

To identify any component mounted on a circuit board and to locate that component in the appropriate schematic diagram

1. Locate the Circuit Board Illustration

- a. In the instrument identify the Assembly Number of the circuit board in question. The Assembly Number is usually printed on the upper left corner of the circuit board on the component side.
- b. In the manual locate and pull out tabbed page whose title corresponds with the Assembly Number of the circuit board. Circuit board assembly numbers and board nomenclature are printed on the back side of the tabs (facing the rear of the manual).

2. Determine the Circuit Number

- a. Compare the circuit board with its illustration and locate the desired component by area and shape on the illustration.
- b. Scan the table adjacent to the Circuit Board Illustration and find the Circuit Number of the desired component.
- c. Determine the Schematic Diagram Number in which the component is located.

A6 CRT BOARD

COMPONENTS LOCATED ON SCHEMATIC DIAGRAM 10			
C602	C632	Q668	R625
C603	C641		R626
C609	C643	R604	R627
C671	C651	R605	R630
C615		R608	R632
C616	Q606	R609	
C617	Q610	R610	
C618	Q615	R614	
C619	Q645	R616	
C624	Q656	R623	
C626	Q665	R624	

COMPONENTS LOCATED ON SCHEMATIC DIAGRAM 11			
C670	Q670	R677	
C671	Q672	R679	
C673	Q673	R680	
C680			
C681	R671	U617	
P603	R673	U618	
P607	R674	U619	
Q669	R675		

COMPONENT LOCATION TABLE

A6 ASSEMBLY					
CIRCUIT NUMBER	SCHEM LOCATION	BOARD LOCATION	CIRCUIT NUMBER	SCHEM LOCATION	BOARD LOCATION
C602	2C	3C	Q656	2F	2B
C603	1C	1G	Q665	1G	1B
C609	4E	2C	Q668	2G	2B
C612	7C	3E			
C615	7C	3D	R604	4C	1E
C616	2C	3C	R605	5D	1E
C617	7D	3D	R608	4E	1D
C618	7E	3E	R609	4E	2D
C619	6E	3C	R610	7B	3E
C624	4F	3D	R614	7C	3D
C626	7G	2D	R616	1C	3D
C632	8G	1F	R623	4D	2E
C643	3D	4B	R625	7F	2D
C651	3E	3B	R626	7F	2D
			R627	7G	1D
			R630	4F	1D
Q606	4E	2D			
Q610	7C	3D	TP624	3B	2D
Q615	7D	3D			
Q645	3E	3B	U615	1D	3C

CHASSIS MOUNTED PARTS					
CIRCUIT NUMBER	SCHEM LOCATION	BOARD LOCATION	CIRCUIT NUMBER	SCHEM LOCATION	BOARD LOCATION
L635	51	CHASSIS	V635	6J	CHASSIS

MANUAL BINDER

PULL OUT PAGE TABS FOR CIRCUIT BOARD ILLUSTRATION

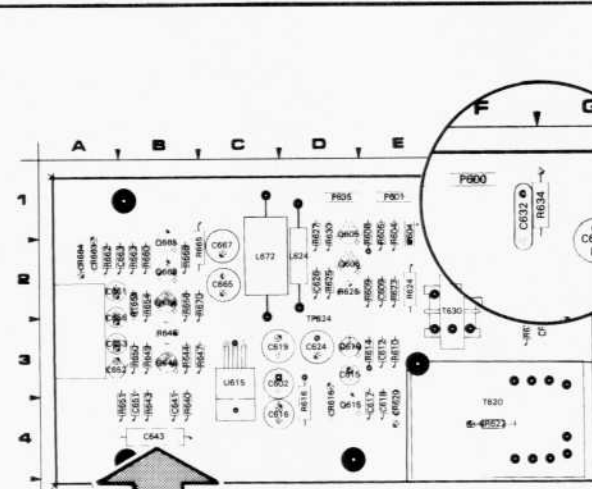


Figure 9-7. A6 CRT board component locations.



ASSEMBLY NUMBER AND CIRCUIT BOARD NAME

ILLUSTRATION FOR INSTRUMENT CIRCUIT BOARD LOCATION

4. Determine the Circuit Board Illustration and Component Location

- a. From the schematic diagram, determine the Assembly Number of the circuit board on which the component is mounted. This information is boxed and located in a corner of the heavy line that distinguishes the board outline.
- b. Scan the Component Location Table for the Assembly Number just determined and find the Circuit Number of the desired component.
- c. Under the BOARD LOCATION column, read the grid coordinates for the desired component.

5. Locate the Component on the Circuit Board

- a. In the manual, locate and pull out the tabbed page whose title and Assembly Number correspond with the desired circuit board. This information is on the back side of the tabs.
- b. Using the Circuit Number and grid coordinates, locate the component on the Circuit Board Illustration.
- c. In the circuit board location illustration, determine the location of the circuit board in the instrument.
- d. Find the circuit board in the instrument and compare it with its illustration in the manual to locate the desired component on the board.

Figure 9-3. Locating components on schematic diagrams and circuit board illustrations.

Circuit Number

Circuit board with its illustration and locate component by area and shape on the illustration.

adjacent to the Circuit Board Illustration and Number of the desired component.

Schematic Diagram Number in which the component is located.

