TEK Preliminary
Service Information

Part Number 061-3381-00
Product Group 47

11A32
Two Channel Amplifier

January 7, 1987

Tektronix®
COMMITTED TO EXCELLENCE

Preliminary Service Manual

This package should not in any way be considered a permanent service manual. The information contained in this document is intended solely as an aid to the service person while the permanent service manuals are being completed.

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

Contents

NOTE

The Performance Verification Procedure is located in the 11A32 User's Reference Supplement (Part No. 070-5922-00).

11A32 Preliminary
Adjustment Procedure

NOTE

This procedure is intended to provide a way to manually set all internal adjustments. Consult the plug-in supplement in the User's Reference manual for more information about advertised specifications and instrument operation. Consult the test equipment manuals for information concerning test equipment setup or interconnection.

An incoming Inspection procedure is provided in the 11A32 User's Reference Supplement (P/N 070-5922-00) to verify basic instrument operation without checking all features and performance requirements.

Using This Procedure

In this procedure, bold and italicized letters identify menu labels and display messages. Initial capital letters identify connectors, controls, and indicators (e.g., Position) on associated test equipment.

A heading system is used to readily identify the steps that contain performance check and/or adjustment instructions. For example, if ADJUST is the first word in the title, the step contains one or more internal adjustments. If EXAMINE is the first word in the step title, the step concerns measurement limits that indicate whether the instrument is operating properly; these limits are not to be interpreted as electrical specifications.

The alphabetical instructions under each step (a, b, c, etc.) may also contain **EXAMINE** or **ADJUST** as the first word of the instruction. These terms are defined as follows:

ADJUST—describes which adjustment to make and the desired result. We recommend that the adjustment not be made if a previous EXAMINE instruction indicates that no adjustment is necessary.

EXAMINE—usually precedes an ADJUST instruction and indicates that the instruction determines whether adjustment is necessary. If no ADJUST instruction appears in the same step, the EXAMINE instruction concerns measurement limits that have no related adjustment. Measurement limits following the word EXAMINE are not to be interpreted as specifications. They are provided as indicators of a properly functioning instrument and to aid in the adjustment process.

Menu Selections

Although brief instructions are included in the procedure for making menu selections, detailed descriptions of those menus as well as instructions on how to exit menus after selections are made are generally not included. Comprehensive descriptions of menus and instrument features are found in the 11401/11402 User's Reference Manual.

Vertical and Horizontal Settings

In this procedure, instructions are not provided for selecting the required vertical and horizontal settings. Detailed instructions for operating the 11401/11402 display are given in the User's Reference manual. Familiarity with these operating principles is essential to perform the Adjustment procedure.

Plug-in Unit Installation and Removal

The front-panel ON/STANDBY switch should be set to STANDBY before installing or removing plug-in units. After the plug-in unit is installed, the switch may be set back to ON. The instrument will first perform its normal diagnostic and self-test sequence, then restore the front-panel settings in effect at the time of the power-down.

Required Test Equipment

The following equipment is required for the adjustment procedure:

1. **Oscilloscope.** Tektronix 11401/11402 mainframe.
2. **Calibration Generator.** Tektronix PG 506 with power mainframe.
3. **Signal Standardizer.** Tektronix 067-0587-02 Signal Standardizer Calibration Fixture with the interface connector modified for 11000-series use.
4. **Pulser.** Tektronix 067-0681-01 Tunnel Diode Pulser Calibration Fixture.
5. **50-ohm Coaxial cable.**
6. **Small screwdriver.**

Power-Up Sequence

1. Insert the Signal Standardizer into the Oscilloscope Right plug-in compartment.
2. Connect the 11401/11402 to a suitable power source and switch the rear-panel PRINCIPAL POWER SWITCH to ON.

3. Switch the front-panel ON/STANDBY switch to ON.
4. Allow the instrument to warm-up for at least 20 minutes.
5. Press the 11401/11402 ENHANCED ACCURACY button.

A. Step Response

A1. EXAMINE Oscilloscope Mainframe Step Response (Provides comparison reference)

NOTE

Refer to Power-Up Sequence on previous page. Also, all instrument settings not listed under SETUP CONDITIONS are default upon initialization.

SETUP CONDITIONS

Settings:

Oscilloscope
- Menus buttons ... Utility
- Utility menu ... Initialize
- Utility menu ... Inst Options
- Instrument Options menu ... Waveform Scaling (Forced)
- Icon ... Def Wfm
- Vertical Description menu ... R (right)
- ... Enter Desc
- Menus buttons ... Trigger
- Trigger menu ... Source Desc
- Main Trigger Source Description menu ... R (right)
- ... Enter Desc

Signal Standardizer
- Test (Vert or Horiz) ... +Step Resp
- Rep Rate ... 100 kHz
- Position ... 12 o'clock
- Amplitude ... 9 o'clock

Oscilloscope
- Main Size control knob ... 2 ns/div
- Icon ... Trig'd
- Trig Level control knob ... 40%
- Icon ... horizontal
- Main Pos ... position positive pulse transition one division from left edge of graticule
- Menus buttons ... Waveform
- Waveform menu ... Acquire Desc
- Acquire Description menu ... Average N (on)
- ... Set AvgN
- Average N control knob ... 8

Signal Standardizer
- Amplitude ... 5 div vertical step

Oscilloscope
- Icon ... vertical
- Vert Pos: Wfm control knob ... top of step on center horizontal graticule line
- Vert Mag: Wfm control knob ... 100 m

a. Record the oscilloscope step response on graph paper or run a hardcopy of the display. This waveform will be used later for comparison against the 11A32/11A34 step response.

b. Set oscilloscope On/Standby switch to Standby.

c. Remove Signal Standardizer from Right plug-in compartment.

A2. EXAMINE/ADJUST CH 1 and CH 2 Signal Step Response (A1R1015, A1R1025)

NOTE

All instrument settings not listed under SETUP CONDITIONS are default upon initialization.

SETUP CONDITIONS

Perform the following settings in the order listed:

Remove the left side cover from the 11A32. Insert the 11A32 into the Oscilloscope Right plug-in compartment. Connect the 067-0681-01 Pulser to the CH 1 input connector. Connect a 50-ohm coaxial cable from the Calibration Generator Ampl Output connector to the Pulser.

Oscilloscope
- On/Standby switch ..... On
- Wait for calibration cycle to complete
- Menus buttons ..... Utility
- Utility menu ..... Initialize
- Waveform menu ..... Impedance
- Channel Impedance 50Ω

11A32
- CH 1 button ..... on (lighted)

Calibration Generator
- Function switch ..... High Ampl
- Period ..... 0.1 ms
- Pulse Amplitude ..... Max

Pulser
- TD Triggered Level ..... Fully clockwise

Oscilloscope
- Icon ..... vertical
- Vert Size: R1 control knob ..... 50 mV/div
- Icon ..... horizontal
- Main Size control knob ..... 10 µs/div
- Main Pos control knob ..... position positive-going edge to first graticule line from left edge of graticule.

Pulser
- TD Triggered Level ..... Rotate control ccw to the point where a step just starts to appear on the lower part of the positive-going edge.

Oscilloscope
- Waveform menu ..... Acquire Desc
- Acquire Description menu ..... Average N (on)
- ..... Set Avg N
- Average N control knob 8
- Icon ..... horizontal
- Main Size control knob ..... 2 ns/div
- Icon ..... vertical
- Vert Offset: R1 control knob ..... position top of step to center horizontal graticule line
- Vert Size: R1 ..... touch
- Numeric Entry & Knob Res menu ..... Fine
- Vert Size: R1 control knob ..... Five div display

Vert Size: R1 control knob.....set readout for 10% of present readout (~4 mV/div).
Vert Offset: R1.....position right side of trace to center horizontal graticule line.

a. **EXAMINE**—compare the displayed waveform with the waveform recorded in step A1.

NOTE

1 major graticule division = 2%.

The difference between the two waveform aberrations should not exceed 4% peak (2 divisions), and 7% (3.5 divisions) peak-to-peak.

b. **ADJUST**—HF1, R1015 on the A1 Main circuit board, so that the CH 1 aberrations are within 4% peak (2 divisions), and 7% peak-to-peak (3.5 division).

c. Repeat step A2 for the CH 2 input, except that the adjustment is performed using the HF2 adjustment, A1R1025.

Troubleshooting with Diagnostics

At power-up, 11000-series instruments perform a series of self-tests to verify correct operation. These tests may be performed individually at any time as part of Extended Diagnostics.

Diagnostic tests are significant aids in troubleshooting digital parts of this instrument. In troubleshooting analog parts of the instrument, diagnostic tests can provide a starting place.

For example, diagnostic routines can exercise and test the following parts of the instrument:

Group I	Group II	Group III
Relay Drvr	ADC Test	ACVS Test
Probecodes	Fuse Test	ExplainCal
Cksm Plug		
Cksm Probe		
Walk Ones		

Ch. N Cal	Meas Sys
Probe Gain	CalMeasure
Atten Gain	Cal Sigpath
Step Gain	
BWL Match	
Gain	
Output Err	
Balance	
Coarse Dac	
Fine Dac	
Spare Gain	
CC Dumper	

If an attenuator or M377 output amplifier is replaced the transient response for that channel should be readjusted. Refer to Part 2 of the service manual for information about calibrating the instrument.

Diagnostics in 11301/11302

Diagnostic tests are accessed through the Utility major menu. To display the Utility major menu, press the UTILITY button on the front panel of the host oscilloscope. The mainframe will then display its Utility menu, with an entry entitled Ext Test. Touch the Ext Test entry, then touch Run to access the Blocks menu. The Blocks menu contains entries for installed plug-in units.

