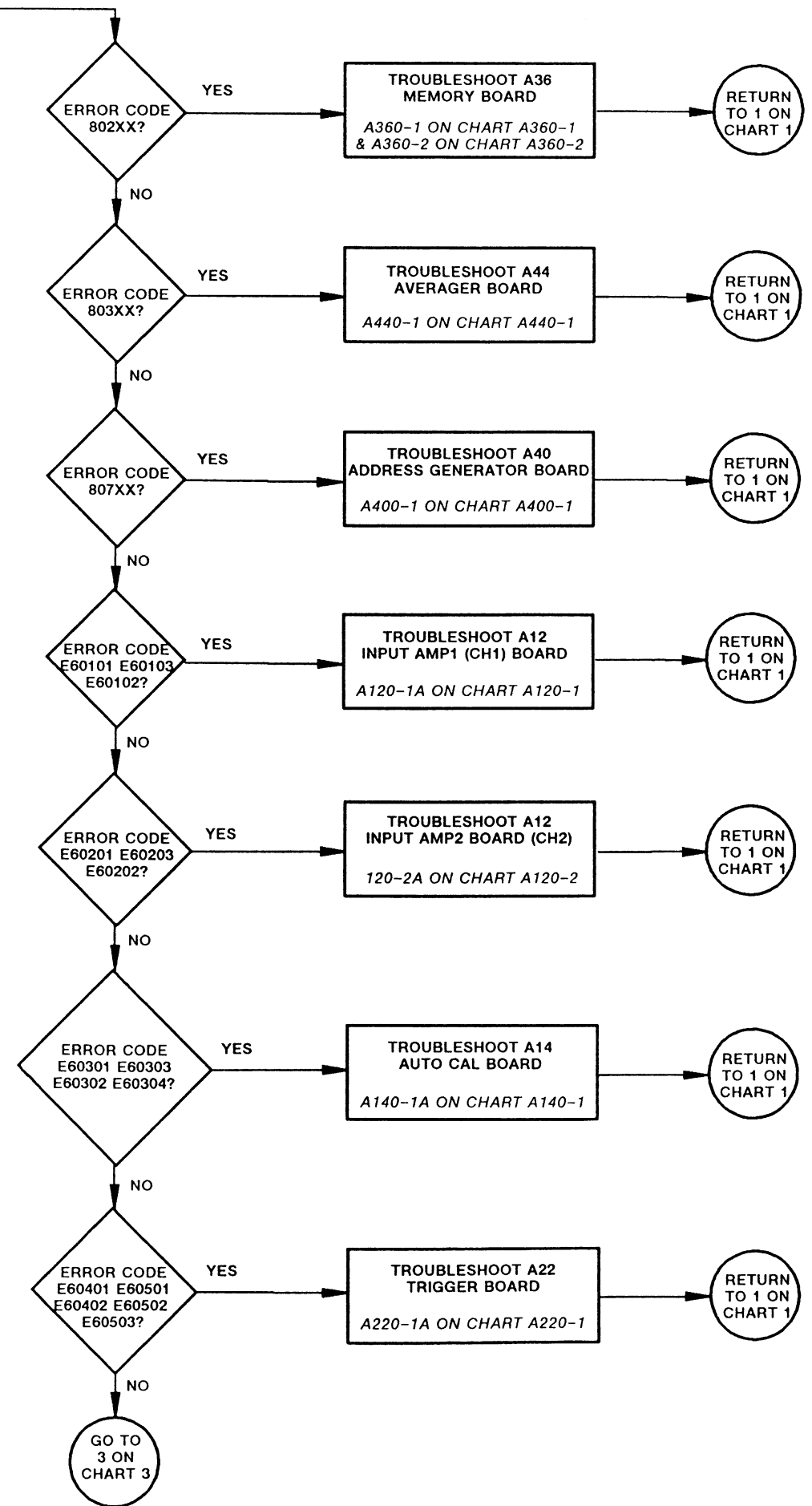
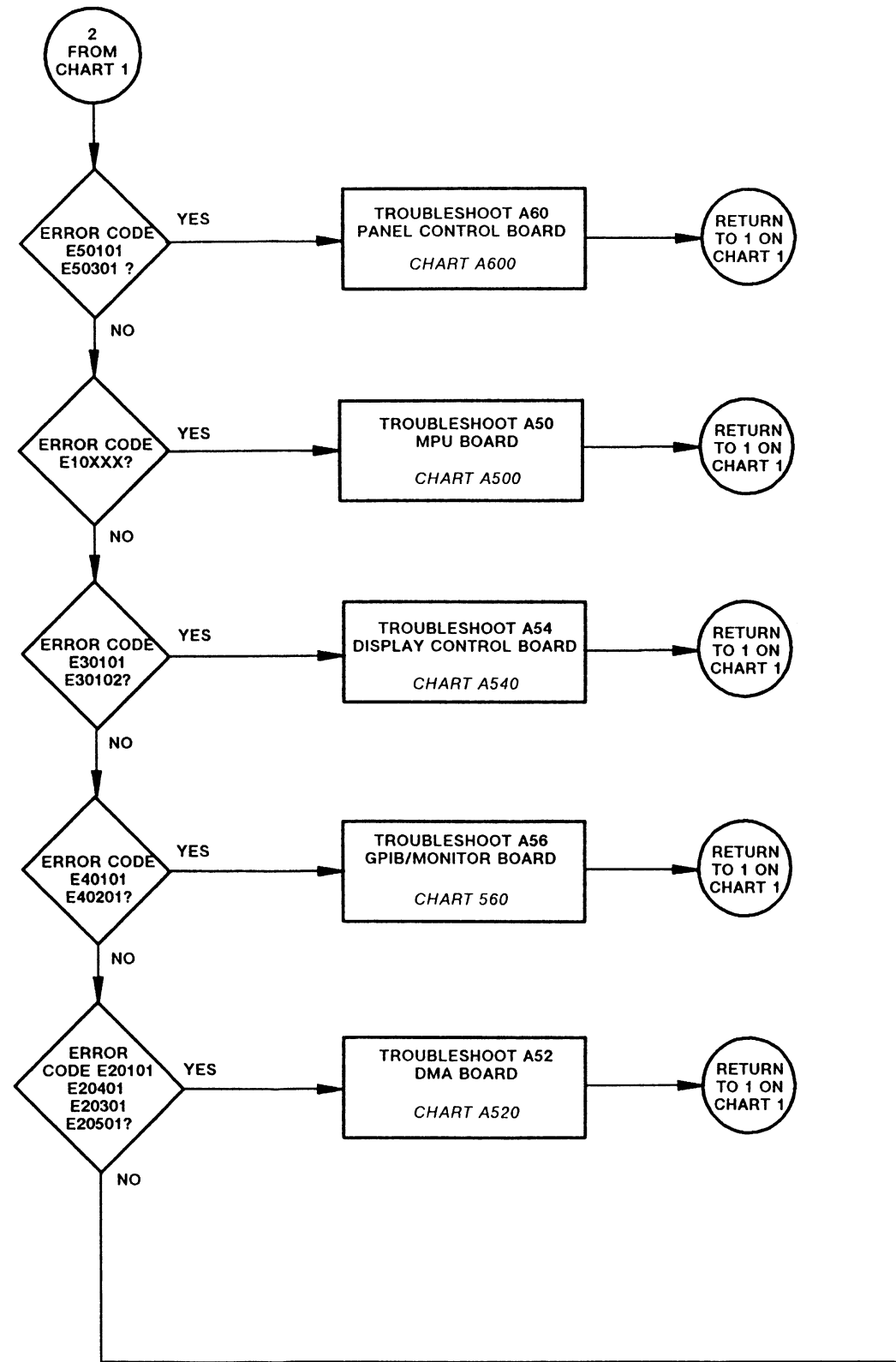
### CHARTS 001-015

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.

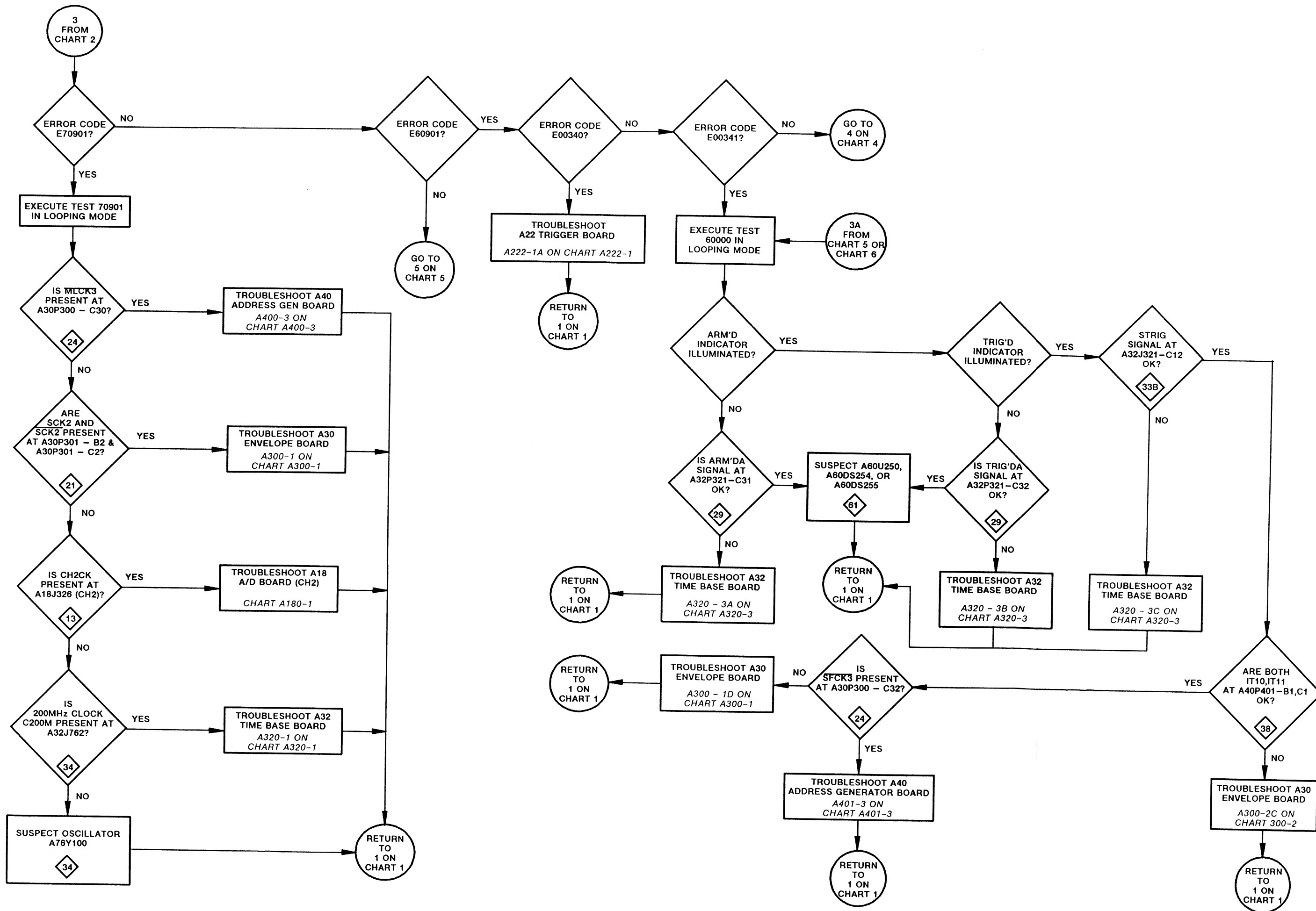
**Table 7-1**  
**Problems Not Detected by Self-Test Diagnostics**

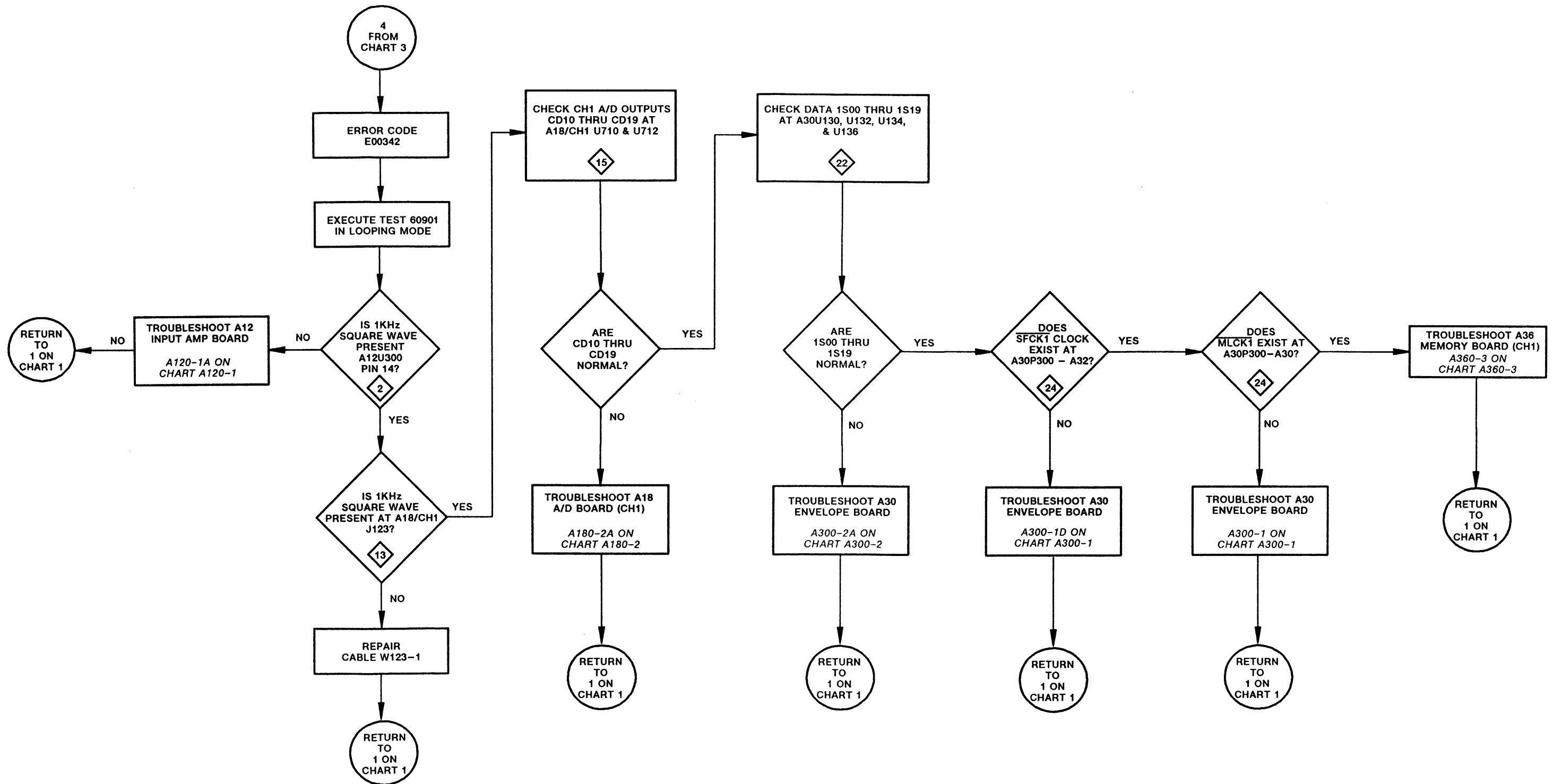
<b>Problem</b>	<b>Chart</b>
Channel 1 Only Mode Acquisition Failure	001
Average Function Failure	002
Breakpoint Function and Direct A/D Out	003-1
ARM'D/TRIG'D LEDs Fail To Illuminate	005
Internal/External Arm Function	006-1-1
Internal/External TRIG'D OUT Signal	006-1-2
External Clock In	006-2
Clock Out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

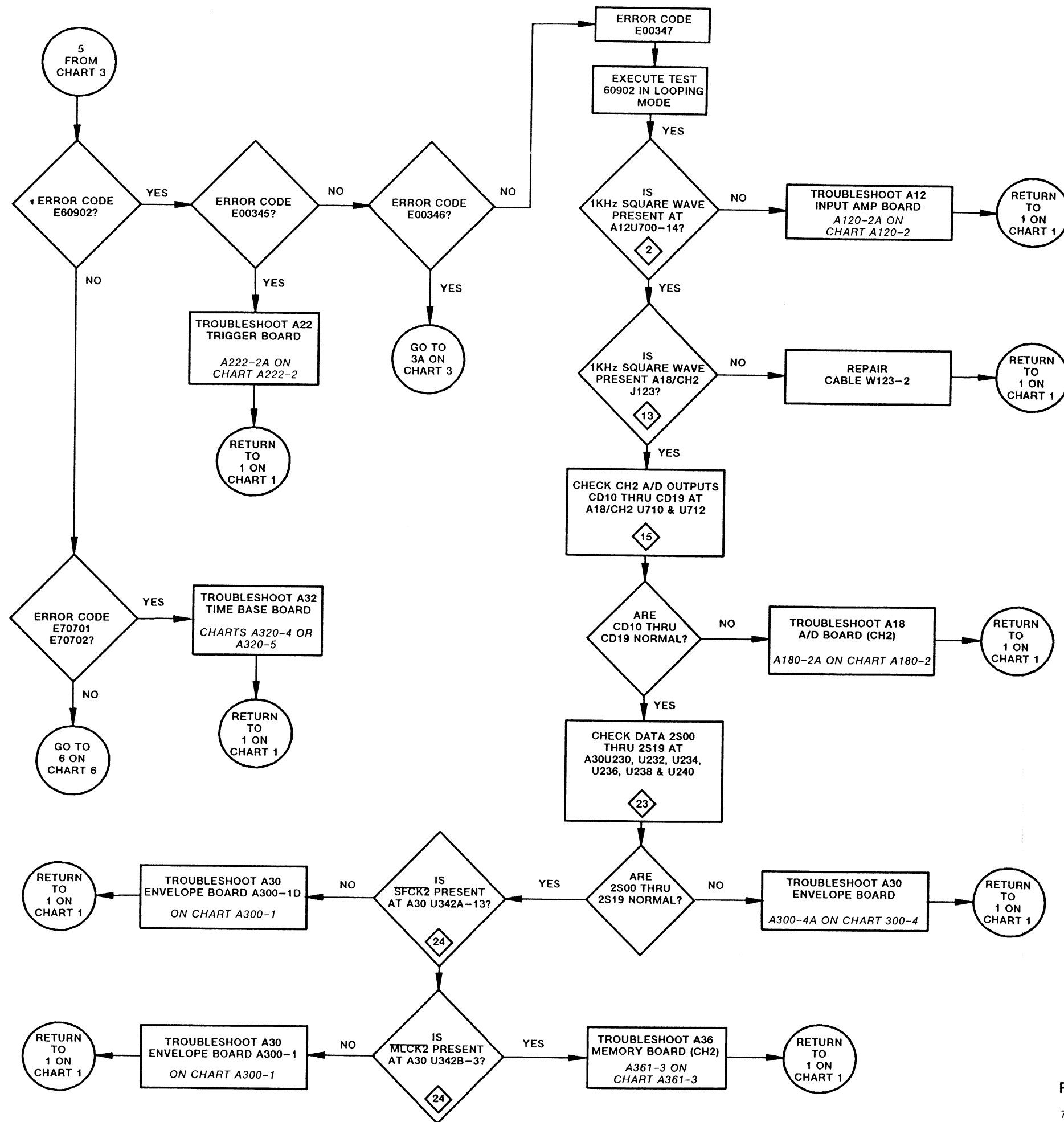


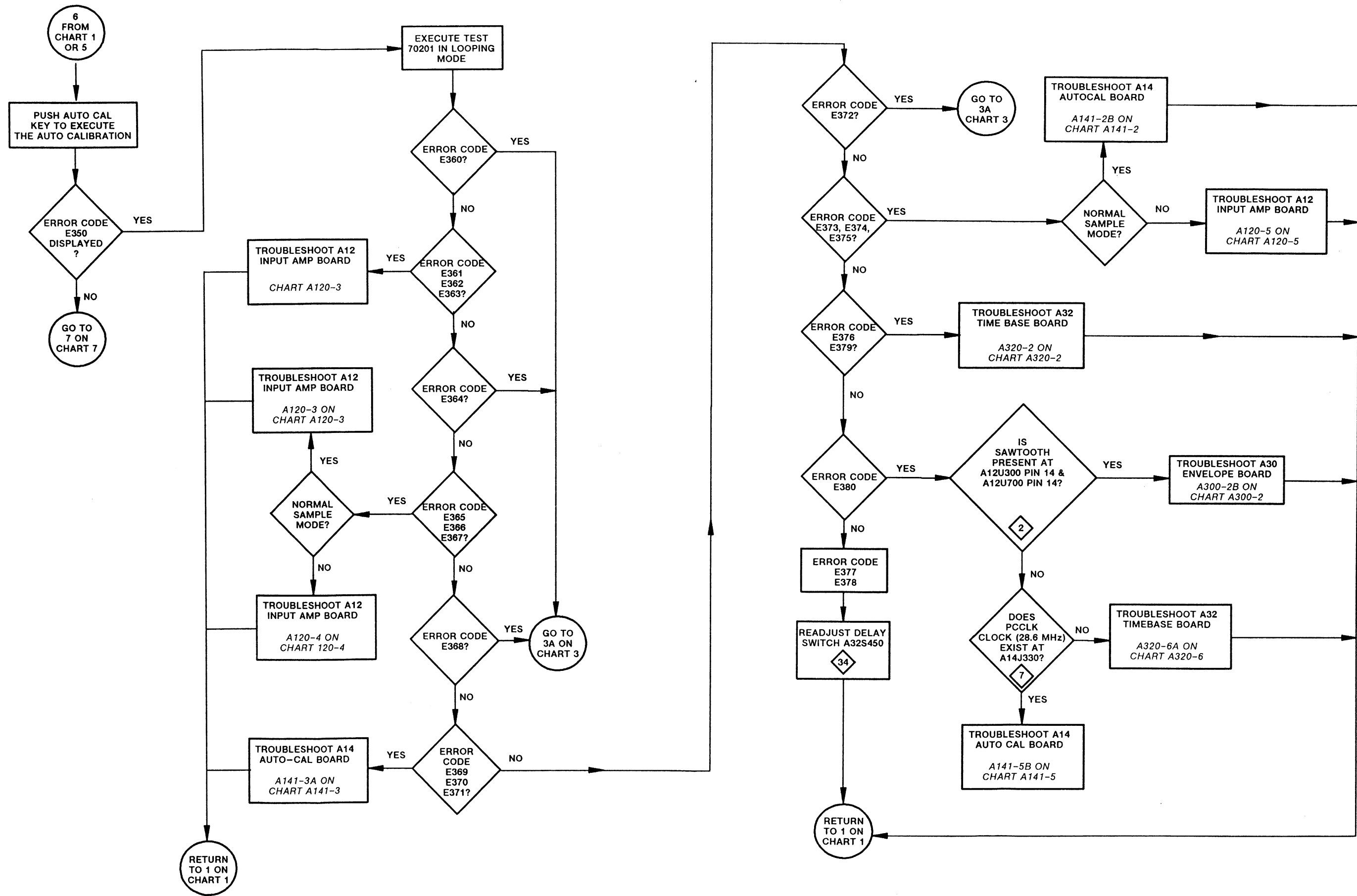


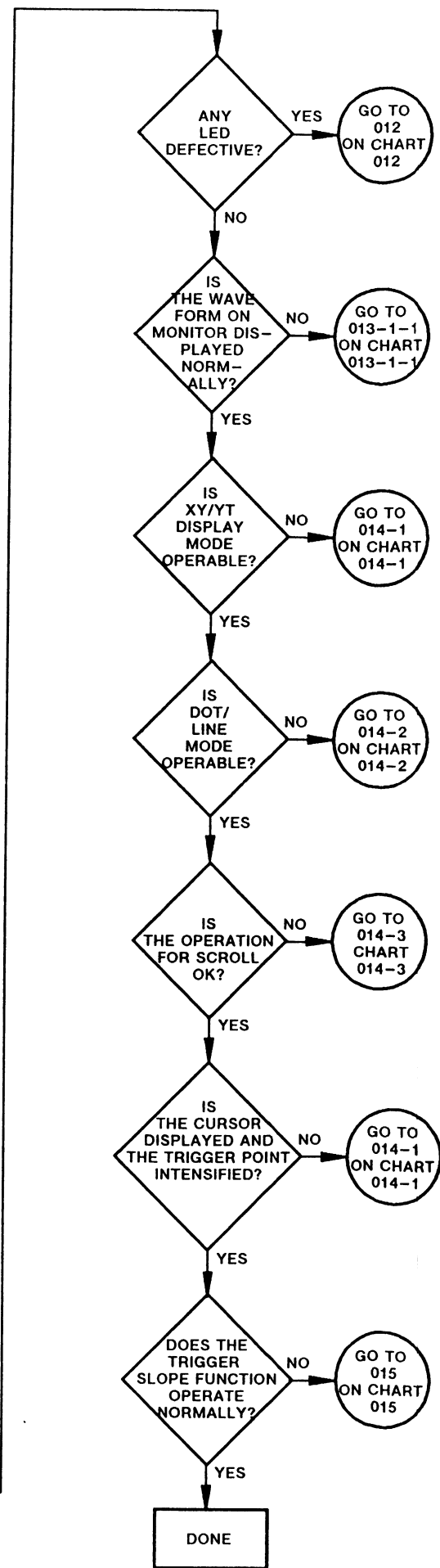
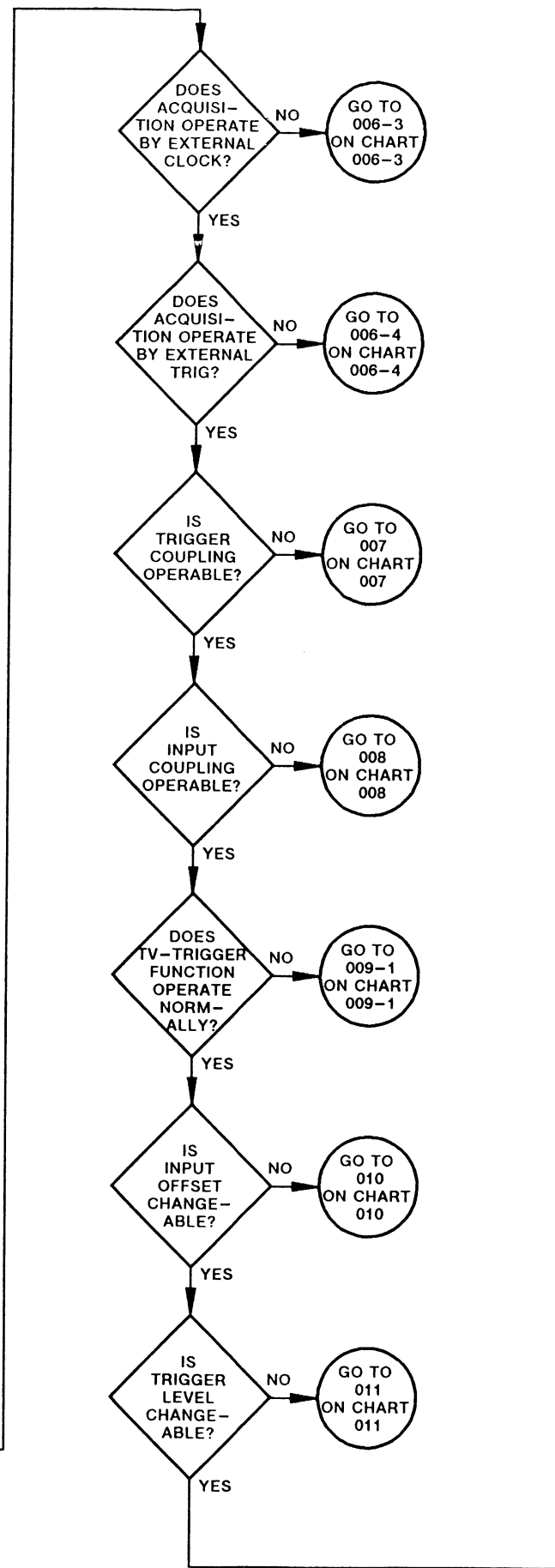
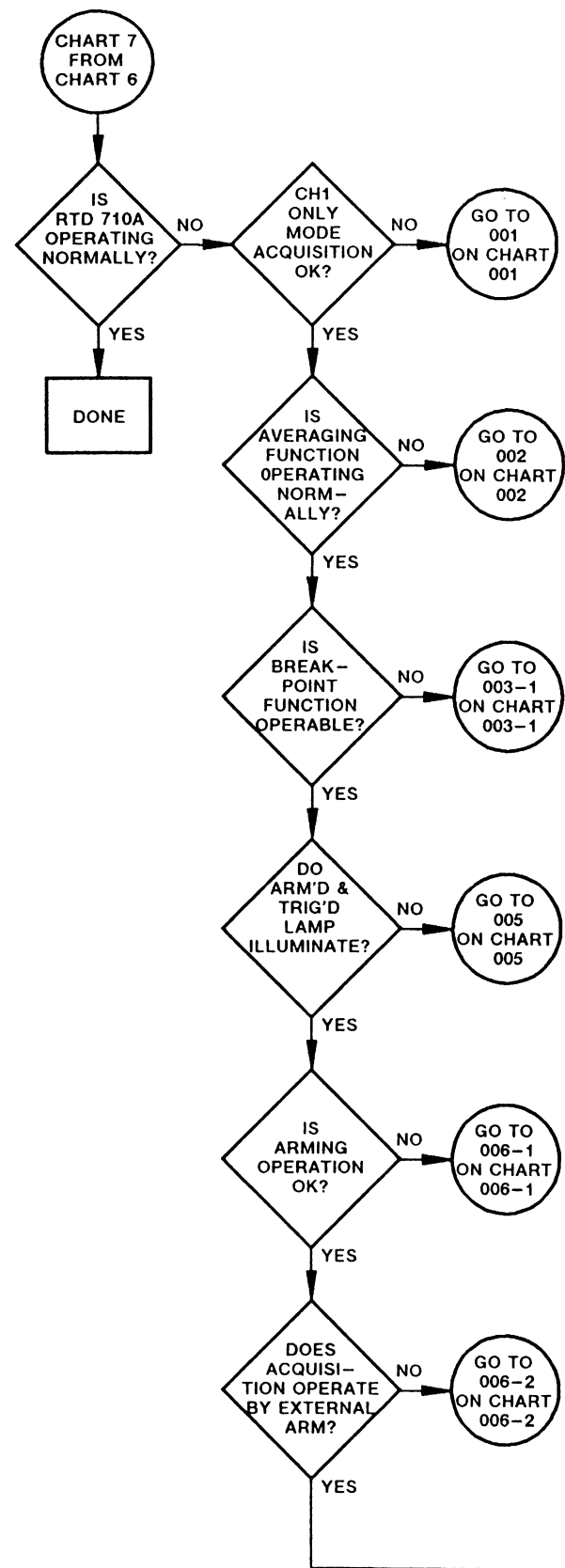


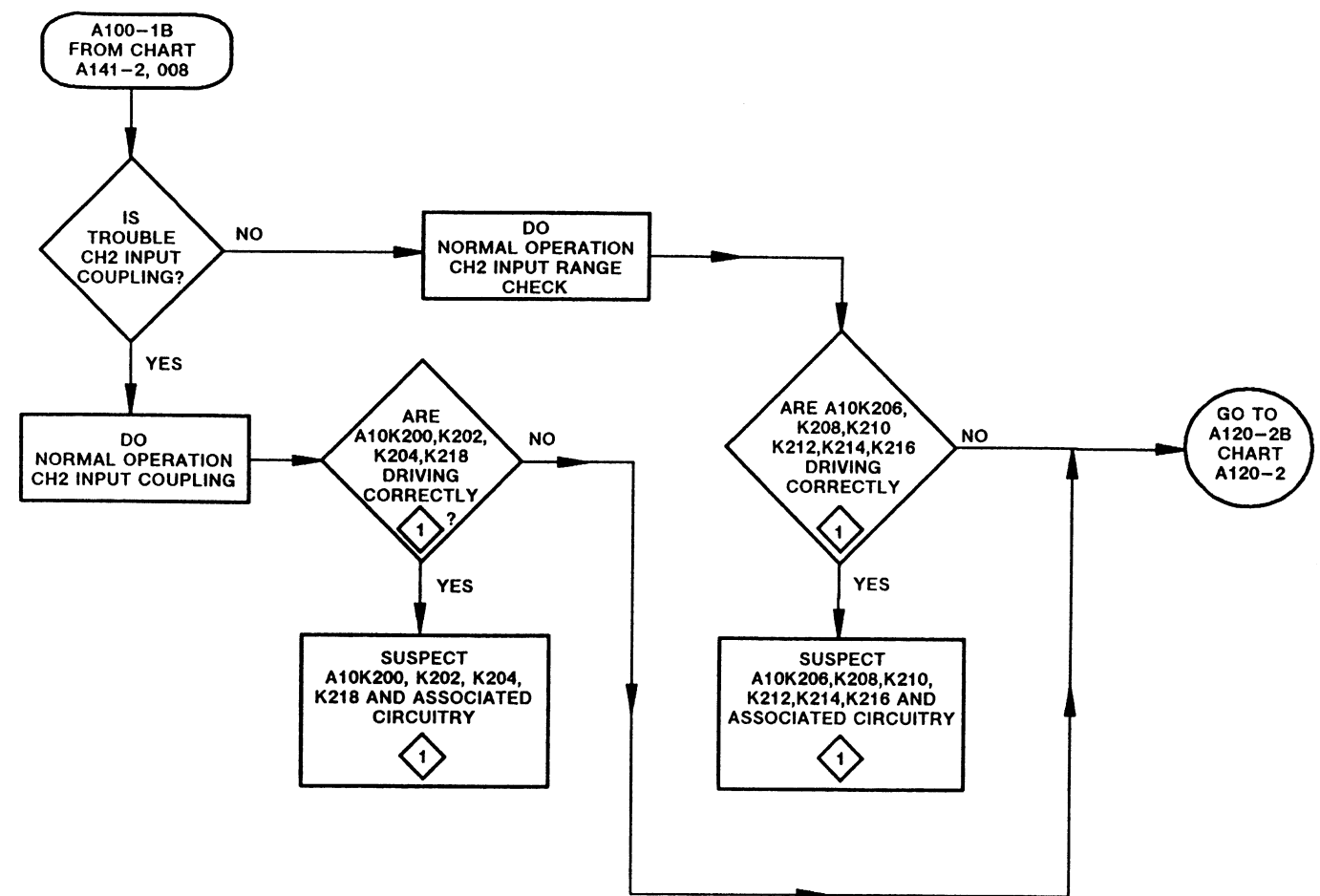
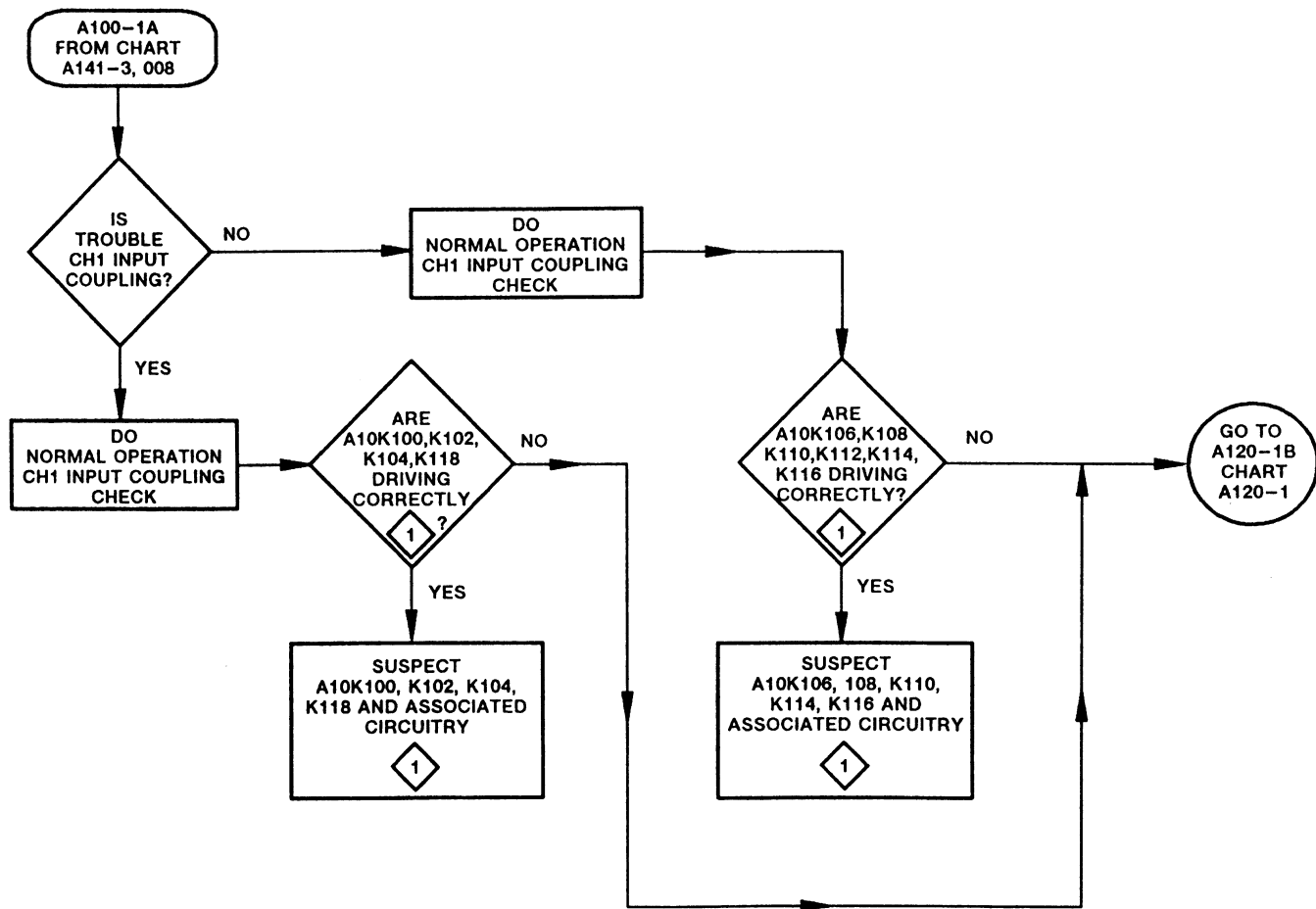


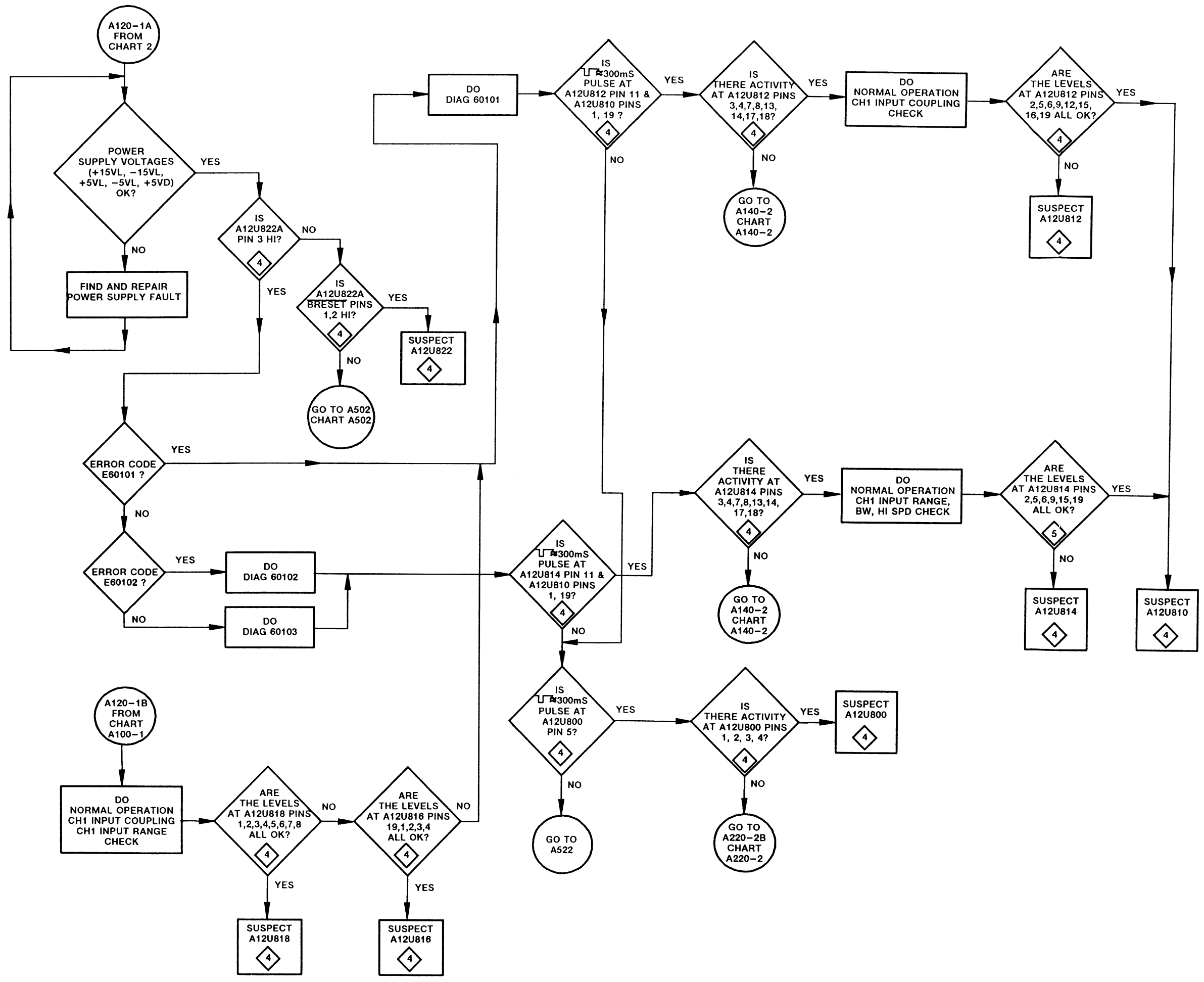


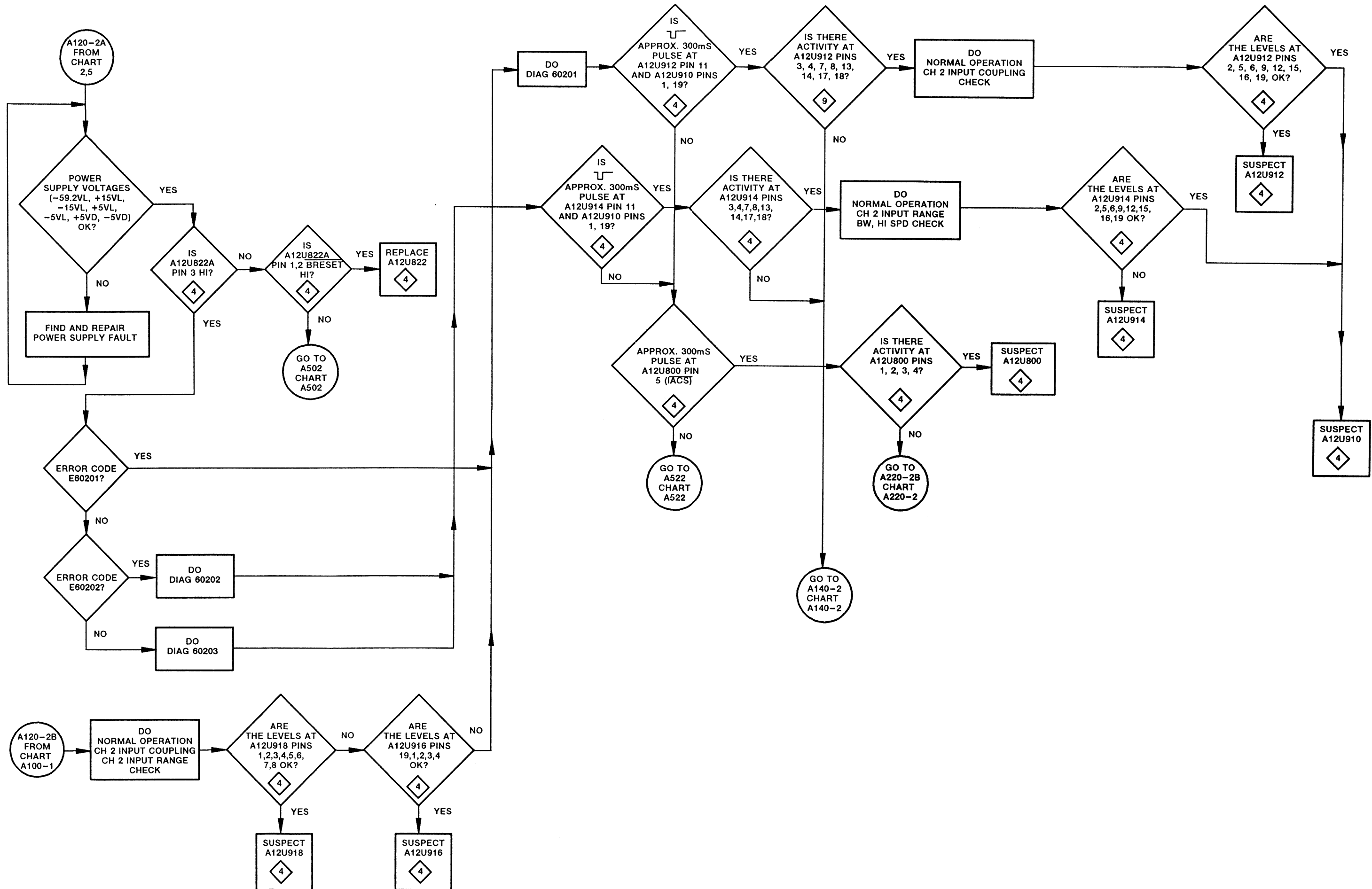




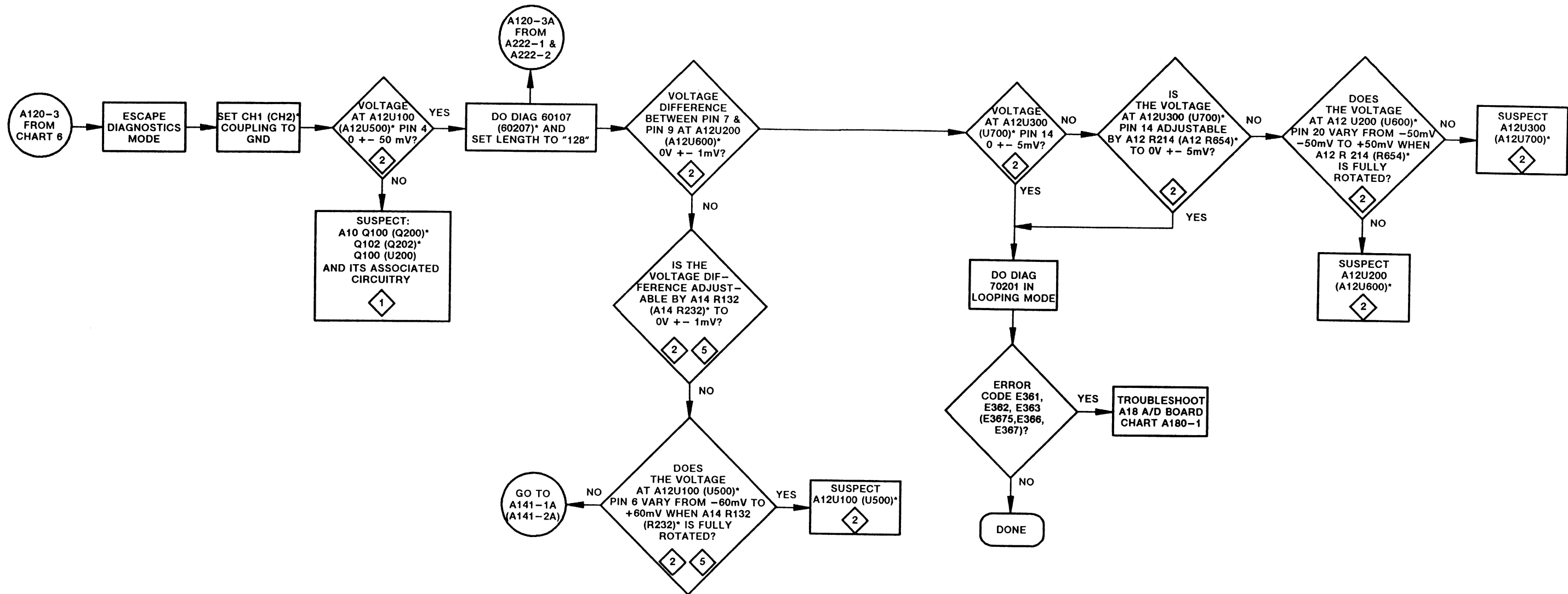


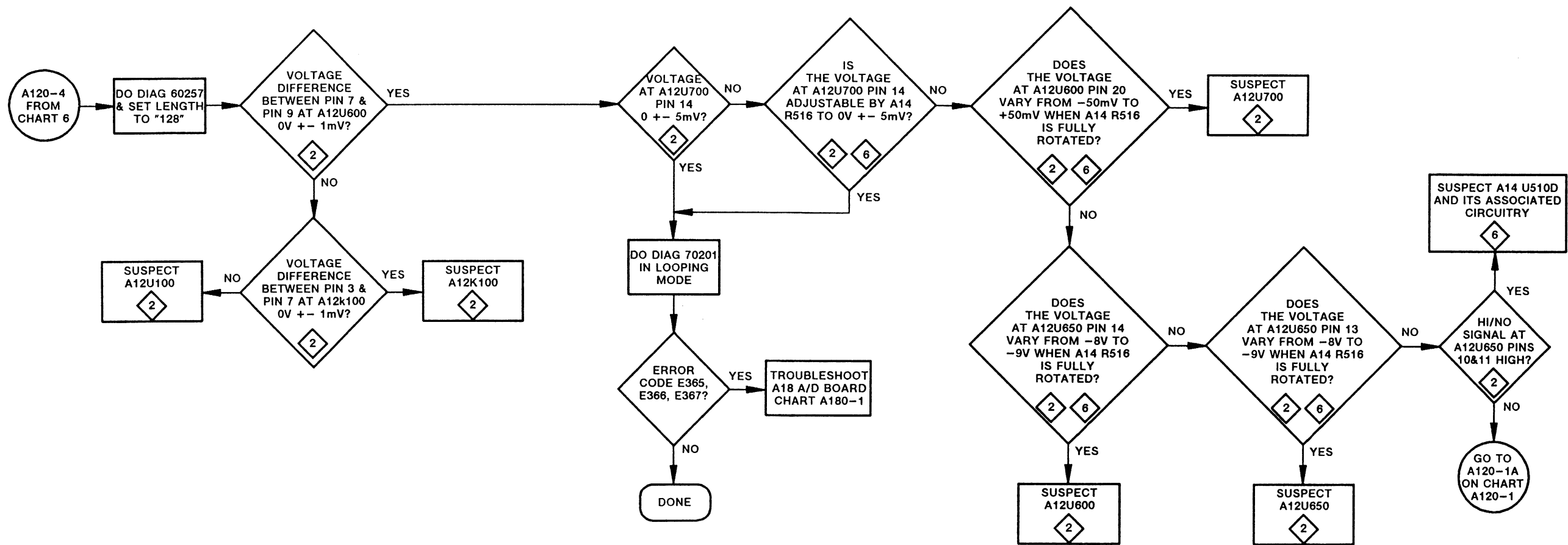


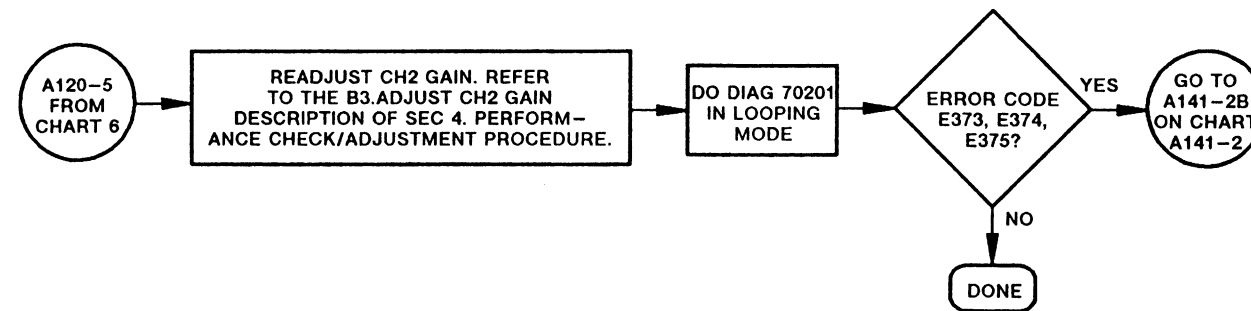


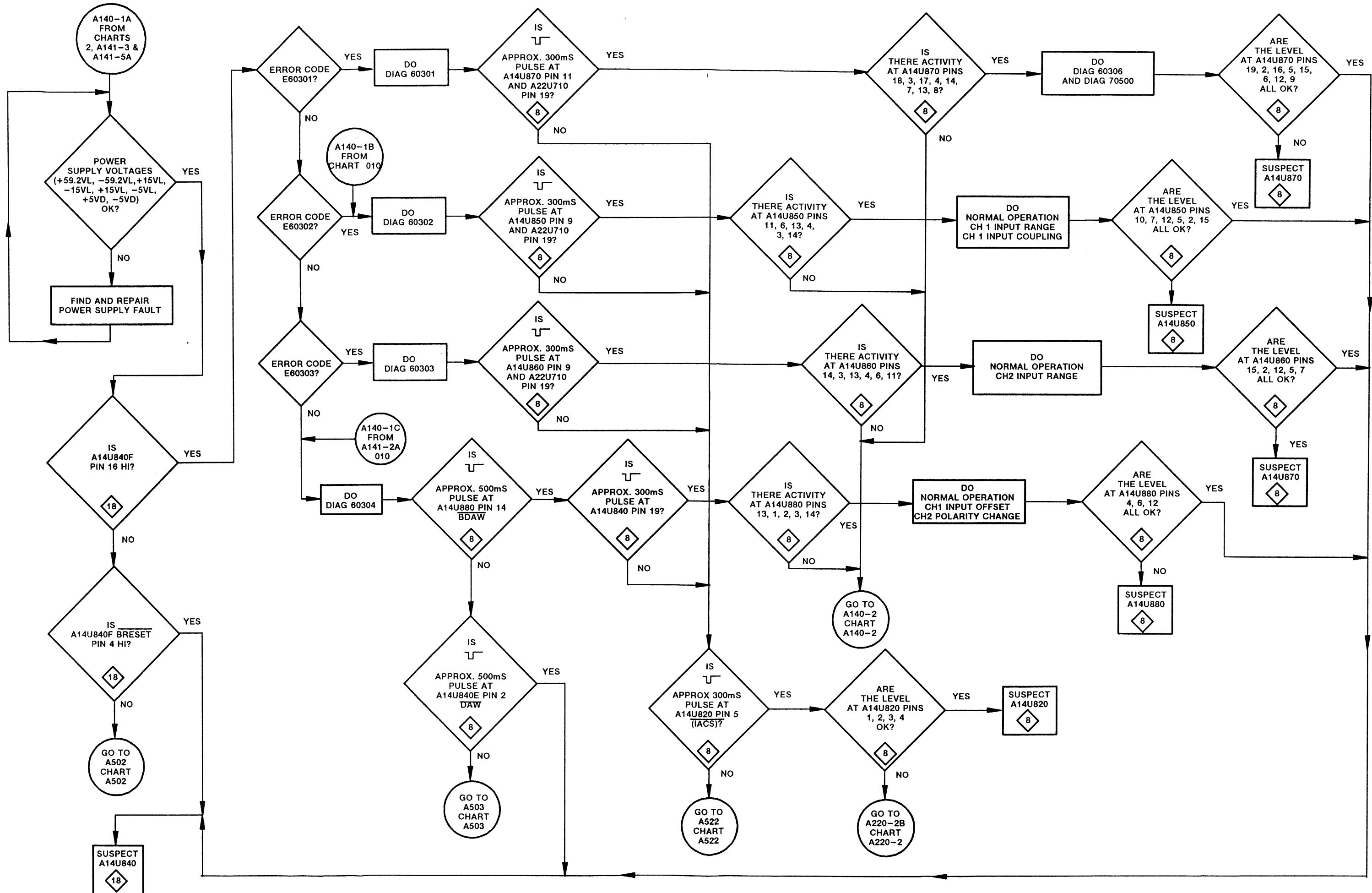


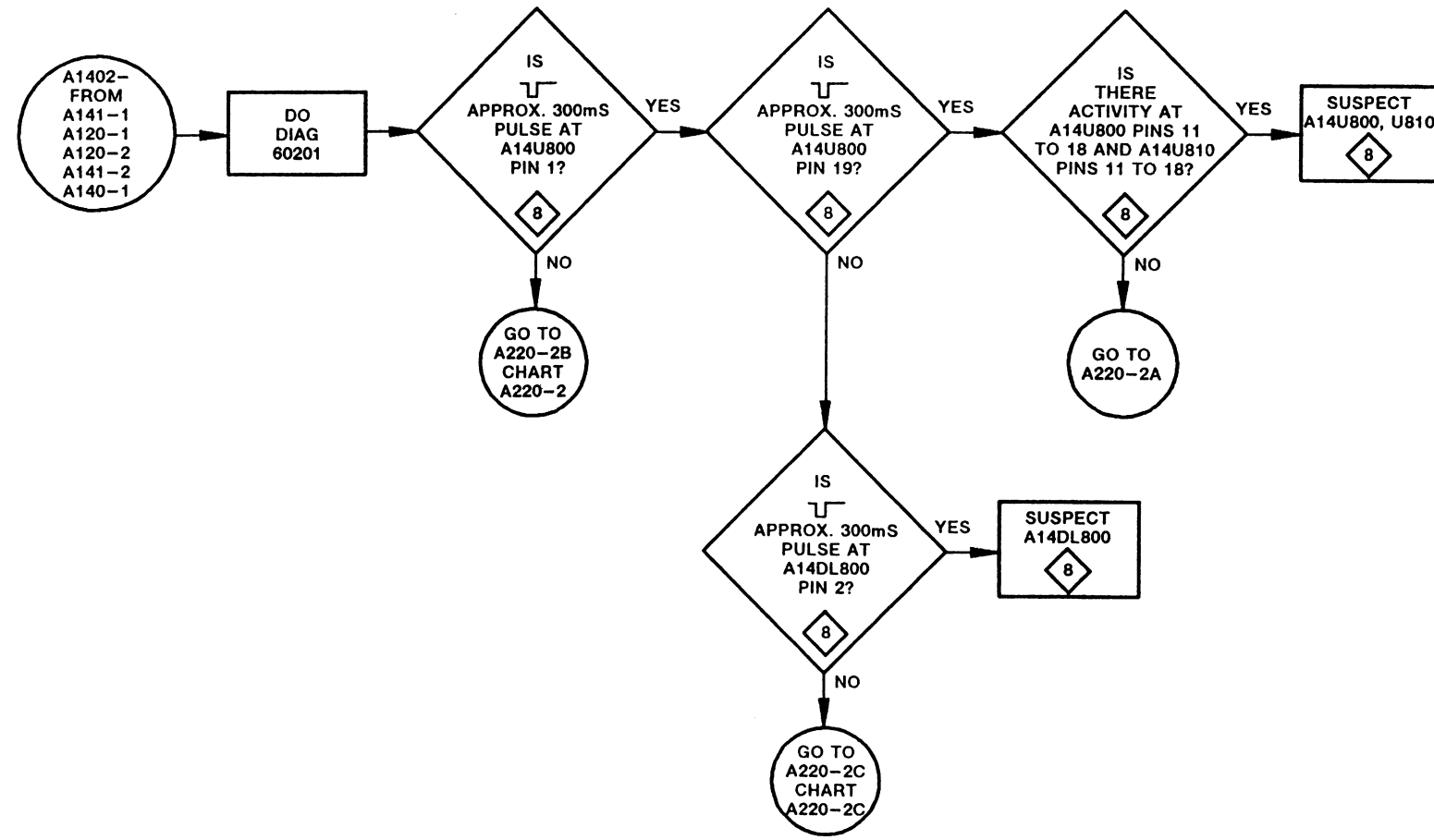


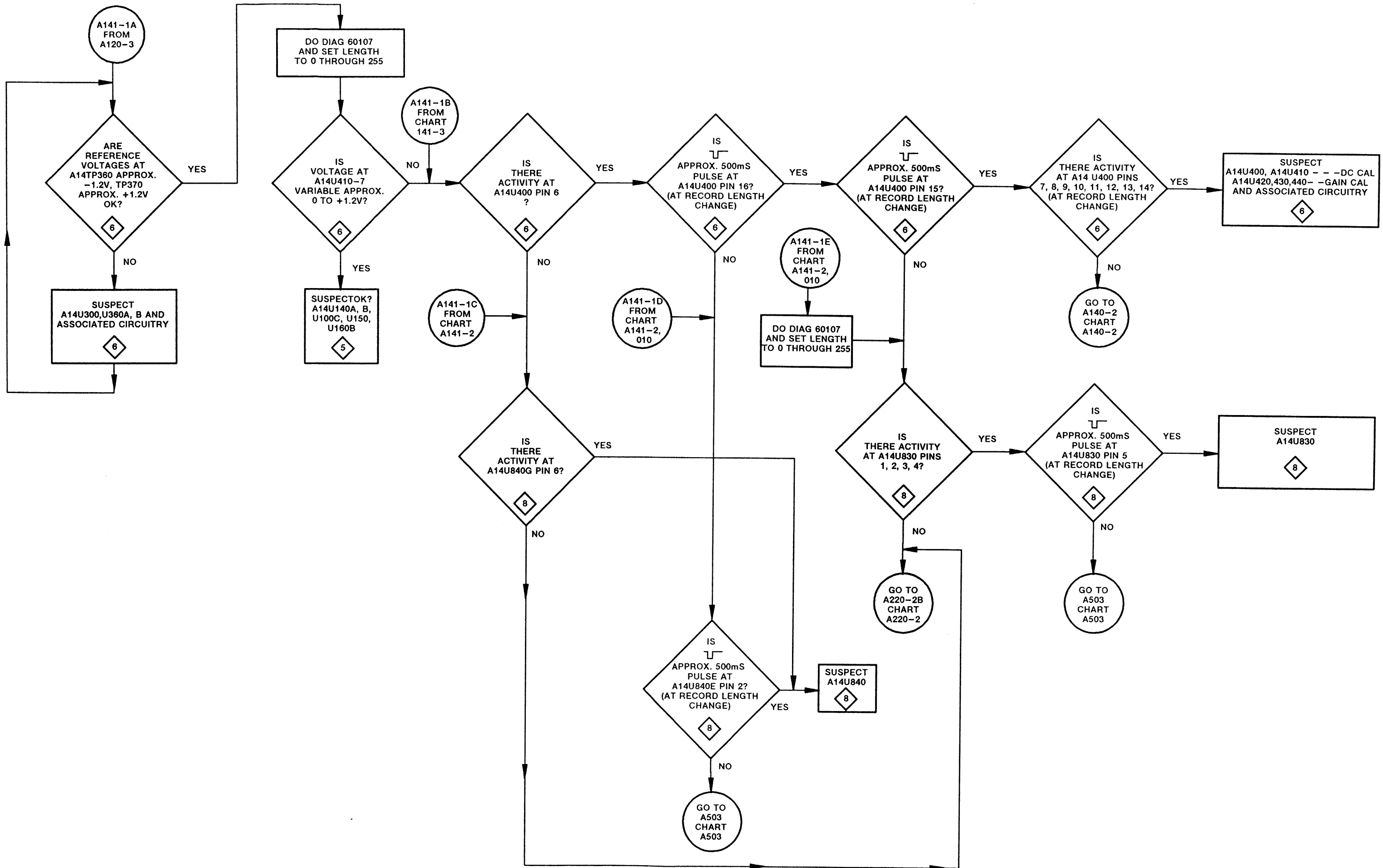


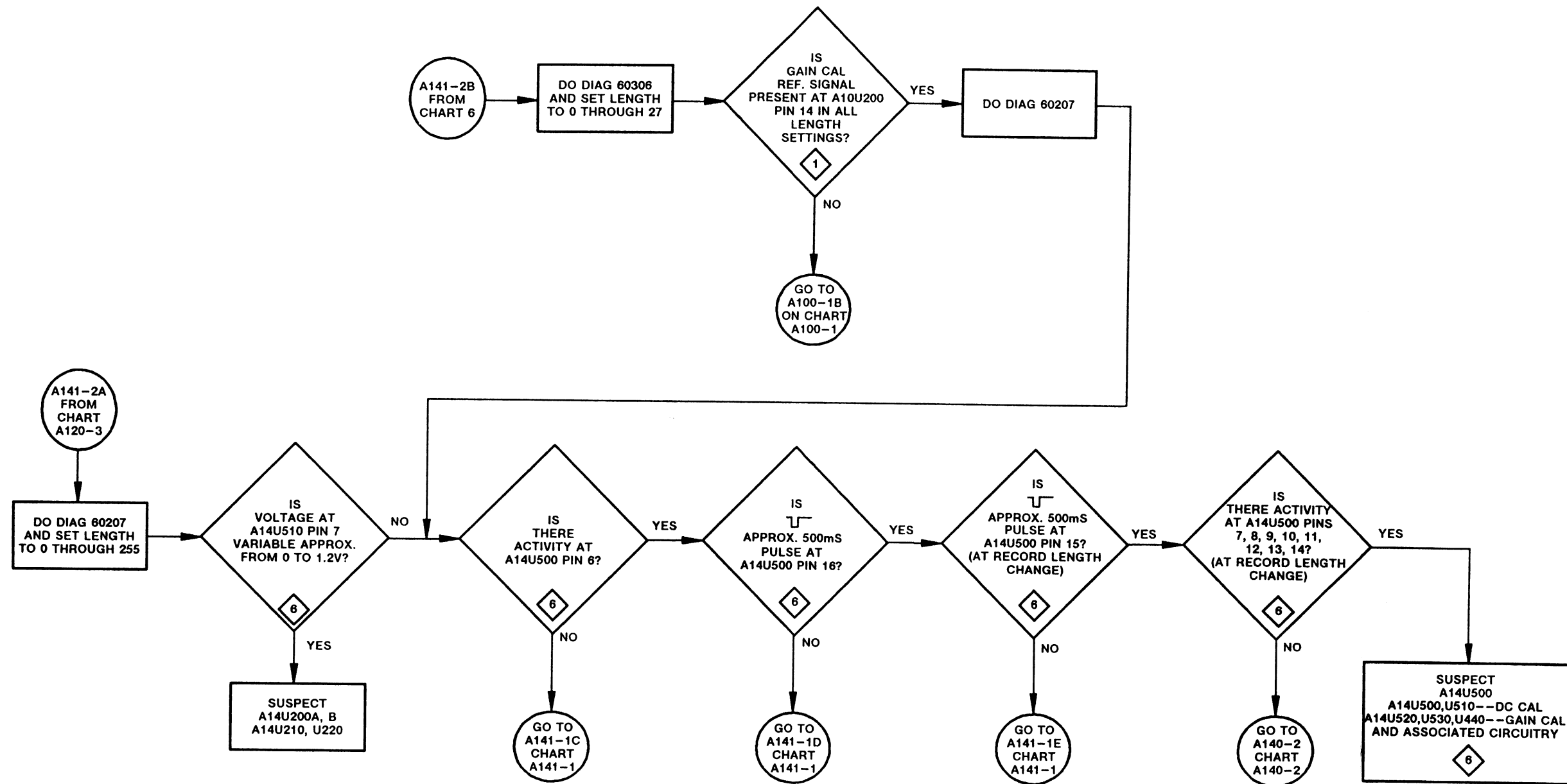


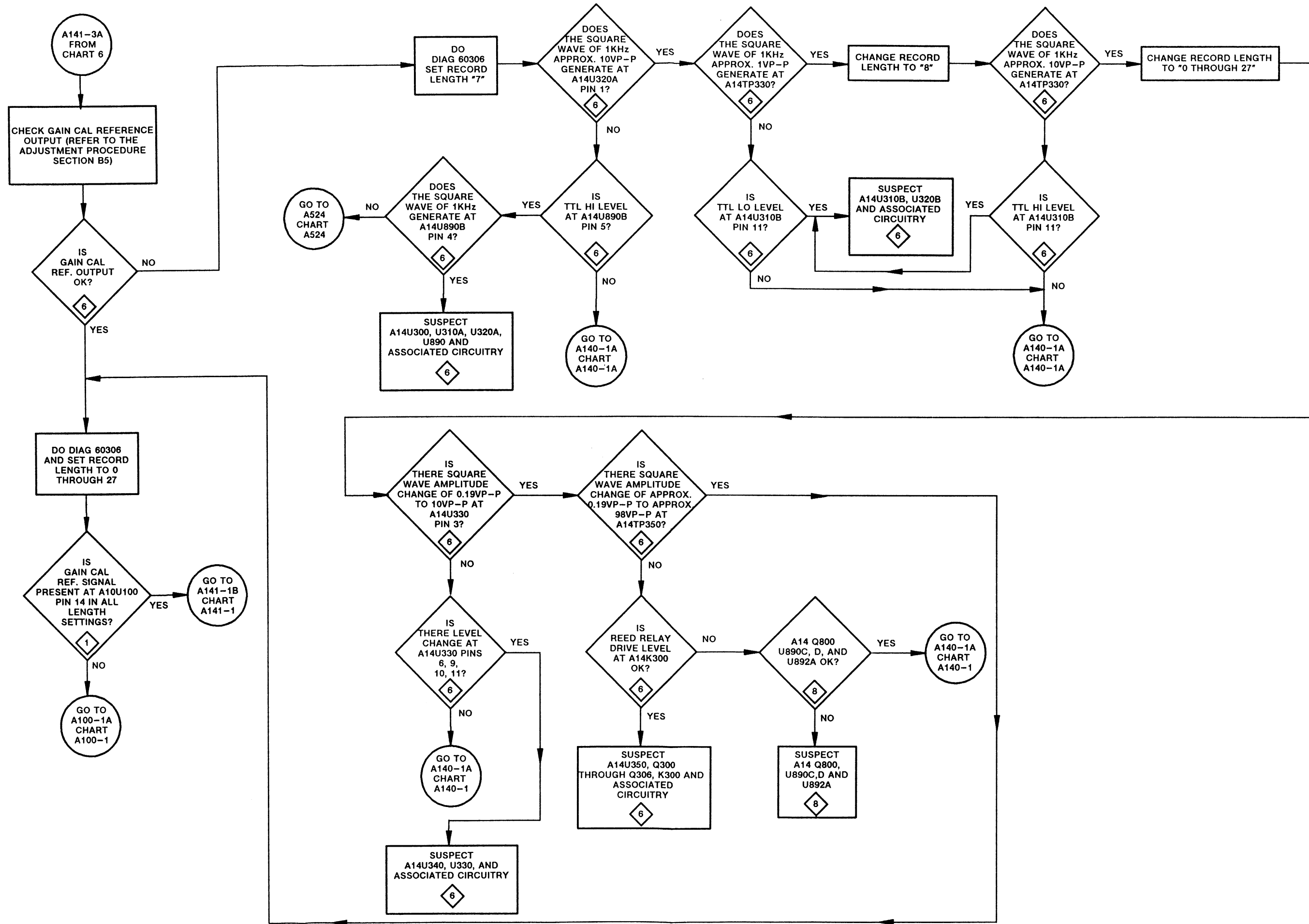




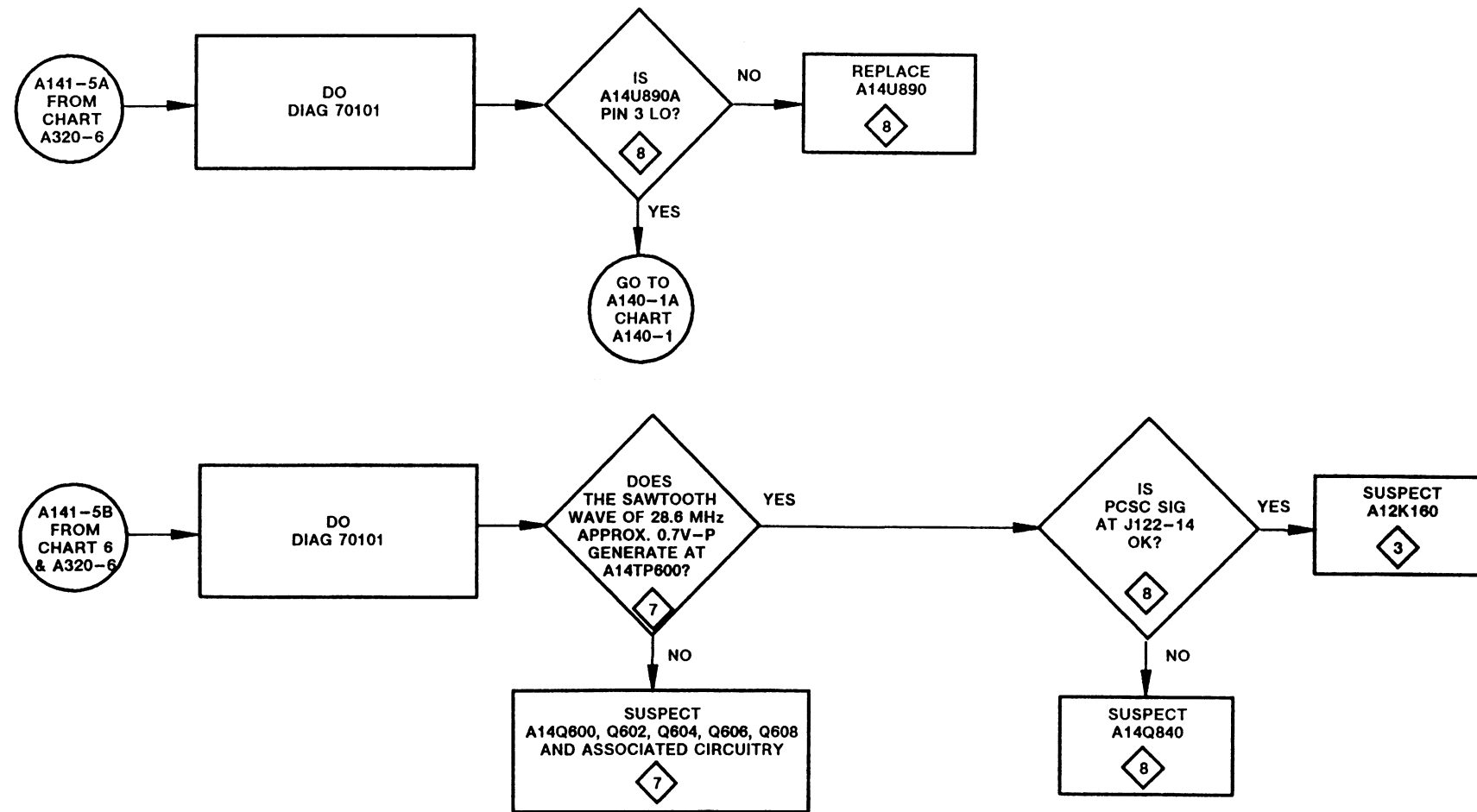


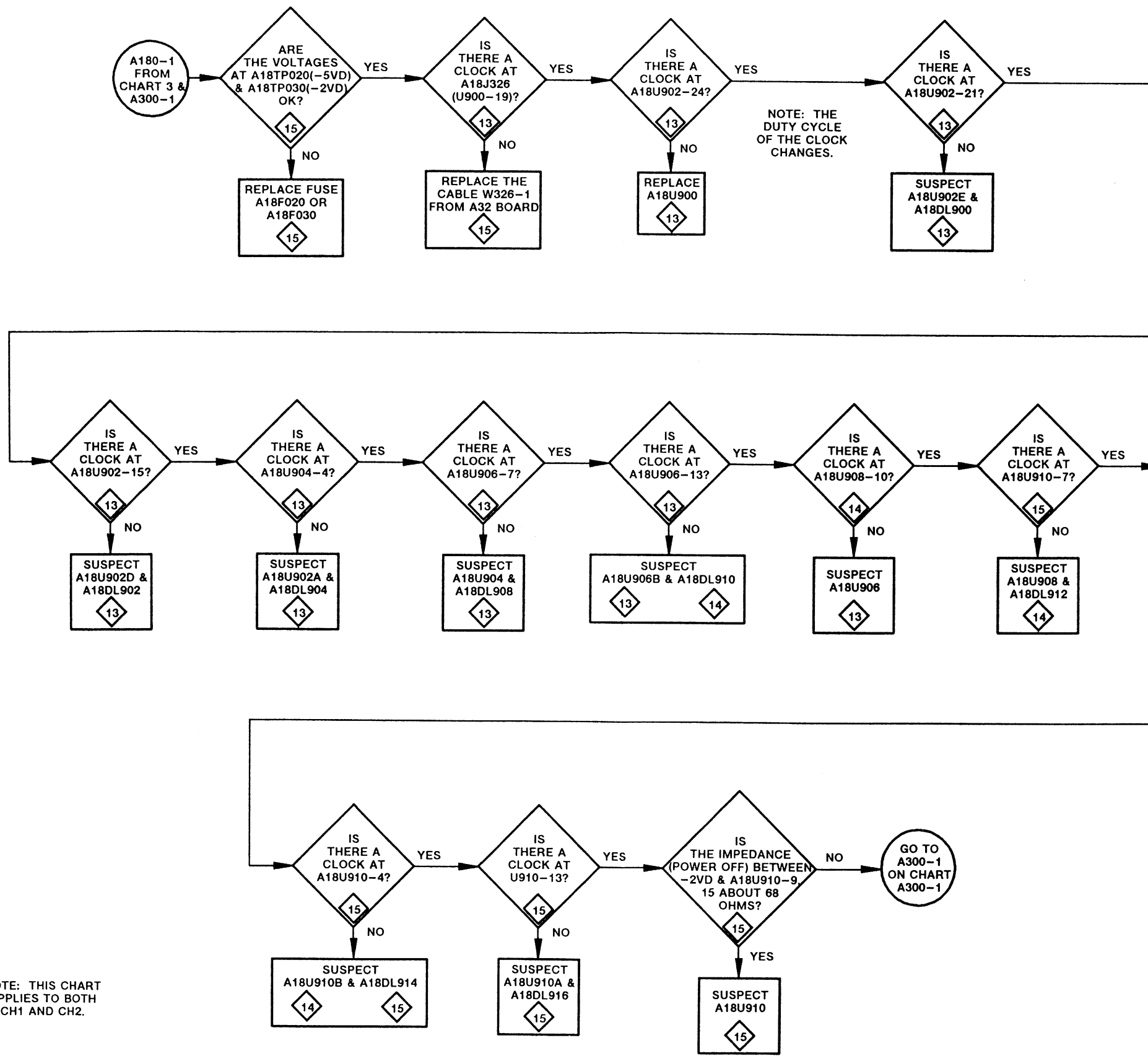






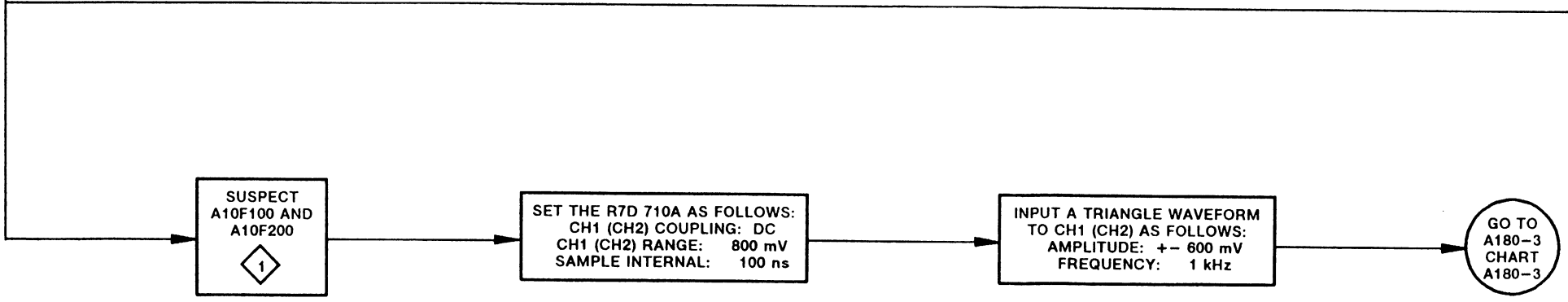
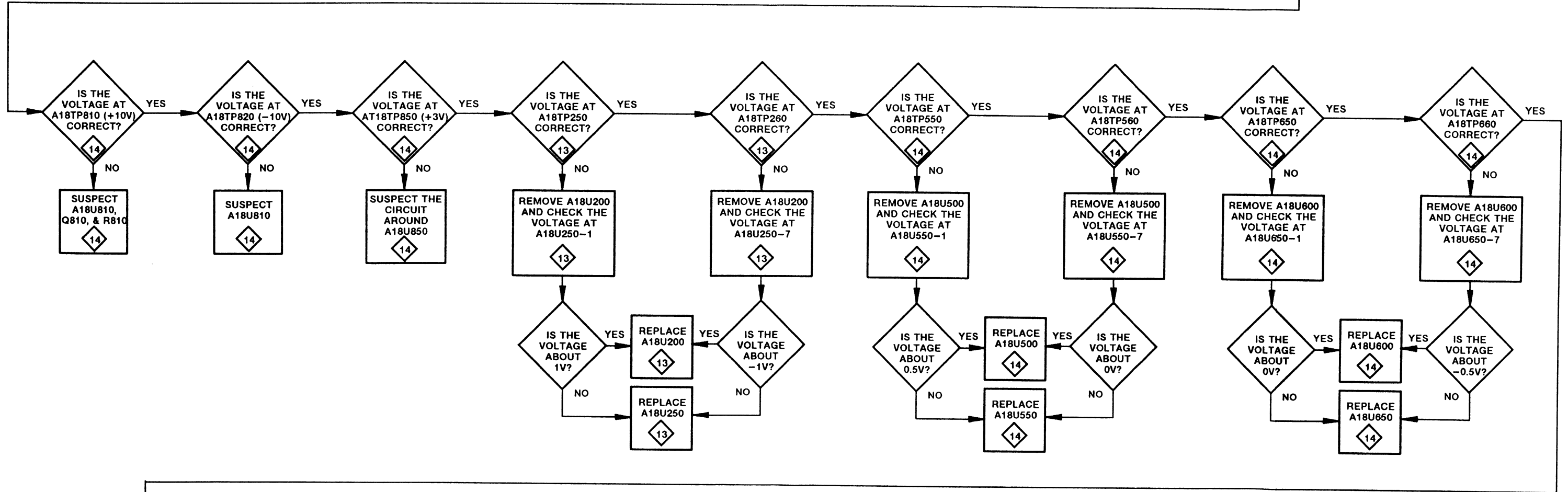
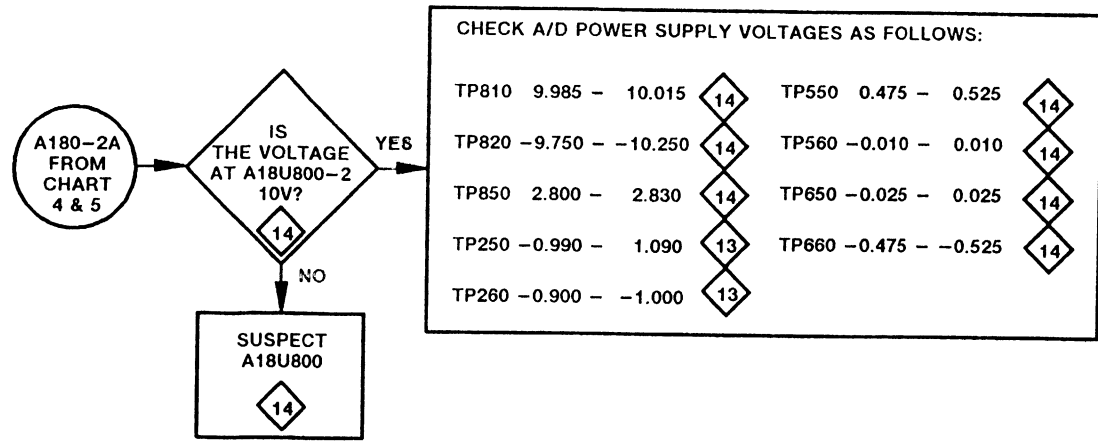


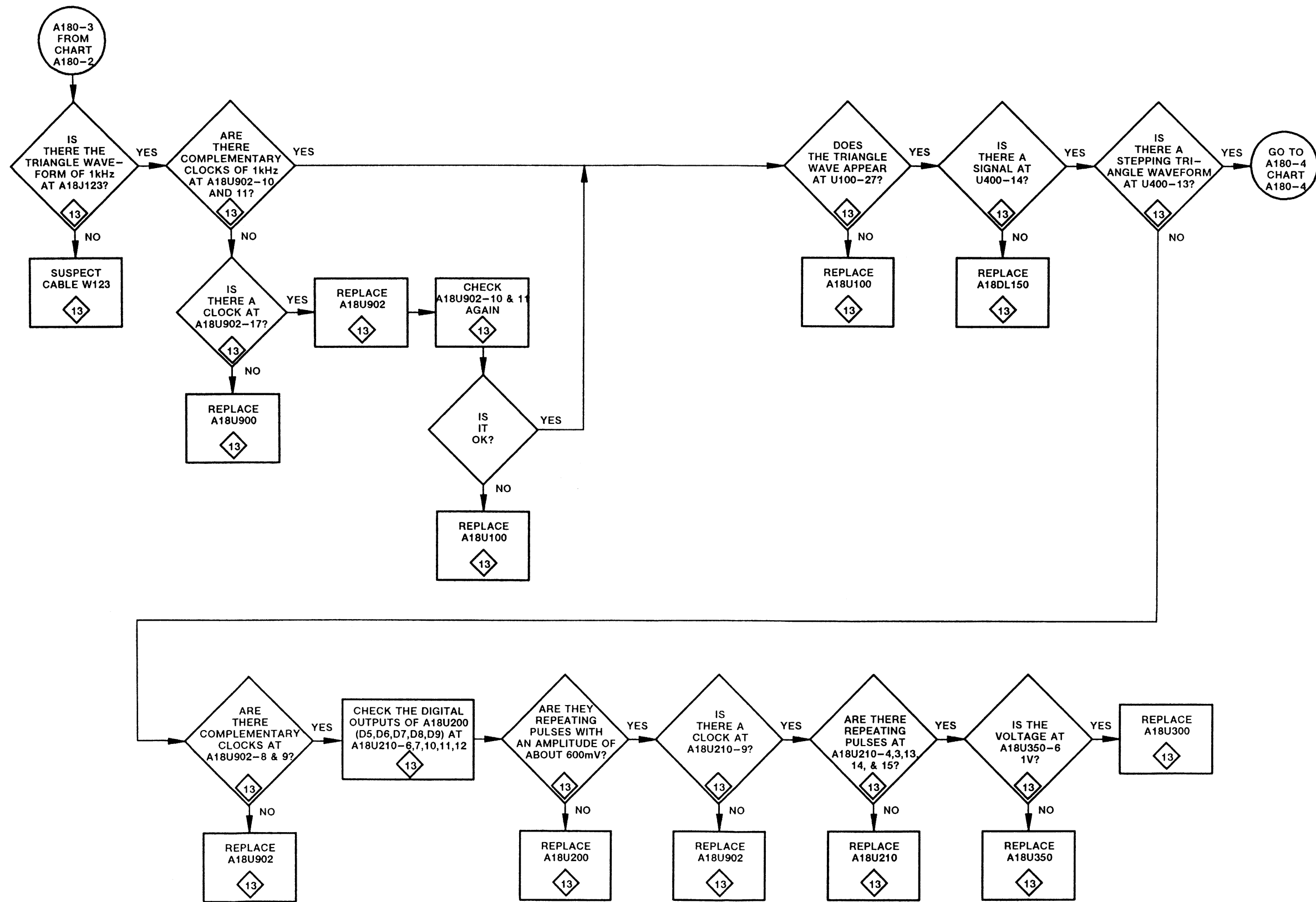


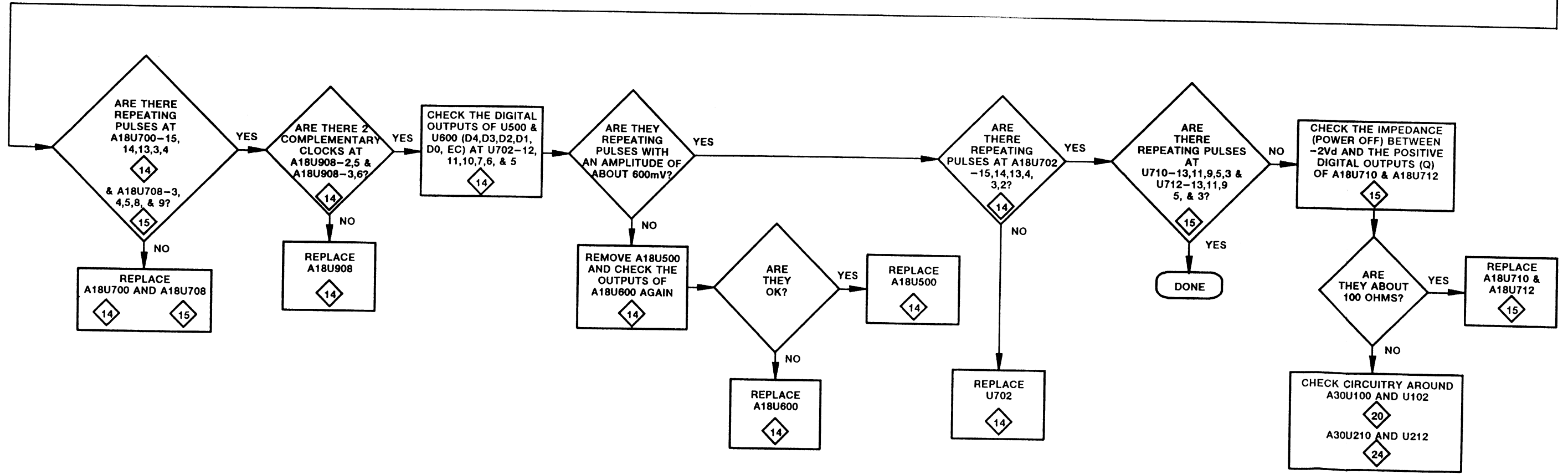
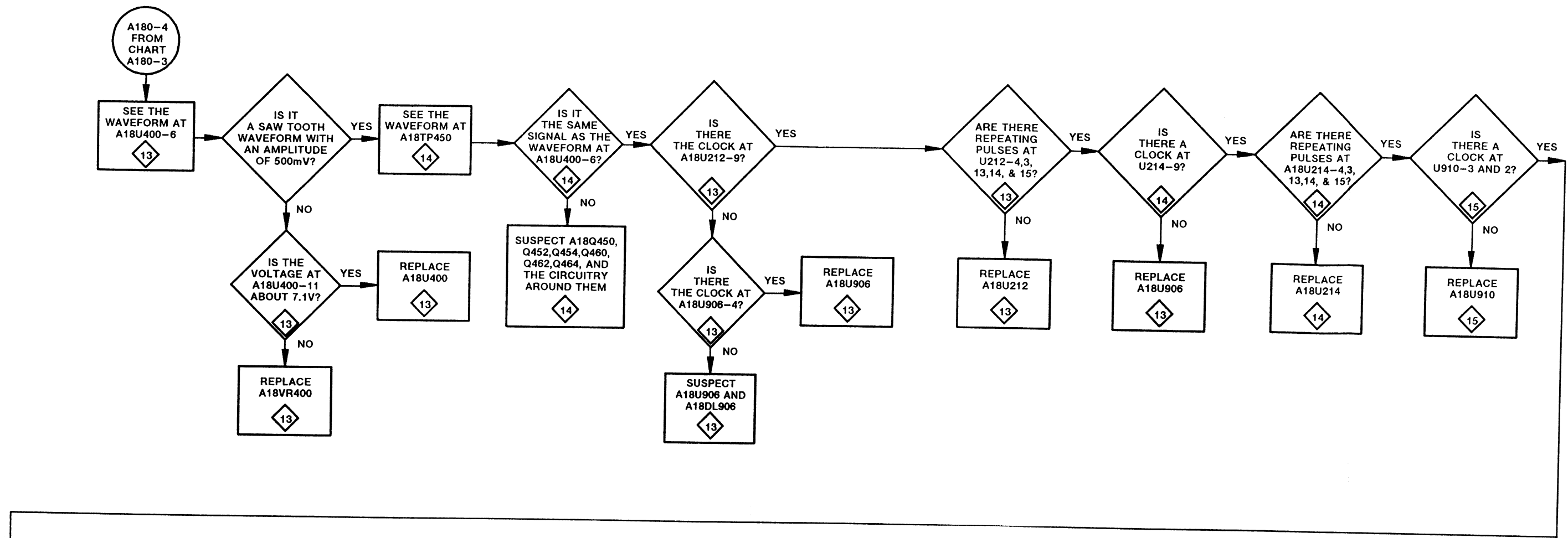


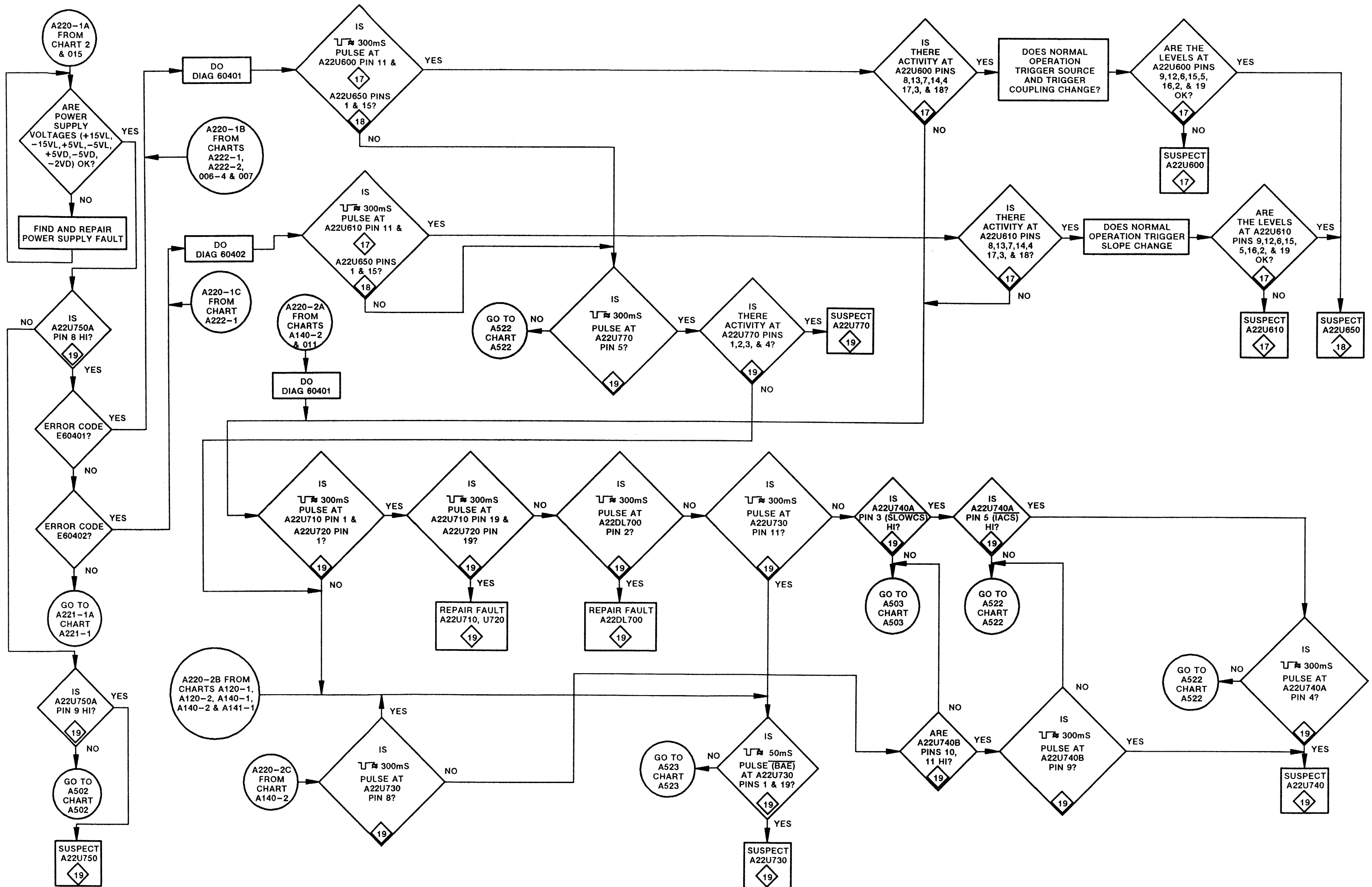
NOTE: THIS CHART APPLIES TO BOTH CH1 AND CH2.

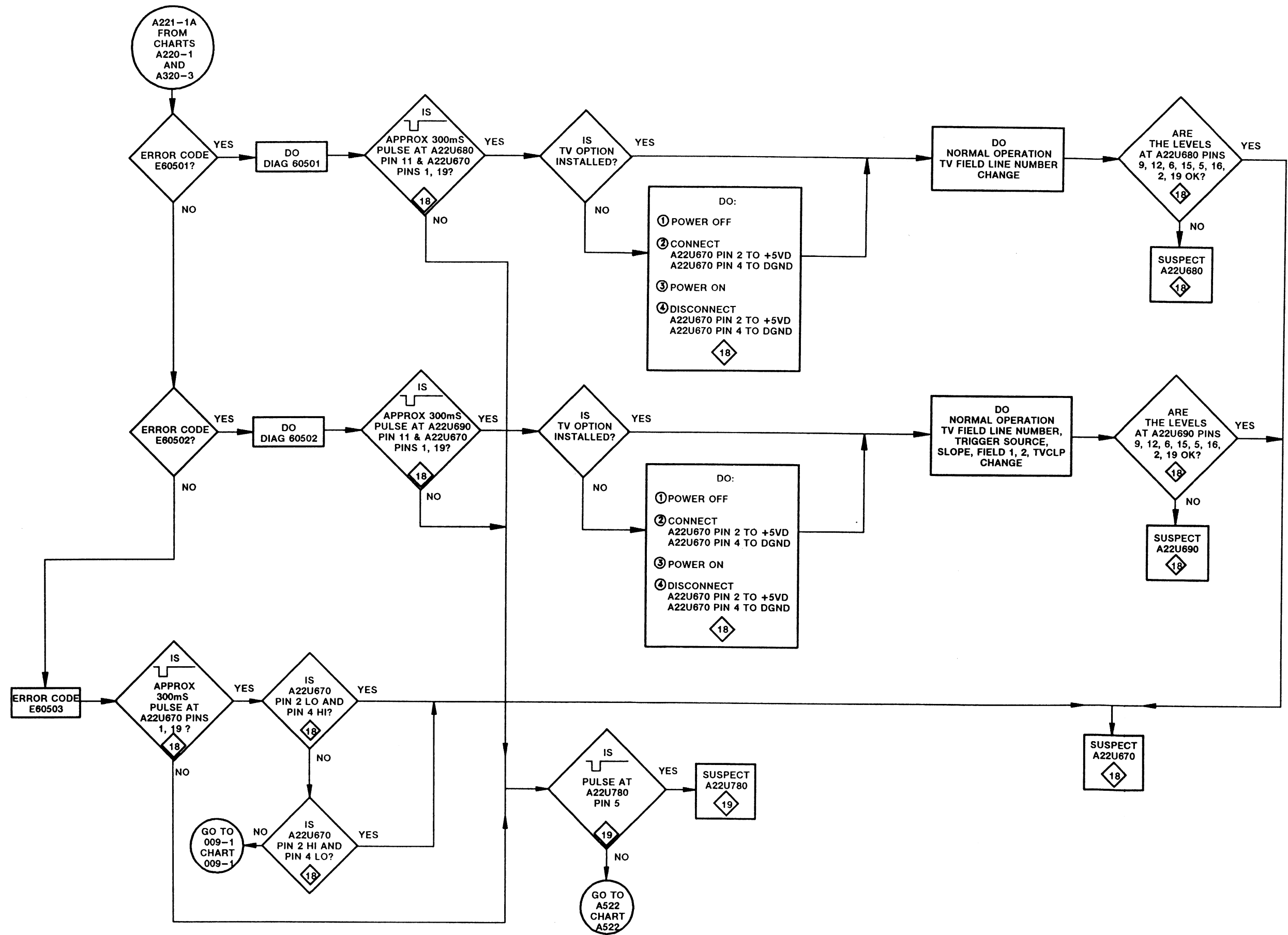
NOTE:  
 1. THIS CHART APPLIES TO BOTH CH1 AND CH2.  
 2. PC/AP IS PERFORMANCE CHECK/ADJUSTMENT PROCEDURES.  
 3. THIS CHART TESTS ANALOG CIRCUITS ON A/D BOARD.