A6 CRT BOARD

COMPONENTS LOCATED ON SCHEMATIC DIAGRAM 10

C602	C632	Q668	R625
C603	C641	R604	R626
C609	C643	R605	R627
C671	C651	R608	R630
C615		R609	R632
C616	Q606		
C617	Q610		
C618	Q615		
C619	Q645		
C624	Q656		
C626	Q665		

COMPONENTS LOCATED ON SCHEMATIC DIAGRAM 11

C670	Q670	R677	
C671	Q672	R679	
C673	Q673	R680	
C680			
C681	R671	U617	
P603	R673	U618	
P607	R674	U619	
Q669	R675		

CRT CIRCUIT DIAGRAM 10

MANUAL BINDER

A6 ASSEMBLY

CIRCUIT NUMBER	SCHEM LOCATION	BOARD LOCATION	CIRCUIT NUMBER	SCHEM LOCATION	BOARD LOCATION
C602	2C	3C	Q656	2F	2B
C603	1C	1G	Q665	1G	1B
C609	4E	2E	Q668	2G	2B
C612	7C	3E			
C615	7C	3D	R604	4C	1E
C616	2C	3C	R605	5D	1E
C617	7D	3D	R608	4E	1D
C618	7E	3E	R609	4E	2D
C619	6E	3C	R610	7B	3E
C624	4F	3D	R614	7C	3D
C626	7G	2D	R616	1C	3D
C632	8G	1F	R623	4D	2E
C643	3D	4B	R625	7F	2D
C651	3E	3B	R626	7F	2D
			R627	7G	1D
			R630	4F	1D

Q605					
Q606	4E	2D	TP624	3B	2D
Q610	7C	3D			
Q615	7D	3D	U615	1D	3C
Q645	3E	3B			

CHASSIS MOUNTED PARTS

CIRCUIT NUMBER	SCHEM LOCATION	BOARD LOCATION	CIRCUIT NUMBER	SCHEM LOCATION	BOARD LOCATION
L635	51	CHASSIS	V635	6J	CHASSIS

3. Locate the Component on the Schematic Diagram

- Locate and pull out tabbed page whose number and title correspond with the Schematic Diagram Number just determined in the table. Schematic diagram nomenclature and numbers are printed on the front side of the tabs (facing the front of the manual).
- Scan the Component Location Table adjacent to the schematic diagram and find the Circuit Number of the desired component.

- Under the SCHEM LOCATION column, read the grid coordinates for the desired component.
- Using the Circuit Number and grid coordinates, locate the component on the schematic diagram.

PULL OUT PAGE TABS FOR SCHEMATIC DIAGRAMS

CRT CIRCUIT 10

CRT CIRCUIT 10

CRT CIRCUIT 10

CRT CIRCUIT 10

CRT CIRCUIT 10

CRT CIRCUIT 10

CRT CIRCUIT 10

Illustration for Component Location

Component

the Assembly
the component is located in a corner board outline.

for the Assembly
Circuit Number of the

n, read the grid

c diagrams and circuit board illustrations.

Numerical and letter at signal lines to or from other diagrams indicates the grid coordinates on another schematic (for example: 4E)

To identify any component in a schematic diagram and to locate that component on its respective circuit board.

SCHEMATIC DIAGRAM NAME AND NUMBER

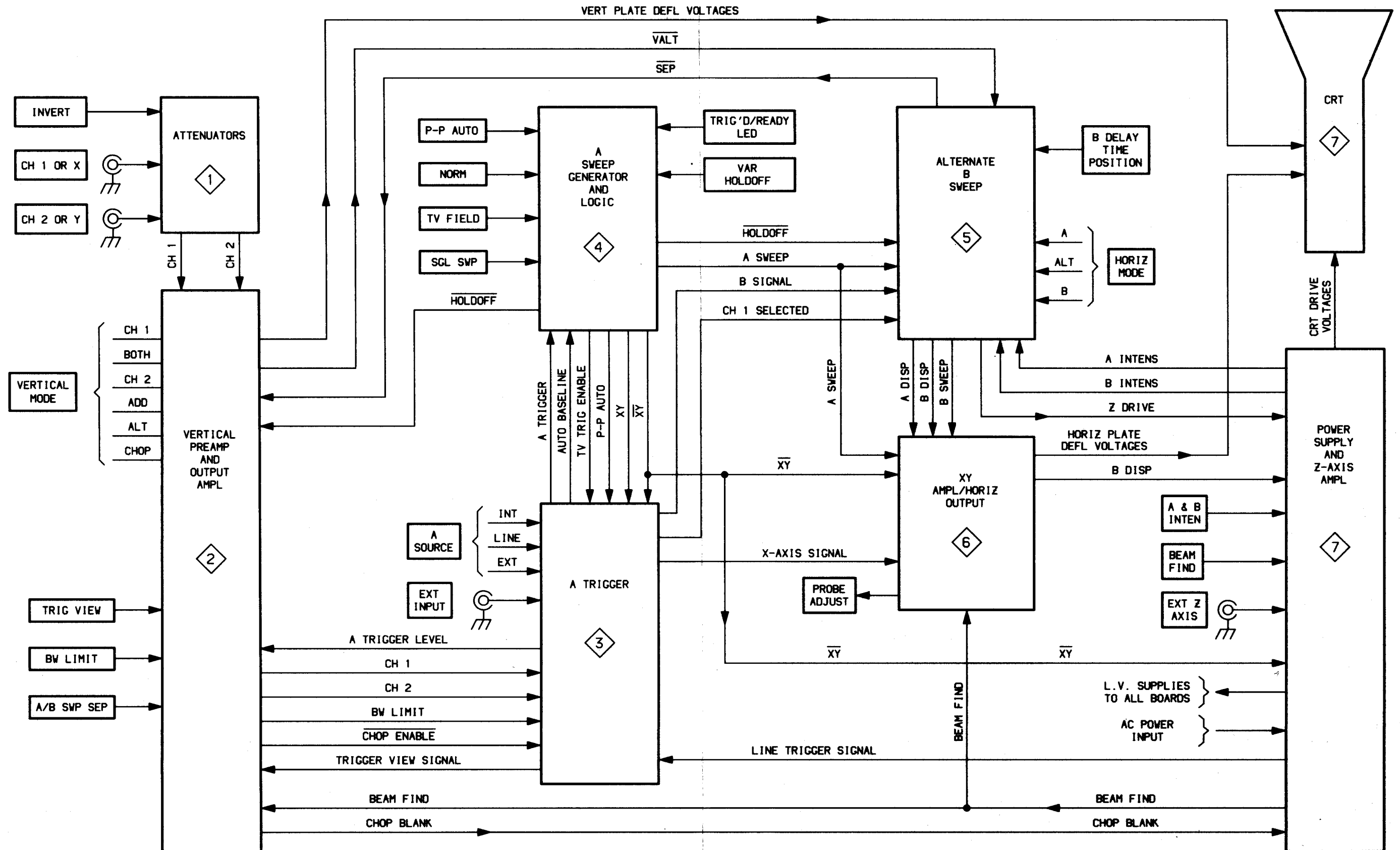


Figure 9-4. Basic block diagram.