To select a plug-in unit for diagnosis you must make the following three choices:

- Choose the plug-in entry in the Block column;
- Choose which area of the plug-in is to be tested; and
- Choose the test routine to be performed.

If an 11A32 is installed in the Left plug-in compartment, it can be diagnostically tested by using the following steps:

1. Touch the Left 11A32 menu item in the Block column.

2. Touch the AREA entry at the top of the crt.

3. Touch the name of the area you wish to test (entries are Group I, Group II, Group III, Ch. 1 Cal, Ch. 2 Cal, and Meas. Sys., as listed previously).

For example, if you want to test the 11A32 A/D Converter, touch Group II; if you want to test Ch. 2 Attenuator Gain, touch Ch. 2 Cal.

4. Touch the ROUTINE entry at the top right of the crt. A list of test routines will be displayed.

5. Touch the name of the desired test.

For example, if you selected Ch. 2 Cal so that you can test Atten Gain, touch the Atten Gain entry in the list at the left side of the crt.

6. To perform the Atten Gain (or other selected) test, touch RUN at the lower right corner of the crt.

The Atten Gain test will be performed and the results will be displayed in the Window, Read, Faults, and Index columns. For example, the Atten Gain test produced these results:

Window	Read	Faults	Index
-2.00 2.00	0.42		pass

For more detail about Diagnostics refer to the mainframe manual.

Diagnostics in 1140I/1140

Diagnostic tests are available through the Utility major menu. To display the Utility major menu, press the UTILITY button on the front panel of the host oscilloscope. The mainframe will then display its Utility major menu, which will contain an Extended Diagnostics entry. Touch the Extended Diagnostics entry to access the extended Diagnostics menu, which contains entries for installed plug-in units.

To select a plug-in unit for diagnosis you must make the following three choices:

- Choose the desired plug-in entry in the BLOCK column:
- Choose which area of the plug-in is to be tested; and
- Choose the test routine to be performed.

If an 11A32 is installed in the Left plug-in compartment, it can be diagnostically tested by using the following steps:

1. Touch the Left 11A32 menu item in the BLOCK column.

2. Touch the (2) AREA entry in the major menu area at the bottom of the crt. The Area selections will be displayed in a vertical column.

3. Touch the Area entry you wish to test (entries are Group I, Group II, Group III, Ch. 1 Cal, Ch. 2 Cal, and Meas. Sys., as listed previously).

For example, if you want to test the 11A32 A/D Converter, touch Group II; if you want to test Ch. 2 Attenuator Gain, touch Ch. 2 Cal.

4. In the major menu area at the bottom of the crt, touch (3) Routine. A list of test routines will be displayed.

5. Touch the name of the desired test.

For example, if you selected Ch. 2 Cal so that you can test Atten Gain, touch the Atten Gain entry in the list at the left side of the crt.

6. To perform the Atten Gain (or other selected) test, touch (r) Run at the lower right corner of the crt.

The Atten Gain test will be performed and the results will be displayed in the Index, Faults, Min, Max and Actual columns. For example, the Atten Gain test produced these results:

ROUTINE	INDEX	FAULTS	MIN	MAX	ACTUAL
b) Atten Gain	pass		-2.000	2.000	0.073

To exit the extended diagnostic mode, touch (E) Exit in the lower right corner of the crt.

For further detail about Diagnostics refer to the mainframe manual.

Attenuators

Diagnostics are only one way of testing circuitry. The attenuators can also be tested by having the oscilloscope mainframe perform an Enhanced Accuracy calibration. To use this method, press the Enhanced Accuracy button on the front panel of the mainframe oscilloscope. Although the Enhanced Accuracy calibration does not comprehensively test the attenuators, if the calibration takes place successfully the attenuators used in the Enhanced Accuracy calibration function correctly. Enhanced Accuracy calibration does not check the trigger path. If Enhanced Accuracy calibration does not run successfully, individual attenuators may be tested with the Atten Gain tests in the Ch. 1 Cal., Ch. 2 Cal, etc., group(s).

Front-Panel Board(s) and LEDs

You can use either of the following two methods to check Front-Panel Board(s) and LEDs:

1. With plug-in unit installed and mainframe turned on, press each plug-in display on/off button.

   If button-presses cause a) the associated CH n light to come on and a trace to appear on the crt, and b) the trace to disappear and the CH n light to go off, the Front-Panel Board and the LEDs are working correctly.

2. Run diagnostic test CCDumper. If the instrument passes the test the Front-Panel Board and LEDs are working correctly.

Latch Testing

The walking-one's test (Group I: Walk Ones) can be run to check the operation of the instrument's latches. A test oscilloscope or logic analyzer must be used to confirm that the latches function correctly.

Seneschal IC, Nonvolatile RAM, and ROM

Explain Cal for 11A32, 11A34, or 11A52

If a plug-in unit fails the Attenuator Gain, Amplifier Gain, Balance, BandWidth Limit Gain, or Gain test(s), you can request Explain Cal. To select Explain Cal, select Group III, then touch b. ExplainCal.

Explain Cal will present the following two four-bit nibbles for the last executed test that failed:

Address	Expected
h i j k	W X Y Z

The meanings of the k, Z, j, and Y characters in the Address and Expected nibbles are as follows:

Last Test Executed	**Meaning**
Attengain	"k" encodes the index of the attenuator with the most negative (i.e., lowest) gain error. "z" encodes the index of the attenuator with the most positive (i.e., highest) gain error. k or z — Attenuator Range Ø — X1 1 — X1Ø 2 — X1ØØ
Ampgain	"k" encodes the index of the M377 gain range with the lowest gain-error. "z" encodes the index of the M377 gain range with the highest gain-error. k or z — M377 Range Ø — 1 mV/div 1 — 2 mV/div 2 — 5 mV/div 3 — 1Ø mV/div 4 — 2Ø mV/div 5 — 5Ø mV/div

Test	Meaning
Balance	"k" encodes the index of the M377 gain range with the lowest (most negative) imbalance. "z" encodes the index of the M377 gain range with the highest (most positive) imbalance.
BWLgain	"k" encodes the index of the bandwidth limit (BWL) range that has the lowest BWL gain error. "z" encodes the index of the BWL range that has the highest BWL gain error. k or z — BWL Range Ø — 2Ø MHz 1 — 1ØØ MHz 2 — Full
Gain	"k" encodes the index of the lowest bandwidth limit (BWL) gain error. "z" encodes the index of the highest BWL gain error. k or z — BWL Range Ø — 2Ø MHz 1 — 1ØØ MHz 2 — Full "j" encodes the index of the lowest gain-error gain range of the plug-in unit. "y" encodes the index of the highest gain-error gain range of the plug-in unit. j or y — Gain Range Ø — 1 mV/division 1 — 2 mV/division 2 — 5 mV/division 3 — 1Ø mV/division 4 — 2Ø mV/division 5 — 5Ø mV/division 6 — 1ØØ mV/division 7 — 2ØØ mV/division

REPLACEABLE ELECTRICAL 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.

LIST OF ASSEMBLIES

A list of assemblies can be found at the beginning of the Electrical Parts List. The assemblies are listed in numerical order. When the complete component number of a part is known, this list will identify the assembly in which the part is located.

CROSS INDEX-MFR. CODE NUMBER TO MANUFACTURER

The Mfr. Code Number to Manufacturer index for the Electrical Parts List is located immediately after this page. The Cross Index provides codes, names and addresses of manufacturers of components listed in the Electrical Parts List.

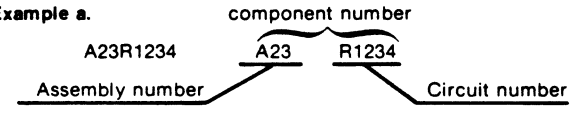
ABBREVIATIONS

Abbreviations conform to American National Standard Y1.1.

COMPONENT NUMBER (column one of the Electrical Parts List)

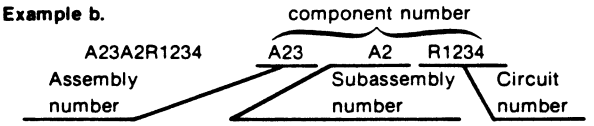
A numbering method has been used to identify assemblies, subassemblies and parts. Examples of this numbering method and typical expansions are illustrated by the following:

Example a.



Read: Resistor 1234 of Assembly 23

Example b.



Read: Resistor 1234 of Subassembly 2 of Assembly 23

Only the circuit number will appear on the diagrams and circuit board illustrations. Each diagram and circuit board illustration is clearly marked with the assembly number. Assembly numbers are also marked on the mechanical exploded views located in the Mechanical Parts List. The component number is obtained by adding the assembly number prefix to the circuit number.

The Electrical Parts List is divided and arranged by assemblies in numerical sequence (e.g., assembly A1 with its subassemblies and parts, precedes assembly A2 with its subassemblies and parts).

Chassis-mounted parts have no assembly number prefix and are located at the end of the Electrical Parts List.

TEKTRONIX PART NO. (column two of the Electrical Parts List)

Indicates part number to be used when ordering replacement part from Tektronix.

SERIAL/MODEL NO. (columns three and four of the Electrical Parts List)

Column three (3) indicates the serial number at which the part was first used. Column four (4) indicates the serial number at which the part was removed. No serial number entered indicates part is good for all serial numbers.

NAME & DESCRIPTION (column five of the Electrical Parts List)

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.

MFR. CODE (column six of the Electrical Parts List)

Indicates the code number of the actual manufacturer of the part. (Code to name and address cross reference can be found immediately after this page.)

MFR. PART NUMBER (column seven of the Electrical Parts List)

Indicates actual manufacturers part number.