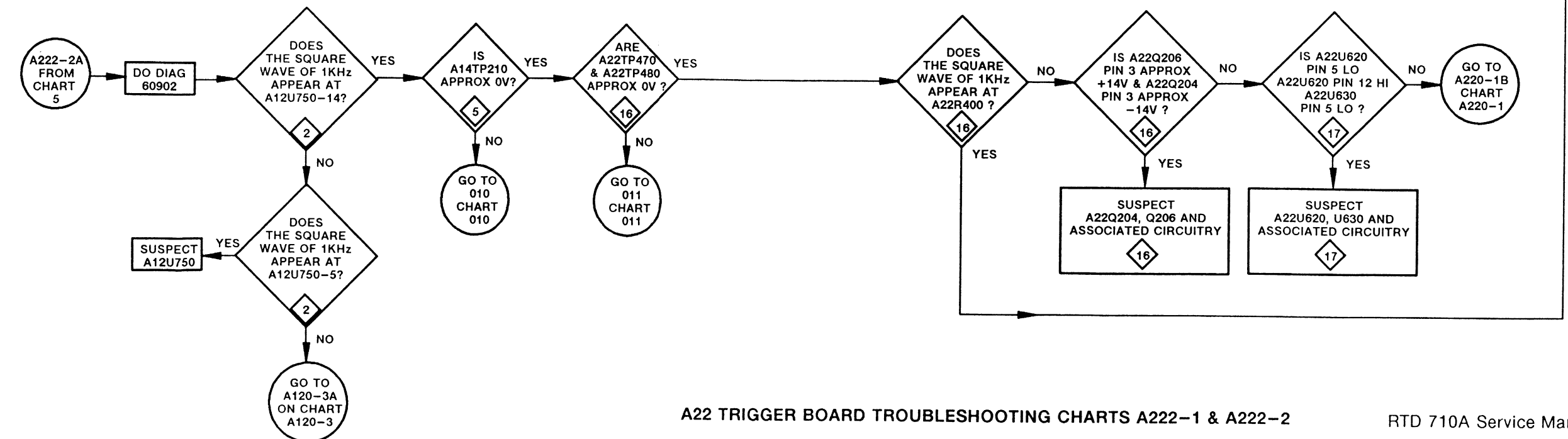
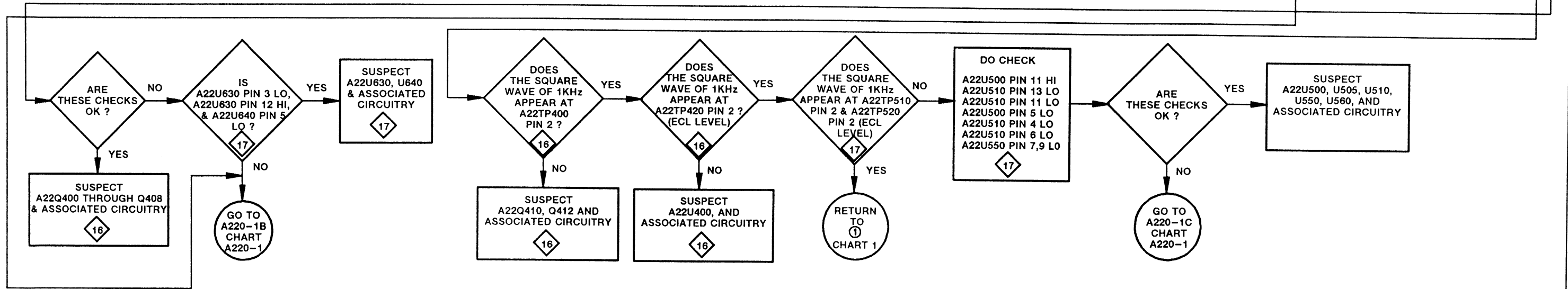
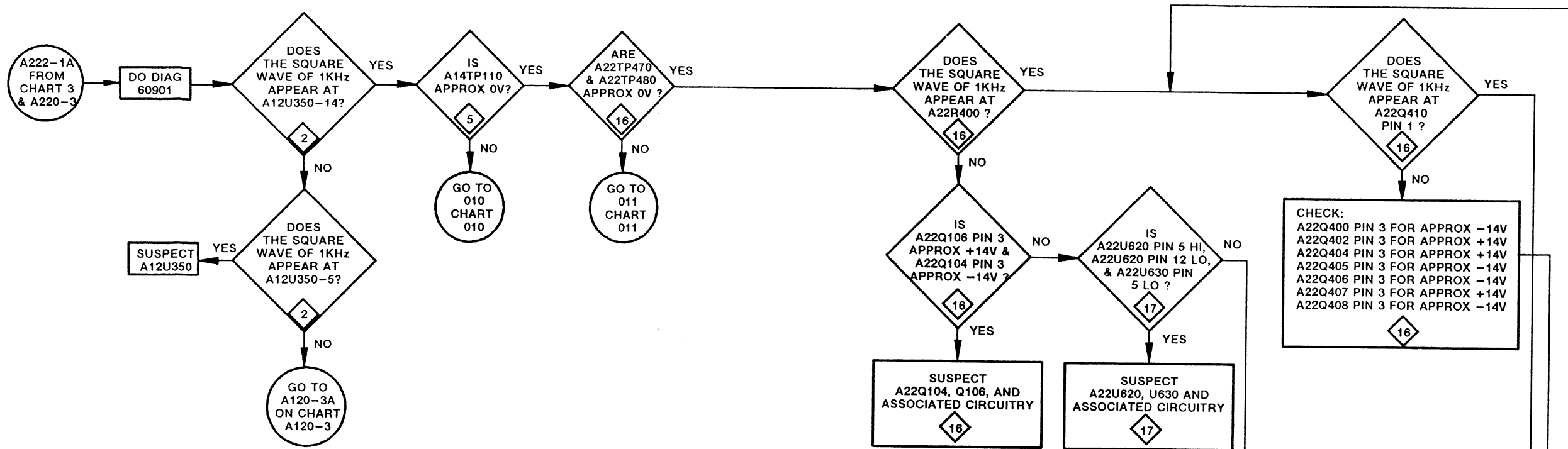




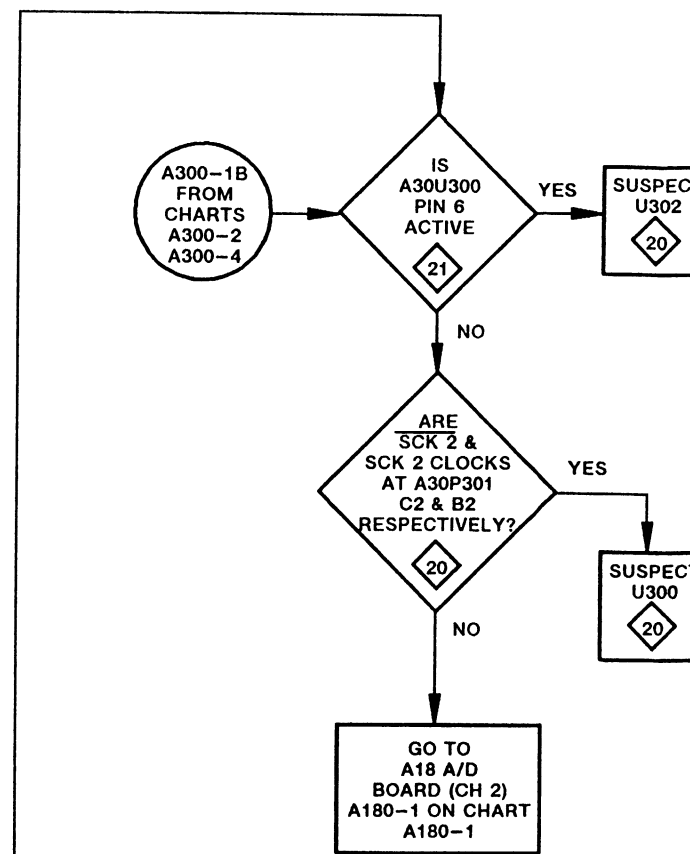
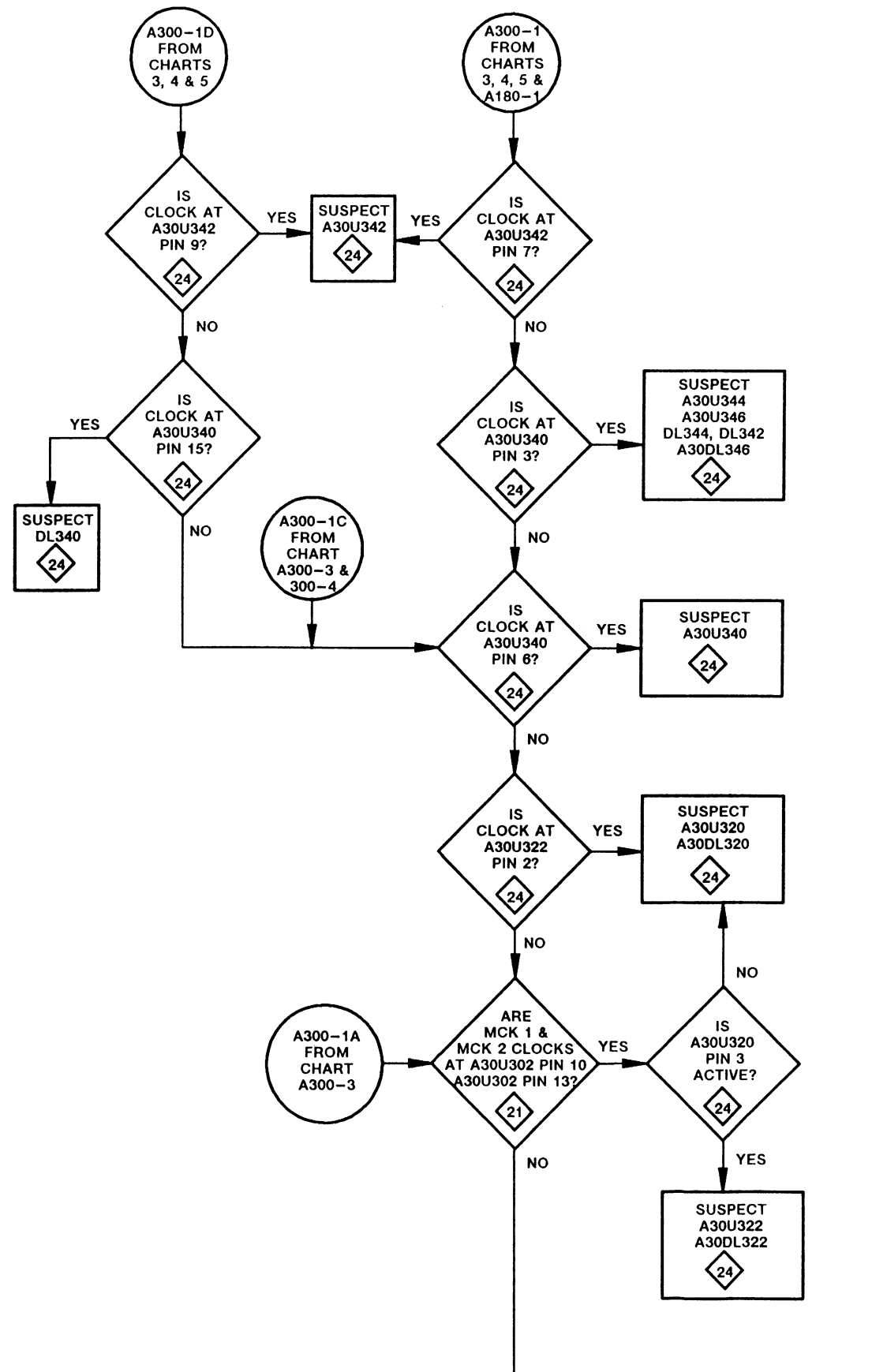


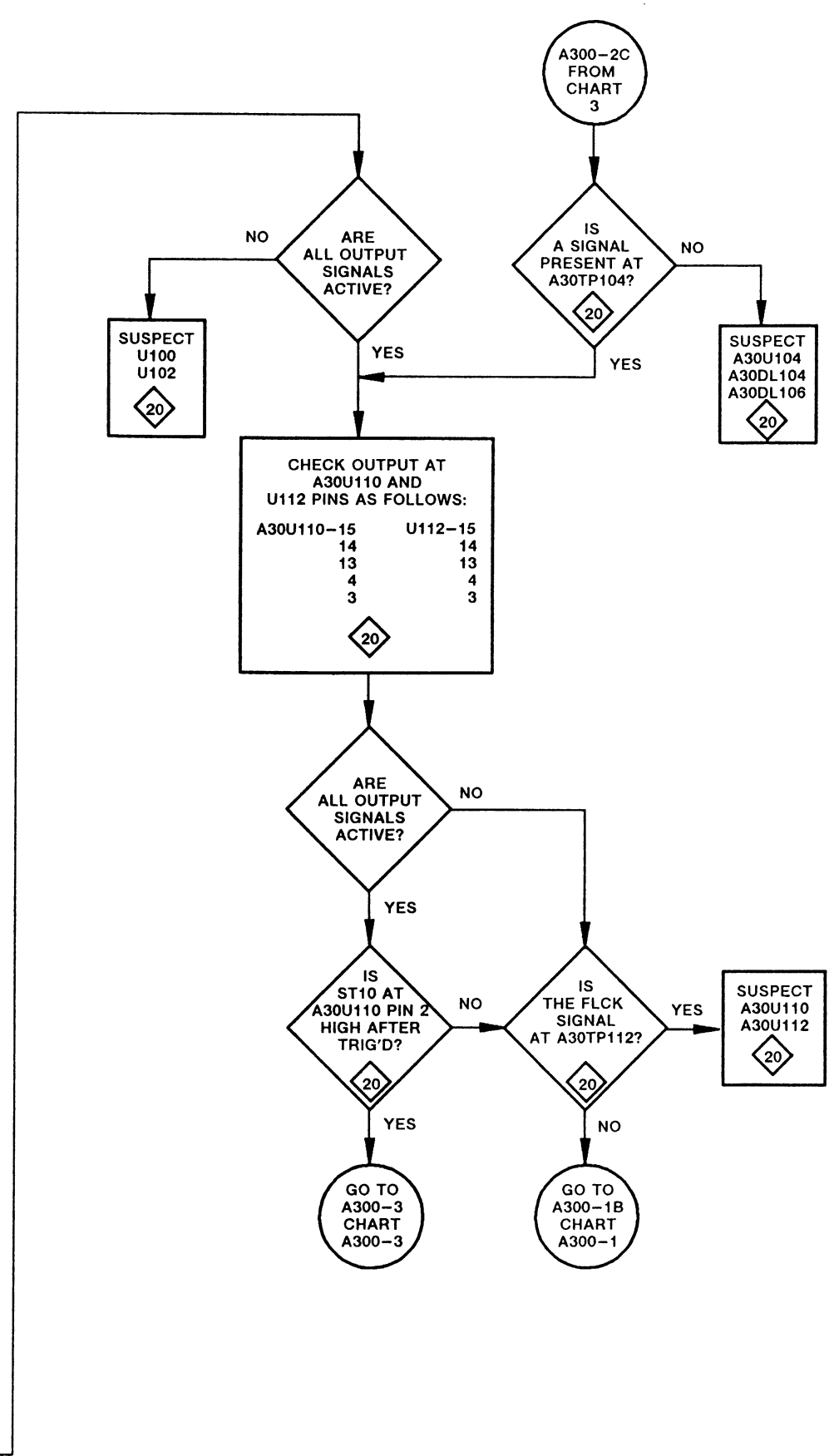
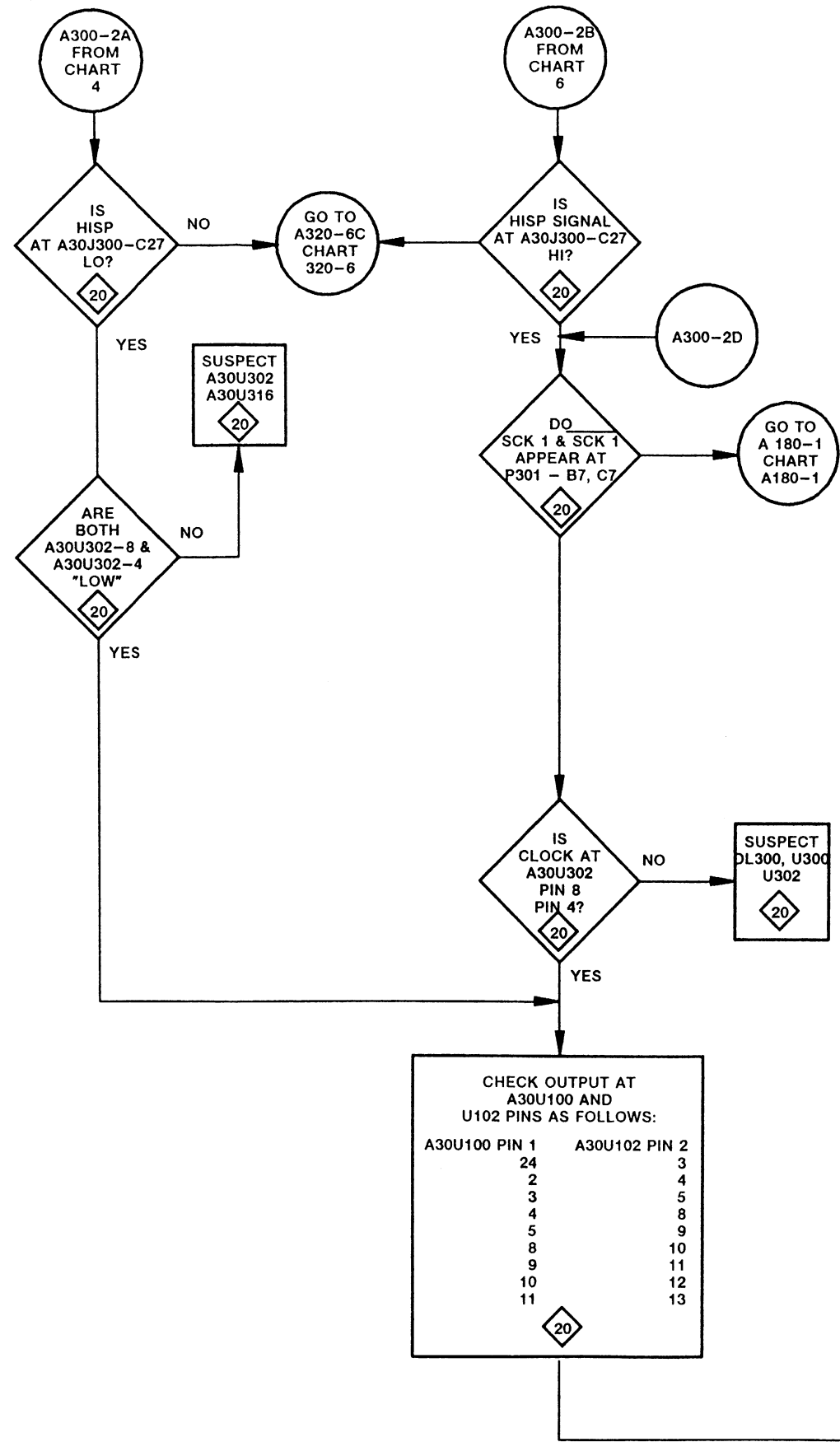


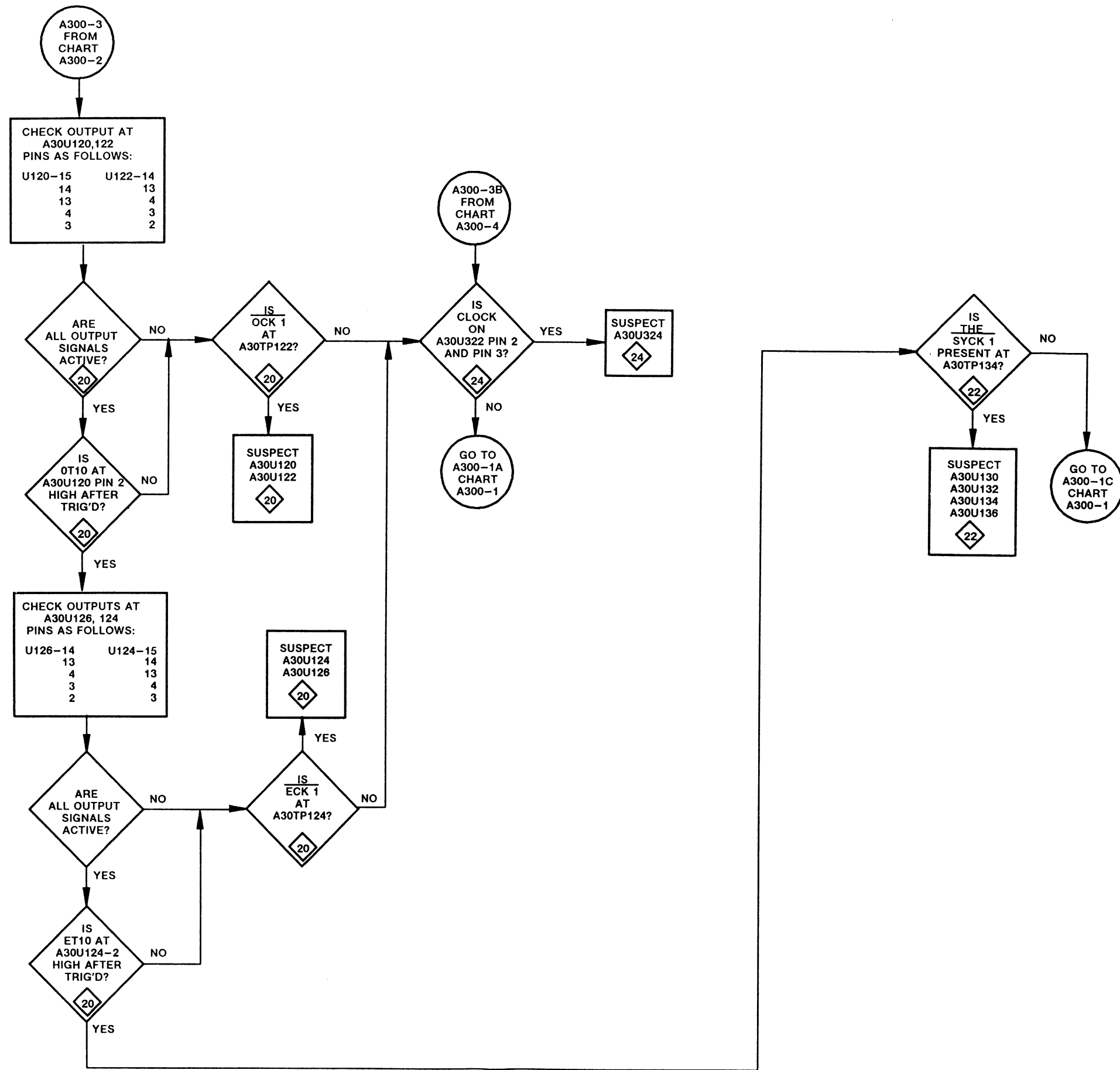
**A22 TRIGGER BOARD TROUBLESHOOTING CHART A221-1**

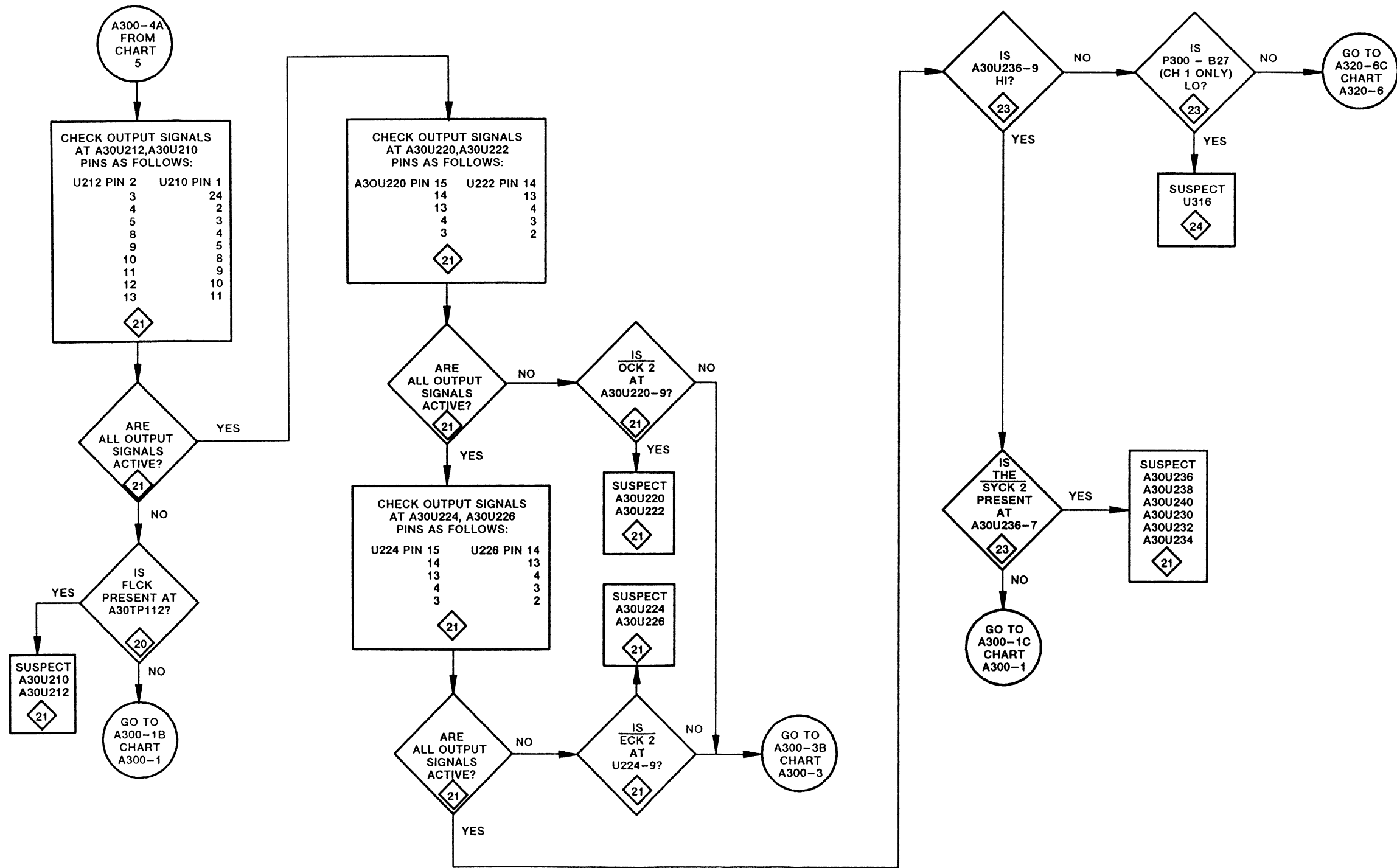


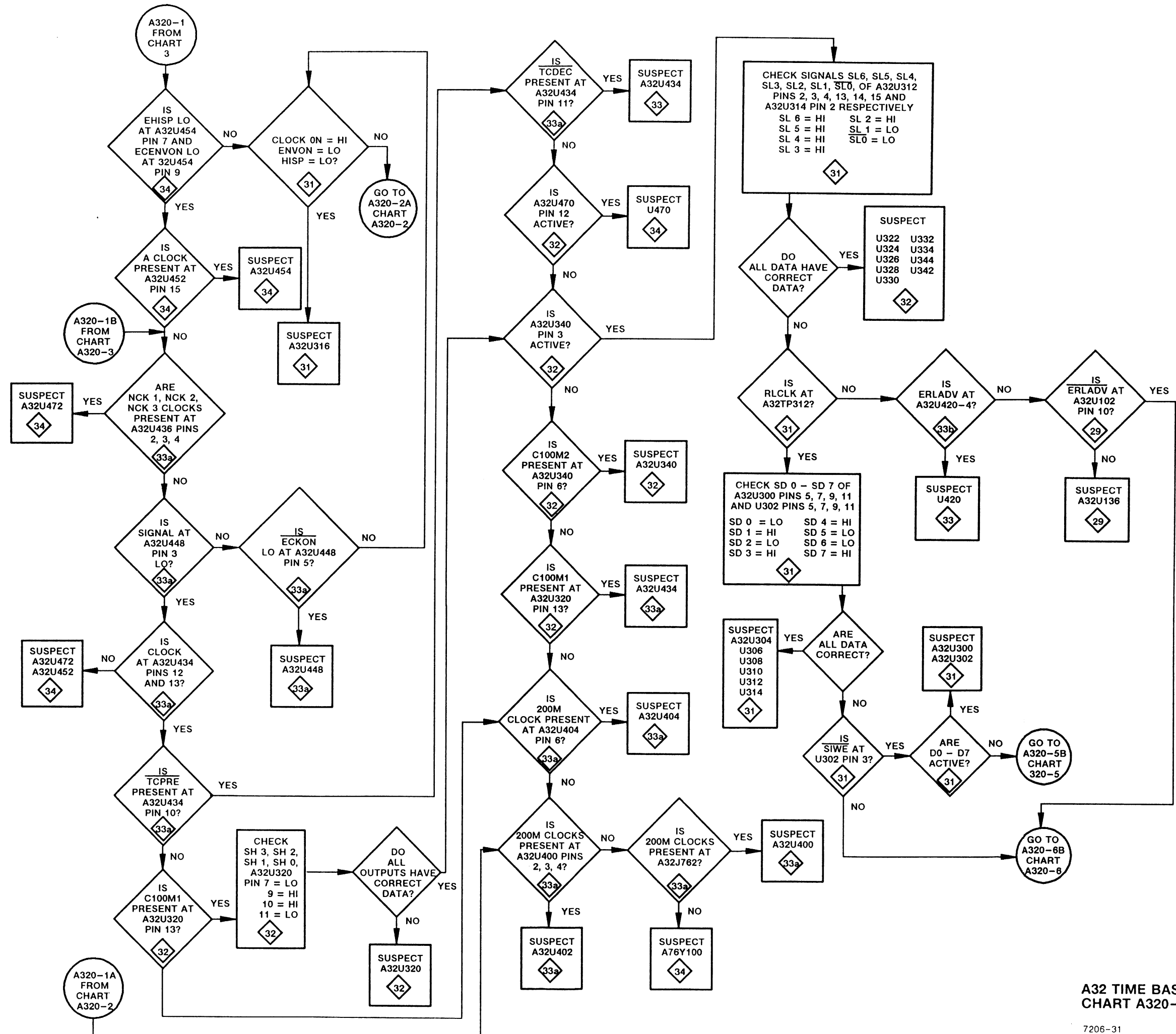




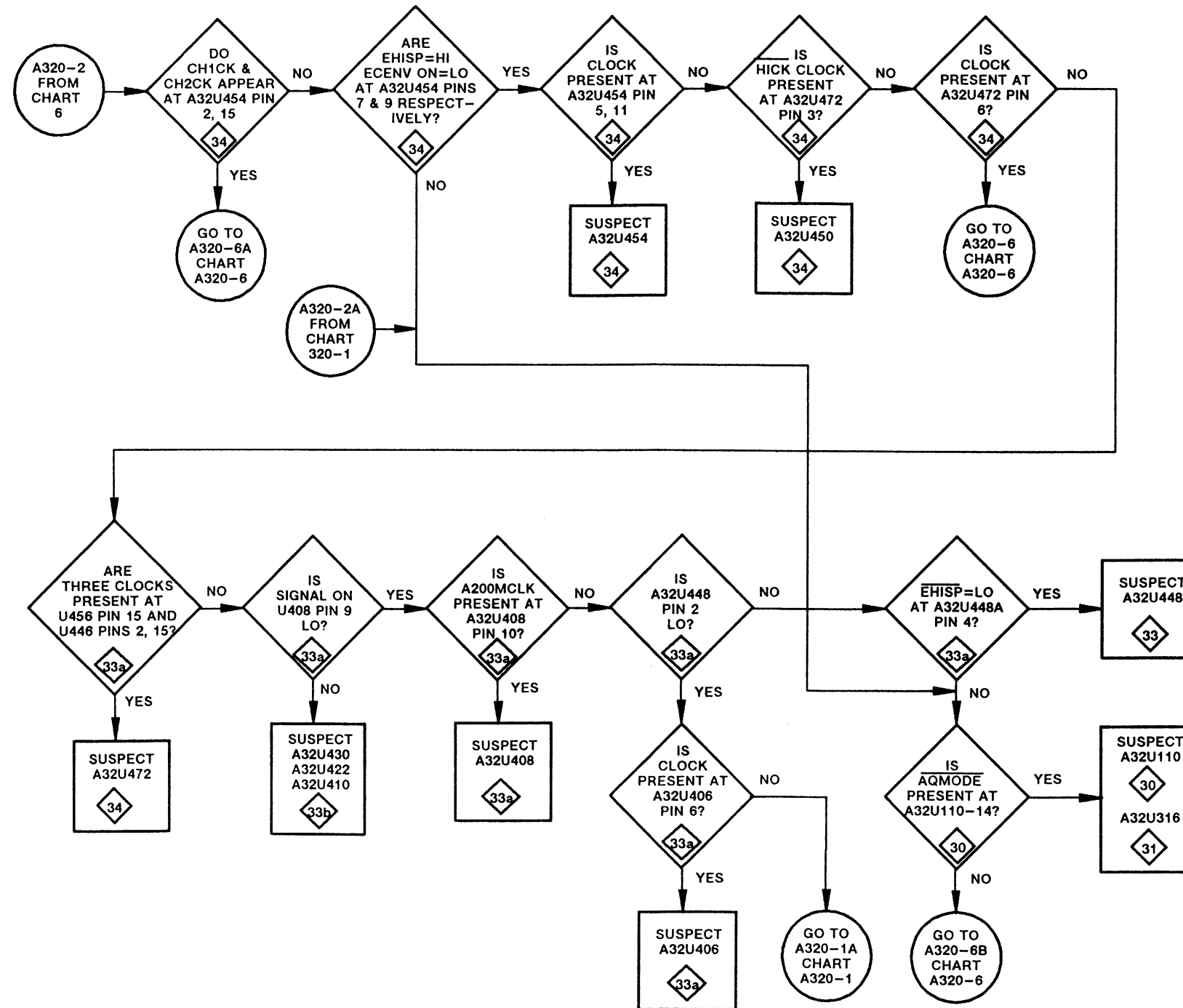


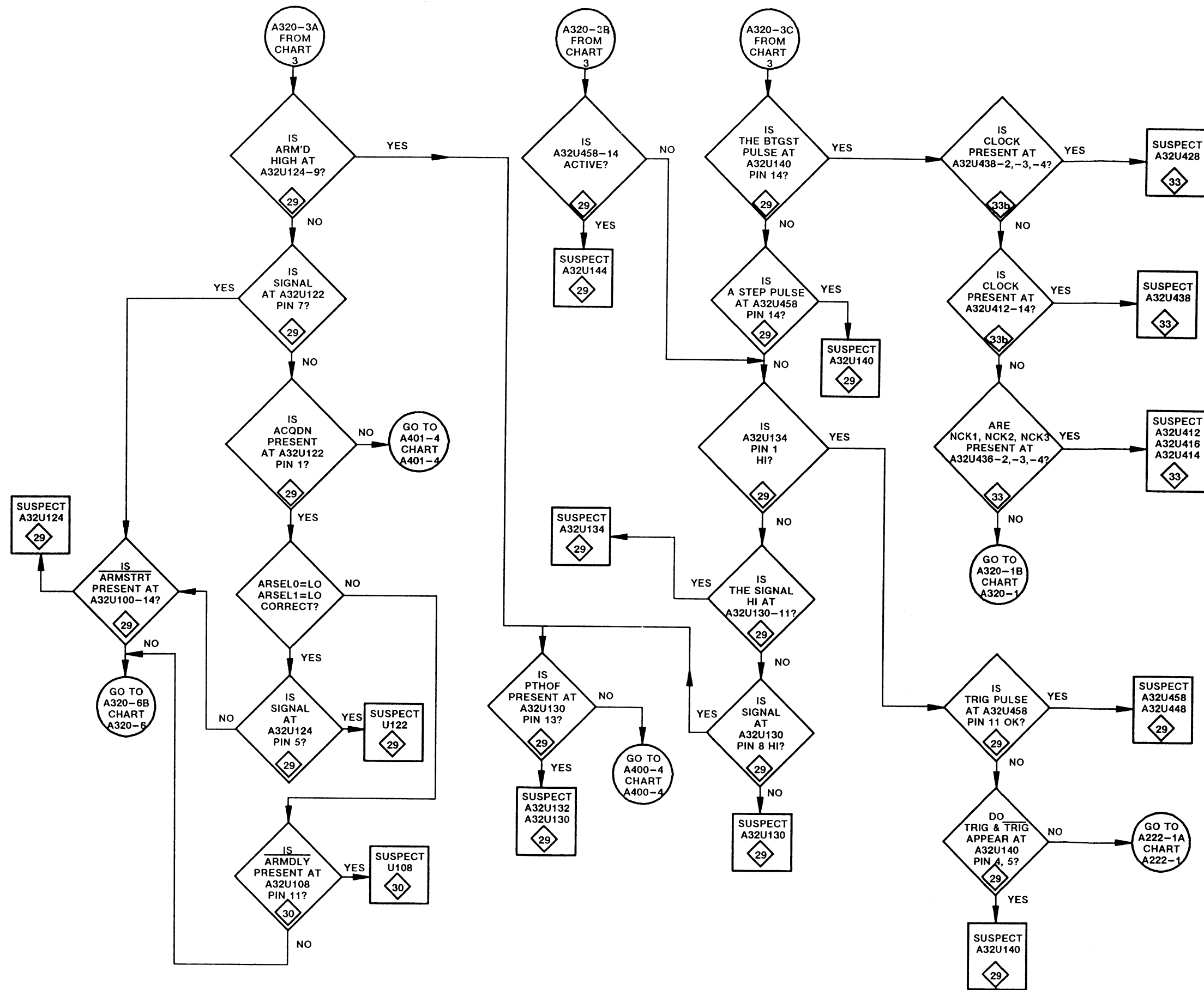


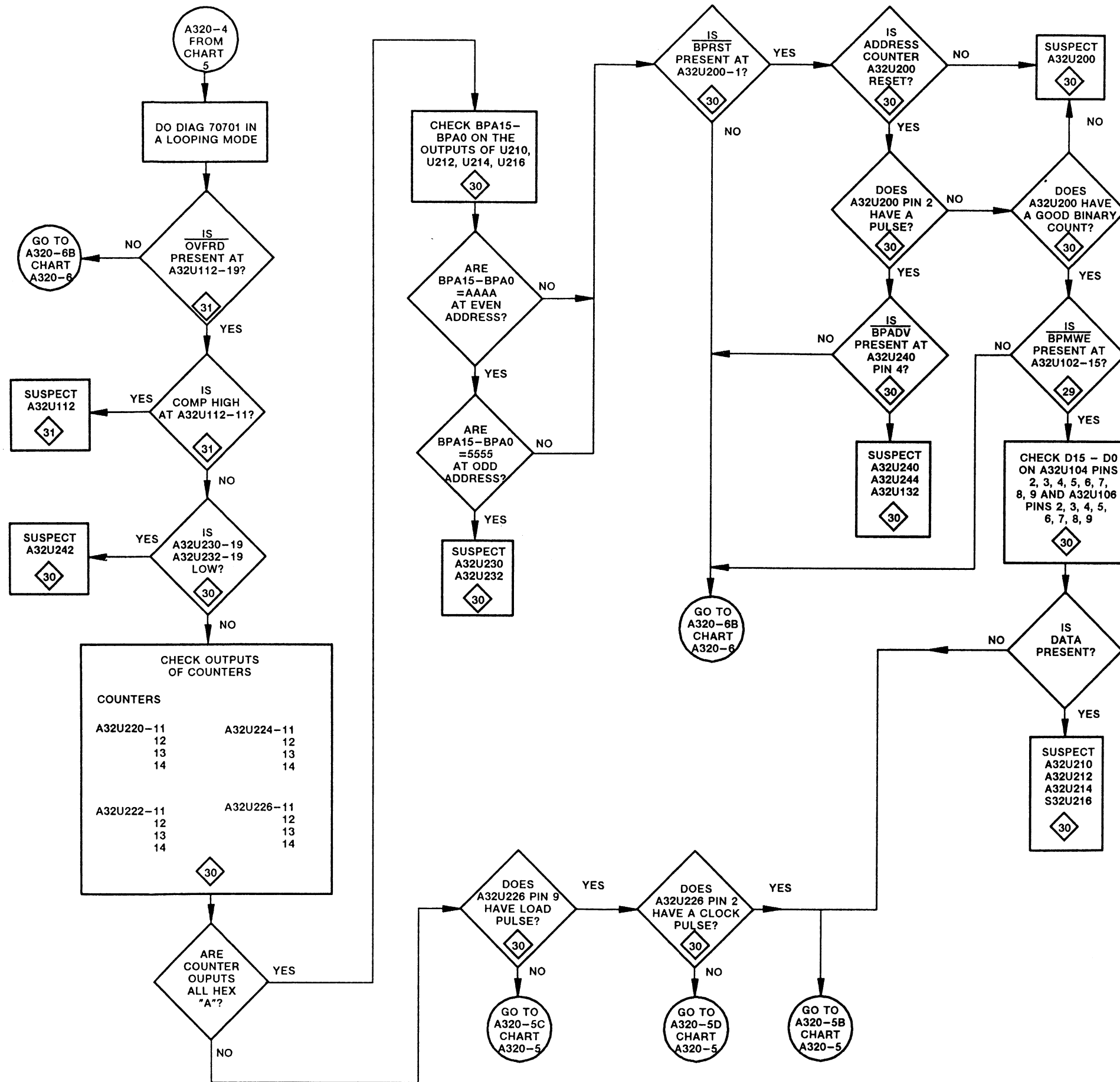




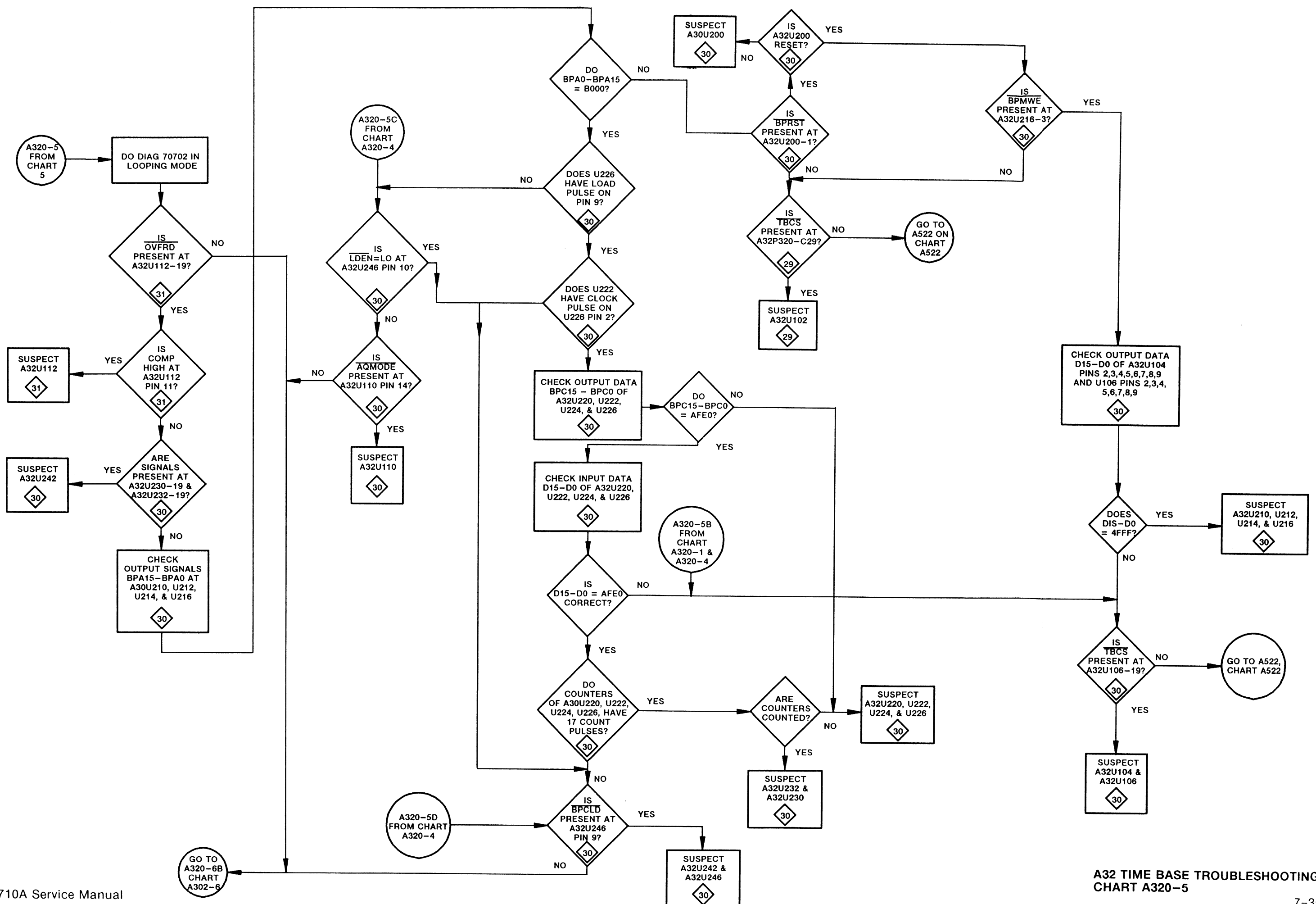
A320-1A FROM CHART A320-2



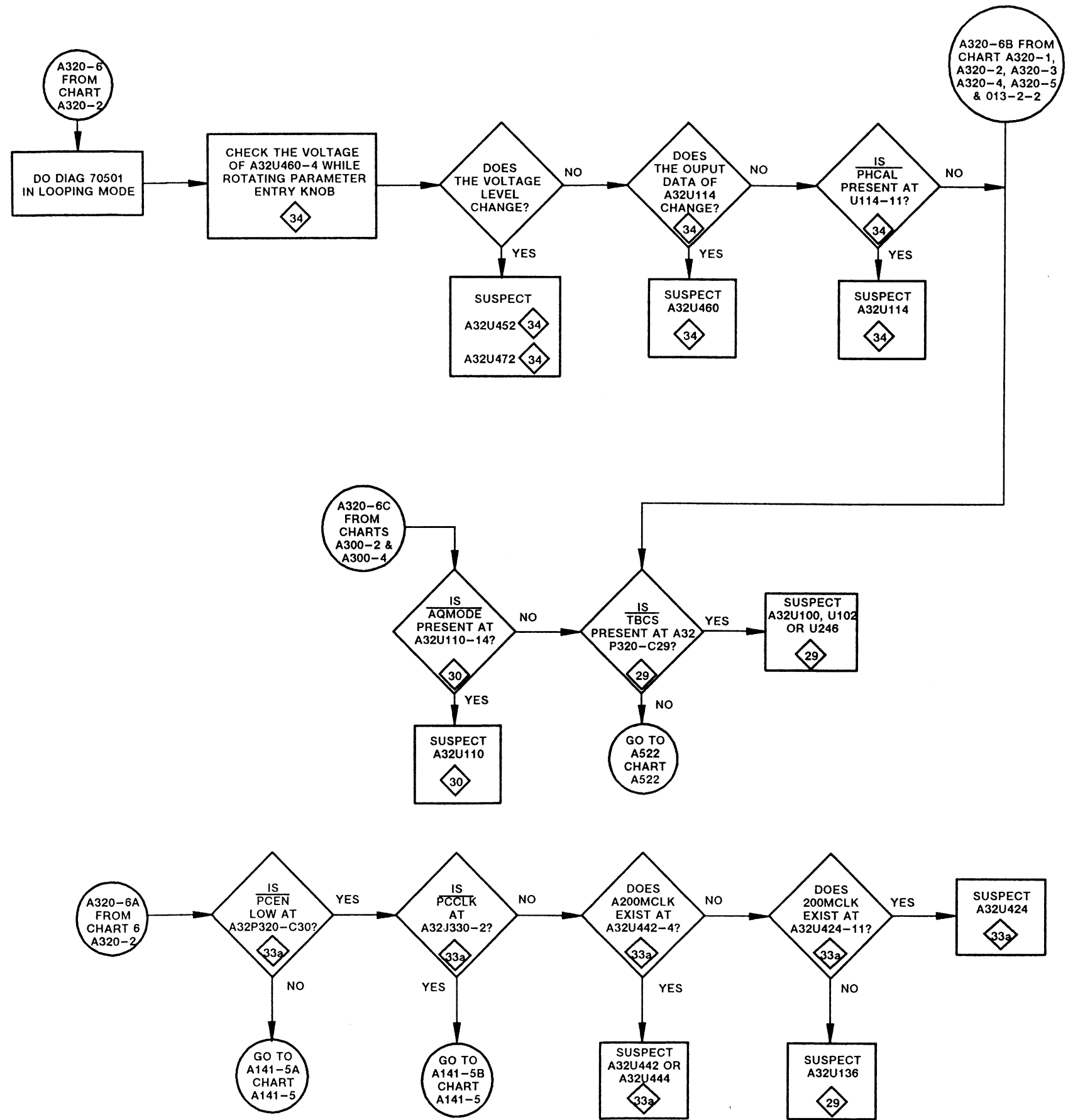


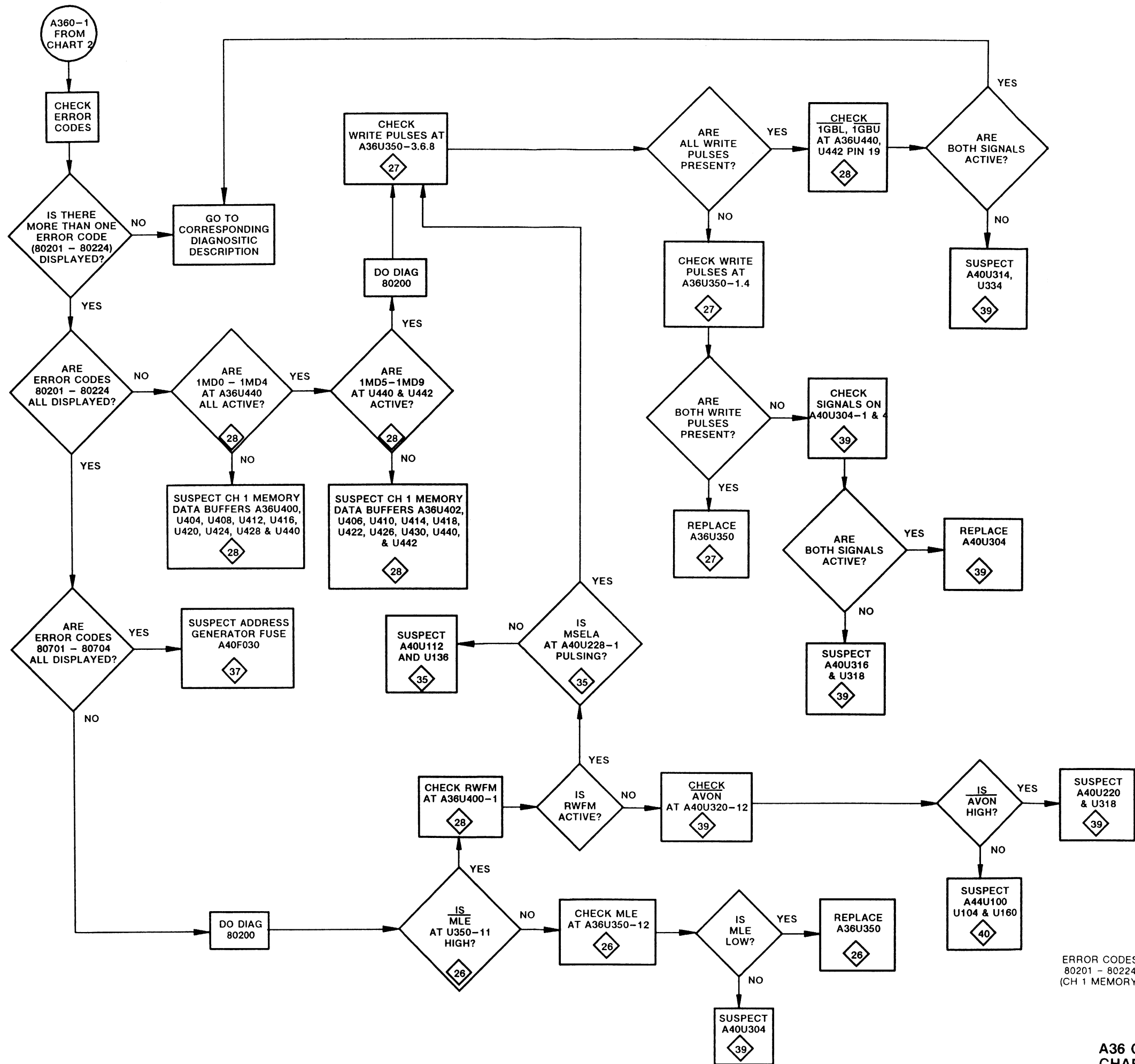




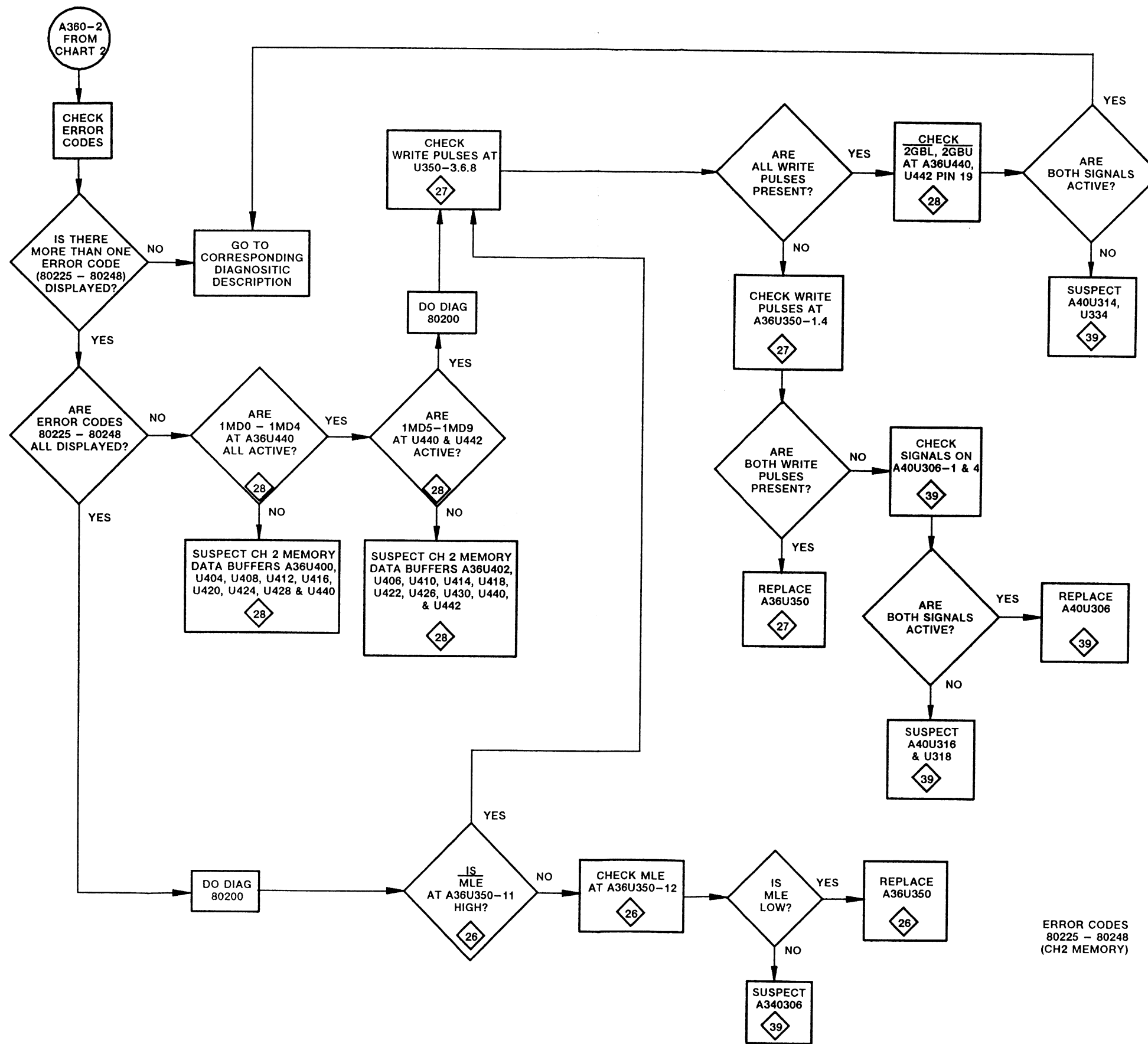


A32 TIME BASE TROUBLESHOOTING CHART A320-5

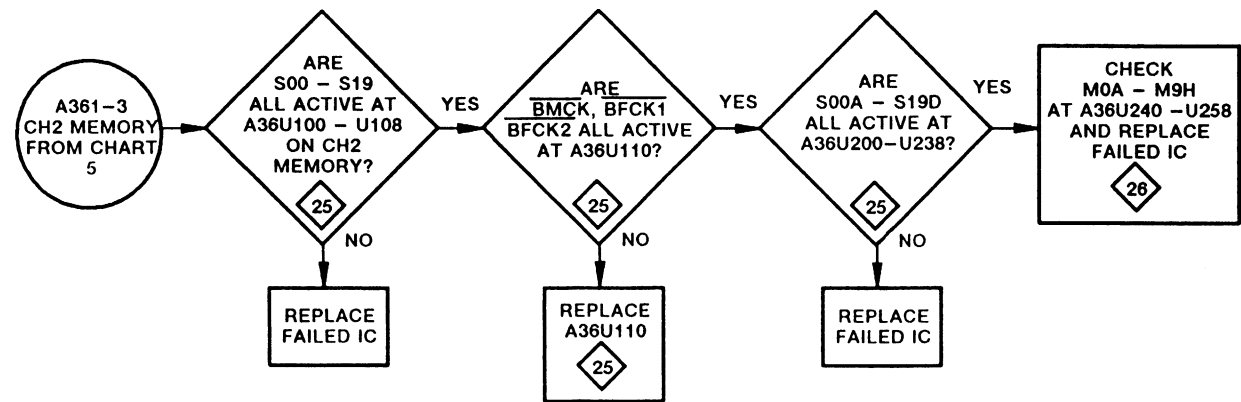
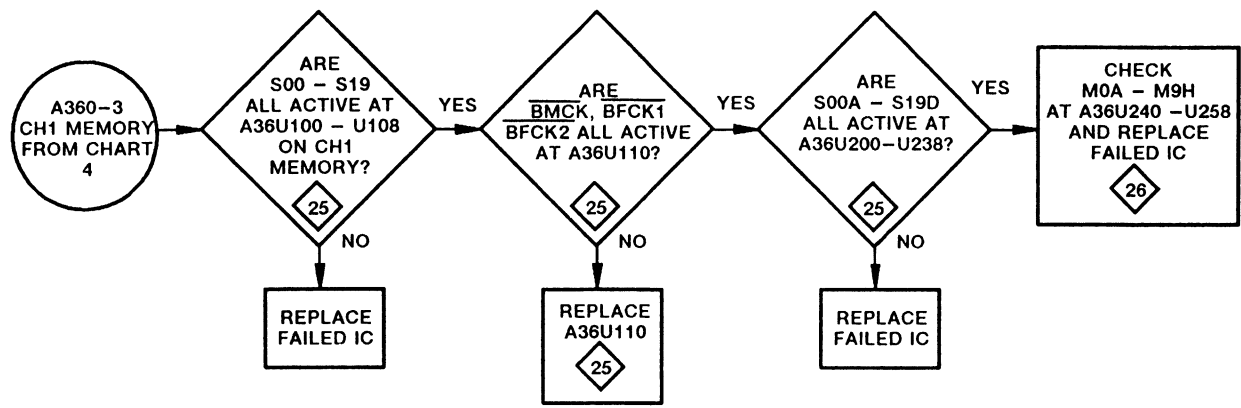


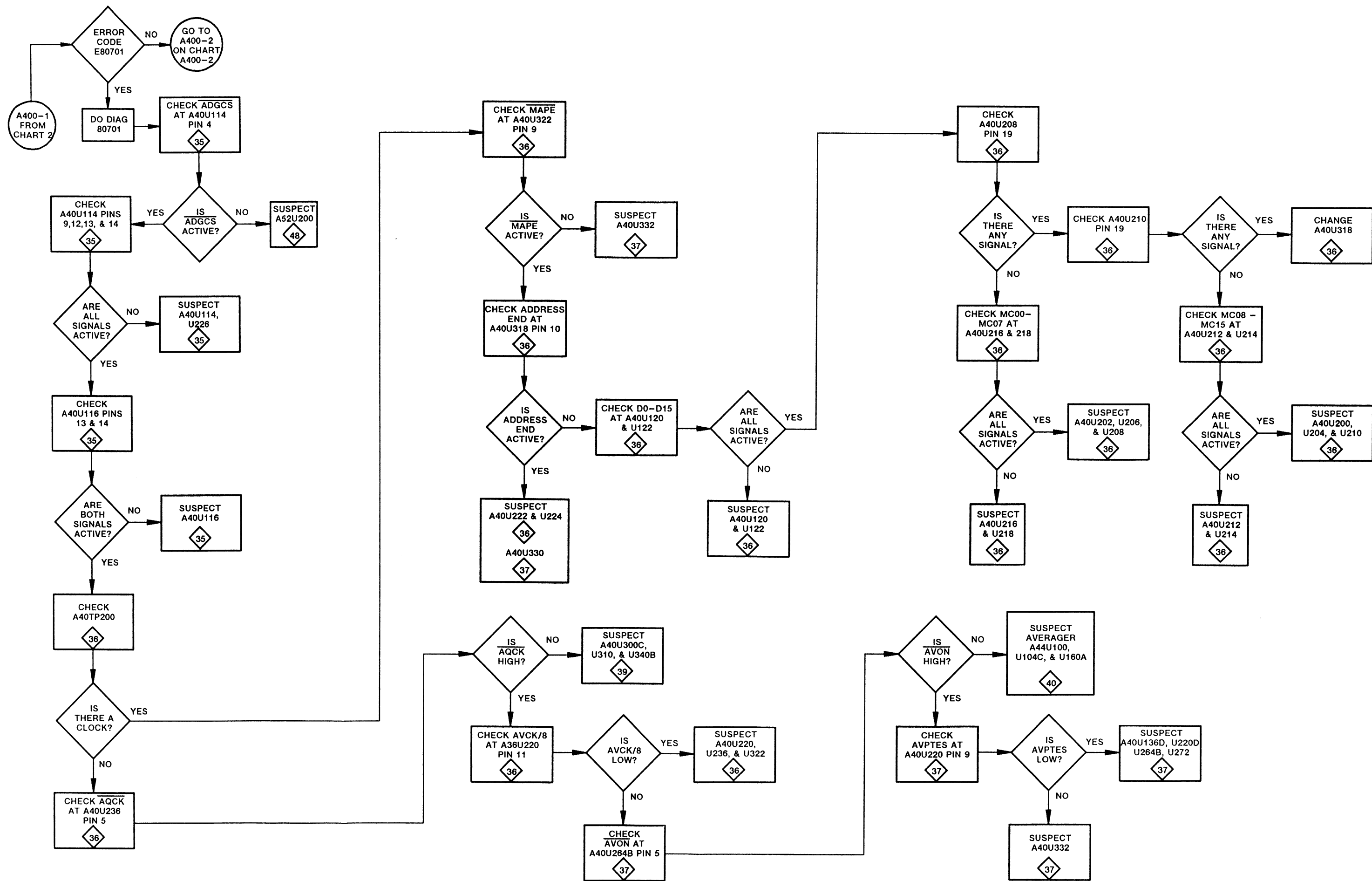


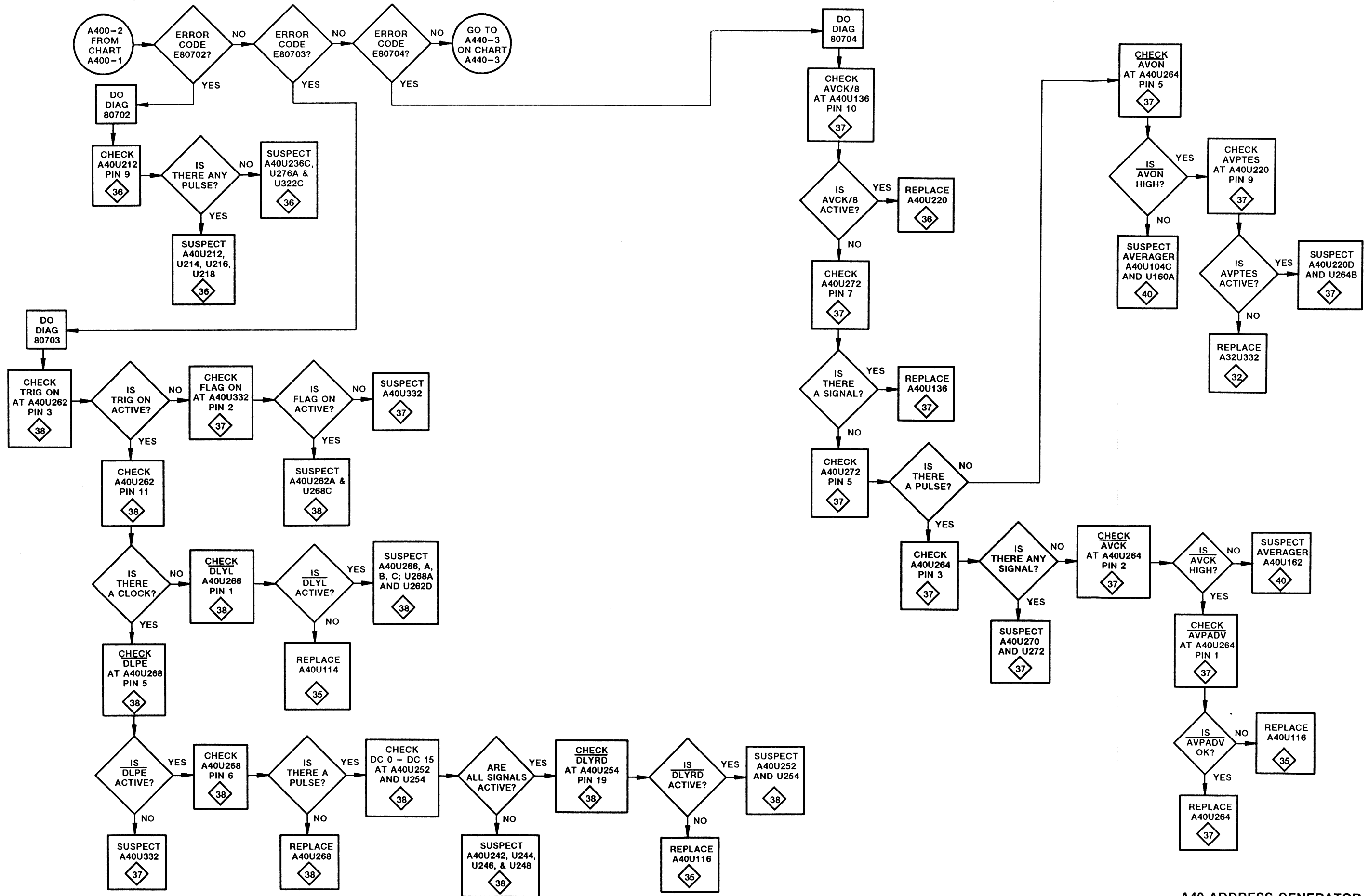
ERROR CODES  
80201 - 80224  
(CH 1 MEMORY)



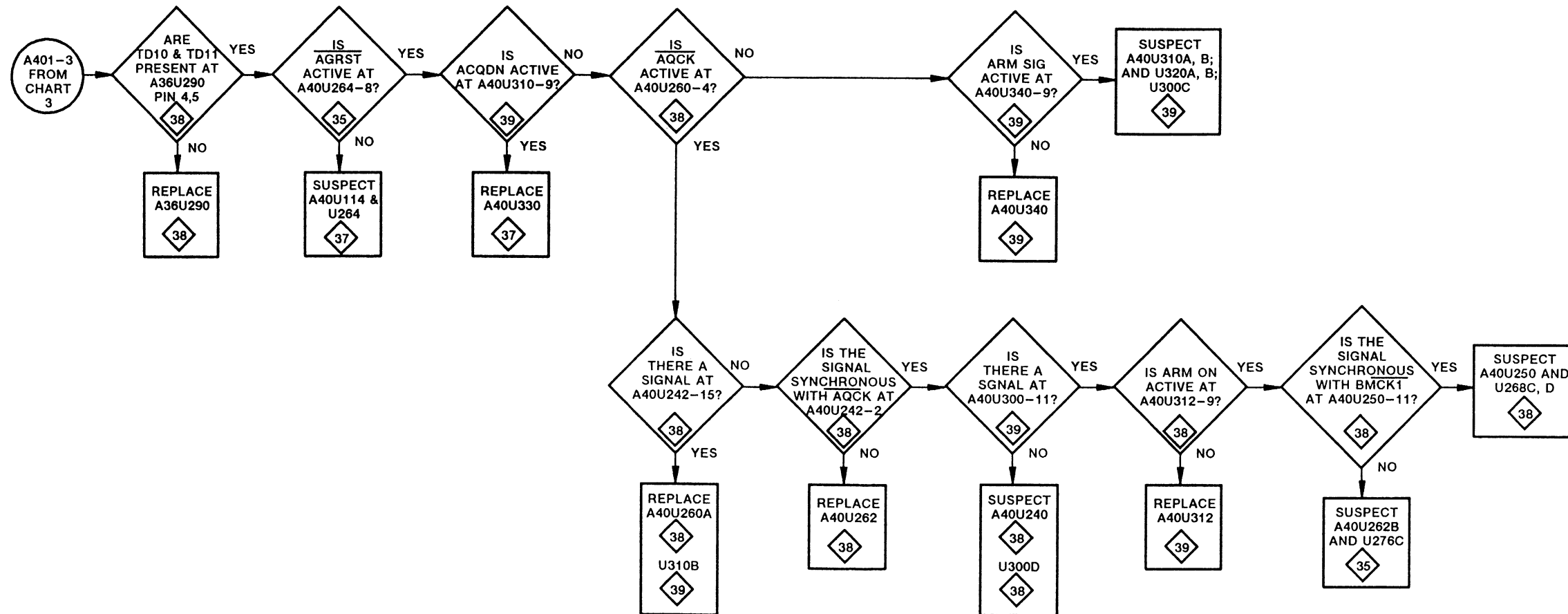
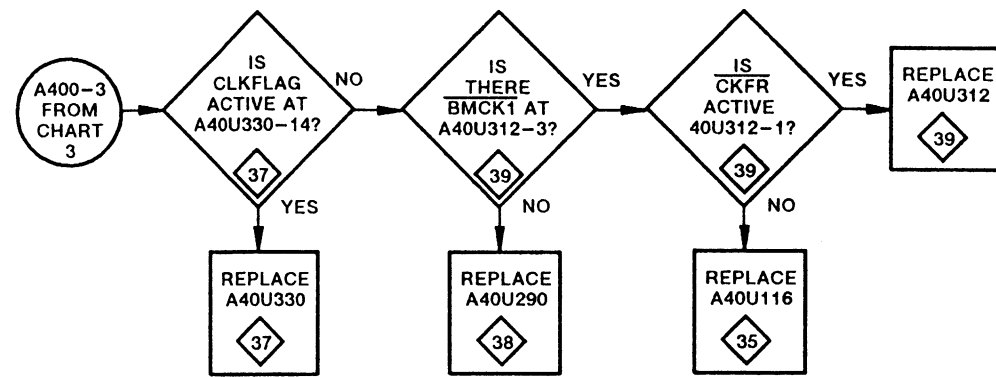
ERROR CODES  
80225 - 80248  
(CH2 MEMORY)



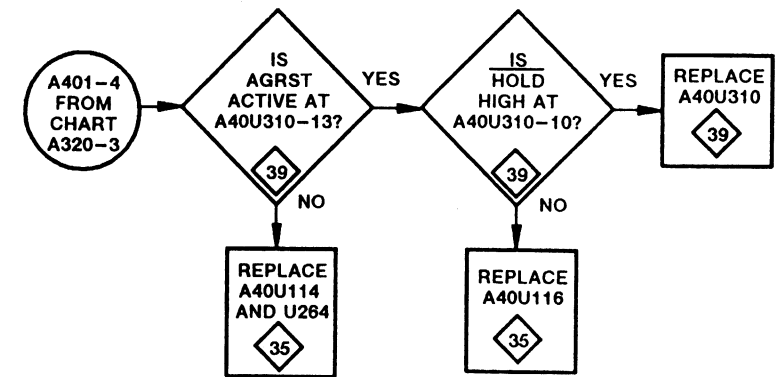
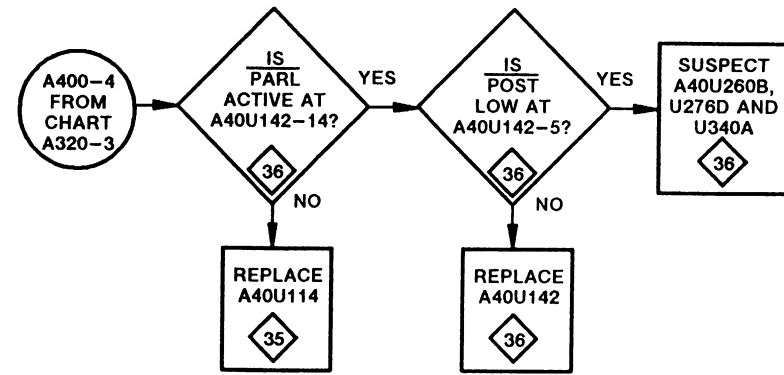


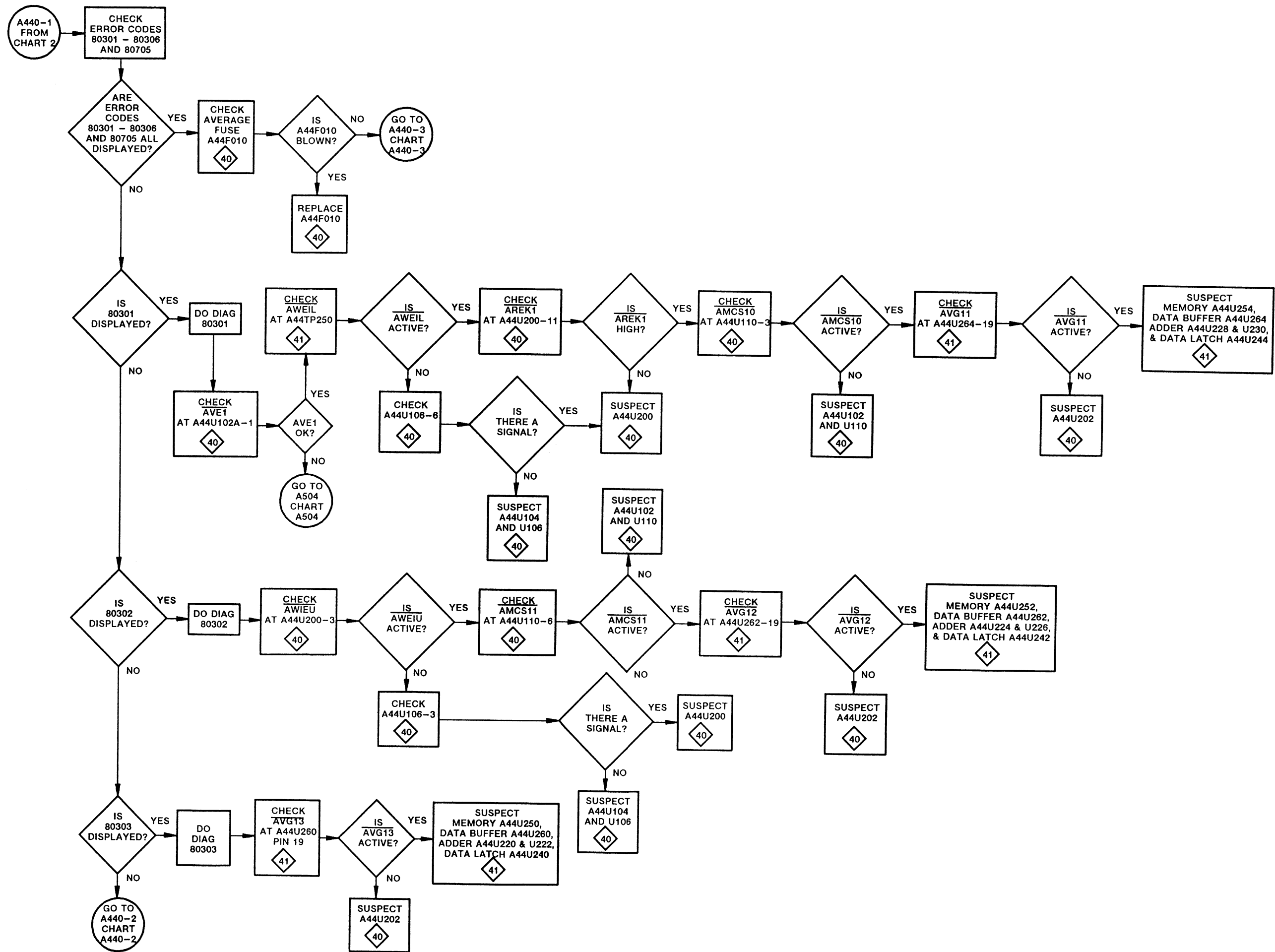


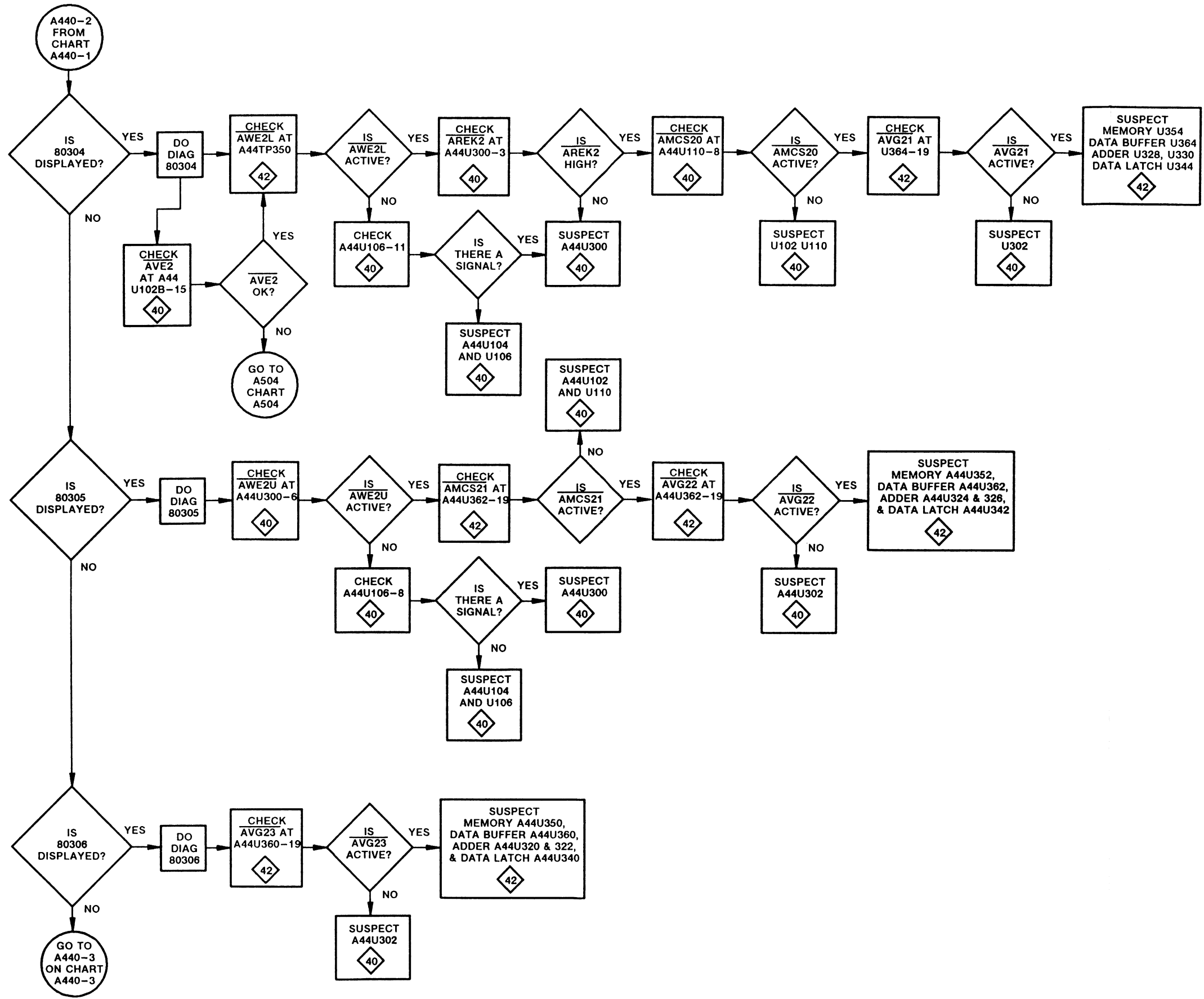
**A40 ADDRESS GENERATOR  
TROUBLESHOOTING CHART A400-2**

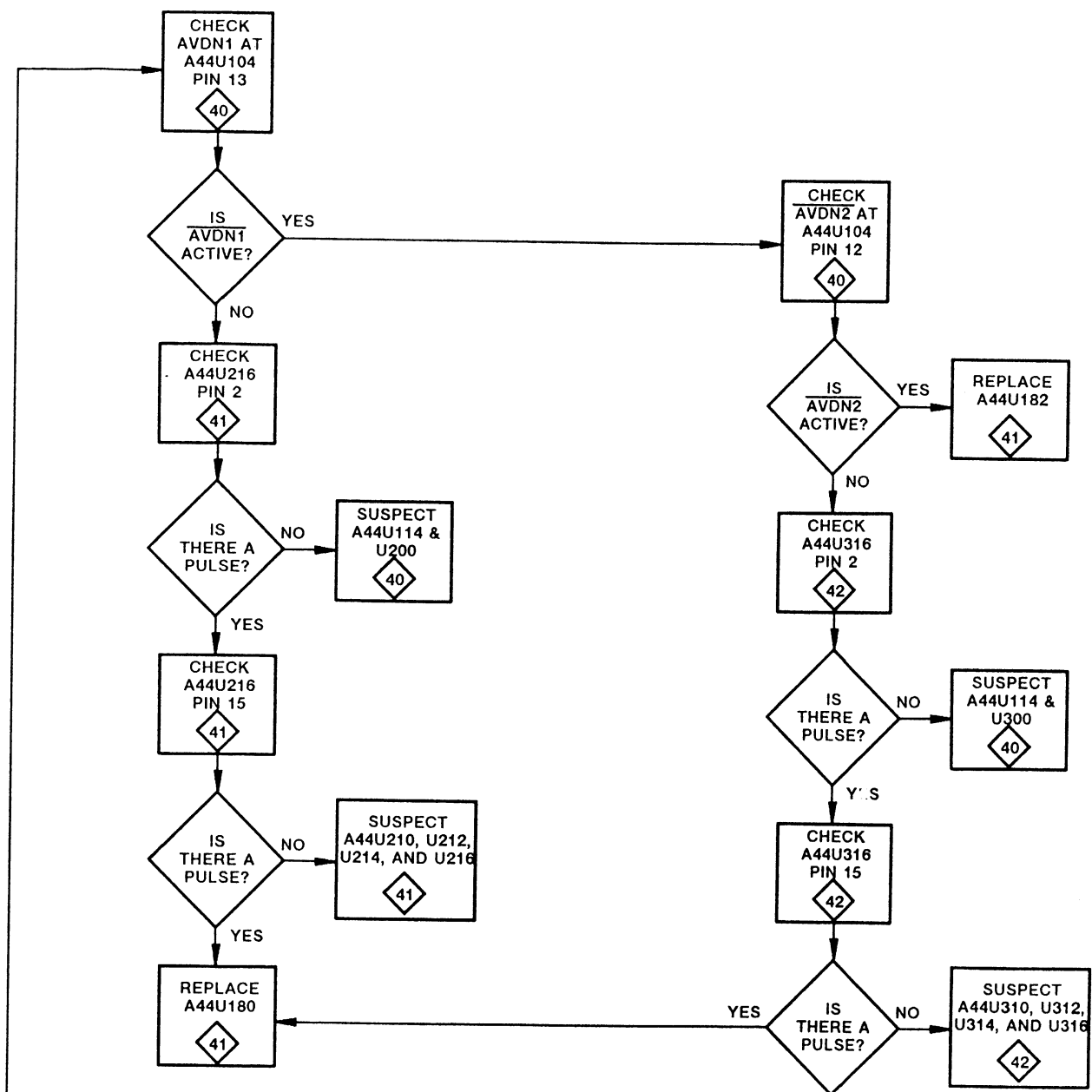
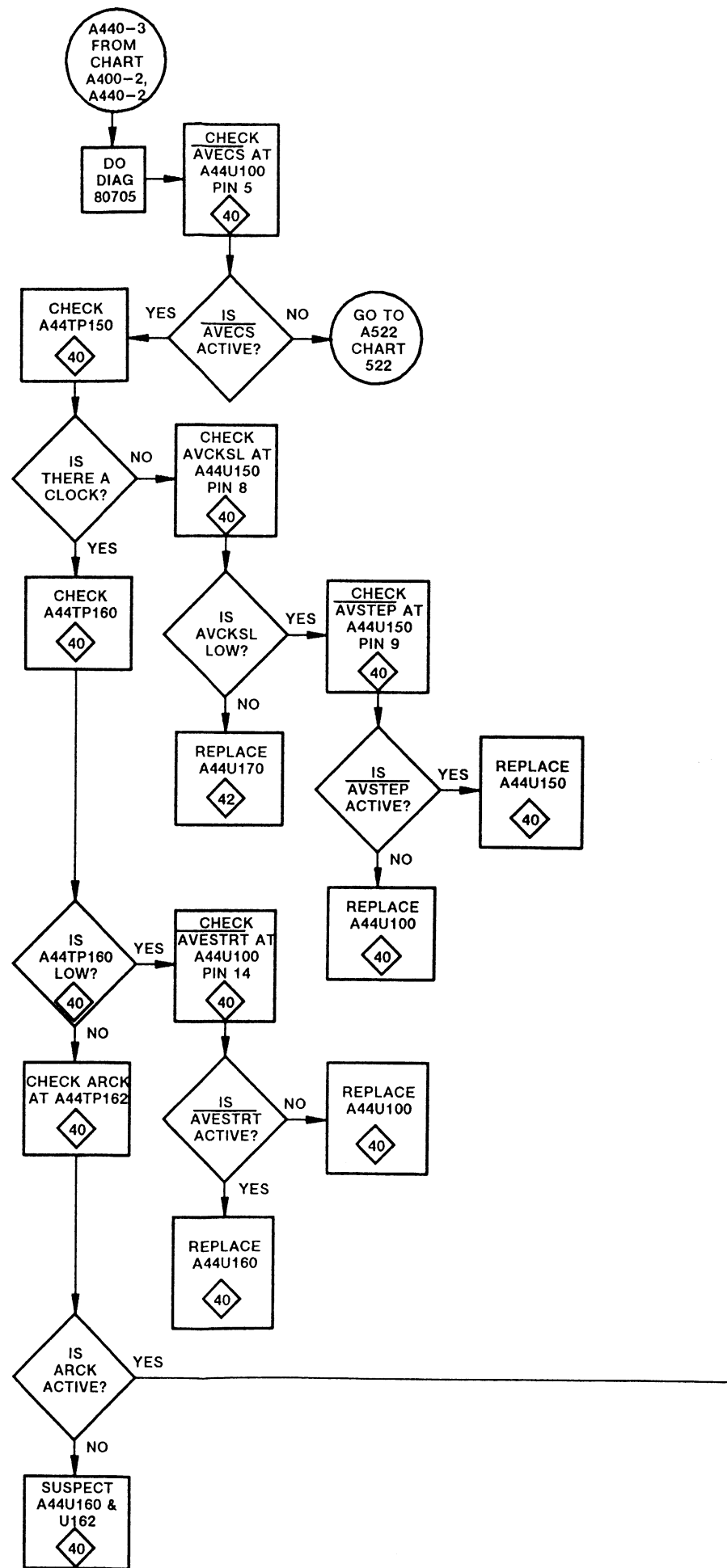


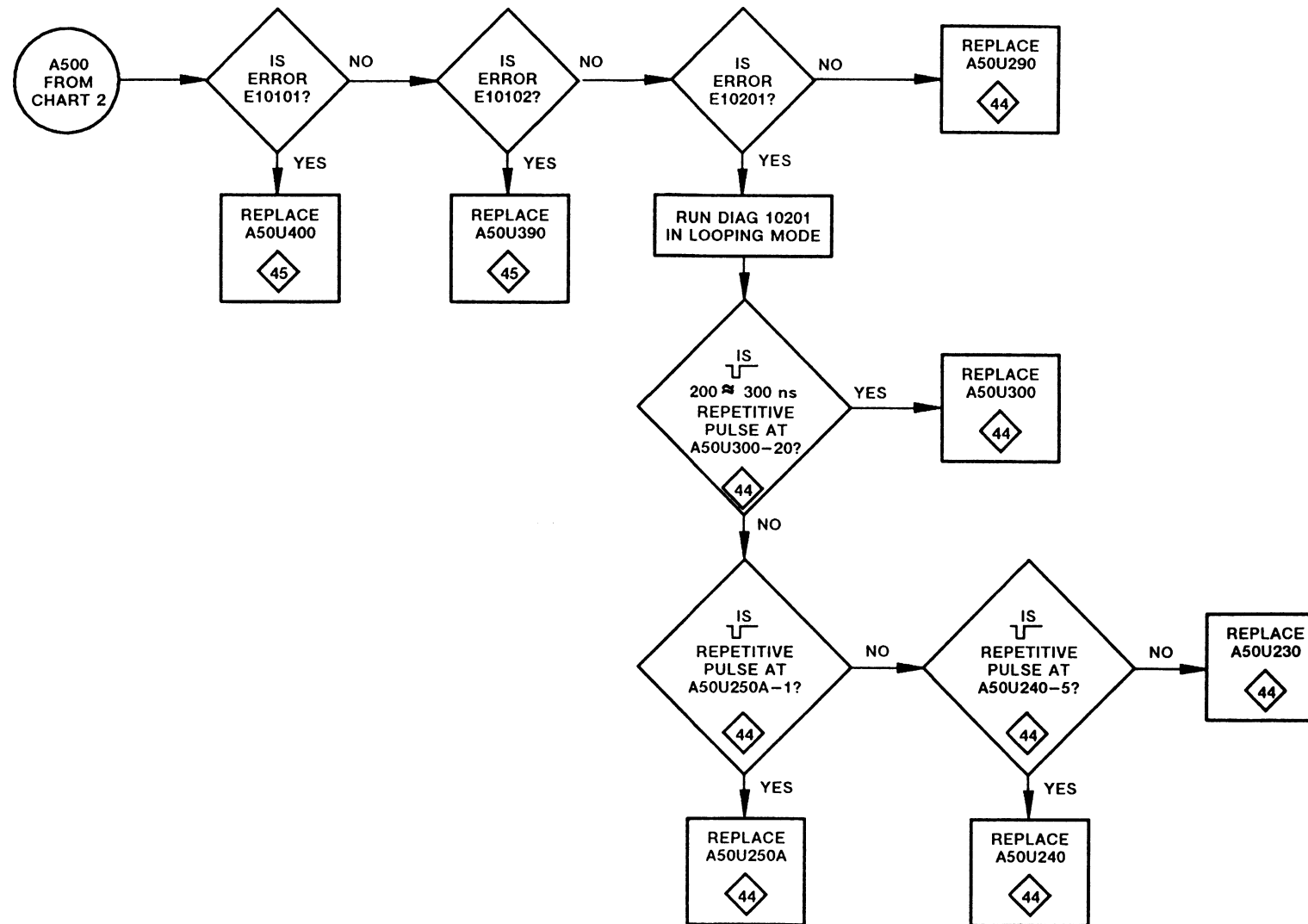


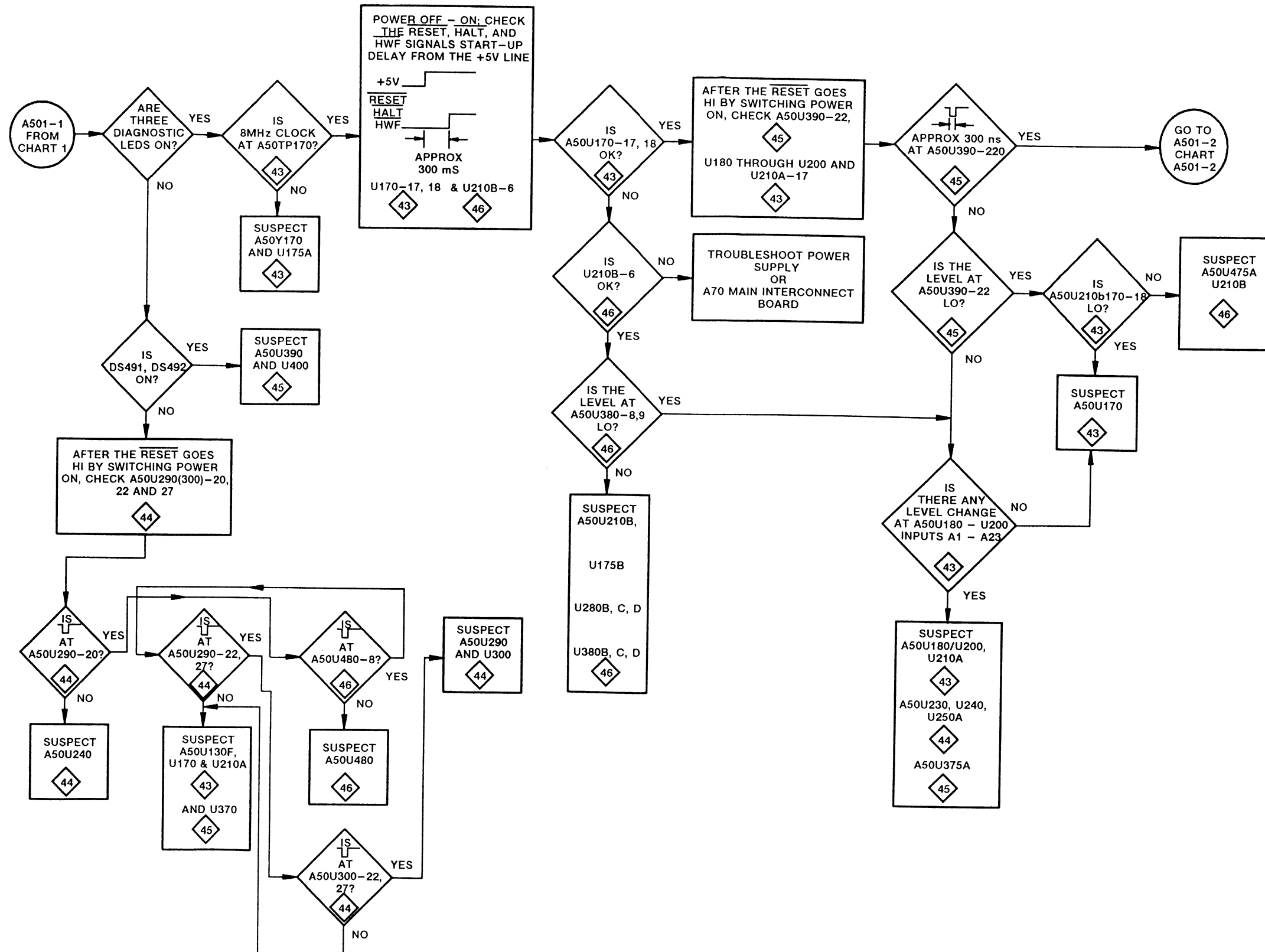


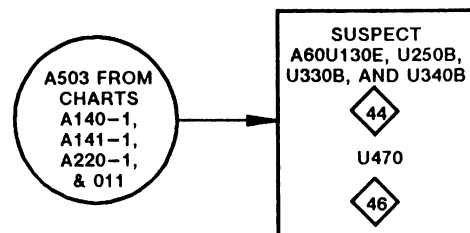
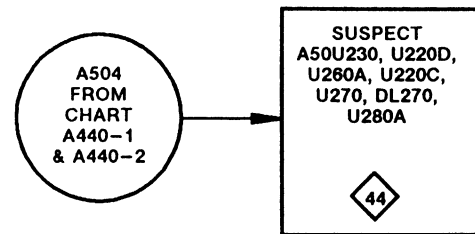
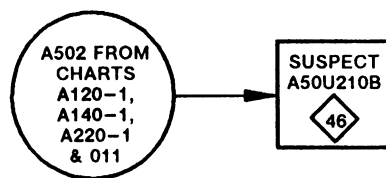
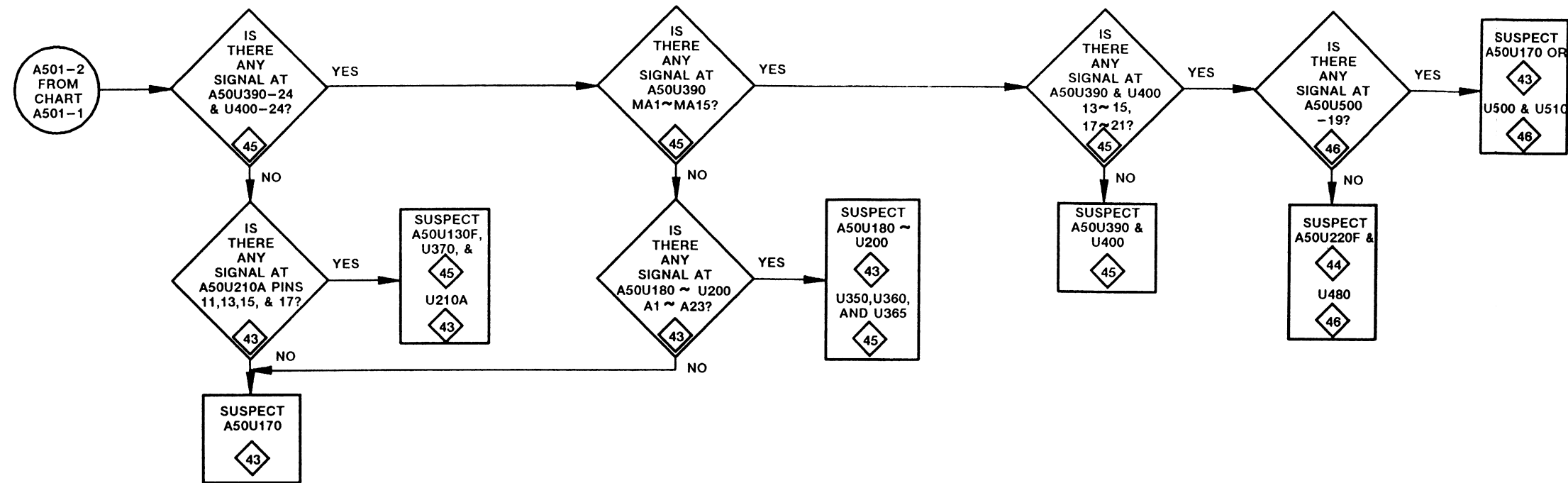


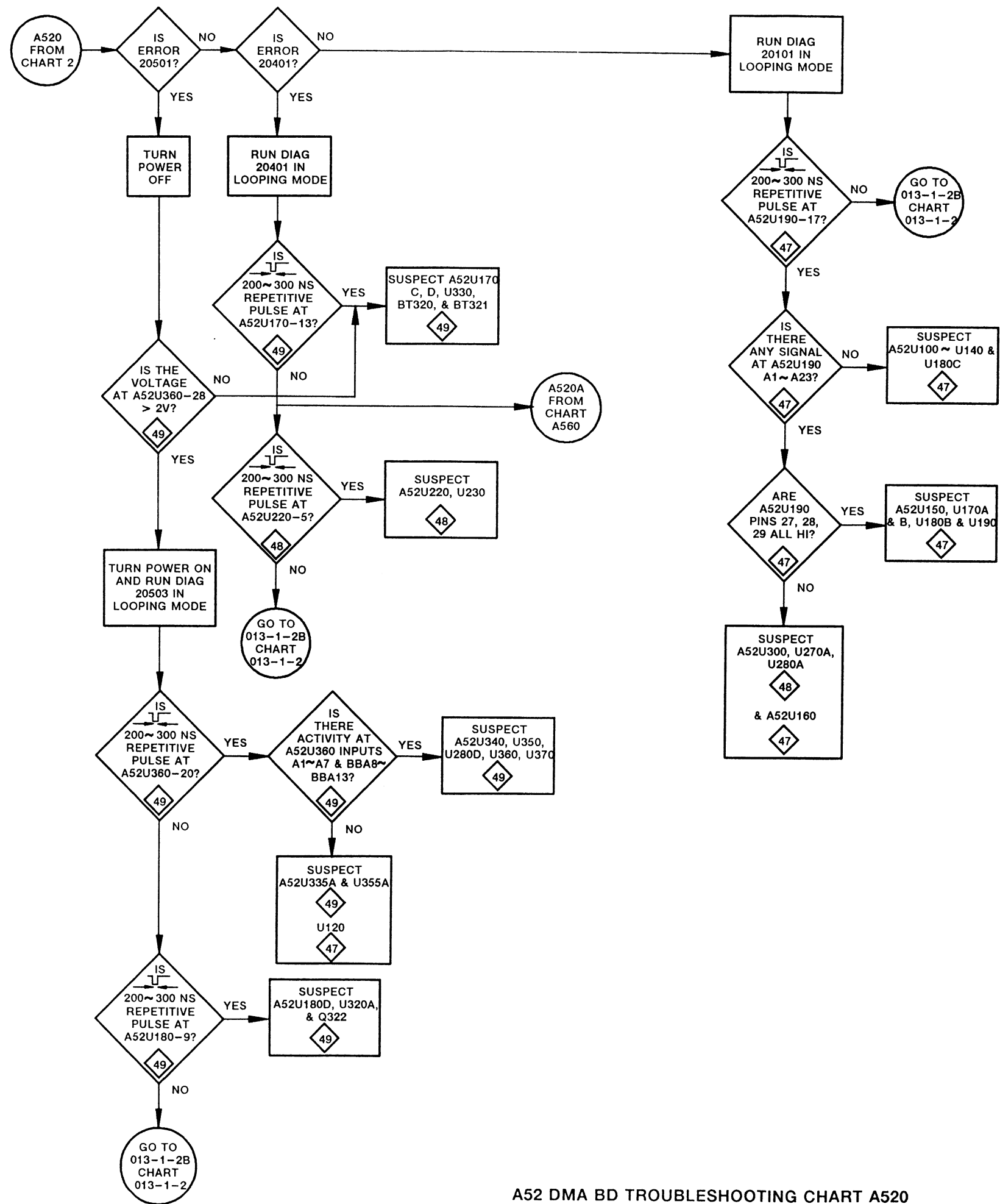




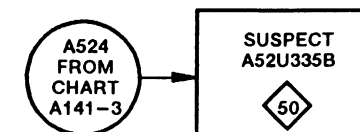
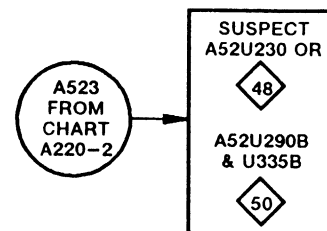
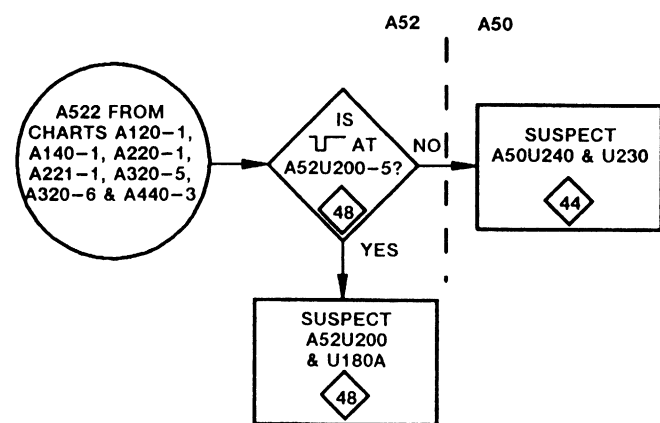
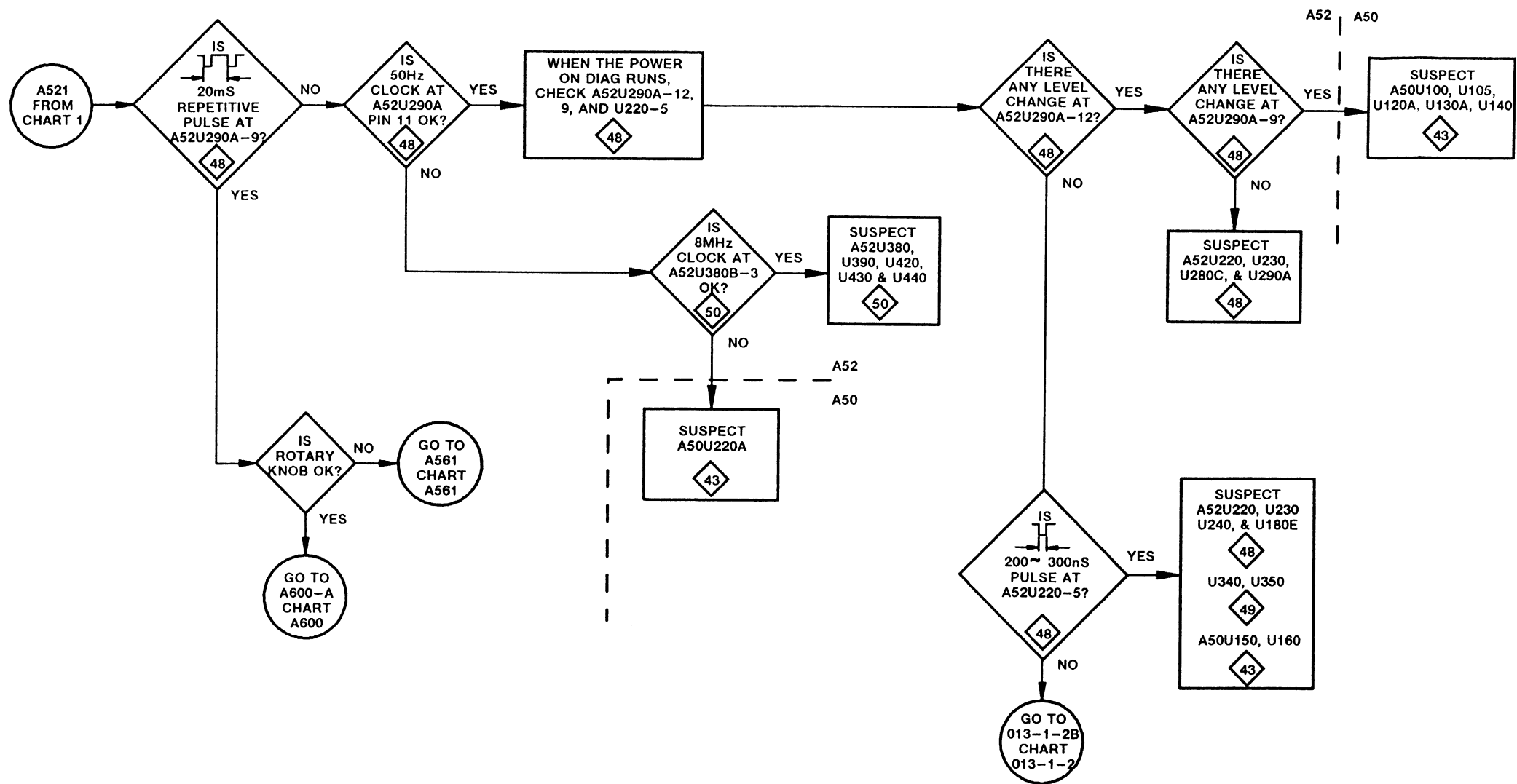