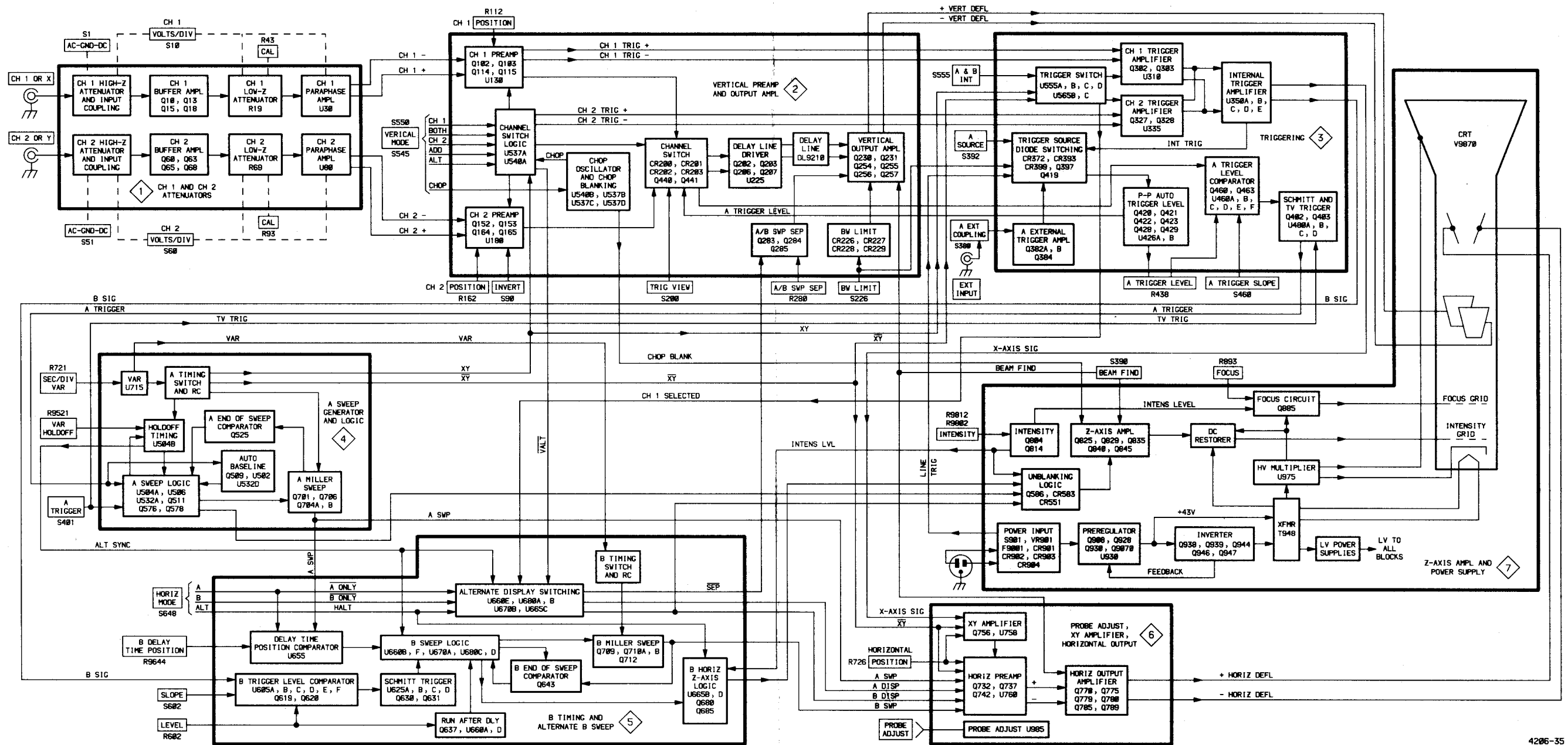
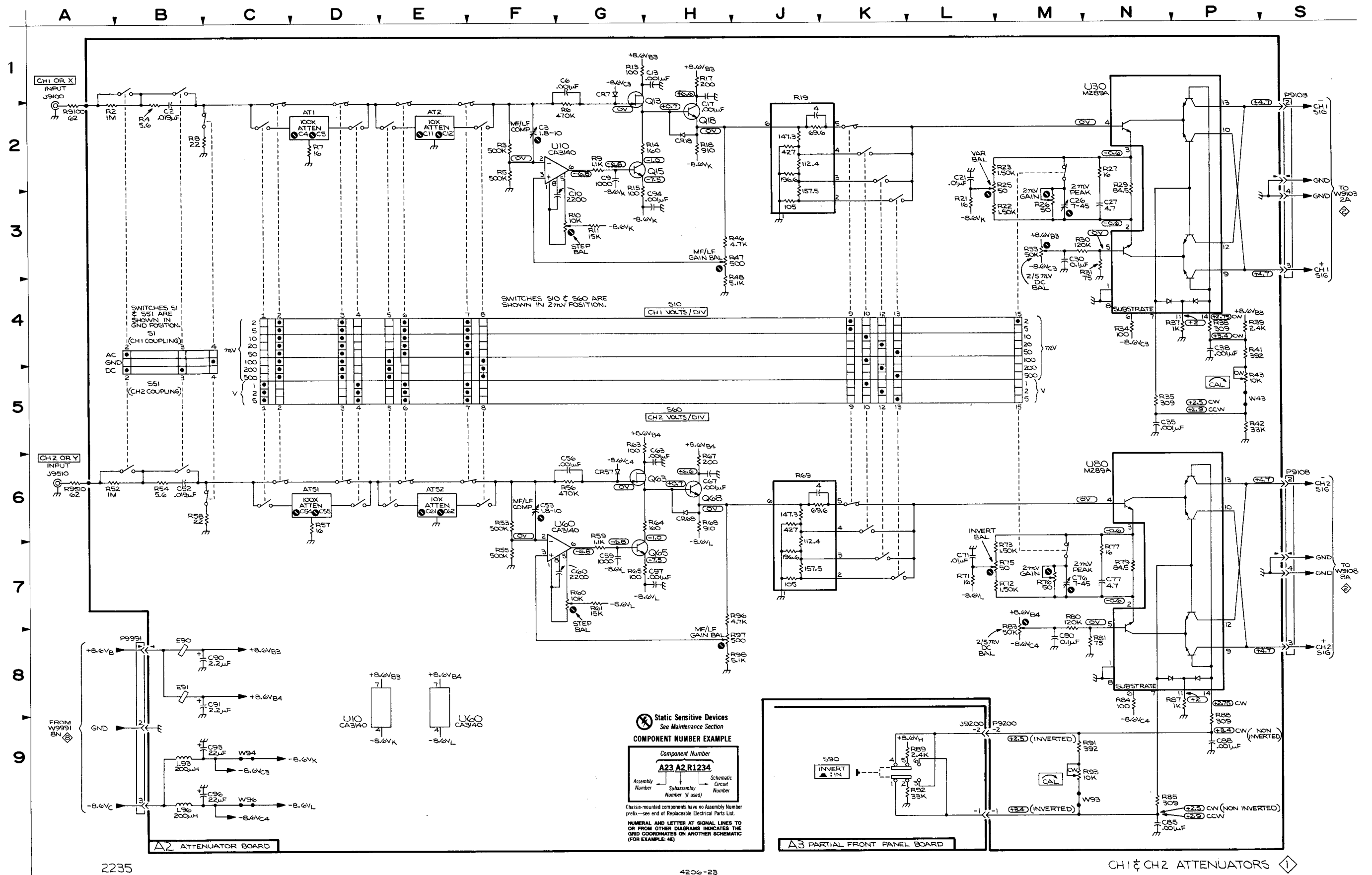