CROSS INDEX - MFR. CODE NUMBER TO MANUFACTURER

Mfr. Code	Manufacturer	Address	City, State, Zip Code
01295	TEXAS INSTRUMENTS INC SEMICONDUCTOR GROUP	13500 N CENTRAL EXPRESSWAY P O BOX 225012 M/S 49	DALLAS TX 75265
02735	RCA CORP SOLID STATE DIVISION	ROUTE 202	SOMERVILLE NJ 08876
03508	GENERAL ELECTRIC CO SEMI-CONDUCTOR PRODUCTS DEPT	W GENESEE ST	AUBURN NY 13021
04222	AVX CERAMICS DIV OF AVX CORP	19TH AVE SOUTH P O BOX 867	MYRTLE BEACH SC 29577
04713	MOTOROLA INC SEMICONDUCTOR GROUP	5005 E MCDOWELL RD	PHOENIX AZ 85008
05828	GENERAL INSTRUMENT CORP GOVERNMENT SYSTEMS DIV	600 W JOHN ST	HICKSVILLE NY 11802
09922	BURNDY CORP	RICHARDS AVE	NORWALK CT 06852
14552	MICRO/SEMICONDUCTOR CORP	2830 S FAIRVIEW ST	SANTA ANA CA 92704
15636	ELEC-TROL INC	26477 N GOLDEN VALLEY RD	SAUGUS CA 91350
19613	MINNESOTA MINING AND MFG CO TEXTOOL PRODUCTS DEPT ELECTRONIC PRODUCT DIV	1410 E PIONEER DR	IRVING TX 75061
22526	DU PONT E I DE NEMOURS AND CO INC DU PONT CONNECTOR SYSTEMS	30 HUNTER LANE	CAMP HILL PA 17011
24355	ANALOG DEVICES INC	RT 1 INDUSTRIAL PK P O BOX 280	NORWOOD MA 02062
50434	HEWLETT-PACKARD CO OPTOELECTRONICS DIV	640 PAGE MILL RD	PALO ALTO CA 94304
54473	MATSUSHITA ELECTRIC CORP OF AMERICA	ONE PANASONIC WAY	SECAUCUS NJ 07094
55680	NICHICON /AMERICA/ CORP	927 E STATE PKY	SCHAUMBURG IL 60195
57668	ROHM CORP	16931 MILLIKEN AVE	IRVINE CA 92713
60705	CERA-MITE CORPORATION	1327 6TH AVE	GRAFTON WI 53024
75042	TRW INC TRW ELECTRONIC COMPONENTS IRC FIXED RESISTORS PHILADELPHIA DIV	401 N BROAD ST	PHILADELPHIA PA 19108
75915	LITTELFUSE INC	800 E NORTHWEST HWY	DES PLAINES IL 60016
80009	TEKTRONIX INC	4900 S W GRIFFITH DR P O BOX 500	BEAVERTON OR 97077
91637	DALE ELECTRONICS INC	P O BOX 609	COLUMBUS NE 68601
TK1450	TOKYO COSMOS ELECTRIC CO LTD	2-268 SOBUDAI ZAMA	KANAGAWA 228 JAPAN

Component No.	Tektronix Part No.	Serial/Assembly No. Effective	Dscont	Name & Description	Mfr. Code	Mfr. Part No.
A1	670-8977-00			CIRCUIT BD ASSY:MAIN	80009	670-8977-00
A2	670-9336-00			CIRCUIT BD ASSY:FRONT PANEL (NO REPLACEABLE SUBPARTS)	80009	670-9336-00
A1	670-8977-00			CIRCUIT BD ASSY:MAIN	80009	670-8977-00
A1A1	670-8986-00			CIRCUIT BD ASSY:SAMPLE/HOLD	80009	670-8986-00
A1C115	290-1157-00			CAP,FXD,ELCTLT:220UF,20%,25DVC	80009	290-1157-00
A1C210	281-0921-00			CAP,FXD,CER DI:0.68UF,+80-20%,25V	80009	281-0921-00
A1C220	290-1157-00			CAP,FXD,ELCTLT:220UF,20%,25DVC	80009	290-1157-00
A1C225	290-1157-00			CAP,FXD,ELCTLT:220UF,20%,25DVC	80009	290-1157-00
A1C310	290-1157-00			CAP,FXD,ELCTLT:220UF,20%,25DVC	80009	290-1157-00
A1C312	283-0028-00			CAP,FXD,CER DI:0.0022UF,20%,50V	80009	283-0028-00
A1C340	290-1157-00			CAP,FXD,ELCTLT:220UF,20%,25DVC	80009	290-1157-00
A1C341	290-1157-00			CAP,FXD,ELCTLT:220UF,20%,25DVC	80009	290-1157-00
A1C420	283-0028-00			CAP,FXD,CER DI:0.0022UF,20%,50V	80009	283-0028-00
A1C520	281-0921-00			CAP,FXD,CER DI:0.68UF,+80-20%,25V	80009	281-0921-00
A1C540	290-0943-01			CAP,FXD,ELCTLT:47UF,20%,25V	55680	ULB1E470MPAANA1T
A1C600	281-0775-00			CAP,FXD,CER DI:0.1UF,20%,50V	04222	MA205E104MAA
A1C630	281-0775-00			CAP,FXD,CER DI:0.1UF,20%,50V	04222	MA205E104MAA
A1C631	281-0775-00			CAP,FXD,CER DI:0.1UF,20%,50V	04222	MA205E104MAA
A1C632	281-0775-00			CAP,FXD,CER DI:0.1UF,20%,50V	04222	MA205E104MAA
A1C730	290-1157-00			CAP,FXD,ELCTLT:220UF,20%,25DVC	80009	290-1157-00
A1C739	283-0028-00			CAP,FXD,CER DI:0.0022UF,20%,50V	80009	283-0028-00
A1C740	290-0778-00			CAP,FXD,ELCTLT:1UF,+50 -10%,50V,NPLZD	54473	ECE-A50N1
A1C820	281-0563-00			CAP,FXD,CER DI:0.47UF,20%,50V	04222	MA405E474MAA
A1C840	281-0775-00			CAP,FXD,CER DI:0.1UF,20%,50V	04222	MA205E104MAA
A1C901	281-0775-00			CAP,FXD,CER DI:0.1UF,20%,50V	04222	MA205E104MAA
A1C909	290-1157-00			CAP,FXD,ELCTLT:220UF,20%,25DVC	80009	290-1157-00
A1C912	290-1157-00			CAP,FXD,ELCTLT:220UF,20%,25DVC	80009	290-1157-00
A1C913	290-1157-00			CAP,FXD,ELCTLT:220UF,20%,25DVC	80009	290-1157-00
A1C914	290-1157-00			CAP,FXD,ELCTLT:220UF,20%,25DVC	80009	290-1157-00
A1C940	281-0775-00			CAP,FXD,CER DI:0.1UF,20%,50V	04222	MA205E104MAA
A1C1001	290-1157-00			CAP,FXD,ELCTLT:220UF,20%,25DVC	80009	290-1157-00
A1C1015	290-0778-00			CAP,FXD,ELCTLT:1UF,+50 -10%,50V,NPLZD	54473	ECE-A50N1
A1C1021	290-0943-01			CAP,FXD,ELCTLT:47UF,20%,25V	55680	ULB1E470MPAANA1T
A1CR240	152-0581-00			SEMICOND DVC,DI:RECT,SI,20V,1A,A59	04713	1N5817
A1CR340	152-0581-00			SEMICOND DVC,DI:RECT,SI,20V,1A,A59	04713	1N5817
A1CR440	152-0581-00			SEMICOND DVC,DI:RECT,SI,20V,1A,A59	04713	1N5817
A1CR510	152-0141-02			SEMICOND DVC,DI:SM,SI,30V,150MA,30V	03508	DA2527 (1N4152)
A1CR511	152-0141-02			SEMICOND DVC,DI:SM,SI,30V,150MA,30V	03508	DA2527 (1N4152)
A1CR512	152-0141-02			SEMICOND DVC,DI:SM,SI,30V,150MA,30V	03508	DA2527 (1N4152)
A1CR513	152-0141-02			SEMICOND DVC,DI:SM,SI,30V,150MA,30V	03508	DA2527 (1N4152)
A1CR514	152-0141-02			SEMICOND DVC,DI:SM,SI,30V,150MA,30V	03508	DA2527 (1N4152)
A1CR515	152-0141-02			SEMICOND DVC,DI:SM,SI,30V,150MA,30V	03508	DA2527 (1N4152)
A1CR516	152-0141-02			SEMICOND DVC,DI:SM,SI,30V,150MA,30V	03508	DA2527 (1N4152)
A1CR517	152-0141-02			SEMICOND DVC,DI:SM,SI,30V,150MA,30V	03508	DA2527 (1N4152)
A1CR518	152-0141-02			SEMICOND DVC,DI:SM,SI,30V,150MA,30V	03508	DA2527 (1N4152)
A1CR519	152-0141-02			SEMICOND DVC,DI:SM,SI,30V,150MA,30V	03508	DA2527 (1N4152)
A1CR540	152-0581-00			SEMICOND DVC,DI:RECT,SI,20V,1A,A59	04713	1N5817
A1CR640	152-0581-00			SEMICOND DVC,DI:RECT,SI,20V,1A,A59	04713	1N5817
A1CR831	152-0141-02			SEMICOND DVC,DI:SM,SI,30V,150MA,30V	03508	DA2527 (1N4152)
A1CR832	152-0141-02			SEMICOND DVC,DI:SM,SI,30V,150MA,30V	03508	DA2527 (1N4152)
A1CR833	152-0141-02			SEMICOND DVC,DI:SM,SI,30V,150MA,30V	03508	DA2527 (1N4152)
A1CR834	152-0141-02			SEMICOND DVC,DI:SM,SI,30V,150MA,30V	03508	DA2527 (1N4152)
A1CR840	152-0141-02			SEMICOND DVC,DI:SM,SI,30V,150MA,30V	03508	DA2527 (1N4152)
A1CR841	152-0141-02			SEMICOND DVC,DI:SM,SI,30V,150MA,30V	03508	DA2527 (1N4152)