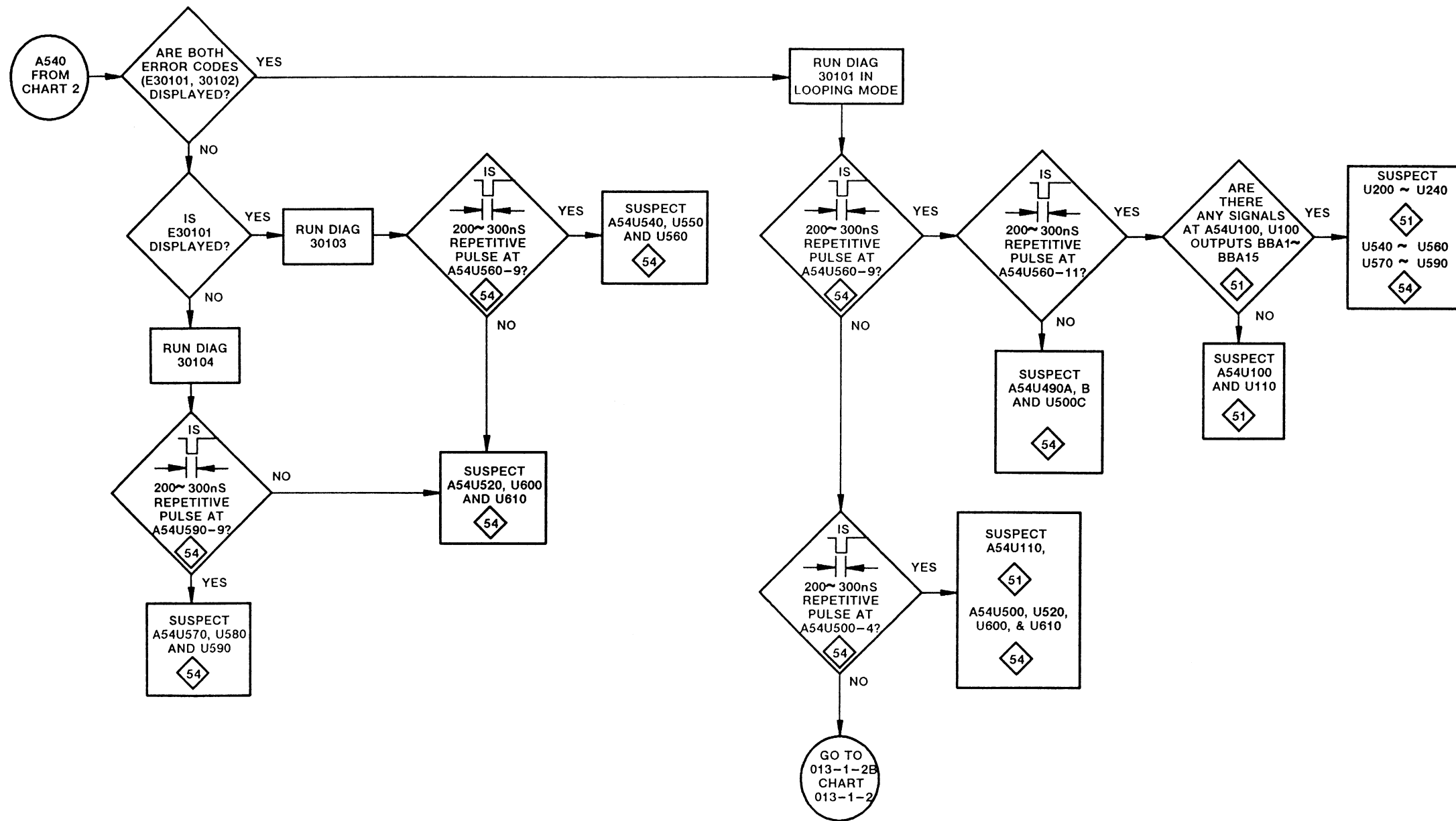


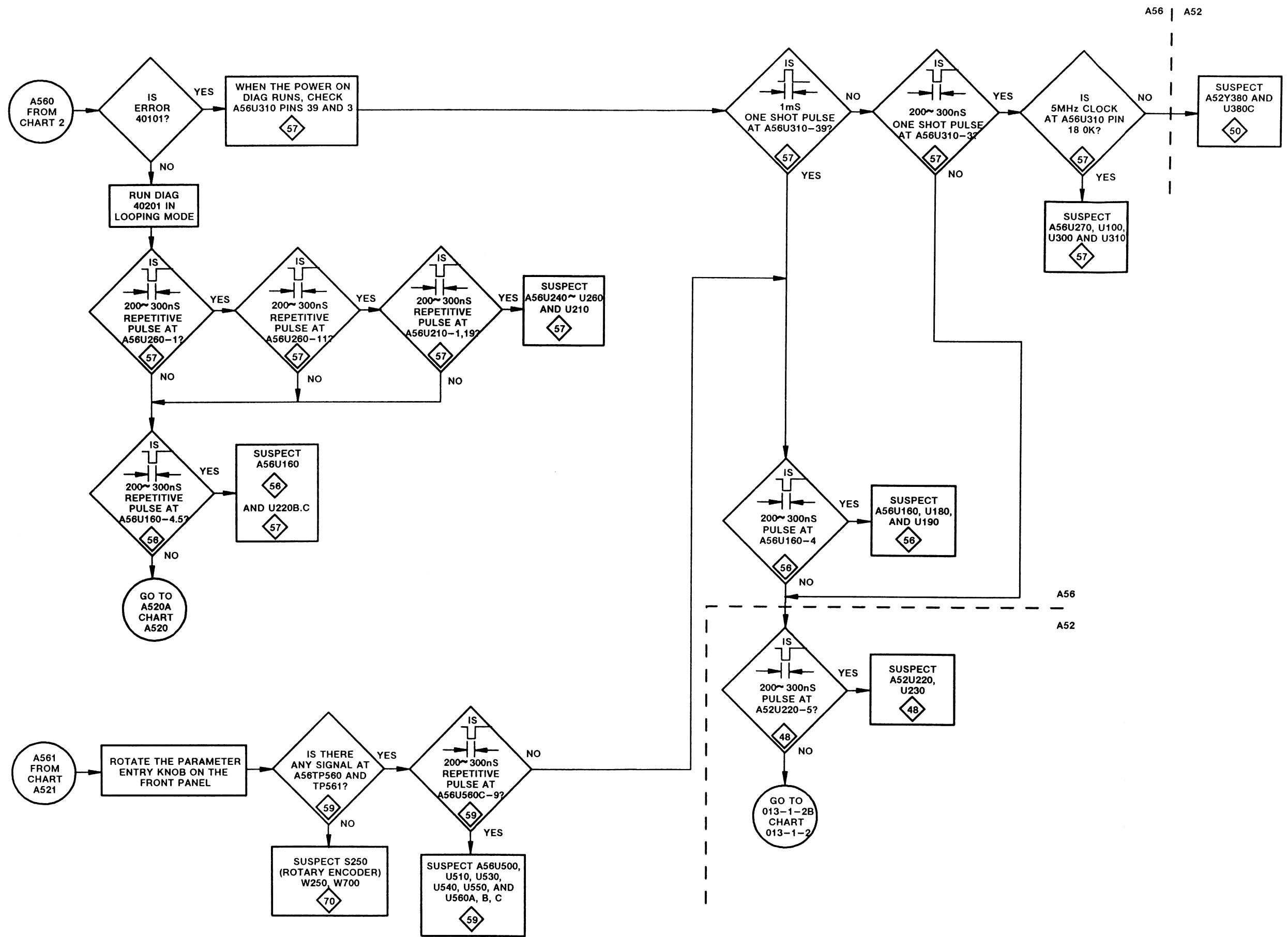


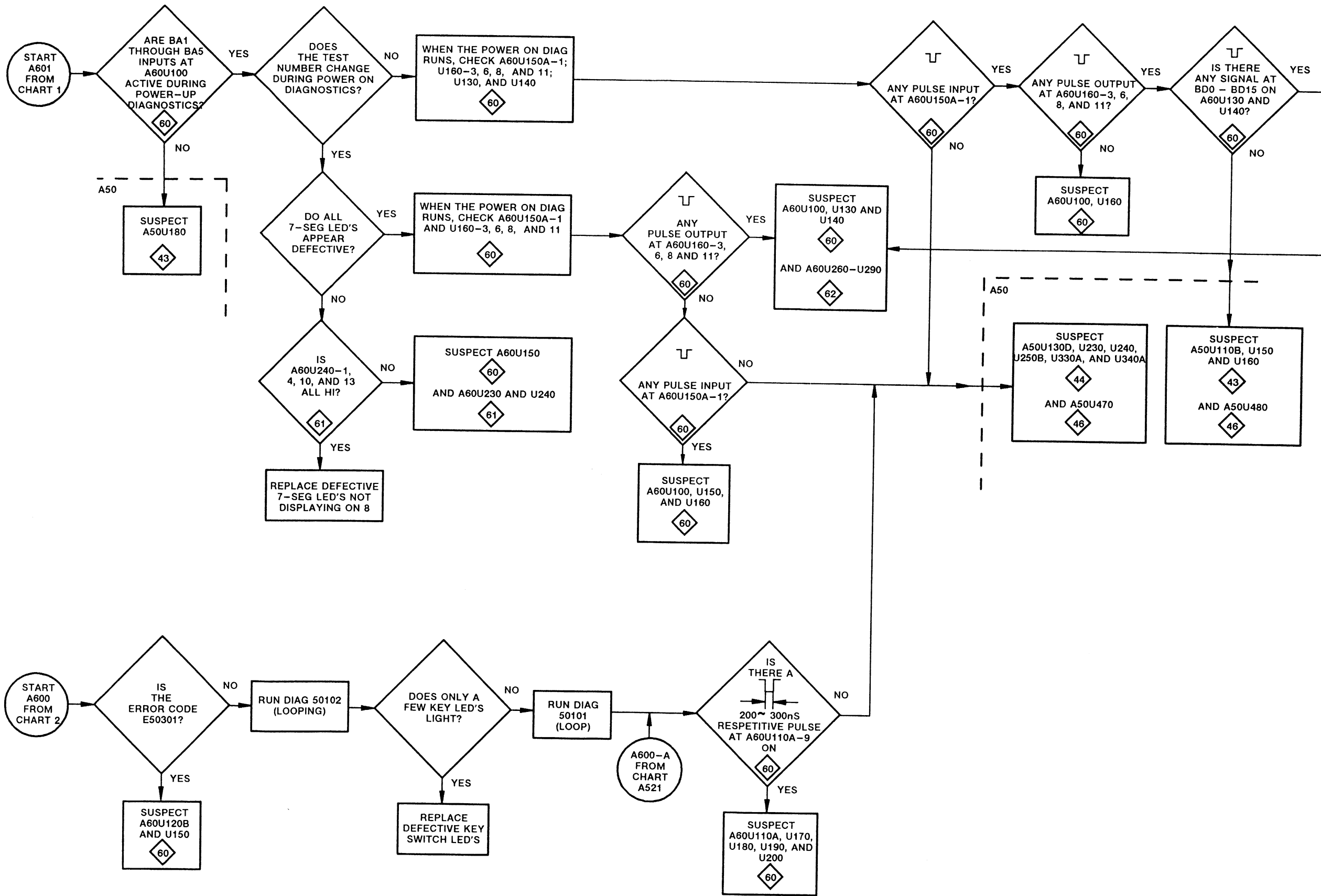


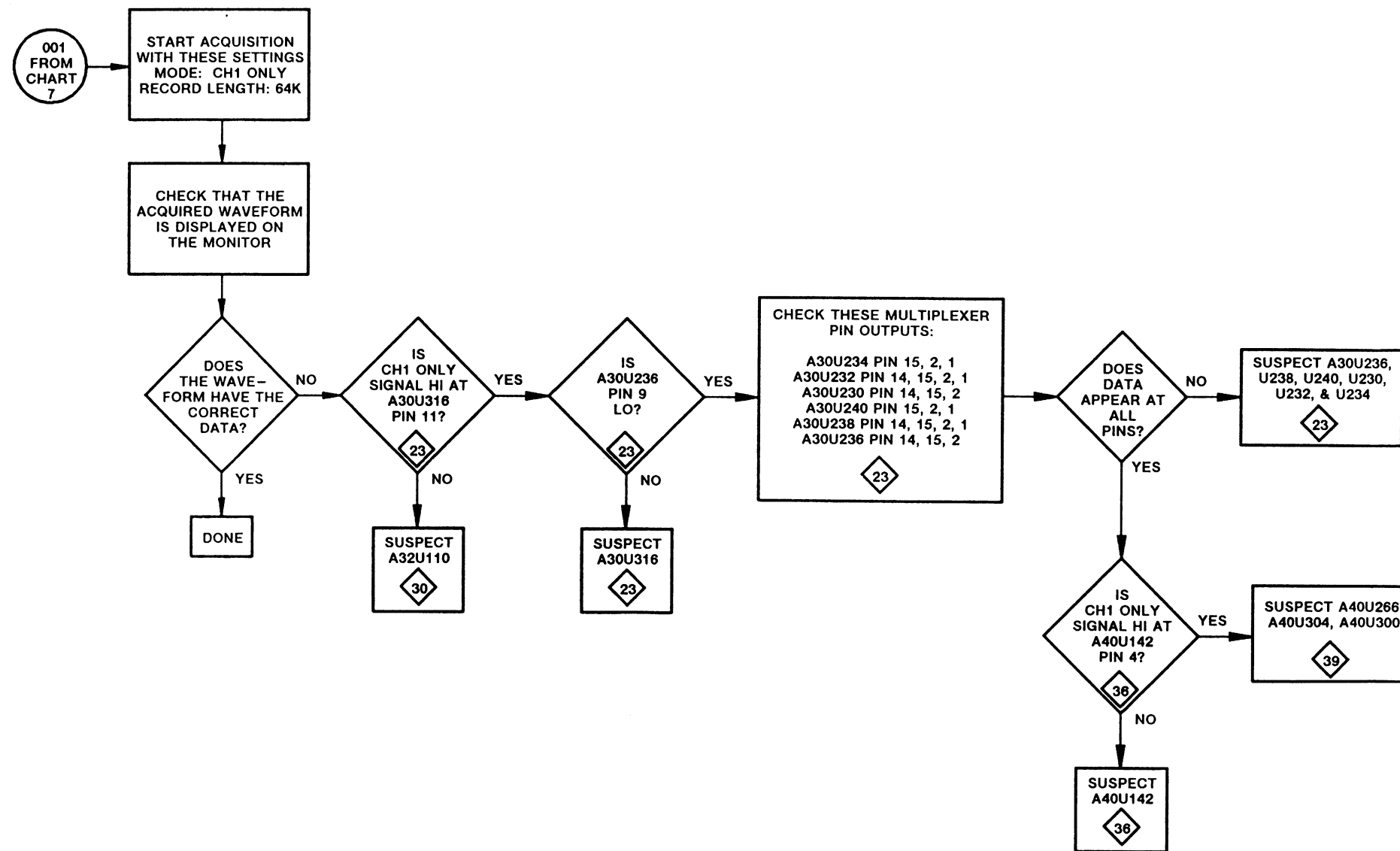


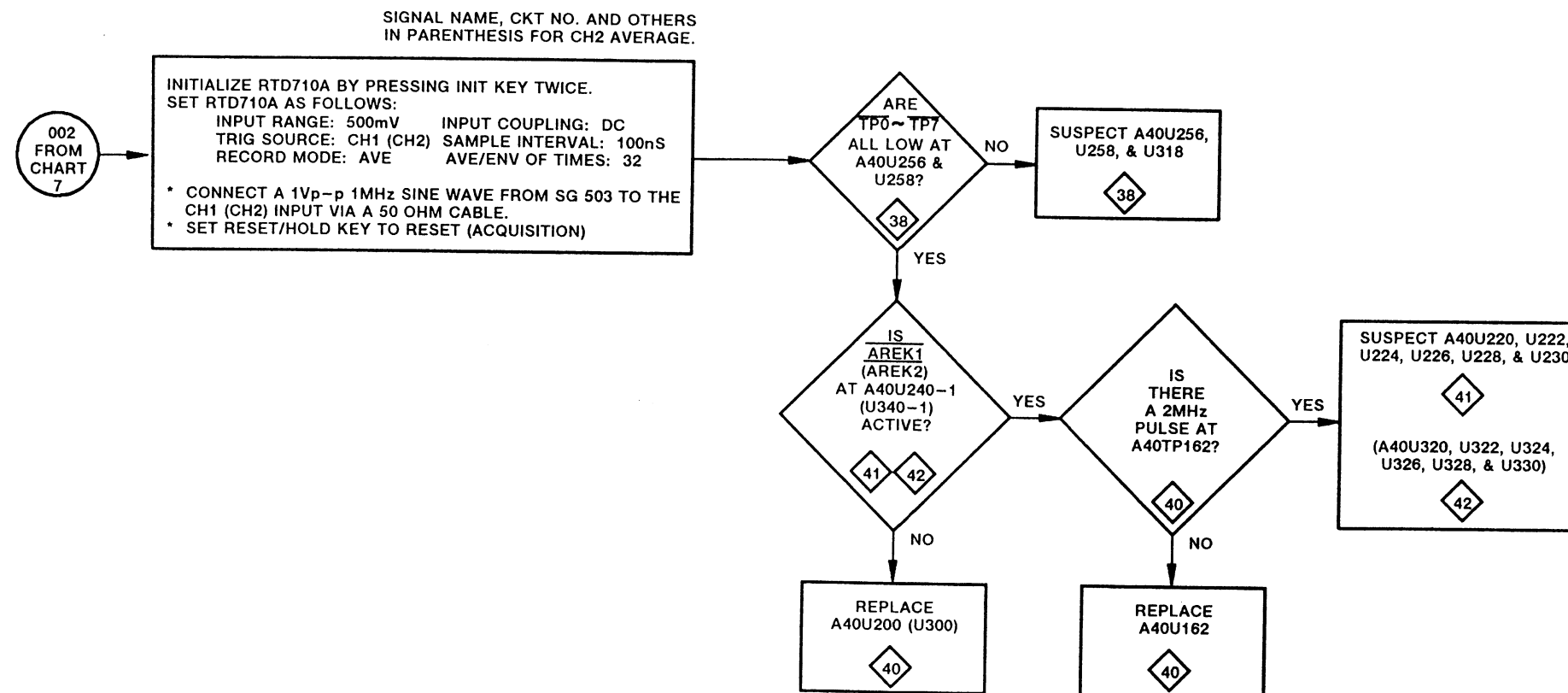












003-1

• 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	0	10 ns
1	16	20 ns
2	24	30 ns
3	32	50 ns
4	40	90 ns
5	48	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	0	200 ns
1	16	2 us
2	24	200 us
3	32	200 us

TURN DISPLAY OFF. CHECK THAT RLCLK SIGNAL IS PRESENT AT TP312 AFTER THE LEADING EDGE OF STRIG AT A32J321-C12

DOES RLCLK PULSE EXIST?

SUSPECT A32U470 & A32U428

CHECK THE OUTPUT OF THESE RAMs:

A32U302 PIN 5	ACTIVE
7	
9	
11	
A32U300 PIN 5	LO
7	
9	
11	

IS DATA CORRECT?

SUSPECT A32U300, & U302

SUSPECT A32U304, U306, U308, & U310

DOES THE WAVEFORM HAVE THE CORRECT BREAKPOINT?

GO TO 003-2 CHART 003-2

TURN DISPLAY OFF. CHECK THAT RLCLK SIGNAL IS PRESENT AT TP312 AFTER THE LEADING EDGE OF STRIG AT A32J321-C12

CHECK:

A32U304-13	ACTIVE
-12	
-3	
A32U304-4 HI	LO
-2	

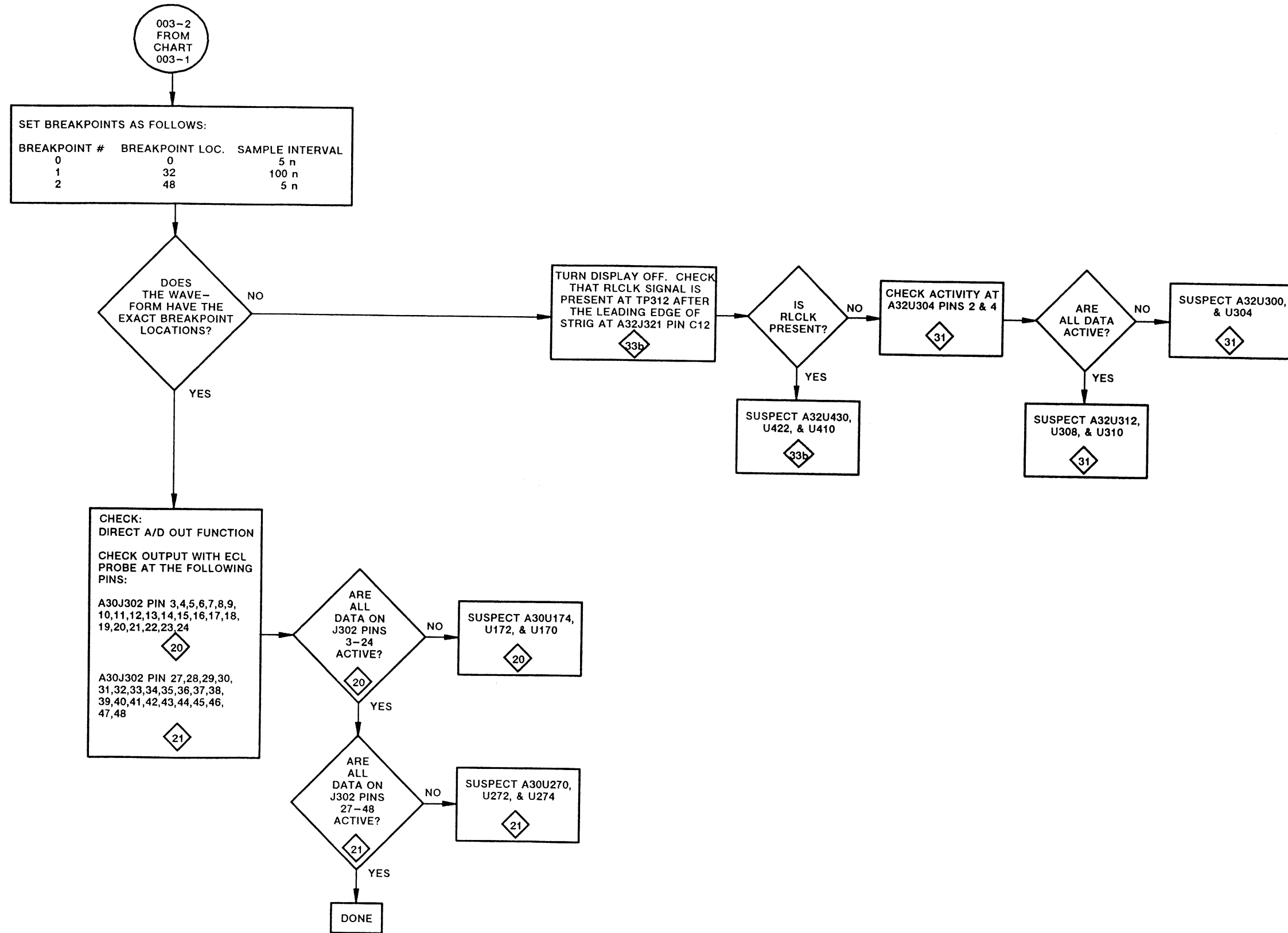
SUSPECT A32U470 & A32U428

ARE THE OUTPUT DATA CORRECT?

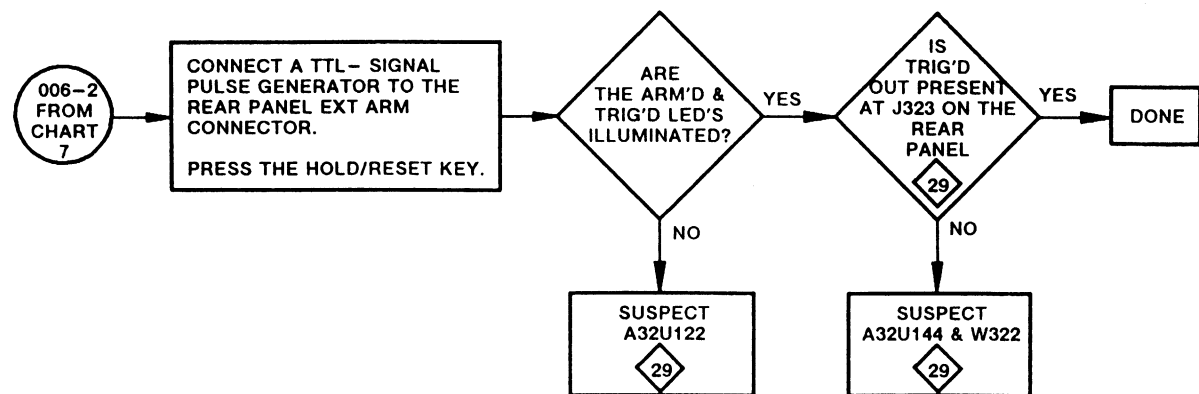
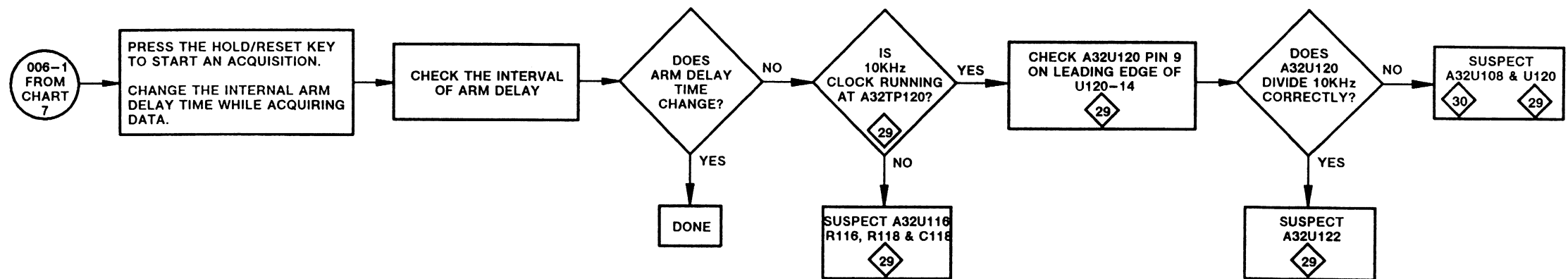
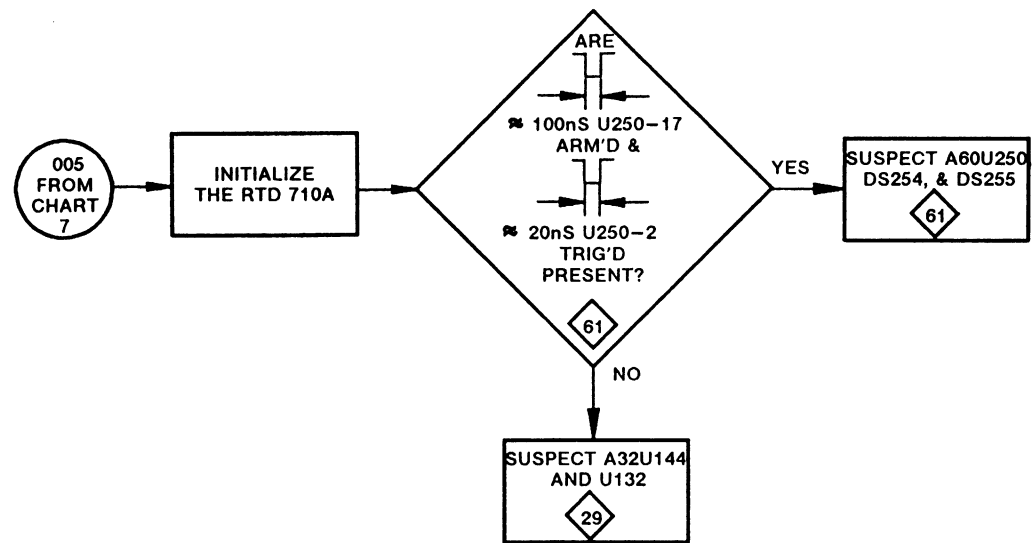
SUSPECT A32U300, & U304

SUSPECT A32U312, U308, & U310

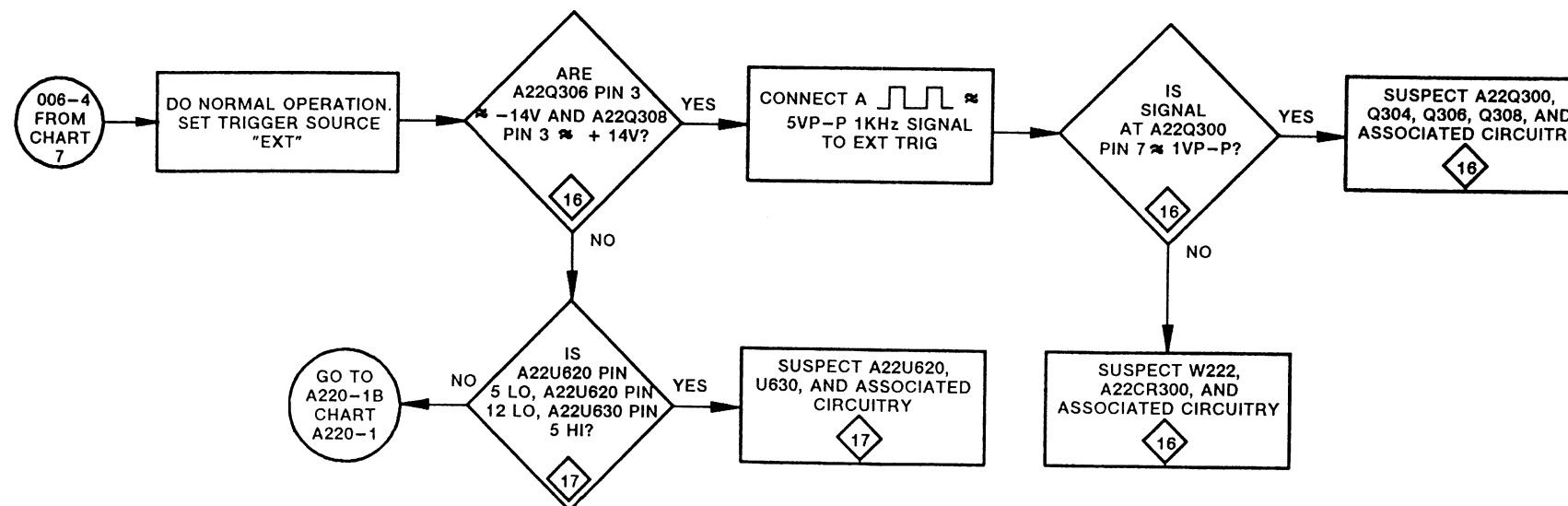
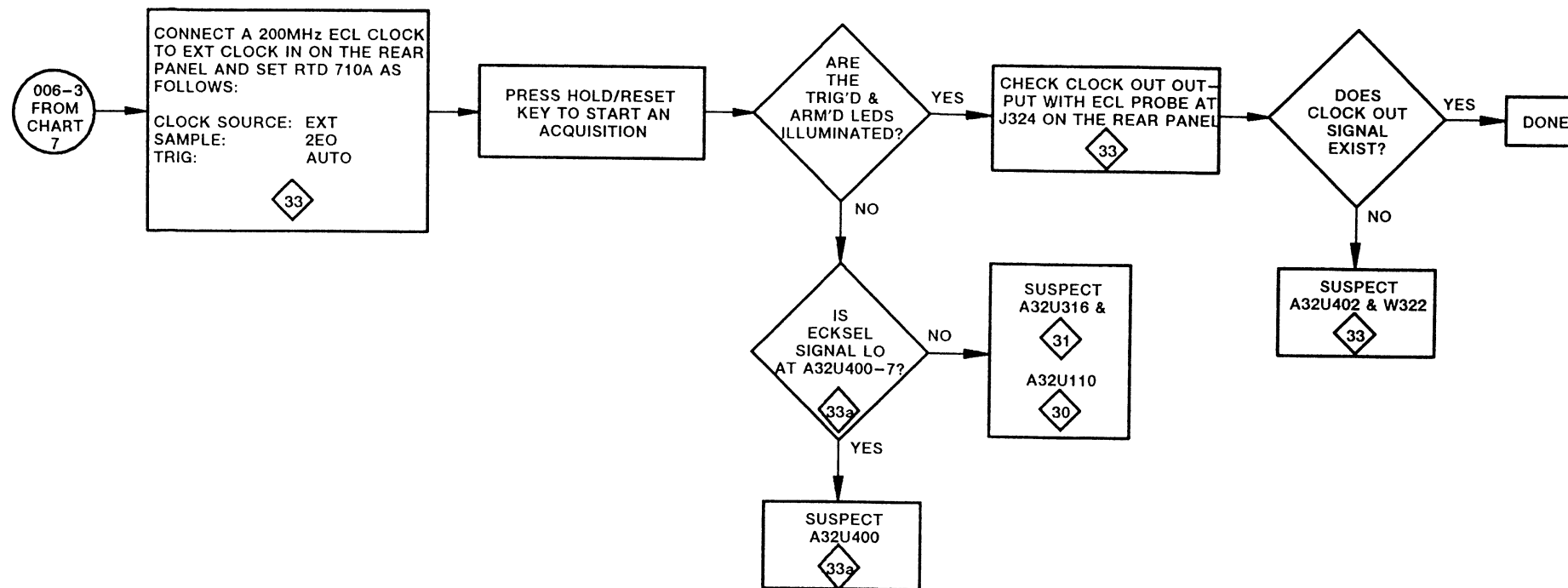
BREAK POINT FUNCTION AND DIRECT A/D OUT TROUBLESHOOTING CHART 003-1

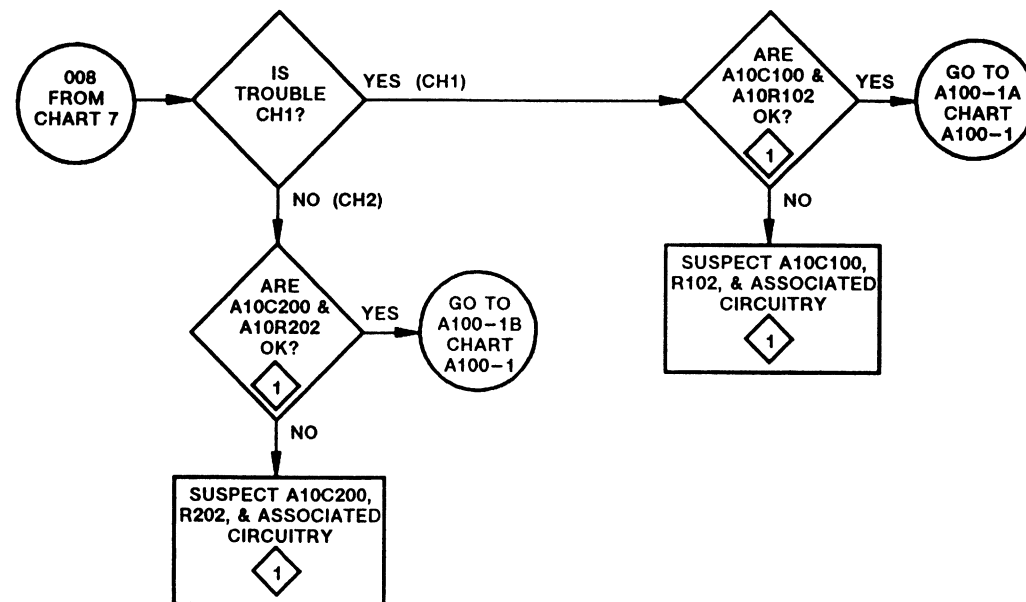
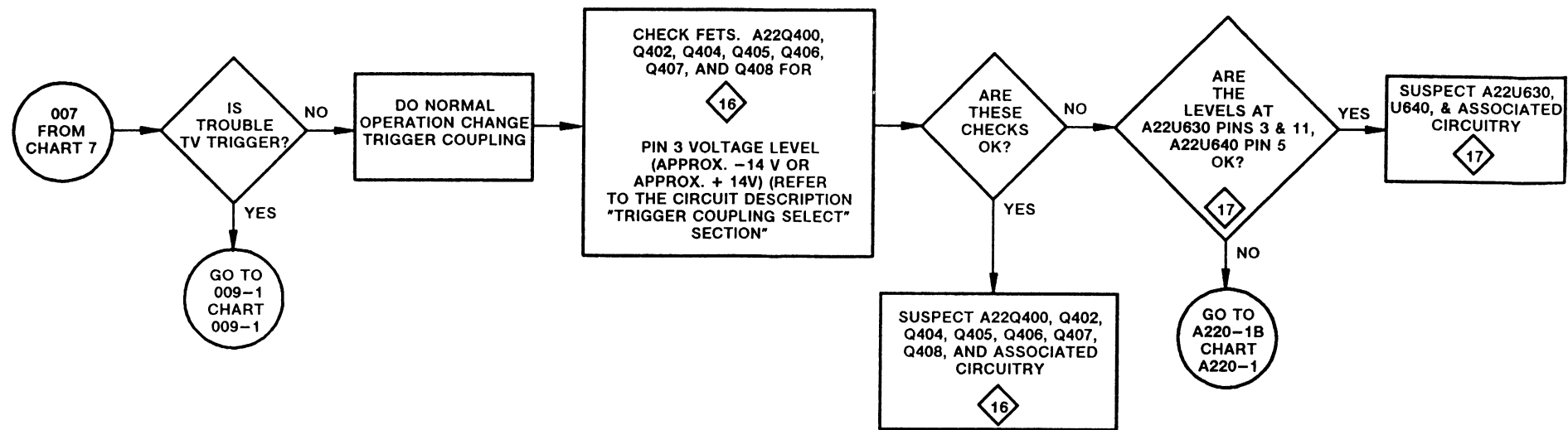


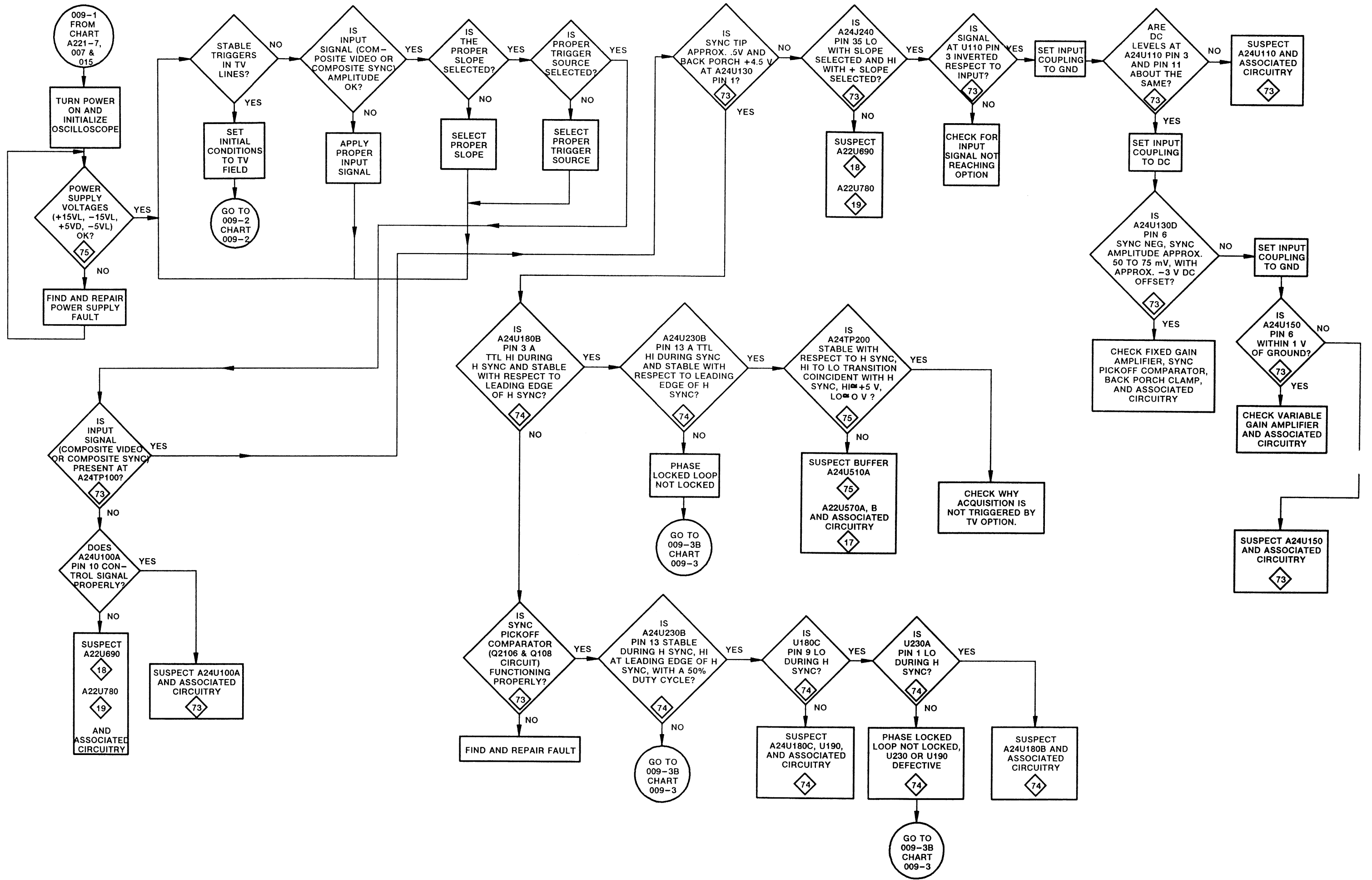


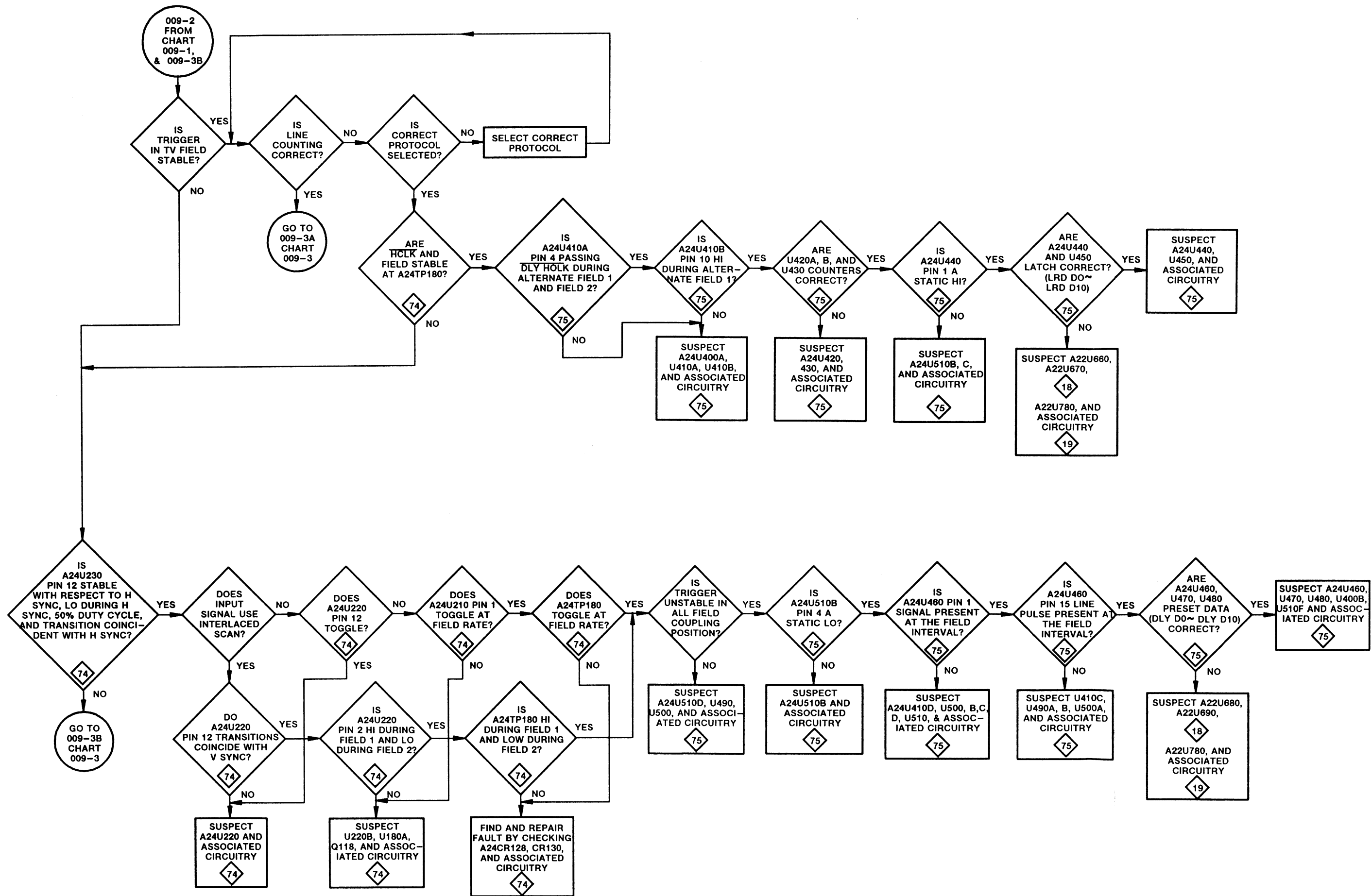


ARM'D/TRIG'D LAMP TROUBLESHOOTING  
CHART 005  
ARMING CIRCUIT TROUBLESHOOTING  
CHART 006-1  
EXT. ARM & TRIGGERED OUT  
TROUBLESHOOTING CHART 006-2

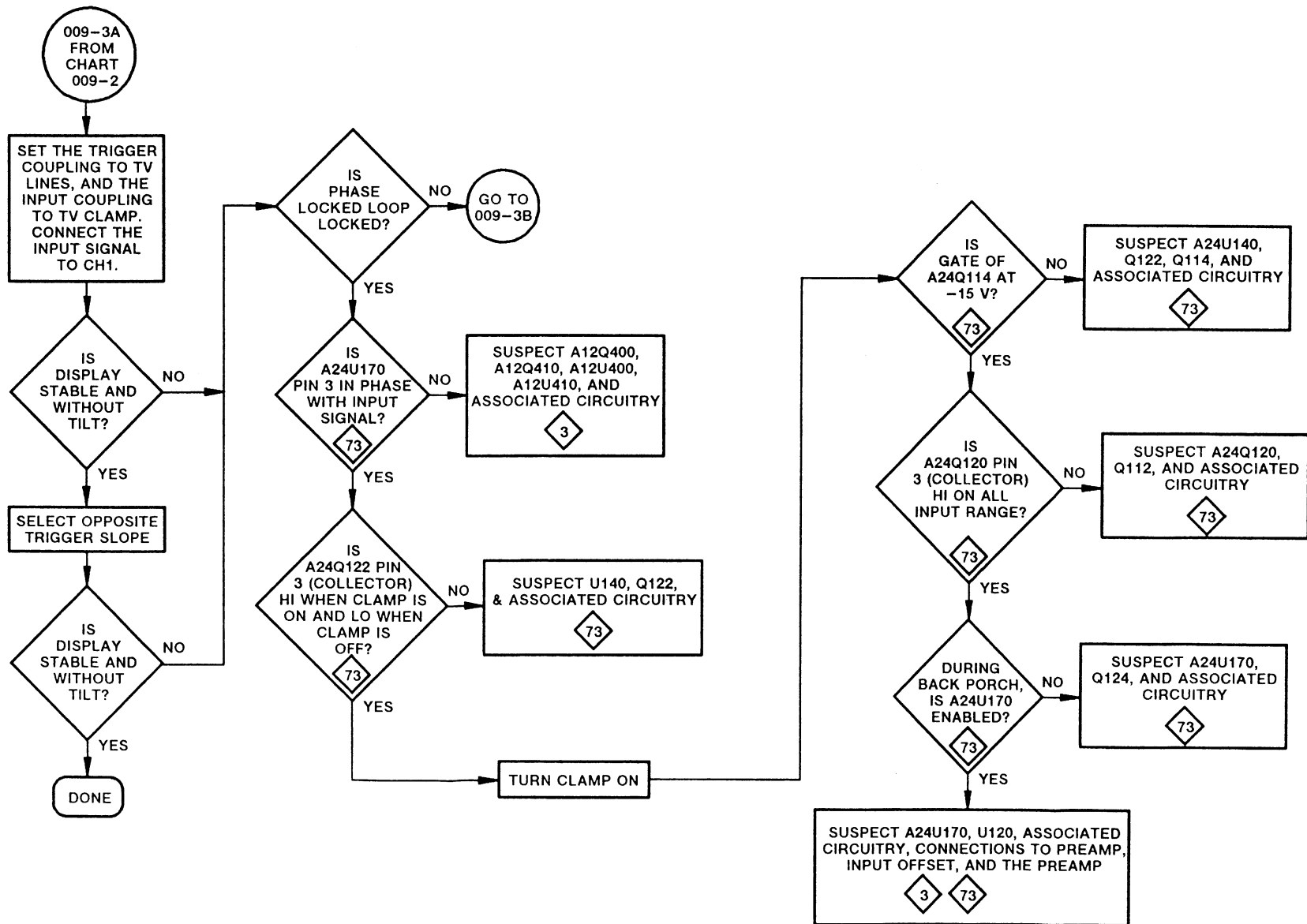
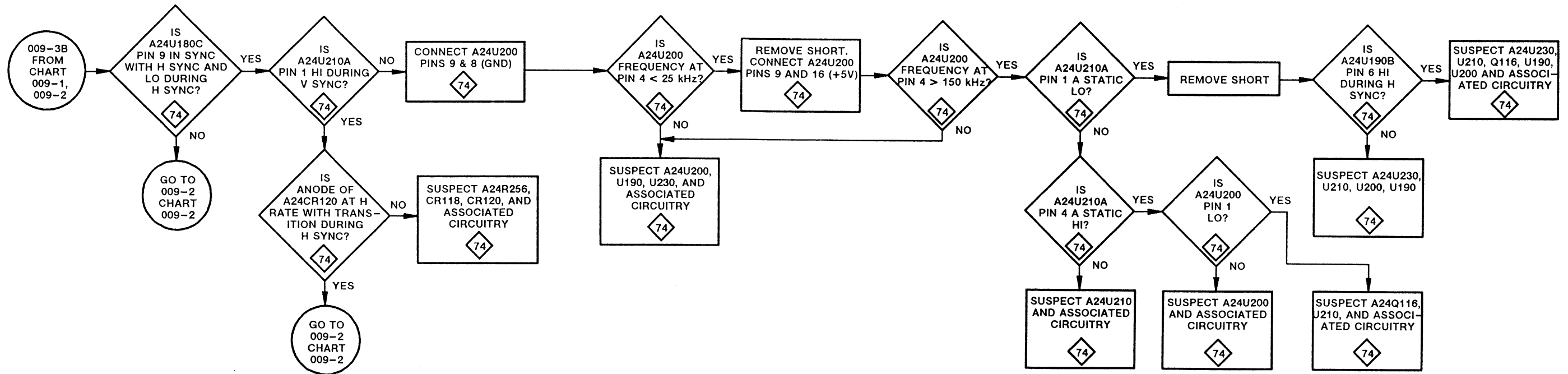


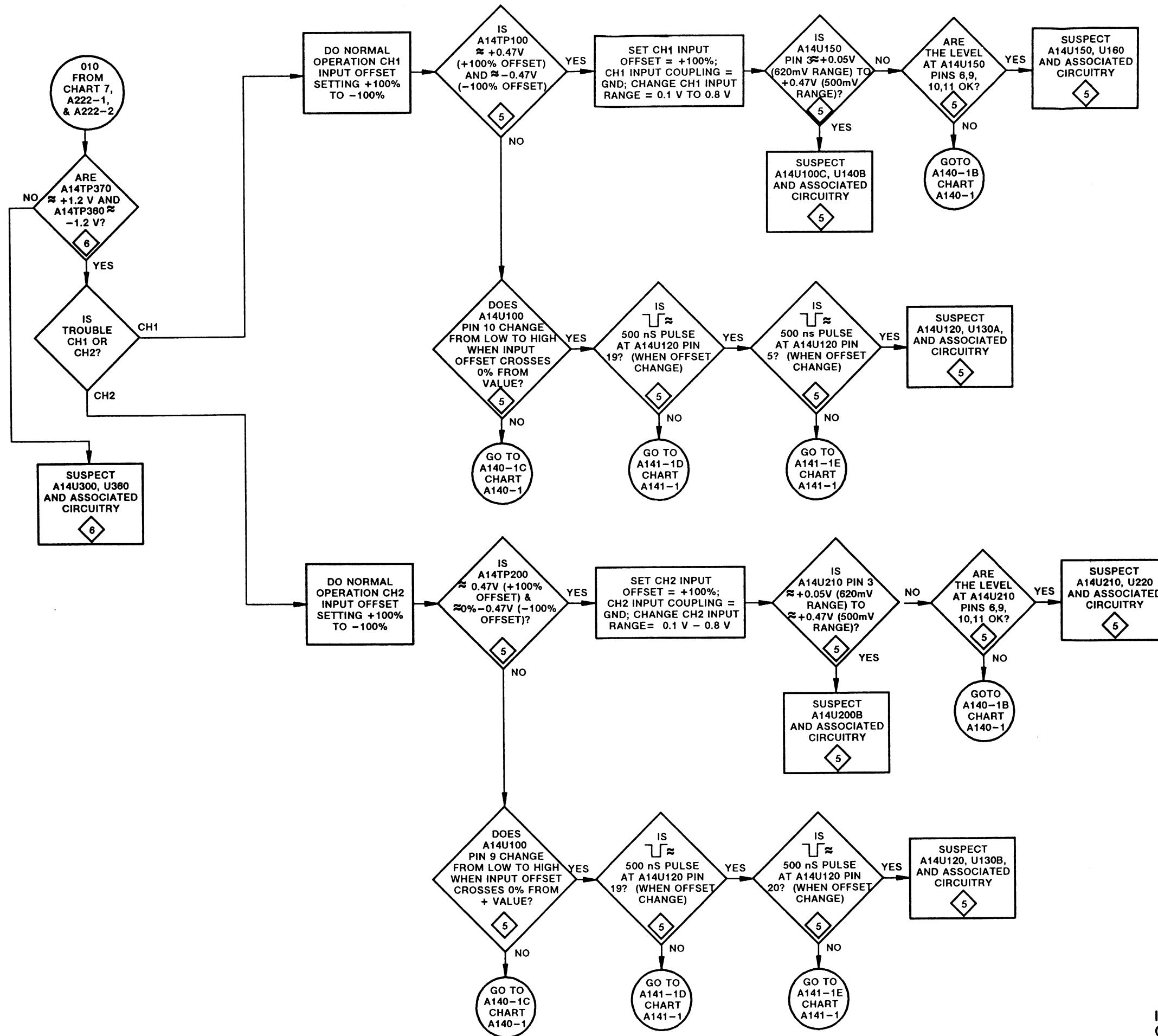


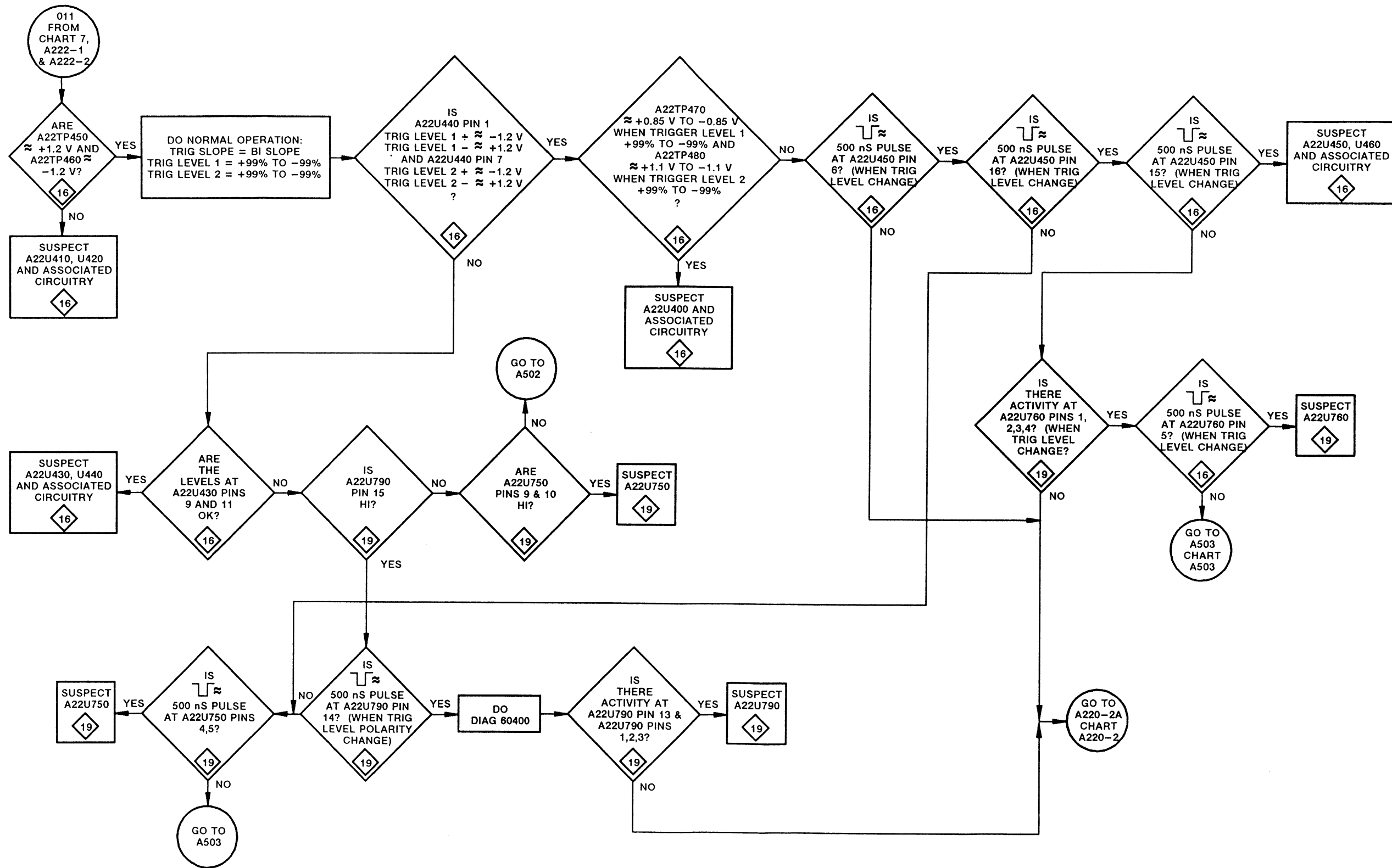




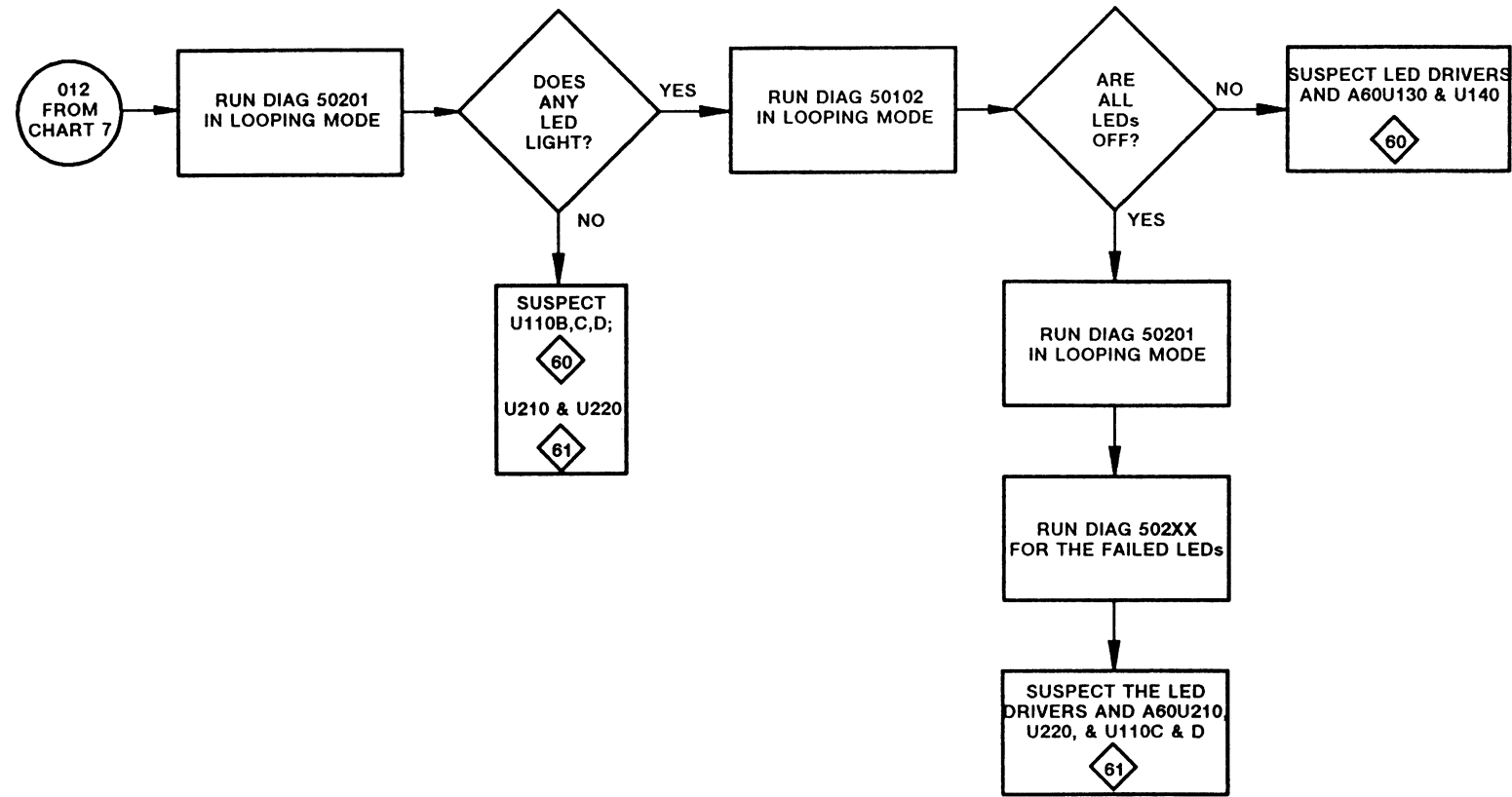
A24 TV TRIGGER BOARD TROUBLESHOOTING CHART 009-2

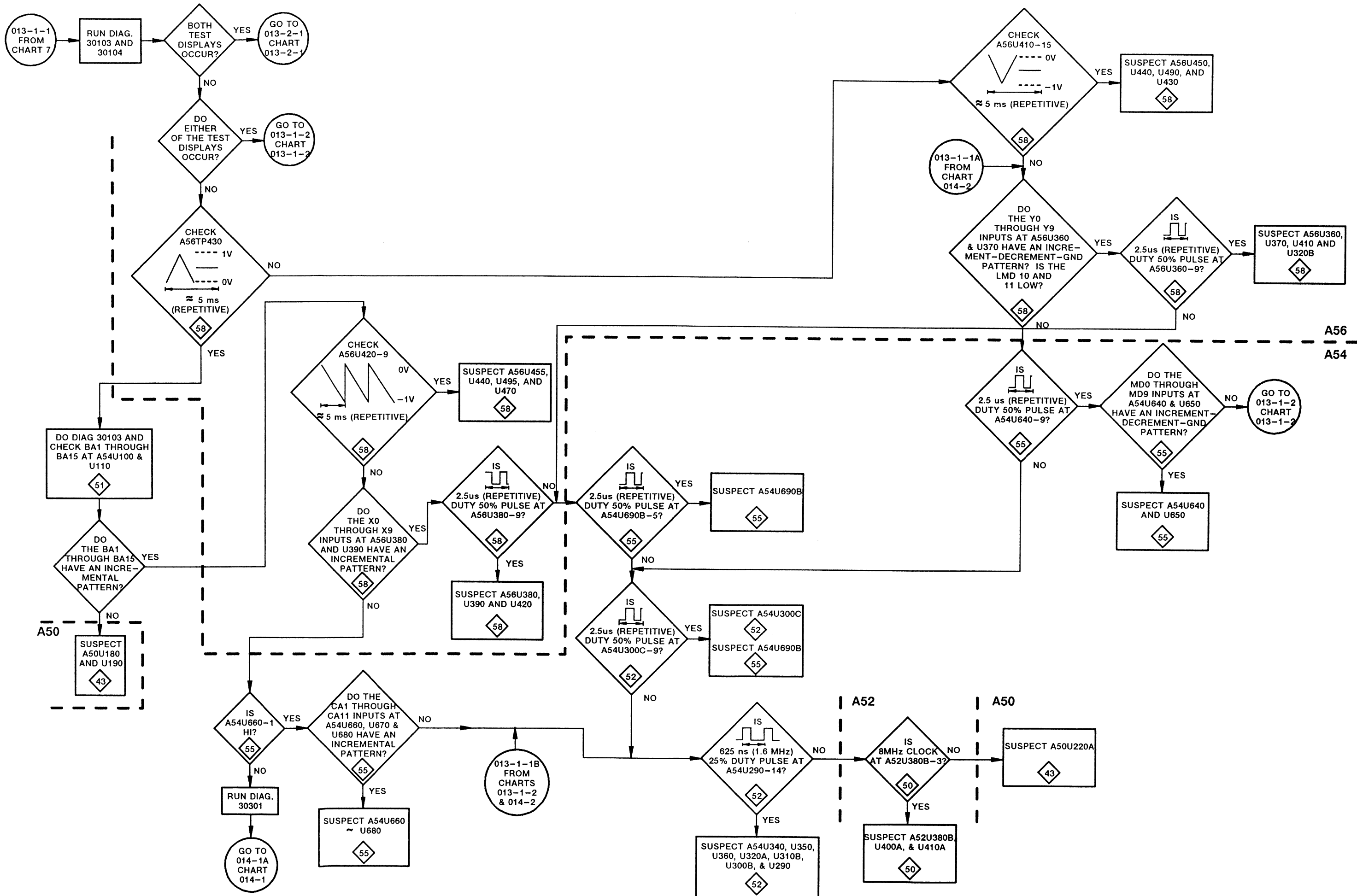


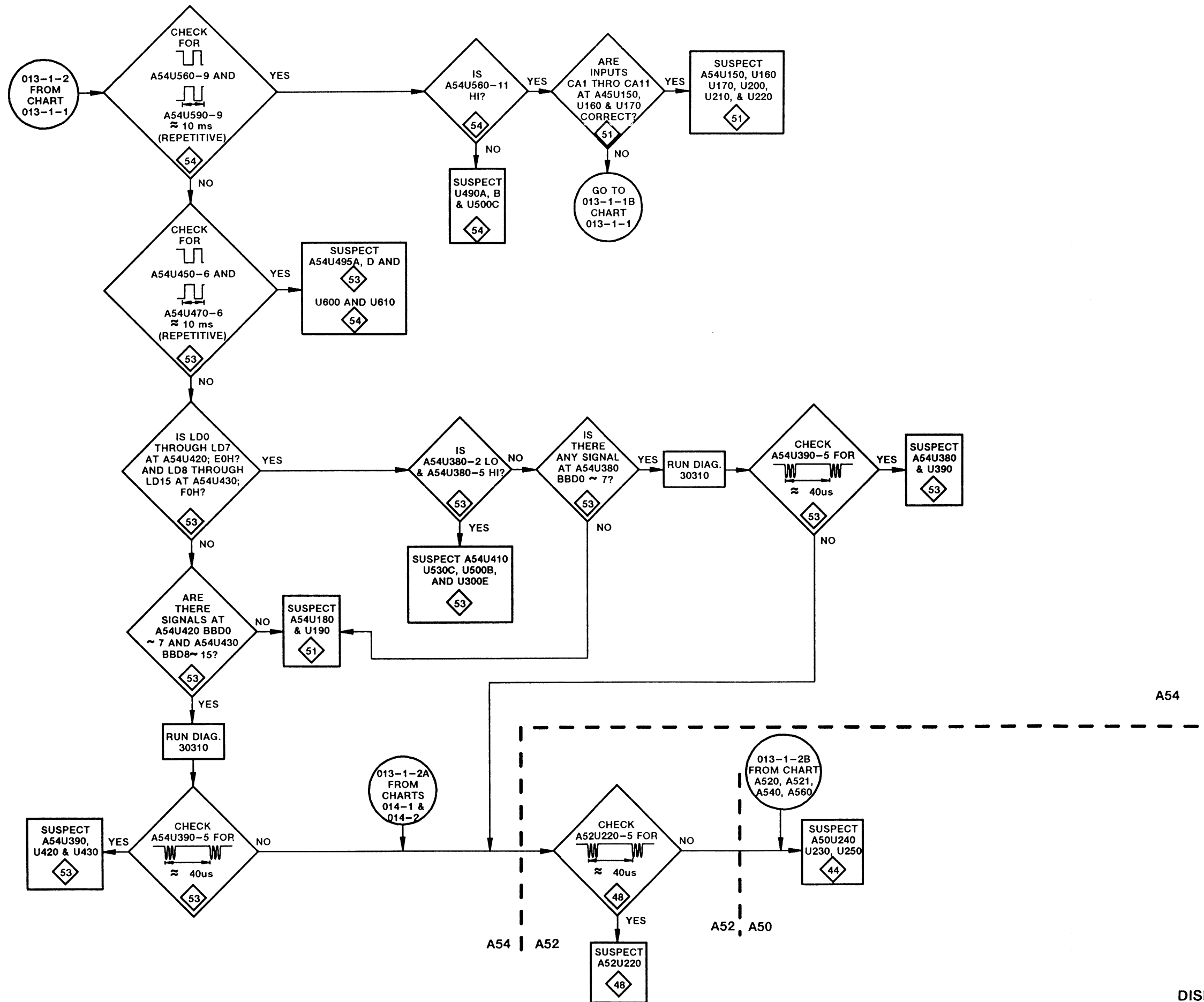


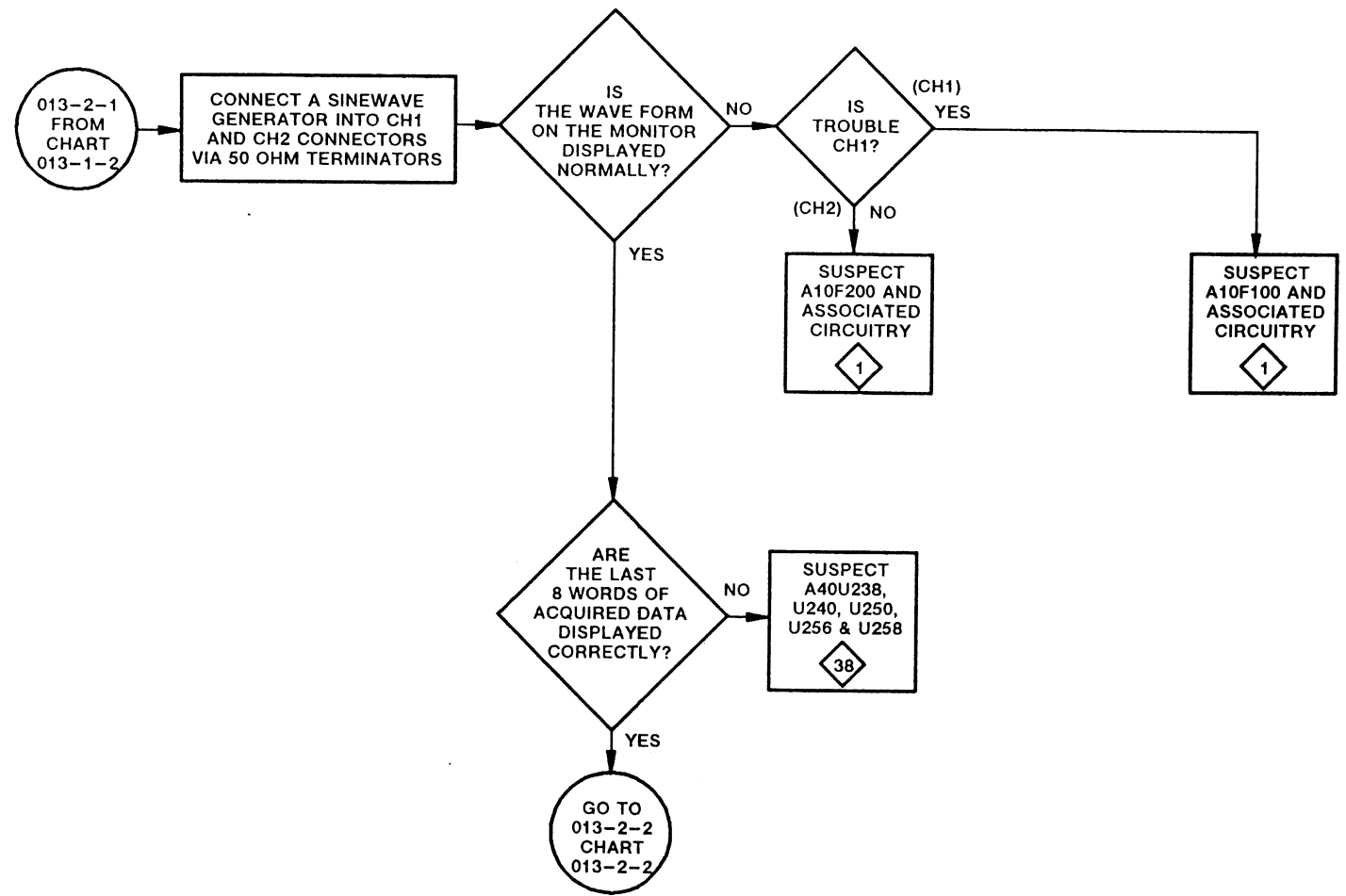


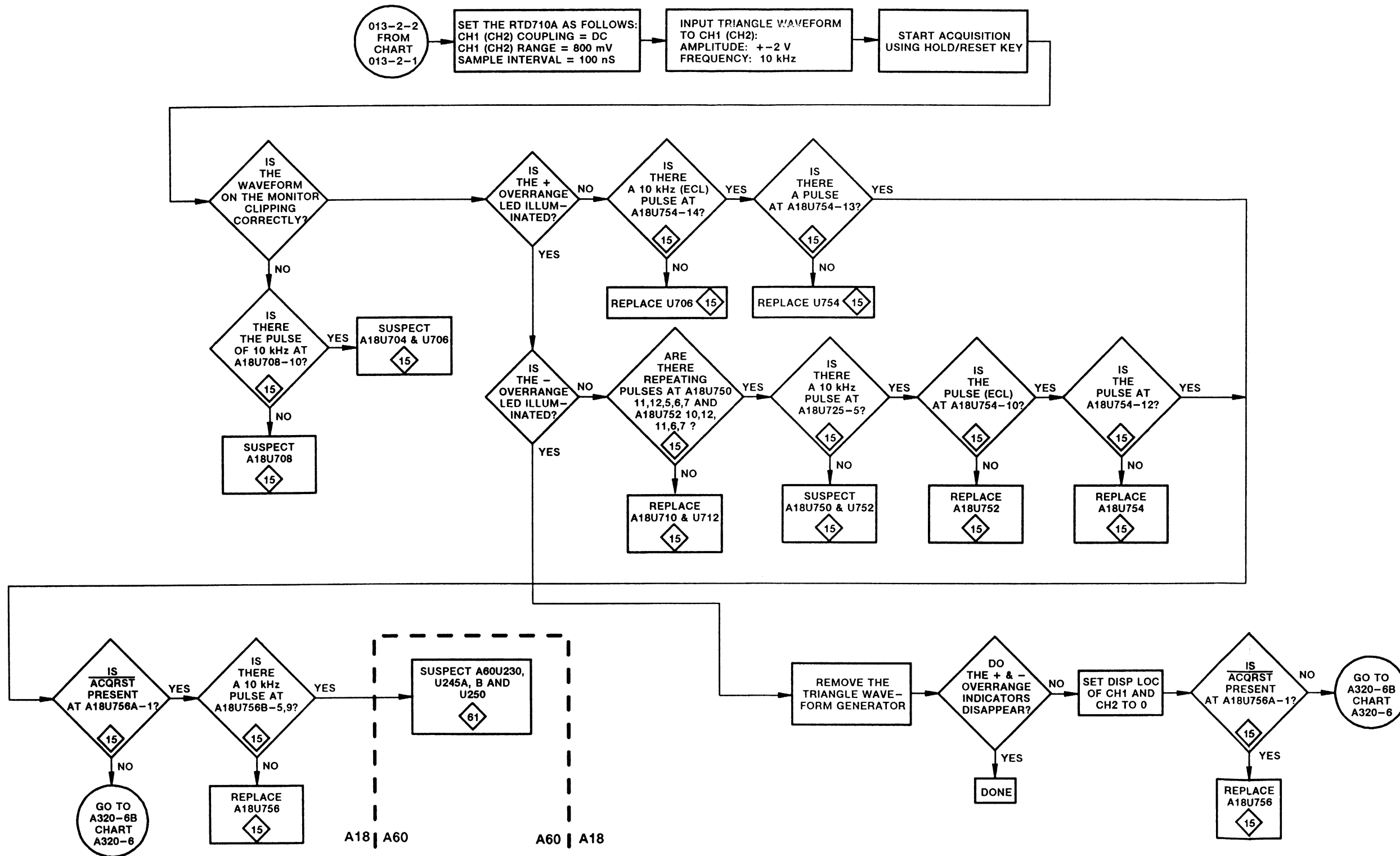


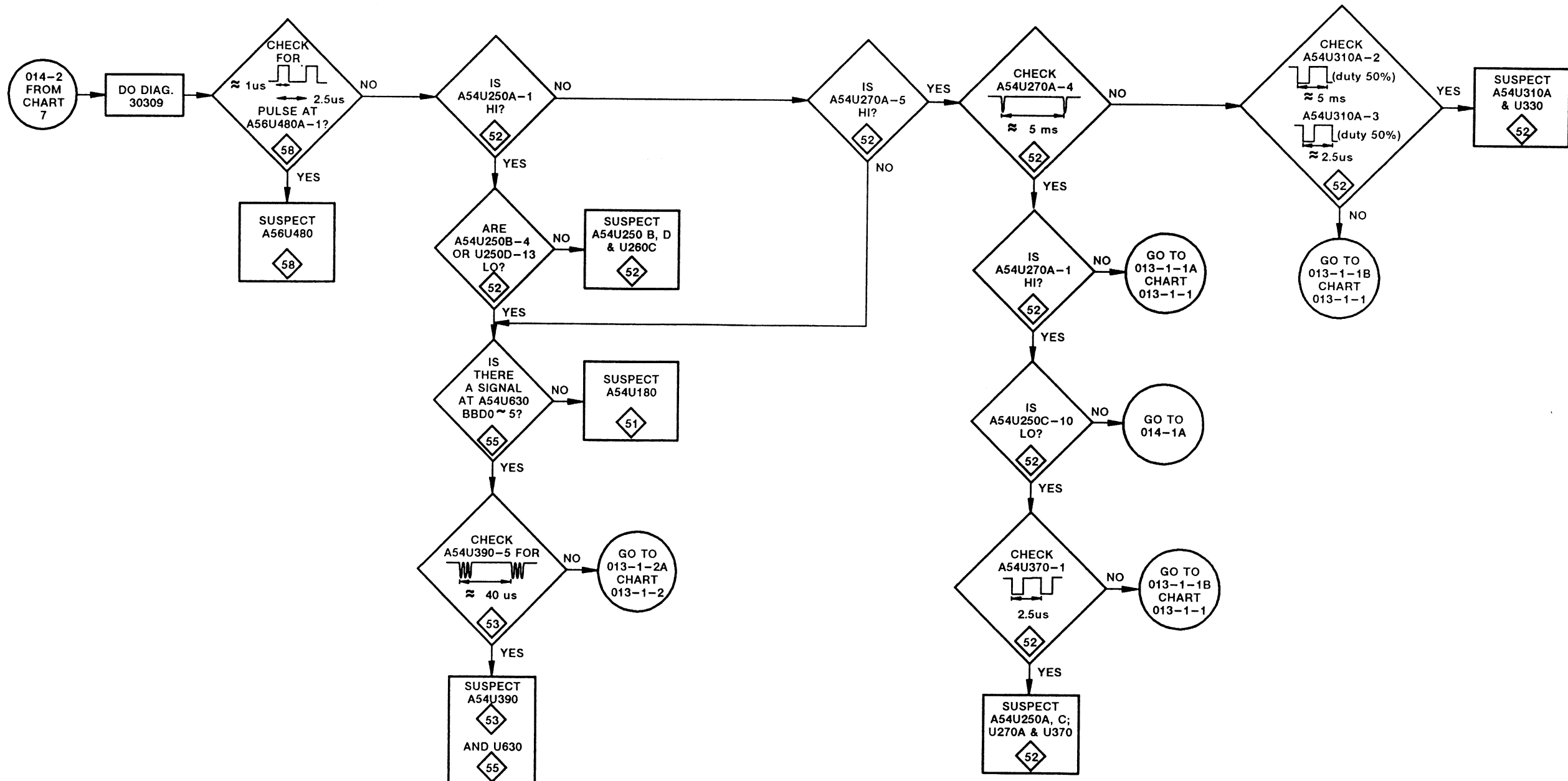
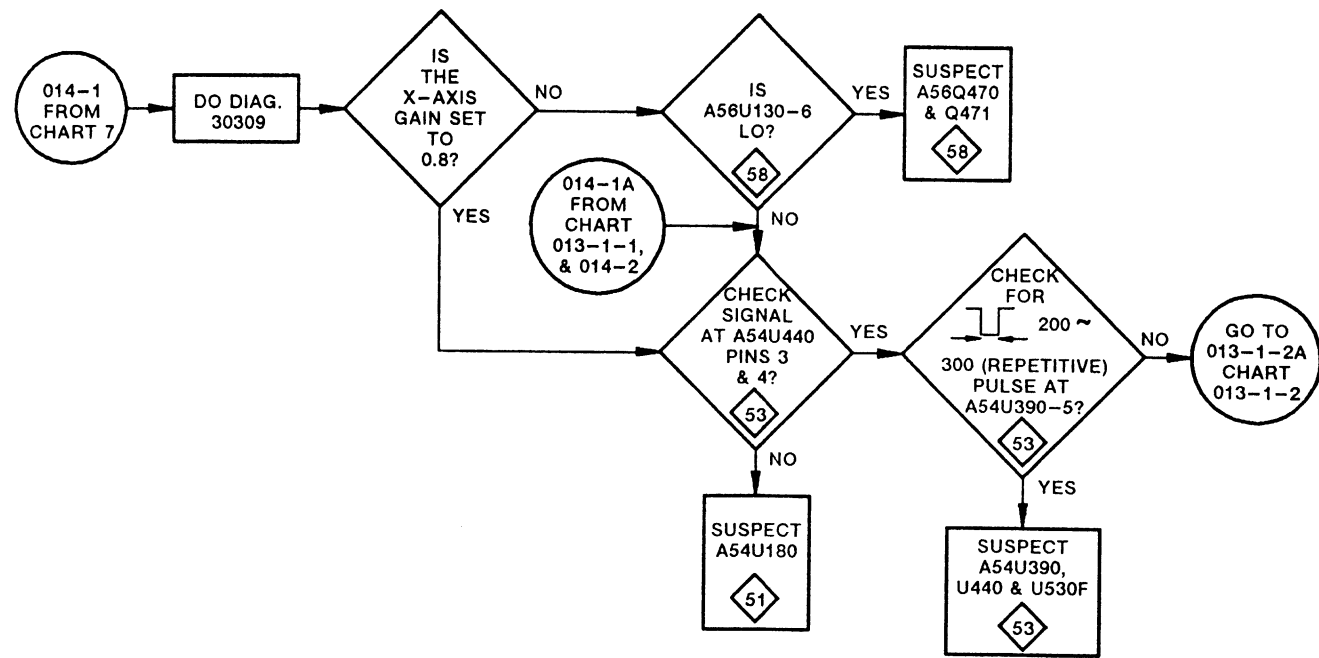


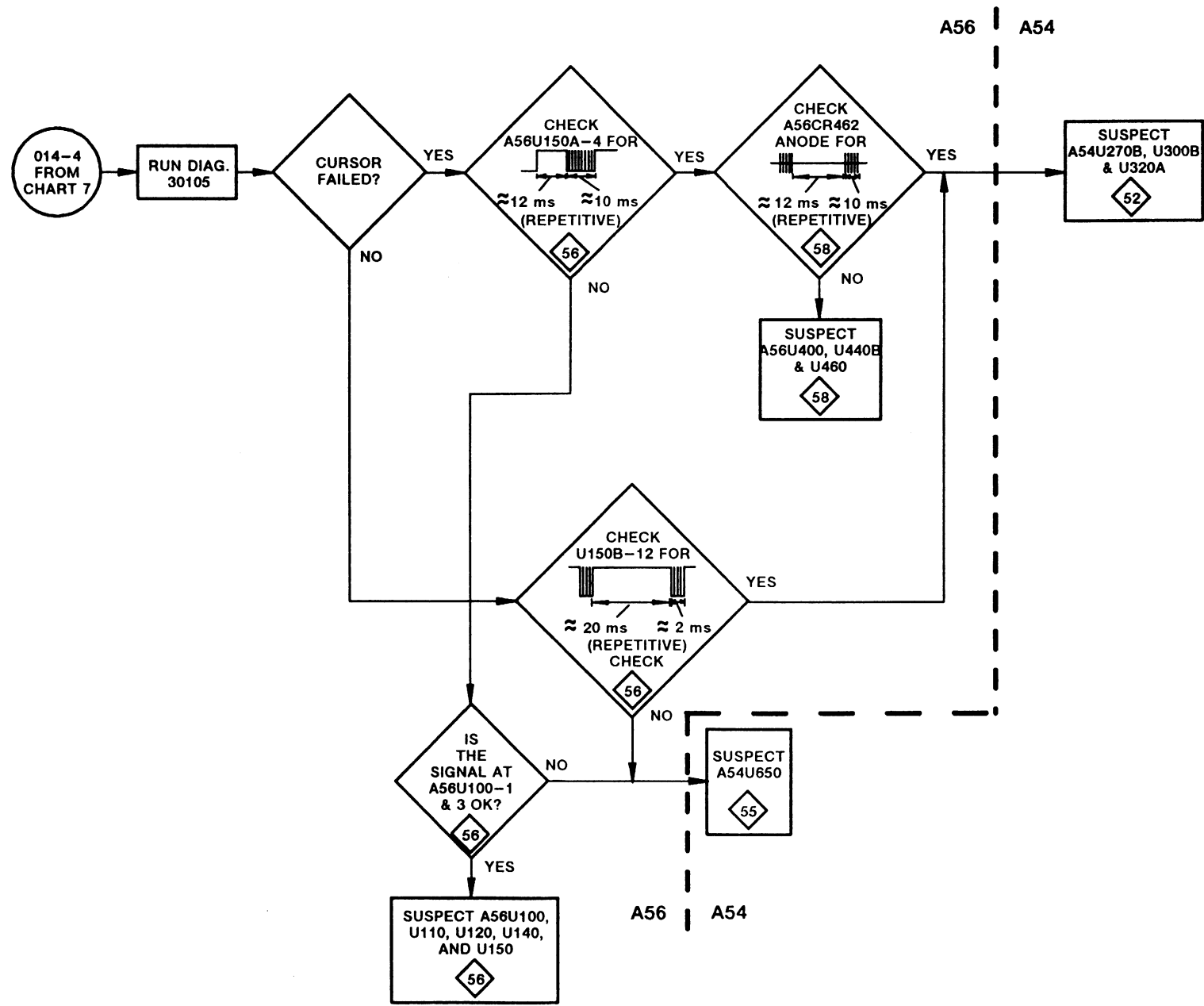
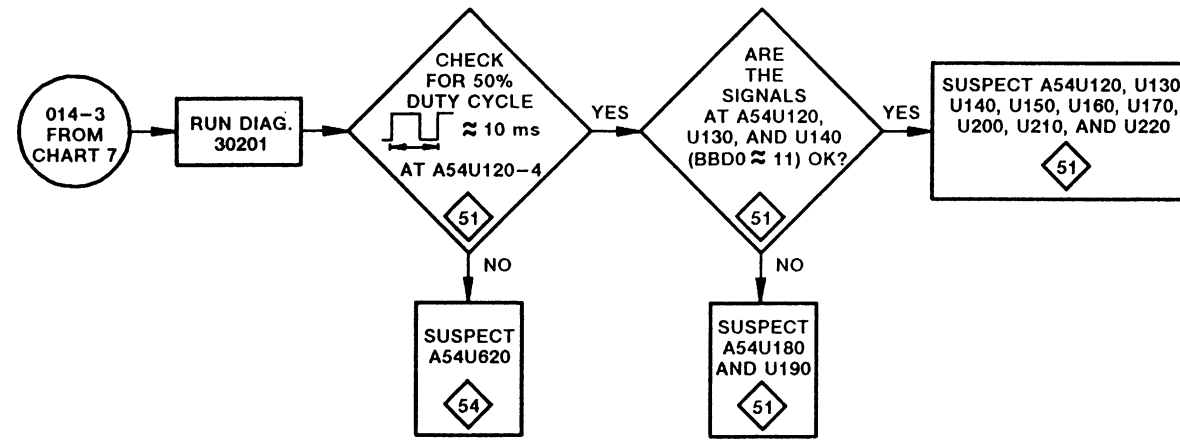




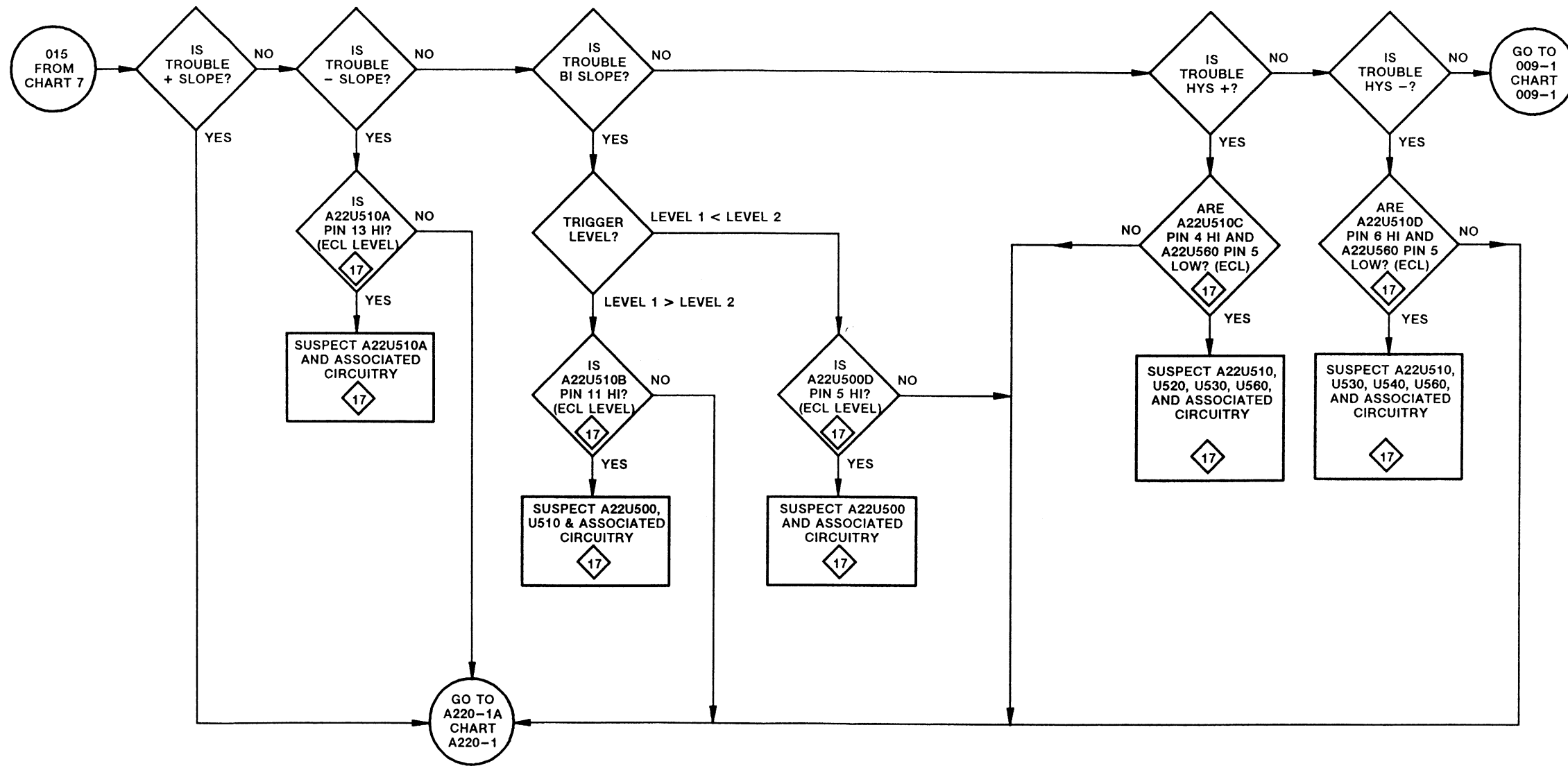








A54 SCROLL FUNCTION TROUBLESHOOTING  
 CHART 014-3  
 A56 TRIGGER POINT/CURSOR DISPLAY  
 TROUBLESHOOTING CHART 014-4





# 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:

- 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

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

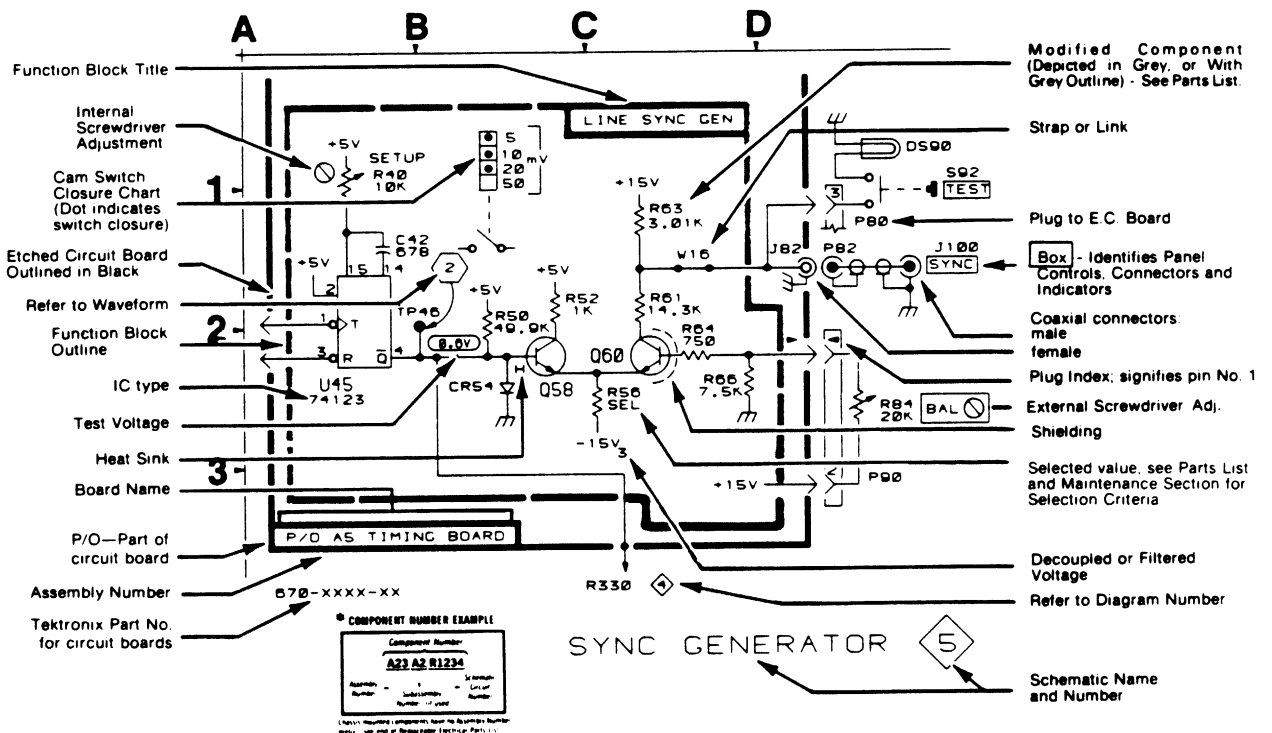
- Capacitors = Values one or greater are in picofarads (pF). Values less than one are in microfarads ( $\mu$ F).
- Resistors = Ohms ( $\Omega$ ).

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

### 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 on the diagram, in the title for the circuit board component location 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.





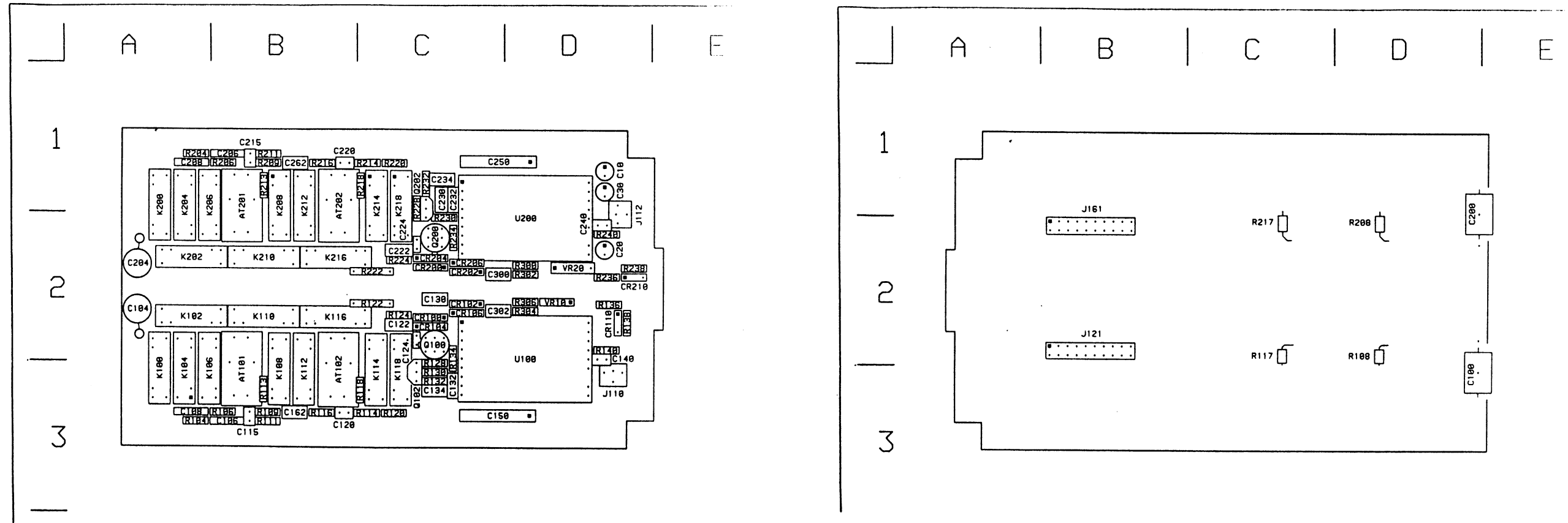


Fig. 8-1. A10 ATTENUATOR CIRCUIT BOARD ASSEMBLY (FRONT AND BACK VIEWS).