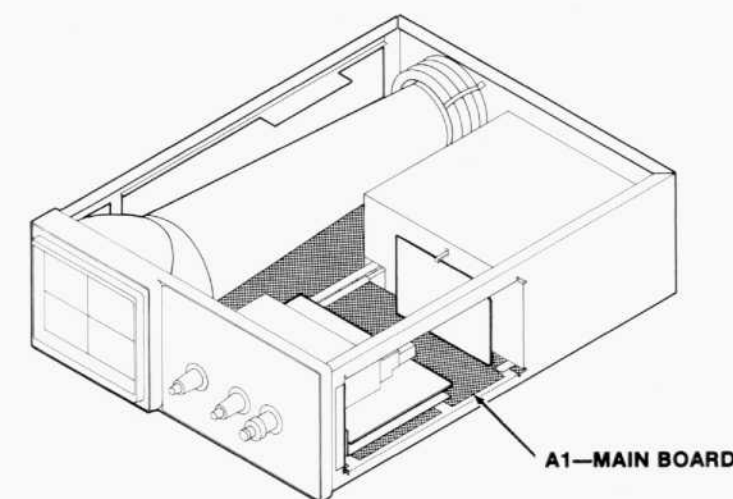
Figure 9-5. Detailed block diagram.



2235

4206-23

CH1 & CH2 ATTENUATORS 1



Component Number