Component No.	Tektronix Part No.	Serial/Assembly No. Effective	Dscont	Name & Description	Mfr. Code	Mfr. Part No.
A1CR900	152-0066-00			SEMICOND DVC,DI:RECT,SI,400V,1A,DO-41	05828	GP10G-020
A1CR920	152-0322-00			SEMICOND DVC,DI:SCHOTTKY BARRIER,SI,15V	50434	5082-2672
A1F1001	159-0253-00			FUSE,CARTRIDGE:0.250A,125V,FAST,SUBMIN	75915	251.250 T & R T1
A1F1002	159-0235-00			FUSE,WIRE LEAD:0.75A,125V,FAST	80009	159-0235-00
A1F1003	159-0235-00			FUSE,WIRE LEAD:0.75A,125V,FAST	80009	159-0235-00
A1F1004	159-0253-00			FUSE,CARTRIDGE:0.250A,125V,FAST,SUBMIN	75915	251.250 T & R T1
A1J210	131-1003-00			CONN,RCPT,ELEC:CKT BD MT,3 PRONG	80009	131-1003-00
A1J521	131-1003-00			CONN,RCPT,ELEC:CKT BD MT,3 PRONG	80009	131-1003-00
A1J611	131-0608-00			TERMINAL,PIN:0.365 L X 0.025 BRZ GLD PL (QUANTITY OF 3)	22526	48283-036
A1J740	131-0608-00			TERMINAL,PIN:0.365 L X 0.025 BRZ GLD PL (QUANTITY OF 3)	22526	48283-036
A1J1131	131-0608-00			TERMINAL,PIN:0.365 L X 0.025 BRZ GLD PL (QUANTITY OF 5)	22526	48283-036
A1K840	148-0086-00			RELAY,REED:FORM C,100MA,100VDC,150 OHM	15636	R8149-1
A1L115	108-1315-00			COIL,RF:FXD,440NH,+/-10%	80009	108-1315-00
A1L116	108-1315-00			COIL,RF:FXD,440NH,+/-10%	80009	108-1315-00
A1L117	108-1315-00			COIL,RF:FXD,440NH,+/-10%	80009	108-1315-00
A1L125	108-1315-00			COIL,RF:FXD,440NH,+/-10%	80009	108-1315-00
A1L130	108-1315-00			COIL,RF:FXD,440NH,+/-10%	80009	108-1315-00
A1L131	108-1315-00			COIL,RF:FXD,440NH,+/-10%	80009	108-1315-00
A1L210	108-1354-00			COIL,RF:FXD,3.3UH,10%	80009	108-1354-00
A1L220	108-1315-00			COIL,RF:FXD,440NH,+/-10%	80009	108-1315-00
A1L240	108-1315-00			COIL,RF:FXD,440NH,+/-10%	80009	108-1315-00
A1L530	108-1354-00			COIL,RF:FXD,3.3UH,10%	80009	108-1354-00
A1L911	108-1315-00			COIL,RF:FXD,440NH,+/-10%	80009	108-1315-00
A1L912	108-1315-00			COIL,RF:FXD,440NH,+/-10%	80009	108-1315-00
A1L913	108-1315-00			COIL,RF:FXD,440NH,+/-10%	80009	108-1315-00
A1L914	108-1315-00			COIL,RF:FXD,440NH,+/-10%	80009	108-1315-00
A1L1141	108-1354-00			COIL,RF:FXD,3.3UH,10%	80009	108-1354-00
A1LR210	108-0408-00			COIL,RF:FIXED,100NH	80009	108-0408-00
A1LR521	108-0408-00			COIL,RF:FIXED,100NH	80009	108-0408-00
A1Q1021	151-0736-00			TRANSISTOR:NPN,SI,TO-92	80009	151-0736-00
A1Q1023	151-1059-00			TRANSISTOR:FET,N-CHAN,TO-106	04713	ORDER BY DESCR
A1Q1025	151-0736-00			TRANSISTOR:NPN,SI,TO-92	80009	151-0736-00
A1Q1027	151-0188-00			TRANSISTOR:PNP,SI,TO-92	80009	151-0188-00
A1R104	313-1101-00			RES,FXD,FILM:100 OHM,5%,0.2W	57668	TR20JE100E
A1R105	313-1101-00			RES,FXD,FILM:100 OHM,5%,0.2W	57668	TR20JE100E
A1R106	313-1101-00			RES,FXD,FILM:100 OHM,5%,0.2W	57668	TR20JE100E
A1R115	313-1103-00			RES,FXD,FILM:10K OHM,5%,0.2W	57668	TR20JE10K0
A1R130	313-1101-00			RES,FXD,FILM:100 OHM,5%,0.2W	57668	TR20JE100E
A1R131	313-1101-00			RES,FXD,FILM:100 OHM,5%,0.2W	57668	TR20JE100E
A1R310	321-0097-00			RES,FXD,FILM:100 OHM,1%,0.125W,TC=T0	91637	CMF55116G100R0F
A1R311	321-0097-00			RES,FXD,FILM:100 OHM,1%,0.125W,TC=T0	91637	CMF55116G100R0F
A1R312	321-0097-00			RES,FXD,FILM:100 OHM,1%,0.125W,TC=T0	91637	CMF55116G100R0F
A1R410	321-0097-00			RES,FXD,FILM:100 OHM,1%,0.125W,TC=T0	91637	CMF55116G100R0F
A1R620	322-3318-00			RES,FXD,FILM:20K OHM,1%,0.2W,TC=T0	57668	CRB20 FXE 20K0
A1R625	322-3244-00			RES,FXD,FILM:3.4K OHM,1%,0.2W,TC=T0	57668	CRB20 FXE 3K40
A1R629	322-3193-00			RES,FXD,FILM:1K OHM,1%,0.2W,TC=T0	57668	CRB20 FXE 1K00
A1R630	322-3039-00			RES,FXD,FILM:24.9 OHM,1%,0.2W,TC=T0	57668	CRB20 FXE 24E9
A1R631	322-3048-00			RES,FXD,FILM:30.9 OHM,1%,0.2W,TC=T0	57668	CRB20FXE20K0
A1R632	322-3048-00			RES,FXD,FILM:30.9 OHM,1%,0.2W,TC=T0	57668	CRB20FXE20K0
A1R633	322-3166-00			RES,FXD,FILM:523 OHM,1%,0.2W,TC=T0	80009	322-3166-00
A1R634	322-3166-00			RES,FXD,FILM:523 OHM,1%,0.2W,TC=T0	80009	322-3166-00
A1R635	322-3175-00			RES,FXD,FILM:649 OHM,1%,0.2W,TC=T0	57668	CRB20 FXE 649E
A1R636	322-3050-00			RES,FXD,FILM:32.4 OHM,1%,0.2W,TC=T0	80009	322-3050-00
A1R637	322-3318-00			RES,FXD,FILM:20K OHM,1%,0.2W,TC=T0	57668	CRB20 FXE 20K0
A1R638	322-3318-00			RES,FXD,FILM:20K OHM,1%,0.2W,TC=T0	57668	CRB20 FXE 20K0
A1R640	322-3164-00			RES,FXD,FILM:499 OHM,1%,0.2W,TC=T0	57668	CRB20 FXE 499E