**SEE  
OTHER  
SIDE**

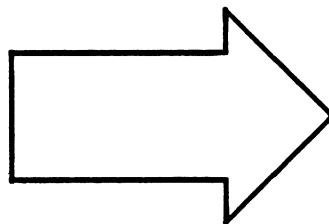


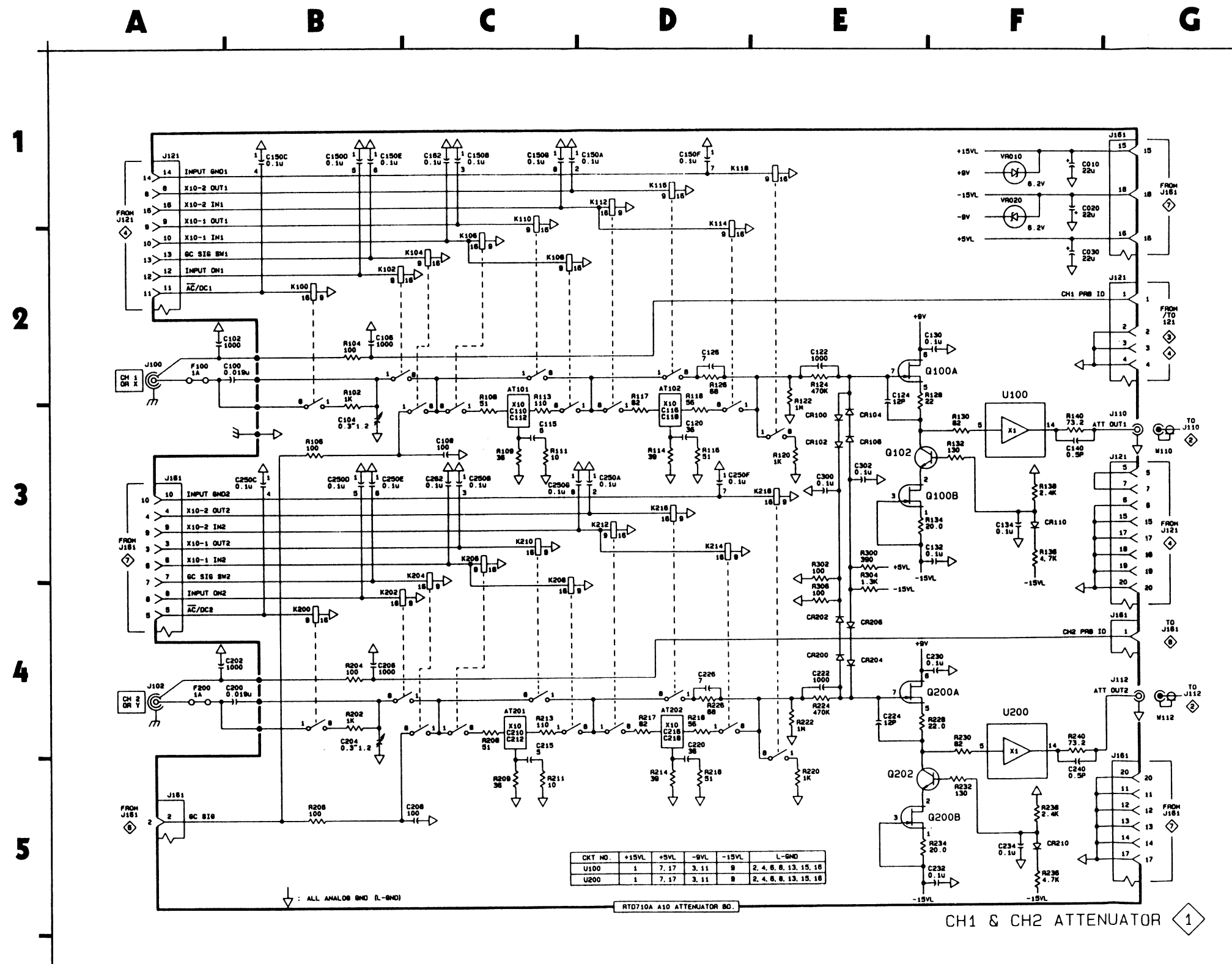
Table 8-1

CH1 & CH2 ATTENUATOR



ATTENUATOR BD., ASSEMBLY A10

CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION	CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION	CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION	CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION
AT101	C3	B3	C218	D4		J161	G5	B2	R120	E3	C3
AT102	D3	B3	C220	D5	B1	J161	G4	B2	R122	E2	C2
AT201	C4	B1	C222	E4	C2	J161	G1	B2	R124	E2	C2
AT202	D4	B1	C224	E4	C2				R126	D2	
			C226	D4		K100	B2	A3	R128	E2	C3
C010	F1	D1	C230	E4	C1	K102	B2	A2	R130	F3	C3
C020	F1	D2	C232	E5	C1	K104	C2	A3	R132	F3	C3
C030	F2	D1	C234	F5	C1	K106	C2	A3	R134	E3	C3
C100	A2	D3	C240	F5	D2	K108	C2	B3	R136	F3	D2
C102	A2	OFF BD.	C250A	D3	C1	K110	C1	B2	R138	F3	D2
C104	B3	A2	C250B	C3	C1	K112	D1	B3	R140	F3	D2
C106	B2	B3	C250C	B3	C1	K114	D2	C1	R202	B4	
C108	C3	A3	C250D	B3	C1	K116	D1	B2	R204	B4	A1
C110	C3		C250E	B3	C1	K118	D1	C3	R206	B5	B1
C112	C3		C250F	D3	C1	K200	B4	A1	R208	C4	D2
C115	C3	B3	C250G	C3	C1	K202	B4	A2	R209	C5	B1
C116	D3		C262	C3	B1	K204	C3	A1	R211	C5	B1
C118	D3		C300	E3	C2	K206	C3	A1	R213	C4	B1
C120	D3	B3	C302	E3	C2	K208	C4	B1	R214	D5	C1
C122	E2	C2				K210	C3	B2	R216	D5	B1
C124	E2	C2	CR100	E3	C2	K212	D3	B1	R217	D4	C2
C126	D2		CR102	E3	C2	K214	D3	C1	R218	D4	C1
C130	E2	C2	CR104	E3	C2	K216	D3	B2	R220	E5	C1
C132	E3	C3	CR106	E3	C2	K218	E3	C1	R222	E4	C2
C134	F3	C3	CR110	F3	D2				R224	E4	C2
C140	F3	D2	CR200	E4	C2	Q100A	E2	C2	R226	D4	
C150A	C1	C3	CR202	E4	C2	Q100B	E3	C2	R228	E4	C1
C150B	C1	C3	CR204	E4	C2	Q102	E3	C3	R230	F4	C2
C150C	B1	C3	CR206	E4	C2	Q200A	E4	C2	R232	F3	C1
C150D	B1	C3	CR210	F5	D2	Q200B	E5	C2	R234	E5	C2
C150E	B1	C3				Q202	E5	C1	R236	F5	D2
C150F	D1	C3	F100	A2	OFF BD.				R238	F5	D2
C150G	C1	C3	F200	A4	OFF BD.	R102	B3		R240	F4	D2
C162	C1	B3				R104	B2	A3	R300	E3	D2
C200	A4	D1	J100	A2	OFF BD.	R106	B3	B3	R302	E3	D2
C202	A4	OFF BD.	J102	A4	OFF BD.	R108	C3	D2	R304	E4	D2
C204	B4	A2	J110	G3	D3	R109	C3	B3	R306	E4	D2
C206	B4	B1	J112	G4	D1	R111	C3	B3			
C208	C5	A1	J121	G2	B2	R113	C3	B3	U100	F3	D2
C210	C4		J121	A1	B2	R114	B3	C3	U200	F4	D2
C212	C4		J121	G3	B2	R116	D3	B3			
C215	C5	B1	J161	A3	B2	R117	D3	C2	UR010	F1	D2
C216	D4		J161	A5	B2	R118	D3	C3	UR020	F1	D2



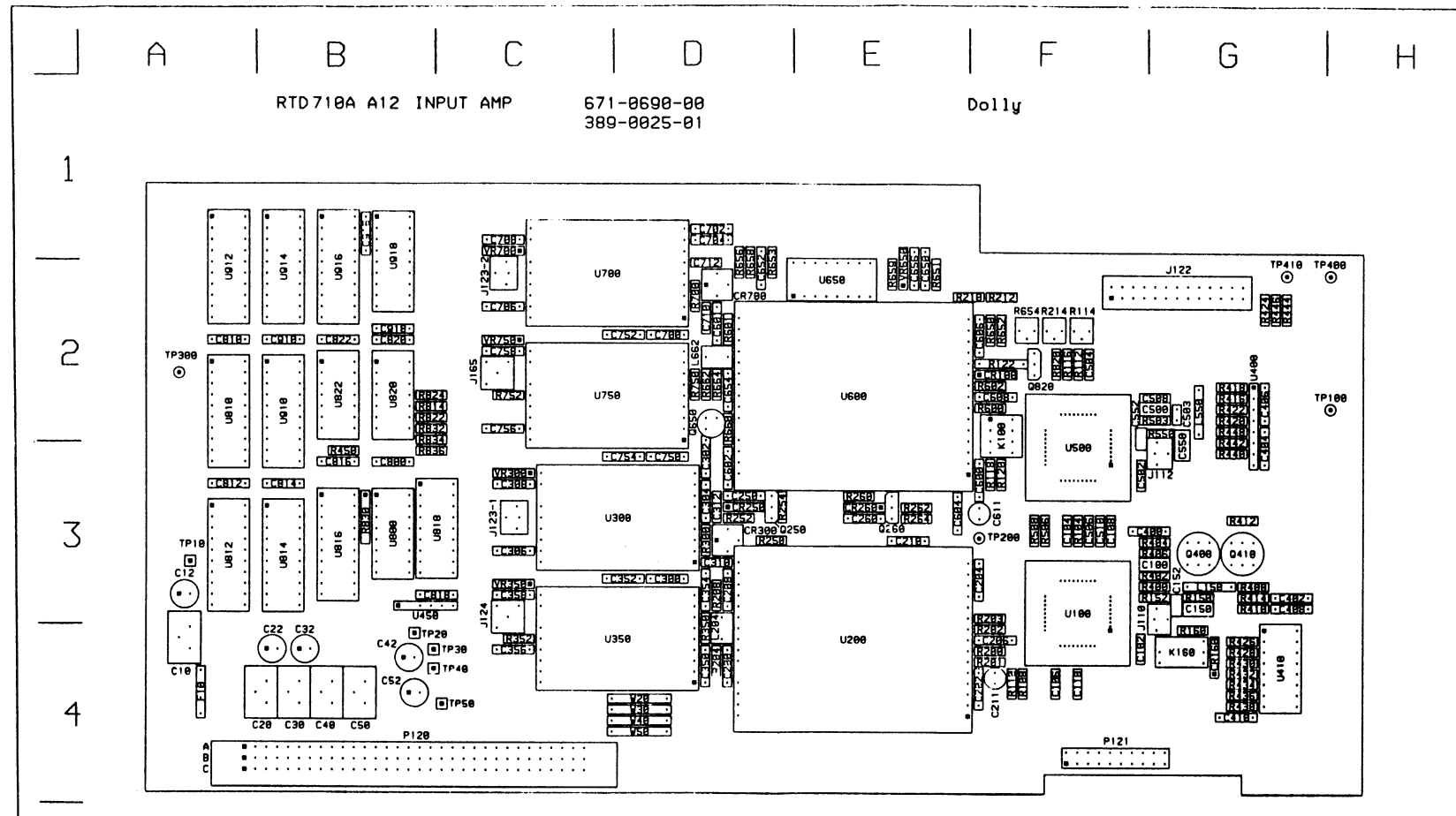


Fig. 8-2. A12 INPUT AMPLIFIER CIRCUIT BOARD ASSEMBLY.

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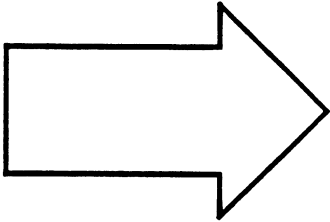




Table 8-2

CH1 & CH2 INPUT AMP 

INPUT AMP BO., ASSEMBLY A12

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	D4
C128	E2		J124	G2	C3	R352	F2	C4
C128	E4		J165	G4	C2	R503	D4	G2
C131	E2					R506	D5	F3
C131	E4		K100	D3	F2	R508	D5	F3
C208	E2	D3				R600	E3	F2
C210	D2	E3	L204	E2	D4	R601	F4	D2
C211	D1	F4	L662	F4	D2	R602	E4	F2
C250	E2	D3				R650	D5	F2
C260	F2	E3	Q250	E2	D3	R651	D4	E2
C308	F5	C3	Q260	E2	E3	R652	D5	F2
C310	E1	D3	Q650	E5	D2	R653	D4	D2
C312	E1	D3				R654	D5	F2
C358	F5	C3	R104	B2	F3	R656	E5	D2
C500	B3	G2	R108	A3	F4	R658	E5	D2
C503	B3	G2	R110	A3	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		U100	C1	F3
C710	E3	D2	R200	D1	F4	U200	E1	E4
C712	F3	D2	R201	D1	F4	U300	F1	D3
C758	G5	C2	R202	D2	F4	U350	F2	D4
			R203	D2	F3	U500	C3	F3
CR100	D3	F2	R204	E2	D4	U600	E4	E2
CR250	D2	D3	R208	E2	D3	U650	D4	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			
			R250	D2	D3	UR300	F5	C3
J110	A1	G3	R252	D2	D3	UR350	F5	C3
J112	A4	G3	R254	E2	D3	UR650	E4	E2
J122	D4	G2	R260	E2	E3	UR700	G5	C1
J122-	A1	G2	R262	E2	E3	UR750	G5	C2
J122	A3	G2	R264	E2	E3			
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.

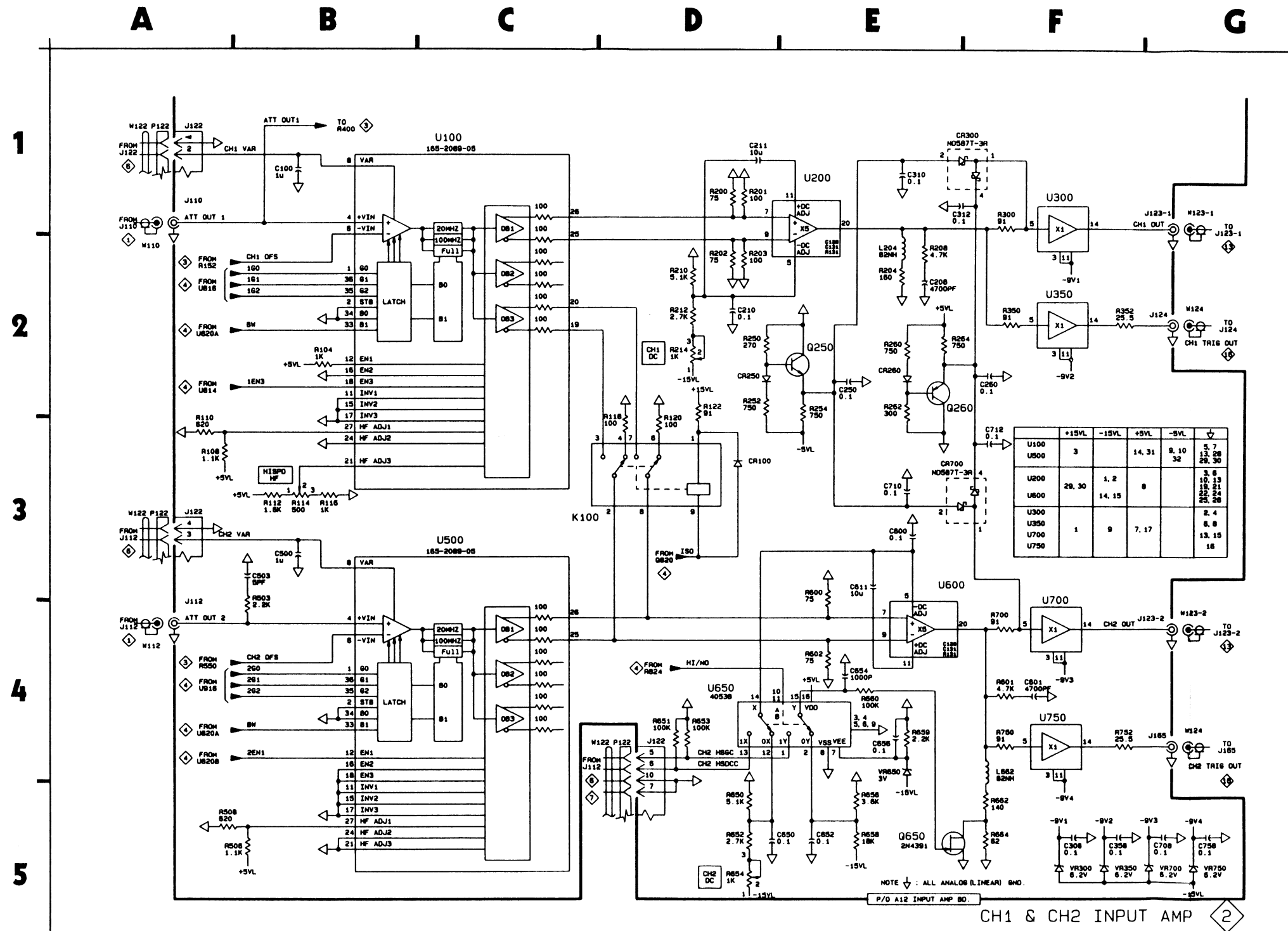


Table 8-3

TU TRIGGER PICK OFF 3

INPUT AMP BO., ASSEMBLY A12

CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION	CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION	CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION
C010	F2	B4	C700	E2	B2	R414	C2	G3
C012	F2	B3	C702	E3	D1	R416	C1	G2
C020	F2	B4	C704	E3	D1	R418	C1	G2
C022	F2	B4	C706	E3	C2	R420	C1	G2
C030	F3	B4	C750	E2	D3	R422	C2	G2
C032	F3	B4	C752	E3	D2	R424	D1	G2
C040	F3	B4	C754	E3	D3	R426	D1	G4
C042	F3	B4	C756	E3	C2	R428	D2	G4
C050	F4	B4	C800	E2	B3	R430	D2	G4
C052	F4	B4	C810	E2	A2	R432	D2	G4
C102	E2	F4	C812	E2	A3	R434	D2	G4
C104	E3	F3	C814	E2	B3	R436	D2	G4
C106	E3	F4	C816	E2	B3	R438	D2	G4
C108	E4	F3	C820	E2	B2	R440	E2	G3
C110	E4	F4	C822	E2	B2	R442	E2	G2
C150	B4	G3	C910	E2	B2	R444	E1	G2
C152	B4	B4	C916	E2	B1	R446	E1	G2
C200	E2	B4	C918	E3	B2	R448	E1	G2
C202	E3	F4				R450	C4	B3
C204	E3	F3	CR160	B3	G4	R550	B4	B4
C206	E3	E3						
C300	E2	E2	K160	B3	G4	TP010	E2	A3
C302	E3	D3				TP020	E2	B4
C304	E3	D3	L150	B4	G3	TP030	E3	C4
C306	E3	C3	L550	B4	G2	TP040	E3	C4
C350	E2	D4				TP050	E4	C4
C352	E3	D3	P120	D4	B4	TP100	E4	H2
C354	E3	D3	P120	C4	B4	TP200	E4	F3
C356	E3	C4	P120	B1	B4	TP300	E5	A2
C400	E2	G3	P120	G1	B4	TP400	E1	E1
C402	E3	G3				TP410	E1	G2
C404	E2	G2	Q400A	B1	G3			
C406	E3	G2	Q400B	C1	G3	U400A	C1	G2
C408	E3	G3	Q410A	C2	G3	U400B	E1	G2
C410	E4	G4	Q410B	B2	G3	U410	D1	G4
C502	E2	F3				U450	B4	B3
C504	E3	F2	R150	B4	G3	U822B	C4	B2
C506	E3	F3	R152	C4	G3			
C508	E4	G2	R160	B3	G4	W010	F2	
C510	E4	F3	R400	B1	G3	W020	F4	D4
C550	B4	G3	R402	B1	G3	W030	F4	D4
C552	B4	F2	R404	B1	G3	W040	F5	D4
C602	E2	D3	R406	C1	G3	W050	F5	D4
C604	E3	E3	R408	B2	G3			
C606	E3	F2	R410	C2	G3			
C608	E3	F2	R412	C2	G3			

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

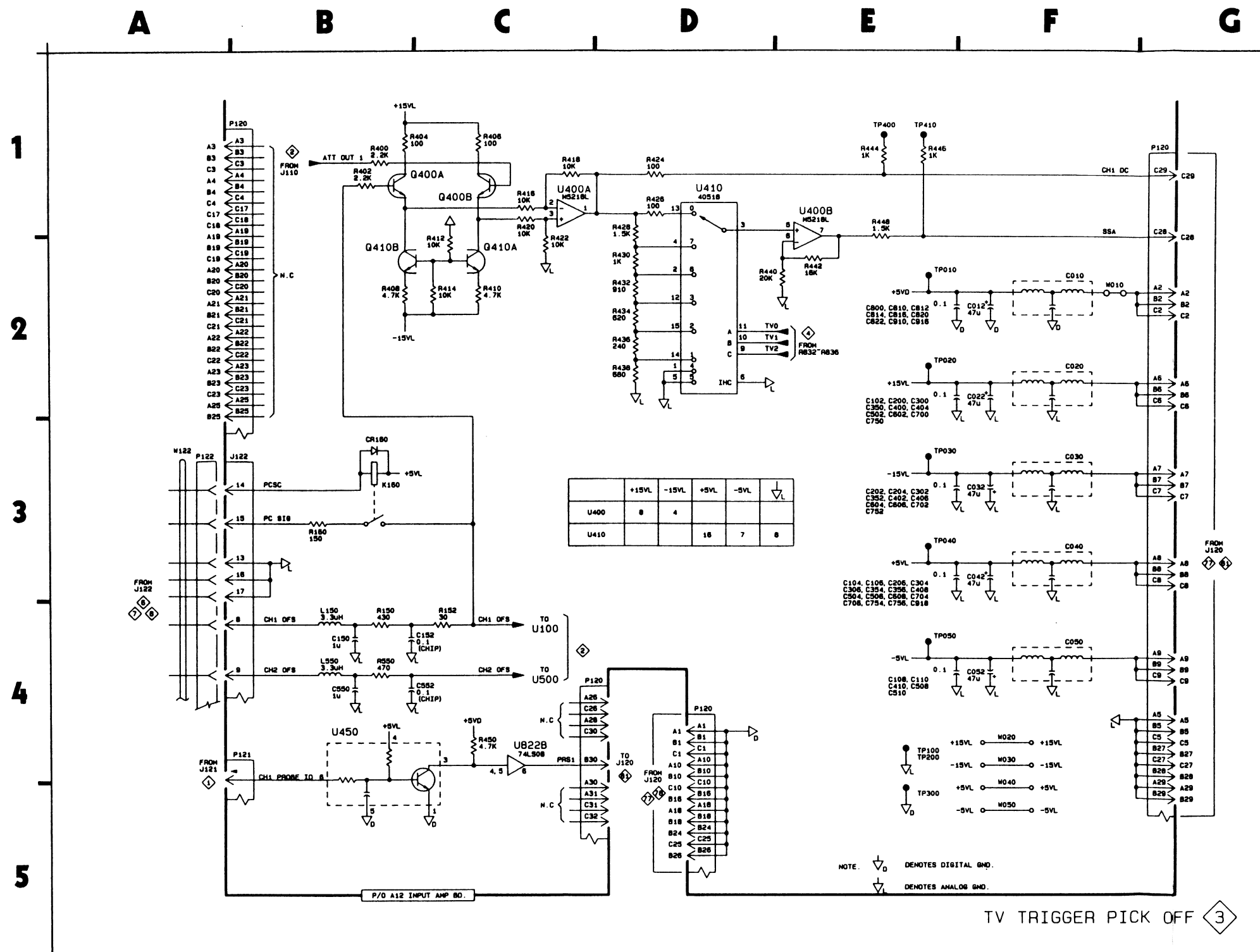


Table 8-4

AMP MPU INTERFACE

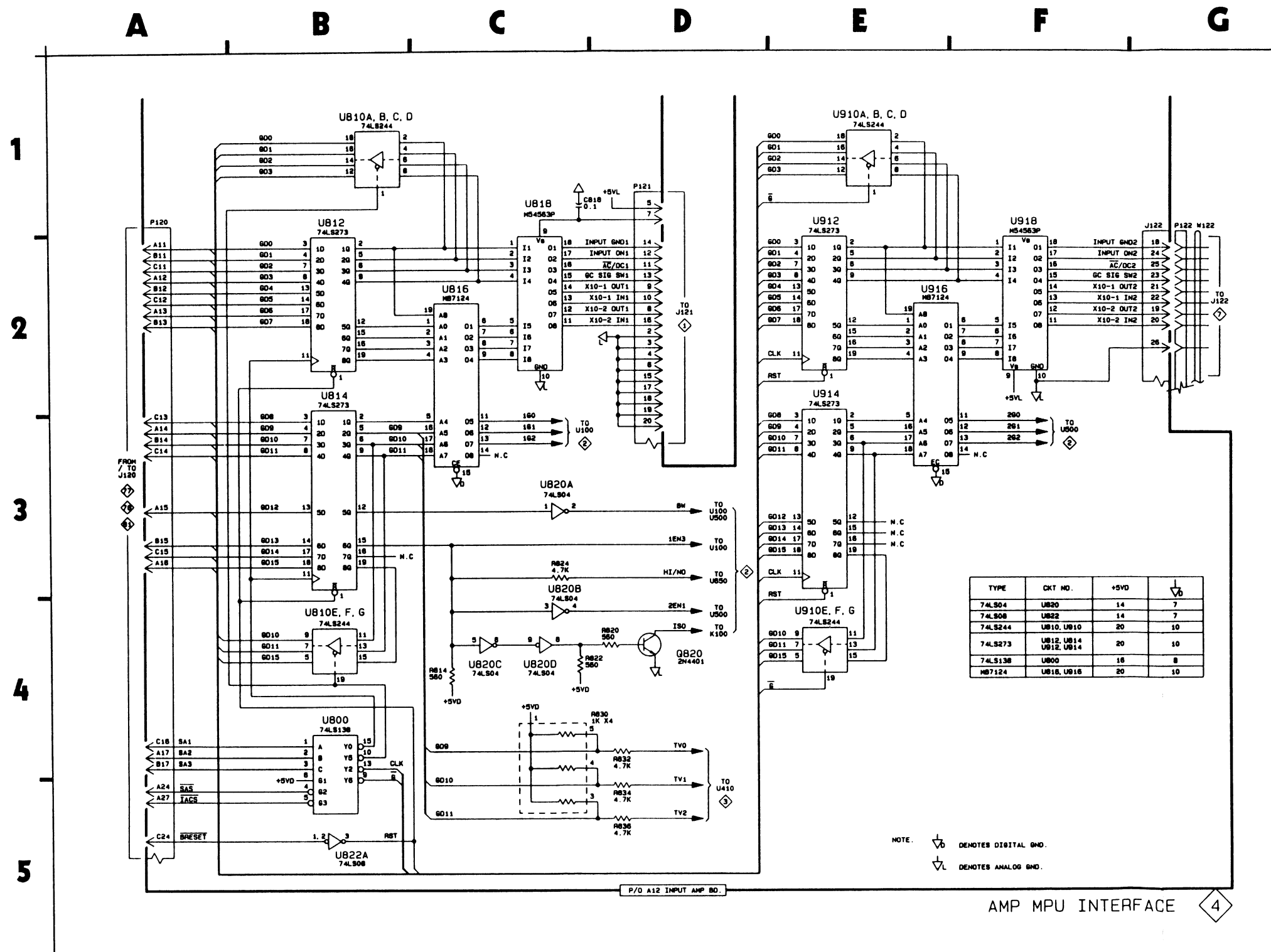


INPUT AMP BD., ASSEMBLY A12

CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION	CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD 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	U816	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	U916	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.



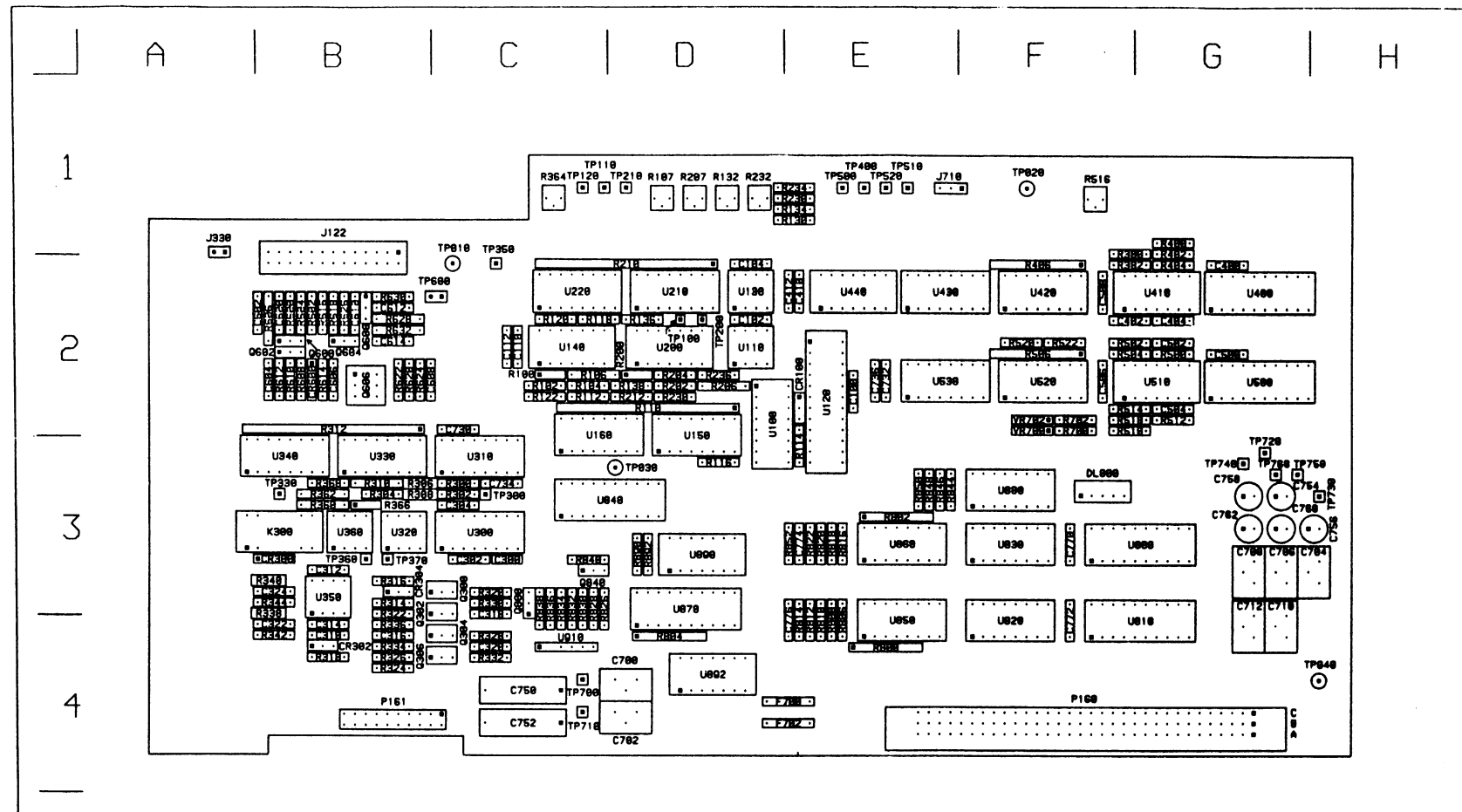


Fig. 8-3. A14 AUTO CAL CIRCUIT BOARD ASSEMBLY.

**SEE  
OTHER  
SIDE**

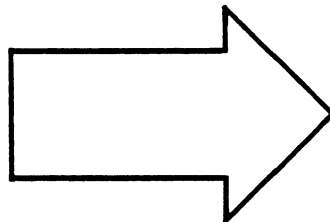




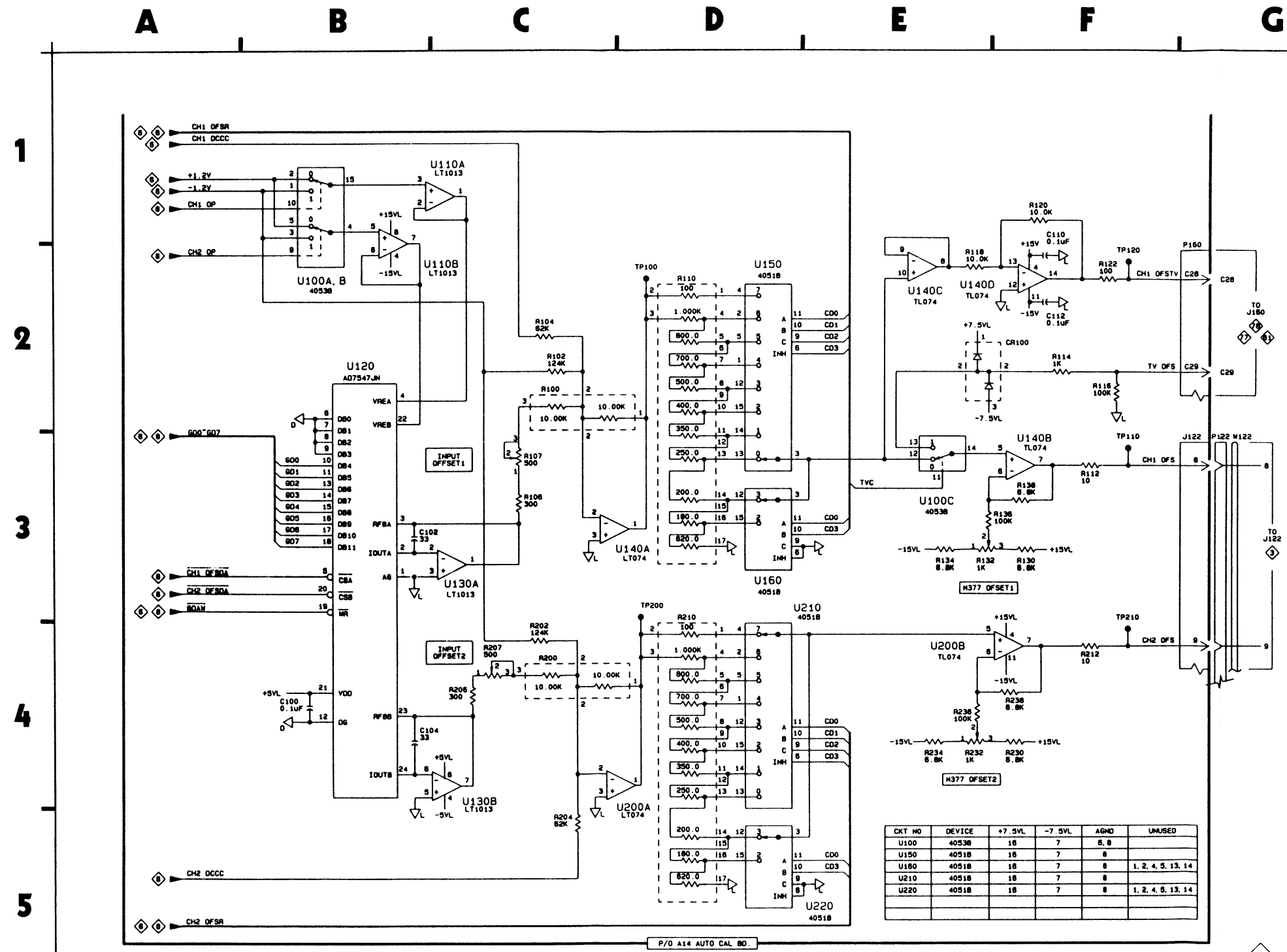
Table 8-5

CN1 & CN2 INPUT OFFSET 

AUTO CAL. BB., ASSEMBLY A14

CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION	CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION	CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION
C100	B4	E2	R120	F1	C2	TP120	F2	C1
C102	B3	D2	R122	F2	C2	TP200	D4	D2
C104	B4	D2	R130	F3	E1	TP210	F4	D1
C110	F2	C2	R132	E3	D1			
C112	F2	C2	R134	E3	E1	U100A	B1	D2
			R136	E3	D2	U100B	B1	D2
CR100	E2	E2	R138	F3	D2	U100C	E3	D2
			R200	C4	D2	U110A	C1	D2
J122	G3	B1	R202	C4	D2	U110B	B2	D2
			R204	C5	D2	U120	B2	E2
P160	G2	F4	R206	C4	D2	U130A	C3	D2
			R207	C4	D1	U130B	C4	D2
R100	C2	C2	R210	D4	D2	U140A	C3	C2
R102	C2	C2	R212	F4	D2	U140B	F3	C2
R104	C2	C2	R230	F4	E1	U140C	E2	C2
R106	C3	C2	R232	E4	D1	U140D	F2	C2
R107	C3	D1	R234	E4	E1	U150	D2	D2
R110	D2	D2	R236	E4	B2	U160	D3	C2
R112	F3	C2	R238	F4	B2	U200A	C4	D2
R114	F2	E3				U200B	F4	D2
R116	F2	D3	TP100	D2	D2	U210	D4	D2
R118	E2	C2	TP110	F3	C1	U220	B5	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 5

Table B-6

GAIN CAL. SIG. GEN. & AUTO CAL. CTRL

6

AUTO CAL. BD., ASSEMBLY A14

CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION	CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION	CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION
C300	B2	C3	R304	C2	B3	R522	E5	F2
C302	A2	C3	R306	C2	B3	R890	B1	D3
C304	A2	C3	R308	C2	B3	R892	B1	D3
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	D5	E1
C404	B3	G2	R330	F1	C3			
C410	F3	E2	R332	F2	C4	U300	A2	C3
C412	F3	E2	R334	F2	B4	U310A	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	A1	F4	R406	D3	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	D5	G2
Q306	F2	C4	R514	C5	F2	U520	E4	F2
			R516	C5	F1	U530	E5	E2
R300	B1	C3	R518	D5	F2	U890B	B1	D3
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.

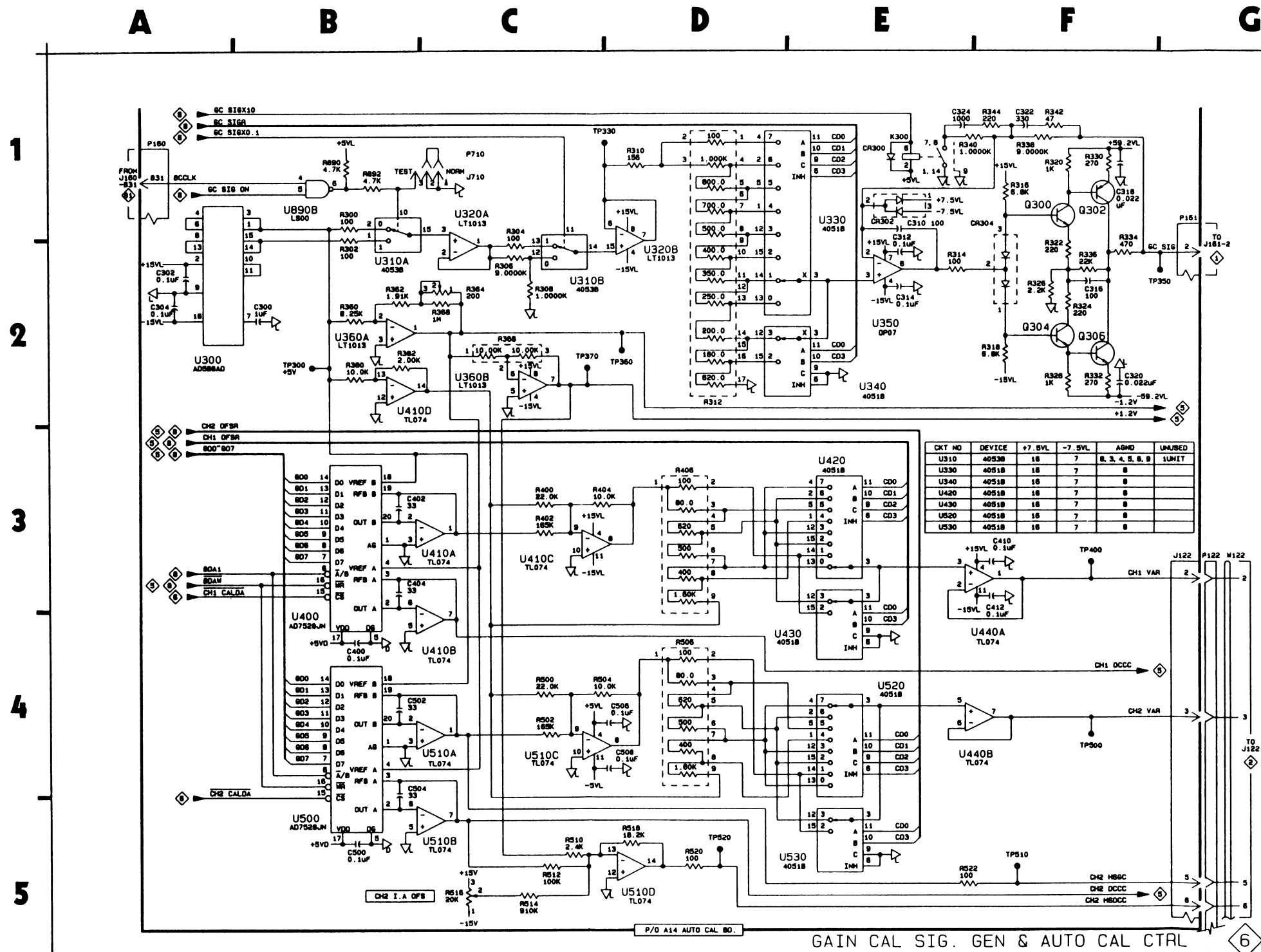



Table 8-7

PHASE CAL. SUB. GEN. 

AUTO CAL. BO., ASSEMBLY A14

CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION	CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION	CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD 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	CR600	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	A5	A1	R700	C3	F2
C706	B2	G3				R702	C4	F2
C708	C2	G3	P160	A1	F4			
C710	C3	G4	P161	G1	B4	TP010	D3	C2
C712	B3	G4				TP020	D3	F1
C730	C4	C2	Q600	E4	B2	TP030	D3	D3
C732	C4	E2	Q602	E4	B2	TP040	D3	H4
C734	C4	C3	Q604	E3	B2	TP600	F4	C2
C736	C4	E2	Q606	E3	B2	TP700	D1	C4
C750	C1	C4	Q608	E4	B2	TP710	B1	C4
C752	C1	C4				TP720	D2	G3
C754	C2	G3	R600	D4	B2	TP730	D2	H3
C756	C2	H3	R602	D4	B2	TP740	D2	G3
C758	C2	G3	R604	E4	B2	TP750	D3	G3
C760	C3	G3	R606	E4	B2	TP760	D3	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.

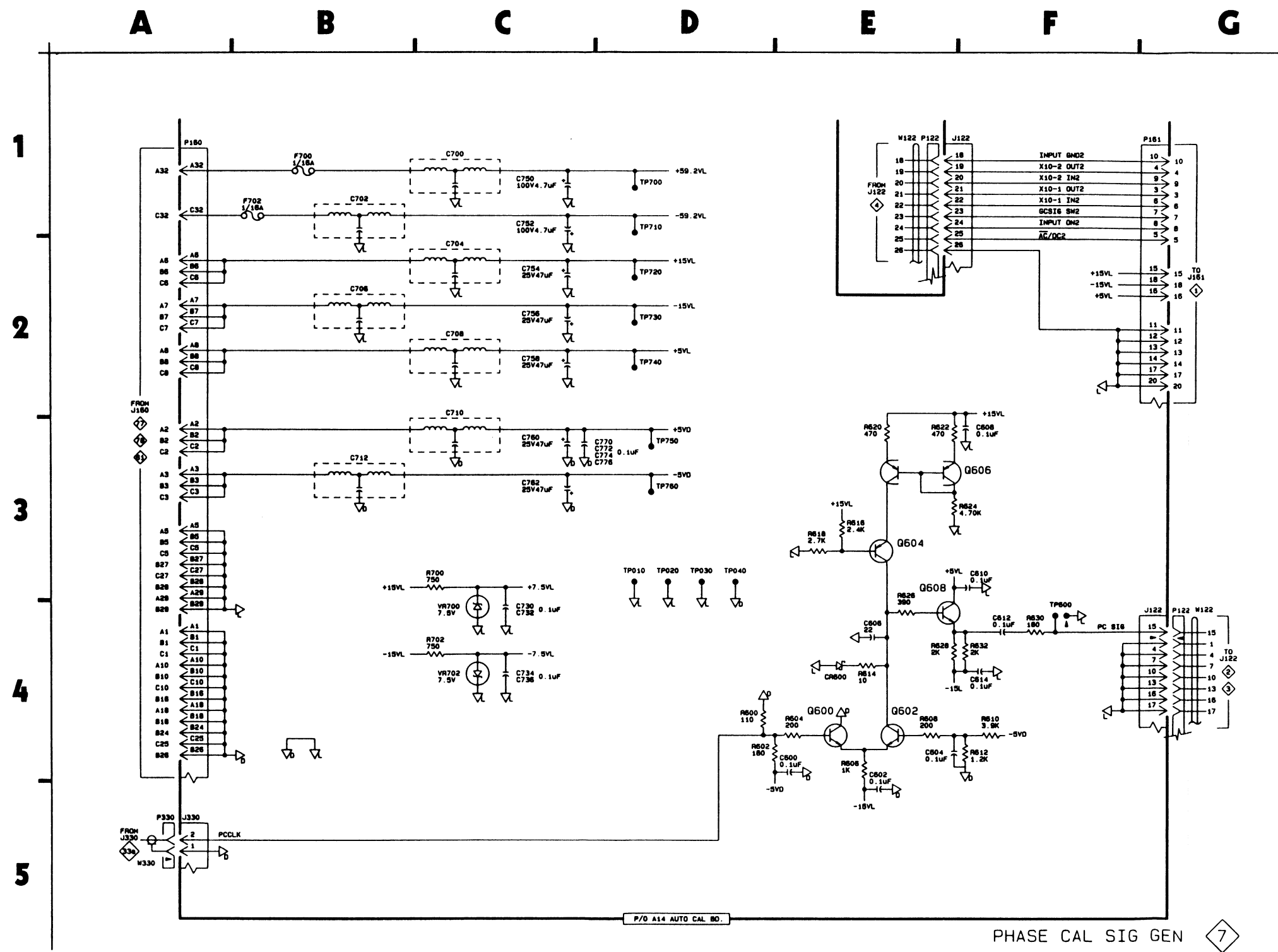

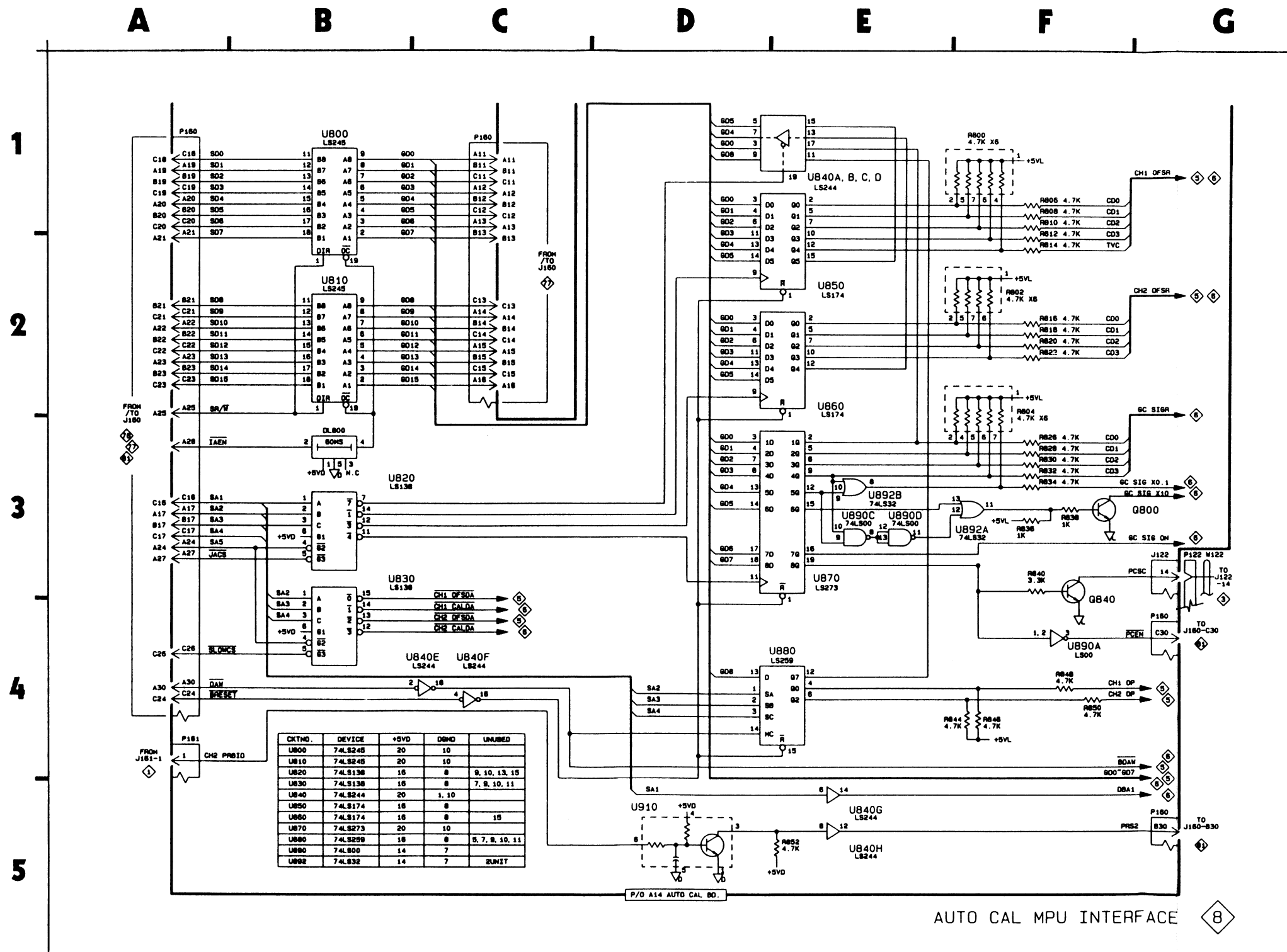


Table 8-8

AUTO CAL MPU INTERFACE   
 AUTO CAL. BD., ASSEMBLY A14

CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION	CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION
DL800	B3	F3	R838	F3	C3
J122	G3	B1	R840	F3	C3
P160	C1	F4	R844	F4	E3
P160	G4	F4	R846	F4	E3
P160	A1	F4	R848	F4	E3
P160	G5	F4	R850	F4	E3
P161	A4	B4	R852	E5	E3
Q800	F3	C3	U800	B1	G3
Q840	F3	C3	U810	B2	G4
R800	F1	E4	U820	B3	F4
R802	F2	E3	U830	B4	F3
R804	F2	D4	U840A	E1	D3
R806	F1	E4	U840B	E1	D3
R808	F1	E4	U840C	E1	D3
R810	F1	E4	U840D	E1	D3
R812	F2	E4	U840E	C4	D3
R814	F2	E4	U840F	C4	D3
R816	F2	E3	U840G	E5	D3
R818	F2	E4	U840H	E5	D3
R820	F2	E3	U850	E2	E4
R822	F2	E3	U860	E2	E3
R826	F3	C3	U870	E3	D3
R828	F3	E3	U880	E4	F3
R830	F3	C3	U890A	F4	D3
R832	F3	C3	U890C	E3	D3
R834	F3	C3	U890D	E3	D3
R836	F3	C3	U892A	F3	D4
			U892B	E3	D4
			U910	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.





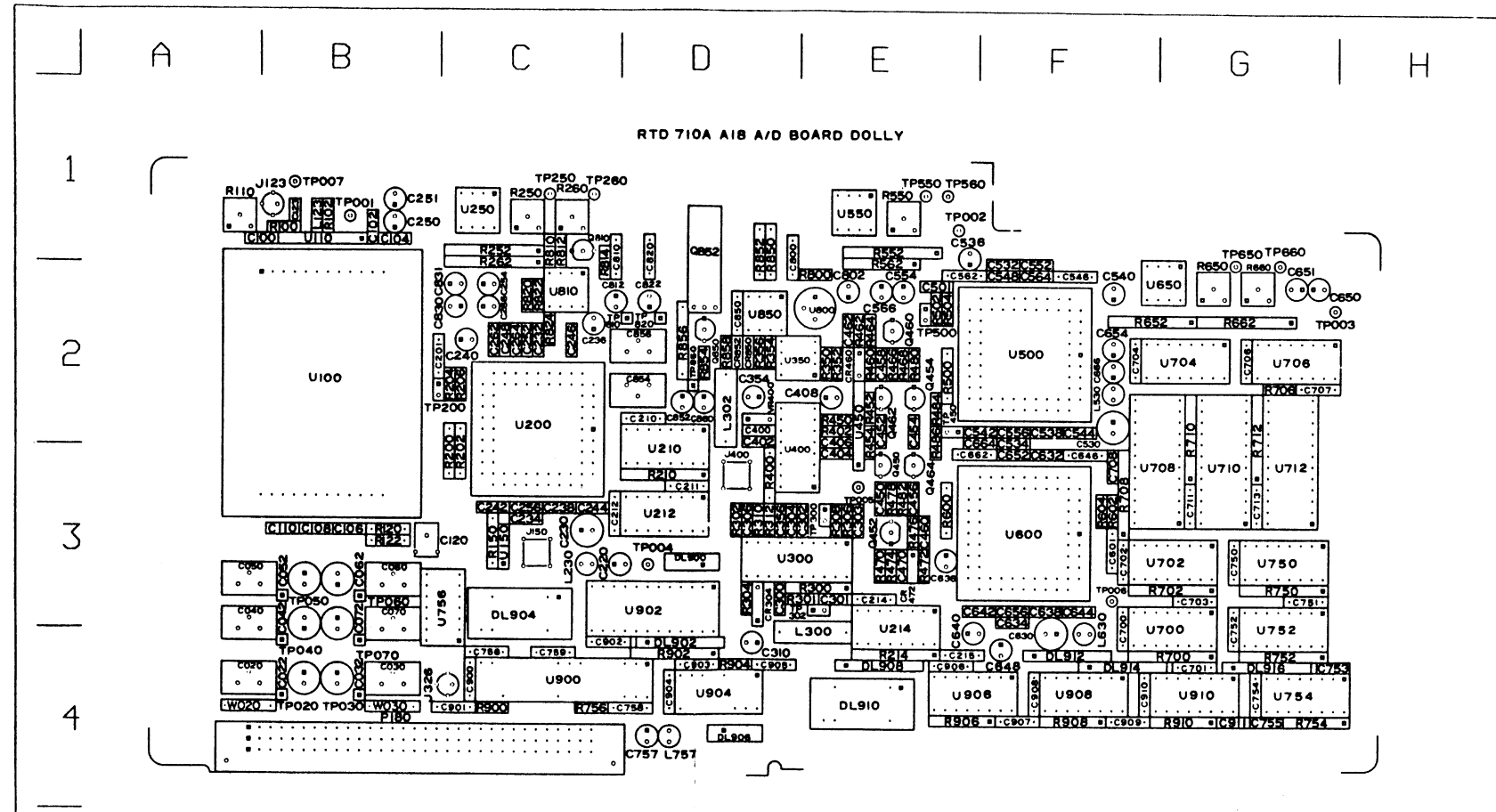


Fig. 8-4. A18 A/D CIRCUIT BOARD ASSEMBLY.

**SEE  
OTHER  
SIDE**

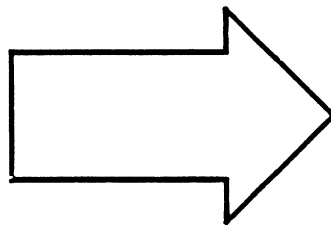


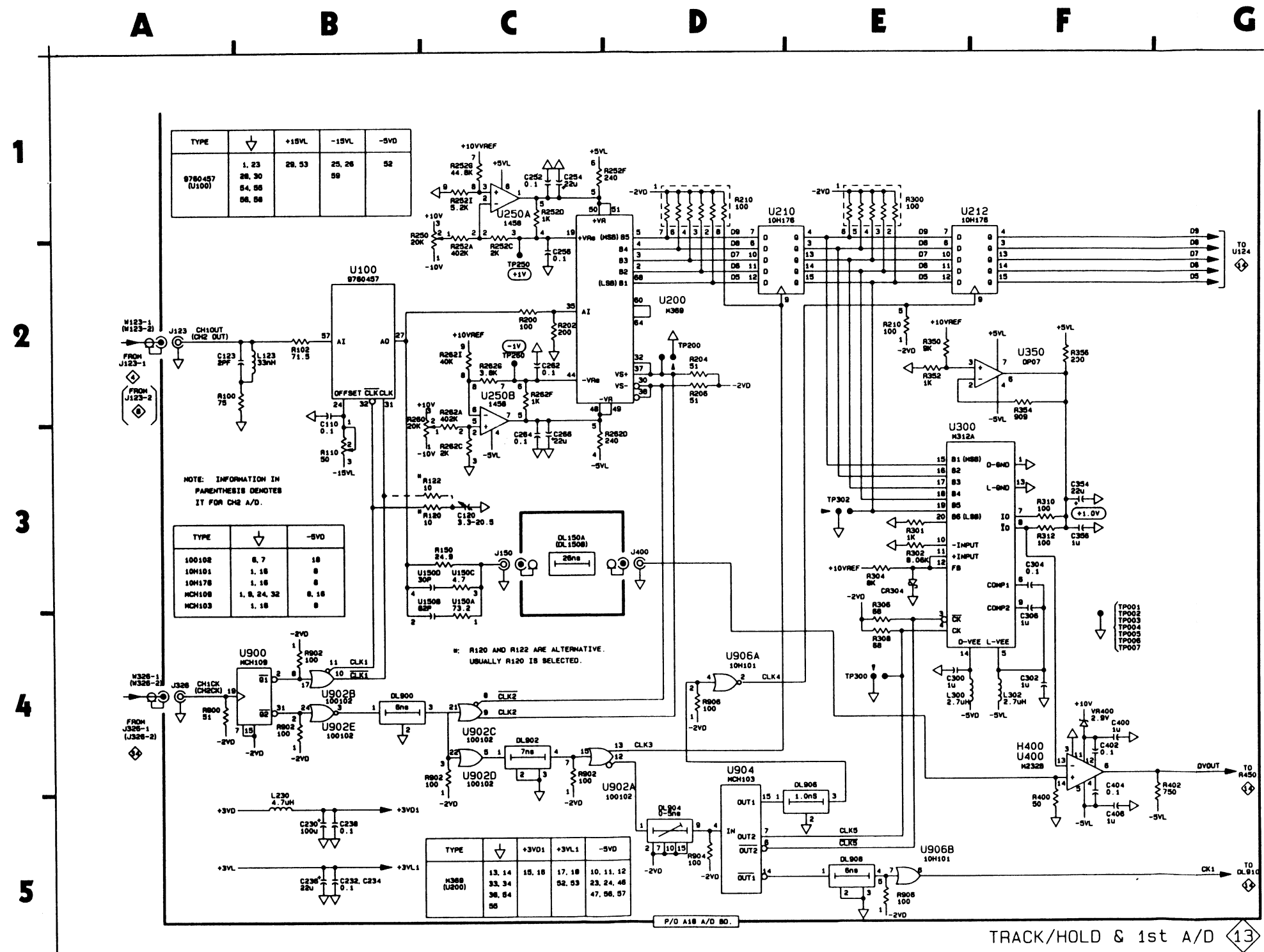
Table 8-9

TRACK/HOLD & 1st A/D 13

A/D CAL. BD., ASSEMBLY A18

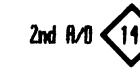
CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION	CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION	CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION
C110	B2	B3	R100	B2	B1	R904	D5	D4
C120	C3	B3	R102	B2	B1	R906A	D4	E4
C123	B2	B1	R110	B3	A1	R906D	E5	E4
C230	B5	C3	R120	C3	B3			
C232	B5	C2	R122	C3	B3	TP001	F4	B1
C234	B5	C3	R150	C3	C3	TP002	F4	E1
C236	B5	C2	R200	C2	C3	TP003	F4	G2
C238	B5	C3	R202	C2	C3	TP004	F4	D3
C252	C1	C2	R204	D2	C2	TP005	F4	E3
C254	C1	C2	R206	D2	C2	TP006	F4	F3
C256	C2	C3	R2100	E2	D3	TP007	F4	B1
C262	C2	C2	R210	D1	D3	TP200	D2	B2
C264	C3	C2	R250	C1	C1	TP250	C2	C1
C266	C3	C2	R252A	C2	C1	TP260	C2	C1
C300	E4	D3	R252C	C2	C1	TP300	E4	E3
C302	F4	E3	R252D	C1	C1	TP302	E3	E3
C304	F3	D3	R252F	C1	C1			
C306	F4	D3	R252G	C1	C1	U100	B2	B2
C354	F3	D2	R252I	C1	C1	U150A	C3	C3
C356	F3	D3	R260	C3	C1	U150B	C3	C3
C400	F4	D2	R262A	C2	C1	U150C	C3	C3
C402	F4	D3	R262C	C3	C1	U150D	C3	C3
C404	F5	E3	R262D	C3	C1	U200	D2	C2
C406	F5	E2	R262F	C2	C1	U210	D2	D3
			R262G	C2	C1	U212	E2	D3
CR304	E3	D3	R262I	C2	C1	U250A	C1	C1
			R300	E1	E3	U250B	C2	C1
DL150A	C3	OFF BD.	R301	E3	E3	U300	E3	D3
DL900	D4	D3	R302	E3	D3	U350	F2	D2
DL902	C4	D4	R304	E3	D3	U400	F4	D3
DL904	D5	C3	R306	E4	E3	U900	D4	C4
DL906	E5	D4	R308	E4	E3	U902A	C4	D3
DL908	E5	E4	R310	F3	D3	U902B	D4	D3
			R312	F3	D3	U902C	C4	D3
H400	F4	D3	R350	E2	E2	U902D	C4	D3
			R352	E2	E2	U902E	D4	D3
J123	B2	B1	R354	F2	D2	U904	D5	D4
J150	C3	C3	R356	F2	D2	U906A	D4	E4
J326	A4	C4	R400	F5	D3	U906B	E5	E4
J400	D3	D3	R402	G4	E2			
			R900	A4	C4	UR400	F4	D2
L123	B2	B1	R902A	D4	D4			
L230	B5	C3	R902B	C4	D4	U123	A2	OFF BD.
L300	E4	E4	R902F	C4	D4	U326	A4	OFF BD.
L302	F4	D2	R902G	D4	D4			

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



TRACK/HOLD & 1st A/D 13

Table 8-10



R/O CAL. BD., 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	C8850	E5	D2	R552A	C1	E1	R906	B5	E4
C452	B2	E2	C8852	E5	D2	R552C	C1	E1	R908	B5	F4
C454	C1	E2				R552D	C1	E1	R910	C5	G4
C456	C3	E3	DL910	B4	E4	R552F	D1	E1			
C458	B1	E2	DL912	C5	F4	R552G	C1	E1	TP450	C2	E2
C460	B3	E3				R552I	C1	E1	TP500	D2	E2
C470	B2	E3	L530	E3	F2	R562A	C2	E1	TP550	C2	E1
C530	E3	F2	L630	E3	F3	R562C	D2	E1	TP560	C2	E1
C532	E3	F2				R562E	C2	E1	TP650	C3	G2
C534	E3	F2	Q450	B2	E3	R562F	C2	E1	TP660	C4	G2
C536	E3	E1	Q452	B3	E3	R600	C3	E3	TP810	G4	C2
C538	E3	F2	Q454	B1	E2	R602	D4	F3	TP820	G4	D2
C552	C1	F2	Q460	B1	E2	R604	D4	F3	TP850	F5	D2
C554	D1	E2	Q462	B2	E2	R650	C3	G2			
C556	C2	F2	Q464	B2	E3	R652A	C3	F2	U214	E1	E3
C562	C2	E2	Q810	F3	C1	R652C	C3	F2	U450A	A2	E2
C564	C2	F2	Q850	F4	D2	R652D	C3	F2	U450B	A2	E2
C566	D2	E2	Q852	F4	D1	R652F	D3	F2	U450C	A2	E2
C630	E3	F4				R652G	C3	F2	U450D	B2	E2
C632	E4	F3	R214	E1	E4	R660	C4	C4	U450E	B2	E2
C634	E4	F3	R450	A2	E2	R662A	C4	G2	U450F	A2	E2
C636	E4	E3	R452	B2	E2	R662C	C4	G2	U450G	A2	E2
C638	E3	F3	R454	B2	E2	R662D	D4	G2	U450H	A2	E2
C652	C3	F3	R460	B1	E2	R662F	C4	G2	U500	D1	F2
C654	D3	F2	R462	B1	E2	R662G	C4	G2	U550A	C1	E1
C656	C3	F3	R464	B1	E2	R662I	C4	G2	U550B	C2	E1
C662	C4	F3	R466	B1	E2	R700	F1	G4	U600	D3	F3
C664	C4	F2	R468	B2	E2	R702	F2	G3	U650A	C3	G2
C666	D4	F2	R470	B2	E3	R702G	G2	G3	U650B	C4	G2
C800	G3	D1	R472	B3	E3	R708	F2	F3	U700	F1	G3
C802	G2	E2	R474	B3	E3	R800	G3	E2	U702	F2	G3
C810	F3	C1	R476	B3	E3	R810	F3	C1	U800	F3	E2
C812	F4	C2	R478	B2	E3	R812	F3	C1	U810A	F3	C2
C820	F4	D1	R480	B1	E2	R814	F3	C1	U810B	F4	C2
C822	F4	D2	R482	B2	E3	R820	F4	C2	U850	E4	D2
C850	E5	D2	R484	B2	E2	R822	F4	C2	U906C	B4	E4
C852	F5	D2	R486	B2	E2	R824	F4	C2	U906D	B4	E4
C854	F4	D2	R500	C2	E2	R850	E4	D1	U908	C5	F4
C856	F5	D2	R502	D2	E2	R852	E4	D1	U910B	C5	G4
			R504	D2	E2	R854	F4	D2			
C8460	B1	E2	R506	D2		R856	F5	D2			
C8472	B3	E3	R550	C1	E1	R858	E5	D2			

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

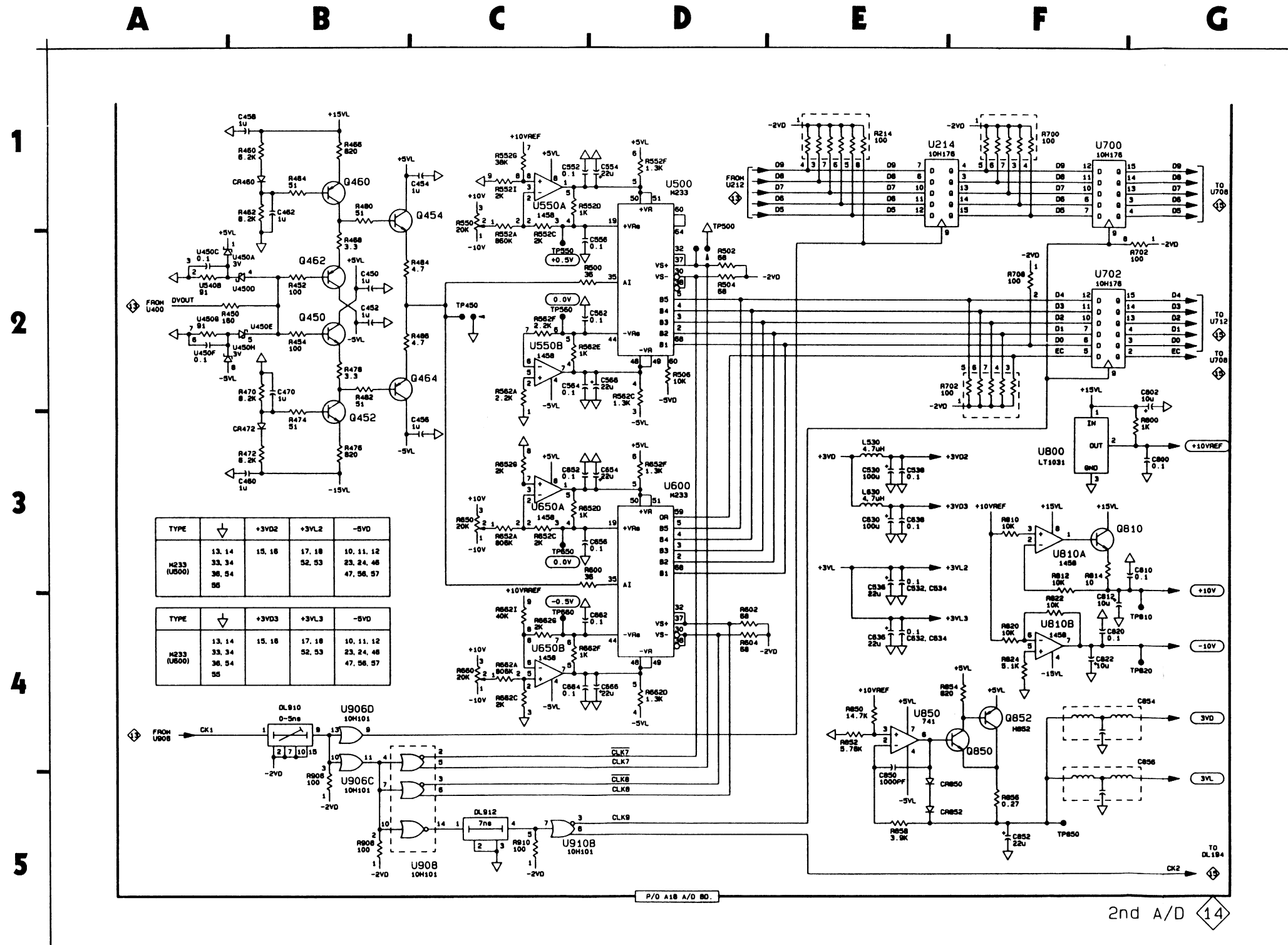


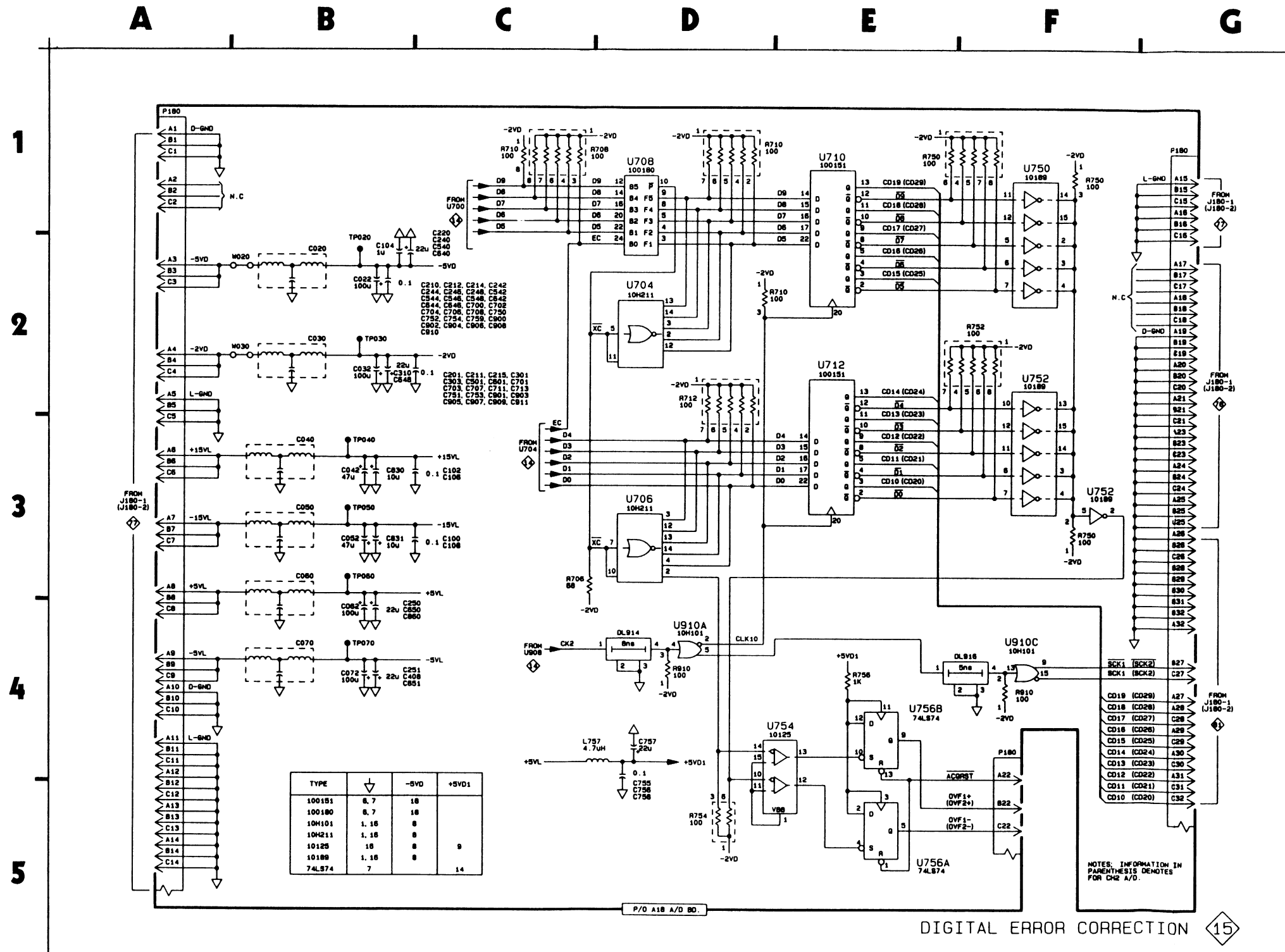
Table 8-11

DIGITAL ERROR CORRECTION 

R/O CAL. BO., 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	B4	C408	B4	E2	C759	B2	C4	R750B	F1	G3
C022	B2	B4	C501	B2	E2	C830	B3	C2	R752	F2	G4
C030	B2	B4	C540	B2	F2	C831	B3	C2	R754B	D5	G4
C032	B2	B4	C542	B2	F2	C860	B4	D2	R754E	D5	G4
C040	B3	B3	C544	B2	F2	C900	B2	C4	R756	E4	C4
C042	B3	B3	C546	B2	F2	C901	B2	C4	R910A	F4	G4
C050	B3	B3	C548	B2	F2	C902	B2	C4	R910B	D4	G4
C052	B3	B3	C601	B2	F3	C903	B2	D4			
C060	B3	B3	C640	B2	E3	C904	B2	D4	TP020	B2	B4
C062	B4	B3	C642	B2	F3	C905	B2	D4	TP030	B2	B4
C070	B4	B3	C644	B2	F3	C906	B2	E4	TP040	B3	B4
C072	B4	B3	C646	B2	F3	C907	B2	F4	TP050	B3	B3
C100	B3	B1	C648	B2	F4	C908	B2	F4	TP060	B3	B3
C102	B3	B1	C650	B4	G2	C909	B2	F4	TP070	B4	B4
C104	B2	B1	C651	B4	G2	C910	B2	F4			
C106	B3	B3	C700	B2	F3	C911	B2	G4	U704	D2	G2
C108	B3	B3	C701	B2	G4				U706	D3	G2
C201	B2	B2	C702	B2	F3	DL914	D4	F4	U708	D1	G3
C210	B2	D2	C703	B2	G3	DL916	F4	G4	U710	E1	G3
C211	B2	D3	C704	B2	F2				U712	E2	G3
C212	B2	C3	C706	B2	G2	L757	C4	D4	U750	F1	G3
C214	B2	E3	C707	B2	G2				U752	F2	G3
C215	B2	E4	C708	B2	F3	P180	G1	B4	U752	F3	G4
C220	B2	C3	C711	B2	G3	P180	A1	B4	U754	E4	C3
C240	B2	C2	C713	B2	G3	P180	F4	B4	U756A	E4	C3
C242	B2	C3	C750	B2	G3				U756B	E4	C3
C244	B2	C3	C751	B2	G3	R706	C3	G2	U910A	D4	G4
C246	B2	C2	C752	B2	G3	R708	C1	F3	U910C	F4	G4
C248	B2	C2	C753	B2	G4	R710	D1	G2			
C250	B4	B1	C754	B2	G4	R710B	D2	G2	W020	B2	B4
C251	B4	B1	C755	B5	G4	R710G	C1	G2	W030	B2	B4
C301	B2	E3	C756	B5	C4	R712	D2	G2			
C303	B2	E3	C757	D4	D4	R750	F1	G3			
C310	B2	D4	C758	B5	D4	R750A	F3	G3			

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







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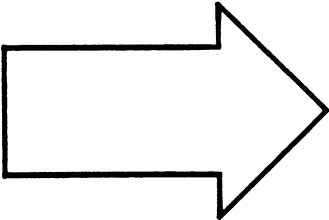


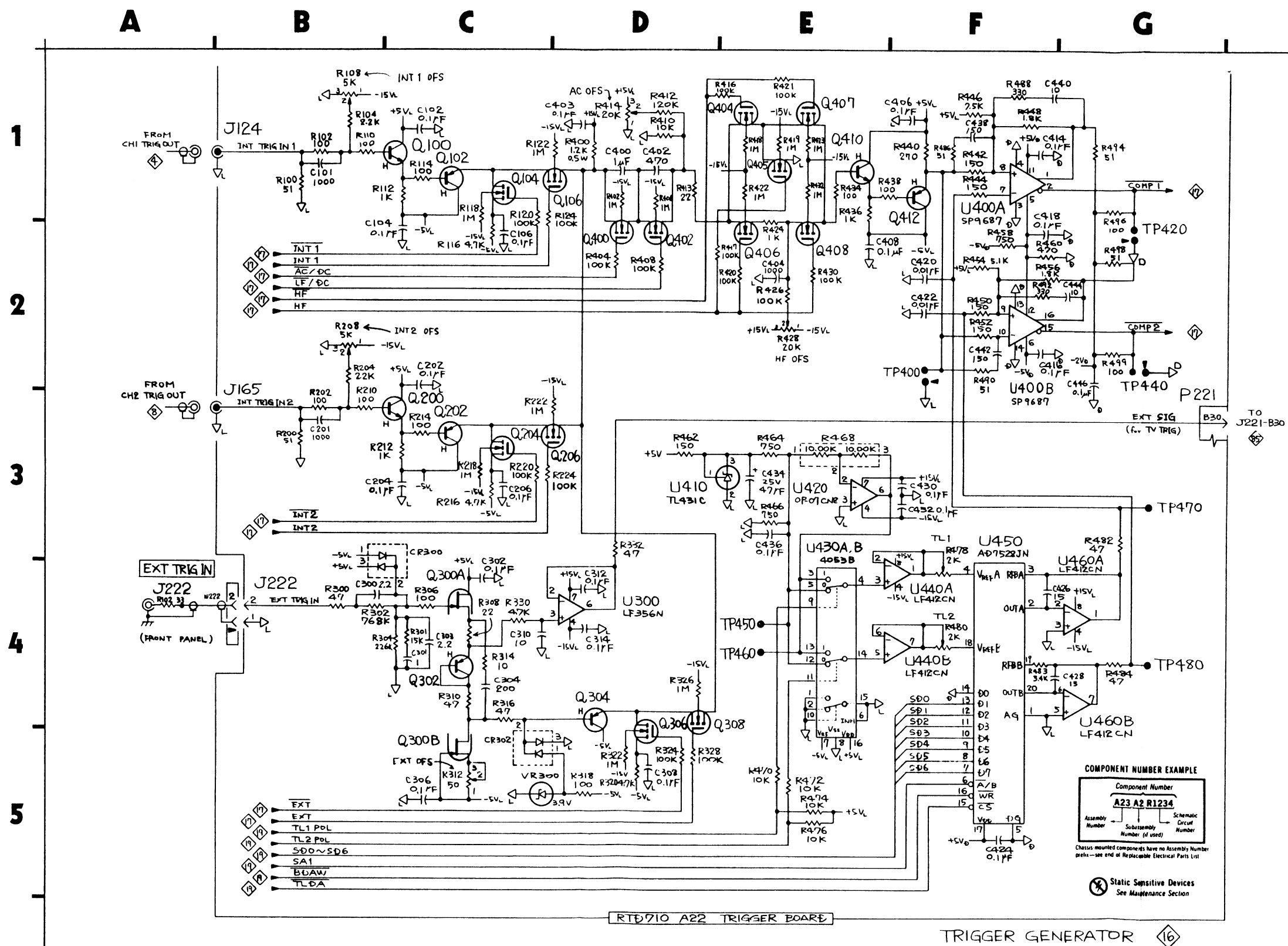
Table 8-12

TRIGGER GENERATOR  — 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	D2	D3	R422	E1	D4
C102	C1	D2	Q404	E1	D3	R423	E1	D2
C104	C2	D2	Q405	E1	E3	R424	E2	E3
C106	C2	D2	Q406	E2	D3	R426	E2	E3
C201	B3	B2	Q407	E1	D3	R428	E2	D2
C202	C2	C2	Q408	E2	E3	R430	E2	E3
C204	C3	B2	Q410	E1	E2	R432	E1	E3
C206	C3	C2	Q412	F1	E2	R434	E1	E2
C300	B4	A2				R436	E1	E2
C301	C4	A2	R100	B1	D2	R438	E1	E2
C302	C4	B2	R102	A4	F/P BD	R440	F1	E2
C303	C4	A2	R102	B1	D2	R442	F1	E1
C304	C4	B3	R104	B1	C2	R444	F1	E1
C306	C5	A3	R108	B1	C2	R446	F1	E1
C308	D5	C3	R110	B1	D2	R448	F1	F1
C310	C4	B3	R112	C1	D2	R450	F2	E2
C312	D4	A3	R114	C1	D2	R452	F2	E2
C314	D4	B3	R116	C2	D3	R454	F2	E3
C400	D1	C3	R118	C1	D3	R456	F2	F2
C402	D1	D3	R120	C2	D3	R458	F2	F2
C403	D1	C4	R122	D1	D3	R460	F2	F2
C404	E2	E3	R124	C1	D3	R462	D3	I2
C406	F1	E2	R200	B3	B2	R464	E3	I1
C408	E2	E2	R202	B3	B2	R466	E3	I1
C414	F1	F2	R204	B2	B2	R468	E3	I1
C416	F2	F2	R208	B2	B2	R470	E5	H1
C418	F2	F2	R210	B3	B2	R472	E5	H1
C420	F2	E1	R212	C3	C2	R474	E5	H1
C422	F2	F2	R214	C3	C2	R476	E5	H1
C424	F5	H2	R216	C3	C2	R478	F4	G1
C426	F4	G2	R218	C3	C2	R480	F4	G1
C428	F4	G2	R220	C3	C2	R482	G3	F2
C430	F3	H1	R222	C3	C3	R483	F4	G2
C432	F3	H2	R224	C3	C3	R484	G4	F2
C434	E3	I2	R300	B4	A2	R486	F1	E2
C436	E3	I1	R301	C4	A2	R488	F1	F1
C438	F1	E2	R302	B4	A2	R490	F2	E2
C440	F1	F1	R304	C4	A2	R492	F2	E2
C442	F2	E2	R306	C4	A2	R494	G1	F2
C444	G2	F2	R308	C4	B3	R496	G1	F2
C446	G2	F2	R310	C4	B2	R498	G2	F2
			R312	C5	A2	R499	G2	F2
CR300	B4	B2	R314	C4	B3			
CR302	C5	B3	R316	C4	B3	TP400	F2	E1
			R318	D5	B3	TP420	G2	F1
J124	B1	D2	R320	D5	C3	TP440	G2	F1
J165	B3	B2	R322	D5	C3	TP450	E4	H1
J222	A4	B2	R324	D5	C3	TP460	E4	I1
J222	B4	B2	R326	D4	C3	TP470	G3	G1
			R328	D5	C3	TP480	G4	G1
P221	G3	C6	R330	C4	B3			
			R332	D3	A3	U300	D4	A3
Q100	C1	D2	R400	D1	C3	U400A	F1	F2
Q102	C1	D2	R402	D1	C4	U400B	F2	F2
Q104	C1	D3	R404	D2	C4	U410	E3	I2
Q106	D1	C3	R406	D1	D4	U420	E3	H1
Q200	C3	C2	R408	D2	D4	U430A	E4	G1
Q202	C3	C2	R410	D1	D3	U430B	E4	G1
Q204	C3	C2	R412	D1	D3	U440A	F4	G1
Q206	C3	C3	R413	D1	D3	U440B	F4	G1
Q300A	C4	B3	R414	D1	D2	U450	F4	H2
Q300B	C5	B3	R416	E1	D3	U460A	G4	G2
Q302	C4	B2	R417	E2	E3	U460B	G4	G2
Q304	D4	B3	R418	E1	D3			
Q306	D5	C3	R419	E1	E3	VR300	C5	B3
Q308	D4	C3	R420	E2	E4			
Q400	D2	C3	R421	E1	D2	W222	A4	(CHASSIS)

ASSY A22 is also shown on Diagrams 16, 17, 18, and 19.

ASSY A22 (Fig.8-5) circuit board illustration faces Diagram 16.




RTD 710 A22 TRIGGER BOARD

TRIGGER GENERATOR

COMPONENT NUMBER EXAMPLE  
 Component Number  
**A23 A2 R1234**  
 Assembly Number      Subassembly Number (if used)      Schematic Circuit Number  
 Chassis mounted components have no Assembly Number prefix - see end of Replaceable Electrical Parts List

⚡ Static Sensitive Devices  
 See Maintenance Section

Table 8-13

TRIGGER SLOPE CONTROL  — TRIGGER BOARD, ASSEMBLY A22

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	U500A	E1	J1
R502A	E1	J2	U500B	E1	J1
R502B	E2	J2	U500C	E2	J1
R502C	E3	J2	U500D	E2	J1
R502D	E4	J2	U505A	E1	K1
R502E	F3	J2	U505B	D2	K1
R504A	E3	K2	U510A	E1	J2
R504B	E3	K2	U510B	E1	J2
R504C	F3	K2	U510C	F3	J2
R504D	G3	K2	U510D	F3	J2
R504E	G4	K2	U520A	E2	J2
R504E	G4	K2	U520B	E3	J2
R506A	E2	K3	U530A	E3	K2
R506B	G1	K3	U530B	G3	K2
R506C	G1	K3	U540A	G3	K2
R506D	G2	K3	U540B	G4	K2
R506E	F2	K3	U550	F2	J3
R506F	G4	K3	U560A	G2	K3
R600	C1	H3	U560B	E3	K3
R602	C1	H3	U560C	G4	K3
R604A	C3	H3	U570A	E4	F3
R604B	C3	H3	U570B	D5	F3
R606A	C4	G3	U600	C1	H4
R606B	C4	G3	U610	C4	G4
R606C	C4	G3	U620	C1	I3
R606D	C4	G3	U630	C2	I3
R608A	C5	G3	U640	C3	G3
R608B	C5	G3			

ASSY A22 is also shown on Diagrams 16, 17, 18, and 19.

ASSY A22 (Fig.8-5) circuit board illustration faces Diagram 16.

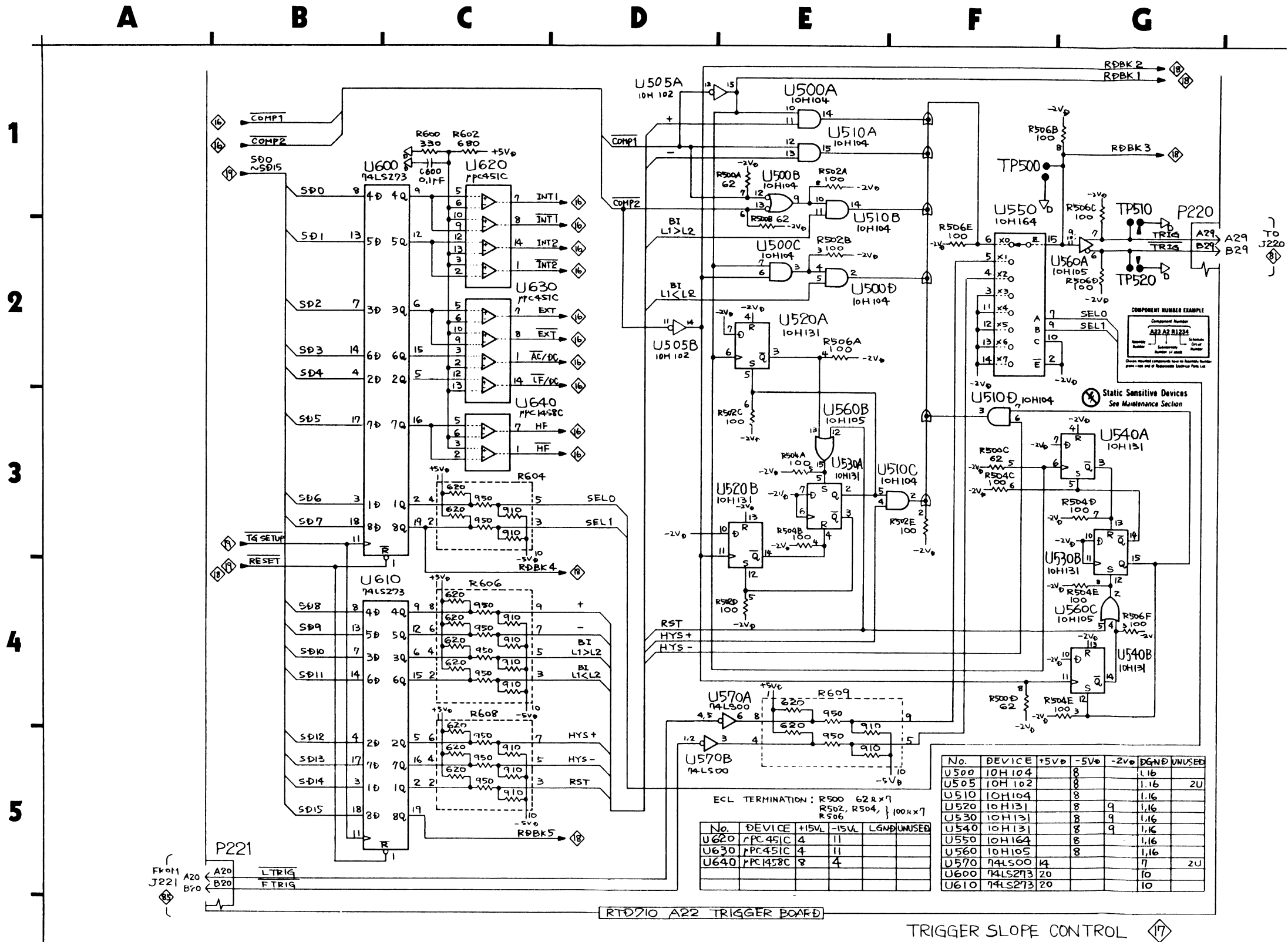



Table 8-14  
**MPU INTERFACE 1**   
**TRIGGER BOARD, ASSEMBLY A22**

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.

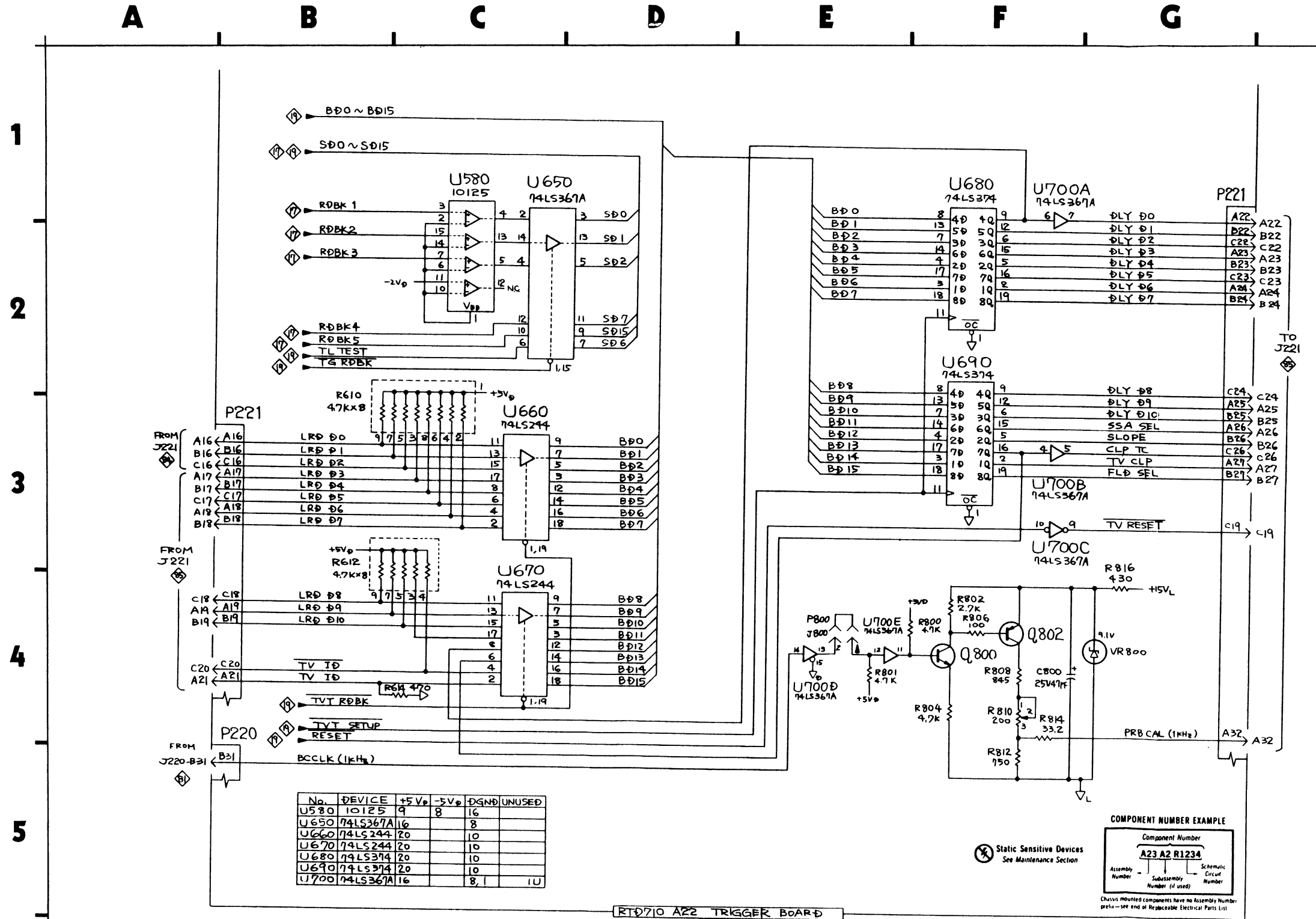
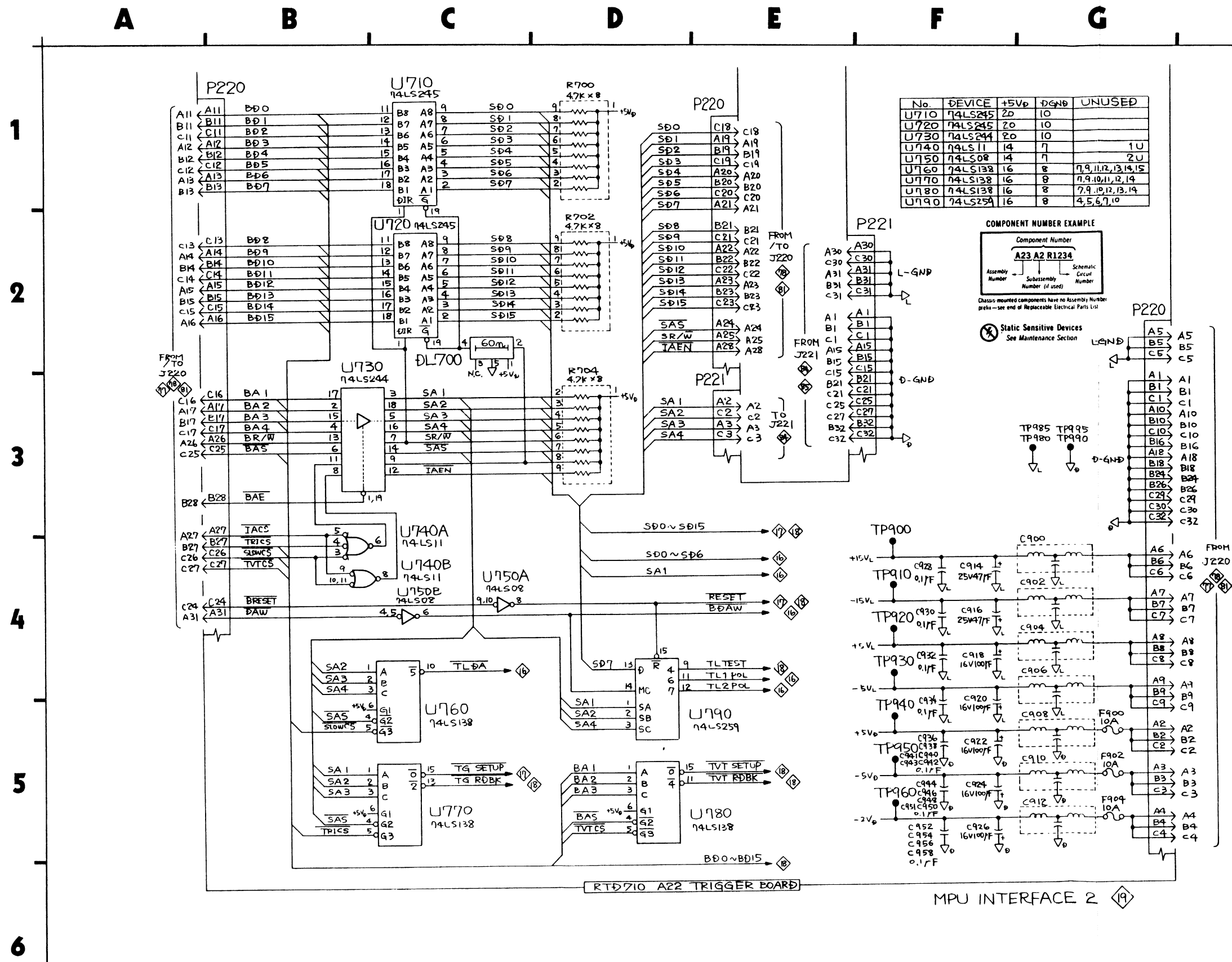




Table 8-15  
 MPU INTERFACE 2  — TRIGGER BOARD, ASSEMBLY A22

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			
C906	G4	J5	P220	B1	I6
C908	G5	K5	P220	E1	I6
C910	G5	K5	P220	G2	I6
C912	G5	K5	P221	E3	C6
C914	F4	K4	P221	F2	C6
C916	F4	J4			
C918	F4	J4	R700	D1	H5
C920	F5	J4	R702	D2	G5
C922	F5	K5	R704	D3	F5
C924	F5	K4			
C926	F5	K4	TP900	F4	K4
C928	F4	H3	TP910	F4	J4
C930	F4	H2	TP920	F4	J4
C932	F4	G1	TP930	F4	J4
C934	F5	H2	TP940	F5	K5
C936	F5	C4	TP950	F5	K4
C938	F5	C5	TP960	F5	K4
C940	F5	F4	TP980	G3	E3
C941	F5	J3	TP985	G3	I1
C942	F5	F5	TP990	G3	A6
C943	F5	H4	TP995	G3	K6
C944	F5	J1			
C946	F5	J3	U710	C1	H4
C948	F5	K2	U720	C2	G4
C950	F5	K3	U730	B3	F5
C951	F5	J3	U740A	B4	F6
C952	F5	I2	U740B	B4	F6
C954	F5	J2	U750A	C4	E6
C956	F5	I3	U760	C5	E4
C958	F5	J3	U770	C5	F4
			U780	D5	E5
			U790	D4	F4
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.



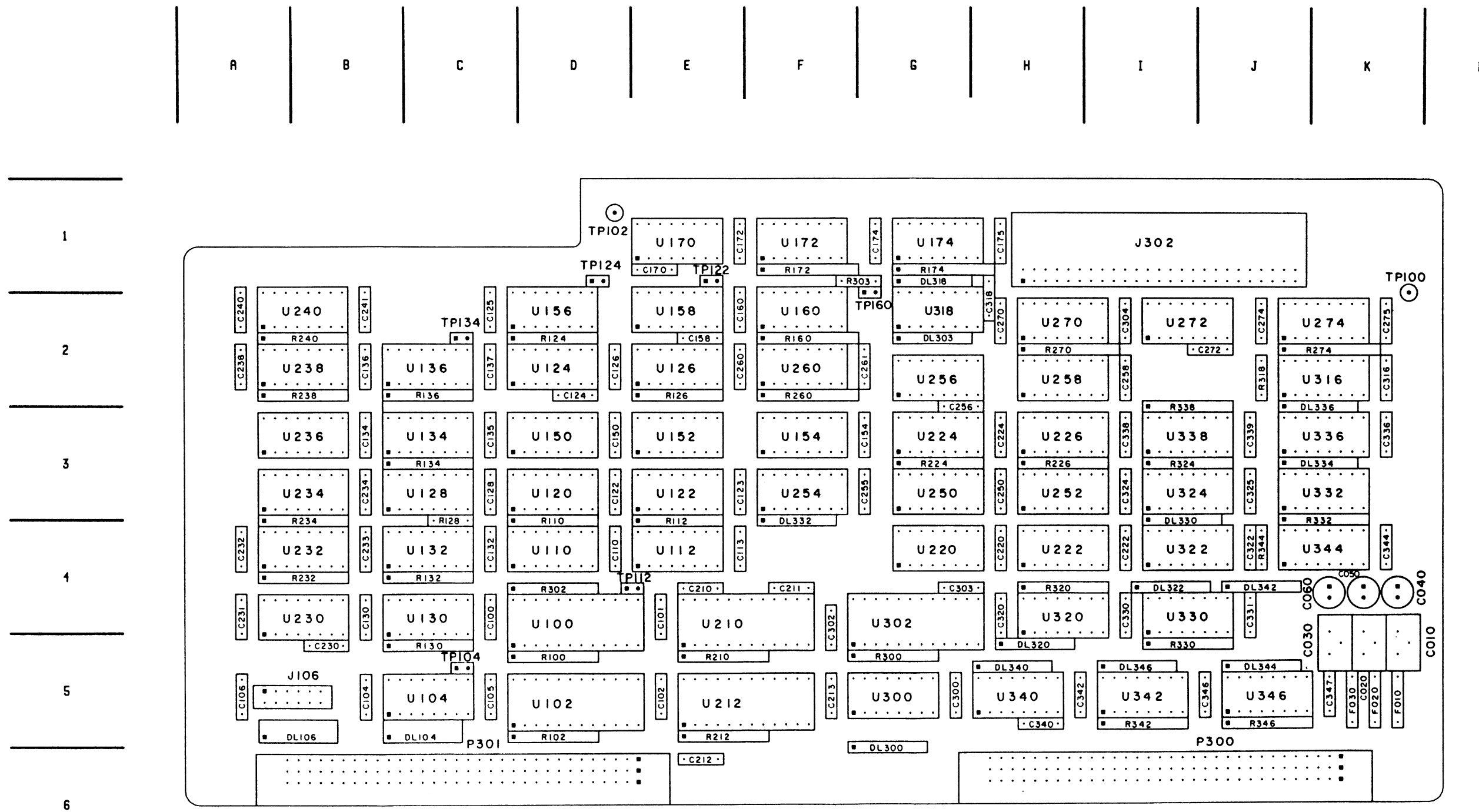


Fig. 8-6. A30 ENVELOPE BD., CIRCUIT BD. ASS.