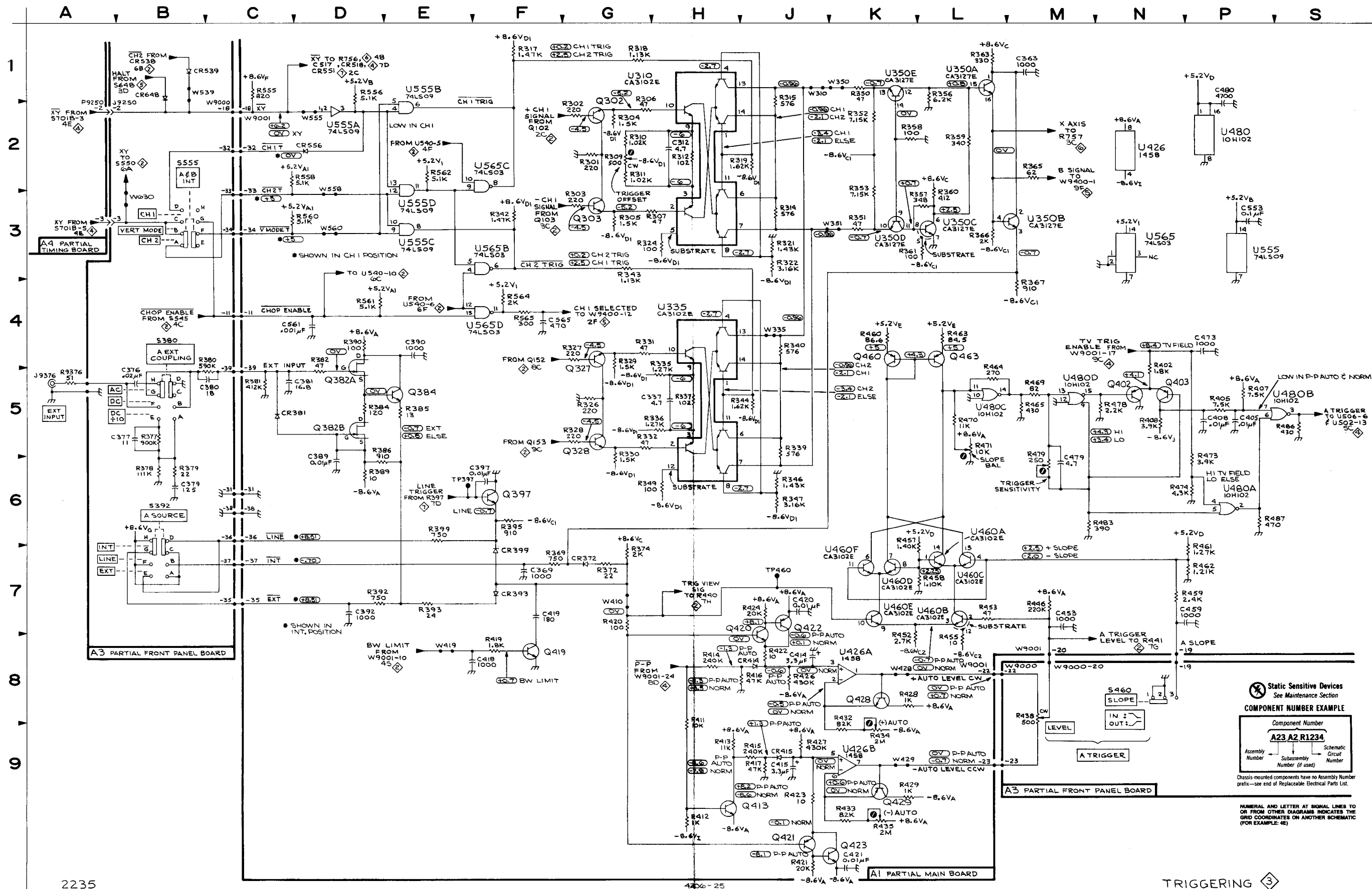
A23 A2 R1234

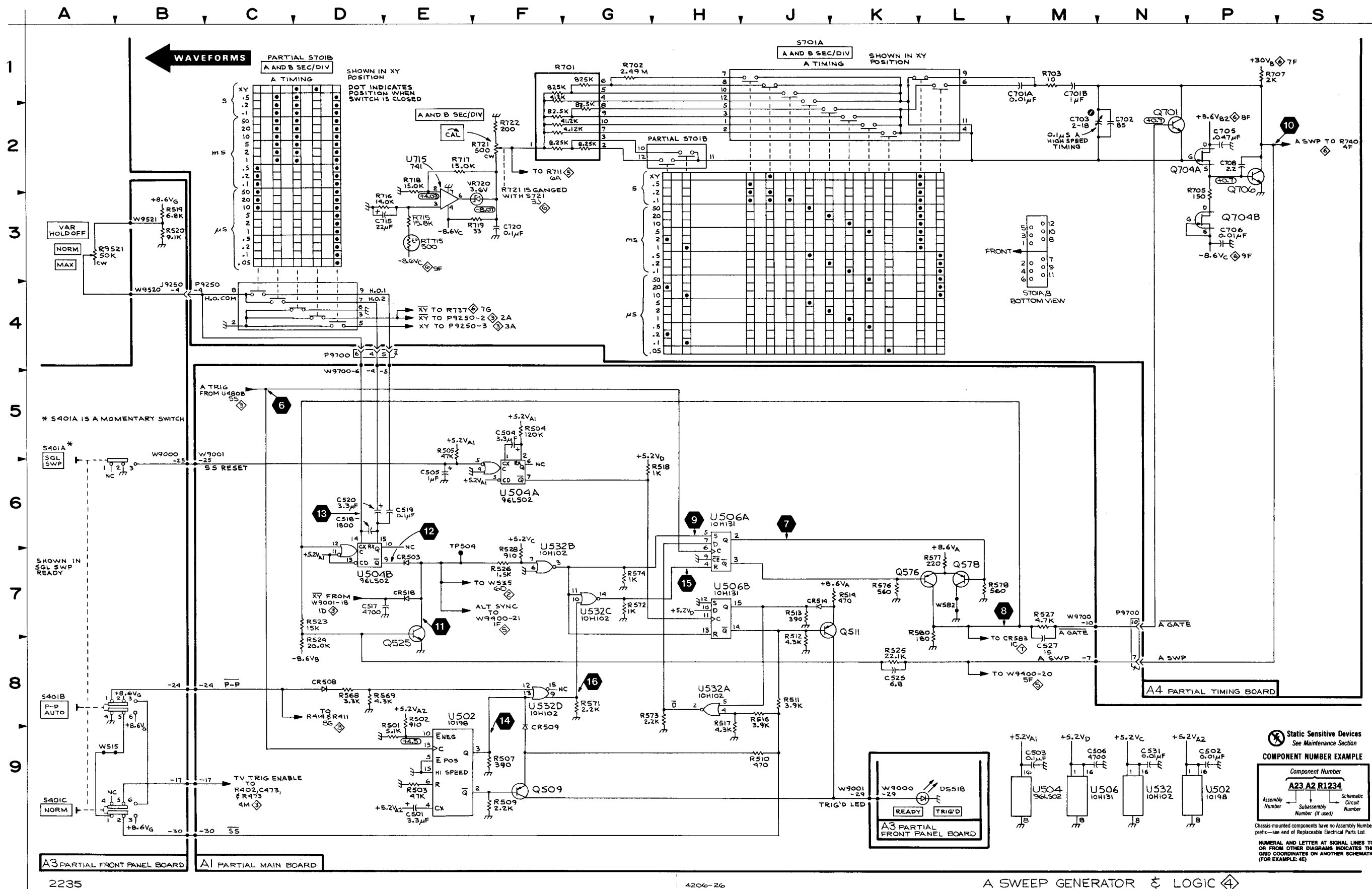
Assembly Number Subassembly Number (if used) Schematic Circuit Number