Component No.	Tektronix Part No.	Serial/Assembly No. Effective	Dscont	Name & Description	Mfr. Code	Mfr. Part No.
A1R641	322-3289-00			RES,FXD,FILM:10K OHM,1%,0.2W,TC=T0	57668	CRB20 FXE 10K0
A1R642	322-3289-00			RES,FXD,FILM:10K OHM,1%,0.2W,TC=T0	57668	CRB20 FXE 10K0
A1R643	322-3164-00			RES,FXD,FILM:499 OHM,1%,0.2W,TC=T0	57668	CRB20 FXE 499E
A1R644	322-3175-00			RES,FXD,FILM:649 OHM,1%,0.2W,TC=T0	57668	CRB20 FXE 649E
A1R645	322-3050-00			RES,FXD,FILM:32.4 OHM,1%,0.2W,TC=T0	80009	322-3050-00
A1R646	322-3166-00			RES,FXD,FILM:523 OHM,1%,0.2W,TC=T0	80009	322-3166-00
A1R647	322-3166-00			RES,FXD,FILM:523 OHM,1%,0.2W,TC=T0	80009	322-3166-00
A1R739	322-3164-00			RES,FXD,FILM:499 OHM,1%,0.2W,TC=T0	57668	CRB20 FXE 499E
A1R740	313-1102-00			RES,FXD,FILM:1K OHM,5%,0.2W	57668	TR20JE01K0
A1R741	322-3318-00			RES,FXD,FILM:20K OHM,1%,0.2W,TC=T0	57668	CRB20 FXE 20K0
A1R820	313-1102-00			RES,FXD,FILM:1K OHM,5%,0.2W	57668	TR20JE01K0
A1R840	313-1103-00			RES,FXD,FILM:10K OHM,5%,0.2W	57668	TR20JE10K0
A1R841	313-1472-00			RES,FXD,FILM:4.7K OHM,5%,0.2W	57668	TR20JE 04K7
A1R845	322-3193-00			RES,FXD,FILM:1K OHM,1%,0.2W,TC=T0	57668	CRB20 FXE 1K00
A1R847	322-3193-00			RES,FXD,FILM:1K OHM,1%,0.2W,TC=T0	57668	CRB20 FXE 1K00
A1R901	313-1103-00			RES,FXD,FILM:10K OHM,5%,0.2W	57668	TR20JE10K0
A1R902	313-1204-00			RES,FXD,FILM:200K,5%,0.2W	57668	TR20JE 200K
A1R920	322-3373-00			RES,FXD,FILM:75K OHM,1%,0.2W,TC=T0	80009	322-3373-00
A1R921	322-3373-00			RES,FXD,FILM:75K OHM,1%,0.2W,TC=T0	80009	322-3373-00
A1R925	322-3430-00			RES,FXD,FILM:294K OHM,1%,0.2W,TC=T0	80009	322-3430-00
A1R1001	313-1102-00			RES,FXD,FILM:1K OHM,5%,0.2W	57668	TR20JE01K0
A1R1002	322-3220-00			RES,FXD,FILM:1.91K OHM,1%,0.2W,TC=T0	80009	322-3220-00
A1R1003	322-3220-00			RES,FXD,FILM:1.91K OHM,1%,0.2W,TC=T0	80009	322-3220-00
A1R1005	313-1102-00			RES,FXD,FILM:1K OHM,5%,0.2W	57668	TR20JE01K0
A1R1007	313-1102-00			RES,FXD,FILM:1K OHM,5%,0.2W	57668	TR20JE01K0
A1R1009	313-1821-00			RES,FXD,FILM:820 OHM,5%,0.2W	57668	TR20JE 820E
A1R1011	313-1102-00			RES,FXD,FILM:1K OHM,5%,0.2W	57668	TR20JE01K0
A1R1015	311-2234-00			RES,VAR,NONWW:TRMR,5K OHM,20%,0.5W	TK1450	GF06UT 5K
A1R1021	313-1102-00			RES,FXD,FILM:1K OHM,5%,0.2W	57668	TR20JE01K0
A1R1023	313-1104-00			RES,FXD,FILM:100K OHM,5%,0.2W	57668	TR20JE100K
A1R1025	311-2234-00			RES,VAR,NONWW:TRMR,5K OHM,20%,0.5W	TK1450	GF06UT 5K
A1R1031	322-0051-00			RES,FXD,FILM:33.2 OHM,1%,0.25W,TC=T0	75042	CEBT0-33R20F
A1R1033	322-0051-00			RES,FXD,FILM:33.2 OHM,1%,0.25W,TC=T0	75042	CEBT0-33R20F
A1R1035	322-3385-00			RES,FXD,FILM:100K OHM,1%,0.2W,TC=T0	57668	CRB20 FXE 100K
A1R1037	322-3385-00			RES,FXD,FILM:100K OHM,1%,0.2W,TC=T0	57668	CRB20 FXE 100K
A1R1039	322-3385-00			RES,FXD,FILM:100K OHM,1%,0.2W,TC=T0	57668	CRB20 FXE 100K
A1R1041	322-3385-00			RES,FXD,FILM:100K OHM,1%,0.2W,TC=T0	57668	CRB20 FXE 100K
A1TP118	131-0608-00			TERMINAL,PIN:0.365 L X 0.025 BRZ GLD PL	22526	48283-036
A1TP600	131-0608-00			TERMINAL,PIN:0.365 L X 0.025 BRZ GLD PL	22526	48283-036
A1TP601	131-0608-00			TERMINAL,PIN:0.365 L X 0.025 BRZ GLD PL	22526	48283-036
A1TP602	131-0608-00			TERMINAL,PIN:0.365 L X 0.025 BRZ GLD PL	22526	48283-036
A1TP603	131-0608-00			TERMINAL,PIN:0.365 L X 0.025 BRZ GLD PL	22526	48283-036
A1TP604	131-0608-00			TERMINAL,PIN:0.365 L X 0.025 BRZ GLD PL	22526	48283-036
A1TP605	131-0608-00			TERMINAL,PIN:0.365 L X 0.025 BRZ GLD PL	22526	48283-036
A1TP606	131-0608-00			TERMINAL,PIN:0.365 L X 0.025 BRZ GLD PL	22526	48283-036
A1TP607	131-0608-00			TERMINAL,PIN:0.365 L X 0.025 BRZ GLD PL	22526	48283-036
A1TP608	131-0608-00			TERMINAL,PIN:0.365 L X 0.025 BRZ GLD PL	22526	48283-036
A1TP1005	131-0608-00			TERMINAL,PIN:0.365 L X 0.025 BRZ GLD PL	22526	48283-036
A1U310	165-2089-01			MICROCKT,LINEAR:VERT PL-IN AMPLIFIER,100 OHM	80009	165-2089-01
A1U410	165-2089-01			MICROCKT,LINEAR:VERT PL-IN AMPLIFIER,100 OHM	80009	165-2089-01
A1U600	156-2625-00			MICROCKT,DGTL:NMOS,CUSTOM,SENESCHAL	80009	156-2625-00
A1U630	156-2459-00			MICROCKT,LINEAR:12 BIT D TO A CONVERTER	24355	AD667JN/+
A1U641	156-2668-00			MICROCKT,DGTL:CMOS,ANALOG SW,DUAL SPDT	80009	156-2668-00
A1U700	156-2962-00			MICROCKT,DGTL:NMOS,MICROCOMPUTER,8 BIT W/ SOCKET,EPROM	80009	156-2962-00
A1U700	160-4009-0(			MICROCKT,DGTL:HMOS,16384 X 8 EPROM,PRGM (U700A)	80009	160-4009-00

Component No.	Tektronix Part No.	Serial/Assembly No. Effective	Dscont	Name & Description	Mfr. Code	Mfr. Part No.
A1U800	156-2134-00			MICROCKT,DGTL:CMOS,OCTAL D-TYPE TRANSPARENT LATCH	02735	CD74HCT373E
A1U801	156-2671-00			MICROCKT,DGTL:CMOS,2048 X 8 SRAM MDL W/ INTEGRAL BATTERY DS1220,24	80009	156-2671-00
A1U820	156-2134-00			MICROCKT,DGTL:CMOS,OCTAL D-TYPE TRANSPARENT LATCH	02735	CD74HCT373E
A1U821	156-0913-02			MICROCKT,DGTL:OCTAL D FF W/ENABLE,SCRN	01295	SN74LS377NP3
A1U831	156-0724-02			MICROCKT,DGTL:HEX INV W/OC OUT,SCRN,	01295	SN74LS05NP3
A1U841	156-2396-00			MICROCKT,DGTL:RESET GENERATOR,5V SUPPLY	01295	TL7705 ACP
A1U921	156-2670-00			MICROCKT,INTFC:RELAY DRVR,8 OUTPUT,SERIAL INPUT W/LATCHES	80009	156-2670-00
A1U931	156-2670-00			MICROCKT,INTFC:RELAY DRVR,8 OUTPUT,SERIAL INPUT W/LATCHES	80009	156-2670-00
A1U941	156-2455-00			MICROCKT,LINEAR:8 BIT A/D PERIPHERALS W/ SERIAL CONTROL & 11 INPUTS,SCRN	01295	TLC541IN3
A1U947	156-2670-00			MICROCKT,INTFC:RELAY DRVR,8 OUTPUT,SERIAL INPUT W/LATCHES	80009	156-2670-00
A1VR831	152-0175-00			SEMICOND DVC,DI:ZEN,SI,5.6V,5%,0.4W,DO-7	14552	TD3810976
A1VR841	152-0175-00			SEMICOND DVC,DI:ZEN,SI,5.6V,5%,0.4W,DO-7	14552	TD3810976
A1VR845	152-0175-00			SEMICOND DVC,DI:ZEN,SI,5.6V,5%,0.4W,DO-7	14552	TD3810976
A1VR925	152-0195-00			SEMICOND DVC,DI:ZEN,SI,5.1V,5%,0.4W,DO-7	04713	SZ11755RL
A1VR931	152-0175-00			SEMICOND DVC,DI:ZEN,SI,5.6V,5%,0.4W,DO-7	14552	TD3810976
A1VR933	152-0175-00			SEMICOND DVC,DI:ZEN,SI,5.6V,5%,0.4W,DO-7	14552	TD3810976
A1VR935	152-0175-00			SEMICOND DVC,DI:ZEN,SI,5.6V,5%,0.4W,DO-7	14552	TD3810976
A1X600	136-0813-00			SKT,PL-IN ELEK:CHIP CARRIER,68 CONTACTS	19613	268-5400-00-1102
A1X700	136-0757-00			SKT,PL-IN ELEK:MICROCIRCUIT,40 DIP	09922	DILB40P-108
A1Y640	119-2395-00			RESONATOR,CER:12MHZ,CMOS,5%	80009	119-2395-00
A2	670-9336-00			CIRCUIT BD ASSY:FRONT PANEL (NO REPLACEABLE SUBPARTS)	80009	670-9336-00