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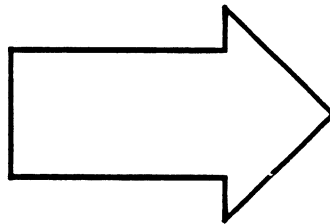
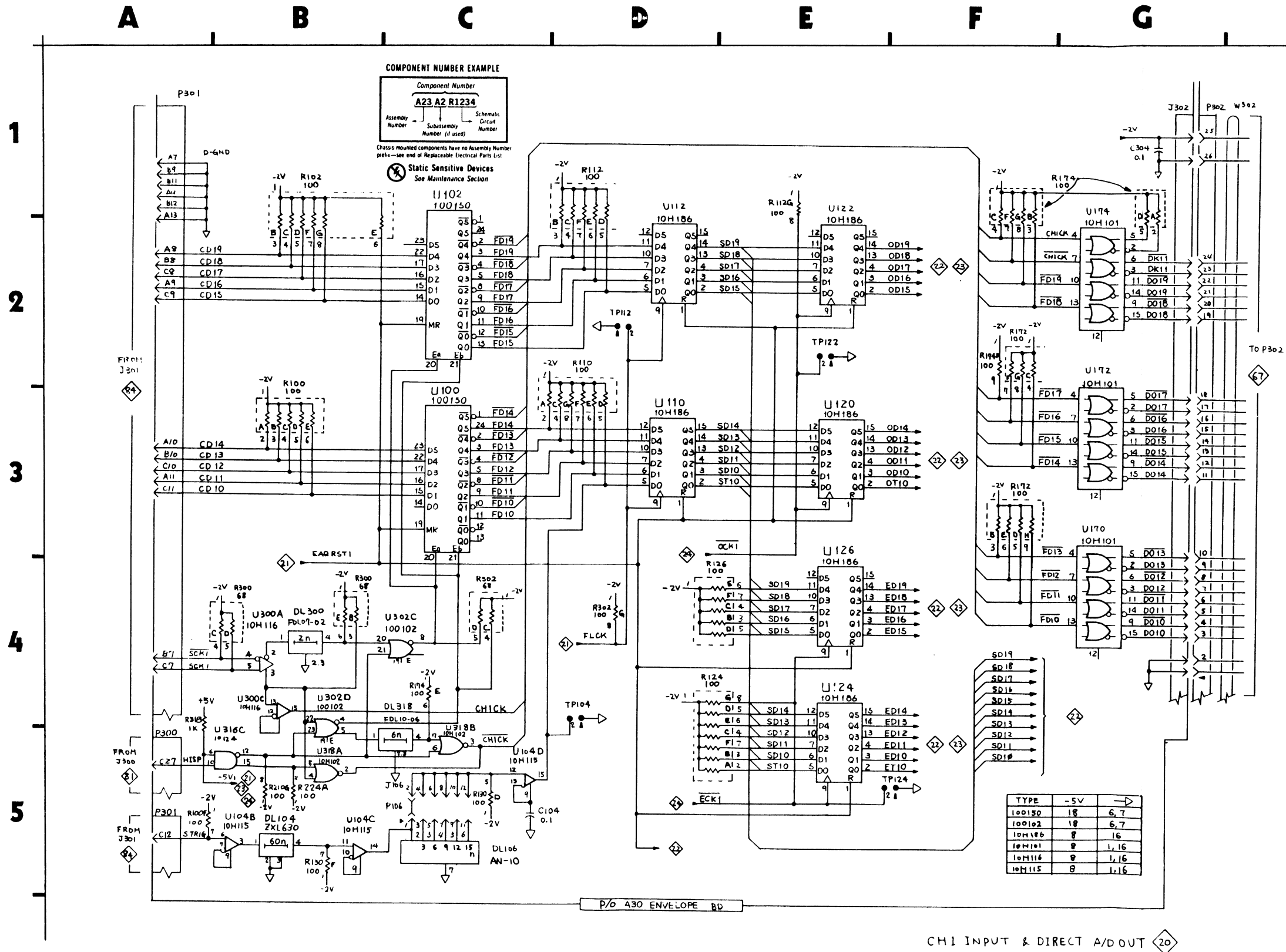


Table 8-16

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
C304	G1	I2	R172F	F2	F1
			R172G	F2	F1
DL104	B5	C5	R172H	F3	F1
DL106	C5	A5	R174A	G1	G1
DL300	B4	G6	R174B	F1	G1
DL318	C5	G1	R174C	F1	G1
			R174D	G1	G1
J106	C5	A5	R174E	C4	G1
J302	G1	I1	R174F	F1	G1
			R174G	F1	G1
P106	C5	A5	R174H	F2	G1
P300	A5	I6	R210G	B5	E5
P301	A1	C6	R224A	B5	G3
P301	A5	C6	R300B	B4	G5
P302	G1	I1	R300C	B4	G5
			R300D	B4	G5
R100A	B3	D5	R300E	B4	G5
R100B	B3	D5	R302C	C4	D4
R100C	B3	D5	R302D	C4	D4
R100D	B3	D5	R302G	D4	D4
R100E	B3	D5	R318	A4	H2
R100F	A5	D5			
R102B	B2	D5	TP104	D4	C5
R102C	B2	D5	TP112	D2	D4
R102D	B2	D5	TP122	E2	E1
R102E	B2	D5	TP124	F5	D1
R102F	B2	D5			
R102G	B2	D5	U100	C3	D4
R110A	D3	D3	U102	C2	D5
R110C	D3	D3	U104B	B5	C5
R110D	D3	D3	U104C	B5	C5
R110E	D3	D3	U104D	C5	C5
R110F	D3	D3	U110	D3	D4
R110G	D3	D3	U112	D2	E4
R112B	D1	E3	U120	E3	D3
R112C	D1	E3	U122	E2	E3
R112D	D1	E3	U124	E4	D2
R112E	D1	E3	U126	E4	E2
R112F	D1	E3	U170	G4	E1
R112G	E1	E3	U172	G3	F1
R124	D4	D2	U174	G2	G1
R126B	E4	E2	U300A	B4	G5
R126C	E4	E2	U300C	B4	G5
R126D	E4	E2	U302C	C4	G4
R126E	E4	E2	U302D	B4	G4
R130D	C5	C5	U316C	B5	J2
R130F	B5	C5	U318A	B5	G2
R172B	F3	F1	U318B	C5	G2
R172C	F2	F1			
R172D	F3	F1	W302	H1	(CHASSIS)

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



CH1 INPUT & DIRECT A/D OUT 20

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	E2	H3	U302E	C4	G4
R270A	F2	H2	U316B	B5	J2
R270B	F3	H2	U318D	D4	G2
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.

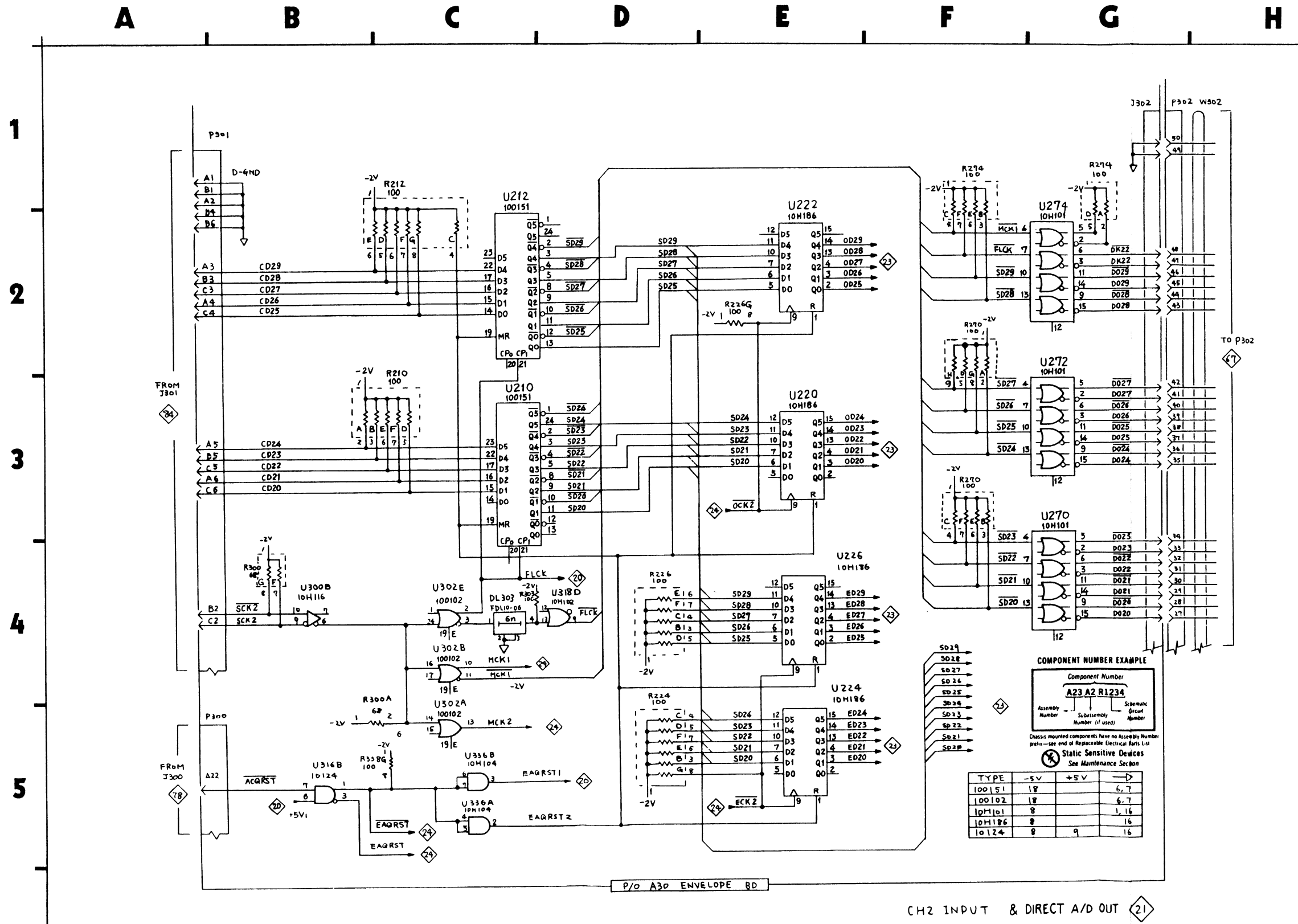





Table 8-18  
**CH1 COMPARATOR**  — ENVELOPE BD., ASSEMBLY A30

CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION	CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION
P301	G1	C6	R160A	D1	F2
R128	B3	C3	R160B	D1	F2
R130A	E2	C5	R160C	D1	F2
R130B	E2	C5	R160D	D5	F2
R130C	E2	C5	R160E	D5	F2
R130F	E2	C5	R160F	D5	F2
R130G	E2	C5	R160G	D5	F2
R132A	E1	C4	R160H	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	E3
R136C	F3	C2	U154	E1	F3
R136D	F3	C2	U156	C4	D2
R136E	A2	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.

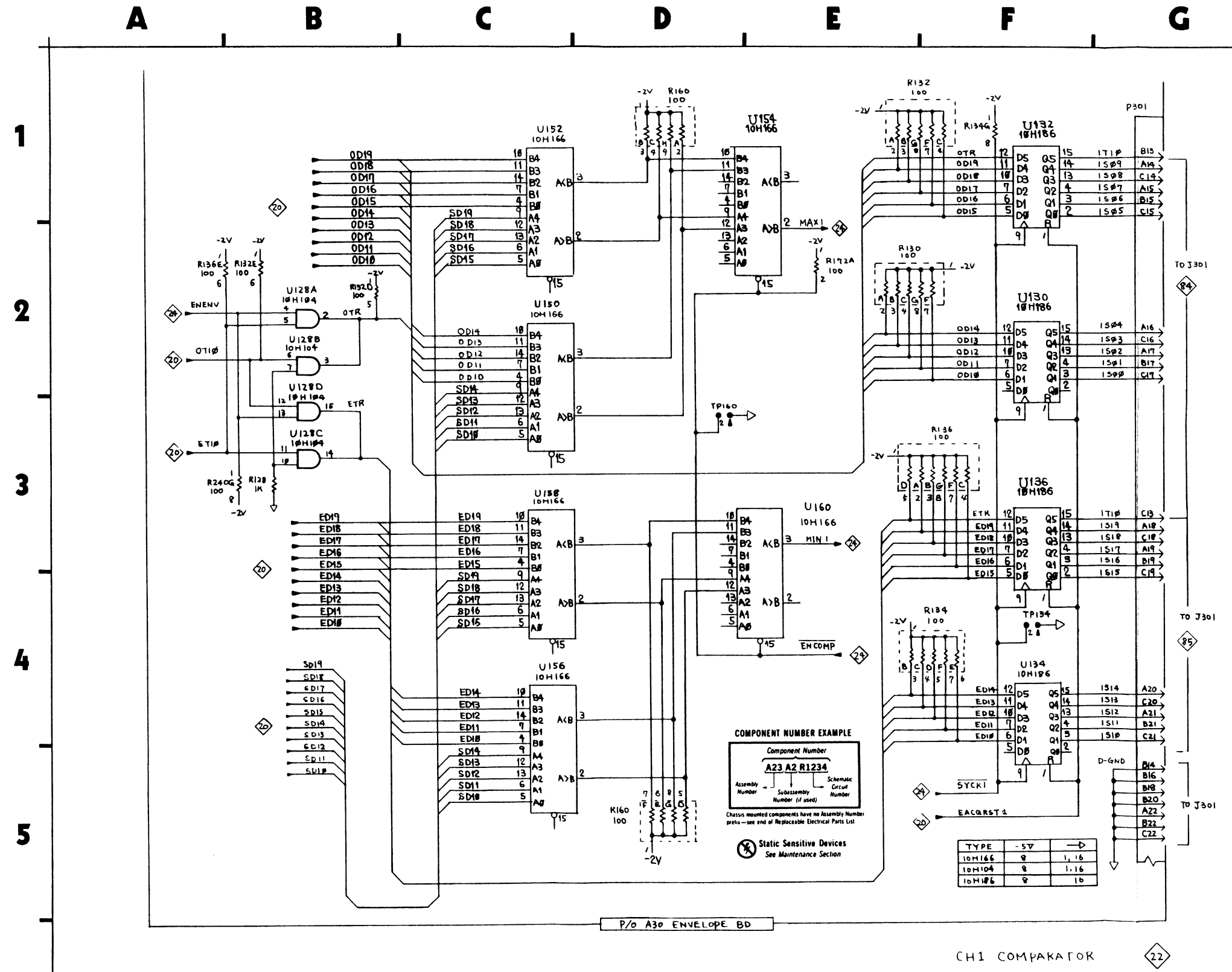

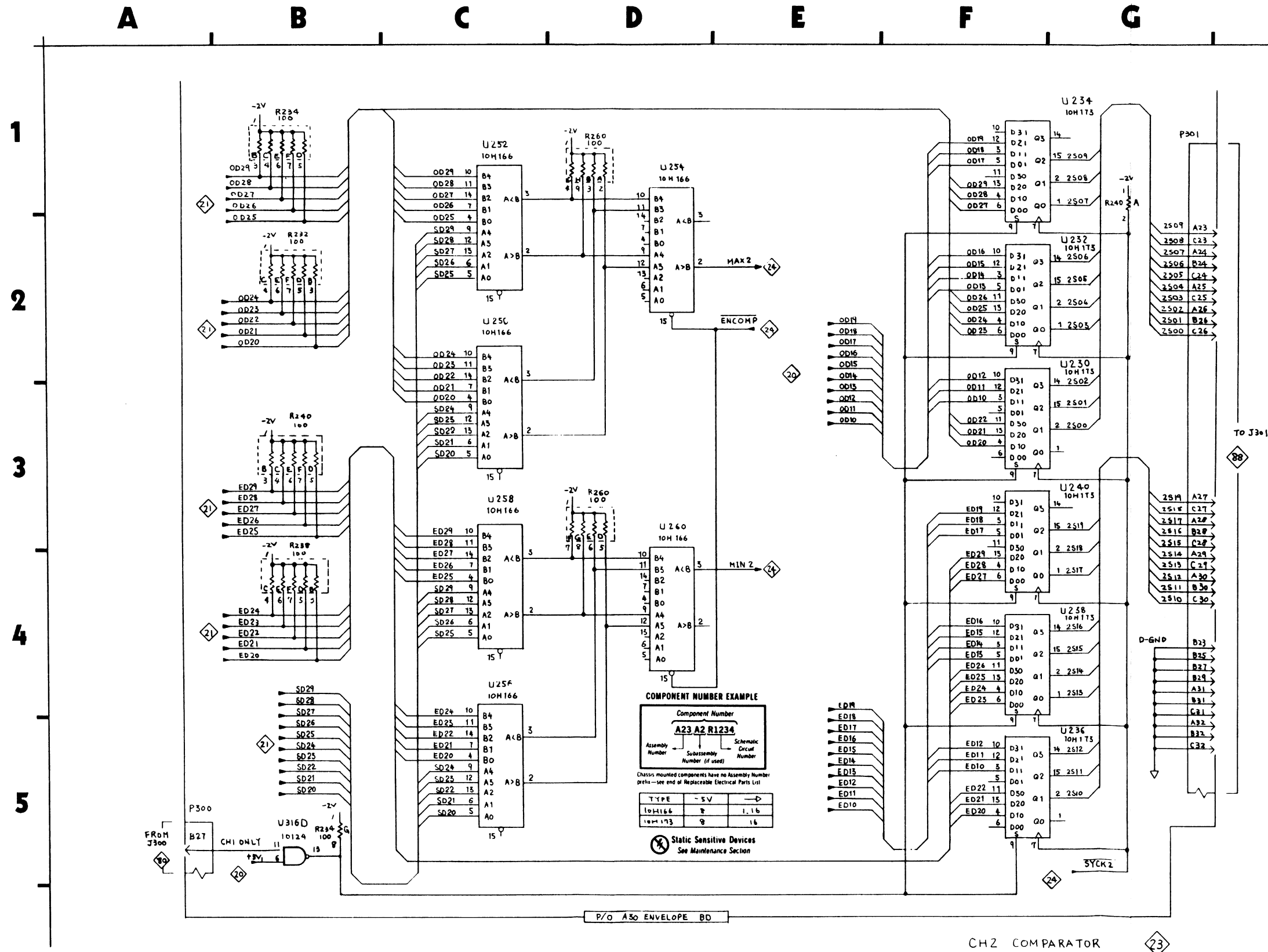



Table 8-19  
 CH2 COMPARATOR  — ENVELOPE BD., ASSEMBLY A30

CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION	CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION
P300	A5	I6	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	H3
R238F	B4	B2	U254	D2	F3
R240A	G1	B2	U256	C5	G2
R240B	B3	B2	U258	C4	H2
R240C	B3	B2	U260	D4	F2
R240D	B3	B2	U316D	B5	J2
R240E	B3	B2			

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



CH2 COMPARATOR 23

Table 8-20  
**ACQ TIMING GENERATOR**  — **ENVELOPE BD., ASSEMBLY A30**

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	J4
C102	C4	E5	C316	C5	K2	R332E	D2	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	J4	R338F	F2	I3
C125	C4	C2	C336	C4	K3	R342A	E4	I5
C126	C4	D2	C338	C4	I3	R342F	G5	I5
C128	C4	C3	C339	C4	J3	R342G	F4	I5
C130	C4	B4	C340	C4	H5	R344	E5	J4
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			
C158	C4	E2	DL330	E3	I4	TP100	B5	K1
C160	C4	E2	DL332	E2	F3	TP102	B5	D1
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	I4
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	J3
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	G5	I5
C256	C4	G3	R324B	G1	I3	U342B	G4	I5
C258	C4	I2	R324C	G1	I3	U344	E5	J4
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.

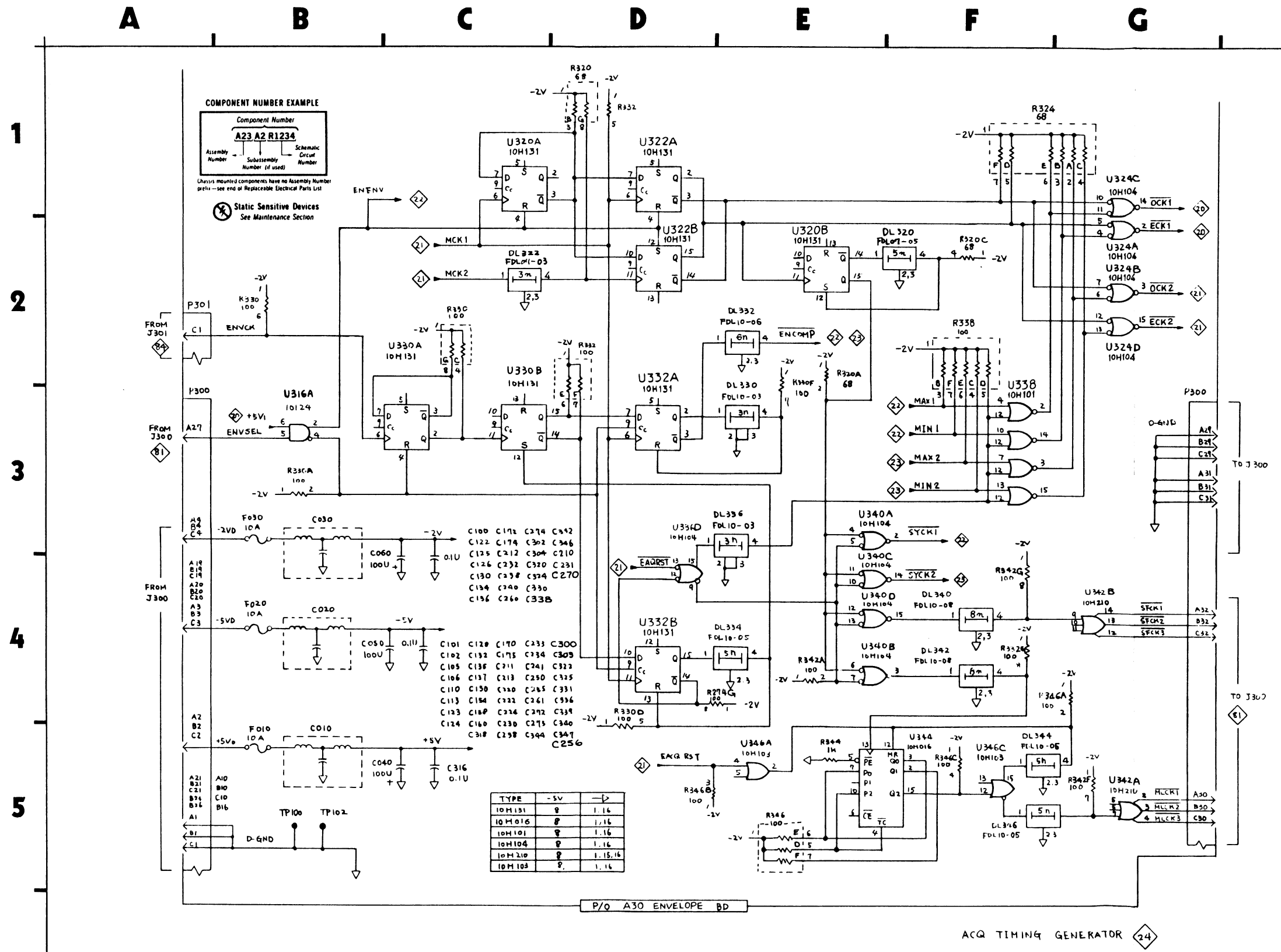


Table 8-21

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
R106	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
			U234	F3	B2
U100	B1	B3	U236	F4	A3
U102	B2	B4	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.

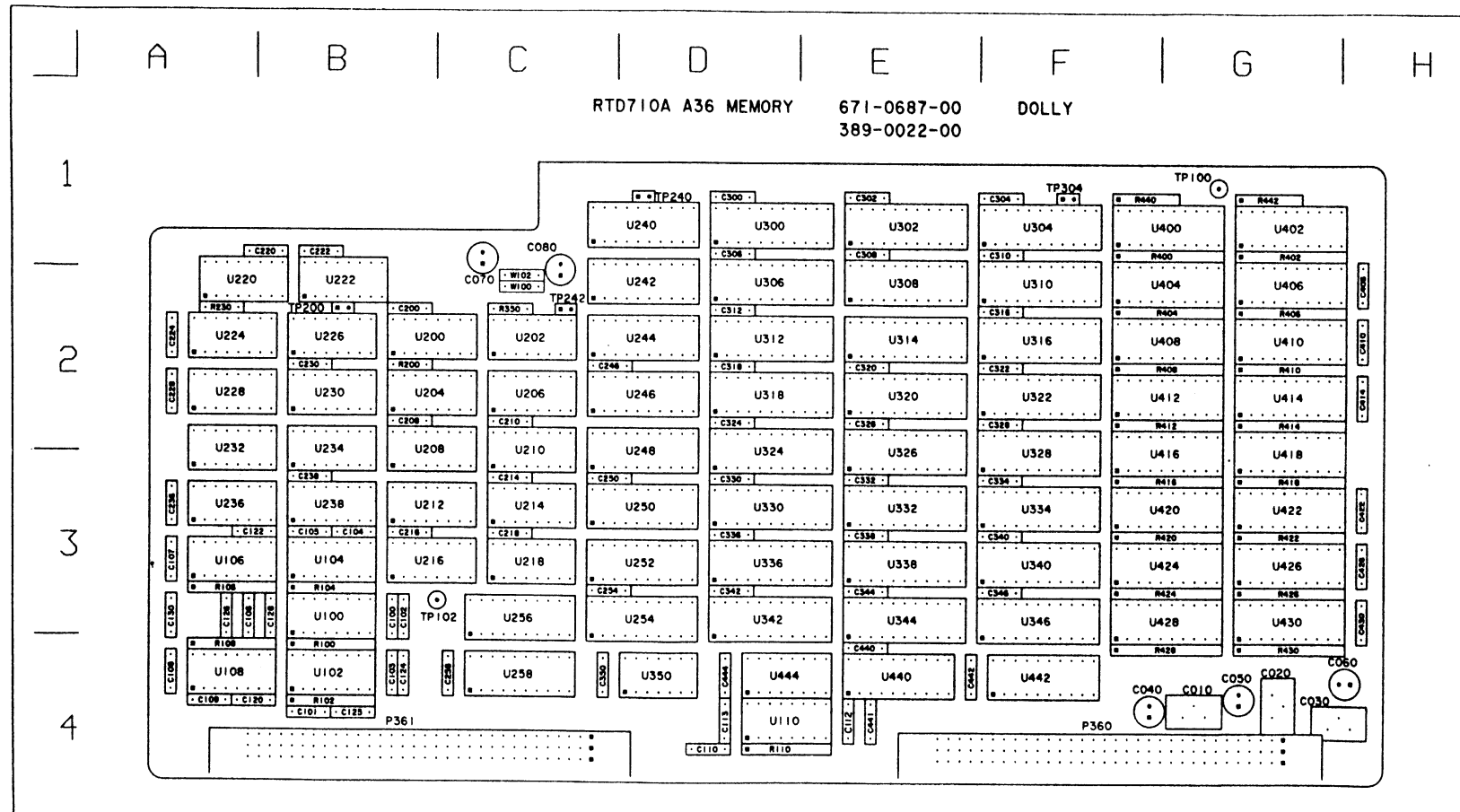


Fig. 8-7. A36 MEMORY BD., CIRCUIT BD. ASS.

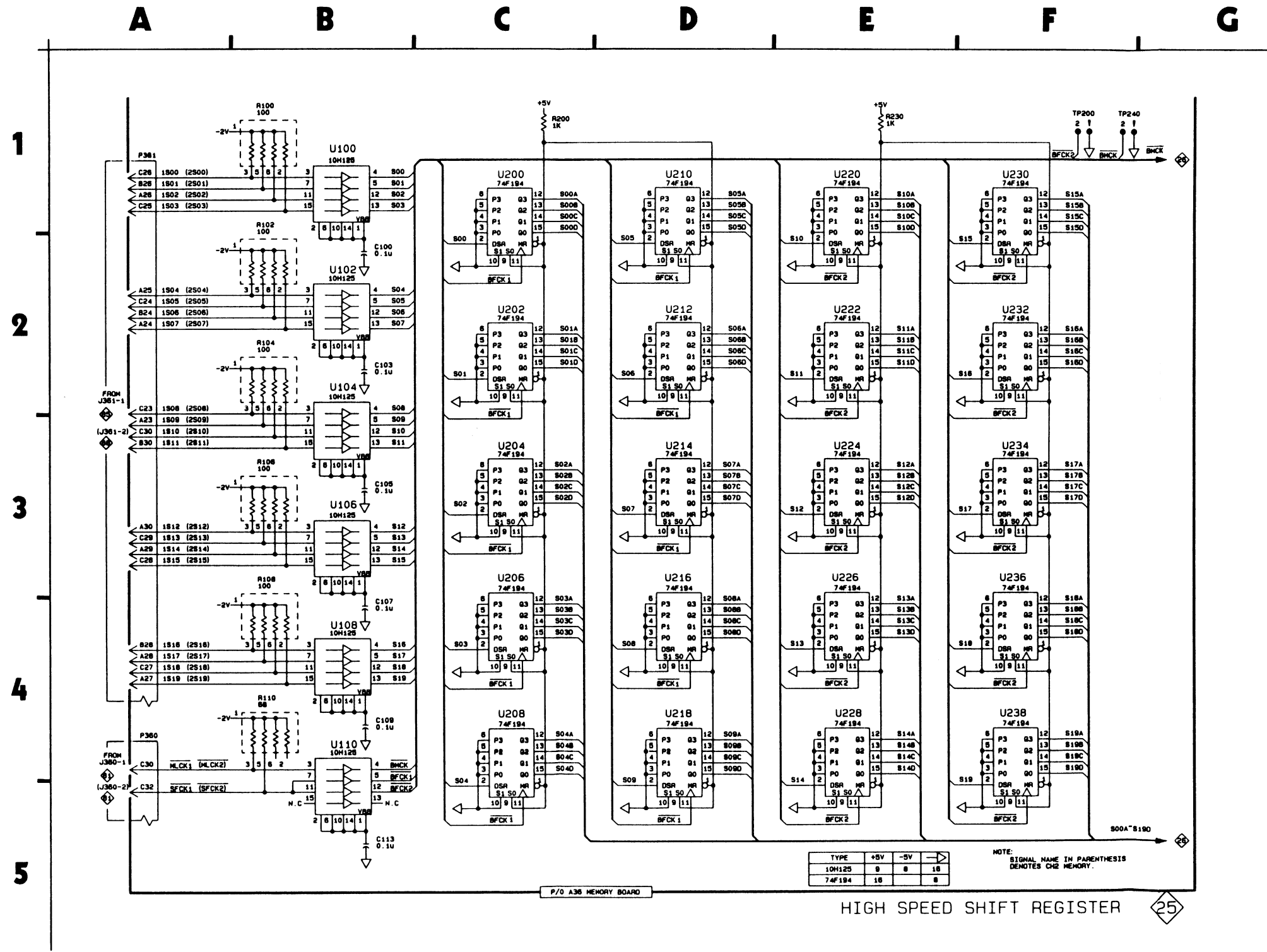




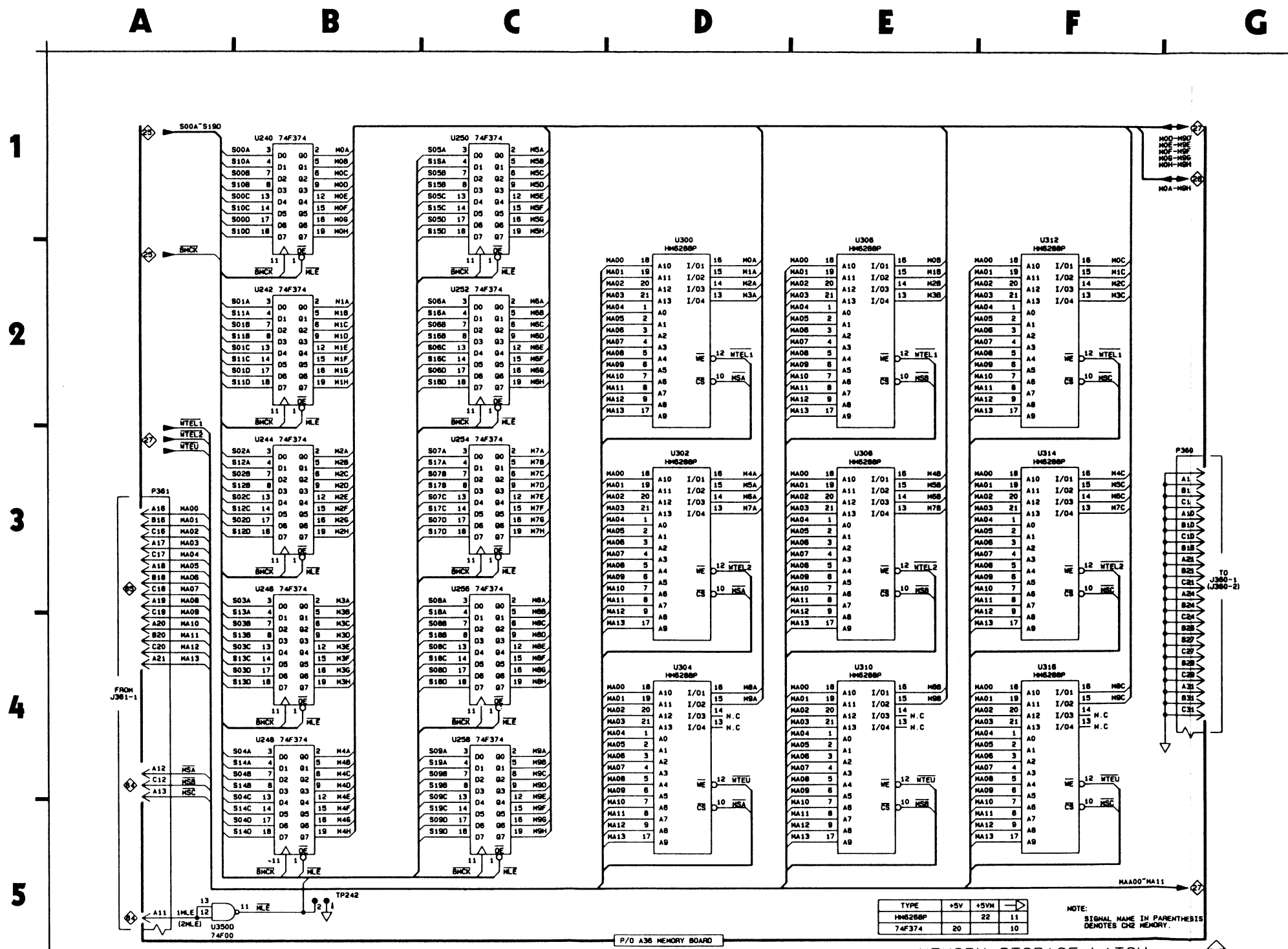
Table 8-22

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.



MEMORY STORAGE LATCH

Table 8-23

WAVEFORM MEMORY 

MEMORY BOARD, ASSEMBLY A36

CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION
P361	A2	B4
P361	G3	B4
TP304	F5	F1
U318	B1	D2
U320	B3	E2
U322	B4	F2
U324	C1	D2
U326	C3	E2
U328	C4	F2
U330	D1	D3
U332	D3	E3
U334	D4	F3
U336	E1	D3
U338	E3	E3
U340	E4	F3
U342	F1	D3
U344	F3	E3
U346	F4	F3
U350A	A2	D4
U350B	A2	D4
U350C	A2	D4

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

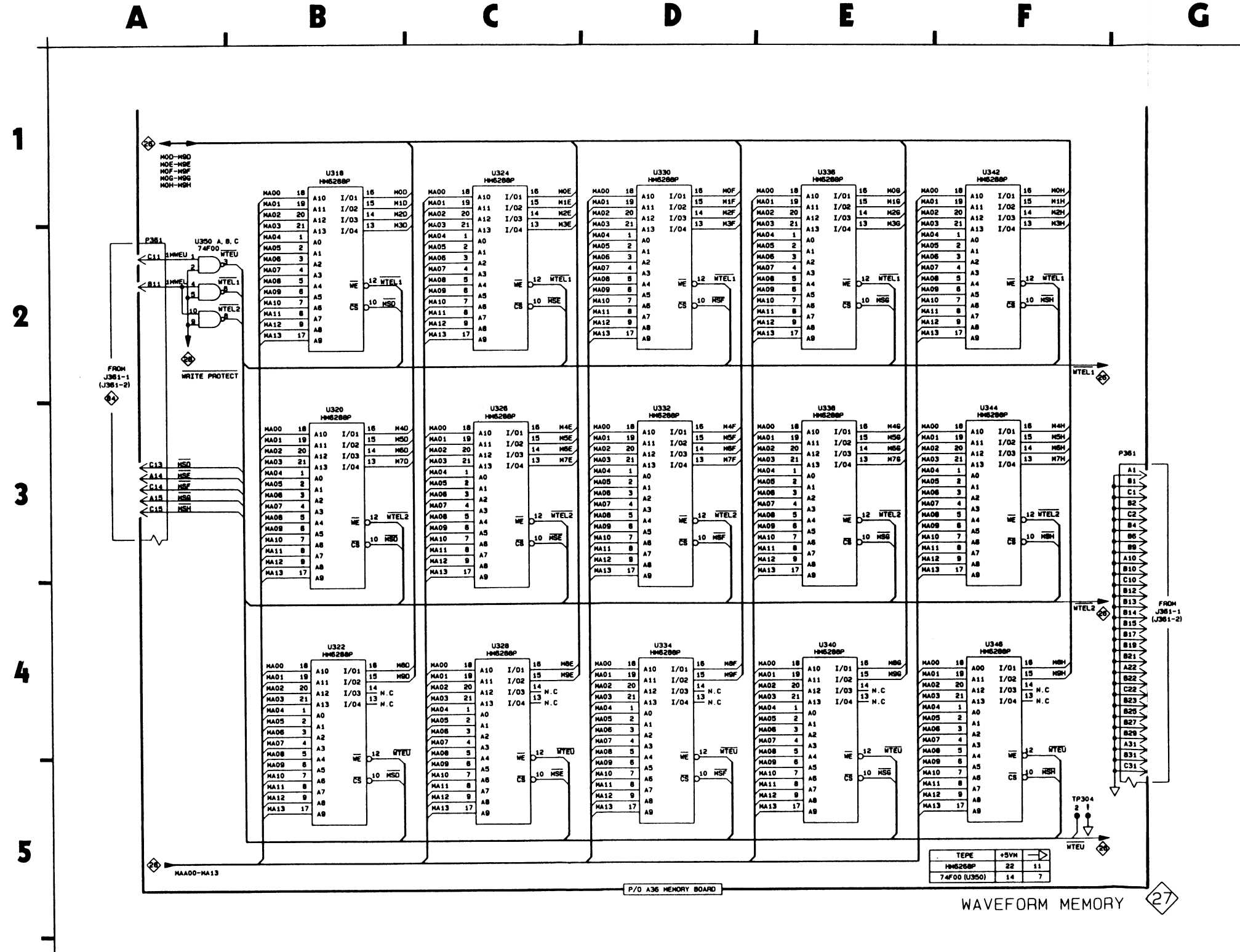


Table 8-24

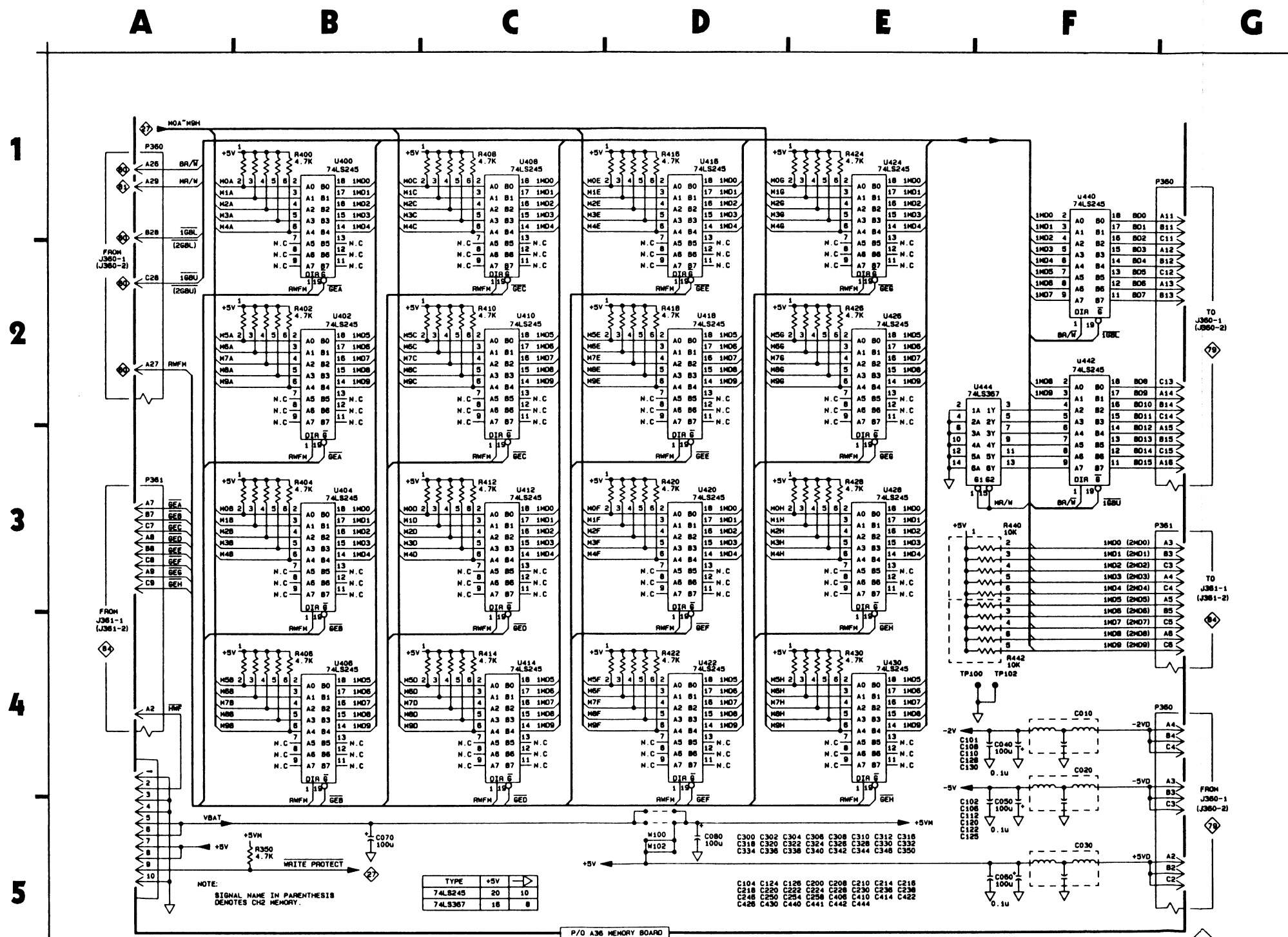
MEMORY MPU INTERFACE 

MEMORY BOARD, ASSEMBLY A36

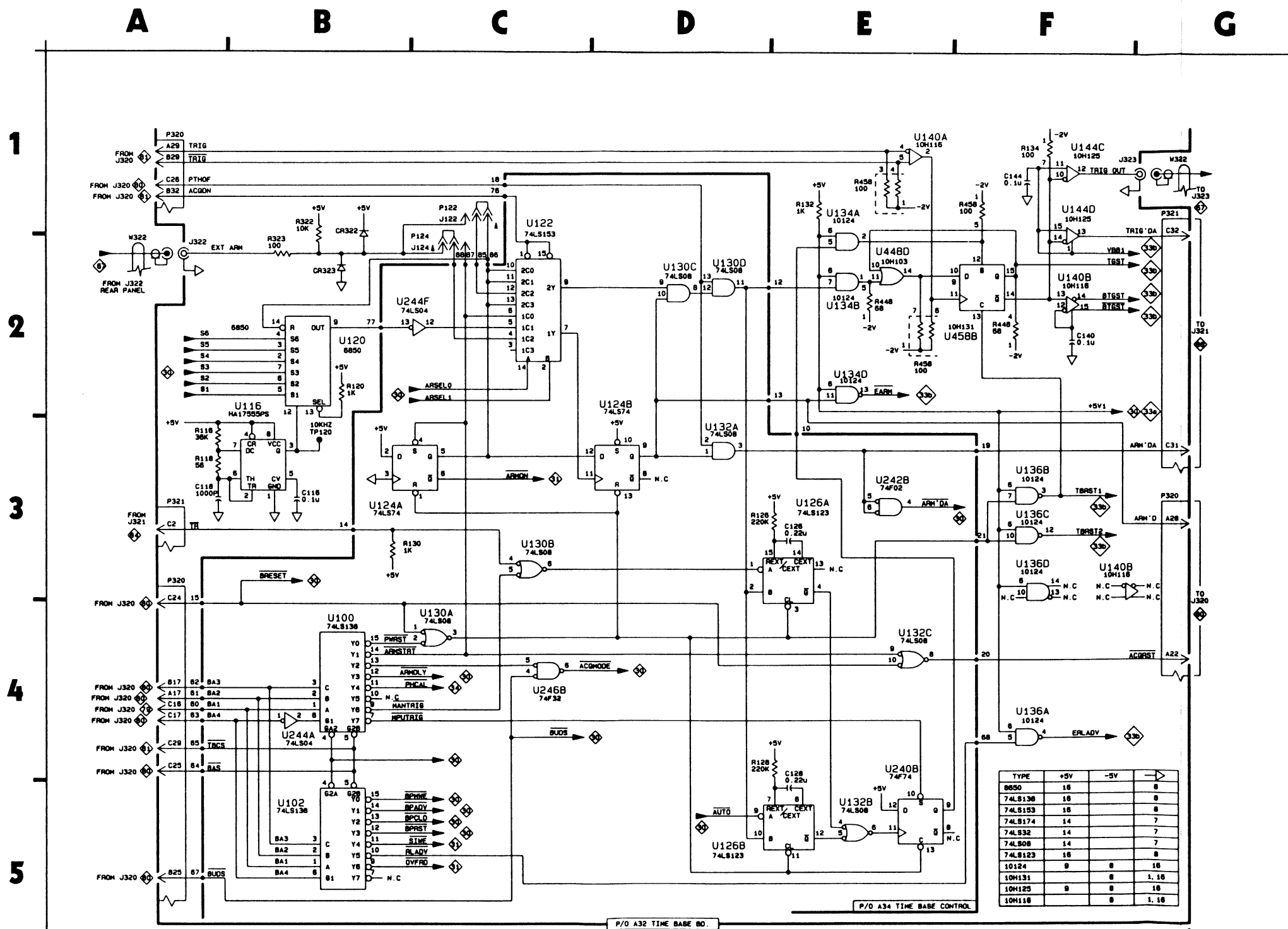
CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION	CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION	CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION
C010	F4	G4	C306	E5	D1	R406	B4	G2
C020	F4	G4	C308	E5	E1	R408	C1	G2
C030	F5	G4	C310	E5	F1	R410	C2	G2
C040	F4	F4	C312	E5	D2	R412	C3	G2
C050	F5	G4	C316	E5	F2	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	G4
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	TP100	F4	G1
C124	D5	B4	C342	E5	D3	TP102	F4	C3
C125	F5	H4	C344	E5	E3			
C126	E5	B3	C346	E5	F3	U400	B1	G1
C128	F4	B3	C350	E5	C4	U402	B2	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	C441	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	A1	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.









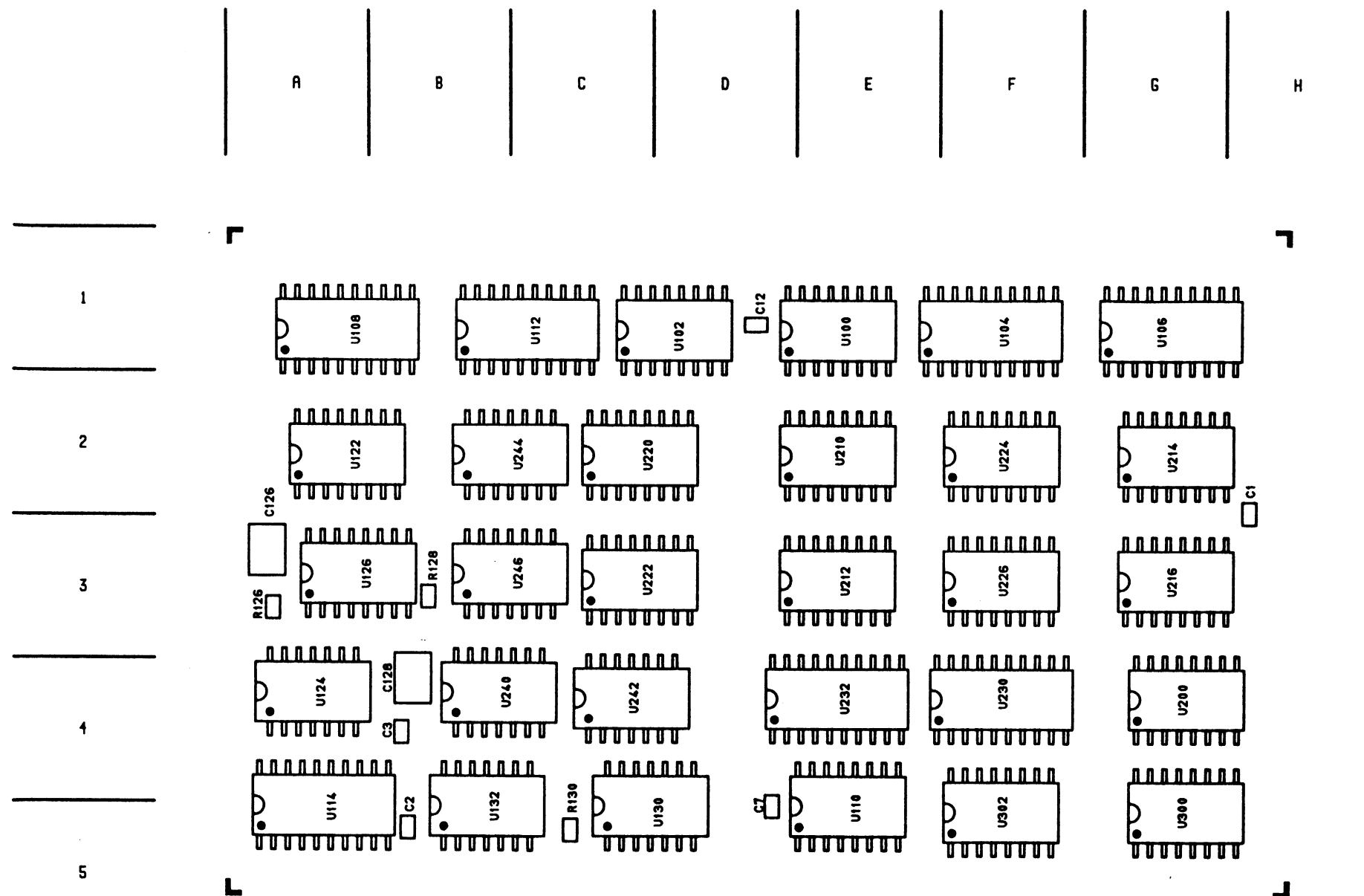


Fig. 8-9. A34 TIME BASE CONTROL BD., CIRCUIT BD. ASS.

Table 8-27

BREAK POINT LOCATOR 30  
 TIME BASE BD., ASSEMBLY A32

CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION
P320	A2	F4
P320	G3	F4
U134C	E1	E3

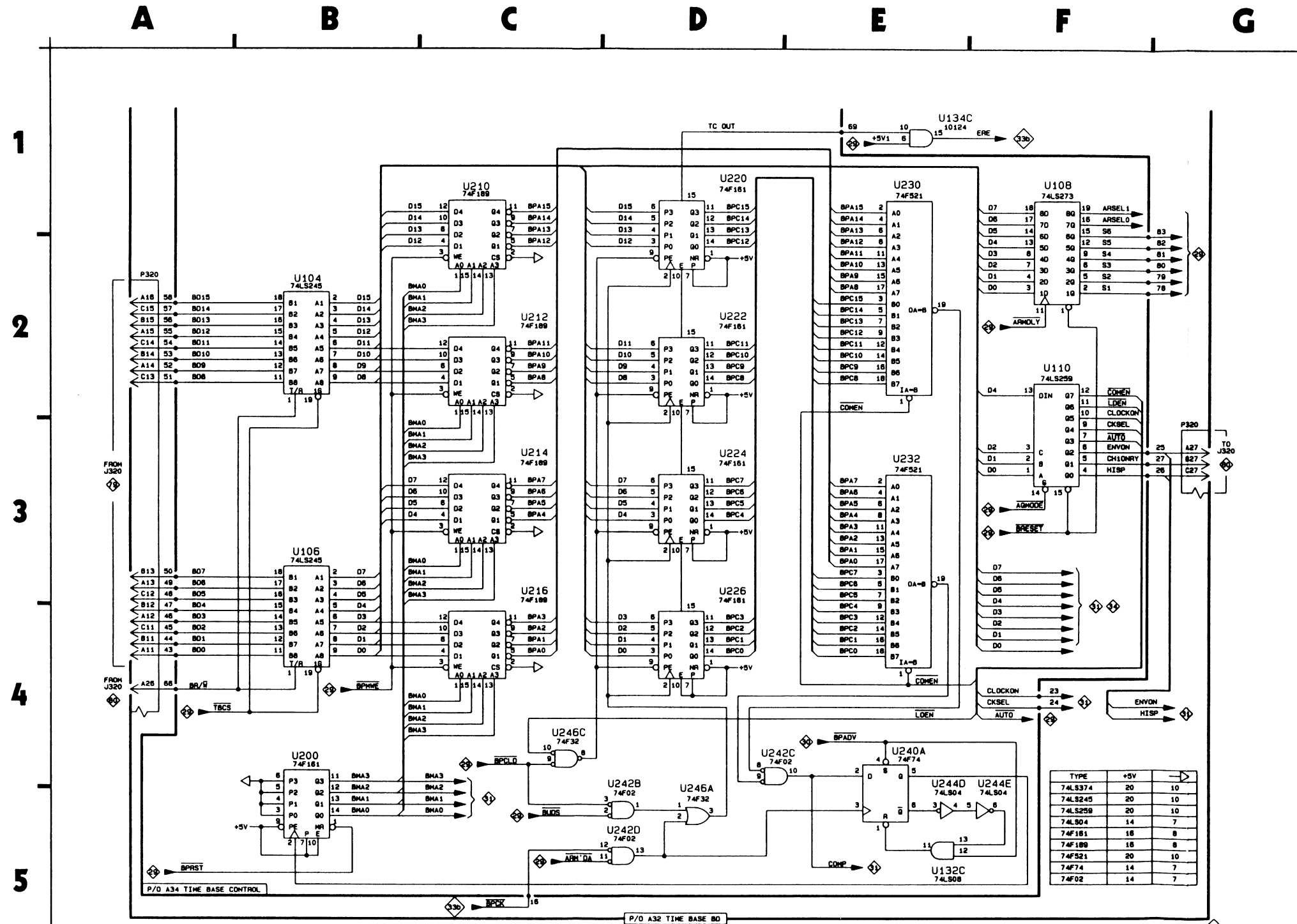
ASSY A32 is also shown on Diagrams 29,30,31,32,33a,33b, and 34.  
 ASSY A32 (Fig.8-8) circuit board illustration faces Diagram 29.

Table 8-28

BREAK POINT LOCATOR 30  
 TIME BASE CONTROL BD., ASSEMBLY A34

CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION
U104	B2	F1
U106	B3	G1
U108	F1	A1
U110	F2	E4
U132C	E5	B4
U200	B5	G4
U210	C1	E2
U212	C2	E3
U214	C3	G2
U216	C4	G3
U220	D1	C2
U222	D2	C3
U224	D3	F2
U226	D4	F3
U230	E2	F4
U232	E3	E4
U240A	E4	B4
U242B	D5	C4
U242C	D4	C4
U242D	D5	C4
U244D	E5	C2
U244E	F5	C2
U246A	D5	B3
U246C	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.



BREAK POINT LOCATOR 30

Table 8-29

INTERVAL DATA RAM 

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 

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.

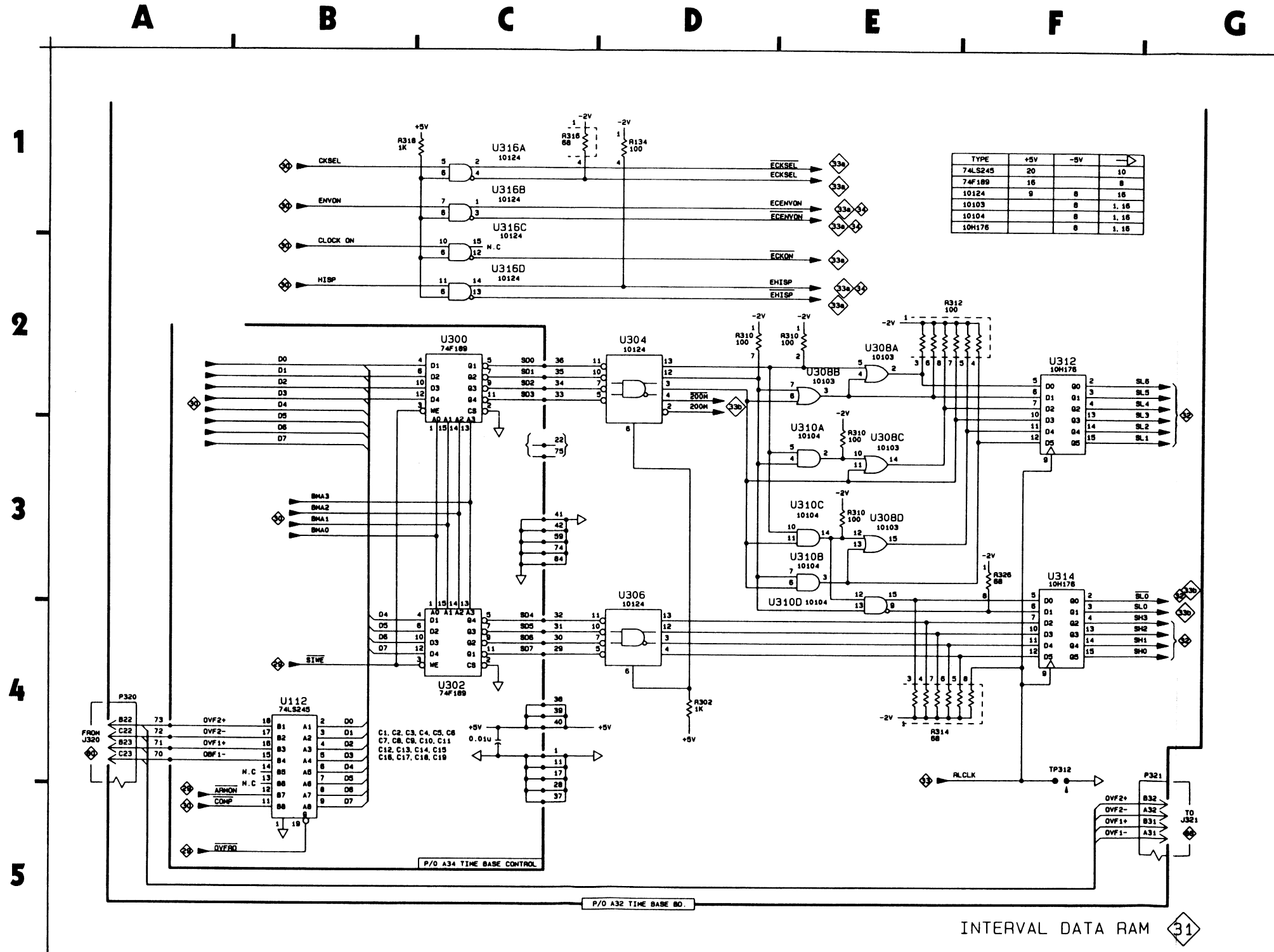


Table 8-31

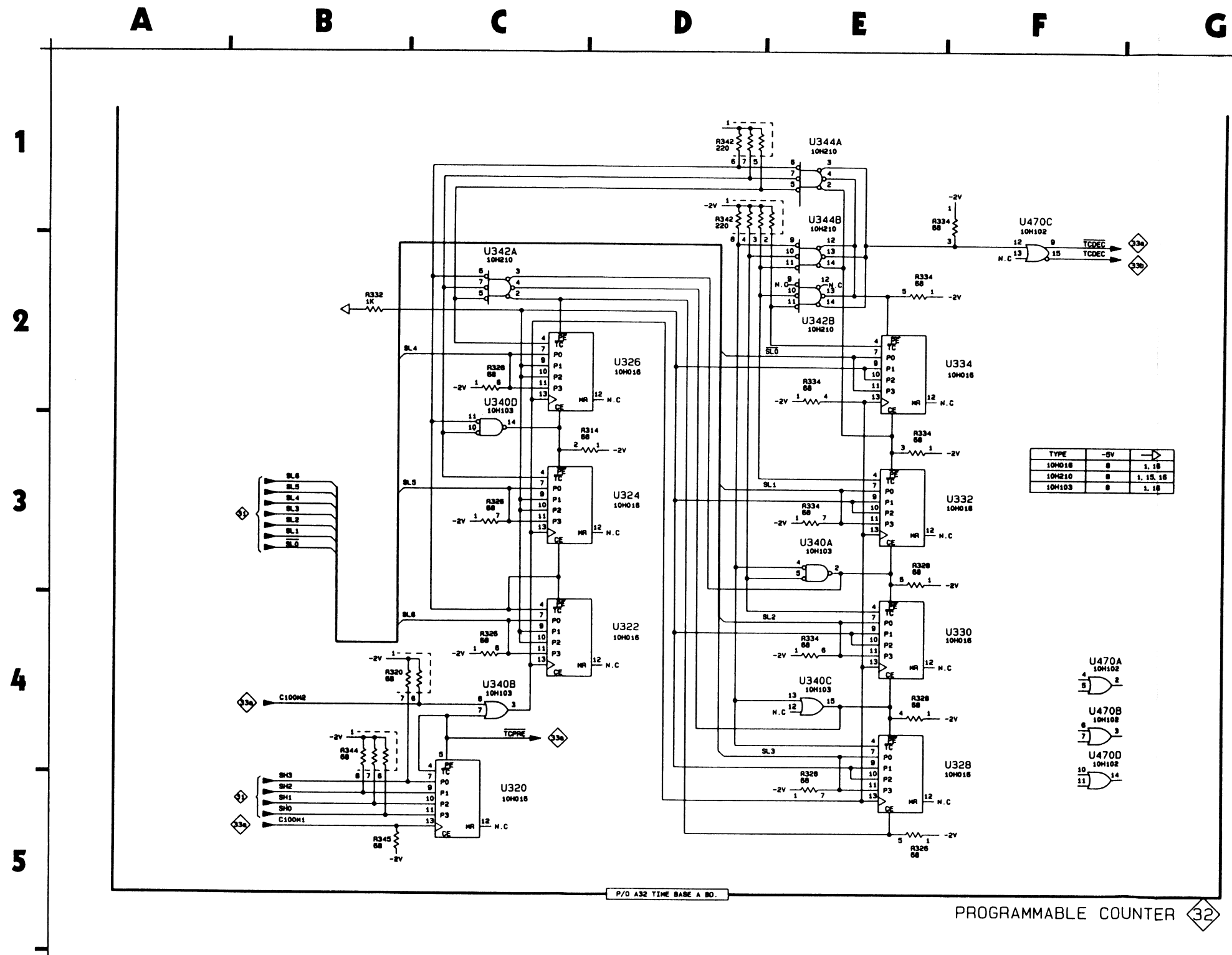
PROGRAMMABLE COUNTER



TIME BASE BD., ASSEMBLY A32

CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION	CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD 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.



TYPE	-5V	-10V
10H018	8	1, 18
10H210	8	1, 15, 18
10H103	8	1, 18

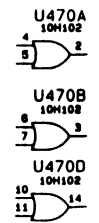

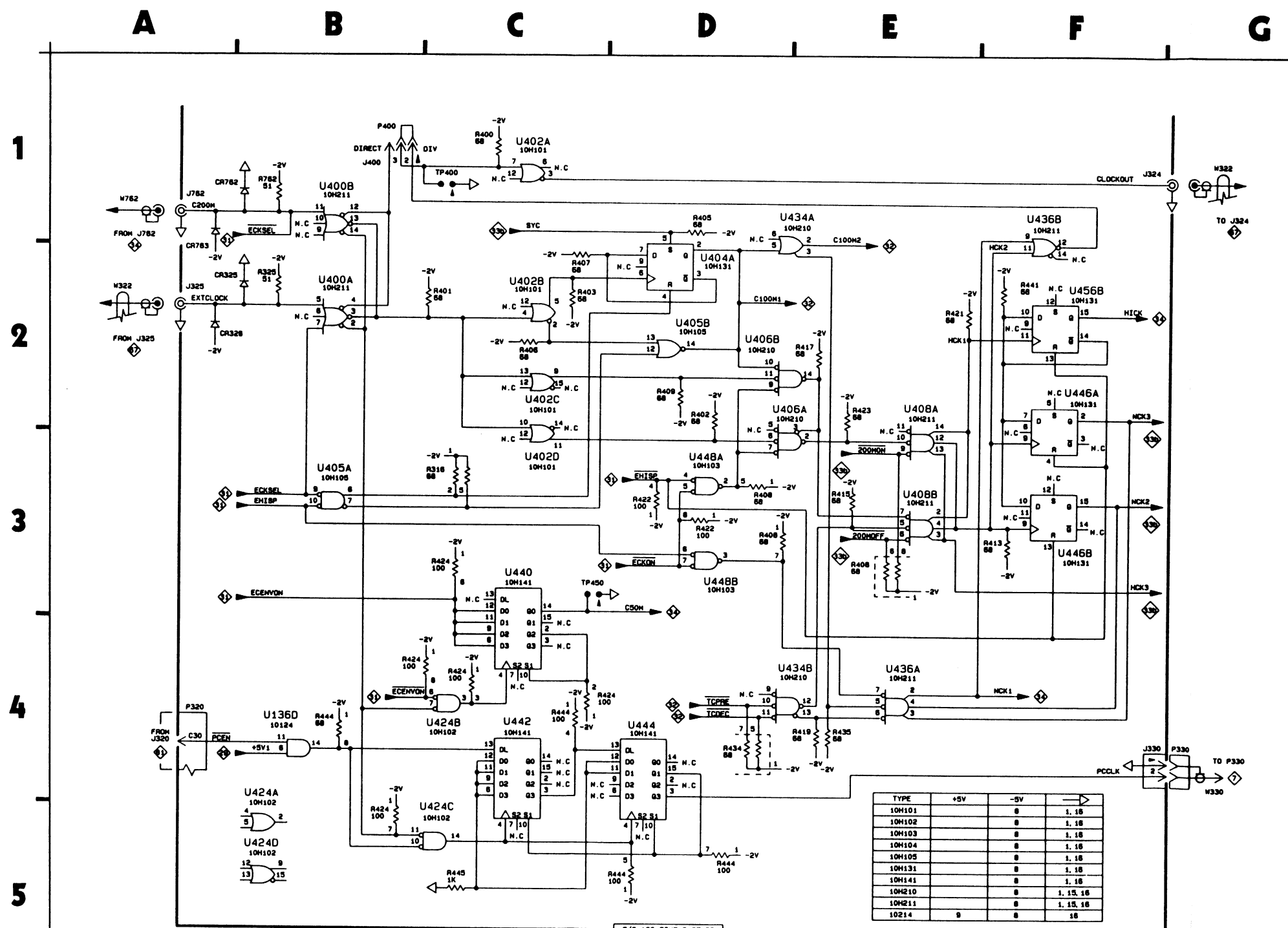


Table 8-32

SAMPLE CLOCK GENERATOR A  A  
TIME BASE BD., ASSEMBLY A32


CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION	CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION	CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION
CR325	B2	F1	R117	E2	C2	U102D	C3	E2
CR326	A2	F1	R119	E4	C3	U104A	D2	E2
CR762	B1	F1	R121	E2	C2	U105A	B3	E2
CR763	A1	F1	R122C	D3	D3	U105B	D2	E2
J324	G1	F1	R122G	D3	D3	U106A	B3	D2
J325	A2	F1	R123	E2	D2	U106B	D2	D2
J330	F4	A2	R124A	C4	B2	U108A	E3	C2
J400	B1	E2	R124B	C4	B2	U108B	E3	C2
J762	A1	F1	R124F	B5	B2	U124A	B5	B2
P320	D4	F4	R124G	C4	D2	U124B	C4	B2
P400	B1	E2	R134D	D4	C3	U124C	C5	B2
R316A	C3	E2	R134F	D4	C3	U124D	B5	B2
R316D	C3	E2	R135	E4	C3	U134A	D1	C2
R325	B2	E2	R141	F2	D3	U134B	D4	C2
R400	C1	E2	R141C	C4	A2	U136A	E4	C2
R401	C2	E2	R141D	D5	A2	U136B	F1	C2
R402	D2	D2	R141F	D5	A2	U440	C3	B2
R403	C2	E2	R141G	D4	A2	U442	C4	A2
R405	D1	E2	R145	C5	A2	U444	D4	A2
R406	C2	E3	R762	B1	F2	U446A	F2	D2
R407	C2	E2	TP400	C1	E2	U446B	F3	D2
R408D	D3	C2	TP450	C3	D2	U448A	D3	E3
R408E	E3	C2	U136D	D4	E2	U448B	D3	E3
R408F	D3	C2	U100A	B2	E2	U456B	F2	E3
R408G	E3	C2	U100B	B1	E2	U322	A2	OFF BD.
R409	D2	D2	U102A	C1	E2	U322	G1	OFF BD.
R113	F3	D3	U102B	C2	E2	U762	A1	OFF BD.
R115	E3	C2	U102C	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.



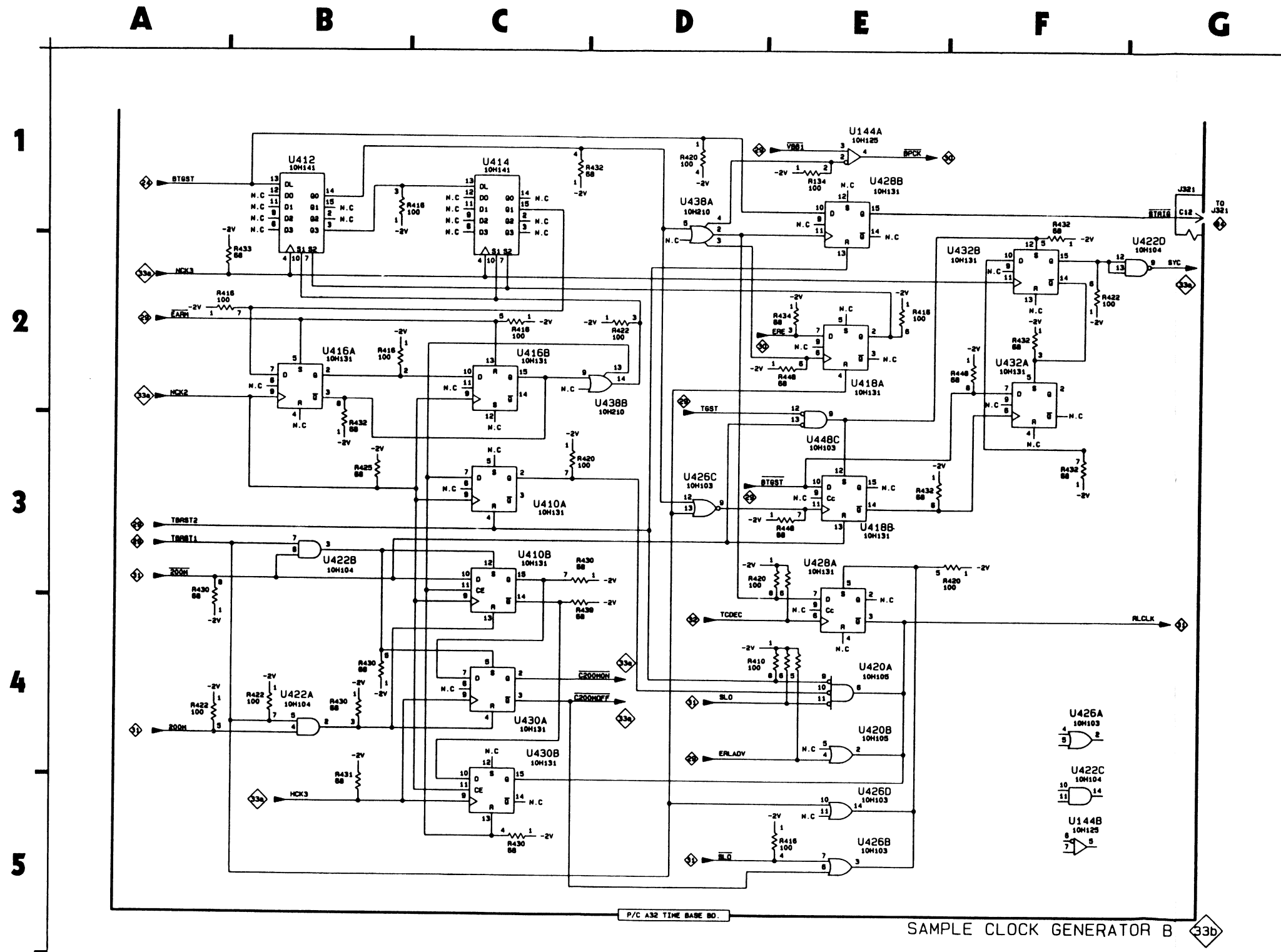
SAMPLE CLOCK GENERATOR A 33a



Table 8-33  
 SAMPLE CLOCK GENERATOR B  B  
 TIME BASE BD., ASSEMBLY A32

CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION	CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION
J321	G1	B4	R439	C4	C3
			R448E	E2	E3
R134	E1	E3	R448F	E3	E3
R410D	E4	C3	R448G	F2	E3
R410E	E4	C3			
R410G	E4	C3	U144A	E1	E3
R416A	B2	C4	U144B	F5	E3
R416B	B1	C4	U410A	C3	C3
R416C	E5	C4	U410B	C3	C3
R416D	C2	C4	U412	B1	D4
R416E	E2	C4	U414	C1	C4
R416F	A2	C4	U416A	B2	C3
R420D	F3	C4	U416B	C2	C3
R420E	E3	C4	U418A	E2	E3
R420F	C3	C4	U418B	E3	E3
R420G	E3	C4	U420A	E4	C3
R422B	D2	D3	U420B	E4	C3
R422D	A4	D3	U422A	B4	D3
R422E	F2	D3	U422B	B3	D3
R422F	B4	D3	U422C	F5	D3
R425	B3	C4	U422D	G2	D3
R430B	B4	C3	U426A	F4	C3
R430D	B4	C3	U426B	E5	C3
R430F	C3	C3	U426C	D3	C3
R430G	A3	C3	U426D	E5	C3
R431	B5	C3	U428A	E3	C4
R432B	F2	D3	U428B	E1	C4
R432C	C1	D3	U430A	C4	C3
R432D	F2	D3	U430B	C5	C3
R432E	E3	D3	U432A	F2	D3
R432F	F3	D3	U432B	F2	D3
R432G	B3	D3	U438A	C5	D3
R433	A2	D3	U438B	D2	D3
R434B	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.



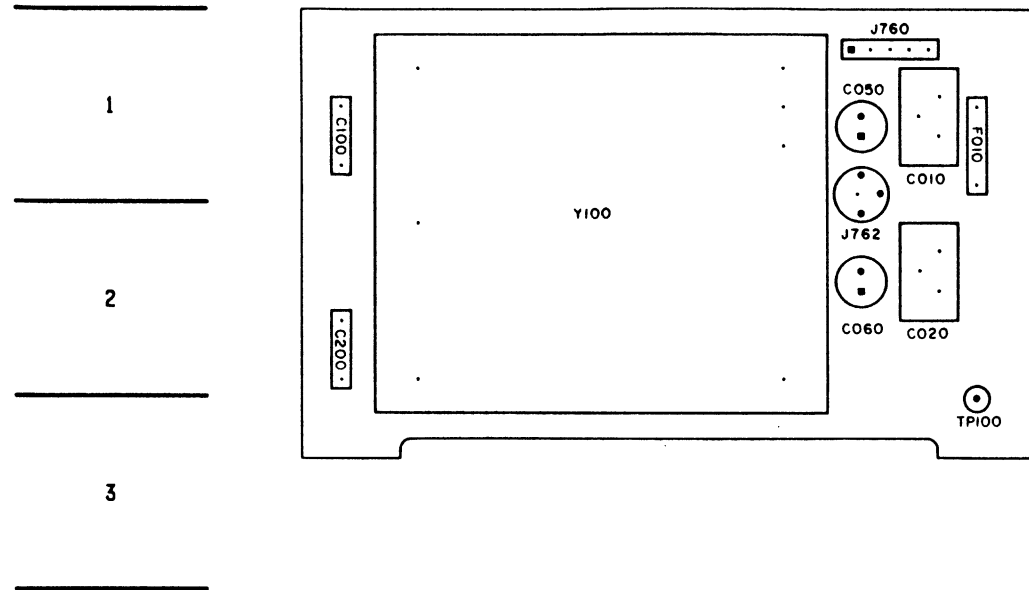
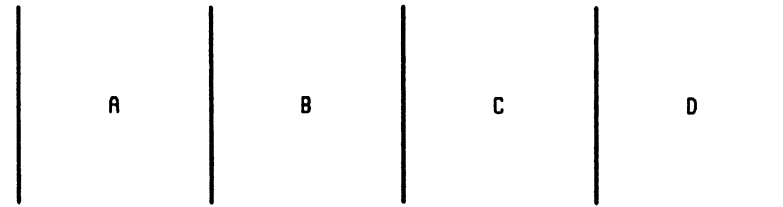


Fig. 8-10. OSCILLATOR BD., CIRCUIT BD. ASS.

Table 8-36

SAMPLE CLOCK OUTPUT & 200MHz OSC

OSCILLATOR BD., ASSEMBLY A76

CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION
C010	E5	D1
C020	E4	D2
C050	E5	C1
C060	E4	C2
C100	E5	A1
C200	E4	A2
F010	F5	D1
J762	F4	C1
P760	F4	D1
TP100	D4	D3
Y100	D4	B2

Table 8-35

SAMPLE CLOCK OUTPUT & 200MHz OSC

TIME BASE CONTROL BD., ASSEMBLY A34

CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD 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.

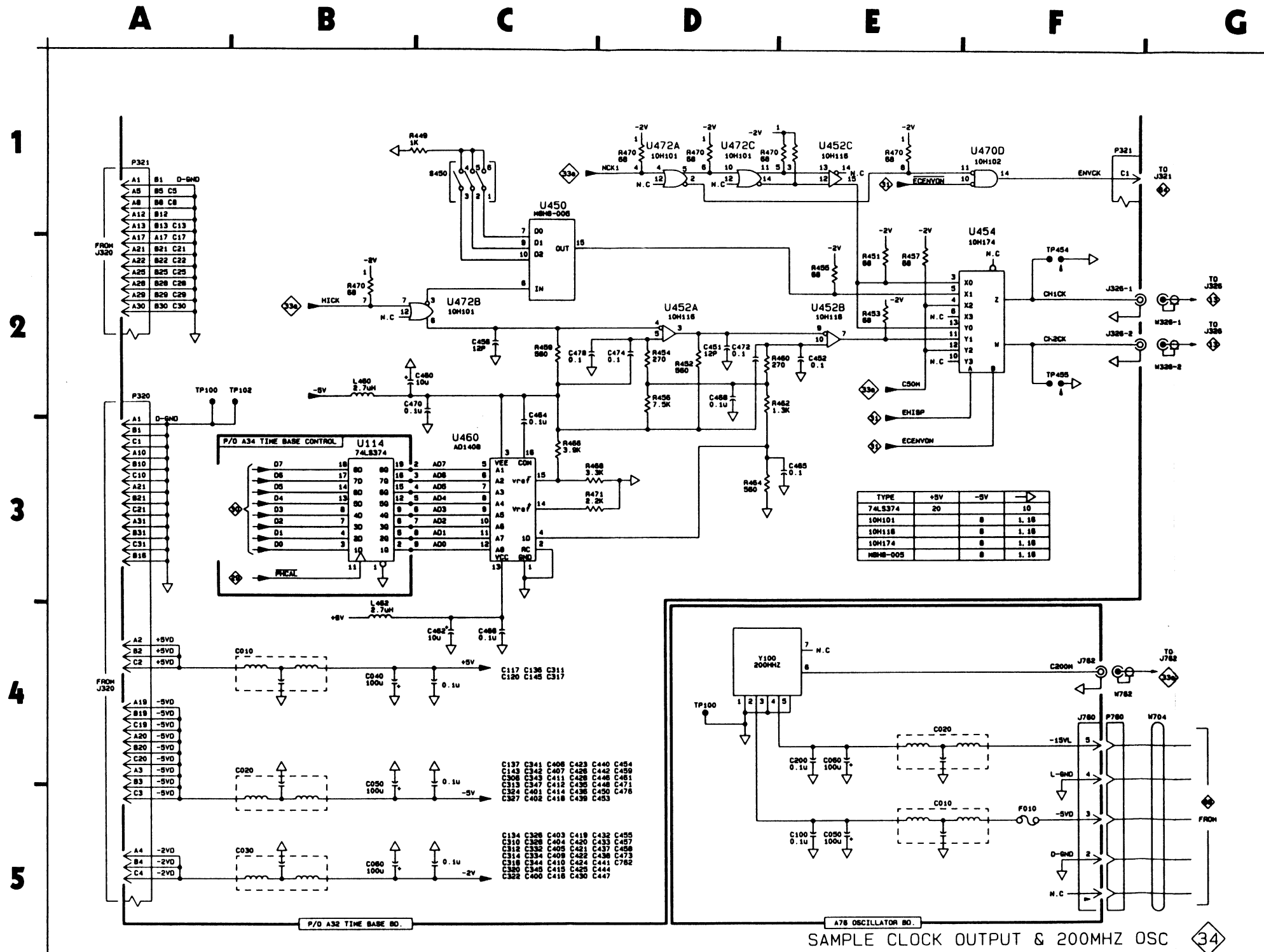
Table 8-34

SAMPLE CLOCK OUTPUT & 200MHz OSC

TIME BASE BD., ASSEMBLY A32

CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION	CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION	CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION	CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION
C010	B4	C3	C404	C5	D2	C452	E2	C2	R455	E2	E2
C020	B5	C3	C405	C5	E3	C453	C4	B2	R456	D2	C2
C030	B5	C4	C406	C4	D2	C454	C4	E2	R457	E2	D2
C040	B4	G2	C407	C4	E2	C455	C5	D1	R459	C2	D2
C050	B5	C3	C409	C5	D2	C456	C2	D2	R460	D2	C2
C060	B5	C4	C410	C5	B3	C457	C5	D2	R462	D2	C2
C117	C4	G2	C411	C4	C3	C458	C5	D3	R464	D3	C2
C120	C4	G1	C412	C4	D4	C459	C4	E3	R466	C3	C2
C134	C5	E3	C414	C4	D4	C460	B2	D1	R468	C3	C2
C136	C4	F2	C415	C5	C2	C461	C4	E2	R470B	E1	C2
C137	C4	F3	C416	C5	C3	C462	C4	D1	R470C	D1	C2
C143	C4	F3	C418	C4	E3	C464	C3	C1	R470D	E1	C2
C145	C4	F3	C419	C5	C3	C465	D3	C2	R470E	D1	C2
C306	C4	F3	C420	C5	B3	C466	C4	D1	R470F	B2	C2
C310	C5	D4	C421	C5	C2	C468	D2	C2	R470G	E1	C2
C311	C4	F4	C422	C5	D3	C470	C2	C1	R471	C3	C2
C312	C5	A4	C423	C4	D2	C471	C4	C2			
C313	C4	B4	C424	C5	B2	C472	D2	C2	S450	C1	E1
C314	C5	B4	C425	C5	C4	C473	C5	D2			
C316	C5	E3	C426	C4	C3	C474	D2	C2	TP100	A2	A2
C317	C4	F2	C428	C4	C4	C476	C4	C2	TP102	A2	F2
C320	C5	B3	C430	C5	B3	C762	C5	E2	TP454	F2	E1
C322	C5	A4	C432	C5	D3				TP455	F2	E1
C324	C4	B3	C433	C5	D4	J326-1	F2	E1			
C326	C5	A3	C435	C4	C2	J326-2	F2	E1	U450	C2	D2
C327	C4	B3	C436	C4	C3				U452A	D2	D2
C328	C5	A3	C437	C5	C3	L460	B2	D1	U452B	E2	D2
C332	C5	B2	C438	C5	D3	L462	B4	D1	U452C	E1	D2
C334	C5	A2	C439	C4	C3				U454	F2	E2
C341	C4	B3	C440	C4	B2	P320	A3	F4	U460	C3	C1
C342	C4	B2	C441	C5	D3	P321	F1	B4	U4700	F1	C2
C343	C4	B2	C442	C4	B1	P321	A1	B4	U472A	D1	C2
C345	C5	B2	C444	C5	A2				U472B	C2	C2
C347	C4	B3	C446	C4	D2	R449	C1	D1	U472C	D1	C2
C400	C5	E2	C447	C5	D2	R451	E2	E1			
C401	C4	F2	C448	C4	D3	R452	D2	D2			
C402	C4	E2	C450	C4	D2	R453	E2	E1			
C403	C5	E3	C451	D2	D2	R454	D2	C2			

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



SAMPLE CLOCK OUTPUT & 200MHZ OSC 34

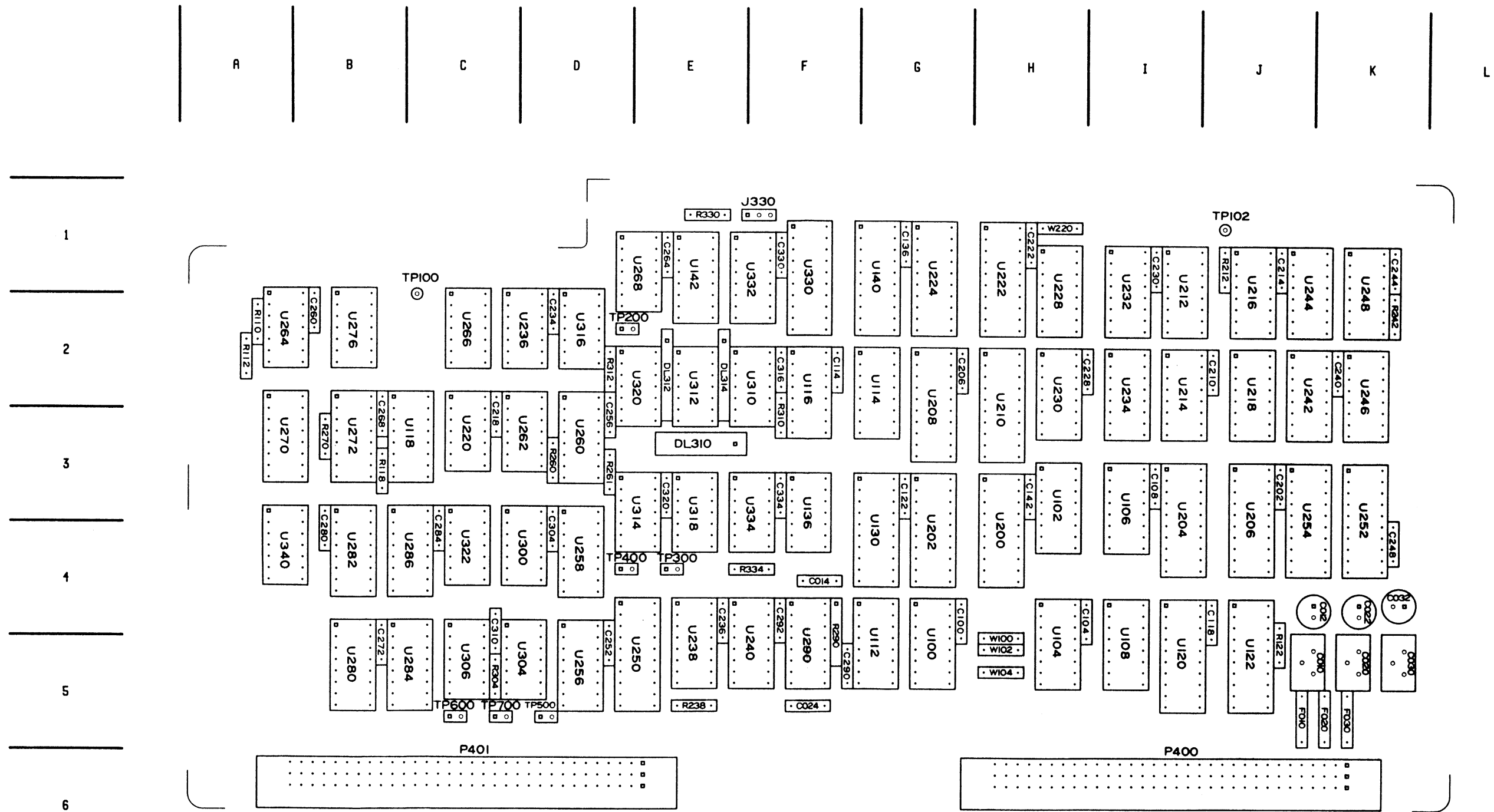


Fig. 8-11. A40 ADDRESS GENERATOR BD., CIRCUIT BD. ASS.

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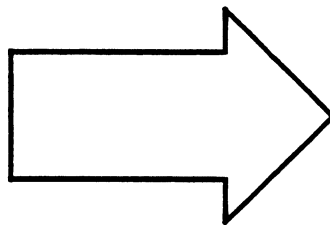


Table 8-37

MEMORY ADDRESS   
 ADDRESS GENERATOR BD., ASSEMBLY A40

CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION
P400	B1	I6
P401	H2	C6
U100	C1	G5
U102	C2	H3
U104	C3	H5
U106	C4	I3
U108	C5	I5
U112	E1	F5
U114	E4	G2
U116	E5	F2
U130	F2	G4
U136A	E1	F3
U136B	E1	F3
U136C	E1	F3
U228	G2	H1
U230	G3	H2
U232	G4	I1
U234	G5	I2
U264C	E4	A2
U266E	D4	C2
W100	C2	H5
W102	C2	H5
W104	C2	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.**

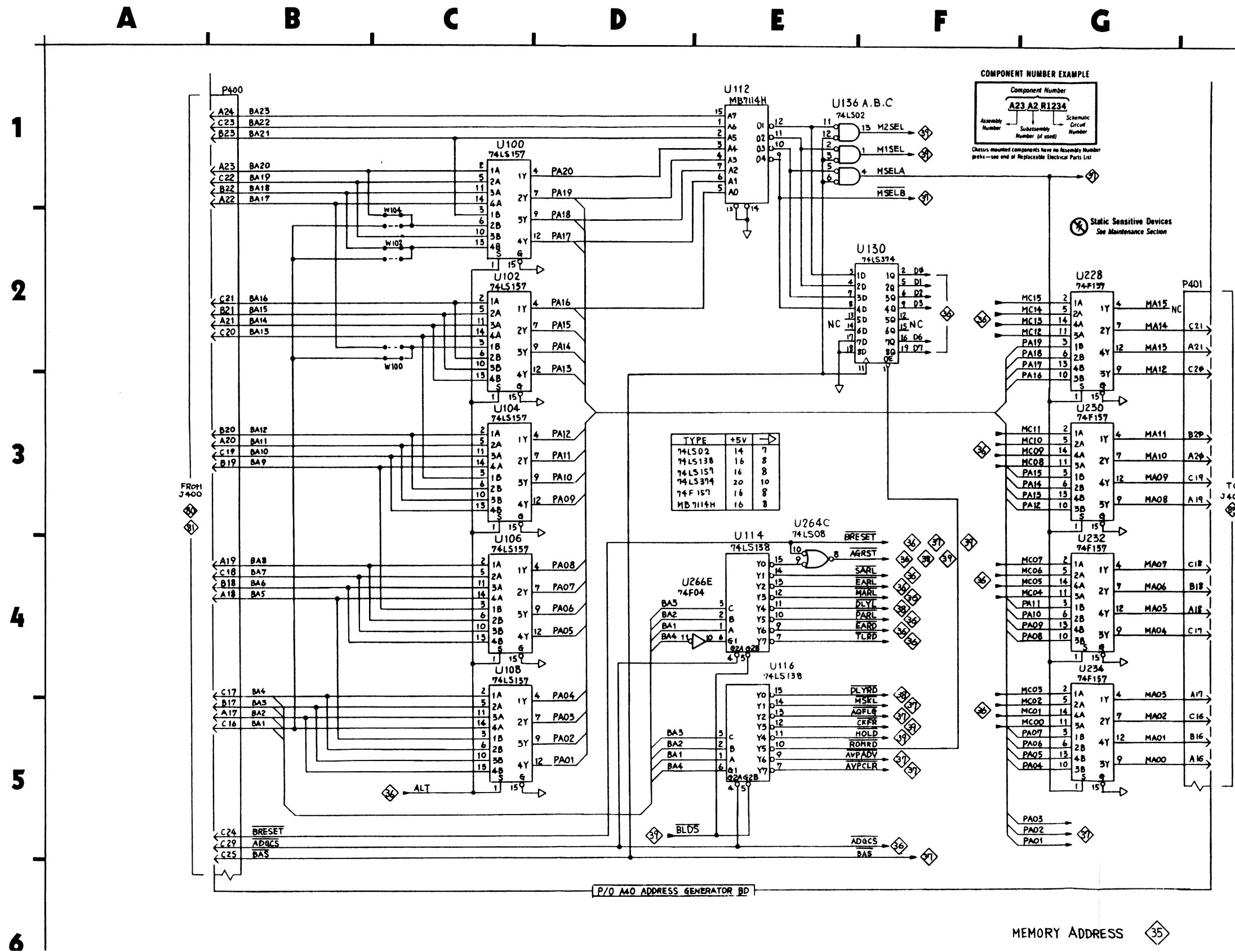





Table 8-38  
**SEGMENTATION LOGIC**   
**ADDRESS GENERATOR BD., ASSEMBLY A40**

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.

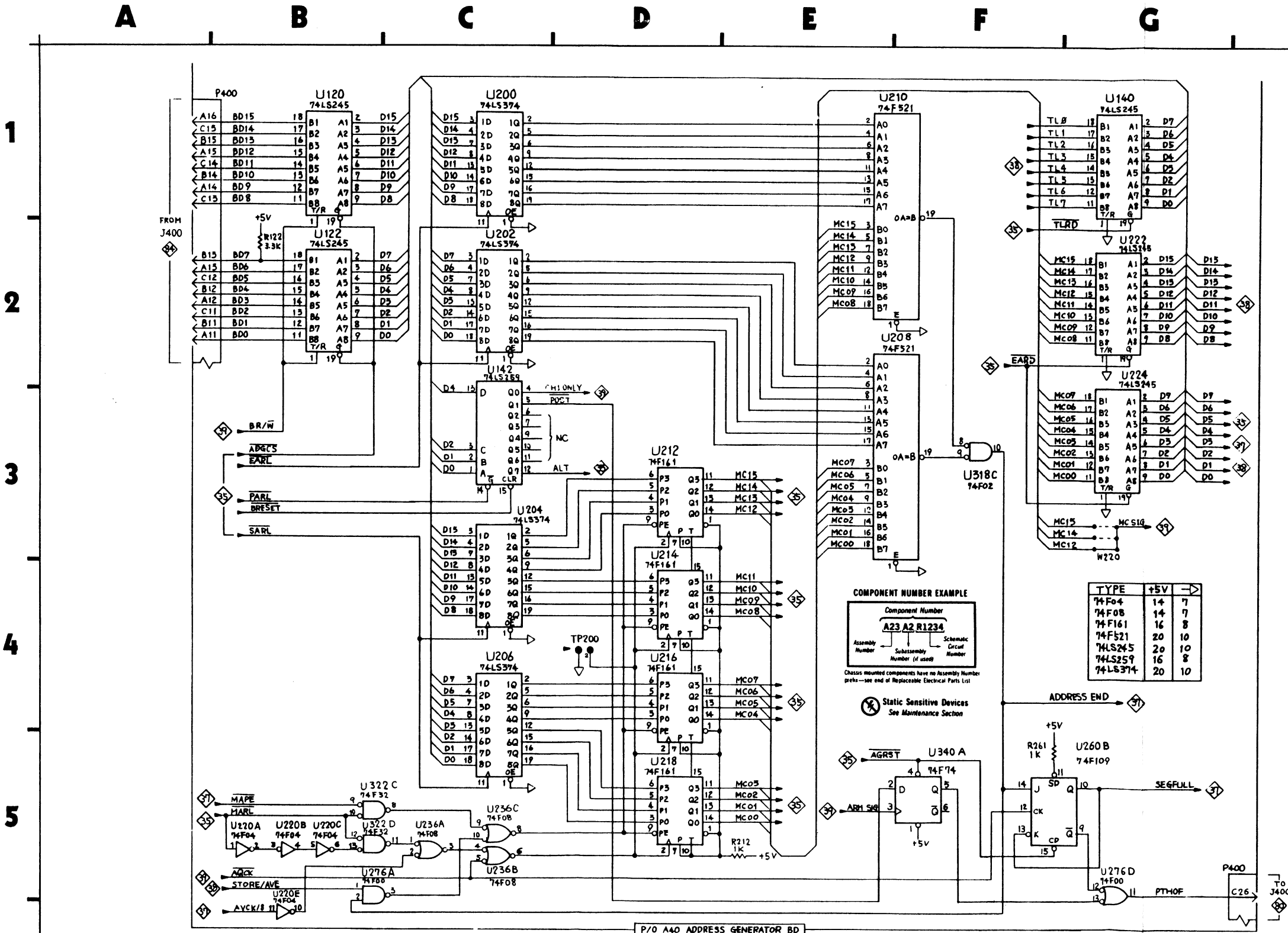



Table 8-39  
**MEMORY CHIP SELECT**   
**ADDRESS GENERATOR BD., ASSEMBLY A40**

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	C6
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	E1
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.

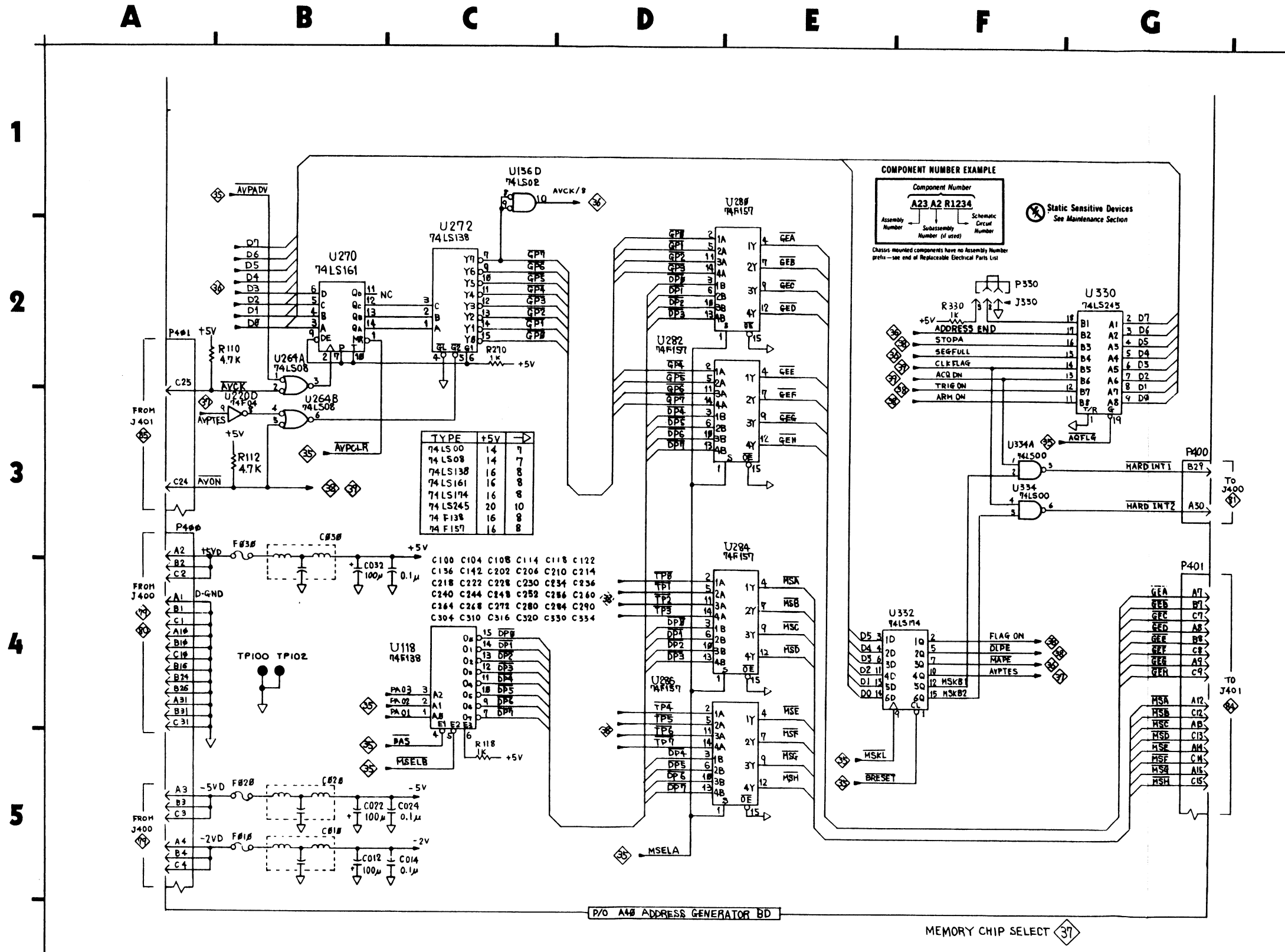



Table 8-40  
**TRIGGER DELAY COUNTERC**   
**ADDRESS GENERATOR BD., ASSEMBLY A40**

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	D5
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.