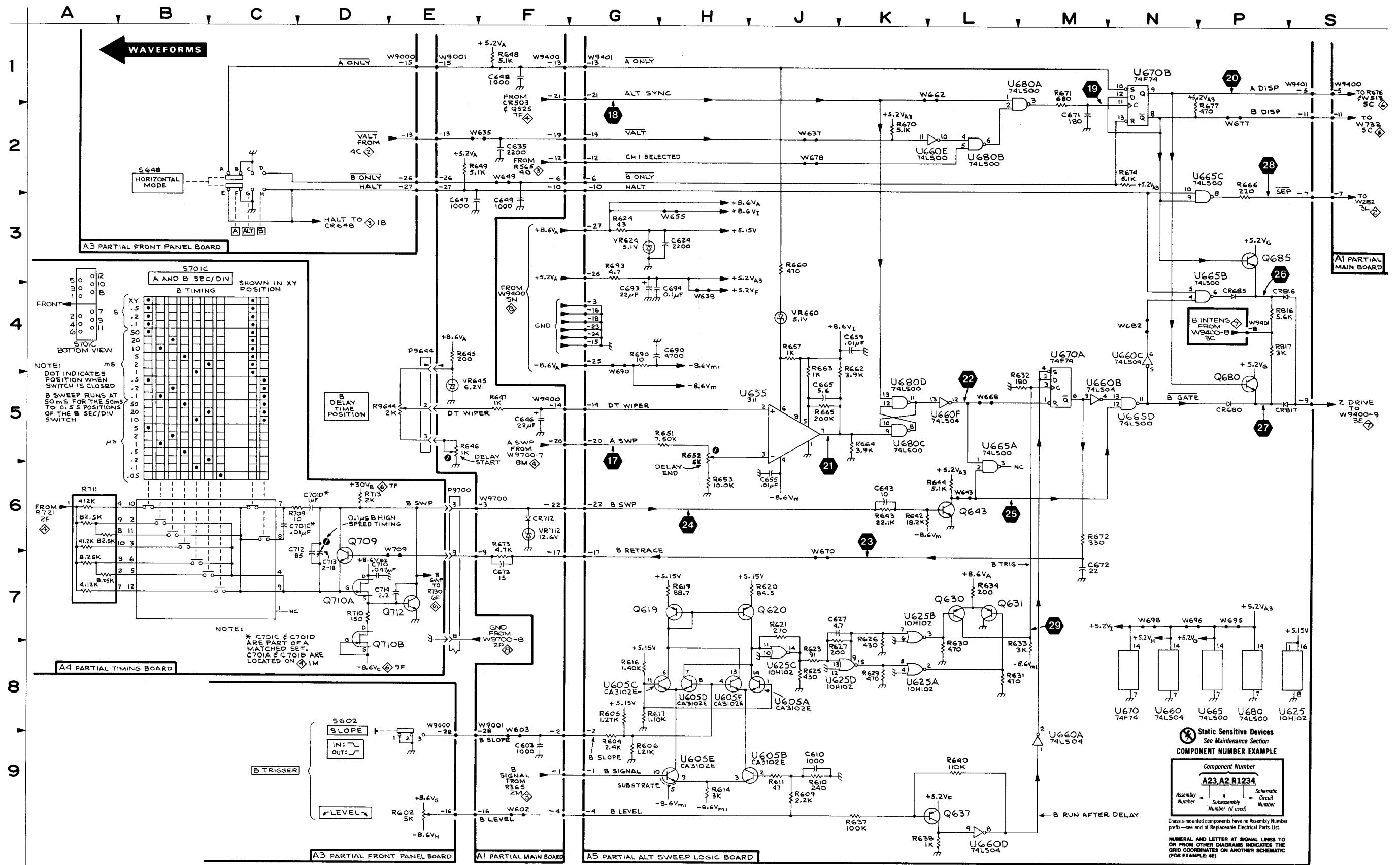
4206-37

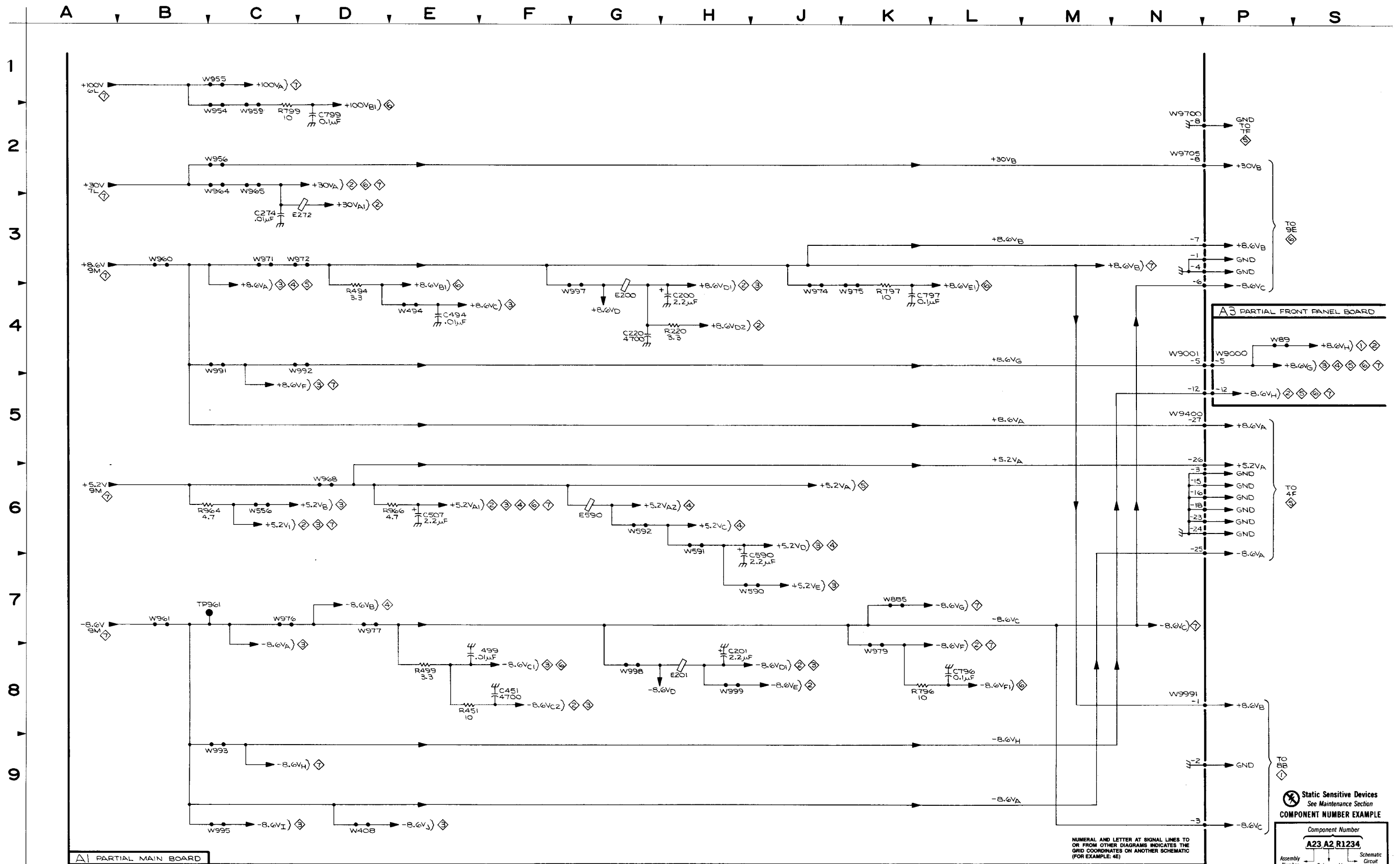


Figure 9-8. Circuit view of A1—Main board.