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

"	INCH
#	NUMBER SIZE
ACTR	ACTUATOR
ADPTR	ADAPTER
ALIGN	ALIGNMENT
AL	ALUMINUM
ASSEM	ASSEMBLED
ASSY	ASSEMBLY
ATTEN	ATTENUATOR
AWG	AMERICAN WIRE GAGE
BD	BOARD
BRKT	BRACKET
BRS	BRASS
BRZ	BRONZE
BSHG	BUSHING
CAB	CABINET
CAP	CAPACITOR
CER	CERAMIC
CHAS	CHASSIS
CKT	CIRCUIT
COMP	COMPOSITION
CONN	CONNECTOR
COV	COVER
CPLG	COUPLING
CRT	CATHODE RAY TUBE
DEG	DEGREE
DWR	DRAWER
ELCTRN	ELECTRON
ELEC	ELECTRICAL
ELCTLT	ELECTROLYTIC
ELEM	ELEMENT
EPL	ELECTRICAL PARTS LIST
EQPT	EQUIPMENT
EXT	EXTERNAL
FIL	FILLISTER HEAD
FLEX	FLEXIBLE
FLH	FLAT HEAD
FLTR	FILTER
FR	FRAME or FRONT
FSTNR	FASTENER
FT	FOOT
FXD	FIXED
GSKT	GASKET
HDL	HANDLE
HEX	HEXAGON
HEX HD	HEXAGONAL HEAD
HEX SOC	HEXAGONAL SOCKET
HLCPS	HELICAL COMPRESSION
HLEXT	HELICAL EXTENSION
HV	HIGH VOLTAGE
IC	INTEGRATED CIRCUIT
ID	INSIDE DIAMETER
IDENT	IDENTIFICATION
IMPLR	IMPELLER
IN	INCH
INCAND	INCANDESCENT
INSUL	INSULATOR
INTL	INTERNAL
LPHLDR	LAMPHOLDER
MACH	MACHINE
MECH	MECHANICAL
MTG	MOUNTING
NIP	NIPPLE
NON WIRE	NOT WIRE WOUND
OBD	ORDER BY DESCRIPTION
OD	OUTSIDE DIAMETER
OVH	OVAL HEAD
PH BRZ	PHOSPHOR BRONZE
PL	PLAIN or PLATE
PLSTC	PLASTIC
PN	PART NUMBER
PNH	PAN HEAD
PWR	POWER
RCPT	RECEPTACLE
RES	RESISTOR
RGD	RIGID
RLF	RELIEF
RTNR	RETAINER
SCH	SOCKET HEAD
SCOPE	OSCILLOSCOPE
SCR	SCREW
SE	SINGLE END
SECT	SECTION
SEMICOND	SEMICONDUCTOR
SHLD	SHIELD
SHLDR	SHOULDERED
SKT	SOCKET
SL	SLIDE
SLFLKG	SELF-LOCKING
SLVG	SLEEVING
SPR	SPRING
SQ	SQUARE
SST	STAINLESS STEEL
STL	STEEL
SW	SWITCH
T	TUBE
TERM	TERMINAL
THD	THREAD
THK	THICK
TNSN	TENSION
TPG	TAPPING
TRH	TRUSS HEAD
V	VOLTAGE
VAR	VARIABLE
W/	WITH
WSHR	WASHER
XFMR	TRANSFORMER
XSTR	TRANSISTOR

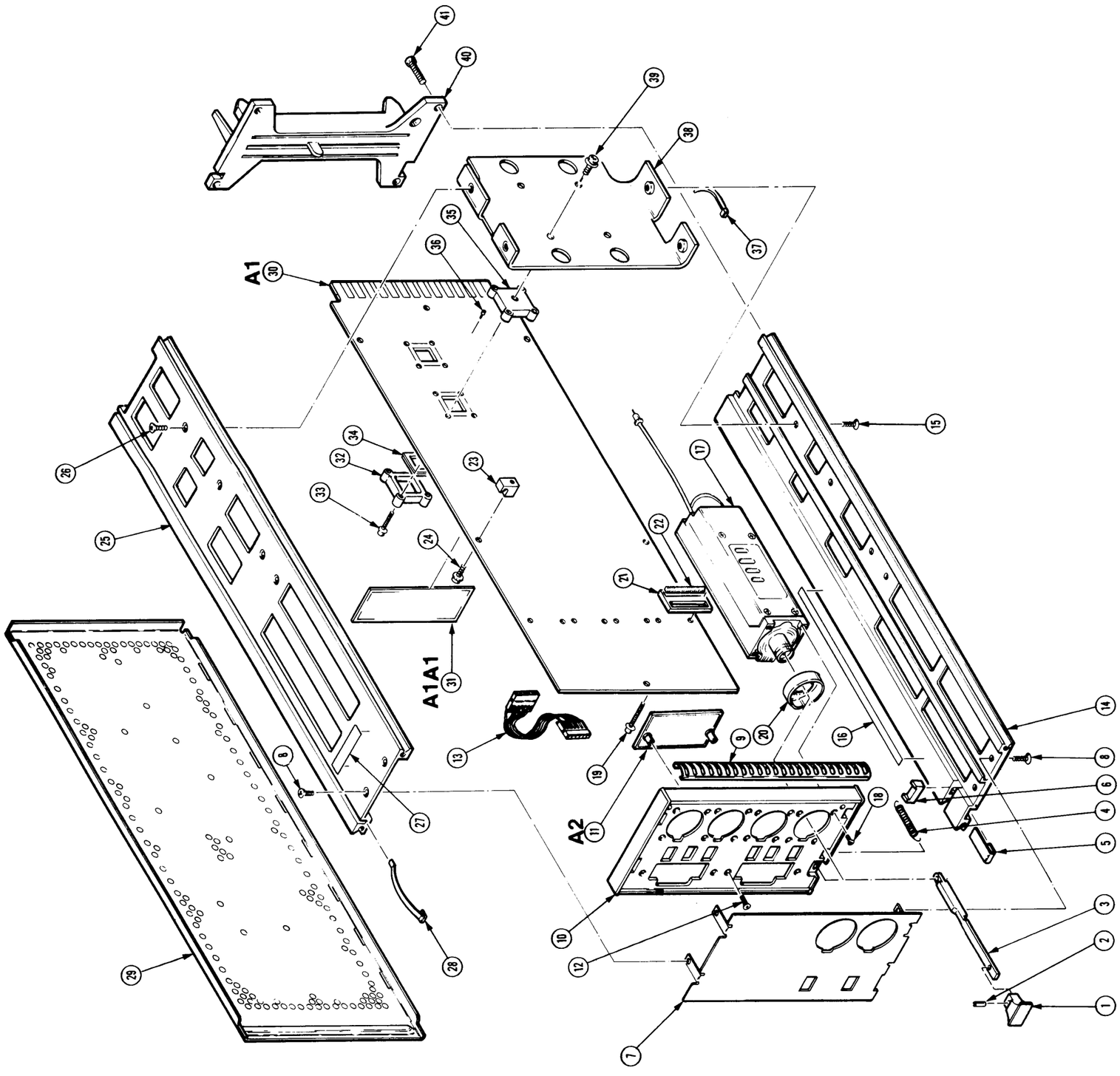
CROSS INDEX - MFR. CODE NUMBER TO MANUFACTURER

Mfr. Code	Manufacturer	Address	City, State, Zip Code
01536	TEXTRON INC CAMCAR DIV SEMS PRODUCTS UNIT	1818 CHRISTINA ST	ROCKFORD IL 61108
06383	PANDUIT CORP	17301 RIDGELAND	TINLEY PARK IL 60477
22526	DU PONT E I DE NEMOURS AND CO INC DU PONT CONNECTOR SYSTEMS	30 HUNTER LANE	CAMP HILL PA 17011
22599	AMERACE CORP ESNA DIV	15201 BURBANK BLVD SUITE C	VAN NUYS CA 91411
80009	TEKTRONIX INC	4900 S W GRIFFITH DR P O BOX 500	BEAVERTON OR 97077
83385	MICRODOT MANUFACTURING INC GREER-CENTRAL DIV	3221 W BIG BEAVER RD	TROY MI 48098
TK1918	SHIN-ETSU POLYMER AMERICA INC	1181 NORTH 4TH ST	SAN JOSE CA 95112