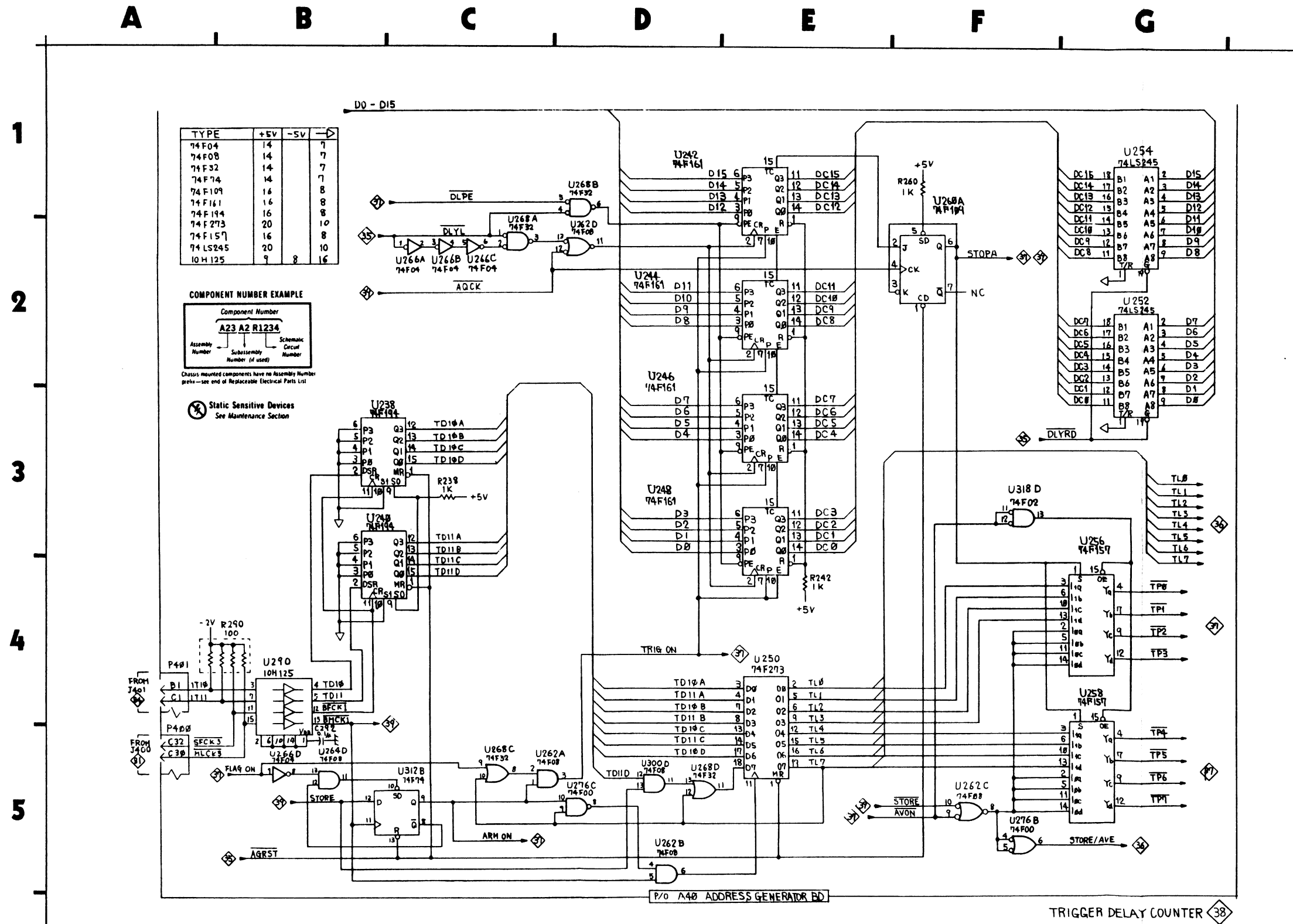

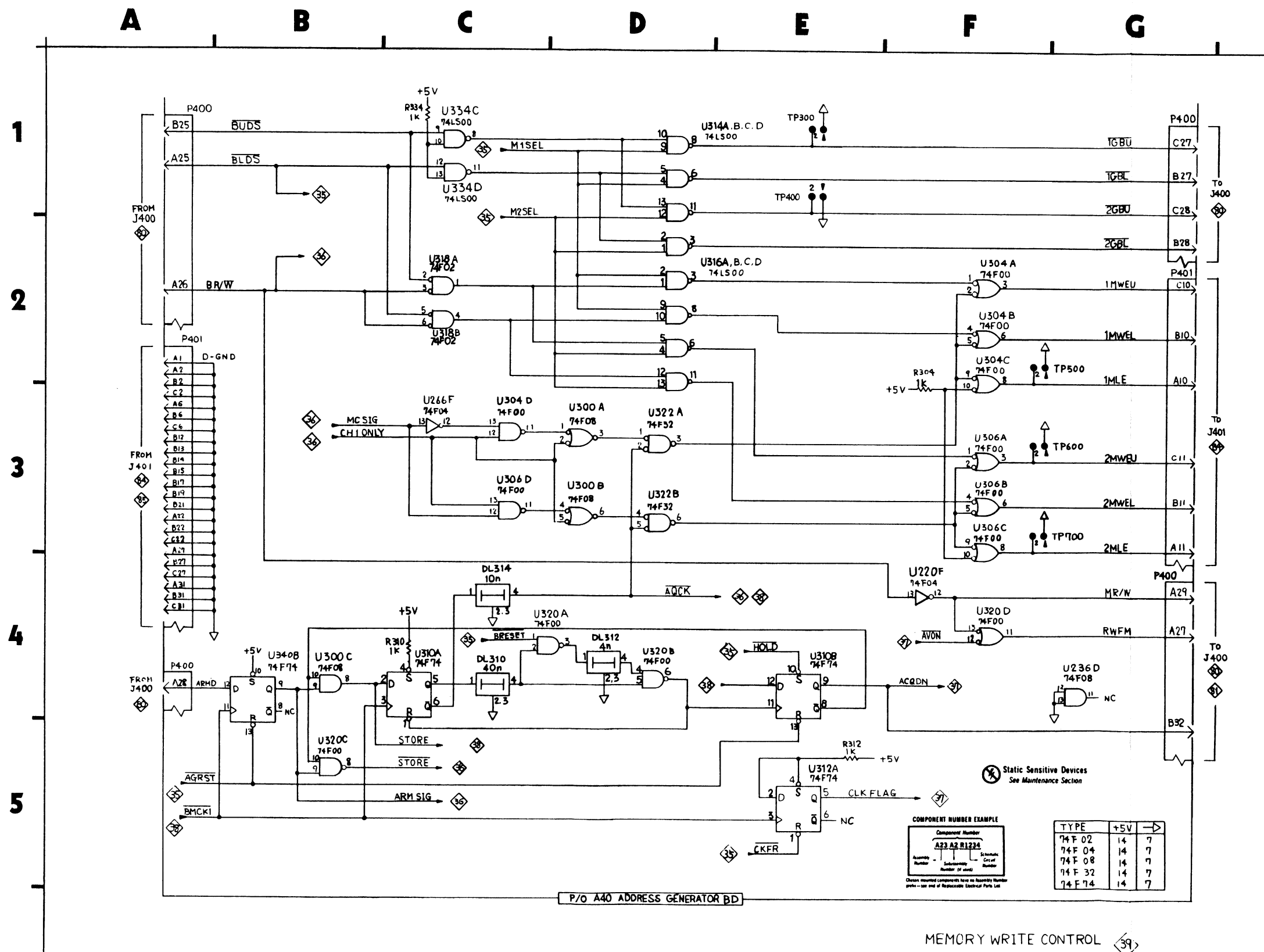


Table 8-41  
**MEMORY WRITE CONTROL**   
**ADDRESS GENERATOR BD., ASSEMBLY A40**

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
R304	F2	C5	U312A	E5	E2
R310	C4	F3	U314A	D2	D3
R312	E5	D2	U314B	D1	D3
R334	C1	E4	U314C	D1	D3
TP300	E1	E4	U314D	D1	D3
TP400	E1	D4	U316A	D2	D2
TP500	F2	D5	U316B	D2	D2
TP600	F3	C5	U316C	D2	D2
TP700	F3	C5	U316D	D2	D2
U220F	F4	C3	U318A	C2	E3
U236D	G4	C2	U318B	C2	E3
U266F	C3	C2	U320A	C4	D2
U300A	D3	C4	U320B	D4	D2
U300B	D3	C4	U320C	B5	D2
U300C	B4	C4	U320D	F4	D2
U304A	F2	C5	U322A	D3	C4
			U322B	D3	C4
			U334C	C1	E3
			U334D	C1	E3
			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.





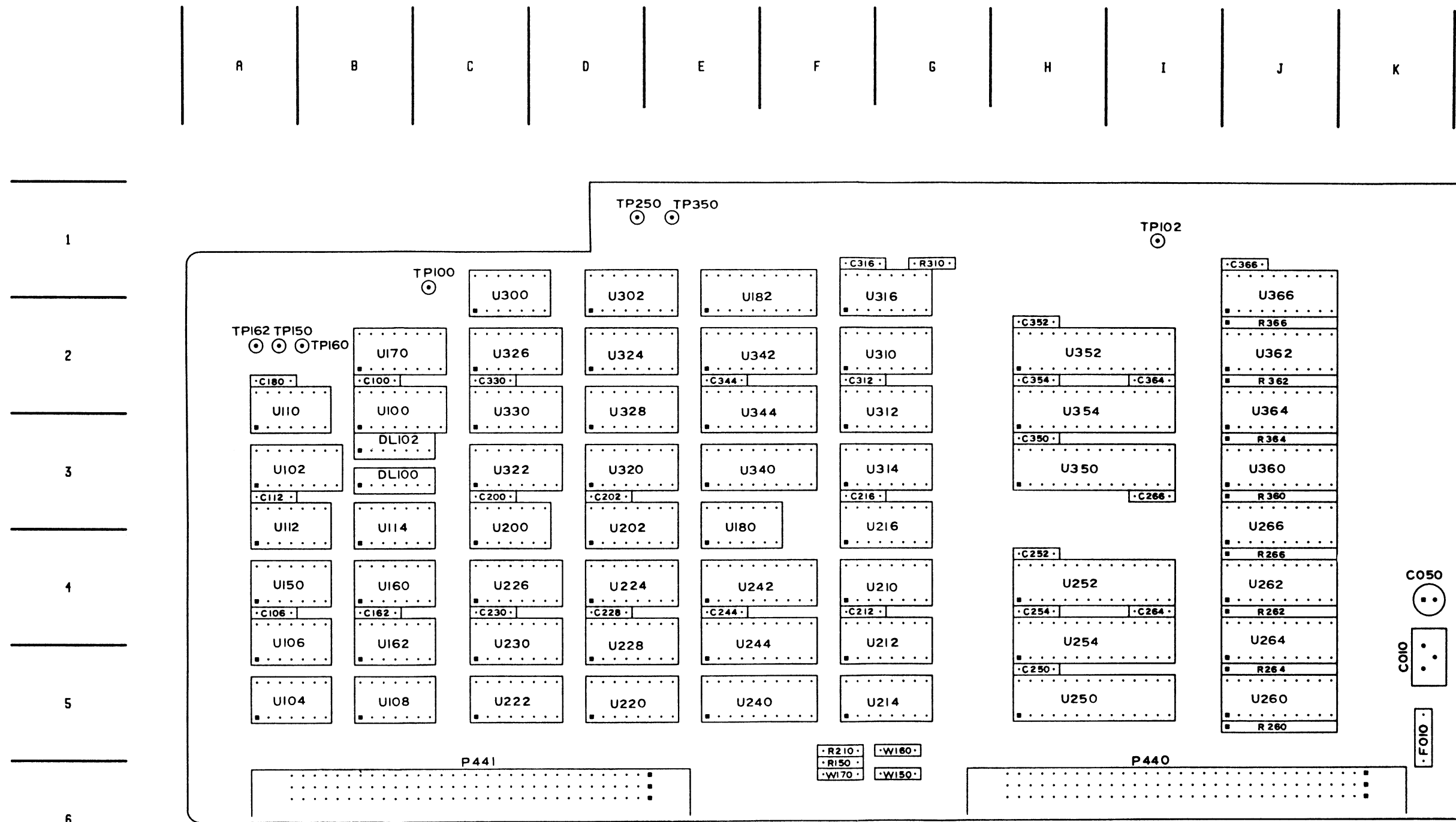


Fig. 8-12. A44 AVERAGE BD., CIRCUIT BD. ASS.

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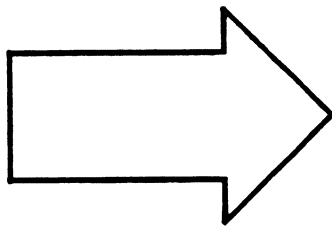


Table 8-42

**AVERAGE CONTROL**  — **AVERAGE BD., 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
C180	C5	A2	U104D	B2	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	E5	B5
C250	C5	H5	U108D	E5	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	D3	A3
C344	C5	E2	U112D	D5	A3
C350	C5	H3	U112E	B1	A3
C352	C5	H2	U112F	E5	A3
C354	C5	H2	U114A	E2	B3
C364	C5	I2	U114B	E3	B3
C366	C5	J1	U114C	E4	B3
			U114D	E4	B3
DL100	D3	B3	U150A	D2	A4
DL102	D5	B3	U150B	D2	A4
			U150C	D2	A4
F010	B5	K5	U160A	C1	B4
			U160B	E2	B4
P440	A2	I6	U162A	E1	B4
P440	A3	I6	U162B	F1	B4
P440	A5	I6	U200A	E2	C3
P440	H4	I6	U200B	E2	C3
P441	A1	C6	U200C	E2	C3
P441	A3	C6	U200D	E3	C3
P441	A5	C6	U202	G2	D3
P441	H1	C6	U300A	E4	C1
			U300B	E4	C1
TP100	D5	C1	U300C	E4	C1
TP102	D5	I1	U300D	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.

**A                      B                      C                      D                      E                      F                      G                      H**

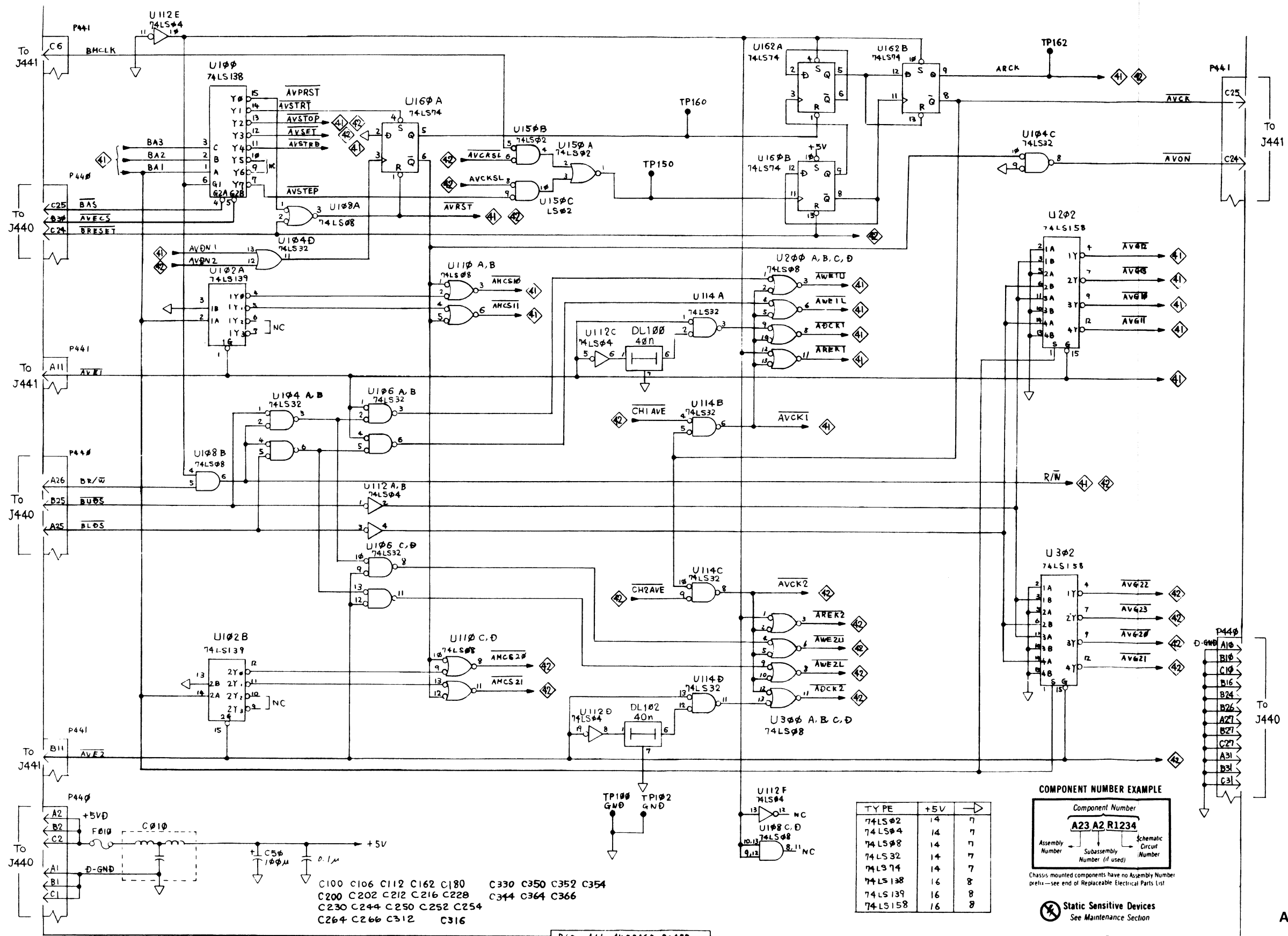
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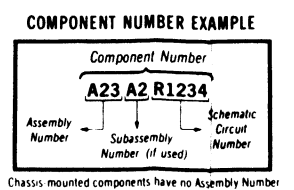
**4**

**5**




- C100 C106 C112 C162 C180 C330 C350 C352 C354
- C200 C202 C212 C216 C228 C344 C364 C366
- C230 C244 C250 C252 C254
- C264 C266 C312 C316

TYPE	+5V	→
74LS02	14	7
74LS04	14	7
74LS08	14	7
74LS32	14	7
74LS74	14	7
74LS138	16	8
74LS139	16	8
74LS158	16	8



Static Sensitive Devices  
See Maintenance Section

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

CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION
P440	A3	I6
P441	A1	C6
R150	B5	F5
R210	C5	F5
R260	B4	J5
R262	B3	J4
R264	B2	J5
R266	B1	J4
TP250	H5	D1
U180A	F4	E3
U182	F4	E1
U210	D5	F4
U212	D4	F4
U214	D5	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.

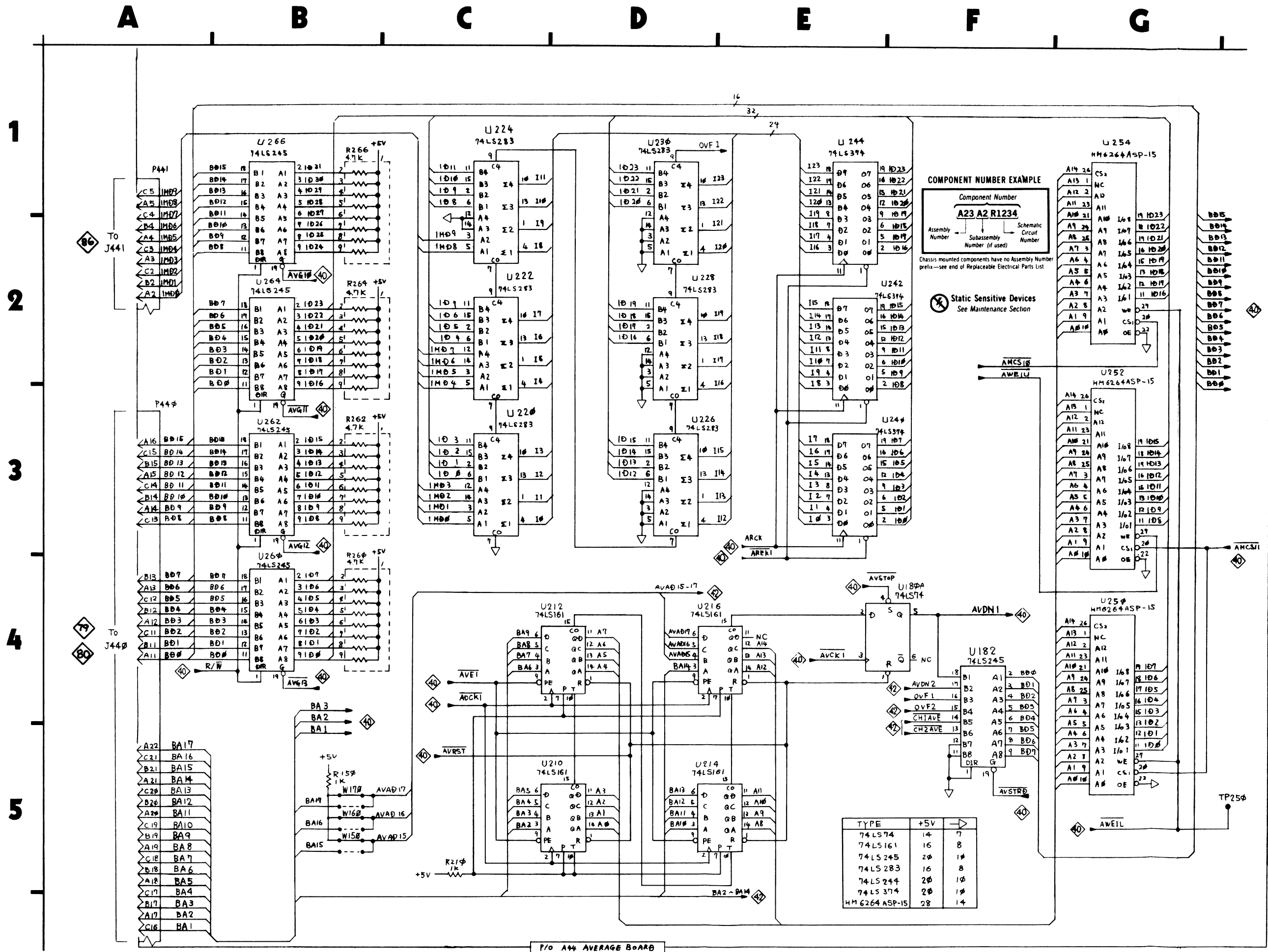



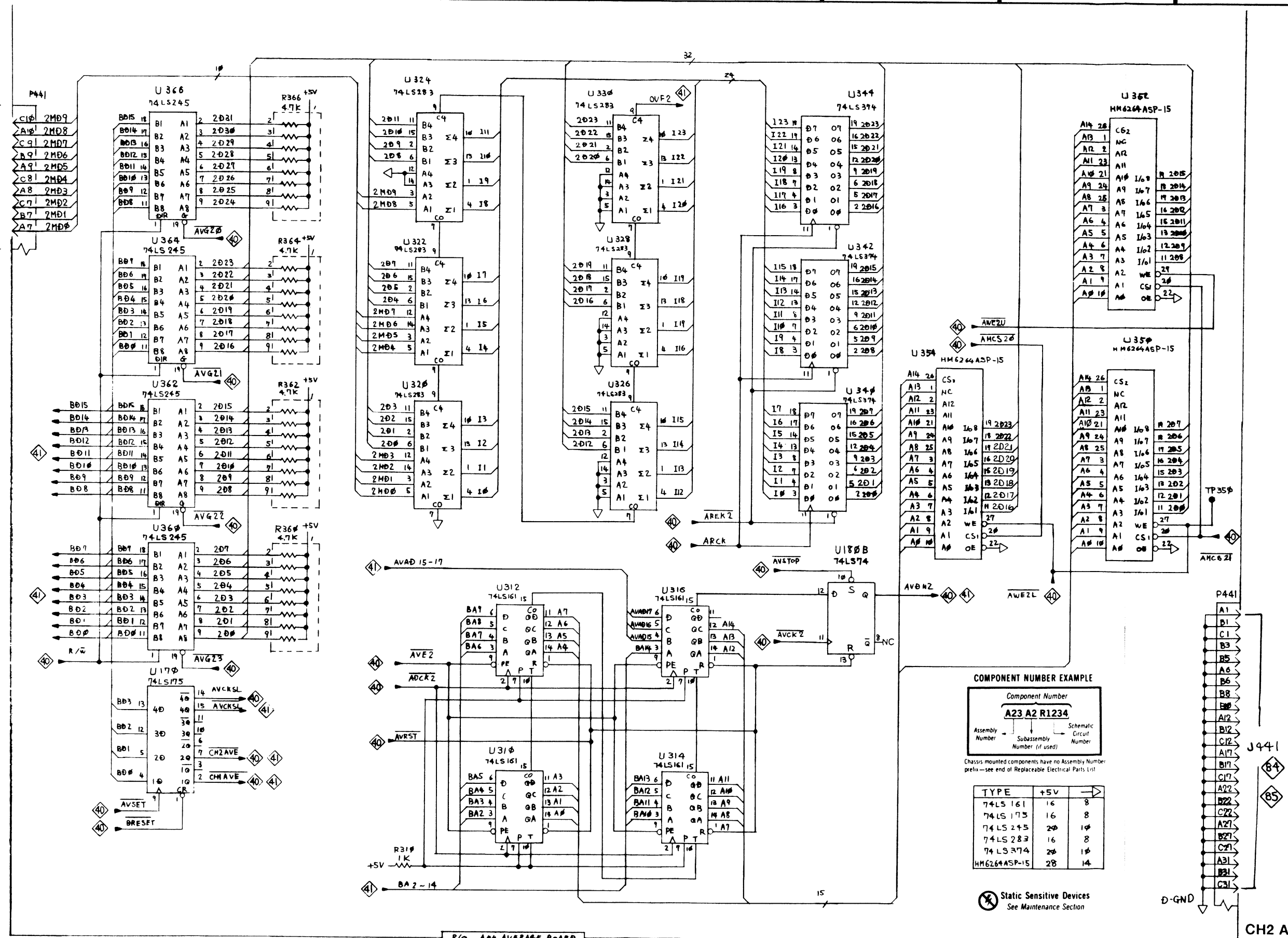
Table 8-44  
**CH 2 AVERAGE MEMORY**   
**AVERAGE BD., ASSEMBLY A44**

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

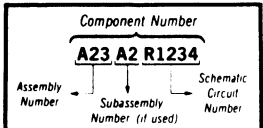
ASSY A44 is also shown on Diagrams 40,41,and 42.  
 ASSY A44 (Fig.8-12) circuit board illustration faces Diagram 40.

A B C D E F G H

1  
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COMPONENT NUMBER EXAMPLE



Chassis mounted components have no Assembly Number. pins—see end of Replaceable Electrical Parts List.

TYPE	+5V	→
74LS 161	16	8
74LS 175	16	8
74LS 245	20	10
74LS 283	16	8
74LS 374	20	10
HM6264ASP-15	28	14

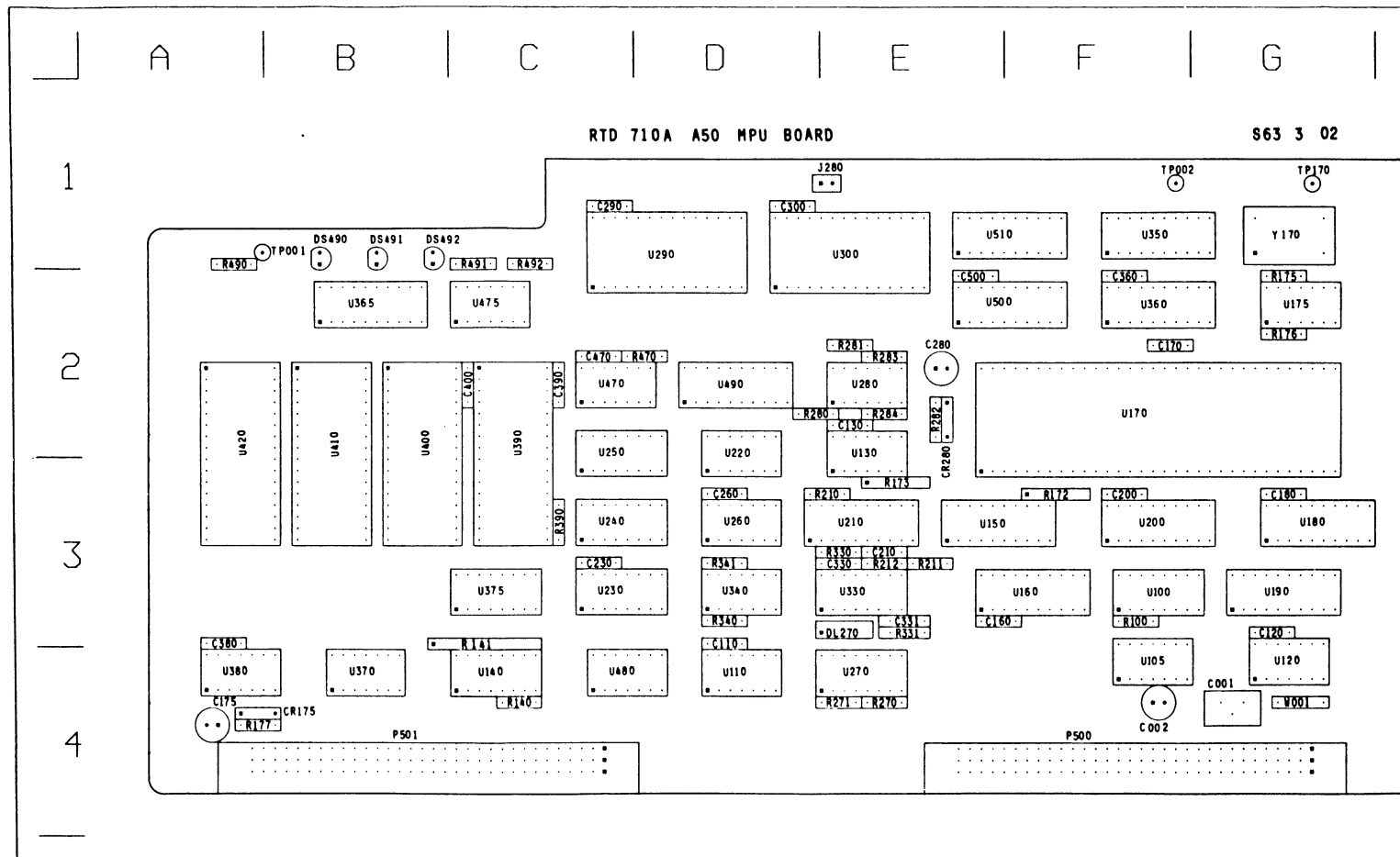
Static Sensitive Devices See Maintenance Section



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

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

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

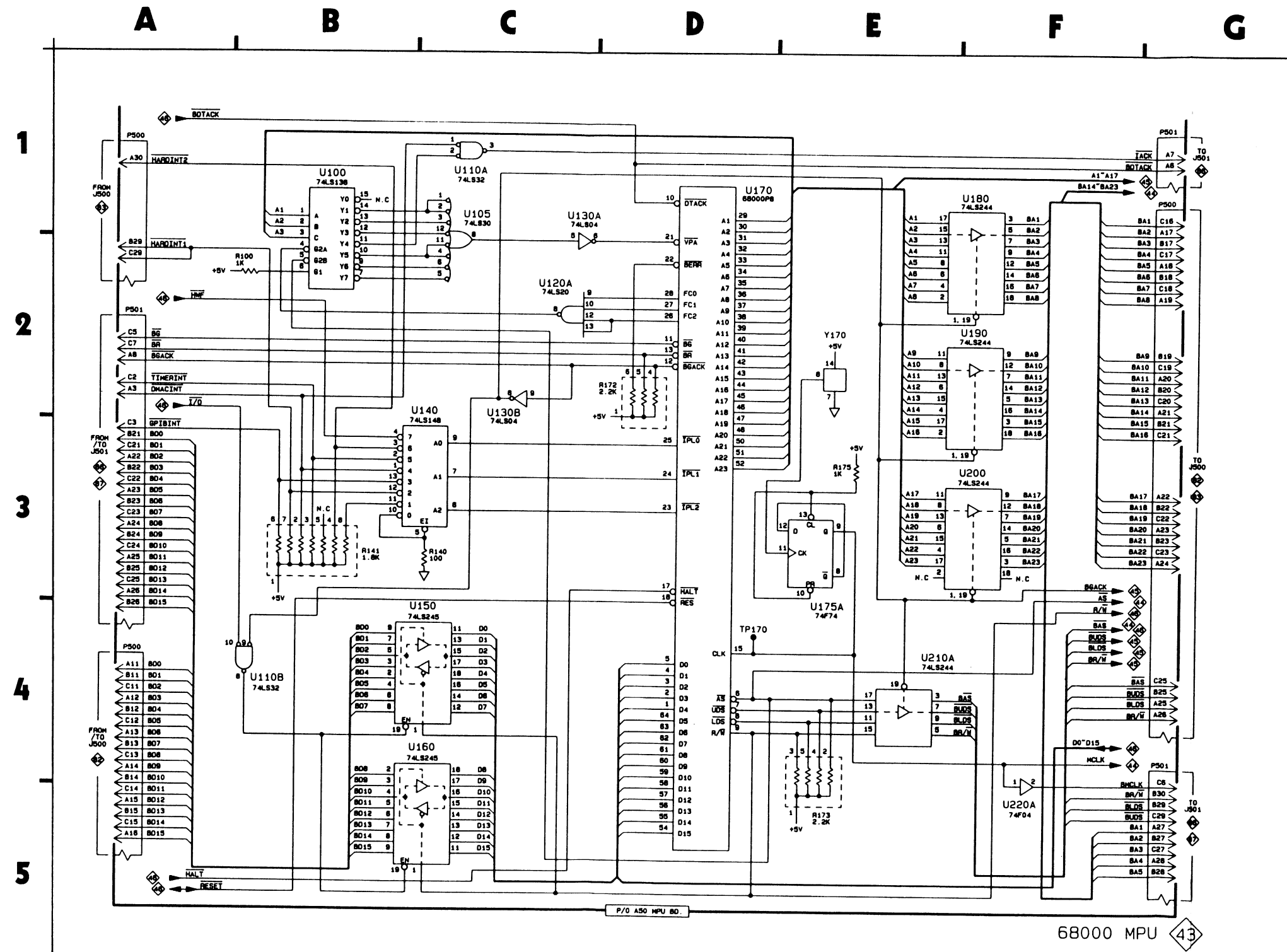


Table 8-46

ADDRESS DECODER & RAMS



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
C160	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
C360	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.

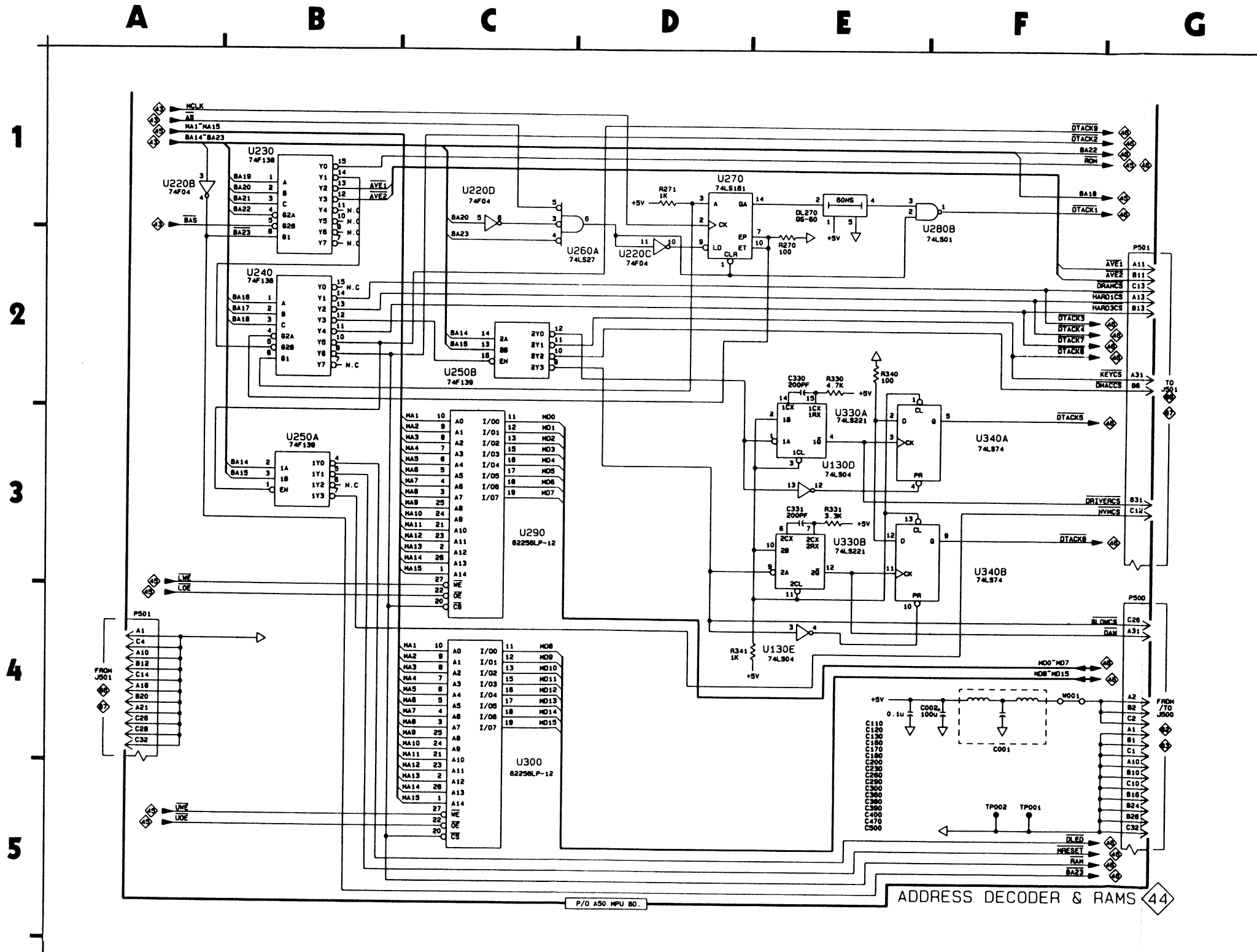



Table 8-47

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.

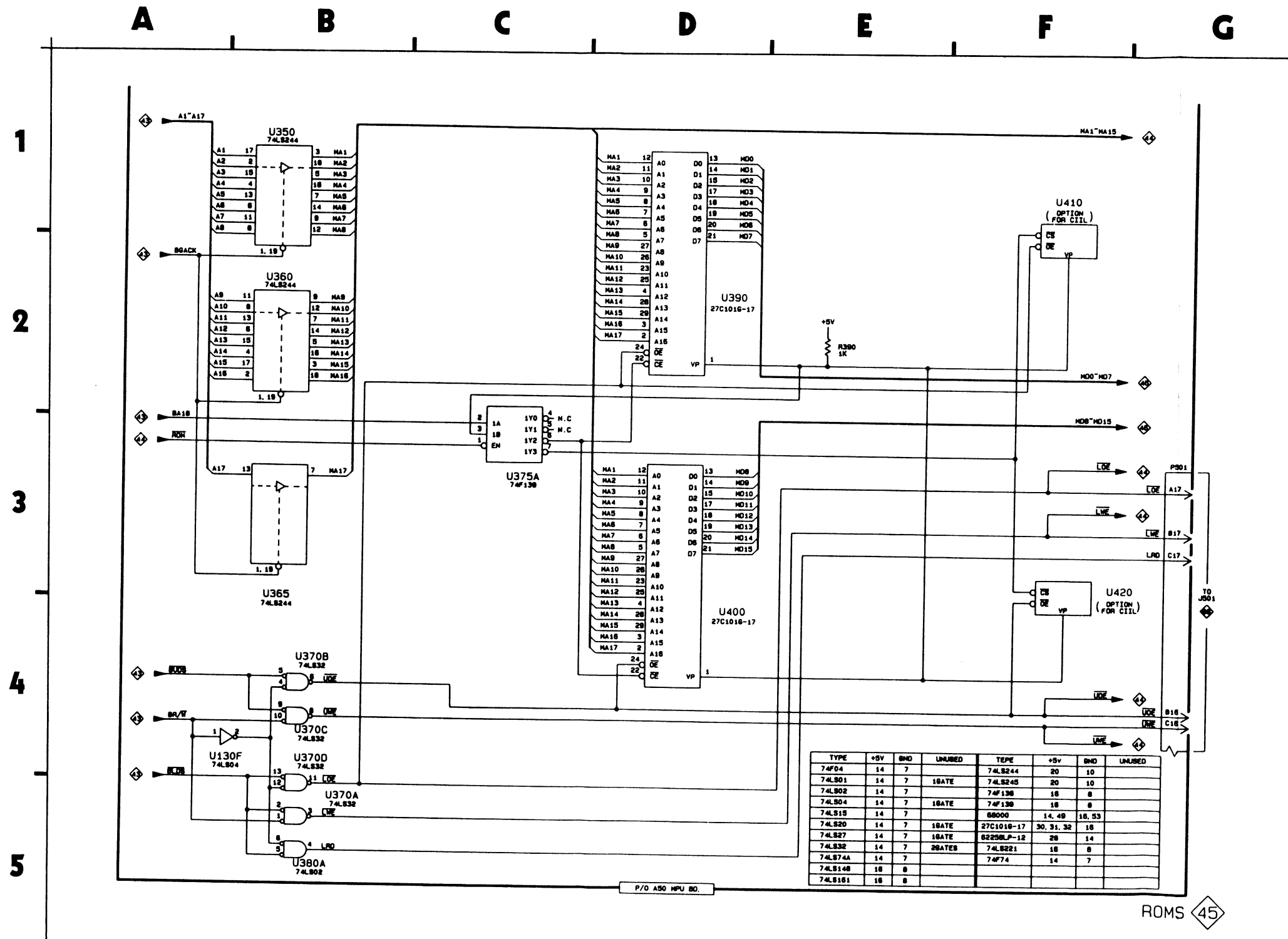


Table 8-48



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
R176	D4	G2	U380C	E5	A4
R177	D5	A4	U380D	E4	A4
R210	F4	E3	U470A	C2	C2
R211	C3	E3	U470B	C2	C2
R212	C3	E3	U470C	C1	C2
R280	F4	D2	U475A	C2	C2
R281	E5	E2	U480	B3	C4
R282	E5	E2	U490	B4	D2
R283	F4	E2	U500	E1	E2
R284	F5	E2	U510	E2	E2

ASSY A50 is also shown on Diagrams 43,44,45,and 46.

ASSY A50 (Fig.8-13) circuit board illustration faces Diagram 43.

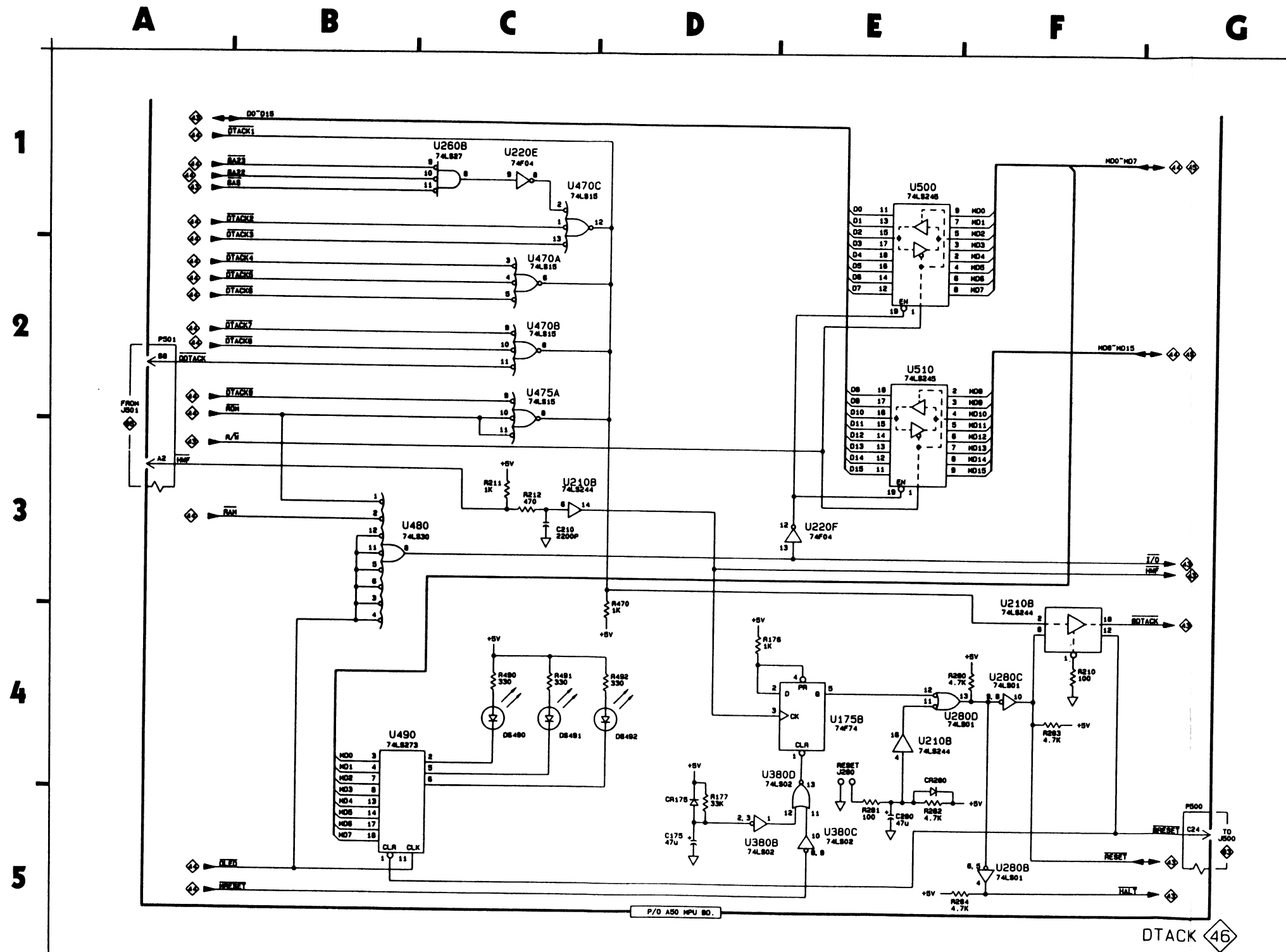




Table 8-49

68450 DMAC 47

DMA BD., ASSEMBLY A52

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 A52 is also shown on Diagrams 47,48,49,and 50.

ASSY A52 (Fig.8-14) circuit board illustration faces Diagram 47.

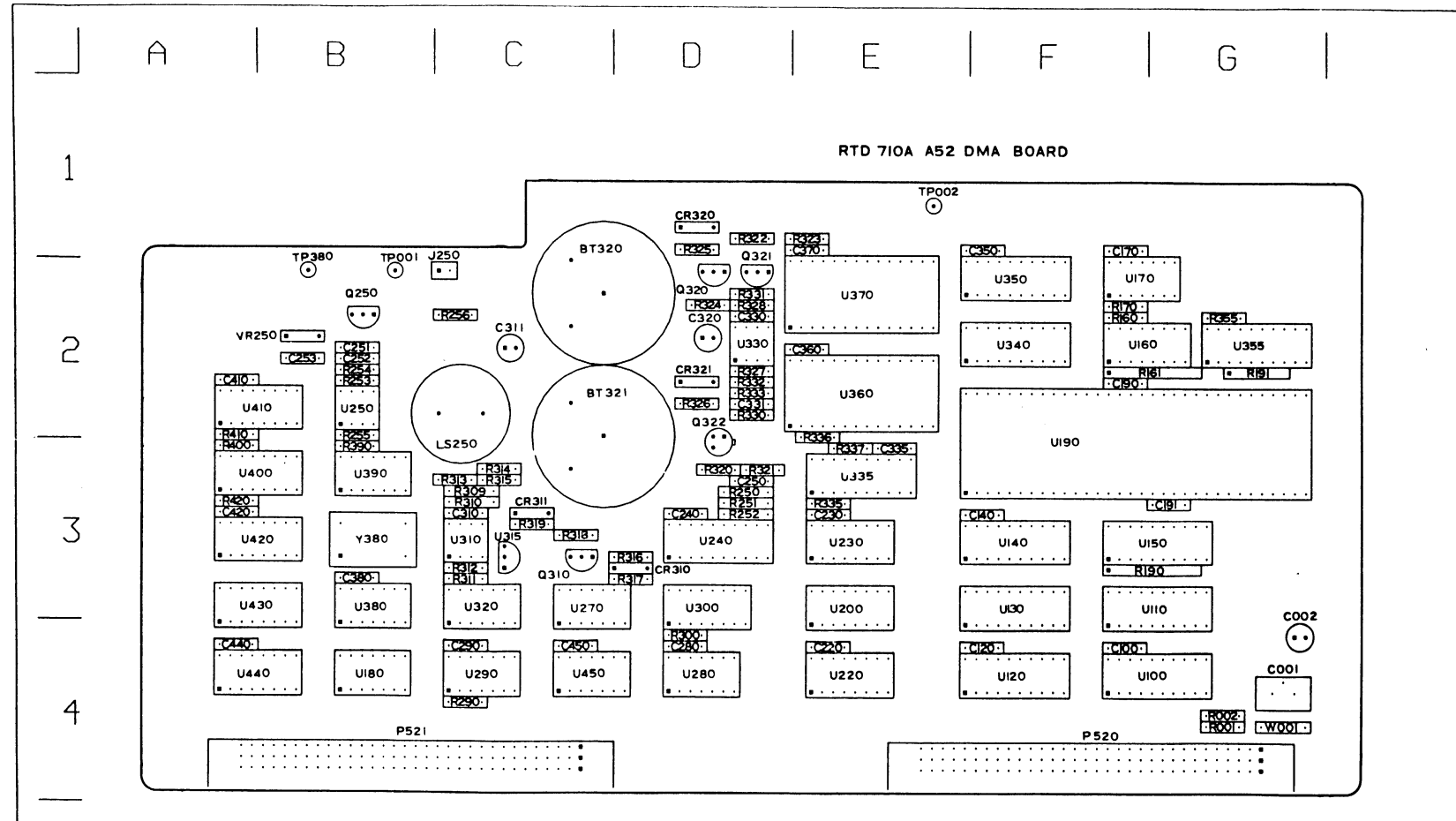


Fig. 8-14. A52 DMA BD., CIRCUIT BD. ASS.

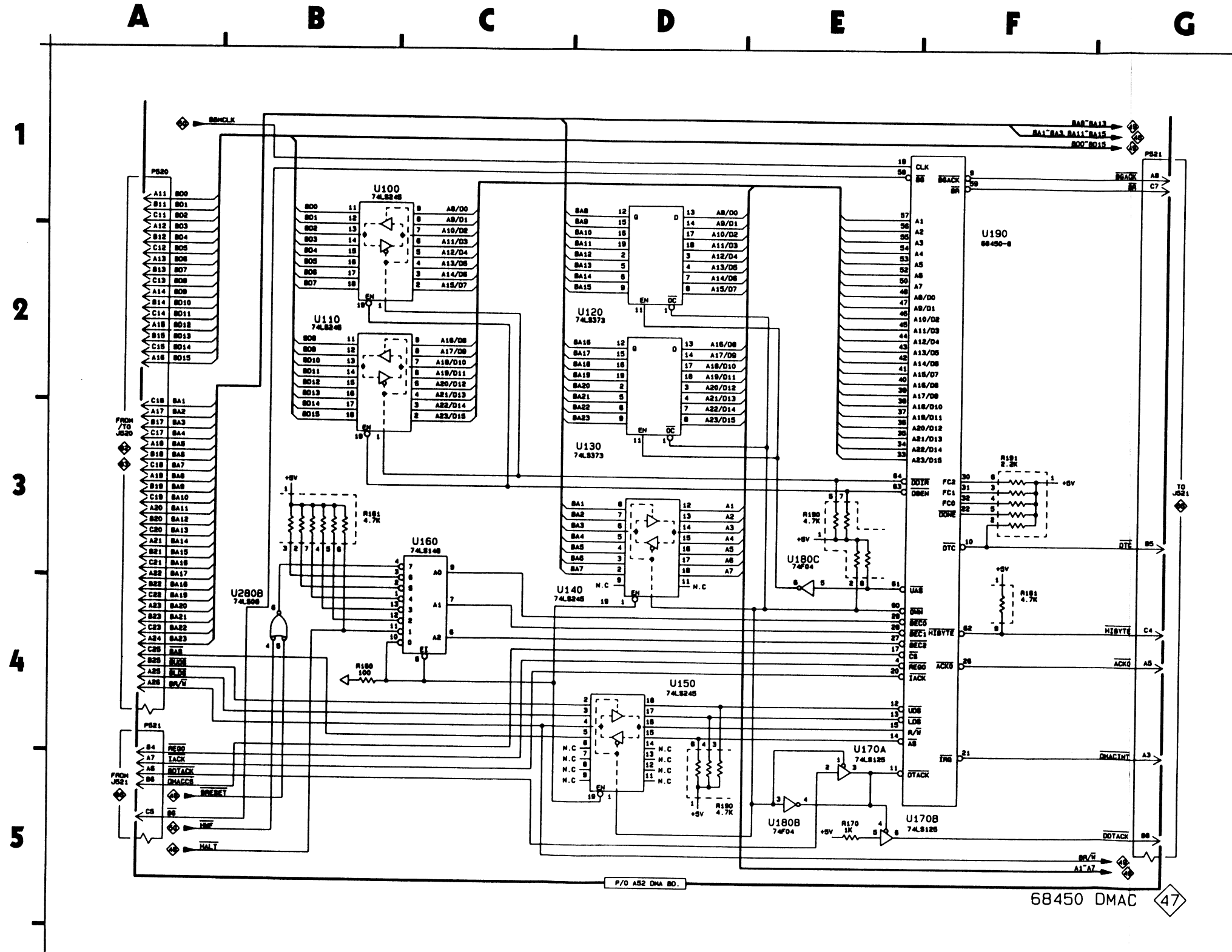


Table 8-50

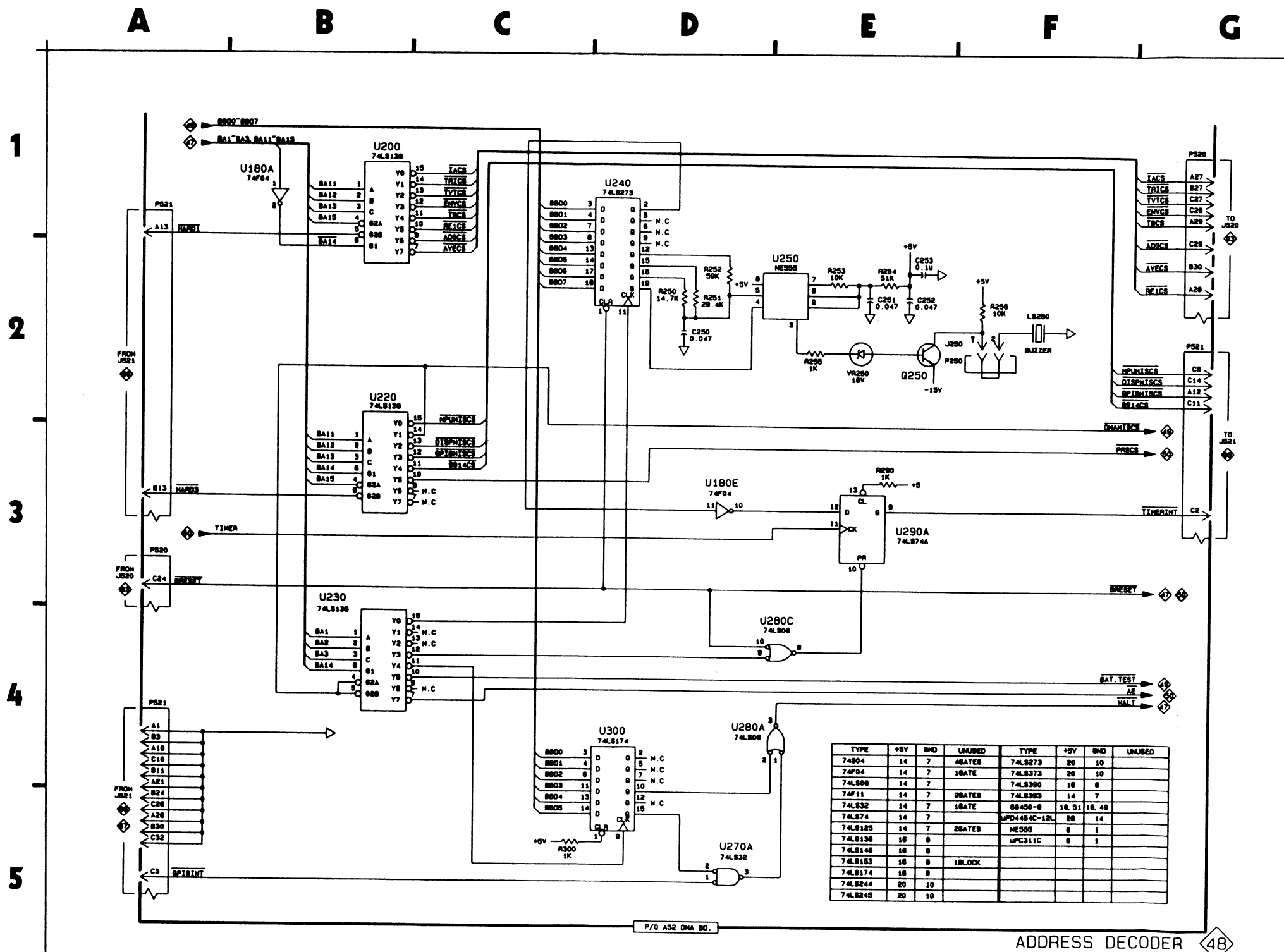
ADDRESS DECODER 

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
J250	F2	C2	:	R290	E3	C4
			:	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



DATA BD., ASSEMBLY A52

CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION	CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION	CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION
BT320	E1	C2	CR310	C1	D3	R325	E1	D1
BT321	F1	C2	CR311	D1	C3	R326	F1	D2
			CR320	E1	D1	R327	F1	D2
C001	F4	G4	CR321	F1	D2	R328	F2	D2
C002	F4	G4				R330	G1	D2
C100	F4	F4	P520	G1	F4	R331	F2	D2
C120	F4	F4	P521	R2	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	G2
C191	F4	G3	Q321	D1	D2			
C220	F4	E4	Q322	E2	D2	TP001	F5	B2
C230	F4	E3				TP002	F5	E1
C240	F4	D3	R002	F3	G4			
C280	F4	D4	R309	A1	C3	U170C	F3	F2
C290	F4	C4	R310	A1	C3	U170D	F2	F2
C310	F4	C3	R311	B1	C3	U2800	B2	D4
C311	D1	C2	R312	B1	C3	U310	B1	C3
C320	E1	D2	R313	B1	C3	U315	B2	C3
C330	F1	D2	R314	C1	C3	U320A	D2	C3
C331	F2	D2	R315	C1	C3	U330A	F1	D2
C350	F4	F1	R316	C1	D3	U330B	F2	D2
C360	F4	E2	R317	C2	D3	U335A	B2	E3
C370	F4	E1	R318	C1	C3	U340	B4	F2
C380	F5	B3	R319	D1	C3	U350	B5	F2
C410	F5	R2	R320	D2	D3	U355A	B3	G2
C420	F5	R3	R321	E2	D3	U360	D2	E2
C440	F5	R4	R322	D1	D1	U370	D4	E2
C450	F5	C4	R323	D1	E1			
			R324	E1	D2	U001	F4	G4

ASSY A52 is also shown on Diagrams 47,48,49,and 50.

ASSY A52 (Fig.8-14) circuit board illustration faces Diagram 47.

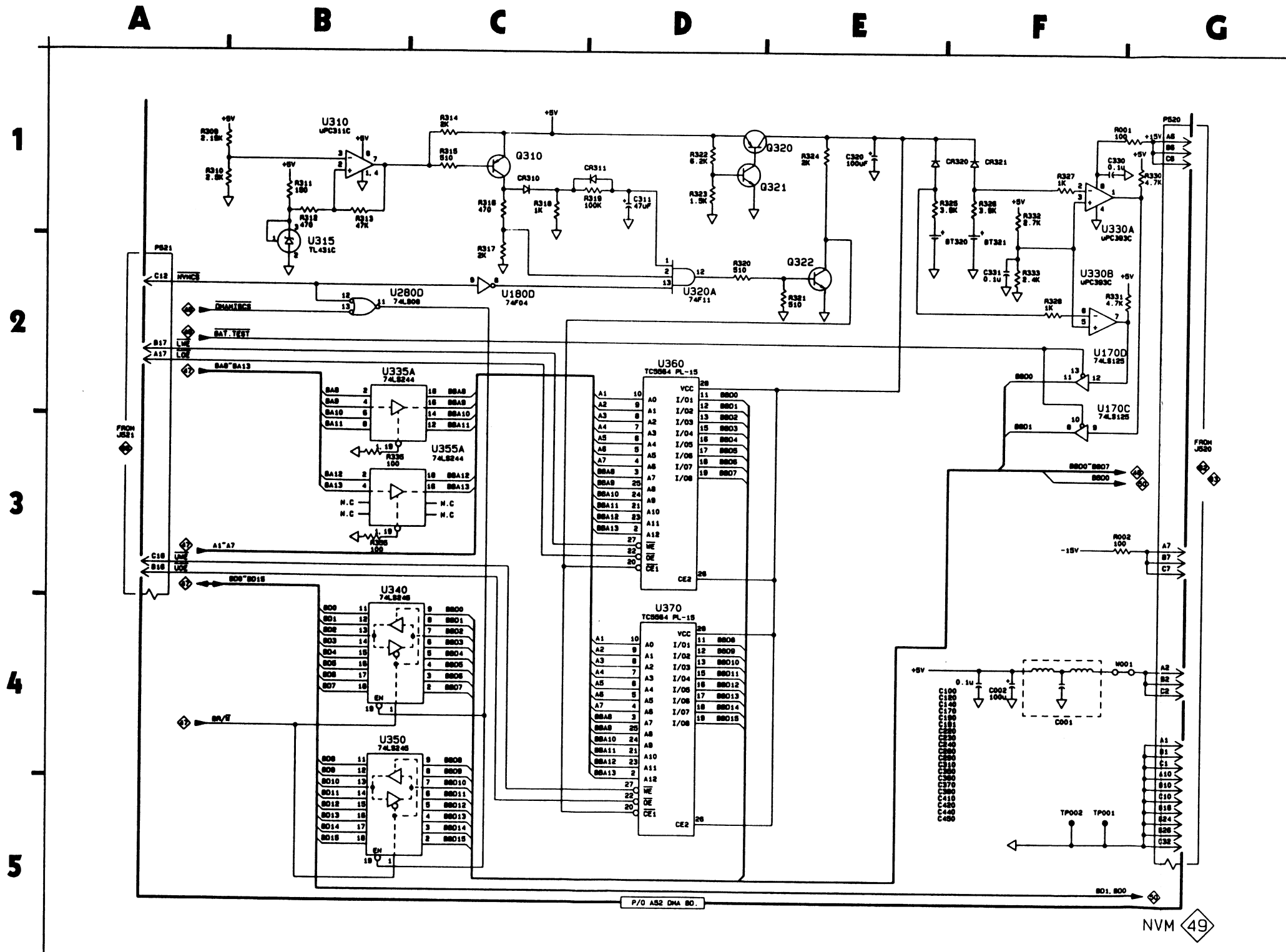


Table 8-52

DOT CLOCK AND TIMER

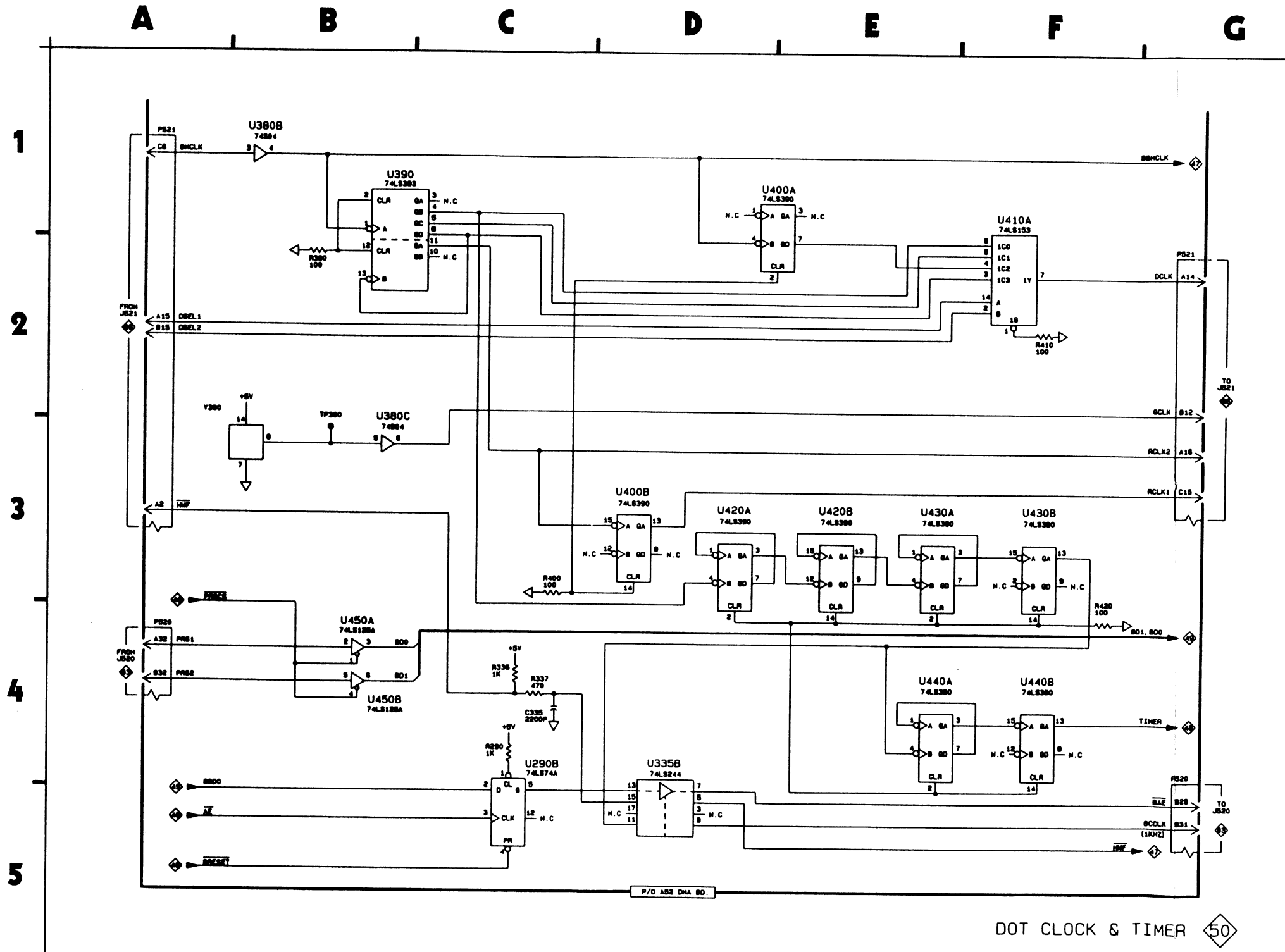


DMA BD., ASSEMBLY A52

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.





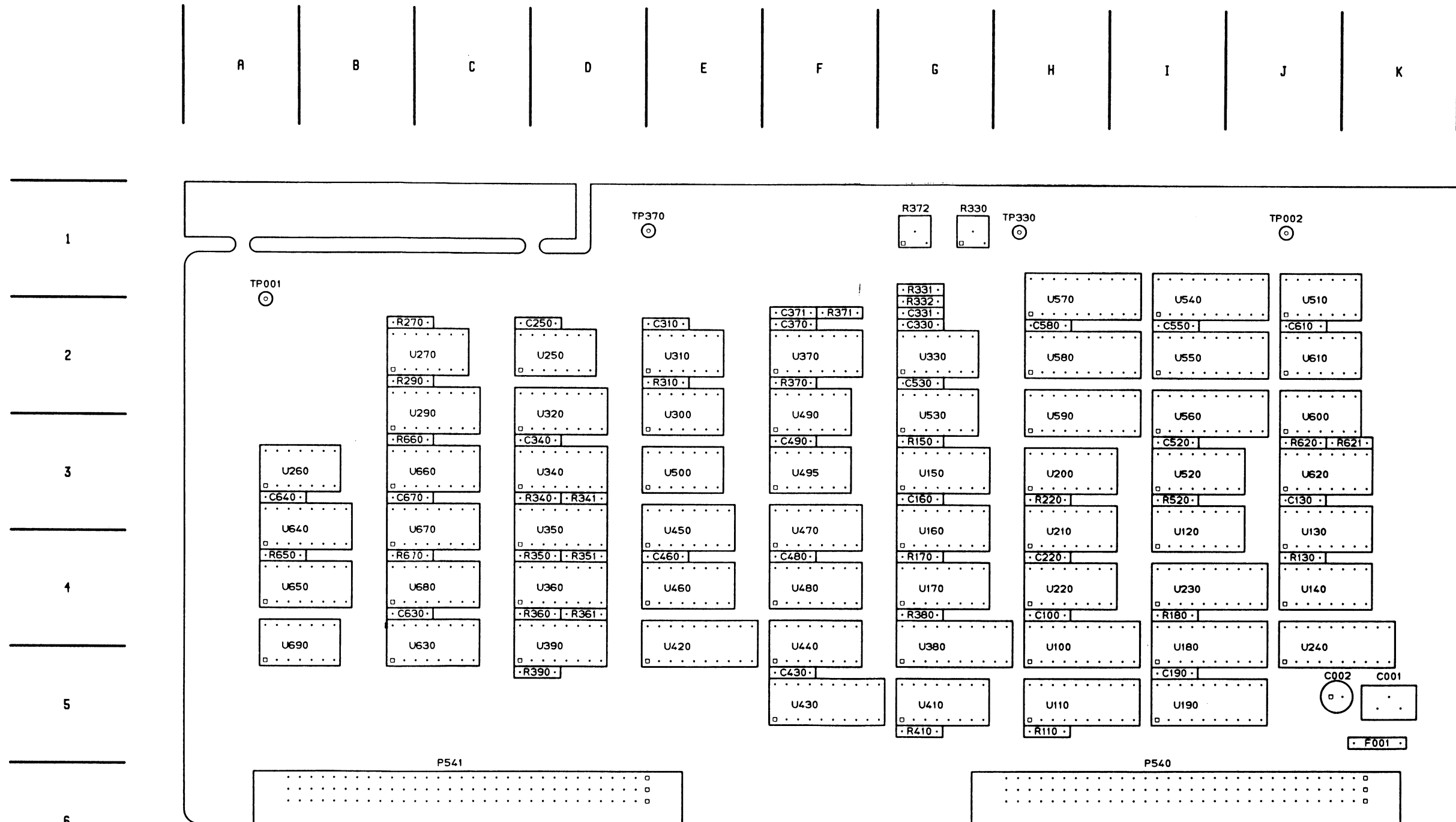


Fig. 8-15. A54 DISPLAY BD., CIRCUIT BD. ASS.

**SEE  
OTHER  
SIDE**

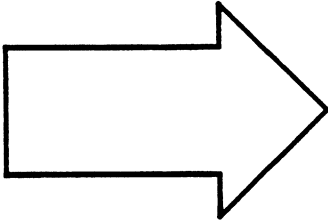

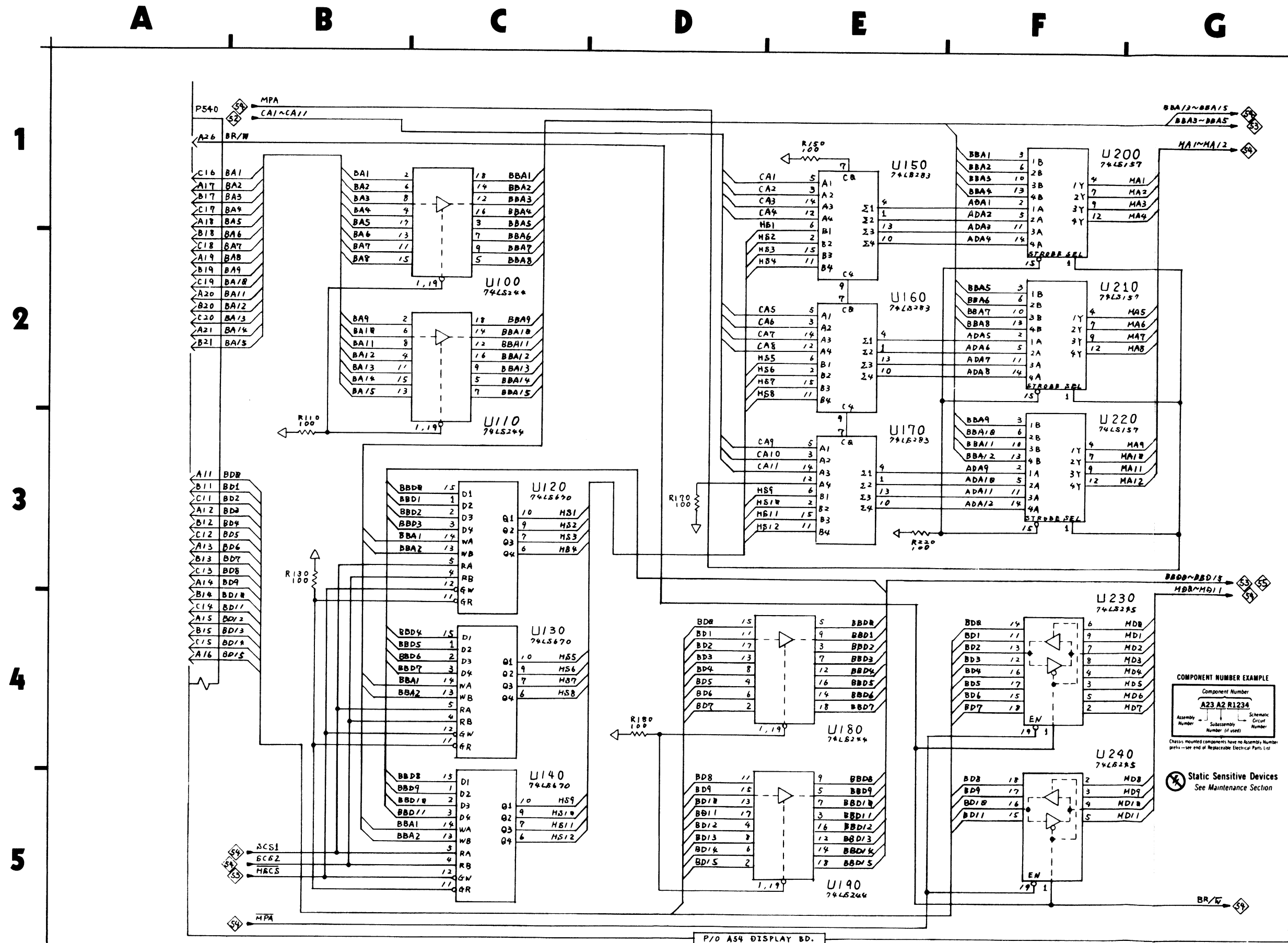


Table 8-53  
**ADDRESS MUX**   
**DISPLAY BD., ASSEMBLY A54**

CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION
P540	A1	I6
R110	B3	H5
R130	B3	J4
R150	E1	G3
R170	D3	G4
R180	D4	I4
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.**



**COMPONENT NUMBER EXAMPLE**


Component Number  
**A23 A2 R1234**

Assembly Number      Subassembly Number (if used)      Schematic Circuit Number

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

**Static Sensitive Devices**  
 See Maintenance Section

P/O A54 DISPLAY BD.

Table 8-54  
**ADDRESS GENE  — DISPLAY BD., ASSEMBLY A54**

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			
			U250A	C5	D2
P541	A1	C6	U250B	B5	D2
P541	G5	C6	U250C	C3	D2
			U250D	B5	D2
R270	G2	B2	U260C	C5	A3
R290	C4	B2	U270A	C3	B2
R310	E1	E2	U270B	G2	B2
R330	F2	G1	U290	C4	B2
R331	F2	G1	U300A	F2	E2
R332	F2	G2	U300B	D4	E2
R340	F3	D3	U300D	F5	E2
R341	G3	D3	U300E	B2	E2
R350	F3	D4	U310A	E1	E2
R351	G4	D4	U310B	E4	E2
R360	F4	D4	U320A	E3	D2
R361	G5	D4	U330	F2	G2
R370	C2	F2	U340	F3	D3
R371	D2	F2	U350	F4	D3
R372	D2	G1	U360	F4	D4
			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

1

2

3

4

5

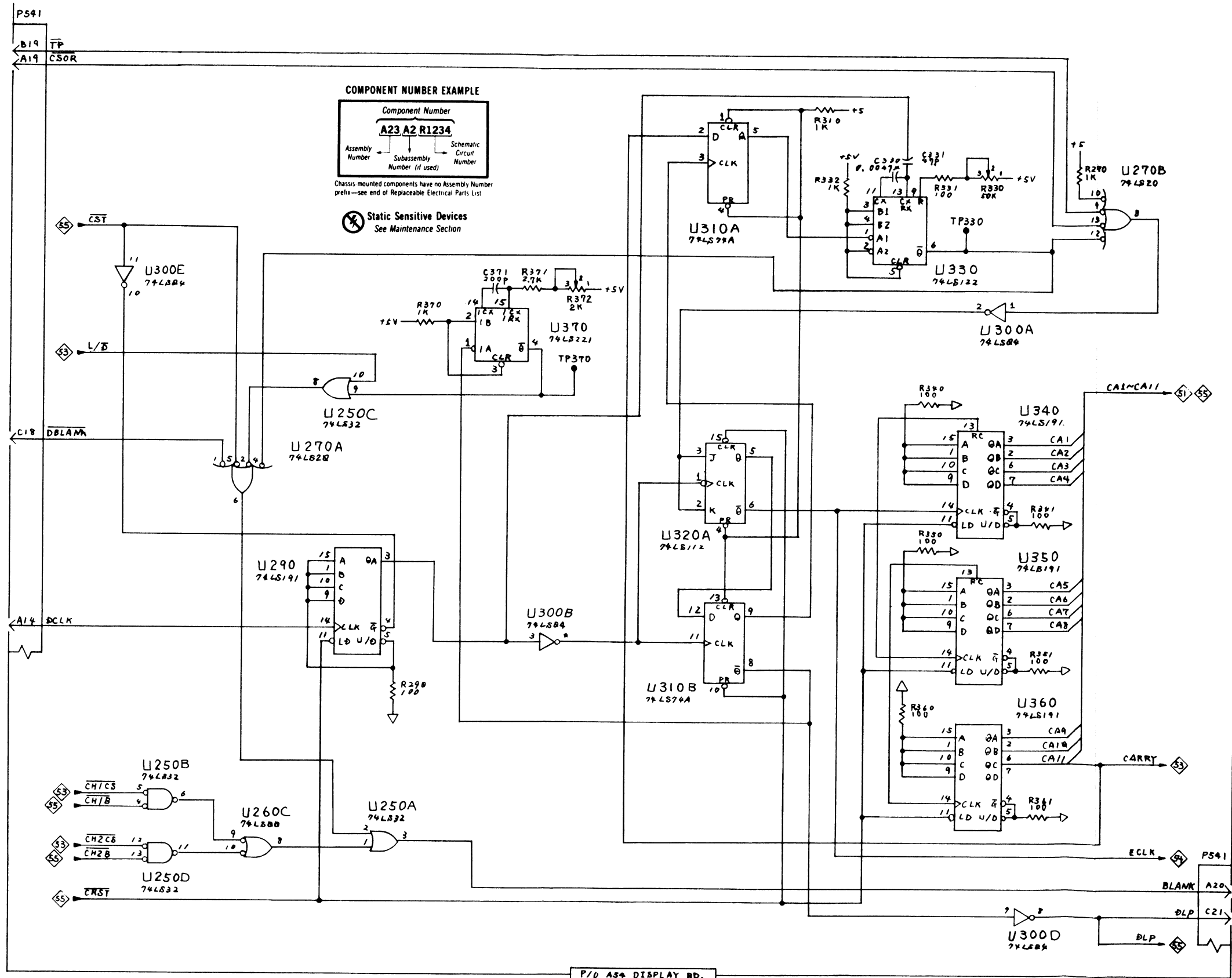



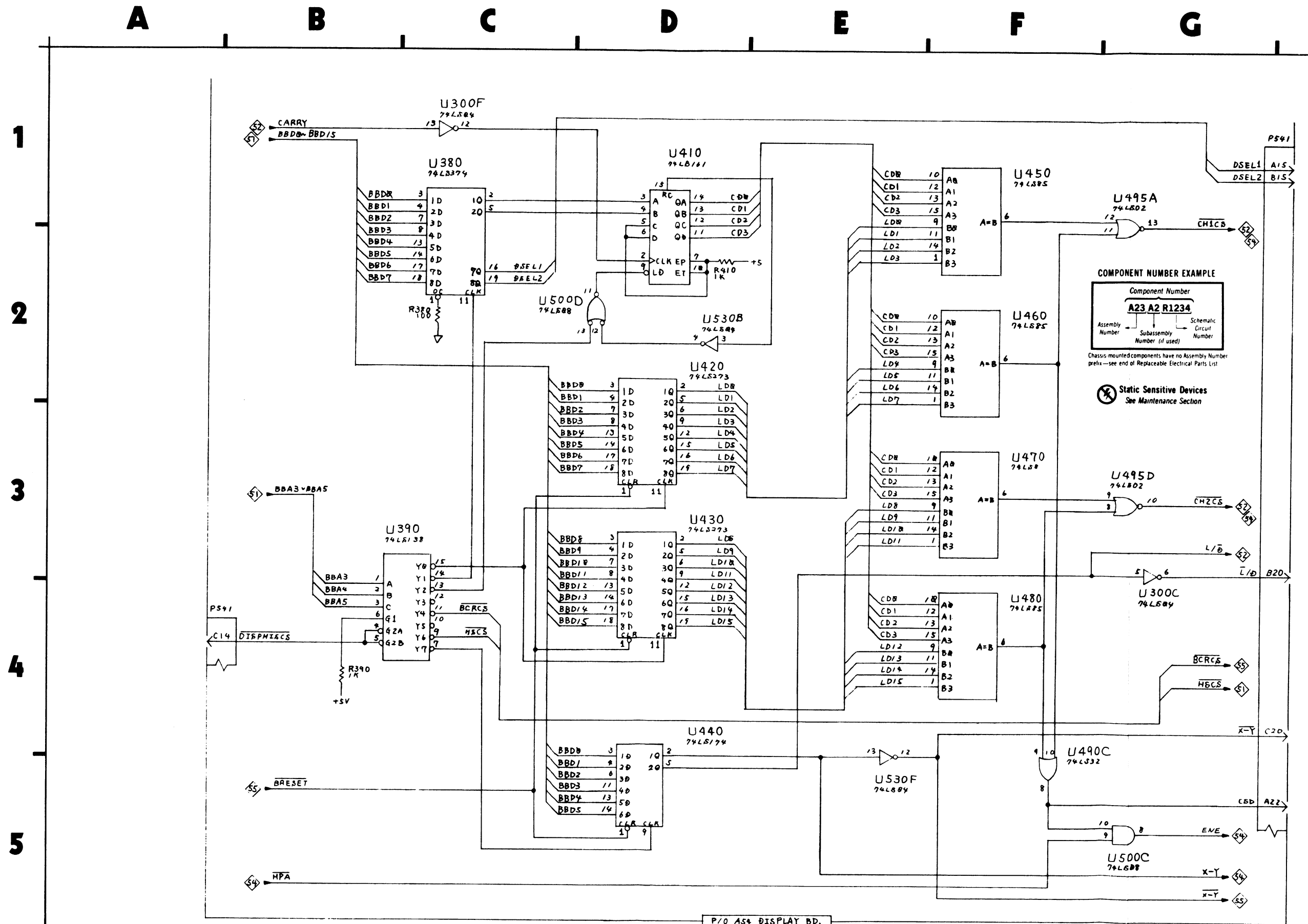
Table 8-55

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.



**COMPONENT NUMBER EXAMPLE**


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

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

**Static Sensitive Devices**  
See Maintenance Section

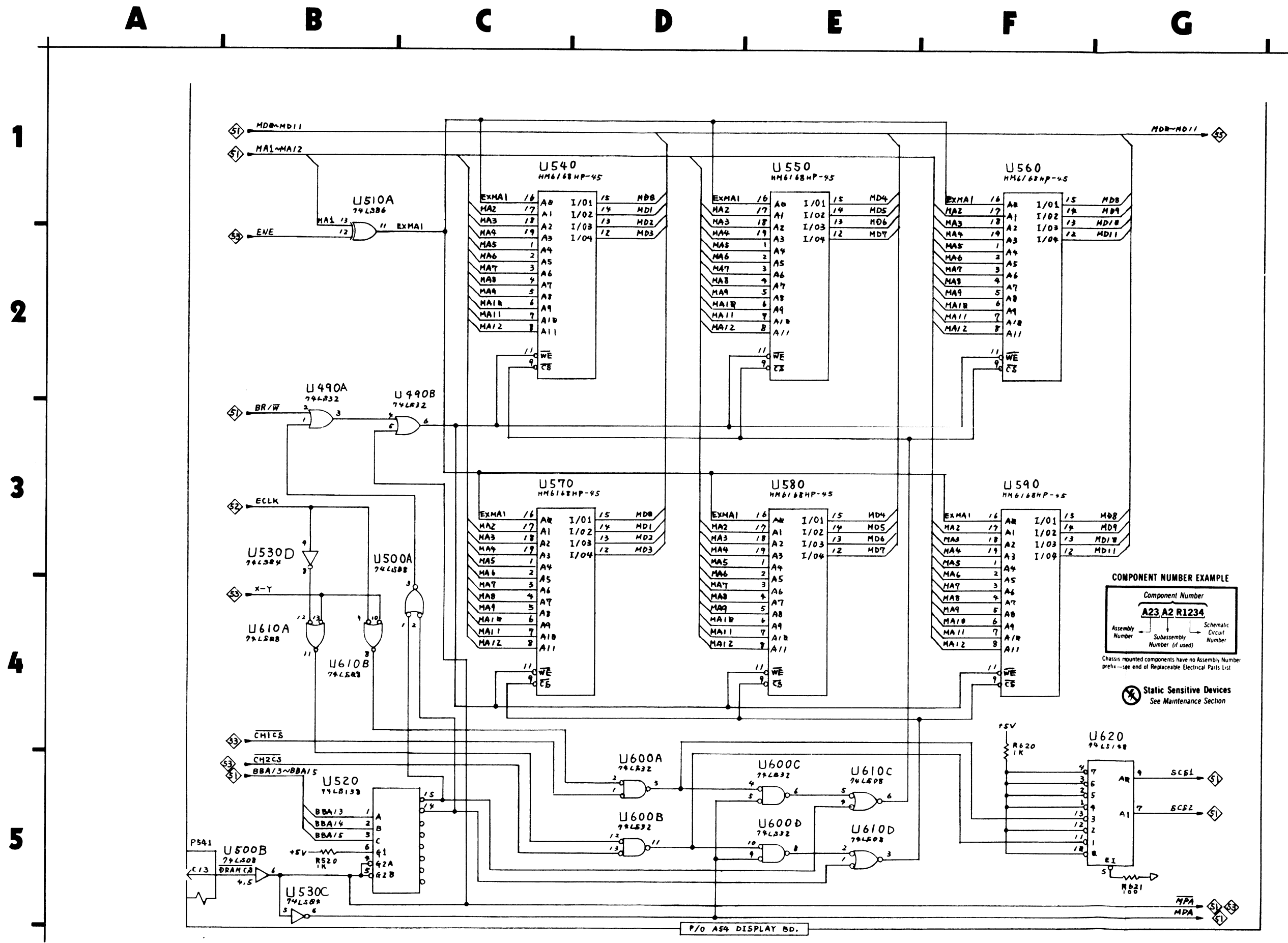
P/O AS4 DISPLAY BD.



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.




**COMPONENT NUMBER EXAMPLE**

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

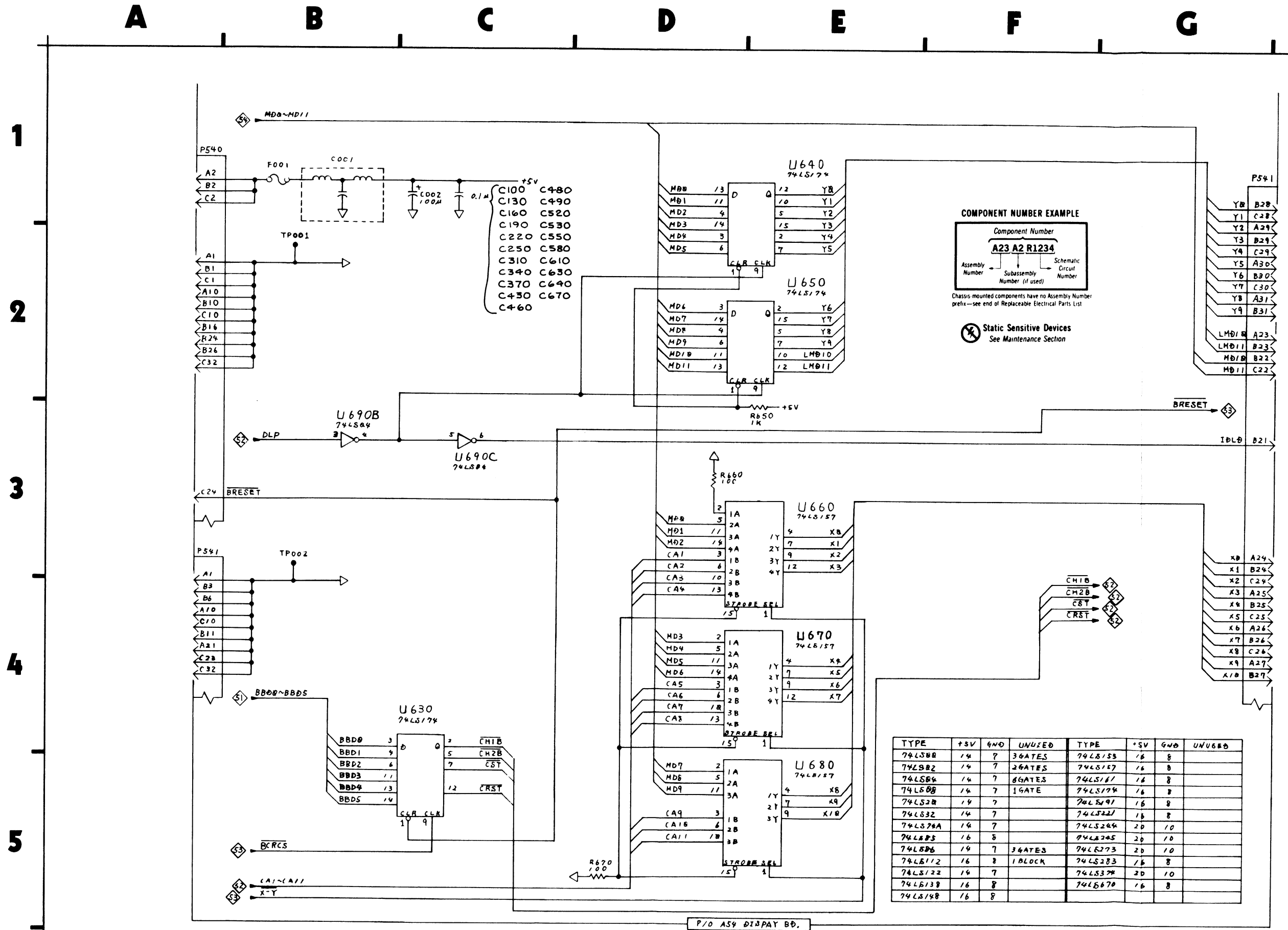
Chassis-mounted components have no Assembly Number prefix—see end of Replaceable Electrical Parts List

⊗ Static Sensitive Devices  
See Maintenance Section

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

CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION	CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION
C001	B1	K5	F001	B1	K5
C002	C1	J5			
C100	C1	H4	P540	A1	I6
C130	C1	J3	P541	A3	C6
C160	C1	G3	P541	G1	C6
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	C3	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.



**COMPONENT NUMBER EXAMPLE**

Component Number  
**A23 A2 R1234**

Assembly Number      Subassembly Number (if used)      Schematic Circuit Number

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

Static Sensitive Devices  
See Maintenance Section

TYPE	+5V	GND	UNUSED	TYPE	+5V	GND	UNUSED
74LS00	14	7	3GATES	74LS153	16	8	
74LS02	14	7	2GATES	74LS157	16	8	
74LS04	14	7	8GATES	74LS161	16	8	
74LS08	14	7	1GATE	74LS174	16	8	
74LS20	14	7		74LS191	16	8	
74LS32	14	7		74LS221	16	8	
74LS74A	14	7		74LS244	20	10	
74LS83	16	8		74LS245	20	10	
74LS86	14	7	3GATES	74LS273	20	10	
74LS112	16	8	1BLOCK	74LS283	16	8	
74LS122	14	7		74LS374	20	10	
74LS138	16	8		74LS670	16	8	
74LS148	16	8					

P/O AS4 DISPLAY BD.

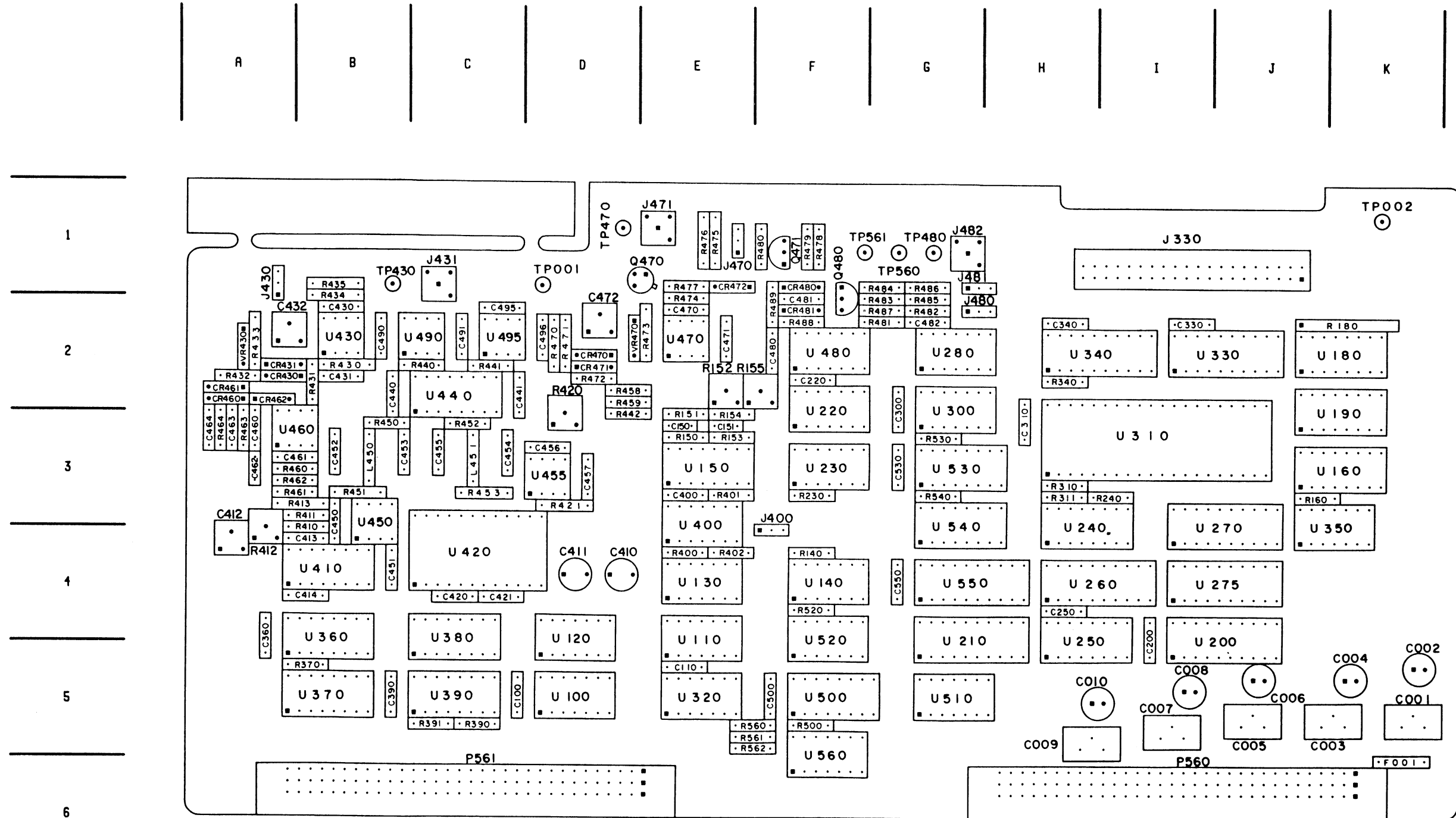


Fig. 8-16. A56 GPIB/MONITOR BD., CIRCUIT BD. ASS.

**SEE  
OTHER  
SIDE**

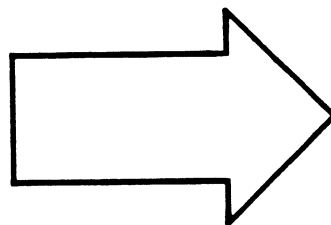



Table 8-58

**CURSOR & TP CONTROL**   
**GPIB/MONITOR BD., ASSEMBLY A56**

<b>CIRCUIT NUMBER</b>	<b>SCHEMATIC LOCATION</b>	<b>BOARD LOCATION</b>
C150	F2	E3
C151	F2	E3
J330	G4	I1
P330	H4	I1
P560	B4	I6
P561	B1	C6
P561	G2	C6
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	E4
U110B	E2	E4
U110C	E1	E4
U110D	C1	E4
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.**

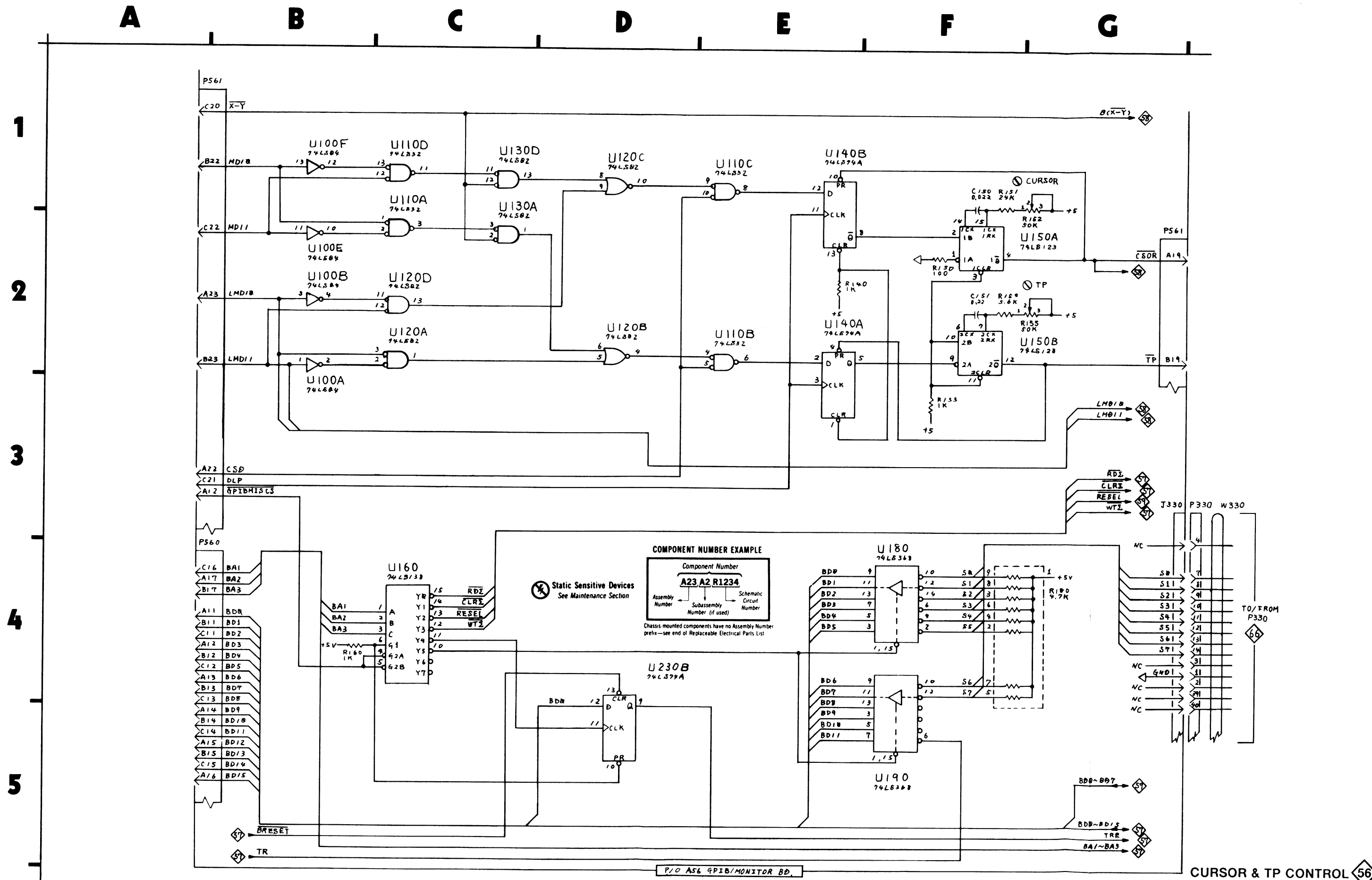




Table 8-59

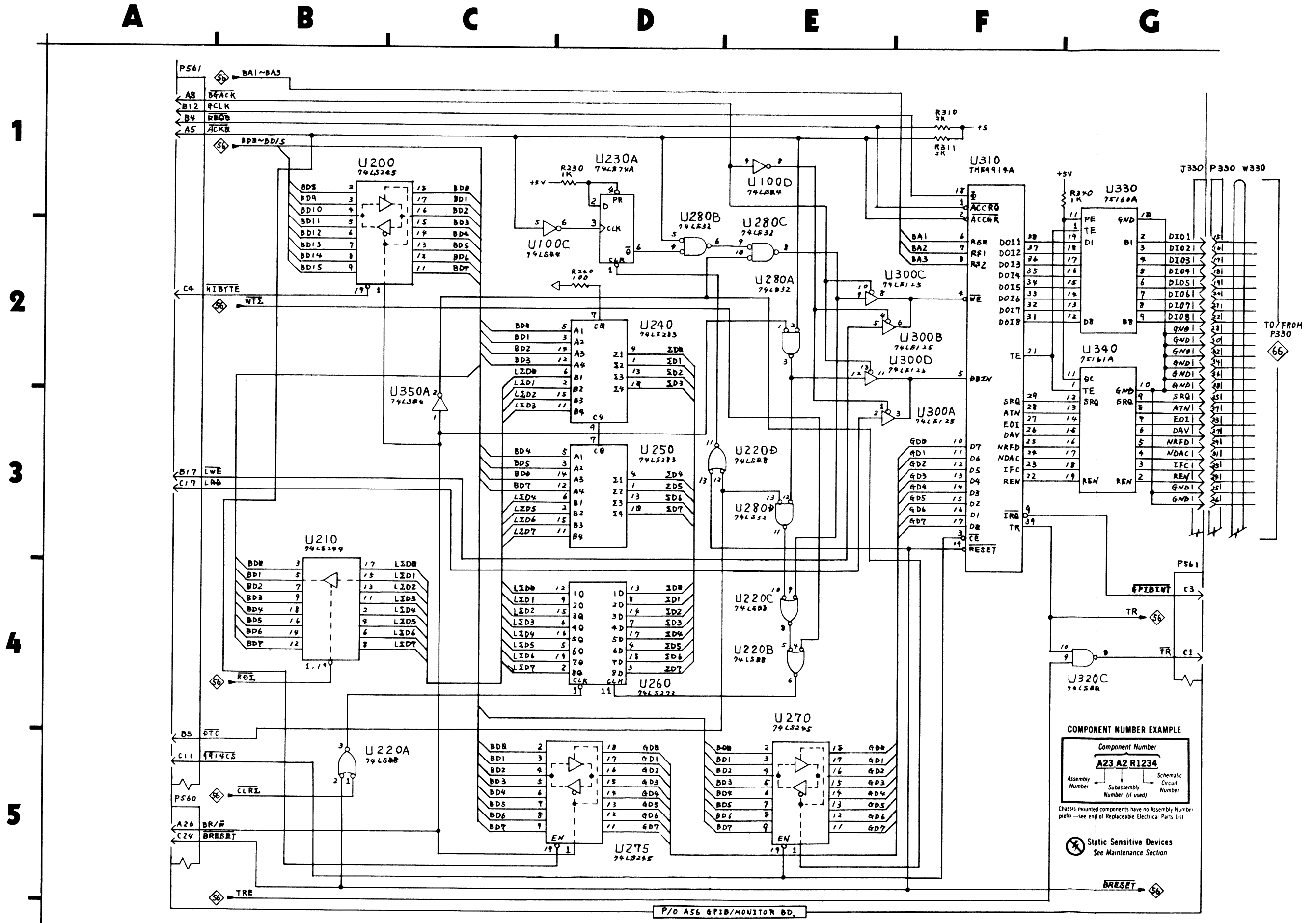


GPIB/MONITOR BD., ASSEMBLY A56

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	E5	J3
U275	D5	J4
U280A	E2	G2
U280B	D2	G2
U280C	E2	G2
U280D	E3	G2
U300A	E3	G2
U300B	E2	G2
U300C	E2	G2
U300D	E2	G2
U310	F1	I3
U320C	G4	E5
U330	G1	I2
U340	G2	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.