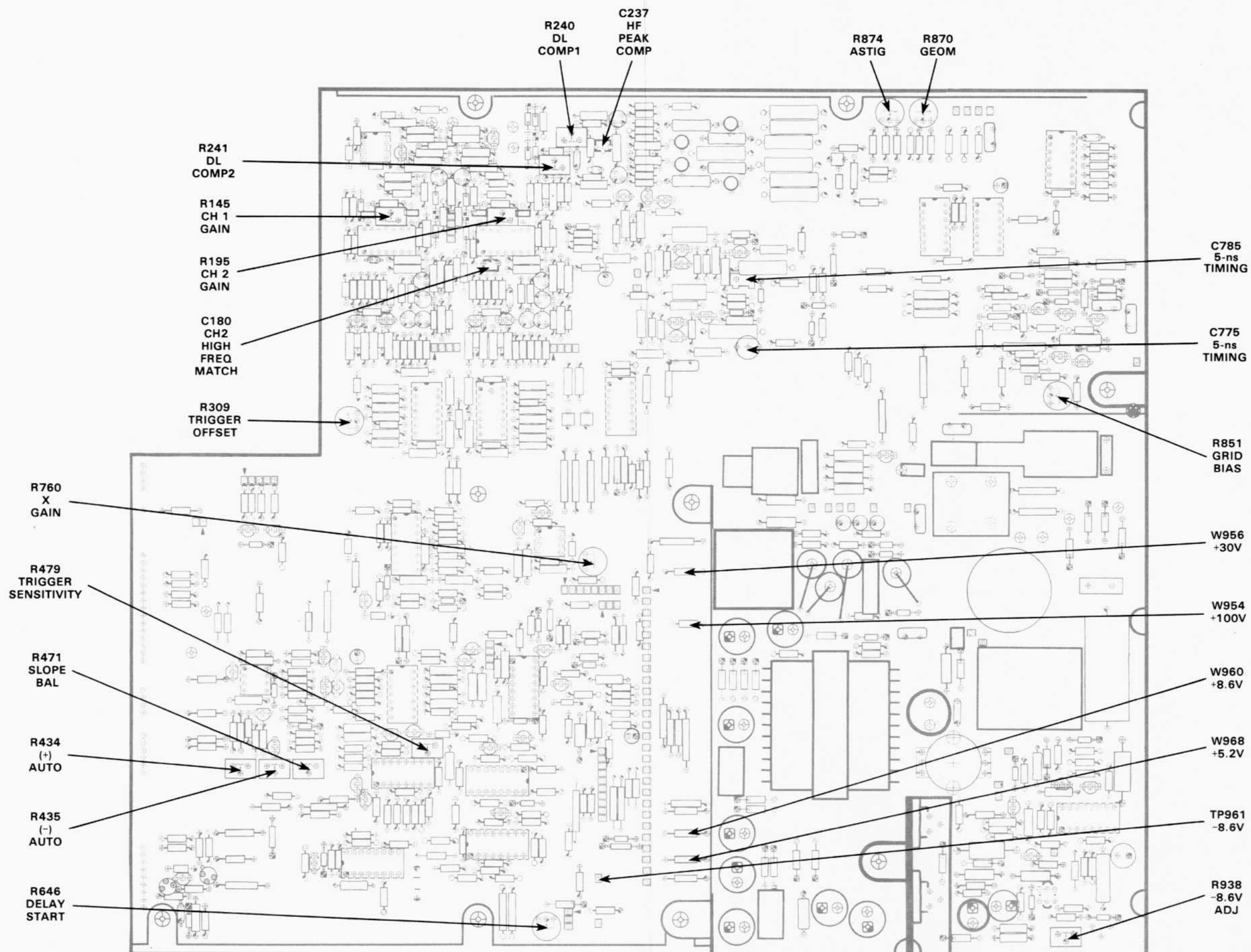




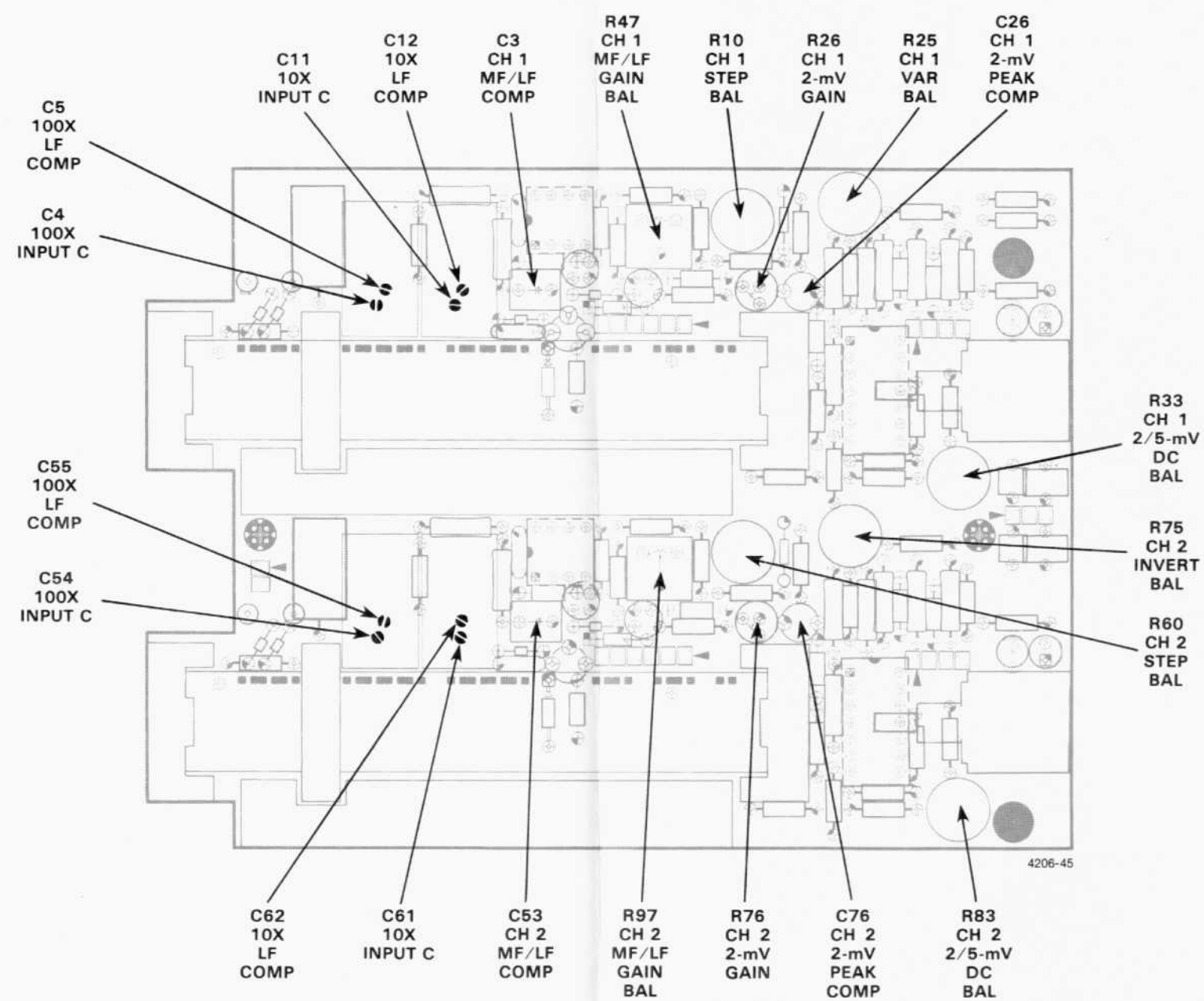
Static Sensitive Devices
See Maintenance Section
COMPONENT NUMBER EXAMPLE

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.



A1—MAIN BOARD ADJUSTMENT LOCATIONS



A2—ATTENUATOR BOARD ADJUSTMENT LOCATIONS

- A. Use schematic diagrams, the overall block diagram, circuit board illustrations, and circuit descriptions when analyzing instrument malfunctions and locating test points. The schematic diagrams include typical waveforms and voltages that are intended as an aid in troubleshooting.
- B. Always set the POWER switch to OFF and unplug the line cord before swapping, removing, or replacing components, and before connecting or disconnecting instrument leads and cables.
- C. When analyzing circuit malfunctions, consider connectors and cables as possible causes of failure.

1. Set initial front-panel controls as follows:

POWER Switch	ON (button in)
A INTENSITY	Midrange
FOCUS	Midrange
Vertical POSITION	Midrange
VERTICAL MODE	CH 1
CH 1 VOLTS/DIV	0.1V
CH 1 VOLTS/DIV Variable	Cal detent
CH 1 AC-GND-DC	GND
Horizontal POSITION	Midrange
HORIZONTAL MODE	A
A SEC/DIV	0.1ms
A SEC/DIV Variable	Cal detent
X10 Magnifier	Off (knob in)
A TRIGGER Mode	P-P AUTO
A&B INT	VERT MODE
A SOURCE	INT

2. Verify the low-voltage power supplies at the following test points:

SUPPLY	TEST POINT	TOLERANCE
+5.2V	W968	5.04 to 5.36V
+8.6V	W960	8.43 to 8.77V
-8.6V	TP961	-8.56 to -8.64V
+30V	W956	29.1 to 30.9V
+100V	W954	97 to 103V

A HV probe is required to measure the -2kV supply. Turn off the power and make the test equipment connections to the oscilloscope. Set the voltmeter to read at least -3kV, then turn the oscilloscope power back on to take the reading. After obtaining the reading, turn off the oscilloscope power to disconnect the test equipment connections, and replace the crt socket cover.

Verify the -2kV supply at pin 2 of the crt socket.
The voltage should be between -1900 and -2100V.

3. **WARNING**

The Preregulator and Inverter circuits have a floating common reference with respect to chassis ground. Ac-source potential is present on the common reference points. Connect the instrument to the ac-power source through an isolation transformer to prevent the possibility of personal injury or equipment damage when troubleshooting these circuits.