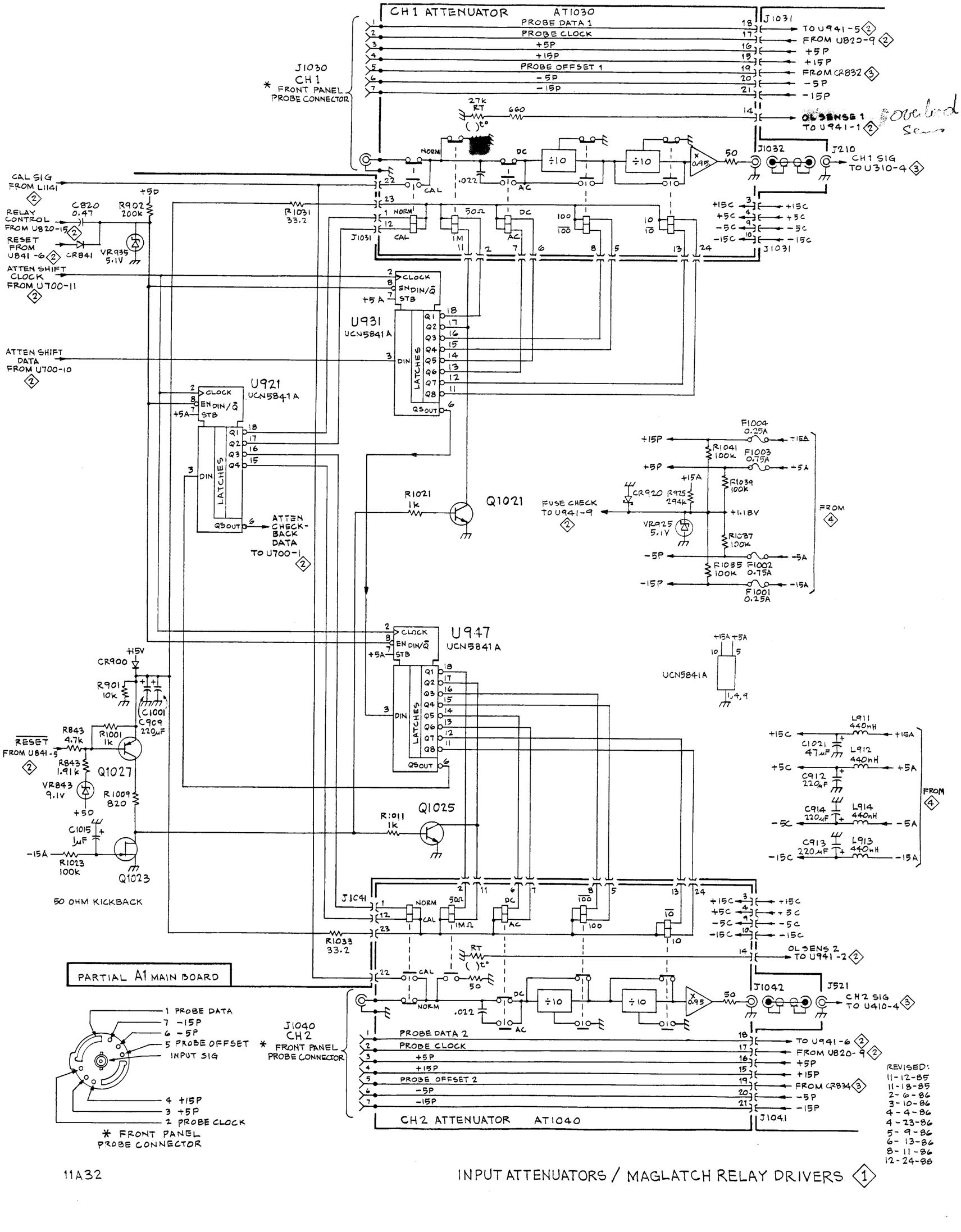
Fig. & Index No.	Tektronix Part No.	Serial/Assembly No. Effective	Dscont	Qty	12345 Name & Description	Mfr. Code	Mfr. Part No.
1-1	366-1058-00			1	KNOB:GRAY,0.625 X 0.255 X 0.485	80009	366-1058-00
					(ATTACHING PARTS)		
-2	214-1095-00			1	PIN,SPRING:0.187 L X 0.094 OD,STL,CD PL	22599	52-022-094-0187
					(END ATTACHING PARTS)		
-3	105-0076-04			1	RELEASE BAR,LCH:PLUG-IN UNIT	80009	105-0076-04
-4	214-1280-00			1	SPRING,HLCPS:0.14 OD X 1.126 L,TWIST LOOP	80009	214-1280-00
-5	214-1054-00			1	SPRING,FLAT:0.825 X 0.322,SST	80009	214-1054-00
-6	105-0075-00			1	BOLT,LATCH:	80009	105-0075-00
-7	333-3207-00			1	PANEL,FRONT:	80009	333-3207-00
					(ATTACHING PARTS)		
-8	211-0392-00			4	SCREW,MACHINE:4-40 X 0.25,FLH,82 DEG,STL	80009	211-0392-00
					(END ATTACHING PARTS)		
-9	348-0235-00			2	SHLD GSKT,ELEK:FINGER TYPE,4.734 L	92101	ORDER BY DESCR
-10	386-5219-00			1	SUBPANEL,FRONT:	80009	386-5219-00
-11	----- -----			1	CIRCUIT BD ASSY:FRONT PANEL		
					(SEE A2 REPL)		
					(ATTACHING PARTS)		
-12	211-0390-00			2	SCREW,MACHINE:2-56 X 0.188,FH,STL CD PL	80009	211-0390-00
					(END ATTACHING PARTS)		
-13	174-0159-00			1	CA ASSY,SP,ELEC:6,26 AWG,3.0 L,RIBBON	80009	174-0159-00
-14	426-2061-00			1	FR SECT,PLUG-IN:LOWER,ALUMINUM	80009	426-2061-00
					(ATTACHING PARTS)		
-15	211-0392-00			2	SCREW,MACHINE:4-40 X 0.25,FLH,82 DEG,STL	80009	211-0392-00
					(END ATTACHING PARTS)		
-16	334-3540-00			1	MARKER,IDENT:MARKED WARNING	80009	334-3540-00
-17	119-2000-00			2	ATENUATOR:ACTIVELY TRIMMED NOVAR ATTENUATOR	80009	119-2000-00
					& BUFFER AMPLIFIER		
					(ATTACHING PARTS)		
-18	211-0390-00			8	SCREW,MACHINE:2-56 X 0.188,FH,STL CD PL	80009	211-0390-00
-19	211-0391-00			4	SCREW,MACHINE:2-56 X 0.437,P4,STL CD PL	80009	211-0391-00
					(END ATTACHING PARTS)		
-20	354-0654-00			2	RING,CONN ALIGN:BNC	80009	354-0654-00
-21	352-0780-00			2	HOLDER,CNDCT:ELASTOMERIC	80009	352-0780-00
-22	131-3383-01			4	CONN ASSY,ELEC:ELASTOMERIC,3.8MM X 3.0MM X	TK1918	.4PX24X3.8X3.0
					24.0MM,0.4MM L CONTACT PT		
-23	220-0022-00			5	NUT BLOCK:0.4 X 0.25 X 0.33,4-40 THRU,NI	80009	220-0022-00
					(ATTACHING PARTS)		
-24	211-0304-00			5	SCR,ASSEM WSHR:4-40 X 0.312,PNH,STL,T9 TORX	01536	ORDER BY DESCR
					(END ATTACHING PARTS)		
-25	426-2060-00			1	FR SECT,PLUG-IN:UPPER,ALUMINUMN	80009	426-2060-00
					(ATTACHING PARTS)		
-26	211-0392-00			2	SCREW,MACHINE:4-40 X 0.25,FLH,82 DEG,STL	80009	211-0392-00
					(END ATTACHING PARTS)		
-27	334-3438-00			1	MARKER,IDENT:MARKED TURN OFF POWER	80009	334-3438-00
-28	214-1061-00			1	CONTACT,ELEC:GROUNDING,CU BE	80009	214-1061-00
-29	337-1064-12			2	SHIELD,ELEC:SIDE FOR PLUG-IN UNIT	80009	337-1064-12
-30	----- -----			1	CIRCUIT BD ASSY:MAIN		
					(SEE A1 REPL)		
-31	----- -----			1	.CIRCUIT BD ASSY:SAMPLE/HOLD		
					.(SEE A1A1 REPL)		
-32	426-1337-00			2	.FRAME,MICROCKT:1.22 CM	80009	426-1337-00
					.(ATTACHING PARTS)		
-33	211-0391-00			8	.SCREW,MACHINE:2-56 X 0.437,P4,STL CD PL	80009	211-0391-00
					.(END ATTACHING PARTS)		
-34	131-3511-00			2	.CONTACT,ELEC:1.22 CM FLAT HYPCON	80009	131-3511-00
-35	214-3785-00			1	.HEAT SINK,ELEC:ALUMINUM	80009	214-3785-00
-36	136-0252-07			2	.SOCKET,PIN CONN:W/O DIMPLE	22526	75060-012
-37	343-0549-00			1	STRAP,TIEDOWN,E:0.091 W X 4.0 L,ZYTEL	06383	PLT1M
-38	407-3363-00			1	BRACKET,HEAT SK:ALUMINUM	80009	407-3363-00
					(ATTACHING PARTS)		
-39	211-0711-00			2	SCR,ASSEM WSHR:6-32 X 0.25,PNH,STL,TORX	01536	ORDER BY DESCR
					(END ATTACHING PARTS)		
-40	386-5296-00			1	PANEL,REAR:	80009	386-5296-00
					(ATTACHING PARTS)		
-41	213-0904-00			4	SCREW,TPG,TR:6-32 X 0.5,PNH,STL	83385	ORDER BY DESCR
					(END ATTACHING PARTS)		

Fig. & Index No.	Tektronix Part No.	Serial/Assembly No. Effective	Dscont	Qty	12345	Name & Description	Mfr. Code	Mfr. Part No.
1-						STANDARD ACCESSORIES		
	070-5922-00			1		MANUAL,TECH:USERS,11A32	80009	070-5922-00
						OPTIONAL ACCESSORIES		
	070-6115-00			1		MANUAL,TECH:SERVICE,11A32	80009	070-6115-00