P/O AS6 GPIB/MONITOR BD.

Table 8-60

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	F5	F1	R463	E2	A3
C482	G5	G2	R464	E2	A3
			R470	E4	D2
CR430	E2	A2	R471	F4	D2
CR431	E2	A2	R472	E4	D2
CR460	E2	A2	R473	F4	E2
CR461	E2	A2	R474	F3	E1
CR462	E2	A2	R475	F4	E1
CR470	E4	D2	R476	G4	E1
CR471	E4	D2	R477	F3	E1
CR472	E3	E1	R478	E5	F1
CR480	E5	F1	R479	E4	F1
CR481	F5	F2	R480	E5	F1
			R481	F4	G2
J400	D3	F3	R482	G5	G2
J430	G2	A1	R483	G5	G1
J431	G2	C1	R484	G5	G1
J470	G4	E1	R485	G4	G1
J471	G4	E1	R486	G4	G1
J480	G4	G2	R487	F5	G2
J481	G4	G1	R488	F4	F2
J482	G4	G1	R489	E5	F2
			TP430	G2	B1
L450	F1	B3	TP470	G4	D1
L451	F3	C3	TP480	G5	G1
			U130B	C5	E4
P400	D3	F3	U320A	C2	E5
P430	G2	A1	U320D	B5	E5
P470	G3	E1	U360	C1	B4
P480	G4	G2	U370	C2	B5
P481	G4	G1	U380	C3	C4
P561	B1	C6	U390	C4	C5
P561	G1	C6	U400	D3	E3
			U410	D2	B4
Q470	F4	D1	U420	D4	C4
Q471	E5	F1	U430	F2	B2
Q480	F5	F1	U440A	F1	C2
			U440B	E3	C2
R370	C3	B5	U440C	G3	C2
R390	C5	C5	U450	E1	B3
R391	C4	C5	U455	F3	D3
R400	C3	E4	U460	E3	A3
R401	D3	E3	U470	F4	E2
R402	D3	E4	U480A	F5	F2
R410	D2	B3	U480B	G5	F2
R411	D2	B3	U480C	F5	F2
R412	E2	A4	U480D	G5	F2
R413	E2	B3	U490	G1	C2
R420	E4	D2	U495	G3	C2
R421	E4	D3			
R430	E2	B2			
R431	E2	B2			
R432	E2	A2	VR430	F2	A2
R433	F2	A2	VR470	F4	D2
R434	F2	B1			
R435	G2	B1	W431	H2	CHASSIS
R440	F1	C2			

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**

**1**

**2**

**3**

**4**

**5**

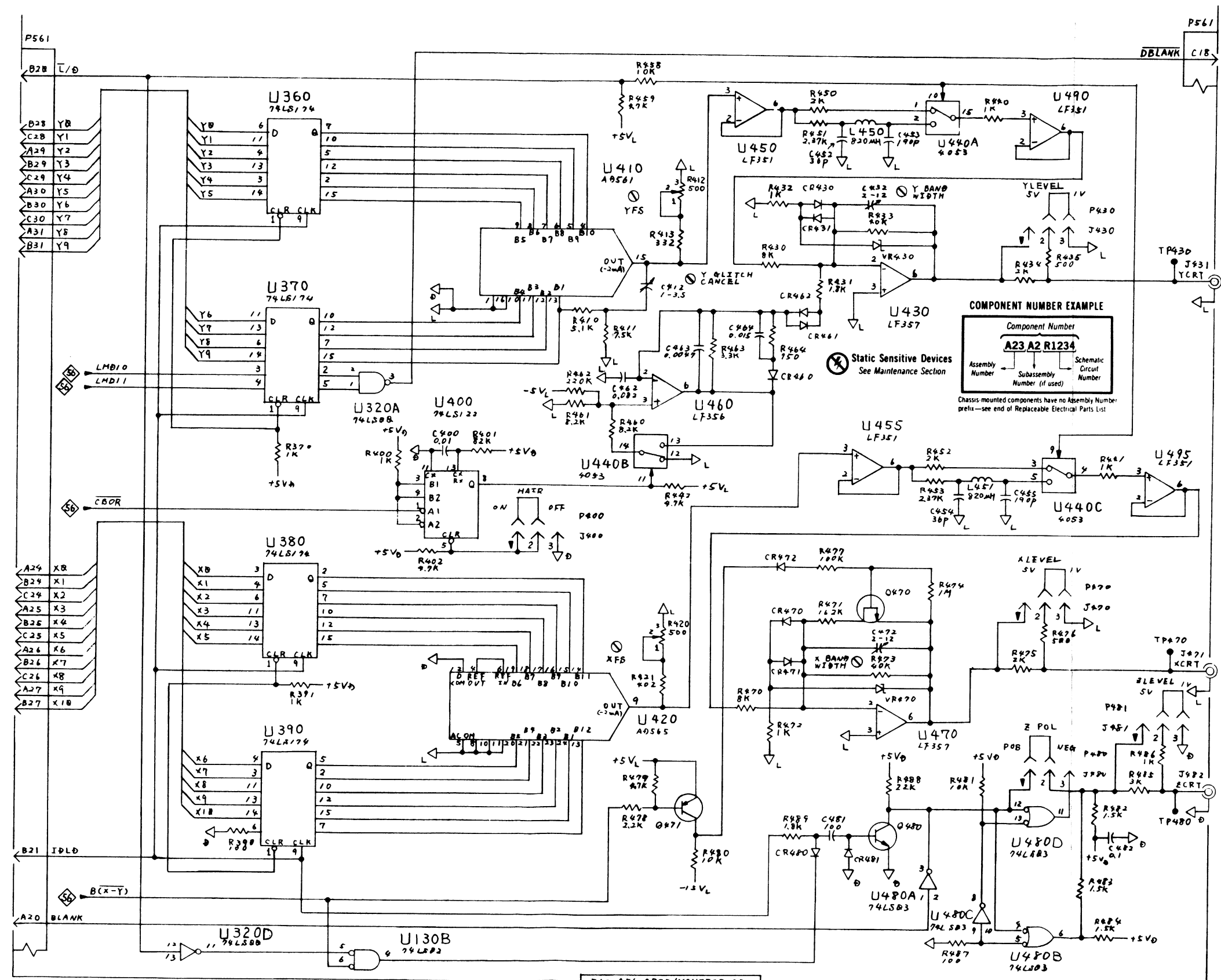



Table 8-61  
 ROTARY ENCODER  — GPIB/MONITOR BD., ASSEMBLY A56

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	C5	P561	A1	C6
C110	C3	E5	P561	G4	C6
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	C5	D4	TP001	G3	D1
C411	C4	D4	TP002	G3	K1
C413	C5	B4	TP560	B1	G1
C414	C4	B4	TP561	B2	F1
C420	C4	C4			
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	G1	G4
C471	C4	E2	U560D	F3	F5
C480	C3	F2	U560E	B1	F5
C490	C4	B2	U560F	B2	F5
C491	C4	C2			

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**

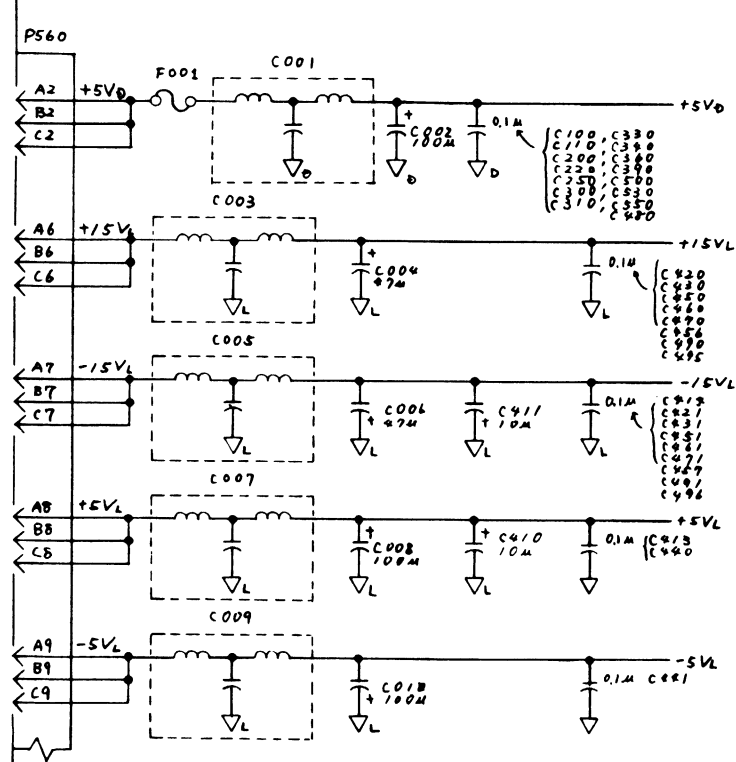
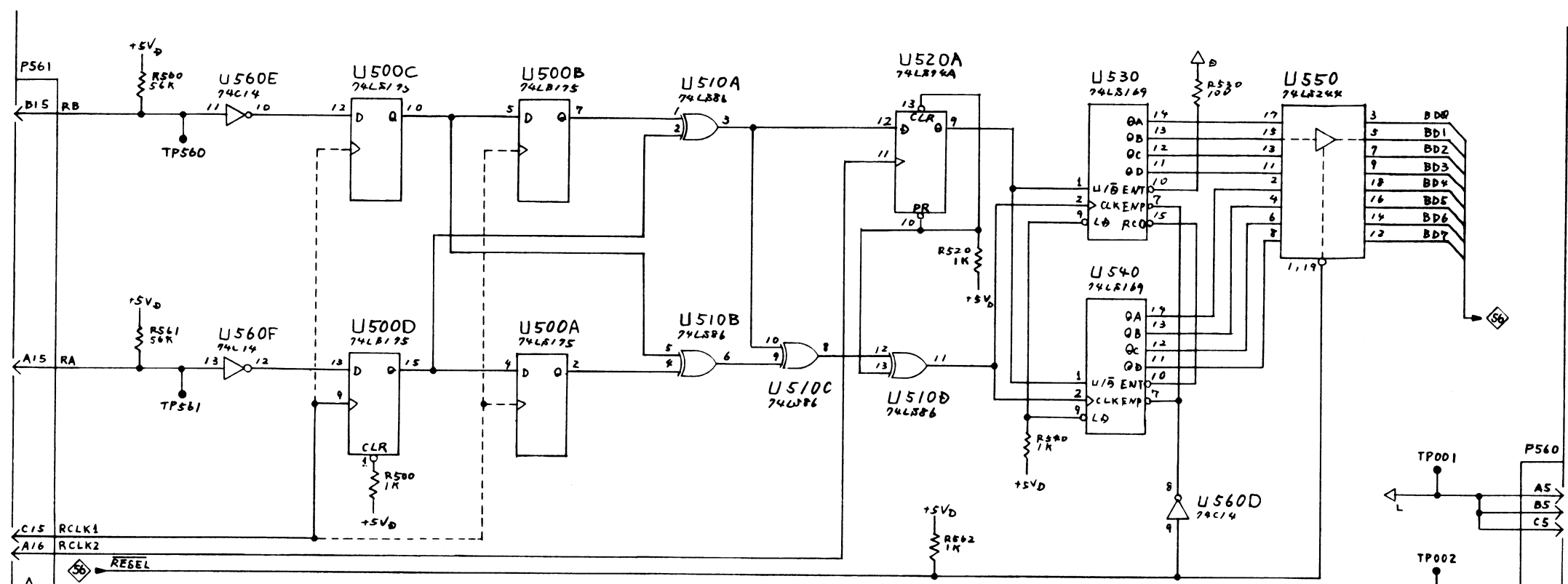
**1**

**2**

**3**

**4**

**5**



TYPE	+5V <sub>D</sub>	D-GND	UNUSED	TYPE	+5V <sub>D</sub>	D-GND	+1.5V <sub>L</sub>	+1.5V <sub>L</sub>	-1.5V <sub>L</sub>	-1.5V <sub>L</sub>	L-GND	UNUSED
74LS00	19	7	1GATE	74LS318	16	8						
74LS02	14	7	1GATE	74C14	14	7						3GATES
74LS03	14	7		74LS91	20	10						
74LS04	14	7	5GATES	75160A	20	10						
74LS08	14	7		75161A	20	10						
74LS32	14	7		4053			16	7			6.8	
74LS74A	14	7	1BLOCK									
74LS76	14	7		AD561			14		3		1	
74LS122	14	7		AD565			12	3			7	5
74LS123	16	8		LF351			7				4	
74LS138	14	7		LF356			7		4			
74LS138	16	8		LF357			7				4	
74LS169	16	8										
74LS175	16	8										
74LS244	20	10										
74LS245	20	10										
74LS273	20	10										
74LS283	16	8										

**COMPONENT NUMBER EXAMPLE**

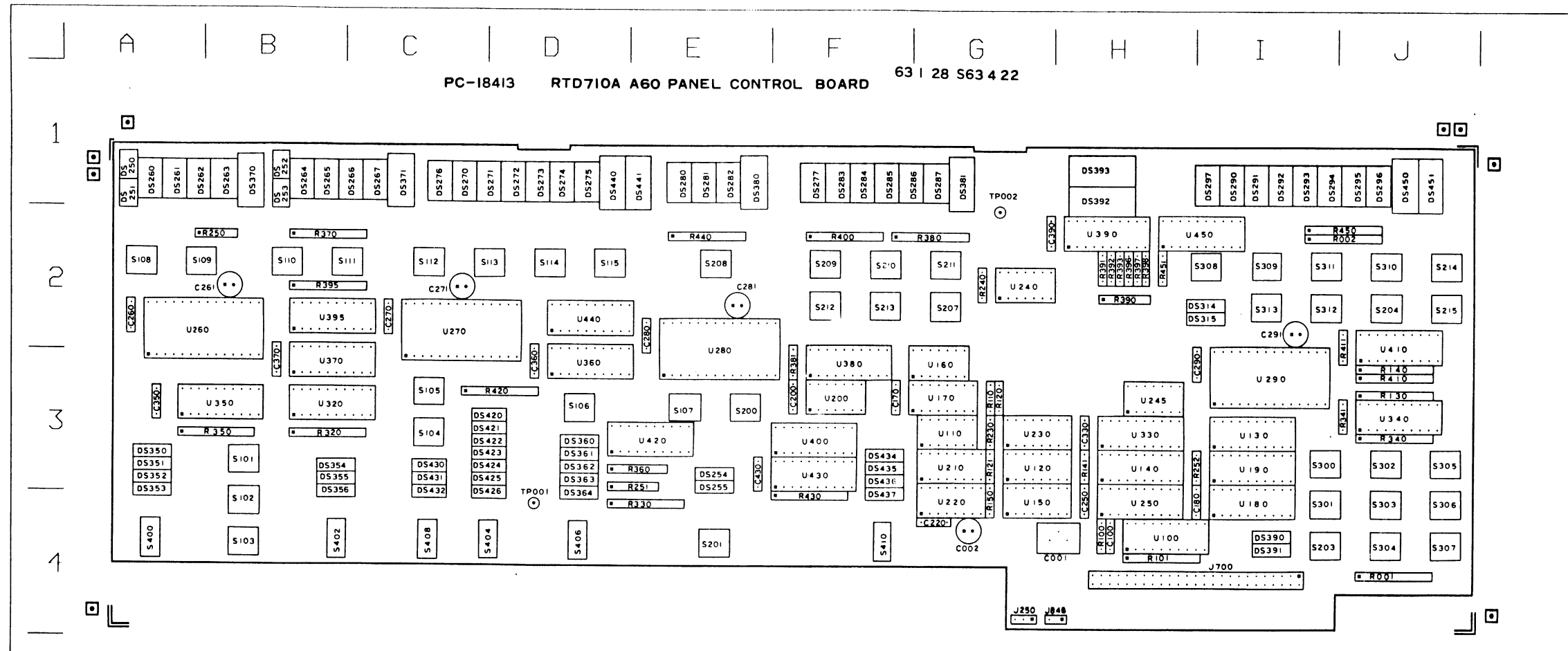
Component Number  
**A23 A2 R1234**

Assembly Number      Subassembly Number (if used)      Schematic Circuit Number

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

⚡ Static Sensitive Devices  
See Maintenance Section

P/O AS6 GPIB/MONITOR BD.



**SEE  
OTHER  
SIDE**

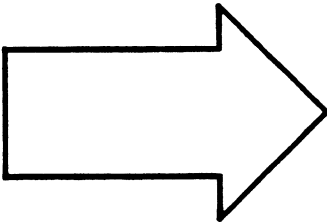




Table 8-62

## PANEL MPU INTERFACE

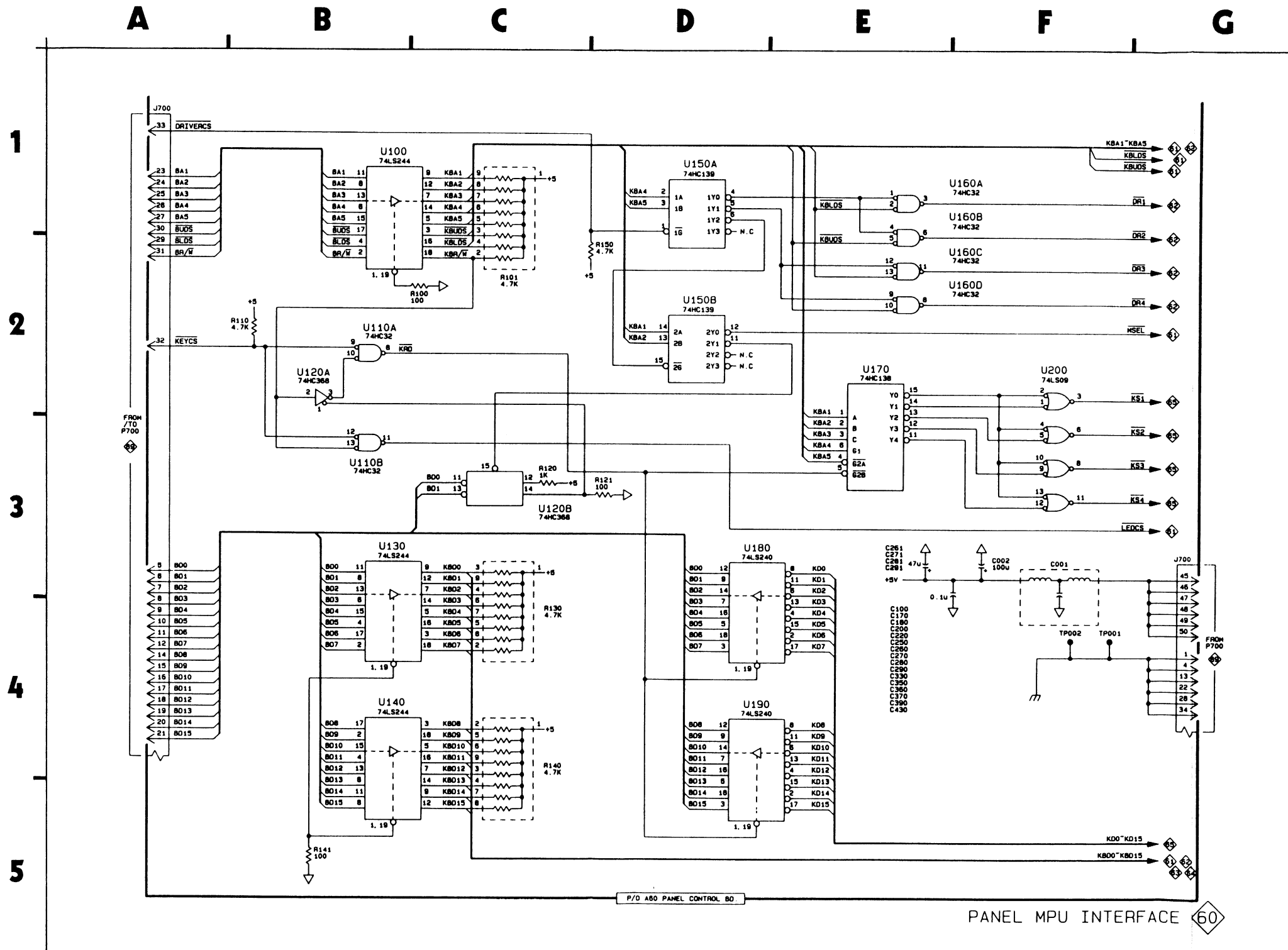


## PANEL CONTROL BD., ASSEMBLY A60

CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION	CIRCUIT NUMBER	SCHEMATIC 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
			U160C	E2	G3
J700	A1	I4	U160D	E2	G3
J700	G3	I4	U170	E2	G3
			U180	D3	I4
R100	C2	H4	U190	D4	I3
R101	C1	H4	UZ00	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.



P/D A80 PANEL CONTROL 80

PANEL MPU INTERFACE 60

Table 8-63

LED DECODER 

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.

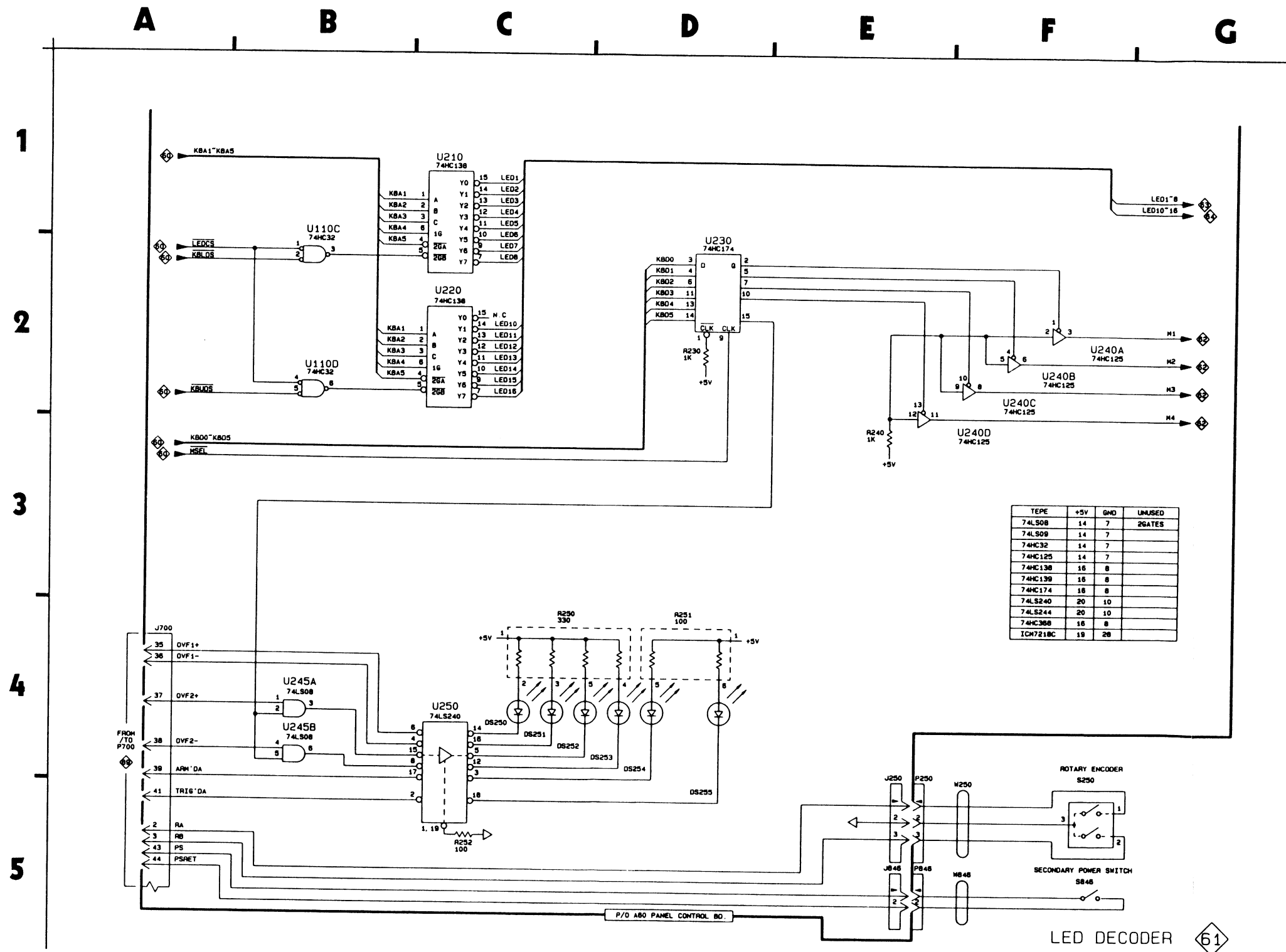


Table 8-64

7SEG LED 

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	D2	D1
DS273	D2	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.

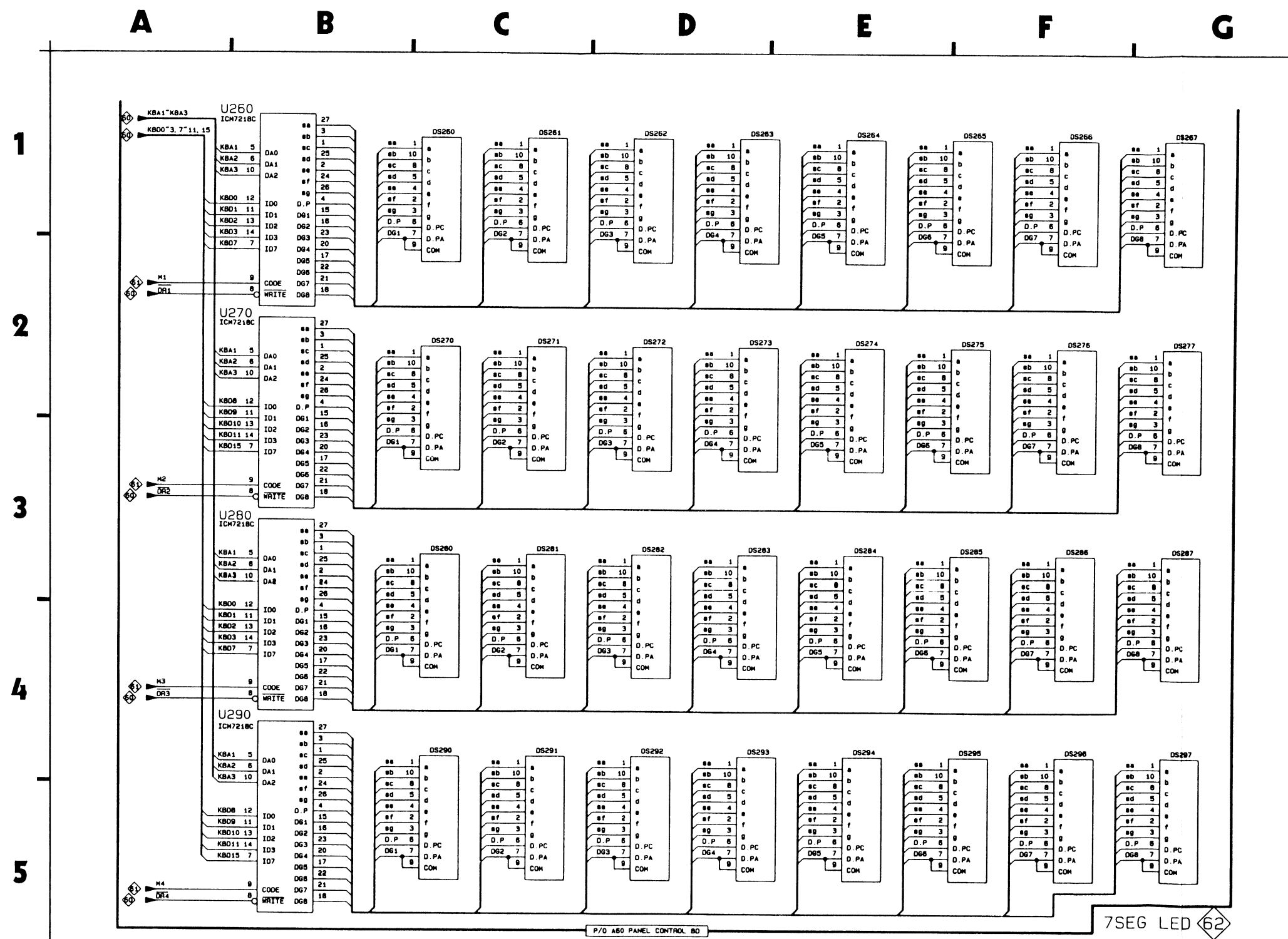



Table 8-65

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.

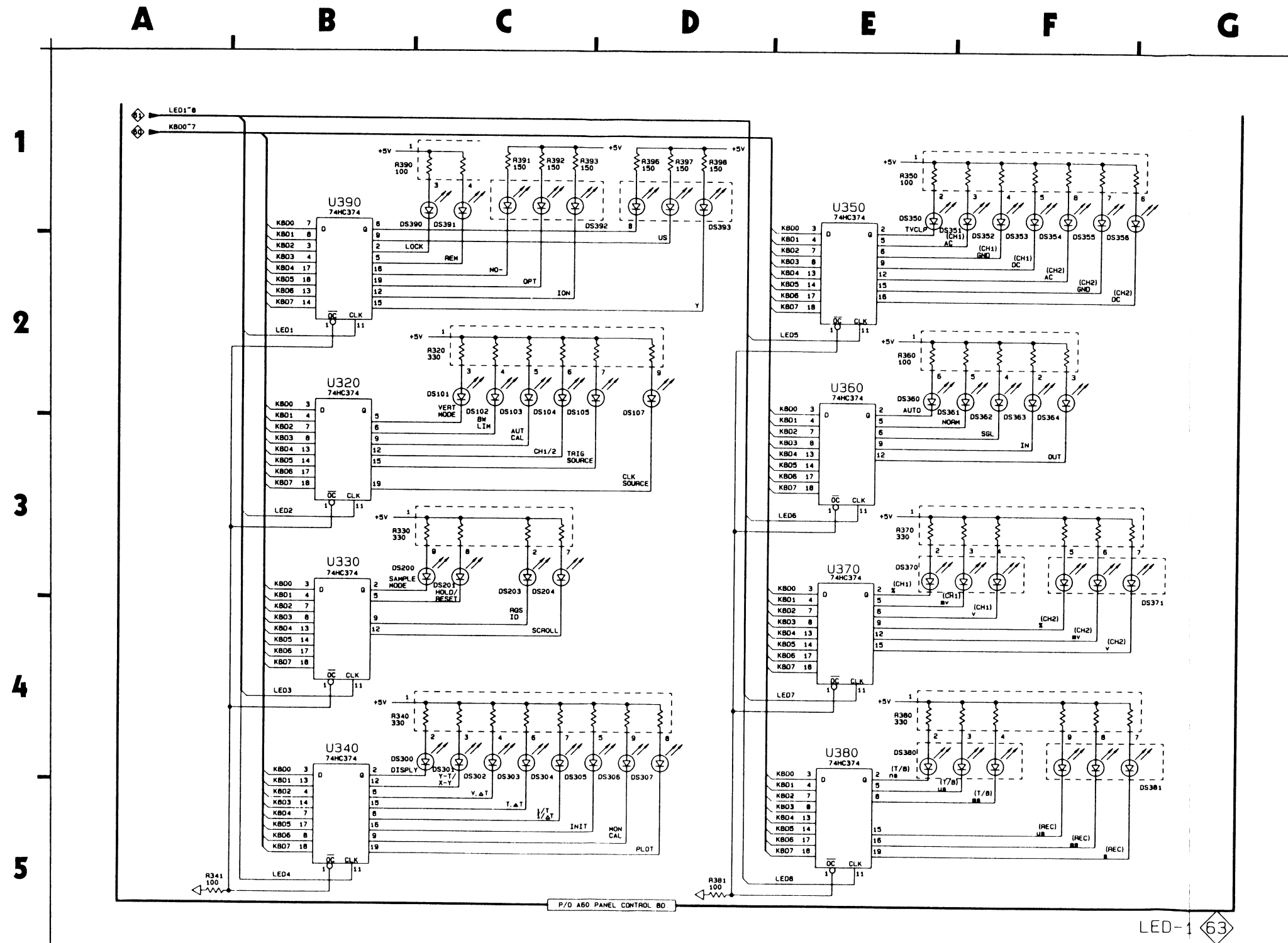





Table 8-66

LED-2 

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.

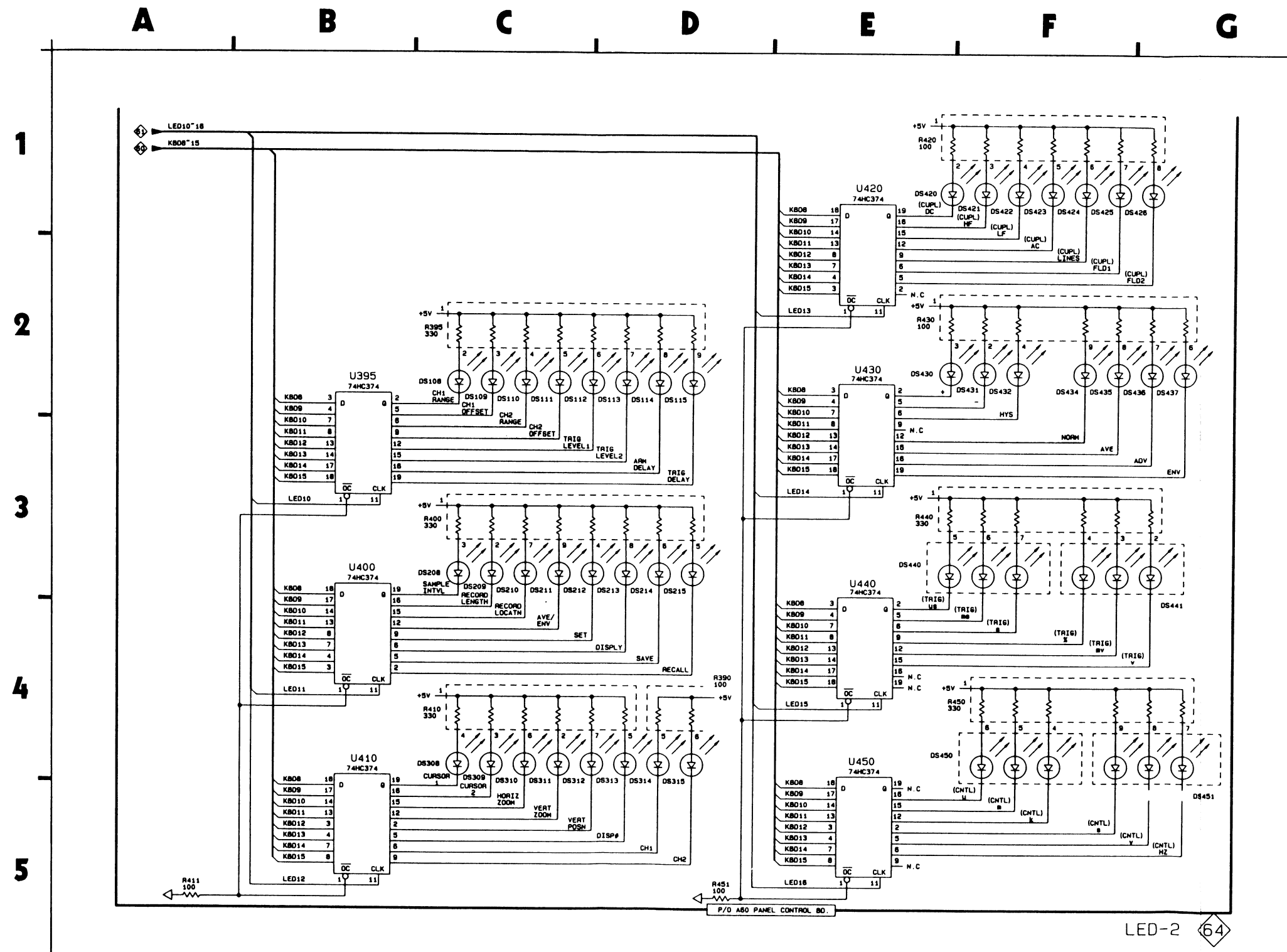


Table 8-67

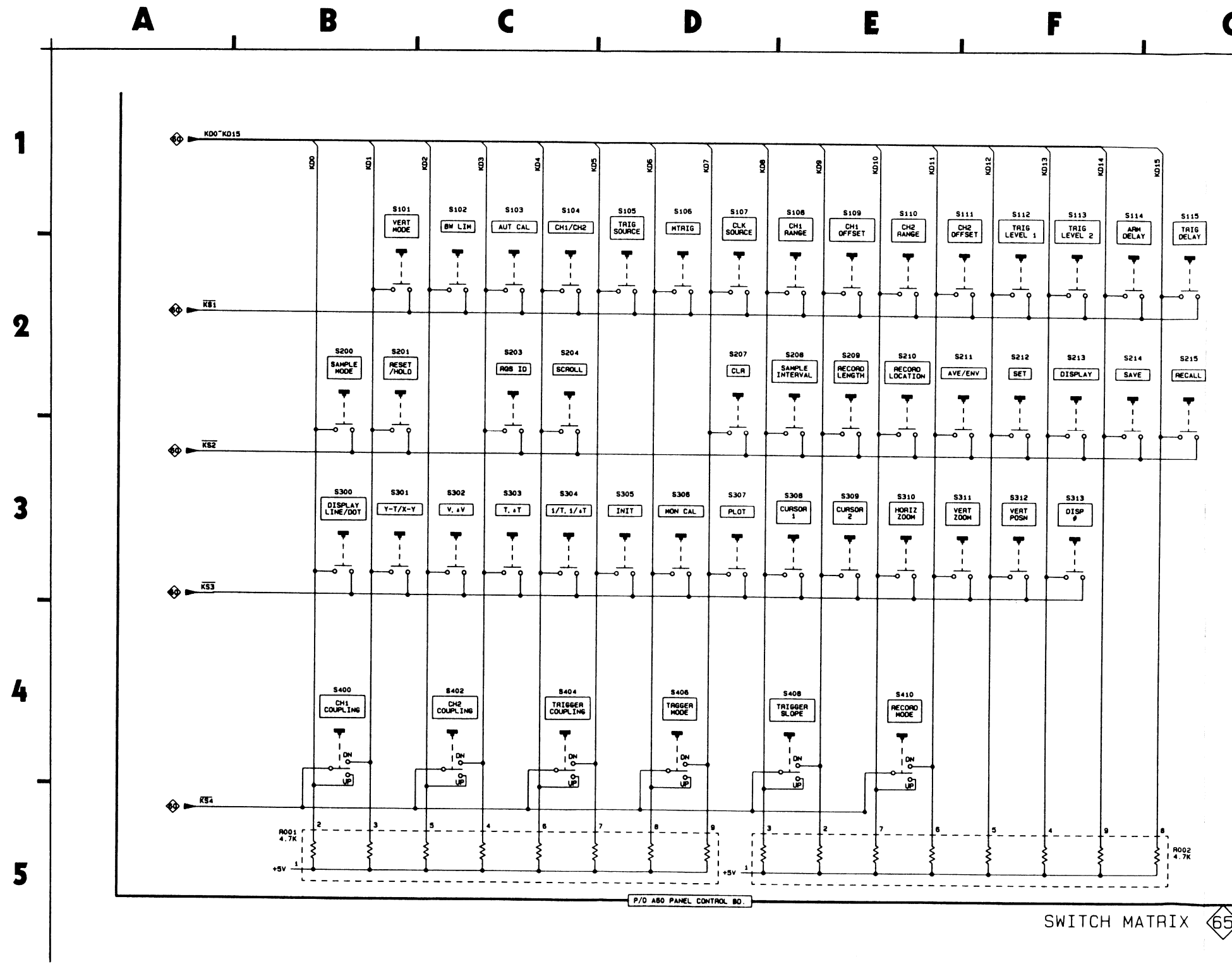
SWITCH MATRIX



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	S406	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.



SWITCH MATRIX 65

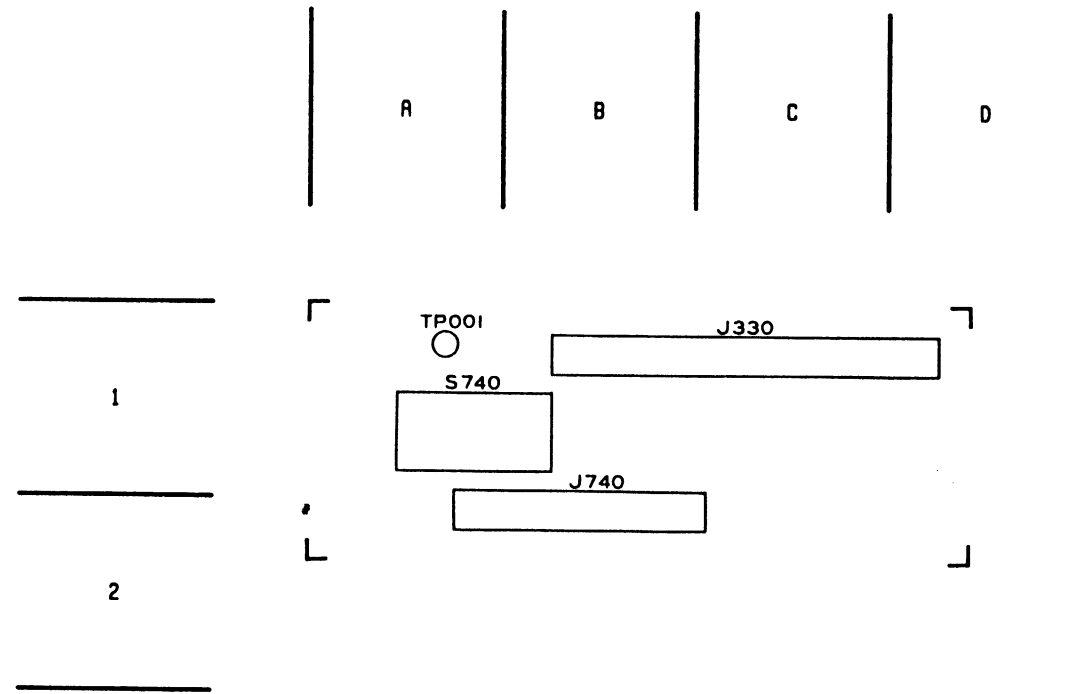

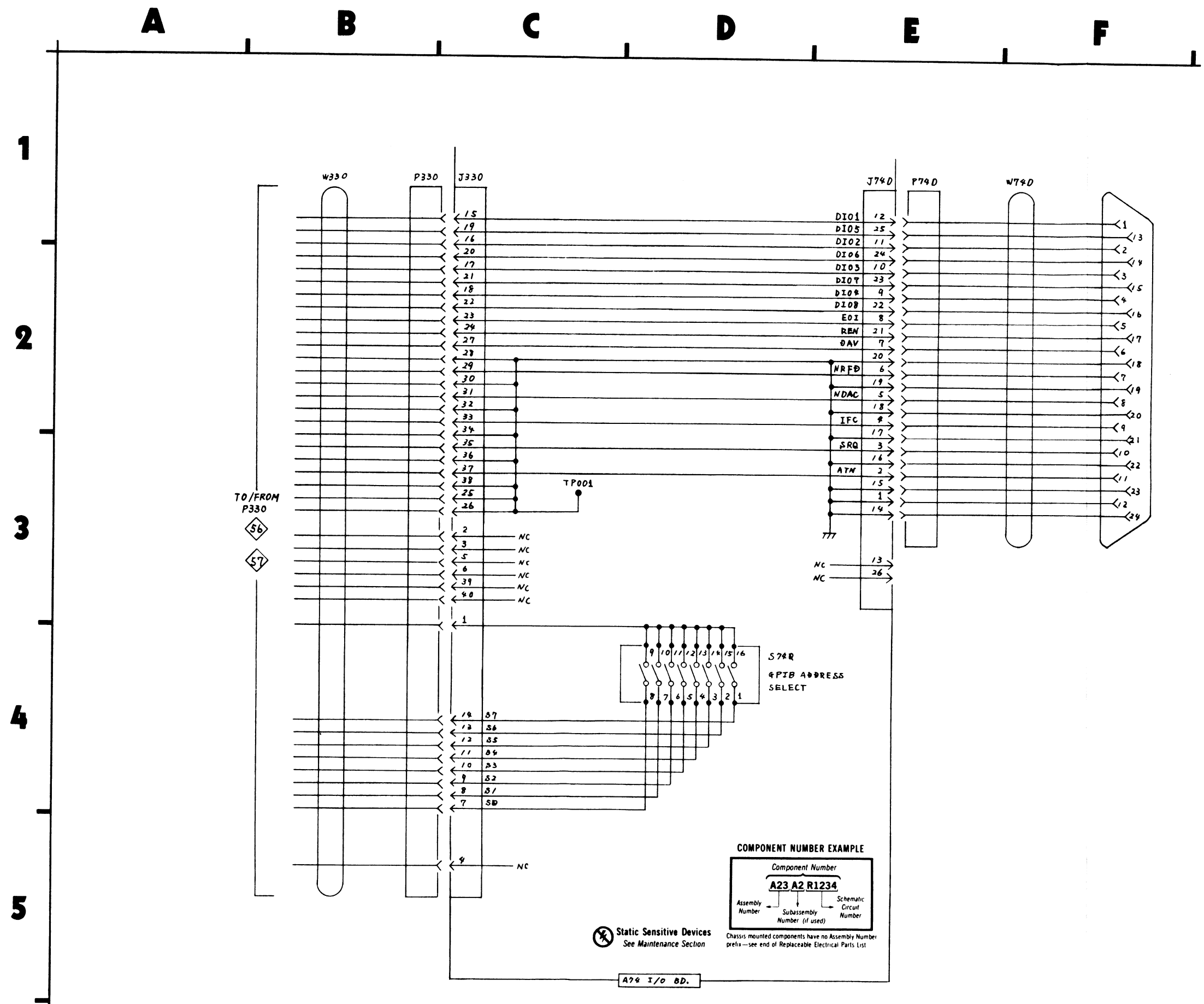


Fig. 8-18. A74 I/O BD., CIRCUIT BD. ASS.

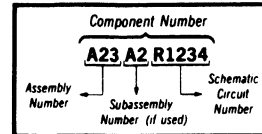
Table 8-68  
I/O  — I/O BD., ASSEMBLY A74

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



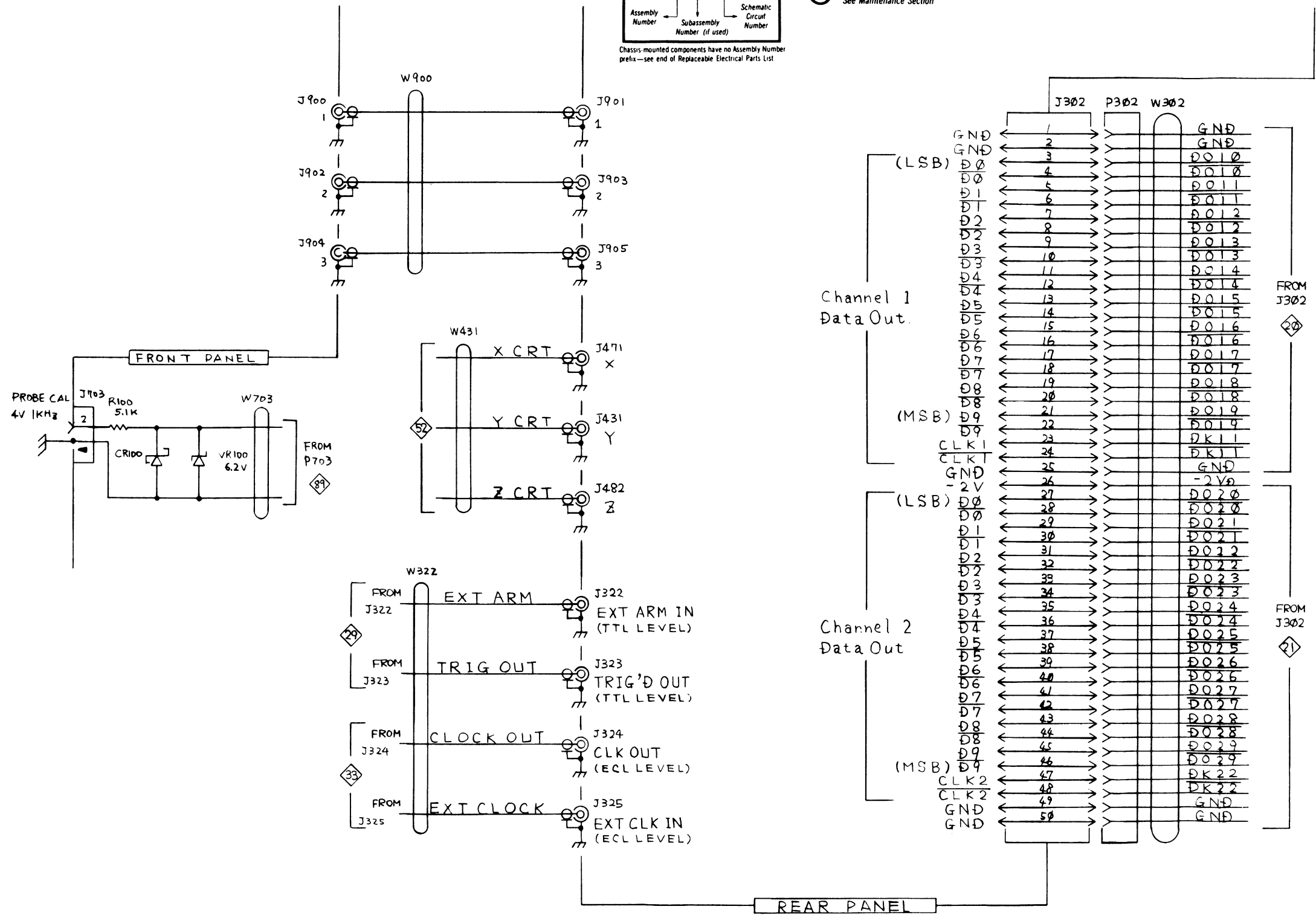


COMPONENT NUMBER EXAMPLE



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

⊗ Static Sensitive Devices  
See Maintenance Section





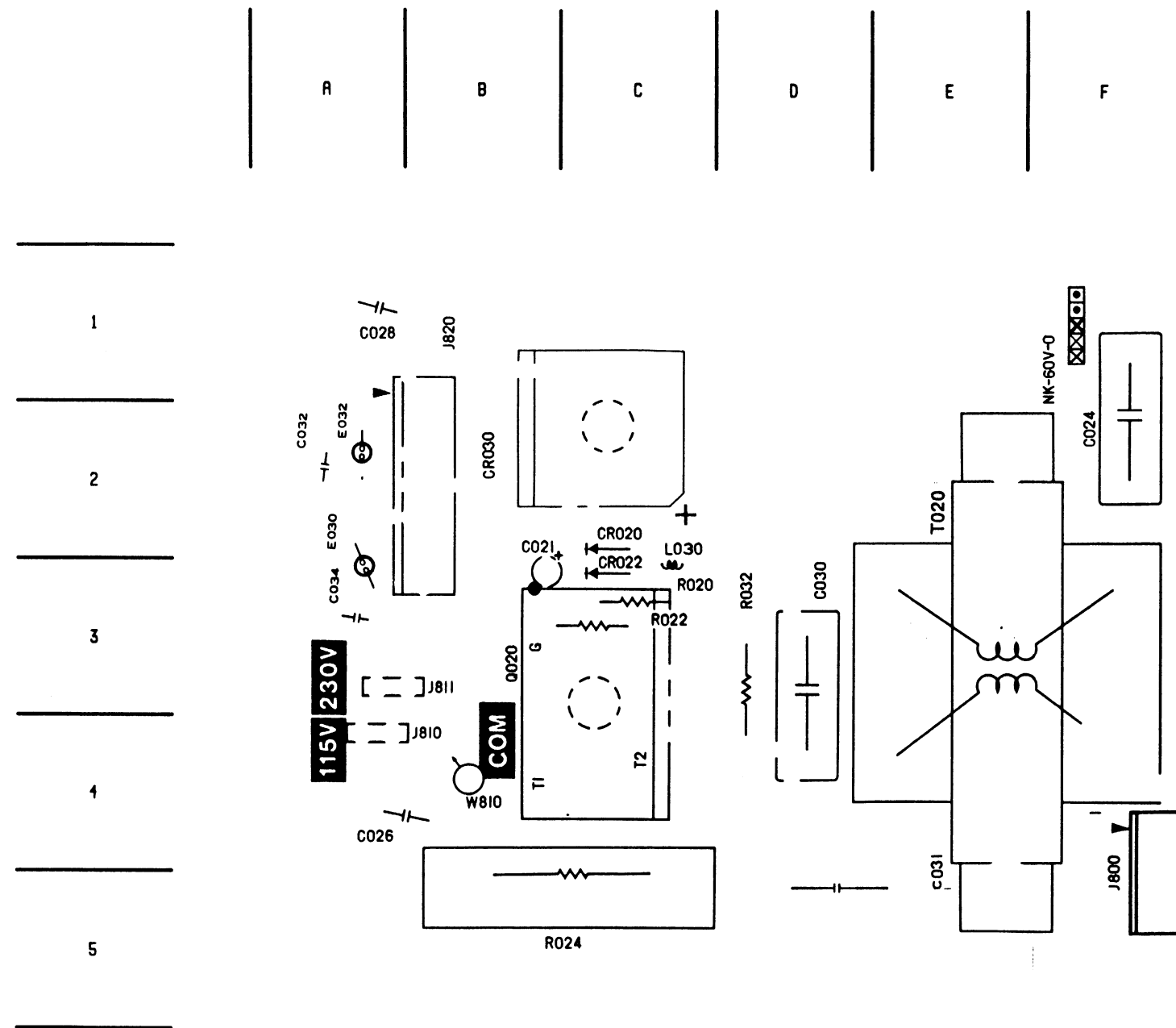
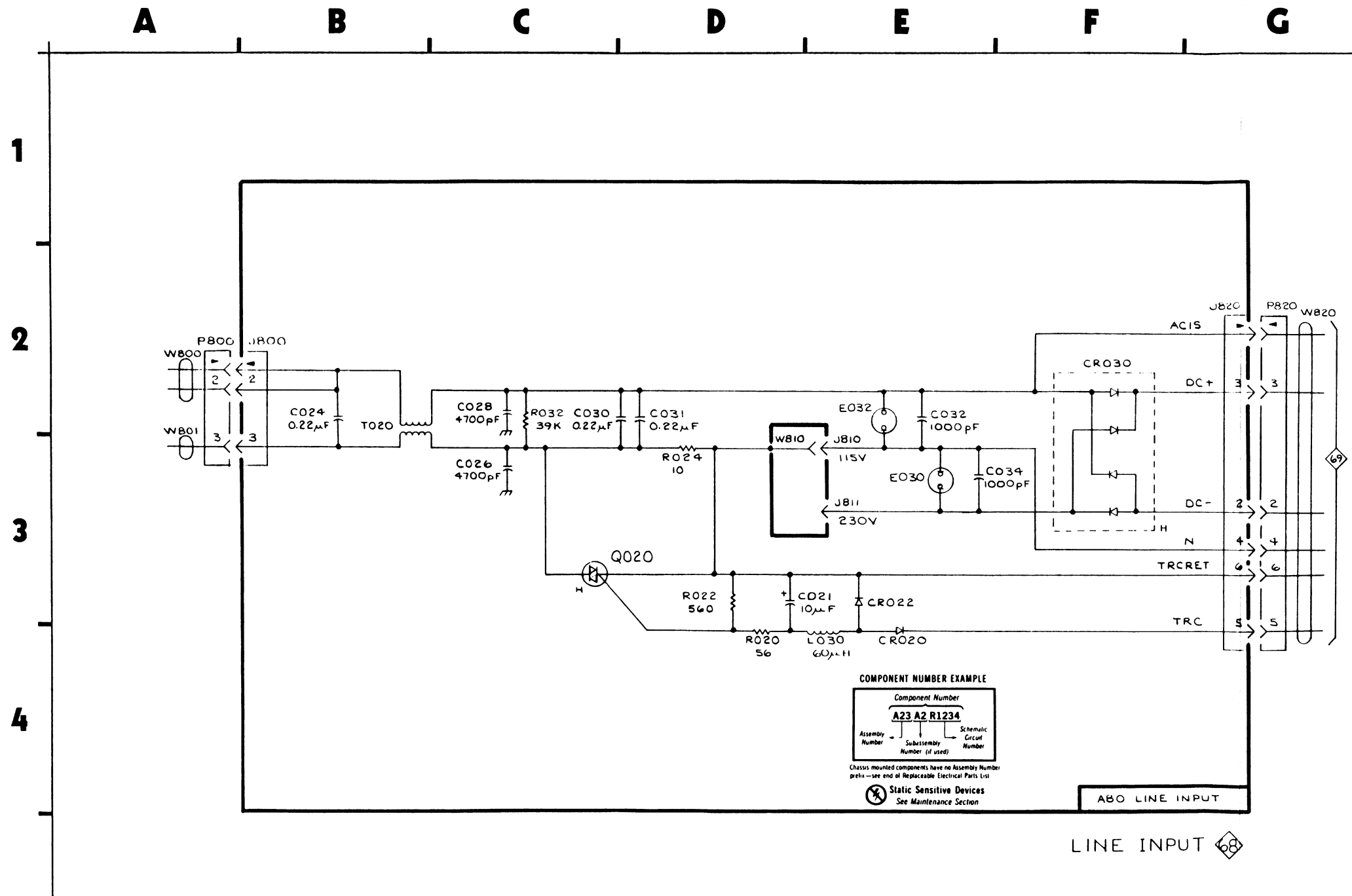


Table 8-69  
**LINE INPUT**   
**LINE INPUT BD., ASSEMBLY A80**

CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION
C021	D3	B3
C024	B2	F2
C026	C3	A4
C028	C2	A1
C030	D2	D3
C031	D2	D5
C032	E2	A2
C034	E3	A3
CR020	E4	C2
CR022	E3	C3
CR030	F2	C2
E030	E3	A3
E032	E2	A2
J800	A2	F4
J810	E3	A4
J811	E3	A3
J820	G2	B2
L030	E4	C3
P800	A2	F4
P820	G2	B2
Q020	C3	C3
R020	D4	C3
R022	D3	C3
R024	D3	C5
R032	C2	D3
T020	B2	E3
W810	D3	B4

Fig. 8-19. A80 LINE INPUT BD., CIRCUIT BD. ASS.



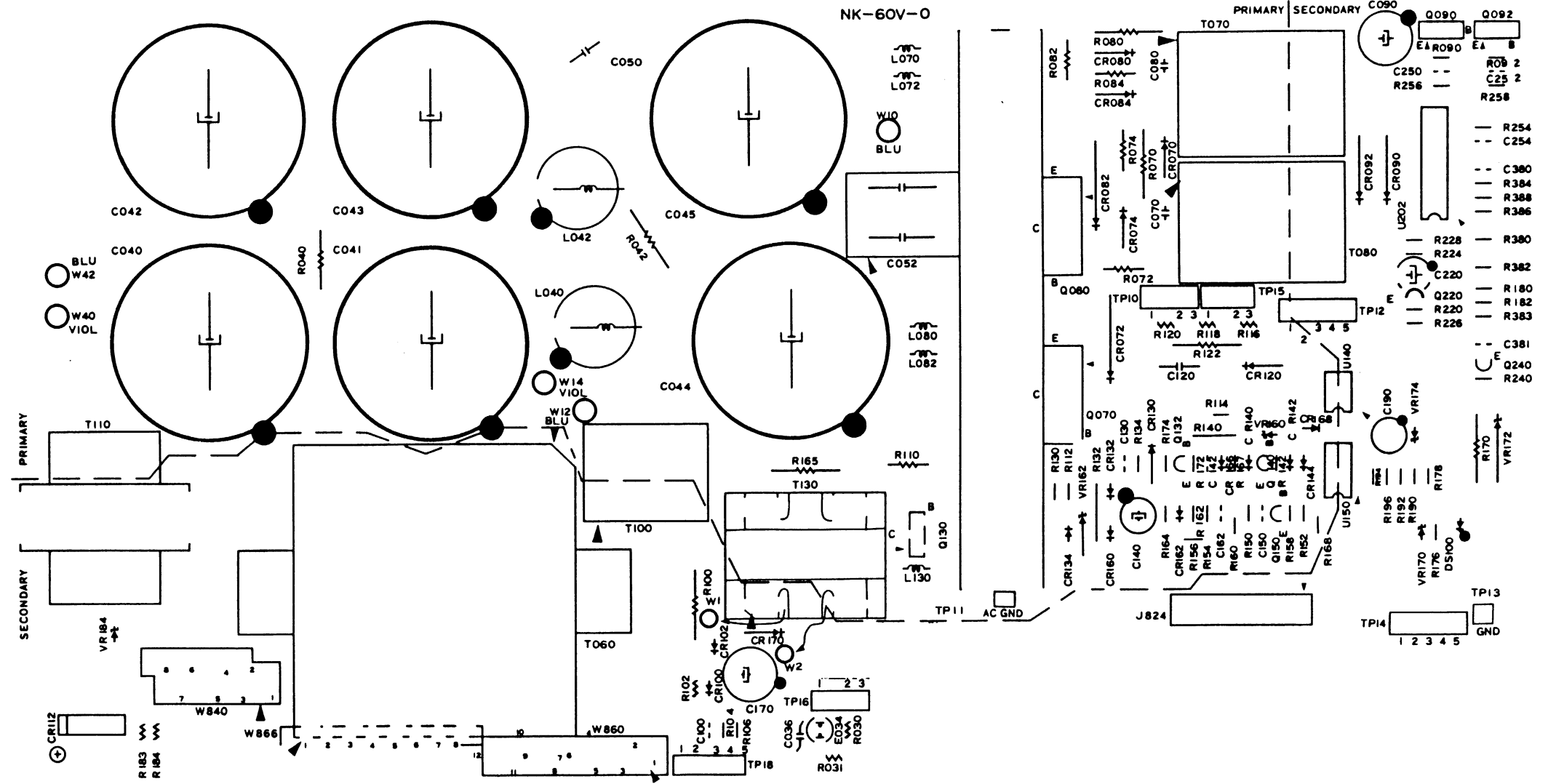
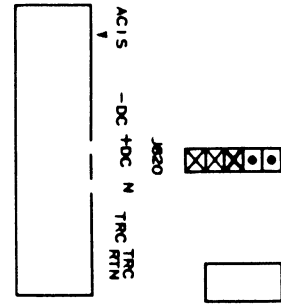
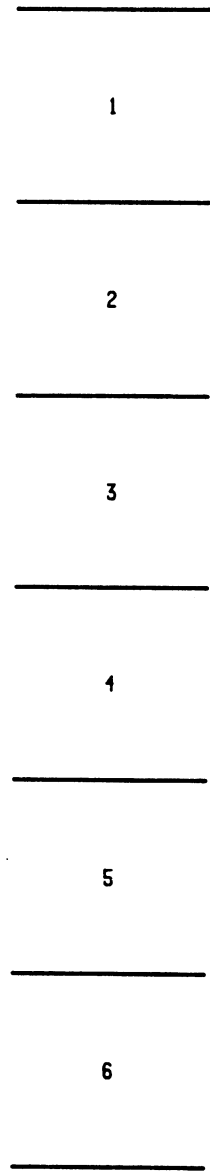
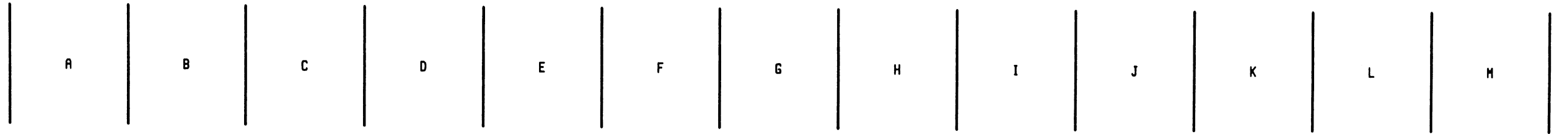


Fig. 8-20. A82 INVERTER BD., CIRCUIT BD. ASS.

**SEE  
OTHER  
SIDE**

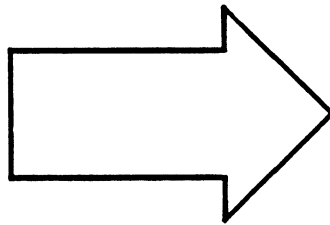



Table 8-70

INVERTER  — INVERTER BD., ASSEMBLY A82

CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION	CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION
C036	E1	H6	R100	F5	G5
C040	B2	D3	R102	E5	G5
C041	C2	F3	R104	E5	H6
C042	B1	D1	R106	E5	H6
C043	B1	F1	R180	C5	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	C5	M2
C080	E4	K1	R226	B5	M3
C090	E5	L1	R228	B5	M2
C100	E5	H6	R240	A4	M3
C220	B5	M3	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
			R384	B4	M2
CR070	E4	K2	R386	B3	M2
CR072	F3	J3	R388	B3	M2
CR074	E4	K2			
CR080	E5	J1	T060	G1	G5
CR082	F5	J2	T070	E4	K1
CR084	E5	J1	T080	E3	L2
CR090	D5	L2	T100	F5	G4
CR092	D4	L2	T110	B2	C4
CR100	E5	H5			
CR102	E5	H5	TP10-1	F3	K3
CR112	C2	C6	TP10-2	F4	K3
			TP11	F5	I5
E034	E1	H6	TP12-1	D4	L3
			TP12-2	D3	L3
J820	A1	A1	TP12-3	D5	L3
J824	A3	K5	TP12-4	E4	L3
			TP12-5	C5	L3
L040	C2	G3	TP13	F5	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
			TP15-1	E3	K3
P820	A1	A1	TP15-2	E4	K3
P824	A3	K5	TP15-3	F5	K3
			TP16-1	E1	H6
Q070	F3	J3	TP16-2	E2	H6
Q080	F4	J2	TP18-1	B3	H6
Q090	D5	M1	TP18-2	B3	H6
Q092	D4	M1	TP18-3	E5	H6
Q220	C5	M3	TP18-4	E5	H6
Q240	A4	M3	TP18-5	D5	H6
R030	E2	I6	U202	D3	M2
R031	E2	H6			
R040	B2	E2	VR184	B3	C5
R042	C1	G2			
R070	E4	K2	W10	G2	I2
R072	E4	K3	W12	G2	G4
R074	E4	K2	W40	G1	C3
R080	E4	K1	W42	G2	C3
R082	E5	J1	W840	G1	D5
R084	E4	J1	W860	G4	G6
R090	D5	M1	W866	G5	E5
R092	D4	M1			

ASSY A82 is also shown on Diagrams 69A and 69B.

ASSY A82 (Fig.8-20) circuit board illustration faces Diagram 69A.

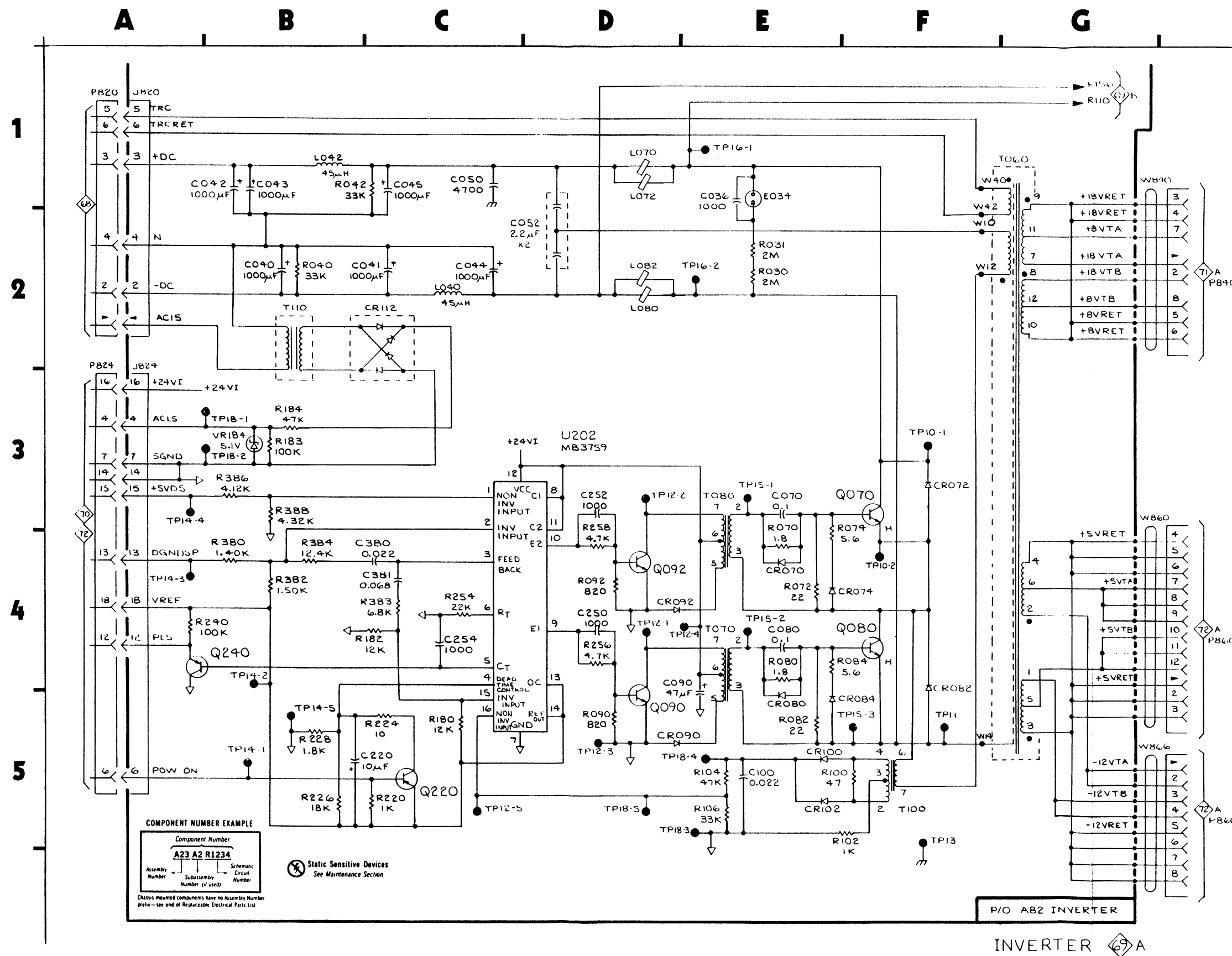
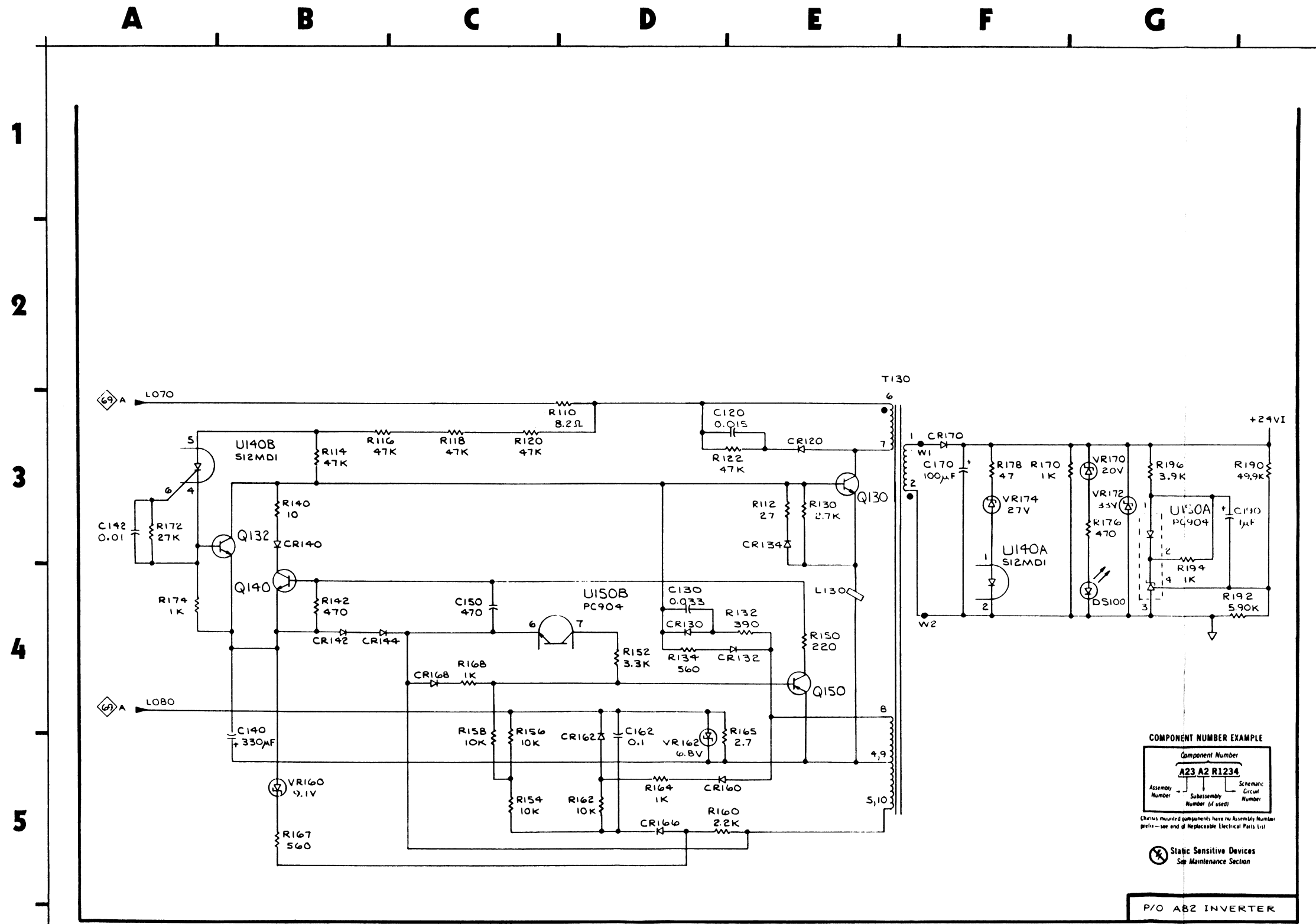


Table 8-71  
 INVERTER  — INVERTER BD., ASSEMBLY A82

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
L130	E4	I5	T130	E3	H4
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.



COMPONENT NUMBER EXAMPLE

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

Check for mounted components have no Assembly Number prefix - see end of Replaceable Electrical Parts List

⊗ Static Sensitive Devices See Maintenance Section

P/O AB2 INVERTER

INVERTER ⓄB



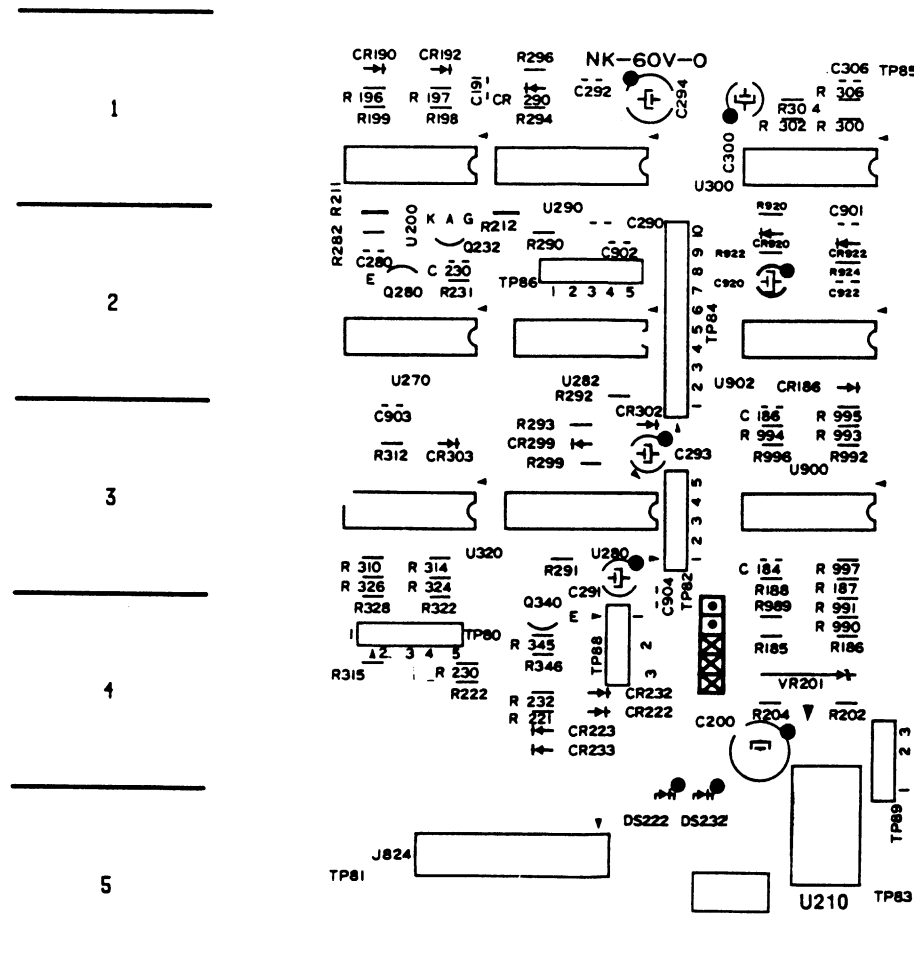
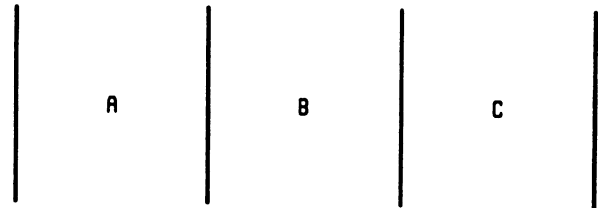
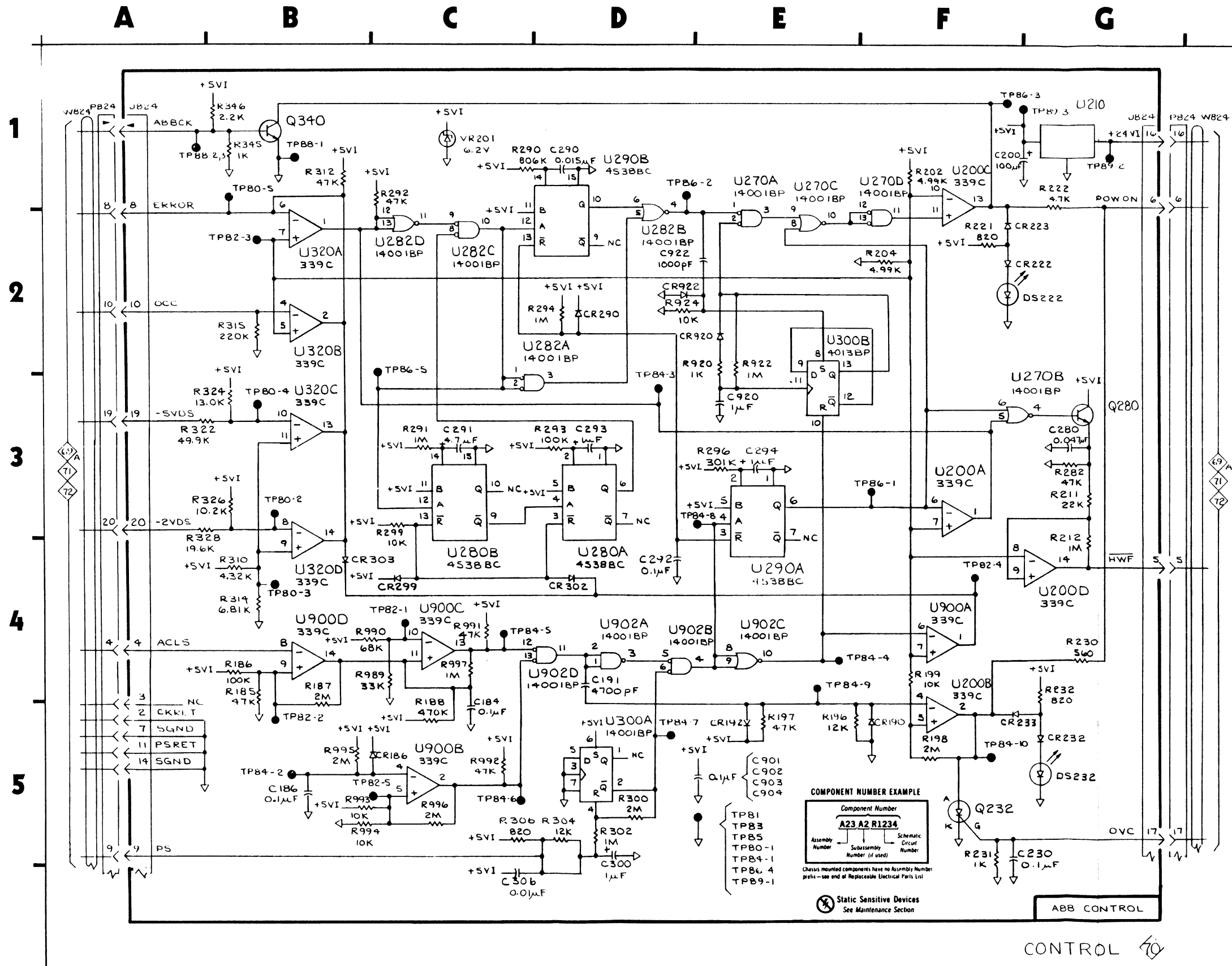


Fig. 8-21. A88 CONTROL BD., CIRCUIT BD. ASS.

Table 8-72  
CONTROL — 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	A2	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	C6	C1	R293	D3	B3	TP86-3	F1	B2
C901	E5	C2	R294	D2	B1	TP86-4	E6	B2
C902	E5	B2	R296	E3	B1	TP86-5	C2	B2
C903	E5	A3	R299	C3	B3	TP88-1	B1	B4
C904	E5	B3	R300	D5	C1	TP88-2	A1	B4
C920	E3	C2	R302	D5	C1	TP88-3	A1	B4
C922	E2	C2	R304	D5	C1	TP89-1	E6	C4
			R306	C5	C1	TP89-2	G1	C4
			R310	B4	A3	TP89-3	G1	C4
CR186	B5	C2	R312	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	A3	U200C	F1	A1
CR223	F2	B4	R326	B3	A3	U200D	G4	A1
CR232	G5	B4	R328	A3	A4	U210	G1	C5
CR233	F5	B4	R345	B1	B4	U270A	E2	A2
CR290	D2	B1	R346	B1	B4	U270B	F3	A2
CR299	C4	B3	R920	E2	C2	U270C	E2	A2
CR302	D4	B3	R922	E2	C2	U270D	F2	A2
CR303	B4	A3	R924	D2	C2	U280A	D3	B3
CR920	E2	C2	R989	C4	C4	U280B	C3	B3
CR922	D2	C2	R990	B4	C4	U282A	D3	B2
			R991	C4	C4	U282B	D2	B2
DS222	F2	B5	R992	C5	C3	U282C	C2	B2
DS232	G5	C5	R993	B5	C3	U282D	C2	B2
			R994	B5	C3	U290A	E3	B1
J824	A1	A5	R995	B5	C3	U290B	D1	B1
J824	G1	A5	R996	C5	C3	U300A	D5	C1
			R997	C4	C3	U300B	E3	C1
P824	A1	A5				U320A	B2	A3
P824	G1	A5				U320B	B2	A3
						U320C	B3	A3
Q232	F5	A2	TP80-1	E5	A4	U320D	B3	A3
Q280	G3	B4	TP80-2	B3	A4	U900A	F4	C3
Q340	B1	B4	TP80-3	B4	A4	U900B	C5	C3
			TP80-4	B3	A4	U900C	C4	C3
			TP80-5	B1	A4	U900D	B4	C3
R185	B4	C4	TP81	E5	A5	U902A	D4	C2
R186	B4	C4	TP82-1	C4	B3	U902B	D4	C2
R187	B5	C3	TP82-2	B5	B3	U902C	E4	C2
R188	C5	C3	TP82-3	B2	B3	U902D	D4	C2
R196	E5	A1	TP82-4	F4	B3			
R197	E5	A1	TP82-5	B5	B3			
R198	F5	A1	TP83	E5	C5			
R199	F4	A1	TP84-1	E5	B2			
R202	F1	C4						



COMPONENT NUMBER EXAMPLE

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

Chassis mounted components have no Assembly Number prefix - see end of Replaceable Electrical Parts List

Static Sensitive Devices  
See Maintenance Section

ABB CONTROL  
CONTROL



**SEE  
OTHER  
SIDE**

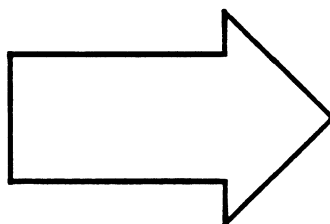



Table 8-73  
REGULATOR ANALOG  — REGULATOR ANALOG BD., ASSEMBLY A84

CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION	CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION	CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION
C550	C2	H1	L570	D3	G3	R588	F3	A3
C552	D2	G1	L590-1	C1	I2	R590	B2	K5
C554	E2	C3	L590-2	C1	I2	R592	B2	K5
C556	F1	C2	L590-3	C4	I2	R600	D4	F2
C558	F2	B3	L592	B1	K3	R602	D4	F3
C570	C2	H3	L594	B2	K4	R604	F4	E2
C572	D2	G3	L596	B2	K3	R605	F4	E2
C574	E2	C2	L598	B3	K3	R606	E4	B2
C576	G3	C3	L600	D4	G2	R608	E4	B2
C590	B1	K5	L620	D5	G4	R610	F4	B2
C592	B2	K5	L640-1	C3	I4	R611	F4	B2
C594	B3	K5	L640-2	C3	I4	R612	F4	A2
C596	B2	K5	L640-3	C5	I4	R613	E4	E4
C600	C4	H2	L642	B4	J3	R614	D4	G3
C602	C4	G2	L644	B4	J2	R616	E4	B2
C604	D4	F2	L646	B5	J4	R620	D5	F5
C606	F4	B2	L648	B5	J4	R622	D6	F4
C620	D5	H4				R625	F6	E3
C622	C5	G4	P840	A1	J5	R626	E6	B3
C624	D5	F4	P842	G1	B1	R628	E5	B3
C626	G5	A2				R630	F5	A2
C640	B4	K1	Q550	D1	D2	R631	E6	E5
C642	B4	J1	Q552	D1	D3	R632	D5	G4
C644	B5	K2	Q554	E1	C3	R634	F5	A2
C646	B5	K1	Q570	D3	D2	R636	F6	A2
			Q572	D3	D3	R638	E5	B3
CR500	C2	H3	Q574	E3	C3	R640	B4	K1
CR520	C4	H4	Q600	D4	F3	R642	B5	K1
CR550	D1	E2	Q602	D4	F2	R802	D1	G6
CR552	F1	C1	Q604	E4	B2	R804	D3	G6
CR570	D3	E3	Q620	D5	F4	R806	D4	G6
CR572	F3	C1	Q622	D5	F5	R808	D6	G6
CR590	B1	K3	Q624	E5	B3			
CR592	B2	K4				TP21-4	F4	A5
CR594	B2	K3	R550	D2	C3	TP21-5	E5	A5
CR596	B3	K4	R552	D1	E2	TP22-1	F2	D5
CR600	D4	F3	R554	F1	C2	TP22-8	E2	D5
CR602	F4	B1	R556	E1	C3	TP24-2	D1	F6
CR620	D6	F4	R558	E1	C3	TP24-3	D4	F6
CR622	F5	A1	R560	F2	A3	TP25-2	D3	G6
CR640	B4	J2	R561	E1	E5			
CR642	B4	J2	R562	D2	F1	U600A	F3	A3
CR644	B5	J3	R564	F1	B3	U600B	F2	A3
CR646	B5	J4	R566	F1	B3	U600C	F4	A3
			R570	D2	C3	U600D	F5	A3
DS550	E1	E5	R572	D3	E3			
DS570	E3	E5	R574	F3	C2	VR550	E2	C3
DS600	E4	E5	R576	E3	C3	VR552	G1	C1
DS620	E5	D5	R578	E3	C3	VR570	E2	C3
			R580	F3	A3	VR572	F3	B1
J840	A1	J5	R581	E3	E5	VR602	G4	B1
J842	G1	B1	R582	D2	G3	VR622	F5	A1
			R584	F3	A3			
L550	D1	G1	R586	F3	A3			

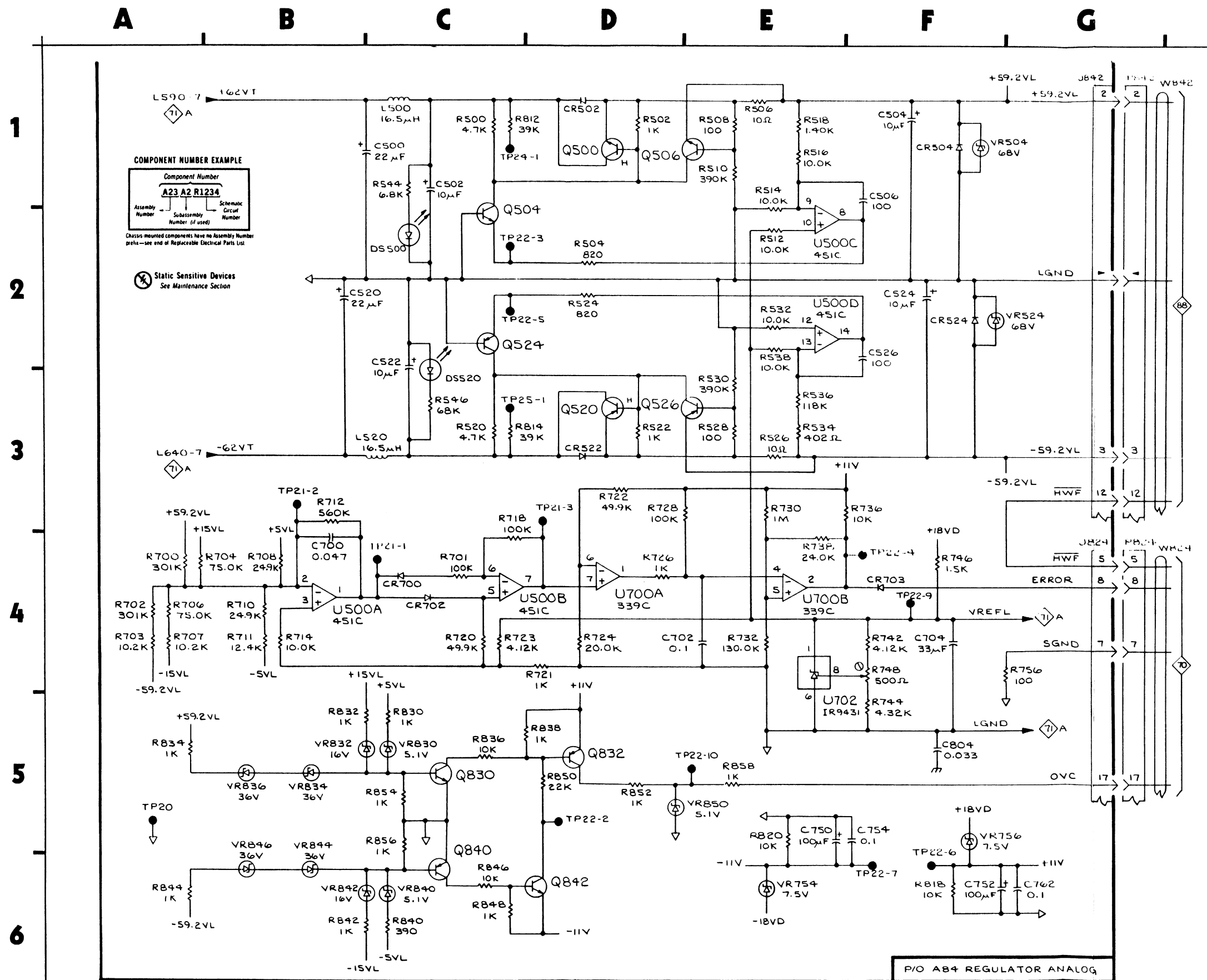
ASSY A84 is also shown on Diagrams 71A and 71B.  
ASSY A84 (Fig.8-22) circuit board illustration faces Diagram 71A.



Table 8-74  
 REGULATOR ANALOG **71B** — 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	G6	A2	R536	E3	A4			
C804	F5	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
J824	G4	C5	R711	B4	A2	TP24-1	C1	F6
J842	G1	B1	R712	B3	A5	TP25-1	D3	G6
			R714	B4	A5			
L500	C1	G2	R718	C4	B5	U500A	B4	A4
L520	D3	G5	R720	C4	B5	U500B	C4	A4
			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	E6	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	F4	B3	VR836	B5	A4
			R756	G4	B5	VR840	C6	A2
R500	C1	E4	R812	C1	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.



REGULATOR ANALOG  $\nabla$ B



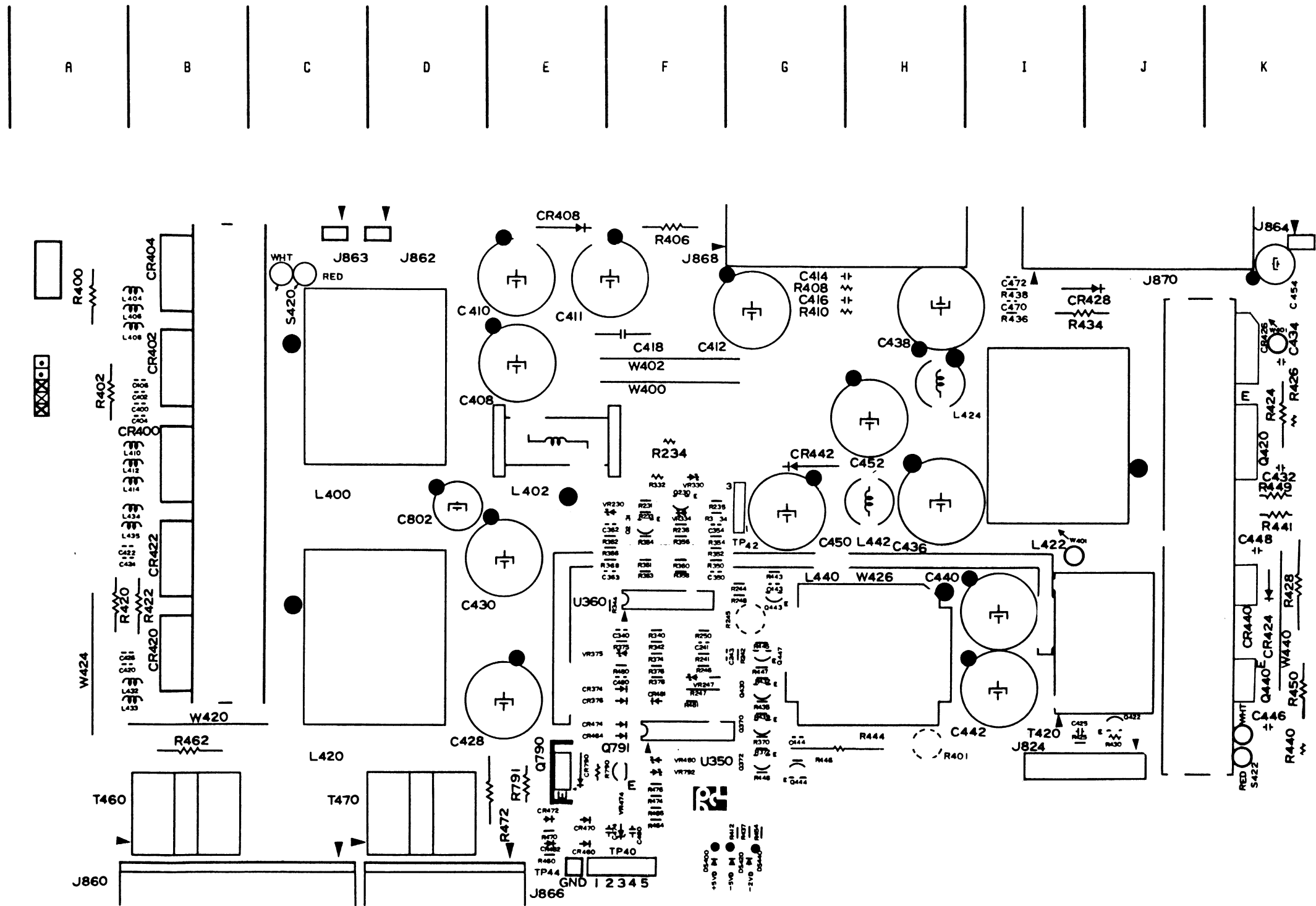
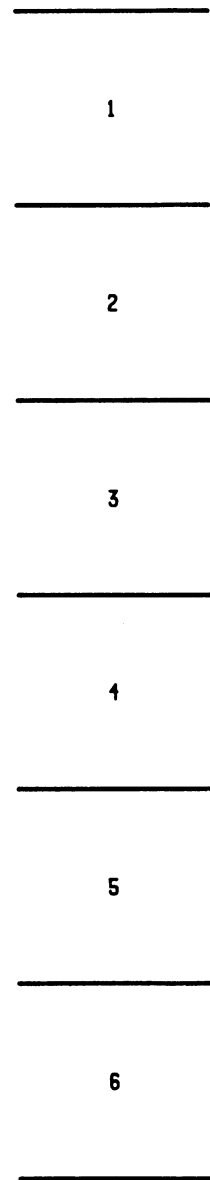


Fig. 8-23. A86 REGULATOR DIGITAL BD., CIRCUIT BD. ASS.

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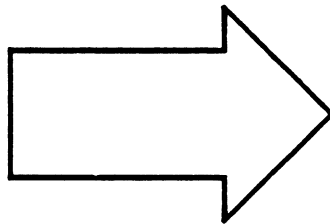
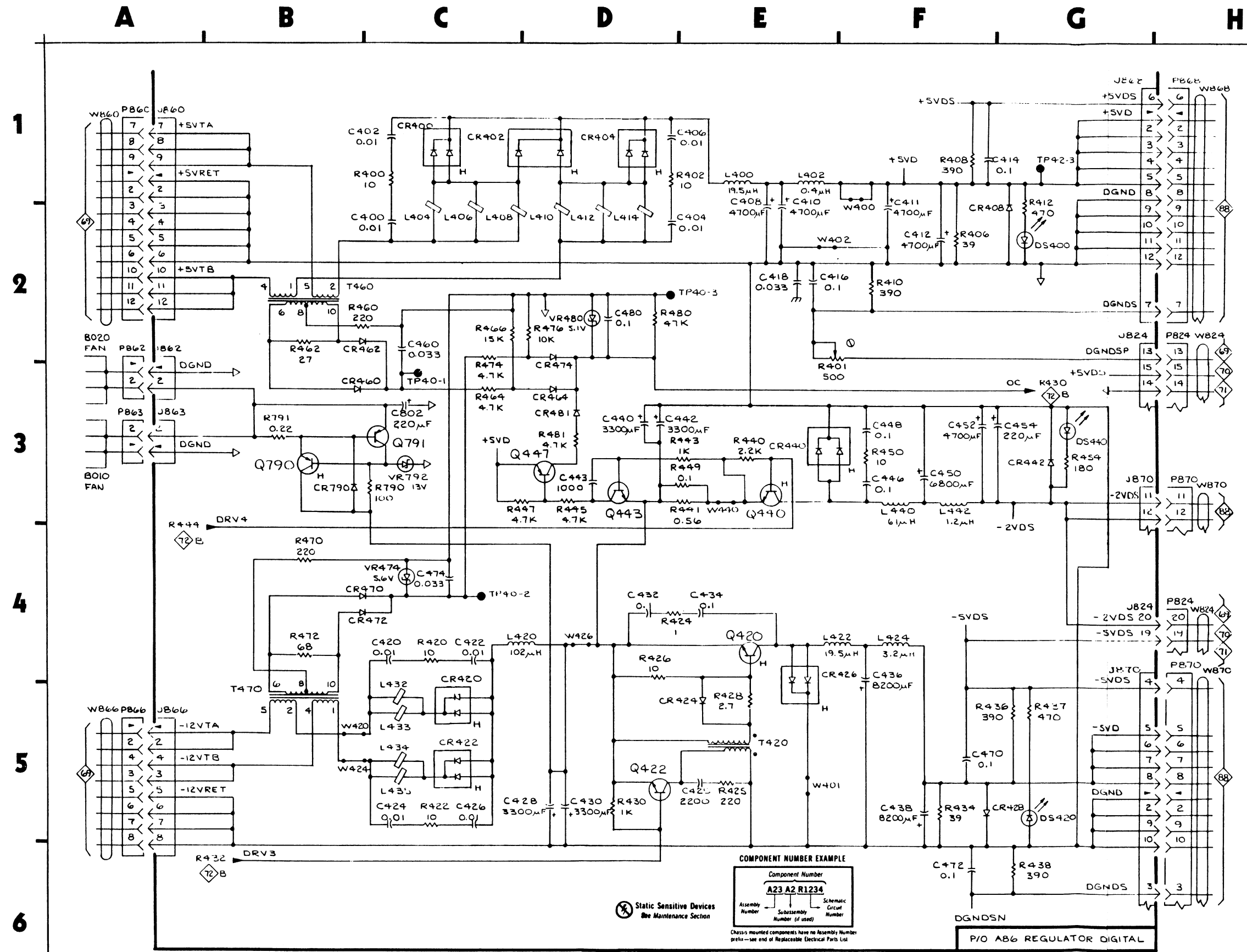


Table 8-75

REGULATOR DIGITAL  — REGULATOR DIGITAL BD., 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	F1
C402	C1	B2				R408	F1	G1
C404	D2	B2	DS400	G2	F6	R410	F2	G2
C406	D1	B2	DS420	G5	C6	R412	G2	C6
C408	E2	E2	DS440	G3	C6	R420	C4	A4
C410	E2	E1				R422	C5	B4
C411	F2	F1	J824	G2	I5	R424	D4	K2
C412	F2	G2	J824	G4	I5	R425	E5	I5
C414	F1	G1	J860	A1	B6	R426	D4	K2
C416	E2	G1	J862	A3	D1	R428	E5	C4
C418	E2	F2	J863	A3	C1	R430	D5	J5
C420	C4	B5	J866	A5	D6	R434	F5	I2
C422	C4	B4	J868	G1	G1	R436	G5	I2
C424	C5	B4	J870	G3	J1	R437	G5	C6
C425	E5	I5	J870	G5	J1	R438	G6	I1
C426	C5	B4				R440	E3	C5
C428	D5	E5	L400	E1	C3	R441	E3	K3
C430	D5	E4	L402	E1	E3	R443	E3	G4
C432	D4	K3	L404	C2	B1	R445	D3	G4
C434	F4	K2	L406	C2	B2	R447	C3	G4
C436	F4	H3	L408	C2	B2	R449	E3	K3
C438	F5	H1	L410	D2	B3	R450	F3	C5
C440	D3	I4	L412	D2	B3	R454	G3	C6
C442	D3	I5	L414	D2	B3	R460	B2	E6
C443	D3	G4	L420	C4	C5	R462	B2	B5
C446	F3	C5	L422	E4	I4	R464	C3	F6
C448	F3	K3	L424	F4	H2	R466	C2	F6
C450	F3	G3	L432	C5	B5	R470	B4	E6
C452	F3	H2	L433	C5	B5	R472	B4	E6
C454	F3	K1	L434	C5	B3	R474	C3	F6
C460	C2	F6	L435	C5	B3	R476	D2	F5
C470	F5	I1	L440	F3	G4	R480	D2	F5
C472	F6	I1	L442	F3	H3	R481	D3	F5
C474	C4	F6				R790	C3	E5
C480	D2	F5	P824	H2	I5	R791	B3	E5
C802	C3	D3	P824	H4	I5			
			P860	A1	B6	T420	E5	J4
CR400	C1	B3	P862	A3	D1	T460	B2	B6
CR402	C1	B2	P863	A3	C1	T470	B5	D6
CR404	D1	B1	P866	A5	D6	TP40-1	C3	F6
CR408	G2	E1	P868	H1	G1	TP40-2	C4	F6
CR420	C5	B4	P870	H3	J1	TP40-3	D2	F6
CR422	C5	B4	P870	H5	J1	TP42-3	G1	G3
CR424	E5	C4						
CR426	F4	K2	Q420	E4	K3	VR474	C4	F6
CR428	F5	J1	Q422	D5	J5	VR480	D2	F5
CR440	E3	C4	Q440	E3	C5	VR792	C3	F5
CR442	G3	G3	Q443	D3	G4			
CR460	B3	E6	Q447	D3	G4	W400	F2	F2
CR462	B2	E6	Q790	B3	E5	W401	E5	I3
CR464	D3	F5	Q791	C3	F5	W402	E2	F2
CR470	B4	E6				W420	B5	B5
CR472	B4	E6	R400	C1	A1	W424	B5	A5
CR474	D3	F5	R401	E2	H5	W426	D4	H4
CR481	D3	F5	R402	D1	A2	W440	E3	C4

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

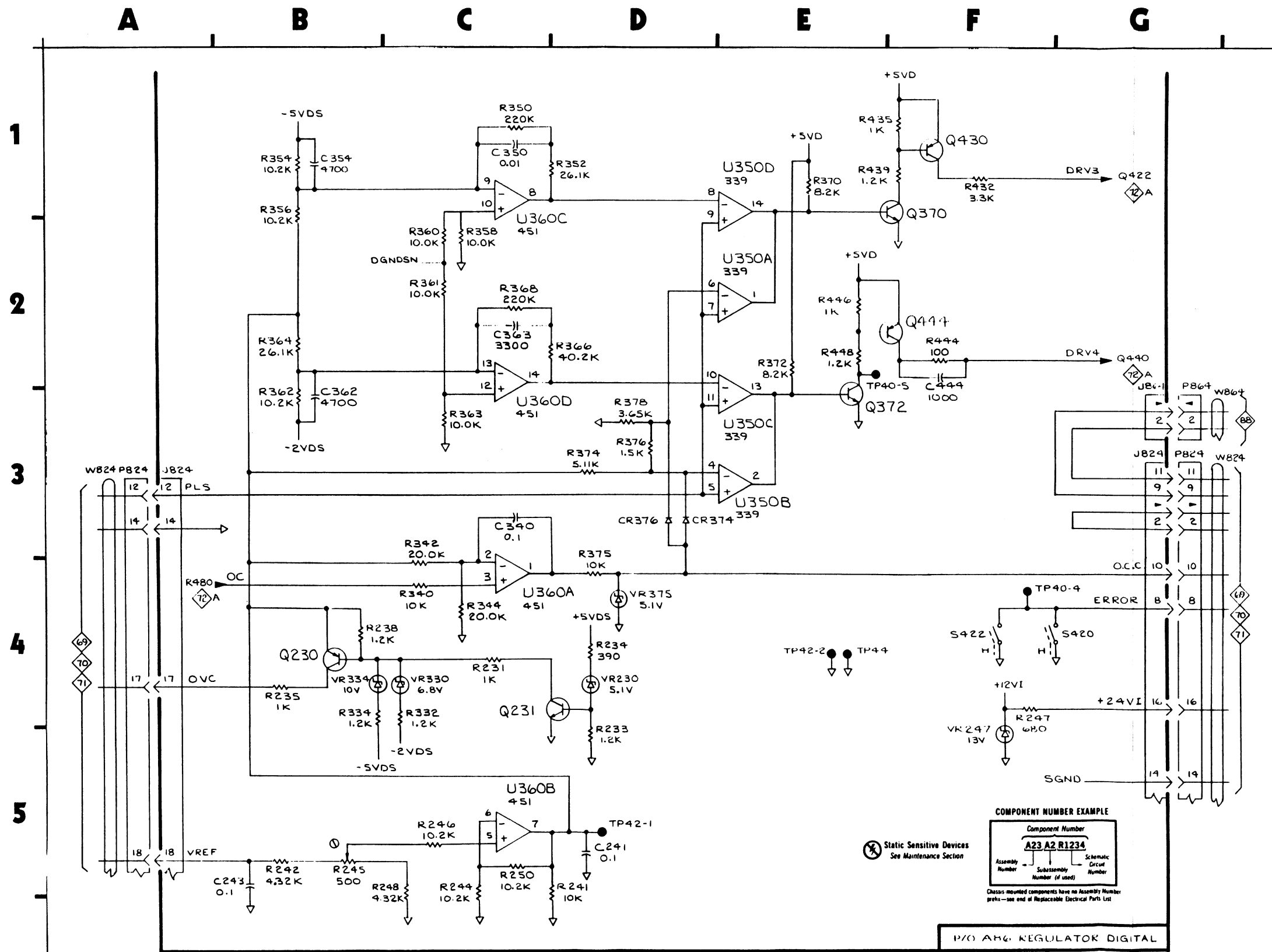


REGULATOR DIGITAL

Table 8-76  
 REGULATOR DIGITAL  — 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
			R372	E2	G5
J824	A1	I5	R374	D3	F4
J824	G3	I5	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
Q230	B4	F3	R446	E2	G5
Q231	D4	F3	R448	E2	G5
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	B5	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	C5	G4	U360C	C1	F4
R250	C5	F4	U360D	C3	F4
R332	C4	F3			
R334	B4	F3	VR230	D4	F3
R340	C4	F4	VR247	F5	F5
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.



Static Sensitive Devices  
See Maintenance Section

**COMPONENT NUMBER EXAMPLE**

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

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

REGULATOR DIGITAL



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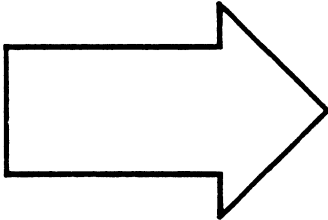





Table 8-77  
**ANALOG CIRCUITRY**  — TV TRIGGER BD., ASSEMBLY A24

CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION	CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION	CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION
C100	C3	E4	R102	B2	E5	R202	D4	D4
C102	C3	E3	R104	B3	E5	R204	D4	D3
C104	D4	D3	R106	B3	E5	R206	D4	D3
C106	C1	E3	R108	C2	D4	R208	D4	D4
C108	C1	E3	R110	C2	D4	R210	C5	D4
C110	D2	E3	R112	C3	E4	R212	C5	D4
C112	E2	F3	R114	C3	E3	R214	C4	C3
C114	E4	F3	R116	C2	E4	R216	C5	C3
C115	E2	E2	R118	C2	E4	R218	D5	D3
C116	F1	E3	R120	C2	E4	R220	D5	D4
C118	F2	D3	R122	D2	E3	R222	C5	C3
C120	F3	C2	R124	D2	E3	R224	C5	D3
C122	F3	C3	R126	C3	D3	R226	D5	C3
C124	G3	C2	R128	D3	D3	R227	D5	C4
C126	D4	F5	R130	C4	D3	R228	C5	D4
C128	D4	F5	R132	C1	E3	R230	E5	E4
C130	E4	F4	R134	C1	E3	R232	E5	D3
C132	F4	F4	R136	C1	E3	R233	E4	F4
C134	E5	F4	R137	C1	E3	R234	F4	F3
C136	G4	F3	R138	D2	E2	R236	F4	F4
C138	F5	F3	R140	D2	E2	R238	F5	F3
C140	F5	F3	R142	D3	F3			
			R144	D3	F3	TP100	C3	E4
CR100	E3	F3	R146	E3	F3	TP110	E2	E2
CR101	B2	D4	R148	E3	F2	TP120	F2	D2
CR102	E2	F3	R150	E3	F2	TP130	G3	C3
CR103	B3	D4	R152	E3	F2	TP140	E5	D4
CR104	E2	F2	R154	E2	F3	TP150	G4	F5
CR106	F2	D3	R155	E2	F2			
CR108	F2	D3	R156	E2	F3	U100A	C3	E4
CR110	F2	D3	R158	E1	E2	U110	D3	E4
			R160	E1	E2	U120A	F4	F3
J240	B2	D5	R162	F1	E2	U120B	C3	F3
J240	B5	D5	R164	F1	E2	U120C	E3	F3
J241	B2	F5	R165	F1	E2	U120D	F5	F3
J241	G4	F5	R166	F1	E3	U130A	E2	F2
			R168	F2	D3	U130B	E2	F2
P240	A2	D5	R170	F2	D3	U130C	E3	F2
P240	A5	D5	R172	F2	D3	U130D	C1	F2
P241	A2	F5	R174	F2	D3	U130E	E3	F2
P241	H4	F5	R175	G2	D2	U140A	F3	C3
			R176	F2	E2	U140B	F5	C3
Q100	D3	D3	R178	G2	D3	U140C	F5	C3
Q102	C1	E3	R180	G3	D3	U140D	C5	C3
Q104	E2	F2	R182	F3	C2	U140E	C5	C3
Q106	E1	E2	R184	F3	C2	U150	G2	D2
Q108	F1	E2	R186	F3	C3	U160	G3	D2
Q110	F2	D3	R188	F3	C2	U170	E4	F4
Q112	E4	F4	R190	F3	C3	U180D	D5	E1
Q114	F5	F4	R192	G3	D2	U180E	D5	E1
Q120	D4	D4	R193	C4	F5			
Q122	D5	C4	R194	D4	F5	VR100	E3	F2
Q124	E5	D4	R196	C4	E5			
			R198	C4	F5			
R100	B3	E5	R200	B4	D4			

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

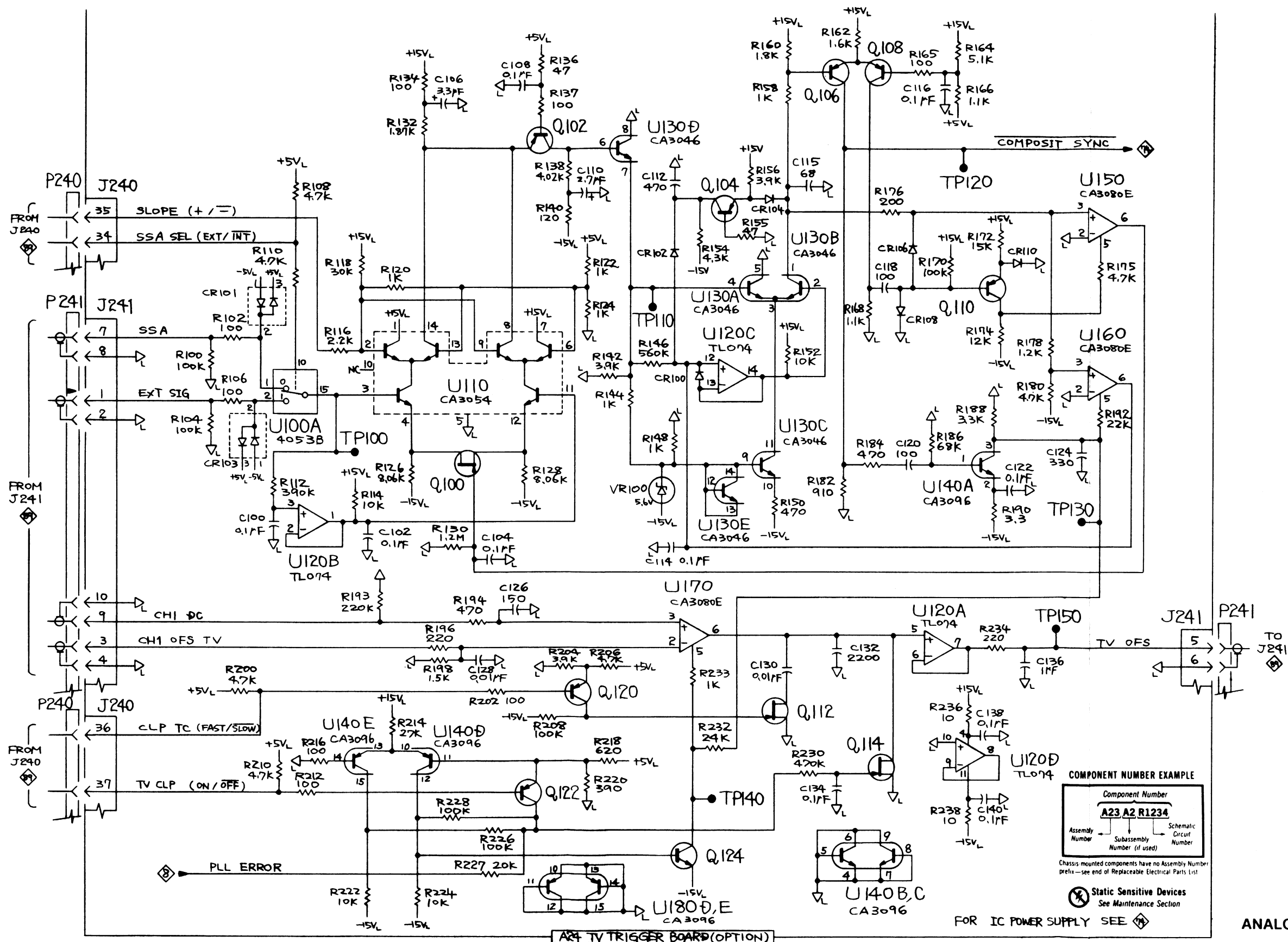
1

2

3

4

5



AM TV TRIGGER BOARD (OPTION)

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	E4	C2	R278	E4	C2
C158	F4	D2	R280	E4	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	E4	C2	TP180	G2	A2
CR128	F2	B2	TP190	E5	A1
CR130	F3	B2			
			U180A	F4	E1
Q116	E4	D2	U180B	C2	E1
Q118	G3	D1	U180C	C3	E1
			U190A	E5	C1
R240	B3	E2	U190B	C3	C1
R242	B3	E1	U190C	C4	C1
R244	B2	E1	U200	D3	C1
R246	C2	E1	U210A	F2	B1
R248	C2	E1	U210B	F2	B1
R250	C3	E1	U220A	F2	B1
R252	D2	E1	U220B	F4	B1
R254	D2	E1	U230A	F5	B1
R256	D2	F1	U230B	E5	B1
R258	C4	C2			
R260	D4	D1	VR102	E4	D2
R262	D4	D1			

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**

**1**

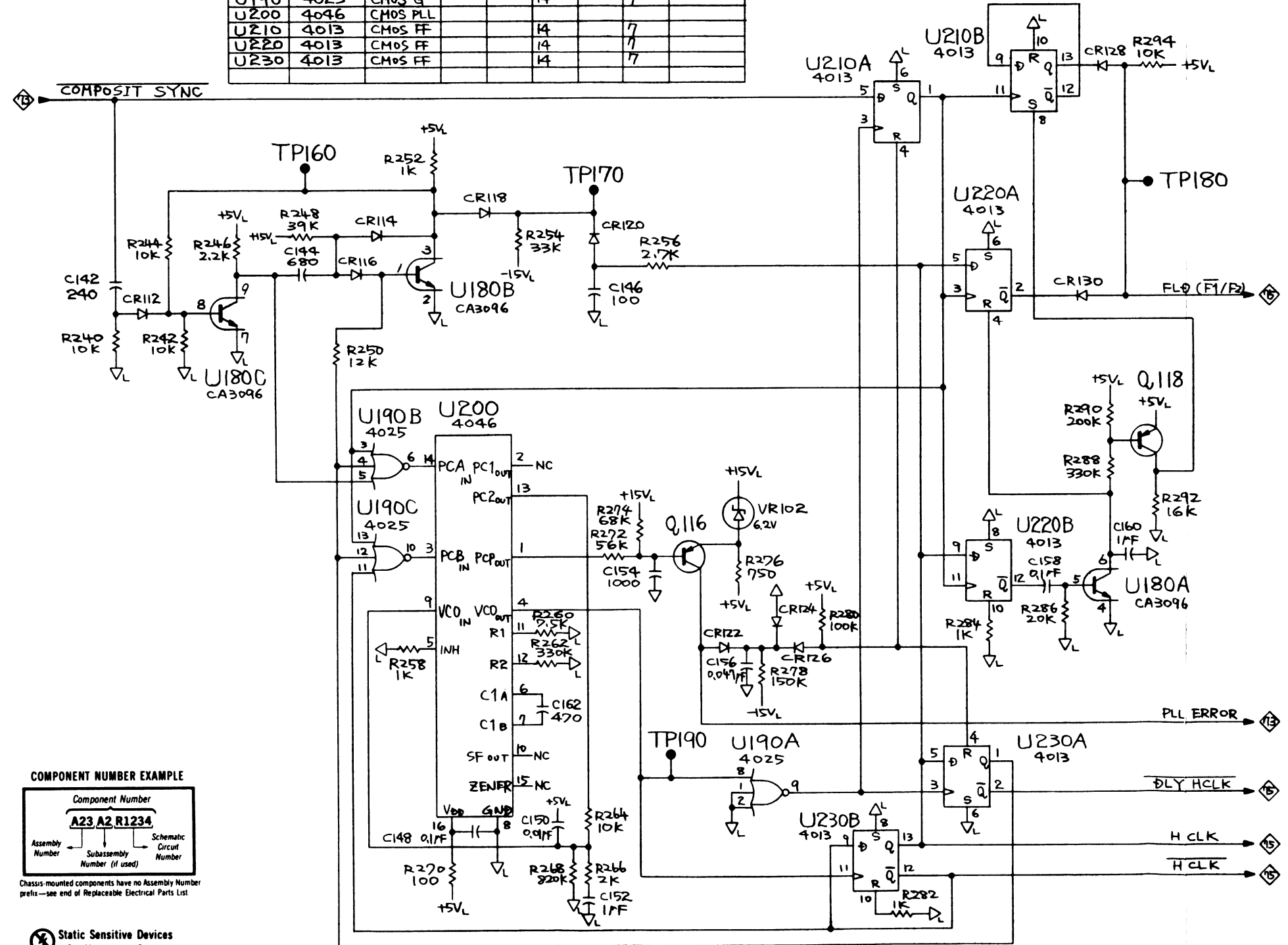
**2**

**3**

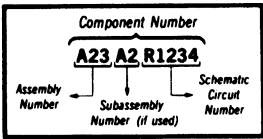
**4**

**5**

No.	DEVICE	CATEGORY	+5VL	-15VL	+5VL	-5VL	AGND	UNUSED
U100	4053B	CMOS SW			16	7	62	2U
U130	CA3046	TR ARRAY						
U140	CA3096	TR ARRAY		16				
U150	CA3080E	OPAMP vmmG	7	4				1,8
U160	CA3080E	OPAMP vmmG	7	4				1,8
U170	CA3080E	OPAMP vmmG	7	4				1,8
U180	CA3096	TR ARRAY		16				
U190	4025	CMOS G			14		7	
U200	4046	CMOS PLL					7	
U210	4013	CMOS FF			14		7	
U220	4013	CMOS FF			14		7	
U230	4013	CMOS FF			14		7	



**COMPONENT NUMBER EXAMPLE**



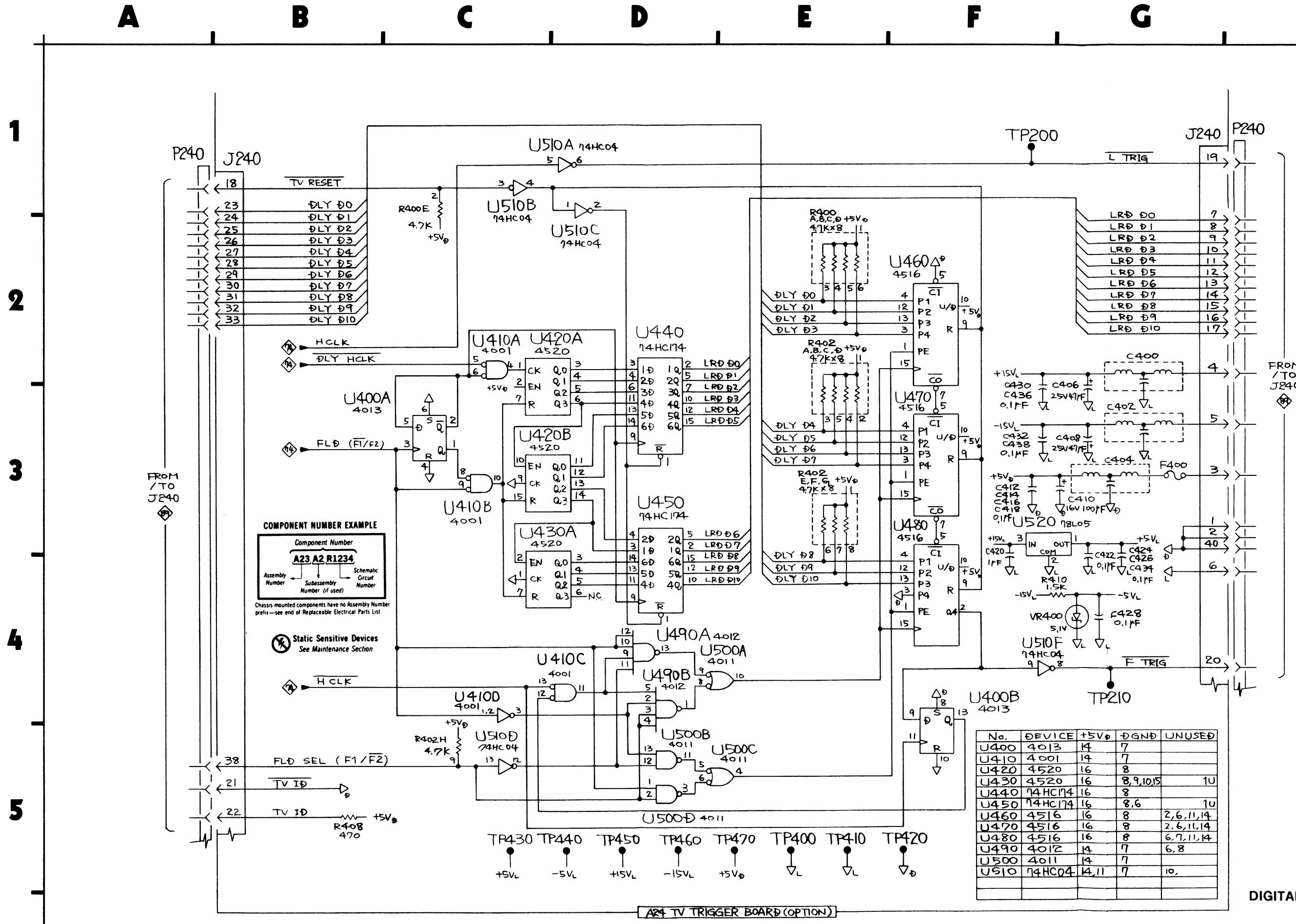
Chassis-mounted components have no Assembly Number prefix—see end of Replaceable Electrical Parts List

⚡ Static Sensitive Devices  
See Maintenance Section

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			
C406	G3	B5	TP200	F1	B3
C408	G3	B5	TP210	G4	B3
C410	G3	A5	TP400	E5	E5
C412	F3	A5	TP410	E5	A1
C414	F3	B3	TP420	F5	A5
C416	F3	A3	TP430	C5	D4
C418	F3	B2	TP440	D5	E5
C420	F4	E5	TP450	D5	B5
C422	G4	D4	TP460	D5	B5
C424	G4	B1	TP470	E5	A5
C426	G4	C1			
C428	G4	E5	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
			U490A	D4	A2
R400A	E2	B4	U490B	D4	A2
R400B	E2	B4	U500A	E4	A3
R400C	E2	B4	U500B	D5	A3
R400D	E2	B4	U500C	E5	A3
R400E	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	D4
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.



**COMPONENT NUMBER EXAMPLE**

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

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

**Static Sensitive Devices**  
See Maintenance Section

No.	DEVICE	+5V <sub>D</sub>	⊖GND	UNUSED
U400	4013	14	7	
U410	4001	14	7	
U420	4520	16	8	
U430	4520	16	8,9,10,15	1U
U440	74HC174	16	8	
U450	74HC174	16	8,6	1U
U460	4516	16	8	2,6,11,14
U470	4516	16	8	2,6,11,14
U480	4516	16	8	6,7,11,14
U490	4012	14	7	6,8
U500	4011	14	7	
U510	74HC04	14,11	7	10,

AP4 TV TRIGGER BOARD (OPTION)

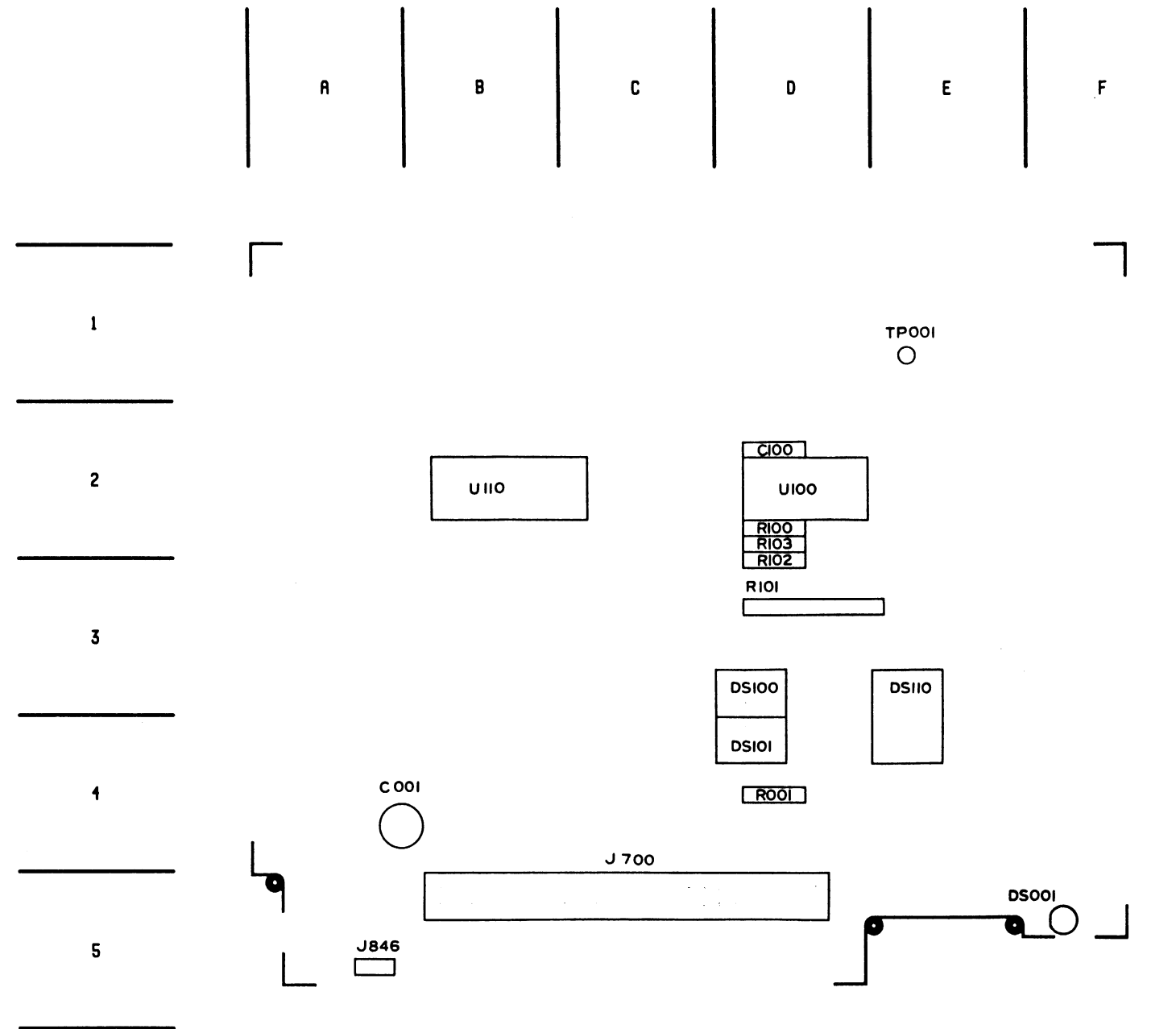

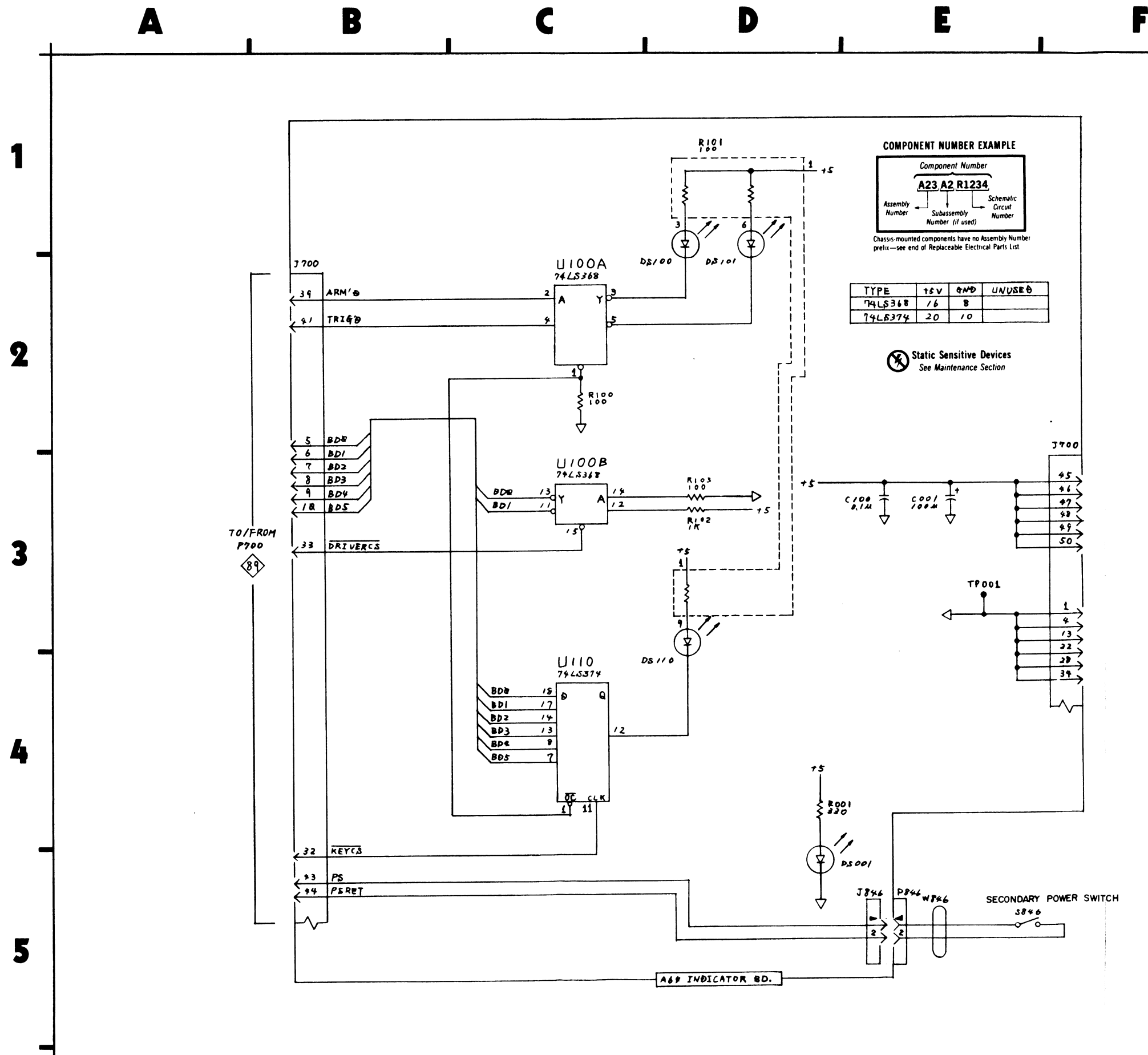


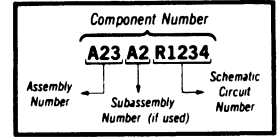
Table 8-80  
 INDICATOR   
 INDICATOR BD., ASSEMBLY A64

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

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



COMPONENT NUMBER EXAMPLE



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

TYPE	V <sub>CC</sub>	Q <sub>MP</sub>	UN/USED
74LS368	16	B	
74LS374	20	10	

⊗ Static Sensitive Devices  
See Maintenance Section



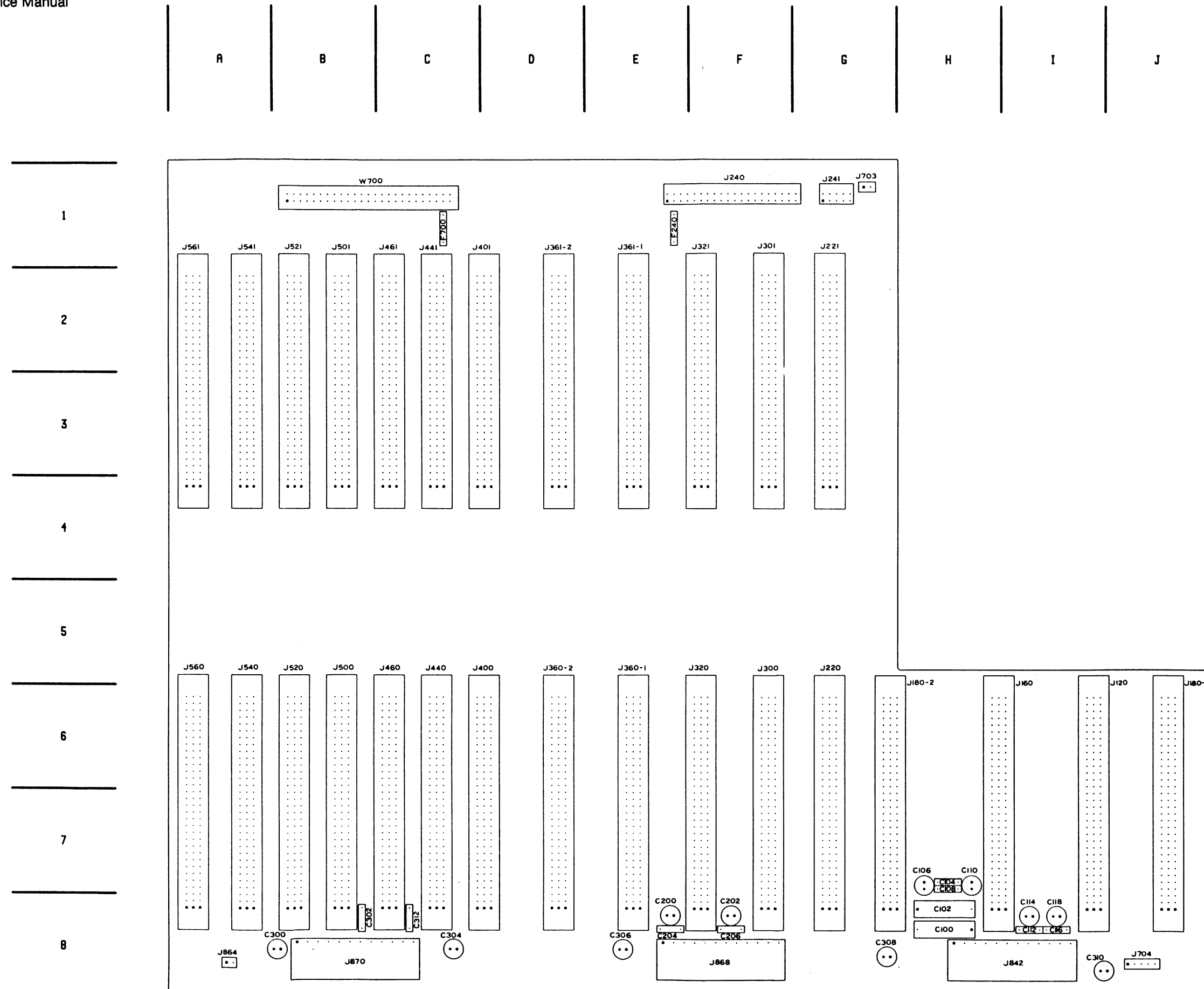
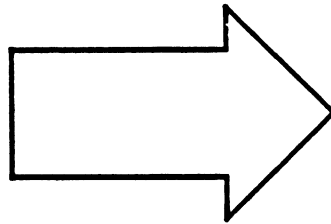



Fig. 8-26. A70 MAIN INTERCONNECT BD., CIRCUIT BD. ASS.

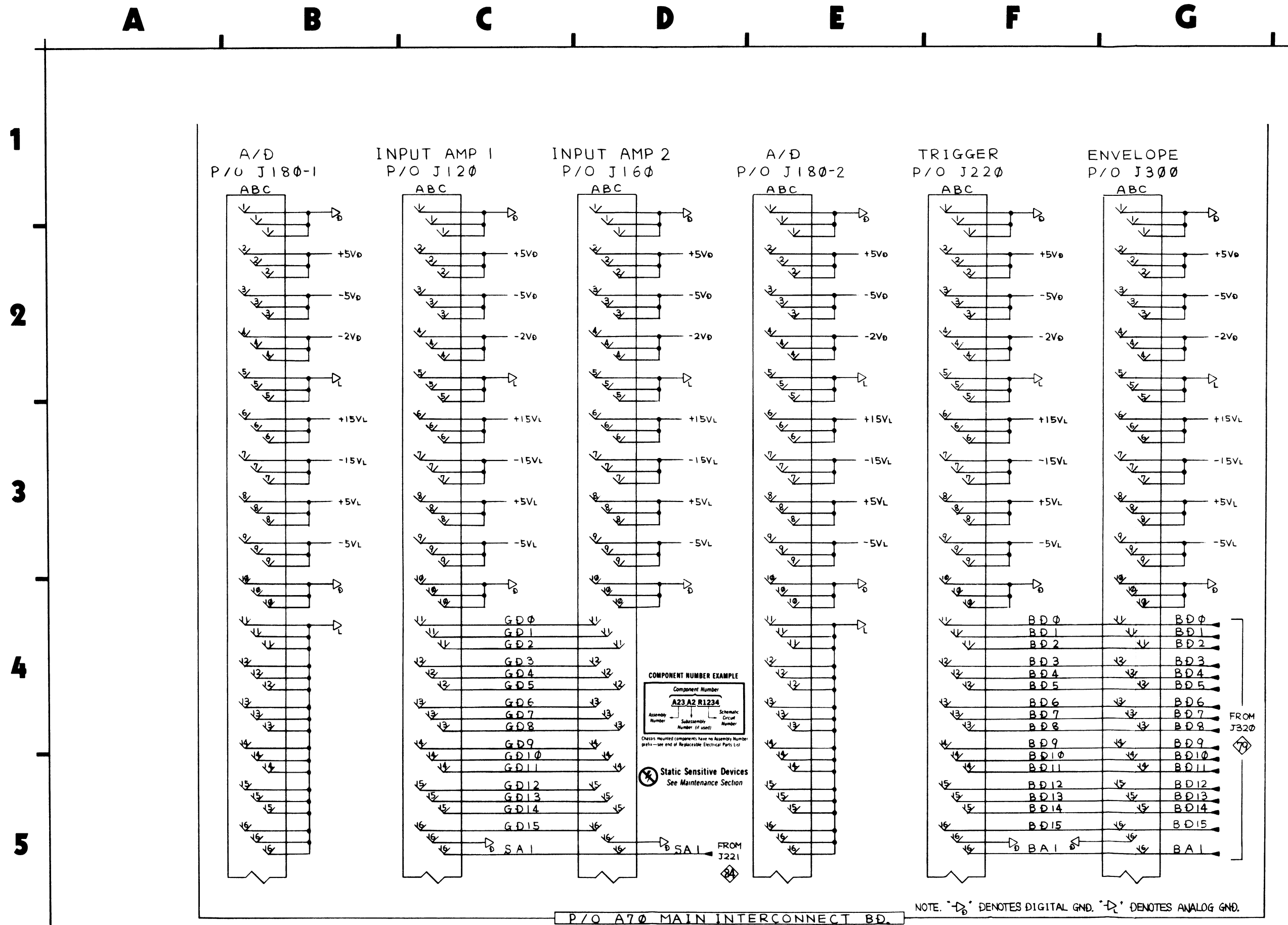
**SEE  
OTHER  
SIDE**



**Table 8-81**  
**MAIN INTERCONNECT-1**   
**MAIN INTERCONNECT BD., ASSEMBLY A70**

CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION
J120	C1	I5
J160	D1	I5
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**




**COMPONENT NUMBER EXAMPLE**

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

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

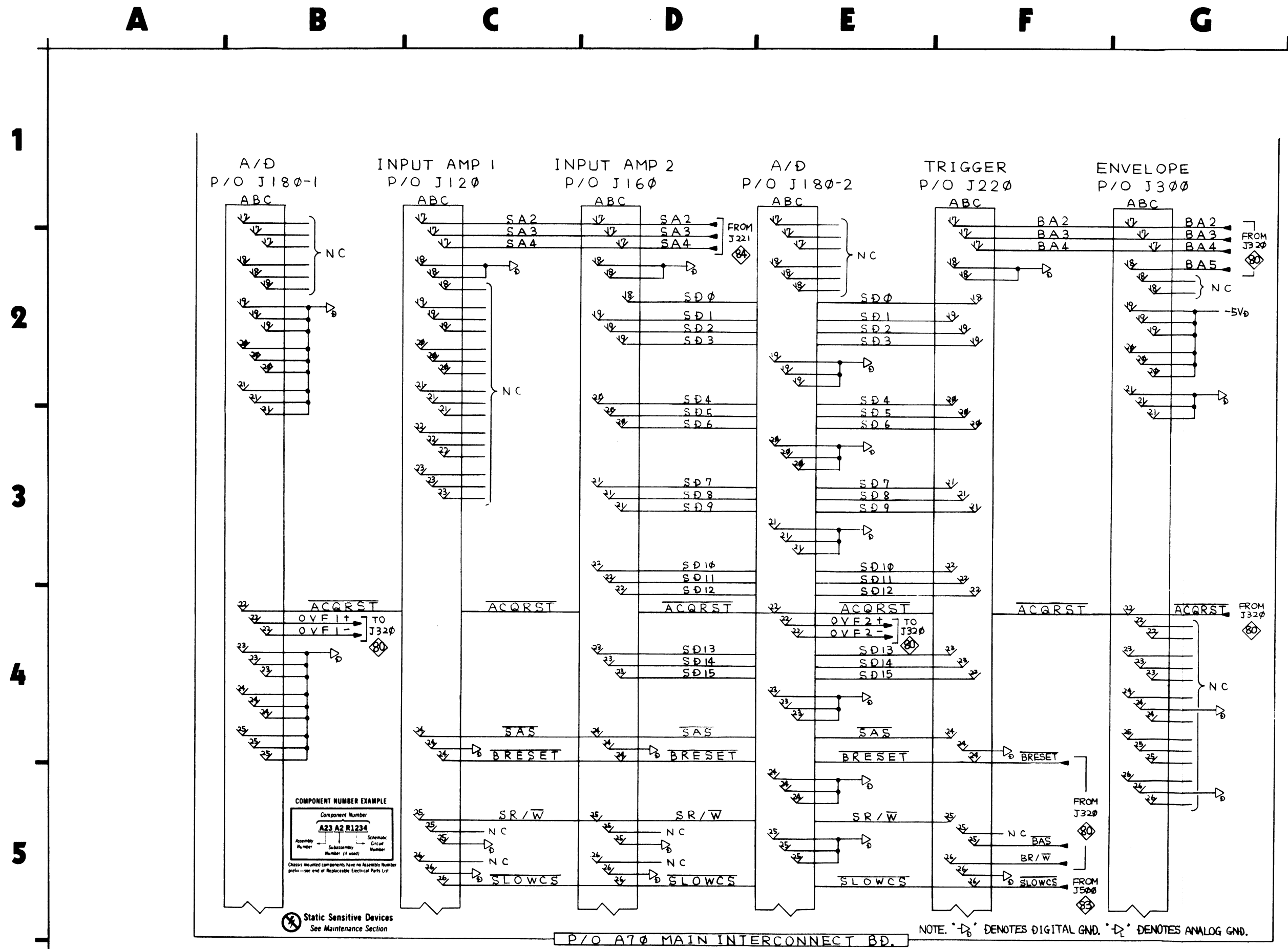
**Static Sensitive Devices**  
See Maintenance Section

NOTE: "D" DENOTES DIGITAL GND, "L" DENOTES ANALOG GND.


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

<b>CIRCUIT NUMBER</b>	<b>SCHEMATIC LOCATION</b>	<b>BOARD LOCATION</b>
J120	C1	I5
J160	D1	I5
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



P/O A70 MAIN INTERCONNECT BD.

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**

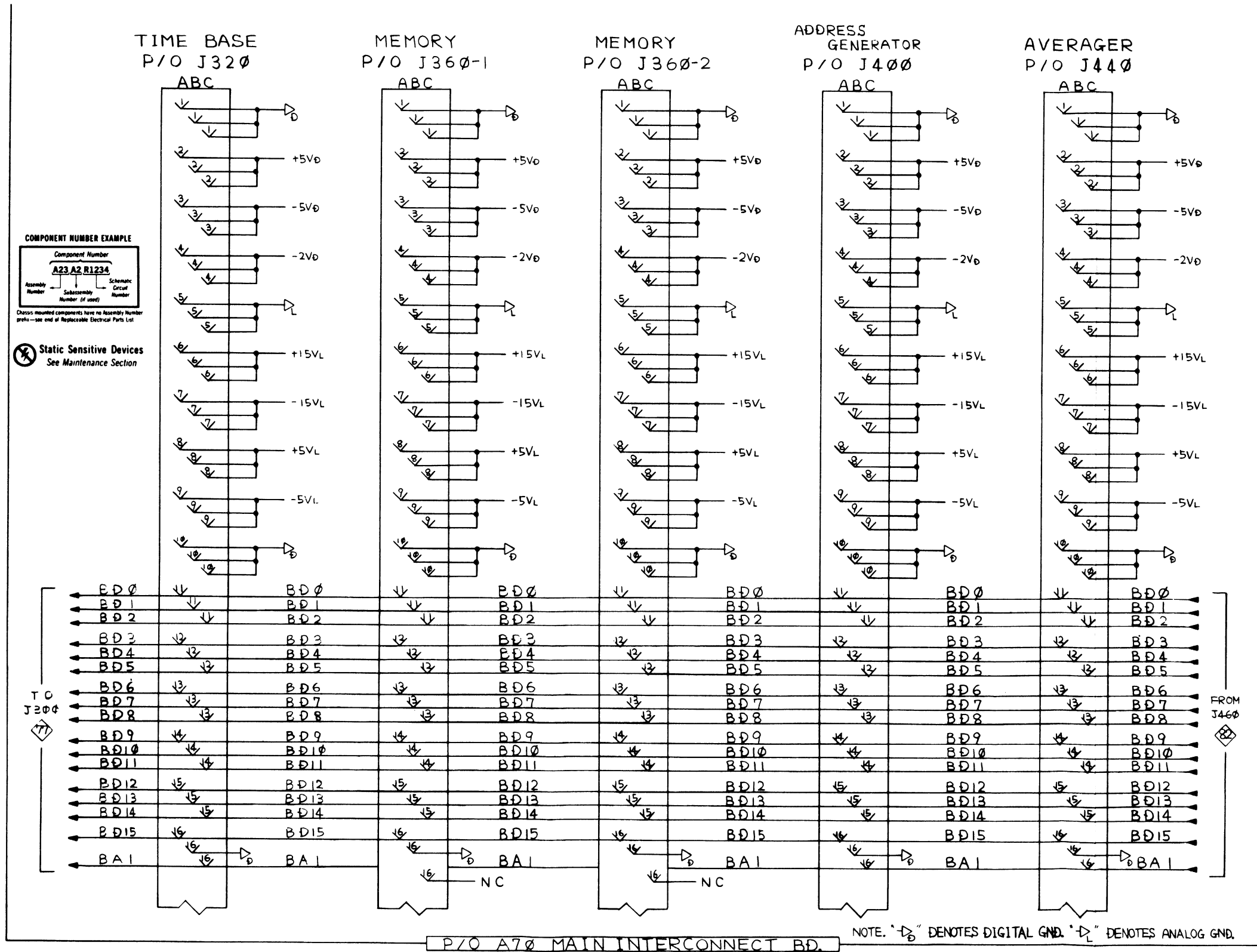





Table 8-84  
**MAIN INTERCONNECT-4**   
**MAIN INTERCONNECT BD., ASSEMBLY A70**

<b>CIRCUIT NUMBER</b>	<b>SCHEMATIC LOCATION</b>	<b>BOARD LOCATION</b>
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**

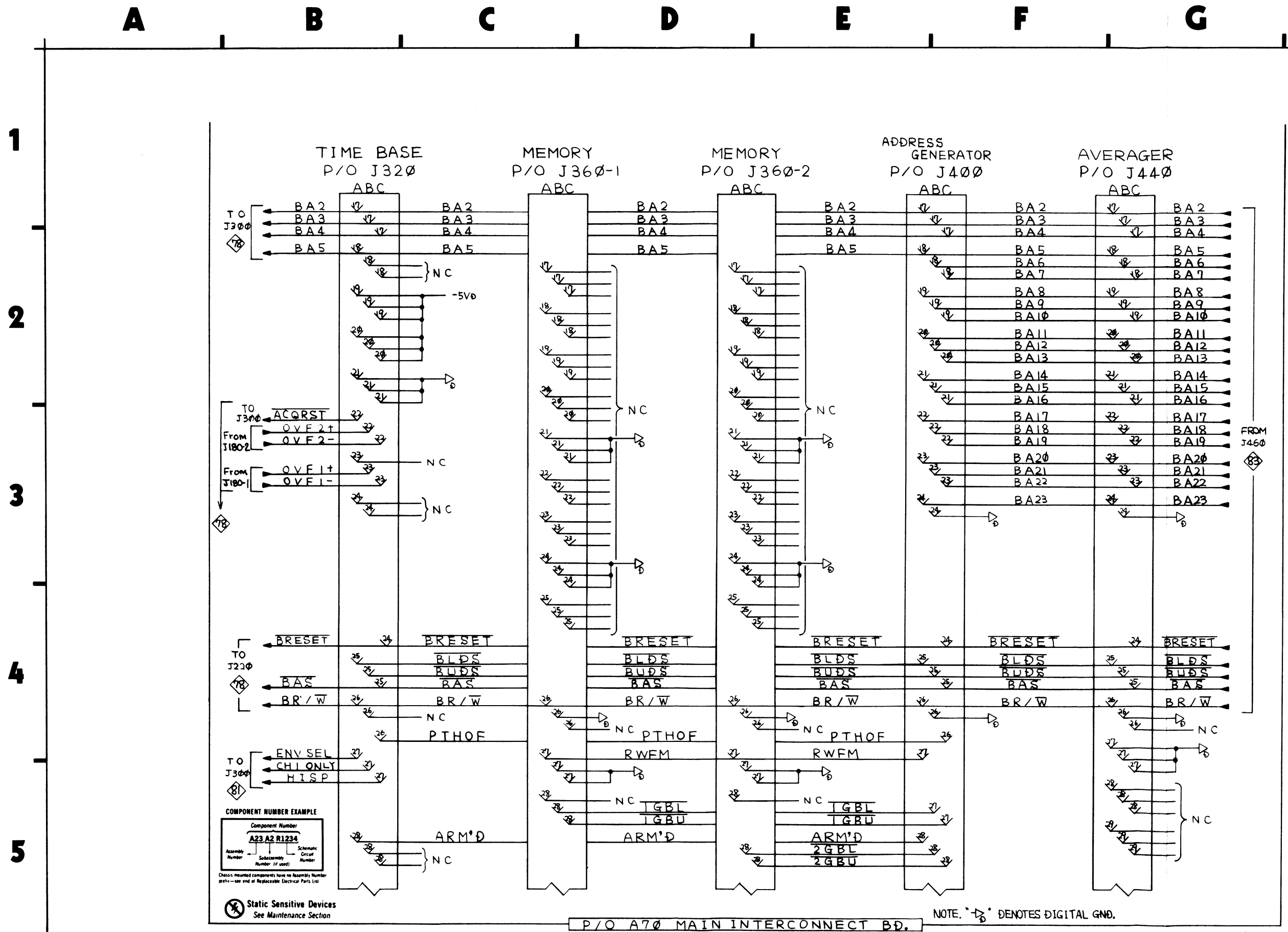



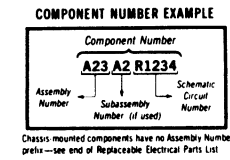
Table 8-85  
**MAIN INTERCONNECT-5**   
**MAIN INTERCONNECT BD., ASSEMBLY A70**

CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION
J120	C1	I5
J160	D1	I5
J180-1	B1	J5
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

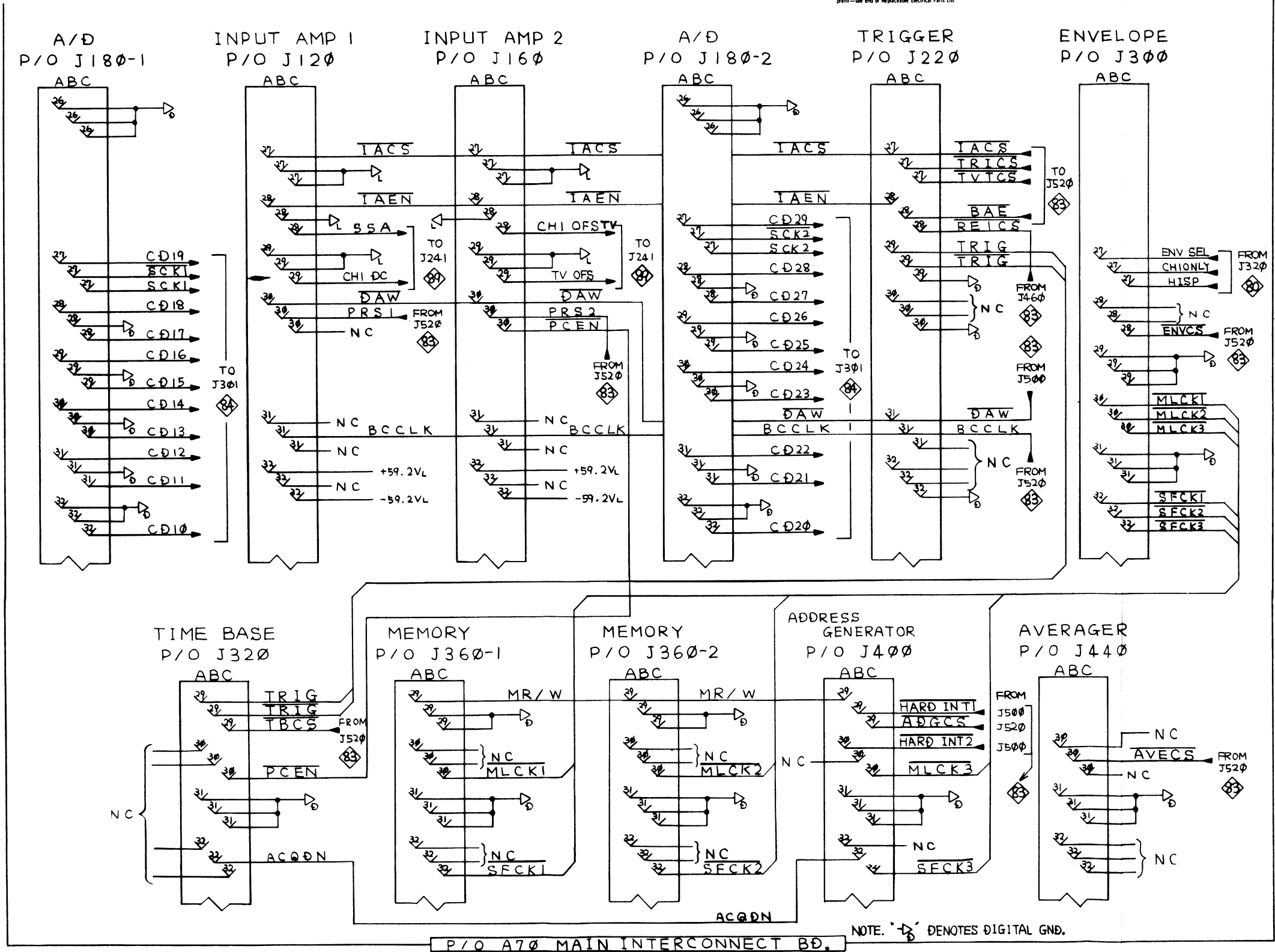
ASSY A70 is also shown on Diagrams 77,78,79,80,81,82,83,84,85,86,87,88,and 89.  
 ASSY A70 (Fig.8-26) circuit board illustration faces Diagram 77

A B C D E F G


1  
2  
3  
4  
5



Static Sensitive Devices See Maintenance Section



P/O A70 MAIN INTERCONNECT BD.

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

<b>CIRCUIT NUMBER</b>	<b>SCHEMATIC LOCATION</b>	<b>BOARD LOCATION</b>
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**

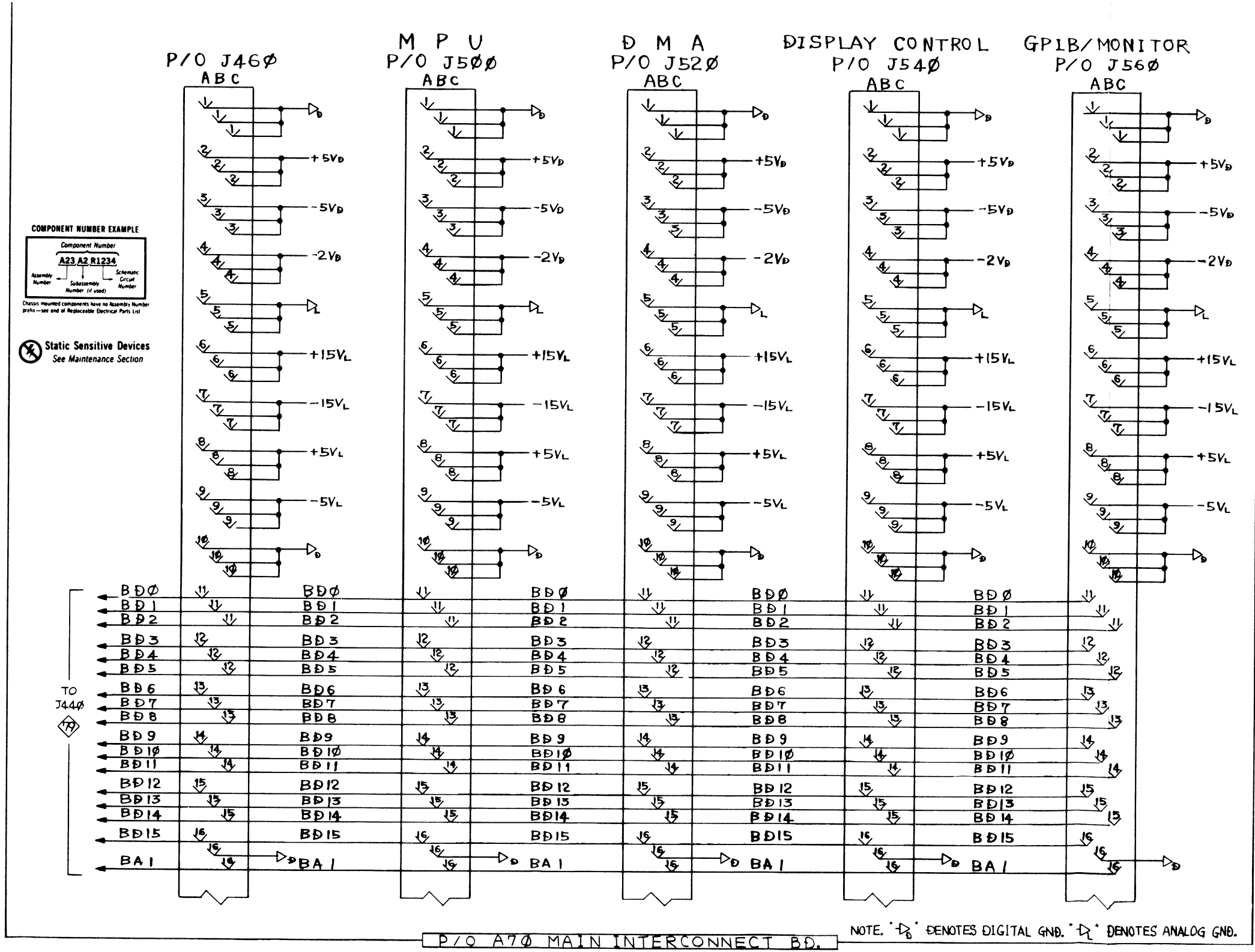



Table 8-87

MAIN INTERCONNECT-7   
 MAIN INTERCONNECT BD., ASSEMBLY A70

CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION
J460	C1	D5
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**

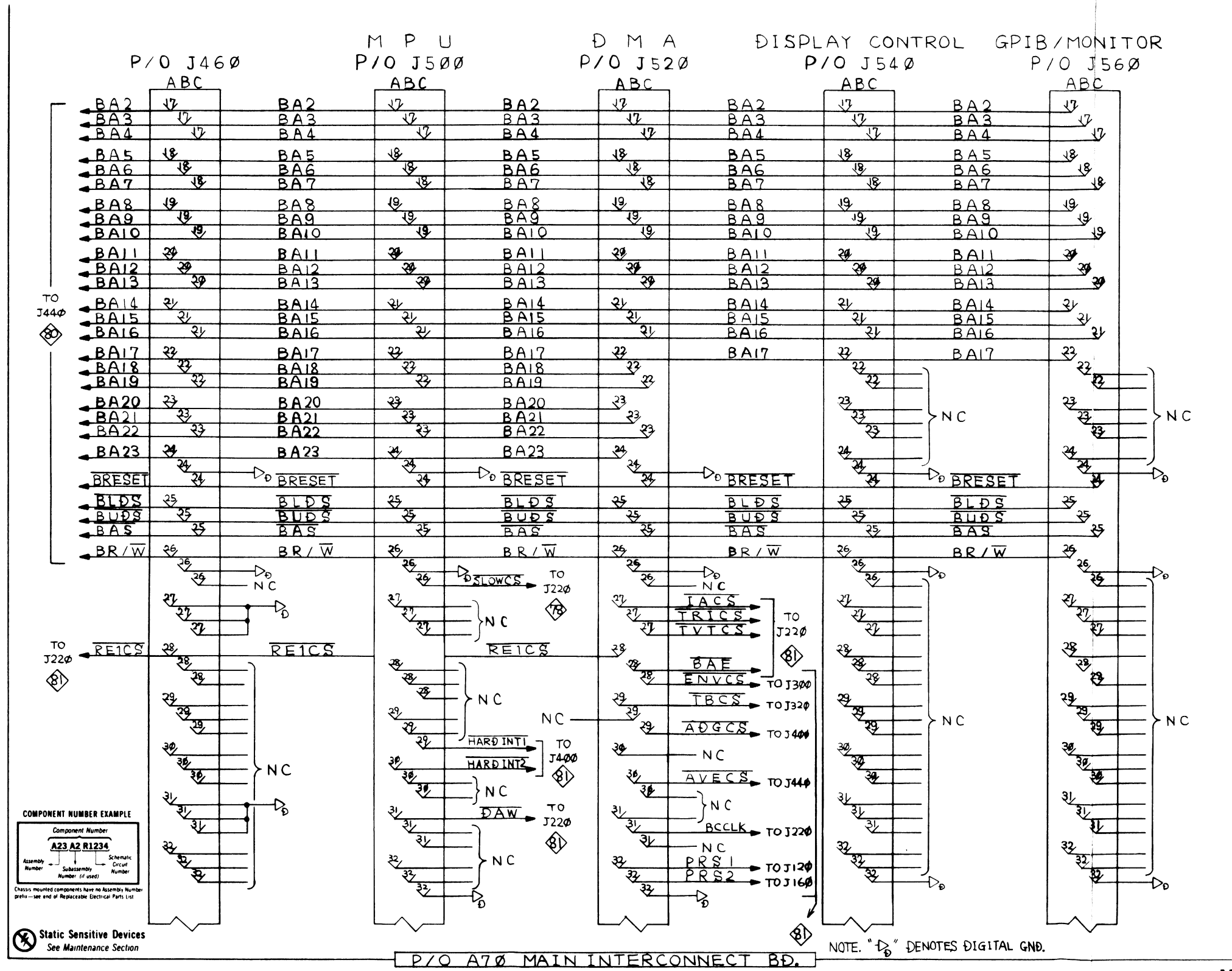





Table 8-88

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**

**1**

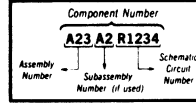
**2**

**3**

**4**

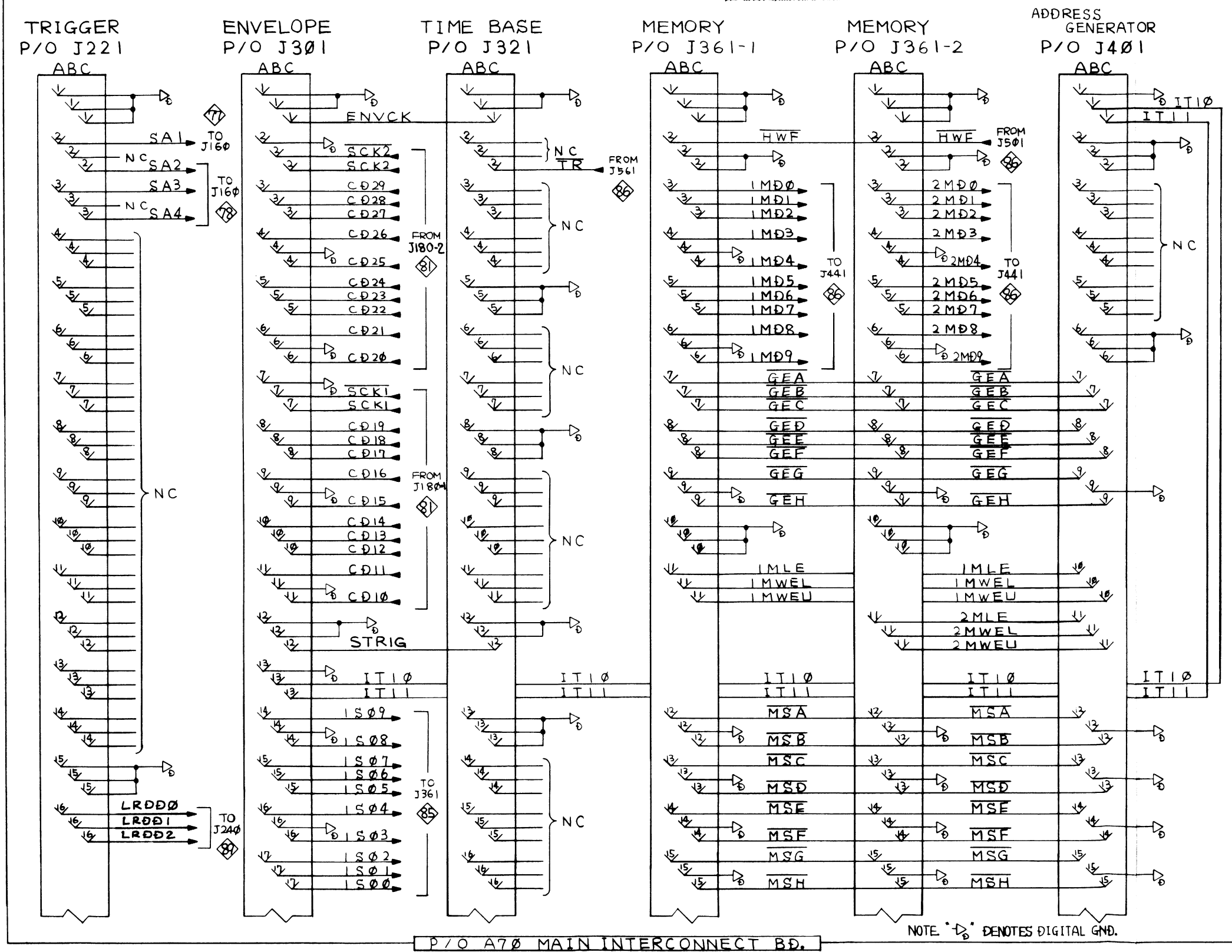
**5**

**COMPONENT NUMBER EXAMPLE**




⊗ Static Sensitive Devices  
See Maintenance Section

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



NOTE: ⊗ DENOTES DIGITAL GND.

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

<b>CIRCUIT NUMBER</b>	<b>SCHEMATIC LOCATION</b>	<b>BOARD LOCATION</b>
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

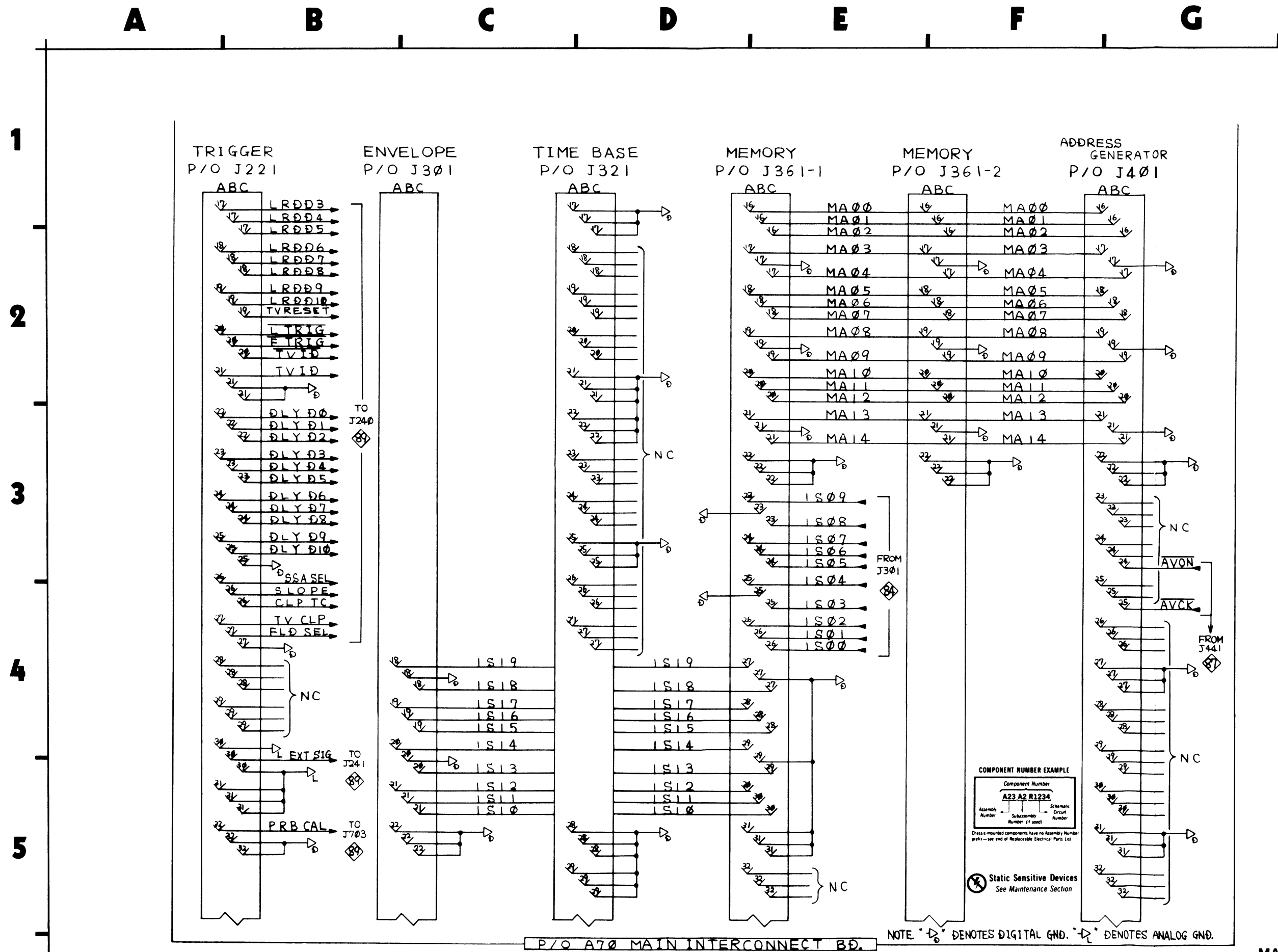



Table 8-90  
**MAIN INTERCONNECT-10**   
**MAIN INTERCONNECT BD., ASSEMBLY A70**

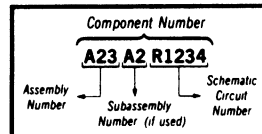
<b>CIRCUIT NUMBER</b>	<b>SCHEMATIC LOCATION</b>	<b>BOARD LOCATION</b>
J441	B1	C1
J461	C1	C1
J501	D1	B1
J521	E1	B1
J541	F1	A1
J561	G1	A1

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**

**1**

**COMPONENT NUMBER EXAMPLE**



⊗ Static Sensitive Devices  
 See Maintenance Section

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

**2**

**3**

**4**

**5**

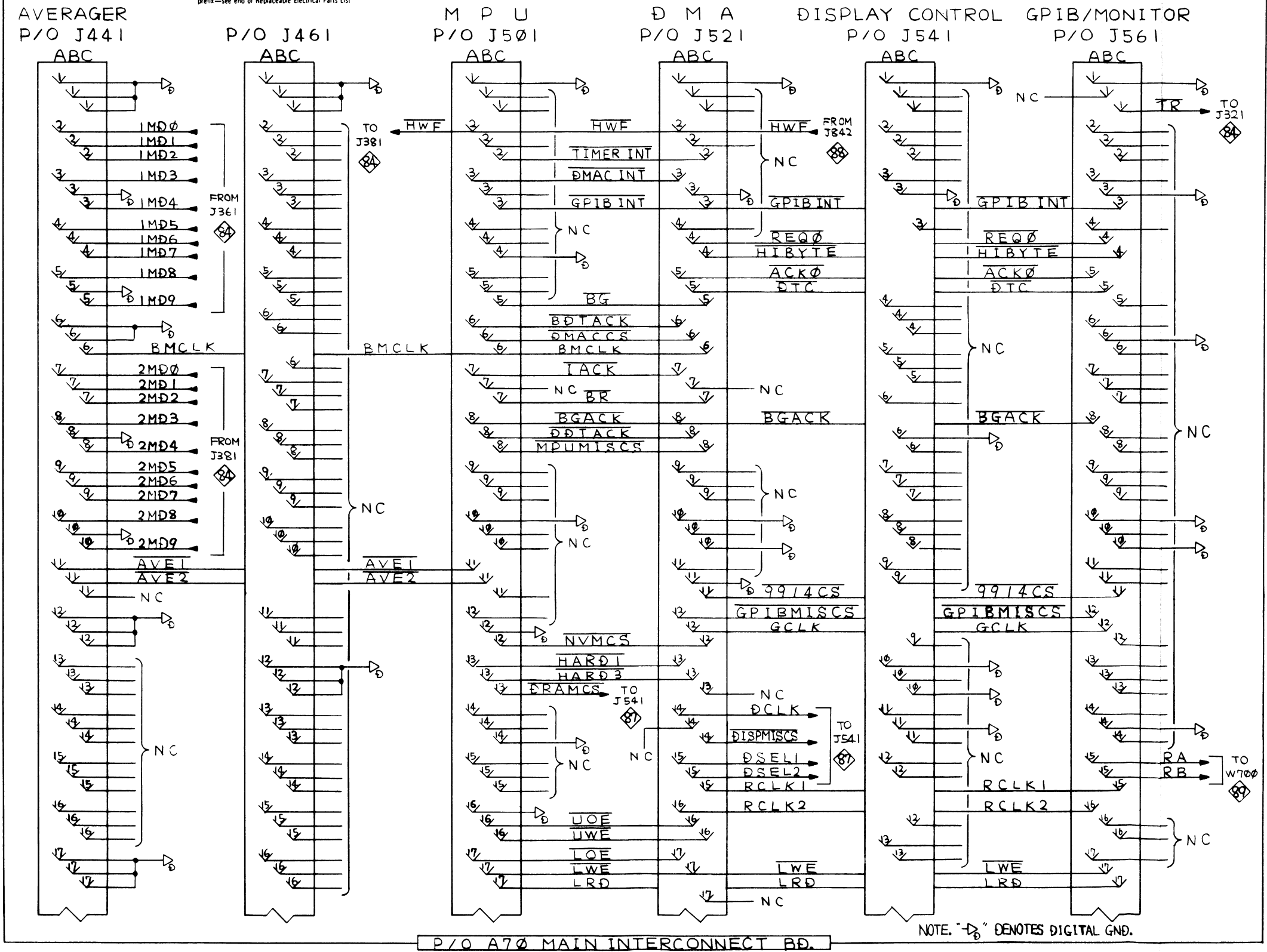



Table 8-91  
**MAIN INTERCONNECT-11**   
**MAIN INTERCONNECT BD., ASSEMBLY A70**

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

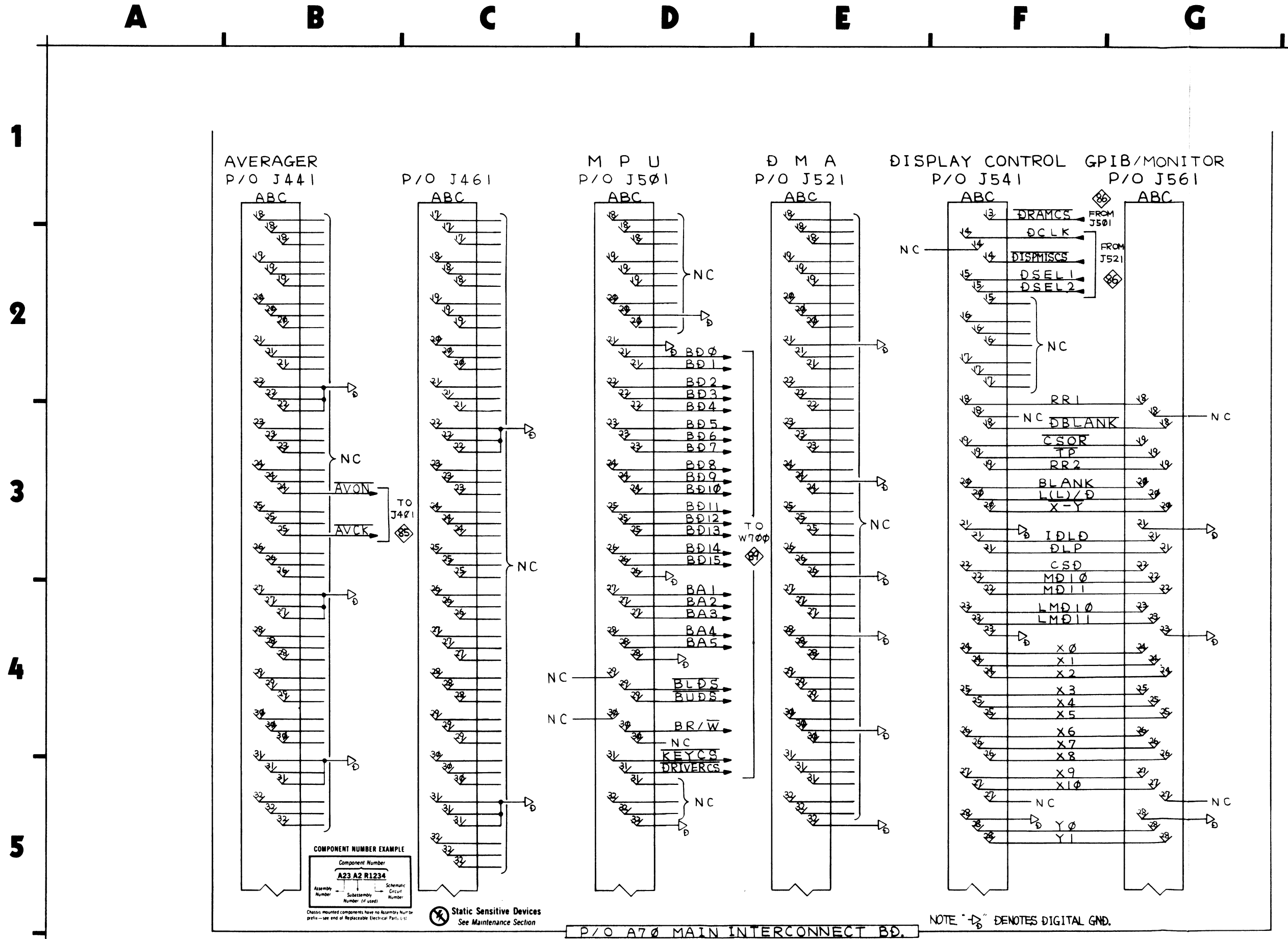





Table 8-92  
**MAIN INTERCONNECT-12**   
**MAIN INTERCONNECT BD., ASSEMBLY A70**

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	I8
C114	B4	I8
C116	B5	I8
C118	B5	I8
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	I8
C312	F5	C8
J301	D2	F1
J321	C2	F1
J361-2	E2	D5
J704	B2	J8
J842	B3	I8
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

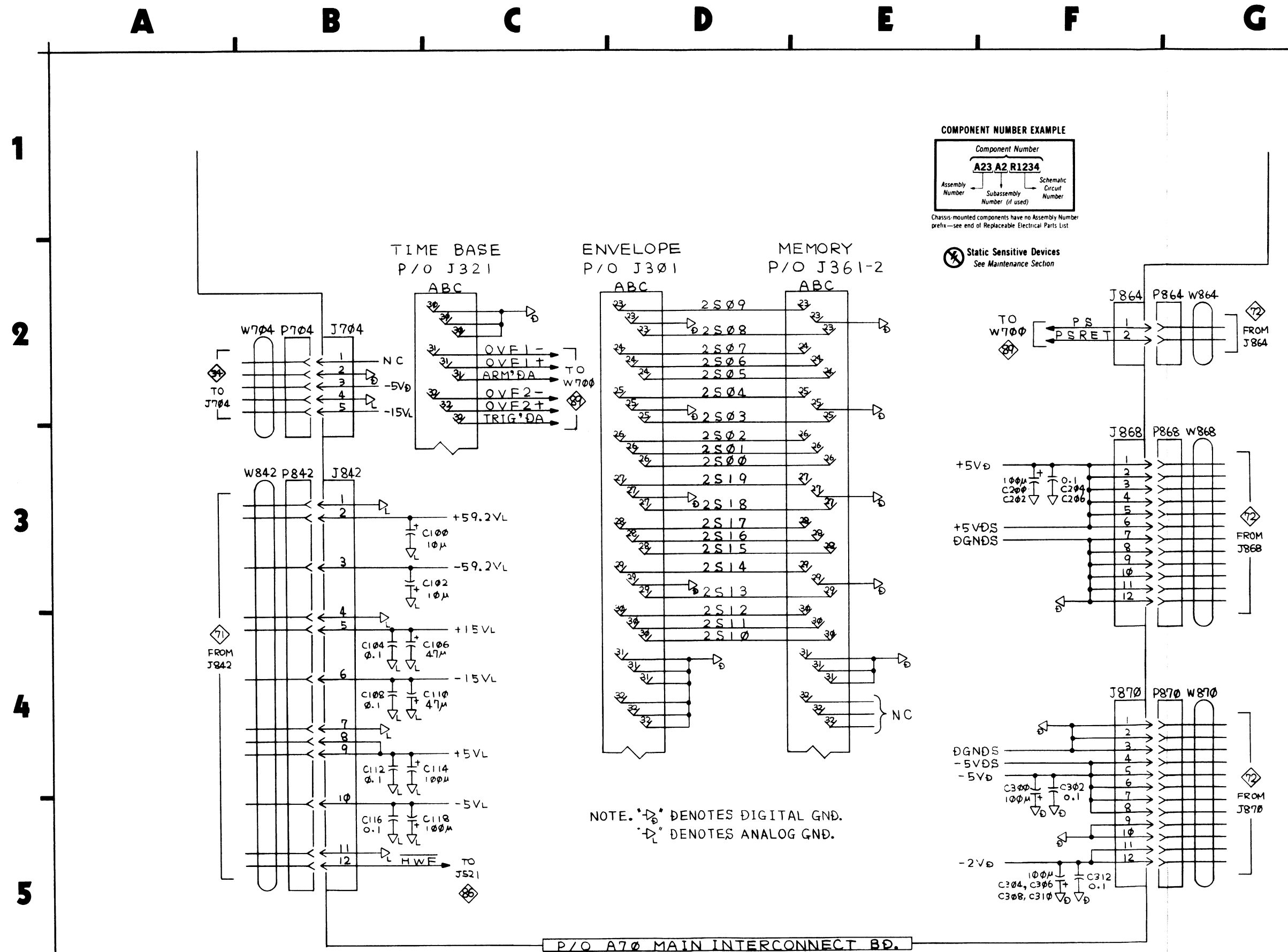

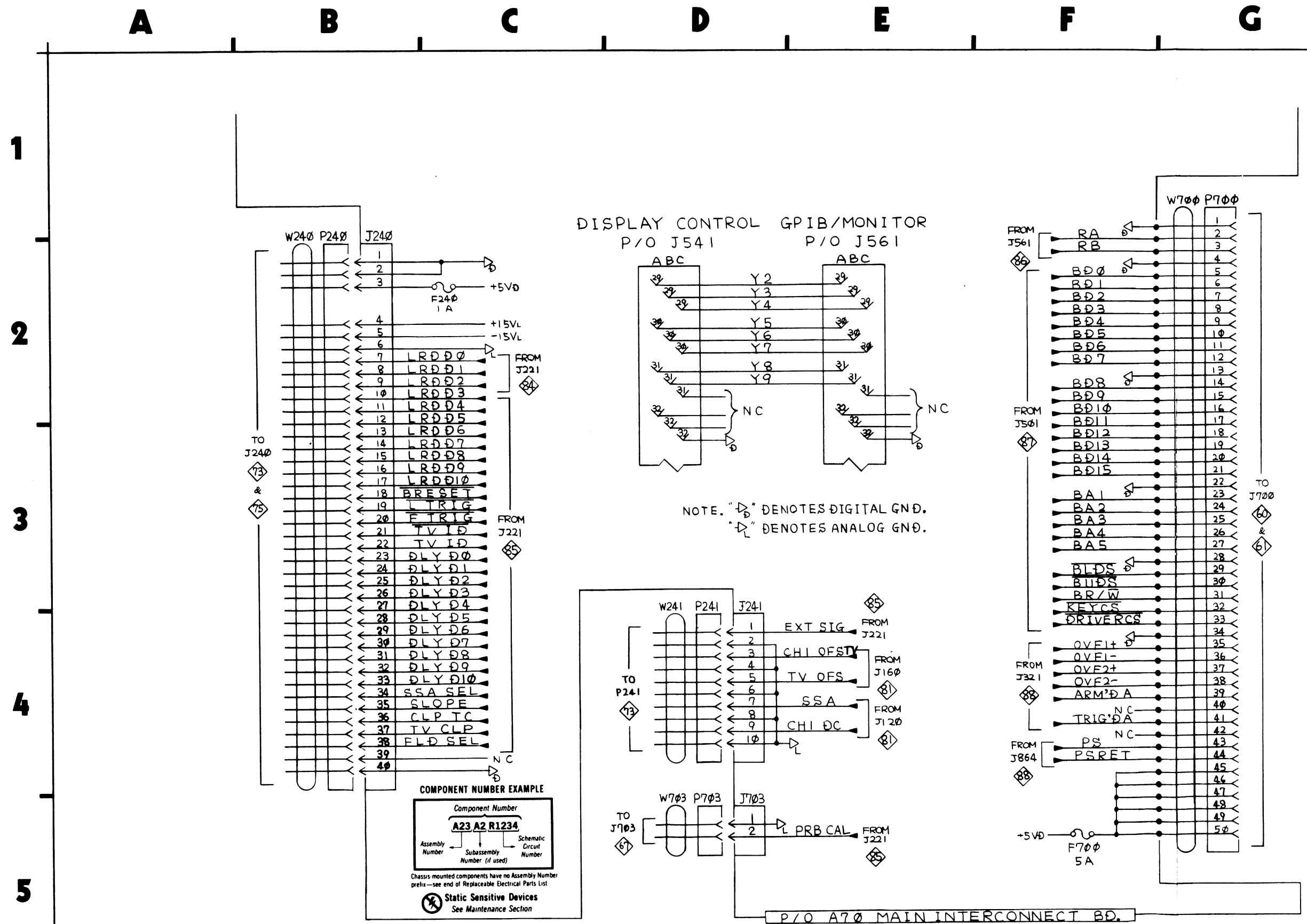


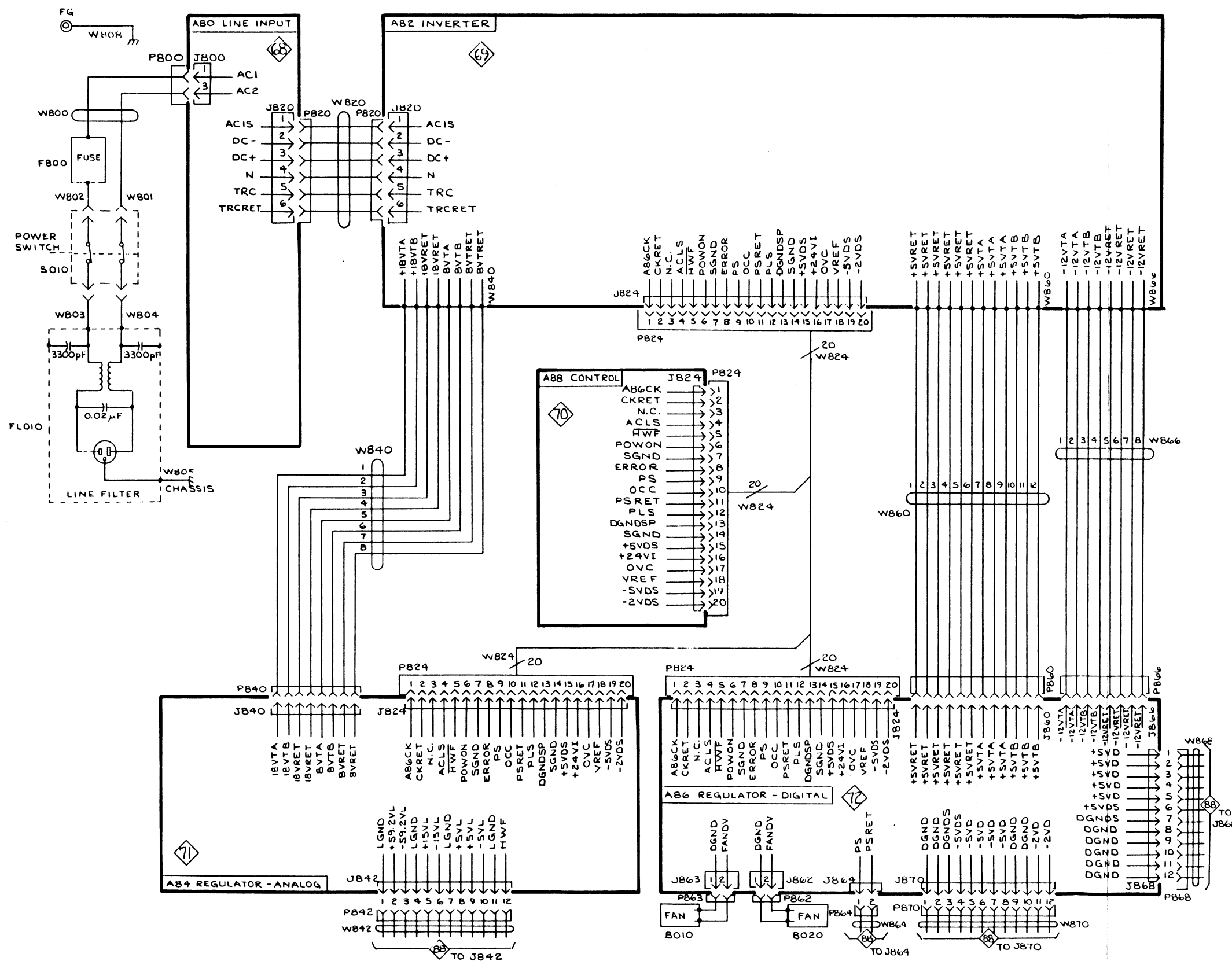
Table 8-93  
**MAIN INTERCONNECT-13**   
**MAIN INTERCONNECT BD., ASSEMBLY A70**

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







POWER SUPPLY WIRING DIAGRAM 69



# REPLACEABLE MECHANICAL PARTS

## 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 circuit 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 description 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.

## 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 Y1.1



CROSS INDEX - MFR. CODE NUMBER TO MANUFACTURER

Mfr. Code	Manufacturer	Address	City, State, Zip Code
01536	TEXTRON INC CAMCAR DIV	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	FREEWAY CORP	9301 ALLEN DR	CLEVELAND OH 44125-4632
13511	AMPHENOL CADRE DIV BUNKER RAMO CORP		LOS GATOS CA
16428	COOPER BELDEN ELECTRONIC WIRE AND CA SUB OF COOPER INDUSTRIES INC	NW N ST	RICHMOND IN 47374
19701	MEPCO/CENTRALAB A NORTH AMERICAN PHILIPS CO MINERAL WELLS AIRPORT	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	ROHM CORP	8 WHATNEY PO BOX 19515	IRVINE CA 92713
71279	INTERCONNECTION PRODUCTS INC	2601 S GARNSEY ST	SANTA ANA CA 92707-3338
73743	FISCHER SPECIAL MFG CO	111 INDUSTRIAL RD	COLD SPRING KY 41076-9749
78189	ILLINOIS TOOL WORKS INC SHAKEPROOF DIV	ST CHARLES ROAD	ELGIN IL 60120
80009	TEKTRONIX INC	14150 SW KARL BRAUN DR PO BOX 500	BEAVERTON OR 97077-0001
83385	MICRODOT MFG INC GREER-CENTRAL DIV	3221 W BIG BEAVER RD	TROY MI 48098
83486	ELCO INDUSTRIES INC	1101 SAMUELSON RD	ROCKFORD IL 61101
86928	SEASTROM MFG CO INC	701 SONORA AVE	GLENDALE CA 91201-2431
92101	SCHULZE MFG	50 INGOLD RD	BURLINGAME CA 94010-2206
93907	TEXTRON INC CAMCAR DIV	600 18TH AVE	ROCKFORD IL 61108-5181
S5403	HIROSE ELECTRIC CO LTD	5-5-23 OHSAKI SHINAGAWA-KU	TOKYO JAPAN
TK0191	SONY TEKTRONIX	PO BOX 14 HANEDA AIRPORT	TOKYO JAPAN
TK0435	LEWIS SCREW CO	4300 S RACINE AVE	CHICAGO IL 60609-3320
TK0508	NORTHWEST SPRING AND MFG CO	5858 WILLOW LANE	LAKE OSWEGO OR 97034-5343
TKOAL	ONODERA MFG CO LTD	3-1-2 KAMIYOHGA SETAGAYA-KU	TOKYO JAPAN
TKOAR	KITAGAWA IND CO LTD	2-4-26 MUROMACHI NIHONBASHI CHUO-KU	TOKYO JAPAN
TKOAU	CHIYODA DENSHI CO LTD	2-5-12 MITA MEGURO-KU	TOKYO JAPAN

Fig. & Index No.	Tektronix Part No.	Serial/Assembly No. Effective Dscort	Qty	12345 Name & 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, BDG, 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	TKOAL	21-0101
	129-1272-00		2	SPACER, POST: 7.6MML, W/10-32 STUD, 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: U/W 0.04 DIA PIN, GRAY	71279	4504352010318
	152-0166-00		1	SEMICONDC DVC, DI: ZEN, SI, 6.2V, 5%, 400MW, DO-7	04713	SZ11738RL
	152-0322-00		1	SEMICONDC 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	TK0191	ORDER BY DESCR
	174-0791-00		1	CABLE ASSY, RF: 50 OHM COAX, 45.0 L	TK0191	ORDER BY DESCR
	174-0793-00		1	CA ASSY, SP, ELEC: 12, 18 AWG, 4.0 L, 8-3	TK0191	ORDER BY DESCR
	174-0795-00		1	CA ASSY, SP, ELEC: 12, 18 AWG, 41.0 L, 8-1	TK0191	ORDER BY DESCR
	174-0796-00		1	CA ASSY, SP, ELEC: 12, 18 AWG, 23.0 L, 8-2	TK0191	ORDER BY DESCR
	174-1302-00		1	CABLE ASSY, RF: 75 OHM COAX, 250MM L	S5403	FL2LP1.5CNMB1360
	174-1304-00		1	CABLE ASSY, RF: 75 OHM COAX, 250MM L	S5403	FL2LP1.5CNMB2360
	198-5597-00		1	WIRE SET, ELEC: TRIGGER BD	TK0191	ORDER BY DESCR
	198-5598-00		1	WIRE SET, ELEC: EXT TRIGGER IN	TK0191	ORDER BY DESCR
	198-5600-00		1	WIRE SET, ELEC: TIME/BASE BD	TK0191	ORDER BY DESCR
	198-5601-00		1	WIRE SET, ELEC: GPIB/MONITOR BD RTD710	TK0191	ORDER BY DESCR
	198-5602-00		1	WIRE SET, ELEC: PROBE CAL	TK0191	ORDER BY DESCR
	198-5603-00		1	WIRE SET, ELEC: POWER SW	TK0191	ORDER BY DESCR
	198-5604-00		1	WIRE SET, ELEC: THROUGH BNC	TK0191	ORDER BY DESCR
	200-2191-03		2	CAP, RETAINER: PLASTIC, EARTH BROWN	80009	200-2191-03
	200-3070-00		4	COVER, DLY LINE:	80009	200-3070-00
	200-3405-01		1	COVER, CHASSIS: MAIN, ALUMINUM	80009	200-3405-01
	200-3650-01		1	GUARD, AIR FLTR: ALUMINUM	80009	200-3650-01
	210-0223-00		1	TERMINAL, LUG: 0.26 ID, LOCKING, BRZ TIN PL	86928	5441-37
	210-0455-00		1	NUT, PLAIN, HEX: 0.25-28 X 0.375, BRS NP	73743	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	211-041800-00
	210-0858-00		2	WASHER, FLAT: 0.172 ID X 0.5 OD X 0.062, BRS	12327	ORDER BY DESCR
	210-1298-00		2	WSHR, SHLDR&RECD: 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		25	SCREW, MACHINE: 4-40 X 0.25, PNH, STL	93907	ORDER BY DESCR
	211-0012-00		1	SCREW, MACHINE: 4-40 X 0.375, PNH, STL	93907	ORDER BY DESCR
	211-0101-00		1	SCREW, MACHINE: 4-40 X 0.25, FLH, 100 DEG, STL	93907	ORDER BY DESCR
	211-0108-00		2	SCREW, MACHINE: 2-56 X 0.156, PNH, STL, POZ	TK0435	ORDER BY DESCR
	211-0502-00		14	SCREW, MACHINE: 6-32 X 0.188, FLH, 100 DEG, STL	TK0435	ORDER BY DESCR
	211-0503-00		2	SCREW, MACHINE: 6-32 X 0.188, PNH, STL	93907	ORDER BY DESCR
	211-0504-00		23	SCREW, MACHINE: 6-32 X 0.250, PNH, STL	TK0435	ORDER BY DESCR
	211-0541-00		6	SCREW, MACHINE: 6-32 X 0.25, FLH, 100 DEG, STL	93907	ORDER BY DESCR
	211-0565-00		3	SCREW, MACHINE: 6-32 X 0.250, TRH, STL	93907	ORDER BY DESCR
	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 DESCR
	212-0567-00		2	SCREW, MACHINE: 10-32 X 0.875, OVH, STL	TK0435	ORDER BY DESCR
	213-0183-00		4	SCREW, TPG, TF: 6-20 X 0.5, TYPE B, PNH, STL	83385	ORDER BY DESCR
	213-0782-00		4	SCREW, TPG, TF: 8-32 X 0.625, FILH, STL	83486	ORDER BY DESCR
	213-0863-00		4	SCREW, TPG, TR: 8-32 X 1.375, TAPTITE, FILH, STL	93907	ORDER BY DESCR
	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	5043CX33R00J
	315-0512-00		1	RES, FXD, FILM: 5.1K OHM, 5%, 0.25W	57668	NTR25J-E05K1
	333-3471-01		1	PANEL, FRONT:	TKOAU	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	PLT1M
	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

Replaceable Mechanical Parts

Fig. & Index No.	Tektronix Part No.	Serial/Assembly No. Effective Dscont	Qty	12345	Name & Description	Mfr. Code	Mfr. Part No.
	348-0201-00		1		FLIP-STAND,CAB.:2.875 H,SST	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
	348-0632-00		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:373MM 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 ELEK: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,CARRYING:16.84 L,W/CLIP,PLASTIC	80009	367-0248-07
	378-0300-00		1		FILTER ELEM,AIR:166.9MM X 144.5MM X 5MM THK	80009	378-0300-00
	378-0302-00		2		FILTER ELEM,AIR: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:BOTTOM,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

Fig. & Index No.	Tektronix Part No.	Serial/Assembly No. Effective Discort	Qty	12345 Name & Description	Mfr. Code	Mfr. Part No.
STANDARD ACCESSORIES						
	070-7204-00		1	MANUAL, TECH: INSTRUCTION, RTD710A	80009	070-7204-00
	070-7207-00		1	MANUAL, TECH: INSTR, RTD710A	80009	070-7207-00
	070-7208-00		1	MANUAL, TECH: REFERENCE, RTD710A	80009	070-7208-00
	159-0268-00		1	FUSE, CARTRIDGE: 3AG, 8.0A, 125V MEDIUM	80009	159-0268-00
	159-0269-00		1	FUSE, CARTRIDGE: 3AG, 4.0A, 250V MEDIUM	80009	159-0269-00
	161-0066-09		1	CABLE ASSY, PWR, :3, 0.75MM SQ, 220V, 99.0 L (OPTION A1 ONLY)	80009	161-0066-09
	161-0066-10		1	CABLE ASSY, PWR, :3, 0.75MM SQ, 240V, 96.0 L (OPTION A2 ONLY)	80009	161-0066-10
	161-0066-11		1	CABLE ASSY, PWR, :3, 0.75MM, 240V, 96.0 L (OPTION A3 ONLY)	80009	161-0066-11
	161-0066-12		1	CABLE ASSY, PWR, :3, 18 AWG, 250V, 99.0 L (OPTION A4 ONLY)	80009	161-0066-12
	161-0123-00		1	CABLE ASSY, PWR, :3, 16 AWG, 125V, 96.01 L	16428	CH-9028
	161-0154-00		1	CABLE ASSY, PWR, :3, 0.75MM SQ, 240V, 6A, 2.5M L (OPTION A5 ONLY)	80009	161-0154-00
OPTIONAL ACCESSORIES						
	012-0991-00		1	CABLE, GPIB: LOW EMI, 2 METER	80009	012-0991-00
	016-0886-00		1	RACK MOUNT KIT:	80009	016-0886-00
	067-1312-00		1	FIXTURE, CAL: MAINTENANCE, RTD710	80009	067-1312-00
	070-7205-00		1	MANUAL, TECH: SERVICE, RTD710A	80009	070-7205-00
	070-7206-00		1	MANUAL, TECH: SERVICE, RTD710A	80009	070-7206-00
	334-3379-05		1	MARKER, IDENT: MKD GROUND SYMBOL	80009	334-3379-05