FIG. 1 EXPLODED VIEW



11A32



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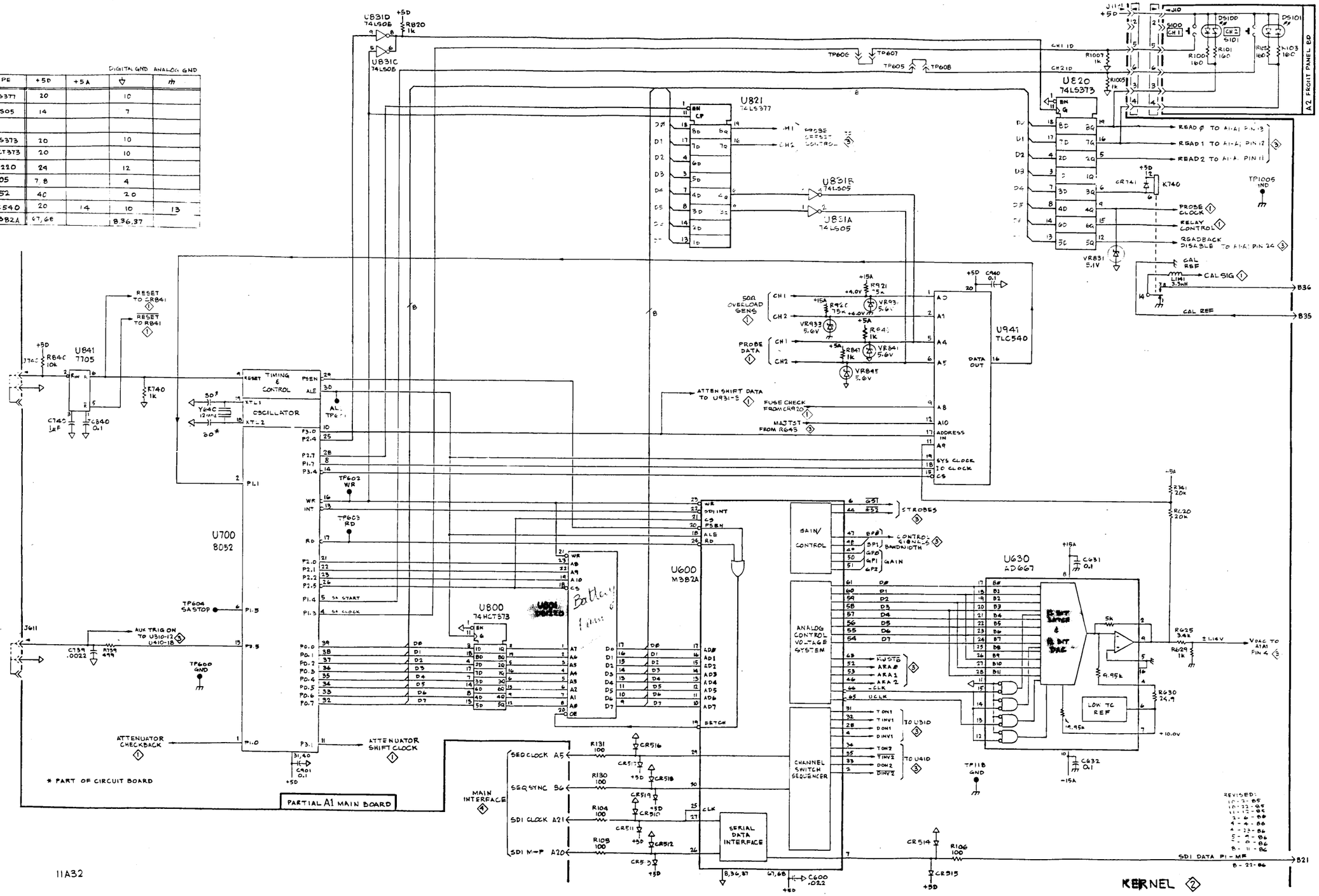
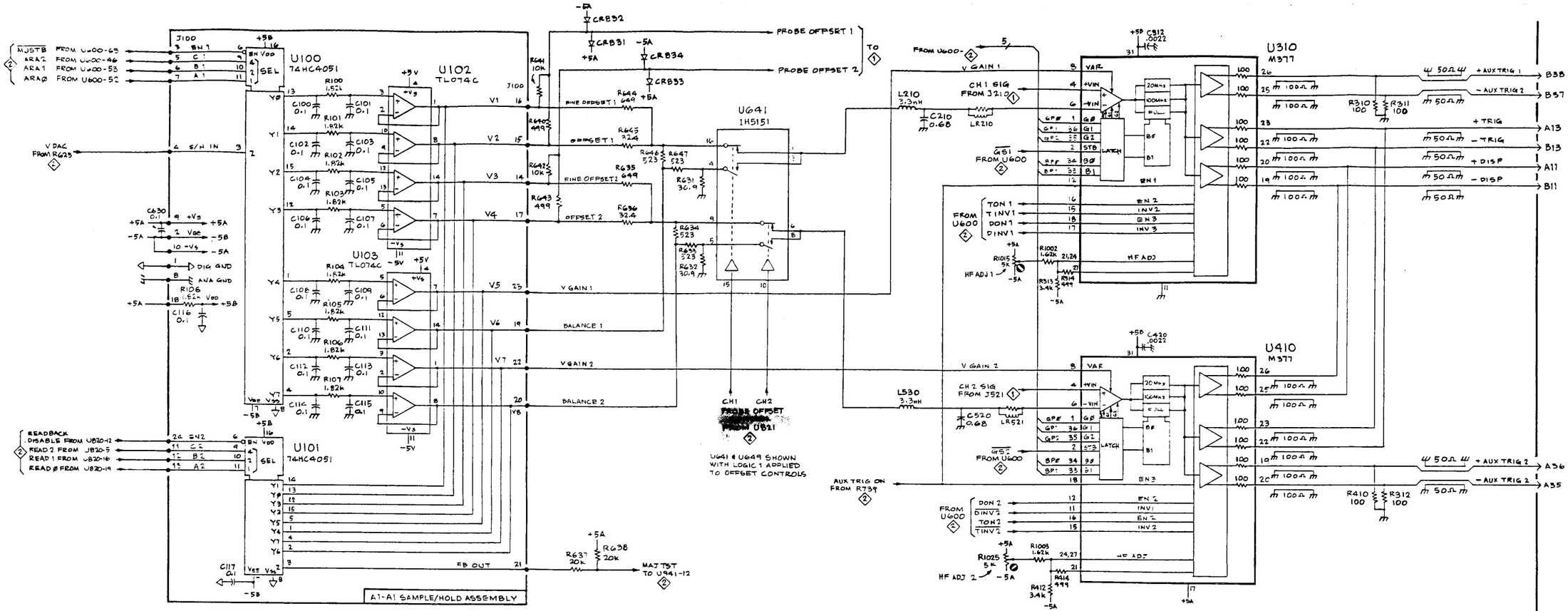
INPUT ATTENUATORS / MAGLATCH RELAY DRIVERS (1)

TYPE	+5D	+5A	DIGITAL GND ⏚	ANALOG GND ⏥
74LS377	20		10	
74LS05	14		7	
74LS373	20		10	
74HCT373	20		10	
DS1220	24		12	
7705	7, 8		4	
8052	40		20	
TLC540	20	14	10	13
M3B2A	67, 68		8, 36, 37	





TYPE	+15A	+5B	+5D	AGND	DGND	-5B	-15A	+15B
IH5151	11		12		13		14	
M377		14		7,13,28, 29,30,5		9,10,32		3

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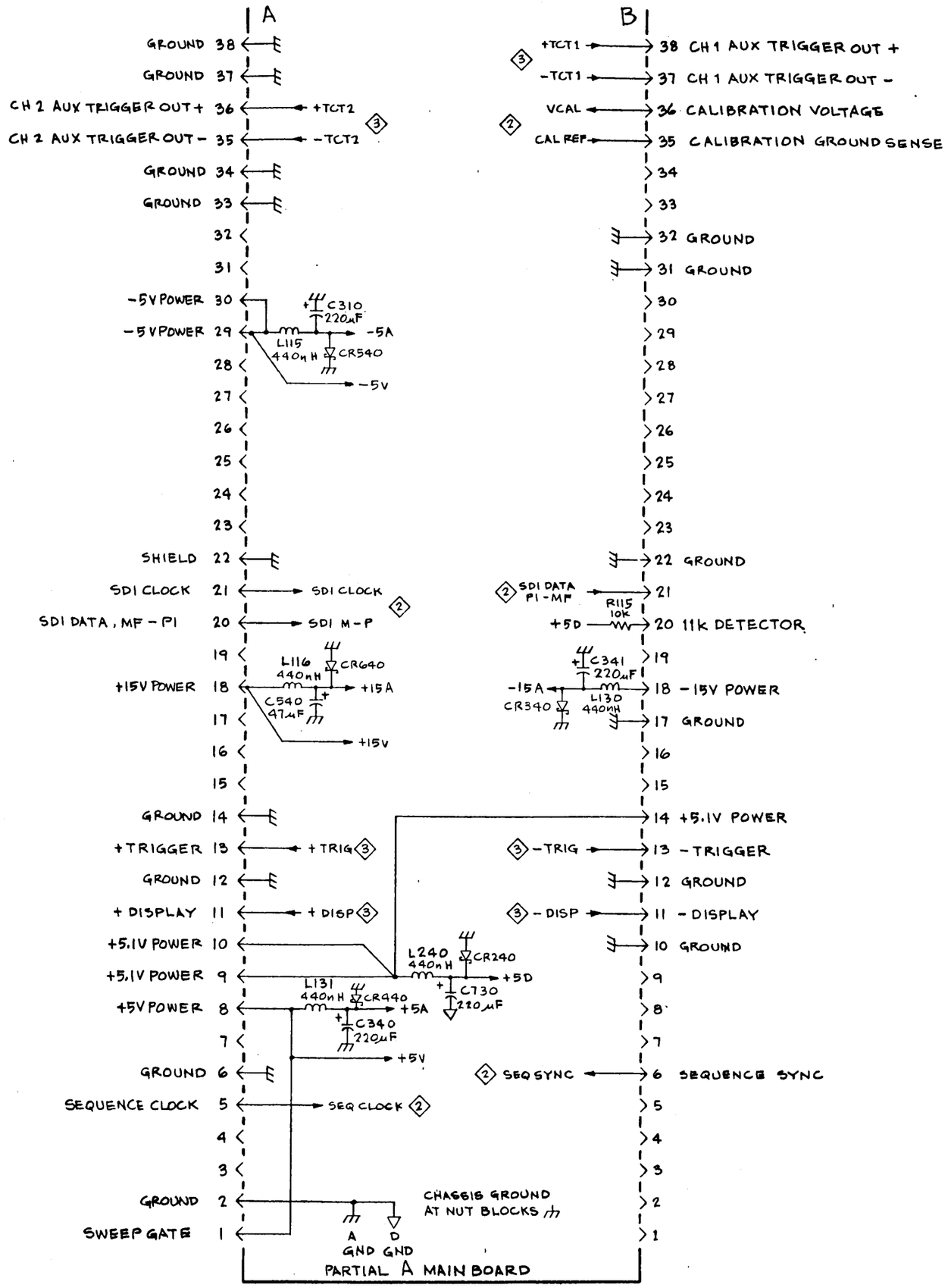
ANALOG CONTROL / SIGNAL AMPLIFERS 3

10-2-85 A.C. RL.
10-9-85
10-17-85
10-23-85
11-12-85
1-23-86
2-6-86
4-6-86
4-23-86
6-12-86



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MAIN INTERFACE 4

10-28-85
3-10-86
4-23-86
5-9-86
6-12-86
8-11-86